

Rockland Plaza

Rockland Plaza - Winners New Fit Up

December 16, 2024

ADDENDUM 01

3613

Addendum 1



2024-12-17

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Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SEALS

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 PRODUCT AND INSTALLATION REQUIREMENTS

- .1 00 30 00.0 - General Requirements - TJX
- .2 00 30 00.1 - Required Vendors
- .3 00 30 00.2 - Vendor Installs
- .4 00 30 00.3 - Specialty Items Supply / Install

1.2 APPENDICES

- .1 TJX Cut Sheets
 - .1 Air Curtain
 - .2 Automatic Door Sliders
 - .3 BS Fan
 - .4 Garbage Compactor
 - .5 Crown Wallpaper (Order References)
 - .6 Entrance Flooring
 - .7 Keyboard Tray
 - .8 Frankline Empire
 - .9 Plumbing
 - .10 Plumbing (Renovations)
 - .11 Security Film
 - .12 Signage
 - .13 Floor Loading Requirements (Racking Layouts)
 - .14 Slatwall Details
 - .15 Valence Instructions
- .16 TJX SECTION 16701 - Signal Communication Wire & Cables

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SUMMARY

- .1 Title and Description of Work:
- .2 Contract CCDC2: Build Stipulated Price Contract.
- .3 Owner's Occupancy: upon Completion of the Contract.

1.2 CASH ALLOWANCES

- .1 Refer to CC20 - CASH ALLOWANCES.
- .2 Cash allowances, unless specified otherwise, cover the net cost to the Contractor for services, Products, construction machinery and equipment, freight, handling, unloading, storage, installation and other authorized expenses incurred in performing the Work.
- .3 The Contract Price, and not the Cash Allowance, includes the Contractor's overhead and profit in connection with such Cash Allowance.

1.3 GENERAL

- .1 Co-ordinate progress of the Work, progress schedules, submittals, use of the site, temporary utilities, construction facilities and controls.

1.4 CUTTING & PATCHING

- .1 Approvals: Submit written request in advance of cutting or alteration which affects the following:
 - .1 Structural integrity of any element of the project,
 - .2 Integrity of weather-exposed or moisture-resistant elements,
 - .3 Efficiency, maintenance, or safety of any operational element,
 - .4 Visual qualities of sight-exposed elements, or
 - .5 Work of Owner or separate contractor.

1.5 INSPECTION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of work.
- .3 Beginning of cutting and patching means acceptance of existing conditions.

1.6 EXECUTION

- .1 Perform cutting, fitting, and patching including excavation and fill, to complete the Work.
- .2 Remove and replace defective and non-conforming work.
- .3 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical work. Cutting and patching to roof elements may only be performed with the prior written approval of the Owner and only with the Owner's roofing contractor present.
- .4 Perform work to avoid damage to other work.
- .5 Prepare surfaces to receive patching and finishing.
- .6 Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.

- .7 Cut rigid materials using power saw or core drill. Pneumatic or impact tools not allowed.
- .8 Restore work with new products in accordance with Contract Documents.
- .9 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .10 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.
- .11 Refinish surfaces to match adjacent finishes; for continuous surfaces refinish to nearest intersection. For an assembly, refinish entire unit.

1.7 PROJECT MEETINGS

- .1 Schedule and administer project meetings throughout the progress of the Work.
- .2 Distribute written notice of each meeting four days in advance of meeting date to Consultant and TJX CANADA.
- .3 Provide physical space and make arrangements for meetings.
- .4 Record the minutes. Include significant proceedings and decisions. Identify parties requiring action in right column of minute page; attach submittal log to the back of minutes for distribution.
- .5 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance, the Consultant and TJX CANADA.

1.8 WORK SEQUENCE

- .1

1.1 CONSTRUCTION SCHEDULE (See 01 32 16.1 Construction Progress Schedule - Bar (GANTT) Chart)	1. Provide to TJX CANADA a Construction Schedule identifying Start and Finish Dates (including any pertinent milestone dates).
	2. Provide an actual Progress of Work on a weekly basis.
1.2 MATERIAL / FIXTURE DELIVERY AND STORAGE (See 01 61 00 Common Product Requirements)	1. Accept deliveries of wall panel, perimeter light valence, and millwork for G.C.'s installation. Materials shall be carefully checked unloaded, stored and handled to prevent damage. Protect materials with suitable non-staining waterproof covering.
	2. TJX CANADA to be notified immediately of any short shipments.
1.3 METERING & UTILITIES	1. Landlord to provide Separate meters for each utility or there will be a "Check Meter".
	2. Landlord is responsible for water, sewer, gas, electricity, heat, air conditioning and other utilities until Possession/Commencement Date; upon acceptance of possession utilities shall be transferred to TJX CANADA.
	3. All meters are to be in place, pay deposits as required prior to possession / commencement date.
1.4 DIMENSIONS	1. Check and verify dimensions wherever referring to work. Dimensions, when pertaining to work of another section, shall be verified with Section concerned. Details and measurements of work which is to fit or conform to work installed shall be taken at site.
	2. Do not scale drawings. If there is ambiguity, lack of information or inconsistency, immediately consult TJX CANADA Representative and Architect for Directions. The General Contractor will be responsible for extra costs involved through the disregarding of this notice.
1.5 MAINTENANCE MATERIALS (See 01 78 00 Close-Out Submittals)	The following spare materials are required for maintenance purposes. A signature is required from a TJX CANADA Representative to confirm receipt. If no signature is obtained and materials have gone missing, the contractor is responsible to replace the missing materials at no charge. These materials are to be on site, situated in the Utility Room, for Possession Day.
	1. Provide two (2) full boxes of each floor tile. Ensure vinyl floor tile is adequately packaged. Identify each box and store where directed.
	2. Provide one (1) full box of each type of ceramic tile, flooring and walls. Ensure extra tiles are adequately packaged and labelled. Store where directed.
	3. Provide one (1) gallon of each type of paint used within the store (to be new, unopened, unused gallons).
	4. Provide two (2) full boxes of acoustical ceiling tiles of each pattern and type required for project.

.2

PART B – POSSESSION DAY	
2.1 ASSIGNED VENDOR FIXTURING STARTS HERE	1. Provide one (1) copy of the Building Permits.
	2. Provide one (1) hard copy of the Occupancy Permit to TJX CANADA Project manager.

3. Provide one (1) CD including AutoCAD and PDF formats (to be completed by Landlord and/or General Contractor and sent to TJX CANADA Head Office within 30 days of possession date.)
4. Provide one (1) copy of the mechanical air balancing report.
5. Provide one (1) copy of the list of trades complete with contacts and phone numbers. One set to remain on site at the store; the second set is to be forwarded to TJX CANADA Project manager.
6. Provide one (1) hard copy and CD with soft copy of the warranties and manuals. To be forwarded to TJX CANADA Project manager.
7. Provide certification from the architect and engineers that the new construction is built in accordance with all their drawings and specifications.
8. Provide copy of Fire Alarm Verification.
9. Contractor representative is to meet TJX CANADA Project manager or representative to ensure completeness of store.
10. Ensure that ALL exterior door hardware including proper Detex units Best Cylinders and construction cores are provided on all exterior doors. Should ANY hardware be missing at the time of possession, the site shall be deemed unsecured and security guard(s) shall be arranged to monitor the site until the hardware is installed and TJX Canada Key Cores are installed. All costs associated with the security monitoring shall be the sole responsibility of the Landlord and Contractor. This procedure shall be emphatically enforced without exception.
11. Final hook-up of all exterior signage by G.C. no later than two days after signage has been installed.
Provide proper instructions to Store Management for Fire Panel and emergency lighting (i.e. how to re-set etc.), location of Electrical Room etc., electrical and mechanical components (including automatic doors).
NOTE:
These items shall be emphatically enforced without exception. It is our intent to avoid unnecessary stress on the store associates caused by an excessive number of trades working in the store during the fixture period. It is in the best interest of all involved that completion of deficiencies be undertaken in a diligent and expedient manner.

.3

PART C – AFTER POSSESSION DATE	
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2.2 POSSESSION AND FIXTURING PERIOD GUIDELINE	1. Any deficiencies will have to be completed during TJX CANADA fixturing period (two weeks) any time after that then all deficiencies will be completed after regular business hours. Security Guard monitoring shall be arranged to ensure the security of the site. All costs associated with the security monitoring shall be the sole responsibility of the Landlord and Contractor.
	2. Anyone entering the store must sign in each night at the entry log located at the main entrance to the store.
	3. Anyone exiting the store must sign out (if leaving for the day or for an extended period of time).
	4. All bags, toolboxes, etc., must be inspected by the Store Manager or Security Guard prior to exiting the store.
	5. All personnel must enter and exit through the front main entrance of the store. No other doors may be used as an entrance or exit as all other doors shall be locked and Detex units shall be armed.
	6. An exterior door can only be opened by the Security guard or TJX CANADA's representative. Contractors are to bring tools and materials through the front door wherever possible. Minimal access to the rear loading dock area will be allowed for larger items. A security guard or manager must be present when this door is open. Constant annoyance by trade's people asking to enter and exit through the doors shall not be tolerated. Minimize all trips for tools and materials.
	7. A security guard shall be arranged to monitor the work at the sole responsibility (and cost) of the Landlord/contractor.
	8. Smoking is not allowed within the store. Smoking shall only be allowed outside the building or in a designated area within a mall.
	9. Any contractors or subcontractors not acting in a courteous and business like manner shall be removed from the store and shall not be allowed to return.
	10. All trades people are to work in a clean manner. DO NOT leave any tools, garbage, etc., lying around the store. Excess materials, garbage, etc., must be removed from the site. The trade's person must clean the area of work prior to moving on to the next area of work. Any labour by TJX CANADA associates to clean after trades people shall be charged back to the Landlord and Contractor.
2.3 FINAL CLEANING REQUIREMENTS (See 01 74 00)	1. Seal and wax floors immediately prior to Sales Floor Fixture installation. Please refer to Section 09 65 00 Resilient Flooring.
	2. Replace glass and mirrors that have been broken damaged and/or etched during construction.
	3. Clean, dust and wash all wallpaper, millwork, wall panels, glazing, ceramic floor etc.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

.1

Section	Item	G.C. Function	Contact
05 50 00 (Metal Fabrications)	<u>Floor /Wall Bumpers</u>	G.C. To Order.	Company: Boston Group Contact: Frank QuartaroneE: F.Quartarone@Boston—Group.ComT: (978)—376—4489 <u>Alternate Supplier</u> Company: Gallery Metal Works \ Easy Queue Public GuidanceContact: Sam ScangaE: Sam@Gallerymetalworks.ComT: (905)—795—0808
05 50 00 (Bollards In Metal Fabrications)	<u>Bollard Covers</u>	G.C. To Order.	Company: Sureguard Security Products T: (519) 772—1976 F: (519) 570—4333 Toll Free: 1 (800) 756—3537
05 50 00 (Corrals In Metal Fabrications)	<u>Cart Corrals</u>	G.C. To Order.	Company: Gallery Metal Works Conta Ct: Sam Scanga E: Sam@Gallerymetalworks.Com T: (905) 795—0808 Alternate Company: Turnstile Security Systems Contact: Michelle Lustig E: Michelle@Turnstilesecurity.Com T: (519) 833—9494
05 50 00 (Metals)	<u>Floor And Corner Protection</u>	G.C. To Order.	Company: Turnstile Security Systems Contact: Michelle Lustig E: Michelle@Turnstilesecurity.Com T: (519) 833—9494
07 24 50	<u>Eifs</u>	G.C. To Order.	Company: Dryvit Contact: Joseph Amodio E: Jamodio@Rogers.Com T: (647) 961—2752
07 42 13.23	<u>Exterior Metal Panels</u>	G.C. To Order.	Company: Cladco Contact: Neil Ferdowski E: Sales@Cladco.Com T: (905) 336—1219 X 102 Contact: Rina Manzano (Sales And Estimating) E: Rina.Manzano@Cladco.Com T: (905) 336—1219 X 104 Company: Architectural Metals North America (Amna) Contact: Ivan Jeremic E: Ivan@Amna.Ca T: (905) 664—4400 X 37
08 30 00	<u>Warehouse Doors</u>	G.C. To Order.	Company: Chase Doors (Senneca Holdings) Contact: Bruce Nakamura E: Bnakamura@Senneca.Com T: (800) 543—4455 Or (416) 588—1038

<u>08 32 00</u>	<u>Automatic Doors</u>	G.C. To Order.	Company: Stanley Doors Contact: Justin Hyman E: Justin.Hyman@Sbdinc. Com T (Local Direct): (289) 290—71 51 T (Cell): (416) 889—2290
<u>08 36</u> <u>13.16</u>	<u>Receiving Door</u>	G.C. To Order.	Company: Wayne— Dalton Contact: Stephen Tomson E: Stephen Tomson@Wayne—Dalton.Com T: (647) 201—2549
<u>08 71 00</u>	<u>Magnetic Hold Op en</u>	G.C. To Order.	Company: Dormakaba Contact: Gerry Adkin E: Gerry. Atkin@Dormakaba. Com T: (289) 688—3149
<u>08 71 00</u> (Hardware)	<u>Door Signage</u>	G.C. To Order.	Company: Signaids Contact: Rob Brooker: Robignuids.Com T: (905) 521—8360
<u>08 71 00</u>	<u>Door Hardware</u>	Preferred Vendor For Door Hardware Along With Preferred Costing And Quick Ship On Some Hardware.	Company: Edwards Door Systems Limited Contact: Brian Crombee N E: Bcrombeen@Edwardsdoors. Com T: (519) 521 —9580 Contact: Stephanie Samadio E: Samadion Edwardsdoors.Com T: (519) 521—9588
<u>09 21 16</u> (Mesh In Gypsum Assemblies)	<u>Security Mesh</u>	G.C. To Order.	Company: Dramex Contact: Alexandra Repa E: Arepa@Gibraltar1.Com T: (905) 335—4474 Or (2b9) 313—2231
<u>09 30 13</u>	<u>Ceramic Tile</u>	G.C. To Order.	Company: Olympia Tile Contact: Deanna Maloney E: Deanna.M@Olympiatile.Com T: (416) 785—9555
<u>09 65 00</u>	<u>Vct Flooring</u>	G.C. To Order.	Company: Armstrong Contact: Julia Olsen E: Jolsen@Armstrongflooring.Com T: (647)—236—6398
<u>09 65 00</u>	<u>LVT</u>	G.C. To Order.	Company: Mannington Contact: Kim Tulk E: Kim. Tulk@Mannington. Com T: (647) 456—7767
<u>09 72 13</u>	<u>Cork Wall Panels</u>	G.C. To Order.	Company: Jelinek Contact: Josh Smith E: Jjs@Jelinek. Com T: (905) 827 4666 Ext. 136

<u>09 72 16</u>	<u>Vinyl Wall Covering</u>	G.C. To Order — Minimum Of 6 Weeks Prior To On — Site Date. Crown Order Form In TJX Canada Specificatons. G.C. To Provide Lin. Yd. Requirements For Each Type Of Vinyl. G.C. To Off— Load From Truck & Install. Allow 10 Days For Shipping.	Contact: Rose SantoE: Rsanto@Crownsurfacesolutions.ComT: (416) 245—2900 X 3039Contact: Andrea BartonE: Abarton@Crownsurfacesolutions.ComT: (41 6) 245—2900 X 3047
<u>09 91 00</u> (Exterior) <u>09 91 23</u> (Interior)	<u>Paint</u>	G.C. To Order.	Company: Sherwin Williams Contact: Dean Givelas E: Dean.Givelas@Sherwinwilliams.Com T: (416) 432—6975 Company: Benjamin Moore Contact: Gloria Rinaldi E: Gloria.Rinaldi88enjaminmoore.Com T: (416) 428—6461
<u>10 28 00</u>	<u>Toilet Paper Dispenser</u>	G.C. To Order.	Company: Imperial Home HardwareContact: Dean JensenE: Dean@Mperialhardy/Are.Com T: (416) 783—6119
<u>10 28 00</u>	<u>Soap Dispenser</u>	G.C. To Order.	Company: Imperial Home Hardware Contact: Dean Jensen E: Dean@Imperialhardware.Com T: (416) 783—6119
<u>10 28 00</u>	<u>Washroom Faucet And Hand Dryer</u>	G.C. To Order.	Ontario (East On Tario) Company: Noble Contact: Todd Spencer T: (613) 384—9436
<u>10 Division</u> (Miscellaneous) <u>10 28 00</u> (Toilet-Bath Accessories)	<u>Interior Store Display Fitting Rooms + Public Facing Mill work</u>	G.C. Required To Order From ISD: Fitting Room Components, Partitions, Framed Mirrors, Coat Hooks and Handicap Fitting Room Bench As Per Drawings And Specifications. Allow 4—6 Weeks For Delivery.	Contact: Carry Aldworth E: Carry@Interiorstoredisplay. Com T: (519) 895—0532 Contact: Peter Schulze E: Peter@Interiorstoredisplay.Com T: (519) 895—0532

<u>11 13</u> <u>19.13</u>	<u>Dock</u> <u>Leveler / Wheel</u> <u>Chocks / Dock</u> <u>Equipment</u>	G.C. To Order.	Company: Blue Giant Contact: David Rimmer E: Drimmer@Bluegiant.Com T: (647)— 501— 3126
<u>11 82 26</u>	<u>Garbage Compactor</u> (Supplied For Contact Only)	G.C. To Order.	Company: Automatic Compactors Contact: Pat Aversa E: Paversa@Automaticcomp Actors. Com T: (866)— 335—5501
<u>12 24 13</u>	<u>Window Blinds</u>	G.C. To Order.	Company: Designer Shades Interior Contact: David Gotfried E: Dg@Designershades. Com T: (416) 410— 8552
<u>12 48</u> <u>13.13</u>	<u>Vestibule Foot Grille</u>	G.C. To Order.	Company: C/S "Construction Specialties" Company Contact: Shawndell Gibson E: Sgibson@C— Sgroup.Com T: 905 274 3611 X 3736
<u>15 90 00</u>	<u>Novar</u>	G.C. To Order.	Company: Standard Mechanical Contact: Bill Keates E: Bill@Standardmechanical.Com T: Office (905) 625—9772 Cell (416) 578—5298
<u>15</u> <u>Division</u> (See Mechanic al)	<u>HVAC Roof</u> <u>Top Units</u>	G.C. To Order.	Company: Lennox Canada Con Tact: Jason Barrett E: Jason.Barrett@Lennoxind.Com T: (416) 568—6732 General Inquiries E: Canadana@Lennoxind.Com
<u>16</u> <u>Division</u>	<u>Lighting</u>	G.C. To Order.	Company: Franklin Empire Contact: Greg Peech E: Gregpeech@R0gers.Com T: Office (416) 248— 0176 Cell (416) 524— 7810
<u>16</u> <u>Division</u> (Electrical)	<u>Cart Locking Syste</u> <u>m</u>	G.C. To Coordinate on— Site Work For Installation Of Cart Locking System.	Company: Gatekeeper Contact: Bales And Support E: Canadasales Gatekeepersystems.Com T: 1 (888) 525—3564 Tjx Support Contact: David Wieder, Business Development Officer E: Dwieder@Gatekeepersystems.Com T: (416) 844—4617 F. (416) 798—1978
<u>16</u> <u>Division</u> (Electrical)	<u>Security LF</u>	G.C. To Order.	Company: Access Protection Security Solutions Contact: Robert Brideau E: Robert@Accessprotection1. Com T: 514-694- 6810 Or 514-616-2900
<u>16</u> <u>Division</u> (Electrical)	<u>Security</u> <u>Pedestals</u>	G.C. To Order.	Company: Checkpoint Contact: Wanda Leung E: Wanda.Leung@Checkpoint Systems.Com T: 1 (800) 661—1 515

<u>16</u> <u>Division</u> (Electrical)	<u>Wiremold</u> <u>Racetrack</u>	G.C. To Order.	Company: Connectrac Contact: Charlie Kane E: Charliekbconnectrac.Com Contact: Linda Munsterman E: Lindam @Connec Trac. Com
<u>N/A</u>	<u>Concrete Sealer</u> (Sprinkler Room)	G.C. To Order. Use Manufacturers Qualified Installers.	Company: Tremco Commercial Sealants and Waterproofing E: Aelsharawy@Tremco.Ca T: (647) 402—5b74
<u>N/A</u>	<u>Concrete Sealer</u>	G.C. To Order. Use Manufacturers Qualif ied Installers.	Company: Ashford Formula, Dist. By Duracon Canada E: Kyle.Harker@Gmall.Com T: 1 (800) 841— 5677
<u>N/A</u>	-	-	Company: Brampton Brick Ltd. Contact: Mike Kriesel E: Mkriesel@Bramptonbrick.Com T: (905) 691—2034
<u>N/A</u>	-	-	Company: BNE Contractors Inc. Contact: Craig Corner E: Craig@Bnecontractors.Com T: (519) 743— 7324 Ext 23 C: (519) 496—6450 F: (519) 743— 6830

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

.1

Item	G.C. FUNCTION	CONTACT
<u>Vendor To Supply & Install</u>		
<u>G.C. Not To Contact Vendors For Installation Pricing During The Tendering Process.</u>		
<u>Pre— Cabling</u>	To provide PO (for labor only), necessary documentation and coordinate on—site work for data and communication pre-cabling as per drawings and specifications. Labor cost will be reimbursed by TJX Canada to GC. / Landlord	TJX Canada project manager will provide work order
<u>Security Alarm</u>	To provide PO (for labor only), necessary documentation and coordinate on—site work for pre-cabling and installation of security equipment as per drawings and specifications. Labor cost will be reimbursed by TJX Canada to GC / landlord	TJX Canada project manager will provide work order
<u>Lp Equipment</u>	To provide P.O. (for labor only), necessary documentation and coordinate on— site work for installation of theft prevention equipment as per drawings and specifications. Labor cost will be reimbursed by TJX Canada to GC / landlord	TJX Canada project manager will provide work order
<u>Security Cameras</u>	To coordinate on— site work for installation of security camera equipment as per drawings and specifications. To provide PO (for labour only). Labor cost will be reimbursed by TJX Canada to GC. / landlord	
<u>Signage Graphics & Tag Lines Interior & Exterior Signs Wall Graphics, Department Signs & Exterior window Graphic</u>	To provide PO (for labour only), necessary documentation and coordinate on— site work for installation of exterior building signage as per drawings and specifications. Labor cost will be reimbursed by TJX Canada to GC / landlord	TJX Canada project manager
<u>Fixture Installation</u>	To provide PO (for labour only), necessary documentation and coordinate on—site work for fixture installation assembly and installation per drawings and specifications. Labour cost will be reimbursed by TJX Canada to GC / landlord	TJX Canada project manager
<u>Wall Systems</u>	Cost for material and shipping will be by TJX Canada. GC. to off—load from truck & install as per floorplan and specifications.	TJX Canada project manager
<u>Compactor</u>	To coordinate on—site work for installation of compactor (PO for labour only). GC, to complete final electrical connection, sprinkler and lighting.	TJX Canada project manager

**Note: G.C./ L.L. To Confirm That Listed Vendor Has Been Assigned To This Project. Contact TJX Canada.
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Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Specialty Item installation responsibilities.
- .2 E- : Existing to Remain; G- : By General Contractor; N- : Installation only by GC.; T- : Tenant Supply
- .3

Items	E	G	N	T	Remarks
Exterior Metal Panels					See Section 07 43 13.23
Interior Mall Storefront Metal Panels				T	Supplied By Tenant & Installed By Tenant Sign Installer.
Exterior Signs		G		T	Supplied By Tenant & Installed By Tenant Sun Installer, G.C. To Provide Final Electrical Connection.
Valence C/W Lighting			N	T	Installation And Final Electrical Connection By G.C.
Wall System			N	T	
Prefabricated Fitting Rooms		G			Pre-Fab Fitting Rooms supplied & Installed By G.C.
Stockroom Racks & Shelving Stockroom Conveyor & Overhead Handrail / Shelving				T	Supplied By Tenant & Installed By Tenants Fixture Installer.
Front Line Millwork			N	T	Installation And Final Electrical Connection By G.C.
Jewellery Fixture			N	T	Installation And Final Electrical Connection By G.C.
Beauty Gondola			N	T	Supplied by Tenant & Installed By Tenant's Future Installer. Final Electrical Connection By G.C.
Message Signs Interior				T	Supplied by Tenant & Installed By Tenant Installer.
Telephone Service		G			25 Pair Cable and Terminations Into Data Room By Landlord / G.C.
Security Alarm System		G		T	Supplied by Tenant and Installed By Tenant's Security Vendor. G.C. To Provide Power And Conduit.
Pa/ Music System		G		T	Supplied By Tenant and Installed By Tenant's Systems Vendor. O.C. To Provide Power And Conduit.
Data And Communication Cabling		G		T	Supplied By Tenant & Installed By Tenant's Systems Vendor G.C. to Provide Power And Conduit.

Novar System		G			
Compactor		G		T	Supplied By Tenant and Installed By Tenant's Waste Vendor. G.C. To Provide Final Power Connection, Sprinkler Connection And Lights.
Freestanding Office & Staff Lounge Furniture				T	Supplied By Tenant & installed By Tenant's Fixture Installer.
Freestanding Sales Floor Furniture/ Fixtures				T	Supplied By Tenant & installed By Tenant's Fixture Installer.
Fitting Room Greeter Desk And Processing Table And Stools				T	Supplied By Tenant & Installed By Tenant's Fixture Installer.

.4 Tenant Installation Vendors Are Paid For By TJX Via G.C.

.5 G.C. Is To Coordinate And Supervise The Vendor.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Requirement Included:
 - .1 Related requirements
 - .2 Work Covered by contact documents
 - .3 Contract description
 - .4 Metering & Utilities
 - .5 Work by Others
 - .6 Owner assigned vendors
 - .7 Owner supplied products
 - .8 Items Supplied By Owner For Installation By Contractor
 - .9 Specialty Items
 - .10 Contractor use of premises
 - .11 Owner occupancy
 - .12 Temporary facilities and services sections applicable to all contracts.
 - .13 Alterations, Additions Or Repairs To Existing Building
 - .14 Existing Services
 - .15 Contract
 - .16 Definitions
 - .17 Documents Required
 - .18 Precedence of documents.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the furnishing of all labour, materials and equipment required for general construction, renovation fit out of retail & offices, located at 2756 Chamberland St, Clarence-Rockland, ON.

1.3 CONTRACT DESCRIPTION

- .1 Construct Work under CCDC 2 contract.
- .2 Relations and responsibilities between Contractor and subcontractors and owner's representative assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:
 - .1 Furnish to Owner, bonds covering faithful performance of subcontracted work and payment of obligations thereunder submit at time notified.
 - .2 Work Covered By Contract Documents :
 - .1 Work of the prime contract comprises the Project, for the construction and / or renovation of the project as identified in the Bid Form.

1.4 GENERAL REQUIREMENTS

- .1 See 00 30 00.00 - General Requirements TJX

1.5 MAINTENANCE MATERIALS

- .1 See 01 78 00 - Closeout Submittals

1.6 WORK BY OTHERS

- .1 Perform Work of each Contract under a stipulated sum contract with “Owner”.
- .2 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.
- .3 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Consultant, in writing, any defects which may interfere with proper execution of Work.

1.7 OWNER ASSIGNED VENDORS

- .1 Refer to 00 30 00.1 Required Vendors

1.8 OWNER SUPPLIED PRODUCTS

- .1 Owner’s Responsibilities:
 - .1 Arrange for and pay for Product delivery to site
 - .2 Submit claims for transportation damage and replace damaged, defective, or deficient items.
 - .3 Arrange for manufacturer’s warranties, inspections and service.
- .2 Contractor’s Responsibilities:
 - .1 Receive and unload Products at site, inspect for completeness or damage and report back to owner.
 - .2 Handle, store, install and finish products.

1.9 ITEMS SUPPLIED BY OWNER FOR INSTALLATION BY CONTRACTOR

- .1 See 00 30 00.2 - Vendor Installs
- .2 Wall Panel System.
- .3 Signage – Final Electrical Connection.
- .4 Perimeter Light Valence – Sales Floor.
- .5 Cash Desk, Frontline Units, Backline Units.
- .6 For Items supplied by TJX Canada and Work Order Process, the TJX Canada Project Manager will review this process with the Landlord during Schedule C Negotiations and with the General Contractor at the time of the kick off site meeting.

1.10 SPECIALTY ITEMS

- .1 See 00 30 00.3 - Specialty Items - Supply / Install & Owner supplied millwork as indicated on drawings.

1.11 CONTRACTOR USE OF PREMISES

- .1 Limit uses of site and premises to allow:
 - .1 Representatives of “TJX CANADA” construction department and Landlord.
 - .2 Construction Operations: Limited to areas as noted on the drawings.

- .2 Limit use of premises for access, for storage, to allow:
- .3 Co-ordinate use of premises under direction of Owner..
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.12 OWNER OCCUPANCY

- .1 TJX CANADA will occupy the premises on the day of possession as coordinated with TJX CANADA Project Manager.
- .2 Schedule the Work to accommodate TJX CANADA occupancy.
- .3 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.13 TEMPORARY FACILITIES AND SERVICES SECTIONS

- .1 Temporary Electricity, extension cords from distribution boxes, lighting and work lights and any special power required to complete the work.
- .2 Separate telephone service required for the work.
- .3 Water hoses required for the Work.
- .4 Progress cleaning of the Work, delivery of debris to collection receptacles
- .5 Field offices and sheds required for the Work.

1.14 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operations, public and normal use of premises. Arrange with Consultant to facilitate execution of work.

1.15 EXISTING SERVICES

- .1 Notify, Consultant and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to vehicular traffic & pedestrian traffic.
- .3 Provide alternative routes for pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.
- .5 Submit schedule to and obtain approval from Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

- .6 Provide temporary services when directed by owner to maintain critical building and tenant systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .10 Record locations of maintained, re-routed and abandoned service lines.
- .11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.16 CONTRACT

- .1 Division 1 – General Requirements:
 - .1 Administrative and procedure sections listed above.
 - .2 Temporary facilities and controls sections listed above.
 - .3 Section 017100: Basic project engineering and layout.
 - .4 Section 015200: Utility services to point of delivery and installation of meters.
 - .5 Section 015200: Payment of costs of temporary utilities and services consumed.
 - .6 Section 015200: Temporary heating, cooling and ventilating.
 - .7 Section 015200: Temporary water control.
 - .8 Section 015200: General cleaning, provide debris receptacles, remove debris from site.
 - .9 Section 017400: Final cleaning.

1.17 DEFINITIONS

- .1 The following Definitions supplement the Contract Definitions and apply to all Contract Documents.
 - .1 Consultant: Means the licensed design professional of record. Architectural, Electrical, Mechanical identified as the author of the drawings.
 - .2 Supply: Means to acquire or purchase, ship or transport to the site, unload, remove packaging to permit inspection for damaged, re-package, replace damaged items and safely store on-site.
 - .3 Install: Means to remove from site storage, move or transport to intended location, install in position, connect to utilities, repair site caused damaged or replace and make ready for use.
 - .4 Provide: means to supply and install.
 - .5 Quality Assurance: Planned or systematic actions necessary to provide adequate confidence that a product, process, or service will conform to establish requirements.
 - .6 Quality Control: Inspection, testing evaluation, or other necessary action to verify that a product, process, or service conforms to established requirements and specifications.

1.18 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.

- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.
- .12 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
- .13 Locate devices with primary regard for convenience of operation and usage.
- .14 Examine all discipline drawings, specifications, and schedules and relate Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought immediately to the attention of the TJX CANADA Project Manager.

1.19 COMPLEMENTARY DOCUMENTS

- .1 Drawings, specifications, and schedules are complementary each to the other and what is called for by one is to be binding as if called for by all. Should be discrepancy appear between documents which leaves doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Consultant.
- .2 Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.
- .3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
- .4 Locate devices with primary regard for convenience of operation and usage.
- .5 Examine all discipline drawings, specifications, and schedules and relate Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought immediately to the attention of the TJX CANADA Project Manager.

1.20 PRECEDENCE OF DOCUMENTS

- .1 In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings are – from highest to the lowest:
 - .1 Agreement – Between Owner (TJX CANADA) and Contractor.
 - .2 Supplementary Conditions if any.
 - .3 General Conditions of the Contract
 - .4 Sections of Division 1 of the specifications,
- .2 Specifications:
 - .1 Sections of Divisions 2 through 16 of the specifications, and
 - .2 Sections specifically indicated on the drawings.
- .3 Schedules and keynotes:

- .1 Schedules within the specifications, then,
- .2 Schedules on the drawings.
- .4 Drawings:
 - .1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
 - .2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then
 - .3 Location of utility outlets indicated on architectural detail drawings takes precedence over positioning or mounting heights located on mechanical or electrical drawing.
- .5 In the event of conflict between documents, the decision of the "TJX CANADA" Project Manager and/or Manager of Construction shall be final.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Owner's Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to public and normal use of premises. Arrange with Owner's Representative to facilitate execution of work.

1.4 EXISTING SERVICES

- .1 Notify, Owner's Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give owner hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for pedestrian and vehicular traffic.
- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.
- .2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-latest edition, Stipulated Price Contract.

1.2 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Refer to CCDC 2.
- .2 Make applications for payment on account as monthly as Work progresses.
- .3 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .4 Submit to Consultant & project manager, at least 14 days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

1.3 SCHEDULE OF VALUES

- .1 Refer to CCDC 2.
- .2 Provide schedule of values supported by evidence as Consultant may reasonably direct and when accepted by Consultant, be used as basis for applications for payment.
- .3 Include statement based on schedule of values with each application for payment.
- .4 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Consultant may reasonably require to establish value and delivery of products.

1.4 PROGRESS PAYMENT

- .1 Refer to CCDC 2.
- .2 Consultant will issue to Owner, no later than 10 days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Consultant determines to be due. If Consultant amends application, Consultant will give notification in writing giving reasons for amendment.

1.5 SUBSTANTIAL PERFORMANCE OF WORK

- .1 Refer to CCDC 2.

1.6 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 Refer to CCDC 2.
- .2 After issuance of certificate of Substantial Performance of Work:
 - .1 Submit application for payment of holdback amount.
 - .2 Submit sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which Owner might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.

- .3 After receipt of application for payment and sworn statement, Consultant will issue certificate for payment of holdback amount.
- .4 Where holdback amount has not been placed in a separate holdback account, Owner will, 10 days prior to expiry of holdback period stipulated in lien legislation applicable to Place of Work, place holdback amount in bank account in joint names of Owner and Contractor.
- .5 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

1.7 PROGRESSIVE RELEASE OF HOLDBACK

- .1 Refer to CCDC 2.

1.8 FINAL PAYMENT

- .1 Refer to CCDC 2, GC 5.7.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Owner's Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Owner's Representative within 10 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 **Submission:**
 - .1 Submit initial schedules within 15 days after award of Contract.
 - .2 Submit electronic schedule to TJX CANADA representative.

- .3 TJX CANADA will review schedule and return reviewed copy within ten (10) working days after receipt; upon initial approval of construction schedule by TJX CANADA Project manager; set baseline and provide to TJX CANADA Project Manager- this schedule to be updated for every construction meeting and to be attached to progress draws for payment.
- .4 Resubmit finalized schedule within seven (7) working days after return of reviewed copy.

1.4 INDEPENDENT INSPECTION AGENCIES

- .1 Independent inspection and testing agencies will be engaged by TJX CANADA for the purpose of inspecting and testing portions of Work. Costs shall be allocated as set out in this Section.
- .2 Provide equipment required for executing inspection and testing by the appointed agencies.

1.5 PROJECT MILESTONES

1.6 FORMAT

- .1 Prepare schedule in the form of a horizontal bar chart.
- .2 Provide a separate bar for each trade or operation.
- .3 Provide horizontal time scale identifying the first work day of each week; upon initial approval of construction schedule by TJX CANADA Project manager; set baseline and provide to TJX CANADA Project Manager- this schedule to be updated for every construction meeting and to be attached to progress draws for payment.
- .4 Format for listings: The chronological order of the start of each item of work.

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 41 00 Regulatory Requirements.
- .2 Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart

1.2 ADMINISTRATIVE

- .1 Submit to Owner's Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Review submittals prior to submission to Owner's Representative . This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .4 Notify Owner's Representative , in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .5 Verify field measurements and affected adjacent Work are co-ordinated.
- .6 Contractor's responsibility for errors and omissions in submission is not relieved by Owner's Representative review of submittals.
- .7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Owner's Representative review.
- .8 Keep one reviewed copy of each submission on site.

1.3 SUBMITTAL PROCEDURES

- .1 1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
- .2 Work affected by the submittal shall not proceed until review is complete.
- .3 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-coordinated with the requirements of the Work and the Contract Documents.
- .4 Verify field measurements and affected adjacent Work is coordinated.

1.4 CONSTRUCTION PROGRESS

- .1 See 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart

1.5 PRODUCT DATA

- .1 Product Data for Review:
 - .1 Submitted to Consultant for review for the limited purpose of checking for the conformance with information given and the design concept expressed in the contract documents.

- .2 After review, provide copies and distribute in accordance with Submittal procedures article above and for record document purposes described in Section 01 78 00.
- .2 Product Data Information:
 - .1 Submitted for the Consultant's knowledge as contract administrator or for the Owner and/or TJX CANADA.
- .3 Product Data for Project Close-Out:
 - .1 Submitted for the Owner's and/or TJX CANADA benefit during and after project completion.
- .4 Submit the number of copies which the Contractor requires, plus five (5) copies which will be retained by the Owner and/or TJX CANADA.
- .5 Mark each copy to identify applicable products, models, options and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- .6 Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliance

1.6 SHOP DRAWINGS

- .1 Refer to CCDC 2 GC 3.11.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .3 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .5 Allow 10 working days for Consultant's review of each submission.
- .6 Adjustments made on shop drawings by Owner's Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Owner's Representative prior to proceeding with Work.
- .7 Make changes in shop drawings as Owner's Representative may require, consistent with Contract Documents. When resubmitting, notify Owner's Representative in writing of revisions other than those requested.
- .8 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .9 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .10 After Owner's Representative review, distribute copies.
- .11 Submit one electronic copy of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.
- .12 Submit one electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Owner's Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Submit one electronic copies of test reports for requirements requested in specification Sections and as requested by Owner's Representative .
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .14 Submit one electronic copies of certificates for requirements requested in specification Sections and as requested by Owner's Representative .
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .15 Submit one electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Owner's Representative .

- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit one electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Owner's Representative .
- .17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .18 Submit one electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Owner's Representative .
- .19 Delete information not applicable to project.
- .20 Supplement standard information to provide details applicable to project.
- .21 If upon review by Owner's Representative , no errors or omissions are discovered or if only minor corrections are made, transparency will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.7 SAMPLES

- .1 Submit for review samples in format as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Owner's Representative .
- .3 Notify Owner's Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Owner's Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Owner's Representative prior to proceeding with Work.
- .6 Make changes in samples which Owner's Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.8 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.9 TEST REPORTS

- .1 See 01 45 00 Quality Control

1.10 PHOTOGRAPHIC DOCUMENTATION

- .1 Once every two weeks on Friday, submit interior and exterior photographs (all four (4) directions) via e-mail to TJX CANADA Project Manager in order to support progress of work achieved.
- .2 Identify photographs with date, time, orientation and project identification.

1.11 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended - Updated 2005.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit applicable copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction,.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS Safety Data Sheets (SDS).
- .7 Owner's Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor..
- .8 Owner's Representative review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Owner's Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.4 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Owner's Representative prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.7 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Owner's Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Contractor shall be the Principal Contractor as described in the Quebec Act Respecting Health and Safety code for the Construction for only their scope and areas of work as defined and described this project specification.
- .4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 CONSTRUCTION PERSONNEL

- .1 Limit access to the site to construction personnel and TJX CANADA Construction personnel only. No other TJX Canada staff to be allowed on site.
 - .1 Provide the following:
 - .1 In case of injury at Work Poster.
 - .2 Current First Aid Certificate Holders.
 - .3 First Aid Box.
 - .4 Occupational Health & Safety Act and all required provisions needed on a construction site

1.11 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Owner's Representative verbally and in writing.

- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Safety Officer and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Owner's Representative verbally and in writing.

1.12 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have working knowledge of occupational safety and health regulations.
 - .2 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .4 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.13 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Owner's Representative .

1.14 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner's Representative .
- .2 Provide Owner's Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Owner's Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.15 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.16 POWDER ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from Owner's Representative .

1.17 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SUMMARY

- .1 This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 19.13 - Selective Building Demolition

1.3 REFERENCES TO REGULATORY REQUIREMENTS

- .1 Perform Work in accordance with (OBC Latest Edition), including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code
 - .1 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.4 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions and municipal by-laws.

1.5 QUALITY ASSURANCE

- .1 Regulatory Requirements: Except as otherwise specified, Constructor shall apply for, obtain, and pay fees associated with, permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract and the following:
 - .1 Regulatory requirements and fees in force on date of Bid submission, and
 - .2 A change in regulatory requirements or fees scheduled to become effective after date of tender submission and of which public notice has been given before date of tender submission

Part 2 Products

2.1 NOT USED

- .1 Not Used.

2.2 EASEMENTS AND NOTICES

- .1 Owner will obtain permanent easements and rights of servitude that may be required for performance of Work.
- .2 Constructor shall give notices required by regulatory requirements.

2.3 PERMITS

- .1 Development Permit: Owner has applied for, obtained, and paid for development permit.
- .2 Building Permit:
 - .1 Owner has applied for and will be paying for building permit. Constructor is responsible for obtaining or coordinating other permits required for Work and its various parts.
- .3 Occupancy Permits:
 - .1 Constructor shall apply for, obtain, and pay for occupancy permits, including partial occupancy permits where required by authority having jurisdiction.
 - .2 Consultant will issue appropriate instructions to Constructor for correction to Work where Contract Document deficiencies are required to be corrected in order to obtain occupancy permits, including partial occupancy permits.
 - .3 Constructor shall correct deficiencies in accordance with Consultant 's instructions. Where deficiency is not corrected, Owner reserves the right to make correction and charge Constructor for costs incurred.
 - .4 Constructor shall turn occupancy permits over to Owner.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-latest edition, Stipulated Price Contract.

1.2 INSPECTION

- .1 Refer to CCDC 2, GC 2.3.
- .2 Allow Owner's Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Owner's Representative instructions, or law of Place of Work.
- .4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5 Owner's Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by owner for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne as cash allowance where not contracted directly to Owner
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Owner / Consultant. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency .
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

- .1 Refer to CCDC, GC 2.4.

- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Owner's Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Owner's Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Owner's Representative .

1.7 REPORTS

- .1 Submit one electronic copy of inspection and test reports to Owner's Representative .

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Owner's Representative and may be authorized as recoverable.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations as specified in specific Section.
- .3 Prepare mock-ups for Owner's Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Owner's Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Owner's Representative .
- .7 Mock-ups may remain as part of Work.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 MILL TESTS

- .1 Submit mill test certificates as required of specification Sections.

1.11 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- .2 Refer to Section

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

.1

<u>Part 1 – General</u>	
1.1 Summary	1. Provide in-situ concrete relative humidity and surface PH testing to all concrete specified to be covered with floor coverings or resinous coatings. 2. Testing shall take place after allowing concrete to dry for a minimum 45 days. Testing to be scheduled no more than 3 weeks prior to scheduled flooring installation.
1.2 Related Sections	1. Section 09 65 00 – Resilient flooring
1.3 References	1. ASTM F – 2170-02 standard test method for determining relative humidity in concrete floor slabs using in-situ probes 2. ASTM F-710 – Standard Practice for Preparing Concrete Floors and Other Monolithic Floors to receive Resilient Flooring.
1.4 Submittals	1. Report all test results in chart form listing test dates, depth of test well, in-situ temperatures, relative humidity and PH levels. 2. List test locations on chart and show same on 8-1/2" x 11" site map (when such map is made available to testing agency). 3. Deliver results in duplicate for distribution to Architect and General Contractor.
1.5 Quality Assurance	1. Independent testing agency A. Certified by Test Apparatus Manufacturer for product use. B. Other agency with verifiable experience. 2. Digital Meter and Calibrated Humidity probes Minimum 2-point probe calibration 3. Wide range PH paper, and distilled or de-ionized water.
<u>Part 2 – Products</u>	
2.1 Manufacturers	1. Humidity and temperature probe kit as manufactured by Wagner or equal. 2. Ph test paper as manufactured by Micro Essential Laboratory, or equal.
<u>Part 3 - Execution</u>	1. Quantification of relative humidity at 40% of concrete thickness A. The test site should be maintained at the same temperature and humidity conditions as those anticipated during normal occupancy. These temperature and humidity levels should be maintained for 48 hours prior and during test period. If meeting this criterion is not possible, then minimum conditions should be 75+/- 10°f and 50 +/- 10% relative humidity. When a building is not under HVAC control, a recording hygrometer or data logger shall be in place recording conditions during the test period. A transcript of this information must be included with the test report. 2. Quantification of Relative Humidity at 40% of Concrete Thickness (cont.) A. The number of in-situ relative humidity test sites is determined by the square footage of the facility. The minimum number of tests to be placed: 6 placed equally within the sales floor, one in the fitting room areas, one in the offices and one in the washroom areas. B. Determine the thickness of the concrete slab, typically from construction documents.

	C. Utilizing a roto-hammer drill test holes to a depth equal to 40% of the concrete thickness** i.e. 2” deep for a 5” thick slab, or 1-1/2 deep for 4” thick slab. Hole diameter shall not exceed outside diameter of the insertable test sleeve by more than 0.04”. Drilling operation must be dry.
	D. Vacuum all concrete dust from test hole.
	E. Insert a hole liner, or sleeve, to the full depth of test hole, assuring that the liner is capped or plugged at the end protruding from the concrete surface.
	F. Permit the test site to acclimate, or equilibrate, for 72 hours prior to taking relative humidity readings.
	G. Remove the sleeve plug and place a probe into the sleeve assuring that it reaches the bottom of the test hole. The test probe must be a temperature equilibration with the concrete slab.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section

1.2 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-latest edition, Stipulated Price Contract.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

1.4 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain platforms, ramps swing, staging, temporary stairs, ladders & scaffolding

1.6 HOISTING

- .1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists cranes to be operated by qualified operator.
- .3 Provide, erect and remove when no longer required all crane, man hoist and scaffolding necessary for the execution of the Work. Erect in accordance with local ordinances, codes and engineered safe in accordance with Workers Compensation Board requirements.
- .4 Any alternative sharing arrangement regarding crane, man hoist and scaffolding usage will be made between the Contractor and various Subcontractors prior to the award of any subcontract. In the absent of a written arrangement, each Subcontractor is deemed by the Owner to have included the cost in the bid price for such requirements.
- .5 Erect scaffolding clear of walls, making sure it does not interfere with continuing Work. Tiebacks or anchorage to the building is subject to the Consultant's review and approval.
- .6 Subcontractors are responsible for their own personal site examination for crane, man hoist/hoist and scaffolding and will be held accountable for accidents due to insufficiencies.

1.7 SITE STORAGE/LOADING

- .1 Refer to CCDC 2, GC 3.12.
- .2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.
- .3 Clean runways and taxi areas where used by Contractor's equipment.

1.9 TEMPORARY UTILITIES

.1 Telephone

- .1 a. Arrange for installation of, and pay all costs for site telephone, fax and e-mail communication means required for use during construction of the project.

.2 Power and Lighting

- .1 Arrange for installation of, and pay for all cost for temporary power and light throughout the project for the Contractors' use and distribution for subtrades to power their small tools and general lighting requirements.
- .2 Extension Cords: Each trade shall provide extension cords and adapters as required for operation of his own equipment. Cores shall be 3-wire, grounded type.
- .3 Contractor will furnish and pay for supplementary or separate temporary electrical service as required for the performance of the Work and by all Subcontractors
- .4 Coordinate and be responsible for hookup to existing power source at approved locations and provide temporary power outlets and/or distribution panels for operation of small tools, equipment and wiring from temporary power source to these outlets and/or panels.
- .5 Ensure electrical distribution system is in accordance with the Contractor's standard equipment power characteristics, requirements and capacity demands.
- .6 Provide throughout the Work all temporary lighting required for the following:
 - .1 Emergency evacuation, safety and security throughout the Work areas at lighting levels required by Workers' Compensation Board and authorities having jurisdiction.
 - .2 Performance of Work throughout the Work areas, evenly distributed, and at light intensities acceptable to all trades to ensure proper installation
 - .3 Provide and maintaining temporary lighting on all floors and stairs at a level of illumination not less than 366.66 lx. Or as required by a specific trade.
 - .4 Provide and maintain all temporary power service required for duration of the project in accordance with Canadian Electrical Code standard and applicable bylaws.
 - .5 The Contractor shall alter, adapt, connect and disconnect services as necessary and, upon projection completion, remove all temporary power service which is not part of the original and final work.

.3 Water Service:

- .1 Arrange for installation of, and pay for cost for temporary water supply system throughout the project for the Contractor's use.
- .2 The Contractor is responsible for hook up to the approved temporary water supply connection point and for all distribution systems including all the necessary piping, hoses, connections, valves and storage facilities.
- .3 Make same available to all sub trades.
- .4 Check source and alter, adapt, maintain in safe and orderly manner and, upon completion of project, remove and make good existing.

.4 Temporary Heat:

- .1 Arrange for installation of, and pay all cost for temporary heat to temperature condition levels required by all the trades and in compliance with WCB's regulations at the Place of Work.
- .2 Temporary heat shall be maintained throughout the construction period of this Contract.

1.10 TEMPORARY DRAINING AND DEWATERING:

- .1 Provide and be responsible for the provision of all temporary drainage from the building and project site until such time as the permanent drainage system is in place, connected and operating. Refer also to winter provision requirements related to this requirement to ensure continuous work operation can be carried on without interruption from winter weather conditions.
- .2 Comply with all health and safety codes, Workers' Compensation Board Regulations, Municipal/City zoning bylaws or applicable local authorities having jurisdiction.
- .3 Provide sufficient capacity portable pumps placed at appropriate locations to pump out or remove continuously all water that may accumulate in excavation during the progress of the Work, to approved existing storm drainage ditches, inlets, catch basins or location approved by location authorities having jurisdiction. Dewater construction site, water must be diverted by adequate capacity size hoses directly connected to approved catch basis inlets.
- .4 Make allowance for water drainage from the work or project site into approved sewers/storms making sure the parking area, streets, sumps and gutters are kept clean and unplugged of any debris.
- .5 Take full responsibility for protecting all existing permanent catch basis drains used during construction and completely clear any plugged lines which may occur because of sand, debris or other waste material accumulation.

1.11 SECURITY AND FIRE PROTECTION

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.
- .2 Erect and maintain enclosures, barricades or temporary doorways that are required. Employ such forces, including security personnel, as are necessary to prevent theft from and vandalism to the Work.
- .3 Provide fire protection facilities as required by local authorities having jurisdiction.
- .4 Mark stations and maintain access at all times to all firefighting equipment including fire hose, extinguishers, sprinkler valves and hydrants. Provide quick response easy access calling stations for the local fire department at all times.

1.12 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

1.13 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.14 SITE STORAGE & OVERLOADING PROPERTY

- .1 Refer to CC 33 PROTECTION OF WORK AND.
- .2 Confine the Work and the operations of employees to limits indicated by the Contract Documents. Do not unreasonably encumber the premises with Products.
- .3 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.

1.15 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.16 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to case the least interference with work activities.

1.17 CONSTRUCTION SIGNAGE

- .1 Provide and erect project sign, within three weeks of signing Contract, in a location designated by Owner's Representative.
- .2 Indicate on sign, name of Owner, Consultants, Contractor and major Subcontractor, of design style as detailed established by Owner's Representative. Alternatively, provide for and maintain sign provided by Consultant and Sub trades.
- .3 No other signs or advertisements, other than warning signs, are permitted on site.
- .4 Maintain approved signs and notices in good condition for duration of project. Return signs provided in good condition or pay for replacement if damaged.

1.18 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.

- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Owner's Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Owner's Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by Owner's Representative.

1.19 DAMAGE TO STREET AND PUBLIC PROPERTY

- .1 Streets, lanes, and sidewalks or other public property damaged during the course of this construction shall be made good to the satisfaction of the Owner and other governing authorities having jurisdiction. The Contractor shall also be responsible for any adjoining property which is damaged by workmen, equipment or materials engaged under this Contractor. Any such damaged work shall be replaced/ made good by this Contractor to the satisfaction of the Owner.
- .2 The term "made good", means restoration to at least the condition existing prior to the damage occurring having great strength, safety, workmanship and appearance.

1.20 NOISE ABATEMENT

- .1 The Contractor shall comply with the requirements of the Owner, Municipality, City, District and/or Provincial by-law regarding noise abatement and hours of work and shall take all necessary steps to ensure the generation and transmission of noise and vibration which is found to be objectionable shall be corrected at no additional cost and satisfaction of the Owner.

1.21 WINTER WORK

- .1 Include all labour, materials, plant, equipment and all incidentals required to enable a continuous work operation to be carried out without interruption from winter weather conditions except when written permission is obtained from the Owner to shut down the work should extremely hazardous severe weather conditions occur or instructions by order of the Workers Compensation Board.

- .2 Provide additional temporary buildings and/or enclosures required by the Contractor or his sub-trades for heated storage or workshops.
- .3 3. Provide adequate heat for these enclosures and storage areas to enable a continuous work operation to be carried out and to ensure the work is protected as specified elsewhere.
- .4 The contractor shall include for any and all snow removal as related to his own work and the Work of this Contract. The Contractor is to be progressively and timely remove snow and ice so as to enable the project to be completed and so as not to impede the agreed progress and completion date.

1.22 RESTORATION OF TEMPORARY FACILITIES

- .1 Restore permanent facilities used for temporary services to specified condition.
- .2 Restore any existing facilities used for temporary services to original condition in accordance with directions by Owner and/or appropriate authorities having jurisdiction.

1.23 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section

1.2 REFERENCE STANDARDS

- .1 CSA Group (CSA)
 - .1 CSA-O121-M1978 (R2003), Douglas Fir Plywood.
- .2 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.
 - .1

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.4 HOARDING

- .1 Erect temporary site enclosures using modular sections of steel fencing, purpose made. Enclosure centre work area.
- .2 Provide sufficient lockable truck entrance gates and at least one pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys.
- .3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.
- .4 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.5 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and
- .2 Provide as required by governing authorities.

1.6 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.7 DUST TIGHT SCREENS

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.8 DEWATERING

- .1 See Section 01 52 00 Construction Facilities.

1.9 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.10 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.11 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.12 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.13 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Owner's Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.14 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling & reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-latest edition, Stipulated Price Contract.
- .2 Within text of each specifications section, reference may be made to reference standards. List of standards/reference writing organizations is deemed to be accurate based on standard specifications. When in doubt, most current standard at time of award of contract shall be deemed to apply. Consultant shall make final decisions on applicable standards and such decision shall be final.
- .3 Conform to these reference standards, in whole or in part as specifically requested in specifications.
 - .1
- .4 If there is question as to whether products or systems are in conformance with applicable standards, Owner's Representative reserves right to have such products or systems tested to prove or disprove conformance.
 - .1
- .5 Within the text of specifications, reference may be made to the following standards.

AAMA	Architectural Aluminum Manufacturers Association
ACI	American Concrete Institute
AHC	American Institute of Hardware Consultants
AISC	American Institute of Steel Construction
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning
ASTM	American Society of Testing and Materials
ABPA	Acoustical and Board Products Association
AWCC	Association of the Wall and Ceiling Contractors
BHMA	Builders Hardware Manufacturers Association
CAN	National Standard of Canada
CEC	Canadian Electrical Code (published by CSA)
CEMA	Canadian Electrical Manufacturer's Association
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CICS	Canadian Institute of Steel Construction
CISCA	Ceiling and Interior Systems Construction Association
CLA	Canadian Lumbers' Association
CPCA	Canadian Painting Contractor's Association
FM	Factory Mutual Engineering Corporation
HRAI	Heating, Refrigerating and Air Condition Institute of Canada
IEEE	Institute of Electrical and Electronic Engineers
IGMAC	Insulating Glass Manufacturers Association of Canada
IPCEA	Insulating Power Cable Engineers Association
MIC	Masonry Institute of Canada
MPI	Master Painters Institute
NAAMM	National Association of Architectural Metal Manufacturers
NEMA	National Electrical Manufacturers' Association
NFCA	National Flooring Covering Association
NFPA	National Fire Protection Act
NLFA	National Lumber Grading Authority
RCAC	Roofing Contractors Association of Canada
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
TTMAC	Terrazzo, Tile and Marble Association of Canada
ULC	Underwriters Laboratories of Canada
ULI	Underwriters Laboratories Inc.
LIB	Lumber Inspection Bureau
WPA	Wood Products Association

- .6 The above list of reference standards shall conform in whole or part to latest edition including any supplements or amendments thereto approved by the issuing corporation and current at time of this specifications. Should conflict arise to reference standards specified herein, obtain clarification from the Consultant before proceeding with the work. Generally, the most stringent and the current edition shall govern.

- .1 If there is any dispute as to whether any material conforms to applicable standards, the Owner and/or Tenant reserves the right to have such material tested to prove or disprove conformance.
- .2 The cost of such testing, if requested by the Owner and/or Tenant, will be borne by the Owner if testing proves conformance with the Contractor Documents, or by the Contractor if testing proves nonconformance

1.2 QUALITY

- .1 Refer to CCDC 2.
- .2 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .3 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .4 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .5 Should disputes arise as to quality or fitness of products, decision rests strictly with Owner's Representative based upon requirements of Contract Documents.
- .6 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .7 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Owner's Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Owner's Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Owner's Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.

- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Owner's Representative.
- .9 Touch-up damaged factory finished surfaces to Owner's Representative satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by applicable party, agreed in advance. Unload, handle and store such products.

1.6 MATERIAL & EQUIPMENT

- .1 Refer to CC 39- Labour and Products.
- .2 Products, materials, equipment and articles (referred to as Products throughout the specifications) incorporated in the Work shall be new, not damaged or defective, and of the best quality compatible with the specifications for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.
- .3 Defective Products will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should any dispute arise as to quality or fitness of Products, the decision rests strictly with TJX CANADA based upon the requirements of the Contract Documents.

1.7 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Owner's Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Owner's Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Owner's Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Owner's Representative if required Work is such as to make it impractical to produce required results.

- .2 Do not employ anyone unskilled in their required duties. Owner's Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Owner's Representative, whose decision is final.

1.9 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Owner's Representative if there is interference. Install as directed by Owner's Representative.

1.11 REMEDIAL WORK

- .1 Refer to CCDC 2.
- .2 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .3 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Owner's Representative of conflicting installation. Install as directed.

1.13 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.14 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Owner's Representative .

1.16 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

1.17 TEMPORARY AND TRIAL USAGE OF EQUIPMENT

- .1 Permit the Owner and/or Tenant temporary or trial use of electrical and mechanical equipment or any other equipment being provided under this Contract before final acceptance of the project for such reasonable time as the Owner and/or Tenant considers sufficient for proper testing.
- .2 Make good any damaged or breakdown due to faulty material or workmanship to Owner's and/or Tenant's satisfaction. Refer to Divisions 15 and 16 for specific and definitive requirements.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-latest edition, Stipulated Price Contract.
- .2 Owner's identification of existing survey control points and property limits.

1.2 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practise in Place of Work, acceptable to reviewing Authorities.

1.3 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Owner's Representative.
- .4 Report to Owner's Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.4 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, fill and topsoil placement and landscaping features.
- .4 Stake slopes and berms.
- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.
- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.

1.5 EXISTING SERVICES

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Owner's Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Owner's Representative.

1.6 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

- .3 Inform Owner's Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Owner's Representative.

1.7 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.8 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit name and address of Surveyor to Owner's Representative.
- .2 On request of Owner's Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.9 SUBSURFACE CONDITIONS

- .1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

1.10 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform TJX CANADA if there is a contradictory situation. Install as directed by TJX CANADA.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.

- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 Provide firestopping in accordance with Section 07 84 00 - Firestopping to maintain the integrity of fire separations, including:
 - .1 Protecting penetrations at fire-resistance rated wall, ceiling or floor construction.
 - .2 Using construction joint fire stops and building perimeter fire stops to protect gaps at fire separations and between fire separations and other construction assemblies.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling & reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section

1.2 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2008, Stipulated Price Contract.

1.3 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Owner's Representative. Do not burn waste materials on site, unless approved by Owner's Representative.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.
- .7 Dispose of waste materials and debris off site at designated dumping areas.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

- .1 Refer to CCDC 2, GC 3.14.
- .2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris including that caused by Owner or other Contractors.

- .6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Owner's Representative. Do not burn waste materials on site, unless approved by Owner's Representative.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, ceilings & floors.
- .10 Clean lighting reflectors, lenses, and other lighting surfaces.
- .11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .16 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .17 Sweep and wash clean paved areas.
- .18 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .19 Clean roofs, downspouts, and drainage systems.
- .20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .21 Remove snow and ice from access to building.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling & reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-2008, Stipulated Price Contract.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Owner's Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Owner's Representative inspection.
 - .2 Owner's Representative Inspection:
 - .1 Owner's Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, balanced, adjusted and fully operational.
 - .4 Certificates required by authorities having jurisdiction: submitted.
 - .5 Operation of systems: demonstrated to Owner's personnel.
 - .6 Commissioning of mechanical systems: completed in accordance with specifications.
 - .7 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Owner's Representative, and Contractor.
 - .2 When Work incomplete according to Owner's Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Owner's Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
 - .7 Final Payment:
 - .1 When Owner's Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 Refer to CCDC 2: when Work deemed incomplete by Owner's Representative, complete outstanding items and request re-inspection.

- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for recycling & reuse in accordance with Section 01 74 11- Cleaning.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Owner's Representative, in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review warranty requirements manufacturer's installation instructions.
 - .2 Owner's Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Owner's Representative, four final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by sequence of Table of Contents and scopes/divisions of work.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;

- .1 Date of submission; names.
- .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
- .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Training: refer to Section 01 79 00 - Demonstration and Training.

1.5 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Owner's Representative.

1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual.
 - .1 After award of Contract; G.C., Will provide a complete set of black line prints for the purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by TJX CANADA.

- .2 Record locations of concealed components of mechanical and electrical services.
- .3 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by TJX CANADA.
- .4 On completion of Work and prior to final inspection submit record documents to TJX CANADA.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 Referenced Standards to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.7 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.8 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

1.9 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.10 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to location as directed ; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to relevant parties that require the information.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed ; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Owner's Representative.
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to location as directed ; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Owner's Representative.
 - .2 Include approved listings in Maintenance Manual.

1.11 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Owner's Representative.

1.12 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Owner's Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Owner's Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Owner's Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 4 month and 9 month warranty inspection, measured from time of acceptance, by Owner's Representative.
- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, transformers, HVAC balancing, pumps, motors, commissioned systems fire protection, sprinkler systems, alarm systems, lightning protection systems.
 - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.
 - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Owner's Representative to proceed with action against Contractor.

1.13 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Owner's Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.
- .2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Ensure equipment has been inspected and put into operation.
 - .3 Ensure testing, adjusting, and balancing has been performed and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Owner's Representative approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.
- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.3 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Owner's personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SUMMARY

- .1 Work includes, but is not limited to the following:
 - .1 Front Façade
 - .2 Interior Partitions and Ceilings as noted.
 - .3 Revisions or alterations to exterior walls as noted.
- .2 This Section includes the following:
 - .1 Demolition and removal of buildings and structures
 - .2 Demolition and removal of site improvements adjacent to a building or structure being demolished
 - .3 Demolition and removal of concrete foundations and piles
 - .4 Removing below grade construction
 - .5 Disconnecting, capping or sealing, and removing site utilities

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

- .1 CSA Group (CSA)
 - .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

1.4 DESCRIPTION

- .1 Work under this division covers the supply of all labour materials and equipment for the demolition of such items referred to on the drawings and as may be required to perform the overall scope of the contract work.
- .2 The Contractor will be required to do all necessary demolition, alterations, and repairs to existing work and conditions in order to make this job complete in all respects.
- .3 Cut opening in existing walls, floors, ceilings, roofs, etc., as required in order to allow for all architectural, structural, mechanical and electrical work to proceed.
- .4 Wherever new work is to join or connect into existing work then all work to match existing.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate with Owner's Representative for the material ownership including but not limited to:
 - .1 Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner 's property, demolished materials shall become Contractor 's property and shall be removed from Project site.
- .2 Scheduling:
 - .1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.
 - .2 In event of unforeseen delay notify Owner's Representative .

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Action Submittals: Provide the following submittals before starting any work of this Section:
 - .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Schedule of Demolition Activities: Coordinate with Section 01 32 16.16- Construction Progress Schedule.
- .2 Informational Submittals: Provide the following submittals when requested by the Consultant:
 - .1 Qualification Data: Submit information for companies and personnel indicating their capabilities and experience to perform work of this Section including; but not limited to, lists of completed projects with project names and addresses, names and addresses of Consultants and Owner's Representative , for work of similar complexity and extent.

1.7 QUALITY ASSURANCE

- .1 Comply with hauling and disposal regulations of Authority Having Jurisdiction.

1.8 SITE CONDITIONS

- .1 Notify Owner's Representative before disrupting building access or services.

1.9 EXISTING CONDITIONS

- .1 Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

Part 2 Products

2.1 MATERIALS

- .1 All demolished material shall become the property of the Contractor and shall be removed immediately from the site, unless otherwise noted.
- .2 Salvaged material:
 - .1 Salvage and stockpile Products, materials, and equipment as specified herein, indicated on Site or indicated on drawings.
 - .2 Coordinate items to be salvaged with Consultant.
 - .3 Salvaged materials shall not be chipped, cracked, split, stained or damaged.
 - .4 Store items off of moist surfaces.

Part 3 Execution

3.1 EXAMINATION

- .1 Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- .2 Review Project Record Documents of existing construction provided by Owner's Representative .
- .3 Owner's Representative does not guaranty that existing conditions are the same as those indicated in Project Record Documents.
- .4 Inventory and record the condition of items being removed and salvaged.
- .5 When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element.
- .6 Promptly submit a written report to Consultant.

- .7 Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during demolition operations.
- .8 Verify that hazardous materials have been remediated before proceeding with demolition operations.

3.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction.
- .2 Protection of In-Place Conditions:
 - .1 Prevent movement, settlement, or damage to adjacent utilities, and parts of building to remain in place. Provide bracing and shoring required.
 - .2 Keep noise, dust, and inconvenience to occupants to minimum.
 - .3 Protect building systems, services and equipment.
 - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
 - .5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Demolition/Removal:
 - .1 Demolish parts of structure as indicated.
 - .2 Removal of Pavements, Curbs and Gutters:
 - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Owner's Representative .
 - .2 Protect adjacent joints and load transfer devices.
 - .3 Protect underlying and adjacent granular materials.
 - .3 Remove parts of existing building to permit new construction.
 - .4 Trim edges of partially demolished building elements to tolerances as defined by Owner's Representative to suit future use.
 - .5 At end of each day's work, leave Work in safe and stable condition.
 - .6 Protect interiors of parts not to be demolished from exterior elements at all times.
 - .7 Demolish to minimize dusting. Keep materials wetted as directed by Owner's Representative .
 - .8 Only dispose of material specified by selected alternative disposal option for own use.
- .4 Remove following materials and equipment, store, protect, and leave ready for installation by other sections of Work :

3.3 SITE RESTORATION & REPAIRS

- .1 Below Grade Areas: Rough grade below grade areas ready for further excavation or new construction.
- .2 Below Grade Areas: Completely fill below grade areas and voids resulting from structure demolition operations with satisfactory soil materials.

- .3 Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes.
- .4 Provide a smooth transition between adjacent existing grades and new grades.
- .5 General: Promptly repair damage to adjacent construction caused by demolition operations.
- .6 Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- .7 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.4 **CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Concrete for Curbs
- .2 Concrete Reinforcement for Curbs
- .3 Modifications to existing floor slab.
- .4 Under-Slab Rough-Ins.
- .5 Concrete Patching.
- .6 Self-Levelling Underlayments
- .7 Exposed Self-Levelling Wear-Surface Toppings
- .8 Concrete Pads.

1.2 RELATED SECTIONS

- .1 02 41 00.08 Demolition - Minor Works
- .2 05 50 00 Metal Fabrications
- .3 07 14 00 Moisture Vapour Emission Management System

1.3 DEFINITIONS

- .1 Delegated Design Professional: The specialist or supporting design professional contracted to the contractor, fabricator or manufacturer to design and/or review specific building components or sub-components, and provide Shop Drawings and Delegated Design Submittals to meet the requirements of authorities having jurisdiction.

1.4 SUBMITTALS FOR REVIEW

- .1 Provide shopdrawings stamped by Delegated Design Professional licensed in the Province of the project location.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Exterior Steel Siding and Metal Panel modifications.

1.2 RELATED SECTIONS

- .1 Section 02 41 00.08 Demolition - Minor Works
- .2 Section 05 50 00 - Metal Fabrications: Steel fabrications affecting structural steel work.
- .3 Section 07 42 13.23 Metal Composite Material Wall Panels
- .4 Section 07 46 19 Steel Siding

1.3 DEFINITIONS

- .1 Delegated Design Professional: The specialist or supporting design professional contracted to the contractor, fabricator or manufacturer to design and/or review specific building components or sub-components, and provide Shop Drawings and Delegated Design Submittals to meet the requirements of authorities having jurisdiction.

1.4 SUBMITTALS FOR REVIEW

- .1 Provide shopdrawings stamped by Delegated Design Professional licensed in the Province of the project location.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Shop fabricated miscellaneous metal items.
- .2 Examine the architectural, structural, mechanical, electrical, civil, and landscaping *Drawings* to establish the full extent of the work of this section.
- .3 Shop fabricated steel items.
- .4 Roof Deck Assembly, decking & joist, modifications to accommodated Mechanical Roof Top Units.
- .5 New steel outrigger supports for steel siding and architectural metal panel modifications.

1.2 RELATED REQUIREMENTS

- .1 Section 03 30 00 - Cast-in-place Concrete: Placement of metal fabrications in concrete.
- .2 Section 05 52 00 - Metal Railings.
- .3 Section 08 30 00 - Specialty Doors & Frames.
- .4 Section 08 32 00 - Sliding Glass Doors.
- .5 Section 08 36 13 - Sectional Metal Overhead Doors
- .6 Section 07 41 16 - Insulated Metal Roof Panels
- .7 Section 09 21 16 - Gypsum Board Assemblies
- .8 Section 09 21 16 - Gypsum Board Assemblies: Steel Security Mesh
- .9 Section 09 91 00 - Painting: Paint finish.
- .10 Section 12 48 13.13 - Entrance Floor Mats

1.3 REFERENCE STANDARDS

- .1 [AAMA 2603-21 Voluntary specification, performance requirements and test procedures for pigmented organic coatings on aluminum extrusions and panels \(with coil coating appendix\)](#)
- .2 [AAMA 2604-20 Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels \(with coil coating appendix\)](#)
- .3 [AAMA 2605-20 Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminum extrusions and panels \(with coil coating appendix\)](#)
- .4 [ASTM A53/A53M-20 Standard specification for pipe, steel, black and hot-dipped, zinc-coated, welded and seamless](#)
- .5 [ASTM A153/A153M-16a Standard specification for zinc coating \(hot-dip\) on iron and steel hardware](#)
- .6 [ASTM A307-21 Standard specification for carbon steel bolts, studs, and threaded rod 60 000 PSI tensile strength](#)
- .7 [ASTM A500/A500M-21a Standard specification for cold-formed welded and seamless carbon steel structural tubing in rounds and shapes](#)
- .8 [ASTM A501/A501M-21 Standard specification for hot-formed welded and seamless carbon steel structural tubing](#)
- .9 [ASTM B177/B177M-11\(2021\) Standard guide for engineering chromium electroplating](#)

- .10 ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate
- .11 ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate
- .12 ASTM B210/B210M-19a Standard specification for aluminum and aluminum-alloy drawn seamless tubes
- .13 ASTM B210/B210M-19a Standard specification for aluminum and aluminum-alloy drawn seamless tubes
- .14 ASTM B211/B211M-19 Standard specification for aluminum and aluminum-alloy rolled or cold finished bar, rod, and wire
- .15 ASTM B211/B211M-19 Standard specification for aluminum and aluminum-alloy rolled or cold finished bar, rod, and wire
- .16 ASTM B221M-21 Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes (metric)
- .17 ASTM B221-21 Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes
- .18 STD G40.20/G40.21-13 General requirements for rolled or welded structural quality steel/structural quality steel
- .19 CSA W47.1:19 Certification of companies for fusion welding of steel
- .20 STD W47.2-11 Certification of companies for fusion welding of aluminum
- .21 STD W48-18 Filler metals and allied materials for metal arc welding
- .22 STD W55.3-08 Certification of companies for resistance welding of steel and aluminum
- .23 STD W59-18 Welded steel construction
- .24 STD W59.2-18 Welded aluminum construction
- .25 Maintenance repainting specification manual
- .26 SSPC 16-01 Steel structures painting manual. Volume 1: good painting practice

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings:
 - .1 Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - .2 Indicate welded connections using standard welding symbols. Indicate net weld lengths.
 - .3 All related connections and fastenings, shall be designed by a structural engineer permanently licensed to practice in the Province of the location of the *Project*. Each of the *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid structural engineer.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 QUALITY ASSURANCE

- .1 Welders' Certificates: Submit to Section 01 33 00 requirements, certifying welders employed on the Work, verifying qualification within the previous twelve (12) months to CSA-W47.1 (steel), CSA-W47.2 (aluminum).
- .2 Welded Steel Construction: CSA-W59.
- .3 Welded Aluminum Construction: CSA-W59.2.
- .4 Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the place where the Project is located.

Part 2 Products

2.1 COORDINATION

- .1 Coordination with structural steelwork:
 - .1 Coordinate the work of this section with the structural steelwork *Supplier* to ensure that all structural steelwork and metal fabrications required for a complete *Project* are included.
 - .1 Be advised that claims for extras to the *Contract* Sum for the supply and/or installation of structural steelwork or metal fabrications arising from failure to coordinate the work of this section with the structural steelwork *Supplier* will not be considered.
 - .2 Where the work of this section is furnished for installation by other trades, coordinate with the appropriate trades to ensure a proper fit and to schedule delivery dates to ensure the expeditious completion of the *Project*.

2.2 MATERIALS - STEEL

- .1 Steel Sections and Plates: CSA-G40.20/G40.21, Grade 300W, 350W (or applicable as to suite purpose).
 - .1 Work in accordance with reviewed shopdrawings.
- .2 Fasteners: As required for in-service conditions.
- .3 Bolts, Nuts, and Washers: ASTM A307, galvanized to ASTM A153/A153M for galvanized components.
- .4 Welding Materials: Type required for materials being welded.
- .5 Welding Filler Material: CSA-W48.
- .6 Shop and Touch-Up Primer: MPI #79, anti-corrosive alkyd, SPCC-Paint 15, SSPC-Paint 25, zinc oxide, alkyd.
- .7 Primer: As specified in Section 09 91 00.
- .8 Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, MPI #19, inorganic zinc-rich primer.

2.3 CONNECTION TO EXISTING WORK

- .1 Verify dimensions of existing work before commencing fabrication.
- .2 Provide all necessary temporary supports, braces, etc., required to carry out work on existing structure.

2.4 OTHER MISCELLANEOUS METAL FABRICATIONS

- .1 Other miscellaneous metal fabrications

.1 Bollards:

- .1 Exterior steel bollards to be hot dip galvanized after fabrication for paint finish by Section 09 91 00 - Painting *.
- .2 Interior steel bollards to be shop prime coated for paint finish by Section 09 91 00 - Painting *.
- .3 Exterior bollards are to be vinyl wrapped.
 - .1 Cover Product Material: Bollard to be covered with a Sureguard sleeves covers.
 - .1 Colour: Black with two white recessed reflective stripes.
- .4 Fabricate bollards from 152 mm dia. HSS galvanized steel pipe to be filled with concrete, and unless otherwise noted:
 - .1 Height above grade 1370 mm.
 - .2 Depth below grade: minimum 1500 mm,
 - .3 Foundation: Coordinate with concrete installer to set the bollards into a 355 mm dia. x 1500 mm deep concrete foundation.
- .5 Bollards installed tight to building are to be anchored directly to the foundation wall by means of two (2) steel brackets, with a below grade foundation. Minimum depth 915 mm below grade when bolted to the foundation wall.

.2 Burglar Bars:

- .1 113mm diameter at 200 mm both ways welded to steel angle frame for all wall and roof openings larger than 305 mm x 305 mm (i.e. mechanical openings, abandoned skylights etc.)

.3 Tactile Walking Surface Indicators (TWSI):

- .1 Cast iron with truncated domes, manufactured to ASTM A-48M-03 (2012).
 - .1 Dimensions: 1.2m (w) x 305mm (h)
 - .2 Comply w/ ISO 23599:2019.

.4 Compactor accessories:

- Rough-ins and accessories in accordance with 11 82 26 - Facility Waste Compactors.

.5 Loading Dock Leveler accessories:

- Steel, wheel chock brackets and accessories in accordance with 11 13 13 - Loading Dock Bumpers.
- Rough-ins and accessories in accordance with 11 13 16 - Loading Dock Seals & shelters.

- Rough-ins and accessories in accordance with 11 13 19.13 - Loading Dock Equipment.
 - Steel edge trim. Coordinate with Div. 03 Concrete.
- .6 **Specialty Door framing posts**
- See door schedule.
 - See Section 08 30 00 Specialty Doors and Frames (Post supports for double action doors).
- .7 **Overhead Door framing posts & coverplates**
- Cover plates at overhead door posts.
 - See Section 08 36 13.16 Sectional Metal Doors.
- .8 **Eyewash station bar.**
- Coordinate with Mechanical.
- .9 **Digi-Locker strapping.**
- Coordinate with Owner supplied equipment.
- .10 **Security Mesh.**
- See 09 21 16 - Gypsum Board Assemblies.
- .11 **Metal Pipe Railings:**
- See 05 52 00 - Metal Railings
- .12 **Cart Corralls:**
- .1 See 05 52 00 - Metal Railings
- .13 **Steel Angle Bars:**
- .1 Supply and install 100 x 100 x 6mm steel angles, anchored to and flush with concrete for edges of all receiving docks, side walls at dock receiving areas and garbage compactors.
 - .2 Supply and install 100 x 100 x 6 mm steel angle guard protection for guide tracks to all overhead doors.
 - .3 Supply and install 100 x 100 x 6mm thick x 1524 mm long steel angle corner protectors in Stock room on all external corners including columns.
- .14 **Frames & Covers:**
- .1 Supply steel angle or channel frames required for any openings, vanities, and shelves not specified elsewhere and for extensions.
 - .2 Provide 50 x 50 x 6mm steel angle frames with 10 x 10 mm stop welded to the top of the angle for all floor openings such as catch basins, sump pumps, etc. Covers shall be 6 mm checkered plate complete with handles, for backstore areas and tile-covered covers in sales area.
- .15 **Wire Guards:**
- .1 Provide wire guards for switches, thermostats, pipe, and sprinkler heads, etc., where required for protection from traffic or required for safety.
- .16 **Guard Rails At Automatic Swing Doors:**
- .1 Provide and install safety metal guardrails at exterior entrance and exit automatic doors, including vestibule doors. Refer to plan.

- .2 Flat bar construction (1-3/4" x 1/2") 30" high, 36" long, radiused outside corners and horizontal rail at mid-height. As supplied by Stanley Magic Swing Door or equal.

.17 Suspension Support Of Ceiling Mounted Equipment:

- .1 Rod supports for hot water tank, transformers, all HVAC equipment and track lighting in open ceiling.
- .2 Wire supports for drywall T-bar grid.
- .3 Provide bolts, washers and shims as required, hot-dip galvanized per ASTM A 153/A 153M.
- .4 All support are to be as per local codes for seismic restraint.

.18 Steel Deck Modifications for Mechanical Roof-Top Units:

- .1 See Mechanical Information.
- .2 See Section 02 41 00.08 Demolition - Minor Works
- .3 See Section 07 52 00 Modified Bituminous Membrane Roofing

.19 Outrigger Supports for Steel Siding Frames and Architectural Metal Panels:

- .1 See Section 02 41 00.08 Demolition - Minor Works
- .2 See Section 07 46 19 Steel Siding
- .3 See Section 07 42 13.23 Metal Composite Material Wall Panels

2.5 FABRICATION

- .1 Fit and shop assemble items in largest practical sections, for delivery to site.
- .2 Fabricate items with joints tightly fitted and secured.
- .3 Continuously seal joined members by continuous welds.
- .4 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- .5 Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- .6 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.6 FABRICATION TOLERANCES

- .1 Squareness: 3 mm maximum difference in diagonal measurements.
- .2 Maximum Offset Between Faces: 1.6 mm.
- .3 Maximum Misalignment of Adjacent Members: 1.6 mm.
- .4 Maximum Bow: 3 mm in 1.2 m.
- .5 Maximum Deviation From Plane: 1.6 mm in 1.2 m.

2.7 FINISHES - STEEL

- .1 Prepare surfaces to be primed in accordance with SPCC SP 2.
- .2 Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- .3 Do not prime surfaces in direct contact with concrete or where field welding is required.
- .4 Prime paint items with two (2) coats.

- .5 Structural Steel Members: Galvanize after fabrication appropriate grade for type and size of steel material indicated, with zinc coating thickness ASTM A123/A123M.
- .6 Non-structural Items: Galvanized after fabrication to appropriate grade for type and size of steel material indicated, with zinc coating thickness ASTM A123/A123M.

2.8 EXPOSED STEEL

- .1 Conform to the requirements of the A.I.S.C. Specifications for Architecturally Exposed Structural Steel, or latest governing codes, and to the additional requirements given below when fabricating and erecting steel members which will remain permanently exposed to view and in addition to CAN3-S16.1-01.
- .2 Remove all imperfections, which are unsightly from members permanently exposed to view. Remove mill and shop marks.
- .3 Provide continuous welding at exposed joints or fill between welds with an approved epoxy resin filler finished to the same profile as the adjacent weld. Joint shall be weather-tight and suitable for painting.
- .4 Exposed welds shall be smooth.
- .5 The Architect and Engineer shall inspect the steel at point of fabrication prior to shipment.

2.9 SHOP PAINTING

- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 Use primers unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, and grease. Do not paint when temperature is lower than 7 degrees Celsius.
- .3 Clean surfaces to be field welded; do not paint.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that field conditions are acceptable and are ready to receive work.
- .3 Verify dimensions, tolerances, and method of attachment with other work.

3.2 PREPARATION

- .1 Clean and strip primed steel items to bare metal or aluminum (as applicable) where site welding is required.
- .2 Supply steel items required to be cast into concrete with setting templates to appropriate sections.

3.3 INSTALLATION

- .1 Install items plumb and level, accurately fitted, free from distortion or defects.
- .2 Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- .3 Field weld components indicated on Drawings & Shop Drawings.
- .4 Perform field welding to CSA requirements.

- .5 Obtain approval prior to site cutting or making adjustments not scheduled.
- .6 After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
- .7 Other Miscellaneous metal fabrications
 - .1 **Metalwork Integrated Into The Work Of Other Sections**
 - Coordinate with the appropriate other Sections, work which is to be integrated into the work of those Sections.
 - Where appropriate, fabricate the work of this Section and hand over to others for installation.
 - .2 **Metal Fabrications For Overhead Doors**
 - Install steel channel frames, threshold and miscellaneous steel fabrications, as indicated on the reviewed metal fabrications and overhead door *Shop Drawings*.

3.4 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Variation From Plumb: 6 mm per story, non-cumulative.
- .3 Maximum Offset From True Alignment: 6 mm.
- .4 Maximum Out-of-Position: 6 mm.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Handrails, balusters, and fittings.

1.2 RELATED REQUIREMENTS

- .1 Division 03 - Cast-in-place Concrete: Placement of anchors in concrete.
 - .1 Refer to Structural - Shop drawings to be provided with Professional Engineers' Seal for all items noted above.
- .2 Section 05 50 00 – Metal Fabrications: Attachment plates for metal stairs, including anchorage.
- .3 Section 05 51 00 - Metal Stairs: Handrails other than those specified in this section.
- .4 Section 09 91 00 - Painting: Paint finish.

1.3 DEFINITIONS

- .1 Delegated Design Professional: The specialist or supporting design professional contracted to the contractor, fabricator or manufacturer to design and/or review specific building components or sub-components, and provide Shop Drawings and Delegated Design Submittals to meet the requirements of authorities having jurisdiction..

1.4 REFERENCE STANDARDS

- .1 [ASTM A53/A53M-22 Standard specification for pipe, steel, black and hot-dipped, zinc-coated, welded and seamless](#)
- .2 [ASTM A501/A501M-21 Standard specification for hot-formed welded and seamless carbon steel structural tubing](#)
- .3 [STD W59-18 Welded steel construction](#)
- .4 [Maintenance repainting specification manual](#)
- .5 [SSPC 16-01 Steel structures painting manual. Volume 1: good painting practice](#)

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings:
 - .1 Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
 - .2 Provide Shop Drawings stamped and signed by the delegated design professional licensed in the Province of the location of the project.

1.6 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Delegated Design Submittals:
 - .1 Submit documentation indicating compliance to performance/design criteria, signed and sealed by the delegated design professional responsible for their preparation.
 - .1 Design Data: Include material data, calculations and details.

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.8 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform welding to CSA-W59.
- .3 Delegated Design Professional Qualifications: Professional Structural Engineer experienced in design of this Work and licensed in the province where the project is located.

Part 2 Products

2.1 PERFORMANCE / DESIGN CRITERIA

- .1 Delegated Design: Design metal railings, connections and anchors by a licensed design professional using performance and design criteria as indicated.
- .2 Railing assembly, wall rails, and attachments to resist lateral force of 333 N at any point without damage or permanent set.
- .3 Fabricate railing assembly, wall rails, and attachments to applicable code requirements.
- .4 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable code.

2.2 STEEL RAILING SYSTEM

- .1 Steel Tubing: ASTM A500/A500M, Grade B.
- .2 Steel Pipe: ASTM A53/A53M, Grade B, Schedule 40.
- .3 Pipe railings:
 - .1 40 mm nominal outside diameter steel to stairs. Railings to be supplied with all necessary supports and brackets.
 - .2 Exterior pipe railings at truck dock and side retaining walls: galvanized, diameter 40 mm unless otherwise noted.
 - .3 Shop drawings to be provided with Professional Engineers' Seal for all items noted above.
- .4 Shopping Cart Corrals:
 - .1 2" o/c diameter Stainless Steel pipe; o/c stainless steel finish (incl. Flange), 3'2-1/2" in height, verticals spaced approx. 4'0" o.c., with a secondary horizontal rail 1'-8-3/4" A.F.F. to center; all posts to be cored into floor; flange or post based is to be concealed.
 - .2 Shop drawings to be provided with Professional Engineers' Seal for all items noted above.
- .5 Fittings: Elbows, T-shapes, wall brackets, escutcheons; cast steel.
- .6 Mounting: Prepare backing plate for mounting in wall construction, thickness as indicated brackets and flanges Adjustable. with steel inserts for casting in concrete
- .7 Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- .8 Splice Connectors: Steel welding collars.
- .9 Shop Prefinishing: Epoxy coated; colour as selected.

2.3 FABRICATION

- .1 Fit and shop assemble components in largest practical sizes for delivery to site.
- .2 Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- .3 Provide anchors, plates required for connecting railings to structure.
- .4 Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- .5 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- .6 Exterior Components: Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
- .7 Interior Components: Continuously seal joined pieces by continuous welds.
- .8 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- .9 Accurately form components to suit stairs and landings to each other and to building structure.
- .10 Accommodate for expansion and contraction of members and building movement without damage to connections or members.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

- .1 Clean and strip primed steel items to bare metal where site welding is required.
- .2 Supply items required to be cast into concrete with setting templates, to appropriate sections.

3.3 INSTALLATION

- .1 Install railings to manufacturer's instructions.
- .2 Install components plumb and level, accurately fitted, free from distortion or defects.
- .3 Anchor railings to structure with anchors, plates.
- .4 Field weld anchors as indicated on Shop Drawings. Touch-up welds with primer. Grind welds smooth.
- .5 Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- .6 Assemble with spigots and sleeves to accommodate tight joints and secure installation.

3.4 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Variation From Plumb: 6 mm per storey, non-cumulative.
- .3 Maximum Offset From True Alignment: 6 mm.

.4 Maximum Out-of-Position: 6 mm.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Miscellaneous rough carpentry, including:
 - .1 Rooftop equipment curbs and bases.
 - .2 Wood blocking, cants, nailers.
 - .3 Wood grounds.
 - .4 Wood sleepers.
 - .5 Telephone and electrical panel backboards.
- .2 Fasteners.
- .3 Preservative treatment.
- .4 Fire retardant treatment.

1.2 RELATED REQUIREMENTS

- .1 Division 3 - Structural - Cast-in-Place Concrete: Setting anchors in concrete.
- .2 Section 06 14 00 - Permanent Wood Foundation: Pressure treated wood foundation.
- .3 Section 07 62 00 - Sheet Metal Flashing and Trim.
- .4 Section 08 11 13 - Metal Doors and Frames: Door openings to receive wood blocking.
- .5 Section 08 51 13 - Aluminum Windows: Window openings to receive wood blocking.
- .6 Section 09 22 16 - Non-structural metal stud framing.

1.3 REFERENCE STANDARDS

- .1 ANSI A135.4-2020 - Basic Hardboard.
- .2 [ASTM A123/A123M-17](#) Standard specification for zinc (hot-dip galvanized) coatings on iron and steel products
- .3 [ASTM A153/A153M-16a](#) Standard specification for zinc coating (hot-dip) on iron and steel hardware
- .4 [ASTM A653/A653M-20](#) Standard specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process
- .5 [CAN/CGSB 11.3-M87](#) Hardboard
- .6 [Canadian plywood handbook](#)
- .7 [CSA O80 SERIES:21](#) Wood preservation
- .8 [CAN/ULC-S706.1-2020](#) - Standard for Wood Fibre Insulating Boards for Buildings.
- .9 [STD O121-17](#) Douglas fir plywood
- .10 [STD O151-17](#) Canadian softwood plywood
- .11 [CSA O153:19](#) Poplar plywood
- .12 [CSA O325:21](#) Construction sheathing (adopted NIST PS 2-18, with Canadian deviations)
- .13 [STD O437 SERIES-93](#) Standards on OSB and waferboard
- .14 [Standard grading rules for Canadian lumber](#)
- .15 [STD A208.1-2016](#) Particleboard

- .16 NLGA, Standard Grading Rules for Canadian Lumber, National Lumber Grades Authority.

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide technical data on wood preservative materials, application instructions.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Certification: Provide written certification that all wood and wood-based *Products* used on the *Project* are FSC certified.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 QUALITY ASSURANCE

- .1 Perform Work in accordance with the following agencies:
 - .1 Lumber Grading Agency: Certified by NLGA Grading Rules.
 - .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).

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 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 off the ground, covered with weatherproof tarps as minimum or 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 Grading Rules Standard Grading Rules for Lumber. Finger jointed lumber not acceptable.
 - .1 Machine stress-rated lumber is acceptable for all purposes.
 - .2 Furring, Blocking, Grounds and Rough Bucks, Sleepers, Curbs: Grade No. 2, species: Spruce-pine fir; exterior wood pressure preservative treated.
 - .1 Use S2S or S4S material.

- .2 S.P.F. species, NLGA economy foaming grade, para.122e.
- .3 Curbs for roofing:
 - .1 Cedar species, NLGA cedar industrial clear grade, Para 2030.
- .4 Plywood shall conform to CSA O121 for paint finish. Waterproof/Exterior for exterior use and for pressure wash platform and water-resistant/interior type elsewhere. Plywood for cabinet work and counters, etc., shall be good two sides.
 - .7 Wood preservative, unless otherwise specified, to be PENTOX or approved equal.
 - .8 Exterior sheathing, where

2.2 PANEL MATERIALS

- .1 Plywood: CSA-O121 as indicated in schedule below, CANPLY certified and graded, meeting the requirements of CSA-O325.
 - .1 Waterproof/Exterior for exterior use and for pressure wash platform and water-resistant/interior type elsewhere. Plywood for cabinet work and counters, etc., shall be good two sides.
 - .2 Wall Sheathing: CSA-O121, Sheathing grade, 19mm thickness, square edges.
 - .1 Exterior sheathing, where indicated, to be plywood 3/4" thick, unless otherwise noted or authorized.
 - .3 Telephone and Electrical Panel Back Boards: Plywood, thickness Thickness as indicated,, S1S.
 - .4 Backboard to be installed in advance of telephone equipment and I.G. receptacles which will be installed two weeks prior to construction turnover to Tenant.
- .2 Wood preservative, unless otherwise specified, to be PENTOX or approved equal.
- .3 OSB: Oriented strands set with waterproof resin binder, meeting the requirements of CSA-O325.
- .4 Glass-Mat Faced Gypsum Board Sheathing: ASTM C1177/C1177M, glass-mat faced with water-resistant core; nominal width 1220 mm, maximum length in place; square edges.

2.3 FASTENERS AND ANCHORS

- .1 Screws and Nails: Galvanized steel; type and size suitable for application.
- .2 Anchors: Galvanized steel; toggle bolt type for anchorage to hollow masonry expansion shield and lag bolt type for anchorage to solid masonry or concrete.
- .3 Bolt, nut, washer, screw and pin type fasteners: with hot-dip galvanized finish to CAN/CSA G164-M, for exterior work, interior highly humid areas elsewhere with primer paint finish where installed on sight-exposed surfaces.
- .4 Wood blocking at roof parapet and roof penetrations: SVA expansion anchor, galvanized, by HILTI.

2.4 MISCELLANEOUS ACCESSORIES

- .1 Sill Gasket (top of foundation wall): 6 mm, as indicated thick, plate width Closed cell polyethylene foam.
- .2 Flexible Flashing: Rubberized-asphalt compound, self-adhesive, bonded to a high-density, polyethylene film, minimum thickness 0.64 mm. Compatible primer recommended by membrane manufacturer.

- .3 Adhesives: Waterproof adhesive, approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.
- .4 Miscellaneous Strapping & Support:
 - .1 Provide and install 3/4" x 5" plywood strapping in walls for support of lockers in Staff Areas, at 5'0" A.F.F. to ceiling Strapping to be secured horizontally along walls and secured to studs/masonry as necessary. Refer to Drawings for location.
 - .2 Provide in-wall strapping for wall bumpers, millwork, washroom accessories, fitting room exterior walls, etc.
 - .3 Provide and install 3/4" plywood strapping on walls for support of wall system in Sales Floor Areas, locations as per wall panel installation provided. Strapping to be secured horizontally along walls and secured to studs/masonry as necessary.

2.5 PRESERVATIVE TREATMENT

- .1 Wood Preservative (Pressure Treatment): CAN/CSA-O80, and in accordance with Table 2 - Use Categories for Specific Products, Uses, and Exposures.
 - .1 Treatment:
 - .1 Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - .2 Treat lumber exposed to weather.
 - .3 Treat lumber in contact with roofing, flashing, or waterproofing.
 - .4 Treat lumber in contact with masonry or concrete.
 - .5 Treat lumber less than 450 mm above grade.
 - .6 Treat lumber in other locations as indicated.
 - .7 Do not use treated wood in direct contact with the ground
 - .2 UC1: Interior construction, above-ground and dry applications; use inorganic boron (SBX) preservative.
 - .3 UC2: Interior construction, above-ground and potentially damp applications; use inorganic boron (SBX) preservative, waterborne alkali-based, type ACQ, waterborne alkali-based, type CA, as suitable for purpose.
 - .4 UC3.1: Exterior construction, protected, above-ground applications (coated millwork, cants, siding, trim); use waterborne alkali-based, type ACQ, waterborne alkali-based, type CA, as suitable for purpose.
- .2 Wood Preservative (Surface Application): CAN/CSA-O80, copper naphthenate.
- .3 Fire retardant (FRT): CAN/CSA-O80, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 25/50, to CAN/ULC-S102.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 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, instructed by the manufacturer.

- .3 Coordinate installation of rough carpentry with related work specified in other sections.

3.2 GYPSUM SHEATHING INSTALLATION

- .1 Install components to GA-253.
- .2 Coordinate location of openings and through-wall components with other work.
- .3 Erect gypsum sheathing vertically, with edges butted tight and ends occurring over firm bearing.
- .4 Use screws when fastening gypsum board to furring or framing.
- .5 Place gypsum soffit board perpendicular to supports, with staggered end joints over supports.
- .6 Treat cut edges and holes in sheathing with sealant.
- .7 Place sealable exterior control joints consistent with lines of building spaces to maximum spacing of 10 m, as indicated on Drawings. Form joint with back-to-back casing beads spaced apart to form a flexible sealant joint.
- .8 Place corner beads at external corners as indicated.
 - .1 Use longest practical length.
 - .2 Place edge trim where gypsum board abuts dissimilar materials as indicated.

3.3 INSTALLATION

- .1 General:
 - .1 Select material sizes to minimize waste.
 - .2 Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
 - .3 Where treated wood is used on the interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.
 - .4 Blocking, Nailers, And Supports
 - .1 Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
 - .2 In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
 - .3 In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
 - .4 In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
 - .5 Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- .5 Roof-Related Carpentry
 - .1 Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

- .2 Coordinate with Sections 07 62 00- Modified Bituminous Membrane Roofing and 07 62 00 - Sheet Metal Flashing and Trim and install blocking, cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
 - .1 Install plywood and wood blocking at the entire perimeter of the flat roofs and as detailed. Construct the tops of parapet walls with a backslope as indicated on the *Drawings*.
 - .2 Support all ends of plywood and fasten to the substrate at a rate of 20 fasteners/m², equally spaced.
 - .3 Where applicable, match the height of the blocking with the height of insulation.
 - .4 Anchor blockings to the deck 300 mm o.c. to resist a force of 2.5 kN/m in any direction.
- .3 Provide wood curbs at all roof openings except where specifically indicated otherwise. Form corners by alternating the lapping side members.
- .6 Installation Of Construction Panels
 - .1 Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over a firm bearing; space fasteners at maximum 610 mm o.c. on all edges and into the studs in the field of the board.
 - .2 At fire-rated walls, install the board over the gypsum board indicated as part of the fire-rated assembly.
 - .3 Where boards are indicated as full floor-to-ceiling height, install with the long edge of board parallel to the studs.
 - .4 Install adjacent boards without gaps.
 - .5 Size and Location: As indicated on the *Drawings* or as required by the electrical or communications *Contractor*.

3.4 FLEXIBLE FLASHING

- .1 Install flexible flashing to manufacturer's written instructions.
- .2 Lap seams and junctions with other materials minimum 100 mm.
- .3 Lap flashing over sheathing paper at bottom and sides of wall openings; lap sheathing paper over flashing at head of wall openings

3.5 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.

3.6 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Framing Members: 6 mm from true position, maximum.
- .3 Surface Flatness of Floor: 2 mm in 1 m maximum, and 13 mm in 9 m maximum.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Miscellaneous finish carpentry, not exclusive, as required for a complete *Project*:
 - .1 Plywood bases for equipment.
 - .2 Wood window stools and sills
 - .3 Wood casings and moldings.
 - .4 Miscellaneous other finish carpentry and woodwork as required for a complete *Project*.
- .2 Panelling.
- .3 Fasteners and adhesives.
- .4 Wood treatment.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry: Grounds and support framing.
- .2 Section 06 42 19 - Plastic-laminate-faced wood paneling
- .3 Section 08 14 16 - Flush Wood Doors.
- .4 Section 09 91 00 - Painting: Painting and finishing of finish carpentry items.
- .5 Appendix - Div.06 - Finishes Schedule - Millwork

1.3 REFERENCE STANDARDS

- .1 ANSI A135.4-2020 - Basic Hardboard.
- .2 [ANSI/BHMA A156.9-2015 Cabinet hardware](#)
- .3 [CSA O80 SERIES:21 Wood preservation](#)
 - .1 CSA-O80.1-15 - Specification for Treated Wood.
 - .2 CSA-O80.3-15 - Preservative Formulations.
- .4 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .5 [STD O121-17 Douglas fir plywood](#)
- .6 [CSA O141:05 Softwood lumber](#)
- .7 [STD O151-17 Canadian softwood plywood](#)
- .8 [CSA O153:19 Poplar plywood](#)
- .9 CHPVA (Canadian Hardwood Plywood and Veneer Association).
- .10 [STD A208.1-2016 Particleboard](#)
- .11 [STD A208.2-2016 Medium density fiberboard \(MDF\) for interior applications](#)
- .12 [NEMA LD 3-2005 High-pressure decorative laminates \(HPDL\)](#)
- .13 NHLA (National Hardwood Lumber Association)
- .14 [Standard grading rules for Canadian lumber](#)
- .15 HPVA (Hardwood Plywood and Veneer Association)

- .1 [STD ANSI/HPVA HP-1-2020 American national standard for hardwood and decorative plywood](#)

- .16 AWMAC, Architectural Woodwork Manufacturers Association of Canada.
- .17 AWS, Architectural Woodwork Standards - Quality Standards for Architectural Woodwork.
- .18 CAN/CSA G164-M, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .19 NLGA, Standard Grading Rules for Canadian Lumber, National Lumber Grades Authority.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 plumbing, electrical rough-in, installation of associated and adjacent components.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on fire retardant treatment materials and application instructions.
- .3 Shop Drawings:
 - .1 Indicate materials, component profiles, fastening methods, jointing details, accessories to a minimum scale of 1:8.
 - .2 Provide instructions for hardware attachment.
 - .3 Indicate typical and special installation conditions, and all connections, attachments and anchorage.
 - .4 Provide the information required by AWMAC/WI (NAAWS).

1.6 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Provide application instructions.

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.8 QUALITY ASSURANCE

- .1 Execute Work of this Section by member of AWMAC, with 5 years experience in finish carpentry Work of comparable complexity and scope. Submit proof of experience upon Consultant's request.
- .2 Fabricate finish carpentry Work in accordance with AWS Quality Standards, Custom Grade Quality materials and installation unless otherwise indicated. Perform Work in accordance with the definition of Good Workmanship as defined in the AWS Quality Standards.
- .3 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 Fire Retardant Treated Wood (FRTW): Certified and labelled by UL/ULC.
- .4 Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Deliver materials only when area of operation enclosed, and adjacent work is dry and broom clean.
- .3 Maintain indoor temperature and humidity within range recommended for location of the project.
- .4 Protect work from moisture damage.

Part 2 Products

2.1 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for fire retardant requirements.

2.2 LUMBER MATERIALS

- .1 Softwood Lumber: CSA-O141, NLGA Grading Rules, maximum moisture content of 9%.
- .2 Hardwood Lumber: NLGA Grading Rules, maximum moisture content of 15%.
- .3

2.3 SHEET MATERIALS

- .1 Softwood Plywood: CSA-O151.
- .2 Hardwood Plywood: HPVA, HPVA-1 grading rules.
- .3 Industrial Particleboard: NPA A208.1, cellulosic composite panel bonded together with binder containing no urea-formaldehyde resin, grade to suit application; sanded faces.
- .4 Medium Density Fibreboard (MDF): NPA A208.2; composed of wood particles reduced to fibres, made Binders, waterproof binders containing no urea-formaldehyde resin; grade to suit application; sanded faces.
- .5 Hardboard: ANSI A135.4; heat and pressure consolidated inter-felted lignocellulosic fibre board, unperforated, Standard grade, S1S, S2S, thickness 6 mm, or grade and thickness to suite application.
- .6 Melamine-Faced Particleboard: NPA A208.1, finished both faces with thermally fused, melamine decorative paper.
- .7 Wood Panel Material:
 - .1 Hardwood Plywood:
 - .1 HPVA HP-1 Grade A; particleboard core, type of glue recommended for application, sequenced matched, species, veneer cut and match as indicated on the *Drawings*.
 - .2 Hardwood Lumber: AWMAC premium grade, species and colour to match panels, maximum moisture content 6%; straight grain .

2.4 CABINETWORK

- .1 Cabinet doors to be AWMAC type flush, 19 mm thick, flush custom grade.
- .2 Set nails and screws, apply stained plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .3 Install and adjust cabinet hardware for shelves, doors and drawers. Recess shelf standards unless noted otherwise.
- .4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .5 Fit shelves with hardwood edging.
- .6 Provide 10 mm thick solid matching wood strip on plywood edges exposed in final assembly. Strips same width as plywood.

2.5 EMPLOYEE LOUNGE - APPROVED TJX CANADA VENDOR: INTERIOR STORE DISPLAY (ISD)

- .1 Supply and Install counter with cupboards, top and bottom, length as indicated. Exterior cabinet finishes to be laminate. Cupboard doors to be brushed chrome pulls, European Style concealed Hinges.
- .2 Interior to be melamine. Refer to Drawings for details of construction.
- .3 Contact Information: Garry Aldworth
Tel.: (519) 835-0532
Email: garry@interiorstoredisplay.com

2.6 VANITIES

- .1 Supply and install vanities in washrooms as indicated on drawings.

2.7 CHANGE ROOMS – APPROVED TJX CANADA VENDOR: INTERIOR STORE DISPLAY (ISD)

- .1 Supply and Install change room partitions, bench (in handicap/family fitting room and interview room).
- .2 Contact Information: Garry Aldworth
Tel.: (519) 835-0532
Email: garry@interiorstoredisplay.com

2.8 CASH/ SECURITY/ASSISTANT MANAGER OFFICE & OPTIONAL OFFICES-INTERVIEW ROOM/ DISTRICT MANAGERS

- .1 Supply and Install built in counters and shelves as indicated on the drawings.
- .2 Supply and install laminate panels on walls where safe(s) are to be installed,

2.9 MISCELLANEOUS SLATWALL PIECES

- .1 Misc. pieces of slatwall (extra stock from Sales Floor to be mounted on walls throughout the store as shown on Drawings.
- .2 Typically this consists of individual pieces, maximum 36" x 48", screwed to the walls in each of the Manager's, Assistant Manager's, District Coordinator's, District Loss Prevention Manager's, District Manager's and Cash office.
- .3 Install one full sheet of slatwall in stockroom as shown on Drawings.

- .4 Miscellaneous installed pieces to have metal edge trim as supplied with slatwall system to keep if from warping. For a further description of above refer to notes on Drawings.

2.10 CASH UNITS & STORAGE

- .1 Supplied by TJX Canada, installed by G.C.
- .2 Fitments shall be installed level, plumb and true, complete in all respects.
- .3 Coordinate deliveries to comply with construction schedule.
- .4 Materials shall be unloaded, stored and handled to prevent damage

2.11 SECURITY ROOM

- .1 Supply and install built in counters and shelves as indicated on the drawings.

2.12 WAREHOUSE

- .1 Supply and install 12 ft. high plywood on walls as indicated on Floor Plan.
- .2 Prepare internal non-expose surfaces ready for sealing with varnish or shellac.

2.13 ADHESIVE

- .1 Type suitable for intended purpose.
 - .1 Maximum VOC content 30g/L (less water).

2.14 FASTENERS

- .1 Size and type to suit application; finish in exposed locations as indicated on the Drawings.
- .2 Fasteners: Nails, screws, and anchoring devices, galvanized steel, stainless steel, type 304, of size and type to suit application.
 - .1 Galvanized Coating for Treated Wood: Hot dip galvanized to ASTM A153/A153M, ASTM A153/A153M, Class A or B1 (G185) zinc coating.

2.15 ACCESSORIES

- .1 Lumber for Shimming, Blocking: Softwood lumber.
- .2 Glass:
 - .1 Glass Type A, as specified in Section 08 80 00.
 - .2 Safety Glass: Clear; minimum 6mm thickness, or unless to suite application.
- .3 Primer: Alkyd primer sealer type.
- .4 Wood Filler: Solvent, Latex based, tinted to match surface finish colour.

2.16 STANDING AND RUNNING TRIM

2.17 PANELLING

- .1 See 06 20 00 - Finish Carpentry - Part 3 for Description.

2.18 WOOD TREATMENT

- .1 Wood Preservative (Pressure Treatment): CAN/CSA-O80, and in accordance with Table 2 - Use Categories for Specific Products, Uses, and Exposures of CSA-O80.1.

- .1 UC2: Interior construction, above-ground and potentially damp applications; use waterborne alkali-based, type ACQ, waterborne alkali-based, type CA.
- .2 UC3.2: Exterior construction, wood and wood-based materials that are not in contact with the ground and are exposed to the effects of weather; use waterborne alkali-based, type ACQ.
- .2 Wood Preservative (Surface Application): CSA-O80.3, copper naphthenate.
- .3 Fire retardant (FRT): CAN/CSA-O80, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 25/50, to CAN/ULC-S102.

2.19 TREATMENT OF WOOD MATERIALS

- .1 Shop pressure treat wood materials requiring ULC flame spread rating.
- .2 Provide CSA approved label/identification on fire retardant treated material.
- .3 Deliver fire retardant treated materials cut to required sizes to minimize field cutting.
- .4 Redry wood after pressure treatment to maximum 0.25% moisture content.

2.20 FABRICATION

- .1 Identify components for grain matching during site installation.
- .2 Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises.
- .3 Locate counter butt joints minimum 600 mm from sink cut-outs.
- .4 Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

2.21 SITE FINISHING

- .1 Apply wood filler in exposed nail, screw indentations; sand smooth.
- .2 On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.
- .3 Seal surfaces in contact with cementitious materials.
- .4 Site finish with materials and methods as specified in Section 09 91 00.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify adequacy of backing and support framing.
- .3 Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 CABINETWORK

- .1 See 06 42 19 Plastic-Laminate Wood-Face Paneling
- .2 Cabinet doors to be AWMAC type flush, 19 mm thick, flush custom grade.
- .3 Set nails and screws, apply stained plain wood filler to indentations, sand smooth and leave ready to receive finish.
- .4 Install and adjust cabinet hardware for shelves, doors and drawers. Recess shelf standards unless noted otherwise.

- .5 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .6 Fit shelves with hardwood edging.
- .7 Provide 10 mm thick solid matching wood strip on plywood edges exposed in final assembly. Strips same width as plywood.

3.3 EMPLOYEE LOUNGE

- .1 See 06 42 19 Plastic-Laminate Wood-Face Paneling.
- .2 Supply and Install counter with cupboards, top and bottom, length as indicated. Exterior cabinet finishes to be laminate.
- .3 Cupboard doors to be brushed chrome pulls, European Style concealed Hinges.
- .4 Interior to be melamine. Refer to Drawings for details of construction.
- .5 Contact Information:
Garry Aldworth
Tel.: (519) 835-0532
Email: garry@interiorstoredisplay.com

3.4 CHANGE ROOMS – APPROVED TJX CANADA VENDOR: INTERIOR STORE DISPLAY (ISD)

- .1 Supply and Install change room partitions, bench (in handicap/family fitting room and interview room).
- .2 Contact Information:
Garry Aldworth
Tel.: (519) 835-0532
Email: garry@interiorstoredisplay.com

3.5 SALES AREA PANEL DISPLAY SYSTEM

- .1 Supplied by TJX Canada, installed by G.C.
- .2 Install Wall Panel System as specified on drawings, includes supports, trim and included melamine. Plywood Strapping supplied by G.C. Refer to Appendix at end of this specification for further details.

3.6 CASH/ SECURITY/ASSISTANT MANAGER OFFICE & OPTIONAL OFFICES-INTERVIEW ROOM/ DISTRICT MANAGERS

- .1 Supply and Install built in counters and shelves as indicated on the drawings.
- .2 Supply and install laminate panels on walls where safe(s) are to be installed.

3.7 CASH UNITS & STORAGE

- .1 Supplied by TJX Canada, installed by G.C.
 - .1 Fitments shall be installed level, plumb and true, complete in all respects.
 - .2 Coordinate deliveries to comply with construction schedule.
 - .3 Materials shall be unloaded, stored and handled to prevent damage.

3.8 MISCELLANEOUS SLATWALL PIECES

- .1 Misc. pieces of slatwall (extra stock from Sales Floor to be mounted on walls throughout the store as shown on Drawings.
- .2 Typically this consists of individual pieces, maximum 36" x 48", screwed to the walls in each of the Manager's, Assistant Manager's, District Coordinator's, District Loss Prevention Manager's, District Manager's and Cash office.
- .3 Install one full sheet of slatwall in stockroom as shown on Drawings.
- .4 Miscellaneous installed pieces to have metal edge trim as supplied with slatwall system to keep it from warping. For a further description of above refer to notes on Drawings.

3.9 VANITIES

- .1 Supply and install vanities in washrooms as indicated on drawings.

3.10 INSTALLATION

- .1 Install work in accordance with manufacturer's instructions, where provided.
- .2 Install materials and components in place, plumb and level, with tight hairline joints and aligned with adjacent materials; provide concealed shims where necessary for proper alignment.
- .3 Carefully scribe work abutting other components, with maximum gaps of 1 mm. Do not use additional overlay trim to conceal larger gaps.
- .4 Standing and Running Trim:
 - .1 Install in longest lengths practical; cope returns and mitre corner joints. Use scarf joints for end-to-end joints.
 - .2 Install door and window trim in single lengths without splicing.
 - .3 Install with countersunk screws, set nails.
- .5 Install panelling materials to manufacturer's instructions, with manufacturer's recommended panel adhesive and fasteners, spaced to manufacturer's recommendations.
- .6 Countersink fasteners, fill indentations with wood filler or plugs, flush with surface, and sand smooth. For transparent finishes, match filler and plugs to wood material.
- .7 Apply plastic laminate finishes where indicated; apply laminate backing sheet on reverse side of plastic laminate finished surfaces.
- .8 Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.11 SITE APPLIED WOOD TREATMENT

- .1 Apply preservative treatment to manufacturer's written instructions.
- .2 Brush apply two (2) coats of preservative treatment on wood in contact with cementitious materials, roofing and related metal flashings. Treat site-sawn cuts.
- .3 Allow preservative to dry prior to erecting members.

3.12 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Wipe surfaces clean with soft, clean cloth; remove dirt and dust from corners.

- .3 Remove excess adhesive by method acceptable to adhesive manufacturer.

3.13 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Protect adjacent surfaces from damage during installation of finish carpentry items.
- .3 Protect installed finish carpentry items from damage during remainder of construction period.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Custom fabricated plastic-laminate-faced:
 - .1 Casework units.
 - .2 Plastic Laminate countertops.
- .2 Cabinet hardware.
- .3 Provision for related utilities.

1.2 RELATED SECTIONS

- .1 Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 08 80 00 - Glazing: Glass for casework.

1.3 REFERENCES

- .1 Standards:
 - .1 ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use 2009.
 - .2 AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, Canada Version 4.0 2021.
 - .3 CAN/CGSB 71.20 - Adhesive, Contact, Brushable 1988.
 - .4 CAN/CSA O121 - Douglas Fir Plywood 2017.
 - .5 CAN/CSA O141 - Softwood Lumber 2005 (R2014).
 - .6 NEMA LD 3 - High-Pressure Decorative Laminates 2005.
 - .7 NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber 2017.
 - .8 ULC (DIR) - Online Certifications Directory (Canada) Current Edition.

1.4 DEFINITIONS

- .1 Casework definitions:
 - .1 *Plywood*:
 - .1 Layers or plies of wood veneer, permanently bonded together in panels with the grain of each layer at 90o to adjacent layers. The outer plies are called face and back. The inner plies are called the "core". The term "plywood", as used in this *Specifications* section, does not include *Products* manufactured with particleboard, hardboard or fibreboard cores.
 - .2 *Exposed Surfaces*:
 - .1 All surfaces visible when doors and drawers are closed including bottoms of cabinets or display cases 1220 mm or more above finished floor and visible members in open cases or behind clear glass doors. Both sides of cabinet doors shall be considered exposed.
 - .3 *Semi-exposed Surfaces*:

- .1 Members behind solid doors, such as shelves, dividers, interior faces of ends, case backs, backs and bottoms and the tops of cases 1980 mm above finished floor.
- .4 *Concealed Surfaces:*
 - .1 Sleepers, web frames, dust panels and all other surfaces not visible after installation.

1.5 SUBMITTALS FOR REVIEW

- .1 Submittals for architectural woodwork:
 - .1 See Section 01 30 00 - Administrative Requirements, for submittal procedures.
 - .2 *Shop Drawings:* Indicate the location of each item referenced to actual site dimensions, dimensioned plans and elevations, large-scale details, thicknesses of materials, attachment devices, scribe strip locations, locations of exposed fastenings and other components applicable to the work of this section.
 - .3 Indicate all materials, thicknesses, finishes and hardware.
 - .1 Show large-scale details at a scale that clearly indicates the assembly but no less than 1:5.
 - .2 Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement installed by other trades.
 - .3 Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in casework.
 - .4 Samples:
 - .1 Submit two (2) samples for each type, colour, pattern, and surface finish of high pressure decorative laminate, laid-up on the specified core material.
 - .1 Size: 300 mm by 300 mm.
 - .2 Include edge banding.
 - .3 Owner will provide samples of wood veneer, wood solids, and finishes required for matching prior to sample submission required by this section.
 - .5 Accepted samples will be the standard of acceptance for the remainder of the *Work*.
 - .6 *Product Data:*
 - .1 Provide complete manufacturer's technical *Product* data for each material and each item of hardware.
 - .2 Include installation instructions for each item of hardware.
 - .7 Cabinet Hardware Schedule:
 - .1 Provide a complete cabinet hardware schedule for the *Project*.
 - .2 Clearly indicate hardware proposed, including make, model, material, function, finish and all other pertinent information.
 - .3 The *Construction Manager 's* and the *Consultant's* review of the Hardware Schedule does not limit or release the applicable *Contractor* from the responsibility to provide

all necessary hardware and related components required for a complete installation as required by the authorities having jurisdiction.

- .4 Certificate: Submit the fabricator's certification that all items conform to the specified requirements.
- .8 Fabricator's Qualification Statement.
- .9 Maintenance Data: Provide maintenance data for plastic laminate work for incorporation into the operation and maintenance manual specified in 01 78 00 - Closeout Submittals

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements:

- .1 Provide materials that have fire test response characteristics acceptable to the authority having Jurisdiction and as follows:
 - .1 Provide materials and *Products* with the specified fire test response characteristics where fire retardant materials or *Products* are indicated.
 - .2 Confirm fire test response characteristics as determined by testing for identical *Products* and test methods indicated by CSA, ULC, or another testing and inspecting agency acceptable to the authority having jurisdiction.
 - .3 Identify casework materials with appropriate markings of the applicable testing and inspecting agency in the form of a separable paper label or, where required by authorities having jurisdiction, imprint on the surfaces of materials that will be concealed from view after installation.

.2 Fabricator Qualifications:

- .1 Company specializing in fabricating *Products* similar to those specified in this section, with minimum five (5) years of documented experience.
 - .1 Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the Project.

.3 Quality Certification:

- .1 *Project* Quality Standard: AWMAC/WI (NAAWS) published by the Architectural Woodwork Manufacturers Association of Canada, together with authorized additions and amendments will be used as a reference standard and forms part of these *Specifications*, and as follows:
- .2 Modifications made in this Section that change the requirements of the AWMAC/WI (NAAWS) will govern in case of conflict.
- .3 References to Economy, Custom or Premium Grade in this specification are as defined in the AWMAC/WI (NAAWS); any item not given a specific quality grade will be Custom Grade as defined in the AWMAC/WI (NAAWS).
- .4 Provide labels or certificates indicating that the installed work complies with AWMAC/WI (NAAWS) requirements for grade or grades specified.
- .5 Provide designated labels on the *Shop Drawings* as required by certification program.
- .6 Provide designated labels on installed *Products* as required by certification program.

- .7 Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
- .8 Replace, repair, or rework all work for which certification is refused.

1.7 SITE CONDITIONS

- .1 During and after installation of cabinets,
 - .1 maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.
 - .2 Coordinate with applicable other trades to locate concealed framing, blocking, and reinforcements that support woodwork before being enclosed and indicate the precise locations on the *Shop Drawings*.
 - .3 Ambient Conditions: Maintain the area or room in which casework is being installed at a uniform temperature and humidity for 24 hours prior to, during and after installation in accordance with AWMAC/WI (NAAWS) recommendations.
 - .4 Provide additional lighting to maintain a minimum of 430 lx on surfaces and areas where casework is being installed.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Protect units from moisture damage.
- .2 Deliver, store, and handle casework in accordance with AWMAC/WI (NAAWS) Section 2: Care and Storage.

Part 2 Products

2.1 PERFORMANCE CRITERIA

- .1 General requirements:
 - .1 Wood and wood-based *Products* fabricated from old growth timber are not permitted.
 - .2 Provide lumber and wood-based *Products* that are FSC certified and are accompanied by a valid FSC chain-of-custody certificate number.
 - .3 Wood-based *Products* shall contain no added urea formaldehyde.
- .2 Softwood lumber:
 - .1 S4S for members to receive finishes, S2S or S4S for members not to receive finishes, moisture content 19% or less for exterior work, 12% or less for interior work, in accordance with following standards:
 - .2 CAN/CSA O141.
 - .3 NLGA (SGRNL) Standard Grading Rules for Canadian Lumber.
 - .1 Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing and sleepers: Spruce1Pine1Fir, construction grade.
 - .2 Other components: Spruce1Pine1Fir, construction grade.

2.2 MATERIALS

- .1 **Materials:**
 - .1 Laminated plastic for flatwork: to CAN3-A172-M, 1.6 mm thick.

- .2 Laminated plastic backing sheet: supplied by same manufacturer as facing sheet; not less than 015 mm thick and same thickness and colour as face laminate. Sanded one side.
- .3 Laminated plastic adhesive: Contact adhesive to CSA O112 Series, and in accordance with instructions of manufacturer of plastic laminate. "Green" adhesive not to be used – due to inadequate adhesion.
- .4 Plywood core: Solid two sides, 19mmthick.
- .5 Sealer: Water resistant sealer or glue acceptable to laminate manufacturer.
- .6 Sealant: In accordance with Section 07900. Colour to Architect's selection.
- .7 Draw bolts and splines: as recommended by fabricator.
- .8 Acceptable Manufacturer: As specified on drawings.

.2 Panel Materials

- .1 Plywood: Douglas Fir Plywood CAN/CSA O121, G1S or G2S sanded grade, S2S or better.
- .2 Medium density fibreboard (MDF) to ANSI A208.2, 769 kg/m3 density.
- .3 Waterproof in wet locations.
- .4 Laminated plastic: in accordance with QSI Section 200, based on grades established by NEMA LD 3, as follows.
- .5 For types, colours and textures, refer to Section 09 00 00 - Master Finish Schedule *.
- .6 Grades
 - .1 Horizontal surfaces: Grade HGS, horizontal general purpose, 1.2 mm thick.
 - .2 Vertical surfaces: Grade VGS, vertical general purpose, 0.7 mm thick.
 - .3 Cabinet liner (for semi-exposed surfaces): Grade CLS, 0.5 mm thick, confirm finish colour with Owner.
 - .4 Backer: Grade BKL, 0.5 mm thick, confirm finish colour with *Owner*.

.3 Fasteners And Adhesives

- .1 Nails and staples: Type and size to suit application; hot dipped galvanized for areas subject to high humidity, plain finish elsewhere.
- .2 Wood screws: Electroplated, type and size to suit application.
- .3 Draw bolts and splines for countertops: as recommended by fabricator.
- .4 Adhesives:
 - .1 Generally as recommended by the architectural woodwork fabricator.
 - .2 Maximum VOC content 30 g/L (less water).
 - .3 Laminated plastic adhesive: contact adhesive to CAN/CGSB 71.20 Maximum VOC content 80 g/L (less water).

.4 Cabinets

- .1 Generally as recommended by the architectural woodwork fabricator.
- .2 Maximum VOC content 30 g/L (less water).
- .3 Laminated plastic adhesive: contact adhesive to CAN/CGSB 71.20 Maximum VOC content 80 g/L (less water).

.5 Laminated-Plastic-Faced Casework

- .1 Fabricate casework in accordance with AWMAC/WI (NAAWS), custom grade, double-front, flush overlay type, except where otherwise indicated.
 - .1 Furring, blocking, nailing strips, grounds and rough bucks, sleepers and concealed framing: softwood lumber, pine species.
- .2 Base: 19 mm DFP faced with stainless steel sheet.
- .3 Concealed casework framing: Hardwood, species at the option of the fabricator.
- .4 Case bodies (ends, divisions, bottoms, shelves, backs):
 - .1 DFP faced with laminated plastic.
 - .2 Thicknesses:
 - .1 Generally: 19 mm.
 - .2 Exposed backs: 13 mm.
 - .3 Concealed backs: 6 mm.
- .6 **Drawers:**
 - .1 Fabricate drawers to AWMAC/WI (NAAWS), premium grade.
 - .2 Semi exposed fronts, sides and backs: 16 mm thick birch plywood. Grain direction: longitudinal.
 - .3 Bottoms: 6 mm thick birch plywood: Grain direction: longitudinal.
 - .4 Edges of drawer sides and backs: Fill all voids and sand smooth to receive transparent finish.
- .7 **Applied drawer fronts and cabinet doors:**
 - .1 Generally: 19 mm MDF faced with laminated plastic.
 - .2 Finished edge banding, exposed and semi-exposed edges: Self-edge with matching laminated plastic.
- .8 **Countertops**
 - .1 Laminated Plastic Flatwork: Where not otherwise indicated, fabricate countertops and vanities with plastic laminate on 19 mm fir plywood core. Provide self-edged backsplash at counter back and ends against walls and self-edged front-edge banding as indicated.
- .9 **Bench**
 - .1 Supply and Install laminate bench for Interview room.
 - .2 Supply and Install Upholstery bench in handicap/family fitting room bench ensure all seams at floor and walls are caulked with clear silicone.
- .10 **Sales Area Display System**
 - .1 Install wall system, Section 06200 in sales area as indicated.
 - .2 Install all Millwork items supplied by Tenant using approved millwork installers and installation standards.
- .11 **Cash/ Assistant Mangers Office/ Optional Offices - District Coordinator Office interview Room**
 - .1 Supply and install counter and shelf units as shown on Drawings. Provide all cutouts as required for installation of power tracks, service pass thru etc.
- .12 **(Solid surface countertops: Refer to Section 06 65 10 - Solid Surfacing Fabrications).**
- .13 **Accessories**

- .1 Nails and staples: Type and size to suit application; hot dipped galvanized for areas subject to high humidity, plain finish elsewhere.
 - .1 Wood screws: Electroplated, type and size to suit application.
 - .2 Draw bolts and splines for countertops: as recommended by fabricator.
 - .3 Sealer for laminated plastic: Water resistant sealer or glue acceptable to laminate manufacturer.
- .2 Sealant caulking of back of countertops at wall: Refer to Section 07 92 00 - Joint Sealants.
- .3 Adhesives:
 - .1 Generally as recommended by the architectural woodwork fabricator.
 - .2 Laminated plastic adhesive: contact adhesive to CAN/CGSB 71.20.
- .4 Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized finish in concealed locations and stainless steel finish in exposed locations.
- .5 Concealed Joint Fasteners: Threaded steel.
- .6 Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in colour as indicated.

2.3 SHOP DRAWINGS

- .1 Comply with CAN3-A172-M, Appendix "A".
- .2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .3 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm. Keep joints 600 mm from sink cutouts.
- .5 Form shaped profiles and bends as indicated, using post-forming grade laminate-to-laminate manufacturer's instructions.
- .6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
- .7 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .8 Apply laminated plastic liner sheet to interior of cabinetry.

2.4 FINISHES

- .1 For finishes not identified in this Section (Plastic laminate), provide:
 - .1 Stain and Finishing: In compliance with AWMAC/WI (NAAWS), unless noted otherwise.
- .2 Plastic Laminate Counters:

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
PLAM1	Laminate	242— T Celestial Sandstorm (Textured Finish)	Laminate	Lamin— Art	Millwork
PLAM2	Laminate	6212—58 Wheat Strand	Laminate	Formica	Millwork
PLAM3	Laminate	918—58 Neutral Mite	Laminate	Formica	Staff Lounge
PLAM4	Laminate	Macassar Ebony W437	Laminate	Arborite	Staff Lounge
PLAM5	Laminate	909—58 Black — Matte Finish	Laminate	Formica	Winners — Window Sills, Mirror Frames, Fitting Room Coat Hook Panels
PLAM7	N/A				
PLAM8	Laminate	918— SP Neutral White— Sculpted Finish	Laminate	Formica	Winners — Fitting Room
PLAM9	Laminate	1595K—18 Black	Laminate	Wilsonart Laminate	Winners — Fitting Room, Q—Line, Jewellery
PLAM10	Laminate	Octolam 913 Lyon Walnut	Laminate	Octopus Products	Winner S — Q—Line, Fitting Room, Public Corridor Entrance
PLAM11	Laminate	918—90 Neutral White— Gloss Finish	Laminate	Formica	Winners — Q—Line, Fitting Room, Public Corridor Entrance
PLAM14	N/A				

.3 Plastic Laminate Wall panels:

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
ML1	Melamine Panel	White New 750 Goshen White Lpm	Wall Panel	Columbus Showcase	Winners — Sales Floor

Part 3 Execution

3.1 PREPARATION

.1 Examination

- .1 Examine areas and conditions under which work is to be performed and notify the *Consultant* in writing of conditions detrimental to the proper and timely completion of the *Work*.
- .2 Verify adequacy of backing and support framing.

- .3 Verify location and sizes of utility rough-in associated with work of this section.
- .4 Take field measurements to verify or supplement dimensions and record on the *Shop Drawings*.
- .5 Do not proceed with the *Work* until unsatisfactory conditions have been corrected to the satisfaction of the installer.
- .6 Commencement of the installation will be construed as acceptance of the site conditions and, thereafter, the *Contractor* shall be fully responsible for satisfactory work as specified herein.

3.2 INSTALLATION

.1 Fabrication of plastic laminate

- .1 Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- .2 Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- .3 Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- .4 Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises.
 - .1 Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - .2 Cap exposed plastic laminate finish edges with material of same finish and pattern.
- .5 Mechanically fasten back splash to countertops as recommended by laminate manufacturer at 400 mm on center.
- .6 Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.
- .7 Shop glaze glass materials using the Interior Dry method as specified in Section 08 80 00 - Glazing.
- .8 Fabricate casework in accordance with QSI Section 400 to Custom quality grade, double-front, flush overlay type, except where otherwise indicated.
- .9 Use dado construction for fixed shelves and intermediate gables. Use rabbet joint construction at top and bottom of end gables.
- .10 Shop-install cabinet drawer hardware. Except where otherwise indicated, all cabinet shelves shall be adjustable.
- .11 Provide cutouts for plumbing fixtures and fittings, inserts, appliances, outlet boxes, electric, telephone and computer cables, closed circuit TV cables and other fixtures. Install bushings at cable penetrations.
- .12 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.

.2 Laminated Plastic Application

- .1 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
 - .2 Ensure adjacent parts of continuous laminate work match in colour and pattern.
 - .3 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3m. Keep joints 600 mm from lavatory or sink cutouts.
- .3 Installation of casework
- .1 Install work in accordance with AWMAC/WI (NAAWS) requirements for grade indicated.
 - .2 Set and secure custom cabinets in place, assuring that they are 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.
 - .5 Installation of Cabinetwork
 - .1 Install cabinetwork at locations shown on *Drawings*. Position accurately, level, plumb and straight.
 - .2 Fasten and anchor cabinetwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
 - .3 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, cabling, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
 - .4 Make allowances around the perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
 - .5 Keep countertop joints to a minimum; Use draw bolts and splines in countertop joints. Maximum spacing 450 mm o.c., 75 mm from the edge. Make flush hairline joints.
 - .6 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
 - .7 At junction of laminated plastic counter and adjacent wall finish, apply small bead of sealant. Refer to Section 07 92 00 - Joint Sealants
 - .8 Apply bituminous coating over wood framing members in contact with masonry or cementitious construction.
 - .9 Fit hardware accurately and securely in accordance with manufacturer's directions. adjust operating parts for smooth, correct function.
 - .6 Carefully scribe casework abutting other components, with maximum gaps of 0.80 mm. Do not use additional overlay trim for this purpose.
 - .7 Secure cabinets to floor using appropriate angles and anchorages.

3.3 BENCH

- .1 Supply and Install laminate bench for Interview room.
- .2 Supply and Install Upholstery bench in handicap/family fitting room bench ensure all seams at floor and walls are caulked with clear silicone.

3.4 SALES AREA DISPLAY SYSTEM

- .1 Install wall system, Section 06200 in sales area as indicated.
- .2 Install all Millwork items supplied by Tenant using approved millwork installers and installation standards.

3.5 NEW ARTICLE

- .1

3.6 ADJUSTING

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

3.7 PROTECTION

- .1 Protect installed work from damage.

3.8 CLEANING

- .1 Clean casework, counters, shelves, hardware, fittings, and fixtures with manufacturer's recommended cleaning materials.
- .2 Upon completion of the installation, remove from the premises all surplus material, dirt and debris caused by the work of this Section and leave the installation clean and ready for the intended use by the *Owner*.
- .3 Make good damage to other work caused by the work of this section.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 This Section includes the following horizontal and trim solid surface product types:
 - .1 Lavatory tops with undermount bowls.
 - .2 Staff Lounge Counter

1.2 RELATED SECTIONS

- .1 Related Sections include the following:
 - .1 Division 6 Section "Rough Carpentry" for Blocking

1.3 REFERENCES

- .1 ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS FOR REVIEW

- .1 .2 Shop drawings:
 - .1 Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - .2 Show full-size details, edge details, thermoforming requirements, attachments, etc.
 - .3 Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
 - .4 Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface

1.5 SUBMITTALS FOR INFORMATION

- .1 Product data:
 - .1 For each type of product indicated:
 - .1 Chemical-resistant tops
- .2 Indicate product description, fabrication information and compliance with specified performance requirements.
- .3 Maintenance data:
 - .1 Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
 - .2 Maintenance kit for finishes shall be submitted.
 - .3 Include in project closeout documents.

1.6 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- .2 Fabricator/installer qualifications:
 - .1 Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

.3 Applicable standards:

.1 Standards of the following, as referenced herein:

- .1 American National Standards Institute (ANSI).
- .2 American Society for Testing and Materials (ASTM) Association.
- .3 National Electrical Manufacturers (NEMA)
- .4 NSF International
- .5 Fire test response characteristics:
 - .1 Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - .1 Flame Spread Index: 25 or less.
 - Smoke Developed Index: 450 or less.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver no components to project site until areas are ready for installation.
- .2 Store components indoors prior to installation.
- .3 Handle materials to prevent damage to finished surfaces.
 - .1 Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.8 WARRANTY

- .1 Provide manufacturer's warranty against defects in materials.
- .2 Warranty shall provide material and labor to repair or replace defective materials.
- .3 Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

1.9 MAINTENANCE

- .1 Provide maintenance requirements as specified by the manufacturer.

Part 2 Products

2.1 MANUFACTURERS

- .1 Manufacturers:
 - .1 Subject to compliance with requirements, provide products by one of the following:
Corian® surfaces from the DuPont company (basis of design).

2.2 PERFORMANCE CRITERIA

- .1

Property	Typical Result	Test
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	1.5 x 10 ⁻⁶ psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	1.2 x 10 ⁻⁶ psi	ASTM D 790
Hardness	>85 - Rockwell "M" scale min.	ASTM D 785
Thermal Expansion	2.2 x 10 ⁻⁵ in./in./°F	ASTM E228
Fungi and Bacteria	Does not support microbial growth	ASTM G21 & G22
Microbial Resistance	Highly resistant to mold growth	UL 2824
Gloss (60° Gardner)	5–75 (matte—highly polished)	ANSI Z124
Light Resistance	(Xenon Arc) No effect	NEMA LD 3-2000 Method 3.3
Wear and Cleanability	Passes	ANSI Z124.3 & Z124.6
Stain Resistance: Sheets	Passes	ANSI Z124.3 & Z124.6
Boiling Water Resistance	No visible change	NEMA LD 3-2000 Method 3.5
High Temperature Resistance	No change	NEMA LD 3-2000 Method 3.6
Izod Impact (Notched Specimen)	0.28 ft.-lbs./in. of notch	ASTM D 256 (Method A)
Ball Impact	No fracture—1/2 lb. ball:1/4" slab—36" drop 12 mm slab - 144" drop	NEMA LD 3-2000, NEMA LD 3 Method 3.8
Weatherability	ΔE*94<5 in 1,000 hrs.	ASTM G 155
Specific Gravity †	1.7	† Approximate weight per square foot: 1/4" (6 mm) 2.2 lbs., 1/2" (12.3 mm) 4.4 lbs. Shapes meet or exceed the ANSI Z124.3 and ANSI Z124.6 standards for plastic sinks and lavatories.
Water Absorption	Long-term 0.4% (3/4") 0.6% (1/2") 0.8% (1/4")	ASTM D 570
Flammability	All colors (Class I and Class A)	ASTM E 84, NFPA 255 & UL 723
Flame Spread Index	<25	
Smoke Developed Index	<25	
NEMA results based on the NEMA LD 3-2000		

2.3 MATERIALS

- .1 Solid polymer components.

- .1 Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors having minimum physical and performance properties specified.
- .2 Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.
- .2 Thickness: 1/2 inch.
- .3 Edge treatment: Single Bevel.

2.4 ACCESSORIES

- .1 Joint adhesive:
 - .1 Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- .2 Sealant:
 - .1 Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.
- .3 Sink/lavatory mounting hardware:
 - .1 Manufacturer's standard bowl clips, panel inserts and fasteners for attachment of undermount sinks/lavatories.
- .4 Conductive tape:
 - .1 Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.
- .5 Insulating felt tape:
 - .1 Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

2.5 FACTORY FABRICATION

- .1 Shop assembly.
 - .1 a. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
 - .2 b. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - .1 Reinforce with strip of solid polymer material, 2" wide.
 - .3 Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
 - .4 Rout and finish component edges with clean, sharp returns.
 - .1 Rout cutouts, radii and contours to template.
 - .2 Smooth edges.
 - .3 Repair or reject defective and inaccurate work.
- .2 Thermoforming:
 - .1 Comply with manufacturer's data.
 - .2 Heat entire component.

- .1 Material shall be uniform, between 275 and 325 degrees Fahrenheit during forming.
- .3 Form pieces to shape prior to seaming and joining.
- .4 Cut pieces to finished dimensions.
- .5 Sand edges and remove nicks and scratches.

2.6 FINISHES

- .1 Refer to drawings.
- .2

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
C1	Corian	Cameo White	Corian	Dupont	Tjx — Staff Lounge Counter—Top
C2	Corian	Hazelnut	Corian	Dupont	Winners — Washroom Counter—Top

Part 3 Execution

3.1 PREPARATION

- .1 Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- .2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- .1 Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 - .1 Provide product in the largest pieces available.
 - .2 Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - .3 Exposed joints/seams shall not be allowed.
 - .4 Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
 - .5 Cut and finish component edges with clean, sharp returns.
 - .6 Rout radii and contours to template.
 - .7 Anchor securely to base cabinets or other supports.
 - .8 Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
 - .9 Carefully dress joints smooth, remove surface scratches and clean entire surface.
 - .10 Install countertops with no more than 1/8-inch (3 mm) sag, bow or other variation from a straight line.

3.3 REPAIR

- .1 Repair or replace damaged work which cannot be repaired to Consultant's satisfaction.

3.4 CLEANING

- .1 Keep components clean during installation.
- .2 Remove adhesives, sealants and other stains.

3.5 WASHROOM

.1 Countertops with undermount sinks:

- .1 Surfaces of material adhesively joined using silicone sealant.
 - .1 Vertical Thickness: ½”.
 - .2 Horizontal Thickness: ½”.
 - .3 Edge Details: Single Bevel.
 - .4 Finish: Matte.

.2 Countertops for Staff Lounge Kitchen Millwork:

- .1 Surfaces of material adhesively joined using silicone sealant.
 - .1 Vertical Thickness: ½”.
 - .2 Horizontal Thickness: ½”.
 - .3 Edge Details: Single Bevel.
 - .4 Finish: Matte.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 This section includes a single-coat, fast-curing, 100% solids epoxy moisture vapour emissions management system formulated to suppress excessive moisture vapor emissions in new or existing concrete prior to installing finished flooring. It includes and is not limited to:
 - .1 Trench Repair.
 - .2 Crack and Joint management.
 - .3 One Coat Moisture Control System.
 - .4 Patching Compounds.
 - .5 Self-Levelling Underlayments.
 - .6 Exposed Self-Levelling Wear-Surface Toppings.
- .2 Fluid applied rubberized asphalt & elastomeric membrane waterproofing.

1.2 RELATED REQUIREMENTS

- .1 Section - 02 41 00.08 Demolition - Minor Works
- .2 Section 03 30 00 – Cast-In-Place Concrete: Concrete substrate.
- .3 Division 22 – Plumbing: Roof drain and plumbing vent flashing flanges.
- .4 Division 31 – Earthwork: Backfilling.
- .5 Division 33 – Utilities: Foundation drainage.

1.3 REFERENCE STANDARDS

- .1 [ASTM C836/C836M-18 Standard specification for high solids content, cold liquid-applied elastomeric waterproofing membrane for use with separate wearing course](#)
- .2 ASTM 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- .3 ASTM F1913-04(10): Standard Specification for Vinyl Sheet Floor Covering Without Backing
- .4 ASTM F2170 - Relative Humidity in Concrete Floor Slabs Using in situ Probes.

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data for surface conditioner, flexible flashings, joint cover sheet, and joint and crack sealants, with temperature range for application of waterproofing membrane.
- .3 Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- .4 Product Data: Manufacturer's data sheets on each product to be used, including:
- .5 Manufacturer's technical data sheets and material safety data sheets for each product specified
- .6 .3 Site Quality Control: Submit details, including locations and results of each of the following tests.
 - .1 RH Test
 - .2 Alkalinity test

- .7 Qualification Data: Certificate of Factory Trained Applicator
- .8 Warranty Data:
 - .1 ARDEX Topical Moisture Vapour Mitigation System: 20 Years
 - .2 ARDEX SystemOne Warranty: 10 Years

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Certificate: Certify that Products meet or exceed specified requirements.
- .3 Installation Data: Manufacturer's special installation requirements indicating special procedures and perimeter conditions requiring special attention.

1.6 QUALITY ASSURANCE

- .1 Moisture Reduction Barrier and Self Levelling Underlayment Installer Qualifications: Installation of ARDEX products must be completed by a factory trained applicator, such as an ARDEX Level Master® Elite or Choice Contractor, using mixing equipment and tools approved by the manufacturer.
 - .1 Contact ARDEX Engineered Cements for a list of recommended installers
ARDEX Canada Contact: Sherri Wildman 416.873.4648.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .3 Applicator Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Store products in a dry area with temperatures maintained between 50° and 85° F (10° and 29° C) and protect from direct sunlight.

1.8 SITE CONDITIONS

- .1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide a five (5) year warranty to include coverage for failure to meet specified requirements.
- .3 Provide five (5) year manufacturer warranty for waterproofing failing to resist penetration of water, except where such failures are the result of structural failures of building. Hairline cracking of concrete due to temperature change or shrinkage is not considered a structural failure.
- .4 Provide five (5) year manufacturer warranty for waterproofing failing to resist penetration of water.
- .5 For warranty repair work, remove and replace materials concealing waterproofing.

Part 2 Products

2.1 MANUFACTURERS

- .1 ARDEX Engineered Cements; Product: (suitable for application).

2.2 MATERIALS

- .1 Trench Repair: Rapid setting, 6 hours to finished flooring, cementitious horizontal full depth concrete repair mortar for depths up to 8" (200mm) thick.
 - .1 ARDEX TRM Trench Repair Mortar
- .2 Crack Management : flexible or non-flexible crack and joint fillers for use with moisture vapour emissions management systems.
 - .1 Moving Joints or Cracks.
 - .1 "ARDEX Ardiseal", by ARDEX Canada.
 - .2 Non-Moving Joints or Cracks
 - .1 ARDEX Ardifix, by ARDEX Canada
- .3 Patching Compounds: Latex-modified, hydraulic-cement-based formulation used to smooth, level minor imperfections before installation of Vinyl Composition Tile.
 - .1 Moisture Resistant Patching Trowelable Underlayment
 - .1 ARDEX MRF Moisture Resistant Feather Finish", by ARDEX Canada
 - .2 General Smoothing and Patching Trowelable Underlayment.
 - .1 "ARDEX SDF Feather Finish", by ARDEX Canada
 - .3 Thicker Fill Patching and Ramping Trowelable Underlayment
 - .1 "ARDEX SDP Rapid", by ARDEX Canada
- .4 Topical Moisture Control: Single-coat, fast-curing, 100% solids epoxy moisture management system formulated to suppress excessive moisture vapor emissions in new or existing concrete.
 - .1 ARDEX MC Rapid Moisture Control System.
- .5 Self-Levelling Underlayment: Latex-modified, hydraulic-cement-based formulation used to smooth, level or protect moisture reduction barrier before installation of Vinyl Composition Tile.
 - .1 Minimal Substrate Preparation Self-Leveling Underlayment, for use over moisture reduction barrier or where shot blasting is not applicable, for leveling up to 1/2" (13mm) thick.
 - .1 ARDEX K60 ArditeX" by ARDEX Canada.
 - .2 Standard Performance Self -Leveling Underlayment where there are no fast track requirements and leveling thickness does not exceed 1 1/4" (32mm) thick.
 - .1 ARDEX V1200" by ARDEX Canada.
 - .3 Premium Fast Setting, Full Depth Self Leveling Underlayment, for use where there are fast track requirements, or for leveling thicknesses up to 5" (125mm).
 - .1 "ARDEX K 15" by ARDEX Canada

- .6 Exposed Concrete Topping: Self-leveling, topping for fast-track resurfacing, smoothing or leveling of indoor concrete and certain non-porous substrates that will be left exposed.
 - .1 Self-Leveling Concrete Topping, for use over moisture reduction barrier or concrete, for leveling up to 1" (25mm) thick, to be sealed with ARDEX Concrete Guard.
 - .1 ARDEX K520 " by ARDEX Canada.
 - .2 ARDEX CG Concrete Guard Sealer

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system.
- .3 Verify that substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials.
- .4 Verify items that penetrate surfaces to receive waterproofing are securely installed.

3.2 PREPARATION

- .1 Protect adjacent surfaces not designated to receive waterproofing.
- .2 Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's written instructions. Vacuum substrate clean.
- .3 Do not apply waterproofing to surfaces unacceptable to manufacturer.
- .4 Pre-Installation Testing:
 - .1 Acidity and Alkalinity Test:
 - .1 Conduct pH test to ensure alkali salt residue is within limitations acceptable to manufacturer and to avoid moisture mitigation system, adhesive or floor covering failure
 - .2 Relative Humidity Test:
 - .1 Perform relative humidity test in accordance with ASTM F2170 using in situ probes, measure internal relative humidity of slab.
 - .2 Conduct minimum of 3 tests for first 1,000 sq.ft and one additional test for each 1,000 sq.ft. Conduct one test near center and others around perimeter of area.
 - .3 Ensure relative humidity probe test results do not exceed 75% unless recommended otherwise by flooring or adhesive manufacturer(s) in writing. Do not proceed with installation until moisture problems have been corrected.
 - .3 Moisture Emissions Barrier
 - .1 Apply moisture reduction barrier at following locations:
 - .1 To below-grade and on-grades slabs where slab moisture content is above recommended RH level by floor covering manufacturer after performing pre installation testing.
 - .2 Concrete Substrate: Prepare concrete to manufacturer's most current written instructions.

.4 Joint Preparation:

.1 Apply moisture reduction barrier at following locations:

- .1 Moving Joints – honor all expansion and isolation joints up through the moisture mitigation system and underlayment. A flexible sealing compound such as ARDEX ArdiSeal™ Rapid Plus may be installed
- .2 Saw Cuts and Control Joints – fill all non-moving joints with ARDEX AridFix™ Joint Filler, as recommended by the manufacturer.

3.3 INSTALLATION

- .1 Install all components in accordance with manufacturer's most current written instructions and in proper relationship with adjacent construction. Test for proper operation and adjust until satisfactory results are obtained.

3.4 PROTECTION

- .1 Protect installed products until completion of project.
- .2 Touch-up, repair or replace damaged products before Completion.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Board insulation.

1.2 RELATED REQUIREMENTS

- .1 Division 3 - Structural: Concrete substrate
- .2 Section 04 27 23 - Cavity Wall Unit Masonry: Cavity space for thermal board insulation.
- .3 Section 07 21 16 - Blanket Insulation.
- .4 Section 07 21 19 - Foamed-in-place insulation: Plastic foam insulation other than boards
- .5 Section 07 26 00 - Vapour Retarders: Vapour retarder materials to adjacent insulation.
- .6 Section 07 27 00 - Air Barriers: Air seal materials to adjacent insulation.
- .7 Section 07 42 13.19 - Insulated metal wall panels.
- .8 Section 07 42 13.23 - Metal composite material wall panels.
- .9 Section 07 84 00 - Firestopping.
- .10 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC): Pipe insulation.

1.3 REFERENCE STANDARDS

- .1 [ASTM C208-12\(2017\)e2 Standard specification for cellulosic fiber insulating board](#)
- .2 [ASTM C552-21a Standard specification for cellular glass thermal insulation](#)
- .3 [ASTM C578-19 Standard specification for rigid, cellular polystyrene thermal insulation](#)
- .4 [ASTM C591-21 Standard specification for unfaced preformed rigid cellular polyisocyanurate thermal insulation](#)
- .5 [ASTM C612-14\(2019\) Standard specification for mineral fiber block and board thermal insulation](#)
- .6 [ASTM C1126-19 Standard specification for faced or unfaced rigid cellular phenolic thermal insulation](#)
- .7 [ASTM C1289-21 Standard specification for faced rigid cellular polyisocyanurate thermal insulation board](#)
- .8 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .9 [ASTM E96/E96M-21 Standard test methods for gravimetric determination of water vapor transmission rate of materials](#)
- .10 [ASTM E2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers](#)
- .11 [CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.](#)
- .12 [CAN/ULC-S701.1-2022 - Standard for Thermal Insulation, Polystyrene Boards.](#)
- .13 [CAN/ULC-S702-14 \(R2019\) - Standard for Mineral Fibre Thermal Insulation for Buildings.](#)
- .14 [CAN/ULC-S703-09 \(R2015\) - Standard for Cellulose Fibre Insulation \(CFI\) for Buildings.](#)
- .15 [CAN/ULC-S704.1-2017 - Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.](#)
- .16 [CAN/ULC-S706.1-2020 - Standard for Wood Fibre Insulating Boards for Buildings.](#)

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 Section 07 26 00 for installation of vapour retarder and Section 07 27 00 for air seal materials.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Indicate special environmental conditions required for installation and installation techniques.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.
 - .1 Include manufacturers' material safety data sheets for the safe handling of materials and *Products* in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

Part 2 Products

2.1 DESCRIPTION

- .1 System Description: Assembly of materials providing:
 - .1 Continuity of thermal barrier at building enclosure elements, in conjunction with thermal insulating materials in Section 07 21 16 - Blanket Insulation, 07 21 19 Foamed-in-place insulation.
 - .2 Thermal protection to vapour retarder in conjunction with vapour retarder materials in Section 07 26 00.
 - .3 Thermal protection to air seal materials at building enclosure elements in conjunction with air barrier materials in Section 07 27 00.

2.2 INSULATION MATERIALS

- .1 Extruded polystyrene (XPS): to CAN/ULC S701 Type 3 or 4, thickness as indicated, ship lapped edges.
- .2 Extruded polystyrene (XPS): HID (High Density) Minimum 20 psi compressive strength.
- .3 Extruded Polystyrene (XPS) to CAN/ULC S701.1.
 - .1 Foundation wall insulation and where not otherwise indicated:

- .1 Type IV, HFC free, square ends, shiplap edges except where otherwise indicated, thickness as indicated, shiplap side joints, square end joints. Minimum RSI 0.87 m².°C/W per 25 mm thickness, compressive strength 210 kPa.

- .1 Standard of Acceptance: Styrofoam SM.

2.3 ADHESIVE MATERIALS

- .1 Sealant: to ASTM C920.
- .2 Adhesive Type 1: Type recommended by insulation manufacturer for application.
 - .1 Set, cure, vapour permeance, bond strength - as per manufacturer recommendations, suitable for purpose.
- .3 Type C (for Vapour Barrier), suitable for continuous application by trowel, fungi resistant, application temperature 5 degrees C minimum, compatible with insulation.

2.4 ACCESSORIES

- .1 Sheet Vapour Retarder: Specified in Section 07 26 00.
- .2 Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
 - .1 Application: Sealing of interior circular penetrations, such as pipes or cables.
 - .2 Width: As required for application.
 - .3 Temperature Resistance: Minus 40 degrees C to 100 degrees C.
- .3 Flashing Tape: Special polyolefin film with high performance adhesive.
 - .1 Application: Interior window and door sill flashing tape.
 - .2 Width: As required for application.
 - .3 Temperature Resistance: Minus 40 degrees C to 100 degrees C
- .4 Insulation Fasteners: Impaling clip of plastic with washer retainer and clips, to be mechanically fastened to surface to receive board insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive.
- .3 Verify substrate surface is flat, free of irregularities.

3.2 INSTALLATION

- .1 **Workmanship**
 - .1 Install insulation in strict accordance with the insulation manufacturer's written instructions, to maintain continuity of thermal, acoustical and fire protection to building elements and spaces.
 - .2 Apply single layer of insulation to produce the thickness indicated, except where multiple layers are indicated or required to make up total thickness. Offset both vertical and horizontal joints in multiple layer applications.

- .3 Use only insulation that is undamaged, dry, unsoiled, free from chipped or broken edges, and has not been exposed at any time to ice and snow.
- .4 Cut and trim insulation to a neat compression-fit in spaces. Do not compress insulation excessively to fit spaces. Butt joints tightly. Use largest possible dimensions to reduce number of joints.
- .5 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation in accordance with the manufacturer's instructions.
- .6 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of chimneys and vents.
- .7 Where necessary, retain insulation in position with mechanical fasteners recommended by the insulation manufacturer for the specific application.
- .8 Do not enclose insulation until it has been reviewed and accepted by the *Consultant*.

3.3 INSTALLATION - FOUNDATION PERIMETER

- .1 Adhere a 150 mm wide strip of polyethylene sheet over construction joints with double beads of adhesive each side of joint.
 - .1 Tape seal joints.
 - .2 Extend sheet full height of joint.
- .2 Apply Type (for board insulation) adhesive in three (3) continuous beads per board length.
- .3 Apply Type (for board insulation) adhesive to full bed 3 mm thick.
- .4 Install boards on foundation wall perimeter, vertically.
 - .1 Place boards in a method to maximize contact bedding.
 - .2 Stagger end joints.
 - .3 Butt edges and ends tight to adjacent board and to protrusions.
- .5 Extend boards over control joints, expansion joints, unbonded to foundation 150 mm on one (1) side of joint.
- .6 Cut and fit insulation tight to protrusions or interruptions to the insulation plane.
- .7 Immediately following application of board insulation, place protective boards over exposed insulation surfaces. Apply Type (for board insulation) adhesive in five (5) continuous beads per board length.
 - .1 Install boards vertically from base of foundation to top of insulation.

3.4 INSTALLATION - EXTERIOR WALLS

- .1 Adhere a 150 mm wide strip of polyethylene sheet over expansion, control joint with double beads of Type (for board insulation) adhesive each side of joint.
 - .1 Tape seal joints between sheets.
 - .2 Extend sheet full height of joint.
- .2 Apply Type (for board insulation) adhesive in three (3) continuous beads per board length.
- .3 Apply Type (for board insulation) adhesive to full bed 3 mm thick. Daub adhesive tight to protrusions.
- .4 Install boards on wall surface, vertically. Place membrane surface of insulation against adhesive.

- .5 Place boards in a method to maximize contact bedding. Stagger end joints. Butt edges and ends tight to adjacent board and to protrusions.
- .6 Cut and fit insulation tight to protrusions or interruptions to the insulation plane.
- .7 Place polyethylene sheet at perimeter of wall openings, from adhesive vapour retarder bed to window, door frame. Tape seal in place to ensure continuity of vapour retarder and air seal.
- .8 Tape insulation board joints.

3.5 **PROTECTION**

- .1 Do not permit work to be damaged prior to covering insulation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Batt insulation in interior stud wall construction.

1.2 DESIGN REQUIREMENTS

- .1 Minimum standard to be R12 walls and R15 roof assemblies or as required by code.

1.3 RELATED REQUIREMENTS

- .1 Section 05 41 00 - Structural metal stud framing
- .2 Section 07 21 13 - Board Insulation.
- .3 Section 07 26 00 - Vapour Retarders: Vapour retarder materials to adjacent insulation.
- .4 Section 07 27 00 - Air Barriers: Air barrier materials to adjacent insulation.
- .5 Section 07 84 00 - Firestopping.
- .6 Section 09 21 16 - Gypsum Board Assemblies: Acoustic insulation.

1.4 REFERENCE STANDARDS

- .1 [ASTM C665-17 Standard specification for mineral-fiber blanket thermal insulation for light frame construction and manufactured housing](#)
- .2 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .3 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .4 CAN/ULC-S702-14 (R2019) - Standard for Mineral Fibre Thermal Insulation for Buildings.
- .5 NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials, 2006 Edition.
- .6 [STD UL 723-18 Standard for test for surface burning characteristics of building materials](#)

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 Section 07 26 00 for installation of vapour retarder and Section 07 27 00 for air seal materials.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on product characteristics, performance criteria & limitations.

1.7 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

Part 2 Products

2.1 INSULATION

- .1 Rockwool; Product: Comfortbatt.
- .2 Batt and Blanket mineral fibre: to CAN/ULC S702, thickness as indicated.
 - .1 Fibreglas, "Glass-Plus" insulation
 - .2 Glass Fibre sound control batts, 70 mm Fibreglas "Noise Stop Blanket".
 - .3 Fibreglas, thickness as required to suite installation.
- .3 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 System Description: Assembly of materials providing:
 - .1 Continuity of thermal barrier at building enclosure elements, in conjunction with thermal insulating materials in Section 07 21 19 Foamed-in-place insulation.
 - .2 Thermal protection to vapour retarder in conjunction with vapour retarder materials in Section 07 26 00.

2.3 MATERIALS

- .1 Insulation: CAN/ULC-S702, preformed mineral fibre, in blanket form; friction fit conforming to the following:
 - .1 Flame/Smoke Properties: Flame spread 0, Smoke developed 0 to CAN/ULC-S102.
- .2 Sheet Vapour Retarder: Black polyethylene film for above grade application, 6 mil thick.
- .3 Sheet Vapour Retarder: - See Section 07 26 00 Vapour Retarders.
- .4 Tape: Polyethylene self-adhering type, mesh reinforced, 50 mm wide.
- .5 Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.
- .6 Wire Mesh: Galvanized steel, hexagonal wire mesh.

2.4 ACCESSORIES

- .1 Insulation clips:
 - .1 Impale type, perforated 50 x 50 mm, cold rolled carbon steel, 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter anneal steel, length to suit insulation, 25 mm washers of self locking type.
 - .2 Nails: Galvanized steel, length to suit insulation plus 25 mm, to CSA B111.
 - .3 Stapes: 12 mm minimum leg.
- .2 Vapour Barrier Film:
 - .1 Polyethylene Film: To CAN/CGSB 51.34-M, 6 mil thick.

- .2 Joint sealing Film: Air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

- .1 Install insulation and vapour retarder to manufacturer's written instructions and Section 07 26 00.
- .2 Install in exterior walls spaces without gaps or voids. Do not compress insulation.
- .3 Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- .4 Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
- .5 Install with factory applied vapour retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane between framing members.
- .6 Staple or nail facing flanges in place. Place fasteners at 150 mm on centre maximum.
- .7 Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
- .8 Metal Framing: Place vapour retarder on warm side of insulation; lap and seal sheet retarder joints over member face.
- .9 Retain insulation in place with wire mesh secured to framing members.
- .10 Place insulation fasteners at centres sufficient to keep insulation permanently in place.
- .11 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.
- .12 Coordinate work of this section with construction of vapour retarder specified in Section 07 26 00.
- .13 Coordinate work of this section with construction of air barrier seal specified in Section 07 27 00.
- .14 Keep insulation minimum 75mm from heat emitting devices, such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC S604-M Type A chimneys and CSA B149.1 and CSA B149.2 type B and L vents.

3.3 THERMAL

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces.

3.4 ACOUSTIC

- .1 Install acoustic insulation in all demising walls and walls abutting public or other non-tenant spaces.
- .2 Install acoustic insulation in walls between sales floor and adjacent spaces such as stockroom, offices and fitting rooms, etc.

- .3 Install acoustic insulation in walls and ceilings of office spaces as indicated on drawings.

3.5 VAPOUR BARRIER INSULATION

- .1 Install sheet vapour on warm side of exterior wall assemblies prior to insulation of gypsum board to form continuous barrier.
- .2 Use sheets of largest practical size to minimize joints.
- .3 Inspect sheets for continuity. Repair punctures and tears with sealing tape before work is concealed.
- .4 Install vapour barrier to maintain continuous barrier. Use joint sealing tape where required to maintain continuity of vapour barrier to adjoining materials

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Foamed-in-place insulation at exterior wall crevices requiring a thermal seal.
- .2 The *Work* includes:
 - .1 Medium density spray-applied foam insulation where indicated on the *Drawings*.
 - .2 Low density spray-applied foam insulating sealant for gap-filling at the perimeter of window and door openings and other locations where required to maintain the continuity of the building envelope thermal insulation.

1.2 RELATED REQUIREMENTS

- .1 Section 04 27 23 - Cavity Wall Unit Masonry: Wall construction.
- .2 Section 07 42 13.19 - Insulated metal wall panels.
- .3 Section 07 54 23 Thermoplastic-polyolefin roofing: Roof insulation.
- .4 Section 07 26 00 - Vapour Retarders: Materials continuing the vapour seal.
- .5 Section 07 27 00 - Air Barriers: Materials continuing the air barrier seal.

1.3 REFERENCE STANDARDS

- .1 [ASTM C1029-20 Standard specification for spray-applied rigid cellular polyurethane thermal insulation](#)
- .2 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .3 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .4 CAN/ULC-S705.1-18 - Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density - Material - Specification (Includes Amendments 1 and 2, 2005).
- .5 CAN/ULC-S705.2-05 (R2016) - Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density - Application.
- .6 CUFCA (The Canadian Urethane Foam Contractors Association).

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.
 - .2 Coordinate work to ensure timely placement of insulation within construction spaces.
- .3 Pre-installation Meetings: Convene one (1) week before starting work of this section.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 *Product* Data: Provide manufacturer's complete technical *Product* data, *Product* description, insulation properties, overcoat properties, and preparation requirements. Including:
 - .1 Description and properties of each *Product*.
 - .2 *Product* storage and handling recommendations.

- .3 Preparation requirements.
- .4 Application instructions.
 - .1 Indicate special procedures, information on special environmental conditions required for installation and perimeter conditions requiring special attention.

- .3 Installation Data: Manufacturer's special installation requirements, preparation requirements.
- .4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 QUALITY ASSURANCE

- .1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .2 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience, and licensed and certified by the SPF Quality Assurance Program used by CUFCA.

1.8 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not install insulation when ambient temperature is lower than 5°C.
- .2 In accordance with CAN/ULC S774, do not permit occupancy until delivery of minimum 0.3 air changes per hour for 24 hours following installation.

Part 2 Products

2.1 MANUFACTURERS

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for flame and smoke, concealment, over coat requirements.

2.3 MATERIALS

- .1 **Medium Density Spray-Applied Urethane Foam Insulation**
 - .1 Medium density for all applications except gap-filling locations for which low pressure insulating foam is specified
 - .2 Two component HFO-based closed cell, spray-applied rigid cellular polyurethane foam air barrier and thermal insulation, medium density in accordance with CAN/ULC S705.1:
 - .3 Standard of acceptance: WALLTITE® CM01 and CM01CT (for cold weather application) polyurethane foam insulation by BASF Canada Inc. Properties as follows:
 - .1 Density (core) (ASTM D1622/D1622M): 29.6 kg/m³.
 - .2 Compressive strength (ASTM D1621): 236 kPa.
 - .3 Tensile strength (ASTM D1623): 313 kPa.

- .4 Open cell content (ASTM D6226): 5.6%
- .5 Water absorption (ASTM D2842): 0.58%.
- .6 Permeance 50 mm sample (ASTM E96/E96M): 56.3 ng/Pa.s.m²Dimensional stability.
- .7 .Dimensional stability (ASTM D2126): % vol.change after 28 days:
 - .8 @ 20°C: +1.4.
 - .9 @ 70°C @ 97% +/-3%RH: +7.0.
 - .10 @ 80°C: +5.9.
- .4 Flame spread classification (CAN/ULC S102 & CAN/ULC S127):
 - .1 Flame spread: 500.
 - .2 Smoke developed: 500.
- .5 Time to occupancy (CAN/ULC S774): 24 hours.
- .6 Hot surface performance (ASTM C411): Passed when exposed to 93°C for 96 hours.
- .7 Fungi resistance (ASTM 1338): No fungal growth exhibited.
- .8 Long term thermal resistance (CAN/ULC S770):
 - .1 50 mm thick: RSI 1.82 m².K/W (R10.3).
 - .2 75 mm thick: RSI 2.83 m².K/W (R16.1).
 - .3 100 mm thick: RSI 3.84 m².K/W (R21.8).
- .9 Air barrier testing (NRC/IRC/CMCC) - 25.4 mm thickness: f 0.02 l/s/m² at 75 Pa.
- .10 Water Vapour Permeance: (ASTM E96/E96M, desiccant method): 60 ng/(Pa s sqm), qualifying as a vapour retarder in applied thicknesses of 50 mm and greater .
- .11 Long term thermal resistance (CAN/ULC S770): Nominal RSI 0.9 per 25 mm thickness.
- .12 Ozone depletion potential: Zero.
- .13 Global warming potential: Less than 150.
- .14 Volatile organic compounds (VOC's): Zero.
- .15 Thermal barrier for foamed-In-Place Insulation exposed to the building interior after completion, (Flame Spread Protection): Spray applied, cement based fire resistant material, wet mix spray applied fireproofing meeting requirements of CAN/ULC S101, CAN/ULC S124, ASTM E736/E736M, ASTM E759/E759M, ASTM E761/E761M and ASTM E859/E859M; containing no asbestos fibre, ULC labelled and listed for assemblies and fire ratings indicated on the *Drawings*, and as follows:
 - .1 Water: Potable.
 - .2 As recommended by the insulation manufacturer.
 - .3 Compliant with the applicable buiding code requireme

.4 Thin film intumescent and ignition suppressing coatings are not acceptable for *Work* of this *Project*.

.16 Damming Materials: In accordance with the tested assembly being installed as acceptable to the authorities having jurisdiction, and as recommended by manufacturer.

.17 Firestopping Mortar: Cementitious, single component fire resistive mortar coating; tested, listed, and certified by ULC.

.2 Low Pressure Insulating Foam Sealant

.1 Low pressure insulating foam sealant for gap-filling at window and door opening perimeters and other locations where required to maintain the continuity of the building envelope insulation:

.2 One component open cell foamed-in-place Insulation in accordance with CAN/ULC S710.1-11.

.3 Standard of acceptance: CF 812 Window & Door Pro low pressure filler foam by Hilti, characteristics as follows:

.1 Foam yield per can: Approx. 1.30ft³

.2 Approximate cure time: Tack-free after 8 to 10 minutes

.3 Application temperature: 5oC to 35oC.

.4 Air Infiltration (ASTM E283): < 0.003 m³/m² @ 75 Pa.

.4 Water Infiltration (ASTM E331): No Leakage after 15 minute exposure @ 140 Pa.

.5 Sound Transmission Classification (ASTM E90): 55.

.6 Pressure Build Average (AAMA 812): 5.4 kPa.

.7 Dimensional Stability (AAMA 812): 2%.

.8 Tensile Strength (HTC Method 2106): > 6 N/cm²

.9 R-Value (ASTM C518): RSI 0.74 (R 4.27).

.10 Surface Burning Characteristics (UL 723): Flame Spread: 0

2.4 ACCESSORIES

.1 Primer: As required by insulation manufacturer.

.2 Overcoat: Cementitious type, spray applied; CAN/ULC-S102, flame spread and smoke developed rating of 0.

Part 3 Execution

3.1 EXAMINATION

.1 Section 01 71 00: Verify existing conditions before starting work.

.2 Verify work within construction spaces or crevices is complete prior to insulation application.

- .3 Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

3.2 PREPARATION

- .1 Mask and protect adjacent surfaces from over spray or dusting.
- .2 Apply primer in accordance with manufacturer's written instructions.

3.3 INSTALLATION

- .1 Apply insulation to CAN/ULC-S705.2 and manufacturer's written instructions.
- .2 Apply insulation by spray method, to a uniform monolithic density without voids.
- .3 Application - Medium Density Urethane Foam Insulation
 - .1 Conduct inspections as required by CAN/ULC S705.2 and the manufacturer's application guidelines.
 - .2 Apply insulation in accordance with CAN/ULC S705.2 and the manufacturer's instructions. by qualified applicators. Before applying, ensure ambient temperature is within the range recommended by the manufacturer:
 - .1 For *Product* formulated for normal temperature range: 10°C to 40°C.
 - .2 For *Product* formulated for low-temperature application: -15°C to 10°C.
 - .1 Do not apply foam insulation in excess of 50 mm per pass due to the *Product's* exothermic effect.
 - .2 After spraying a pass, allow cooling time for the dissipation of heat before spraying another pass.
 - .3 Not allowing adequate cooling time risks scorching and/or fire and affects *Product* longevity.
 - .3 In a cavity wall application, where adhesion strength of transition membrane is less than 103 kPa, mechanically fasten the transition membrane to substrate in accordance with manufacturer's application guidelines.
 - .4 Apply insulation and thermal barrier by spray method, to a uniform monolithic density without voids to achieve the required fire rating.
 - .5 Patch damaged areas.
- .4 Application - Low Pressure Urethane Foam Insulating Sealant
 - .1 Apply foam insulating sealant in strict accordance with the manufacturer's printed directions, using dispensing gun recommended by material manufacturer. Fill all voids in the exterior wall insulation with sealant.
 - .2 When installing foam sealant around window and/or door frames, conform to the window and/or door manufacturer's instructions. In the event of conflict, proceed as directed by the *Consultant*.
 - .3 Apply in all locations where required to maintain the continuity of the insulation and/or the vapour barrier, including, but not necessarily limited to the following:
 - .1 Sealing voids at the perimeter of window and door frames.

- .2 Sealing other voids in the exterior envelope of the building and at all locations where the continuity of the insulation is interrupted.
- .4 Sealing at junctions between materials and components which comprise the air barrier as required to maintain continuity of the air barrier.
- .5 All locations indicated on the *Drawings*.
- .6 Note that this material expands several times its original volume when applied.
- .7 Follow manufacturer's instruction and fill voids to allow for expansion and maximize curing.
 - .1 Ensure space for expansion to avoid pressure on adjacent *Products* that may bind operable parts.
 - .2 Trim excess foam away for applied trim or remove as required for a continuous sealant bead.
- .8 If necessary, apply in several layers, each successive layer being allowed to cure before next layer is applied.
- .9 While curing, foam to be tooled, if required.
- .10 If leakage occurs after curing, cut back flush with surrounding surfaces or recess to sufficient depth to provide for finishing caulking.

3.4 FIELD QUALITY CONTROL

- .1 Inspection and Testing:
 - .1 Inspection will include verification of insulation and overcoat thickness and density.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit subsequent construction work to disturb applied insulation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Repair or modify existing fire sprayed deck & joists.

1.2 RELATED REQUIREMENTS

- .1 Section 07 81 16 - Cementitious Fireproofing.
- .2 Section 09 22 13 - Metal Furring and Lathing: Metal lath over structural members.
- .3 Appendix - Div.07.1 - Firestop Systems and Assemblies

1.3 REFERENCE STANDARDS

- .1 [ASTM C177-19 Standard test method for steady-state heat flux measurements and thermal transmission properties by means of the guarded-hot-plate apparatus](#)
- .2 [ASTM C518-21 Standard test method for steady-state thermal transmission properties by means of the heat flow meter apparatus](#)
- .3 [ASTM C739-21a Standard specification for cellulosic fiber loose-fill thermal insulation](#)
- .4 [ASTM C1014-17 Standard specification for spray-applied mineral fiber thermal and sound absorbing insulation](#)
- .5 [ASTM C1015-17 Standard practice for installation of cellulosic and mineral fiber loose-fill thermal insulation](#)
- .6 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .7 [ASTM E136-19a Standard test method for assessing combustibility of materials using a vertical tube furnace at 750°C](#)
- .8 CAN/ULC-S101-14 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .9 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .10 CAN/ULC-S703-09 (R2015) - Standard for Cellulose Fibre Insulation (CFI) for Buildings.
- .11 ITS (Intertek Testing Services).
- .12 ULC-FR-17 - Fire Resistance Directory (2017 Edition).

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.
 - .2 Apply insulation after hangers and supporting clips are installed but before subsequent construction is erected.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements, perimeter conditions requiring special attention.

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

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 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.
- .3 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

1.8 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Maintain acceptable ambient and substrate surface temperatures prior to, during, and after installation of insulation materials.

Part 2 Products

2.1 MANUFACTURERS

- .1 Monoglass; Product: Monoglass spray-applied insulation.
- .2 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for non-combustibility, flame and smoke ratings, concealment.

2.3 MATERIALS

- .1 Cellulose Fibre Insulation: CAN/ULC-S703, Type 2; chemically treated, cellulosic fibre loose-fill type thermal insulation, nodulated for pneumatic placement.
 - .1 Added Water: Maximum 20%.
 - .2 Settlement: Minimum 5%.
- .2 Glass Fibre Insulation: ASTM C1014, spray-applied mineral fibre insulation.
- .3 Spray-Applied Insulation
 - .1 Standard of acceptance: Monoglass by Monoglass Inc., characteristics as follows:
 - .1 Fibres: Type 902 Bio Soluble fiberglass.
 - .2 Thermal insulation shall not contain asbestos, free crystalline silica or combustible fibres.
 - .3 Fire Hazard Classification (ASTM E84; CAN/ULC S102):
 - .1 Flame Spread = 0
 - .2 Smoke Developed = 0.

- .2 Non-Combustibility (ASTM E136; ISO 1182): Non-combustible
- .3 Air Erosion (ASTM E859/E859M): No mass loss.
- .4 Smoulder resistance (UL 723 S): Passed, 0.4% mean weight loss.
- .5 Dry density (ASTM D1622/D1622M): 48 kg/cu.m.
- .6 Thermal conductivity (ASTM C518): RSI 0.70 per 25 mm.
- .7 Noise reduction coefficient:
 - .1 ASTM C423 - 35 mm on solid backing: NRC .85
 - .2 ISO 354: NRC .75
 - .1 25 mm on solid backing: NRC .75
 - .2 50 mm on solid backing: NRC .95.

2.4 ACCESSORIES

- .1 Primer: As required by insulation manufacturer.
- .2 Insulation Stop/Ventilation Baffles: Sheet metal, profiled and sized to suit rafter spacing and wall/sloped roof configuration.
- .3 Bonding adhesive: Liquid bonding adhesive as recommended by the insulation manufacturer.
 - .1 Mix bonding adhesive with fresh, clean water to the exact proportions recommended by the manufacturer.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.
- .3 Verify other work on and within spaces to be insulated is complete prior to application.

3.2 PREPARATION

- .1 Mask and protect adjacent surfaces from overspray or damage.
- .2 Apply primer to manufacturer's written instructions.
- .3 Existing surfaces:
 - .1 Remove dust, dirt, foreign material, loose paint, etc. from surfaces to which the work is to be applied, which could otherwise create a false bond or staining of the insulation. Clean and seal as required.
 - .2 Verify bond requirements and compatibility of all surfaces to receive thermal insulation materials.
 - .3 Ensure that all ducts, piping, equipment, or other items, which would interfere with the application of thermal insulation, are not positioned until thermal insulation work is completed.
 - .4 Mask and protect adjacent surfaces from overspray or damage.
 - .5 Apply primer in accordance with the manufacturer's instructions.

3.3 INSTALLATION

.1 Application

- .1 Mix and apply spray-applied insulation in strict accordance with the manufacturer's instructions.
- .2 Apply insulation to the substrate in sufficient thickness to achieve the required thermal value as indicated on the *Drawings* and in accordance with applicable edition of ASHRAE Std 90.1 I-P for the envelope requirements for the building location and climate zone.
- .3 Comply with OBC MMAH Supplementary Standard SB-10.
- .4 Install sprayed insulation to a uniform monolithic density without voids.
- .5 Where the required thickness exceeds the manufacturer's recommendations for self-supported installation, install mechanical support in accordance with the manufacturer's installation instructions.
- .6 Tamp wet sprayed insulation surface to improve adhesion and to achieve a smooth surface.
- .7 Apply surface sealer monolithically and without voids; fully cover sprayed insulation.

3.4 FIELD QUALITY CONTROL

- .1 Inspection and Testing:
 - .1 Section 01 45 00: Field inspection.
 - .2 Inspection will include verification of insulation thickness and density.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit subsequent construction work to disturb applied insulation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Sheet and sealant materials for controlling vapour diffusion.

1.2 RELATED REQUIREMENTS

- .1 Section 07 21 13 - Board Insulation: Insulation and vapour retarder.
- .2 Section 07 26 00 Below-grade vapor retarders
- .3 Section 07 27 00 - Air Barriers: An air barrier as an integral part of a complete stud wall assembly.
- .4 Section 07 54 23 - Thermoplastic-polyolefin roofing: Roofing membrane and integral vapour retarder.
- .5 Section 07 92 00 - Joint Sealants: Sealants.
- .6 Section 08 12 13.13 - Standard Hollow Metal Frames: Door frames.
- .7 Section 08 51 13 - Aluminum Windows: Window frames.

1.3 REFERENCE STANDARDS

- .1 [ASTM C920-18 Standard specification for elastomeric joint sealants](#)
- .2 [ASTM C1311-14 Standard specification for solvent release sealants](#)
- .3 [ASTM E96/E96M-21 Standard test methods for gravimetric determination of water vapor transmission rate of materials](#)
- .4 [CAN/CGSB 51.33-M89 Vapour barrier sheet, excluding polyethylene, for use in building construction](#)
- .5 [CAN/CGSB 51.34-M86 Vapor barrier, polyethylene sheet for use in building construction](#)
- .6 SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 DEFINITION

- .1 Vapour Retarder: A material or assembly of materials that resists water vapour diffusion through it.

1.5 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 Sequencing:
 - .1 Sequence Work to permit installation of materials in conjunction with other retardant materials and seals, and air barrier assemblies.
 - .2 Do not install vapour retarder until items penetrating it are in place.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Manufacturer's technical data sheets and material safety data sheets for each product specified.

1.7 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements, including preparation and installation requirements, techniques.
- .3 Certification: Submit manufacturer's certification that materials comply with specified requirements.

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.9 QUALITY ASSURANCE

- .1 Perform Work in accordance with SWRI sealant and caulking guide requirements for materials. Maintain one (1) copy of document on site.

Part 2 Products

2.1 DESCRIPTION

- .1 System Description:
 - .1 Materials and installation methods to provide continuity of vapour retarder:
 - .1 In conjunction with materials described in Section 07 21 16 Blanket Insulation, 07 92 00 Joint sealants.
 - .2 To seal gaps between enclosure components and opening frames.

2.2 PERFORMANCE / DESIGN CRITERIA

- .1 Vapour Permeability (Perm): Maximum water vapour permeance of 57.4 ng/(Pa•s•sq m) measured to CAN/CGSB 51.34.

2.3 SHEET MATERIALS

- .1 Sheet Retarder Type 1: CAN/CGSB 51.34, Manufacturer polyethylene film for above grade application, 0.50 mm thick; a perm rating of 1.
 - .1 Product: Membrain (TM), manufactured by Certainteed.

2.4 SEALANTS

- .1 Primer: Recommended by sealant manufacturer to suit application.
- .2 Cleaner: Non-corrosive type; recommended by sealant manufacturer; compatible with adjacent materials.

2.5 ADHESIVES

- .1 Adhesive Type 2: Compatible with sheet barrier and substrate, permanently non-curing.
- .2 Spray Adhesives for light gauge metal framing: Spray adhesives, such as 3M Spray 90 may be used at temperatures of 12°C and above.

2.6 ACCESSORIES

- .1 Thinner and Cleaner for Butyl, Neoprene Sheet: As recommended by sheet material manufacturer.
- .2 Tape: Polyethylene self-adhering type, mesh reinforced, 75mm wide, compatible with sheet material.
- .3 Attachments: Galvanized steel bars and anchors.
 - .1 Fasteners:
 - .1 Screws for light gauge metal framing: #7 x 11 mm plated steel or stainless self tapping or self drilling pan, cap, or washer head screws placed at 300 mm o.c. along the studs, head, and sill tracks. Do not use galvanized screws.
 - .2 Tapes for light gauge metal framing: Double sided carpet and foam tapes may be used at temperatures of 12°C and above.
 - .3 Staple Fasteners: 6 mm narrow crown staples minimum length 12 mm installed at 300 mm o.c. along studs and at head and sill.
 - .4 Electrical Vapour Barrier Box: Rigid, moulded polyethylene box with reinforced flanges.
 - .1 Black polyethylene pan, moulded to fit between framing members to accommodate recessed equipment and electrical outlet boxes. Standard of acceptance: Polyvapor Hat as manufactured by Acro Foam and Plastics Limited.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify condition of substrate and adjacent materials.

3.2 PREPARATION

- .1 Remove loose or foreign matter that might impair adhesion.
- .2 Clean and prime substrate surfaces to receive adhesive, sealants in accordance with manufacturers' written instructions.

3.3 INSTALLATION

- .1 Install materials to manufacturer's written instructions.
- .2 Vapour Retarder For Stud Framed Walls: Secure sheet barrier type I to stud faces with adhesive, sealants recommended by manufacturer. Lap edges over stud faces, lap ends onto adjacent construction; caulk ends with type adhesive sealant to ensure complete seal.
- .3 Vapour Retarder For Wall/Roof Junction: Lap sheet barrier type I from wall retarder onto roof vapour retarder continuously. Seal edges and ends with adhesive, sealants recommended by manufacturer. Caulk with type (applicable to purpose) sealant to ensure complete seal. Position laps over firm bearing.
- .4 Vapour Retarder Seal For Openings: Install sheet barrier type (applicable to purpose) between window, door frames and adjacent vapour retarder and seal with sealant, adhesive (applicable to purpose). Caulk with Type (applicable to purpose) sealant to ensure complete seal. Position laps over firm bearing.

- .5 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges or where compatibility with adjacent materials may be in doubt.
- .6 Vapour Barrier Box: Install vapour barrier boxes at electric outlet and switch locations on exterior walls. Lap and seal perimeter with sheet barrier.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Air leakage criteria for primary air seal building enclosure materials and assemblies.
- .2 Materials and installation methods supplementing other air seal materials and assemblies.
- .3 Air seal materials to connect and seal openings, joints, and junctions between other air seal materials and assemblies.

1.2 RELATED REQUIREMENTS

- .1 Division 3 - Structural: Concrete substrate
- .2 Section 04 27 13 - Composite unit masonry: Masonry wall assembly functioning as a structurally supported air seal.
- .3 Section 07 21 13 - Board Insulation: Insulation and insulation facing directly adjacent to the air seal.
- .4 Section 07 26 00 - Vapour Retarder: Coordinate vapour seal criteria with air barrier requirements.
- .5 Section 07 84 00 - Firestopping: Fire stopping materials.
- .6 Section 07 92 00 - Joint Sealants: Sealant materials and installation techniques.
- .7 Section 07 54 23 - Thermoplastic-polyolefin roofing: Roofing membrane and integral vapour retarder.
- .8 Section 08 11 13 - Hollow metal doors & frames.
- .9 Section 08 44 13 - Glazed Aluminum Curtain Walls: Functioning as a primary air seal.
- .10 Section 08 41 13 - Aluminum Framed Entrances And Storefronts: Aluminum entrances and storefronts, functioning as a primary air seal.
- .11 Section 09 21 16 - Gypsum Board Assemblies: Functioning as a primary air seal.
- .12 Section 09 91 00 - Painting: Air sealing porous materials on inside surfaces of exterior wall.

1.3 REFERENCE STANDARDS

- .1 [STD ASCE/SEI 7-16 Minimum design loads and associated criteria for buildings and other structures](#)
- .2 [ASTM A653/A653M-20 Standard specification for steel sheet, zinc-coated \(galvanized\) or zinc-iron alloy-coated \(galvannealed\) by the hot-dip process](#)
- .3 [ASTM C920-18 Standard specification for elastomeric joint sealants](#)
- .4 [ASTM C1311-14 Standard specification for solvent release sealants](#)
- .5 [ASTM E283/E283M-19 Standard test method for determining rate of air leakage through exterior windows, skylights, curtain walls, and doors under specified pressure differences across the specimen](#)
- .6 [ASTM E330/E330M-14 Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference](#)
- .7 NABA (National Air Barrier Association) - Air Barrier Quality Assurance Program (QAP).
- .8 SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 DEFINITIONS

- .1 Air Barrier: A continuous network of materials and joints providing air tightness, with adequate strength and stiffness to not deflect excessively under air pressure differences, to which it will be subjected in service. It can be comprised of a single material or a combination of materials to achieve the performance requirements.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 of this section with all sections referencing this section.
- .3 Sequencing: Sequence work to permit installation of materials in conjunction with related materials and seals.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on material characteristics, performance criteria, limitations.

1.7 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements, including preparation, installation requirements and techniques, product storage and handling criteria.

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.9 QUALITY ASSURANCE

- .1 Perform Work to SWRI sealant and caulking guide requirements for materials, installation.
- .2 Perform Work in accordance with the NABA Air Barrier Quality Assurance Program.
- .3 Maintain one (1) copy of document on site.
- .4 Contractor Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience and licensed by the NABA Air Barrier Quality Assurance Program (QAP).
- .5 Applicator Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and be a Licensed or Registered Installer with the NABA Air Barrier Quality Assurance Program (QAP).

1.10 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

1.11 WARRANTY

- .1 Section 01 78 00: Warranties.

- .2 Provide a three (3) year warranty to include coverage for failure to meet specified requirements.
- .3 Warranty: Include coverage of installed sheet materials that fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

Part 2 Products

2.1 PERFORMANCE / DESIGN CRITERIA

- .1 Design Requirements: Perform design work to ASCE/SEI 7.
- .2 Static Test: Install air seal components and assemblies to resist air leakage caused by static air pressure across exterior wall assemblies and other interruptions to the integrity of the building enclosure systems; to a maximum air leakage rate of 0.01 L/s/sq m when subjected to a pressure differential of 75 Pa as measured to ASTM E283.
- .3 Dynamic Test: Install air seal components and assemblies to resist air leakage caused by dynamic air pressure across exterior wall assemblies and other interruptions to the integrity of wall and roof systems; to a maximum air leakage rate of 75 L/s.sq m when subjected to hourly wind design loads to applicable code using a 1 in 10 year probability, as measured to ASTM E330/E330M, ASTM E283.
- .4 Provide an air barrier assembly tested to NABA approved testing protocol to provide air leakage results not to exceed 0.02 L/s•sq m when subjected to a pressure differential of 75 Pa.
- .5 Provide continuity of air seal materials and assemblies in conjunction with materials described in Section 07 92 00.

2.2 SHEET MATERIALS

- .1 Sheet Seal Type 1: Butyl, black colour, (exceeding minimum required mm) thick.
 - .1 Product: Blueskin® Butyl Flash, manufactured by Bakor Inc.
 - .1 Application: Self-adhering membrane for window and door opening perimeters, inside and outside corners and other transitions.
 - .2 Product: Blueskin® TWF, manufactured by Bakor Inc.
 - .1 Through-wall flashing membrane.
- .2 Sheet Seal Type 2: Self-adhesive rubberized asphalt bonded to sheet polyethylene, low temperature, nominal total thickness of (mm as per product data).
 - .1 Product: Blueskin SA, manufactured by Bakor Inc..
 - .1 Application: SBS modified bitumen, self-adhering sheet membrane complete with a blue engineered thermoplastic film.
 - .2 All window and door openings at Insulated metal panel to be wrapped with Blueskin SA around all 4 sides.
- .3 Sheet Seal Type 3: Self-adhered vapor permeable, water resistive air barrier consisting of a reinforced, modified polyolefin tri-laminate film surface and patented permeable adhesive technology with split-back poly-release film, nominal total thickness of (mm as per product data).
 - .1 Product: Blueskin® VP160, manufactured by Bakor Inc..
 - .1 Application: Water resistive air barrier .
 - .2 All window and door openings at stone clad wall to be wrapped with VP 160 around all 4 sides.

- .4 Sill plate gasket.
 - .1 Provide continuous gasket to full length of foundation wall.
 - .2 89mm roll-out foam gasket by Owens Corning or similar. Install as per manufacturers recommendations.

2.3 SEALANTS

- .1 Penetration and Termination Sealant:
 - .1 A moisture cure, medium modulus polymer modified sealing compound Termination sealant.
 - .2 Standard of acceptance: HE925 BES Sealant by Henry®.
- .2 Primer: Appropriate to application, Recommended by sealant manufacturer.
 - .1 Standard of acceptance: Blueskin® LVC Spray Primer by Henry®
- .3 Substrate Cleaner: Non-corrosive, type recommended by sealant manufacturer, compatible with adjacent materials.

2.4 ADHESIVES

- .1 Mastic Adhesive Type 1: Compatible with sheet seal and substrate, thick mastic of uniform knife grade consistency.
 - .1 Product: Air-Bloc 21 Insulation Adhesive , manufactured by Bakor Inc..
- .2 Adhesive Type 2: Aerosol spray adhesive:
Quick drying spray adhesive used to prepare construction surfaces for the application of flashings.
 - .1 Product: Blueskin® Spray Prep Adhesive by Henry®, Bakor Inc.
- .3 Adhesive Type 3: Compatible with sheet seal and substrate, permanently non-curing.
 - .1 As recommended by manufacturer, and suitable for application.

2.5 ACCESSORIES

- .1 Thinner and Cleaner for Butyl Sheet: As recommended by sheet material manufacturer.
- .2 Tape: Polyethylene, self adhering type, mesh reinforced, 50 mm wide, compatible with sheet material.
- .3 Attachments: Galvanized steel bars and anchors.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that surfaces and conditions are ready to accept the Work of this section.

3.2 PREPARATION

- .1 Remove loose or foreign matter that might impair adhesion of materials.
- .2 Clean and prime substrate surfaces to receive sealants, adhesive to manufacturers written instructions.

3.3 INSTALLATION

- .1 Install materials to manufacturer's written instructions.

3.4 APPLICATION

.1 Air Barrier Application

- .1 Apply air barrier membrane on the same day the final coating of primer is applied in accordance with manufacturer's instructions.
- .2 Ensure the substrate is ready to receive the air barrier in accordance with the air barrier manufacturer's installation guide and as specified in this section.
- .3 Temperature limitation:
 - .1 The substrate temperature must be above -7°C and rising.
 - .2 Temperature limitations may vary. Refer to the manufacturer's *Product* data for *Product*- specific temperature limitations.
- .4 Application of primary sheet-applied vapour permeable water resistive air barrier:
 - .1 Where required, apply adhesive/primer recommended by the air barrier manufacturer continuously and at the rate recommended by the manufacturer to ensure complete substrate coverage of the anticipated flashing installation area.
 - .2 Allow the adhesive/primer to cure to a tacky film prior to application of the air barrier.
 - .3 Primed areas not covered by the end of the day must be re-primed prior to installation of the air barrier.
 - .4 Allow adhesive/primer to cure to a tacky film prior to application of the air barrier.
 - .5 Primed areas not covered by the end of the day must be re-primed prior to installation of the air barrier.
 - .6 Peel the protective film from the primary air barrier and align top of the membrane, verifying proper positioning prior to complete film removal and air barrier placement.
 - .7 Press the primary air barrier firmly into place by applying hand pressure to the middle of the membrane and working the pressure to the edges; eliminating wrinkles and air bubbles.
 - .8 Install the primary air barrier in shingle fashion to eliminate reverse laps.
 - .9 For lap adhesion enhancements, install adhesive continuously and at the rate recommended by the air barrier manufacturer to ensure substrate coverage of the anticipated flashing installation area.
 - .10 Allow the adhesive/primer to cure to a tacky film prior to subsequent primary air barrier installation
 - .11 Horizontal applications:

- .1 Horizontal seams: 50 mm minimum lap.
- .2 Vertical seams: 75 mm minimum lap
- .12 Roll the primary air barrier and laps with a countertop roller to obtain thorough adhesion.
- .13 Seal permanent reverse laps of the primary air barrier with termination sealant.
- .5 Application Of Flashing:
 - .1 Self-adhered flashing:
 - .1 Where required, apply adhesive/primer as recommended by the air barrier manufacturer continuously at recommended rate, ensuring complete substrate coverage of the anticipated flashing installation area.
 - .1 Allow the adhesive/primer to cure to a tacky film prior to flashing installation.
 - .2 Primed areas not covered by the end of the day must be re- primed prior to flashing installation.
 - .2 Measure and cut self-adhered flashing to ensure adequate length to achieve continuous coverage of the installation.
 - .3 Peel the protective film from the self-adhered flashing and align the top of the membrane, verifying proper positioning prior to complete film removal and flashing placement.
 - .4 Press self-adhered flashing firmly into place by applying hand pressure to the middle of the membrane and working the pressure to the edges; eliminating wrinkles and air bubbles.
 - .5 Install self-adhered flashings in shingle fashion to eliminate reverse laps.
 - .6 Where required, prime laps at the rate recommended by the air barrier manufacturer to ensure complete coverage of the anticipated lap installation.
 - .7 Lap adjoining edges a minimum of two 50 mm.
 - .8 Roll the flashing and laps with a countertop roller to obtain thorough adhesion.
 - .9 Seal reverse laps at self-adhered flashing with sealant. Sealant recommendations may vary due to the *Product* or the sequence of construction. Refer to the air barrier manufacturer's details for recommended sealant.
 - .2 Thru-Wall Flashing:
 - .1 Apply through-wall flashing membrane along the base of masonry veneer walls and over shelf angles as detailed.

- .1 Prime surfaces and allow to dry, press the membrane firmly into place; overlap minimum 50 mm at end and side laps. Promptly roll laps and membrane to ensure a proper seal.
 - .2 Form a continuous flashing membrane and extend a minimum of 200 mm up the back-up wall.
 - .3 Seal the top edge of the membrane with termination sealant where it meets the substrate. Trowel-apply a feathered edge to termination sealant to shed water.
 - .4 Install a through-wall flashing membrane and extend 13 mm from the outside face of the masonry veneer. Provide end dam flashing as detailed.
- .3 Windows and Rough Openings:
 - .1 Wrap rough openings with self-adhered air/vapour barrier membrane as detailed.
 - .1 Prime surfaces in accordance with the manufacturer's instructions and allow to dry.
 - .2 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 50 mm overlap at all end and side laps of the membrane.
 - .3 Roll all laps and the membrane with a countertop roller to ensure a proper seal.
- .6 Special Considerations:
 - .1 Contact the air barrier manufacturer to verify *Product* and installation requirements.
 - .2 Wall assemblies identified as special conditions and requiring supplemental detailing may include, but are not limited to, any of the following:
 - .1 Panelized wall assemblies.
 - .2 Sloped wall assemblies.
 - .3 Rainscreen cladding systems permitting permanent direct exposure to bulk water onto the primary air barrier within a completed wall assembly.
 - .4 Claddings impeding drainage and/or promoting hydrostatic pressure:
 - .5 Horizontal Z-girts or furring strips installed directly onto the air barrier in a manner to encourage water collection.
- .7 Fastener Penetrations Through the Primary Air Barrier:
 - .1 It is the responsibility of the installer penetrating the air barrier assembly to install fasteners and components in accordance with the air barrier manufacturer's installation guide and as specified in this Section.
 - .2 Installation requirements:

- .1 Drill fasteners and components with sufficient compression to maintain the continuity of the air barrier assembly.
 - .2 Refer to Self-tapping fasteners and/or Pre-drilled fasteners.
- .8 Supplemental sealant:
 - .1 Penetrations that do not meet installation requirements require the addition of termination sealant at point of insertion through the air barrier to maintain continuity in the air barrier assembly.
- .9 Self-tapping fasteners:
 - .1 The fastener head/assembly component must be larger in diameter than the fastener shank.
 - .2 Install the fastener head/assembly component to provide a continuous compression firmly against the air barrier creating a gasketing seal without damaging the membrane.
 - .3 Do not install fastener components through the air barrier over unsupported areas of the substrate such as sheathing joints.
- .10 Pre-drilled fasteners:
 - .1 The fastening head/assembly component must be larger in diameter than the predrilled hole.
 - .2 Install the fastening head/assembly component to provide a continuous compression firmly against the air barrier creating a gasketing seal without damaging the membrane.
 - .3 Do not install fastening components through the air barrier over unsupported areas of the substrate such as sheathing joints.
 - .4 Seal improperly drilled and/or vacated holes with termination sealant prior to installation of the exterior cladding.
- .11 Transition Strips
 - .1 Provide strips of air barrier material where indicated and wherever necessary to maintain the continuity of the air barrier at the interface between adjacent construction assemblies.
 - .2 Use transition strips where necessary to form a continuous air seal to all window and door frame sections and other penetrations. Install a 300 mm strip of membrane to effect tie in. Overlap membrane minimum 75 mm.
 - .3 Use transition strips to maintain air barrier continuity at wall/roof connections and all other points of interface between different construction assemblies.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit adjacent work to damage work of this section.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Preformed metal panel assembly for walls, with related flashings, assembly devices, anchors and accessory components.

1.2 RELATED REQUIREMENTS

- .1 Section 07 26 00 - Vapour Retarders.
- .2 Section 07 27 00 - Air Barriers.
- .3 Section 07 21 13 - Board Insulation.
- .4 Section 07 21 16 - Blanket Insulation.
- .5 Section 07 42 13.23 - Insulated metal wall panels
- .6 Section 07 62 00 - Sheet Metal Flashing And Trim.
- .7 Section 07 84 00 - Firestopping.
- .8 Section 07 62 00 - Sheet Metal Flashing and Trim: Metal cap flashings over panels.
- .9 Section 07 92 00 - Joint Sealants.

1.3 DEFINITIONS

- .1 Delegated Design Professional: The specialist or supporting design professional contracted to the contractor, fabricator or manufacturer to design and/or review specific building components or sub-components, and provide Shop Drawings and Delegated Design Submittals to meet the requirements of authorities having jurisdiction.
- .2 ACM: Aluminum composite material.

1.4 REFERENCE STANDARDS

- .1 [Aluminum design manual](#)
- .2 [ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate](#)
- .3 [ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate](#)
- .4 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .5 [ASTM E96/E96M-21 Standard test methods for gravimetric determination of water vapor transmission rate of materials](#)
- .6 [ASTM E330/E330M-14 Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference](#)
- .7 [ASTM E413-16 Classification for rating sound insulation](#)
- .8 [MANUAL S14-2000 How to series - lightweight steel roofing and siding](#)
- .9 ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
- .10 ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors By Uniform Static Air Pressure Difference.

- .11 NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components 2019.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 placement of anchors.
 - .3 Coordinate the Work for installation of vapour retarder and air barrier seals.
 - .4 Coordinate the Work with installation of firestopping components or materials.
- .3 Pre-installation Meetings: Convene one (1) week before starting work of this section.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on assembled panel structural capabilities.
- .3 Shop Drawings:
 - .1 Design, fabricate and erect wall panel system to meet the following requirements:
 - .1 Rain penetration: prevent rain penetration through wall system.
 - .2 Design system as a “ Rainscreen System” based on guidelines published by the National Research Council. Incorporate means of draining moisture to the exterior. Testing on reasonably comparable systems will be considered acceptable.
 - .2 Wind Load: Design wall system to resist wind loads, positive and negative, expected in this geographical region (NBC climactic data, 10 year probability) without causing rattling, vibration or excessive deflection of panels, overstressing of fasteners, clips or other detrimental effects on wall system.
 - .3 Structural and thermal movement: Accommodate movement of supporting structural framing and movement caused by thermal expansion and contraction of system component parts without causing bowing, buckling, delamination, oil canning, failure of joint seals, excessive stress on fasteners, or any other detrimental effects.
 - .4 Provide Shop Drawings stamped and signed by the Delegated Design Professional.
 - .1 *Shop Drawings:*
 - .1 Show layout and elevations, dimensions and thickness of panels, connections, details and location of joints, sealants and gaskets, method of anchorage, hidden fasteners, number of anchors, supports, reinforcement, trim, flashings, and accessories.
 - .2 Indicate a panel numbering system.
 - .3 Differentiate between shop and site fabrication.
 - .4 Indicate substrates and adjacent work with which the wall system must be coordinated.
 - .5 Coordinate with the insulated metal panel manufacturer to ensure proper support for the ACM panels.
 - .6 Include large-scale details of anchorages and connecting elements.

- .7 Include large-scale details or schematic, exploded or isometric diagrams to fully explain flashing at a scale of not less than 1:5.
- .8 The panel system, including all related connections and fastenings, shall be designed by a structural engineer permanently licensed to practice in the province in which the *Work* will take place. Each of the *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid structural engineer, attesting to the ability of the aluminum composite metal panel system to withstand the specified loads.
- .9 Post-installation certification: After installation, provide written certification, signed by the Structural Engineer responsible for the shop drawings, that all applicable items have been installed in accordance with the shop drawings.
- .2 Panel removal: System shall be non-progressive, allowing removal of any individual panel without necessitating removal of adjacent work.
- .4 Samples: Submit one (1) sample of panel, 600x600mm in size illustrating finish colour, sheen, and texture.
- .5 *Product Data*: Provide manufacturer's data sheets on each *Product* to be used.
 - .1 Include:
 - .1 Panel thickness, physical characteristics, and finish.
 - .2 Finish manufacturer's data sheet showing physical and performance characteristics.
 - .3 Storage and handling requirements and recommendations.
 - .4 Installation instructions and recommendations.
 - .5 Specimen warranty for finish, as specified herein.
 - .6 Physical characteristics of components shown on *Shop Drawings*.
 - .7 Storage and handling requirements and recommendations.
 - .8 Installation instructions and recommendations.
 - .9 Specimen warranty for wall system, as specified herein.
 - .10 For each ACM panel type, submit a sample of the sealant to be used.
 - .1 Sealant colour is to match the ACM panels.
 - .2 Mock-Up:
 - .1 Provide a mock-up for evaluation of fabrication and installation workmanship.
 - .2 Locate where directed by the *Consultant*.
 - .3 Coordinate with Section 07 42 13 - Insulated Metal Wall Panels - Standard Core*, as applicable, and incorporate all components of the wall assembly, including back-up Karrier wall panels supporting the ACM panel system.
 - .4 Provide a minimum of four adjacent panels to illustrate both horizontal and vertical panel joints.

- .5 Panels to be finished as specified.
- .6 The accepted mock-up may remain as part of the *Work* and will be the standard of acceptance for the work of this section.
- .3 Certification:
 - .1 Provide manufacturer's certification that the work results of this section meet or exceed specified requirements.
- .4 Installer's Qualification Statement.
- .5 Manufacturer's Site Reports: Provide within 48 hours of site review. State what was observed and what changes, if any, were requested or required.
- .6 Maintenance Data:
 - .1 Provide maintenance data for incorporation into the operation and maintenance manual specified in Section 01 78 00 - Closeout Submittals.
- .7 Include care of finishes and warranty requirements.
- .8 Executed Warranty: Submit warranty and ensure that forms have been completed in the *Owner's* name and registered with the manufacturer.

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

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 documented 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 Delegated Design Professional Qualifications: Professional Structural Engineer experienced in design of this Work and licensed in the province where the project is located.
- .5 Provide documents substantiating the above requirements.

1.9 MOCK-UPS

- .1 Construct 4 panels long by 4 panels wide mock-up, including siding system, attachments to building frame, associated vapour retarder and air seal materials, sealants and seals, and related insulation.
- .2 Demonstrate component assembly including panel and glazing materials, attachments, anchors, and perimeter sealant.
- .3 Locate where directed by Consultant.
- .4 Approved mock-up may remain as part of the Work.
- .5 Coordinate with Section 07 42 13.19 - Insulated Metal Wall Panels - Standard Core*, as applicable, and incorporate all components of the wall assembly, including back-up Karrier wall panels supporting the ACM panel system.

1.10 DELIVERY, STORAGE ON SITE, AND PROTECTION

- .1 Section 01 61 00: Transport, handle, store, and protect products from damage.
- .2 Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- .3 Store pre-finished material off ground with weather protection to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- .4 Prevent contact with materials that may cause discolouration or staining.

1.11 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide a ten (10) year warranty to include coverage for failure to meet specified requirements.
- .3 Warranty: Include degradation of panel finish including colour fading caused by exposure to weather, water tightness.

Part 2 Products

2.1 MANUFACTURERS

- .1 Panel System: AM2000 ACM panel system by Architectural Metals North America or C2000 ACM panel system by Cladco dry joint system using proprietary aluminum extrusions without the use of caulking at joints.
 - .1 Acceptable material: 4mm FR Reynobond by Alcoa Architectural Products or 4mm PE/FE Alpolic by Alpolic (Project Dependent).
- .2 Obtain ACM wall panel systems and their related components from a single manufacturer.
- .3 Cladco Limited: Contact: Neil Ferdowski Tel: 905-336-1219 Ext.102, email: sales@cladco.com . 2270 Industrial St, Burlington, ON, L7P 1A1.
- .4 Architectural Metals North America: Contact: Ivan Jeremic 905-664-4400 Ext. 37 or Arandjel Djuric Ext. 20, Fax: 905-664-4455, e-mails: ivan@amna.ca or arandjel@amna.ca. 342 Dewitt Road, Stoney Creek, Ontario. L8E 2T2
- .5 Colour:
 - .1 Deep Black (M1) - Reynobond - Colorweld 500, Deep Black.
 - .2 Grey (M2) - M115 PPG Silversmith.
 - .3 Bronze (M2.1) - Reynobond - Colorweld Classic Bronze (To be confirmed).

2.2 PANEL MATERIALS

- .1 Cladding system must be by below TJX approved vendors CLADCO LTD or Architectural Metals North America only, no substitutions permitted.
Manufacturer to obtain Alpolic or Reynobond sheet metal materials. Form modular panels from minimum 4mm Alpolic or Reynobond composite sheets.
The composite sheets will consist of 0.5 mm minimum skins bonded in a continuous process.
 - .1 Finish of exposed skin shall be as per TJX CANADA drawings. Refer to Exterior Elevations.
 - .2 Panel Finish: Floropolymer resin coating with 100% lumiflon FEVE resin tested to meet or exceed the criteria expressed in AAMA 2605-02

- .2 Two sheets of Aluminum bonded to either side of an extruded thermoplastic core, formed in a continuous process without the use of glue or adhesive between dissimilar materials. C2000 Dry Joint System as manufactured by Cladco Ltd. or AM2000 Dry Joint System as manufactured by AMNA.
 - .1 Acceptable material: 4mm FR Reynobond by Alcoa Architectural Products or 4mm PE/FE Alpolic by Alpolic (Project Dependent)
 - .2 CLADCO C2000 Dry Joint System – (905-336-1219 ext. 102) Neil Ferdowski
 - .3 AM2000 Dry Joint System by Architectural Metals North America – (905- 644-4400 ext. 37) Ivan Jeremic
- .3 Type and minimum standard of finish shall be Duranar as produced by Alpolic or Alcoa.
- .4 Joint strip finish shall be as per TJX CANADA drawings. Refer to Exterior Elevations.

2.3 COMPONENTS

- .1 Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles. Mitered internal corners to be back braced with pre-coated sheet stock to maintain continuity of profile.
- .2 Miscellaneous Trim, Caps, Flashings and Closures: Same material, thickness and finish as exterior sheets; brake formed to required profiles.
 - .1 Wherever practical at corners, jambs and abutments, no flashing will be permitted.
 - .1 Panel design to eliminate of flashings and sealants.
- .3 Subgirt Frame:
 - .1 Panel load transfer grids shall be formed from minimum 1.2mm, 18 gauge, or 16 gauge fully galvanized steel conforming to ASTM A653/A653M Grade A Zinc coating to Z275 designation.
 - .2 Transfer grid to be hat bars, Z-bars or combination clip and z-bar.
 - .3 Structural Members and panels shall be fastened together with interlocking clips as shown.
- .4 Fasteners:
 - .1 Fasteners to be as recommended by the panel manufacturer. Concealed and non-corrosive.
- .5 Extrusions and extrusion clips for attaching panels to the sub-structure:
 - .1 Purpose made aluminum. Plastic shims or duct tape shall be used as a thermal separator between extrusions and subgirts.
- .6 Joint filler strip:
 - .1 Same material as panels.
- .7 Openings
 - .1 Openings shall be provided and coordinated with the work of other installers.

2.4 FABRICATION

- .1 Fabrication of primary component profiles on site is not permitted without prior consultant approval.
- .2 Form sections true to shape, accurate in size, square, and free from distortion or defects.
- .3 Form pieces in longest practicable lengths.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that framing members are ready to receive panel system.

3.2 INSTALLATION

- .1 Install panel system on walls to manufacturer's written instructions and CSSBI S14.
- .2 Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.
- .3 Permanently fasten panel system to structural supports; aligned, level, and plumb, within specified tolerances.
- .4 Locate panel joints over supports. Lap panel ends minimum 50 mm.
- .5 Provide control joints where indicated.
- .6 Use concealed fasteners unless otherwise approved by Consultant.
- .7 Seal and place gaskets to prevent weather penetration. Maintain neat appearance.
- .8 Installation requirements:
 - .1 Do not install *Products* that are defective, including warped, bowed, dented, and broken members, and members with damaged finishes.
 - .2 Comply with instructions and recommendations of ACM sheet manufacturer and wall system manufacture and the reviewed and accepted *Shop Drawings*.
 - .3 Protect adjacent work areas and finish surfaces from damage during installation.
 - .4 Install wall system securely allowing for necessary thermal and structural movement; comply with wall system manufacturer's instructions for installation of concealed fasteners.
 - .5 Do not handle or tool *Products* during erection in manner that damages finish, decreases strength, or results in visual imperfection or failure in performance. Return component parts that require alteration to the shop for refabrication, if possible, or for replacement with new parts.
 - .6 Do not form panels on site unless required by the wall system manufacturer and approved by the *Consultant*; comply with the ACM sheet manufacturer's instructions and recommendations for site forming.
 - .7 Where joints are designed for site-applied sealant, seal joints completely with the specified sealant.
 - .8 Install flashings as indicated on the reviewed and accepted *Shop Drawings*. At flashing butt joints, provide a lap strap under the flashing and seal lapped surfaces with a full bed of non-hardening sealant.

3.3 ERECTION TOLERANCES

- .1 Install square, plumb, straight, and true, accurately fitted, with tight joints and intersections maintaining the following installation tolerances:
 - .1 Variation From Plane or Location: 10 mm in 10 m of length and up to 20 mm in 100 m, maximum.
 - .2 Deviation of Vertical Member From True Line: 3 mm in 9 m run, maximum.
 - .3 Deviation of Horizontal Member From True Line: 3 mm in 9 m run, maximum.
 - .4 Offset From True Alignment Between Two Adjacent Members Abutting End To End, In Line: 0.75 mm, maximum.
 - .5 Repair damaged *Products* to the *Consultant's* satisfaction.
 - .6 Replace *Products* which cannot be satisfactorily repaired.

3.4 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Remove site cuttings from finish surfaces.
- .3 Clean and wash prefinished surfaces with mild soap and clean water; rinse with clean water.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 10 00 Rough Carpentry
- .2 Section 05 50 00 Metal Fabrications
- .3 Section 07 27 00 - Air barriers
- .4 Section 07 62 00 - Sheet metal flashing & trim
- .5 Section 07 92 00 - Joint Sealants

1.2 REFERENCE STANDARDS

- .1 American Society of Mechanical Engineers (ASME):
 - .1 ASME B18.6.3- 2013, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series)
- .2 ASTM International (ASTM):
 - .1 [ASTM A653/A653M](#)- 15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - .2 ASTM D2369-10- 2015e1, Test Method for Volatile Content of Coatings
 - .3 [ASTM D2832](#)- 92(2016), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings
 - .4 [ASTM D5116](#)- 10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products
- .3 CISC/CPMA 1.73a, One-coat Paint for Use on Structural Steel.
- .4 CSA Group (CSA):
 - .1 CAN/CSA S136, Cold Formed Steel Structural Members.
 - .2 [CSA B111](#)- Latest Edition, Wire Nails, Spikes and Staples
- .5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards:
 - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications
- .6 Underwriters Laboratories (UL):
 - .1 UL 2761 Sealants and Caulking Compounds
- .7 ULC Standards:
 - .1 CAN/ULC-S706- 09, Standard for Wood Fibre Insulating Boards for Buildings
 - .2 CAN/ULC-S741 08, Standard for Air Barrier Materials - Specification

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Preinstallation Meetings:
 - .1 Convene preinstallation meeting 1 week before beginning work of this Section and on-site installation, with Contractor's Representative in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.

- .3 Coordination with other construction subtrades.
- .4 Review manufacturer's written installation instructions and warranty requirements.
- .2 Sequencing: sequence with other work in accordance with Section 05 41 00 Structural metal stud framing & 05 50 00 Metal Fabrications. Comply with manufacturer's written recommendations for sequencing construction operations.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for metal siding and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .3 Indicate VOC's for caulking materials during application and curing.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of the location of the project, Canada.
 - .2 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, fascia, furring, and related work.
 - .3 *Shop Drawing* shall also serve as field directions and shall be complete with instructions for site installation of *Products*, including periphery trim and sealants, lapstrips and closure pieces to ensure a weathertight installation.
 - .4 Post-installation certification: After installation, provide written certification, signed by the Structural Engineer responsible for the shop drawings, that all applicable items have been installed in accordance with the shop drawings.
- .4 Samples:
 - .1 Submit duplicate 150mm x 150mm mm samples of siding material, of colour and profile specified.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for installed products for incorporation into manual.
- .3 Warranty Documentation: submit warranty documents specified.

1.6 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Installer Qualifications: minimum three years documented experience with products specified.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect steel siding from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return of packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.8 SITE CONDITIONS

- .1 Execute work of this Section within environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer.

1.9 WARRANTY

- .1 Manufacturer's warranty: Submit, for Consultant acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty in addition to and not limit other rights Owner may have under Contract Documents.
- .2 For the *Work* of this section, the warranty prescribed in Div 01, and the General and Supplementary Conditions of the *Contract* is extended to five (5) years.
 - .1 In addition to the give (5) year warranty specified above, provide a manufacturer's thirty (30) year warranty against the failure of panel finishes.

Part 2 Products

2.1 MATERIALS

- .1 Criteria:
 - .1 Appearance: Exposed surfaces free of distortion, twists, waves and buckles. All fasteners, where possible, to be concealed.
 - .2 Exposed surfaces free of distortion, twists, waves and buckles.
 - .3 Exposed fasteners to be of the same finish and colour as the surrounding surface, equally spaced and in true alignment.
 - .4 Exposed fastener locations to be approved by the *Consultant* before start of work.
 - .5 Structural loads: Resist positive and negative wind pressures expected in this geographical area with a maximum allowable deflection of 1/180 of span. Components shall not vibrate when subjected to the effects of wind.
 - .6 Windload data for the location of the site in accordance with the applicable building code.

- .7 Moisture control: Prevent infiltration of water and snow into the siding system. Provide a means of draining the space between the insulation and the exterior skin, in accordance with NRC Rain Screen Principles.
 - .8 Thermal movement: Design the metal siding system to allow for thermal movement of components caused by an ambient temperature range of 140°C to 40°C without causing buckling, failure of joint seals, undue stress on fasteners and other detrimental effects.
 - .9 Structural movement: Accommodate movement between the siding system and the building structure caused by structural movement, without permanent distortion, racking of joints, breakage of seals or water penetration.
 - .10 Water penetration: Provide a continuous and uninterrupted barrier against water penetration, effectively sealed at laps, penetrations and terminations.
- 2 Preformed metal siding panels for exterior: Galvanized sheet steel to ASTM A653/A653M, Grade 33, 230 MPa, Z275 standard commercial coating, prepainted SMP (Silicone-Modified Polyester) or PVDF (Polyvinylidene Fluoride).
- .1 **Corrugated (COR1) :**
 - .1 Base metal thickness: 0.61 mm (24 ga).
 - .2 Profile: Corrugated at 68 mm o.c., 22 mm overall thickness.
 - .3 Colour : Regent Grey.
 - .2 Flat panel profile (UA1) **Urban Accent:**
 - .1 305mm (12") Urban Accent.
 - .2 Colour : Regent Grey.
 - .3 Flat panel profile (UA2) **Urban Accent:**
 - .1 305mm (12") Urban Accent.
 - .2 Colour : Charcoal.
 - .3 Fasteners: nails to [CSA B111](#), screws to ASME B18.6.3galvanized steel, aluminum purpose made.
 - .4 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
 - .1 Test for acceptable VOC emissions in accordance with [ASTM D2369](#) and [ASTM D2832](#).

2.2 ACCESSORIES

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour as cladding, with fastener holes pre-punched.
- .2 Steel Siding Accessories:
 - .1 Fasteners: Hot dipped galvanized; non-staining, of size and strength to securely and rigidly retain the work; prefinished to match siding finish.
 - .2 Flashings Closures, cap pieces, etc. of same material and finish as panels, as indicated and as required for a complete installation. Where applicable, accessories to be factory prefabricated to suit siding profile. Use preformed corner pieces. Double back exposed edges. Minimum base steel thickness 0.76 mm (22 ga) and thicker as required to suit application and to prevent oil-canning.
 - .3 Cleats: of same material, and temper as sheet metal, min. 50 mm wide. Thickness same as sheet metal being secured.

- .4 Subgirts, clips, spacers, perimeter floor angle: Minimum 1.52 mm (16 ga) thick and thicker to suit application, formed galvanized steel: ASTM A653/A653M Grade A, zinc coating designation Z275.
- .5 Sealants:
 - .1 Tape sealant as recommended by the siding system manufacturer, non-skimming, non-drying, butyl rubber.
 - .2 One part silicone sealant in accordance with Section 07 92 00 - Joint Sealants and as recommended by the siding manufacturer, colour to match colour of siding panels, to the approval of the *Consultant*.
- .6 Touch-up paint:
 - .1 For galvanized surfaces: Organic, zinc-rich, ready-mix primer to MPI (APL) #19.
 - .2 For colour-coated surfaces: Touch-up paint supplied by the metal siding manufacturer.
- .7 Isolation coating: Alkali resistant bituminous paint.
- .8 Plastic cement: Trowel grade asphalt mastic.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts acceptable in accordance with manufacturer's written instructions.
 - .1 Inform Consultant & Construction Manager of unacceptable conditions immediately upon discovery.
 - .2 Do not proceed with the work until unsatisfactory conditions have been corrected in a manner satisfactory to the Construction Manager & siding installer.

3.2 PREPARATION

- .1 Clean surfaces thoroughly before installation.
- .2 Repair substrate flaws or defects before applying siding or soffits.
- .3 Fur surfaces to even plane and free from obstructions.
- .4 Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.

3.3 MANUFACTURER'S INSTRUCTIONS

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

3.4 INSTALLATION

- .1 Install steel siding in accordance with manufacturer's written instructions.
- .2 Install one layer exterior wall sheathing paper horizontally by stapling lapping edges 150 mm.
- .3 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .4 Install outside corners, fillers and closure strips with carefully formed and profiled work.

- .5 Install soffit and fascia cladding as indicated.
- .6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .7 Attach components in manner not restricting thermal movement.
- .8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by preformed metal siding installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 SBS modified bituminous roofing membrane.
- .2 Insulation.
- .3 Vapour Retarder.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry: Wood nailers.
- .2 Section 07 27 00 - Air Barriers: Wall air barrier for roof/wall interface.
- .3 Section 07 62 00 - Sheet Metal Flashing and Trim: Counter flashing.
- .4 Division 23 – Heating, Ventilating, and Air-Conditioning (HVAC): Prefabricated curb for mechanical equipment.

1.3 REFERENCE STANDARDS

- .1 [ASTM C1289-21 Standard specification for faced rigid cellular polyisocyanurate thermal insulation board](#)
- .2 [ASTM D41/D41M-11\(2016\) Standard specification for asphalt primer used in roofing, dampproofing, and waterproofing](#)
- .3 [ASTM D312/D312M-16a Standard specification for asphalt used in roofing](#)
- .4 [ASTM D2178/D2178M-15a\(2021\) Standard specification for asphalt glass felt used in roofing and waterproofing](#)
- .5 [ASTM D6164/D6164M-21 Standard specification for styrene butadiene styrene \(SBS\) modified bituminous sheet materials using polyester reinforcements](#)
- .6 [ASTM D6222/D6222M-16 Standard specification for atactic polypropylene \(APP\) modified bituminous sheet materials using polyester reinforcements](#)
- .7 [ASTM D6223/D6223M-21 Standard specification for atactic polypropylene \(APP\) modified bituminous sheet materials using a combination of polyester and glass fiber reinforcements](#)
- .8 [CAN/CSA A123.4-04 Asphalt for constructing built-up roof coverings and waterproofing systems](#)
- .9 [CSA A123.21:20 Standard test method for the dynamic wind uplift resistance of membrane-roofing systems](#)
- .10 CAN/ULC-S107-19 - Standard Methods of Fire Tests of Roof Coverings.
- .11 CAN/ULC-S701.1-2022 - Standard for Thermal Insulation, Polystyrene Boards.
- .12 [Roofing specifications manual](#)
- .13 FM (Factory Mutual) - Roof Assembly Classifications.
- .14 Province of Ontario Roofing Contractors Association - Roofing Specifications Manual.
- .15 ULC-FR-17 - Fire Resistance Directory (2017 Edition).
- .16 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI S8-2008 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
- .17 Sheet Metal and Air Conditioning Contractors Association of North America (SMACNA)

- .1 Architectural Sheet Metal Manual (2012)

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide characteristics of flashing materials, aggregate materials, insulation, paver pedestals, vapour retarder & roof membrane Include product characteristics, performance criteria, physical size, finish and limitations..
- .3 Shop Drawings:
 - .1 Indicate conditions of interface with other materials, setting plan for base flashing and joint or termination details.
 - .2 Indicate control joint details and flashing details in conjunction with Section 07 62 00 Metal Flashings and Trim.
 - .3 Indicate flashings for Division 23 rooftop penetration curbs.
 - .4 Provide layout for tapered insulation cricket.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements, including special precautions required for seaming the membrane.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.7 QUALITY ASSURANCE

- .1 Install roofing system in compliance with the requirements of:
 - .1 CRCA Roofing Specifications Manual.
- .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 three (3) years documented experience and Member of Ontario Industrial Roofing Contractors Association (OIRCA).
- .4 Source Quality Control: Provide roof system components from same manufacturer as roof membrane.
- .5 Possess a minimum \$5M Commercial General Liability insurance policy, with no exclusion of hot works.

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Deliver roofing materials in original, unopened containers, complete with labels indicating manufacturer's name, product brand name, date of manufacture, approval or listing agency markings, usage instructions and safety precautions.

- .3 Protect membranes and insulation from physical damage and deterioration by sunlight in clean, dry weather protected environment, clear of ground and moisture.
- .4 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.

1.9 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not apply roofing membrane during inclement weather or when ambient temperatures are above or below material manufacturer's recommendations.
 - .2 Do not apply roofing membrane to damp or frozen deck surface.
 - .3 Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.10 WARRANTY

- .1 Manufacturer's Warranty: Provide a fifteen (15) year manufacturer's warranty certifying product performance properties, including damage to building resulting from failure to prevent penetration of water, dated from time of Substantial Performance.
- .2 Installer's Warranty:
 - .1 Provide to the Owner a written warranty covering any actual leaks in the roofing membrane or membrane flashings resulting from faulty workmanship for a period of two (2) years commencing from the date of commencement of warranty period.
- .3 Ensure warranty is submitted in the form of the provincial affiliated Roof Contractor associations for the province of the Place of the Work, in this case Ontario Industrial Roofing Contractors Association (OIRCA).

Part 2 Products

2.1 DESCRIPTION

- .1 System Description:
 - .1 SBS conventional membrane roofing system consisting of a two (2) ply fully adhered membrane with top-coated surface, cover board, insulation and vapour retarder.
 - .1 Cover Board: Fully adhered.
 - .2 Insulation: Adhered.
 - .3 Vapour Retarder: Fully adhered.
- .2 Regulatory Requirements:
 - .1 Conform to applicable provincial code for windloads and roof assembly fire hazard requirements.
 - .1 Fire Hazard Classification: CAN/ULC-S107, Class A.
 - .2 Wind Uplift Resistance:
 - .1 FM wind uplift resistance requirements for 1-120 classification.
 - .2 Membrane roofing system meeting dynamic wind uplift resistance to CAN/CSA-A123.21.

.3 Fire Protection:

- .1 Provide fire protection for heat-welded applications as required by authority having jurisdiction and as follows.
- .2 Provide fire hose when available and minimum one (1) ULC approved Class A, B or C fire extinguisher, charged and in perfect operating condition, within 6 m of each torch.
- .3 At end of each workday, use a heat detector gun to identify smouldering or concealed fire.

2.2 MEMBRANE MATERIALS

- .1 SBS Modified Bituminous Membrane: Prefabricated styrene-butadiene-styrene (SBS) modified sheets.
 - .1 Base Sheet Membrane: ASTM D6164/D6164M, fully adhered modified bitumen membrane, with composite glass and non-woven polyester reinforcement.
 - .1 Thickness: to suite application.
 - .2 Top surface thermofusible plastic film.
 - .3 Underside thermofusible plastic film.
 - .2 Base Sheet Flashing: ASTM D6164/D6164M, fully adhered modified bitumen membrane, with non-woven polyester reinforcement.
 - .1 Top surface thermofusible plastic film.
 - .2 Underside thermofusible plastic film.
 - .3 Cap Sheet Membrane: ASTM D6164/D6164M, fully adhered modified bitumen membrane, non-woven polyester reinforcement with flame-retarding agent.
 - .1 Face Colour:
 - .1 Black.
 - .4 Cap Sheet Flashing: ASTM D6164/D6164M, fully adhered modified bitumen membrane, non-woven polyester reinforcement with flame-retarding agent.
- .2 Membrane Accessories:
 - .1 Perimeter Membrane: SBS modified bitumen heavy-duty, self-adhesive membrane.
 - .2 Adhesives and Sealants: Manufacturer's standard cold-applied adhesives and sealants.
 - .3 Flexible Expansion Joint Membrane: see Section 07 62 00 Metal Flashings and Trim.
 - .4 Membrane Coating: Liquid acrylic coating, formulated for modified bituminous roof membrane, colour As selected from manufacturer's standard colour range.
 - .5 Membrane Fasteners: Manufacturer's recommended corrosion-resistant, factory-coated steel fasteners and plates, suitable for deck types and materials being fastened, and capable of meeting wind uplift criteria requirements.

2.3 COVER BOARDS

- .1 Rigid Insulation: ASTM C1289, high-density, closed cell polyisocyanurate core with coated glass facers, 13 mm thick.
- .2 Gypsum Board: ASTM C1177/C1177M, glass-mat faced gypsum board, moisture and mould resistant, 13 mm thick, pre-primed.
- .3 Prime steel deck as required by manufacturer instructions.

2.4 INSULATION

- .1 Polyisocyanurate Insulation: CAN/ULC-S704, closed-cell polyisocyanurate rigid board faced with polymer-bonded glass fibre mats on both major surfaces of foam; edges shiplapped.
 - .1 Compressive Strength: 140 psi.
 - .2 Thermal Resistance: Total R-30.
 - .3 Board Size: 1200 mm.
 - .4 Board Thickness: As indicated on Drawings.
- .2 Tapered Insulation: Factory-cut tapered boards, same material as field insulation, with minimum thickness 25 mm and slope 1:48.
 - .1 Average Thermal Resistance: Total R-30.
- .3 Miscellaneous Insulation Shapes: Preformed insulation-based crickets, saddles, cants and other shapes, fabricated with slopes and shapes as indicated.
- .4 Insulation Accessories:
 - .1 Insulation Fasteners: Manufacturer's recommended corrosion-resistant, factory-coated steel fasteners and metal or plastic plates, designed for fastening insulation and cover boards, and suitable for deck type.
 - .2 Insulation Adhesive: Manufacturer's recommended cold-applied, low-expansion foam adhesive suitable for bead-applied application.
- .5 Crickets to match construction of above and be from same manufacturer. Provide as indicated on roof plans and at locations where needed to provide continuous drainage path for roof system.

2.5 VAPOUR RETARDER

- .1 Bituminous Membrane Vapour Retarder:
 - .1 Base sheet vapour retarder to CGSB 37-GP-56M, Styrene Butadiene Styrene (SBS) elastomeric polymer, non-woven glass reinforced membrane, Type 2, Class C, Grade 1 thermofusible film both top and bottom with nominal weight of 180g per square meter.
 - .2 Vapour Retarder Continuity Strips: SBS modified bitumen self-adhesive membrane, compatible with wall air barrier and roof vapour retarder.

2.6 BITUMEN MATERIALS

- .1 Asphalt Bitumen: CAN/CSA-A123.4, Type 3.
- .2 Asphalt Primer: ASTM D41/D41M.

2.7 MISCELLANEOUS ACCESSORIES

- .1 Primers and Sealants: As recommended by membrane manufacturer.
- .2 Metal Flashing:
 - .1 Counterflashing: Prefinished sheet metal, as specified in Section 07 62 00.
 - .2 Cap Flashing: Galvanized sheet metal, as specified in Section 07 62 00.
- .3 Electrical Wire and Cable Flashing: Self-adhesive, reinforced SBS deck flange and aluminum drain sleeve with removable cover.
- .4 Miscellaneous Fasteners: Galvanized or non-ferrous type, appropriate for purpose intended and approved by system manufacturer; length required for thickness of material being fastened.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify openings and penetrations are in place, curbs and nailers are in place and drain bodies are securely clamped.
- .3 Verify that surfaces, planes and slopes are as specified and ready to receive work.
- .4 Verify steel deck is supported and secured.
- .5 Verify deck surfaces are dry and free of snow or ice.
- .6 Confirm dry deck by moisture meter with 12% moisture maximum.

3.2 PREPARATION

- .1 Clean deck of dust, debris, sharp objects and other substances in accordance with roofing manufacturer's requirements..
- .2 Prevent debris from entering or clogging roof drains and other openings; remove roof drain plugs when no work is taking place or when rain is forecast.
- .3 Install wood roof curbs where indicated.
- .4 Metal Deck:
 - .1 Verify securement and slope of metal decking.
 - .2 Install acoustic insulation strips supplied by Section 05 31 13, in acoustic deck flutes.

3.3 SUBSTRATE BOARD INSTALLATION

- .1 Cut substrate boards cleanly and accurately at roof breaks and protrusions to provide smooth surface.
- .2 Lay with long side at right angle to flutes; stagger end joints; provide support at ends.
- .3 Install over metal deck with mechanical fasteners to resist uplift pressure at corners, perimeter, and field of roof in accordance with applicable code and to system manufacturers' written instructions.

3.4 VAPOUR RETARDER INSTALLATION

- .1 Apply primer and vapour retarder in accordance with manufacturer's written instructions for system specified.
- .2 Apply vapour retarder starting at lowest point of roof slope.
- .3 Align membrane, maintaining uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps minimum 300 mm.
- .4 Apply continuity strips at interfaces with adjacent materials and seal to air barrier on building envelope walls.
- .5 Seal and envelope vapour retarder at all terminations, projections and penetrations to provide complete seal to roofing system.
- .6 Apply asphalt at temperature and rate recommended by manufacturer. In cold weather, warm membrane underface as recommended by manufacturer.
- .7 Apply self-adhesive membrane directly to steel deck, aligning roll parallel to ribs of steel deck. Support end laps with thin strip of sheet metal.

- .8 Apply laminated sheet in single layer, with ribbons of hot asphalt.
- .9 Install two (2) plies glass fibre felts in full mopping of hot roofing asphalt, overlapping felt plies minimum 450 mm. Glaze coat completed surface with hot bitumen.

3.5 INSULATION INSTALLATION

- .1 Install insulation to manufacturer's written instructions, with fastening meeting FM requirements to resist wind uplift pressure at corners, perimeter, and field of roof.
- .2 Do not apply more insulation than can be covered with roof membrane on same day.
- .3 Install tapered insulation under area of roofing to provide slopes as indicated on approved Shop Drawings.
- .4 Apply insulation layers with tightly butted, flush joints and fit tight to perimeter blocking and around roof projections.
- .5 Fill gaps greater than 6 mm wide with insulation.
- .6 Stagger joints minimum 150 mm between layers of insulation and between rows. Tape joints of insulation in accordance with insulation manufacturer's instructions.
- .7 Adhered Insulation: Set each layer in a uniform coverage of full-spread insulation adhesive.
- .8 Mechanically Fastened Insulation: Mechanically fasten each layer of insulation to deck with fasteners and plates sized to suit insulation type and thickness.

3.6 COVER BOARD INSTALLATION

- .1 Mechanically fasten cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows.
- .2 Offset joints of insulation below minimum of 150 mm in each direction.
- .3 Fasten corners and perimeters to meet FM requirements.

3.7 ROOF MEMBRANE INSTALLATION

- .1 Install membranes to manufacturer's written instructions, and provincial roofing association requirements.
- .2 Install membranes without wrinkles, air pockets or fishmouths.
- .3 Unroll membranes on substrate, aligning edge of first selvage with drain centre and parallel to roof edge.
- .4 Align membranes, maintaining uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps minimum 300 mm.
- .5 Shingle joints on sloped substrate in direction of drainage.
- .6 Extend membrane up vertical surfaces minimum 200 mm.
- .7 Cut and seal membranes around roof penetrations, tie-ins and other interfaces using manufacturer's recommended details and securement methods.
- .8 Base Sheets:
 - .1 Weld base sheet onto prepared surface.
 - .2 Avoid overheating membrane and reinforcement.
 - .3 Re-roll base sheet and unroll again into layer of SEBS bitumen applied using recommended method and at temperature and rate of application recommended by manufacturer.

- .4 Install base sheet over surface covered with adhesive at rate recommended by manufacturer.
- .5 Apply even pressure with roller to ensure good adherence.
- .6 Seal side and end laps following manufacturer's recommended methods.
- .7 Remove silicone release paper and adhere to substrate by applying even pressure with roller to ensure good adherence.
- .8 Seal side and end laps following manufacturer's recommended methods.
- .9 Fasten base sheet with screws and plates spaced as recommended by manufacturer.
- .10 Seal side and end laps following manufacturer's recommended methods for membrane specified.
- .9 Boards with Factory-Laminated Base Sheet:
 - .1 Install base sheet boards to manufacturer's written instructions and FM requirements to resist wind uplift pressure at corners, perimeter, and field of roof.
 - .2 Install boards in perfect connection to each other, with no significant variations in level and completely adhered to surface below.
 - .3 Adhere base sheet boards using adhesive applied in continuous strips, applied at spacing recommended by manufacturer for perimeter, corners and field.
 - .4 Adhere base sheet boards with coat of hot asphalt applied at rate, method and temperatures recommended by manufacturer.
 - .5 Mechanically fasten base sheet boards with screws and plates for membranes, applied at rates recommended by manufacturer for perimeter, corners and field.
 - .6 Adhere side laps using a combination of self-adhesive and heat-welding as recommended by manufacturer.
 - .7 Seal end laps by welding a nominal 300 mm wide protection strip centred on joint.
- .10 Cap Sheets:
 - .1 Heat-weld membranes onto prepared surface.
 - .2 Avoid overheating membrane and reinforcement.
 - .3 Re-roll base membranes and unroll again into layer of SEBS bitumen applied using recommended method and at temperature and rate of application recommended by manufacturer.
 - .4 Install membranes over surface covered with adhesive at rate recommended by manufacturer.
 - .5 Seal end laps and side laps following manufacturer's recommended methods.
 - .6 Apply even pressure with roller to ensure good adherence.
 - .7 Apply primer to area being covered.
 - .8 Remove silicone release paper and adhere to substrate by applying even pressure with roller to ensure good adherence.
 - .9 Seal end laps and side laps following manufacturer's recommended methods.

3.8 MEMBRANE FLASHING INSTALLATION

- .1 Apply base and cap sheet flashing to manufacturer's written instructions, avoiding formation of wrinkles, air pockets or fishmouths.
- .2 Apply flashing after primer coat is dry.

- .3 Follow manufacturer's recommended methods for overlaps for system specified.
- .4 Install reinforcing gusset at all inside and outside corners.
- .5 Overlap ends by 150 mm; seal overlaps at end of workday.
- .6 Remove silicone release paper and adhere self-adhesive sheet to substrate. Follow with equal pressure with roller for full adhesion.
- .7 Torch-apply sheet directly to the substrate, proceeding from top to bottom.
- .8 Install base sheet flashing in full bed of adhesive at rate recommended by manufacturer.

3.9 FLASHINGS AND ACCESSORIES

- .1 Install roofing accessories to manufacturer's written instructions.
- .2 Adhere flexible flashings and preformed flashing accessories with bonding adhesive at the required rate, to membrane manufacturer's written instructions. Reinforce with mechanical fasteners as required.
- .3 Movement Joints: Install roofing expansion joints to isolate roof into areas as indicated on Drawings. Install prefabricated movement joints to manufacturer's written instructions.
- .4 Coordinate installation of mechanical rooftop unit curbs and related flashings.
- .5 Seal flashings and flanges of items penetrating membrane.
- .6 Apply protective coatings to base flashing & roof membrane to manufacturer's written instructions.

3.10 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by Work of this section.

3.11 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Protect membrane from damage and wear during remainder of construction period where traffic must continue over finished roof membrane.
- .3 Protect adjacent building surfaces against damage from roofing work.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Metal cap, parapet flashings.
- .2 Facias, scuppers.
- .3 Metal counterflashings.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry: Wood blocking and battens for metal roofing substrate profiles.
- .2 Section 07 26 00 Vapour retarders.
- .3 Section 07 52 00 Modified Bituminous Membrane Roofing
- .4 Section 07 92 00 - Joint Sealants.
- .5 Section 09 91 00 - Painting: Prime and finish painting.
- .6 Division 23 – Heating, Ventilating, and Air-Conditioning (HVAC): Prefabricated curb for mechanical equipment.
- .7 Division 26 - Electrical: Flashing sleeves and collars for electrical items protruding through roofing membrane.

1.3 REFERENCE STANDARDS

- .1 AAMA 621-02 Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Substrates.
- .2 [ASTM A653/A653M-20 Standard specification for steel sheet, zinc-coated \(galvanized\) or zinc-iron alloy-coated \(galvannealed\) by the hot-dip process](#)
- .3 [ASTM B32-20 Standard specification for solder metal](#)
- .4 [ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate](#)
- .5 [ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate](#)
- .6 [ASTM D2178/D2178M-15a\(2021\) Standard specification for asphalt glass felt used in roofing and waterproofing](#)
- .7 [ASTM D4586/D4586M-07\(2018\) Standard specification for asphalt roof cement, asbestos-free](#)
- .8 [ASTM D226/D226M-17 Standard specification for asphalt-saturated organic felt used in roofing and waterproofing](#)
- .9 [CAN/CGSB 51.34-M86 Vapor barrier, polyethylene sheet for use in building construction](#)
- .10 [CSA A231.1:19/A231.2:19 Precast concrete paving slabs/precast concrete pavers](#)
- .11 ASTM F1667-15 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .12 Province of Ontario Roofing Contractors Association - Roofing Specifications Manual.
- .13 [NRCA roofing manual - 2022 set](#)
- .14 [Architectural sheet metal manual](#)
- .15 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .16 .1 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual 2012.
- .17 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI S8-2008 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
 - .2 CSSBI B17-2002 Barrier Series Prefinished Steel Sheet: Product Performance & Applications.
 - .3 CSSBI Sheet Steel Facts #12 2003 Fastener Guide for Sheet Steel Building Products.
- .18 CSA Group
 - .1 CSA A123.3-05 (2015), Asphalt Saturated Organic Roofing Felt.
 - .2 CSA A123.22-08 (2013) Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .19 FM Global
 - .1 Property Loss Prevention Data Sheets 1-49 Perimeter Flashing.
- .20 Sheet Metal and Air Conditioning Contractors Association of North America (SMACNA)
 - .1 Architectural Sheet Metal Manual (2012)

1.4 COMPATIBILITY WITH ROOFING SYSTEM

- .1 Ensure that all products used in flashing in relation to roofing system are compatible.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.7 INFORMATIONAL SUBMITTALS

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

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.9 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.

- .2 Perform Work to CRCA manual, provincial roofing specifications manual, SMACNA 1120 for standard details and requirements. Maintain a copy of document on site.
- .3 Fabricator Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .4 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

1.10 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- .3 Prevent contact with materials which may cause discolouration or staining.

Part 2 Products

2.1 SHEET MATERIALS

- .1 Finish: Factory applied with Perspectra Series coating system by U.S.Steel Canada, or WeatherX by Vicwest Steel, supplemented and amended as follows:
 - .1 Class FIS.
 - .2 Colour selected as specified on Drawings from manufacturer's standard range.
 - .3 Thicknesses specified for pre-finished steel sheet applied to base metal.
 - .4 Colours:
 - .5

Dwg Code	Finish	Colour	Manufacturer	Location
M3	Metal Flashing	Regent Grey	Vicwest	Exterior Flashing
M9	Metal Panels	Regent Grey	Vicwest	Winners — Exterior Storefront

- .2 Aluminum Sheet: ASTM B209. Shop pre-coated; colour as selected.
- .3 Metal Roof Edging And Fascia:
 - .1 Continuous metal edge member serving as the termination of the roof membrane and retainer for the metal fascia; watertight with no exposed fasteners; mounted to the roof edge nailer.
 - .2 Wind Performance:
 - .1 Membrane Pull-Off Resistance: 1460 N/m, minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition.
 - .3 Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition.
 - .1 Design and install metal roof edging and fascia to achieve an FM rating of I-270 or better.

- .2 Description: Two-piece; 45° sloped galvanized steel sheet edge member securing the top and bottom edges of a formed metal fascia. Standard of acceptance EdgeGard by .
- .4 Fascia Face Height: 127 mm.
- .5 Edge Member Height Above Nailer: 31 mm.
- .6 Length: 3650 mm.
- .7 Functional Characteristics: Fascia retainer supports while allowing for free thermal cycling of the fascia.
- .8 Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre- punched slotted holes; mitres welded; injection-moulded EPDM splices to allow thermal expansion.
- .9 Anchor Bar Cleat: 0.9 mm (20 ga) Z275 coated galvanized sheet steel with pre-punched holes.
- .1 Curved Applications: Factory modified.
- .10 Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.
- .11 Special Shaped Components: Provide factory-fabricated pieces necessary for a complete installation, including mitres, scuppers, and end caps; minimum 355 mm long legs on corner pieces.
- .12 Scuppers: Welded watertight.
- .13 Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as shown on the *Drawings* and as required for a complete installation.
- .4 Parapet Copings
 - .1 Formed metal coping with galvanized steel anchor/support cleats for capping a parapet wall; watertight, maintenance free, without exposed fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated. Standard of acceptance:
 - .1 Firestone PTCF, having the following properties:
 - .2 Wind Performance:
 - .1 At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-3, current edition.
 - .2 Provide a *Product* listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-90 rating.
 - .3 Description: Coping sections allowed to expand and contract freely while locked in place on anchor cleats by mechanical pressure from hardened stainless steel springs factory attached to anchor cleats; 200 mm wide splice plates with factory applied dual non-curing sealant strips capable of providing a watertight seal.
 - .4 Material and Finish: 0.61 mm (24 ga), galvanized steel with Kynar 500 finish in manufacturer's standard colour; matching concealed joint splice plates; factory-installed protective plastic film.
 - .5 Dimensions:

- .1 Wall Width: As indicated on the *Drawings*.
 - .2 Piece Length: Minimum 3650 mm).
 - .3 Curved Application: Factory fabricated in true radius.
 - .4 Anchor/Support Cleats: 0.91 mm (20 ga), prepunched galvanized cleat with 305 mm wide stainless steel spring, mechanically locked to the cleat at 1820 mm o.c.
 - .5 Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including mitres, corners, intersections, curves, pier caps, and end caps; minimum 14 inch (355mm) long legs on corner, intersection, and end pieces.
 - .6 Fasteners: Factory-furnished; electrolytically compatible; minimum pull out resistance of 240 pounds (109 kg) for actual substrate used; no exposed fasteners.
- .5 Reglets and cap flashings
- .1 Form metal cap flashing of 1.2 mm thick sheet metal to be built-in work as in progresses for base flashings in accordance with CRCA FL series details.
 - .2 Provide slotted fixing holes and steel/plastic washer fasteners.
- .6 Scuppers
- .1 Form scuppers from [24 Gauge] 0.70 mm thick steel sheet metal metal.
 - .2 Sizes and profiles as indicated.
 - .3 Provide necessary fastenings.
- .7 Metal flashings
- .1 Form flashings, copings and facias to profiles indicated and as required to provide complete overall assembly in conjunction with cladding, fenestration (including windows and doors) and roofing systems.
- .8 Prefinished steel sheet
- .1 Prefinished steel sheet with coating system consisting of base metal pre-treatment, primer, silicone modified polyester or polyester topcoat meeting requirements of CSSBI S8.
 - .2 Finished colour finished on one side with wash coat on back.
 - .3 Not less than 3 colour selected by Owner from manufacturer's standard range.
 - .4 Specular gloss: 30 units +/- 5 gloss units in accordance with ASTM D 523.
 - .5 Exposed coating thickness: dry film coating system thickness not less than 22 micrometres.

2.2 ACCESSORIES

- .1 Fasteners: Galvanized steel, with soft neoprene washers.
- .2 Underlayment: ASTM D226/D226M, No. 15 asphalt saturated roofing felt.

- .3 Underlayment: CAN/CGSB 51.34, 0.15 mm thick polyethylene.
- .4 Underlayment: Membrane flashing as specified in Section 07 26 00 Vapour retarders.
- .5 Slip Sheet: Rosin sized building paper.
- .6 Primer: Zinc chromate type.
- .7 Protective Backing Paint: Zinc chromate alkyd, or Bituminous where applicable.
- .8 Sealant: Acrylic, Polyurethane, Silicone type, specified in Section 07 92 00.
- .9 Plastic Cement: ASTM D4586/D4586, Type I.
- .10 Solder: ASTM B32; 50/50 type.
- .11 Pipe Penetration:
 - .1 Provide and install 1.6 mm (16 ga) spun aluminum flashings and caps to all vent stacks.
 - .2 For flashing of miscellaneous mechanical and electrical items penetrating the roof membrane, provide:
 - .3 Factory prefabricated, insulated aluminum sleeve flashings, with matching aluminum collar, size to suit item to be flashed.
 - .4 Sleeve and collar to be fabricated from aluminum, with premoulded urethane insulation on the inner side, interior surfaces bituminous painted to prevent galvanic action with dissimilar metals. Aluminum for sleeve to be 1.6 mm (16 ga) thick and for collar to be 1.4 mm (17 ga) thick.
 - .5 Provide deck flange, integral with sleeve aluminum.
 - .6 Standard of acceptance:
 - .1 Roof accessories by Thaler Metal Industries Inc., (800) 287-7217 or type to suit each specific application.
 - .7 Pitch pockets are unacceptable.

2.3 FABRICATION

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA "FL" series specifications unless otherwise indicated.
- .2 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.
- .3 Form sections true to shape, accurate in size, square, and free from distortion or defects.
- .4 Fabricate cleats of same material as sheet, minimum 50 mm wide, interlockable with sheet.
- .5 Form pieces in longest possible lengths.
- .6 Hem exposed edges on underside 13 mm; mitre and seam corners.
- .7 Form material with standing seams.
- .8 Fabricate corners from one piece with minimum 450 mm long legs; seam for rigidity, seal with sealant.
- .9 Fabricate vertical faces with bottom edge formed outward 6 mm and hemmed to form drip.

2.4 FINISHES

- .1 Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 0.4 mm.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets in place, and nailing strips located.
- .3 Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

- .1 Install starter and edge strips, and cleats before starting installation.
- .2 Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.3 INSTALLATION

- .1 Install sheet metal work in accordance with CRCA FL series details.
- .2 Insert flashings into reglets to form tight fit. Secure in place with plastic wedges. Seal flashings into reglets with sealant.
- .3 Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- .4 Apply plastic cement compound between metal flashings and felt flashings.
- .5 Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- .6 Seal metal joints watertight.
- .7 Solder metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.
- .8 Seal metal joints watertight.
- .9

3.4 FIELD QUALITY CONTROL

- .1 Inspection and Testing:
 - .1 Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Tested and listed firestopping systems.

1.2 RELATED REQUIREMENTS

- .1 Section 05 41 00 - Structural metal stud framing
- .2 Section 07 26 00 - Vapour Retarders: Vapour retarder materials to adjacent insulation.
- .3 Section 07 27 00 - Air Barriers: Air barrier materials to adjacent insulation.
- .4 Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.
- .5 Division 23 – Heating, Ventilating, and Air-Conditioning (HVAC): Mechanical work requiring firestopping.
- .6 Section 26 - Electrical: Electrical work requiring firestopping.

1.3 REFERENCE STANDARDS

- .1 [ASTM E84-21a Standard test method for surface burning characteristics of building materials](#)
- .2 [ASTM E119-20 Standard test methods for fire tests of building construction and materials](#)
- .3 [ASTM E814-13a\(2017\) Standard test method for fire tests of penetration firestop systems](#)
- .4 [ASTM E1966-15\(2019\) Standard test method for fire-resistive joint systems](#)
- .5 CAN/ULC-S101-14 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .6 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .7 CAN/ULC-S102.2-18 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.
- .8 CAN/ULC-S115-18 - Standard Method of Fire Tests of Firestop Systems.
- .9 FM (Factory Mutual) - FM 4991-2013 - Approval Standard for Firestop Contractors.
- .10 [Firestop industry manual of practice \(FCIA MOP\)](#)
- .11 NFPA 251 - Standard Methods of Tests of Fire Endurance of Building Construction and Materials, 2006 edition.
- .12 OPL (Omega Point Laboratories).
- .13 UL 263-2011 - Standard for Fire Tests of Building Construction and Materials (14th Edition).
- .14 UL 1479-2015 - Standard for Fire Tests of Through-Penetration Firestops (4th Edition).
- .15 UL 1709-2017 - Standard for Rapid Rise Fire Tests of Protection Materials for Structural Steel (5th Edition).
- .16 UL 2079-2015 - Standard for Tests for Fire Resistance of Building Joint Systems (5th Edition).
- .17 ULC-FR-17 - Fire Resistance Directory (2017 Edition).
- .18 WHI (Intertek/Warnock Hershey).

1.4 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 Meeting: Convene one (1) week before starting work of this section.
- .4 Sequencing: Coordinate and sequence firestopping installation with all affected trades.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide manufacturer's written data on product characteristics, performance & limitation criteria.
- .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.

1.6 INFORMATIONAL SUBMITTALS

- .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 Contractor Certificate and individual Designated Responsible Individual Certificate.
- .4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.
- .5 Manufacturers' material safety data sheets for the safe handling of materials and *Products* in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

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 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 ULC Qualified Firestop Contractor Program.
 - .4 FM approved in accordance with FM standard 4991 - Approval of Firestop Contractors.
 - .5 FCIA Member in good standing.

- .6 Licensed by the province or local authority where applicable.
- .7 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.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 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.

1.10 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 Manufacturers:
 - .1 3M Fire Protection Products.
 - .2 BALCO, Inc.
 - .3 HILTI, Inc.
 - .4 Specified Technologies, Inc
 - .5 Thermal Ceramics, Inc.
 - .6 Thermafiber, Inc.
- .2 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 System Description:
- .2 Tested and listed firestopping systems 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.
- .3 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.

2.3 PERFORMANCE / DESIGN CRITERIA

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

2.4 MATERIALS

- .1 Fire Stopping Systems and Materials: Tested and listed by ULC, and conforming to construction type, penetrant type, annular space requirements and fire rating involved in each separate instance.
- .2 Board Fireproofing
 - .1 Mineral fibre board fireproofing: Light weight, semi-rigid, asbestos-free, non-cementitious, completely inorganic boards complying with CAN/ULC S702.1 with thermal resistivity sufficient to perform acceptably in specified applications; capable of being field-installed using ordinary tools and screws or pins; and installed in accordance with the ULC design and required fire rating as indicated on the *Drawings*.
 - .2 Fire resistance at rated assemblies: Tested by an independent testing agency in accordance with CAN/ULC S101 for the specific hourly-rated assembly indicated.
 - .3 Thickness: As required to achieve the fire ratings indicated.
 - .4 Surface Burning Characteristics: Flame spread index of 0 (zero) when tested in accordance with CAN/ULC S102.
 - .5 Combustibility: Noncombustible, when tested in accordance with CAN/ULC S114.
 - .6 Surface Finish: None.
 - .7 Standard of acceptance: *Rockwool Products*.
 - .8 Fasteners: As required by the applicable fire rated design.
- .3 Blanket Fireproofing
 - .1 Blanket Fireproofing: Flexible, completely inorganic, non-cementitious blankets with a thermal resistivity sufficient to perform acceptably in the specified applications; capable of being site-installed using ordinary tools.
 - .2 Thickness: As required to achieve the fire ratings indicated.
 - .3 Surface Burning Characteristics: Flame spread index of five (5) or less, and smoke developed index of zero (0), maximum, when tested in accordance with CAN/ULC S102.
 - .4 Combustibility: Noncombustible, when tested in accordance with CAN/ULC S114.
 - .5 Density: 40 kg/cu m, minimum.
 - .6 Flexibility: Capable of being formed around corners and shapes by hand.
 - .7 Accommodation for duct access doors and panels: Capable of being installed to achieve the required fire rating without impeding access.
 - .8 Standard of acceptance: *Rockwool Products*

2.5 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 71 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 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.
- .2 Remove incompatible materials which may affect bond.
- .3 Install damming materials to arrest liquid material leakage.
- .4 Maintain insulation around pipes and ducts penetrating the fire separation without interruption to the sheet vapour retarder.
 - .1 Seal the interface between the vapour retarder and the penetrating item.
 - .2 Mask where necessary to avoid spillage and over coating onto adjoining surfaces.

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.
 - .1 Provide fire-stop caulking at all service penetrations through required fire separations, including wiring for pull stations, signage, and card readers.
- .3 Provide ULC approved firestop at all exterior walls at edge of slab for all floor levels.
- .4 Apply firestopping material, thickness sufficient 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: Dam material to remain.
- .8 Fire Stopping And Smoke Seal Installation
 - .1 Install fire stopping and smoke seals at service penetrations through fire resistive construction and at all locations where the continuity of fire resistive construction is

interrupted, as indicated on the *Drawings*, as specified herein and as required for a complete *Project*.

- .2 Install fire stopping and smoke seal material and components in accordance with the ULC certification and the manufacturer's instructions.
 - .3 Seal holes or voids made by through penetrations, poke1through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of the fire separation are maintained.
 - .4 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
 - .5 Tool or trowel exposed surfaces to a neat finish.
 - .6 Remove excess compound promptly as work progresses and upon completion.
- .9 Board Fireproofing Installation
- .1 Minimize the amount of time that structural members are exposed without fireproofing.
 - .2 Install in strict accordance with the manufacturer's instructions, conditions of testing, and as indicated on the *Drawings*.
 - .3 Fasten fireproofing using insulation pins welded directly to the surface of the substrate or manufacturer's proprietary fasteners; do not use adhesives.
 - .4 Ensure that no gaps or cracks in fireproofing exist that would impair the fire resistance of separation.
 - .5 Coordinate with related fireproofing work.
 - .6 Finish exposed board with joint tape and joint compound covering fastener heads and accessories; apply a thin skim coat of joint compound over the entire surface; touch-up and sand to produce a smooth surface ready for decoration.
- .10 Duct (Blanket) Fireproofing Installation
- .1 Install in strict accordance with manufacturer's instructions, conditions of testing, and as indicated on the *Drawings*.
 - .2 Install fireproofing on entire surface of ducts indicated, except where the *Contract Documents* explicitly indicate 3-sided or 2-sided installation.
 - .3 At penetrations of ducts through fire rated assemblies (walls, floors, roofs), extend fireproofing through the opening and seal the annular space between the fireproofing and the edge of the opening with firestopping.
 - .4 Fasten fireproofing to ducts using either banding or insulation pins welded directly to the surface of the duct; do not use adhesives.
 - .5 Install fireproofing over surfaces of supports and hangers unless hanger rods are at least 10 mm in diameter, spaced not more than 1500 mm o.c. along the length of the duct, and horizontal supports are at least 50 by 50 by 6 mm steel angle or an equivalent SMACNA (DCS) support system.
 - .6 Access Panels: Do not block access; install fireproofing so that the panel can be removed and reinstalled without damaging fireproofing.
 - .7 Seal cut edges and ends, and repair tears in facing using aluminum foil tape.

3.4 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Protect adjacent surfaces from damage by material installation.

3.6 SCHEDULES

- .1 Firestop and smoke seal at:
 - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
 - .2 Top of fire-resistance rated masonry and gypsum board partitions.
 - .3 Intersection of fire resistance rated masonry and gypsum board partitions.
 - .4 Control joints in fire resistance rated masonry and gypsum board partitions and walls.
 - .5 Penetrations through fire resistance rated floors, ceilings, and roofs.
 - .6 Around mechanical and electrical assemblies penetrating fire separations.
 - .7 Rigid ducts: greater than 129 cm²: firestopping to consist of a bead of fire stopping material between a retaining angle and the fire separation and between the retaining angle and the duct, on each side of the fire separation.
 - .8 Between edge of floor slab and the exterior wall assembly at the building perimeter.
 - .9 In other locations where the continuity of a fire-resistant element is interrupted.
 - .10 In concealed cavities including exterior void pilasters.
- .2 Inspection And Labelling
 - .1 Do not enclose or cover fireproofing work until it has been inspected and accepted by the authority having jurisdiction.
 - .2 After completion of the installation, label major fireproofing surfaces with permanent red marking in words "Fire Resistant Barrier - Do Not Remove" or equivalent identification acceptable to the authority having jurisdiction (AHJ).

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Preparing substrate surfaces.
- .2 Sealant and joint backing.
- .3 Structural sealant for glazing assemblies.
- .4 The term "sealant" shall be interpreted as synonymous with the term "caulking" where used on the *Drawings* and/or in the *Specifications*.

1.2 RELATED REQUIREMENTS

- .1 Division 03 - Structural: Sealants required in conjunction with concrete.
- .2 Section 07 11 13 - Bituminous Dampproofing: Sealants required in conjunction with dampproofing.
- .3 Section 07 13 00 - Sheet Membrane Waterproofing: Sealants required in conjunction with waterproofing.
- .4 Section 07 26 00 - Vapour Retarders: Sealants required in conjunction with vapour retarder.
- .5 Section 07 27 00 - Air Barriers: Sealants required in conjunction with air barrier.
- .6 Section 07 84 00 - Firestopping: Sealants required in conjunction with firestopping.
- .7 Section 07 46 16 - Preformed Metal Siding: Sealants required in conjunction with siding.
- .8 Section 07 52 00 - Modified Bituminous Membrane Roofing.
- .9 Section 07 62 00 - Sheet Metal Flashing And Trim: Sealants required in conjunction with metal flashings.
- .10 Section 08 11 13 - Metal Doors and Frames: Sealants required in conjunction with door frames.
- .11 Section 08 80 00 – Glass and Glazing: Sealants required in conjunction with glazing methods.
- .12 Section 09 21 16 - Gypsum Board Assemblies.
- .13 Section 10 28 00: Sealants required in conjunction with Toilet, Bath, and Laundry Accessories.

1.3 REFERENCE STANDARDS

- .1 [ASTM C834-17 Standard specification for latex sealants](#)
- .2 [ASTM C919-22 Standard practice for use of sealants in acoustical applications](#)
- .3 [ASTM C920-18 Standard specification for elastomeric joint sealants](#)
- .4 [ASTM C1184-18e1 Standard specification for structural silicone sealants](#)
- .5 [ASTM C1193-16 Standard guide for use of joint sealants](#)
- .6 [ASTM C1311-14 Standard specification for solvent release sealants](#)
- .7 [ASTM C1330-18 Standard specification for cylindrical sealant backing for use with cold liquid-applied sealants](#)
- .8 [ASTM C1401-14 Standard guide for structural sealant glazing](#)
- .9 [ASTM E330/E330M-14 Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference](#)
- .10 Canadian General Standards Board (CGSB)

- .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .7 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
- .8 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 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: Provide calculations for structural bite, dead load support, glueline thickness, shear, and other parameters.
- .4 Structural Sealant Joint Design: Confirmation that design data provided by Consultant have been reviewed and approved by sealant manufacturer.
- .5 Samples: Submit two (2) samples, physical in size illustrating sealant colours for selection.

1.6 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements.
 - .1 Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.8 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 three (3) 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.
- .7 Compatibility:
 - .1 Coordinate sealants used for the various building interior assemblies:
 - .1 Preferably, use one sealant of the same manufacturer throughout.
 - .2 If different sealants are selected, from those specified, it is the responsibility of the respective Section to ensure compatibility between selected sealant, substrates, and sealants of other Sections which come in contact with the selected sealant.
 - .3 If different sealants are used, it is the responsibility of the respective *Contractors* to ensure compatibility between selected sealants, substrates, and sealants of other sections which come in contact with the selected sealants.
- .8 Preconstruction Laboratory Testing:
 - .1 Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - .2 Adhesion Testing: In accordance with ASTM C794.
 - .3 Compatibility Testing: In accordance with ASTM C1087.
 - .4 Stain Testing: In accordance with ASTM C1248; required only for stone substrates.
 - .5 Allow sufficient time for testing to avoid delaying the work.
 - .6 Deliver to the manufacturer sufficient samples for testing.
 - .7 Report the manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in the *Product* data

1.9 FIELD ADHESION / COHESION TESTS

- .1 Test Frequency:
 - .1 Perform a field test each type of sealant and substrate combination, for all interior and exterior sealants associated with the building envelope.
 - .1 Perform three (3) additional tests for each failed test.
 - .2 Locate test joints as directed by Consultant. Tests to be performed in the presence of the Consultant and manufacturer's representative.
 - .3 Notify Consultant seven (7) days prior to dates tests are to be performed.
 - .4 Test joint sealants by non-destructive and destructive method (tail pull) as per ASTM C 1521 procedure. Record test results in Field Adhesion/Cohesion Test Form.
 - .5 Adhesion/Cohesion results:
 - .1 Adhesive failure will be evidenced by the sealant pulling off clean from the substrate.

- .2 Cohesion failure will be evidenced by the sealant ripping or failing within itself, leaving well- adhered sealant to the substrate. (Cohesive failure is considered a positive result).
- .6 Maximum elongation prior failure:
 - .1 Refer to manufacturer's printed literature for each sealant tested for the required extension factor pass criteria. If no failure occurs prior to the manufacturer's stated extension factor, the test is successful.
- .7 Inspect joints for:
 - .1 Complete fill,
 - .2 Absence of voids,
 - .3 Primer,
 - .4 Proper width/depth ratio, and
 - .5 Back up material.
 - .6 Repair sealants pulled in test area by applying new sealants following same procedures used to original seal joints.
 - .7 Contractor shall repair test areas at no additional cost to the Owner.

1.10 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- .2 Joint-Width Conditions:
 - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
 - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

1.11 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Warranty: Provide a five (5) year warranty for failure to meet specified requirements including coverage for installed sealants and accessories which fail to achieve air tight seal, exhibit loss of adhesion or cohesion, or do not cure.
- .3 Manufacturer's Warranty: Provide manufacturer's twenty (20) year material warranty for installed silicone sealant.

Part 2 Products

2.1 PERFORMANCE / DESIGN CRITERIA

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
 - .1 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
 - .2 Where sealants are qualified with primers use only these primers.
- .2 Sealant Design: Design structural sealant to withstand specified loads without breakage, loss, failure of seals, product deterioration, and other defects.
- .3 Design installed sealant to withstand:
 - .1 Loads: Design and size to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of panel:
 - .1 As calculated in accordance with applicable code.
 - .2 As measured in accordance with ASTM E330/E330M.
 - .2 Seismic loads and sway displacement as calculated in accordance with Ontario building code.
 - .3 Movement from ambient temperature range of 49 degrees C.
 - .4 Movement and deflection of structural support framing.
 - .5 Water and air penetration.

2.2 SEALANTS

- .1 Sealants
 - .1 Sealant Type A: Paintable siliconized acrylic latex sealant to ASTM C834:
 - .1 Applications: Around interior door frames and windows, against drywall and where acoustical sealant exposed to sight is called for.
 - .2 Standard of acceptance: Tremflex 834 paintable siliconized acrylic latex sealant.
 - .2 Sealant Type B: Ultra-low modulus, one-part, neutral cure silicone sealant for extreme movement joints to ASTM C920, Type S, Grade NS, Sealant Class100/50, Use T,NT, M, G, A, O.:
 - .1 Application: Exterior joint work, interior and exterior masonry control joints, and where extreme movement is anticipated.
 - .2 Movement capacity: +100%; -50%.
 - .3 Properties:
 - .1 No primer required on concrete
 - .2 Non-staining
 - .3 Good unprimed adhesion to most substrates (fluoropolymer coatings, polyethylene-faced modified bituminous membrane, etc.)

- .4 Standard of acceptance: Dow Corning 790 silicone building sealant.
- .3 Sealant Type C: One-part, neutral cure silicone sealant to ASTM C920, Type S, Grade NS, Class 50, Use NT, M, G, A:
 - .1 Application: Exterior joint work where not otherwise indicated. The manufacturer to advise whether to use Type C or Type D for the specific application.
 - .2 Movement capacity: $\pm 50\%$.
 - .3 Limited colour range.
 - .4 Standard of acceptance: Dow Corning 791 silicone weather proofing sealant.
- .4 Sealant Type D: One-part, neutral cure, medium modulus, architectural grade silicone sealant to ASTM C920, Type S, Grade NS, Class 50, Use NT, G, A, O:
 - .1 Application: Exterior joint work where not otherwise indicated. The manufacturer to advise whether to use Type C or Type D for the specific application.
 - .2 Movement capacity: $\pm 50\%$.
 - .1 Standard of acceptance: Dow Corning 795 silicone building sealant.
- .5 Sealant Type E: One part, acetoxycure, mildew-resistant silicone sealant for non-porous substrates:
 - .1 Applications: Caulking countertops at wall, ceramic tile, plumbing fixtures, and in wet areas where not otherwise indicated.
 - .2 Movement capacity: $+25\%$.
 - .3 Standard of acceptance: Dow Corning tub, tile and ceramic silicone sealant.
- .6 Sealant Type F: Flexible synthetic rubber acoustical sealant:
 - .1 Application: Acoustical sealant in concealed locations.
 - .2 Standard of acceptance: Tremco acoustical sealant.
- .7 Sealant Type G: Ultra-low-modulus, self-levelling, one part, neutral-cure RTV silicone sealant.
 - .1 Application: Self-levelling sealant for concrete floor slab expansion and control joints.
 - .2 Standard of acceptance: Dow Corning, SL Parking structure Sealant (Self-levelling)
 - .3 Colour of sealants: Selected from the manufacturer's complete colour range to match adjacent materials, to the approval of the *Consultant*.
- .8 For Structural Silicone Glazing adhesive, refer to to Section 08 44 13 - Glazed Aluminum Curtain Walls
- .9 Joint cleaner: xylol, methylethyleketon, IPA, or noncorrosive type recommended by sealant manufacturer and compatible with joint forming materials.

2.3 JOINT SEALANT APPLICATIONS

.1 Scope:

- .1 Exterior Joints: Seal open joints, whether or not the joint is indicated on *Drawings*, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - .1 Wall expansion and control joints.
 - .2 Joints between door, window, and other frames and adjacent construction.
 - .3 Around the perimeter of every external wall opening, both sides; set exterior door thresholds in continuous bead of sealant.
 - .4 Joints between different exposed materials.
 - .5 Openings below ledge angles in masonry.
 - .6 Other joints indicated below.
- .2 Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - .1 Joints between door, window, and other frames and adjacent construction.
 - .2 In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
 - .1 Exception: Through-penetrations in sound-rated assemblies that are also fire-rated assemblies; these openings are to be firestopped.
 - .3 Other joints indicated below.
- .3 Do not seal the following types of joints.
- .4 Intentional weepholes in masonry.
 - .1 Joints indicated to be treated with a manufactured expansion joint cover or some other type of sealing device.
 - .2 Joints where sealant is specified to be provided by the manufacturer of the *Product* to be sealed.
 - .3 Joints where the installation of sealant is specified in another section.
 - .4 Joints between suspended panel ceilings/grid and walls.
- .5 Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".
- .6 For interior applications provide *Products* with a maximum volatile organic compound (VOC) content of 250 g/L.

2.4 ACCESSORIES

- .1 Primer: Non-staining type, as 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, open cell; polyethylene foam rod, oversized 30% to 50% larger than joint width.
 - .1 Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open-Cell Polyurethane.
 - .2 Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 - .3 Closed-Cell and Bi-Cellular: 25 to 33 percent larger in diameter 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.
- .7 Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by the tape and sealant manufacturers for the specific application.
- .8 Joint fillers: Chemically compatible with primers and sealants, outsized 30 to 50%, type recommended by the sealant manufacturer for each specific application.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that substrate surfaces, 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.
- .2 Install sealant to sealant manufacturer's written instructions.
- .3 Measure joint dimensions and size materials to achieve required 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, or as detailed.

3.4 **FIELD QUALITY CONTROL**

- .1 Inspection and Testing:
 - .1 Joint Sealants: Perform adhesion tests to manufacturer's written instructions and ASTM C1193, Method A - Field-Applied Sealant Joint Hand Pull Tab.
 - .2 Structural Sealant: Perform adhesion tests to manufacturer's written instructions and ASTM C1401, Method B - Hand-Pull Tab (Non-destructive).
 - .1 For sealant applied between dissimilar materials, test both sides of joint.
 - .3 Remove sealants failing adhesion test, clean substrates, reinstall sealants and perform retesting.
- .2 Manufacturer's Services:
 - .1 Monitor and report installation procedures and unacceptable conditions.

3.5 **CLEANING**

- .1 Section 01 74 10: Cleaning installed work.
- .2 Clean adjacent soiled surfaces.

3.6 **PROTECTION**

- .1 Section 01 78 23: Protecting installed work.
- .2 Remove masking tape and excess sealant.
- .3 Protect sealants until cured, remove temporary glass supports.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Hollow metal steel frames.
- .2 Pressed steel doors.
- .3 Fire-rated hollow metal doors and frames.
- .4 Louvres.

1.2 RELATED REQUIREMENTS

- .1 Section 04 05 10 - Mortar and Masonry Grout: Masonry grout fill of metal frames.
- .2 Section 08 71 00 - Door Hardware - General: Hardware, weatherstripping.
- .3 Section 08 80 00 - Glazing.
- .4 Section 09 21 16 - Gypsum Board Assemblies
- .5 Section 09 22 16 - Non-Structural Metal Stud Framing.
- .6 Section 09 91 00 - Painting: Field painting of doors.
- .7 Division 22 - Plumbing: Louvres.

1.3 REFERENCE STANDARDS

- .1 [ASTM A653/A653M-20 Standard specification for steel sheet, zinc-coated \(galvanized\) or zinc-iron alloy-coated \(galvannealed\) by the hot-dip process](#)
- .2 [ASTM B29-19 Standard specification for refined lead](#)
- .3 [ASTM B749-20 Standard specification for lead and lead alloy strip, sheet, and plate products](#)
- .4 [ASTM C553-13\(2019\) Standard specification for mineral fiber blanket thermal insulation for commercial and industrial applications](#)
- .5 [ASTM C578-19 Standard specification for rigid, cellular polystyrene thermal insulation](#)
- .6 [ASTM C591-21 Standard specification for unfaced preformed rigid cellular polyisocyanurate thermal insulation](#)
- .7 [ASTM C665-17 Standard specification for mineral-fiber blanket thermal insulation for light frame construction and manufactured housing](#)
- .8 [ASTM C1289-21 Standard specification for faced rigid cellular polyisocyanurate thermal insulation board](#)
- .9 [ASTM E90-09\(2016\) Standard test method for laboratory measurement of airborne sound transmission loss of building partitions and elements](#)
- .10 [ASTM E413-16 Classification for rating sound insulation](#)
- .11 CAN/ULC-S104-15 - Standard Method for Fire Tests of Door Assemblies.
- .12 CAN/ULC-S105-16 - Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104.
- .13 CAN/ULC-S701.1-2022 - Standard for Thermal Insulation, Polystyrene Boards.
- .14 CAN/ULC-S702.1-14 (R2019) - Standard for Mineral Fibre Thermal Insulation for Buildings.
- .15 CAN/ULC-S704.1-2017 - Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

- .16 [STD G40.20/G40.21-13 General requirements for rolled or welded structural quality steel/structural quality steel](#)
- .17 [STD W59-18 Welded steel construction](#)
- .18 FM (Factory Mutual).
- .19 CSDMA (Canadian Steel Door Manufacturers Association).
 - .1 Recommended Dimensional Standards for Commercial Steel Doors and Frames, 2009.
 - .2 Recommended Selection and Usage Guide for Commercial Steel Doors and Frame Products, 2009.
- .20 NFPA 80 - Standard for Fire Doors and Other Opening Protectives, 2022 Edition.
- .21 NFPA 252 - Standard Methods of Fire Tests of Door Assemblies, 2022 Edition.
- .22 ULC-FR-17 - Fire Resistance Directory (2017 Edition).
- .23 UL - Fire Resistance Directory.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Requirements Of Regulatory Agencies:
 - .1 Steel fire rated doors and frames, including interior window frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN/ULC S104 and CAN/ULC S105 for ratings specified or indicated.
 - .2 The *Work* of this section shall conform to the requirements of the applicable building code, NFPA 80 , and all other applicable codes and regulations, to the satisfaction of the authorities having jurisdiction.
 - .3 Accessibility: Comply with CSA B651
 - .4 Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.
- .2 Section 01 31 00: Project management and coordination procedures.
- .3 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.
- .4 Sequencing: Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 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.

1.6 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 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 00: Submission procedures.

1.8 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Conform to requirements of CSDMA. Maintain one (1) of document on site.
- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

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

Part 2 Products

2.1 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Fire Rated Door and Frame Construction: Labelled and listed to CAN/ULC-S104.
 - .2 Installed Door and Frame Assembly: Conform to NFPA 80 for fire rated class as indicated.
 - .3 Fabricate doors and frames in accordance with details, approved shop drawings and CSDFMA requirements.

2.2 MATERIALS

- .1 Sheet Steel: Galvanized steel to ASTM A653/A653M, commercial grade (CS), Type B. CSDMA Table 1 - Thickness for component parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.
- .3 Steel used for fabrication of doors and frames:
 - .1 Galvannealed steel complying with ASTM A653/A653M.
 - .2 Cold-rolled steel complying with ASTM A1008/A1008M.
 - .3 Hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M.
 - .4 Except where otherwise noted or otherwise required for fire or sound rated doors, minimum base steel thicknesses shall be as follows:

- .1 Frames: 1.6 mm (16 ga).
- .2 Door Faces:
- .3 Exterior doors: 1.6 mm (16 ga).
- .4 Interior doors: 1.2 mm (18 ga).
- .5 Top and bottom end closure channels: 1.2 mm (18 ga).
- .5 Reinforcements:
 - .1 Lock and strike reinforcements: 1.6 mm (16 ga).
 - .2 Hinge reinforcements: 3.4 mm (10 ga).
 - .3 Flush bolt reinforcements: 1.6 mm (16 ga).
 - .4 Door closer and holder reinforcements: 2.7 mm (12 ga).
- .4 Reinforcement Channel: CSA-G40.20/G40.21, Type 44W, ZF75 coating designation to ASTM A653/A653M.

2.3 DOOR CORE MATERIALS

- .1 Provide honeycomb core unless otherwise required. RSI to meet SB10 requirements as minimum.
- .2 Honeycomb Core: Structural small cell 25.4 mm maximum kraft paper honeycomb; weight 36.3 kg per ream minimum, density 16.5 kg/cu m minimum, sanded to required thickness.
- .3 Polystyrene Core: ASTM C578, Type 1, rigid extruded fire retardant, closed cell board, density 16 to 32 kg/cu m, thermal values RSI-1.0 minimum.
- .4 Polyisocyanurate Core: ASTM C591 (unfaced), rigid modified polyisocyanurate, closed cell board, 32 kg/cu m, thermal value minimum RSI-1.9.

2.4 ADHESIVES

- .1 Cores and Steel Components: Heat resistant, structural reinforced epoxy, resin based adhesive.
- .2 Lock Seam: Reinforced epoxy resin, high viscosity, thixotropic sealant.

2.5 PRIMERS

- .1 Primer: Rust inhibitive touch-up only.

2.6 ACCESSORIES

- .1 Door Silencers: Single stud rubber/neoprene.
- .2 Removable Glazing Stops: Formed galvanized steel channel, minimum 16 mm high, accurately fitted, butted at corners and fastened to frame sections with counter-sunk tamper proof sheet metal screws.
- .3 Bituminous Coating: Fibred asphalt emulsion.
- .4 Weatherstripping: Resilient rubber set in steel frame.
- .5 Weatherstripping: Specified in Section 08 71 00.
- .6 Glass: As specified in Section 08 80 00.

2.7 FABRICATION - DOORS

- .1 Fabricate doors and frames as detailed, to Canadian Steel Door and Frame Manufacturers' Association, (CSDFMA) Canadian Manufacturing Specifications for Steel Doors and Frames, except where specified otherwise. Reinforce door and frames to suit hardware requirements specified in Section 08 71 10 - Door Hardware.
- .2 Execute welding: Weld in accordance with CSA W59.
- .3 Exterior Doors: Welded stiffener construction.
- .4 Interior Doors: Welded stiffener construction.
- .5 Longitudinal Edges: Continuously welded, filled and sanded with no visible edge seams.
- .6 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .7 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware.
- .8 Top and Bottom Channels: Inverted, recessed, welded steel channels.
- .9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

2.8 FABRICATION - FRAMES

- .1 Exterior Frames: 16 ga (min.) thick base metal thickness.
 - .1 Frames: Welded type construction, thermally broken.
- .2 Interior Frames: 16 ga (min.) thick base metal thickness.
 - .1 Door Frames and Window Assemblies: Welded type construction.
 - .1 Spot welded or knockdown frames are acceptable only within suites.
 - .2 Transom Frames: Welded type construction.
 - .3 Sidelight Assemblies: Welded type construction.
- .3 Transom Bars for Glazed Lights: Fixed type, of same profiles as jamb and head.
- .4 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier. Provide mortar guard boxes.
- .5 Reinforce frames wider than 1 200 mm with roll formed steel channels fitted tightly into frame head, flush with top.
- .6 Provide for appropriate anchorage to floor and wall construction.
 - .1 Locate each wall anchor immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb. For rebate opening heights up to and including 1520 mm, provide two anchors, and an additional anchor for each additional 760 mm of height or fraction thereof, except as indicated below.
 - .2 For rebate opening heights up to and including 1520 mm, provide two anchors, and an additional anchor for each additional 760 mm of height or fraction thereof, except as indicated below.
 - .3 For frames in previously placed concrete, provide anchors located not more than 150 mm from the top and bottom of each jamb, and intermediate anchors at 660 mm on centre maximum.
- .7 Terminate door stops 150 mm above finished floor. Cut stop at 90 degree angle and close.

- .8 Prepare frames for silencers. Provide three (3) single silencers for single doors and mullions of double doors on strike side. Provide two (2) single silencers on frame head at double doors without mullions.
- .9 Configure exterior frames with special profile to receive recessed weatherstripping.
- .10 Attach fire rated label to each fire rated door unit.
- .11 Fabricate frames to suit masonry wall coursing with 100 mm head member.

2.9 FINISHES

- .1 Factory Finished.
- .2 Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating to a thickness of 1.6 mm prior to installation.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 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 Install fire-rated doors and frames in accordance with NFPA 80, and local authority having jurisdiction.
- .3 Coordinate with masonry, gypsum board, siding, as indicated on drawings wall construction for anchor placement.
- .4 Coordinate installation of glass and glazing.
- .5 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
- .6 Set frames plumb, square, level and at correct elevation.
- .7 Secure anchorages and connections to adjacent construction.
- .8 Ensure integrity of lead-lining between interior of frame and adjacent wall assembly.
- .9 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.
- .10 Remove wood spreaders after frames have been built-in.
- .11 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
- .12 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.
- .13 Adjust operable parts for correct clearances and function.
- .14 Install louvers, glazing and door silencers.

- .15 Finish paint as specified in Section 09 91 00.
- .16 Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.3 **ERECTION TOLERANCES**

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Diagonal Distortion: 1.5 mm measured with straight edges, crossed corner to corner.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 00 - Hollow Metal Doors and Frames.
- .2 Section 08 71 00 - Door Hardware.
- .3 Section 08 80 00 - Glazing

1.2 REFERENCE STANDARDS

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
 - .1 Quality Standards for Architectural Woodwork 1998.
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
 - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3 CSA Group (CSA)
 - .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
 - .2 CSA O115-M1982 (R2001), Hardwood and Decorative Plywood.
 - .3 CAN/CSA O132.2 Series-90 (R1998), Wood Flush Doors.
 - .4 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
 - .5 CSA Certification Program for Windows and Doors 00.
- .4 National Fire Protection Association (NFPA).
 - .1 NFPA 80-1999, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-1999, Standard Method of Fire Tests of Door Assemblies.
- .5 Underwriters' Laboratories of Canada (ULC).
 - .1 CAN-4S104M-80 (R1985), Fire Tests of Door Assemblies.
 - .2 CAN4-S105M-85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS SDS - Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For caulking materials during application and curing.
 - .2 For door materials and adhesives.
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate door types and cutouts for lights, sizes, core construction, transom panel construction and cutouts.

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.
 - .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Storage and Protection:
 - .1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.
 - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
 - .3 Protect doors from scratches, handling marks and other damage. Wrap doors.
 - .4 Store doors away from direct sunlight.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Dispose of plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .3 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
- .4 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 FIRE RATED WOOD DOORS

- .1 Wood doors: tested in accordance with CAN4-S104 /NFPA 252 to achieve rating as scheduled.

2.2 WOOD FLUSH DOORS

- .1 Solid core: to CAN/CSA-O132.2.1.
 - .1 Construction:
 - .2 Face Panels:
 - .1 Hardwood; veneer grades: Grade I (Premium).
 - .2 Laminated plastic: with hardwood plywood subface.
 - .3 Adhesive: Type I (waterproof) for interior doors.
- .2 Hollow core: to CAN/CSA-O132.2.2.
 - .1 Construction: ladder core with lock blocks, 7-ply construction.
 - .2 Face Panels:

- .1 Hardwood: Grade I (Premium).
- .2 Hardboard face panels: composition face.
- .3 Laminated plastic: with hardwood plywood subface.
- .3 Adhesive: Type I (waterproof) for interior doors.

2.3 GLAZING

- .1 Glass: Tempered.

2.4 FABRICATION

- .1 Vertical edge strips to match face veneer.
- .2 Prepare doors for glazing. Provide glazing stops to match face veneer with mitred corners.
- .3 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.
- .4 Radius vertical edges of double acting doors to 60 mm radius.
- .5 Finish laminated plastic smooth and flush with stile edges of door and bevel at approximately 20 degrees.
- .6 Provide waterproof non-staining membrane at cutouts on exterior doors to exclude moisture from core.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Unwrap and protect doors in accordance with CAN/CSA-O132.2 Series, Appendix A.
- .2 Install labelled fire rated doors to NFPA 80.
- .3 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-O132.2 Series, Appendix A.
- .4 Adjust hardware for correct function.
- .5 Install glazing in accordance with Section 08 80 00 - Glazing.
- .6 Install stops.
- .7 Secure transom and side panels by means of concealed fasteners or countersunk screws concealed by means of wood plugs matching panel in grain and colour.

3.3 ADJUSTMENT

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

3.4 CLEANING

- .1 Progress cleaning: Clean in accordance with Section 01 74 00 – Cleaning
 - .1 Leave Work area clean at end of each day.

- .2 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .3 Remove traces of primer, caulking; clean doors and frames.
- .4 Clean glass and glazing materials with approved non-abrasive cleaner.
- .5 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Double swing Traffic doors - Impact Doors.

1.2 RELATED SECTIONS

- .1 Section 05 50 00 - Metal Fabrications - Frame support
- .2 Section 08 71 00 - Door Hardware

1.3 SUBMITTALS FOR REVIEW

- .1 Shop Drawings:
 - .1 Show rough opening requirements.
 - .2 Show fabrication and installation details; include door elevations, head, jamb, and meeting stile details including full or partial gaskets.
- .2 Frame support details to be provided in accordance with Section 05 50 00 Metal Fabrications.

1.4 SUBMITTALS FOR INFORMATION

- .1 Product Data: Manufacturer's data sheets on each product to be used, including:
 - .1 Preparation instructions and recommendations.
 - .2 Storage and handling requirements and recommendations.
 - .3 Installation methods.
 - .4 Operation and maintenance data

1.5 SITE CONDITIONS

- .1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Store products in manufacturer's unopened packaging until ready for installation.

Part 2 Products

2.1 MANUFACTURERS

- .1 Acceptable manufacturer's:
 - .1 Eliason Corporation
 - .2 Chase Doors

2.2 MATERIALS

- .1 Acceptable product: Eliason - SCP-8
- .2 Acceptable product: Chase - SC 3002 Traffic Door.

2.3 FINISHES & ACCESSORIES

- .1 Formica plastic laminate, Colour: Black 909-58 Matte

- .2 Vision panels:
 - .1 30" x 10" Dark tinted Lexan Vision panels
- .3 Bumpers: Polyethylene teardrop bumper both sides of door.
- .4 Window Molding: Black rubber molding.
- .5 Hinges: Double action by supplier.
- .6 Impact plates: Stainless Steel

Part 3 Execution

3.1 PREPARATION

- .1 Verification of Conditions: Verify conditions of substrates previously installed are acceptable for beginning installation of aluminum doors and frames in accordance with manufacturer's instructions.
 - .1 Visually inspect substrates.
 - .2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .1 Install in accordance with manufacturer's instructions.
- .2 Steel channel jambs for heavy duty traffic doors in accordance with Section 05 50 00 Metal Fabrications.

3.3 PROTECTION

- .1 Protect installed products until completion of project.
- .2 Touch-up, repair or replace damaged products before Completion.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Sliding doors and frames.
- .2 Operating hardware.
- .3 The configurations include: bi-parting, telescopic, and single pocket door arrangements; refer to the drawings:
 - .1 Double bi-parting, double telescopic, and single pocket door arrangements; as indicated on the *Drawings*.
 - .2 Glazed sidelights and borrowed lights.
 - .3 Pocket door frames where applicable

1.2 SCOPE OF WORK

- .1 Finish all labour, material and services to carry out the fabrication and installation of windows, vestibule screens and doors and shown on the drawings and as specified herein, complete with all necessary accessories and all necessary reinforcing of framing sections for the complete and proper installation of the work.
- .2 Co-ordinate work of this section with Finish Hardware including power door operators and Automatic Entrance Doors.
- .3 All storefront doors, including vestibule interior doors to be provided with fully automatic door openers to conform to applicable code requirements, refer to Section 08 44 13.

1.3 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications: Steel support frame.
- .2 Section 06 10 00 - Rough Carpentry: Framed openings; wood perimeter blocking and shims.
- .3 Section 07 26 00 - Vapour Retarders: Perimeter vapour seal between sliding door frame and adjacent construction.
- .4 Section 07 27 00 - Air Barriers: Perimeter air seal between sliding door frame and adjacent construction.
- .5 Section 07 21 16 - Blanket Insulation: Fibrous stuffing insulation at door frame perimeter.
- .6 Section 07 21 19 - Foamed-in-place Insulation: Foam insulation at sliding door frame perimeter.
- .7 Section 07 92 00 - Joint Sealants: Perimeter sealant and backup materials.
- .8 Section 08 44 13 - Glazed Aluminum Curtain Walls.
- .9 Section 08 71 00 - Door Hardware - General: Cylinder locks.
- .10 Section 08 80 00 - Glazing: Product and execution requirements for glass type and installation.
- .11 Division 16 - Electrical supply and termination.

1.4 DEFINITIONS

- .1 Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- .2 Safety Device: Device that prevents a door from opening or closing, as appropriate.

1.5 REFERENCE STANDARDS

- .1 DAF-45OL Designation system for aluminum finishes
- .2 AAMA 1503-09 Voluntary Test Method For Thermal Transmittance And Condensation Resistance Of Windows, Doors And Glazed Wall Sections
- .3 STD AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS - North American fenestration standard/Specification for windows, doors, and skylights
- .4 ASTM B221-21 Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes
- .5 ASTM E283/E283M-19 Standard test method for determining rate of air leakage through exterior windows, skylights, curtain walls, and doors under specified pressure differences across the specimen
- .6 ASTM E330/E330M-14 Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference
- .7 ASTM E331-00(2016) Standard test method for water penetration of exterior windows, skylights, doors, and curtain walls by uniform static air pressure difference
- .8 ASTM F842-17 Standard test methods for measuring the forced entry resistance of sliding door assemblies, excluding glazing impact
- .9 CAN/CGSB 12.8-2017 Insulating glass units
- .10 Specifications for insect screens for windows, sliding doors, and swinging doors
- .11 CSA A440.4:19 Window, door, and skylight installation
- .12 IGMA (Insulating Glass Manufacturers Alliance).
- .13 IGMAC (Insulating Glass Manufacturers Association of Canada) - IGMAC Certification Program for the CGSB 12.8 standard.
- .14 UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
- .15 American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):
 - .1 ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
 - .2 ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide component dimensions, fastener types, glass, internal drainage details, cuts of hardware and accessories.
- .3 Shop Drawings: Indicate opening dimensions, elevations of differing units framed opening tolerances, method for achieving air and vapour barrier seal to adjacent construction, anchorage locations, affected related work, and installation requirements.
- .4 The sliding door assemblies shall be designed by an engineer licensed to practise in the province of the location of the *Project*.
 - .1 Each *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid engineer.

- .5 Provide dimensioned as built drawings (or sketches) to TJX Canada immediately upon installation indicating actual sizes of glazing panels. (This is to be used for subsequent tenant signage and or window treatment).

1.7 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Certificates: Certify that Products meet or exceed performance criteria tests.
- .3 Installation Data: Indicate special procedures and perimeter conditions requiring special attention.

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.
- .2 Provide maintenance data for columns and maintenance of aluminum windows for incorporation into maintenance manual specified in Submittals.

1.9 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform Work in accordance with the following:
 - .1 Fabricate door assembly to AAMA/WDMA/CSA 101/I.S.2/A440.
 - .2 Fabricate insulated glass units to CAN/CGSB 12.8.
 - .3 Maintain one (1) copy of document on site.
- .3 Performance qualities: Aluminum windows shall be certified to conform to the following performance tests:
 - .1 Air infiltration for strip windows shall not exceed .10 cfm per foot under static pressure drop of 6.24 psf, (equivalent to 50 mph wind velocity) when tested in accordance with ASTM E283.
 - .2 Water resistance: no leakage when the window unit is subject to a pressure drop of 6.24 psf, when tested in accordance with ASTM E331.
 - .3 Window units shall be of “thermal-break” construction and shall have been tested for thermal performance (AAMA 1502) showing a condensation resistance factor (CRF) of at least 45.
- .4 Design criteria: Drawings are based on specific type and model aluminum window by a single manufacturer. Equivalent type windows by other manufacturers may be acceptable, provided deviations in profile are minor and do not materially detract from design concept or intended performances, as judged solely by Tenant. All alternatives must be accepted by the Tenant.
- .5 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .6 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

1.10 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.11 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not install sealants when ambient temperature is less than 5 degrees C.
 - .2 Do not begin installation of frames and doors until the area of work has been completely enclosed and interior is protected from the elements.
 - .3 Maintain this minimum temperature during and twenty-four (24) hours after installation of sealants.
 - .4 Maintain temperature and humidity in areas of installation within reasonable limits as close to final occupancy.

1.12 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Correct defective Work within a five (5) year period after Date of Substantial Completion.
- .3 Provide five (5) year manufacturer's warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.
- .4 Warranty: Include coverage for degradation of colour finish.

Part 2 Products

2.1 MANUFACTURERS

- .1 Bi-Part, Fully automatic with breakout capability:
 - .1 Stanley; Product: Dura-Glide 2000 Bi-part
 - .2 Motion Sensor: Stanley, Stanray
- .2 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 System Description:

2.3 PERFORMANCE / DESIGN CRITERIA

- .1 Conform to AAMA/WDMA/CSA 101/I.S.2/A440.
- .2 System Design: Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of sliding door:
 - .1 As calculated in accordance with applicable code.
 - .2 To a design pressure of 2.78 m3/h/ at 75pa differential.
 - .3 As measured in accordance with ASTM E330/E330M.
- .3 Member Deflection: Limit member deflection to flexure limit of glass in any direction; with full recovery of glazing materials.
- .4 Lintel Deflection: Accommodate deflection of lintel without damage to components, deterioration of seals, or movement between door frame and perimeter framing.
- .5 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and inner sheet of infill panel and heel bead of glazing compound.

- .6 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channel, or migrating moisture occurring within system to the exterior by a weep drainage network.
- .7 Plastic and aluminum types of doors have a high coefficient of linear expansion. Consider this effect on other affected components.
- .8 Thermal Movement: Design sections to permit thermal expansion and contraction of components to match perimeter opening construction.
 - .1 Thermal Movements: Provide automatic entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- .9 Air Infiltration: Limit air infiltration through assembly to 0.03 L/s/sq m of wall area, measured at a reference differential pressure across assembly of 75 Pa as measured to ASTM E283.
- .10 Vapour Seal: With Interior Atmospheric Pressure of 25 mm sp, 22 degrees C, 40% RH: No failure.
- .11 Condensation Resistance Factor: CRF of 50 when measured to CSA-A440.2/A440.3.
- .12 Water Leakage: None, when measured to ASTM E331 with a test pressure difference of 136.85 N/sq m.
- .13 Opening-Force Requirements for Egress Doors:
 - .1 Not more than 50 lbf (222 N) required to manually set door in motion if power fails, and not more than 15 lbf (67 N) required to open door to minimum required width.
- .14 Closing-Force Requirements:
 - .1 Not more than 30 lbf (133 N) required to prevent door from closing.
- .15 Design frames in exterior walls to accommodate expansion and contraction within service temperature range of -35 degrees C to 75 degrees C.

2.4 MATERIALS

- .1 Provide manufacturer's standard automatic entrance door assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.
- .2 Extruded Aluminum: ASTM B221M, 6063-T5 alloy and temper, hollow tubular sections, thermally broken.
- .3 Glazed Aluminum Sliding Door Assemblies.
 - .1 Manufacturer: Stanley Access Technologies; Dura-Glide™ 3000 Series sliding automatic entrance doors (Exterior). Stanley Access Technologies; Dura-Glide™ 2000 Series sliding automatic entrance doors (Interior).
 - .1 Contact: Justin Hyman (289) 290-7151 (cell); (416) 889-2290 (E-mail)
 - .1 justin.hyman@sbdinc.com
 - .2 For exterior assemblies, provide weatherstripping along the perimeter of the sliding panels. Concealed guides to stabilize bottom of sliding panel. Standard glazing prep to be for 6 mm glass.

- .3 Emergency Egress: Provide slide swing breakout panels capable of swinging out 90° from any position of slide movement and requiring no more than 222 N of force applied at the lock stile to open. Refer to the *Drawings* for locations.
- .4 Provide breakout panels with torsion spring designed to re-close the panel if pushed open in the direction of egress.
- .5 Include an intermediate horizontal rail.
- .6 Breakout panels for emergency egress feature to be ULC listed as an exit way and to comply with NFPA 101.
- .7 Jambs/frame: Aluminum extrusions to the manufacturer's standard profiles.
 - .1 Reinforced as required to support imposed loads.
 - .1 Nominal Size: 1 ¾ inch by 4 ½ inch (45 by 115 mm).
- .8 Header: Aluminum to the manufacturer's standard profile with a removable face plate and capable of self-support up to a length of 4877 mm on standard door size and glazing.
 - .1 Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks.
 - .2 Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
 - .3 Mounting: Concealed, with one side of header flush with framing.
 - .4 Capacity: Capable of supporting doors up to 220 lb (100 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.
- .9 Carrier Assemblies and Overhead Roller Tracks:
 - .1 Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum two ball-bearing roller wheels and two anti-rise rollers for each active leaf.
 - .1 Minimum Load Wheel Diameter: 2 1/2 inch (64 mm).
- .10 For telescoping doors provide two separate tracks for two speed sliding panels to travel. Rollers shall be steel, high quality ball bearing wheels 32 mm diameter.
- .11 Provide for anti-derailing by means of a continuous aluminum extrusion, full length of the slide panel travel.
- .12 Threshold: Aluminum extrusions to the manufacturer's standard profiles to suit sliding door configuration.
- .13 Header:
 - .1 Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks.
 - .2 Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
 - .3 Mounting: Concealed, with one side of header flush with framing.
 - .4 Capacity: Capable of supporting doors up to 220 lb (100 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.

.14 Materials and fabrication:

- .1 Extruded Aluminum: ASTM B221, 60631T5 alloy and temper, anodized:
- .2 Structural Header Sections: Minimum 5 mm thickness.
- .3 Structural Frame Sections: Minimum 3 mm thickness.
- .4 Structural Panel Sections: Commercial grade.
- .5 Panel Construction: Mortise and tenon type joints, neatly and mechanically secured.
- .6 Frame Construction: Butt joints, neatly and mechanically secured by means of screws and formed aluminum corner brackets

.15

2.5 GLASS

- .1 Glass and Glazing Materials: Specified in Section 08 80 00.
- .2 Insulating Glass: CAN/CGSB 12.8, sealed double pane units:

2.6 HARDWARE

- .1 Provide hardware items as specified in Section 08 71 10 - Door Hardware and to sliding door manufacturer's standards.
- .2 Deadlocks: Manufacturer's standard deadbolt operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1. Only exterior sliding door set is to receive deadlock.
 - .1 Cylinders: As specified in Division 8 Section "Door Hardware".
 - .2 Hook Latch: Laminated-steel hook, mortise type, BHMA A156.5, Grade 1.
 - .3 Two-Point Locking: Provide locking system that incorporates a device in the stile of active door leaves that automatically extends a flush bolt into overhead carrier assembly.
- .3 Control Switch: Provide manufacturer's standard header mounted rocker switches to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
 - .1 Power On/Off
 - .2 Reduced Opening
 - .3 Open/Closed/Automatic
- .4 Masterkeyed cylinder to be provided by Section 08 71 10 - Door Hardware.
- .5 Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
- .6 Operator: Manufacturer's Standard Linear Drive Operator Mounted Concealed Within
 - .1
 - Adjustable opening and closing speeds.
 - Adjustable back-check and latching.
 - Adjustable braking.
 - Adjustable hold-open time between 0 and 30 seconds.

- Obstruction recycle.
 - On/Off switch to control electric power to operator.
 - Energy conservation switch that reduces door-opening width.
 - Variable rate open/closed speed control.
 - Closed loop speed control with active braking and acceleration.
- .7 Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- .8 Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.7 ELECTRICAL CONTROLS

- .1 Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable. A single controller shall be capable of controlling up to 2 operators per entrance system.
- .2 Mounting: Concealed.
- .3 Drive System: Synchronous belt type.
- .4 Life Cycle Data Counter: The microprocessor control shall incorporate a non-re-settable counter to track door operation cycles.
- .5 Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
- .1 Automatic Reset Upon Power Up.
 - .2 Fuse Protection.
 - .3 Electronic Surge Protection.
 - .4 Internal Power Supply Protection.
 - .5 Software "Watchdog" protection in the case of software malfunction.
- .6 Soft Start/Stop: A "soft-start" "soft-stop" motor driving circuit shall be provided for smooth normal opening and recycling.
- .7 Safety Search Circuitry: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.
- .8 Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.
- .9 Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration

tool shall be software driven and shall be utilized via Palm® handheld interface.
The following parameters may be adjusted via the configuration tool.

- .1 Operating speeds and forces as required to meet ANSI/BHMA A156.10.
- .2 Adjustable and variable features as specified in 2.05, B., 2.
- .3 Reduced opening position.
- .4 Firmware update.
- .5 Trouble Shooting
 - .1 I/O Status.
 - .2 Electrical component monitoring including parameter summary.
- .6 Entrance profile copy/paste. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer's internet site.

2.8 ACTIVATION & SAFETY DEVICES

- .1 Motion Sensors:
 - .1 Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
- .2 Presence Sensors:
 - .1 Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.
- .3 Photoelectric Beams:
 - .1 In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.

2.9 FABRICATION

- .1 Size and fabricate door assembly to allow for tolerances of rough framed openings, clearances, shim spacing and shims around perimeter of assemblies.
- .2 Ensure joints and connections are flush, hairline, and waterproof.
- .3 Form sills and stools in one piece. Slope sills for wash.
- .4 Accurately and rigidly fit joints and corners. Match and align cladding joints for continuity of line and design.

- .5 Match components to ensure continuity of line.
- .6 Provide drainage to exterior for moisture entering joints and glazing spaces and condensation occurring within frame construction.
- .7 Install glass in fixed and sliding units to manufacturer's standard method.
- .8 Use concealed fasteners to greatest extent possible.
 - .1 Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
 - .2 Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 - .3 Reinforce members as required to receive fastener threads.
 - .4 Framing: Provide automatic entrance doors as prefabricated assemblies.
 - .1 Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
 - .2 Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
 - .3 Form profiles that are sharp, straight, and free of defects or deformations.
 - .4 Prepare components to receive concealed fasteners and anchor and connection devices.
 - .5 Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
 - .5 Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
 - .6 Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
 - .7 Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
 - .8 Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.
 - .9 Isolation Coating:
 - .1 Isolate aluminum from following components, by means of isolation coating:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

2.10 FINISHES

- .1
 - .1 Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.

- .1 Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: as fabricated;
- .2 Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II,
- .3 clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
 - .1 AAMA 607.1 .
 - .2 Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.
- .2 Threshold: Clear anodized.
 - .1 Manufacturer's standard thresholds as indicated below:
 - .1 Continuous standard tapered extrusion double bevel.
 - .2 All thresholds to conform to details and requirements for code compliance.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that openings are ready to receive work and opening dimensions and clearances are as indicated on Drawings, Shop Drawings.

3.2 PREPARATION

- .1 Prepare opening to permit correct installation of door unit in conjunction with air and vapour seal.

3.3 INSTALLATION

- .1 Install door unit assembly, glass and glazing to manufacturer's written instructions.
- .2 Attach frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
 - .1 Anchor securely in place, separating aluminum and other corrodible metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.
- .3 Use anchorage devices to securely fasten sliding door assembly to wall construction without distortion or imposed stresses.
- .4 Entrances: Install automatic entrance doors plumb and true in alignment with established lines and grades without warp or rack of framing members and doors.

Anchor securely in place.

 - .1
 - Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
- .5 Door Operators: Connect door operators to electrical power distribution system as specified in Division 16 Sections.

Glazing: Install glazing as specified in Division 8 Section "Glazing".

- .6 Coordinate installation of loose fibrous, foamed thermal insulation at shim spaces at frame perimeter as specified in Section 07 21 16, 07 21 19.
- .7 Place threshold in bed of butyl sealant.
- .8 Install perimeter sealant to method required to achieve performance criteria.
- .9 Install perimeter trim and interior closures, stools.
- .10 Install glass in fixed and sliding units to manufacturer's standard method.
- .11 Coordination:
 - .1 Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.
 - .2 Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.
- .12 Limit deflection to 1/175th of clear span tested to ASTM E330, under wind loads for building locality as ascertained by NBC Supplement #1 Climatic Information for Building Design in Canada.
- .13 All members to have extruded PVC thermal break integrated with the inner and outer aluminum extrusions by a roll-crimping process to form a rigidly interconnected assembly without the use of fasteners or other bridging elements.
- .14 Make allowance for deflection of structure. Ensure that structural loads are not transmitted to windows.
- .15 Reinforcing members shall be installed where required to meet wind load requirements.
- .16 Construct transom panels and frames to profiles and maximum 16 mm bite for factory-sealed double glazed units.
- .17 Conceal fastenings from view.
- .18 Form cutouts, recesses, mortising or milling for finishing hardware to templates supplied. Reinforce with aluminum or galvanized steel plates.
- .19 Sealants:
 - .1 Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weather tight installation.

3.4 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maintain dimensional tolerances and alignment with adjacent work.
- .3 Maximum Variation from Plumb: 1.5 mm.
- .4 Maximum Variation from Level: 1.5 mm.
- .5 Longitudinal or Diagonal Warp: Plus or minus 3 mm from 3 m straight edge.

3.5 ADJUSTING

- .1 Adjust hardware for smooth operation.

3.6 CLEANING

- .1 Section 01 74 10: Cleaning installed work.

- .2 Remove protective material from factory finished surfaces.
- .3 Remove labels and visible markings.
- .4 Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- .5 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.7 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit continuing construction activities near unprotected finish surfaces.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 WORK INCLUDED

- .1 The Sectional doors will be Wayne-Dalton Model #Thermospan® 200.
- .2 Approved alternate equal by Richards-Wilcox Model #T-200.

1.2 RELATED REQUIREMENTS

- .1 Related sections:
 - .1 Section 05 50 00 - Metal Fabrications:
 - .1 Steel channel opening frame.
 - .2 Miscellaneous metal fabrications required for a complete installation
 - .2 Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.
 - .3 Section 08 33 23 - Overhead Coiling Doors.
 - .4 Section 08 71 10.00 - Door Hardware : Lock cylinders.
 - .5 Division 16 - Electrical Supply and Termination
 - .6 Division 26 - Electrical: Electrical connections.
 - .1 Coordinate with Electrical information by Electrical consultant.
- .2 Appendix 08 00 00 - Finishes

1.3 REFERENCE STANDARDS

- .1 Aluminum Association (AA):
 - .1 AA DAF 45-03, Designation System for Aluminum Finishes
- .2 ASTM International (ASTM):
 - .1 [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
 - .2 [ASTM D523-14](#), Standard Test Method for Specular Gloss
 - .3 [ASTM D822/D822M-13](#), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
- .3 Canadian General Standards Board (CGSB):
 - .1 [CAN/CGSB-1.105-M91](#), Quick-Drying Primer
 - .2 [CAN/CGSB-1.213-04](#), Etch Primer (Pretreatment Coating or Tie Coat) for Steel and Aluminum
 - .3 [CAN/CGSB-1.181-99](#), Ready-Mixed, Organic Zinc-Rich Coatings
- .4 CSA Group (CSA):
 - .1 [CAN/CSA-G164-18](#), Hot Dip Galvanizing of Irregularly Shaped Articles
- .5 NEMA:
 - .1 NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2018.

- .2 NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts 2000, with Errata (2008).
- .3 NEMA MG 1 - Motors and Generators 2017.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 1 week before beginning work of this Section and on-site installation, with Contractor, Subcontractor, Consultant & Owner in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordination with other Subcontractors.
 - .4 Review manufacturer's installation instructions and warranty requirements.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Submit manufacturer's instructions, product literature and data sheets for doors, hardware, operators, and accessories and include product characteristics, performance criteria, physical size, finishes, and limitations.
- .3 Shop Drawings: Indicate sizes, service rating, types, materials, operating mechanisms, glazing locations and details, hardware and accessories, required clearances and electrical connections.
 - .1 Designated design professional:
 - .1 The overhead door assembly shall be designed by a professional engineer licensed to practice in the Province of the *Project*, and who is experienced in providing engineering *Services* of the kind indicated. Each of the *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid structural engineer.
 - .2 Post-installation certification: After installation, provide written certification, signed by the Structural Engineer responsible for the shop drawings, that all applicable items have been installed in accordance with the shop drawings.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .5 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 Manufacturer Reports:
 - .1 Manufacturer's Site Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in Part 3 - SITE QUALITY CONTROL.

1.6 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: Submit operation and maintenance data for sectional metal doors and incorporate into manual.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- .1 Submit in accordance with Section Section 01 78 00 - Closeout Submittals.
- .2 Spare parts:
 - .1 Supply spare parts for sectional metal doors as follows:
 - .1 Panels, Rollers, Weatherstripping, Springs & cables:
 - .1 Coordinate with Construction manager & owner.
 - .2 Identify each part and reference to appropriate door.

1.8 QUALITY ASSURANCE

- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section Section 01 61 00 - Common Product Requirements.
- .2 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, well-ventilated area.
 - .2 Store and protect sectional metal doors, hardware and accessories from nicks, scratches, and blemishes.

Part 2 Products

2.1 DESIGN CRITERIA

- .1 Design exterior door assembly to withstand wind load of 1 kPa with a maximum horizontal deflection of 1/240 of opening width.
- .2 Design door panel assemblies with thermal insulation factor RSI - Refer to OBC SB10 requirements.

2.2 DOORS

- .1 Manufacturers:
 - .1 The Sectional doors will be Wayne-Dalton.
 - .1 Model #Thermospan® 200.
 - .2 Contact: Roger Melo (905) 890-1402 or 1-800-387-6701.
 - .2 Approved alternate equal by Richards-Wilcox Model #T-200.
 - .1 Contact: Wilcox Door Service Inc.
 - .2 Tony Wong Tel: 905-274-5850 x101
- .2 Steel Doors
 - .1 Steel Doors: Flush steel, insulated; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
 - .2 Performance:

- .1 Withstand positive and negative wind loads equal to 1.5 times design wind loads specified by local code without damage or permanent set, when tested in accordance with ASTM E330/E330M, using 10 second duration of maximum load.
- .3 Door Nominal Thickness: 51 mm thick.
- .4 Thermal Transmittance: U-factor of 1.76 W/sq m K, maximum, in accordance with DASMA 102; and to meet OBC - SB 10, whichever is more stringent.
- .5 Air Leakage Rate: Less than 2.0 L/sec/sq m when tested in accordance with ASTM E283 at test pressure difference of 75 Pa.
- .6 Exterior Finish: Factory finished with acrylic baked enamel; colour as selected from manufacturers standard line.
- .7 Interior Finish: Factory finished with acrylic baked enamel; colour as indicated on the *Drawings*.
- .8 Glazed Lights: Full panel width, one row; set in place with a resilient glazing channel.
- .9 Electric Operation: Electric control station.
 - .1 Coordinate with Division 26, Electrical information by Electrical engineer.
- .10 Door Panels: Steel construction; outer steel sheet of 16 gauge, 1.6 mm minimum thickness, flush profile; inner steel sheet of 16 gauge, 1.6 mm minimum thickness, flat profile; core reinforcement, where resheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; R-17.5 polyurethane insulation.
- .11 Glazing: Fully tempered glass; insulated; clear; 6.4 mm thick; factory installed.
- .12 Emergency hand-chain operation (in the event of power failure) permits emergency egress with minimum effort.
- .3 Components
 - .1 Hardware:
 - .1 Track: Heavy duty tracks, as indicated and as required, 76 mm size, minimum 2.8 mm (12 ga) thick galvanized steel. Include 3.04 mm (11 ga) thick, continuous track angles and ancillary hardware items.
 - .2 Bearing plates: 3.42 mm (10 ga) thick galvanized steel plates with press fitted ball bearings. Fit track bearing brackets with grease packed, self aligning flange Pollard bearings.
 - .3 Top roller carriers: Heavy duty, 3.04 mm (11 ga) thick galvanized steel, adjustable type to permit door to be butted against the lintel for maximum weather seal. Provide double top roller carriers
 - .4 Rollers: 76 mm dia. with 6 mm dia. ball bearings, running in hardened inner and outer races. Roller stem (long stem type) to be heavy cold rolled steel.
 - .5 Hinges: 3.04 mm thick (11 ga) thick, galvanized steel, graduated to ensure a weathertight closing at the jambs. Provide double end hinges.
 - .6 Bottom carrier brackets: Extra heavy duty, cast iron, adjustable, securely fastened to door.

- .7 Torsion springs: Oil tempered, helically wound, designed to withstand minimum 50,000 per year. Retain cross header shaft in grease packed, self aligning flange Pollard bearings set in 3.4 mm (10 ga) thick bearing plates at each side of the horizontal tracks. Supply sufficient intermediate bearing plates to support the spring shaft and door load.
 - .8 Drums: Cable drums (2), high pressure die cast aluminum alloy, c/w guarded cable entry. Cable adjustment controlled with set screws from the free side of the drums, facing the door centre.
 - .9 Cables: Galvanized aircraft type with construction of 7 x 19 with a safety factor to suit a minimum 50,000 cycles life.
 - .10 Shaft: 32 mm dia., cold rolled, solid cross header shaft, keyed to receive drums, c/w coupling and drive sprockets as required.
 - .11 Finish: Finish ferrous hardware items with minimum zinc coating of 300 g/m² to CSA G164.
 - .12 Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.
 - .13 Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.
 - .14 Head Weatherstripping: EPDM rubber seal, one piece full length.
 - .15 Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.
 - .16 Lock: Inside side mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.
 - .17 Lock Cylinders: Supplied by Section 08 71 10 - Door Hardware.
- .4 Electric Operation
- .1
 - .1 Door opener: Standard of acceptance: Model 8500 by Liftmaster.
 - .1 Lift Master. Model "H", ½ hp. 3 – Phase 575V. Complete with Damp Environment modification.
 - .2
 - .1 Operator, Controls, Actuators, and Safeties: Comply with ANSI/CAN/UL 325; provide *Products* labelled and listed in accordance with CSA C22.1.
 - .3
 - .1 Provide interlock switches on motor operated units.
 - .4
 - .1 Provide tamperproof operation cycle counter.
 - .1 Mounting: Side mounted on cross head shaft.
 - .5

- .1 Motor Enclosure:
 - .1 Exterior Doors: NEMA MG 1, Type 4; open drip proof.
 - .2 Interior Doors: NEMA MG 1, Type 1; open drip proof.
 - .3 Motor Rating: 1118 W (1.5 HP) ; continuous duty.
 - .4 Motor Voltage: 230 volts, single phase, 50-60 Hz.
 - .5 Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
 - .6 Controller Enclosure: NEMA 250, Type 1.
 - .7 Opening Speed: 300 mm/s.
 - .8 Brake: Adjustable friction clutch type, activated by motor controller.
 - .9 Manual override in case of power failure.
 - .10 Refer to Section 26 05 83 - Wiring Connections for electrical connections.
 - .11 Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with CSA C22.1.
- .6
 - .1 Control Station:
 - .1 Provide standard three button (Open-Close-Stop) momentary- contact control device for each operator complying with ANSI/CAN/UL 325.
 - .7 Safety Edge: Located at bottom of sectional door panel, full width; electro- mechanical sensitised type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.
- .5 Fabrication
 - .1 Verify dimensions on site prior to fabrication.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: Verify conditions of substrates previously installed are acceptable for sectional metal doors installation in accordance with manufacturer's instructions.
 - .1 Inspect substrates in presence of Construction manager.
 - .2 Inform Consultant & construction manager of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .1 Install doors and hardware in accordance with manufacturer's instructions.
- .2 Rigidly support rail and operator and secure to supporting structure.

- .3 Touch-up steel doors with primer where galvanized finish damaged during fabrication.
- .4 Install operator including electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.
- .5 Lubricate and adjust door operating components to ensure smooth opening and closing of doors.
- .6 Adjust weatherstripping to form a weather tight seal.
- .7 Adjust doors for smooth operation.

3.3 SITE QUALITY CONTROL

- .1 Manufacturer Services:
 - .1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing and cleaning of product within 3 days of review.
 - .2 Submit manufacturer's site services consisting of periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Ensure manufacturer's representative is present before and during critical periods of installation construction of site joins.
- .2 Coordination With Other Trades
 - .1 Coordinate with other trades to ensure that required work by others is properly and completely executed.
 - .2 Coordinate with Section 05 50 00 - Metal Fabrications, and provide *Drawings* and/or templates as required to ensure that openings are properly prepared, including door frames, frame extensions and mounting plates to receive torsion spring assembly and electric operators.
 - .3 Coordinate power supply and electrical hook-up with Division 26 - Electrical.
- .3 Tolerances
 - .1 Maximum Variation from Plumb: 1.5 mm.
 - .2 Maximum Variation from Level: 1.5 mm.
 - .3 Longitudinal or Diagonal Warp: Plus or minus 3 mm from 3 m straight edge.
 - .4 Maintain dimensional tolerances and alignment with adjacent work.
- .4 Adjusting
 - .1 Adjust door assembly for smooth operation and full contact with weatherstripping.
 - .2 Have manufacturer's site representative confirm proper operation and identify adjustments to door assembly for specified operation.
 - .3 Touchup with zinc rich primer where galvanized finish damaged during fabrication.
 - .4 Adjust operable parts for correct, smooth function.
 - .5 Adjust weatherstripping to form a weathertight seal.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

- .1 Remove traces of primer; clean doors and frames.
- .2 Clean glass and glazing materials with approved non-abrasive cleaner.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Aluminum tube framing system with vision glass.
- .2 Glass infill panels.
- .3 Integral air barrier and vapour retarder.
- .4 Integral fire stops at floor slabs.
- .5 Perimeter sealant.

1.2 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications: Metal fabricated attachment devices, framed openings.
- .2 Section 07 26 00 - Vapour Retarders: Perimeter vapour seal between curtain wall system and adjacent construction.
- .3 Section 07 27 00 - Air Barriers: Perimeter air seal between curtain wall system and adjacent construction.
- .4 Section 07 84 00 - Firestopping.
- .5 Section 07 92 00 - Joint Sealants: System perimeter sealant and back-up materials.
- .6 Section 08 41 13 - Aluminum Framed Entrances and Storefronts: Entrance doors, frames, and glazed lights.
- .7 Section 08 71 00 - Door Hardware - General: Mortised hardware reinforcement requirements affecting curtain wall framing members.
- .8 Section 08 71 13 - Automatic Door Operators.
- .9 Section 08 80 00 – Glass and Glazing.
- .10 Section 09 21 16 - Gypsum Board Assemblies: Gypsum board sheathing at interior of curtain wall system and secured to mullions.
- .11 Section 09 91 00 - Painting: Field painting of interior surface of infill panel surfaces.
- .12 Section 12 21 13 - Horizontal Louver Blinds: Attachments to curtain wall framing members.
- .13 Section 12 22 16 - Drapery Track and Accessories: Drapery or curtain track supports and attachments to curtain wall framing members.
- .14 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC): Wall fin convectors and support saddles attached to curtain wall members.
- .15 Appendix - Div.08 - Finishes Schedule - Doors & Frames

1.3 DEFINITIONS

- .1 Delegated Design Professional: The design professional contracted to the contractor, fabricator or manufacturer to design specific components of the project and produce Delegated Design Submittals and Shop Drawings to meet the requirements of authorities having jurisdiction, and registered or licensed in the province where the project is located.

1.4 REFERENCE STANDARDS

- .1 [DAF-45OL Designation system for aluminum finishes](#)
- .2 [AAMA CWDG1-96 Aluminum curtain wall design guide manual](#)

- .3 AAMA CWG1-89 Installation of aluminum curtain walls
- .4 AAMA CW10-15 Care and handling of architectural aluminum from shop to site
- .5 AAMA CW11-85 Curtain wall manual no. 11 - design windloads for buildings and boundary layer wind tunnel testing
- .6 AAMA 501-15 Methods of test for exterior walls
- .7 AAMA 501.1-17 Standard test method for water penetration of windows, curtain walls and doors using dynamic pressure
- .8 AAMA 611-14 Voluntary standards for anodized architectural aluminum
- .9 AAMA 1503-09 Voluntary Test Method For Thermal Transmittance And Condensation Resistance Of Windows, Doors And Glazed Wall Sections
- .10 AAMA 2603-21 Voluntary specification, performance requirements and test procedures for pigmented organic coatings on aluminum extrusions and panels (with coil coating appendix)
- .11 AAMA 2605-20 Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminum extrusions and panels (with coil coating appendix)
- .12 AAMA TIRA1-15 Sound control for fenestration products
- .13 AAMA RPC-00 Rain penetration control - applying current knowledge
- .14 ASTM A36/A36M-19 Standard specification for carbon structural steel
- .15 ASTM A123/A123M-17 Standard specification for zinc (hot-dip galvanized) coatings on iron and steel products
- .16 ASTM A653/A653M-20 Standard specification for steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process
- .17 ASTM B209/B209M-21a Standard specification for aluminum and aluminum-alloy sheet and plate
- .18 ASTM B221-21 Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes
- .19 ASTM B221M-21 Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes (metric)
- .20 ASTM E283/E283M-19 Standard test method for determining rate of air leakage through exterior windows, skylights, curtain walls, and doors under specified pressure differences across the specimen
- .21 ASTM E330/E330M-14 Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference
- .22 ASTM E331-00(2016) Standard test method for water penetration of exterior windows, skylights, doors, and curtain walls by uniform static air pressure difference
- .23 ASTM E413-16 Classification for rating sound insulation
- .24 ASTM E1105-15 Standard test method for field determination of water penetration of installed exterior windows, skylights, doors, and curtain walls, by uniform or cyclic static air pressure difference
- .25 Maintenance repainting specification manual
- .26 SSPC 16-01 Steel structures painting manual. Volume 1: good painting practice

1.5 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.
 - .1 Coordinate the Work with installation of firestopping, air barrier placement, vapour retarder placement components or materials.
- .3 Pre-Installation Meeting: Convene one (1) week before starting work of this section.

1.6 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow drainage diagrams.
- .3 Design Data: Provide framing member structural and physical characteristics, calculations, dimensional limitations.
- .4 Shop Drawings:
 - .1 Indicate system dimensions, framed opening requirements and tolerances, anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.
 - .1 Clearly indicate the size and location of seismic restraints, and include seismic design calculations.
 - .1 Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.
 - .2 Provide Shop Drawings and calculations stamped and signed by the delegated design professional.

1.7 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Test Reports: Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.
- .3 Installation Data: Manufacturer's special installation requirements.
- .4 Delegated Design Submittals:
 - .1 Submit documentation indicating compliance to performance/design criteria, signed and sealed by the delegated design professional responsible for their preparation.

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.9 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform Work in accordance with AAMA CW-DG-1. Maintain one (1) copy of document on site.

- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .4 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.
- .5 Delegated Design Professional Qualifications: Professional Structural Engineer experienced in design of this Work and licensed in the province where the project is located.
- .6 Verify that each component is appropriate for use in structural sealant glazing (SSG) application in regards to at least the following properties; size, shape, dimensions, material, self-life, storage conditions, and colour.

1.10 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Handle work of this Section in accordance with AAMA CW-10.
- .3 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather. Puncture wrappings at ends for ventilation.

1.11 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.

1.12 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide a five (5) year warranty to include coverage for complete system for failure to meet specified requirements.

Part 2 Products

2.1 MANUFACTURERS

- .1 Alumicor; Product: Versawall 2500.
- .2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
 - .1 Commdoor; Product: equivalent and approved.
 - .2 Concord; Product: equivalent and approved.
 - .3 Kawneer; Product: equivalent and approved.
 - .4 Windspec; Product 55 HTP Series

2.2 DESCRIPTION

- .1 System Description:
 - .1 Curtain Wall System: Tubular aluminum sections with supporting framing, factory prefinished, vision glass, glass spandrel infill; related flashings, anchorage and attachment devices.
- .2 Regulatory Requirements:

- .1 Conform to applicable code for acoustic attenuation requirements.

2.3 PERFORMANCE / DESIGN CRITERIA

- .1 Delegated Design: Design glazed aluminum curtainwall, connections, anchors by a licensed design professional using design criteria as indicated.
- .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:
 - .1 As calculated in accordance with applicable code.
 - .2 To a design pressure of 575pa.
 - .3 As measured in accordance with ASTM E330/E330M.
- .3 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with the applicable code.
- .4 For mullion corner and special change of wall plane conditions, limit glazing sealant design movement to 20% maximum for elastomeric sealants or 5% for acrylic or butyl sealants. Special conditions may require special statements in the paragraph below; edit accordingly.
- .5 Deflection: Limit mullion deflection to L/175 with full recovery of glazing materials.
- .6 System Assembly: Accommodate without damage to system, components or deterioration of seals, movement within system, movement between system and perimeter framing components, dynamic loading and release of loads, deflection of structural support framing, tolerance of supporting components, shortening of building concrete structural columns. Maximum mid-span slab edge deflection of (to ensure structural loads are not transmitted to glazing units).
- .7 Thermal Resistance of Wall System (Excluding Vision Areas): RSI-(refer to OBC SB-10 conditions).
- .8 Delete the following paragraph if glass thermal resistance is described in Section 08 80 00.
- .9 Thermal Resistance of Vision Areas: RSI-(refer to OBC SB-10 conditions).
- .10 Sound Transmission Loss: When tested to ASTM E90 and ASTM E1425, the Sound Transmission Class (STC) and Outdoor/Indoor Transmission Class (OITC) shall not be less than STC 31 or OITC 26.
- .11 Air Infiltration: Limit air infiltration through assembly to 0.03 L/s/sq m of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.
- .12 Vapour Seal: Maintain continuous air barrier and vapour retarder throughout the assembly, primarily in line with the inside pane of the glazing, the heel bead of the glazing compound, and the inner sheet of the spandrel panels.
- .13 Condensation Resistance Factor: CRF of 68 - Frame & 54 - Glass, when measured in accordance with AAMA 1503.
- .14 Water Leakage: None, when measured in accordance with AAMA 501.1.
- .15 Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 95 degrees C over a twelve (12) hour period without causing detrimental affect to system components.
- .16 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

.17 Air and Vapour Seal:

- .1 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.
 - .2 Position thermal insulation on exterior surface of air barrier and vapour retarder.
- .18 Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

2.4 MATERIALS

- .1 Extruded Aluminum: B221M, 6063-T6 alloy and temper.
- .2 Steel Sections: ASTM A36/A36M; shaped to suit mullion sections.
- .3 Fasteners: Stainless steel.

2.5 COMPONENTS

- .1 Mullion Profile: SSG, capped, extended caps minimum 63.5mm and suitable for performance, nominal dimension for vertical members, minimum 63.5mm and suitable for performance nominal dimension for horizontal members; thermally broken with interior tubular section insulated from exterior pressure plate; matching stops and pressure plate of sufficient size and strength to provide bite on glass; drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system; internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
- .2 Mullion Profile: EML (Extended mullion profile), Horizontal extended, sloped cap compatible with pressure plate. Refer to drawings.
- .3 Reinforced Mullion: sized to suite performance requirements profile of extruded aluminum cladding with internal reinforcement of shaped steel structural section. Refer to structural.
- .4 Flashings: 0.48 mm thick aluminum; finish to match curtain wall mullion sections where exposed secured with concealed fastening method.
- .5 Firestopping: Specified in Section 07 84 00.
- .6 Vapour Retarder: Specified in Section 07 26 00.
- .7 Air Barrier: Specified in Section 07 27 00.
- .8 Structural Sealant Glazing (SSG) Adhesive:
 - .1 Neutral curing, silicone sealant formulated for SSG applications in compliance with ASTM C1184 and structural glazing industry guidelines, ASTM C1401.
 - .2 SSG adhesive in compliance with ASTM C920; Type S - Single- component, Grade NS, Class 50, Use NT, G, and A.
 - .3 Ultimate Tensile Strength: Minimum of 345 kPa as determined by test method ASTM C1135 under the following conditions.
 - .4 Exposure to air temperatures of 88 degrees C and minus 29 degrees C.
 - .5 Water immersion for seven (7) days, minimum.
 - .6 Exposure to weathering for 5,000 hours, minimum.
 - .7 Sealant Design Tensile Strength: 139 kPa, maximum.

- .8 Hardness: 20 to 60 with Type A-2 durometer in compliance with test method ASTM C661.
- .9 Shelf Life: Six (6) months, minimum.
- .10 SSG sealant tested for compatibility with glazing accessories in compliance with ASTM C1087, tested for accelerated weathering in compliance with ASTM C793, and in compliance with insulating glass secondary sealant design standards of ASTM C1249.

2.6 GLASS AND GLAZING MATERIALS

- .1 Glazing Materials: As specified in Section 08 80 00.
- .2 Glazing Materials: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.7 SPANDREL PANELS

- .1 Metal back pan:
 - .1 0.91 mm (20 ga) sheet steel liner with sealed corners, 100 mm deep, hot dipped galvanized to ASTM A123/A123M with 458 g/m² coating.
 - .2 Insulation: 100 mm semi-rigid mineral wool fibre insulation board made from basalt rock and steel slag, conforming to ASTM C612. Density 56 kg/m³. Standard of acceptance: Rockwool CURTAINROCK®.
 - .3 Spandrel glass: Refer to Section 08 80 00 - Glazing.

2.8 SEALANT MATERIALS

- .1 Sealant and Backing Materials: As specified in Section 07 92 00 of Types described below.

2.9 FABRICATION

- .1 Fabricate system 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.
- .3 Prepare components to receive anchor devices. Fabricate anchors.
- .4 Arrange fasteners and attachments to ensure concealment from view.
- .5 Reinforce framing members for external imposed loads.
- .6 Do aluminum welding to CSA W59.2.
- .7 Components:
 - .1 Prepare components to receive anchor devices. Fabricate anchors.
 - .2 Arrange fasteners and attachments to conceal from view and so that they do not interfere with other work, such as floor finishes or drywall finishes to walls.
 - .3 Provide structural steel reinforcement for strength, stiffness and connections as required.
 - .4 Factory-install rigid polystyrene insulation in all tubular framing members.
 - .5 Provide expansion and construction joints as required.
 - .6 Touch-up galvanized steel brackets with zinc rich coating immediately following the alignment and fastening operation.
 - .7 Design framing members to drain moisture to the exterior.

- .8 Make allowance for deflection of structure. Ensure that structural loads are not transmitted to glazing units.
- .9 Visible manufacturer's labels are not permitted.

2.10 FINISHES

- .1 Clear Anodic Coating: AAMA 611, Class I, AA-M12C22A41.
 - .1 Location: Interior and exterior exposed aluminum surfaces.
- .2 Colours:

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
AU	Aluminum	Black	#29 Black Anodize	CommDoor Aluminum	Winners & — Interior/ Exterior Glazing Mullions

- .3 Concealed Steel Items: Galvanized to appropriate grade for type and size of steel material indicated, coating thickness ASTM A123/A123M.
- .4 Apply one (1) coat of bituminous paint to concealed steel surfaces in contact with cementitious or dissimilar materials.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify dimensions, tolerances, and method of attachment with other work.
- .3 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this section.

3.2 INSTALLATION

- .1 Install curtain wall system to manufacturer instructions.
- .2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- .3 Provide alignment attachments and shims to permanently fasten system to building structure.
- .4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.
- .5 Provide thermal isolation where components penetrate or disrupt building insulation.
- .6 Install sill flashings.
- .7 Install fire stop at each floor slab edge.
- .8 Coordinate attachment and seal of perimeter air barrier and vapour retarder materials.
- .9 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .10 Install operating sash glass in accordance with Section 08 80 00, to glazing method required to achieve performance criteria.
- .11 Install louvres, associated flashings, blank-off plates and screening. Fit blank-off plates tight to duct work.

- .12 Install glass in accordance with Section 08 80 00, to glazing method required to achieve performance criteria.
- .13 Install perimeter sealant with backing materials, and installation criteria in accordance with Section 07 92 00.
- .14 Air / vapour, Insulation And Insulating Seal:
 - .1 Coordinate with Section 07 21 13 - Board Insulation & 07 21 16 Blanket Insulation and fill voids with insulation as indicated. Where voids cannot be filled with specified batt or board insulation, inject polyurethane foam insulating sealant as specified in Section 07 21 19 - Spray-Applied Urethane Foam Insulation.

3.3 ERECTION TOLERANCES

- .1 Maximum Variation from Plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.
- .2 Maximum Misalignment of Two Adjoining Members Abutting in Plane: 0.8 mm.
- .3 Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 19 mm and minimum of 6 mm.

3.4 FIELD QUALITY CONTROL

- .1 Inspection and Testing:
- .2 Manufacturer's Services:
 - .1 Curtain wall product manufacturers to provide field surveillance of the installation of their Products.
 - .2 Monitor and report installation procedures, unacceptable conditions.

3.5 ADJUSTING

- .1 Adjust operating sash for smooth operation.

3.6 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Remove protective material from prefinished aluminum surfaces.
- .3 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- .4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.7 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Protect finished Work from damage.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Hardware for doors.
- .2 Thresholds.
- .3 Weatherstripping, seals, and door gaskets.

1.2 RELATED REQUIREMENTS

- .1 Section 08 11 13 - Hollow Metal Doors and Frames.
- .2 Section 08 32 00 - Sliding Glass Doors: Hardware for same except cylinders.
- .3 Division 16 - Electrical - Electrical Supply and Termination
- .4 Division 28 – Electronic Safety and Security: Power supply to electric hardware devices security equipment, card access equipment.

1.3 REFERENCE STANDARDS

- .1 CAN/ULC-S104-15 - Standard Method for Fire Tests of Door Assemblies.
- .2 CAN/ULC-S132-16 (R2020) - Standard for Emergency Exit and Emergency Fire Exit Hardware.
- .3 CSDMA (Canadian Steel Door Manufacturers Association).
- .4 DHI (Door and Hardware Institute Canada) - AHC and EHC certification programs.
- .5 [STD A115.16-1994 Installation guide for doors and hardware](#)
- .6 [STD WDHS-3-1996 Recommended hardware locations for wood flush doors](#)
- .7 [BHMA \(Builders Hardware Manufacturers Association\) - A156 Series Standards](#)
- .8 NFPA 80 - Standard for Fire Doors and Other Opening Protectives, 2022 Edition.
- .9 NFPA 252 - Standard Methods of Fire Tests of Door Assemblies, 2022 Edition.
- .10 [STD UL 10B-08 Standard for fire tests of door assemblies](#)
- .11 [STD UL 305-12 Standard for panic hardware](#)

1.4 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.
 - .1 Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
 - .2 Coordinate Owner's keying requirements during the course of the Work.
- .3 Sequencing: Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Shop Drawings:
 - .1 Indicate locations and mounting heights of each type of hardware, schedules, catalogue cuts, electrical characteristics and connection requirements.

- .2 Submit manufacturer's parts lists and templates.
- .3 Submit a detailed listing that includes each item of hardware to be installed on each door.
 - .1 The Door Hardware Schedule to be prepared by or under the supervision of an Architectural Hardware Consultant (AHC).
 - .2 Comply with DHI (H&S) using door numbers and hardware set numbers as indicated in the *Contract Documents*.
 - .3 List groups and suffixes in proper sequence.
 - .4 Provide a complete description for each door listed.
 - .5 Provide manufacturer's and *Product* names, and catalogue numbers; include the functions, types, styles, sizes and finishes of each item.
 - .6 Include an account of abbreviations and symbols used in the schedule.
- .4 Electronic Door Hardware:
 - .1 Submit diagrams for power, signal, and control wiring for electronic door hardware that include details of interface with the building safety and security systems. Provide elevations and diagrams for each electronic door opening as follows:
 - .2 The electronic door hardware *Shop Drawings* to be prepared by or under supervision of an Architectural Hardware Consultant (AHC) and an Electronic Hardware Consultant (EHC).
 - .3 Elevations: Submit front and rear elevations of each door opening showing the electronic devices with connections installed and including an operations narrative describing how the opening operates from either side at any given time.
 - .4 Diagrams: Submit a point-to-point wiring diagram that shows each device in the door opening system with related colour-coded wire connections.
- .5 The *Consultant's* review of the Hardware Schedule does not limit or release the *Contractor* from the responsibility to provide all necessary hardware and related components required for a complete installation as required by the authorities having jurisdiction.
- .6 Keying Schedule:
 - .1 Submit three copies of the keying schedule in compliance with the *Owner's* requirements established during the keying requirements meeting.
 - .2 Include a schematic diagram of the preliminary key system.
 - .3 Do not order keyed hardware items until in receipt of the *Owner's* approval of the keying schedule; revise the keying schedule as required by the *Owner*.

1.6 INFORMATIONAL SUBMITTALS

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

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.
- .2 Operation and Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

- .3 Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- .4 Record Documentation:
 - .1 Record actual locations of installed cylinders and their master key code.
 - .2 Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- .1 Section 01 78 23: Maintenance and extra material requirements.
- .2 Extra Stock Materials:
 - .1 Provide ten (10) extra key lock cylinders for each master keyed group.
 - .2 Coordinate stock materials with the Owner & Owner's requirements.
- .3 Tools:
 - .1 Provide special wrenches and tools applicable to each different or special hardware component.
 - .2 Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.9 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform Work to the following requirements:
 - .1 BHMA A156 series.
 - .2 DHI A115 series.
 - .3 DHI WDHS-3.
 - .4 CSDMA.
 - .5 NFPA 80.
 - .6 NFPA 252.
 - .7 UL 10B .
 - .8 UL 305.
 - .9 CAN/ULC-S132.
 - .10 CAN/ULC-S104.
 - .11 Maintain one (1) copy of each document on site.
- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .4 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.
- .5 Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.
- .6 Hardware Supplier Personnel: Employ an Electrified Hardware Hardware Consultant (EHC) to assist in the electronics and controls work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.11 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide five (5) year manufacturer warranty for door closers.

Part 2 Products

2.1 PERFORMANCE CRITERIA

- .1 Design & Performance criteria:
 - .1 Provide door hardware in accordance with the reviewed and accepted Door Hardware Schedule and as required to make the doors fully functional, compliant with applicable codes, and secure to the extent indicated.
 - .2 Provide individual items of a single type, of the same model, and by the same manufacturer.
 - .3 Provide door hardware *Products* that comply with the following requirements:
 - .1 Applicable provisions of governing codes.
 - .2 Accessibility: Applicable building code.
 - .3 Fire-Rated Doors: NFPA 80, listed and labelled by a qualified testing agency for the fire protection ratings indicated, based on testing at positive pressure in accordance with CAN/ULC S104 .
 - .4 Hardware on Fire-Rated Doors: Listed and classified by ULC (DIR) or a testing firm acceptable to the authorities having jurisdiction as suitable for the application indicated.
 - .5 Listed and certified compliant with specified standards by BHMA (CPD).
 - .6 Auxiliary Hardware: BHMA A156.16 .
 - .7 Straps and Tee Hinges: BHMA A156.20 .
 - .8 Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115
 - .9 Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W
 - .10 *Products* Requiring Electrical Connection: Listed and classified by ULC (DIR) as suitable for the purpose specified.
 - .4 Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with CSA 22.1

.5 Fasteners:

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Exposed fastening devices to match finish hardware.
- .3 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to fasteners.
- .4 Use fasteners compatible with material through which they pass.
- .5 Install doorstops for all doors where they are liable to damage the wall or adjacent fixtures.
- .6 Provide burglar proof hinges N.R.P. (Non removable pins) where exposed to outside and/ or public corridors, stair.
- .7 Provide full length welded Jimmy guard/Astragal where exposed to outside and / or public corridors, stairs.

2.2 SCHEDULES

.1 Locksets:

.1

No.	Manufact.	Model	Description	Finish
L1	Stanley	IE	Best 7—Pin Mortise Cylinder #1E74— C4— RP3—626	Satin Chrome Finish
L3	Stanley	9K	Cylindrical Best #93K—7D—15D— S3—626	Satin Chrome Finish
L7	Stanley		Mortise #45H —7— T—15H—626— Vin	Satin Chrome Finish
L9	Stanley		Mortise #45H —7— D—15H—626	Satin Chrome Finish

.2 Door Closers:

.1

No.	Manufact.	Model No.	Description	Finish
C1	Dormakaba	8900	8916 DS 689	Sprayed Aluminum
C2	Dormakaba	8900	8916 SISH 689	Sprayed Aluminum

.3 Electric Strike:

.1

No.	Manufact.	Model No.	Description
E1	RCI	LD514 X 32D	-

- .1 Keypad To Be Mounted At 43” A.F.F.
- .2 LD514 x 32D - Not Fire Rated.

- .3 Power Supply: TA—2501,
- .4 Keypad: TA—1413—4 (By G.C.).
- .4 Push bar:
 - .1

No.	Manufact.	Model No.	Description	Finish
P1	Stanley Precision	Apex	2101 Alk, 630 X 1E74.	Stainless Steel

- .2 2101 Alk Battery Operated Exit Alarm - (Exit Only).
- .3 630 X 1E74 Cylinder - (Alarm Reset)
- .5 Kick Plate:
 - .1

No.	Manufact.	Model No.	Description	Finish
K1	Standard Metal	K10A	Kickplate	Stainless Steel Satin

- .2 Size: 8" x Width Of Door Minus 2" Centered On Door And Installed 1" From Bottom
- .6 Door Stop
 - .1

No.	Manufact.	Model No.	Description	Finish
S1	Standard Metal	S101	Low Profile Domed Door Stop	Satin Chrome

- .7 Threshold:
 - .1

No.	Manufact.	Model No.	Description	Finish
T1	KN Crowder	CT10	-	-

- .8 Weather Strip:
 - .1

No.	Manufact.	Model No.	Description	Finish
W1	KN Crowder	W14 X Head X Jambs	-	-

- .9 Door Sweep:
 - .1

No.	Manufact.	Model No.	Description	Finish
D1	KN Crowder	W13S X Door Width	-	-

- .10 Universal Barrier Free washroom Hardware assembly:
 - .1 1-Dorma ED100T x 689
 - .2 1-Universal Washroom Kit Set IL06KT
 - .3 1-Wire Harness WH-192P
 - .4 1-Stanley Lockset 45H 7-D-15Hx626
 - .5 1-RCI Electric Strike 2364xF2LMx32D
 - .6 Permanent Core (By Owner)

2.3 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for Products requiring electrical connection. Listed and classified by CSA, testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.
 - .2 *Products:*
 - .1 Provide complete finishing hardware in accordance with the reviewed and accepted Door Hardware Schedule. Do not order any item until it has been accepted by the *Consultant*.
 - .3
 - .1 Fasteners:
 - .1 Provide the manufacturer's recommended tamper-proof fasteners throughout.
 - .2 Provide expansion shields shall be of double cinch anchor/type.
 - .3 Provide ferrous or non-ferrous fasteners to match the *Product* being installed.
 - .4 The length of fasteners shall be sufficient to afford adequate thread engagement.
 - .5 General hardware requirements are indicated in the *Contract Documents*.

2.4 KEYING

- .1 All locks shall be supplied with “Best 7 Pin” construction cores and cylinder ring and installed by Contractor.
- .2 Tenant to install permanent Best cores upon “Turnover to Operations” day.
- .3 All locks shall be Construction Master keyed for duration of construction unless otherwise specified by Tenant.
- .4 All keying to be approved Tenant.

2.5 FINISHES

- .1 Hinges: Chromed
- .2 Door Closers: AL (sprayed aluminum)
- .3 Push, Pull, Kick plates: US32D (stainless steel satin Finish.)
- .4 Balance of Hardware: US26D (satin chromium plated).

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that doors and frames are ready to receive work and dimensions are as indicated on Shop Drawings.
- .3 Verify that electric power is available to power operated devices and is of the correct characteristics.

3.2 INSTALLATION

- .1 Install hardware to manufacturer's written instructions.
- .2 Use templates provided by hardware item manufacturer.
- .3 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturer's Association.
- .4 Generally, the installation of door hardware is by the door installers. Refer to PART 1 GENERAL: RELATED SECTIONS.
 - .1 Install door hardware in accordance with the manufacturer's instructions and the applicable codes.
 - .2 Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80 .
 - .3 Install hardware for smoke and draft control doors in accordance with CAN/ULC S104
 - .4 Use templates provided by the hardware item manufacturer.
 - .5 Do not install surface mounted items until the application of finishes to the substrate is fully completed.
 - .6 Door Hardware locations:
 - .1 For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
 - .2 For Aluminum-Framed Storefront Doors and Frames: Install in the storefront manufacturer's standard locations.
 - .3 For Wood Doors: Install in compliance with DHI WDHS.3 recommendations.
 - .4 Locate hardware in compliance with the barrier-free requirements of the applicable building code.
 - .7 Set exterior door thresholds with a full-width bead of elastomeric sealant at each point of contact with the floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.
- .1 Where door stop contacts door pulls, mount stop to strike bottom of pull.
Ensure that Doors & Frames are properly prepared receive Finish Hardware.
- .2 Supply weather stripping – 3/16" closed cell sponge neoprene gasket for all exterior man doors.

3.3 FIELD QUALITY CONTROL

- .1 Inspection and Testing:
 - .1 Architectural Hardware Consultant will inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's written instructions and as specified.

3.4 ADJUSTING

- .1 Adjust hardware for smooth operation.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit adjacent work to damage hardware or finish.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 16 – Aluminum Doors, Windows & Frames.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM C542-05, Standard Specification for Lock-Strip Gaskets.
 - .2 ASTM D2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
 - .3 ASTM E84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .4 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - .5 ASTM F1233-08, Standard Test Method for Security Glazing Materials and Systems.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
 - .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
 - .4 CAN/CGSB-12.6-M91, Transparent (One-Way) Mirrors.
 - .5 CAN/CGSB-12.12-M90, Plastic Safety Glazing Sheets.
 - .6 CAN/CGSB 12.20-M, Structural Design of Glass for Buildings.
- .3 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual - 2008.
 - .2 GANA Laminated Glazing Reference Manual - 2009.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit shopdrawings.
- .4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.

1.5 QUALITY ASSURANCE

- .1 Insulating glass unit fabricators shall be a certified member of the Insulating Glass Manufacturer's Alliance (IGMA). IGMA members must participate in the certification program and shall have successfully passed a Compliance Audit within the last six months.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
 - .3 Protect prefinished aluminum surfaces with strippable coating, wrapping.
 - .4 Replace defective or damaged materials with new.

1.7 AMBIENT CONDITIONS

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

Part 2 Products

2.1 MATERIALS

- .1 Design Criteria:
 - .1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
 - .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
 - .2 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.
- .2 Flat Glass:
 - .1 Float glass: to CAN/CGSB-12.3, glazing quality, to suit application, in mm thick.
 - .2 Sheet glass: to CAN/CGSB-12.2, AA-special selected, to suit application, in mm thick.
 - .3 Safety glass: to CAN/CGSB-12.1, transparent, to suit application, in mm thick.
 - .1 Type 2-tempered.
 - .2 Class B-float.
 - .3 Category 11.

- .4 Silvered mirror glass: 6 mm thick.
 - .1 Supplier by **ASI** (American Specialties Inc.)
 - .2 Model: **0620 Channel Frame Mirror** (18"W x 24"H) 15LB.
 - .1 Mount height as per drawings.
- .5 One-way mirrored glass: to CAN/CGSB-12.6, mm thick.
 - .1 One-Way glass for windows in selected doors and otherwise indicated. Minimum ¼" (6mm) thick grey tempered safety glass with prolifically deposited thin special chrome alloy film on one side, conforming to CAN/CGSB 12.6-M91 "**MIRROPANE**" by Pilkington. The transparent mirror shall be installed with the coated surface facing public side of the glazing
- .6 Spandrel glass: to CAN/CGSB-12.9, 6 mm thick.
 - .1 Tempered glass with Prelco Opaci-Coat (Refer to Drawings for Colour) #3-820 applied to inside surface, or ¼" (6mm) tempered glass with Prelco Opaci-Coat (Refer to Drawings for Colour) applied to inside surface (where noted on drawings).
- .7 Wired glass: to CAN/CGSB-12.11, 6 mm thick.
 - .1 To CAN/CGSB12.11-M. ¼" (6mm) thick, Georgian mesh style.
- .3 Plastic Film: by Owner.
- .4 Security Film:
 - .1 "**Armorcoat**" (Safety & Security Film) 14 mil. Clear.
 - .2 List of Approved Security Film Vendors/Installers:
 - .1 (1) Access Protection Security Solutions
Attn. Robert Brideau
Tel: 514-694-6810
Cel: 514-616-2900
E-mail: robert@accessprotection1.com
- .5 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

2.2 ACCESSORIES

- .1 As recommended by manufacturer; indicate on shop drawings and other submittals
- .2 Setting blocks: silicone, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.
- .3 Spacer shims: silicone, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .4 Glazing tape:
 - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; black colour.
- .5 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, frame match colour as selected.
- .6 Glazing clips: manufacturer's standard type.
- .7 Mirror attachment accessories:
 - .1 For 15LB. See Model.

Part 3 Execution

3.1 EXAMINATION

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

3.2 PREPARATION

- .1 Clean contact surfaces with solvent and wipe dry.
- .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- .3 Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION: EXTERIOR - DRY METHOD (PREFORMED GLAZING)

- .1 Manufacturer's Instructions: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Perform work in accordance with GANA Laminated Glazing Reference Manual for glazing installation methods.
- .3 Cut glazing tape to length; install on glazing light. Seal corners by butting tape and sealing junctions with sealant.
- .4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .5 Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
- .6 Install removable stops without displacing glazing tape. Exert pressure for full continuous contact.
- .7 Trim protruding tape edge.

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

- .1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.
- .2 Cut glazing tape to length and install against permanent stops, projecting 1.6 mm above sight line.
- .3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .4 Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of light or unit.
- .5 Install removable stops, with spacer shims inserted between glazing and applied stops at 600 mm intervals, 6 mm below sight line.
- .6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.
- .7 Trim protruding tape edge.

3.5 INSTALLATION: MIRRORS

- .1 Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.
- .2 Set mirrors with clips. Anchor rigidly to wall construction.
- .3 Set in frame.
- .4 Place plumb and level.

3.6 WASHROOM MIRRORS

- .1 Install mirrors over each lavatory unless otherwise indicated.
- .2 .2 Where vanities are provided install mirrors as indicated on Drawings.

3.7 CHANGE ROOM MIRRORS

- .1 Install mirrors in Fitting rooms and Fitting Room corridors as indicated on drawings.

3.8 COLUMN MIRRORS

- .1 Install mirrors w/vinyl corner guards on columns in sales area as indicated on Drawings.

3.9 SECURITY FILM

- .1

3.10 INSTALLATION: PLASTIC FILM

- .1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.
- .2 Place without air bubbles, creases or visible distortion.
- .3 Fit tight to glass perimeter with razor cut edge.

3.11 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .1 Remove traces of primer, caulking.
 - .2 Remove glazing materials from finish surfaces.
 - .3 Remove labels.
 - .4 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacturer's instructions.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

3.12 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 After installation, mark each light with an "X" by using removable plastic tape or paste.
 - .1 Do not mark heat absorbing or reflective glass units.
- .3 Repair damage to adjacent materials caused by glazing installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RESILIENT FLOOR FINISHES

.1 Resilient Flooring - Section 09 65 00 - Resilient Flooring

Dwg Code	Finish	Colour	Product Description	Manufact.	Location
LVT1	Vinyl Stripwood	Worn Oak	4.5"X36" Plank Bevelled 3.2mm Thickness Tick Finish Sku#275304	Mannington	Tjx — Staff Lounge, Staff Lockers
LVT2	Vinyl Stripwood	Dry Teak	6"X36" Plank Bevelled 3.2mm Thickness Sku# 282841	Mannington	Winners — Sales Area Feature, Sitting Rooms
LVT3	Vinyl Ti Le	Graphite Slate	12"X18" Stone - Cool Dark 3.2mm Thickness Sku# 309772	Mannington	Winners — Sales Area Feature Border
LVT4	Vinyl Tile	Graphite Slate	9"X36" Stone — Cool Dark 3.2mm Thickness	Mannington	Mall Entrance
VCT1	Vinyl Tile	51804 — Earthstone Greige	Standard Excelon Imperial Texture 12"X12"	Armstrong	Winners — Sales Area Field, Offices

.2 Vestibule Entrance Mat. See Section 12 48 13.13 - Entrance Floor Mats

1.2 CERAMIC FLOOR TILES

.1 Ceramic Floor Tiles. See Section 09 30 13 - Ceramic Tiling.

Dwg Code	Finish	Colour	Product Description	Manufact.	Location
CT1	Ceramic Tile	Grey Flamed NY.RG.GRY.1224.FL	Regal 12"X24" Stacked Grout	Olympia Tile	Vestibule
CT2	Non-Slip Ceramic Tile	Grey Matte GE.KL.GRY.1224	Kelly 12"X24" Staggered Grout	Olympia Tile	Washroom Floors, 6" Turn

.2 CT1: Regal 12"X24" Stacked Grout to Match Flextile Col 688 Pewter Grey

.3 CT2: Kelly 12"X24" Staggered Grout to Match - Flextile North Sea Grey 663

1.3 CERAMIC WALL TILES

.1 Ceramic Floor Tiles. See Section 09 30 13 - Ceramic Tiling.

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
CT5	Ceramic Tile	Grey Matte GE.KL.GRY.1313.MT	Kelly 13" X13" Stacked Grout to Match — Flextile North Sea Grey 663	Olympia Tile	TJX — Utility Room
CT6	Ceramic Tile	Warm White Matte QT.CD. WWT.0416.MT	Colour & Dimension 4"X16" Stacked Group to Match — Flextile Ivory 582	Olympia Tile	TJX — Staff Lounge Backsplash
CT7	Ceramic Tile	Shell White Matte #NY.RG.SLW.1212.MT	Regal 12"X12" Grout To Match— Flextile Bone 612 512	Olympia Tile	Winners— Washroom Walls

1.4 TRANSITION STRIPS

.1

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
TS1	Brushed Nickel Anodized Aluminium	-	Jolly A80 ATGB, Size: To Be Coordinated with Tile Thickness " Aluminum Tile Trim" C/W Clear Silicone	Schluter	TJX — Top Of Tile In Washroom, Utility Room, And Staff Lounge
TS2	Brushed Nickel Anodized Aluminium	-	Dilex— AHK, AHK 1S ATGB Size: To Be Coordinated With Tile Thickness.	Schluter	TJX — Cove Base In Washroom
TS3	Brushed Stainless Steel	-	Reno— U EBU100, Size: To Be Coordinated with Tile Thickness.	Schluter	TJX — Washroom Floor Threshold

1.5 PAINTS

- .1 Wall Paint & Column Paint. See Section 09 91 23 - Interior Painting.
- .2 Doors & Frames. See Section 09 91 23 - Interior Painting. (Refer to Sections - 08 11 13 - Hollow Metal Doors and Frames, 08 14 16 - Flush wood doors).
- .3

Dwg Code	Colour	Manufacturer	Location
P1	Cust. Colour TJX Canada Tavern Taupe	Sherwin Williams	TJX — Staff Lounge, Staff Corridor And Offices
P1 (ALT.)	Cust. Colour TJX Tavern Taupe	Benjamin Moore	
P2	TJX Exotic Red *No Substitutions*	Benjamin Moore	TJX — Staff Lounge Kitchen Wall And Staff Lockers
P4	Cust. Colour TJX Canada Gauntlet Gray	Sherwin Williams	Winners — Sales Area, Washroom Walls
P4 (ALT.)	Cust. Colour TJX Gauntlet Gray	Benjamin Moore	
P5	Cust. Colour TJX Canada Black Magic	Sherwin Willi Ams	TJX — Doors And Trames, Column And Accents
P5 (ALT.)	Cust. Colour TJX Black Magic	Benjamin Moore	
P6	Cust. Colour TJX Canada Pure White	Sherwin Williams	Winners & — Gyp Ceiling
P6 (ALT.)	Cust. Colour TJX Pure White	Benjamin Moore	
P7	Cust. Colour TJX Canada Muslin	Sherwin Williams	TJX — Stockroom Walls & Ceiling
P7 (ALT.)	TJX Muslin	Benjamin Moore	
P17	Sherwin Williams Sw6 203 Spare White	Sherwin Williams	Winners & Combo — Ceiling & High Wall
(ALT.) = Alternate			

1.6 VINYL WALL COVERINGS

- .1 Vinyl Wall Coverings. See Section 09 72 16 - Vinyl-Coated Fabric Wall Coverings.

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
VWC1	Vinyl Wallcovering	BB—BC—07	Bolta Balancing Act Colour Noble Nickel	Crown Wallcovering	TJX — Staff Lounge
VWC2	Vinyl Wallcovering	P3TEC 60194 Col. Stone	Infinity	Crown Wallcovering	Winners — Public Corridor, Vestibule
VWC3	Vinyl Wallcovering	W2LIO2 Silver	Genon, Liaison	Crown Wallcovering	Winners — Women's & Men's Fitting Rooms
VWC4	Vinyl Wallcovering	2VUP—01 Alabaster	Source One Group, Exclusive, Uplink	Crown Wallcovering	Winners — Fitting Room Foyer
VWC5	Vinyl Wallcovering	2VSD—15	Source One Group, Exclusive, Stitched leather	Crown Wallcovering	Winners — Columns
VW14	Vinyl Wallcovering	Y47689WC Col. Stone	Watercolour Canvas Col. Stone; 20 Oz Type	Crown Wallcovering	Winners — Light Traffic Areas (Where Vinyl Wallcovering Starts @ 3'—0" A.F.F.)

1.7 CORK WALL FINISH

.1

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
CWT1	Cork Wall Tile	WLACO— Har 306013 Light Wax Finish	Acoustical Cork Wall Tile, Pattern: Stack Bond Installation (Aligned Seams).	Jelinek Cork Group	TJX — Staff Corridor

1.8 MELAMINE WALL PANEL

.1 See Section 06 42 19 Plastic-Laminate-Faced Wood Paneling

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Gypsum board.
- .2 Cementitious backer board.
- .3 Acoustic insulation.
- .4 Light gauge metal stud wall framing.
- .5 Metal channel ceiling framing.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry: Building wood framing system; wood blocking for support of items indicated on drawings.
- .2 Section 07 21 16 - Blanket Insulation: Acoustic insulation.
- .3 Section 07 84 00 - Firestopping.
- .4 Section 06 16 00 - Sheathing: Exterior gypsum sheathing.

1.3 REFERENCE STANDARDS

- .1 [STD A108/A118/A136.1:2021 American National specifications for the installation of ceramic tile](#)
- .2 [ASTM C475/C475M-17 Standard specification for joint compound and joint tape for finishing gypsum board](#)
- .3 [ASTM C514-04\(2020\) Standard specification for nails for the application of gypsum board](#)
- .4 [ASTM C557-03\(2017\) Standard specification for adhesives for fastening gypsum wallboard to wood framing](#)
- .5 [ASTM C645-18 Standard specification for nonstructural steel framing members](#)
- .6 [ASTM C665-17 Standard specification for mineral-fiber blanket thermal insulation for light frame construction and manufactured housing](#)
- .7 [ASTM C754-20 Standard specification for installation of steel framing members to receive screw-attached gypsum panel products](#)
- .8 [ASTM C840-20 Standard specification for application and finishing of gypsum board](#)
- .9 [ASTM C1002-20 Standard specification for steel self-piercing tapping screws for application of gypsum panel products or metal plaster bases to wood studs or steel studs](#)
- .10 [ASTM C1047-19 Standard specification for accessories for gypsum wallboard and gypsum veneer base](#)
- .11 [ASTM C1278/C1278M-17 Standard specification for fiber-reinforced gypsum panel](#)
- .12 [ASTM C1288-17 Standard specification for fiber-cement interior substrate sheets](#)
- .13 [ASTM C1325-21 Standard specification for fiber-mat reinforced cementitious backer units](#)
- .14 [ASTM C1396/C1396M-17 Standard specification for gypsum board](#)
- .15 [ASTM E90-09\(2016\) Standard test method for laboratory measurement of airborne sound transmission loss of building partitions and elements](#)
- .16 [CAN/ULC-S101-14 - Standard Methods of Fire Endurance Tests of Building Construction and Materials.](#)

- .17 CAN/ULC-S102-18 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .18 CAN/ULC-S702-14 - Standard for Mineral Fibre Thermal Insulation for Buildings.
- .19 Gypsum Association GA-214-2017 - Recommended Levels of Gypsum Board Finish.
- .20 Gypsum Association GA-216-2016 - Application and Finishing of Gypsum Panel Products.
- .21 Gypsum Association GA-600-2015 - Gypsum Fire Resistance Design Manual.
- .22 Gypsum Association GA-801-2017 - Handling and Storage of Gypsum Panel Products.
- .23 UL - Fire Resistance Directory.
- .24 ULC-FR-17 - Fire Resistance Directory (2017 Edition).

1.4 DEFINITIONS

- .1 Delegated Design Engineer: The professional engineer hired or contracted to the fabricator or manufacturer to design specialty elements, produce Shop Drawings to meet requirements of authorities having jurisdiction; and registered or licensed in the Province of Ontario, Canada.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data:
 - .1 Provide data on metal framing gypsum board, cementitious backer board, joint tape, ceiling bulkheads.
 - .2 The ceiling and bulkhead framing, including all related connections and fastenings, shall be designed by a structural engineer licensed to practise in the province of the location of the *Project*. Each *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid structural engineer.
 - .3 Provide MSDS on all products within the shaft wall assembly.
- .3 Shop Drawings: Indicate special details associated with fireproofing, firestopping seal for openings.
 - .1 Provide Shop Drawings indicating details for anchorage and bracing for seismic restraint, stamped and signed by a Professional Engineer registered or licensed in the province where the project is located.

1.6 INFORMATIONAL SUBMITTALS

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

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.8 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform Work in accordance with ASTM C840, GA-214. Maintain one (1) copy of document on site.

- .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 Handling Gypsum Board: Comply with GA-801.

Part 2 Products

2.1 PERFORMANCE / DESIGN CRITERIA

- .1 Seismic Restraints: Design anchorages, bracing and suspension systems to withstand seismic loads and sway displacement as calculated in accordance with ASTM E580/E580M and as per Structural Engineer.

2.2 FRAMING MATERIALS

- .1 Studs and Tracks: Specified in Section 09 22 16.
- .2 Furring, Framing, and Accessories: Specified in Section 09 22 16.
- .3 Fasteners: ASTM C1002, ASTM C514, GA-216.
- .4 Anchors and Fasteners:
 - .1 Anchors and fastener of types suitable for the applications indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers, and with the capability to sustain, without failure and with a safety factor acceptable to the authorities having jurisdiction, the load imposed by ceiling construction and items supported by the ceiling.
 - .2 Wire ties: ASTM A641/A641M , Class 1 zinc coating, soft temper, 1.6 mm thick.
 - .3 Hangers: As required by loading conditions and fire resistant design requirements to the satisfaction of the authorities having jurisdiction, one or more of the following:
 - .4 Wire hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 4.1 mm diameter.
 - .5 Hanger Rods: Mild steel and zinc coated.
 - .6 Flat Hangers: Mild steel and zinc coated.
- .5 Adhesive: ASTM C557.

2.3 GYPSUM BOARD MATERIALS

- .1 Gypsum Board: ASTM C1396/C1396M; 1220 mm wide, maximum available length in place; tapered edges, ends square cut.
 - .1 Regular core, 13 mm, 16 mm thick.
 - .2 Fire rated core, min. 16 mm thick.
- .2 Gypsum Ceiling Board ASTM C1396/C1396M, regular core, min. 13mm thick; 1220 mm wide, maximum available length in place; tapered edges, ends square cut.
- .3 Cementitious Backer Board: ANSI A118.9, high density, fibre reinforced cementitious board, 16 mm thick; maximum available size in place; smoothed edges, ends square cut.
 - .1 Product: Durock , manufactured by CGC Inc..
- .4 All interior plywood blocking not covered by gypsum board to be fire retardant type.
- .5 **Steel Security Mesh:**
 - .1 As indicated on drawings, supply and install expanded metal security mesh as manufactured by Dramex Ltd. Style: ¾" 9F galvanized or approved equal.

- .1 Contact: Alexandra Repa,
- .2 Email: arepa@gibraltar1.com Phone: 905-335-5682,
Direct Line (289) 313-2231.
- .2 Installation in tenant demising walls and high security areas: Mechanically fastened to studs, behind gypsum board on the Tenant side to 12'0" a.f.f. Unless specified otherwise on drawings.

2.4 ACCESSORIES

- .1 Acoustic Insulation: CAN/ULC-S702; preformed glass fibre, friction fit type, unfaced. Refer to Section 07 21 16 Blanket Insulation.
- .2 Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
 - .1 Refer to Section 07 92 00 - Joint Sealants
 - .2 Acceptable product: Single component, non-skinning, non-hardening synthetic rubber sealant, 'Tremco Acoustical Sealant' by Tremco.
- .3 Corner Beads: GA-216, ASTM C1047, metal corner bead.
- .4 Bead Shapes:
 - .1 LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
 - .2 L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
 - .3 One-piece control joint formed with V-shaped slot and removable strip covering slot opening.
 - .4 Note that standard "U" bead (J-trim) is not acceptable. Use "L" bead that is concealed when taped and filled.
 - .5 Reveal trim: Standard of acceptance:
 - .1 Metal Trim D-300 by Bailey Metal Products Ltd.
 - .6 Acceptable equivalent products by:
 - .1 Fry Reglet.
 - .2 Gordon Trims.
 - .7 F-moulding: Coordinate with Section 09 51 13 - Suspended Acoustical Panel Ceilings as required for sizing and installation of F-moulding at acoustical ceiling to gypsum board bulkhead transitions.
- .5 Joint Materials: ASTM C475/C475M.
 - .1 Joint Tape:
 - .1 For Gypsum Board:
 - .2 Paper reinforcing tape as recommended by the gypsum board manufacturer.
 - .3 Moisture resistant: Fibreglass mat joint tape as recommended by the board manufacturer to suit the location.
 - .4 For Cement Board:
 - .1 Mesh reinforcing tape recommended by the cement board manufacturer.

- .5 Joint Compound:
 - .1 For Gypsum Board: Factory-mixed, all-purpose compound formulated for both taping and topping compound.
 - .2 For Cement Board: Ceramic tile adhesive as specified in Section 09 30 13 - Ceramic Tiling
- .6 Gypsum Board Fasteners: ASTM C1002, Type S, Type W - provide as appropriate to suite purpose .
- .7 Cementitious Board Fasteners: Board manufacturer's purpose made screws, corrosion resistant steel, self-drilling points, counter-sink heads to prevent strip-out, for steel substrate.
- .8 Spot Grout: ASTM C475/C475M , setting-type joint compound recommended for spot-grouting hollow metal door frames.
- .9 Fast setting patching compound: ASTM C475/C475M , moisture and mould resistant setting compound. Standard of acceptance: Products by Certaineed Gypsum Canada.
- .10 Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.
- .11 Polyethylene: to CAN/CGSB-51.34-M, Type 2.
- .12 Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 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 or indicated on shop drawings..

3.2 METAL STUD INSTALLATION

- .1 Install studs to ASTM C475/C475M.
- .2 Install wall framing requiring seismic restraint to meet requirements of Ontario Building code.
- .3 Metal Stud Spacing: see 05 41 00 Structural metal stud framing, 09 22 16 Non-structural metal framing.
- .4 Extend stud framing to ceiling only. Attach ceiling runner securely to ceiling framing to manufacturer's written instructions.
- .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 Door Opening Framing: Install double studs at door frame jambs. Install stud tracks on each side of opening, at frame head height, and between studs and adjacent studs.
- .7 Blocking: Bolt or screw steel channels to studs. Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware..

3.3 WALL FURRING INSTALLATION

- .1 Erect furring for direct attachment to concrete or masonry walls.
- .2 Erect furring channels horizontally; space maximum 400 mm on centre, not more than 100 mm from floor and ceiling lines. Secure in place on alternate channel flanges at maximum 600 mm on centre.
- .3 Install thermal insulation in conjunction with Section 07 21 16 directly attached to concrete walls to manufacturer's written instructions.
- .4 Install thermal insulation in conjunction with Section 07 21 16 vertically and hold in place with Z-furring channels spaced maximum 600 mm on centre, not more than 75 mm from external corners and 300 mm at internal corners. Secure Z-furring channels maximum 600 mm on centre.
- .5 Erect metal stud framing tight to masonry or concrete walls, attached by adjustable furring brackets in accordance with manufacturer's written instructions.
- .6 Furr openings and around built-in equipment, cabinets, access panels, etc., on four sides. Extend furring to reveals. Check clearances with equipment suppliers.
- .7 Fur duct shafts, beams, columns, pipes and exposed services where indicated.

3.4 FURRING FOR FIRE RATINGS

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

3.5 CEILING FRAMING INSTALLATION

- .1 Install to ASTM C754.
- .2 Install metal suspension system requiring seismic restraint to meet requirements of Ontario building code.
- .3 Coordinate location of hangers with other work.
- .4 Install ceiling framing independent of walls, columns, and above ceiling work.
- .5 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.
- .6 Laterally brace entire suspension system.
- .7 Attach ceiling and soffit framing to structural steel members. Do not attach to steel deck.
- .8 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm o.c. around perimeter of fixture
- .9 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles and similar items which penetrate the ceiling surface.
- .10 Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header tracks.
- .11 Frame openings to receive ceiling-mounted access doors. Coordinate with Divisions 15 and 16.
- .12 Bulkhead Framing:
 - .1 Frame for gypsum board faced vertical bulkheads within and at termination of ceilings.
 - .2 Frame for complex bulkheads in accordance with the drawings.
 - .3 Frame above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

3.6 ACOUSTIC ACCESSORIES INSTALLATION

- .1 Place 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.

3.7 SEALS

- .1 Seal requirements:
 - .1 Minimize gaps between gypsum board and adjacent construction at partition perimeters.
 - .1 Gaps greater than 13 mm wide are unacceptable.
 - .2 Gaps between 6 mm and 13 mm to be packed with back-up rod and caulked with acoustical sealant specified in Section 07 92 00 - Joint Sealants .
 - .1 Gaps less than 6 mm do not require back-up rod.
 - .3 Penetrations: Cut gypsum board neatly and tight around all penetrations at STC rated walls. Provide fitted drywall flanges around all mechanical penetrations.
 - .4 Complete by caulking the full perimeter of penetrations and adjacent gypsum board. Caulking to be reviewed by the *Consultant* before concealing.
 - .5 Cut gypsum board neatly and tight around all penetrations at STC rated walls.
 - .6 Provide fitted drywall flanges around all mechanical penetrations.
 - .7 Complete by caulking the full perimeter of penetrations and adjacent gypsum board. Caulking to be reviewed by the *Consultant* before concealing.
 - .8 Complete by caulking the full perimeter of penetrations and adjacent gypsum board. Caulking to be reviewed by the *Consultant* before concealing.
 - .9 Obtain the *Consultant's* acceptance before concealing.
 - .10 Electrical outlets:
 - .1 Coordinate with the mechanical and electrical contractors and ensure that electrical outlets and mechanical installations on opposing sides of STC rated walls are staggered.
 - .2 Ensure sound attenuation insulation runs behind all penetrations.
 - .3 All electrical outlets to have vapour hoods and cover plate gaskets.

3.8 GYPSUM BOARD INSTALLATION

- .1 Install gypsum board to ASTM C840.
- .2 Conform to UL design requirements for fire resistance rated assemblies.
- .3 All gypsum board to be taped, sanded and primed ready to receive final finishes.
- .4 Apply a 12 mm diameter bead of acoustic sealant continuously around the periphery of each face of partitioning to seal the gypsum board/structure junction where partitions abut fixed building components.
- .5 Provide 12.5MM [1/2"] gap between gypsum board and concrete at all walls.

- .6 Seal the full perimeter of cut-outs around electrical boxes, ducts and any other items which penetrate one or both faces of the partition, in partitions where the perimeter is sealed with acoustic sealant. Ensure continuity of fire resistance rating of assembly.
- .7 At exterior walls and interior rated partitions; provide fire and acoustic sealant to fill gap.
- .8 Provide water resistant gypsum board in all wet locations where applicable (ie. Washrooms, scrubber and janitor room etc.).
- .9 Erect single layer standard gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- .10 Fire Rated Assemblies:
 - .1 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
 - .2 Construct control joints using CGC Control Joint No. 093 or approved alternate.
 - .3 Assemblies shall comply with published ULC approved assemblies.
- .11 Use screws when fastening gypsum board to metal furring or framing.
- .12 Use screws when fastening gypsum board to wood furring or framing. Staples may only be used when securing the first layer of double layer applications.
- .13 Double Layer Applications: Use gypsum backing board for first layer, placed best fit for purpose to framing or furring members. Use fire rated gypsum backing board for fire rated partitions and ceilings.
- .14 Double Layer Applications: Secure second layer to first with fasteners. Apply adhesive to manufacturer's written instructions.
- .15 Erect exterior gypsum soffit board perpendicular to supports, with staggered end joints over supports.
- .16 Apply water resistant gypsum board as a backer to ceramic tile, adjacent to slop sinks, in janitors closets and in other damp or humid locations where paint finish is to be applied.
- .17 Treat cut edges and holes in moisture resistant gypsum board with sealant.
- .18 Control Joints:
 - .1 Confirm locations of control joints with the *Consultant* before installation.
 - .2 Construct control joints of preformed units except where otherwise shown.
 - .3 At the junction of partitions with bulkheads use two casing beads.
 - .4 Set the gypsum board facing in the preformed units or casing beads and support independently on both sides of the joint.
 - .5 Provide a continuous dust barrier behind and across control joints.
 - .6 Where possible, locate control joints at changes in substrate construction, and at approximate 10 m spacing on long wall or partition runs, at approximate 15 m spacing on ceilings.
 - .7 Install control joints straight and true.
- .19 Place corner beads at external corners as indicated. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials as indicated.
- .20 Install backing board over metal studs to manufacturer's written instructions.

- .1 Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.
- .21 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cutouts around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.

3.9 ACCESS DOORS

- .1 Install access doors to electrical and mechanical fixtures and electrical panelboards specified in respective Sections.
- .2 Rigidly secure frames to furring or framing systems.

3.10 JOINT TREATMENT

- .1 Finish to ASTM C840, 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.
- .4 Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile.
- .5 Taping And Filling
 - .1 Finish face panel joints and internal angles with a joint system consisting of joint compound, joint tape and taping compound installed according to the manufacturer's directions and feathered out onto panel faces.
 - .2 Finish corner beads, control joints, trim and joints in fibre reinforced panels as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
 - .3 Fill screw head depressions with joint and taping compounds to bring flush with the adjacent gypsum board surface so as to be invisible after the surface finishing is completed.
 - .4 Sand lightly to remove burred edges and other imperfections.
 - .1 Avoid sanding the adjacent surface of the board.
 - .5 Finish gypsum board walls and ceilings to the following levels in accordance with GA-214 recommended levels of finish:
 - .1 For paint finish: Generally Level 4
 - .6 For paint finish subject to harsh lighting conditions identified on the drawings: level 5.
 - .7 For paint finish, utility areas, service rooms.: Level 3.
 - .8 Concealed bulkheads in plenum space: Level 1.
 - .9 Temporary dust barriers: Level 0.

3.11 TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Variation of Finished Gypsum Board Surface from True Flatness: 3 mm in 3 m in any direction.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Formed metal framing of studs and furring, at interior locations.
- .2 Framing accessories.

1.2 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications: Metal fabrications attached to stud framing.
- .2 Section 06 10 00 - Rough Carpentry: Rough wood blocking within stud framing.
- .3 Section 07 26 00 - Vapour Retarders.
- .4 Section 07 27 00 - Air Barriers.
- .5 Section 07 21 16 - Blanket Insulation: Insulation between framing members.
- .6 Section 07 62 00 - Metal Flashing and Trim: Head and sill flashings.
- .7 Section 07 92 00 - Joint Sealants: Acoustical sealants within stud wall assemblies.
- .8 Section 08 11 13 - Hollow Metal Doors and Frames
- .9 Section 09 21 16 - Gypsum Board Assemblies: Gypsum board on metal studs for partitioning.

1.3 REFERENCE STANDARDS

- .1 [ASTM A123/A123M-17 Standard specification for zinc \(hot-dip galvanized\) coatings on iron and steel products](#)
- .2 [ASTM A653/A653M-20 Standard specification for steel sheet, zinc-coated \(galvanized\) or zinc-iron alloy-coated \(galvannealed\) by the hot-dip process](#)
- .3 [ASTM C645-18 Standard specification for nonstructural steel framing members](#)
- .4 [ASTM C754-20 Standard specification for installation of steel framing members to receive screw-attached gypsum panel products](#)
- .5 [ASTM C1002-20 Standard specification for steel self-piercing tapping screws for application of gypsum panel products or metal plaster bases to wood studs or steel studs](#)
- .6 [Maintenance repainting specification manual](#)
- .7 [SSPC 16-01 Steel structures painting manual. Volume 1: good painting practice](#)

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.

1.5 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data:
 - .1 Provide data describing standard framing member materials and finish, product criteria, load charts, and limitations.
 - .2 Provide MSDS information for all products.

.3 Shop Drawings:

- .1 Indicate prefabricated work component details, stud layout, framed openings, anchorage to structure, type and location of fasteners, accessories, items required of other related work.
- .2 Describe method for securing studs to tracks, splicing and for blocking and reinforcement to framing connections.
- .3 Provide calculations for loadings and stresses of typical and non-typical fabricated framing under the Professional Structural Engineer's seal.

1.6 INFORMATIONAL SUBMITTALS

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

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.8 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Perform Work to ASTM C754. Maintain one (1) copy of document on site.
- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- .4 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.

Part 2 Products

2.1 MANUFACTURERS

- .1 Bailey; Product: Light metal framing products.
- .2 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 System Description:
 - .1 Exterior Wall: Metal stud framing assembly infill, with exterior sheathing , batt insulation specified in Section 07 21 16 Blanket insulation, interior gypsum board specified in Section 09 21 16 Gypsum board assemblies.
 - .2 Interior Walls: Metal stud framing assembly with batt type acoustic insulation specified in Section 07 21 16 Blanket insulation, interior gypsum board specified in Section 09 21 16 Gypsum board assemblies.

2.3 PERFORMANCE / DESIGN CRITERIA

- .1 Exterior Wall Dead and Live Loads: Design and size components to withstand loads caused by positive and negative pressure of wind acting normal to plane of wall.
 - .1 As calculated in accordance with applicable code.
 - .2 To a design pressure of 360 Pa.
- .2 Maximum Allowable Deflection: 1:240 span.

.3 Wall Assembly:

- .1 Design to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
- .2 Design assembly to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

2.4 STUD FRAMING MATERIALS

- .1 Framing Assembly Components: ASTM C645.
- .2 Studs: ASTM A653/A653M, non-load bearing rolled steel, channel shaped, punched for utility access, as scheduled:
 - .1 Depth: as indicated on drawings.
 - .2 Thickness: As per Engineered Stud Shopdrawings, stamped by Engineer located in the Province of the Project.
- .3 Tracks and Headers: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.
 - .1 Floor and ceiling tracks: to ASTM C645.
- .4 Ceiling Runners: With extended leg retainer.
- .5 Furring and Bracing Members: Of same material as studs; thickness to suit purpose.
- .6 Connecting of studs to structure to be by use of "Flexiclip" or other acceptable alternate to allow for vertical movement of the structure.
- .7 Fasteners: ASTM C1002, self drilling, self tapping screws.
- .8 Sheet Metal Backing: 20 gauge, galvanized steel.
- .9 Anchorage Devices: Power actuated, Drilled expansion bolts, Screws with sleeves.
- .10 Acoustic Sealant: As specified in Section 09 21 16.
- .11 Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic zinc-rich primer.
- .12 Angle clips: fabricated from same material and finish as steel studs, 38 mm x 38 mm x depth of steel stud.
- .13 Heavier gauge framing: Provide heavier gauge framing members and/or additional reinforcing where stud length and loading conditions require. Provide additional reinforcing for members carrying a concentrated load, such as door jambs.
 - .1 Studs: C shaped with flat or formed webs
 - .2 Runners: U shaped, sized to match studs.
 - .3 For loadbearing studs systems refer, to Section 05 41 00 - Structural Metal Stud Framing
*
- .14 Partition Head to Structure Connections:
 - .1 Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and braced with continuous bridging on both sides; OR
 - .2 Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining the structural performance of the partition.

- .3 Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with 1.
- .4 Provide components ULC (DIR) listed for use in ULC-listed fire-rated head of partition joint systems indicated on Drawings.
 - .1 Include a preformed top track firestop seal. Standard of acceptance: Top Track Seal CFS TTS by Hilti Inc.
- .15 Metal channel stiffener: 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
- .16 Fasteners: ASTM C1002 self-piercing tapping screws.
- .17 Acoustic Insulation: As specified in Section 07 21 00 - Board and Batt Insulation
- .18 Acoustic Sealant: Single component, non-skinning, non-hardening synthetic rubber sealant, 'Tremco Acoustical Sealant' by Tremco.
- .19 Insulating strip: Rubberized, moisture resistant 3 mm thick cork foam strip, 12mm wide, with self sticking adhesive on one face, lengths as required.

2.5 FABRICATION

- .1 Fabricate assemblies of framed sections to sizes and profiles required.
- .2 Fit, reinforce, and brace framing members to suit design requirements.
- .3 Fit and assemble in largest practical sections for delivery to site, ready for installation.

2.6 FINISHES

- .1 Studs Tracks and Headers: Galvanize to Z180 zinc coating designation.
- .2 Studs: Electro-galvanize.
- .3 Accessories: Same finish as framing members.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that rough-in utilities are in proper location.

3.2 ERECTION

- .1 Align and secure top and bottom runners at 600 mm on centre.
- .2 Place two (2) beads of acoustic sealant between runners and substrate studs and adjacent construction to achieve an acoustic seal.
- .3 Achieve an airtight seal between runners and substrate with acoustic sealant in conjunction with Section 07 27 00.
- .4 Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- .5 Install studs vertically at 400 mm on centre.
- .6 Align stud web openings horizontally.
- .7 Secure studs to tracks using fastener, crimping, clip and tie method. Do not weld.
- .8 Stud Splicing: Not permissible.

- .9 Fabricate corners using a minimum of three studs.
- .10 Double stud at wall openings, door and window jambs, not more than 50 mm from each side of openings.
- .11 Brace stud framing assembly rigid.
- .12 Coordinate erection of studs with requirements of door frames, window frames; install supports and attachments.
- .13 Coordinate installation of wood bucks, anchors, and wood blocking with electrical and mechanical work to be placed within or behind stud framing.
- .14 Blocking: Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, hardware, opening frames.
 - .1 Secure steel channels, wood blocking to studs.
- .15 Extend stud framing to ceiling only. Attach ceiling runner securely to ceiling framing to manufacturer's written instructions.
- .16 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.
- .17 Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through the ceiling to the structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.
- .18 Coordinate placement of insulation in stud spaces after stud frame erection.
- .19 Install continuous insulating strips to isolate studs from uninsulated surfaces.

3.3 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Variation From True Position: 3 mm in 3 m.
- .3 Maximum Variation From Plumb: 3 mm in 3 m.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 40 00 Architectural Woodwork.
- .2 Section 07 92 00 Joint Sealants.
- .3 Section 09 00 00 Interior Finishes (Floor Tiles, Wall Tiles & Transition Strips).
- .4 Section 09 21 16 Gypsum Board Assemblies.

1.2 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
 - .1 ANSI A108.1-99, Specification for the Installation of Ceramic Tile (Includes ANSI A108.1A-C, 108.4-.13, A118.1-.10, ANSI A136.1).
 - .2 CTI A118.3-92, Specification for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive (included in ANSI A108.1).
 - .3 CTI A118.4-92, Specification for Latex Cement Mortar (included in ANSI A108.1).
 - .4 CTI A118.5-92, Specification for Chemical Resistant Furan Resin Mortars and Grouts for Tile Installation (included in ANSI A108.1).
 - .5 CTI A118.6-92, Specification for Ceramic Tile Grouts (included in ANSI A108.1).
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C144-04, Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C207-06, Specification for Hydrated Lime for Masonry Purposes.
 - .3 ASTM C847-06, Specification for Metal Lath.
 - .4 ASTM C979-05, Specification for Pigments for Integrally Coloured Concrete.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CGSB 71-GP-22M-78 (AMEND.), Adhesive, Organic, for Installation of Ceramic Wall Tile.
 - .3 CAN/CGSB-75.1-M88, Tile, Ceramic.
 - .4 CAN/CGSB-25.20-95, Surface Sealer for Floors.
- .4 CSA Group (CSA)
 - .1 CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
 - .2 CAN/CSA-A3000-03 (R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .5 Terrazzo Tile and Marble Association of Canada (TTMAC)
 - .1 Tile Specification Guide 09 30 00 2006/2007, Tile Installation Manual.
 - .2 Tile Maintenance Guide 2000.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

- .1 Include manufacturer's information on:
 - .1 Ceramic tile, marked to show each type, size, and shape required.
 - .2 Cementitious backer unit.
 - .3 Dry-set cement mortar and grout.
 - .4 Divider strip.
 - .5 Reinforcing tape.
 - .6 Commercial cement grout.
 - .7 Slip resistant tile.
 - .8 Waterproofing isolation membrane.
 - .9 Fasteners.
- .3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Base tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.
 - .2 Floor tile: submit duplicate, 300 x 300 mm sample panels of each colour, texture, size, and pattern of tile.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance Submittals:
 - .1 Manufacturer's Instructions: manufacturer's installation instructions.
 - .2 Manufacturer's Field Reports: manufacturer's field reports specified.
 - .3 Do tile work in accordance with TTMAC Specification Guide 09300 Tile Installation Manual, produced by Terrazzo Tile and Marble Association of Canada (TTMAC), except where specified otherwise.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling, reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 AMBIENT CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 48 hours after, installation.
- .2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.
- .3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.

1.7 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

- .2 Provide minimum 2% of each type and colour of tile required for project for maintenance use. Store where directed.
- .3 Maintenance material same production run as installed material.

Part 2 Products

2.1 FLOOR TILE

- .1 Porcelain floor tile : [See Section 09 00 00 Interior Finishes].
- .2 Washrooms: Ceramic Floor Tile conforming to ANSI A137.1

2.2 WALL AND CEILING TILE

- .1 Ceramic wall tile: [See Section 09 00 00 Interior Finishes].
- .2 Ceramic Wall Tile conforming to ANSI A137.1 - as noted on drawings.

2.3 BASE TILE

- .1 Base : Match wall tile (Field Tile).
 - .1 Extend to height indicated on drawings, if not noted otherwise, base to be 100mm high.

2.4 MORTAR AND ADHESIVE MATERIALS

- .1 Standard of acceptance is Flextile 61 full coverage mortar thinset for all floor tile locations.
- .2 Standard of acceptance is Flextile 56SR full coverage, non-sag mortar for all wall tile locations.

2.5 GROUT

- .1 Colouring Pigments:
 - .1 Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
 - .2 Colouring pigments to be added to grout by manufacturer.
 - .3 Job coloured grout are not acceptable.
- .2 Polymer modified grout for tile applications. Acceptable product Mapei:
 - .1 To be selected from full range of available colour; allow up to 7 colours.

2.6 ACCESSORIES

- .1 Transition Strips:
 - .1 See Section 09 00 00 Interior Finishes
- .2 Reinforcing mesh: 50 x 50 x 1.6 x 1.6 mm galvanized steel wire mesh, welded fabric design, in flat sheets.

2.7 PATCHING AND LEVELLING COMPOUND

- .1 1 Levelling bed mix:
 - .1 Cement: CAN/CSA A3000, Type GU.
 - .2 Sand: ASTM C144.
 - .3 Polymer Additive: Keralastic by Mapei Inc or approved alternative by Flextile Ltd. or Laticrete International.
 - .4 Thin-set mortar: Two component to ANSI A108/A118/A136.1

- .5 Organic adhesive: CGSB 71-GP-22M, Type 1.
- .6 Grout: Premium-grade, polymer-modified portland cement grout.
- .7 Divider strips: Stainless steel in depth as required.

2.8 CLEANING COMPOUNDS

- .1 Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.
- .2 Materials containing acid or caustic material are not acceptable.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WORKMANSHIP

- .1 Do tile work in accordance with TTMAC Tile Installation Manual 2006/2007, "Ceramic Tile", except where specified otherwise.
- .2 Apply tile or backing coats to clean and sound surfaces.
- .3 Fit tile around corners, fitments, fixtures, drains and other built-in objects. Maintain uniform joint appearance. Cut edges smooth and even. Do not split tiles.
- .4 Maximum surface tolerance 1:800.
- .5 Make joints between tile uniform and approximately 1.5 mm wide, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .6 Lay out tiles so perimeter tiles are minimum 1/2 size.
- .7 Sound tiles after setting and replace hollow-sounding units to obtain full bond.
- .8 Make internal angles square, external exposed angles to be covered with trim.
- .9 Use round edged tiles at termination of wall tile panels, except where panel abuts projecting surface or differing plane.
- .10 Install divider strips at junction of tile flooring and dissimilar materials.
- .11 Allow minimum 24 hours after installation of tiles, before grouting.
- .12 Clean installed tile surfaces after installation and grouting cured.
- .13 Make control joints at applicable distances in each direction. Make joint width same as tile joints. Fill control joints with sealant in accordance with Section 07 92 00 - Joint Sealants. Keep building expansion joints free of mortar and grout.

3.3 WALL TILE

- .1 Install in accordance with TTMAC detail to suit application.

3.4 FLOOR TILE

- .1 Install in accordance with TTMAC detail to suit application.

3.5 BASE TILE

- .1 Install in accordance with TTMAC detail to suit application.

3.6 FIELD QUALITY CONTROL

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

3.7 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Suspended metal grid ceiling system and perimeter trim.
- .2 Acoustic tile panels.

1.2 RELATED REQUIREMENTS

- .1 Section 07 21 16 - Blanket Insulation.
- .2 Section 08 31 13 - Access Doors and Frames: Access panels.
- .3 Section 09 21 16 - Gypsum Board Assemblies: Acoustic partition system.
- .4 Division 21 - Fire Suppression: Sprinkler heads in ceiling system.
- .5 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC): Air diffusion devices in ceiling system.
- .6 Division 26 – Electrical: Light fixtures in ceiling system.
- .7 Division 27 - Communications: Speakers in ceiling system.
- .8 Division 28 – Electronic Safety and Security: Fire alarm components in ceiling system.
- .9 Appendix:
 - .1 Div.09 - Finishes Schedule

1.3 REFERENCE STANDARDS

- .1 [ASTM C635/C635M-17 Standard specification for manufacture, performance, and testing of metal suspension systems for acoustical tile and lay-in panel ceilings](#)
- .2 [ASTM C636/C636M-19 Standard practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panels](#)
- .3 [ASTM C665-17 Standard specification for mineral-fiber blanket thermal insulation for light frame construction and manufactured housing](#)
- .4 [ASTM E580/E580M-20 Standard practice for installation of ceiling suspension systems for acoustical tile and lay-in panels in areas subject to earthquake ground motions](#)
- .5 [ASTM E1264-19 Standard classification for acoustical ceiling products](#)
- .6 CAN/ULC-S702-14 - Standard for Mineral Fibre Thermal Insulation for Buildings.
- .7 AWCCBC (Association of Wall and Ceiling Contractors of British Columbia).
- .8 UL - Fire Resistance Directory.
- .9 ULC-FR-17 - Fire Resistance Directory (2017 Edition).

1.4 DEFINITIONS

- .1 Delegated Design Engineer: The professional engineer hired or contracted to the fabricator or manufacturer to design specialty elements, produce Shop Drawings to meet requirements of authorities having jurisdiction; and registered or licensed in the Province of the location of the project, Canada.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.

.2 Sequencing:

- .1 Sequence work to ensure acoustic ceilings are not installed until building is enclosed, sufficient heat is provided, 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 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on metal grid system components and acoustic units.
- .3 Shop Drawings:
 - .1 Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to system.
 - .2 Provide Shop Drawings indicating details for anchorage and bracing for seismic restraint, stamped and signed by a Professional Engineer registered or licensed in the province where the project is located.

1.7 INFORMATIONAL SUBMITTALS

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

1.8 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

1.9 MAINTENANCE MATERIAL SUBMITTALS

- .1 Section 01 78 23: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide of extra panel tile in coordination with Owners requirements.

1.10 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.

1.11 SITE CONDITIONS

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

Part 2 Products

2.1 MANUFACTURERS - SUSPENSION SYSTEM

- .1 CGC Interiors; Product: as indicated in finishes schedule.
- .2 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for combustibility requirements for materials, seismic restraint of non-structural building components.

2.3 PERFORMANCE / DESIGN CRITERIA

- .1 Suspension System: Maximum deflection of 1:360 for acoustic ceiling system including integral mechanical and electrical components.
- .2 Seismic Restraints: Design anchorages and suspension systems to withstand seismic loads and sway displacement as calculated in accordance with National building code for (class as designated by Structural consultant), and to ASTM E580/E580M.

2.4 MATERIALS

- .1 Non-fire Rated Grid: ASTM C635/C635M, light duty; exposed T unless otherwise indicated; components die cut and interlocking.
- .2 Grid Materials: Commercial quality cold rolled steel with galvanized coating.
- .3 Exposed Grid Surface Width: to suite panel sizes.
- .4 Grid Finish: Colour White.
 - .1 CGC Radar Climaplus Ceiling Tiles #2410 (24" x 48" x 5/8"), colour white. (All banners)
 - .2 b. CGC Radar Climaplus Ceiling Tiles #2210 (24" x 24" x 5/8"), colour white. (Winners)
 - .3 Armstrong Fine Fissured Ceiling Tiles #1729 (24" x 48") with Humiguard Plus and Bio-Block performance. ULC cert. NRC 0.55. (All banners)
 - .4 Armstrong Dune Ceiling Tiles #1772 (24" x 24") with Humiguard Plus and Bio-Block (Winners)
- .5 Suspension Wires: Galvanized soft-annealed, mild steel, to suit application, to meet seismic requirements thickness.
- .6 Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements.
- .7 Accessories: Stabilizer bars, clips, perimeter moldings required for suspended grid system.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- .1 Install suspension system to ASTM C636/C636M.
- .2 Install ceiling suspension systems requiring seismic restraint to ASTM E580/E580M.
- .3 Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- .4 Lay out system to a balanced grid design. Coordinate with Mechanical and electrical fixtures.
- .5 Locate system on room axis according to reflected plan.
- .6 Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- .7 Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.
- .8 Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- .9 Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.
- .10 Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 150 mm of each corner; or support components independently.
- .11 Do not eccentrically load system or produce rotation of runners.
- .12 Perimeter Molding:
 - .1 Use longest practical lengths.
 - .2 Mitre corners.
 - .3 Provide molding at junctions with other interruptions.
- .13 Form expansion joints as detailed. Form to accommodate plus or minus 25 mm movement. Maintain visual closure.

3.3 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 one way with pattern parallel to longest room axis. 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.
 - .2 Cut square reveal edges to field cut units.
 - .3 Double cut and field paint exposed edges of tegular units.
- .7 Install hold-down clips to retain panels tight to grid system within 6 m of an exterior door.
- .8 Install hold-down clips to retain panels tight to grid system in exterior locations.

3.4 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.
- .2 Maximum Variation from Flat and Level Surface: 3 mm in 3 m.
- .3 Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Resilient sheet flooring.
- .2 Resilient tile flooring.
 - .1 VCT - Vinyl Composite Tile.
 - .2 LVT - Luxury Vinyl Tile. Refers to Solid Vinyl Plank flooring.
- .3 Resilient base.
- .4 Resilient stair treads.

1.2 RELATED REQUIREMENTS

- .1 Division 03 - Structural - Cast-in-place concrete.
- .2 Section 09 21 16 - Gypsum Board Assemblies: Wall materials to receive application of base.

1.3 REFERENCE STANDARDS

- .1 [ASTM E84-23d Standard test method for surface burning characteristics of building materials](#)
- .2 [ASTM F1066-23 Standard specification for vinyl composition floor tile](#)
- .3 [ASTM F1303-04\(2021\) Standard specification for sheet vinyl floor covering with backing](#)
- .4 [ASTM F1700-20 Standard specification for solid vinyl floor tile](#)
- .5 [ASTM F1861-21 Standard specification for resilient wall base](#)
- .6 [ASTM F1913-19 Standard specification for vinyl sheet floor covering without backing](#)
- .7 [ASTM F2169-15\(2020\) Standard specification for resilient stair treads](#)
- .8 CAN/ULC-S102.2 - Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on specified products, describing physical characteristics; sizes, and patterns and colours available.
- .3 Shop Drawings:
 - .1 Reference : (www.floorexpert.com for latest edition of the AFI Guaranteed Installation Systems Manual F-5061).
- .4 Samples:
 - .1 Submit two (2) samples, 600mm in size illustrating colour and pattern for each floor material for each colour specified.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

- .2 Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- .3 Sustainable Design Closeout Documentation:

1.7 MAINTENANCE MATERIAL SUBMITTALS

- .1 Section 01 78 23: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide 2 boxes of flooring, of of each material specified.

1.8 QUALITY ASSURANCE

- .1 Moisture Reduction Barrier Installer Qualifications: Installation of the ARDEX product must be completed by a factory trained applicator, such as an ARDEX LevelMaster® Elite or Choice Contractor, using mixing equipment and tools approved by the manufacturer.
 - .1 Please contact ARDEX Engineered Cements for a list of recommended installers ARDEX Canada Contact: Sherri Wildman 416.873.4648.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented 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.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- .3 Protect roll materials from damage by storing on end.

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 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 - SHEET FLOORING

- .1 Solid vinyl plank (LVT). See **Section 09 00 00 - Interior Finishes**.
 - .1 Conform to ASTM F1066-99– Solid Vinyl, and ASTM F1700-99
 - .2 All plank flooring to be complete with 40mil wear layer, 3.2mm, beveled-edge and tick finish.
- .2 Solid vinyl plank to conform to ASTM F1066-99– Solid Vinyl, and ASTM F1700-99 “Standard Specification for Solid Vinyl Floor Tile”, or latest governing code.
- .3 All plank flooring to be complete with 40mil wear layer, 3.2mm, beveled-edge and tick finish.
- .4 VCT Resilient tile flooring materials. **Section 09 00 00 - Interior Finishes**.

- .1 Standard **EXCELON®** Tile Flooring manufactured by **Armstrong Flooring Industries Inc.**,
- .2 See [Section 09 00 00] - Interior Finishes for colour, types and locations.
 - .1 Nominal total thickness of 1/8"/0.125in. (3.2mm), 12 in. x 12 in. (305 mm x 305 mm), composed of polyvinyl chloride resin binder, plasticizers, fillers, and pigments with colors and texture dispersed uniformly throughout its thickness.
- .3 Vinyl composition tile shall conform to the requirements of ASTM F 1066, Class 2 – through pattern.

2.2 MOISTURE REDUCTION BARRIER

- .1 Application of systems for reduction of moisture vapour transmission and alkalinity control for concrete slab required to receive floor covering specified under this Section to be as follows:
 - .1 Final Product selection to suit conditions encountered at time of installation. Provide single source manufacturer for Moisture Reduction Barrier, floor leveling and adhesive to ensure compatibility and satisfy warranty requirements.
 - .2 "ARDEX Moisture Control Systems" by ARDEX Canada.
- .2 Refer to Section 07 14 00 - Moisture Vapour Emission Management System.

2.3 MATERIALS - STAIR COVERING

- .1 Vinyl Stair Treads: Johnsonite one-piece vinyl treads, 'Safe-T-Rib' (HT). Colour; as listed in Section 09 00 00 - Interior Finishes.
- .2 Stair Treads: ASTM F2169.

2.4 MATERIALS - BASE

- .1 See [Section 09 00 00 - Interior Finishes] for colour, types and locations.
- .2 Base Accessories: Premoulded end stops and external corners, of same material, size, and colour as base.

2.5 ACCESSORIES

- .1 For patching, smoothing, and leveling monolithic subfloors see Preparation.
 - .1 Joint Accessories:
 - .1 For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
 - .2 Provide transition/reducing strips tapered to meet abutting materials.
 - .3 Provide threshold of thickness and width as shown on the drawings.
 - .4 Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.
 - .5 Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed

- anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.
- .6 Vinyl Stair Treads: Johnsonite one-piece vinyl treads, 'Safe-T-Rib' (HT). Colour; as listed on drawings.
 - .2 Solid vinyl plank (LVT). Provide as recommended by manufacturer:
 - .1 Primers and adhesives; as recommended by flooring manufacturer for specific material on applicable substrate.
 - .2 Use Mapeii Ultrabond 'ECO' 300 Professional Solid Vinyl Adhesive (no alternates) for flooring follow specific recommendations by flooring manufacturer.
 - .3 Use Arteca 373 Adhesive, Sku# 214810 Premium Vinyl Tile Adhesive for all Arteca Plank flooring.
 - .4 When the floor has been treated with Ardex, Henry's Glue – Product #430 is to be used to maintain 10-year warranty.
 - .5 If another adhesive is use with Arteca or any Mannington product other than the recommended adhesive the warranty will not be bond.
 - .3 VCT Underlayment. Provide as recommended by manufacturer:
 - .1 Provide Armstrong [S-184 Fast-Setting Cement-Based Patch and Underlayment] [S-194 Cement-Based Patch, Underlayment and Embossing Leveler / S-195 Underlayment Additive] [S-453 Level Strong™ cement based self-leveling compound] [S-456 Patch Strong™ flexible patching and smoothing compound].
 - .4 For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
 - .5 Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.
 - .6 2. Provide transition/reducing strips tapered to meet abutting materials.
 - .7 3. Provide threshold of thickness and width as shown on the drawings.
 - .2 Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring.
 - .1 Provide units of maximum available length to minimize the number of joints.
 - .2 Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.
 - .3 Sealer and Wax: Types recommended by flooring manufacturer.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 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 prepared surfaces.
 - .1 Subfloor Preparation:
 - .1 Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Armstrong Flooring.
 - .1 Provide, as suitable to conditions & according to manufacturer's recommendations.
 - .1 [S-184 Fast-Setting Cement-Based Patch and Underlayment].
 - .2 [S-194 Cement-Based Patch, Underlayment and Embossing Leveler / S-195 Underlayment Additive].
 - .3 [S-453 Level Strong™ cement based self-leveling compound].
 - .4 [S-456 Patch Strong™ flexible patching and smoothing compound].
 - .5 [S-454 Prime Strong™ acrylic primer for porous substrates].
 - .6 [S-455 Prime Strong™ acrylic primer for non-porous substrates] as recommended by the flooring manufacturer.
 - .2 Refer to Armstrong Flooring Guaranteed Installation Systems manual, F-5061 and ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring for additional information on subfloor preparation.
 - .3 Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.

3.3 INSTALLATION - TILE FLOORING

- .1 Install tile flooring to manufacturer's written instructions.
 - .1 Install flooring in strict accordance with the procedures found in the Vinyl Composition Tile Installation System at www.floorexpert.com.
- .2 Mix tile from container to ensure shade variations are consistent when tile is placed.
- .3 Spread only enough adhesive to permit installation of materials before initial set.
- .4 Set flooring in place, press with heavy roller to attain full adhesion.
- .5 Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.
- .6 Install tile to correct pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
- .7 Terminate flooring at centreline of door openings where adjacent floor finish is dissimilar.

- .8 Install metal edge strips at unprotected or exposed edges, and where flooring terminates. Secure metal strips before installation of flooring with stainless steel screws.
- .9 Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- .10 Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
- .11 If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
- .12 Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
- .13 Laying flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
- .14 Install flooring to square grid pattern with all joints aligned (stack seam layout) with aligned pattern grain on adjacent tiles.
- .15 Tile pattern shall be laid from front of space to back.
- .16 Cut tile and fit neatly around fixed objects.
- .17 Install flooring in pan type floor access covers. Maintain floor pattern.
- .18 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .19 Provide feathering (min. 12") to allow even finish between L.V.T. and V.C.T. floor levels in all areas where this occurs. L.V.T. to abut V.C.T. directly at same top level.

3.4 INSTALLATION OF ACCESSORIES

- .1 Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
- .2 Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
- .3 Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
- .4 Apply [butt-type] metal edge strips where shown on the drawings, [before] flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.5 INSTALLATION - BASE

- .1 Fit joints tight and vertical. Maintain minimum measurement of 450 mm between joints.
- .2 Mitre internal corners. At external corners, use premoulded units. 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.

3.6 INSTALLATION - STAIR COVERINGS

- .1 Install stair nosing, stair treads in one (1) piece for full width and depth of tread.
- .2 Install stair skirting configured tight to stair and stringer profile.
- .3 Adhere over entire surface. Fit accurately and securely.

3.7 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Perform initial maintenance according to the latest edition of the Armstrong Commercial Maintenance Booklet, F-8663 available at www.floorexpert.com.
- .3 Remove access adhesive from floor, base, and wall surfaces without damage.
- .4 Clean, seal, and wax floor and base surfaces in accordance with manufacturer's written instructions.

3.8 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Tiles are not to be sealed until a minimum of one (1) week past installation. This is to allow the adhesive to cure properly. To achieve this, the tiles must be installed a minimum of one (1) week before construction turnover.
 - .1 Seal and wax vinyl floors immediately prior to "Possession Day". Project Manager to provide information for assigned contracted cleaning company for this location. **Tenant contract cleaning company must be used for this process.**
- .3 VCT - Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings. (See Finishing The Job in "Armstrong Guaranteed Installation System," F-5061.)
- .4 LVT - The following materials must be used with no alternatives, (or as instructed exclusively by Tenant: S.C. Johnson Floor Products:
 - .1 Signature Wax, U.H.S. (Ultra High Speed) Neutral Cleaner. A minimum of six (6) coats of wax must be applied prior to Tenant acceptance of project.
- .5 Prohibit traffic on floor finish for forty-eight (48) hours after installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 GENERAL

- .1 Supply and install based on JELINEK CORK GROUP, manufacturer recommendations.
- .2 See Section 09 00 00 Interior Finishes.

Part 2 Products - Not Used

Part 3 Execution - Not Used

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Surface preparation and prime painting.
- .2 Wall covering.

1.2 RELATED REQUIREMENTS

- .1 Section 09 21 16 - Gypsum Board Assemblies: Wall substrate.
- .2 Section 09 91 00 - Painting: Preparation and priming of substrate surfaces.

1.3 REFERENCE STANDARDS

- .1 [ASTM E84-23d Standard test method for surface burning characteristics of building materials](#)
- .2 [ASTM F793/F793M-20 Standard classification of wall coverings by use characteristics](#)
- .3 CAN/ULC-S102 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on wall covering, adhesive.
- .3 Samples: Submit two (2) samples of wall covering, 300mm in size illustrating colour, finish, and texture.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Test Reports: Submit reports verifying flame and smoke ratings, when tested by ULC.
- .3 Installation Data: Manufacturer's special installation requirements indicating special procedures.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- .1 Section 01 78 23: Maintenance and extra material requirements.
- .2 Extra Stock Materials:
 - .1 Provide in, lin m, each colour of wall covering as determined by owner.
 - .2 Package and label each roll by manufacturer, colour and pattern, and destination room number; store where directed.

1.7 QUALITY ASSURANCE

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

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 00: Transport, handle, store, and protect products.
- .2 Inspect roll materials on site to verify acceptance.

- .3 Protect packaged adhesive from temperature cycling.
- .4 Do not store roll goods on end.

1.9 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or vinyl covering product manufacturer.
 - .2 Maintain these conditions 24 hours before, during, and after installation of adhesive wall covering.
 - .3 Provide lighting level of 860 lx measured mid-height at substrate surfaces.

Part 2 Products

2.1 MANUFACTURERS

- .1 Wall coverings are to be order from **Crown Wallpaper** unless otherwise specified.
 - .1 General Contractor to supply all accessory materials required for installation.
- .2 See Section **09 00 00 Interior Finishes**.

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for flame and smoke ratings of 25/50 when tested to

2.3 MATERIALS

- .1 See Section 09 00 00 Interior Finishes.

2.4 ACCESSORIES

- .1 Adhesive:
 - .1 Premium quality, premixed, full strength commercial wallcovering adhesive should be applied to the fabric side of the wallcovering, not the wall. Do not dilute the paste.
 - .2 The adhesive should be stored at room temperature (70°F). Use of a mildew inhibitor in the adhesive is recommended.
- .2 Termination Trim: Extruded plastic; colour as selected.
- .3 Substrate Filler: As recommended by adhesive and wall covering manufacturers; compatible with substrate.
- .4 Substrate Primer and Sealer: Alkyd enamel type.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that substrate surfaces are prime painted and ready to receive work, and conform to requirements of the wall covering manufacturer.
- .3 Measure moisture content of surfaces using an electronic moisture meter. Do not apply coverings unless moisture content of surfaces is below the following maximums:

- .1 Plaster and Gypsum Wallboard: 12%.
- .2 Masonry, Concrete, and Concrete Unit Masonry: 12%.
- .3 Wood Surfaces: 15%.
- .4 Verify flatness tolerance of surfaces does not vary more than 3 mm in 3 m nor vary at a rate greater than 1.5 mm/300 mm.

3.2 PREPARATION

- .1 Fill cracks and smooth irregularities with filler; sand smooth.
- .2 Wash impervious surfaces with trisodium phosphate, rinse and neutralize; wipe dry.
- .3 Sand glossy surfaces; seal marks which may bleed with shellac.
- .4 Remove electrical, telephone, and utility wall plates and covers.
- .5 Apply one (1) of primer sealer to substrate surfaces. Allow to dry. Lightly sand smooth.
- .6 Vacuum clean surfaces free of loose particles.

3.3 INSTALLATION

- .1 Install adhesive and wall covering to manufacturer instructions.
- .2 Apply adhesive to wall surface immediately prior to application of wall covering. Let contact adhesive set tack free.
- .3 Use wall covering in roll number sequence.
- .4 Razor trim edges on flat work table. Do not razor cut on gypsum board surfaces.
- .5 Apply wall covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface. Butt edges tight.
- .6 Do not seam within 50 mm of internal corners or within 150 mm of external corners.
- .7 Install wall covering before installation of cabinets, or items attached to or spaced slightly from wall surface.
- .8 Do not install wall covering more than 6 mm below top of resilient base.
- .9 Cover spaces above and below windows, above doors, in pattern sequence from roll.
- .10 Where wall covering tucks into reveals, or metal wallboard or plaster stops, apply covering with contact adhesive within 150 mm of wall covering termination. Ensure full contact bond.
- .11 Install termination trim.
- .12 Apply fabric covering to electrical, telephone and utility wall plates prior to replacing.
- .13 Remove excess wet adhesive from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.
- .14 Apply an even coat of adhesive to the fabric side of material using a roller or pasting machine.
 - .1 The wallcovering should be booked for a minimum of 12 minutes for vinyl wallcovering and a minimum of 20 minutes for EcoView™ products.
 - .2 When pasting several strips in advance, booking is recommended to insure proper wetting out of the fibers. Fold each end toward the middle, pasted sides together, aligning the edges carefully to prevent the paste on the edges from drying out.

- .3 Do not crease the wallcovering. Avoid the stacking of strips that are pasted and booked in advance, as the added weight could cause creasing. Install wallcovering using a plastic smoother, working out air bubbles.
- .4 Remove excess paste immediately with clean water and a moist natural sponge. Do not use man made (i.e. polyester) sponges. Dry with a clean cloth. If excess paste is not removed; permanent damage could result to the face of the wallcovering.
- .15 Wallcovering is untrimmed. Both match and random patterns must be double cut. On match patterns we recommend notching the overlapping selvage exposing the underlying pattern to insure a proper match.
- .16 Only full widths of material should be used for the most satisfactory installation. Headers can cause unsatisfactory shading if hung out of sequence; as with all wallcoverings, certain deeply embossed patterns will provide a more satisfactory seam if a selvage cut is taken from each side of the sheet ("double cut"). Do not "score" the dry wall.

3.4 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Clean wall coverings of excess adhesive, dust, dirt, and other contaminants.
- .3 Reinstall wall plates and accessories removed prior to work of this Section.

3.5 PROTECTION

- .1 Section 01 78 23: Protecting installed work.
- .2 Do not permit work at or near finished wall covered areas.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Surface preparation.
- .2 Painting.

1.2 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications: Shop primed items.
- .2 Section 05 51 00 - Metal Stairs
- .3 Section 06 41 00 - Architectural Wood Casework: Shop finished cabinet work.
- .4 Section 07 81 00 - Spray-Applied Fireproofing
- .5 Section 08 11 13 - Hollow Metal Doors and Frames
- .6 Section 08 14 16 - Flush Wood Doors
- .7 Section 09 21 16 - Gypsum Board Assemblies
- .8 Section 09 72 16 - Vinyl-Coated Fabric Wall Coverings.
- .9 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC).
- .10 Division 26 – Electrical.

1.3 REFERENCE STANDARDS

- .1 Standards:
 - .1 ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications 2016.
 - .2 MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
 - .3 MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
 - .4 ASTM D4259 - Standard Practice for Abrading Concrete 1988 (Reapproved 2012).
 - .5 ASTM D4260 - Standard Practice for Liquid and Gelled Acid Etching of Concrete 2005 (Reapproved 2012).
 - .6 ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2016.
 - .7 ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride 2016a.
 - .8 MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
 - .9 SSPC V1 (PM1) - Good Painting Practice: Painting Manual, Volume 1 2016.
 - .10 SSPC V2 (PM2) - Systems and Specifications: Steel Structures Painting Manual, Volume 2 2015.
 - .11 SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
 - .12 SSPC-SP 2 - Hand Tool Cleaning 1982, with Editorial Revision (2004).
 - .13 SSPC-SP 3 - Power Tool Cleaning 1982, with Editorial Revision (2004).

- .14 SSPC-SP 6 - Commercial Blast Cleaning 2007.
- .15 SSPC-SP 13 - Surface Preparation of Concrete 1997 (Reaffirmed 2003).
- .16 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .17 Master Painters Institute (MPI):
- .18 MPI Architectural Specification Manual, 2018 (referred to herein as "MPI Manual")
- .19 MPI Approved Product List (Referred to herein as "MPI APL").

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data:
 - .1 Submit Product data on all specified finishing products.
 - .2 Submit two (2) copies of WHMIS MSDS - Material Safety Data Sheets.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Installation Data: Manufacturer's special installation requirements including special surface preparation procedures and substrate conditions requiring special attention.
- .3 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 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 23: Maintenance and extra material requirements.
- .2 Extra Stock Materials: Provide properly packaged maintenance material as follows.
 - .1 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.
- .3 Conform to MPI 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 MPI Painting Manual.
- .5 Inspection and Testing: Painting and decorating Work to be inspected by paint inspection agency (inspector) acceptable to local MPI Accredited Quality Assurance Association, specifying authority.
 - .1 Notify Paint Inspection Agency minimum of one (1) week prior to commencement of Work.
 - .2 Provide Project painting specification, plans and elevation Drawings and details in addition to Finish Schedule.
 - .3 Notify Consultant, Construction manager in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate condition or preparation.
- .6 Special Systems: Where special coating system applications are used, provide manufacturer's certification of all surfaces and conditions for specific paint or coating system application including inspection and approval of their system application at no additional cost to Owner.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Section 01 61 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 and a maximum of 32 degrees C, 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.

1.10 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Do not perform painting or decorating Work when ambient air and substrate temperatures are below 10 degrees C 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 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 is provided on surfaces to be painted or decorated.
- .8 Conduct all moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple cover patch test.
- .9 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .10 Do not apply paint on any floors that have received Ardex self-levelling product.
- .11 Apply paint only to dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.
- .12 Perform no painting or decorating work unless a minimum lighting level of (30 foot candles) is provided on surfaced to be painted or decorated. Adequate lighting facilities shall be provided by the General Contractor.

1.11 MAINTENANCE MATERIALS

- .1 At project completion provide 4 litres (1 gallon) of each type and colour of paint from same production run (batch mix) used in unopened cans. Full unopened cans of surplus paint, properly labeled and identified for Tenant's later use in maintenance. To be stored in Utility Room.

1.12 WASTE MANAGEMENT AND DISPOSAL

- .1 Dispose of waste materials in accordance with Provincial 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 GUARANTEE

- .1 Furnish either the local (MPI) two (2) year guarantee.

Part 2 Products

2.1 DESCRIPTION

- .1 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.

2.2 MATERIALS

- .1 Qualified painting products:
 - .1 Only Benjamin Moore and Sherwin Williams.
 - .2 Paint draw downs are required to be provided to TJX Canada Project Manager.
 - .3 Paint Products will be acceptable by Tenant – NO ALTERNATES, paint as per finish schedule unless approved or specified by Tenant.
- .2 Use only materials (primers, paints, coatings, varnishes, stains, lacquers, fillers) listed in the latest edition of the MPI Approved Product List (APL) on this project.
- .3 Ancillary materials such as linseed oil, shellac, thinners, solvents to be of highest quality product and provided by an MPI listed manufacturer, and compatible with paint materials being used.
- .4 Where required, use only materials having a minimum MPI "Environmentally Friendly" E2 rating based on VOC (EPA Method 24) content levels.
- .5 Cold weather paint to be used when required for "Spring" Possession stores.
- .6 Where possible, all materials to be lead and mercury free with low VOC content.
- .7 Provide all material for each system from a single manufacturer.
- .8 Fire Hazard: Flame spread and smoke developed ratings in accordance with applicable code.

2.3 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.

2.4 FINISH AND COLOUR

- .1 Finish: To MPI Premium Grade finish requirements.
- .2 Colours and Finishes: Refer to Finish Schedule on Drawings.
 - .1 Exterior Colours: Based on three (3) base colours and two (2) accent colours with a maximum of one (1) deep or bright colour. No more than six (6) colours will be selected for entire project.
 - .2 Interior Colours: Based on five (5) base colours and three (3) accent colours with a maximum of one (1) deep or bright colour. No more than eight (8) colours will be selected for entire project and no more than three (3) colours will be selected in each area.

2.5 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 noted on Finish Schedule.

2.6 EXTERIOR PAINT SYSTEMS

- .1 Asphalt Surfaces: (zone/traffic marking for drive and parking areas, etc.).
 - .1 EXT 2.1A: Latex zone/traffic marking finish.
- .2 Structural Steel and Metal Fabrications:
 - .1 EXT 5.1D: Alkyd (over alkyd primer), G6 finish.
 - .2 One coat spot priming. Coronado Rust Scat Alkyd Metal Primer 35 .
 - .3 One coat exterior enamel. Coronado Rust Scat Enamel Gloss 31.
- .3 Galvanized Metal: (not chromate passivated; for high contact/high traffic areas (doors, frames, railings, misc. steel, pipes, etc.) and low contact/low traffic areas (overhead decking, ducts, gutters, flashing, etc.).
 - .1 EXT 5.3B: Alkyd, G6 finish.
 - .2 One coat vinyl wash primer.
 - .3 One coat steel primer. Coronado Rust Scat Acrylic Primer 36.
 - .4 Two coats exterior enamel. Coronado Acrylic Enamel Gloss 80.
- .4 Aluminum: (sash, sills and frames, flashing, posts and railings, downpipes, etc.).
 - .1 EXT 5.4F: Alkyd (over quick dry metal primer), G3 finish.
- .5 Dimension Lumber: (columns, beams, exposed joists, underside of decking, siding, fencing, etc.).
 - .1 EXT 6.2B: Solid colour, water based stain finish (over alkyd/oil primer).
- .6 Dressed Lumber: (doors, door and window frames, casings, battens, smooth facias, etc.).

- .1 EXT 6.3A: Latex (over alkyd/oil primer), G6 finish.
- .2 EXT 6.3J: Water based light industrial coating, semi-gloss.
- .7 Bituminous Coated Surfaces: (cast iron pipe, concrete, etc.).
 - .1 EXT 10.2B: Latex G4, type Latex texture aggregate finish.
 - .2 For exterior hard slick surfaces, such as aluminum, pre-finished or enameled metal: Use Corotech Waterborne Bonding Primer V175 to manufacturers exact specifications. Degrease surfaces with solvent or commercial degreasers and roughen with 3M Scotchbrite pads or equal. Exterior colour as per Drawings.

2.7 INTERIOR PAINT SYSTEMS

- .1 Paint interior surfaces in accordance with the following MPI Painting Manual requirements.
- .2 Asphalt Surfaces: (zone/traffic marking of interior drive and parking areas).
- .3 Concrete Vertical Surfaces: (including horizontal soffits).
 - .1 INT 3.1A: Latex (over alkali-resistant primer), G5 finish.
- .4 For new concrete floors and all new exposed concrete areas within confines of the building walls:
 - .1 Two coats Cure-Seal Ashford Formula, Distributed by Duracon (Canada). Use manufactures qualified installers. 1-800-841-5677.
 - .2 For existing treated concrete floors and similar exposed concrete areas within confines of the building walls apply:
 - .3 Paint yellow exit lines on floor prior to installation of clear seal.
NOTE: Do not paint floor treated with ARDEX .
- .5 Structural Steel and Metal Fabrications: (columns, beams, joists, etc.).
 - .1 INT 5.1A: Quick dry enamel gloss finish.
 - .2 Shop prime all structural steel grey unless noted.
 - .3 For brace frames and columns on the upper most floor level: shop primed painted by steel supplier; and, painting contractor to provide 2 coats white primer.
 - .4 For brace frames on all other floor levels: steel supplier to leave unprimed/unpainted; fire-spray.
 - .5 INT 5.1S: Institutional low odor/low VOC, G6 finish.
- .6 Steel - High Heat: (boilers, furnaces, heat exchangers, breeching, pipes, flues, stacks, etc., with temperature range as noted).
 - .1 NT 5.2A: Heat resistant enamel finish, maximum 205 degrees C.
 - .2 INT 5.2D: High heat resistant coating, maximum 593 degrees C.
- .7 Galvanized Metal: (doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.).
 - .1 INT 5.3A: Latex, G5 finish.
 - .2 INT 5.3N: Institutional low odor/low VOC, G5 finish.
- .8 One coat of primer. V175 Corotech Waterborne Bonding Primer .
- .9 Two coats: Coronado Rust Scat 90 line .
- .10 Plaster and Gypsum Board: (gypsum wallboard and textured finishes).
 - .1 INT 9.2A: Latex (over latex sealer), gloss (see following) finish.

- .1 G1 - ceilings.
 - .1 One coat Latex Primer/Sealer. BM Fresh Start F023.
 - .2 Two coats Low-Lustre Latex. BM Waterborne Ceiling Paint K508.
- .2 G3 - walls.
 - .3 One coat Latex Primer/Sealer. InsIx AquaLock AQ-0400.
 - .4 Two coats Interior Acrylic Egg Shell or Satin Finish. BM UltraSpec 500 K537 Low Sheen.
- .5 G5 - walls in washroom areas.
- .2 INT 9.2C: Alkyd (over latex sealer), G4, G5 finish.
- .3 INT 9.2M: Institutional low odor/low VOC, G5 finish.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that substrate conditions 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 Prepare surfaces in accordance with MPI requirements.
- .2 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.
- .3 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.
- .4 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.
- .5 Confirm preparation and primer used with fabricator of steel items.
- .6 Seal with shellac and seal marks which may bleed through surface finishes.
- .7 Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

- .8 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.
- .9 Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- .10 Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- .11 Concrete Floors: Remove contamination; acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- .12 Copper Surfaces Scheduled for a Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- .13 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.
- .14 Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- .15 Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- .16 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.
- .17 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.
- .18 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.
- .19 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.
- .20 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.
- .21 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.
- .22 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 calking compound after prime coat has been applied.
- .23 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 calking compound after sealer has been applied.
- .24 Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- .25 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 MPI Painting Manual 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.
- .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 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 Section 23 05 53 and Section 26 05 53 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 convector and baseboard heating cabinets where visible behind louvers, grilles and diffusers for a minimum of 460 mm 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 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 Inspection and Testing:
 - .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.
 - .2 No visible defects are evident on horizontal surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm.
 - .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 74 10: 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

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 07 92 00 Joint Sealants.
- .2 Section 08 11 00 Metal Doors and Frames.
- .3 Section 09 00 00 Interior Finishes.
- .4 Section 09 21 16 Gypsum Board Assemblies.

1.2 REFERENCE STANDARDS

- .1 Environmental Protection Agency (EPA)
 - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, EPA Method 24 - Surface Coatings.
 - .2 SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (SDS).
- .3 Master Painters Institute (MPI)
 - .1 The Master Painters Institute (MPI)/Architectural Painting Specification Manual (ASM) - current edition.
 - .2 Standard GPS-1-12, MPI Green Performance Standard.
 - .3 Standard GPS-2-12, MPI Green Performance Standard.
- .4 National Research Council Canada (NRC)
 - .1 National Fire Code of Canada 2015 (NFC).
- .5 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's instructions, printed product literature and data sheets for paint and paint products and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .3 Confirm products to be used are in MPI's approved product list.
- .3 Upon completion, provide records of products used. List products in relation to finish system and include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.
 - .5 Manufacturer's Material Safety Data Sheets (SDS).

.4 Samples:

- .1 Submit full range colour sample chips to indicate where colour availability is restricted.
- .2 Submit 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .1 13 mm plywood for finishes over wood surfaces.
 - .2 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
 - .3 13 mm for finishes over gypsum board and other smooth surfaces.
- .3 Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
- .5 Test reports: Provide certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
 - .1 Lead, cadmium and chromium: presence of and amounts.
 - .2 Mercury: presence of and amounts.
 - .3 Organochlorines and PCBs: presence of and amounts.
- .6 Certificates: Provide certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties. MPI Gateway #.
- .7 Manufacturer's Instructions:
 - .1 Provide manufacturer's installation application instructions.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: Provide operation and maintenance data for painting materials for incorporation into manual.
- .3 Include:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Stock Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Submit one four litre can of each type and colour of primer, finish coating. Identify colour and paint type in relation to established colour schedule and finish system.

1.6 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Contractor: to have a minimum of 5 years proven satisfactory experience. When requested, provide list of last 3 comparable jobs including, job name and location, specifying authority, and project manager.

- .2 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work.
- .3 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
- .4 Conform to latest MPI requirements for exterior painting work including preparation and priming.
- .5 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
- .6 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Consultant.
- .7 Standard of Acceptance:
 - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Soffits: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .1 Labels: to indicate:
 - .1 Type of paint or coating.
 - .2 Compliance with applicable standard.
 - .3 Colour number in accordance with established colour schedule.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Observe manufacturer's recommendations for storage and handling.
 - .3 Store materials and supplies away from heat generating devices.
 - .4 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .5 Keep areas used for storage, cleaning and preparation, clean and orderly. After completion of operations, return areas to clean condition.
 - .6 Remove paint materials from storage only in quantities required for same day use.
 - .7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
 - .8 Fire Safety Requirements:
 - .1 Provide 9 kg Type ABC fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (NFC).

1.8 SITE CONDITIONS

.1 Ambient Conditions:

.1 Heating, Ventilation and Lighting:

- .1 Ventilate enclosed spaces.
- .2 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
- .3 Provide continuous ventilation for 7 days after completion of application of paint.
- .4 Co-ordinate use of existing ventilation system with Construction Manager & Owner and ensure its operation during and after application of paint as required.
- .5 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
- .6 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.7 Temperature, Humidity and Substrate Moisture Content Levels:

- .1 Unless pre-approved written approval by Specifying body and product manufacturer, perform no painting when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
 - .4 The relative humidity is under 85 % or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
 - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
 - .6 Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.
 - .2 Perform painting work when maximum moisture content of the substrate is below:
 - .1 12 % for concrete and masonry (clay and concrete brick/block). Allow new concrete and masonry to cure minimum of 28 days.
 - .2 15 % for hard wood.
 - .3 17 % for soft wood.
 - .4 12 % for plaster and gypsum board.
 - .3 Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".
 - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- ### .8 Surface and Environmental Conditions:

- .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
- .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits.
- .3 Apply paint when previous coat of paint is dry or adequately cured.
- .9 Additional interior application requirements:
 - .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
 - .2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Construction Manager & Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 MATERIALS

- .1 Only Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Qualified painting products: Only Benjamin Moore and Sherwin Williams.
 - .1 Paint draw downs are required to be provided to TJX Canada Project.
 - .2 Alkyd quick— dry gloss enamels for exterior surfaces.
 - .3 Exposed concrete areas within confines of the building walls will receive two (2) coats of sealer as per specifications.
 - .4

Sherwin Williams	Benjamin Moore
Promar 200 low sheen B24 for walls.	Ultra spec 500, K537 lowsheen for walls.
Promar 400 flat B30 series for ceilings.	Ultra spec 500, K536 flat for ceilings.
Promar 400 flat B30 for painted bulkhead.	Ultra spec 500, K336 flat for painted bulkhead.
Multi surface acrylic B66—1500 series semi — gloss c/w universal primer B66— 310 if required. (colours to match current specification for doors and frames.)	Rust scat 90. Semi—gloss for metal doors and frames. (colours to match current Specification for doors and frames.)

- .3 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.
- .4 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .5 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids to be:
 - .1 Be manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 - .2 Be manufactured without compounds which contribute to smog in the lower atmosphere.
 - .3 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .6 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:

- .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15 mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
- .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.
- .7 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.
- .8 Recycled water-borne surface coatings to contain 50 % post-consumer material by volume.
- .9 Recycled water-borne surface coatings must not contain:
 - .1 Lead in excess of 600.0 ppm weight/weight total solids.
 - .2 Mercury in excess of 50.0 ppm weight/weight total product.
 - .3 Cadmium in excess of 1.0 ppm weight/weight total product.
 - .4 Hexavalent chromium in excess of 3.0 ppm weight/weight total product.
 - .5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0 ppm weight/weight total product.

2.2 COLOURS

- .1 See Section 09 00 00 Interior Finishes.

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Consultant & Construction manager for tinting of painting materials.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
- .4 Thin paint for spraying in accordance with paint manufacturer's instructions.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity. Strain as necessary.

2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:
 - .1 Gloss Level /Category | Units @ 60° | Units @ 85°
 - .2 G1 - matte finish | 0 to 5 | max. 10
 - .3 G2 - velvet finish | 0 to 10 | 10 to 35
 - .4 G3 - eggshell finish | 10 to 25 | 10 to 35
 - .5 G4 - satin finish | 20 to 35 | min. 35
 - .6 G5 - semi-gloss finish | 35 to 70
 - .7 G6 – gloss finish | 70 to 85
 - .8 G7 - high gloss finish > 85
- .2 Gloss level ratings of painted surfaces as indicated.

2.5 INTERIOR PAINTING SYSTEMS

- .1 Structural steel and metal fabrications: columns, beams, joists:
 - .1 INT 5.1D - Alkyd dry fall Insert gloss level (over Q.D. alkyd primer) finish.
 - .2 INT 5.1E Alkyd - insert gloss level (over Q.D. alkyd primer) finish.
- .2 Galvanized metal: doors, frames, railings, misc. steel, pipes, overhead decking, and ducts.
 - .1 INT 5.3A - Latex insert gloss level (over cementitious primer) finish.
 - .2 INT 5.3N - Institutional low odour/VOC insert gloss level (over W.B. galvanized primer) finish.
- .3 Dressed lumber: including doors, door and window frames, casings, mouldings:
 - .1 INT 6.3C - Semi-transparent stain, S.B. finish (not for doors).
 - .2 INT 6.3E - Polyurethane varnish semi-gloss semi-gloss finish (over S.B. stain).
 - .3 INT 6.3V - Institutional low odour/VOC insert gloss level (over latex primer) finish.
- .4 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
 - .1 INT 9.2A - Latex insert gloss level finish (over latex primer/sealer).
 - .2 INT 9.2M - Institutional low odour VOC insert gloss level (over primer sealer, low odour low VOC) finish.

2.6 SOURCE QUALITY CONTROL

- .1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.
 - .1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
 - .2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
 - .3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no. 8081 as defined in EPA SW-846.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable to be painted in accordance with manufacturer's written instructions.
 - .1 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Construction Manager.
- .2 Interior repainting work: inspected by MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority and local Painting Contractor's Association. Painting contractor to notify Paint Inspection Agency minimum of one week prior to commencement of work and provide copy of project repainting specification and Finish Schedule.
- .3 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .4 Maximum moisture content as follows:
 - .1 Stucco, plaster and gypsum board: 12 %.
 - .2 Concrete: 12 %.
 - .3 Clay and Concrete Block/Brick: 12 %.
 - .4 Hard Wood: 15 %.
 - .5 Soft Wood: 17%.

3.4 PREPARATION

- .1 Protection (not applicable to new painting work):
 - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Construction manager.
 - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
 - .3 Protect factory finished products and equipment.
 - .4 Protect passing pedestrians, and general public in and about the building.
- .2 Surface Preparation (not applicable to new painting work):
 - .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
 - .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
 - .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Construction manager.
- .3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

- .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 Allow surfaces to drain completely and allow to dry thoroughly.
- .5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
- .6 Use trigger operated spray nozzles for water hoses.
- .7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.
- 4 Clean following surfaces with high pressure water washing:
- .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
 - .3 Tint filler to match stains for stained woodwork.
- .7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .8 Carried out during shop priming: clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by Construction manager.
- .9 Touch up of shop primers with primer as specified.
- .10 Do not apply paint until prepared surfaces have been accepted by Construction manager

3.5 EXISTING CONDITIONS

- .1 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test" and report findings to Consultant & Construction manager. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .2 Maximum moisture content as follows:
 - .1 Stucco: 12 %.
 - .2 Concrete: 12 %.
 - .3 Clay and Concrete Block/Brick: 12 %.
 - .4 Hard Wood: 15 %.
 - .5 Soft Wood: 17%.

3.6 APPLICATION

- .1 Method of application to be as approved by Consultant & Construction manager. Apply paint by brush & roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
 - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
 - .4 Brush out immediately all runs and sags.
 - .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
- .5 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .9 Finish inside of cupboards and cabinets as specified for outside surfaces.
- .10 Finish closets and alcoves as specified for adjoining rooms.
- .11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .12 Wood, drywall, plaster, stucco, concrete, concrete masonry units and brick; if sprayed, must be back rolled.

3.7 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
- .2 Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.

- .3 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- .4 Do not paint over nameplates.
- .5 Keep sprinkler heads free of paint.
- .6 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- .7 Paint fire protection piping red.
- .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 Paint natural gas piping yellow.
- .10 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- .11 Do not paint interior transformers and substation equipment.

3.8 SITE TOLERANCES

- .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.9 FIELD QUALITY CONTROL

- .1 Interior painting and decorating work to be inspected by a MPI Accredited Paint Inspection Agency (inspector) acceptable to specifying authority and local Painting Contractor's Association. Painting contractor will notify Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
- .2 Interior surfaces requiring painting to be inspected by Paint Inspection Agency who will notify Consultant, Construction manager and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.
- .3 Where "special" painting, coating or decorating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer will provide as part of this work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Owner.
- .4 Standard of Acceptance:
 - .1 Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Ceilings: no defects visible from floor at 45 degrees degrees to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
- .5 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Consultant & Construction manager.

3.10 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for reuse & recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.11 RESTORATION

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Consultant & Construction manager. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant & Construction manager.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Bumper Rails.
- .2 Vinyl Corner Guards.
- .3 Coat Hooks Boards.
- .4 Exterior trash and cigarette receptacle.
- .5 Fitting room – clothing bars.

1.2 RELATED SECTIONS

- .1 Section 06 10 00 - Rough Carpentry
- .2 Section 09 00 00 - Interior Finishes
- .3 Section 09 21 16 - Gypsum Board Assemblies

1.3 SUBMITTALS FOR REVIEW

- .1 Submit shop drawings or catalogue pages showing materials, thickness, methods of joining, fastening and hardware used.
- .2 Provide all required information for framing, supports and rough-ins for related work.

Part 2 Products

2.1 MANUFACTURERS & MATERIALS

- .1 Bumper rails. See Section 05 50 00 Metal Fabrications.
 - .1 As supplied by manufacturer indicated on drawings. See Schedule for colours.
 - .2 Bumper rail as indicated on drawings. Refer to drawings for locations.
- .2 Schedule

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
WB1	Bumper Rail	#012 (Black)	Ecoflex Series #1000, C/W Aluminum Base	Boston Retail Products	TJX — Sales Floor, Public Corridor & Fitting Rooms
WB2	Bumper Rail	#012 (Black)	Ecoflex Series #2100, 2 1/2"	Boston Retail Products	TJX — Sales Floor, Public Corridor & Fitting Rooms

- .3 Vinyl Corner Guards.
 - .1 Sales Floor Columns: 1” vinyl corner guards. All exposed columns in sales area.
 - .2 Refer to drawings for specifications. Corners to accommodate mirror.
 - .3

Dwg Code	Finish	Colour	Product Description	Manufacturer	Location
CG1	Corner Guard	#012 (Black)	1"X1" Ecorigid Polybostylene PBRVCC—1—012	Boston Retail Products	TJX — Sales Floor & Public Corridor
CG2	Corner Guard	Satin Aluminum	Korogard 1"X1" Matin Aluminum Corner Guard	Koroseal Wall Protections Systems	TJX — Staff Lounge, Sales Floor & Fitting Rooms

.4 Coat Hook Boards.

- .1 Supply and install Coat Hook Boards for Office Areas, location as noted on drawings and for each fitting room (including handicap/family fitting room). Refer to detail on Drawings. Refer to drawing for exact location. NOTE: Coat hooks in fitting room areas are to be caulked on all sides with clear caulking.

- .1 Coat Hook board are to be manufactured as per drawings.
- .2 Single hook on the backside of washroom partition doors.
- .3 Mount hooks at 6" o.c. with end hooks at 4" from end of board. Centre hooks vertically.
- .4 Mount board and hooks at 5'-0" o/c A.F.F. and secure to studs and/or wood blocking. Except if indicated otherwise on the drawings.
- .5 Hooks to be heavy duty chromed with rubber bumper cap to prevent damage on fitting room doors etc. (Similar to washroom cubicle hooks.)

.5 Exterior trash and cigarette receptacle.

- .1 For exterior entrance stores: Supply and install one precast concrete exterior trash receptacle.
- .1 To be placed at entry as per tenant site instruction. Grey aggregate finish similar to Alpha Precasts – Brampton, Ontario. 905-457-4911:
 - .2 22" diameter type TR1, c/w power coated ash ring

.6 Carttronics Shopping Cart System:

- .1 Manufacturer: Gatekeeper
- .1 Contact: Dave Weider – 416-844-4617 Email: canadasales@gatekeepersystems.com
 - .2 Coordinate Electrical Rough-ins with Division 16 - Electrical.
 - .3 Contact installation prior to V.C.T. tile.
 - .4 Coordinate installation with door installer for exterior entrance doors.

Part 3 Execution

3.1 PREPARATION

- .1 As per supplier and manufacturer recommendations.
- .2 Repair and make good surfaces to necessitate installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 09 21 16 Gypsum Board Assemblies
- .2 Section 09 30 13 Ceramic Tiling.
- .3 Section 10 28 00 Toilet and bath accessories

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM A480/A480M -14a, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting, Sheet, and Strip.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3 CSA Group
 - .1 CSA B651-12, Accessible Design for the Built Environment.
- .4 CAN/CSA-Z809-08 (R2013), Sustainable Forest Management.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (SDS).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for plastic toilet compartments and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .4 Shop Drawings:
- .5 Indicate fabrication details, plans, elevations, hardware, and installation details.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect specified materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Toilet Partitions shall be solid plastic:
- .2 Floor Mounted, Head Rail braced compartments by Hadrian or ASI Global Partitions with equivalent components and hardware.
- .3 Toilet Partitions shall be solid plastic: Floor Mounted, Head Rail braced compartments by Hadrian or ASI Global Partitions with equivalent components and hardware. Each door to be fitted with a combined coat hook and bumper (except barrier free stalls) and Strike-keeper and surface mounted throw latch are clear anodized extruded aluminum. Standard Hadrian or ASI Global Partitions colour as indicated on drawings.
- .4 Each door to be fitted with a combined coat hook and bumper (except barrier free stalls) and Strike-keeper and surface mounted throw latch are clear anodized extruded aluminum.
 - .1 Standard Hadrian or ASI Global Partitions colour as indicated on drawings.
 - .1 Acceptable Manufacturer: ASI Global Partitions, which is located at: 900 Clary Connector; Eastanollee, GA 30538; Tel: 706-827-2700; Fax: 706-827-2710; Email: request info (sales@asi-globalpartitions.com); Web: <http://asiglobalpartitions.com>
 - .2 Construction: Doors, panels and pilasters shall be certified CLASS B polyethylene or 100% post-consumer recycled polyethylene solid plastic.
 - .1 Doors: Shall be (25mm) 1" thick by (1397mm) 55" high straight cut with fine radius edges.
 - .2 Panels: Shall be (25mm) 1" thick by (1397mm) 55" high straight cut with fine radius edges.
 - .3 Pilasters: Shall be (25mm) 1" thick by (2083mm) 82" high straight cut with fine radius edges.
 - .4 Headrail: Shall be 32mm (1.25") by 44mm (1.75") extruded anodized aluminum with anti-grip design. Wall thickness to be 1.5mm (0.060") and shall be securely attached to wall and pilasters with manufacturer's fittings in such a way as to make a rigid installation. All joints in headrails shall be made at a pilaster.
 - .3 The material shall contain no foaming agents, which can cause the formation of air pockets.
 - .4 Self-lubricating surface.
 - .5 Finish:
 - .1 High performance powder coating, electrostatically applied and oven cured to provide a uniform, smooth protective finish, selected from standard (SC) colour range (please note anti-graffiti and special effects finishes are a 5% upcharge to SC finishes).
 - .6 Provide to high abuse and high moisture environment conditions.
- .5 Urinal Screens shall be solid plastic: Refer to drawings.
 - .1 Panel: 25mm (1") thick, straight cut with fine radius edges.
 - .2 Pilasters: 25mm (1") thick shall be securely and rigidly fastened to the floor.
 - .3 Pilaster shoe: 76 mm (3") high, die-formed stainless steel pilaster shoe.
 - .4 Attachment: stainless steel tamperproof type screws and bolts.

- .5 Screen: 58" high in varied depths – see Drawings for details.
- .6 Standard prefinished
- .7 Hadrian or ASI Global Partitions colour as indicated on drawings.
- .8 Screens construction shall be certified CLASS B polyethylene.
- .9 The material shall contain no foaming agents, which can cause the formation of air pockets.
- .10 The self-lubricating surface is resistant to marking and can be maintained effectively with ordinary household cleaners.
- .6 Pilaster shoe: stainless steel or aluminum as applicable, 127 mm high.
- .7 Attachment: stainless steel or aluminum as applicable, tamper proof type screws and bolts.

2.2 COMPONENTS

- .1 Hardware and Fittings:
- .2 Doors are installed with a continuous hinge model #x2011-900 complete with all fasteners and ssp continuous stop model #620137 for inswinging doors and/or #620138 for outswinging doors, which wrap around both the door and pilaster.
- .3 Hinges are fastened to door and pilaster with tamper-proof 6-lobe security head stainless steel thru-bolts and fastened to the edge of the door and pilaster with a #10 x 1" screw. Top hinges have adjustable nylon cams.
- .4 Strike-keeper and throw latch are extruded clear anodized aluminum. Three heavy-duty aluminum brackets are used at the panel to wall connection and a full-height continuous aluminum channel is used at the panel to pilaster connection.
- .5 Coat hook & bumper: solid cast zinc hook and oversized black rubber bumper that functions as both a door stop and bag hook.
- .6 Fasteners are theft-proof 6-lobe security head stainless steel screws. Pilasters shall be securely and rigidly fastened to the floor with 3" (76mm) high stainless steel anchor shoes.
- .7 Wall and connecting brackets: stainless steel extrusion or casting.
- .8 Coat hook: combination hook and rubber door bumper, anodized aluminum.

2.3 FABRICATION

- .1 Doors, panels and screens: 25 mm thick, solid plastic laminate panels, to sizes indicated.
- .2 Pilasters: 32 mm thick, constructed same as door, to sizes indicated.
- .3 Laminate plastic to core material ensuring core and laminate profiles coincide to provide continuous support and bond over entire surface.
- .4 Finish edges of composite laminated plastic panels with stainless steel channel edging and mitre corners.
 - .1 Chamfer exposed edges uniformly at approximately 20 degrees.
- .5 Provide formed and closed edges for doors, panels and pilasters.
 - .1 Mitre and weld corners and grind smooth.
- .6 Provide internal reinforcement at areas of attached hardware and fittings.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for plastic toilet compartments installation in accordance with manufacturer's written instructions.
 - .1 Inform Consultant of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .1 Ensure supplementary anchorage, if required, is in place.
- .2 Do work in accordance with CSA B651.

3.3 ERECTION

- .1 Partition erection:
 - .1 Install partitions secure, plumb and square.
 - .2 Leave 12 mm space between wall and panel or end pilaster.
 - .3 Anchor mounting brackets to masonry or concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors, to steel supports with bolts in threaded holes.
 - .4 Attach panel and pilaster to brackets with through type sleeve bolt and nut.
 - .5 Provide for adjustment of floor variations with screw jack through steel saddles made integral with pilaster. Conceal floor fixings with stainless steel shoes.
 - .6 Provide templates for locating threaded studs through finished ceilings.
 - .7 Equip each door with hinges, latch set, and each stall with coat hook mounted on door, mounting heights as indicated mm. Adjust and align hardware for proper function. Set door open position at full open. Install door bumper wall mounted, typesurface.
 - .8 Equip outswinging doors with door pulls on side as required of door in accordance with CSA B651.
 - .9 Install hardware grab bars.
- .2 Floor supported and overhead braced partition erection:
 - .1 Attach pilasters to floor with pilaster supports and level, plumb, and tighten installation with levelling device.
 - .2 Secure pilaster shoes in position.
 - .3 Secure headrail to pilaster face with not less than two fasteners per face.
 - .4 Set tops of doors parallel with overhead brace when doors are in closed position.
- .3 Floor supported partition erection:
 - .1 Secure pilasters to floor with pilaster supports anchored with minimum 50 mm penetration in structural floor.
 - .2 Level, plumb and tighten installation with levelling device.
 - .3 Secure pilaster shoes in position.
 - .4 Set tops of doors level with tops of pilasters when doors are in closed position.

.4 Screen erection:

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Accessories:
 - .1 Commercial toilet accessories.
 - .2 Under-lavatory pipe supply covers.
 - .3 Electric hand/hair dryers.
 - .4 Diaper changing stations.
 - .5 Utility room accessories.
- .2 Grab bars.
- .3 Attachment hardware.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry
- .2 Section 08 80 00 – Glass and Glazing: Wall mirrors.
- .3 Section 08 71 00 - Door Hardware (Barrier Free Doors)
- .4 Section 09 21 16 - Gypsum Board Assemblies .
- .5 Section 09 22 16 - Non-Structural Metal Stud Framing
- .6 Section 09 30 00 - Ceramic Wall Tiling: Ceramic accessories.
- .7 Section 10 21 13.19 - Solid Plastic Toilet Compartments.
- .8 Division 22 - Plumbing
- .9 Division 23 - HVAC - (Handryer - Airblade)
- .10 Division 26 - Electrical

1.3 REFERENCE STANDARDS

- .1 [ASTM A123/A123M-17 Standard specification for zinc \(hot-dip galvanized\) coatings on iron and steel products](#)
- .2 [ASTM A167-99\(2004\) Standard specification for stainless and heat-resisting chromium-nickel steel plate, sheet, and strip. \(Withdrawn 2014\)](#)
- .3 [ASTM A269/A269M-15a\(2019\) Standard specification for seamless and welded austenitic stainless steel tubing for general service](#)
- .4 [ASTM A1018/A1018M-18 Standard specification for steel, sheet and strip, heavy-thickness coils, hot-rolled, carbon, commercial, drawing, structural, high-strength low-alloy, high-strength low-alloy with improved formability, and ultra-high strength](#)
- .5 [ASTM B456-17 Standard specification for electrodeposited coatings of copper plus nickel plus chromium and nickel plus chromium](#)
- .6 [STD B651-18 Accessible design for the built environment](#)
- .7 [NEMA LD 3-2005 High-pressure decorative laminates \(HPDL\)](#)

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 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 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- .3 Shop drawings:
 - .1 Submit *Shop Drawings* or catalogue illustrations of each product.
 - .2 Clearly indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, details of anchors for grab bars.
 - .3 Where proposed product is by a different manufacturer than the specified product, do not order until acceptance by the *Owner* and *Consultant*.
 - .4 Rough-in requirements.
- .4 For items that require electrical connectivity installation shall be designed by an electrical engineer permanently licensed to practice in the province of the *Project* and who is experienced in providing engineering services of the kind indicated. All *Shop Drawings* submitted shall bear the stamp and signature of the aforesaid electrical engineer.
- .5 For items that require mechanical connectivity installation shall be designed by a mechanical engineer permanently licensed to practice in the province of the *Project* and who is experienced in providing engineering services of the kind indicated. Each shop drawing submitted shall bear the stamp and signature of the aforesaid mechanical engineer.

1.6 INFORMATIONAL SUBMITTALS

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

1.7 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.

Part 2 Products

2.1 MANUFACTURERS

- .1 This specification is based on toilet and bath accessories by Bobrick Ltd.
- .2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
 - .1 Frost; Product: Suitable for purpose.
 - .2 ASI; Product: Suitable for purpose.
 - .3 Bobrick; Product: Suitable for purpose.
- .3 Substitutions: Refer to Section 01 25 00.

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to National Building Code for accessibility requirements for the handicapped.

2.3 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, 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.

2.4 ACCESSORIES

- .1 Commercial Toilet Accessories:
 - .1 Toilet Paper Dispenser:
 - .1 Frost Model "TJX Custom Stainless Steel Unit Model #HH166S" 10" Roll dispenser in Stainless Steel Finish. GC to acquire the unit by communicating with Imperial Home Hardware Supply Contact Dean Jensen 416-783-6119
 - .2 Attached Purse Shelf: 0.8 mm satin finished stainless steel, with rolled or formed edge at front.
 - .3 Bobrick B-66997 stainless steel surface mounted single roll toilet tissue dispenser with hood. Provide one in each toilet compartment
 - .4 Waste Receptacle: Frost # 303-3 surface mounted waste receptacle with liner.
 - .5 Soap Dispenser:
 - .1 Bobrick # B-26617 Wall Mounted dispenser.
 - .6 Mirrors: See Section 08 80 00 Glazing.
 - .1 Frost: 941-2436 FT / 24" x 36" (Fixed Tilt); Stock Series.
 - .2 Frost 941- 2436 / 24" x 36"; Stock Series.
 - .7 Grab Bars:
 - .1 1003-NP 1 ½" dia. "peened surface" stainless steel bars with concealed flange set screw mounting.
 - .2 Urinal Grab Bars
 - .1 Two (2) 12" grab bars installed vertically on either side of urinal.
 - .3 Local governing codes shall govern.
 - .1 Refer to drawings for installation detail.
 - .8 Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
- .2 Coat Hook with Bumper:
 - .1 Frost 1146B.

- .3 Shelf:
 - .1 Bobrick model B-295x24
- .4 Under-Lavatory Pipe And Supply Covers
 - .1 Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks to comply with CSA B651.
- .5 Electric Hand-hair Dryers
 - .1 Hand dryer: Dyson Airblade Wash+Dry short, Model WD04, Hands-free
 - .2 Refer to Mechanical Specifications - hand dryer / faucet combination.
- .6 Baby Changing Stations
 - .1 Baby Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
 - .1 Material: Polyethylene.
 - .2 Mounting: Surface.
 - .3 Engineered compact design to withstand 150kg (330 lbs) static load. Unit shall be complete with shock mechanism to open and brake motion to prevent trapping of fingers and shock mechanism for safe bed retraction. Reinforce unit with heavy steel-on-steel hinges. Chemical-free sanitary liners over change area with sanitary line dispenser and graphic instructions. Horizontal design, wall mounted complete with factory installed lock. Provide unit in colour selected by the *Owner* and *Consultant*.
 - .2 Acceptable Products:
KB301-00 Vertical Wall Mounted Changing Station
 - .1 by Koala Corporation www.koalabear.com by KBC Specialty products, Inc. Colour: White Granite
- .7 Adult Change Table (Freestanding):
 - .1 Freestanding
- .8 Sink
 - .1 (Refer to Mechanical information).
- .9 Concealed Toilet Flush Valve:
 - .1 (Refer to Mechanical specifications and Electrical information).

2.5 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 with 38mm 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.

2.6 KEYING

- .1 Supply 4 keys for each accessory to Owner.

- .2 Master key all accessories.

2.7 FINISHES

- .1 Galvanizing: Hot-dip galvanized to appropriate grade for type and size of steel material indicated, coating thickness ASTM A123/A123M. 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 electrostatic baked enamel.
- .4 Chrome/Nickel Plating: ASTM B456, Type SC 2, polished 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 71 00: Verify existing conditions before starting work.
- .2 Verify that field measurements are as indicated on product data, comply with National building code.
- .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 plumb and level, securely and rigidly anchored to substrate.
- .2 Stud walls: Install steel back plate to stud prior to drywall finish. Provide plate with threaded studs or plugs.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Structural information prepared by Structural consultant.
- .2 Section 05 50 00 - Metal Fabrications.
- .3 Section 09 91 13 - Exterior Painting.
- .4 Section 11 13 16 Loading dock seals and shelters.
- .5 Section 11 13 19.13 Loading dock levelers.

1.2 SCOPE OF WORK

- .1 Dock leveler supplier is to do a full survey of the existing dock levelers and make recommendations for items and systems that can be salvaged and re-used in the locations shown on the drawings.
- .2 All new items or refurbished items that are required to enable the full functioning of the dock levelers are to be clarified in terms by the supplier of the specifications.

1.3 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM D624-00 (2007), Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
 - .2 ASTM D1171-99 (2007), Standard Test Method for Rubber Deterioration-Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
 - .3 ASTM D2632-01 (2008), Standard Test Method for Rubber Property-Resilience by Vertical Rebound.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature and data sheets for loading dock bumpers and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Indicate on drawings:
 - .1 Dimensions and required clearances.
 - .2 Fastening methods for dock bumpers.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

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

Part 2 Products

2.1 MANUFACTURED UNITS

- .1 Laminated Dock Bumper:
 - .1 Supply and install (2) Blue Giant per loading dock: Model #BGV420-11-C-P, 20" high x 4" deep steel-faced laminated dock bumpers (one side angle / one side flat) with no exceptions or substitutions except for site condition requirements. Consider, dock height, dock approach etc. during installation to prevent truck from damaging dock leveler, wall and building etc.
 - .2 Blue Giant Corporate:
Contact David Rimmer, Account Executive, Nation C.A.R.E.®, 647.501.3126
drimmer@bluegiant.com
 - .3 Wheel chock bracket complete with signage, by manufacturer.
 - .4 Rubber pads laminated between structural steel angles and compressed under approximately 680 kg pressure.
 - .1 Angles welded to 19 mm steel rods at one end and closed with threaded rod and nut at other end.
 - .5 Anchor leg of angle extends 76 mm beyond rubber surface at each end and contains three 21 mm anchor bolt holes as required.
 - .6 Hot-dipped galvanized finish for exposed metal parts.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates and surfaces previously installed under other Sections or Contracts are acceptable for loading dock bumper installation in accordance with manufacturer's instructions prior to loading dock bumper installation.
 - .1 Inform Consultant & Construction manager of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .1 No assembly required for pre-manufactured unit.
 - .1 Install loading dock bumper as indicated.
- .2 Laminated Dock Bumper: provide bolting through steel for structural mounting angles as per manufacturers instructions.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.

- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for in accordance with Section
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 **PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by loading dock bumper installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Structural information prepared by Structural consultant.
- .2 Section 05 50 00 - Metal Fabrications.
- .3 Section 09 91 13 - Exterior Painting.
- .4 Section 11 13 13 Loading dock bumpers.
- .5 Section 11 13 19.13 Loading dock levelers.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM A924/A924M-10a, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
 - .3 ASTM D1056-07, Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
- .2 CSA Group (CSA)
 - .1 CAN/CSA-Z809-08, Sustainable Forest Management.

1.3 SCOPE OF WORK

- .1 Dock leveler supplier is to do a full survey of the existing dock levelers and make recommendations for items and systems that can be salvaged and re-used in the locations shown on the drawings.
- .2 All new items or refurbished items that are required to enable the full functioning of the dock levelers are to be clarified in terms by the supplier of the specifications.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature and data sheets for loading dock seals and shelters and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Indicate on drawings:
 - .1 Dimensions and required clearances.
 - .2 Fastening methods for door seals.

1.5 CLOSEOUT SUBMITTALS

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

- .2 Operation and Maintenance Data: submit operation and maintenance data for dock shelter seal care, cleaning and maintenance for incorporation into manual.

1.6 QUALITY ASSURANCE

- .1 Sustainable Standards Certification:
 - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect loading dock seals and shelters from nicks, scratches, and blemishes.

Part 2 Products

2.1 SEALS

- .1 Blue Giant BG200V-TJX
 - .1 Supply and install (1) Blue Giant Adjustable Curtain Compression Dock Seal: Model BG200V-TJX with no exceptions or substitutions. Consider dock height, door size and dock approach (level or other) etc. Provide tapered seals where required by site conditions to accommodate slope driveway on loading dock area. Where dock lift platform and grade level overhead door are installed, provide matching curtain to fill space between truck bed at 48" and grade.
 - .2 Blue Giant Corporate:
Contact David Rimmer, Account Executive, Nation C.A.R.E.®, 647.501.3126
drimmer@bluegiant.com
- .2 Model #BG200V-TJX – 8' x 10' door (truck level receiving). Verify dimensions on site.
 - .1 Vertical pads 10' high with a 12" face (front/back), with full yellow guide stripe. Vertical pad design based on level driveway approach, consult Blue Giant for taper design to accommodate non level approach.
 - .2 40oz Hi-tear overlapping wear flaps on vertical pads, colour black, c/w 6" exposure and full yellow guide stripe.
 - .3 Head curtain 10' long with a 24" drop with Velcro split. 24" drop based on install of 144" overall height above grade.
 - .4 Unit projection 10" providing approx. 4" (102mm) compression based on specified bumper.
 - .5 40oz Hi-tear vinyl, colour: black.

- .6 Vertical pads to be manufactured using kiln-dried wood and high grade, dense, light weight urethane foam core with 98% compression recovery and maintaining flexibility at -40°.
- .7 Foam core shall be bonded to the wood backing with an industrial, non-flammable elastic adhesive.
- .8 Cover fabric shall be double stitched with high strength 100% polyester bonded, U.V. treated thread. Cover fabric overlaps wood backing totally enclosing it with vapour barrier and fastened with heavy duty plated staples.
- .9 Vertical pads are vented allowing air to be exhausted and moisture to drain. Vertical pads are tapered cut at top to provide adequate drainage.
- .10 Full width steel tube shall be inserted into a pocket on the head curtain to prevent sagging.
- .11 Curtain is manually adjusted by means of rope and pulley assembly
- .12 Unit shall be furnished with galvanized mounting hardware to resist corrosion
- .3 In fabric cover provide 125 mm wide integral yellow guide stripes sewn to full length of each jamb and header.
- .4 Mounting Hardware: galvanized.
- .5 Optional Pad Wear Face: reinforced bottom corners, extra layer of fabric on head pad, pleated layer of fabric sewn to face of boards.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates and shelters previously installed under other Sections or Contracts are acceptable for loading dock seals and shelters installation in accordance with manufacturer's instructions prior to loading dock seals and shelters installation.
 - .1 Inform Consultant & Construction manager of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .1 Install loading dock seals in accordance with manufacturer's instructions and as indicated.

3.3 ADJUSTING

- .1 Adjust loading dock seals and shelters components for correct function and operation in accordance with manufacturer's written instructions.
- .2 Lubricate moving parts to operate smoothly and fit accurately.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for in accordance with Section

- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by loading dock seals and shelters installation.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Structural information prepared by Structural consultant.
- .2 Coordinated electrical requirements with electrical consultant.
- .3 Section 05 50 00 - Metal Fabrications.
- .4 Section 09 91 13 - Exterior Painting
- .5 Section 11 13 13 - Loading dock bumpers
- .6 Section 11 13 16 - Loading dock seals & shelters

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
- .2 Green Seal Environmental Standards
 - .1 Standard GS-03-93, Anti-Corrosive Paints.
 - .2 Standard GS-11-97, Architectural Paints.
 - .3 Standard GS-36-00, Commercial Adhesives.

1.3 SCOPE OF WORK

- .1 Dock leveler supplier is to do a full survey of the existing dock levelers and make recommendations for items and systems that can be salvaged and re-used in the locations shown on the drawings.
- .2 All new items or refurbished items that are required to enable the full functioning of the dock levelers are to be clarified in terms by the supplier of the specifications.
 - .1 Blue Giant Corporate:
Contact David Rimmer, Account Executive, Nation C.A.R.E.®, 647.501.3126
drimmer@bluegiant.com

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Indicate:
 - .1 Verify existing conditions. Remove existing dock leveler, refer to 02 41 00.08 - Demolition.
 - .2 Dimensions of pit and required clearances.
 - .3 Arrangement of storage tank, pump, jacks mechanical linkages and valves and piping, with sizes and working pressure.
 - .4 Details of cylinder, plunger, pump, motor, valves and operating station, showing names of manufacturers, type or style designations, part numbers, and hp and rpm of motor.

- .5 Factory test data of cylinder containing complete information covering test, cylinder material, inside and outside diameters and maximum test pressure.
- .6 Details of electrical equipment.
- .4 Shop drawings to be stamped by and electrical engineer registered in the Province of Ontario.
- .5 Quality control submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.
 - .2 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3, FIELD QUALITY CONTROL.
- .6 Closeout Submittals:
 - .1 Provide operation and maintenance data for dock levelers for incorporation into manual specified in Section 01 78 00 - Closeout Submittals and include:
 - .1 Complete description and sequence of operation together with wiring diagrams showing electrical connections, manufacturer's instructions covering maintenance requirements, and parts catalogue giving complete list of repair and replacement parts with cuts and identifying numbers.
 - .2 Dimensioned drawing of dock leveler installation as installed.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse & recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 EXTRA MATERIALS

- .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide complete set of tools necessary to maintain and adjust every part of dock leveler.
- .3 Provide high pressure cartridge refill type grease gun and extra cartridge of recommended lubricant.

Part 2 Products

2.1 EQUIPMENT (RENOVATION MODEL)

- .1 Hydraulic unit:
 - .1 Supply and install one (1) hydraulic recessed, pit installed hinged dock leveler as shown in drawing. Electro-hydraulically operated dock leveler complete with hydraulic lip and deck cylinders. Model: Blue Giant #H6008W-TJX with no exceptions or substitution.
 - .1 Blue Giant Corporate: Contact David Rimmer, Account Executive, Nation C.A.R.E.®, 647.501.3126 drimmer@bluegiant.com;

- .2 Platform to lower itself to bottom position, level with dock and with lip behind bumpers, when truck moves away.
- .3 Provide manual override to be used in case of power failure, and allow lip to remain extended if desired.
- .4 Each unit supplied with power pack consisting of:
 - .1 Pneumatic cylinder, control valve, pump, fluid receiver, connections suitable for pit mounting and 10 m of air line.
 - .2 Integral motor, controls, pump, fluid receiver, connections suitable for pit mounting.
- .5 Power characteristics Voltage: 575/3/60.
- .6 Make cylinder of seamless steel piping with bore turned and polished and with positive stop ring to prevent plunger from leaving cylinder.
 - .1 Provide top and bottom mountings to ensure positive alignment and to prevent binding in any position of ramp platform.
- .7 Equip lifting jack assembly with two bearings for vertical stability, oil inlet connections, stuffing box with suitable packing and plunger wipe, and packing gland.
- .8 Have cylinder factory tested at pressure of 2.8 MPa minimum.
- .9 Provide electric power unit consisting of motor and direct-connected pump, wiring, conduit, oil piping and accessories.
- .10 Provide overload protection for motor, and pressure relief valve in pump bypassing oil back to reservoir.
 - .1 Provide check valve, continuous-duty solenoid valve and flexible hose.
- .11 Oil Reservoir:
 - .1 Make oil reservoir integral with torque tube assembly or separate welded steel tank, galvanized inside and out.
 - .2 Equip reservoir with strainer assembly and overflow and drain connections and protected vent opening.
 - .3 Provide initial filling of oil for system.
- .2 Leveler platform:
 - .1 Platform size: 1800 mm wide by 2400 mm long with 400 mm wide hinged lip. Confirm size requirements on site and with supplier.
 - .2 Construct platform sections of checkered steel floor plate not less than 10 mm thick, flush with front edge of dock ramp frame in retracted position.
 - .3 Construct platform base of sectional steel box members including automatic compensation for out-of-level vehicles.
 - .4 Make leveler flexible with sufficient members to compensate for out-of-level vehicle condition of 100 mm maximum with not more than 15 mm differential between two flexible members in extreme condition.
 - .5 Use members of heavy structural shapes, rigidly welded and reinforced for concentrated wheel loads.
 - .6 No obstruction to protrude above platform floor surface of leading edge of leveler that will prevent closing of overhead doors installed over leveler platform, or hinder operations.

- .7 Make side members of leveler platform to function as protective steel plate skirts on each side of leveler platform front to back, when leveler platform is in fully raised position.
- .8 Construct underframe of leveler platform of rigid construction and supported by lifting mechanism at two widely separated points to prevent tilting, deflection or distortion of platform when concentrated wheel loads, up to and including maximum moving or roll-over load, are imposed on position of platform.
- .9 Leveler to have retractable safety legs or other safety stop device, that prevent leveler from descending to more than 12 mm below cross traffic position in event truck pulls away prematurely.
- .10 Provide two laminated fabric reinforced bumpers for each unit.
- .3 Operating station:
 - .1 Install wall mounted operating station where indicated.
 - .2 Provide four operating positions, clearly and permanently marked "UP", "DOWN", "FORWARD" and "REVERSE".
 - .3 Operate by handle or push-buttons for each position.
 - .1 Return operating handle to "OFF" position when released while moving leveler in any direction, and stop leveler in position at moment of release.
 - .4 Operate limit switches or similar devices at extreme positions of ramp travel to protect power system and mechanism from damage.
 - .5 Provide automatic safety lock to limit downward travel of leveler platform to maximum 50 mm in event trailer or truck moves away from leveler while carrying load up to maximum capacity.
 - .6 Accessories.
 - .7 Fail safe control: equip leveler with velocity valve in hydraulic system to prevent fluid discharge in event truck accidentally pulls away with equipment still on leveler.
 - .8 Maintenance strut: steel folding strut to prevent accidental collapse of leveler and lip during maintenance.
 - .9 Automatic overhead door security: automatic locking mechanism to leveler lip to prevent unauthorized lowering of leveler and access to building between lowered leveler and underside of closed door.
 - .10 Wheel chocks: moulded rubber, height mm high x width to suit application in mm wide, wheel chocks designed to provide maximum traction between tires and parking surface.
 - .11 Provide weather seals on both sides of platform.
 - .12 Safety legs: equip leveler with safety legs to prevent leveler dropping more than 25 mm below dock level, in event truck pulls away when leveler is in use.
 - .13 Provide steel tapered toe guards.
 - .14 Provide safety stripping four sides of unit.
- .4 Dock board:
 - .1 Provide manually operated front of dock mounted dock board with maximum capacity of 8000 kg.
 - .2 Design dock board to travel 150 mm up and 150 mm down from dock level.

- .3 Dock board size: 1800 mm wide by 700 mm long with 265 mm lip projection beyond bumpers.
 - .1 Construct dock board of two sections hinged together and secured with activated lock.
 - .2 Make sections of non-skid, checkered steel plate.
- .4 Counterbalance dock board with springs to reduce manual lifting effort to 100 N maximum.
- .5 Store dock board in vertical position 325 mm in front of dock with 300 mm of board section above dock level.
- .6 Board section: manually raise and pivot upward and inward remaining in approximately vertical position.
 - .1 When in extreme inward and upward position pivot board to horizontal plane and lower to bridge space between truck and dock.
 - .2 When truck moves away, platform automatically pivots to vertical position behind dock bumpers.
- .7 Refer to Section 05 50 00 Metal Fabrications for Steel Edging.
- .5 Finish:
 - .1 Paint slip resistant exposed ferrous metal work unless otherwise specified.
 - .2 Free surfaces of rust and coat with rust resistant paint.
 - .3 Clean but do not paint surfaces to be field welded.
 - .4 Apply two coats of anticorrosive structural steel alkyd primer MPI # 79 to to surfaces of structural members and frame of ramp excepting finished or working surfaces.
 - .5 Apply heavy coat of bituminous paint to concealed surfaces before building-in.
- .6 Power supply:
 - .1 Power supply: to be determined by electrical consultant in V, 3 phase, 60 Hz.
 - .2 Electrical service specified in electrical information prepared by electrical consultant includes: fused disconnect switch with conductors from switch to controller or starter.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Install dock ramps in accordance with manufacturer's instructions.
- .2 Install electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for proper operation.
- .3 Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of installation.
- .4 Adjust dock ramp operating components to ensure smooth continuous raising and lowering of platforms.
- .5 Deck surface in normal down position is to be level and flush with surface of surrounding dock surface.

3.3 FIELD QUALITY CONTROL

- .1 Site Tests: conduct operating tests for approval of Consultant including:
 - .1 Operation to maximum limits of travel in "UP", "DOWN", "FORWARD", and "REVERSE" directions.
 - .2 Extending ramp to rest on bed of variety of trucks or trailers.
 - .3 Demonstration of drop limitation.
 - .4 Demonstration of proper functioning of out-of-level compensation.
 - .5 Demonstration of proper functioning of compensation for variation in compression of truck or trailer springs.
 - .6 Demonstration of loading capacity.
- .2 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Packaged waste compactor unit and discharge container.

1.2 RELATED REQUIREMENTS

- .1 Section 09 91 00 - Painting: Field painting of exposed steel frame.
- .2 Division 22 – Plumbing:
 - .1 Domestic water supply to compactor unit.
 - .2 Floor funnel drain.
- .3 Division 28 – Electronic Safety and Security: Conduit and electrical power to compactor unit controls.

1.3 REFERENCE STANDARDS

- .1 [ANSI Z245.1:2017 Automatic damper devices for use with gas-fired appliances](#)
- .2 [STD C22.2 NO. 100-14 Motors and generators](#)
- .3 [ANSI/NEMA MG 1-2021 Motors and generators](#)
- .4 NSWMA (National Solid Wastes Management Association) - Commercial/Industrial Compactors Ratings.

1.4 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide unit capacities, physical dimensions, utility requirements and locations, point loads.
- .3 Shop Drawings: Indicate machine location, rough-in and anchor placement dimensions and tolerances, clearances required.
- .4 Shop drawings to be stamped by and electrical engineer registered in the Province of Ontario.

1.5 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Test Reports: Indicate NSWMA ratings accompanied with certified test results.
- .3 Installation Data: Manufacturer's special installation requirements.
- .4 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

- .1 Section 01 78 00: Submission procedures.
- .2 Operation and Maintenance Data:
 - .1 Include description of system operation, adjusting and testing required.
 - .2 Identify system maintenance requirements, servicing cycles, lubrication types required and local spare part sources.

1.7 QUALITY ASSURANCE

- .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
- .2 Equipment Rating: To ANSI Z245.1 certification requirements. Maintain one (1) of document on site.
- .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

1.8 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide a five (5) year warranty to include coverage for failure to meet specified requirements.

Part 2 Products

2.1 MANUFACTURERS

- .1 Stationary Compactor; Product: Model 200.

2.2 DESCRIPTION

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for operating unit.
 - .2 Provide certificate of compliance from authority having jurisdiction indicating approval of unit.

2.3 COMPONENTS

- .1 Components by manufacturer to suit application & verified by Owner.
- .2 Anchors and Fasteners: Galvanized steel.

2.4 SHOP FINISHING

- .1 Trash Inlet, Outlet: Galvanized.
- .2 Unit Frame and Accessories: Zinc chromate primer; two (2) baked enamel finish coats; colour as selected.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Verify that anchors are correctly positioned.

3.2 PREPARATION

- .1 Provide rough-in frame for placement by Section 03 11 00.

3.3 INSTALLATION

- .1 Install unit & inlet hopper to manufacturer's written instructions.
- .2 Install Work in compliance with standards required by authority having jurisdiction.
- .3 Anchor unit securely in place.

- .4 Touch-up minor damaged surfaces caused during installation. Replace damaged components as directed by Consultant.

3.4 INTERFACE WITH OTHER PRODUCTS

- .1 Coordinate installation with garbage chute discharge.

3.5 ADJUSTING

- .1 Adjust unit mechanism to achieve specified requirements.

3.6 CLOSEOUT ACTIVITIES

- .1 Demonstration: Demonstrate and instruct Owner on unit operation. Describe unit limitations.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Manual, chain-operated, horizontal window roller shades.

1.2 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry: Wall opening head support blocking.
- .2 Section 09 22 16 – Non Structural Metal Stud Framing.

1.3 ACTION SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide manufacturer's data sheets describing components, accessories, dimensions, tolerances for window openings required, colours and textures.
- .3 Shop Drawings: Indicate dimensions in relation to window jambs, operator details, top rail, anchorage details, hardware and accessory details, required clearances.
- .4 Samples: Submit two (2) sets of 300 mm long samples of each visible-to-view component, indicating colour, surface texture and sheen.

1.4 INFORMATIONAL SUBMITTALS

- .1 Section 01 33 00: Submission procedures.

1.5 CLOSEOUT SUBMITTALS

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

1.6 WARRANTY

- .1 Section 01 78 00: Warranties.
- .2 Provide a five (5) year warranty to include coverage for failure to meet specified requirements.

Part 2 Products

2.1 MANUFACTURERS

- .1 Supply and install sunshades on storefront glazing on stores that face South and West. Sunshades to be by Sunguard. Specifications as follows:
 - .1 **Shearweave 4000.**
 - .2 5% Openness – UV Blockage 95%.
 - .3 **Plain Hem.**
 - .4 Metal Chain Operation.
 - .5 Aluminum Valance, colour to match the adjacent window mullion.
 - .6 Colour - **Alabaster**
 - .7 Contact:
 - .1 David Gotfried. Phone: (416) 410-8552 at Designer Shades & Interiors, Suite 204, 7321 Victoria Park. Email: dj@designershades.ca

2.2 FABRICATION

- .1 Provide manual shade chain drive window shade, of:
 - .1 Tension activated lifting mechanism with multi-layer concentric constant tension.
 - .2 Lifting mechanism with a memory tension lock.
 - .3 Shade to not require re-tensioning after removal for cleaning.
 - .4 Internally free-floating mechanism along grooved non-corrosive shaft, and reversible for future alterations and maintenance.
- .2 Factory assemble in a one piece container, closed on all four sides, with top, back, sides and bottom return of plastic injected-moulded end caps.
- .3 Lifting mechanism to accommodate tension modules for maximum shade performance. Provide memory lock for tension modules to retain torque.
- .4 Mounting detail: Face/wall mounted recessed above ceiling snap in mount.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00: Verify existing conditions before starting work.
- .2 Examine substrate and conditions for installation.
- .3 Beginning of installation means acceptance of substrate and project conditions.

3.2 INSTALLATION

- .1 Install units and their accessories to manufacturer's instructions.
- .2 Securely screw end plugs to conceal exposed cut aluminum of exterior hem bar.
- .3 Securely anchor units plumb and level, using hardware and accessories to provide smooth operation without binding.

3.3 ADJUSTING

- .1 Adjust units for smooth operation.
- .2 Adjust shade and shade cloth to hang flat without waves, folds, or distortion.
- .3 Replace any units or components that do not hang properly or operate smoothly.

3.4 CLEANING

- .1 Section 01 74 10: Cleaning installed work.
- .2 Touch up damaged finishes and repair minor damage in a manner to eliminate evidence of repair. Remove and replace work that cannot be satisfactorily repaired.
- .3 Clean exposed surfaces and edges/ends, including metal and shade cloth, using non-abrasive materials and methods recommended by manufacturer. Remove and replace work that cannot be satisfactorily cleaned.

3.5 CLOSEOUT ACTIVITIES

- .1 Demonstration: Demonstrate operation method and instruct Owner's personnel in the proper operation and maintenance of the window shade assembly.

End of Section

Summary

REVISION HISTORY

No revisions to show.

Part 1 General

1.1 SECTION INCLUDES

- .1 Floor Mats & Frame Assemblies

1.2 RELATED SECTIONS

- .1 Section 02 41 00.08 Demolition - Minor Works.
- .2 Division 3 - Structural Concrete. Refer to Structural.
- .3 Section 09 30 13 Ceramic Tiling.

1.3 REFERENCES

- .1 ASTM D-2047-96 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- .2 ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)
- .3 CAN/ULC S102: Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

1.4 SUBMITTALS FOR REVIEW

- .1 Product data for type of floor mat and frame specified including manufacturer's specifications and installation instructions.
- .2 Shop drawings in sufficient detail showing layout of mat and frame specified including details indicating construction relative to materials, direction of traffic, spline locations, profiles, anchors and accessories.
- .3 Maintenance data in the form of manufacturer's printed instructions for cleaning and maintaining floor mats.

1.5 QUALITY ASSURANCE

- .1 Single Source Responsibility: Obtain floor mats and frames from one source of a single manufacturer.
- .2 Flammability in accordance with ASTM E648, Class I, Critical Radiant Flux, minimum 0.45 watts/m²
- .3 Slip resistance in accordance with ASTM D-2047-96, Coefficient of Friction, minimum 0.60 for accessible routes.

1.6 SITE CONDITIONS

- .1 Field measurements: Check actual openings for mats by accurate field measurements before fabrication. Record actual measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials to the project site ready for use and fabricated in as large sections and assemblies as practical, in unopened original factory packaging clearly labeled to identify manufacturer.

Part 2 Products

2.1 MANUFACTURERS

.1

Dwg Code	Finish	Colour	Product Description	Manufact.	Location
PED1	Vestibule Pedimat	M2— C— Sai—Tng	Clear Anodized Aluminum Finish, Flush Serrated Rails, Tapered Aluminum Ancle Frame (1/2" Depth).	C/S Construction Specialties Company	Vestibule In Existing Building

.2 Floor Mat

- .1 Model and Description – M2 Pedimat AA shall be manufactured from 6063-T6 aluminum continuously hinge connected to permit rollback for easy cleaning. Clear Anodized Aluminum Finish

.3 Mat Frames

- .1 TNG - Tapered Angle Frame shall be a 1/2"(12.7mm) deep recessed frame in 6063-T5 aluminum alloy. Frame color shall be supplied in standard mill or one of 7 optional colors as offered by manufacturer. Clear Anodized Aluminum Finish

.4 Tread Insert Options For M2 Pedimat All Aluminum

- .1 SAI - Serrated Aluminum Insert shall be extruded 6105-T5 alloy. Clear Anodized Aluminum Finish

2.2 MATERIALS

- .1 Aluminum - ASTM B 221, alloy 6063-T5, 6063-T6 for extrusions
- .2 Carpet Inserts:
- .1 Shall meet CRI standard for good indoor air quality. Fibers shall include a minimum of 100, 12 mil monofilament fibers per square inch.
- .2 Each carpet fiber and monofilament shall be fusion-bonded to a rigid two- ply backing to prevent fraying and supplied in continuous splice-free lengths.
- .3 Anti-static carpet fibers shall contain antimicrobial additive and be treated with Scotchgard® to reduce soiling. Carpet weight shall be 33-oz./yd².

2.3 ACCESSORIES

- .1 Existing Slab to receive Recommended PROSOCO® Silane 40 Water Repellent Silane Sealer prior to installing Pedimat.

Part 3 Execution

3.1 PREPARATION

- .1 Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
- .2 Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- .1 Existing Slab to receive Recommended PROSOCO® Silane 40 Water Repellent Silane Sealer prior to installing Pedimat.
 - .1 Contact C/S Group Mark Koziar (ph)1-888-895-8955 ext.3731.
- .2 Install the work of this section in strict accordance with the manufacturer's recommendations.
 - .1 Set mat at height recommended by manufacturer for most effective cleaning action.
 - .2 Coordinate top of mat surface with bottom of doors that swing across to provide ample clearance between door and mat.

3.3 CLEANING & PROTECTION

- .1 It is important to the life cycle of the entrance mat that a maintenance schedule be developed which includes regular vacuuming and extraction that correctly matches the amount of traffic the mat incurs.
- .2 After completing required frame installation and concrete work:
 - .1 Provide temporary filler of plywood or fiberboard in recess, and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and project is near time of substantial completion.
 - .2 Defer installation of floor mats until time of substantial completion of project. Coordinate with Owner.

End of Section

