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**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

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Title - Sujet Const.Refection Centres-PN Forillon	
Solicitation No. - N° de l'invitation 5P204-180864/A	Amendment No. - N° modif. 008
Client Reference No. - N° de référence du client	Date 2019-04-30
GETS Reference No. - N° de référence de SEAG PW-\$QCM-039-17637	
File No. - N° de dossier QCM-8-41212 (039)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-05-09	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Jean, Serge	Buyer Id - Id de l'acheteur qcm039
Telephone No. - N° de téléphone (418) 649-2882 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: PARC NATIONAL DE FORILLON 122, Boulevard de Gaspé G4X 1A9	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation
5P204-180864/A
Client Ref. No. - N° de réf. du client
5P204

Amd. No. - N° de la modif.
008
File No. - N° du dossier
QCM-8-41212

Buyer ID - Id de l'acheteur
QCM039
CCC No./N° CCC - FMS No./N° VME

**AMENDMENT 008
INVITATION TO TENDER**

**OPERATIONAL CENTER REHABILITATION AND CONSTRUCTION OF
AN ADMINISTRATIVE BUILDING - PARC FORILLON (QUÉBEC)**

The purpose of Amendment 008 is to add addenda.

Please apply the following changes to the Invitation to tender (ITT):

- 1) Add addenda

1) Add addendum (ADD):

ADD-A03

***** All other terms and conditions remain unchanged *****

Project : Operational Center Rehabilitation
and Construction of an Administrative Building
Forillon National Park

Date : 2019-04-30
(AAAA.MM.JJ)
File STGM : Q-1680
File JBCA : 2016-192-1
File Tetrattech : 32308CTB
File Canada Parks : 1415
Addenda no. : ADD-A03

Owner : Canada Parks

This addendum is an integral part of contractual documents for the project quoted here above. It aims at modifying, correcting or completing the contractual documents. All other conditions remain unchanged. All the additional costs caused by this addendum must be included in the submission of the general contractor.

Addendum content :

ACCEPTANCE OF EQUIVALENCES

EQUIVALENCE REQUEST NO. 16 : SOLAR ROLLER SHADES

Acceptance of equivalence for solar roll-up fabrics (section 12 21 23):

- SOL-R Solar Fabrics, *Les Produits de Fenêtres Sol-R Inc*

IMPACT OF THE ADDENDUM-A03 ON THE SPECIFICATIONS

SECTION 00 01 10 TABLE OF CONTENTS

- Adjustment of section titles

SECTION 01 52 00 CONSTRUCTION FACILITIES

- Adjustment article 1.9.3
- Adjustment articles 1.14
- Addition article 1.15
- Adjustment articles numbers 1.15 (becomes 1.16) and 1.16 (becomes 1.17)
- Addition of *Description of construction sign panels at the approaches to the site*
- Addition of *Location of construction sign panels at the approaches to the site*

SECTION 05 50 00 METAL FABRICATIONS

- Adjustment of articles 2.11.1, 2.11.2 and 2.11.3

SECTION 07 27 00.01 AIR BARRIER SYSTEM

- Accepted proposed equivalent, article 2.1.2.12

SECTION 09 65 19 RESILIENT TILE FLOORING

- Adjustment articles 2.1.1, 2.1.6 and 2.1.7

SECTION 09 91 23 INTERIOR PAINTING

- Article 2.5.10 CANCELIED
- Addition article 2.6.1.1.3

SECTION 10 22 13 WIRE MESH PARTITIONS

- Article 2.3.3 CANCELIED
- Addition article 2.3.4

IMPACT OF ADDENDUM-A02 ON ARCHITECTURE DRAWINGS**Administrative Building****Sheet A900:**

- Adjustment of *Finishes schedule* to the columns *Planchers / Floors*: adjustment of column titles & adjustment of floor finish attributions.

Industrial Building :**Sheet A302:**

- Adjustment to detail 400g

Sheet A400

- Addition to *Detail notes*, 67, 68 & 69 notes

Secondary Building :**Sheet A402**

- Adjustement to all drawings of this sheet.
- Addition of *Specific notes*

END OF ADDENDUM



Parcs
Canada

Parks
Canada



Specifications

Volume 1 – General Terms and Conditions

Volume 2 – Architecture

Volume 3 – Structure

Volume 4 – Mechanical and Electrical

Volume 5 – Civil and Process Mechanics

OPERATIONNAL CENTER REHABILITATION AND CONSTRUCTION OF AN ADMINISTRATIVE BUILDING

Forillon National Park

Project number : 1415

Parks Canada

Gaspésie Field Unit

Addendum A03

30 April 2019

Parks Canada

**Operationnal Center Rehabilitation and
Construction of an Administrative Building**

Specifications / VOLUME 1
General Terms and Condition

April 2019

Parks Canada File : 1415
JBCA File : 16-192-4
STGM File : Q-1680
TT File: 32308TTB (60DVC)

Verified by :

Anne Vallières, architect
OAQ Number : A3695



JBCA et STGM Architectes
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Quebec City (Quebec) G1E 3J3
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PART 1 – GENERAL CONDITIONS

Division 00 GENERAL REQUIREMENTS

Section 00 01 10	Table of Contents.....	18
------------------	------------------------	----

Division 01 ADDITIONAL REQUIREMENTS

Section 01 10 00	Additional General Requirements	4
Section 01 11 01	General Work Information (ADD A02)	2
Section 01 14 00	Work Restrictions	2
Section 01 21 00	Allowances (ADD A02).....	1
Section 01 29 00	Payment Procedures (ADD A02).....	4
Section 01 29 83	Payment Procedures for Testing Laboratory Services.....	1
Section 01 31 19	Project Meetings	3
Section 01 32 16.19	Construction Progress Schedule - Bar Chart (GANTT)	2
Section 01 33 00	Submittal Procedures	4
Section 01 35 29.06	Health and Safety Requirements.....	8
Section 01 35 35	DND Fire Safety Requirements	5
Section 01 35 43	Environmental Procedures.....	7
Section 01 41 00	Regulatory Requirements.....	2
Section 01 45 00	Quality Control.....	2
Section 01 51 00	Temporary Utilities	2
Section 01 53 00	Relocation (ADD A02)	3
Section 01 52 00	Construction Facilities (ADD A03).....	7
Section 01 56 00	Temporary Barriers and Enclosures.....	2
Section 01 61 00	Common Product Requirements.....	4
Section 01 71 00	Examination and Preparation.....	2
Section 01 73 00	Execution	2
Section 01 74 00	Cleaning.....	2
Section 01 74 19	Waste Management and Disposal.....	2
Section 01 77 00	Closeout Procedures	1
Section 01 78 00	Closeout Submittals.....	6

PART 2 - ARCHITECTURE

Division 00 GENERAL REQUIREMENTS Part 2 - Architecture

Section 00 01 07	Cover page - Architecture	2
Section 00 01 10	Table of Contents - Architecture	3

Division 02 EXISTING CONDITIONS

Section 02 41 16	Structure Demolition	7
<i>See also section 02 41 16 – Demolition of Structures in Part 3 - Structure</i>		

Division 05 METALS

Section 05 50 00	Metal Fabrications (ADD A03).....	6
Section 05 50 01	Floor Grilles	4
Section 05 51 00	Metal Stairs and Ladders.....	6

Division 06 WOOD, PLASTICS AND COMPOSITES

Section 06 15 00	Wood Decking.....	4
Section 06 20 00	Finish Carpentry (ADD A02).....	7
Section 06 40 00	Architectural Woodwork.....	10
Section 06 40 23.13	Plastic Laminate Finishing for Interior Architectural Woodwork	6
Section 06 41 93	Cabinet and Miscellaneous Hardware.....	4

Division 07 THERMAL AND MOISTURE PROTECTION

Section 07 13 53	Elastomeric Sheet Waterproofing (ADD A02)	10
Section 07 14 13	Hot Fluid-Applied Rubberized Asphalt Waterproofing (ADD A02).....	10
Section 07 21 13	Board Insulation (ADD A02)	5
Section 07 21 16	Blanket Insulation (ADD A02)	4
Section 07 24 10.03	Exterior Finish – Direct Applied.....	11
Section 07 26 00	Vapour Retarders.....	3
Section 07 27 00.01	Air Barriers System (ADD A02) (ADD A03).....	12
Section 07 42 43	Composite Wall Panels	8
Section 07 46 19	Steel Siding (ADD A02)	11
Section 07 46 23	Wood Siding (ADD A02).....	5
Section 07 52 00	Modified Bituminous Membrane Roofing (ADD A02)	13
Section 07 62 00	Sheet Metal Flashing and Trim	6
Section 07 72 33	Roof Hatches.....	5
Section 07 81 00	Applied Fireproofing.....	4

Section 07 84 00	Fire Stopping (ADD A02)	6
Section 07 92 00	Joints Sealants	7
Division 08	OPENINGS	
Section 08 11 00	Metal Doors and Frames	7
Section 08 14 16	Flush Wood Doors	6
Section 08 14 73	Sliding Wood and Plastic Doors	5
Section 08 36 13.16	Sectional Metal Doors (ADD A02)	8
Section 08 44 13	Glazed Aluminum Curtain Walls	14
Section 08 50 00	Windows	11
Section 08 71 00	Door Hardware (ADD A02)	19
Section 08 80 00	Glazing (ADD A02)	9
Section 08 90 00	Louvres and Vents	4
Division 09	FINISHES	
Section 09 21 16	Gypsum Board Assemblies	8
Section 09 22 16	Non-Structural Metal Framing	5
Section 09 30 13	Ceramic Tiling (ADD A02)	6
Section 09 58 00	Integrated Ceiling Assemblies	4
Section 09 65 19	Resilient Tile Flooring (ADD A02) (ADD A03)	5
Section 09 72 16	Vinyl-Coated Fabric Wall Covering (ADD A02)	CANCELLED SECTION
Section 09 91 23	Interior Paintings (ADD A03)	13
Division 10	SPECIALTIES	
Section 10 10 00	Specialties (ADD A02)	4
Section 10 22 13	Wire Mesh Partitions	4
Section 10 22 19.54	Demountable Partitions – Post and Panel	5
Section 10 22 33	Accordion Folding Partitions	4
Section 10 28 00	Toilet and Bath Accessories	5
Section 10 51 13	Metal Lockers	4
Section 10 56 13	Metal Storage Shelving (ADD A02)	11
Section 10 56 26.13	Manual Mobile Storage Shelving	10
Section 10 75 00	Flagpoles	4
Division 12	FURNISHINGS	
Section 12 21 23	Solar Roller Shades (ADD A02)	3

Division 13 SPECIAL CONSTRUCTION

Section 13 34 23	Fabricated Structures	5
------------------	-----------------------------	---

Division 14 CONVEYING EQUIPMENT

Section 14 20 06	Passenger Elevators	17
------------------	---------------------------	----

PART 3 - STRUCTURE

Division 00 GENERAL REQUIREMENTS Part 3 - Structure

Section 00 01 07	Cover page - Structure	2
Section 00 01 10	Table of Contents - Structure	1

Division 02 EXISTING CONDITIONS

Section 02 22 10	Groundwater Control	3
Section 02 41 16	Demolition of Structures	7

Division 03 CONCRETE

Section 03 10 00	Concrete Forms and Accessories.....	8
Section 03 20 00	Concrete Reinforcement.....	6
Section 03 30 00	Cast-In-Place Concrete	17

Division 05 METALS

Section 05 12 23	Structural Steel for Buildings.....	7
------------------	-------------------------------------	---

Division 06 WOOD, PLASTICS AND COMPOSITES

Section 06 10 10	Wood Structure	3
Section 06 17 53	Prefabricated Wood Trusses.....	5
Section 06 18 00	Glulam Structures	5

Division 31 EARTHWORK

Section 31 23 10	Excavating and Backfilling / Buildings and Outdoor Facilities	9
------------------	---	---

Division 33 UTILITIES

Section 33 46 13.01	Foundation and Underslab Drainage.....	4
---------------------	--	---

PART 4 – MÉCHANICAL / ÉLECTRICITY

Division 00	GENERAL REQUIREMENTS Part 4 – Mechanical / Electricity	Spec. resp.
Section 00 01 07	Cover page – Mechanical / Electricity2	
Section 00 01 10	Table of Contents – Mechanical / Electricity4	
Division 01	ADDITIONAL REQUIREMENTS	
Section 01 91 13	Commissioning (MS) – General Requirements4	All
Division 10	SPECIALTIES	
Section 10 44 13	Cabinets for Portable Extinguishers2	P
Section 10 44 16	Portable Extinguishers.....3	P
Division 22	PLUMBING	
Section 22 05 00	Common Plumbing Requirements8	P
Section 22 05 09	Welding Plumbing Fitting.....5	P
Section 22 05 13	General Requirements for Motors Plumbing Appliance4	P
Section 22 05 19	Thermometers and Manometers for Plumbing Piping.....2	P
Section 22 05 23	General Duty Valves for Plumbing Piping6	P
Section 22 05 29	Supports and Suspensions for Piping and Plumbing Equipment.....5	P
Section 22 05 48	Anti-Vibration and Parasismic systems and Devices for Piping and Plumbing2	P
Section 22 05 53	Identification of Piping and Plumbing Equipment6	P
Section 22 07 19	Piping and Plumbing Equipment Lagging7	C
Section 22 08 03	Cleaning and Commissioning of Domestic Water Networks2	P
Section 22 11 16	Domestic Water Supply Piping4	P
Section 22 11 19	Domestic Water Supply Piping - Accessories.....6	P
Section 22 11 23.39	Domestic Hot Water Recirculation Pumps1	P
Section 22 13 16	Sanitary Drainage Piping and Vent.....15	P
Section 22 13 19	Sanitary Drainage Piping and Vent – Special Appliances4	P
Section 22 14 16	Storm Drain15	P
Section 22 14 23	Storm Drain Plumbing – Special Equipment.....3	P
Section 22 14 26	Nozzle Drain2	P
Section 22 14 29.16	Submersible Sump Pumps.....2	P
Section 22 15 00	Compressed Air Systems for General Use4	P
Section 22 33 00	Domestic Water Heaters3	P
Section 22 42 00	Commercial Plumbing Fixtures6	P

Division 23	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)		
Section 23 05 00	Common HVAC Work Requirements	7	P - V
Section 23 05 00.01	Description of Features HVAC Work.....	4	P - V
Section 23 05 13	General Requirements for HVAC Engines.....	4	P - V
Section 23 05 48	HVAC Anti-Vibration and Parasismic Systems and Devices.....	2	P
Section 23 05 93.06	Testing, Adjusting and Balancing (TAB) of Aeraulic.....	5	B
Section 23 07 13	Ducts Lagging	7	C
Section 23 07 19	Piping and HVAC Equipment Insulation.....	6	C
Section 23 09 13.43	Motorized Damper	3	V
Section 23 23 00	Refrigerating Circuits	4	V
Section 23 31 13	Metal Air Ducts	17	V
Section 23 33 00	Air Ducts Accessories.....	7	V
Section 23 33 53	Soundproof Interior Coating for Air Ducts	4	V
Section 23 34 23	Wall and Ceiling Exhaust Fans	3	V
Section 23 34 43	Beam Projection Extractions Fans for Laboratories and Special Applications.....	2	V
Section 23 35 13	Sawdust Collection Systems.....	5	V
Section 23 36 00	Terminal Air Control Units	3	V
Section 23 36 46	Flexible Ductwork.....	3	V
Section 23 37 13	Diffusers, Registers and Grilles	2	V
Section 23 37 26	Louvers	1	V
Section 23 38 14	Cooker Extractors Hood (Domestic).....	1	V
Section 23 41 00	HVAC Air Filters.....	3	V
Section 23 51 21	Chimneys for Laboratory Effluent	5	V
Section 23 73 13	Indoor Modular Air Treatment Units	10	V
Section 23 82 16.06	Electrical Heating Coils for Air Flue Installation	2	V
Section 23 84 13	Humidifiers.....	3	V - P
Division 25	INTEGRATED AUTOMATION		
Section 25 05 00	Common Requirements for Integrated Automation Works.....	9	RA
Section 25 05 09	Energy Management and Control System (EMCS).....	2	RA
Section 25 05 13	Conduits, Cables and Electrical Installation.....	3	RA
Section 25 05 53	Identification of Devices and Networks	2	RA
Section 25 11 19	Central Operator Position (COP)	3	RA
Section 25 14 13	General Application Controllers (GAC)	6	RA

Section 25 14 16	Specific Application Controllers (SAC)	4	RA
Section 25 14 19	Terminal Unit Controllers (TUCs).....	1	RA
Section 25 14 23	Boxes for Controllers and Related Equipment.....	1	RA
Section 25 35 00	Integrated Automation Equipment and Instrumentation for Heating and Air Conditioning (HVAC).....	2	RA
Section 25 35 13	Dampers and Valve Actuators	2	RA
Section 25 35 16	Probes and Transmitters	4	RA
Section 25 35 23	Motorized Registers	1	RA
Section 25 55 06	Integration of the Specialized Automation System Ventilation of Laboratories and Critical Environments	4	RA
Section 25 95 00	Control Sequences for HVAC Systems.....	4	RA
Division 26	ELECTRICITY		
Section 26 05 00	Common Requirements Concerning Electrical Work.....	7	E
Section 26 05 19	HVAC Wires and Cables (0 – 1 000 V)	3	E
Section 26 05 23	HVAC Wires and Control Cable (0 – 1 000 V).....	1	E
Section 26 05 26	Grounding and Connection of Electrical Systems	3	E
Section 26 05 29	Fasteners and Brackets.....	2	E
Section 26 05 33.03	Wire and Box Connectors (0 – 1 000 V).....	2	E
Section 26 05 33.06	Pipes, Fasteners and Pipe Fittings	3	E
Section 26 05 33.09	Outlet, Bypass Boxes and Connectors.....	2	E
Section 26 05 33.13	Junction, Pull and Distribution Boxes	2	E
Section 26 05 43.01	Cable Installation in Trenches and Pipes.....	2	E
Section 26 05 43.02	Underground Electrical Ducts for Landfilling.....	2	E
Section 26 05 53	Identification of Electrical Systems	10	E
Section 26 09 23.03	Photoelectric Lighting Controls	1	E
Section 26 09 26.03	Low Voltage Lighting Control	5	E
Section 26 22 13	Primary Winding Transformers – 600 V	3	E
Section 26 24 13	Switching Tables	2	E
Section 26 24 16	Distribution Panels with Circuit Breaker	2	E
Section 26 26 00	Electric Heating	4	E
Section 26 27 26	Wiring Devices	3	E
Section 26 28 13	Low Voltage Fuses	2	E
Section 26 28 16.03	Moulded Case Circuit Breakers	2	E
Section 26 28 16.06	Fused and No Fuse Switches	2	E
Section 26 29 13.13	Up to 600 V Starters	3	E

Section 26 29 23	Variable Frequency Drive	7	E
Section 26 32 13.13	Diesel Generator	11	E
Section 26 33 45	Electric Vehicule Charging Stations	49	E
Section 26 33 53	Uninterruptible Power Supply (USPS).....	3	E
Section 26 51 00	Indoor Lighting.....	3	E
Section 26 53 00	Exit Indicators.....	2	E
Section 26 54 00	Hot Air Hand and Hair Dryer	2	E

Division 28 ELECTRONIC SAFETY AND SECURITY

Section 28 13 00.03	Typical Detail of Access Control Works	2	S - E
Section 28 31 03	Fire Alarm Systems.....	10	E

PART 5 – CIVIL AND PROCESS MECHANICS

Division 00 GENERAL REQUIREMENTS Part 5 – Civil and process mechanics

Section 00 01 07	Cover page – Civil and process mechanics	2
Section 00 01 10	Tables of Contents – Civil and process mechanics.....	2

Division 01 ADDITIONAL REQUIREMENTS

Section 01 35 13.43	Special Procedures – Contaminated Sites.....	11
---------------------	--	----

Division 02 EXISTING CONDITIONS

Section 02 41 13	Selective Demolition Site Development	5
------------------	---	---

Division 03 CONCRETE

Section 03 41 20	Prefabricated Concrete Chamber	9
------------------	--------------------------------------	---

Division 31 EARTHWORK

Section 31 05 10	Corrected Maximum Dry Density Filling Materials.....	1
Section 31 05 16	Aggregates for Earthworks.....	5
Section 31 22 13	Basic Leveling	4
Section 31 23 33.01	Excavating, Trenching and Backfilling Filling.....	12
Section 31 32 19.01	Geotextiles.....	3
Section 31 37 00	Ripraps.....	3

Division 32 OUTDOOR FACILITIES

Section 32 11 16.01	Layer of Granular Subfoundation.....	5
---------------------	--------------------------------------	---

Section 32 11 23	Granular Base Layer.....	5
Section 32 12 16	Bituminous Pavement Coating.....	3
Section 32 15 60	Dust control	2
Section 32 16 00	Curbs and Pavements	5
Section 32 17 23	Pavement Markings	3
Section 32 31 13	Fences and Gates.....	5
Section 32 91 19.13	Topsoil Placement and Leveling.....	6
Section 32 92 23	Sodding.....	7
Division 33	UTILITIES	
Section 33 11 00	Groundwater Source.....	4
Section 33 14 16	Water Distribution Network.....	3
Section 33 31 11	Gravity Sewer.....	6
Section 33 41 00	Storm Drain Piping.....	4
Section 33 42 13	Culvert Pipes	3
Division 44	POLLUTION CONTROL	
Section 44 00 00	Process Requirements	9
Section 44 00 01	Systems Identification.....	3
Section 44 00 02	Shop Drawings.....	7
Section 44 00 03	Provisional Acceptance and Commissioning Tests.....	23
Section 44 00 04	Disinfection of Structures.....	3
Section 44 00 05	Piping	14
Section 44 10 00	Drinking Water Filtration System	37
Section 44 20 00	Wastewater Purification System	16

APPENDIX

PART 1 – GENERAL CONDITIONS

Appendix 1 Works phasing

PART 2 - ARCHITECTURE

Appendix 2 Storage racking elevations

Appendix 3 Gesfor – Demolition of nine buildings located in Forillon National Park (2019-04-16)

Appendix 4 Relocation : List of furniture, equipment and workstations (BA-BI-BS)

PART 3 - STRUCTURE

Appendix 5 Englobe – Geotechnical study report
(reference number : 073-P-0014981-0-01-100-GE-R-0001-01) (july 2018)

Appendix 6 Englobe – Complement to the geotechnical study
(reference number : 073-P-0014981-0-04-103-GE-R-0001-00) (june 2018)

PART 4 - CIVIL

Appendix 7 Sanexen – Environmental rehabilitation works (Excerpt)
(V/Ref. : R.052059.001; N/Ref. : RA12-320-1) (7 february 2013)

LIST OF DRAWINGS SHEETS

DEMOLITION

DRAWINGS – ARCHITECTURE

D-000	COVER PAGE
D-010	LOCATION MAP AND SITE MAP
D-101	CONSERVATION BUILDING (CB) – VISITOR'S EXPERIENCE HOUSE (VEH)
D-102	TIRES WAREHOUSE (TW) – CHEMICALS WAREHOUSE (CW)
D-103	TECNICAL SERVICES BUILDING (TS)
D-104	OIL WAREHOUSE (OW) – ATCO BUILDING

ADMINISTRATIVE BUILDING

DRAWINGS - ARCHITECTURE

A000	COVER PAGE
A010	LOCATION PLAN
A040	GENERAL SITEMAP
A050	SITE PLAN
A051	SITE PLAN, SECTIONS AND DETAILS
A090	FIRE RESISTANCES
A100	BASEMENT AND GROUND FLOOR PLAN
A101	SECOND AND THIRD FLOOR PLAN
A120	GROUND AND SECOND FLOOR LAYOUT PLAN
A121	THIRD FLOOR LAYOUT PLAN
A150	GROUND AND SECOND FLOOR CEILING PLAN
A151	THIRD FLOOR CEILING PLAN
A190	ROOF PLAN
A200	EXTERIOR ELEVATIONS
A201	EXTERIOR ELEVATIONS
A250	GENERAL SECTIONS
A300	EXTERIOR WALL SECTIONS
A301	EXTERIOR WALL SECTIONS
A350	TYPICAL OUTDOOR SECTIONS
A351	CANOPY DETAILS
A352	LIGHT SHAFT DETAILS
A353	DECK DETAILS
A354	GENERAL DETAILS
A500	VERTICAL CIRCULATIONS
A501	VERTICAL CIRCULATIONS
A502	STAIR SECTIONS AND DETAILS
A503	EXTERIOR STAIR DETAILS

A600	ENLARGED PLANS
A601	ENLARGED PLANS
A700	TYPICAL PARTITIONS
A740	TYPICAL INDOOR SECTIONS
A741	TYPICAL INDOOR SECTIONS
A750	INDOOR TYPICAL DETAILS
A800	FIXED FURNITURE
A801	FIXED FURNITURE
A802	FIXED FURNITURE
A820	INDOOR ELEVATIONS
A821	INDOOR ELEVATIONS
A850	DOORS AND FRAMES SCHEDULE
A900	INDOOR FINISHES

DRAWINGS - STRUCTURE

S000	FRONTPAGE
S001-E	GENERAL NOTES
S051	EXCAVATION VIEW
S055	EXCAVATION / FILLING SECTIONS
S056	EXCAVATION / FILLING SECTIONS
S101	FOUNDATION VIEWS
S102	GROUND FLOOR VIEW
S103	LEVEL 2 VIEW
S104	LEVEL 3 VIEW
S105	ROOF VIEW
S106	LOAD PLANS
S201	CONCRETE STRUCTURAL
S202	CONCRETE STRUCTURAL
S210	STAIR CASE
S211	STAIR CASE
S212	AREA WELL
S301	STEEL STRUCTURAL
S309	OUTSIDE STAIRCASE
S310	ELEVATOR
S311	CANOPY
S401	WOOD STRUCTURAL
S402	WOOD STRUCTURAL
S701	SHEAR WALL ELEVATIONS
S702	SHEAR WALL ELEVATIONS
S801	COLUMNS TABLE
S802	CONCRETE PILASTER – BEAM TABLE
S803	STEEL BASE PL. DETAIL

S851	GENERAL ELEVATIONS
S852	GENERAL ELEVATIONS
S853	GENERAL ELEVATIONS
S901	CONCRETE TYPICAL DETAILS
S902	CONCRETE TYPICAL DETAILS
S903	CONCRETE TYPICAL DETAILS
S904	CONCRETE TYPICAL DETAILS
S910	WOOD TYPICAL DETAILS
S911	WOOD TYPICAL DETAILS

DRAWINGS - VENTILATION

V000	FRONTPAGE
V001	LEGEND
V300	PLAN VIEW – LEV. 00
V310	PLAN VIEW – LEV. 01
V320	PLAN VIEW – LEV. 02
V330	PLAN VIEW – LEV. 03
V340	PLAN VIEW – ROOFING
V600	REGULATION – LEV. 00
V610	REGULATION – LEV. 01
V620	REGULATION – LEV. 02
V630	REGULATION – LEV. 03
V640	REGULATION – ROOFING
V650	REGULATION – DIAGRAM
V700	SECTIONS
V800	TABLES
V810	DETAILS

DRAWINGS - ELECTRICITY

E000	FRONTPAGE
E001	LEGEND
E101	LOAD CALCULATIONS
E102	DISTRIBUTION DIAGRAM
E201	IMPLANTATION – HQ POWER
E202	IMPLANTATION – DISTRIBUTION SITE
E203	IMPLANTATION – DETAILS
E301	LIGHTING – LEVEL 00, LEVEL 01
E302	LIGHTING – LEVEL 02, LEVEL 03
E303	LIGHTING CONTROL DIAGRAMS
E401	OUTLETS AND SERVICES – LEVEL 00, LEVEL 01
E402	OUTLETS AND SERVICES – LEVEL 02, LEVEL 03

E403	OUTLETS AND SERVICES – ROOF
E501	ELECTRONIC SECURITY – LEVEL 00, LEVEL 01
E502	ELECTRONIC SECURITY – LEVEL 02, LEVEL 03
E503	FIRE ALARM DIAGRAM
E601	TELECOM – LEVEL 00, LEVEL 01
E602	TELECOM – LEVEL 02, LEVEL 03
E801	EQUIPMENTS LISTS
E802	PANELS SCHEDULES

DRWAINGS - PLUMBING

P000	COVER PAGE
P001	LEGEND
P101	DOMESTIC WATER – LEVEL BASEMENT-MAIN FLOOR
P102	DOMESTIC WATER – LEVEL 02 AND 03
P201	DRAIN AND VENT – LEVEL BASEMENT-MAIN FLOOR
P202	DRAIN AND VENT – LEVEL 02 AND 03
P203	DRAIN AND VENT – ROOF
P301	DETAILS

INDUSTRIAL BUILDING

DRAWINGS - ARCHITECTURE

A000	COVER PAGE
A010	LOCATION PLAN
A040	GENERAL SITEMAP
A050	SITE PLAN
A051	SITE PLAN, SECTIONS AND DETAILS
A052	SITE PLAN, SECTIONS AND DETAILS
A090	FIRE RESISTANCES
A100	GROUND FLOOR PLAN
A101	UPPER GROUND FLOOR PLAN
A120	GROUND FLOOR LAYOUT PLAN
A150	GROUND FLOOR CEILING PLAN
A190	ROOF PLAN
A191	ROOF ELEMENTS DETAILS
A200	EXTERIOR ELEVATIONS
A250	GENERAL SECTIONS
A300	EXTERIOR WALL SECTIONS
A301	EXTERIOR WALL SECTIONS
A302	EXTERIOR WALL SECTIONS
A400	SPECIFIC DETAILS
A500	MEZZANINE AND LADDERS DETAILS

A600	ENLARGED PLANS
A700	TYPICAL PARTITIONS
A800	FIXED FURNITURE
A850	DOOR AND FRAME SCH., FINISHES SCH.

DRAWINGS - STRUCTURE

S000	COVER SHEET AND DRAWING LIST
S001	GENERAL NOTES
S051	EXCAVATION PLAN
S055	EXCAVATION SECTION AND DETAILS
S100	FOUNDATION PLAN
S101	MAIN FLOOR PLAN
S102	RAMPS AND SAW CUTS PLAN
S103	FRAMING, CRANE
S104	ROOF PLAN
S200	STRUCTURAL TYPICAL SECTIONS
S201	STRUCTURAL TYPICAL SECTIONS LOW ROOF
S300	STRUCTURAL CONCRETE - STEEL
S400	STRUCTURAL WOOD
S401	STRUCTURAL WOOD
S700	SHEAR WALL ELEVATIONS
S701	SHEAR WALL ELEVATIONS
S702	SHEAR WALL ELEVATIONS
S800	COLUMN SCHEDULE
S801	PILASTER AND BASE PLATES
S850	UPPER ROOF CROSS SECTIONS
S851	LOW ROOF CROSS SECTIONS
S901	CONCRETE TYPICAL DETAILS
S902	CONCRETE TYPICAL DETAILS
S903	CONCRETE TYPICAL DETAILS
S904	CONCRETE TYPICAL DETAILS
S910	WOOD TYPICAL DETAILS
S911	WOOD TYPICAL DETAILS

DRAWINGS - VENTILATION

V000	FRONTPAGE
V001	LEGEND
V300	PLAN VIEW – LEV. 01
V310	PLAN VIEW – ROOFING
V600	REGULATION – LEV. 01

V610	REGULATION – ROOFING
V620	REGULATION – DIAGRAM
V800	TABLES
V810	DETAILS

DRAWINGS - ELECTRICITY

E000	FRONTPAGE
E001	LEGEND
E101	LOAD CALCULATIONS
E102	DISTRIBUTION DIAGRAM
E301	LIGHTING
E302	LIGHTING CONTROL DIAGRAMS
E401	OUTLETS AND SERVICES – GROUND FLOOR
E402	OUTLETS AND SERVICES – ROOF
E601	TELECOM
E801	EQUIPMENTS LISTS
E802	PANELS SCHEDULES

DRAWINGS - PLUMBING

P000	COVER PAGE
P001	LEGEND
P101	DOMESTIC WATER AND COMPRESSED AIR
P201	DRAINAGE AND VENT – LEVEL 01
P202	DRAINAGE AND VENT – ROOF
P301	DETAILS

SECONDARY BUILDING

DRAWINGS - ARCHITECTURE

A000	COVER PAGE
A010	LOCATION PLAN
A040	GENERAL SITEMAP
A050	SITE PLAN
A051	SITE PLAN, SECTIONS AD DETAILS
A100	GROUND FLOOR PLAN
A190	ROOF PLAN
A200	EXTERIOR ELEVATIONS
A250	GENERAL SECTIONS
A300	EXTERIOR WALL SECTIONS
A350	TYPICAL EXTERIORS SECTIONS
A400	EXTERIOR DETAILS

A401	EXTERIOR DETAILS
A402	WATERING PIPES SUPPORT DETAIL
A700	TYPICAL PARTITIONS, DOORS, FRAMES, FINISHES
A950	SALT SHELTER

DRAWINGS - STRUCTURE

S000	FRONTPAGE
S001-E	GENERAL NOTES
S051	EXCAVATION VIEW
S055	EXCAVATION / FILLING SECTIONS
S101	FOUNDATION AND GROUND FLOOR VIEWS
S102	ROOF PLAN
S201	STRUCTURAL CONCRETE
S301	STEEL STRUCTURAL
S401	STRUCTURAL WOOD
S801	COLUMNS TABLE
S851	GENERAL ELEVATIONS
S852	GENERAL ELEVATIONS
S901	CONCRETE TYPICAL DETAILS
S902	CONCRETE TYPICAL DETAILS
S910	WOOD TYPICAL DETAILS
S911	WOOD TYPICAL DETAILS
S941	MASONRY TYPICAL DETAILS

DRAWINGS - VENTILATION

V000	FRONTPAGE
V001	LEGEND
V300	PLAN VIEW – LEV. 00
V700	SECTIONS
V800	TABLES, DETAILS AND DIAGRAM

DRAWINGS - ÉLECTRICITÉ

E000	FRONTPAGE
E001	LEGEND
E101	DISTRIBUTION DIAGRAM
E301	LIGHTING, OUTLETS AND SERVICES – LEVEL 01
E801	EQUIPMENTS LISTS AND PANELS SCHEDULES

ADMINISTRATIVE AND INDUSTRIAL BUILDINGS

DRAWINGS – CIVIL

C-00	COVER PAGE
C-01	STATE OF PLACE AND OVERVIEW OF THE WORKS
C-02	DISMANTLING WORKS
C-03	PLAN AND PROFILE, MAIN ACCESS ROAD
C-04	LANDSCAPING AND LEVELING
C-05	PROFILES
C-06	TYPICAL SECTION AND DETAILS
C-07	TYPICAL SECTION AND DETAILS
C-08	TYPICAL SECTION AND DETAILS

DRAWINGS – PROCESS MECHANICS (DRINKING WATER)

MP-01	PROCESS DIAGRAM
MP-02	WELL P1-18
MP-03	MECHANICAL ROOM – PLAN VIEW
MP-04	MECHANICAL ROOM – PLAN VIEW, ELEVATION AND DETAILS

DRAWINGS – CIVIL (WASTEWATER TREATMENT)

T-01	PROPOSED WORKS
T-02	PROPOSED WORKS
T-03	ELEVATIONS
T-04	DETAILS
T-05	DETAILS
T-06	DETAILS

DRAWINGS – ARCHITECTURE (RELOCATION)

A000	COVER PAGE
A040	GENERAL SITE MAP
	TEMPORARY DEVELOPMENT WORK – PROJETS
A100	HOUSE SITE
	TEMPORARY DEVELOPMENT WORK – PROJETS
A101	HOUSE SITE & CENTRE COMMUNAUTAIRE
A102	PLANS – TSB, ATCO & GASPÉ OFFICE
A103	LAYOUT PLAN – NEW BUILDING

END OF SECTION

PART 1 – GENERAL

1.1 PRECEDENCE

- .1 For work performed for the federal government, the Sections of Division 1 will take precedence over Specifications Sections of other divisions.

1.2 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-S269.2, Access scaffolding for construction purposes
 - .2 CSA-A23.1, Concrete: Concrete Materials and Methods of Concrete Construction / Methods of Test and Standard Practices for Concrete
 - .3 CSA-O121, Douglas Fir Plywood
 - .4 CAN/CSA-Z321 (C2006), Signs and Symbols for the Occupational Environment
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189, Exterior Alkyd Primer for Wood
 - .2 CGSB 1.59, Alkyd Exterior Gloss Enamel
- .3 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices

1.3 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, provide updates as project progresses.
- .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.

1.4 SCAFFOLDING AND SHORING

- .1 Provide and maintain scaffolding, shoring, ramps, ladders, swing staging, platforms, temporary stairs, and other temporary facilities necessary for completion of Work.
- .2 Scaffolding to be in accordance with CAN/CSA-S269.2 and *National Building Code* - Part 8.
- .3 Provide drawings of scaffolding. Drawings to be reviewed, approved, and stamped by a member of Ordre des Ingénieurs du Québec.
- .4 Provide one or more sets of stairs giving access to all work areas for all Scaffolding.

1.5 HOISTING

- .1 Provide, operate, and maintain hoists and cranes required for moving of workers, materials, and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists and cranes to be operated by qualified operator.
- .3 Elevators may be used for moving workers. Where this is needed, coordinate use with Departmental Representative.
- .4 Provide protective coverings for finish surfaces of cars and entrances.

1.6 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by contract documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 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 temporary roadways where used by Contractor's equipment.
- .4 Alternating traffic signage is permitted, but APC and emergency vehicles must have access.

1.8 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.9 ACCESS TO WORK

- .1 Provide temporary roads to areas designated by Departmental Representative, and provide snow removal during period of Work.
- .2 If permitted to use existing roads to access site, maintain such roads and use dust control agent during entire construction period and repair damage caused to such roads. Access road from intersection of 132 to site.

ADDENDUM A03

- .3 Snow Removal : Contractor responsible for removing snow from Work areas, temporary storage areas, and ingress and egress areas under its responsibility, **including the access road from the intersection of Route 132 to the construction site.**
- .4 Contractor responsible for planning access, safe movement, and site exit for delivery trucks, and for providing a visible site map and other signage.

1.10 FIELD OFFICE

- .1 Provide office heated to 22°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 must set up their own office as needed. Inform them where they may do so.
- .4 Departmental Representative's field office:
 - .1 Provide temporary office for Departmental Representative.
 - .2 Inside dimensions minimum 3.6 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with four 50% opening windows and one lockable door.
 - .3 Insulate building and provide heating system to maintain 22°C inside temperature at - 20°C outside temperature.
 - .4 Finish inside walls and ceiling with plywood, hardboard, or wallboard and paint in selected colours. Finish floor with 19 mm thick plywood.
 - .5 Install electrical lighting system to provide min 750 lx using surface-mounted, shielded commercial fixtures with 10% upward light component.
 - .6 Provide private washroom facilities adjacent to office complete with flush or chemical type toilet, lavatory, and mirror and maintain supply of paper towels and toilet tissue.

ADDENDUM A03

- .7 Equip office with 1 x 2 m table, 4 chairs, 6 m of shelving 300 mm wide, one three-drawer filing cabinet, one plan rack, and one coat rack with shelf.
- .8 Maintain in clean condition.
- .5 Contractor to comply with ordinances and regulations for worker dining room for field office.
- .6 Contractor responsible for Hydro-Québec hook-up agreements for field office.
- .7 Contractor responsible for power supply for its equipment; electric meter recommended.
- .8 Contractor to install complete grounding system for field office electrical panel.
- .9 Upon installation of on-site trailer, Contractor to confirm compliance in writing.
- .10 Provide marked and fully stocked first-aid case in a readily available location. First-aid case compliant with *First-aid Minimum Standards Regulation*.

1.11 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, and use dust control agent.

1.12 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.
- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Departmental Representative.

1.13 EQUIPMENT, TOOL, AND MATERIALS STORAGE

- .1 Provide and install lockable, weatherproof storage room or shed with raised floor for equipment, tool, and materials storage. Maintain in good condition.
- .2 Locate equipment and materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

ADDENDA A03

1.14 CONSTRUCTION SITE SIGNAGE ON THE OPERATIONAL CENTER SITE

- .1 Provide and erect project sign, within three (3) weeks of signing Contract, in a location designated by Departmental Representative.
- .2 Construction sign made to dimensions required by Departmental Representative, of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.
- .3 Indicate on sign name of Owner, Contractor, and Subcontractor, of design style established by Departmental Representative as detailed.
- .4 No other signs or advertisements, other than warning signs, are permitted on site.
- .5 Provide project identification site sign comprising foundation, framing, and one 1200 x 2400 support surface.

ADDENDUM A03

- .1 Foundaton: 15 Mpa concrete to CSA-A23.1 minimum 200 mm x 900 mm deep.
- .2 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
- .3 Support surface: Medium Density Overlaid Douglas Fir Plywood to CSA O121.
- .4 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
- .5 Fasteners: Hot-dip galvanized steel nails and carriage bolts.
- .6 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Departmental Representative.
- .6 Locate project identification sign where indicated as directed by Departmental Representative and construct as follows:
 - .1 Build concrete foundation, erect framework, and attach signboard to framing.
 - .2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - .3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- .7 Direct requests for approval to erect Contractor signboard to Departmental Representative. General appearance of Contractor signboard must conform to project identification site sign. Wording in both official languages.
- .8 Signs and notices for safety and instruction in both official languages. Graphic symbols to CAN/CSA-Z321.
- .9 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.
- .10 Contractor to provide adequate signage:
 - 1. For on-site deliveries and personnel traffic.
 - 2. Periphery: all sides of construction areas to notify users of site.
 - 3. Two chloroplast panels provided by APC showing truck access for dedicated PCA deliveries, installed by Contractor and relocated as traffic areas are modified throughout construction period.
 - 4. Refer to sign plans provided by Departmental Representative to guide visitors along roads to Operational Center.

ADDENDA A03

1.15 CONSTRUCTION SIGNAGE AT THE APPROACHES TO THE SITE

- .1 Provide and install signage as described on page 7 of this section.
- .2 Install the panels at the locations identified on page 8 of this section.
- .3 Submit panel data sheets in accordance with the requirements of section 01 33 00 Documents and samples to be submitted.

1.16 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 Departmental 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 necessary access and haul roads.
- .8 Haul roads: constructed with suitable grades and widths; avoid sharp curves, blind corners, and dangerous cross traffic.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement.
- .10 Use adequate dust control measures to ensure safe operation at all times on site and between intersection of Hwy 132 and site.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental 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 Departmental Representative.

1.17 CLEANING

- .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

- .5 Not used.

PART 3 – EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .6 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 and sediment and erosion control plan to be provided.

ADDENDA A03 Description of construction warning signs at the approaches to the site

1415 CO - Description of construction signboards at the approaches to the site

Sign panel number	Sign panel type	French message	English message	Location	Comments
1	Special sign panel	Travaux en cours Réfection du Centre Opérationnel Accès limité Réserve au personnel autorisé	Work in progress Rehabilitation of the Operational Center Access restricted Authorized personnel only	Trail	Bilingual sign panel. The letters should have a minimum height of 25 mm.
2	Special sign panel	Travaux en cours Réfection du Centre Opérationnel Attention aux camions	Work in progress Rehabilitation of the Operational Center Watch for trucks	Trail	Bilingual sign panel. The letters should have a minimum height of 25 mm.
3	Special sign panel	Livraison	Deliveries	Existing TS8 parking access	Bilingual sign panel. The letters should have a minimum height of 75 mm.
4	Special sign panel	Livraison	Deliveries	Existing TS8 parking access	Bilingual sign panel. The letters should have a minimum height of 75 mm.
5	Special sign panel	Livraison	Deliveries	Existing TS8 parking access	Bilingual sign panel. The letters should have a minimum height of 75 mm.
6	MTQ sign panel	Symbole «Passage pour camion» (+ signal avancé en amont)	S. O.	132 Road	T-D-270-11 Panel + panels + panels + Additional advanced signal signs according to MTQ standards for a posted speed of 90 km/h.
7	MTQ sign panel	Symbole «Passage pour camion» (+ signal avancé en amont)	S. O.	132 Road	T-D-270-11 Panel + panels + panels + Additional advanced signal signs according to MTQ standards for a posted speed of 90 km/h.
8	Special sign panel	Attention! Chantier de construction Voie de circulation partagée Soyez vigilants	Caution! Construction site Shared lane Be alert	Access path	Bilingual sign panel. The letters should have a minimum height of 75 mm.
9	Special sign panel	Travaux en cours Réfection du Centre Opérationnel Accès limité Réserve au personnel autorisé	Work in progress Rehabilitation of the Operational Center Access restricted Authorized personnel only	Access path	Bilingual sign panel. The letters should have a minimum height of 75 mm.
10	Special sign panel	Attention! Chantier de construction Voie de circulation partagée Soyez vigilants	Caution! Construction site Shared lane Be alert	Access path	Bilingual sign panel. The letters should have a minimum height of 75 mm.
11	Special sign panel	Travaux en cours Réfection du Centre Opérationnel Attention aux camions	Work in progress Rehabilitation of the Operational Center Watch for trucks	Trail	Bilingual sign panel. The letters should have a minimum height of 25 mm.
12	Special sign panel	Attention! Travaux en cours Réfection du Centre Opérationnel	Caution! Work in progress Rehabilitation of the Operational Center	Trail	Bilingual sign panel. The letters should have a minimum height of 25 mm.

ADDENDA A03 Location of construction warning signs at the approaches to the site



END OF SECTION



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Specifications

Volume 1 – General Terms and Conditions

Volume 2 – Architecture

Volume 3 – Structure

Volume 4 – Mechanical and Electrical

Volume 5 – Civil and Process Mechanics

OPERATIONNAL CENTER REHABILITATION AND CONSTRUCTION OF AN ADMINISTRATIVE BUILDING

Forillon National Park

Project number : 1415

Parks Canada

Gaspésie Field Unit

Addendum A03

30 April 2019

Parks Canada

**Operationnal Center Rehabilitation and
Construction of an Administrative Building**

Specifications / VOLUME 2

Architecture

April 2019

Parks Canada File : 1415

JBCA File : 16-192-4

STGM File : Q-1680

TT File: 32308TTB (60DVC)

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PART 2 - ARCHITECTURE

Division 00	GENERAL REQUIREMENTS Part 2 - Architecture	
Section 00 01 07	Cover page - Architecture	2
Section 00 01 10	Table of Contents - Architecture	3
Division 02	EXISTING CONDITIONS	
Section 02 41 16	Structure Demolition.....	7
<i>See also section 02 41 16 – Demolition of Structures in Part 3 - Structure</i>		
Division 05	METALS	
Section 05 50 00	Metal Fabrications (ADD A03).....	6
Section 05 50 01	Floor Grilles	4
Section 05 51 00	Metal Stairs and Ladders.....	6
Division 06	WOOD, PLASTICS AND COMPOSITES	
Section 06 15 00	Wood Decking.....	4
Section 06 20 00	Finish Carpentry (ADD A02).....	7
Section 06 40 00	Architectural Woodwork.....	10
Section 06 40 23.13	Plastic Laminate Finishing for Interior Architectural Woodwork	6
Section 06 41 93	Cabinet and Miscellaneous Hardware.....	5
Division 07	THERMAL AND MOISTURE PROTECTION	
Section 07 13 53	Elastomeric Sheet Waterproofing (ADD A02)	10
Section 07 14 13	Hot Fluid-Applied Rubberized Asphalt Waterproofing (ADD A02)	10
Section 07 21 13	Board Insulation (ADD A02).....	5
Section 07 21 16	Blanket Insulation (ADD A02)	4
Section 07 24 10.03	Exterior Finish – Direct Applied.....	11
Section 07 26 00	Vapour Retarders.....	3
Section 07 27 00.01	Air Barriers System (ADD A02) (ADD A03).....	12
Section 07 42 43	Composite Wall Panels	8
Section 07 46 19	Steel Siding (ADD A02)	11
Section 07 46 23	Wood Siding (ADD A02).....	5
Section 07 52 00	Modified Bituminous Membrane Roofing (ADD A02).....	13
Section 07 62 00	Sheet Metal Flashing and Trim	6
Section 07 72 33	Roof Hatches.....	5

Section 07 81 00	Applied Fireproofing.....	4
Section 07 84 00	Fire Stopping (ADD A02)	5
Section 07 92 00	Joints Sealants	7
Division 08	OPENINGS	
Section 08 11 00	Metal Doors and Frames	7
Section 08 14 16	Flush Wood Doors	6
Section 08 14 73	Sliding Wood and Plastic Doors.....	5
Section 08 36 13.16	Sectional Metal Doors (ADD A02)	8
Section 08 44 13	Glazed Aluminum Curtain Walls	14
Section 08 50 00	Windows	11
Section 08 71 00	Door Hardware (ADD A02).....	19
Section 08 80 00	Glazing (ADD A02)	9
Section 08 90 00	Louvres and Vents	4
Division 09	FINISHES	
Section 09 21 16	Gypsum Board Assemblies	8
Section 09 22 16	Non-Structural Metal Framing	5
Section 09 30 13	Ceramic Tiling (ADD A02).....	6
Section 09 58 00	Integrated Ceiling Assemblies.....	4
Section 09 65 19	Resilient Tile Flooring (ADD A02) (ADD A03).....	5
Section 09 72 16	Vinyl-Coated Fabric Wall Covering (ADD A02).....	CANCELLED SECTION
Section 09 91 23	Interior Paintings(ADD A03).....	13
Division 10	SPECIALTIES	
Section 10 10 00	Specialities (ADD A02).....	4
Section 10 22 13	Wire Mesh Partitions (ADD A03)	4
Section 10 22 19.54	Demountable Partitions – Post and Panel	5
Section 10 22 33	Accordion Folding Partitions	4
Section 10 28 00	Toilet and Bath Accessories.....	5
Section 10 51 13	Metal Lockers	4
Section 10 56 13	Metal Storage Shelving (ADD A02)	11
Section 10 56 26.13	Manual Mobile Storage Shelving	10
Section 10 75 00	Flagpoles (ADD A02).....	4
Division 12	FURNISHINGS	
Section 12 21 23	Solar Roller Shades (ADD A02) (ADD A03)	3

Division 13 SPECIAL CONSTRUCTION

Section 13 34 23	Fabricated Structures	5
------------------	-----------------------------	---

Division 14 CONVEYING EQUIPMENT

Section 14 20 06	Passenger Elevators	20
------------------	---------------------------	----

APPENDIX

PART 2 - ARCHITECTURE

Appendix 2 Metal shelving (drawings)

**Appendix 3 Gesfor – Demolition work on nine buildings located in Forillon National Park
(2019-04-16)**

Appendix 4 Moving : List of furniture, equipment and workstations (BA-BI-BS)

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 05 51 00 - Metal Stairs and Ladders.

1.2 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A269M-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA Group (CSA)
 - .1 CSA G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA-G164-M92 (C2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA S16-14, Design of Steel Structures.
 - .4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-13, Welded Steel Construction (Metal Arc Welding) (Metric units).
- .3 Green Seal Environmental Standards (GS).
 - .1 GS-11-2011, Paints and Coatings.
- .4 The Master Painters Institute (MPI):
 - .1 Architectural Painting Specification Manual - current edition.
- .5 ULC Standards
 - .1 UL 2768-2011, Architectural Surface Coatings.
 - .2 UL 2760-2011, Surface Coatings - Recycled Water-borne.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- 1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, pipe, tubing, and bolts. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
 - .2 Submit two (2) copies of the WHMIS Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .1 For finishes, coatings, primers and paints applied on site: Indicate VOC concentration in g/L.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the province of Quebec, Canada.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

- .1 Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Submit certificates signed by manufacturer certifying that products and materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and handling requirements:
 - .1 Store materials off ground, indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new ones.

PART 2 – PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: To CSA G40.20/G40.21, Grade 300W and 350W.
- .2 Steel pipe: To ASTM A53/A53M extra strong, galvanized finish.
- .3 Welding materials: To CSA W59.
- .4 Welding electrodes: To CSA W48 Series.
- .5 Bolts and anchor bolts: To ASTM A307.
- .6 Aluminum sheet: Proprietary utility sheet, for general use, plain, pattern, 0.80 mm minimum thickness, mill finish, colour indicated in plans.
- .7 Stainless steel tubing: To ASTM A269, Type 302, commercial grade, seamless welded with AISI No. 4 finish.
- .8 Grout: Non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate Work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof round headed screws on items requiring assembly by screws.
- .3 Where possible, fit and shop assemble Work, ready for erection.

- .4 Exposed welds continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: Hot-dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .3 Shop coat primer: MPI-INT and EXT 5.1A and EXT 5.1B in accordance with chemical component, limits and restrictions requirements and VOC limits of UL 2768 and GS-11.
- .4 Zinc primer: Zinc rich, ready mix to MPI-INT and EXT 5.2C, in accordance with chemical component limits and VOC limits of GS-11.

2.4 ISOLATION COATING

- .1 Isolate aluminum from following components, by means of bituminous paint:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

2.5 SHOP PAINTING

- .1 Primer: Maximum VOC limit 250 g/L to GS-11 and UL 2768.
- .2 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .3 Use primer as prepared by manufacturer without thinning or adding admixtures. Paint on dry surfaces, free from rust, scale, grease. Minimum temperature for painting 7°C.
- .4 Clean surfaces to be field welded; Do not paint.

2.6 ANGLE LINTELS

- .1 Steel angles: galvanized, sizes indicated for openings. Provide 150 mm minimum bearing at ends.
- .2 Weld or bolt back-to-back angles to profiles as indicated.
- .3 Finish: Shop painted.
 - .1 Primer: Maximum VOC limit 250 g/L to GS-11 when applied onsite.

2.7 PIPE RAILINGS

- .1 Steel pipe formed to shapes and sizes as indicated.
- .2 Galvanize exterior pipe railings after fabrication. Shop coat prime interior railings after fabrication.

2.8 CORNER GUARDS

- .1 Finish: Galvanize finish for exterior, prime paint for interior.
 - .1 Primer: Maximum VOC limit 250 g/L to GS-11 when applied onsite.

2.9 ACCESS LADDERS

- .1 Stringers: Dimensions according to plans.
- .2 Steel Rungs: 19 mm in diameter welded to stringers at 305 mm centre to centre, dimensions according to plans.
- .3 Brackets: Sizes and shapes as indicated, weld to stringers, complete with fixing anchors.
- .4 Galvanize finish for exterior, prime paint for interior.
- .5 Galvanize exterior ladders after fabrication.

2.10 CHANNEL FRAMES

- .1 Fabricate frames from steel, sizes of channel and opening as indicated.
- .2 Weld channels together to form continuous frame for jambs and head of openings, sizes as indicated.
- .3 Finish: Galvanized prime coat painted.

ADDENDUM A03

2.11 WATERING HOSES SUPPORT DETAIL

- .1 **All steel, tubes, angles, plates, bolts, nuts, etc. in hot-dip galvanized steel, as indicated on the plans.**
 - .2 **Metal deployed with 38mm (1-1/2" - 12) diamond motif, galvanized steel welded to the "I" frame.**
 - .3 **Prefabricated concrete bases, as indicated on the plans.**
-

PART 3 – EXECUTION

3.1 EXAMINATION

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

3.2 ERECTION - GENERAL

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

- .3 Provide suitable means of anchorage acceptable to Departmental Representative, such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for the Work by other trades in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CSA S16 or weld field connection.
- .7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location.
- .8 Touch-up rivets, field welds, bolts, and burnt or scratched surfaces with primer after completion of:
 - .1 Primer: Maximum VOC limit 250 g/L to GS-11.
- .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
 - .1 Primer: Maximum VOC limit 250 g/L to GS-11.

3.3 PIPE RAILINGS

- .1 Install pipe railings to stairs as indicated.
- .2 Set railing standards in concrete. Grout to fill hole. Trowel surface smooth and flush with adjacent surfaces.

3.4 CORNER GUARDS

- .1 Install corner guards in locations as indicated.

3.5 ACCESS LADDERS

- .1 Install access ladders in locations as indicated.
- .2 Erect ladders at the specified distances clear of wall on bracket supports.

3.6 CHANNEL FRAMES

- .1 Install steel channel frames to openings as indicated.

3.7 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave the premises clean at the end of each working day.
- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 00 - Cleaning.

3.8 PROTECTION

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

- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 07 21 13 - Board Insulation.
- .2 Section 07 62 00 - Sheet Metal Flashing and Trim.

1.2 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM E2357, Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies
 - .2 ASTM E2178, Standard Test Method for Air Permeance of Building Materials
 - .3 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
 - .4 ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials
 - .5 ASTM C920, Standard Specification for Elastomeric Joint Sealants.
 - .6 ASTM C1193, Standard Guide for Use of Joint Sealants
 - .7 ASTM E-84, Standard Test Method for Surface Burning Characteristics of Building Materials
 - .8 ASTM E2112, Standard Practice for Installation of Exterior Windows, Doors and Skylights
 - .9 ASTM D4541-02, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
 - .10 ASTM E783, Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
 - .11 ASTM E1105, 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
 - .12 ASTM D1970, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
 - .13 ASTM D828, Standard Test Method for Tensile Properties of Paper and Paperboard Using Constant-Rate-of-Elongation Apparatus
 - .14 ASTM D146, Standard Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing
 - .15 ASTM D412-16, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
 - .16 ASTM E154/E154M - 08a(2013)e1, Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover
 - .17 ASTM D903-98(2017), Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
 - .18 ASTM C920-18, Standard Specification for Elastomeric Joint Sealants

- .2 International Code Council (ICC-ES)
 - .1 ICC-ES AC-38, Acceptance Criteria for Water-Resistive Barriers
 - .2 ICC-ES AC188, Acceptance Criteria for Roof Underlayments
 - .3 ICC-ES AC48, Acceptance Criteria for Self-adhered Roof Underlayments for Use as Ice Barriers
- .3 American Architectural Manufacturers Association (AAMA)
 - .1 AAMA 2400, Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction
 - .2 AAMA 711-05, Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products
- .4 American Association of Textile Chemists and Colorists (AATCC)
 - .1 Test Method 127 Water Resistance: Hydrostatic Pressure Test
- .5 Technical Association of Pulp and Paper Industry (TAPPI)
 - .1 Test Method T-410: Grammage of paper and paperboard
 - .2 Test Method T-460: Air resistance of paper (Gurley method)
- .6 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
 - .2 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
 - .3 CGSB 19-GP-14M-84, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.
- .7 Sealant and Waterproofer's Institute (SWRI) - Sealant and Caulking Guide Specification

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit required data sheets as well as the manufacturer's specifications and documentation. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
- .3 Submit shop drawings stamped and signed by professional engineer registered or licensed in the province of Quebec, Canada.
 - .1 Submit shop drawings showing the specific joint sealing characteristics.
- .4 Quality Assurance: Submit following in accordance with Section 01 45 00 - Quality Control:
 - .1 Existing Substrate Condition: Report deviations, as described in PART 3 - EXAMINATION, in writing to Departmental Representative.
 - .2 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - .3 Manufacturer's Instructions: Submit manufacturer's installation instructions, including any modification to special handling criteria, installation sequence, and cleaning procedures.
 - .4 Manufacturer's Field Reports: Submit manufacturer's written reports within three (3) days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

- .5 Submit documentation from an approved independent testing laboratory certifying compliance with a) ASTM E2357, air leakage rates of air barrier membrane, including primary membrane, primer, and sealants, b) ICC-AC 38, c) ICC-AC 48, peel-adhesion to unprimed plywood and accelerated ageing and elongation, d) ASTM E84, flame spread index, Class A, and smoke development index.
- .6 Submit documentation from an approved independent testing laboratory, certifying that the effective air leakage and vapour permeance rates of the vapour permeable air barrier membrane, including primary membrane and transition sheets, exceed the requirements of the Massachusetts Energy Code and are in accordance with ASTM E2178.
 - .1 Test report submittals shall include test results on porous substrate and include sustained wind load and gust load air leakage results.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Applicator: Submit a document stating that the applicator of the vapour permeable air barrier membrane specified in this Section is recognized by manufacturer as suitable for the execution of the Work.
 - .1 Completed installation must be approved by the material manufacturer.
 - .2 Applicator: Installation must be performed by a company
 - .1 recognized by manufacturer as suitable for the execution of the Work, and
 - .2 that maintains its certification throughout the duration of the project.
- .2 Mock-Ups:
 - .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct a panel representative of an exterior wall, 2 m long by 2 m wide, incorporating substrate, window frame, and attachment of insulation, illustrating details of air barrier membrane application as well as materials interface and seals.
 - .3 Locate where directed.
 - .4 Mock-up may be part of finished Work.
 - .5 Allow 7 days for inspection of mock-ups by Departmental Representative before proceeding with the Work.
 - .6 Perform an air and water infiltration test on the mock-up in compliance with Section 01400 - Quality Control, in conformance with ASTM E783 and ASTM E1105.
- .3 Site Meetings: As part of Manufacturer's Services described in PART 3 - FIELD QUALITY CONTROL, schedule site visits, to review Work, at stages listed.
 - .1 After delivery and storage of products, and when preparatory Work is complete but before the installation specified in this Section begins.
 - .2 Twice during execution of the Work, i.e., at 25% and 60% completion.
 - .3 Upon completion of the Work, after cleaning is carried out.
- .4 Perform Work in accordance with manufacturer's written instructions and this specification.
- .5 Maintain one copy of manufacturer's written instructions on site for the duration of the Work.
- .6 Allow access to Work site by the air barrier membrane manufacturer's representative.
- .7 Components used in this section shall be sole-sourced from one manufacturer, including sheet membrane, sealants, primers, mastics, flashings, and adhesives.

- .8 Sole-source responsibility:
 - .1 Obtain air barrier material from a single manufacturer specializing in this field.
 - .2 Provide products that meet federal, provincial, and regional standards as to Volatile Organic Compounds (VOC's).

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Deliver materials to site in intact original packaging identifying manufacturer and product.
- .4 Store role materials on end in original packaging. Protect rolls from direct sunlight and weather until ready for use.
- .5 Store air barrier membrane, adhesives, and primers at temperatures of 5°C (40°F) and above.
- .6 Keep solvent away from open flame or excessive heat.
- .7 Avoid accidental spillage. Immediately notify Departmental Representative if spillage occurs and commence cleanup procedures.
- .8 Clean spills and return affected area to original state.

1.6 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- .1 Apply solvent curing sealants and vapour-releasing adhesive materials in open spaces with ventilation.
- .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
- .3 Maintain temperature and humidity recommended by materials manufacturer before, during, and after installation.

1.7 SEQUENCING

- .1 Sequence Work in accordance with 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Charts.
- .2 Sequence air and vapour barrier work to permit installation in conjunction with related materials and seals.

1.8 WARRANTY

- .1 For the Work of this Section (07 27 00.01 - Composite Wall Panels), the 12-month warranty period is to be extended to 12 years.

PART 2 – PRODUCTS

2.1 BARRIER MATERIALS

- .1 The primary air barrier membrane shall be **BlueskinVP™ 160** manufactured by Henry or equivalent approved during the call for tenders: A self-adhered, water-resistive, vapour permeable air barrier membrane consisting of a reinforced (blue) modified polyolefin tri-laminate film for wall construction. The patented adhesive reinforcement is protected by a split-back (at three places) poly-release film. Required physical properties:

- .1 Air leakage (ASTM E2178): <0.02 L/s/m² @ 75Pa
- .2 Water vapour permeance (ASTM E96, Method A): 1658 ng/Pa.m²s (29 perms)
- .3 Air Leakage of Air Barrier Assemblies (ASTM E2357): Pass
- .4 Water resistance (ICC-ES AC 38): Pass
- .5 Nail Seal-ability (AMMA 711-05 and ASTM D1970, modified): Pass
- .6 Surface Burning Characteristics (ASTM E84): Class A, Flame spread 0, smoke developed 105
- .7 Basis weight (TAPPI, method T-410): Minimum 160 g/m²
- .8 Tensile strength (ASTM D828): 40 lbf MD and 29 lbf CD
- .9 Average Dry Breaking Force (ASTM D5034): 127 lbf MD, and 91 lbf CD
- .10 Cyclic and Elongation (ICC-ES AC 48): Pass at 100 cycles, -29°C (-20°F)

ADDENDUM A02

- .11 Approved equivalent: 3M 3015 VP Vapour Permeable Air Barrier Membrane

ADDENDUM A03

- .12 Approved equivalent: AIR-SHIELD SMP Vapour-permeable air barrier membrane by W.R. Neadows including all related accessories

- .2 Self-adhering membrane for window sill pan flashings shall be **Blueskin® SA or LT** manufactured by Henry or equivalent approved during the call for tenders; an SBS modified bitumen, self-adhering sheet membrane which is integrally laminated to a blue polyethylene film. Membrane shall have the following physical properties:

- .1 Membrane Thickness: 1 mm (40 mils)
- .2 Low temperature flexibility (ASTM D146): -30°C (-30°F)
- .3 Elongation (ASTM D412-modified): 200% minimum
- .4 Minimum Puncture Resistance (ASTM E154): 40 lbf
- .5 Lap Peel Strength (ASTM D903): 10 lbf/in. width, 180° bend
- .6 Auxiliary tested component of ASTM E2357 for Air Leakage of Air Barrier Assemblies

ADDENDUM A02

- .3 AIR BARRIER MEMBRANE TYVEK HOME WRAP FROM DUPONT

1. Physical property:

<u>Properties</u>	<u>Methods</u>	<u>Dupont^{mc} Tyvek^{md} Homewrap^{md}</u>
Resistance to air penetration	ASTM E-2178 (L/s/m ² at 75 Pa) Gurley Hill	0,01 1 080

<u>Properties</u>	<u>Methods</u>	<u>Dupont^{mc} Tyvek^{md} Homewrap^{md}</u>
	(TAPPI T-460) (s/100 cm ³)	
	ASTM E-1677	Type 1
Water vapour transmission	ASTM E-96-05, method B	1 720
	ng/Pa*s*m ² (perms)	30
Resistance to water penetration	ATTCC-127 (cm)	210
Weight per unit area	TAPPI T-410 (oz/v ²)	1,8
	(g/m ²)	60
Breaking strength	ASTM D-882 (lb/po)	30
	(N/mm)	5,4
Surface burning characteristic	ASTM E-84	5
	Flame spread index	Class A
	Smoke release index	20
	CAN/ULC S102-07 Flame Spread Index	Class A
	Smoke propagation index	0
Exposure to UV rays		25
		120 days (4 months)

2.2 ADHESIVES

- .1 Low VOC adhesive primer for primary self-adhering water-resistive air barrier membrane, self-adhering transition membrane and SBS modified bitumen membranes at all temperatures shall be Blueskin® LVC Adhesive as supplied by Henry or equivalent approved during the call for tenders; a low VOC quick setting synthetic rubber based adhesive. Adhesive Primer shall have the following physical properties:
 - .1 Colour: Blue
 - .2 Solids by weight: 40%
 - .3 Maximum VOC: <240 g/L
 - .4 Drying time (initial set): 30 min.
 - .5 Service Temperature: -40°C to 70°C (-40°F to 158°F)
 - .6 Auxiliary tested component of ASTM E2357 for Air Leakage of Air Barrier Assemblies
- .2 Adhesive Primer for primary self-adhering water-resistive air barrier membrane, self-adhering transition membrane and SBS modified bitumen membranes, at all temperatures shall be Blueskin® Adhesive manufactured by Henry or equivalent approved during the call for tenders, a synthetic rubber based adhesive, quick setting, having the following physical properties:
 - .1 Colour: Blue
 - .2 Weight: 6 lb./gal.
 - .3 Solids by weight: 35%
 - .4 Drying time (initial set): 30 min.
 - .5 Auxiliary tested component of ASTM E2357 for Air Leakage of Air Barrier Assemblies

- .3 Adhesive Primer for primary self-adhering water-resistive air barrier membrane, self-adhering transition membrane, and SBS modified bitumen membranes for temperatures above -4°C: Aquatac, manufactured by Henry, or equivalent approved during the call for tenders. Polymer emulsion-based adhesive type, quick setting, having the following physical properties:
 - .1 Colour: Aqua
 - .2 Weight: 1.0 kg/l
 - .3 Solids by volume: 53%
 - .4 Water based, no solvent odours
 - .5 Drying time (initial set): 30 min. at 50% R.H. 20°C

2.3 SEALANTS

- .1 Termination Sealant shall be HE925 BES Sealant manufactured by Henry or equivalent approved during the call for tenders; a moisture cure, medium modulus polymer modified sealing compound having the following physical properties:
 - .1 Compatible with sheet air barrier, roofing, and waterproofing membranes
 - .2 Complies with Fed. Spec. TT-S-00230C, Type II, Class A
 - .3 Complies with ASTM C920, Type S, Grade NS, Class 25
 - .4 Elongation, maximum: 450-550%
 - .5 Maintains flexibility with ageing
 - .6 Seals construction joints up to 1" (25 mm) width
 - .7 Auxiliary tested component of ASTM E2357 for Air Leakage of Air Barrier Assemblies

PART 3 – EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 GENERAL

- .1 Supply labour, materials, and equipment to complete the Work as shown on the shop drawings and as specified herein to bridge and seal the following joints and air leakage pathways:
 - .1 Connections of the walls to the roof air barrier.
 - .2 Connections of the walls to the foundations.
 - .3 Seismic and expansion joints.
 - .4 Openings and penetrations of window and door frames, facade, curtain wall.
 - .5 Piping, conduit, and similar penetrations.
 - .6 All other air leakage pathways in the building envelope.
- .2 Materials and installation methods of the primary vapour permeable air barrier membrane system and accessories
- .3 Materials and installation methods of through-wall flashing membranes
- .4 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

- .5 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.
- .6 Perform Work in accordance with Canadian Urethane Foam Contractor's Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

3.3 EXAMINATION

- .1 Verify that surfaces and conditions are ready to accept Work specified in this Section.
- .2 Ensure surfaces are clean, dry, sound, smooth, continuous, and compliant with air barrier manufacturer's requirements.
- .3 Report unsatisfactory conditions to Departmental Representative in writing.
- .4 Do not start Work until deficiencies have been corrected.
 - .1 Beginning of Work implies acceptance of conditions.

3.4 PREPARATION

- .1 Remove loose or foreign matter, which might impair adhesion of materials.
- .2 Ensure substrates are clean of oil or excess dust; masonry joints struck flush, and open joints filled; and concrete surfaces free of large voids, spalled areas, or sharp protrusions.
- .3 Ensure substrates are free of surface moisture prior to application of self-adhesive membrane and primer.
- .4 Ensure metal closures are free of sharp edges and burrs.
- .5 Prime substrate surfaces to receive adhesives and sealants in accordance with manufacturer's instructions.
- .6 New concrete must be cured for a minimum of 14 days and must be dry before applying air barrier membrane.
- .7 Ensure all preparatory Work is complete prior to applying primary air barrier membrane.
- .8 Mechanical fasteners used to secure or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.
- .9 Pre-cast and concrete block substrates are required to be primed prior to application of self-adhering water-resistive air barrier membrane.

3.5 PRIMER APPLICATION ON SUBSTRATE

- .1 Primer for SBS Modified Self-adhering Membranes

- .1 For the application of SBS modified self-adhering window sill pan flashings, through-wall flashings and other applications of SBS modified self-adhering transition membranes, the substrate must be conditioned with applicable adhesive primer.
- .2 Apply adhesive primer at rate recommended by manufacturer to all areas to receive SBS modified self-adhering sheet membrane as indicated on drawings by roller or spray and allow to dry.
- .3 Primed surfaces not covered on the same day by self-adhering membrane or through-wall flashing membrane must be re-primed.
- .2 Primer for primary water-resistive air barrier membrane
 - .1 Clean dry surfaces of common construction materials such as Dens-Glass Gold® panels, or equivalent approved during the call for tenders, gypsum boards for outside use, pretreated steel, aluminum, and galvanized metal, do not need to be primed for proper adherence.
 - .2 Where appropriate surface adhesion can not be achieved, prime substrate with specified primer, at a rate of 18.6 to 23.2 m²/gal (200-250 sq ft/ga) as per Technical Data Sheet.
 - .3 All pre-cast concrete and concrete block substrates are required to be primed prior to application of self-adhering water-resistive air barrier membrane.

3.6 AIR BARRIER SYSTEM INSTALLATION

- .1 Inside and outside corners
 - .1 Seal inside and outside corners of sheathing boards with a strip of self-adhering vapour permeable membrane extending a minimum of 7.5 cm (3 in.) on either side of the corner detail.
 - .2 For inside corners, pre-treat the corner with a continuous 1.5 cm (½ in.) bead of termination sealant.
 - .3 Prime surfaces in an intermittent pattern, at a rate of 18.6 to 23.2 m²/gal (200-250 sq. ft./gal.) where appropriate to achieve surface adhesion as per manufacturers' instructions and allow to dry.
 - .4 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 5 cm (2 in.) overlap at all side laps and minimum 7.5 cm (3 in.) overlap at all end laps of membrane.
 - .5 Roll all laps and membrane with a roller to ensure seal.
- .2 Transition areas
 - .1 Tie-in to structural beams, columns, floor slabs, and intermittent floors, parapet curbs, foundation walls, and roofing systems and at the interface of dissimilar materials as indicated in shop drawings with self-adhering air barrier transition membrane.
 - .2 Prime surfaces in an intermittent pattern, at a rate of 18.6 to 23.2 m²/gal (200-250 sq. ft./gal.) where appropriate to achieve surface adhesion as per manufacturer's instructions and allow to dry.
 - .3 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Provide minimum 7.5 cm (3 in.) lap to all substrates.
 - .4 Ensure minimum 5 cm (2 in.) overlap at all side laps and minimum 7.5 cm (3 in.) overlap at all end laps of membrane.
 - .5 Roll all laps and membrane with a roller to ensure seal.

- .3 Windows and rough openings
 - .1 Place specified SBS modified self-adhering window sill pan flashing membrane across window sills. Pre-treat inside corners with a bead of termination sealant. Install window sill pan membrane and end dam terminations, seal cuts and terminations with termination sealant.
 - .2 Wrap jamb of rough openings with specified self-adhering water-resistive air barrier transition membrane.
 - .3 Extend specified self-adhering water-resistive air barrier membrane into rough window openings sufficient to provide a connection to interior vapour retarder.
 - .1 Prime surfaces in an intermittent pattern, at a rate of 18.6 to 23.2 m²/gal (200-250 sq. ft./gal.) where appropriate to achieve surface adhesion as per manufacturers' instructions and allow to dry.
 - .2 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 5 cm (2 in.) overlap at all side laps and minimum 7.5 cm (3 in.) overlap at all end laps of membrane.
 - .3 Roll all laps and membrane with a roller to ensure seal.

Notes: Best construction practice requires window sill details to be waterproofed and flashed prior to the placement of the window assembly. SBS modified self-adhering membranes provide the flexibility to wrap around the configurations of wall openings and provide the self-sealing properties to guard against leaks by mechanical fastener attachment.

A vapour retarder must be incorporated into wall design; see Section 07 26 00. At door and window openings, construction best practices require that the air barrier and vapour retarder be connected to limit uncontrolled air flow or moisture migration.

Best construction practice for wood frame construction require protecting the jamb of rough openings with the self-adhering water-resistive vapour permeable air barrier membrane to reduce the risk of wood deterioration. Specific window manufacturer's instructions over-ride Henry specifications, or equivalent approved during the call for tenders, for window openings .

The installer is responsible to resolve any conflicts in the specifications, sequencing, materials, or techniques between window manufacturer's instructions and Henry specifications, or equivalent approved during the call for tenders, BEFORE WORK BEGINS.
- .4 Water-resistive air barrier membrane
 - .1 Apply self-adhering water-resistive air barrier membrane complete and continuous to substrate in a sequential overlapping weather-board method starting at bottom or base of wall and working up in accordance with manufacturer's recommendations and written instructions. Stagger all vertical joints.
 - .1 Prime surfaces in an intermittent pattern, at a rate of 18.6 to 23.2 m²/gal (200-250 sq. ft./gal.) where appropriate to achieve surface adhesion as per manufacturers' instructions and allow to dry.
 - .2 Cut to manageable sections, align and position self-adhering membrane to substrate, remove top panel of protective release film and press firmly into place.
 - .3 Ensure alignment, hold membrane in place to avoid wrinkles and sequentially remove remaining panels of protective film and press firmly into place.
 - .4 Ensure minimum 5 cm (2 in.) overlap at all side laps and minimum 7.5 cm (3 in.) overlap at all end laps of membrane.
 - .5 Pressure roll all membrane surfaces, laps and flashings with a countertop roller or 'J-roller' to ensure appropriate surface adhesion.

- .6 At the end of each day's work seal the top edge of the membrane where it meets the substrate with termination sealant. Trowel-apply a feathered edge to seal termination and shed water.

Note: Acceptable substrates for BlueskinVP™ application are Dens-Glass Gold panels,® or equivalent approved during the call for tenders, gypsum boards for outside use, plywood, OSB panels, pre-cast concrete, cast-in-place concrete, concrete blocks, pretreated steel, aluminum, and galvanized metal. It is not generally necessary to prime clean sheathing boards to obtain appropriate adherence. (See also 3.02, Surface Preparation). If, due to substrate conditions beyond the applicator's control, required adherence is not obtained, Blueskin Adhesive may be used® to adhere BlueskinVP™ membrane, or equivalent approved during the call for tenders.

3.7 APPLICATION OF TERMINATION SEALANT

- .1 Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, around penetrations, duct work, and electrical and other apparatus extending through the primary water-resistive air barrier membrane and around the perimeter edge of membrane terminations at window and door frames with specified termination sealant.

3.8 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services
- .1 Obtain a written report from manufacturer verifying that the Work complies with specified criteria pertaining to the handling, installing, applying, protecting, and cleaning of products and submit the Manufacturer's Field Report as described in PART 1 - SUBMITTALS.
 - .2 Manufacturer shall provide product use recommendations and conduct periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Schedule site visits to review Work as directed in PART 1 - QUALITY ASSURANCE.
- .2 Make notification when Sections of Work are complete to allow review prior to covering air barrier system.

3.9 PROTECTION

- .1 Protect finished Work in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Do not permit adjacent Work to damage the Work of this Section.
- .3 Ensure finished Work is protected from weather. Cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed air barrier installations.
- .4 Damp substrates must not be inhibited from drying out. Do not expose the backside of the substrate to moisture or rain.
- .5 Water-resistive air barrier membrane is not designed for permanent exposure. Good practice calls for covering as soon as possible, not to exceed 90 days.
- .6 Regional weather conditions and daytime sunlight temperatures may require the membrane to be protected under the 90 day exposure limit.

3.10 NOMENCLATURE

- .1 Outer surface of inner wythe of masonry:
 - .1 Trowel seal Type F over masonry unit surface to thickness of 6 mm.
 - .2 Seal masonry anchor penetrations air tight.
- .2 Exterior surface of intermediate gypsum wall sheathing:
 - .1 Place sheet seal Type G over gypsum sheathing with Adhesive Type E.
 - .2 Seal with Type Y sealant.
- .3 Window Frame Perimeter:
 - .1 Lap sheet seal Type H from wall air seal surface with 75 mm of full contact over firm bearing to window frame with 25 mm of full contact.
 - .2 Edge seal with Type Z sealant.
- .4 Wall and Roof Junction:
 - .1 Lap sheet seal Type J from wall seal material with 150 mm of contact over firm bearing to roof air seal membrane with 100 mm of full contact.
 - .2 Seal with Type X sealant.
- .5 Steel roof deck, with intermediate gypsum sheathing, tape sealed joints:
 - .1 Install Type K seal over gypsum sheathing with Type D Adhesive.
 - .2 Edge seal membrane with Type Y sealant.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 05 50 00 - Metal Fabrications.
- .2 Section 06 20 00 - Finish Carpentry.
- .3 Section 06 40 00 - Architectural Woodwork.
- .4 Section 07 92 00 - Joint Sealants.
- .5 Section 09 22 16 - Non-Structural Metal Framing.
- .6 Section 09 30 13 - Ceramic Tiling.
- .7 Section 09 91 23 - Interior Painting.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM F1066-04(2010)e1, Standard Specification for Vinyl Composition Floor Tile.
 - .2 ASTM F1344-12e1, Standard Specification for Rubber Floor Tile.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-25.20-95, Surface Sealer for Floors.
 - .2 CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.
- .3 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1168-A2011, Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for resilient tile flooring. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
- .3 Samples:
 - .1 Submit two (2) tile in size and colour specified.

1.4 EXTRA STOCK MATERIALS

- .1 Extra Stock Materials:
 - .1 Provide maintenance materials of resilient tile flooring, base and adhesive in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide 2% of each colour, pattern and type flooring material required for this project for maintenance use.
 - .3 Extra materials from same production run as installed materials.
 - .4 Identify each container of floor tile and each container of adhesive.
 - .5 Deliver to the Departmental Representative, upon completion of the work of this section.
 - .6 Store where directed by the Departmental Representative.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials off ground, indoors, in a clean, dry, well-ventilated area in accordance with the manufacturer's recommendations.
- .2 Store and protect specified materials from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

1.6 SITE CONDITIONS

- .1 Install resilient products after completing all other finish work including painting.
- .2 Ambient Conditions:
 - .1 Maintain air temperature and structural base temperature at flooring installation area above 18°C and under 29°C for 48 hours before, during and for 48 hours after installation.
 - .2 Maintain relative humidity between 40% and 60% throughout the installation.
 - .3 Until the date of substantial completion, maintain ambient temperature within the manufacturer's recommended range, and above 13°C and below 29°C.

PART 2 – PRODUCTS

2.1 MATERIALS

ADDENDUM A03

.1 Tiles type 1

Vinyl composition tile: to ASTM F 1066, Composition 1 - non asbestos, Class 2 - through pattern tile, smooth surface

- .1 Tile construction: no wax, no lifetime finishes.
- .2 Tile dimensions: 61 cm x 61 cm
- .3 Overall thickness: 2.0 mm
- .4 ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring of 0.6 or greater.
- .5 ASTM F 970, Standard Test Method for Static Load Limit - 250 PSI.
- .6 ASTM E 648, Standard Test method for Critical Radiant Flux of 0.45 watts/cm² or greater, Class I.

Reference product: IQ Optima, Sharktale colour
Tarkett Inc. or equivalent approved during the call for tenders.

- .2 Primers and adhesives: waterproof, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.
- .3 Sub-floor filler and leveller: white premix latex requiring water only to produce cementitious paste, as recommended by flooring manufacturer for use with their product.
- .4 Metal edge strips: aluminum extruded, smooth, polished, with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
- .5 Sealer: type recommended by flooring manufacturer.

ADDENDUM A02

ADDENDUM A03

.6 Tiles type 2

- Resilient rubber tiles made from recycled tires and encapsulated in urethane binder.
610 mm x 610 mm square-edged tiles, 9.5 mm thick, colour to be chosen by the architect.
- .1 ASTM D 2240, Standard Test Method for Rubber Property – Durometer Hardness : 65 Shore A.
 - .2 ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coating Flooring or 0.6 greater.
 - .3 ASTM F 970, Standard Test Method for Static Load Limit – Pass 250 PSI
 - .4 ASTM D 3389, Standard Test Method for Coated Fabrics Abrasion Resistance : < 1.00 gram weight loss.
 - .5 ASTM D 2859, Standard Test Method for Ignition Characteristics of Finished Floor Covering Materials (Pill Test) : pass with greater than 1” of un-charred area.

Reference Products: Replay of Tarkett Inc. or equivalent approved during the tender process.

.7 Flexible skirting boards on rolls: in accordance with ASTM F 1861, with groove, 100 mm high, vinyl, coloured in the mass:

- .1 Location: according to the indications on the drawings.
 - .2 Colour: at the architect's choice from the manufacturer's complete range.
 - .3 Reference products: from Johnosite or equivalent company approved during the tender process.
 - .4 Primers and adhesives: water repellent, recommended by the floor covering manufacturer, compatible with the substrate, whether located at ground level or above or below it.
 - .5 Filler and smoothing plaster for substrates: white pre-mixed latex that requires only water to produce a binder paste, as recommended by the floor covering manufacturer.
-

PART 3 – EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of surfaces/substrates previously installed under other Sections or Contracts are acceptable for resilient tile flooring installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect surfaces/substrates in the presence of the Departmental Representative.
 - .2 Inform the Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with the installation only after the unacceptable conditions have been remedied and after receipt of written approval to proceed from the Departmental Representative.
- .2 Ensure concrete floors are dry, by using test methods recommended by tile manufacturer.

3.2 SUB-FLOOR TREATMENT

- .1 Mechanically remove all subfloor contamination likely to damage the resilient flooring. Do not use permanent or erasable markers, pens, pencils, paint or other to write on the flooring back or the subfloor as they could seep through and stain the flooring.
- .2 Wood subfloors must have a 45.7 cm (18 in) minimum transverse ventilation space under the joists.
 - .1 The floor must be stable and solid.
 - .2 Single-panel and tongue and groove subfloor panels must be covered with a single layer of APA-rated plywood, 6.4 mm (1/4 in) or 12.7 mm (1/2 in)
- .3 Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
- .4 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .5 Seal concrete in accordance with flooring manufacturer's printed instructions.
- .6 Only install resilient flooring once they have reached the temperature of where they are to be installed.
 - .1 Store resilient flooring and installation materials for a minimum of 48 hours prior to installation in the location where they are to be installed.
- .7 Sweep and vacuum the subfloor immediately before starting to install resilient flooring.

3.3 TILE APPLICATION

- .1 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least one (1) month following building occupation.
- .2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
- .4 Install flooring to square grid pattern with joints aligned to length of room.
- .5 As installation progresses, and after installation, roll flooring in two directions including resilient tile, with 45 kg minimum roller to ensure full adhesion.
- .6 Cut tile and fit neatly around fixed objects.
- .7 Install feature strips and floor markings where indicated. Fit joints tightly.
- .8 Install flooring in pan type floor access covers. Maintain floor pattern.
- .9 Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
- .10 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .11 Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 CLEANING

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

- .1 Leave the premises clean at the end of each working day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools, and equipment from the site, according to Section 01 74 11 - Cleaning.
 - .1 Clean flooring surfaces to flooring manufacturer's printed instructions.
- .3 Remove excess adhesive from floor, base and wall surfaces without damage.
- .4 Clean, seal and wax floor and base surface to flooring manufacturer's instructions.

3.5 PROTECTION

- .1 Protect new floors from time of final set of adhesive until final waxing.
- .2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 03 30 00 - Poured-in-Place Concrete.
- .2 Section 05 50 00 - Metal Fabrications.
- .3 Section 05 51 29 - Metal Stairs and Ladders.
- .4 Section 06 20 00 - Finish Carpentry.
- .5 Section 07 92 00 - Joint Sealants.
- .6 Section 08 11 10 - Metal Doors and Frames.
- .7 Section 08 14 16 - Flush Wood Doors.
- .8 Section 09 21 16 - Gypsum Board Assemblies.

1.2 GENERAL WORK INFORMATION

- .1 Section Contents
 - .1 Materials, products, and methods associated with on-site application of paint to new substrates, including on-site painting of pre-primed surfaces.

1.3 REFERENCE STANDARDS

- .1 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Assessment Act (CEAA), 1999, c. 33.
- .2 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.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .4 The 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.
- .5 National Fire Code of Canada - 1995
- .6 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
- .7 Transports Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992, c. 34.
- .8 National Research Council Canada (NRC)
 - .1 National Fire Code of Canada 2015 (NFC).
- .9 Society for Protective Coatings (SSPC)
 - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Construction Schedule
 - .1 Submit work schedule for various stages of painting to Departmental Representative for review at least 48 hours prior to the commencement of work.
 - .2 Obtain written consent from Departmental Representative for any change to work

- schedule.
- .3 Schedule new additions to existing buildings and coordinate painting operations with other trades.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit required data sheets and manufacturer's printed product literature. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
 - .2 Submit two (2) copies of WHMIS Safety Data Sheets (SDS) in accordance with Section 01 35 29.06 - Health and Safety.
 - .3 Confirm products to be used are in MPI 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 number.
 - .4 Product rating according to MPI Green Performance Standard.
 - .5 Manufacturer's safety data sheets (SDS) for each product.
- .4 Samples:
 - .1 Submit samples of all available colours if products made in restricted range of colours.
 - .2 Provide two (2) sample panels 300 mm X 300 mm of each special finish, specified paint or coating in colours, gloss/sheen, and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
 - .2 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
 - .3 13 mm wall board for special finishes on gypsum board and other smooth surfaces.
 - .4 10 mm plywood panel for finishes over wood surfaces.
 - .3 Retain reviewed samples on-site to demonstrate minimum acceptable standard of quality for on-site surface finishing.
 - .4 Test reports: submit certified test reports for paints and coatings from approved independent testing laboratories, indicating compliance with specified performance criteria and physical properties. Reports must indicate the following:
 - .1 Lead, cadmium and chromium: presence of and amounts.
 - .2 Mercury: presence of and amounts.
 - .3 Organochlorines and PCBs: presence of and amounts.
 - .5 Certificates: provide certificates signed by manufacturer certifying that products, coatings, and other materials comply with specified performance criteria and physical properties.
 - .6 Manufacturer's Instructions:
 - .1 Provide manufacturer's installation and application instructions.

1.6 CLOSEOUT SUBMITTALS

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

- .2 Operation and Maintenance Data: provide operation and maintenance instructions for incorporation into manual.
- .3 Include:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour number.
 - .4 Product rating according to MPI Green Performance Standard.

1.7 EXTRA STOCK MATERIALS

- .1 Extra Stock Materials and Products:
 - .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Provide one (1) four (4)-litre can of each type and colour of primer or sealer. Identify colour and paint type in relation to established colour schedule and finish system.
 - .3 Provide replacement materials and products from same production batch as those applied. Cover with protective wrapping, identified with appropriate labelling in accordance with Section 01 78 00 - Closeout Submittals.

1.8 QUALITY ASSURANCE

- .1 Qualifications
 - .1 Painting must be done by journeypersons having a "tradesman's qualification certificate".
 - .2 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
 - .3 Conform to latest MPI requirements for exterior painting work including preparation and priming and sealing.
 - .4 Products included in the chosen paint system must be sourced from a single manufacturer and comply with MPI Painting Specification Manual, Approved Product Listing.
 - .5 Retain purchase orders, invoices and documents to prove conformance with specified MPI requirements when requested by Departmental Representative.
 - .6 Standard of Acceptance:
 - .1 Walls: no visible defect at a distance of 1000 mm and an angle of 90 degrees to inspected surface.
 - .2 Soffits: no defects visible from floor, at an angle of 45 degrees to inspected surface, using final lighting source.
 - .3 Finish coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
- .2 Mock-ups:
 - .1 When requested by Departmental Representative or Paint Inspection Agency, prepare and paint designated surface, area, room or item to requirements specified herein, with specified paint or coating showing selected colours, number of coats, gloss/sheen, textures and quality of work to MPI Painting Specification Manual standards for review and approval.
 - .2 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .1 Construct 1200 mm x 1200 mm mock-up on each type of wall or ceiling surface. Prepare and paint designated surface, area, room or item (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.

- .2 Mock-ups will be used:
 - .1 To judge quality of work, support/substrate preparation, operation of equipment and material application and skill to MPI Architectural Painting Specification Manual standards.
- .3 Construct mock-ups where indicated.
- .4 Allow 24 hours for inspection of mock-ups before proceeding with Work.
- .5 When accepted, mock-ups will demonstrate minimum standard of quality required for Work. Mock-ups may remain as part of finished Work. Remove mock-up and dispose of materials when directed by Departmental Representative.

1.9 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with the manufacturer's written instructions.
- .2 Delivery and acceptance requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .1 Labels must indicate:
 - .1 Type of paint or coating.
 - .2 Compliance with pertinent standards and requirements.
 - .3 Product number and colour, as per list of specified colours.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors 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, as directed by Departmental Representative. After completion of operations, return said areas to initial condition, as directed by Departmental Representative.
 - .6 Remove materials from storage only in quantities required for same day use.
 - .7 Comply with requirements of Workplace Hazardous Materials Information System.
 - .8 Storage temperature of temperature-sensitive products must never be below manufacturer's recommended minimum.
- .4 Fire Safety Requirements:
 - .1 Provide one (1) 9 kg dry-chemical fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (NFC).
- .5 Remove from site damaged, opened or refused materials and equipment.

1.10 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Heating, ventilation and lighting

- .1 Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint or coating application and until sufficiently cured.
- .2 Provide continuous ventilation for seven (7) days after application completed.
- .3 As necessary, coordinate use of ventilation system and ensure its operation during and following application.
- .4 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.
- .5 Provide minimum lighting level of 323 lux on surfaces to be painted.
- .6 Temperature, relative humidity, moisture content of substrate.
 - .1 Unless pre-approved written approval granted by the competent Paint Inspection Agency 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 do not fall within MPI or paint manufacturer's prescribed limits.
 - .4 Dew point is less than 3 degrees C below the ambient or surface temperature or relative humidity is above 85%. In other words, relative humidity must be below 85% and the dew point must correspond to a difference of more than 3 degrees C between the ambient temperature and substrate temperature. Use psychrometer to establish relative humidity before beginning paint application.
 - .5 Conditions are expected to be outside specified limits while the newly applied coating dries or cures to the point at which it can withstand expected adverse environmental factors.
 - .2 Comply with application requirements as to maximum substrate moisture content, as follows:
 - .1 Allow new concrete and masonry to cure minimum of 28 days.
 - .2 Maximum moisture content of 15% for wood.
 - .3 Maximum moisture content of 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.
- .7 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 and coatings to adequately prepared surfaces and to surfaces within moisture limits.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.

ADDENDUM A03

- .8 Additional interior application requirements:
 - .1 Apply paint finishes when temperature at the worksite can be satisfactorily maintained within manufacturer's recommendations.

PART 2 – PRODUCTS

2.1 MATERIALS

- .1 Only paint and coating materials listed in the MPI Approved Product List (APL) are acceptable for use for this Work.
- .2 Products included in the chosen paint system must be sourced from a single manufacturer.
- .3 Only qualified products with MPI E3 "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 Products used, primers or sealers, paints, coatings, finishes, stains, lacquers, fillers, thinners, solvents and others, must be on Approved Products List in MPI Architectural Painting Specification Manual.
- .6 Specify products on MPI Approved Product List having at least an E3 rating where indoor air quality (odour) requirements exist.
- .7 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids to be:
 - .1 Water-based;
 - .2 Non-flammable;
 - .3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere;
 - .4 Manufactured without compounds which contribute to smog in the lower atmosphere;
 - .5 Without toxic metal pigments, methylene chloride (dichloromethane) or chlorinated hydrocarbons.
- .8 Linseed oil, shellac, and turpentine must be premium products on MPI Approved Product List and compatible with other paint products used.
- .9 Establish formula and prepare water-based coatings containing no aromatic solvents, halogenated solvents, formaldehyde, mercury, lead, cadmium, hexavalent chromium, nor any of their derivatives.
- .10 Flash point: 61.0 degrees C or higher for water-based or recycled water-based coatings.

2.2 COLOURS

- .1 Submit proposed colour schedule to Departmental Representative for approval.
- .2 Colour schedule to be established upon selection of one (1) base colour and five (5) accent colours. Follow instructions in plans. Of the six (6) colours, one to be used for 80% of the project. Other five (5) to be accent colours on some walls.
- .3 Selection of colours will be from manufacturers full range of colours.
- .4 Where specific products are available in restricted range of colours, selection based on limited range.
- .5 Second coat in three-coat system to be tinted slightly lighter colour than top coat to show visible

difference between coats, if requested by Departmental Representative.

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

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. Obtain prior written approval from Departmental Representative for colour tinting.
- .2 Mix paste, powder or catalysed 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:

	Gloss at 60 degrees	Sheen at 85 degrees
Gloss Level 1 - flat	maximum 5	maximum 10
Gloss Level 2 - velvet	maximum 10	10-35
Gloss Level 3 - eggshell	10-25	10-35
Gloss Level 4 - satin	20-35	minimum 35
Gloss Level 5 - traditional semi-gloss	35-70	
Gloss Level 6 - traditional gloss	70-85	
Gloss Level 7 - high gloss	more than 85	

- .2 Gloss level ratings of painted surfaces as indicated.

2.5 INTERIOR PAINT SYSTEMS

- .1 Drywall, gypsum panel and plastered walls:
- .1 System N-INT-1: offices, corridors, entrance hall and similar areas.
- .1 Apply one (1) coat latex, zero VOC, Green Seal approved (GS-11), primer-sealer such as Sico Ecosource 850-130, or equivalent approved during the call for tenders.
- .2 Apply two (2) coats of latex paint, Gloss Level 3 finish, such as Sico 711, or equivalent approved during the call for tenders.
- .2 System N-INT-2: washrooms, exit stairs and similar areas.
- .1 Apply one (1) coat latex, zero VOC, Green Seal approved (GS-11), primer-sealer such as Sico Ecosource 850-130, or equivalent approved during the call for tenders.
- .2 Apply two (2) coats of latex paint, Gloss Level 4 finish, such as Sico 712, or equivalent approved during the call for tenders.
Note: Washrooms will have a Gloss Level 5 finish.
- .3 System N-INT-3: technical rooms, storage rooms, cleaning rooms, mechanical rooms, electrical rooms, and similar areas.

- .1 Apply one (1) coat latex, zero VOC, Green Seal approved (GS-11), primer-sealer such as Sico Ecosource 850-130, or equivalent approved during the call for tenders.
 - .2 Apply two (2) coats 100% acrylic latex paint, zero VOC, Green Seal approved (GS-11), Gloss Level 5 finish, such as Sico 855, or equivalent approved during the call for tenders.
- .4 System N-INT-4: all other areas.
 - .1 Apply one (1) coat latex, zero VOC, Green Seal approved (GS-11), primer-sealer such as Sico Ecosource 850-130, or equivalent approved during the call for tenders.
 - .2 Apply two (2) coats 100% acrylic latex paint, zero VOC, Green Seal approved (GS-11), Gloss Level 3 finish, Sico brand or equivalent approved during the call for tenders.
- .5 System N-INT-5: Drywall, gypsum panel, plastered and concrete ceilings and drop ceilings.
 - .1 Apply one (1) coat latex, zero VOC, Green Seal approved (GS-11), primer-sealer such as Sico Ecosource 850-130, or equivalent approved during the call for tenders.
 - .2 Apply two (2) coats of latex paint, Gloss Level 1 finish, such as Sico 851-116, or equivalent approved during the call for tenders.
- .6 System N-INT-6: Concrete and concrete-block walls.
 - .1 Wash/degrease surfaces to be painted with trisodium phosphate.
 - .2 Apply one (1) coat of concrete block filler such as Sico 675-115, or equivalent approved during the call for tenders.
 - .3 Apply two (2) coats 100% acrylic latex paint, zero VOC, Green Seal approved (GS-11), Gloss Level 5 finish, such as Sico 857, or equivalent approved during the call for tenders.
- .7 System N-INT-7: Primed or unprimed ferrous metal.
 - .1 Apply one (1) coat of zinc phosphate primer for metal surfaces, such as Sico 922-260, or equivalent approved during the call for tenders.
 - .2 Touch up bare metal on primed surfaces.
 - .3 Apply two (2) coats of anti-rust coating for metal surfaces, such as Sico 635 (Corrostop Ultra), or equivalent approved during the call for tenders.
- .8 System N-INT-8: Galvanized and zinc-coated metal.
 - .1 Treat surface with metal cleaner and rust remover such as Sico 635-104, or equivalent approved during the call for tenders.
 - .2 Pressure wash surface, adjusting pressure to substrate.
 - .3 Allow surface to dry.
 - .4 Apply one (1) coat of latex primer for galvanized metal such as Sico 635-045, or equivalent approved during the call for tenders.
 - .5 Apply two (2) coats of anti-rust coating for metal surfaces, such as Sico 635 (Corrostop Ultra), or equivalent approved during the call for tenders.
- .9 System N-INT-9: Sealed concrete floors.
 - .1 Surface preparation: All surfaces to be treated will be sound, clean and free of frost, moisture, and efflorescence. Apply sealer to dry surfaces only.

ADDENDUM A03

- .2 Apply water-repelling sealer such as Sikaguard SN-40, or equivalent approved during the call for tenders, using a roller or sprayer according to manufacturers recommendations.

ADDENDUM A03

~~.10 Painted concrete: Intermediate landing floors and stair treads in exit stairs.~~

- ~~.1 For all stair treads and landings, use an anti-slip finish: In the final finish coat, add 2-4 lbs General Polymers 5240 fine aluminum oxide to 1 gallon Armorseal Floor Plex 7100, or equivalent approved during the call for tenders.~~
- ~~.2 Preparation: SSPC-SP13, surface profile CSP 1-3.~~
- ~~.3 Primer: One (1) coat ARMORSEAL FloorPlex 7100 primer or equivalent approved during the call for tenders.~~
- ~~.4 Finishes Two (2) coats ARMORSEAL FloorPlex 7100 water based epoxy floor coating, or equivalent approved during the call for tenders.~~

2.6 EXTERIOR PAINT SYSTEMS

- .1 System R-EXT-1: Steel exterior doors and frames.
 - .1 Surface preparation:
 - .1 Remove dust.
 - .2 Treat surfaces with phosphoric acid solution such as Sico 635-104, or equivalent approved during the call for tenders.

ADDENDUM A03

- .1 Color: at the choice of the Ministry representative**

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 condition of surfaces/substrates previously installed under other Sections or Contracts are acceptable and allow installation to proceed in accordance with manufacturer's written instructions.
 - .1 Visually inspect surfaces/substrates in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and

after receipt of written approval to proceed from Departmental Representative.

- .2 Conduct moisture testing of surfaces to be painted using correctly calibrated electronic moisture meter, however, concrete floors to be moisture tested using simple "cover patch test." Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows,
 - .1 Stucco, plaster and gypsum board: 12%
 - .2 Concrete: 12%
 - .3 Concrete Block/Brick: 12%
 - .4 Wood: 15%

3.4 PREPARATION

- .1 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 wiping with dry, clean cloths or blowing with compressed air and vacuuming.
 - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiffbristle 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 and dry completely.
 - .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. As far as possible, minimize use of mineral spirits or organic solvents to clean up water-based paints.
- .2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .3 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - .1 Apply sealer complying with MPI #36 over knots, pitch, sap and resinous areas.
 - .2 Apply wood filler to nail holes and cracks.
- .4 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.
- .5 During in-shop priming: Clean metal substrates/surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Eliminate traces of stripper and brush clean pockets and corners of surface and vacuum.
- .6 Touch up of shop primers with primer as specified.
- .7 Do not paint until prepared surfaces approved by Departmental Representative.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by roller, air sprayer, brush or airless sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and roller application
 - .1 Apply paint in uniform layer using brush and/or roller type suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray application
 - .1 Provide equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges. Maintain equipment in good condition.
 - .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 difficult to access.
- .5 Apply coats of paint as 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.

3.6 MECHANICAL/ ELECTRICAL EQUIPMENT

- .1 Paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, unless otherwise indicated.
- .2 Boiler room, mechanical and electrical rooms: Paint exposed conduits, piping, hangers, ductwork and other visible mechanical and electrical equipment.
- .3 Contractor shall verify relevant standards with engineer before painting conduit. Some electrical equipment must not be painted, for instance, equipment conduits, shelves, junction boxes, etc.

- .4 Other unfinished areas (suspended ceilings-office areas): Leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks on existing finish.
- .5 Touch up scratches and marks on factory finishes using product provided by equipment manufacturer.
- .6 Do not paint over nameplates.
- .7 Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matte black paint.
- .8 Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- .9 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.
- .10 Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

- .1 Walls: no visible defect at a distance of 1000 mm and an angle of 90 degrees to inspected surface.
- .2 Ceiling: No defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 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 Departmental Representative 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 Departmental Representative.
- .4 Standard of Acceptance:
 - .1 Walls: no visible defect at a distance of 1000 mm and an angle of 90 degrees to inspected surface.
 - .2 Ceiling: 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.
- .5 Field inspection of interior painting operations to be carried out by independent inspection firm as designated by Departmental Representative.
- .6 Advise Departmental Representative when a surface and applied coating ready for inspection.

Do not proceed with subsequent coats until previous coat has been approved.

- .7 Cooperate with inspection agency and provide full access to site.
- .8 Retain purchase orders, invoices and documents to prove conformance with specified MPI requirements when requested by Departmental Representative.

3.9 CLEANING

- .1 Progress cleaning: Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave the premises clean at the end of each working day.
- .2 Final Cleaning: Remove surplus materials, rubbish, tools, and equipment from the site, in accordance with Section 01 74 00 - Cleaning.

3.10 RESTORATION

- .1 Clean and re-install hardware items removed before undertaking painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashes 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 satisfaction of Departmental Representative to avoid scuffing newly applied paint.
- .5 Return areas used for storage, mixing and handling of paint, as well as for equipment and tool cleaning, to their original state, to the satisfaction of Departmental Representative.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 03 30 00 - Poured-in-Place Concrete.
- .2 Section 09 21 16 - Gypsum Board Assemblies.
- .3 Section 09 91 23 - Interior Painting.
- .4 C3027 - Epoxy Floor Coatings.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM A123/A123M-13, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
- .2 CSA Group
 - .1 CSA-G40.20/G40.21-[13], General Requirements for Rolled or Welded /Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-[13], Welded Steel Construction (Metal Arc Welding).
- .3 Green Seal (GS)
 - .1 GS-11-[2013], Standard for Paints and Coatings.
- .4 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
 - .1 MPI #47, Alkyd, Interior, Semi-Gloss.
 - .2 MPI #76, Quick Dry Alkyd Metal Primer.
 - .3 MPI #81, Machinery Enamel.
 - .4 MPI #96, Quick Dry Enamel Gloss.
- .5 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1113-[13], Architectural Coatings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wire mesh partitions. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
- .3 Shop Drawings:
 - .1 Submit shop drawings stamped and signed by professional engineer registered or licensed in the province of Quebec, Canada.
 - .2 Indicate partition panel modules and types, materials, gauges, finishes, door and other openings, hardware, fastening methods to adjacent structure, ceiling details, and assembly methods.
- .4 Samples:
 - .1 Submit two (2) 300 x 300 mm samples of each type partition and colour and finish on actual base metal.
 - .2 Sample to show basic construction, door construction, hardware, and finishes.
 - .3 Erect trial assembly of at least two modules of each type partition, on site where directed by Departmental Representative.

1.4 QUALITY ASSURANCE

- .1 Mock-Ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Erect one of each type door and two of each type partition panel.
 - .3 Allow 24 hours for inspection of mock-ups by Departmental Representative before proceeding with the Work.
 - .4 When accepted, mock-up will demonstrate minimum standard
 - .5 for this Work.
 - .6 Approved mock-up may remain as part of finished Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors, in a clean, dry, well-ventilated area in accordance with manufacturer's recommendations.
 - .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 Partition mesh: Painted metal wire such as Cogan or equivalent approved during the call for tenders.
 - .1 Welded mesh: 10 gauge with 50 mm x 50 mm openings, with 12 gauge frame 30 mm x 5 mm.
 - .2 Reinforcing bars: 13 mm diameter.
- .2 Steel sections and plates: To CSA G40.20/G40.21, type 44W.
 - .1 Posts: Square with welded joints 50 x 50 mm welded to a base plate 150 mm x 150 mm /baseboard 50 mm..
 - .2 Angle frame: 32 x 32 x 3 mm.
 - .3 Post caps: Manufacturer's standard formed cap, matched to other components.
- .3 Doors: In painted wire.
 - .1 Welded mesh: 10 gauge with 50 mm x 50 mm openings, with 12 gauge frame 30 mm x 30 mm.
 - .2 Reinforcing bars: Two 13 mm diameter bars.
- .4 Welding materials: To CSA W59.
- .5 Bolts, clips and fasteners: Manufacturer's standard to suit design and application.

2.2 ACCESSORIES

- .1 Master Key Systems, Deadlocks and Locksets: Refer to Section 08 71 00 - Door Hardware.
- .2 Master Key Systems, Deadlocks and Locksets: Refer to Section 08 70 05 - Cabinet and Miscellaneous Hardware.

2.3 FABRICATION

- .1 Panelling:
 - .1 Two superposed panels 1500 x 1220 mm consisting of wire mesh welded at 100 mm centre to centre to angle frame.
 - .2 Mitre and weld frame corners.
 - .3 Provide 20 x 6 mm flat bars across panels at vertically oriented third points.
- .2 Posts:
 - .1 2440 mm high with floor plates and post caps.
 - .2 Include corner, wall, door and other special posts to manufacturer's standard.

ADDENDUM A03

- ~~.3 *Swinging doors: Double, single leaf.*~~
 - ~~.1 *915 mm x 2440 mm.*~~
 - ~~.2 *Construct doors of angle frame and mesh and sheet metal as indicated.*~~
 - ~~.3 *Reinforce door with 40 x 5 mm or equivalent flat bar centre rail and two 20 x 6 mm or equivalent flat bars bracing from centre rail to opposite corners on hinge side.*~~
- .4 **Sliding door**
 - .1 **1830 mm x 2440 mm.**
 - .2 **The door must consist of an angle frame, mesh and sheet metal elements as indicated.**
 - .3 **The door shall be reinforced with a central cross member consisting of a 40 mm x 5 mm flat iron or equivalent, and two (2) other 20 mm x 6 mm flat irons or equivalent, connecting the central cross member to opposite corners on the hinge side.**
- .5 Swing door hardware:
 - .1 Equip doors with stops, keeper, hasp for padlock.
 - .2 Equip standard doors with 1-1/2 pair of butts.

2.4 FINISHES

- .1 After fabrication, clean and paint components with manufacturer's standard primer and 2 coat enamel finish.
 - .1 Standard Cogan grey colour or equivalent approved during the call for tenders.
 - .2 In accordance with Section 09 91 23 - Interior Painting.

PART 3 – EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- .1 Install mesh enclosures and doors in accordance with manufacturer's printed instructions.
- .2 Erect enclosures plumb, level, straight, rigidly supported, and securely fastened to abutting surfaces, free from superimposed loads.
- .3 Fix to masonry and concrete using lag bolts and shields; to hollow walls using bolts and toggle type anchors; to steel supports with bolts in threaded holes or spot welds.
 - .1 Locate fasteners on interior side where possible for maximum security.
- .4 Install doors and wickets and adjust for proper closing, locking and smooth operation.
 - .1 Mount sliding doors on side of enclosed area.

3.3 CLEANING

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave work area clean at end of each day.
- .2 Final cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment from the site, according to Section 01 74 11 - Cleaning.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS (without limitation)

- .1 Section 06 20 00 - Finish Carpentry.
- .2 Section 06 40 00 - Architectural Woodwork.
- .3 Section 08 50 00 - Windows.
- .4 Section 08 80 50 - Glazing.
- .5 Section 09 21 16 - Gypsum Board Assemblies.
- .6 Section 09 91 23 - Interior Painting.

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM D1784-11, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- .2 CSA Group (CSA)
 - .1 CAN/CSA-Z809-08, Sustainable Forest Management.
- .3 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .4 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.

1.3 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 solar roller shades. Data sheets must include product characteristics, performance criteria, size, finish, and limitations.
- .3 Shop Drawings:
 - .1 Indicate on drawings dimensions of solar roller shades in relation to window jambs, operator details, anchorage details, hardware, and accessories details.
- .4 Samples:
 - .1 Submit one representative working sample of each type of solar roller shade.
 - .2 Submit two (2) samples of manufacturer's standard colours for selection by Departmental Representative.
 - .3 After approval samples will be returned for incorporation into Work.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials indoors in a clean, dry, well-ventilated area in accordance with manufacturer's recommendations.
- .2 Store and protect solar roller shades from nicks, scratches, and blemishes.
- .3 Replace damaged solar roller shades with new shades.

PART 2 – PRODUCTS

2.1 DESIGN CRITERIA

- .1 Design solar roller shades to following requirements:
 - .1 Allow wear susceptible parts to be replaceable by either user or manufacturer.
 - .2 Guarantee of at least five years of available replacement parts following discontinue of products manufacture.
 - .3 Include instructions for replacing or repairing worn parts, including inventory numbers for parts and procedures for ordering replacement parts.
 - .4 Allow for refurbishing or return of used solar roller shades.
 - .5 Permit easy disassembly of components for recycling of materials.
 - .6 Include stamps on major plastic components indicating composition code to facilitate recycling efforts.

2.2 MATERIALS AND FABRICATION

- .1 Product: Altex TexScreen roller shade or equivalent approved during the call for tenders.
 - .1 Shade: Transparent, colour 1705-04.
 - .2 Mechanism: Maxium system.
 - .1 Brackets: Metal.
 - .2 Mechanism: White.
 - .3 Chain: Stainless steel.
 - .4 Base: Aluminum slat in the hem.
 - .5 Inside mount.

ADDENDUM A03

- .2 Accepted equivalent : Roller tile from Les produits de fenêtres Sol-R inc.**
-

PART 3 – EXECUTION

3.1 EXAMINATION

- .1 Verify conditions of substrates and surfaces to receive solar roller shades previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to solar roller shades installation.
 - .1 Visually inspect surfaces/substrates in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

ADDENDUM A02

- .1 Install solar shades on exterior windows of Administrative Building **except for main entrance.**
- .2 Include centre brackets where necessary to prevent deflection of headrail.
- .3 Adjust to provide for operation without binding.
- .4 Use non corrosive metal fasteners for installation, concealed in final assembly.

3.3 ADJUSTMENT

- .1 Adjust solar roller shades 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 11 - Cleaning.
 - .1 Leave work area clean at end of each day.
- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 11 - Cleaning.

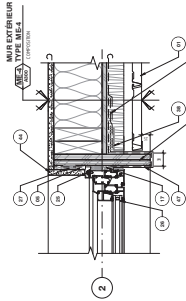
3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by solar roller shade installation.

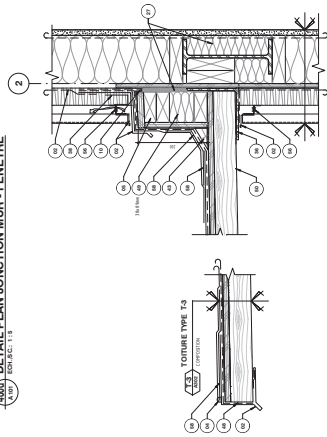
END OF SECTION

Technical drawings of roof construction details for various roof types, including flat, gabled, and vaulted roofs, showing structural elements and waterproofing layers.

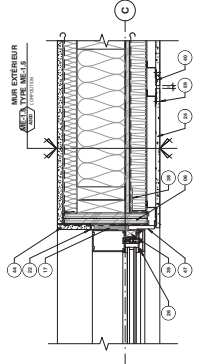
Technical drawings of window and door profiles. The drawings include cross-sections of a window frame (labeled 'C') and a door frame (labeled 'D'). The window frame shows a multi-paneled unit with a handle and a lock mechanism. The door frame shows a solid door with a handle and a lock mechanism. The drawings are labeled with 'C' and 'D' and include a legend for the materials used: 'ALU' (Aluminum), 'PVC' (Polyvinyl Chloride), and 'WOOD' (Wood). The drawings are also labeled with 'COUPE MUR' (Wall Section) and 'COUPE PORTE' (Door Section).



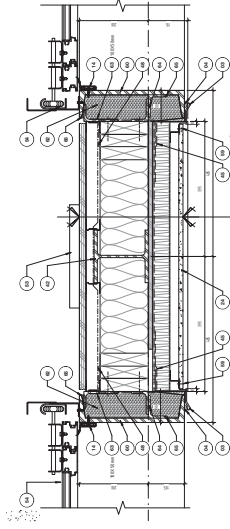
WINDOW - WALL JUNCTION DETAIL PLAN
400d
DETAIL PLAN JUNCTION MUR - FENÊTRE



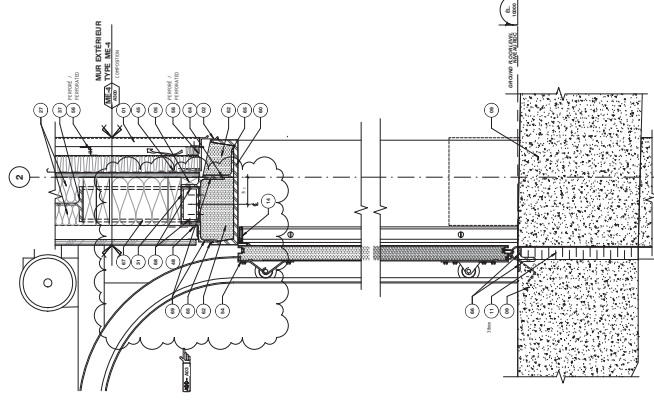
400c



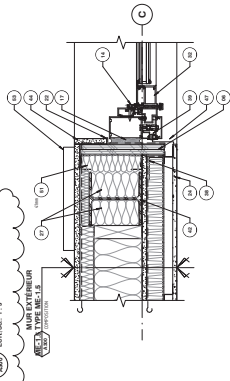
400b CURTAIN WALL JAMB DETAIL
DÉTAIL JAMBAGE MUR RIDEAU



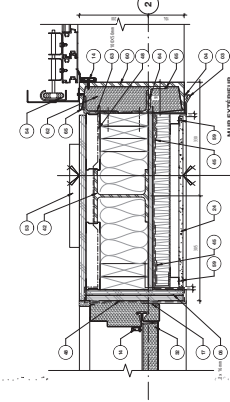
4000 GARAGE DOORS JAMBES D'ETAIL
DETAIL JAMBAGE PORTES DE GARAGE



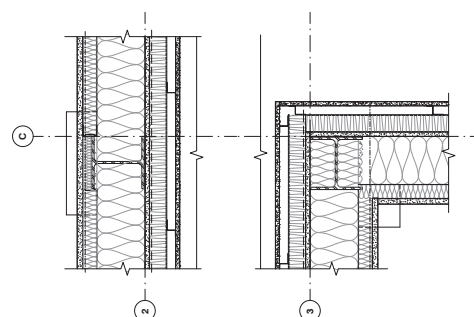
Garage Door Section
COUPE PORTE GARAGE



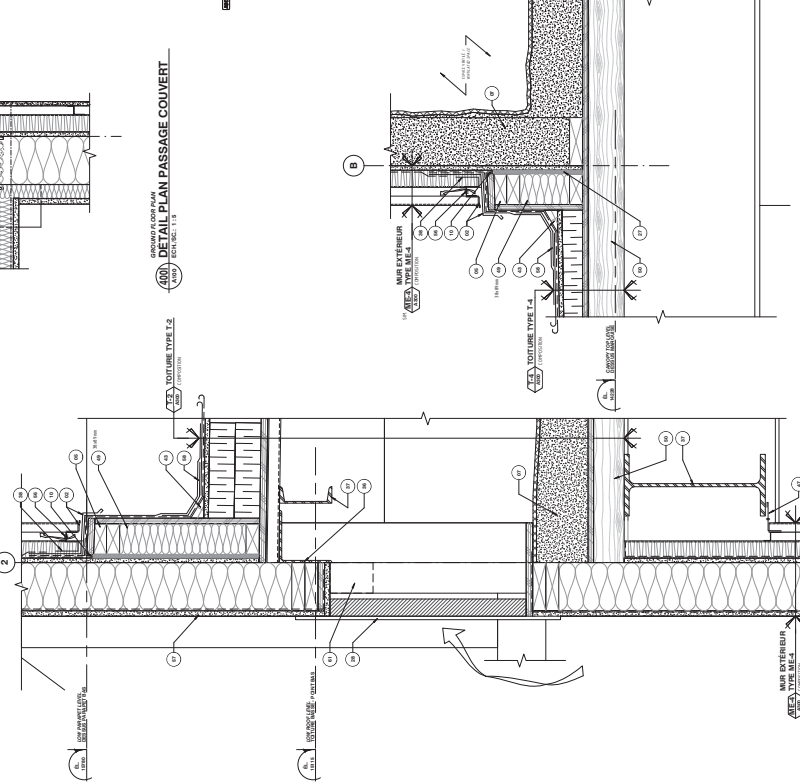
4001 CURTAIN WALL DOOR JUNCTION DETAIL PLAN
DÉTAIL EN PLAN JONCTION PORTE MUR RIDEAU



4000e
SIMPLE DOOR - GARAGE JAMB DETAIL
DETAIL JAMBAGE PORTE SIMPLE - GARAGE



GROUND FLOOR PLAN
4001
DÉTAIL PLAN PASSAGE COUVERT



WALL SECTION @ 10'7"
COUPE DE MUR #107

4001
SAS FIRE OVERHEAD DOOR SECTION #107
COUPE PORTE COUPE-FEU SAS #107

