

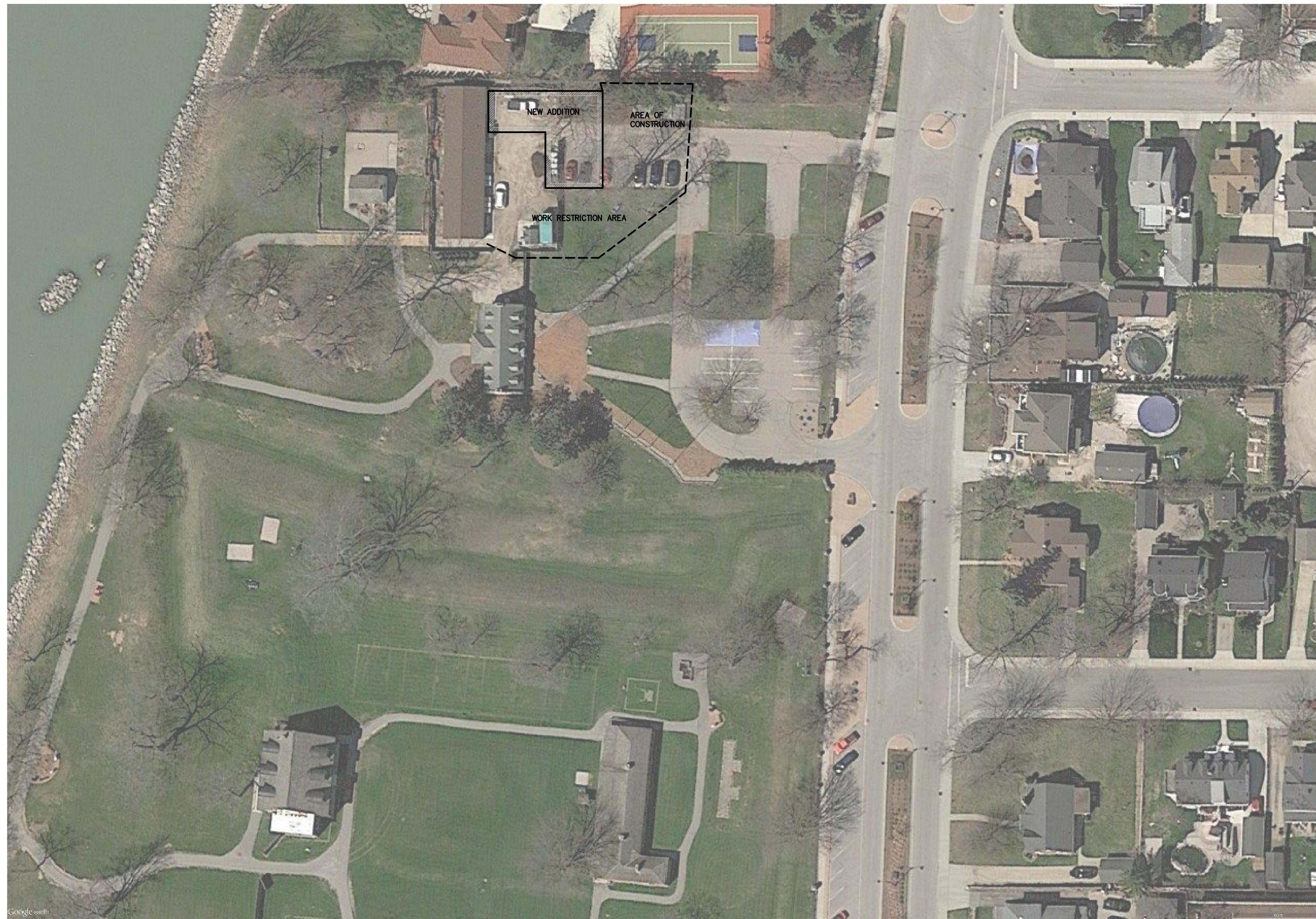
CLIENT:



FORT MALDEN
SERVICE BUILDING
Addition
100 Laird Ave, Amherstburg, Ontario

Issued for TENDER :

Nov 23, 2016



LOCATION PLAN
SCALE N.T.S.

DRAWING LEGEND:

- A0.1 COVER PAGE
- A1.0 OVERALL SITE PLAN AND ASSEMBLIES
- A1.1 GROUND FLOOR DEMOLITION PLAN
- A1.2 ROOF PLAN
- A1.3 ELEVATIONS
- A1.4 BUILDING SECTIONS
- A1.5 PLAN AND SECTION DETAILS
- A1.6 INTERIOR ELEVATIONS & MILLWORK SCHEDULES
- A1.7
- S1.1 STRUCTURAL NOTES
- S1.2 TYPICAL DETAILS
- S1.3 FOUNDATION PLAN
- S1.4 FRAMING PLAN
- M0 DRAWING LIST AND LEGENDS
- M1 NEW HVAC - PLAN
- M2 NEW PLUMBING & FIRE PROTECTION - PLAN
- M3 MECHANICAL SPECIFICATION
- M4 MECHANICAL SPECIFICATION
- M5 MECHANICAL SCHEDULES
- M6 MECHANICAL DETAILS

ITEM	ONTARIO BUILDING CODE DATA MATRIX PART 3	OBC/NBC REFERENCE
1.	PROJECT DESCRIPTION: <input checked="" type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> ADDITION <input type="checkbox"/> CHANGE OF USE <input type="checkbox"/> ALTERATION	2.1.1
2.	MAJOR OCCUPANCY(ies): GROUP F DIV. 3	3.1.2.1.(1)
3.	BUILDING AREA (sq. m) EXISTING: 219.5 sq.m. NEW: /A TOTAL: 508.2 sq.m.	1.1.3.2
4.	GROSS AREA (sq. m) EXISTING: 219.5 sq.m. NEW: 288.7 sq.m. TOTAL: 508.2 sq.m.	1.1.3.2
5.	NUMBER OF STOREYS ABOVE GRADE: 1 BELOW GRADE: 0	1.1.3.2 & 3.2.1.1
6.	HEIGHT OF BUILDING (m): 5.79	
7.	NUMBER OF STREETS/ ACCESS ROUTES: 1	3.2.2.10 & 3.2.5.5
8.	BUILDING CLASSIFICATION: 3.2.2.76	3.2.2.76
9.	SPRINKLER SYSTEM PROPOSED: <input type="checkbox"/> ENTIRE BUILDING <input type="checkbox"/> BASEMENT ONLY <input type="checkbox"/> IN LIEU OF ROOF RATING <input checked="" type="checkbox"/> NOT REQUIRED	?? 3.3.1.5 3.2.2.17
10.	STANDPIPE REQUIRED: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	3.2.9
11.	FIRE ALARM REQUIRED: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	3.2.4
12.	WATER SERVICE/ SUPPLY IS ADEQUATE: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
13.	HIGH BUILDING: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	3.2.6
14.	PERMITTED CONSTRUCTION: <input checked="" type="checkbox"/> COMBUSTIBLE <input checked="" type="checkbox"/> NON-COMBUSTIBLE ACTUAL CONSTRUCTION: <input checked="" type="checkbox"/> COMBUSTIBLE <input type="checkbox"/> NON-COMBUSTIBLE	??
15.	MEZZANINE(S) AREA sq.ft: N/A	3.2.1.1.(3)-(6)
16.	OCCUPANT LOAD BASED ON: <input checked="" type="checkbox"/> sq.m / PERSON <input type="checkbox"/> DESIGN OF BUILDING	3.1.1.6
17.	BASEMENT: OCCUPANCY: N/A LOAD: -- PERSONS FIRST FLOOR: OCCUPANCY: 28 LOAD: 28 PERSONS SECOND FLOOR: OCCUPANCY: N/A LOAD: -- PERSONS THIRD FLOOR: OCCUPANCY: N/A LOAD: -- PERSONS	
18.	HAZARDOUS SUBSTANCES: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF NO EXPLAN. IT	3.8 3.3.1.2.(1) & 3.3.1.19.(1)
19.	REQUIRED FIRE RESISTANCE RATING (FRR) HORIZONTAL ASSEMBLIES: FRR (HOURS) LISTED DESIGN NO. OR DESCRIPTION (S2-2) FLOOR: N/A HOURS -- ROOF: N/A HOURS -- MEZZANINE: N/A HOURS -- FRR OF SUPPORTING MEMBERS: LISTED DESIGN NO. OR DESCRIPTION (S2-2) FLOOR: N/A HOURS -- ROOF: N/A HOURS -- MEZZANINE: N/A HOURS --	-- & 3.2.1.4
20.	SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS	3.2.3
21.	FIXTURES NUMBERS OF PERSONS OF EACH SEX: LOAD-14* MALE: 7 FEMALE: 1 MIN NUMBERS OF WCS OF EACH SEX: MALE: 1 FEMALE: 1	* 22 PERSONS FOR OFFICE, 2 PERSONS FOR GARAGE, N.B.C. 3.7.2.2.2 - REDUCE LOAD BY 10 %

WALL ASSEMBLIES:

- W1: 16mm BOARD AND BATTEN*
19mm VERTICAL WOOD FURRING @ 300mm O.C.
AIR BARRIER (HOUSE WRAP)
50mm RIGID INSULATION
13mm EXTERIOR PLYWOOD
38x140mm WOOD STUDS @ 400mm O.C.
A/V BARRIER
13mm G/PSUM
- W2: 2-16mm TYPE X G.W.B.
38x140 WOOD STUDS @ 400mm O.C.
140mm BATT INSULATION
A/V BARRIER
2-16mm TYPE X G.W.B.
2hr F.R.R. ULC U301
EXTEND WALL ASSEMBLY TO U/S OF DECK
- W3: 16mm TYPE X G.W.B.
38x140 WOOD STUDS @ 400mm O.C.
140mm BATT INSULATION
16mm TYPE X G.W.B.
1hr F.R.R. ULC W302

ROOF ASSEMBLY:

- R1: SHINGLES
ICE AND WATER SHIELD (OVER ENTIRE ROOF)
19mm EXTERIOR SHEATHING
WOOD TRUSS
200mm BATT INSULATION (R50)
19mm WOOD FURRING @ 400mm O.C.
A/V BARRIER
13mm G.W.B.

* (PROVIDE SEPARATE PRICE TO SWITCH FROM BOARD AND BATTEN TO VERTICAL VINYL SIDING. REFER TO SPECIFICATION)

605-75 WATER ST. N.
CAMBRIDGE ONTARIO CANADA N1R 7L6
TEL: 226-765-0800 | FAX: 519-740-6104 | ARCHITECTURE49.COM

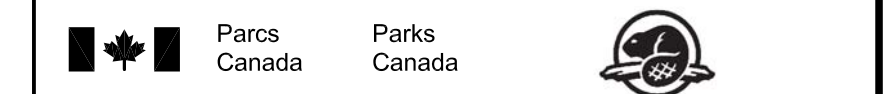


NO.	DATE	DESCRIPTION	Drawn by	Approved
3	11/23/16	ISSUED FOR TENDER	MF	RE
2	11/07/16	ISSUED FOR 95% REVIEW	MF	RE
1	10/17/16	ISSUED FOR REVIEW	MF	RE

REVISIONS

A	Detail number	A	Numero de detail
B	Sheet number	B	Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet

**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

**OVERALL SITE PLAN
AND ASSEMBLIES**

Plot Scale / Echelle

1:50

Drawn by/ Dessine par: MF. Date: 09/20/16

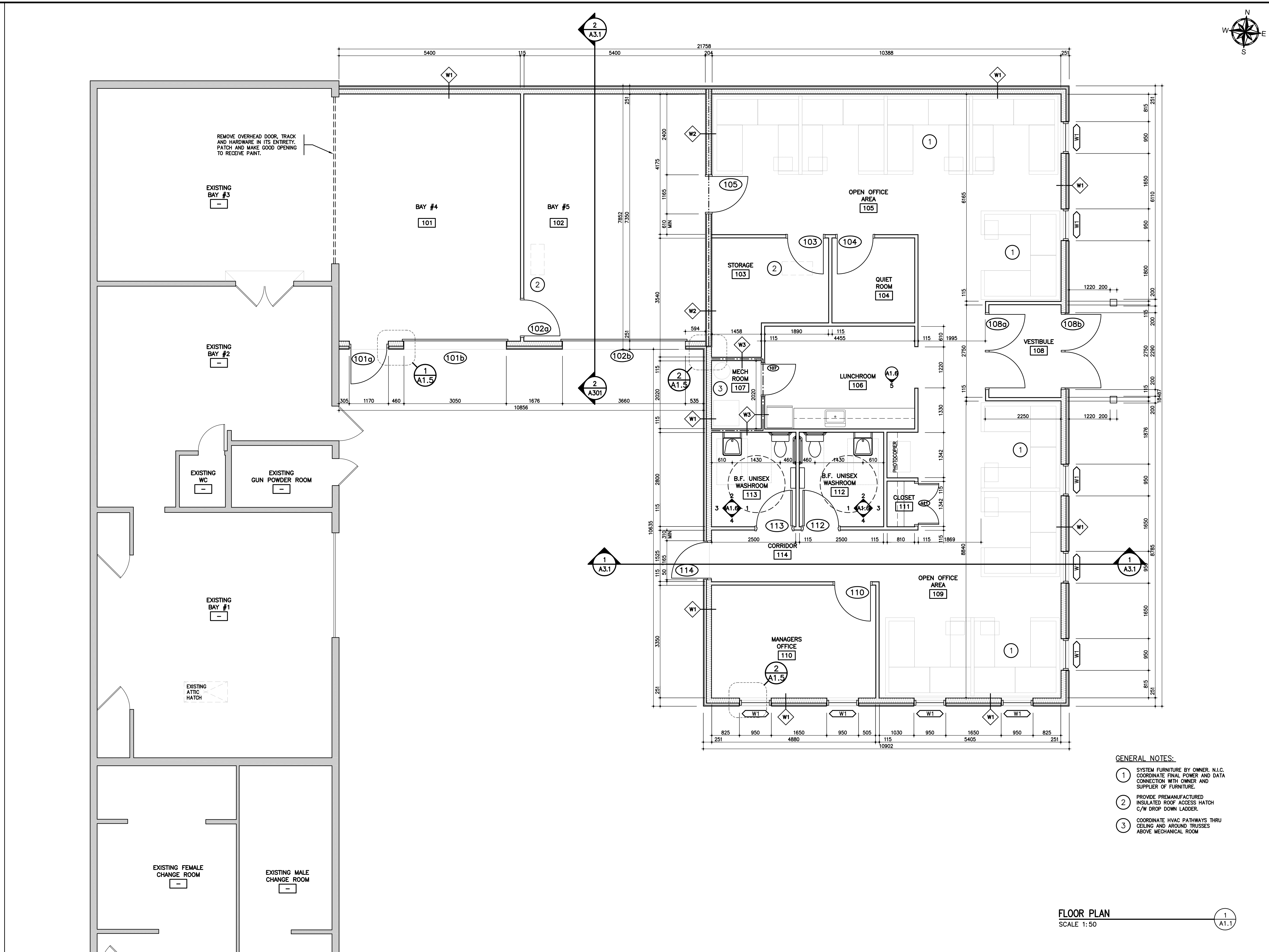
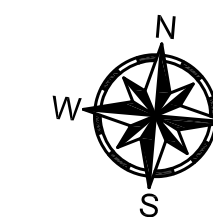
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Releve-Terminé par: N/A. Date: N/A

Approved by / Approuvé par: RE. Date: 09/20/16

Checked by/ Verifié par: RE. Date: 09/20/16

Project No./ No. du projet: PRO000812. Asset No. Sheet No./ Feuille No.

Drawing Re No./No. du Dessin: 1. **A1.0**



NO.	DATE	DESCRIPTION	Drawn by	Approved
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3	11/07/16	ISSUED FOR 95% REVIEW	MF	RE
2	10/17/16	ISSUED FOR REVIEW	MF	RE
1	09/21/16	ISSUED FOR REVIEW	MF	RE

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**GROUND FLOOR &
DEMOLITION PLAN**

Plot Scale / Echelle
1:50

Drawn by/ Dessine par
MF. 09/20/16

Field Recording by /
Releve-Temoin par
N/A. N/A

Approved by / Approuve par
RE. 09/20/16

Checked by/ Verifie par
RE. 09/20/16

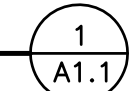
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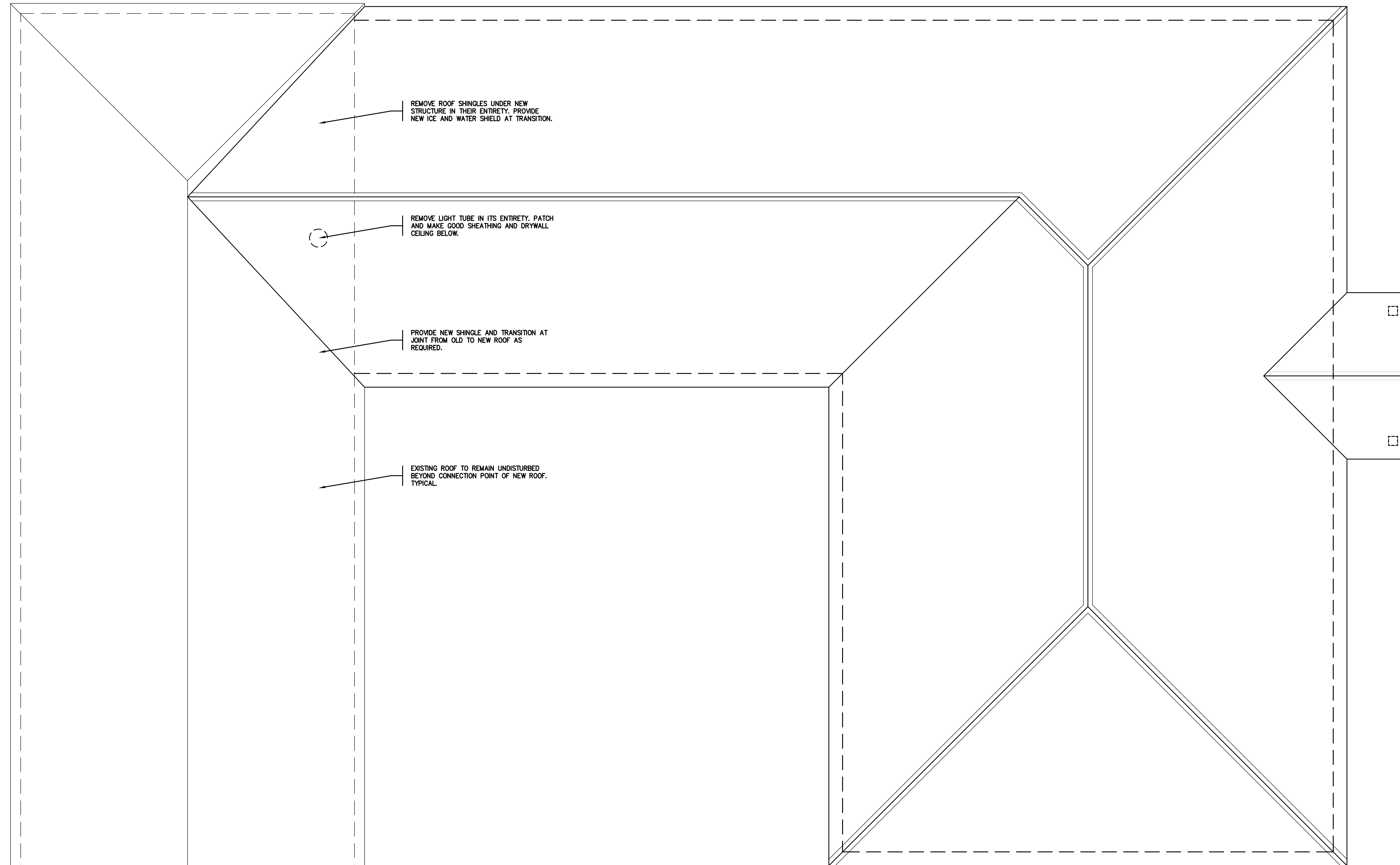
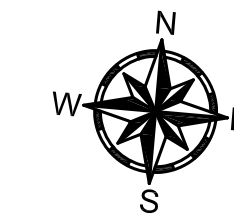
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Drawing Re No./No. du Dessin

Sheet No./
Feuille No.
A1.1

- GENERAL NOTES:**
- 1 SYSTEM FURNITURE BY OWNER. N.I.C. COORDINATE FINAL POWER AND DATA CONNECTION WITH OWNER AND SUPPLIER OF FURNITURE.
 - 2 PROVIDE PREMANUFACTURED INSULATED ROOF ACCESS HATCH C/W DROP DOWN LADDER.
 - 3 COORDINATE HVAC PATHWAYS THRU CEILING AND AROUND TRUSSES ABOVE MECHANICAL ROOM

FLOOR PLAN
SCALE 1:50



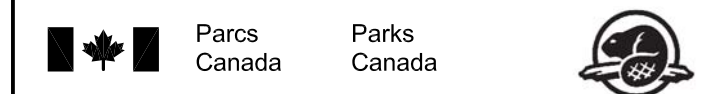


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A B	A Detail number	A Numero de detail
	B Sheet number	B Sur feuille numero

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ADDITION

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ROOF PLAN

Plot Scale / Echelle

1:50

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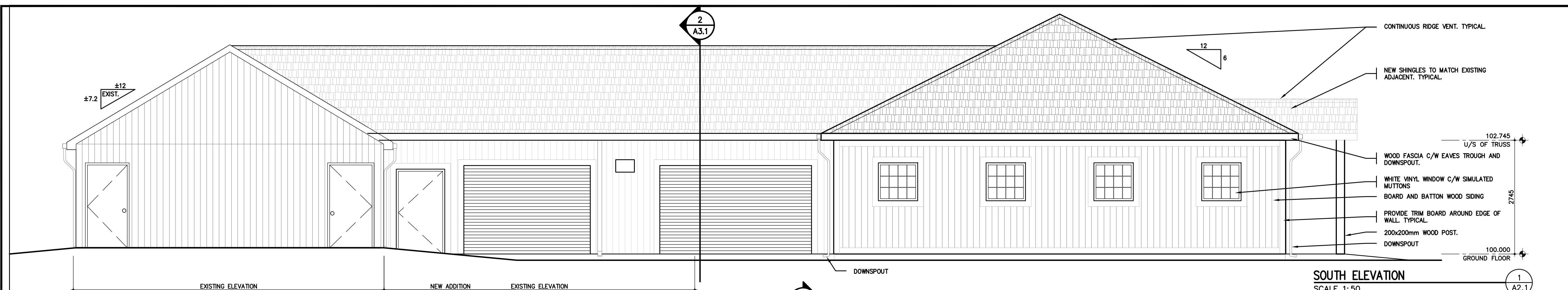
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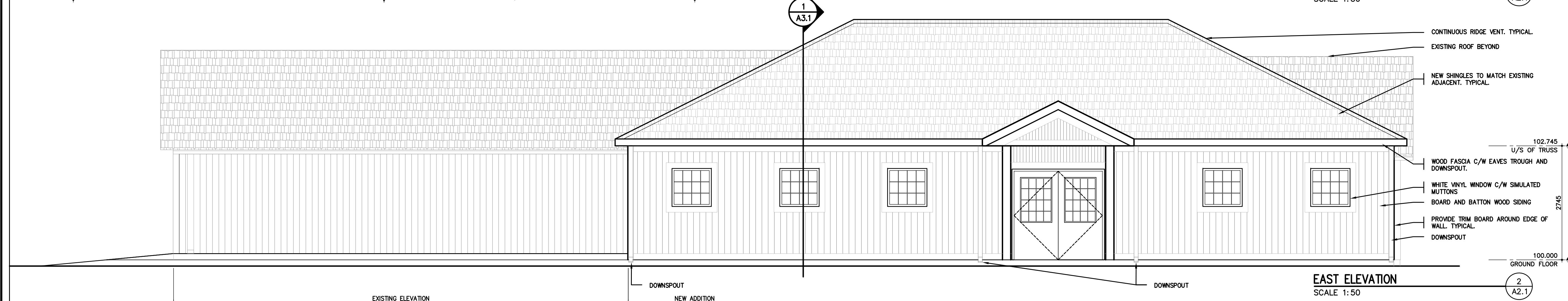
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PRO000812 Feuille No.

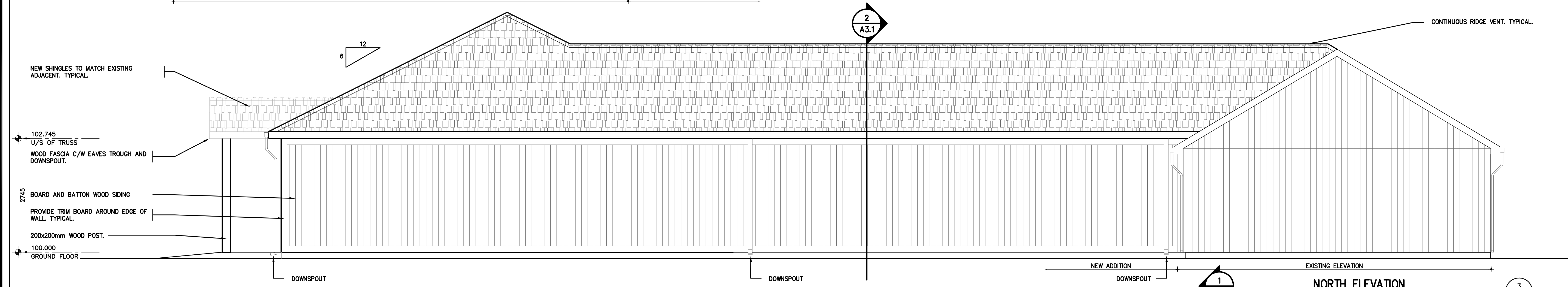
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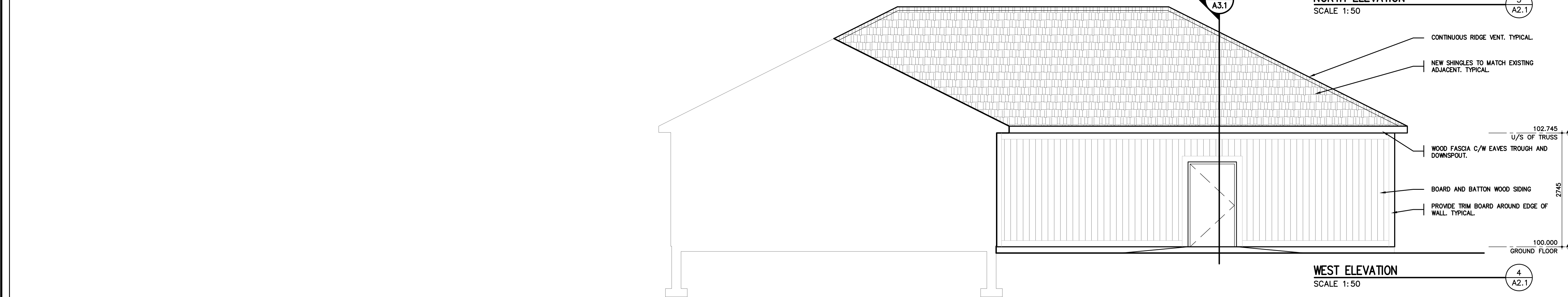
SOUTH ELEVATION
SCALE 1:50



EAST ELEVATION
SCALE 1:50



NORTH ELEVATION
SCALE 1:50



WEST ELEVATION
SCALE 1:50

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FORT MALDEN ADDITION

Drawing title / Titre du dessin

ELEVATIONS

Plot Scale / Echelle
1:50

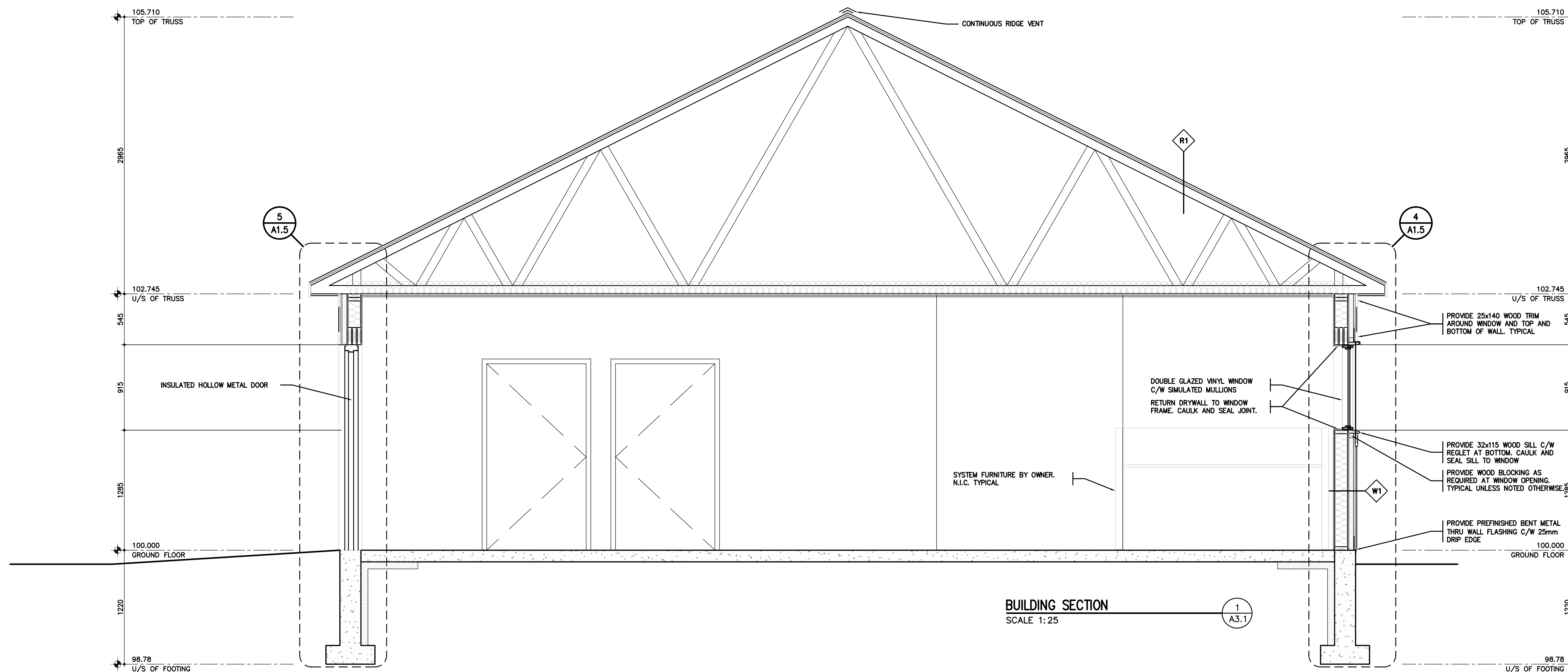
Drawn by/ Dessine par	Date
MF.	09/20/16

Field Recording by / Releve-Temoin par	Date
N/A	N/A

Approved by / Approuve par	Date
RE	09/20/16

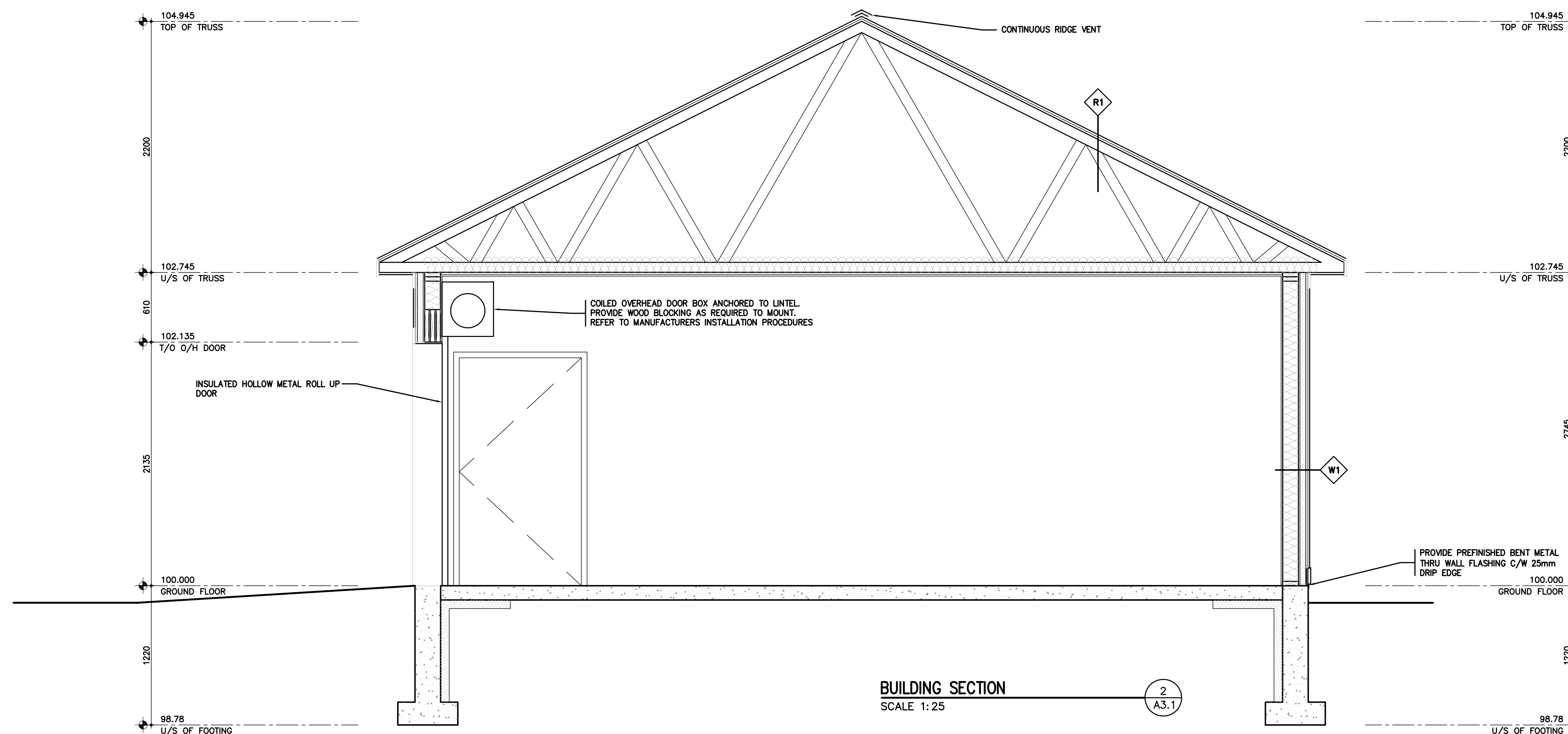
Checked by/ Verifie par	Date
RE	09/20/16

Project No./ No. du projet	Asset No.	Sheet No./ Feuille No.
PRO000812		A1.3
Drawing Re No./No. du Dessin		1



BUILDING SECTION
SCALE 1:25

1
A3.1



BUILDING SECTION
SCALE 1:25

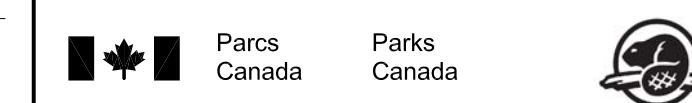
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A3.1

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FORT MALDEN
ADDITION

Drawing title / Titre du dessin

BUILDING SECTIONS

Plot Scale / Echelle

1:50

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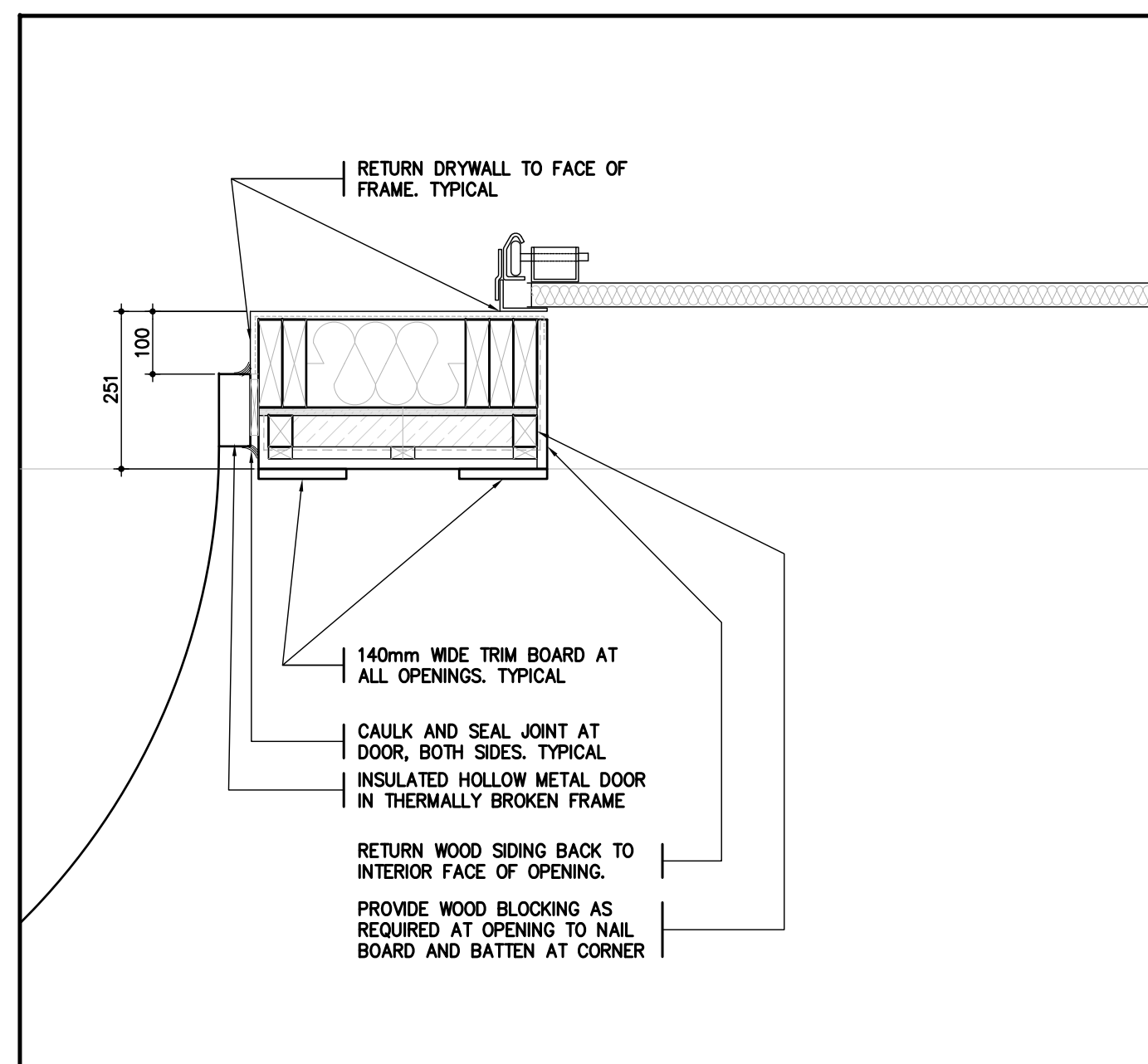
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Approved by / Approuve par RE Date 09/20/16

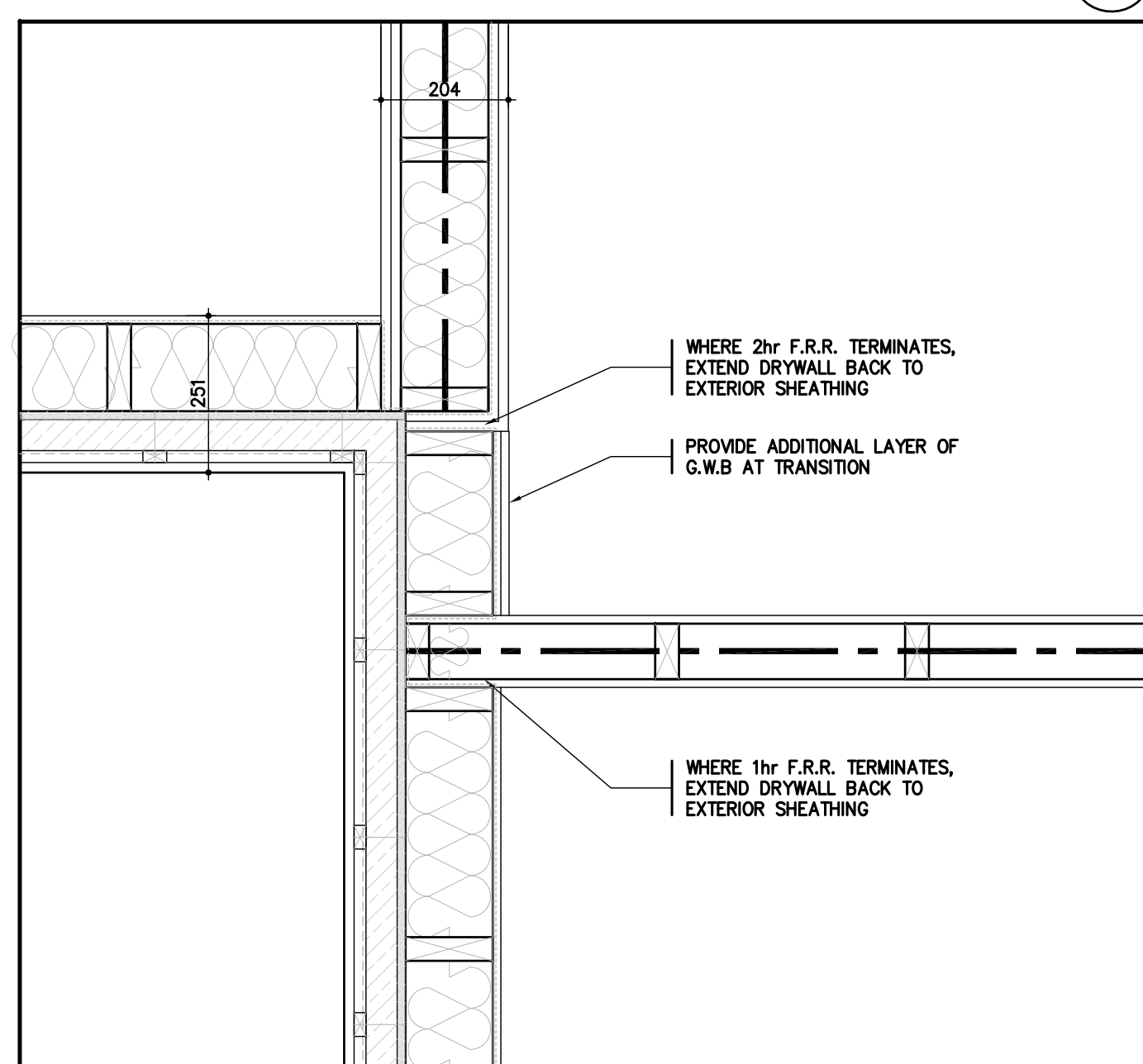
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Project No./ No. du projet PRO000812 Asset No.

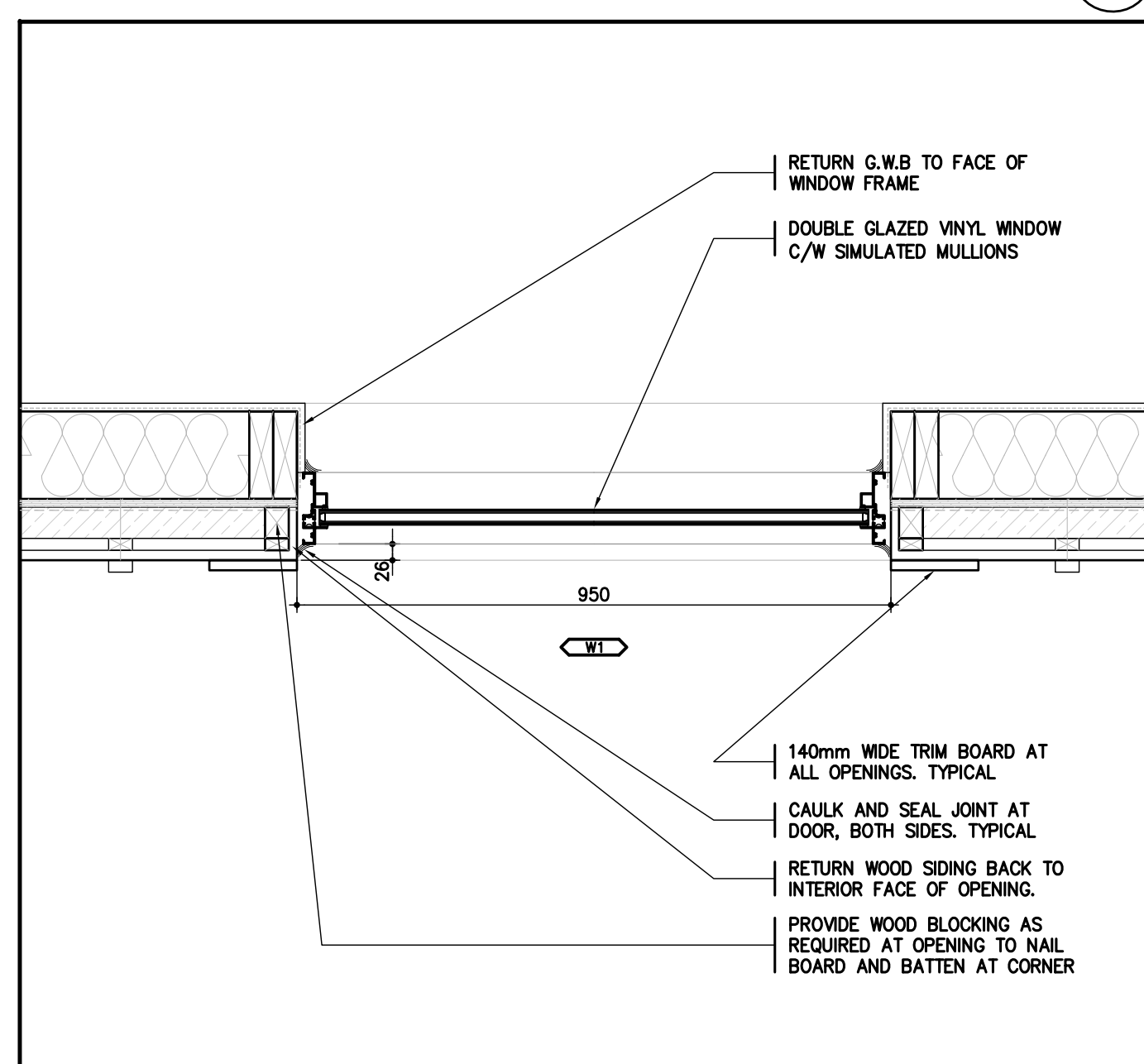
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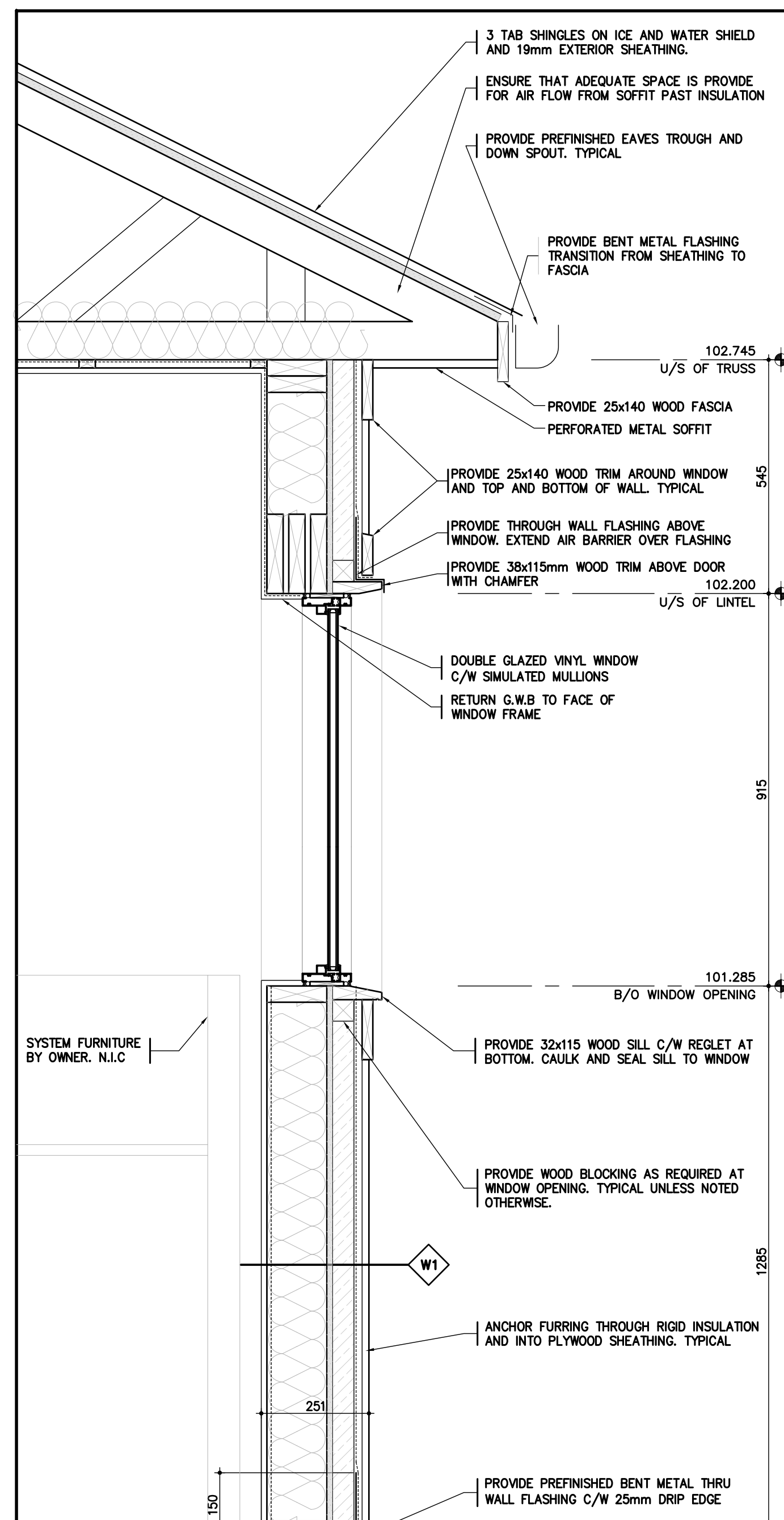
SECTION DETAIL 1
SCALE 1:10 A1.5



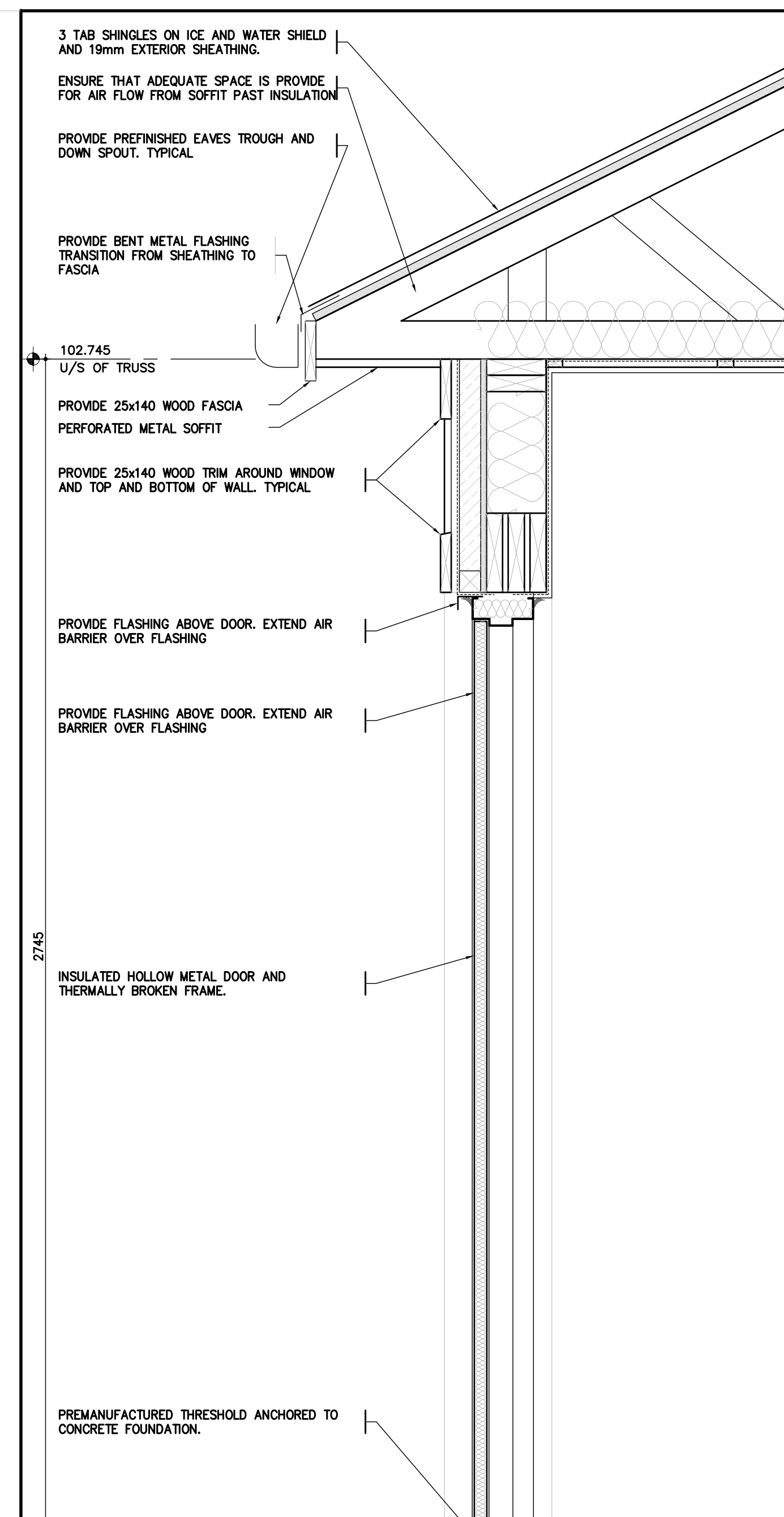
SECTION DETAIL 2
SCALE 1:10 A1.5



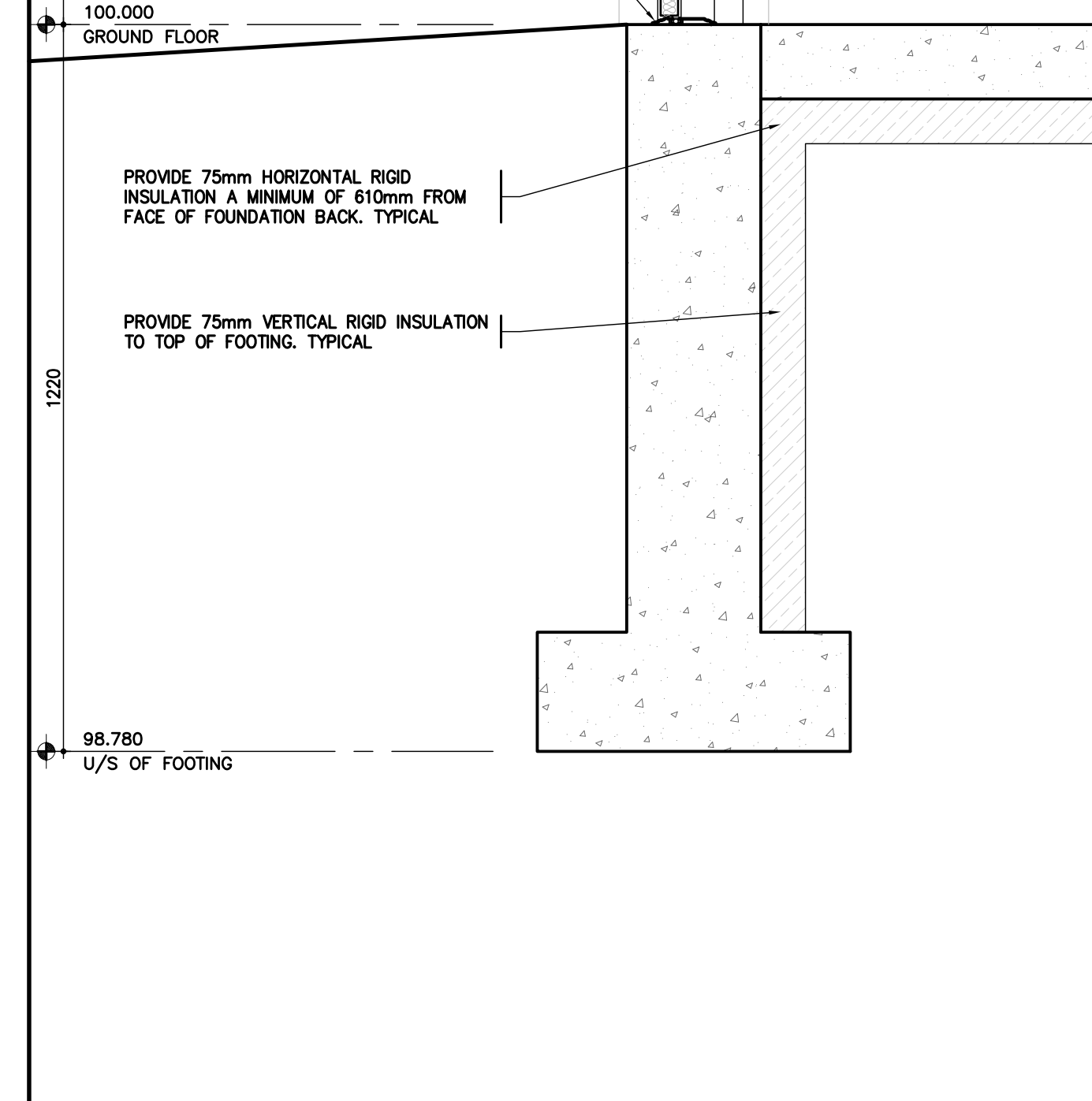
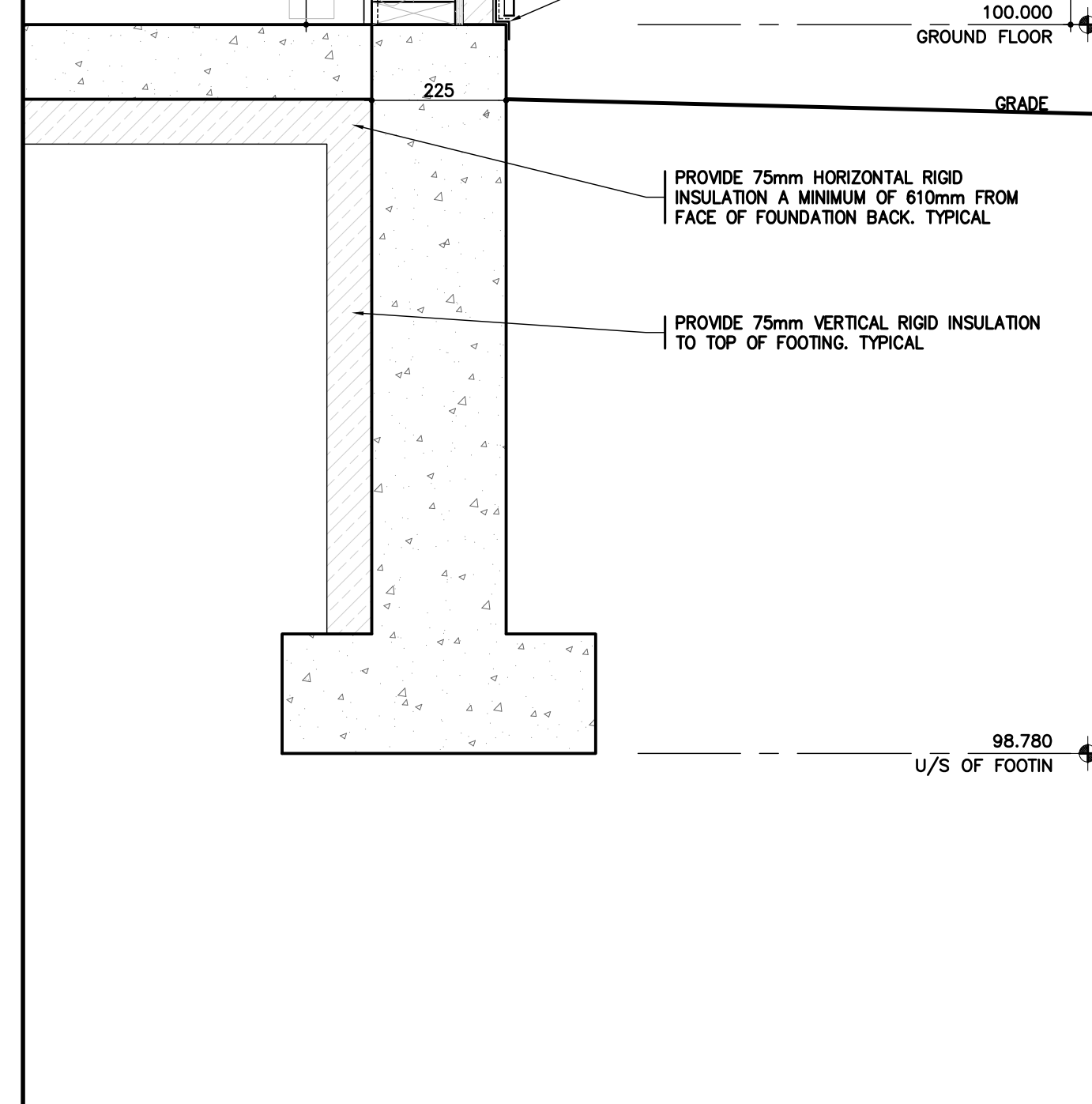
SECTION DETAIL 3
SCALE 1:10 A1.5



SECTION DETAIL 4
SCALE 1:10 A1.5



SECTION DETAIL 5
SCALE 1:10 A1.5



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ADDITION

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BUILDING SECTIONS

Plot Scale / Echelle

1:50

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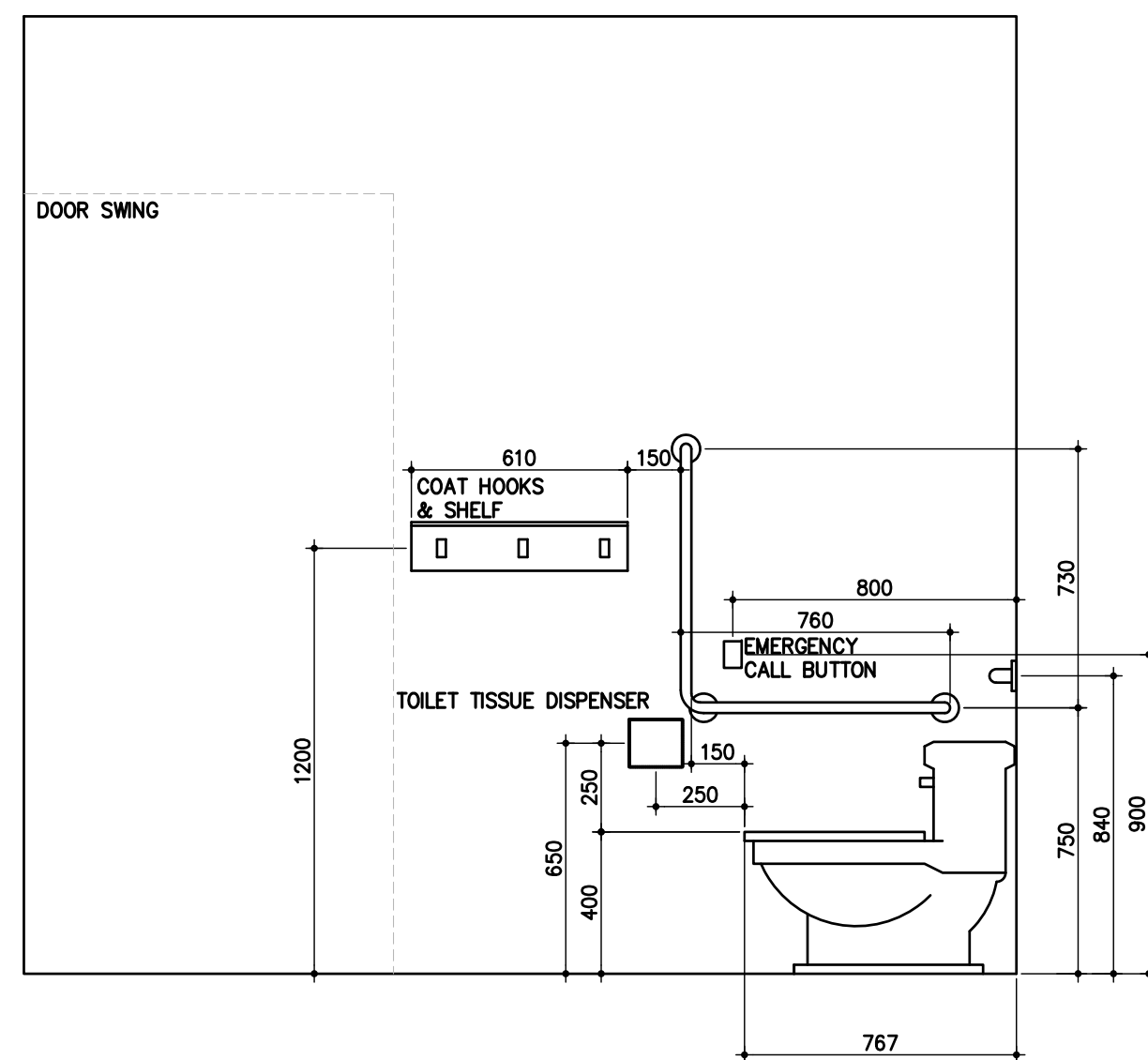
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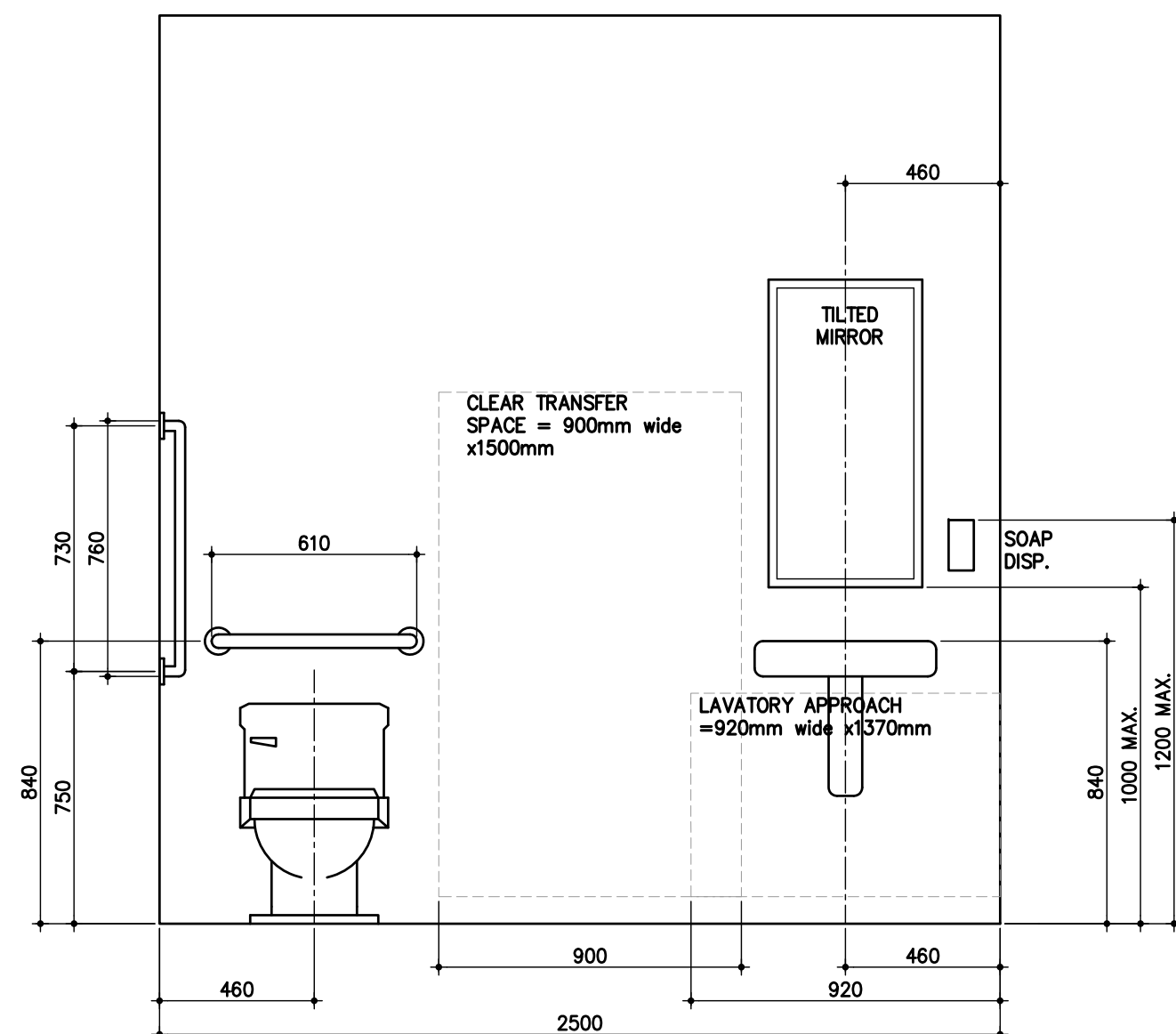
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Project No./ No. du projet PRO000812 Asset No.

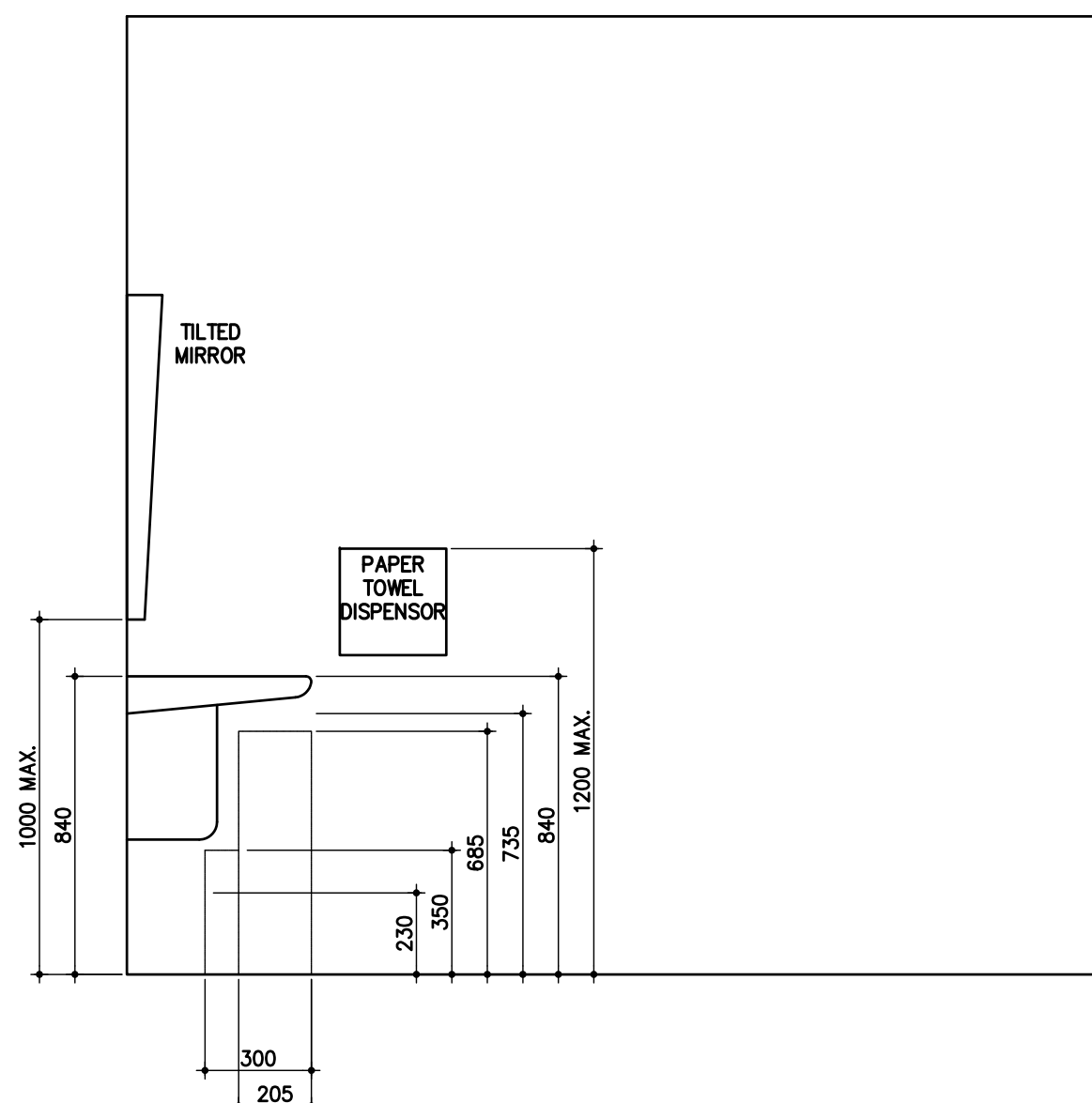
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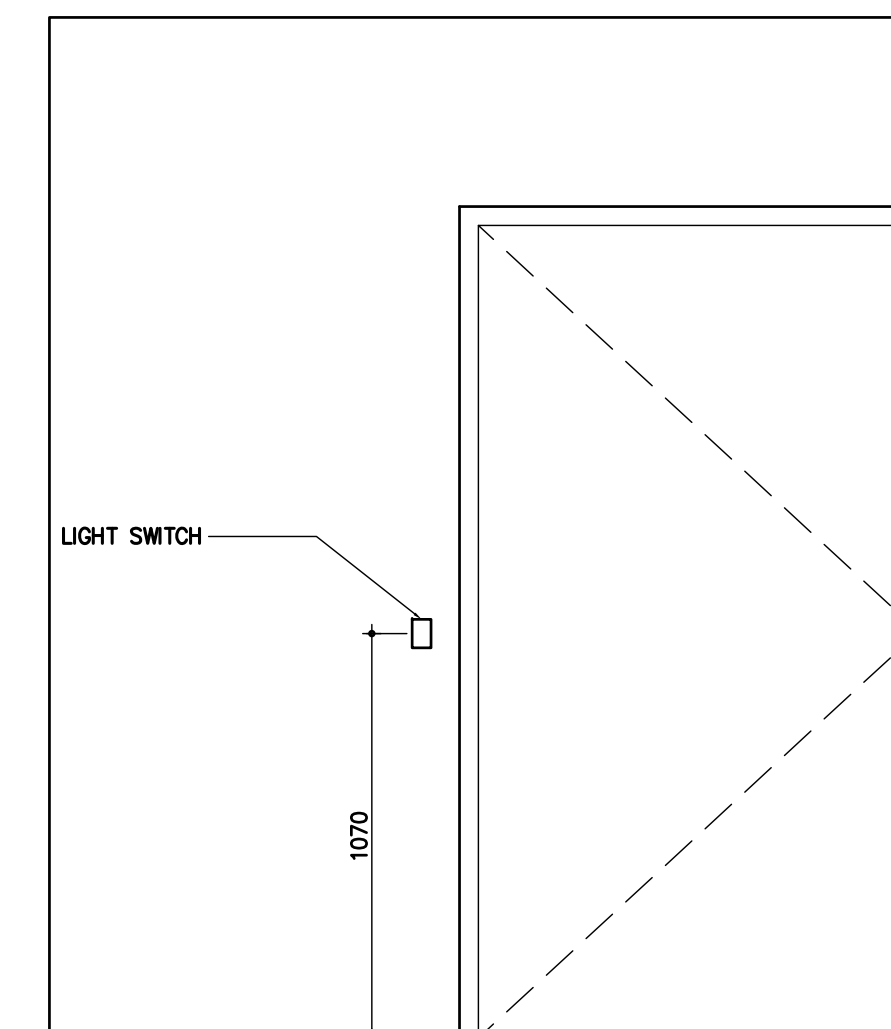
UNIVERSAL WASHROOM ELEVATION 1
SCALE 1:20



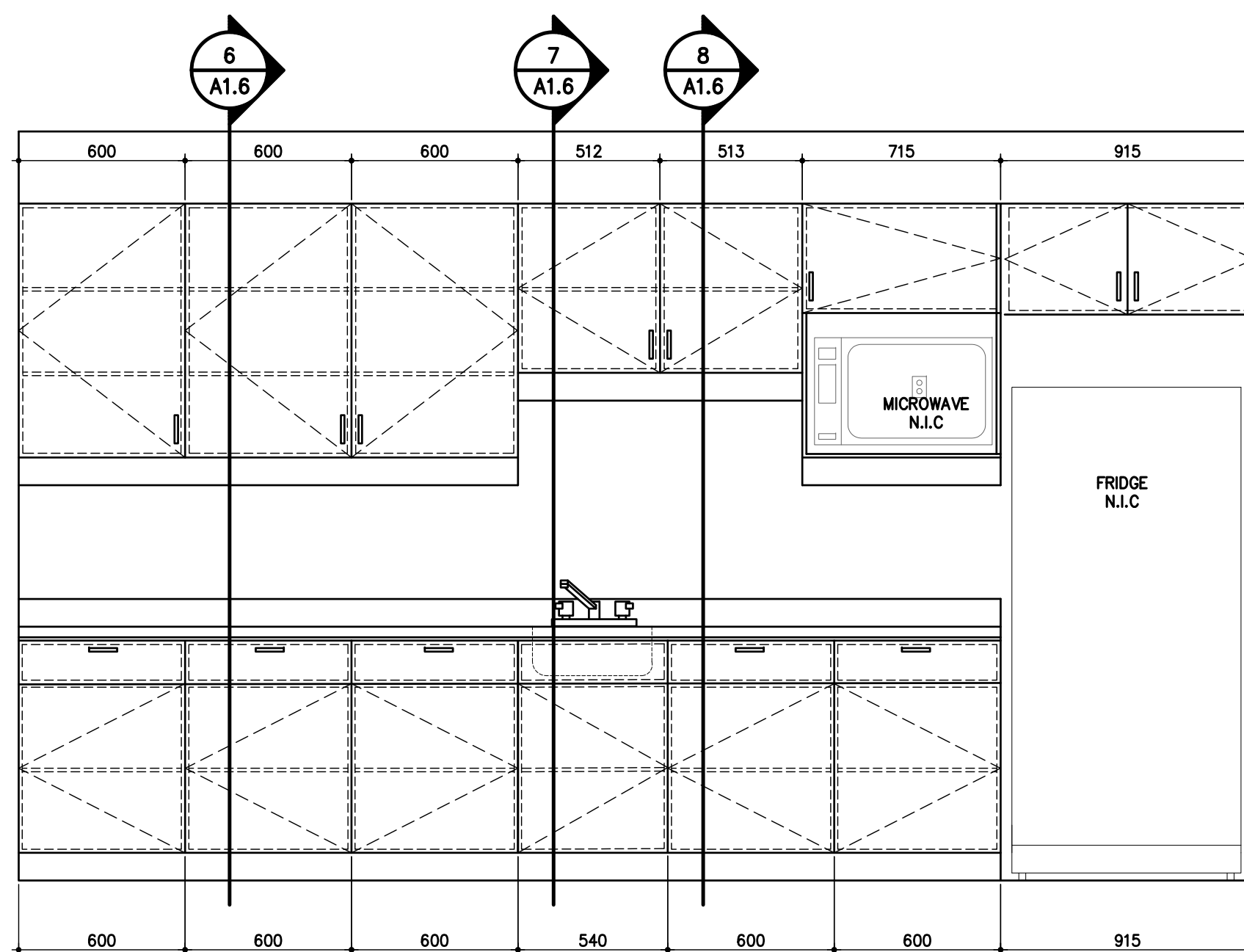
UNIVERSAL WASHROOM ELEVATION 2
SCALE 1:20



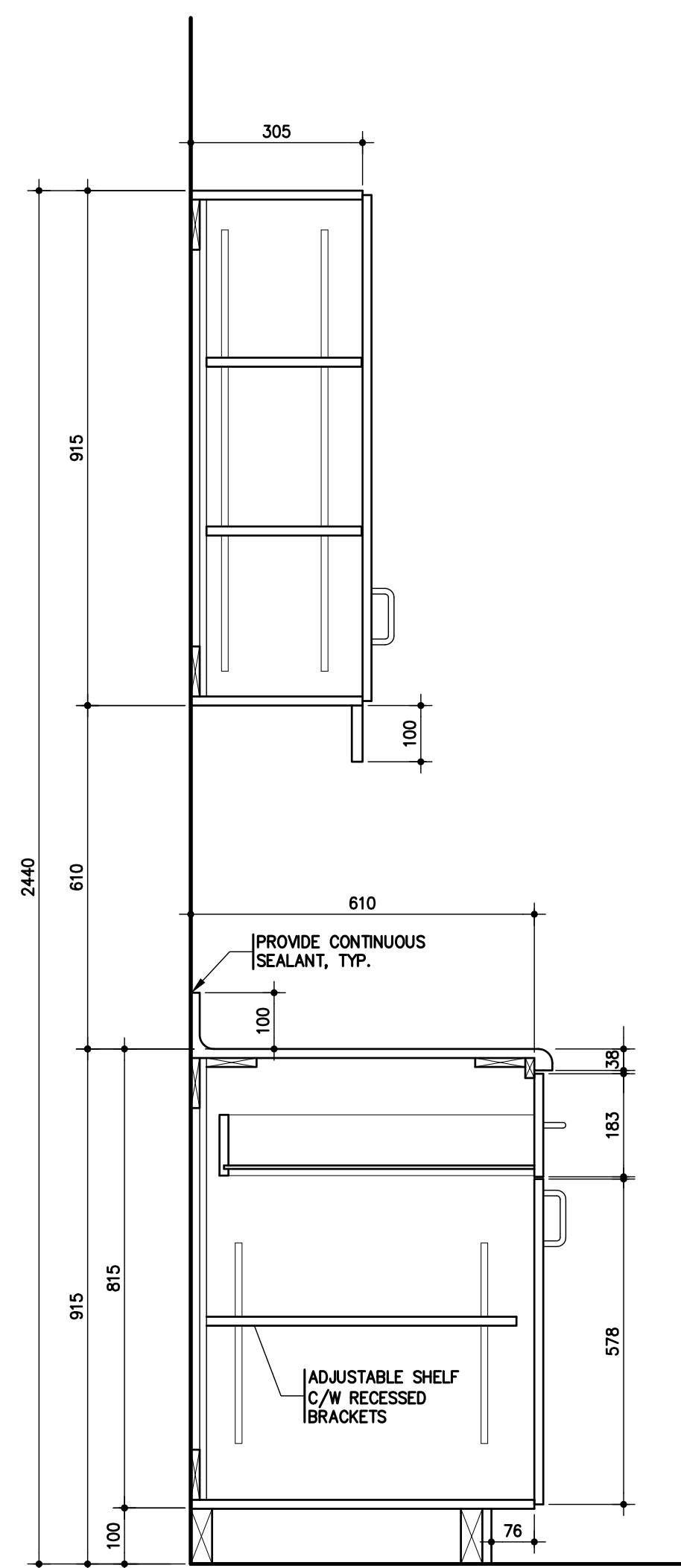
UNIVERSAL WASHROOM ELEVATION 3
SCALE 1:20



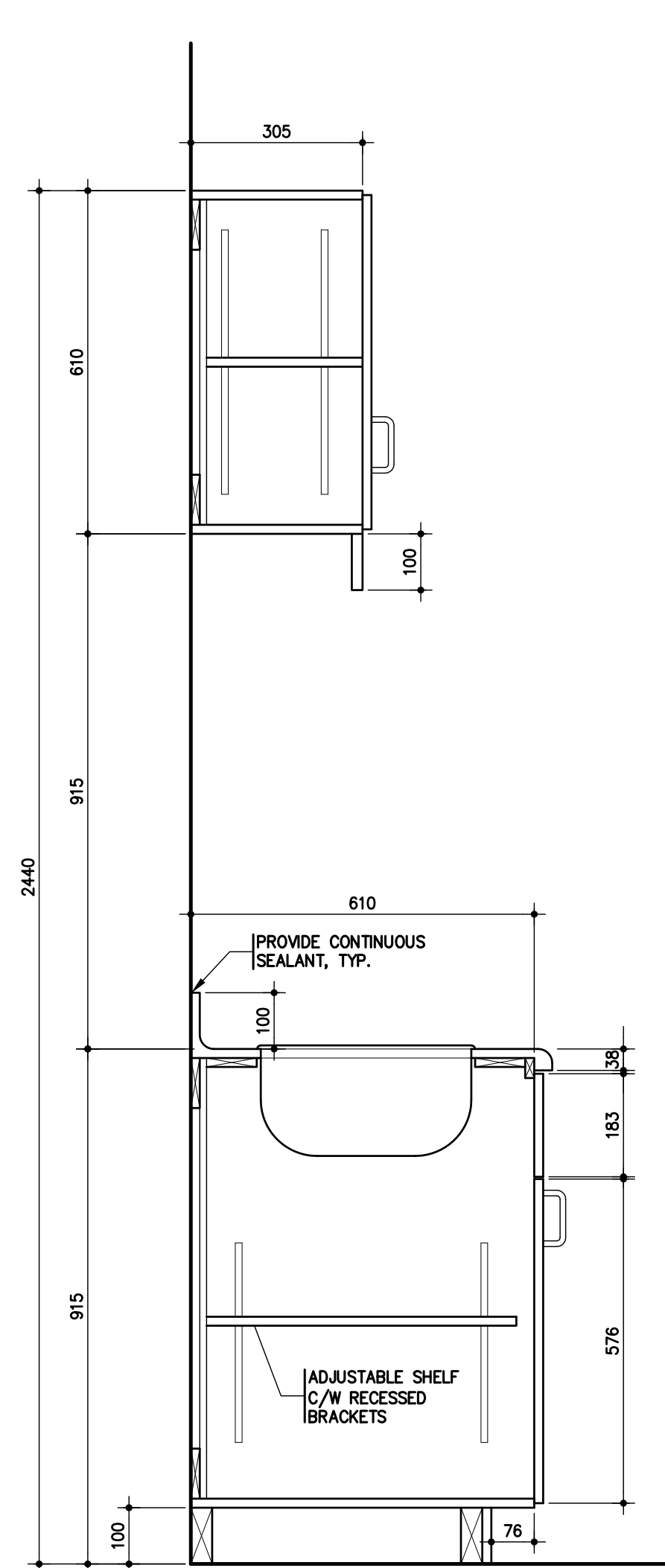
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SCALE 1:20



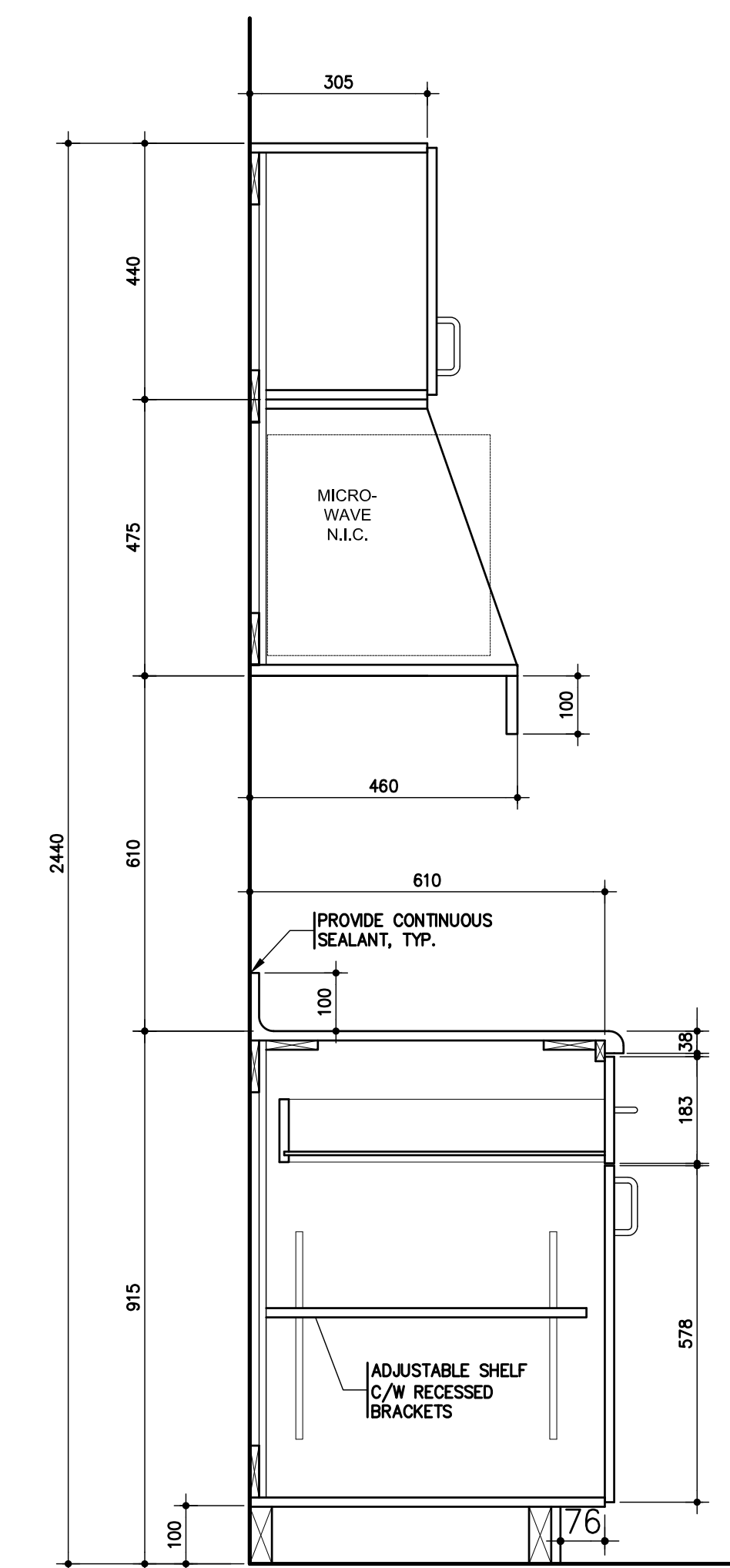
UNIVERSAL WASHROOM ELEVATION 5
SCALE 1:20



TYP. DRAWER
SCALE: 1:10



TYP. CABINET
SCALE: 1:10



TYP. MICROWAVE
SCALE: 1:10

CASEWORK FABRICATION NOTES:

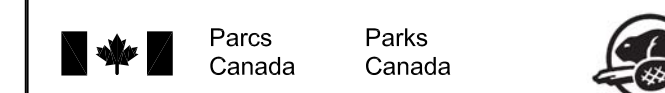
- GABLES AND END PANELS: PLASTIC LAMINATE ON 19mm (3/4") THICK PLYWOOD.
- DOORS: PLASTIC LAMINATE ON 19mm (3/4") THICK PARTICLE BOARD CORE.
- COUNTERTOPS: PLASTIC LAMINATE ON 19mm (3/4") THICK PLYWOOD WITH POSIFORMED EDGES.
- INTERIOR SHELVING IN ENCLOSED CABINETS: MELAMINE FINISHED 19mm (3/4") THICK PARTICLE BOARD.
- BACKS: MELAMINE FINISHED 13mm (1/2") THICK PARTICLE BOARD.
- DRAWERS: PLASTIC LAMINATE ON PARTICLE BOARD CORE, 19mm (3/4") THICK FACING WITH 13mm (1/2") THICK SIDES & BACKS. MELAMINE FINISHED 6mm (1/4") THICK HARDBOARD DRAWER BOTTOMS.

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INTERIOR ELEVATIONS
& MILLWORK

Plot Scale / Echelle

1:50

Drawn by/ Dessine par
MF. 09/20/16

Field Recording by /
Releve-Temoin par
N/A N/A

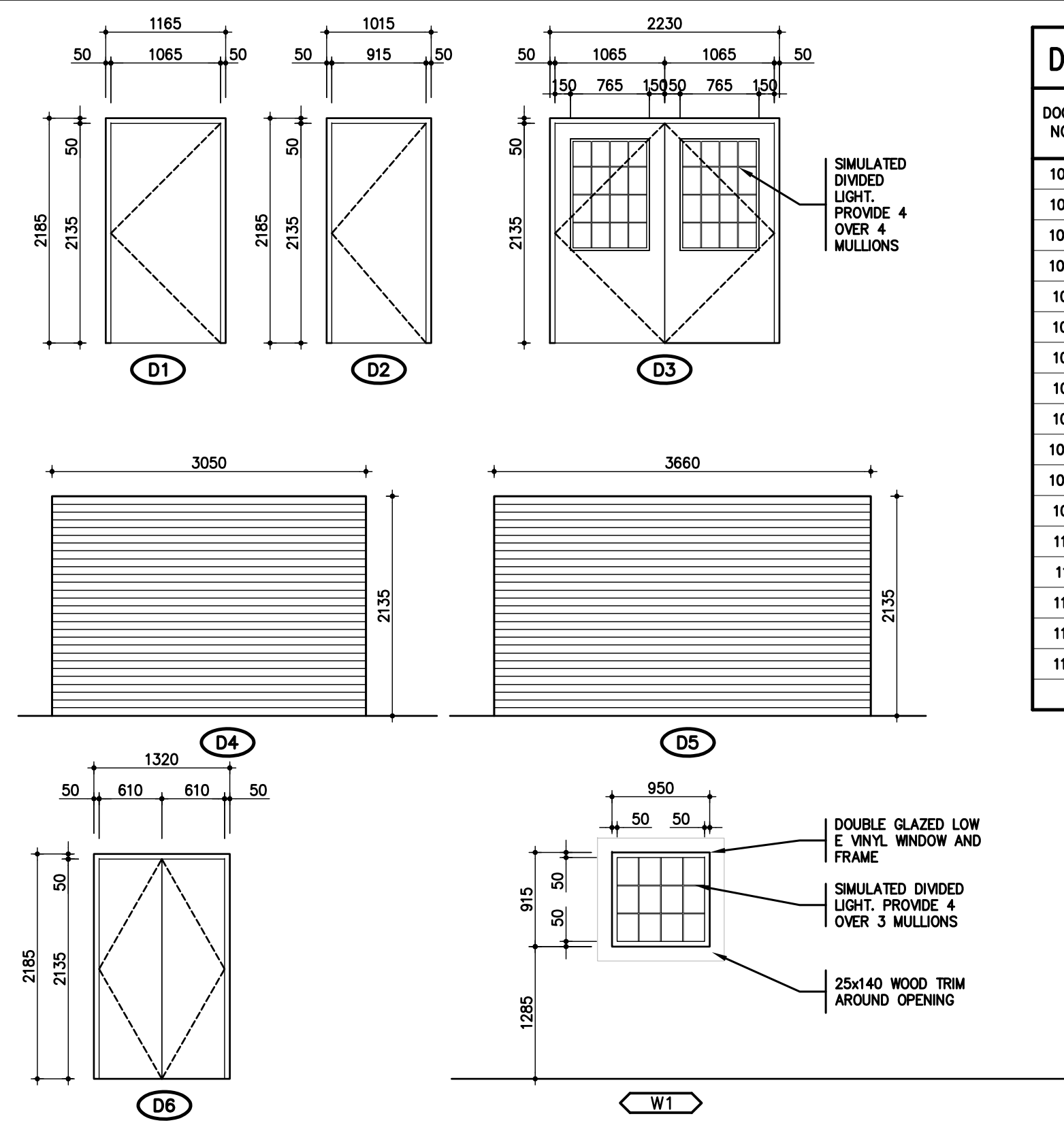
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RE 09/20/16

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Asset No.
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Sheet No./
Feuille No.
A1.6



DOOR AND FRAME SCHEDULE- GROUND FLOOR

DOOR NO.	DOOR						FRAME				REMARKS
	DOOR SIZE	TYPE	MATL.	FIN.	GLASS	TYPE	FIN.	MAT.	GLASS	RATING	
101a	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
101b	3050 x 2150 x 35mm	D4	HM	PAINT	NONE	D4	PAINT	H.M.	-	-	INSULATED COILED OVERHEAD DOOR
102a	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
102b	3660 x 2150 x 35mm	D5	HM	PAINT	NONE	D5	PAINT	H.M.	-	-	INSULATED COILED OVERHEAD DOOR
103	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
104	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
105	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	90 min	-
106	NOT USED										
107	915 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	45 min	-
108a	2 - 1065 x 2150 x 45mm	D2	HM	PAINT	NONE	D2	PAINT	H.M.	-	-	PROVIDE REMOVABLE ASTRAGAL
108b	2 - 1065 x 2150 x 45mm	D3	HM	PAINT	NONE	D3	PAINT	H.M.	-	-	PROVIDE REMOVABLE ASTRAGAL
109	NOT USED										
110	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
111	2 - 610 x 2150 x 45mm	D6	WD	PAINT	NONE	D6	PAINT	H.M.	-	-	-
112	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
113	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-
114	1065 x 2150 x 45mm	D1	HM	PAINT	NONE	D1	PAINT	H.M.	-	-	-

ROOM FINISH SCHEDULE

NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING	COMMENTS	
				NORTH	EAST	SOUTH	WEST			
101	VEHICLE BAY #4	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	W/ARDEN/SEALUR	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	PAINT
		COLOUR	-	RB 1	P 1	P 1	P 1	P 1	HEIGHT	2710
102	VEHICLE BAY #5	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	W/ARDEN/SEALUR	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	PAINT
		COLOUR	-	RB 1	P 1	P 1	P 1	P 1	HEIGHT	2710
103	STORAGE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
104	QUIET ROOM	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
105	OPEN OFFICE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
106	KITCHENETTE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
107	MECH ROOM	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
108	VESTIBULE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
109	OPEN OFFICE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
110	MANAGERS OFFICE	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710
111	CLOSET	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 1	HEIGHT	2710
112	B.F. UNSEX WASHROOM	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 1	HEIGHT	2710
113	B.F. UNSEX WASHROOM	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	SVI	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CI	RB 1	P 1	P 1	P 1	P 1	HEIGHT	2710
114	CORRIDOR	MATERIAL	CONC.	G.W.B.	G.W.B.	G.W.B.	G.W.B.	MATERIAL	G.W.B.	
		FINISH	CARPET	RUBBER BASE	PAINT	PAINT	PAINT	PAINT	FINISH	-
		COLOUR	CP 1	RB 1	P 1	P 1	P 1	P 2	HEIGHT	2710

SVI - SHEET VINYL
 CI - SHEET VINYL COLOUR #1
 CP 1 - CARPET COLOUR 1
 P1 - PAINT COLOUR 1
 P2 - PAINT COLOUR 2
 RB1 - RUBBER BASE TYPE 1

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2	11/23/16	ISSUED FOR TENDER	MF	RE
1	10/17/16	ISSUED FOR REVIEW	MF	RE
NO.	DATE	DESCRIPTION	Drawn by Dessine par	Approved Approuve

REVISIONS

A	A Detail number	A Numero de detail
B	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres

Parcs Canada / Parks Canada

Canada

PARKS CANADA
 SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
SCHEDULES

Plot Scale / Echelle	1:50	
Drawn by/ Dessine par	MF.	Date 09/20/16
Field Recording by / Releve-Temoin par	N/A	Date N/A
Approved by / Approuve par	RE	Date 09/20/16
Checked by/ Verifie par	RE	Date 09/20/16
Project No./ No. du projet	Asset No. PRO000812	Sheet No./ Feuille No. A1.7
Drawing Re No./No. du Dessin	1	

LEGEND OF ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes items like AB ANCHOR BOLT, AD ADJUSTABLE, AFB ASPHALT IMPREGNATED FIBREBOARD, etc.

GENERAL NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS. NOTIFY CONSULTANT IF ANY DISCREPANCY WAS FOUND BETWEEN THESE NOTES AND THE SPECIFICATIONS.

EXCAVATION, BACKFILL AND EXCAVATION

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL WORK COMPLIES WITH GOVERNING SAFETY STANDARDS. CONFIRM LOCATION OF ALL SUBGRADE SERVICES PRIOR TO COMMENCING SITE WORK.

SOILS CONDITION

DESIGN BEARING PRESSURE AT ULTIMATE LIMIT STATES (ULS) SHALL BE 180 kPa (3,750 psf) ON NATIVE UNDISTURBED MATERIAL AND AT SERVICE LIMIT STATES (SLS) SHALL BE 120 kPa (2500 psf).

SHOP DRAWINGS AND SUBMITTALS

SUBMIT ENGINEER STAMPED SHOP DRAWINGS WITH A STAMP OF A REGISTERED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO, INCLUDING CONNECTION DETAILS, CLEARLY INDICATING PROFILES, SIZES, SPACING AND LOCATIONS OF ALL STRUCTURAL MEMBERS, BRACING, CHAMBERS AND LONDS.

Table with 4 columns: ITEM, SHOP, ENG. STAMP, NOTES. Lists items like CONCRETE MIX DESIGN, REINFORCING STEEL, ENGINEERED ROOF FRAMING SYSTEM.

MATERIAL TESTING AND INSPECTION

Table with 3 columns: ITEM, REQ'D, NOTES. Lists items like SOIL BEARING CAPACITY, FOUNDATION SUBGRADE, SOIL COMPACTION.

FOUNDATION NOTES

FOOTING ELEVATIONS GIVEN ON THE STRUCTURAL DRAWINGS ARE FOR ASSUMED DESIGN CONDITIONS. IF ACTUAL SOIL CONDITIONS VARY FROM THOSE ASSUMED WRITTEN DIRECTIONS MUST BE OBTAINED FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL BE DESIGNED AND LOCATED SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE. IF CONSTRUCTION JOINTS ARE NOT SPECIFICALLY LOCATED AND THERE IS ANY DOUBT CONCERNING THE LOCATION, THE CONTRACTOR MUST CONSULT WITH THE ENGINEER.

STRUCTURAL CONCRETE NOTES

GENERAL NOTES

THE CONCRETE STRENGTH NOTED IS TO BE THE COMPRESSIVE STRENGTH OF CONCRETE IN PLACE AT 28 DAYS. ALL CONCRETE TO MEET THE REQUIREMENTS OF CSA A23.1-04 AND CSA A23.2-04.

MATERIALS

Table with 6 columns: LOCATIONS AND/OR MEMBERS, COMPRESSIVE STRENGTH, SLUMP, ENTRAINED AIR LOCATION (%), CLASS OF EXPOSURE, TYPE. Lists items like INTERIOR SLAB ON GRADE, ALL FOOTINGS, REINFORCED FOUNDATION WALLS.

BONDING AGENT RECOMMENDED PRODUCT 'CPD' CONCENTRATED LATEX CONCRETE ADHESIVE BY 'CPD', OR APPROVED EQUIVALENT. APPLIED STRICTLY TO MANUFACTURER'S RECOMMENDATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

EXECUTION

NOTIFY THE CONSULTANT 48 HOURS PRIOR TO PLACING CONCRETE. CONSTRUCT FORMWORK, SHORING AND BRACING TO MEET DESIGN CODE AND CSA-A23.1. USE FORM LINERS FOR EXPOSED CONCRETE ABOVE GRADE.

REINFORCING NOTES

MATERIALS

REINFORCING STEEL SHALL BE NEW, DEFORMED BILLET-STEEL BARS TO CSA STANDARD G30.18, LATEST EDITION, GRADE 400R. TIE WIRE TO BE 16 GAUGE OR HEAVIER ANNEALED WIRE.

EXECUTION

PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH CSA A23.3 LATEST EDITION. MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS: A) CAST AGAINST EARTH AND PERMANENTLY EXPOSED TO EARTH: 75mm.

Table with 4 columns: BAR SIZE, LAP LENGTH (mm), ANCHORAGE (mm), BEND DIA. (mm). Lists items like 10M, 15M, 20M.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION OF REINFORCEMENT.

STRUCTURAL TIMBER

GENERAL NOTES

STRUCTURAL TIMBER TO BE DESIGNED FOR THE LOADS SHOWN ON DRAWINGS. STRUCTURAL TIMBER TO BE DESIGNED BY SUPPLIER. UNLESS OTHERWISE NOTED DEFLECTION SHALL NOT EXCEED L/800.

MATERIALS

ALL LUMBER SHALL CONFORM TO LATEST NLGA STANDARD GRADING RULES FOR CANADIAN LUMBER. ALL LUMBER SHALL BE KILN DRIED SPF CONSTRUCTION GRADE 2 OR BETTER TO CSA 0-86.

EXECUTION

ANY SUBSTITUTION OF SPECIES, GRADE OR GROUP MUST BE APPROVED BY THE ENGINEER PRIOR TO THE COMMENCING OF WORK. ALL CUTS IN PRESSURE-TREATED WOOD SHALL BE TREATED WITH OIL BASED PRESERVATIVE.

LIMITATIONS AND ASSUMPTIONS

IT IS POSSIBLE THAT UNEXPECTED CONDITIONS MAY BE ENCOUNTERED THAT HAS NOT BEEN EXPLORED WITHIN THE SCOPE OF THIS PROJECT. SHOULD SUCH AN EVENT OCCUR, WORK SHOULD BE NOTIFIED IN ORDER THAT WE MAY DETERMINE IF MODIFICATIONS TO OUR CONCLUSIONS ARE NECESSARY.

DESIGN INFORMATION AND LOADING

Table with 2 columns: BUILDING CODE, ONTARIO BUILDING CODE 2012, PART 4. Lists items like SNOW LOAD, WIND PRESSURE, SEISMIC DATA.

Table with 2 columns: IMPORTANCE FACTOR, INTERNAL PRESSURE CATEGORY. Lists items like IMPORTANCE FACTOR, INTERNAL PRESSURE CATEGORY, UNFACTORED WIND UPLIFT LOADS.

ADDITIONAL DEAD LOAD ALLOWANCE SHALL BE INCLUDED IN ADDITION TO THE ABOVE LOADS FOR: A. PIPES IN EXCESS OF 75mm (3") IN DIAMETER CARRYING FLUIDS (SPRINKLERS).

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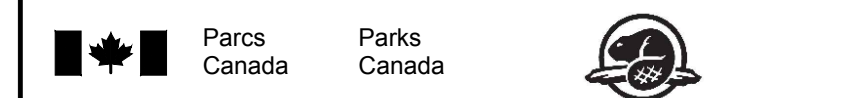


Table with 5 columns: NO, DATE, DESCRIPTION, Drawn by, Approved. Lists revision dates like 11/23/16 and 10/17/16.

REVISIONS

Table with 3 columns: Detail number, Numero de detail, Sheet number, Sur feuille numero.

Linear dimensions in millimeters Dimensions lineaires en millimetres



Canadä

PARKS CANADA SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet

FORT MALDEN ADDITION

Drawing title / Titre du dessin

STRUCTURAL NOTES

Plot Scale / Echelle

NTS

Drawn by/ Dessine par EM Date 10/17/16

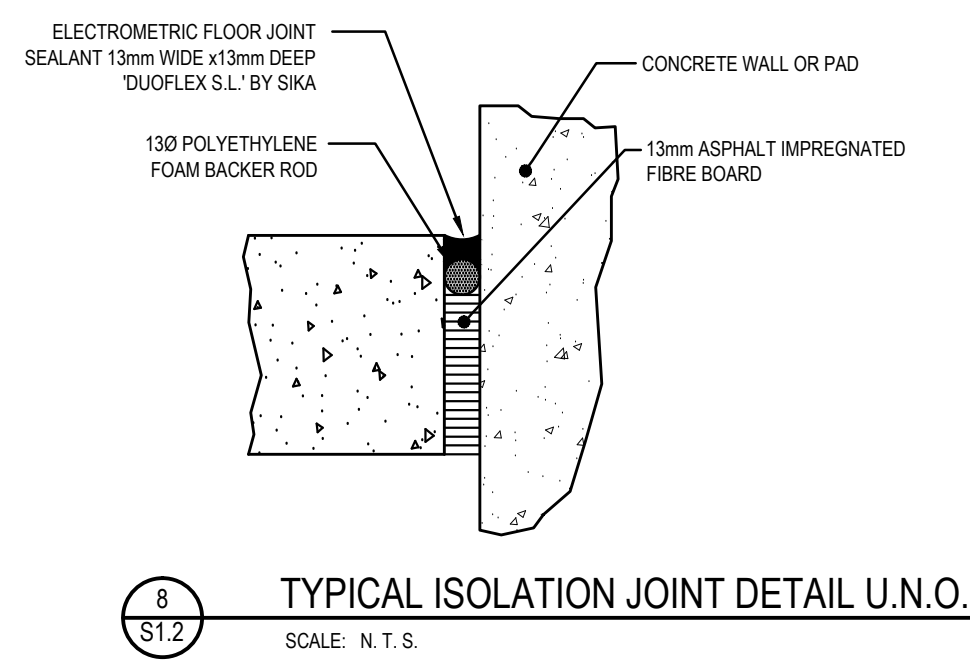
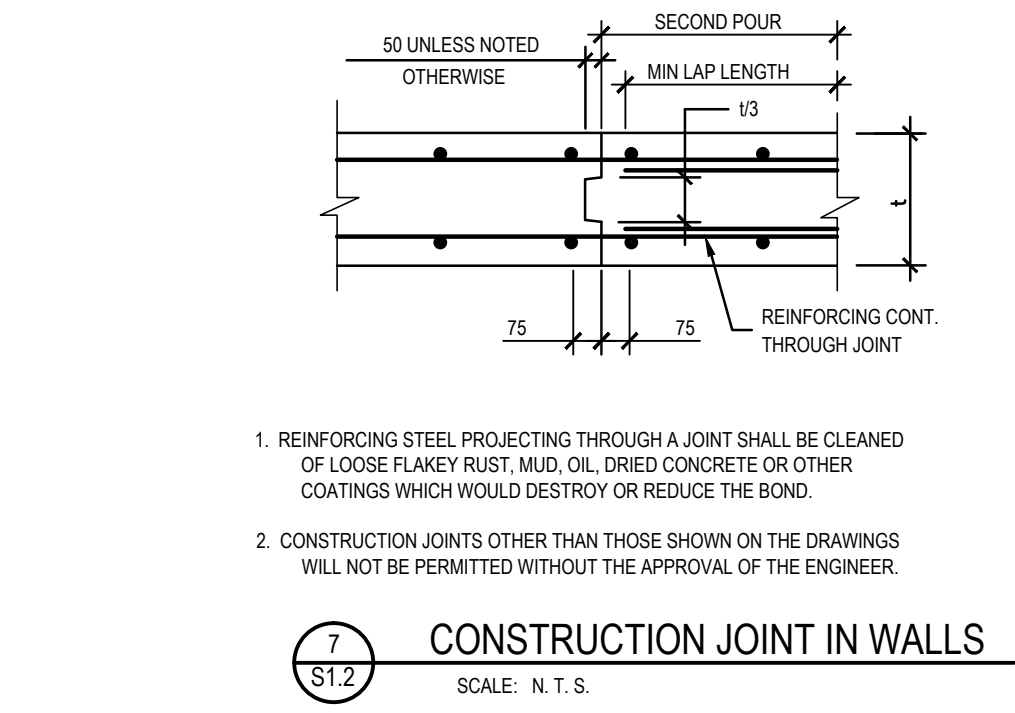
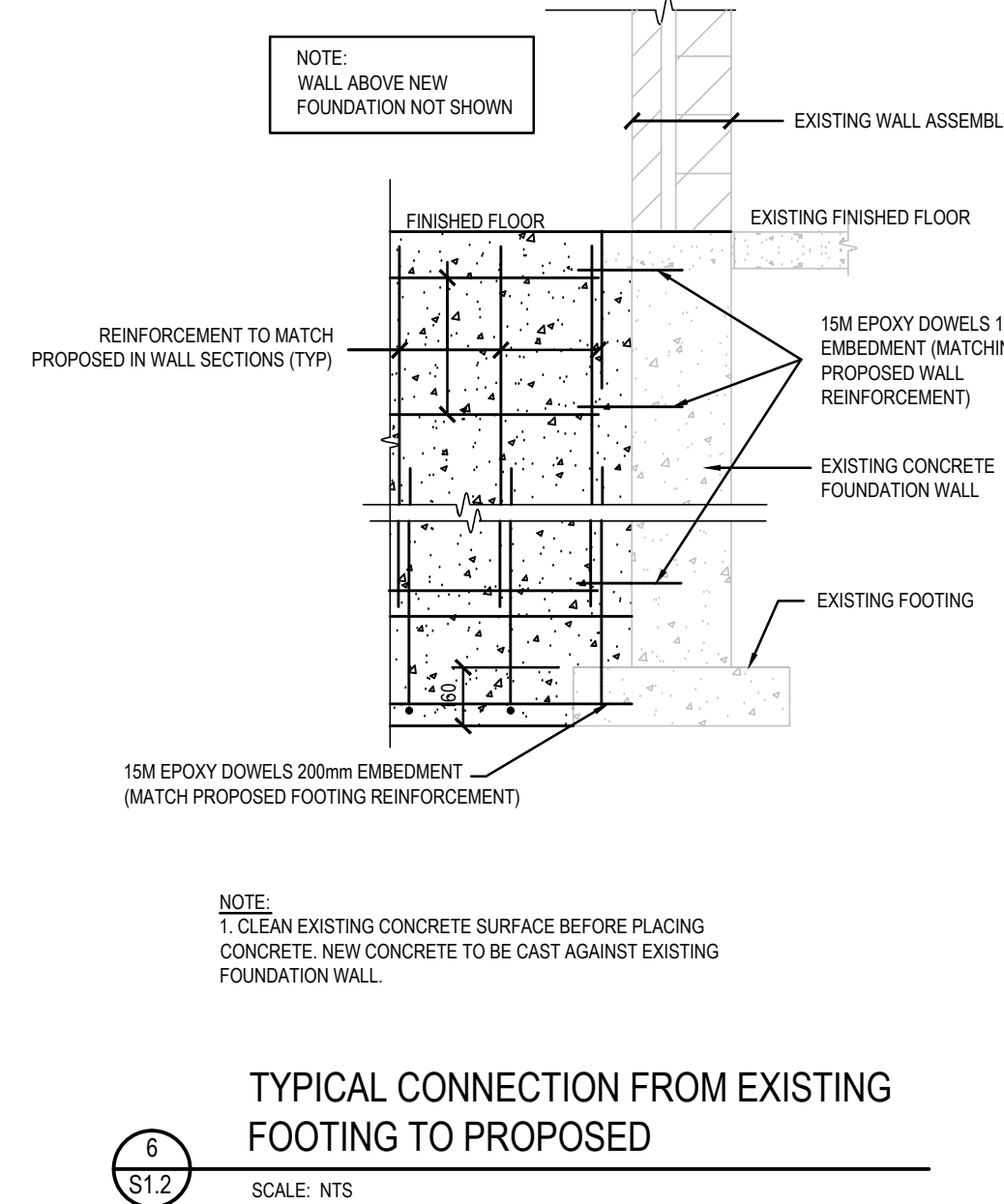
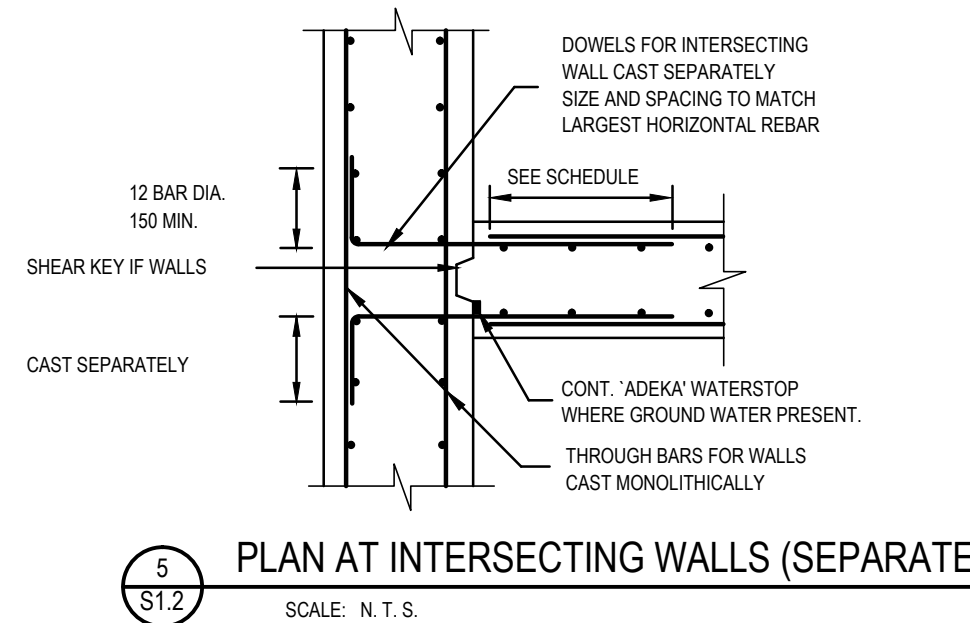
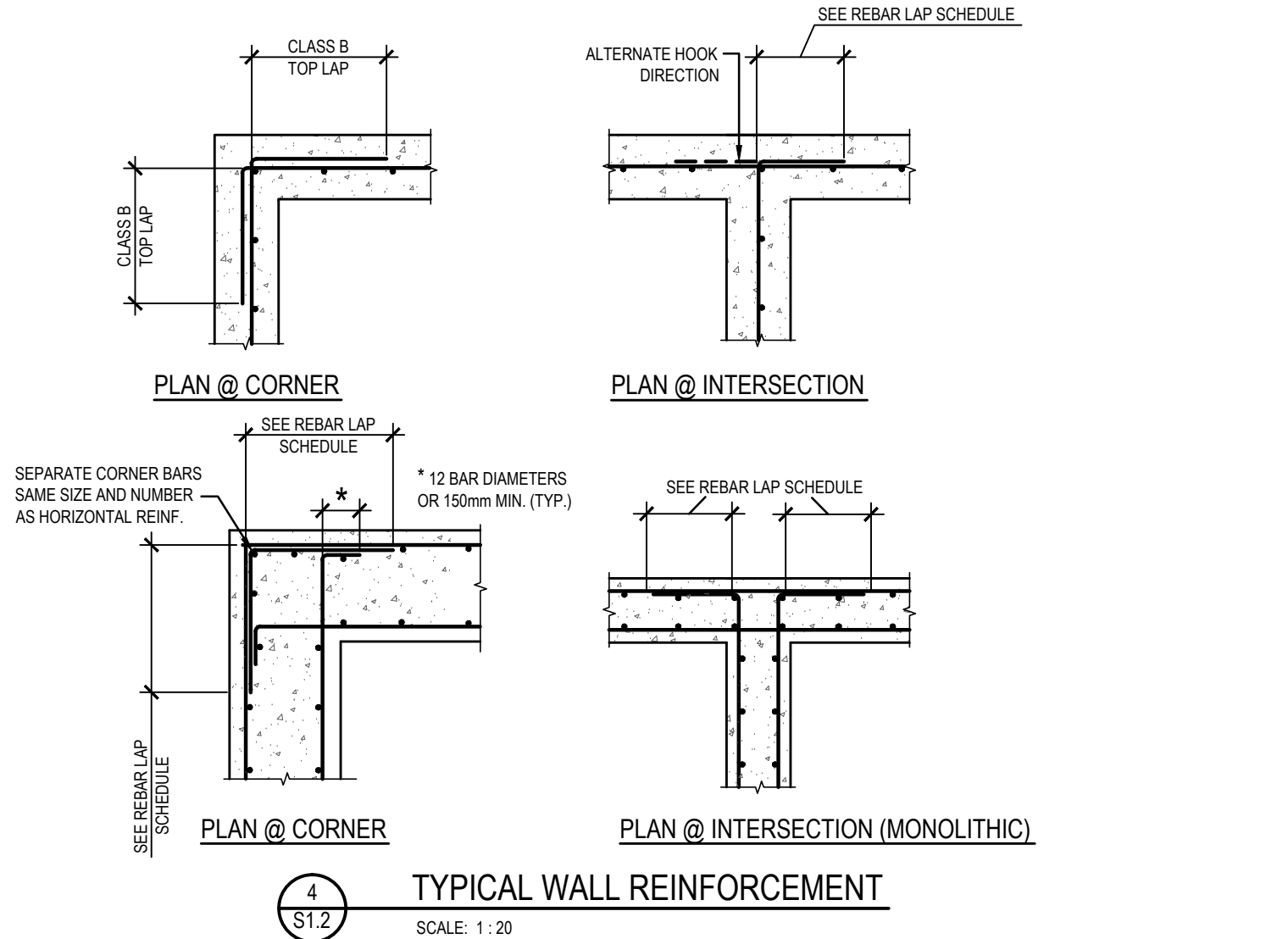
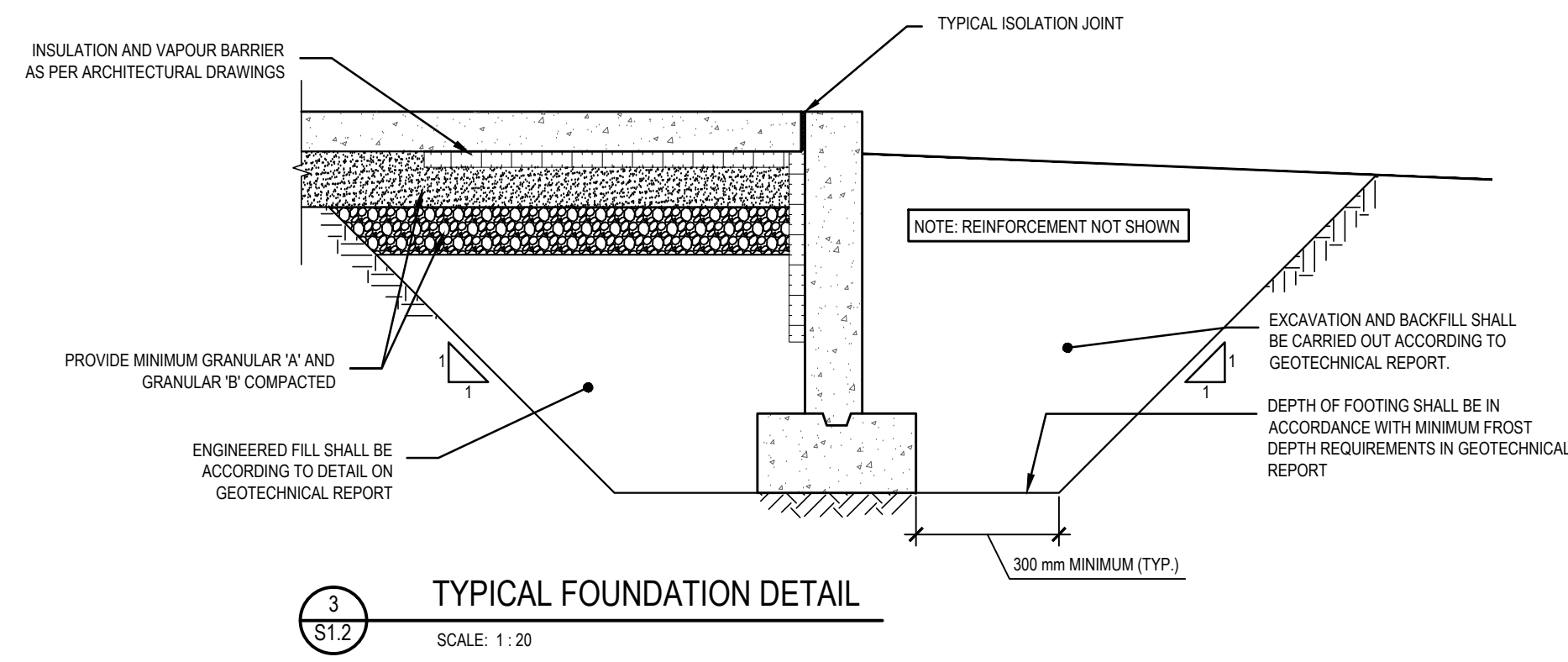
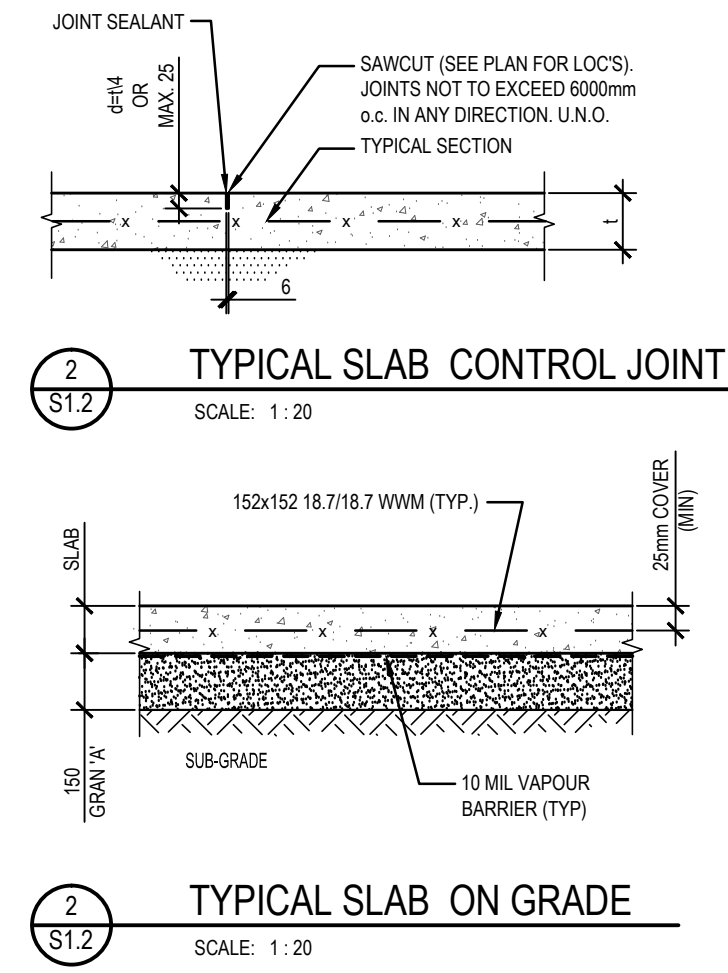
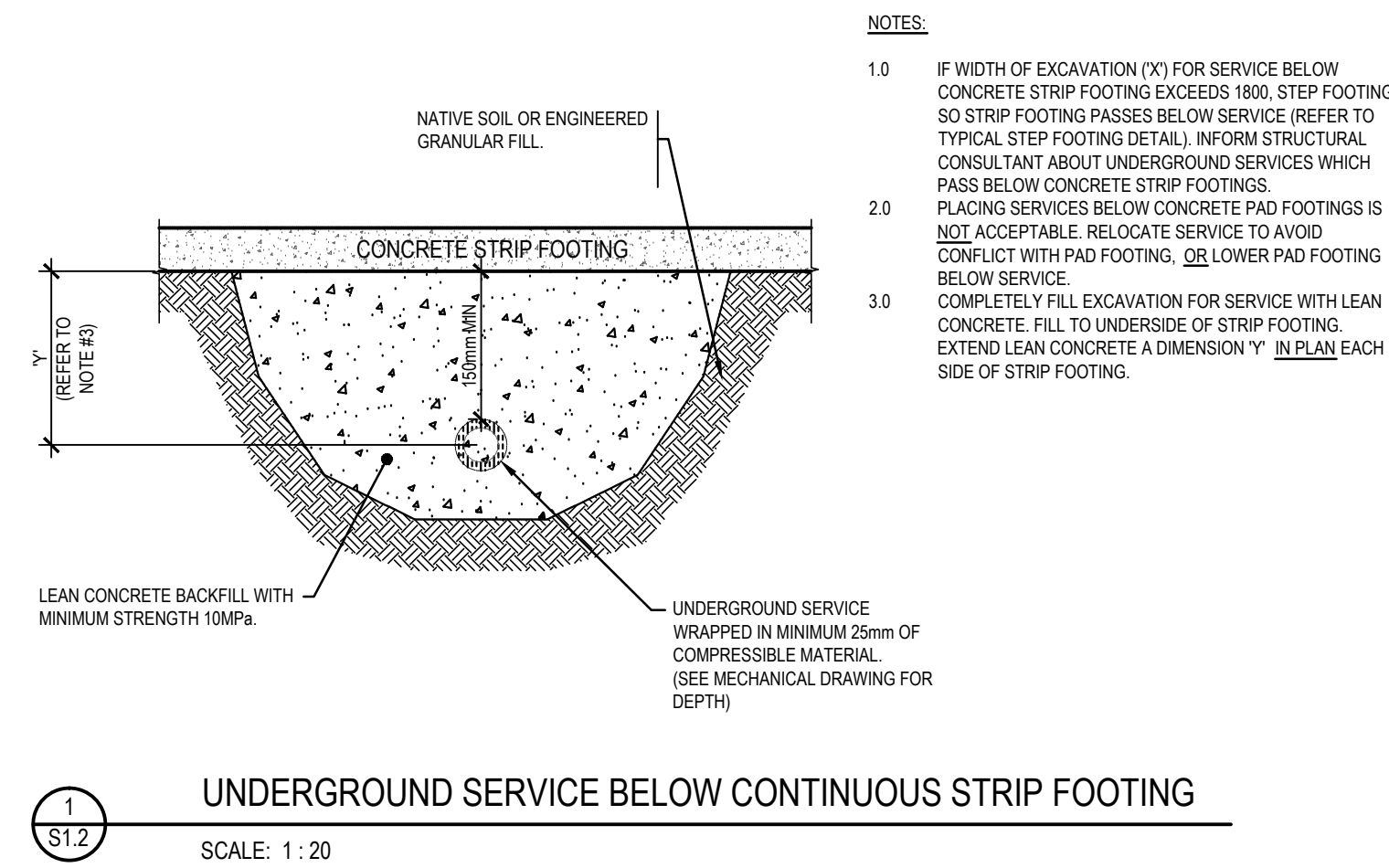
Field Recording by / Releve-Terminé par N/A Date N/A

Approved by / Approuve par BF Date 10/17/16

Checked by/ Verifié par BF Date 10/17/16

Project No./ No. du projet PRO000812 Asset No. Sheet No./ Feuille No.

Drawing Re No./No. du Dessin 1 S1.1



NO.	DATE	DESCRIPTION	Drawn by	Approved
2	11/23/16	ISSUED FOR TENDER	EM	BF
1	10/17/16	ISSUED FOR REVIEW	EM	BF

REVISIONS

Symbol	Description	Number
A	Detail number	A Numero de detail
B	Sheet number	B Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres

Parcs Canada / Parks Canada

Canada

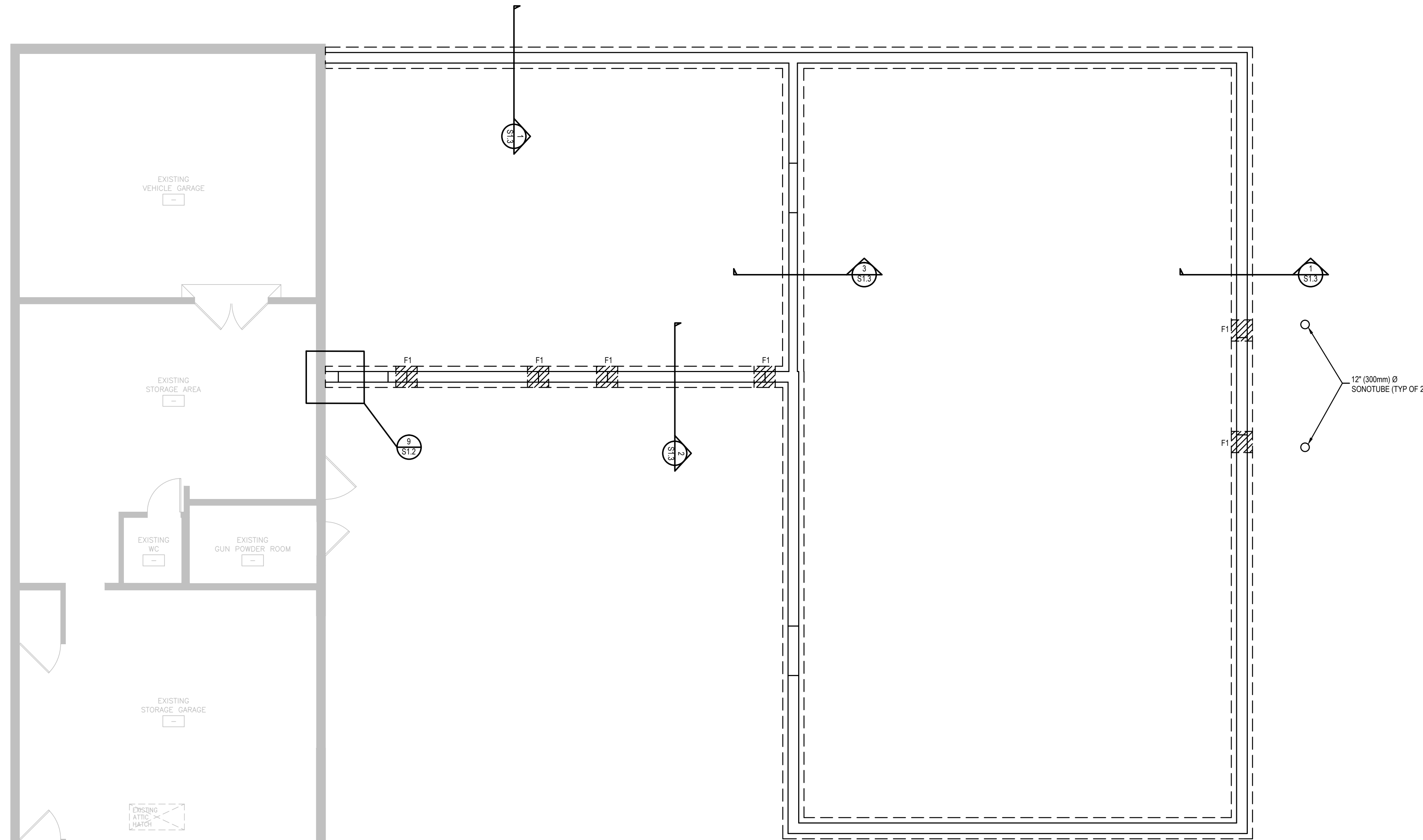
PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
TYPICAL DETAILS

Plot Scale / Echelle NTS	Drawn by/ Dessine par EM	Date 10/17/16
Field Recording by / Releve-Termin par N/A	Date N/A	
Approved by / Approuve par BF	Date 10/17/16	
Checked by/ Verifie par BF	Date 10/17/16	
Project No./ No. du projet PRO000812	Asset No.	Sheet No./ Feuille No. S1.2
Drawing Re No./No. du Dessin 1		



GENERAL NOTES

- 1.0 THE REQUIREMENTS SHOWN ON THESE DETAILS SHALL APPLY UNLESS OTHERWISE SHOWN ON THE DESIGN DRAWINGS.
- 2.0 MAIN REINFORCING AND DIMENSIONS SHALL BE AS SHOWN ON DESIGN DRAWINGS.
- 3.0 SEE STRUCTURAL GENERAL NOTES DRAWING FOR CONCRETE SPECIFICATION.
- 4.0 PROPER CURING OF THE SLAB IS ESSENTIAL AND MUST BE DONE AS FOLLOWS. BEGIN CURING AS SOON AS THE MOISTURE-RETAINING COVERING OR CURING MEMBRANE CAN BE APPLIED WITHOUT DAMAGE TO THE NEWLY FINISHED SURFACE.
 - 4.1 MOISTURE-RETAINING COVERING METHOD USING BURLAP OR FELTS:
 - a) CONCRETE SURFACE IS TO BE WETTED IMMEDIATELY AFTER FINAL FINISHING AND COVERED WITH A MOISTURE-RETAINING COVERING SUCH AS BURLAP OR FELTS.
 - b) EDGES SHALL BE LAPPED 300mm (12") MINIMUM.
 - c) PROVIDE TRAFFIC PROTECTION TO PROTECT THE CONCRETE SURFACE AND THE MOISTURE-RETAINING COVERING.
 - d) COVERING SHALL BE KEPT CONTINUOUSLY MOIST FOR A MINIMUM FOR 7 DAYS.
 - 4.2 CURING MEMBRANE METHOD:
 - a) CONCRETE SURFACE IS TO BE WETTED IMMEDIATELY AFTER FINAL FINISHING AND COVERED WITH A 6 MIL POLYVINYL, CLEAR OR WHITE, AND SECURED IN PLACE WITH WEIGHTS SO AS TO PREVENT EXPOSURE OF CONCRETE SURFACE DURING CURING PERIOD. THE MEMBRANE SHALL COVER ALL EXPOSED CONCRETE SURFACES.
 - b) PLACE THE MEMBRANE FLAT WITHOUT WRINKLES, TO MINIMIZE MOTTLED DISCOLORATION.
 - c) EDGES SHALL BE LAPPED 300 mm (12") MINIMUM AND TAPE SEALED.
 - d) PROVIDE TRAFFIC PROTECTION TO PROTECT THE CONCRETE SURFACE AND THE POLYVINYL CURING MEMBRANE.
 - e) LEAVE THE CURING MEMBRANE UNDISTURBED FOR A MINIMUM OF 7 DAYS.
 - f) MAINTAIN A FILM OF WATER UNDER THE MEMBRANE. ADD WATER AS NEEDED.
- 5.0 CONSTRUCTION TOLERANCES:

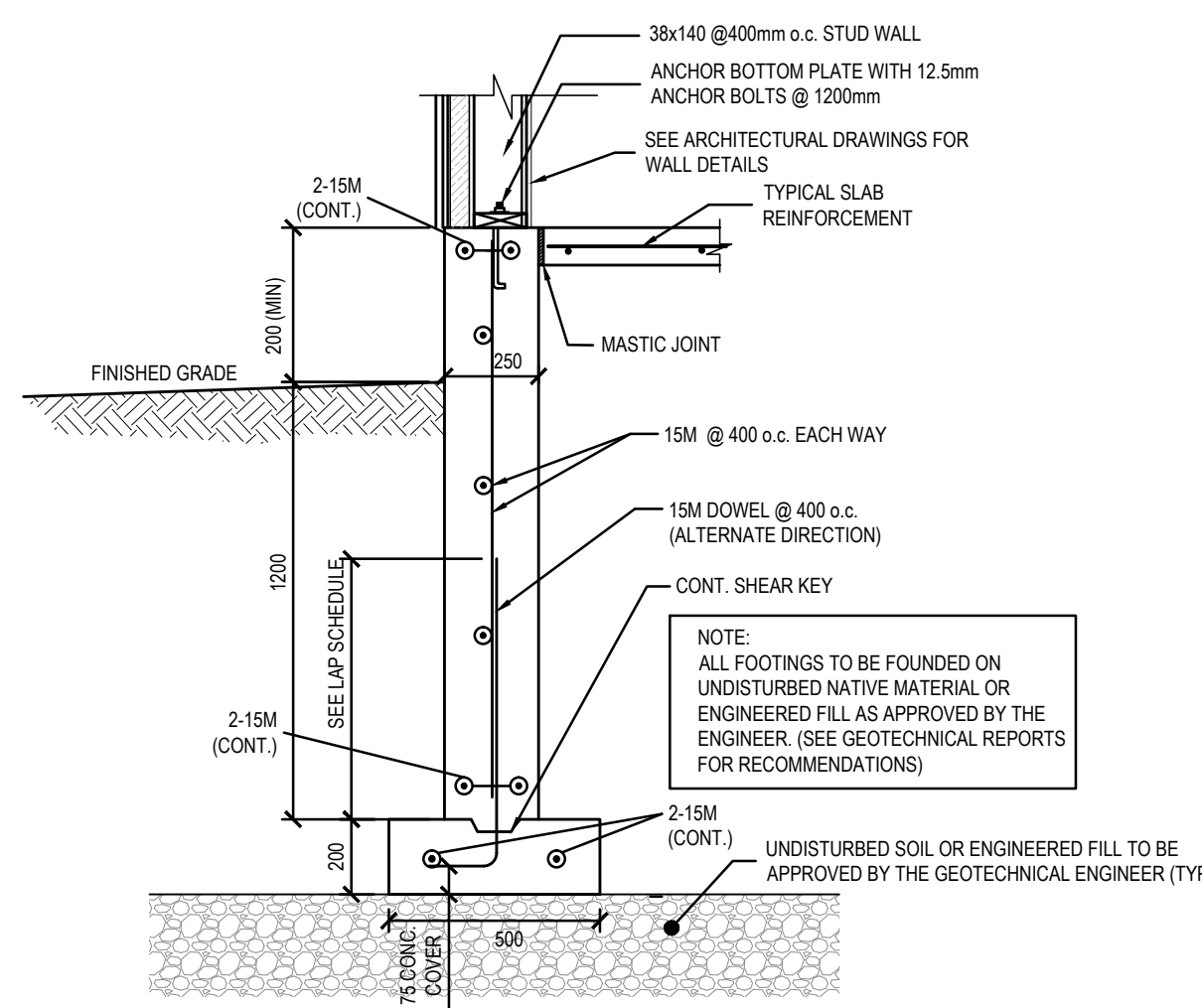
THE AVERAGE THICKNESS OF A GRADE FLOOR SLAB SHALL BE NO LESS THAN THE THICKNESS SHOWN ON DRAWINGS, AND NOT MORE THAN 15% OF THE FLOOR AREA SHALL BE THINNER THAN 25mm LESS THAN SHOWN ON DRAWINGS.
- 6.0 CONCRETE FLOOR FINISH:
 - 6.1 ALL SURFACES SHOWN ON PLANS AS LEVEL OR SLOPING PLANES SHALL BE FINISHED TO A "STRAIGHT-EDGED" FINISHING TOLERANCE AS DETERMINED BY PLACING A 3 m (10-FOOT) STRAIGHTEDGE ANYWHERE ON THE SLAB AND ALLOWING IT TO REST UPON TWO HIGH SPOTS. THE GAP AT ANY POINT BETWEEN THE STRAIGHT EDGE AND THE CONCRETE SHALL NOT EXCEED: 8 mm (5/16") FOR A FLOAT, OR A LIGHT OR HEAVY BROOM FINISH; 5 mm (3/16") FOR A TROWEL FINISH; OR AS OTHERWISE SHOWN ON THE DRAWINGS.
 - 6.2 ANY DEPRESSED SURFACE SHALL BE STRUCK OFF TO ELEVATIONS NOTED ON PLANS.
 - 6.3 SEE ARCHITECTURAL DRAWINGS FOR REQUIRED FLOOR FINISH.
 - 6.4 FLOOR SURFACES SHALL SLOPE FOR DRAINAGE AS SPECIFIED ON ARCHITECTURAL DRAWINGS.

TYPICAL FOUNDATION NOTES

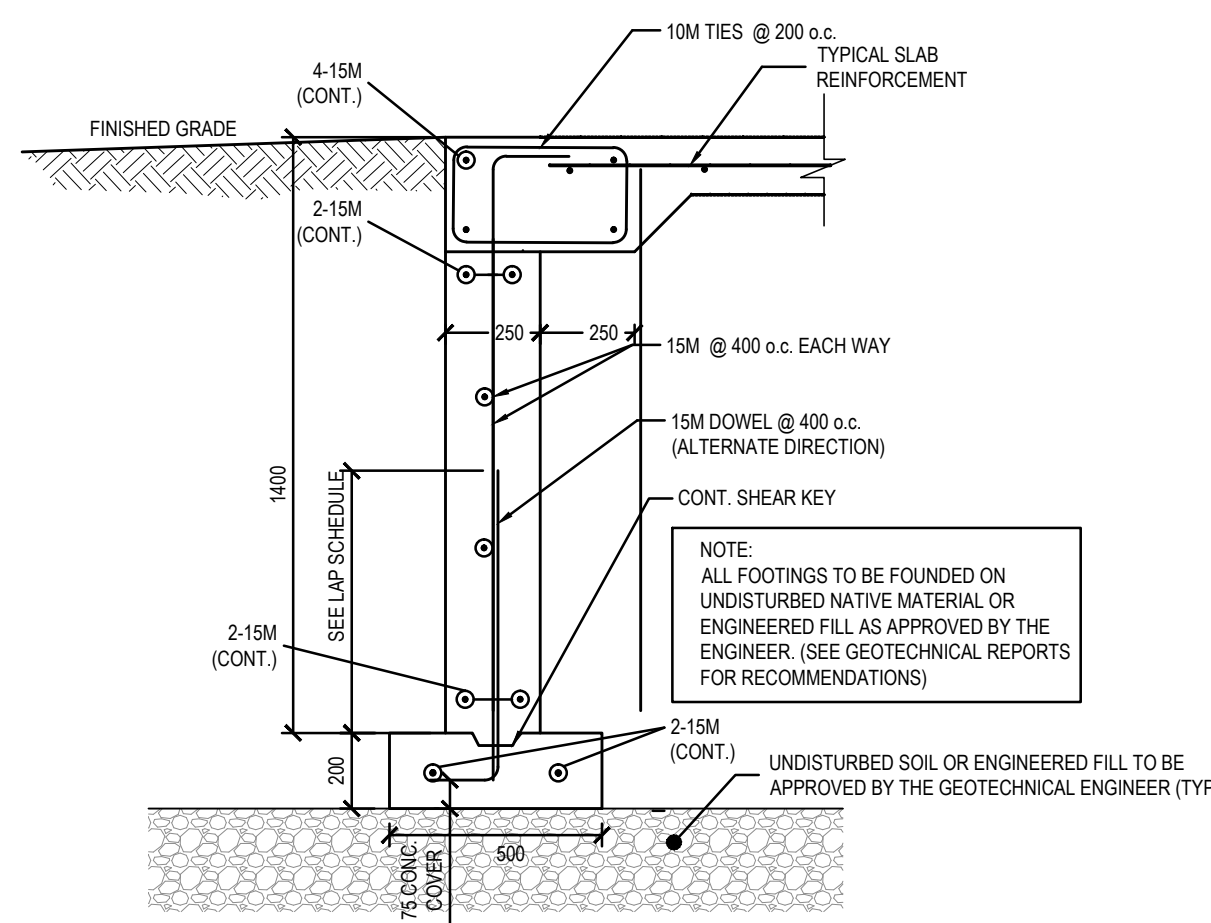
1. FLOOR SLAB CONSTRUCTION IS A 150mm SLAB ON GRADE WITH 152x152 18.7/18.7 W/M (TYP) (CENTER OF SLAB) IN THE GARAGE AND 100mm SLAB ON GRADE WITH 152 x152 18.7 W/M (TOP OF SLAB) IN THE OFFICE AREA.
2. SEE ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION. DEPRESS FLOOR SLAB FOR FINISHES, GRATINGS ETC. AS NOTED ON THE ARCHITECTURAL DRAWINGS. MAINTAIN THE MINIMUM SLAB THICKNESS UNDER ALL DEPRESSED AREAS.
3. FOOTING TO BE FOUNDED ON ENGINEERED FILL OR APPROVED ORIGINAL UNDISTURBED SOIL. BEARING SURFACE FOR ALL FOOTINGS TO BE APPROVED BY THE SOIL'S CONSULTANT.
4. LOWER TOP OF FOUNDATION WALL AT ALL INTERIOR AND EXTERIOR DOOR OPENINGS TO RECEIVE SLAB ON GRADE - SEE ARCHITECTURAL DRAWINGS.
5. FOUNDATION WALL WIDTH TO BE DETERMINED BY SIZE OF WALL ABOVE - SEE ARCHITECTURAL WALL SECTIONS.
6. REFER TO DRAWING S1.1 FOR TYPICAL NOTES AND DETAILS.
7. PROVIDE SAWCUT CONTROL JOINTS IN SLAB AT 3.0m o.c. MAX. - SEE TYPICAL DETAILS ON DRAWING S1.2
8. SLOPE FLOOR SLABS TOWARDS DRAINS AND CHASES (TYPICAL) - SEE ARCHITECTURAL AND MECHANICAL DRAWINGS
9. ANCHOR BOLTS TO BE LOCATED AT END OF EACH WALL AND AT EVERY JOINT BETWEEN PLYWOOD SHEATHING (1200mm MAX SPACING)

ID	SIZE	REINFORCEMENT
F1	500x500x200	3-15M EACH WAY

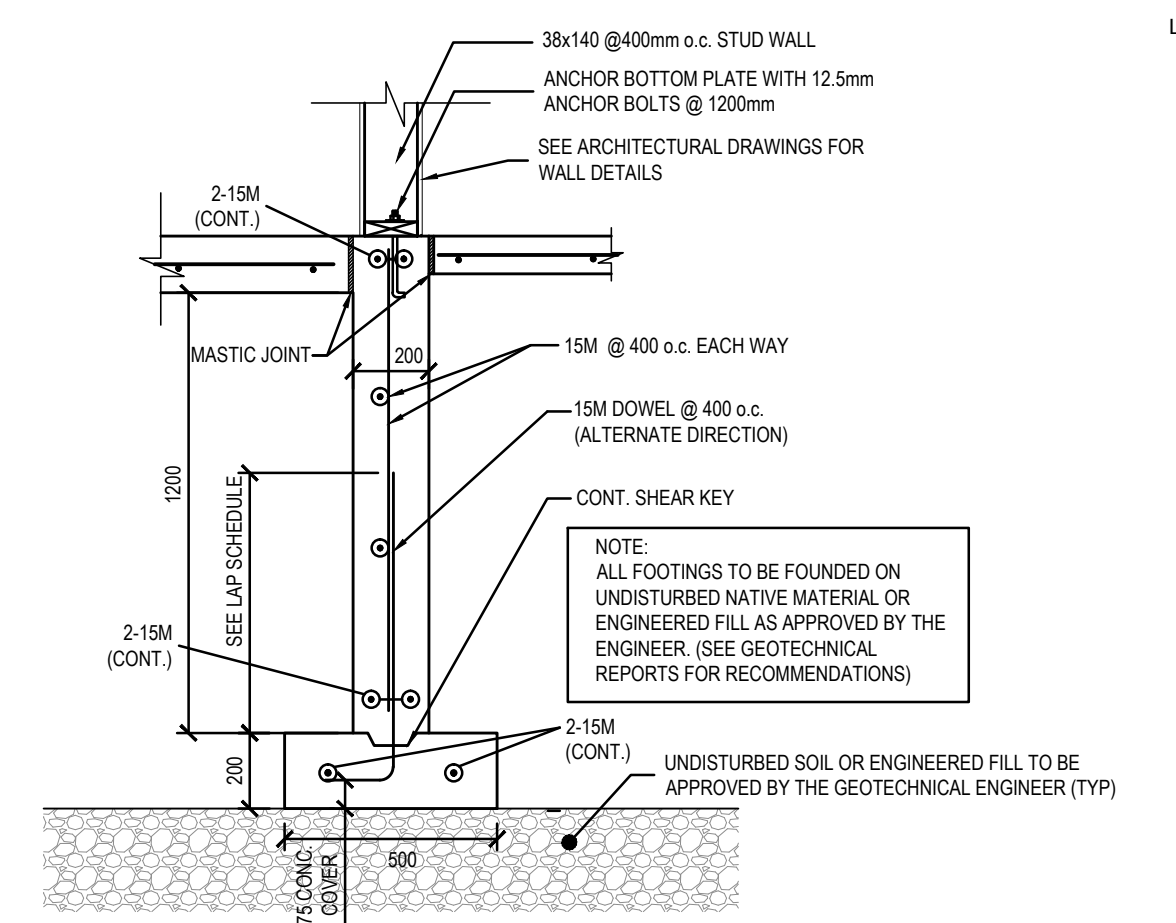
FOUNDATION PLAN
NTS



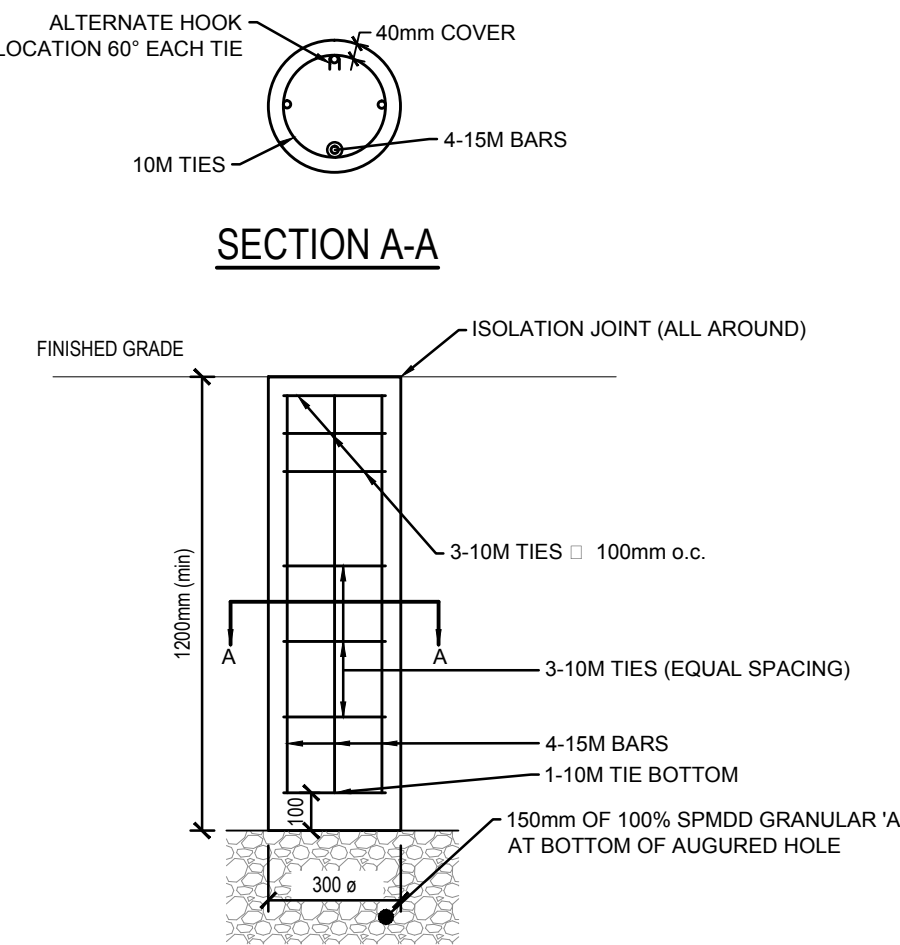
1 S1.3 EXTERIOR FOUNDATION WALL - SECTION 1
SCALE: NTS



2 S1.3 EXTERIOR FOUNDATION - OVERHEAD DOOR
SCALE: NTS



3 S1.3 INTERIOR FOUNDATION WALL
SCALE: NTS



4 S1.3 CAISSON DETAIL
SCALE: NTS

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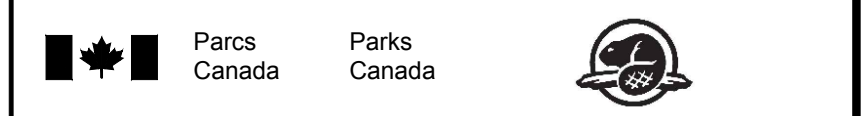


NO.	DATE	DESCRIPTION	Drawn by Dessine par	Approved Approuve
2	11/23/16	ISSUED FOR TENDER	EM	BF
1	10/17/16	ISSUED FOR REVIEW	EM	BF

REVISIONS

A	B	A	B
A	B	A	B
Detail number	Sheet number	Numero de detail	Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet

**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

FOUNDATION PLAN

Plot Scale / Echelle
NTS

Drawn by/ Dessine par
EM Date
10/17/16

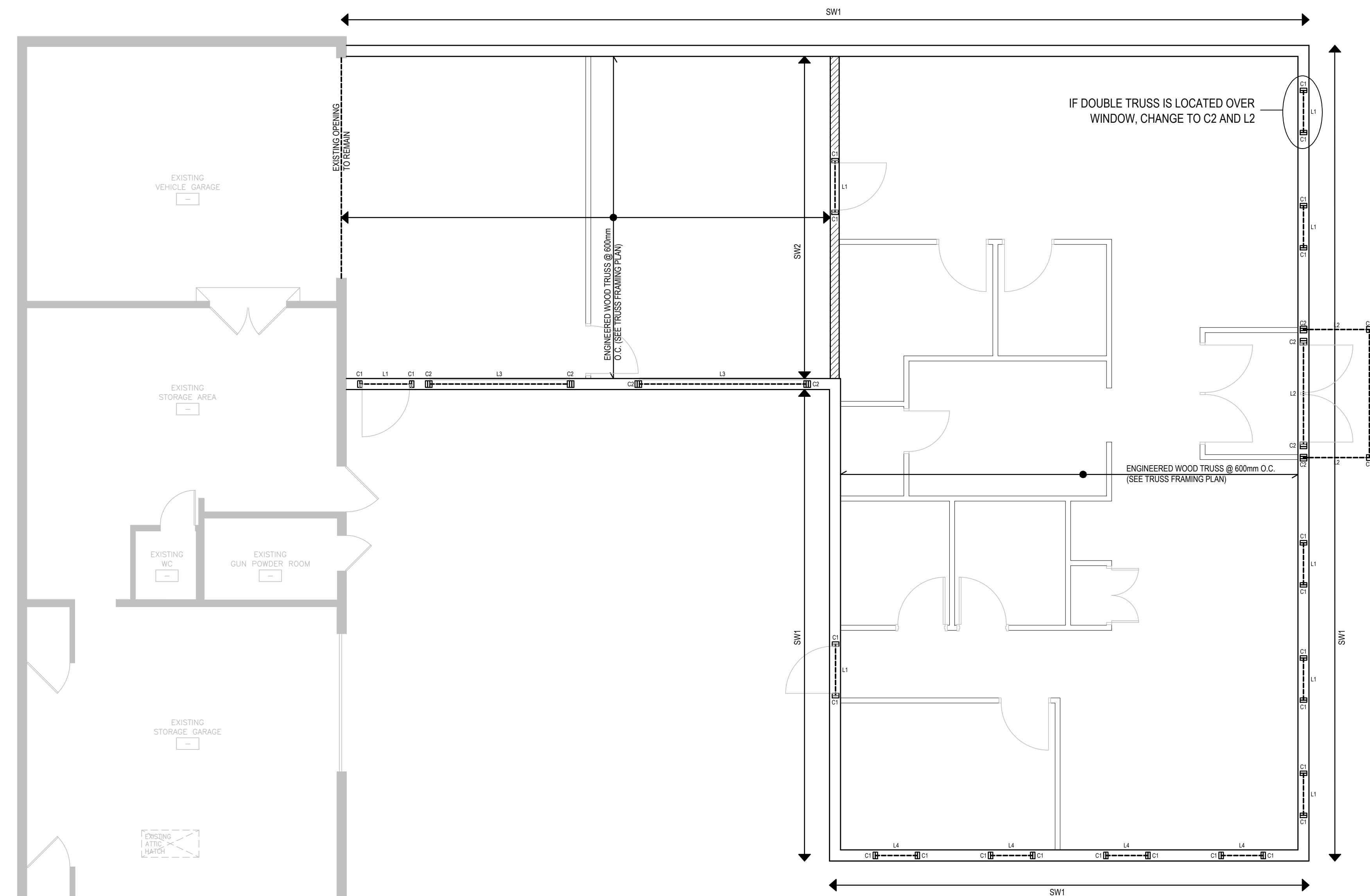
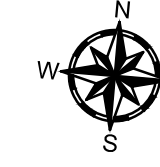
Field Recording by /
Releve-Temoin par
N/A Date
N/A

Approved by / Approuve par
BF Date
10/17/16

Checked by/ Verifie par
BF Date
10/17/16

Project No./ No. du projet
PRO000812 Asset No. Sheet No./
Feuille No.

Drawing Re No./No. du Dessin
1 **S1.3**



FRAMING PLAN
NTS

ROOF DESIGN NOTES (Commercial Design)

- DESIGN SHALL BE IN ACCORDANCE WITH PART 4 OF THE ONTARIO BUILDING CODE 2012 AND SHALL TAKE INTO ACCOUNT ALL DEAD LOADS PLUS THE DESIGN SNOW, SEISMIC AND WIND LOADS (INCLUDING UPLIFT).
- THE ENGINEERED ROOF SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF CAN/CSA086-14
- SHOP DRAWINGS OF ENGINEERED MEMBERS SHALL BE SUBMITTED BEARING THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR DESIGN.
- SHOP DRAWINGS ARE TO BE APPROVED BEFORE FRAMING BEGINS.
- MOISTURE CONTENT OF ALL LUMBER 38 MM OR LESS IN THICKNESS SHALL NOT EXCEED 19%. ALL TRUSS MATERIAL SHALL BE STAMPED S DRY.
- ROOF CONSTRUCTION IS AS NOTED ON THE DRAWINGS AS PREFABRICATED ROOF JOISTS.
- FACTORED DESIGN LOAD SHALL BE BASED ON THE SPECIFIED DESIGN SNOW, RAIN, WIND AND LIVE LOAD PLUS THE DEAD LOAD.
- ALL ROOF MEMBERS TO BE SIZED AND DETAILED ON THE SUPPLIERS SHOP DRAWINGS.
- TEMPORARY BRACING OF MEMBERS DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. AT NO TIME DURING CONSTRUCTION SHALL THE LOADS EXCEED THE DESIGN LOADING.
- NO HOLES SHALL BE DRILLED IN THE MEMBERS IN THE FIELD.
- CONNECT ALL ROOF JOISTS TO WALL PLATES OR OTHER BEAMS WITH SIMPSON CONNECTORS AS INDICATED ON PLAN. (FABRICATOR MAY SUBSTITUTE ALTERNATIVE CONNECTORS WITH AT LEAST THE SAME UPLIFT CAPACITY).
- ROOF JOISTS SHALL NOT BEAR INTERIOR WALLS UNLESS INDICATED ON DRAWINGS.
- ALL EXTERIOR WALLS TO BE 2" x 6" @ 16" o.c.
- ALL INTERIOR LOAD BEARING WALLS TO BE (SHOWN) ARE TO BE 2" x 6" @ 16" o.c.
- SEE TRUSS FRAMING PLAN FOR ALL UPLIFT TIES

SPECIFIED DESIGN LOADS:

Code:	=	OBC 2012
Location:	=	WINDSOR, ONTARIO
Importance Factor (Is)	=	NORMAL
Snow Loads (Ss)	=	0.8 kPa
Associated Rain Load (Sr)	=	0.40 kPa
Dead Load (UPPER)	=	0.87 kPa
Wind Loads		
q 1/10	=	0.36 kPa
q 1/50	=	0.47 kPa
SEISMIC DESIGN:		
Sa (0.20)	=	0.150
Sa (0.50)	=	0.085
Sa (1.00)	=	0.045
Sa (2.00)	=	0.014
PGA	=	0.073

LINTEL SCHEDULE

L1	2'-2" x 8"
L2	3'-2" x 10"
L3	3'-1/2" x 9 1/2"
L4	2'-2" x 8"

COLUMN SCHEDULE

C1	2'-2" x 6"
C2	3'-2" x 6"
C3	5'-1/4" x 5'-1/4"

CONNECTIONS

COLUMN	TOP	BOTTOM
C1 & C2	TOE NAIL	TOE NAIL
C3	2-LCE4	CB66

SHEAR WALL SCHEDULE

MARK	INTERIOR	EXTERIOR
SW1	2" GYPSUM w/ 8" EDGE FASTENING	2" PLYWOOD w/ 8" EDGE FASTENING & 1/2" INTERIOR FASTENING
SW2	2" GYPSUM w/ 8" EDGE FASTENING	2" PLYWOOD w/ 8" EDGE FASTENING & 1/2" INTERIOR FASTENING

- NOTE:
- PROVIDE SOLID BLOCKING AT ALL PANEL JOISTS NOT LOCATED AT A STUD.
 - EXTERIOR SIDE OF SW2 IS GARAGE SIDE.



NO.	DATE	DESCRIPTION	Drawn by Dessine par	Approved Approuve
2	11/23/16	ISSUED FOR TENDER	EM	BF
1	10/17/16	ISSUED FOR REVIEW	EM	BF

REVISIONS

A	A Detail number	A Numero de detail
	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters Dimensions lineaires en millimetres



Canadä

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet

**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

FRAMING PLAN

Plot Scale / Echelle

NTS

Drawn by/ Dessine par Date
EM 10/17/16

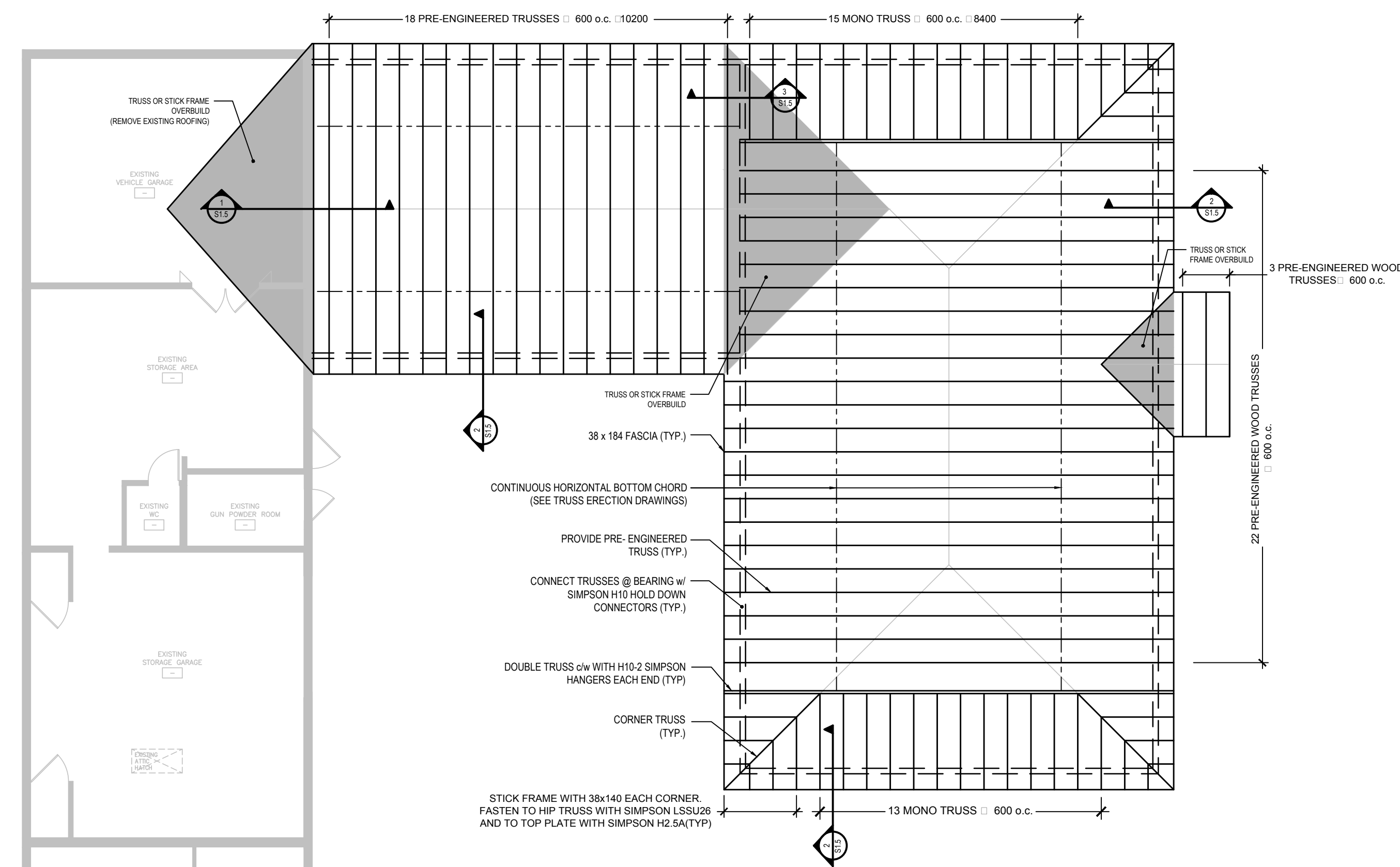
Field Recording by /
Releve-Terminé par Date
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BF 10/17/16

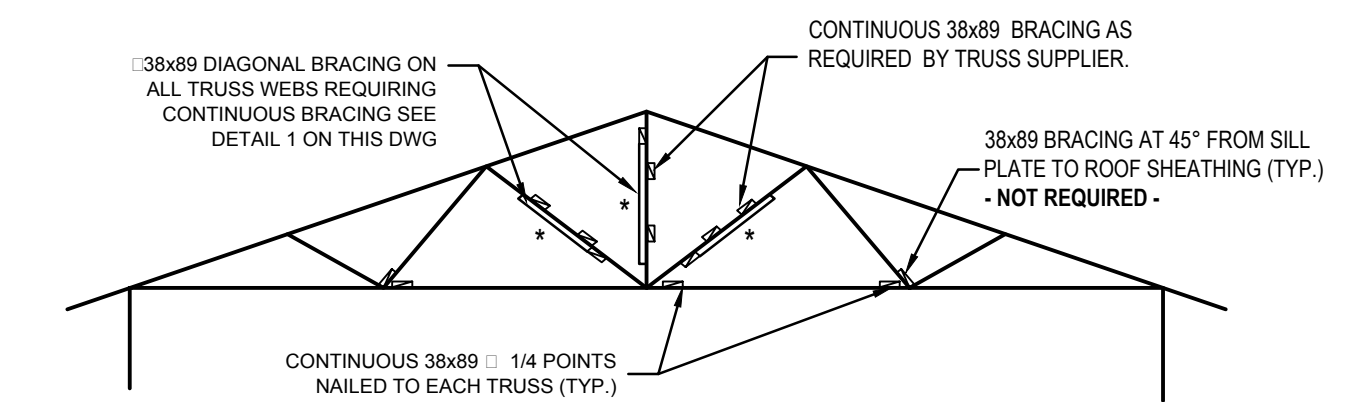
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BF 10/17/16

Project No./ No. du projet Asset No. Sheet No./
PRO000812 Feuille No.

Drawing Re No./No. du Dessin **S1.4**



ROOF FRAMING PLAN
NTS



TRUSS DESIGN NOTES (Commercial Design)

- TRUSS SHOWN ABOVE IS A REPRESENTATIVE CONFIGURATION ONLY. FABRICATOR SHALL MAINTAIN THE SLOPES AND OUTSIDE DIMENSIONS OF THE TOP AND BOTTOM CHORDS TO SUITE ARCHITECTURAL, BUT THE WEB CONFIGURATION CAN BE ALTERED TO BE MOST COST EFFECTIVE.
- ON ALL WEBS WHERE CONTINUOUS LONGITUDINAL BRACING IS REQUIRED, BY THE TRUSS SUPPLIER, BRACING SHOWN MUST BE INSTALLED. OTHER BRACING SHOWN IS REPRESENTATIVE ONLY AND SHALL BE ALTERED TO COMPLY WITH BRACING AS REQUIRED ON TRUSS SHOP DRAWINGS. CONTINUOUS BRACING TO WEB MEMBERS SHALL BE AS DETERMINED BY THE DESIGN.
- DESIGN SHALL BE IN ACCORDANCE WITH PART 4 OF THE ONTARIO BUILDING CODE 2006 AND SHALL TAKE INTO ACCOUNT ALL DEAD LOADS PLUS THE DESIGN SNOW, SEISMIC AND WIND LOADS (INCLUDING UPLIFT).
- WOOD TRUSSES SHALL COMPLY WITH THE REQUIREMENTS OF CAN/CSA-086-09 INCLUDING SUPPLEMENT CAN/CSA-086S1-05.
- SHOP DRAWINGS OF TRUSSES SHALL BE SUBMITTED BEARING THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR DESIGN.
- MOISTURE CONTENT OF ALL LUMBER 38 MM OR LESS IN THICKNESS SHALL NOT EXCEED 19%. ALL TRUSS MATERIAL SHALL BE STAMPED S DRY.
- ROOF CONSTRUCTION IS AS NOTED ON THE DRAWINGS AS PREFABRICATED ROOF TRUSSES AT 600 MM O.C.
- GROUND SNOW LOAD SHALL BE TAKEN AS $S_s = 27 \text{ kPa}$ PLUS THE ASSOCIATED RAIN LOAD $S_r = 0.4 \text{ kPa}$. WIND EXPOSURE FACTOR C_w SHALL BE TAKEN AS 1.0. TRUSS MANUFACTURER SHALL ALLOW FOR ALL SNOW LOAD EFFECTS AS STIPULATED IN THE ONTARIO BUILDING CODE INCLUDING UNBALANCED SNOW. ALLOW FOR A LIVE LOAD 0.5 kPa ON THE BOTTOM CHORD IN ADDITION TO THE RAIN AND SNOW LOAD. IMPORTANCE FACTOR IS SHALL BE TAKEN AS 1.0.
- FACTORED DESIGN LOAD ON TRUSSES SHALL BE BASED ON THE SPECIFIED DESIGN SNOW, RAIN, WIND AND LIVE LOAD PLUS A DEAD LOAD OF 0.4 kPa ON THE TOP CHORD AND 0.50 kPa ON THE BOTTOM CHORD.
- ALL ROOF TRUSSES TO BE SIZED AND DETAILED ON THE TRUSS SUPPLIERS SHOP DRAWINGS.
- TEMPORARY BRACING OF TRUSSES DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. AT NO TIME DURING CONSTRUCTION SHALL THE LOADS EXCEED THE DESIGN LOADING.
- IF REQUIRED, REINFORCE THE TRUSSES BY NAILING SCABS TO THE SIDE OF THE TRUSSES OR OTHER MEANS TO ENSURE THAT THE BEARING STRESS ON THE SUPPORTING PLATE IS NOT EXCEEDED. THE DETAILS OF THIS REINFORCING SHALL BE CLEARLY SHOWN ON THE TRUSS SUPPLIERS SHOP DRAWINGS.
- NO HOLES SHALL BE DRILLED IN THE TRUSS MEMBERS IN THE FIELD.
- ALL TRUSS MEMBERS TO BE 38 X 89 MM OR GREATER. GRADING TO BE NO. 2 S-P-F OR BETTER. "GRADE STAMP" TO BE PRESENT ON EACH MEMBER.
- CONNECT ALL ROOF TRUSSES TO WALL PLATES OR OTHER TRUSSES OR BEAMS WITH SIMPSON CONNECTORS AS INDICATED ON PLAN. (FABRICATOR MAY SUBSTITUTE ALTERNATIVE CONNECTORS WITH AT LEAST THE SAME UPLIFT CAPACITY).
- ROOF SHEATHING IS TO BE 9.5 MM O/PF NAILED AT 150 MM O.C. AT EDGE SUPPORTS AND 360 MM O.C. ALONG INTERIOR SUPPORTS.

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REVISIONS

A	B	A Detail number	A Numero de detail
		B Sheet number	B Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres

Parcs Canada / Parks Canada

Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
FRAMING PLAN

Plot Scale / Echelle
NTS

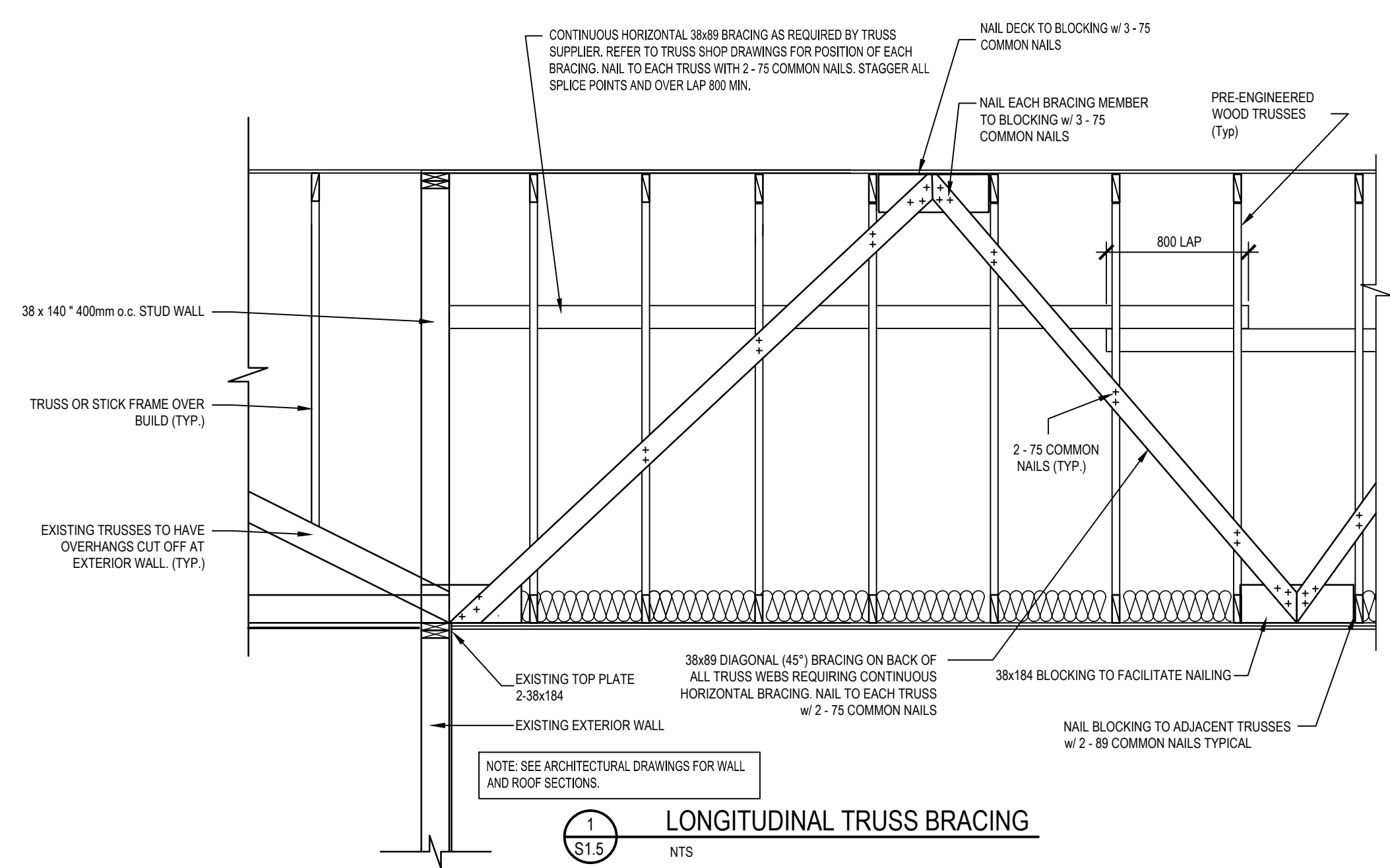
Drawn by/ Dessine par
EM Date 10/17/16

Field Recording by / Releve-Terminé par
N/A Date N/A

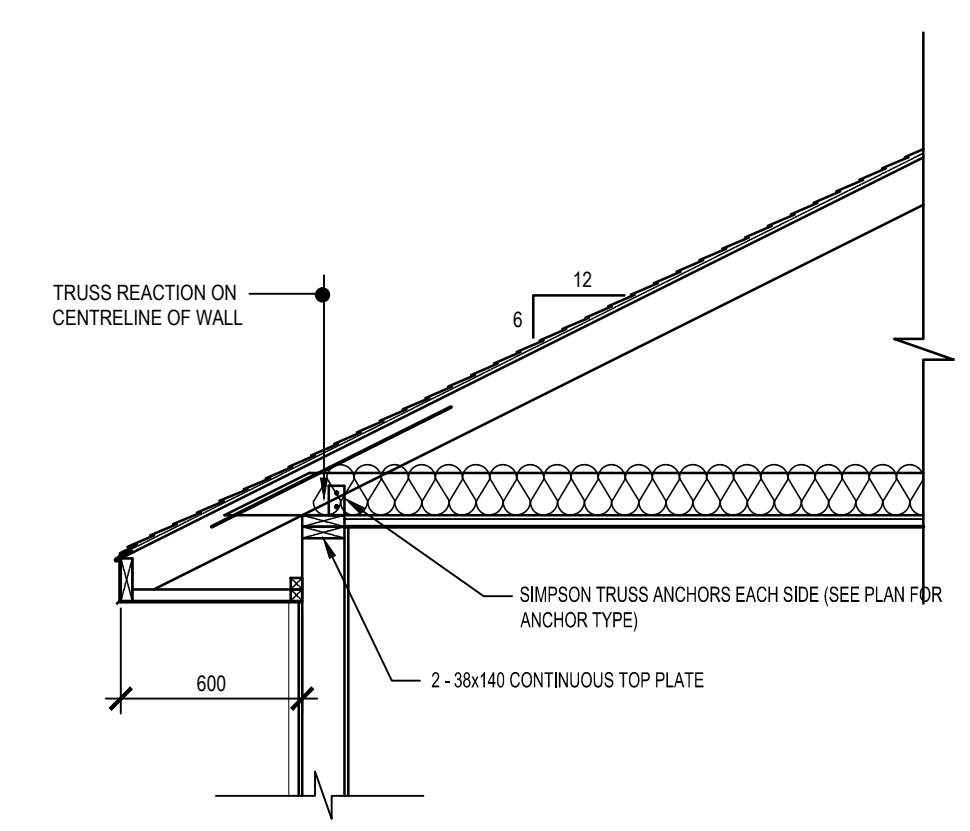
Approved by / Approuve par
BF Date 10/17/16

Checked by/ Verifie par
BF Date 10/17/16

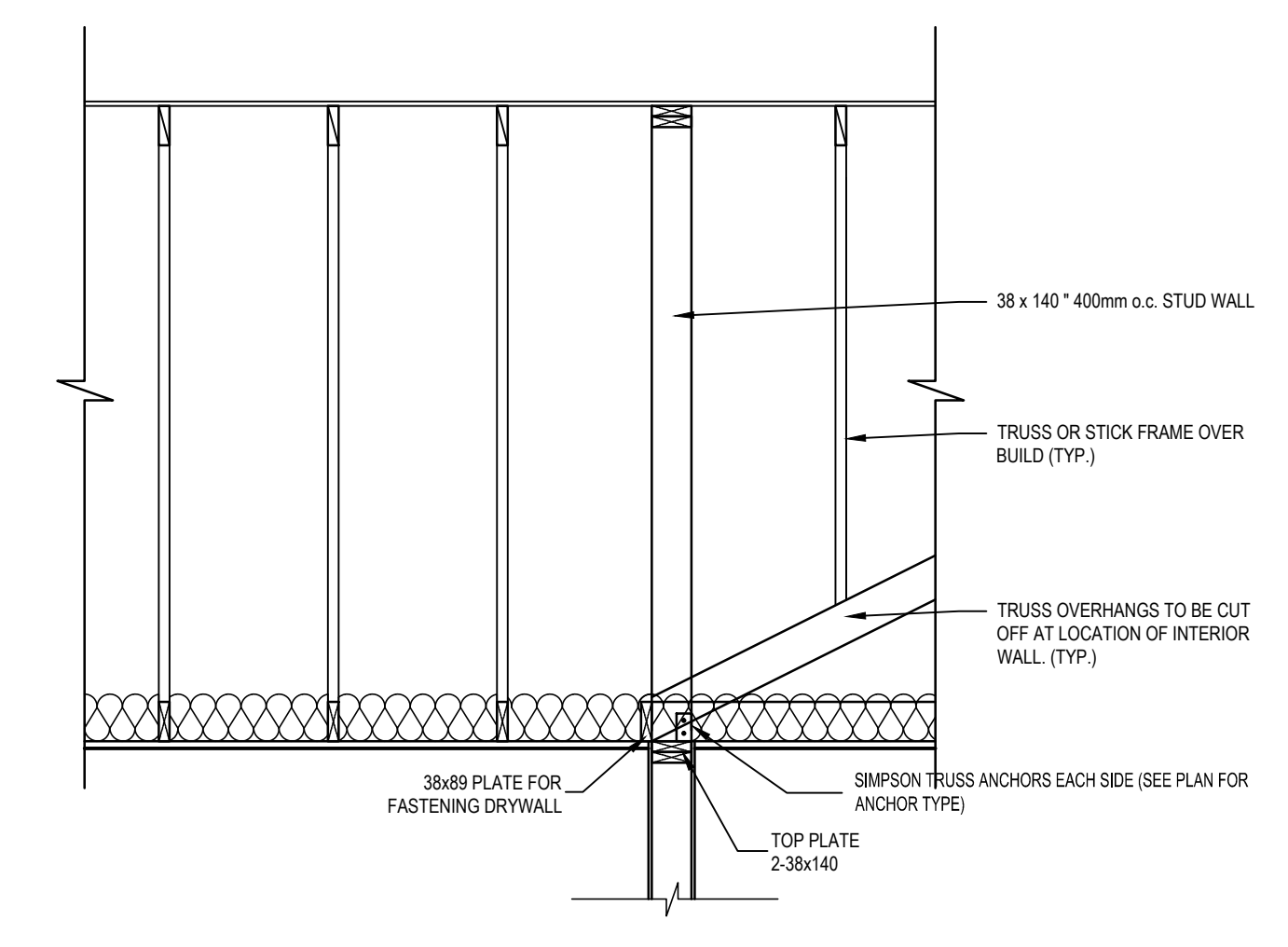
Project No./ No. du projet: PRO000812
Asset No.:
Sheet No./ Feuille No.: **S1.5**



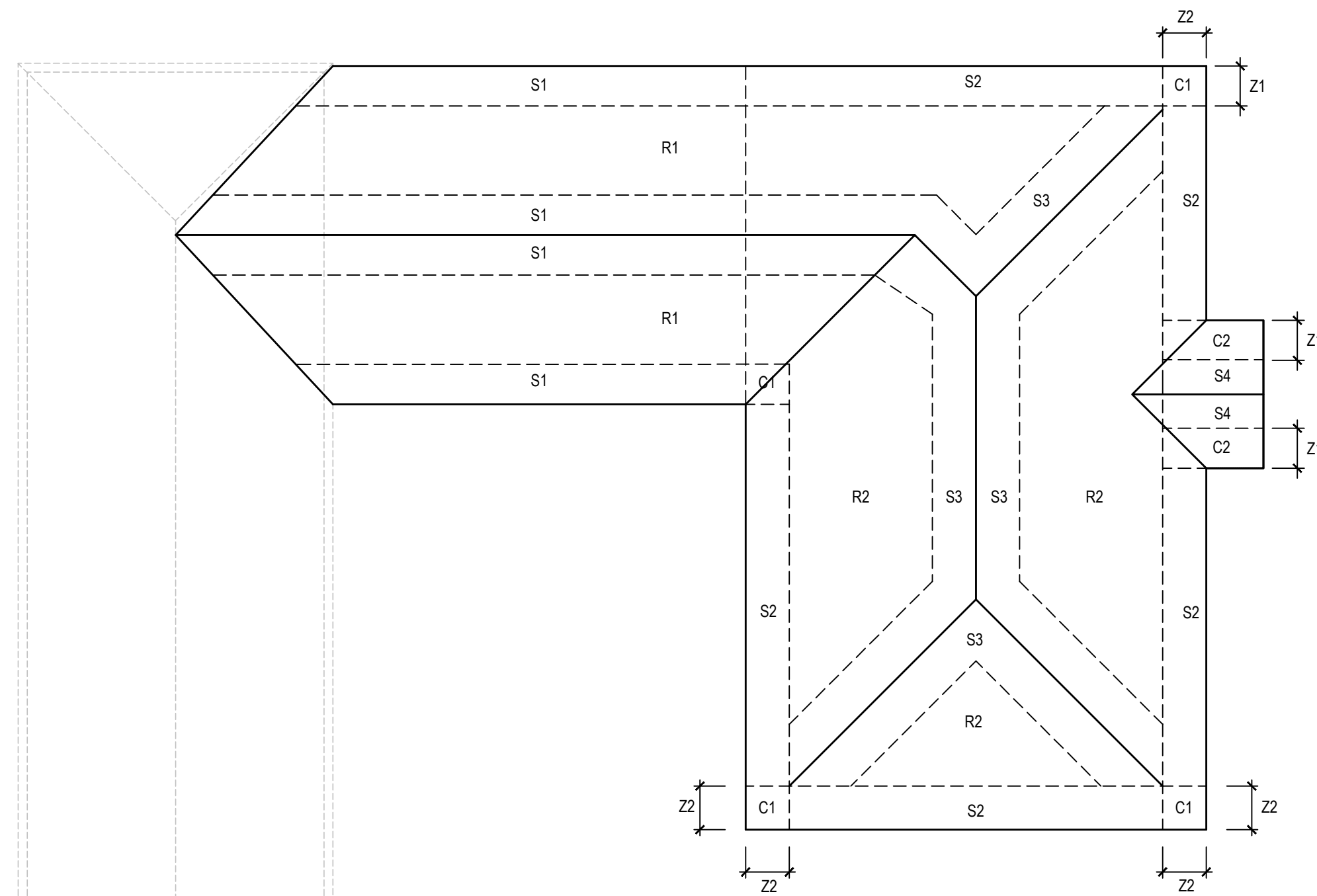
LONGITUDINAL TRUSS BRACING
NTS



TYPICAL TRUSS BRACING DETAIL
NTS



INTERIOR GABLE DETAIL
NTS

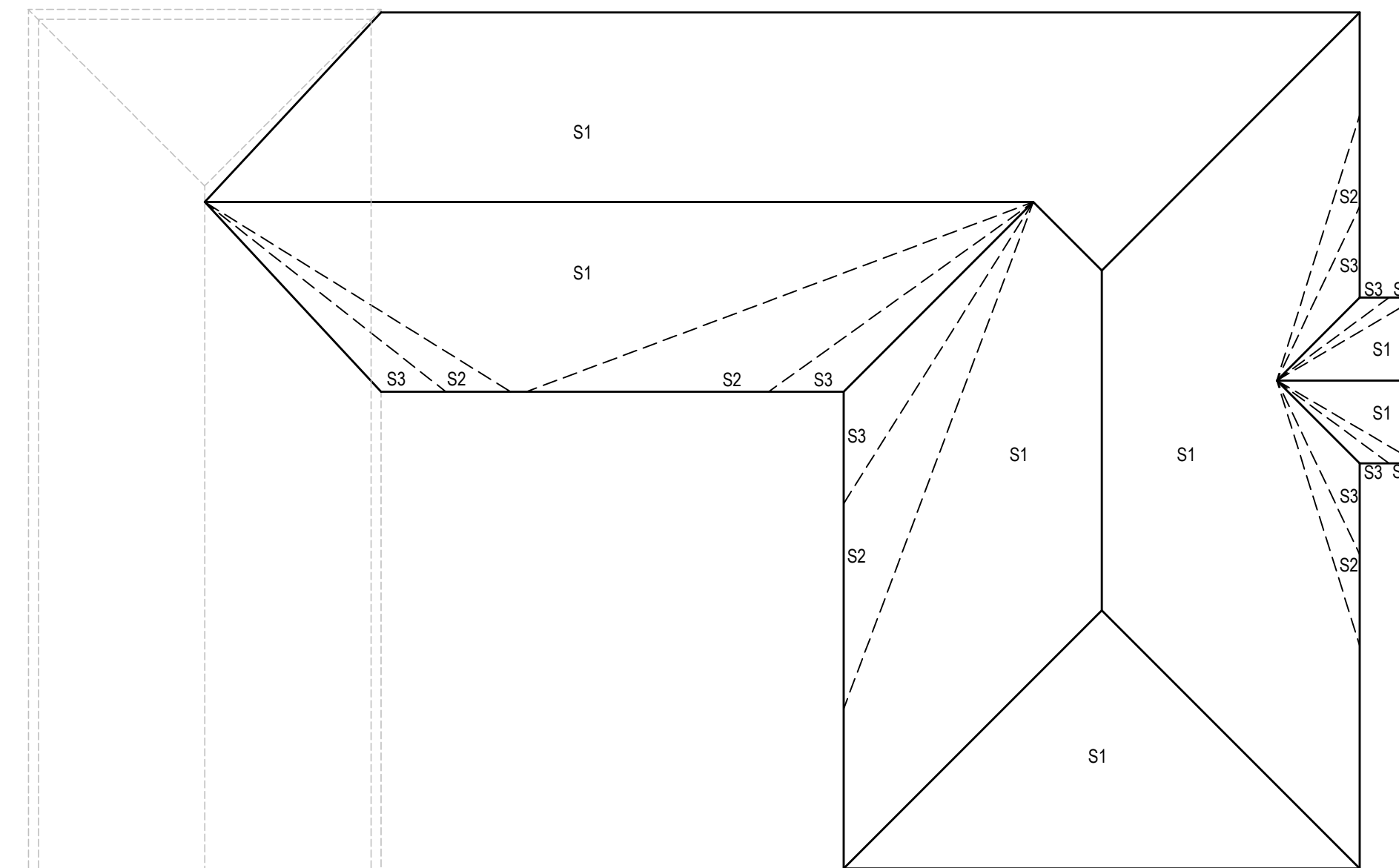


ZONE	DOWNFORCE (kPa)	UPLIFT (kPa)
R1	1.22	-1.23
R2	0.87	-1.02
C1	0.93	-1.27
C2	0.93	-2.03
S1	1.21	-1.35
S2	0.89	-1.18
S3	0.87	-1.14
S4	0.89	-1.18

Z1 = 1.00m
Z2 = 1.09m

ROOF SPECIFIED DESIGN WIND LOADING PLAN

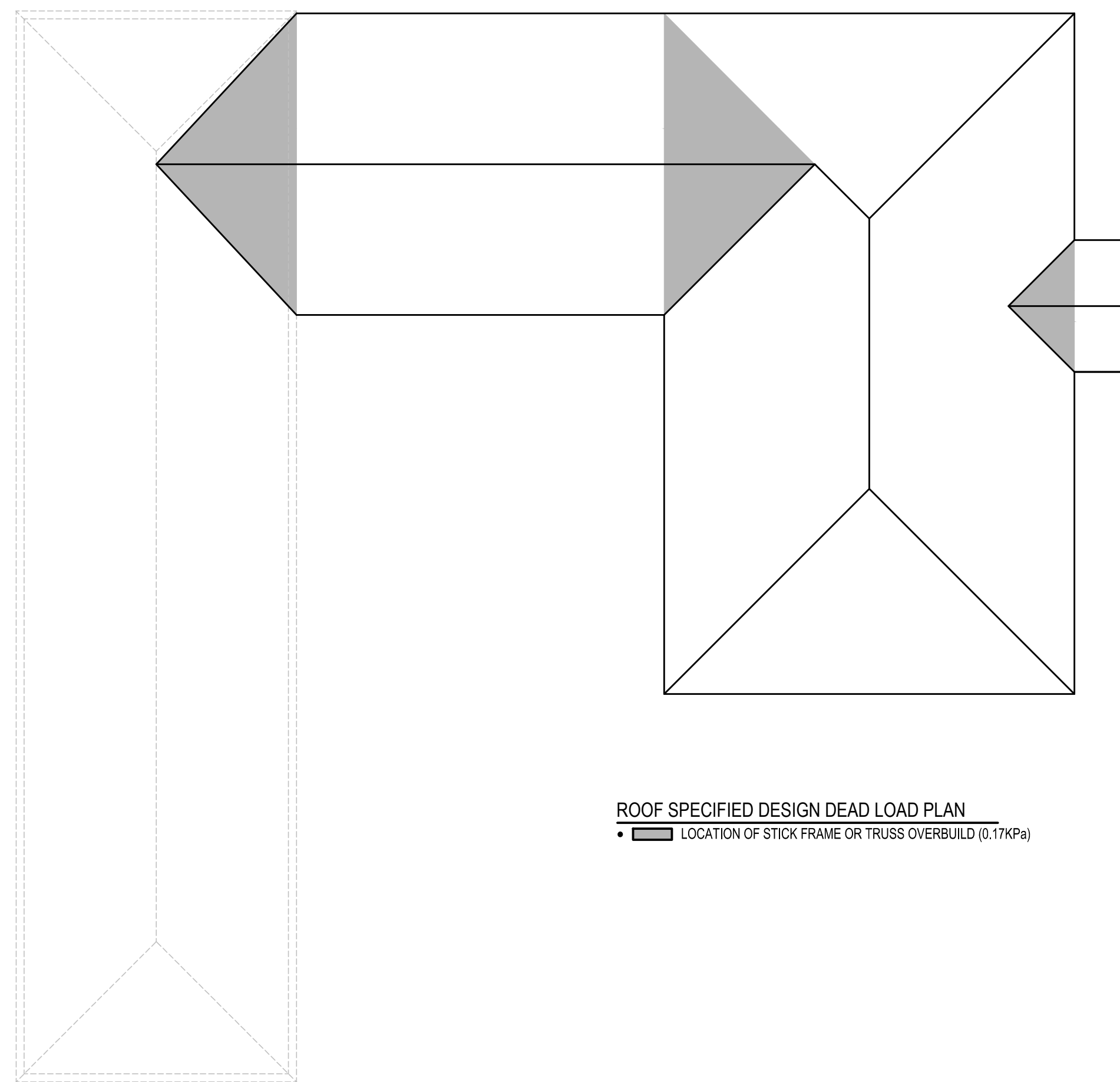
- LOADING SHOWN ABOVE INCLUDES INTERIOR PRESSURE AND ACCOUNTS FOR GUSTING.
- UNBALANCED LOADING IS NOT SHOWN AND MUST ALSO BE CONSIDERED IN ROOF TRUSS DESIGN
- DIAGRAMS ABOVE ARE SCHEMATIC ONLY AND ARE NOT TO BE SCALED.



SNOW LOADS (kPa)
S1=1.04
S2=1.20
S3=1.60

ROOF SPECIFIED DESIGN SNOW LOADING PLAN

- LOADING SHOWN ABOVE INCLUDES ASSOCIATED RAIN LOADS
- UNBALANCED LOADING IS NOT SHOWN AND MUST ALSO BE CONSIDERED IN ROOF TRUSS DESIGN
- DIAGRAMS ABOVE ARE SCHEMATIC ONLY AND ARE NOT TO BE SCALED.



ROOF SPECIFIED DESIGN DEAD LOAD PLAN

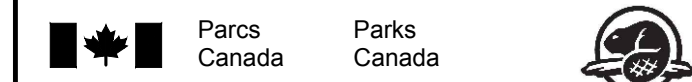
- LOCATION OF STICK FRAME OR TRUSS OVERBUILD (0.17kPa)

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REVISIONS

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Linear dimensions in millimeters / Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet

**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

**ROOF TRUSS PLAN
AND DETAILS**

Plot Scale / Echelle
NTS

Drawn by/ Dessine par: EM, Date: 10/17/16

Field Recording by /
Releve-Terminé par: N/A, Date: N/A

Approved by / Approuve par: BF, Date: 10/17/16

Checked by/ Verifie par: BF, Date: 10/17/16

Project No./ No. du projet: PRO000812, Asset No., Sheet No./
Feuille No.

Drawing Re No./No. du Dessin: 1, **S1.6**

HVAC SYMBOLS	
SYMBOL	DESCRIPTION
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	RETURN AIR DUCT FROM BELOW
	EXHAUST AIR DUCT UP
	EXHAUST AIR DUCT DOWN
	EXHAUST AIR DUCT FROM BELOW
	EXHAUST AIR GRILLE
	ROUND DUCT/PIPE UP
	ROUND DUCT/PIPE DOWN
	ROUND DUCT/PIPE FROM BELOW
	ROUND DUCT TAKE-OFF FROM RECTANGULAR DUCT
	RECTANGULAR DUCT TAKE-OFF FROM RECTANGULAR DUCT
	AIRFLOW / PIPE FLOW DIRECTION
	AIRFLOW DIRECTION
	AIRFLOW DIRECTION
	AIRFLOW DIRECTION
	NEW DUCT (DIMENSION SHOWN)
	RECTANGULAR SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST/RETURN AIR GRILLE
	SUPPLY AIR REGISTER/GRILLE
	25mm INTERNALLY ACOUSTICALLY LINED DUCT
	FLEXIBLE DUCT (SIZE TO MATCH DIFFUSER NECK SIZE) - 3.0m LONG MAXIMUM OR AS SPECIFIED (WHICHEVER IS SHORTER)
	FLEXIBLE CONNECTION
	VAV BOX c/w SILENCER
	VAV CONTROLLER (LEFT OR RIGHT SIDE - REFER TO DRAWINGS)
	SUPPLY AIR FLOW (CFM)
	VAV BOX SIZE (mm)
	CONTROL WIRING
	LINE VOLTAGE THERMOSTAT
	ELECTRIC CABINET HEATER
	WALL FIN HEATER - 48" DENOTES FINNED LENGTH AND 5.6 DENOTES HEAT OUTPUT IN KW
	ACCESS DOOR
	RETURN AIR OPENING IN WALL ABOVE FINISHED CEILING
	DOOR GRILLE FOR TRANSFER AIR
	OPEN ENDED DUCT CONNECT TO EXISTING SUPPLY AIR
	AIR FLOW DIRECTION
	LOUVER
	EQUIPMENT DESIGNATION (AHU, FANS, FAN COIL UNITS ETC.)
	EXISTING PIPING
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	BRANCH OFF TOP OF MAIN
	BRANCH OFF BOTTOM OF MAIN
	ISOLATING/GATE VALVE
	CHECK VALVE
	STRAINER
	BUTTERFLY VALVE
	FIRE DAMPER
	BALANCING DAMPER (VOLUME)
	DUCT BREAK LINE
	SINGLE LINE DUCT / PIPE BREAK
	DOUBLE-LINE DUCT / PIPE BREAK
	PIPE SLEEVE
	PIPE END CAP (THREADED)
	PIPE WATER FLOW IN GPM/LS
	THERMOMETER
	PRESSURE RELIEF VALVE
	PRESSURE GAUGE
	PIPE ANCHOR
	RECESSED FIRE EXTINGUISHER CABINET (c/w FIRE EXTINGUISHER) TYPE 11

PLUMBING SYMBOLS	
SYMBOL	DESCRIPTION
	EXISTING PIPING
	EXISTING PIPING REMOVED
	SANITARY DRAIN (ABOVE FLOOR LEVEL)
	SANITARY DRAIN (UNDERGROUND OR BELOW FLOOR SLAB)
	STORM DRAIN (ABOVE FLOOR LEVEL)
	STORM DRAIN (UNDERGROUND OR BELOW FLOOR LEVEL)
	PITCH (INDICATES SLOPE)
	CONDENSATE DRAIN
	SANITARY VENT
	NATURAL GAS (WITH GAS PRESSURE INDICATED: "wc, 2#, 5# ETC.)
	GAS VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
	PIPE DOWN
	PIPE UP
	ISOLATING VALVE
	FLOOR DRAIN
	FUNNEL FLOOR DRAIN
	HUB DRAIN
	CONNECT TO EXISTING
	DENOTES TYPE OF FIXTURE AS PER SPECIFICATION (TYPICAL FOR EACH PLUMBING FIXTURE)
	CATCH BASIN
	TRENCH DRAIN c/w FRAME
	HOSE BIBB
	NON-FREEZE HOSE-BIBB
	P-TRAP
	CLEANOUT (END OF PIPE)
	CLEANOUT (GRADE OR FLOOR LEVEL)
	BACKFLOW PREVENTER
	BACK WATER VALVE (DRAINAGE)
	GAS METER
	MANHOLE

MECHANICAL DRAWING LIST	
DRAWING NO.	DESCRIPTION
M-0	DRAWING LIST & LEGENDS
M-1	NEW HVAC - PLAN
M-2	NEW PLUMBING & FIRE PROTECTION - PLAN
M-3	MECHANICAL SPECIFICATION I
M-4	MECHANICAL SPECIFICATION II
M-5	MECHANICAL EQUIPMENT SCHEDULES
M-6	MECHANICAL DETAILS

ARCHITECTURE 49

605-75 WATER ST N.
CAMBRIDGE ONTARIO CANADA N1R 7L6
TEL: 226-765-0800 | FAX: 519-740-6104 | ARCHITECTURE49.COM



MMM Group Limited
582 Lancaster St W
Kitchener, ON N2K 1M3
T: 519-743-8777
F: 519-743-8778
www.mmm.ca

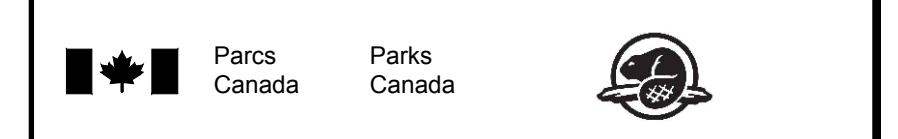


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2	11/23/16	ISSUED FOR TENDER	MH	AB
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REVISIONS

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Linear dimensions in millimeters / Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
DRAWING LIST AND LEGENDS

Plot Scale / Echelle
1:50

Drawn by/ Dessine par
MH
Date
11/07/16

Field Recording by / Releve-Temoin par
N/A
Date
N/A

Approved by / Approuve par
AB
Date
11/07/16

Checked by/ Verifie par
SA
Date
11/07/16

Project No./ No. du projet
PRO000812
Asset No.
Sheet No./ Feuille No.

Drawing Re No./No. du Dessin
1
M-0

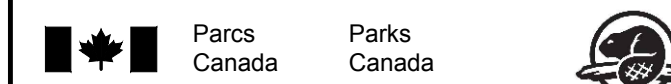


NO.	DATE	DESCRIPTION	Drawn by	Approved
3	11/23/16	ISSUED FOR TENDER	MH	AB
2	11/07/16	ISSUED FOR 95% REVIEW	MH	AB
1	10/21/16	ISSUED FOR 50% REVIEW	MH	AB

REVISIONS

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**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

NEW HVAC - PLAN

Plot Scale / Echelle

1:50

Drawn by/ Dessine par Date
MH 10/13/16

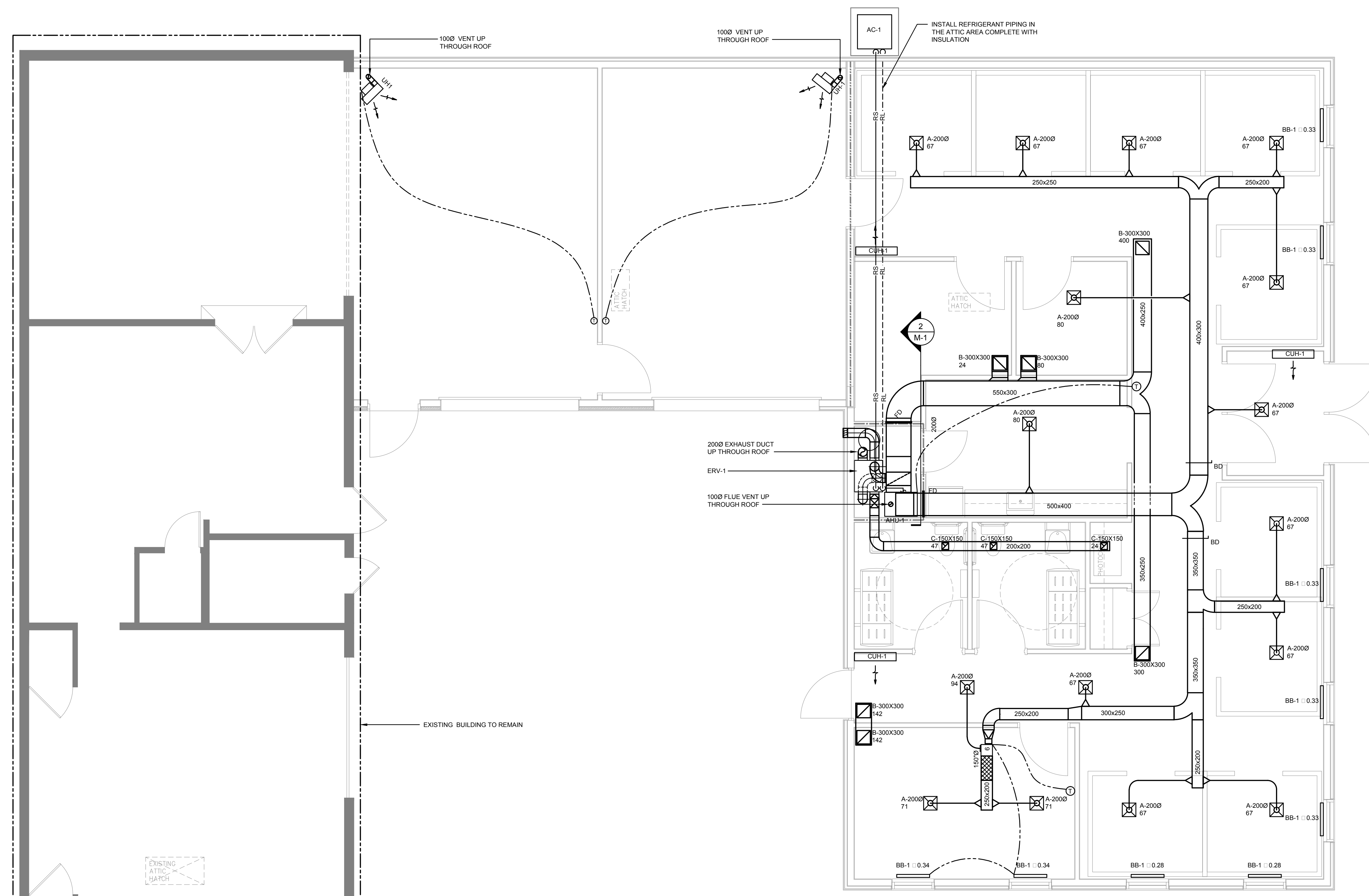
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AB 10/13/16

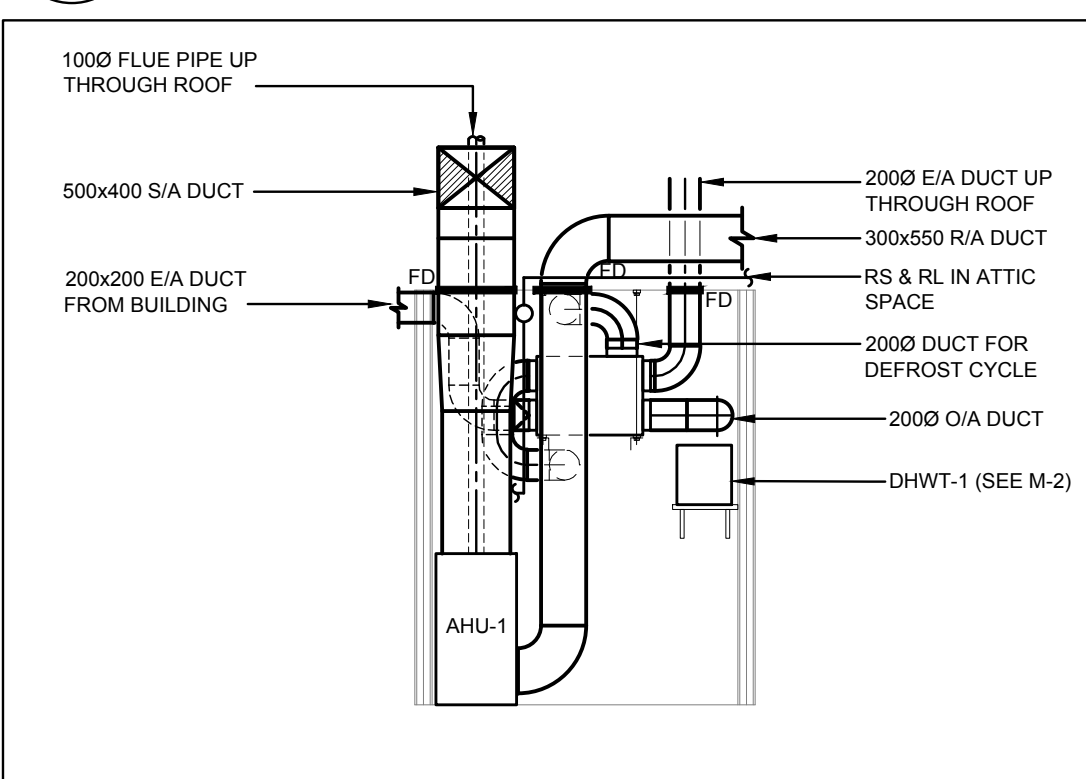
Checked by/ Verifie par Date
SA 10/13/16

Project No./ No. du projet Asset No. Sheet No./
PRO000812 Feuille No.

Drawing Re No./No. du Dessin M-1
1



1 NEW PLAN - HVAC
M-1 1:50



2 MECHANICAL ROOM SECTION
M-1 1:50



1. GENERAL:

- 1.1. BASE BUILDING STANDARDS AND SPECIFICATIONS SHALL BE THE BASIS FOR THIS CONSTRUCTION.
- 1.2. MEET THE REQUIREMENTS OF PCA (C2) DESIGN CRITERIA AND CONSTRUCTION MANUAL.
- 1.3. ALL WORK AND EQUIPMENT PROVIDED SHALL BE IN COMPLIANCE WITH GOVERNING AUTHORITIES AND APPLICABLE CODES, WHERE GOVERNING FEDERAL, PROVINCIAL, AND MUNICIPAL CODES AND REGULATIONS ARE AT VARIANCE WITH THE DRAWINGS AND/OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT WILL APPLY.
- 1.4. COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE.
- 1.5. CONTACT CONSULTANT 48 HOURS BEFORE REINSTALLATION OF CEILINGS TO PERFORM A FINAL REVIEW.
- 1.6. DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATICAL ONLY AND DO NOT SHOW ALL THE MECHANICAL, ELECTRICAL, STRUCTURAL AND CONSTRUCTION DETAILS. CAREFULLY EXAMINE DOCUMENTS AND VISIT SITE TO DETERMINE AND REVIEW EXISTING SITE CONDITIONS THAT WILL OR MAY AFFECT WORK, AND INCLUDE FOR SUCH CONDITIONS IN BID PRICE. ALL POINTS OF DISCONNECTION AND RECONNECTION SHOWN ARE FOR GENERAL INTENT ONLY. PROVIDE OFFSETS, FITTINGS, TRANSFORMATIONS, AND SIMILAR PRODUCTS REQUIRED AS A RESULT OF OBSTRUCTIONS AND OTHER ARCHITECTURAL AND STRUCTURAL DETAILS BUT NOT SHOWN ON DRAWINGS. VERIFY ALL SPACES IN WHICH EQUIPMENT, DUCTWORK, AND PIPING ARE TO BE LOCATED. FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS. UPON FINDING DISCREPANCIES IN, OR OMISSIONS FROM DOCUMENTS, OR HAVING DOUBT AS TO THEIR MEANING OR INTENT, IMMEDIATELY NOTIFY CONSULTANT, IN WRITING, BEFORE SUBMITTING BID.
- 1.7. BEFORE ANY EQUIPMENT IS ROUGHED IN, DETERMINE ITS INTENDED LOCATION FROM THE DRAWINGS AND COORDINATE ITS FINAL LOCATION WITH NEW AND EXISTING SERVICES AND STRUCTURAL CONDITIONS. IF IT IS NOT SHOWN ON THE DRAWINGS, VERIFY FINAL LOCATION ON SITE. LOCATIONS OF NEW AND EXISTING SERVICES ARE APPROXIMATE ONLY. LOCATIONS OF EQUIPMENT AND MATERIALS SHOWN MAY BE ALTERED, WHEN REVIEWED BY CONSULTANT, TO MEET REQUIREMENTS OF EQUIPMENT AND/OR MATERIALS, OTHER EQUIPMENT OR SYSTEMS BEING INSTALLED, AND OF BUILDING, ALL AT NO ADDITIONAL COST TO CONTRACTOR. ENSURE THAT ALL EQUIPMENT (NEW AND EXISTING) IS FULLY ACCESSIBLE FOR MAINTENANCE - FAILURE TO DO SO WILL NOT BE GROUNDS FOR ADDITIONAL COSTS. CONCEAL ALL SERVICES IN WALLS, CEILING SPACE, AND FLOOR SPACE UNLESS OTHERWISE STATED.
- 1.8. OBTAIN PERMITS FROM THE MUNICIPALITY AND UTILITIES TO COMPLETE YOUR WORK. UPON COMPLETION OF YOUR WORK, SUPPLY AND TURN OVER TO THE MECHANICAL CONSULTANT INSPECTION CERTIFICATES FROM GOVERNING AUTHORITIES TO CERTIFY THAT THE INSTALLED WORK MEETS THE REQUIREMENTS OF THE RULES AND REGULATIONS OF GOVERNING AUTHORITIES. PAY FOR (INCLUDING ALL SALES TAXES) ALL PERMITS, FORMS, AND INSPECTIONS REQUIRED.
- 1.9. WHEN DISCREPANCY EXISTS WITHIN DRAWINGS AND/OR SPECIFICATION, INCLUDE MOST COSTLY ARRANGEMENT TO TAKE PRECEDENCE.
- 1.10. SUPPLY ALL LABOUR, MATERIALS, TOOLS, SERVICES, EQUIPMENT, TRANSPORTATION, AND TESTING REQUIRED FOR THE SUPPLY AND INSTALLATION TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.
- 1.11. PROVIDE ALL CUTTING, PATCHING, FLASHING WORK, AND CLEAN-UP OF FLOORS, WALLS, AND CEILINGS REQUIRED FOR THE WORK.
- 1.12. ALL MATERIALS IN CEILING SPACE SHALL CONFORM TO ONTARIO BUILDING CODE SECTION #3.6.4.3.
- 1.13. IDENTIFY ALL EQUIPMENT, DUCTS, VALVES, PIPES, ETC. TO BASE BUILDING STANDARDS.
- 1.14. SUPPLY ALL ACCESS DOORS/PANELS IN CEILINGS OR WALLS WHERE REQUIRED FOR ACCESS TO MECHANICAL EQUIPMENT THAT REQUIRES MAINTENANCE (BALANCING DAMPERS, FIRE DAMPERS, FAN COILS, VAN BOX CONTROLS, ETC.). FOR INSTALLATION BY GENERAL TRADES, CONTRACTOR SHALL MINIMIZE QUANTITY OF ACCESS PANELS/DOORS BY GROUPING TOGETHER BALANCING DAMPERS AND VALVES. COORDINATE WITH ALL TRADES TO MINIMIZE ACCESS DOOR/PANELS REQUIREMENTS. EQUIPMENT REQUIRING ACCESS SHALL BE CLEARLY IDENTIFIED BY PROJECT MANAGER AND BASE BUILDING OPERATOR BEFORE DRYWALL CEILING/WALL INSTALLATION. ACCESS DOORS/PANELS SHALL BE MILCOR OR LEHAGE OR EQUIVALENT, AND MUST BE COMPATIBLE WITH CEILING/WALL TYPE AND FINISH. FINISH SHALL SUIT ARCHITECT'S/INTERIOR DESIGNER'S REQUIREMENTS. PROVIDE 1-1/2 HOUR FIRE RATED DOOR/PANEL WHERE REQUIRED. COORDINATE ACCESS DOOR/PANEL LOCATIONS AND SIZES WITH OWNER/LANDLORD, BASE BUILDING OPERATOR, ARCHITECT/INTERIOR DESIGNER, AND PROJECT MANAGER. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.
- 1.15. PROVIDE FLASHING AND COUNTER FLASHING FOR EXTERIOR PENETRATIONS OR WATERPROOFED FLOORS.
- 1.16. COORDINATE WITH ALL TRADES INSTALLING EQUIPMENT WHICH MAY AFFECT THE MECHANICAL WORK AND ARRANGE THE WORK IN PROPER RELATION WITH EQUIPMENT INSTALLED UNDER ALL DIVISIONS OF THE CONTRACT.
- 1.17. FOR THE PRODUCTION OF AS-BUILT DOCUMENTS, OBTAIN ACAD DRAWING FILES AND WSP/MMM GROUP "CTB" FILE (FOR PLOTTING CORRECT LINE THICKNESS). WHEN WORK BEGINS ON SITE, MAINTAIN THE "AS-BUILT" WHITE PRINTS AT THE SITE FOR PERIODIC INSPECTION BY THE MECHANICAL CONSULTANT THROUGHOUT THE DURATION OF THE WORK. PAY PARTICULAR ATTENTION TO ACCURATELY DIMENSIONING THE LOCATION OF ALL CONCEALED SERVICES TERMINATED FOR FUTURE, ALL BURIED WORK AND SERVICES, AND CONCEALED WORK. CLEARLY AND ACCURATELY MARK-UP ALL CHANGES AND DEVIATIONS FROM THE ROUTING OF PIPING AND DUCTWORK AND LOCATIONS OF EQUIPMENT SHOWN ON THE CONTRACT DRAWINGS. CHANGES AND DEVIATIONS INCLUDE THOSE MADE BY ADDENDA, CHANGE ORDERS, AND SITE INSTRUCTIONS, BEFORE APPLYING FOR A CERTIFICATE OF COMPLETION. UPDATE AUTOCAD DISK SET(S) IN ACCORDANCE WITH THE MARKED UP "AS-BUILT" WHITE PRINTS. SUBMIT THE "AS-BUILT" SITE DRAWING WHITE PRINTS, WHITE PRINTS PRODUCED FROM THE DISK SET(S), AND DRAWING DISK SET(S) USING WSP/MMM GROUP "CTB" FILE TO THE MECHANICAL CONSULTANT FOR REVIEW. UPON COMPLETION OF THE WORK, SUBMIT THE COMPLETED "AS-BUILT" DRAWINGS (PLOTTED WITH WSP/MMM GROUP "CTB" FILE FOR CORRECT LINE THICKNESS), TRANSPARENCIES, AUTOCAD FILES, AND BUILDING INSPECTION DEPARTMENT'S FINAL CERTIFICATE OF APPROVAL TO THE MECHANICAL CONSULTANT AND OWNER/LANDLORD. "AS-BUILT" DRAWINGS SHALL CONTAIN THE CONTRACTOR'S NAME AND DATE. FAILURE TO PLOT DRAWINGS WITH THE CORRECT LINE THICKNESS WILL RESULT IN REJECTION.
- 1.18. ARRANGE AND SCHEDULE ALL WORK IN A MANNER WHICH WILL NOT INTERFERE WITH NORMAL OPERATION OF THE EXISTING BUILDING. ALL SHUTDOWNS OF ANY PORTION OF EXISTING BASE BUILDING SYSTEMS SHALL BE PERFORMED BY THE OWNER'S/LANDLORD'S BUILDING OPERATIONS STAFF AND/OR COORDINATED WITH THE OWNER/LANDLORD FOR TIME AND DURATION OF INTERRUPTIONS.
- 1.19. ENSURE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND INSTRUCTIONS ARE FOLLOWED UNLESS OTHERWISE NOTED HEREIN OR ON THE DRAWINGS, UNLESS SUCH INSTRUCTIONS AND RECOMMENDATIONS CONTRADICT GOVERNING CODES AND REGULATIONS.
- 1.20. WHERE STANDARDS OF THE WORK ARE SPECIFIED OR IMPLIED AND THE WORK DOES NOT COMPLY WITH THE PERFORMANCE SPECIFIED OR IMPLIED, SUCH DEFICIENCY SHALL BE CORRECTED AS DIRECTED BY THE MECHANICAL CONSULTANT. ANY SUBSEQUENT TESTING TO VERIFY PERFORMANCE SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. ANY CHARGES FOR THE OWNER'S/LANDLORD'S STAFF, THE MECHANICAL CONSULTANT OR OTHER PERSONNEL RELATED TO SUCH RETESTING, SHALL ALSO BE AT THE CONTRACTOR'S EXPENSE.
- 1.21. INCLUDE COST OF PREMIUM TIME IN TENDER PRICE FOR WORK DURING NIGHTS, WEEKENDS, OR OTHER TIME OUTSIDE NORMAL WORKING HOURS NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATION. NOTE THAT OWNER/LANDLORD WILL CONTINUE TO OPERATE DURING OFFICE HOURS, THEREFORE CERTAIN AREAS/WORK WILL BE RESTRICTED TO IRREGULAR HOURS. ALL WORK IN ADJACENT TENANT'S SPACE AND IN CEILING SPACE BELOW SHALL BE DONE AFTER NORMAL OFFICE HOURS AND COORDINATED WITH PROJECT MANAGER, OWNER/LANDLORD, AND ADJACENT TENANT.
- 1.22. PROVIDE ELECTRONIC (PDF) COPIES OF PROPER SHOP DRAWINGS OF ALL SPECIFIED PRODUCTS AND SUBMIT FOR APPROVAL TO THE ARCHITECT/INTERIOR DESIGNER AND MECHANICAL CONSULTANT, FOLLOWING REVIEW AND APPROVAL BY CONTRACTOR (PROVIDE REVIEW STAMP). EQUIVALENT EQUIPMENT MAY BE PROPOSED BEFORE COMMENCEMENT OF WORK, PROVIDING THE QUALITY AND PERFORMANCE CHARACTERISTICS ARE EQUAL OR BETTER TO THE SPECIFIED PRODUCTS. THE USE OF EQUIVALENT EQUIPMENT IS SUBJECT TO THE APPROVAL OF THE MECHANICAL CONSULTANT AND ARCHITECT/INTERIOR DESIGNER, AND ON SATISFACTORY SUBMISSION OF DETAILED SHOP DRAWINGS. ALLOW ONE (1) WEEK FOR MECHANICAL CONSULTANT'S REVIEW. INCLUDE ONE (1) SET OF APPROVED SHOP DRAWINGS WITH OPERATION AND MAINTENANCE MANUAL (SEE BELOW). APPLICABLE MECHANICAL EQUIPMENT SHALL BE SELECTED TO MEET ENERGY EFFICIENCY REQUIREMENTS OF ANSI/ASHRAE'S 90.1, ENERGY STANDARDS FOR BUILDINGS, SHOP DRAWINGS/PRODUCT DATA SUBMITTALS FOR SUCH EQUIPMENT MUST INDICATE COMPLIANCE WITH THIS STANDARD OR THEY WILL BE RETURNED FOR CORRECTION AND RE-SUBMITTAL.
- 1.23. FOLLOWING IS TO BE READ IN CONJUNCTION WITH WORDING ON CONSULTANT'S SHOP DRAWING REVIEW STAMP APPLIED TO EACH AND EVERY SHOP DRAWING OR PRODUCT DATA SHEET SUBMITTED: "THIS REVIEW BY CONSULTANT IS FOR SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH GENERAL DESIGN CONCEPT. THIS REVIEW DOES NOT MEAN THAT CONSULTANT APPROVES DETAIL DESIGN INHERENT IN SHOP DRAWINGS. RESPONSIBILITY FOR WHICH REMAINS WITH CONTRACTOR. CONSULTANT'S REVIEW DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS OR OF CONTRACTOR'S RESPONSIBILITY FOR MEETING REQUIREMENTS OF CONTRACT DOCUMENTS. BE RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT JOB SITE, FOR INFORMATION THAT PERTAINS SOLELY TO FABRICATION PROCESSES OR TO TECHNIQUES OF CONSTRUCTION AND INSTALLATION, AND FOR COORDINATION OF WORK OF SUB-TRADES."
- 1.24. IN ALL AREAS REQUIRING TRENCHING OR CORE DRILLING THROUGH EXISTING FLOOR SLAB FOR PLUMBING SERVICES, ALLOW FOR ALL NECESSARY RADIOGRAPHY TO LOCATE HIDDEN ELECTRICAL SERVICES, STRUCTURAL REINFORCING, ETC., AND INCLUDE ALL COSTS IN TENDER PRICE. COORDINATE THIS WORK WITH THE OWNER/LANDLORD AND/OR TENANT COORDINATOR REGARDING SCHEDULING, AND ADHERE TO THE OWNER'S/LANDLORD'S REQUIREMENTS. SUBMIT CORE DRILLING PLAN TO BASE BUILDING STRUCTURAL ENGINEER FOR THEIR REVIEW. OBTAIN WRITTEN APPROVAL FROM STRUCTURAL ENGINEER AND LANDLORD BEFORE COMMENCING WORK.
- 1.25. PROVIDE PCA (C2) A WRITTEN WARRANTY OF MINIMUM ONE (1) YEAR FOR THE COMPLETE MECHANICAL INSTALLATION FROM DATE OF ACCEPTANCE, INCLUDING ALL LABOUR, MATERIALS, AND EQUIPMENT IN THIS CONTRACT. REPAIR AND/OR REPLACE DEFECTS WHICH APPEAR IN YOUR WORK WITHIN THE WARRANTY PERIOD, ORDINARY WEAR AND TEAR AND WILLFUL DAMAGE BY OR CARELESSNESS OF THE OWNER'S STAFF OR AGENTS EXCEPTED, WITHOUT ADDITIONAL EXPENSE TO THE OWNER. WHERE SUCH DEFECTS OCCUR, BE RESPONSIBLE FOR ALL COSTS INCURRED IN MAKING DEFECTIVE WORK GOOD, INCLUDING REPAIR OR REPLACEMENT OF BUILDING FINISHES, OTHER MATERIALS, OR DAMAGE TO OTHER EQUIPMENT CAUSED BY SUCH DEFECTS, OR BY SUBSEQUENT REPLACEMENT AND REPAIRS.
- 1.26. PROVIDE THREE (3) OPERATING AND MAINTENANCE MANUALS (3 HARD COPIES & 1 DIGITAL COPY) CONTAINING AS BUILT DRAWINGS, APPROVED SHOP DRAWINGS, AIR AND WATER BALANCING REPORTS, EQUIPMENT DATA SHEETS, WRITTEN WARRANTY, NFPA-13 INSTALLATION CONFORMANCE LETTER, OPERATING INSTRUCTIONS, MAINTENANCE PROCEDURES, FIRE STOPPING COMPLETENESS LETTER, TEST REPORTS, AND CONTACT LIST OF CONTRACTORS AND SUPPLIERS (WITH PHONE NUMBERS) TO THE LANDLORD/OWNER. MANUALS SHALL BE IN A THREE-RING BINDER SEPARATED WITH DIVIDERS IN APPROPRIATE SECTIONS. BEFORE PROVIDING LANDLORD/OWNER WITH BINDERS, SUBMIT ELECTRONIC COPY (PDF) OF COMPLETE PACKAGE TO MECHANICAL CONSULTANT FOR REVIEW. MAKE ALL CORRECTIONS REQUESTED BY MECHANICAL CONSULTANT AND RESUBMIT COMPLETE PACKAGE FOR REVIEW.
- 1.27. CHANGE NOTICE QUOTATIONS FOR EXTRA OR DELETED WORK SHALL BE SUBMITTED COMPLETE WITH ITEMIZED COST BREAKDOWN OF LABOUR AND MATERIALS. FAILURE TO PROVIDE WILL RESULT IN REJECTION. ALL MECHANICAL CHANGE NOTICES SHALL BE PRICED IN ACCORDANCE WITH "MECHANICAL CONTRACTORS ASSOCIATION" AND "ALL PRICERY". LESS 25% DISCOUNT FOR LABOUR COST. COST OF SITE SUPERINTENDENT SHALL NOT EXCEED 10% OF TOTAL HOURS OF LABOUR ESTIMATED FOR CHANGE OR REVISION. ALLOWABLE MAXIMUM PERCENTAGES FOR OVERHEAD AND PROFIT SHALL BE 7% AND 5% RESPECTIVELY.
- 1.28. TEMPORARY 1" THICK FILTERS SHALL BE PROVIDED AT ALL BASE BUILDING RETURN AIR OPENINGS WHICH REMAIN OPERATIONAL DURING CONSTRUCTION, AND SHALL BE REPLACED WEEKLY REMOVE UPON CONSTRUCTION COMPLETION. UPON COMPLETION OF WORK, INFORM BUILDING MAINTENANCE THAT ALL BASE BUILDING HVAC EQUIPMENT ON FLOOR SHOULD HAVE FILTERS REPLACED.
- 1.29. PROVIDE INDEPENDENT SUPPORT FOR ALL COMPONENTS OF THE INSTALLATION.
- 1.30. PROVIDE START-UP SERVICES WITH THE MANUFACTURER'S RECOMMENDATION FOR THE NEW/RELOCATED EQUIPMENT SPECIFIED.
- 1.31. WHERE REQUIRED, ALL CONTROL WORK, WIRING, DEVICES, ETC., SHALL BE PROVIDED BY THE OWNER'S/LANDLORD'S APPROVED CONTRACTOR AND PAID FOR UNDER THIS CONTRACT.

- 1.32. PROVIDE ELECTRICAL DEVICES WITH WIRING, STARTERS, DISCONNECT, ETC. VERIFY AND COORDINATE VOLTAGE AND PHASE WITH THE ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT. ALL STARTERS, CONTACTORS, RELAYS, ETC. SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL POWER WIRING (LINE VOLTAGE) SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR. ALL CONTROL WIRING (LOW VOLTAGE) SHALL BE BY THE MECHANICAL CONTRACTOR.

- 1.33. FOR THE COMPLIANCE/SUBSTANTIAL COMPLETION LETTER, SUBMIT THE FOLLOWING APPLICABLE ELECTRONIC DOCUMENTS (PDFS) AS ONE COMPLETE PACKAGE: AS-BUILT DRAWINGS, AIR AND WATER BALANCING REPORT, NFPA-13 INSTALLATION CONFORMANCE LETTER, WARRANTY, FIRE STOPPING COMPLETENESS LETTER, FIRE DAMPER TEST REPORT, GAS INSPECTOR'S CERTIFICATE, BACKFLOW DEVICE TEST REPORT, AND PERMIT NUMBER.

2. PLUMBING SYSTEMS:

- 2.1. ALL DOMESTIC WATER PIPING SHALL BE TYPE "L" COPPER CERTIFIED TO ASTM B42, WITH CAST BRASS OR WROUGHT COPPER FITTINGS. ALL JOINTS SHALL BE MADE USING 95/5 TIN-ANTIMONY SOLDER. PRESSURE TEST ALL LINES IN ACCORDANCE TO LOCAL CODES BEFORE APPLYING INSULATION.
- 2.2. DOMESTIC WATER SOFT COPPER PIPING, WHERE NOTED ON DRAWINGS, SHALL BE TYPE "L" SOFT COPPER CERTIFIED TO ASTM B88 "SEAMLESS COPPER WATER TUBE", AND SUPPLIED IN A CONTINUOUS COIL OF PROPER LENGTH WITH NO JOINTS (IF POSSIBLE). WHERE REQUIRED, JOINTS SHALL BE COMPRESSION TYPE FLARED JOINT COUPLINGS TO ANSI B16.26.
- 2.3. ALL SANITARY DRAINS AND MAIN VENT STACKS SHALL BE CAST IRON (DWV) TO CANCSA B70, COMPLETE WITH MJ JOINTS. BRANCH VENTS MAY BE COPPER TUBING, DWV SANITARY DRAINS UNDER 3" (75mm) AND CONDENSATE DRAINS MAY BE HARD TEMPERED COPPER DRAINAGE TUBE (DWV) TO ASTM B306, WITH SOLDER-JOINT DRAINAGE FITTINGS TO ASME B16.23. PROVIDE TYPE "L" COPPER DRAIN PIPING FOR URINAL DRAIN PIPING FROM URINAL DRAIN OUTLET TO CAST IRON DRAIN STACK. (DWV) PIPES ARE NOT PERMITTED FOR URINAL DRAIN PIPING.
- 2.4. VERIFY EXISTING LOCATIONS AND INVERT ELEVATIONS FOR SANITARY DRAINS ON SITE BEFORE COMMENCEMENT OF WORK.
- 2.5. UNLESS OTHERWISE NOTED, SLOPE HORIZONTAL DRAINAGE PIPING 3"Ø (75mm) AND SMALLER AT 2% SLOPE, AND PIPING LARGER THAN 3" (75mm) AT 1% SLOPE, OR AS SPECIFIED IN DRAWINGS.
- 2.6. PROVIDE CLEANOUTS SUITABLE IN ALL RESPECTS FOR THE INTENDED APPLICATION WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY CODE(S). CLEANOUTS IN PIPING 4" (100mm) AND SMALLER SHALL BE SAME SIZE AS PIPE, OTHER CLEANOUTS SHALL BE A MINIMUM 4" (100mm).
- 2.7. PROVIDE ISOLATING GLOBE VALVES ON MAIN AND/OR BRANCH LINES, AND AT ALL EQUIPMENT OR FIXTURES SERVED WITH HOT AND COLD WATER LINES. ALL VALVES SHALL BE SUITABLE FOR THE OPERATING PRESSURE OF THE SYSTEM IN WHICH THEY ARE INSTALLED. MAKE AND MODEL SHALL BE IN ACCORDANCE WITH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
- 2.8. PROVIDE BACKFLOW PREVENTORS TO EQUIPMENT CONNECTIONS c/w DRAIN TO NEAREST FUNNEL DRAIN. BACKFLOW PREVENTORS SHALL BE INSTALLED TO CSA B64.10 REQUIREMENTS, WITH MOUNTING HEIGHT 30" (750mm) TO 50" (1250mm) A.F.F.
- 2.9. PROVIDE DI-ELECTRIC COUPLINGS/UNIONS WHERE COPPER PIPING CONNECTS TO FERROUS METAL AND PLUMBING EQUIPMENT SUCH AS STEEL STORAGE TANKS, PRVS, AND/OR STEEL, BLACK IRON, CAST IRON, OR GALVANIZED IRON PIPING.
- 2.10. CHECK AND VERIFY LOCATION OF EXISTING MECHANICAL AND ELECTRICAL INTERFERENCES IN CEILING SPACE OF FLOOR BELOW INCLUDING STRUCTURAL FLOOR SLAB IN ALL AREAS REQUIRING CORE DRILLING AND/OR CUTTINGS OF FLOOR SLAB.
- 2.11. FINAL LOCATION OF ALL NEW PLUMBING FIXTURES SHALL BE COORDINATED ON SITE WITH ALL TRADES. REFER TO ARCHITECTURAL DRAWINGS AND DETAILS FOR EXACT LOCATION OF PLUMBING FIXTURES. ALL PLUMBING FIXTURES SHALL BE PIPED COMPLETE WITH ALL NECESSARY APPURTENANCES, SUCH AS VENTS, SANITARY, HOT AND COLD WATER CONNECTIONS, ETC.
- 2.12. INSTALL ALL COMPONENTS IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 2.13. INSTALL SHOCK ARRESTORS ON HOT AND COLD WATER PIPING SERVING FIXTURES OR EQUIPMENT EQUIPPED WITH QUICK CLOSING VALVES.
- 2.14. PLUMBING FIXTURES INCLUDING DOMESTIC HOT WATER HEATERS SHALL BE NEW, OF FIRST QUALITY, IN PERFECT CONDITION, AND INSTALLED IN BEST WORKMANLIKE MANNER. VERIFY PLUMBING FIXTURE QUANTITIES AND LOCATIONS WITH ARCHITECT'S/INTERIOR DESIGNER'S DRAWINGS.
- 2.15. PROVIDE ELECTRIC TRAP SEAL PRIMER SIMILAR TO PPP-SURFACE MOUNTED, FOR ALL NEW FLOOR DRAINS, FUNNEL FLOOR DRAINS, AND HUB DRAINS.
- 2.16. EXPOSED PIPING AND FITTINGS WITHIN WASHROOMS SHALL BE CHROME PLATED. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPING PASSING THROUGH FINISHED SURFACES AND MILLWORK.
- 2.17. PROVIDE REMOVABLE, FLEXIBLE, REUSABLE, WHITE MOULDED PLASTIC INSULATION KITS FOR BARRIER-FREE LAVATORY DRAIN PIPING AND POTABLE WATER SUPPLIES EXPOSED UNDER NEW BARRIER FREE LAVATORIES. ACCEPTABLE PRODUCTS ARE:
 - 2.17.1. Tri-ep "La-G-ard 2" E-Z Series
 - 2.17.2. Zeston "SNAP-TRAP"
 - 2.17.3. McGuire Manufacturing Co. Inc. "ProWrap"
- 2.18. ALL PIPES, STORM PIPES, AND SANITARY PIPES LOCATED IN PARKING GARAGE AND UNHEATED AREAS SHALL BE HEAT TRACED c/w INSULATION AS SPECIFIED. ACCEPTABLE MANUFACTURER: RAYCHEM XL HEAT-TRACING, OR EQUIVALENT.
- 2.19. PROVIDE INDEPENDENT SUPPORTS EVERY 6'-0" (1800mm) MINIMUM FOR 1" (25mm) OR LESS COPPER PIPING, AND EVERY 8'-0" (2400mm) MINIMUM FOR COPPER PIPING 1-1/2"Ø (40mm) AND LARGER. PROVIDE INDEPENDENT SUPPORTS EVERY 8'-0" (2400mm) MINIMUM FOR ALL CAST IRON PIPING. REFER TO BASE BUILDING TENANT DESIGN MANUAL, AND USE WHICHEVER REQUIREMENT IS MORE STRINGENT.
- 2.20. WHERE DOMESTIC PIPING CONNECTIONS ARE REQUIRED TO EXISTING DOMESTIC WATER PIPING AND NO PROVISIONS ARE AVAILABLE, PROVIDE "FREEZING" AS REQUIRED USING BASE BUILDING STANDARDS - MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO ASCERTAIN REQUIREMENTS BEFORE SUBMITTING PRICE. WHEN REQUIRED, OBTAIN WRITTEN APPROVAL FROM LANDLORD BEFORE COMMENCEMENT OF THIS WORK. COORDINATE SCHEDULING OF THIS WORK WITH PROJECT MANAGER, BUILDING MANAGER, AND BUILDING OPERATOR. SUBMIT SHOP DRAWINGS FOR "FREEZING" KIT AND IMPLEMENT LANDLORD APPROVED PROCEDURES AND MANUFACTURER'S RECOMMENDATIONS.

4. CONTROLS:

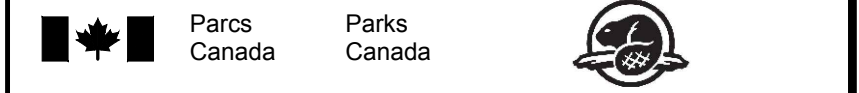
- 3.1. ALL NEW MATERIALS AND EQUIPMENT SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH BASE BUILDING STANDARDS.
- 3.2. ALL DUCTWORK AND HANGERS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA RECOMMENDATIONS AND STANDARDS.
- 3.3. SEAL ALL JOINTS IN LOW AND MEDIUM PRESSURE DUCTWORK WITH TRANSCONTINENTAL MP DUCT SEALER.
- 3.4. RECTANGULAR OR SQUARE GALVANIZED STEEL DUCTWORK SHALL BE PRIME LOK FORMING QUALITY TO ASTM A525M. SATIN COATED FINISH ON DUCTWORK TO BE PAINTED, 660 COATING ON ALL OTHER DUCTWORK. WITH METAL GAUGES IN ACCORDANCE WITH PUBLISHED SMACNA "HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE" TO SUIT THE DUCT CONFIGURATION AND CLASSIFICATION.
- 3.5. PROVIDE FLEXIBLE CONNECTORS BETWEEN ALL FANS AND ADJACENT DUCTWORK CONSISTING OF A PREASSEMBLED UNIT WITH 3" (75mm) LONG GALVANIZED DUCT CONNECTOR AND 6" (150mm) WIDE HEAVY FIBERGLASS FABRIC WITH ELASTOMER COATING, DURO DYNE "DUROLON" OR EQUIVALENT.
- 3.6. FLEXIBLE DUCTWORK SHALL BE ALUMINUM SPIRAL WOUND CLASS ONE ULC APPROVED, FLEXMASTER "TRIPLE LOK" OR EQUIVALENT. SECURE TO RIGID DUCT AND AT NECKS OF DIFFUSERS USING GEAR CLAMPS AND SEAL AIR TIGHT WITH DUCT SEALER. FLEXIBLE DUCTS SERVING DIFFUSERS SHALL BE INSTALLED AS ONE CONTINUOUS PIECE AND SHALL NOT EXCEED 8'-0" (2400mm). REMAINDER OF DUCT BRANCH SHALL BE RIGID RIGID DUCT. FLEXIBLE DUCTS SHALL BE OF DIAMETER EQUAL TO DIFFUSER NECK SIZE OR AS NOTED OTHERWISE.
- 3.7. PROVIDE RIGID ROUND DUCT TO ALL SUPPLY AIR DIFFUSERS INSTALLED IN DRYWALL CEILINGS.
- 3.8. PROVIDE A MINIMUM LENGTH OF THREE (3) DIAMETERS OF STRAIGHT RIGID DUCT TO A MAXIMUM LENGTH OF 4'-0" (1200mm) AT THE INLET OF EACH VAV TERMINAL UNIT.
- 3.9. AIR TRANSFER DUCTS SHALL BE PROVIDED WHEREVER REQUIRED TO ENSURE ADEQUATE RETURN AIR AND/OR SMOKE EXHAUST AIR IN CEILING SPACE BACK TO RETURN AIR, GENERAL EXHAUST AIR, AND SMOKE EXHAUST AIR OPENINGS. WHERE THERE IS A MULTI-TENANT CORRIDOR, ENSURE THAT TRANSFER AIR DUCTS ARE NOT INSTALLED IN CORRIDOR WALLS - REPORT TO MECHANICAL CONSULTANT OF ANY EXISTING TRANSFER AIR DUCTS FOUND BETWEEN THE RENOVATED SPACE AND THE MULTI-TENANT CORRIDOR. IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND CONFIRM AIR TRANSFER PROVISIONS WITH THE GENERAL TRADES.
- 3.10. AIR TRANSFER OPENINGS INDICATED WITHOUT DUCT (BAFFLE OPENINGS AND/OR DOOR UNDERCUTS) SHALL BE THIS CONTRACTOR'S RESPONSIBILITY. COORDINATE AND CONFIRM PROVISIONS WITH GENERAL TRADES.
- 3.11. NEW SUPPLY AIR DIFFUSERS/REGISTERS AND RETURN/EXHAUST AIR GRILLES SHALL MATCH BASE BUILDING OR BE OF TYPE AS INDICATED ON DRAWINGS. COORDINATE FINAL LOCATION WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS. RELOCATE AND REUSE EXISTING DIFFUSERS AND GRILLES WHERE POSSIBLE OR WHERE INDICATED ON PLANS.
- 3.12. PROVIDE BALANCING DAMPERS FOR ALL NEW DUCTWORK WITH SUITABLE MEANS OF CEILING ACCESS FOR BALANCING, AND VOLUME DAMPERS FOR ALL NEW SUPPLY AIR DIFFUSERS AND REGISTERS.
- 3.13. TEST, BALANCE, AND ADJUST AIR SYSTEMS TO OBTAIN THE DESIGN AIR QUANTITIES (±10%). MARK THE FINAL BALANCE POSITION ON ALL BALANCING DAMPERS AND ADJUSTABLE AIR TURNING DEVICES.
- 3.14. SUBMIT ELECTRONIC (PDF) COPY OF AIR TESTING AND BALANCING REPORTS TO THE MECHANICAL CONSULTANT, PCA (C2), INDICATE ALL TEST RESULTS INCLUDING MAXIMUM AND MINIMUM AIR FLOW OF EACH DIFFUSER, SPACE THERMOSTAT SETTINGS, AIR VELOCITY, CLOSEST AND FURTHEST OUTLET SUPPLY AIR TEMPERATURES, DEFICIENCY SUMMARY, AND ROOM TEMPERATURES FOR ALL AIR SYSTEMS. THIS WORK SHALL BE PERFORMED BY THE OWNER'S/LANDLORD'S TESTING AND BALANCING CONTRACTOR OR BY A CONTRACTOR APPROVED BY THE OWNER/LANDLORD, AND COST SHALL BE INCLUDED UNDER THIS CONTRACT. BALANCING CONTRACTOR SHALL BE A MEMBER OF AABC OR NEBC. PROVIDE SIX (6) ADDITIONAL HOURS OF BALANCING WORK THAT SHALL BE PERFORMED AFTER THE TENANT HAS MOVED IN (MINIMUM 1 MONTH) FOR "COMFORT BALANCING."
- 3.15. BEFORE INSTALLATION, OBTAIN ARCHITECT'S/INTERIOR DESIGNER'S APPROVAL ON LOCATION OF ALL REGISTERS, DIFFUSERS, AIR TROFFERS, THERMOSTATS, ACCESS PANELS, ETC.
- 3.16. PROVIDE FIRE DAMPERS WHERE SHOWN ON DRAWINGS AND/OR WHERE REQUIRED BY LOCAL AUTHORITIES AND/OR APPLICABLE CODES IN DUCT SECTIONS c/w APPROVED ACCESS DOORS. FIRE DAMPERS SHALL BE ULC APPROVED, FABRICATED AND INSTALLED IN ACCORDANCE WITH NFPA 90A, CUA 90-1, AND LOCAL BYLAWS.

NO.	DATE	DESCRIPTION	Drawn by	Approved
3	11/23/16	ISSUED FOR TENDER	MH	AB
2	11/07/16	ISSUED FOR 95% REVIEW	MH	AB
1	10/21/16	ISSUED FOR 50% REVIEW	MH	AB

REVISIONS

A	A Detail number	A Numero de detail
B	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters Dimensions lineaires en millimetres



PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet
**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin

**MECHANICAL
SPECIFICATION**

Plot Scale / Echelle	1:50	
Drawn by/ Dessine par	MH	Date 10/13/16
Field Recording by / Releve-Termin par	N/A	Date N/A
Approved by / Approuve par	AB	Date 10/13/16
Checked by/ Verifie par	SA	Date 10/13/16
Project No./ No. du projet	Asset No.	Sheet No./ Feuille No.
PRO000812		M-3
Drawing Re No./No. du Dessin	1	



MMM Group Limited
582 Lancaster St W
Kitchener, ON N2K 1M3
t: 519-743-8777
f: 519-743-8778
www.mmm.ca



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			Dessine par	Approuve

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Canada

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**MECHANICAL
SPECIFICATION**

Plot Scale / Echelle

1:50

Drawn by/ Dessine par	Date
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N/A	N/A

Approved by / Approuve par	Date
AB	10/13/16

Checked by/ Verifie par	Date
SA	10/13/16

Project No./ No. du projet	Asset No.	Sheet No./ Feuille No.
PRO000812		M-4

Drawing Re No./No. du Dessin
1

- 4.1. ALL CONTROL WIRING SHALL BE CARRIED OUT BY DIV.15; POWER WIRING SHALL BE BY DIV.16. THE CONTROL SYSTEM SHALL BE SUPPLIED AND INSTALLED COMPLETE IN ALL RESPECT AND FULLY FUNCTIONAL. DEMONSTRATE TO THE MECHANICAL CONSULTANT ON COMPLETION OF WORK.
- 4.2. ALL CONTROLS WORK SHALL BE PERFORMED BY THE OWNER'S/LANDLORD'S CONTROLS CONTRACTOR OR A CONTRACTOR APPROVED BY THE OWNER/LANDLORD.
- 4.3. MOUNTING HEIGHT OF ADJUSTABLE THERMOSTATS LOCATED IN A BARRIER-FREE PATH OF TRAVEL SHALL BE 3'-11" (1200mm) FROM FINISHED FLOOR TO TOP OF THERMOSTAT. ADJUSTABLE THERMOSTATS NOT LOCATED IN A BARRIER-FREE PATH OF TRAVEL (SUCH AS MECHANICAL ROOMS, ELECTRICAL ROOMS ETC. AS LISTED IN THE ONTARIO BUILDING CODE). NON-ADJUSTABLE THERMOSTATS, AND TEMPERATURE SENSORS SHALL BE MOUNTED 8'-0" (1500mm) FROM FINISHED FLOOR. COORDINATE FINAL LOCATIONS WITH ARCHITECT/INTERIOR DESIGNER BEFORE ROUGHING-IN. DO NOT INSTALL IN VICINITY OF ELECTRICAL LIGHTING DIMMERS OR HEAT GENERATING EQUIPMENT SUCH AS PHOTOCOPIERS, PRINTERS, TELEVISIONS, VENDING MACHINES ETC. DO NOT INSTALL HIDDEN BEHIND CABINETS OR FURNITURE
- 4.4. BY-PASS BOXES:
- 4.4.1. ELECTRIC ACTUATOR:
- ELECTRONIC CONTROL PACKAGE UTILIZES A DIRECT COUPLED, TRI-STATE FLOATING ACTUATOR OPERATING ON 24 VAC SUPPLY. STANDARD FEATURES INCLUDE:
- 4.4.1.1. 35 LB-IN TORQUE
- 4.4.1.2. MAGNETIC COUPLING PREVENTS STALL OF THE MOTOR WHEN AN END STOP IS REACHED
- 4.4.1.3. MINIMUM POSITION SET SCREW FOR FIELD ADJUSTMENT OF MINIMUM AIR VOLUME
- 4.4.1.4. LOW POWER CONSUMPTION (2.0 WATTS)
- 4.4.2. ELECTRONIC CONTROL PACKAGES:
- 4.4.2.1. CONTROL SEQUENCE 2500 - COOLING:
- SEQUENCE OF CONTROL:
- ON A RISE IN ROOM TEMPERATURE, THE THERMOSTAT ENERGIZES THE ACTUATOR. THE ACTUATOR SLOWLY ROTATES THE DAMPER SHAFT COUNTER-CLOCKWISE TO INCREASE THE COLD AIR TO THE ROOM.
- ON A FALL IN ROOM TEMPERATURE, THE THERMOSTAT REVERSES THE ABOVE ACTION. THE ACTUATOR SLOWLY ROTATES THE DAMPER SHAFT CLOCKWISE TO DECREASE THE COLD AIR TO THE ROOM.
- 4.4.2.2. CONTROL SEQUENCE 2501 - COOLING WITH REHEAT OR PERIMETER HEATING:
- SEQUENCE OF CONTROL:
- ON A RISE IN ROOM TEMPERATURE, THE THERMOSTAT ENERGIZES THE ACTUATOR. THE ACTUATOR SLOWLY ROTATES THE DAMPER SHAFT COUNTER-CLOCKWISE TO INCREASE THE COLD AIR TO THE ROOM.
- ON A FALL IN ROOM TEMPERATURE, THE THERMOSTAT REVERSES THE ABOVE ACTION. THE ACTUATOR SLOWLY ROTATES THE DAMPER SHAFT CLOCKWISE TO DECREASE THE COLD AIR TO THE ROOM.
- IF THE ROOM TEMPERATURE CONTINUES TO FALL, THE THERMOSTAT ACTIVATES, AS THE CASE MAY BE, THE CONTROL RELAY OF THE HEATING COIL OR THE PERIMETER HEATING.
- 4.4.2.3. CONTROL SEQUENCE 2502 - HEATING WITH PERIMETER HEATING:
- SEQUENCE OF CONTROL:
- HEATING MODE-ON A FALL IN ROOM TEMPERATURE, THE THERMOSTAT ENERGIZES THE ACTUATOR. THE ACTUATORS SLOWLY ROTATES THE DAMPER SHAFT CLOCKWISE TO OPEN, INCREASING THE HOT AIR TO THE ROOM.
- IF THE ROOM TEMPERATURE CONTINUES TO FALL, THE THERMOSTAT ACTIVATES THE CONTROL RELAY OF THE ELECTRIC BASEBOARD HEATER.
- REVERSE WILL HAPPEN IF ROOM TEMPERATURE RISES.

5. INSULATION:

- 5.1. UNLESS OTHERWISE NOTED, ALL INSULATION MATERIALS MUST MEET REQUIREMENTS OF NFPA 90A AND MUST HAVE A FIRE HAZARD RATING OF NOT MORE THAN 25 FOR FLAME SPREAD AND 50 FOR SMOKE DEVELOPED WHEN TESTED IN ACCORDANCE WITH CANULC S102.
- 5.2. UNLESS OTHERWISE SPECIFIED, THERMAL PERFORMANCE OF INSULATION IS TO MEET OR EXCEED VALUES GIVEN IN TABLES ENTITLED MINIMUM PIPING INSULATION THICKNESS HEATING AND HOT WATER SYSTEMS AND MINIMUM PIPING INSULATION THICKNESS COOLING SYSTEMS, AS STATED IN ANSI/ASHRAE/IES STANDARD 90.1 VERSION REFERENCED IN THE ONTARIO BUILDING CODE.
- 5.3. FIBERGLASS PIPE INSULATION FOR DOMESTIC HOT AND COLD WATER PIPING TO 2" (50mm) DIAMETER:
- 5.3.1. JOHNS-MANVILLE "MICRO LOK", RIGID, MOULDED, SECTIONAL FIBERGLASS PIPE INSULATION WITH A FACTORY APPLIED "AP T PLUS" VAPOUR BARRIER JACKET WITH PRESSURE SENSITIVE, LONGITUDINAL LAP SEALING SYSTEM. SECURE THE LAP OF THE INSULATION JACKET IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. FIRMLY BUTT TOGETHER ADJOINING SECTIONS OF THE INSULATION AND COVER THE BUTT JOINTS WITH STRIPS OF VAPOUR BARRIER JACKET MATERIAL SECURED IN PLACE WITH ADHESIVE. INSULATE ELBOWS, VALVES AND SIMILAR FITTINGS WITH FACTORY FORMED FIBERGLASS INSULATION OF A THICKNESS AND INSULATION VALUE EQUAL TO THAT OF SECTION INSULATION. LAMINATE IN PLACE WITH ADHESIVE AND SECURE WITH TWINE. APPLY A SKIM COAT OF INSULATING CEMENT, WRAP THE FITTING WITH CLOTH TAPE OVERLAPPED 50% AND SET IN ADHESIVE, AND APPLY A COAT OF FINISHING CEMENT WITH A SMOOTH FINISH OR, INSTEAD OF THE CEMENT AND CLOTH TAPE, APPLY SURE FIT SYSTEM "SMOKE LESS" 50/50 RATED PVC FITTING COVERS.
- 5.3.2. AT EACH PIPE HANGER LOCATION (PIPE SUPPORTED WITHOUT ROLLER HANGER), PROVIDE A 6" (150mm) LENGTH OF PITTSBURGH CORNING "FOAMGLAS" MOULDED, SECTIONAL, CELLULAR GLASS PIPE INSULATION INSTEAD SPECIFIED FIBERGLASS INSULATION, WHERE INSULATED PIPE IS "COLD PIPE". WRAP INSULATION WITH DOUBLE THICKNESS OF ADJACENT FIBERGLASS PIPE INSULATION'S VAPOUR BARRIER JACKET OVERLAPPED A MINIMUM OF 1" (25mm) ON ADJACENT INSULATION AND SECURED IN PLACE WITH ADHESIVE. PROVIDE GRINNELL CORPORATION FIG. NO. 167, OR EQUAL, GALVANIZED CARBON STEEL INSULATION PROTECTION SHIELD TO MSS SP 68.
- 5.3.3. FILL PIPE SADDLE VOID WITH FIBERGLASS INSULATION.
- 5.3.4. PROVIDE 1" (25mm) INSULATION TO 3" (75mm) OR LESS DOMESTIC COLD WATER, 1-1/4" (32mm) OR LESS DOMESTIC HOT WATER, 1-1/4" (32mm) OR LESS TEMPERED DOMESTIC WATER, 3" (75mm) OR LESS CHILLED WATER, 3" (75mm) OR LESS CONDENSER WATER, ALL HORIZONTAL SANITARY AND STORM DRAINS, AND 3" (75mm) OR LESS HEAT TRACED DRAINAGE PIPE. PROVIDE 1-1/2" INSULATION TO 4" (100mm) OR LARGER DOMESTIC COLD WATER, 1-1/2" (40mm) OR LARGER DOMESTIC HOT WATER, 1-1/4" (32mm) OR LESS BUILDING HEATING WATER, 4" (100mm) OR LARGER CHILLED WATER, 4" (100mm) OR LARGER CONDENSER WATER, 4" (100mm) OR LARGER HEAT TRACED DRAINAGE PIPE, AND CHILLED DOMESTIC COLD WATER PIPING FROM REMOTE CHILLER TO DRINKING FOUNTAIN DISPENSER. PROVIDE 2" (50mm) INSULATION TO 1-1/2" (42mm) OR LARGER BUILDING HEATING WATER, AND ALL PIPING WITH HEAT TRACING LOCATED IN UNHEATED AREAS. PROVIDE 1/2" (15mm) THICK INSULATION TO ALL CONDENSATE DRAINS.
- 5.3.5. PROVIDE ALL LABOUR, MATERIALS, PRODUCTS, EQUIPMENT, AND SERVICES TO SUPPLY AND INSTALL THERMAL INSULATION, VAPOUR BARRIERS, AND FINISHES FOR MECHANICAL WORK AS INDICATED ON THE DRAWINGS AND SPECIFIED IN THIS SECTION OF THESE SPECIFICATIONS.
- 5.3.6. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURERS OF ADHESIVES, MASTICS, AND INSULATING CEMENTS.
- 5.3.7. INSULATION MATERIALS MUST BE MANUFACTURED AT FACILITIES CERTIFIED AND REGISTERED WITH AN APPROVED REGISTRAR TO CONFORM TO ISO 9000 QUALITY STANDARD.
- 5.3.8. ALL INSULATION PERTAINING TO DIVISION 15 SHALL BE CARRIED OUT BY ONE FIRM SPECIALIZING IN INSULATION WORK. DO NOT MIX SIMILAR PRODUCTS OF MULTIPLE MANUFACTURERS.
- 5.3.9. ON HOT PIPING APPLICATIONS, HOLD INSULATION IN PLACE WITH FLARE TYPE STAPLES (OUTWARD CLINCH).
- 5.3.10. ON COLD PIPING APPLICATIONS, APPLY VAPOUR BARRIER JACKET OVER INSULATION AND SEAL LONGITUDINAL AND CIRCUMFERENTIAL LAPS WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE. SEAL ALL PIPE TERMINATIONS, INCLUDING FITTINGS, WALL PENETRATIONS, AND PIPE SUPPORTS WITH VAPOUR BARRIER MASTIC. FOR CHILLED WATER SYSTEMS, PROVIDE VAPOUR SEAL PIPE TERMINATIONS EVERY FOUR (4) PIPE SECTIONS.
- 5.3.11. APPLY PIPE INSULATION OVER 1-1/2" (40mm) THICKNESS IN TWO (2) LAYERS WITH JOINTS STAGGERED.
- 5.3.12. INSULATE FITTINGS WITH FABRICATED MITERED OR PREFORMED SECTIONS OF SPECIFIED INSULATION.
- 5.3.13. INSULATE OVER FLANGES AND MECHANICAL COUPLINGS WITH SPECIFIED INSULATION AND THICKNESS, SIZED TO SUIT FLANGE DIAMETERS. FILL SPACES BETWEEN INSULATION AND ADJOINING PIPE INSULATION WITH SIMILAR MATERIAL.
- 5.3.14. INSULATE VALVES AND IN-LINE COMPONENTS WITH FLEXIBLE INSULATION (3/4 LBS/CU.FT DENSITY) COMPRESSED NOT MORE THAN 50% OF ORIGINAL THICKNESS. BUILD UP TO SPECIFIED THICKNESS WITH APPROVED ASBESTOS FREE FINISHING CEMENT.
- 5.3.15. UNDER ALL HANGERS USED ON CHILLED WATER AND DOMESTIC COLD WATER, PROVIDE AN INSERT BETWEEN SUPPORT SHIELD AND PIPING FOR PIPING 1-1/2" (40mm) OR LARGER.
- 5.4. DUCTWORK INSULATION:
- 5.4.1. JOHNS-MANVILLE "800 SERIES SPIN GLASS FSK", RIGID FIBERGLASS INSULATION WITH A FACTORY APPLIED, FIBERGLASS REINFORCED, FOIL AND FLAME RETARDANT KRAFT PAPER (FSK) VAPOUR BARRIER FACING.
- 5.4.2. JOHNS-MANVILLE "MICROLITE FSK", FLEXIBLE BLANKET TYPE FIBERGLASS INSULATION WITH A FACTORY APPLIED, FIBERGLASS REINFORCED, FOIL AND FLAME RETARDANT KRAFT PAPER (FSK) VAPOUR BARRIER FACING. INSULATION FOR CASINGS, PLENUMS AND EXPOSED RECTANGULAR DUCTWORK SHALL BE RIGID BOARD TYPE. CONCEALED RECTANGULAR DUCTWORK SHALL BE BLANKET TYPE.
- 5.4.3. SECURELY BUTT TOGETHER ADJOINING SECTIONS OF INSULATION, SECURED IN PLACE WITH FULL COVERAGE OF ADHESIVE ON ALL SURFACES. IN ADDITION TO ADHESIVE, ON VERTICAL AND SUSPENDED SURFACES, SECURE INSULATION WITH PINS WELDED TO THE DUCTWORK ON 12" (300mm) TO 18" (450mm) CENTERS WITH THE INSULATION APPLIED OVERTOP OF PINS AND SECURED WITH CLIPS. ENSURE THAT THE INSULATION DOES NOT SAG OR BULGE.

- 5.4.4. MAKE JOINTS IN VAPOUR BARRIER FACINGS WITH 3" (75mm) WIDE OVERLAPPING STRIPS OF INSULATION VAPOUR BARRIER FACING SECURED WITH A FULL COVERAGE OF ADHESIVE.
- 5.4.5. REQUIREMENTS:
NEW SUPPLY AIR DUCTWORK, AS REQUIRED (EXCLUDING FLEXIBLE DUCTWORK): 1-1/2" (40mm) THICK;
EXHAUST DISCHARGE DUCTWORK FOR A DISTANCE OF 10' FROM EXTERIOR PENETRATION: 2" (50mm) THICK;
OUTSIDE AIR DUCTWORK, COMPLETE 2" (50mm) THICK;
EXHAUST PLENUMS WITHIN THE 10' DISTANCE: 2" (50mm) THICK;
PANELS BEHIND UNUSED SECTIONS OF LOUVRE AND ALL DUCTWORK OUTSIDE OF BUILDING OR EXPOSED TO WEATHER: 2" (50mm) THICK INSULATION.
- 5.4.6. NOTE: DO NOT INSULATE DUCTWORK EXPOSED IN AREA IT SERVES.
- 5.4.7. JOHNS-MANVILLE "LINACOUSTIC PERMACOTE HP", 1" (25mm) THICK ACOUSTIC LINING MATERIAL MEETING NFPA 90A AND ASTM C1071, G21 AND G22 REQUIREMENTS, NOT SUPPORTING MICROBIAL GROWTH AND FLAME SPREAD AND SMOKE DEVELOPED FIRE HAZARD RATINGS OF CAN4: S102, CONSISTING OF A BONDED FIBERGLASS MAT COATED ON THE INSIDE (AIR SIDE) FACE WITH A BLACK FIRE RESISTANT COATING."
- 5.5. INSULATION FINISH:
- 5.5.1. COVER EXPOSED PIPE AND DUCTWORK INSULATION WITH S. FATTAL ULC APPROVED "THERMOCANVAS" SECURED WITH A FULL 100% COVERING COAT OF WATERPROOF LAGGING ADHESIVE. NEATLY TRIM CANVAS JOINTS AND SHRINK TIGHT IN PLACE.
- 5.5.2. PROVIDE INSULATION WITH A MINIMUM THERMAL RESISTANCE OF 0.25 BTU.IN/(HR. SQ.FT °F) MEAN TEMPERATURE.
- 5.5.3. APPLY VAPOUR BARRIER OVER INSULATION ON COLD TEMPERATURE DUCTWORK.
- 5.5.4. DUCTWORK LINED WITH ACOUSTIC INSULATION 1" (25mm) OR MORE IN THICKNESS NEED NOT BE EXTERNALLY INSULATED.
- 5.5.5. PROTECT THE WORK OF THIS TRADE FROM BEING DEFACED BY OTHER TRADES. MAKE GOOD ANY DAMAGE AND LEAVE IN PERFECT CONDITION, READY FOR FINAL PAINTING.
- 5.5.6. APPLY INSULATION OVER CLEAN DRY SURFACES, FIRMLY BUTTING ALL SECTIONS TOGETHER.
- 5.5.7. MAKE GOOD INSULATION AT NEW INSULATION WORK INTERFACES.

6. FIRE STOPPING & SMOKE SEAL:

- 6.1. AT LEAST 4 WEEKS BEFORE WORK COMMENCING, SUBMIT A SAMPLE OF EACH TYPE OF FIRESTOP AND SMOKE SEAL SYSTEM IN APPLIED FORM, FOR APPROVAL. IDENTIFY EACH SYSTEM WITH MANUFACTURER'S NAME AND TYPE, ULC DESIGNATION, AND PROPOSED USE. AFTER SAMPLES ARE REVIEWED, WORK IS TO CONFORM TO REVIEWED SAMPLES.
- 6.2. SUBMIT A PRODUCT DATA SHEET AND A WHIMIS SHEET FOR EACH FIRESTOPPING AND SMOKE SEAL PRODUCT. SUBMIT FOR REVIEW, FULL COMPANY NAME AND EXPERIENCE OF PROPOSED FIRESTOPPING AND SMOKE SEAL SYSTEM APPLICATOR. SUBMIT A LETTER OF PROPER FIRESTOPPING AND SMOKE SEAL CERTIFICATION AS SPECIFIED IN PART 3 OF THIS SECTION.
- 6.3. APPLICATOR IS TO HAVE A MINIMUM OF 3 YEARS OF SUCCESSFUL EXPERIENCE ON PROJECTS OF SIMILAR SIZE AND COMPLEXITY, AND APPLICATOR'S QUALIFICATIONS ARE TO BE REVIEWED BY CONSULTANT.
- 6.4. COMPLY WITH FIRESTOPPING AND SMOKE SEAL PRODUCT MANUFACTURER'S RECOMMENDATIONS REGARDING SUITABLE ENVIRONMENT CONDITIONS FOR PRODUCT INSTALLATION.
- 6.5. FIRESTOPPING AND SMOKE SEAL SYSTEM MATERIALS SHALL BE ASBESTOS-FREE ELASTOMERIC MATERIALS TESTED, LISTED AND LABELLED BY ULC IN ACCORDANCE WITH ULC S115 AND ULC S101 FOR INSTALLATION IN ULC DESIGNATED FIRESTOPPING AND SMOKE SEAL SYSTEMS TO PROVIDE A POSITIVE FIRE, WATER AND SMOKE SEAL, AND A FIRE-RESISTANCE RATING (FLAME, HOSE STREAM AND TEMPERATURE) NOT LESS THAN FIRE RESISTANCE RATING OF SURROUNDING FIRE RATED CONSTRUCTION.
- 6.6. MATERIALS ARE TO BE COMPATIBLE WITH ABUTTING DISSIMILAR MATERIALS AND FINISHES AND COMPLETE WITH PRIMERS, DAMMING AND BACK-UP MATERIALS, SUPPORTS, AND ANCHORING DEVICES IN ACCORDANCE WITH FIRESTOPPING MANUFACTURER'S RECOMMENDATIONS AND ULC TESTED ASSEMBLY.
- 6.7. PIPE INSULATION FORMING PART OF A FIRE AND SMOKE SEAL ASSEMBLY IS SPECIFIED IN SECTION ENTITLED MECHANICAL INSULATION.
7. FIRE PROTECTION:
- 7.1. ALL FIRE PROTECTION WORK SHALL BE TO THE APPROVAL OF THE OWNER'S/LANDLORD'S INSURANCE UNDERWRITER AND CONFORM TO THE BASE BUILDING SPECIFICATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, ONTARIO BUILDING CODE, AND ALL GOVERNING AUTHORITIES.
- 7.2. PROVIDE NEW FIRE EXTINGUISHERS WHERE SHOWN ON PLANS OR AS REQUIRED BY CODE, IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL FIRE MARSHAL'S AND FIRE DEPARTMENTS OFFICE. EXTINGUISHERS SHALL MATCH EXISTING BASE BUILDING STANDARDS. VERIFY HOSE LENGTH BEFORE ORDERING AND INSTALLATION.
- 7.3. UNLESS OTHERWISE SHOWN OR SPECIFIED IN CONTRACT DOCUMENTS, LOCATE FIRE EXTINGUISHER CABINETS SO THAT THE CENTERLINE IS APPROXIMATELY 1.2 M (4') ABOVE THE FINISHED FLOOR.
- 7.4. LOCATE PORTABLE FIRE EXTINGUISHERS GREATER THAN 5k: SO THAT THE TOP IS NO MORE THAN 1.1 M (4'4") ABOVE THE FINISHED FLOOR.
- 7.5. LOCATE PORTABLE FIRE EXTINGUISHERS LESS THAN 5k: SO THAT THE TOP IS NO MORE THAN 1.4 M (56") ABOVE THE FINISHED FLOOR.

8. GAS PIPING & FITTINGS:

- 8.1. ALL MATERIAL AND INSTALLATION SHALL COMPLY TO LATEST CSA B149.1 "NATURAL GAS AND PROPANE" INSTALLATION CODE.
- 8.2. CONTRACTOR TO ARRANGE AND PAY FOR ALL PERMITS REQUIRED FOR NATURAL GAS INSTALLATION.
- 8.3. CONTRACTOR TO MAKE ALL ARRANGEMENTS AND PROVISIONS WITH LOCAL GAS COMPANY FOR NEW INCOMING GAS MAINS, NEW METER, AND REGULATOR.
- 8.4. EXPOSED SCREWED PIPING NPS 1/2" (15mm) TO 2" (50mm) SHALL BE STEEL PIPE TO ASTM A53, SCHEDULE 40 ERW OR CW BLACK CARBON STEEL. JOINING MATERIAL FOR SCREWED FITTINGS SHALL BE PULVERIZED LEAD PASTE. STEEL PIPE SCREWED FITTINGS SHALL BE MALLEABLE IRON, CLASS 150. UNIONS SHALL BE MALLEABLE IRON, CLASS 250 BRASS TO IRON, GROUND SEAT, TO ASTM A47M. NIPPLES SHALL BE SCHEDULE 40 TO ASTM A53.
- 8.5. VALVE SHALL BE PROVINCIAL CODE APPROVED, CLASS 175 SEMI-STEEL BODY, LUBRICATED PLUG TYPE WITH LEVEL OPERATION FOR NPS 6" (150mm) AND SMALLER.
- 8.6. SLOPE GAS PIPING DOWN IN DIRECTION OF FLOW TO LOW POINTS. INSTALL DRIP LEGS AT ALL LOW POINTS IN PIPING SYSTEM AND AT EACH CONNECTION TO EQUIPMENT.
- 8.7. TEST SYSTEM IN ACCORDANCE WITH CAN/CSA B149, PURGE AFTER PRESSURE TEST IN ACCORDANCE WITH CAN/CSA B149 AND PAINT ENTIRE NEW GAS PIPING YELLOW IN ACCORDANCE WITH LATEST GAS UTILIZATION CODE.
- 8.8. COMPLETED INSTALLATION TO BE CERTIFIED BY REPRESENTATIVE OF LOCAL GAS COMPANY.
9. REFRIGERANT ACR TUBING (SPLIT A/C SYSTEMS):
- 9.1. NEW REFRIGERANT TUBING SHALL BE TYPE "ACR" SEAMLESS COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SILVER BRAZED JOINTS.
- 9.2. DESIGN AND INSTALLATION SHALL CONFORM TO CSA STANDARD B52, ONTARIO BUILDING CODE, AIR CONDITIONING AND REFRIGERANT INSTITUTE, AND EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- 9.3. SELECT TUBING, FITTINGS, AND COMPONENTS TO SUIT SYSTEM OPERATING AND TEST PRESSURES.
- 9.4. ALL ELBOW FITTINGS SHALL BE LONG RADIUS TYPE.
- 9.5. NEW TUBING SHALL BE SIZED TO PROVIDE MANUFACTURER'S LISTED COOLING CAPACITIES.
- 9.6. PROVIDE PERMANENT GUARDS AS REQUIRED TO PROTECT TUBING AND FITTINGS FROM DAMAGE.
- 9.7. SLOPE HORIZONTAL RUNS SLOPED TOWARDS THE COMPRESSOR AT A RATE OF 1/2" PER FOOT (15mm PER 300mm) SUPPORT LINES AT INTERVALS OF NOT MORE THAN 8'-0" (2400mm) WITH SUITABLE ANCHORS. USE RUBBER GROMMETS BETWEEN TUBING AND CLAMPS TO PREVENT LINE CHAFING.
- 9.8. WHERE VERTICAL RUNS OF MORE THAN 8'-0" (1500mm) OCCUR IN A SUCTION LINE, IT SHALL ENTER AT THE TOP OF THE NEXT HORIZONTAL SECTION. ARRANGE PIPING SO REFRIGERANT OR OIL CANNOT DRAIN FROM SUCTION LINE INTO COIL.
- 9.9. KEEP TUBING RUNS AND NUMBER OF ELBOWS AND FITTINGS TO A MINIMUM.
- 9.10. USE FLEXIBLE METAL HOSE WHERE REQUIRED TO REDUCE TUBING VIBRATION.
- 9.11. TUBING TO REMOTE CONDENSING UNITS SHALL INCLUDE SHUT OFF VALVES.
- 9.12. ENSURE TUBING IS DEHYDRATED, TESTED, ADEQUATELY CHARGED, AND GAS TIGHT.
- 9.13. FOR ALL ACR TUBING, FLEXIBLE FOAM ELASTOMERIC IS TO BE CLOSED CELL, SLEEVE TYPE, LONGITUDINALLY SPLIT SELF-SEAL, FOAMED PLASTIC PIPE INSULATION WITH A WATER VAPOUR TRANSMISSION RATING OF 0.10 IN ACCORDANCE WITH ASTM E96, PROCEDURE B, AND REQUIRED INSTALLATION ACCESSORIES. ACCEPTABLE PRODUCTS ARE:
1. ARMACELL AP/ARMAFLEX SS
2. IK INSULATION GROUP K-FLEX "LS" SELF-SEAL PIPE INSULATION.
- 9.14. FOR OUTDOOR ACR TUBING, INSTALL SECTIONAL WEATHER-PROOF JACKETED PIPE INSULATION IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS TO PRODUCE A WATER-TIGHT WEATHER-PROOF INSTALLATION. INSULATE FITTINGS WITH BLANKET TYPE GLASS FIBRE INSULATION OF A THICKNESS AND INSULATING VALUE EQUAL TO THE SECTIONAL INSULATION AND SECURED IN PLACE WITH ADHESIVE AND WIRE. JACKET FITTINGS WITH MANUFACTURED ALUMINIUM FITTING COVERS SEALED WATER-TIGHT.
- 9.15. INSTALL FLEXIBLE ELASTOMERIC PIPE INSULATION IN STRICT ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS TO SUIT THE APPLICATION, AND USING ADHESIVE. JOINT SEALANTS AND FINISH TO PRODUCE A WATER-TIGHT INSTALLATION. INSULATE REFRIGERANT SUCTION AND HOT GAS WITH 1" (25mm) FLEXIBLE ELASTOMERIC PIPE INSULATION.
- 9.16. FOR AIR CONDITIONING SYSTEMS WITH OVER 5 TONS OF COOLING CAPACITY, SUBMIT ALL REQUIRED REGISTRATION FORMS, DOCUMENTS, AND FEES TO TSSA. PROVIDE ALL WORK AND DOCUMENTS REQUIRED AS REQUIRED BY TSSA UNTIL WORK COMPLETION.

PLUMBING FIXTURE SCHEDULE										
TAG	SYMBOL	DESCRIPTION	MFG AND MODEL	SERVICE AND SIZE (DIAMETER)					REMARKS	
				DRAIN	VENT	DCW	DHW	ELEC.		
L-1		STAFF WASHROOMS, BARRIER-FREE, WALL HUNG, MANUAL FAUCET.	AMERICAN STANDARD UNIVERSAL ACCESS #9141 011	32MM (1 1/4")	32MM (1 1/4")	13MM (1/2")	13MM (1/2")	MANUAL	AMERICAN STANDARD WHEELCHAIR #9141.011 BASIN, 3 HOLES, 4" (102 MM) CENTER, 509 MM X 686 MM X 168 MM (20-1/16" X 27" X 6-5/8") HIGH, VITREOUS CHINA, FOR CARRIER WITH CONCEALED ARMS, FRONT OVERFLOW, FAUCET LEDGE. AMERICAN STANDARD CERAMIX #200.100.002 SINGLE HANDLE FAUCET, 4" (102 MM) CENTERSET, BRASS, 4.6 LPM (1.215 GPM) AERATOR OUTLET, 137 MM (4-5/8") PROJECTION REACH, METAL LEVER HANDLE, ADJUSTABLE HOT LIMIT SAFETY STOP. LAVLIER #TMM-1070, BELOW DECK MECHANICAL WATER MIXING VALVE, BRONZE BODY, TEMPERATURE ADJUSTING DIAL, 10 MM (3/8") INLETS AND OUTLET COMPRESSION FITTINGS, HIGH TEMPERATURE THERMOSTATIC LIMIT STOP, SHUT-OFF WITH AUTOMATIC RESET WHEN TEMPERATURE EXCEEDS 120 °F (48.8 °C), INTEGRAL CHECKS, OFFER TEMPERATURE RANGE FROM FULL COLD THROUGH 46 °C (114.8 °F), AMERICAN STANDARD #7723.018.C OFFSET OPEN GRID DRAIN, CHROME PLATED CAST BRASS BODY, 32 MM (1-1/4") TAILPIECE. PROVIDE FAUCET SUPPLIES, CHROME PLATED FINISH ALL METAL CONSTRUCTION, LIGHT DUTY RESIDENTIAL ANGLE STOPS, ESCUTCHEONS AND FLEXIBLE METAL RISERS, LOW LEAD, PROVIDE P-TRAP, CHROME PLATED, ADJUSTABLE ALL METAL CONSTRUCTION, 32 MM (1-1/4") SIZE, AND ESCUTCHEON. MCGUIRE PROWRAP #PW2000WC SANITARY COVERING VANDAL-RESISTANT, FLEXIBLE SEAMLESS MOULDED CLOSED-CELL PVC RESIN, FORMULATED WITH ANTI-MICROBIAL ADDITIVE TO LIMIT THE GROWTH OF FUNGUS AND BACTERIA, TO EXPOSED PIPING (TO PROTECT AGAINST HEAT/CONTUSIONS) AS PER LOCAL CODES. WATTS #WCA-111 WC, BASIN CARRIER, CONCEALED ARMS, WALL FLANGES TO ATTACH TO BACKING PLATE SECURED IN WALL WITH LOCKING DEVICE AND LEVELLING SCREWS, HEAVY GAUGE STEEL UPRIGHTS WITH INTEGRAL WELDED FEET. FOR ONE UNIT: 102 MM (4") FOR TWO TO SIX UNITS IN A ROW: 152 MM (6") FINISHED METAL STUD WALL TO BACK OF PIPE SPACE.	
WC-1		STAFF WASHROOMS, BARRIER-FREE, FLOOR MOUNTED MANUAL FLASH TANK	AMERICAN STANDARD CADET PRO #215AA-154.020	100MM (4")	50mm (2")	13mm (1/2")	-	MANUAL	AMERICAN STANDARD CADET PRO RIGHT HEIGHT ELONGATED #215AA.154.020 TOILET, 419 MM HIGH, WHITE VITREOUS CHINA WITH EVERCLEAN ANTIMICROBIAL SURFACE WHICH INHIBITS THE GROWTH OF STAIN AND ODOR CAUSING BACTERIA, MOLD AND MILDEW, FLOOR MOUNTED, CADET FLUSHING SYSTEM WITH POWERWASH RIM SIPHON FLUSHING SYSTEM WHICH SCRUBS BOWL WITH EVERY FLUSH, 4.8 L (1.28 US GAL) PER FLUSH, RAISED SANITARY BAR AND FOUR (4) POINTS TANK STABILIZATION, 229 MM X 203 MM (9" X 8") WATER SURFACE, TWO (2) PIECE, SPEED CONNECT TANK ASSEMBLY, LINED TANK, OVERSIZED 76 MM (3") FLUSH VALVE WITH FLAPPER, METAL SHANK FULL VALVE, 305 MM (12") ROUGH-IN, ELONGATED BOWL, 54 MM (2-1/8") FULLY GLAZED INTERNAL TRAPWAY, FLOOR OUTLET, BOLT CAPS, CENTOCO #8205TS.001 TOILET SEAT, EXTRA HEAVY DUTY, FOR ELONGATED BOWL, OPEN FRONT, WHITE SOLID PLASTIC, WITH COVER, STAINLESS STEEL CHECK HINGES, METAL FLAT WASHERS STAINLESS STEEL POSTS AND NUTS, PROVIDE TOILET SUPPLY, CHROME PLATED FINISH ALL METAL CONSTRUCTION, LIGHT DUTY RESIDENTIAL ANGLE STOPS, PIPE NIPPLE, ESCUTCHEON AND FLEXIBLE METAL RISER, PROVIDE FLOOR FLANGE, (SAME MATERIAL AS THE CONNECTING PIPE DRAIN), WITH ALL BRASS BOLTS AND WITH RUBBER GASKET.	
KS-1		COUNTERTOP MOUNT SINK - SINGLE HANDLE FAUCET BELOW DECK MECHANICAL WATER MIXING VALVE	FRANKE COMMERCIAL #LBS6808	32MM (1 1/4")	32MM (1 1/4")	13MM (1/2")	13MM (1/2")	MANUAL	FRANKE COMMERCIAL #LBS6808-1/1 SINGLE BOWL, COUNTERTOP MOUNT SINK, 1 HOLE, 508 MM (20") WIDE X 521 MM (20-1/2") LONG X 203 MM (8") HIGH DEEP, COUNTER MOUNTED, BACKLEDGE, GRADE 18-10 20 GA. (0.9 MM) TYPE 302 STAINLESS STEEL, SELF-RIMMING, SATIN FINISH RIM AND BOWLS, MOUNTING KIT PROVIDED, FULLY UNDERCOATED TO REDUCE CONDENSATION AND RESONANCE, FACTORY APPLIED RIM SEAL, 3-1/2" (89 MM) CRUMB CUP WASTE ASSEMBLY WITH 1-1/2" (38 MM) TAILPIECE, AMERICAN STANDARD COLONY SOFT #4175.300.002 SINGLE HANDLE FAUCET, POLISHED CHROME FINISH, CENTER HOLE ONLY, 47 MM WASHERLESS CERAMIC DISC VALVE, 8.3 LPM (2.2 GPM) SPRAY ASSEMBLY, BRASS SWING SPOUT, 227 MM (8-15/16") PROJECTION REACH, METAL LEVER HANDLE, PULL-DOWN SPRAY WITH ADJUSTABLE SPRAY PATTERN AND PAUSE FEATURE, LAVLIER #TMM-1070, BELOW DECK MECHANICAL WATER MIXING VALVE, BRONZE BODY, TEMPERATURE ADJUSTING DIAL, 10 MM (3/8") INLETS AND OUTLET COMPRESSION FITTINGS, HIGH TEMPERATURE THERMOSTATIC LIMIT STOP, SHUT-OFF WITH AUTOMATIC RESET WHEN TEMPERATURE EXCEEDS 120 °F (48.8 °C), INTEGRAL CHECKS, OFFER TEMPERATURE RANGE FROM FULL COLD THROUGH 46 °C (114.8 °F), NOTE: PROVIDE TEE, ADAPTORS AND FLEX. COPPER TUBING TO SUIT INSTALLATION, PROVIDE TEMPERED WATER TO HOT SIDE OF FAUCET, PROVIDE FAUCET SUPPLIES, CHROME PLATED FINISH ALL METAL CONSTRUCTION, LIGHT DUTY RESIDENTIAL ANGLE STOPS, ESCUTCHEONS AND FLEXIBLE METAL RISERS, LOW LEAD, PROVIDE P-TRAP, ADJUSTABLE ALL METAL CONSTRUCTION, 38 MM (1-1/2") SIZE, AND ESCUTCHEON	
FD-1		FLOOR DRAIN, FINISHED AREA, ROUND STRAINER	WATTS, MODEL #FD-100-C-7-A6-1	AS PER DWG	-	-	-	-	WATTS #FD-100-C-7-A6-1 FLOOR DRAIN - EPOXY COATED, CAST IRON BODY, REVERSIBLE FLASHING CLAMP WITH PRIMARY AND SECONDARY WEEPHOLES, TRAP PRIMER CONNECTION WITH PLUG, NO HUB OUTLET, 6" (152 MM) DIAMETER NICKEL BRONZE, ADJUSTABLE ROUND STRAINER	
FD-2		FLOOR DRAIN, UNFINISHED AREA, ROUND STRAINER	WATTS, MODEL #FD-100-C-7-A6-1-G-50	AS PER DWG	-	-	-	-	WATTS #FD-100-C-7-A6-1-G-50 FLOOR DRAIN - EPOXY COATED, CAST IRON BODY, REVERSIBLE FLASHING CLAMP WITH PRIMARY AND SECONDARY WEEPHOLES, TRAP PRIMER CONNECTION WITH PLUG, NO HUB OUTLET, 6" (152 MM) DIAMETER NICKEL BRONZE, ADJUSTABLE ROUND STRAINER, 4" X 9" (102 MM X 229 MM) OVAL CAST IRON FUNNEL.	
CO		ADJUSTABLE FLOOR CLEANOUT	WATTS MODEL #CO-260	AS PER DWG	-	-	-	-	WATTS #CO-260 CLEANOUT - EPOXY COATED, CAST IRON BODY, REMOVABLE, GAS TIGHT, GASKETED, BRASS PLUG, 8" (203 MM) ROUND, ADJUSTABLE GASKETED, HEAVY DUTY DUCTILE IRON COVER, NO HUB OUTLET.	
TPD-1		TRAP SEAL PRIMER, WALL MOUNTED, ELECTRONIC, FLUSH MOUNT CABINET, MAX 12 TRAPS	PRECISION PUMPING PRODUCT MODEL #PT-12	-	-	13MM (1/2")	-	-	P.P.P #PT-12 TRAP SEAL PRIMER, FLUSH MOUNTED CABINET WITH KEY LOCK FIRE RATED SS ACCESS DOOR ACTIVATED BY A 20 MM (3/4") NORMALLY CLOSED 110V SOLENOID VALVE, DESIGNED TO INTERFACE WITH LOW VOLTAGE ENERGY MANAGEMENT SYSTEMS CONTROL, 20MM (3/4") DIAMETER CONNECTION ANTI-SIPHON ATMOSPHERIC VACUUM BREAKER, PRESET 24HR ADJUSTABLE TIMER.	

SCHEDULE OF GRILLES & DIFFUSERS									
TYPE	SERVICE	MANUFACTURER	SIZE	MODEL NO.	VOLUME CONTROL	FINISH	DESCRIPTION	REMARKS	
A	CEILING SUPPLY	EH PRICE	300x300	SCDA	YES	B-12	4 CONE, STEEL	1,2,3,4,5	
B	CEILING RETURN	EH PRICE	300x300	80	YES	B-12	ALUMINUM	1,2,3,4,5	
C	EXHAUST	EH PRICE	150x150	80	NO	B-12	ALUMINUM	1,2,3,5	

NOTES:

- ALL DIFFUSER AND GRILLE FRAMES SHALL SUIT CEILING CONSTRUCTION.
- ALL DAMPERS SHALL BE OF THE SAME MATERIAL AS THE DIFFUSER OR GRILLE.
- REFER TO ARCHITECTURAL DRAWINGS FOR CEILING CONSTRUCTION.
- DIFFUSERS / GRILLES IN DRYWALL CEILING TO HAVE ADAPTER FRAME OF THE SAME MATERIAL AS DIFFUSERS / GRILLES.
- GRILLE AND DIFFUSER COLOUR TO SUIT ARCHITECTURAL DIRECTION.
- ALUMINUM LINEAR BAR GRILLE, 125mm WIDE, LENGTH TO MEASURE ON SITE, PENCIL PROOF, SUITABLE FOR NEW MILLWORK.

SCHEDULE OF FURNACE																
TAG	BASIS OF DESIGN		HEATING				SUPPLY FAN		COMBUSTION FAN		ELECTRICAL			REMARKS		
			TYPE	STAGE 1		STAGE 2		FLUE (mm)	SUPPLY AIR (L/S)	MOTOR POWER (KW)	MOTOR SPEED (RPM)	POWER (W)	V/Ø/Hz		MCA	MOCP
				INPUT (kW)	OUTPUT (kW)	INPUT (kW)	OUTPUT (kW)									
AHU-1	TRANE	TUD2C100A9V5VB	GAS	19	15.2	29.3	23.1	1000	943	0.75	3,000	15	115/1/60	14.9	20	1 TO 6

NOTES:

- MULTI-PORT, IN SHOT BURNERS
- HEAVY GAUGE ALUMINIZED STEEL HEAT EXCHANGER
- LOW ENERGY POWER VENT BLOWER FOR GAS DISCHARGE
- DUAL SOLENOID COMBINATION GAS VALVE AND REGULATOR
- MULTISPEED, DIRECT DRIVE BLOWER MOTOR
- THERMOSTAT.

ERV SCHEDULE																	
UNIT TAG	LOCATION	SERVING AREAS/ ROOMS	BASIS OF DESIGN		EXHAUST SIDE			OUTSIDE AIR SIDE				ELECTRICAL			WEIGHT	REMARKS	
			MANUFACTURER	MODEL	AIR FLOW	TEMP	PRESSURE DROP	AIR FLOW	TEMP	PRESSURE DROP	POWER	SENSIBLE RECOVERY EFFICIENCY	POWER	FLA			V/ PH / HZ
ERV-1	M-1	WASHROOM	TRANE	SHR3205RD	94.3	21.1	150	75.5	-16.7	200	168	67	300	2.5	120/1/60	36	1 to 7

NOTES:

- ALUMINUM HEAT RECOVERY CORE
- SEPARATE DEFROST CYCLE OUTLET
- DUAL ACCESS DOORS
- 4 FANS, BACKWARD CURVED BLADES
- 24 Ga GALVANIZED STEEL
- CABINET FULLY INSULATED WITH 25mm HIGH DENSITY EXPANDED POLYSTYRENE
- (4) WASHABLE ELECTROSTATIC FILTERS

SCHEDULE OF ELECTRIC DOMESTIC HOT WATER HEATERS												
TAG	QTY	LOCATION	TANK MODEL NO.	STORAGE CAPACITY (LITRES)	DIMENSIONS Ø x H (mm)	STORAGE TEMP.	ELEMENT WATTAGE UPPER	ELEMENT WATTAGE LOWER	INPUT (KW)	RECOVERY CAPACITY (LPH)	VOLTAGE V/Ø/Hz	REMARKS
DHWT-1	1	M-2	DEL-6	23	362 x 394	60°C	1500	1500	1.5	23	120/1/60	REFER TO NOTES

NOTES:

- DISCONNECT SWITCH
- RECOVERY CAPACITY BASED ON 30°C
- PROVIDE SUITABLE RELIEF VALVE
- REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS

GAS UNIT HEATER SCHEDULE										
UNIT TAG	LOCATION	BASIS OF DESIGN		TYPE	OUTPUT CAPACITY (kW)	AIRFLOW L/S	ELECTRICAL		WEIGHT KG	REMARKS
		MANUFACTURER	MODEL				POWER (W)	VOLT/PH/Hz		
UH-1	M-1	REZNOR	B	GAS	5.9	193	140	120/1/60	42	1,2

NOTES:

- THERMOSTAT
- CEILING MOUNTED

ELECTRIC CABINET UNIT HEATER SCHEDULE										
UNIT TAG	LOCATION	BASIS OF DESIGN		TYPE	OUTPUT CAPACITY (kW)	AIRFLOW L/S	ELECTRICAL		WEIGHT KG	REMARKS
		MANUFACTURER	MODEL				POWER (W)	VOLT/PH/Hz		
CUH-1	M-1	STELPRO	WF1501	ELECTRIC	1.5	35	1500	120/1/60	2.7	1, 2, 3, 4, 5, 6

NOTES:

- WALL MOUNTED
- THERMOSTAT
- WHITE COLOR
- EPOXY POLYESTER POWDER COAT FINISH
- THERMAL PROTECTION WITH AUTOMATIC RESET
- HIGH QUALITY NICHROME ELEMENT

ELECTRIC BASEBOARD HEATER SCHEDULE											
UNIT TAG	LOCATION	BASIS OF DESIGN		TYPE	OUTPUT CAPACITY (W/m)	LENGTH (mm)	WIDTH (mm)	ELECTRICAL		WEIGHT KG	REMARKS
		MANUFACTURER	MODEL					POWER (W)	VOLT/PH/Hz		
BB-1	M-1	STELPRO	BA0301W	ELECTRIC	492	732	66	300	120/1/60	3	2, 3, 4, 5, 6, 7, 8

NOTES:

- FLOOR MOUNTED
- BUILT IN THERMOSTAT
- WHITE COLOR
- EPOXY POLYESTER POWDER COAT FINISH
- THERMAL PROTECTION WITH AUTOMATIC RESET
- SINGLE TUBULAR, STAINLESS STEEL SHEATHED ELEMENT
- COORDINATE WITH ELECTRICAL DIV-16 FOR POWER

AIR CONDITIONING UNIT SCHEDULE													
UNIT TAG	LOCATION	SERVICE	BASIS OF DESIGN		CAPACITY kW	REFRIGERANT TYPE	UNIT SEER	ELECTRICAL				WEIGHT KG	REMARKS
			MANUFACTURER	MODEL				MOCP	MCA	FLA	V/ PH / HZ		
AC-1	M-1	-	TRANE	4TR7060	17.5	R-410A	18	60	41	1.3	230/1/60	141	1 to 5

NOTES:

- WEATHER PROOF DISCONNECT SWITCH
- MIN 100mm CURB
- PROGRAMMABLE THERMOSTAT
- HIGH & LOW PRESSURE CONTROLS
- CONDENSER FAN SWITCH
- COMPRESSOR CONTACTOR SWITCH
- HIGH PRESSURE SWITCH
- COMPRESSOR HIGH TEMPERATURE & PRESSURE PROTECTION
- CENTRIFUGAL OIL PUMP

BY-PASS TERMINAL UNIT SCHEDULE						
BOX TAG	SIZE	BASIS OF DESIGN		AIRFLOW		REMARKS
		MANUFACTURER	MODEL	MINIMUM	MAXIMUM	
				L/S	L/S	
6	6	EH PRICE	LGB	47	189	1, 2

NOTES:

- BY-PASS BOX TO C/W ELECTRONIC CONTROLLER, CONTROLS CONTRACTOR TO COORDINATE SEQUENCE OF OPERATION WITH THE MECHANICAL DRAWINGS AND WITH THE MANUFACTURER.
- BY-PASS BOX TO C/W ROUND BY-PASS COLLAR
- BY-PASS BOX TO C/W A 914mm (3) SOUND ATTENUATOR

ARCHITECTURE 49

605-75 WATER ST N.
CAMBRIDGE ONTARIO CANADA N1R 7L6
TEL: 226-765-0800 | FAX: 519-740-6104 | ARCHITECTURE49.COM

MMM Group Limited
582 Lancaster St W
Kitchener, ON N2K 1M3
1.519-743-8777
1.519-743-8778
www.mmm.ca

LICENCED PROFESSIONAL ENGINEER
Nov 22/16
S. ANSARI-ABYANIEH
100218222
Province of Ontario

3	11/23/16	ISSUED FOR TENDER	MH	AB
2	11/07/16	ISSUED FOR 95%	MH	AB
1	10/21/16	ISSUED FOR 50%	MH	AB
NO.	DATE	DESCRIPTION	Drawn by	Approved
			Dessine par	Approuve

REVISIONS

A	A Detail number	A Numero de detail
B	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters Dimensions lineaires en millimetres

Parcs Canada Parks Canada

Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

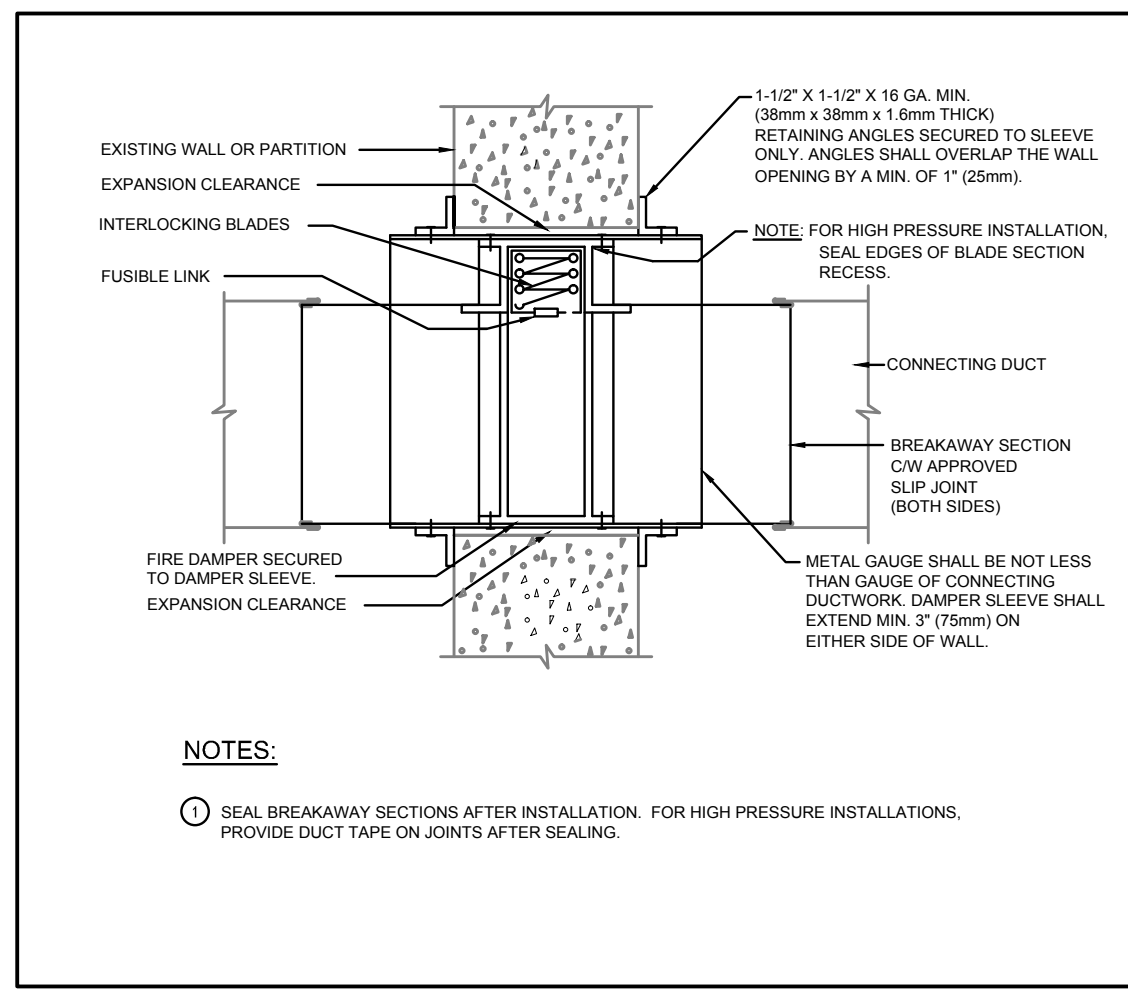
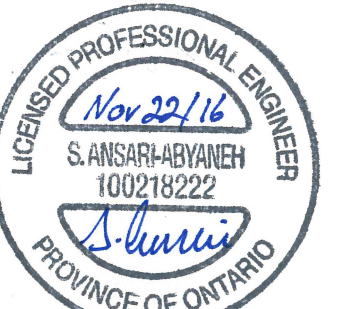
Drawing title / Titre du dessin
MECHANICAL SCHEDULES

Plot Scale / Echelle
1:50

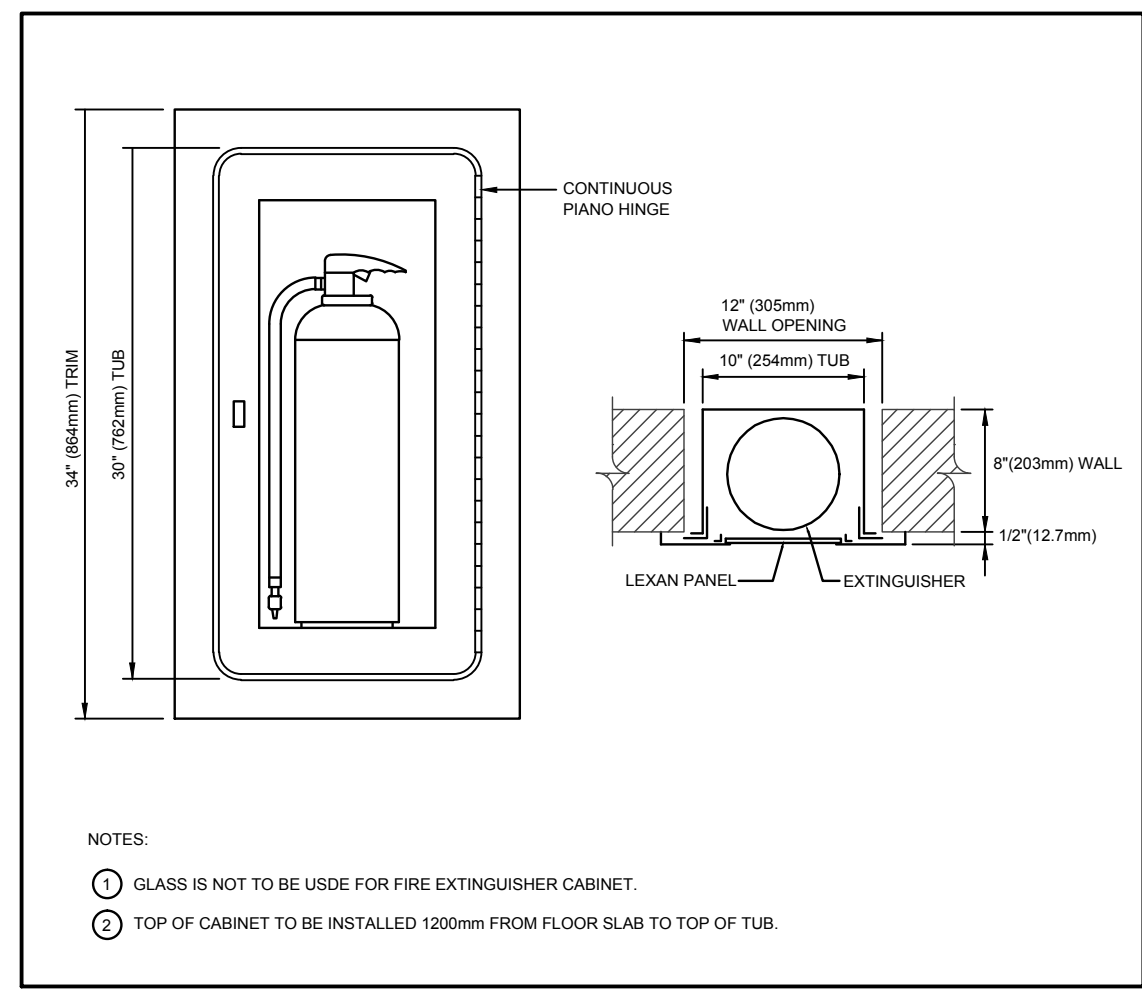
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Field Recording by / Relevé-Terminé par N/A	Date N/A
Approved by / Approuve par AB	Date 10/13/16
Checked by/ Verifie par AB	Date 10/13/16
Project No./ No. du projet PRO000812	Asset No. Sheet No./ Feuille No. M-5
Drawing Re No./No. du Dessin 1	



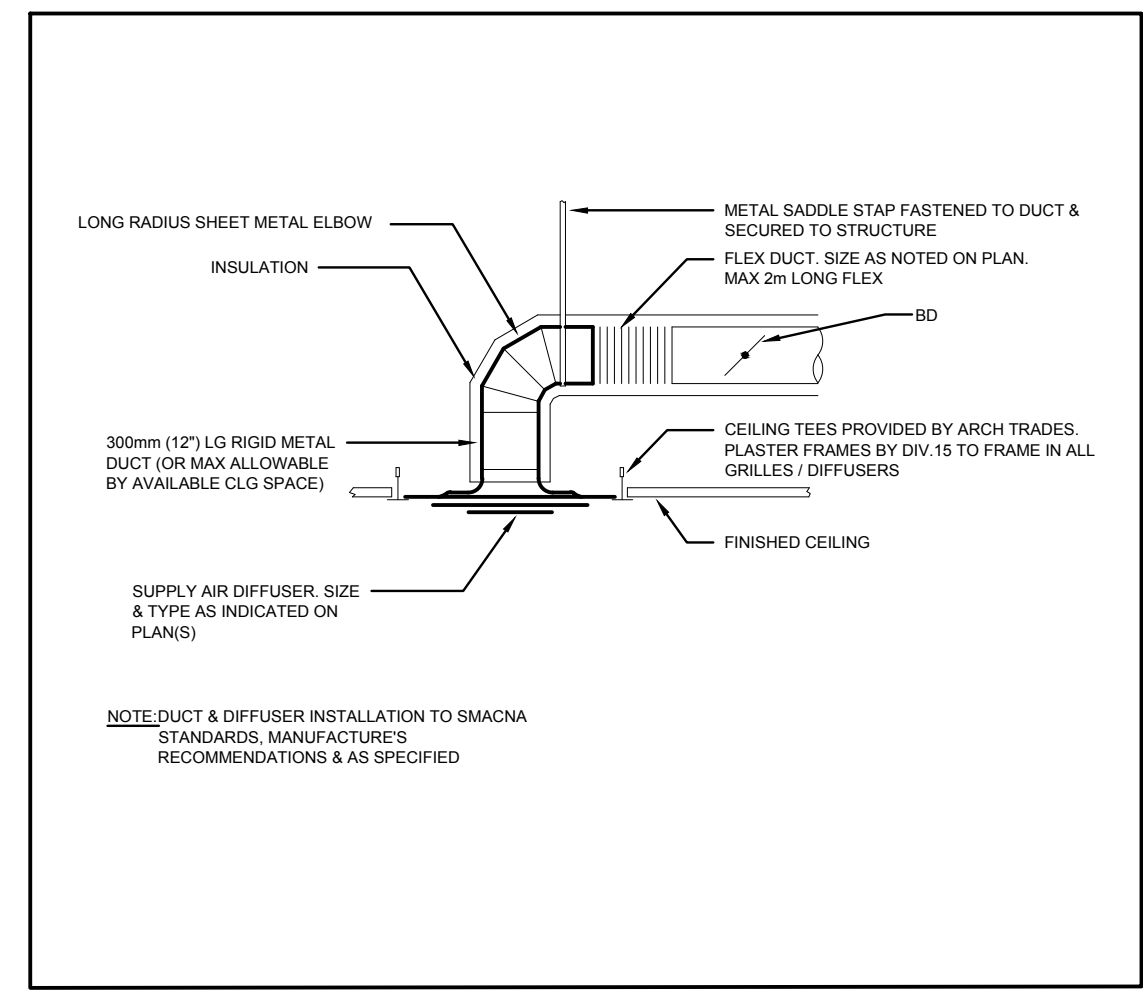
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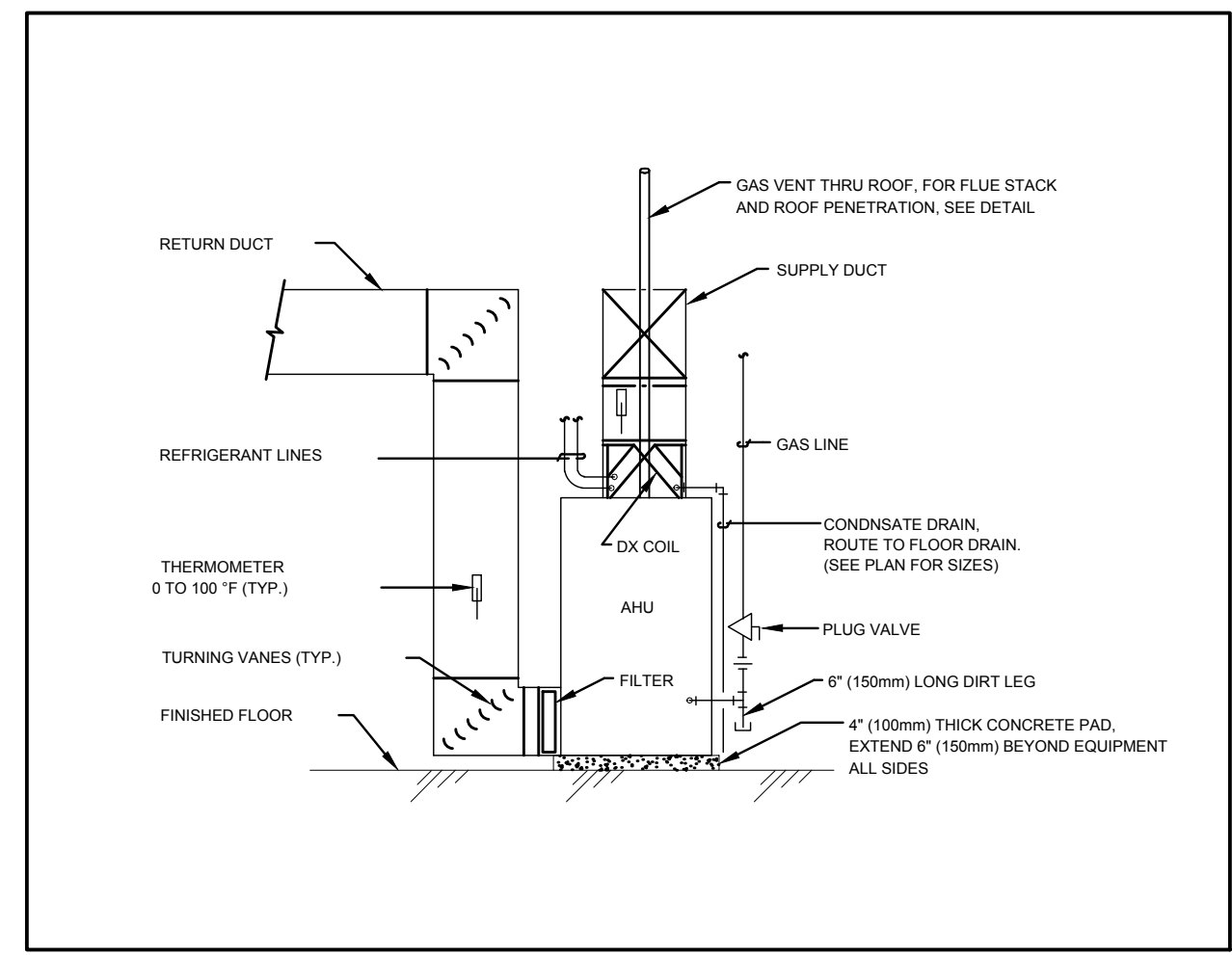
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M-06 N.T.S.



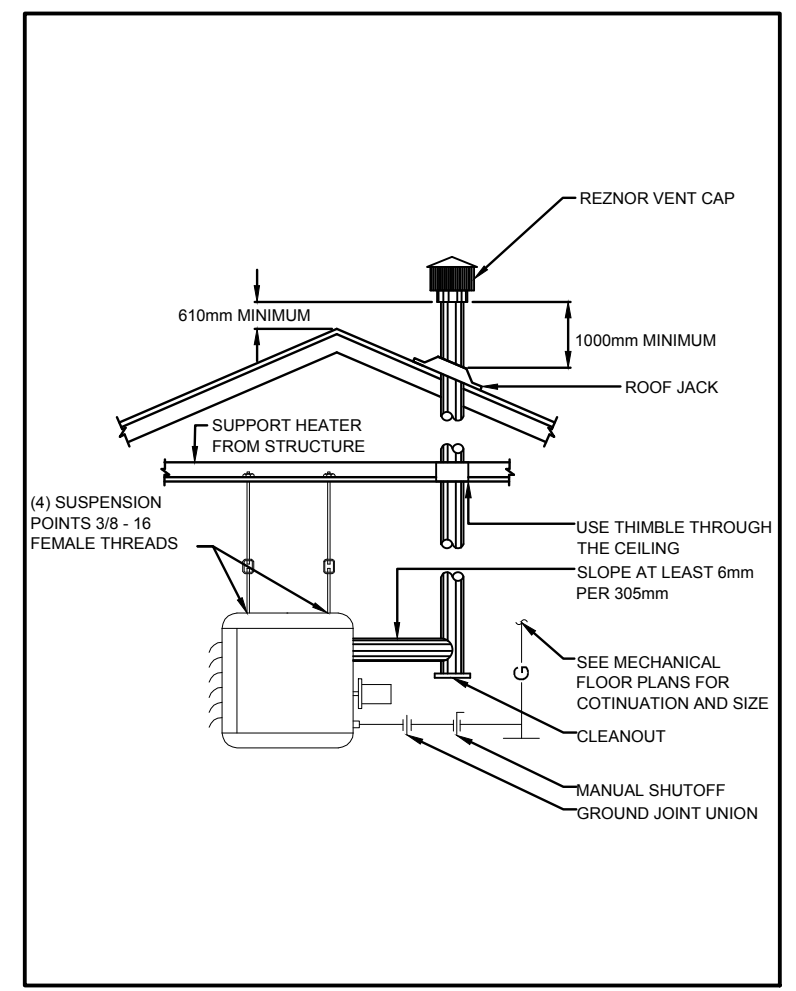
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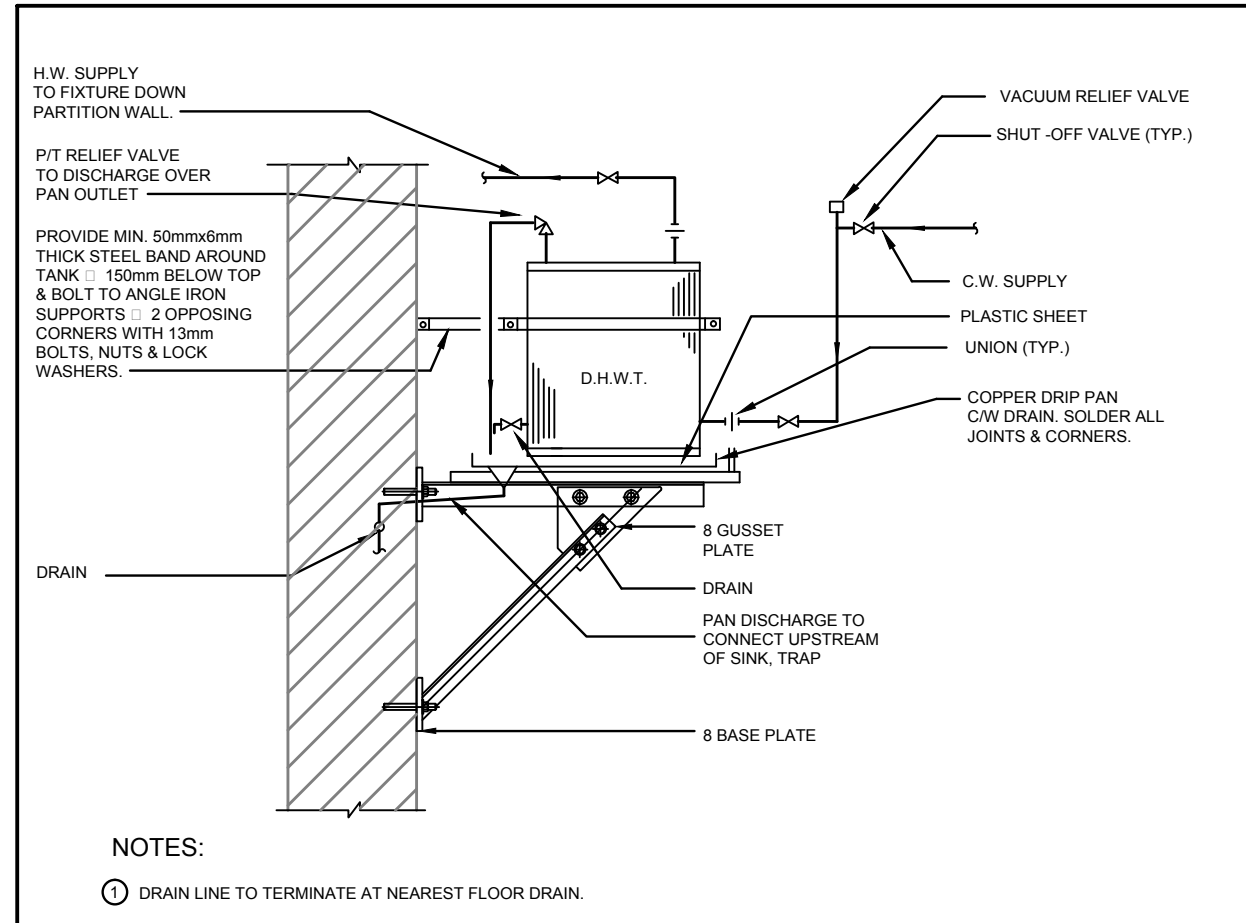
3 TYP. SQUARE DIFFUSER INSTALLATION
M-06 N.T.S.



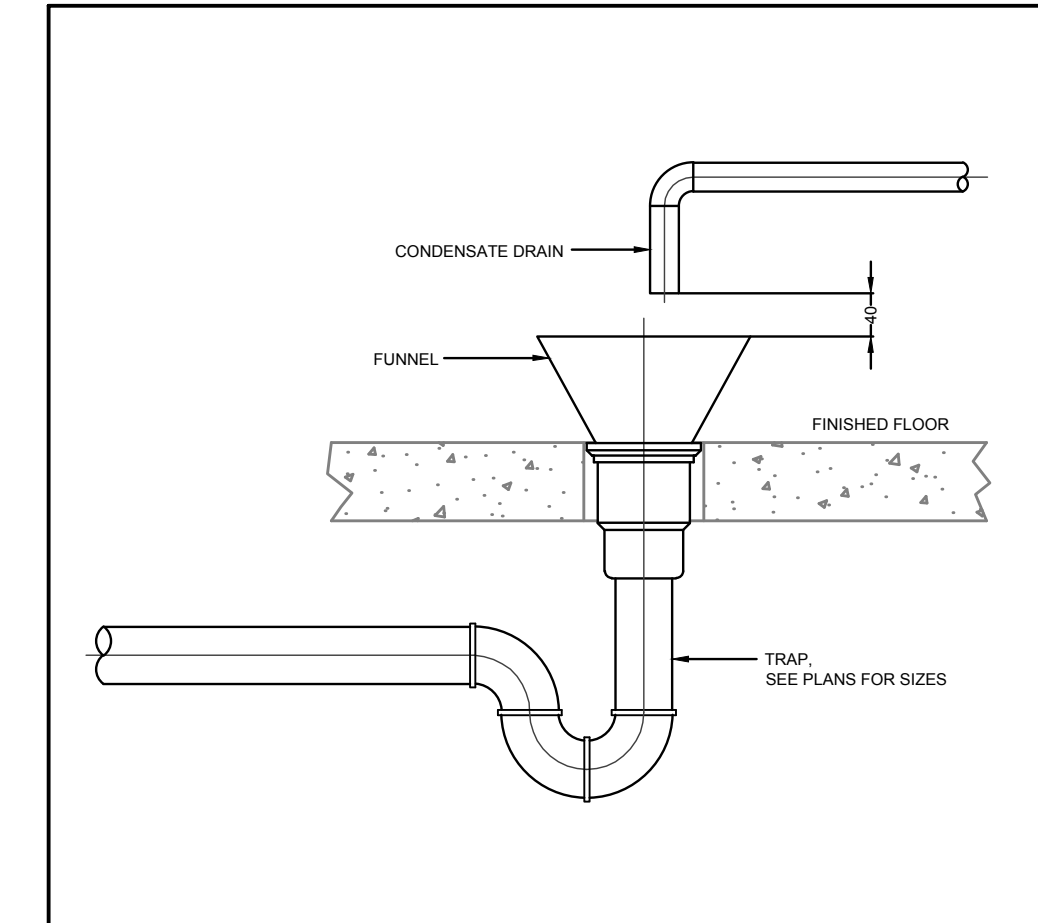
4 TYPICAL DETAIL OF UPFLOW GAS-FIRED FURNACE
M-06 N.T.S.



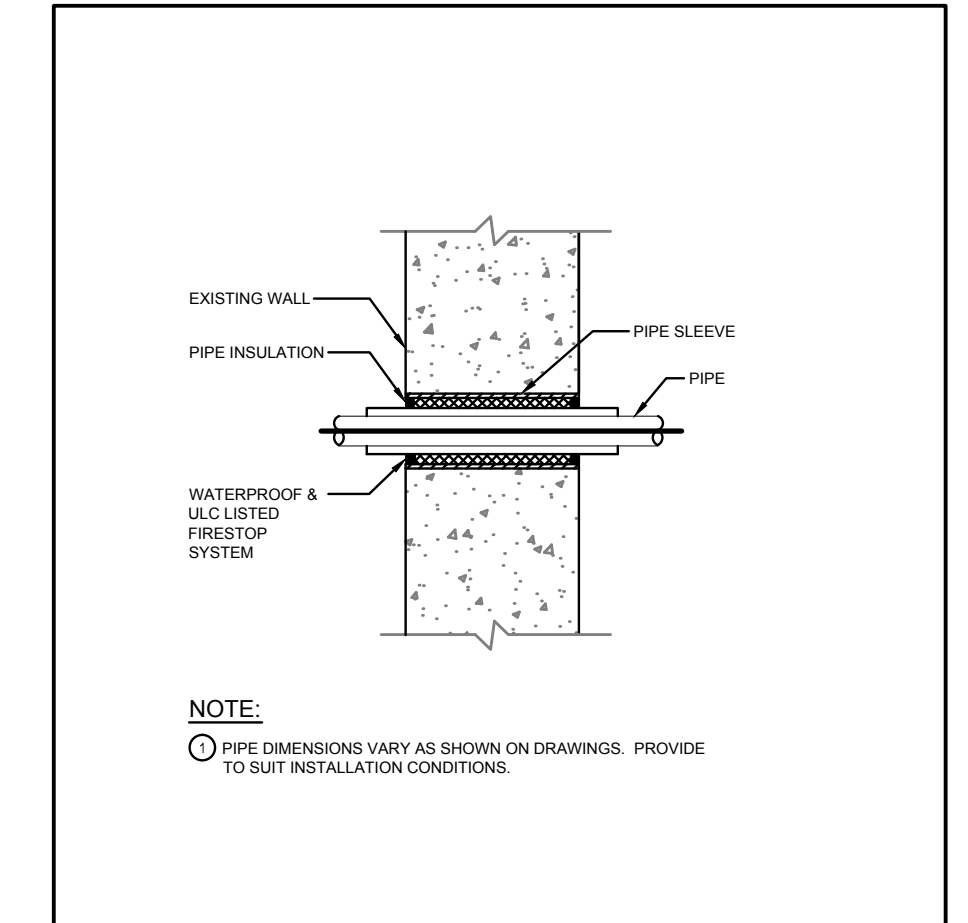
5 DETAIL OF GAS FIRED UNIT HEATER
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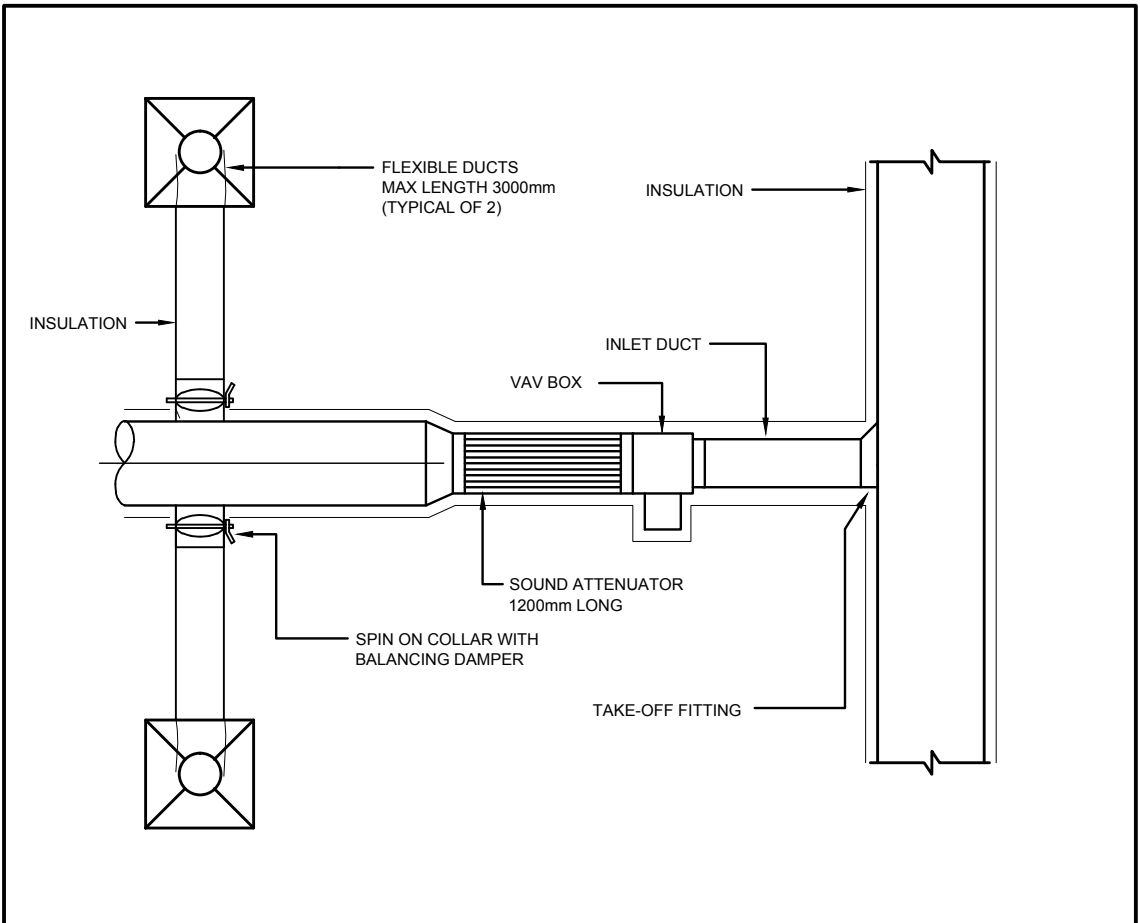
6 ELECTRIC WATER HEATER WITH RECIRCULATION
M-06 N.T.S.



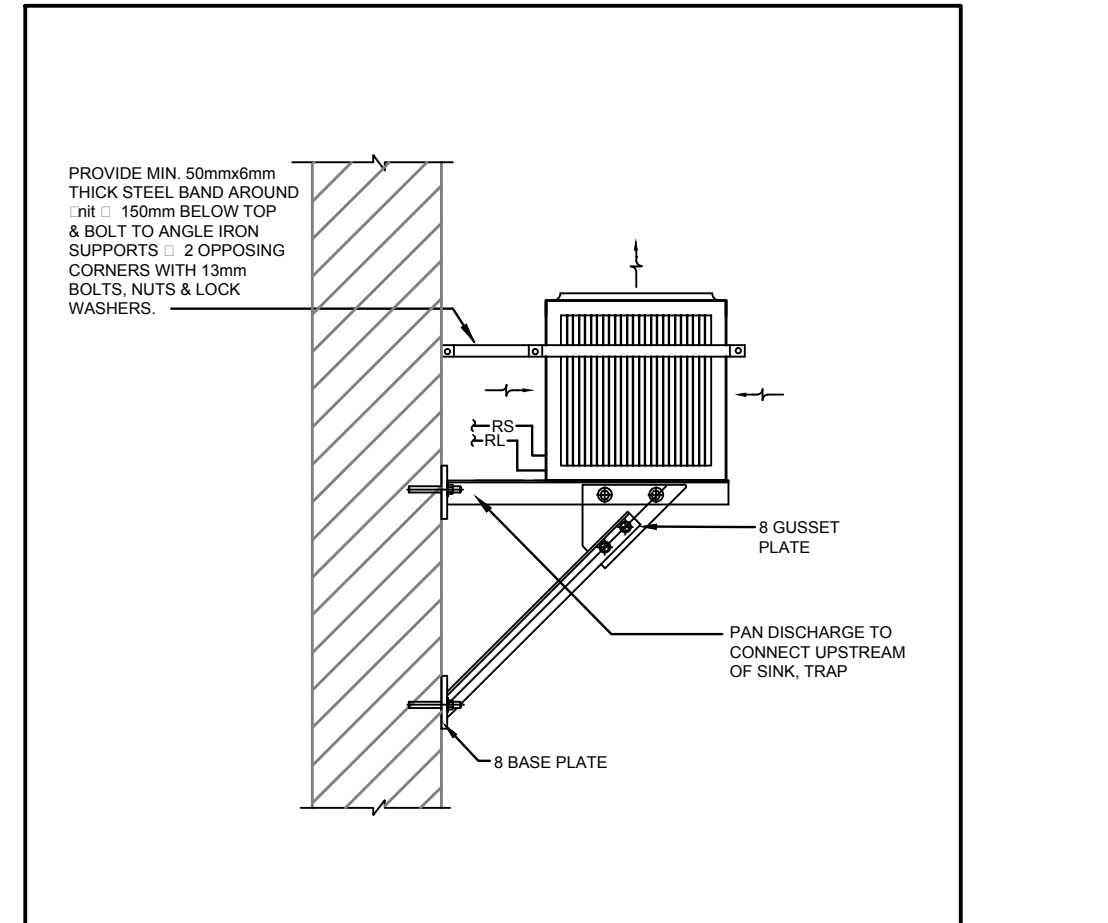
7 FUNNEL AND FLOOR DRAIN DETAIL
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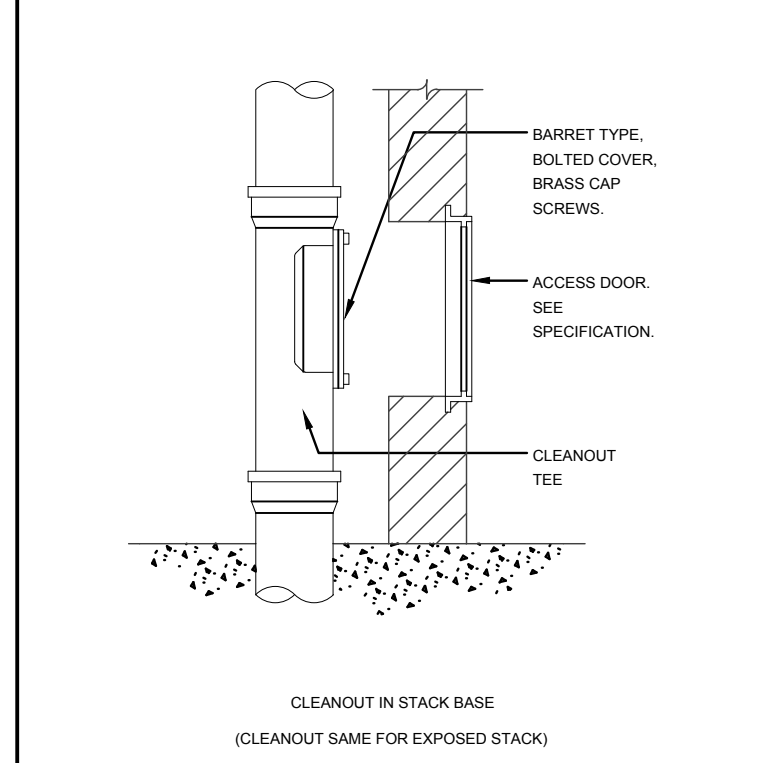
8 PIPING PASSING THROUGH FIRE-RATED WALL
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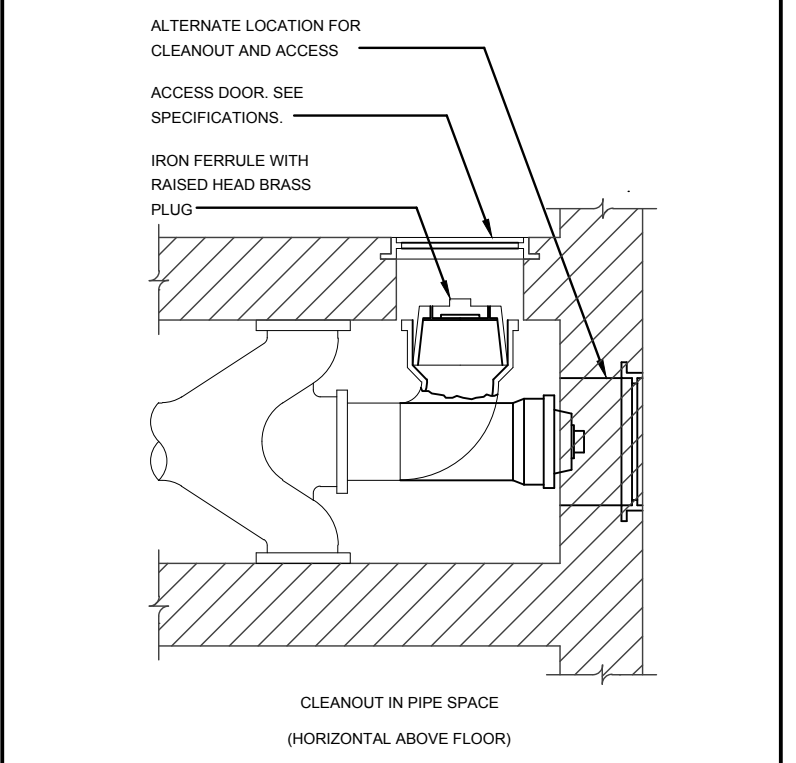
9 TYPICAL VAV BOX INSTALLATION
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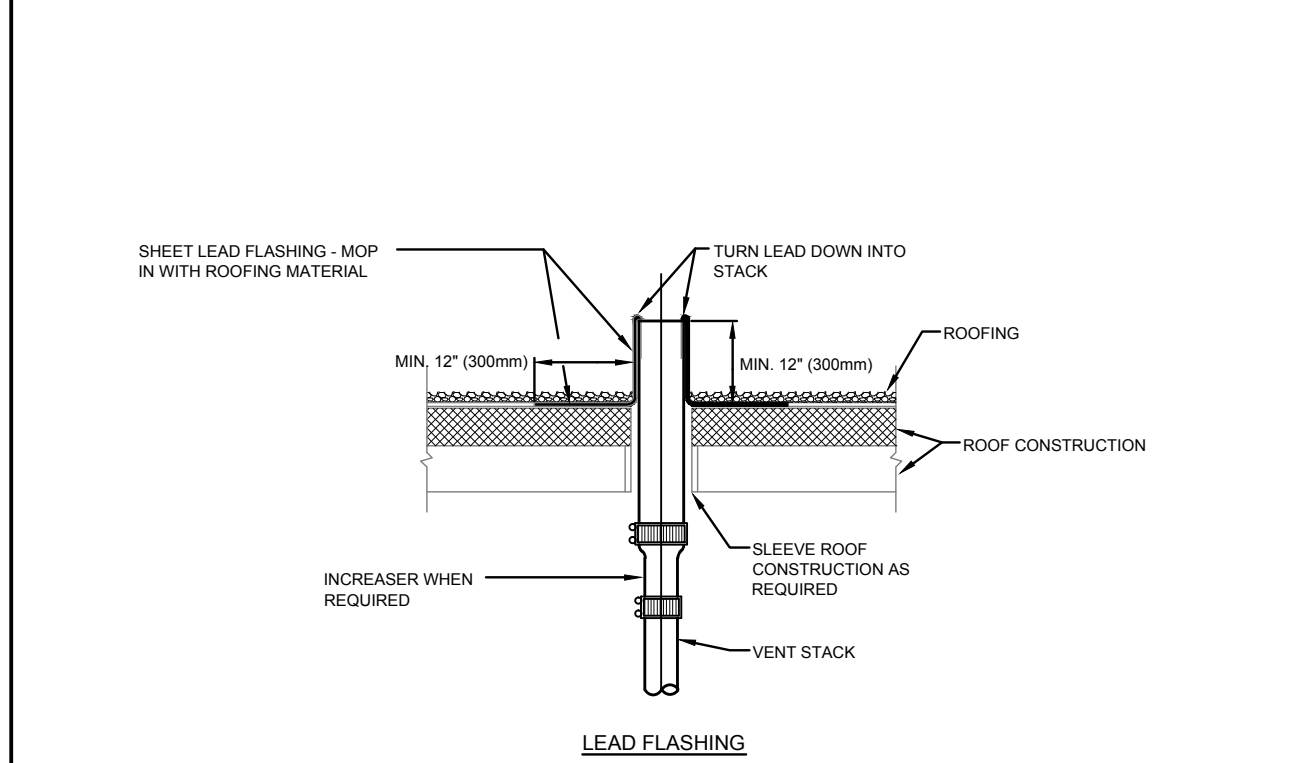
10 SPLIT AC SYSTEM CONDENSING UNIT
M-06 N.T.S.



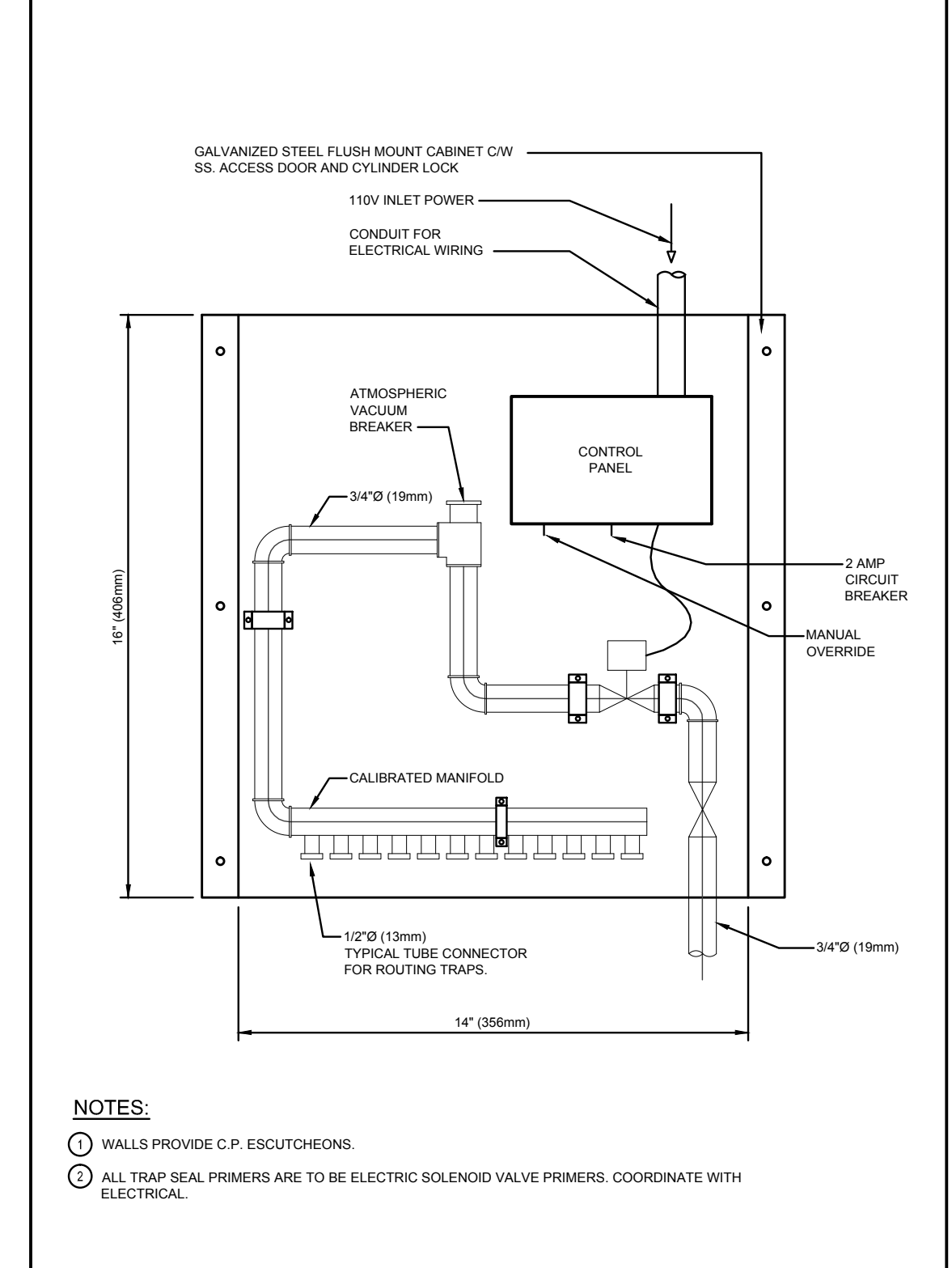
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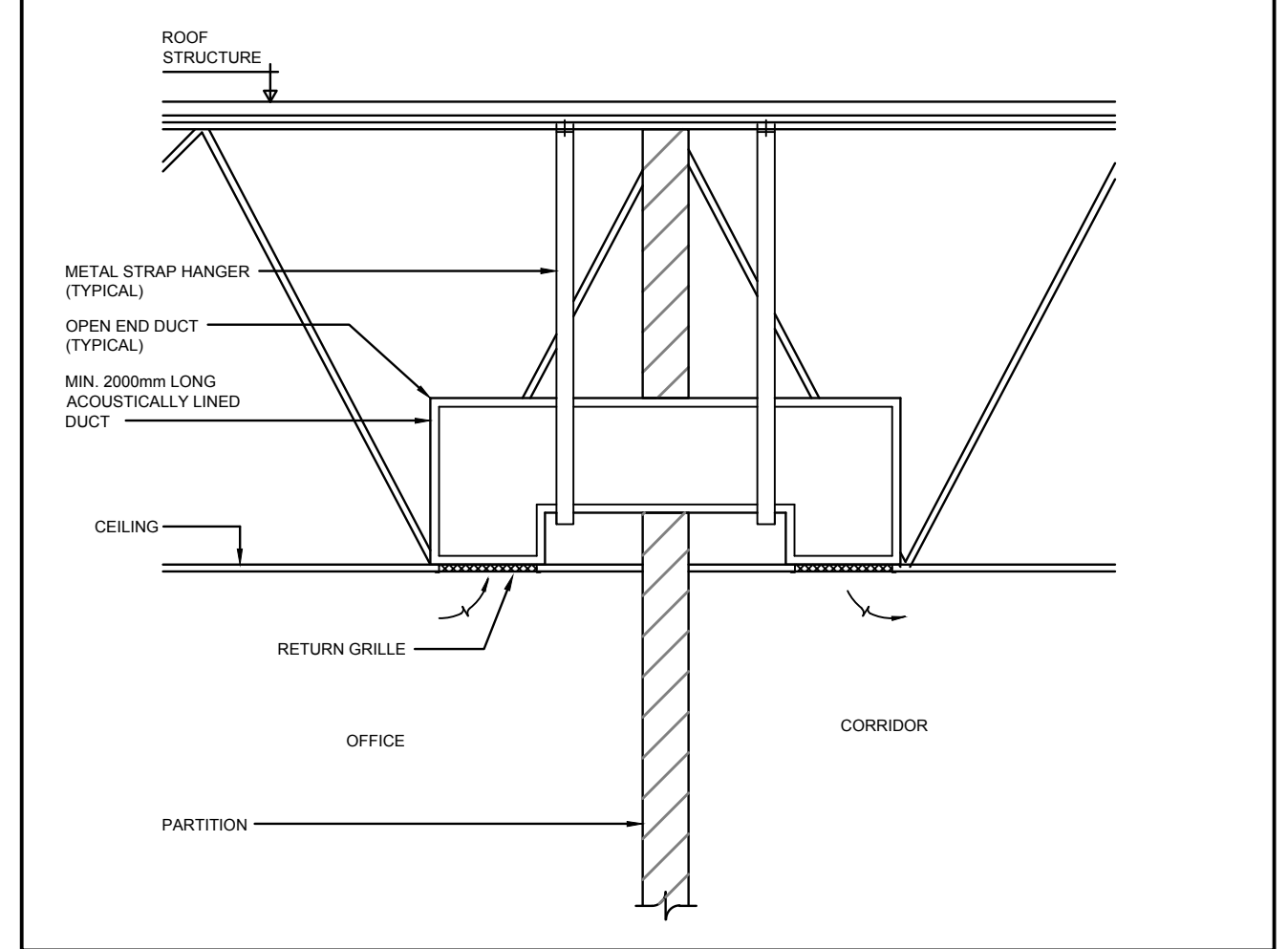
12 VENT THROUGH ROOF
M-06 N.T.S.



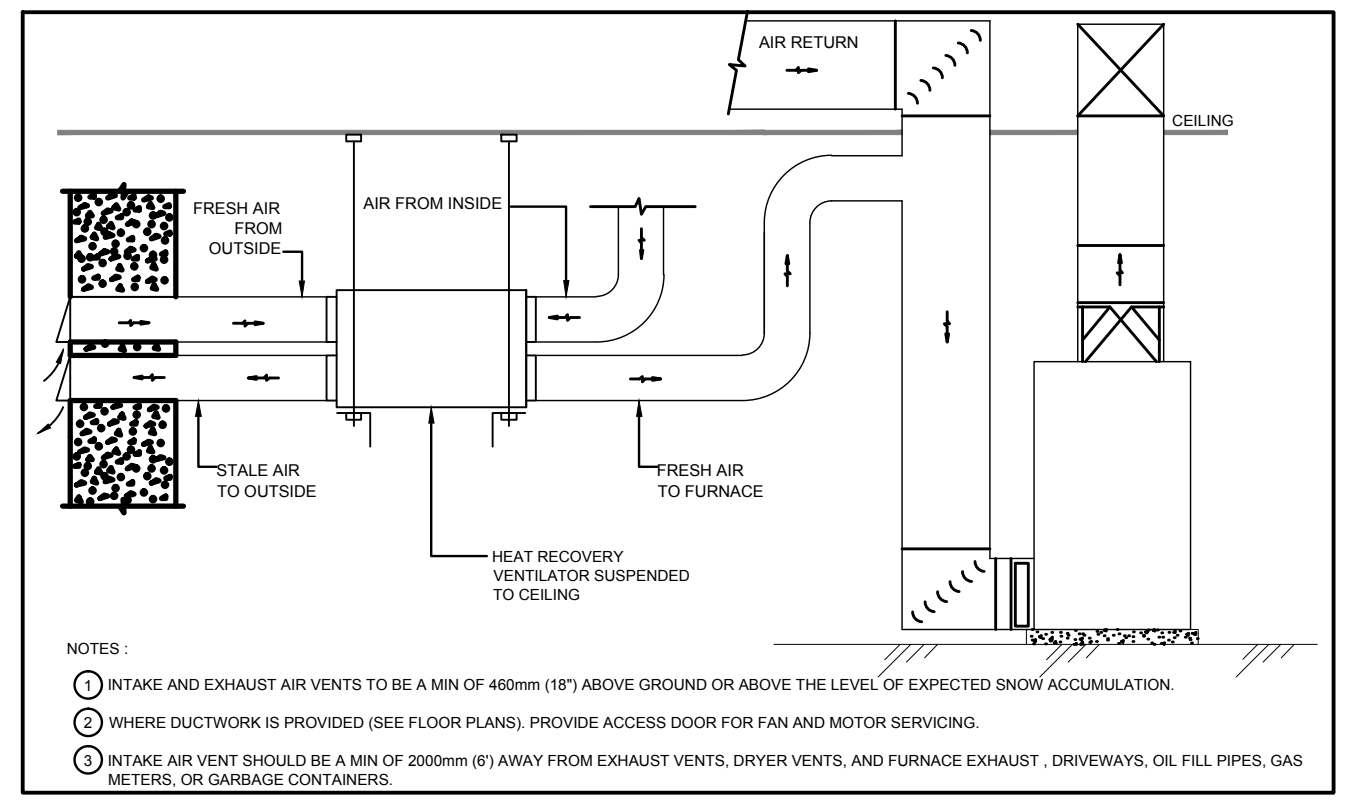
13 TRAP PRIMER
M-06 N.T.S.



14 TYPICAL TRANSFER AIR DUCT INSTALLATION
M-06 N.T.S.



15 TYPICAL HRV INSTALLATION
M-06 N.T.S.

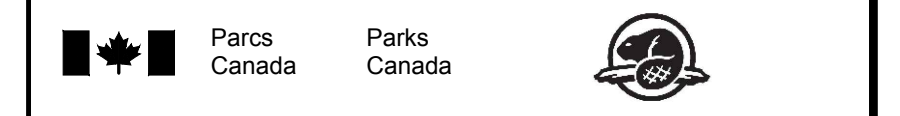


16 REVISIONS

NO.	DATE	DESCRIPTION	Drawn by	Approved
2	11/23/16	ISSUED FOR TENDER	MH	AB
1	11/07/16	ISSUED FOR 95% REVIEW	MH	AB

REVISIONS				
A	A Detail number		A Numero de detail	
B	B Sheet number		B Sur feuille numero	

Linear dimensions in millimeters / Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet

FORT MALDEN
ADDITION

Drawing title / Titre du dessin

MECHANICAL
DETAILS

Plot Scale / Echelle

1:50

Drawn by/ Dessine par
MH 11/07/16

Field Recording by /
Releve-Termin par
N/A N/A

Approved by / Approuve par
AB 11/07/16

Checked by/ Verifie par
SA 11/07/16

Project No./ No. du projet
PR0000812

Asset No. /
Feuille No.
M-6

Drawing Re No./No. du Dessin
1

SCHEDULE OF LUMINAIRES			
TYPE	BASE SPECIFIED MANUFACTURER & CATALOGUE NUMBER	LUMINAIRE DESCRIPTION	ACCEPTABLE MANUFACTURERS
A1	LITHONIA LED CAT# 2TLX4-48L-FW-A12-EZ1-LP840	2'X4' SURFACE MOUNTED LED LUMINAIRE CW A HINGED AND LATCHED STEEL LENS FRAME WITH A PRISM DESIGN #12 LENS DIFFUSER SUITABLE FOR INSTALLATION ON GYPSUM CEILINGS. 4800 LUMEN PACKAGE	METALUX (COOPER) VISIONERING STANPRO PHILIPS
A2	LITHONIA LED CAT# 1TLX4-32L-FW-A12-EZ1-LP840	1'X4' SURFACE MOUNTED LED LUMINAIRE CW A HINGED AND LATCHED STEEL LENS FRAME WITH A PRISM DESIGN #12 LENS DIFFUSER SUITABLE FOR INSTALLATION ON GYPSUM CEILINGS. 3200 LUMEN PACKAGE	METALUX (COOPER) VISIONERING STANPRO PHILIPS
B	PHILIPS DAY-BRITE FLUXSTREAM CAT# LF4FR6040UDZT	COLD ROLLED STEEL HOUSING LED SUSPENDED STRIP WITH WHITE ACRYLIC COATING AND ACRYLIC LENS. LUMINAIRE OUTPUT TO BE MINIMUM 6000 LUMENS AND SUITABLE FOR USE AS CHAIN MOUNTED.	METALUX (COOPER) VISIONERING STANPRO LITHONIA
C	PHILIPS DAY-BRITE CUBELITE CAT# CSW48-4740USZTZO	COLD ROLLED STEEL HOUSING LED WALL CUBE WITH WHITE ACRYLIC ENAMEL COATING AND OPAL LENS. LUMINAIRE OUTPUT TO BE MINIMUM 4500 LUMENS AND SUITABLE FOR USE WITH OCCUPANCY SENSORS.	METALUX (COOPER) VISIONERING STANPRO LITHONIA
D1	PHILIPS CAT# LWLLED1C5K120PCBBZ	DIE CAST ALUMINUM LED WALL LIGHT WITH POLYCARBONATE LENS AND INTEGRAL PHOTOCELL FOR DUSK TO DAWN OPERATION AND MOUNTS TO A STANDARD 4" JUNCTION BOX. BRONZE IN COLOUR.	METALUX (COOPER) VISIONERING STANPRO LITHONIA
D2	PHILIPS CAT# 313-LED-167D-4K-120-PCB-P	DIE CAST ALUMINUM LED WALL LIGHT WITH GLASS REFRACTER AND INTEGRAL PHOTOCELL FOR DUSK TO DAWN OPERATION AND MOUNTS TO A STANDARD 4" JUNCTION BOX. BRONZE IN COLOUR.	METALUX (COOPER) VISIONERING STANPRO LITHONIA
E1	EMERGLITE CAT# 12ESL36-2-LG	WHITE STEEL CABINET WITH ACCESS TO COMPONENTS VIA REMOVABLE FRONT COVER AND COMPLETE WITH TEST SWITCH AND TWO 4W-12V LED MR16 HEADS.	STANPRO LUMACELL BEGHELLI
X1	EMERGLITE CAT# EP-1-W-1	WHITE THERMOPLASTIC PICTOGRAM EXIT SIGN, SINGLE FACED, UNIVERSAL MOUNTING, SELF POWERED.	STANPRO LUMACELL BEGHELLI

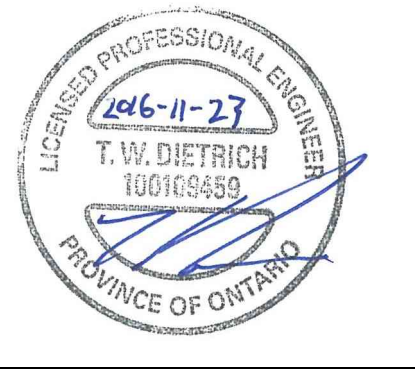
POWER SYMBOLS	
SYMBOL	DESCRIPTION
	DUPLEX U-GROUND 15A, 125 VOLT, 2 POLE, 3 WIRE GROUNDING RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL, UNLESS OTHERWISE NOTED. ** WHERE SHOWN, DENOTES CONNECTION TO EMERGENCY POWER. ** WP WHERE SHOWN, DENOTES DEVICE MOUNTED IN WEATHERPROOF F.S. BOX WITH WEATHERPROOF COVER * GF WHERE SHOWN, DENOTES GROUND FAULT INTERRUPTER TYPE DUPLEX RECEPTACLE * IG WHERE SHOWN, DENOTES ISOLATED GROUND * C WHERE SHOWN, DENOTES DEVICE IS CEILING MOUNTED
	SIMILAR TO ABOVE, EXCEPT TAMPERPROOF TYPE RECEPTACLE.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER, UNLESS OTHERWISE NOTED.
	TWO DUPLEX U-GROUND 15A, 125 VOLT, 2 POLE, 3 WIRE GROUNDING RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL IN COMMON FACEPLATE, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER.
	15/20A, 125V DUPLEX U-GROUND RECEPTACLE (5-20R), MOUNTED 12" (300mm) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER.
	120V CONNECTION TO EQUIPMENT
	208V, 1PH CONNECTION TO EQUIPMENT
	208V, 3PH CONNECTION TO EQUIPMENT
	600V, 1PH CONNECTION TO EQUIPMENT
	600V, 3PH CONNECTION TO EQUIPMENT
	SINGLE SURFACE MOUNTED PANEL BOARD. * PP DENOTES POWER PANEL. * LP DENOTES LIGHTING AND POWER PANEL.
	SINGLE RECESSED MOUNTED PANEL BOARD. * PP DENOTES POWER PANEL. * LP DENOTES LIGHTING AND POWER PANEL.
	JUNCTION BOX
	* TRANSIENT VOLTAGE SURGE SUPPRESSOR INTEGRALLY MOUNTED IN PANEL BOARD.
	FLUSH OR SURFACE MOUNTED OUTLET BOX c/w DIRECT CONNECTION TO EQUIPMENT * IM WHERE SHOWN, DENOTES CONNECTION FOR ICE MACHINE * FS WHERE SHOWN, DENOTES CONNECTION FOR FIRE SHUTTER. FIRE SHUTTER TO BE ACTIVATED BY FIRE ALARM PANEL * DL WHERE SHOWN, DENOTES CONNECTION TO TRUCK DOCK LEVELER * PDS WHERE SHOWN, DENOTES CONNECTION TO PNEUMATIC TRUCK DOCK DOOR SEAL * LT WHERE SHOWN, DENOTES CONNECTION TO LIFT TABLE * BC WHERE SHOWN, DENOTES CONNECTION TO BATTERY CHARGER
	FLUSH-MOUNTED PUSHBUTTON MOUNTED 4'-0" (1.2 m) ABOVE FINISHED FLOOR LEVEL. * WP WHERE SHOWN, DENOTES WEATHERPROOF. * EPO WHERE SHOWN, DENOTES EMERGENCY POWER OFF.
	SURFACE RACEWAY
	MOTOR
	DISCONNECT SWITCH UNLESS NOTED OTHERWISE
	MOTOR STARTER - MAGNETIC
	MAGNETIC STARTER & DISCONNECT SWITCH (COMBINATION STARTER)
	MOTOR c/w DISCONNECT SWITCH
	MOTOR c/w STARTER
	MOTOR c/w STARTER AND DISCONNECT SWITCH
	HAND DRYER OR HAIR DRYER
	UNIT HEATER PROVIDED ELECTRIC UNIT HEATER
	FORCE FLOW HEATER ELECTRIC FORCE FLOW HEATER
SECURITY SYMBOLS	
SYMBOL	DESCRIPTION
	EMPTY BACKBOX FOR FUTURE SECURITY SYSTEM DOOR ALARM CONTACTS. RECESSED IN DOOR AND FRAME.
	EMPTY BACKBOX FOR FUTURE SECURITY SYSTEM MOTION DETECTOR.
	EMPTY BACKBOX FOR FUTURE SECURITY SYSTEM CARD READER OUTLET.
	EMPTY BACKBOX FOR FUTURE SECURITY SYSTEM COMBINATION GLASS BREAK/MOTION DETECTOR.
	CONNECTION TO ELECTRIC STRIKE. STRIKE PROVIDED BY DOOR HARDWARE SUPPLIER.
COMMUNICATIONS SYMBOLS	
SYMBOL	DESCRIPTION
	EMPTY BACKBOX FOR FUTURE DATA SIGNAL OUTLET, MOUNTED 12" (300 mm) ABOVE FINISHED FLOOR LEVEL, c/w 4" (100mm) OUTLET BOX AND BLANK STAINLESS STEEL FACEPLATE.
	EMPTY BACKBOX FOR FUTURE DATA SIGNAL OUTLET, MOUNTED 4" (100mm) ABOVE FINISHED FLOOR LEVEL, c/w 4" (100mm) OUTLET BOX AND BLANK STAINLESS STEEL FACEPLATE.
	EMPTY BACKBOX FOR FUTURE TELEPHONE OUTLET MOUNTED 12" (300 mm) ABOVE FINISHED FLOOR, MINIMUM 4" (100mm) SQUARE BOX c/w PLASTER RING AND FACEPLATE.
	EMPTY BACKBOX FOR FUTURE PUBLIC ADDRESS SPEAKER - CEILING MOUNTED
	EMPTY BACKBOX FOR FUTURE PUBLIC ADDRESS SPEAKER 'CS' WHERE NOTED INCLUDES PUBLIC ADDRESS SPEAKER COMPLETE WITH INTEGRAL CALL SWITCH.
	BATTERY OPERATED CLOCK SUPPLIED BY OWNER, INSTALLED BY ELECTRICAL CONTRACTOR.

FIRE ALARM SYMBOLS		
SYMBOL	DESCRIPTION	
	RECESSED OR SURFACE MOUNTED FIRE ALARM CONTROL PANEL.	
	RECESSED OR SURFACE MOUNTED FIRE ALARM ANNUNCIATOR PANEL.	
	FIRE ALARM PULL STATION MOUNTED 4'-0" (1200) ABOVE FINISHED FLOOR LEVEL UNLESS OTHERWISE NOTED.	
	SIMILAR TO ABOVE, EXCEPT * CG WHERE SHOWN, DENOTES DEVICE c/w CLEAR GUARD. * WG WHERE SHOWN, DENOTES DEVICE c/w WIRE GUARD. * EX WHERE SHOWN, DENOTES EXPLOSION PROOF. * F/W WHERE SHOWN, DENOTES DEVICE c/w AUXILIARY CONTACTS FOR CONNECTION TO MAG-LOCK ELEVATOR CONTROL. * B/C WHERE SHOWN, DENOTES 'BREAK GLASS' TYPE * K WHERE SHOWN, DENOTES DEVICE c/w KEY RESET * M/L WHERE SHOWN, DENOTES DEVICE c/w AUXILIARY CONTACTS FOR MAG-LOCK	
	AUTOMATIC HEAT DETECTOR 15°F (8.3°C) RATE OF RISE AND FIXED TEMPERATURE TYPE 135°F (57°C) RATED AT 2500 FT (232m) COVERAGE.	
	PRODUCTS OF COMBUSTION DETECTOR PHOTO ELECTRIC CEILING MOUNTED TYPE.	
	FIRE ALARM BELL, MOUNTED APPROXIMATELY 12" (300mm) BELOW FINISHED CEILING, UNLESS OTHERWISE NOTED. *M WHERE NOTED DENOTE MINI HORN.	
	COMBINATION FIRE ALARM HORN AND STROBE LIGHT, MOUNTED APPROXIMATELY 12" (300mm) BELOW FINISHED CEILING, UNLESS OTHERWISE NOTED.	
LIGHTING SYMBOLS		
SYMBOL	DESCRIPTION	
	2'X4' FLUORESCENT LUMINAIRE, LETTER 'F' INDICATES LUMINAIRE TYPE AS PER LUMINAIRE SCHEDULE. 3A-1-R1 INDICATES ALL LUMINAIRES CONNECTED TO PANEL 3A, CIRCUIT 1, RELAY 1.	
	1'X4' FLUORESCENT LUMINAIRE, LETTER 'F' INDICATES LUMINAIRE TYPE AS PER LUMINAIRE SCHEDULE.	
	SIMILAR TO ABOVE BUT FLUORESCENT WALL BRACKET LUMINAIRE.	
	STRIP FLUORESCENT LUMINAIRE, LETTER 'F' INDICATES LUMINAIRE TYPE AS PER LUMINAIRE SCHEDULE.	
	ONE, TWO, THREE AND FOUR GANG LINE VOLTAGE TOGGLE SWITCH MOUNTED 4'-0" (1.2m) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED. * K WHERE SHOWN, DENOTES KEY SWITCH * P WHERE SHOWN, DENOTES SWITCH AND PILOT LIGHT * 3 WHERE SHOWN, DENOTES 3-WAY SWITCH * 4 WHERE SHOWN, DENOTES 4-WAY SWITCH * DS WHERE SHOWN, DENOTES DOOR SWITCH * T WHERE SHOWN, DENOTES MANUAL TIME SWITCH * LV WHERE SHOWN, DENOTES LOW VOLTAGE SWITCH * MD WHERE SHOWN, DENOTES DEVICE EQUIPPED WITH MOTION DETECTOR	
	EXIT LIGHT - WALL MOUNTED, COMPLETE WITH DIRECTIONAL ARROWS WHERE SHOWN OR REQUIRED. *WP DENOTES WEATHERPROOF TYPE.	
	EXIT LIGHT - CEILING MOUNTED, COMPLETE WITH DIRECTIONAL ARROWS WHERE SHOWN OR REQUIRED. *WP DENOTES WEATHERPROOF TYPE.	
	EMERGENCY BATTERY PACK c/w RECEPTACLE	
	EMERGENCY BATTERY PACK. REFER TO SPECIFICATIONS FOR DETAILS. *E2 DENOTES BATTERY UNIT DESIGNATION.	
	REMOTE SINGLE HEAD EMERGENCY LIGHTS CONNECTED TO EMERGENCY BATTERY PACK. REFER TO SPECIFICATIONS FOR DETAILS. *E2 DENOTES REMOTE BATTERY HEADS FED FROM BATTERY UNIT *E2*.	
	REMOTE DUAL HEAD EMERGENCY LIGHTS CONNECTED TO EMERGENCY BATTERY PACK. REFER TO SPECIFICATIONS FOR DETAILS. *E2 DENOTES REMOTE BATTERY HEADS FED FROM BATTERY UNIT *E2*.	
	REMOTE DUAL HEAD EMERGENCY LIGHTS CONNECTED TO EMERGENCY BATTERY PACK. REFER TO SPECIFICATIONS FOR DETAILS. *E2 DENOTES REMOTE BATTERY HEADS FED FROM BATTERY UNIT *E2*.	
	OCCUPANCY SENSOR - CEILING MOUNTED	
	OCCUPANCY SENSOR - WALL MOUNTED	
	*P DENOTES PASSIVE INFRA RED	
	*U DENOTES ULTRA SONIC	
	*C DENOTES CONTROL UNIT	
	*R DENOTES AUXILIARY RELAY(S)	
	LINE VOLTAGE CONTROL CONNECTION BETWEEN SWITCH AND FIXTURE THERMOSTAT AND HEATER, ETC.	
DEMOLITION SYMBOLS		
SYMBOL	DESCRIPTION	
	EXISTING ITEM TO REMAIN AS INSTALLED.	
	EXISTING ITEM TO BE DELETED. REMOVE ALL EXISTING WIRING, CONDUIT, ETC. BACK TO ITS SOURCE. MAINTAIN CIRCUIT CONTINUITY DOWNSTREAM.	
	EXISTING ITEM TO BE RELOCATED. EXTEND EXISTING WIRING IN CONDUIT TO NEW LOCATION AND CONNECT COMPLETE.	
	EXISTING ITEM IN RELOCATED POSITION.	
	EXISTING ITEM TO BE REPLACED BY A NEW FIXTURE OR DEVICE AND RECONNECTED TO EXISTING OR NEW CIRCUIT WHERE SHOWN.	
	EXISTING ITEM TO BE DISCONNECTED, REMOVED, CLEANED, RE-INSTALLED IN SAME LOCATION AND RECONNECTED TO EXISTING CIRCUIT.	
	EXISTING ITEM IN ITS RE-INSTALLED POSITION.	
DRAWING LIST		
DWG No.	DESCRIPTION	SCALE
E1.0	ELECTRICAL DRAWING LIST, SYMBOL LIST AND SCHEDULES	Not to Scale
E1.1	ELECTRICAL GROUND FLOOR POWER AND SYSTEMS	1:50
E1.2	ELECTRICAL GROUND FLOOR LIGHTING	1:50
E1.3	ELECTRICAL SINGLE LINE AND DETAILS	As Shown
E2.0	ELECTRICAL SPECIFICATIONS	Not to Scale
E2.1	ELECTRICAL SPECIFICATIONS	Not to Scale

605-75 WATER ST N
CAMBRIDGE ONTARIO CANADA N1R 7L6
TEL: 226-765-0800 | FAX: 519-740-6104 | ARCHITECTURE49.COM



MMM Group Limited
502 Lancaster St W
Kitchener, ON N2K 1K3
t. 519-743-8777
f. 519-743-8778
www.mmm.ca



NO.	DATE	DESCRIPTION	Drawn by	Approved
3	2016-11-22	ISSUED FOR TENDER	TD	TD
2	2016-11-07	ISSUED FOR 95% REVIEW	TD	TD
1	2016-10-17	ISSUED FOR 50% REVIEW	TD	TD

REVISIONS			
A	B	Detail number	Numero de detail

Linear dimensions in millimeters Dimensions lineaires en millimetres



Canada

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet
**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin
**PROJECT INFORMATION
AND SCHEDULES**

Plot Scale / Echelle
1:50

Drawn by/ Dessine par
TD Date
10/13/16

Field Recording by /
Releve-Termoin par
N/A Date
N/A

Approved by / Approuve par
TD Date
10/13/16

Checked by/ Verifie par
TD Date
10/13/16

Project No./ No. du projet Asset No. Sheet No./
PRO000812 Feuille No.
Drawing Re No./No. du Dessin **E1.0**



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REVISIONS

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Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
GROUND FLOOR POWER AND SYSTEMS

Plot Scale / Echelle
1:50

Drawn by/ Dessine par: TD, Date: 10/13/16

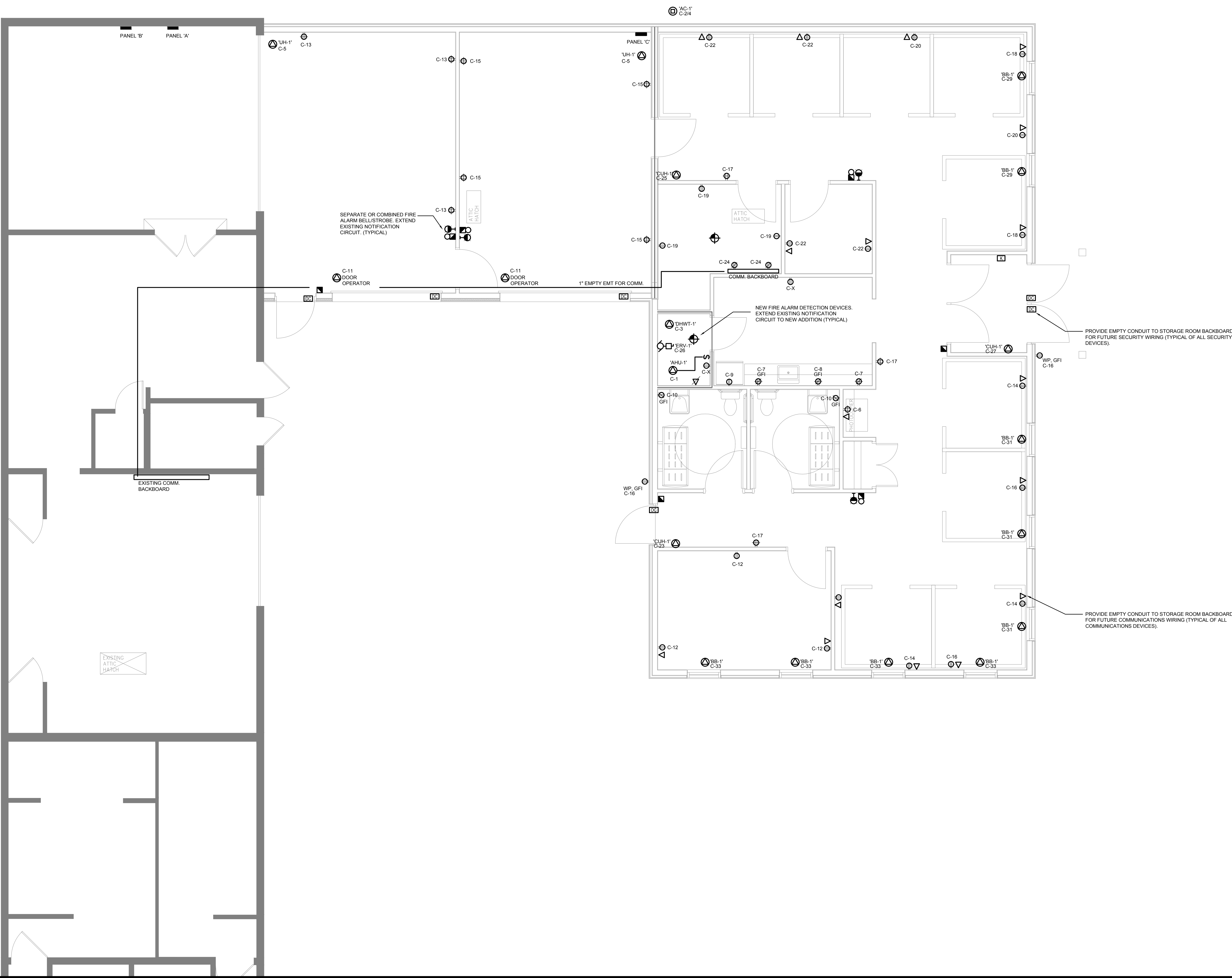
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Approved by / Approuve par: TD, Date: 10/13/16

Checked by/ Verifie par: TD, Date: 10/13/16

Project No./ No. du projet: PRO000812, Asset No., Sheet No./ Feuille No.

Drawing Re No./No. du Dessin: **E1.1**



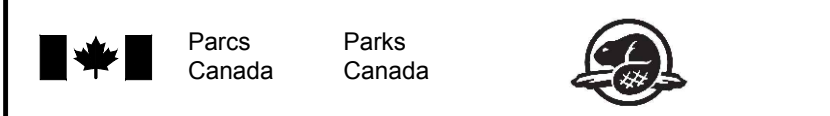


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REVISIONS

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		B Sheet number	B Sur feuille numero

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Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
GROUND FLOOR LIGHTING

Plot Scale / Echelle
1:50

Drawn by/ Dessine par TD Date 10/13/16

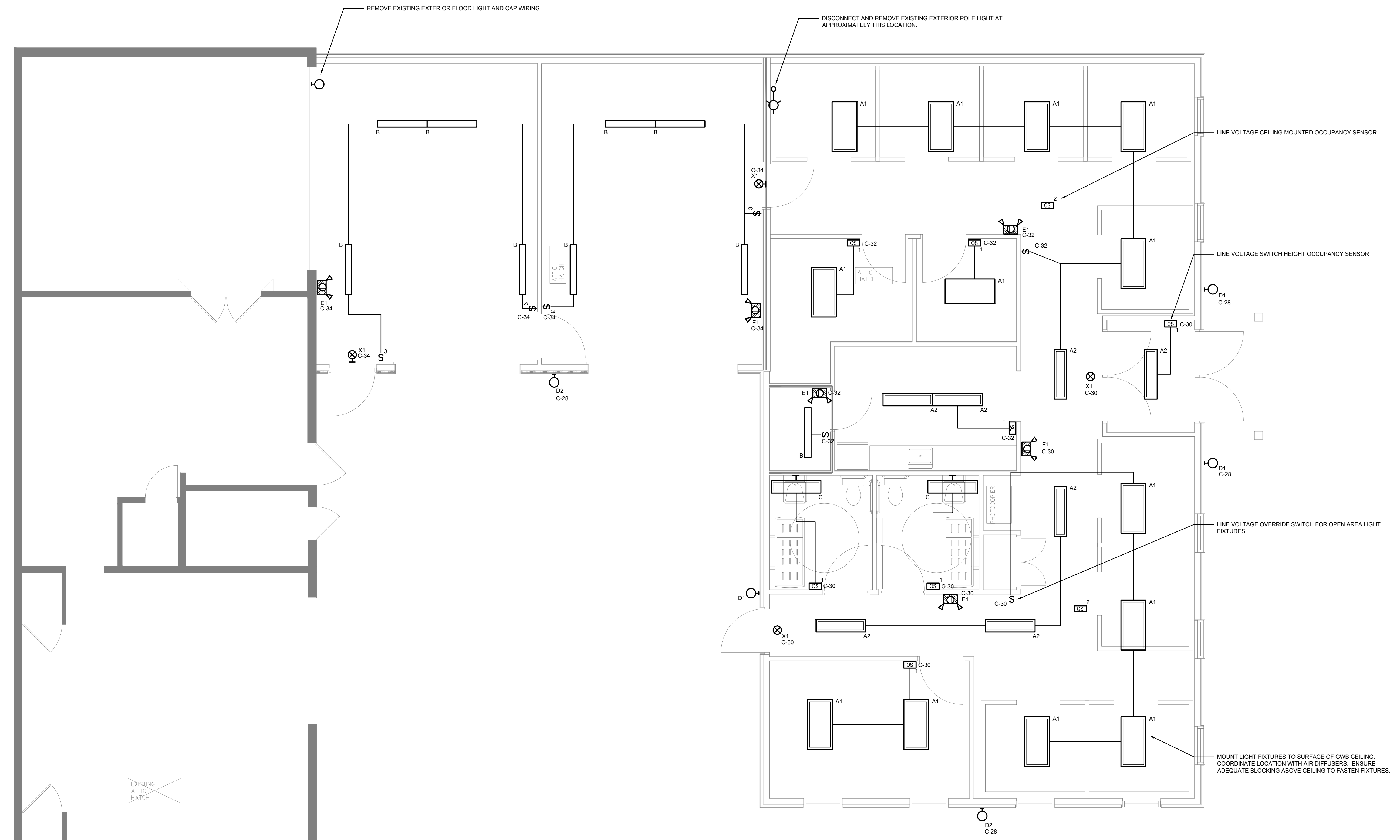
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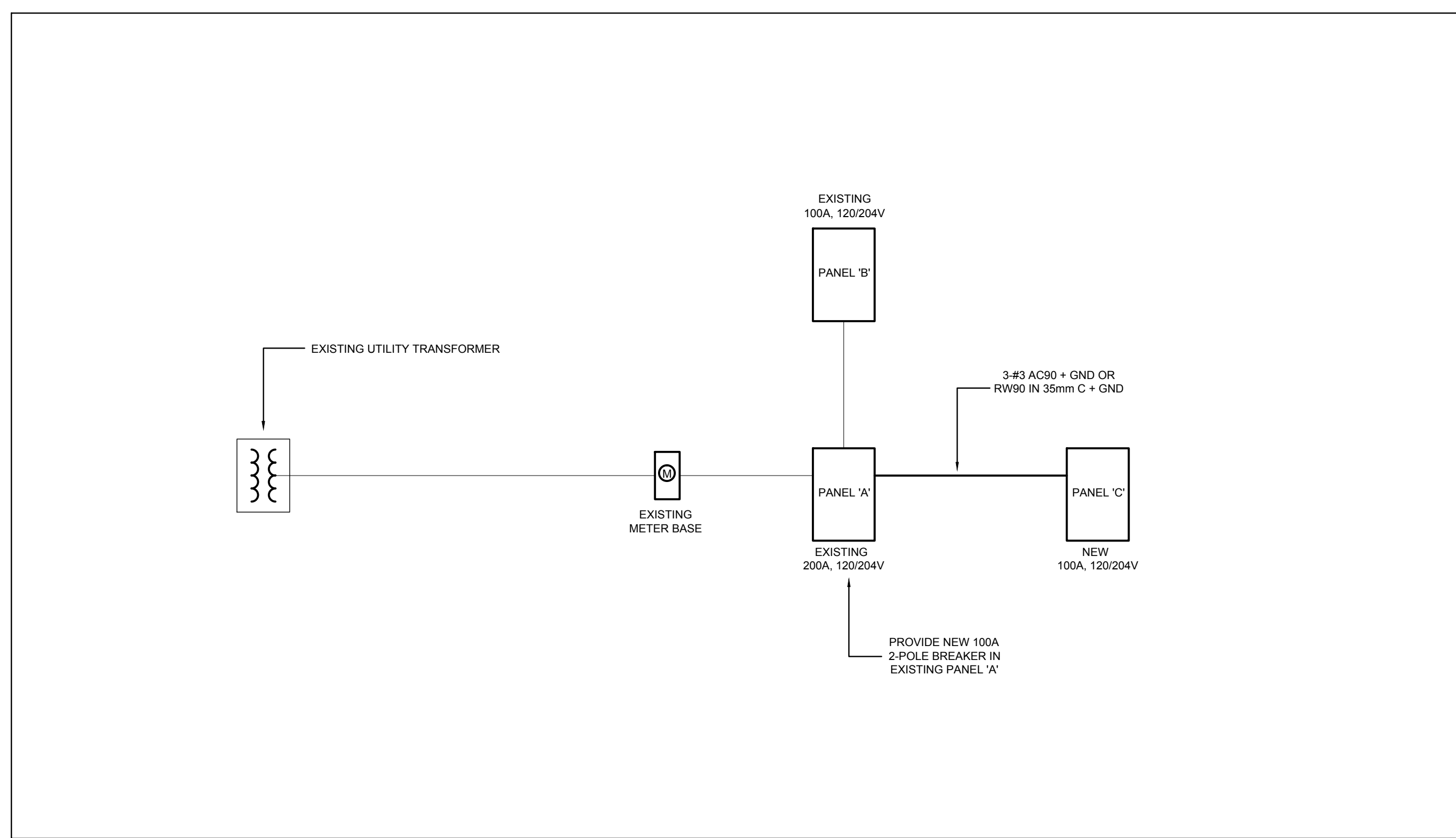
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Checked by/ Verifie par TD Date 10/13/16

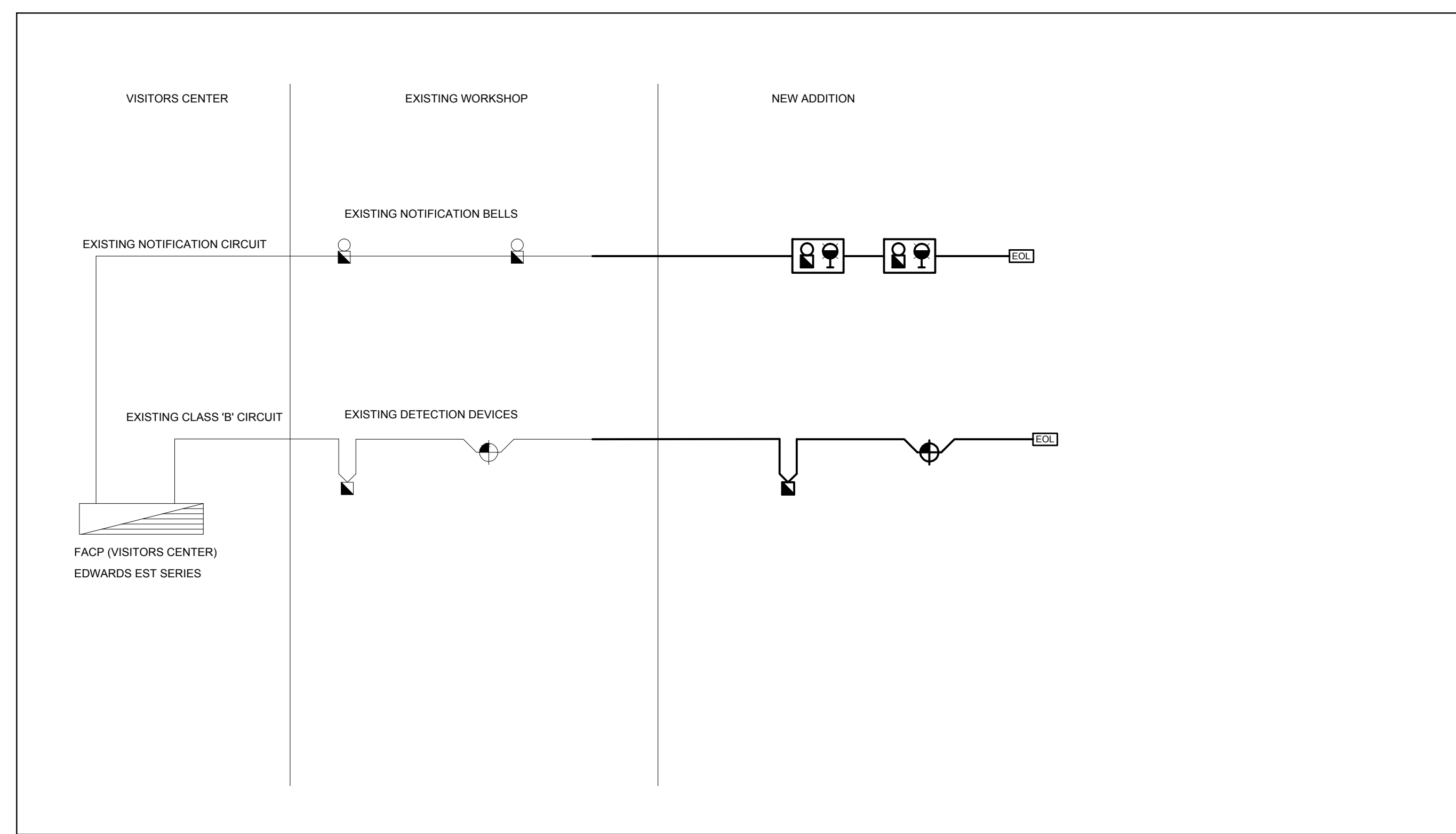
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Drawing Re No./No. du Dessin **E1.2**

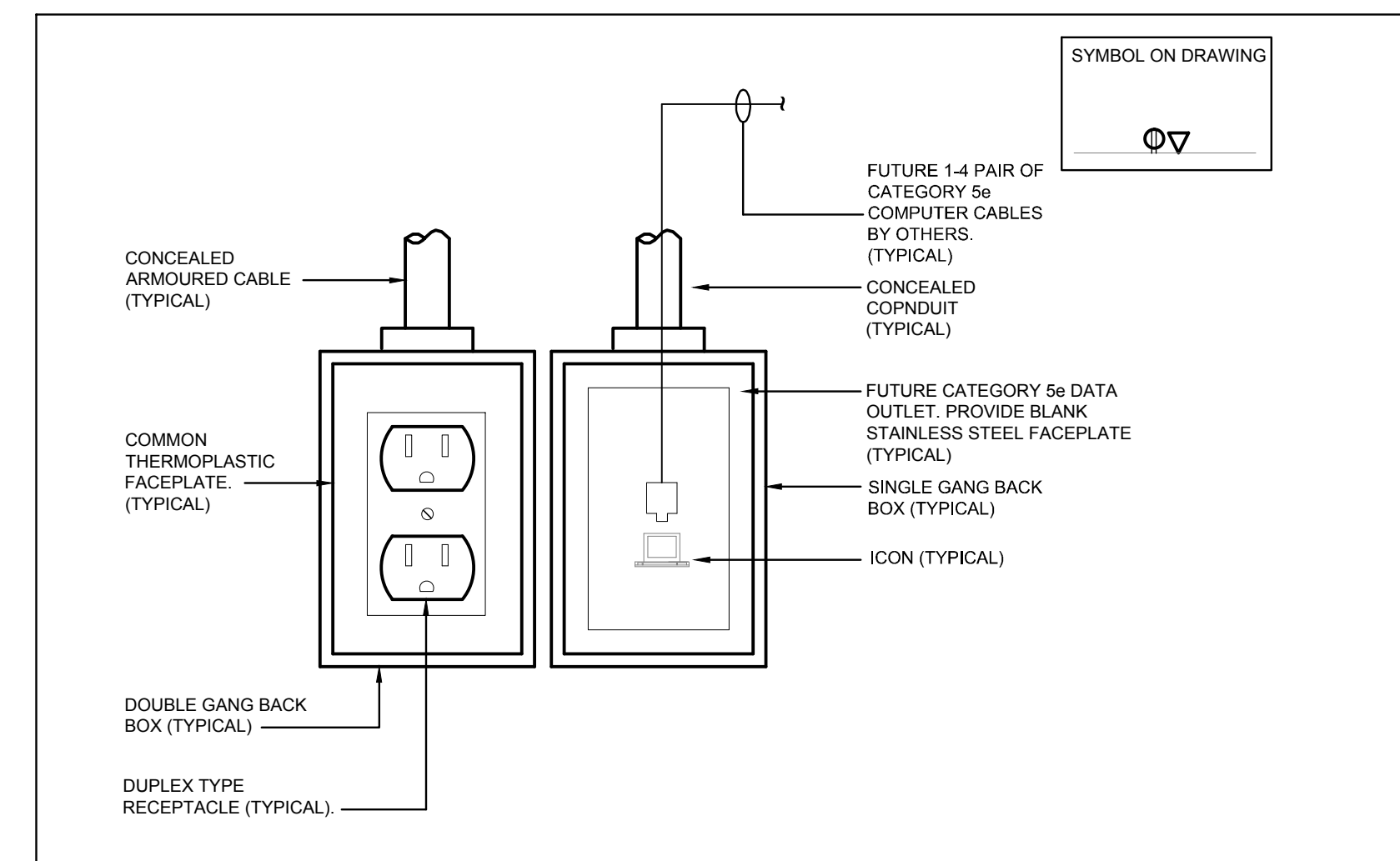




1 POWER RISER DIAGRAM
E1.3 N.T.S.



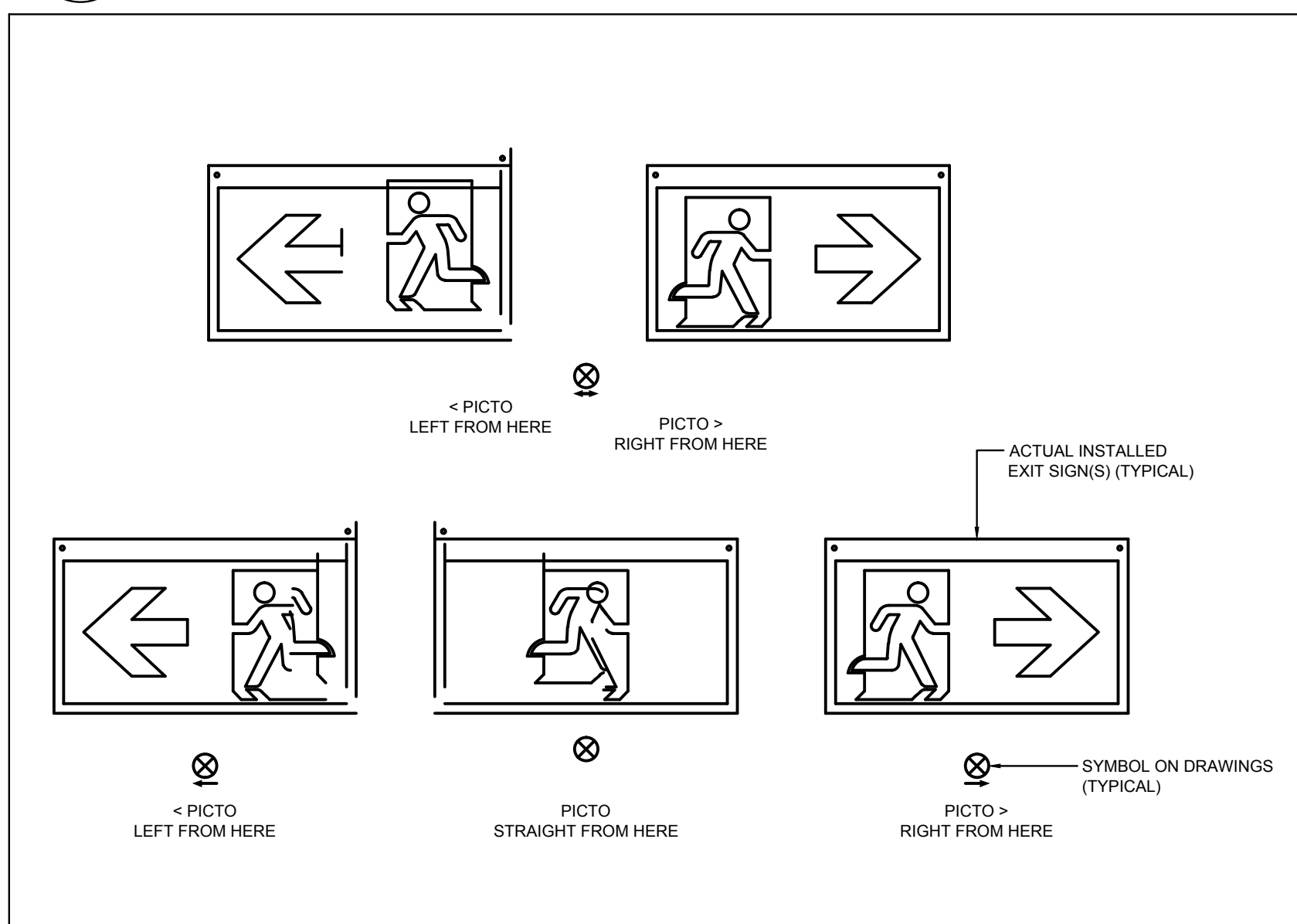
2 FIRE ALARM RISER DIAGRAM
E1.3 N.T.S.



X DETAIL OF TYPICAL WALL MOUNTED POWER AND SINGLE DATA OUTLET
E1.3 N.T.S.

LOAD DESCRIPTION				BREAKERS					BREAKERS					LOAD DESCRIPTION							
AREA SERVED	REC	TOTAL LOAD	FEEDER/ CONDUIT	L/B	GFI	OTHER	15A 2P	15A 1P	CCT No.	PH	CCT No.	15A 1P	15A 2P	OTHER	GFI	L/B	FEEDER/ CONDUIT	TOTAL LOAD	REC	AREA SERVED	
'AHU-1'		750	2#12+G					X	1	A	2						---	---			'AC-1'
'DHW-1'		1500	2#12+G			20A-1P			3	B	4			60A-2P			2#6+G	17500			'AC-1'
'UH-1' x 2'		280	2#12+G					X	5	A	6			20A-1P			2#12+G	600	1		PRINTER REC.
KITCHEN REC	2	600	2#12+G			20A-1P			7	B	8			20A-1P			2#12+G	600	2		KITCHEN REC.
FRIDGE	1	750	2#12+G					X	9	A	10	X					2#12+G	600	2		WASHROOM REC.
GARAGE DOOR OPENERS		1000	2#12+G					X	11	B	12	X					2#12+G	900	3		OFFICE REC.
GARAGE REC.	3	900	2#12+G			20A-1P			13	A	14	X					2#12+G	1000	2		OFFICE REC.
GARAGE REC.	3	1200	2#12+G			20A-1P			15	B	16	X					2#12+G	600	2		EXTERIOR REC.
CLEANING REC.	3	1200	2#12+G			20A-1P			17	A	18	X					2#12+G	1000	2		OFFICE REC.
STORAGE REC.	4	1000	2#12+G					X	19	B	20	X					2#12+G	1000	2		OFFICE REC.
									21	A	22	X					2#12+G	1000	2		OFFICE REC.
'CUH-1'		1500	2#12+G			20A-1P			23	B	24	X					2#12+G	1000	2		OFFICE REC.
'CUH-1'		1500	2#12+G			20A-1P			25	A	26	X					2#12+G	300			'ERV-1'
'CUH-1'		1500	2#12+G			20A-1P			27	B	28	X					2#12+G	900			EXTERIOR LIGHTING
'BB-1'		600	2#12+G			20A-1P			29	A	30	X					2#12+G	900			OFFICE LIGHTING
'BB-1'		900	2#12+G			20A-1P			31	B	32	X					2#12+G	900			OFFICE LIGHTING
'BB-1'		1200	2#12+G			20A-1P			33	A	34	X					2#12+G	300			GARAGE LIGHTING

NEW XX CIRCUIT PANELBOARD (PANEL C)

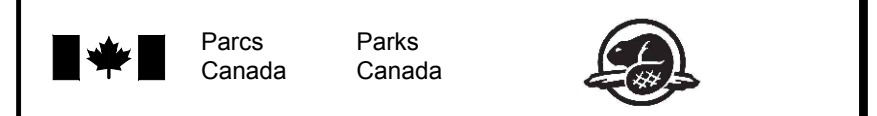


X DETAIL OF PICTOGRAM EXIT SIGNS
E1.3 N.T.S.

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FORT MALDEN ADDITION

Drawing title / Titre du dessin
RISER AND DETAILS

Plot Scale / Echelle
1:50

Drawn by/ Dessine par
TD

Date
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Date
N/A

Approved by / Approuve par
TD

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Checked by/ Verifie par
TD

Date
10/13/16

Project No./ No. du projet
PRO000812

Asset No.
N/A

Sheet No./ Feuille No.
E1.3

Drawing Re No./No. du Dessin

ELECTRICAL WORK SPECIFICATION

- 1 GENERAL
1.1 SUPPLY LABOUR, TOOLS, SERVICES AND EQUIPMENT, AND PROVIDE PRODUCTS AND MATERIALS REQUIRED TO COMPLETE WORK IN ACCORDANCE WITH THIS SPECIFICATION AND DRAWINGS.
1.2 WHERE CODES AND/OR REQUIREMENTS CONFLICT, OR THERE IS DISCREPANCY IN DOCUMENTS, INCLUDE FOR MORE STRINGENT AND COSTLY REQUIREMENTS FOR PRICING.
1.3 WHERE PROJECT PHASING IS REQUIRED, REFER TO DIVISION 01 DOCUMENTS AND/OR ON DRAWINGS.
1.4 COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND INSTRUCTIONS UNLESS OTHERWISE NOTED HEREIN OR ON DRAWINGS.
1.5 WHERE STANDARDS OF WORK ARE SPECIFIED OR IMPLIED AND WORK DOES NOT COMPLY WITH PERFORMANCE SPECIFIED OR IMPLIED, CORRECT SUCH DEFICIENCY AS DIRECTED BY CONSULTANT OR GOVERNING AUTHORITY.
1.6 FOR COMPLIANCE/SUBSTANTIAL COMPLETION LETTER, SUBMIT FOLLOWING APPLICABLE ELECTRONIC DOCUMENTS (PDFS) AS ONE COMPLETE PACKAGE:
1 FIRE ALARM VERIFICATION REPORT WITH SOUND PRESSURE READINGS (MIN. 5 READINGS AT DIFFERENT LOCATIONS) AND CERTIFICATE;
2 EQUIPMENT DATA SHEETS;
3 EQUIPMENT TESTING REPORTS;
4 WARRANTIES;
5 ESA INSULATION CERTIFICATE;
6 PERMIT NUMBERS;
7 AS-BUILT DRAWINGS;
8 CONFIRMATION THAT DEFICIENCIES WERE RECTIFIED.
1.7 ELECTRICAL ENCLOSURES IN CLIMATE CONTROLLED AREAS TO BE UNLESS OTHERWISE NOTED, TYPICALLY MINIMUM NEMA 1 TYPE WITH ADDITIONAL SPRINKLER PROTECTION FEATURES OF DRIP SHIELD WHEN SURFACE MOUNTED, GASKETING AND VENTILATION COURES DESIGNED TO PREVENT EGRESS OF WATER SPRAY ONTO LIVE COMPONENTS.
1.8 PRIOR TO SUBMITTING BID, CAREFULLY EXAMINE CONDITIONS AT SITE WHICH WILL OR MAY AFFECT WORK, DRAWINGS, AND SPECIFICATIONS, AND BECOME FAMILIAR WITH BUILDING CONSTRUCTION, FINISHES AND OTHER WORK ASSOCIATED WITH WORK IN ORDER THAT BID INCLUDES FOR EVERYTHING NECESSARY FOR COMPLETION OF WORK.
1.9 BEFORE ANY EQUIPMENT IS ROUGHED IN, DETERMINE ITS INTENDED LOCATION FROM DRAWINGS AND COORDINATE FINAL LOCATIONS WITH SERVICES AND STRUCTURAL CONDITIONS.
1.10 MAKE APPLICATION FOR, PAY FOR AND OBTAIN, PERMITS AND INSPECTION CERTIFICATES TO COMPLETE WORK.
1.11 COORDINATE WORK WITH WORK OF EACH TRADE TO ENSURE PROPER AND COMPLETE INSTALLATION.
1.12 PROPERLY PLAN, COORDINATE AND ESTABLISH EXACT LOCATIONS AND ROUTING OF SERVICES WITH AFFECTED TRADES PRIOR TO INSTALLATION SUCH THAT THEY CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS.
1.13 SCHEDULE WORK WHICH MAY CAUSE NOISE DISTURBANCES AT TIMES APPROVED BY OWNER AND REVIEWED WITH CONSULTANT.
1.14 DURING CONSTRUCTION, KEEP SITE REASONABLY CLEAR OF RUBBISH AND WASTE MATERIAL RESULTING FROM WORK ON DAILY BASIS.
1.15 PROTECT AND STORE EQUIPMENT AND MATERIALS ON SITE FROM DAMAGE.
1.16 ALLOW CONSULTANT ACCESS TO WORK.
1.17 WHERE STANDARDS OF WORK ARE SPECIFIED OR IMPLIED AND WORK DOES NOT COMPLY WITH PERFORMANCE SPECIFIED OR IMPLIED, CORRECT SUCH DEFICIENCY AS DIRECTED BY CONSULTANT.
1.18 PRODUCTS LISTED AND/OR SPECIFIED ON CONTRACT DOCUMENTS ARE SELECTED TO ESTABLISH DESIGN STANDARDS.
1.19 UNLESS OTHERWISE SPECIFIED, ALL WORK TO BE IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS AND FREE FROM DEFECTS FOR A YEAR PERIOD.
2 INTERRUPTIONS TO AND SHUT DOWNS OF EXISTING SERVICES AND SYSTEMS
2.1 COORDINATE AND PERFORM SHUT DOWNS AND INTERRUPTIONS TO EXISTING SYSTEMS AND SERVICES AT TIMES ACCEPTABLE TO OWNER.
2.2 DO NOT CUT OR DRILL EXISTING WORK WITHOUT PRIOR OWNER'S APPROVAL AND REVIEW WITH CONSULTANT.
3 CUTTING, PATCHING AND CORE DRILLING
3.1 PROVIDE CUTTING, PATCHING AND CORE DRILLING OF BUILDING REQUIRED FOR INSTALLATION OF WORK.
3.2 IN FIRE RATED CONSTRUCTION, PACK AND SEAL VOID BETWEEN OPENING AND CONDUIT FOR LENGTH OF OPENING WITH ASBESTOS FREE ELASTOMERIC AND INTUMESCENT UL LISTED AND LABELLED MATERIALS.
3.3 FOR EXTERIOR AND/OR UNDERGROUND PENETRATIONS, PROVIDE WATERPROOF, WEATHER-TIGHT, FIRE RATED MATERIALS IN COMPLIANCE WITH LOCAL GOVERNING AUTHORITY AND CODE REQUIREMENTS TO SEAL OPENINGS.
3.4 COMPLY WITH PRODUCT MANUFACTURER'S RECOMMENDATIONS FOR PRODUCT THAT SUITS EACH SPECIFIC INSTALLATION.
3.5 DO NOT CUT OR DRILL EXISTING WORK WITHOUT PRIOR OWNER'S APPROVAL AND REVIEW WITH CONSULTANT.
4 DISCONNECTION, REMOVAL AND RELOCATION WORK
4.1 DISCONNECT AND REMOVE ITEMS OF EXISTING OBSOLETE ELECTRICAL WORK.
4.2 WHEN EXISTING CIRCUITS ARE BEING DISCONNECTED, MAINTAIN SUPERVISION OF AREA TO ENSURE THAT SUCH CIRCUITS DO NOT AFFECT ESSENTIAL EXISTING CIRCUITS BEING RETAINED.
4.3 REFER TO ARCHITECTURAL DRAWINGS WHICH DEFINE EXTENT OF AREAS BEING DEMOLISHED IN EXISTING BUILDING.
4.4 UNLESS OTHERWISE NOTED, TAKE POSSESSION OF OBSOLETE MATERIALS WHICH ARE REMOVED AND ARE NOT TO BE RELOCATED OR REUSED AS DIRECTED BY OWNER.
4.5 WHERE EXISTING SERVICES PASS THROUGH OR ARE IN AREA TO SERVE ITEMS WHICH ARE TO REMAIN, MAINTAIN SERVICES.
4.6 REVISE PANELBOARD DIRECTORIES ACCORDINGLY, IF AFFECTED BY ANY RENOVATION, DISCONNECTION OR REMOVAL OF WORK.
4.7 PROTECT EXISTING DEVICES BEING RELOCATED TO ENSURE THAT THEY ARE NOT DAMAGED.
4.8 BE PRESENT WHEN ADDITIONAL DOORS OR OPENINGS ARE BEING CUT INTO EXISTING WALLS AND CEILINGS.
4.9 PROVIDE BLANK COVERPLATES ON EXISTING OBSOLETE BOXES WHICH ARE TO REMAIN IN POSITION.
4.10 AFTER INSTALLATION IS COMPLETE, TEST PARTS OF RE-USED OR RELOCATED ELECTRICAL EQUIPMENT AND CORRECT FAULTS AND GROUNDS.
4.11 INTERIOR, EXTERIOR OR UNDERGROUND ELECTRICAL SERVICES (INCLUDING AUXILIARY SERVICES, TELEPHONE, FIRE ALARM, P.A. SYSTEM, ETC.) TO OPERATING PARTS OF BUILDING ARE TO BE MAINTAINED AND TO THAT EFFECT, NECESSARY WORK MAY HAVE TO BE CARRIED OUT DURING NORMAL BUSINESS HOURS.
4.12 BE PRESENT WHEN ADDITIONAL DOORS OR OPENINGS ARE BEING CUT INTO EXISTING WALLS AND CEILINGS.
4.13 WHEN REFERENCES ARE MADE ON DRAWINGS THAT EXISTING RECEPTACLES, ETC. BE EXTENDED AND/OR RELOCATED TO SUIT NEW CONSTRUCTION, RECEPTACLES, ETC. ARE TO BE TESTED AND IF FOUND DEFECTIVE, BE REPLACED.
4.14 BE RESPONSIBLE FOR DISCONNECTING POWER SUPPLY TO BRANCH CIRCUITS CONTROLLING LIGHTING, RECEPTACLES, PANELS, MECHANICAL EQUIPMENT, ETC.
4.15 CLOSE OPENINGS IN BOXES, PANELS, ETC. THAT RESULT FROM REMOVAL OF EQUIPMENT, CONDUIT, WIRING, FIXTURES, ETC.
4.16 BE PRESENT AND SUPERVISE REMOVAL OF ELECTRICAL EQUIPMENT AND DEVICES.
4.17 DELETE EXISTING SYSTEM DEVICES AS NOTED.
4.18 REMOVE AND RE-INSTALL EXISTING CEILING TILES AS REQUIRED TO PERFORM WORK.
4.19 CHECK LUMINAIRES TO BE DELETED FOR PCB BALLASTS.
5 HAZARDOUS MATERIALS
5.1 IF AT ANY TIME DURING COURSE OF WORK HAZARDOUS MATERIALS ARE ENCOUNTERED OR SUSPECTED, CEASE WORK IN AREA IN QUESTION AND IMMEDIATELY REPORT TO CONSULTANT.
6 RECORD DRAWINGS (AS-BUILTS)
6.1 DRAWINGS FOR THIS PROJECT HAVE BEEN PREPARED ON AUTOCAD RELEASE VERSION OF SOFTWARE REVIEWED WITH CONSULTANT.
6.2 WHEN WORK BEGINS AT SITE, CLEARLY AND ACCURATELY MARK ON BOUND SET OF WHITE PRINTS OF CONTRACT DRAWINGS, ON DAILY BASIS, CHANGES AND DEVIATIONS FROM ROUTING OF AND LOCATIONS OF EQUIPMENT SHOWN ON CONTRACT DRAWINGS.
6.3 WHEN WORK ENDS AT SITE, UPDATE A COMPUTER FILE COPY OF CONTRACT DOCUMENT DRAWING SET SO THAT IT REFLECTS DEVIATIONS FROM ORIGINAL CONTRACT DOCUMENT DRAWINGS.
7 SHOP DRAWINGS AND OPERATING/MAINTENANCE INSTRUCTION MANUALS
7.1 SUBMIT SHOP DRAWINGS FOR PRODUCTS.
7.2 PROVIDE OPERATING AND MAINTENANCE (O&M) INSTRUCTION MANUALS AS INDEXED, IDENTIFIED HARD COVER 3 RING BINDERS COMPLETE WITH:
1 TITLE SHEET AND LIST OF CONTENTS;
2 A COPY OF EACH 'REVIEWED' SHOP DRAWING;
3 EXPLANATIONS OF OPERATING PRINCIPLES AND SEQUENCES;

- 4 PART LISTS WITH NUMBERS.
5 RECOMMEND MAINTENANCE PRACTICES AND PRECAUTIONS.
6 COPIES OF INSPECTION CERTIFICATES ISSUED BY GOVERNING AUTHORITIES.
7 WIRING AND CONNECTION DIAGRAMS.
8 COPIES OF ADDITIONAL AND REVISED PANELBOARD DIRECTORIES.
7.3 PROVIDE MINIMUM 2 SETS OF MANUALS UNLESS OTHERWISE DIRECTED IN DIVISION 01.
7.4 UNLESS OTHERWISE DIRECTED BY CONSULTANT, SUBMIT SHOP DRAWINGS IN ELECTRONIC FORM.
8 GENERAL CONDUIT AND CONDUCTOR INSTALLATION REQUIREMENTS
8.1 INSTALL CONDUIT AND CONDUCTORS CONCEALED TO DEGREE MADE POSSIBLE BY FINISHES AND PROVIDE INSTALLATIONS IN ACCORDANCE WITH OESC AND LOCAL GOVERNING AUTHORITIES.
8.2 WHERE CONDUIT AND/OR CONDUCTORS ARE EXPOSED, ARRANGE SAME TO AVOID INTERFERENCE WITH OTHER WORK AND PARALLEL TO BUILDING LINES.
8.3 IDENTIFY CONDUIT RUNS (I.E. TAG BOTH ENDS OF CONDUIT RUNS).
8.4 AT NO EXTRA COST, ALLOW FOR FINAL RELOCATIONS OF DEVICES UP TO 3 M TO SUIT FINAL COORDINATED DEVICE LOCATIONS.
8.5 GENERALLY, CONDUCTORS AND CONDUIT ARE SIZED ON DRAWINGS, BUT IN ABSENCE OF DIRECTION IN TYPE AND SIZING, TYPE AND SIZE AND PROVIDE REQUIRED QUANTITY IN ACCORDANCE WITH INTENDED APPLICATION.
8.6 WHERE RECEPTACLE TYPE DEVICES ARE LOCATED IN EXISTING FLOORS AND/OR WHERE FEEDS ARE REQUIRED TO FURNITURE SYSTEMS IN OPEN SPACES, AND WHERE CHASING OF FLOOR SLAB TO RUN CONDUIT IS NOT ACCEPTABLE TO OWNER, PROVIDE "POKE-THRU" ASSEMBLY INSTALLED THROUGH FLOOR AND FEED FROM CONDUIT RUNS PROVIDED IN CEILING SPACE OF FLOOR BELOW.
8.7 CONDUCTORS IN PLENUM SPACES AND IN RAISED FLOOR ARE TO COMPLY WITH OBC AND OESC REQUIREMENTS WITH REGARD TO FLAME AND SMOKE TEST.
9 PROVISIONS FOR MISCELLANEOUS SYSTEM ROUGH-INS
9.1 PROVIDE COMPLETE SYSTEM OF CONDUITS, OUTLET BOXES, JUNCTION BOXES, FACEPLATES AND SLEEVES (IF REQUIRED) AND FIRE RETARDANT PLYWOOD BACKBOARD TO ACCOMMODATE EXTENSION OF EXISTING SYSTEM BY SYSTEM INSTALLERS WHO WILL PROVIDE EQUIPMENT AND WIRING.
9.2 PROVIDE CONDUIT AS REQUIRED.
9.3 CONFIRM EXACT REQUIREMENTS AND LOCATIONS OF EQUIPMENT WITH RESPECTIVE SYSTEM EQUIPMENT INSTALLERS AND REVIEW WITH CONSULTANT PRIOR TO ROUGHING IN.
10 CONDUIT
10.1 PROVIDE CONDUIT FOR CONDUCTORS.
10.2 FOR RUNNING UNDERGROUND, OR IN CONCRETE SLABS, PROVIDE CSA APPROVED, RIGID PVC CONDUIT COMPLETE WITH COUPLINGS, EXPANSION JOINTS, ELBOWS, ETC., AS REQUIRED.
10.3 SUPPORT AND SECURE CONDUIT AT SPACING IN ACCORDANCE WITH CODE REQUIREMENTS BY MEANS OF GALVANIZED PIPE STRAPS, CONDUIT CLIPS, RING BOLT TYPE HANGERS, OR BY OTHER PROPER MANUFACTURED DEVICES.
11 CONDUCTORS
11.1 PROVIDE CONDUCTORS.
11.2 INTERIOR CONDUCTORS:
11.3 UNDERGROUND CONDUCTORS:
11.4 CONDUCTORS IN ACCESSIBLE SUSPENDED CEILING SPACES.
11.5 CONDUCTORS UP TO AND INCLUDING NO. 10 AWG TO BE SOLID.
11.6 PROVIDE IDEAL IDI ELECTRIC IDEAL NO. 451, NO. 452 AND NO. 453 "WING NUT" CSA CERTIFIED 600V RATED PRESSURE TYPE CONNECTORS.
11.7 CONDUIT CONDUCTORS IN ACCORDANCE WITH CODE.
11.8 WHEN PULLING WIRES INTO CONDUIT, USE IDI ELECTRIC IDEAL YELLOW 77 LUBRICANT.
12 OUTLET BOXES, PULLBOXES AND JUNCTION BOXES
12.1 PROVIDE CSA APPROVED STAMPED GALVANIZED STEEL ELECTRICAL BOXES FOR EACH LUMINAIRE, DEVICE AND OTHER PRODUCT FOR WIRING TERMINATIONS AS REQUIRED.
12.2 PROVIDE PULLBOXES AND JUNCTION BOXES WHEREVER NECESSARY TO FACILITATE CONDUITOR/CONDUIT INSTALLATIONS.
12.3 SIZE, ARRANGEMENT AND TYPE OF BOXES TO BE SUITABLE FOR APPLICATION.
1 LIGHTING - YELLOW;
2 NORMAL POWER - BLUE;
3 ESSENTIAL POWER - ORANGE;
4 FIRE ALARM - RED.
13 RECEPTACLES, SWITCHES AND FACEPLATES
13.1 FOR GENERAL AREAS:
13.2 FOR PUBLIC SPACES OR OTHER AREAS WHERE DESIGNER DEVICES ARE REQUIRED:
13.3 WHERE REQUIRED, PROVIDE HUBBELL NO. GFR582 WEATHER RESISTANT SERIES, 15A 125V, UL LISTED, CLASS A, GROUP ONE, 2 POLE, 3W, IVORY COLOURED.
13.4 IDENTIFY CIRCUIT NUMBERS ON RECEPTACLE DESIGNATED LABELLING SPACES.
13.5 CONFIRM TYPE, NUMBER OF WAY, NUMBER OF POLES, AND FINISHES OF DEVICES WITH CONSULTANT PRIOR TO ORDERING.
13.6 ACCEPTABLE MANUFACTURERS INCLUDE LEGRAND PAS, COOPER ARROW HART AND LEVITON.
14 ACCESS DOORS
14.1 PROVIDE MINIMUM NO. 12 GAUGE PRIME COAT PAINTED STEEL FLUSH ACCESS DOORS.
14.2 WHERE ACCESS DOORS ARE LOCATED IN SURFACES WHERE SPECIAL FINISHES ARE REQUIRED, PROVIDE RECESSED DOOR TYPE CAPABLE OF ACCEPTING FINISH IN WHICH THEY ARE TO BE INSTALLED.
14.3 SUPPLY ACCESS DOORS TO GIVE ACCESS TO JUNCTION BOXES, PULLBOXES, CONDUCTOR/BUS JOINTS AND OTHER SIMILAR ELECTRICAL WORK WHICH MAY NEED MAINTENANCE OR REPAIR.
14.4 BEFORE COMMENCING INSTALLATION OF WORK, PREPARE ON SET OF REFLECTED CEILING PLANS, COMPLETE LAYOUTS OF REQUIRED CEILING ACCESS DOORS.
14.5 ACCESS DOORS TO BE INSTALLED BY TRADE RESPECTIVE FOR PARTICULAR TYPE OF CONSTRUCTION IN WHICH DOORS ARE REQUIRED.
14.6 CONFIRM EXACT DIMENSIONS PRIOR TO ORDERING.
15 FASTENING AND SECURING HARDWARE
15.1 PROVIDE PROPER FASTENERS, HANGERS AND SIMILAR HARDWARE REQUIRED FOR CONDUIT, CONDUCTORS AND EQUIPMENT.
15.2 PROVIDE VELCRO THE WRAPS FOR BUNDLING AND SECURING CABLES.
16 IDENTIFICATION NAMEPLATES
16.1 FOR EACH PIECE OF ELECTRICAL DISTRIBUTION EQUIPMENT FROM ELECTRICAL SOURCE OF SUPPLY UP TO AND INCLUDING PANELBOARDS, AND OTHER SYSTEMS CONTROL CABINETS AND ASSOCIATED ENCLOSURES.
17 SYSTEM BACKBOARDS
17.1 FSC (FOREST STEWARDSHIP COUNCIL), G1S CONSTRUCTION GRADE FIR PLYWOOD, FLAME RETARDANT PRIME COAT PAINTED ON EXPOSED SURFACES.
17.2 PROVIDE SPECIFIED TERMINAL BACKBOARDS FOR MOUNTING EQUIPMENT.
17.3 PROVIDE COMPLETE SET OF FUSES FOR EACH FUSIBLE DISCONNECT OR SIMILAR FUSIBLE EQUIPMENT.
17.4 DISCONNECT SWITCHES
17.5 PROVIDE EATON DISCONNECT SWITCHES, HEAVY DUTY, CSA APPROVED, FRONT OPERATED TYPE.
17.6 CIRCUIT BREAKERS FOR EXISTING PANELBOARDS
17.7 PROVIDE BREAKERS IN EXISTING PANELBOARDS OF TYPE, QUALITY AND STANDARDS TO MATCH EXISTING DEVICES.
17.8 BRANCH CIRCUIT PANELBOARDS
21.1 PROVIDE EATON TYPE "POW R LINE 1" FACTORY ASSEMBLED DEAD FRONT PANELBOARDS, 120/208V, 3 PHASE, 4 WIRE, MANUFACTURED TO CSA STANDARD C22.2 NO. 29 AND OESC.
21.2 INSTALL PANELBOARDS WHERE REQUIRED, COMPLETE WITH:
1 NEMA 1 ENCLOSURE CONSTRUCTED OF GALVANIZED STEEL AND WHERE SURFACE MOUNTED FINISHED WITH GREY ACRYLIC ENAMEL.
2 TRIM FOR RECESSED OR SURFACE WALL MOUNTING, STEEL DOORS COMPLETE WITH CONCEALED FASTENERS, CONCEALED HINGE, CHROME PLATED DOOR LATCH AND KEVED ALIKE LOCK WITH KEY.
3 FACTORY PAINTED DRIP SHIELD FOR SURFACE MOUNTED PANELBOARDS.
4 ELECTRICAL GRADE COPPER PHASE, NEUTRAL AND COPPER BUSBING.
5 BOLT ON FULL HEIGHT MODULE MOULDED CASE CIRCUIT BREAKERS.
6 MAIN BREAKER AND GREEN POWER "ON" INDICATOR LIGHT, WHERE SCHEDULED.
7 200% CAPACITY NEUTRALS FOR PANELBOARDS AS SCHEDULED.
8 PROVIDE DOUBLE LUGGING TO EXISTING PANELBOARDS AS REQUIRED.
21.3 SUPPORT CABINET INDEPENDENT OF CONNECTING CONDUIT, TURN OVER TO CONSULTANT, PRIOR TO APPLICATION FOR SUBSTANTIAL PERFORMANCE OF WORK.
21.4 ACCEPTABLE MANUFACTURERS INCLUDE SIEMENS AND SCHNEIDER.

ARCHITECTURE 49

605-75 WATER ST N. CAMBRIDGE ONTARIO CANADA N1R 7L6 TEL: 226-765-0800 | FAX: 519-740-6104 | ARCHITECTURE49.COM



MMM Group Limited 502 Lancaster St W Kitchener, ON N2K 1M3 519-743-8777 519-743-8778 www.mmm.ca



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REVISIONS

Table with 3 columns: A Detail number, B Sheet number, A Numero de detail, B Sur feuille numero.

Linear dimensions in millimeters Dimensions lineaires en millimetres



Canada

PARKS CANADA SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record / Type d'enregistrement

Project title / Titre du projet

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- 22 GROUNDING AND BONDING
- 22.1 PROVIDE COMPLETE SYSTEM OF GROUNDING AND BONDING, WHICH COMPLIES, WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR ELECTRICAL WORK, INCLUDING REQUIRED GROUNDING SECTIONS OF OESC. CONNECT GROUNDING CONDUCTORS TO EXISTING BUILDING GROUND SYSTEM. PROVIDE SEPARATE INSULATED GROUND WIRE FOR EACH ISOLATED GROUND CIRCUIT. MAKE BURIED OR IN SLAB GROUND CONNECTIONS WITH ERICO CADWELL TYPE WELDED COPPER CONNECTIONS OR BURNDY HYGROUND COMPRESSION CONNECTORS, UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. CONDUCTORS GREATER THAN 400 A TO BE PROVIDED WITH MINIMUM 30 AWG GROUND CONDUCTOR.
- 22.2 PROVIDE TELECOMMUNICATIONS GROUNDING BUSBAR (MINIMUM 300MM X 50MM X 9MM) MOUNTED WITH STANDOFF INSULATORS ON WALLS OF LAN CLOSETS. BUSBAR TO INCLUDE MINIMUM 8-DRILLED HOLES. CONNECT TO EQUIPMENT WITH GROUND CONDUCTORS AS REQUIRED. PROVIDE GROUNDING AND BONDING OF LAN CLOSETS TO REQUIREMENTS OF ANSI/EIA11A-07.
- 23 CONNECTIONS FOR MECHANICAL, OWNERS, ETC. EQUIPMENT
- 23.1 PROVIDE REQUIRED ELECTRICAL AND COMMUNICATIONS CONNECTIONS TO APPARATUS SUPPLIED BY MECHANICAL DIVISION, OWNER AND AS PART OF OTHER DIVISIONS. PERFORM ELECTRICAL WORK FOR EQUIPMENT SCHEDULED ON DRAWINGS. MECHANICAL DIVISION CONTRACTOR WILL SUPPLY STARTERS FOR MOTORIZED APPARATUS SUPPLIED BY THEM AND WILL PROVIDE LAMACOD IDENTIFICATION THROUGHOUT.
- 23.2 COORDINATE WITH TRADES OF OTHER DIVISIONS TO ENSURE PROVISION OF PROPER ELECTRICAL AND COMMUNICATIONS REQUIREMENTS, UNLESS OTHERWISE NOTED OR DIRECTED BY CONSULTANT. PROVIDE INTERCONNECT WIRING BETWEEN REMOTE OPERATOR DEVICES/CONTROLLERS AND EQUIPMENT BEING CONTROLLED BY OPERATOR DEVICES, WHETHER OR NOT SUCH DEVICES ARE SUPPLIED BY ELECTRICAL DIVISION. PROVIDE DISCONNECT SWITCHES, RECEPTACLES AND OTHER REQUIRED WIRING AND CONNECTION ACCESSORIES. PROVIDE DATA CABLING AND JACKS EXTENDING FROM COMMUNICATIONS PORTS TO LAN CLOSET TELECOM EQUIPMENT. COORDINATE WORK WITH SUPPLIERS OF EQUIPMENT TO BE PROVIDED WITH CONNECTIONS AND WITH STRUCTURED CABLE SYSTEM VENDOR.
- 23.3 BE RESPONSIBLE FOR:
- 1 COMPLETE INSTALLATION AND CONNECTION OF STARTERS AND PROVIDE "LINE" AND "LOAD" POWER CONNECTIONS AND INTERLOCKING AS REQUIRED;
 - 2 PROVIDE MOTOR STARTER PANELS CONSISTING OF NO. 14 GAUGE STEEL BOLTED PANELS SIZED TO ACCOMMODATE STARTERS AS REQUIRED AND SUITABLE SPLITTER;
 - 3 UNLESS OTHERWISE NOTED OR SHOWN ON DRAWINGS, MOUNT 1 PHASE STARTERS ADJACENT TO EQUIPMENT THEY SERVE AND CONNECT COMPLETE;
 - 4 COORDINATE FEEDER ENTRIES TO STARTERS AND STARTER ASSEMBLIES WITH MECHANICAL DIVISION;
 - 5 PROVIDE ADDITIONAL DISCONNECT SWITCHES (COMPLETE WITH IDENTIFICATION) DETAILED ON DRAWINGS, REQUIRED BY CODE, OR FOR APPARATUS WHICH CANNOT BE SEEN FROM ITS STARTER OR IS IN EXCESS OF 9 M (30') FROM ITS STARTER;
 - 6 PROVIDE INTERLOCK WIRING INDICATED ON DRAWINGS AND AS REQUIRED AND AS COORDINATED WITH MECHANICAL DIVISION CONTRACTOR;
 - 7 CONNECT REQUIRED CIRCUITS TO MOTOR STARTER PANEL SO AS TO BALANCE ACTUAL LOADS (WATTAGE).
- 24 LUMINAIRES
- 24.1 INCLUDE WITH SHOP DRAWING SUBMISSIONS, PHOTOMETRIC DATA, LAMP AND BALLAST/DRIVER INFORMATION FOR EACH LUMINAIRE. PHOTOMETRIC DATA TO INCLUDE: TOTAL INPUT WATTS, CANDLEPOWER SUMMARY, CANDELA DISTRIBUTION ZONAL LUMEN SUMMARY, LUMINAIRE EFFICIENCY, CIE TYPE, COEFFICIENT OF UTILIZATION, LAMP TYPE AND LUMEN RATING IN ACCORDANCE WITH IESNA TESTING PROCEDURES.
- 24.2 PROVIDE LUMINAIRES AS NOTED COMPLETE WITH LED LAMPS AND DRIVERS WITH FEATURES AS FOLLOWS:
- 1 CSA APPROVED, ULC LISTED AND LABELLED;
 - 2 OPERATING TEMPERATURE RANGE THROUGH -20°C TO 50°C ;
 - 3 SPECIFICATION STANDARDS TO MEET REQUIREMENTS OF IES LM 79 AND LM 80;
 - 4 BE 100% COMPATIBLE WITH CONNECTED DIMMER CONTROLS TO PROVIDE DIMMING DOWN TO 5%;
 - 5 LEDS TO BE SELECTED FROM SAME COLOUR BIN SIZE FOR CONSISTENCY IN CHROMATICITY AND MEET ANSI C78 377A AS A MINIMUM;
 - 6 GENERALLY, COLOUR TEMPERATURE RANGE TO BE FROM 2700 K TO 6500 K; SPECIFIC TEMPERATURE REQUIREMENTS TO BE IDENTIFIED ON SCHEDULE OF LUMINAIRES;
 - 7 MINIMUM CRI OF 80;
 - 8 RATED LIFE (BASED ON 70% LUMEN DEPRECIATION LEVEL) FROM 50,000 TO 70,000 HOURS;
 - 9 OPERATE FROM 60 HZ INPUT SOURCE OF 120 VAC WITH SUSTAINED VARIATIONS OF ± 10% (VOLTAGE AND FREQUENCY) WITH NO DAMAGE TO DRIVER;
 - 10 OUTPUT REGULATED TO ±5% ACROSS LOAD RANGE;
 - 11 POWER FACTOR GREATER THAN 0.90;
 - 12 TOTAL HARMONIC DISTORTION LESS THAN 20%;
 - 13 CLASS A SOUND RATING;
 - 14 COMPLY WITH ANSI C82.41 CATEGORY A FOR TRANSIENT PROTECTION;
 - 15 ACCEPTABLE MANUFACTURERS AS RECOMMENDED BY LUMINAIRE MANUFACTURERS.
- 24.3 THOROUGHLY REVIEW CEILING TYPES, FINISHES AND CONSTRUCTION DETAILS WITH OWNER BEFORE PLACING LUMINAIRE ORDERS AND ENSURE REQUIRED MOUNTING ASSEMBLIES, RINGS AND SIMILAR FEATURES ARE INCLUDED. INCLUDE FOR ASSEMBLY, MOUNTING AND ADJUSTING OF LUMINAIRES, COMPLETE WITH WIRING, CONNECTIONS, HANGERS, ALIGNERS, BOX COVERS, AND ACCESSORIES FOR COMPLETE, SAFE, FULLY OPERATIONAL ASSEMBLY. CAREFULLY COORDINATE LUMINAIRE INSTALLATION WITH WORK OF OTHER TRADES TO ENSURE NECESSARY RECESSING DEPTHS AND MOUNTING SPACES ARE PROVIDED. INSTALL LUMINAIRES IN ACCORDANCE WITH APPLICABLE ARCHITECTURAL REFLECTED CEILING PLANS AND/OR WALL ELEVATIONS. CONFIRM LUMINAIRE LOCATIONS PRIOR TO ROUGHING IN. REVIEW LAMP COLOUR TEMPERATURES WITH CONSULTANT/OWNER PRIOR TO ORDERING. SUPPORT LUMINAIRES DIRECTLY TO CEILING SLAB STRUCTURE, NOT TO CEILING HANGERS, DUCTWORK, PIPES, CABLE TRAYS, ETC.
- 24.4 CONNECT LUMINAIRES TO CIRCUITS WITH NEW AND/OR EXISTING LIGHTING CONTROL EQUIPMENT AS REQUIRED. DO NOT OVERLOAD CIRCUITS BEYOND BALLAST MANUFACTURER'S RECOMMENDATIONS.
- 24.5 ENSURE THAT PRODUCTS ARE COMPATIBLE WITH EACH OTHER FOR DIMMING APPLICATIONS AND ENSURE PERFORMANCE LEVELS ACCEPTABLE TO CONSULTANT. UNLESS OTHERWISE NOTED, LIGHTING TO BE DIMMED FROM 100% DOWN TO 5%.

- 25 LOW VOLTAGE RELAYS/CONTACTORS
- 25.1 SPECIFICATION GRADE, HEAVY DUTY, 24V, 30A/20A RATED, 14 KAL, RELAYS SUITABLE FOR CONNECTED LOADS; RELAYS TO BE CAPABLE OF INDIVIDUAL ON/OFF CONTROL VIA LOW VOLTAGE SWITCH OR OCCUPANCY SENSOR.
- 25.2 MAGNETIC, FULL VOLTAGE CONTACTORS, SUITABLE FOR APPLICATIONS;
- 25.3 ELECTRICAL ENCLOSURES/ BOXES SUITABLE FOR HOUSING COMPONENTS.

- 26 OCCUPANCY SENSORS
- 26.1 PROVIDE LEGRAND-WATTSTOPPER INC., CSA APPROVED DEVICES TO PROVIDE AUTOMATIC CONTROL OF LIGHTING WITH FOLLOWING COMPONENTS:
- 1 POWER AND SLAVE PACKS; LOW VOLTAGE OR LINE VOLTAGE OPERATION TO SUIT SPECIFIC APPLICATIONS;
 - 2 DUAL TECHNOLOGY OCCUPANCY SENSORS;
 - 3 OVERRIDE SWITCHES TO BE WALL MOUNTING IN SINGLE GANG RECESSED OUTLET BOXES;
 - 4 DAY LIGHT SENSORS TO BE PROVIDED WHERE REQUIRED FOR DIMMING OR CONTROLLING LIGHTS IN AREAS OF WINDOWS AND ATRIUMS/SKY LIGHTS;
 - 5 MOUNTING HARDWARE AND AUXILIARY DEVICES AS REQUIRED;
 - 6 WIRING OF TYPE IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND APPLICABLE LOCAL GOVERNING CODES AND STANDARDS.

- 26.2 DUAL TECHNOLOGY TYPE SENSORS AS FOLLOWS:
- 1 COMBINATION PASSIVE INFRARED AND ULTRASONIC TECHNOLOGIES;
 - 2 WHEN BOTH PIR AND ULTRASONIC TECHNOLOGIES DETECT OCCUPANCY, LIGHTS TURN ON AUTOMATICALLY; ONCE LIGHTS ARE ON, DETECTION BY EITHER TECHNOLOGY HOLDS LIGHTS ON UNTIL OCCUPANCY IS NO LONGER DETECTED AND TIME DELAY ELAPSES;
 - 3 360° LENS AREA COVERAGE, EXTENDING OUT UP TO 6 M AND AREA OF 92.9 M2;
 - 4 LOW PROFILE CEILING MOUNTING DESIGN; INTEGRAL LIGHT SENSOR;
 - 5 ADJUSTABLE SENSITIVITY AND DIGITAL TIME DELAY; WALK-THROUGH MODE; LED INDICATION OF OCCUPANCY DETECTION;
 - 6 ISOLATED RELAY FOR INTERCONNECTION TO AUXILIARY CONTROL SYSTEMS WHERE REQUIRED;
- 26.3 FOR APPLICATIONS IN WASHROOMS AND SMALL STORAGE ROOMS; WALL MOUNTED DUAL TECHNOLOGY SENSORS AS FOLLOWS:
- 1 WALL SWITCH SENSOR TURNS LIGHTS OFF AND ON BASED ON OCCUPANCY;
 - 2 FACTORY DEFAULT OPERATION IS FOR MANUAL ON MODE, SO THAT USERS TURN LIGHT ON ONLY WHEN NEEDED;
 - 3 VARIETY OF CONTROL OPTIONS INCLUDING AUTO-ON OPERATION, WALK-THROUGH AND TEST MODE; ADDITIONAL SETTINGS ALLOW CHOICE OF WHICH SENSING TECHNOLOGIES HOLD ON OR RETRIGGER LIGHTING;
 - 4 COLOUR MATCHED LENS AND LOW PROFILE DESIGN;
 - 5 WIDE DISPERSION LENS AREA COVERAGE, EXTENDING OUT UP TO 10 M AND AREA OF 37 M2;
 - 6 INFRARED AND ULTRASONIC TECHNOLOGIES;
 - 7 ADJUSTABLE TIME DELAYS AND SENSITIVITY; MANUAL PUSHBUTTON OPERATION (OVERRIDE);
- 26.4 EXACT TYPE OF OCCUPANCY SENSORS AND TYPE OF LENSES TO BE VERIFIED BY MANUFACTURER/SUPPLIER TO ENSURE PROPER COVERAGE IN SENSED AREAS ONLY, AND COMPATIBILITY TO INTERCONNECTED SYSTEMS. CONFIRM WITH RESPECTIVE MANUFACTURERS.
- 26.5 PROVIDE, LOCATE, AND AIM APPROPRIATE SENSORS IN CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE WITHIN RANGE OF COVERAGE OF CONTROLLED AREAS PER MANUFACTURER'S RECOMMENDATIONS. ADJUST SENSITIVITY AND TIME DELAYS TO SUIT.
- 26.6 ACCEPTABLE MANUFACTURERS INCLUDE HUBBELL, PHILIPS, SENSOR SWITCH, AND LEVITON.

- 27 EMERGENCY LIGHTING BATTERY UNITS
- 27.1 PROVIDE EMERGLITE 12V DC, "ESI" SERIES LONG LIFE (10 YEAR) SEALED LEAD, BATTERY UNITS. UNITS SHALL BE COMPLETE WITH AUTO-DIAGNOSTIC CONTROLLER, SOLID STATE CHARGER, AC LINE CORD AND PLUG SET, NO. 18 GAUGE STEEL CABINET AND INTEGRAL 12V/6W LED ADJUSTABLE LAMP HEADS. UNLESS OTHERWISE NOTED, REMOTE SURFACE LAMP HEADS TO BE DISTINCTION DESIGNER SERIES TYPE EFR15, 12V/6W MR16 LED RECESSED ADJUSTABLE RING TYPE. CONNECT COMPLETE, BACK TO BATTERY UNIT. CHARGER TO RESTORE BATTERIES TO FULL CHARGE WITHIN 12 HOURS. SYSTEM TO HAVE OBC REQUIRED DURATION OF OUTPUT CAPACITY FOR LOAD OF SYSTEM (BUT MINIMUM 30 MINUTES).
- 27.2 MOUNT UNIT IN AREA AS REQUIRED AND PLUG UNIT INTO ADJACENT RECEPTACLE. PROVIDE REMOTE LAMPHEADS WHERE REQUIRED AND PROVIDE WIRING IN CONDUIT TO BATTERY UNIT. CONFIRM EXACT LOCATIONS. SIZE CIRCUIT WIRING IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR VOLTAGE DROP PROTECTION. TEST, CHECK, AND ADJUST AS REQUIRED.
- 27.3 INCLUDE FOR MANUFACTURER TO PROVIDE TESTING OF SYSTEM AND MEASUREMENT OF LIGHT LEVELS TO OBTAIN LOCAL INSPECTION APPROVALS AND PERMITS. MANUFACTURER'S AUTHORIZED TECHNICIAN TO PREPARE AND PROVIDE SIGNED TEST REPORT VERIFYING THAT SYSTEM IS PROPERLY WORKING AND THAT LIGHT LEVELS MEET LOCAL CODE REQUIREMENTS. INCLUDE REQUIRED TEST MEASUREMENTS IN REPORT AND SUBMIT TO CONSULTANT.
- 27.4 ACCEPTABLE MANUFACTURERS INCLUDE LUMACELL, AMLITE AND BEGHELLI.

- 28 LOW VOLTAGE LIGHTING CONTROL COMPONENTS
- 28.1 PROVIDE LEGRAND-WATT STOPPER, CSA APPROVED, ULC LISTED AND LABELLED, FACTORY PREWIRED, ASSEMBLED AND TESTED PANELS FOR CONTROL OF LOW VOLTAGE LIGHTING, AS FOLLOWS:
- 1 NEMA 1 ENCLOSURE WITH SPRINKLER PROTECTION, ENAMEL PAINTED STEEL TUB, INTERIOR MOUNTING PANEL, WITH RESTRICTED ACCESS TO LINE VOLTAGE SIDE AND WITH HINGED KEY LOCKABLE SURFACE OR FLUSH MOUNTING COVER AND IDENTIFICATION CARD;
 - 2 SIZED SUITABLE FOR UP TO 48 RELAYS AND 8 CONTACTORS, AS REQUIRED;
 - 3 INTELLIGENCE BOARDS WITH AUTOMATION CONTROL CARD, NETWORK CLOCK, GROUP/CHANNEL/PATTERN CONTROL CARD, PHOTO CONTROL MODULE, BMS INTERFACE, AS REQUIRED;
 - 4 SPECIFICATION GRADE, HEAVY DUTY, 24V, 30A/20A RATED, 14 KAL, RELAYS SUITABLE FOR ELECTRONIC BALLASTS AND OTHER CONNECTED LOADS; RELAYS SHALL BE CAPABLE OF INDIVIDUAL ON/OFF CONTROL VIA LOW VOLTAGE SWITCH OR OCCUPANCY SENSOR;
 - 5 DIN RAIL MOUNTED CONTACTORS, 4 POLE, NO/NC AS REQUIRED, COMPATIBLE WITH AND RATED FOR LOADS;
 - 6 MULTI-VOLTAGE POWER SUPPLY OF CAPACITY TO POWER CONNECTED DEVICES AND RECTIFIERS AS REQUIRED;
 - 7 24 V. MOMENTARY CONTACT IVORY PUSHBUTTON TYPE SWITCHES COMPLETE WITH PILOT LIGHTS;
 - 8 TYPE 302 STAINLESS STEEL WALL PLATES, NUMBER OF GANG AS REQUIRED, SUITABLE FOR SWITCHES SPECIFIED AND COMPLETE WITH MOUNTING BRACKETS AND MATCHING SCREWS. CONFIRM FINISHES WITH CONSULTANT;
 - 9 SEPARATION WHERE PANEL HAS MORE THAN ONE POWER SOURCE;
 - 10 WIRING OF TYPE IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND APPLICABLE LOCAL GOVERNING CODES AND STANDARDS.
- 28.2 SYSTEM MANUFACTURER TO REVIEW SYSTEM REQUIREMENTS AND SYSTEMS BEING INTEGRATED AND PROVIDE NECESSARY COMPONENTS TO SUIT.
- 28.3 FLUSH WALL MOUNT LOW VOLTAGE SWITCHES COMPLETE WITH MOUNTING BRACKETS AND STAINLESS STEEL FACEPLATES. INSTALL PANELS ADJACENT TO LIGHTING LOAD PANELBOARD. PROVIDE DRIP SHIELDS FOR SURFACE MOUNTED PANELS. IDENTIFY CIRCUITS. CHECK COMPONENTS CONNECTIONS, TEST OPERATION, AND ADJUST OR REPAIR AS REQUIRED.
- 28.4 INSTALL REQUIRED SYSTEM WIRING IN CONDUIT. PROVIDE REQUIRED POWER WIRING, AND COMMUNICATIONS AND CONTROL WIRING INTERCONNECTIONS BETWEEN PANELS.
- 28.5 ACCEPTABLE MANUFACTURERS MAY INCLUDE DOUGLAS, GE, LEVITON AND PHILIPS, SUBJECT TO CONSULTANT'S APPROVAL.

- 29 OUTSIDE LIGHTING CONTROL COMPONENTS
- 29.1 ELECTRONIC TIME SWITCHES: INTERMATIC INC., ET700C SERIES, CSA APPROVED, PROGRAMMABLE, 7 DAY, SURFACE WALL MOUNTED, ELECTRONIC TIME SWITCH WITH 28 SET POINTS PER DAY, NICAD BATTERIES FOR CONTINUOUS POWER TO PROGRAMMING, AUTOMATIC CHARGER AND NEMA 1 ENCLOSURE WITH LOCKABLE HINGED DOOR. PROVIDE SURGE SUPPRESSOR AS REQUIRED. UNITS LOCATED IN NON-CLIMATE CONTROLLED AREAS SHALL INCLUDE NEMA 3R ENCLOSURES. EXACT MODEL MUST SUIT INTENDED APPLICATION OF LOADS BEING CONTROLLED.
- 29.2 INTERMATIC INC. K4100 SERIES, CSA APPROVED, 120V, WEATHER PROOF, HERMETICALLY SEALED, CADMIUM SULPHIDE, PHOTOCELL COMPLETE WITH COLOUR CODED LEADS, ADJUSTABLE LIGHT LEVEL SLIDE, SWIVEL, THREADED PIPE STEM AND HEAVY DUTY DIE CAST HOUSING. SYSTEM PROVIDED SUCH THAT LOAD REMAINS ON IF CELL FAILS AND SHALL INCLUDE THERMAL INERTIA TIME DELAY.
- 29.3 PROVIDE TIME SWITCH AND PHOTOCELL IN LOCATIONS AS REQUIRED. CONFIRM LOCATIONS PRIOR TO ROUGHING IN. CONNECT PHOTOCELL AND TIME SWITCH TO CONTACTOR, AND TO PANELBOARD CONTROLLING OUTSIDE LIGHTING. WHEN WORK IS COMPLETE, TEST SYSTEM AND ADJUST. PHOTOCELL SHALL SWITCH DESIGNATED OUTSIDE LIGHTING ON AND TIME SWITCH SHALL SWITCH LIGHTING OFF.
- 29.4 ACCEPTABLE MANUFACTURERS OF TIME SWITCH AND PHOTO CELL INCLUDE TORX CANADA AND PARAGON ELECTRIC.

- 30 EXISTING FIRE ALARM SYSTEM WORK
- 30.1 ENGAGE EXISTING FIRE ALARM SYSTEM VENDOR AS APPROVED BY OWNER. TO PROVIDE SYSTEM WORK, DISCONNECT, RELOCATE, AND RECONNECT REQUIRED DEVICES. WORK TO BE AN EXTENSION OF EXISTING SYSTEM. PROVIDE ADDITIONAL DEVICES, CONDUCTORS IN CONDUIT AND END OF LINE RESISTORS. PROVIDE ULC LISTED DEVICES TO MATCH EXISTING DEVICES AND BE COMPLETELY COMPATIBLE WITH EXISTING SYSTEM. PERFORM WORK IN ACCORDANCE WITH LATEST EDITION OF CANULC S524. SEQUENCE OF OPERATION OF NEW WORK TO FUNCTION AS PER EXISTING SYSTEM. UNLESS OTHERWISE NOTED, CONNECT ADDITIONAL DEVICES TO EXISTING ZONES SERVING AREA. AS PER SYSTEM MANUFACTURER'S INSTRUCTIONS, TO EXISTING STANDARDS AND AS APPROVED BY LOCAL FIRE AUTHORITY. PROVIDE WIRING OF MINIMUM NO. 16 AWG IN CONDUIT AND AS PER OESC REQUIREMENTS. RUN ALARM INITIATING CIRCUITS IN SEPARATE CONDUITS FROM ALARM SIGNALLING CIRCUITS.

- 30.2 PROVIDE ADDITIONAL DEVICES OF TYPE TO SUIT APPLICATIONS AS RECOMMENDED BY SYSTEM SUPPLIER. INCLUDE REQUIRED ACCESSORIES FOR PROPER OPERATION AND INSTALLATION. RE-PROGRAM SYSTEM TO ACCOMMODATE ADDITIONS AND MODIFICATIONS. RE-BURN SOFTWARE AS REQUIRED BY LOCAL FIRE AUTHORITY. MODIFY ANNUNCIATORS AS REQUIRED TO INCORPORATE REVISIONS AND ADDITIONS. PROVIDE AUDIBLE DEVICES AND ADJUST TO SOUND AT LEVELS AS PER LOCAL FIRE AUTHORITY REQUIREMENTS. PROVIDE ADDITIONAL DEVICES AS REQUIRED TO ACHIEVE SOUND LEVEL STANDARDS.
- 30.3 DURING WORK TO EXISTING FIRE ALARM SYSTEM TIME AND DURATION OF INTERRUPTION TO BE APPROVED BY OWNER AND ONLY ONE ZONE TO BE INTERRUPTED AT ANY ONE TIME. IN AREAS WHERE RENOVATION WORK REQUIRES SHUTDOWN OF ANY PART OF FIRE ALARM PROTECTION SYSTEM, PROVIDE MANUAL FIRE ALARM PROTECTION (FIRE WARDEN) BY MEANS OF SUPERVISING AREA AS APPROVED BY GOVERNING AUTHORITIES. AT NO TIME SHALL FIRE ALARM SYSTEM OR ANY ONE ZONE BE LEFT INOPERATIVE OVERNIGHT. PROVIDE REQUIRED BYPASS WIRING AND TEMPORARY WIRING AS MAY BE REQUIRED TO MAINTAIN ENTIRE FIRE ALARM SYSTEM OPERATIVE DURING CONSTRUCTION AND ALTERATIONS.
- 30.4 COVER EXISTING DETECTORS TO PROTECT FROM DEMOLITION/CONSTRUCTION DUST. REMOVE COVERS WHEN ALTERNATIVE FIRE ALARM PROTECTION IN AREA IS NOT AVAILABLE OVERNIGHT.
- 30.5 WHERE APPLICABLE, PROVIDE FIRE ALARM PULL STATION AT LOCATIONS OF ELECTROMAGNETICALLY LOCKED DOORS. PULL STATIONS SHALL BE CW AUXILIARY CONTACTS FOR CONNECTIONS TO SECURITY SYSTEM TO REQUIRE MAGLOCKS UPON FIRE ALARM SYSTEM AND PULL STATION ACTIVATION. PROVIDE WIRING AND REQUIRED INTERCONNECTIONS TO SECURITY SYSTEM. CO-ORDINATE WORK WITH SECURITY SYSTEM CONTRACTOR. OBTAIN REQUIRED CERTIFICATE OF APPROVAL WORK FOR MAGLOCKS FROM RESPECTIVE AUTHORITY HAVING JURISDICTION. PROVIDE OBC COMPLIANT MESSAGE SIGNAGE WITH PULL STATION FOR EMERGENCY EXIT, ADJACENT PULL STATION.
- 30.6 COORDINATE WORK WITH MECHANICAL DIVISION WITH REGARDS TO INTERCONNECTIONS TO AIR HANDLING SYSTEMS, FIRE SUPPRESSION SYSTEMS, SUPERVISORY VALVES, AND FLOW SWITCHES, BUILDING AUTOMATION SYSTEM, ETC. PERFORM SUCH INTERCONNECTIONS TO STANDARDS OF EXISTING SYSTEMS AND DOCUMENT IN SHOP DRAWINGS.
- 30.7 WHEN FIRE ALARM SYSTEM WORK IS COMPLETE AND READY FOR ACCEPTANCE EXISTING SYSTEM MANUFACTURER/VENDOR TO INSPECT, TEST, VERIFY AND CERTIFY WORK AND EQUIPMENT, INCLUDING INITIATING DEVICES, SIGNALLING DEVICES, CONTROL DEVICES AND WIRING.
- 30.8 TEST AND VERIFY THAT AUDIBLE SIGNALS ARE AT LEVELS ACCEPTABLE TO LOCAL FIRE AUTHORITY AND THAT BATTERIES ARE OF SUFFICIENT CAPACITY AS PER OBC. PROVIDE CERTIFICATE OF LIABILITY INSURANCE REGISTERED FOR THIS PROJECT TO SHOW SATISFACTORY PROOF OF MANUFACTURER'S LIABILITY COVERAGE FOR BOTH HIS PRODUCT AND PERSONNEL. CONDUCT WORK IN ACCORDANCE WITH LATEST EDITIONS OF CANULC S836 AND S837. TESTS TO BE CONDUCTED IN PRESENCE OF OWNER AND/OR CONSULTANT. PROVIDE TO CONSULTANT MINIMUM ONE HARD COPY AND ELECTRONIC COPY OF TEST REPORT WITH DETAILED SCHEDULES OF TESTED DEVICES. REPORTS SHALL BE SIGNED BY AUTHORIZED CERTIFIED TESTING TECHNICIAN. DIGITAL COPY OF REPORT TO BE PROVIDED IN COMPATIBLE FORMAT CONFIRMED WITH CONSULTANT.
- 30.9 OBTAIN FROM LOCAL FIRE AUTHORITY, APPROVAL CERTIFICATE AND SUBMIT TO CONSULTANT WITH REPORTS.
- 30.10 EMPLOY TECHNICIANS CERTIFIED BY CANADIAN FIRE ALARM ASSOCIATION AND/OR ONTARIO FIRE MARSHALL AS APPLICABLE AND TO REQUIREMENTS OF ONTARIO FIRE CODE.

- 31 EXCAVATION AND BACKFILL
- 31.1 PROVIDE EXCAVATION, BACKFILL, AND RELATED WORK REQUIRED FOR YOUR WORK. PERFORM SUCH WORK IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 02, EXCEPT AS MODIFIED BY THIS ARTICLE. OBTAIN A COPY OF SOIL TEST REPORT FROM CONSULTANT. ARRANGE FOR LOCATES BY LOCAL UTILITIES OF AREAS OF WORK.
- 31.2 GRADE BOTTOM OF EXCAVATION AS REQUIRED. ENSURE THAT SLOPING OF CONDUIT/DUCT IS SUFFICIENT TO PREVENT POOLING OF WATER WITHIN CONDUIT/DUCT. PROVIDE SUITABLE DRAINAGE.
- 31.3 IN FIRM, UNDISTURBED SOIL, LAY SERVICES DIRECTLY ON SOIL. BACKFILL EXCESS EXCAVATION WITH 13,790 KPA CONCRETE.
- 31.4 PREPARE NEW BEDDING UNDER SERVICE IN UNSTABLE SOIL, IN FILL, AND IN CASES WHERE BEDDING HAS BEEN REMOVED IN EARLIER EXCAVATION, PARTICULARLY NEAR PERIMETER WALLS OF BUILDINGS, AND AT MANHOLES AND CATCH BASINS. COMPACT TO MAXIMUM POSSIBLE DENSITY AND SUPPORT SERVICE BY MEANS OF 200 MM THICK CONCRETE CRADLES SPANNING FULL LENGTH BETWEEN FIRM SUPPORTS. ADDITIONAL REQUIREMENTS MAY BE DETAILED ON DRAWINGS.
- 31.5 WHERE EXCAVATION IS NECESSARY IN PROXIMITY TO AND BELOW LEVEL OF ANY FOOTING, BACKFILL WITH 13,790 KPA CONCRETE TO LEVEL OF HIGHEST ADJACENT FOOTING. PROXIMITY IS DETERMINED BY ANGLE OF REPOSE AS ESTABLISHED BY CONSULTANT.
- 31.6 DO NOT OPEN TRENCHES AHEAD OF INSTALLATION OF SERVICES AND BACKFILLING MORE THAN WEATHER WILL PERMIT. BREAK UP ROCKS AND BOULDERS AND REMOVE BY DRILLING AND WEDGING. DO NOT USE BLASTING UNLESS SPECIFICALLY APPROVED BY OWNER AND REVIEWED WITH CONSULTANT.
- 31.7 BEFORE BACKFILLING, OBTAIN APPROVAL FROM CONSULTANT, LOCAL UTILITY, AND/OR AUTHORITY HAVING JURISDICTION, AS REQUIRED. FAILURE TO OBTAIN SUCH APPROVALS AND ALLOW FOR INSPECTION OF WORK PRIOR TO COVERING, WILL RESULT IN RE-EXCAVATING AND BACKFILLING AT NO EXTRA COST TO OWNER. REMOVE SHOING DURING BACKFILLING.
- 31.8 BACKFILL TRENCHES WITHIN BUILDING WITH CLEAN SHARP SAND IN INDIVIDUAL LAYERS OF MAXIMUM 150 MM THICKNESS, COMPACTED TO A DENSITY OF 100% STANDARD PROCTOR. HAND COMPACT FIRST LAYERS UP TO COMPACTED LEVEL OF 300 MM ABOVE TOP OF SERVICE. HAND OR MACHINE COMPACT BALANCES UP TO GRADE USING COMPACTOR EQUIPMENT.
- 31.9 BACKFILL TRENCHES OUTSIDE BUILDING (NOT UNDER ROADS, PARKING LOTS OR TRAFFIC AREAS) UP TO A COMPACTED LEVEL OF 450 MM ABOVE SERVICE WITH GRANULAR "A" MATERIAL. HAND COMPACTED TO A DENSITY OF 95% STANDARD PROCTOR. BACKFILL BALANCE WITH 150 MM LAYERS OF APPROVED EXCAVATED MATERIAL, COMPACTED TO 95% STANDARD PROCTOR DENSITY USING APPROVED EQUIPMENT.
- 31.10 BACKFILL TRENCHES OUTSIDE BUILDING UNDER ROADS, PARKING LOTS OR TRAFFIC AREAS WITH GRANULAR "A" MATERIAL IN LAYERS NOT EXCEEDING 150 MM THICKNESS, COMPACTED TO 100% PROCTOR DENSITY UP TO GRADE LEVEL. ASPHALT TOPPING WITHIN PARKING LOT SHALL BE RESPONSIBILITY OF OTHERS. SURFACE TOPPING BEYOND PARKING LOT SHALL BE PROVIDED AS PART OF THIS DIVISION AND SHALL MATCH EXISTING TOPPING. ENSURE THAT TOPPING ARE ROLLED SMOOTH AND FLUSH TO ADJOINING SURFACES.
- 31.11 FILL DEPRESSIONS TO CORRECT GRADE LEVEL WITH APPROPRIATE MATERIAL, AFTER AN ADEQUATE PERIOD HAS PASSED TO REVEAL ANY SETTLEMENT. USE MAXIMUM POSSIBLE COMPACTION. PAY COSTS REQUIRED TO MAKE GOOD DAMAGES CAUSED BY SETTLEMENT.
- 31.12 STORE AND DISPOSE OF EXCAVATED MATERIALS AS FOLLOWS:
- 1 DURING PROGRESS OF CONTRACT, PLACE MATERIAL AS DIRECTED IN SUCH A MANNER THAT A MINIMUM OF DAMAGE OR DISFIGUREMENT OF EXISTING GROUND WILL RESULT AND MATERIAL WILL NOT IN ANY WAY IMPEDE PROGRESS OF WORK;
 - 2 SEPARATELY PLACE SURPLUS TOPSOIL AND SUBSOIL AS DIRECTED. LEAVE SITE CLEAN AND UNENCUMBERED.
- 31.13 PROVIDE PUMPING AS REQUIRED TO KEEP EXCAVATIONS FREE OF WATER.
- 31.14 BEFORE COMMENCEMENT OF EXCAVATION FOR YOUR WORK, DETERMINE IN CONSULTATION WITH CONSULTANT, OWNER, MUNICIPALITY, AND UTILITIES PRESENCE, IF ANY, OF EXISTING UNDERGROUND SERVICES AT SITE. LOCATE SUCH SERVICES AND MARK OUT SAME. ENSURE THAT TRADES CONCERNED ARE AWARE OF THEIR PRESENCE. OBTAIN AND REVIEW ANY SURVEY REPORTS AVAILABLE FROM OWNER OR CONSULTANT.
- 31.15 BE RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING UNDERGROUND SERVICES CAUSED BY NEGLECT TO DETERMINE AND MARK OUT LOCATION OF SUCH SERVICES PRIOR TO EXCAVATION WORK COMMENCING.
- 31.16 INVERTS AND LOCATIONS OF EXISTING SITE SERVICES MAY HAVE BEEN SITE SURVEYED AND APPROXIMATE LOCATION MAY BE SHOWN ON DRAWINGS. HOWEVER, ACCURACY IN QUANTITIES AND LOCATIONS IS NOT TO BE TAKEN AS COMPLETE OR ACCURATE. BE RESPONSIBLE FOR CONFIRMING THAT INVERTS AND LOCATIONS IF SHOWN ARE CORRECT, PRIOR TO COMMENCING EXCAVATION. WHERE DISCREPANCIES ARE FOUND, IMMEDIATELY INFORM CONSULTANT, AND AWAIT A DIRECTION.
- 31.17 WHERE WORK FALLS UNDER JURISDICTION OF LOCAL UTILITIES, CONFIRM REQUIREMENTS WITH LOCAL UTILITIES AND COMPLY WITH RESPECTIVE UTILITY REQUIREMENTS.

END

ARCHITECTURE 49

605-75 WATER ST N
CAMBRIDGE ONTARIO CANADA N1R 7L6
TEL: 226-785-0800 | FAX: 519-740-6104 | JARCHITECTURE49.COM



MMM Group Limited
502 Lancaster St W
Kitchener, ON N2K 1M3
t. 519-743-8777
f. 519-743-8778
www.mmm.ca



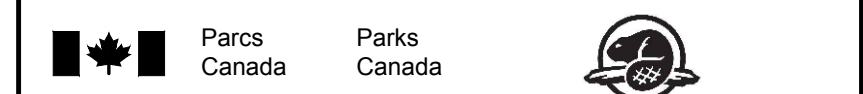
3	2016-11-22	ISSUED FOR TENDER	TD	TD
2	2016-11-07	ISSUED FOR 95% REVIEW	TD	TD
1	2016-10-17	ISSUED FOR 50% REVIEW	TD	TD

NO.	DATE	DESCRIPTION	Drawn by Dessine par	Approved Approuve
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REVISIONS

	A Detail number	A Numero de detail
	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters	Dimensions lineaires en millimetres
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Canadä

PARKS CANADA
SOUTHWESTERN ONTARIO FIELD UNIT

Type of Record /
Type d'enregistrement

Project title / Titre du projet
**FORT MALDEN
ADDITION**

Drawing title / Titre du dessin
SPECIFICATIONS

Plot Scale / Echelle
1:50

Drawn by/ Dessine par	Date
TD	10/13/16

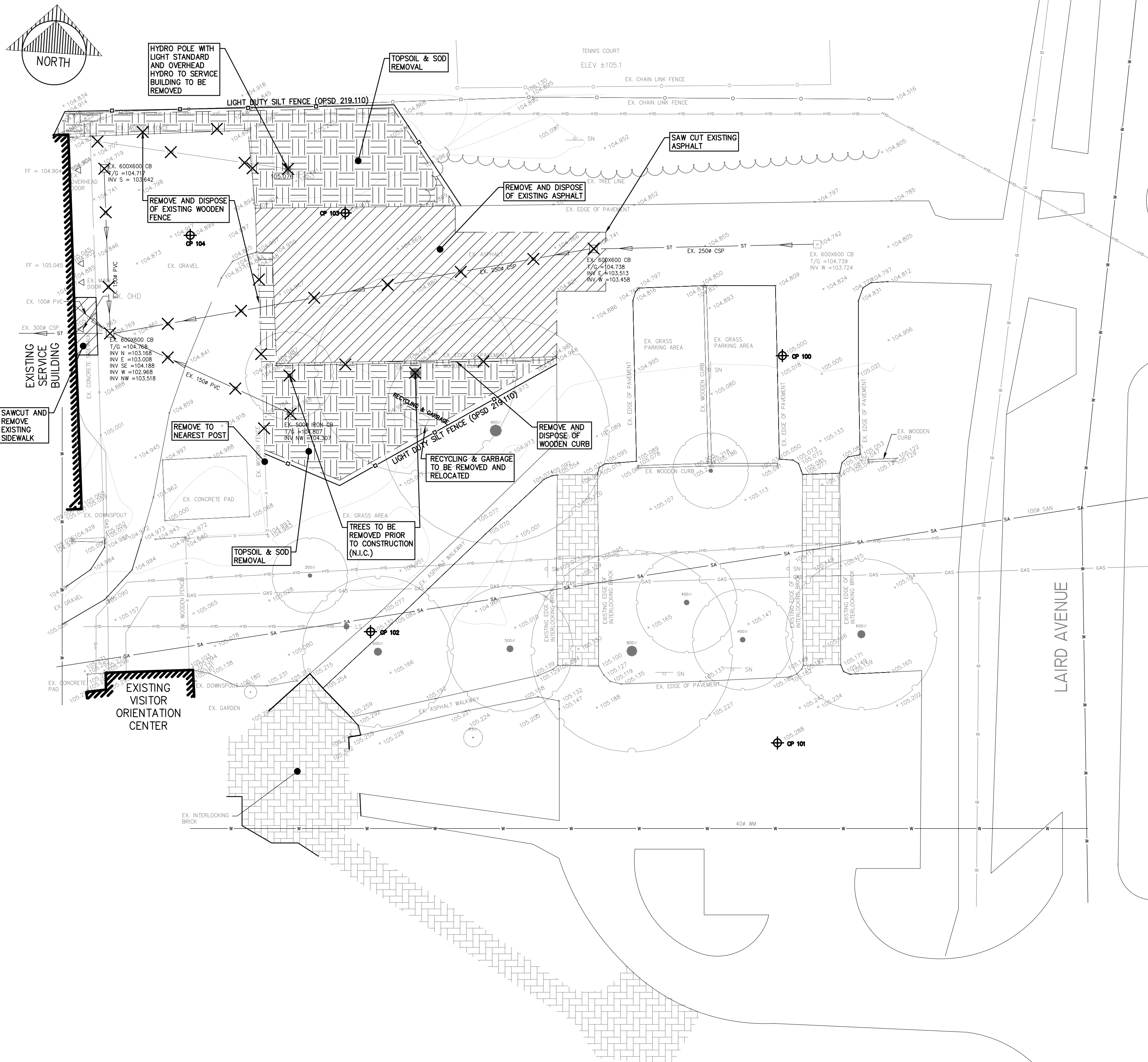
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N/A	N/A

Approved by / Approuve par	Date
TD	10/13/16

Checked by/ Verifie par	Date
TD	10/13/16

Project No./ No. du projet	Asset No.	Sheet No./ Feuille No.
PRO000812		E2.1

Drawing Re No./No. du Dessin	
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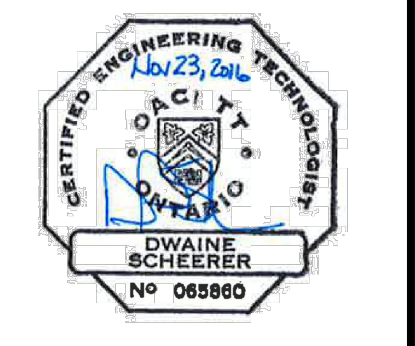
GENERAL NOTES:

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- ALL GRASSED AREAS TO BE REINSTATED WITH 100mm TOPSOIL AND SOD (UNLESS NOTED OTHERWISE).
- CONTRACTOR TO IMPLEMENT DUST MITIGATING MEASURES TO PREVENT BLOWING DUST AND DEBRIS.
- ALL EXISTING TREES TO BE PROTECTED DURING CONSTRUCTION UNLESS OTHERWISE STATED.
- ALL UNITS IN METRES UNLESS NOTED OTHERWISE.
- EXISTING TOPOGRAPHIC INFORMATION WAS OBTAINED BY D. SCHEERER, CET., OF WSP ON SEPTEMBER 15, 2016.

Control Points				
Point Number	Elevation	North	East	Description
100	105.000	500.000	500.000	CP 100
101	105.288	469.330	499.615	CP 101
102	105.132	478.140	467.377	CP 102
103	104.904	511.302	465.371	CP 103
104	104.899	509.528	453.097	CP 104

LEGEND

- ST - PROPOSED STORM SEWER
- ST - EXISTING STORM SEWER
- SA - PROPOSED SANITARY SEWER
- SA - EXISTING SANITARY SEWER
- WM - PROPOSED WATERMAIN
- WM - EXISTING WATERMAIN
- UT - EXISTING UTILITY (UNDERGROUND HYDRO)
- UT - EXISTING UTILITY (GAS)
- BL - EXISTING BELL LINE
- LD - LIGHT DUTY SILT FENCE
- SB - EXISTING STRUCTURE/BUILDING
- AS - EXISTING ASPHALT TO BE REMOVED
- TS - EXISTING TOPSOIL & SOD TO BE REMOVED
- X - ITEM TO BE REMOVED
- - NEW SANITARY MANHOLE
- - EXISTING SANITARY MANHOLE
- - NEW STORM MANHOLE
- - EXISTING STORM MANHOLE
- - NEW CATCH BASIN
- - EXISTING CATCH BASIN
- - NEW HYDRANT
- - EXISTING HYDRANT
- ⊗ - NEW VALVE
- ⊗ - EXISTING VALVE
- - PROPOSED BOLLARD
- - EXISTING BOLLARD
- - PROPOSED LIGHT STANDARD
- - EXISTING HYDRO POLE AND LIGHT STANDARD
- - PROPOSED OVERLAND FLOW DIRECTION
- - PROPOSED SIGN
- ⊗ - PROPOSED ELEVATION
- - EXISTING ELEVATION
- ⊕ - CONTROL POINT
- Ⓟ - PARKING STALLS



NO.	DATE	DESCRIPTION	Drawn by	Approved
3	11/23/16	ISSUED FOR TENDER	JD	KB
2	11/04/16	ISSUED FOR 95% REVIEW	JD	KB
1	10/14/16	ISSUED FOR REVIEW	JD	KB

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Linear dimensions in millimeters / Dimensions lineaires en millimetres

Parcs Canada / Parks Canada



PARCS CANADA / SOUTHWESTERN ONTARIO FIELD UNIT (CZ)

Type of Record / Type d'enregistrement

Project title / Titre du projet
FORT MALDEN ADDITION

Drawing title / Titre du dessin
REMOVALS AND SEDIMENT & EROSION CONTROL PLAN

Plot Scale / Echelle
1:200

Drawn by / Dessine par: JD Date: 10/14/16

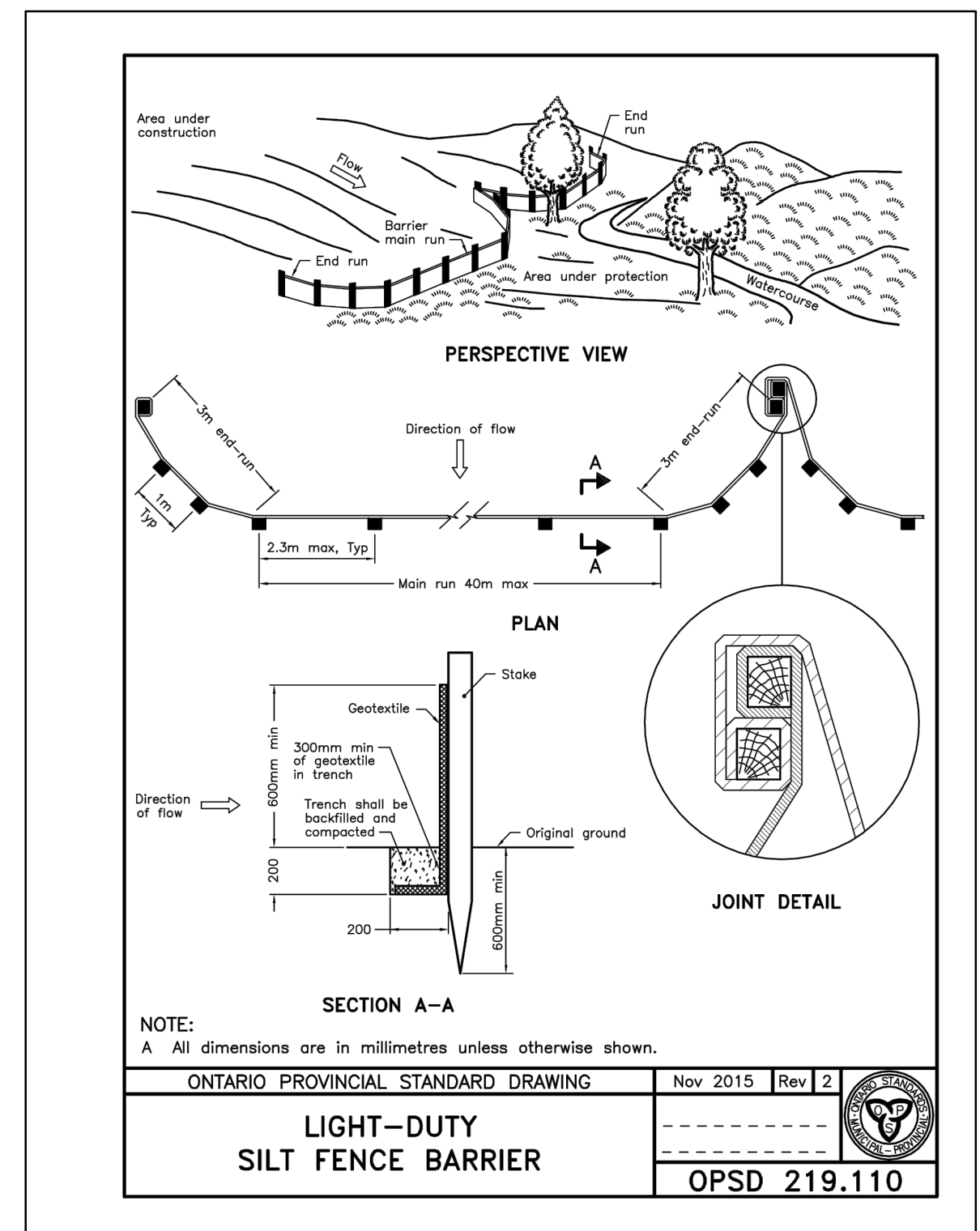
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Approved by / Approuvé par: KB Date: 10/14/16

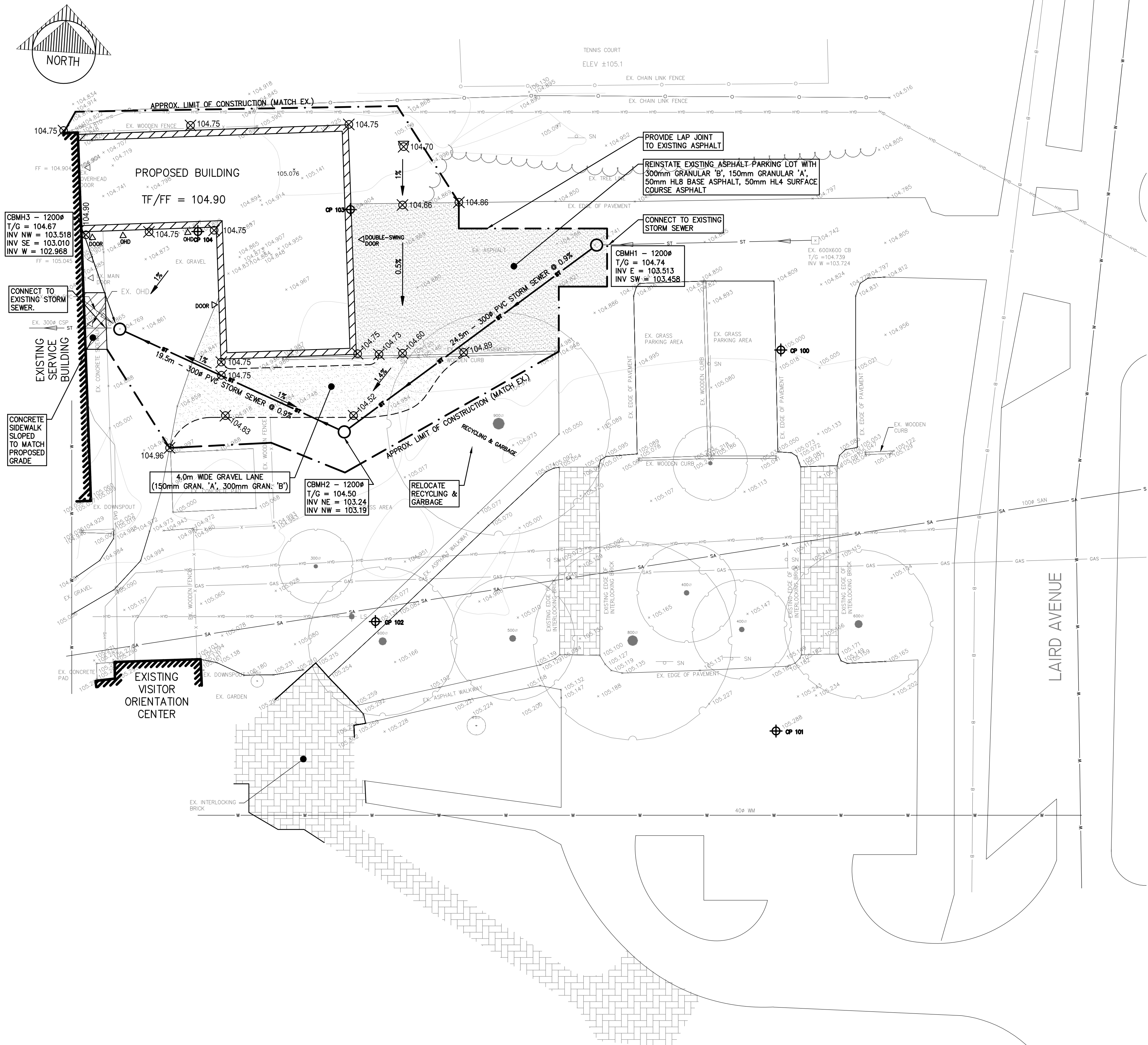
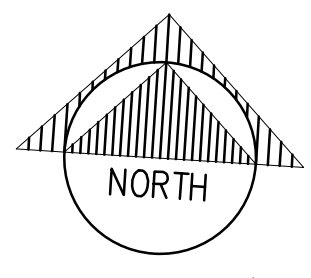
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Drawing Re No./No. du Dessin: 1



C100



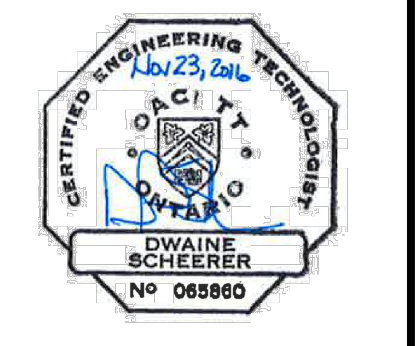
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- ALL CBMH'S ARE TO FOLLOW OPSD 701.010 WITH FRAME AND GATE TO FOLLOW OPSD 400.020

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- PROPOSED SANITARY SEWER
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- EXISTING TOPSOIL & SOD TO BE REMOVED
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- NEW STORM MANHOLE
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- NEW VALVE
- EXISTING VALVE
- PROPOSED BOLLARD
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- EXISTING HYDRO POLE AND LIGHT STANDARD
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REVISIONS

Symbol	Description	Numero de detail
A	A Detail number	A Numero de detail
B	B Sheet number	B Sur feuille numero

Linear dimensions in millimeters / Dimensions lineaires en millimetres

Parcs Canada / Parks Canada

Canada

PARKS CANADA / SOUTHWESTERN ONTARIO FIELD UNIT (CZ)

Type of Record / Type d'enregistrement

Project title / Titre du projet

FORT MALDEN ADDITION

Drawing title / Titre du dessin

PROPOSED SITE SERVICING AND GRADING PLAN

Plot Scale / Echelle

1:200

Drawn by/ Dessine par: JD Date: 10/14/16

Field Recording by/ Releve-Termin par: N/A Date: N/A

Approved by/ Approuve par: KB Date: 10/14/16

Checked by/ Verifie par: DS Date: 10/14/16

Project No./ No. du projet: PR0000812 (CZ) Asset No. Sheet No./ Feuille No.

Drawing Re No./No. du Dessin: 1

C101

