



Fisheries and  
Oceans Canada

Coast Guard

Pêches  
et Océans

Garde cotiere

P.O. BOX 5667

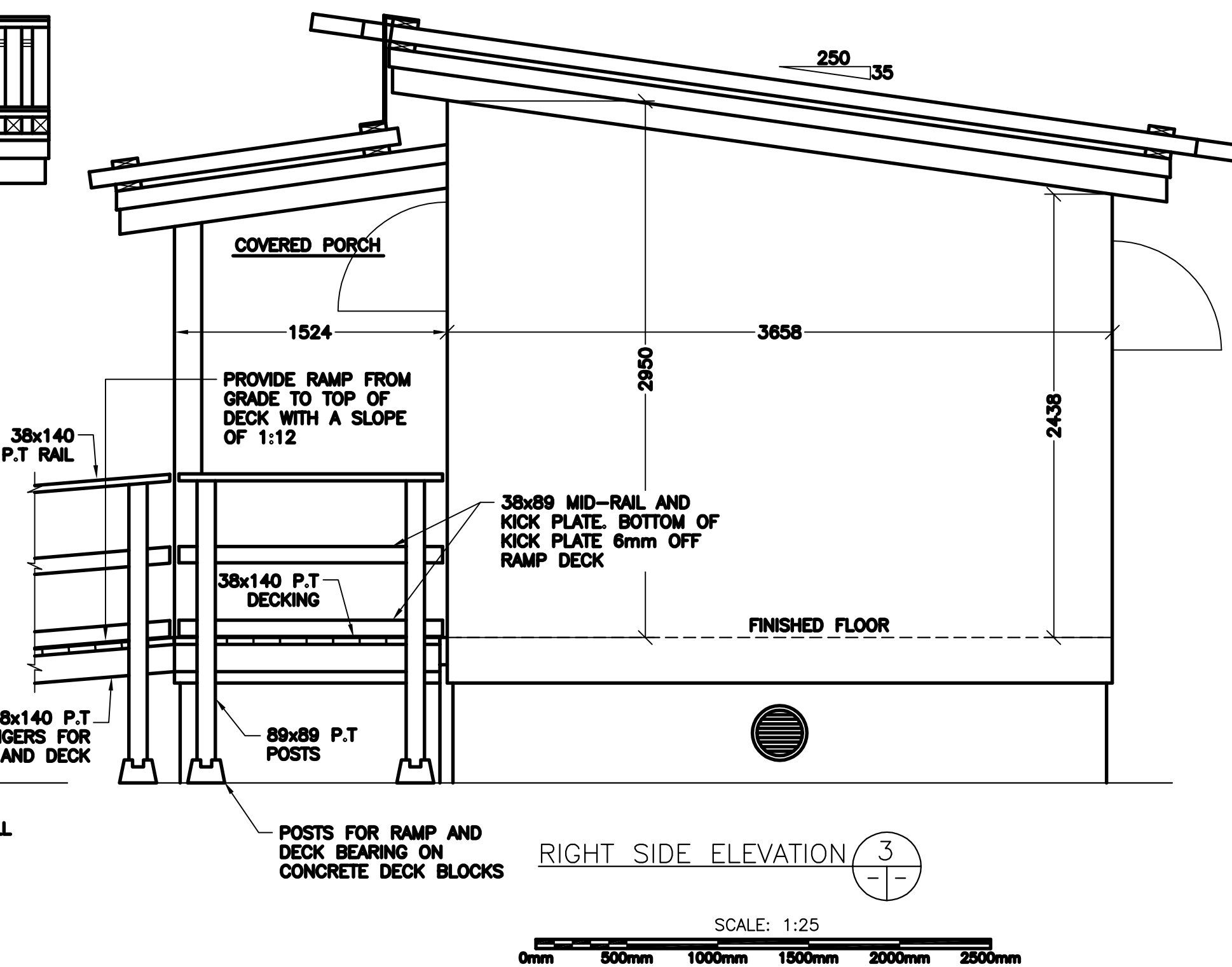
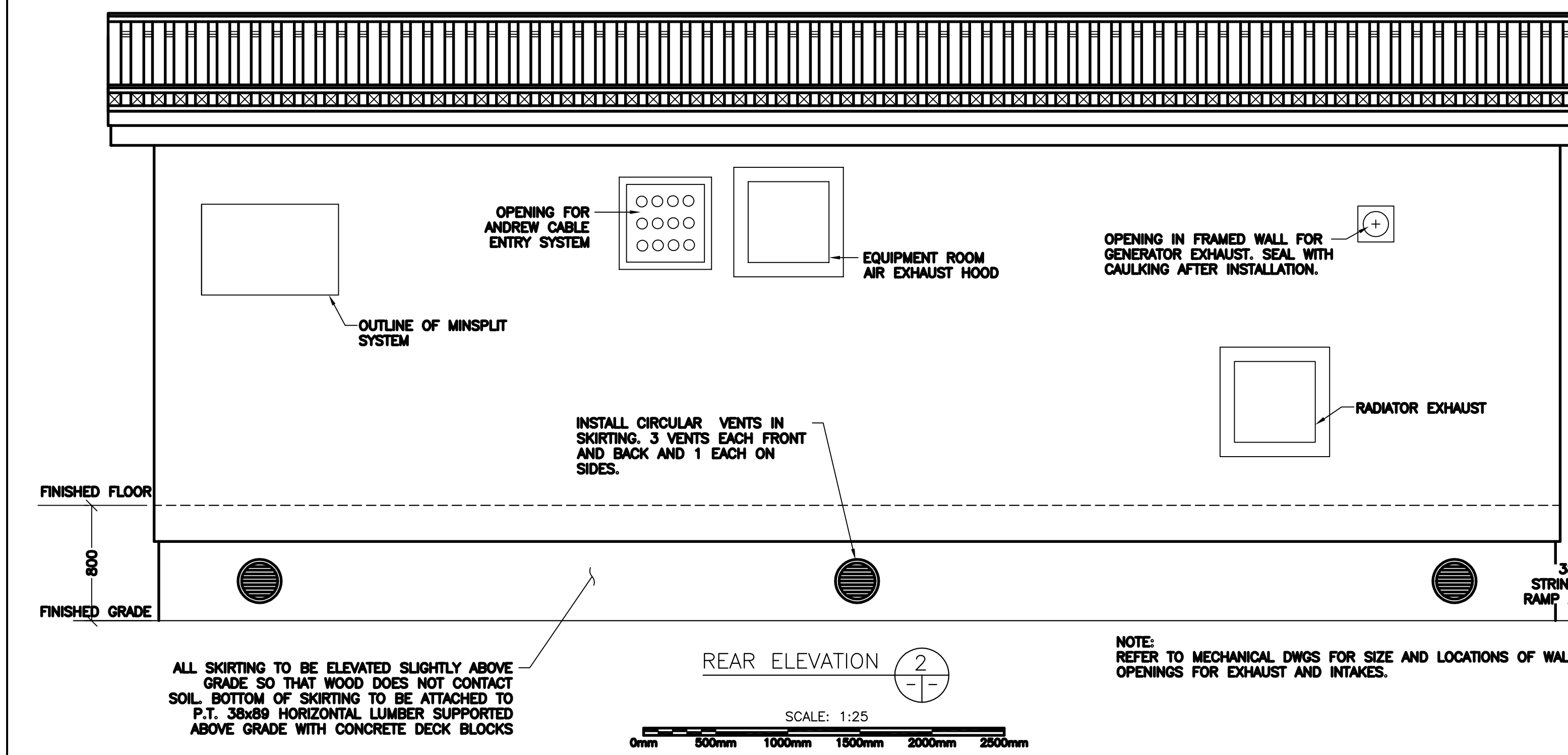
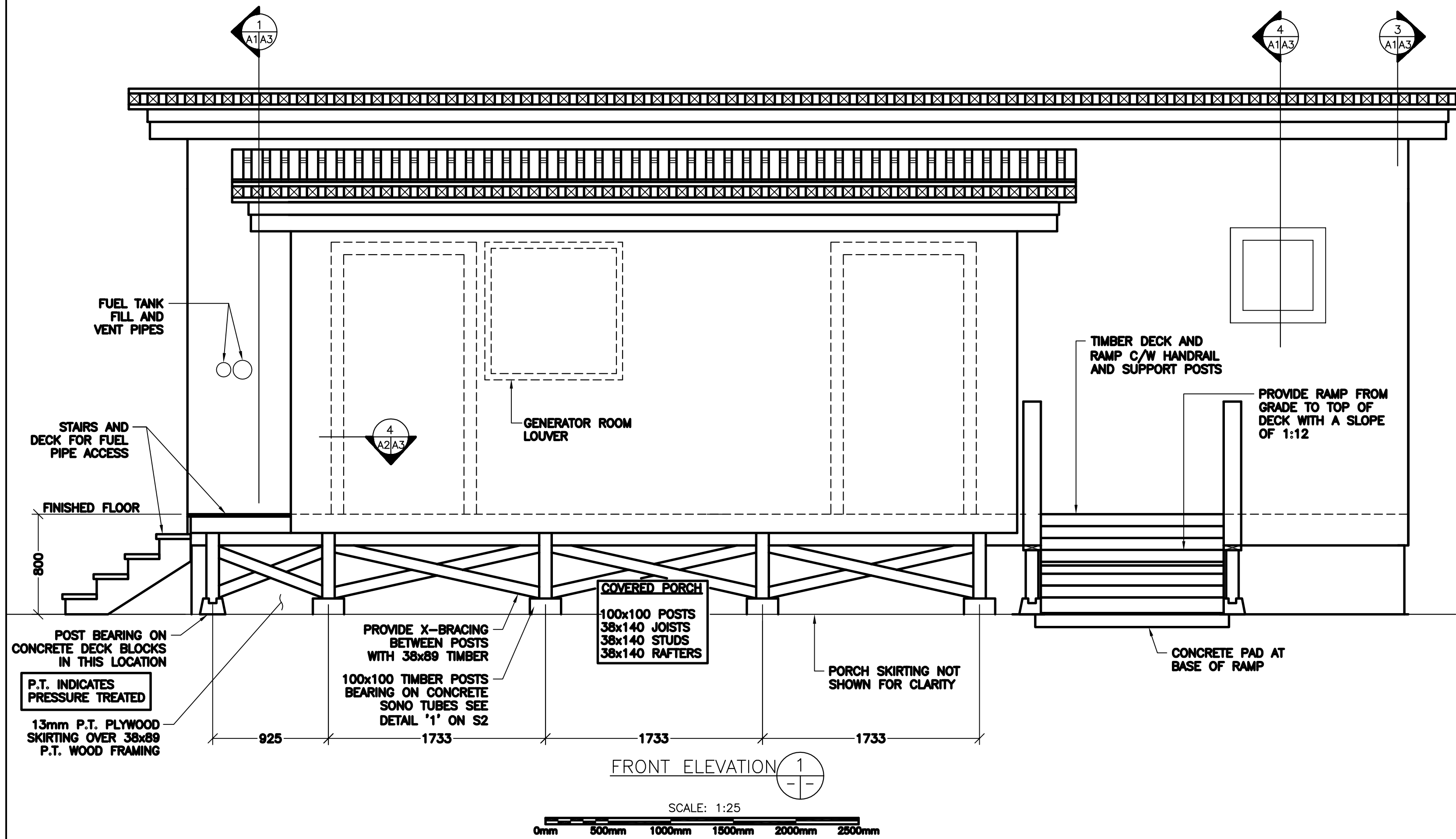
ST. JOHN'S, NEWFOUNDLAND AND LABRADOR

A1C 5X1

## VHF EQUIPMENT TRAILER — NL SITES

### DRAWING LIST:

02D0201A35501	— A1	ELEVATIONS
02D0201A35502	— A2	FLOOR, ROOF AND ICE—SHIELD PLANS
02D0201A35503	— A3	SECTIONS AND DETAILS
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02D0201A35506	— S1	FRAMING PLAN, SECTIONS AND DETAILS
02D0201A35507	— S2	FOUNDATION SECTIONS AND DETAILS
02D0201A35508	— M1	VENTILATION/FUEL SYSTEM PLAN AND DETAILS
02D0201A35509	— M2	MECHANICAL PENETRATIONS
02D0201A35510	— M3	TYPICAL FUEL TANK INSTALLATION DETAILS
02D0201A35511	— E1	ELECTRICAL LAYOUT AND LEGEND
02D0201A35512	— E2	ELECTRICAL DETAILS
02D0201A35513	— E3	ELECTRICAL DETAILS AND PANEL SCHEDULES
02D0201A35514	— N1	ARCHITECTURAL AND STRUCTURAL NOTES
02D0201A35515	— N2	MECHANICAL NOTES
02D0201A35516	— N3	ELECTRICAL NOTES



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
**PERMIT HOLDER**  
**This Permit Allows**  
**MORRISON HERSHFIELD LIMITED**  
 MEMBER NUMBER: 05402  
 To practice Professional Engineering in Newfoundland & Labrador.  
 Permit No. as issued by PEONL 00128 which is valid for the year 2016.

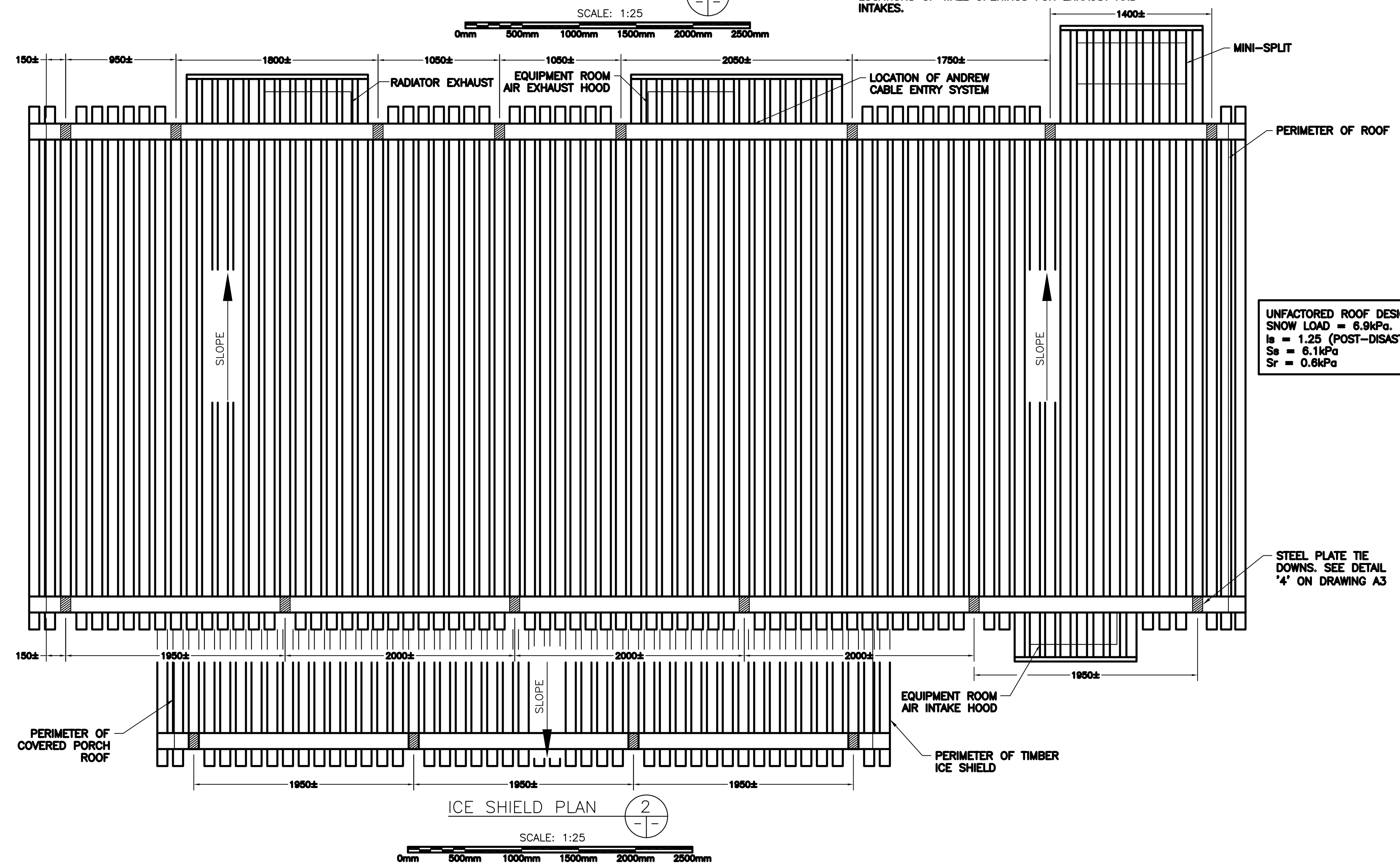
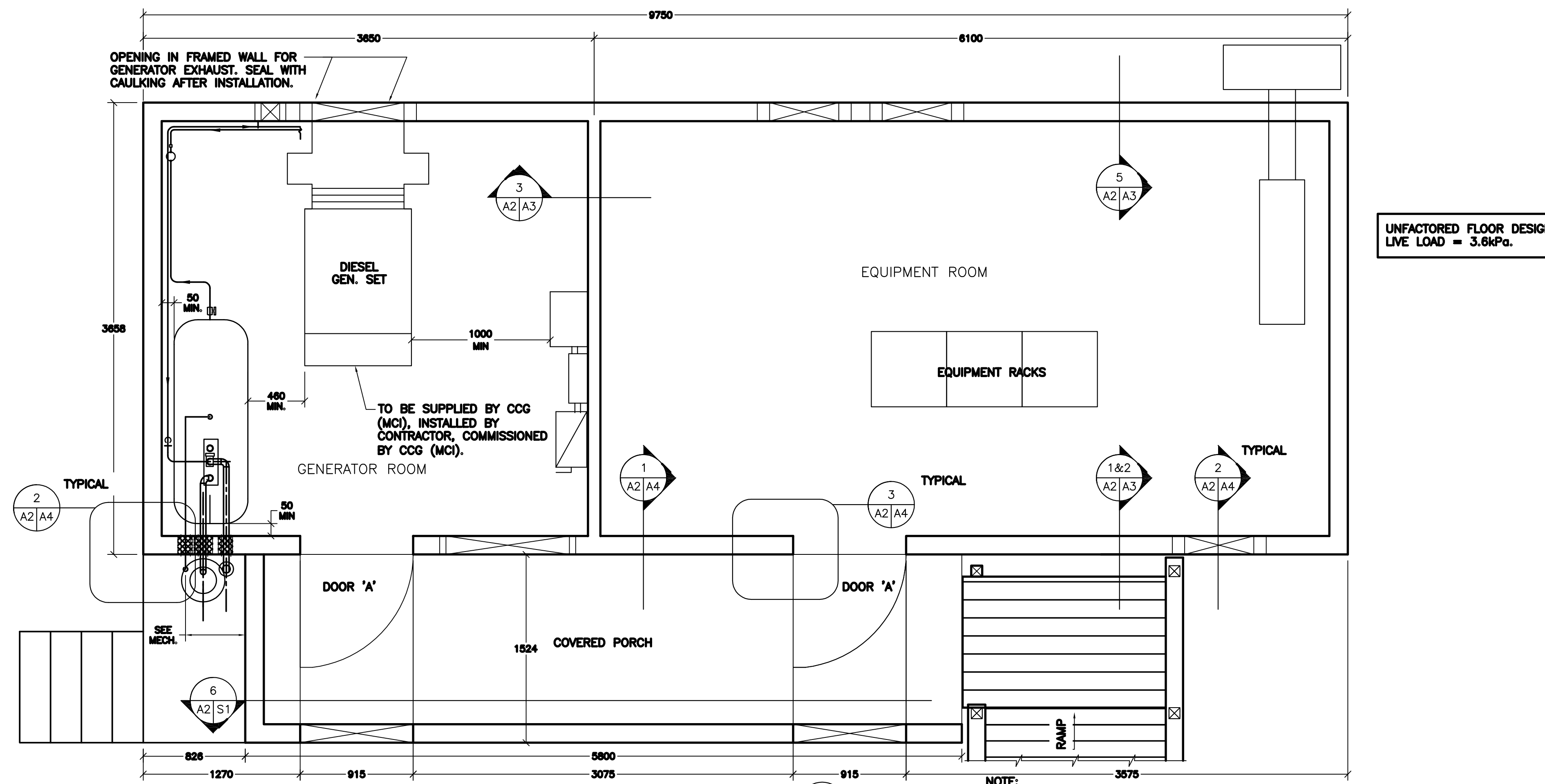
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NL SITES

ELEVATIONS

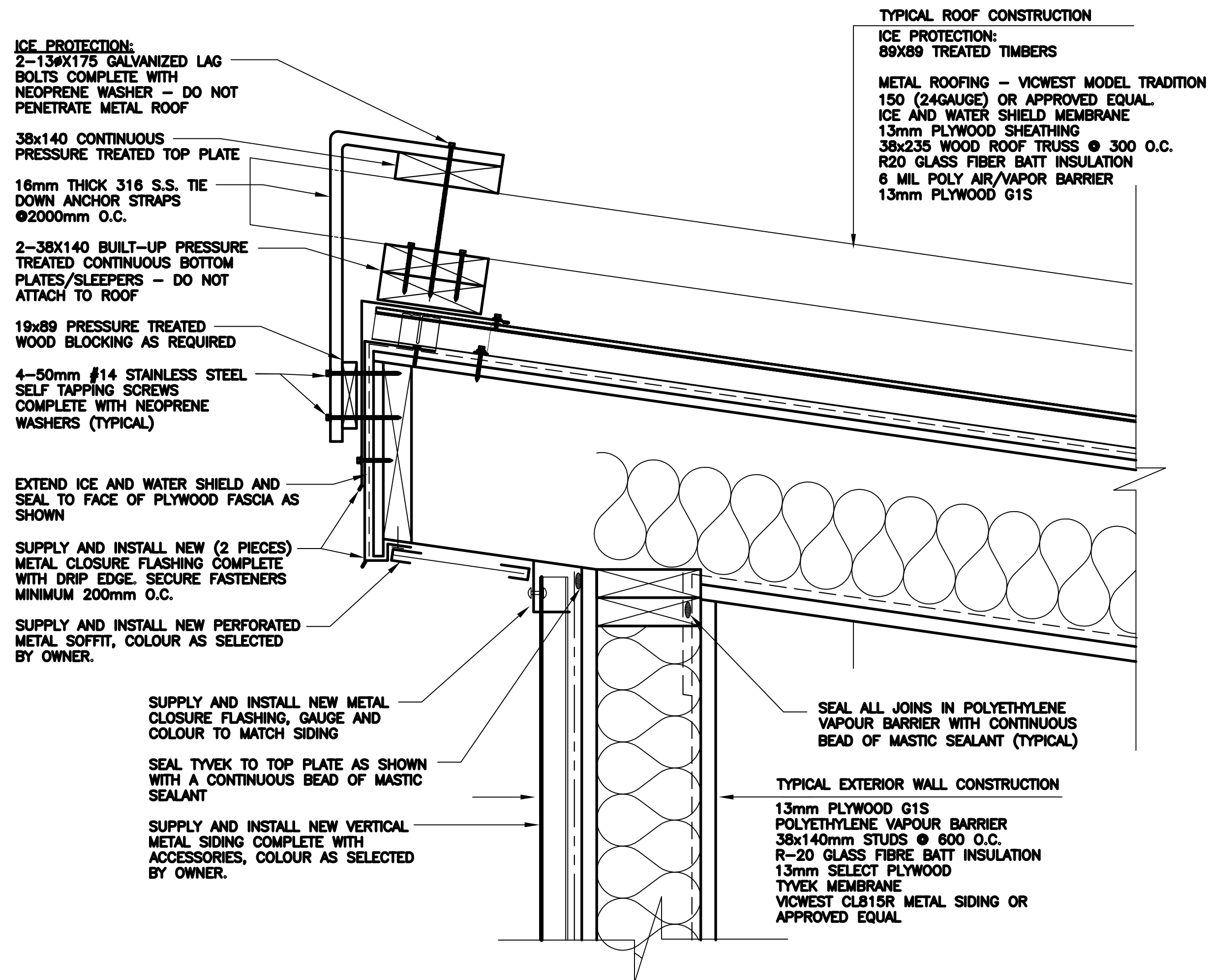
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project no. - projet no.	drawing no. - no du dessin	sheet - feuille	
	02D0201A35501-A1	1 OF 16	



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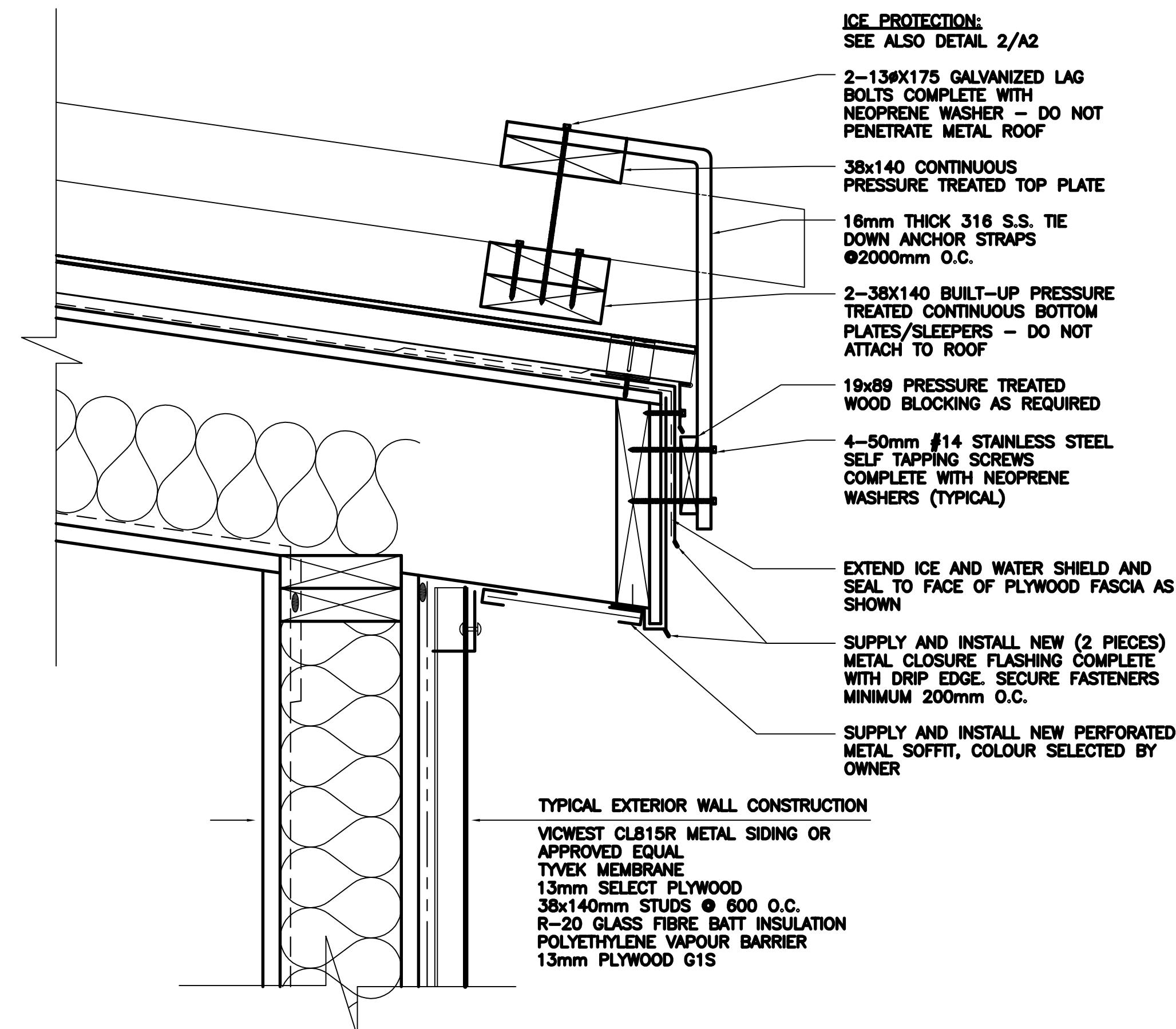
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FLOOR, ROOF AND ICE-SHIELD PLANS				
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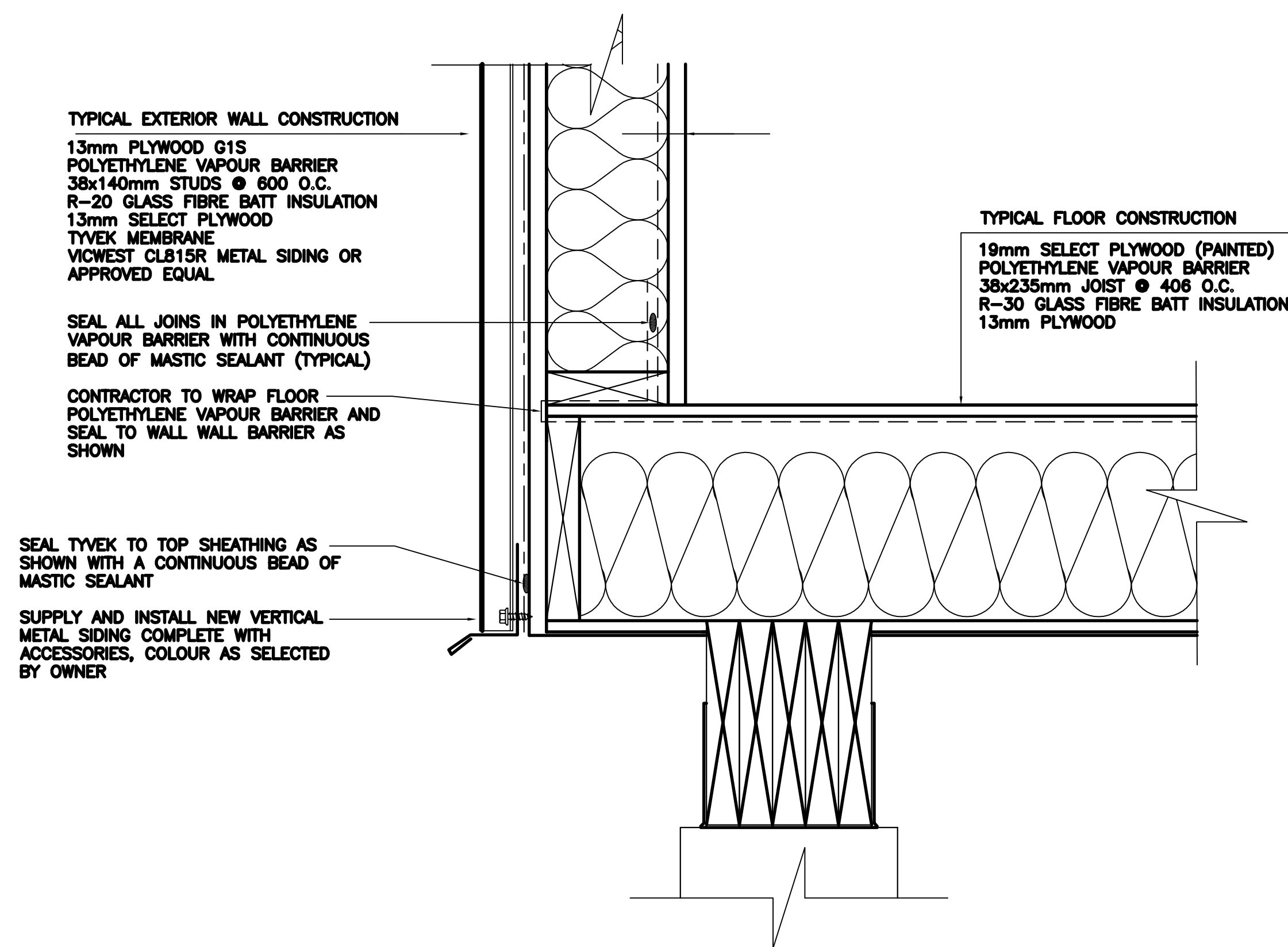
TYPICAL PARAPET DETAIL WITH ICE PROTECTION 1

SCALE: 1:5  
 0mm 100mm 200mm 300mm 400mm 500mm



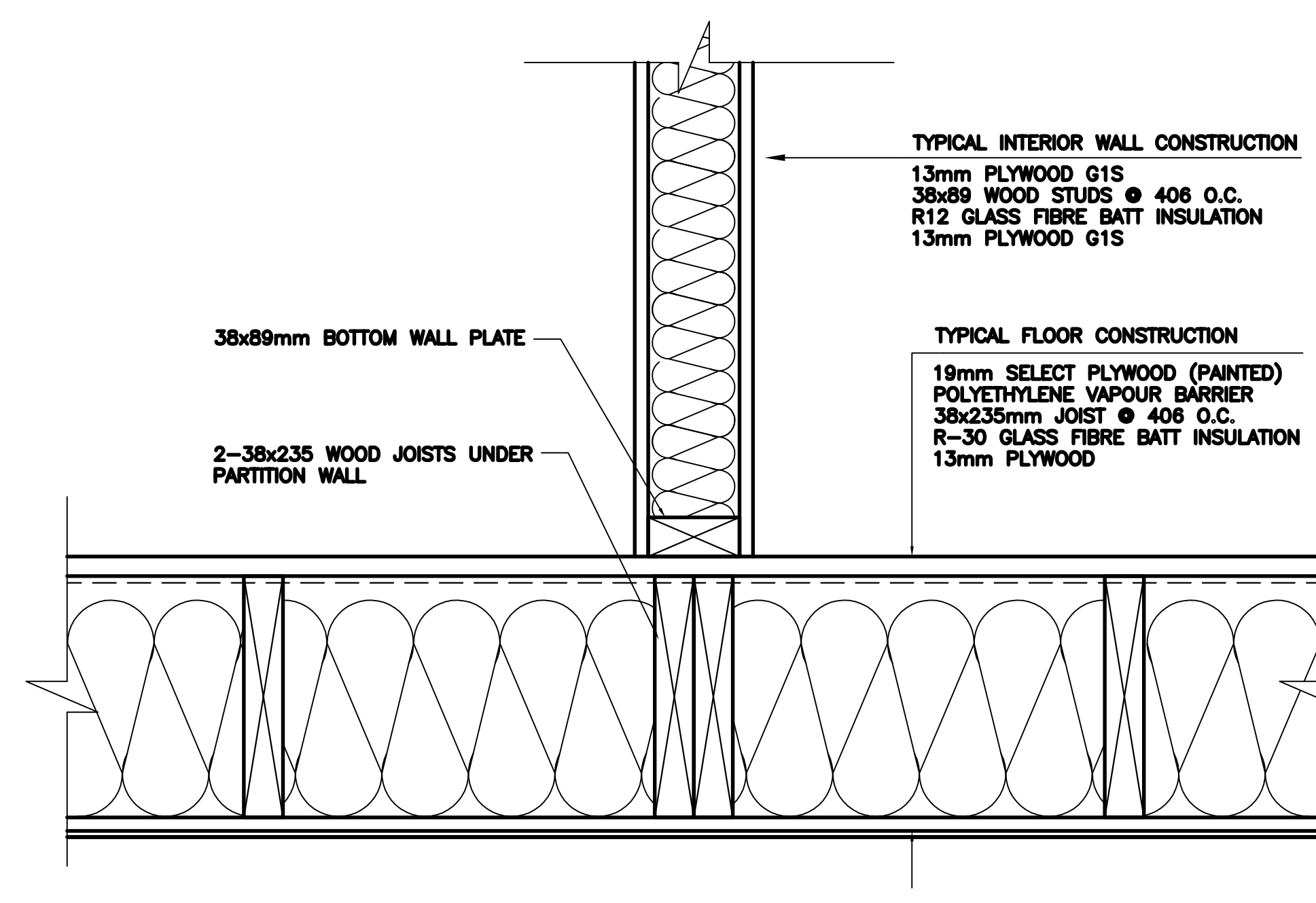
4 TYPICAL PARAPET DETAIL WITH ICE PROTECTION

SCALE: 1:5  
 500mm 400mm 300mm 200mm 100mm 0mm



TYPICAL EXTERIOR WALL/FLOOR DETAIL 2

SCALE: 1:5  
 0mm 100mm 200mm 300mm 400mm 500mm



FLOOR/INTERIOR PARTITION WALL DETAIL 3

SCALE: 1:5  
 0mm 100mm 200mm 300mm 400mm 500mm



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
 P.E.G.A. PERMIT HOLDER  
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Project - projet

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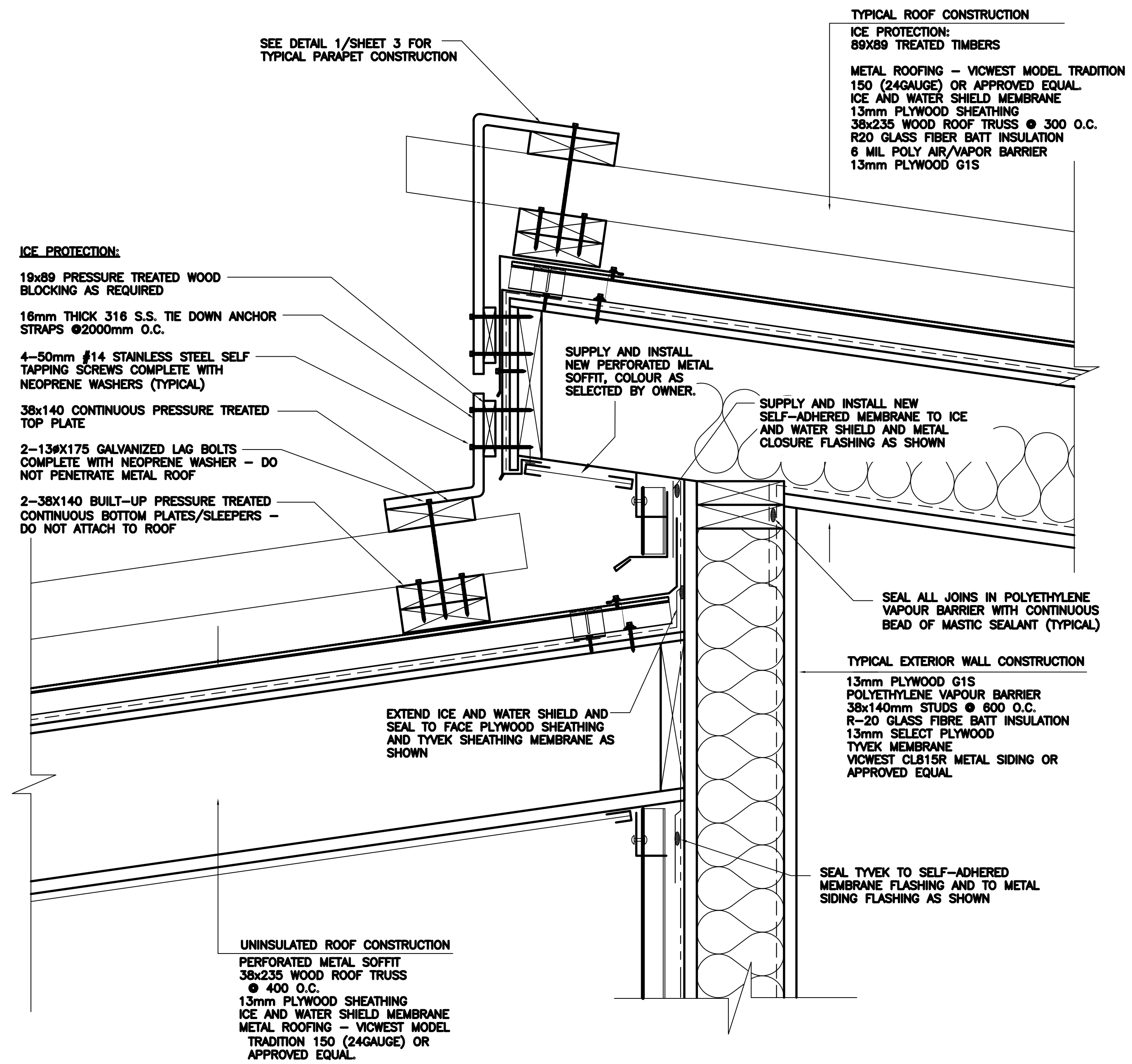
SECTIONS AND DETAILS

drawn - dessiné J.S. designed - dessiné par R.N.

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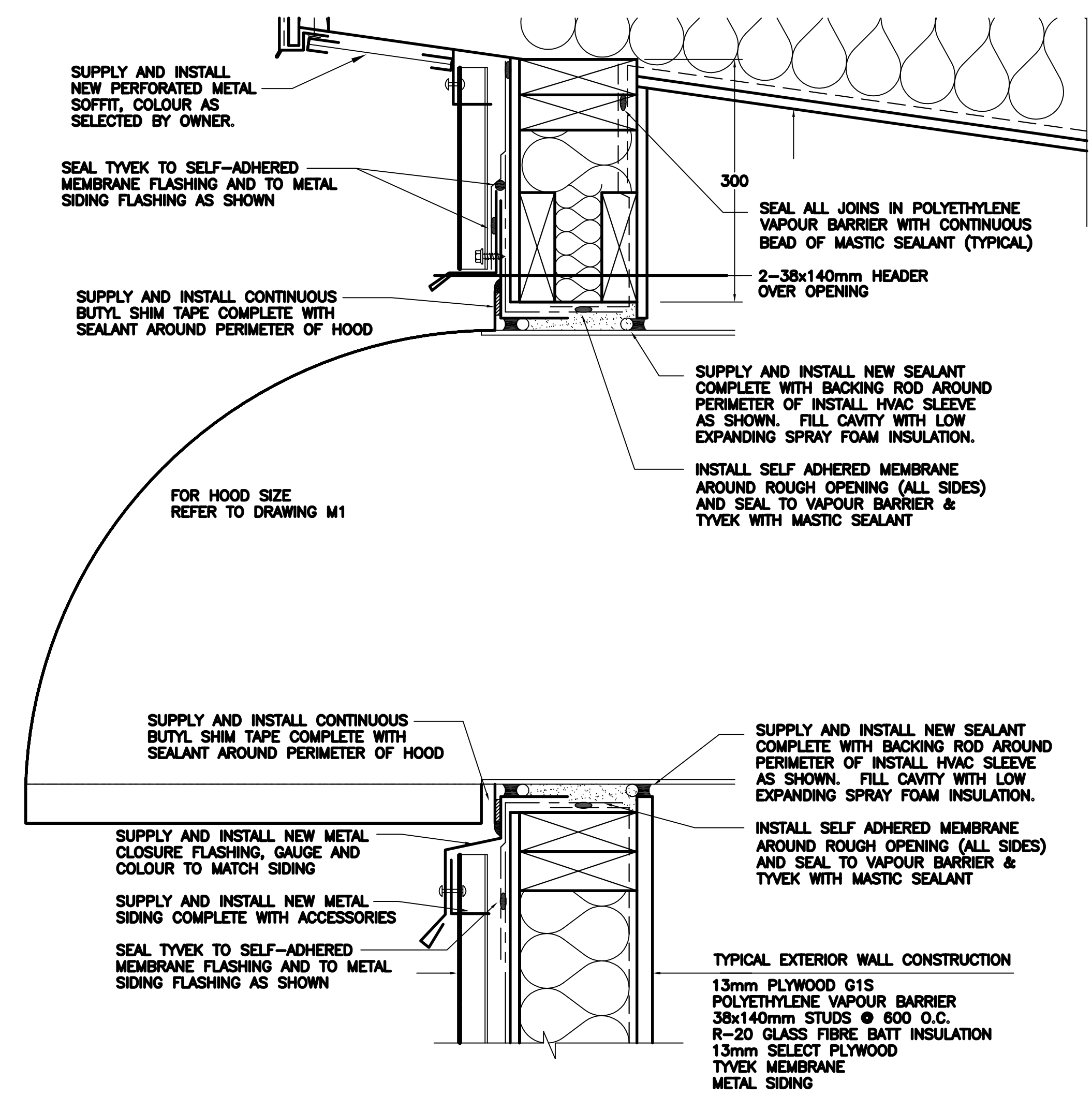
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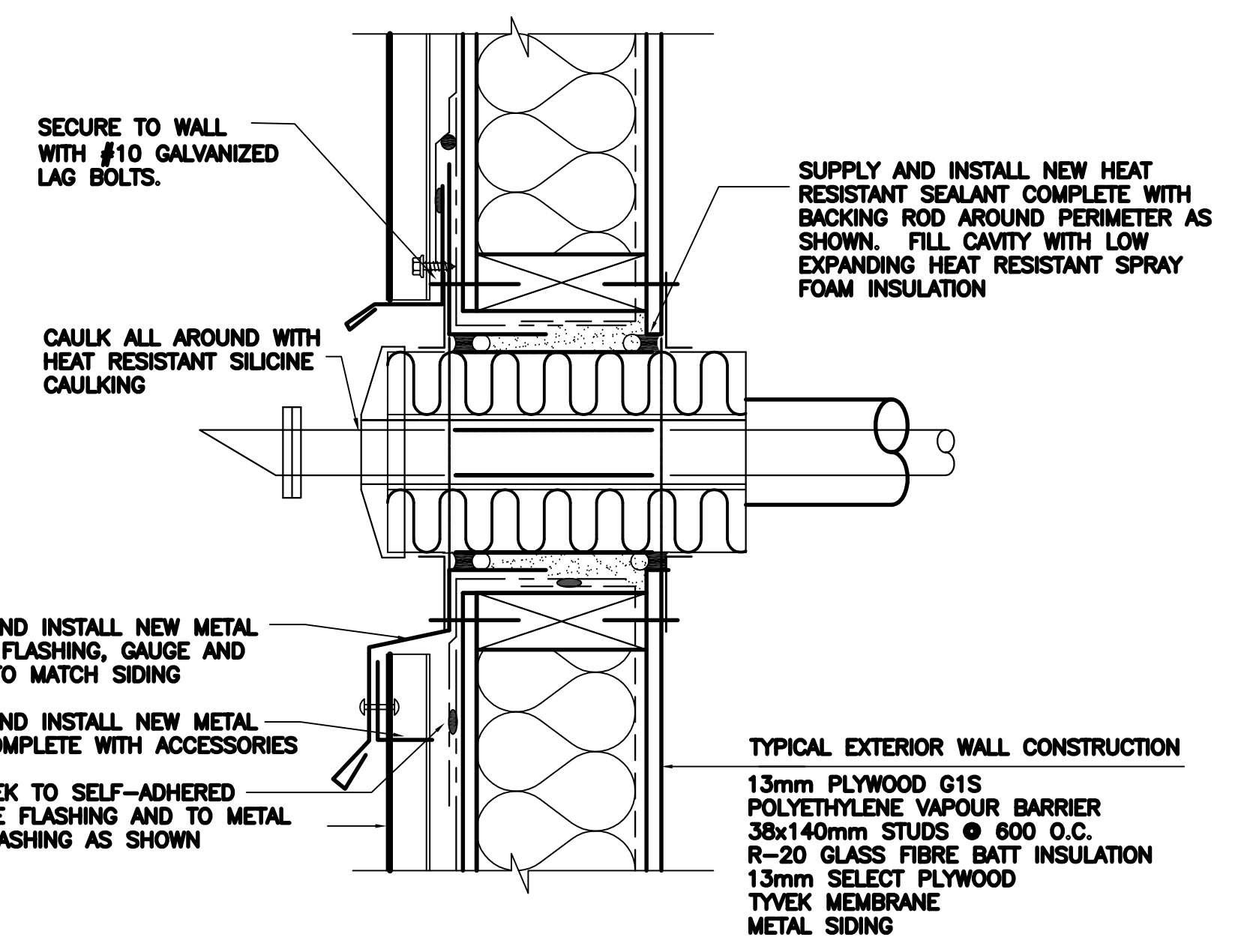
TYPICAL PARAPET DETAIL WITH ICE PROTECTION



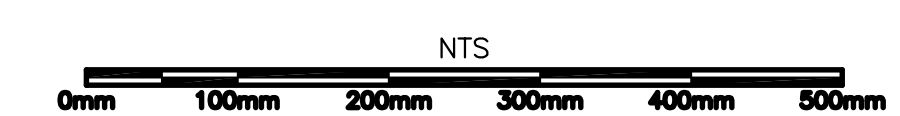
TYPICAL OUTSIDE CORNER DETAIL



TYPICAL MECHANICAL OPENING DETAIL



GENERATOR EXHAUST OPENING DETAIL



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TYPICAL DETAILS

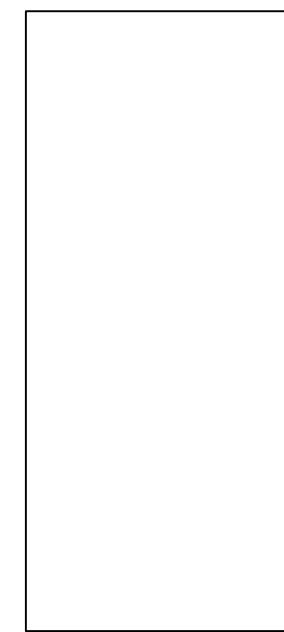
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	02D0201A35504-A4		4 OF 16

DOOR FINISH SCHEDULE

REF.	LOCATION AND DESCRIPTION						DOORS				FRAMES			GLAZING			NOTES	HARDWARE											
	DOOR NUMBER	TYPE	WIDTH	HEIGHT	THICKNESS	LABEL (HOURS)	FACE	CORE	FINISH	GRILLE	MATERIAL	PROFILE	ELEVATION	FINISH	DOOR	SIDELIGHT		TRANSOM	BUTTS	PASSAGE LATCH SET	LOCK SET	CLOSER	PUSH / PULL	KICK PLATES	HOLDER STOP	THRESHOLD	WEATHER STRIPPING	DOOR BOTTOM	MISC.
	A	HM	915	2050	45	0.75	A	PC	PT1	-	PGS	A	A	PT1	-	-	-	•	-	•	•	-	-	-	•	•	•	•	CRASH STOP, PANIC HARDWARE

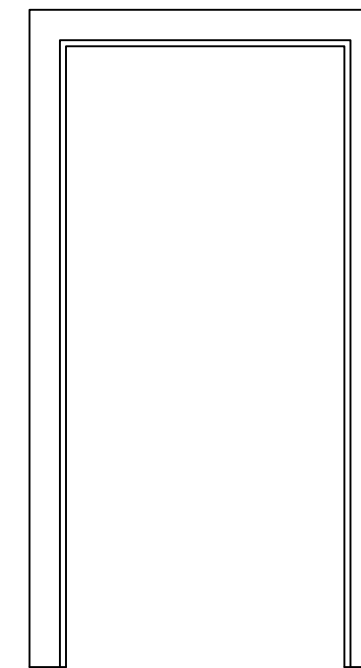
LEGEND

- HC - HONEYCOMB CORE
- PC - POLYSTYRENE CORE
- PGS - PAINTABLE GALVANNEAL STEEL
- HM - HOLLOW METAL
- WD - WOOD
- PT1 - PRIME AND PAINT TWO (2) COATS WITH ALKYD BASED PAINT IN SEMI-GLOSS SHEEN
- PT2 - PRIME AND PAINT TWO (2) COATS LATEX SEMI-GLOSS SHEEN



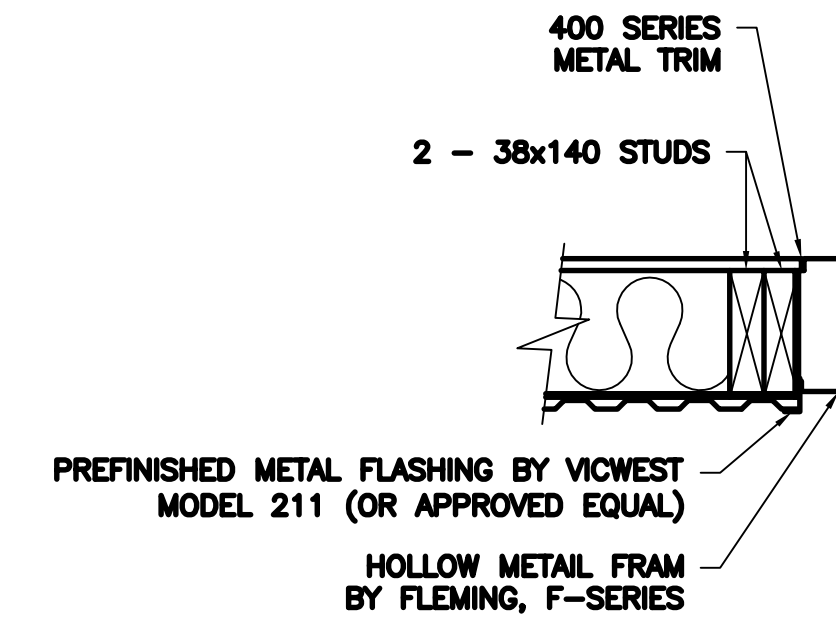
TYPE 'A'

DOOR TYPE DETAIL  
NTS



TYPE 'A'

FRAME TYPE DETAIL  
NTS



HOLLOW METAL FRAME  
DOOR JAMB DETAIL TYPE 'A'  
NTS

DOORS/FRAME/HARDEARE/NOTES:

1. ACCEPTABLE MATERIAL:
  - .1 DOOR FRAMES: FLEMING F16 SERIES WELDED FRAME.
  - .2 EXTERIOR DOORS: FLEMING D16 SERIES POLYSTYRENE CORE.
  - .3 HARDWARE: SUPPLIED BY OWNER TO MATCH STANDARD KEY.  
 LOCKSET: SCHLAGE: D44S (LEVER) 828 FINISH.  
 PRIVACY SET: SCHLAGE: D44S (LEVER) 828 FINISH.  
 LATCH GUARD MODEL # M-930 LG-SS. STAINLESS STEEL. (3 ZV BY MARKAR PRODUCTS)  
 PANIC HARDWARE: VON DUPRIN 22EO SERIES W/628 FINISH.  
  
 CLOSER: LCN 4110H SERIES-CUSH-N-STOP.  
 HINGES: HANGER, SSBB 1191 SH HINGES 1 1/2 PAIR PER DOOR.  
  
 WEATHER-STRIPPING:  
 ADJUSTABLE WEATHER-STRIP K.N. CROWDER W-42. ON THREE SIDES MITERED AT CORNERS.  
 EXTEND WEATHER-STRIPPING TO FLOOR. BUBBLE GASKET SEAL ON THREE SIDES.  
 DOOR BOTTOM: SURFACE MOUNTED AUTOMATIC DOOR BOTTOM BY K.N. CROWDER CT-54 TO SIT BETWEEN WEATHER STRIPPING.  
 THRESHOLD: EXTRUDED ALUMINUM THRESHOLD K.N. CROWDER CT-65.  
  
 DOOR STOP: DOME STOP FB 13 BY GYLN-JOHNSON.
2. INSTALL LABELED STEEL FIRE RATED DOORS AND FRAMES TO NFPA 80.
3. INSTALL DOORS AND FRAMES PER CSDFMA INSTALLATION GUIDE.
4. SET FRAMES PLUMB, SQUARE, LEVEL AND CORRECT ELEVATION.
5. SECURE ANCHORAGES AND CONNECTIONS TO ADJACENT CONSTRUCTION.
6. BRACE FRAMES RIGIDLY IN POSITION WHILE BUILDING-IN. INSTALL TEMPORARY HORIZONTAL WOOD SPREADER AT THIRD POINTS OF DOOR OPENING TO MAINTAIN FRAME WIDTH. PROVIDE VERTICAL SUPPORT AT CENTRE OF HEAD FOR OPENINGS OVER 1200mm WIDE. REMOVE TEMPORARY SPREADERS AFTER FRAMES ARE BUILT-IN.
7. MAKE ALLOWANCES FOR DEFLECTION OF STRUCTURE TO ENSURE STRUCTURAL LOADS ARE NOT TRANSMITTED TO FRAMES.
8. CAULK PERIMETER OF FRAMES. BETWEEN FRAME AND ADJACENT MATERIAL.
9. MAINTAIN CONTINUITY OF VAPOUR RETARDER.
10. PROVIDE EVEN MARGINS BETWEEN DOORS AND JAMBS AND DOOR FINISHED FLOOR AND THRESHOLDS AS FOLLOWS:
  - .1 HINGES SIDES: 1.0mm
  - .2 LATCHSIDE AND HEAD: 1.5mm
  - .3 FINISHED FLOOR AND THRESHOLDS: 13mm
11. ADJUST OPERABLE PARTS FOR CORRECT FUNCTION.
12. TOUCH UP WITH PRIMER FINISHES DAMAGED DURING INSTALLATION.
13. FILL EXPOSED FRAME ANCHORS SURFACES WITH IMPERFECTIONS WITH METALLIC PASTE FILLER AND SAND TO A UNIFORM SMOOTH FINISH.
14. INSTALL THREE (3) BUMPERS ON STRIKE JAMB FOR EACH DOOR.



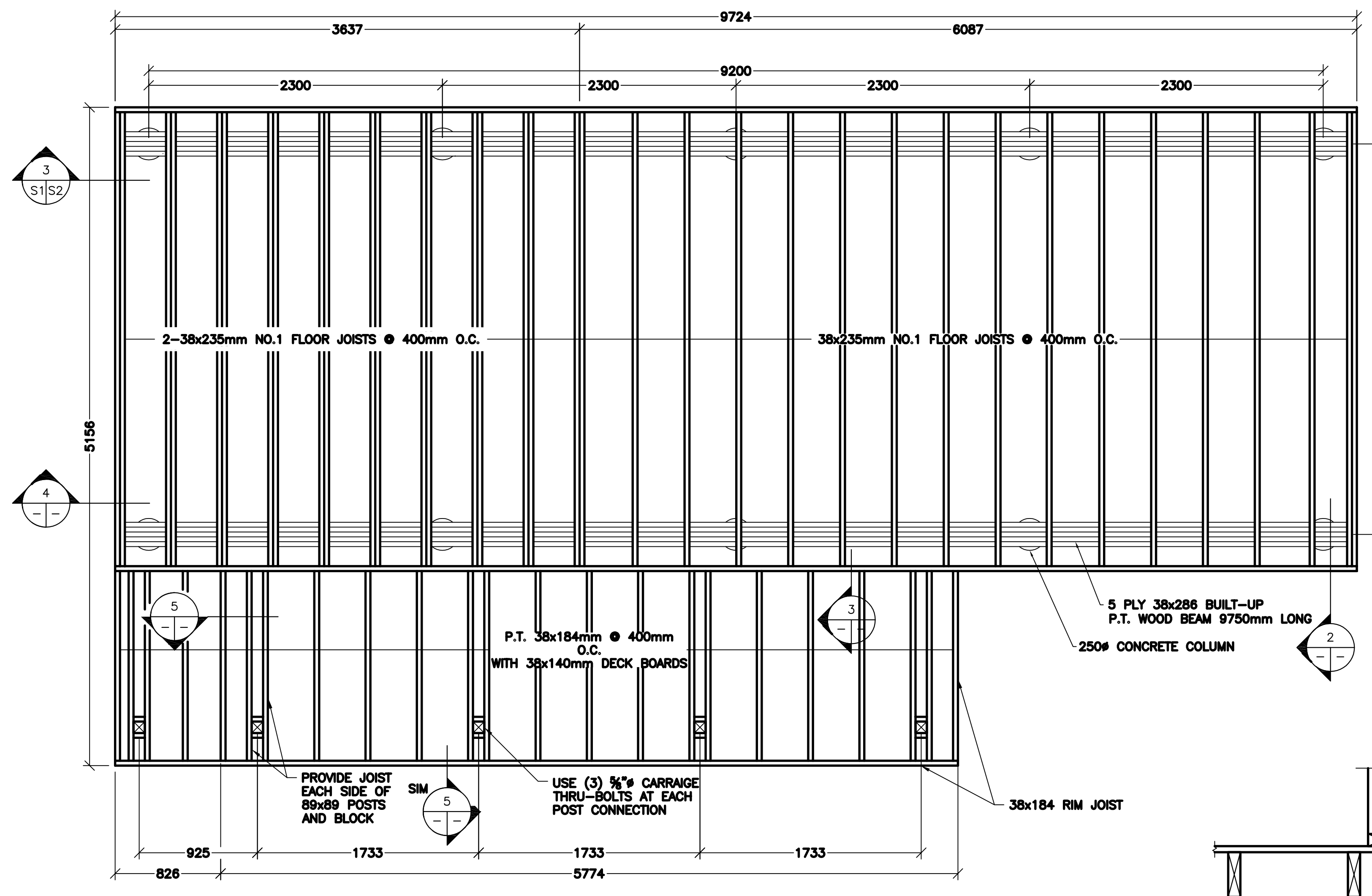
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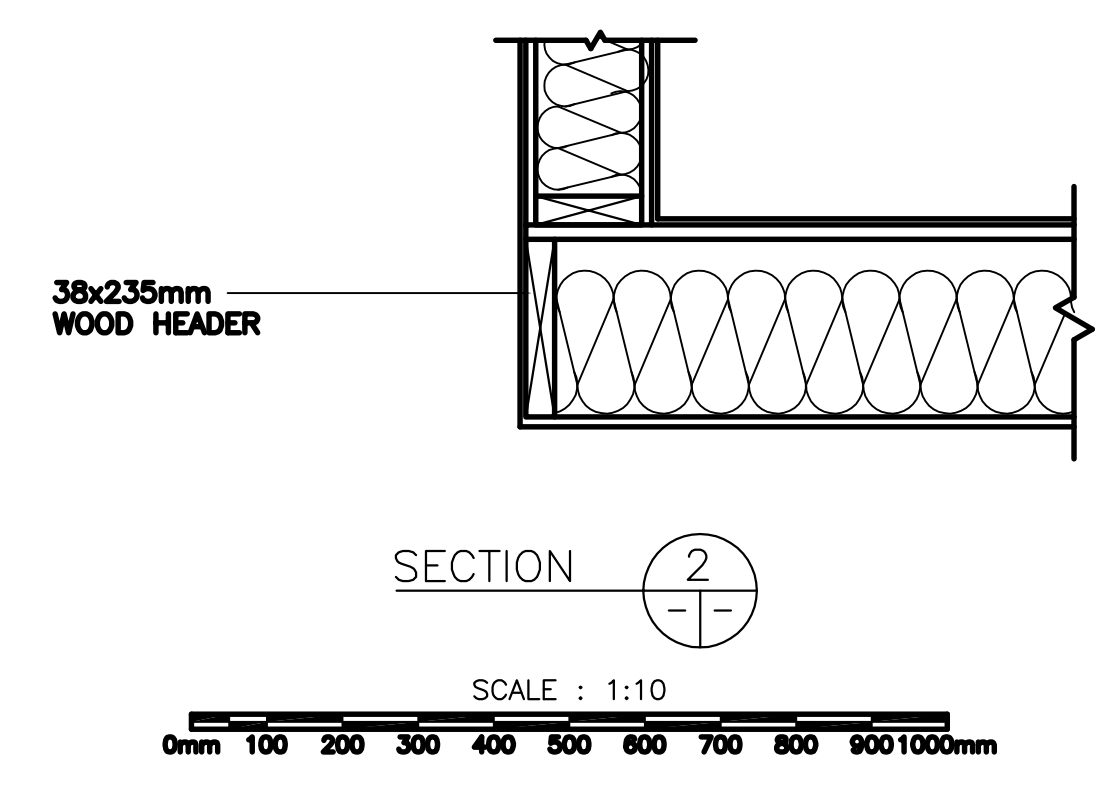
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VHF EQUIPMENT TRAILER  
NL SITES

Drawing - dessin  
DOOR SCHEDULE AND DETAILS

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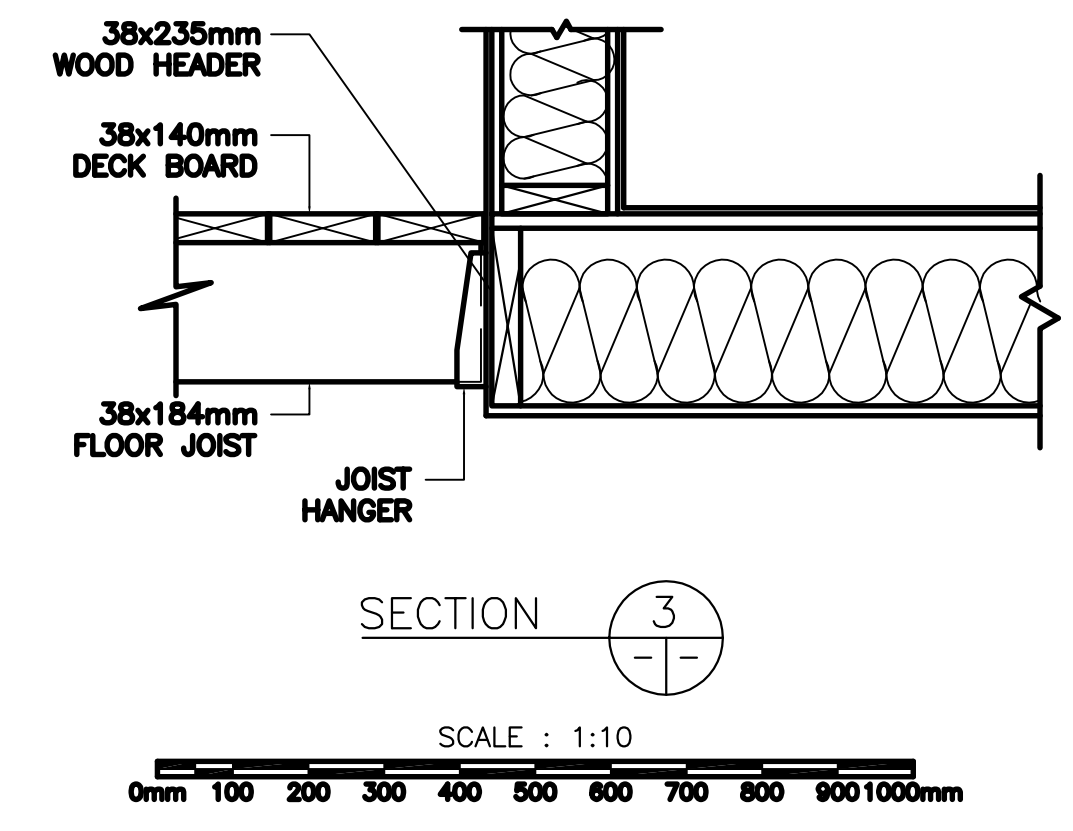


**FLOOR FRAMING PLAN (1)**  
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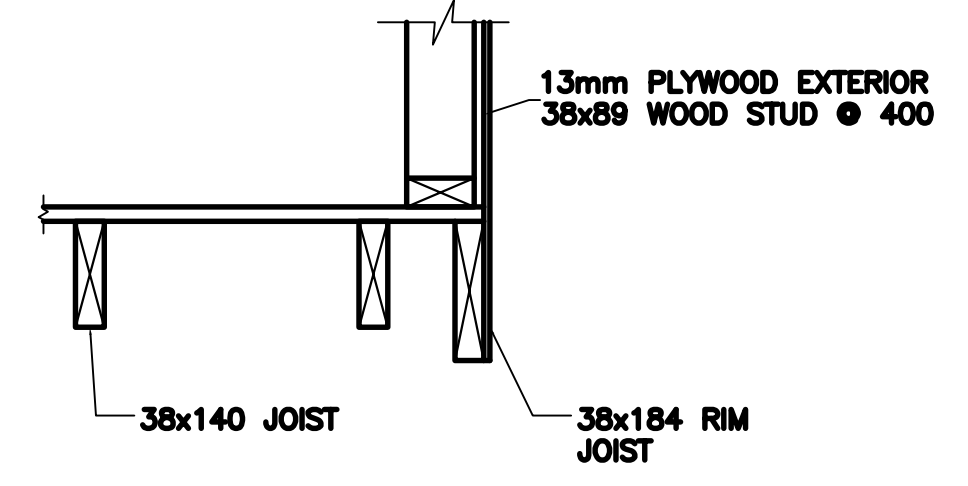
**SECTION (2)**

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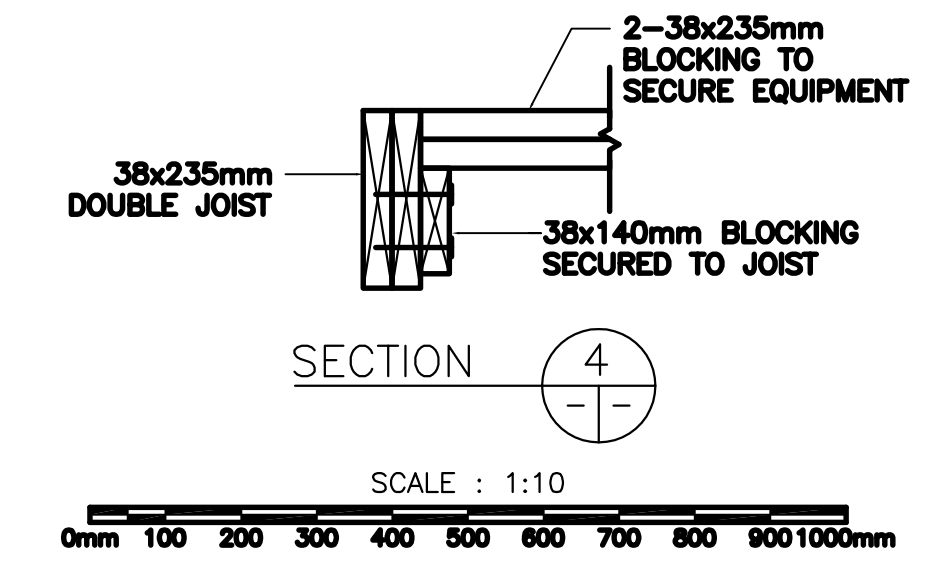
**SECTION (3)**

SCALE: 1:10



**COVERED PORCH WALL DETAIL (5)**

SCALE: 1:10

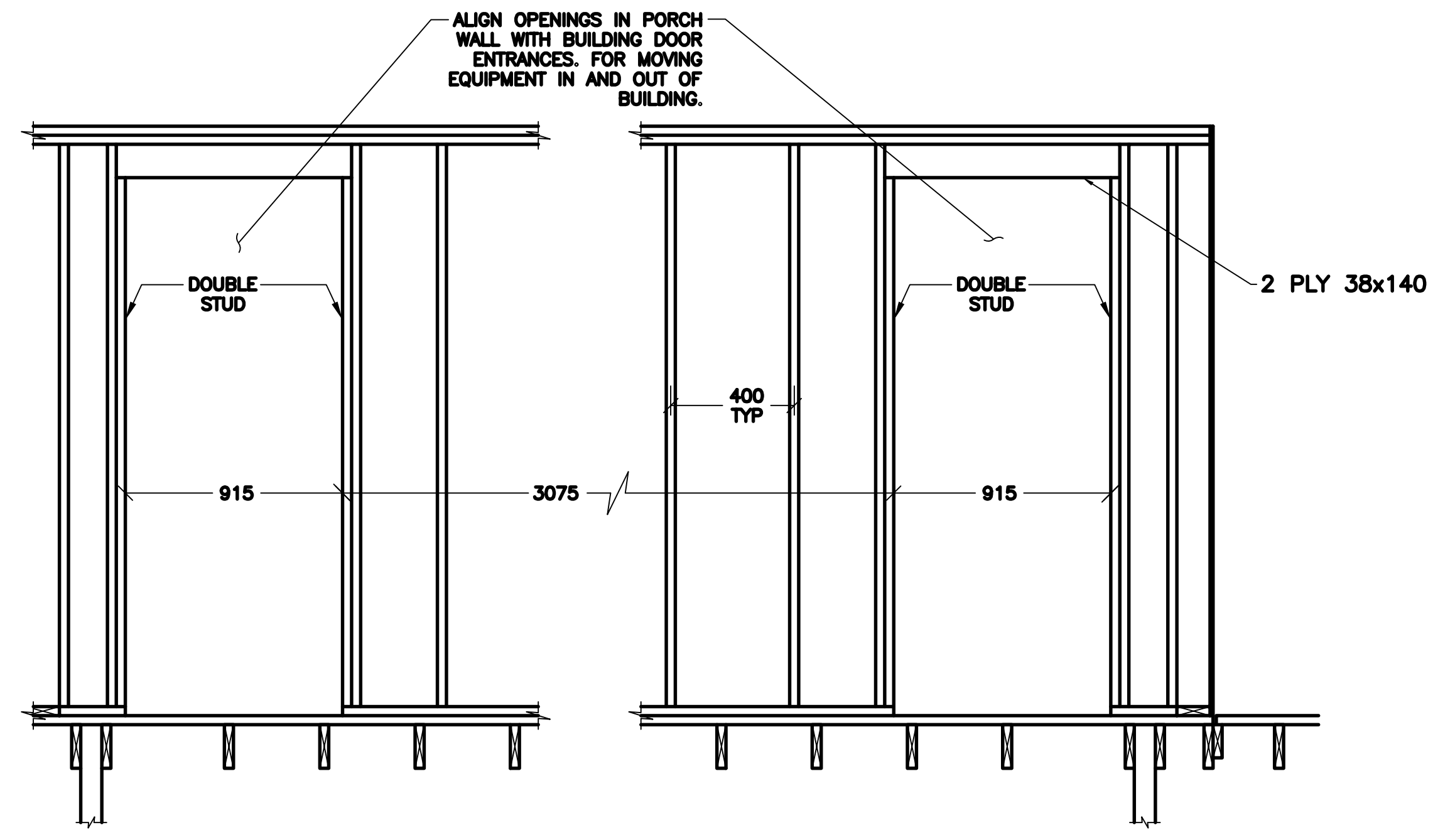


**SECTION (4)**

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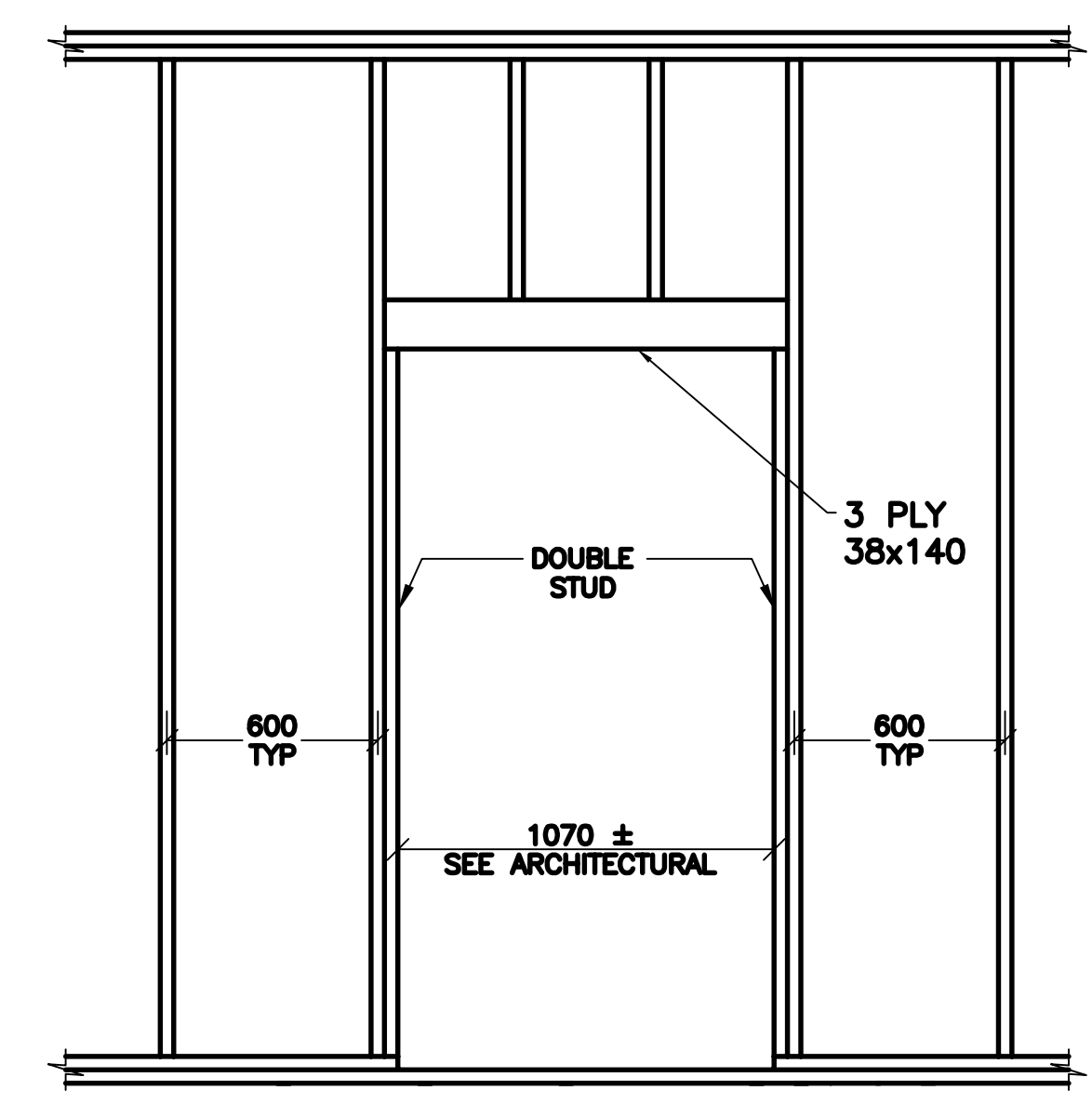


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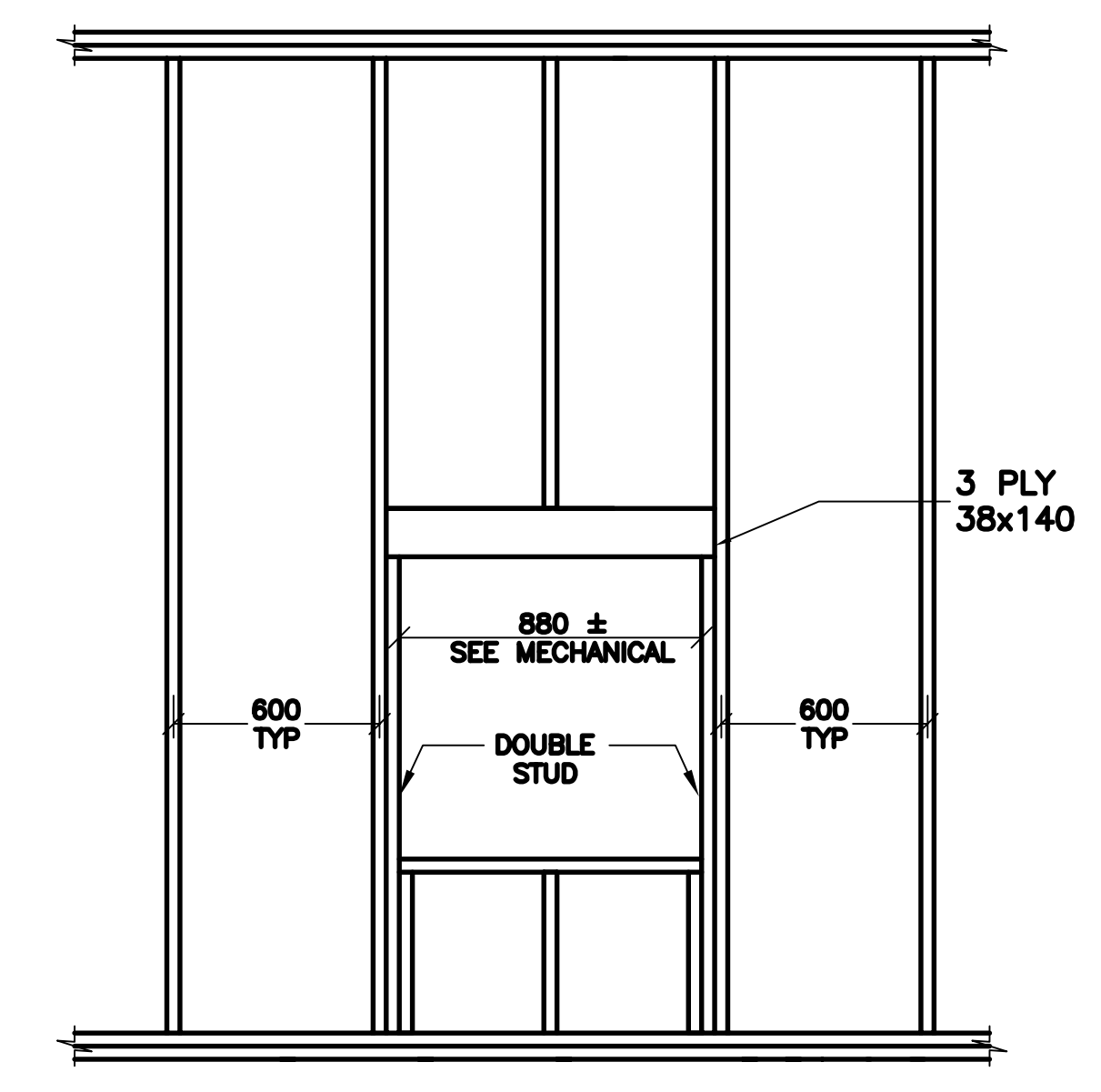
**SECTION - PORCH WALL OPENING (6)**

SCALE: 1:20



**SECTION - TYP. DOOR FRAMING (7)**

SCALE: 1:20



**NOTE: USE SIMILAR DETAIL FOR LOUVER FRAMING RADIATOR EXHAUST HOOD FRAMING (8)**

SCALE: 1:20

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FRAMING PLAN,  
SECTIONS AND DETAILS

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	02D0201A35506-S1	<b>6 OF 16</b>	

**FOUNDATION NOTES**

1. ALL BEARING CAPACITIES AND SOIL CONDITIONS TO BE CONFIRMED BY A GEOTECHNICAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF NEWFOUNDLAND AND LABRADOR.
2. ALL FOOTINGS ARE TO REST ON UNDISTURBED TILL HAVING A MINIMUM BEARING CAPACITY OF 150 KPa U.N.O.
3. IF FOOTINGS REST ON COMPACTED BACK FILL, THEN ALL FOOTING ELEVATIONS ARE TO BE CONFIRMED BY A GEOTECHNICAL ENGINEER BEFORE POURING.
4. ANY SOFT SPOT ENCOUNTERED UNDER FOOTINGS SHALL BE REMOVED AND FILLED WITH MASS CONCRETE OF MIN 20 MPa TO U/S OF FOOTINGS.
5. THE UNDERSIDE OF COLUMN FOOTINGS SHALL BE AT LEAST 1500mm BELOW THE FINISHED GRADE U.N.O.
6. DO NOT PLACE FOOTINGS ON FROZEN GROUND.

THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR TRENCHES OR ALONG STEPPED FOOTINGS SHALL NOT EXCEED 1 VERTICAL TO 1 HORIZONTAL. MAXIMUM STEP IS 750mm.

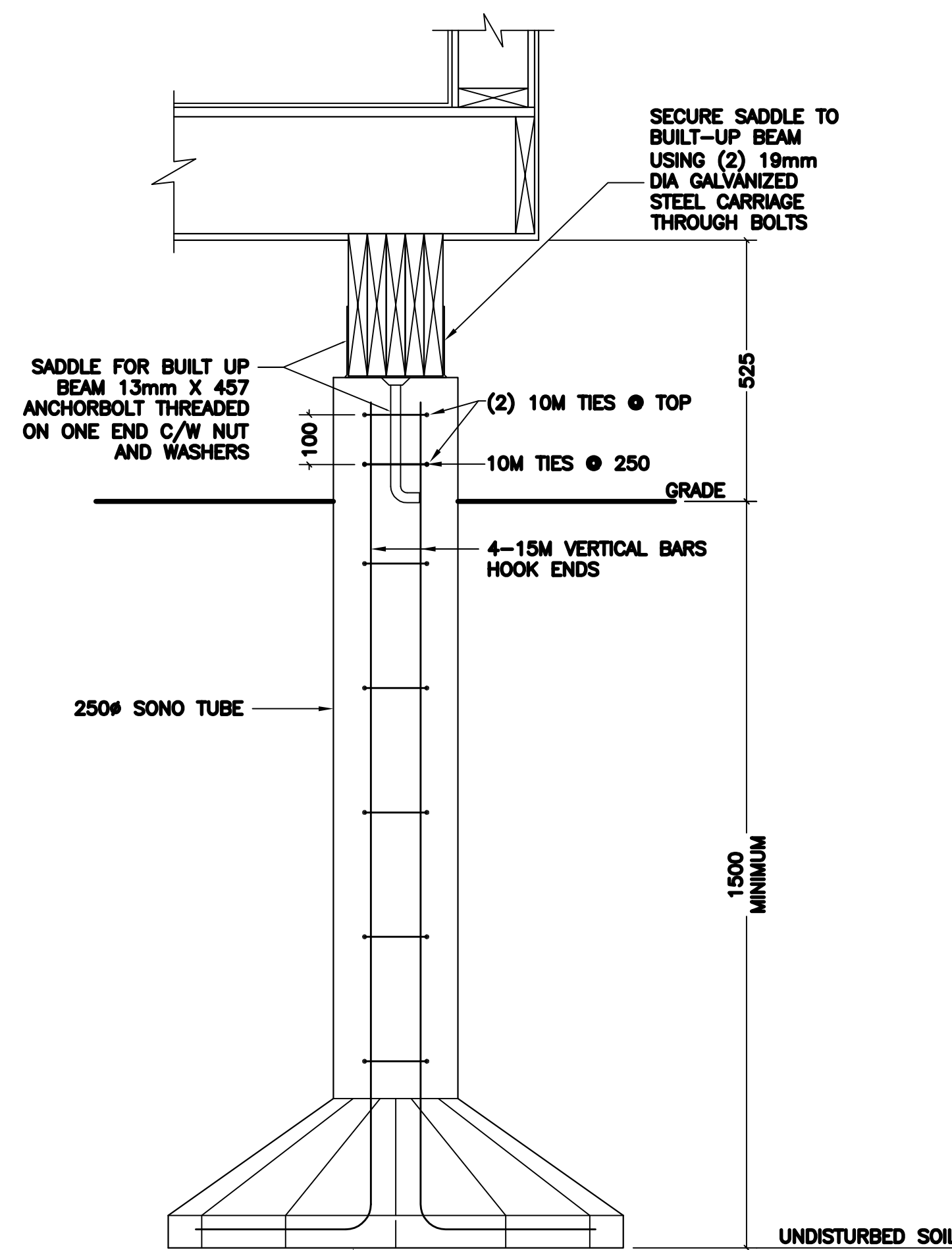
**7. BACKFILL MATERIALS**

1. BACKFILL PROPERTIES TO THE FOLLOWING REQUIREMENTS:
  - .1 CRUSHED, PIT RUNOR SCREENED STONE, GRAVEL OR SAND.
  - .2 GRADATIONS TO BE WITHIN LIMITS SPECIFIED WHEN TESTED TO ASTM C136 AND ASTM C117. SIEVE SIZES TO CAN/CGSB\_8.1.
  - .3 BACKFILL AND FILL MATERIAL TO BE PLACED IN 300mm LIFTS.
8. DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITH 24 h AFTER PLACING CONCRETE.
9. PLACE BACKFILL LAYERS SIMULTANEOUSLY ON BOTH SIDES OF INSTALLED WORK TO EQUALIZE LOADING. DIFFERENCE NOT TO EXCEED 300mm.
10. COMPACTION UNDER FOOTINGS TO 98% STANDARD PROCTOR DENSITY.
11. Dewater excavations to ensure concrete and services are placed in the dry.
12. PROTECT EXISTING BUILDING AND SURFACE FEATURES FROM DAMAGE WHILE WORK IS IN PROGRESS. IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE REPAIR TO APPROVAL OF ENGINEER.

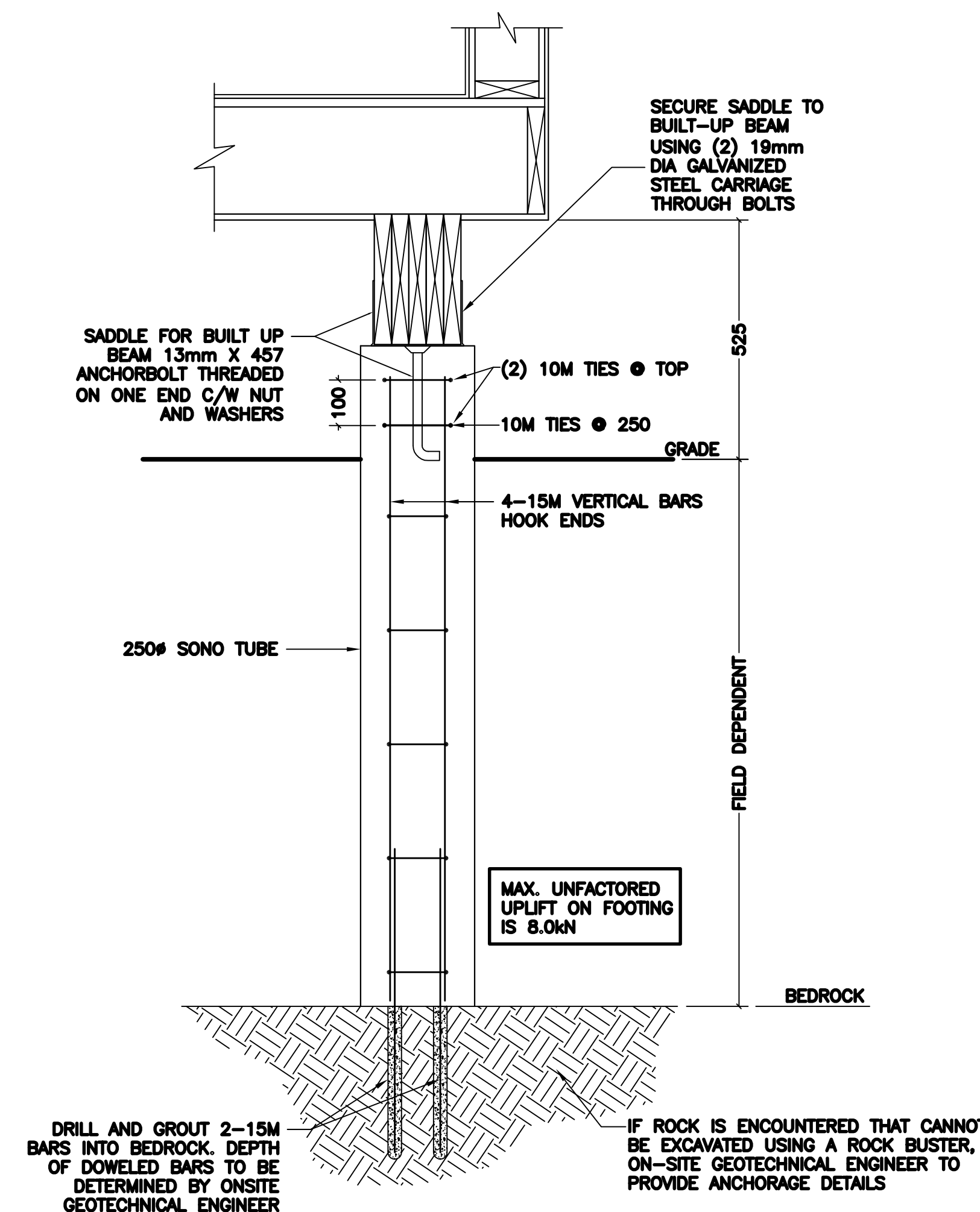
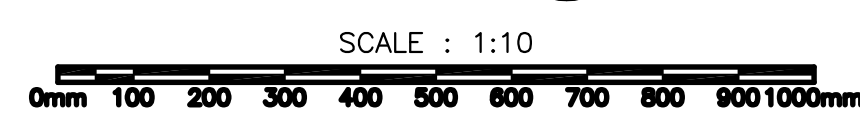
**CAST IN PLACE CONCRETE NOTES**

1. ALL CONCRETE PRODUCTION AND PLACEMENT INCLUDING WEATHER PROTECTION TO CONFORM TO CSA A23.1 LATEST EDITION. ALL TESTING TO CONFORM TO CSA 23.2 LATEST EDITION.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O. FOOTINGS/PIERS: 25 MPa, MAXIMUM SLUMP 75mm, EXPOSURE CLASS F-2
3. CLEAR CONCRETE COVER TO REINFORCING PER CSA A23.1:
 

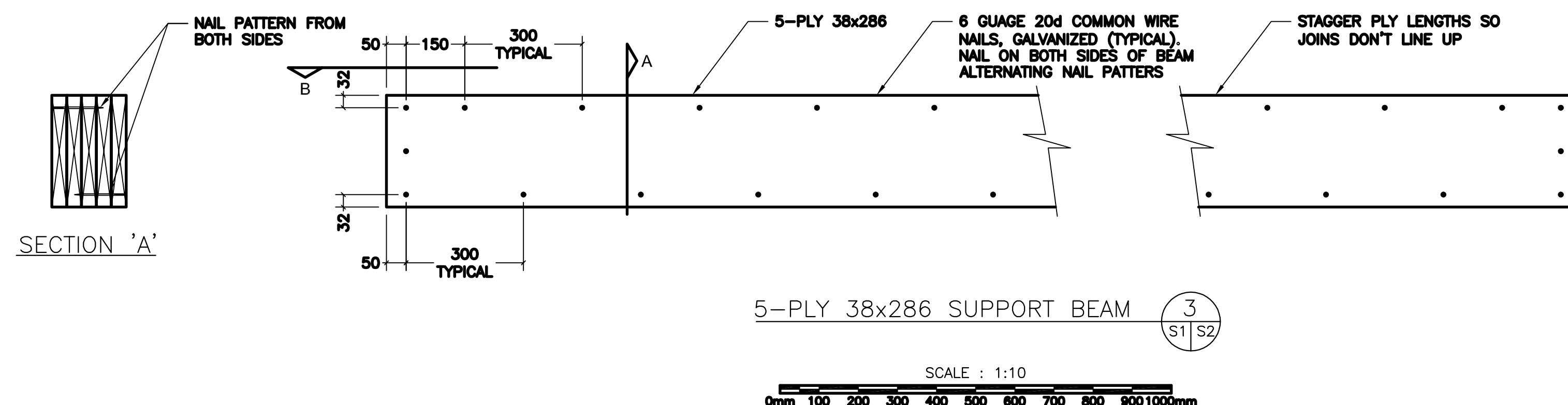
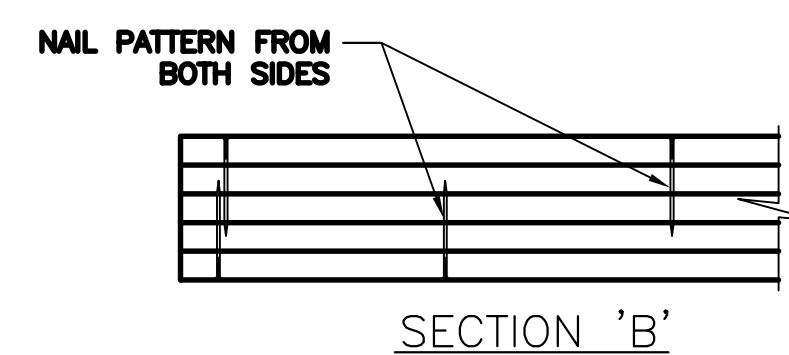
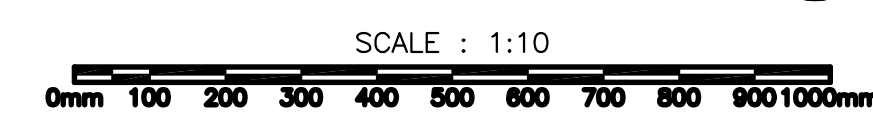
FOOTINGS:	75mm
PIERS:	50mm
4. ALL REINFORCING TO CONFORM TO CSA G30.18 LATEST EDITION. ALL REINFORCING TO HAVE A MINIMUM YIELD OF 400 MPa. PROVIDE EPOXY COATED REINFORCEMENT WHERE INDICATED ON DRAWINGS.
5. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND SUPPORTED IN ACCORDANCE WITH CSA A23.1 LATEST EDITION.
6. ALL DOWELS ARE TO BE TIED TO VERTICAL REBAR AND IN PROPER POSITION BEFORE POURING CONCRETE. PLACING DOWELS AFTER CONCRETE IS POURED IS UNACCEPTABLE.
7. FORM WORK MUST NOT BE REMOVED UNTIL CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUSTAIN ALL LOADINGS. PROVIDE SHORING AND RESHORING DRAWINGS STAMPED BY PROFESSIONAL ENGINEER FOR REVIEW FOR ALL SUSPENDED SLABS.
8. LAP SPLICE ALL FOOTING DOWELS 36 BAR DIAMETERS TO VERTICALS IN PIERS AND WALLS. ALL OTHER OTHER REINFORCING STEEL SHALL BE LAPPED A MINIMUM OF 24 BAR DIAMETERS, 300mm MIN U.N.O.
9. SUBMIT SHOP DRAWINGS ON ALL CONCRETE ANCHORS. CONCRETE ANCHORS TO BE INSTALLED TO AVOID EXISTING REBAR.
10. SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW BY ENGINEER PRIOR TO FABRICATION OF REINFORCING.



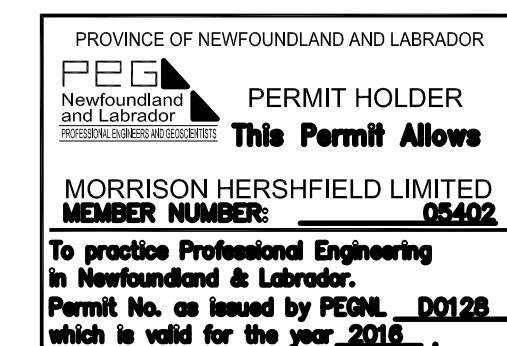
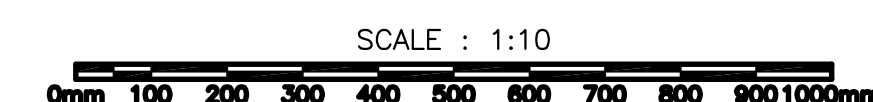
914# BIG FOOT FOOTING FORM  
FOOTING SECTION 1  
S1 S2



FOOTING SECTION (BEDROCK) 2  
S1 S2



5-PLY 38x286 SUPPORT BEAM 3  
S1 S2



A - INDICATES DETAIL NO.  
 B - INDICATED SHEET DETAIL IS REQUIRED  
 C - INDICATES SHEET DETAIL IS DRAWN

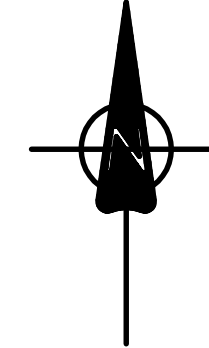
no.	revision	date	by	approved
0	ISSUED FOR TENDER	16/08/17	JS	RN

Project - projet  
VHF EQUIPMENT TRAILER  
NL SITES

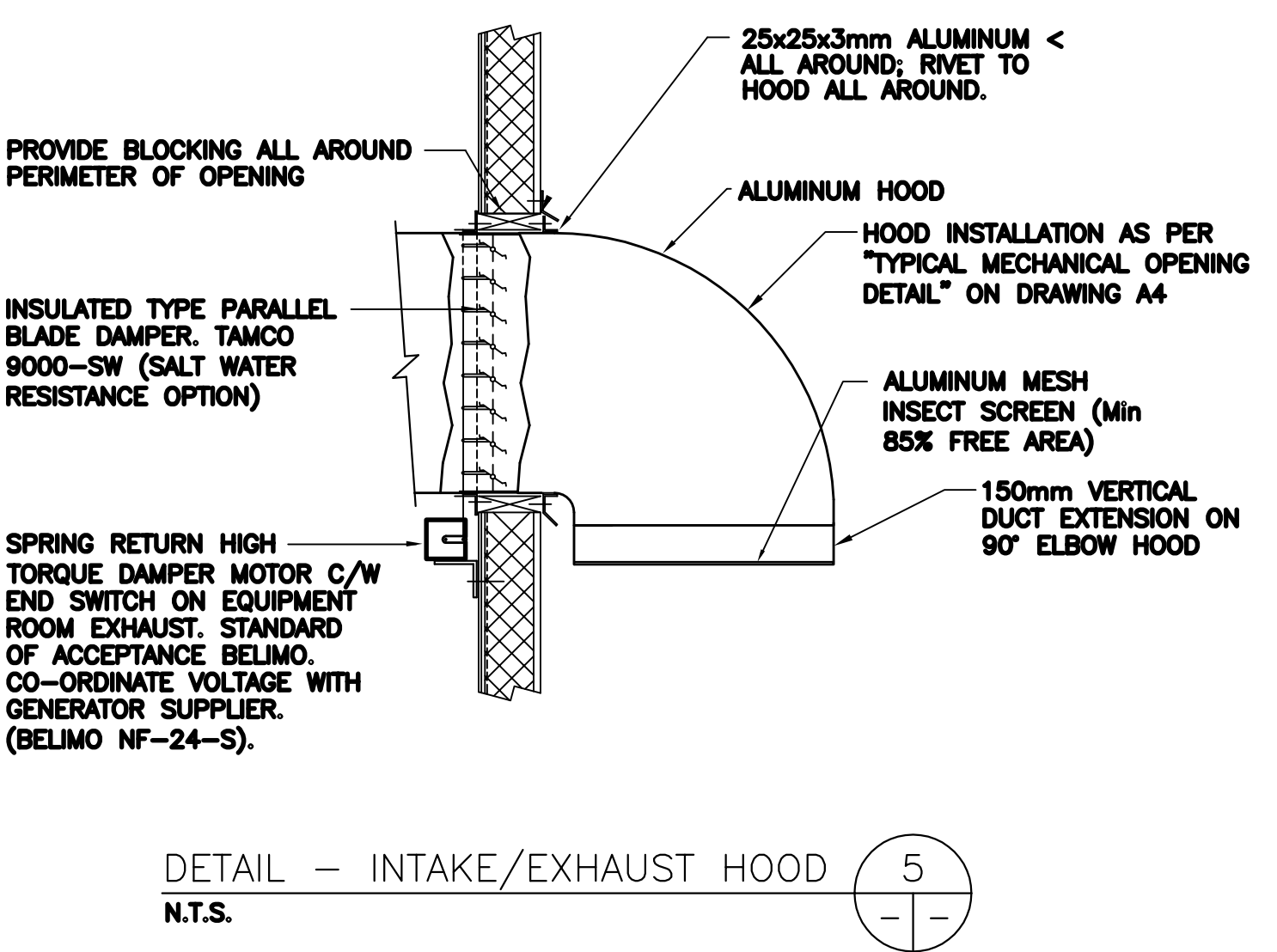
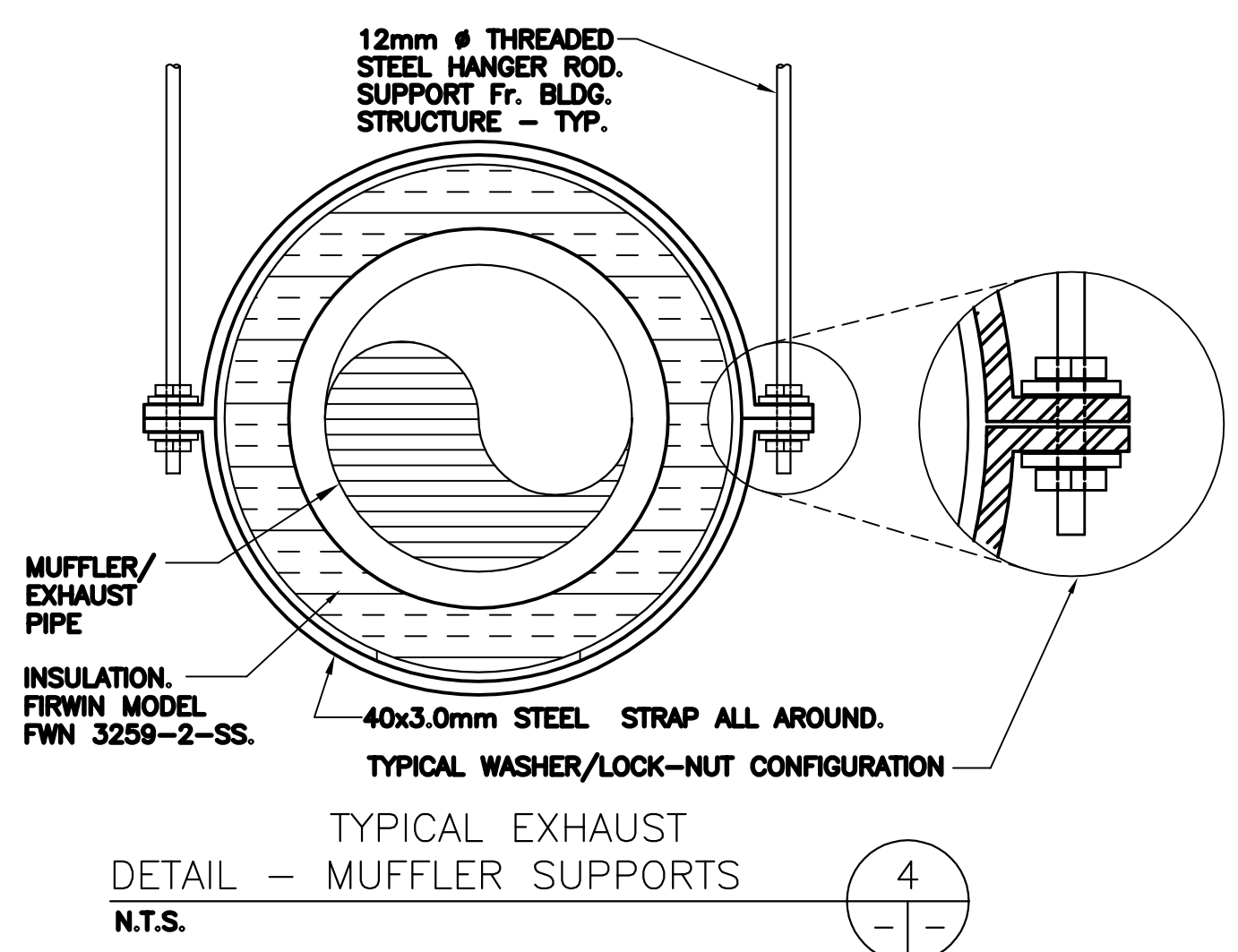
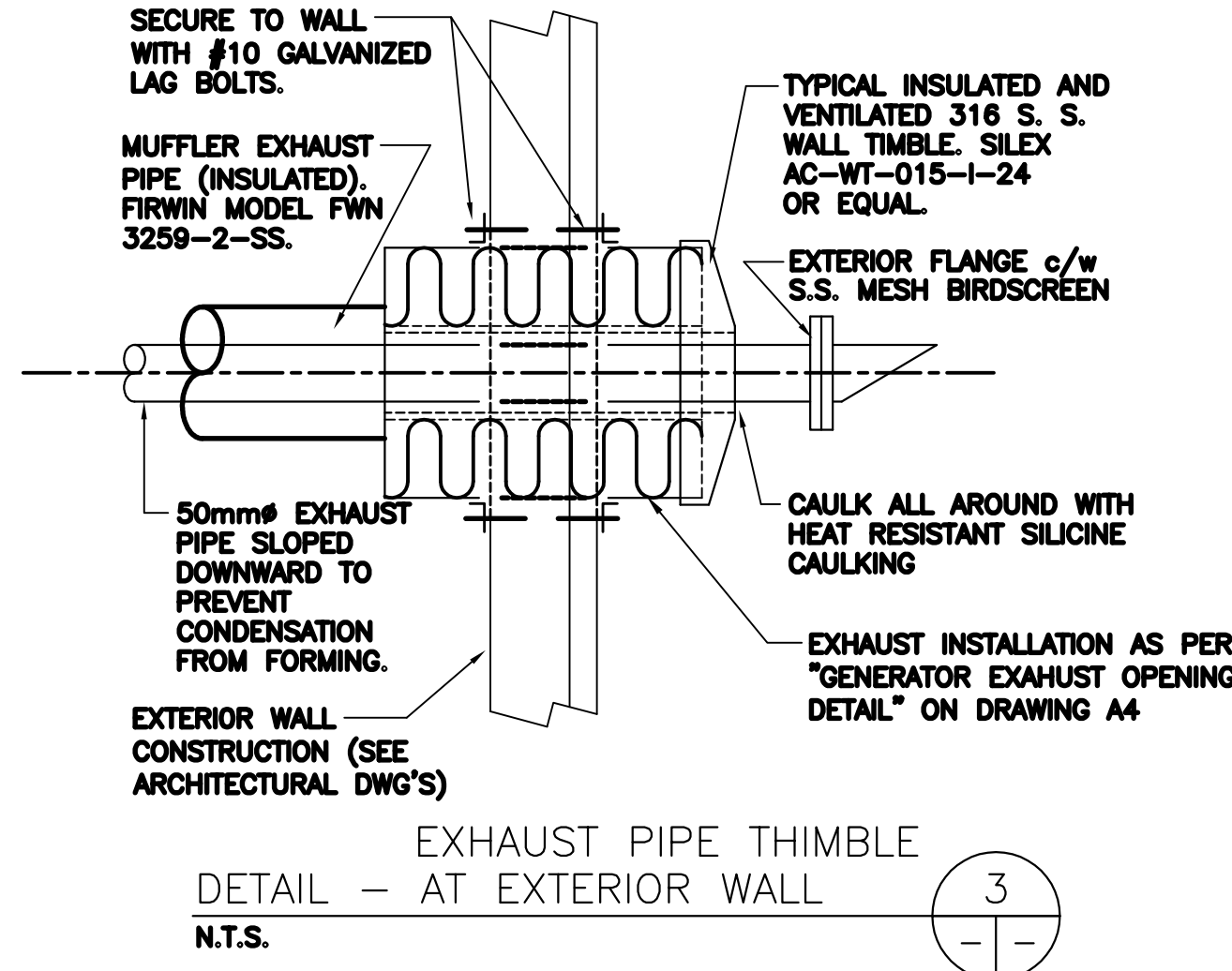
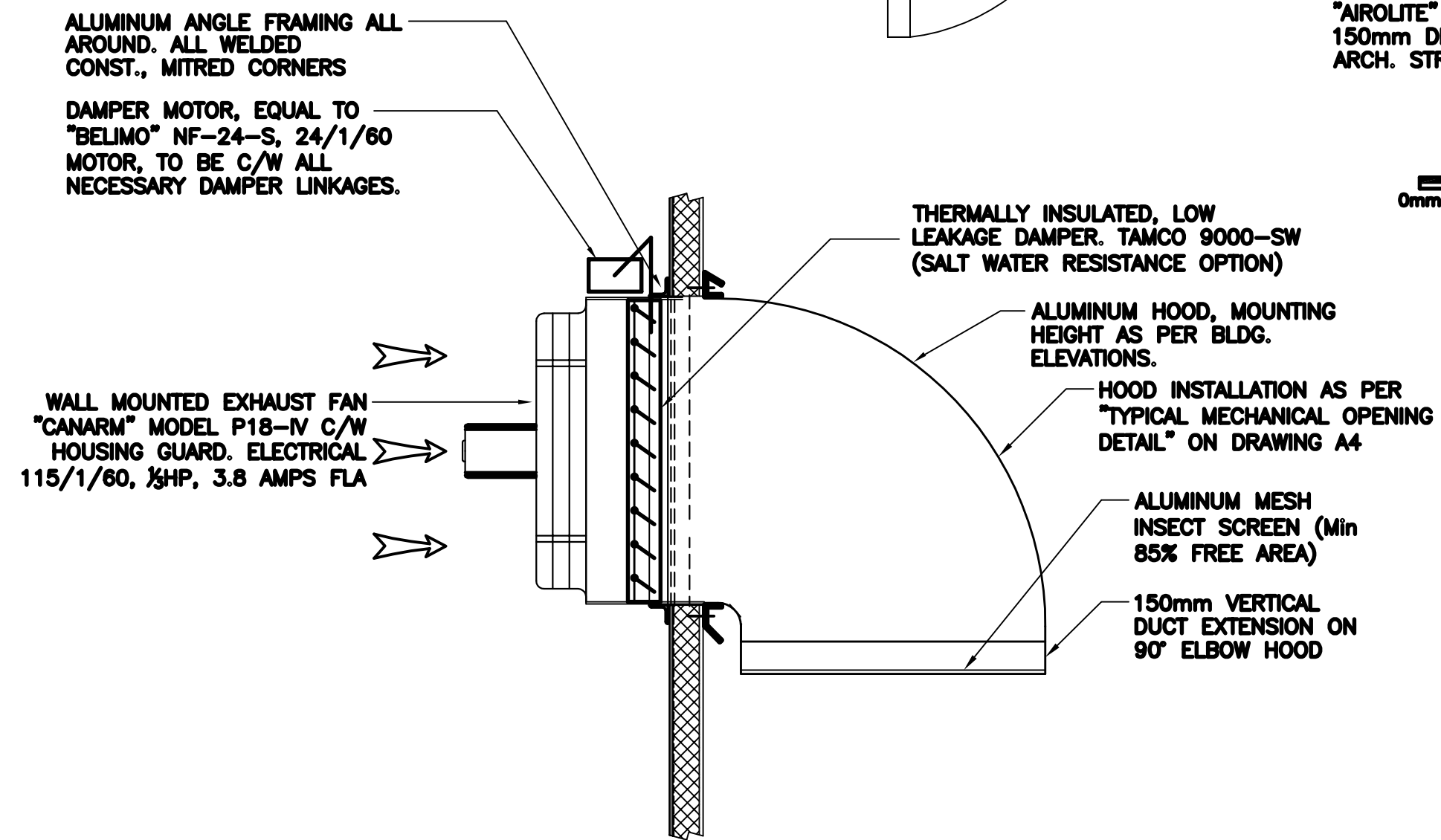
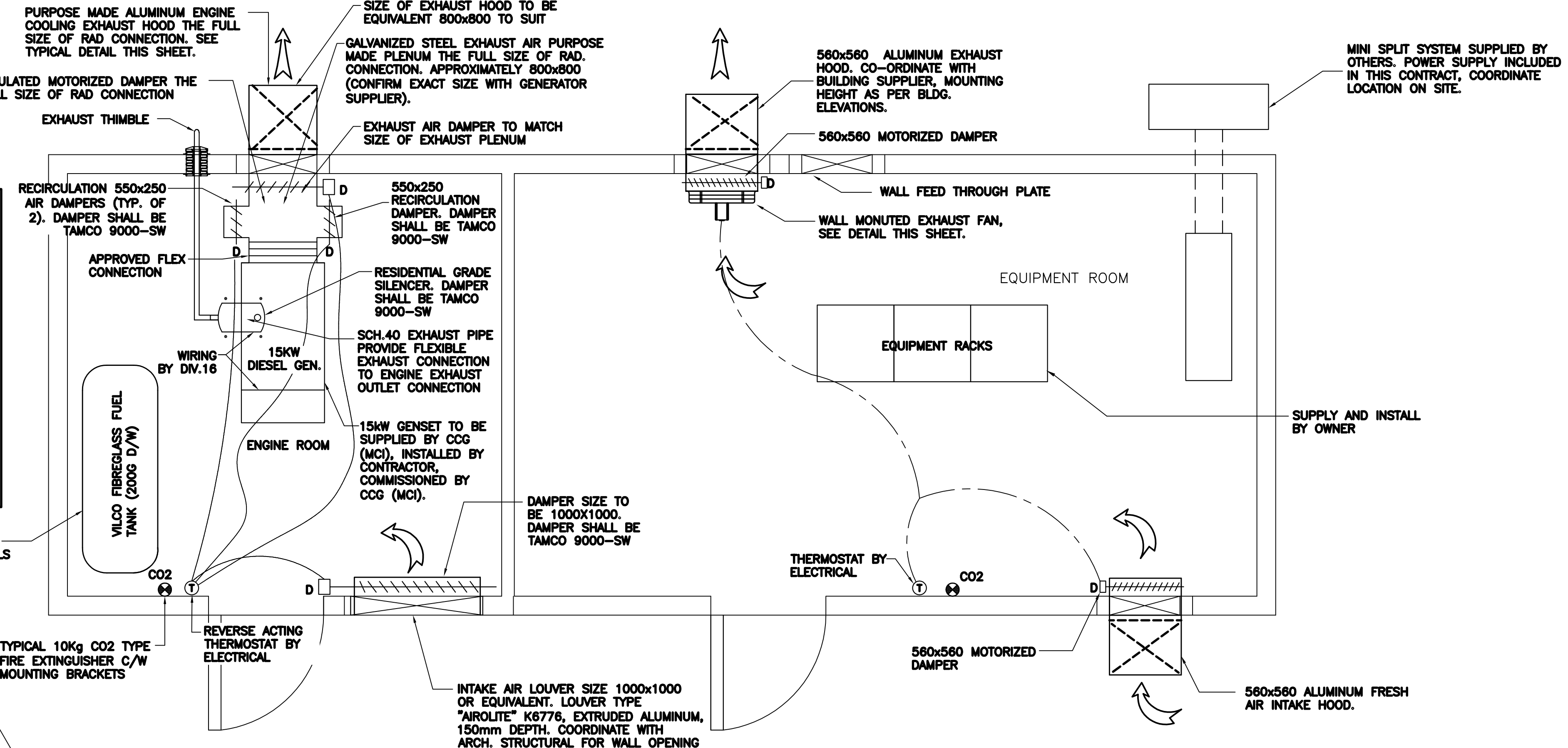
Drawing - dessin  
FOUNDATIONS  
SECTIONS AND DETAILS

drawn - dessiné	J.S.	designed - dessinée par	R.N.
date - date	JUNE 2016	checked - vérifié	L.A.
scale - échelle	AS SHOWN	approved for tender - approuvé pour l'offre	R.N.
project no. - projet no.	02D0201A35507-S2	sheet - feuille	7 OF 16





- DAMPERS SEQUENCE OF OPERATION**
1. GENERATOR EXHAUST DAMPER AND OUTDOOR AIR INTAKE DAMPER ARE NORMALLY CLOSED; GENERATOR RECIRCULATION DAMPERS ARE NORMALLY OPEN.
  2. ON START OF GENERATOR THE INTAKE DAMPER IS TO OPEN FULLY; EXHAUST AND RECIRCULATION DAMPERS TO MODULATE TO MAINTAIN SPACE TEMPERATURE BY ROOM REVERSE ACTING THERMOSTAT.
  3. ON STOP OF GENERATOR DAMPERS TO RETURN TO NORMAL POSITION.
- NOTES:**
1. MOTORIZED DAMPERS TO BE POWERED BY EMERGENCY POWER CIRCUIT.
  2. OUT DOOR AIR DAMPER TO FAIL IN CLOSE POSITION.
  3. EXHAUST AIR DAMPER TO FAIL IN AN OPEN POSITION.
  4. RECIRCULATION DAMPERS TO FAIL IN AN OPEN POSITION.



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
 PERMIT HOLDER  
 MORRISON HERSHFIELD LIMITED  
 MEMBER NUMBER: 65402  
 To practice Professional Engineering  
 in Newfoundland & Labrador.  
 Permit No. as issued by PEENL 00128  
 which is valid for the year 2018.

A - INDICATES DETAIL NO.  
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 C - INDICATES SHEET DETAIL IS DRAWN

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no.	revision	date	by	approved
no.	revision	date	par	approve

Project - projet  
VHF EQUIPMENT TRAILER  
NL SITES

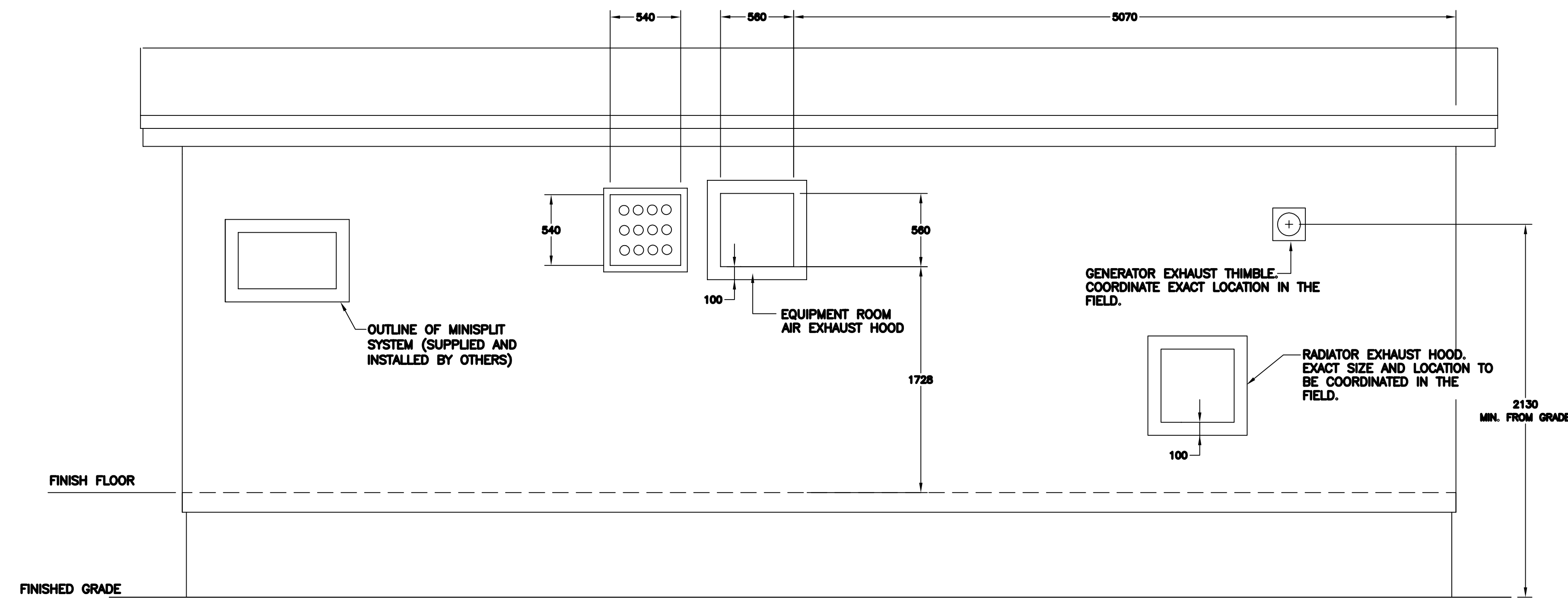
Drawing - dessin  
VENTILATION/FUEL SYSTEM  
PLAN AND DETAILS

drawn - dessiné  
J.S. designed - dessiné par  
T.T.

date - date  
JUNE 2016 checked - vérifié  
R.N.

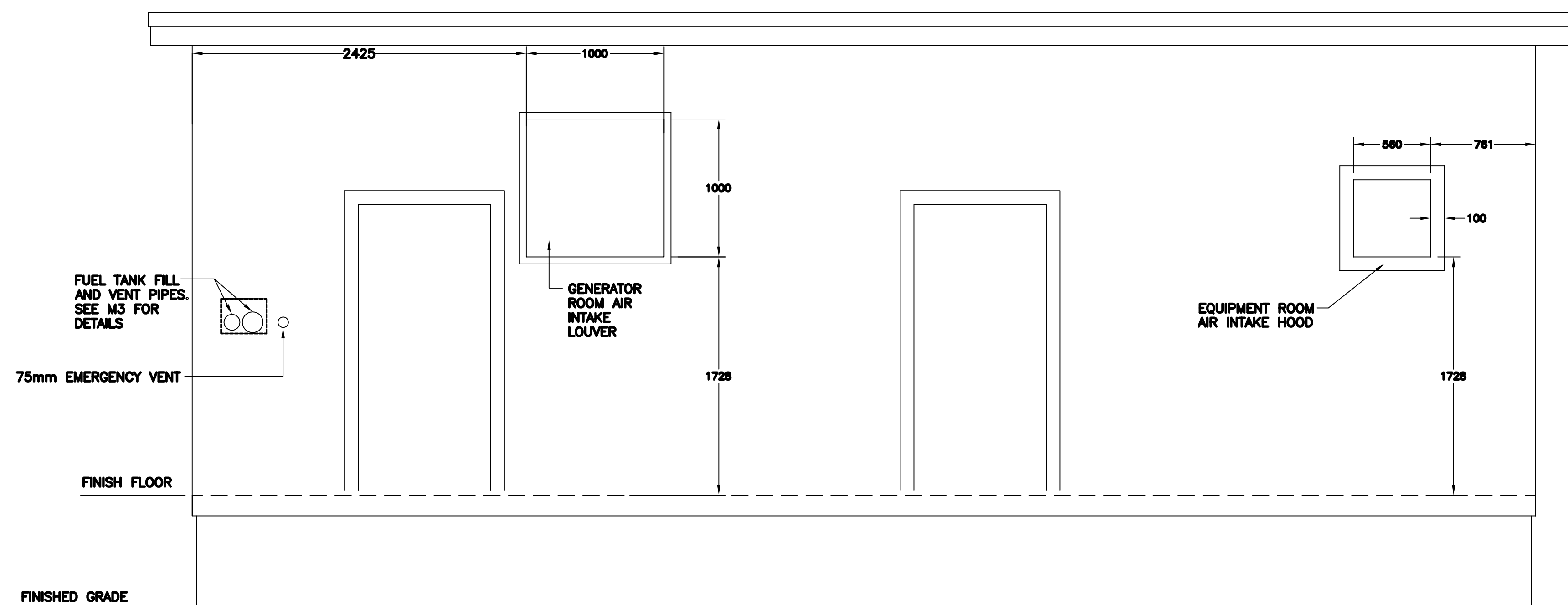
scale - échelle  
AS SHOWN approved for tender - approuvé pour l'offre  
R.N.

project no. - projet no.  
02D0201A35508-M1 sheet - feuille  
8 OF 16



REAR ELEVATION (1)

SCALE: 1:25  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



FRONT ELEVATION (2)

SCALE: 1:25  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
 PERMIT HOLDER  
 This Permit Allows  
**MORRISON HERSHFIELD LIMITED**  
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 To practice Professional Engineering  
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 Permit No. as issued by PEENL: 00128  
 which is valid for the year 2016...

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no.	revision	date	by	approved
0	ISSUED FOR TENDER	16/08/17	JS	RN

Project - projet

VHF EQUIPMENT TRAILER  
NL SITES

Drawing - dessin

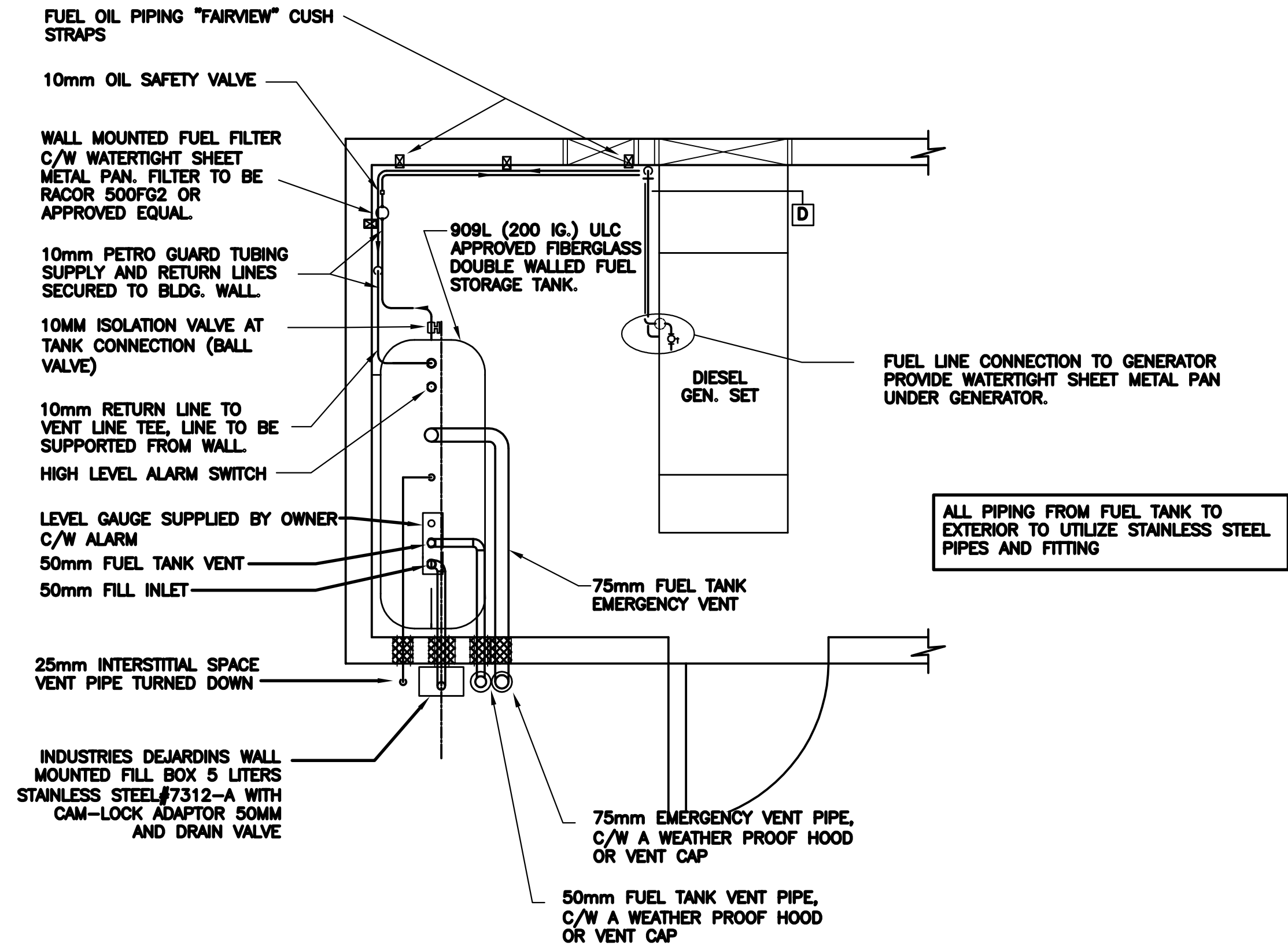
MECHANICAL PENETRATIONS

drawn - dessiné **J.S.** designed - dessiné par **T.T.**

date - date **JUNE 2016** checked - vérifié **R.N.**

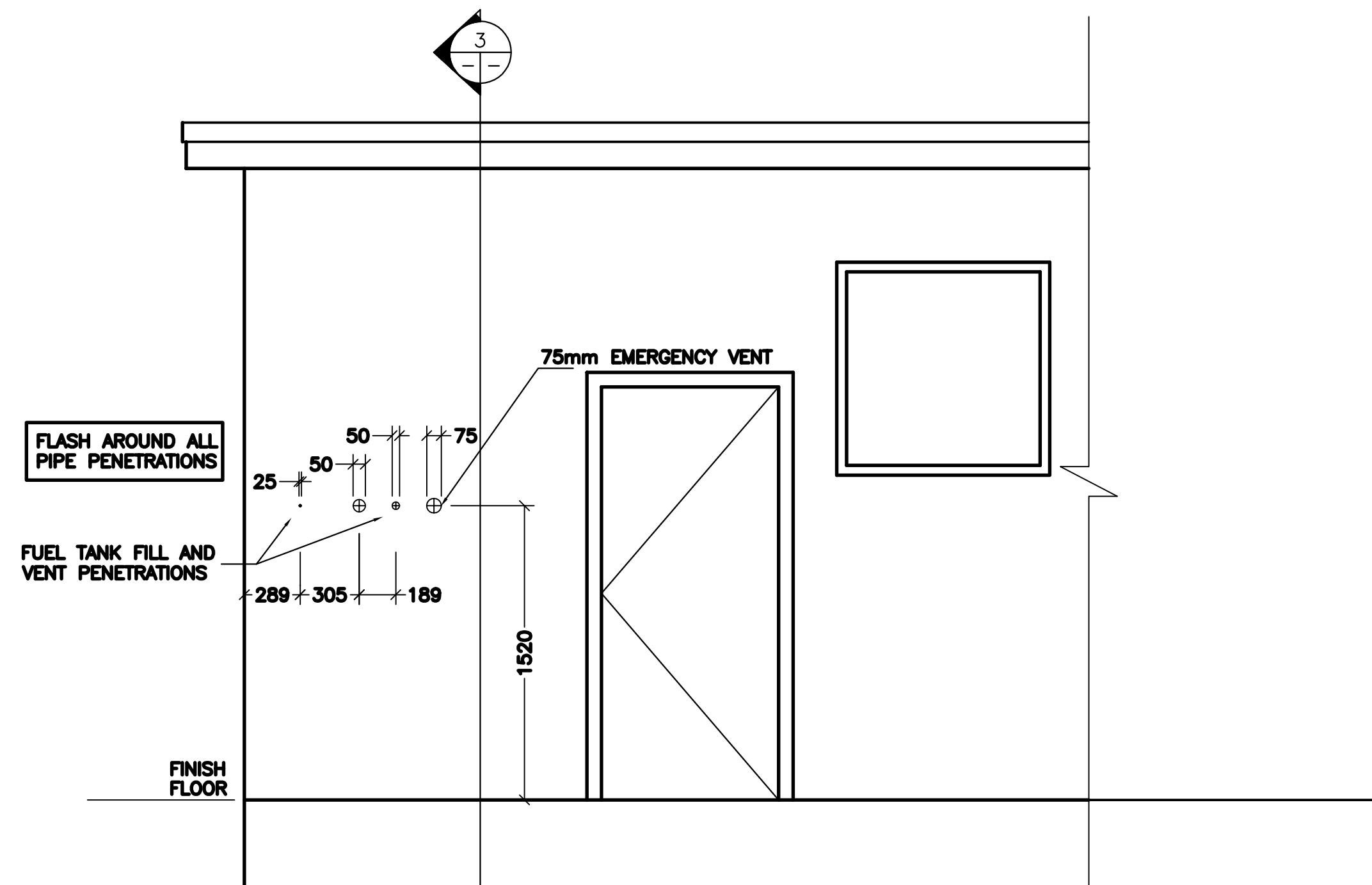
scale - échelle **AS SHOWN** approved for tender - approuvé pour l'offre **R.N.**

project no. - projet no. **02D0201A35509-M2** drawing no. - no du dessin **9 OF 16** sheet - feuille



PLAN - TANK INSTALLATION (1)

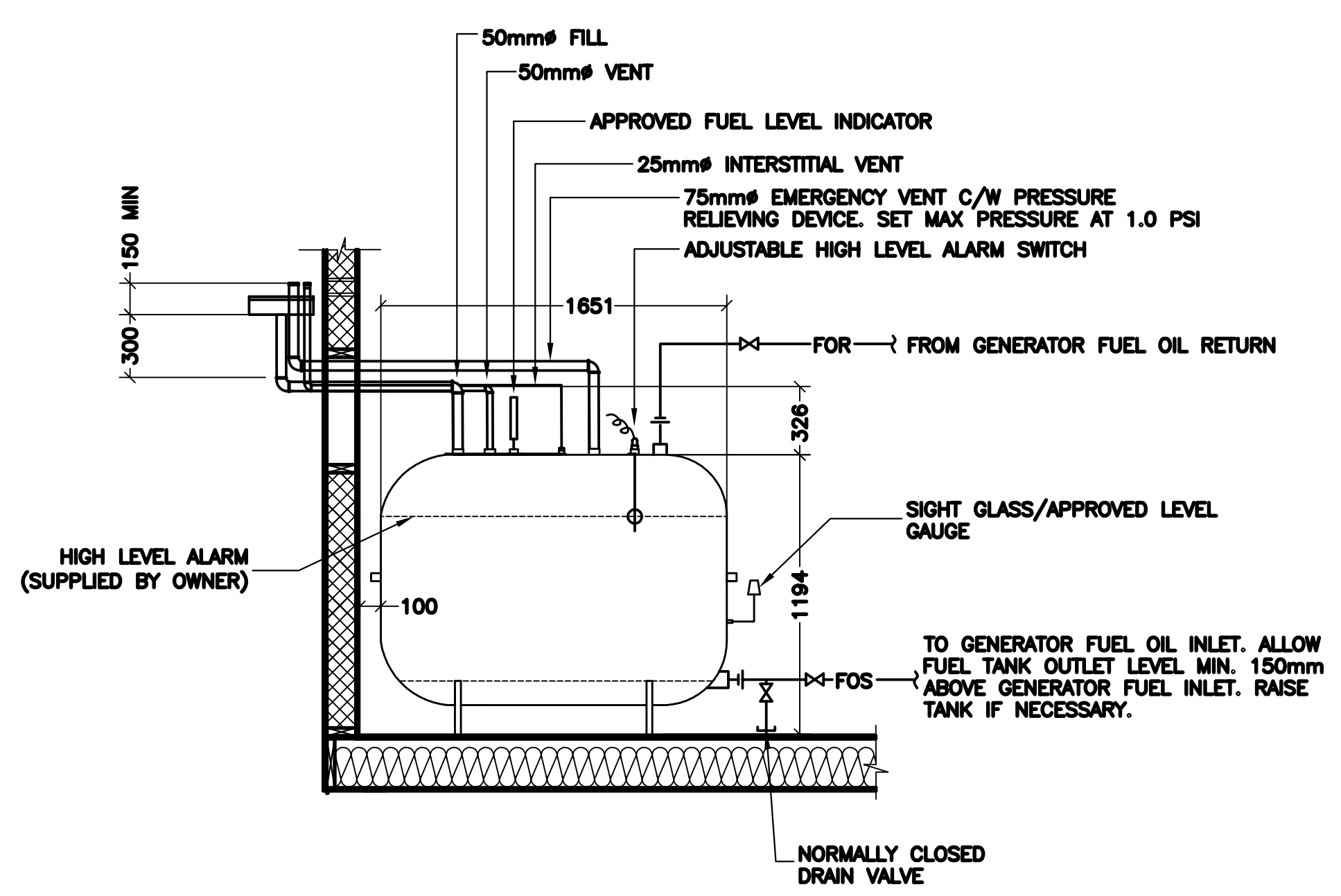
SCALE: 1:25  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



NOTE:  
 VENT PIPE SHALL TERMINATE AT LEAST 150mm ABOVE THE ENTRY TO THE FILL PIPE  
 FUEL TANK VENT PIPE OUTLETS SHALL DISCHARGE OUTSIDE BUILDINGS NOT LESS THAN 2m ABOVE THE GROUND LEVEL AND 1.5m FROM ANY BUILDING OPENING. COORDINATE ON SITE.

ELEVATION (2)

SCALE: 1:25  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



NOTE: INSTALL HORIZONTAL VENT PIPE 1% SLOPE TOWARDS FUEL TANK

SECTION (3)

SCALE: 1:25  
0mm 500mm 1000mm 1500mm 2000mm 2500mm



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
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 C - INDICATES SHEET DETAIL IS DRAWN

0	ISSUED FOR TENDER	16/08/17	JS	RN
no.	revision	date	by	approved
no.	revision	date	par	approve

Project - projet  
VHF EQUIPMENT TRAILER  
NL SITES

Drawing - dessin  
TYPICAL FUEL TANK  
INSTALLATION DETAILS

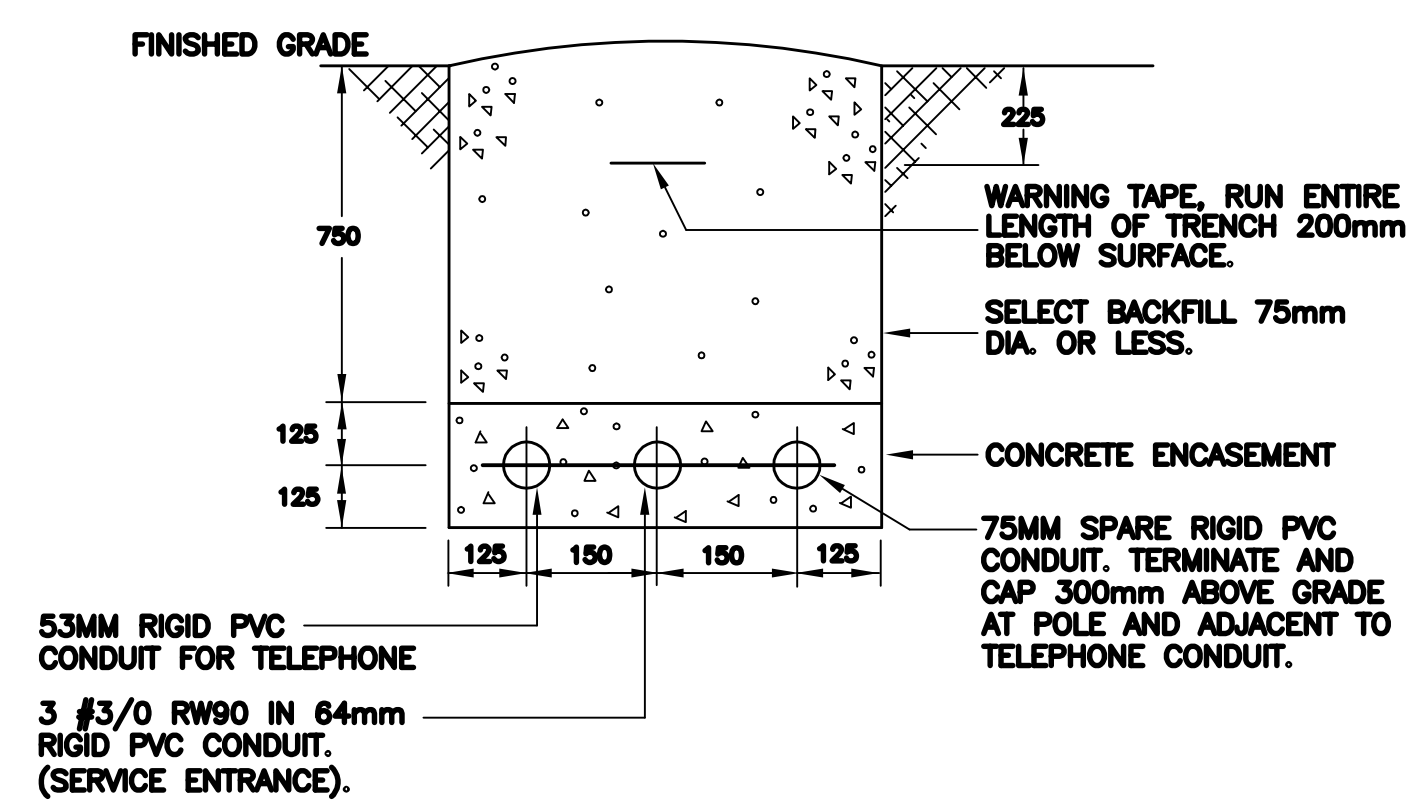
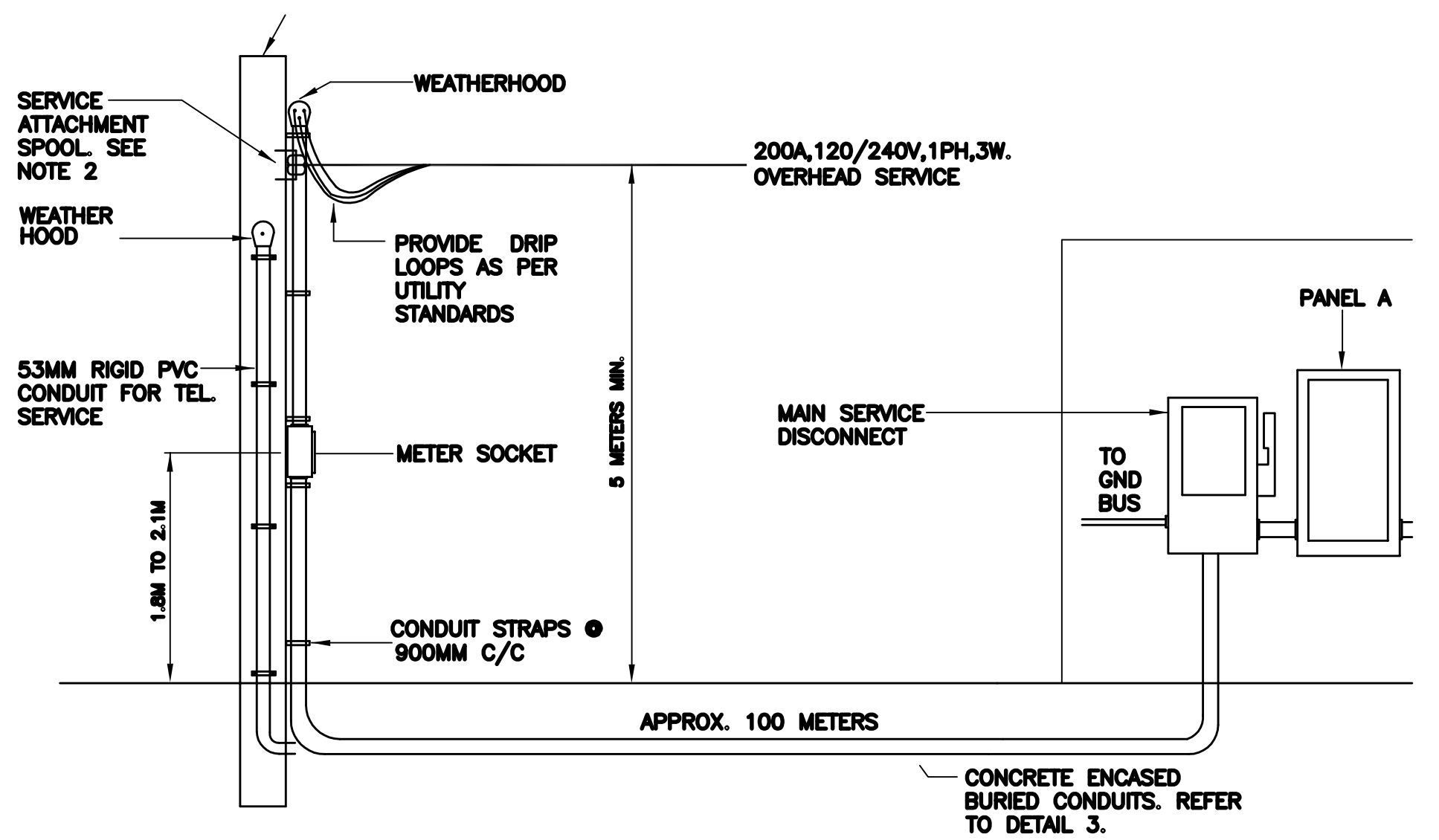
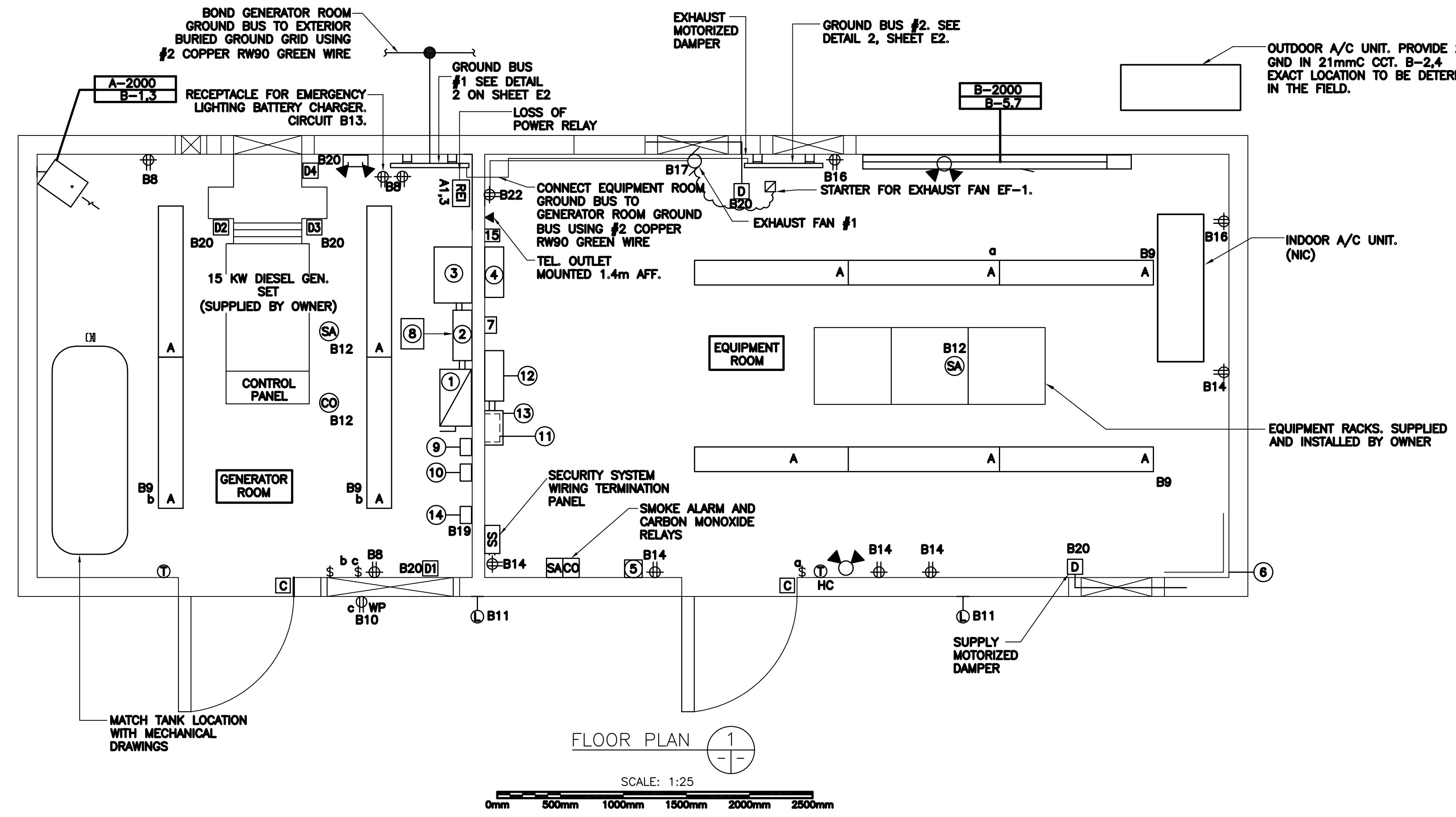
drawn - dessiné	J.S.	designed - dessiné par	T.T.
date - date	JUNE 2016	checked - vérifié	R.N.
scale - échelle	AS SHOWN	approved for tender - approuvé pour l'offre	R.N.
project no. - projet no.	02D0201A35510-M3	drawing no. - no du dessin	sheet - feuille
			10 OF 16

**EQUIPMENT DESCRIPTION**

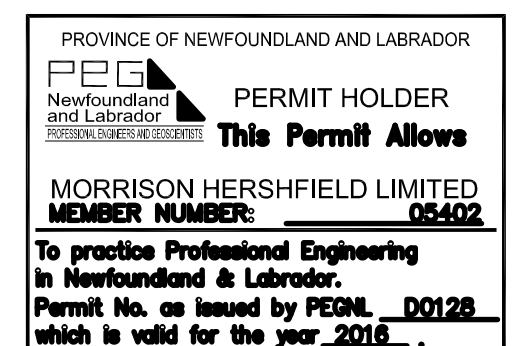
- ① MAIN SERVICE ENTRANCE DISCONNECT SWITCH 200A/200AF, 120/240V, 1Φ, 2P, SOLID NEUTRAL, BY SQUARE-D / SCHNEIDER ELECTRIC.
- ② MAIN DISTRIBUTION PANEL BOARD DP-A 200A, 120/240V, 1Φ, 3W, SEE PANEL DETAIL.
- ③ AUTOMATIC TRANSFER SWITCH, SUPPLIED BY OWNER.
- ④ EMERGENCY DISTRIBUTION PANEL BOARD EP-B 100A, 120/240V, 1Φ, 3W, SEE PANEL DETAIL.
- ⑤ REMOTE EMERGENCY STOP PUSHBUTTON FOR GENERATOR, SUPPLIED BY OWNER.
- ⑥ TWO COMPARTMENT WIREWAY AROUND FULL PERIMETER OF EQUIPMENT ROOM. LOCATE IN UPPER CORNER OF WALL AS PER DETAIL 5, SHEET E2. WIREWAY TO BE USED FOR WIRING OF DEVICES SHOWN IN EQUIPMENT ROOM.
- ⑦ OWNER SUPPLIED SPD FOR PANEL UPS-C, MOUNT AS CLOSE TO PANEL AS POSSIBLE. WIRE LENGTH FROM SPD TO BREAKER NOT TO EXCEED 150mm (6")
- ⑧ OWNER SUPPLIED SPD FOR PANEL DP-A, MOUNT AS CLOSE TO PANEL AS POSSIBLE. WIRE LENGTH FROM SPD TO BREAKER NOT TO EXCEED 150mm (6")
- ⑨ JUNCTION BOX CONTAINING BASEBOARD HEATER RELAYS (R2 AND R3)
- ⑩ JUNCTION BOX CONTAINING DAMPER MOTOR RELAY R1.
- ⑪ 6KVA UPS, POWERWARE MODEL 9170, SUPPLIED BY OWNER INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. UPS MOUNTED ON FLOOR.
- ⑫ UPS PANEL UPS-C, SEE PANEL DETAIL.
- ⑬ EXTERNAL BYPASS SWITCH FOR THE UPS, SUPPLIED BY OWNER INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. BYPASS SWITCH MOUNTED ON WALL ABOVE UPS. INSTALL AND CONNECT PER MANUFACTURER'S INSTRUCTIONS.
- ⑭ GENERATOR ROOM VENTILATION CONTROL.
- ⑮ OWNER SUPPLIED SPD FOR PANEL EP-B, MOUNT AS CLOSE TO PANEL AS POSSIBLE. WIRE LENGTH FROM SPD TO BREAKER NOT TO EXCEED 150mm (6")

**LEGEND**

- Ⓢ — SINGLE POLE SWITCH 120V, 15A, #PS15AC1-1 BY PASS & SEYMOUR, INSTALLED IN SURFACE MOUNTED BOX #CIFS-1G-1/2 WITH #CIFS-9 COVER BY THOMAS & BETTS. INDICATES LIGHTS CONTROLLED
- Ⓜ — GANGED TOGGLE SWITCHES
- Ⓛ — DUPLEX OUTLET 15A, 120V, #5262-1 BY PASS & SEYMOUR, INSTALLED IN SURFACE MOUNTED BOX #CIFS-1G-1/2 WITH #CDR COVER BY THOMAS & BETTS.
- Ⓧ — SAME AS ABOVE EXCEPT MOUNTED 1050MM ABOVE FINISHED FLOOR.
- Ⓣ — TELEPHONE OUTLET.
- Ⓡ — RUN TELEPHONE WIRING IN 21MM EMT CONDUIT TO TELEPHONE EQUIPMENT
- Ⓛ — EMERGENCY LIGHTING UNIT, 120V AC, C/W 2 - 12VOLT 6W LED MR16 LAMP HEADS, MOUNT 2100MM AFF. PROVIDE L5-15R ADJACENT RECEPTACLE TEST SWITCH, SERIES #12ESL144-2-LJ BY EMERGI-LITE.
- Ⓛ — DOUBLE ADJUSTABLE REMOTE HEAD FOR EMERGENCY LIGHTING, 12 VOLT 5W LED MR16, MOUNT 2100MM AFF. RUN 2 #12 RW90 IN 21mm CONDUIT TO EMERGENCY LIGHTING UNIT. SERIES #EF150-D-LIC BY EMERGI-LITE.
- Ⓛ — ELECTRIC BASEBOARD HEATER 1875W, 208V, 1Φ WITH RELAY 24V #OFM2000-AM-OFMR BY OUELLET.
- Ⓛ — ELECTRIC UNIT HEATER, SUSPENDED UNIT HEATER 2000W, 240V, 1Φ #OAS2038 BY OUELLET.
- Ⓛ — LOW VOLTAGE THERMOSTAT, SUPPLIED & INSTALLED BY DIV. 26, VICONICS T921 DC C/W F29 0143 PLASTIC GUARD.
- Ⓛ — SMOKE ALARM AMERICAN SENSORS ESA5011 C/W RM3A RELAY MODULE, TIE INTO SECURITY SYSTEM, REFER TO DETAIL 3 DWG E4. SEE SECURITY SYSTEM RISER DIAGRAM DWG E3. (INTERCONNECT SMOKE ALARMS SUCH THAT WHEN ONE SOUNDS THEY ALL SOUND.)
- Ⓛ — EXHAUST FAN, SUPPLIED & INSTALLED BY DIV. 23, WIRED BY DIV 26.
- Ⓛ — CARBON MONOXIDE RELAY.
- Ⓛ — MANUAL MOTOR STARTER
- Ⓛ — HEATING/COOLING THERMOSTAT BY HONEYWELL, #TH5220D, MOUNT 1400MM AFF.
- Ⓛ — SECURITY SYSTEM DOOR CONTACTS SUPPLIED BY OWNER.
- Ⓛ — ALARM MANAGEMENT WIRING TERMINATION PANEL.
- Ⓛ — CONNECTION TO MECHANICAL OR ELECTRICAL EQUIPMENT
- Ⓛ — GENERAL PURPOSE RELAY. (FOR MONITORING LOSS OF POWER TO BLDG.)
- Ⓛ — DAMPER MOTOR, SUPPLIED BY DIV 23 WIRED BY DIV.26.
- Ⓛ — CARBON MONOXIDE ALARM, KIDDE#900-0L20 C/W RM3A RELAY MODULE, TIE INTO SECURITY SYSTEM, REFER TO DETAIL 3 DRAWING E4. SEE SECURITY SYSTEM RISER DIAGRAM, DRAWING E3.
- Ⓛ — SURFACE MOUNTED 1.22m LONG 42W LED LUMINAIRE C/W ENERGY EFFICIENT 120V ELECTRIC DRIVER, FROST ACRYLIC LENS AND END CAP, 5000 LUMEN OUTPUT, 4000K CCT, MIN. CRI 80, LITHONIA CAT, #Z1DL485000LMPST12040KPLRWH OR APPROVED EQUAL.
- Ⓛ — EXTERIOR WALL MOUNTED LED LUMINAIRE WITH PHOTOCCELL CONTROL, IMPACT RESISTANT POLYCARBONATE LENS, 120V, 19W, 1070 LUMENS, 5000K CCT, LITHONIA CATALOG #TWSLED-1-50K-120-PE OR APPROVED EQUAL.
- NIC — NOT IN CONTRACT.



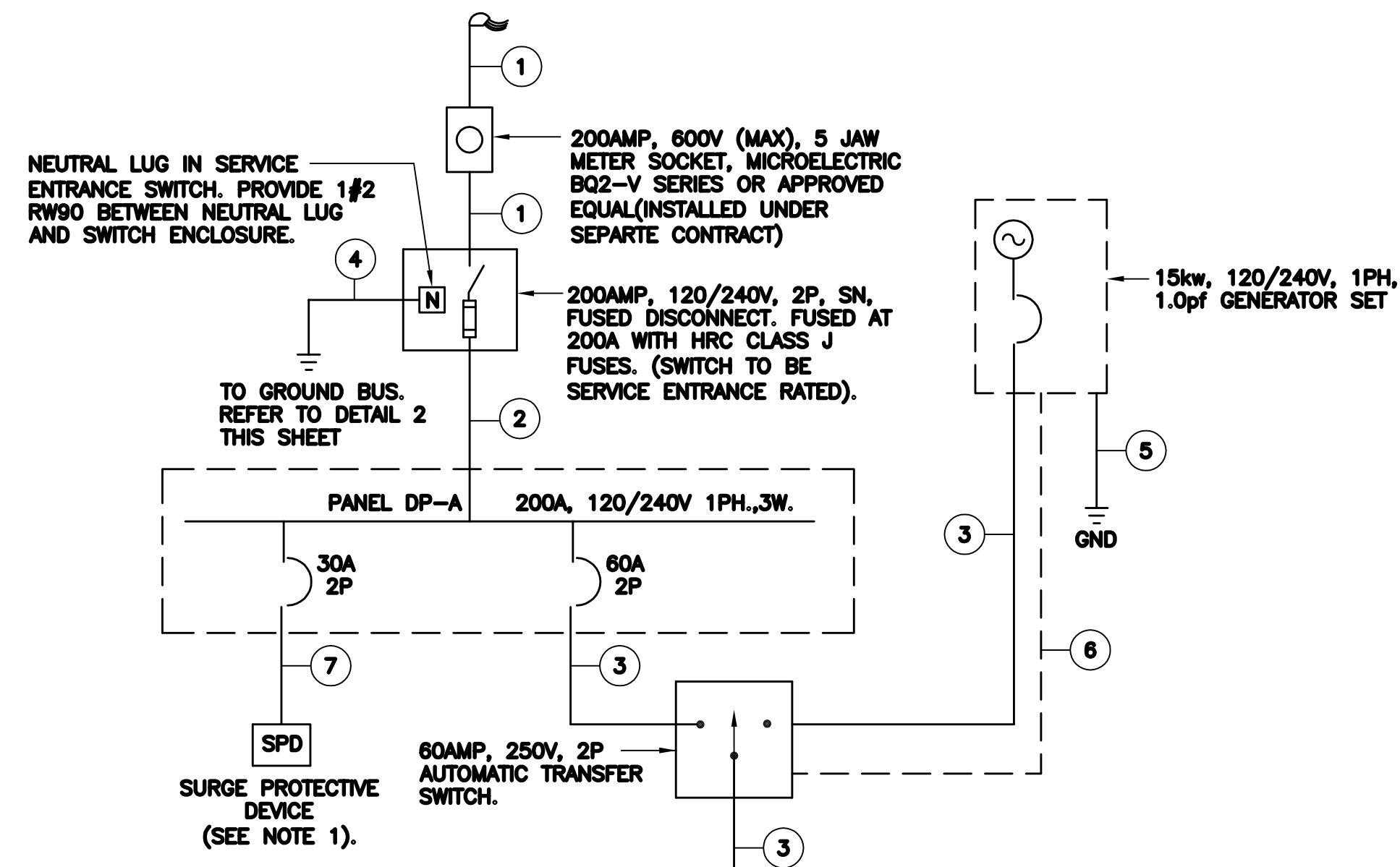
- NOTES**
1. SERVICE ATTACHMENT SPOOL SHALL BE LOCATED NOT LESS THAN 4.5M ABOVE GRADE AS PER CEC.
  2. SERVICE INSTALLATION SHALL BE AS PER CEC AND UTILITY STANDARDS.



**A** - INDICATES DETAIL NO.  
**B** - INDICATED SHEET DETAIL IS REQUIRED  
**C** - INDICATES SHEET DETAIL IS DRAWN

ISSUED FOR TENDER		16/08/17	JS	RN
no.	revision	date	by	approved
no.	revision	date	par	approve
Project - projet				
VHF EQUIPMENT TRAILER NL SITES				
Drawing - dessin				
ELECTRICAL LAYOUT AND LEGEND				
drawn - dessiné	J.S.	designed - dessinée par	M.M.	
date - date	JUNE 2016	checked - vérifié	R.N.	
scale - échelle	AS SHOWN	approved for tender - approuvé pour l'offre	R.N.	
project no. - projet no.	drawing no. - no du dessin	sheet - feuille	11 OF 16	
02D0201A35511-E1				

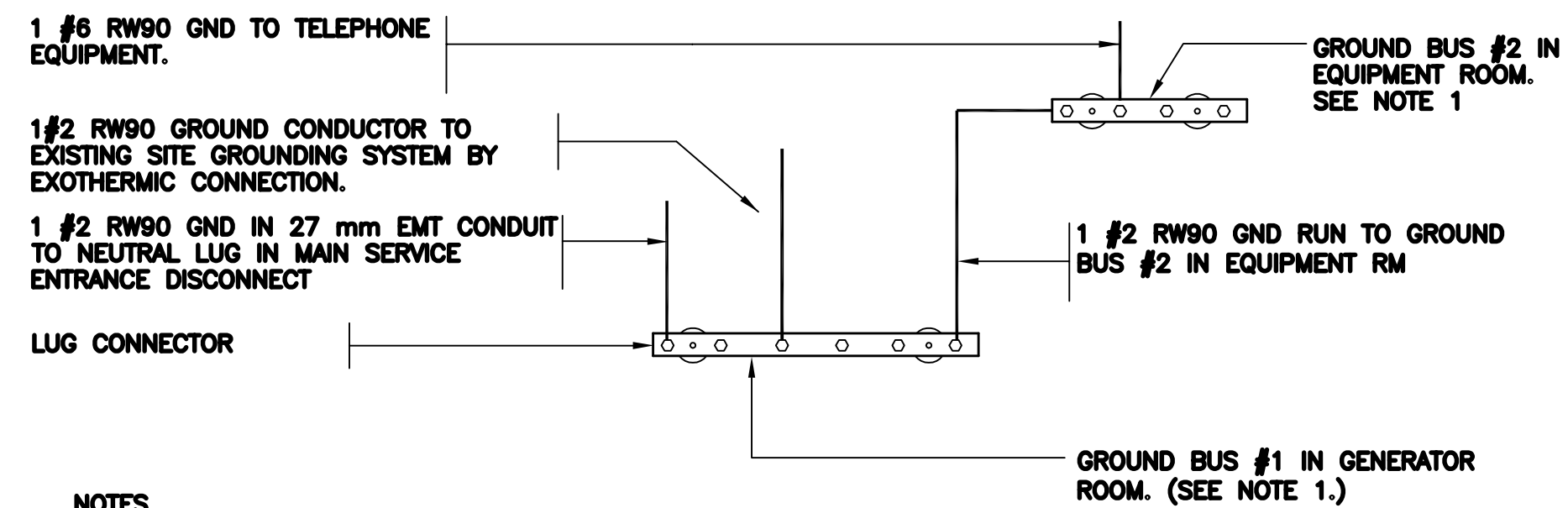
NOTES:



**FEEDER SCHEDULE**

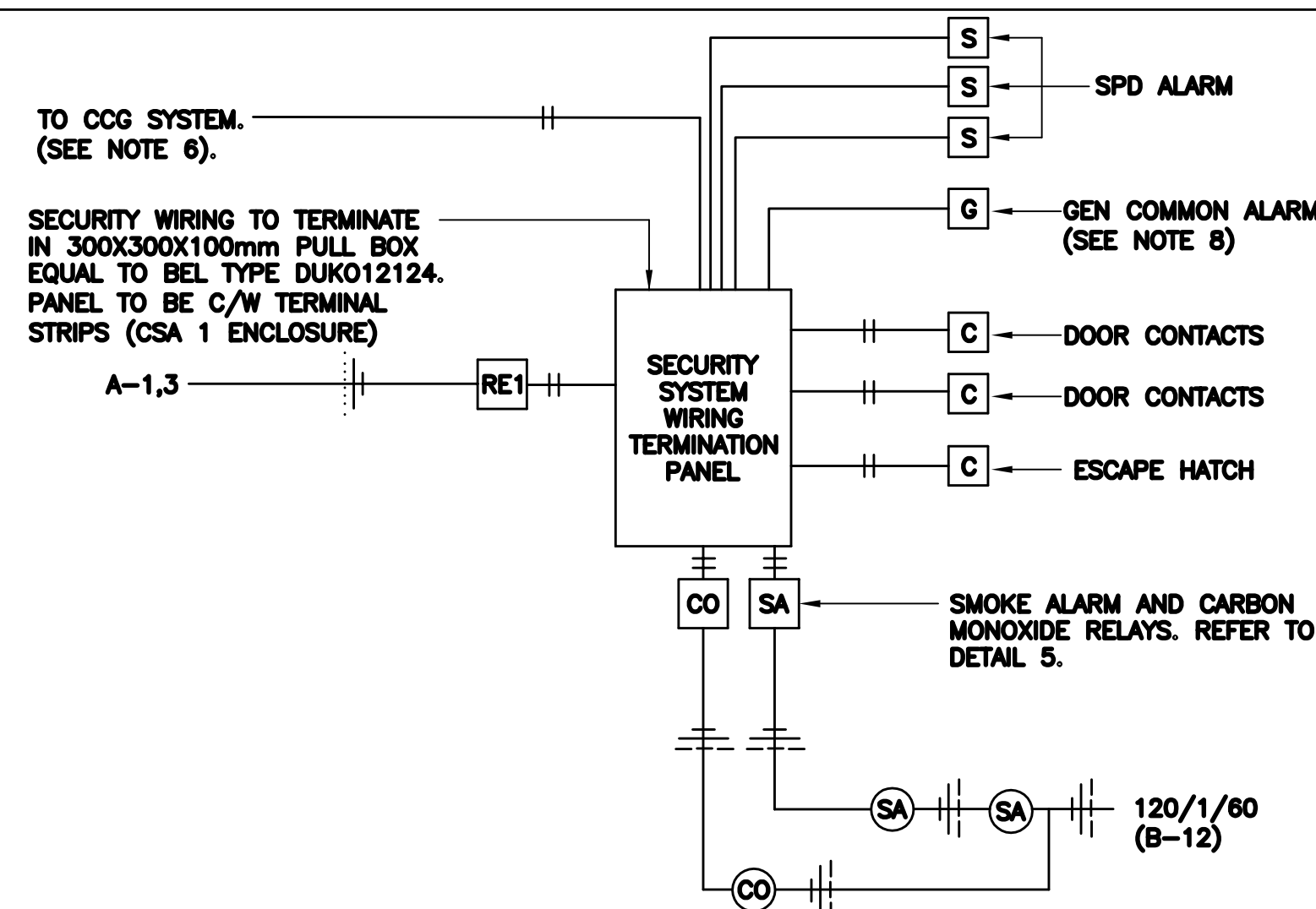
- ① - UTILITY TO BE COMPLETED AS PART OF THIS CONTRACT.
- ② - 3 #3/0 RW90 + GND IN 53mm CONDUIT.
- ③ - 3 #6 RW90 + GND IN 27mmC.
- ④ - 1 #2 RW90 GND IN 27mm CONDUIT.
- ⑤ - 1 #6 RW90 GND IN 21mm CONDUIT.
- ⑥ - 5 #12 RW90 + GND IN 21mm CONDUIT.
- ⑦ - WIRE SUPPLIED WITH SPD. MOUNT SPD ON THE PANEL ENCLOSURE AND RUN WIRE AS STRAIGHT AS POSSIBLE TO THE SPD BREAKER. WIRE LENGTH FROM SPD TO BREAKER SHALL NOT EXCEED 150mm
- ⑧ - 3#6 RW90 + GND IN 27mm CONDUIT.

SINGLE LINE DIAGRAM  
N.T.S.



- NOTES**
1. GROUND BUSES SHALL BE ANDREW COMMSCOPE CAT.# UGBKIT-0424. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

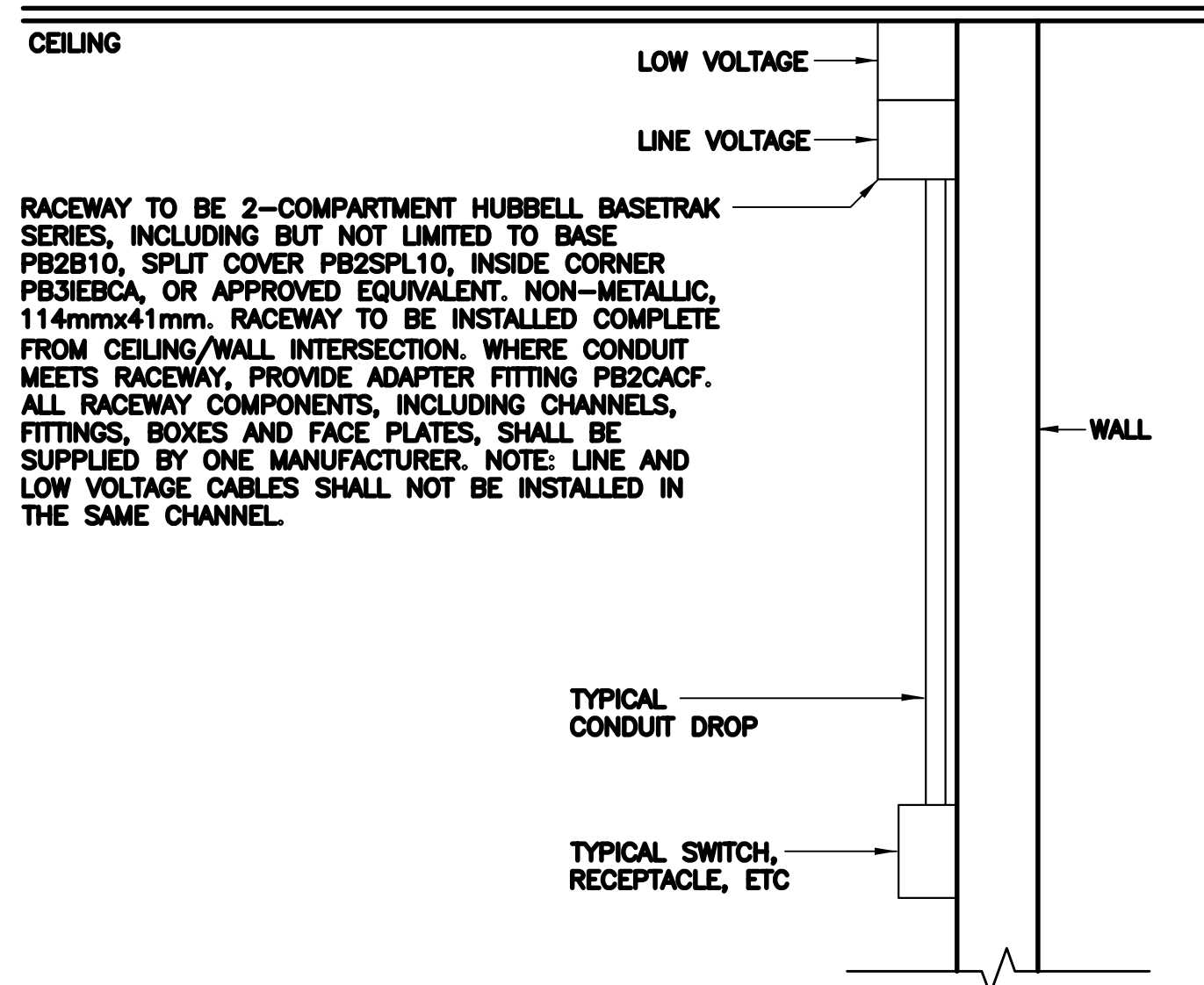
GROUND BUS DETAIL  
N.T.S.



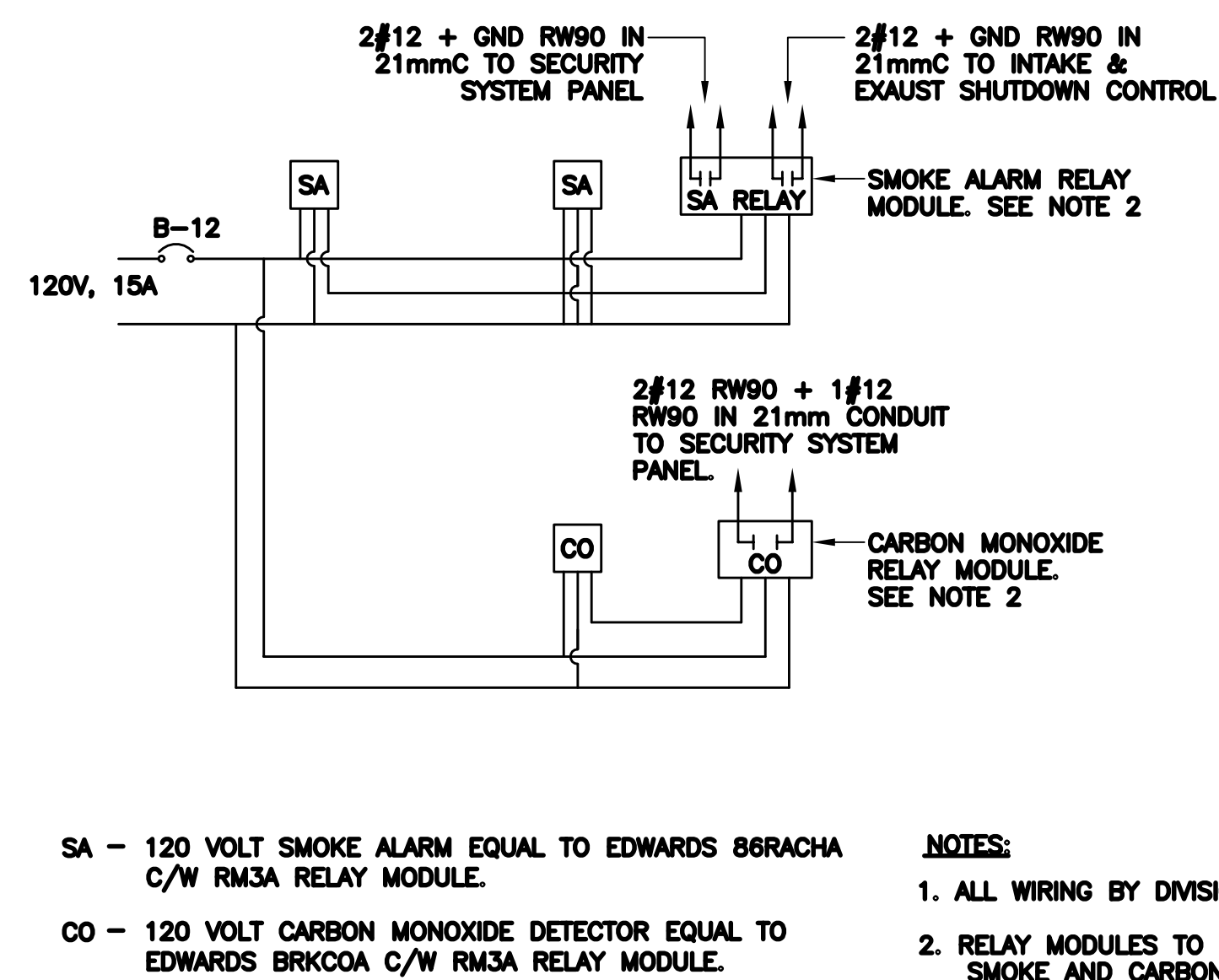
**NOTES**

1. PROVIDE LABELS FOR ALL CONTACTS
2. WIRING TO DOOR CONTACTS TO BE 1-18/2 LVT IN 21mm CONDUIT. CABLES FOR SECURITY SYSTEM TO BE FT4 RATED.
3. TERMINAL BLOCKS TO BE EQUAL TO WEIDMULLER TYPE SAK10.
4. TIE THE DOOR ALARM SIGNALS IN PARALLEL AT SECURITY TERMINATION PANEL.
5. TIE THE SMOKE & CO ALARMS IN PARALLEL AT SECURITY TERMINATION PANEL.
6. CCG SYSTEM SUPPLIED AND INSTALLED BY OWNER. PROVIDE CONDUIT AND WIRE UNDER THIS CONTRACT. COORDINATE WITH OWNER BEFORE ROUGHING-IN.
7. MAGNETIC DOOR CONTACTS TO BE SURFACE MOUNTED, SEALED, GAP OF 32mm. FROM C CONTACTS. STANDARD OF ACCEPTANCE: ADT 4060-011.
8. PROVIDE ALL NECESSARY HARDWARE TO FACILITATE INSTALLATION OF DEVICES.

SECURITY SYSTEM RISER DIAGRAM  
N.T.S.

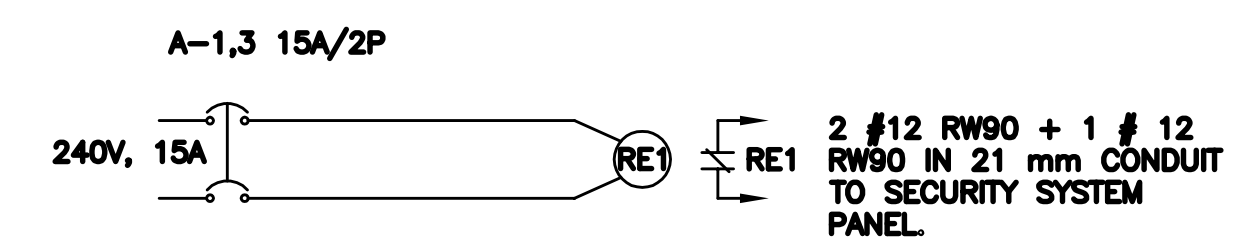


PERIMETER WIREWAY DETAIL  
N.T.S.



- NOTES**
1. ALL WIRING BY DIVISION 26.
  2. RELAY MODULES TO BE HOUSED WITHIN THE SMOKE AND CARBON MONOXIDE ALARMS

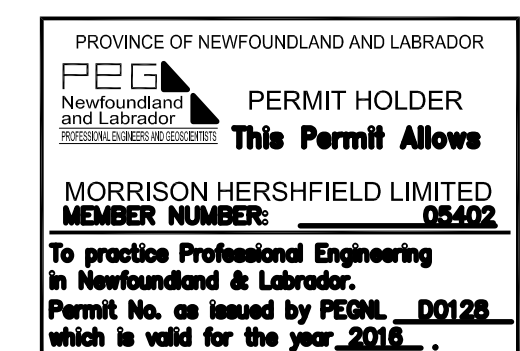
WIRING DIAGRAM: SMOKE DETECTORS AND CARBON MONOXIDE DETECTOR  
N.T.S.



RE1- RELAY 240 VOLT COIL 10A 600V CONTACTS, 2 POLE, EQUAL TO ALLEN BRADLEY BULLETIN 700P201. MOUNT IN GENERAL PURPOSE ENCLOSURE.

NOTE: ALL WIRING BY DIVISION 26.

WIRING DIAGRAM: POWER LOSS RELAY  
N.T.S.



**A** - INDICATES DETAIL NO.  
**B** - INDICATED SHEET DETAIL IS REQUIRED  
**C** - INDICATES SHEET DETAIL IS DRAWN

no.	revision	date	by	approved
0	ISSUED FOR TENDER	16/08/17	JS	RN

Project - projet

VHF EQUIPMENT TRAILER  
NL SITES

Drawing - dessin

ELECTRICAL DETAILS

drawn - dessiné **J.S.** designed - dessinée par **M.M.**

date - date **JUNE 2016** checked - vérifié **R.N.**

scale - échelle **AS SHOWN** approved for tender - approuvé pour l'offre **R.N.**

project no. - projet no. drawing no. - no du dessin sheet - feuille  
02D0201A35512-E2 12 OF 16

**PANEL: DP-A** LOCATION: GENERATOR ROOM MOUNTING: SURFACE  
 PANEL MODEL: EATON TYPE PRL2a SERVICE: 120/240, 1Ph., 3W BRANCH BKR I.C.:10,000 A. RMS Sym.  
 DATE: \_\_\_\_\_ PANEL SIZE: 200 Amp MAINS, BREAKER TYPE: CIRCUIT BREAKER NON-COMBINATION

LOAD DESCRIPTION	LOAD WATTS	WIRE SIZE	BKR. SIZE	CIRCUIT NO.	BKR. SIZE	WIRE SIZE	LOAD WATTS	LOAD DESCRIPTION
LOSS OF POWER RELAY		#12	15A 2P	1 2	100A 2P	#3	6800 6800	EP-B
SURGE PROTECTION DEVICE		#12	15A 2P	5 6	15A	#12		SPARE
SPARE		#12	15A	7 8	15A	#12		SPARE
SPARE		#12	15A	9 10	15A	#12		SPARE
SPARE		#12	15A	11 12	15A	#12		SPARE
SPARE		#12	15A	13 14	15A	#12		SPARE
SPARE		#12	15A	15 16	15A	#12		SPARE
SPARE		#12	15A	17 18	15A	#12		SPARE
SPARE		#12	15A	19 20	15A	#12		SPARE
SPARE		#12	15A	21 22	15A	#12		SPARE
SPARE		#12	15A	23 24	15A	#12		SPARE

COMMENTS: + LOCK ON DEVICE CONNECTED TO BREAKER.  
 NOTES:

PANEL DETAIL DP-A 3  
 N.T.S. E3

**PANEL: EP-B** LOCATION: EQUIPMENT ROOM MOUNTING: SURFACE  
 PANEL MODEL: EATON TYPE PRL2a SERVICE: 120/240, 1Ph., 3W BRANCH BKR I.C.:10,000 A. RMS Sym.  
 DATE: \_\_\_\_\_ PANEL SIZE: 100 Amp MAINS, BREAKER TYPE: CIRCUIT BREAKER NON-COMBINATION

LOAD DESCRIPTION	LOAD WATTS	WIRE SIZE	BKR. SIZE	CIRCUIT NO.	BKR. SIZE	WIRE SIZE	LOAD WATTS	LOAD DESCRIPTION
HEATER GENERATOR ROOM	1000	#12	15A 2P	1 2	40A 2P	#8	3000 3000	OUTDOOR A/C UNIT
HEATER EQUIPMENT ROOM	1000	#12	15A 2P	5 6	15A	#12	10	EMERG LTS +
LIGHTING - INTERIOR	420	#12	15A	7 8	15A	#12	180	REC - GENERATOR ROOM
LIGHTING - EXTERIOR	20	#12	15A	9 10	15A	#12	180	REC - EXTERIOR
REC - BATTERY CHARGER	100	#12	15A	11 12	15A	#12	180	REC - EQUIPMENT ROOM
EQUIP. RM - VENTILATION	100	#12	15A	13 14	15A	#12	180	REC - EQUIPMENT ROOM
EXHAUST FAN (1/2 HP)	200	#12	15A	15 16	15A	#12	100	TOWER LIGHTING
GEN. RM. VENTILATION CON	50	#12	15A	17 18	15A	#12	50	DAMPER MOTOR
EQUIP. RM. VENTILATION CON	50	#12	15A	19 20	15A	#12	180	REC - TELEPHONE EQUIP.
REC - RACK 1	900	#12	15A	21 22	15A	#12	750	REC - RACK 2
REC - RACK 3	750	#12	15A	23 24	15A	#12	750	REC - RACK 4
REC - RACK 5 (FUTURE)	750	#12	15A	25 26	15A	#12	750	REC - RACK 6 (FUTURE)
SPARE	180	#12	15A	27 28	15A	#12	180	SPARE
SPARE	180	#12	15A	29 30	40A	#12	180	SPARE
SPARE	180	#12	15A	31 32	2P	#12	180	SPARE
SPARE		#12	15A	33 34	15A	#12		SPARE
SPARE		#12	15A	35 36	15A	#12		SPARE
SPARE		#12	15A	37 38	15A	#12		SPARE
PANEL UPS-C	2600	#8	40A 2P	39 40	15A	#12		SPD
	2600	#8	2P	41 42	2P			

COMMENTS: + LOCK ON DEVICE CONNECTED TO BREAKER.  
 NOTES:

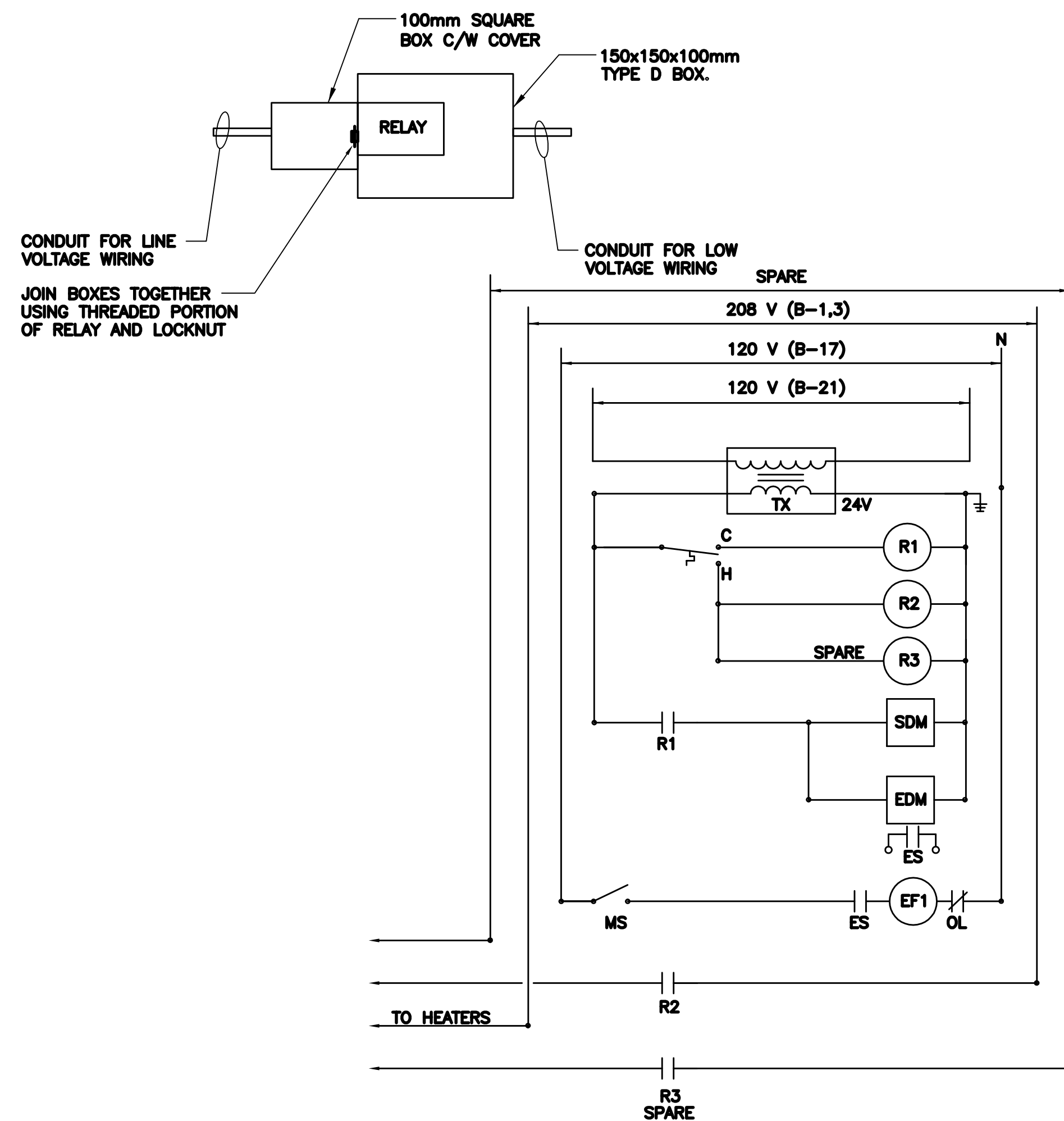
PANEL DETAIL EP-B 4  
 N.T.S. E3

**PANEL: UPS-C** LOCATION: EQUIPMENT ROOM MOUNTING: SURFACE  
 PANEL MODEL: EATON TYPE PRL2a SERVICE: 120/240, 1Ph., 3W BRANCH BKR I.C.:10,000 A. RMS Sym.  
 DATE: \_\_\_\_\_ PANEL SIZE: 100 Amp MAINS, BREAKER TYPE: CIRCUIT BREAKER NON-COMBINATION

LOAD DESCRIPTION	LOAD WATTS	WIRE SIZE	BKR. SIZE	CIRCUIT NO.	BKR. SIZE	WIRE SIZE	LOAD WATTS	LOAD DESCRIPTION
REC - RACK 1	900	#12	20A	1 2	15A	#12	750	REC - RACK 2
REC - RACK 2	750	#12	15A	3 4	15A	#12	750	REC - RACK 4
REC - RACK 5 (FUTURE)	750	#12	15A	5 6	15A	#12	750	REC - RACK 6 (FUTURE)
SPARE	180	#12	15A	7 8	15A	#12	180	SPARE
SPARE	180	#12	15A	9 10	15A	#12	180	SPARE
SPARE	180	#12	15A	11 12	15A	#12	180	SPARE
SPARE	180	#12	15A	13 14	15A	#12	180	SPARE
SPARE	180	#12	15A	15 16	15A	#12	180	SPARE
SPARE		#12	15A	17 18	15A	#12		SPARE
SPARE		#12	15A	19 20	15A	#12		SPARE
SPARE		#12	15A	21 22	15A	#12		SPD
SPARE		#12	15A	23 24	2P	#12		

COMMENTS: + LOCK ON DEVICE CONNECTED TO BREAKER.  
 NOTES: RECEPTACLES IDENTIFIED WITH BLUE FACEPLATE.

PANEL DETAIL UPS-C 5  
 N.T.S. E3



EQUIPMENT ROOM HEATING/COOLING CONTROL DIAGRAM 1  
 N.T.S. E3

**LEGEND**

- ES - END SWITCH LOCATED AT EXHAUST DAMPER (BY DIV. 23).
- EF1 - EXHAUST FAN (BY DIV. 23).
- SDM - SUPPLY DAMPER MOTOR (BY DIV. 23).
- EDM - EXHAUST DAMPER MOTOR (BY DIV. 23).
- OL - OVERLOAD PROTECTION IN STARTER.

T - HEATING/COOLING THERMOSTAT SUPPLIED AND INSTALLED BY DIV. 26, EQUAL TO HONEYWELL FOCUSPRO TH5220D. COOLING ON AT 24 DEGREES C. HEATING ON 15 DEGREES C.

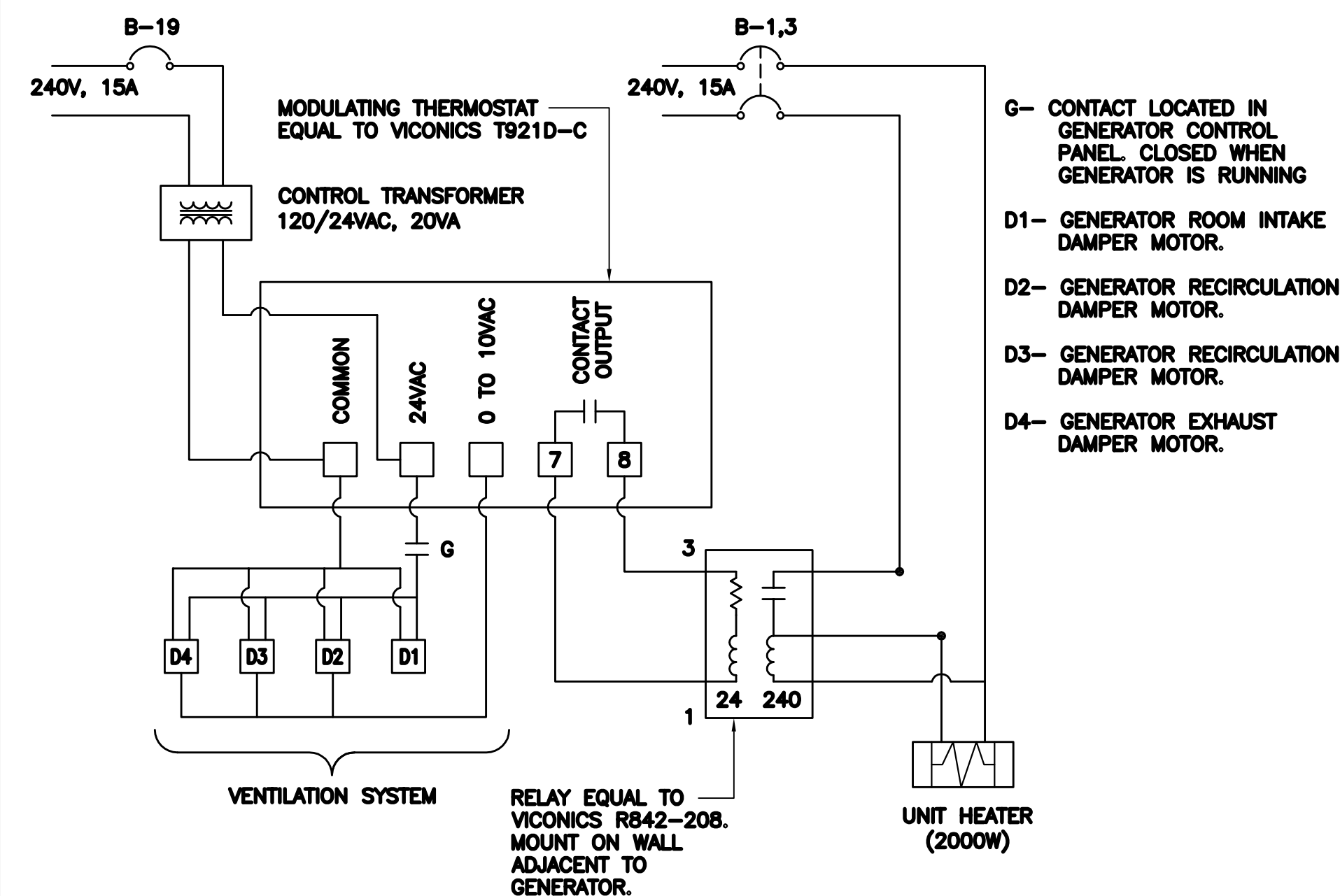
R1 - RELAY 600V, 35AMP CONTACT, 2 POLE 24 VOLT COIL C/W TYPE 1 GENERAL PURPOSE ENCLOSURE EQUAL TO ALLEN BRADLEY TYPE 700PH201.

R2 R3 - RELAY, 24V COIL, 2 POLE, 10A, 208V CONTACTS. MOUNT USING 150x150x100mm BOX AS PER THIS DETAIL.

TX - SINGLE PHASE ENCLOSED CONTROL TRANSFORMER. 120 VOLT PRIMARY, 24 VOLT SECONDARY, 100VA. EQUAL TO HAMMOND E2G2. LOCATE NEXT TO STARTER FOR EF-1.

MS - MANUAL MOTOR STARTER EQUAL TO ALLEN BRADLEY BULLETIN 600TAX216 C/W 600-N1 LOCKING ATTACHMENT.

NOTE:  
 1. ALL WIRING BY DIV. 26.



**CONTROL**

1. GENERATOR ROOM INTAKE DAMPER TO OPEN FULL WHEN GENERATOR STARTS.
2. GENERATOR RECIRCULATION DAMPERS(N.O), AND EXHAUST DAMPER(N.C) TO MODULATE TO MAINTAIN TEMPERATURE SETPOINT (SET AT 18 DEGREES CELSIUS)
3. GENERATOR HEATER CONTROLLED TO MAINTAIN TEMPERATURE SETPOINT.

GENERATOR ROOM VENTILATION CONTROLS 2  
 N.T.S. E3



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
**PERMIT HOLDER**  
 MORRISON HERSHFIELD LIMITED  
 MEMBER NUMBER: 05402  
 To practice Professional Engineering in Newfoundland & Labrador.  
 Permit No. as issued by PEONL 00128 which is valid for the year 2018.

A - INDICATES DETAIL NO.  
 B - INDICATED SHEET DETAIL IS REQUIRED  
 C - INDICATES SHEET DETAIL IS DRAWN

no.	ISSUED FOR TENDER	16/08/17	JS	RN
0	revision	date	by	approved
	revision	date	par	approve

Project - projet

VHF EQUIPMENT TRAILER  
 NL SITES

ELECTRICAL DETAILS AND  
 PANEL SCHEDULES

drawn - dessiné	J.S.	designed - dessiné par	M.M.
date - date	JUNE, 2016	checked - vérifié	R.N.
scale - échelle	AS SHOWN	approved for tender - approuvé pour l'offre	R.N.
project no. - projet no.	drawing no. - no du dessin	sheet - feuille	
	02D0201A35513-E3	13 OF 16	

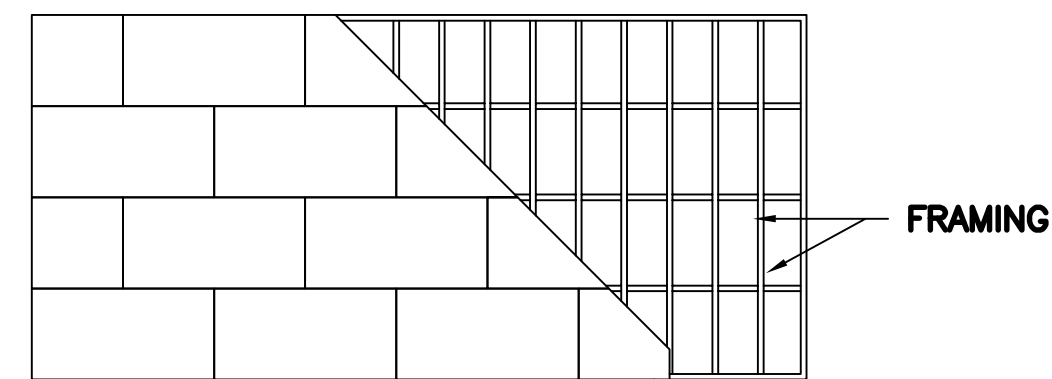


**GENERAL NOTES**

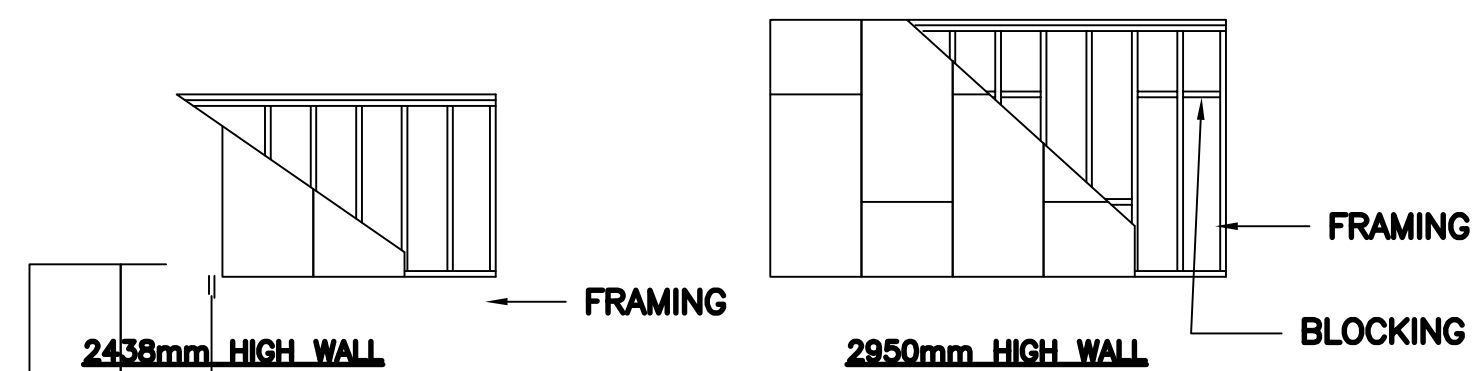
1. ALL WORKMANSHIP, EXCEPT WHERE NOTED OTHERWISE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL BUILDING CODE OF CANADA (LATEST EDITION).
2. VERIFY ALL DIMENSIONS AND REPORT DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THESE DRAWINGS.
3. FOR DIMENSIONS NOT GIVEN ON STRUCTURAL DRAWINGS SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
4. FOR SIZE AND LOCATION OF MECHANICAL AND ELECTRICAL EQUIPMENT AND OPENINGS SEE MECHANICAL AND ELECTRICAL DRAWINGS. VERIFY ALL DIMENSIONS WITH THE MECHANICAL AND ELECTRICAL CONTRACTORS.
5. MAKE ADEQUATE PROVISIONS FOR CONSTRUCTION STRESSES, WEATHER PROTECTION AND FOR SUFFICIENT TEMPORARY BRACING AND SHORING TO KEEP THE STRUCTURE PLUMB AND LEVEL DURING ALL PHASES OF WORK. CONTRACTOR TO SUBMIT RESHORING DIAGRAMS FOR REVIEW STAMPED BY PROFESSIONAL ENGINEER AND LICENSED TO PRACTICE IN THE PROVINCE OF NEWFOUNDLAND AND LABRADOR.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SAFEGUARD ALL EXISTING STRUCTURES AFFECTED BY THIS CONSTRUCTION.
7. ALL REQUIREMENTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT AND ANY OTHER TRADES OR SERVICES AFFECTING THE STRUCTURE SHALL BE ESTABLISHED BY THE GENERAL CONTRACTOR IN CONSULTATION WITH CORRESPONDING MANUFACTURERS OR SUPPLIERS AND THE ARCHITECT AND THE ENGINEER.
8. DESIGN LOADS AS SHOWN ON DRAWINGS.
9. ALL LOADS AND FORCES SHOWN ON DRAWINGS ARE UNFACTORED U.N.O. IF LOADING TYPE IS NOT INDICATED, CONSIDER IT TO BE A LIVE LOAD. ALL LOADINGS ARE IN SYSTEM INTERNATIONAL UNITS U.N.O.

**STRUCTURAL TIMBER NOTES**

1. ALL TIMBER MEMBERS (TRUSSES, JOISTS, GLUE LAMINATED, PLYWOOD, ETC.) TO BE DESIGNED IN ACCORDANCE WITH CSA O86 LATEST EDITION.
2. FABRICATOR SHALL SUBMIT SHOP DRAWINGS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF NEWFOUNDLAND AND LABRADOR PRIOR TO COMMENCEMENT OF FABRICATION.
3. PROVIDE TRUSS PLATES WHERE BEARING WIDTH OF WOOD PLATES IS LESS THAN DESIGN WIDTH.
4. PROVIDE METAL TRUSS CONNECTORS FOR CONNECTION OR ROOF TRUSSES TO WOOD PLATES. GROSS UPLIFT LOAD FOR ROOF TRUSSES ARE 1.5 KPa U.N.O.
5. PLYWOOD NAILING SCHEDULE:  
**ROOF AND CEILING SHEATHING**  
64mm NAILS @ 100 O.C. AT PLYWOOD EDGES  
64mm NAILS @ 300 O.C. AT INTERIOR OF SHEET  
**WALL SHEATHING**  
64mm NAILS @ 150 O.C. AT PLYWOOD EDGES  
64mm NAILS @ 300 O.C. AT INTERIOR OF SHEET
6. WOOD JOISTS, BEAMS AND STUDS TO BE SPRUCE-PINE-FIR GRADE No.1/No.2
7. ROOF AND CEILING SHEATHING TO BE FULLY BLOCKED ATTACHED TO FRAMING IN FOLLOWING CONFIGURATION.



8. WALL SHEATHING TO BE FULLY BLOCKED AND ATTACHED TO FRAMING IN FOLLOWING CONFIGURATION.



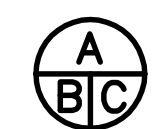
9. SHEAR WALL HOLD-DOWN ANCHORS REQUIRED AT BOTH ENDS FOR EACH SEGMENT OF UNINTERRUPTED WALL.
10. ALL SURFACES OF PRESSURE TREATED LUMBER THAT ARE EXPOSED THROUGH FIELD CUTTING, TRIMMING OR BORING MUST BE RE-TREATED WITH A LIBERAL APPLICATION OF PRESERVATIVE BEFORE INSTALLATION.

**INSULATION NOTES**

1. ALL BATT INSULATION TO CAN/ULC S702.
2. INSULATION SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL INSULATION WITH FACTORY APPLIED VAPOUR BARRIER FACING WARM SIDE OF BUILDING SPACES. LAP ENDS AND SIDE FLANGES OF MEMBRANE OVER FRAMING MEMBERS. RETAIN IN POSITION WITH STAPLES INSTALLED AS RECOMMENDED BY MANUFACTURER. TAPE SEAL BUTT ENDS AND LAPPED SIDE FLANGES. DO NOT CUT OR TEAR VAPOUR BARRIER.

**PAINTING NOTES**

1. ALL WORK TO CONFORM TO LATEST MPI REQUIREMENTS FOR INTERIOR PAINTING WORK INCLUDING PREPARATION AND PRIMING.
2. STANDARD OF ACCEPTANCE AS FOLLOWS:  
WALLS: NO DEFECTS VISIBLE FROM A DISTANCE OF 1000mm AT 90 DEGREES TO SURFACE  
CEILINGS: NO DEFECTS VISIBLE FROM FLOOR AT 45 DEGREES TO SURFACE WHEN VIEWED USING FINAL LIGHTING SOURCE.  
FINAL COAT TO EXHIBIT UNIFORMITY OF COLOUR AND UNIFORMITY OF SHEEN ACROSS FULL SURFACE AREA.
3. SUBMIT PRODUCT DATA AND MANUFACTURER'S INSTALLATION/SPPLICATION FOR EACH PAINT AND COATING PRODUCT TO BE USED.
4. PAINT MATERIALS FOR PAINT SYSTEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER.
5. ONLY QUALIFIED PRODUCTS WITH E2 "ENVIRONMENTALLY FRIENDLY" RATING ARE ACCEPTABLE FOR USE ON THIS PROJECT.
6. ENGINEER TO PROVIDE COLOUR SCHEDULE AFTER CONTRACT AWARD.
7. UPON COMPLETION, SUBMIT RECORDS OF PRODUCTS USED. LIST PRODUCTS IN RELATION TO FINISH SYSTEM AND INCLUDE THE FOLLOWING:  
7.1. PRODUCT NAME, TYPE AND USE  
7.2. MANUFACTURER'S PRODUCT NUMBER  
7.3. COLOUR NUMBER  
7.4. MPI ENVIRONMENTALLY FRIENDLY CLASSIFICATION SYSTEM RATING  
7.5. MANUFACTURER'S MATERIAL SAFETY DATA SHEETS (MSDS)
8. SITE REQUIREMENTS  
8.1 HEATING, VENTILATION AND LIGHTING:  
a) PERFORM NO PAINTING WORK UNLESS ADEQUATE AND CONTINUOUS VENTILATION AND SUFFICIENT HEATING FACILITIES ARE IN PLACE TO MAINTAIN AMBIENT AIR AND SUBSTRATE TEMPERATURES ABOVE 10 OC FOR 24 HOURS BEFORE, DURING AND AFTER PAINT APPLICATION UNTIL PAINT HAS CURED SUFFICIENTLY.  
b) WHERE REQUIRED, PROVIDE CONTINUOUS VENTILATION FOR SEVEN DAYS AFTER COMPLETION OF APPLICATION OF PAINT.  
c) PERFORM NO PAINTING WORK UNLESS A MINIMUM LIGHTING LEVEL OF 323 LUX IS PROVIDED ON SURFACES TO BE PAINTED. ADEQUATE LIGHTING FACILITIES SHALL BE PROVIDED BY GENERAL CONTRACTOR.  
8.2 TEMPERATURE, HUMIDITY AND SUBSTRATE MOISTURE CONTENT LEVELS:  
a) UNLESS SPECIFICALLY PRE-APPROVED BY THE SPECIFYING BODY, PAINT INSPECTION AGENCY AND THE APPLIED PRODUCT MANUFACTURER, PERFORM NO PAINTING WORK WHEN:  
- AMBIENT AIR AND SUBSTRATE TEMPERATURES ARE BELOW 10 OC.  
- SUBSTRATE TEMPERATURE IS OVER 32 OC UNLESS PAINT IS SPECIFICALLY FORMULATED FOR APPLICATION AT HIGH TEMPERATURES.  
- SUBSTRATE AND AMBIENT AIR TEMPERATURES ARE EXPECTED TO FALL OUTSIDE MPI OR PAINT MANUFACTURERS PRESCRIBED LIMITS.  
- THE RELATIVE HUMIDITY IS ABOVE 85% OR WHEN THE DEW POINT IS LESS THAN 3 OC VARIANCE BETWEEN THE AIR/SURFACE TEMPERATURE.  
- RAIN OR SNOW ARE FORECAST TO OCCUR BEFORE PAINT HAS THOROUGHLY CURED OR WHEN IT IS FOGGY, MISTY, RAINING OR SNOWING AT SITE.  
b) PERFORM NO PAINTING WORK WHEN THE MAXIMUM MOISTURE CONTENT OF THE SUBSTRATE EXCEEDS:  
- 15% FOR WOOD.  
c) CONDUCT MOISTURE TESTS USING A PROPERLY CALIBRATED ELECTRONIC MOISTURE METER, EXCEPT TEST CONCRETE FLOORS FOR MOISTURE USING A SIMPLE "COVER PATCH TEST".  
d) TEST CONCRETE, MASONRY AND PLASTER SURFACES FOR ALKALINITY AS REQUIRED.  
8.3 SURFACE AND ENVIRONMENTAL CONDITIONS:  
a) APPLY PAINT FINISH ONLY IN AREAS WHERE DUST IS NO LONGER BEING GENERATED BY RELATED CONSTRUCTION OPERATIONS OR WHEN WIND OR VENTILATION CONDITIONS ARE SUCH THAT AIRBORNE PARTICLES WILL NOT AFFECT QUALITY OF FINISHED SURFACE.  
b) APPLY PAINT ONLY TO ADEQUATELY PREPARED SURFACES AND TO SURFACES WITHIN MOISTURE LIMITS NOTED HEREIN.  
c) APPLY PAINT ONLY WHEN PREVIOUS COAT OF PAINT IS DRY OR ADEQUATELY CURED.  
8.4 ADDITIONAL INTERIOR APPLICATION REQUIREMENTS:  
a) APPLY PAINT FINISHES ONLY WHEN TEMPERATURE AT LOCATION OF INSTALLATION CAN BE SATISFACTORILY MAINTAINED WITHIN MANUFACTURER'S RECOMMENDATIONS.



A - INDICATES DETAIL NO.  
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0	ISSUED FOR TENDER	16/08/17	JS	RN
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VHF EQUIPMENT TRAILER  
NL SITES

Drawing - dessin

ARCHITECTURAL & STRUCTURAL  
NOTES

drawn - dessiné	J.S.	designed - dessiné par	R.N.
date - date	JUNE 2016	checked - vérifié	R.N.
scale - échelle	AS SHOWN	approved for tender - approuvé pour l'offre	R.N.
project no. - projet no.	drawing no. - no du dessin	sheet - feuille	
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**PART 1: GENERAL**

**1.13 COMMISSIONING**

- .1 PROVIDE ALL NECESSARY LABOUR, MATERIALS, TOOLS, AND EQUIPMENT FOR IMPLEMENTING ALL REQUIRED COMMISSIONING ACTIVITIES INCLUDING: ALL CHECKING, TESTING, ADJUSTING, AND BALANCING, AND FINE TUNING OF SYSTEM SET POINTS AND TO PUT SYSTEMS INTO OPERATION.
- .2 COMPLETE A SYSTEMATIC VERIFICATION PROCEDURE TO ENSURE THAT:
  - .1 EQUIPMENT AND MATERIAL DELIVERED AND INSTALLED ARE AS PER APPROVED SHOP DRAWINGS, IN ACCORDANCE WITH ALL APPLICABLE CODES, NORMAL GOOD PRACTICE, MANUFACTURER'S INSTALLATION GUIDELINES, AND REQUIREMENTS OF THESE SPECIFICATIONS,
  - .2 PIPING AND DUCTWORK IS PRESSURE TESTED AS REQUIRED,
  - .3 EQUIPMENT IS SAFE TO BE STARTED.
- .3 COMPLETE A SYSTEMATIC VERIFICATION PROCEDURE TO ENSURE THAT EQUIPMENT AND SYSTEMS OPERATE SAFELY, EFFICIENTLY, AND IN GENERAL CONFORMITY WITH THE DESIGN INTENT INCLUDING:
  - .1 VERIFYING OPERATING CONDITIONS,
  - .2 VERIFYING PROPER OPERATION OF ALL SAFETY DEVICES,
  - .3 VERIFYING HYDROIC SYSTEM FLUIDS ARE CLEAN AND TREATED AS PER SPECIFICATIONS,
  - .4 VERIFYING CONTROL SYSTEM OPERATION,
  - .5 VERIFYING SATISFACTORY EQUIPMENT OPERATING POINTS (PUMPS AND FANS) AND MOTOR LOADING,
  - .6 VERIFYING LINKAGE BETWEEN INTERACTING SYSTEMS,

**1.4 CARE OPERATION AND START-UP**

- .1 MANUFACTURERS OR THEIR AGENTS TO UNDERTAKE EQUIPMENT START-UP WHERE REQUIRED BY THE SPECIFICATIONS OR WHERE REQUIRED BY THE EQUIPMENT MANUFACTURER AS A CONDITION OF WARRANTY, WHERE MANUFACTURER IS NOT REQUIRED TO DO START-UP, CARRY OUT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
- .2 INSTRUCT OPERATING PERSONNEL IN THE OPERATION, CARE, MAINTENANCE OF EQUIPMENT.

**1.6 HVAC TESTING ADJUSTING AND BALANCING (TAB)**

- .1 PROVIDE TAB ON ALL MECHANICAL SYSTEMS AND EQUIPMENT INCLUDED IN THIS PROJECT SCOPE.
- .2 ALL WORK DESCRIBED IN THIS ARTICLE TO BE PERFORMED BY INDEPENDENT TAB AGENCY.
- .3 TESTING, ADJUSTING AND BALANCING AGENT TO BE CURRENT MEMBER IN GOOD STANDING OF AABC OR NEBB, CERTIFIED TO PERFORM SPECIFIED SERVICES.
- .4 TAB: MEANS TO TEST, ADJUST AND BALANCE ALL SYSTEMS TO PERFORM IN ACCORDANCE WITH CONTROL DOCUMENTS.
- .5 DO TAB TO FOLLOWING TOLERANCES OF DESIGN VALUES:
  - .1 AIR HANDLING SYSTEM: PLUS OR MINUS 5%
- .6 PROVIDE REPORT AS FOLLOWS:
  - .1 FORMAT TO BE IN ACCORDANCE TO AABC ORGANIZATION STANDARD, BUT USING SI UNITS
  - .2 REPORT TO INCLUDE FULL SYSTEM SCHEMATICS SHOWING RESULTS OF TAB
  - .3 SUBMIT 4 COPIES OF TAB REPORT
- .7 VERIFICATION
  - .1 REPORTED MEASUREMENTS SHALL BE SUBJECT TO VERIFICATION BY CONSULTANT. PROVIDE INSTRUMENTATION AND MANPOWER TO VERIFY RESULTS OF UP TO 30% OF ALL REPORTED MEASUREMENTS. NUMBER AND LOCATION OF VERIFIED MEASUREMENTS TO BE AT DISCRETION OF CONSULTANT.
- .8 SETTINGS: LOCK AND PERMANENTLY MARK SETTINGS AS REQUIRED BY REFERENCE STANDARD.
- .9 COMPLETION: TAB TO BE CONSIDERED COMPLETE ONLY WHEN FINAL REPORTS ARE APPROVED BY CONSULTANT.

**1.17 IDENTIFICATION**

- .1 IDENTIFY ALL EQUIPMENT WITH ENGRAVED LAMACOID PLATES.
- .2 IDENTIFY ALL VALVES WITH NUMBERED BRASS TAGS. RECORD VALVE NUMBERS, SERVICE AND NORMAL POSITION ON VALVES SCHEDULE. INCLUDE VALVE SCHEDULE IN MAINTENANCE MANUALS.

**PART 3: FIRE PROTECTION**

**3.1 GENERAL**

- .1 REFERENCES
  - .1 PROVINCIAL AND LOCAL BUILDING CODES, AND FIRE REGULATIONS AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
  - .2 NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS:
    - .1 NFPA 10 – PORTABLE FIRE EXTINGUISHERS

**PART 4: PIPING, VALVES AND FITTINGS**

**4.1 GENERAL**

- .1 PROVIDE COMPLETE, FULLY OPERATIONAL PIPING SYSTEMS COMPLETE WITH ALL ISOLATION, CHECK, PRESSURE REDUCING AND BACKFLOW PREVENTION VALVES AS INDICATED AND FURTHER AS REQUIRED FOR PROPER SYSTEM OPERATION AND TO SATISFY LOCAL CODES.

**4.2 PRODUCTS**

- .1 PIPE AND FITTINGS
  - .1 STEEL: ASTM A53 GRADE B, SEAMLESS UP TO NPS 2, ERW FOR LARGER
  - .2 SERVICE:

SERVICE	PIPE SIZE	MATERIAL	FITTINGS
FUEL OIL	ALL	SCHEDULE 40 STAINLESS STEEL	SCREWED
GENERATOR EXHAUST	NPS 3 AND OVER	SCHEDULE 40 STEEL	WELDED

**4.2 VALVES**

- .1 GATE VALVES:
  - .1 NPS2 AND UNDER: BRONZE, CLASS 125, RISING STEM, SOLID WEDGE DISC, HANDWHEEL OPERATOR
  - .2 NPS2 1/2 TO 8: CAST IRON, CLASS 125, OUTSIDE SCREW AND YOKE (OS&Y), SOLID WEDGE DISC, BRONZE TRIM
- .2 GLOBE VALVES:
  - .1 NPS2 AND UNDER: BRONZE, CLASS 125, BRONZE DISC, BRONZE SEAT, HANDWHEEL OPERATOR
  - .2 NPS2 1/2 TO 10: CAST IRON: GATE, CLASS 125, BRONZE DISC FULLY GUIDED FROM BOTTOM, BRONZE TRIM, HANDWHEEL OPERATOR
- .3 CHECK VALVES:
  - .1 NPS2 AND UNDER: BRONZE, SWING TYPE, CLASS 125, BRONZE DISC, Y-PATTERN WITH INTEGRAL STRAINER, SCREW-IN CAP,
  - .2 NPS2 1/2 AND OVER: CAST IRON, SWING TYPE, CLASS 125, A 126 CLASS B DISC
- .4 BALL VALVES:
  - .1 NPS2 AND UNDER: BRONZE, CLASS 125, HARD CHROME SOLID BALL AND TEFLON SEATS, LEVER HANDLE OPERATOR

**4.3 EXECUTION**

- .1 NPS2 AND UNDER: SCREWED FITTINGS WITH PTFE TAPE OR LEAD-FREE PIPE DOPE.
- .2 CONNECT TO EQUIPMENT WITH UNIONS OR FLANGES. INSTALL PIPING OR MINIMIZE PIPE DISMANTLING FOR EQUIPMENT REMOVAL.
- .3 EACH PIECE OF EQUIPMENT TO BE ISOLATED BY GATE, OR BALL VALVES.
- .4 INSTALL VALVES WITH STEMS IN UPRIGHT OR HORIZONTAL POSITION. DO NOT INSTALL STEMS IN INVERTED POSITION.
- .5 PROVIDE SPRING HANGERS AND FLEXIBLE CONNECTIONS WHEN MAKING CONNECTION TO VIBRATION ISOLATED EQUIPMENT. OIL LINES TO DIESEL GENERATORS SHALL HAVE A MINIMUM 12" (300MM) LONG FLEXIBLE STAINLESS STEEL BRAID REINFORCED CONNECTIONS.
- .6 PROVIDE ALL PIPING TO FUEL TANK AND BETWEEN TANK AND ENGINE INCLUDE FILL, VENTS, SUPPLY AND RETURN, AND ALL CONNECTIONS TO FUEL TANK, AND ENGINE. GRADE PIPING AT 1% BACK TO TANK.
- .7 SUPPORT ALL PIPING FROM STRUCTURAL MEMBERS AS APPROVED BY ENGINEER. WHEN STRUCTURAL MEMBERS ARE NOT SUITABLE LOCATION, PROVIDE SUPPLEMENTARY MEMBERS SUCH AS STEEL CHANNELS OR ANGLES (OBTAIN APPROVAL PRIOR TO FABRICATION). HANGER STRAP HANGER NOT TO BE USED.
- .8 PIPE SUPPORTS SHALL MEET REQUIREMENTS OF ANSI B31.1. USE ROD DIAMETERS AND SUPPORT SPACING AS SHOWN BELOW WITH THE FOLLOWING EXCEPTIONS:
  - .1 SUPPORT APPROVED MECHANICAL JOINT PIPING WITH AT LEAST TWO HANGERS BETWEEN EACH JOINT OR FITTING.
  - .2 SUPPORT PLASTIC PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PIPE SIZE NPS	ROD DIAMETER	MAXIMUM SPACING	
		STEEL	COPPER
1/2	10 MM	1.8 M	1.5 M
3/4 TO 1 1/4	10 MM	2.1M	1.8 M
1 1/2	10 MM	2.7 M	2.4 M
2	10 MM	3.0 M	2.7 M
2 1/2 TO 3	10 MM	3.6 M	3.0 M
4	10 MM	3.6 M	3.6 M
6	10 MM	4.8 M	3.6 M

**PART 5: HEATING, VENTILATION AND AIR CONDITIONING**

**5.1 GENERAL**

- .1 PROVIDE ALL LABOUR, MATERIALS AND EQUIPMENT REQUIRED FOR COMPLETE HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS GENERALLY INCLUDE THE FOLLOWING:

**5.2 PRODUCTS**

- .1 WALL MOUNTED EXHAUSTER:
  - .1 FULLY ASSEMBLED, STURDILY CONSTRUCTED DIRECT DRIVE, WALL MOUNTED HORIZONTAL EXHAUST FAN, DURABLE POWER COATED FINISH, HEAVY DUTY OSHA MOTOR/GUARD, ENCLOSED AIR OVER MOTOR WITH OVERLOAD PROTECTION, DISCONNECT SWITCH. FAN SPECIFICATIONS: "LFI" MODEL P18-1R, 18" BLADE DIAMETER, DIMENSION 23.25 X23.15", AIR FLOW 2,315CFM @ 0.25" STATIC PRESSURE. ELECTRICAL POWER SUPPLY: 115/1/60, 1/3HP.
  - .2 STANDARD OF ACCEPTANCE: LFI OR EQUAL.
- .2 INTERIOR DUCTWORK SHALL BE FABRICATED FROM GALVANIZED STEEL TO ASTM A525 G90 DESIGNATION. METAL GAUGE SHALL BE IN ACCORDANCE WITH SMACNA STANDARDS.
- .3 EXTERIOR HOODS DUCTWORK SHALL BE FABRICATED FROM ALUMINUM TYPE 3003-H14 SHEET MATERIAL METAL GAUGE SHALL BE IN ACCORDANCE WITH SMACNA STANDARDS.
- .4 INTAKE/RELIEF DAMPERS: ALUMINUM FRAME WITH POLYURETHANE POCKETS, ALUMINUM BLADES WITH POLYURETHANE INTERNALLY INSULATION (R-2.25 MINIMUM), SILICONE BLADE AND SIDE SEALS, AMCA CERTIFIED, SALT WATER RESISTANCE INCLUDING STAINLESS STEEL HARDWARE.
  - .1 STANDARD OF ACCEPTANCE: TAMCO 9000 SW.

**5.3 EXECUTION**

- .1 INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
- .2 ALL EQUIPMENT TO BE VIBRATION ISOLATED. USE RUBBER ISOLATORS FOR EQUIPMENT LESS THAN 30 KG SPRING ISOLATORS FOR LARGER EQUIPMENT.
- .3 PROVIDE TYPE "L" COPPER WITH COPPER FITTINGS CONDENSATE PIPING FROM WALL MOUNTED INDOOR UNIT.
- .4 MANUFACTURE AND INSTALL ALL DUCTWORK IN ACCORDANCE WITH THE RECOMMENDATION OF SMACNA.
- .5 ALL DUCTWORK CONNECTION TO ISOLATED EQUIPMENT TO BE MADE USING 100 MM FLEXIBLE CONNECTORS.
- .6 SEAL ALL JOINTS IN DUCTWORK.
- .7 MAKE TRANSITIONS, OFFSETS OR EASEMENTS IN DUCT SYSTEMS WHERE REQUIRED TO AVOID CONFLICT WITH STRUCTURE OR OTHER TRADES. COORDINATE LOCATION OF DUCTWORK WITH OTHER TRADES TO MINIMIZE ALTERATIONS.
- .8 PROVIDE ALL TEST PORTS, DUCT ACCESS DOORS, CEILING/WALL ACCESS DOORS AS REQUIRED FOR FIRE DAMPER INSPECTION, TESTING, BALANCING AND ADJUSTING OF SYSTEM.
- .9 BALANCE AIR SYSTEMS IN ACCORDANCE WITH AABC TO DELIVER SPECIFIED AIR QUANTITIES IN BALANCING REPORTS TO ENGINEER FOR REVIEW. PROVIDE PULLEYS, SHEAVES AND BELTS AS REQUIRED FOR FINAL AIR BALANCE.

**PART 6: DIESEL GENERATOR INSTALLATION**

**6.1 GENERAL**

- .1 DIESEL ELECTRIC GENERATOR IS SPECIFIED UNDER THE ELECTRICAL SECTION, INCLUDING MUFFLER AND EXHAUST FLEXIBLE CONNECTIONS.

**6.2 PRODUCTS**

- .1 MUFFLER AND EXHAUST FLEXIBLE CONNECTIONS PROVIDED WITH GENERATOR.
- .2 ABOVE GROUND OIL STORAGE TANK SHALL BE FIBERGLASS REINFORCED PLASTIC, VILCO OR OTHER APPROVED MANUFACTURER, SUITABLE FOR ABOVE GROUND INSTALLATION, UNDERWRITER'S APPROVED AND LABELLED.
- .3 TANK SHALL BE 200 IMPERIAL GALLONS (909 LITERS) COMPLETE WITH TOP INLET, VENTS, LEVEL GAUGE CONNECTION, DRAIN VALVE, AND OUTLET AND RETURN CONNECTIONS.
- .4 PROVIDE TANK WITH GAUGE GLASS FOR FULL HEIGHT OF TANK COMPLETE WITH GAUGE COCKS.
- .5 FUEL LEVEL GAUGE C/W ALARM WIRING. OWNER TO SUPPLY PRODUCT INFORMATION.
- .6 AFTER ALL TESTS AND PLANT ACCEPTANCE, TANK SHALL BE COMPLETELY FILLED WITH OIL, GRADE AS APPLICABLE. PROVIDE CERTIFICATE THAT THE TANK HAS BEEN FILLED. INCLUDE FOR COST OF OIL FOR TESTING AND TO FILL SYSTEM AFTER TESTS.
- .7 PROVIDE WIRING SCHEMATIC FOR REVIEW.

**6.3 EXECUTION**

- .1 INSTALL EXHAUST PIPE, MUFFLER, FLEXIBLE PIPE CONNECTION AND FLAPPER VALVE OR RAIN CAP IN EXHAUST PIPE. PROVIDE A COMPLETE INSTALLATION FROM THE GENERATOR ENGINE FLANGE.
- .2 INSTALL A FLEXIBLE CONNECTION ON THE GENERATOR RADIATOR AND PROVIDE ALL DUCTWORK, MOTORIZED DAMPERS, AND WEATHER-PROOF HOODS FOR EXHAUST, OUTSIDE AIR INTAKE AND RECIRCULATING AIR.
- .3 PROVIDE INSULATED AND VENTILATED METAL TIMBLE WHERE EXHAUST PIPE PENETRATES STRUCTURE.
- .4 PROVIDE A CONDENSATE DRAIN PIPE FROM THE MUFFLER.

**PART 7: CONTROLS SYSTEM**

**7.1 GENERAL**

- .1 PROVIDE ALL THERMOSTATS, SENSORS, ACTUATORS, CONTROLLER, OPERATORS AND ACCESSORIES AS REQUIRED FOR FULL OPERATIONAL SEQUENCE AS DESCRIBED HEREIN.

**7.2 PRODUCTS**

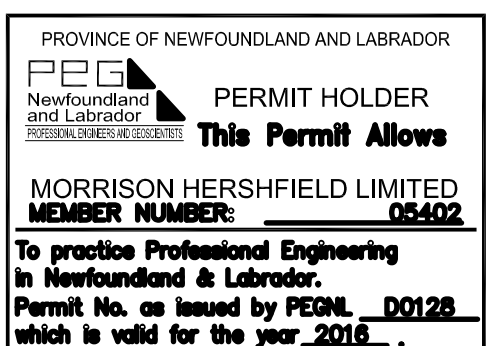
- .1 WIRING: ALL WIRING TO BE IN ACCORDANCE WITH ELECTRICAL SPECIFICATION.

**7.3 EXECUTION**

- .1 GENERAL
  - .1 INSTALL SYSTEMS AND RELATED CONTROLS USING FACTORY TRAINED JOURNEYMAN CERTIFIED BY THE PROVINCE OF NEWFOUNDLAND LABRADOR.

**7.4 SEQUENCE OF OPERATION**

- .1 MOTORIZED DAMPERS FOR CONTROL OPERATION (GENERATOR ROOM)
  - .1 GENERATOR EXHAUST DAMPER AND OUTDOOR AIR INTAKE DAMPER ARE NORMALLY CLOSED; GENERATOR RECIRCULATION DAMPERS ARE NORMALLY OPEN.
  - .2 ON START OF GENERATOR THE INTAKE DAMPER IS TO OPEN FULLY; EXHAUST AND RECIRCULATION DAMPERS TO MODULATE TO MAINTAIN SPACE TEMPERATURE BY ROOM REVERSE ACTING THERMOSTAT.
  - .3 ON STOP OF GENERATOR DAMPERS TO RETURN TO NORMAL POSITION.
  - .4 OUTDOOR AIR DAMPER TO FAIL IN A CLOSE POSITION.
  - .5 EXHAUST AIR DAMPER TO FAIL IN AN OPEN POSITION.
  - .6 RECIRCULATION DAMPERS TO FAIL IN AN OPEN POSITION.
  - .7 MOTORIZED DAMPERS TO BE POWERED BY EMERGENCY POWER CIRCUIT.
- .2 HEAT PUMP UNITS (ELECTRICAL/EQUIPMENT ROOM)
  - .1 CONTROLLED BY INDIVIDUAL THERMOSTAT FOR MODULATING OPERATION TO MAINTAIN SPACE TEMPERATURE SET-POINT. INSTALLED/COMMISSIONED UNDER SEPERATE CONTRACT.
- .3 WALL MOUNTED EXHAUST FAN (ELECTRICAL/EQUIPMENT ROOM)
  - .1 IN FAILURE OF HEAT PUMP UNITS AND SPACE THERMOSTAT CALLS FOR COOLING, MOTORIZED DAMPER ASSOACTED TO EXHAUST FAN 100% OPEN, EXHAUST FAN "ON", INTAKE AIR DAMPER 100% OPEN. BOTH DAMPERS ARE CLOSED AND EXHAUST FAN "OFF" WHEN THERMOSTAT REACH TEMPERATURE SET-POINT.
  - .2 EXHAUST FAN "OFF AND BOTH DAMPERS IN CLOSE POSITION WHEN HEAT PUMP UNITS ARE IN OPERATION.




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**C** - INDICATES SHEET DETAIL IS DRAWN

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**DIVISION 26 – Electrical**

**260000 GENERAL**

- PERFORM DETAILED VERIFICATION OF WORK PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND COMMENCING CONSTRUCTION. VERIFY EQUIPMENT DIMENSIONS WITH THE VENDOR AND ENSURE THE EQUIPMENT WILL FIT IN THE AVAILABLE SPACE. ISSUE A WRITTEN NOTICE TO THE ENGINEER OF ANY DISCREPANCIES.
- SUBMIT SHOP DRAWINGS, PRODUCT DATA AND SAMPLES IN ACCORDANCE WITH SPECIFICATIONS. INDICATE DETAILS OF CONSTRUCTION, DIMENSIONS, CAPACITIES, WEIGHTS AND ELECTRICAL PERFORMANCE CHARACTERISTICS OF EQUIPMENT OR MATERIAL. WHERE APPLICABLE INCLUDE WIRING AND SINGLE LINE DIAGRAMS. ADVERTISING OR SALES LITERATURE WILL NOT BE ACCEPTABLE AS SHOP DRAWINGS.
- PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, INSURANCE AND SERVICES TO COMPLETE ELECTRICAL INSTALLATION IN THE TELECOM EQUIPMENT BUILDING IN ACCORDANCE WITH THE DESIGN AND SPECIFICATIONS AND PRESENT IT AS FULLY OPERATIONAL TO THE SATISFACTION OF THE OWNER.
- CARRY OUT WORK IN ACCORDANCE WITH ALL APPLICABLE CODES STANDARDS, ORDINANCES AND HEALTH & SAFETY RULES.
- COORDINATE THE WORK PERTAINING TO POWER, GROUNDING AND COMMUNICATIONS FOR EQUIPMENT WITH SUPPLIER PRIOR TO ROUGH-IN. FINAL TERMINATIONS TO BE AT THE DIRECTION OF THE EQUIPMENT SUPPLIER.
- PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THE ELECTRICAL WORK. ANY DAMAGE DONE TO THE WORK ALREADY IN PLACE BY REASON OF THIS WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE BY A QUALIFIED TRADESPERSON EXPERIENCED IN SUCH WORK. PATCHING SHALL BE UNIFORM IN APPEARANCE AND SHALL MATCH THE SURROUNDING SURFACE. DO NOT CUT STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
- FABRICATION AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM SHALL BE DONE IN A FIRST CLASS WORKMANSHIP BY QUALIFIED PERSONNEL EXPERIENCED IN SUCH WORK AND SHALL SCHEDULE THE WORK IN AN ORDERLY MANNER SO AS NOT TO IMPEDE PROGRESS OF THE PROJECT.
- AT THE COMPLETION OF THE ELECTRICAL INSTALLATION PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS, BOUND IN 3-RING HARD COVER BINDERS, DULY LABELED, AND CONTAINING COMPLETE LIST OF REPLACEMENT PARTS, SHOP DRAWINGS AND CATALOG INFORMATION OF ALL MAJOR EQUIPMENT, SUCH AS, DISTRIBUTION BOARD, GENERATOR, ATS, LUMINAIRES, PANEL BOARD, PANEL SCHEDULE, MOTOR STARTERS, SECURITY SYSTEM, CABLE RACKS, ETC.
- COMPLETE INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF WRITTEN ACCEPTANCE OF THE EQUIPMENT BUILDING BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.

**260500 BASIC MATERIALS AND METHODS**

- INSTALLATION, MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE LOCAL ELECTRICAL CODE AND THE TERMS, CONDITIONS AND REGULATIONS OF THE AUTHORITY HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MATERIAL, EQUIPMENT AND DEVICES SHALL CONFORM TO THE APPLICABLE CSA AND ULC STANDARDS.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW. MATERIALS AND EQUIPMENT SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S CURRENT DESIGN. ANY FIRST-CLASS PRODUCT MADE BY A REPUTABLE MANUFACTURER MAY BE USED PROVIDING IT CONFORMS TO THE DESIGN REQUIREMENTS AND MEETS THE APPROVAL OF THE ENGINEER AND THE OWNER. APPROVALS SHALL BE OBTAINED PRIOR TO PURCHASE.
- ARRANGE CONDUIT, WIRING, EQUIPMENT, AND OTHER WORK GENERALLY AS SHOWN, PROVIDING PROPER CLEARANCES AND ACCESS. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND FIT THE WORK IN EACH LOCATION WITHOUT SUBSTANTIAL ALTERATION. WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES, PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE. THE RIGHT IS RESERVED TO MAKE REASONABLE CHANGES IN LOCATION OF EQUIPMENT, CONDUIT, AND WIRING UP TO THE TIME OF ROUGH-IN OR FABRICATION.
- THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ALL OFFSETS, BENDS, FITTINGS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. PROVIDE ALL SUCH ITEMS AS MAY BE REQUIRED TO FIT THE WORK TO THE CONDITIONS.
- MOUNTING HEIGHTS OF ALL WIRING DEVICES SHALL BE VERIFIED WITH THE OWNER PRIOR TO INSTALLATION.

**260510 IDENTIFICATION**

- ALL EQUIPMENT SHALL BE IDENTIFIED USING NAMEPLATES AND LABELS.
- NAMEPLATES SHALL BE 1/8" (3mm) THICK PLASTIC ENGRAVING SHEET, WHITE FACE, BLACK CORE, ENGRAVED WITH EQUIPMENT IDENTIFICATION AND ATTACHED TO EQUIPMENT WITH SELF-TAPPING SCREWS. CHEMICAL ADHESION PLATES ARE NOT ACCEPTABLE. LETTERS SHALL BE MINIMUM 1/4" (6mm) HIGH.
- LABELS SHALL BE EMBOSSED PLASTIC WITH MINIMUM 1/4" (6mm) HIGH LETTERS. LABELS SHALL BE USED FOR IDENTIFYING CONDUIT, CABLES, JUNCTION BOXES, RECEPTACLES, ETC.
- WORDING ON NAMEPLATES AND LABELS MUST BE APPROVED BY THE ENGINEER PRIOR TO MANUFACTURING.

**260520 CONDUCTORS AND CONNECTORS**

- UNLESS NOTED OTHERWISE, ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12 AWG, WITH THERMOPLASTIC OR CROSS-LINKED POLYETHYLENE INSULATION CONFORMING TO THE APPLICABLE LOCAL ELECTRICAL CODE. INSULATION SHALL BE RATED FOR 90°C. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH THE LOCAL ELECTRICAL CODE.
- UNLESS NOTED OTHERWISE, ALL CONDUCTORS USED FOR GROUNDING SHALL BE COPPER AND SHALL HAVE GREEN INSULATION.
- FOR COPPER CONDUCTORS #6 AWG AND SMALLER USE 3M SCOTCH-LOK OR T&B STA-KON COMPRESSION TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATION CAPS. FOR COPPER CONDUCTORS LARGER THAN #6 AWG USE SOLDERLESS, IDENT HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS OR DOUBLE COMPRESSION C-CLAMP CONNECTORS, UNLESS SPECIFIED OTHERWISE ON DRAWINGS.
- UNLESS NOTED OTHERWISE, ALL LUGS SHALL BE TIN PLATED COPPER, TWO-HOLE, LONG BARREL, COMPRESSION TYPE.
- CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES. SPLICES ARE NOT ACCEPTABLE. IF SPLICES ARE UNAVOIDABLE PRIOR APPROVAL FROM THE ENGINEER MUST BE OBTAINED.

**262823 SAFETY SWITCHES AND PROTECTIVE DEVICES**

- ENCLOSED, NON-FUSIBLE AND FUSIBLE SAFETY (DISCONNECT) SWITCHES SHALL BE CSA APPROVED, SIZED AS INDICATED ON DRAWINGS.
- UNLESS NOTED OTHERWISE, PROVIDE CLASS J TIME DELAY FUSES FOR MAIN FEEDERS; CLASS RK1 TIME DELAY FUSES FOR MOTOR CIRCUITS AND CLASS RK5 NON-TIME-DELAY FOR OTHER BRANCH CIRCUITS.
- PROVIDE TWO (2) SETS OF SPARE FUSES AND A FUSE CABINET FOR EACH LOCATION WHERE FUSES ARE INSTALLED.
- PROVIDE MOLDED CASE, BOLT-ON TYPE, AND THERMAL MAGNETIC TRIP CIRCUIT BREAKERS AS SHOWN AND AS REQUIRED FOR THIS PROJECT. MULTIPLE POLE BREAKERS SHALL BE SINGLE HANDLE, COMMON TRIP. PROVIDE HANDLE LOCKING DEVICES WHERE INDICATED. INTERRUPTING RATING TO MATCH REQUIRED AVAILABLE FAULT CURRENTS.

**260534 RACEWAYS, CABLE RACKS AND BOXES**

- ALL CONDUIT SHALL BE CSA APPROVED AND ULC LABELED.
- UNLESS NOTED OTHERWISE, CONDUIT INSTALLED ON THE EXTERIOR OF THE EQUIPMENT BUILDING IS PERMITTED TO BE RIGID PVC. CONDUIT INSIDE THE BUILDING IN AREAS WHERE SAFE FROM MECHANICAL DAMAGE SHALL BE EMT. CONDUIT IN IN AREAS OF RISK OF PHYSICAL DAMAGE SHALL BE RIGID STEEL.
- ALL EMPTY CONDUIT INSTALLED FOR FUTURE INSTALLATION OF WIRES AND CABLES SHALL HAVE A PULL CORD. PULL CORD SHALL BE LABELED AT BOTH ENDS FOR EASY IDENTIFICATION.
- ENCLOSURES AND CABINETS SHALL BE MADE OF STEEL BOX WITH REMOVABLE INTERIOR PANEL AND HINGED FRONT COVER, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL. DOOR SHALL BE EQUIPPED WITH FLUSH LATCH AND CONCEALED HINGE. MANUFACTURERS: HOFFMANN, O-Z/GEDNEY, T&B OR APPROVED EQUAL.

**262400 SERVICE AND DISTRIBUTION**

- VERIFY ALL DIMENSIONS AND CLEARANCES BY FIELD MEASUREMENTS BEFORE INSTALLATION.
- BRANCH CIRCUIT PANELBOARDS SHALL BE OF THE TYPE AND RATINGS AS SHOWN ON DRAWINGS.

**263214 EMERGENCY POWER SYSTEM**

- OWNER SUPPLIED WITH CONNECTIONS (HVAC/ELEC) AS PART OF THIS CONTRACT.

**260528 GROUNDING**

- ALL SAFETY GROUNDING OF THE ELECTRICAL EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL ELECTRICAL CODE.
- ALL LIGHTNING PROTECTION SYSTEM GROUNDING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST ISSUE OF CAN/CSA – 872.
- DC OR REFERENCE GROUNDING SHALL BE DONE IN ACCORDANCE WITH DC PLANT MANUFACTURER'S GROUNDING STANDARDS AND AS REQUIRED BY THE OWNER.
- OBTAIN OWNER'S INSTRUCTIONS FOR ALL GROUNDING RELATED REQUIREMENTS.
- ALL INTERIOR GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED USING HEAVY-DUTY COMPRESSION FITTINGS. MECHANICAL OR SOLDER TYPE CONNECTIONS ARE NOT PERMITTED.
- ALL GROUND BARS SHALL BE AS SHOWN ON THE DRAWINGS.
- IN ORDER TO MITIGATE HIGH FREQUENCY NOISE EFFECTIVELY THE GROUNDING CONDUCTORS SHALL BE RUN AS STRAIGHT AS POSSIBLE WITH MINIMUM NUMBER OF DIRECTION CHANGES. SHARP 90° BENDS OR KINKS ARE NOT PERMITTED. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. MINIMUM BENDING RADII OF GROUNDING CONDUCTORS OTHER THAN THE ELECTRICAL SAFETY GROUND CONDUCTORS SHALL BE AS FOLLOWS:

CONDUCTOR SIZE	MINIMUM BENDING RADIUS TO INSIDE EDGE
#12 AWG TO #8 AWG	3" (75mm)
#6 AWG TO #1/0 AWG	6" (150mm)
#2/0 AWG TO 750 KCMIL	12" (300mm)

- ALL GROUND LUG AND COMPRESSION CONNECTIONS SHALL BE COATED WITH ANTI-OXIDANT AGENT, SUCH AS NO-OX, NOALOX, PENETROX OR KOPRSIELD.

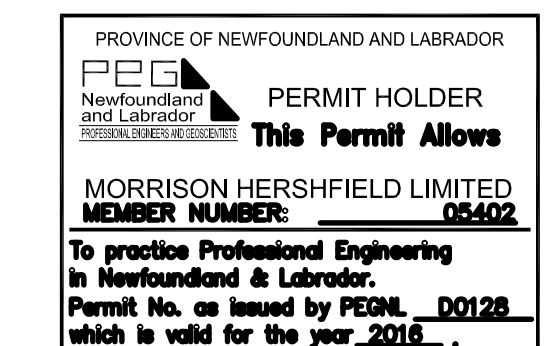
**268000 TESTING AND COMMISSIONING**

- CARRY OUT TESTING AND COMMISSIONING OF ALL MAJOR ELECTRICAL EQUIPMENT SUCH AS DISTRIBUTION BOARDS, GENERATOR, AUTOMATIC TRANSFER SWITCH, MOTOR STARTERS ETC. ENGAGE THE SERVICES OF SUPPLIERS OF EQUIPMENT IN FACILITATING TESTING AND COMMISSIONING.
- COORDINATE ALL TESTING PROCEDURES AND TIMES WITH THE EQUIPMENT SUPPLIER.
- INCLUDE TESTING AND COMMISSIONING REPORTS IN THE OPERATIONS AND MAINTENANCE MANUALS.

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**281300 SECURITY SYSTEM**

- SECURITY SYSTEM MANUFACTURER/SUPPLIER IS TO BE SELECTED BY THE OWNER DURING THE COURSE OF THE PROJECT.
- PROVIDE PULL CORD IN ALL EMPTY CONDUIT RUNS. LABEL PULL CORD AT BOTH ENDS FOR EASY IDENTIFICATION.
- OWNER'S SECURITY SYSTEM CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLY, INSTALLATION, TERMINATION, TESTING AND COMMISSIONING OF THE SECURITY SYSTEM.




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NL SITES

Drawing – dessin

ELECTRICAL NOTES

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