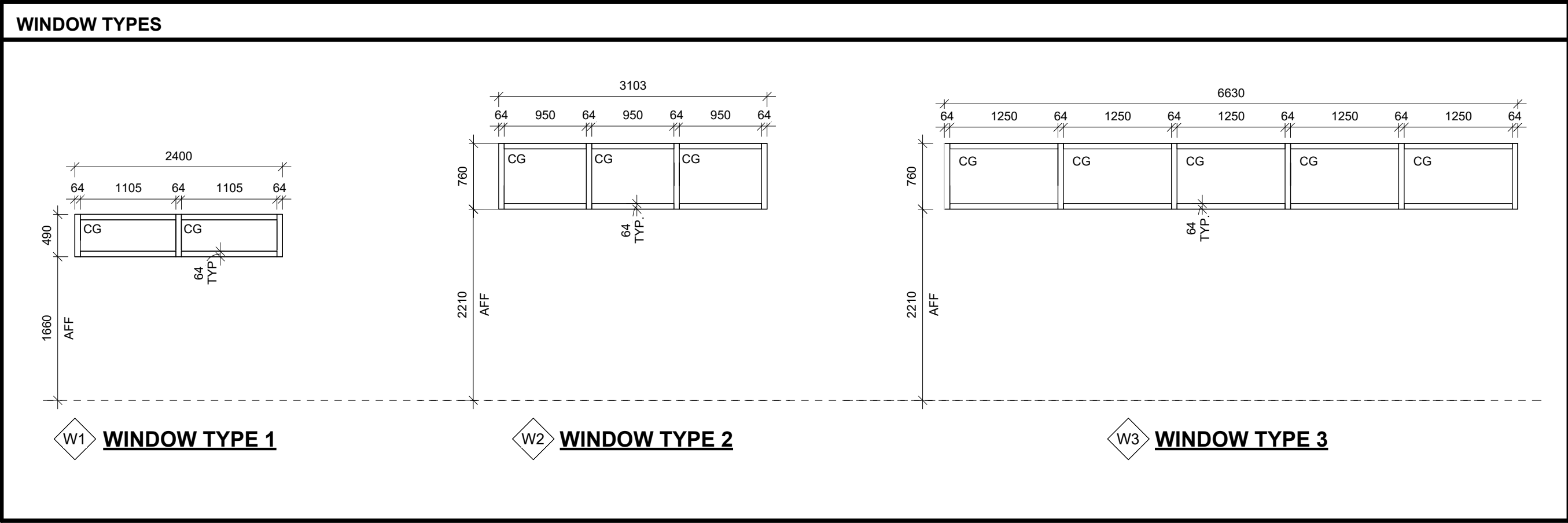
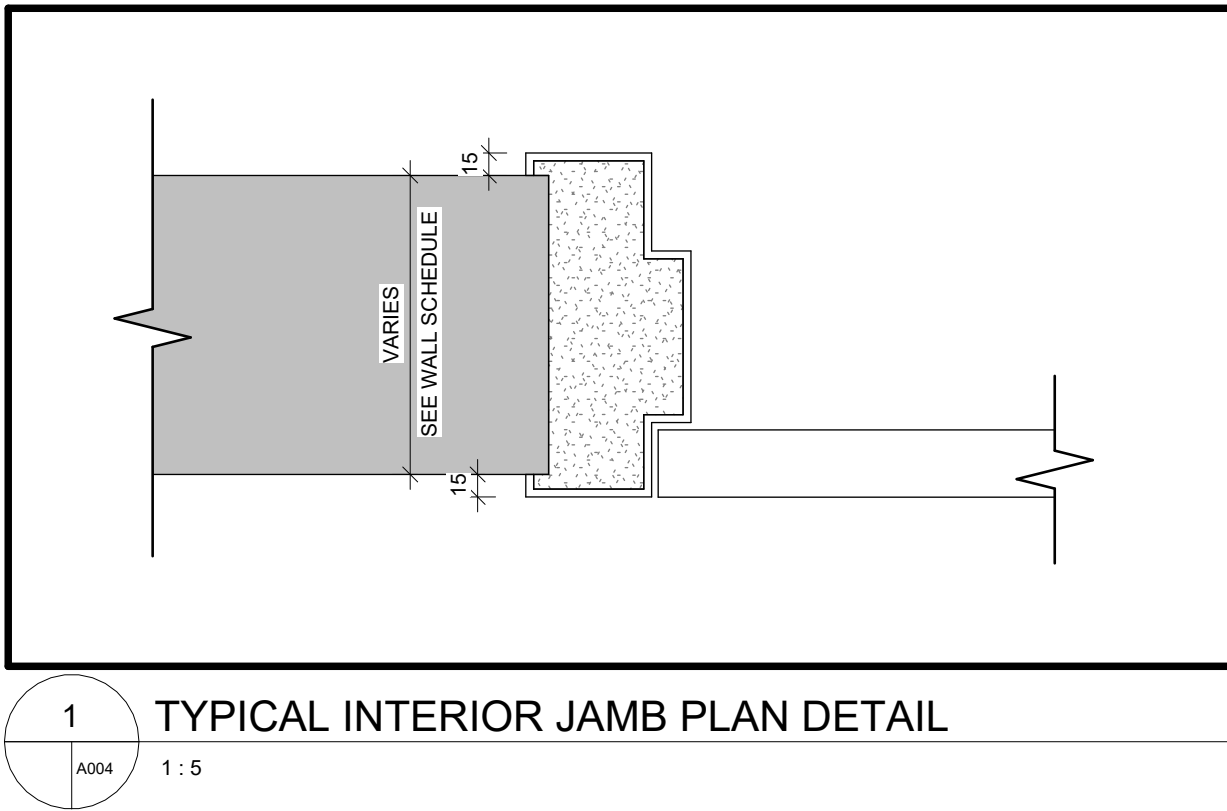
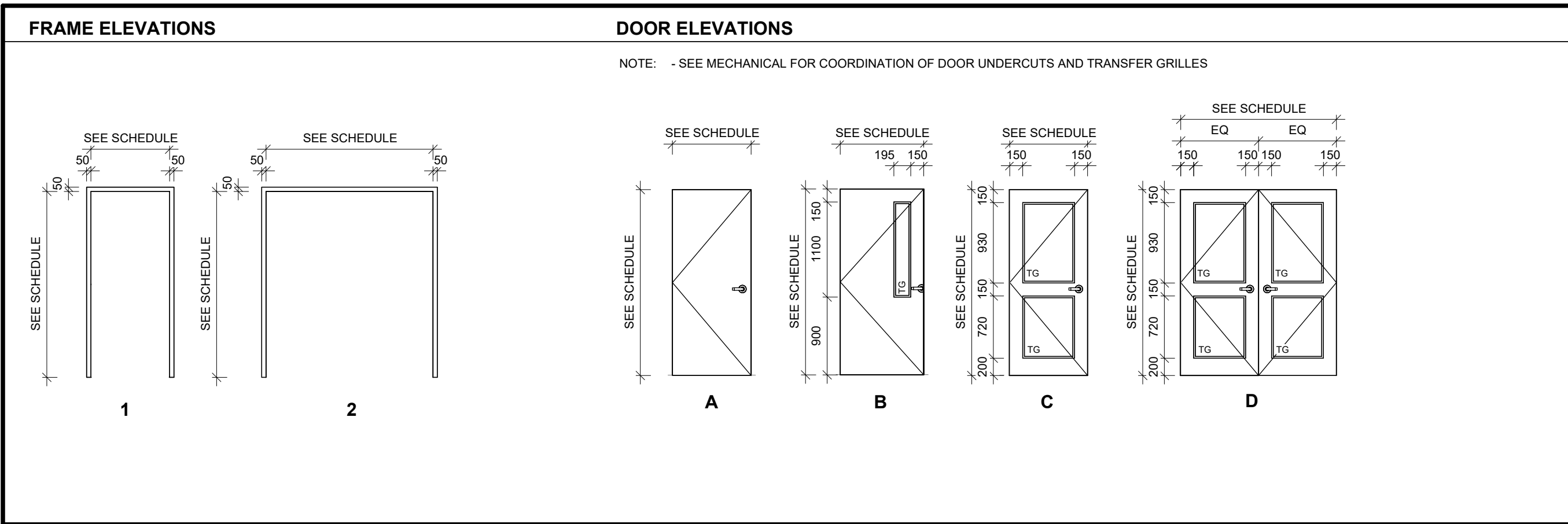


Autodesk Docs/BBP-AMER (CAN) 60686829-NRPS_911_Backup_Dispatch/60686829-NRPS 911_Backup_Dispatch - BLD - RV724.rvt | Print Date: 25/02/2025 13:08:13 | ANSI D Title Block Revision 0.0 - Designed by Eric Lettner, ©2022 AECOM Canada. All Rights Reserved.

WINDOW SCHEDULE						
TYPE	QUANTITY	WIDTH	HEIGHT	SILL HEIGHT	U-VALUE	COMMENTS
W1	1	2400	490	1660	0.80	TRIPLE GLAZED LOW-E
W2	2	3103	760	2210	0.80	TRIPLE GLAZED LOW-E
W3	1	6630	760	2210	0.80	TRIPLE GLAZED LOW-E



DOOR AND FRAME SCHEDULE															
DOOR								FRAME							
DOOR No.	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	GLAZING	TYPE	MATERIAL	FINISH	ACOUSTIC INSULATION	INSULATION	FIRE RATING	HARDWARE GROUP	
D101a	1930	2134	45	D	Aluminum	AL	TG	2	AL	ANOD.	-	YES	-	1	
D101b	1930	2134	45	D	Aluminum	AL	TG	2	AL	ANOD.	-	-	-	2	
D102	965	2134	45	A	HM	PT	MA	1	STL	PT	35	-	-	3	
D103A	965	2134	45	B	HM	PT	FG	1	STL	PT	40	-	-	4	
D103B	965	2134	45	B	HM	PT	FG	1	STL	PT	40	-	-	4	
D103C	914	2150	45	A	HM	PT	N/A	1	STL	PT	-	YES	-	3	
D104	965	2134	45	B	HM	PT	FG	1	STL	PT	50	-	-	5	
D105	965	2134	45	B	HM	PT	FG	1	STL	PT	50	-	-	5	
D107	965	2134	45	B	HM	PT	FG	1	STL	PT	50	-	-	5	
D108	965	2134	45	A	HM	PT	TG	1	STL	PT	50	-	-	5	
D109	965	2134	45	A	HM	PT	N/A	1	STL	PT	35	-	-	7	
D110	965	2134	45	A	HM	PT	N/A	1	STL	PT	35	-	-	7	
D111	965	2134	45	A	HM	PT	N/A	1	STL	PT	35	YES	-	9	
D112	914	2150	45	C	HM	PT	TG	1	STL	PT	-	YES	-	3	
D113A	965	2134	45	B	HM	PT	TG	1	STL	PT	40	-	-	5	
D113B	965	2134	45	B	HM	PT	TG	1	STL	PT	40	-	-	5	
D114	965	2134	45	A	HM	PT	N/A	1	STL	PT	50	YES	45 MIN	6	
D115	965	2134	45	A	HM	PT	N/A	1	STL	PT	50	YES	45 MIN	6	
D116	965	2134	45	A	HM	PT	N/A	1	STL	PT	50	YES	45 MIN	6	
Grand total: 19															



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NORTH

SEAL:

NRPS NG911 BACKUP CENTRE
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829 | Owner's Contract Number: 987654321

H	2025-02-18	ADDENDUM #3
G	2025-02-11	ADDENDUM #1
F	2025-01-23	ISSUED FOR TENDER
E	2024-12-13	IFP RE-SUBMISSION
D	2024-11-29	ISSUED FOR OWNER REVIEW
C	2024-10-30	ISSUED FOR PERMIT
B	2024-08-30	ISSUED FOR 30% CD
A	2024-07-26	ISSUED FOR 100% DD
Mark	Date	Description

Revision History

Filename	Version
60686829	2020.2.5.
Project Manager:	John Page
Project Administrator:	BIM/VOC Manager:
Sustainability Target:	IPMS 1 (m²): IPMS 2 (m²):
Designed:	Date (yyyy-mm-dd):
Drawn:	Date (yyyy-mm-dd):
Reviewed:	Date (yyyy-mm-dd):
Checked:	Date (yyyy-mm-dd):
Approved:	Date (yyyy-mm-dd):
Approver	
Title:	

DOOR AND WINDOW SCHEDULE

Page Size:	Sheet:	Rev:
ANSI D	A004	H
Scale:	As indicated	Sheet:
		of:

ROOM FINISH LEGEND

WALLS

- PT-X - PAINT
WT-X - WALL TILE
WP-X - WALL PROTECTION PANEL

BASE

- RB-X - RUBBER BASE
TB-X - TILE BASE

FLOOR

- SD-X - STATIC DISSIPATIVE TILE
SC-X - SEALED CONCRETE
T-X - TILE
LVT-X - LUXURY VINYL TILE
VCT-X - VINYL COMPOSITE TILE
CPT-X - CARPET TILE

- PM-X - PEDI-MAT
RF-X - RESINOUS FLOORING (EPOXY)

GENERAL NOTES

1. COORDINATE WITH REFLECTED CEILING PLANS
2. REFER TO SCHEDULE OF FINISHES SECTION 09 06 00 AND INTERIOR ELEVATIONS.

FINISHES NOTES

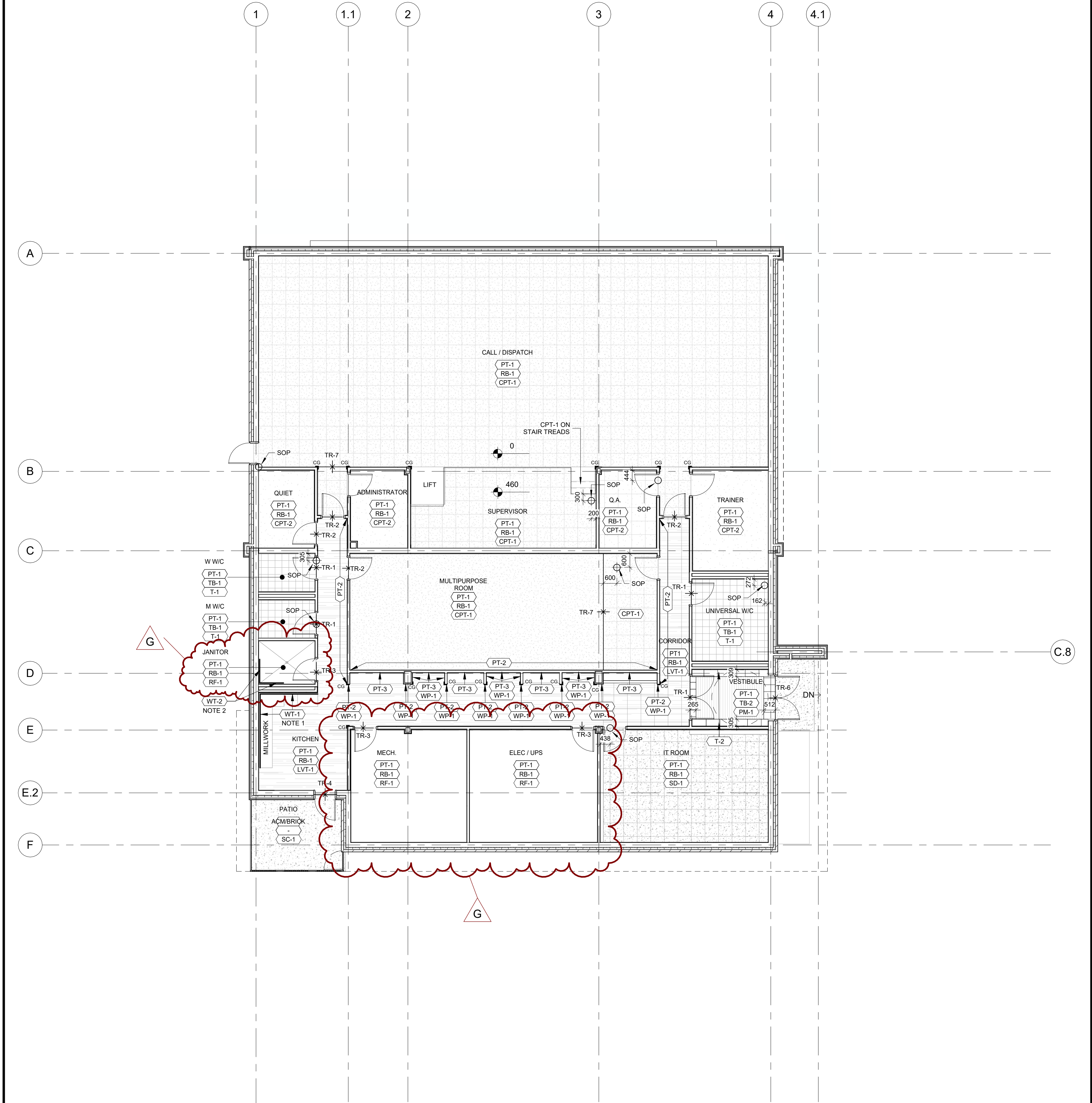
1. SEE A402 FOR KITCHEN ELEVATIONS AND EXTENT OF WALL TILE.
2. TILE UP TO 1300mm A.F.F

SYMBOL LEGEND

- ✱ DENOTES FLOOR FINISH TRANSITION
TR-X FLOOR FINISH TRANSITION TYPE
→ DIRECTION OF PATTERN
└ CG 12X12X1220mm ANODIZED ALUMINUM CORNER GUARD
[] RAISED FLOOR SYSTEM FINISH SUPPORT

ORDER OF FINISHES

- XXX-X WALL FINISH
XXX-X BASE FINISH
XXX-X FLOOR FINISH



1

FURNITURE AND FINISHES PLAN

A201 A141

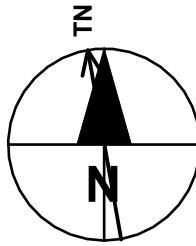
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NORTH:



Niagara Region



SEAL:

NRPS NG911 BACKUP CENTRE
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

G	2025-03-05	ADDENDUM #3
F	2025-01-23	ISSUED FOR TENDER
E	2024-12-13	IFP RE-SUBMISSION
D	2024-11-29	ISSUED FOR OWNER REVIEW
C	2024-10-30	ISSUED FOR PERMIT
B	2024-08-30	ISSUED FOR 30% CD
A	2024-07-26	ISSUED FOR 100% DD

Mark	Date	Description

Revision History

Filename: 2020.2.5. Version: 2020.2.5.

Project Number: 60686829
Project Manager: John Page
Project Administrator: BIM/VDC Manager:

Sustainability Target: LEED Silver
IPMS 1 (m²):
IPMS 2 (m²):

Designed: Designer
Date (yyyy-mm-dd):

Drawn: Author
Date (yyyy-mm-dd):

Reviewed: Date (yyyy-mm-dd):

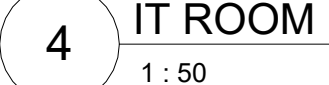
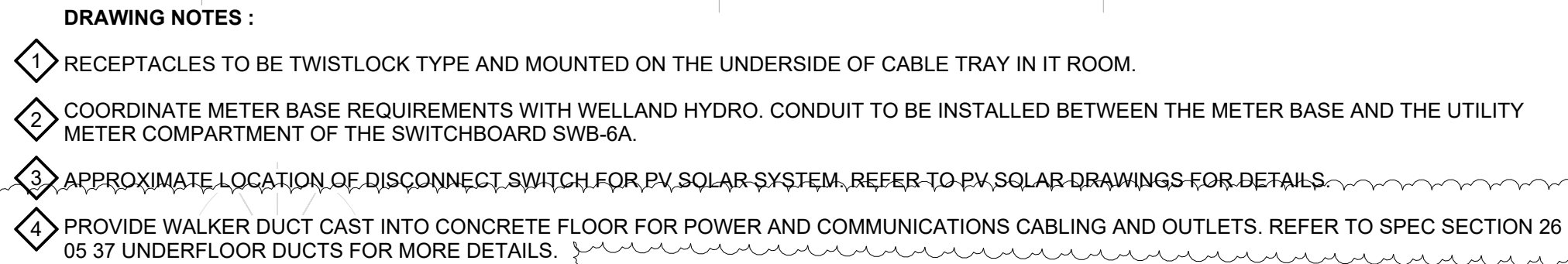
Checked: Allan Man
Date (yyyy-mm-dd):

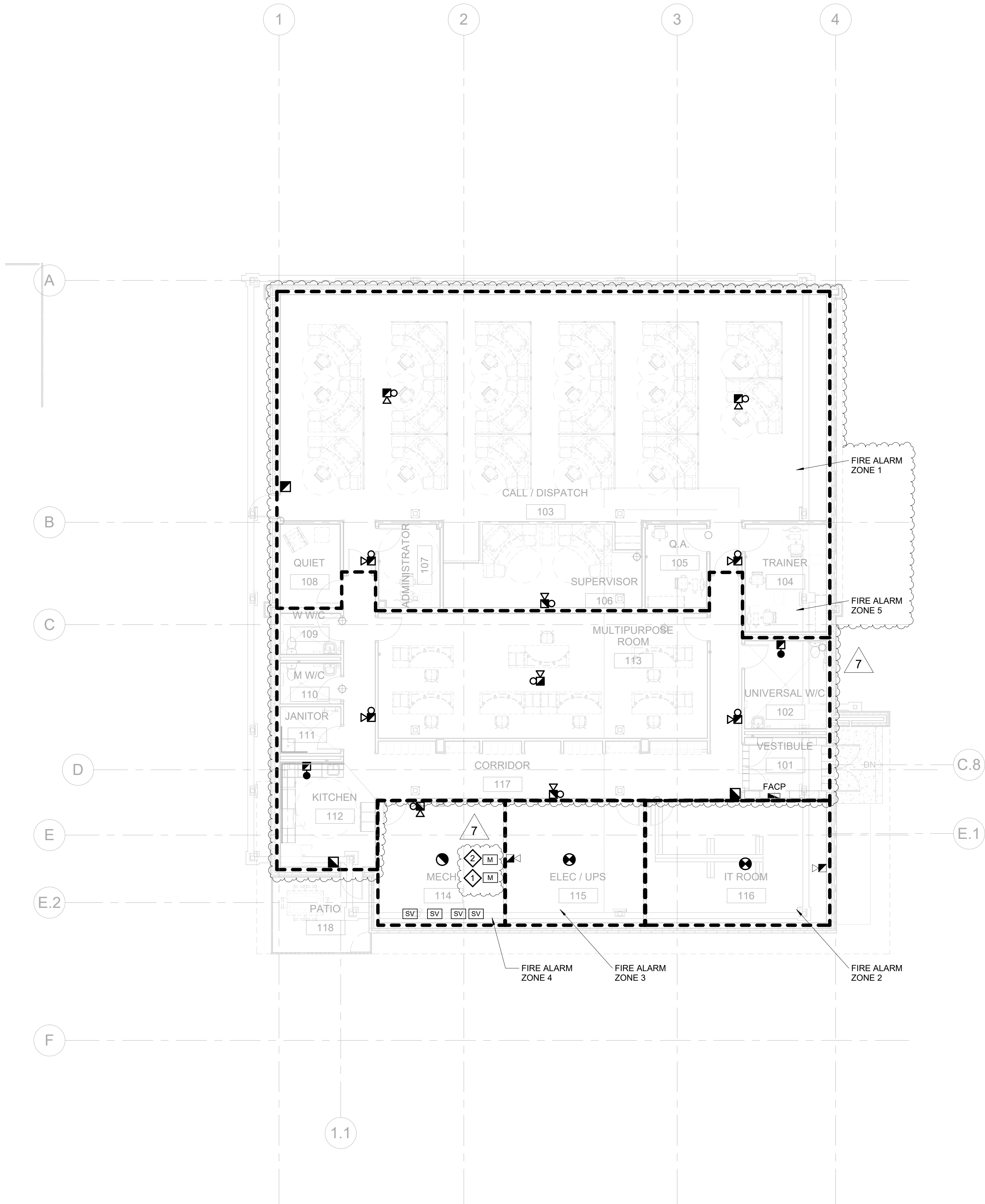
Approved: Approver
Date (yyyy-mm-dd):

Title:

FINISHES PLAN

Page Size: ANSI D
Scale: 1 : 100
Sheet: A141
Rev: G
of: 1





DRAWING NOTES :

1 RELAY MODULE IS TO BE USED FOR CLEAN AGENT AND PRE-ACTION SYSTEM CABINET. PROVIDE ALL OTHER HARDWARE SYSTEM FOR CLEAN AGENT AND PRE-ACTION SYSTEM.

2 RELAY MODULE IS TO BE USED FOR HRU-1 FIRE ALARM SHUTDOWN.

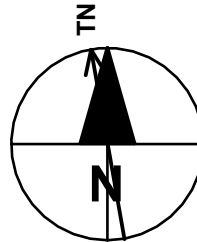
1 GROUND FLOOR FIRE ALARM PLAN
1 : 100



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NORTH:



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

7	2025-03-03	ADDENDUM #3
6	2025-01-27	ISSUED FOR TENDER
5	2024-12-13	IFP RE-SUBMISSION
4	2024-11-29	ISSUED FOR OWNER REVIEW
3	2024-10-30	ISSUED FOR PERMIT
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD
Mark	Date	Description

Revision History

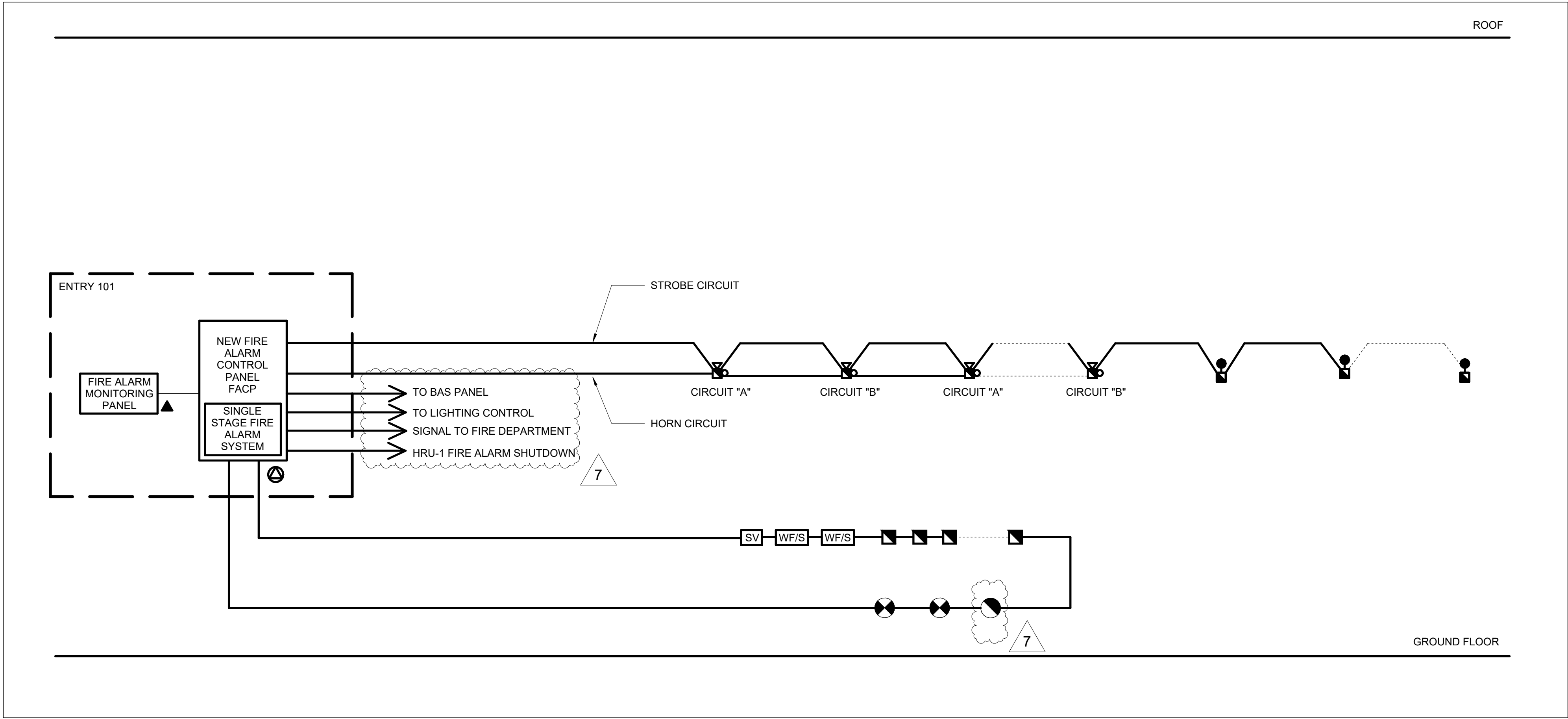
Filename: 2020.2.5. Version: 7

Project Number: 60686829	Project Manager:
Project Administrator:	BIM/VDC Manager:
Sustainability Target:	IPMS 1 (m ²): IPMS 2 (m ²):
Designed: NT	Date (yyyy-mm-dd):
Drawn: IV	Date (yyyy-mm-dd):
Reviewed: WH	Date (yyyy-mm-dd):
Checked: WH	Date (yyyy-mm-dd):
Approved: Approver	Date (yyyy-mm-dd):
Tbl:	

GROUND FLOOR FIRE ALARM PLAN

Page Size: ANSI D
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Sheet: E401
Rev: 7
of: 7

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Print Date: 2025-03-04 4:05:40 PM
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1 FIRE ALARM RISER DIAGRAM N.T.S.

GENERAL NOTES:

- THIS DRAWING IS DIAGRAMMATIC ONLY AND DOES NOT SHOW EXACT QUANTITY OF ALL DEVICES. FOR EXACT QUANTITIES AND LOCATION OF DEVICES REFER TO FIRE ALARM LAYOUT DRAWINGS.
- THE ELECTRICAL CONTRACTOR SHALL RETAIN THE SERVICES OF THE EXISTING FIRE ALARM SYSTEM MANUFACTURER TO CARRY OUT INSPECTION WORK OF THE EXISTING BASE BUILDING FIRE ALARM SYSTEM TO BE ALTERED OR RELOCATED IN THE RENOVATED AREA.
- PROVIDE ALL NECESSARY MATERIALS AND EQUIPMENT REQUIRED BY THE SYSTEM MANUFACTURER TO CARRY OUT THE INSPECTION.
- REPAIR, REPLACE OR ADJUST ALL OF THE COMPONENTS AS REQUIRED BY THE SYSTEM MANUFACTURER TO ENSURE A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
- A CERTIFICATE SHALL BE PROVIDED BY THE SYSTEM MANUFACTURER UPON COMPLETION OF THE INSPECTION, OR AFTER NECESSARY REVISIONS ARE COMPLETED, VERIFYING THAT THE SYSTEM IS INSTALLED, SUPERVISED AND OPERATES ACCORDING TO ALL CODES AND AUTHORITIES HAVING JURISDICTION.
- ALL NEW FIRE ALARM PULL STATIONS TO BE MOUNTED AT 1200mm A.F.F. AND MAXIMUM 600mm FROM THE DOOR LATCH (CENTERED TO THE DEVICE).
- FIRE ALARM HORN/STROBE HEIGHT TO BE AS PER LATEST CAN/ULC-S524.
- STROBE TO HAVE MULT-CANDELA OUTPUT SETTING 15,30,75,95,100 CD.
- PROVIDE FIRE ALARM SYSTEM VERIFICATION FOR THE ENTIRE BUILDING ALARM, TROUBLE AND SIGNAL DEVICES/CIRCUITS. SUBMIT VERIFICATION REPORT FOR CONSULTANT'S REVIEW.
- PROVIDE COMPLETE AUDIBILITY TEST TO SHOW THAT NBC ARTICLE 3.2.4.18 (6) HAS BEEN MET. SUBMIT TEST RESULTS FOR CONSULTANT'S REVIEW.
- ALL WIRING TO BE IN CONDUIT, MINIMUM 21mmC (3/4").
- PROVIDE FAULT ISOLATOR MODULES WHEN ENTERING AND LEAVING EACH FIRE ALARM ZONE. FAULT ISOLATOR MODULES TO BE LOCATED AS PER CAN ULC-S524 REQUIREMENT.
- ZONE SCHEDULE TO COMPLY WITH OBC, DIVISION B, 3.2.4.9.

FIRE ALARM ZONE SCHEDULE										
FIRE ALARM ZONE DESCRIPTION	FIRE ALARM ZONE NO.	PULL STATION	SMOKE/HEAT DETECTOR	FLOW SWITCH	PRESSURE SWITCH	SUPERVISORY VALVE	TROUBLE SIGNAL	AUXILIARY SUPERVISORY	AUXILIARY CONTACT	REMARKS
CALL/DISPATCH AREA/ADMIN/QA/TRAINING	ZONE 1	●								
IT ROOM	ZONE 2		●							CLEAN AGENT SYSTEM/ PRE-ACTION SYSTEM
ELECTRICAL ROOM	ZONE 3		●							PRE-ACTION SYSTEM
MECHANICAL ROOM	ZONE 4		●	●	●	●				
MULTIPURPOSE/VESTIBULE/ KITCHEN/JANITOR/WASHROOMS/ CORRIDOR/OTHER	ZONE 5	●								

SEQUENCE OF OPERATIONS:

- THE AUDIBLES WILL SOUND AT THE EVAC RATE THROUGHOUT THE BUILDING.
- STROBE LIGHTS WILL FLASH AT THE SET FREQUENCY RATE AS REQUIRED.
- THE LED FOR THE ALARM ZONE WILL BE ILLUMINATED AT ANY LED ANNUNCIATOR.
- A MESSAGE FOR THE DEVICE/ZONE WILL APPEAR ON THE LCD DISPLAY(S).
- THE AUXILIARY RELAYS WILL ACTIVATE AS REQUIRED.
- THE FIRE DEPARTMENT/ MONITORING AGENCY ALARM RELAY WILL ACTIVATE.
- ALL LIGHTS TO COME TO 100% FULL BRIGHTNESS

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NORTH:

Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

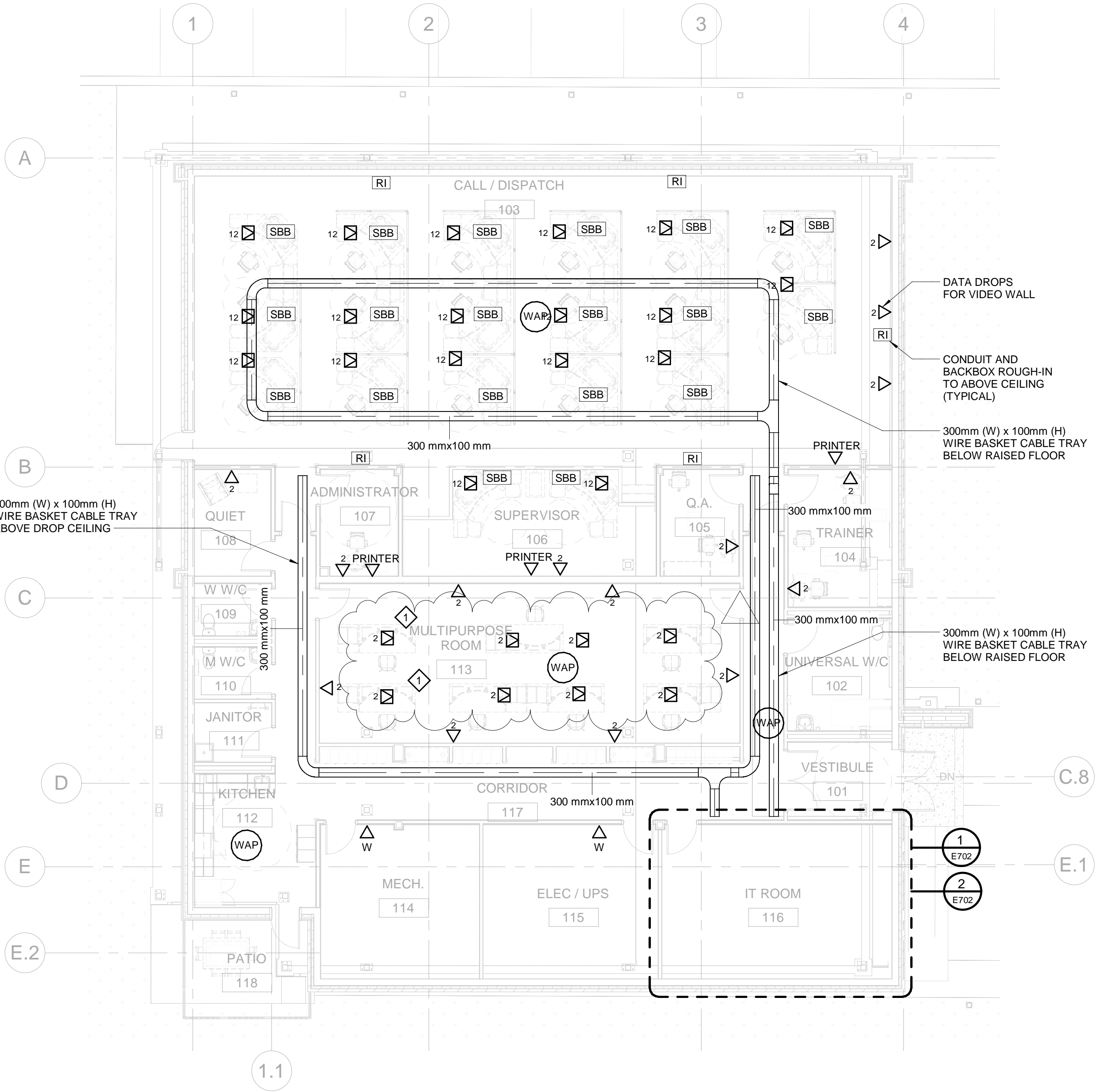
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6	2025-01-27	ISSUED FOR TENDER
5	2024-12-13	IFP RE-SUBMISSION
4	2024-11-29	ISSUED FOR OWNER REVIEW
3	2024-10-30	ISSUED FOR PERMIT
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD

Revision History	
Filename :	Version : 2020.2.5.
Project Number : 60686829	Project Manager :
Project Administrator :	BIM/VDC Manager :
Sustainability Target :	IPMS 1 (m ²) : IPMS 2 (m ²) :
Designed : NT	Date (yyyy-mm-dd) :
Drawn : IV	Date (yyyy-mm-dd) :
Reviewed : WH	Date (yyyy-mm-dd) :
Checked : WH	Date (yyyy-mm-dd) :
Approved : WH	Date (yyyy-mm-dd) :

FIRE ALARM RISER DIAGRAM

Page Size: ANSI D
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Sheet: E502
Rev: 7
of: 7

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2 GROUND FLOOR COMMUNICATIONS PLAN
1 : 100

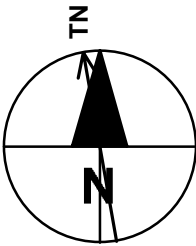
1 REFER TO ELECTRICAL DRAWING E-301 FOR WALKER DUCT LOCATION AND DETAILS. PROVIDE FLOOR MOUNTED DATA OUTLETS AS PART OF THE WALKER DUCT SYSTEM.



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NORTH:



Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

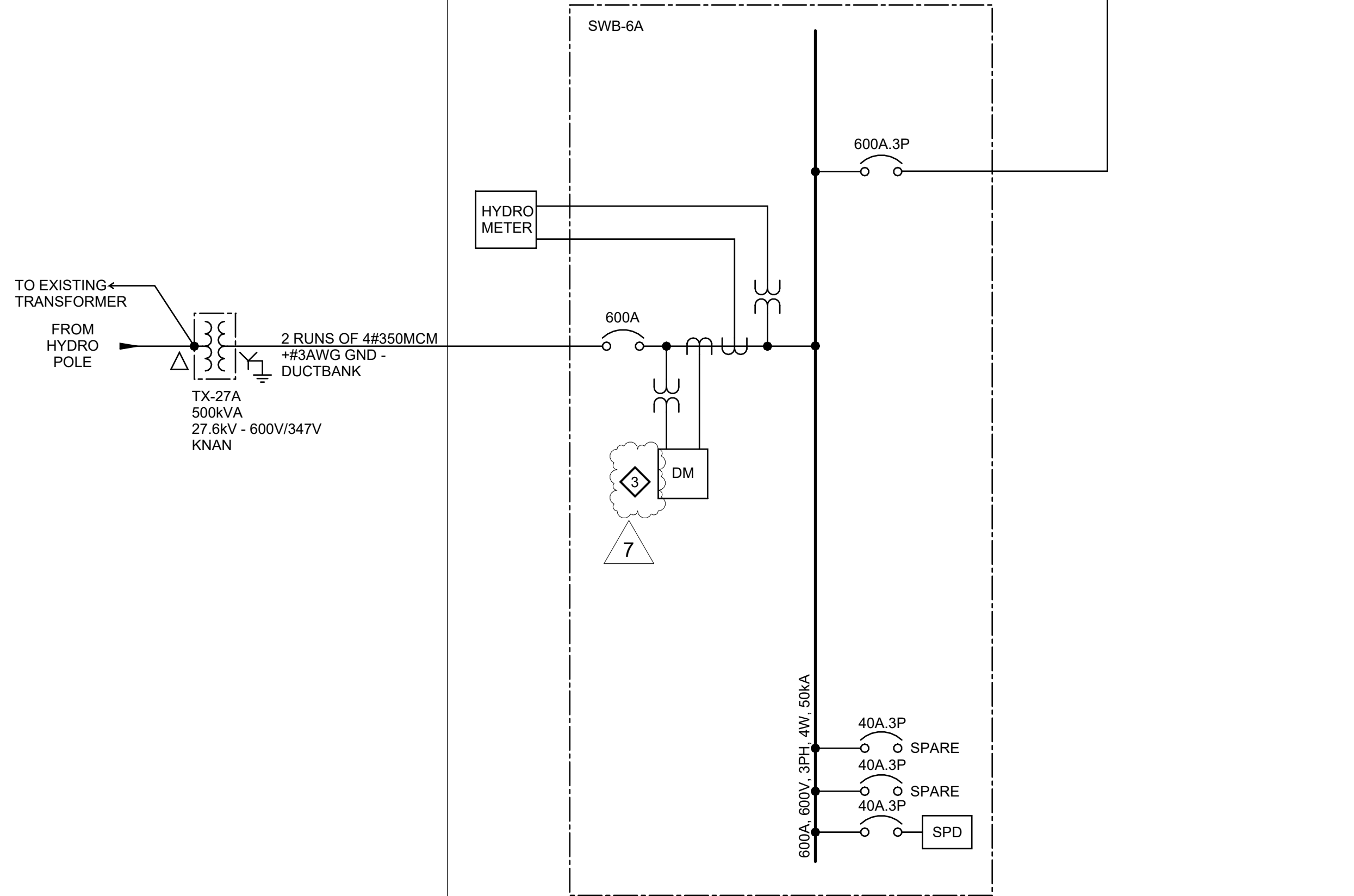
Owner's Project Number: 60686829
Owner's Contract Number: 987654321

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6	2025-01-27	ISSUED FOR TENDER
5	2024-12-13	IFP RE-SUBMISSION
4	2024-11-29	ISSUED FOR OWNER REVIEW
3	2024-11-29	90% DOCUMENTS
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD
Mark	Date	Description

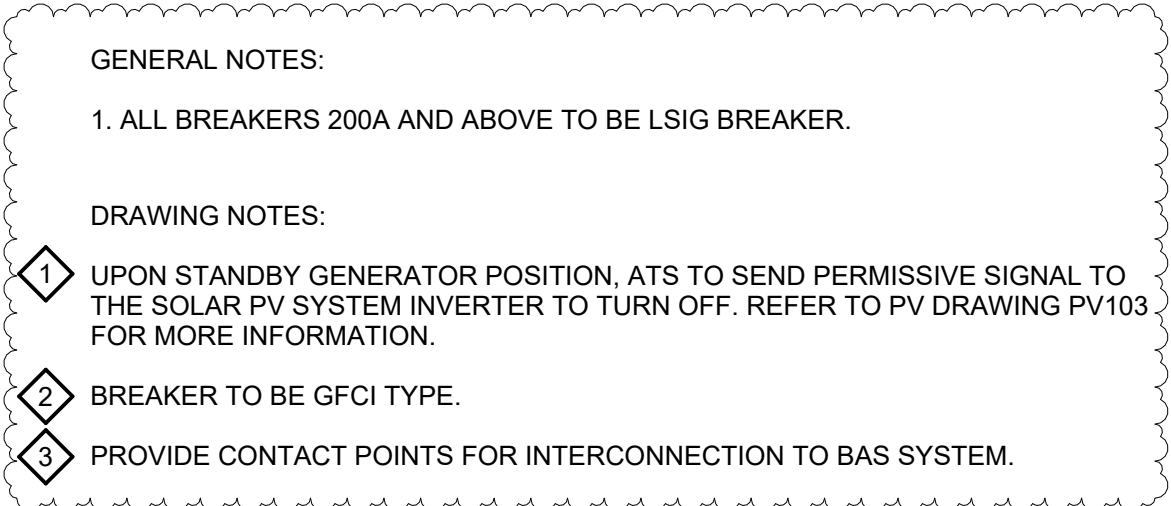
Revision History		Version
Filename:		2020.2.5.
Project Number:	Project Manager:	
60686829		
Project Administrator:	BIM/VDC Manager:	
Sustainability Target:	IPMS 1 (m ²):	IPMS 2 (m ²):
Designed:	Date (yyyy-mm-dd):	
HB		
Drawn:	Date (yyyy-mm-dd):	
HB		
Reviewed:	Date (yyyy-mm-dd):	
TM		
Checked:	Date (yyyy-mm-dd):	
TM		
Approved:	Date (yyyy-mm-dd):	
TM		
Title:		

GROUND FLOOR COMMUNICATIONS PLAN

Page Size: ANSI D
Scale: 1 : 100
Sheet: E701
Rev: 7
Sheet of: 7



INDOOR



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Branch Panel: PP-2G													
Location: ELECTRICAL ROOM				Volts: 120/208V				A.I.C. Rating: 18 kA					
Supply From: TX-2G				Phases: 3PH				Mains Type: MAIN BREAKER					
Mounting: WALL SURFACE MOUNTED				Wires: 4W				Mains Rating: 225 A					
Enclosure: TYPE 1								MCB Rating: 150 A					
Notes:													
CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	CALL/DISPATCH RECEPTACLE	15 A	1	927 VA	927 VA					1	15 A	CALL/DISPATCH RECEPTACLE	2
3	CALL/DISPATCH RECEPTACLE	15 A	1			927 VA	927 VA			1	15 A	CALL/DISPATCH RECEPTACLE	4
5	CALL/DISPATCH RECEPTACLE	15 A	1					927 VA	927 VA	1	15 A	CALL/DISPATCH RECEPTACLE	6
7	CALL/DISPATCH RECEPTACLE	15 A	1	927 VA	927 VA					1	15 A	CALL/DISPATCH RECEPTACLE	8
9	CALL/DISPATCH RECEPTACLE	15 A	1			927 VA	927 VA			1	15 A	CALL/DISPATCH RECEPTACLE	10
11	CALL/DISPATCH RECEPTACLE	15 A	1					927 VA	927 VA	1	15 A	CALL/DISPATCH RECEPTACLE	12
13	CALL/DISPATCH RECEPTACLE	15 A	1	927 VA	927 VA					1	15 A	CALL/DISPATCH RECEPTACLE	14
15	CALL/DISPATCH RECEPTACLE	15 A	1			927 VA	927 VA			1	15 A	CALL/DISPATCH RECEPTACLE	16
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23	CALL/DISPATCH RECEPTACLE	15 A	1					927 VA	927 VA	1	15 A	CALL/DISPATCH RECEPTACLE	24
25	CALL/DISPATCH RECEPTACLE	15 A	1	927 VA	927 VA					1	15 A	CALL/DISPATCH RECEPTACLE	26
27	CALL/DISPATCH RECEPTACLE	15 A	1			927 VA	927 VA			1	15 A	CALL/DISPATCH RECEPTACLE	28
29	CALL/DISPATCH RECEPTACLE	15 A	1					927 VA	927 VA	1	15 A	CALL/DISPATCH RECEPTACLE	30
31	CALL/DISPATCH RECEPTACLE	15 A	1	927 VA	927 VA					1	15 A	CALL/DISPATCH RECEPTACLE	32
33	CALL/DISPATCH RECEPTACLE	15 A	1			682 VA	682 VA			1	15 A	CALL/DISPATCH RECEPTACLE	34
35	CALL/DISPATCH RECEPTACLE	15 A	1					682 VA	682 VA	1	15 A	CALL/DISPATCH RECEPTACLE	36
37	CALL/DISPATCH RECEPTACLE	15 A	1	682 VA	682 VA					1	15 A	CALL/DISPATCH RECEPTACLE	38
39	SPARE	15 A	1			0 VA	0 VA			1	15 A	SPARE	40
41	SPARE	15 A	1					0 VA	0 VA	1	15 A	SPARE	42
43	SPARE	15 A	1	0 VA	0 VA					1	15 A	SPARE	44
45	SPARE	15 A	1			0 VA	0 VA			1	15 A	SPARE	46
47	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	48
49	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	50
51	SPACE	--	1			--	--			1	--	SPACE	52
53	SPACE	--	1					--	--	1	--	SPACE	54
55	SPACE	--	1	--	--					1	--	SPACE	56
57	SPACE	--	1			--	--			1	--	SPACE	58
59	SPACE	--	1					--	--	1	--	SPACE	60
61	SPACE	--	1	--	--					1	--	SPACE	62
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69	SPACE	--	1			--	--			1	--	SPACE	70
71	SPACE	--	1					--	--	1	--	SPACE	72
73	SPACE	--	1	--	--					1	--	SPACE	74
75	SPACE	--	1			--	--			1	--	SPACE	76
77	SPACE	--	1					--	--	1	--	SPACE	78
79	SPACE	--	1	--	--					1	--	SPACE	80
81	SPACE	--	1			--	--			1	--	SPACE	82
83	SPACE	--	1					--	--	1	--	SPACE	84
Total Load:				12488 VA		10634 VA		10634 VA					
Total Amps:													
Legend:													
Load Type		Connected Load		Demand Factor		Estimated Demand		Panel Totals					
RECEPTACLE		33756 VA		80.00%		27005 VA							
								Total Conn. Load: 33756 VA					
								Total Est. Demand: 27005 VA					
								Total Conn.: 94 A					
								Total Est. Demand: 75 A					
Notes:													

Branch Panel: PP-2M															
Location: ELECTRICAL ROOM				Volts: 120/208V				A.I.C. Rating: 18 kA							
Supply From: TX-2M				Phases: 3PH				Mains Type: MAIN BREAKER							
Mounting: WALL SURFACE MOUNTED				Wires: 4W				Mains Rating: 225 A							
Enclosure: TYPE 1								MCB Rating: 150 A							
Notes:															
CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT		
1	RECEPTACLE- CALL/DISPATCH	15 A	1	800 VA	800 VA					1	15 A	RECEPTACLE- CALL/DISPATCH	2		
3	RECEPTACLE- SUPERVISOR	15 A	1			800 VA	100 VA			1	15 A	FFH-1- CALL/DISPATCH	4		
5	RECEPTACLE- QA	15 A	1					600 VA	800 VA	1	15 A	RECEPTACLE- TRAINER	6		
7	RECEPTACLE- CORRIDOR, QUIET	15 A	1	600 VA	600 VA	<div>4</div>				1	15 A	RECEPTACLE- CORRIDOR	8		
9	RECEPTACLE- MULTIPURPOSE	15 A	1					400 VA	400 VA			1	15 A	RECEPTACLE- MULTIPURPOSE	10
11	RECEPTACLE- MULTIPURPOSE	15 A	1							400 VA	200 VA	1	20 A	RECEPTACLE- MICROWAVE	12
13	RECEPTACLE- MICROWAVE	20 A	1	200 VA	200 VA					1	20 A	RECEPTACLE- MICROWAVE	14		
15	RECEPTACLE- REFRIGERATOR	20 A	1			500 VA	400 VA			1	20 A	RECEPTACLE- KITCHEN	16		
17	FCU-5	15 A	1					100 VA	100 VA	1	15 A	FFH-1- KITCHEN	18		
19	RECEPTACLE- PATIO	20 A	1	200 VA	100 VA					1	15 A	FCU-4	20		
21	FFH-1-VESTIBULE	15 A	1			100 VA	50 VA			1	15 A	AUTO FIXTURES - WASHROOM	22		
23	AUTO FIXTURES- WASHROOM	15 A	1					100 VA	100 VA	1	15 A	FCU-2	24		
25	FCU-6	15 A	1	100 VA	100 VA					1	15 A	FCU-3	26		
27	RECEPTACLES- ELEC ROOM	15 A	1			600 VA	100 VA			1	15 A	HRU CONTROLS	28		
29	BAS PANEL 1 - MECH ROOM	15 A	1					100 VA	100 VA	1	15 A	GFU-2	30		
31	GFU-1	15 A	1	100 VA	400 VA					1	15 A	B-1	32		
33	B-2	15 A	1			400 VA	100 VA			1	15 A	PRE-ACTION SYSTEM	34		
35	PRE-ACTION SYSTEM	15 A	1					100 VA	200 VA	1	15 A	RECEPTACLE- MECH ROOM	36		
37	RECEPTACLE- IT ROOM	15 A	1	600 VA	200 VA					1	20 A	RECEPTACLE- ROOFTOP MAINT.	38		
39	RECEPTACLE- ROOFTOP MAINT.	15 A	1			200 VA	200 VA			1	20 A	RECEPTACLE- ROOFTOP MAINT.	40		
41	EV CAR CHARGER- PARKING LOT	50 A	2					4800...	4800...	2	50 A	EV CAR CHARGER- PARKING LOT	42		
43	--	--	--	4800...	4800...					--	--	--	44		
45	RTU CONTROLS	15 A	1			100 VA	2990...			3	35 A	CRAC-1A - IT ROOM	46		
47	CRAC-1B - IT ROOM	35 A	3					2990...	2990...	--	--	--	48		
49	--	--	--	2990...	2990...					--	--	--	50		
51	--	--	--			2990...	0 VA			3	15 A	CRAC-2B - IT ROOM	52		
53	CRAC-2A - IT ROOM	15 A	3					901 VA	0 VA	--	--	--	54		
55	--	--	--	901 VA	0 VA					--	--	--	56		
57	--	--	--			901 VA	50 VA			1	15 A	TRAP PRIMER, CONDENSATE PUMP - MECH...	58		
59	BAS.PANEL 2--MECH ROOM	15 A	1					160 VA	100 VA	1	15 A	BAS.PANEL 3--MECH ROOM	60		
61	RECEPTACLE - MULTI PURPOSE RM	15 A	1	400 VA	400 VA					1	15 A	RECEPTACLE - MULTI PURPOSE RM	62		
63	RECEPTACLE - MULTI PURPOSE RM	15 A	1			400 VA	400 VA			1	15 A	RECEPTACLE - MULTI PURPOSE RM	64		
65	FACP	15 A	1					200 VA	200 VA	1	15 A	DOOR OPERATOR - VESTIBULE	66		
67	DOOR OPERATOR - CALL/DISPATCH	15 A	1	200 VA	0 VA					1	20 A	Spare	68		
69	Spare	20 A	1			0 VA	0 VA			1	20 A	Spare	70		
71	SPACE	--	1					--	--	1	--	SPACE	72		
73	SPACE	--	1	--	--					1	--	SPACE	74		
75	SPACE	--	1			--	--			1	--	SPACE	76		
77	SPACE	--	1					--	--	1	--	SPACE	78		
79	SPACE	--	1	--	--					1	--	SPACE	80		
81	SPACE	--	1			--	--			1	--	SPACE	82		
83	SPACE	--	1					--	--	1	--	SPACE	84		
Total Load:				22481 VA		12181 VA		19981 VA							
Total Amps:															
Legend:															
<div>4</div>															
Load Type	Connected Load	Demand Factor	Estimated Demand	Panel Totals											
RECEPTACLE	11900 VA	80.00%	9520 VA												
MOTOR	22493 VA	70.00%	15745 VA												
CAR CHARGER	19200 VA	90.00%	17280 VA												
OTHER	850 VA	80.00%	680 VA												
				Total Conn. Load: 54443 VA											
				Total Est. Demand: 43325 VA											
				Total Conn.: 151 A											
				Total Est. Demand: 120 A											
Notes:															



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NORTH:



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

4	2025-03-03	ADDENDUM #03
3	2025-01-27	ISSUED FOR TENDER
2	2024-12-13	IFP RE-SUBMISSION
1	2024-11-29	ISSUED FOR OWNER REVIEW

Mark	Date	Description
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Revision History

Filename: 2020.2.5.

Project Number: 60686829	Project
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ANSI D Title Block Revision 0.0 - Designed by Eric Leimer, ©2022 AECOM Canada. All Rights Reserved. Print Date: 2025-02-28 6:24:55 PM Autodesk Docs/BBP-AMER (CAN) 60686829-NRPS 911 Backup Dispatch-00686829-NRPS 911 Backup Dispatch - M - RV724.rvt

HEAT RECOVERY UNIT SCHEDULE (2 OF 2)				
Cooling Coil (C/C)	Fluid Medium	40% Propylene Glycol		
	Nominal Capacity, tons	2.2		
	Total Cooling, kW (MBH)	8	26	
	Sensible Cooling, kW (MBH)	6	19	
	EAT, Dry Bulb, °C (°F)	24.8	76.6	
	EAT, Wet Bulb, °C (°F)	18.3	65.0	
	LAT, Dry Bulb, °C (°F)	12.0	53.6	
	LAT, Wet Bulb, °C (°F)	11.9	53.4	
	Airflow, L/s (cfm)	354	750	
	Air Velocity, m/s (fpm)	0.71	139	
Electrical	Air PD, Pa (in. WC)	10.0	0.04	
	EFT, °C (°F)	5.6	42.0	
	LFT, °C (°F)	11.1	52.0	
	Fluid Flowrate, L/m (gpm)	22	5.9	
	Fluid Velocity, m/s (fps)	0.61	2.0	
	Fluid PD, kPa (ft WC)	9.0	3.0	
	Unit Elec. Supply (V/Ph/Hz)	575/3/60		
	Unit FLA, A	6.00		
	Unit MCA, A	7.50		
	Unit MOP, A	8		
Dimensions	Lights & Controls Elec. Supply (V/Ph/Hz @ A)	120/1/60 @ 15A		
	Max. Dimensions, WxLxH, mm (in.)	1336 x 3094 x 1809	52.6 x 121.8 x 71.2	
	Curb Height, mm (in)	457	18	
	Air Intake/Discharge Orientation	Bottom - S/A, R/A Side - E/A, Rear - O/A		
	Piping Feed	Side		
	Weight, kg (lb)	1,270	2,800	
	Notes	(all)		

Notes	
(1)	Refer to specification section 23 72 00 - Hydronic Air Handling Units
(2)	Frost control shall be achieved by monitoring outdoor air temperature, exhaust air relative humidity, and differential pressure across the wheel. When frost or frosting conditions are detected wheel speed shall be modulated down (via the VFD) to reduce the amount of latent transfer and prevent frosting.
(3)	
(4)	
(5)	

PUMP SCHEDULE					
Tag Information	Tag No.	P-1 (A,B)		P-2 (A,B)	
	Location	Mechanical Room (114)		Mechanical Room (114)	
	Service	Heating Glycol Loop		Chilled Glycol Loop	
	Manufacturer	Armstrong		Armstrong	
	Model No.	Series 4380 1505-001.5		Series 4380 0205-005.0	
Performance	Pump Type	Packaged Vertical Inline		Packaged Vertical Inline	
	Configuration	Duplex (Duty-Standby)		Duplex (Duty-Standby)	
	Control	Variable Speed Pressure Control		Variable Speed Pressure Control	
	Fluid	40% Propylene Glycol		40% Propylene Glycol	
	Fluid Flow - System, L/s (gpm)	2.839	45	8.517	135
	Fluid Flow - per Pump, L/s (gpm)	2.839	45	8.517	135
	Pressure - Suction, kPa (ft wc)	75	25	75	25
	Pressure - Head, kPa (ft wc)	135	45	239	80
	Pressure - Discharge, kPa (ft wc)	209	70	314	105
	Rated Speed, RPM	2904		3498	
Dimensions	Pump Weight, kg (lb)	28	62	136	300
	Max. Pump Dimensions, WxLxH, mm (in.)	268 x 331 x 464	10.6 x 13 x 18.3	301 x 331 x 530	11.9 x 13 x 20.9
	Panel Weight, kg (lb)	-	-	-	-
	Max. Panel Dimensions, WxLxH, mm (in.)	-	-	-	-
Electrical	Motor Horsepower, hp	2 x 1.5 HP		2 x 5 HP	
	Brake Horsepower, hp	1 x 0.92 HP		2 x 3.91 HP	
	Motor Starter	VFD		VFD	
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60	
	Notes	(1),(2),(3)		(1),(2),(3)	

Notes	
(1)	Refer to specifications section 23 21 23 - Hydronic Pumps.
(2)	C/w BMS interface (refer to control drawings for alarms, sensors, inputs, outputs, etc).

HEAT RECOVERY UNIT SCHEDULE (1 OF 2)				
Tag Information	Tag No.	HRU-1		
	Location	ROOF		
	Service	Main Building O/A		
	Manufacturer	Aldes		
	Model No.	CW2000e		
	Type	Outdoor - 100% O/A		
Supply Fan	Type, Quantity	Plenum Fan (1)		
	Airflow, L/s (cfm)	354	750	
	ESP, Pa (in. wc)	187	0.75	
	Max. TSP, Pa (in. wc)	348.4	1.40	
	Drive Type	Direct		
	Motor Control	VFD		
	RPM	1,434		
	Brake hp	0.35		
	Motor hp	1		
	S/A Discharge, Acoustic Bands 1 - 8, dB	63 65 75 65 65 60 55 49		
Exhaust Fan	O/A Intake, Acoustic Bands 1 - 8, dB			
	Casing, Acoustic Bands 1 - 8, dB			
	Type, Quantity	Plenum Fan (1)		
	Airflow, L/s (cfm)	307	650	
	ESP, Pa (in. wc)	187	0.75	
	Max. TSP, Pa (in. wc)	314	1.26	
	Drive Type	Direct		
	Motor Control	VFD		
	RPM	1,365		
	Brake Horsepower, bhp	1		
Filters	Motor Power, hp	0.3		
	R/A Intake, Acoustic Bands 1 - 8, dB	62 65 74 64 63 59 53 48		
	E/A Discharge, Acoustic Bands 1 - 8, dB			
	Supply Air - Pre-Filter	MERV 8		
	Supply Air - Final Filter	MERV 13		
	Return Air - Final Filter	MERV 8		
Heat Recovery Wheel (Heating Perf.)	Winter Conditions:			
	O/A EAT DB, °C (°F)	-17.0	1.4	
	O/A EAT WB, °C (°F)	-17.8	-0.1	
	O/A LAT, DB, °C (°F)	13.7	56.6	
	O/A LAT, WB, °C (°F)	7.2	44.9	
	E/A EAT, DB, °C (°F)	-13.6	7.5	
	E/A EAT, WB, °C (°F)	-13.8	7.1	
	E/A LAT, DB, °C (°F)	22.2	72.0	
	E/A LAT, WB, °C (°F)	12.2	54.0	
	Tot. Heat Recovery, kW (MBH)	16.6	56.5	
Heat Recovery Wheel (Cooling Perf.)	Air Pressure Drop, Pa (in. WC)	92	0.37	
	Sensible Efficiency, %	89.8%		
	Latent Efficiency, %	84.6%		
	Total Efficiency, %	88.4%		
	Summer Conditions:			
	O/A EAT DB, °C (°F)	30.0	86.0	
	O/A EAT WB, °C (°F)	23.0	73.4	
	O/A LAT, DB, °C (°F)	25.1	77.2	
	O/A LAT, WB, °C (°F)	18.7	65.6	
	E/A EAT, DB, °C (°F)	29.4	85.0	
Heat Recovery Wheel (Heating Coil (H/C))	E/A EAT, WB, °C (°F)	22.4	72.3	
	E/A LAT, DB, °C (°F)	23.9	75.0	
	E/A LAT, WB, °C (°F)	17.2	63.0	
	Tot. Heat Recovery, kW (MBH)	6.3	21.6	
	Air Pressure Drop, Pa (in. WC)	92	0.37	
	Sensible Efficiency, %	89.6%		
	Latent Efficiency, %	84.3%		
	Total Efficiency, %	86.1%		
	Fluid Medium	40% Propylene Glycol		
	Total Capacity, kW (MBH)	24	81	
Heating Coil (H/C)	EAT, °C (°F)	-17.0	1.4	
	LAT, °C (°F)	38.7	101.7	
	Airflow, L/s (cfm)	354	750	
	Air Velocity, m/s (fpm)	0.71	139	
	Air PD, Pa (in. wc)	7.5	0.03	
	EFT, °C (°F)	54.4	130.0	
	LFT, °C (°F)	43.3	110.0	
	Fluid Flowrate, L/s (USgpm)	0.568	9.0	
	Fluid Velocity, m/s (fps)	1.46	4.8	
	Fluid PD, kPa (ft WC)	34.97	11.70	
Humidifier	Tag	not used		
	EAT, DB (Post Wheel & HC), °C (°F)	-	-	
	Entering Air Relative Humidity, %	-		
	Leaving Air Relative Humidity, %	-		
	Manifold Capacity, kg/h (lb/h)	-	-	
	Type	-		

ROOFTOP UNIT SCHEDULE				
Tag Information	Tag No.	RTU-1		
	Location	ROOF		
	Service	102-CALL DISPATCH		
	Basis of Design	Trane CSAA008		
	Model No.	Trane CSAA008		
	Type	Outdoor		
Supply Fan	Type, Quantity	Plenum Fan, (1)		-
	Airflow, L/s (cfm)	1,534	3,250	-
	O/A airflow, L/s (cfm)	131	278	-
	O/A Percentage (%)	9%		-
	ESP, Pa (in. wc)	187	0.75	-
	Max. TSP, Pa (in. wc)	717	2.88	-
	Drive Type	Direct		-
	Motor Control	VFD		-
	RPM	2,180		-
	Brake Horsepower, bhp	2.47		-
Return Fan	Motor Power, hp	3		-
	Inlet Sound Octave Bands 1 - 8, dB	-		-
	Outlet Sound Octave Bands 1 - 8, dB	-		-
	Type	Plenum Fan, (1)		--
	Airflow, L/s (cfm)	1,534	3,250	-
	ESP, Pa (in. wc)	124	0.50	-
	Max. TSP, Pa (in. wc)	286	1.15	-
	Drive Type	Direct		-
	Motor Control	VFD		-
	RPM	1,826		-
Filter	Brake Horsepower, bhp	1.33		-
	Motor Power, hp	1.5		-
	Inlet Sound Octave Bands 1 - 8, dB	-		-
	Outlet Sound Octave Bands 1 - 8, dB	-		-
	Pre-Filter	MERV 13		-
	Final Filter	MERV 13		-
Heating Coil (H/C)	Fluid Medium	40% Propylene Glycol		-
	Total, kW (MBH)	20.7	70.5	-
	EAT, °C (°F)	18.3	65.0	-
	LAT, °C (°F)	29.4	85.0	-
	Airflow, L/s (cfm)	1,534	3,250	-
	Air Velocity, m/s (fpm)	2.1	407	-
	Air PD, Pa (in. wc)	25.4	0.10	-
	EFT, °C (°F)	54.4	130.0	-
	LFT, °C (°F)	43.3	110.0	-
	Fluid Flowrate, L/min (USgpm)	29.7	7.8	-
Humidifier	Fluid Velocity, m/s (fps)	0.2	0.6	-
	Fluid PD, kPa (ft WC)	1.6	0.5	-
	Tag	-		-
	Type	-		-
	Required Manifold Capacity, kg/h (lb/h)	-	-	-
	Fluid Medium	40% Propylene Glycol		-
	Nominal Capacity, tons	10.8		-
	Total Cooling, kW (MBH)	38.1	130	-
	Sensible Cooling, kW (MBH)	22.1	75	-
	EAT, Dry Bulb, °C (°F)	24.4	76.0	-
Cooling Coil	EAT, Wet Bulb, °C (°F)	19.7	67.5	-
	LAT, Dry Bulb, °C (°F)	12.8	55.0	-
	LAT, Wet Bulb, °C (°F)	12.6	54.7	-
	Air Velocity, m/s (fpm)	2.0	400.0	-
	Air PD, Pa (in. wc)	130	0.5	-
	EFT, °C (°F)	5.6	42.0	-
	LFT, °C (°F)	11.1	52.0	-
	Fluid Flowrate, L/s (USgpm)	1.820	28.9	-
	Fluid Velocity, m/s (fps)	0.7	2.3	-
	Fluid PD, kPa (ft WC)	17.7	5.9	-
Elec.	Unit Elec. Supply (V/Ph/Hz)	575/3/60		-
	Unit FLA, A	8.84		-
	Unit MCA, A	9.82		-
	Unit MOP, A	15		-
	Lights & Controls Elec. Supply (V/Ph/Hz @ A)	120/1/60 @ 15A		-
Dimensions	Max. Dimensions, WxLxH, mm (in.)	1283 x 6607 x 1107	50.5 x 260.1 x 43.6	-
	Curb Height, mm (in.)	457	18	-
	Airflow Discharge Orientation	Rear		-
	Piping Feed	Side		-
	Weight, kg (lb)	1,571	3461	-

Notes	
(1)	Refer to specification section 23 72 00 - Hydronic Air Handling Units
(2)	O/A provided by HRU-1 via ductwork, refer to drawings
(3)	
(4)	
(5)	

AIR-COOLED HEAT RECOVERY CHILLER SCHEDULE					
Tag Information	Tag No.	CH-1,2,3			
	Location	Roof			
	Service	Building Heating/Cooling			
	Manufacturer	Trane			
	Model No.	AMC30T			
	Type	Air-Cooled Heat Recovery Scroll			
General	Nominal Tonnage, tons	60T (3 x 30T)		-	
	Refrigerant Type	R-454B		-	
	Number of Modules	3 (2 duty, 1 standby)		-	
Module (each)	Total Refrigerent Charge, kg (lb)	54.4	120	-	-
	Refrigerent per Circuit, kg (lb)	27.2	60	-	-
	Number of Compressors	2		-	
Module (each)	Number of Circuits	2		-	
	Number of Capacity Steps	2 (VFD on 1st Step)		-	
	Cooling Fluid Medium	40% Propylene Glycol		-	
Fluid Conditions	Cooling EFT, °C (°F)	11.1	52	-	-
	Cooling LFT, °C (°F)	5.6	42	-	-
	Heating Fluid Medium	40% Propylene Glycol		-	
	Heating EFT, °C (°F)	43.3	110	-	-
	Heating LFT, °C (°F)	54.4	130	-	-
Cooling Only Performance	Cooling Capacity, tons	51.3		-	
	Cooling Capacity, kW (MBH)	180	616	-	-
	Cooling Flow, L/s (US gpm)	8.631	136.8	-	-
	Press. Drop, kPa (ft WC)	29.1	9.75	-	-
	Min. Unloading, tons	12.8		-	
	Design Fluid Flow, L/s (US gpm)	8.631	136.8	-	-
	Min. Fluid Flow, L/s (US gpm)	2.153	34.1	-	-
	Fouling Factor, hr-sq.ft. F/Btu	0.0001		-	-
	Condenser Airflow, L/s (cfm)	19.824	42,000	-	-
	Design Ambient Temp. DB, °C (°F)	35.0	95	-	-
Heat Recov. Perform.	Number of Fans	4		-	
	Efficiency - 100% Load, kW/ton	1.2114		-	
	EER (BTU/W-h)	9.906		-	
	Cooling Capacity, tons	48.09		-	
	Cooling Capacity, kW (MBH)	169	577	-	-
	Cooling Flow, L/s (US gpm)	8.091	128.2	-	-
	Cooling PD, kPa (ft WC)	20.6	8.90	-	-
	Heating Capacity, kW (MBH)	227	773	-	-
	Heating Flow, L/s (US gpm)	5.419	85.9	-	-
	Heating PD, kPa (ft WC)	12.4	4.15	-	-
Elec. (per Module)	Efficiency - 100% Load, kW/ton	1.3261		-	
	COP	3.55		-	
	Electrical Supply (V/Ph/Hz)	575/3/60 (x3)		-	
	FLA, A	45.9 (x3)		-	
	MCA	52 (x3)		-	
Misc.	MOP	70 (x3)		-	
	Starter	Compressor 1: VFD Compressor 2: Across the Line		-	
	Sound Pressure, dBA	84.7		-	-
Misc.	Operating Weight, kg (lb)	1,241	2,735	-	-
	Max. Dimensions, WxLxH, mm (in.)	2430 x 2907 x 2260	96 x 118 x 89	-	-
	Structural Frame Height, mm (in)	508	20	-	-
Notes		(all)		-	

BUFFER TANK SCHEDULE						
Tag Information	Tag No.	BT-1		BT-2		
	Location	Mechanical Room (114)		Mechanical Room (114)		
	Service	Heating Glycol		Chilled Glycol		
	Manufacturer	Wessels Company		Wessels Company		
	Model No.	HBT-200		CBT-200		
Tank	Tank Volume, L (USgal.)	757	200	757	200	-
	Connection Size, mm (in.)	102	4	102	4	-
Misc.	Dry Weight, kg (lb)	277	609	277	609	-
	Wet Weight, kg (lb)	1,035	2,277	1,035	2,277	-
	Max. Dimensions, DxH, mm (in.)	762 x 1829	30 x 72	762 x 1829	30 x 72	
Notes		(all)		(all)		

Notes						
(1) Refer to specifications section 23 71 13 - Hydronic Buffer Tanks.						
(2)						
(3)						

EXPANSION TANK SCHEDULE						
Tag Information	Tag No.	ET-1		ET-2		
	Location	Mechanical Room (114)		Mechanical Room (114)		
	Service	Heating Glycol		Chilled Glycol		
	Manufacturer	Wessels Company		Wessels Company		
	Model No.	NLA-85		NLA-35		
Tank Parameters	Tank Volume, L (USgal.)	87	23	38	10	
	Acceptance Volume, L (USgal.)	87	23	69	10	
	System Volume, L (USgal.)	1,185	313	2,120	560	
	Min. System Temp., °C (°F)	4	40	6	42	
	Max. System Temp., °C (°F)	54	130	11	52	
	Initial Pressure, kPa (psi)	172	25	172	25	
	Final Pressure, kPa (psi)	379	55	379	55	
Misc.	Dry Weight, kg (lb)	41	90	18	40	
	Wet Weight, kg (lb)	128	282	56	123	
	Max. Dimensions, DxH, mm (in.)	508x940	20x37	381x762	15x30	
Notes		(1)		(1)		

Notes						
(1) Refer to specifications section 23 21 17 - Hydronic Expansion Tanks.						
(2)						
(3)						
(4)						

INSTANTANEOUS DHW HEATER SCHEDULE						
Tag Information	Tag No.	IWH-1		IWH-2		IWH-3
	Location	M/W W/C		Univ W/C		Kitchen/Janitor
	Service	DHW - LAV x2		DHW - LAV		DHW - JS, KS
	Basis of Design	Eemax		Eemax		Eemax
	Model No.	SPEX8208T ML		SPEX4208T ML		XTP032208
Heater	Type	Wall Mount Electric		Wall Mount Electric		Wall Mount Electric
	Flow, L/min (USgpm)	1.3	0.4	0.8	0.2	9.5
	Turn-on Flow, L/min (USgpm)	0.8	0.2	0.8	0.2	1.9
	Min. Inlet Temperature, °C (°F)	4	40	4	40	4
	Min. Temperature Rise, °C (°F)	44	80	44	80	49
	Min. Output Temperature, °C (°F)	49	120	49	120	54
	Temperature Setting, °C (°F)	43	110	43	110	43
Heater	Heating Input, kW	8.3		4.1		31.2
	Electrical Supply (V/Ph/Hz)	575/3/60		575/3/60		575/3/60
	FLA, (A)	40.0		20.0		87.0
	Operating Weight, kg (lb)	2	4	2	4	16
	Max. Dimensions, LxWxH, mm (in.)	134 x 77	5.25 x 3	134 x 77	5.25 x 3	521 x 150
Notes		(1),(2)		(1),(2)		(1),(2)

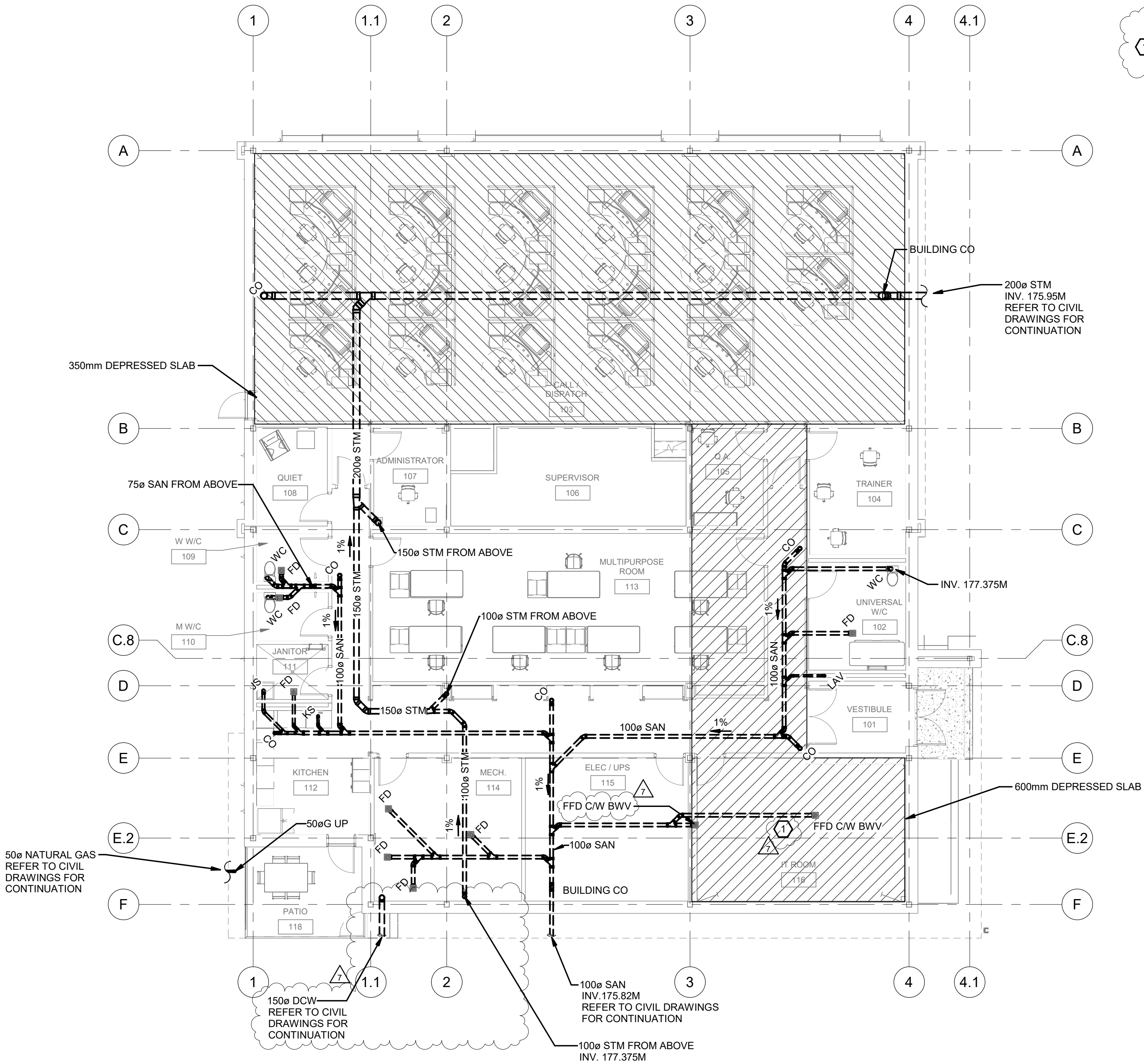
Notes						
(1) Refer to specifications section 22 34 37 - Domestic Hot Water Heaters.						
(2) C/w selectable display including: Celsius/Fahrenheit, setpoint, flow rate, inlet temperature, outlet temperature						

COMPUTER ROOM AIR CONDITIONING (CRAC) UNIT SCHEDULE						
Tag Info	Tag No.	CRAC-1 (A/B)		CRAC-2 (A/B)		
	Location	IT Room (116)		IT Room (116)		
	Service	IT Room (116)		IT Room (116)		
	Manufacturer	Liebert		Liebert		
	Model No.	CRV Model CR040RC		CRV Model CR032RC		
Supply Fan	Nominal Capacity, kW (tons)	40	11.5	32	9.0	
	Type, Quantity	EC Plug Fans, 2		EC Plug Fans, 6		
Cooling Coil	Airflow, L/s (cfm)	1,708	3,620	1,180	2,500	
	ESP, Pa (in. WC)	0.0	0.00	0.0	0.00	
	Motor BHP	-		-		
	Motor Rated HP	-		-		
	Fluid	40% Prop. Glycol		40% Prop. Glycol		
	Total Cooling, kW (tons)	26.4	7.50	19.7	5.60	
	Sensible Cooling, kW (tons)	25.1	7.15	15.7	4.48	
	EAT, Dry Bulb, °C (°F)	26.7	80.0	26.7	80.0	
	EAT, Wet Bulb, °C (°F)	17.1	62.7	17.1	62.7	
	LAT, Dry Bulb, °C (°F)	14.3	57.7	15.4	59.8	
	LAT, Wet Bulb, °C (°F)	13.3	56.0	14.4	58.0	
	EWLT, °C (°F)	5.6	42.0	5.6	42.0	
	LWLT, °C (°F)	11.1	52.0	11.1	52.0	
	Water Flowrate, L/s (gpm)	1.26	20.0	0.94	14.9	
	Water PD, kPa (ft WC)	74.7	25.0	92.7	31.0	
Elec.	Electrical Supply (V/Ph/Hz)	208/3/60		208/3/60		
	FLA, A	24.9		7.5		
	MCA, A	31.1		8.3		
	MOCP, A	35.0		15.0		
	Reheat Type (Dehumidification)	Electric (1 stage)		-		
Misc.	Reheat Capacity, kW (MBH)	4.9	16.7	-	-	
	Humidifier Type	Steam Generating Canister		-		
	Humidifier Capacity, kg/hr (lb/hr)	2.3	5.0	-	-	
	Filter	MERV 8		MERV 8		
	Max. Dimensions, WxLxH, mm (in.)	600 x 1100 x 2000	24 x 43.3 x 79	600 x 1100 x 2000	24 x 43.3 x 79	
Weight, kg (lb)		330.2	728.0	189.6	418.0	
Notes		(all)		(all)		

Notes						
(1) Refer to specification section 23 81 23 - Computer Room Air Conditioning Units.						
(2) C/w non-fused disconnect, and internal condensate pump.						
(3) C/w controls, BACnet IP, touchscreen display, and remote rack temperature sensors (provide a sufficient number of sensors to measure the temperature of all racks in room)						
(4) Provide leak detection canble under each CRAC						
(5) Provide seismic bracing for Post-Disaster building						

CABINET AND UNIT HEATERS SCHEDULE						
Tag Information	Tag No.	FFH-1		FFH-2		-
	Location	Vestibule 101		Kitchen 112		-
	Service	Vestibule 101		Kitchen 112		-
	Manufacturer	Trane		Trane		-
	Model No.	FFDB030		FFDB020		-
Fan	Mounting	Wall Mount Recessed		Ceiling Mount Recessed		-
	Arrangement	Front top inlet Front bottom outlet		Bottom top inlet Bottom bottom outlet		-
Cool Data	Fan Type	Centrifugal		Centrifugal		-
	Airflow, L/s (cfm)	142	300	142	300	-
	Fluid Type	40% Propylene Glycol		40% Propylene Glycol		-
	Heating Capacity, kW (MBH)	4.4	15.0	4.4	15.0	-
	EAT, °C (°F)	15.6	60	15.6	60	-
	LAT, °C (°F)	41.3	106	41.3	106	-
	Fluid Flowrate, L/s (USgpm)	0.105	1.7	0.105	1.7	-
	Pressure Drop, kPa (ft WC)	9.0	3	9.0	3	-
	EWLT, °C (°F)	54.4	130.0	54.4	130.0	-
	LWLT, °C (°F)	43.3	110.0	43.3	110.0	-
Misc.	Motor Power, hp	1/8		1/8		-
	Electrical Supply (V/Ph/Hz)	120/1/60		120/1/60		-
	Weight, kg (lb)	35.4	78.0	35.4	78.0	-
Notes		(1),(2)		(1),(2)		-
Notes						
(1) Refer to specifications section 23.82.39 - Cabinet and Unit Heaters						
(2) C/w statet. Thermostat to be provided by BAS contractor						

FAN COIL UNIT SCHEDULE (1 OF 2)						
Tag Information	Tag No.	FCU-1		FCU-2		FCU-3
	Location	114-MECH ROOM		117-CORRIDOR		117-CORRIDOR
	Service	115-ELEC/UPS		ADMIN & QUIET		QA & TRAINER
	Manufacturer	Trane		Trane		Trane
	Model No.	BCHE120		FCCB040		FCCB060
Fan	Type	Horizontal Ducted		Horizontal Ducted		Horizontal Ducted
	Max. Airflow, L/s (cfm)	1,888	4,000	189	400	283
Cooling Coil	Design Airflow, L/s (cfm)	1,888	4,000	118	250	142
	Outdoor Air, L/s (cfm)	19	40	14	30	19
	ESP, Pa (in wc)	75	0.3	75	0.3	75
	Fluid	40% Propylene Glycol		40% Propylene Glycol		40% Propylene Glycol
	Total Cooling, kW (MBH)	28.9	101.7	1.8	6.4	2.9
	Sensible Cooling, kW (MBH)	28.9	101.7	1.4	4.9	2.0
	EAT DB, °C (°F)	29.4	85.0	23.9	75.0	23.9
	EAT WB, °C (°F)	17.5	63.5	18.3	65.0	18.3
	LAT DB, °C (°F)	16.6	61.8	13.8	56.9	12.2
	LAT WB, °C (°F)	12.7	54.9	13.6	56.6	11.9
	Fluid Flow Rate, L/min (gpm)	71	18.8	5	1.4	9
	Max Fluid PD, kPa (ft.wc)	20.3	6.8	15.8	5.3	16.1
	EWLT, °C (°F)	5.6	42	5.6	42	5.6
	LWLT, °C (°F)	12.2	54	11.1	52	11.1
	Fluid	40% Propylene Glycol		40% Propylene Glycol		40% Propylene Glycol
Heating Coil	Total Heating, kW (MBH)	6.3	21.6	1.3	4.6	1.6
	EAT, °C (°F)	21.1	70.0	20.0	68.0	20.0
	LAT, °C (°F)	23.9	75.0	29.4	85.0	29.4
	Fluid Flow Rate, L/min (gpm)	8.2	2.2	1.7	0.5	2.1
	Max Fluid PD, kPa (ft.wc)	0.6	0.2	4.0	1.4	7.8
Misc.	EWLT, °C (°F)	54.4	130.0	54.4	130.0	54.4
	LWLT, °C (°F)	43.3	110.0	43.3	110.0	43.3
	Pre-Filter	MERV 8		MERV 8		MERV 8
Elec.	Sound Octave Bands 1-8 (Casing), dB	1473x 1041x660		635 x 957 x 254		635 x 1199 x 254</



GENERAL PLUMBING AND DRAINAGE NOTES (UNDERSLAB):

1. THE ENTIRE PLUMBING INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ONTARIO BUILDING CODE AND ALL LOCAL BYLAWS AND REGULATIONS IN EFFECT AT THE TIME OF TENDERING AND CONSTRUCTION.
2. ALL SANITARY DRAINAGE BELOW GRADE SHALL BE MINIMUM OF 75 mm (3 IN.) UNLESS INDICATED OTHERWISE.
3. ALL FLOOR DRAINS SHALL BE COMPLETE WITH TRAPS AND TRAP PRIMERS.
4. ALL STORM DRAINAGE BELOW GRADE SHALL BE MINIMUM 100 mm (4 IN.) UNLESS INDICATED OTHERWISE.
5. CONTRACTOR TO SIZE AND ROUTE ALL SANITARY VENTING TO LATEST ONTARIO PLUMBING CODE.
6. COORDINATE FINAL LOCATION WITH FLOOR DRAINS, AND HUB DRAINS THAT RECEIVE CONDENSATE DRAINAGE FROM HVAC AND OTHER EQUIPMENT.
7. COORDINATE FINAL LOCATIONS OF ALL STORM AND SANITARY CLEANOUTS WITH FINAL EQUIPMENT LAYOUT. ENSURE CLEANOUTS ARE ACCESSIBLE.
8. CLEANOUT IS REQUIRED AT THE BASE OF EVERY STORM AND SANITARY PIPE DROP.

KEYNOTES:

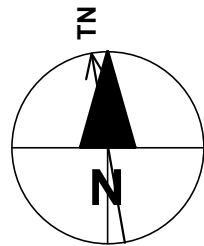
- 1 PROVIDE LEAK DETECTION UNDERNEATH CRAC UNITS.



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NORTH:



Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

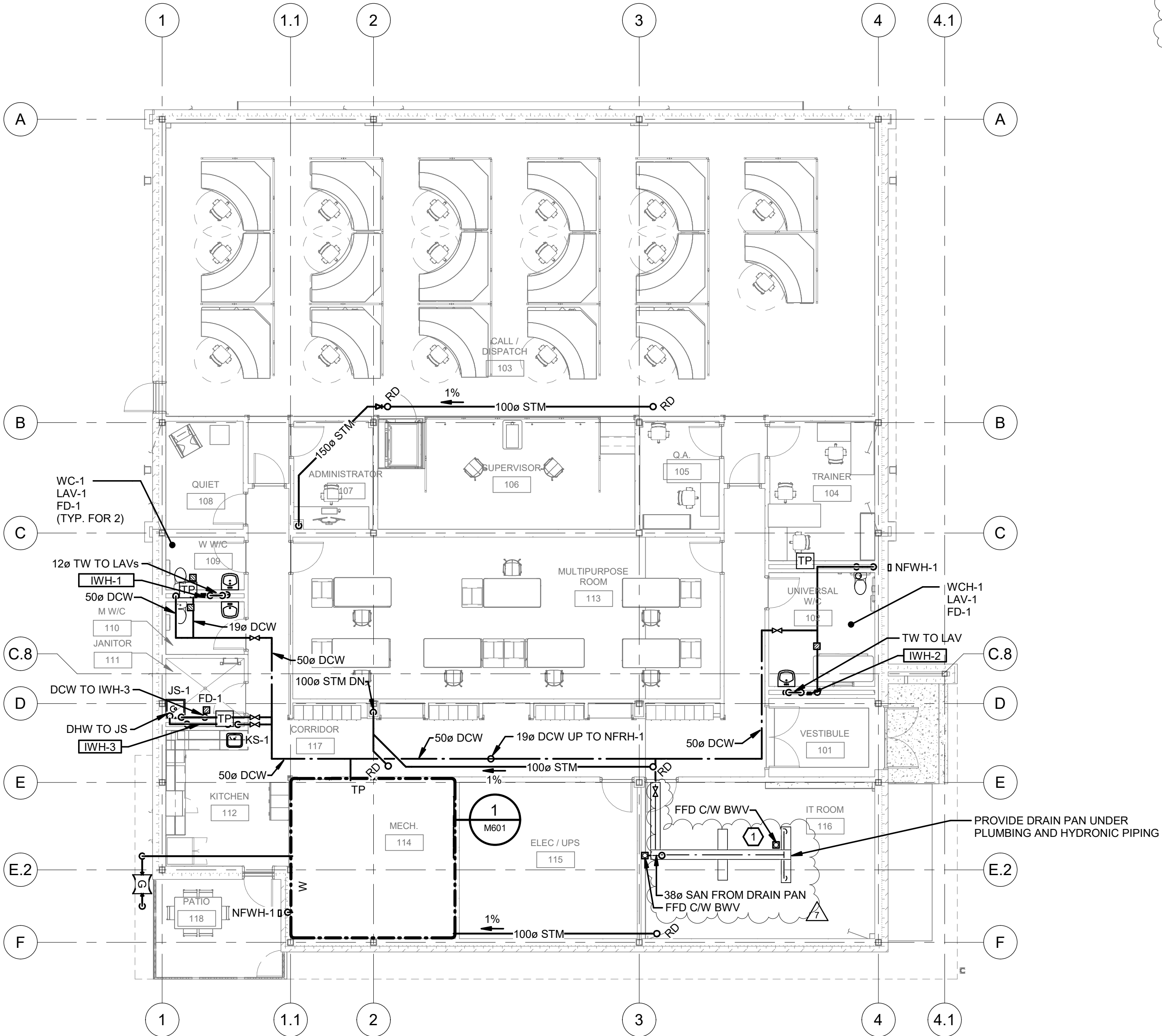
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6	2025-01-23	ISSUED FOR TENDER
5	2024-12-13	RE-ISSUED FOR PERMIT
4	2024-11-29	ISSUED FOR CLIENT REVIEW
3	2024-10-30	ISSUED FOR PERMIT
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD

Revision History

Filename:	Version:
60686829	2020.2.5
Project Number:	Project Manager:
60686829	BIM/VDC Manager:
Project Administrator:	
Sustainability Target:	IPMS 1 (m ²): IPMS 2 (m ²):
Designed:	Date (yyyy-mm-dd):
AP	
Drawn:	Date (yyyy-mm-dd):
LD	
Reviewed:	Date (yyyy-mm-dd):
Checked:	Date (yyyy-mm-dd):
JS	
Approved:	Date (yyyy-mm-dd):

Title:
**GROUND FLOOR PLAN -
UNDERSLAB PLUMBING**

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GENERAL PLUMBING AND DRAINAGE NOTES (ABOVE GRADE):

1. THE ENTIRE PLUMBING INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ONTARIO PLUMBING CODE AND ALL LOCAL BYLAWS AND REGULATIONS IN EFFECT AT THE TIME OF TENDERING AND CONSTRUCTION.
2. ALL FLOOR DRAINS SHALL BE COMPLETE WITH TRAPS AND TRAP PRIMERS.
3. ALL DOMESTIC COLD WATER AND DOMESTIC HOT WATER PIPES SHALL BE MINIMUM 19 MM (3/4 IN.) UNLESS INDICATED OTHERWISE.
4. ALL PIPING SHALL BE OVERHEAD.
5. CONTRACTOR TO SIZE AND ROUTE ALL SANITARY VENTING TO LATEST ONTARIO PLUMBING CODE.
6. COORDINATE FINAL LOCATION WITH FLOOR DRAINS, AND HUB DRAINS THAT RECEIVE CONDENSATE DRAINAGE FROM HVAC AND OTHER EQUIPMENT.
7. PROVIDE 25 MM INSULATION ON ALL HORIZONTAL RAINWATER PIPING (FROM ROOF DRAIN TO VERTICAL LEADER).
8. PROVIDE A CLEANOUT AT THE BASE OF EVERY STORM OR SANITARY DROP PRIOR TO DROPPING BELOW SLAB.

KEYNOTES:

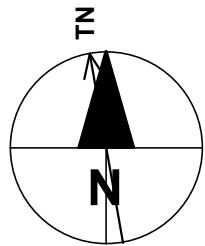
- 1 PROVIDE LEAK DETECTION UNDERNEATH CRAC UNITS. ⚠



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Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

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3	2024-10-30	ISSUED FOR PERMIT
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD

Mark	Date	Description
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Revision History

Filename: 60686829
Version: 2020.2.5

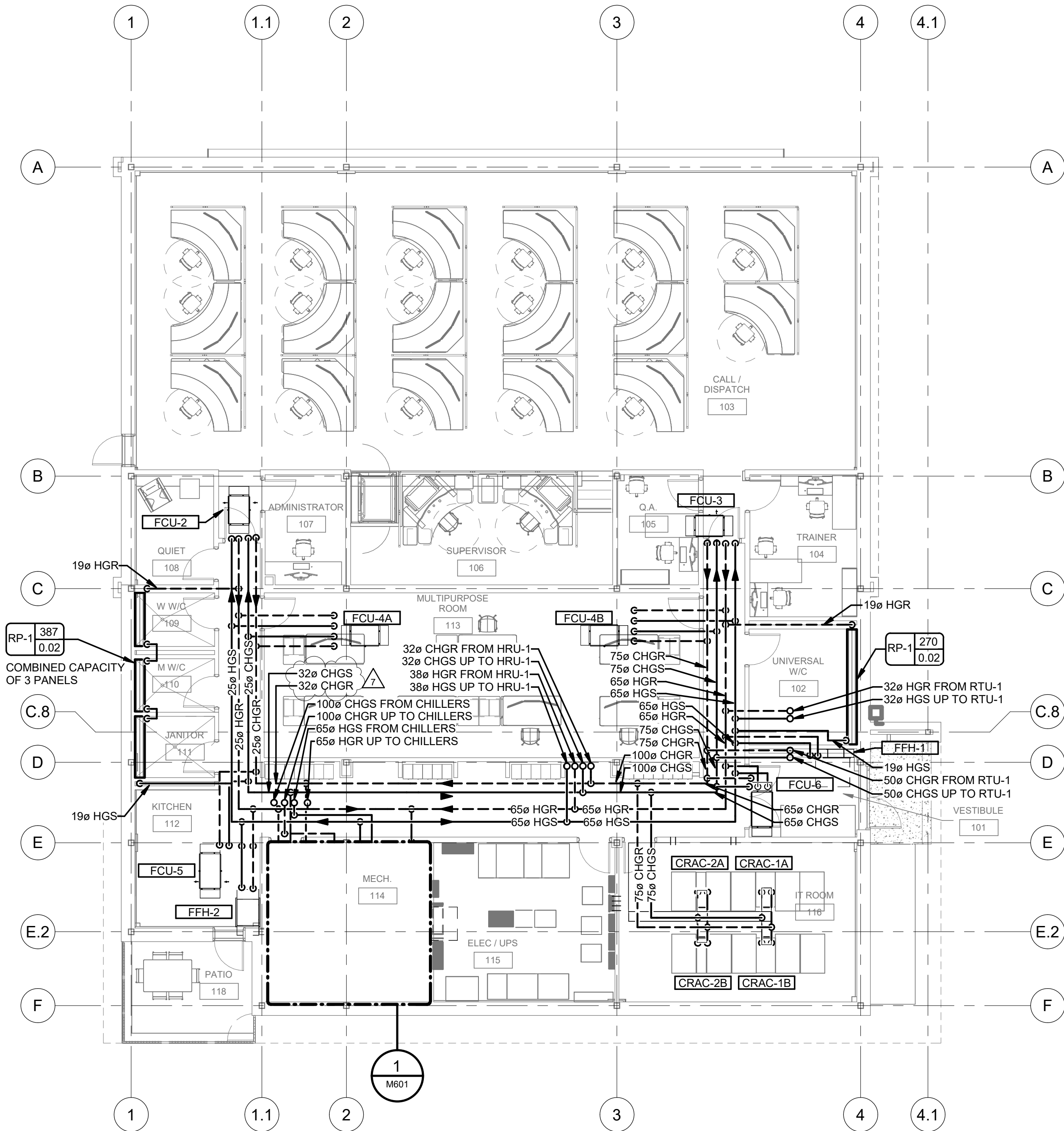
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Project Administrator:		BIM/VDC Manager:	
Sustainability Target:	IPMS 1 (m ²):	IPMS 2 (m ²):	
Designed:	AP	Date (yyyy-mm-dd):	
Drawn:	LD	Date (yyyy-mm-dd):	
Reviewed:		Date (yyyy-mm-dd):	
Checked:	JS	Date (yyyy-mm-dd):	
Approved:		Date (yyyy-mm-dd):	

Title:

GROUND FLOOR PLAN -
PLUMBING

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Rev: 7
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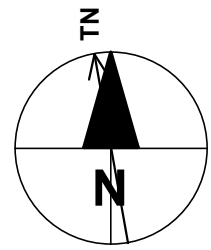
- GENERAL HYDRONIC SYSTEM NOTES:**
1. ALL HYDRONIC PIPING SHALL BE MINIMUM OF 19 MM (3/4 IN.) UNLESS INDICATED OTHERWISE.
 2. TEMPERATURE SENSORS ARE LOCATED TO AID IN PRICING ONLY AND ALL REQUIRED SENSORS MAY NOT BE SHOWN. COORDINATE FINAL LOCATION WITH THE ARCHITECTS WITHIN 1000 MM (40 IN.) OF THE SHOWN LOCATION.
 3. TEMPERATURE SENSORS SHALL BE 1200 MM (48 IN.) ABOVE THE FINISHED FLOOR UNLESS INDICATED OTHERWISE.
 4. ALL PIPING SHALL BE OVERHEAD, TIGHT TO UNDERSIDE OF THE STRUCTURE WITH SUFFICIENT ROOM FOR INSULATION UNLESS INDICATED OTHERWISE. RUN PIPING WITHIN STRUCTURAL STEEL STRATA WHERE PRACTICAL AND IN EXPOSED AREAS.



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Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

7	2025-02-28	ISSUED FOR ADDENDUM #3
6	2025-01-23	ISSUED FOR TENDER
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4	2024-11-29	ISSUED FOR CLIENT REVIEW
3	2024-10-30	ISSUED FOR PERMIT
2	2024-08-30	ISSUED FOR 30% CD
1	2024-07-26	ISSUED FOR 100% DD

Mark	Date	Description

Revision History

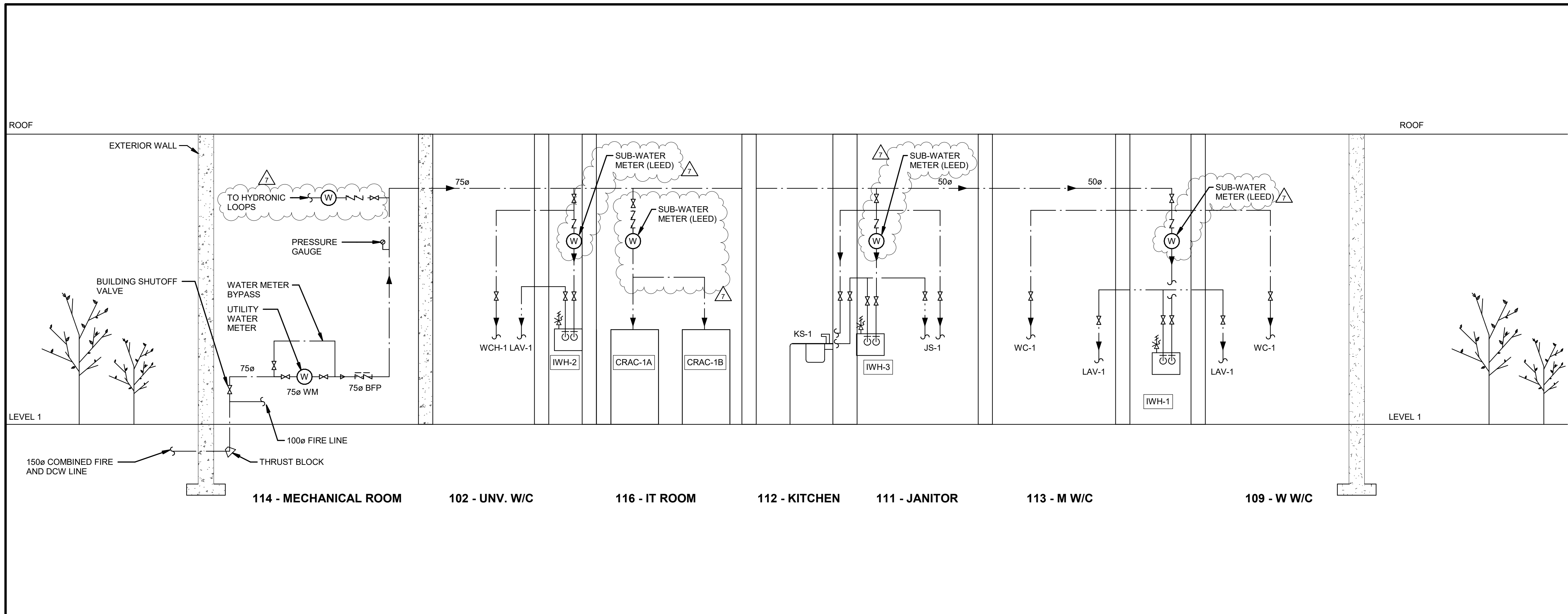
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Version: 2020.2.5

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Project Administrator:		BIM/VDC Manager:	
Sustainability Target:	IPMS 1 (m ²):	IPMS 2 (m ²):	
Designed:	AP	Date (yyyy-mm-dd):	
Drawn:	LD	Date (yyyy-mm-dd):	
Reviewed:		Date (yyyy-mm-dd):	
Checked:	JS	Date (yyyy-mm-dd):	
Approved:		Date (yyyy-mm-dd):	

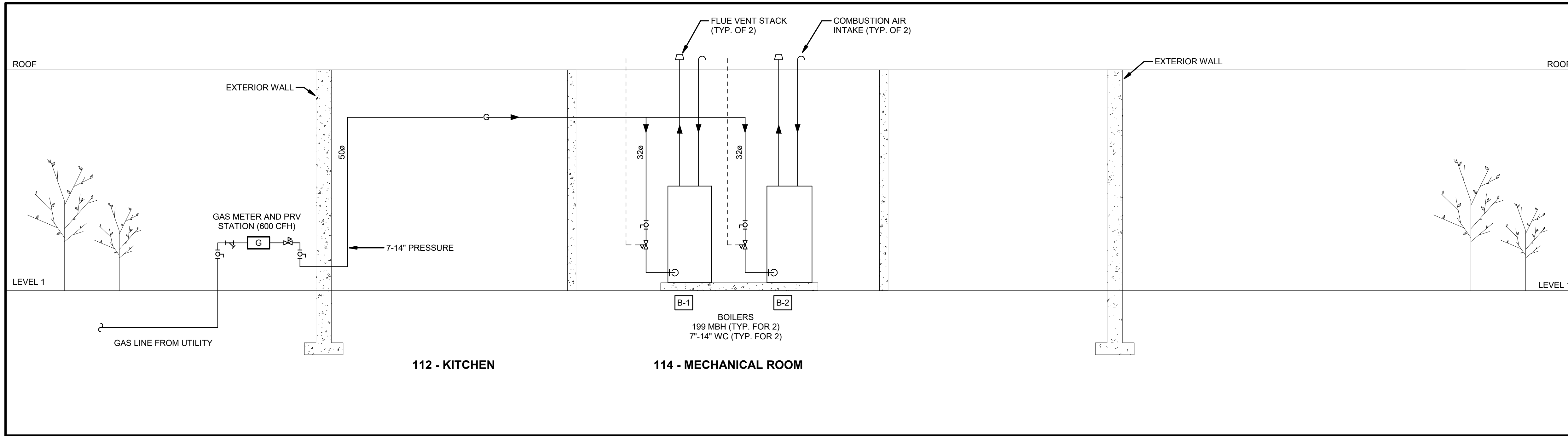
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GROUND FLOOR PLAN - HVAC PIPING

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1 DOMESTIC WATER SCHEMATIC
M501 NTS



2 GAS SCHEMATIC
M501 NTS



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NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

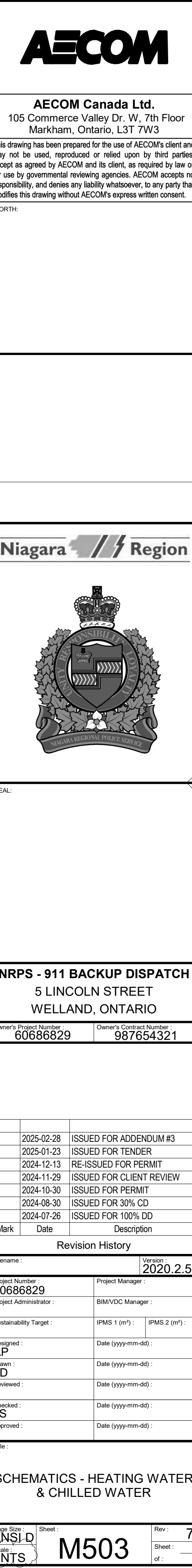
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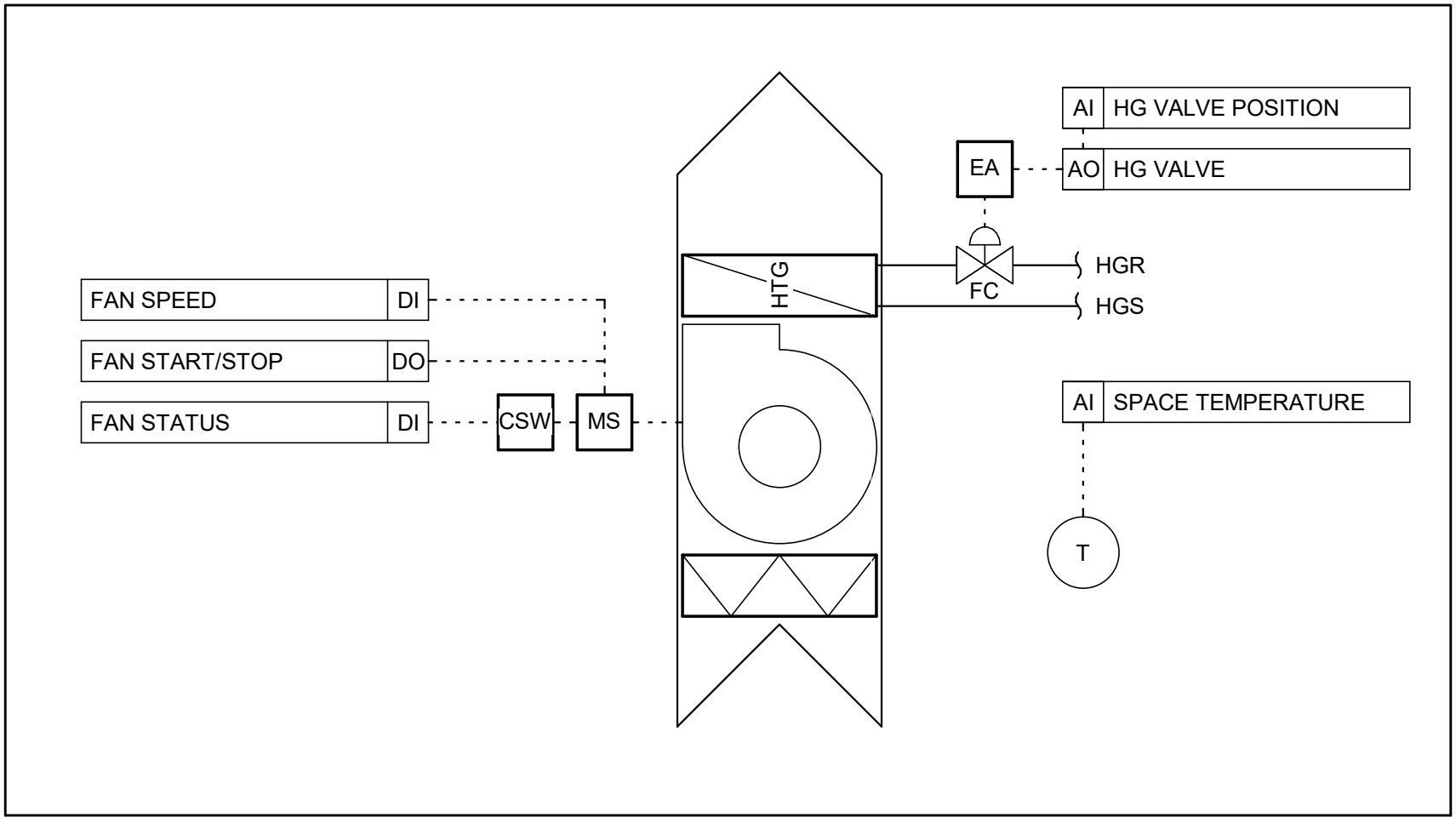
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60686829		
Project Administrator:	BIM/VDC Manager:	
Sustainability Target:	IPMS 1 (m ²):	IPMS 2 (m ²):
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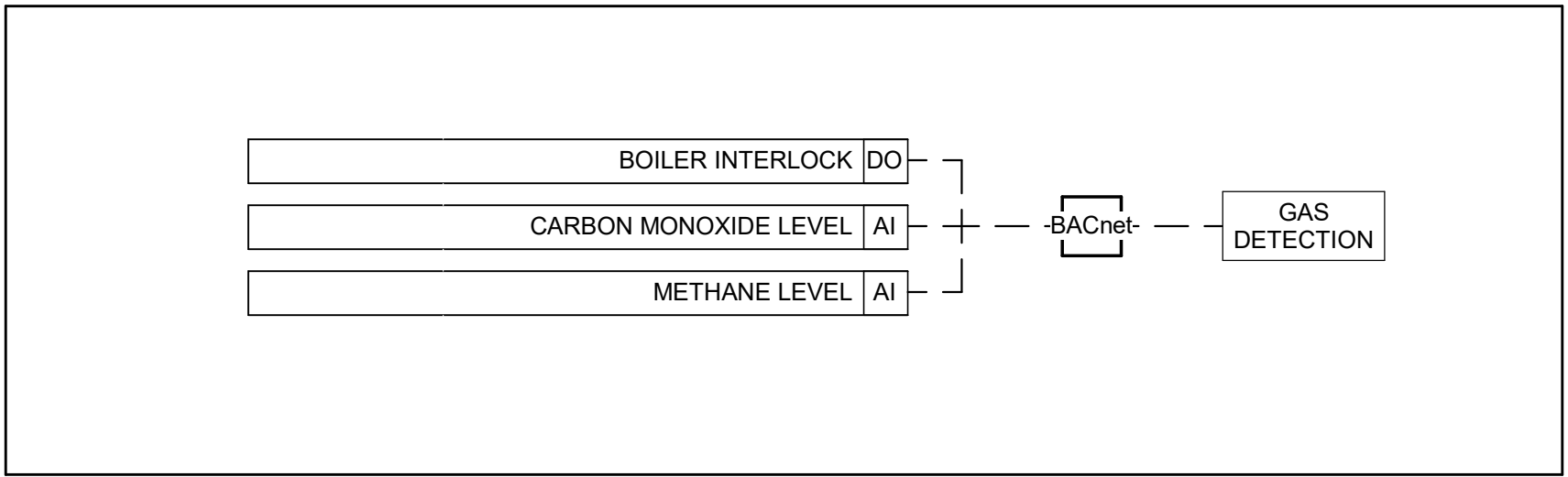
SCHEMATICS - PLUMBING & GAS

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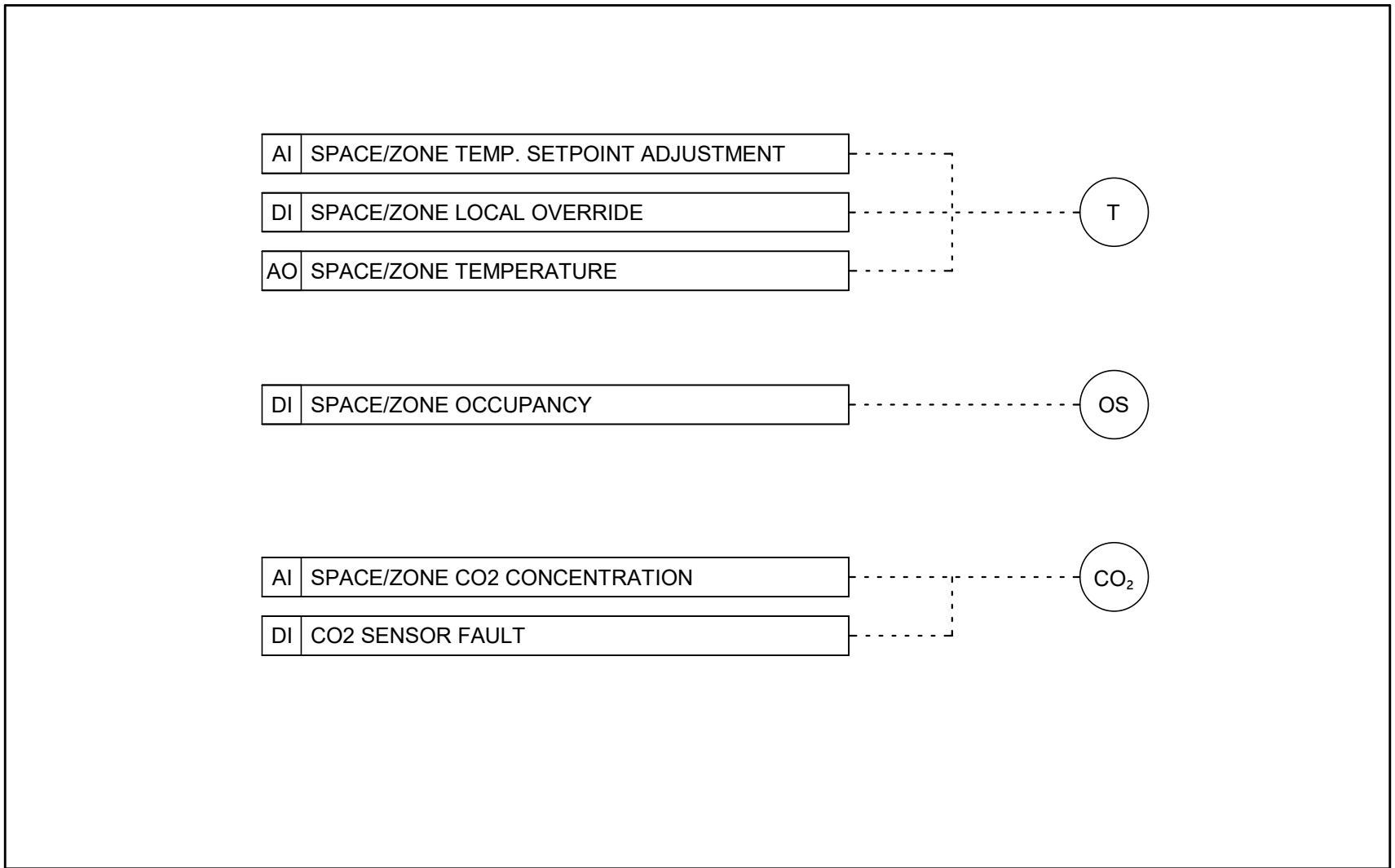




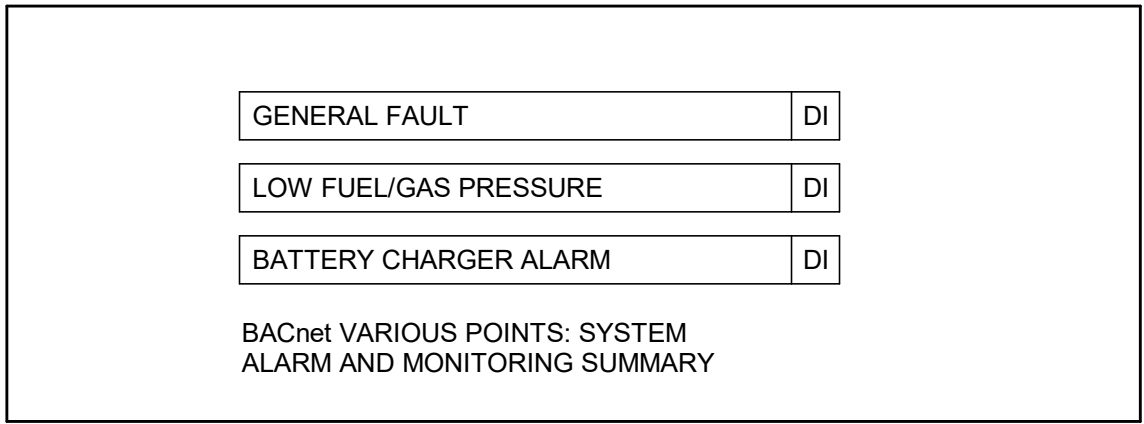
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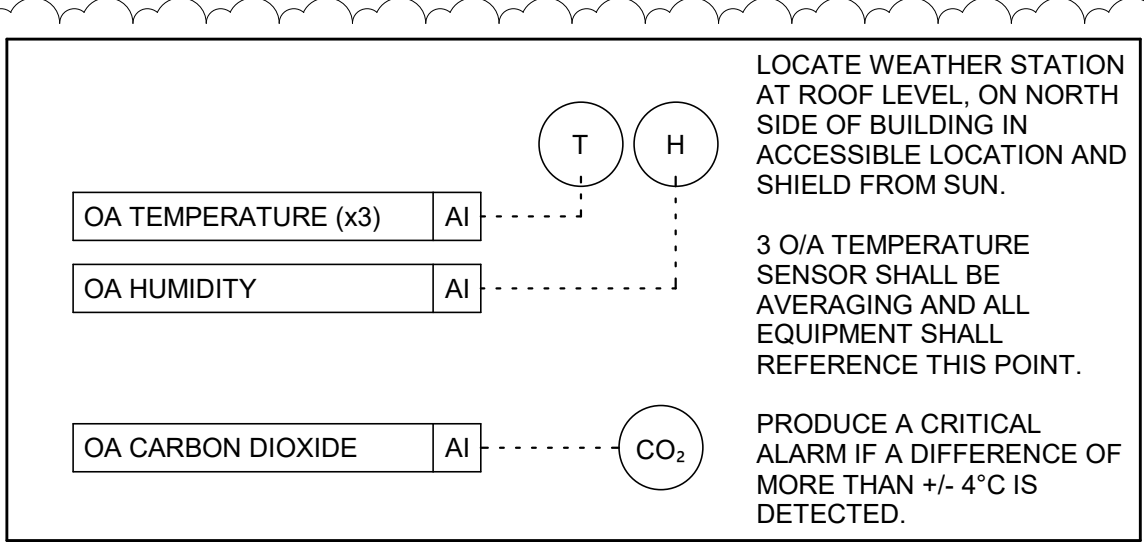
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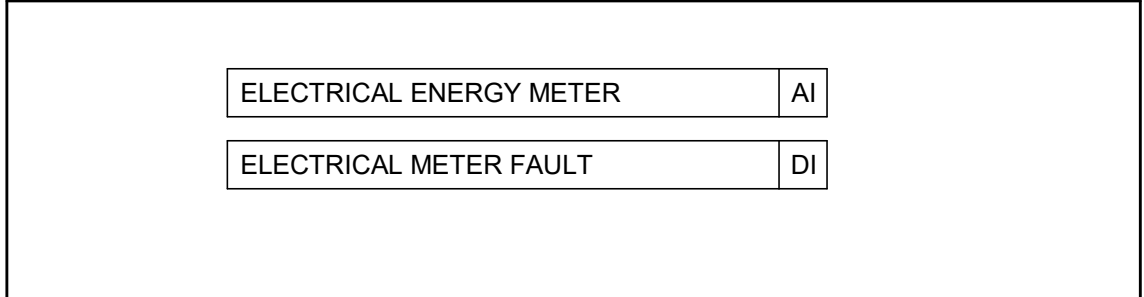
11 TYPICAL SPACE/ROOM CONTROLS
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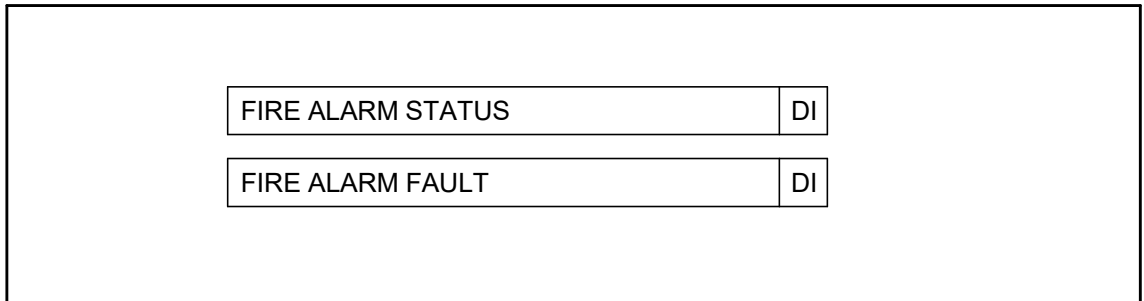
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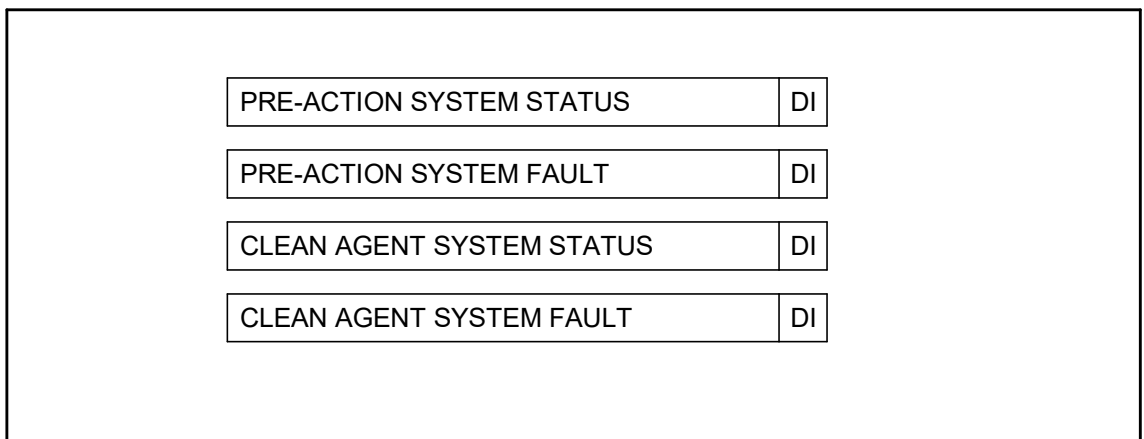
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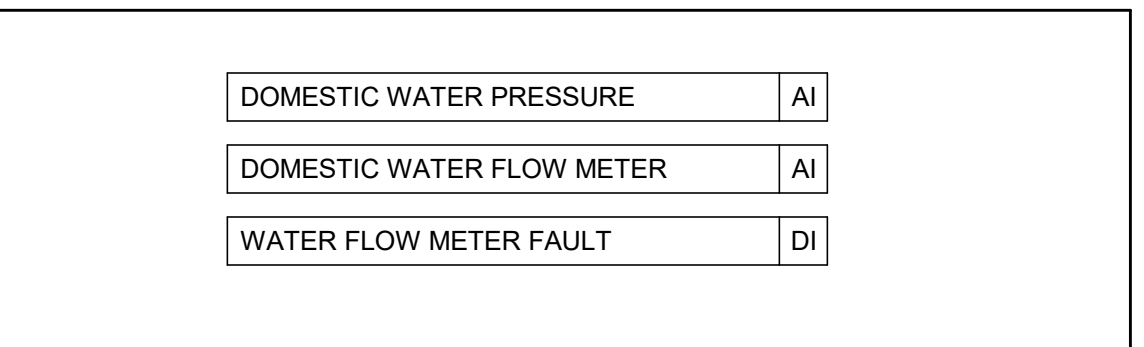
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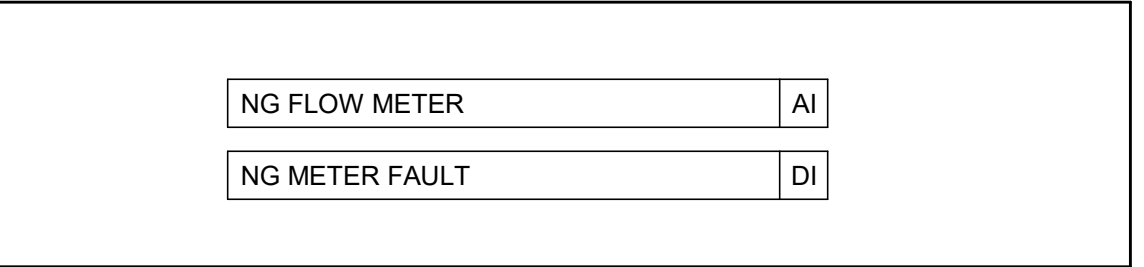
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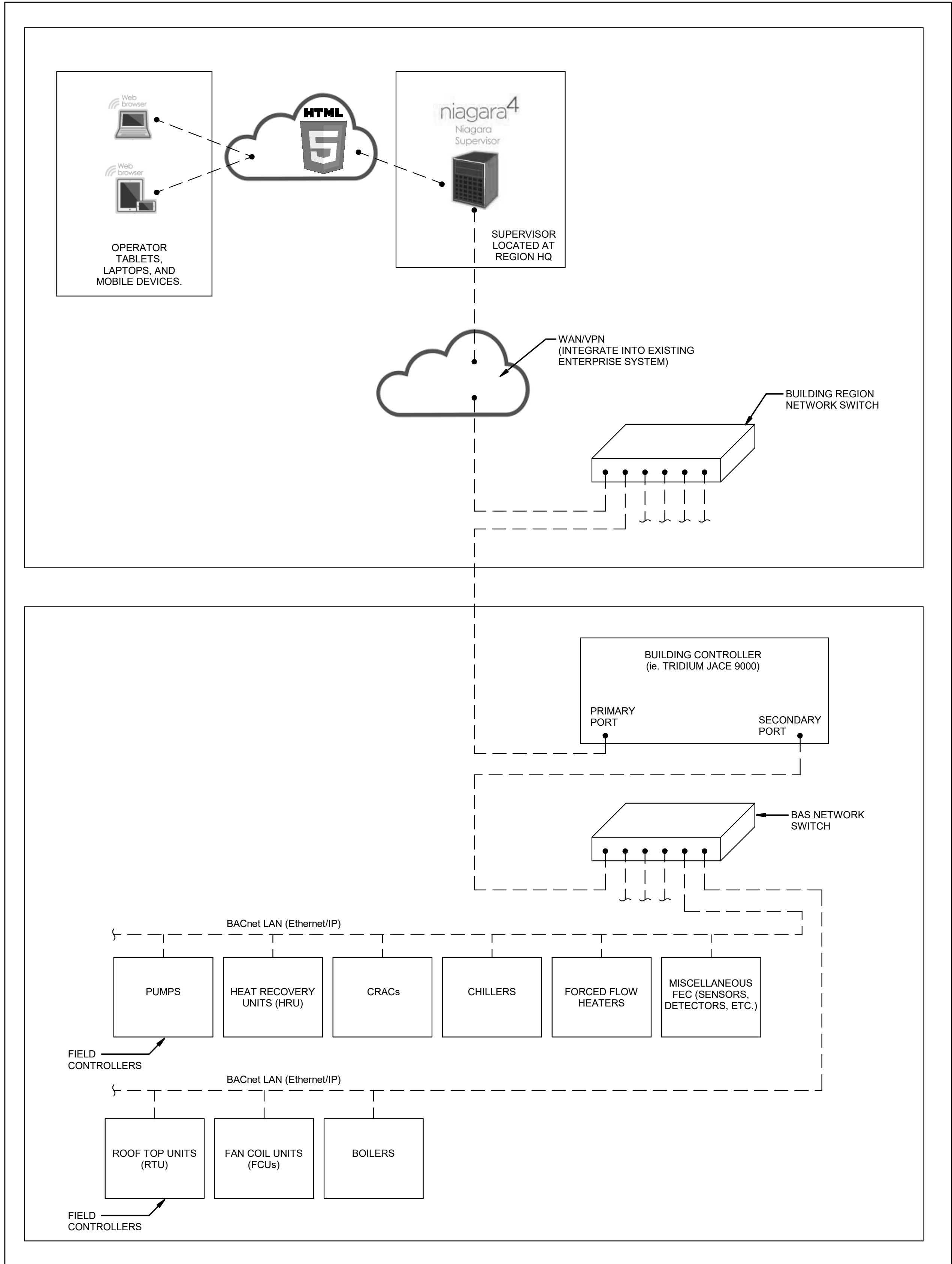
6 TYPICAL FIRE PROTECTION/SUPPRESSION SYSTEM
Scale: NTS



7 TYPICAL DOMESTIC WATER MONITORING
Scale: NTS



8 TYPICAL NATURAL GAS METERING
Scale: NTS



1 TYPICAL BACnet ARCHITECTURE DIAGRAM
Scale: NTS



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NORTH:

Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

4	2025-02-28	ISSUED FOR ADDENDUM #3
3	2025-01-23	ISSUED FOR TENDER
2	2024-12-13	RE-ISSUED FOR PERMIT
1	2024-11-29	ISSUED FOR CLIENT REVIEW
Mark	Date	Description

Revision History

Filename: 2020.2.5

Project Number: 60686829	Project Manager:
Project Administrator:	BIM/VDC Manager:
Sustainability Target:	IPMS 1 (m ²): IPMS 2 (m ²):
Designed: AP	Date (yyyy-mm-dd):
Drawn: LD	Date (yyyy-mm-dd):
Reviewed:	Date (yyyy-mm-dd):
Checked: JS	Date (yyyy-mm-dd):
Approved:	Date (yyyy-mm-dd):

Title:

CONTROL SCHEMATICS - GENERAL

Autodesk Docs/BBP-AMER (CAN) 60686829-NRPS 911 Backup Dispatch/60686829-NRPS 911 Backup Dispatch - M - RVT24.rvt
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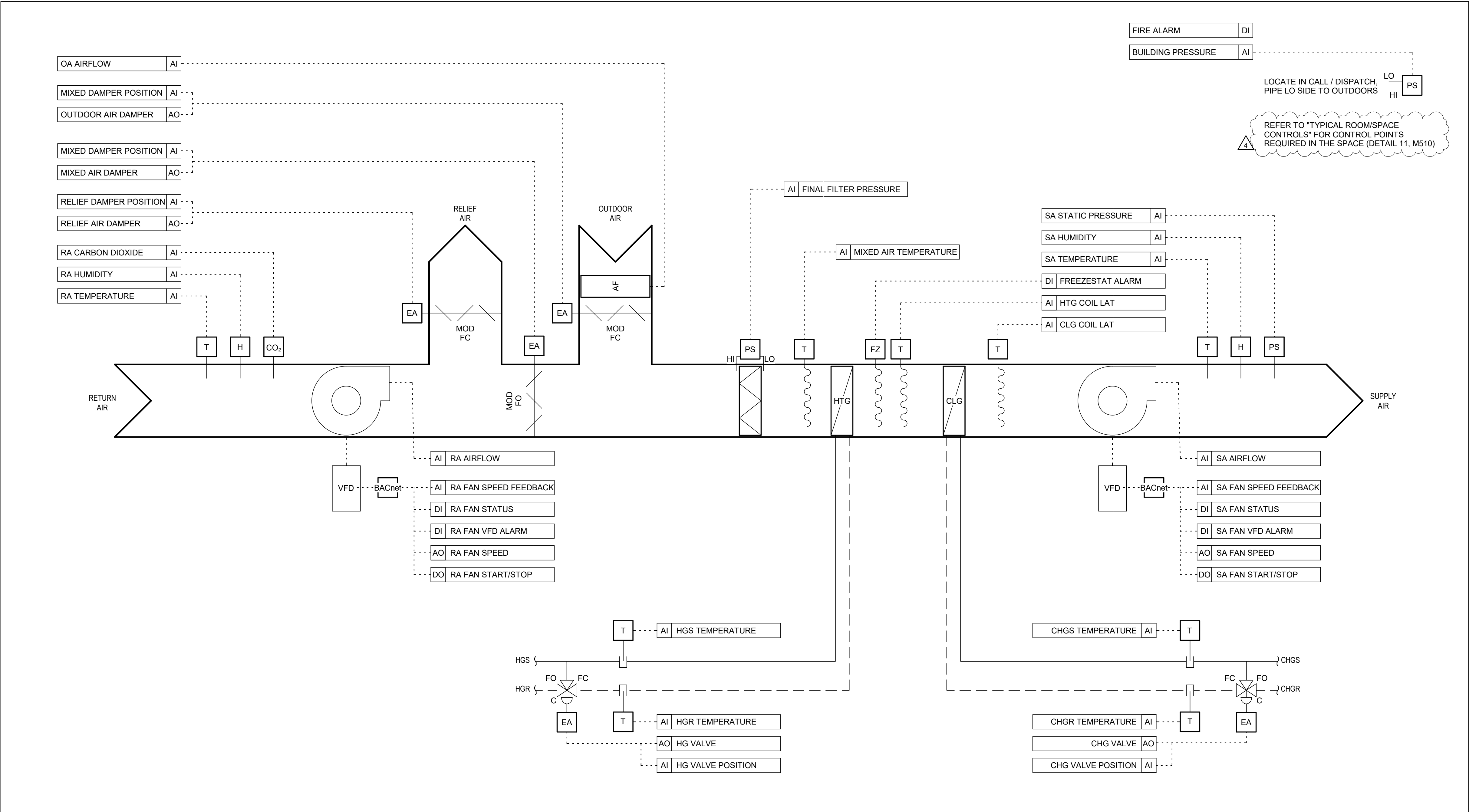
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60686829	BIM/VDC Manager:	
Project Administrator:		
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Designed:	Date (yyyy-mm-dd):	
AP		
Drawn:	Date (yyyy-mm-dd):	
LD		
Reviewed:	Date (yyyy-mm-dd):	
Checked:	Date (yyyy-mm-dd):	
JS		
Approved:	Date (yyyy-mm-dd):	

Title:

CONTROL SCHEMATICS - RTU-1

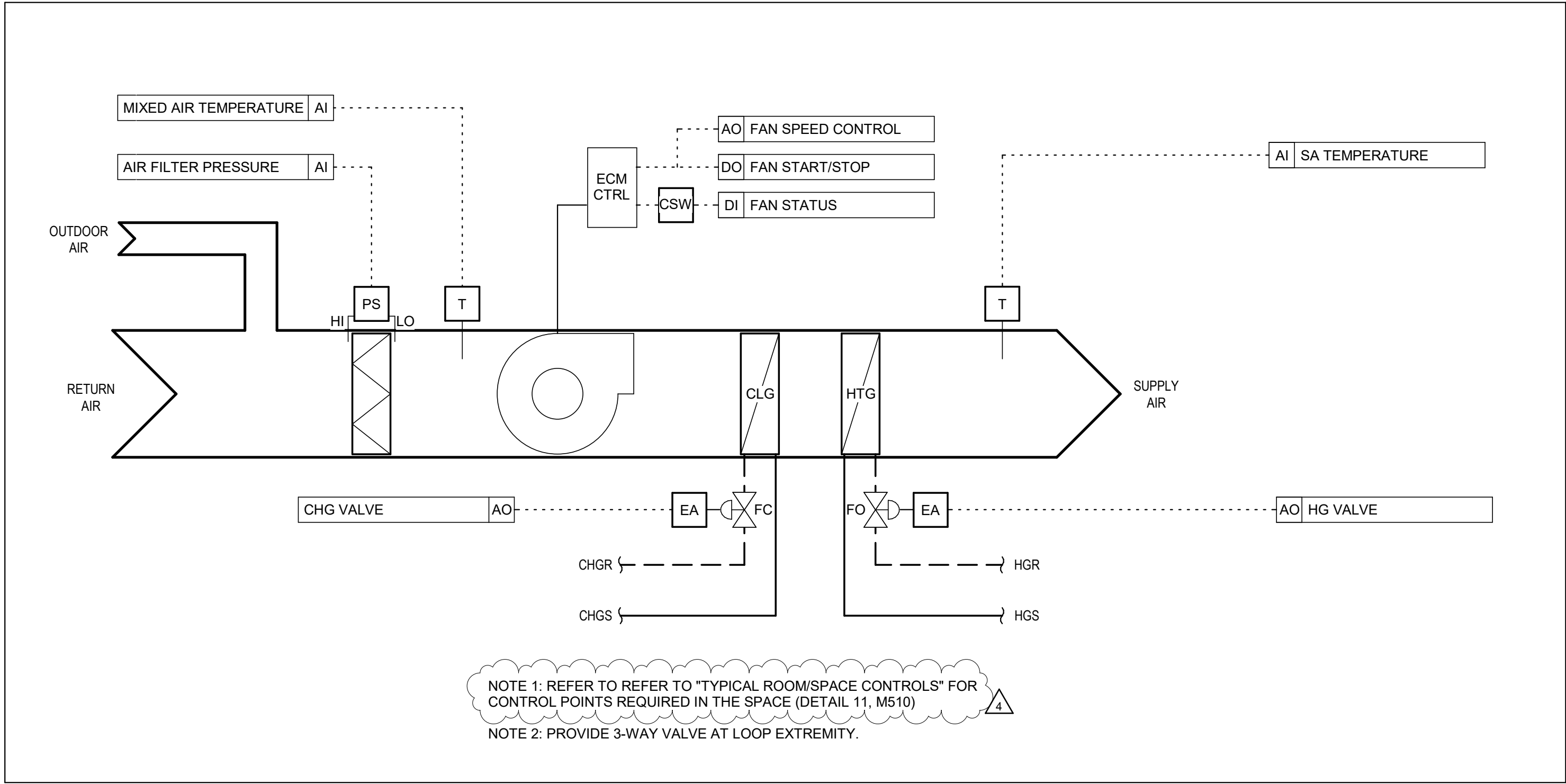
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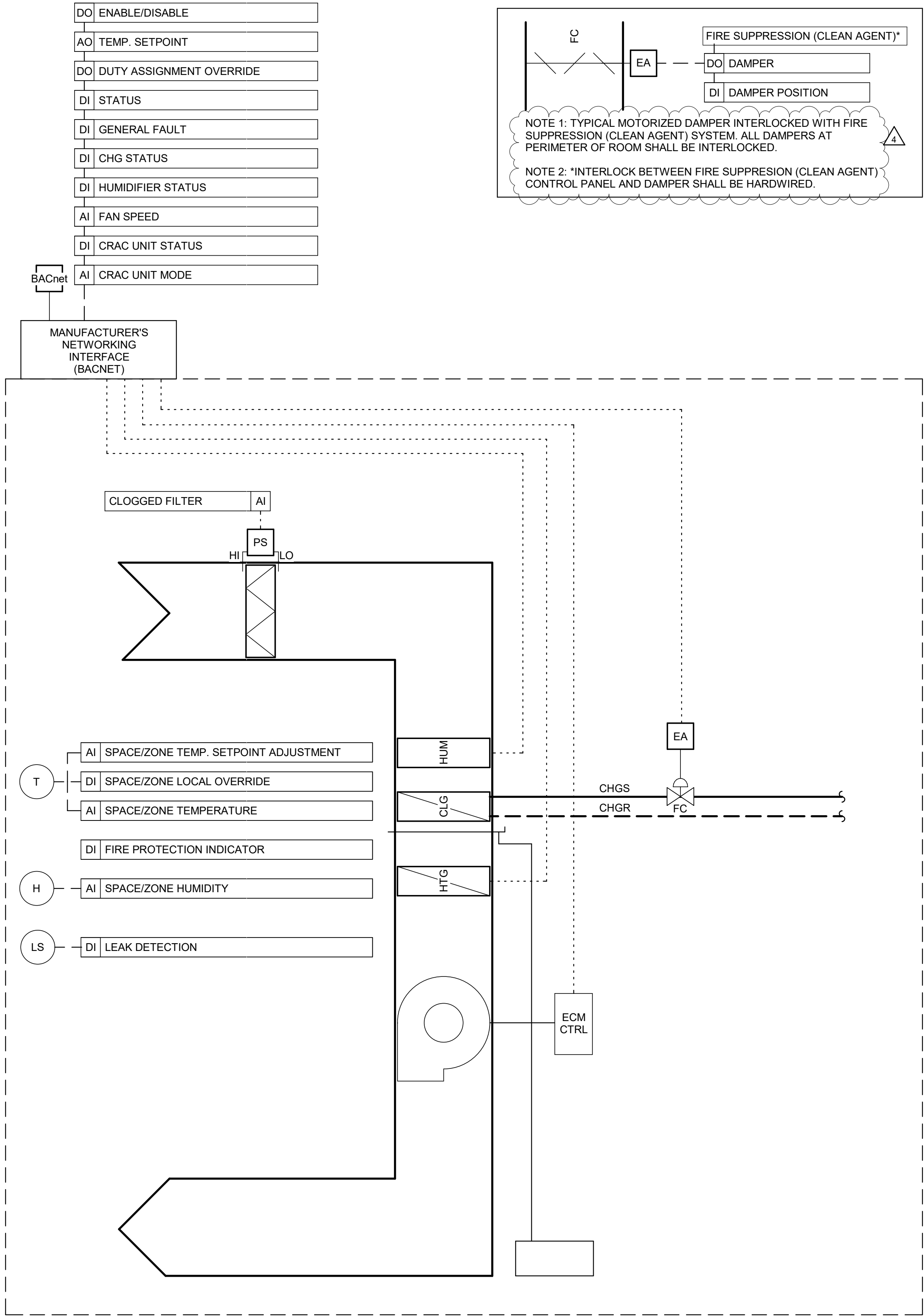


1 ROOF TOP UNIT (RTU-1)
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2 | TYPICAL FAN COIL UNITS
Scale: NTS



1 | TYPICAL CRAC UNIT
Scale: NTS



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NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

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Mark	Date	Description
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Revision History

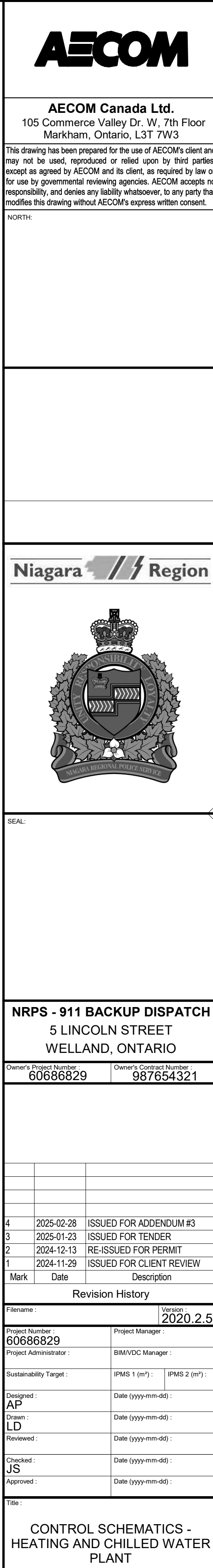
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Designed:	AP	Date (yyyy-mm-dd):	
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







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CONTROL SCHEMATICS - CRAC, FCU

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ELECTRICAL GENERAL NOTES			
<p>SCOPE OF WORK</p> <p>1. PROVIDE COMPLETE ENGINEERING, PERMITTING, COORDINATION, PROCUREMENT, CONSTRUCTION, START-UP, AND COMMISSIONING SERVICES OF NET-METERED PV SYSTEM DESCRIBED ON THESE PLANS AND SPECIFICATIONS. SYSTEM SHALL BE SUPPLIED COMPLETE WITH ALL ITEMS DESCRIBED HEREIN SUCH AS, BUT NOT LIMITED TO: MONITORING SYSTEM, LIGHTNING PROTECTION, ETC.</p> <p>2. THESE DRAWINGS AND SPECIFICATIONS AS DRAFTED ARE INTENDED TO ILLUSTRATE SCOPE OF WORK AND DESIGN INTENT. IT REMAINS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SERVICES OUTLINED IN THE ITEM ABOVE.</p> <p>3. UTILITY COORDINATION: CONTACT WELLAND HYDRO- ELECTRIC SYSTEM COPR, REFER TO SPECIFICATIONS FOR CONTACT DETAILS.</p> <p>GENERAL ITEMS</p> <p>1. READ AND UNDERSTAND FULL SET OF CONTRACT DOCUMENTS.</p> <p>2. ALL ELECTRICAL SYSTEMS HEREIN ARE TO BE CONSIDERED AND GOVERNED BY THE REQUIREMENTS OF LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE (OESC), THE LATEST EDITION OF THE ONTARIO BUILDING CODE (OBC), CSA STANDARDS FOR INSTALLATION AND TESTING REQUIREMENTS, THE ELECTRICAL SAFETY AUTHORITY (ESA), AND OTHER AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE CONFORMANCE WITH ALL APPLICABLE CODES, STANDARDS, AND SPECIFICATIONS.</p> <p>3. ONLY CSA/ULC MARKED EQUIPMENT AND MATERIALS CAN BE USED FOR THE PROJECT.</p> <p>4. THE LOCATIONS AND DETAILED LAYOUTS OF POWERED EQUIPMENT ITEMS SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE ONLY.</p> <p>5. ALL WIRING SHALL BE MINIMUM #12 AWG, COPPER, 600V, XLPE INSULATION. ALL CONTROL WIRING SHALL BE MINIMUM #14AWG, COPPER, XLPE INSULATION. ALL LOW VOLTAGE WIRING IS AS RECOMMENDED BY THE MANUFACTURER. ALL NETWORK DATA WIRING IS AS RECOMMENDED BY THE MANUFACTURER.</p> <p>6. UNLESS NOTED OTHERWISE, ALL CONDUCTORS SHALL BE RW90 FOR ABOVE GROUND, RPVU90 FOR PV EXPOSED TO SUN, RWU90 FOR UNDERGROUND INSTALLATIONS.</p> <p>7. ALL CONDUCTORS SHALL BE SIZED PER VOLTAGE DROP AS PER OESC.</p> <p>8. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL DETERMINE THE MOST EFFICIENT ROUTING UNDER ACTUAL SITE CONDITIONS. ALL JUNCTION BOXES, FITTINGS, ETC. ARE THE RESPONSIBILITY OF THE CONTRACTOR.</p> <p>9. AT PROJECT CLOSEOUT, ALL CONDUIT AND OTHER EQUIPMENT OPENINGS SHALL BE CAPPED AND SEALED.</p> <p>10. THE CONTRACTOR IS RESPONSIBLE FOR ALL BRACING AND STRUCTURAL SUPPORTS NECESSARY DURING INSTALLATION.</p>	<p>PERMITS AND INSPECTIONS</p> <p>1. THE PROPOSED PV SYSTEM IS INTENDED TO BE NET-METERED. A PCIR HAS BEEN SUBMITTED AND RETURNED. A CONNECTION IMPACT ASSESSMENT IS NOT REQUIRED BY THE UTILITY FOR THIS PROJECT.</p> <p>2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL NECESSARY PERMITTING RELATED TO THIS SYSTEM, INCLUDING BUT NOT LIMITED TO: BUILDING PERMIT, ESA PLAN'S REVIEW, ESA WIRING PERMITS, ETC.</p> <p>3. PAY ALL ASSOCIATED FEES RELATED TO PERMITS AND INSPECTIONS.</p> <p>WIRING AND WIRING METHODS</p> <p>1. ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE OESC.</p> <p>2. EXPOSED PV SOLAR PANEL WIRING SHALL BE RATED FOR EXPOSURE TO DIRECT SUNLIGHT OR PROTECTED FROM DIRECT SUNLIGHT, WET ENVIRONMENTS AND A MINIMUM OF 90 DEGREES C.</p> <p>3. ALL EXPOSED CABLES, SUCH AS MODULE LEADS SHALL BE SECURED WITH MECHANICAL OR OTHER SUN-LIGHT RESISTANT MEANS TO THE MODULE RACKING.</p> <p>4. ALL GROUNDING CONDUCTORS ARE MARKED GREEN OR BARE COPPER.</p> <p>5. ALL FIELD WIRING THAT IS NOT COLOUR CODED SHALL BE TAGGED AT BOTH ENDS WITH PERMANENT WIRE MARKERS TO IDENTIFY POLARITY AND GROUND</p> <p>6. FLEXIBLE METAL CONDUIT IS GENERALLY SUITABLE FOR INSTALLATION IN DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS WILL BE NO MORE THAN 300mm FROM BOXES AND NO MORE THAN 900mm APART.</p> <p>7. LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT IS GENERALLY SUITABLE FOR INSTALLATION IN WET AND DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS SHALL BE NO MORE THAN 300mm FROM BOXES AND NO MORE THAN 900mm APART.</p> <p>8. LONG STRAIGHT CONDUIT RUNS 30m OR MORE SHALL HAVE EXPANSION FITTINGS.</p> <p>9. USE CERTIFIED BRIDGEPORT RAIN TIGHT CONNECTORS AS AVAILABLE. SEAL ALL OTHER ELECTRICAL CONNECTIONS WITH WATER RESISTANT CAULKING.</p> <p>10. ALL INSULATED CONDUCTORS SHALL BE PROTECTED FROM SHARP EDGES.</p> <p>11. SLACK TO BE INCORPORATED IN WIRING TO ALLOW FOR THERMAL EXPANSION. AN APPROPRIATELY SIZED DRIP LOOP SHALL BE INCORPORATED ON ALL STRING WIRING PRIOR TO ENTERING OR EXISTING ANY ENCLOSURE.</p>	<p>GROUNDING</p> <p>1. ALL GROUNDING METHODS SHALL BE AS PER SECTION 10 OF THE OESC.</p> <p>2. AC SYSTEM SHALL BE GROUNDED IN ONE POINT ONLY.</p> <p>3. NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED AND PROPERLY BONDED.</p> <p>4. THE CONNECTION TO A MODULE OR PANEL SHALL BE ARRANGED SO THAT REMOVAL OF A MODULE OR PANEL FROM PV SOURCE CIRCUIT DOES NOT INTERRUPT A BONDING CONDUCTOR TO OTHER PV EQUIPMENT.</p> <p>5. RACKING SYSTEM TO BE BONDED INTERNALLY AS PER MANUFACTURER SPECIFICATIONS. MODULE FRAME BONDED THROUGH APPROVED RACKING SYSTEM.</p> <p>OVERCURRENT PROTECTION</p> <p>1. OVERCURRENT PROTECTION SHALL BE PROVIDED FOR ALL PV CONDUCTORS AND APPARATUS IN COMPLIANCE WITH THE OESC.</p> <p>2. OVERCURRENT PROTECTION FOR PV SOURCE CIRCUITS SHALL BE ACCESSIBLE AND GROUPED WHEN PRACTICAL</p> <p>RAPID SHUTDOWN</p> <p>1. INVERTER PLACEMENT IS INTENDED THE MINIMIZE THE USE OF RAPID SHUTDOWN DEVICES.</p> <p>2. PROVIDE RAPID SHUTDOWN DEVICES AND COMPONENTS AS DESCRIBED IN OESC RULE 64-200 AND BULLETIN 64-6-4, DATED OCT 2023.</p> <p>DISCONNECTING MEANS</p> <p>1. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT ALL EQUIPMENT, INCLUDING THE POWER CONDITIONING UNIT, FROM ALL UNGROUNDED CONDUCTORS FROM ALL SOURCES.</p> <p>2. ALL DISCONNECTS SHALL BE SECURED FROM UNAUTHORIZED/UNQUALIFIED PERSONNEL BY LOCK OR LOCATION.</p> <p>3. ALL DISCONNECTS SHALL CERTIFIED FOR THEIR PURPOSE.</p> <p>4. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT A FUSE FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTION AND IS ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS. SUCH A FUSE IN A PV SOURCE CIRCUIT SHALL BE CAPABLE OF BEING DISCONNECTED INDEPENDENTLY OF FUSES IN OTHER PV SOURCE CIRCUITS.</p>	<p>REQUIRED SAFETY SIGNS AND LABELS</p> <p>1. SAFETY SIGNS AND LABELS SHALL BE PERMANENTLY ATTACHED BY MECHANICAL MEANS. LABELS SHALL COMPLY WITH APPLICABLE CODES, SEE 26 31 00 PHOTOVOLTAIC COLLECTORS FOR DETAILS.</p> <p>2. ANY SWITCH, FUSE, OR CIRCUIT BREAKER THAT CAN BE ENERGIZED IN EITHER DIRECTION SHALL BE LABELED AS FOLLOWS:</p> <p>"</p> <p>WARNING</p> <p>ELECTRICAL SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.</p> <p>"</p> <p>3. DC DISCONNECTS SHALL BE LABELED AS FOLLOWS:</p> <p>"</p> <p>PHOTOVOLTAIC D.C. DISCONNECT</p> <p>OPERATING CURRENT: ###A</p> <p>OPERATING VOLTAGE: ###V</p> <p>MAXIMUM SYSTEM VOLTAGE: ###V</p> <p>SHORT CIRCUIT CURRENT: ###A</p> <p>"</p> <p>4. PERMANENT MARKING SHALL BE PROVIDED AT A VISIBLE LOCATION ON THE INVERTER SPECIFYING THE FOLLOWING:</p> <p>"</p> <p>RATED MAXIMUM OPERATING CURRENT: ###A</p> <p>RATED MAXIMUM OPERATING VOLTAGE: ###V</p> <p>AC FREQUENCY: 60Hz</p> <p>"</p> <p>5. PROVIDE A PERMANENT PLAQUE IDENTIFYING PV SYSTEM CONFIGURATION AND POINT OF INTERCONNECTION.</p> <p>6. PV MODULES SHALL BE MARKED TO IDENTIFY LEAD POLARITY, DEVICE RATINGS, AND SPECIFICATIONS FOR VOLTAGES, CURRENT, AND POWER.</p> <p>7. ALL EQUIPMENT SHALL BE LABELED WITH ARC FLASH HAZARD WARNING PER THE OESC.</p> <p>8. ALL INTERACTIVE SYSTEM POINTS OF INTERCONNECTION WITH OTHER SOURCES SHALL BE MARKED AT AN ACCESSIBLE LOCATION AT THE DISCONNECTING MEANS.</p>


STANDARD ELECTRICAL SYMBOLS	
POWER	
	DISCONNECT SWITCH
	TRANSFORMER
	METER CABINET
SINGLE LINE DIAGRAM	
	TRANSFORMER
	WYE CONNECTION WITH SOLIDLY GROUND NEUTRAL
	DISCONNECT SWITCH
	DELTA CONNECTION
	METER BASE




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NORTH:





SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829	Owner's Contract Number: 987654321
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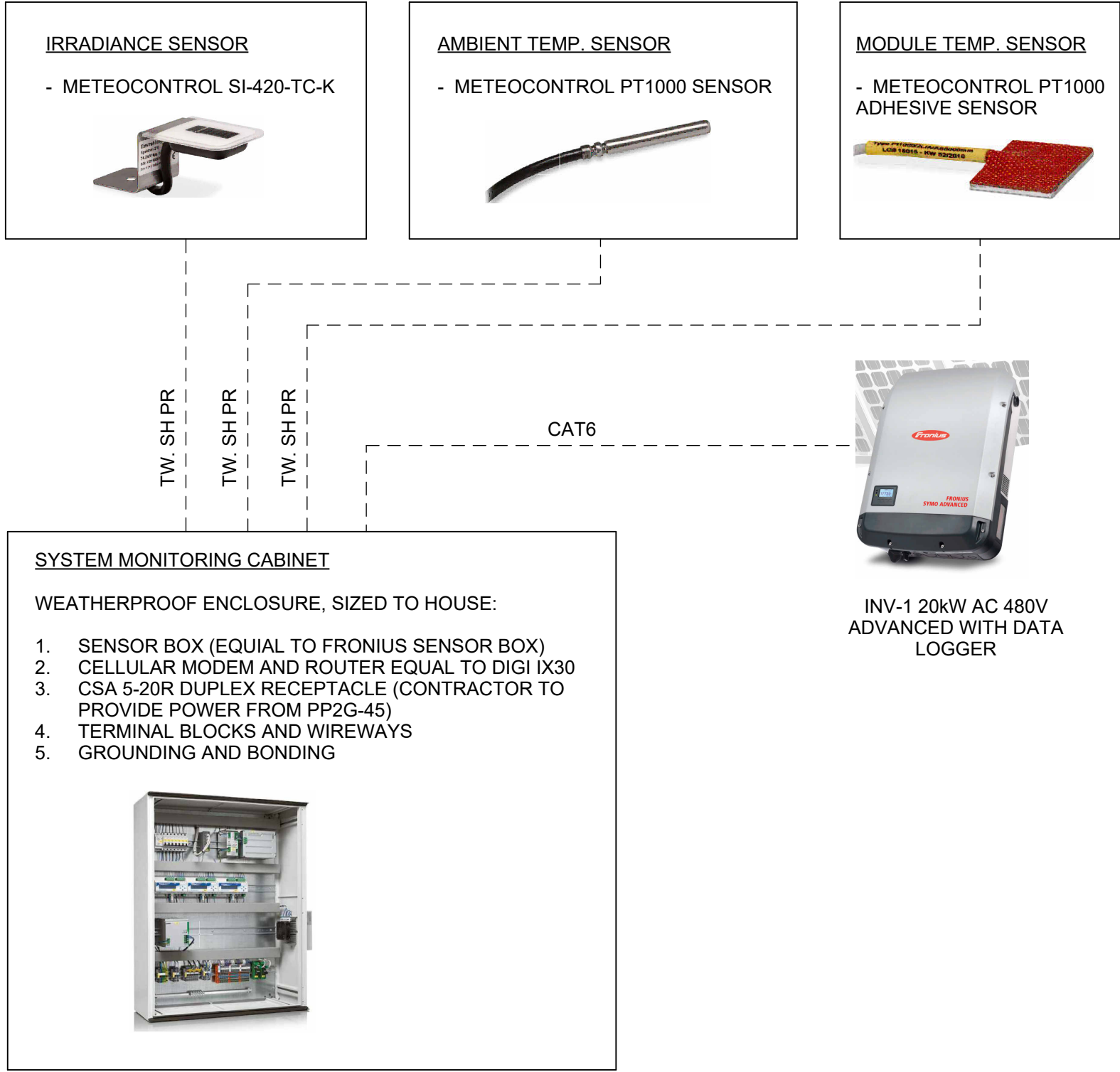
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3	2025-02-10	ADDENDUM #01
2	2025-01-27	ISSUED FOR CLIENT REVIEW
1	2025-01-24	ISSUED FOR ESA AND WHEHC REVIEW
Mark	Date	Description

Revision History	
Filename :	Version : 2020.2.5.
Project Number : 60686829	Project Manager :
Project Administrator :	BIM/VDC Manager :
Sustainability Target :	IPMS 1 (m²) : IPMS 2 (m²) :
Designed : T.W.	Date (yyyy-mm-dd) :
Drawn : A.H.	Date (yyyy-mm-dd) :
Reviewed : G.R.	Date (yyyy-mm-dd) :
Checked : W.A.	Date (yyyy-mm-dd) :
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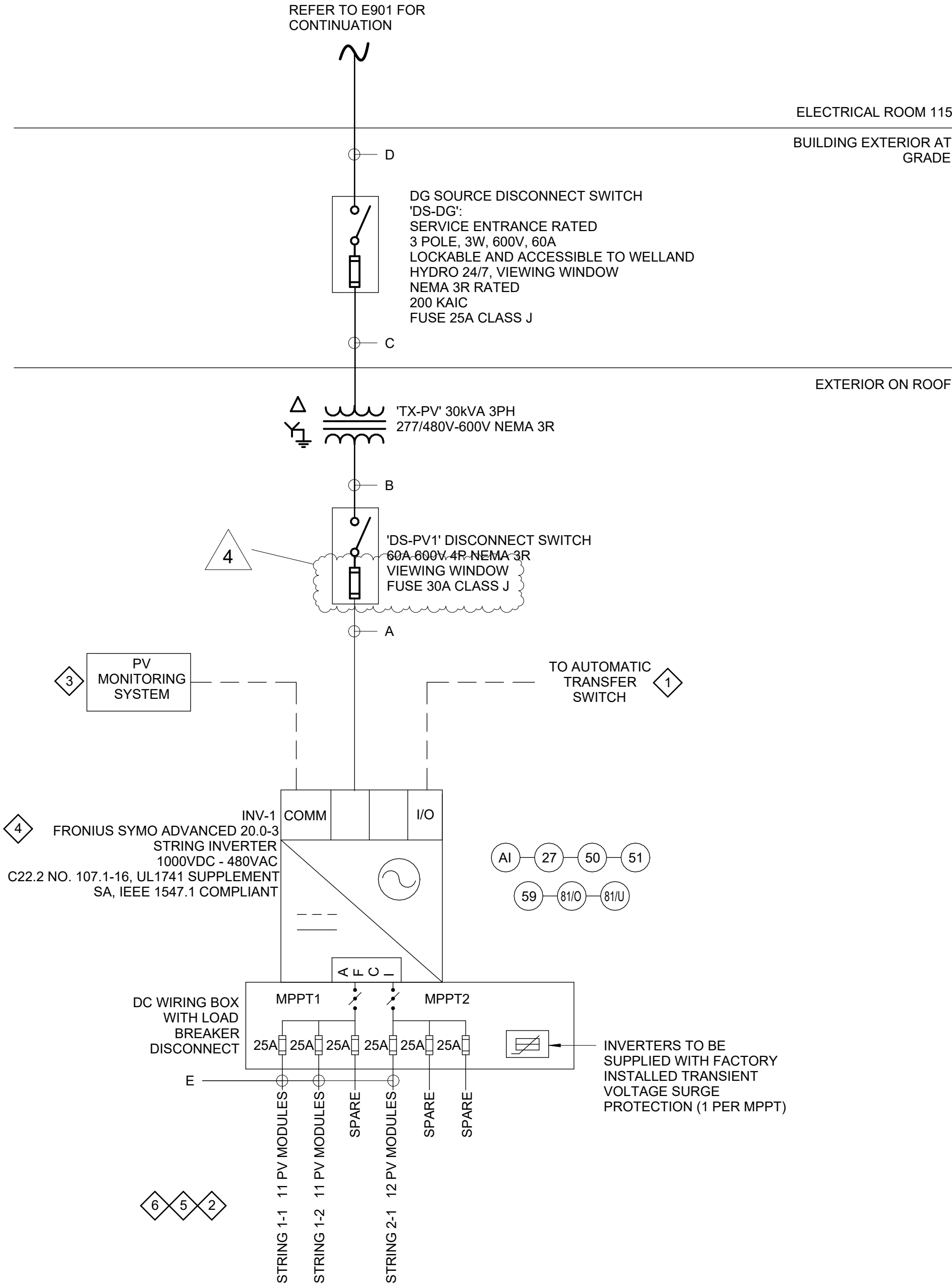
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2 PV MONITORING SYSTEM DETAILS
N.T.S.



LEGEND:

———— POWER

----- COMMUNICATION

1 SOLAR PV SINGLE LINE DIAGRAM
N.T.S.

SOLAR PV SYSTEM AC CABLE SCHEDULE											
CABLE TAG	FROM	TO	ROUTING	APPROX. DISTANCE (m)	CONDUCTOR SIZE	GND SIZE	NO. OF CONDUCTORS PER PHASE	CONDUCTOR TYPE	SYSTEM VOLTAGE	VOLTAGE DROP (%)	COMMENTS
A	INV-1	DS-PV1	AS PER PV102	3	4-#10 AWG	#12 AWG	1	RW90	480V	0.10	TO TRANSFORMER
B	DS-PV1	TX-PV	AS PER PV102	3	4-#10 AWG	#12 AWG	1	RW90	480V	0.10	TO DG SOURCE DISCONNECT SWITCH
C	TX-PV	DS-DG	AS PER PV102	30	3-#10 AWG	#12 AWG	1	RW90	600V	0.59	TO DISCONNECT SWITCH
D	DS-DG	ELEC. ROOM 115	AS PER PV102	40	3-#10 AWG	#12 AWG	1	RW90	600V	0.79	TO MAIN SWITCHBOARD
NOTES: ALL CONDUCTORS ARE COPPER UNLESS STATED OTHERWISE. PROVIDE RACEWAY IN RPVC, PER CONTRACT DOCUMENTS AND SIZED PER OESC.											

SOLAR PV SYSTEM DC CABLE SCHEDULE										
CABLE TAG	FROM (STRING TAG)	TO (INVERTER TAG)	ROUTING	APPROX. RUN LENGTH (m)	CONDUCTOR SIZE	BONDING CONDUCTOR SIZE	NO. OF PARALLEL RUNS	CONDUCTOR TYPE	SYSTEM VOLTAGE	VOLTAGE DROP (%)
E	STR 1-1	INV-1	AS PER PV102	40	#10 AWG	#6 AWG	1	RPVU90	1000V	0.84
E	STR 1-2	INV-1	AS PER PV102	40	#10 AWG	#6 AWG	1	RPVU90	1000V	0.84
E	STR 2-1	INV-1	AS PER PV102	40	#10 AWG	#6 AWG	1	RPVU90	1000V	0.77
NOTES: ALL CONDUCTORS ARE COPPER UNLESS STATED OTHERWISE. ATTACHED TO RACKING WITH UV RESISTANT CABLE TIES. LOCATED IN COVERED LADDER TRAY AND LIQUID TIGHT RPVC.										

DESIGN AS ILLUSTRATED ON DRAWINGS IS CONCEPTUAL IN NATURE TO PROVIDE INTENT. PV CONTRACTOR IS RESPONSIBLE FOR PROVIDING FULL ENGINEERING, PROCUREMENT AND CONSTRUCTION OF PV SYSTEM SHOWN.

DESIGN INTENT AND SCOPE OF WORK:

- DRAWINGS PROVIDE A CONCEPTUAL BASIS FOR THE PROPOSED PV SYSTEM. THE PV CONTRACTOR IS RESPONSIBLE FOR COMPLETE SYSTEM ENGINEERING, PROCUREMENT AND CONSTRUCTION RELATED TO THESE SUBSYSTEMS: PV, ELECTRICAL DISTRIBUTION, RACKING, STRUCTURAL AND PV SYSTEM MONITORING.
- PV CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING, SUPPLY AUTHORITY COORDINATION AND COMMISSIONING ACTIVITIES RELATED TO THIS SCOPE.
- REFER TO SPECIFICATIONS RELATED TO THIS SECTION FOR DETAILS.

DRAWING NOTES:

- INVERTER SHALL BE SUPPLIED WITH PERMISSIVE SIGNAL FROM AUTOMATIC TRANSFER SWITCH, ATS-6X, AND PROGRAMMED AND COMMISSIONED SUCH THAT IF ATS IS IN STANDBY GENERATOR POSITION, THE INVERTER SHALL TURN OFF.
- BASIS OF DESIGN IS LONGI LR7-72HYD-660M (660W) BIFACIAL MODULE. REFER TO PV105 FOR PV MODULE DATA SHEET.
- REFER TO PV SYSTEM MONITORING DETAILS ON THIS DRAWING.
- INVERTER MODEL SYMO 20.0-3 480 SHALL BE COMPLETE WITH INTEGRATED SUNSPEC RAPID SHUTDOWN PLC AND DATA MANAGER.
- PROVIDE RAPID SHUTDOWN IN COMPLIANCE WITH OESC RULE 64-218 AND BULLETIN 64-6-4. DESIGN INTENT IS TO UTILIZE MODULE LEVEL RAPID SHUTDOWN SYSTEM, APsmart RSD-S-PLC - RAPID SHUTDOWN SYSTEM.
- STRING WIRING IS #10 AWG CU RPVU CABLE AND SHALL BE CSA LISTED, WEATHERPROOF, UV SUNLIGHT RESISTANT, FINGERSAFE, PLUG-AND-PLAY RECEPTACLE CONNECTORS, MULTICONTACT TYPE OR EQUIVALENT.

OPEN CIRCUIT VOLTAGE CALCULATION AS PER OESC BULLETIN 64-3-4 (RULE 64-202 2)	
WEATHER DATA SOURCE	CLIMATE CANADA NORMALS WEBSITE
LOCATION	WELLAND-PELHAM
T _{MIN} LOWEST DAILY TEMPERATURE (°C)	-31.9
MODULE	LONGI LR7-72HYD-660M (660W) BIFACIAL MODULE
T _K TEMPERATURE COEFFICIENT (%/°C)	-0.2
V _{ROC} PV MODULE RATE OPEN-CIRCUIT VOLTAGE AT STC (V):	54.42
V _{MOC} PV MODULE MAXIMUM OPEN-CIRCUIT VOLTAGE:	60.61
STRING MAXIMUM VOLTAGE (11 MODULES) (V)	667
STRING MAXIMUM VOLTAGE (12 MODULES) (V)	727

AMPERE RATING OF PV SOURCE CIRCUITS AS PER OESC RULE 64-206 b)	
SHORT CIRCUIT CURRENT	15.3
MAX. CONT. I _{OUT} PER STRING (A _{OC})	19.13
MIN. OCPD, ASSUMING 80% RATED DEVICE	23.9
THEREFORE 25A DC FINGER SAFE FUSE	

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NORTH:

Niagara Region



SEAL:

NRPS - 911 BACKUP DISPATCH
5 LINCOLN STREET
WELLAND, ONTARIO

Owner's Project Number: 60686829
Owner's Contract Number: 987654321

ELECTRICAL SAFETY AUTHORITY (ESA) INFORMATION
LOW VOLTAGE REPORT
NOTIFICATION #: 40064841
CUSTOMER ID: 46602

4	2025-03-03	ADDENDUM #03
3	2025-02-10	ADDENDUM #01
2	2025-01-27	ISSUED FOR CLIENT REVIEW
1	2025-01-24	ISSUED FOR ESA AND WHEHC REVIEW

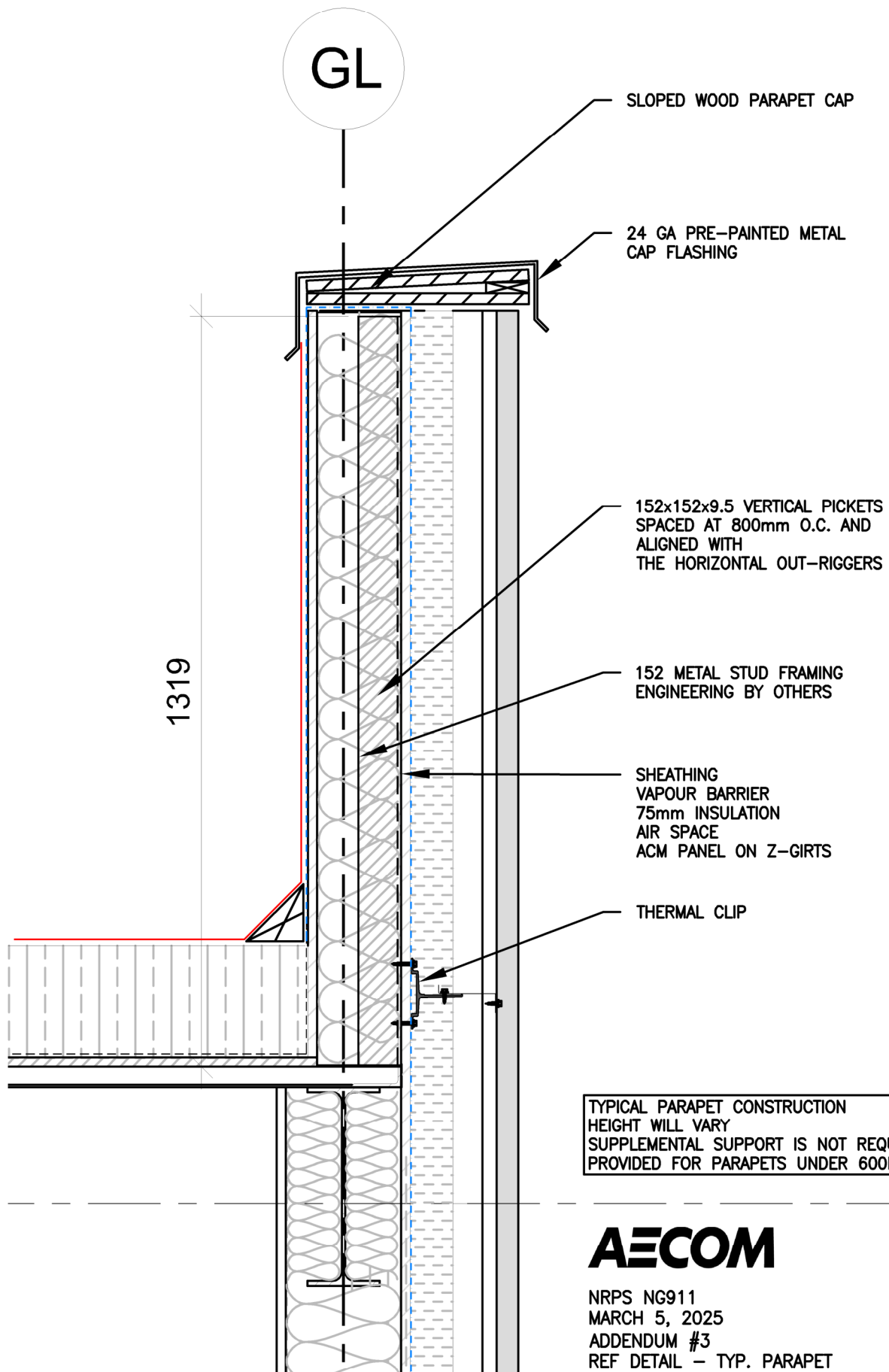
Mark	Date	Description
Revision History		

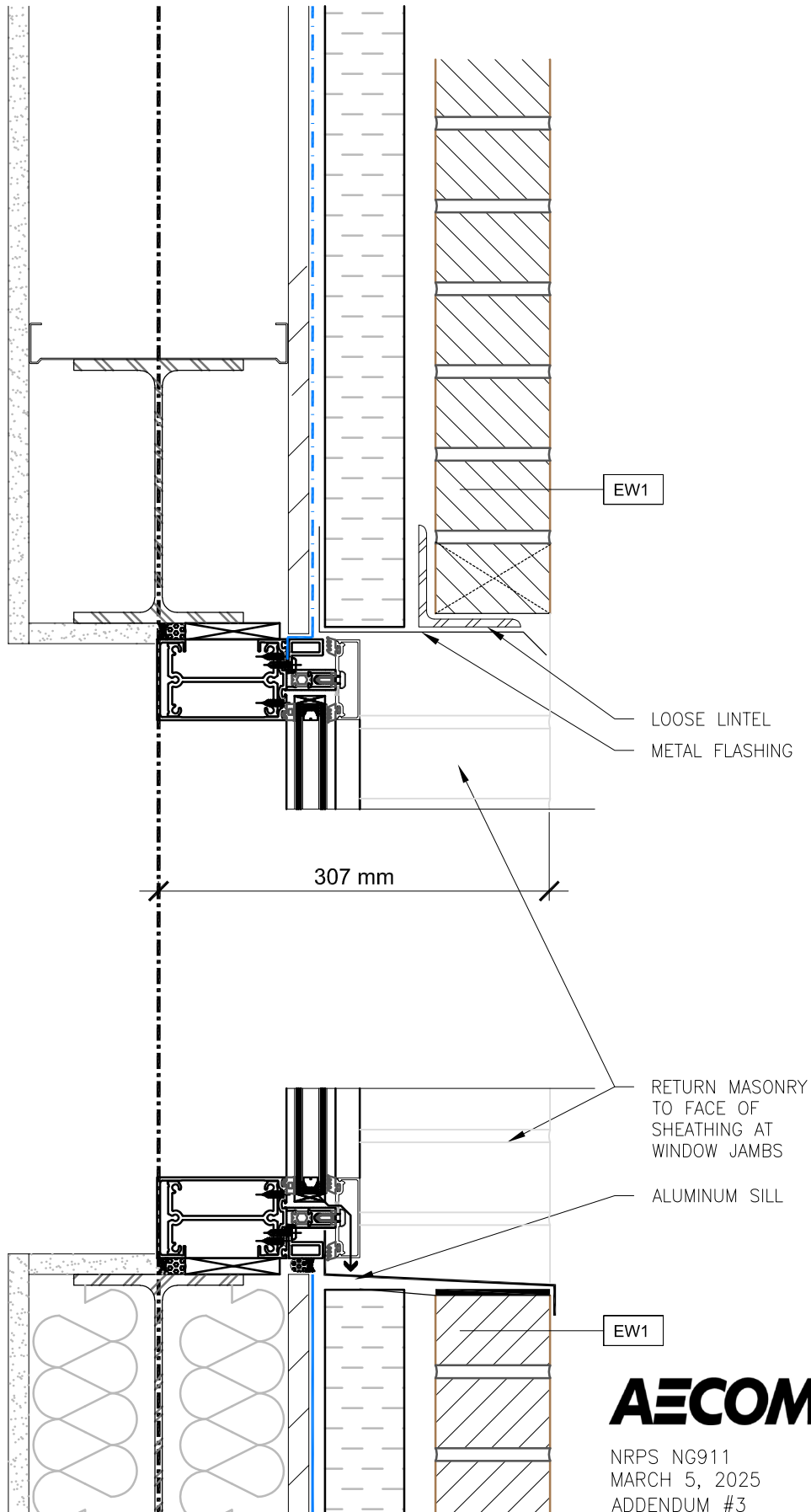
Filename: 2020.2.5. Version: 2020.2.5.

Project Number: 60686829	Project Manager:
Project Administrator:	BIM/VDC Manager:
Sustainability Target:	IPMS 1 (m²): IPMS 2 (m²):
Designed: T.W.	Date (yyyy-mm-dd):
Drawn: A.H.	Date (yyyy-mm-dd):
Reviewed: G.R.	Date (yyyy-mm-dd):
Checked: W.A.	Date (yyyy-mm-dd):
Approved: W.A.	Date (yyyy-mm-dd):
Title:	

PV SINGLE LINE DIAGRAM

Page Size: ANSI D
Scale: N.T.S.
Sheet: 4
Rev: 4
of: 4





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NRPS NG911
 MARCH 5, 2025
 ADDENDUM #3
 REF DETAIL - 4/A709

SCALE 1:5