

2020/09/21

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Revision/	Description/Description	Date/Date

Client/client

CORRECTIONAL SERVICE CANADA

Project Title/Titre du projet  
**MISSION MEDIUM INSTITUTION MISSION, BC**

**BUILDINGS A-M, A-W, A-P (ADMINISTRATION) HVAC REVITALIZATION**

Consultant/Signature Box Only

Designed by/Concept par  
**AC**

Drawn by/Dessiné par  
**AC**

PWGS Project Manager/Administrateur de Projets TPSGC  
**Paul Rithaler**

PWGS Regional Manager, Architectural and Engineering Services/ Gestionnaire régionale, Services d'architectural et de génie, TPSGC  
**Preetipal Paul**

Drawing Title/Titre du dessin

**ELECTRICAL LEGEND, NOTES, AND SITE PLAN**

Project No./No. du projet <b>R.082622.001</b>	Sheet/Feuille <b>E001</b> 1 OF 4	Revision no./La Révision no. <b>0</b>
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**ELECTRICAL GENERAL NOTES**

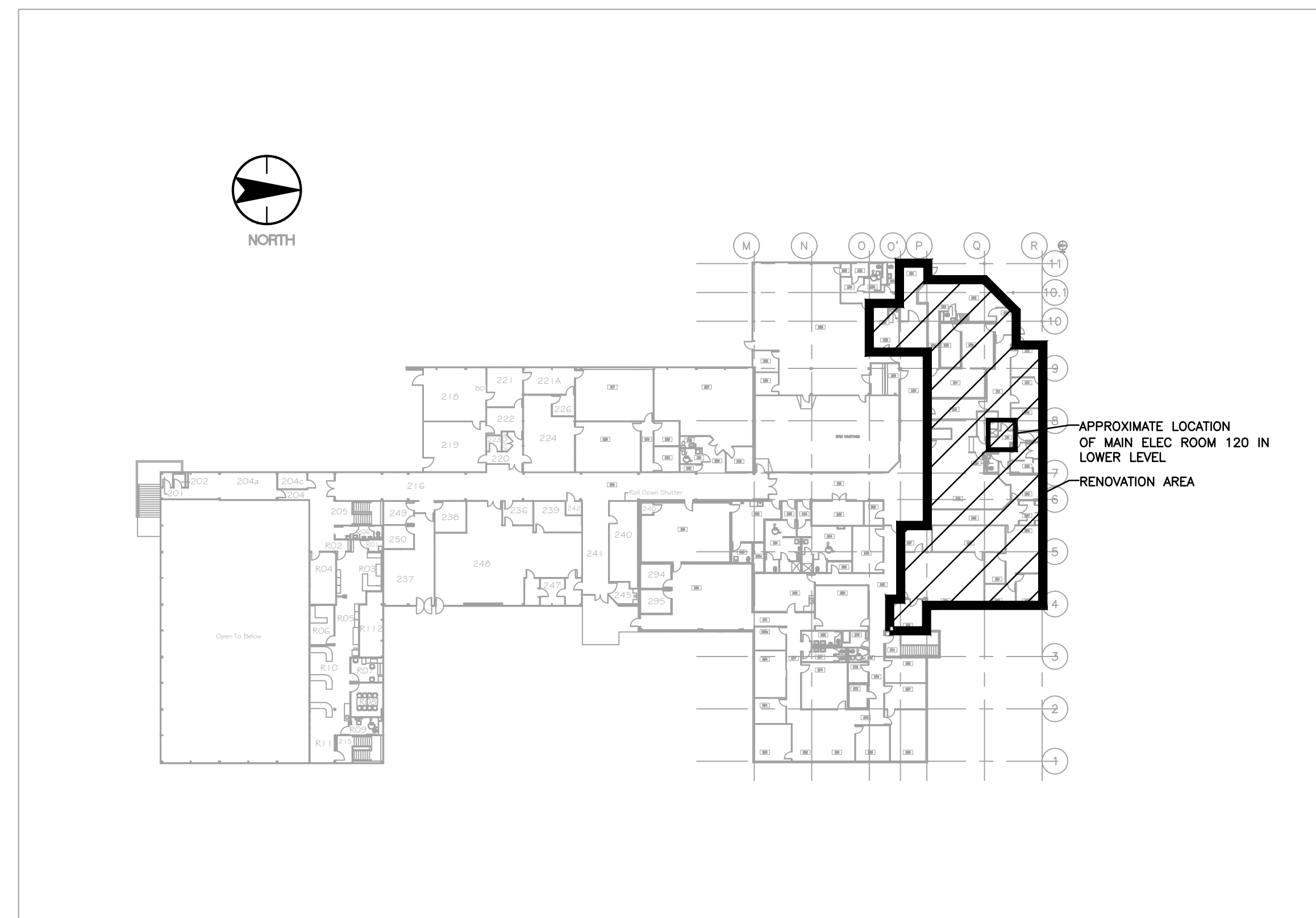
- ANY CIRCUITING SHOWN IS FOR REFERENCE ONLY. CONFIRM AVAILABLE CIRCUITS IN PANELS. INDICATE ACTUAL CIRCUITS ON RECORD DRAWINGS.
- KEEP EXISTING FIRE ALARM SYSTEM AND DEVICES ACTIVE DURING CONSTRUCTION. THERE SHALL BE NO DISRUPTION TO THE SYSTEM.
- PROTECT ALL EXISTING DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND, REMOVE OR RELOCATE ALL ELECTRICAL DEVICES AS NOTED AND REQUIRED TO MEET THE DESIGN INTENT.
- EXISTING CIRCUITS AND DEVICES ARE SHOWN FOR REFERENCE AND DESIGN CLARITY ONLY.
- RELOCATE, IN A CONCEALED MANNER TO SUIT NEW CONDITIONS, EXISTING ELECTRICAL EQUIPMENT, DEVICES AND WIRING ETC. MOUNTED IN OR ON WALLS THAT ARE REMOVED, RELOCATED OR REFINISHED.
- EXISTING SITE AND BUILDING INFORMATION ON THESE DRAWINGS WERE OBTAINED FROM CASUAL SITE OBSERVATION AND INFORMATION PROVIDED BY OTHERS. VERIFY EXISTING SITE CONDITIONS AND IMMEDIATELY NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY SITE CONDITION THAT MIGHT HINDER OR OBSTRUCT THE ELECTRICAL INSTALLATION AND/OR DESIGN INTENT.
- APPROXIMATE LOCATIONS OF EXISTING AND NEW DEVICES ARE SHOWN. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DEVICES. CONTRACTOR SHALL CONFIRM EXACT MEASUREMENTS AND LOCATIONS ON SITE. CONTRACTOR SHALL CONFIRM WIRE SIZE ON SITE AND VERIFY VOLTAGE DROP CALCULATIONS, TO ENSURE CORRECT WIRE SIZING AND SYSTEM OPERATION.
- FIELD VERIFY AND TEST ALL MODIFIED ELECTRICAL AND CONTROL SYSTEMS TO ENSURE THEY ARE FULLY FUNCTIONAL AND OPERATIONAL AS PER THE DESIGN INTENT. SUBMIT TEST RESULTS TO DEPARTMENTAL REPRESENTATIVE.
- PROVIDE AND INSTALL ALL CONDUIT, CONDUCTORS, JUNCTION BOXES AND RECEPTACLES UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- CONTRACTOR SHALL READ THESE DRAWINGS IN CONJUNCTION WITH THE CANADIAN ELECTRICAL CODE (CURRENT EDITION), MECHANICAL DRAWINGS, NATIONAL BUILDING CODE (CURRENT EDITION), AND ALL OTHER PROJECT RELATED DOCUMENTATION. SCOPE OF WORK IS NOT LIMITED TO THESE DRAWINGS BUT INCLUDES ALL ITEMS AS LISTED ON DRAWINGS, SPECIFICATION, AND ALL OTHER PROJECT RELATED DOCUMENTATION.
- FIELD COORDINATE ELECTRICAL DEVICES AND EQUIPMENT WITH OTHER DIVISIONS ON SITE. ADJUST ELECTRICAL DEVICE AND EQUIPMENT PLACEMENT AS REQUIRED TO SUIT FIELD CONDITIONS. ALL NEW ELECTRICAL INSTALLATION SHALL BE IN CONFORMANCE WITH THE CANADIAN ELECTRICAL CODE (CURRENT EDITION) AND NATIONAL BUILDING CODE (CURRENT EDITION) INCLUDING CLEARANCES AND SETBACKS.
- COORDINATE INSTALLATION OF ELECTRICAL DEVICES AND COMPONENTS WITH EQUIPMENT MANUFACTURERS AND SUPPLIER. NOT ALL SYSTEM COMPONENTS ARE SHOWN. PROVIDE ALL COMPONENTS, DEVICES, AND MATERIAL AS REQUIRED TO ENSURE INSTALLATION OF A COMPLETE AND FUNCTIONAL SYSTEM.
- CONFIRM WIRING SIZING AND PERFORM VOLTAGE DROP CALCULATIONS FOR EACH WIRE RUN BACK TO EACH SOURCE PANEL.
- INSTALL ALL WIRING IN CONDUIT SYSTEMS AS INDICATED. ALL CONDUITS SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE.
- SEPARATE POWER, FIRE ALARM AND CONTROL WIRING IN SEPARATE CONDUIT SYSTEMS.
- BOND ALL NON-CURRENT CARRYING METAL PARTS OF THE SYSTEM AS REQUIRED BY CODE. ENSURE ALL PARTS OF THE SYSTEM ARE GROUNDED AND EXISTING GROUNDING AND BONDING SYSTEMS ARE PROTECTED AND MAINTAIN CONDUCTIVITY. ALL BOND CONDUCTORS TO BE COPPER COMPRESSION TYPE AND GROUND CONDUCTORS TO BE SOLID COPPER.
- VERIFY NEW ELECTRICAL SYSTEMS ARE TESTED, COMMISSIONED, AND READY FOR USE PRIOR TO TURNOVER TO THE INSTITUTION. FIELD TEST THE ENTIRE SYSTEM AND ENSURE IT IS OPERATIONAL AND READY FOR USE. COORDINATE WITH MANUFACTURER OF ALL SYSTEMS AND COMMISSION AS PART OF THIS SCOPE OF WORK. SUBMIT ALL TEST AND COMMISSIONING REPORTS TO DEPARTMENTAL REPRESENTATIVE.
- PROGRAM FIRE ALARM DUCT SMOKE DETECTORS INTO THE EXISTING FIRE ALARM SYSTEM WITHIN THE ADMINISTRATION BUILDING, MAIN INSTITUTION FIRE ALARM PANEL IN THE CER, AND TWO FIREWORKS COMPUTER GRAPHIC ANNUNCIATORS. SUBMIT A COPY OF PARTIAL FIRE ALARM RE-VERIFICATION REPORT TO DEPARTMENTAL REPRESENTATIVE.
- UNLESS OTHERWISE NOTED ALL GROUNDING WIRES COLORS SHALL BE GREEN WITH A YELLOW STRIPE.
- ALL OUTDOOR DISCONNECT SWITCHES SHALL BE RATED TO NEMA 4X

**ELECTRICAL SYMBOLS**

	POWER PANELBOARD
	MOTOR c/w DISCONNECT SWITCH
	MOTOR c/w MANUAL MOTOR SWITCH
	MOTOR c/w STARTER (AS INDICATED)
	CONTROL PANEL, AS NOTED
	FIRE ALARM SMOKE DETECTOR, DUCT MOUNTED
	EXISTING TO REMAIN
	EXISTING TO BE REMOVED

**DRAWING LIST:**

DWG. NO.	NAME	DESCRIPTION	SCALE
1 OF 4	E001	ELECTRICAL LEGEND, NOTES AND SITE PLAN	N.T.S.
2 OF 4	E100	ELECTRICAL MAIN LEVEL PLAN - DEMOLITION	1:100
3 OF 4	E101	ELECTRICAL MAIN LEVEL PLAN - NEW	1:100
4 OF 4	E102	ELECTRICAL ROOF PLAN - NEW	1:100



**1 KEY PLAN**  
E001 SCALE: 1:500

UNIT I.D.	UNIT DESCRIPTION	LOCATION	TYPE OF EQUIPMENT	VOLTS	PH	Hz	HP	FLA	KW	MCA	MOP	STARTER				DISCONNECT			CONTROLS			FIRE ALARM				POWER SOURCE NAME (MCC/MDC/CDP/PANEL)	BREAKER RATING (AMPS)	CONDUCTOR SIZE (COPPER)	CONDUIT SIZE	NOTES			
												GROUPING	TYPE	SIZE (NEMA)	SUPPLIED BY	INSTALLED BY	SUPPLIED BY	INSTALLED BY	WIRED BY	TYPE(S)	SUPPLIED BY	INSTALLED BY	WIRED BY	INTERFACE REQUIRED	AUTO ON						AUTO OFF	HOA SWITCH IN CACF (OR NEAR ANNUNCIATOR)	DUCT SMOKE DETECTOR
ERV-101	AHU c/w 2x motors	Roof	Package Unit (Single Contr	575	3	60					15	VSD	M	M	M	M	E	E	E	BAS	M	M	M						PANEL AN6C	15A/3P	3#12	21mm	2x Motors
OU-101	Outdoor Heat Pump	Roof	Package Unit (Single Contr	208	3	60			38	60			M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	60A/3P	3#6	27mm		
OU-102	Outdoor Heat Pump	Roof	Package Unit (Single Contr	208	3	60			38	60			M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	60A/3P	3#6	27mm		
OU-103	Outdoor Heat Pump	Roof	Package Unit (Single Contr	208	1	60			36				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	60A/2P	2#6	27mm		
BC-101	Branch Controller	Ceiling Space	Individual Motor	208	1	60			0.83				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
BC-102	Branch Controller	Ceiling Space	Individual Motor	208	1	60			0.83				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-101	Indoor Cassette 2.5Ton	Ceiling space	Grouped Motors (Single F	208	1	60			0.57				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-102	Indoor Ducted 2.0Ton	Ceiling space	Grouped Motors (Single F	208	1	60			2.73				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-103	Indoor Ducted 1.5Ton	Ceiling space	Grouped Motors (Single F	208	1	60			1.56				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-104	Indoor Ducted 2.0Ton	Ceiling space	Grouped Motors (Single F	208	1	60			2.73				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-105	Indoor Ducted 1.0Ton	Ceiling space	Grouped Motors (Single F	208	1	60			1.2				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-106	Indoor Ducted 2.5Ton	Ceiling space	Grouped Motors (Single F	208	1	60			3.32				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-107	Indoor Cassette 0.7Ton	T-bar ceiling	Grouped Motors (Single F	208	1	60			0.28				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-108	Indoor Ducted 1.5Ton	Ceiling space	Grouped Motors (Single F	208	1	60			1.56				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-109	Indoor Cassette 1.0Ton	T-bar ceiling	Grouped Motors (Single F	208	1	60			0.29				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
VRF-110	Indoor Cassette 1.0Ton	T-bar ceiling	Grouped Motors (Single F	208	1	60			0.29				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		
SF-101	Make-up Air mini	Ceiling space	Grouped Motors (Single F	208	1	60		12	2.5	9.6			M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#13	21mm		
EF-101	Exhaust Fan	Roof top mount	Individual Motor	115	1	60	0.1	4.4	5.5				M	M	M	E	E	E	BAS	M	M	M						PANEL AN2M	15A/2P	2#12	21mm		

**ABBREVIATIONS:**  
**General:**  
M = Mechanical (Divisions 21/22/23/25)  
E = Electrical (Division 26)  
FLA = Full load current (in amperes)  
MCA = Minimum circuit ampacity  
MOP = Maximum overcurrent protection (applicable to circuit breakers only unless otherwise noted)  
BAS = Building Automation System  
CACF = Central Alarm & Control Facility (Fire Alarm)  
CDP = Central Distribution Panel  
FVNR = Full Voltage, Non-reversing  
O/C = Overcurrent  
O/L = Overload

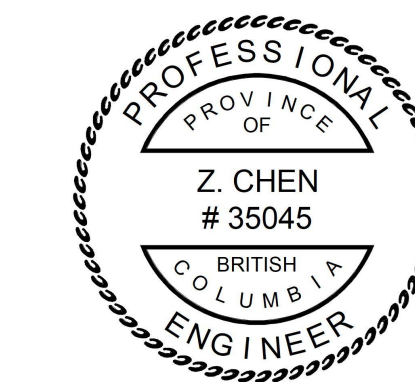
**Controls:**  
BAS = Building Automation System (DDC)  
CP = System Control Panel (e.g. irrigation controller)  
ES = End Switch  
FA = Fire Alarm (Control Module)  
FAFS = Fire Alarm (Wet Sprinkler) Flow Switch  
FALS = Fire Alarm (Sprinkler Reservoir) Level Switch  
FAPS = Fire Alarm (Dry Sprinkler) Pressure Switch  
FATS = Fire Alarm (Sprinkler Valve) Tamper Switch  
GS = Gas Sensor  
H = Humidistat  
I = Interlock  
LS = Level Switch  
TC = Time Clock

**Starter Types:**  
MAN = Manual (c/w O/L)  
MRR = Motor Rated Relay (no O/L)  
MAG = Magnetic (FVNR)  
MAG2 = Magnetic (two-speed)  
FVR = Magnetic, Full Voltage Reversing  
RVVD = Reduced Voltage (wye-delta)  
RVAT = Reduced Voltage (autotransformer)  
RVPW = Reduced Voltage (part winding)  
RVSS = Reduced Voltage (soft starter)  
VSD = Variable Speed Drive  
**Starter Accessories:**  
BP = VSD Bypass c/w integral starter  
HO = On-off switch

**Power Sources:**  
N = Normal (non-emergency) Source  
FP = Fire Pump Source  
LS = Life Safety Source  
NLS = Non-Life-Safety Source

**2 MOTORLIST**  
E001 SCALE: N.T.S.





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**Prestipal Paul**

Drawing Title/Titre du dessin

**ELECTRICAL MAIN LEVEL PLAN - DEMOLITION**

Project No./No. du projet Sheet/Feuille Revision no./La Révision no.

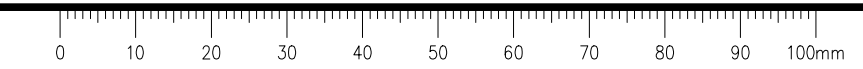
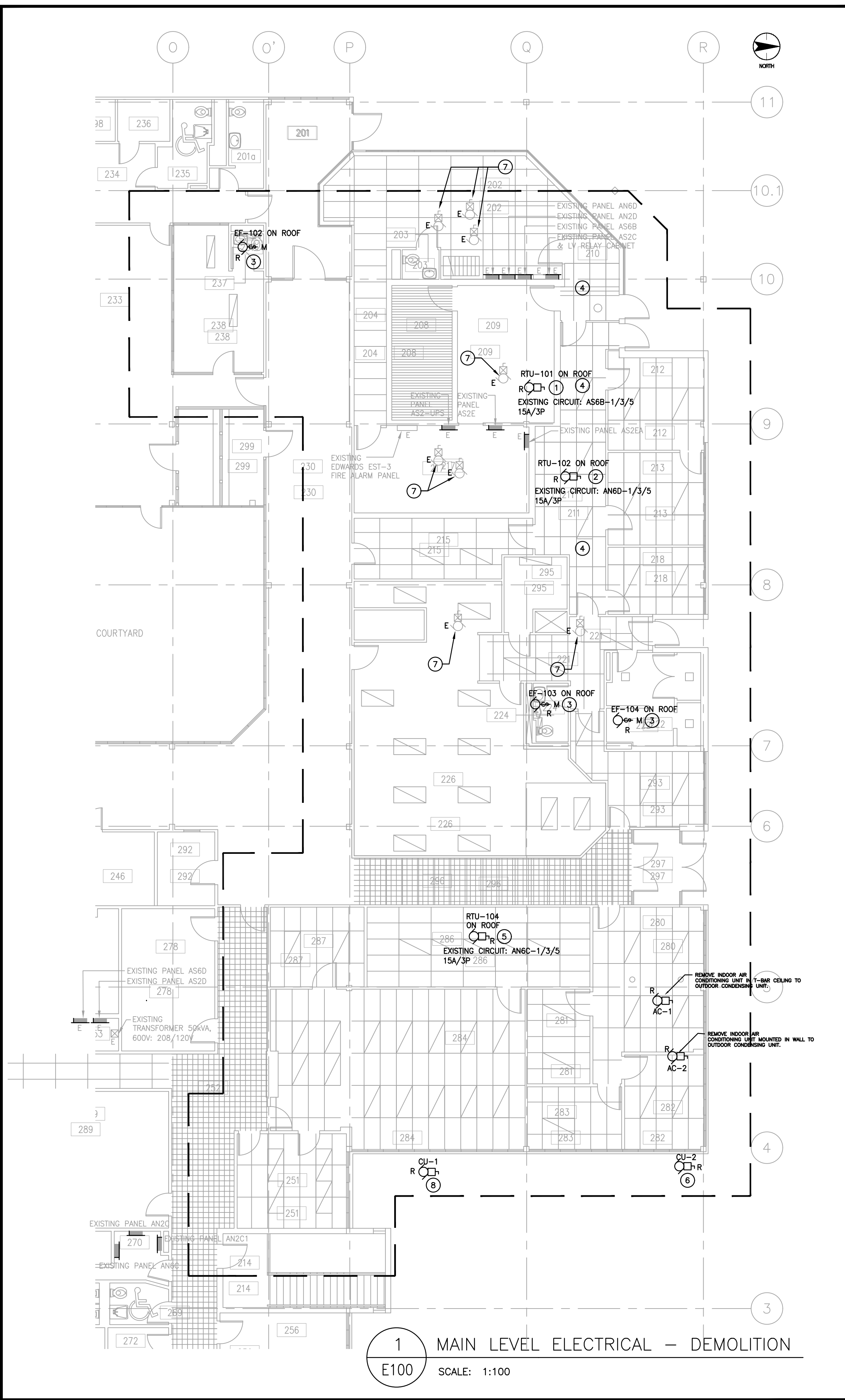
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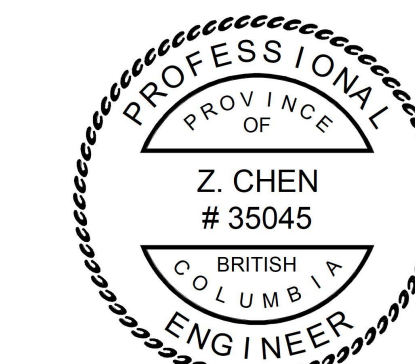
**GENERAL NOTES:**

- EXISTING ELECTRICAL EQUIPMENT, DEVICES AND WIRING ETC. TO BE RETAINED THAT ARE MOUNTED IN OR ON WALLS OR CEILING THAT ARE REMOVED, RELOCATED OR REFINISHED SHALL BE RELOCATED IN A CONCEALED MANNER TO SUIT NEW CONDITION.
- CLEAN UP AND REMOVE ALL UNUSED WIRING, CONDUITS, JUNCTION BOXES, CABLES AND ASSOCIATE CONNECTIONS BACK TO SOURCE PANEL.
- EXISTING LIGHTS TO REMAIN AND PROTECT FROM DAMAGE.
- EXISTING PANEL DETAILS ARE AS FOLLOWS (LABEL: MANUFACTURER, SERIES, AMP RATING, VOLTAGE, PHASE):  
AN6D: EATON, P2RL SERIES, 225A (FED BY 100A BKR.), 600/347V, 3ø  
AN2D: ITE, NLAB SERIES, 225A (FED BY 100A BKR.), 208/120V, 3ø  
AS6B: EATON, P2RL SERIES, 225A (FED BY 40A MAIN BREAKER), 600/347V, 3ø  
AS2C: ITE, NLAB SERIES, 208/120V, 3ø  
AS2E: NBLP SERIES, 200A (FED BY 125A MAIN BREAKER), 208/120V, 3ø  
AS2EA: SIEMENS, P1 SERIES, 200A (FED BY 125A MAIN BREAKER), 208/120V, 3ø  
AS2-UPS: SIEMENS, P1 SERIES, 125A, 208/120V, 3ø  
AN6C: EATON, POW-R-LINE 'C', 225A (FED BY 100A MAIN BKR.), 600/347V, 3ø  
AN2C: ITE, NLAB SERIES, 225A, 208/120V, 3ø  
AN2C1: ITE, NLAB SERIES, 225A, 208/120V, 3ø  
AS6D: SIEMENS, 200A (FED BY 100A MAIN BREAKER), 600/347V, 3ø  
AN2D: SIEMENS, E04 SERIES, 200A, (FED BY 175A MAIN BREAKER), 208/120V, 3ø  
AS2A: EATON, POW-R-LINE 'C', 225A, 208/120V, 3ø

**SPECIFIC KEY NOTES :**

- EXISTING UNIT RTU-101 TO BE REPLACED REMOVE EXISTING POWER CABLE BACK TO SOURCE.
- EXISTING UNIT RTU-102 TO BE REPLACED. REMOVE EXISTING POWER CABLE BACK TO SOURCE.
- EXISTING EXHAUST FANS TO BE REPLACED.
- REMOVE AND REINSTALL LIGHTING IN AREA TO ACCOMMODATE NEW CEILING WORK. REFER TO ARCHITECTURAL. PROVIDE SEISMIC SUPPORT FOR ALL LIGHTING FIXTURE THAT ARE RE-INSTALLED.
- EXISTING UNIT RTU-104 TO BE REMOVED. REMOVE EXISTING POWER CABLE BACK TO SOURCE.
- EXISTING CONDENSING UNIT TO BE REMOVED. RE-USE EXISTING BREAKER AND PROVIDE NEW WIRING TO NEW CU-101.
- MECHANICAL UNIT ON ROOF TOP TO REMAIN AS EXISTING.
- EXISTING CONDENSING UNIT TO BE REMOVED. REMOVE EXISTING POWER CABLE BACK TO SOURCE, LABEL BREAKER "SPARE" AND MAKE SAFE.





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HVAC REVITALIZATION**

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**Prestipal Paul**

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**ELECTRICAL MAIN LEVEL PLAN  
- NEW**

Project No./No. du projet  
**R.082622.001**

Sheet/Feuille  
**E101**

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Revision no./  
La Révision  
no.  
**0**

**GENERAL NOTES:**

1. IN AREAS WITH T-BAR OR GYPSUM CEILING, INSTALL CONDUIT WITHIN ACCESSIBLE CEILING SPACE. IN AREAS WHERE THERE IS EXPOSED STRUCTURE, CONDUIT MAY BE EXPOSED IF INSTALLED PARALLEL/PERPENDICULAR TO BUILDING WALLS.

**SPECIFIC KEY NOTES :**

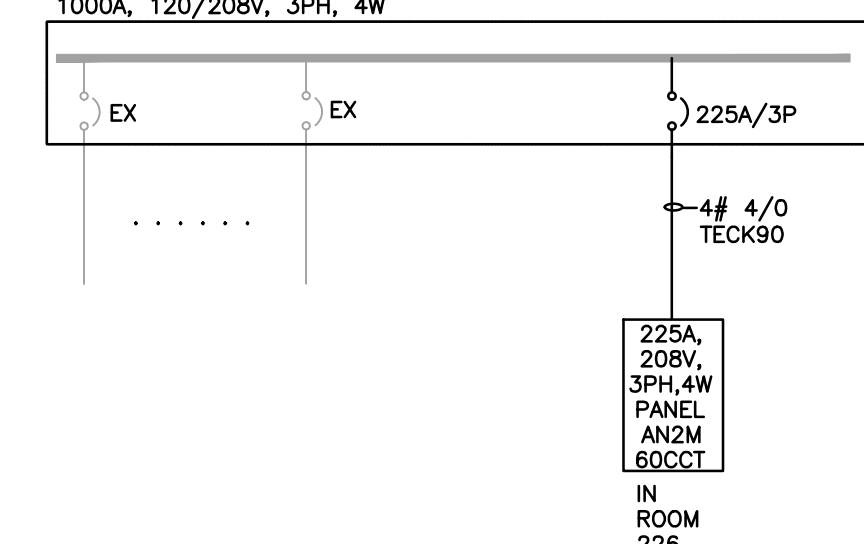
1. PROVIDE NEW MANUAL MOTOR STARTER FOR NEW UNIT.
2. PROVIDE NEW PANEL AN2M (225A/3PH/3W) FOR NEW MECHANICAL LOADS. NEW PANEL AN2M TO BE FED FROM DISTRIBUTION PANEL AN2DC IN MAIN ELECTRICAL ROOM WITH 3/4"Ø FEEDER CABLE. REFER TO E001 FOR PANEL AN2DC LOCATIONS. COORDINATE FEEDER CABLE ROUTE WITH FACILITY. COORDINATE CONSTRUCTION PHASING WITH FACILITY.

LOAD	DESCRIPTION	BKR	CIRCUIT	BKR	DESCRIPTION	LOAD
OU-101		60A	1	2	15A	VRF-101
		3P	3	4	2P	
			5	6	15A	
OU-102		60A	7	8	2P	VRF-102
		3P	9	10	15A	VRF-103
			11	12	2P	
OU-103		60A	13	14	15A	VRF-104
		2P	15	16	2P	
BC-102		15A	17	18	15A	VRF-105
		2P	19	20	2P	
BC-101		15A	21	22	15A	VRF-106
		2P	23	24	2P	
SF-101		15A	25	26	15A	VRF-107
		2P	27	28	2P	
EF-101		15A	29	30	15A	VRF-108
			31	32	2P	
			33	34	15A	VRF-109
			35	36	2P	
			37	38	15A	VRF-110
			39	40	2P	
			41	42		
			43	44		
			45	46		
			47	48		
			49	50		
			51	52		
			53	54		
			55	56		
			57	58		
			59	60		

PANEL - AN2M  
MOUNTING - Surface  
LOCATION - Room 226

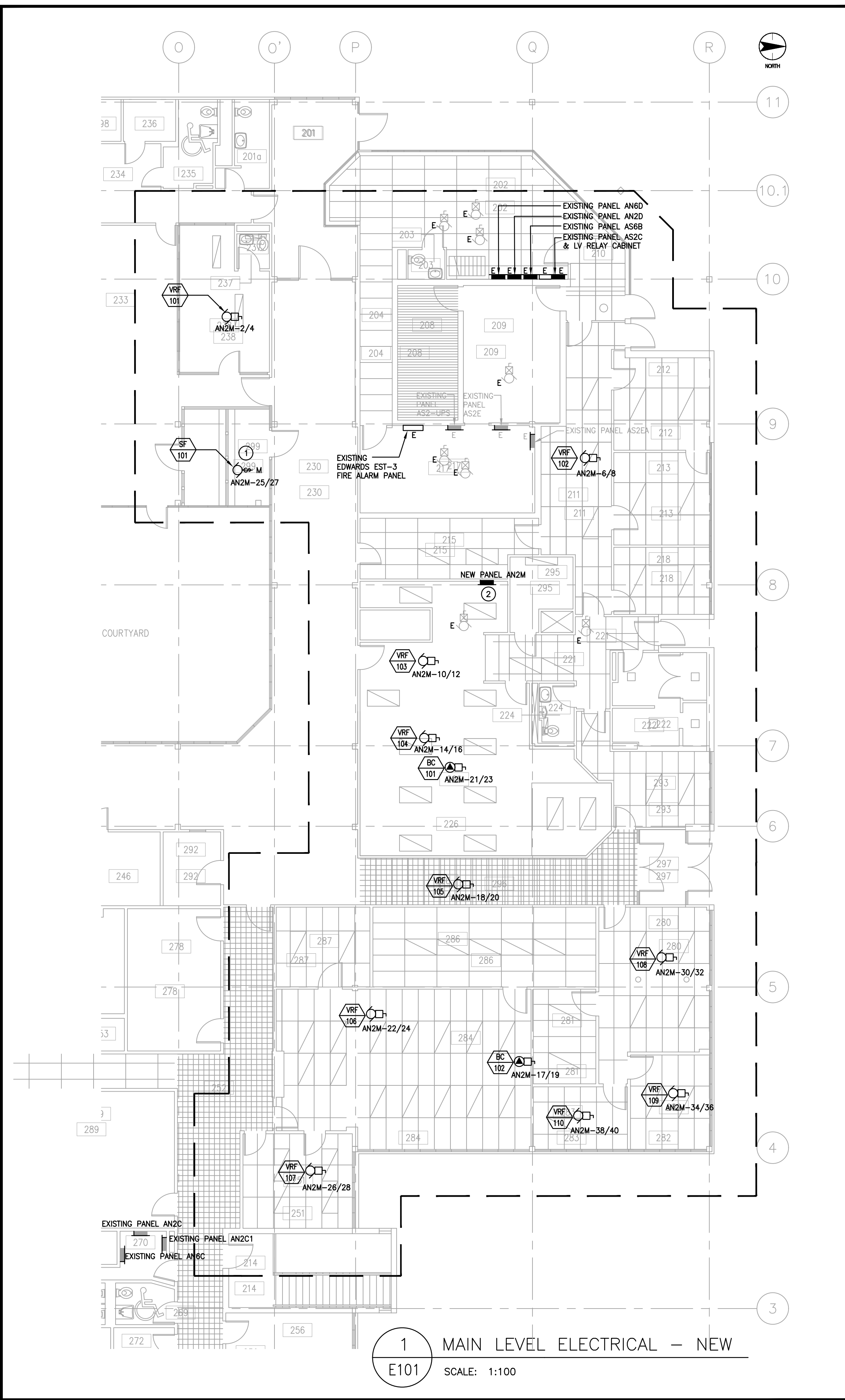
VOLTS - 120/208V, 3ø, 4W  
MAIN BUS - 225A  
MAIN BREAKER - 200A

EXISTING PANEL 'AN2DC' IN MAIN ELEC ROOM  
1000A, 120/208V, 3PH, 4W

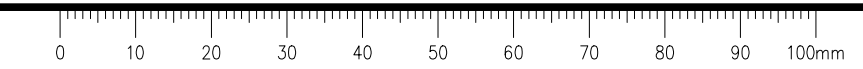


- NOTES:
1. COORDINATE PANEL AN2DC POWER SHUTTING DOWN WITH FACILITY.
  2. NEW CIRCUIT BREAKER KA RATING TO MATCH EXISTING PANEL.

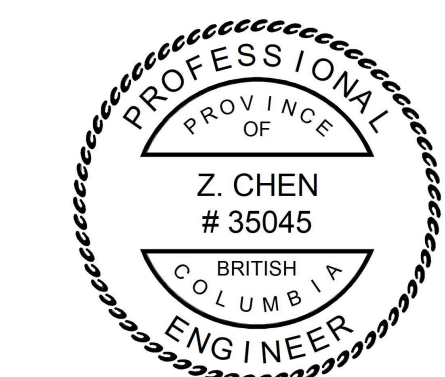
**2** PARTIAL S.L.D  
E101 SCALE: N.T.S



**1** MAIN LEVEL ELECTRICAL - NEW  
E101 SCALE: 1:100







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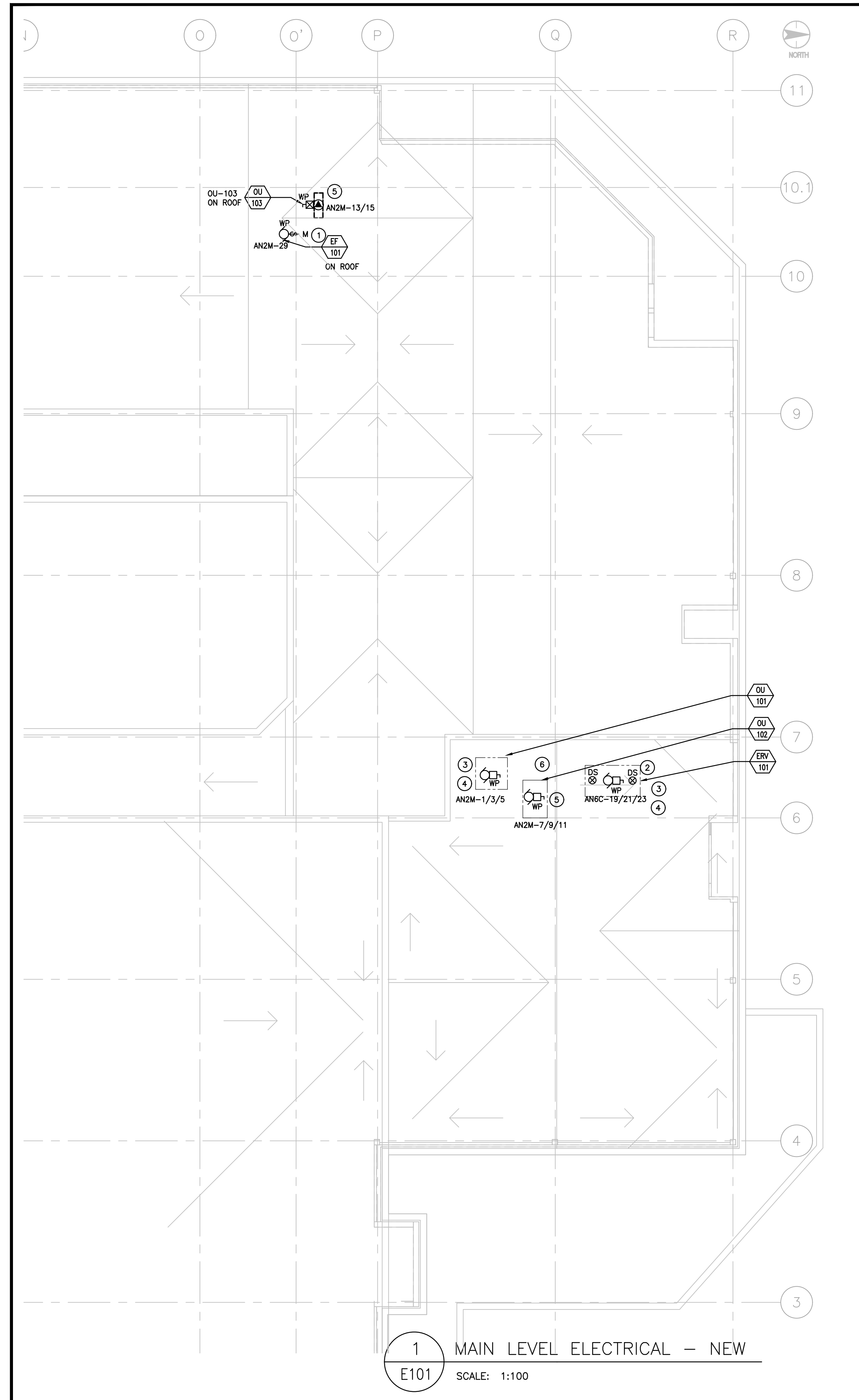
**ELECTRICAL ROOF PLAN  
- NEW**

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<b>R.082622.001</b>	<b>E102</b>	<b>0</b>

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**SPECIFIC KEY NOTES :**

- ① PROVIDE NEW CONDUIT, CIRCUIT, WIRING, BREAKER, AND MANUAL MOTOR STARTER FOR NEW ROOF MOUNTED EXHAUST FAN.
- ② PROVIDE TWO NEW DUCT SMOKE DETECTORS FOR ERV101 ON BOTH SUPPLY AND RETURN SIDE. NEW DUCT SMOKE DETECTOR, FOR EDWARDS EST-3 FIRE ALARM SYSTEM, TIE INTO EXISTING FIRE ALARM PANEL IN ACCORDANCE WITH CAN/ULC S524. ADD A FIRE ALARM ZONE TO PANEL. VERIFY TO CAN/ULC S537. AIR HANDLING UNIT TO SHUT DOWN UPON ACTIVATION OF RESPECTIVE DUCT SMOKE DETECTOR OR UPON GENERAL BUILDING ALARM.
- ③ RELOCATE CONDUITS AT U/S OF CEILING TO ACCOMMODATE AIR HANDLING UNIT, AHU, ROOF TOP PENETRATION. EXTEND CONDUITS AND WIRING FROM EXISTING PANEL TO NEW LOCATION OF AHU.
- ④ PROVIDE NEW CONDUIT, CIRCUIT, WIRING, BREAKER, AND MANUAL MOTOR STARTER FOR NEW ROOF MOUNTED AIR HANDLING UNIT.
- ⑤ PROVIDE NEW CONDUIT, CIRCUIT, WIRING, AND MANUAL MOTOR STARTER FOR NEW ROOF MOUNTED CONDENSING UNIT. PROVIDE NEW BREAKERS IN PANEL AS2A IN GROUND LEVEL MAIN ELECTRICAL ROOM AT NORTHEAST CORNER OF BUILDING. REFER TO E001 FOR ELECTRICAL ROOM LOCATION.
- ⑥ ALL OUTDOOR DISCONNECT SWITCHES SHALL BE RATED FOR NEMA 4X



**1** MAIN LEVEL ELECTRICAL -- NEW  
E101 SCALE: 1:100