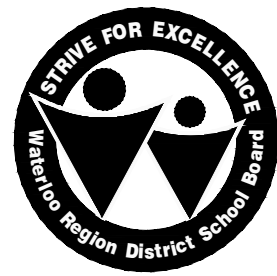




ELECTRICAL SYMBOLS		NOTE: ALL SYMBOLS MAY NOT BE USED	
LIGHTING		POWER	
	LIGHT FIXTURE TYPE AS INDICATED		WALL MOUNTED RECEPTACLE (15A-120V)
	COMBINATION EMERGENCY/EXIT TYPE AS INDICATED (EM-X INDICATES BATTERY UNIT TYPE, DC-X INDICATES DC CIRCUIT, AND X-X INDICATES AC SOURCE CIRCUIT)		WALL MOUNTED T-SLOT RECEPTACLE (20A-120V)
	CEILING OR WALL MOUNTED LIGHT FIXTURE TYPE AS INDICATED		T-SLOT RECEPTACLE MTD. ABOVE COUNTER (20A-120V)
	WALL MOUNTED EXIT LIGHT SHADING INDICATES FACE		RECEPTACLE MTD. ABOVE COUNTER S=SPLIT (15A-120V)
	CEILING MOUNTED EXIT LIGHT ARROWS DENOTE DIRECTION SHADING INDICATES FACE		DIRECT CONNECTION
	SINGLE OR TWIN EMERGENCY LIGHTING FIXTURE		JUNCTION BOX
	SINGLE POLE SWITCH (3=3 WAY, 4=4 WAY, P=PILOT LIGHT, K=KEYED, DM=DIMMER, M=MOTOR RATED)		PANEL AS INDICATED
	OCCUPANCY SENSOR (PASSIVE)		DESTRATIFICATION FAN
	CEILING MOUNTED MOTION SENSOR		SURFACE RACEWAY C/W DEVICES AS NOTED (REFER TO SPECIFICATIONS)
	DIGITAL ROOM CONTROLLER		PUSH-BUTTON STATION (QUANTITY OF BUTTONS AS PER PLANS)
	DIGITAL WALL DIMMER STATION		SPEED CONTROLLER
	POWER PACK		ACCESS CONTROL
FIRE ALARM			MAG LOCK
	HEAT DETECTOR (135 DEGREE RATE OF RISE AND FIXED TEMPERATURE)	GENERAL	
	SMOKE DETECTOR (RL=RELAY BASE)	ER	INDICATES EXISTING ITEM TO REMAIN
	PULLSTATION	D	INDICATES EXISTING ITEM TO BE DELETED
	ALARM BELL	R	INDICATES EXISTING ITEM TO BE RELOCATED/IN RELOCATED POSITION
	ALARM STROBE	WG	WIREGUARD
COMMUNICATIONS		GF	GROUND FAULT
	COMBINATION SINGLE VOICE/ SINGLE COMPUTER OUTLET UNLESS OTHERWISE NOTED C/W 1" (27mm) C TO CABLE MANAGEMENT SYSTEM.	WP	WEATHERPROOF
	WIRELESS ACCESS POINT, PROVIDE 3/4" (21mm) C TO CABLE MANAGEMENT SYSTEM	CLG	CEILING MOUNTED
	CLOCK AS PER SPECIFICATIONS	(X)	NOTE INDICATOR
	WALL MOUNTED SPEAKER (CS=COLUMN SPEAKER)	(X)	MECHANICAL ITEM NO.
	CEILING MOUNTED SPEAKER	STANDARD CIRCUIT LABELING	
		POWER PANEL LABEL CIRCUIT INDICATION SWITCH LEG (IF APPLICABLE)	

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Seal

North Arrow

Project

TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22

184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title

KEY PLAN & LEGEND

DEI
Consulting Engineers
MECHANICAL | ELECTRICAL | AQUATIC

55 Northland Road, Waterloo, ON N2V 1Y8
Phone: 519-725-3555
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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022
Project No. 21047	Drawing No. E101	

LIGHTING CONTROL SYSTEMS SEQUENCE OF OPERATION

Space Type	Room Names	Control Sequence / Control Device(s):	Control System
Enclosed Offices	TYPICAL	Sequence: ON: Lights turned on manually via wall station(s). ADJUST: The occupant manually adjusts lighting within the room to desired level or preset in each group via wall dimmer. OFF: 10 minutes after the room has been vacated, the lights will automatically turn off.	DIGITAL ROOM CONTROL SYSTEM
Classrooms/Work Rooms	TYPICAL	Sequence: ON: Lights turned on automatically via occupancy sensor. ADJUST: The occupant manually adjusts lighting within the room according to desired group via toggle switches. OFF: 15 minutes after the room has been vacated, the lights will automatically turn off.	LINE VOLTAGE OCCUPANCY CONTROL SYSTEM

SYSTEM DESCRIPTIONS:

DIGITAL ROOM CONTROL (DLM) SYSTEM

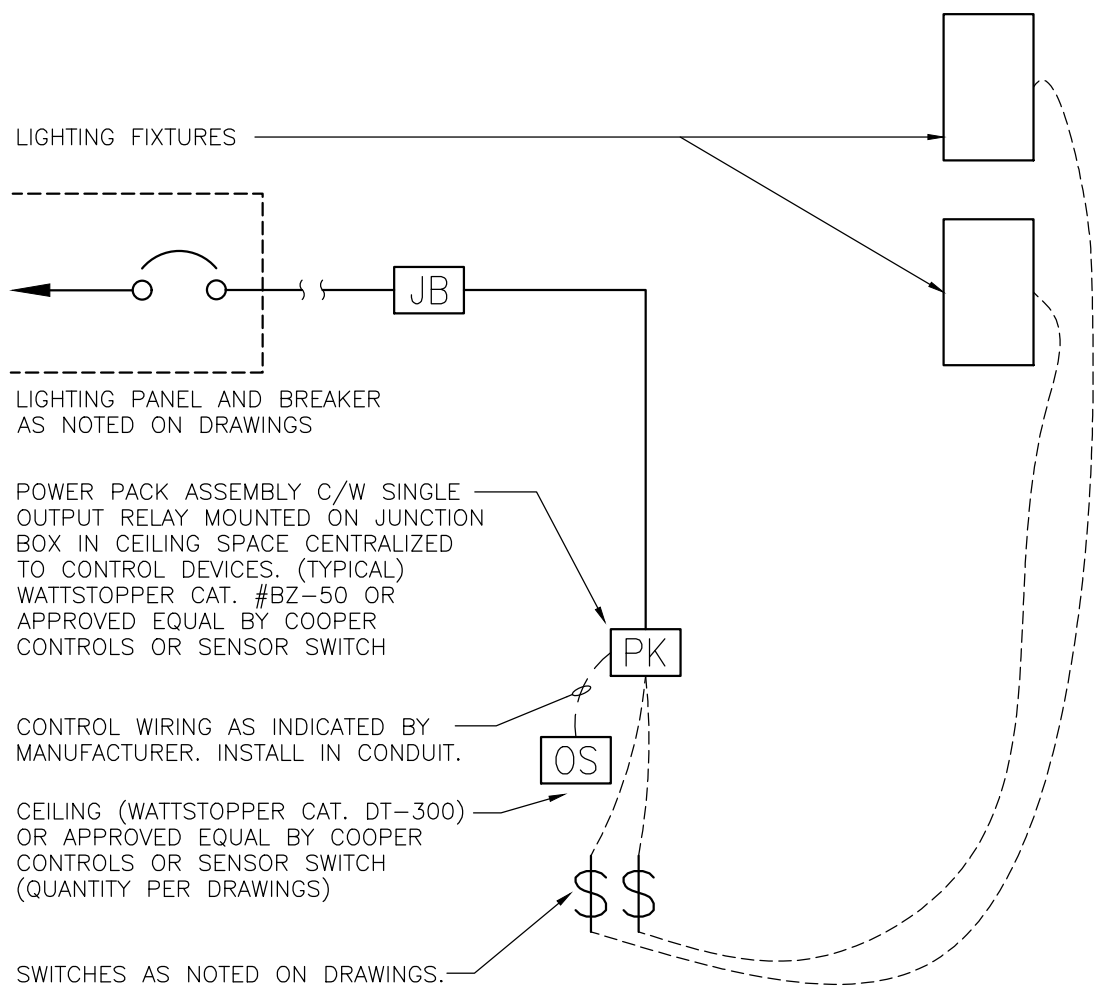
DIGITAL ROOM CONTROL RELAY POWER PACKS C/W PLUG AND PLAY DIGITAL SENSORS AND WALL MOUNT CONTROL STATIONS.

REFER TO SPECIFICATIONS SECTION 26 51 16.

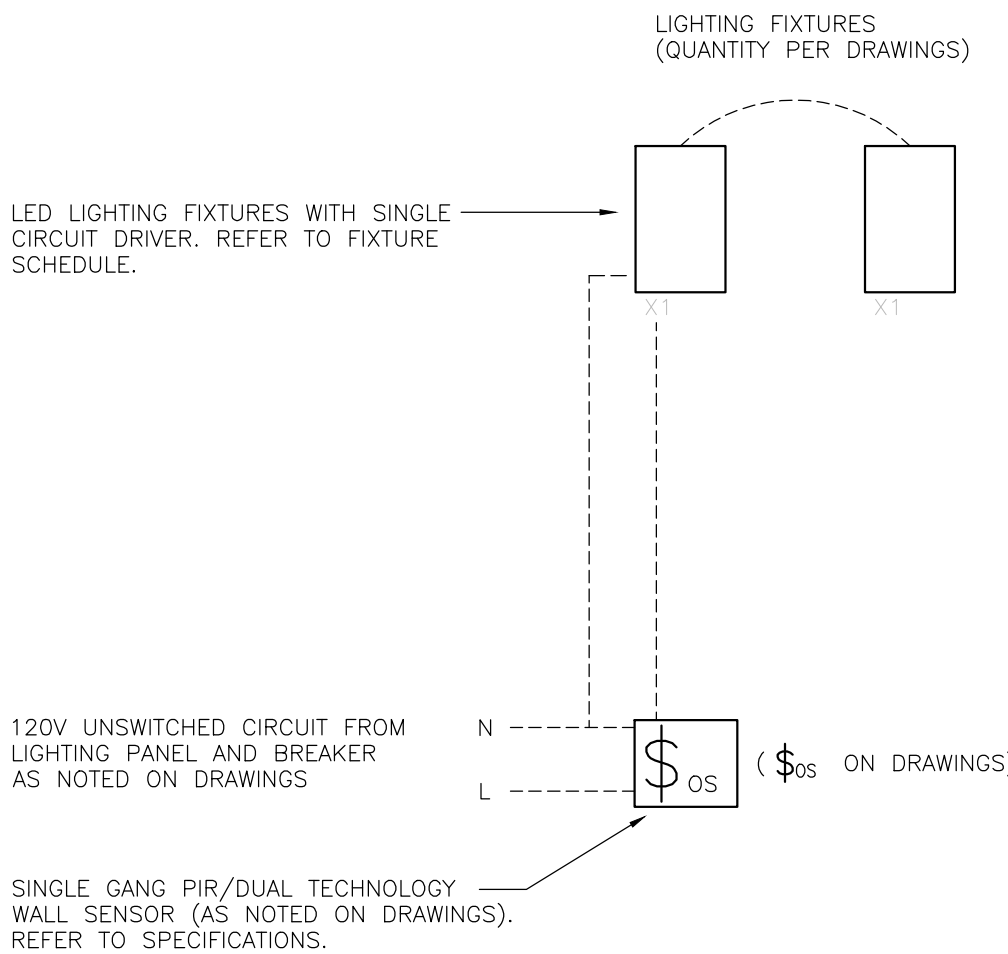
LINE VOLTAGE OCCUPANCY CONTROL SYSTEM

LINE VOLTAGE WALL SENSOR SWITCHES AND LINE VOLTAGE POWER PACKS WITH HARD WIRED SENSORS.

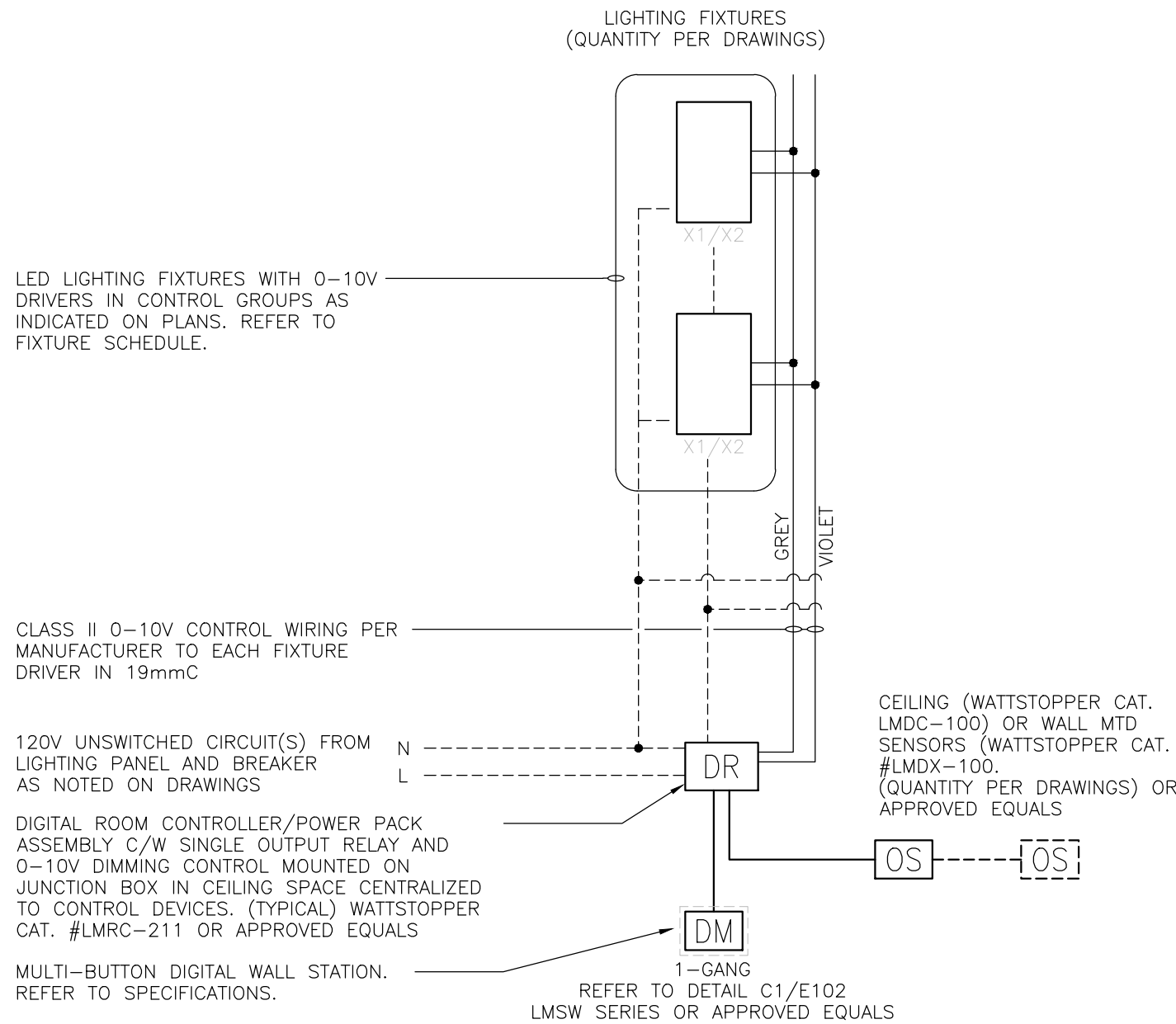
REFER TO SPECIFICATIONS SECTION 26 05 75.



A-CLASSROOM OCCUPANCY SENSOR SCHEMATIC
SCALE: N.T.S.



B-OCCUPANCY CONTROL - SINGLE RELAY
SCALE: N.T.S.

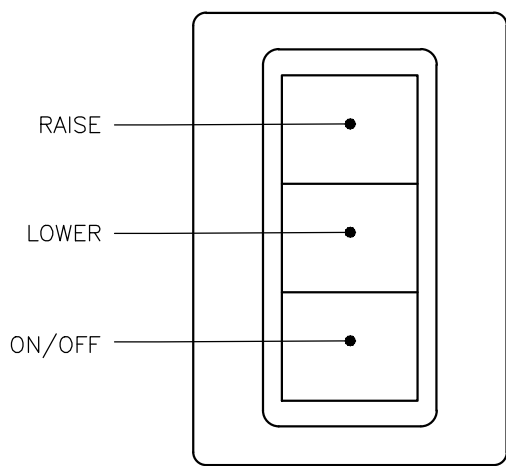


C-ENCLOSED OFFICE DIMMING OCCUPANCY CONTROL
SCALE: N.T.S.

LED LIGHT FIXTURE SCHEDULE

Item	Manufacturer/Catalog Number	Voltage	Lamp	Mounting	Description
L1	COOPER CAT. #24GR-LD5-38-A-UNV-L840-CD1 SIGNIFY CAT. #2TG43L840-4-FS-02F-UNV-DIM	120V	30.6W LED 3982lm 4000K	RECESSED	2'x4' (610x1220mm) LED TROFFER C/W STEEL HOUSING, A12 PRISMATIC LENS, AND ELECTRONIC DRIVER.
L2	LITHONIA CAT. #1TLX4-30L-FW-A12-G210-LP840 SIGNIFY CAT. #1SML32L840-4-FA-02F-UNV-DIM	120V	30W LED 3234lm 4000K	SURFACE	1'x4' (305mmx1220mm) LED TROFFER C/W ALUMINUM HOUSING, A12 PRISMATIC LENS, AND ELECTRONIC DRIVER.
L3	LITHONIA CAT. #2TLX4-40L-FW-A12-G210-LP840 SIGNIFY CAT. #2SML43L840-4-FS-02F-UNV-DIM	120V	32W LED 3946lm 4000K	SURFACE	2'x4' (610mmx1220mm) LED TROFFER C/W ALUMINUM HOUSING, A12 PRISMATIC LENS, AND ELECTRONIC DRIVER.
R1	COOPER CAT. #LD6B-20-D010TR C/W EUBR-1020-60-40 C/W 6LB-M-0-YX LITHONIA CAT. #LDN6-40-20-L06-AR-LS-120 INDY CAT. #L6-23-40-1-G2-L600P-C-WH-HB28	120V	29W LED 2000 LUMENS 4000K	RECESSED	6" (150mm) RECESSED LED POTLIGHT C/W, 0-10V DIMMING DRIVER, SEMI-SPECULAR CLEAR REFLECTOR AND WHITE PAINTED FLANGE
EXIT LIGHTS (SELF-POWERED)	BEGHELLI #0RRMSPLUMWOLR EMERGILITE CAT. #EAXWSP LUMACELL CAT. #LAXWS STANPRO CAT. #RMLXLOWHIB AIMLITE CAT. #RPLUMWHTBAT READY-LITE CAT. #RA-W-SP-UDO	12V/120V	LED 2.5 WATT (MAX.)AC 2 WATT (MAX.)DC	SURFACE	LED EXTRUDED ALUMINUM PICTOGRAM FIXTURE C/W GREEN FACE AND WHITE LEGEND, UNIVERSAL MOUNTING TO SUIT WALL, END OR CEILING, MAXIMUM 63mm (2.5") THICKNESS AND 12V INTERNAL SEALED RECHARGABLE BATTERY PROVIDING MINIMUM 30 MINUTES OF EMERGENCY POWER
EMER. BATT. (SELF-POWERED)	BEGHELLI TEMPESTA SERIES: EM-3 #TA-LED-EM-120-TB-90SP (RECESSED TBAR MOUNT) OR APPROVED EQUALS BY: EMERGILITE STANPRO DUAL-LITE READY-LITE AIMLIGHT CAT. #VVP1 SERIES	12V/120V	N/A	RECESSED	VANDAL RESISTANT LONG LIFE, SEALED BATTERY, C/W 17W LED MODULES, POLYCARBONATE BODY AND 90 MINUTE BATTERY DURATION

- NOTES:
- FOR INFORMATION REGARDING DRIVER AND LENS INFORMATION REFER TO SPECIFICATION.
 - LED LUMEN VALUES QUOTED FOR FIXTURES ARE TO BE CONSIDERED MINIMUM, AND AS ABSOLUTE OR DELIVERED LUMENS. LUMEN VALUES SHOULD NOT EXCEED MORE THAN 10% OF SPECIFIED OUTPUT.
 - WHERE NOTED ABOVE THAT FIXTURES ARE TO HAVE FINISH TO SUIT ARCHITECT THE FINISH WILL BE SELECTED FROM MANUFACTURER'S OPTIONAL COLOUR CHART (i.e. RAL COLOURS OR EQUAL). PROVIDE THIS COLOUR CHART WITH SHOP DRAWING SUBMITTAL.
 - IF THERE ARE ANY DISCREPANCIES BETWEEN THE FIXTURE PART NUMBER AND DESCRIPTION, IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO BRING THIS TO THE ELECTRICAL CONSULTANTS ATTENTION PRIOR TO SHOP DRAWING REVIEW.

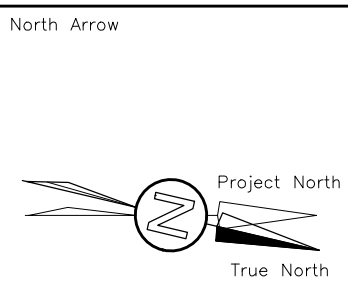
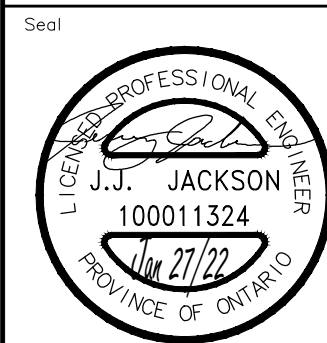
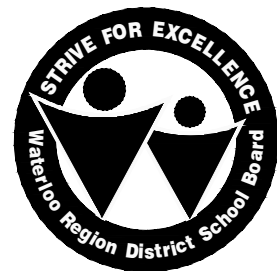


C1-ENCLOSED OFFICE AREA-BUTTON CONFIGURATION
SCALE: N.T.S.

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Project
**TAIT STREET PS
HVAC RENOVATIONS**
Tender # 7198-RW-22
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

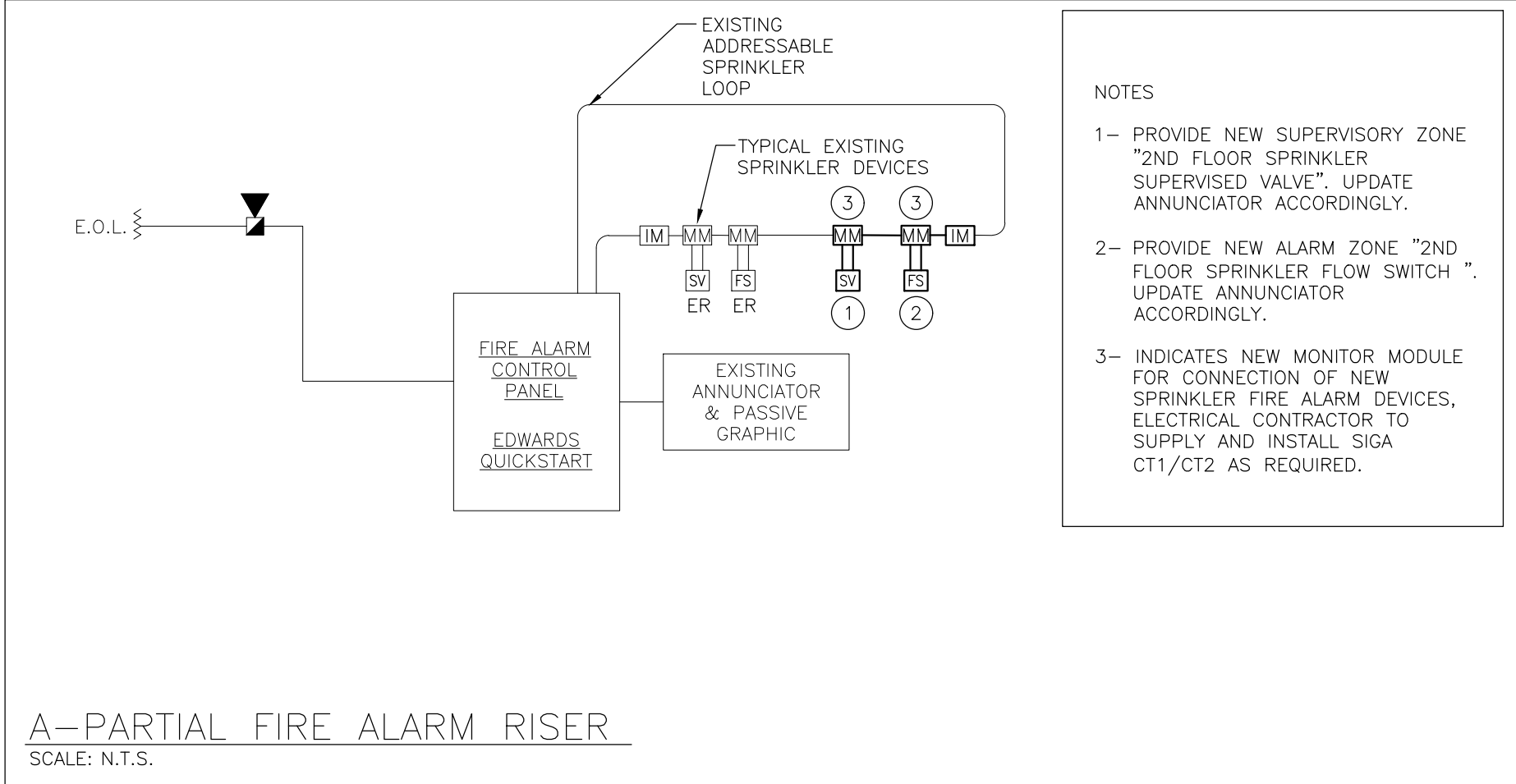
Sheet Title
**LIGHTING CONTROL
DETAILS AND SCHEDULES**

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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

Project No.
21047

Drawing No.
E102



EQUIPMENT WIRING SCHEDULE

Description		Data		Starter		Control Device		Isolating Device		Remote Items		Interlock		Remarks																							
Electrical Item	Description	Provided by	Voltage	Size hp/kW/Amps	Phase	Magnetic	Manual	Contact	Combination	Variable Frequency Drive	Hand/Off/Auto	On/Off	Selector	Stop	PB	High/Low/Off	Pilot Light	Disconnect	Disconnect	Brkr/Fuse	Starter/Device Wired By	Thermostat	Interval Timer	CO2 Sensor	Time Clock	DP Aqua Sensor	Motor Rated Sw. C/A	Photo Light	Dual Voltage	Relay	Control Panel	Wired by	Bldg Auto System	Wired by	Interlock To	Interlock By	Description
1	CONDENSING UNIT CU-3	M	208	17 MCA	1														E	E	E													16	M/E	INTERLOCK TO UV-3. 2.5 TON.	
2	CONDENSING UNIT CU-4	M	208	23.3 MCA	1														E	E	E													17	M/E	INTERLOCK TO UV-4. 3.5 TON.	
3	CONDENSING UNIT CU-5	M	208	17 MCA	1														E	E	E													18	M/E	INTERLOCK TO UV-5. 2.5 TON.	
4	CONDENSING UNIT CU-6	M	208	17 MCA	1														E	E	E													19	M/E	INTERLOCK TO UV-6. 2.5 TON.	
5	CONDENSING UNIT CU-7	M	208	12.2 MCA	1														E	E	E													20	M/E	INTERLOCK TO UV-7. 1.5 TON.	
6	CONDENSING UNIT CU-8	M	208	17 MCA	1														E	E	E													21	M/E	INTERLOCK TO UV-8. 2.5 TON.	
7	CONDENSING UNIT CU-9	M	208	12.2 MCA	1														E	E	E													22	M/E	INTERLOCK TO UV-9. 1.5 TON.	
8	CONDENSING UNIT CU-10	M	208	17 MCA	1														E	E	E													23	M/E	INTERLOCK TO UV-10. 2.5 TON.	
9	CONDENSING UNIT CU-11	M	208	17 MCA	1														E	E	E													24	M/E	INTERLOCK TO UV-11. 2.5 TON.	
10	CONDENSING UNIT CU-12	M	208	17 MCA	1														E	E	E													25	M/E	INTERLOCK TO UV-12. 2.5 TON.	
11	CONDENSING UNIT CU-13	M	208	17 MCA	1														E	E	E													26	M/E	INTERLOCK TO UV-13. 2.5 TON.	
12	CONDENSING UNIT CU-14	M	208	17 MCA	1														E	E	E													27	M/E	INTERLOCK TO UV-14. 2.5 TON.	
13	CONDENSING UNIT CU-15	M	208	17 MCA	1														E	E	E													28	M/E	INTERLOCK TO UV-15. 2.5 TON.	
14	CONDENSING UNIT CU-16	M	208	12.2 MCA	1														E	E	E													29	M/E	INTERLOCK TO UV-16. 2.5 TON.	
15	CONDENSING UNIT CU-17	M	208	10.9 MCA	1														E	E	E													30, 31	M/E	INTERLOCK TO FC-1 & FC-2. 1.5 TON.	
16	UNIT VENTILATOR UV-3	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	1	M/E	CLASSROOM 7
17	UNIT VENTILATOR UV-4	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	2	M/E	CLASSROOM 8
18	UNIT VENTILATOR UV-5	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	3	M/E	CLASSROOM 22
19	UNIT VENTILATOR UV-6	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	4	M/E	CLASSROOM 21
20	UNIT VENTILATOR UV-7	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	5	M/E	SEMINAR 154
21	UNIT VENTILATOR UV-8	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	6	M/E	CLASSROOM 20
22	UNIT VENTILATOR UV-9	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	7	M/E	SEMINAR 153
23	UNIT VENTILATOR UV-10	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	8	M/E	CLASSROOM 9
24	UNIT VENTILATOR UV-11	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	9	M/E	CLASSROOM 10
25	UNIT VENTILATOR UV-12	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	10	M/E	CLASSROOM 11
26	UNIT VENTILATOR UV-13	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	11	M/E	CLASSROOM 19
27	UNIT VENTILATOR UV-14	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	12	M/E	CLASSROOM 18
28	UNIT VENTILATOR VERTICAL UV-15	M	208	10 MCA	1													E	E	E	M	M										M	M	M	13	M/E	STAFF ROOM 140. VOLTAGE AND POWER TO BE CONFIRMED.
29	UNIT VENTILATOR UV-16	M	120	6.3 MCA	1													E	E	E	M	M										M	M	M	14	M/E	OFFICE 124
30	FAN COIL FC-14A	M	208	8 MCA	1													E	E	E	M	M										M	M	M	15	E	RES. A
31	FAN COIL FC-14B	M	208	8 MCA	1													E	E	E	M	M										M	M	M	15	E	RES. B
32	ERV-1	M	120	FHP	1													E	E	E		M									M/E	M/E	M	M			
33	EDH-1	M	208	2 kW	1													E	E	E	M											M	M	M			
34	PUMP P-4	M	208	1.5 HP	3				M									E	E	E												M	M				REMOVE EXISTING 1HP, PROVIDE NEW 1.5HP C/W ONBOARD VFD
35	EXISTING FAN EF-1 NEW MOTOR	M	208	1.0 HP	1				M										E	E	E											M	M				MOTOR SIZE AND VOLTAGE TO BE SITE CONFIRMED PRIOR ORDERING FAN MOTOR, MULTI-SPEED VFD FAN MOTOR TO INCREASE TO MAX. SPEED WHEN ASSOCIATED UNIT VENTILATORS ARE IN FREE COOLING
36	EXISTING FAN EF-1 NEW MOTOR	M	208	1.0 HP	1				M										E	E	E											M	M				

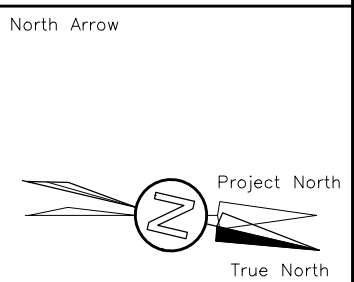
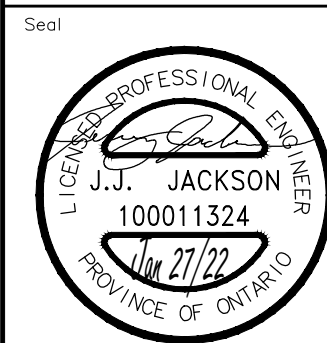
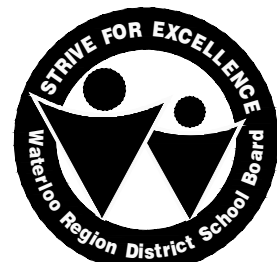
NOTES:
1. PROVIDE MAIN FEED TO UNIT. PROVIDE ADDITIONAL FEED FROM TERMINAL STRIPS WITHIN UNIT TO VARIABLE FREQUENCY DRIVE AND BACK TO UNIT (IN SEPARATE CONDUITS).
COORDINATE CONDUCTOR SIZE TO AND FROM VARIABLE FREQUENCY DRIVE WITH MECHANICAL SHOP DRAWINGS.

NOTES:
1. PROVIDE MAIN FEED TO UNIT. PROVIDE ADDITIONAL FEED FROM TERMINAL STRIPS WITHIN UNIT TO VARIABLE FREQUENCY DRIVE AND BACK TO UNIT (IN SEPARATE CONDUITS).
COORDINATE CONDUCTOR SIZE TO AND FROM VARIABLE FREQUENCY DRIVE WITH MECHANICAL SHOP DRAWINGS.

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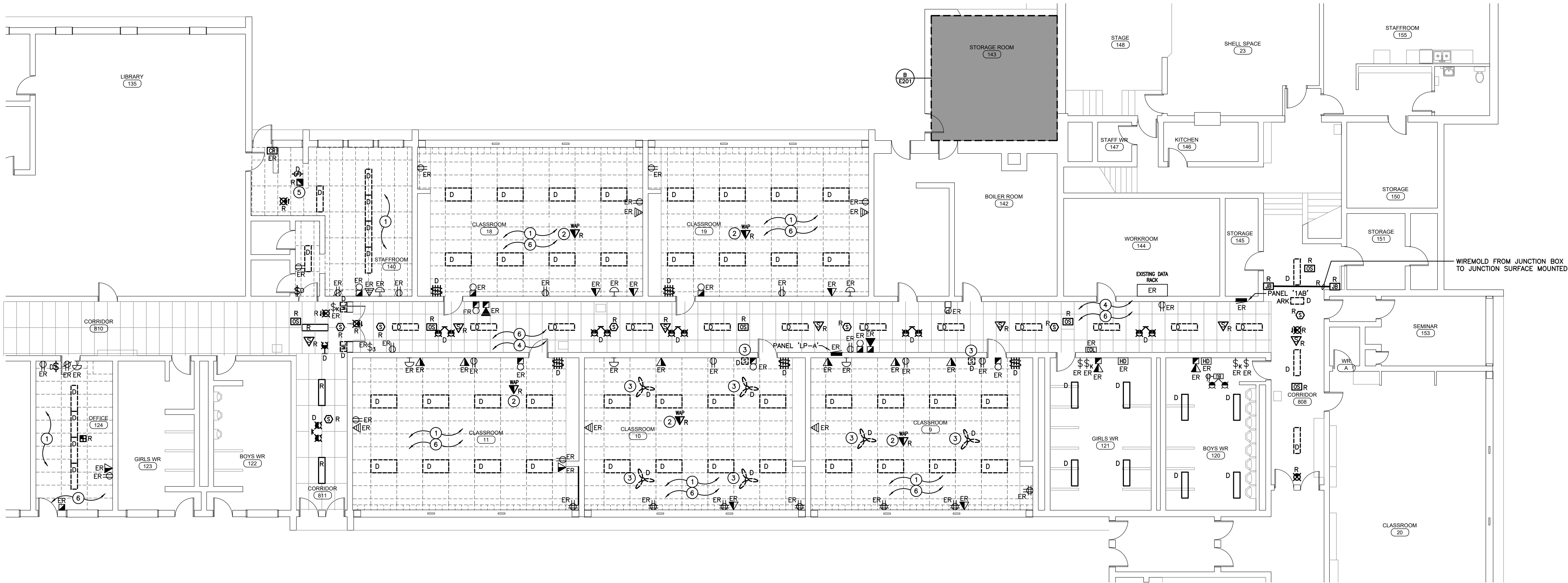
Project
TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title
LIGHTING CONTROL
SCHEDULE

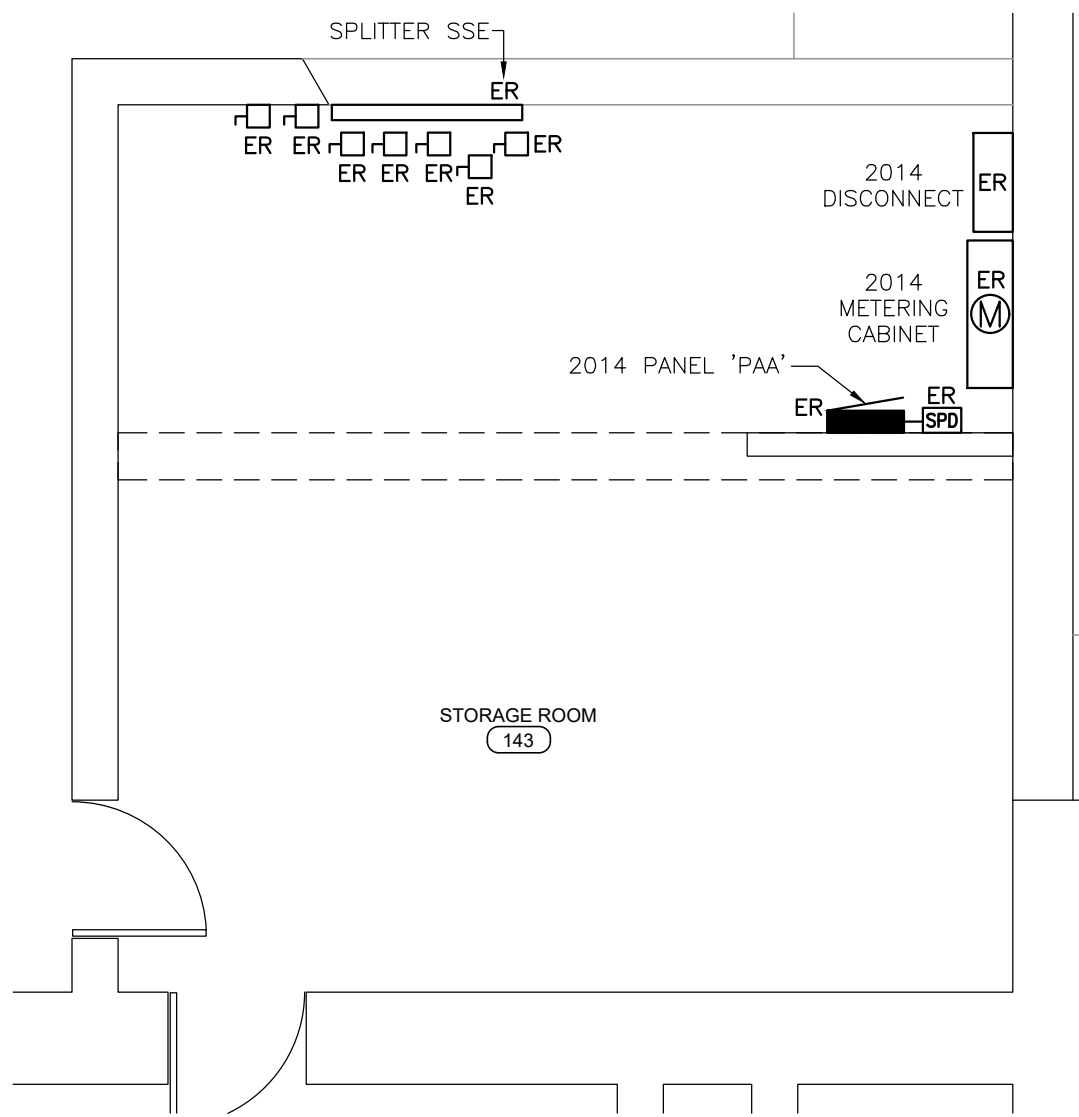
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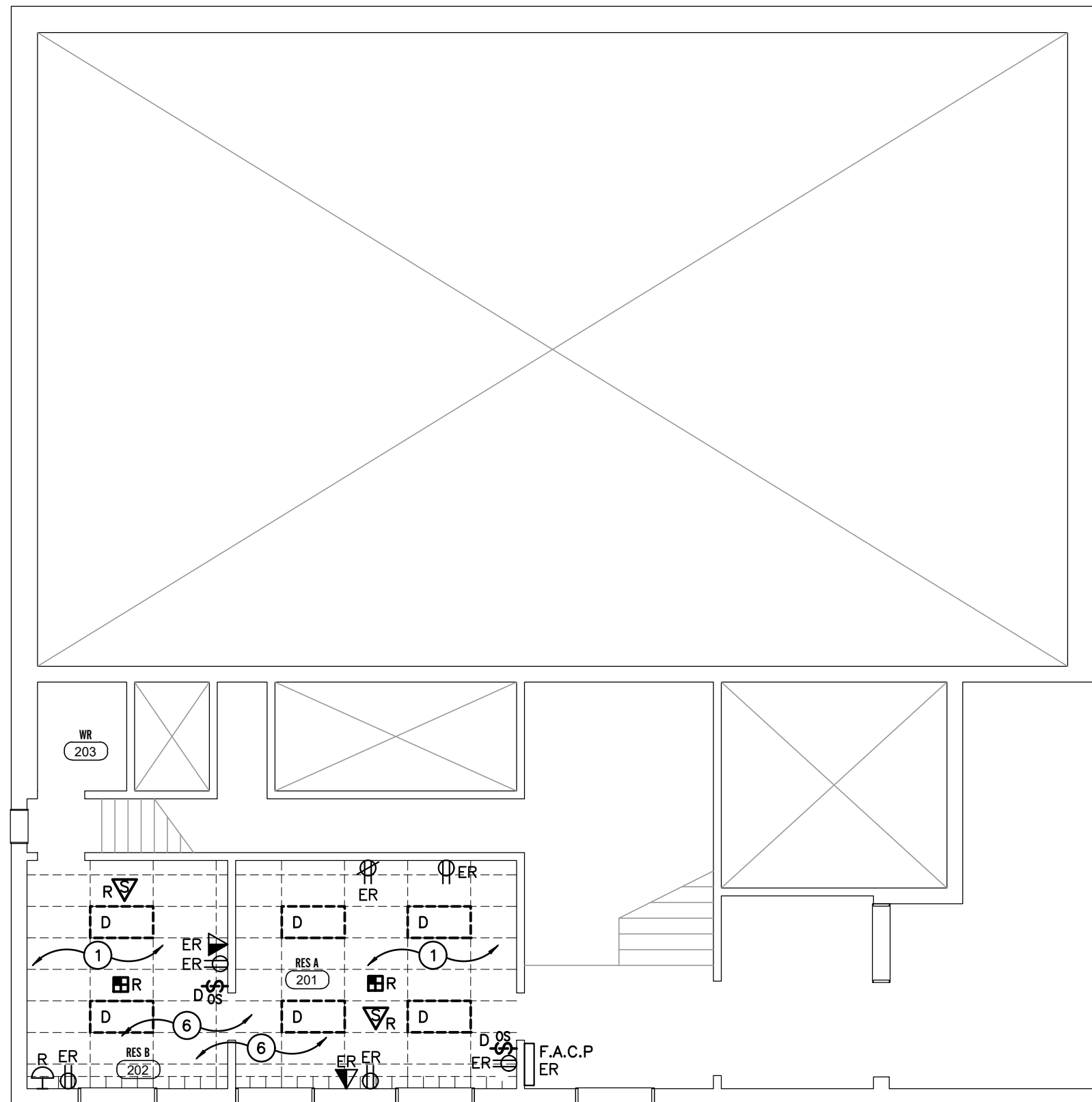
Project No. 21047	Drawing No. E103
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A-GROUND FLOOR DEMOLITION PLAN -BLOCK A
SCALE: 1:100



B-STORAGE ROOM 143 DEMOLITION ENLARGED PLAN
SCALE: 1:50



C-SECOND FLOOR DEMOLITION PLAN
SCALE: 1:50

GENERAL DEMOLITION NOTES

- 'ER' DENOTES EXISTING ITEM TO REMAIN.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
- 'R' INDICATES EXISTING ITEM TO BE RELOCATED. REFER TO RENOVATION DRAWINGS AND RELOCATE DEVICE AND WIRING TO SUIT. UNLESS OTHERWISE NOTED.
- 'D' INDICATES EXISTING ITEM TO BE DELETED. UNLESS OTHERWISE NOTED DISCONNECT AND REMOVE NOTED DEVICE AND WIRING BACK TO SOURCE.
- ALL LIGHTING FIXTURES BEING RELOCATED SHALL BE CLEANED AND CHECKED PRIOR TO BEING REINSTALLED.

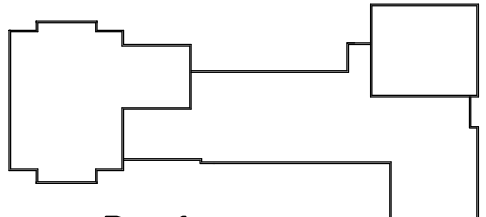
SPECIFIC DEMOLITION NOTES

1. FIXTURES ARE TO BE DISCONNECTED AND REMOVED. MAINTAIN WIRING FOR CONNECTION TO NEW FIXTURES AND CONTROLS AS NOTED ON THE RENOVATION DRAWINGS.
2. PROTECT EXISTING DATA CABLING FOR WIRELESS ACCESS POINT DURING CEILING WORK, RE-INSTALL PER RENOVATION PLAN.
3. INDICATES DESTRATIFICATION FANS TO BE DISCONNECTED AND REMOVED, AND TURNED OVER TO OWNER.
4. INDICATED FIXTURES TO BE REMOVED. EXISTING CIRCUIT AND LIGHTING CONTROLS TO REMAIN FOR CONNECTION TO NEW FIXTURES. REFER TO RENOVATION PLANS.
5. INDICATED PULL STATION IS TO BE LOWERED TO 1150MM (46") AFF. AT PRESENT DEVICE LOCATION.
6. CEILINGS IN CLASSROOMS AND CORRIDORS ARE BEING REMOVED AND RE-INSTALLED FOR MECHANICAL INSTALLATION. ELECTRICAL CONTRACTOR IS TO INCLUDE FOR REMOVAL AND/OR REINSTALLATION OF ALL CEILING MOUNT DEVICES.

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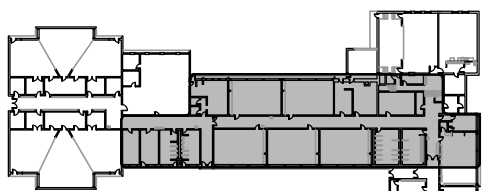
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2	21.01.27	ISSUED FOR PERMIT AND TENDER	DM



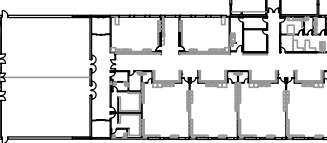
Roof

Level 2

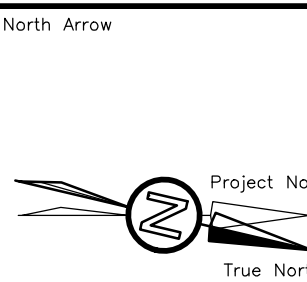
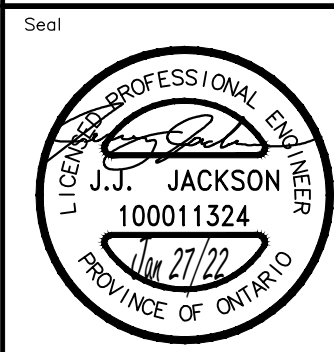
AREA OF WORK



Ground Floor



Key Plan



Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

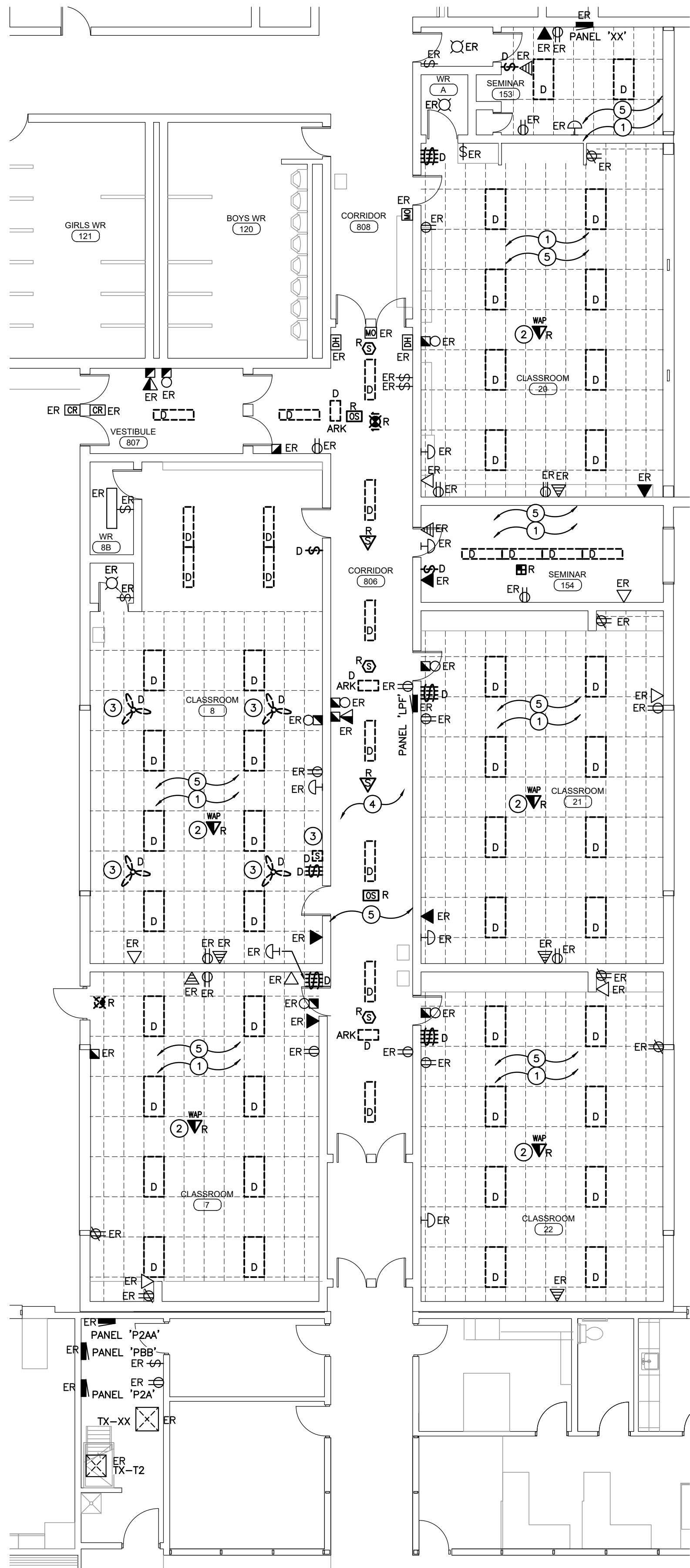
Sheet Title
**GROUND FLOOR
DEMOLITION PLANS
BLOCK A**

DEI
Consulting Engineers
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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

Project No.
21047

Drawing No.
E201



GROUND FLOOR BLOCK B DEMOLITION PART PLAN
SCALE: 1:100

GENERAL DEMOLITION NOTES

- 'ER' DENOTES EXISTING ITEM TO REMAIN.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
- 'R' INDICATES EXISTING ITEM TO BE RELOCATED. REFER TO RENOVATION DRAWINGS AND RELOCATE DEVICE AND WIRING TO SUIT. UNLESS OTHERWISE NOTED.
- 'D' INDICATES EXISTING ITEM TO BE DELETED. UNLESS OTHERWISE NOTED DISCONNECT AND REMOVE NOTED DEVICE AND WIRING BACK TO SOURCE.
- ALL LIGHTING FIXTURES BEING RELOCATED SHALL BE CLEANED AND CHECKED PRIOR TO BEING REINSTALLED.

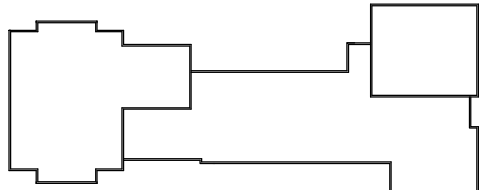
SPECIFIC DEMOLITION NOTES

1. FIXTURES ARE TO BE DISCONNECTED AND REMOVED. MAINTAIN WIRING FOR CONNECTION TO NEW FIXTURES AND CONTROLS AS NOTED ON THE RENOVATION DRAWINGS.
2. PROTECT EXISTING DATA CABLING FOR WIRELESS ACCESS POINT DURING CEILING WORK, RE-INSTALL PER RENOVATION PLAN.
3. INDICATES DESTRATIFICATION FANS TO BE DISCONNECTED AND REMOVED, AND TURNED OVER TO OWNER.
4. INDICATED FIXTURES TO BE REMOVED. EXISTING CIRCUIT AND LIGHTING CONTROLS TO REMAIN FOR CONNECTION TO NEW FIXTURES. REFER TO RENOVATION PLANS.
5. CEILINGS IN CLASSROOMS AND CORRIDORS ARE BEING REMOVED AND RE-INSTALLED FOR MECHANICAL INSTALLATION. ELECTRICAL CONTRACTOR IS TO INCLUDE FOR REMOVAL AND/OR REINSTALLATION OF ALL CEILING MOUNT DEVICES.

The contractor shall verify all dimensions and report all errors and discrepancies to the Consultant before commencement of the work.
The drawings show general arrangement of services. Follow as closely as actual building construction will permit. Obtain approval for relocation of service from Consultant before commencement of the work.
The drawings do not indicate all offsets fitting and accessories which may be required. Provide the same to meet the required conditions.
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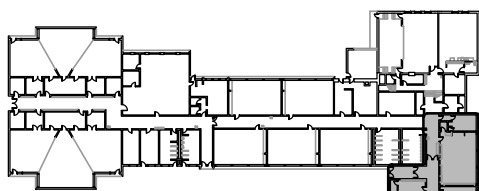


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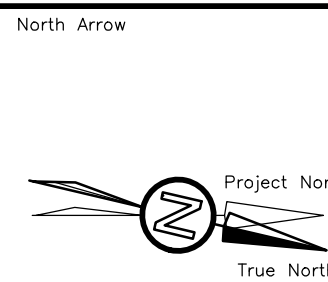
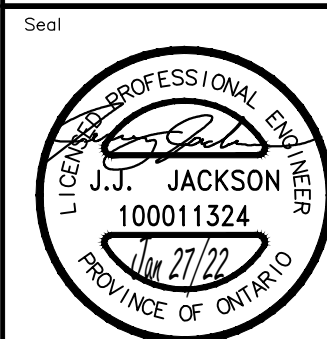
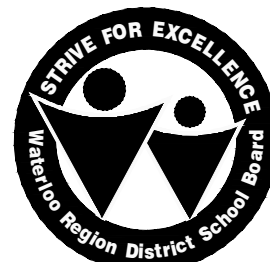
Level 2

AREA OF WORK



Ground Floor

Key Plan



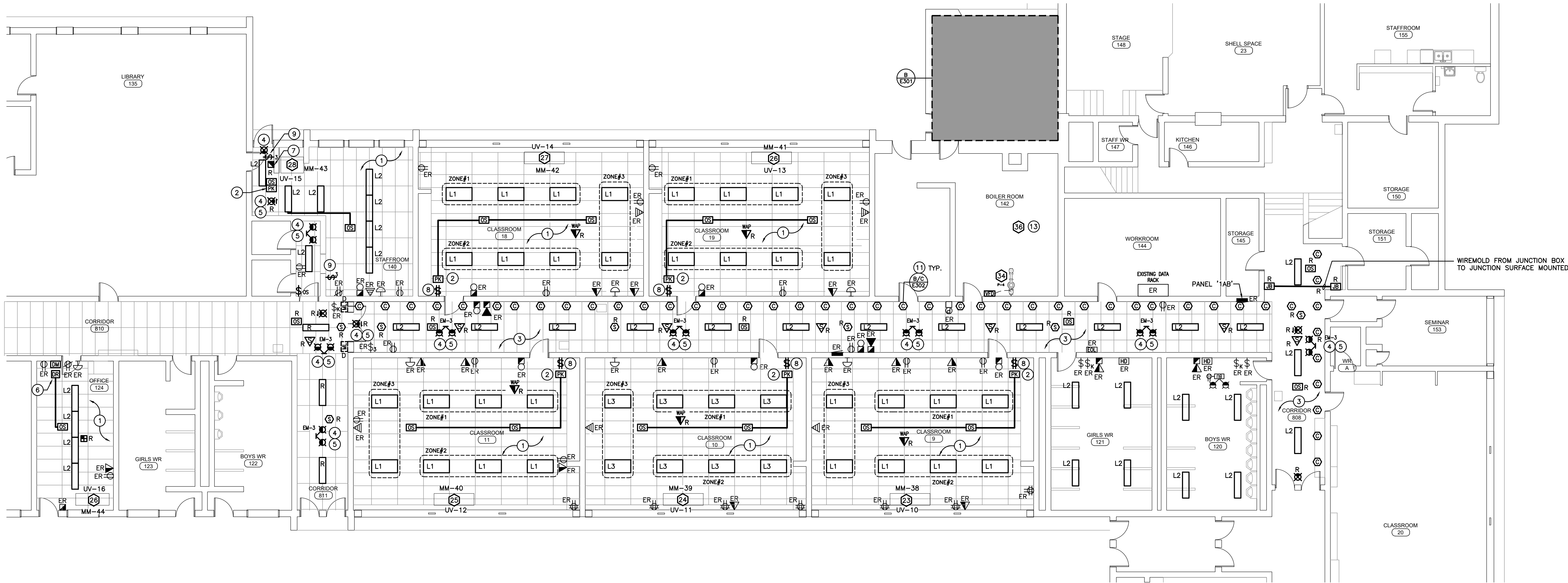
Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title
**GROUND FLOOR
DEMOLITION PLANS
BLOCK B**

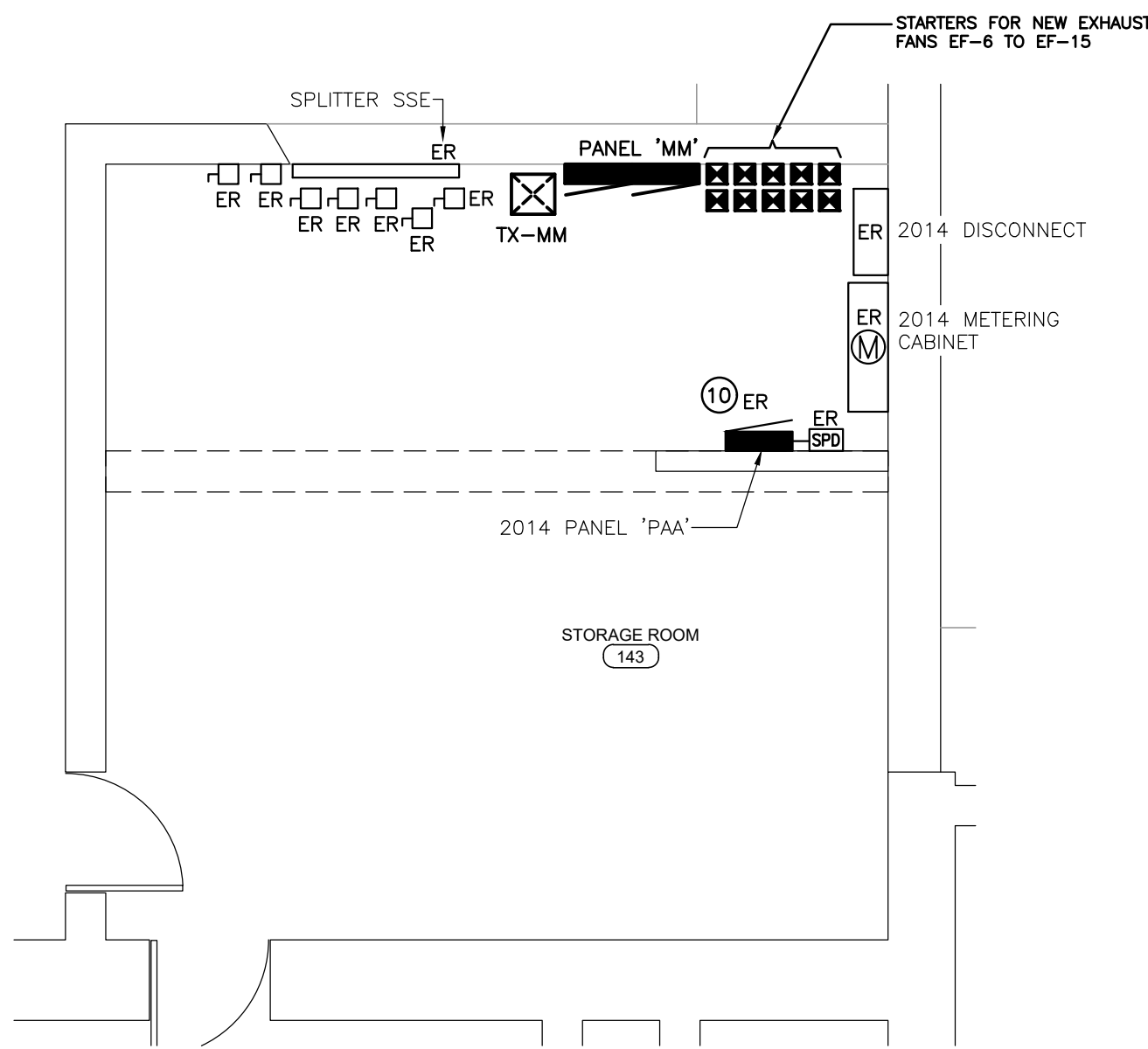
DEI
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55 Northland Road, Waterloo, ON N2V 1Y8
Phone: 519-725-3555
Website: deiassociates.ca

Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

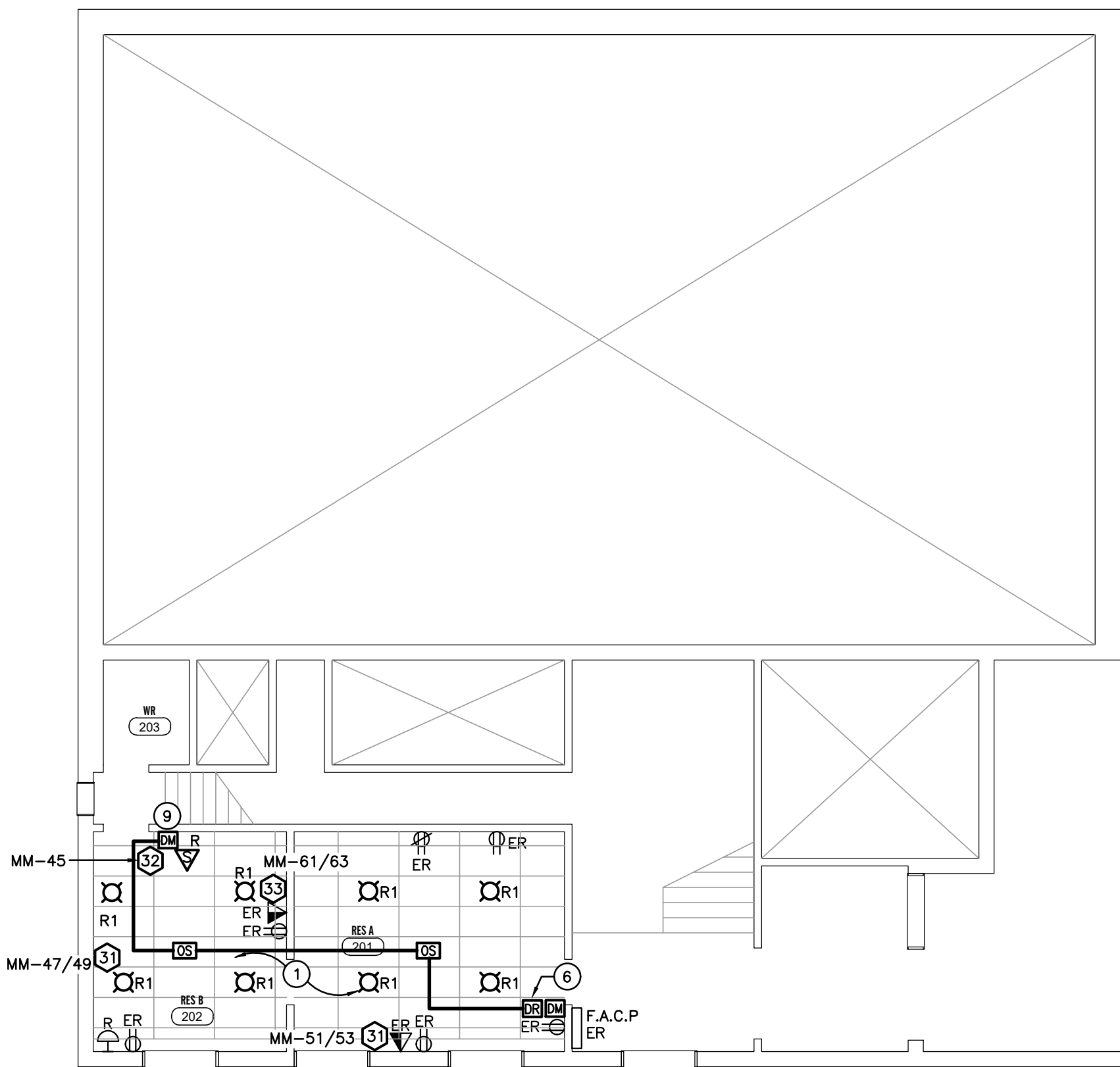
Project No. 21047	Drawing No. E202
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A-GROUND FLOOR RENOVATION PLAN -BLOCK A
SCALE: 1:100



B-STORAGE ROOM 143 RENOVATION ENLARGED PLAN
SCALE: 1:50



C-SECOND FLOOR RENOVATION PLAN
SCALE: 1:50

GENERAL RENOVATION NOTES

- 'ER' INDICATES EXISTING ITEM TO REMAIN.
- 'R' INDICATES EXISTING ITEM IN RELOCATED POSITION.
- ALL DEVICES SHOWN ARE NEW UNLESS OTHERWISE NOTED.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.
- MAINTAIN SERVICE TO ALL EXISTING DEVICES TO REMAIN.
- REVISE PANEL DIRECTORIES TO SUIT CHANGES (TYPED).

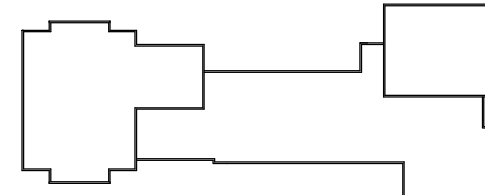
SPECIFIC RENOVATION NOTES

- CONNECT FIXTURES WITHIN THIS ROOM TO CIRCUITS MADE AVAILABLE DURING DEMOLITION, EXTEND CIRCUITS AS REQUIRED. FIXTURES TO BE CONTROLLED AS SHOWN.
- INDICATES POWER PACK INSTALLED WITHIN ACCESSIBLE CEILING SPACE FOR CONTROL OF CLASSROOM LIGHTING THROUGH WALL MOUNTED TOGGLE SWITCHES. REFER TO LIGHTING CONTROL DETAILS.
- INDICATES FIXTURES TO BE CONNECTED TO EXISTING CIRCUIT AND EXISTING CONTROLS MADE AVAILABLE DURING DEMOLITION.
- INDICATES EMERGENCY FIXTURE TO BE CONNECTED TO UNSWITCHED SIDE OF LOCAL LIGHTING CIRCUIT.
- INDICATED DEVICE IS TO BE CEILING MOUNTED. PROVIDE ADEQUATE SUPPORT.
- INDICATES DIGITAL ROOM CONTROLLER(S) INSTALLED WITHIN ACCESSIBLE CEILING SPACE FOR CONTROL OF NOTED OCCUPANCY SENSOR(S). REFER TO LIGHTING CONTROL DETAILS.
- INDICATED PULL STATION IS TO BE LOWERED TO 1150MM (46") AFF. AT PRESENT DEVICE LOCATION. FEED INDICATED DEVICE USING SURFACE METAL RACEWAY EQUAL TO WIREMOLD SERIES 500.
- INDICATES NEW SWITCH TO BE PROVIDED IN PLACE OF REMOVED SWITCH. SUPPLY AND INSTALL CUSTOM COVER PLATE FOR UNUSED GANG, AND FEED IT USING SURFACE METAL RACEWAY EQUAL TO WIREMOLD SERIES 700.
- FISH BEHIND WALL IF POSSIBLE. OTHERWISE FEED INDICATED DEVICE USING SURFACE METAL RACEWAY EQUAL TO WIREMOLD SERIES 500.
- SUPPLY AND INSTALL NEW 60A-3P BREAKER IN EXISTING PANEL 'PAA' (400A 600V SQUARE D I-LINE PANELBOARD). REFER TO PARTIAL DISTRIBUTION RISER.
- INDICATES CABLE MANAGEMENT HANGER SYSTEM IN CORRIDOR CEILING SPACE. REFER TO DETAILS B/E302 AND C/E302.
- INDICATED MECHANICAL UNIT IS BEING REPLACED WITH NEW UNIT HAVING THE SAME POWER REQUIREMENTS. DISCONNECT AND RE-CONNECT EXISTING FEEDER. PROVIDE NEW ONBOARD VARIABLE FREQUENCY DRIVE.
- INDICATES NEW VFD AND REPLACEMENT MOTOR BY MECHANICAL FOR EXISTING FAN. ELECTRICAL CONTRACTOR TO CONNECT NEW VFD TO EXISTING FAN BRANCH CIRCUIT AND PROVIDE CONNECTION WIRING FROM VFD TO REPLACEMENT FAN MOTOR. FAN MOTOR MOUNTING AND REPLACEMENT BY MECHANICAL TRADE.

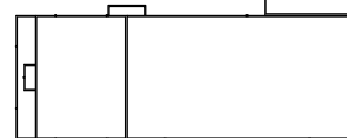
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ISSUANCES

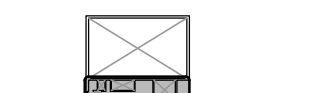
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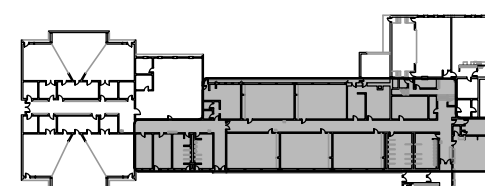
Roof



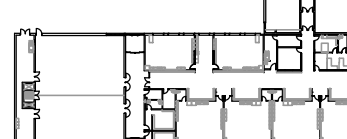
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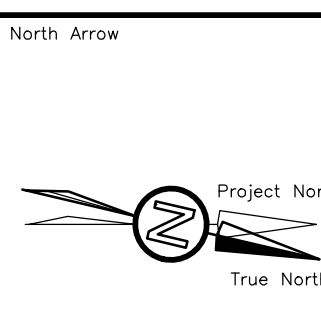
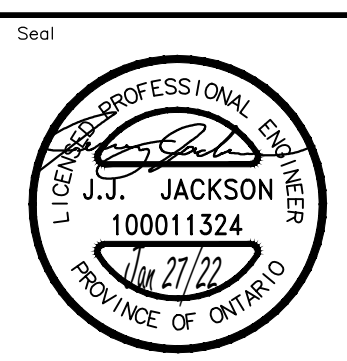
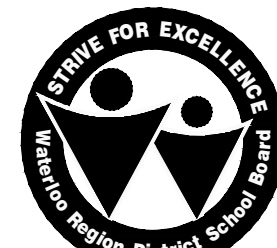
AREA OF WORK



Ground Floor



Key Plan



Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title
**GROUND FLOOR
RENOVATION PLANS
BLOCK A**

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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

Project No.
21047

Drawing No.
E301

PANEL 'MM'

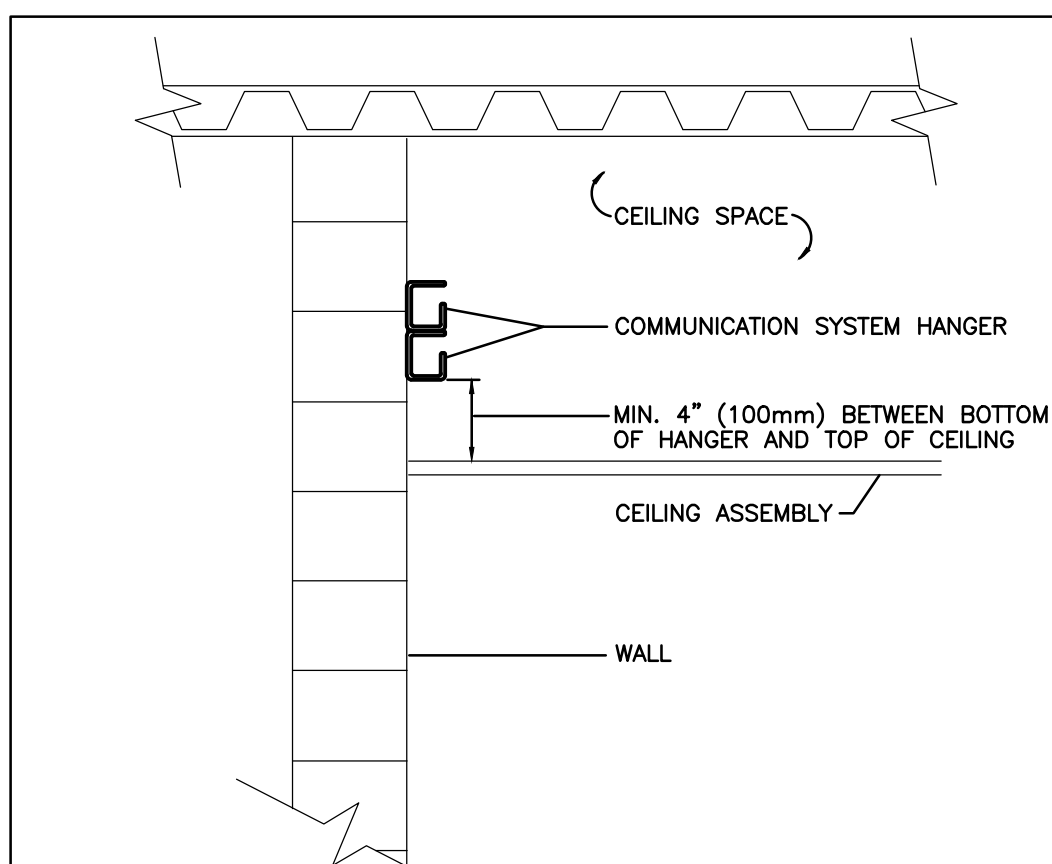
VOLTAGE: 120/208 VOLTS
PHASE: 3P, 4W
MAINS: 225A
NEUTRAL BUS: FULL
MOUNTING: RECESSED SURFACE
NOTES: C/W SPRINKLER HOOD

* INDICATES 33mA GROUND FAULT STYLE BREAKER

THE CONTRACTOR IS TO COORDINATE ROOM NAMES AND NUMBERS NOTED WITH THE FINAL ROOM INFORMATION ISSUED DURING CONSTRUCTION AND ADJUST DIRECTORIES TO SUIT.

CU-3 CONDENSING UNIT CU-3	25A 1	2	40A CONDENSING UNIT CU-4	CU-4	UV-15 UNIT VENTILATOR UV-15	15A 43	44	15A UNIT VENTILATOR UV-16	UV-16
CU-5 CONDENSING UNIT CU-5	2P 3	4	2P		ERV-1 ERV-1	15A 45	46	15A SPARE	
CU-7 CONDENSING UNIT CU-7	25A 5	6	25A CONDENSING UNIT CU-6	CU-6	FC-14A FAN COIL FC-14A	15A 47	48	15A SPARE	
CU-9 CONDENSING UNIT CU-9	2P 7	8	2P		FC-14B FAN COIL FC-14B	2P 49	50	15A SPARE	
CU-11 CONDENSING UNIT CU-11	25A 9	10	25A CONDENSING UNIT CU-8	CU-8		15A 51	52	15A SPARE	
CU-13 CONDENSING UNIT CU-13	2P 11	12	2P		ROOF MAINTENANCE REC 20A	2P 53	54	15A SPARE	
CU-15 CONDENSING UNIT CU-15	25A 13	14	25A CONDENSING UNIT CU-10	CU-10	ROOF MAINTENANCE REC 20A	55	56		
CU-17 CONDENSING UNIT CU-17	2P 15	16	2P		ROOF MAINTENANCE REC 20A	57	58		
UV-5 UNIT VENTILATOR UV-5	25A 17	18	25A CONDENSING UNIT CU-12	CU-12	EDH-1 EDH-1	15A 61	62		
UV-7 UNIT VENTILATOR UV-7	2P 19	20	2P			2P 63	64		
UV-9 UNIT VENTILATOR UV-9	25A 21	22	25A CONDENSING UNIT CU-14	CU-14		65	66		
UV-11 UNIT VENTILATOR UV-11	2P 23	24	2P			67	68		
UV-13 UNIT VENTILATOR UV-13	25A 25	26	25A CONDENSING UNIT CU-16	CU-16		69	70		
	2P 27	28	2P			71	72		
	25A 29	30	15A UNIT VENTILATOR UV-3	UV-3		73	74		
	2P 31	32	15A UNIT VENTILATOR UV-4	UV-4		75	76		
	15A 33	34	15A UNIT VENTILATOR UV-6	UV-6		77	78		
	15A 35	36	15A UNIT VENTILATOR UV-8	UV-8		79	80		
	15A 37	38	15A UNIT VENTILATOR UV-10	UV-10		81	82		
	15A 39	40	15A UNIT VENTILATOR UV-12	UV-12		83	84		
	15A 41	42	15A UNIT VENTILATOR UV-14	UV-14					

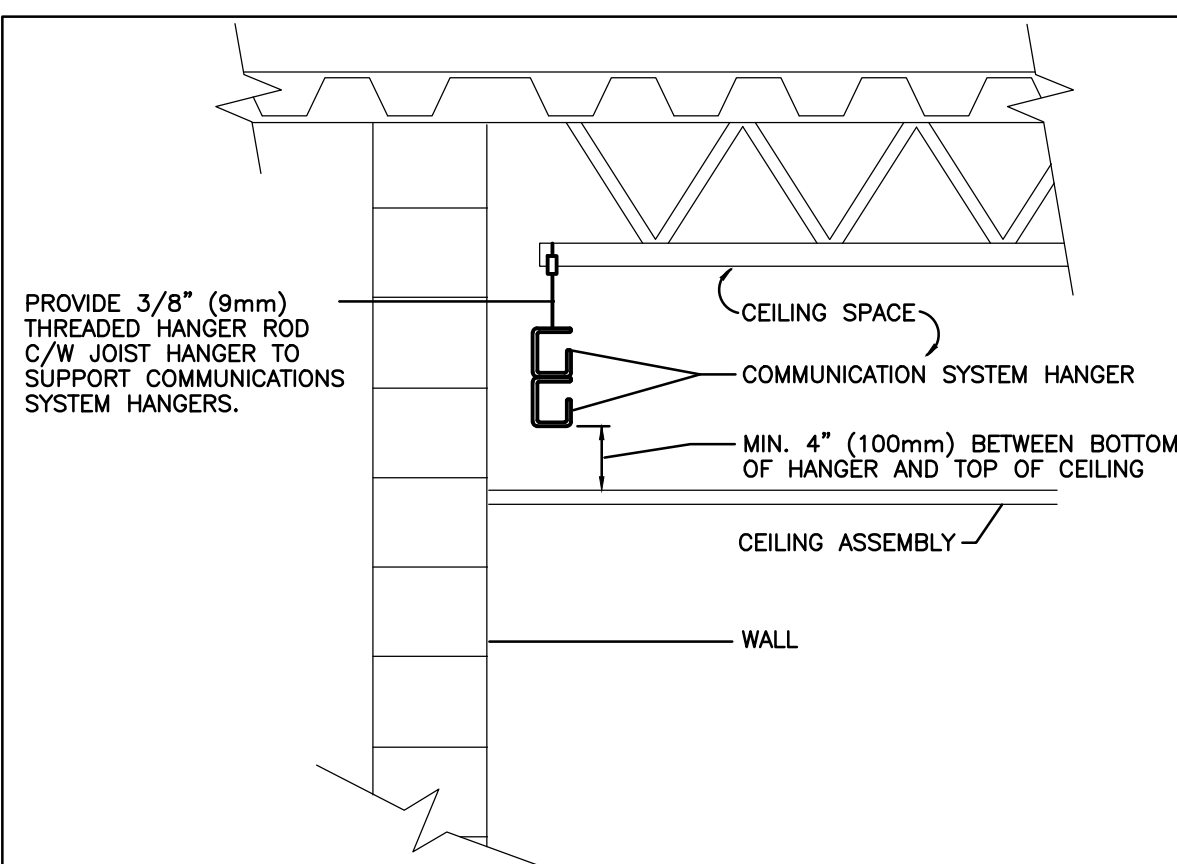
NOTE: THE INDICATED PANEL ASSEMBLY MUST HAVE AN INTERRUPTING CAPACITY OF 10,000 A. PROVIDE BY EITHER FULLY RATED BREAKERS OR INTEGRATED EQUIPMENT RATING WITH THE UPSTREAM BREAKER.



1. INSTALLATION OF HANGERS IS TO BE COORDINATED WITH DIV. 15 AND ALL OTHER ASSOCIATED TRADES.
2. HANGERS ARE TO BE INSTALLED IN LINE ALONG LENGTH OF CORRIDOR AT MAXIMUM 4'-0" (1200mm) INTERVALS.
3. REFER TO SPECIFICATION FOR ALTERNATE TO USE WIRE MESH CABLE TRAY.

B-WALL MOUNTED CABLE HANGER DETAIL

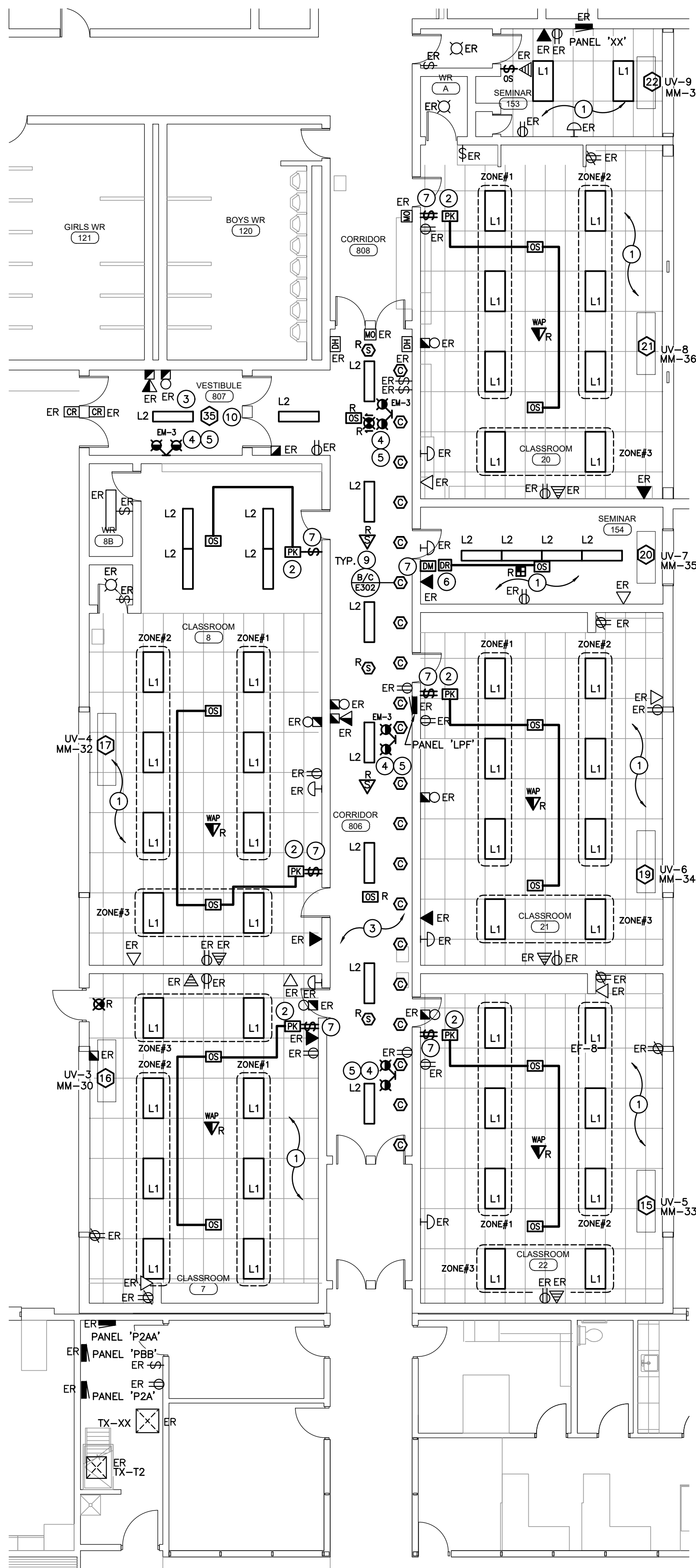
SCALE: NTS



1. INSTALLATION OF HANGERS IS TO BE COORDINATED WITH DIV. 15 AND ALL OTHER ASSOCIATED TRADES.
2. HANGERS ARE TO BE INSTALLED IN LINE ALONG LENGTH OF CORRIDOR AT MAXIMUM 4'-0" (1200mm) INTERVALS.
3. REFER TO SPECIFICATION FOR ALTERNATE TO USE WIRE MESH CABLE TRAY.

C-CEILING MOUNTED CABLE HANGER DETAIL

SCALE: NTS



A-GROUND FLOOR BLOCK B RENOVATION PART PLAN

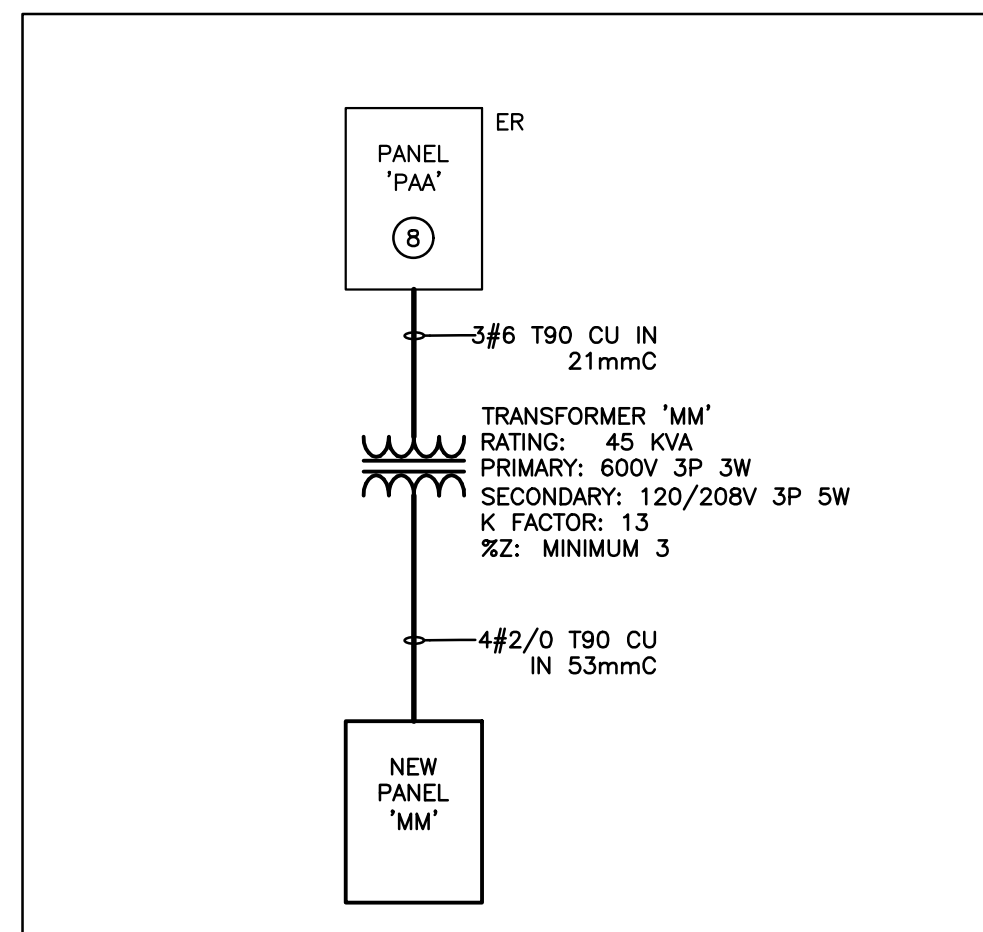
SCALE: 1:100

GENERAL RENOVATION NOTES

- 'ER' INDICATES EXISTING ITEM TO REMAIN.
- 'R' INDICATES EXISTING ITEM IN RELOCATED POSITION.
- ALL DEVICES SHOWN ARE NEW UNLESS OTHERWISE NOTED.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.
- MAINTAIN SERVICE TO ALL EXISTING DEVICES TO REMAIN.
- REVISE PANEL DIRECTORIES TO SUIT CHANGES (TYPED).

SPECIFIC RENOVATION NOTES

1. CONNECT FIXTURES WITHIN THIS ROOM TO CIRCUITS MADE AVAILABLE DURING DEMOLITION, EXTEND CIRCUITS AS REQUIRED. FIXTURES TO BE CONTROLLED AS SHOWN.
2. INDICATES POWER PACK INSTALLED WITHIN ACCESSIBLE CEILING SPACE FOR CONTROL OF CLASSROOM LIGHTING THROUGH WALL MOUNTED TOGGLE SWITCHES. REFER TO LIGHTING CONTROL DETAILS.
3. INDICATES FIXTURES TO BE CONNECTED TO EXISTING CIRCUIT AND EXISTING CONTROLS MADE DURING DEMOLITION.
4. INDICATES EMERGENCY FIXTURE TO BE CONNECTED TO UNSWITCHED SIDE OF LOCAL LIGHTING CIRCUIT.
5. INDICATED DEVICE IS TO BE CEILING MOUNTED. PROVIDE ADEQUATE SUPPORT.
6. INDICATES DIGITAL ROOM CONTROLLER(S) INSTALLED WITHIN ACCESSIBLE CEILING SPACE FOR CONTROL OF NOTED OCCUPANCY SENSOR(S). REFER TO LIGHTING CONTROL DETAILS.
7. INDICATES NEW SWITCH TO BE PROVIDED IN PLACE OF REMOVED SWITCH. SUPPLY AND INSTALL CUSTOM COVER PLATE FOR UNUSED GANG.
8. SUPPLY AND INSTALL NEW 60A-3P BREAKER IN EXISTING PANEL 'PAA'.
9. INDICATES CABLE MANAGEMENT HANGER SYSTEM IN CORRIDOR CEILING SPACE. REFER TO DETAILS B/E302 AND C/E302.
10. INDICATES NEW VFD AND REPLACEMENT MOTOR BY MECHANICAL FOR EXISTING FAN. ELECTRICAL CONTRACTOR TO CONNECT NEW VFD TO EXISTING FAN BRANCH CIRCUIT AND PROVIDE CONNECTION WIRING FROM VFD TO REPLACEMENT FAN MOTOR. FAN MOTOR MOUNTING AND REPLACEMENT BY MECHANICAL TRADE.



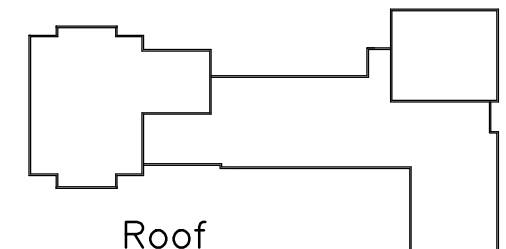
B-PARTIAL DISTRIBUTION RISER DIAGRAM

SCALE: NTS

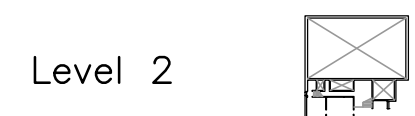
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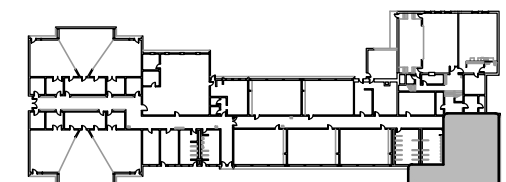


Roof

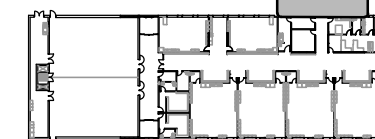


Level 2

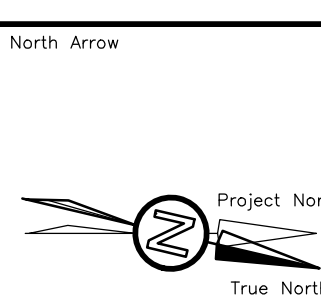
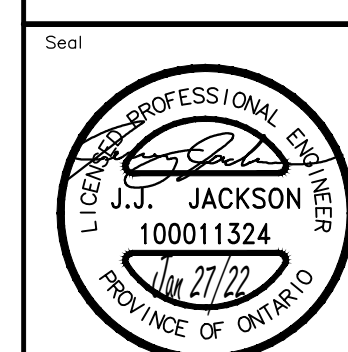
AREA OF WORK



Ground Floor



Key Plan



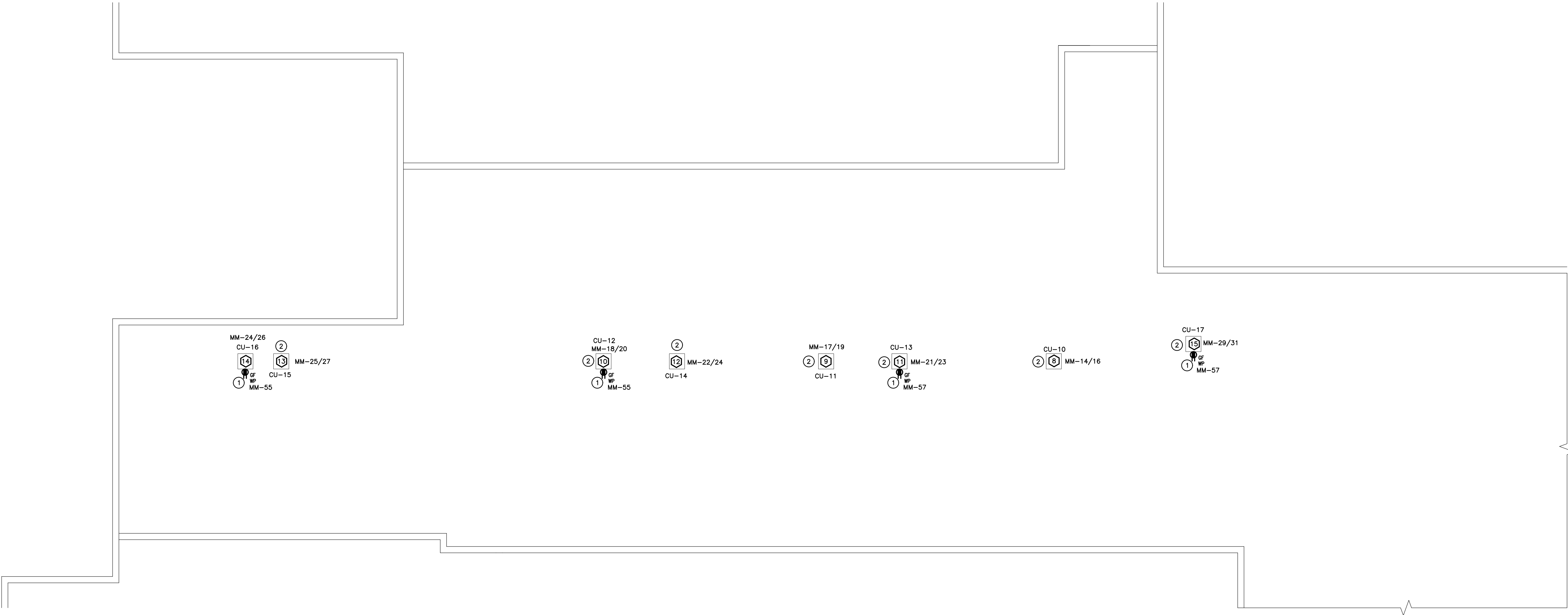
Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title
**GROUND FLOOR
RENOVATION PLANS
BLOCK B**

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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

Project No.
21047
Drawing No.
E302



A-ROOF BLOCK A PART PLAN
SCALE: 1:100

GENERAL RENOVATION NOTES

- 'ER' INDICATES EXISTING ITEM TO REMAIN.
- 'R' INDICATES EXISTING ITEM IN RELOCATED POSITION.
- ALL DEVICES SHOWN ARE NEW UNLESS OTHERWISE NOTED.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.
- MAINTAIN SERVICE TO ALL EXISTING DEVICES TO REMAIN.
- REVISE PANEL DIRECTORIES TO SUIT CHANGES (TYPED).

SPECIFIC RENOVATION NOTES

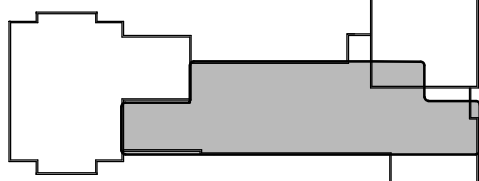
- 1 PROVIDE T-SLOT DUPLEX, GROUND FAULT PROTECTED RECEPTACLE MOUNTED TO NOTED ROOFTOP EQUIPMENT. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR AND SHOP DRAWINGS. RECEPTACLE IS TO BE COMPLETE WITH "EXTRA DUTY" IN-USE COVER AND IS TO BE NEXT LESS THAN 750mm ABOVE FINISHED ROOF.
- 2 DISCONNECT FOR INDICATED MECHANICAL EQUIPMENT IS TO BE MOUNTED TO NEAREST DOGHOUSE.

The contractor shall verify all dimensions and report all errors and discrepancies to the Consultant before commencement of the work.
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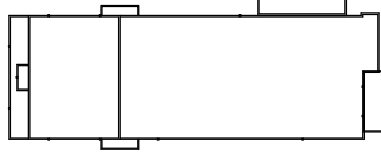
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2	21.01.27	ISSUED FOR PERMIT AND TENDER	DM

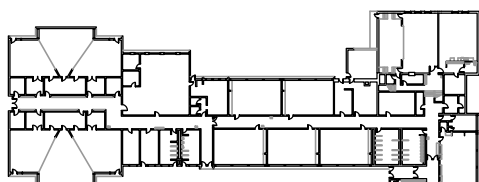
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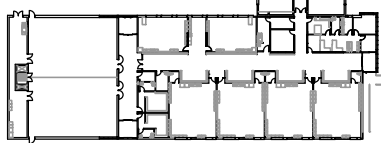
Roof



Level 2



Ground Floor



Key Plan



Seal

North Arrow

Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title
**ROOF
RENOVATION PLANS**

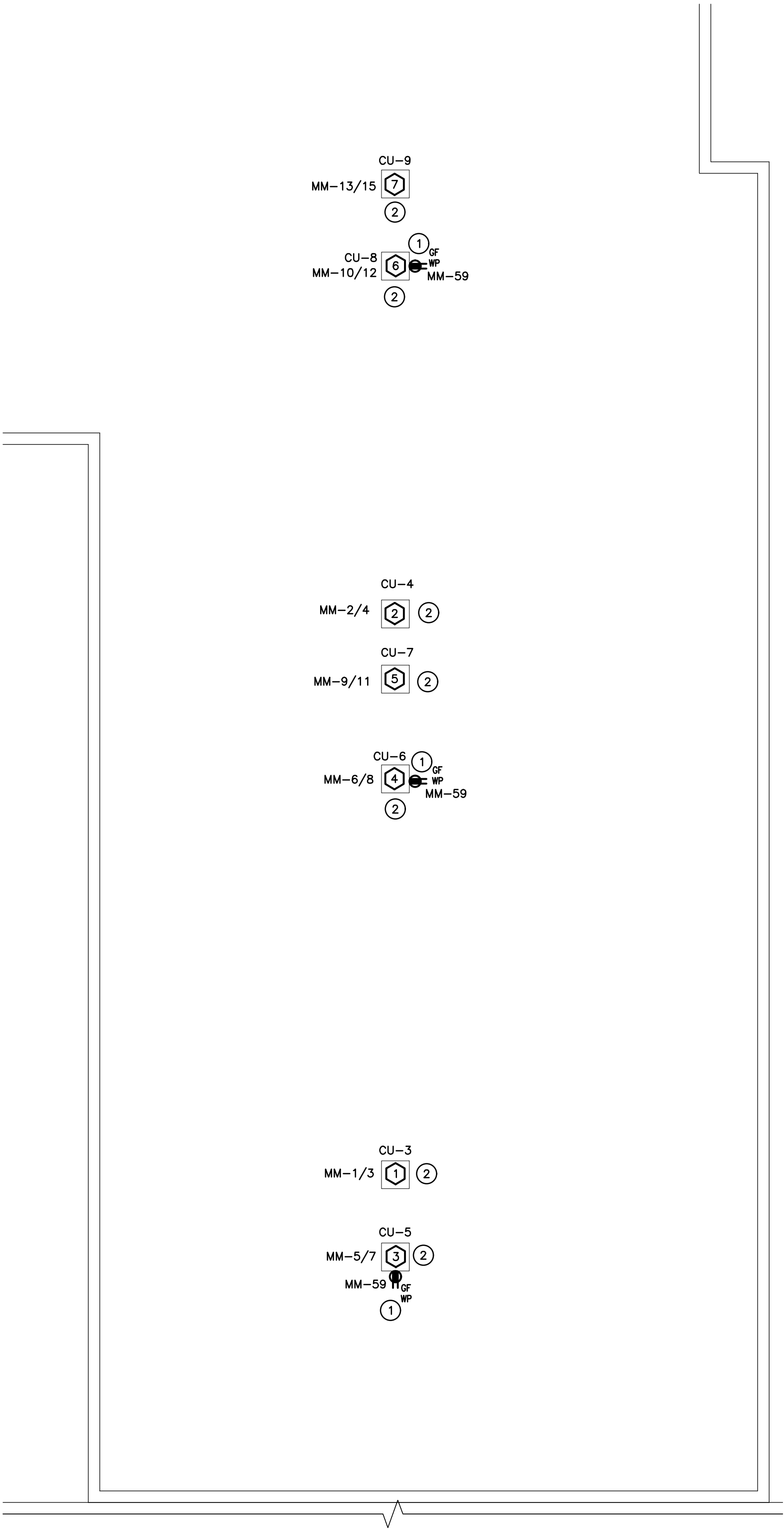
Consulting Engineers

MECHANICAL | ELECTRICAL | AQUATIC

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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022

Project No. 21047	Drawing No. E303
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ROOF BLOCK B PART PLAN
SCALE: 1:100

GENERAL RENOVATION NOTES

- 'ER' INDICATES EXISTING ITEM TO REMAIN.
- 'R' INDICATES EXISTING ITEM IN RELOCATED POSITION.
- ALL DEVICES SHOWN ARE NEW UNLESS OTHERWISE NOTED.
- EXISTING ELECTRICAL EQUIPMENT NOT SHOWN SHALL REMAIN UNLESS OTHERWISE NOTED.
- MAINTAIN SERVICE TO ALL EXISTING DEVICES TO REMAIN.
- REVISE PANEL DIRECTORIES TO SUIT CHANGES (TYPED).

SPECIFIC RENOVATION NOTES

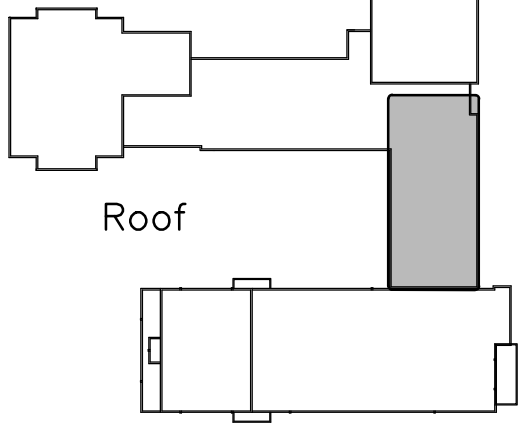
- 1 PROVIDE T-SLOT DUPLEX GROUND FAULT PROTECTED RECEPTACLE MOUNTED TO NOTED ROOFTOP EQUIPMENT. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR AND SHOP DRAWINGS. RECEPTACLE IS TO BE COMPLETE WITH "EXTRA DUTY" IN-USE COVER AND IS TO BE NEXT LESS THAN 750mm ABOVE FINISHED ROOF.

The contractor shall verify all dimensions and report all errors and discrepancies to the Consultant before commencement of the work.
The drawings show general arrangement of services. Follow as closely as actual building construction will permit. Obtain approval for relocation of service from Consultant before commencement of the work.
The drawings do not indicate all offsets fitting and accessories which may be required. Provide the same to meet the required conditions.
Drawings and specifications, etc., prepared and issued by the consultant are the property of the consultant and must be returned at the completion of the project. These documents are not to be duplicated or copied without the consent of the Consultant.
Do not scale this drawing.
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ISSUANCES

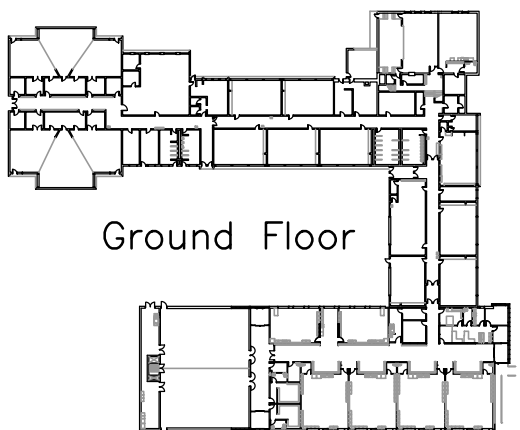
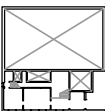
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AREA OF WORK



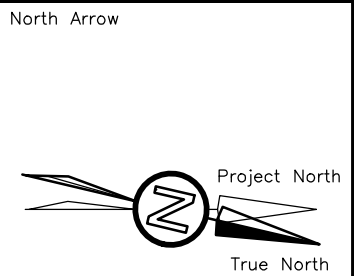
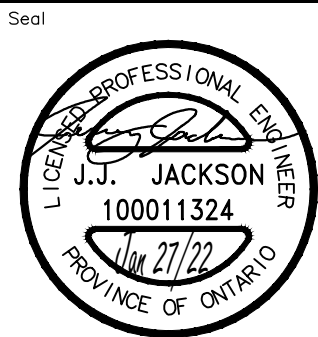
Roof

Level 2



Ground Floor

Key Plan



Project
**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**
184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

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**ROOF
RENOVATION PLANS**

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Consulting Engineers
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Drawn by AV	Checked by DM	Approved by JJ
Scale AS NOTED	Project Date JAN 2022	Print Date JAN 2022
Project No. 21047	Drawing No. E304	

ELECTRICAL SPECIFICATION

GENERAL NOTES

- .1

PROVIDE LABOUR MATERIAL AND EQUIPMENT REQUIRED TO PROVIDE A COMPLETE INSTALLATION WITH QUALITY WORKMANSHIP ACCEPTABLE TO THE OWNER, ARCHITECT AND CONSULTANT.
- .2

OBTAIN ALL PERMITS AND PAY ALL TAXES, FEES AND OTHER COSTS INCURRED WITH THIS WORK. FILE ALL PLANS. OBTAIN NECESSARY APPROVALS, CERTIFICATES AND INSPECTIONS. SUBMIT ALL FINAL CERTIFICATES TO THE CONSULTANT.
- .3

COMPLY WITH RULES AND RECOMMENDATIONS OF THE BOARD OF UNDERWRITERS, ELECTRICAL SAFETY AUTHORITY, THE CANADIAN STANDARDS ASSOCIATION AND ALL REQUIREMENTS OF THE LOCAL UTILITY.
- .4

VISIT THE SITE BEFORE SUBMITTING TENDERS TO EVALUATE ANY SITE CONDITIONS THAT MIGHT ARISE. INCLUDE ALL SITE CONDITIONS IN TENDER, EXTRAS WILL NOT BE ACCEPTED UNLESS BELIEVED TO BE REASONABLE BY THE OWNER AND CONSULTANT.
- .5

CUTTING AND PATCHING SHALL BE BY THE CONTRACTOR REQUIRING TO INSTALL THE SERVICE.
- .6

THE DRAWINGS ARE DIAGRAMMATIC, THE SERVICES SHALL BE INSTALLED TO CONSERVE HEADROOM AND INTERFERE AS LITTLE AS POSSIBLE WITH THE FREE USE OF THE SPACES THROUGH WHICH THEY PASS.
- .7

SUBMIT COPIES OF SHOP DRAWINGS PDF FILES VIA EMAIL FOR ALL MAJOR EQUIPMENT. THESE WILL BE REVIEWED BY THE CONSULTANT. RESUBMIT AS OFTEN AS MAY BE FOUND NECESSARY.
- .8

PROVIDE ALL NECESSARY PROTECTION FOR FINISHED OR UNFINISHED WORK. ALL OPENINGS IN CONDUITS, DUCTS AND EQUIPMENT SHALL BE CAPPED TO ENSURE SERVICES ARE KEPT CLEAN WHEN NOT IN USE.
- .9

MAINTAIN INSURANCE TO FULLY PROTECT THE CONTRACTOR, OWNER AND CONSULTANT FROM ANY AND ALL CLAIMS SUCH AS UNDER THE WORKMEN'S COMPENSATION ACT, ETC. POST PROJECT NOTIFICATION AT THE SITE IN ACCORDANCE WITH THE MINISTRY OF LABOUR REQUIREMENTS.
- .10

PROVIDE STRUCTURAL SUPPORTS, PLATFORMS, SUPPORTING RODS, HANGERS, INSERTS AND BRACKETS FOR EQUIPMENT AND SERVICES. DO NOT SUPPORT SERVICES FROM STEEL DECK.
- .11

INSTRUCT THE OWNER'S STAFF IN THE CARE, MAINTENANCE AND OPERATION OF THE SYSTEMS.
- .12

WARRANTY ALL LABOUR, MATERIAL AND EQUIPMENT FOR A PERIOD OF TWO (2) YEARS AFTER FINAL ACCEPTANCE OF SYSTEM.
- .13

COORDINATE WITH OTHER CONTRACTORS INSTALLING EQUIPMENT OR MATERIAL AND ARRANGE EQUIPMENT IN PROPER RELATION WITH APPARATUS OF ALL OTHER TRADES.
- .14

PROVIDE LAMICOID TAGS FOR IDENTIFICATION OF NEW EQUIPMENT ADDED.
- .15

MOUNTING HEIGHTS SHALL BE AS FOLLOWS FROM FINISHED FLOOR TO CENTERLINE OF DEVICE/EQUIPMENT (UNLESS OTHERWISE NOTED):

-

SWITCHES, DIMMERS AND SPEED CONTROLLERS: 1100mm (44")

-

WALL RECEPTACLES:

GENERAL: 400mm (16")

ABOVE TOP OF COUNTERS: 100mm (4")

-

IN MECHANICAL/ELECTRICAL ROOMS: 1100mm (44") (GANG WITH SWITCH).

-

FIRE ALARM STROBES: 2250mm (7'-6")

.16

ALL AREAS NOT AFFECTED BY RENOVATION OR DEMOLITION SHALL REMAIN AS PRESENTLY INSTALLED UNLESS OTHERWISE NOTED.

.17

ALL EXISTING ELECTRICAL DEVICES, OUTLET BOXES, ETC., NOT SHOWN ON DRAWINGS OR MENTIONED IN THE FOLLOWING NOTES AND INSTALLED IN WALLS SLATED FOR DEMOLITION, SHALL BE DISCONNECTED AND REMOVED COMPLETELY IN ALL RESPECTS.

.18

SUBMIT ONE COPY OF OPERATING AND MAINTENANCE INSTRUCTIONS IN A THREE RING BINDER LABELED FOR THE PROJECT COMPLETE WITH ITEMIZED SECTIONS CONTAINING PROJECT DATA, SHOP DRAWINGS, ETC. UPON ACCEPTANCE OF THE OPERATION AND MAINTENANCE MANUAL BY THE CONSULTANT PROVIDE TWO ADDITIONAL COPIES BOUND IN SEPARATE THREE RING BINDERS. A PDF FILE OF THE ENTIRE MANUAL IS TO BE PROVIDED ON A USB STICK. ONLY ONE USB STICK IS TO BE PROVIDED CONTAINING BOTH THE APPROVED MANUALS AND RECORD DRAWINGS.

.19

CONTRACTOR SHALL PROVIDE 2 SETS OF REPRODUCIBLE ELECTRICAL DRAWINGS. MARK THEREON ALL CHANGES AS WORK PROGRESSES AND AS CHANGES OCCUR. THIS SHALL INCLUDE FIELD AND CONTRACT CHANGES TO ELECTRICAL SYSTEMS. IDENTIFY EACH DRAWING IN LOWER RIGHT HAND CORNER IN LETTERS AT LEAST 3mm (1/8") HIGH AS FOLLOWS: - "RECORD DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW ELECTRICAL SYSTEMS AS INSTALLED. (SIGNATURE OF CONTRACTOR)(DATE)". SUBMIT HARD COPY TO CONSULTANT FOR APPROVAL. WHEN RETURNED, MAKE CORRECTIONS (IF ANY) AS DIRECTED. ONCE APPROVED, SUBMIT COMPLETED REPRODUCIBLE PAPER RECORD DRAWINGS AS WELL AS A SCANNED PDF COPY FILE ON USB STICK WITH OPERATING AND MAINTENANCE MANUALS.

.20

THE CONTRACTOR WILL INCLUDE REDLINES FOR EACH AND EVERY ELECTRICAL DRAWING FOR DEI & ASSOCIATES INC. TO CAD THE RECORD DRAWINGS. THE CAD DRAWING FILES WILL BE PROVIDED TO THE OWNER AS PART OF THE MAINTENANCE MANUALS.
- BASIC MATERIALS
- .1

JUNCTION, OUTLET AND PULL BOXES MUST BE APPROVED TO SUIT INSTALLATION METHODS AND ENVIRONMENT.

.2

CONDUIT MUST BE CONCEALED UNLESS INSTALLED IN SERVICE OR STORAGE ROOMS.

.3

CONDUIT MUST BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING LINES IN A NEAT AND WORKMANLIKE MANNER.

.4

ALL FEEDER AND BRANCH CIRCUIT WIRING MUST BE COPPER, T90 RATING/STYLE RUN IN EMT CONDUIT WITH INTERNAL INSULATED GREEN GROUND WIRE UNLESS NOTED OTHERWISE. MINIMUM WIRE SIZE SHALL BE #12 AND MINIMUM CONDUIT SIZE SHALL BE 3/4" (19mm).

.5

AC90 CABLE MAY BE USED FOR BRANCH CIRCUIT WIRING IN STEEL STUD WALLS AND "DROPS" IN T-BAR CEILING AREAS TO LIGHT FIXTURES AND FIRE ALARM DEVICES. LENGTH OF DROP MUST BE LIMITED TO 8'-0" (2400mm).

.6

WHERE DEVICES ARE TO BE INSTALLED ON EXISTING WALLS IN FINISHED AREA, WHICH CANNOT BE FISHED, INSTALL FEEDS IN A SURFACE METAL RACEWAY EQUAL TO WIREMOLD V700 SERIES.

.7

COLOUR CODE CONDUITS, BOXES AND METALLIC SHEATHED CABLES.

.8

CODE WITH PLASTIC TAPE OR PAINT AT POINTS WHERE CONDUIT OR CABLE ENTERS WALL, CEILING, OR FLOOR, AND AT 15m(45') INTERVALS.

.9

COLOUR BANDS MUST BE 25mm(1") WIDE AND CODED AS FOLLOWS FOR NOTED SYSTEMS.

SYS-TEM

UP TO 208v

FIRE ALARM

COLOUR

YELLOW

RED

.10

THIS CONTRACTOR MUST PAINT ALL SYSTEM JUNCTION BOXES AND COVERS IN CONFORMANCE WITH THE ABOVE SCHEDULE.
- DRAW BREAKDOWN
- .1

THIS CONTRACTOR MUST SUBMIT A BREAKDOWN OF THE TENDER PRICE INTO CLASSIFICATIONS TO THE SATISFACTION OF THE CONSULTANT, WITH THE AGGREGATE OF THE BREAKDOWN TOTALING THE TOTAL CONTRACT AMOUNT. EACH ITEM MUST BE BROKEN OUT INTO MATERIAL AND LABOUR COSTS. PROGRESS CLAIMS, WHEN SUBMITTED ARE TO BE ITEMIZED AGAINST EACH ITEM OF THE DRAW BREAKDOWN. THIS SHALL BE DONE IN TABLE FORM SHOWING CONTRACT AMOUNT, AMOUNT THIS DRAW, TOTAL TO DATE, % COMPLETE AND BALANCE.

.2

BREAKDOWN SHALL BE AS FOLLOWS:

.1

PERMITS AND FEES

.2

MOBILIZATION (MAXIMUM 1%)

.3

DEMOLITION

.4

BRANCH CONDUITS

.5

BRANCH WIRING

.6

LIGHTING FIXTURES

.7

WIRING FOR MECHANICAL EQUIPMENT

.8

CONTRACT CLOSEOUT (MINIMUM 3% BUT NO LESS THAN \$1,200.00)

.9

DISTRIBUTION EQUIPMENT

.3

THE BREAKDOWN MUST BE APPROVED BY THE CONSULTANT PRIOR TO SUBMISSION OF THE FIRST DRAW.

.4

BREAKDOWNS NOT COMPLYING TO THE ABOVE WILL NOT BE APPROVED.

.5

BREAKDOWN MUST INDICATE TOTAL CONTRACT AMOUNT.

.6

MOBILIZATION AMOUNT MAY ONLY BE DRAWN WHEN ALL REQUIRED SHOP DRAWINGS HAVE BEEN REVIEWED BY THE CONSULTANT.
- SHOP DRAWINGS AND PRODUCT DATA
- .1

FURNISH COMPLETE CATALOG DATA FOR MANUFACTURED ITEMS OF EQUIPMENT TO BE USED IN THE WORK TO CONSULTANT FOR REVIEW WITHIN 30 DAYS AFTER AWARD OF CONTRACT.

.2

IF MATERIAL OR EQUIPMENT IS NOT AS SPECIFIED OR SUBMITTAL IS NOT COMPLETE, IT WILL BE REJECTED BY CONSULTANT.

.3

ADDITIONAL SHOP DRAWINGS REQUIRED BY THE CONTRACTOR FOR MAINTENANCE MANUALS, SITE COPIES ETC., SHALL BE PHOTOCOPIES OF THE 'REVIEWED' SHOP DRAWINGS. ALL COSTS TO PROVIDE ADDITIONAL COPIES OF SHOP DRAWINGS SHALL BE BORNE BY THE CONTRACTOR.

.4

PARTIAL SUBMITTALS WILL NOT BE ACCEPTED.

.5

CATALOG DATA OR SHOP DRAWINGS FOR EQUIPMENT, WHICH ARE NOTED AS BEING REVIEWED BY CONSULTANT OR HIS ENGINEER SHALL NOT SUPERSEDE CONTRACT DOCUMENTS.

.6

REVIEW COMMENTS OF CONSULTANT SHALL NOT RELIEVE THIS DIVISION FROM RESPONSIBILITY FOR DEVIATIONS FROM CONTRACT DOCUMENTS UNLESS CONSULTANT'S ATTENTION HAS BEEN CALLED TO SUCH DEVIATIONS IN WRITING AT TIME OF SUBMISSION, NOR SHALL THEY RELIEVE THIS DIVISION FROM RESPONSIBILITY FOR ERRORS IN ITEMS SUBMITTED.

.7

CHECK WORK DESCRIBED BY CATALOG DATA WITH CONTRACT DOCUMENTS FOR DEVIATIONS AND ERRORS.

.8

SHOP DRAWINGS AND PRODUCT DATA SHALL SHOW:

.1

MOUNTING ARRANGEMENTS.

.2

OPERATING AND MAINTENANCE CLEARANCES. E.G. ACCESS DOOR SWING SPACES.

.9

SHOP DRAWINGS AND PRODUCT DATA SHALL BE ACCOMPANIED BY:

.1

DETAILED DRAWINGS OF BASES, SUPPORTS, AND ANCHOR BOLTS.

.2

MANUFACTURER TEST DATA WHERE REQUESTED.

.3

MANUFACTURER TO CERTIFY AS TO CURRENT MODEL PRODUCTION.

.4

CERTIFICATION OF COMPLIANCE TO APPLICABLE CODES.

.10

STATE SIZES, CAPACITIES, BRAND NAMES, MOTOR HP, ACCESSORIES, MATERIALS, GAUGES, DIMENSIONS, AND OTHER PERTINENT INFORMATION. LIST ON CATALOG COVERS PAGE NUMBERS OF SUBMITTED ITEMS. UNDERLINE APPLICABLE DATA.

.11

ONCE THESE SHOP DRAWINGS ARE RETURNED 'REVIEWED' OR 'REVIEWED AS NOTED' FABRICATION, PRODUCTION, AND INSTALLATION MAY COMMENCE. NOTE: IF A SHOP DRAWING IS RETURNED 'REVIEWED AS NOTED' THIS CONTRACTOR MUST PROVIDE WRITTEN INDICATION THAT THE COMMENTS HAVE BEEN COMPLIED WITH.

.12

A PARTIAL LIST OF SHOP DRAWINGS INCLUDES:

.1

LUMINAIRES

.2

EMERGENCY BATTERY FIXTURES

.3

STARTERS, CONTACTORS, AND CONTROL DEVICES

.4

FIRESTOPPING MATERIALS

.5

LIGHTING CONTROL DEVICES

.6

WIRING DEVICES

.7

DISTRIBUTION EQUIPMENT
- WIRING DEVICES
- .1

GENERAL PURPOSE AC SWITCHES MUST CONFORM TO CSA C22.2 NO. 111 (LATEST EDITION).

.2

15 OR 20 A, 120 V, SINGLE POLE, DOUBLE POLE, THREE-WAY, OR FOUR-WAY SWITCHES.

.3

INSTALL SWITCHES IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE SWITCH IS REQUIRED IN ONE LOCATION.

.4

RECEPTACLES, PLUGS, AND OTHER SIMILAR WIRING DEVICES MUST CONFORM TO CSA C22.2 NO. 42 (LATEST EDITION).

.5

DUPLEX RECEPTACLES, CSA TYPE 5-15 R, 125 V, 15 A, U GROUND, WITH THE FOLLOWING FEATURES:

.1

UREA MOLDED HOUSING WITH COLOUR AS SELECTED BY ARCHITECT.

.2

SUITABLE FOR NO. 10 AWG FOR BACK AND SIDE WIRING.

.3

BREAK-OFF LINKS FOR USE AS SPLIT RECEPTACLES.

.4

EIGHT BACK WIRED ENTRANCES, FOUR SIDE WIRING SCREWS.

.5

TRIPLE WIRE CONTACTS AND RIVETED GROUNDING CONTACTS.

.6

ACCEPTABLE MATERIALS:

.1

TAMPER RESISTANT RECEPTACLE: HUBBELL CAT. #BR15TR

.2

TAMPER RESISTANT T-SLOT RECEPTACLE: HUBBELL CAT. #BR20TR

.3

TAMPER RESISTANT GROUND FAULT PROTECTED RECEPTACLE: HUBBELL CAT. #GFR15

.4

TAMPER RESISTANT GROUND FAULT PROTECTED T-SLOT RECEPTACLE: HUBBELL CAT. #GFR20

.7

OTHER RECEPTACLES WITH AMPACITY AND VOLTAGE AS INDICATED. COLOUR BY ARCHITECT.

.8

ACCEPTABLE ALTERNATE MANUFACTURERS INCLUDE:

PASS

SEYMOUR

LEVITON

.9

WALL MOUNTED OCCUPANCY SENSORS (PASSIVE TECHNOLOGY), OCCUPANCY SENSORS USED IN STORAGE AND SERVICE ROOMS SHALL BE EITHER:

.1

WATTSTOPPER CAT. #PW-100-VOLT-X (COLOUR BY ARCHITECT)

.2

SENSOR SWITCH CAT. #WSD-VOLT-X (COLOUR BY ARCHITECT)

.3

EQUAL BY COOPER CONTROLS

.10

WHERE NOTED ON THE DRAWINGS, THE WALL MOUNTED SWITCH STYLE OCCUPANCY SENSOR USED IN ADMINISTRATIVE OFFICES AND SEMINAR/MEETING ROOMS SHALL BE A DUAL TECHNOLOGY SWITCH WITH EITHER SINGLE OR DOUBLE RELAY (CIRCUIT) AS NOTED ON THE DRAWINGS. COLOUR TO SUIT ARCHITECT. SWITCHES SHALL BE EITHER:

.1

SINGLE RELAY (CIRCUIT): WATTSTOPPER CAT. #DW-100

.2

DUAL RELAY (CIRCUIT): WATTSTOPPER CAT. #DW-200

.3

APPROVED EQUAL:

.1

SENSOR SWITCH

.2

COOPER CONTROLS

NOTE: FOR DUAL RELAY SWITCHES, PROGRAM THE SENSORY FOR 15 MINUTE OFF DELAY, ENABLED WAL-THRU, AUDIBLE ALERT ENABLED, RELAY 1 ON MODE: AUTO ON, RELAY 2 ON MODE: MANUAL ON.

.11

PROVIDE OTHER OCCUPANCY SENSORS TO SUIT THE DETAIL(S) ON THE DRAWINGS.

.12

ALL SENSORS SHALL BE SET TO 5 MINUTES "DELAY TO OFF" UNLESS OTHERWISE DIRECTED.

.13

OCCUPANCY SENSORS:

.1

INSTALL POWER PACKS IN ACCESSIBLE MAINTENANCE AREAS.

.2

PROVIDE ACCESS DOORS IF POWER PACKS ARE INSTALLED ABOVE DRYWALL CEILINGS.

.3

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND AIM SENSORY IN THE CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER COVERAGE WITHIN THE RANGE OF COVERAGE AS PER THE MANUFACTURER'S RECOMMENDATIONS. THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS WHICH ARE TO BE PROVIDED WITH SENSORS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS IF REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE ROOMS.

.4

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A PRE-INSTALLATION MEETING WITH THE MANUFACTURER'S FACTORY AUTHORIZED REPRESENTATIVE, AT THE FACILITY, TO VERIFY PLACEMENT TO SENSORS AND INSTALLATION CRITERIA.

.5

THE CONTRACTOR SHALL ALSO PROVIDE THE ON-SITE TRAINING NECESSARY TO FAMILIARIZE THE OWNER'S PERSONNEL WITH THE OPERATION, USE, ADJUSTMENT AND PROBLEM SOLVING DIAGNOSIS OF THE OCCUPANCY SENSING DEVICES SYSTEMS.

.6

UPON COMPLETION OF THE INSTALLATION, THE SYSTEM SHALL BE COMPLETELY COMMISSIONED BY THE MANUFACTURER'S FACTORY AUTHORIZED TECHNICIAN WHO WILL VERIFY ALL ADJUSTMENTS AND SENSOR PLACEMENT TO ENSURE A TROUBLE-FREE OCCUPANCY-BASED LIGHTING CONTROL. SUBMIT COMMISSIONING REPORT WITH CLOSE-OUT DOCUMENTS.

.14

INSTALL DEVICES IN GANG TYPE OUTLET BOX WHEN MORE THAN ONE DEVICE IS REQUIRED IN ONE LOCATION.

.15

SHEET STEEL UTILITY BOX COVER FOR WIRING DEVICES INSTALLED IN SURFACE MOUNTED UTILITY BOXES.

.16

STAINLESS STEEL, VERTICALLY BRUSHED COVER PLATES FOR WIRING DEVICES MOUNTED IN FLUSH-MOUNTED OUTLET BOXES.

.17

SHEET METAL COVER PLATES FOR WIRING DEVICES MOUNTED IN SURFACE-MOUNTED FS OR FD TYPE CONDUIT BOXES.

.18

PROTECT STAINLESS STEEL COVER PLATE FINISH WITH PAPER OR PLASTIC FILM UNTIL PAINTING AND OTHER WORK IS FINISHED.

.19

INSTALL SUITABLE COMMON COVER PLATES WHERE WIRING DEVICES ARE GROUPED.
- FIRE ALARM SYSTEMS
- .1

INSTALLATION OF FIRE ALARM DEVICES MUST CONFORM TO ULC-S524 (LATEST EDITION).

.2

ALL WIRING MUST BE COLOUR CODED, SIZED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND CONFORM TO THE LATEST EDITION OF THE ELECTRICAL SAFETY CODE.

.3

ALL NEW FIRE ALARM DETECTION AND SIGNALING DEVICES ADDED DUE TO RENOVATIONS AND ADDITIONS SHALL BE CONNECTED TO EXISTING LOCAL ZONE OR NEW ZONE AS INDICATED.

.4

EQUIPMENT SHALL BE SUPPLIED AND INSTALLED AS FOLLOWS:

.1

AUTOMATIC ALARM INITIATING DEVICES

.1

MANUAL ALARM STATIONS: PULL LEVER STYLE, WALL MOUNTED SEMI-FLUSH TYPE, NON-CODED SINGLE POLE NORMALLY OPEN CONTACT FOR SINGLE STAGE, ENGLISH SIGNAGE.

.2

THERMAL FIRE DETECTORS: FIXED TEMPERATURE, NON-RESTORABLE, RATED 57C OR 88C AS INDICATED.

.3

THERMAL FIRE DETECTORS: COMBINATION FIXED TEMPERATURE AND RATE OF RISE, NON-RESTORABLE FIXED TEMPERATURE ELEMENT, SELF-RESTORING RATE OF RISE, FIXED TEMPERATURE 57C OR 88C, RATE OF RISE 8.3C PER MINUTE.

.4

SMOKE DETECTOR: CEILING MOUNTED, PHOTO ELECTRIC TYPE, VISUAL ALARM INDICATOR, COMPLETE WITH RELAY BASE WHERE NOTED.

.5

SMOKE DETECTOR: PHOTO ELECTRIC TYPE AIR DUCT TYPE WITH SAMPLING TUBES WITH PROTECTIVE HOUSING.

.1

PLUS-IN TYPE WITH FIXED BASE

.2

WIRE-IN BASE ASSEMBLY WITH INTEGRAL RED ALARM LED, AND TERMINALS FOR REMOTE ALARM LED.

.2

AUDIBLE/VISUAL SIGNAL DEVICES

.1

STROBE: SEMI-RECESSED, 24VDC OPERATION, COMPLETE WITH SELECTABLE 15/30/75/110 CANDELA OUTPUT (UNLESS OTHERWISE NOTED SET AT 75 CD), SYNCHRONIZED STROBE, RED FINISH, FM AND ULC LISTED. SUITABLE FOR MOUNTING ON A SINGLE GANG BOX.

.2

250mm (10") BELLS: SURFACE MOUNTED BELL, VIBRATION TYPE 24VDC, 10", 94DBA RATING AT 3000mm (10'), RED FINISH, FM AND ULC LISTED.

NOTE:

.1

SIGNAL DEVICES WITH INTEGRAL STROBE LIGHTS IN HIGH ABUSE AREAS (I.E. GYMNASIUM, CHANGE ROOMS, ETC.) MUST BE PROVIDED WITH PROTECTIVE WIREGUARDS.

.2

ANY SURFACE MOUNTED SIGNAL DEVICES MUST BE PROVIDED WITH SUITABLE BACKBOXES SUPPLIED BY THE MANUFACTURER.

.3

END-OF-LINE DEVICES

.1

END-OF-LINE DEVICES TO CONTROL SUPERVISORY CURRENT IN ALARM CIRCUITS AND SIGNALING CIRCUITS, SIZED TO ENSURE CORRECT SUPERVISORY CURRENT FOR EACH CIRCUIT. OPEN, SHORT OR GROUND FAULT IN ANY CIRCUIT WILL ALTER SUPERVISORY CURRENT IN THAT CIRCUIT, PRODUCING AUDIBLE AND VISIBLE ALARM AT MAIN CONTROL PANEL AND REMOTELY AT ANNUNCIATORS.

.5

ONCE INSTALLATION IS COMPLETE THE MANUFACTURER'S REPRESENTATIVE MUST MAKE AN INSPECTION OF THE DEVICES INSTALLED.

.6

THIS TEST MUST CONFORM TO THE ONTARIO BUILDING CODE AND THE LATEST EDITION OF ULC CAN4-S537.

.7

ALL COSTS ASSOCIATED WITH THIS INSPECTION BY THE CONTRACTOR AND MANUFACTURER MUST BE CARRIED IN THE TENDER PRICE.

.8

UPON SUCCESSFUL COMPLETION OF TESTING THE MANUFACTURER MUST SUBMIT TO THE CONTRACTOR AND CONSULTANT:

-

A CERTIFICATE OF VERIFICATION

-

FIELD TECHNICIAN VERIFICATION SHEETS FOR EACH DEVICE VERIFIED (INCLUDE COPIES OF SAME IN MAINTENANCE MANUALS)

.9

THE TEST RESULTS ARE TO BE SUBMITTED TO THE CONSULTANT FOR REVIEW PRIOR TO ISSUING TO OWNER'S REPRESENTATIVES AND/OR AUTHORITIES HAVING JURISDICTION.

.10

PROVIDE INTEGRATED TESTING OF THIS LIFE SAFETY SYSTEM IN CONFORMANCE WITH THE NOTED SPECIFICATION SECTION. INCLUDE ALL ASSOCIATED COSTS IN TENDER.

.11

THE EXISTING FIRE ALARM SYSTEM IS EDWARDS EST.

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ISSUANCES			
No	DATE YY/MM/DD	DESCRIPTION	BY
1	21.12.20	ISSUED FOR 99% TENDER REVIEW	DM
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Seal

North Arrow

Project

**TAIT STREET PS
HVAC RENOVATIONS
Tender # 7198-RW-22**

184 TAIT STREET, CAMBRIDGE, ON N1S 3G3

Sheet Title

SPECIFICATIONS

MECHANICAL | ELECTRICAL | AQUATIC

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Drawn by	Checked by	Approved by
Scale	Project Date	Print Date
AS NOTED	JAN 2022	JAN 2022
Project No.	Drawing No.	
21047	E401	

PANEL BOARDS

- 1

PANEL BOARDS MUST CONFORM TO CSA C22.2 NO. 29 (LATEST EDITION).
- 2

IN ADDITION TO CSA REQUIREMENTS MANUFACTURER'S NAMEPLATE MUST SHOW FAULT CURRENT THAT PANEL INCLUDING BREAKERS HAS BEEN BUILT TO WITHSTAND. SERIES RATING IS ACCEPTABLE--SUBMIT INFORMATION WITH SHOP DRAWINGS.
- 3

BUS AND BREAKERS/SWITCHES MUST BE RATED FOR 10KA (SYMMETRICAL) INTERRUPTING CAPACITY OR AS INDICATED.
- 4

SEQUENCE PHASE BUSSING WITH ODD NUMBERED BREAKERS ON LEFT AND EVEN ON RIGHT, WITH EACH BREAKER IDENTIFIED BY PERMANENT NUMBER IDENTIFICATION AS TO CIRCUIT NUMBER AND PHASE.
- 5

PANEL BOARD MAINS, NUMBER OF CIRCUITS, AND NUMBER AND SIZE OF BRANCH CIRCUIT AS INDICATED.
- 6

TWO KEYS FOR EACH PANEL BOARD AND KEY PANEL BOARDS ALIKE.
- 7

ALUMINUM BUS WITH NEUTRAL OF SAME AMPERE RATING AS MAINS.
- 8

MAINS MUST BE SUITABLE FOR BOLT-ON BREAKERS. PROVIDE MAIN (IF APPLICABLE) AND BRANCH BREAKERS AS BOLT-ON STYLE.
- 9

TRIM AND DOOR FINISH MUST BE BAKED GRAY ENAMEL.
- 10

BREAKERS WITH THERMAL AND MAGNETIC TRIPPING IN PANEL BOARD EXCEPT AS INDICATED OTHERWISE.
- 11

PROVIDE NAMEPLATE FOR EACH PANEL BOARD WITH ENGRAVED DESCRIPTION AS INDICATED.
- 12

FOR EACH NEW AND EXISTING PANEL PROVIDE COMPLETE CIRCUIT DIRECTORY WITH TYPEWRITTEN LEGEND SHOWING LOCATION OF EACH CIRCUIT.
- 13

LOCATE PANEL BOARDS AS INDICATED AND MOUNT SECURELY, PLUMB, TRUE AND SQUARE, TO ADJOINING SURFACES.
- 14

INSTALL SURFACE MOUNTED PANEL BOARDS ON PLYWOOD BACKBOARDS. WHERE PRACTICAL, GROUP PANEL BOARDS ON COMMON BACKBOARD.
- 15

CONNECT LOADS TO CIRCUITS.
- 16

CONNECT NEUTRAL CONDUCTORS TO COMMON NEUTRAL BUS.
- 17

BRANCH CIRCUIT PANEL BOARDS MUST BE ONE OF THE FOLLOWING:

-

CUTLER HAMMER CAT. #POW-R-LINE-C PRL-1 OR PRL-2

-

SCHNEIDER ELECTRIC CAT. #NODD SERIES

-

SIEMENS CAT. #SENTRON P1 SERIES
- 18

ALL REDUNDANT BREAKERS ARE TO REMAIN AND BE RE-LABELED AS "SPARE".
- 19

EXISTING PANELS MUST BE REVIEWED FOR LOOSE AND/OR FAULTY BREAKERS AND WIRING. ALL REQUIRED MODIFICATIONS MUST BE PERFORMED TO CORRECT ANY UNCOVERED PROBLEMS.

LIGHTING SYSTEMS

FIXTURES ARE TO BE PROVIDED AS NOTED IN THE LIGHT FIXTURE SCHEDULE C/W THE FOLLOWING FEATURES:

- 1

LED

1

FIXTURE LED'S MUST BE TESTED IN CONFORMANCE WITH IESNA LM80 STANDARD.

2

LED'S MUST BE SELECTED USING A BINNING ALGORITHM TO ENSURE COLOUR AND LUMEN OUTPUT OF A GIVEN FIXTURE ARE CONSISTENT, AS WELL AS MEET OR SURPASS ANSI C78.377 SPECIFICATION FOR THE RATED LIFETIME OF THE FIXTURE. COLOUR ACCURACY BETWEEN PRODUCTS MUST BE WITHIN A 2-STEP MACADAM ELLIPSE.

3

LUMINAIRES MUST BE TESTED TO IESNA LM79 BY AN INDEPENDENT APPROVED LABORATORY.

4

LUMINAIRES MUST BE TESTED PRIOR TO SHIPPING.

5

LUMINAIRES MUST BE ULC CERTIFIED AND APPROVED FOR USE IN CANADA.

6

FIXTURES MUST MAINTAIN A MINIMUM OF 90% OF THEIR INITIAL LIGHT OUTPUT FOR 60,000 HOURS. SUBMIT TEST RESULTS UPON REQUEST.

7

LUMEN VALUES INDICATED FOR FIXTURES IN THE PROJECT DOCUMENTS ARE TO BE CONSIDERED AS "ABSOLUTE" OR "DELIVERED" VALUES.

8

OTHER THAN FOR SPECIALTY FIXTURES, AND UNLESS OTHERWISE INDICATED, THE MAXIMUM DRIVER CURRENT IS TO BE 750 MA.
- 2

SELF-POWERED EMERGENCY LIGHTING UNITS

1

EXIT LIGHTING MUST CONFORM TO CSA C22.2 No. 141 (LATEST EDITION OR CSA C860).

2

LAMPS: LED 2W

3

OPERATION: 25 YEARS LIFE

4

UNITS ARE TO BE PROVIDED WITH THREE (3) PICTOGRAM LEGENDS INDICATING "LEFT FROM HERE", "STRAIGHT FROM HERE", AND "RIGHT FROM HERE".

5

SUPPLY VOLTAGE: 120 VOLT, AC.

6

OUTPUT VOLTAGE: 12 VOLT, DC.

7

BATTERY: SEALED MAINTENANCE FREE, 10 YEAR LIFE.

NOTE: BATTERY MUST BE CAPABLE OF SUPPLYING THE WATTAGE INDICATED FOR A MINIMUM OF 30 MINUTES.

8

SIGNAL LIGHTS: "AC POWER ON" CONDITION AND "CHARGING" CONDITION.

9

LAMP HEADS: INTEGRAL ON UNIT, 345° HORIZONTAL AND 180° VERTICAL ADJUSTMENT.

LAMP TYPE: MINIMUM 4W LED.

10

CABINET: FINISH: WHITE.

11

AUXILIARY EQUIPMENT: TEST SWITCH.
- 3

FIXTURE INSTALLATION

1

LOCATE AND INSTALL LUMINAIRES AS INDICATED.

2

FIXTURE SURFACE MOUNTED TO SUSPENDED CEILINGS MUST BE SECURED THROUGH CEILING ASSEMBLY TO CROSS MEMBER SUPPORTS. THESE SUPPORTS ARE TO BE STEEL CHANNELS OR ANGLES INDEPENDENTLY SECURED TO STRUCTURE USING #12 "JACK" CHAIN. EACH CHAIN MUST BE SECURED SO NO FIXTURE WEIGHT IS ADDED TO THE CEILING ASSEMBLY.

3

PLASTER FRAMES/FLANGE KITS MUST BE PROVIDED BY THIS DIVISION FOR FIXTURES RECESSED IN PLASTER AND/OR DRYWALL CEILINGS.

4

WHERE SPECIFIED, FIXTURES TO BE CHAIN HUNG SHALL BE HUNG USING "JACK" CHAIN WITH A CAPACITY TO SUIT THE FIXTURE WEIGHT. BRANCH CIRCUIT WIRING FEEDING THESE FIXTURES SHALL BE AC90 CABLE "TY-WRAPPED" AT 36" (900mm) INTERVALS ALONG LENGTH OF DROP. FINAL APPEARANCE MUST BE NEAT AND PROFESSIONAL.

5

INSTALL EXIT LIGHTING UNITS AS INDICATED WITH ILLUMINATED FACES AND CHEVRONS/ARROWS INDICATING PATH(S) OF EXIT.

6

INSTALL EMERGENCY LIGHTING UNITS AND ASSOCIATED REMOTE MOUNTED FIXTURES AS INDICATED.

7

DIRECT "HEADS" ON UNITS AND REMOTE MOUNTED FIXTURES TO ILLUMINATE PATH(S) OF EXIT.

8

INSTALL EMERGENCY LIGHTING UNITS AND REMOTE FIXTURES AT 8' (2400mm) ABOVE FINISHED FLOOR UNLESS INDICATED OTHERWISE.

9

PROVIDE A 15A 120V DUPLEX RECEPTACLE (CONNECT TO CIRCUIT INDICATED) ADJACENT TO UNIT.

10

CONNECT LUMINAIRES TO LIGHTING CIRCUITS AS INDICATED.

11

CONNECT EXIT FIXTURES TO EXIT LIGHTING CIRCUITS AND UNIT EQUIPMENT (IF APPLICABLE).

12

CONNECT UNIT EQUIPMENT TO CIRCUITS AS INDICATED.

13

ALL WIRING OF REMOTE EMERGENCY FIXTURES SHALL BE MINIMUM #10 T90 FOR EACH CIRCUIT AND RUN IN CONDUIT. WIRING MUST BE SIZED IN CONFORMANCE WITH MANUFACTURERS' RECOMMENDATIONS FOR DISTANCE REQUIRED.

14

ALIGN LUMINAIRES MOUNTED IN CONTINUOUS ROWS TO FORM STRAIGHT UNINTERRUPTED LINES.

15

ALIGN LUMINAIRES MOUNTED INDIVIDUALLY PARALLEL OR PERPENDICULAR TO BUILDING GRID LINES.

16

ALL LIGHTING BRANCH CIRCUITS ARE TO BE PROVIDED WITH SEPARATE NEUTRALS.
- 4

GARANTEE

1

ALL LED FIXTURES AND DRIVERS ARE TO BE COMPLETE WITH A 5 YEAR GUARANTEE.

2

THE LABOUR REQUIRED TO REPLACE THESE DRIVERS MUST BE INCLUDED IN THE ABOVE GUARANTEE
- 5

TESTING/CERTIFICATION

1

AT THE COMPLETION OF THE PROJECT AND IN THE PRESENCE OF THE CONSULTANT, TEST ALL EXIT AND EMERGENCY FIXTURES. ON COMPANY LETTERHEAD, THE CONTRACTOR IS TO PREPARE A CHART INDICATING:

-

PROJECT

-

DATE

-

EQUIPMENT TYPE

-

CERTIFICATION OF CORRECT CONNECTION

-

CERTIFICATION OF CORRECT OPERATION

-

DURATION OF TEST IN MINUTES (MINIMUM 30)

-

ACTUAL PERIOD OF TESTING (TIME OF DAY)

FIRESTOPPING

- 1

FIRESTOPPING MATERIAL AND INSTALLATION WITHIN ANNULAR SPACE BETWEEN CONDUITS, DUCTS, AND ADJACENT FIRE SEPARATION.
- 2

PROVIDE MATERIALS AND SYSTEMS CAPABLE OF MAINTAINING EFFECTIVE BARRIER AGAINST FLAME, SMOKE, AND GASES.
- 3

COMPLY WITH THE REQUIREMENTS OF CAN4-S115-M35, AND DO NOT EXCEED OPENING SIZED FOR WHICH THEY HAVE BEEN TESTED.
- 4

SYSTEMS TO HAVE AN F OR FT RATING (AS APPLICABLE) NOT LESS THAN THE FIRE PROTECTION RATING REQUIRED FOR CLOSURES IN A FIRE SEPARATION. PROVIDE "FIREWRAP" BLANKET AROUND SERVICES PENETRATING FIREWALLS.
- 5

EXTENT OF BLANKET MUST CORRESPOND TO ULC RECOMMENDATIONS. IN GENERAL WRAP INDIVIDUAL CONDUITS WITH APPROVED FIREWRAP MATERIALS ON EACH SIDE OF FIREWALL. REFER TO ARCHITECTURAL DRAWINGS FOR FT RATINGS. PROVIDE 1 AND/OR 2 LAYERS OF FIREWRAP WITH TRANSVERSE AND LONGITUDINAL SEAMS OVERLAPPED AND/OR BUTTED (SECOND LAYER OFFSET FROM FIRST LAYER). CUT EDGES ARE TO BE SEALED WITH ALUMINUM FOIL TAPE. PROVIDE 50 MM STAINLESS STEEL BANDING AT 200 MM INTERVALS. INSTALL FIREWRAP TO MANUFACTURERS' RECOMMENDATIONS FOR PROPER FT RATING. ACCEPTABLE MANUFACTURERS ARE 3M FIREMASTER DUCTWRAP OR APPROVED EQUAL.
- 6

THE FIRESTOPPING MATERIALS ARE NOT TO SHRINK, SLUMP OR SAG AND BE FREE OF ASBESTOS, HALOGENS AND VOLATILE SOLVENTS.
- 7

FIRESTOPPING MATERIALS ARE TO CONSIST OF A COMPONENT SEALANT APPLIED WITH A CONVENTIONAL CAULKING GUN AND TROWEL.
- 8

FIRESTOP MATERIALS ARE TO BE CAPABLE OF RECEIVING FINISH MATERIALS IN THOSE AREAS, WHICH ARE EXPOSED AND SCHEDULED TO RECEIVE FINISHES.
- 9

FIRESTOPPING SHALL BE INSPECTED AND APPROVED BY LOCAL AUTHORITY PRIOR TO CONCEALMENT OR ENCLOSURE.
- 10

INSTALL MATERIAL AND COMPONENTS IN ACCORDANCE WITH ULC CERTIFICATION, MANUFACTURERS INSTRUCTIONS AND LOCAL AUTHORITY.
- 11

SUBMIT PRODUCT LITERATURE AND INSTALLATION MATERIAL ON FIRESTOPPING IN SHOP DRAWING AND PRODUCT DATA MANUAL.
- 12

ACCEPTABLE MANUFACTURERS:

FYREESLEEVE INDUSTRIES INC.

GENERAL ELECTRIC PENSIL FIRESTOP SYSTEMS

INTERNATIONAL PROTECTIVE COATINGS CORP.

RECTORSEAL CORPORATION (METACAULK)

PROSET SYSTEMS

3M

AD SYSTEMS

HILTI

ROYAL

NOTE: FIRE STOP MATERIAL MUST CONFORM TO REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION. CONTRACTOR TO CONFIRM PRIOR TO APPLICATION AND ENSURE MATERIAL USED IS COMPATIBLE WITH THAT USED BY OTHER TRADES ON SITE.

EQUIPMENT

- 1

CONTACTORS

1

CONTACTORS SHALL HAVE THE FOLLOWING FEATURES:

1

CONTACTORS SHALL BE ELECTRICALLY HELD AND CONTROLLED BY PILOT DEVICES AS INDICATED AND RATED FOR TYPE OF LOAD CONTROLLED.

2

MOUNTED IN CSA ENCLOSURE 1.

3

INCLUDE THE FOLLOWING OPTIONS:

1

RED INDICATING LAMP.

2

HAND-OFF-AUTO SELECTOR SWITCH.

4

CONTROL TRANSFORMER MOUNTED IN CONTACTOR ENCLOSURE.

2

ACCEPTABLE MANUFACTURERS ARE AS FOLLOWS:

1

ALLEN BRADLEY

2

CUTLER HAMMER

3

SIEMENS

4

GROUP SCHNEIDER

5

KLOCKNER MOELLER

TRANSFORMERS

- 1

TRANSFORMERS MUST CONFORM TO CSA C9-M1981 AND C802 LATEST EDITION.

1

RATINGS, CHARACTERISTICS AND CAPACITY AS INDICATED ON RISER DIAGRAMS.
- 2

TRANSFORMERS TO BE OF ONE MANUFACTURER THROUGHOUT PROJECT.
- 3

ALUMINUM WINDING.
- 4

TRANSFORMERS TO BE VENTILATED DRY TYPE, SIZED AS INDICATED WITH 4-2 1/2% TAPS (2-F.C.B.N. AND 2-F.C.A.N.).
- 5

ENCLOSURE: EEMAC 1 C/W REMOVABLE FRONT PANEL.
- 6

MAXIMUM SOUND LEVELS UP TO 50KVA TO BE 45 DBA, 51 TO 150KVA TO BE 50 DBA, 151 TO 300KVA TO BE 55 DBA, 301 TO 500KVA TO BE 60 DBA.
- 7

ALL TRANSFORMERS WITH A K FACTOR OF A 3 OR ABOVE MUST BE ELECTRO--STATIC SHIELDED.
- 8

TRANSFORMERS WITH A K-FACTOR OF 3 OR ABOVE MUST INCLUDE A SECONDARY NEUTRAL BUS THAT IS SIZED AT TWICE THE RATED SECONDARY PHASE CURRENT.
- 9

TRANSFORMERS SHALL HAVE FLEXIBLE CONDUIT CONNECTIONS OR EQUIVALENT ON BOTH THE HIGH AND LOW VOLTAGE TERMINALS.
- 10

DRY TYPE TRANSFORMERS UP TO AND INCLUDING 75KVA MAY BE WALL MOUNTED. TRANSFORMERS OVER 75KVA TO BE FLOOR MOUNTED. EXCEPTIONS TO THE ABOVE SHALL BE AS SPECIFIED ON THE DRAWINGS.
- 11

DRY TYPE TRANSFORMERS SHALL BE MOUNTED ON KORFUND RD2--GREY VIBRATION ISOLATORS OR EQUIVALENT.
- 12

WALL MOUNTED TRANSFORMERS SHALL BE MOUNTED ON AN ANGLE IRON FRAME SUITABLY ATTACHED TO THE MASONRY WALLS, STEEL COLUMNS, ETC. NOT METAL SIDING, AND SET ON KORFUND RD2--GREY VIBRATION ISOLATORS OR EQUIVALENT. MAY ALSO BE SUSPENDED FROM STRUCTURE ONLY ON A UNISTRUT TRAPEZE.
- 13

ALL FLOOR MOUNTED TRANSFORMERS SHALL BE MOUNTED ON A CONCRETE BASE. CONCRETE PAD IS THE RESPONSIBILITY OF THIS CONTRACTOR. INSTALLATION MUST BE IN ACCORDANCE WITH THE POURED IN--PLACE CONCRETE SPECIFICATIONS OF DIVISION 1.
- 14

LOOSEN ISOLATION PAD BOLTS UNTIL NO COMPRESSION IS VISIBLE.
- 15

INSTALL TRANSFORMERS IN LEVEL UPRIGHT POSITION.
- 16

ENSURE ADEQUATE CLEARANCE AROUND TRANSFORMER FOR VENTILATION AS PER THE ELECTRICAL SAFETY CODE.
- 17

REMOVE SHIPPING SUPPORTS ONLY AFTER TRANSFORMER IS INSTALLED AND JUST BEFORE PUTTING INTO SERVICE.
- 18

MAKE PRIMARY AND SECONDARY CONNECTIONS IN ACCORDANCE WITH WIRING DIAGRAM.
- 19

ENERGIZE TRANSFORMERS AFTER INSTALLATION IS COMPLETE.
- 20

LABEL MUST INDICATE:

-

TRANSFORMER "TAG" AS PER RISER DIAGRAM

-

PRIMARY AND SECONDARY VOLTAGE AND PHASE.
- 21

ACCEPTABLE MANUFACTURERS:

1

HAMMOND

2

DELTA

3

MAGNETEK

4

ACME

5

REX

The contractor shall verify all dimensions and report all errors and discrepancies to the Consultant before commencement of the work.
The drawings show general arrangement of services. Follow as closely as actual building construction will permit. Obtain approval for relocation of service from Consultant before commencement of the work.
The drawings do not indicate all offsets fitting and accessories which may be required. Provide the same to meet the required conditions.
Drawings and specifications, etc., prepared and issued by the consultant are the property of the consultant and must be returned at the completion of the project. These documents are not to be duplicated or copied without the consent of the Consultant.
Do not scale this drawing.
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Seal

LICENSED PROFESSIONAL ENGINEER

J.J. JACKSON

100011324

Jan 27/22

PROVINCE OF ONTARIO

North Arrow

Project North

True North

Project

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Consulting Engineers

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