

TLDSB
LESLIE FROST PUBLIC SCHOOL

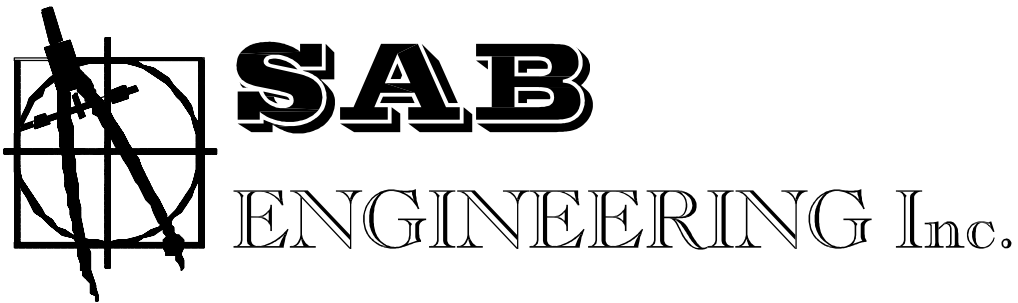
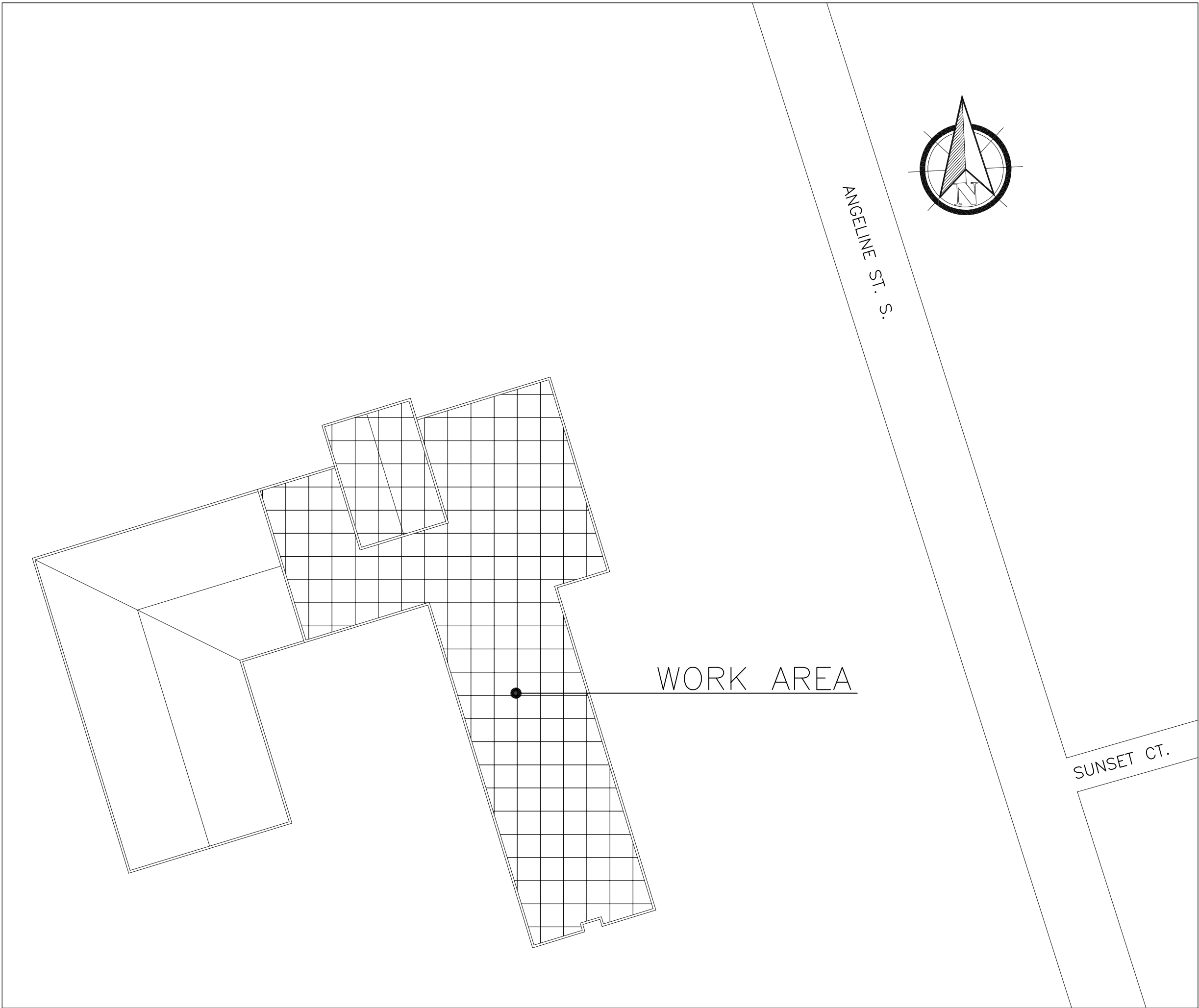
51 ANGELINE ST. SOUTH
LINDSAY, ON. K9V 3L1

ISSUED FOR TENDER
MAY 2021



DRAWING LIST

NO.	DRAWING TITLE
MECHANICAL	
M-1	SYMBOL LIST, EQUIPMENT SCHEDULES & DETAILS – MECHANICAL
M-2	GROUND FLOOR DUCTWORK – EXISTING & DEMOLITION WORK – MECHANICAL
M-3	ROOF EQUIPMENT LAYOUT – EXISTING & DEMOLITION WORK – MECHANICAL
M-4	GROUND FLOOR DUCTWORK – EXISTING & NEW WORK – MECHANICAL
M-5	ROOF EQUIPMENT LAYOUT – EXISTING & NEW WORK – MECHANICAL
M-6	CONTROL DIAGRAMS
M-7	CONTROL DIAGRAMS
ELECTRICAL	
E-1	EQUIPMENT WIRING SCHEDULE, LEGEND & NOTES – ELECTRICAL
E-2	GROUND FLOOR – EXISTING, DEMOLITION AND NEW WORK – ELECTRICAL
E-3	ROOF – EXISTING, DEMOLITION AND NEW WORK – ELECTRICAL



SCHEDULE OF MAKE-UP AIR UNITS																							
TAG	SERVING	SUPPLY FAN PERFORMANCE				EXHAUST FAN PERFORMANCE				HEATING PERFORMANCE						HEAT RECOVERY			WEIGHT KG [LBS]	POWER SUPPLY V(PH)/Hz	MCA (AMPS)	MOCp (AMPS)	REMARKS
		AIRFLOW (CFM)	E.S.P. Pa [IN]	SPEED RPM	HP	AIRFLOW (CFM)	E.S.P. Pa [IN]	SPEED RPM	HP	INPUT kW [MBH]	OUTPUT kW [MBH]	TEMP °C [°F] EAT	TEMP. RISE °C [°F] LAT	AIRFLOW (CFM)	EDBT/EBWT °C [°F]	TOTAL EFF. %							
MUA-1	CLASSROOMS	4,660	249 [1.0]	1760	5.0	4,660	249 [1.0]	1760	5.0	85.7 [405]	68.6 [328]	5.2 [41.3]	41.4 [106.5]	36.2 [65.2]	4,660	-25/25.2[-13/-13.3]	72.2	1476 [3254]	208/3/60	42	50		

SCHEDULE OF SUPPLY AIR HANDLING UNITS																							
TAG	SERVING	SUPPLY FAN PERFORMANCE				EXHAUST FAN PERFORMANCE				HEATING PERFORMANCE		HEAT RECOVERY WHEEL			DX COOLING PERFORMANCE				WEIGHT KG [LBS]	POWER SUPPLY (V/PH/Hz)	MCA (AMPS)	MOCp (AMPS)	REMARKS
		AIR FLOW (CFM)	E.S.P. Pa [IN]	SPEED RPM	HP	AIR FLOW (CFM)	E.S.P. Pa [IN]	SPEED RPM	HP	INPUT KW [MBH]	OUTPUT KW [MBH]	MIN. OUT. AIR (CFM)	EDBT/EWBT °C(°F)	SENS. EFF.	TOTAL CAP. KW [MBH]	SENS. CAP. KW [MBH]	TEMP °C (°F)						
																	EDBT/EWBT	LDBT/LWBt					
AHU-1	GYM	3,000	373 [1.75]	1760	3.0	3,000	186.7 [0.75]	1265	2.0	57.1 [195]	45.7 [156]	1500	-25/25.2 [-13/-13.3]	74.4	35.5 [121]	24.7 [84.48]	24.7/17.6 [76.5/63.7]	10.0/9.6 [50.08/49.3]	1065 [2349]	208/3/60	76	90	HORIZONTAL DISCHARGE, C/W VFD, ROOF CURB

SCHEDULE OF FANCOIL UNIT																						
TAG	SERVING	MANUFACTURER	MODEL	SUPPLY FAN PERFORMANCE				MIN. OUTSIDE AIR (CFM)	HEATING PERFORMANCE				DX COOLING PERFORMANCE				WEIGHT KG [LBS]	POWER SUPPLY (V/PH/Hz)	MCA (AMPS)	MCCP (AMPS)	REMARKS	
				AIR FLOW (CFM)	E.S.P. Pa [IN]	SPEED RPM	HP		CAPACITY KW [MBH]	TEMP °C [°F]		WATER FLOW (L/S) [GPM]	WATER P.D. kPa [FT WC]	TOTAL CAP. KW [MBH]	SENS. CAP. KW [MBH]	TEMP °C [°F]						
										EAT	LAT					EDBT/EWBt						LDBT/LWBt
FC-1	KINDERGARTEN	CARRIER	48BVE	2,000	249 [1.0]	1200	1.5	600	30.8 [105]	8.2 [46.8]	35 [95]	0.66 [10.5]	14.5 [4.9]	17.9 [61.3]	13.03 [44.5]	26.1/18.8 [79/66]	13.3/12.7 [56/55]	203 [448]	208/1/60	9.4	20	C/W MIXING BOX AND MOTORIZED DAMPERS

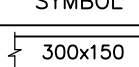



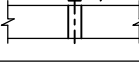
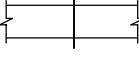
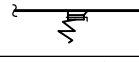
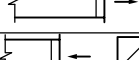


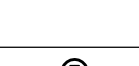
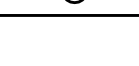
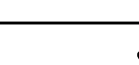
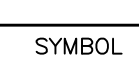
SCHEDULE OF OUTDOOR CONDENSER											
TAG	COOLING CAP. kW [TONS]	CONDENSER FANS (1 x HP)	REFRIGERANT	REFRIGERANT CONNECTION SIZES MM [IN]		DIMENSIONS (WxDxH) MM [IN]	WEIGHT KG [LBS]	POWER SUPPLY (V/PH/Hz)	MCA (AMPS)	MOP (MOP)	REMARKS
				SUCTION GAS	LIQUID						
CU-1	17.9 [5]	1/4	R-410A	22 [7/8]	10 [3/8]	815x815x740 [32x32x29]	90[199]	208/3/60	21.4	30	

NOTES:

FINAL REFRIGERANT LINES SIZING BY MANUFACTURER, BASED ON FINAL ROUTING AND LENGTH OF PIPE.
EQUIPMENT SUPPLIED WITH FULL REFRIGERANT CHARGE, SUFFICIENT FOR THE SYSTEM VOLUME, INCLUDING PIPING.
EQUIPMENT SUPPLIED WITH CONTROLLERS FULLY COMPATIBLE WITH EXISTING SCHOOL BAS, INCLUDING CONTROL OF CAPACITY STAGING

SCHEDULE OF EXHAUST FANS									
TAG	LOCATION	AIR FLOW (CFM)	SP Pa [IN.WG.]	RPM	HP	POWER SUPPLY (V/PH/Hz)	FLA (AMPS)	MOCB (AMPS)	REMARKS
EF-4	ROOF	800	332 [0.75]	1478	1/4	115/1/60	5.8	15	CENTRIFUGAL ROOF EXHAUST C/W CURB ADAPTER

SCHEDULE OF GRILLES & DIFFUSERS						
TYPE	SERVICE	MANUFACTURER	MODEL	VOLUME CONTROL	FINISH	REMARKS
A	SUPPLY	E.H. PRICE	SCD	YES	B12	SQUARE CONE DIFFUSER
B	SUPPLY	E.H. PRICE	LBP-15B	YES	B12	LINEAR BAR GRILLE
C	SUPPLY	E.H. PRICE	520D	YES	B12	DOUBLE DEFLECTION STEEL
D	SUPPLY	E.H. PRICE	HCD	YES	B12	HIGH CAPACITY DRUM LOUVER
E	RETURN	E.H. PRICE	80	NO	B12	EGG CRATE RETURN GRILLE
F	RETURN	E.H. PRICE	95	NO	B12	LOUVERED RETURN GRILLE

SYMBOLS LIST – HVAC	
SYMBOL	DESCRIPTION
	SHEET METAL DUCT – FIRST FIGURE INDICATES DIMENSIONS SHOWN
	SHEET METAL RISER UP – SUPPLY
	SHEET METAL RISER UP – RETURN AND EXHAUST
	SHEET METAL RISER DOWN – SUPPLY
	SHEET METAL RISER DOWN – RETURN AND EXHAUST
	FUSIBLE LINK FIRE DAMPER WITH ACCESS DOOR IN DUCT
	VOLUME DAMPER
	FLEXIBLE DUCT CONNECTION, PROVIDE BALANCING DAMPER ON BRANCH TAKE-OFF
	SUPPLY AIR GRILLE
	EXHAUST OR RECIRC. GRILLE
	SUPPLY AIR CEILING DIFFUSER
	FLEXIBLE CONNECTION
	OPEN ENDED DUCT WITH BALANCING DAMPER AND BELLMOUTH INLET
	ROOM THERMOSTAT

SYMBOLS LIST – ABBREVIATION	
SYMBOL	DESCRIPTION
C/E	CONNECT TO EXISTING
CUT	CUT POINT OF EXISTING SERVICE
C/W	COMPLETE WITH
EF	EXHAUST FAN
EX	EXISTING TO REMAIN
N	NEW EQUIPMENT
RL	RELOCATED
VFD	VARIABLE FREQUENCY DRIVE

[illegible]

1	MAY, 2021	ISSUED FOR TENDER
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GENERAL NOTES :

CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THE ENGINEER SHALL BE INFORMED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS. DO NOT SCALE DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE PROCEEDING WITH FABRICATION. THIS DRAWING IS THE PROPERTY OF SAB ENGINEERING INC. AND SHALL NOT BE REPRODUCED WITHOUT THEIR PERMISSION AND UNLESS THE REPRODUCTION CARRIES THEIR NAME, ALL INFORMATION SHOWN ON THIS DRAWING IS FOR USE ON THE SPECIFIED PROJECT ONLY AND SHALL NOT BE USED OTHERWISE WITHOUT WRITTEN PERMISSION OF SAB ENGINEERING INC.

ADDRESS

LESLIE FROST
PUBLIC SCHOOL
HVAC SYSTEMS UPGRADE

51 Angeline St. South, Lindsay, ON. K9V 3L1

DRAWING TITLE

SYMBOLS & EQUIPMENT
SCHEDULES — MECHANICAL

DATE	SCALE
MAY/2021	N.T.S.

DRAWN BY P.C.	DWG. No. M-1
------------------	------------------------

M-1

JOB No. 2021-49

REMOVE EXISTING EXHAUST DUCTWORK SERVING THE CLASSROOMS 122 AND KINDERGARTEN 144, AS NOTED ON THE DRAWINGS AND AS REQUIRED FOR THE INSTALLATION OF NEW DUCTWORK. REMOVE ALL REDUNDANT HANGERS AND SUPPORTS. DISCONNECT FROM THE MAIN EXHAUST FAN LOCATED ON THE ROOF. (REFER TO ROOF PLAN FOR DEMOLITION).

REMOVE ALL REDUNDANT HANGERS AND SUPPORTS. CAP UNUSED DUCTS.

COORDINATE REMOVAL OF DUCTWORK WITH EXISTING SERVICES IN THE CEILING SPACE. TEMPORARILY REMOVE, RELOCATE, AND/OR REINSTALL AS NECESSARY TO REMOVE THE DUCTWORK.

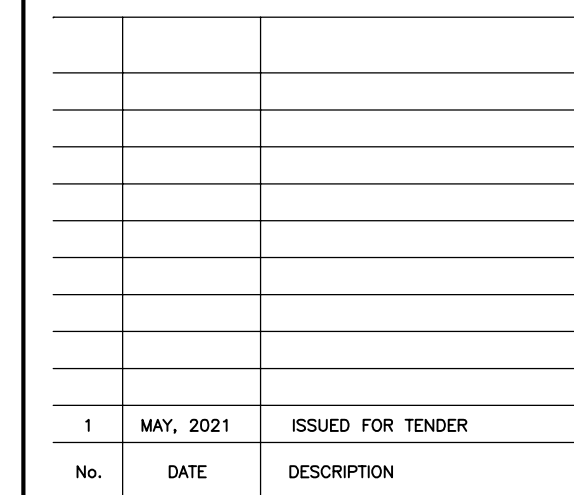
REMOVE EXISTING FAN COIL UNIT & ELECTRICAL HEATER IN STORAGE ROOM 121. DEMOLISH ALL SUPPORTS AND DISCONNECT UNIT FROM POWER AND CONTROL WIRING.

REMOVE EXISTING EXHAUST FANS SERVING THE GYM. REMOVE COMPLETE WITH ALL SUPPORTS AND ACCESSORIES. CAP ONE OF EXISTING OPENINGS TO MATCH EXISTING WALL (REFER TO ROOF PLAN FOR DEMOLITION). DISCONNECT UNITS FROM ALL POWER AND CONTROL WIRING.

REMOVE EXISTING EXHAUST FAN SERVING CLASSROOMS LOCATED IN BOILER ROOM, AS NOTED ON THE DRAWINGS CUT AND REMOVE PORTION OF EXISTING EXHAUST DUCT INSIDE THE MECHANICAL ROOM AND ON THE ROOF AS REQUIRED FOR THE INSTALLATION OF NEW DUCTWORK. REMOVE ALL REDUNDANT HANGERS AND SUPPORTS. DISCONNECT UNIT FROM ALL POWER AND CONTROL WIRING.

FOR ALL REMOVED EQUIPMENT, DISCONNECT ALL POWER AND CONTROLS WIRING AND CONDUIT, ALL ASSOCIATED BREAKERS, DISCONNECTS AND FUSES, MAKE SAFE ALL WIRING.

CLEAN REMAIN DUCTWORK AND EXHAUST GRILLES.



11434

PROFESSIONAL ENGINEER

PROVINCE OF ONTARIO

G. STRASHUN

MAY 2021



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51 Angeline St. South, Lindsay, ON. K9V 3L1

DATE	SCALE
MAY/2021	1:100

	IV-2
JOB No.	2021-49

GENERAL NOTES:

REMOVE EXISTING EXHAUST FAN EF-4 SERVING THE CLASSROOMS 122 AND KINDERGARTEN 144, DISCONNECT FROM POWER. THE ROOF CURB IS TO REMAIN.

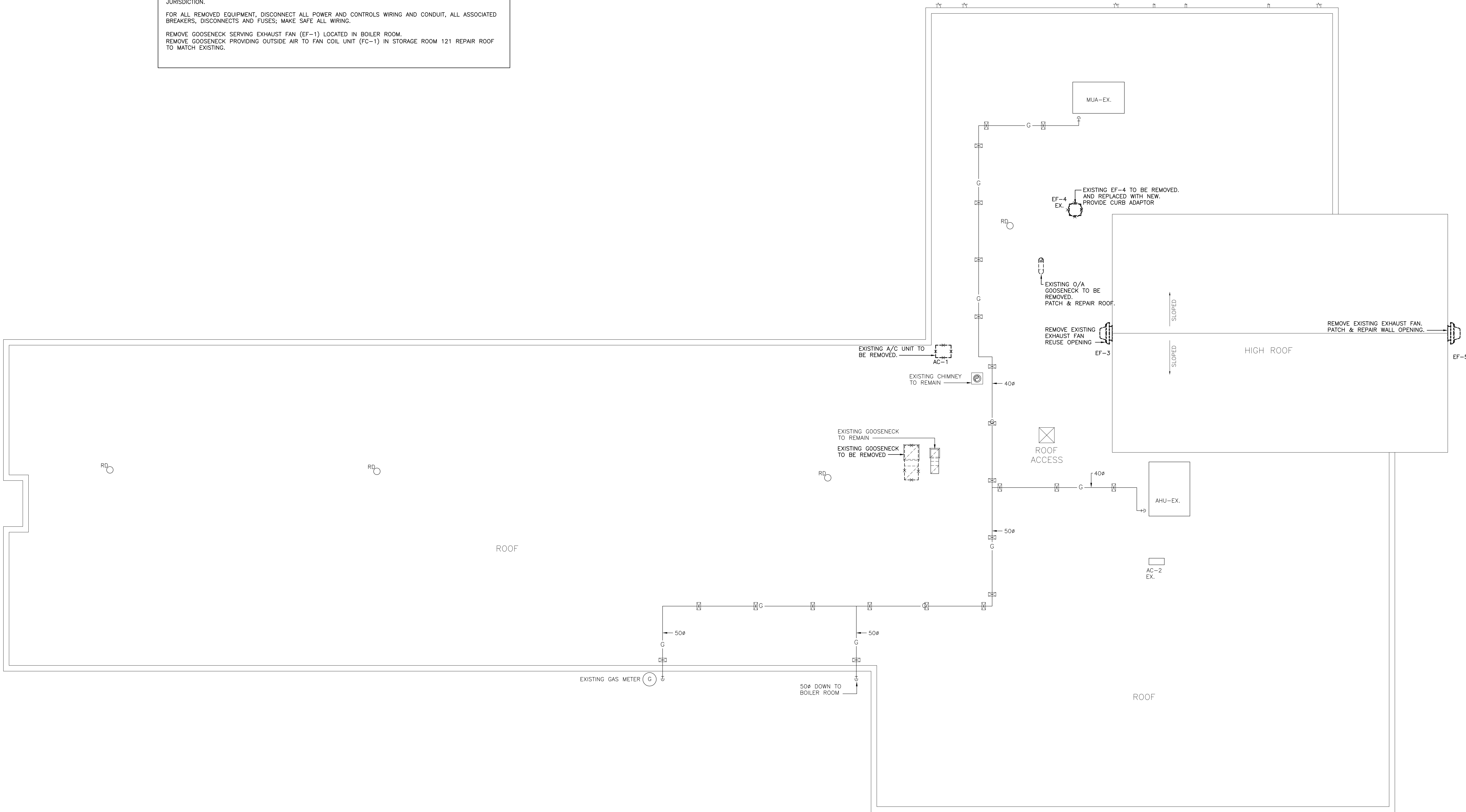
REMOVE EXISTING EXHAUST FANS EF-3&5 SERVING THE GYM, AS NOTED ON THE DRAWINGS. REMOVE ALL REDUNDANT HANGERS AND SUPPORTS, CAP ONE OF EXISTING GRILLES. DISCONNECT FROM THE MAIN POWER SUPPLY AND CONTROL WIRING.

REMOVE EXISTING CONDENSING COIL UNIT CONNECTED TO FAN COIL UNIT IN STORAGE ROOM 121. DEMOLISH ALL SUPPORTS AND DISCONNECT UNIT FROM POWER AND CONTROL WIRING. REMOVE ALL REFRIGERANT PIPING. CONTRACTOR TO COLLECT AND DISPOSE OF THE REFRIGERANT IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION.

FOR ALL REMOVED EQUIPMENT, DISCONNECT ALL POWER AND CONTROLS WIRING AND CONDUIT, ALL ASSOCIATED BREAKERS, DISCONNECTS AND FUSES; MAKE SAFE ALL WIRING.

REMOVE GOOSENECK SERVING EXHAUST FAN (EF-1) LOCATED IN BOILER ROOM.

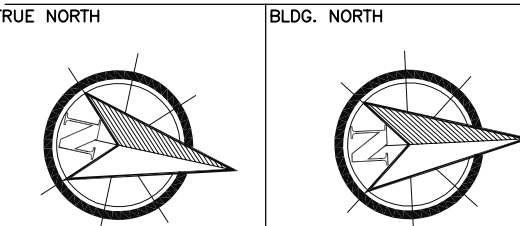
REMOVE GOOSENECK PROVIDING OUTSIDE AIR TO FAN COIL UNIT (FC-1) IN STORAGE ROOM 121 REPAIR ROOF TO MATCH EXISTING.



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**LESLIE FROST
PUBLIC SCHOOL**
HVAC SYSTEMS UPGRADE

51 Angelline St. South, Lindsay, ON, K9V 3L1

DRAWING TITLE
**ROOF EQUIPMENT LAYOUT –
EXISTING & DEMOLITION –
MECHANICAL**

DATE
MAY/2021

SCALE
1:100

DRAWN BY
P.C.

DWG. No.
M-3

JOB No.
2021-49

GENERAL NOTES:

CONTRACTOR TO PROVIDE INTERFERENCE DRAWINGS INDICATING THE EXACT ROUTING OF ALL MECHANICAL SERVICES INCLUDING DUCTS, HEATING, PLUMBING AND ELECTRICAL CONDUITS. REFER TO SPECIFICATIONS.

ANY PENETRATION THRU FIRE RATED CEILING TO BE FIRE STOPPED TO MAINTAIN FIRE RATED ASSEMBLY.

LOCATION AND OPENINGS FOR ALL DUCTS LARGER THAN 600mm SHALL BE COORDINATED WITH THE STRUCTURAL DIVISION.

PROVIDE BALANCING DAMPERS AT ALL TAKE-OFF AND BRANCHES, ON SUPPLY, RETURN DUCTWORK, WEATHER SHOWN ON THE DRAWINGS OR NOT.

COORDINATE INSTALLATION OF ALL DUCTWORK WITH THE STRUCTURAL ELEMENTS; INSTALL DUCTS AS HIGH AS POSSIBLE TO CONSERVE HEADROOM AND TO MAINTAIN CEILING HEIGHT.

RE-USE ALL THE RETURN AIR GRILLES IN THE CLASSROOM. CLEAN ALL GRILLES. CLEAN THE ENTIRE EXHAUST DUCTWORK SYSTEM SERVING THE CLASSROOMS.

PROVIDE ALL REQUIRED SUPPORTS AND HANGERS FOR THE DUCTS, AND ALL OTHER MECHANICAL DEVICES LOCATED IN THE CEILING.

COORDINATE LOCATION OF GRILLES AND DIFFUSERS WITH THE REFLECTED CEILING PLANS, LIGHTS AND STRUCTURAL ELEMENTS.

PROVIDE INSULATION FOR THE LAST 3000mm OF EXHAUST DUCT AS PER SPECIFICATIONS.

ALL NEW SUPPLY DUCTWORK TO BE INSULATED. REFER TO SPECIFICATIONS.

DO NOT SUPPORT FROM METAL OR CONCRETE DECK. PROVIDE SECONDARY SUPPORT SYSTEM. SUBMIT ENGINEERED SHOP DRAWINGS.

REMOVE EXISTING T-BAR CEILING AS REQUIRED TO COMPLETE THE INSTALLATION. REINSTATE AND REPAIR TO MATCH EXISTING.

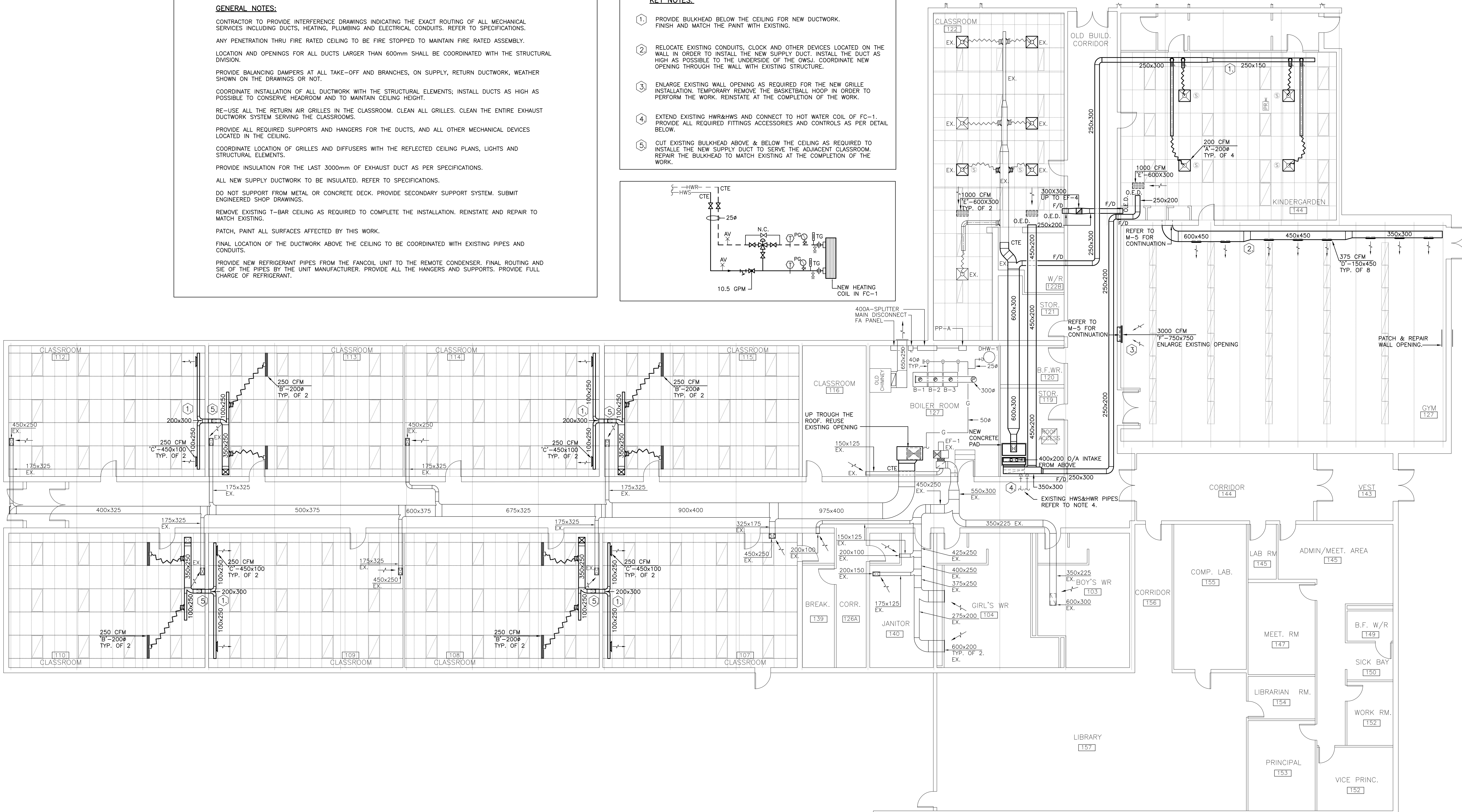
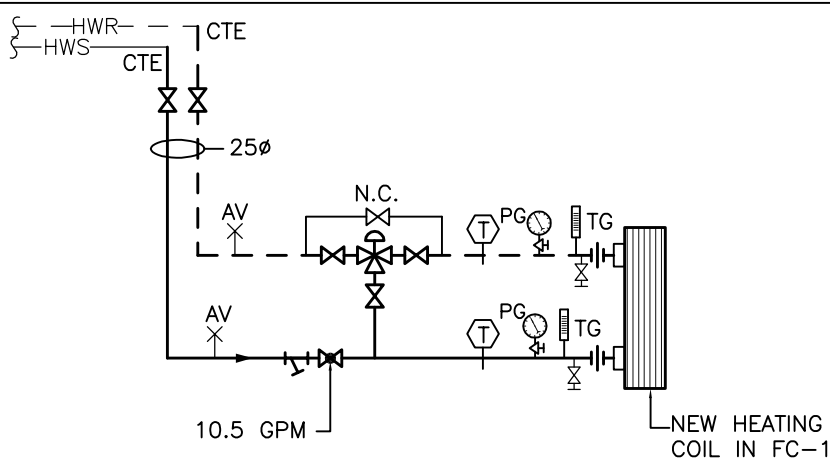
PATCH, PAINT ALL SURFACES AFFECTED BY THIS WORK.

FINAL LOCATION OF THE DUCTWORK ABOVE THE CEILING TO BE COORDINATED WITH EXISTING PIPES AND CONDUITS.

PROVIDE NEW REFRIGERANT PIPES FROM THE FANCOIL UNIT TO THE REMOTE CONDENSER. FINAL ROUTING AND SIZE OF THE PIPES BY THE UNIT MANUFACTURER. PROVIDE ALL THE HANGERS AND SUPPORTS. PROVIDE FULL CHARGE OF REFRIGERANT.

KEY NOTES:

1. PROVIDE BULKHEAD BELOW THE CEILING FOR NEW DUCTWORK. FINISH AND MATCH THE PAINT WITH EXISTING.
2. RELOCATE EXISTING CONDUITS, CLOCK AND OTHER DEVICES LOCATED ON THE WALL IN ORDER TO INSTALL THE NEW SUPPLY DUCT. INSTALL THE DUCT AS HIGH AS POSSIBLE TO THE UNDERSIDE OF THE OWSJ. COORDINATE NEW OPENING THROUGH THE WALL WITH EXISTING STRUCTURE.
3. ENLARGE EXISTING WALL OPENING AS REQUIRED FOR THE NEW GRILLE INSTALLATION. TEMPORARY REMOVE THE BASKETBALL HOOP IN ORDER TO PERFORM THE WORK. REINSTATE AT THE COMPLETION OF THE WORK.
4. EXTEND EXISTING HWR&HWS AND CONNECT TO HOT WATER COIL OF FC-1. PROVIDE ALL REQUIRED FITTINGS ACCESSORIES AND CONTROLS AS PER DETAIL BELOW.
5. CUT EXISTING BULKHEAD ABOVE & BELOW THE CEILING AS REQUIRED TO INSTALL THE NEW SUPPLY DUCT TO SERVE THE ADJACENT CLASSROOM. REPAIR THE BULKHEAD TO MATCH EXISTING AT THE COMPLETION OF THE WORK.



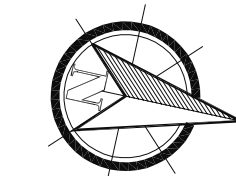
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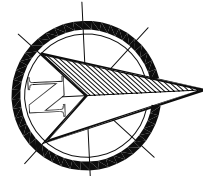
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TRUE NORTH



BLDG. NORTH



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DRAWING TITLE

**GROUND FLOOR DUCTWORK
LAYOUT – EXISTING & NEW
WORK – MECHANICAL**

DATE

SCALE

MAY/2021

1:100

DRAWN BY

DWG. No.

P.C.

M-4

JOB No.

2021-49



PROVIDE ALL NECESSARY CONTROL'S WIRING, REFRIGERANT ACCESSORIES AND POWER TO THE SOLENOID VALVES, INCLUDING STEP-DOWN TRANSFORMERS.

INSTALL THE REFRIGERANT PIPING OIL TRAPS, REFRIGERANT DISTRIBUTORS, TX VALVES, SOLENOID VALVES, ISOLATION VALVES, SENSING BULBS, FILTERS/DRYERS, SIGHT GLASSES AND OTHER ACCESSORIES IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

PITCH THE LIQUID LINES SLIGHTLY (1:300) TOWARDS THE COILS, SO THAT THE REFRIGERANT DRAINS TOWARDS THE EVAPORATOR. PITCH THE SUCTION LINES SLIGHTLY (1:300) TOWARDS THE COILS, SO THAT ANY LIQUID ENTRAINED DRAINS BACK TOWARDS THE EVAPORATOR.

SLIGHTLY PITCH (1:300) THE OUTLET LINE FROM THE SUCTION HEADER TOWARDS THE SUCTION RISER IN THE DIRECTION OF FLOW. USE TUBE DIAMETER THAT MATCHES THE SUCTION-HEADER CONNECTION.

ARRANGE THE SUCTION LINE SO THAT THE REFRIGERANT GAS LEAVING THE COIL FLOWS DOWNWARDS PAST THE LOWEST SUCTION HEADER OR BEFORE TURNING UPWARDS. USE A DOUBLE ELBOW CONFIGURATION TO ISOLATE THE FROSTAT BULE FROM OTHER SUCTION HEADERS.

ENSURE THAT THE TOP OF THE SUCTION RISERS ARE ABOVE THE EVAPORATOR SECTIONS THEY SERVE.

SIZE ALL REFRIGERANT LINES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, BASED ON THE FINAL ROUTING AND LENGTH OF PIPING. ALL LINES TO BE SUPPORTED AND INSULATED AS INDICATED IN THE SPECIFICATIONS AND ON DETAILS ON DWG.

ALL SUCTION LINES TO BE INSULATED AS SPECIFIED; ON THE ROOF, PROVIDE JACKETING AND SADDLE SUPPORTS AS SPECIFIED.

NEW REFRIGERANT PIPING SCHEMATIC DIAGRAMS
N.T.S.

N.T.S.

GENERAL NEW WORK NOTES:

THE DRAWINGS DO NOT SHOW ALL STRUCTURAL ELEMENTS AND BUILDING SERVICES LOCATED ON THE ROOF. COORDINATE THE ROUTING OF THE NEW GAS PIPE WITH EXISTING EQUIPMENT LOCATED ON THE ROOF.

ALL TEMPORARY INTERRUPTION OF SERVICES SHALL BE COORDINATED WITH THE OWNER.

INSTALL NEW MAKE-UP AIR UNIT ON TOP OF NEW STRUCTURAL STEEL SUPPORT. COORDINATE WITH THE STRUCTURAL DRAWINGS.

PROVIDE CURB ADAPTER FOR HORIZONTAL DISCHARGE FOR THE AHU-2 SERVING THE GYM. SEAL WALL PENETRATION.

CONNECT TO GAS LOOPS AS SHOWN. PROVIDE SHUT-OFF VALVES, UNION AND DRIP LEG FOR EACH UNIT. ALL THE EXPANSION LOOPS TO BE IN ACCORDANCE WITH APPLICABLE CODES.

CONNECT NEW UNITS TO POWER AND CONTROLS. INSTALL NEW LOCAL WEATHER-PROOF DISCONNECTS ON THE EXTERIOR. WIRING OF THE NEW AIR UNITS BY THE MANUFACTURER. ALL EXTERNAL WIRING BETWEEN THE ROOFTOP UNIT AND EXTERNAL COMPONENTS BY THE CONTRACTOR.

INSULATE THE DUCT SECTIONS LOCATED ON THE ROOF. PROVIDE NEW DUCTS' SUPPORTS AS PER DETAIL AND SPECIFICATIONS.

MAKE GOOD ALL SURFACES AFFECTED BY THE WORK.

PAINT ALL NEW GAS PIPE ON THE ROOF. REFER TO SPECIFICATION. PROVIDE NEW PIPE SUPPORTS. ALL SUPPORTS AND EXPANSION LOOPS TO BE IN ACCORDANCE WITH THE CODE REQUIREMENTS. CONTRACTOR TO ALLOW FOR ADDITIONAL ROOF SUPPORTS AS REQUIRED.

COORDINATE INSTALLATION OF EQUIPMENT ON THE ROOF TO MAINTAIN REQUIRED CLEARANCES FOR MAINTENANCE AND MIN 3m (10 FT) BETWEEN INTAKE AND EXHAUST OUTLETS.

LOCATION AND OPENINGS FOR ALL DUCTS LARGER THAN 600mm SHALL BE COORDINATED WITH THE STRUCTURAL DESIGN.

PERFORM AIR BALANCING AND MAKE ALL NECESSARY ADJUSTMENTS SO AS TO ENSURE THAT THE UNIT OPERATES AS PER SPECIFIED PARAMETERS. ALL COMPONENTS OF THE NEW UNIT AIR SYSTEM SHALL BE UNTESTED AND STARTED-UP BY THE MANUFACTURER. PROVIDE START-UP REPORT UPON PROJECT COMPLETION.

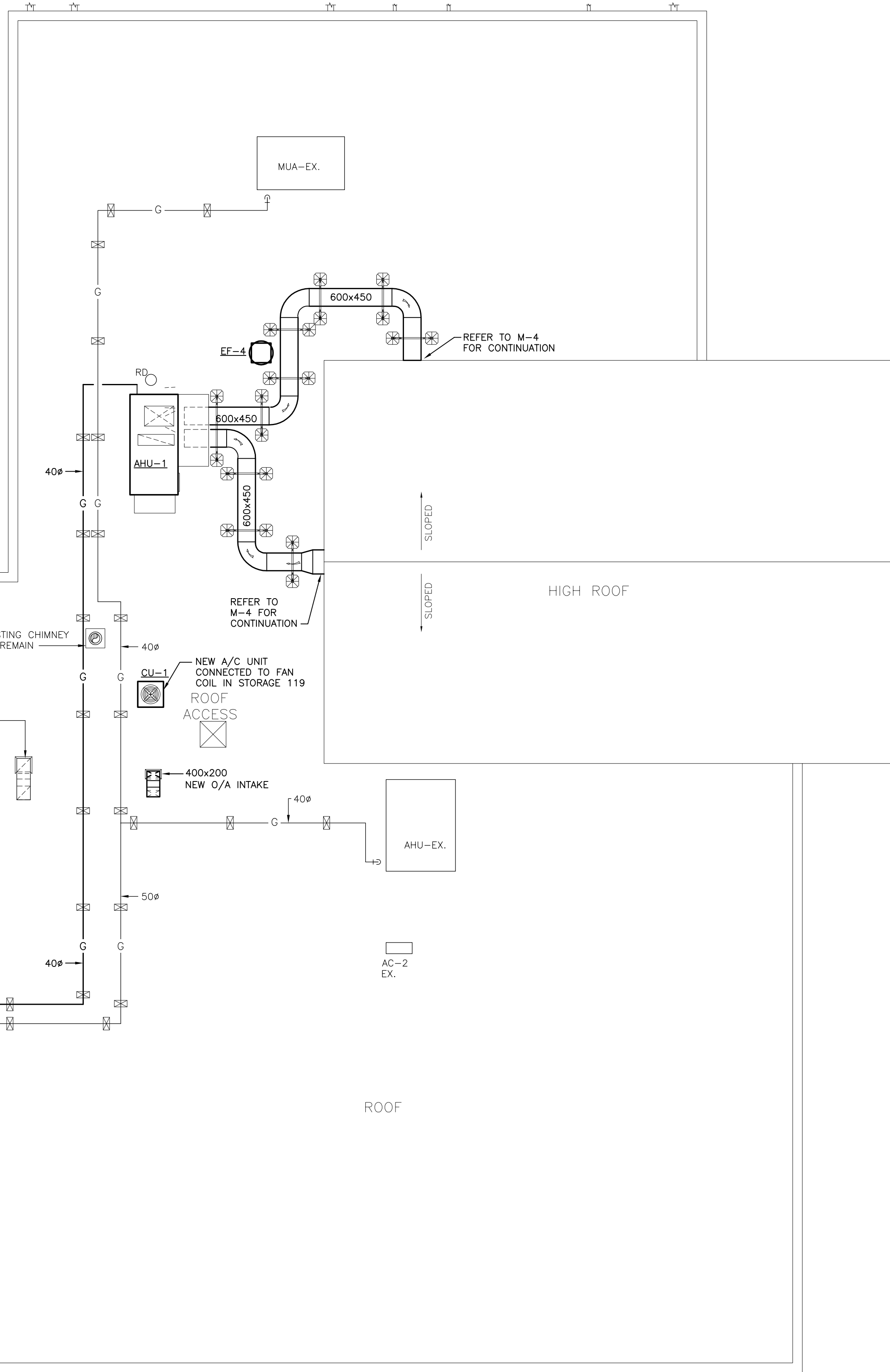
CONNECT ALL NEW UNITS TO FIRE ALARM. VERIFY TO CAN-ULC-537 REQUIREMENT. PROVIDE NEW SMOKE DETECTORS FOR EACH UNIT. SUBMIT A COPY OF THE VERIFICATION REPORT TO CONSULTANT AND INCLUDE INSIDE THE CLOSE-OUT DOCUMENTS PACKAGE.

FLUSH AND WEATHER PROOF ALL THE DUCTS AND PIPE PENETRATION THROUGH THE ROOF.

REPLACE EXISTING GAS METER AS REQUIRED TO MATCH THE NEW CONSUMPTION. RECONNECT EXISTING PIPES.

ROOFING NOTES:

1. PROVIDE PROTECTION BOARDS TO EXISTING ROOF AREAS WHEREVER CONSTRUCTION ACTIVITIES OCCUR.
2. CONTRACTOR RESPONSIBLE FOR ALL TEMPORARY SUPPORTS, BRACING AND SHORING REQUIRED AND DESIGN OF SAME.
3. KEEP EXISTING BUILDING WATERTIGHT DURING ALL WORK ON EXISTING ROOF. REPLACE ALL DAMAGED ROOFING INCLUDING SATURATED INSULATION, CAUSED BY CONSTRUCTION ACTIVITIES.
4. MAINTAIN EXISTING BUILDING SECURE FROM UNAUTHORIZED ENTRY DURING DEMOLITION PROCEDURES AND CONSTRUCTION ACTIVITIES.
5. PROVIDE ALL OPENINGS IN EXISTING ROOF TO SUIT NEW MECHANICAL AND ELECTRICAL SERVICES. MAKE GOOD TO SUIT EXISTING ROOF REFER TO MECHANICAL AND ELECTRICAL WORK FOR LOCATIONS WHERE OPENINGS ARE REQUIRED IN EXISTING ROOF.
6. SIZE AND LOCATION OF ROOF OPENINGS AND WEIGHTS OF EQUIPMENT SHALL BE COORDINATED WITH THE MECHANICAL CONTRACTOR.

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1	MAY, 2021	ISSUED FOR TENDER
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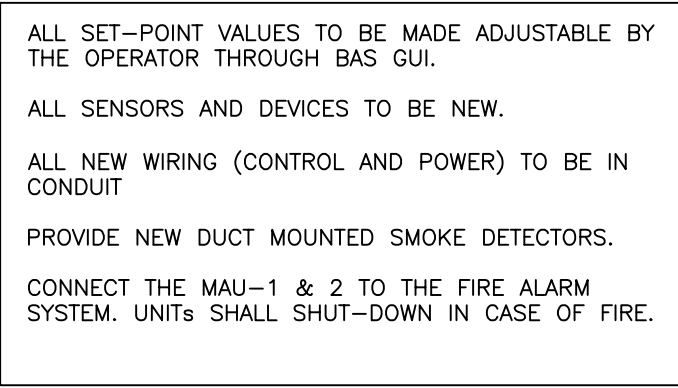
DRAWING TITLE

ROOF EQUIPMENT LAYOUT -
EXISTING & NEW WORK
- MECHANICAL

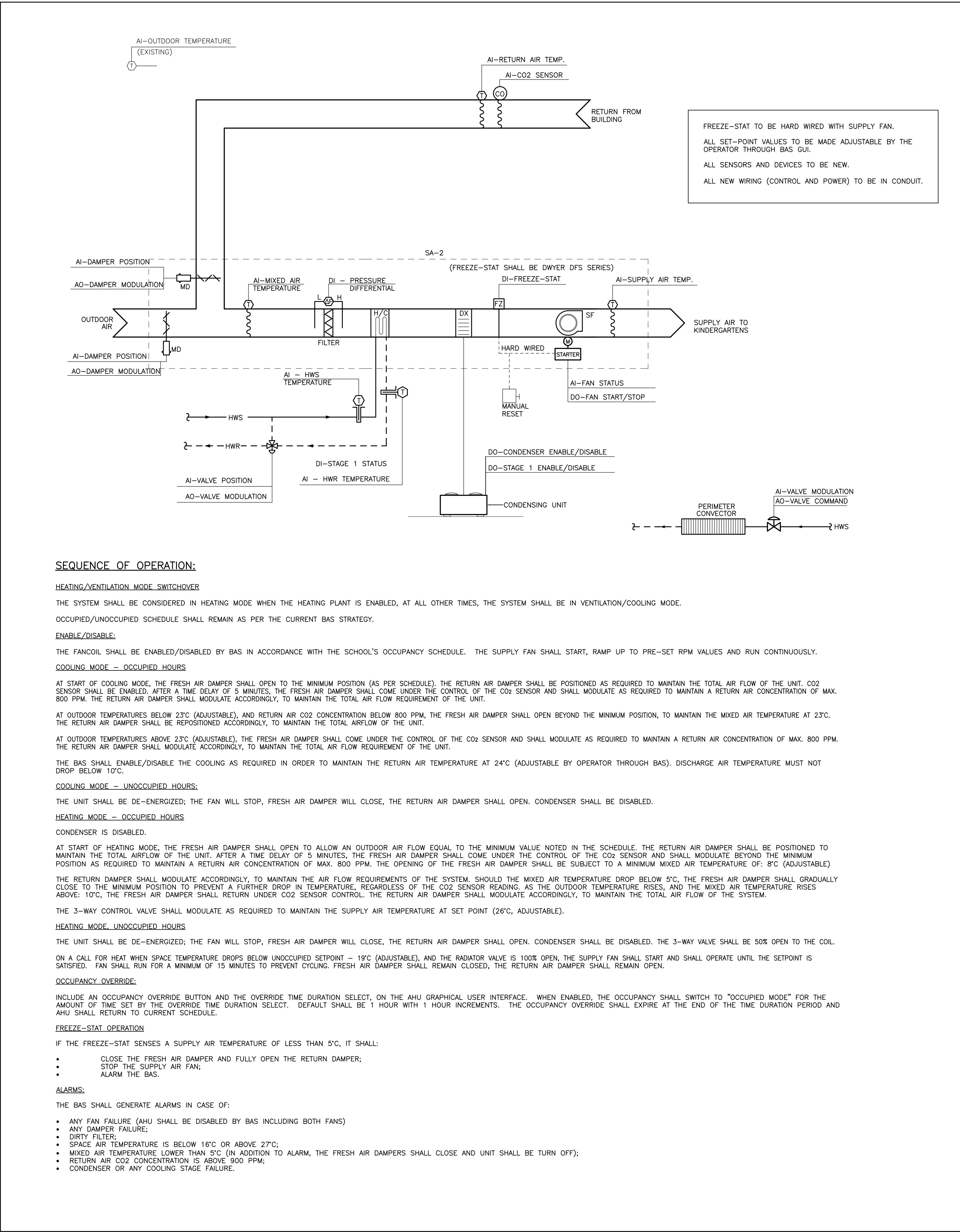
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MAY/2021	N.T.S.

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JOB No. 2021-49



JOB No. 2021-49



SEQUENCE OF OPERATION:

HEATING/VENTILATION MODE SWITCHOVER

THE SYSTEM SHALL BE CONSIDERED IN HEATING MODE WHEN THE HEATING PLANT IS ENABLED, AT ALL OTHER TIMES, THE SYSTEM SHALL BE IN VENTILATION/COOLING MODE.

OCCUPIED/UNOCCUPIED SCHEDULE SHALL REMAIN AS PER THE CURRENT BAS STRATEGY.

ENABLE/DISABLE:

THE FANCOIL SHALL BE ENABLED/DISABLED BY BAS IN ACCORDANCE WITH THE SCHOOL'S OCCUPANCY SCHEDULE. THE SUPPLY FAN SHALL START, RAMP UP TO PRE-SET RPM VALUES AND RUN CONTINUOUSLY.

COOLING MODE – OCCUPIED HOURS

AT START OF COOLING MODE, THE FRESH AIR DAMPER SHALL OPEN TO THE MINIMUM POSITION (AS PER SCHEDULE). THE RETURN AIR DAMPER SHALL BE POSITIONED AS REQUIRED TO MAINTAIN THE TOTAL AIR FLOW OF THE UNIT. CO2 SENSOR SHALL BE ENABLED. AFTER A TIME DELAY OF 5 MINUTES, THE FRESH AIR DAMPER SHALL COME UNDER THE CONTROL OF THE CO2 SENSOR AND SHALL MODULATE AS REQUIRED TO MAINTAIN A RETURN AIR CONCENTRATION OF MAX. 800 PPM. THE RETURN AIR DAMPER SHALL MODULATE ACCORDINGLY, TO MAINTAIN THE TOTAL AIR FLOW REQUIREMENT OF THE UNIT.

AT OUTDOOR TEMPERATURES BELOW 23°C (ADJUSTABLE), AND RETURN AIR CO2 CONCENTRATION BELOW 800 PPM, THE FRESH AIR DAMPER SHALL OPEN BEYOND THE MINIMUM POSITION, TO MAINTAIN THE MIXED AIR TEMPERATURE AT 23°C. THE RETURN AIR DAMPER SHALL BE REPOSITIONED ACCORDINGLY, TO MAINTAIN THE TOTAL AIRFLOW OF THE UNIT.

AT OUTDOOR TEMPERATURES ABOVE 23°C (ADJUSTABLE), THE FRESH AIR DAMPER SHALL COME UNDER THE CONTROL OF THE CO2 SENSOR AND SHALL MODULATE AS REQUIRED TO MAINTAIN A RETURN AIR CONCENTRATION OF MAX. 800 PPM. THE RETURN AIR DAMPER SHALL MODULATE ACCORDINGLY, TO MAINTAIN THE TOTAL AIR FLOW REQUIREMENT OF THE UNIT.

THE BAS SHALL ENABLE/DISABLE THE COOLING AS REQUIRED IN ORDER TO MAINTAIN THE RETURN AIR TEMPERATURE AT 24°C (ADJUSTABLE BY OPERATOR THROUGH BAS). DISCHARGE AIR TEMPERATURE MUST NOT DROP BELOW 10°C.

COOLING MODE – UNOCCUPIED HOURS:

THE UNIT SHALL BE DE-ENERGIZED; THE FAN WILL STOP, FRESH AIR DAMPER WILL CLOSE, THE RETURN AIR DAMPER SHALL OPEN. CONDENSER SHALL BE DISABLED.

HEATING MODE – OCCUPIED HOURS

CONDENSER IS DISABLED.

AT START OF HEATING MODE, THE FRESH AIR DAMPER SHALL OPEN TO ALLOW AN OUTDOOR AIR FLOW EQUAL TO THE MINIMUM VALUE NOTED IN THE SCHEDULE. THE RETURN AIR DAMPER SHALL BE POSITIONED TO MAINTAIN THE TOTAL AIRFLOW OF THE UNIT. AFTER A TIME DELAY OF 5 MINUTES, THE FRESH AIR DAMPER SHALL COME UNDER THE CONTROL OF THE CO2 SENSOR AND SHALL MODULATE BEYOND THE MINIMUM POSITION AS REQUIRED TO MAINTAIN A RETURN AIR CONCENTRATION OF MAX. 800 PPM. THE OPENING OF THE FRESH AIR DAMPER SHALL BE SUBJECT TO A MINIMUM MIXED AIR TEMPERATURE OF: 8°C (ADJUSTABLE)

THE RETURN DAMPER SHALL MODULATE ACCORDINGLY, TO MAINTAIN THE AIR FLOW REQUIREMENTS OF THE SYSTEM. SHOULD THE MIXED AIR TEMPERATURE DROP BELOW 5°C, THE FRESH AIR DAMPER SHALL GRADUALLY CLOSE TO THE MINIMUM POSITION TO PREVENT A FURTHER DROP IN TEMPERATURE, REGARDLESS OF THE CO2 SENSOR READING. AS THE OUTDOOR TEMPERATURE RISES, AND THE MIXED AIR TEMPERATURE RISES ABOVE: 10°C, THE FRESH AIR DAMPER SHALL RETURN UNDER CO2 SENSOR CONTROL. THE RETURN AIR DAMPER SHALL MODULATE ACCORDINGLY, TO MAINTAIN THE TOTAL AIR FLOW OF THE SYSTEM.

THE 3-WAY CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT SET POINT (26°C, ADJUSTABLE).

HEATING MODE, UNOCCUPIED HOURS

THE UNIT SHALL BE DE-ENERGIZED; THE FAN WILL STOP, FRESH AIR DAMPER WILL CLOSE, THE RETURN AIR DAMPER SHALL OPEN. CONDENSER SHALL BE DISABLED. THE 3-WAY VALVE SHALL BE 50% OPEN TO THE COIL.

ON A CALL FOR HEAT WHEN SPACE TEMPERATURE DROPS BELOW UNOCCUPIED SETPOINT – 19°C (ADJUSTABLE), AND THE RADIATOR VALVE IS 100% OPEN, THE SUPPLY FAN SHALL START AND SHALL OPERATE UNTIL THE SETPOINT IS SATISFIED. FAN SHALL RUN FOR A MINIMUM OF 15 MINUTES TO PREVENT CYCLING. FRESH AIR DAMPER SHALL REMAIN CLOSED, THE RETURN AIR DAMPER SHALL REMAIN OPEN.

OCCUPANCY OVERRIDE:

INCLUDE AN OCCUPANCY OVERRIDE BUTTON AND THE OVERRIDE TIME DURATION SELECT, ON THE AHU GRAPHICAL USER INTERFACE. WHEN ENABLED, THE OCCUPANCY SHALL SWITCH TO "OCCUPIED MODE" FOR THE AMOUNT OF TIME SET BY THE OVERRIDE TIME DURATION SELECT. DEFAULT SHALL BE 1 HOUR WITH 1 HOUR INCREMENTS. THE OCCUPANCY OVERRIDE SHALL EXPIRE AT THE END OF THE TIME DURATION PERIOD AND AHU SHALL RETURN TO CURRENT SCHEDULE.

FREEZE-STAT OPERATION

IF THE FREEZE-STAT SENSES A SUPPLY AIR TEMPERATURE OF LESS THAN 5°C, IT SHALL:

- CLOSE THE FRESH AIR DAMPER AND FULLY OPEN THE RETURN DAMPER;
- STOP THE SUPPLY AIR FAN;
- ALARM THE BAS.

ALARMS:

THE BAS SHALL GENERATE ALARMS IN CASE OF:

- ANY FAN FAILURE (AHU SHALL BE DISABLED BY BAS INCLUDING BOTH FANS)
- ANY DAMPER FAILURE;
- DIRTY FILTER;
- SPACE AIR TEMPERATURE IS BELOW 16°C OR ABOVE 27°C;
- MIXED AIR TEMPERATURE LOWER THAN 5°C (IN ADDITION TO ALARM, THE FRESH AIR DAMPERS SHALL CLOSE AND UNIT SHALL BE TURN OFF);
- RETURN AIR CO2 CONCENTRATION IS ABOVE 900 PPM;
- CONDENSER OR ANY COOLING STAGE FAILURE.

FC-1 CONTROL DIAGRAM
N.T.S.

1	MAY, 2021	ISSUED FOR TENDER
No.	DATE	DESCRIPTION

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DRAWING TITLE
CONTROL DIAGRAMS

DATE
MAY/2021

SCALE
N.T.S.

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P.C.

DWG. No.
M-7

JOB No.
2021-49

ELECTRICAL GENERAL NOTES

GENERAL

EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONDITIONS AND AVAILABLE DRAWINGS BEFORE PROCEEDING WITH THE WORK. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS MUST BE REFERRED TO THE PRIME CONSULTANT BEFORE ANY AFFECTED WORK IS COMMENCED.

ALL MATERIALS USED THROUGHOUT SHALL BE NEW, OF BEST QUALITY CSA APPROVED AND OF ONE MANUFACTURER.

OBTAIN AND PAY FOR APPROVALS AND PERMITS FROM AUTHORITIES HAVING JURISDICTION.

PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC, AS REQUIRED. MAKE UP TO THE LAST 3 FT OF FINAL CONNECTIONS TO ROTATING EQUIPMENT WITH LIQUID TIGHT FLEXIBLE CONDUIT.

CONTRACTORS SHALL NOTE THAT THIS CONTRACT IS AN ALTERATION TO AN EXISTING BUILDING AND SHALL THOROUGHLY INVESTIGATE THE EXISTING ELECTRICAL INSTALLATION AND CONDITIONS. DEMOLITION. REMOVE POWER CONNECTIONS AS SHOWN ON DRAWINGS C/W CONDUIT AND WIRING TO SOURCE.

CONDUCTORS AND CABLES

CONDUCTORS AND CABLES SHALL BE IN ACCORDANCE WITH NEMA WC-70 AND AS SPECIFIED HEREIN.

CONDUCTORS SHALL BE ANNEALED COPPER, STRANDED FOR SIZES NO. 8 AWG AND LARGER, SOLID FOR SIZES NO. 10 AWG AND SMALLER. CONDUCTORS SHALL BE MINIMUM SIZE NO. 12 AWG, EXCEPT WHERE SMALLER SIZES ARE SPECIFICALLY SHOWN ON THE DRAWINGS. MINIMUM SIZE WIRING FOR DC WIRING SHALL BE #10 GAUGE.

ALL WIRING SHALL BE 600 VOLT TYPE RW90 AND RUN IN METALLIC CONDUIT EXCEPT WHERE ALLOWED IN FLEXIBLE LIQUID-TIGHT FLEXIBLE ENCLOSURE (SEE SECTION 15241). MAXIMUM VOLTAGE DROP SHALL NOT EXCEED 2%. PROVIDE GROUND WIRES WITH ALL FEEDERS AND BRANCH CIRCUITS IN ACCORDANCE WITH APPLICABLE CODES AND ONTARIO ELECTRICAL SAFETY CODE REQUIREMENTS. PROVIDE MAIN GROUND TO ESA APPROVAL.

INSULATION:

THHN-THWN SHALL BE IN ACCORDANCE WITH NEMA WC-70, UL 44, AND UL 83.

CONDUITS

ALL CONDUIT SHALL BE RIGID ALUMINUM (OUTDOORS) OR EMT THINWALL (INDOORS) WITH STEEL SET SCREW COUPLINGS AND CONNECTORS WITH INSULATED THROATS UNLESS OTHERWISE NOTED. RUN CONDUITS PARALLEL TO BUILDING LINES AND CONCENTRIC RIGHT ANGLE BENDS ONLY SHALL BE USED.

SEAL ALL PENETRATIONS THROUGH FLOOR SLABS WITH AN APPROVED NON-SHRINK, WATERPROOF AND FIREPROOF SEALANT.

NEW CONDUIT HANGERS SHALL BE SUPPORTED FROM BUILDING STRUCTURE AND INDEPENDENTLY FROM OTHER EXISTING ELEMENTS SUCH AS DUCTWORK, CONDUITS, PIPING ETC.

POWER DISTRIBUTION SYSTEM

THE POWER DISTRIBUTION SYSTEM SHALL BE MODIFIED AS SHOWN ON THE PLANS AND AS HEREINAFTER SPECIFIED. BREAKERS RATING SHALL MATCH EXISTING EQUIPMENT TO WHICH THEY ARE INSTALLED.

SPLICES AND JOINTS

IN ACCORDANCE WITH UL 486A, C, D, E, AND NEC.

CONNECTORS: SOLDERLESS, SCREW ON, REUSABLE PRESSURE CABLE TYPE, RATED 600 V, 220° F [105° C], WITH INTEGRAL INSULATION, APPROVED FOR COPPER CONDUCTORS. THE INTEGRAL INSULATOR SHALL HAVE A SKIRT TO COMPLETELY COVER THE STRIPPED WIRES. THE NUMBER, SIZE, AND COMBINATION OF CONDUCTORS, AS LISTED ON THE MANUFACTURER'S PACKAGING, SHALL BE STRICTLY FOLLOWED.

CONNECTORS SHALL BE INDENT, HEX SCREW, OR BOLT CLAMP TYPE OF HIGH CONDUCTIVITY AND CORROSION RESISTANT MATERIAL, LISTED FOR USE WITH COPPER AND ALUMINUM CONDUCTORS. FIELD-INSTALLED COMPRESSION CONNECTORS FOR CABLE SIZES 250 MCM AND LARGER SHALL HAVE NOT FEWER THAN TWO CLAMPING ELEMENTS OR COMPRESSION INDENTS PER WIRE.

INSULATE SPLICES AND JOINTS WITH MATERIALS APPROVED FOR THE PARTICULAR USE, LOCATION, VOLTAGE, AND TEMPERATURE. SPLICE AND JOINT INSULATION LEVEL SHALL BE NOT LESS THAN THE INSULATION LEVEL OF THE CONDUCTORS BEING JOINED. PLASTIC ELECTRICAL INSULATING TAPE: PER ASTM D2304; FLAME-RETARDANT, COLD AND WEATHER RESISTANT.

LOW VOLTAGE FUSED AND NON-FUSED DISCONNECT SWITCHES RATED 600 AMPERES AND LESS

IN ACCORDANCE WITH UL 98, NEMA KS1, AND NEC. SHALL HAVE NEMA CLASSIFICATION GENERAL DUTY (GD) FOR 240 V SWITCHES AND NEMA CLASSIFICATION HEAVY DUTY (HD) FOR 600 V SWITCHES. SHALL BE HP RATED.

LOCATE IN THE PROXIMITY OF THE EQUIPMENT SERVED, IN ACCORDANCE WITH NEC REQUIREMENTS.

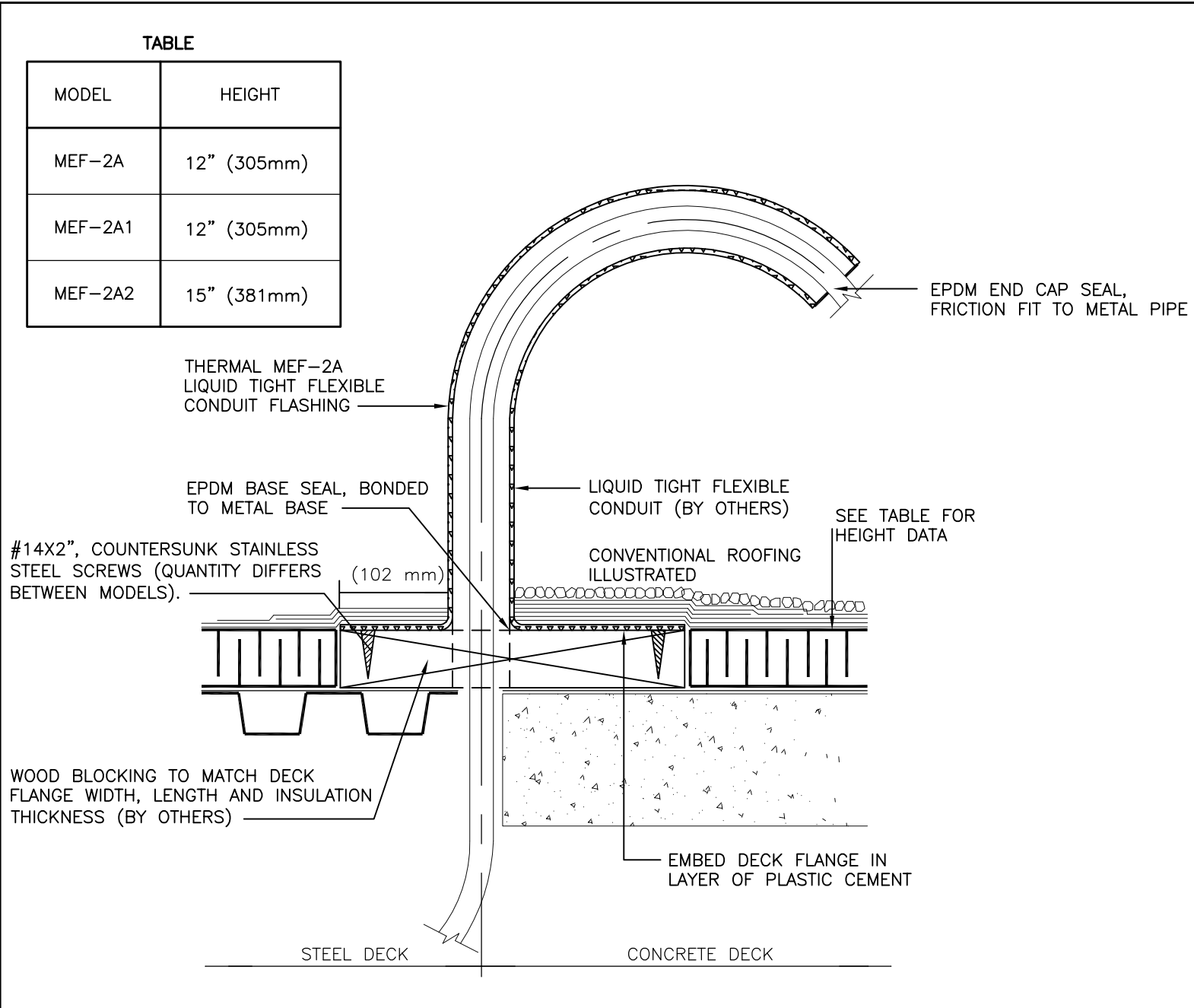
SHALL HAVE THE FOLLOWING FEATURES:

- SWITCH MECHANISM SHALL BE THE QUICK-MAKE, QUICK-BREAK TYPE.
- COPPER BLADES, VISIBLE IN THE OFF POSITION.
- AN ARC CHUTE FOR EACH POLE.
- EXTERNAL OPERATING HANDLE SHALL INDICATE ON AND OFF POSITION AND HAVE LOCK OPEN PADLOCKING PROVISIONS.
- MECHANICAL INTERLOCK SHALL PERMIT OPENING OF THE DOOR ONLY WHEN THE SWITCH IS IN THE OFF POSITION, DEFEATABLE TO PERMIT INSPECTION.
- FUSE HOLDERS FOR THE SIZES AND TYPES OF FUSES SPECIFIED (WHERE APPLICABLE).
- WHERE APPLICABLE, FUSIBLE DISCONNECT SWITCHES SHALL BE FURNISHED COMPLETE WITH FUSES. ARRANGE FUSES SUCH THAT RATING INFORMATION IS READABLE WITHOUT REMOVING THE FUSE.
- SOLID NEUTRAL FOR EACH SWITCH BEING INSTALLED IN A CIRCUIT WHICH INCLUDES A NEUTRAL CONDUCTOR.
- GROUND LUGS FOR EACH GROUND CONDUCTOR.

ENCLOSURES:

SHALL BE THE NEMA TYPES SHOWN ON THE DRAWINGS FOR THE SWITCHES. WHERE THE TYPES OF SWITCH ENCLOSURES ARE NOT SHOWN, THEY SHALL BE THE NEMA TYPES MOST SUITABLE FOR THE AMBIENT ENVIRONMENTAL CONDITIONS. UNLESS OTHERWISE INDICATED ON THE PLANS, ALL OUTDOOR SWITCHES SHALL BE NEMA 3R. SHALL BE FINISHED WITH MANUFACTURER'S STANDARD GRAY BAKED ENAMEL PAINT OVER PRE-TREATED STEEL (FOR THE TYPE OF ENCLOSURE REQUIRED).

NOTES	
1.	PROVIDE CONNECTION TO ALL EQUIPMENT TO ENABLE FULL OPERATION. FOR LOCATION OF MECHANICAL EQUIPMENT REFER TO MECHANICAL LAYOUTS.
2.	PROVIDE SEPARATE BREAKERS FOR INDIVIDUAL MECHANICAL EQUIPMENT. SIZE TO MATCH EQUIPMENT SCHEDULE DATA.
3.	ALL MAGNETIC STARTER SHALL BE C/W OVERLOAD PROTECTION, H/O/A SWITCH AND GREEN-RUN AND RED-STOP PILOT LAMPS.

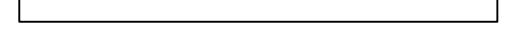


GENERAL NOTES

1. IT IS MANDATORY FOR THE ELECTRICAL CONTRACTOR TO VISIT SITE AND REVIEW EXISTING CONDITIONS AND DEMOLITION SCOPE OF WORK TO SUIT EXISTING ARCHITECTURAL AND STRUCTURAL CONDITIONS AND MECHANICAL DRAWINGS.
2. CAREFULLY EXAMINE OTHER EXISTING UTILITY LINES SUCH AS GAS, WATER ETC. PRIOR TO START THE ELECTRICAL CONSTRUCTION WORKS AND COORDINATE WITH OTHER TRADES AND REPORT OF ANY DISCREPANCY PRIOR TO PROCEEDING.
3. REFER TO ELECTRICAL AND MECHANICAL LAYOUTS FOR EXACT LOCATION OF ALL EQUIPMENT.
4. LOCATIONS OF ALL NEW DISCONNECT SWITCHES, VFDS AND STARTERS SHALL BE CONFIRMED WITH DIVISION 15 PRIOR TO INSTALLATION.

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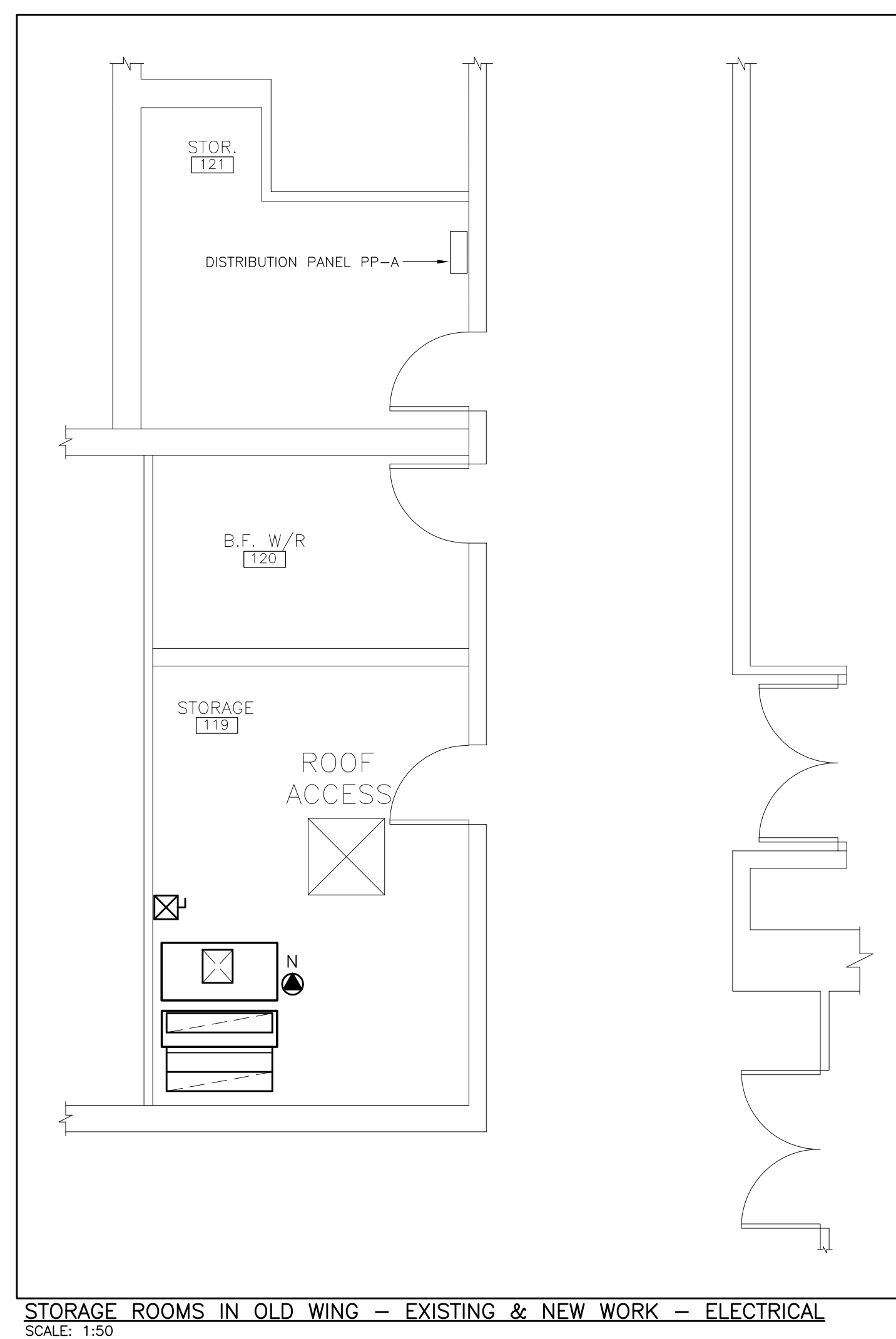
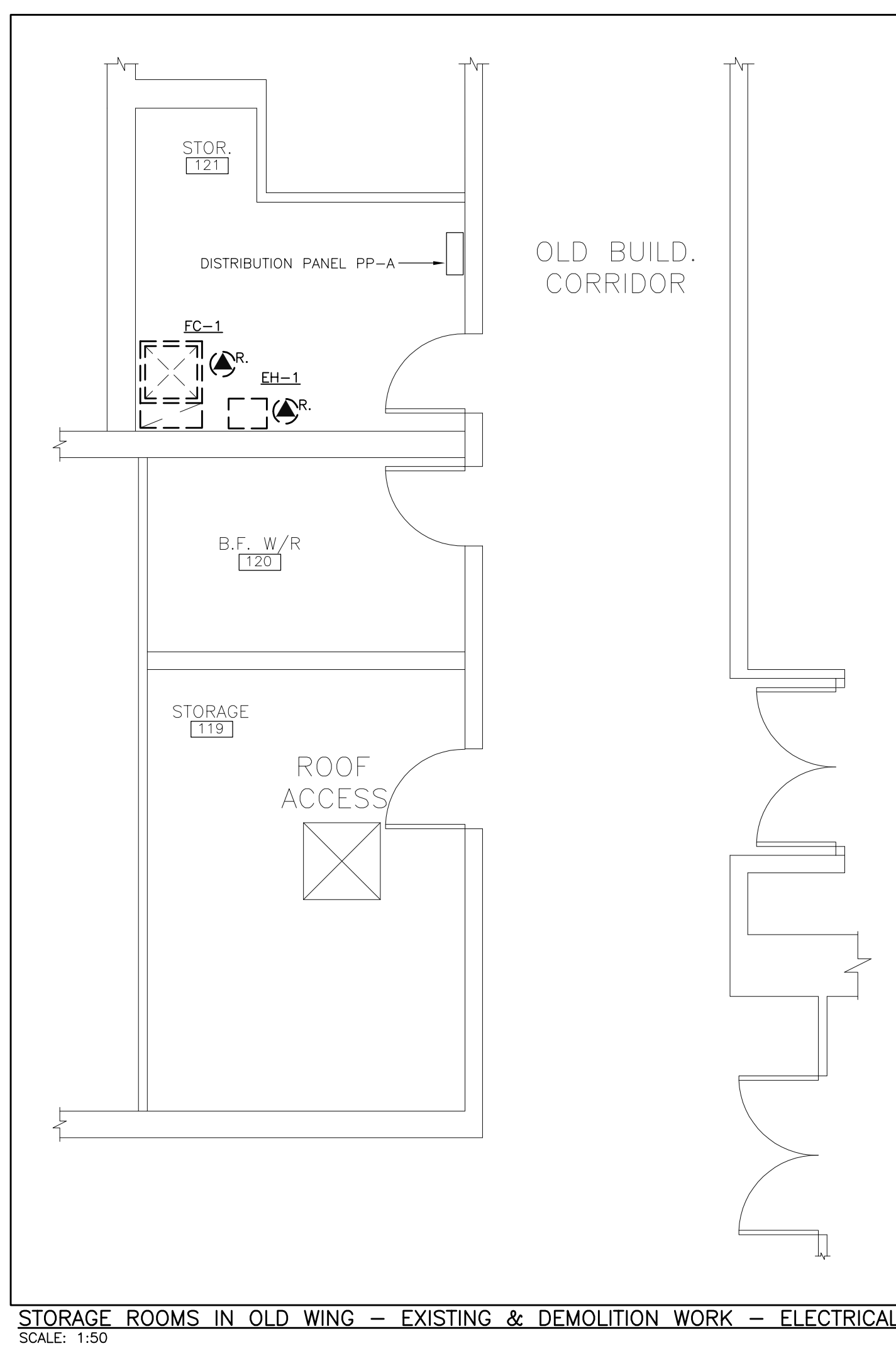
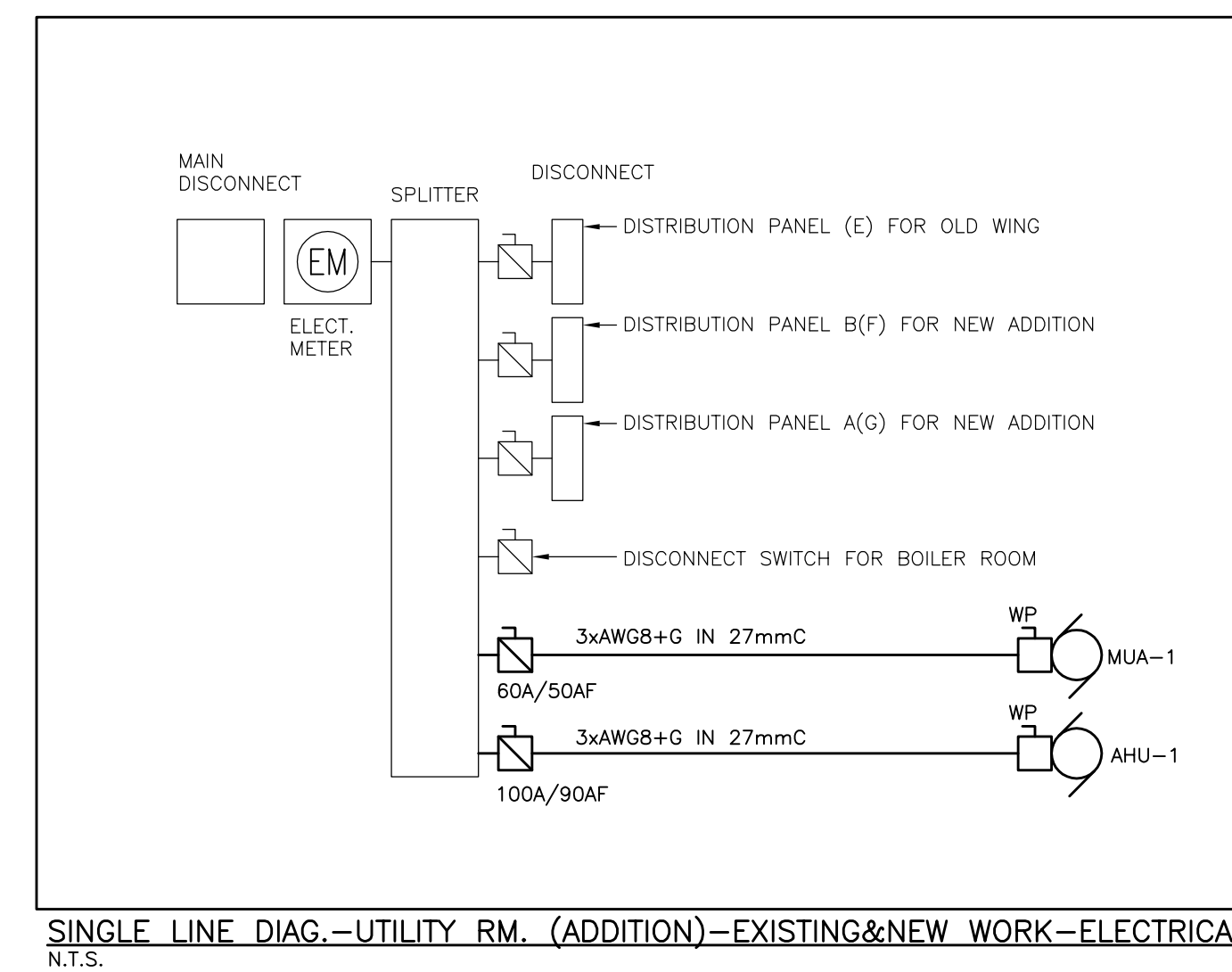
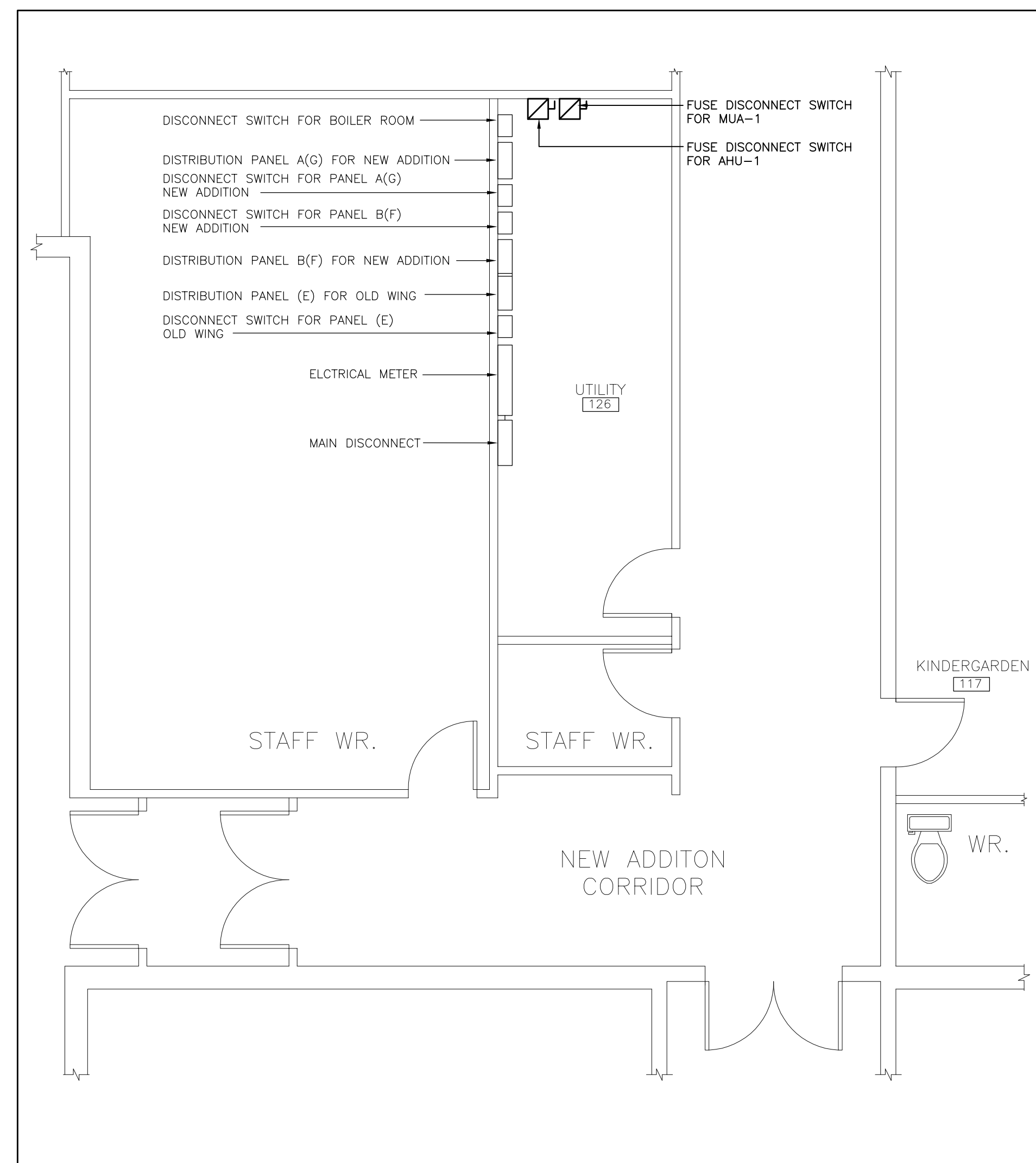
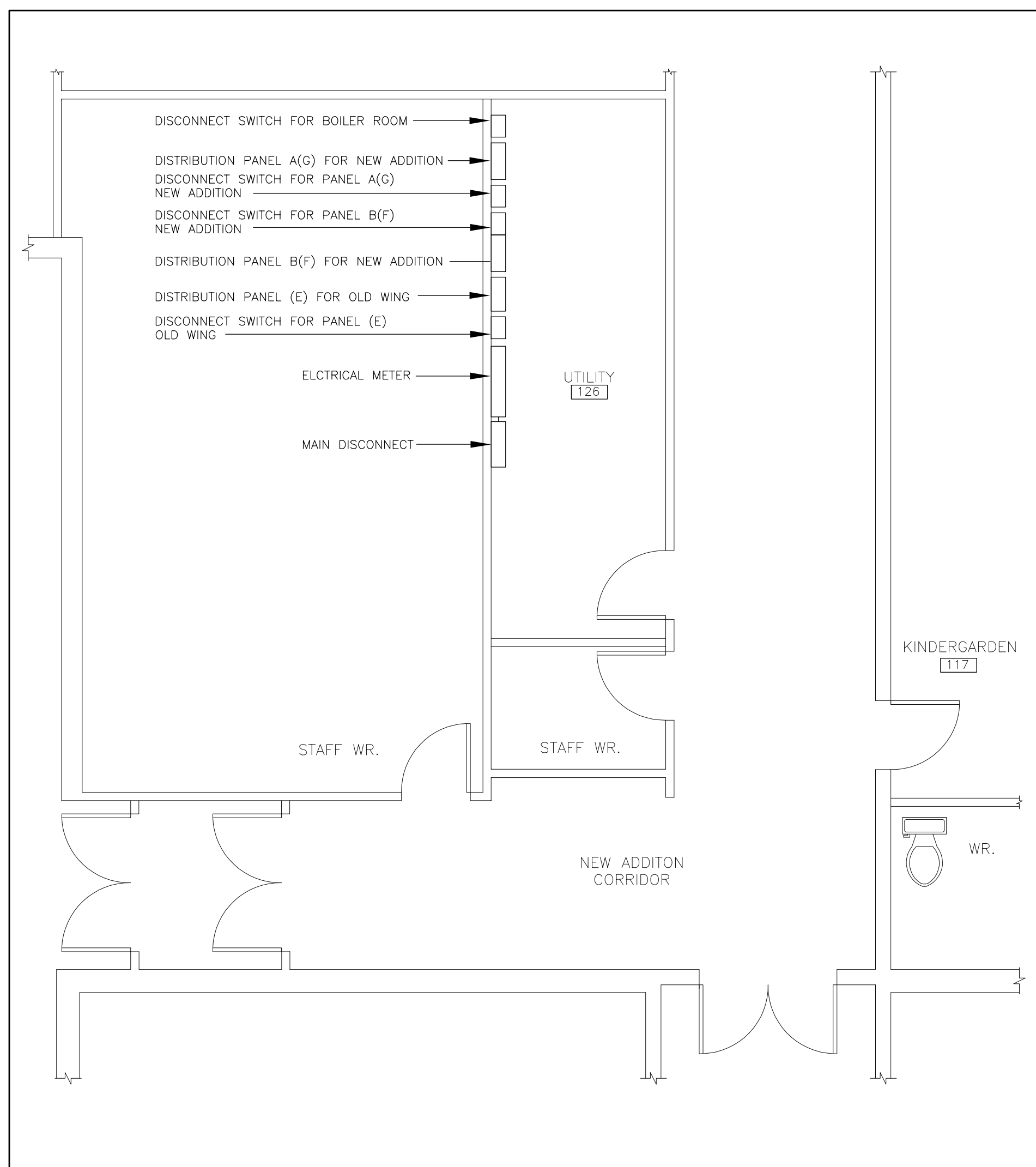
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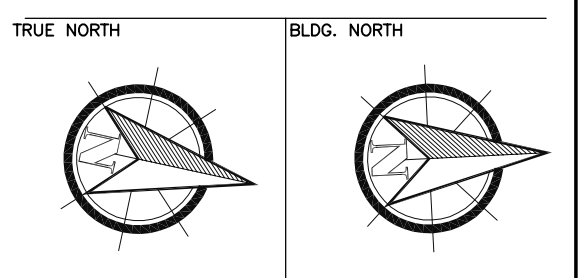
DB No. 2021-49



PANEL 'PP-A'		TYPE:		MOUNTING: SURFACE		
208/120V, 3PH, 4W		MAINS BKR: - A		LOCATION: BOILER RM		
WATTS	DESCRIPTION	PROT.	CIRCUITS	PROT.	DESCRIPTION	WATTS
	SPARE	-	1	2	SPARE	
	SPARE	-	3	4	CORRIDOR LIGHTS	
	KINDERGARTEN	-	5	6	LIGHTS RM 106	
	LIGHTS KINDERGARTEN	-	7	8	LIGHTS KINDERGARTEN	
	GYM LIGHTS	-	9	10	GYM LIGHTS	
	GYM LIGHTS	-	11	12	GYM LIGHTS	
	GYM LIGHTS	-	13	14	EXT. LIGHTS ON TIMER	
	RECPT. CLASS RM #1	-	15	16	SPARE	
	RECPT. KINDERGRT/CLOCK	-	17	18	RECPT. COPY ROOM	
	RECPT. GYM EAST SIDE	-	19	20	RECPT. GYM TIME CLOCK	
REPLACE EXISTING BREAKER WITH 20A	EXHAUST FAN GYM	-	21	22	EXHAUST FAN GYM	REUSE EXISTING BREAKER FOR NEW EXHAUST FAN (EF-4)
	UNIT HEATER NE CORR.	-	23	24	LIGHTS KINDER. BLACK B.	
	RECPT. GYM SOUTH END	-	25	26	RECPT. CORRIDOR	
	RECPT. CORRIDOR	-	27	28	SPARE	
	OUTSIDE OFFICE	-	29	30	SPARE	
	SPARE	-	31	32	SPARE	
			33	34	SPARE	
REUSE EXISTING BREAKER FOR NEW CONDENSING UNIT (CU-1)	ROOF TOP UNIT	30	35	36	SPARE	
		3P	37	38	SPARE	
	SPARE	-	39	40	SPARE	
	SPARE	-	41	42	SPARE	
	SPARE	-	43	44	SPARE	
	RECPT. RM 120	-	45	46	SPARE	
	RECPT. RM 120	-	47	48	15 AIR HANDLER	REMOVE EXISTING BREAKER.
	HOT WATER	-	49	50	2P	
	RECPT. RM 120	-	51	52	20 HRV UNIT FRESH AIR	REUSE EXISTING BREAKER FOR NEW FAN COIL UNIT (FC-1)
	LIGHTS RM 120	-	53	54	2P	

DETAILS OF EL. PANEL IN STOR. ROOM 121- EXISTING, DEMOLITION & NEW WORK - ELECTRICAL

N.T.S.

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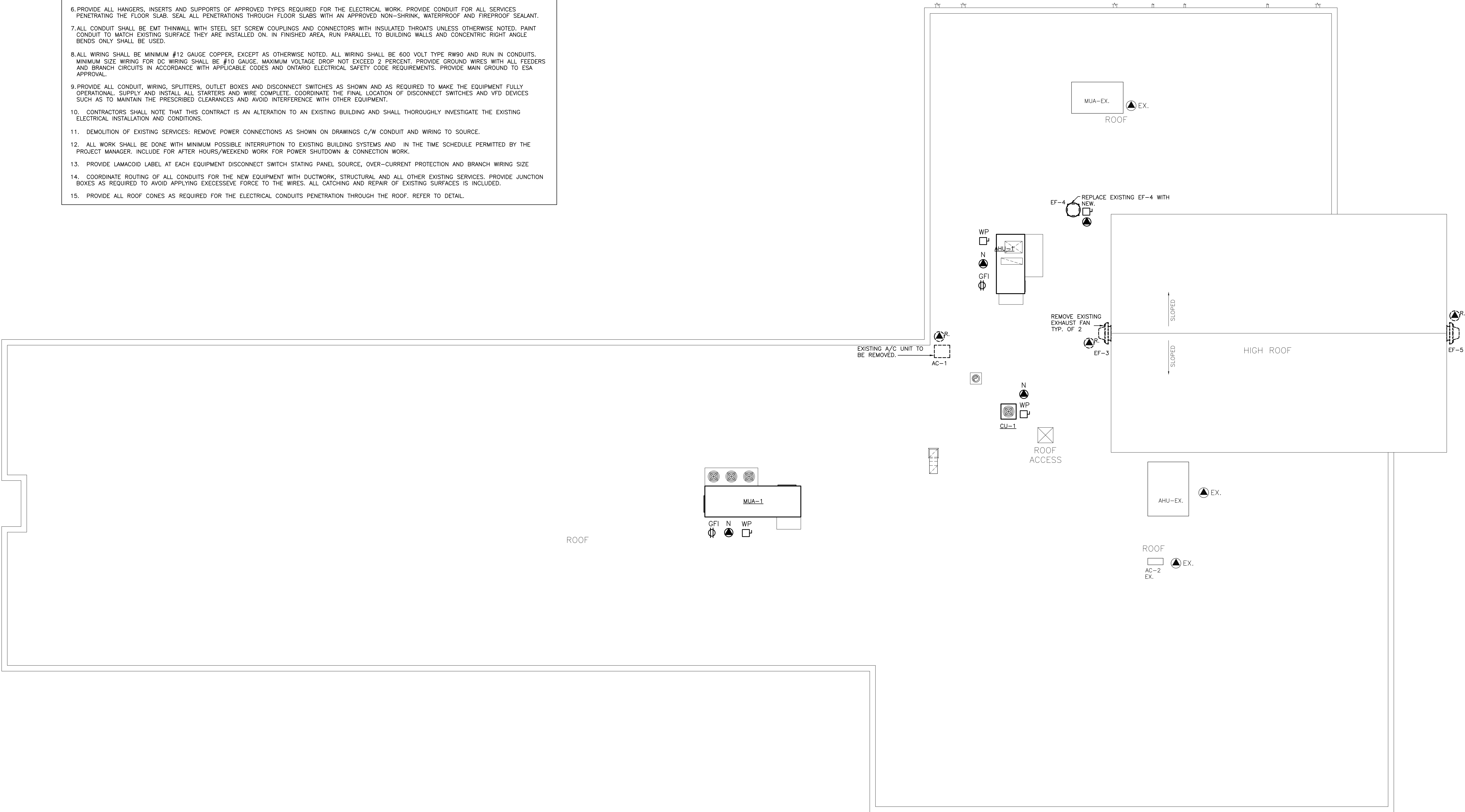
GROUND FLOOR – EXISTING,
DEMOLITION AND NEW WORK
– ELECTRICAL

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MAY/2021	1:100

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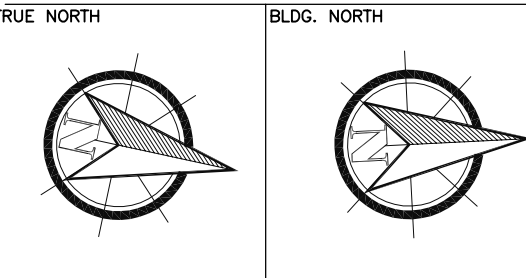
JOB No. 2021-49

1. OBTAIN ALL APPROVALS FROM PUBLIC AUTHORITIES HAVING JURISDICTION, BEFORE COMMENCING WORK AND PAY ALL ASSOCIATED INSPECTION FEES AND ALL PERMITS.
2. EXAMINE ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONDITIONS AND AVAILABLE DRAWINGS BEFORE PROCEEDING WITH THE WORK. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS MUST BE REFEREED TO THE CONSULTANT BEFORE ANY AFFECTED WORK IS COMMENCED.
3. ALL CUTTING AND PATCHING REQUIRED FOR THE ELECTRICAL WORK SHALL BE INCLUDED. NO CHASING BLOCKWORK WILL BE ALLOWED. PROVIDE FIRE-STOPPING TO SUIT FT RATING OF THE FLOOR OR WALL PENETRATION TO SUIT. MAKE GOOD ALL BUILDING ELEMENTS AFFECTED BY THIS WORK TO THEIR ORIGINAL CONDITION OR BETTER.
4. ALL MATERIAL USED THROUGHOUT SHALL BE NEW, OF BEST QUALITY CSA APPROVED AND OF ONE MANUFACTURE.
5. PROVIDE ALL CONDUIT, WIRING, BOXES, SWITCHES, OUTLETS, DEVICES, ETC., AS REQUIRED. MAKE FINAL CONNECTIONS TO VIBRATING EQUIPMENT WITH LIQUID TIGHT FLEXIBLE CONDUIT. ALSO REFER TO SECTION 15241.
6. PROVIDE ALL HANGERS, INSERTS AND SUPPORTS OF APPROVED TYPES REQUIRED FOR THE ELECTRICAL WORK. PROVIDE CONDUIT FOR ALL SERVICES PENETRATING THE FLOOR SLAB. SEAL ALL PENETRATIONS THROUGH FLOOR SLABS WITH AN APPROVED NON-SHRINK, WATERPROOF AND FIREPROOF SEALANT.
7. ALL CONDUIT SHALL BE EMT THINWALL WITH STEEL SET SCREW COUPLINGS AND CONNECTORS WITH INSULATED THROATS UNLESS OTHERWISE NOTED. PAINT CONDUIT TO MATCH EXISTING SURFACE THEY ARE INSTALLED ON. IN FINISHED AREA, RUN PARALLEL TO BUILDING WALLS AND CONCENTRIC RIGHT ANGLE BENDS ONLY SHALL BE USED.
8. ALL WIRING SHALL BE MINIMUM #12 GAUGE COPPER, EXCEPT AS OTHERWISE NOTED. ALL WIRING SHALL BE 600 VOLT TYPE RW90 AND RUN IN CONDUITS. MINIMUM SIZE WIRING FOR DC WIRING SHALL BE #10 GAUGE. MAXIMUM VOLTAGE DROP NOT EXCEED 2 PERCENT. PROVIDE GROUND WIRES WITH ALL FEEDERS AND BRANCH CIRCUITS IN ACCORDANCE WITH APPLICABLE CODES AND ONTARIO ELECTRICAL SAFETY CODE REQUIREMENTS. PROVIDE MAIN GROUND TO ESA APPROVAL.
9. PROVIDE ALL CONDUIT, WIRING, SPLITTERS, OUTLET BOXES AND DISCONNECT SWITCHES AS SHOWN AND AS REQUIRED TO MAKE THE EQUIPMENT FULLY OPERATIONAL. SUPPLY AND INSTALL ALL STARTERS AND WIRE COMPLETE. COORDINATE THE FINAL LOCATION OF DISCONNECT SWITCHES AND VFD DEVICES SUCH AS TO MAINTAIN THE PRESCRIBED CLEARANCES AND AVOID INTERFERENCE WITH OTHER EQUIPMENT.
10. CONTRACTORS SHALL NOTE THAT THIS CONTRACT IS AN ALTERATION TO AN EXISTING BUILDING AND SHALL THOROUGHLY INVESTIGATE THE EXISTING ELECTRICAL INSTALLATION AND CONDITIONS.
11. DEMOLITION OF EXISTING SERVICES: REMOVE POWER CONNECTIONS AS SHOWN ON DRAWINGS C/W CONDUIT AND WIRING TO SOURCE.
12. ALL WORK SHALL BE DONE WITH MINIMUM POSSIBLE INTERRUPTION TO EXISTING BUILDING SYSTEMS AND IN THE TIME SCHEDULE PERMITTED BY THE PROJECT MANAGER. INCLUDE FOR AFTER HOURS/WEEKEND WORK FOR POWER SHUTDOWN & CONNECTION WORK.
13. PROVIDE LAMACOID LABEL AT EACH EQUIPMENT DISCONNECT SWITCH STATING PANEL SOURCE, OVER-CURRENT PROTECTION AND BRANCH WIRING SIZE
14. COORDINATE ROUTING OF ALL CONDUITS FOR THE NEW EQUIPMENT WITH DUCTWORK, STRUCTURAL AND ALL OTHER EXISTING SERVICES. PROVIDE JUNCTION BOXES AS REQUIRED TO AVOID APPLYING EXCESSEVE FORCE TO THE WIRES. ALL CATCHING AND REPAIR OF EXISTING SURFACES IS INCLUDED.
15. PROVIDE ALL ROOF CONES AS REQUIRED FOR THE ELECTRICAL CONDUITS PENETRATION THROUGH THE ROOF. REFER TO DETAIL.



1	MAY, 2021	ISSUED FOR TENDER
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GENERAL NOTES :

CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THE ENGINEER SHALL BE INFORMED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS. DO NOT SCALE DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE PROCEEDING WITH FABRICATION. THIS DRAWING IS THE PROPERTY OF SAB ENGINEERING INC. AND SHALL NOT BE REPRODUCED WITHOUT THEIR PERMISSION AND UNLESS THE REPRODUCTION CARRIES THEIR NAME. ALL INFORMATION SHOWN ON THIS DRAWING IS FOR USE ON THE SPECIFIED PROJECT ONLY AND SHALL NOT BE USED OTHERWISE WITHOUT WRITTEN PERMISSION OF SAB ENGINEERING INC.

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DRAWING TITLE
**ROOF – EXISTING, DEMOLITION
AND NEW WORK – ELECTRICAL**

DATE
MAY/2021

SCALE
1:100

DRAWN BY
P.C.

DWG. No.
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JOB No.
2021-49