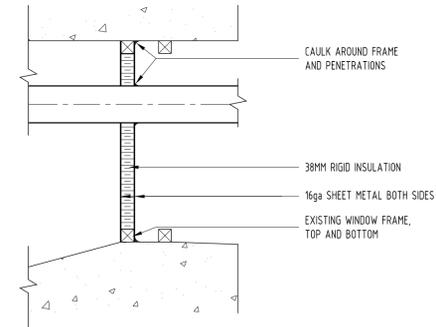
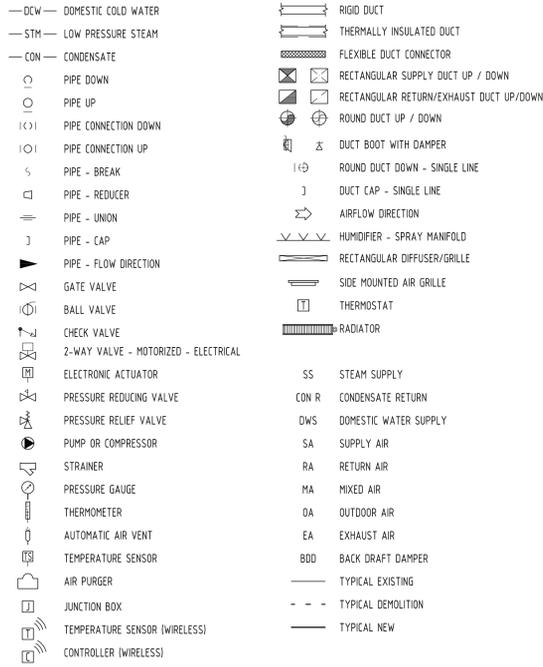
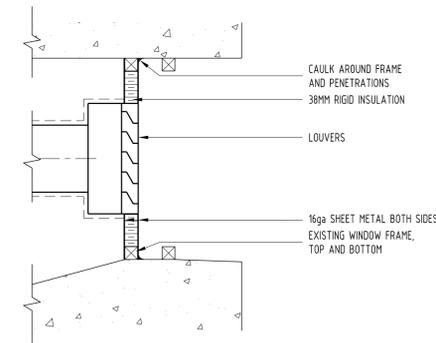


**MECHANICAL LEGEND**



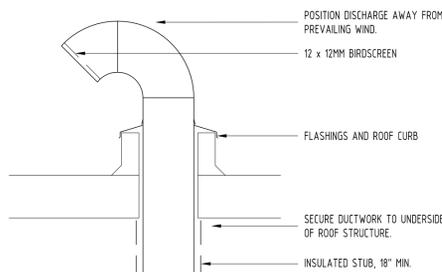
**1** M1 NTS  
**DETAIL - PIPE PENETRATION IN WINDOW**



**2** M1 NTS  
**DETAIL - LOUVER PENETRATION IN WINDOW**

**MAJOR EQUIPMENT TABLE**

EQUIP. REF	SPECIFICATIONS	NOTES
FCU-1 FCU-2	FAN COIL UNITS TYPE: REMOTE AIR-COOLED INDOOR SELF-CONTAINED VERTICAL SYSTEM TOTAL COOLING CAPACITY: 24.5 KW SENSIBLE COOLING CAPACITY: 19.5 KW RATED EVAPORATOR EAT: 26.2°C DB/19.5°C WB RATED AIRFLOW: 1650 L/S AT 75 PA (185 RPM) UNIT DIMENSIONS WxHxD: 1349x1184x725mm (53.1x46.6"x29.0") ELECTRICAL: 600V / 3 PH / 60 HZ FAN COIL UNIT COMPLETE WITH INTERNAL RE-HEAT (17 KW) FILTERS: MERV 13	NEW CONTRACTOR IS TO PROVIDE.
C-1 C-2	CONDENSORS (MATCHED TO FAN COIL UNIT) TYPE: INDOOR AIR-COOLED UNIT SERVING FAN COIL UNIT NUMBER OF CONDENSER FANS: 2 RATED CONDENSER EAT: 35°C DB ELECTRICAL: 600V / 3 PH / 60 HZ UNIT DIMENSIONS WxHxD: 1349x1184x725mm (53.1x46.6"x29.0")	NEW CONTRACTOR IS TO PROVIDE.
B-1 B-2	HOT WATER CONDENSING BOILERS OUTPUT KW: 103KW FUEL: NATURAL GAS, 14" W.C. NOMINAL HEAT INPUT / OUTPUT: 103 KW / 96.4 KW ENTERING / LEAVING WATER TEMPERATURE: 140°C / 165°C HYDRONIC FLOW: 150 LPS OPERATING WEIGHT: 88 Kg	NEW CONTRACTOR IS TO PROVIDE.
ET-1	HORIZONTAL EXPANSION TANK ASME RATED FOR 125 PSI MAX STEEL TANK WITH FLEXIBLE DIAPHRAM 75.7 LITERS MINIMUM EXPANSION VOLUME	NEW CONTRACTOR IS TO PROVIDE.
HUM-1A HUM-1B	CAPACITY: STEAM/ HR: 9.1 KG/HR MIN WATER PRESSURE: 207 KPA MAX WATER PRESSURE: 552 KPA ELECTRIC: 600V / 3 PH / 60 HZ / 7.60 KW	NEW CONTRACTOR IS TO PROVIDE.
HUM-2A HUM-2B	CAPACITY: STEAM/ HR: 4.5 KG/HR MIN WATER PRESSURE: 207 KPA MAX WATER PRESSURE: 552 KPA ELECTRIC: 600V / 3 PH / 60 HZ / 3.80 KW	NEW CONTRACTOR IS TO PROVIDE.
P-1A P-1B	CIRCULATION PUMPS SERVICE: HEATING WATER TYPE: IN-LINE CAPACITY: LPS: 1.77 L/S (28 GPM) HEAD: 10.7 M (35 FT) W.C. ELECTRICAL: 230V / 1 PH / 60 HZ / 7.5 AMPS, RPM: 1800	NEW CONTRACTOR IS TO PROVIDE.
ERV-1	ENERGY RECOVERY VENTILATOR ENTHALPY WHEEL DESIGN WITH ON BOARD CONTROLS AND CO2 ACCESSORY CONTROL CAPACITY: 235 L/S AT 75 PA ESP ELECTRICAL: 120 V / 1 PH / 60 HZ / MCC = 8.9, MDP = 12.0, FLA = 8.0 UNIT DIMENSIONS WxHxD: 894x324x38mm (35"x17.25"x17")	NEW CONTRACTOR IS TO PROVIDE.
ERV-2	ENERGY RECOVERY VENTILATOR ENTHALPY WHEEL DESIGN WITH ON BOARD CONTROLS AND CO2 ACCESSORY CONTROL CAPACITY: 87 L/S AT 75 PA ESP ELECTRICAL: 120 V / 1 PH / 60 HZ / 230 WATTS UNIT DIMENSIONS WxHxD: 1250x604x550mm (50"x24"x22")	NEW CONTRACTOR IS TO PROVIDE.
PZ-1 PZ-2 PZ-3 PZ-4	CIRCULATION PUMPS SERVICE: HEATING WATER (RISERS/ZONES) TYPE: IN-LINE, WET ROTOR ELECTRICAL: 115 V / 1 PH / 60 HZ / 6.0 AMPS (MAX), 20-500W, REGULATION RPM MANUFACTURER'S NAME AND MODEL NO.: TACO VIRIDIAN VRTS OR GRUNDFOS OR BELL AND GOSSETT	NEW CONTRACTOR IS TO PROVIDE.
EC-1 EC-2	ELECTRIC HEATING COILS EQUIPMENT SERVED: FCU-1, FCU-2 ENTERING / LEAVING AIR TEMPERATURE: 13°C / 21°C MAXIMUM PRESSURE DROP: 0.1 KPA ELECTRICAL: 600 V / 3 PH / 60 HZ NUMBER OF CONTROL STEPS: SCR CONTROL	NEW CONTRACTOR IS TO PROVIDE.



**3** M1 NTS  
**DETAIL - DUCT PENETRATION IN ROOF**

**SCOPE OF WORK**

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:  
 A) MECHANICAL DRAWINGS 45350018 M1 THROUGH M7  
 B) SPECIFICATION PACKAGE AS 45350018, AND  
 C) ALL APPLICABLE CODES, BYLAWS AND BEST-RECOMMENDED PRACTICES

FOR THE PURPOSES OF THIS PROJECT, 'PROVIDE' SHALL MEAN TO SUPPLY AND INSTALL

FOR THE PURPOSES OF THIS PROJECT, 'DEMOLISH' SHALL MEAN MATERIALS AND EQUIPMENT ARE TO BE REMOVED FROM THEIR INSTALLED LOCATION AND DISPOSED OF. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF GARBAGE IN ACCORDANCE WITH CODES, STANDARDS AND REGULATIONS, AND PROVIDE HIS OWN WASTE REMOVAL SERVICES.

WHERE MATERIALS AND EQUIPMENT ARE IDENTIFIED AS 'SALVAGE', THEY SHALL BE REMOVED FROM THEIR INSTALLED LOCATION WITHOUT DAMAGE AND HANDED TO THE OWNER AT THE DESIGNATED DROP LOCATION WITHIN THE FACILITY.

MAKE PRIOR ARRANGEMENTS AND CAREFULLY PLAN THE DISCONNECTING AND SHUT-DOWN OF ANY EQUIPMENT WITH OWNERS' FACILITIES DEPARTMENT. GIVE MINIMUM 48 HRS NOTICE OF ANY SHUT-DOWN.

IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO CAREFULLY COORDINATE HIS WORK WITH THAT OF OWNER'S STAFF FOR THE BEST SUCCESS OF THIS PROJECT.

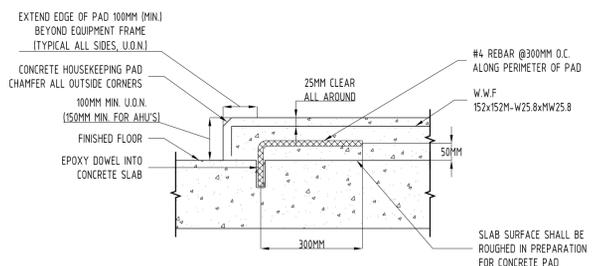
CONTRACTOR TO:  
 A. FAMILIARIZE THEMSELVES WITH THE PROJECT SITE AND REPORT ANY DISCREPANCIES OR SITE CONDITIONS WHICH MAY AFFECT WORK TO CONSULTANT PRIOR TO COMMENCING WORK. IF DISCREPANCIES ARE NOT IDENTIFIED PRIOR TO COMMENCING WORK, CONTRACTOR RESPONSIBLE FOR IMPLEMENTING WORKS PER CONSULTANTS DIRECTION.  
 B. VERIFY EQUIPMENT ROUTING.  
 C. VERIFY ALL DIMENSIONS PRIOR TO EQUIPMENT PURCHASE.  
 D. VERIFY ALL EXISTING DAMPERS AND CONTROLS ARE IN PLACE.  
 E. PROTECT BUILDING STRUCTURE FROM DAMAGE.  
 F. ENSURE ADJACENT AREAS ARE NOT AFFECTED BY ANY WORK ON THIS PROJECT.  
 G. SUBMIT SHOP DRAWINGS OF EQUIPMENT FOR APPROVAL BY THE ENGINEER PRIOR TO COMMENCING ANY WORK OR ORDERING OF ANY EQUIPMENT.  
 H. OBTAIN RELATED PERMITS TO CARRY OUT THE WORK OF THIS PROJECT.

FURNISH SEISMIC RESTRAINT OF MECHANICAL SYSTEMS IN CONFORMANCE WITH THE ONTARIO BUILDING CODE'S (OBC'S) REQUIREMENTS. ENGAGE A LICENSED STRUCTURAL ENGINEER, WHO PRACTICES UNDER A VALID CERTIFICATE OF AUTHORIZATION ISSUED BY PROFESSIONAL ENGINEERS OF ONTARIO (PEO). PROVIDE WRITTEN CONFIRMATION (SIGNED AND STAMPED) THAT NEW MECHANICAL WORK HAS BEEN COMPLETED IN GENERAL COMPLIANCE WITH THE OBC'S SEISMIC REQUIREMENTS.  
 CONTRACTOR TO CREATE AND UPDATE A DAILY DETAILED PLAN OF THE AREAS OF WORK AND PROVIDE AHEAD OF CONSTRUCTION TO DEPARTMENTAL REPRESENTATIVE TO ALLOW FOR MOVEMENT OF HISTORICAL OBJECTS THROUGHOUT HOUSE.

THE INTENT OF THIS PROJECT IS TO UPGRADE THE HVAC SYSTEMS IN THE LAURIER HOUSE.

THE NUMBERS INSIDE HEXAGONS SHOWN ON THE PLANS REFER TO THE NUMBERED POINTS BELOW. NOT ALL POINTS ARE SHOWN ON THE PLANS.

- CONTRACTOR TO CREATE AND UPDATE A DAILY DETAILED PLAN OF THE AREAS OF WORK AND PROVIDE AHEAD OF CONSTRUCTION TO DEPARTMENTAL REPRESENTATIVE TO ALLOW FOR MOVEMENT OF HISTORICAL OBJECTS THROUGHOUT HOUSE.
- DEMOLISH EXISTING FAN COIL UNITS, FCU-1 AND FCU-2, DUCT HEATERS AND DUCTWORK TO POINTS SHOWN. DEMOLISH HOUSEKEEPING PAD USED FOR FCU-1.
- DEMOLISH EXISTING HUMIDIFIERS, H-1, H-2, H-3 AND H-4. DEMOLISH ALL CONNECTIONS INCLUDING DOMESTIC WATER AND CONDENSATE AS NEEDED TO INSTALL NEW HUMIDIFIERS. DEMOLISH STEAM SUPPLY AND RETURN PIPEWORK AND DISPERSION TUBES.
- DEMOLISH EXISTING AIR COOLED CONDENSER, C-1. DEMOLISH SUPPLY AND RETURN DUCTWORK NEEDED FOR NEW INSTALLATION. RECLAIM REFRIGERANT FROM EQUIPMENT AND ASSOCIATED PIPING. RECLAIM IN ACCORDANCE WITH ALL LOCAL CODES. A RECORD OF WHICH SHALL BE SUBMITTED STATING THE DISPOSAL SITE, METHOD OF DISPOSAL AND VOLUME. ALL FORMS FOR REPORTING WILL BE SUPPLIED BY PARKS CANADA.
- DEMOLISH REFRIGERANT PIPEWORK SERVING FCU-1, FCU-2 AND C-1.
- DEMOLISH EXISTING BOILERS, B-1 AND B-2. DEMOLISH SUPPLY AND RETURN PIPEWORK, CONDENSATE AND NATURAL GAS BACK TO POINTS INDICATED. DEMOLISH BOILER EXHAUST DUCTWORK BACK TO WALL AND CAP.
- DEMOLISH FRESH AIR DUCTWORK AND FAN POWERED BOX, FRB. CAP, PATCH, PAINT AND REPAIR PENETRATIONS AT INTERIOR WALLS. BLANK OFF AND INSULATE LOUVER AT EXTERIOR WALL.
- DEMOLISH EXISTING EXPANSION TANK INCLUDING ALL PIPING, VALVES AND SPECIALTIES AS INDICATED.
- DEMOLISH EXISTING CIRCULATING PUMPS, P-1 AND P-2.
- PROVIDE NEW HOT WATER CONDENSING BOILERS, B-1 AND B-2. INSTALL ON EXISTING HOUSEKEEPING PAD. PROVIDE ALL PIPEWORK, VALVES AND SPECIALTIES REQUIRED TO MAKE CONNECTIONS TO EXISTING SUPPLY AND RETURN PIPEWORK, CONDENSATE AND NATURAL GAS PIPING AS SHOWN.
- PROVIDE NEW DIRECT VENTING EXHAUST PIPEWORK FOR B-1 AND B-2. PROVIDE SUPPORTS AND BRACING AS REQUIRED. TERMINATE VENT PIPING PER ALL CODES AND STANDARDS. PROVIDE ALL PIPE LENGTHS, REQUIRED OFFSETS, FLANGES, ADAPTERS AND TERMINATIONS, REQUIRED FOR COMPLETE INSTALLATION. EXISTING WINDOWS, SCREENS AND STORM WINDOWS TO BE REMOVED BY DEPARTMENTAL REPRESENTATIVE. PROVIDE NEW INSULATED SPANDREL PANEL (COLOUR BY OWNER) IN PLACE OF TERMINATE VENT PIPING THROUGH SPANDREL PANEL. EXTERIOR VENT PIPING TO BE PAINTED TO MATCH EXTERIOR OF BUILDING. REMOVAL OF WINDOW TO BE MONITORED BY DEPARTMENTAL REPRESENTATIVE - COORDINATE THE SCHEDULE FOR THIS WORK WITH DEPARTMENTAL REPRESENTATIVE.
- PROVIDE NEW BOILER CIRCULATION PUMPS, P-1A AND P-1B. PROVIDE SUPPORTS FOR NEW PUMPS SUCH THAT NO WEIGHT IS BOURNE BY THE HEATING WATER PIPING. PROVIDE ALL MODIFICATIONS OF PIPEWORK AS REQUIRED.
- PROVIDE NEW EXPANSION TANK, ET-1 AND AIR SEPARATOR. PROVIDE NEW BACKFLOW PREVENTER AND CONNECT NEW EXPANSION TANK AND ASSEMBLY INTO THE EXISTING DOMESTIC WATER CONNECTION. PROVIDE ALL PIPEWORK AS REQUIRED TO CONNECT BACK TO EXISTING SYSTEM. CHARGE EXPANSION TANK AND HEATING WATER SYSTEM TO THE VALUES INDICATED.
- PROVIDE NEW ZONE PUMP TO EACH CIRCUIT SERVING THIRD FLOOR RADIATORS. THROUGH DIRECT TESTING, CONTRACTOR TO IDENTIFY CIRCUITS AND PROVIDE CIRCULATING PUMP ON SUPPLY PIPEWORK LOCATED IN BASEMENT THAT FEEDS ZONE. ALLOW FOR THREE (3) CIRCULATING PUMPS AND ADJUST PUMP SPEED FOR BEST HYDRONIC PERFORMANCE.
- PROVIDE NEW AIR COOLED CONDENSERS, C-1 AND C-2. PROVIDE NEW TRANSITION DUCTWORK TO CONNECT TO EXISTING SUPPLY AND RETURN DUCTWORK. PROVIDE FLEXIBLE CONNECTIONS, MOTORIZED CONTROL DAMPERS AND BACK DRAFT DAMPERS AS INDICATED. MODIFY HOUSEKEEPING PAD AS REQUIRED FOR NEW UNITS.
- PROVIDE NEW FAN COIL UNIT FC-1 IN BASEMENT. PROVIDE ALL DUCTWORK AND ACCESS DOORS AS REQUIRED TO CONNECT NEW DUCTWORK TO EXISTING CONNECTIONS AS SHOWN. PROVIDE NEW HOUSEKEEPING PAD. PROVIDE CONNECTION OF CONDENSATE TO NEAREST DRAIN. PROVIDE NEW FILTER BANK IN SUPPLY DUCTWORK.
- PROVIDE NEW ENERGY RECOVERY VENTILATOR, ERV-1. PROVIDE ALL DUCTWORK AS SHOWN.
- EXISTING WINDOWS, SCREENS AND STORM WINDOWS TO BE REMOVED BY DEPARTMENTAL REPRESENTATIVE. PROVIDE NEW INSULATED SPANDREL PANEL (COLOUR BY OWNER) AND EXHAUST LOUVER (COLOUR BY OWNER) IN PLACE OF. PROVIDE MODIFICATIONS TO SECURITY BARS AS REQUIRED. TERMINATE ERV-1 EXHAUST AT LOUVER. REMOVAL OF WINDOW AND MODIFICATIONS TO THE SECURITY BARS TO BE MONITORED BY DEPARTMENTAL REPRESENTATIVE - COORDINATE THE SCHEDULE FOR THIS WORK WITH DEPARTMENTAL REPRESENTATIVE.
- PROVIDE NEW HUMIDIFIERS, HUM-1A AND HUM-1B. CONNECT TO EXISTING DOMESTIC WATER AND CONDENSATE CONNECTIONS. PROVIDE NEW STEAM SUPPLY AND RETURN PIPEWORK AND DISPERSION TUBE.
- PROVIDE NEW REFRIGERANT PIPEWORK BETWEEN C-1 AND FCU-1 AS INDICATED.
- PROVIDE NEW FAN COIL UNIT FC-2 IN THIRD FLOOR MECHANICAL ROOM. PROVIDE ALL DUCTWORK AND ACCESS DOORS AS REQUIRED TO CONNECT NEW DUCTWORK TO EXISTING CONNECTIONS AS SHOWN.
- PROVIDE NEW HUMIDIFIERS, HUM-2A AND HUM-2B. CONNECT TO EXISTING DOMESTIC WATER AND CONDENSATE CONNECTIONS. PROVIDE NEW STEAM SUPPLY AND RETURN PIPEWORK AND DISPERSION TUBE.
- PROVIDE NEW REFRIGERANT PIPEWORK BETWEEN C-2 AND FCU-2. FOLLOW EXISTING ROUTE OF PIPEWORK. ROUTE TO FCU-2 WILL NECESSITATE ACCESS TO WITHIN FURRED OUT WALL. ALL OPENINGS AND WORK DONE TO FURRED OUT WALL IS TO BE MONITORED BY DEPARTMENTAL REPRESENTATIVE - COORDINATE THE SCHEDULE FOR THIS WORK WITH DEPARTMENTAL REPRESENTATIVE. EXISTING REFRIGERANT PIPEWORK LOCATED BEHIND WALLS FROM BASEMENT UP TO THIRD FLOOR CAN BE REUSED TO LIMIT INVASIVE WORK IF WRITTEN VERIFICATION CAN BE GIVEN THAT THE PIPING SIZE IS ADEQUATE, THE INTEGRITY OF THE PIPE IS PROVEN TO BE ACCEPTABLE FOR REUSE AND THE PIPES CAN BE CLEANED AND FLUSHED OUT TO AN ACCEPTED LEVEL FOR REUSE. ALSO, IF THE EXISTING PIPEWORK IS REUSED IT WILL HAVE TO BE INCLUDED IN THE NEW WARRANTY.
- PROVIDE NEW ENERGY RECOVERY VENTILATOR, ERV-2. PROVIDE ALL DUCTWORK AS SHOWN. PROVIDE QUALIFIED ROOFING CONTRACTOR TO CARRY OUT ROOFING MODIFICATIONS NECESSARY FOR NEW ROOF PENETRATION. PROVIDE NEW EXHAUST DUCTWORK WITH GOOSENECK. ROOFING CONTRACTOR SHALL EMPLOY METHODS AND MATERIALS TO MATCH EXISTING ROOFING.
- PROVIDE FULL DUCTWORK CLEANING OF ALL SUPPLY AND RETURN DUCTS THROUGHOUT THE HOUSE. REMOVE GRILLES AND CLEAN.
- DEMOLISH EXISTING RADIATOR CONTROL VALVES AND THERMOSTATS THROUGHOUT BUILDING.
- PROVIDE NEW RADIATOR CONTROL VALVES AND ROOM SENSORS CONNECTED TO NEW EMCS SYSTEM. PROVIDE NEW WIRELESS CONTROLLER TO BE LOCATED IN SAME LOCATION AS EXISTING TRANSFORMERS.
- PROVIDE NEW ENERGY MANAGEMENT AND CONTROL SYSTEM (EMCS). PROVIDE ALL WIRING, CONDUIT AND PROGRAMMING REQUIRED TO SET-UP NEW EMCS CONTROL SYSTEM WITH ALL CONTROL POINTS, END DEVICES AND ALL OTHER CONTROLS EQUIPMENT LISTED ON DRAWINGS AND PER SEQUENCE OF OPERATIONS. LOCATE MAIN CONTROL IN THIRD FLOOR MECHANICAL ROOM.
- UPON COMPLETION OF PROJECT, PROVIDE CHEMICAL TREATMENT AS FOLLOWS: PROVIDE THE SERVICES OF WATER TREATMENT PROFESSIONAL TO SET-UP AND INITIATE THE WATER TREATMENT FOR THIS SYSTEM. PROVIDE A WATER TREATMENT TECHNICIAN AFTER ONE WEEK OF OPERATION TO TEST SOLUTION AND ADJUST SYSTEM FOR BEST LONG-TERM PERFORMANCE.
- PROVIDE IDENTIFICATION AND INSULATION PER SPECIFICATIONS.
- CLEAN AREA OF ANY DEBRIS CREATED DURING THE WORK OF THIS PROJECT.
- PROVIDE MINIMUM 10 HOURS OF SITE INSTRUCTION TO OWNER'S STAFF ON OPERATION AND MAINTENANCE OF NEW AND ALTERED SYSTEMS.
- IMMEDIATELY FOLLOWING CONSTRUCTION COMPLETION, PROVIDE ALL LABOUR AND MATERIALS REQUIRED TO COMMISSION ALL THE ALTERED AND NEW EQUIPMENT. COMMISSIONING SHALL ONLY BE CARRIED OUT IN THE PRESENCE OF PARKS CANADA'S FACILITIES DEPARTMENT.
- THE INTENT OF THE COMMISSIONING PROCESS IS TO VERIFY THAT THE EQUIPMENT AND ASSOCIATED SYSTEMS MEET THE SPECIFIED CRITERIA. A DETAILED COMMISSIONING PLAN WILL BE ISSUED AS SUBSTANTIAL COMPLETION ARRIVES.
- AFTER CONSTRUCTION COMPLETION, MARK UP DRAWINGS INDICATING ANY AND ALL DEVIATIONS FROM THE DRAWINGS AND PROVIDE TWO COPIES TO OWNER.
- PROVIDE O&M MANUALS FOR ALL INSTALLED EQUIPMENT.



**4** M1 NTS  
**DETAIL - HOUSE KEEPING PAD**

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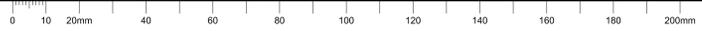
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2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/26

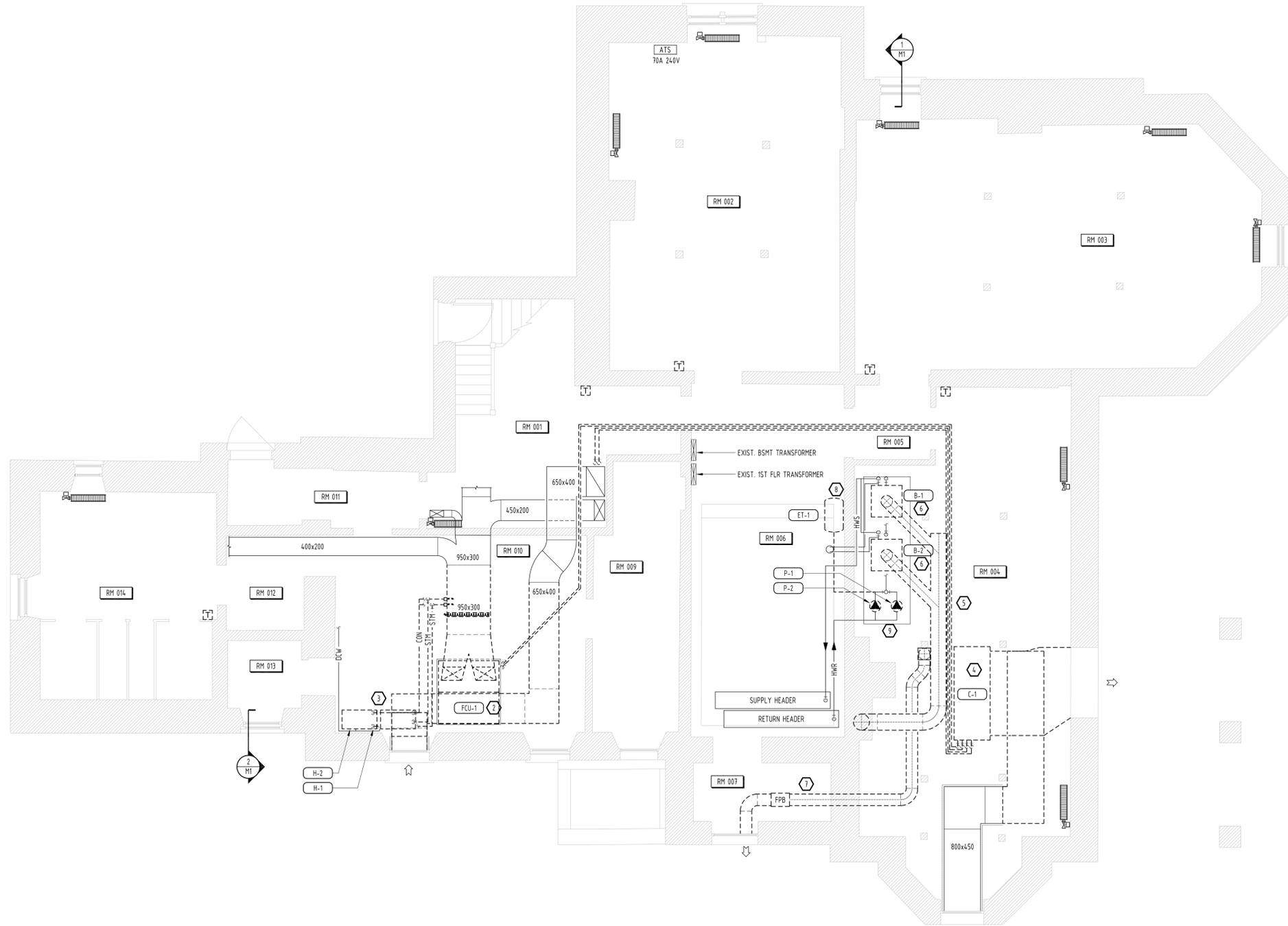
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C	location drawing no.	B
	sur dessin no.	C

project **LAURIER HOUSE HVAC UPGRADES** project

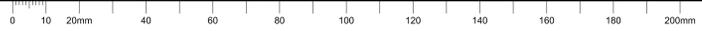
drawing **MECHANICAL SCOPE OF WORK MAJOR EQUIPMENT TABLE AND DETAILS** dessin

Designed By **MIRITON** Conçu par  
 Date (yyyy/mm/dd)  
 Drawn By **RR** Dessiné par  
 Date (yyyy/mm/dd)  
 Reviewed By **RJS** Examiné par  
 Date (yyyy/mm/dd)  
 Approved By Approuvé par  
 Date (yyyy/mm/dd)  
 Tender Soumission  
 Project Manager **MARIA OFFIN** Administrateur de projets  
 Project no. **45350018** No. du projet  
 Drawing no. **M1** No. du dessin





1 BASEMENT FLOOR PLAN - DEMOLITION  
M2 1:50



Canada

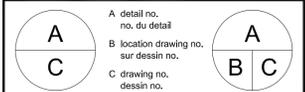


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3	ISSUED FOR TENDER	2015/07/31
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25



project  
**LAURIER HOUSE HVAC UPGRADES**  
project

drawing  
**MECHANICAL BASEMENT PLAN DEMOLITION**  
dessin

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission

Project Manager  
Project no. **45350018**  
No. du projet

Drawing no. **M2**  
No. du dessin

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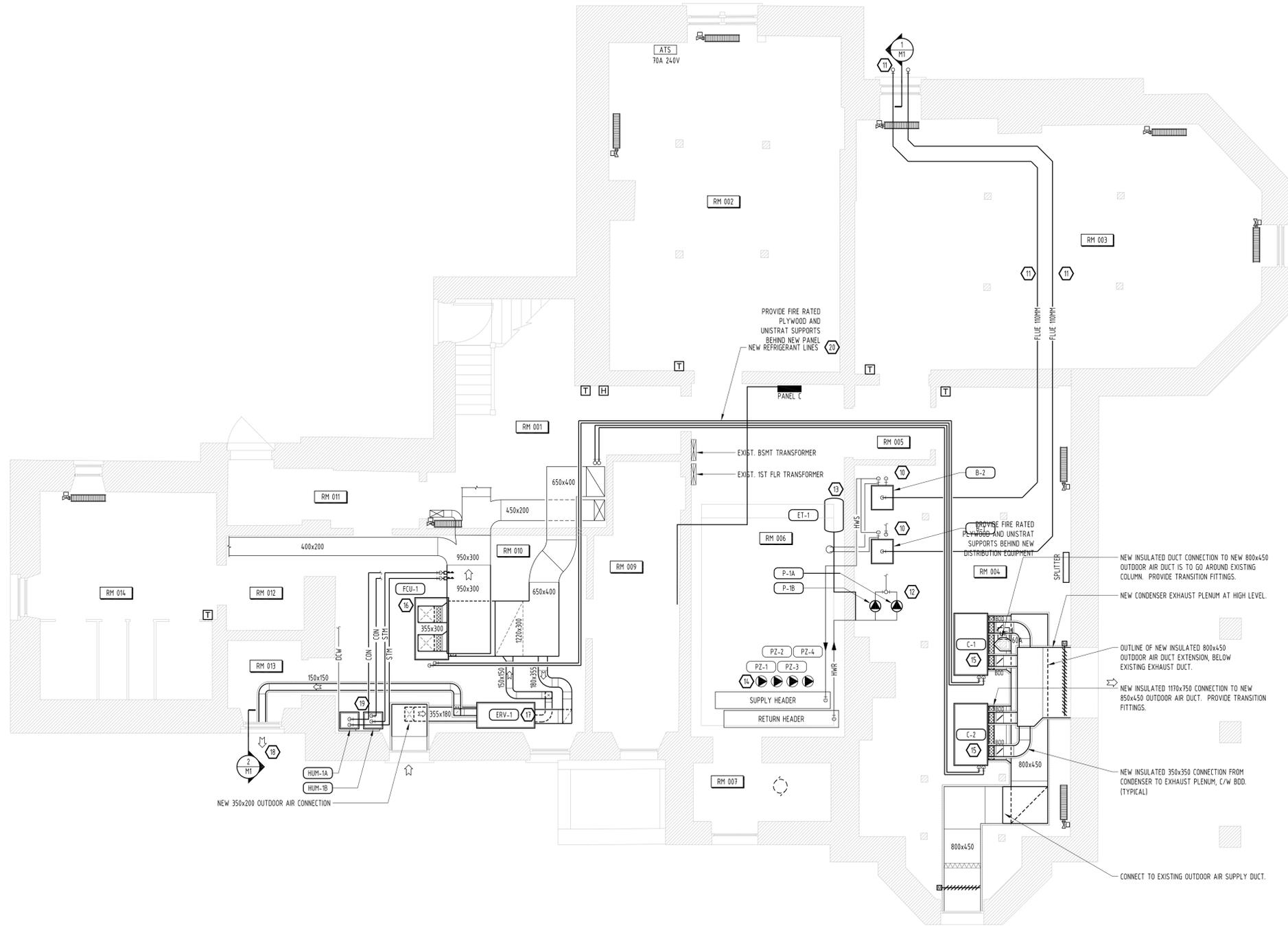
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3	ISSUED FOR TENDER	2015/07/31
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/26

A C	A detail no. no. du détail	A B C
	B location drawing no. sur dessin no.	
	C drawing no. dessin no.	

project **LAURIER HOUSE HVAC UPGRADES** project

drawing **MECHANICAL BASEMENT PLAN NEW WORK** dessin

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.	45350018	No. du projet
Drawing no.	M3	No. du dessin



1 BASEMENT FLOOR PLAN - NEW  
M3 1:50

stamp

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revisions	description	date
3	ISSUED FOR TENDER	2015/07/31
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A C	A B C
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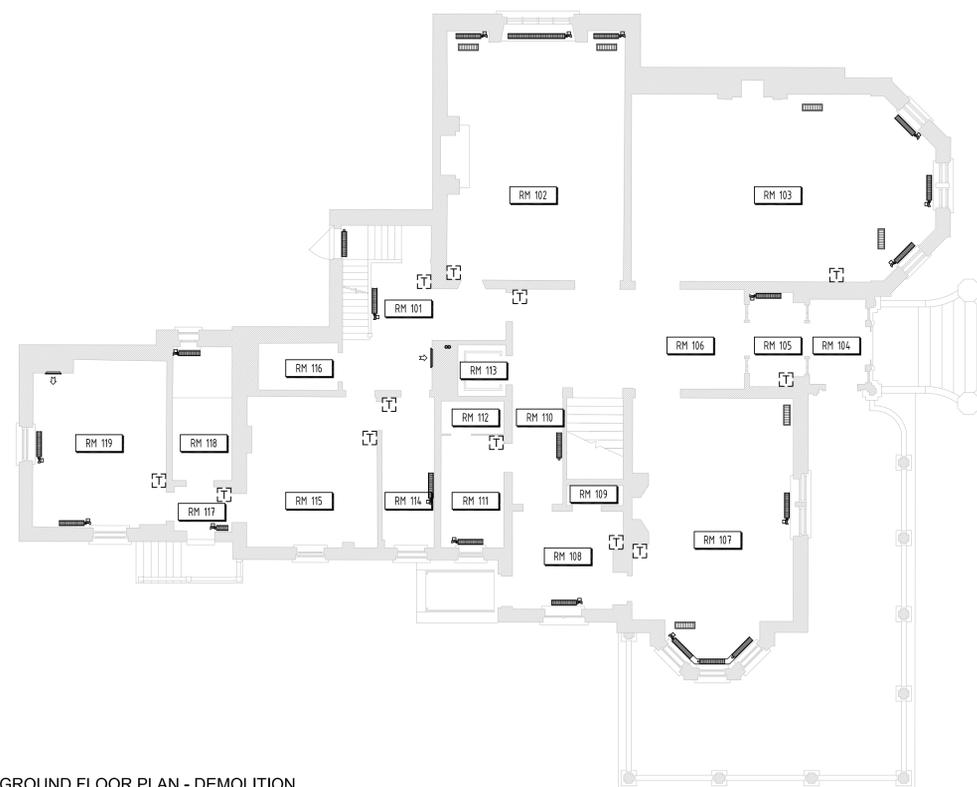
project **LAURIER HOUSE HVAC UPGRADES** projet

drawing **MECHANICAL GROUND AND SECOND FLOOR PLANS** dessin

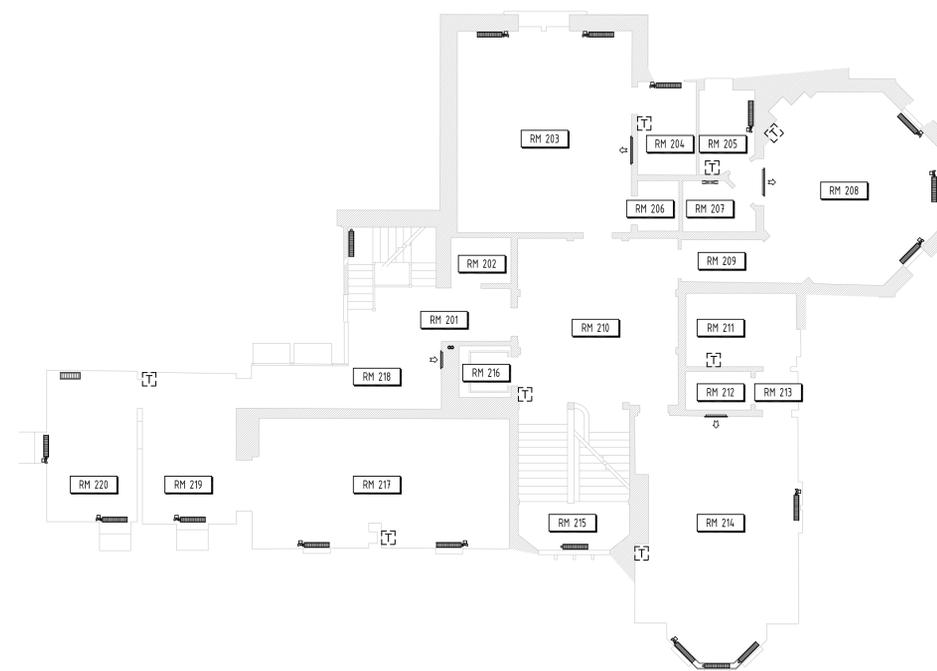
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Drawn By **RR** Dessiné par  
Date (yyyy/mm/dd)  
Reviewed By **RJS** Examiné par  
Date (yyyy/mm/dd)  
Approved By Approuvé par  
Date (yyyy/mm/dd)  
Tender **Soumission**

Project Manager **MARIA OFFIN** Administrateur de projets  
Project no. **45350018** No. du projet

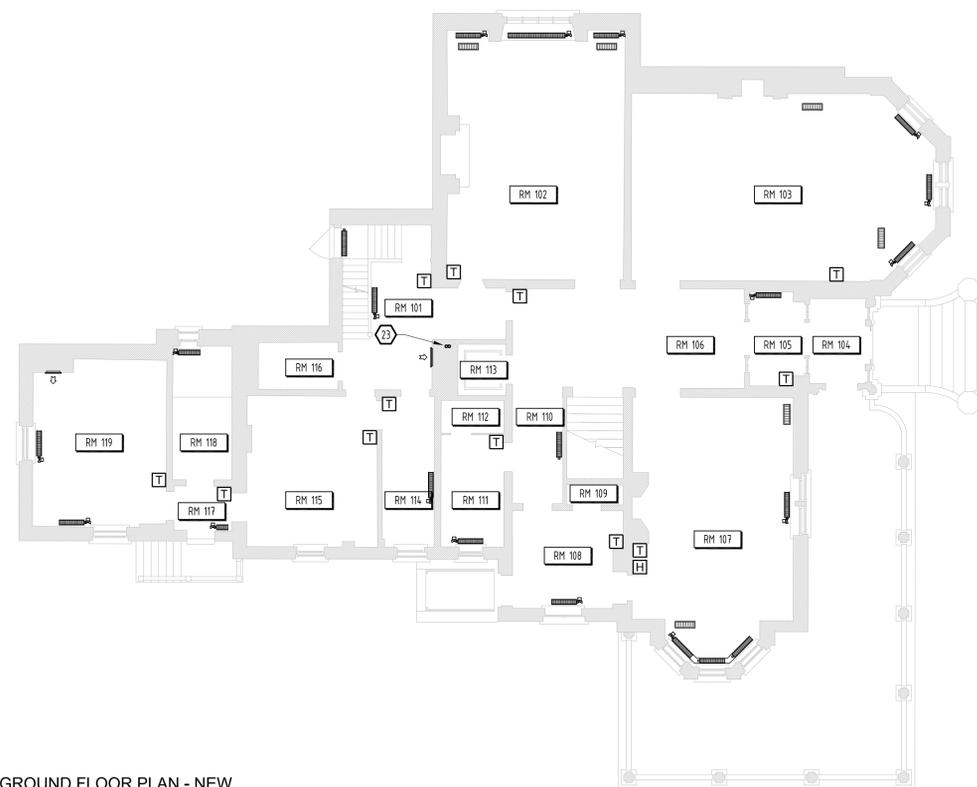
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1 GROUND FLOOR PLAN - DEMOLITION  
M4 1:100



3 SECOND FLOOR PLAN - DEMOLITION  
M4 1:100



2 GROUND FLOOR PLAN - NEW  
M4 1:100



4 SECOND FLOOR PLAN - NEW  
M4 1:100



1 THIRD FLOOR PLAN - DEMOLITION  
M5 1:50

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revisions	description	date
3	ISSUED FOR TENDER	2015/07/31
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A	A
C	B C

project LAURIER HOUSE  
HVAC UPGRADES

drawing dessin  
MECHANICAL  
THIRD FLOOR PLAN  
DEMOLITION

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission

Project Manager MARIA OFFIN  
Administrateur de projets  
Project no. 45350018  
No. du projet

Drawing no. M5  
No. du dessin



1 THIRD FLOOR PLAN - NEW  
M6 1:50

0 10 20mm 40 60 80 100 120 140 160 180 200mm

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revisions	description	date
3	ISSUED FOR TENDER	2015/07/31
2	ISSUED FOR 90% REVIEW	2015/06/22
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A	A
C	B C

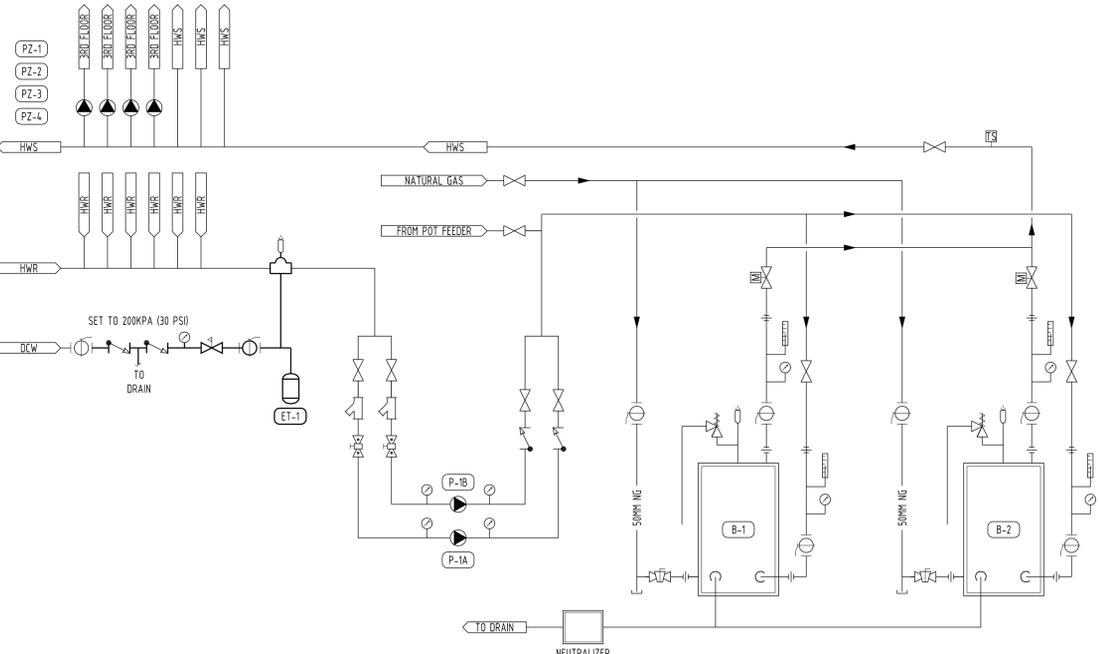
project LAURIER HOUSE HVAC UPGRADES projet

drawing dessin  
MECHANICAL  
THIRD FLOOR PLAN  
NEW WORK

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission

Project Manager MARIA OFFIN Administrateur de projets  
Project no. 45350018 No. du projet

Drawing no. M6 No. du dessin



1 SCHEMATIC - BOILER SYSTEM  
M7 NTS

Laurier House  
CONTROLS SEQUENCE OF OPERATION  
THIS WORK TO BE PERFORMED BY SINGLE SOURCE CONTROLS CONTRACTOR AS DESCRIBED IN THE SCOPE OF WORK.  
IT IS THE CONTROLS CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE CONTROLS SEQUENCE AND POINTS ARE PROVIDED AND OPERATE AS DESCRIBED HERE.

**CONTROL STRATEGY**

THE CONTROL SYSTEM FOR THIS PROJECT IS TO BE A STANDALONE DIRECT DIGITAL CONTROL (DDC) SYSTEM, ACCESSIBLE REMOTELY VIA INTERNET AND ABLE TO MONITOR, ADJUST SETPOINTS AND INITIATE SEQUENCES REMOTELY.

THERE ARE TWO IDENTICAL FAN COIL UNIT ARRANGEMENTS AS PART OF THIS PROJECT. FC-1, WHICH SERVES THE FIRST AND SECOND FLOOR; FC-2 THAT SERVES THE THIRD FLOOR. BOTH WILL FUNCTION IN THE SAME MANNER. EACH FAN COIL SYSTEM IS EQUIPPED WITH AN SCR CONTROLLED REHEAT AND AN ENERGY RECOVERY VENTILATOR.

THE EXISTING RADIATORS SHALL BE CONTROLLED THROUGH THE DDC AND INTEGRATED INTO THE CONTROL SEQUENCES.

**SUMMER OPERATION:** THE FAN COIL UNITS WILL PERFORM THE DEHUMIDIFICATION REQUIRED TO MAINTAIN THE ROOM HUMIDITY SET POINT, WHILE THE HTR ELECTRIC REHEAT WILL PROVIDE THE REHEAT REQUIRED TO MAINTAIN THE ROOM TEMPERATURE SET POINT.

**WINTER OPERATION:** THE PERIMETER HEATING WILL PROVIDE THE HEATING NEEDED TO MAINTAIN ROOM TEMPERATURE SETPOINT. THE FAN COIL UNITS WILL PROVIDE AIR CIRCULATION ONLY WHILE THE STEAM HUMIDIFICATION WILL PROVIDE THE HUMIDITY REQUIRED TO MEET THE ROOM HUMIDITY SETPOINT. THE SCR ELECTRIC REHEATS WILL PROVIDE EMERGENCY (LOW LIMIT) HEATING.

**TEMPERATURE ALARM**

SHOULD TEMPERATURE SENSED AT RT BE OUT OF SPECIFICATION THE DDC SYSTEM SHALL ANNUNCIATE THE OUT OF SPECIFICATION CONDITION. TEMPERATURE LOW AND HIGH LIMITS SHALL INITIALLY SET (ADJUSTABLE) TO:

WINTER OPERATION: LOW LIMIT = 10°C, HIGH LIMIT = 25°C  
SUMMER OPERATION: LOW LIMIT = 15°C, HIGH LIMIT = 30°C

**CONTROL ACCESS**

AT THE END OF EACH DAY ALL CONTROL POINTS ARE TO BE RESET AND TEMPORARY COMMANDS PURGED FROM THE CONTROL SEQUENCE.

**ENERGY RECOVERY VENTILATORS**

START/STOP  
ERV-1 AND ERV-2 SYSTEMS SHALL BE STARTED OR STOPPED AUTOMATICALLY FROM THE DDC SYSTEM START/STOP SIGNAL, OR FROM THE ON BOARD CONTROL PANEL.

UPON START UP ERV-# SHALL MODULATE OPERATION TO SATISFY CO2 LEVEL SENSED IN RETURN ## OR ROOM ## AIR AT CO2 SENSOR RAC02.

ON BOARD CONTROLS OF ERV-# SHALL CONTROL VENTILATION SPEED, DAMPER OPERATION AND DEFROST.

**FAN COIL UNITS FC-1 AND FC-2**

START/STOP  
FC-1 AND FC-2 SYSTEMS SHALL BE STARTED OR STOPPED AUTOMATICALLY FROM THE DDC SYSTEM START/STOP SIGNAL.

INDIVIDUAL ROOM TEMPERATURE SHALL BE SENSED AT EACH ROOM TEMPERATURE SENSOR RT.  
ROOM HUMIDITY SHALL BE SENSED BY REPRESENTATIVE ROOM HUMIDITY SENSORS H.

**SUMMER OPERATION**  
SEASONAL CHANGEOVERS WILL BE PROGRAMMED TO OCCUR DURING OCCUPIED TIMES AND WILL BE ADJUSTABLE.

**DEHUMIDIFICATION CONTROL**  
DEHUMIDIFICATION SEQUENCE SHALL BE INITIATED WHEN SPACE HUMIDITY RISES AND REMAINS ABOVE 60% RH FOR MORE THAN TWO HOURS.

TEMPERATURE OF THE SUPPLY AIR SHALL BE CONTROLLED BY THE FAN COIL UNIT CONTROLLER TO MAINTAIN A CONSTANT OFF COIL TEMPERATURE INITIAL OFF COIL TEMPERATURE SET POINT = 10°C.

ROOM HUMIDITY SENSOR H SHALL RESET SUPPLY AIR TEMPERATURE UPON A FALL IN HUMIDITY BELOW SETPOINT, SUPPLY TEMPERATURE SHALL BE RESET HIGHER, UPON A RISE IN HUMIDITY SUPPLY SETPOINT SHALL NOT EXCEED BOUNDARY OF 8 TO 10°C.

**TEMPERATURE CONTROL**  
THE ROOM TEMPERATURE, SENSED AT T, WILL BE CONTROLLED BY MODULATING THE ELECTRIC SCR CONTROLS ON HTR-# TO MAINTAIN A CONSTANT ROOM TEMPERATURE. INITIAL SET POINT = 21°C (70°F) (ADJUSTABLE).

**WINTER OPERATION**  
SEASONAL CHANGEOVERS WILL BE PROGRAMMED TO OCCUR DURING OCCUPIED TIMES AND WILL BE ADJUSTABLE.  
DEHUMIDIFICATION SEQUENCE SHALL BE DISABLED DURING WINTER OPERATION.

**HUMIDIFICATION CONTROL**

EACH FAN COIL UNIT HAS TWO IDENTICAL HUMIDIFIERS, ARRANGED IN A DUPLEX FASHION, WITH ONE UNIT IN OPERATION AND ONE UNIT IN STAND-BY.

THE HUMIDIFIER HUM-# SHALL NOT BE ALLOWED TO OPERATE UNTIL AIRFLOW HAS BEEN PROVEN AT THE AIRFLOW PROVING SWITCH, THE HUMIDITY IN THE DUCTWORK IS BELOW 80% RH SENSED AT THE DUCT HUMIDISTAT AND THE TEMPERATURE IN THE DUCTWORK IS BELOW 10°C SENSED AT DUCT TEMPERATURE SENSOR. SAFETY SWITCHES LOCATED DOWNSTREAM OF THE HUMIDIFIER (SUPPLIED WITH HUMIDIFIER MANUFACTURER AND HARDWIRED TO UNIT AND WIRED IN SERIES WITH THE LOW VOLTAGE CONTROL OF SG-1A).

UPON A FALL IN ROOM HUMIDITY, SENSED AT THE ROOM HUMIDITY SENSOR H, HUMIDIFIER SG-1A, SHALL MODULATE UNTIL THE ROOM HUMIDITY SET POINT IS SATISFIED (ADJUSTABLE), INITIAL SET POINT = 35%RH.

SYSTEM SHALL FAIL-SAFE WITH SG-1A OFF.

**LOW LIMIT TEMPERATURE CONTROL**

SHOULD THE TEMPERATURE IN REPRESENTATIVE ROOM FALL BELOW LOW LIMIT SETPOINT (ADJUSTABLE), SCR REHEAT SHALL START LOW LIMIT HEATING. SCR REHEAT SHALL MODULATE TO MAINTAIN TEMPERATURE 5°C ABOVE LOW LIMIT.

AN ALARM WILL ANNUNCIATE THAT THE SYSTEM HAS CHANGED OVER AND SHOULD BE INSPECTED.

**HYDRONIC CIRCUIT**

UPON ACTIVATION OF HEATING SEQUENCE, CIRCULATING PUMPS P-1 AND P-2 SHALL BE INITIATED, AND BOOSTER PUMPS PB-1, PB-2, AND PB-3 SHALL BE INITIATED.  
P-1A & P-1B ARE IDENTICAL UNITS, ARRANGED IN A DUPLEX FASHION, WITH ONE UNIT IN OPERATION AND ONE UNIT IN STAND-BY.

P-# SHALL BE STARTED OR STOPPED FROM EITHER THE HAND/OFF/AUTO (H/O/A) SWITCH WHEN IN THE 'HAND' POSITION, OR FROM THE DDC CONTROL SYSTEM WHEN THE H/O/A SWITCH IS IN THE 'AUTO' POSITION P-1A AND P-1B SHALL SHARE THE DUTY BY ALTERNATING AT EACH START UP.  
PB-# SHALL BE STARTED OR STOPPED FROM THE DDC CONTROL SYSTEM.

**RADIATORS**

ROOM TEMPERATURE SENSOR RT SHALL MODULATE HEATING WATER CONTROL VALVES TO ALL RADIATORS WITHIN EACH ROOM TO MAINTAIN A CONSTANT ROOM TEMPERATURE SET POINT (ADJUSTABLE). INITIAL SET POINT = 21°C (70°F).

**BOILERS AND PUMPS**

B-1 AND B-2 IDENTICAL UNITS, ARRANGED IN A DUPLEX FASHION, WITH ONE UNIT IN OPERATION AND ONE UNIT IN STAND-BY.  
B-# SHALL SHARE THE DUTY BY ALTERNATING AFTER A PRE-DETERMINED HOURLY RUN TIME (ADJUSTABLE).

**START/STOP**

WHEN INITIATED BY THE DDC, OR FROM THE BOILER CONTROL PANEL BCP, HEATING SEQUENCE SHALL BEGIN.  
THE LOCAL BCP SHALL START/STOP B-#. B-# ASSOCIATED CONTROL VALVE SHALL BE COMMANDED TO OPEN BY THE DDC.

TEMPERATURE CONTROL  
BOILER FIRING SHALL BE CONTROLLED BY THE BCP TO SATISFY THE HEATING WATER SUPPLY TEMPERATURE SETPOINT RECEIVED AND ADJUSTED BY DDC.  
THE BCP SHALL MODULATE BOILER OUTPUTS AND OPERATION BASED ON AN OUTDOOR TEMPERATURE RESET SCHEDULE.

**OUTDOOR AIR RESET SCHEDULE, INITIAL SETPOINTS (ADJUSTABLE)**

OUTDOOR TEMP. (°C)	SUPPLY WATER TEMP.(°C)	NOTES
11	55	MIN. SUPPLY WATER TEMP
5	58	
7	62	
-18	70	MAX. SUPPLY WATER TEMP

SHOULD TEMPERATURE OF HEATING WATER SUPPLY, MEASURED AT SYSTEM SUPPLY TEMPERATURE SENSOR, TS-1, FALL BELOW 30°C OR RISE TO ABOVE 80°C DURING HEATING OPERATION, THE DDC SYSTEM SHALL ANNUNCIATE THE OUT OF SPECIFICATION CONDITION.

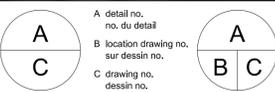


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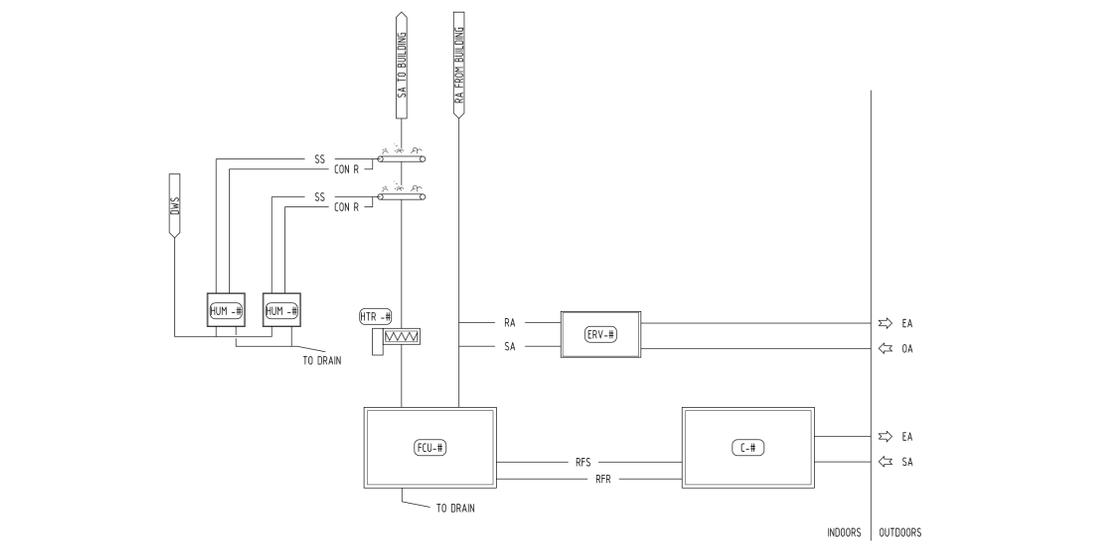
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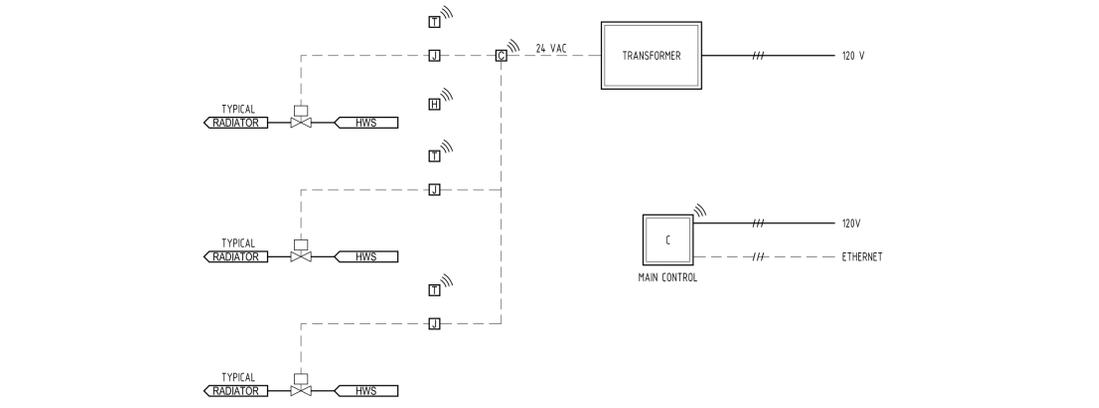
project  
**LAURIER HOUSE  
HVAC UPGRADES**

drawing  
**MECHANICAL  
SCHEMATICS AND  
CONTROL SEQUENCE  
OF OPERATION**

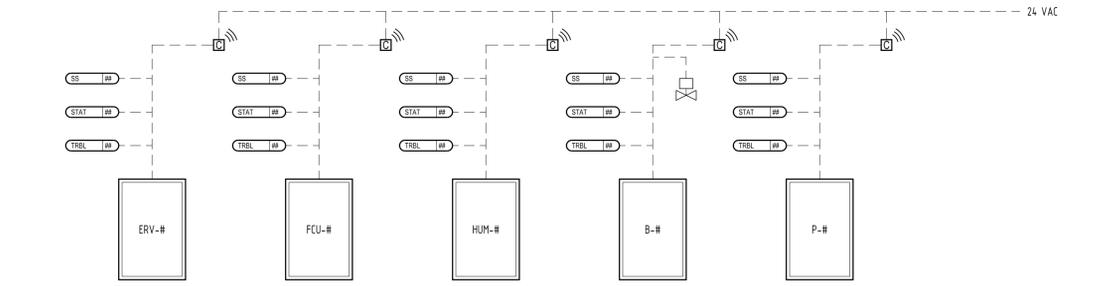
Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
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Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.	45350018	No. du projet
Drawing no.	M7	No. du dessin



2 SCHEMATIC - TYPICAL AIR HANDLING SYSTEM  
M7 NTS

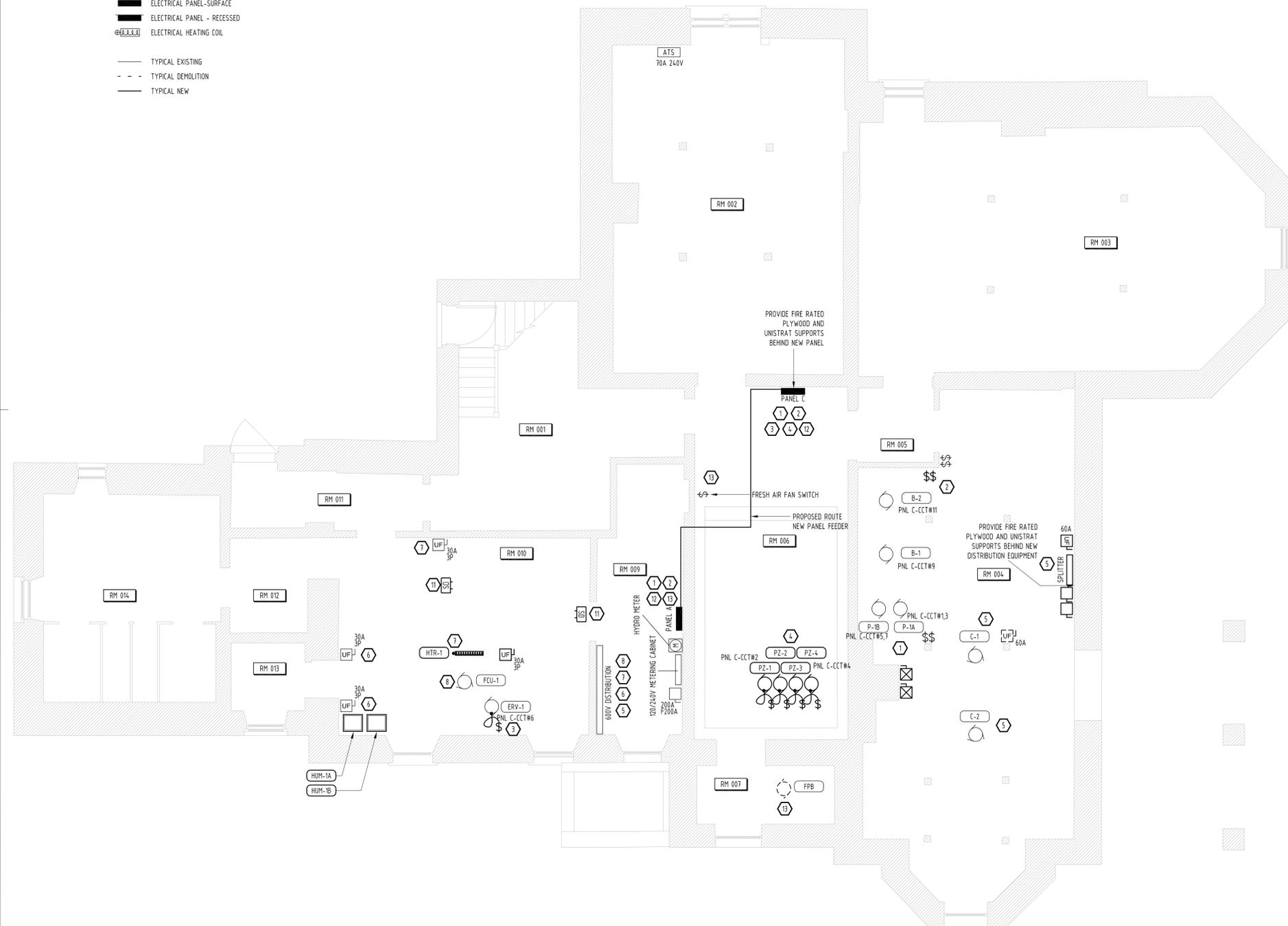


3 SCHEMATIC - CONTROLS  
M7 C NTS



**ELECTRICAL LEGEND**

- TOGGLE SWITCH
- DUCT SMOKE DETECTOR
- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNIUNCIATOR
- DISCONNECT SWITCH
- UNFUSED DISCONNECT SWITCH
- MOTOR STARTER H-D-A
- SINGLE PHASE MOTOR
- THREE PHASE MOTOR
- ELECTRICAL PANEL - SURFACE
- ELECTRICAL PANEL - RECESSED
- ELECTRICAL HEATING COIL
- TYPICAL EXISTING
- TYPICAL DEMOLITION
- TYPICAL NEW



**1 BASEMENT FLOOR PLAN**  
E1  
1:50

**SCOPE OF WORK**

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:  
 A) ELECTRICAL DRAWINGS 45350018 E1 THROUGH E3, NOTES,  
 B) SPECIFICATION PACKAGE 45350018 AND  
 C) ALL APPLICABLE CODES, BYLAWS AND BEST-RECOMMENDED PRACTICES.

FOR THE PURPOSES OF THIS PROJECT, 'PROVIDE' SHALL MEAN TO SUPPLY, INSTALL, CONNECT AND TEST.

FOR THE PURPOSES OF THIS PROJECT, 'DEMOLISH' SHALL MEAN MATERIALS AND EQUIPMENT ARE TO BE REMOVED FROM THEIR INSTALLED LOCATION AND DISPOSED OF. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF GARBAGE IN ACCORDANCE WITH CODES, STANDARDS AND REGULATIONS, AND PROVIDE HIS OWN WASTE REMOVAL SERVICES.

WHERE MATERIALS AND EQUIPMENT ARE IDENTIFIED AS 'SALVAGE', THEY SHALL BE REMOVED FROM THEIR INSTALLED LOCATION WITHOUT DAMAGE AND HANDED TO THE OWNER AT THE DESIGNATED DROP LOCATION WITHIN THE FACILITY.

- CONTRACTOR TO:
- A. DURING TENDER PHASE, FAMILIARIZE THEMSELVES WITH THE TENDER DRAWINGS AND THE PROJECT SITE, AND REPORT TO THE ENGINEER ANY CONFLICTS OR SITE CONDITIONS WHICH MAY AFFECT WORK. IF THIS PROCEDURE IS NOT FOLLOWED, THE CONTRACTOR WILL BE RESPONSIBLE TO COMPLETE WORK REQUIRED.
  - B. PROTECT BUILDING STRUCTURE FROM DAMAGE.
  - C. ENSURE ADJACENT AREAS ARE NOT AFFECTED BY ANY WORK ON THIS PROJECT.
  - D. OBTAIN RELATED PERMITS TO CARRY OUT THE WORK OF THIS PROJECT.

THE INTENT OF THIS PROJECT IS TO UPGRADE THE HVAC SYSTEMS IN THE LAURIER HOUSE.

THE NUMBERS INSIDE HEXAGONS SHOWN ON THE PLANS REFER TO THE NUMBERED POINTS BELOW. NOT ALL POINTS ARE SHOWN ON THE PLANS.

1. DEMOLISH POWER WIRING INCLUDING TWO LOCAL DISCONNECT SWITCHES OF TWO EXISTING CIRCULATING PUMPS BACK TO SOURCE PANEL A. SALVAGE EXISTING 20A 240V 2P CIRCUIT BREAKER AND HAND OVER TO PARKS CANADA PERSONNEL. PROVIDE TWO NEW 15A 240V BRANCH CIRCUITS TO NEW CIRCULATING PUMPS, P-1A AND P-1B, AS INDICATED AND IN PANEL C SCHEDULE. PROVIDE TWO NEW MOTOR STARTERS (HAND-OFF-AUTO TYPE) EQUIPPED WITH OVERLOAD RELAYS AND FUSED DISCONNECT SWITCHES AS INDICATED. NEW WIRING SHALL BE CONDUCTORS IN EMT CONDUIT FROM PANEL C TO MOTOR STARTERS AND 2X12 AWG COPPER TECK CABLE TYPE FROM MOTOR STARTERS TO PUMPS. COORDINATE THE NEW PUMPS' OVERLOAD PROTECTION SETTING WITH THE PUMPS' MANUFACTURER AND ENSURE THAT THE PUMPS ARE FULLY OPERATIONAL AS REQUIRED. CONTROLS BY MECHANICAL.
2. DEMOLISH POWER WIRING INCLUDING TWO LOCAL DISCONNECT SWITCHES OF TWO EXISTING BOILERS BACK TO SOURCE PANEL A. PROVIDE TWO NEW 15A 120V BRANCH CIRCUITS TO NEW BOILERS, B-1 AND B-2, AND LOCAL DISCONNECT SWITCHES AS INDICATED AND IN PANEL C SCHEDULE. NEW WIRING SHALL BE CONDUCTORS IN EMT CONDUIT FROM PANEL C TO LOCAL SWITCHES AND 2X12 AWG COPPER TECK CABLE TYPE FROM SWITCHES TO BOILERS.
3. PROVIDE ONE 15A 120V BRANCH CIRCUIT TO A NEW ENERGY RECOVERY VENTILATION, ERV-1, AND A LOCAL DISCONNECT SWITCH AS INDICATED AND IN PANEL C SCHEDULE. NEW WIRING SHALL BE CONDUCTORS IN EMT CONDUIT FROM PANEL C TO DISCONNECT SWITCH AND 2X12 AWG COPPER TECK CABLE TYPE FROM THE SWITCH TO ERV UNIT.
4. PROVIDE TWO 15A BRANCH CIRCUITS FROM PANEL C TO FOUR NEW FRACTIONAL POWER PUMPS (PZ-1, PZ-2, PZ-3, AND PZ-4) AND LOCAL DISCONNECT SWITCHES AS INDICATED AND IN PANEL C SCHEDULE. NEW WIRING SHALL BE CONDUCTORS IN EMT CONDUIT FROM PANEL C TO LOCAL DISCONNECT SWITCHES AND 2X12 AWG COPPER TECK CABLE TYPE FROM SWITCHES TO NEW FRACTIONAL POWER PUMPS.
5. DEMOLISH POWER WIRING FROM AN EXISTING CONDENSER INCLUDING A LOCAL DISCONNECT SWITCH. PROVIDE A NEW JUNCTION BOX TO TERMINATE THE EXISTING POWER WIRING AS CLOSE AS POSSIBLE TO LOCATION OF NEW DISTRIBUTION EQUIPMENT. PROVIDE NEW WIRING AND DISTRIBUTION EQUIPMENT (ONE SPLITTER, ONE UNFUSED DISCONNECT, AND TWO FUSED DISCONNECT SWITCHES) TO NEW CONDENSERS, C-1 AND C-2, AS INDICATED AND IN 600V DISTRIBUTION DIAGRAM.
6. DEMOLISH POWER WIRING FROM FOUR EXISTING HUMIDIFIERS TO THEIR LOCAL DISCONNECT SWITCHES. PROVIDE NEW WIRING TO NEW HUMIDIFIERS (HUM-1A, HUM-1B, HUM-2A, AND HUM-2B) AS INDICATED AND IN 600V DISTRIBUTION DIAGRAM. PROVIDE NEW 15A FUSES IN EACH HUMIDIFIERS' FUSED DISCONNECT SWITCH.
7. DEMOLISH POWER WIRING FROM TWO EXISTING DUCT HEATERS TO THEIR LOCAL DISCONNECT SWITCHES. PROVIDE NEW WIRING FROM THE EXISTING DISCONNECT SWITCHES TO NEW HEATERS, HTR-1 AND HTR-2, AS INDICATED AND IN 600V DISTRIBUTION DIAGRAM. PROVIDE NEW FUSES IN EACH HEATERS' FUSED DISCONNECT SWITCH.
8. DEMOLISH POWER WIRING FROM TWO EXISTING AIR HANDLING UNITS, PROVIDE TWO NEW CEILING MOUNTED JUNCTION BOXES TO TERMINATE THE EXISTING POWER WIRING. PROVIDE TWO NEW LOCAL DISCONNECT SWITCHES AND WIRING FROM THE NEW CEILING MOUNTED JUNCTION BOXES TO THE NEW AIR HANDLING UNITS, FCU-1 AND FCU-2, AND THEIR SWITCHES AS INDICATED AND IN 600V DISTRIBUTION DIAGRAM. PROVIDE NEW 15A FUSES IN EACH NEW AIR HANDLING UNITS' FUSED DISCONNECT SWITCH.
9. PROVIDE ONE 15A 120V BRANCH CIRCUIT TO A NEW ERV UNIT, ERV-2, AND A LOCAL DISCONNECT SWITCH AS INDICATED AND IN PANEL A-3A SCHEDULE.
10. PROVIDE ONE 15A 120V BRANCH CIRCUIT TO NEW DDC PANEL AS INDICATED AND IN PANEL A-3A SCHEDULE.
11. DEMOLISH FOUR DUCT SMOKE DETECTORS TO ALLOW MODIFICATIONS OF EXISTING SUPPLY AND RETURN HVAC DUCTS OF TWO EXISTING AIR HANDLING UNITS THAT WILL BE REPLACED. PROVIDE FIRE ALARM JUNCTION BOXES AND TERMINATE ADEQUATELY EXISTING FIRE ALARM WIRING. PROVIDE FOUR NEW DUCT SMOKE DETECTORS AND FIRE ALARM WIRING REVISION AS REQUIRED AND SPECIFIED. REMOVE EXISTING FIRE ALARM SHUTDOWN INTERCONNECTIONS FROM TWO EXISTING AIR HANDLING UNITS TO ALLOW THEIR REMOVAL. PROVIDE WIRING REVISION OF THE FIRE ALARM SHUTDOWN INTERCONNECTIONS AND CONNECT THEM TO NEW AIR HANDLING UNITS AS REQUIRED. COORDINATE EXACT LOCATION OF THE NEW DUCT SMOKE DETECTORS AND THE NEW AIR HANDLING UNITS' SHUTDOWN CONTACTS WITH MECHANICAL.
12. PROVIDE ONE BRANCH PANEL AND ITS POWER FEEDER INCLUDING A NEW 60A 240V 2P CIRCUIT BREAKER AS INDICATED, AND IN 120/240V DISTRIBUTION DIAGRAM AND IN PANEL SCHEDULE C.
13. DEMOLISH POWER WIRING INCLUDING A DISCONNECT SWITCH OF AN EXISTING FRESH AIR FAN, FFB, BACK TO SOURCE PANEL A.
14. TRACE ALL CIRCUITS RELATED TO THIS PROJECT AND PROVIDE NEATLY TYPED, UPDATED CIRCUIT DIRECTORIES IN A PLASTIC HOLDER ON THE INSIDE DOORS OF THEIR PANELBOARDS, WITH A COPY IN MANUAL.
15. PROVIDE FIRESTOPPING AROUND NEW CONDUITS AND CABLES AT FIRE RATED PENETRATIONS AND SEAL FLOORS, WALLS, CEILING OPENINGS WITH FIRESTOPPING COMPOUND AFTER REMOVAL OF EXISTING CONDUITS AND CABLES AS REQUIRED.
16. IDENTIFY ALL PULL BOXES, JUNCTION BOXES, FIXTURES, CONTROL PANELS, MOTOR STARTERS, VFD AND DISCONNECT SWITCHES WITH TYPED IDENTIFICATION LABELS INDICATING PANEL AND CIRCUIT NUMBERS.
17. TEST AND CHECK THE ELECTRICAL SYSTEMS PERTAINING TO THIS PROJECT FOR THEIR CORRECT OPERATION. PROVIDE TESTING OF NEW EQUIPMENT, INCLUDING JOG OR PHASE ROTATION TEST AND OTHER TESTS AS RECOMMENDED BY EQUIPMENT MANUFACTURERS TO ENSURE ADEQUATE CONNECTION AND PROPER OPERATION.
18. PROVIDE O&M MANUALS FOR ALL INSTALLED EQUIPMENT (TWO COPIES IN BINDERS).



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revisions	description	date
3	ISSUED FOR TENDER	2015/07/31
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A	B	C
A detail no. no. du detail	A	
B location drawing no. sur dessin no.	B	
C drawing no. dessin no.	C	

project  
**LAURIER HOUSE HVAC UPGRADES**  
project

drawing  
**ELECTRICAL SCOPE OF WORK, LEGEND AND BASEMENT PLAN**  
dessin

Designed By	MIRITON	Conçu par	Conçu par
Date			(yyyy/mm/dd)
Drawn By	RR	Dessiné par	Dessiné par
Date			(yyyy/mm/dd)
Reviewed By	AB	Examiné par	Examiné par
Date			(yyyy/mm/dd)
Approved By		Approuvé par	Approuvé par
Date			(yyyy/mm/dd)
Tender		Soumission	Soumission
Project Manager	MARIA OFFIN	Administrateur de projets	Administrateur de projets
Project no.	45350018	No. du projet	No. du projet
Drawing no.	E1	No. du dessin	No. du dessin

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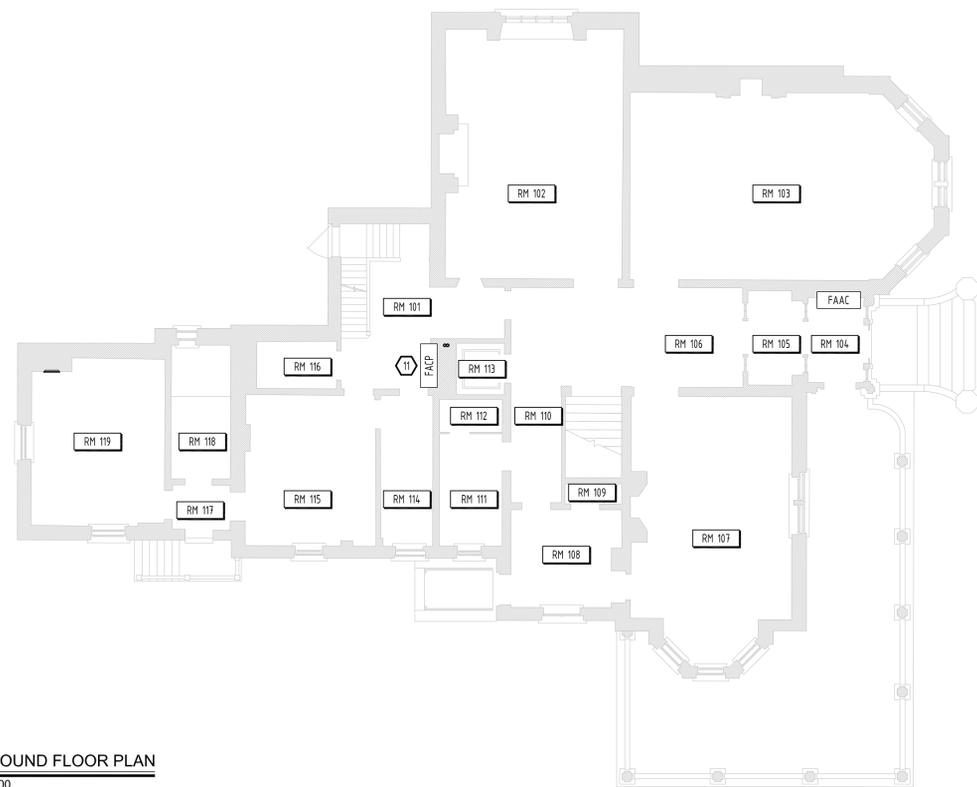
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<b>A</b>	A detail no. no. du détail	<b>A</b>
<b>C</b>	B location drawing no. sur dessin no.	<b>B</b>
	C drawing no. dessin no.	<b>C</b>

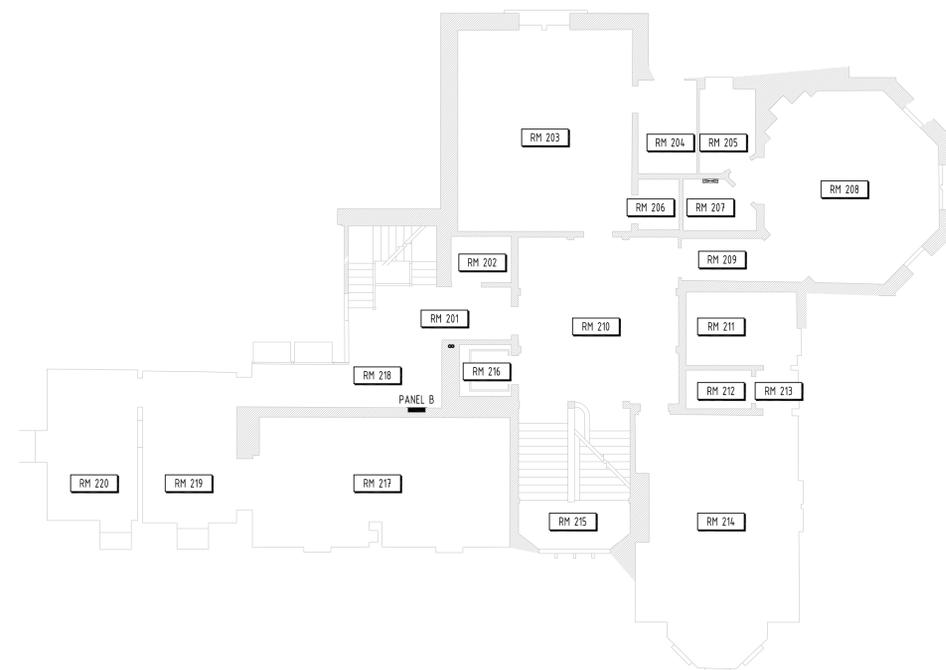
project **LAURIER HOUSE HVAC UPGRADES** projet

drawing **ELECTRICAL GROUND AND SECOND FLOOR PLANS AND DISTRIBUTION DIAGRAMS** dessin

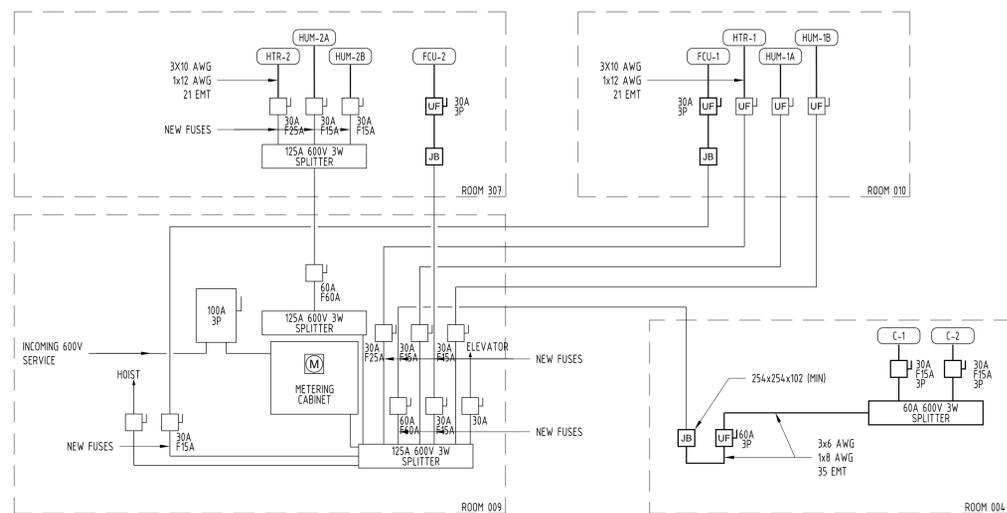
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Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.	45350018	No. du projet
Drawing no.	E2	No. du dessin



**1** GROUND FLOOR PLAN  
E2 1:100

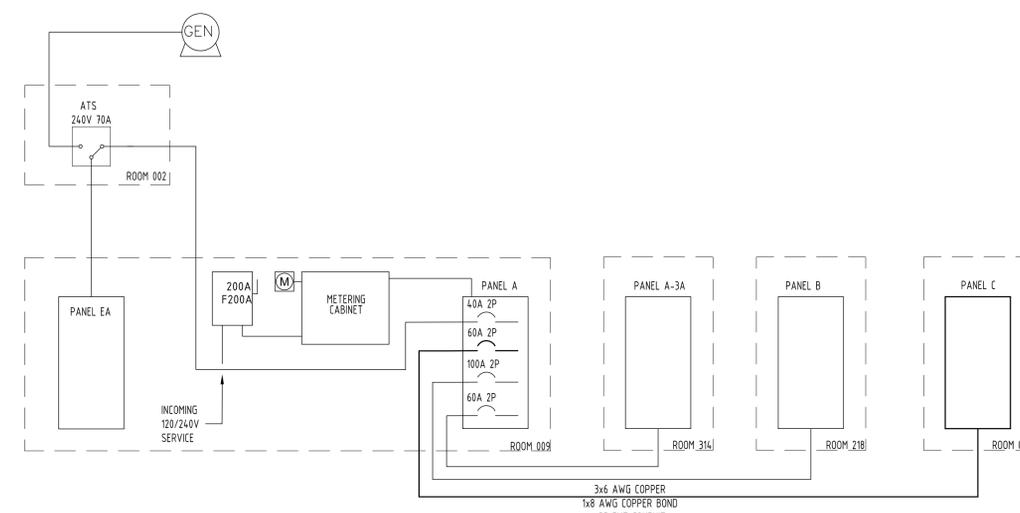


**2** SECOND FLOOR PLAN  
E2 1:100



NOTE:  
UNLESS OTHERWISE NOTED ALL NEW POWER WIRING SHALL BE MINIMUM SIZE 12 AWG COPPER, TYPE RW90 IN EMT OR TECK CABLE, 2-WIRE OR 3-WIRE AS REQUIRED FOR EACH INDIVIDUAL BRANCH CIRCUIT.

**3** 600V DISTRIBUTION DIAGRAM  
E2 NTS



**4** 120/240V DISTRIBUTION DIAGRAM  
E2 NTS C



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revisions	description	date
A	detail no.	
B	location drawing no.	
C	sur dessin no.	
	drawing no.	

project **LAURIER HOUSE HVAC UPGRADES** project

drawing **ELECTRICAL THIRD FLOOR PLAN AND PANEL SCHEDULES** dessin

Designed By **MIRITON** Conçu par  
Date (yyyy/mm/dd)  
Drawn By **RR** Dessiné par  
Date (yyyy/mm/dd)  
Reviewed By **AB** Examiné par  
Date (yyyy/mm/dd)  
Approved By Approuvé par  
Date (yyyy/mm/dd)  
Tender **MARIA OFFIN** Soumission  
Project Manager **Administrateur de projets**  
Project no. **45350018** No. du projet  
Drawing no. **E3** No. du dessin

PANEL A-3A								
VOLTAGE (L-N):	120	ENCLOSURE TYPE:	TYPE 1					
VOLTAGE (L-L):	240	MOUNTING:	SURFACE					
PHASES, WIRES:	1 φ 3W	AIC RATING (A):	10KA					
MINIMUM BUS CAPACITY (A):	125 A	NOTES:	ROOM 314					
MAIN O.C. DEVICE (A):	N/A							
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASES A B	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	ODC PANEL ROOM 307	15	1		1	15	RECEPTACLES OFFICE #2	2
3	ERV-2 ROOM 307	15	1		1	15	RECEPTACLES OFFICE #1	4
5	---SPARE---	15	1		1	15	RECEPTACLES PASSAGE	6
7	---SPACE---						---SPACE---	8
9	---SPACE---						---SPACE---	10
11	---SPACE---						---SPACE---	12
13	---SPACE---						---SPACE---	14
15	---SPACE---						---SPACE---	16
17	---SPACE---						---SPACE---	18

PANEL A								
VOLTAGE (L-N):	120	ENCLOSURE TYPE:	TYPE 1					
VOLTAGE (L-L):	240	MOUNTING:	SURFACE					
PHASES, WIRES:	1 φ 3W	AIC RATING (A):	10KA					
MINIMUM BUS CAPACITY (A):	225 A	NOTES:	ROOM 009					
MAIN O.C. DEVICE (A):	N/A							
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASES A B	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1,3	HOT WATER TANK	20	2		1	15	SECURITY GUARD DESK	2
							RECEPTACLES	4
5,7	AUTOMATIC TRANSFER SWITCH	50	2		1	15	RECEPTACLES RECEIVING	6
							RECEPTACLES	8
9,11	PANEL C	60	2		1	15	COMMISSIONNAIRE AREA	10
							RECEPTACLES/LIGHTS	12
13	PLUG NEAR TRANSFER SWITCH	15	1		1	15	RECEPTACLES/LIGHTS	14
15	MICROWAVE PLUG KITCHEN	15	1		1	15	RECEPTACLES/LIGHTS	16
17	EXHAUST FAN	15	1		1	15	DINING ROOM LIGHTS	18
19	HEAT TRANSFER PUMP	15	1		1	15	RECEPTACLES/LIGHTS	20
21	BSMT/WASHROOM/LIGHT/PLUG	15	1		1	15	PRE-ACTION SYSTEM	22
23A	WASHING MACHINE	15	1		1	15	RECEPTACLES	24
23B	UNIDENTIFIED	15	1		1	15	RECEPTACLES	26
25	SPRINKLER COMPRESSOR	15	1		1	15	RECEPTACLES	28
27,29	STOVE	60	1		1	15	EXHIBIT ROOM 1ST FLOOR	30
							DRAWING ROOM	32
31	UNIDENTIFIED	15	1		1	15	RCHP ROOM PLUGS	34
33	GAS BOILER ROOM LIGHTS	15	1		1	15	LIGHTS 1ST FLOOR CORRIDOR	36
35	UNIDENTIFIED	15	1		1	15	UNIDENTIFIED	38
37	PLUG TRANSFER SWITCH ROOM	15	1		1	15	UNIDENTIFIED	40
39,41	PLUG OUTSIDE PORCH-GFI BREAKER	15	2		1	15	TRANSFORMER DOOR BELL	42
							TIMER HEAT CABLE	44
43	RECEPTACLES NEAR PANEL	15	1		1	15	RECEPTACLE SECURITY	46
							COMPUTER ROUTER	48A
45,47	2ND FLOOR PANEL B	100	2		1	15	UNIDENTIFIED	48B
							UNIDENTIFIED	50,52
49	OUTSIDE PLUG TRANSFER SWITCH	15	1		2	20	UNIDENTIFIED	54A
51	OUTSIDE PLUG UNDER PORCH	15	1		1	15	UNIDENTIFIED	54B
53	UNIDENTIFIED	20	1		1	15	UNIDENTIFIED	56
55	PLUG LAUNDRY ROOM	20	1		2	60	CONTACTOR	60A
57,59	PANEL A-3A 3RD FLOOR	60	2		1	15	COIL CONTACTOR	60B
							UNIDENTIFIED	608

PANEL C								
VOLTAGE (L-N):	120	ENCLOSURE TYPE:	TYPE 2 C/W HOOD DRIP					
VOLTAGE (L-L):	240	MOUNTING:	SURFACE					
PHASES, WIRES:	1 φ 3W	AIC RATING (A):	10KA					
MINIMUM BUS CAPACITY (A):	100 A	NOTES:	ROOM 006					
MAIN O.C. DEVICE (A):	N/A							
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASES A B	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1,3	CIRCULATING PUMP P-1A	15	2		1	15	PUMPS PZ-1 AND PZ-2	2
							PUMPS PZ-3 AND PZ-4	4
5,7	CIRCULATING PUMP P-1B	15	2		1	15	ERV-1 ROOM 010	6
							---SPARE---	8
9	BOILER B-1	15	1		1	15	---SPARE---	10
11	BOILER B-2	15	1		1	15	---SPARE---	12
13	---SPARE---	20	1		1	15	---SPARE---	14
15	---SPARE---	20	1		1	15	---SPARE---	16
17	---SPARE---	20	1		1	15	---SPARE---	18
19	---SPARE---	20	1		1	15	---SPARE---	20
21	---SPARE---	20	1		1	15	---SPARE---	22
23	---SPARE---	20	1		1	15	---SPARE---	24
25	---SPARE---	20	1		1	15	---SPARE---	26
27	---SPARE---	20	1		1	15	---SPARE---	28
29	---SPARE---	20	1		1	15	---SPARE---	30



1 THIRD FLOOR PLAN  
E3 1:50

2 PANEL SCHEDULES  
E3 NTS