ABBREVIATIONS:

AFF.	ABOVE FINISHED FLOOR	EPV	EXISTING PIPE VENT	GA. GAUGE		REINF.	REINFORCING
AL.	ALUMINUM	EPVA	EXISTING PIPE VENT ACID	GALV	GALVANIZED	REQ'D	REQUIRED
A/V	AIR/VAPOUR	EPVN2	EXISTING PIPE VENT NITROGEN	GPSBD	GYPSUM BOARD	R.O.	ROUGH OPENING
APPROX.	APPROXIMATELY	EX	EXISTING	G.C..	GENERAL CONTRACTOR	SIM	SIMILAR
CEIL.	CEILING	EGW	EXISTING GUY WIRES	HORZ	HORIZONTAL	SPEC	SPECIFICATIONS
CONC.	CONCRETE	ELAD	EXISTING LADDER	I.D.	INSIDE DIAMETER	SQ	SQUARE
CONT.	CONTINUOUS	EX.SHWR	EXISTING EMERGENCY SHOWER STATION	INCL	INCLUDING	S.O.	STAINLESS STEEL
CONST.	CONSTRUCTION	E.E.W	EXISTING EYE WASH STATION	ALV.	INSULATION	STRCT	STRUCTURAL
COMP.	COMPLETELY	ERC/EH	EXISTING ROOF CURB / EXHAUST	INT.	INTERIOR	SUS	SUSPENDED
C/W	COMPLETE WITH	ERD	EXISTING ROOF DRAIN	MIN.	MINIMUM	T&G	TONGUE & GROOVE
DIA.	DIAMETER	EXP	EXPANSION	mm	MILLIMETRE	T&B	TOP & BOTTOM
DIAG.	DIAGONAL	EXT.	EXTERIOR	N.I.C.	NOT IN CONTRACT	T/F	TOP OF FRAME
DWG	DRAWING	E.W.	EYE WASH	O.C.	ON CENTER	T/S	TOP OF STEEL
E.A.P.	EXISTING ACCESS PANEL	FIN.	FINISH	O.D.	OUTSIDE DIAMETER	TYP	TYPICAL
E.F.D.	EXISTING FLOOR DRAIN	F.EXT	FIRE EXTINGUISHER	O.F.	OUTSIDE FRAME	U/S	UNDERSIDE
E.F.P.	EXISTING FLOOR PLATES	F.R.	FIRE RATED	OPP.	OPPOSITE	VERT	VERTICAL
				POLY.	POLYETHYLENE		
				P.T.	PRESSURE TREATED		

DRAWING SHEET LIST:

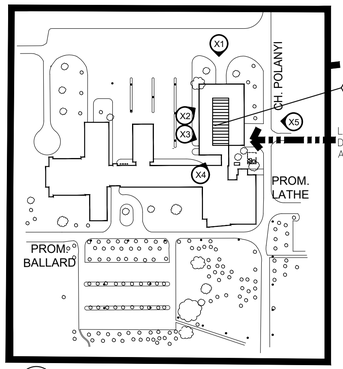
NOTE: ARCHITECTURAL DRAWING 5746–A0 TO 5746–A3 TO BE READ IN CONJUNCTION WITH MECHANICAL DRAWINGS 5746–M01 TO 5746–M06 & ELECTRICAL 5746–E01 AND STRUCTURAL 5746–S01 AND SPECIFICATIONS.

STRUCTURAL	5746–S01	–	STRUCTURAL: PART ROOF PLANS AND DETAILS
ARCHITECTURAL	5746–A0	–	COVER SHEET
		–	GENERAL DRAWING LIST
		–	PROJECT INFO
		–	KEY PLANS
	5746–A1	–	REFLECTED CEILING PLAN
		–	MISC. PHOTO (GROUPS 'A' TO 'H')
		–	ARCHITECTURAL NOTES
	5746–A2	–	ROOF TOP PLAN
		–	ARCHITECTURAL ROOFING NOTES
		–	ROOFING PICTURES
	5746–A3	–	ROOFING DETAILS
		–	ARCHITECTURAL ROOFING NOTES
MECHANICAL	5746–M01	–	MECHANICAL PLAN: DEMOLITION AND NEW WORK
	5746–M02	–	MECHANICAL PLAN, EXHAUST SYSTEM,: DEMOLITION AND NEW WORK
	5746–M03	–	MECHANICAL ELEVATIONS AND PARTIAL PLAN RM 295
	5746–M04	–	EQUIPMENT SCHEDULE LEGEND AND DETAILS
	5746–M05	–	CONTROL SCHEMATIC, EXHAUST SYSTEM AND RM 296 RTU
	5746–M06	–	CONTROL SCHEMATIC FOR 50PAC08 SYSTEM
ELECTRICAL	5746–E01	–	ELECTRICAL SINGLE LINE DIAGRAM AND FLOOR PLAN
SPECIFICATIONS:	SEE SEPARATE BINDED MANUAL		

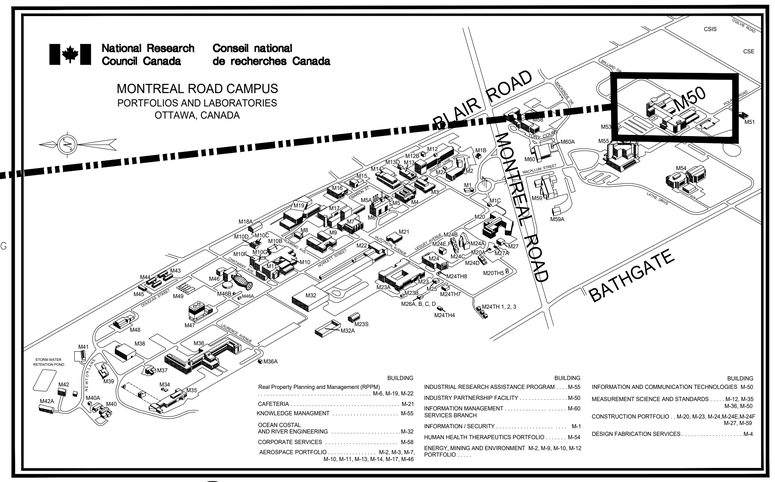
NATIONAL RESEARCH COUNCIL CANADA
MONTREAL ROAD CAMPUS
Ottawa, Ontario, Canada

PREPARED BY:
REAL PROPERTY PLANNING AND MANAGEMENT
ENGINEERING SERVICES (RPPM)
1200 MONTREAL ROAD , M–19 (RM 340),
OTTAWA, ONTARIO, CANADA K1A 0R6

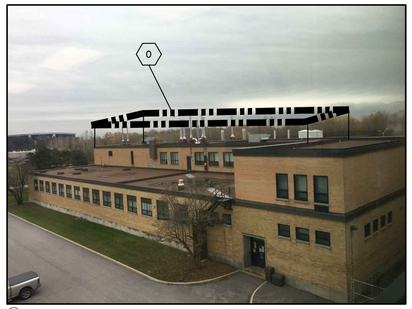
PROJECT:
PROJECT NO. = 5746
BUILDING M–50
EPITAXY LAB AREA (SOUTH WEST WING)
(VENTILATION AND EXHAUST SYSTEM UPGRADE)



2 A0 KEY PLAN LOCATION – M50 BUILDING
SCALE = N.T.S.



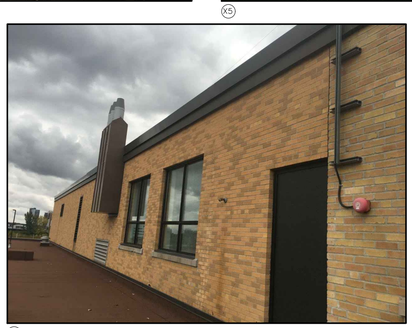
1 A0 KEY PLAN LOCATION OTTAWA–MTL RD CAMPUS
SCALE = N.T.S.



X4


X5


X1


X2

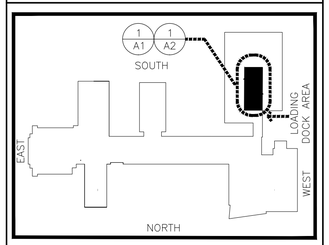

X3

3 A0 MISC. PICS – BUILDING M50 (GROUP 'X')
N.T.S.

1	MAR 2021	ISSUED FOR TENDER	JCW
0	NOV 2020	ISSUED FOR TENDER (DELAYED)	JCW
0	OCT 2020	ISS. FOR TRANSLATION	JCW
0	OCT 2020	DESIGN FINAL REVIEW – APPROVAL	JCW
No.	Date	Revision	By/ Par.

Date Printed

KEY PLAN



BUILDING M-50 KEY PLAN
NOT TO SCALE

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

No de détail A / No du détail / No de dessin, emplacement sur dessin no / No de dessin C n° de dessin

projet: M50 Epitaxy Lab Renos
Ventilation and Exhaust System Upgrade

MONTREAL ROAD CAMPUS

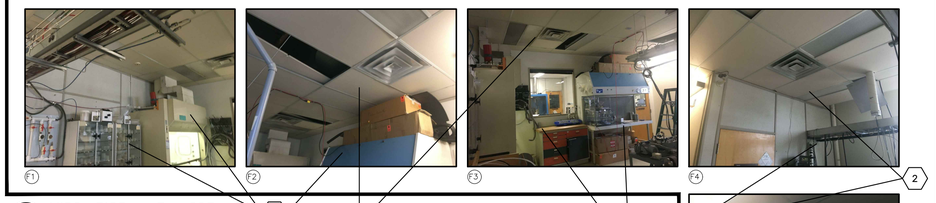
dessin: COVER SHEET
– GENERAL DRAWING LIST
– PROJECT INFO
– KEY PLANS
– EXISTING ROOF PICS (GROUP 'R')

designed / conçu: JCW/ I.A.F. / Z.M.	Date: NOV 2020
drawn / dessiné: JCW	scale / échelle: AS SHOWN
checked / vérifié: M.O. / I.A.F.	sheet / feuille: A0 of/de A3
approved / approuvé: M.O.	W.O.no. N° d'ordre de travail: A1-013824-03
dwg.no. / n° de dessin: 5746-A0	

Fichier ACAD 5746-AO to A3-TENDER-R1.dwg (fichier CDAO)

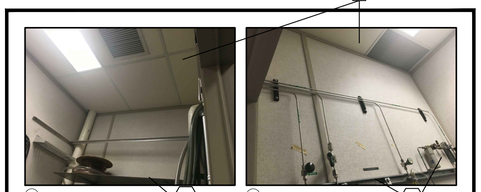
SAGI A1 (841x594)

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



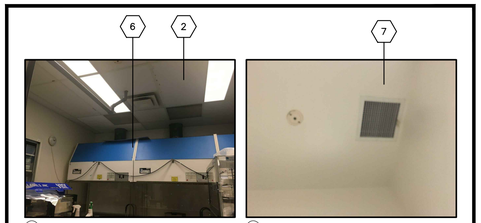
F1 F2 F3 F4 F5

F A1 MISC. PICS – Rm 293 N.T.S.



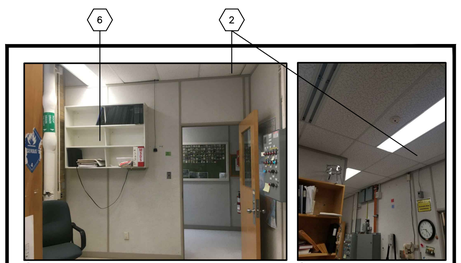
E1 E2

E A1 MISC. PICS – Rm 293b N.T.S.



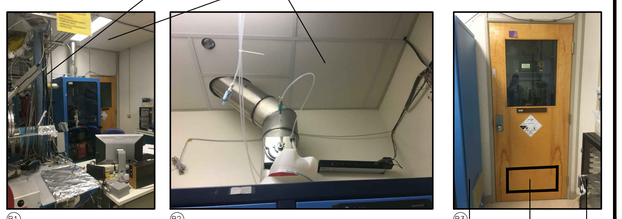
D1 D2

D A1 MISC. PICS – Rm 289b N.T.S.



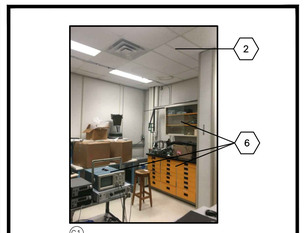
G1 G2

G A1 MISC. PICS – Rm 292 N.T.S.



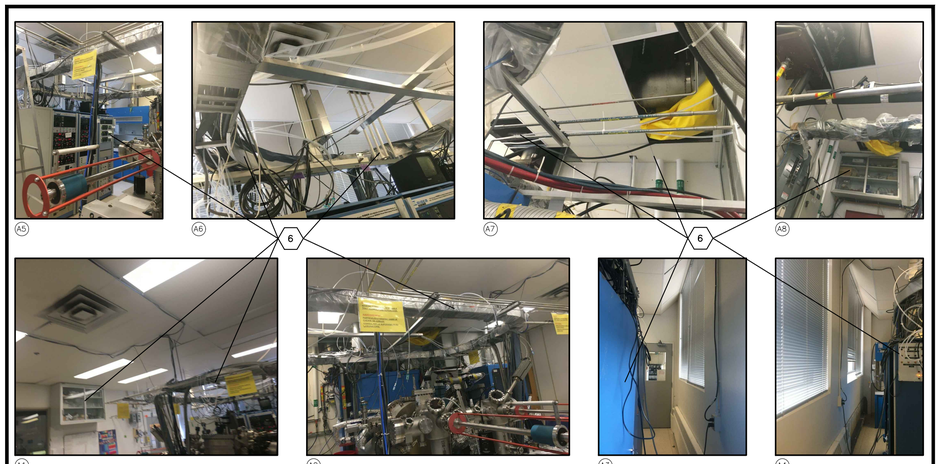
B1 B2 B3

B A1 MISC. PICS – Rm 295b N.T.S.



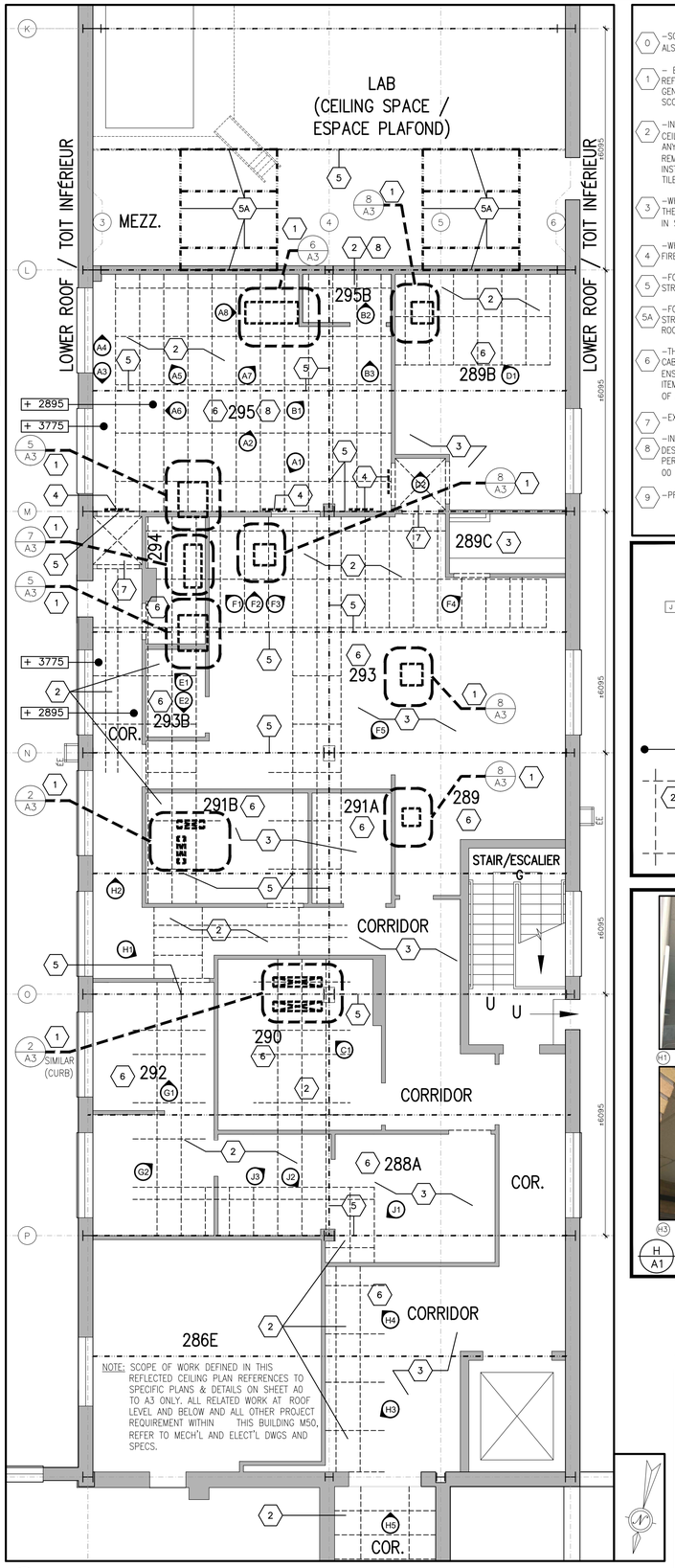
C1

C A1 MISC. PICS – Rm 290 N.T.S.



A5 A6 A7 A8 A1 A2 A3 A4

A A1 MISC. PICS – Rm 295 N.T.S.



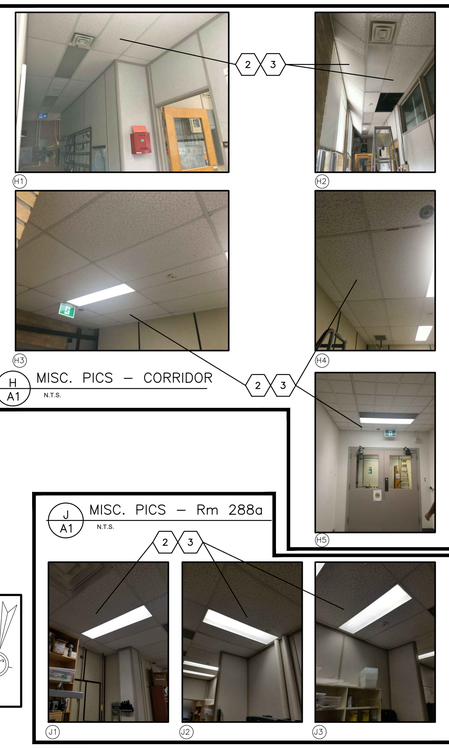
1 A1 PARTIAL REMOVAL REFLECTED CEILING PLAN SCALE 1:75

PLAN AND DETAILS SPECIFIC NOTES:

0. –SCOPE OF WORK INCLUDES ALL RMS INCLUDED IN THE FLOOR PLAN 1/A1. IN ADDITION. SCOPE OF WORK ALSO INCLUDE ROOF AREA ABOVE THESE ROOMS AND SHOWN ON ROOF PLAN 1/A2.
1. – EXISTING ROOF CURBS AND DUCT OPENINGS ABOVE CEILING SPACE (AT SLAB ROOF LEVEL) ARE SHOWN AS REFERENCE ONLY. LOCATIONS SHOWN ARE APPROXIMATE AND G.C. TO VERIFY ON SITE FOR ACTUAL LOCATIONS. GENERAL CONTRACTOR TO COORDINATE ALL EXTENTS OF NEW WORK WITH RESPECT TO ACTUAL LOCATIONS IN SCOPE OF WORK. SEE ROOF PLAN FOR MORE INFO ON DRAWING A2.
2. –IN EXISTING CEILING AREA (EXISTING CEILING GRID LAYOUT SHOWN DASHED), REMOVE / RE–INSTALL EXISTING CEILING TILES, ENTIRE GRID & SUPPORT SYSTEM TO SUIT AFFECTED MECH'L AND ELECT'L REMOVALS. INCLUDE ANY OTHER AREAS AFFECTED BY WORK, REFER TO ELECT & MECH FOR EXTENT OF ALL CEILING FIXTURES REMOVALS / RE–INSTALLL INCLUDING LIGHTS, EXHAUST AND SUPPLY GRILLS COMPONENTS AFFECTED BY NEW INSTALLATIONS. EXISTING LIGHTS TO REMAIN AND RE–INSTALLED IN SAME POSITIONS. ANY DAMAGED CEILING TILES TO BE REPLACED WITH NEW. SUPPLY NEW TILES TO MATCH EXISTING AS NEEDED.
3. –WHERE EXISTING CEILING GRID LAYOUT AND CONFIGURATIONS ARE LEFT BLANK, IT IS THE RESPONSIBILITY OF THE G.C. TO ASSESS IF REMOVALS ARE NEEDED TO BE PART OF THE SCOPE OF THIS CONTRACT. RE–INSTATE IN SAME POSITION. ANY DAMAGED CEILING TILES TO BE REPLACE TO MATCH EXISTING AS PER NOTE '2' ABOVE.
4. –WHERE EXISTING / NEW PENETRATIONS ARE ALTERED TO SUIT NEW WORK, COMPLETELY SEAL ALL GAPS WITH FIRESTOP MATERIALS SEALANT..
5. –FOR EXTENT OF EXISTING STEEL BEAM STRUCTURE LOCATIONS AND BEAM SIZES, COORDINATE WITH STRUCTURAL DWGS AND TO SUIT ACCORDINGLY WITH EXISTING HEIGHT OF CEILING GRID ASSEMBLY.
5A. –FOR EXTENT OF EXISTING STEEL BEAM STRUCTURE LOCATIONS AND BEAM SIZES, COORDINATE WITH STRUCTURAL DWGS AND TO SUIT ACCORDINGLY WITH NEW STRUCTURAL PLATFORM ASSEMBLY SUPPORTS AT ROOF LEVELS.
6. –THE GENERAL CONTRACTOR TO COORDINATE PROTECTION OF ALL EXISTING EQUIPMENT. FURNISHINGS AND CABINETRY ASSEMBLIES AND COUNTERS IN RMS AFFECTED BY SCOPE OF WORK. GENERAL CONTRACTOR TO ENSURE AND OBTAIN APPROVAL (FROM NRC REPRESENTATIVE/OCCUPANTS) ON PROTECTION SETUP FOR ALL ITEMS IN THESE ROOMS. G.C. TO OBTAIN GO–AHEAD FROM NRC REPRESENTATIVE PRIOR TO COMMENCEMENT OF ANY DEMOLITION/NEW WORK AND ON SEQUENCE AND PROTECTION METHODS.
7. –EXISTING CEILING DRYWALL TO REMAIN. REPAIR ANY DAMAGES TO SURFACES. RE–PAINT FINISHES.
8. –IN ROOMS 295, 295B , CONTRACTOR TO EXERCISE EXTRA PRECAUTIONS WHILE ENCOUNTERING KNOWN DESIGNATED SUBSTANCES AND REMOVALS WITH SUITABLE PERSONAL PROTECTIVE EQUIPMENT (P.P.E) WHILE PERFORMING WORK IN AFFECTED SCOPE OF WORK. SEE SPECIFICATION SECTION 00 10 00 – GENERAL INSTRUCTIONS (ITEMS 8 – REQUIREMENTS OF BILL 208, SECTION 18(A)).
9. –PROVIDE ALUMINUM GRILL INSERT C/W SLEEVE IN EXISTING DOOR. SIZE TO BE COORDINATED WITH MECH'L.

ARCHITECTURAL PLAN LEGEND:

- EXISTING INTERIOR (DRYWALL / PVC350 TYPE WALLS) TO REMAIN..
- AREA SHOW LIMITS OF APPROXIMATE ROOFING REPAIR...
- SEE SPECIFIC DRAWING NOTES ON DWG A1.
- SEE SPECIFIC ELEVATION PICS ON DWG A0, A1 & A2 (GROUPS 'A' TO 'J')
- SEE SPECIFIC REFLECTED CEILING PLAN AND ROOF DETAIL NOTES ON DWG A2 & A3.
- + XXXX APPROXIMATE HEIGHT OF EXISTING U/S CEILING GRID / TILES TO FINISHED FLOOR.
- REMOVAL OF SUSPENDED CEILING SYSTEM AS NECESSARY INCLUDING ALL HANGERS, SUPPORTS, TILES, ELECT'L FIXTURES, MECH'L SUPPLY/RETURN DIFFUSERS, EXHAUST TO SUIT NEW WORK. EXISTING ASSEMBLY AND SELECTED FIXTURES TO BE RE–INSTATED UNDAMAGED. COORDINATE WITH ELECT'L AND MECH'L FOR FIXTURES SCOPE OF WORK.



H1 H2 H3 H4 H5

H A1 MISC. PICS – CORRIDOR N.T.S.

J1 J2 J3

J A1 MISC. PICS – Rm 288a N.T.S.

National Research Council Canada / Conseil national de recherches Canada
Administrative Services and Property Management Branch / Division des services administratifs et gestion de l'?immobilier

NRC · CNRC

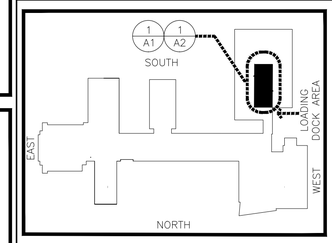
GENERAL NOTES

- CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES AND/OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTOR MUST VISIT THE SITE AND FULLY FAMILIARIZE THEMSELF WITH THE SCOPE OF THE WORK PRIOR TO PROJECT COMMENCEMENT.
- ALL TRADES TO COORDINATE WORK ON SITE, WITH APPROVAL OF DEPARTMENTAL REPRESENTATIVE TO AVOID ANY CONFLICTS AND/OR INTERFERENCE.
- ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
- INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
- CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGE CAUSED BY WORK.
- CONTRACTOR SHALL PREVENT THE SPREAD OF DUST AND DEBRIS BEYOND AREA OF WORK AND CLEAN ALL SURFACES AT COMPLETION.

No.	Date	Revision	By/ Par.
1	MAR 2021	ISSUED FOR TENDER	JCW
0	NOV 2020	ISSUED FOR TENDER (DELAYED)	JCW
0	OCT 2020	ISS. FOR TRANSLATION	JCW
0	OCT 2020	DESIGN FINAL REVIEW – APPROVAL	JCW

Date Printed

KEY PLAN



BUILDING M-50 KEY PLAN

NOT TO SCALE

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l?état des lieux et en assumer la responsabilité

No de détail A / No du détail
No de dessin, emplacement sur dessin no
No de dessin C / n° de dessin

projet / projet
M50 Epitaxy Lab Renos
Ventilation and Exhaust System Upgrade

MONTREAL ROAD CAMPUS

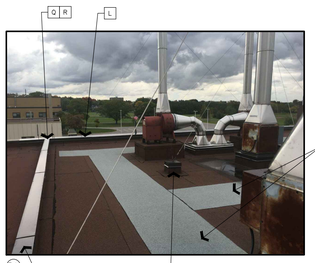
dessin / dessin
– REFLECTED CEILING PLAN
– MISC. PHOTO (GROUPS 'A' TO 'H')
– ARCHITECTURAL NOTES

designed / conçu	Date / Date
JCW/ I.A.F. / Z.M.	NOV 2020
drawn / dessiné	scale / échelle
JCW	AS SHOWN
checked / vérifié	sheet / feuille
M.O. / I.A.F.	A1 of/de A3
approved / approuvé	W.O.no. N° d?ordre de travail
M.O.	A1-013824-03

dwg.no. / n° de dessin
5746-A1
Fichier ACAD 5746-AO to A3-TENDER-R1.dwg / fichier CDAO

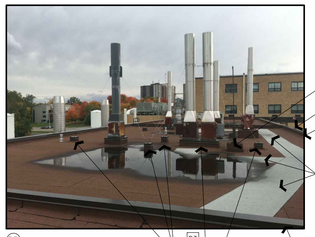
SAGI A1 (841x594)

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



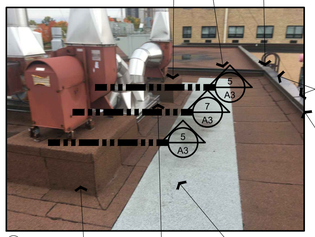
R1

R2



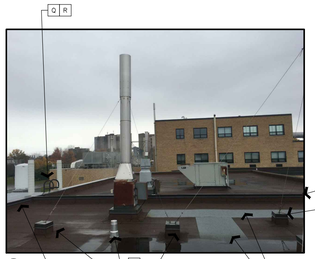
R3

R4



R5

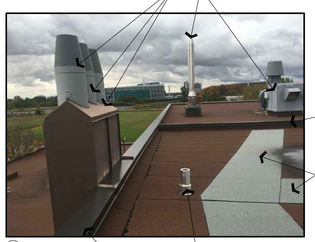
R6



R7

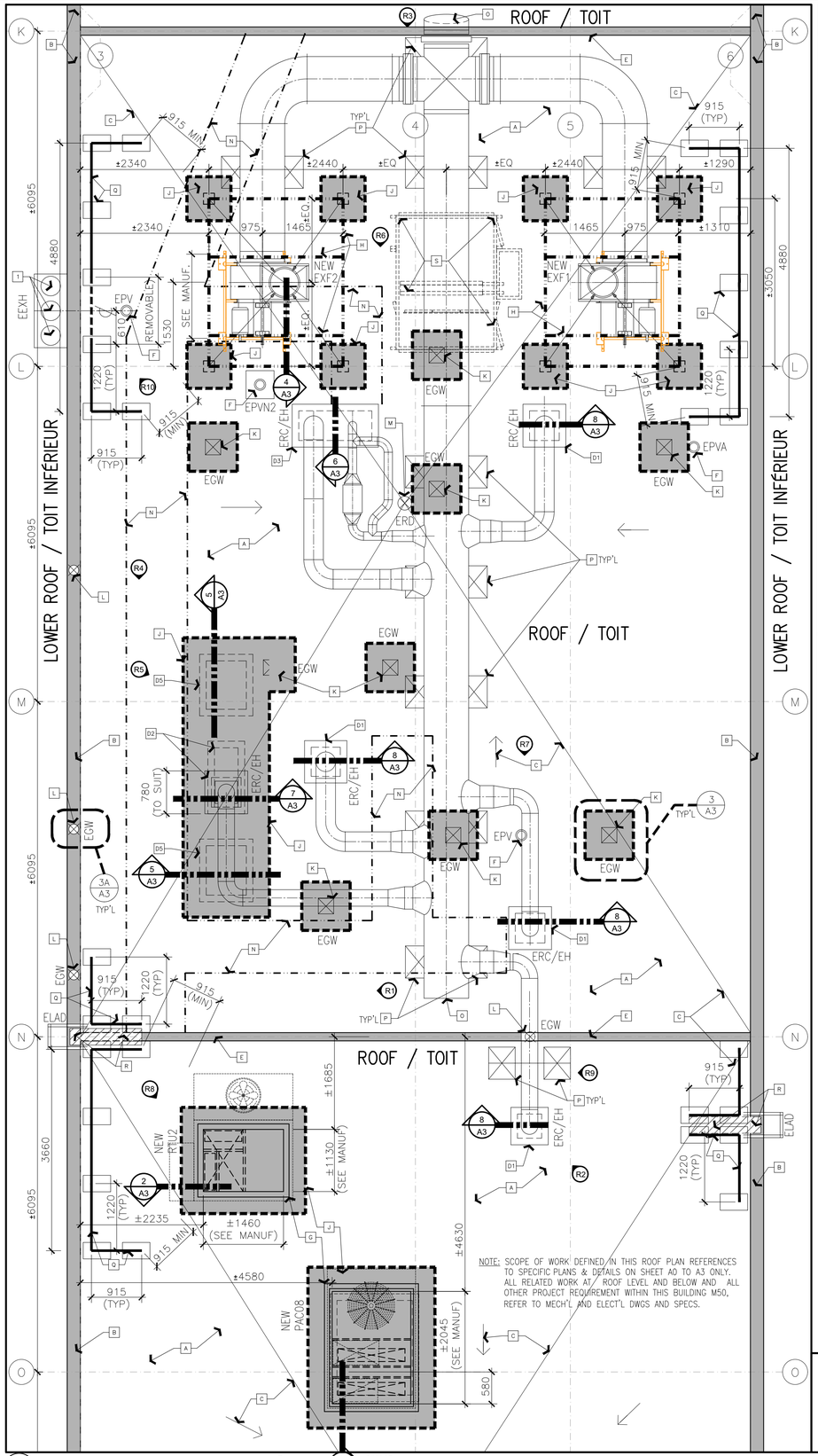
R8

R9



R10

MISC. PICS – ROOF (GROUP 'R')
N.T.S.



1 A2 MAIN ROOF PLAN – M50
SCALE 1:100

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

ROOF PLAN NOTES:

A – TYPICAL EXISITNG ROOF CONSTRUCTION TO REMAIN
–SINGLE PLY MODIFIED BITUMINOUS MEMBRANE COVER SHEET
–SINGLE PLY MODIFIED BITUMINOUS MEMBRANE BASE SHEET
–6mm ASPHALT BOARD
–50–75mm RIGID INSULATION (VARIES)
–SLOPED RIGID INSULATION TO SUIT DRAINAGE PATTERN
–VAPOUR BARRIER
–EXISTING SLOPED CONCRETE ROOF SLAB

B – EXISTING ROOF PERIMETER PARAPET TO REMAIN

C – EXISTING DRAINAGE PATTERN AND SLOPE TO EXISTING DRAINS. ENSURE ALL NEW RE–ROOFING WORK MEETS EXISTING FLOW DIRECTIONS. THICKEN INSULATION TO PROVIDE DOWNWARD SLOPE OF MEMBRANE IF NECESSARY.

D1 – EXISTING CURB ASSEMBLY TO REMAIN AND SIDE ROOFING TO REMAIN. PROVIDE NEW CAP ASSEMBLY TO SUIT NEW DUCTWORK SIZE PENETRATION (ALSO SEE DETAIL 8/A3).

D2 – EXISTING CURB ASSEMBLY AND ADJACENT ROOFING TO BE REMOVED. NEW PERIMETER CURB AND CAP ASSEMBLY TO BE SIZED TO SUIT ONE NEW DUCTWORK PENETRATION. EXISTING ADJACENT EXTRA HOLE PENETRATION TO BE COVERED WITH METAL PLATE ANCHORED TO ROOF STRUCTURE ENSURE CONTINUOUS FULL NEW ROOFING REPAIR DETAIL (ALSO SEE DETAIL 7/A3)..

D3 – EXISTING CURB TO BE MODIFIED IN HEIGHT TO SUIT NEW ELECT'L CONDUIT PENETRATIONS, ADJACENT ROOFING TO REMAIN.. PROVIDE NEW CAP ASSEMBLY TO SUIT NEW DUCTWORK SIZE PENETRATION(ALSO SEE DETAIL 6/A3)

D4 – NEW PREFABRICATED INSULATED ROOF CURB (SEE MECH'L SPECS).

D5 – EXISTING CURB ASSEMBLY AND ADJACENT ROOFING TO BE REMOVED.

E – EXISTING INTERMEDIATE CURB (CONTROL ROOF JOINT) TO REMAIN.

F – EXISTING PIPE VENT (NITROGEN/ACID/PLUMBING) AND ROOF CURB ASSEMBLY TO REMAIN (N.I.C.).

G – NEW HVAC UNIT (TYPE PAC08 AND RTU2) C/W PREFABRICATED INSULATED ROOF CURB, HORIZONTAL AIR FLOW SUPPLY AND RETURN COMPARTMENTS AND EXHAUST. SEE DETAIL 2/A2 AND STRUCTURAL DWGS. INTERIOR PERIMETER BOX TO BE LOCATED ON SITE TO SUIT EXISTING AND NEW SLAB OPENINGS. GENERAL CONTRACTOR TO COORDINATE DELIVERY, HOIST TO ROOF AND INSTALLATION ON SITE. TO BE COORDINATED WITH STRUCT'L/NRC REPRESENTATIVE. G.C. TO COORDINATE WITH STRUCTURAL FOR FINAL SIZE AND SEISMIC SUPPORT REQUIREMENTS.

H – NEW HVAC UNIT (TYPE EXF1 AND EXF2) C/W PREFABRICATED EXHAUST FAN SHAFT AND TOWER, ISOLATION BASE C/W SPRINGS AT CORNER SUPPORT DESIGNED FOR SEISMIC SUPPORT REQUIREMENTS. SEE DETAIL 4/A3 AND STRUCTURAL DWGS FOR MORE INFO. GENERAL CONTRACTOR TO COORDINATE DELIVERY, HOIST TO ROOF AND INSTALLATION ON SITE TO SUIT ALL RELATED COMPONENTS AS PER MANUFACTURERS AND SELECTED SPECIFICATIONS. EXACT LOCATION FOR INTERMEDIATE BEAMS AND SUPPORT TO BE COORDINATED PRIOR TO DELIVERY ON SITE WITH STRUCT'L/MANUF REPRESENTATIVE. G.C. TO COORDINATE WITH STRUCTURAL FOR FINAL SIZE AND SEISMIC SUPPORT REQUIREMENTS.

I – EXISTING EXHAUST FLUES AND MECHANICAL UNITS TO REMAIN (N.I.C.)

J – APPROXIMATE WIDTH OF ROOF AREA AFFECTED BY RE–ROOFING WORK IS SHOWN SHADED. G.C. TO CONFIRM WITH NRC REPRESENTATIVE.

K – EXISTING GUY WIRES, CURB AND ADJACENT PERIMETER ROOFING TO BE REMOVED TO EXTENT SHOWN. INFILL WITH NEW ROOFING AS PER DETAIL 3/A3.

L – EXISTING GUY WIRES RING SUPPORT ON EXISTING PARAPET TO REMAIN. RE–CAULK AND SEAL COMPLETELY EXPOSED PENETRATIONS. REMOVE GUY WIRES ONLY.

M – EXISTING ROOF DRAIN TO REMAIN.

N – EXISTING "SAFETY" WALKWAY (DIFFERENT COLOR) ROOFING MEMBRANE TO REMAIN

O – TERMINATE DUCTWORK WITH CAP EXTENSION FOR FUTURE CONNECTION.

P – PROVIDE FULL ROOFING SUPPORT FOR ALL DUCTWORK AND ACCOMODATE SEISMIC REQUIREMENTS. LAYOUT TO BE COORDINATED WITH MECH'L SUB–CONTRACTOR AND NRC REPRESENTATIVE..

Q – PROVIDE MODULAR ROOF BARRIERS C/W MODULAR STANDARD GUARDRAIL SYSTEM IN LOCATIONS AND CONFIGURATIONS SHOWN. COLOR YELOW. (SUITABLE MANUFACTURERS – SKYLINE / FIBERGRATE).

R – PROVIDE GUARDRAIL AND WALKWAY PLATFORM WITH GUARDS (TOW SIDES) WITH INSTALLATIONS ABOVE TOP PARAPET AND ADJACENT LOW ROOF CURB (COORDINATE ON SITE). PROVIDE ADEQUATE LEAD ON HANDRAILS TO SUIT EXISTING ACCESS ROOF LADDERS (QTY 2) COLOR YELOW. (SUITABLE MANUFACTURERS – SKYLINE / FIBERGRATE)

S – FUTURE HEAT RECOVERY UNIT (HRU). COORDINATE DUCTWORK TO ACCOMMODATE FUTURE INSTALLATION OF THE UNIT. SEE MECH'L FOR MORE INFO.

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NRC · CNRC

GENERAL NOTES

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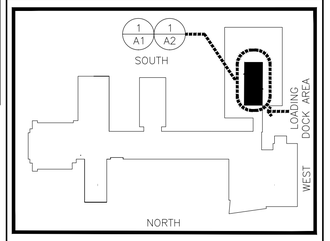
- CONTRACTOR MUST VISIT THE SITE AND FULLY FAMILIARIZE THEMSELF WITH THE SCOPE OF THE WORK PRIOR TO PROJECT COMMENCEMENT.
- ALL TRADES TO COORDINATE WORK ON SITE, WITH APPROVAL OF DEPARTMENTAL REPRESENTATIVE TO AVOID ANY CONFLICTS AND/OR INTERFERENCE.
- ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
- INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
- CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGE CAUSED BY WORK.
- CONTRACTOR SHALL PREVENT THE SPREAD OF DUST AND DEBRIS BEYOND AREA OF WORK AND CLEAN ALL SURFACES AT COMPLETION.

No.	Date	Revision	By/ Par.
1	MAR 2021	ISSUED FOR TENDER	JCW
0	NOV 2020	ISSUED FOR TENDER (DELAYED)	JCW
0	OCT 2020	ISS. FOR TRANSLATION	JCW
0	OCT 2020	DESIGN FINAL REVIEW – APPROVAL	JCW

Date Printed

KEY PLAN



BUILDING M-50 KEY PLAN
NOT TO SCALE

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l?état des lieux et en assumer la responsabilité

No de détail A / No du détail
No de dessin, emplacement sur dessin no
No de dessin C / n° de dessin

projet / projet
M50 Epitaxy Lab Renos
Ventilation and Exhaust System Upgrade

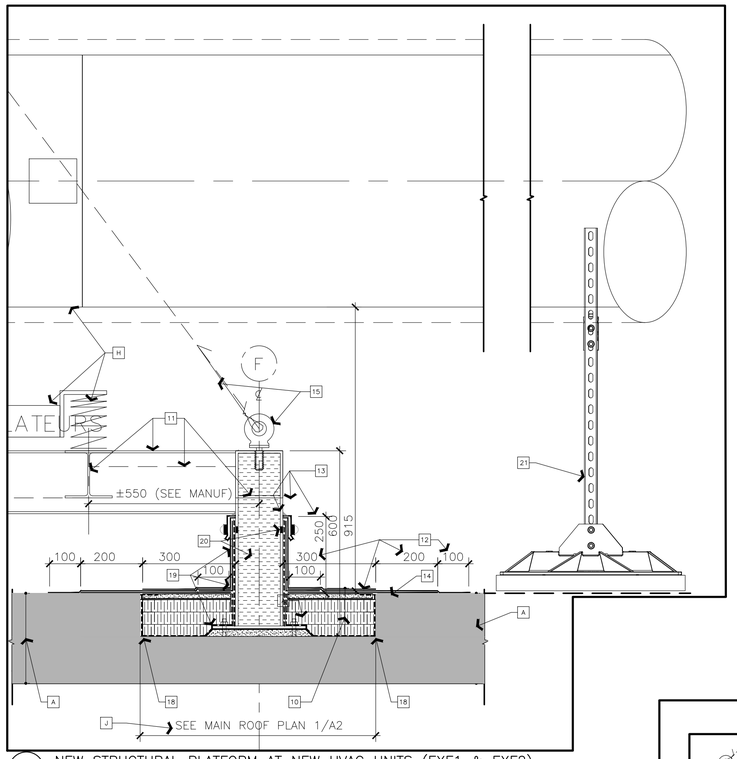
MONTREAL ROAD CAMPUS

dessin / dessin
– ROOF TOP PLAN
– ARCHITECTURAL ROOFING NOTES
– ROOFING PICTURES

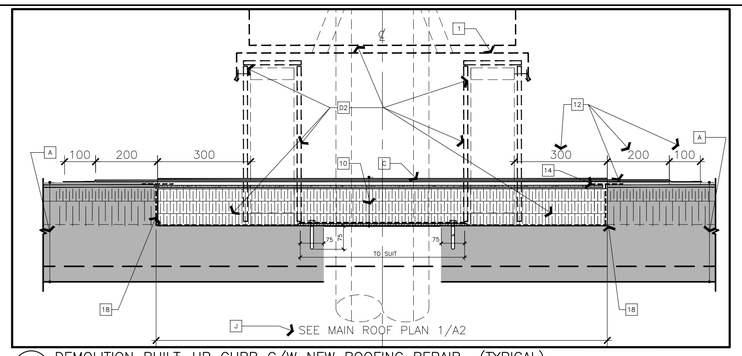
designed / conçu: JCW/ I.A.F. / Z.M.	Date / Date: NOV 2020
drawn / dessiné: JCW	scale / échelle: AS SHOWN
checked / vérifié: M.O. / I.A.F.	sheet / feuille: A2 of/de A3
approved / approuvé: M.O.	W.O.no. / N° d?ordre de travail: A1-013824-03

dwg.no. / n° de dessin: 5746-A2
Fichier ACAD 5746-AO to A3-TENDER-R1.dwg / fichier CDAO

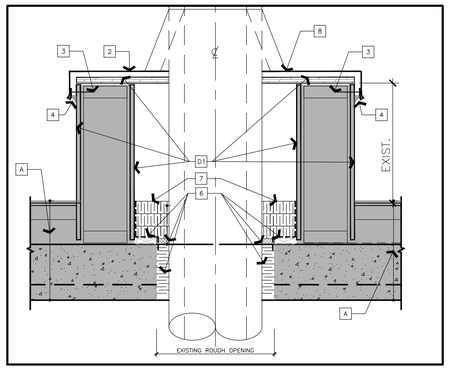
SAGI A1 (841x594)



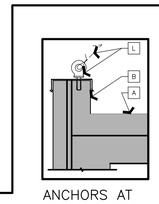
4 A2 NEW STRUCTURAL PLATFORM AT NEW HVAC UNITS (EXF1 & EXF2)
SCALE 1:10



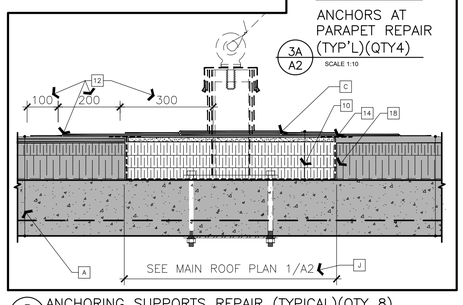
5 A2 DEMOLITION BUILT-UP CURB C/W NEW ROOFING REPAIR (TYPICAL)
SCALE 1:10



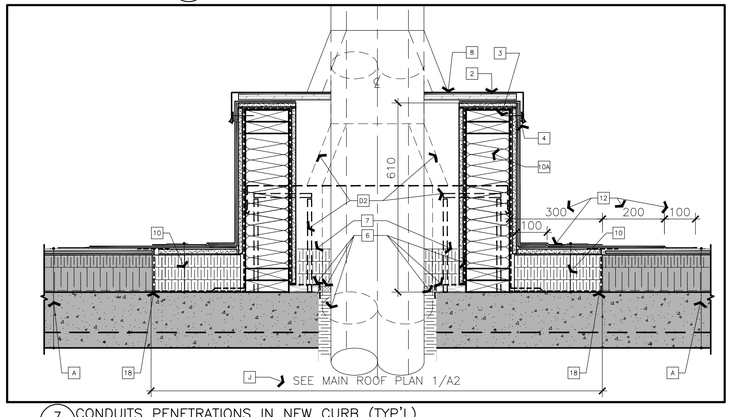
8 A2 CONDUITS PENETRATIONS IN EXISTING CURB (TYP'L)
SCALE 1:10



ANCHORS AT PARAPET REPAIR (TYP'L)(QTY4)
3A A2 SCALE 1:10

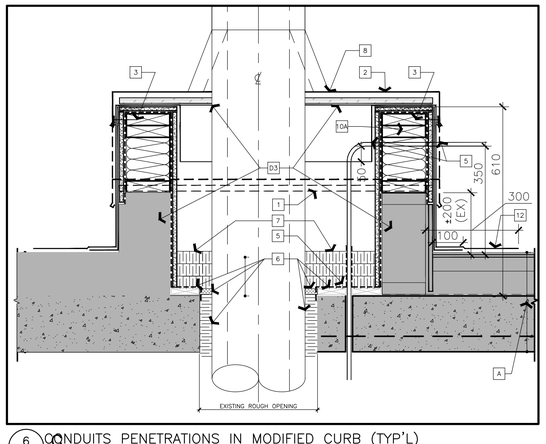


3 A2 ANCHORING SUPPORTS REPAIR (TYPICAL)(QTY 8)
SCALE 1:10



7 A2 CONDUITS PENETRATIONS IN NEW CURB (TYP'L)
SCALE 1:10

2 A2 NEW PREFABRICATED INSULATED ROOF CURB (PAC08 & RTU2)
SCALE 1:5



6 A2 CONDUITS PENETRATIONS IN MODIFIED CURB (TYP'L)
SCALE 1:10

1 A2 NOT USED
SCALE 1:5

ROOF DETAILS SPECIFIC NOTES:

1 – REMOVE COMPLETELY EXISTING METAL COVER ASSEMBLY AND FASTENING.

2 – PROVIDE , CONSTRUCT AND INSTALL NEW METAL CAP FLASHING (PRE-FINISHED) COVER AS A REMOVABLE COVER ASSEMBLY, NEW COVER CONSTRUCTION C/W 19mm PLYWOOD AND METAL PRE-FINISHED LINER TOPER AND PERIMETER SIDE DRIP EDGE AND ATTACHMENTS. CONSTRUCT TO INCLUDE ADEQUATE DRAINAGE SLOPE, CUT HOLE ON TOP OF CAP TO SUIT NEW DUCT SIZE OPENING., CAULK AND RE-SEAL AT JUNCTIONS OF METAL FLANGE SEE MECH'L FOR NEW SIZE.

3 – FASTEN COVER ASSEMBLY TO CURB USING LAG SCREWS WITH NEOPRENE WASHERS.

4 – CONTINUOUS CAULKING FULL PERIMETER AT FLASHING JUNCTION

5 – NEW ELECT'L / MECH'L PIPING AND SERVICES FOR NEW EXF1 & EXF2 TO BE INSTALLED AND CONNECTED TO NEW UNIT. SEAL AT ENTRY JUNCTION AND SLAB PENETRATIONS WITH PLASTIC CEMENT. (SEE MECH'L / ELECT'L DWGS FOR EXTENT)

6 – EXTEND VAPOUR BARRIER INSIDE FULL PERIMETER. FILL VOID WITH ROXUL INSULATION AND SEAL TOP WITH SPRAYED LOW EXPANSION POLYURATHANE

7 – REMOVE EXISTING FIBERGLAS INSULATION AND RE-INSTALL WITH NEW RIGID INSULATION (3 LAYERS X 50mm). TAPE ALL JUNCTIONS.

8 – SEAL AROUND ALL EXTERIOR FLANGES OF DUCTS WITH PLASTIC CEMENT.

9 – MAINTAIN EXISTING HOLES IN SLAB FOR NEW WORK. PROVIDE ADJACENT STEEL PLATE FOR NEW RIGD INSULATION SUPPORT AS NEEDED.. FIRESTOP COMPLETELY VOID ADJACENT TO DUCTWORK WITH ROXUL AND SEAL TOP WITH SPRAYED LOW EXPANSION POLYURATHANE. COORDINATE STEEL CHANNELS TO SUIT DUCT SIZE AND PLACEMENT.

10 – NEW REPAIR ROOFING ASSEMBLY
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE COVER SHEET
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE BASE SHEET
–NEW 6mm ASPHALT BOARD
–NEW 75mm–100mm RIGID INSULATION TO SUIT THICKNESS OF ADJACENT EXISTING ROOFING SLOPE AND DRAINAGE PATTERN.
–NEW CONTINUOUS VAPOUR BARRIER
–NEW STRUCTURAL STEEL PLATE (8mm THK) TO SUIT OPENING COVERAGE WHERE APPLICABLE.
–EXISTING SLOPED CONCRETE ROOF SLAB TO REMAIN.

10A– NEW ROOF CURB ASSEMBLY
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE COVER SHEET
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE BASE SHEET
–NEW 6mm ASPHALT BOARD
–NEW 38mmx140mm WOOD FRAMING @ 400mm O.C. C/W BOTTOM AND TOP PLATE, FILL WITH 140mm BATT INSULATION..
–NEW CONTNUOUS VAPOUR BARRIER WRAP THROUGHOUT.

10B– NEW PREFABRICATED INSULATED CURB (610mm HIGH HEAVY METAL GAUGE PROFILE, FACTORY INSTALLED WOOD NAILER, FULLY WELDED CORNERS, BASE FLANGE FOR SEISMIC AND BUILDING SUPPORT, REINFORCED SIDES, 3LBS RIGID INSULATION AND GASKETING(VALSO SEE MECH'L SPECS)
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE COVER SHEET
–NEW SINGLE PLY MODIFIED BITUMINOUS MEMBRANE BASE SHEET..
–NEW CONTINUOUS VAPOUR BARRIER WRAP INSIDE LINER OVER CANT STRIP (PROVIDE MIN 150mm OVELAP WITH OTHER ROOFING COMPONENTS THROUGHOUT.

11 – NEW STRUCTURAL STEEL ASSEMBLY C/W HSS POST, CHANNELS, TOP AND BOTTOM PLATES AND MISC SLAB ANCHOR BOLTS AND FASTENERS, AND BRACING ANGLES/CHANNELS. PROVIDE LEVEL/PLUM SURFACE FOR UNIT INSTALLATION. REFER TO STRUCTURAL DWG. SEE NOTE 'H' ON DWG 'A2'

12 – TYPICAL MEMBRANE ASSEMBLY. PROVIDE 100mm, 200mm AND 300mm OVERLAPS AS SHOWN.

13 – EXTEND VAPOUR BARRIER FULL PERIMETER OF HSS POST TO 300mm HIGH AS SHOWN c/w 100mm OVERLAPS. PROVIDE AND ENSURE CAP FLASHING TO SUIT AND CAULK PERIMETER. INTENT IS TO BLOCK HOLES NEEDED TO SPRAY THE INSIDE OF THE HSS.

14 – PROVIDE ROOFING TAPE AT JUNCTION WITH EXISTING.

15 – PROVIDE METAL GUY WIRE AND HOOK CONNECTIONS AS PART OF THE FOUR CORNERS OF THE STRUCTURAL HSS ASSEMBLY. COORDINATE HEIGHT, ANGLE AND TIE SUPPORT WITH STRCT'L / DUCT MANUF.

16 – NOT USED.

17 – NOT USED

18 – WHERE NEW VAPOUR BARRIER MEETS EXISTING, PROVIDE MIN 150mm OVERLAP .

19 – ENSURE NEW VAPOuR BARRIER OVERLAP OVER FULL STEEL BASE PLATE COMPONENTS.

20 – INSIDE HSS POST, FILL WITH LOW EXPANSION POLYURETHANE FULL DEPTH OF HSS POST. HSS POST TO BE PROVIDE WITH ADEQUATE HOLES (QTY 2) TO FILL INSIDE. HOLES LOCATION TO BE HIDDEN WITHIN MEMBRANE ASSEMBLY.

21 – PROVIDE FULL ROOFING SUPPORTS FOR ALL DUCTWORK AND ACCOMMODATE SEISMIC REQUIREMENTS. LAYOUT TO BE COORDINATED WITH MECH'L SUB-CONTRACTOR AND NRC REPRESENTATIVE

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Administrative Services and Property Management Branch / Division des services administratifs et gestion de l'?immobilier

NRC · CNRC

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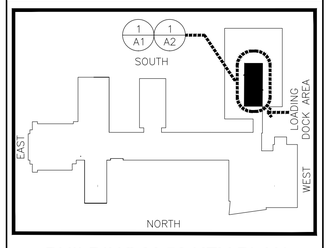
1	MAR 2021	ISSUED FOR TENDER	JCW
0	NOV 2020	ISSUED FOR TENDER (DELAYED)	JCW
0	OCT 2020	ISS. FOR TRANSLATION	JCW
0	OCT 2020	DESIGN FINAL REVIEW – APPROVAL	JCW

Date Printed

KEY PLAN



BUILDING M-50 KEY PLAN

NOT TO SCALE

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l?état des lieux et en assumer la responsabilité

No de détail A / No du détail
No de dessin, emplacement sur dessin no
No de dessin C / n° de dessin

projet / projet
M50 Epitaxy Lab Renos
Ventilation and Exhaust System Upgrade

MONTREAL ROAD CAMPUS

dessin / dessin
– ROOF DETAILS
– ARCHITECTURAL ROOFING NOTES

designed / conçu	Date / Date
JCW/ I.A.F. / Z.M.	NOV 2020
drawn / dessiné	scale / échelle
JCW	AS SHOWN
checked / vérifié	sheet / feuille
M.O. / I.A.F.	A3 of/de A3
approved / approuvé	W.O.no. / N° d?ordre de travail
M.O.	A1-013824-03

dwg.no. / n° de dessin
5746-A3
Fichier ACAD 5746-AO to A3-TENDER-R1.dwg / fichier CDAO

SAGI A1 (841x594)

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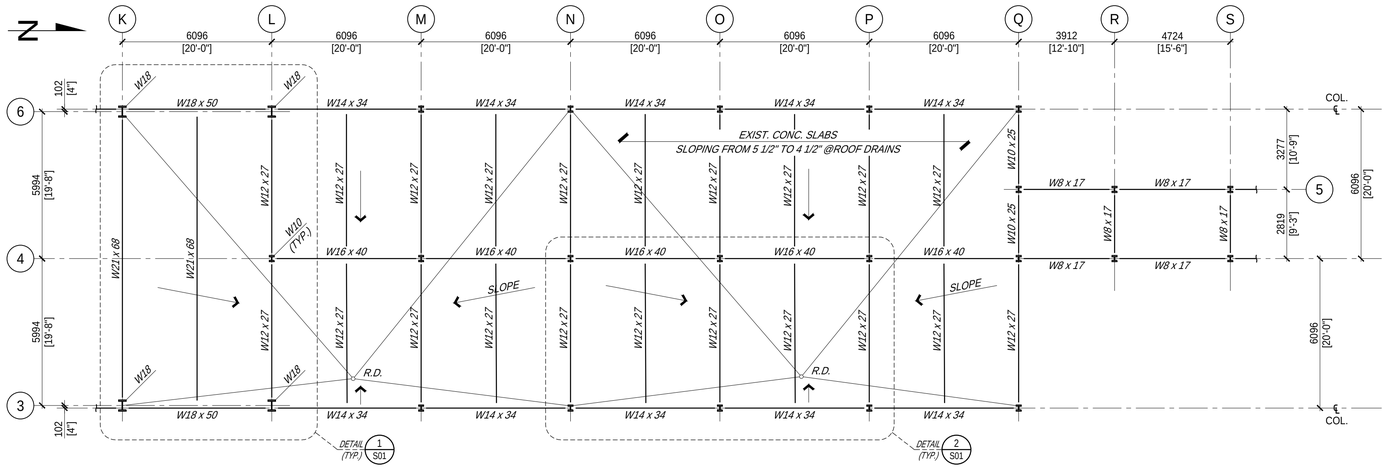
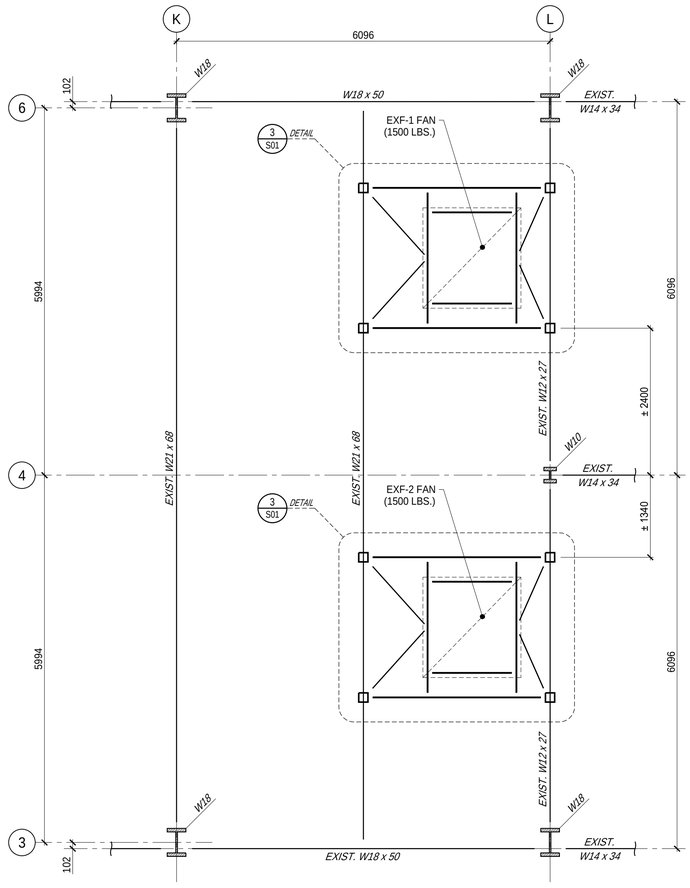


PART HIGH ROOF PLAN - SHOWING EXISTING CONSTRUCTION

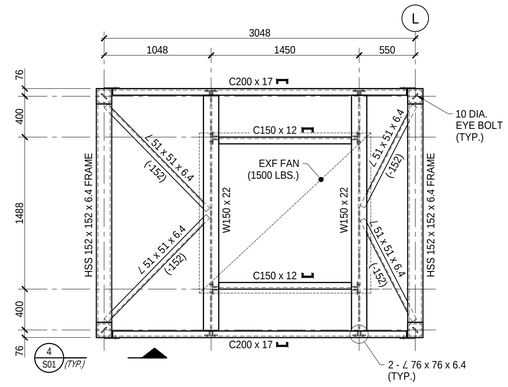
SCALE = 1:125

- TOP OF STEEL (T.O.S.) ELEVATION = 306'-8 1/2"
- R.D. = ROOF DRAIN



1 S01 PART HIGH ROOF PLAN (EXF FANS)

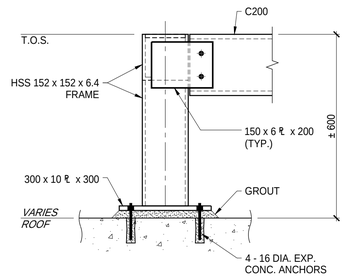
SCALE = 1:50



3 S01 DETAIL (EXF FAN)

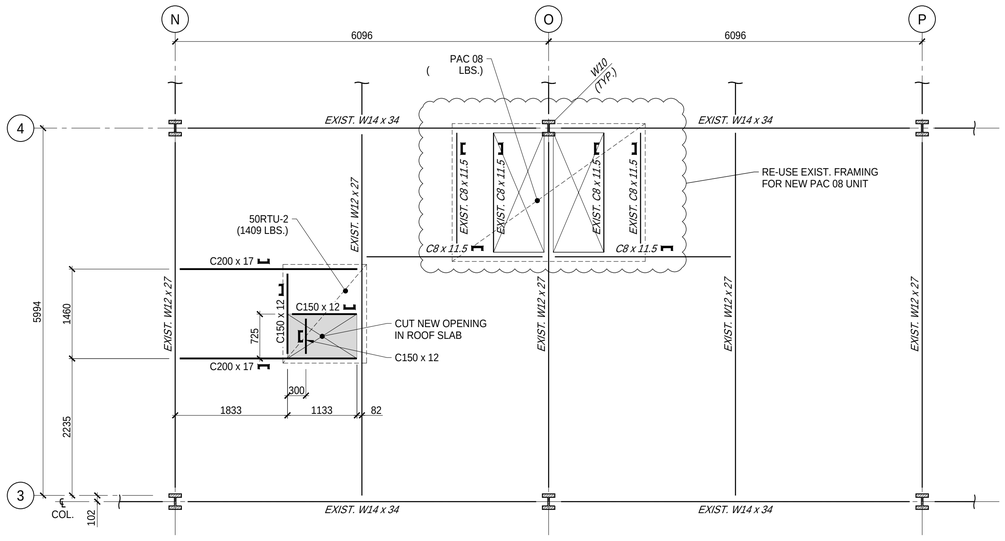
SCALE = 1:30

NOTE:
THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS WITH EXF FAN SHOP DRAWINGS



4 S01 SECTION

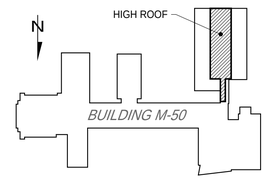
SCALE = 1:10



2 S01 PART HIGH ROOF PLAN (PAC 08 & 50RTU-2)

SCALE = 1:50

NOTE:
THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS WITH 50RTU-2 SHOP DRAWINGS



KEY PLAN
N.T.S.

GENERAL NOTES:

STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20-04 AND CSA G40.21-04.
- ALL WELDING MATERIALS SHALL CONFORM TO CSA W48.06.
- WELDING SHALL CONFORM TO CSA W59-03 (R2008) AND SHALL BE CARRIED OUT BY WELDERS QUALIFIED BY THE CANADIAN WELDING BUREAU.
- ALL BOLTS SHALL BE 19 mm DIA. HIGH TENSILE BOLTS CONFORMING TO ASTM F3125, GRADE A325.
- SANDBLAST STEEL SURFACES AND APPLY AMERCOAT 370, TWO-COMPONENT FAST-DRY MULTI-PURPOSE EPOXY COATING.
- APPLY ONE COAT OF AMERSHIELD TM, TWO-COMPONENT, POLYESTER-ACRYLIC ALIPHATIC POLYURETHANE TOP COAT, COLOUR GREY.
- THE STRUCTURAL STEEL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW BEFORE THE START OF FABRICATION.
- THE CONTRACTOR SHALL VERIFY DIMENSIONS ON SITE BEFORE THE START OF FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO CAN/CSA S16-14.

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Division des services administratifs et gestion de l'immobilier

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LICENSED PROFESSIONAL ENGINEER
R. LEIBE
26371500
PROVINCE OF ONTARIO

NOVEMBER 16, 2020

No.	Date	Revision	By: Par:
1	NOV 23/2020	ISSUED FOR TENDER	R.L.
0	NOV 16/2020	PRELIMINARY	R.L.

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

A Detail no. No. du détail
B Location drawing no. sur dessin no.
C Drawing no dessin no.

project / projet

BUILDING M-50
EPITAXI LAB MODIFICATIONS

MONTREAL ROAD CAMPUS

drawing / dessin

STRUCTURAL:
PART ROOF PLANS AND DETAILS

designed / conçu: R.L.	date: OCTOBER, 2020
drawn / dessiné: D.M.D.	scale / échelle: AS SHOWN
checked / vérifié: R.L.	sheet / feuille: S01 of/de S01
approved / approuvé	W.O.no. / D.T.no.

dwg.no. / dessin no.: 5746-S01

LEA20095

ASPM A1 (841 x 594)

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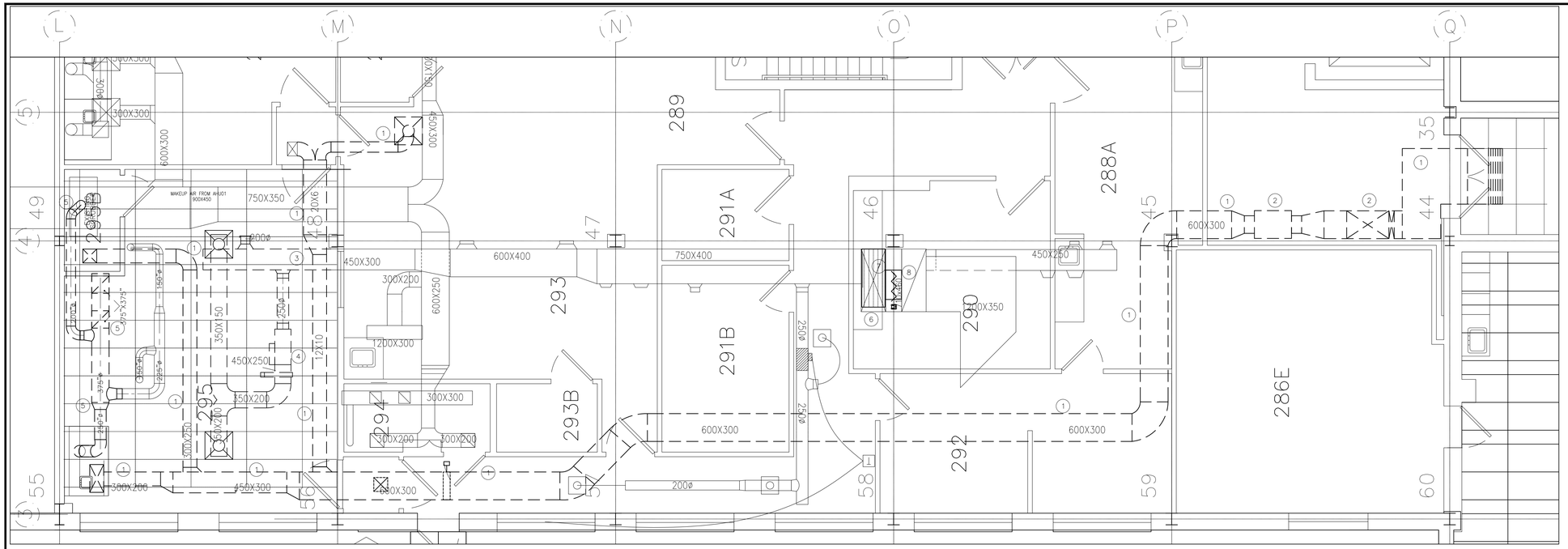
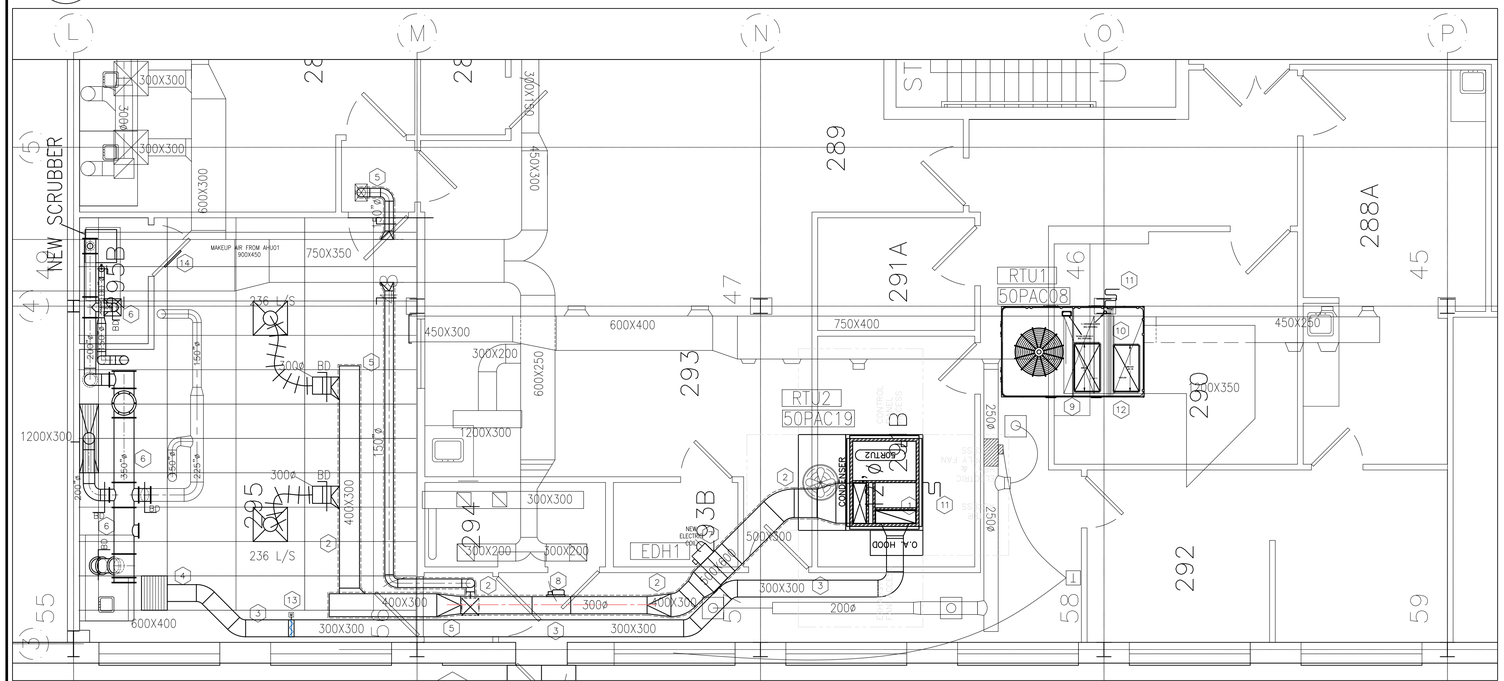


1 MO1 DEMOLITION PLAN – SOME DUCTWORK ARE BEING OMITTED FOR CLARITY

SCALE = 1:50



2 MO1 NEW WORK PLAN

SCALE = 1:50

DEMOLITION NOTES: (X)

1. REMOVE EXISTING MAKE UP AIR DUCTWORK AS SHOWN. REMOVE DIFFUSERS. KEEP SUPPLY REGISTERS SERVING THE VESTIBULES.
2. REMOVE EXISTING MAKEUP AIR FAN AND FILTER BOX AS SHOWN.
3. REMOVE PORTION OF EXISTING SUPPLY DUCTWORK. CUT BACK AS SHOWN AND CAP.
4. AFTER ELECTRICAL DISCONNECTION, REMOVE EXISTING VAV BOX C/W THE ELECTRIC COIL.
5. REMOVE EXISTING EXHAUST DUCTWORK AS SHOWN AND PREPARE FOR NEW DUCTWORK ARRANGEMENT.
6. DISCONNECT AND REMOVE EXISTING ROOF-TOP UNIT C/W ALL CONTROLS AND ROOF CURB. EXISTING SUPPLY AND RETURN DUCTWORK TO REMAIN; MODIFY TO SUIT THE NEW RTU.
7. DISCONNECT AND REMOVE EXISTING ELECTRIC HEATING COIL IN THE MAIN SUPPLY DUCT.
8. REMOVE EXISTING BYPASS DAMPER. CAP OPENINGS ON EXISTING SUPPLY AND RETURN DUCT.

NEW WORK NOTES: (X)

1. OUTLINE OF NEW RTU ON ROOF. INSTALL NEW RTU (SUPPLIED BY NRC). PROVIDE 600MM HIGH NEW SEISMIC ROOF CURB.
2. NEW SUPPLY AIR DUCTWORK C/W NEW DIFFUSERS. CONNECT TO NEW RTU. OFFSET AROUND SERVICES AS NEEDED. INSULATE DUCTWORK AS PER SPECS.
3. NEW RETURN AIR DUCTWORK AS SHOWN. CONNECT TO NEW RTU. OFFSET AROUND SERVICES AS NEEDED.
4. NEW RETURN REGISTER.
5. NEW MUA DUCTWORK FOR THE VESTIBULES AS SHOWN C/W BALANCING DAMPERS. BALANCE FOR 100CFM. CONNECT TO EXISTING REGISTERS.
6. NEW STAINLESS STEEL EXHAUST DUCTWORK.
7. NEW 31KW MODULATING ELECTRIC COIL.
8. NEW AIR FLOW STATION. RUSKIN MODEL CDRAMS C/W ACTUATOR AND FLOW METER MODEL DPT-IQ.
9. PROVIDE NEW 600MM HIGH SEISMIC ROOF CURB, REFER TO ARCHITECTURAL FOR DETAILS.
10. PROVIDE NEW (50PAC08) ROOF-TOP UNIT. PROVIDE TRANSITION DUCTWORK BETWEEN NEW UNIT AND EXISTING DUCTWORK. REFER TO SCHEDULE FOR EQUIPMENT DETAILS.
11. PROVIDE TYPE "K" COPPER, 25mm DIA. CONDENSATE DRAIN TRAP AS SHOWN. MINIMUM TRAP DEPTH 100mm. PROVIDE PATIO STONE ON ROOF AND TERMINATE CONDENSATE DRAIN ABOVE PATIO STONE.
12. USING EXISTING THERMOSTATS IN SPACE TO DRIVE ALL VAV BOX TO 100% OPEN, BALANCE ROOF-TOP UNIT AIRFLOW TO 1887 L/s (4000 CFM), AND SET THE MINIMUM ECONOMIZER INTAKE AIR FLOW TO 283 L/s (600 CFM). USE THE DISCHARGE AIR STATIC PRESSURE AS THE SETPOINT FOR UNIT FAN VFD CONTROL.
13. NEW ULTRA LOW LEAKAGE ISOLATION DAMPER, TAMCO SERIES 1500.
14. NEW 400X400 DOOR TRANSFER GRILLE.

CONTROL NOTES: (◇)

1. ALL DDC WORK SHOULD BE CARRIED OUT BY AINSWORTH CANADA, CONTACT: AARON DOBSON, (613)247-7938, AARON.DOBSON@AINSWORTH.COM
2. PROVIDE CONNECTION TO BACnet COMMUNICATION INTERFACE ON NEW 50PAC08 AND RTU2 ROOF-TOP UNITS. REFER TO TABLE FOR POINTS TO BE MAPPED. CREATE GRAPHICS TO SHOW MAPPED POINTS.

MECHANICAL DRAWING LIST

DWG NO.	DRAWING TITLE
5746-M01	MECHANICAL PLAN, DEMOLITION AND NEW WORK
5746-M02	MECHANICAL PLAN, EXHAUST SYSTEM, DEMOLITION AND NEW WORK
5746-M03	MECHANICAL ELEVATIONS AND PARTIAL PLAN RM 295
5746-M04	EQUIPMENT SCHEDULE, LEGEND AND DETAILS
5746-M05	CONTROL SCHEMATIC, EXHAUST SYSTEM AND RM 295 RTU
5746-M06	CONTROL SCHEMATIC FOR 50PAC08 SYSTEM

C

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

RPPM A1 (841x594)

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- CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGE CAUSED BY WORK.
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KEY PLAN / PLAN CLÉ

No.	Date	Revision	By/Par:
0	25 01 2021	ISSUED FOR TENDER – EMS POUR APPEL D'OFFRES	IAF

Date Printed DD MM YYYY / Date imprimée

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A Detail no. No. du détail
B Location drawing no. sur dessin no.
C Drawing no. dessin no.

project / projet

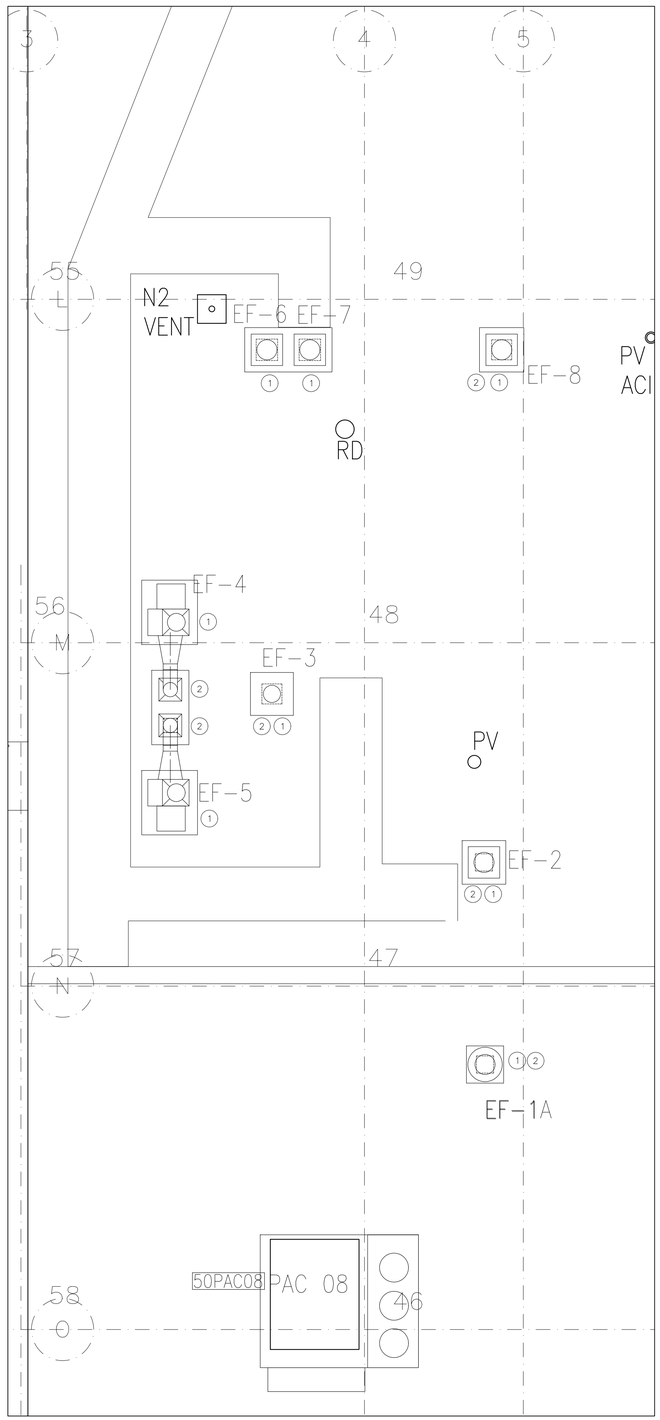
BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin

MECHANICAL PLAN,
DEMOLITION AND NEW WORK

designed / conçu: I.A.F.	date / date: JANUARY 2021
drawn / dessiné: I.A.F.	scale / échelle: AS NOTED
checked / vérifié: M.O.C.	sheet / feuille: M01 of/de M06
approved / approuvé: M.O.C.	W.O.no.: A1-013824-03
dwg.no. / dessin no.: 5746-M01	D.T.no.

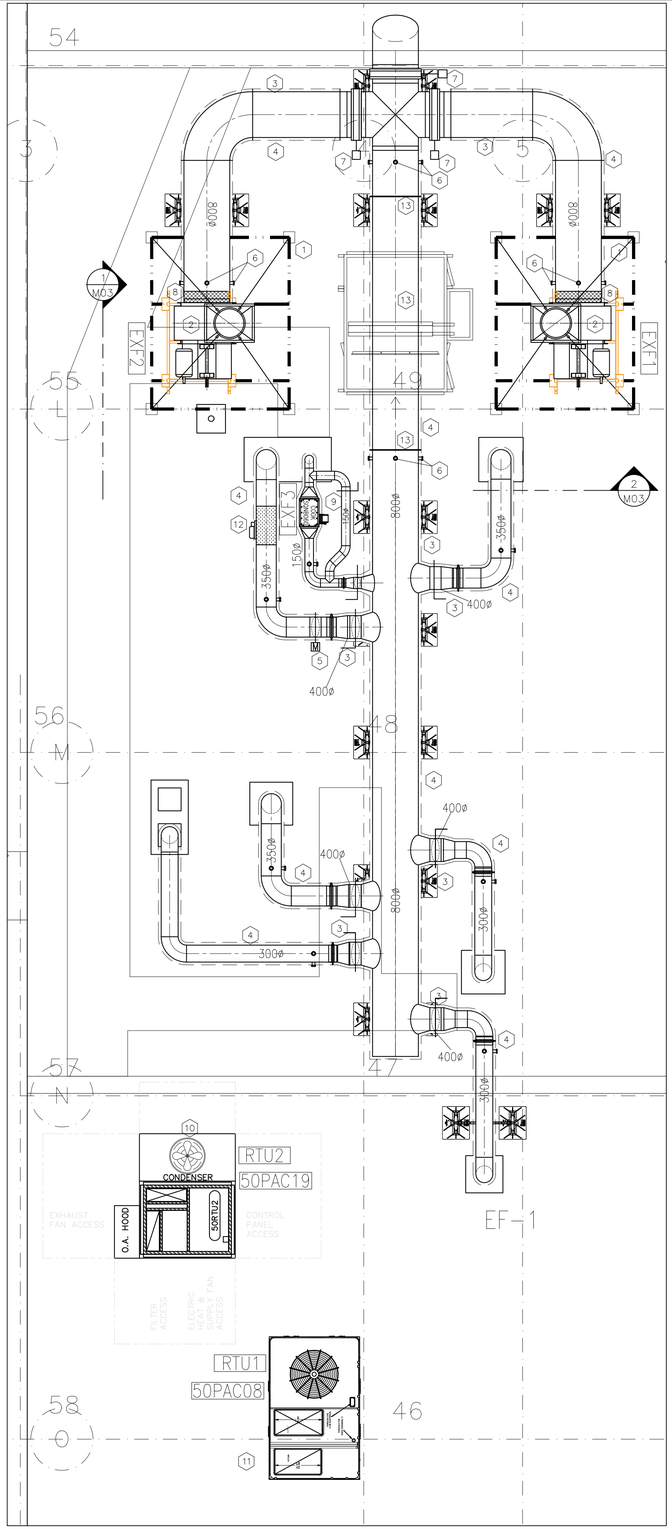


1 M02 DEMOLITION PLAN

SCALE = 1:50

DEMOLITION NOTES: (X)

1. TYPICAL, DISCONNECT AND REMOVE EXISTING EXHAUST FAN.
2. TYPICAL, REMOVE ALL MECHANICAL EQUIPMENT CONTROLS AND ISOLATION DAMPER ACTUATORS. REPLACE ACTUATORS WITH MANUAL HANDLES. KEEP DAMPER FULLY OPEN. FOR 50XAFEF05, KEEP THE DAMPER CLOSED. ELECTRICAL DIVISION TO REMOVE ALL THE ELECTRICAL CONTROL COMPONENTS.



2 M02 NEW WORK PLAN

SCALE = 1:50

NEW WORK NOTES: (X)

1. NEW STEEL STRUCTURE FOR THE NEW EXHAUST FANS.
2. NEW ,NRC SUPPLIED, EXHAUST FANS. REFER TO SCHEDULE FOR DETAIL. PROVIDE SEISMIC SUPPORTS.
3. NEW STAINLESS STEEL EXHAUST DUCTWORK AS SHOWN. ALL BRANCHES TO BE EQUIPPED WITH SS RUSKIN IRIS BALANCING DAMPERS AND SS ISOLATION/BALANCING DAMPERS. PROVIDE SEISMIC SUPPORTS.
4. INSULATE NEW EXHAUST DUCTWORK WITH 50MM (2") INSULATION (MULTI-FLEX GF GLASS FIBER, SEMI RIGID BOARD), AND FINISH WITH (VENTURECLAD 1577CW) JACKET.
5. NEW MODULATING DAMPER FOR THE DUCT BRANCH SERVING ROOM 295. DAMPER WILL MODULATE TO MAINTAIN THE DIFFERENTIAL PRESSURE SET-POINT IN RM 295 IN REFERENCE TO ROOM 293, 294 AND 289B, IF REQUIRED.
6. AIR BALANCING PORTS FOR TRAVERSE READINGS. TYPICAL.
7. NEW 36X36 ULTRA LOW LEAKAGE ISOLATION/CONTROL DAMPER WITH ROUND 32"ø SS TRANSITION, TA MORRISON SERIES 1500, OPPOSED BLADE, C/W MODULATING DAMPER ACTUATOR.
8. NEW FLEXIBLE CONNECTION.
9. NEW INLINE BOOSTER FAN. SEE SCHEDULE FOR DETAILS. PROVIDE A FLANGED SPOOL PIECE OF DUCT TO FIT THE SPACE OF THE FAN IF THERE IS A NEED TO BE REMOVED.
10. NEW RTU FOR ROOM 295. SUPPLIED BY NRC. PROVIDE NEW 600MM HIGH ROOF CURB.
11. NEW RTU 50PAC08.
12. NEW AIR FLOW STATION. RUSKIN MODEL CDRAMS C/W ACTUATOR AND FLOW METER MODEL DPT-IQ.
13. FUTURE HEAT RECOVERY UNIT (HRU). COORDINATE DUCTWORK TO ACCOMMODATE FUTURE INSTALLATION OF THE UNIT. INSTALL FLANGES AT A DISTANCE OF ABOUT 4.5m BETWEEN THE FLANGES. INTERMEDIATE FLANGES ARE NOT SHOWN.

CONTROL NOTES: (◇)

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   REFER TO SPECS FOR THE SEQUENCE OF OPERATIONS.

GENERAL NOTES FOR SEQUENCE OF OPERATION FOR ROOM 295:

1. AIR BALANCING FOR THE EXHAUST SYSTEM IN ROOM 295 MUST BE COMPLETED TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE. IN GENERAL, THE EXHAUST AIR BALANCING SHALL BE DONE WITH A DIVERSITY FACTOR OF 150% WITH THE MODULATING DAMPER FULLY OPEN. WHEN THE EXHAUST AIR BALANCING IS COMPLETED, LOCATE THE % POSITION OF THE MODULATING DAMPER FOR THE 100% DIVERSITY FACTOR OF THE REQUIRED EXHAUST AIR FLOW FOR THE ROOM TO MAINTAIN THE DIFFERENTIAL PRESSURE BETWEEN ROOM 295 AND (293, 294 AND 289B), AT AROUND -4Pa.

REFER FOR SPECS FOR SEQUENCE OF OPERATIONS.

GENERAL MECHANICAL NOTES:

1. PROVIDE AN AIR FLOW SURVEY FOR ALL THE EXISTING EXHAUST FANS BEFORE THEY ARE REMOVED. PROVIDE A BALANCING REPORT TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW. SHOW IN THE REPORT THE AIRFLOW OF THE SYSTEM AND THE STATIC PRESSURE AT THE INTAKE OF THE FAN. IF FUMEHOODS ARE CONNECTED TO THE SYSTEM, OPEN THE SASH OF THE FUMEHOODS TO MAXIMUM.
2. DEPARTMENTAL REPRESENTATIVE WILL PROVIDE THE AIRFLOW REQUIREMENT FOR ALL BRANCHES, FOR AIR BALANCING PURPOSE FOR THE NEW SYSTEM, AFTER RECEIVING THE AIR FLOW SURVEY.

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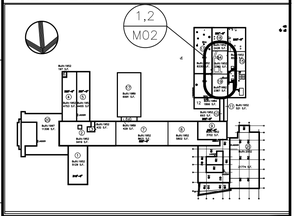

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project / projet

BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin

MECHANICAL PLAN, EXHAUST SYSTEM, DEMOLITION AND NEW WORK

designed / conçu	date / date
I.A.F.	JANUARY 2021
drawn / dessiné	scale / échelle
I.A.F.	AS NOTED
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M.O.C.	M02 of/de M06
approved / approuvé	W.O.no. / D.T.no.
M.O.C.	A1-013824-03

dwg.no. / dessin no.

5746-M02

RPPM A1 (841x594)

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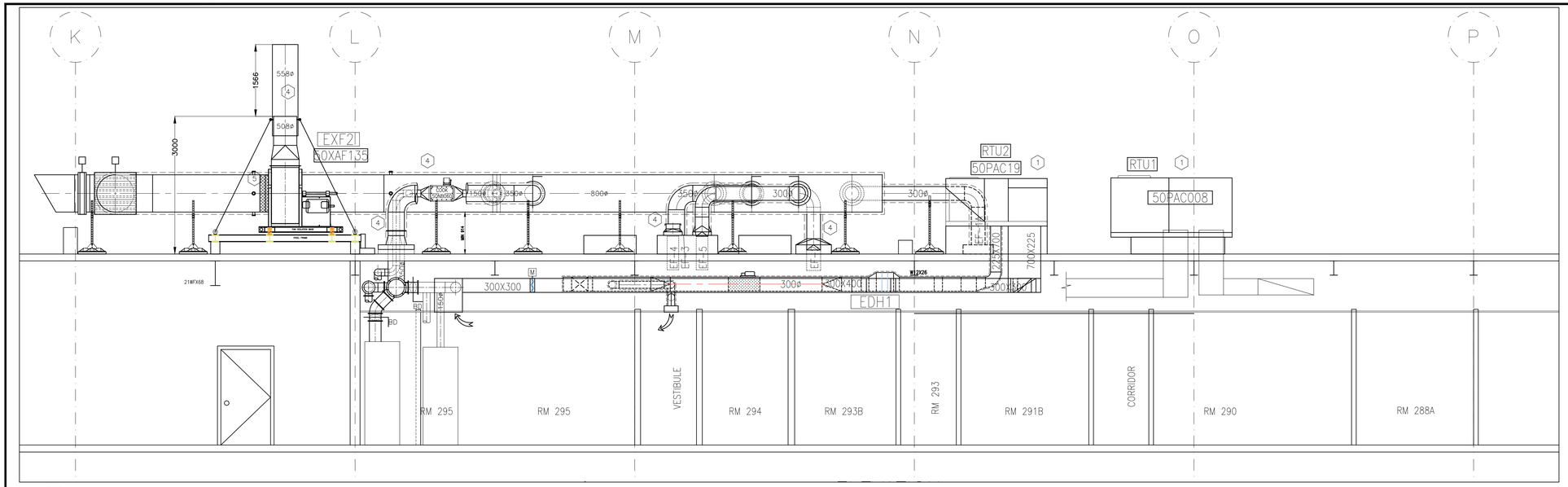
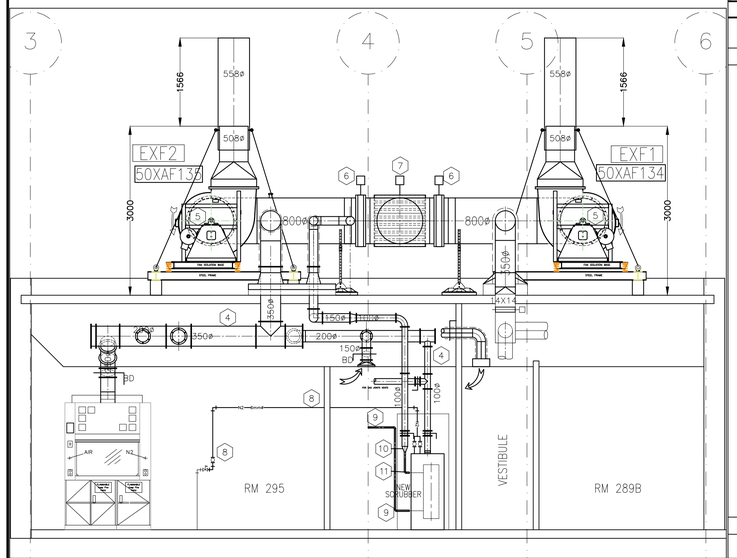


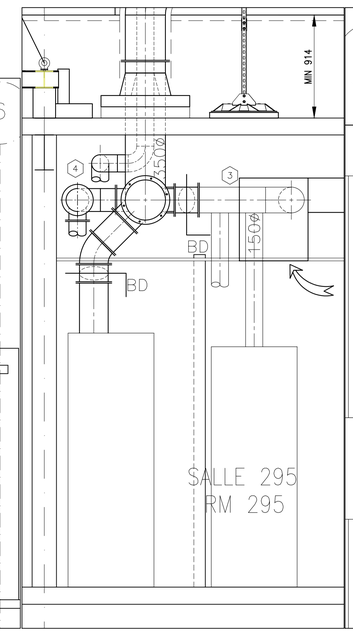
1 M03 ELEVATION VIEW

SCALE = 1:50



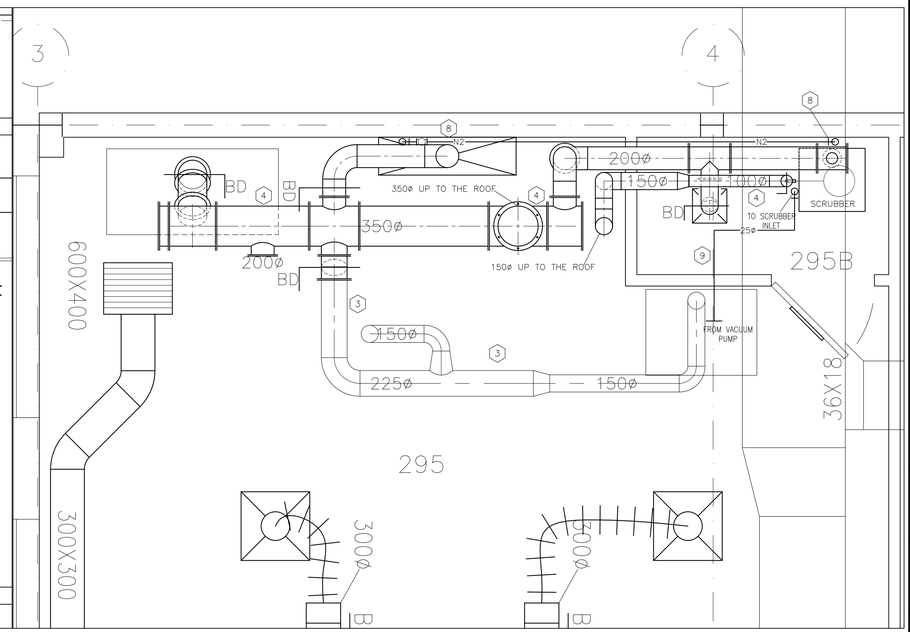
2 M03 ELEVATION VIEW

SCALE = 1:50



3 M03 ELEVATION VIEW

SCALE = 1:25



4 M03 PLAN VIEW – RM 295

SCALE = 1:25

NEW WORK NOTES: (X)

1. NEW RTU2 (SUPPLIED BY NRC).
2. NEW 50PAC08 (RTU1).
3. EXISTING EXHAUST DUCTWORK TO REMAIN.
4. NEW 316 STAINLESS STEEL EXHAUST DUCTWORK.
5. NEW EXHAUST FANS.
6. NEW ISOLATION MOTORIZED DAMPERS.
7. NEW BYPASS MOTORIZED DAMPER.
8. NEW 6MM NITROGEN TUBE. CONNECT TO EXISTING N2 REGULATOR C/W SWAGELOCK ISOLATION VALVE. SPLIT TO 2 BRANCHES AT THE SCRUBBER AND CONNECT TO THE SCRUBBER WITH 2 SWAGELOCK VALVES.
9. NEW 25MM 316L STAINLESS STEEL (DN25 ISO-KF) WELDED PIPE. CONNECT TO EXISTING VACUUM PUMP IN THE EXISTING CABINET AND TO THE INTAKE OF THE SCRUBBER USING KF CHAIN CLAMP(DN20/25) AND STAINLESS STEEL (DN20-25 ISO-KF) OUTER CENTERING RING. NO UN-WELDED JOINTS ARE ALLOWED OUTSIDE THE PUMP CABINET OR THE SCRUBBER. EXACT ROUTING TO BE COORDINATED ONSITE.
10. 100mmø TO 25mmøEXHAUST DUCT REDUCER.
11. NEW 25MM 316L STAINLESS STEEL (DN25 ISO-KF) WELDED PIPE. CONNECT TO THE OUTLET OF THE SCRUBBER USING KF CHAIN CLAMP(DN20/25) AND STAINLESS STEEL (DN20-25 ISO-KF) OUTER CENTERING RING.

RPPM A1 (841x594)

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

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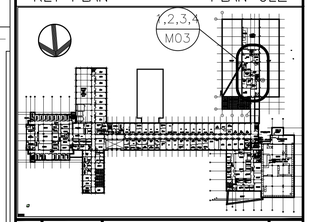

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project / projet

BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin

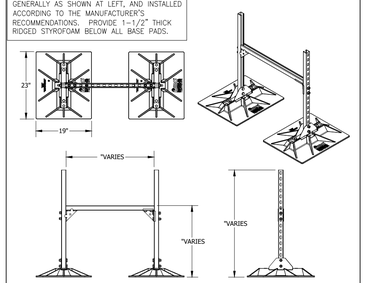
MECHANICAL ELEVATIONS AND PARTIAL PLAN RM 295

designed / conçu	date / date
I.A.F.	JANUARY 2021
drawn / dessiné	scale / échelle
I.A.F.	AS NOTED
checked / vérifié	sheet / feuille
M.O.C.	M03 of/de M06
approved / approuvé	W.O.no. / D.T.no.
M.O.C.	A1-013824-03

dwg.no. / dessin no.

5746-M03

PROVIDE ROOF DUCTING SUPPORTS EQUIVALENT TO MIRO INDUSTRIES INC. ROOFTOP SUPPORT PRODUCTS MODELS 6-DS, 8-DS, 10-DS, GENERALLY AS SHOWN AT LEFT, AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE 1-1/2" THICK RIDGED STYROFOAM BELOW ALL BASE PADS.



1 M04 DUCT SUPPORT DETAIL

SCALE = N.T.S

Fans

BASE MANUFACTURER
TWIN CITY - (SUPPLIED BY NRC)

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	FAN TYPE	FAN CFM	FAN Ø "wg	FAN RPM	FAN BHP	FAN MOTOR HP	FAN MOTOR RPM	ELECTRICAL V/Ph/Hz	VIBRATION ISOL. TYPE	NOTES
EXF1	50XAF134	BAF 300	AF SWSI	10000	3.00	1110	6.4	10	1800	208/3/60	SPRING	TEFC PREMIUM EFFICIENCY MOTOR W SHAFT GROUNDING / EPOXY COATED IN AIRSTREAM / AMCA TYPE 'A' SPARK RESIST, CLOCKWISE
EXF2	50XAF135	BAF 300	AF SWSI	10000	3.00	1110	6.4	10	1800	208/3/60	SPRING	TEFC PREMIUM EFFICIENCY MOTOR W SHAFT GROUNDING / EPOXY COATED IN AIRSTREAM / AMCA TYPE 'A' SPARK RESIST, COUNTER CLOCKWISE

ISOLATION BASE AND SEISMICALLY-RATED SPRING ISOLATORS FOR EACH EXHAUST FAN. ALL FANS TO BE EQUIPPED WITH A PIEZOMETER RING FOR AIR FLOW MEASURING. FANS HOUSING TO HAVE A DRAIN PLUG.

Fans

BASE MANUFACTURER
LOREN COOK

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	FAN TYPE	FAN CFM	FAN Ø "wg	FAN RPM	FAN BHP	FAN MOTOR HP	FAN MOTOR RPM	ELECTRICAL V/Ph/Hz	VIBRATION ISOL. TYPE	NOTES
EXF3	50XAF136	60-SQNB	INLINE	100	2.5	3230	0.5	1.0	3600	115/1/60	–	TEFC PREMIUM EFFICIENCY MOTOR W SHAFT GROUNDING / EPOXY COATED IN AIRSTREAM / AMCA TYPE 'A' SPARK RESIST

PROVIDE FAN SUPPORT BASE.

Electric Reheat Coil

BASE MANUFACTURER
NEPTRONIC

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	FUNCTION	DIMENSION (WXHXD)	AIRFLOW (L/S)	ELECTRICAL V/Ph/Hz	ELECTRICAL KW	NOTES
EDH1	50UNH43	DF C100H	HEATING	500x600x175	472	208/3/60	31	SCR CONTROLLER, AIRFLOW PROVING SWITCH, HIGH LIMIT STAT

RTUs

BASE MANUFACTURER
DAIKIN, SUPPLIED BY NRC

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	REFRIGERANT TYPE	COOLING TYPE	AIRFLOW SCFM	AIRFLOW Ø "WG	AIRFLOW L/S	AIRFLOW Ø Pa	COOLING CAPACITY kW/MBTU TOTAL	COOLING CAPACITY kW/MBTU SENSIBLE	HEATING kW	HEATING MBTU	HEATING STAGES	EFFICIENCY EER	EFFICIENCY IEER	ELECTRICAL V/Ph/Hz	ELECTRICAL MCA	ELECTRICAL MOP	NOTES
RTU2	50PAC19	DPS005A	R410a	DX	1800	0.75	849	187.5	17.98 /61.3	13.7/46.8	6.0	20.5	SCR	–	–	208/3/60	35.8	A28.6	A SINGLE ZONE VAV TECHNOLOGY LOW-LEAK ECONOMIZER WITH DRYBULB CONTROL, ECM MOTOR, RETURN FAN ESP, 0.5 INWG AT 1800CFM.

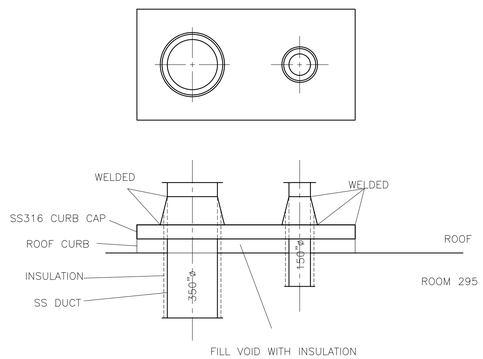
C/W NON-FUSED DISCONNECT SWITCH, FIELD POWERED 115V GFI OUTLET, CONTROL STRIPS FOR COOLING, HEATING AND VENTILATION CONTROL (FACTORY INSTALLED). THE UNIT WILL BE OPERATED AT 10000CFM, 100% OUTDOOR AIR, COOLING EAT DB/WB 90/72°F, LAT DB/WB 53.6/53.6°F, HEATING EAT DB -17°F, LAT DB 1.9°F, MODULATING INVERTER TYPE SCROLL COMPRESSOR. ECM VARIABLE SPEED FAN WITH DUCT STATIC PRESSURE CONTROL. BACNet COMMUNICATIONS INTERFACE.

RTUs

BASE MANUFACTURER
TRANE

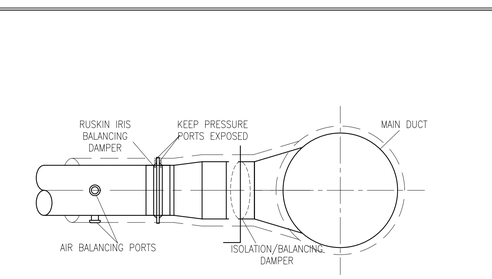
ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	REFRIGERANT TYPE	COOLING TYPE	AIRFLOW SCFM	AIRFLOW Ø "WG	AIRFLOW L/S	AIRFLOW Ø Pa	COOLING CAPACITY kW/MBTU TOTAL	COOLING CAPACITY kW/MBTU SENSIBLE	HEATING kW	HEATING MBTU	HEATING STAGES	EFFICIENCY EER	EFFICIENCY IEER	ELECTRICAL V/Ph/Hz	ELECTRICAL MCA	ELECTRICAL MOP	NOTES
RTU1	50PAC08	TZC120FWRNA	R410a	DX	4000	0.75	1887	225	34.26 /116.91	28.2/96.1	36.0	122.94	2	12.1	22.5	575/3/60	49 A	50 A	SINGLE ZONE VAV WITH Eflex TECHNOLOGY LOW-LEAK ECONOMIZER, COMPARATIVE ENTHALPY WITH BAROMETRIC RELIEF. MODULATING ELECT. HEAT

C/W STANDARD COIL WITH HAIL GUARD, THROUGH THE BASE ELECTRIC, UNIT MOUNTED CIRCUIT BREAKER, UNPOWERED CONVENIENCE OUTLET, BACNet COMMUNICATIONS INTERFACE, AND PRE-FABRICATED, SEISMIC DESIGNED 600mm HIGH ROOF CURB. WEIGHT: 1228LBS.



2 M04 CURB CAP DETAIL - ROOM 295

SCALE = N.T.S



3 M04 TYPICAL DUCT BRANCH DETAIL

SCALE = N.T.S

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	VALVE
	BALL VALVE
	PRESSURE REDUCING VALVE
	2-WAY CONTROL VALVE - DDC
	THERMOMETER
	PRESSURE GAUGE
	RECTANGULAR DUCTWORK
	ROUND DUCTWORK
	90° ELBOW
	45° ELBOW
	FLEXIBLE CONNECTION
	THERMALLY INSULATED DUCT
	ROUND DUCT UP
	RECTANGULAR SUPPLY DUCT DOWN
	RECTANGULAR RETURN/EXH DUCT DOWN
	ROUND TAKE OFF C/W BALANCING DAMPER
BD	BALANCING DAMPER
T	T-STAT (DDC)
M	MOTORIZED DAMPER MOTOR
M	MOTORIZED DAMPER
A	AIR FLOW SENSOR
H	HUMIDITY SENSOR
P	PRESSURE SENSOR (DDC)
C/S	CHEMICAL SENSOR
P	PRESSURE DIFFERENTIAL SENSOR

MECHANICAL LINE TYPE LEGEND

LINE	DESCRIPTION
	INDICATES NEW
	INDICATES EXISTING (TO REMAIN)
	INDICATES DEMOLISHED/ REMOVED
N2	NITROGEN PIPING
CA	COMPRESSED AIR
	CONTROL LINE

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- INSTALLATION OF ALL SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
- CONTRACTOR TO BE RESPONSIBLE FOR REINSTATEMENT AND REPAIR OF ANY DAMAGE CAUSED BY WORK.
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KEY PLAN / PLAN CLÉ

No.	Date	Revision	By / Par
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Date Printed DD MM YYYY / Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des lieux et en assumer la responsabilité

A Detail no. / No. du détail
B Location drawing no. / sur dessin no.
C Drawing no. / dessin no.

project / projet
BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin
EQUIPMENT SCHEDULE, LEGEND AND DETAILS

designed / conçu	date / date
I.A.F.	JANUARY 2021
drawn / dessiné: I.A.F.	scale / échelle: AS NOTED
checked / vérifié: M.O.C.	sheet / feuille: M04 of/de M06
approved / approuvé: M.O.C.	W.O.no.: A1-013824-03 / D.T.no.

dwg.no. / dessin no.: 5746-M04

RPPM A1 (841x594)

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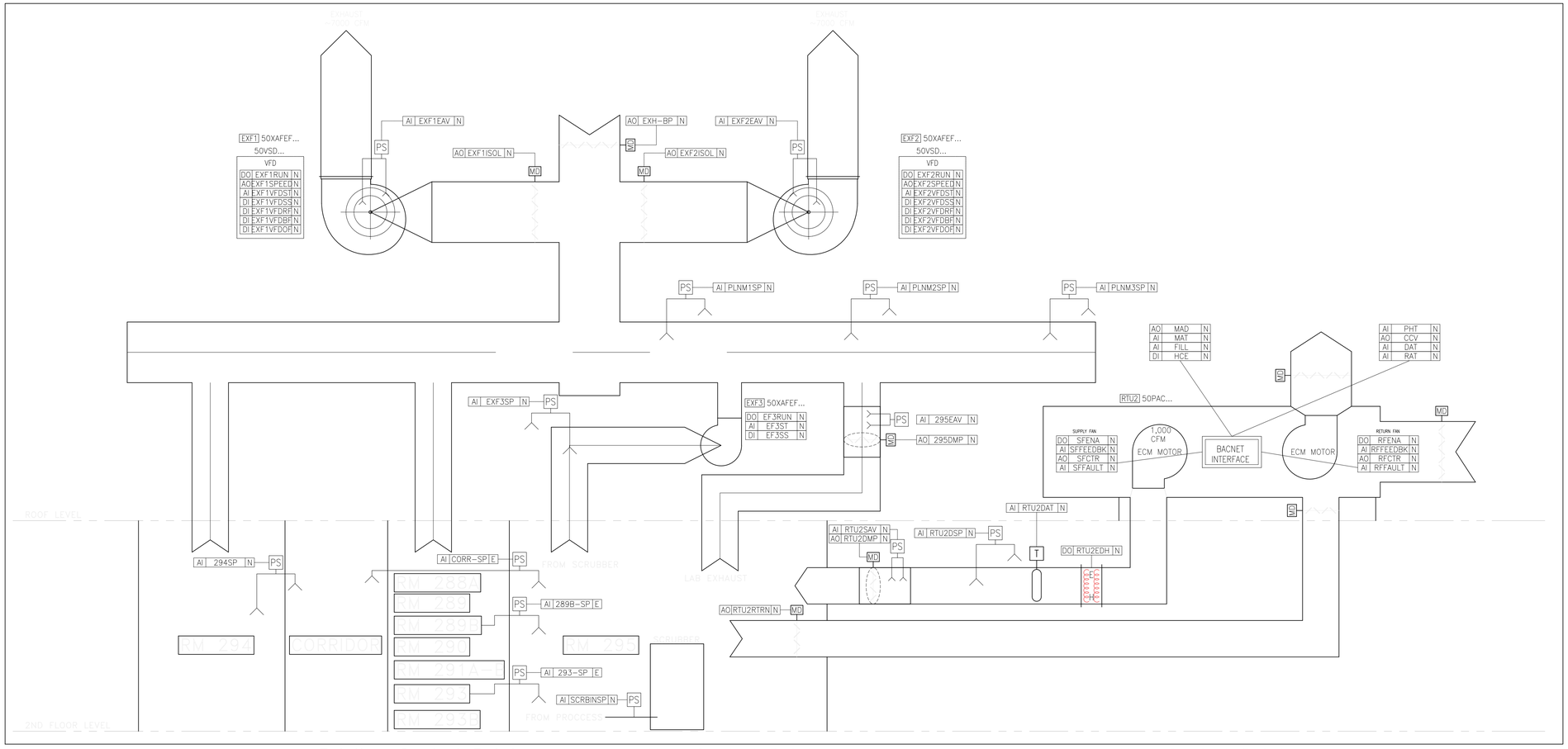

1 / M05 MECH CONTROL SCHEMATIC

SCALE = N.T.S

Existing Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION
AHU01SFS	AI	50AHU01	SUPPLY FAN STATUS
AHU01DAT	AI	50AHU01	DISCHARGE AIR TEMPERATURE
AHU01OAT	AI	50AHU01	OUTDOOR AIR TEMPERATURE
AHU01MAT	AI	50AHU01	MIXED AIR TEMPERATURE
AHU01PHT	AI	50AHU01	PREHEAT TEMPERATURE
AHU01STS	DO	50AHU01	SUPPLY FAN START/STOP
AHU01HVC	AO	50AHU01	STEAM COIL VALVE
AHU01FBD	AO	50AHU01	FACE & BYPASS DAMPER
AHU01RUN	DO	50AHU01	AHU21 ENABLE
AHU1OAD-RAD	AO	50AHU01	OUTSIDE/RELIEF AIR DAMPER CONTROL
AHU01FRZ	DI	50AHU01	FREEZESTAT
CORR-SP	AI	–	ROOM 295 TO CORRIDOR DIFFERENTIAL PRESSURE
289B-SP	AI	–	ROOM 295 TO ROOM 289B DIFFERENTIAL PRESSURE
293-SP	AI	–	ROOM 295 TO ROOM 293 DIFFERENTIAL PRESSURE
PAC08ST	DO	50PAC08	ROOFTOP UNIT START/STOP
PAC08HTG	DO	50PAC08	ELECTRIC HEATING START/STOP
PAC08SFS	DI	50PAC08	ROOFTOP UNIT STATUS
PAC08DAT	AI	50PAC08	DISCHARGE AIR TEMPERATURE
PAC08RAT	AI	50PAC08	RETURN AIR TEMPERATURE
PAC08MAT	AI	50PAC08	MIXED AIR TEMPERATURE
PAC08SAH	AI	50PAC08	SUPPLY AIR HUMIDITY
PAC08RAH	AI	50PAC08	RETURN AIR HUMIDITY
PAC08MAD	AO	50PAC08	OUTSIDE/RELIEF AIR DAMPER CONTROL
PAC08BYPDMP	AO	50PAC08	BY-PASS DAMPER CONTROL (TO BE REMOVED)
PAC08HUMVLV	AO	50PAC08	HUMIDIFIER STEAM VALVE CONTROL
PAC08SAP	AI	50PAC08	SUPPLY AIR DUCT STATIC PRESSURE
DAT	AI	RM295	VAV DISCHARGE AIR TEMPERATURE
HTG	DO	RM295	ELECTRIC DUCT HEATING ENABLE
RAD	DO	RM295	RADIATOR CONTROL
DMPO	DO	RM295	VAV DAMPER OPEN
DMPC	DO	RM295	VAV DAMPER CLOSE
FLOW	AI	RM295	VAV INTEGRAL FLOW SENSOR
RMT	AI	RM295	ROOM TEMPERATURE

New Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION	NOTES
EXF1RUN	DO	EXHAUST	EXHAUST FAN 1 ENABLE	
EXF1SPEED	AO	EXHAUST	EXHAUST FAN 1 SPEED CONTROL	
EXF1VFDST	AI	EXHAUST	EXHAUST FAN 1 VFD SPEED STATUS	
EXF1VFDSS	DI	EXHAUST	EXHAUST FAN 1 VFD SYSTEM START	
EXF1VFDRF	DI	EXHAUST	EXHAUST FAN 1 VFD RUN FAULT	
EXF1VFDBF	DI	EXHAUST	EXHAUST FAN 1 VFD BYPASS FAULT	
EXF1VFDOF	DI	EXHAUST	EXHAUST FAN 1 VFD OVERRIDE FAULT	
EXF1EAV	AI	EXHAUST	EXHAUST FAN 1 AIR VOLUME	
EXF1ISOL	AO	EXHAUST	EXHAUST FAN 1 ISOLATION DAMPER	
EXF2RUN	DO	EXHAUST	EXHAUST FAN 2 ENABLE	
EXF2SPEED	AO	EXHAUST	EXHAUST FAN 2 SPEED CONTROL	
EXF2VFDST	AI	EXHAUST	EXHAUST FAN 2 VFD SPEED STATUS	
EXF2VFDSS	DI	EXHAUST	EXHAUST FAN 2 VFD SYSTEM START	
EXF2VFDRF	DI	EXHAUST	EXHAUST FAN 2 VFD RUN FAULT	
EXF2VFDBF	DI	EXHAUST	EXHAUST FAN 2 VFD BYPASS FAULT	
EXF2VFDOF	DI	EXHAUST	EXHAUST FAN 2 VFD OVERRIDE FAULT	
EXF2EAV	AI	EXHAUST	EXHAUST FAN 2 AIR VOLUME	
EXF2ISOL	AO	EXHAUST	EXHAUST FAN 2 ISOLATION DAMPER	
EXH-BPD	AO	EXHAUST	EXHAUST FAN 1 AND 2 BY-PASS DAMPER	
EXF3RUN	DO	EXHAUST	EXHAUST FAN 3 ENABLE	
EXF3ST	AI	EXHAUST	EXHAUST FAN 3 STATUS	
EXF3SS	DI	EXHAUST	EXHAUST FAN 3 START	
EXF3SP	AI	EXHAUST	EXHAUST FAN 3 INLET STATIC PRESSURE	
PLNM1SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 1– INITIAL SET TO 175Pa	
PLNM2SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 2– INITIAL SET TO 175Pa	
PLNM3SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 3– INITIAL SET TO 175Pa	
295EAV	AI	EXHAUST	ROOM 295 EXHAUST AIR VOLUME	
295DMP	AO	EXHAUST	ROOM 295 EXHAUST AIRFLOW STATION DAMPER POSITION	
RTU2SAV	AI	SUPPLY	RTU2 SUPPLY AIR VOLUME	REPLACES RM 295 FLOW
RTU2DMP	AO	SUPPLY	RTU2 SUPPLY AIRFLOW STATION DAMPER POSITION	REPLACES RM 295 DAMPER OPEN/CLOSE
RTU2DSP	AI	SUPPLY	RTU2 DUCT STATIC PRESSURE	
RTU2DAT	AI	SUPPLY	RTU2 DISCHARGE AIR TEMPERATURE	
RTU2EDH	DO	SUPPLY	RTU2 SUPPLEMENTAL ELECTRIC DUCT HEATER	
PAC08CSP	AO	50PAC08	SUPPLY AIR COOLING SET-POINT	
PAC08HSP	AO	50PAC08	SUPPLY AIR HEATING SET-POINT	
PAC08ALRM	AI	50PAC08	ALARM RELAY OUTPUT STATUS	
PAC08DSS	AI	50PAC08	DIAGNOSTIC STOP STATUS	
PAC08HPCS	AI	50PAC08	HEAT PRIMARY CAPACITY STATUS	
PAC08FILT	AI	50PAC08	FILTER PRESSURE DIFFERENTIAL	
PAC08HTG	DO	50PAC08	ELECTRIC HEATING, MODULATING (SCR)	
PAC08RUN	DO	50PAC08	SUPPLY FAN ENABLE	
PAC08SPEED	AO	50PAC08	SUPPLY FAN SPEED CONTROL	
PAC08VFDST	AI	50PAC08	SUPPLY FAN VFD SPEED STATUS	
PAC08VFDSS	DI	50PAC08	SUPPLY FAN VFD SYSTEM START	
PAC08VFDRF	DI	50PAC08	SUPPLY FAN VFD RUN FAULT	
PAC08VFDBF	DI	50PAC08	SUPPLY FAN VFD BYPASS FAULT	
PAC08VFDOF	DI	50PAC08	SUPPLY FAN VFD OVERRIDE FAULT	

New Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION	NOTES
SFENA	DO	RTU2	RTU2 EC SUPPLY FAN ENABLE	BY UNIT MANUFACTURER
SFFEEDBK	AI	RTU2	RTU2 EC SUPPLY FAN FEED BACK	BY UNIT MANUFACTURER
SFCTR	AO	RTU2	RTU2 EC SUPPLY FAN SPEED CONTROL SIGNAL	BY UNIT MANUFACTURER
SFFAULT	AI	RTU2	RTU2 EC SUPPLY FAN FAULT	BY UNIT MANUFACTURER
RFENA	DO	RTU2	RTU2 EC RETURN FAN ENABLE	BY UNIT MANUFACTURER
RFFEEDBK	AI	RTU2	RTU2 EC RETURN FAN FEED BACK	BY UNIT MANUFACTURER
RFCTR	AO	RTU2	RTU2 EC RETURN FAN SPEED CONTROL SIGNAL	BY UNIT MANUFACTURER
RFFAULT	AI	RTU2	RTU2 EC RETURN FAN FAULT	BY UNIT MANUFACTURER
MAD	AO	RTU2	MIXED AIR DAMPER CONTROL	BY UNIT MANUFACTURER
MAT	AI	RTU2	MIXED AIR TEMPERATURE	BY UNIT MANUFACTURER
FIL	AI	RTU2	FILTER PRESSURE DIFFERENTIAL	BY UNIT MANUFACTURER
HCE	DI	RTU2	HEATING CONTROL (ELECTRIC)	BY UNIT MANUFACTURER
PHT	AI	RTU2	PRE-HEAT AIR TEMPERATURE	BY UNIT MANUFACTURER
CCV	AO	RTU2	COOLING CONTROL VALVE	BY UNIT MANUFACTURER
DAT	AI	RTU2	DISCHARGE AIR TEMPERATURE	BY UNIT MANUFACTURER
RAT	AI	RTU2	RETURN AIR TEMPERATURE	BY UNIT MANUFACTURER
RTU2RTRN	AO	RTU2	RETURN AIR DAMPER CONTROL FOR RM 295	NORMALLY KEPT CLOSED

RPPM A1 (841x594)

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

National Research Council Canada / Conseil national de recherches Canada

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project / projet

BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin

CONTROL SCHEMATIC,
EXHAUST SYSTEM AND RM 295 RTU

designed / conçu: I.A.F.	date: JANUARY 2021
drawn / dessiné: I.A.F.	scale / échelle: AS NOTED
checked / vérifié: M.O.C.	sheet / feuille: M05 of/de M06
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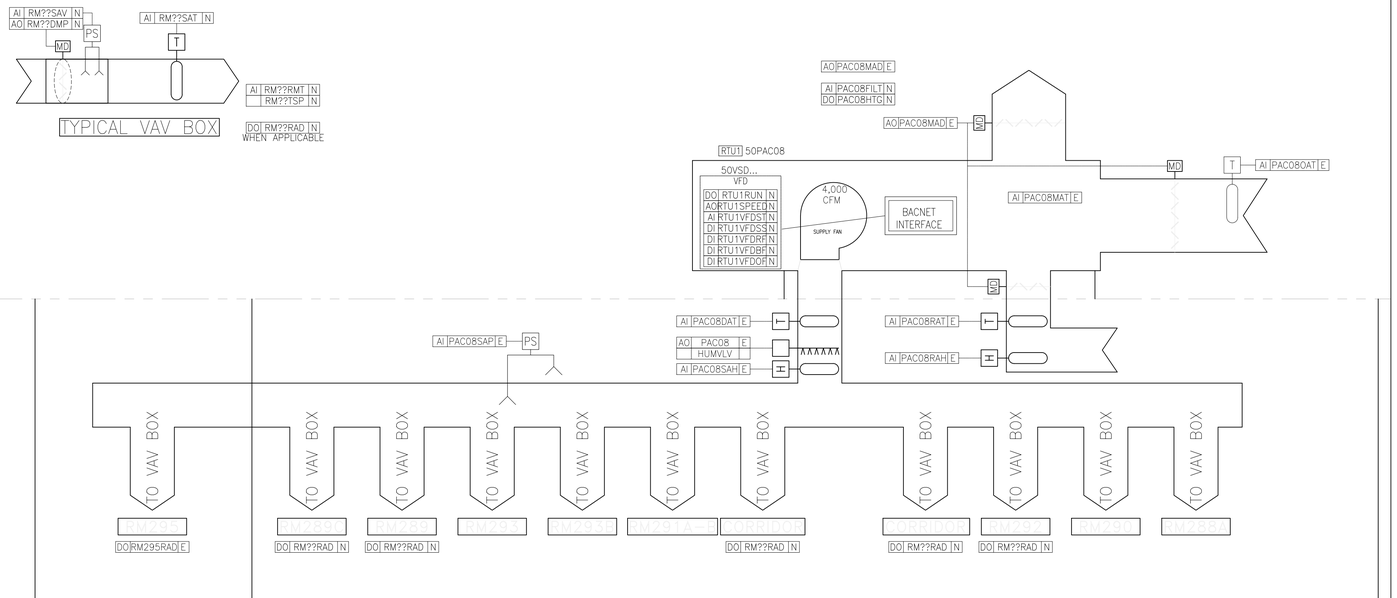
dwg.no. / dessin no.: 5746-M05



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M06

50PAC08 – MECH CONTROL SCHEMATIC

SCALE = N.T.S

NEW WORK NOTES: (X)

1. PROVIDE NEW CONTROL VALVES TO REPLACE THE OLD VALVES FOR ALL RADIATORS.

Existing Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION
AHU01SFS	AI	50AHU01	SUPPLY FAN STATUS
AHU01DAT	AI	50AHU01	DISCHARGE AIR TEMPERATURE
AHU01OAT	AI	50AHU01	OUTDOOR AIR TEMPERATURE
AHU01MAT	AI	50AHU01	MIXED AIR TEMPERATURE
AHU01PHT	AI	50AHU01	PREHEAT TEMPERATURE
AHU01STS	DO	50AHU01	SUPPLY FAN START/STOP
AHU01HVC	AO	50AHU01	STEAM COIL VALVE
AHU01FBD	AO	50AHU01	FACE & BYPASS DAMPER
AHU01RUN	DO	50AHU01	AHU21 ENABLE
AHU10AO-RAD	AO	50AHU01	OUTSIDE/RELIEF AIR DAMPER CONTROL
AHU01FRZ	DI	50AHU01	FREEZESTAT
CORR-SP	AI	–	ROOM 295 TO CORRIDOR DIFFERENTIAL PRESSURE
289B-SP	AI	–	ROOM 295 TO ROOM 289B DIFFERENTIAL PRESSURE
293-SP	AI	–	ROOM 295 TO ROOM 293 DIFFERENTIAL PRESSURE
PAC08ST	DO	50PAC08	ROOFTOP UNIT START/STOP
PAC08HTG	DO	50PAC08	ELECTRIC HEATING START/STOP
PAC08SFS	DI	50PAC08	ROOFTOP UNIT STATUS
PAC08DAT	AI	50PAC08	DISCHARGE AIR TEMPERATURE
PAC08RAT	AI	50PAC08	RETURN AIR TEMPERATURE
PAC08MAT	AI	50PAC08	MIXED AIR TEMPERATURE
PAC08SAH	AI	50PAC08	SUPPLY AIR HUMIDITY
PAC08RAH	AI	50PAC08	RETURN AIR HUMIDITY
PAC08MAD	AO	50PAC08	OUTSIDE/RELIEF AIR DAMPER CONTROL
PAC08BYPDMP	AO	50PAC08	BY-PASS DAMPER CONTROL (TO BE REMOVED)
PAC08HUMVLV	AO	50PAC08	HUMIDIFIER STEAM VALVE CONTROL
PAC08SAP	AI	50PAC08	SUPPLY AIR DUCT STATIC PRESSURE
DAT	AI	RM295	VAV DISCHARGE AIR TEMPERATURE
HTG	DO	RM295	ELECTRIC DUCT HEATING ENABLE
RAD	DO	RM295	RADIATOR CONTROL
DMPO	DO	RM295	VAV DAMPER OPEN
DMPC	DO	RM295	VAV DAMPER CLOSE
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RMT	AI	RM295	ROOM TEMPERATURE

New Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION	NOTES
EXF1RUN	DO	EXHAUST	EXHAUST FAN 1 ENABLE	
EXF1SPEED	AO	EXHAUST	EXHAUST FAN 1 SPEED CONTROL	
EXF1VFDST	AI	EXHAUST	EXHAUST FAN 1 VFD SPEED STATUS	
EXF1VFDSS	DI	EXHAUST	EXHAUST FAN 1 VFD SYSTEM START	
EXF1VFDRF	DI	EXHAUST	EXHAUST FAN 1 VFD RUN FAULT	
EXF1VFDBF	DI	EXHAUST	EXHAUST FAN 1 VFD BYPASS FAULT	
EXF1VFDOF	DI	EXHAUST	EXHAUST FAN 1 VFD OVERRIDE FAULT	
EXF1EAV	AI	EXHAUST	EXHAUST FAN 1 AIR VOLUME	
EXF1ISOL	AO	EXHAUST	EXHAUST FAN 1 ISOLATION DAMPER	
EXF2RUN	DO	EXHAUST	EXHAUST FAN 2 ENABLE	
EXF2SPEED	AO	EXHAUST	EXHAUST FAN 2 SPEED CONTROL	
EXF2VFDST	AI	EXHAUST	EXHAUST FAN 2 VFD SPEED STATUS	
EXF2VFDSS	DI	EXHAUST	EXHAUST FAN 2 VFD SYSTEM START	
EXF2VFDRF	DI	EXHAUST	EXHAUST FAN 2 VFD RUN FAULT	
EXF2VFDBF	DI	EXHAUST	EXHAUST FAN 2 VFD BYPASS FAULT	
EXF2VFDOF	DI	EXHAUST	EXHAUST FAN 2 VFD OVERRIDE FAULT	
EXF2EAV	AI	EXHAUST	EXHAUST FAN 2 AIR VOLUME	
EXF2ISOL	AO	EXHAUST	EXHAUST FAN 2 ISOLATION DAMPER	
EXH-BPD	AO	EXHAUST	EXHAUST FAN 1 AND 2 BY-PASS DAMPER	
EXF3RUN	DO	EXHAUST	EXHAUST FAN 3 ENABLE	
EXF3ST	AI	EXHAUST	EXHAUST FAN 3 STATUS	
EXF3SS	DI	EXHAUST	EXHAUST FAN 3 START	
EXF3SP	AI	EXHAUST	EXHAUST FAN 3 INLET STATIC PRESSURE	
PLNM1SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 1– INITIAL SET TO 175Pa	
PLNM2SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 2– INITIAL SET TO 175Pa	
PLNM3SP	AO	EXHAUST	PLENUM STATIC PRESSURE NO 3– INITIAL SET TO 175Pa	
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295DMP	AO	EXHAUST	ROOM 295 EXHAUST AIRFLOW STATION DAMPER POSITION	
RTU2SAV	AI	SUPPLY	RTU2 SUPPLY AIR VOLUME	REPLACES RM 295 FLOW
RTU2DMP	AO	SUPPLY	RTU2 SUPPLY AIRFLOW STATION DAMPER POSITION	REPLACES RM 295 DAMPER OPEN/CLOSE
RTU2DSP	AI	SUPPLY	RTU2 DUCT STATIC PRESSURE	
RTU2DAT	AI	SUPPLY	RTU2 DISCHARGE AIR TEMPERATURE	
RTU2EDH	DO	SUPPLY	RTU2 SUPPLEMENTAL ELECTRIC DUCT HEATER	
PAC08CSP	AO	50PAC08	SUPPLY AIR COOLING SET-POINT	
PAC08HSP	AO	50PAC08	SUPPLY AIR HEATING SET-POINT	
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PAC08DSS	AI	50PAC08	DIAGNOSTIC STOP STATUS	
PAC08HPCS	AI	50PAC08	HEAT PRIMARY CAPACITY STATUS	
PAC08FILT	AI	50PAC08	FILTER PRESSURE DIFFERENTIAL	
PAC08HTG	DO	50PAC08	ELECTRIC HEATING, MODULATING (SCR)	
PAC08RUN	DO	50PAC08	SUPPLY FAN ENABLE	
PAC08SPEED	AO	50PAC08	SUPPLY FAN SPEED CONTROL	
PAC08VFDST	AI	50PAC08	SUPPLY FAN VFD SPEED STATUS	
PAC08VFDSS	DI	50PAC08	SUPPLY FAN VFD SYSTEM START	
PAC08VFDRF	DI	50PAC08	SUPPLY FAN VFD RUN FAULT	
PAC08VFDBF	DI	50PAC08	SUPPLY FAN VFD BYPASS FAULT	
PAC08VFDOF	DI	50PAC08	SUPPLY FAN VFD OVERRIDE FAULT	

New Control Points

POINT TAG	TYPE	SYSTEM	DESCRIPTION	NOTES
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SFFEEDBK	AI	RTU2	RTU2 EC SUPPLY FAN FEED BACK	BY UNIT MANUFACTURER
SFCTR	AO	RTU2	RTU2 EC SUPPLY FAN SPEED CONTROL SIGNAL	BY UNIT MANUFACTURER
SFFAULT	AI	RTU2	RTU2 EC SUPPLY FAN FAULT	BY UNIT MANUFACTURER
RFENA	DO	RTU2	RTU2 EC RETURN FAN ENABLE	BY UNIT MANUFACTURER
RFFEEDBK	AI	RTU2	RTU2 EC RETURN FAN FEED BACK	BY UNIT MANUFACTURER
RFCTR	AO	RTU2	RTU2 EC RETURN FAN SPEED CONTROL SIGNAL	BY UNIT MANUFACTURER
RFFAULT	AI	RTU2	RTU2 EC RETURN FAN FAULT	BY UNIT MANUFACTURER
MAD	AO	RTU2	MIXED AIR DAMPER CONTROL	BY UNIT MANUFACTURER
MAT	AI	RTU2	MIXED AIR TEMPERATURE	BY UNIT MANUFACTURER
FIL	AI	RTU2	FILTER PRESSURE DIFFERENTIAL	BY UNIT MANUFACTURER
HCE	DI	RTU2	HEATING CONTROL (ELECTRIC)	BY UNIT MANUFACTURER
PHT	AI	RTU2	PRE-HEAT AIR TEMPERATURE	BY UNIT MANUFACTURER
CCV	AO	RTU2	COOLING CONTROL VALVE	BY UNIT MANUFACTURER
DAT	AI	RTU2	DISCHARGE AIR TEMPERATURE	BY UNIT MANUFACTURER
RAT	AI	RTU2	RETURN AIR TEMPERATURE	BY UNIT MANUFACTURER
RTU2RTRN	AO	RTU2	RETURN AIR DAMPER CONTROL FOR RM 295	NORMALLY KEPT CLOSED

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- Vérifier toutes les dimensions et l'etat des lïeux et en assumer la responsabilité

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project / projet
BLDG M-50 EPITAXY LAB
VENTILATION AND EXHAUST SYSTEM UPGRADE

MONTREAL ROAD CAMPUS

drawing / dessin
CONTROL SCHEMATIC FOR 50PAC08 SYSTEM

designed / conçu: I.A.F.	date / date: JANUARY 2021
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checked / vérifié: M.O.C.	sheet / feuille: M06 of/de M06
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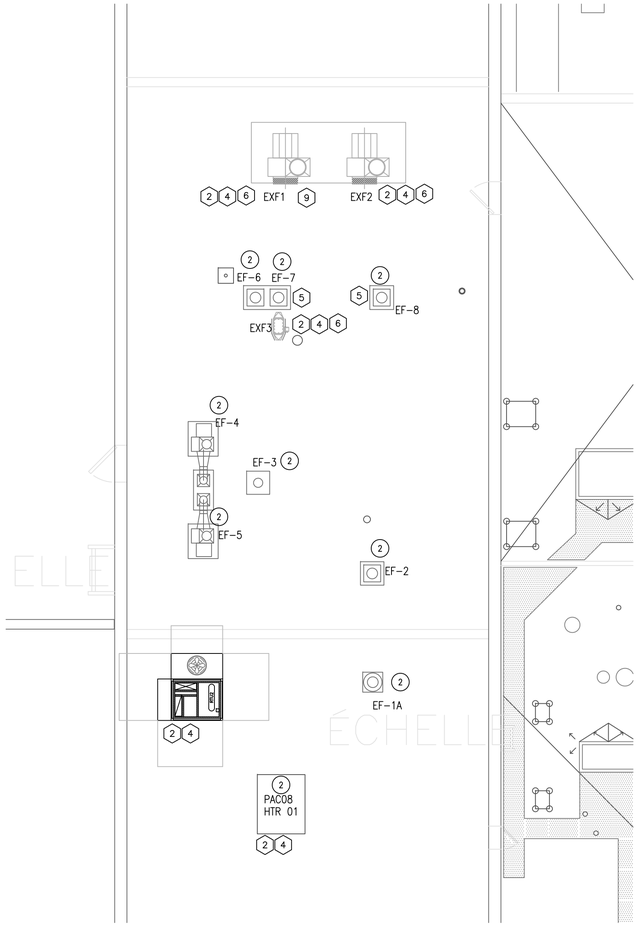
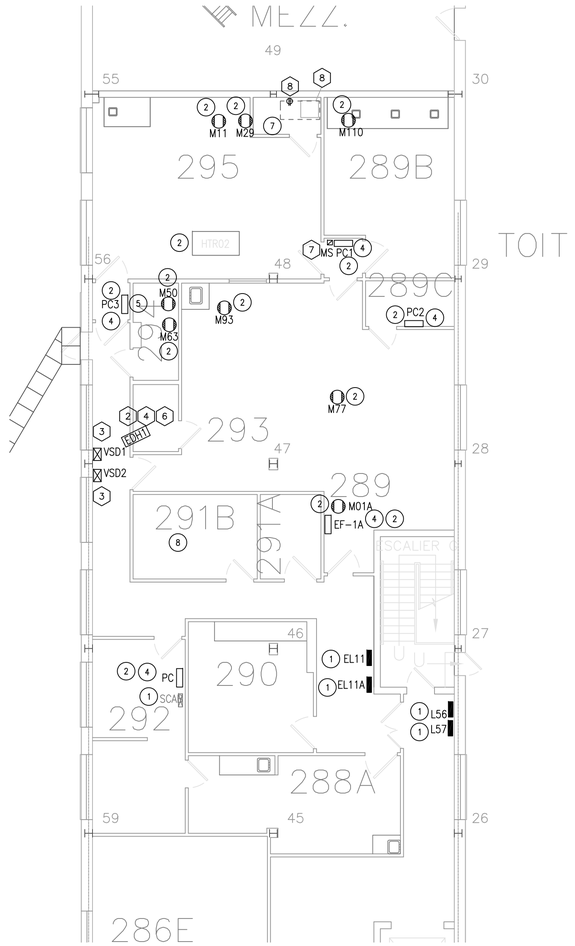
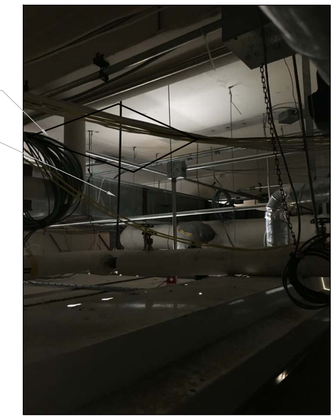
dwg.no. / dessin no.: 5746-M06	D.T.no.







3 / E01 PARTIAL ROOF PLAN
SCALE =1:100

4 / E01 PARTIAL FLOOR PLAN (6)
SCALE =1:100

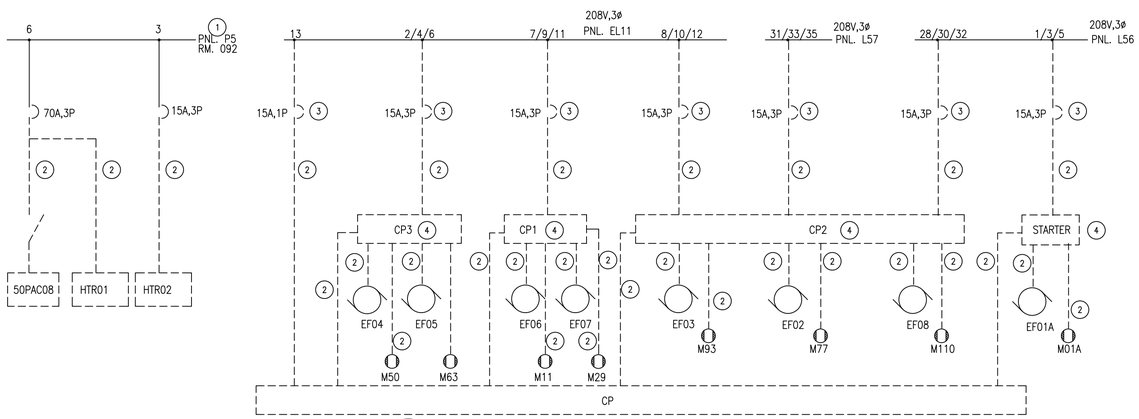
5 / E01 EXISTING CONDUITS IN CEILING SPACE (8)
SCALE =

DEMOLITION NOTES: (·)

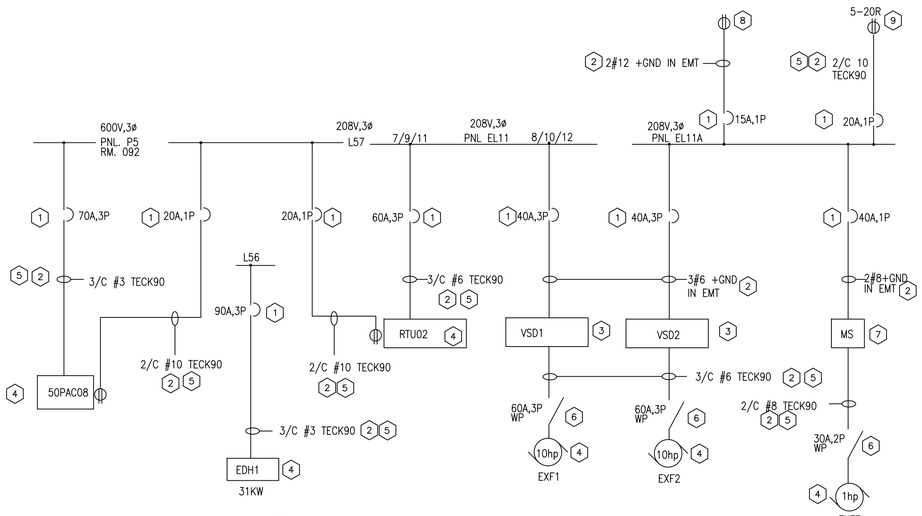
1. EXISTING EQUIPMENT TO REMAIN
2. DISCONNECT AND REMOVE EXISTING WIRES AND CONDUITS BACK TO SOURCE, IDENTIFY CIRCUIT BEFORE PROCEEDING.
3. REMOVE EXISTING BREAKER AND RETURN TO NRC DEPARTMENTAL REPRESENTATIVE PROVIDE BLANK FILLER FOR SPACES.
4. DISCONNECT AND REMOVE EXISTING CONTROL PANEL OUT OF NRC PROPERTY. PATCH THE WALL AFTER REMOVAL.
5. EXISTING GAS WIRING FROM CP3 TO RM. 294 ARE TO BE RETAINED AND TAGGED.
6. TEMPORARILY DISCONNECT EXISTING CEILING LIGHTING FIXTURES AT WORKING AREA DURING DUCTWORK CONSTRUCTION, AND REINSTATE THE LIGHTING FIXTURES AFTER THE COMPLETION. COORDINATE WITH DIVISION 23.
7. DISCONNECT POWER TO EXISTING SCRUBBER, REMOVE EXISTING WIRIES AND CONDUIT BACK TO PANEL L57-11
8. WIRES AND CONDUITS IN THIS AREA TO BE RELOCATED TO MAKE ROOM FOR NEW STRUCTURAL SUPPORT FOR RTU2. COORDINATE WITH OTHER TRADES. IDENTIFY THE CIRCUITS BEFORE DISCONNECTION.

NEW WORK NOTES: (⬡)

1. PROVIDE NEW BREAKER ON EXISTING PANEL, UPDATE PANEL DIRECTORY
2. PROVIDE NEW WIRING AND CONNECTION AS SHOWN,
3. PROVIDE ABB ACH580 VFD WITH VERTICAL E-CLIPSE BYPASS
4. NEW HVAC EQUIPMENT REFER TO DIV. 23
5. PROVIDE ROOFTOP FOAM-BASED SUPPORT BLOCK TO SUPPORT CABLE TO EXF1 AND EXF2 ON ROOF. COORDINATE WITH OTHER TRADES. CABLE PENETRATING ROOF SHALL GO THROUGH SIDE WALL OF THE ROOF CURB. REFERS TO ARCHITECTURAL DETAILS.
6. PROVIDE WEATHER PROOF NON-FUSED DISCONNECT, MOUNTED ON SIDE OF FAN ENCLOSURE
7. PROVIDE NEW SURFACE MOUNT MANUAL STARTER
   - PROVIDE MANUAL STARTER, TOGGLE TYPE, 2 POLE, "AUTO-OFF-HAND" SELECTOR, PILOT LIGHT, SQ D CLASS 2510, CAT:FG72P.
8. PROVIDE SURFACE MOUNT WALL RECEPTACLE. PROVIDE PLUG WITH 2M POWER CORD AND CONNECTION TO NEW SCRUBBER UNIT
9. PROVIDE SERVICE OUTLET AS PER OESC 26-702 ATTACHED TO SURFACE OF EXF1.



1 / E01 EXISTING SINGLE LINE DIAGRAM OF DEMOLITION
SCALE =



2 / E01 SINGLE LINE DIAGRAM OF NEW WORK
SCALE =

National Research Council Canada / Conseil national de recherches Canada
Administrative Services and Property Management Branch / Division des services administratifs et gestion de l'immobilier

NRC · CNRC

NOTES GÉNÉRALES

- L'ENTREPRENEUR DOIT VÉRIFIER TOUTES LES DIMENSIONS ET TOUS LES DÉGAGEMENTS SUR PLACE AVANT LA CONSTRUCTION ET SIGNALER TOUTE ANOMALIE OU OMISSION AU REPRÉSENTANT MINISTÉRIEL.
- LES ENTREPRENEURS DOIVENT VISITER LE SITE ET SE FAMILIARISER PLEINEMENT AVEC L'ÉTENDUE DES TRAVAUX AVANT LE DÉBUT DU PROJET.
- TOUS LES CORPS DE MÉTIER DOIVENT COORDONNER LEURS TRAVAUX SUR PLACE, AVEC L'APPROBATION DU REPRÉSENTANT MINISTÉRIEL, AFIN D'ÉVITER TOUT CONFLIT OU INTERFÉRENCE.
- TOUS LES ARRÊTS REQUIS DOIVENT ÊTRE COORDONNÉS AVEC LE REPRÉSENTANT MINISTÉRIEL.
- L'INSTALLATION DE TOUS LES SYSTÈMES DOIT ÊTRE CONFORME AUX CODES ET AUX NORMES EN VIGUEUR.
- L'ENTREPRENEUR SERA RESPONSABLE DE LA REMISE EN ÉTAT ET DE LA RÉPARATION DES DOMMAGES CAUSÉS PAR LES TRAVAUX.
- L'ENTREPRENEUR DOIT EMPÊCHER LA PROPAGATION DE LA POUSSIÈRE ET DES DÉBRIS AU-DELÀ DE LA ZONE DU CHANTIER ET NETTOYER TOUTES LES SURFACES À LA FIN DES TRAVAUX.

TOUS LES ARRÊTS DOIVENT ÊTRE EXÉCUTÉS APRÈS LES HEURES NORMALES DE TRAVAIL.

KEY PLAN / PLAN CLÉ

No	Date	Révision	By : Par :
0	DEC 2020	ISSUED FOR TENDER	KXL

Date Printed DD MM YYYY / Date d'?impression

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'?état des lieux et en assumer la responsabilité

No de détail A / No du détail
No de dessin, emplacement sur dessin no
No de dessin C / n° de dessin

projet / projet
BUILDING M-50 EPITAXY LAB
50PAC08 REPLACEMENT AND NEW EXHAUST SYSTEM

MONTREAL ROAD CAMPUS

dessin / dessin
ELECTRICAL SINGLE LINE DIAGRAM AND FLOOR PLAN

designed / conçu	Date / Date
KXL	SEP/2020
drawn / dessiné	scale / échelle
KXL	AS NOTED
checked / vérifié	sheet / feuille
CYC	E01 of/de E01
approved / approuvé	W.O.no. / N° d?ordre de travail
ALS	A1-013824-03

dwg.no. / n° de dessin
5746-E01

SAGI A1 (841x594)

C

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