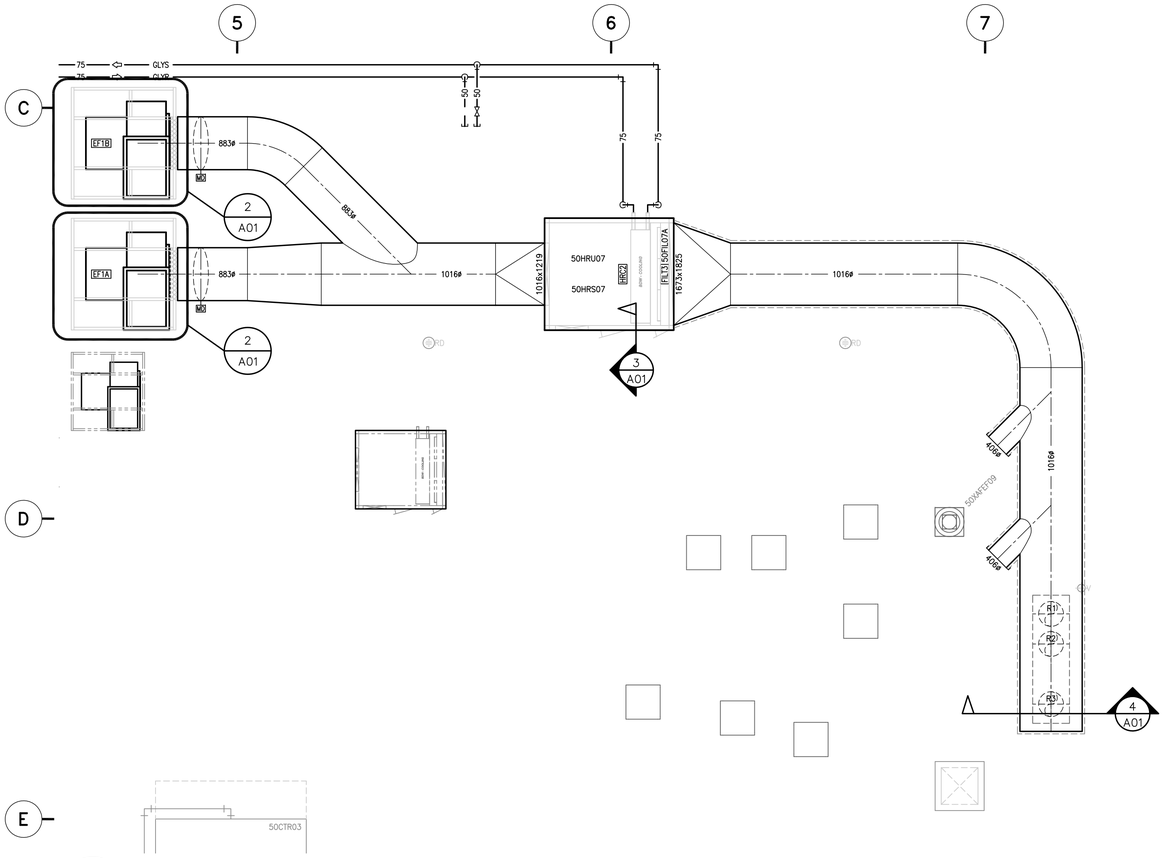
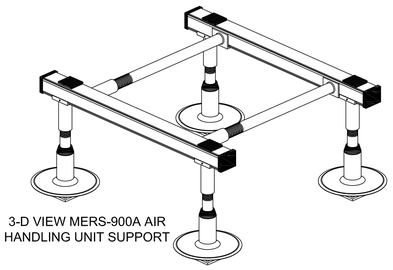


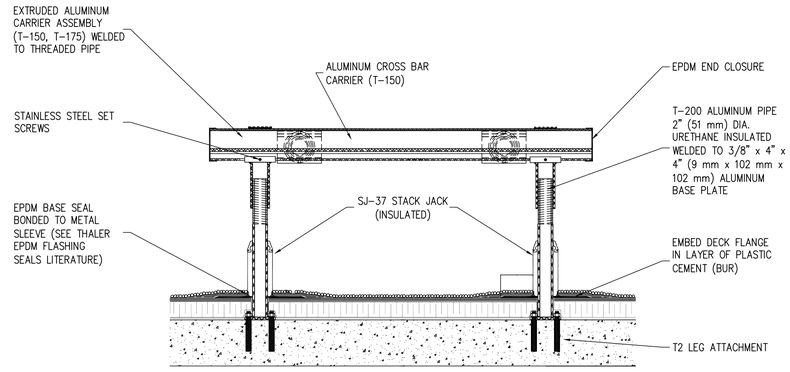
1 A01 ROOF PLAN – NEW WORK

SCALE = 1:50

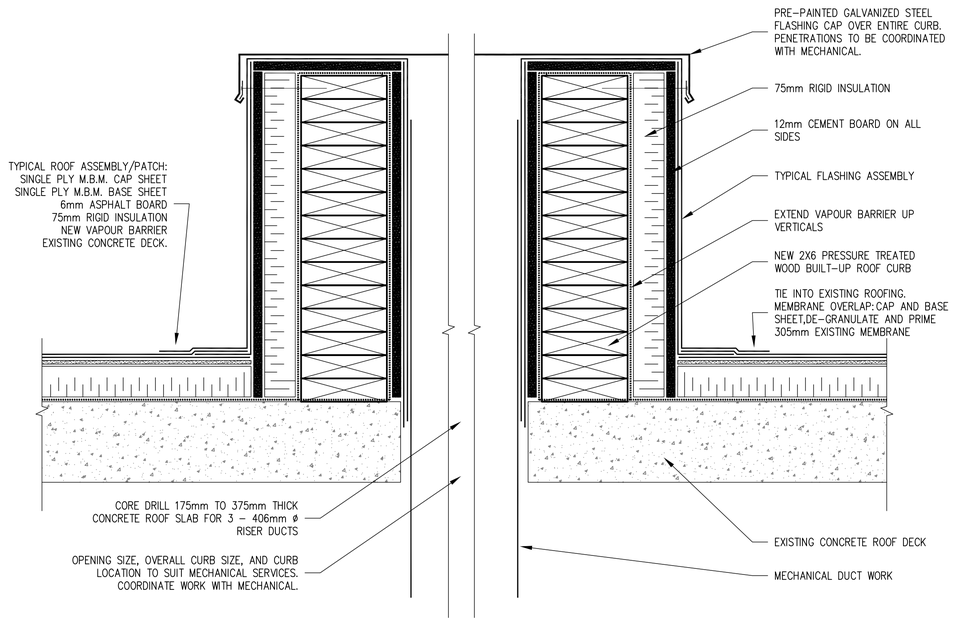
NOTE: THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SUPPORTS ARE DESIGNED TO ACCOMMODATE UNIT SIZE AND WEIGHT, AS WELL AS SEISMIC AND WIND LOADS.



3-D VIEW MERS-900A AIR HANDLING UNIT SUPPORT

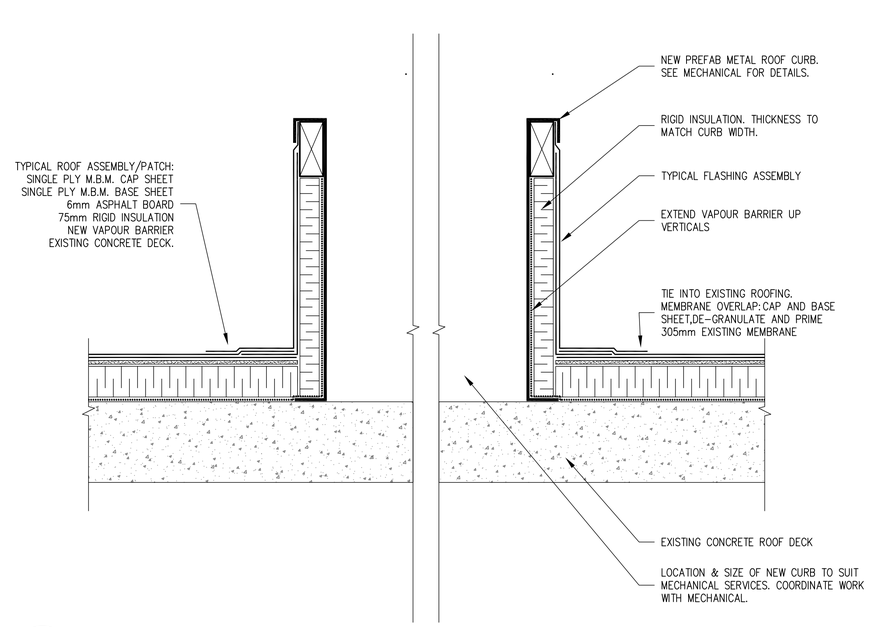


2 A01 MERS-900A A.H.U. SUPPORT



3 A01 NEW BUILT-UP ROOF CURB

SCALE = 1:5



4 A01 NEW PREFAB METAL ROOF CURB

SCALE = 1:5

C

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

ASPM A1 (841x594)

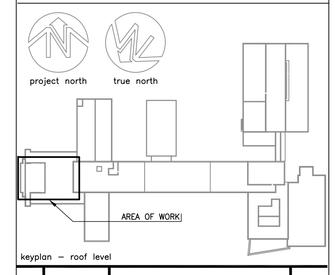
National Research Council Canada / Conseil national de recherches Canada

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

NRC · CNRC

GENERAL NOTES:

- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.
- ALTERNATE MATERIALS TO THOSE SPECIFIED ON THESE DRAWINGS MUST BE SUBMITTED TO NRC FOR REVIEW, BEFORE TENDER CLOSING. FINAL DATE TO SUBMIT ALTERNATES T.B.A.



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.05	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des liéux 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
IPF Wing Fume Exhaust System Retrofit

Montreal Road Campus

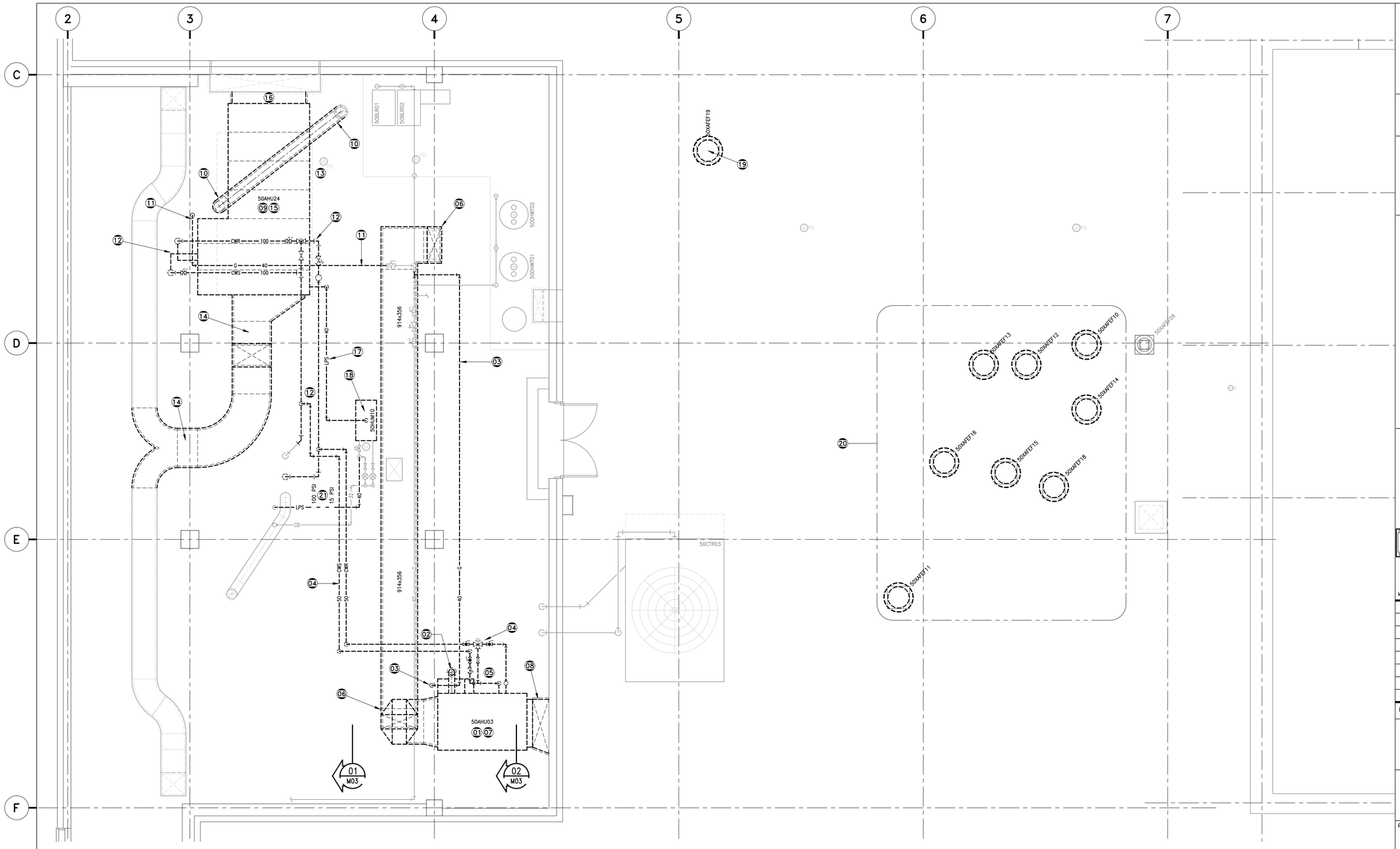
drawing / dessin

ARCHITECTURAL DETAILS

designed / conçu	date / date
BL	March 2016
drawn / dessiné	scale / échelle
BL	AS NOTED
checked / vérifié	sheet / feuille
R Craig	1 of/de 1
approved / approuvé	W.O.no. / D.T.no.
B.V.	

dwg.no. / dessin no.

5029-A01



00	DEMOLITION NOTES
01	PRIOR TO ANY DEMOLITION & REMOVAL WORK, ENSURE THAT THIS AIR HANDLING UNIT IS DISCONNECTED FROM ELECTRICAL POWER BY THE ELECTRICAL CONTRACTOR, AND ALL HVAC CONTROLS ARE REMOVED FROM THE ENTIRE SYSTEM BY THE CONTROLS CONTRACTOR.
02	DISMANTLE AND REMOVE ENTIRE CHIMNEY INCLUDING COMPONENTS ABOVE ROOF LEVEL. HOLE THROUGH ROOF SHALL BE MADE WEATHERPROOF BY GENERAL TRADES.
03	REMOVE NATURAL GAS PIPING BACK TO EXTENT INDICATED WITH BROKEN LINES.
04	REMOVE ENTIRE CHILLED WATER S&R PIPE SYSTEM SERVING THIS AIR HANDLING UNIT TO THE EXTENT SHOWN WITH BROKEN LINES.
05	REMOVE ANY DRAIN PIPING AT LOW LEVEL RELATED TO THIS AIR HANDLING SYSTEM.
06	DISMANTLE AND REMOVE SUPPLY DUCTING TO THE EXTENT SHOWN WITH BROKEN LINES.
07	DISCONNECT THE AIR HANDLER FROM THE OUTDOOR INTAKE DUCTING AND REMOVE THE AIR HANDLER FROM SITE.
08	REMOVE THE OUTDOOR AIR INTAKE PLENUM. GENERAL TRADES SHALL PROVIDE WEATHERPROOF COVER OVER EXISTING INTAKE LOUVRE.
09	PRIOR TO ANY DEMOLITION & REMOVAL WORK, ENSURE THAT THIS AIR HANDLING UNIT IS DISCONNECTED FROM ELECTRICAL POWER BY THE ELECTRICAL CONTRACTOR, AND ALL HVAC CONTROLS ARE REMOVED FROM THE ENTIRE SYSTEM BY THE CONTROLS CONTRACTOR.
10	DISMANTLE AND REMOVE CHIMNEY TO EXTENT SHOWN WITH BROKEN LINES. SECTION RISING THROUGH ROOF WILL BE RE-USED.
11	REMOVE NATURAL GAS PIPING BACK TO PLUG VALVE, TO EXTENT INDICATED WITH BROKEN LINES.
12	REMOVE ENTIRE CHILLED WATER S&R PIPE SYSTEM SERVING THIS AIR HANDLING UNIT TO THE EXTENT SHOWN WITH BROKEN LINES.
13	REMOVE ANY DRAIN PIPING AT LOW LEVEL RELATED TO THIS AIR HANDLING SYSTEM.
14	DISMANTLE AND REMOVE SUPPLY DUCTING TO THE EXTENT SHOWN WITH BROKEN LINES.
15	DISCONNECT THE AIR HANDLER FROM THE STEAM HUMIDIFIER AND OUTDOOR INTAKE DUCTING AND REMOVE THE AIR HANDLER FROM SITE.
16	REMOVE THE OUTDOOR AIR INTAKE DUCTING FROM EXISTING INTAKE PLENUM.
17	REMOVE STEAM DISTRIBUTION PIPING FROM THE HUMIDIFIER TO THE AIR HANDLING UNIT.
18	DISCONNECT HVAC CONTROLS AND ALL PIPING FROM THIS HUMIDIFIER SYSTEM AND THEN REMOVE THE HUMIDIFIER FROM SITE.
19	AFTER ELECTRICAL DISCONNECTION BY THE ELECTRICAL CONTRACTOR, REMOVE THIS EXHAUST FAN FROM SITE. GENERAL TRADES SHALL PROVIDE INSULATED WEATHERPROOF COVER OVER HOLE IN ROOF.
20	AFTER ELECTRICAL DISCONNECTION BY THE ELECTRICAL CONTRACTOR, REMOVE THESE EIGHT EXHAUST FANS FROM SITE. GENERAL TRADES SHALL PROVIDE INSULATED WEATHERPROOF COVERS OVER HOLES IN ROOF. NOTE THAT FAN 50XAFEF09 IS A WASHROOM EXHAUST FAN AND IT IS TO REMAIN.
21	REMOVE EXISTING STEAM PRESSURE REDUCING VALVE AND ASSOCIATED PIPE AND FITTINGS SHOWN WITH BROKEN LINES, IN READINESS FOR REPLACEMENT.

ASPM A1 (841x594)

C

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

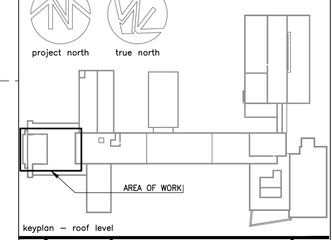
National Research Council Canada
Conseil national de recherches Canada

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

NRC · CNRC

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2P9
All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved
...motivation is key™

project north true north



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

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

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

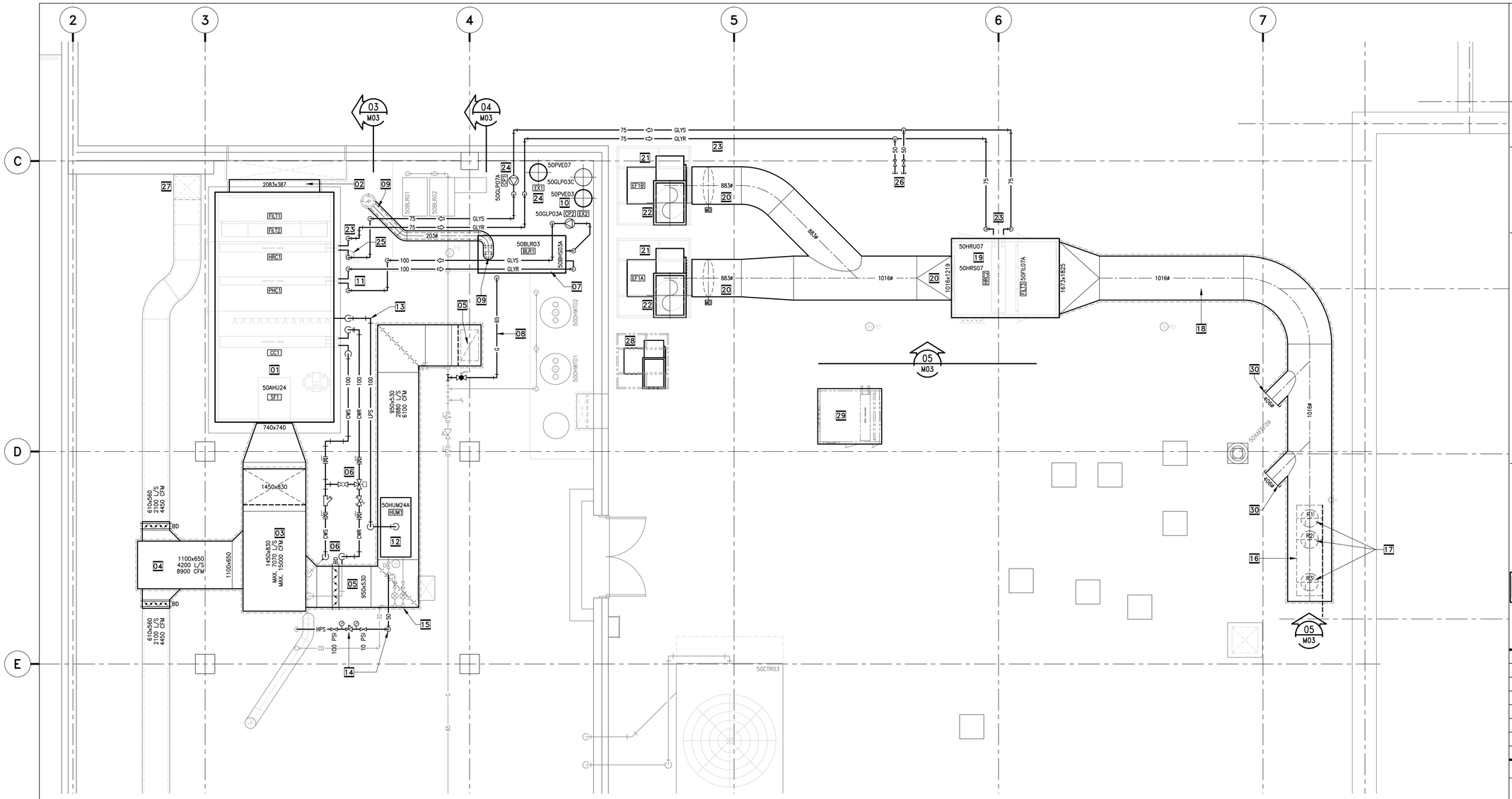
project / projet
Building M–50
IPF Wing Fume Exhaust System Retrofit

Montreal Road Campus

drawing / dessin
MECHANICAL
DEMOLITION
Existing Penthouse Layout
Roof Part Plan

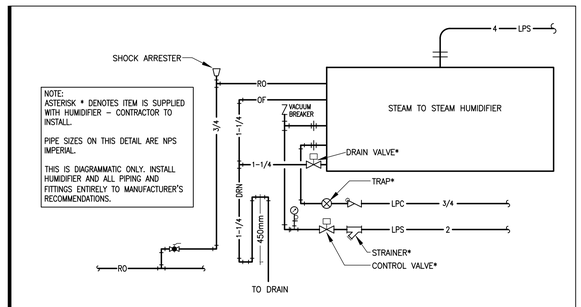
designed / conçu	date / date
R Craig	March 2016
drawn / dessiné	scale / échelle
Rodders CAS	1:50 UNO
checked / vérifié	sheet / feuille
R Craig	**M01** of/de 07
approved / approuvé	W.O.no. / D.T.no.
B.V.	

dwg.no. / dessin no.
5029–M01



00	NEW WORK NOTES
01	PROVIDE NEW AIR HANDLING UNIT AS INDICATED OVER EXISTING CONCRETE HOUSEKEEPING PAD. ENLARGE PAD AS REQUIRED – REFER TO SEPARATE NOTES ON THIS DRAWING. REFER TO EQUIPMENT SCHEDULES. ALL POWER WIRING BY ELECTRICAL CONTRACTOR.
02	PROVIDE INTAKE DUCT CONNECTION TO EXISTING OUTDOOR AIR PLENUM. MODIFY CONNECTION TO PLENUM AS REQUIRED AND REPAIR INSULATION TO MATCH EXISTING.
03	PROVIDE INSULATED SUPPLY AIR DISCHARGE DUCTING AS INDICATED.
04	PROVIDE INSULATED SUPPLY AIR BRANCH DUCT TO CONNECT TO EXISTING MAKE–UP AIR RISERS THROUGH BUILDING. PROVIDE OPPOSED–BLADE BALANCING DAMPERS AT CONNECTIONS TO EXISTING. PROVIDE NOSING TO PROTECT EXPOSED ENDS OF EXISTING ACOUSTIC LINING.
05	PROVIDE INSULATED SUPPLY AIR BRANCH DUCT TO CONNECT TO EXISTING MAKE–UP AIR SUPPLY DROP TO THIRD FLOOR LEVEL. PROVIDE OPPOSED–BLADE BALANCING DAMPER WHERE SHOWN. AT CONNECTION TO EXISTING FLOOR PENETRATION ON GRID LINE 4, ENSURE ACCESS DOOR IS PROVIDED FOR EXISTING FIRE DAMPER.
06	MODIFY LOW LEVEL CHILLED WATER PIPING AS REQUIRED AND INSTALL S&R PIPING C/W CONTROL VALVE TO SERVE CHILLED WATER COIL IN NEW AIR HANDLER. REFER TO PIPING SCHEMATIC AND COIL CONNECTION DETAILS. LAYOUT SHOWN ON DRAWING M02 IS SCHEMATIC. AVOID PIPING RISERS IN THIS GENERAL VICINITY (NOT SHOWN).
07	PROVIDE GAS–FIRED CONDENSING BOILER ON EXISTING CONCRETE HOUSEKEEPING PAD. REFER TO EQUIPMENT SCHEDULES. INSTALL BOILER ENTIRELY TO MANUFACTURER'S RECOMMENDATIONS. ALL POWER WIRING BY ELECTRICAL CONTRACTOR.
08	PROVIDE 65mm NATURAL GAS SUPPLY TO FEED CONDENSING BOILER FROM HIGH LEVEL.
09	PROVIDE B–VENT CHIMNEY FROM CONDENSING BOILER, CONNECTING TO EXISTING CHIMNEY PENETRATION THROUGH ROOF AS INDICATED.
10	PROVIDE GLYCOL CIRCULATING PUMP 'CP2', EXPANSION TANK 'EX2', AND GLYCOL DOSING TANK WITH ANCILLARIES GENERALLY AS INDICATED. REFER TO PIPING SCHEMATIC AND EQUIPMENT SCHEDULES. ALL POWER WIRING BY ELECTRICAL CONTRACTOR. INSTALL TO MANUFACTURER'S RECOMMENDATIONS.
11	PROVIDE GLYCOL S&R PIPING TO FEED MAIN HEATING COIL IN AIR HANDLER. REFER TO PIPING SCHEMATIC AND COIL CONNECTION DETAILS.
12	PROVIDE STEAM TO STEAM HUMIDIFIER 'HUM1' AT THIS LOCATION. REFER TO EQUIPMENT SCHEDULES. INSTALL HUMIDIFIER ENTIRELY TO MANUFACTURER'S RECOMMENDATIONS. ALL POWER WIRING BY ELECTRICAL CONTRACTOR. CONNECT HUMIDIFIER TO EXISTING FEED WATER TANK SUPPLY ADJACENT.
13	PROVIDE STEAM PIPING FROM HUMIDIFIER AND DISTRIBUTOR IN NEW AIR HANDLING UNIT.
14	INCREASE PRIMARY PIPE SIZE AS REQUIRED AND PROVIDE NEW PRESSURE REDUCING VALVE CAPABLE OF REDUCING FROM 100 PSIG DOWN TO 10 PSIG, WITH A MASS FLOW RATE OF 600 LBS/HR. DROP 50mm LOW PRESSURE STEAM SUPPLY CONNECTION FROM HIGH LEVEL TO SERVE NEW HUMIDIFIER.
15	MODIFY EXISTING CONDENSATE TRAPS AND PIPING TO SUIT NEW HUMIDIFIER INSTALLATION. LAYOUT IS LEGACY FROM REMOVED UNIT. REFER TO SCHEMATIC 01/M02.
16	GENERAL TRADES TO PROVIDE RAISED CURB OVER EXHAUST RISER PENETRATIONS.
17	THREE NEW 406ø EXHAUST RISERS PENETRATE ROOF AND RISE TO CONNECT INTO MAIN EXHAUST DUCT. PROVIDE FLASHING ON EACH DUCT RISER DOWN ONTO ROOF CURB.
18	PROVIDE NOMINAL 40" DIAMETER MAIN EXHAUST DUCT ACROSS ROOF AS INDICATED. SUPPORT DUCTING PER DETAIL LATER IN THIS DRAWING SET. INSULATE ALL EXPOSED ABOVE–ROOF EXHAUST DUCTING PER SPECIFICATION.
19	PROVIDE ENERGY RECOVERY AIR HANDLING SECTION AS SHOWN. REFER TO EQUIPMENT SCHEDULES. UNIT SHALL BE C/W ROOF CURB.
20	PROVIDE UNINSULATED EXHAUST DUCTING LEAVING ENERGY RECOVERY SECTION. PROVIDE BRANCH DUCTS C/W MOTORIZED DAMPERS CONNECTING TO EXHAUST FANS.
21	PROVIDE CENTRIFUGAL EXHAUST FANS 'EF1A' AND 'EF1B' C/W STEEL BASES. GENERAL TRADES TO PROVIDE BUILT–UP BASES FOR FANS. PROVIDE STEEL BASE–FRAMES C/W SEISMICALLY–RATED SPRING ANTI–VIBRATION MOUNTINGS FOR FANS. REFER TO EQUIPMENT SCHEDULES. ALL POWER WIRING BY ELECTRICAL CONTRACTOR.
22	PROVIDE DISCHARGE STACK ON TOP OF FANS. PROVIDE LATERAL SEISMIC SUPPORT FOR DISCHARGE STACKS FROM ADJACENT WALL.
23	PROVIDE GLYCOL S&R PIPING TO FEED ENERGY RECOVERY COIL IN AIR HANDLER. REFER TO PIPING SCHEMATIC AND COIL CONNECTION DETAILS. SUPPORT OUTDOOR SECTIONS OF GLYCOL PIPING PER PIPE SUPPORT DETAIL LATER IN THIS DRAWING SET.
24	PROVIDE GLYCOL CIRCULATING PUMP 'CP1', AND EXPANSION TANK 'EX1'. REFER TO PIPING SCHEMATIC AND EQUIPMENT SCHEDULES. ALL POWER WIRING BY ELECTRICAL CONTRACTOR. INSTALL TO MANUFACTURER'S RECOMMENDATIONS. NOTE THAT THIS SYSTEM WILL SHARE THE GLYCOL DOSING EQUIPMENT SERVING THE NEW BOILER ADJACENT.
25	PROVIDE DRAIN PIPING AS REQUIRED FROM NEW AIR HANDLING UNIT, DISCHARGING OVER EXISTING FLOOR DRAIN. PROVIDE TRAPS IN DRAIN PIPING WHERE REQUIRED.
26	PROVIDE VALVED AND CAPPED 50mm BRANCHES FOR FUTURE CONNECTIONS BY OTHERS.
27	CLEAN GRIME FROM OUTSIDE OF EXISTING NORTH AND SOUTH SUPPLY AIR DROPS. PROVIDE INSULATION OVER ENTIRE VERTICAL SECTION FROM FLOOR TO HIGH LEVEL BEND.
28	FUTURE ACID EXHAUST FAN BY OTHERS N.I.C.
29	FUTURE ACID EXHAUST ENERGY RECOVERY AIR HANDLER BY OTHERS N.I.C.
30	PROVIDE TWO INSULATED AND CAPPED 406ø EXHAUST BRANCHES FOR FUTURE CONNECTION BY OTHERS.

	MATERIALS
	SUPPLY DUCTWORK CONSTRUCTION:
	CONSTRUCT DUCT AND FITTINGS FROM GALVANIZED STEEL TO SMACNA 3" WG PRESSURE CLASS, AND SEAL TO SMACNA SEAL CLASS A.
	EXHAUST DUCTWORK CONSTRUCTION:
	CONSTRUCT DUCT AND FITTINGS FROM TYPE 316 STAINLESS STEEL.
	FABRICATE, SEAL AND INSTALL ALL STAINLESS STEEL DUCT, BENDS, ELBOWS, TRANSFORMATIONS, AND BRANCH FITTINGS ETC. IN ACCORDANCE WITH THE –6" WATER GAUGE (–1.5 KPA) PRESSURE CLASS (NONABRASIVE) OF THE LATEST EDITION OF SMACNA ROUND INDUSTRIAL DUCT CONSTRUCTION STANDARDS.
	SEISMIC:
	NEW EXHAUST FANS, ENERGY RECOVERY UNIT, DUCTING & PIPING SHALL BE SEISMIC RATED.
	PROVIDE SEISMIC RESTRAINT FOR ALL NEW DUCTING & PIPING.

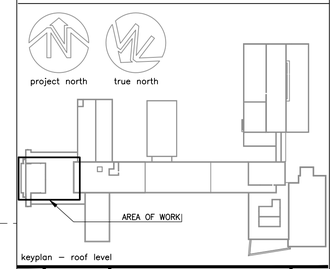


01 / M02 HUMIDIFIER PIPING SCHEMATIC

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

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2P9
All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved
...motivation is key™



No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des liéux 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
IPF Wing Fume Exhaust System Retrofit
Montreal Road Campus

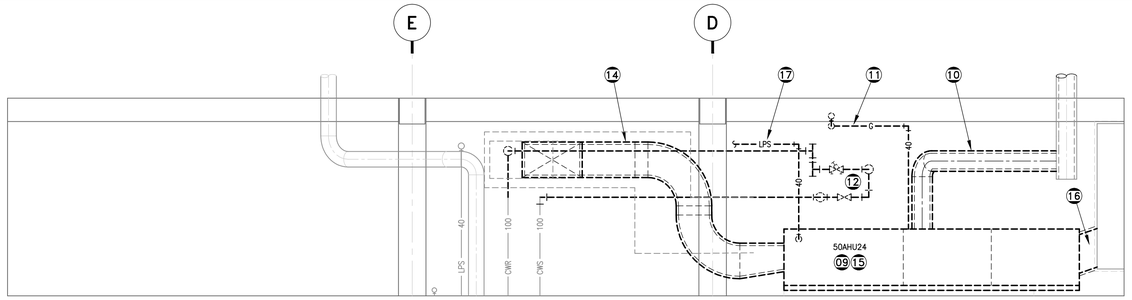
drawing / dessin
MECHANICAL
NEW LAYOUT
Revised Penthouse Layout
Roof Part Plan

designed / conçu	date / date
R Craig	March 2016
drawn / dessiné	scale / échelle
Rodders CAS	1:50 UNO
checked / vérifié	sheet / feuille
R Craig	M02 of/de 07
approved / approuvé	W.O.no. / D.T.no.
B.V.	

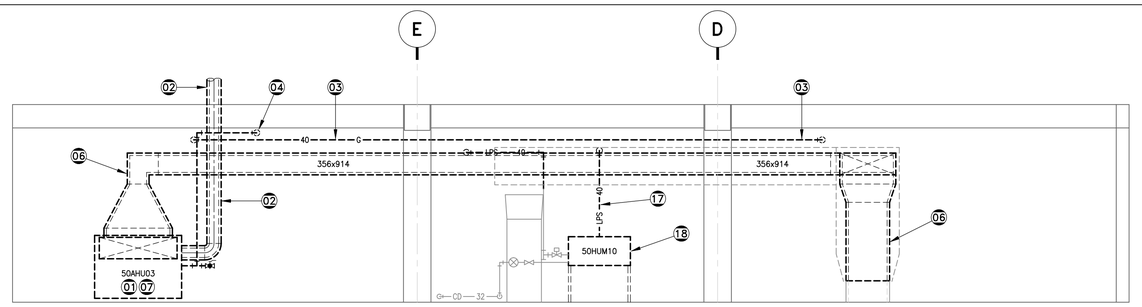
dwg.no. / dessin no.
5029–M02

ASPM A1 (841x594)

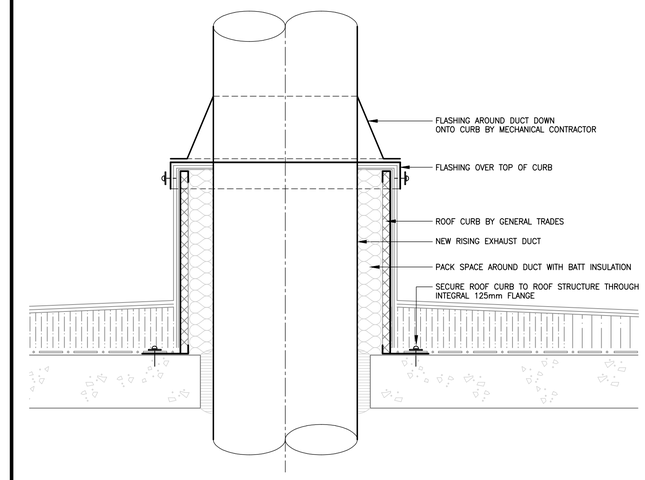
C
0 10 20mm 40 60 80 100 120 140 160 180 200mm



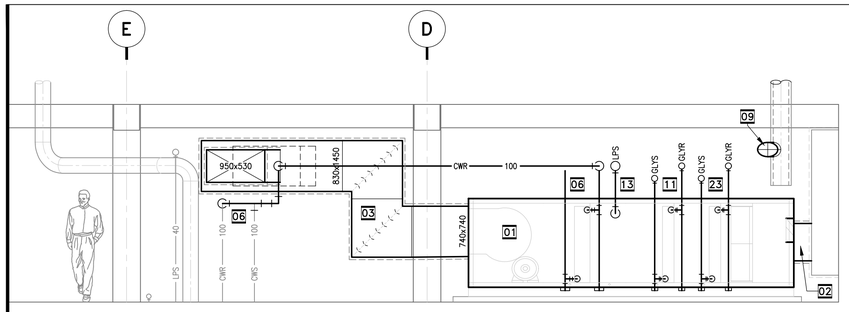
01 M03 DEMOLITION LAYOUT
SECTION THROUGH PENTHOUSE



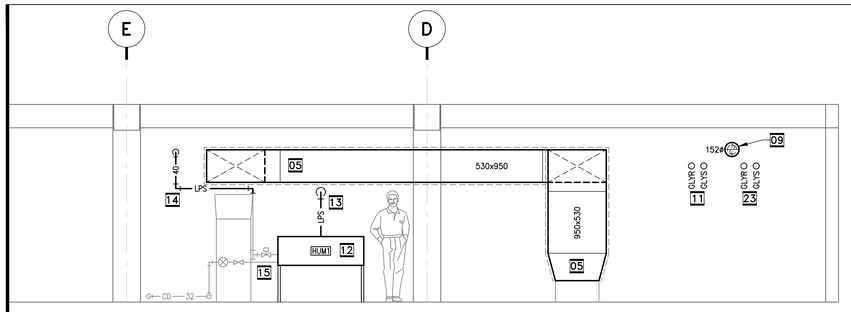
02 M03 DEMOLITION LAYOUT
SECTION THROUGH PENTHOUSE



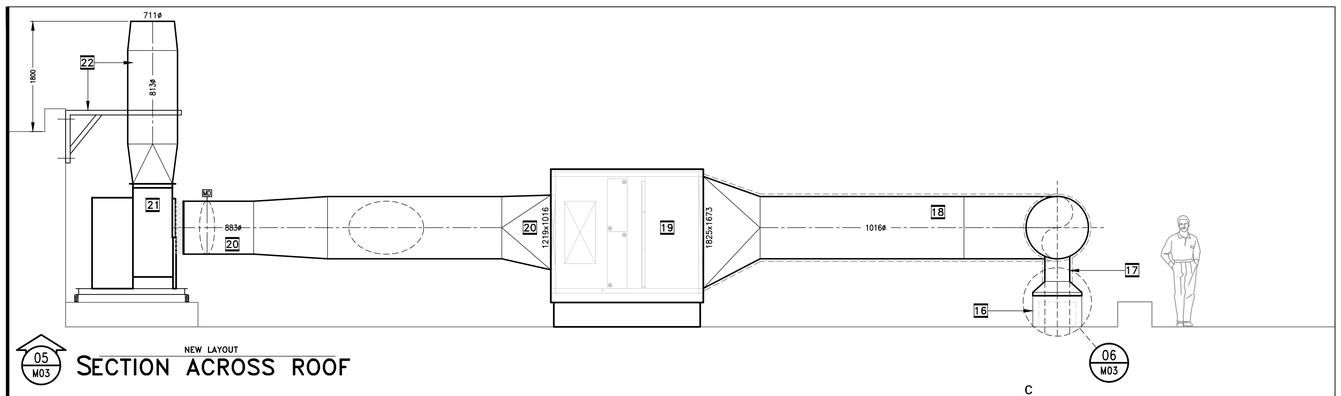
SCALE 1:10
06 M03 ROOF DUCT PENETRATION DETAIL



03 M03 NEW LAYOUT
SECTION THROUGH PENTHOUSE



04 M03 NEW LAYOUT
SECTION THROUGH PENTHOUSE



05 M03 NEW LAYOUT
SECTION ACROSS ROOF

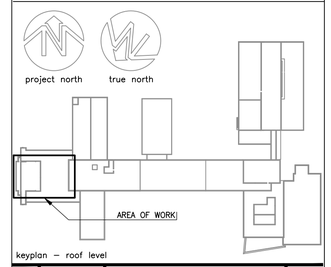
C
0 10 20mm 40 60 80 100 120 140 160 180 200mm

ASPM A1 (841x594)

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

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2B9
All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved
...motivation is key™



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed — Date imprimée

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

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

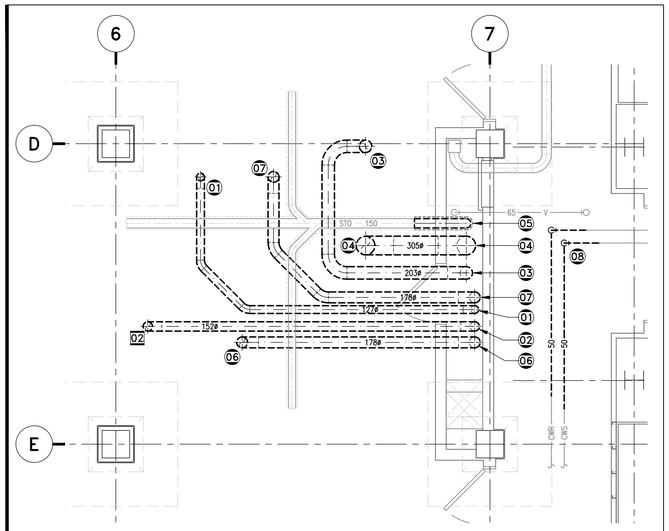
project / projet
Building M–50
IPF Wing Fume Exhaust System
Retrofit

Montreal Road Campus

drawing / dessin
MECHANICAL
DEMOLITION & NEW LAYOUTS
Sections & Details

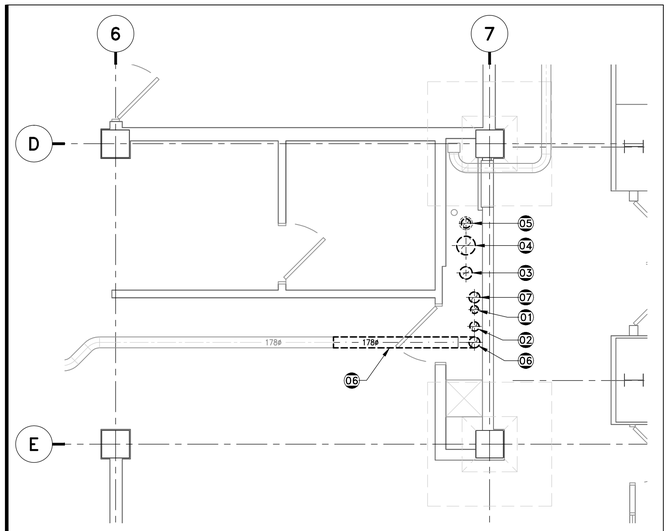
designed / conçu	date / date
R Craig	March 2016
drawn / dessiné	scale / échelle
Rodders CAS	1:50 UNO
checked / vérifié	sheet / feuille
R Craig	**M03** of/de 07
approved / approuvé	W.O.no. / D.T.no.
B.V.	

dwg.no. / dessin no.
5029–M03



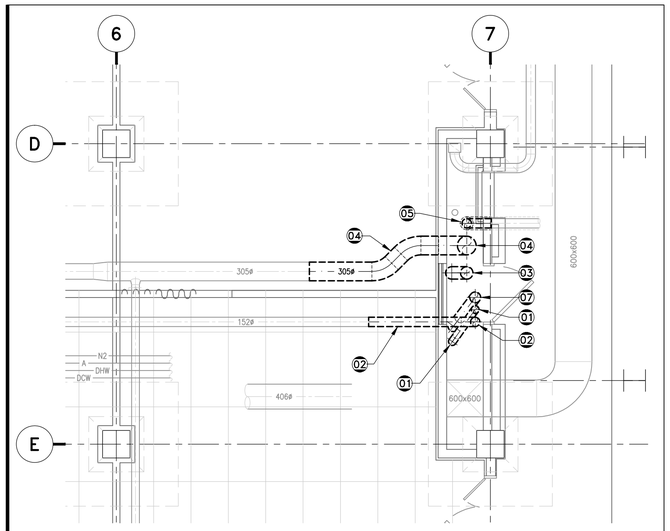
01 M04 DEMOLITION WORK

PART PLAN THIRD FLOOR



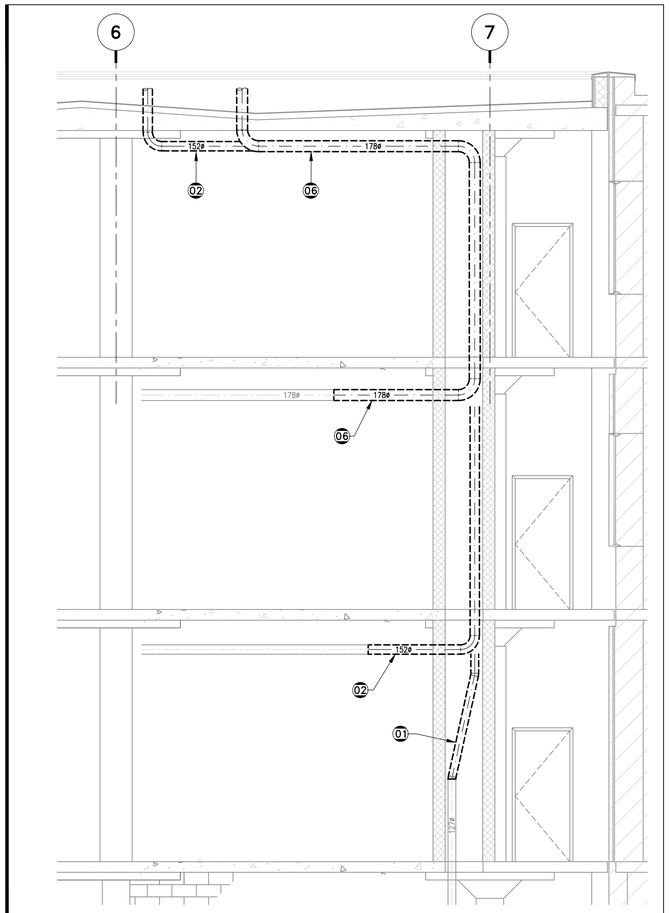
02 M04 DEMOLITION WORK

PART PLAN SECOND FLOOR



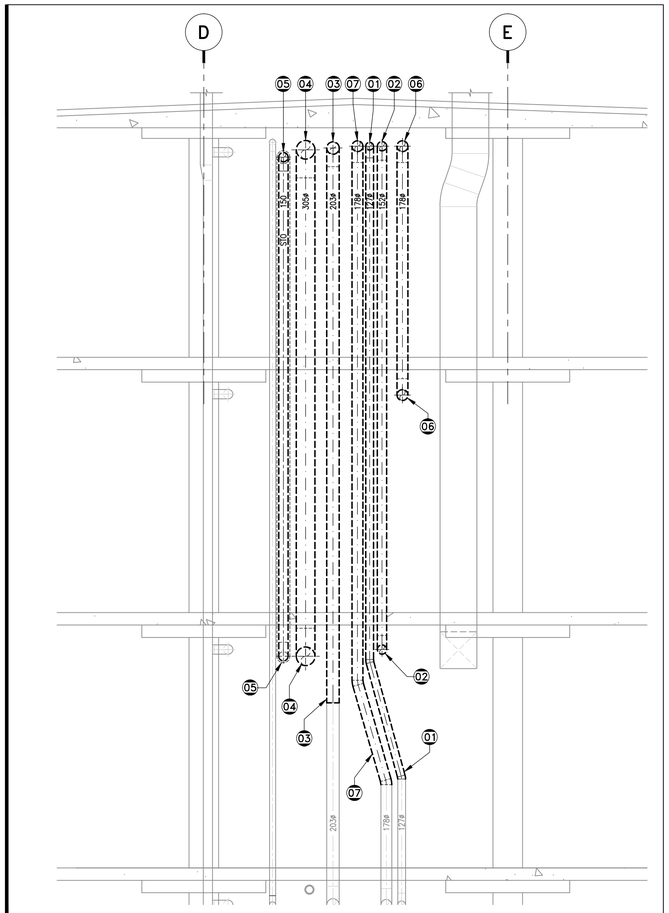
03 M04 DEMOLITION WORK

PART PLAN FIRST FLOOR



04 M04 DEMOLITION WORK

SECTION THROUGH BUILDING



05 M04 DEMOLITION WORK

SECTION THROUGH BUILDING

00	EXHAUST RISER DEMOLITION NOTES
01	REMOVE 127mm DIA. EXHAUST RISER FROM BASEMENT LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF13, TO THE EXTENT SHOWN WITH BROKEN LINES.
02	REMOVE 152mm DIA. EXHAUST RISER FROM GROUND FLOOR LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF16, TO THE EXTENT SHOWN WITH BROKEN LINES.
03	REMOVE 203mm DIA. EXHAUST RISER FROM BASEMENT LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF10, TO THE EXTENT SHOWN WITH BROKEN LINES.
04	REMOVE 305mm DIA. EXHAUST RISER FROM GROUND FLOOR LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF14, TO THE EXTENT SHOWN WITH BROKEN LINES.
05	ALLOW FOR THE REMOVAL AND RELOCATION OF THE EXISTING NOMINAL 150mm DIA. STORM RAINWATER LEADER TO PERMIT THE INSTALLATION OF NEW EXHAUST RISER DUCTS.
06	REMOVE 178mm DIA. EXHAUST RISER FROM SECOND FLOOR LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF15, TO THE EXTENT SHOWN WITH BROKEN LINES.
07	REMOVE 178mm DIA. EXHAUST RISER FROM BASEMENT LEVEL AND CONNECTING TO ROOF EXHAUST FAN 50XAFEF12, TO THE EXTENT SHOWN WITH BROKEN LINES.
08	ALLOW FOR THE REMOVAL AND RELOCATION OF THE EXISTING NOMINAL 50mm DIA. CHILLED WATER S&R PIPING ABOVE CORRIDOR CEILING TO PERMIT THE INSTALLATION OF NEW EXHAUST RISER DUCTS.

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

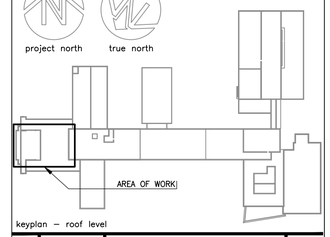
NRC · CNRC

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2B9

All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved

...motivation is key™

project north true north



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des liéux 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
IPF Wing Fume Exhaust System
Retrofit

Montreal Road Campus

drawing dessin

MECHANICAL
DEMOLITION
Part Floor Plans
Section Through Building

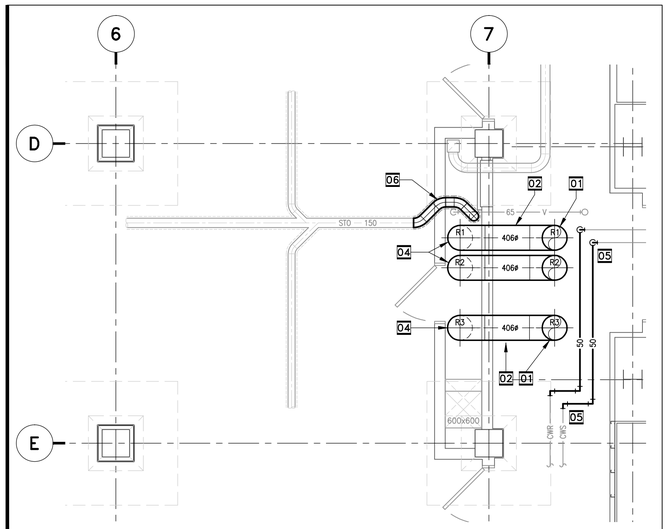
designed conçu	date date
R Craig	March 2016
drawn dessiné	scale échelle
Rodders CAS	1:50 UNO
checked vérifié	sheet feuille
R Craig	**M04** of/de 07
approved approuvé	W.O.no. D.T.no.
B.V.	

dwg.no. dessin no.

5029-M04

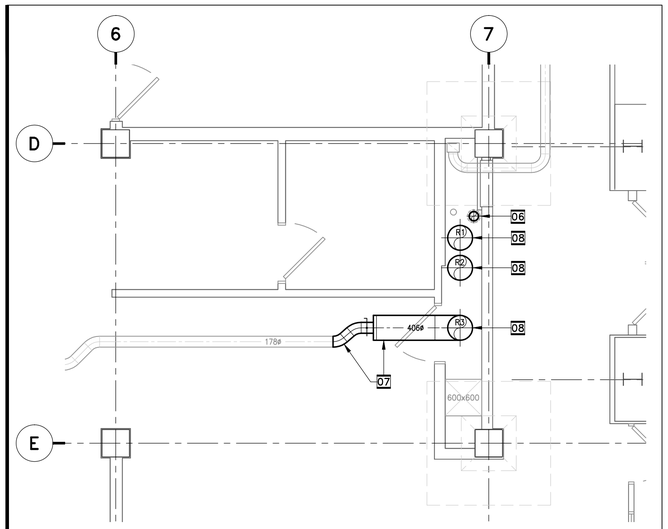
ASPM A1 (841x594)

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



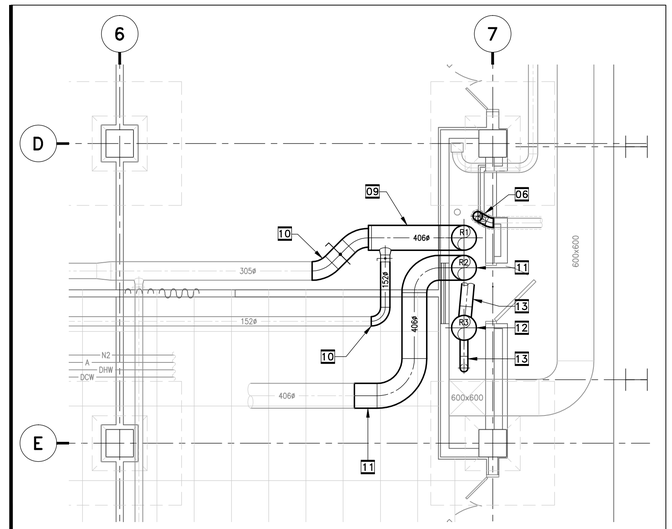
01 M05 NEW WORK

PART PLAN THIRD FLOOR



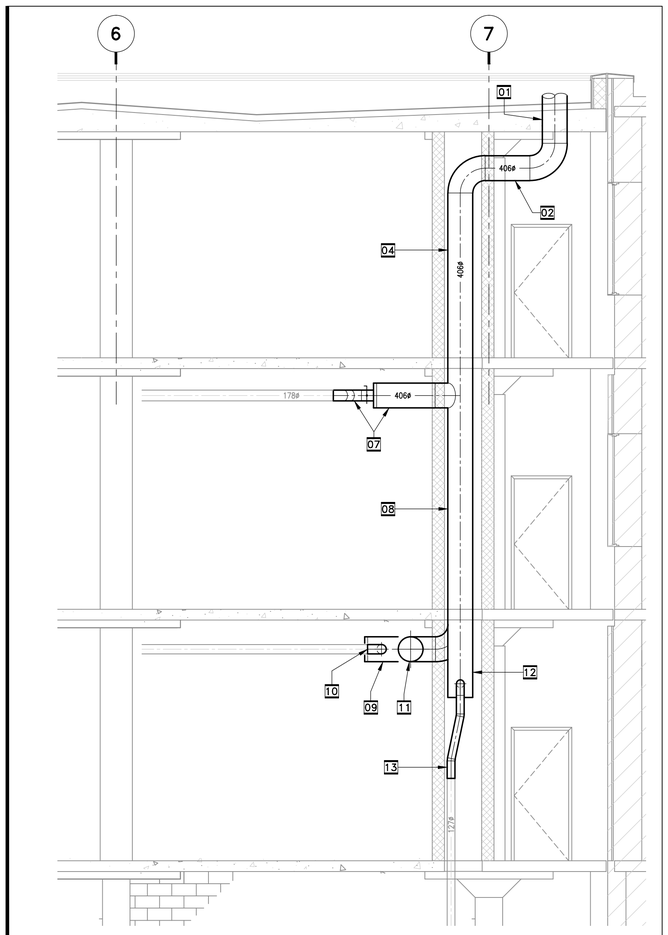
02 M05 NEW WORK

PART PLAN SECOND FLOOR



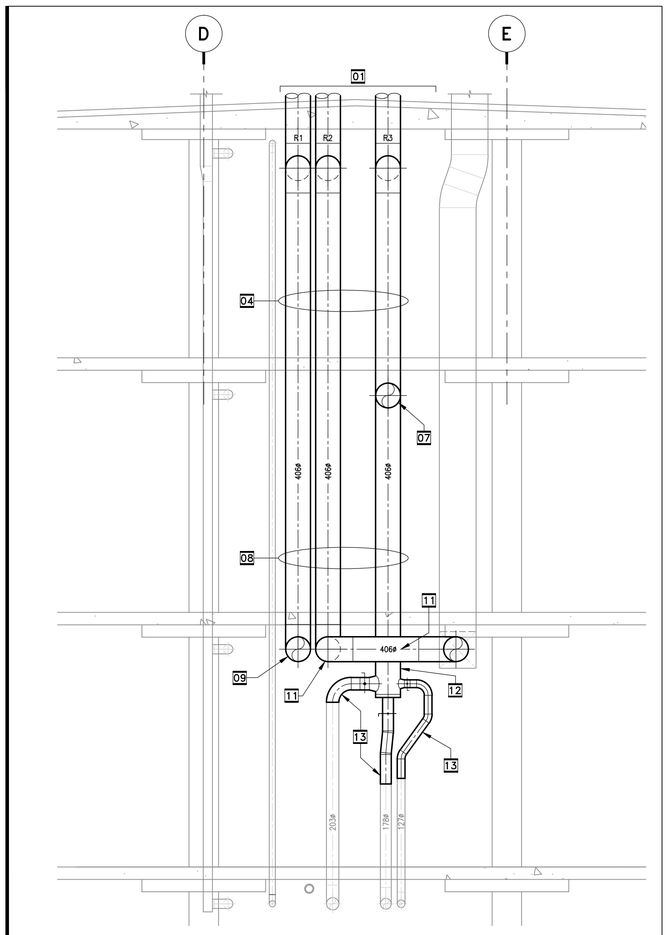
03 M05 NEW WORK

PART PLAN FIRST FLOOR



04 M05 NEW WORK

SECTION THROUGH BUILDING



05 M05 NEW WORK

SECTION THROUGH BUILDING

00	EXHAUST RISER NEW LAYOUT NOTES
01	PROVIDE NEW 406mm DIA. EXHAUST DUCT RISERS R1 THRU' R3 DOWN THROUGH ROOF AS INDICATED. ALL ROOF HOLE CUTTING BY GENERAL TRADES.
02	TURN RISER DUCTS HORIZONTAL AND RUN ACROSS CORRIDOR CEILING SPACE TO ENTER SERVICE CHASE. HOLES THROUGH HIGH LEVEL CORRIDOR WALL BY GENERAL TRADES.
03	NOTE RESERVED
04	TURN RISERS R1, R2 AND R3 DOWN THROUGH CHASE AND RUN DOWN BUILDING. ALL HOLES REQUIRED THROUGH INTERMEDIATE STEEL FLOORING BY GENERAL TRADES.
05	ALLOW FOR THE REMOVAL AND RELOCATION OF THE EXISTING NOMINAL 50mm DIA. CHILLED WATER S&R PIPING ABOVE CORRIDOR CEILING TO PERMIT THE INSTALLATION OF NEW EXHAUST RISER DUCTS.
06	ALLOW FOR THE REMOVAL AND RELOCATION OF THE EXISTING NOMINAL 150mm DIA. STORM RAINWATER LEADER TO PERMIT THE INSTALLATION OF NEW EXHAUST RISER DUCTS.
07	AT SECOND FLOOR LEVEL, PROVIDE A 416mm DIA. BRANCH OFF RISER R4 AT HIGH LEVEL TO APPROXIMATELY 1000mm FROM CHASE WALL. RECONNECT EXISTING 178mm DIA. EXHAUST DUCT AS SHOWN. PROVIDE BALANCING DAMPER WHERE SHOWN.
08	CONTINUE RISERS R1, R2 AND R3 DOWN THROUGH CHASE TO HIGH LEVEL GROUND FLOOR.
09	AT GROUND FLOOR LEVEL TURN RISER R1 HORIZONTAL AT HIGH LEVEL TO APPROXIMATELY 1000mm FROM CHASE WALL.
10	RECONNECT EXISTING 152mm DIA. AND 305mm DIA. EXHAUST DUCTS AS SHOWN. PROVIDE BALANCING DAMPERS WHERE SHOWN.
11	AT GROUND FLOOR LEVEL TURN RISER R2 HORIZONTAL AT HIGH LEVEL AND CONNECT TO EXISTING EXHAUST DUCT PROVIDED UNDER SEPARATE CONTRACT.
12	CONTINUE RISER R3 TO APPROXIMATELY 2750 AFF. AND RECONNECT EXISTING 203mm DIA., 178mm DIA. AND 127mm DIA. EXHAUST DUCTS RISING FROM BASEMENT LEVEL. PROVIDE BALANCING DAMPERS WHERE SHOWN.

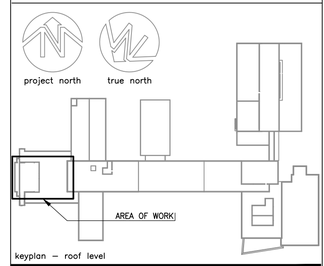
National Research Council Canada
Conseil national de recherches Canada
Administrative Services and Property Management Branch
Division des services administratifs et gestion de l'immobilier

NRC · CNRC

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2P9

All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved

...motivation is key™



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des liéux 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
IPF Wing Fume Exhaust System
Retrofit

Montreal Road Campus

drawing / dessin

MECHANICAL
NEW LAYOUTS
Part Floor Plans
Section Through Building

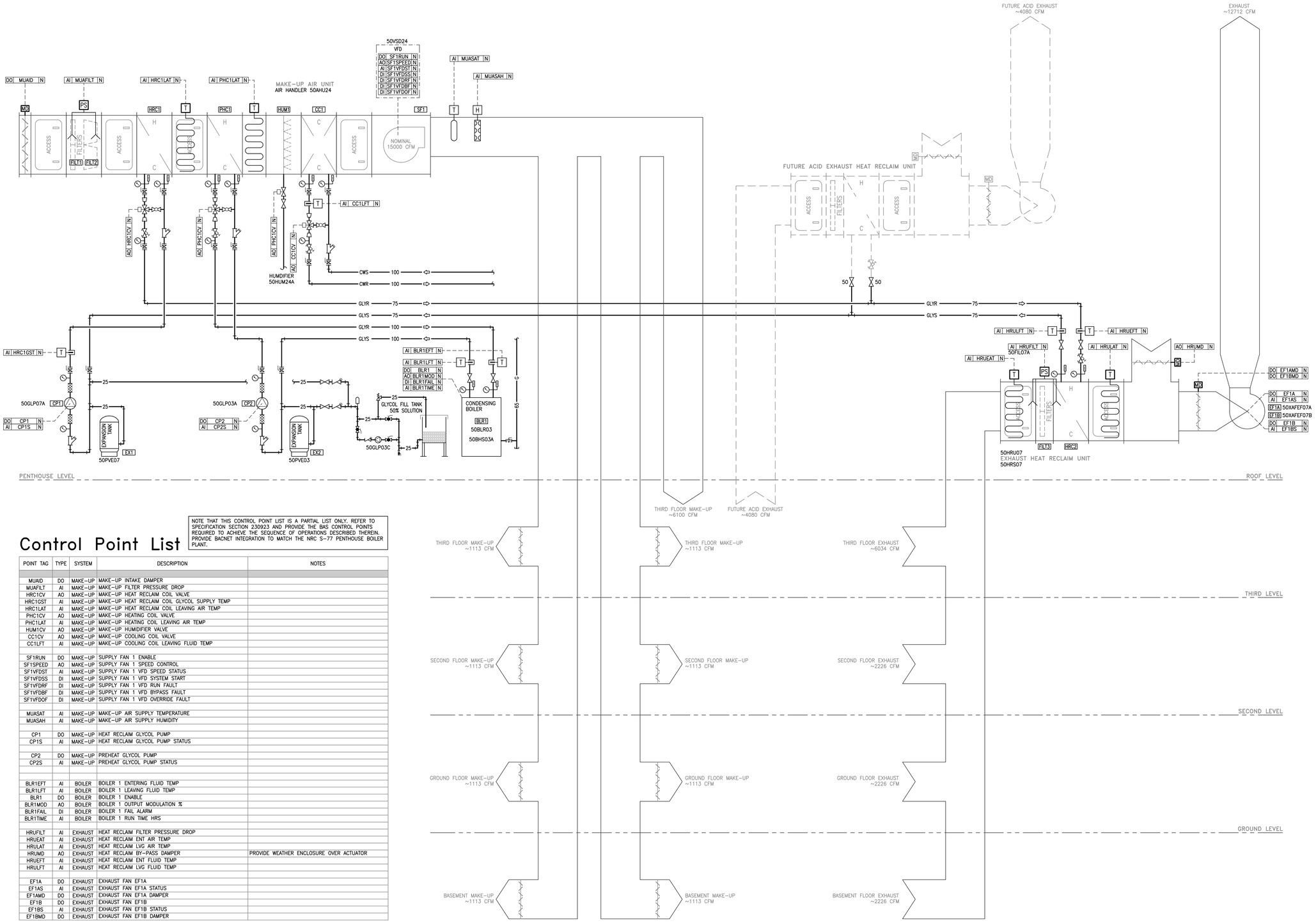
designed / conçu	date / date
R Craig	March 2016
drawn / dessiné: Rodders CAS	scale / échelle: 1:50 UNO
checked / vérifié: R Craig	sheet / feuille: **M05** of/de 07
approved / approuvé: B.V.	W.O.no. / D.T.no.

dwg.no. / dessin no.: **5029–M05**

ASPM A1 (841x594)

C

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



Control Point List

NOTE THAT THIS CONTROL POINT LIST IS A PARTIAL LIST ONLY. REFER TO SPECIFICATION SECTION 230923 AND PROVIDE THE BAS CONTROL POINTS REQUIRED TO ACHIEVE THE SEQUENCE OF OPERATIONS DESCRIBED THEREIN. PROVIDE BACNET INTEGRATION TO MATCH THE NRC S-77 PENTHOUSE BOILER PLANT.

POINT TAG	TYPE	SYSTEM	DESCRIPTION	NOTES
MUAID	DO	MAKE-UP	MAKE-UP INTAKE DAMPER	
MUAFILT	AI	MAKE-UP	MAKE-UP FILTER PRESSURE DROP	
HRC1CV	AO	MAKE-UP	MAKE-UP HEAT RECLAIM COIL VALVE	
HRC1GST	AI	MAKE-UP	MAKE-UP HEAT RECLAIM COIL GLYCOL SUPPLY TEMP	
HRC1LAT	AI	MAKE-UP	MAKE-UP HEAT RECLAIM COIL LEAVING AIR TEMP	
PHC1CV	AO	MAKE-UP	MAKE-UP HEATING COIL VALVE	
PHC1LAT	AI	MAKE-UP	MAKE-UP HEATING COIL LEAVING AIR TEMP	
HUM1CV	AO	MAKE-UP	MAKE-UP HUMIDIFIER VALVE	
CC1CV	AO	MAKE-UP	MAKE-UP COOLING COIL VALVE	
CC1LFT	AI	MAKE-UP	MAKE-UP COOLING COIL LEAVING FLUID TEMP	
SF1RUN	DO	MAKE-UP	SUPPLY FAN 1 ENABLE	
SF1SPEED	AO	MAKE-UP	SUPPLY FAN 1 SPEED CONTROL	
SF1VFDST	AI	MAKE-UP	SUPPLY FAN 1 VFD SPEED STATUS	
SF1VFDSS	DI	MAKE-UP	SUPPLY FAN 1 VFD SYSTEM START	
SF1VFDRF	DI	MAKE-UP	SUPPLY FAN 1 VFD RUN FAULT	
SF1VFDBF	DI	MAKE-UP	SUPPLY FAN 1 VFD BYPASS FAULT	
SF1VFDOF	DI	MAKE-UP	SUPPLY FAN 1 VFD OVERRIDE FAULT	
MUASAT	AI	MAKE-UP	MAKE-UP AIR SUPPLY TEMPERATURE	
MUASAH	AI	MAKE-UP	MAKE-UP AIR SUPPLY HUMIDITY	
CP1	DO	MAKE-UP	HEAT RECLAIM GLYCOL PUMP	
CP1S	AI	MAKE-UP	HEAT RECLAIM GLYCOL PUMP STATUS	
CP2	DO	MAKE-UP	PREHEAT GLYCOL PUMP	
CP2S	AI	MAKE-UP	PREHEAT GLYCOL PUMP STATUS	
BLR1EFT	AI	BOILER	BOILER 1 ENTERING FLUID TEMP	
BLR1LFT	AI	BOILER	BOILER 1 LEAVING FLUID TEMP	
BLR1	DO	BOILER	BOILER 1 ENABLE	
BLR1MOD	AO	BOILER	BOILER 1 OUTPUT MODULATION %	
BLR1FAIL	DI	BOILER	BOILER 1 FAIL ALARM	
BLR1TIME	AI	BOILER	BOILER 1 RUN TIME HRS	
HRUFILT	AI	EXHAUST	HEAT RECLAIM FILTER PRESSURE DROP	
HRUEAT	AI	EXHAUST	HEAT RECLAIM ENT AIR TEMP	
HRULAT	AI	EXHAUST	HEAT RECLAIM LVG AIR TEMP	
HRUMD	AO	EXHAUST	HEAT RECLAIM BY-PASS DAMPER	PROVIDE WEATHER ENCLOSURE OVER ACTUATOR
HRUEFT	AI	EXHAUST	HEAT RECLAIM ENT FLUID TEMP	
HRULFT	AI	EXHAUST	HEAT RECLAIM LVG FLUID TEMP	
EF1A	DO	EXHAUST	EXHAUST FAN EF1A	
EF1AS	AI	EXHAUST	EXHAUST FAN EF1A STATUS	
EF1AMD	DO	EXHAUST	EXHAUST FAN EF1A DAMPER	
EF1B	DO	EXHAUST	EXHAUST FAN EF1B	
EF1BS	AI	EXHAUST	EXHAUST FAN EF1B STATUS	
EF1BMD	DO	EXHAUST	EXHAUST FAN EF1B DAMPER	

ASPM A1 (841x594)

C

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

National Research Council Canada
Administrative Services and Property Management Branch

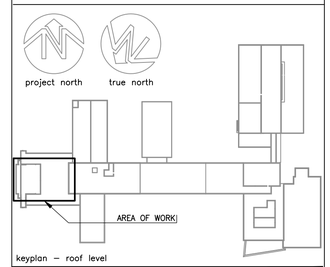
Conseil national de recherches Canada
Division des services administratifs et gestion de l'immobilier

NRC · CNRC

RODDERS | CAS

www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2B9
All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved
...motivation is key™

project north true north



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

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

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

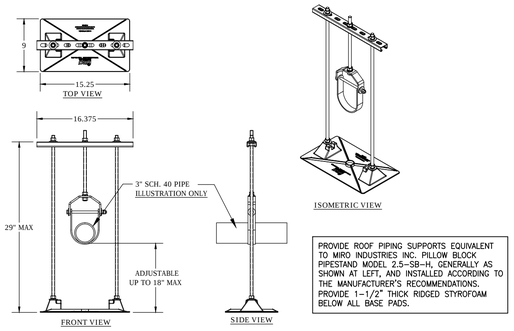
project / projet
Building M-50
IPF Wing Fume Exhaust System Retrofit

Montreal Road Campus

drawing / dessin
MECHANICAL
System Schematic
Control Points List

designed / conçu	date / date
R Craig	March 2016
drawn / dessiné	scale / échelle
Rodders CAS	1:50 UNO
checked / vérifié	sheet / feuille
R Craig	**M06** of/de 07
approved / approuvé	W.O.no. / D.T.no.
B.V.	

dwg.no. / dessin no.
5029-M06



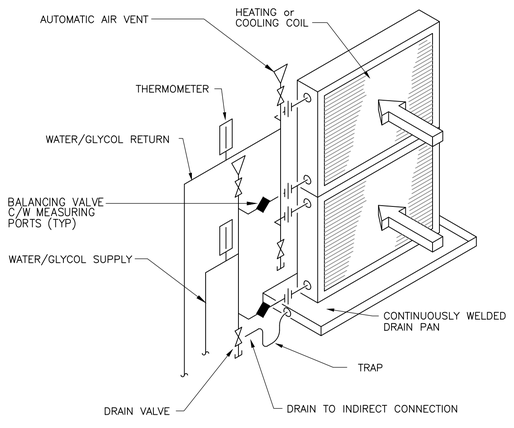
PROVIDE ROOF PIPING SUPPORTS EQUIVALENT TO MIRO INDUSTRIES INC. PILLOW BLOCK PIPESTAND MODEL 2.5–SB–H, GENERALLY AS SHOWN AT LEFT, AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE 1–1/2" THICK RIDGED STYROFOAM BELOW ALL BASE PADS.

ACCESSORIES
- Support pad or deck plate
- Eternabond® 2-sided tape

PRODUCT DESCRIPTION
A "roller-bearing", "clevis hanger" or "band hanger" pipe support, used to support roof-mounted gas pipes, HVAC piping, electrical conduit, solar piping and other machanical piping. Unique design allows thermal expansion and contraction of pipes thus preventing damage to the roof membrane. Pipes rest on a polycarbonate or steel roller, clevis hanger or band hanger.

KEY INFORMATION
- 2-1/2" OD maximum recomended pipe capacity or 4" OD maximum with insulation
- Adjustable height up to 18", even load required, maximum load is 116 lbs.
- Recommended spacing is not to exceed 10 feet centers depending upon the load. Make certain each pipestand is properly elevated to even load weight at all pipestands.
- Base Material: MIRON TPC
- All metal parts are stainless steel or Hot-Dip galvanized

02 / M07 PIPING SUPPORT DETAIL
NTS



PROVIDE PRESSURE GAUGES AND THERMOMETERS AT SUPPLY AND RETURN CONNECTIONS TO ALL FLUID COILS.

NOTES

TRAP: (Min. 2X TOTAL STATIC PRESSURE OF AIR UNIT. 6" Min. DEEP)

SINGLE COIL: PIPED SIMILARLY

01 / M07 HEAT TRANSFER COIL PIPING SCHEMATIC
HEATING or COOLING COILS – NTS

Fans

BASE MANUFACTURER: YORK / TWIN CITY

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	FAN TYPE	FAN CFM @ "wg	FAN RPM	FAN BHP	FAN MOTOR HP	FAN MOTOR RPM	ELECTRICAL V/Ph/Hz	VIBRATION ISOL. TYPE	NOTES
SF1	50AHU24	–	DWDI AIRFOIL	15000	4.54	1796	15.85	30.0	1800	575/3/60	SPRING	TEFC PREMIUM EFFICIENCY MOTOR
EF1A	50XAFE07A	330 BVA	BAF SWSI	12712	2.75	948	7.14	10.0	1800	575/3/60	SPRING	TEFC PREMIUM EFFICIENCY MOTOR / EPOXY COATED IN AIRSTREAM / AMCA TYPE 'A' SPARK RESIST
EF1B	50XAFE07B	330 BVA	BAF SWSI	12712	2.75	948	7.14	10.0	1800	575/3/60	SPRING	TEFC PREMIUM EFFICIENCY MOTOR / EPOXY COATED IN AIRSTREAM / AMCA TYPE 'A' SPARK RESIST

PROVIDE ISOLATION BASE AND SEISMICALLY–RATED SPRING ISOLATORS FOR EACH EXHAUST FAN

Air Filters

BASE MANUFACTURER: Koch Filter Corporation

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	FILTER TYPE	TOTAL AIRFLOW CFM	NO. REQ'D.	DIMENSIONS in. H x W x D	ROWs	COLs	NOTES
FILT1	MAKE–UP AIR	PLEATED 30%	MERV 8	15000	8	24x24x2	2	4	–
FILT2	MAKE–UP AIR	80–85% EFF	MERV 13	15000	8	24x24x12	2	4	–
FILT3	50FIL07A	PLEATED	MERV 8	12712	6	20x24x2	2	3	–
FILT3	50FIL07A	PLEATED	MERV 8	12712	3	20x20x2	1	3	–

Heat Transfer Coils

BASE MANUFACTURER: YORK

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	COIL TYPE	COOLING CAPACITY MBH TOTAL	COOLING CAPACITY MBH SENSIBLE	HEATING CAP. MBH	AIR SIDE CFM	AIR SIDE EAT db/wb °F	AIR SIDE LAT db/wb °F	AIR SIDE PD "wg	FLUID SIDE USGPM	FLUID SIDE EFT °F	FLUID SIDE LFT °F	FLUID SIDE PD FT	FLUID SIDE MEDIUM	FLUID SIDE CONN. ø in.	HEIGHT –	WIDTH –	No. of SECTIONS	NOTES
HRC1	MAKE–UP AIR	–	CU/ALUM	–	–	402.8	15000	–20.00/ –	0.90/ –	0.26	79.0	47.0	35.0	3.3	ETHYLENE 50%	3.0	47.5	96.0	1	3 ROW
HRC2	EXHAUST	–	CU/ALUM	314.4	290.4	–	12712	71.00/58.00	49.70/48.50	0.40	60.0	34.7	47.0	4.0	ETHYLENE 50%	2.5	67.5	60.0	2	8 ROW HERESITE COATED
PHC1	MAKE–UP AIR	–	CU/ALUM	–	–	1996.9	15000	–20.20/ –	83.50/ –	0.35	114.4	140.0	100.0	15.0	ETHYLENE 50%	3.0	47.5	96.0	1	4 ROW
CC1	MAKE–UP AIR	–	CU/ALUM	824.4	547.3	–	15000	90.00/72.00	55.30/54.40	0.56	145.0	45.0	56.3	8.8	WATER	3.0	47.5	96.0	1	8 ROW

Circulating Pumps

BASE MANUFACTURER: GRUNDFOS

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	PUMP TYPE	PUMP USGPM @ FT	PUMP RPM	PUMP MOTOR HP	PUMP MOTOR RPM	ELECTRICAL V/Ph/Hz	VIBRATION ISOL. TYPE	NOTES
CP1	50GLP07A	VL–20705	IN–LINE	79.0	30.0	1760	1.50	1760	575/3/60	–	ETHYLENE 50%
CP2	50GLP03A	VL–30957	IN–LINE	114.0	60.0	1760	3.00	1760	575/3/60	–	ETHYLENE 50%

Humidifiers

BASE MANUFACTURER: PURE

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	UNIT TYPE	CAPACITY lb/hr	MANIFOLD NUMBER	STEAM PRESS. PSIG	ACTUATOR TYPE	ELECTRICAL V/Ph/Hz	UNIT kW RATING	UNIT – RATING	NOTES
HUM1	50HUM24A	SX–4R	STM TO STM	571.0	MULITIPLE	10.0	ELECTRONIC	120/1/60	–	–	C/W 10 TUBE 4" DISTRIBUTOR

Boilers

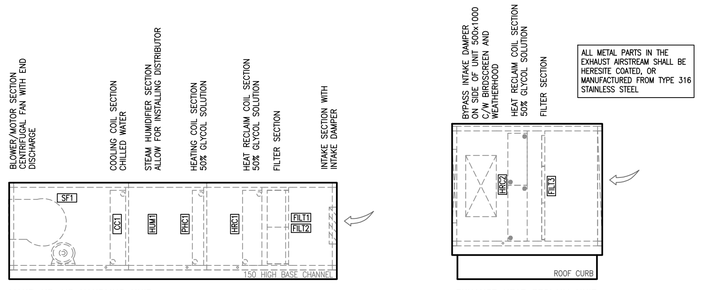
BASE MANUFACTURER: HYDROTHERM KN–SERIES

ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	UNIT TYPE	CAPACITY MEDIUM	CAPACITY inMBH	CAPACITY outMBH	CAPACITY USGPM	HEATING STAGES	ELECTRICAL V/Ph/Hz	OPERATING WT lb	REMARKS
BLR1	50BLR03	KN–26	CONDENSING	GAS	2600	2410	114	–	208/3/60	~3000	–

Tanks

BASE MANUFACTURER: AMTROL – EXTROL

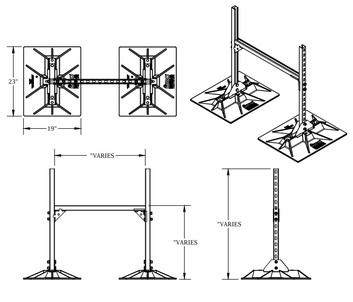
ITEM NUMBER	SYSTEM REFERENCE	MODEL NUMBER	TANK TYPE	DIMENSIONS in. ø	DIMENSIONS in. H	VOLUME GALLON	TANK ORIENTATION	NOTES
EX1	50PVE07	AX–15V	HYDRONIC	12	20	08.0	VERTICAL	–
EX2	50PVE03	AX–40V	HYDRONIC	16	30	21.7	VERTICAL	–



MAKE–UP AIR HANDLING UNIT
BASE MANUFACTURER: YORK XTI

ALL METAL PARTS IN THE EXHAUST AIRSTREAM SHALL BE HERESITE COATED, OR MANUFACTURED FROM TYPE 316 STAINLESS STEEL

EXHAUST HEAT RECLAIM UNIT
BASE MANUFACTURER: YORK XTI



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.

03 / M07 DUCTING SUPPORT DETAIL
NTS

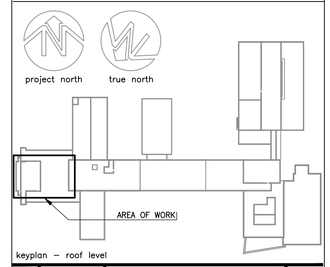
Mechanical Legend

ITEM	DESCRIPTION
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
GLYS	GLYCOL SUPPLY
GLYR	GLYCOL RETURN
HPS	HIGH PRESSURE STEAM
LPS	LOW PRESSURE STEAM
CD	CONDENSATE
G	NATURAL GAS
	CIRCULATING PUMP
	STEAM TRAP
	PIPEMOUNT THERMOMETER
	PIPELINE FLEXIBLE CONNECTION
	PIPEMOUNT PRESSURE GAUGE
	BALANCING VALVE WITH PRESSURE TAPPINGS
	BALL VALVE
	DRAIN VALVE
	ISOLATING VALVE
	BALANCING VALVE (TYPICALLY GLOBE)
	BUTTERFLY VALVE
	PLUG VALVE
	CHECK VALVE
	2–PORT ON–OFF VALVE
	3–PORT ON–OFF VALVE
	PRESSURE REDUCING VALVE
	PIPELINE STRAINER
	AUTOMATIC AIR VENT
	PIPELINE REDUCER
	FLOOR DRAIN
	BREAK INDICATION – TYPICALLY PIPING

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

RODDERS | CAS
www.rodders.com info@rodders.com
cell 613.266.2134
3 Rochester St. Carleton Place ON K7C 2P9
All CAD Symbols and Symbology carrying the RCAS WordMark
copyright© Rodders CAS - Unauthorized use prohibited - all rights reserved
...motivation is key™



keyplan – roof level

No.	Date	Revision	By: Par:
00	2016.09	ISSUED FOR TENDER	R.C.

Date Printed / Date imprimée

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'etat des liéux 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
IPF Wing Fume Exhaust System Retrofit

Montreal Road Campus

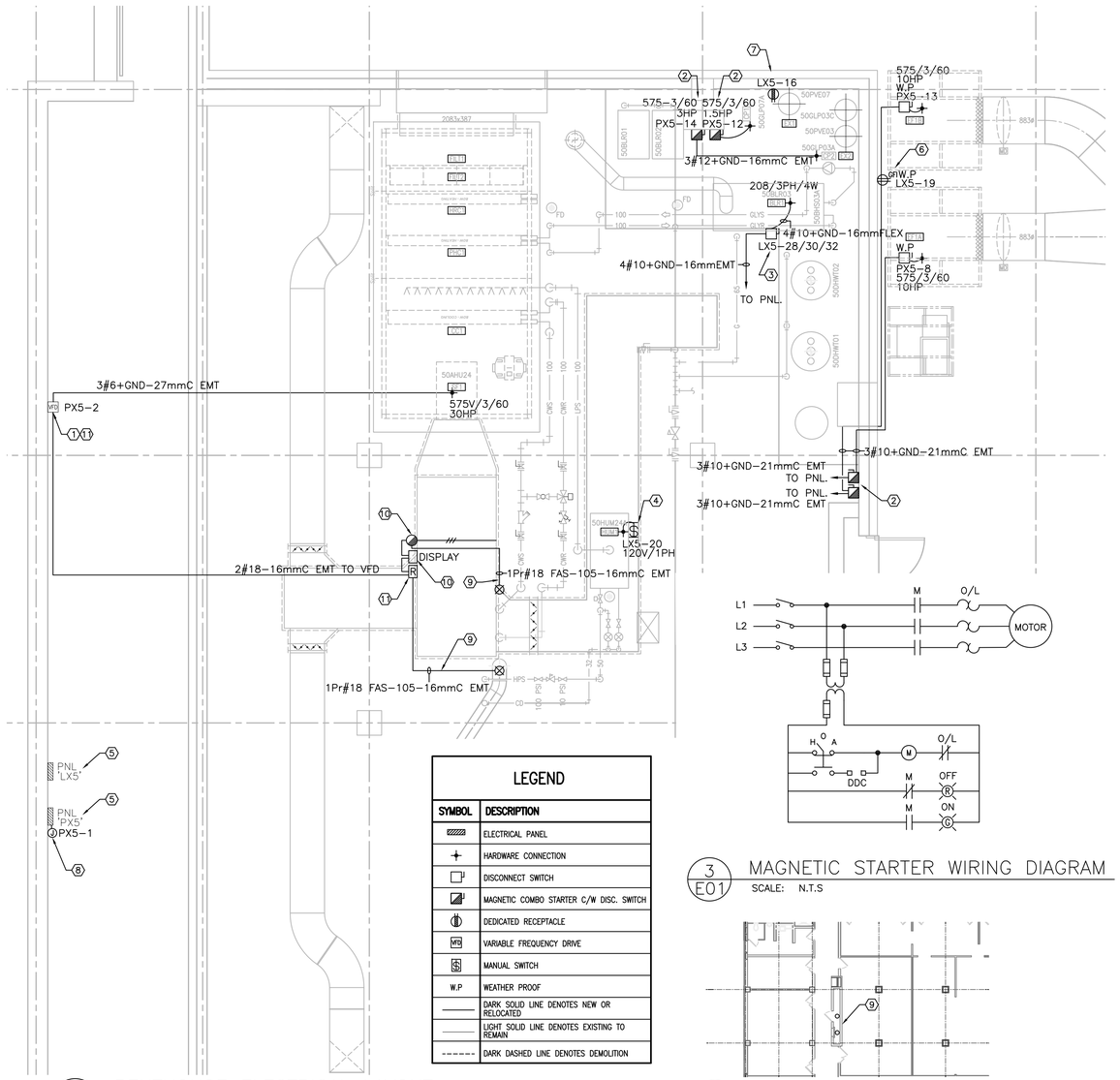
drawing / dessin
MECHANICAL
Equipment Schedules
Miscellaneous Details

designed / conçu	date / date
R Craig	March 2016
drawn / dessiné	scale / échelle
Rodders CAS	1:50 UNO
checked / vérifié	sheet / feuille
R Craig	**M07** of/de 07
approved / approuvé	W.O.no. / D.T.no.
B.V.	

dwg.no. / dessin no.
5029–M07

ASPM A1 (841x594)

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

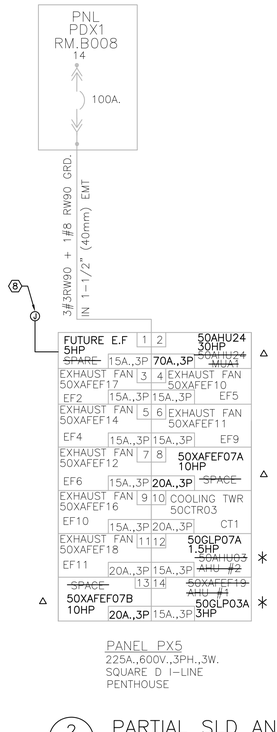


LEGEND	
SYMBOL	DESCRIPTION
	ELECTRICAL PANEL
	HARDWARE CONNECTION
	DISCONNECT SWITCH
	MAGNETIC COMBO STARTER C/W DISC. SWITCH
	DEDICATED RECEPTACLE
VFD	VARIABLE FREQUENCY DRIVE
	MANUAL SWITCH
W.P	WEATHER PROOF
	DARK SOLID LINE DENOTES NEW OR RELOCATED
	LIGHT SOLID LINE DENOTES EXISTING TO REMAIN
	DARK DASHED LINE DENOTES DEMOLITION

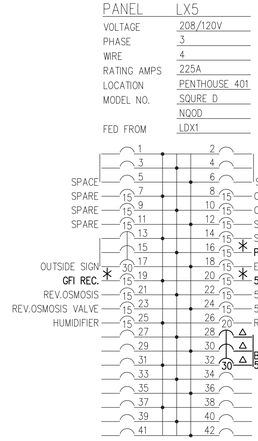
1 E01 PENTHOUSE ELECTRICAL LAYOUT
SCALE: 1:50

3 E01 MAGNETIC STARTER WIRING DIAGRAM
SCALE: N.T.S

4 E01 TYP.2nd&3rd FL. LAYOUT
SCALE: 1:250



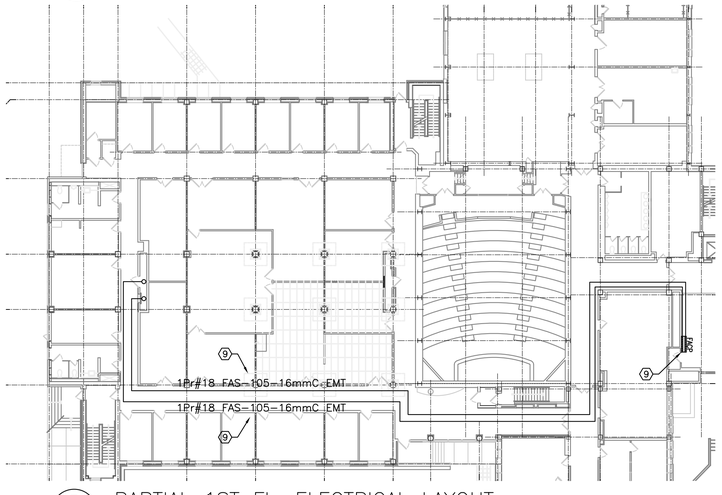
PANEL PX5
225A.,600V.,3PH.,3W.
SQUARE D I-LINE
PENTHOUSE



✳ NEW LOAD ON EXISTING BREAKER

△ REPLACE EXISTING BREAKER WITH NEW BREAKER AND CONNECT TO NEW LOAD

2 E01 PARTIAL SLD AND PANEL SCHEDULE ⑤
SCALE: N.T.S



5 E01 PARTIAL 1ST FL. ELECTRICAL LAYOUT
SCALE: 1:250

DRAWING NOTES: ⓧ

1. NEW AIR HANDLING UNIT C/W VFD DRIVE TO BE SUPPLIED BY DIV.23. DIV.26 TO INSTALL VFD DRIVE AND MAKE ALL FINAL CONNECTIONS. PROVIDE COORDINATION FOR EQUIPMENT START-UP.
2. PROVIDE COMBO MAGNETIC STARTER C/W SELECTOR SWITCH, PILOT LIGHT, OVERLOAD PROTECTION, ETC. AND MAKE ALL FINAL CONNECTIONS. STANDARD OF ACCEPTANCE: SQUARE D 8539. RUN R90 AND EMT FOR INDOOR INSTALLATION. USE TECK 90 CABLE FOR OUTDOOR INSTALLATION. RUN CABLE ALONG PIPING SUPPORT. PROVIDE HORIZONTAL UNISTRUT AND ATTACH TO THE TOP OF THE PIPING SUPPORT. PROVIDE GALVANIZED STEEL CABLE STRAP TO ATTACH TO UNISTRUT. COORDINATE WORK ON SITE AND FOLLOW INSTRUCTIONS FROM NRC DEPARTMENTAL REPRESENTATIVE. DDC SIGNAL IS BY OTHERS. REFER TO DETAIL #3 FOR ADDITIONAL INFORMATION.
3. PROVIDE DISCONNECT SWITCH AND MAKE ALL CONNECTIONS. ONLY USE FLEXIBLE CONDUIT FOR FINAL CONNECTION TO THE MOTOR.
4. PROVIDE MANUAL SWITCH, C/W PILOT LIGHT AND LOCKABLE GUARD BLADES, AND MAKE ALL FINAL CONNECTIONS. STANDARD OF ACCEPTANCE: SQUARE D 2510 KG1A.
5. PROVIDE NEW BREAKER IN EXISTING PANEL AND MAKE ALL FINAL CONNECTIONS. BREAKER TYPE TO MATCH EXISTING PANEL. REFER TO SPEC FOR INTERRUPTING CAPACITY. UPDATE PANEL SCHEDULE UPON JOB COMPLETION.
6. PROVIDE GFI RECEPTACLE C/W WEATHER PROOF COVER AND CONNECT TO CIRCUIT AS SHOWN. COVER TO BE METAL IN-USE TYPE. STANDARD OF ACCEPTANCE: HUBBELL MX3300.
7. PROVIDE DEDICATED RECEPTACLE FOR PLUG-IN PUMP AND CONNECT TO CIRCUIT AS INDICATED. CONFIRM EXACT LOCATION ON SITE AND COORDINATE WORK WITH DIV.23.
8. PROVIDE JUNCTION BOX CLOSE TO PANEL AND CONNECT TO CIRCUIT AS SHOWN. LOCK BREAKER AT 'OFF' POSITION FOR FUTURE USE.
9. PROVIDE NEW CLASS A DATA LOOP AND CONNECT TO EXISTING FIRE ALARM PANEL AT THE MAIN ENTRANCE. RUN WIRES IN SEPARATE CONDUITS TO FORM TRUE CLASS A LOOP. RUN CONDUITS WITHIN EXISTING SHAFT TO REACH FIRST FLOOR AND THEN RUN IN CEILING SPACE TO REACH DESTINATION. NEW CONDUITS TO BE COLORED EMT AS PER SPEC. PROVIDE ISOLATOR IN PANEL TO SUIT NEW INSTALLATION. ISOLATOR MODEL NUMBER: CHUBB EDWARDS SIGA-IM. PROVIDE PROGRAMMING, VERIFICATION AND CERTIFICATION UPON JOB COMPLETION. UPDATE M-1 FIREWORKS AS PER SPEC.
10. PROVIDE DUCT SMOKE DETECTOR C/W HOUSING, SMOKE HEAD AND BASE, REMOTE LED DISPLAY, AND SAMPLING TUBE, AND CONNECT TO ADDRESSABLE DATA LOOP. CONFIRM EXACT LOCATION ON SITE AND COORDINATE WORK WITH DIV.23. FIRE ALARM DEVICE MODEL NUMBER:
    - DETECTOR HOUSING – CHUBB EDWARDS SIGA-DH.
    - SMOKE HEAD – SIGA-PS/SB.
    - REMOTE LED – SIGA-LED.
    - SAMPLING TUBE – 6261-006 (CUT TO SUIT)
11. PROVIDE ADDRESSABLE RELAY MODULE AND CONNECT TO NEW ADDRESSABLE DATA LOOP. CONNECT RELAY OUTPUT SIGNAL TO AHU VFD DRIVE TO SHUT DOWN AHU UPON FIRE ALARM.

ASPM A1 (841x594)

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

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

A. READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.

B. CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO NRC DEPARTMENTAL REPRESENTATIVE.

C. CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.

D. INFORM NRC DEPARTMENTAL REPRESENTATIVE IMMEDIATELY OF ANY DISCREPANCIES BETWEEN PLANS AND SITE CONDITIONS.

E. MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.

F. COORDINATE WORK WITH OTHER DIVISIONS FOR INSTALLATION AND TO AVOID INTERFERENCE.

G. COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE.

H. FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.

I. REMOVE MEANS REMOVE AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.

J. PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.

K. ALL INTERIOR WIRING SHALL BE #12 AWG CONDUCTOR MINIMUM. TYPE R90 XLPE CROSS-LINK POLYETHYLENE STRANDED FOR SIZE NO.8 AND LARGER. TYPE T90 STRANDED FOR SIZE NO.10 AND SMALLER. ALL NEW RACEWAYS SHALL BE THIN WALL ELECTRICAL METALLIC TUBING (EMT) 1/2" MINIMUM UNLESS OTHERWISE INDICATED. CONDUITS TO BE COMPLETE WITH INSULATED TYPE CONNECTORS AND BUSHING.

L. SURFACE CONDUIT TO RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES. ALL CONDUITS AND JUNCTION BOXES TO BE ANCHORED TO THE BUILDING STRUCTURE.

M. THE WORD 'PROVIDE' MEANS SUPPLY, INSTALL, CONNECT AND TEST.

N. MOTOR STARTERS:
N.A. MAGNETIC MOTOR STARTERS C/W PILOT LIGHTS, CONTROL TRANSFORMER AND FUSE, H.O.A. SWITCH, OVERLOADS, 2-N.O. AND 2-N.C. AUXILIARY CONTACTS, OVERLOAD TRIP RESET, PHASE LOSS PROTECTION RELAY.

No.	Date	Revision	By/ Par:
0	DD MM YYYY	XXXX	???

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 liéux et en assumer la responsabilité

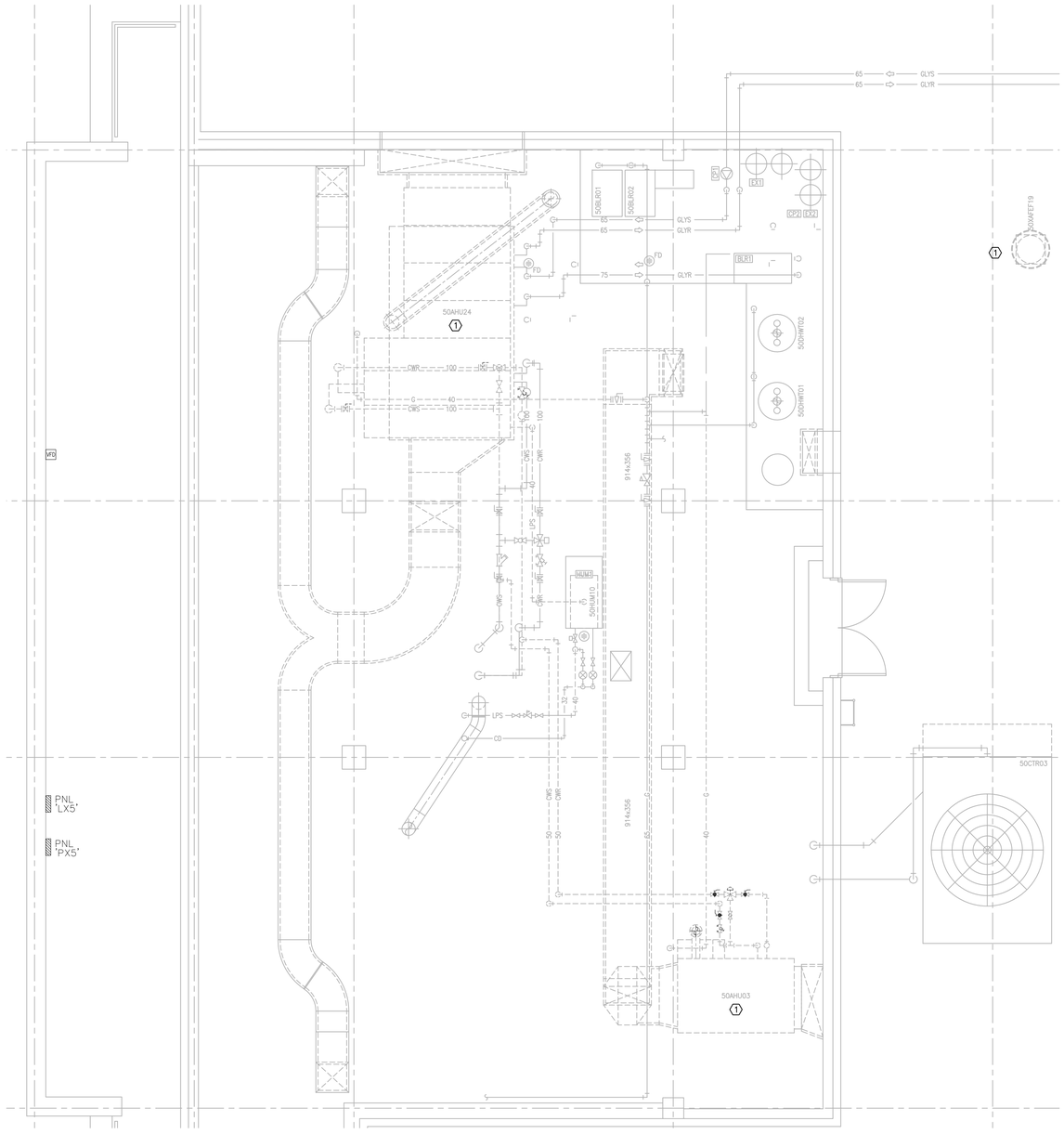
A Detail no. / No. du détail
B Location drawing no. sur dessin no.
C Drawing no. / dessin no.

project / projet
BUILDING M-50
IPF WING FUME EXHAUST SYSTEM RETROFIT
MONTREAL ROAD CAMPUS

drawing / dessin
ELECTRICAL LAYOUT - NEW WORK

designed / conçu	date / date
C.Y.C	FEB/2016
drawn / dessiné	scale / échelle
C.Y.C	AS NOTED
checked / vérifié	sheet / feuille
	E01 of/de 2
approved / approuvé	W.O.no. / D.T.no.
B.V	

dwg.no. / dessin no.
5029-E01



1 E02 ELECTRICAL LAYOUT

SCALE: 1:50

DRAWING NOTES: ⓧ

1. EXISTING EQUIPMENT TO BE REMOVED BY DIV.23. DIV.26 TO DISCONNECT AND REMOVE WIRING AND CONDUIT BACK TO SOURCE AND MAKE SAFE. COORDINATE WORK ON SITE WITH DIV.23.

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

A. READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.

B. CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO NRC DEPARTMENTAL REPRESENTATIVE.

C. CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.

D. INFORM NRC DEPARTMENTAL REPRESENTATIVE IMMEDIATELY OF ANY DISCREPANCIES BETWEEN PLANS AND SITE CONDITIONS.

E. MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.

F. COORDINATE WORK WITH OTHER DIVISIONS FOR INSTALLATION AND TO AVOID INTERFERENCE.

G. COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE.

H. FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.

I. REMOVE MEANS REMOVE AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.

J. PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.

K. ALL INTERIOR WIRING SHALL BE #12 AWG CONDUCTOR MINIMUM. TYPE R90 XLPE CROSS-LINK POLYETHYLENE STRANDED FOR SIZE NO.8 AND LARGER. TYPE T90 STRANDED FOR SIZE NO.10 AND SMALLER. ALL NEW RACEWAYS SHALL BE THIN WALL ELECTRICAL METALLIC TUBING (EMT) 1/2" MINIMUM UNLESS OTHERWISE INDICATED. CONDUITS TO BE COMPLETE WITH INSULATED TYPE CONNECTORS AND BUSHING.

L. SURFACE CONDUIT TO RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES. ALL CONDUITS AND JUNCTION BOXES TO BE ANCHORED TO THE BUILDING STRUCTURE.

M. THE WORD 'PROVIDE' MEANS SUPPLY, INSTALL, CONNECT AND TEST.

N. MOTOR STARTERS:

N.A. MAGNETIC MOTOR STARTERS C/W PILOT LIGHTS, CONTROL TRANSFORMER AND FUSE, H.O.A. SWITCH, OVERLOADS, 2-N.O. AND 2-N.C. AUXILIARY CONTACTS, OVERLOAD TRIP RESET, PHASE LOSS PROTECTION RELAY.

No.	Date	Revision	By: Par:
0	DD MM YYYY	XXXX	???

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 liéux 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
IPF WING FUME EXHAUST SYSTEM RETROFIT

MONTREAL ROAD CAMPUS

drawing / dessin

ELECTRICAL LAYOUT - DEMOLITION

designed / conçu: C.Y.C	date / date: FEB/2016
drawn / dessiné: C.Y.C	scale / échelle: AS NOTED
checked / vérifié:	sheet / feuille: E02 of/de 2
approved / approuvé: B.V	W.O.no. / D.T.no.

dwg.no. / dessin no.: **5029-E02**

ASPM A1 (841x594)

C

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