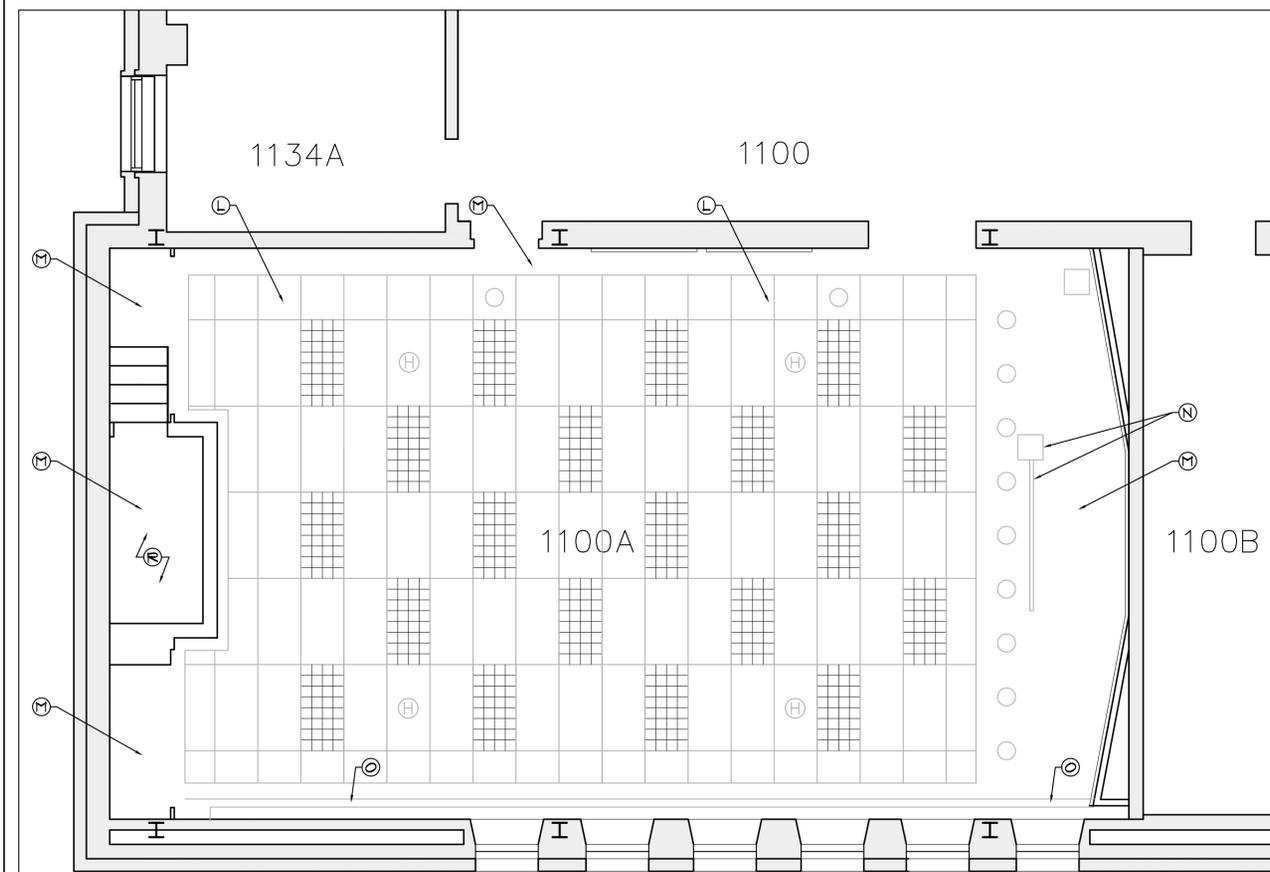


1 DEMOLITION - EXISTING FLOOR PLAN  
SCALE = 1:50



2 DEMOLITION - EXISTING CEILING PLAN  
SCALE = 1:50



3 EXISTING MILLWORK WALL (Q)



4 TYP. METAL PANELS & WOOD TRIM (H)



5 TYP. EXISTING WINDOW LEDGE (K)



6 EXISTING CURTAIN MOTOR (I)

DEMOLITION NOTES:

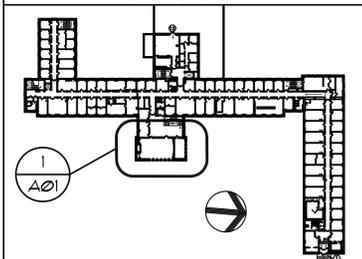
- A. EXISTING DOORS TO REMAIN.
- B. EXISTING WINDOWS TO REMAIN.
- C. EXISTING WALLS TO REMAIN.
- D. REMOVE CLOSET DOORS AND FRAMES.
- E. REMOVE ALL CARPET FLOORING AND ASSOCIATED RUBBER COVER BASE THROUGHOUT ROOM 1100A. PLEASE NOTE THAT THERE ARE EXISTING ASBESTOS 9"X9" FLOOR TILES BENEATH THE EXISTING CARPET THROUGHOUT THE ENTIRE ROOM. ASBESTOS TILES ARE TO BE REMOVED. ALL ASBESTOS TILE REMOVAL IS TO BE COMPLETED BY A QUALIFIED ASBESTOS ABATEMENT CONTRACTOR. ONCE ALL FLOORING HAS BEEN REMOVED, FLOOR IS TO BE CLEANED AND PREPARED FOR NEW CARPET TILE FLOORING.
- F. REMOVE (2) 1830mm X 1830mm WALL MOUNTED BOARDS AND ASSOCIATED WOOD TRIM ON WEST WALL OF ROOM 1100A.
- G. REMOVE WALL MOUNTED CLOCK AND SAVE FOR REUSE ON NEW FURRED-OUT WALL (SEE NEW CONSTRUCTION DUGS). REINSTALL CLOCK ONCE NEW WALL IS COMPLETE.
- H. REMOVE ALL METAL WALL PANELS AND ASSOCIATED WOOD TRIM ON WALLS AT SOUTHERN END OF ROOM 1100A. TOTAL AREA TO BE REMOVED APPROXIMATELY 400 SQ.FT.
- I. REMOVE CURTAINS, CURTAIN MOTOR, AND ALL MISC. CURTAIN ITEMS ALONG EAST WALL OF ROOM 1100A.
- J. REMOVE WINDOW BLINDS FROM ALL WINDOWS.
- K. REMOVE EXISTING WINDOW LEDGES (6 TOTAL). DO NOT DAMAGE ADJACENT WINDOWS AND WALLS. PREP AREA FOR NEW WINDOW LEDGES, PATCH AND REPAIR AREAS AROUND WINDOWS, AND PREP TO RECEIVE TO PAINT.
- L. REMOVE ENTIRE SUSPENDED T-BAR CEILING AND 600mm X 1200mm TILES THROUGHOUT ROOM, EXPOSING STRUCTURE ABOVE. SEE MECH. & ELEC. DRAWINGS FOR NOTES REGARDING REMOVAL OF SERVICES.
- M. REMOVE ALL PORTIONS OF DRYWALL CEILING, UP TO EXISTING WALLS, INCLUDING CEILINGS WITHIN CLOSETS AND CONTROL ROOM.
- N. REMOVE DROP SCREEN AND MOTOR, AND DISPOSE OFFSITE.
- O. REMOVE CURTAIN BULK HEAD ALONG WITH PORTIONS OF DRYWALL CEILING.
- P. "RECORDING" WALL MOUNTED LIGHT ABOVE CENTRAL WHITE BOARDS IS TO BE REMOVED AND RETURNED TO NRC'S DEPARTMENTAL REPRESENTATIVE.
- Q. REMOVE EXISTING STRUCTURE, MILLWORK, WHITEBOARDS, AND MISC. ITEMS ON NORTH WALL OF ROOM 1100A. EXPOSE SURFACE OF EXISTING WALL SEPARATING ROOM 1100A AND ROOM 1100B (BEHIND MILLWORK). SEE ELECTRICAL & MECHANICAL NOTES REGARDING EXISTING SERVICES WITHIN MILLWORK WALL.
- R. ASBESTOS ABATEMENT WITHIN CONTROL ROOM: CONTROL ROOM AT SOUTH END OF ROOM 1100A CONTAINS THE FOLLOWING ASBESTOS MATERIALS: 9"X9" FLOOR TILES (5 m<sup>2</sup>), 2'X2' TRANSITE WALL PANELS (9 m<sup>2</sup>), AND 2'X2' TRANSITE CEILING PANELS (9 m<sup>2</sup>). ALL ASBESTOS CONTAINING MATERIALS ARE TO BE REMOVED BY A QUALIFIED ASBESTOS ABATEMENT CONTRACTOR. DESIGNATED SUBSTANCE REPORT CAN BE PROVIDED UPON REQUEST.
- S. REMOVE WOODEN STAIRS LEADING TO CONTROL ROOM.
- T. REMOVE CONTROL ROOM DOOR AND FRAME.
- U. DEMOLISH ENTIRE CONTROL ROOM STRUCTURE (WALLS, FLOOR PLATFORM, CEILINGS, ETC.)



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.

KEY PLAN



0	NOV. 2013	ISSUED FOR TENDER	BL
No.	Date	Revision	By: / Par:
Date Printed DD MM YYYY		Date imprimée	

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

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

project	M-36 KELVIN ROOM RENOVATION			project
	MONTREAL ROAD CAMPUS			
drawing	DEMOLITION PLANS + DETAILS			dessin
designed	BL	conçu	NOV. 2013	date
drawn	BL	dessiné	AS NOTED	échelle
checked	SWH	vérifié	sheet 1 of/de 2	feuille
approved	BV	approuvé	W.O.no.	D.T.no.
dwg.no.	3876-A01			dessin no.



**MECHANICAL DRAWING LIST**

- 3876-M01 MECHANICAL: LEGEND, DRAWING LIST AND EQUIPMENT SCHEDULES
- 3876-M02 MECHANICAL: DEMOLITION
- 3876-M03 MECHANICAL: NEW WORK
- 3876-M04 MECHANICAL: ELEVATIONS, DETAILS AND SCHEMATICS

MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
	EXISTING (TYPICAL)
	NEW (TYPICAL)
	DUCTWORK
	ACOUSTICALLY LINED (INSULATED) DUCTWORK
	INSULATED FLEXIBLE DUCT
	ROUND DUCT DOWN
	RECTANGULAR DUCT DOWN (RETURN / SUPPLY)
	SUPPLY DIFFUSER
36XXXX	EQUIPMENT IDENTIFICATION
	BALANCING DAMPER
	FLEXIBLE DUCT CONNECTOR
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	PIPE UP
	PIPE DOWN
	PIPE CONTINUATION
	PIPE CAP
	PIPING UNION
	FLOW DIRECTION
	CONTROL VALVE
	VALVE
	CIRCUIT BALANCING VALVE
	TEMPERATURE SENSOR
AV	AUTOMATIC AIR VENT
	PERIMETER FORCE FLOW UNIT
	HEATING COIL
	PRESSURE GAUGE / TEMPERATURE GAUGE

DIFFUSER AND GRILLE SCHEDULE							
TAG	TYPE	QTY	SIZE (MM x MM)	INLET	AIR FLOW	MODEL	REMARKS
SDF-1	SQUARE CONE	6	600x600	250*	N/A	N/A	EXISTING TO BE DEMOLISHED
SDF-2	LINEAR	2	1800x150	N/A	N/A	N/A	EXISTING TO BE DEMOLISHED
SDF-3	LOUVERED FACE	6	600x150	N/A	N/A	N/A	EXISTING TO BE DEMOLISHED
SDF-4	LOUVERED FACE	6	450x100	N/A	48 L/S	450x100/6100/F/L/A/B15	NEW, C/W BALANCING DAMPER
SDF-5	SQUARE CONE	8	600x600	250*	73 L/S	250/600x600/ASPD/31/B12	NEW
RGR-1	PERFORATED	4	600x450	N/A	N/A	N/A	EXISTING TO BE DEMOLISHED
RGR-2	LOUVERED FACE	2	900x300	900x300	N/A	N/A	EXISTING TO BE DEMOLISHED
RGR-3	LOUVERED FACE	6	450x150	N/A	N/A	N/A	EXISTING TO BE DEMOLISHED
RGR-4	LOUVERED FACE	2	900x300	900x300	234 L/s	900x300/6350/F/L/A/B15	NEW, C/W BALANCING DAMPER
RGR-5	PERFORATED	4	600x450	N/A	N/A	600x450/80/TB//B12	NEW
RGR-6	LOUVERED	1	350x250	350x250	110 L/s	N/A	EXISTING TO REMAIN

**NOTES:**

- ALL NEW SUPPLY AND RETURN GRILLES SHALL BE CONSTRUCTED OF ALUMINUM.
- SELECTION BASED ON EH PRICE.

FORCE FLOW HEATERS SCHEDULE												
TAG	LOCATION	FAN			HEATING CAPACITY					MODEL NO.	REMARKS	
		AIR FLOW (L/s)	V/PHZ	POWER (HP)	TYPE	CAPACITY (kW)	EWT (deg C)	EAT (deg C)	FLOW (L/s)			COIL ROWS
36UNH27	PLENUM SPACE	144	120/1/60	0.13	HOT WATER	5.85	82.2	15.6	0.04	3-ROW	FFCB0201-M0G0A0-BB2A000--2-----000000-----0	NEW
36UNH28	PLENUM SPACE	144	120/1/60	0.13	HOT WATER	5.85	82.2	15.6	0.04	3-ROW	FFCB0201-M0G0A0-BB2A000--2-----000000-----0	NEW

**NOTES:**

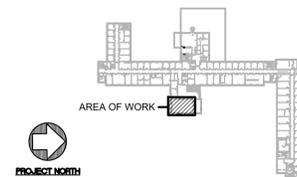
- SELECTION BASED ON TRANE FORCE-FLO HEATERS.
- UNITS SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS C/W FLEXIBLE DUCT CONNECTORS AND VIBRATION ISOLATORS.
- REFER TO SPECIFICATION FOR ADDITIONAL DETAILS.
- DIRECT ENERGY SHALL BE RESPONSIBLE TO PROVIDE CONTROL VALVES, CONTROL WIRING AND ALL ASSOCIATED ACCESSORIES FOR USE WITH NEW FORCE FLOW UNITS.



**GENERAL NOTES:**

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- ALL EQUIPMENT AND SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
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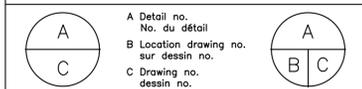
**KEYPLAN**



No.	Date	Revision	By:
0	26 11 2013	ISSUED FOR TENDER	DIF

Date Printed 26 11 2013 Date imprimée

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

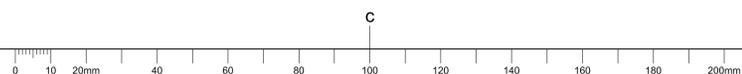


project **M-36 KELVIN ROOM RENOVATIONS** projet

**MONTREAL ROAD CAMPUS**

MECHANICAL: LEGEND, DRAWING LIST AND EQUIPMENT SCHEDULES

designed	conçu	date	date
<b>ALS</b>		<b>NOV 2013</b>	
drawn	dessiné	scale	échelle
<b>ALS</b>		<b>AS SHOWN</b>	
checked	vérifié	sheet	feuille
<b>JWG / ZM</b>		<b>1 of/de 4</b>	
approved	approuvé	W.O.no.	D.T.no.
<b>BV</b>		<b>A1-000504-01-09-18-01</b>	
dwg.no.		dessin no.	
<b>3876-M01</b>			



**GENERAL NOTES:**

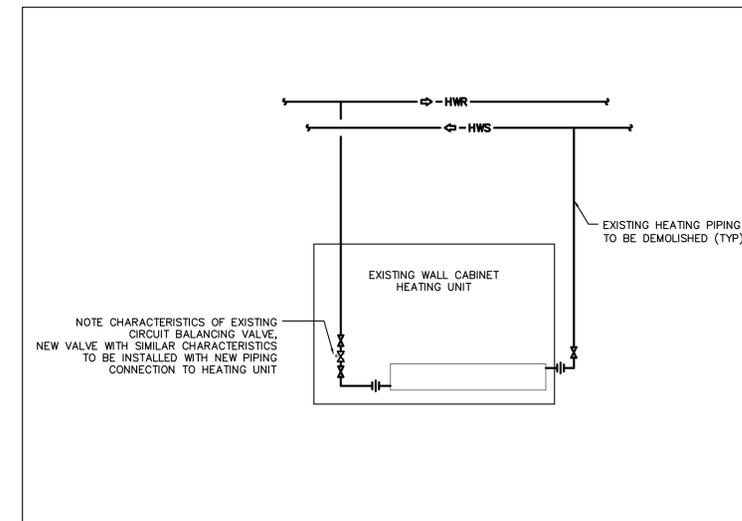
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- CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION ACTIVITIES AND REPORT ANY DISCREPANCIES OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTOR TO VISIT SITE AND FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK PRIOR TO PROJECT COMMENCEMENT.
- ALL TRADES TO COORDINATE WORK ON SITE TO AVOID ANY CONFLICTS AND/OR INTERFERENCES.
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- ALL EQUIPMENT AND SYSTEM INSTALLATIONS SHALL BE IN ACCORDANCE WITH NATIONAL BUILDING CODE AS APPLICABLE.
- ALL EQUIPMENT AND SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- DO NOT SCALE DRAWINGS.

**MECHANICAL DEMOLITION: (X)**

- CUT BACK AND CAP EXISTING NATURAL GAS OUTLET AT WALL.
- CUT BACK AND CAP EXISTING DOMESTIC COLD WATER OUTLET AT WALL.
- CUT BACK AND CAP EXISTING DRAIN CONNECTION AT WALL.
- CUT BACK AND CAP EXISTING COMPRESSED AIR PIPING ABOVE CEILING.
- REMOVE AND DISPOSE OF EXISTING RETURN GRILLES RGR-2 (TYP OF 2).
- REMOVE AND DISPOSE OF EXISTING RETURN GRILLES RGR-1 (TYP OF 4).
- REMOVE AND DISPOSE OF EXISTING RETURN GRILLES RGR-3 (TYP OF 6).
- REMOVE AND DISPOSE OF EXISTING SUPPLY DIFFUSERS SDF-3 (TYP OF 6).
- REMOVE AND DISPOSE OF EXISTING SUPPLY DIFFUSERS SDF-2 (TYP OF 2) AND CAP DUCT CONNECTION.
- REMOVE AND DISPOSE OF EXISTING SUPPLY DIFFUSERS SDF-1 (TYP OF 6). RETAIN SUPPLY DUCTWORK FOR FUTURE RECONNECTION TO NEW SUPPLY DIFFUSERS.
- REMOVE AND DISPOSE OF EXISTING PERIMETER FORCE FLOW HEATERS C/W ACCESSORIES, INCLUDING ASSOCIATED HEATING COIL, FAN MOTORS, CONTROL VALVES, CONTROL WIRING, TEMPERATURE CONTROLLER, CONTROL WIRING, ASSOCIATED PIPING AND POWER CONNECTIONS (TYPICAL FOR 36FCU18 THROUGH 36FCU23).
- REMOVE AND DISPOSE OF EXISTING HEATING SYSTEM SUPPLY AND RETURN PIPING AS INDICATED.
- EXISTING SMART STAT ROOM TEMPERATURE CONTROLLER TO BE RELOCATED TO ACCOMMODATE NEW STUD WALL.

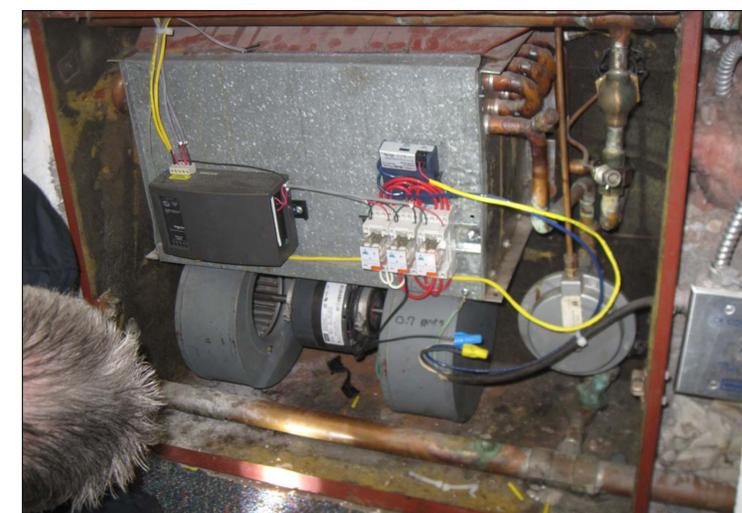
**GENERAL MECHANICAL NOTES:**

- EXISTING HEATING SYSTEM PIPING INSULATION CONTAINS ASBESTOS. FOLLOW MANDATED PROCEDURES FOR REMOVAL AND DISPOSAL OF EXISTING PIPING AND INSULATION.
- MINIMIZE DISRUPTION TO HEATING SYSTEM. RUN NEW HEATING SYSTEM SUPPLY AND RETURN PIPING PRIOR TO DEMOLITION OF EXISTING PIPING. FINAL CONNECTION TO THE EXISTING HEATING SYSTEM, EQUIPMENT AND SWITCH OVER TO NEW DISTRIBUTION PIPING SHALL BE SCHEDULED WITH DEPARTMENTAL REPRESENTATIVE.
- DIRECT ENERGY SHALL BE SUBCONTRACTED FOR ALL HVAC CONTROLS WORK ON THIS PROJECT, INCLUDING DEMOLITION ACTIVITIES.



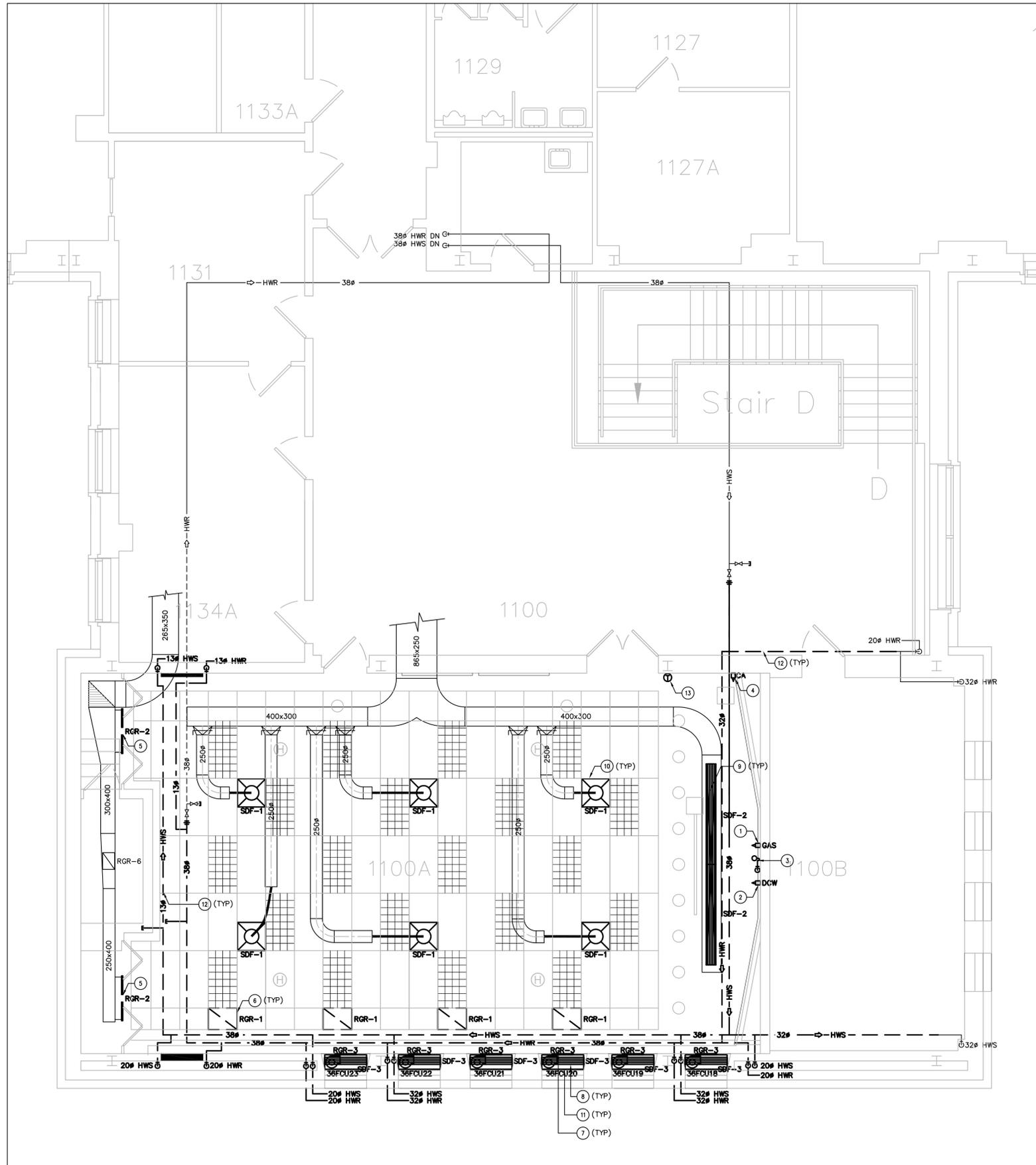
**2** TYPICAL WALL CABINET HEATER PIPING DEMOLITION SCHEMATIC

M02 SCALE - NTS



**3** TYPICAL PERIMETER FORCE FLOW HEATER TO BE DEMOLISHED

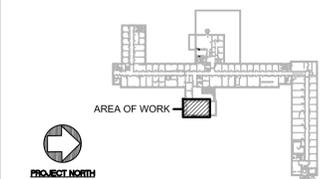
M02 SCALE - NTS



**1** PARTIAL 2ND FLOOR PLAN DEMOLITION

M02 SCALE - 1:50

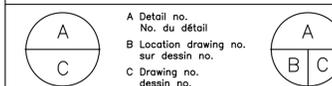
**KEYPLAN**



No.	Date	Revision	By:
0	26 11 2013	ISSUED FOR TENDER	DIF

Date Printed 26 11 2013 Date imprimée

- Verify all dimensions and site conditions and be responsible for same
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project **M-36 KELVIN ROOM RENOVATIONS** projet

**MONTREAL ROAD CAMPUS**

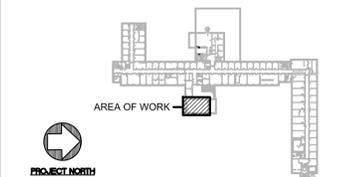
MECHANICAL: DEMOLITION

designed	conçu	date	date
ALS		NOV 2013	
drawn	dessiné	scale	échelle
ALS		AS SHOWN	
checked	vérifié	sheet	feuille
JWG / ZM		2 of/ de 4	
approved	approuvé	W.O.no.	D.T.no.
BV		A1-000504-01-09-18-01	
dwg.no.	dessin no.		
<b>3876-M02</b>			

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- ALL EQUIPMENT AND SYSTEM INSTALLATIONS SHALL BE IN ACCORDANCE WITH NATIONAL BUILDING CODE AS APPLICABLE.
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- DO NOT SCALE DRAWINGS.

**KEYPLAN**

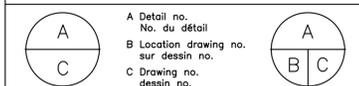


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Date Printed 26 11 2013

Date imprimée

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project / projet

**M-36 KELVIN ROOM RENOVATIONS**

**MONTREAL ROAD CAMPUS**

**MECHANICAL: NEW WORK**

designed **ALS** conçu **NOV 2013** date

drawn **ALS** dessiné **AS SHOWN** scale échelle

checked **JWG / ZM** vérifié **3** of/de **4** feuille sheet

approved **BV** approuvé **A1-000504-01-09-18-01** W.O.no. D.T.no.

dwg.no. **3876-M03** dessin no.

**MECHANICAL NEW WORK:**

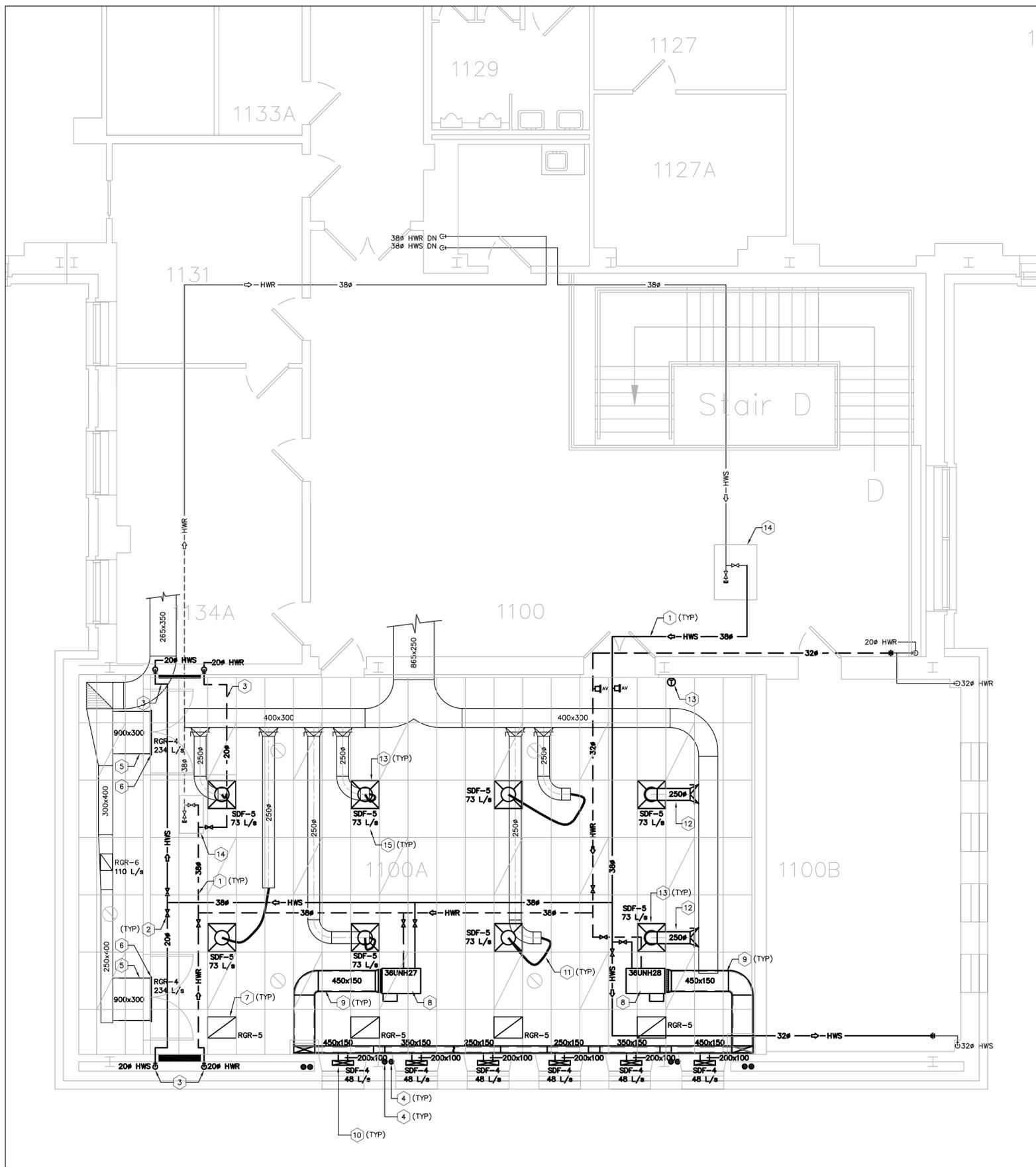
- PROVIDE NEW HEATING WATER SUPPLY AND RETURN PIPING C/W INSULATION AS INDICATED ON DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIAL AND INSULATION DETAILS. CONNECT TO EXISTING PIPING IN LOCATIONS INDICATED.
- PROVIDE NEW ISOLATION VALVES AT MAIN HEATING WATER SUPPLY AND RETURN PIPING AT ALL RUN-OUT LOCATIONS TO SERVE TERMINAL DEVICES.
- PROVIDE NEW HEATING WATER SUPPLY AND RETURN PIPING, C/W INSULATION, ISOLATION VALVES, UNIONS AND CIRCUIT BALANCING VALVE (TO MATCH REMOVED CIRCUIT BALANCING VALVE) FOR EXISTING WALL CABINET HEATERS (TYP OF 2).
- CAP ENDS OF ABANDONED HEATING SUPPLY AND RETURN PIPING IN TERRA COTTA WALLS SERVING DEMOLISHED PERIMETER FORCE FLOW UNITS (TYP).
- EXTEND EXISTING 900x300 RETURN AIR DUCT TO ACCOMMODATE NEW WALL LOCATION (TYP OF 2).
- PROVIDE NEW RETURN GRILLES, RGR-4 C/W BALANCING DAMPER, REFER TO SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL DETAILS (TYP OF 2).
- PROVIDE NEW RETURN GRILLES RGR-5. REFER TO SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL DETAILS (TYP OF 4).
- PROVIDE NEW CEILING MOUNTED FORCE FLOW UNITS (36UNH27 AND 36UNH28) C/W FLEXIBLE DUCT CONNECTOR AND VIBRATION ISOLATION IN APPROXIMATE LOCATIONS INDICATED. PROVIDE ALL NECESSARY ACCESSORIES INCLUDING, TEMPERATURE SENSOR, CONTROL WIRING, CONTROL VALVES, FILTER, AND HEATING SUPPLY AND RETURN WATER PIPING C/W INSULATION.
- PROVIDE NEW ACOUSTICALLY LINED SUPPLY DISTRIBUTION DUCTWORK C/W INSULATION FROM NEW CEILING MOUNTED FORCE FLOW UNITS (36UNH27 AND 36UNH28) AND CONNECT TO SUPPLY DIFFUSERS SDF-4 AS INDICATED ON PLAN (TYP OF 6).
- PROVIDE NEW SUPPLY GRILLES, SDR-4 C/W BALANCING DAMPER, REFER TO SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL DETAILS (TYP OF 6).
- RE-ROUTE AND EXTEND AS NECESSARY EXISTING SUPPLY DUCTWORK TO SERVE NEW SUPPLY DIFFUSERS SDF-5 IN NEW LOCATIONS (TYP OF 6).
- PROVIDE NEW SUPPLY DUCT TAKE-OFFS C/W BALANCING DAMPER AND INSULATION AND EXTEND DUCT FROM EXISTING SUPPLY DUCTWORK TO SERVE NEW SUPPLY DIFFUSER SDF-5 LOCATIONS (TYP OF 2).
- PROVIDE NEW SUPPLY DIFFUSERS SDF-5. REFER TO SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL DETAILS (TYP OF 8).
- REPAIR PIPING INSULATION ON EXISTING HEATING PIPING IN AREAS WHERE NEW, EXISTING AND DEMOLISHED PIPING INTERSECT.
- BALANCE SUPPLY AND RETURN DIFFUSERS TO VALUES INDICATED.
- EXISTING SMART STAT ROOM TEMPERATURE CONTROLLER TO BE RELOCATED TO ACCOMMODATE NEW STUD WALL.

**CONTROL WORK DRAWING NOTES:**

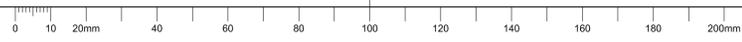
- DIRECT ENERGY SHALL BE SUBCONTRACTED FOR ALL HVAC CONTROLS WORK ON THIS PROJECT, INCLUDING DEMOLITION ACTIVITIES.
- EXISTING CONTROL GRAPHICS TO BE UPDATED TO INCORPORATE ALL NEW POINTS AS PER THE NRC STANDARD.
- MODIFICATION OF THE EXISTING CONTROLLER SHALL BE COMPLETED TO ACCOMMODATE SEQUENCE OF OPERATION FOR THE NEW FORCE FLOW UNITS 36UNH27 AND 36UNH28. THESE MODIFICATIONS SHALL INCORPORATE, BUT MAY NOT BE LIMITED TO THE FOLLOWING:
  - FORCE FLOW UNIT 36UNH27
    - FAN ENABLE
    - FAN STATUS: LOW, MEDIUM, HIGH
    - DISCHARGE AIR TEMPERATURE
    - HEATING VALVE MODULATION CONTROL
    - SPACE TEMPERATURE (EXISTING TO BE RE-USED)
  - FORCE FLOW UNIT 36UNH28
    - FAN ENABLE
    - FAN STATUS: LOW, MEDIUM, HIGH
    - DISCHARGE AIR TEMPERATURE
    - HEATING VALVE MODULATION CONTROL
    - SPACE TEMPERATURE (EXISTING TO BE RE-USED)
- EXISTING M-36 CONTROLLER TO HAVE POINTS LIST UPDATED UPON PROJECT COMPLETION.
- CONTROL WIRING / CONDUITS TO BE APPROPRIATE TAGGED WITH POINT NAMES AS PER NRC STANDARD.
- DIRECT ENERGY TO PROVIDE ELECTRONIC AS-BUILTS FOR STORAGE ON THE ASPM BAS SERVER AND PROVIDE REQUIREMENTS DOCUMENTATION TO GENERAL CONTRACTOR FOR INCLUSION IN MAINTENANCE MANUALS.

**NEW FORCE FLOW UNIT CONTROL SEQUENCE:**

- GENERAL
  - WHEN SYSTEM IS STOPPED, THE FAN IS STOPPED AND THE HEATING VALVE IS CLOSED.
  - HEATING VALVE AND THREE SPEED FAN SHALL MODULATE TO MAINTAIN ROOM TEMPERATURE SETPOINT.
- START-UP MODE
  - FORCE FLOW UNIT SHALL BE STARTED BY AUTOMATIC START/STOP SCHEDULED PROGRAM TO MAINTAIN ROOM TEMPERATURE SETPOINT.
  - A CURRENT SENSOR SHALL BE INSTALLED ON THE LOAD SIDE OF THE FAN. THE DDC SYSTEM USES THE SENSOR TO CONFIRM STATUS OF THE FAN, AND GENERATES AN ALARM IF STATUS DEVIATES FROM DDC STOP/START CONTROL.
- NORMAL OPERATION
  - IN WINTER MODE THE HEATING VALVE WILL BE MODULATED TO MAINTAIN ROOM TEMPERATURE SETPOINT. THE FAN SPEED WILL BE KEPT IN LOW SPEED, HOWEVER FAN SPEED CAN BE OVERRIDDEN BY OWS OR CLIENT VIA SMART STAT. IF FAN SPEED IS MANUALLY OVERRIDDEN TO LOW, MEDIUM OR HIGH SPEED IT WILL RETURN TO AUTOMATIC MODE ONCE OCCUPANCY FLAG IS VACANT.
  - WHEN IN AUTOMATIC MODE FAN SPEED IS CONTROLLED VIA TWO SETPOINTS, FANMEDSP (1 DEG F) AND FANHIGSP (2 DEG F). IF ROOM TEMPERATURE FALLS BELOW FANMEDSP THE FAN WILL CYCLE TO MEDIUM SPEED, IF ROOM SETPOINT FALLS BELOW FANHIGSP FAN WILL CYCLE TO HIGH SPEED. FAN WILL CYCLE BACK TO LOW SPEED ONCE ROOM TEMPERATURE SETPOINT IS ACHIEVED.
  - POWER FAILURE: ON RETURN TO NORMAL POWER FOLLOWING POWER FAILURE, THE SYSTEM WILL BE RESTARTED AUTOMATICALLY IF SO SCHEDULED.

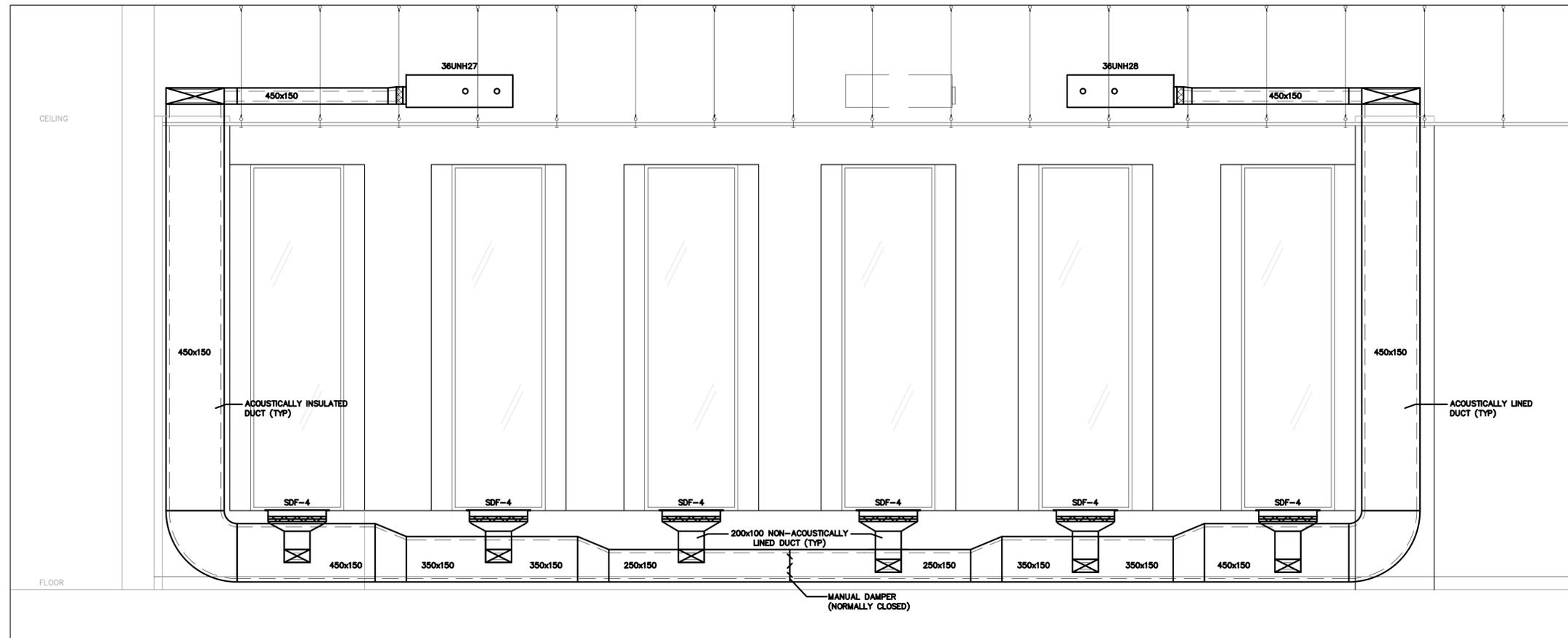


**1**  
**M03**  
**PARTIAL 2ND FLOOR PLAN**  
**NEW WORK**  
SCALE - 1:50



**GENERAL NOTES:**

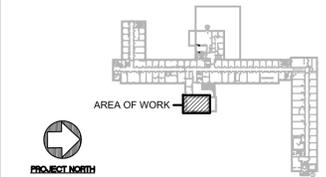
1. DRAWINGS TO BE READ IN CONJUNCTION WITH ALL CONTRACT DRAWINGS AND PROJECT SPECIFICATIONS.
2. DRAWINGS INDICATE GENERAL ROUTING OF SERVICES ONLY. CONTRACTOR TO BE RESPONSIBLE TO PROVIDE ANY ADDITIONAL LABOUR AND MATERIALS REQUIRED TO OFFSET AROUND EXISTING BUILDING FEATURES AND SERVICES TO AVOID INTERFERENCES.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION ACTIVITIES AND REPORT ANY DISCREPANCIES OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
4. CONTRACTOR TO VISIT SITE AND FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK PRIOR TO PROJECT COMMENCEMENT.
5. ALL TRADES TO COORDINATE WORK ON SITE TO AVOID ANY CONFLICTS AND/OR INTERFERENCES.
6. ANY AND ALL REQUIRED SHUTDOWNS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE.
7. ALL EQUIPMENT AND SYSTEM INSTALLATIONS SHALL BE IN ACCORDANCE WITH NATIONAL BUILDING CODE AS APPLICABLE.
8. ALL EQUIPMENT AND SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
9. DO NOT SCALE DRAWINGS.



**1**  
**ELEVATION - DUCT DISTRIBUTION**  
**NEW WORK**

**M04** SCALE - NTS

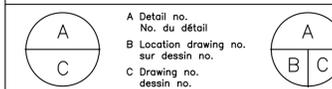
**KEYPLAN**



No.	Date	Revision	By:
0	26 11 2013	ISSUED FOR TENDER	DIF

Date Printed 26 11 2013 Date imprimée

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



project projet

**M-36 KELVIN ROOM RENOVATIONS**

**MONTREAL ROAD CAMPUS**

drawing dessin

MECHANICAL: ELEVATIONS DETAILS AND SCHEMATICS

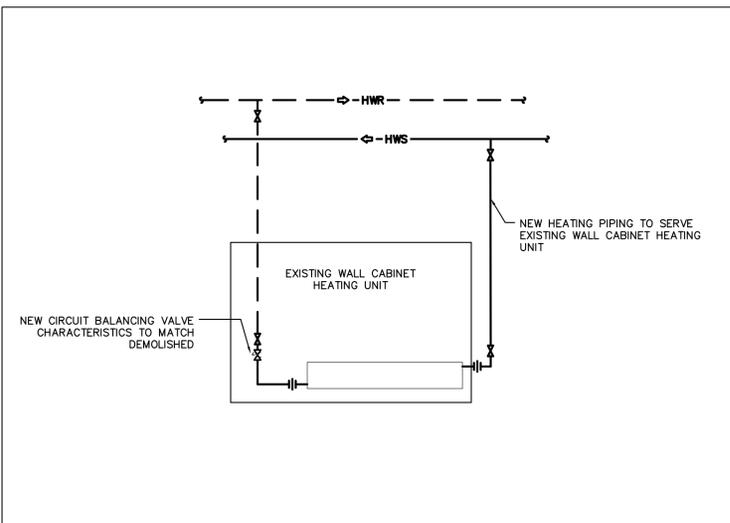
designed **ALS** conçu **ALS** date **NOV 2013** date

drawn **ALS** dessiné **ALS** scale **AS SHOWN** échelle

checked **JWG / ZM** vérifié **JWG / ZM** sheet **4** of/de **4** feuille

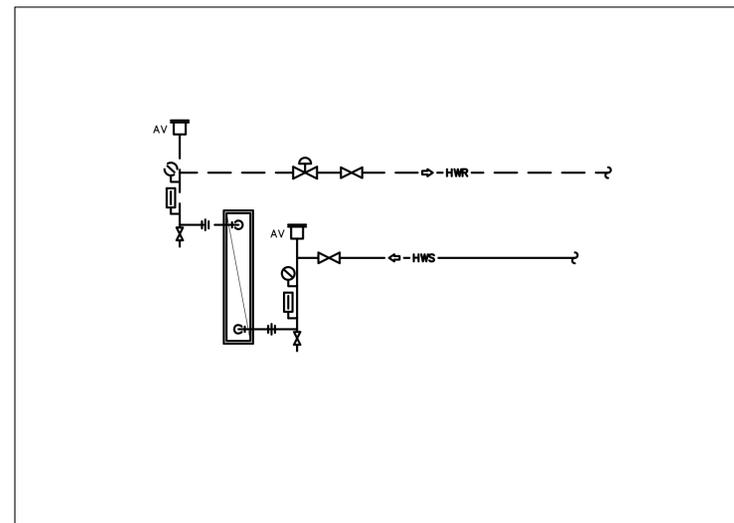
approved **BV** approuvé **BV** W.O.no. **A1-000504-01-09-18-01** D.T.no.

dwg.no. **3876-M04** dessin no.



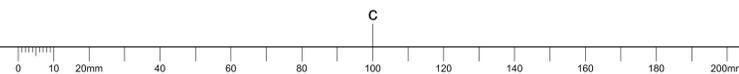
**2**  
**TYPICAL WALL CABINET HEATER**  
**NEW PIPING SCHEMATIC**

**M04** SCALE - NTS



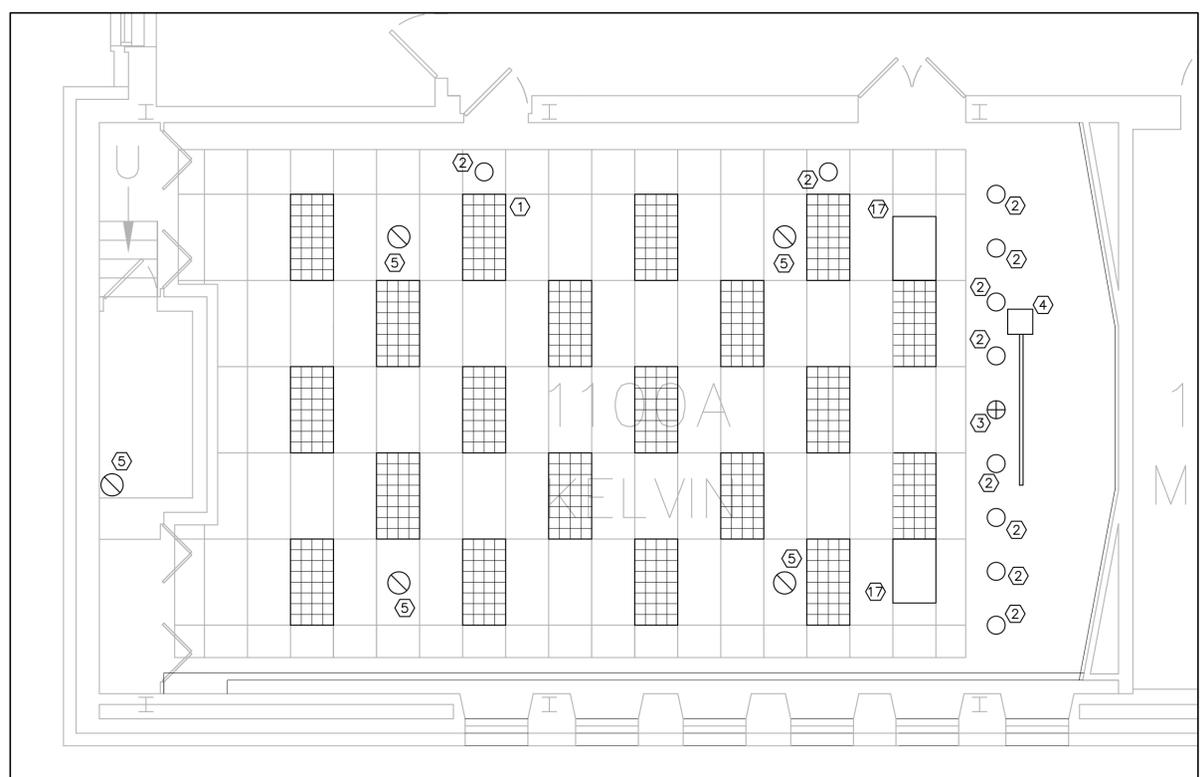
**3**  
**TYPICAL FORCE FLOW HEATER**  
**HEATING COIL PIPING CONNECTIONS**

**M04** SCALE - NTS



**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 PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- E MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- F COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE.
- G FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.
- H REMOVE MEANS REMOVE AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.
- I PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- J REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR FINAL PLACEMENT OF LIGHT FIXTURES.
- K ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.



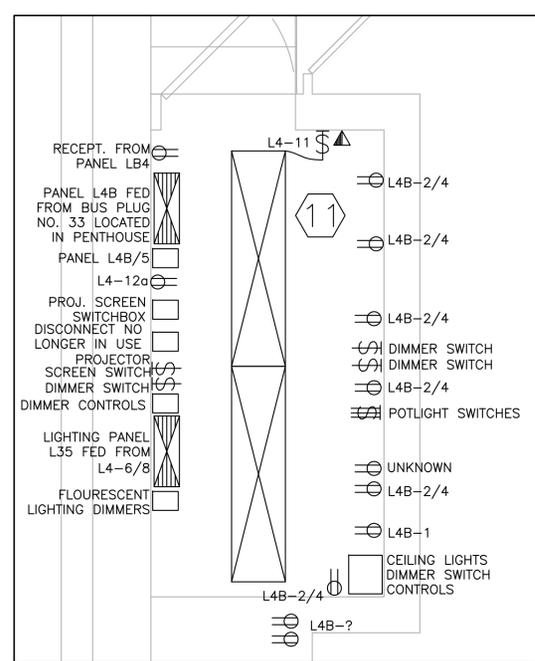
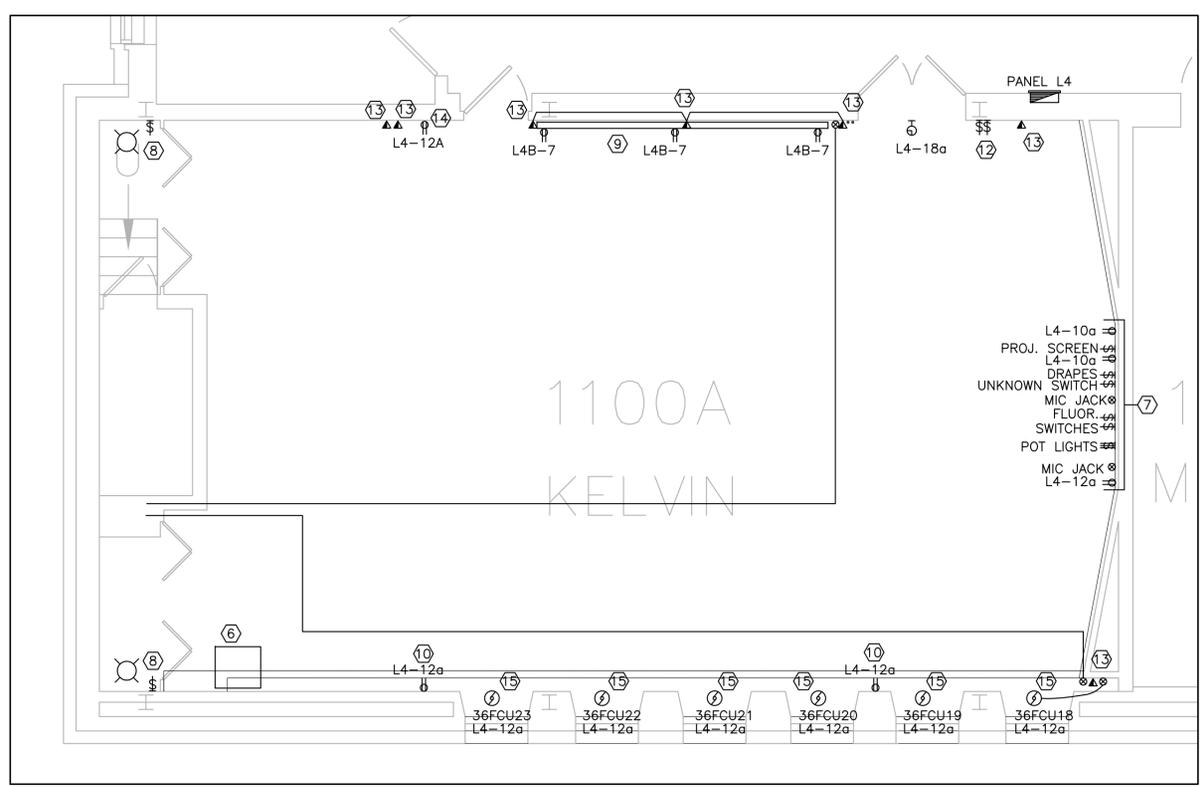
**LEGEND**

[Grid]	EXISTING FLUORESCENT LIGHT FIXTURE
[Rectangle]	NEW RECESSED LED LIGHT FIXTURE
[Circle]	EXISTING POT LIGHT
[Square]	LIGHT SWITCH
[Square]	3-WAY LIGHT SWITCH
[Square]	EXISTING SURFACE LIGHT FIXTURE
[Triangle]	OUTLET FOR DATA WIRING
[Circle]	JUNCTION BOX
[Circle]	HEAT DETECTOR
[Circle]	EXISTING CLOCK

**DRAWING NOTES**

1. REMOVE EXISTING FLUORESCENT LIGHT FIXTURES (20 TOTAL).
2. REMOVE EXISTING POT LIGHT (10 TOTAL).
3. REMOVE EXISTING MICROPHONE, WIRE AND CONDUIT BACK TO SOURCE IN A/V ROOM. TURN OVER MICROPHONE AND WIRE TO NRC DEPARTMENTAL REPRESENTATIVE.
4. REMOVE MOTOR WIRING, SWITCHES AND CONDUIT FOR EXISTING PROJECTION SCREEN.
5. EXISTING HEAT DETECTOR TO BE REMOVED AND RE-INSTALLED IN NEW CEILING. COORDINATE FIRE ALARM SYSTEM SHUT-DOWN WITH NRC DEPARTMENTAL REPRESENTATIVE.
6. DISCONNECT POWER CONNECTION TO MOTOR FROM DRAPES. FEED IS FROM PANEL L4B-3.
7. REMOVE ALL ELECTRICAL DEVICES, CONDUIT AND WIRING BACK TO SOURCE.
8. REMOVE EXISTING LIGHT FIXTURE, SWITCH AND WIRING BACK TO SOURCE.
9. REMOVE EXISTING SURFACE RECEPTACLE, RECEPTACLES (3) AND WIRE BACK TO SOURCE. CIRCUITED FROM L4B-7.
10. REPLACE EXISTING DUPLEX RECEPTACLE WITH NEW DUPLEX RECEPTACLE AND COVER PLATE. REUSE CIRCUIT.
11. A/V ROOM IS BEING COMPLETELY DEMOLISHED. REMOVE ALL ELECTRICAL EQUIPMENT, DEVICES, RECEPTACLES, BOXES, LIGHTING, SWITCHES ETC. ALONG WITH WIRING AND CONDUIT BACK TO SOURCE. COORDINATE REMOVALS WITH ASBESTOS REMOVAL TO ENSURE ALL ONTARIO MINISTRY OF LABOUR GUIDELINES ARE FOLLOWED. TURN OVER ANY A/V RELATED EQUIPMENT TO NRC DEPARTMENTAL REPRESENTATIVE.
12. REMOVE EXISTING FLUORESCENT LIGHT & DIMMER SWITCHES.
13. REMOVE EXISTING DATA JACK BOX AND SURFACE CONDUIT TO ABOVE CEILING. CONDUIT ABOVE CEILING IS TO BE REUSED AND EXTENDED TO NEW LOCATIONS AS SHOWN ON DRAWING 3876-E02.
14. REMOVE EXISTING RECEPTACLE, CONDUIT AND WIRING BACK TO SOURCE.
15. REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING FCU.
16. EXISTING CLOCK TO BE REMOVED AND REINSTALLED IN NEW WALL. EXTEND EXISTING WIRING IF NECESSARY.
17. REMOVE EXISTING CEILING MOUNTED SPEAKER AND WIRE/CONDUIT BACK TO SOURCE IN A/V ROOM.

**1** CEILING PLAN – ELECTRICAL DEMOLITION  
 E01 SCALE: 1:50



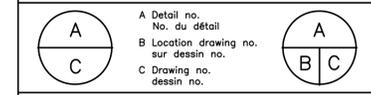
**3** A/V ROOM – ELECTRICAL DEMOLITION  
 E01 SCALE: 1:20

**2** FLOOR PLAN – ELECTRICAL DEMOLITION  
 E01 SCALE: 1:50

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Date Printed 26 11 2013 Date imprimée

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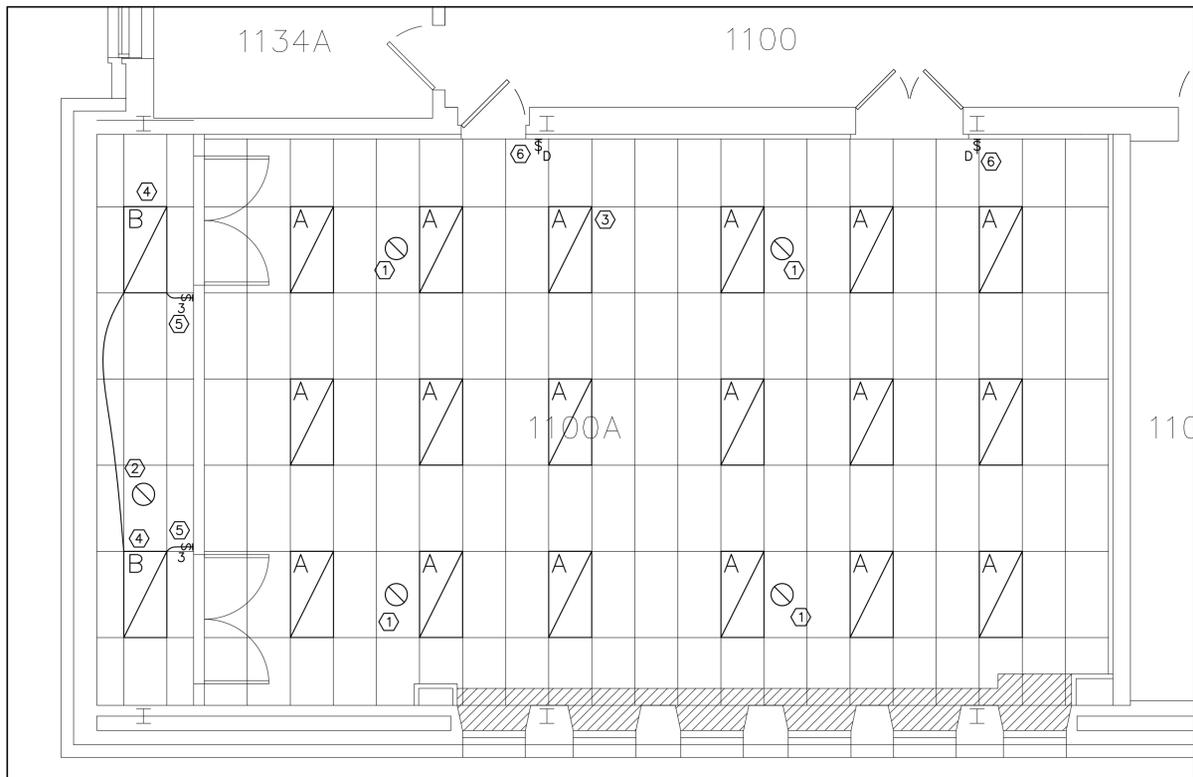
project **M-36 KELVIN ROOM RENOVATIONS** projet

**MONTREAL ROAD CAMPUS**

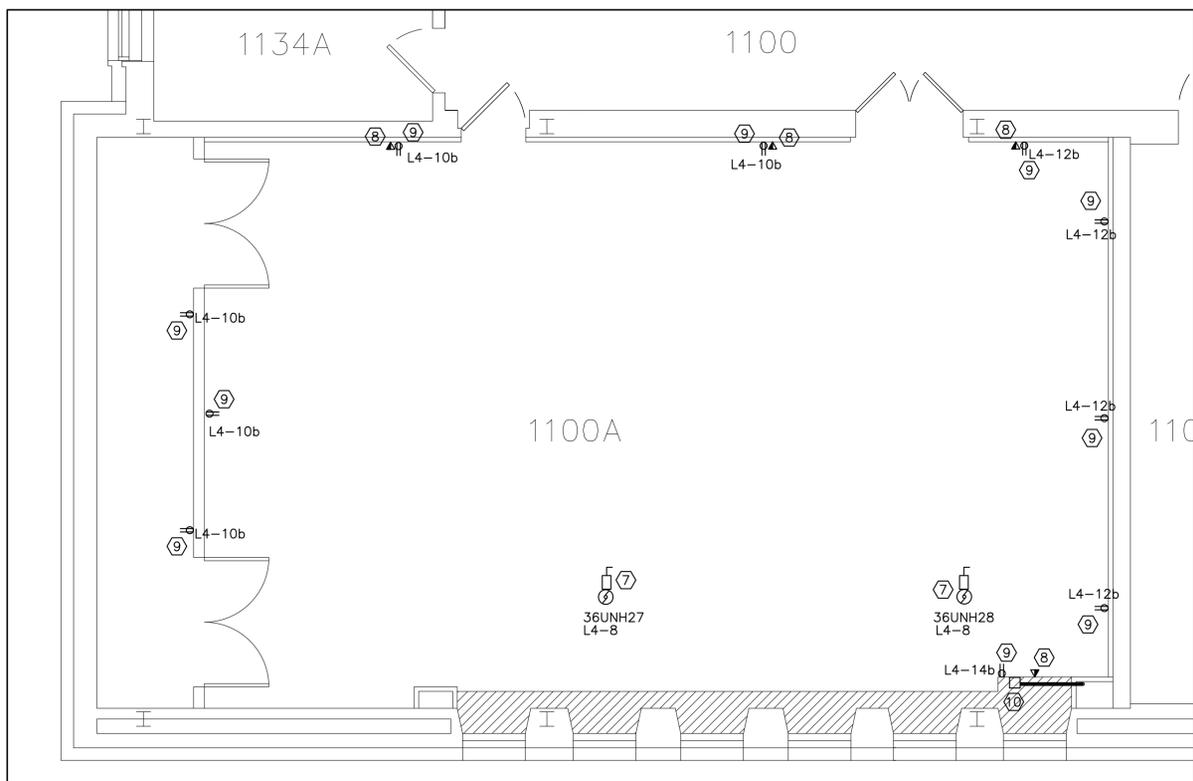
drawing **ELECTRICAL: DEMOLITION** dessin

designed	conçu	date	date
<b>DIF</b>		<b>NOV. 2013</b>	
drawn	dessiné	scale	échelle
<b>DIF</b>		<b>AS NOTED</b>	
checked	vérifié	sheet	feuille
<b>K.X.L.</b>		<b>E01</b>	<b>of/de 2</b>
approved	approuvé	W.O.no.	D.T.no.
<b>B.V.</b>		<b>A1-000504-01-09-18-01</b>	
dwg.no.		dessin no.	

**3876-E01**



**1** ELECTRICAL – NEW LIGHTING AND FIRE ALARM  
E02 SCALE: 1:50



**2** FLOOR PLAN – ELECTRICAL WORK  
E02 SCALE: 1:50

**DRAWING NOTES** ○

1. EXISTING HEAT DETECTOR RE-INSTALLED IN NEW CEILING.
2. EXISTING HEAT DETECTOR RE-INSTALLED IN NEW CEILING. EXTEND WIRING IF NECESSARY.
3. NEW LIGHT FIXTURE, TYPE A (TYPICAL OF 18). PROVIDE 1P15A BREAKER IN PANEL L4 AND FEED FROM CIRCUIT #6 USING #12 WIRE IN EMT.
4. NEW LIGHT FIXTURE, TYPE B. FEED FROM EXISTING CIRCUIT L4-11 USING #12 WIRE IN EMT.
5. NEW 3-WAY SWITCH. REFER TO SPECIFICATIONS.
6. NEW 3-WAY DIMMER SWITCH TO CONTROL ALL LIGHTS IN ROOM. REFER TO SPECIFICATIONS.
7. 36UNH27 & 36UNH28 EACH COME WITH DISCONNECT. PROVIDE 1P15A BREAKER AND CIRCUIT EACH AS SHOWN USING #12 WIRE IN EMT. MAKE CONNECTION TO SUPPLIED DISCONNECT. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR.
8. REUSE EXISTING DATA CONDUIT REFERRED TO IN NOTE 13 ON DRAWING 3876-E01 AND EXTEND TO THIS LOCATION. INSTALL NEW PULL STRING BACK TO TELECOM ROOM 1124.
9. NEW DUPLEX RECEPTACLE CIRCUITED AS SHOWN.
10. 150X150X150mm JUNCTION BOX FLUSH WITH FLOOR AND 53mm EMT FROM THE BOX TO CEILING SPACE. INSTALL BUSHING ON CONDUIT IN CEILING AND BOND TO GROUND.



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A C	A Detail no. No. du détail B Location drawing no. sur dessin no. C Drawing no. dessin no.	A B C
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project **M-36 KELVIN ROOM RENOVATIONS** projet

**MONTREAL ROAD CAMPUS**

drawing **ELECTRICAL: NEW WORK** dessin

designed **DIF** conçu **NOV. 2013** date

drawn **DIF** dessiné **AS NOTED** échelle

checked **K.X.L.** vérifié **E02** of/de **2** feuille

approved **B.V.** approuvé **A1-000504-01-09-18-01** W.O.no. D.T.no.

dwg.no. **3876-E02** dessin no.