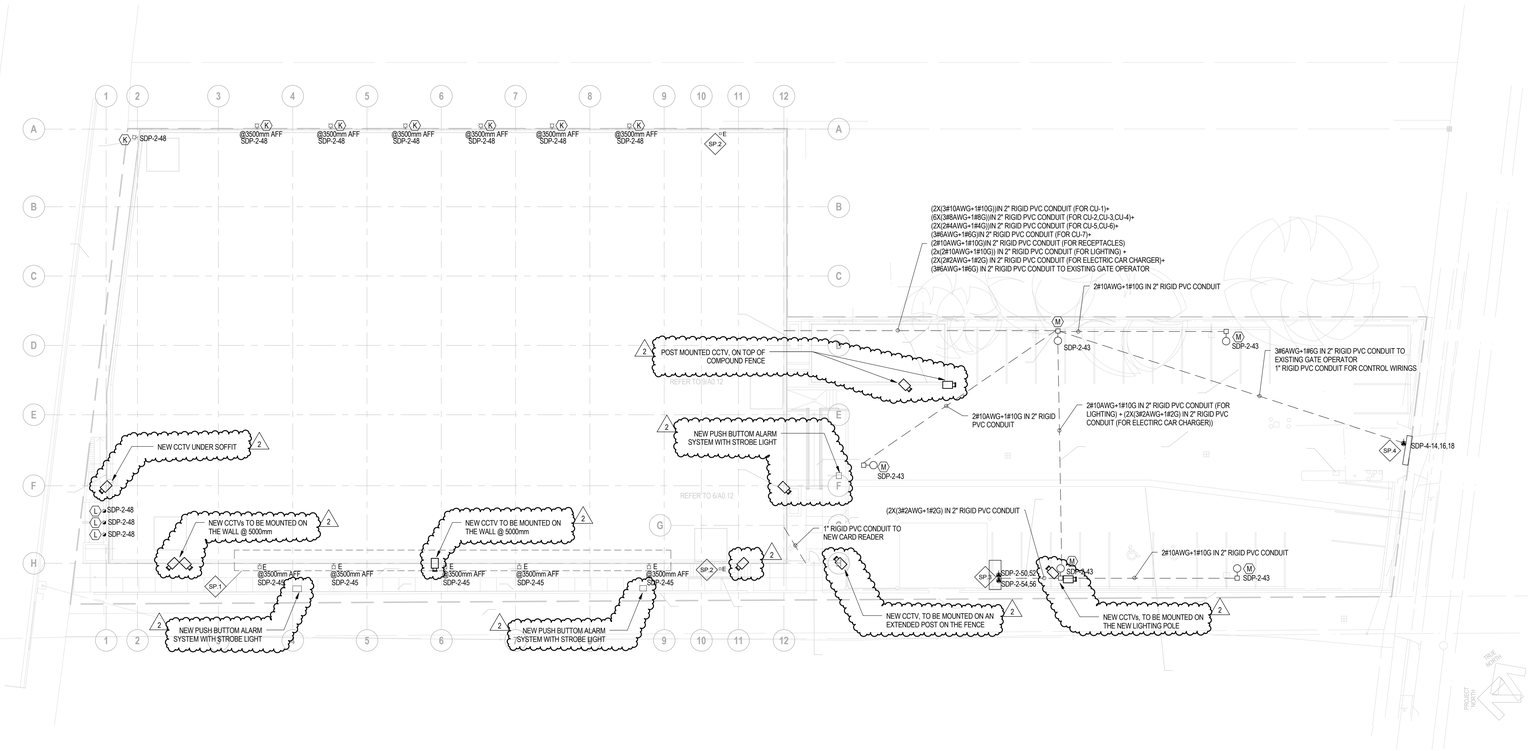

1 / E1.01 ELECTRICAL SITE PLAN

SCALE: 1 : 200

GENERAL NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR TRENCH DETAILS.

KEY NOTES

SP.1	REMOVE EXISTING LIGHTING FIXTURES AND SALVAGE FOR REUSE. REINSTALL SALVAGED FIXTURES AT 3500mm A.F.F. (AT GROUND FLOOR CEILING LEVEL). FEED FIXTURES FROM NEW CONDUIT AND WIRINGS LOCATED INSIDE CEILING SPACE OF GROUND FLOOR.
SP.2	REMOVE EXISTING LIGHTING FIXTURES AND SALVAGE FOR REUSE. AFTER RECLADDING IS COMPLETE, REINSTALL EXISTING SALVAGED LIGHT FIXTURES REUSE EXISTING CIRCUIT AND CONDUITS ETC. ENSURE PROPER OPENNING AFTER INSTALLATION IS COMPLETED.
SP.3	PROVIDE OUTDOOR DUAL AC LEVEL 2 ELECTRIC VEHICLE CHARGER. REFER TO DETAIL E6.09/.7 FOR INSTALLATION.
SP.4	DEMOLISH EXISTING WIRINGS TO THE EXISTING GATE. SUPPLY AND INSTALL NEW WIRINGS AND CONDUIT TO THE GATE.VERIFY POWER REQUIREMENTS ON SITE. WIRING SIZE IS FOR PRICING PURPOSES ONLY.

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N. K. ARORA
MARCH 24 2017
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DIALOG®

project title / titre du projet

441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin

ELECTRICAL SITE PLAN

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B.

project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: E1.01

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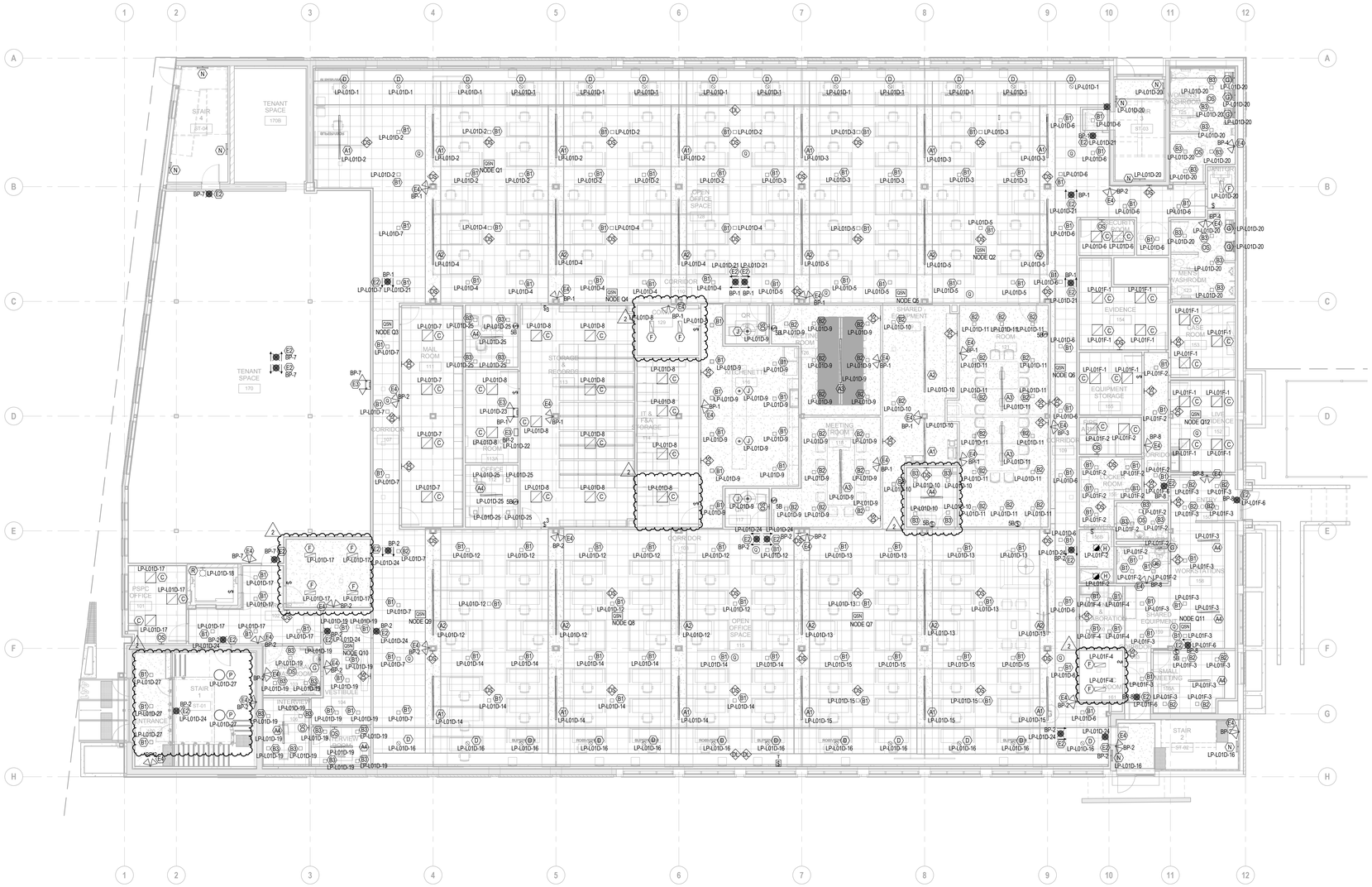

1 / E3.02 ELECTRICAL LIGHTING PLAN- GROUND FLOOR

SCALE: 1 : 100

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bid / soumission: M.B.

project manager / administrateur de projets

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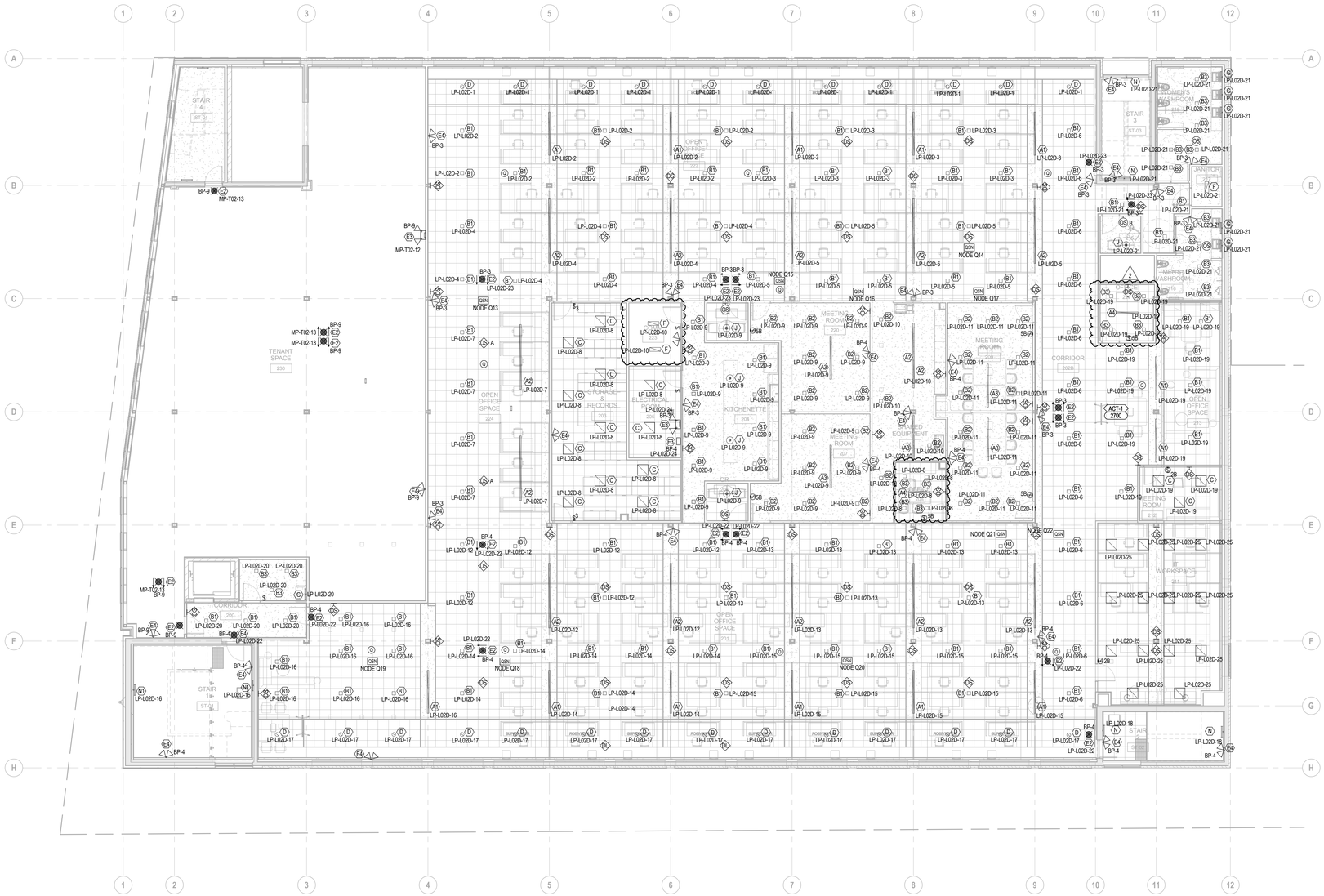

1 / E3.03 ELECTRICAL LIGHTING PLAN- SECOND FLOOR

SCALE: 1 : 100

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approved by / approuve par	N.A.
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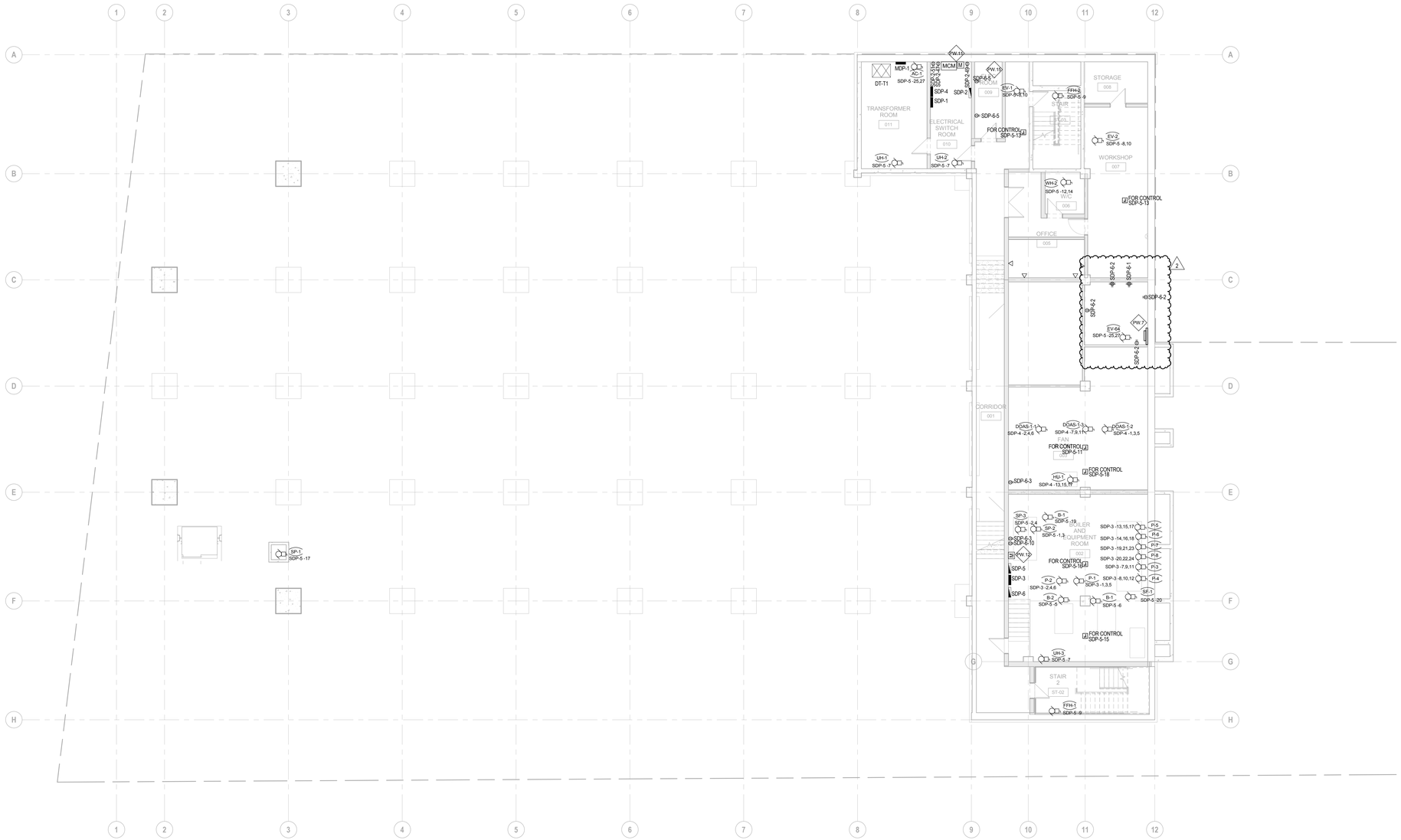

1 / E4.01 POWER AND COMMUNICATION PLAN- BASEMENT

SCALE: 1 : 100

KEY NOTES

PW.3	SUPPLY AND INSTALL 3 X 103mm (4") PRE-ENGINEERED SLEEVES THROUGH WALL INTO CEILING SPACE. SLEEVES GROUNDED TO TRAY. CW MOUNTING KIT AND WATERFALL TO CABLE TRAY IF OVER 305mm (12") ABOVE.
PW.7	SUPPLY AND INSTALL TELECOM GROUNDING BUSBAR ON A PLYWOOD BACKBOARD.
PW.11	SUPPLY AND INSTALL THREE (3) MULTI CIRCUIT METERS AND EIGHTEEN (18) DIGITAL METERS. REFER TO SINGLE LINE DIAGRAM (DRAWINGS E6.02) AND DIGITAL METERS SCHEDULE (DRAWING E6.09).
PW.12	SUPPLY AND INSTALL THREE (3) DIGITAL METERS FOR PANEL "SDP-3" AND "SDP-6". REFER TO SINGLE LINE DIAGRAM (DRAWINGS E6.02) AND DIGITAL METERS SCHEDULE (DRAWING E6.09).
PW.15	NEW ELECTRICAL EQUIPMENT FOR PV SYSTEM TO BE INSTALLED IN ELECTERICAL ROOM 009.

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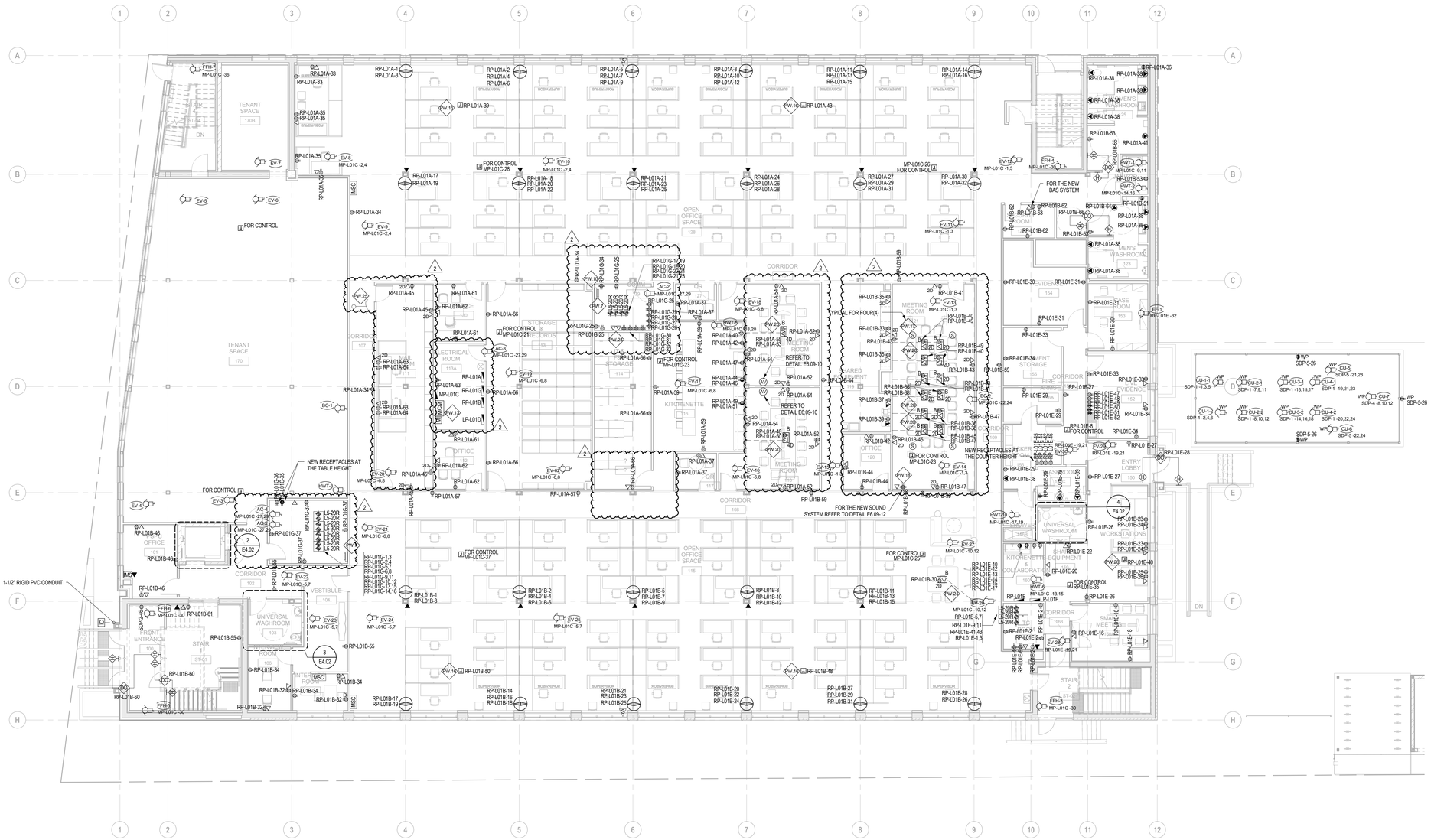
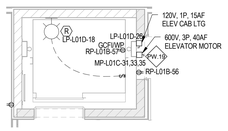


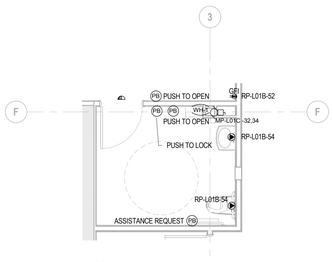
1 E4.02 POWER AND COMMUNICATION PLAN - GROUND FLOOR
SCALE: 1 : 100



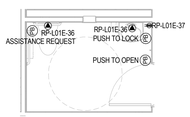
GENERAL NOTES:

1. COORDINATE EXACT LOCATION WITH ELEVATOR CONTRACTOR ON SITE.

2 E4.02 ELEVATOR LAYOUT
SCALE: 1 : 50



3 E4.02 WASHROOM 103 LAYOUT
SCALE: 1 : 50



4 E4.02 WASHROOM 157 LAYOUT
SCALE: 1 : 50

GENERAL NOTES:

1. MOTORIZED SHADES CONTRACTOR MUST COORDINATE WITH LIGHTING CONTROL SYSTEM SUPPLIER AND PROVIDE ALL REQUIRED EQUIPMENT TO INTEGRATE LIGHTING AND SHADE CONTROL.
2. SUPPLY AND INSTALL LOCKABLE JUNCTION BOXES.

KEY NOTES

PW.5	SUPPLY AND INSTALL CONDUITS FOR POWER AND COMMUNICATION ON UNDERSIDE OF THE SLAB.1" CONDUIT FOR POWER AND 2" CONDUIT FOR DATA/AV
PW.7	SUPPLY AND INSTALL TELECOM GROUNDING BUSBAR ON A PLYWOOD BACKBOARD.
PW.10	PROVIDE 18"X18" WALL SPACE FOR INSTALLATION OF THE NETWORK CONTROL AND POWER SUPPLY PANELS FOR THE NEW SOUND MASKING SYSTEM.
PW.13	SUPPLY AND INSTALL ONE (1) MULTI CIRCUIT METER AND FIVE (5) DIGITAL METERS FOR PANEL "MP-L01C". REFER TO SINGLE LINE DIAGRAM AND DIGITAL METERS SCHEDULE (DRAWING E6.09).
PW.16	SUPPLY AND INSTALL A JUNCTION BOX FOR NEW MOTORIZED SHADES' POWER SUPPLY.
PW.17	SUPPLY AND INSTALL 1" CONDUITS C/W SINGLE GANG BACK BOXES (FOR SPEAKER) FOR THE NEW SOUND SYSTEM.
PW.18	SUPPLY AND INSTALL 2-GANG WALL MOUNTED BOX FOR SOUND SYSTEM CABLES.
PW.19	SUPPLY AND INSTALL SEPARATED SOLIDLY GROUNDED EQUIPMENT GROUNDING CONDUCTOR TERMINATING IN THE ELEVATOR MACHINE SPACE.
PW.20	CUT THE FLOOR SLAB. RUN 1" CONDUIT FOR POWER AND 2" FOR DATA/AV INSIDE THE FLOOR AND COVER THE GROOVE WITH CONCRETE AFTER COMPLETION. CONTRACTOR TO SCAN THE FLOOR PRIOR STARTING THE WORK.
PW.24	PROVIDE A DEDICATED DATA DROP FOR THE ACCESS CONTROL. THE INTRUSION SYSTEM WILL REQUIRE A DSL,ANALOG TELEPHONE LINE IF VOIP IS NOT USED.
PW.25	PROVIDE SERVICE, FOR THE TENANT SPACE, 3' SHORT OF THE DEMISING WALL AND TERMINATE ON THE UNSECURED SIDE OF THE CEILING C/W 10/ SPARE CABLES FOR EACH PHASE AND NEUTRAL. TENANT TO EXTEND ELECTRICAL SERVICE FROM THIS LOCATION TO THEIR ELECTRICAL ROOM USING DIELECTRIC FITTINGS.REFER TO SINGLE LINE DIAGRAM FOR MORE DETAILS.

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DIALOG

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441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
POWER AND COMMUNICATION PLAN- GROUND FLOOR

drawn by / dessine par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B.
project manager / administrateur de projets
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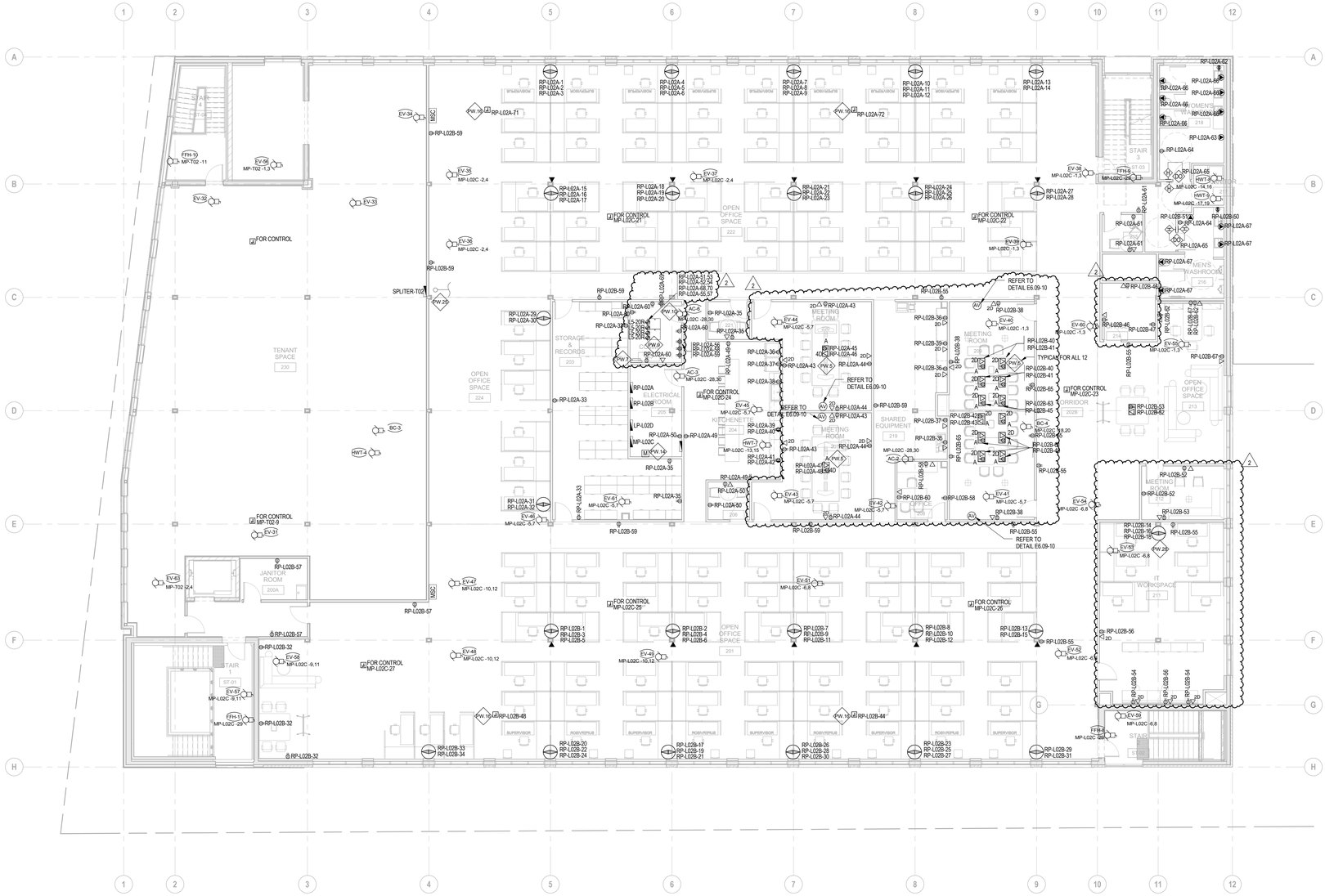

1 E4.03 power and communication plan - second floor

SCALE: 1 : 100

GENERAL NOTES:

1. MOTORIZED SHADES CONTRACTOR MUST COORDINATE WITH LIGHTING CONTROL SYSTEM SUPPLIER AND PROVIDE ALL REQUIRED EQUIPMENT TO INTEGRATE LIGHTING AND SHADE CONTROL.
2. SUPPLY AND INSTALL LOCKABLE JUNCTION BOXES.

KEY NOTES

PW.5	SUPPLY AND INSTALL CONDUITS FOR POWER AND COMMUNICATION ON UNDERSIDE OF THE SLAB.1" CONDUIT FOR POWER AND 2" CONDUIT FOR DATA/AV.
PW.7	SUPPLY AND INSTALL TELECOM GROUNDING BUSBAR ON A PLYWOOD BACKBOARD.
PW.9	NEW TWIST LOCK OUTLETS TO BE INSTALLED ABOVE THE RACKS AND BELOW THE CABLE TRAY TO THE REAR OF THE RACK. ENSURE THAT THE ELECTRICAL WIRING AND OUTLETS DO NOT INTERFACE WITH THE INSTALLATION OF THE CABLE SYSTEM.
PW.10	PROVIDE 18"X18" WALL SPACE FOR INSTALLATION OF THE NETWORK CONTROL AND POWER SUPPLY PANELS FOR THE NEW SOUND MASKING SYSTEM.
PW.14	SUPPLY AND INSTALL THREE (3) DIGITAL METERS FOR PANEL "MP-L02C". REFER TO SINGLE LINE DIAGRAM AND DIGITAL METERS SCHEDULE (DRAWING E6.05).
PW.16	SUPPLY AND INSTALL A JUNCTION BOX FOR NEW MOTORIZED SHADES' POWER SUPPLY.
PW.25	PROVIDE SERVICE, FOR THE TENANT SPACE, 3' SHORT OF THE DEMISING WALL AND TERMINATE ON THE UNSECURED SIDE OF THE CEILING C/W 100' SPARE CABLES FOR EACH PHASE AND NEUTRAL. TENANT TO EXTEND ELECTRICAL SERVICE FROM THIS LOCATION TO THEIR ELECTRICAL ROOM USING DIELECTRIC FITTINGS.REFER TO SINGLE LINE DIAGRAM FOR MORE DETAILS.
PW.28	FOR SYSTEM FURNITURE TELECOM CONDUIT FOR IT WORKSTATIONS, PROVIDE 2 X 41MM (1-1/2") CONDUITS FROM CEILING SPACE TO OUTLET BOX IN WALL.

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441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
POWER AND COMMUNICATION PLAN- SECOND FLOOR

drawn by / dessine par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
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1 / E4.04 COMMUNICATION PATHWAY AND ACCESS POINT PLAN - BASEMENT

SCALE: 1 : 100

GENERAL NOTES:

1. ACCESS POINT LOCATIONS AND ASSOCIATED DATA DROPS ARE FOR REFERENCE ONLY. FINAL LOCATION AND QUANTITIES MAY VARY ON SITE. EACH DATA DROP FOR ACCESS POINT MUST BE COMPLETE WITH 6m OF SPAIR COID CABLE TO ENABLE FINAL PLACEMENT ON SITE AS DIRECTED BY OTHER'S IT TEAM.

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441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
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drawing title / titre du dessin

COMMUNICATION PATHWAY AND ACCESS POINT PLAN - BASEMENT

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B. — project manager / administrateur de projets

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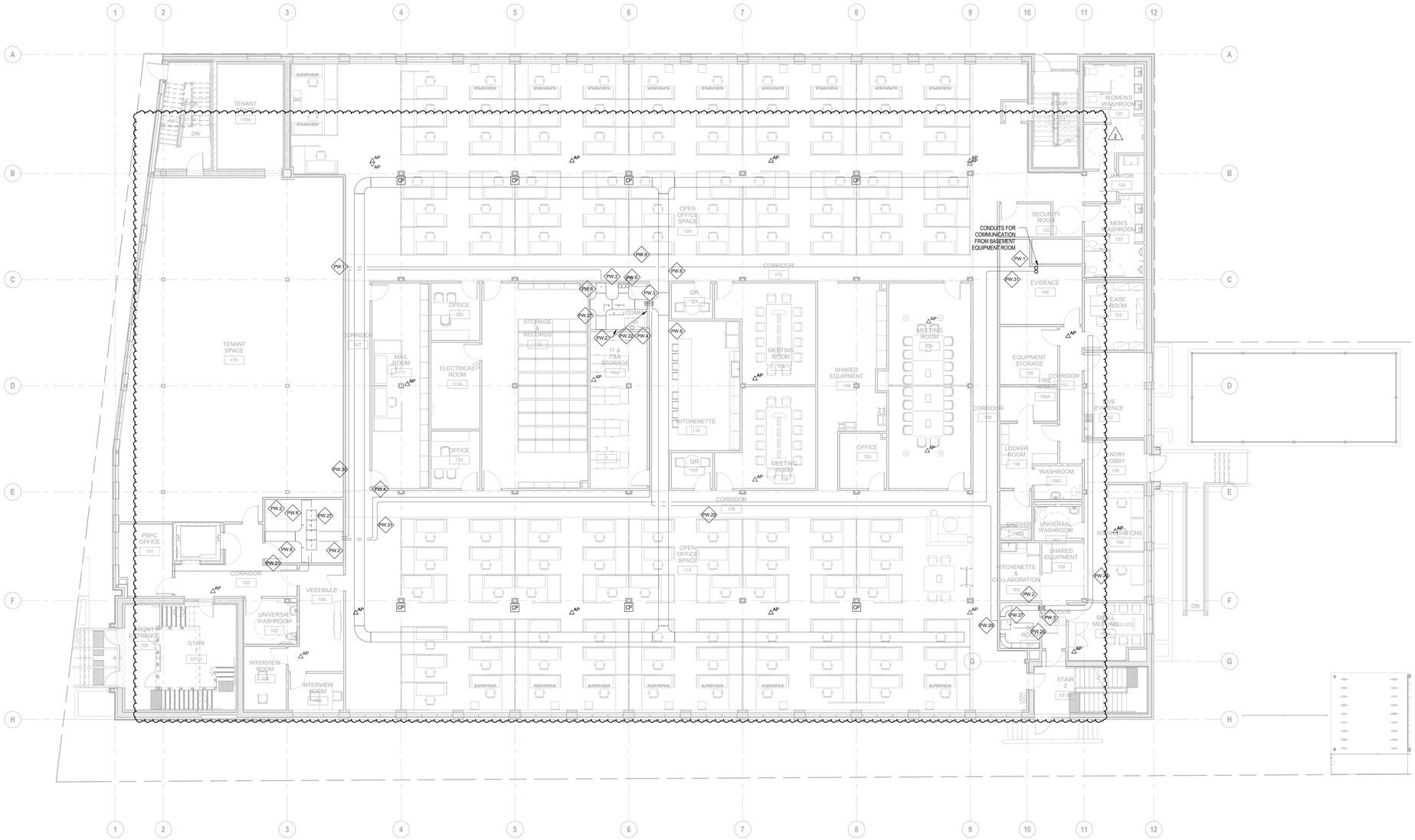

1 / E4.05 COMMUNICATION PATHWAY AND ACCESS POINT PLAN - GROUND FLOOR

SCALE: 1 : 100

GENERAL NOTES:

1. ACCESS POINTS LOCATIONS AND ASSOCIATED DATA DROPS ARE FOR REFERENCE ONLY. FINAL LOCATION AND QUANTITIES MAY VARY ON SITE. EACH DATA DROP FOR ACCESS POINT MUST BE COMPLETE WITH 6m OF SPAIR COID CABLE TO ENABLE FINAL PLACEMENT ON SITE AS DIRECTED BY OTHERS IT TEAM.

KEY NOTES

PW.1	SUPPLY AND INSTALL FOUR 2 X 53mm CONDUITS TO BASEMENT DEMARK POINT FOR THE FUTURE TENANT. TERMINATE CONDUITS ADJACENT TO THE DEMISING WALL. CONDUITS TO BE EXTENDED LATER BY TENANT USING DIELECTRIC MATERIAL
PW.2	3/4" PLYWOOD BACKBOARD WALL IN TELECOM ROOMS.
PW.3	SUPPLY AND INSTALL 3 X 103mm (4") PRE-ENGINEERED SLEEVES THROUGH WALL INTO CEILING SPACE. SLEEVES GROUNDED TO TRAY. C/W MOUNTING KIT AND WATERFALL TO CABLE TRAY 8" OVER 305mm (12") ABOVE.
PW.4	SUPPLY AND INSTALL A 27mm (1") CONDUIT TO COMM 129 FOR NEW SECURITY SYSTEM.
PW.6	SUPPLY AND INSTALL 3 X 78mm (3") RISER SLEEVES THROUGH COMM.129 INTO CEILING SPACE OF COMM.223.PERFORM CUTTING AND CORING WORK AND COORDINATE THE FINAL LOCATION WITH STRUCTURAL ENGINEER.
PW.8	SUPPLY AND INSTALL NEW 600mmW x 100mmH BASKET TYPE CABLE TRAY. NEW CABLE TRAY TO BE GROUNDED TO TGB (TELECOM GROUNDING BUSBAR).
PW.21	SUPPLY AND INSTALL A 1" CONDUIT TO THE MAIN EQUIPMENT ROOM (RM#102A) FOR OFFICE 101.
PW.22	SUPPLY AND INSTALL A 1" CONDUIT TO COMM.223 BETWEEN NEW SECURITY SYSTEM PANELS.
PW.26	SUPPLY AND INSTALL NEW 300mmW x 100mmH BASKET TYPE CABLE TRAY. NEW CABLE TRAY TO BE GROUNDED TO TGB (TELECOM GROUNDING BUSBAR).
PW.27	NEW DATA RACKS/CABINETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
PW.29	SUPPLY AND INSTALL 2 X 53mm (2") CONDUITS TO TC ROOM 161 (ENVIRONMENT CANADA TELECOM ROOM) FOR BACK BONE CABLES. CABLES TO BE SUPPLIED AND INSTALLED BY OTHERS..
PW.30	SUPPLY AND INSTALL 3 X 53mm (2") CONDUITS TO COMM.129 FOR BACK BONE CABLES. CABLES TO BE SUPPLIED AND INSTALLED BY OTHERS.
PW.31	SUPPLY AND INSTALL 4 X 53mm (2") CONDUITS FROM DEMARK POINT ON THE BASEMENT TO MAIN EQUIPMENT ROOM 102A FOR BACK BONE CABLES. CABLES TO BE SUPPLIED AND INSTALLED BY OTHERS.

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COMMUNICATION PATHWAY AND ACCESS POINT PLAN - GROUND FLOOR

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designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B.

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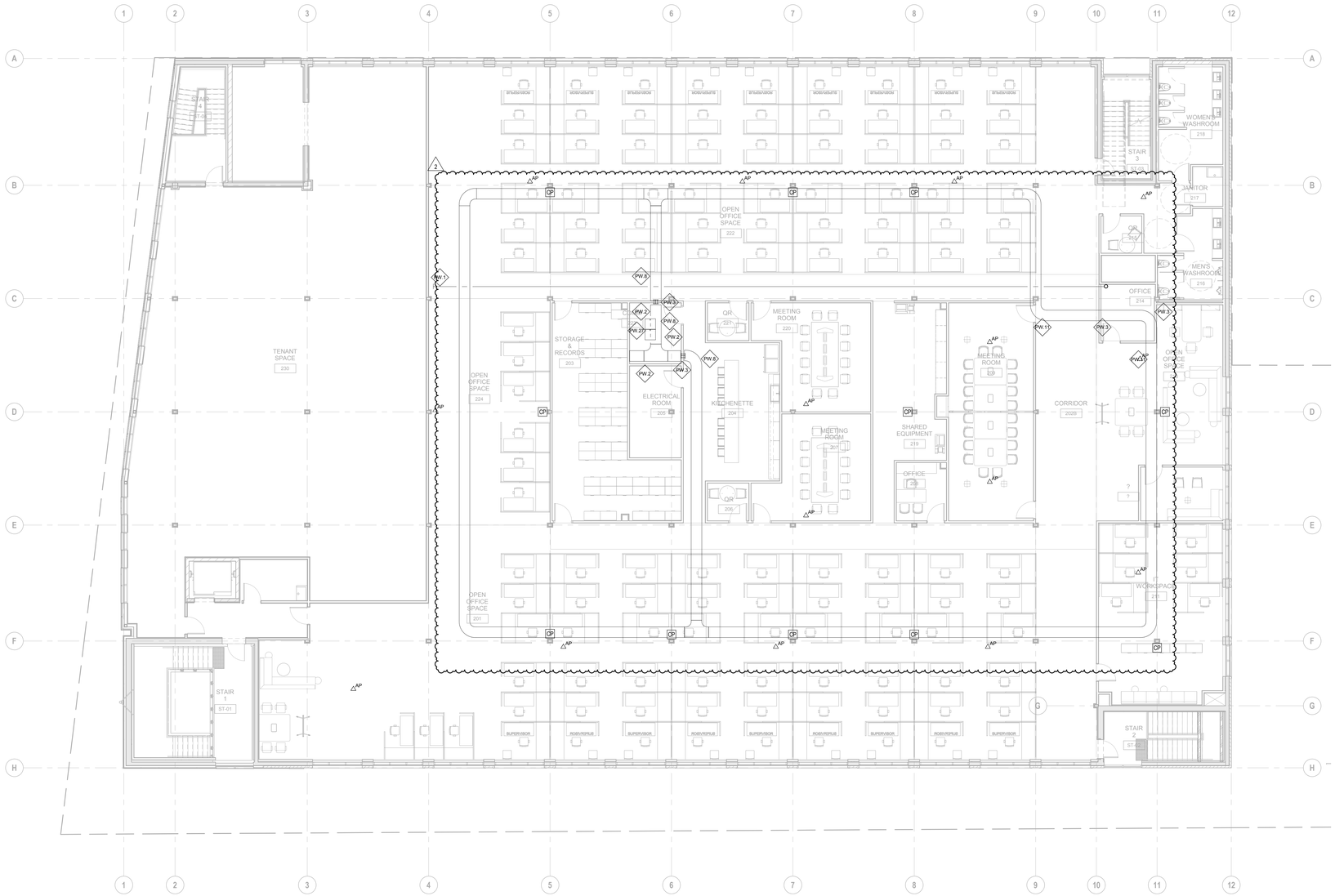

1 E4.06 COMMUNICATION PATHWAY AND ACCESS POINT PLAN - SECOND FLOOR

SCALE: 1 : 100

GENERAL NOTES:

1. ACCESS POINT LOCATIONS AND ASSOCIATED DATA DROPS ARE FOR REFERENCE ONLY. FINAL LOCATION AND QUANTITIES MAY VARY ON SITE. EACH DATA DROP FOR ACCESS POINT MUST BE COMPLETE WITH 6m OF SPAIR COID CABLE TO ENABLE FINAL PLACEMENT ON SITE AS DIRECTED BY OTHER'S IT TEAM.

2

KEY NOTES

PW.1	SUPPLY AND INSTALL FOUR 2 X 53mm CONDUITS TO BASEMENT DEMARK POINT FOR THE FUTURE TENANT. TERMINATE CONDUITS ADJACENT TO THE DEMISING WALL. CONDUITS TO BE EXTENDED LATER BY TENANT USING DIELECTRIC MATERIAL.
PW.2	3/4" PLYWOOD BACKBOARD WALL IN TELECOM ROOMS.
PW.3	SUPPLY AND INSTALL 3 X 103mm (4") PRE-ENGINEERED SLEEVES THROUGH WALL INTO CEILING SPACE. SLEEVES GROUNDED TO TRAY. C/W MOUNTING KIT AND WATERFALL TO CABLE TRAY IF OVER 305mm (12") ABOVE.
PW.8	SUPPLY AND INSTALL NEW 600mmW x 100mmH BASKET TYPE CABLE TRAY. NEW CABLE TRAY TO BE GROUNDED TO TGB (TELECOM GROUNDING BUSBAR).
PW.11	SUPPLY AND INSTALL THREE (3) MULTI CIRCUIT METERS AND EIGHTEEN (18) DIGITAL METERS. REFER TO SINGLE LINE DIAGRAM (DRAWINGS E8.02) AND DIGITAL METERS SCHEDULE (DRAWING E6.09).
PW.27	NEW DATA RACKS/CABINETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.

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drawing title / titre du dessin

COMMUNICATION PATHWAY AND ACCESS POINT PLAN - SECOND FLOOR

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

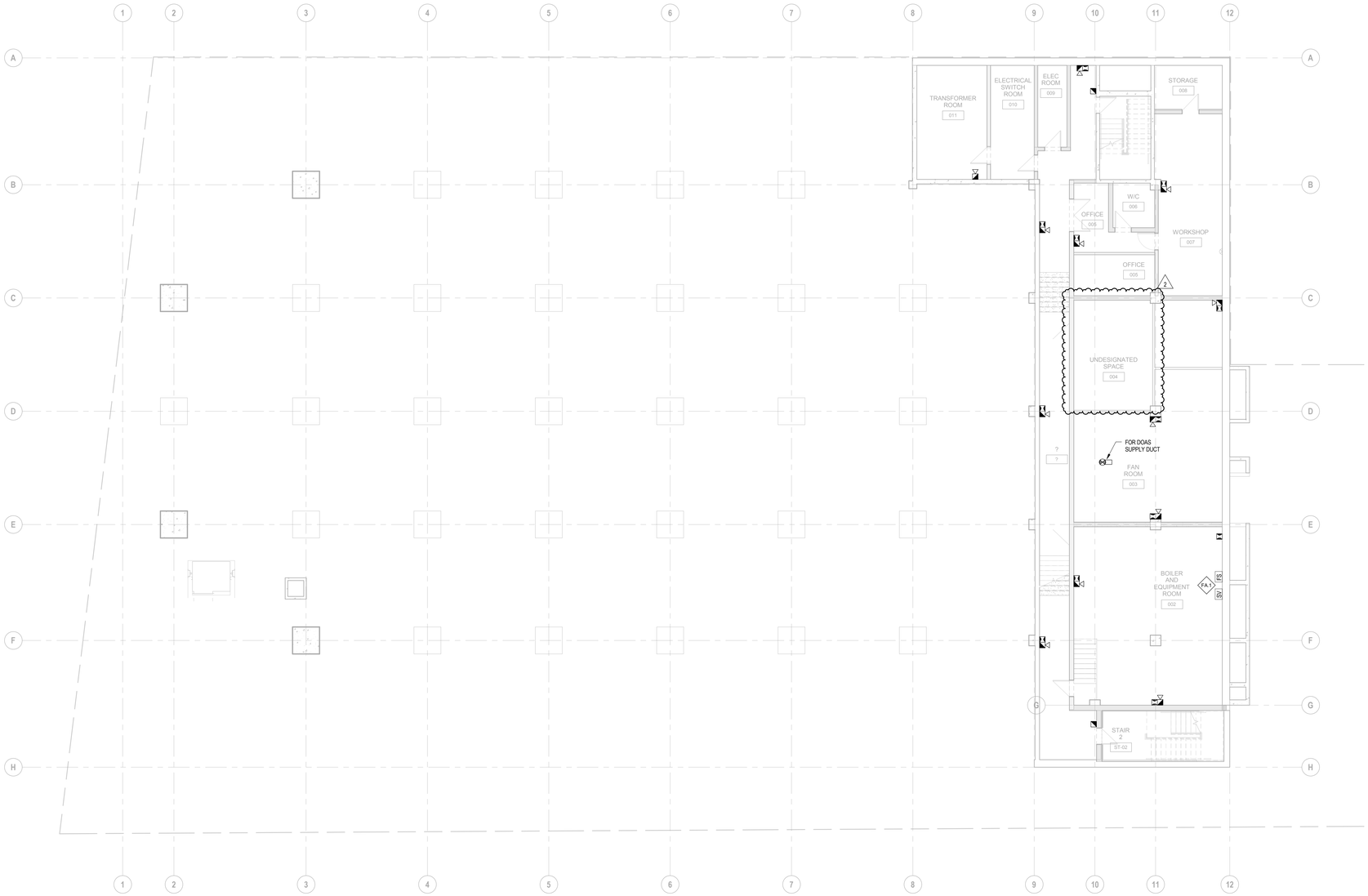
bid / soumission: M.B.

project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: E4.06



1 E5.01 LOW VOLTAGE- BASEMENT
SCALE: 1 : 100

KEY NOTES	
F.A.1	TYPICAL FOR 8, REFER TO MECHANICAL DRAWINGS M2.10 AND M3.03.

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LICENSED PROFESSIONAL ENGINEER
N. K. ARORA
March 24 2017
PROVINCE OF ONTARIO

rev.	description	date
2	ADDENDUM 01	2017-03-24
1	ISSUE FOR BID	2017-02-24

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441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
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LOW VOLTAGE- BASEMENT

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B.

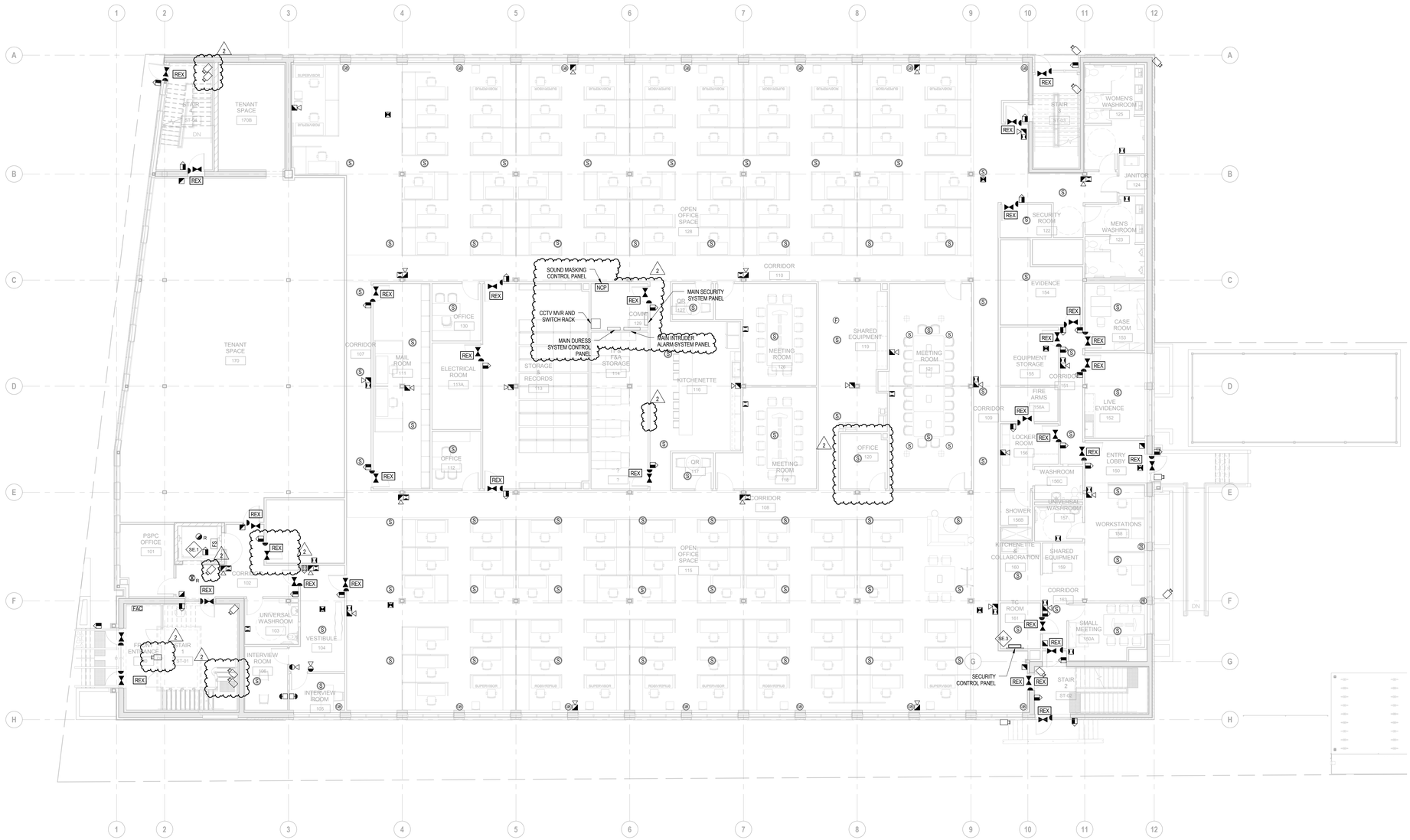
project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: E5.01

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:



1 / E5.02 LOW VOLTAGE- GROUND FLOOR

SCALE: 1:100

KEY NOTES

SE.1	3/4" CONDUIT TO BE INSTALLED BETWEEN NEW SECURITY CONTROL PANEL AND ELEVATOR CONTROL PANEL TRAVELING CABLE FOR THE NEW CARD READER TO BE SUPPLIED AND INSTALLED BY ELEVATOR COMPANY. NEW CARD READER TO BE INTEGRATED WITH ELEVATOR CONTROL.
SE.3	CONTROL PANELS TO BE INSTALLED ON THE BACKBOARDS. SUPPLY AND INSTALL TWO(2) QUAD RECEPTACLES ON THE BACKBOARD FOR NEW PANELS.

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drawing title / titre du dessin
LOW VOLTAGE- GROUND FLOOR

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B.

project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: E5.02

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1 / E5.03 LOW VOLTAGE - SECOND FLOOR

SCALE: 1 : 100

KEY NOTES

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drawing title / titre du dessin

LOW VOLTAGE - SECOND FLOOR

drawn by / dessine par	D.D.
designed by / conc par	M.A.
approved by / approuve par	N.A.
bid / soumission	M.B. (project manager / administrateur de projets)
project date / date du projet	2017-02-24
project no. / no. du projet	R.076516.013
drawing no. / dessine no.	E5.03

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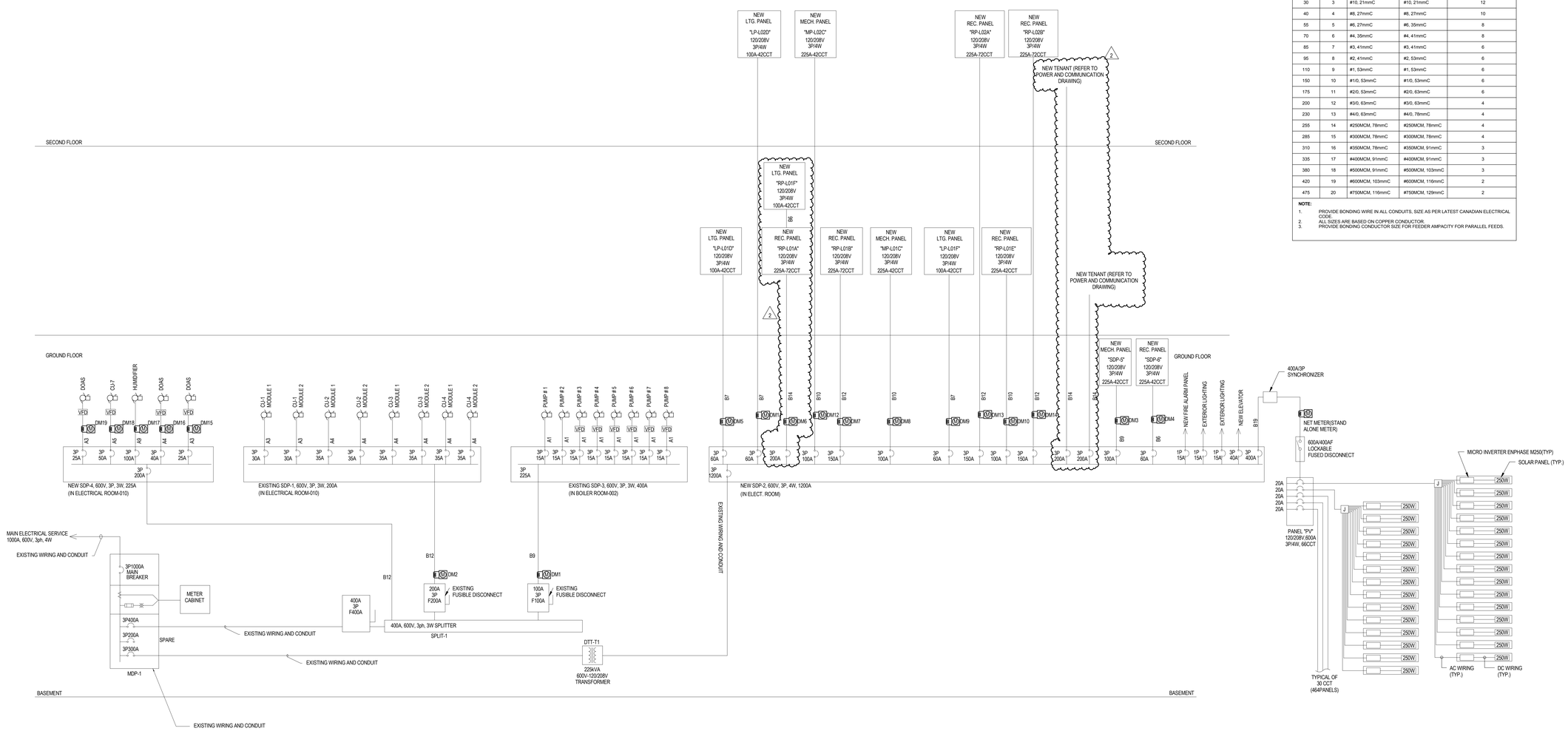

FEEDER SCHEDULE

FEEDER AMPS. (A)	FEEDER NO.	FEEDER GROUP (COPPER - 600V) A 3P/3W	FEEDER GROUP (COPPER - 600V) B 3P/4W	FEEDER BONDING CONDUCTOR
		(3) AWG	(4) AWG	AWG
15	1	#12, 21mmC	#12, 21mmC	12
20	2	#12, 21mmC	#12, 21mmC	12
30	3	#10, 21mmC	#10, 21mmC	12
40	4	#8, 27mmC	#8, 27mmC	10
55	5	#6, 27mmC	#6, 35mmC	8
70	6	#4, 35mmC	#4, 41mmC	8
85	7	#3, 41mmC	#3, 41mmC	6
95	8	#2, 41mmC	#2, 53mmC	6
110	9	#1, 53mmC	#1, 53mmC	6
150	10	#1/0, 53mmC	#1/0, 53mmC	6
175	11	#2/0, 53mmC	#2/0, 63mmC	6
200	12	#3/0, 63mmC	#3/0, 63mmC	4
230	13	#4/0, 63mmC	#4/0, 78mmC	4
255	14	#250MCM, 78mmC	#250MCM, 78mmC	4
285	15	#300MCM, 78mmC	#300MCM, 78mmC	4
310	16	#350MCM, 78mmC	#350MCM, 91mmC	3
335	17	#400MCM, 91mmC	#400MCM, 91mmC	3
380	18	#500MCM, 91mmC	#500MCM, 103mmC	3
420	19	#600MCM, 103mmC	#600MCM, 116mmC	2
475	20	#750MCM, 116mmC	#750MCM, 129mmC	2

NOTE:
1. PROVIDE BONDING WIRE IN ALL CONDUITS, SIZE AS PER LATEST CANADIAN ELECTRICAL CODE.
2. ALL SIZES ARE BASED ON COPPER CONDUCTOR.
3. PROVIDE BONDING CONDUCTOR SIZE FOR FEEDER AMPACITY FOR PARALLEL FEEDS.

NOTES:
1. SUPPLY AND INSTALL NEW CIRCUIT BREAKERS IN EXISTING (TO REMAIN) ELECTRICAL PANELS "SDP-1" AND "SDP-3" AS INDICATED IN SINGLE LINE DIAGRAM.
2. SUPPLY AND INSTALL NEW ELECTRICAL PANELS "SDP-5" AND "SDP-6" IN BOILER ROOM (002) AS INDICATED IN SINGLE LINE DIAGRAM.
3. SUPPLY AND INSTALL NEW DIGITAL METERS AS INDICATED IN SINGLE LINE DIAGRAM AND DIGITAL METERS SCHEDULE (DRAWING E6.09). DIGITAL METERS FOR MECHANICAL LOADS ARE NOT SHOWN IN SINGLE LINE DIAGRAMS.
4. SUPPLY AND INSTALL NEW ELECTRICAL PANELS IN NEW ELECTRICAL ROOMS LOCATED ON THE GROUND AND SECOND FLOORS AS INDICATED IN THE SINGLE LINE DIAGRAM.

1 / E6.02 SINGLE LINE DIAGRAM-NEW
SCALE: NTS

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SINGLE LINE DIAGRAM-NEW

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designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: E6.02

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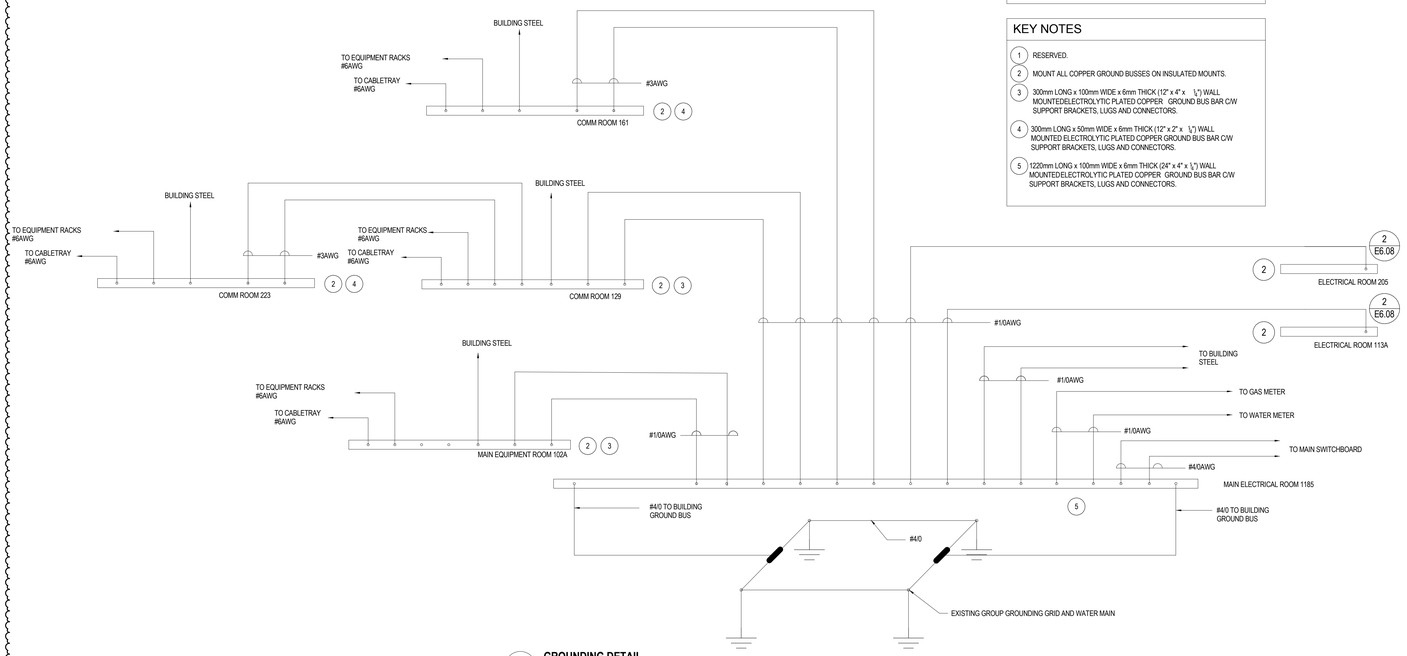
GENERAL NOTES

1. MOUNT BUS BARS 180mm AFF.

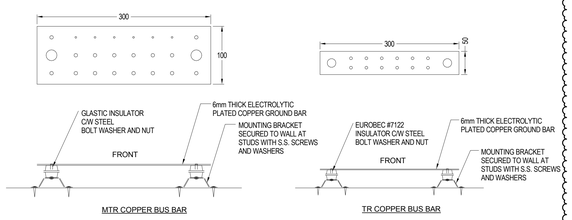
KEY NOTES

1. RESERVED.
2. MOUNT ALL COPPER GROUND BUSSES ON INSULATED MOUNTS.
3. 300mm LONG x 100mm WIDE x 6mm THICK (12" x 4" x ¼") WALL MOUNTEDELECTROLYTIC PLATED COPPER GROUND BUS BAR C/W SUPPORT BRACKETS, LUGS AND CONNECTORS.
4. 300mm LONG x 50mm WIDE x 6mm THICK (12" x 2" x ¼") WALL MOUNTED ELECTROLYTIC PLATED COPPER GROUND BUS BAR C/W SUPPORT BRACKETS, LUGS AND CONNECTORS.
5. 1220mm LONG x 100mm WIDE x 6mm THICK (24" x 4" x ¼") WALL MOUNTEDELECTROLYTIC PLATED COPPER GROUND BUS BAR C/W SUPPORT BRACKETS, LUGS AND CONNECTORS.



1 E6.08 **GROUNDING DETAIL**

N.T.S

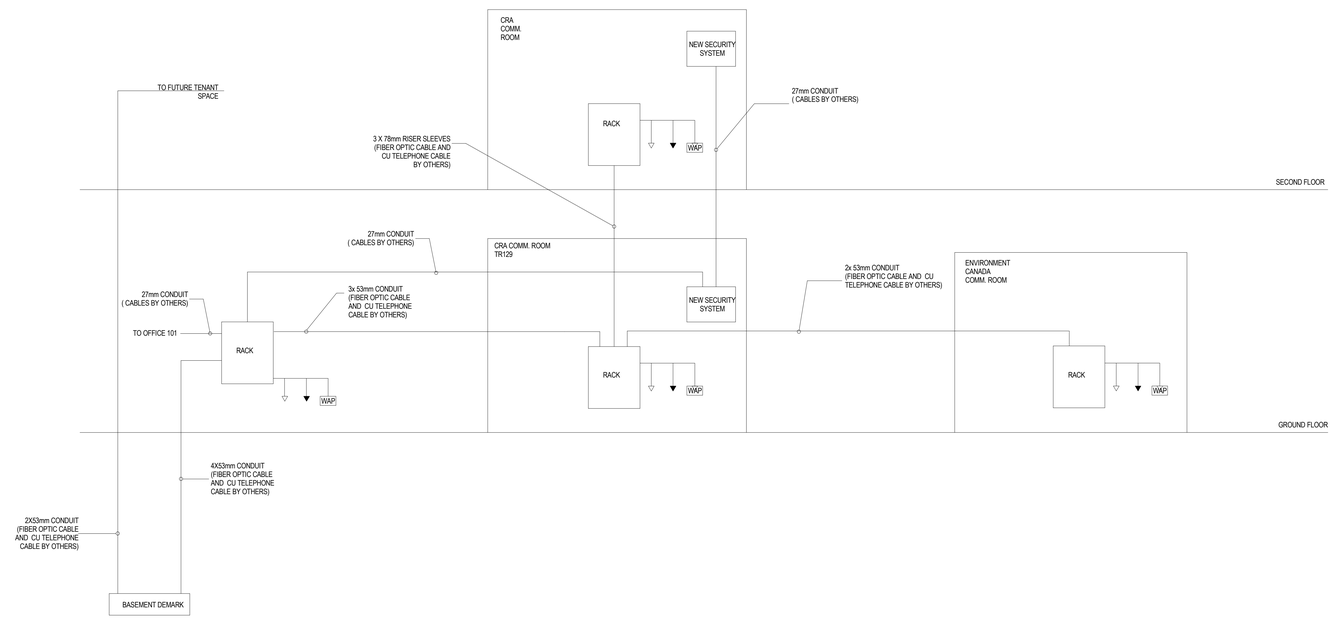


1 E6.08 **GROUNDING BAR DETAIL**

N.T.S

GENERAL NOTES

1. PROVIDE DOUBLE LUG CONNECTORS FOR ALL CONNECTIONS TO BUS BARS AND TO EQUIPMENT TO BE GROUNDED.



3 E6.08 COMMUNICATION RISER DIAGRAM

SCALE: NTS

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ELECTRICAL RISER DIAGRAM

drawn by / dessine par: D.D.

designed by / conc par: M.A.

approved by / approuve par: N.A.

bid / soumission: M.B. — project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: E6.08

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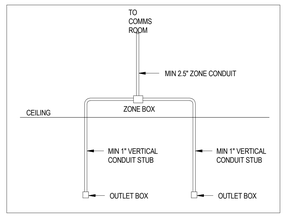
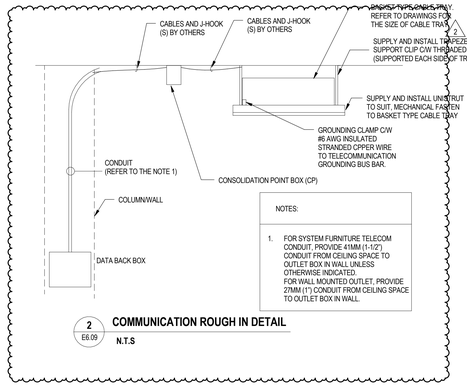


1 E6.09 **TYPICAL HORIZONTAL DISTRIBUTION FOR DRYWALL CEILING**

N.T.S

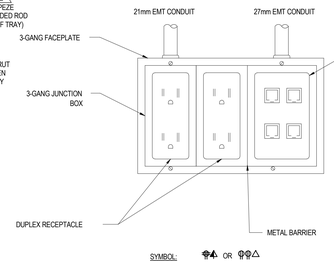


NOTES:

1. FOR SYSTEM FURNITURE TELECOM CONDUIT, PROVIDE 41MM (1-1/2") CONDUIT FROM CEILING SPACE TO OUTLET BOX IN WALL UNLESS OTHERWISE INDICATED.
FOR WALL MOUNTED OUTLET, PROVIDE 27MM (1") CONDUIT FROM CEILING SPACE TO OUTLET BOX IN WALL.

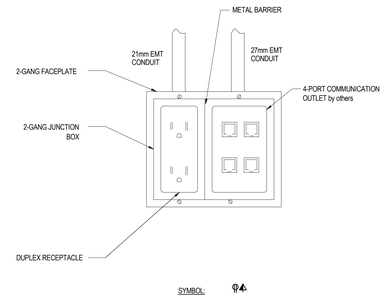
2 E6.09 **COMMUNICATION ROUGH IN DETAIL**

N.T.S



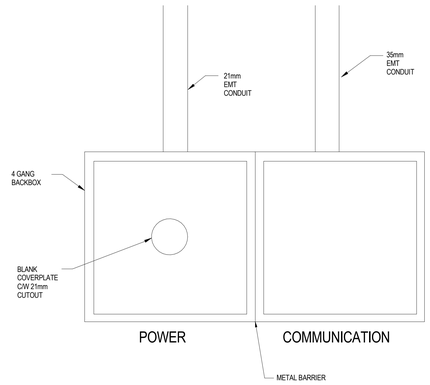
3 E6.09 **TYPICAL WALL MOUNTED POWER AND DATA OUTLETS DETAIL**

N.T.S



4 E6.09 **TYPICAL WALL MOUNTED POWER AND DATA OUTLETS**

N.T.S

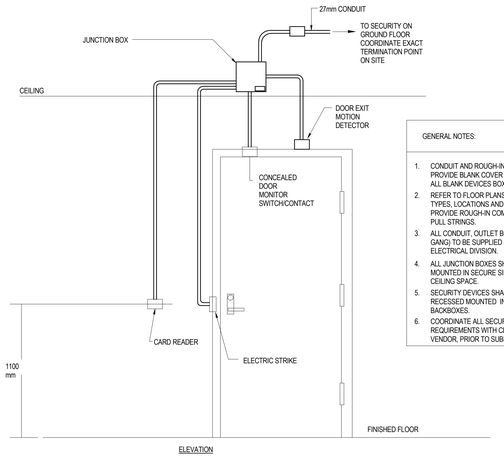


DETAIL NOTES:

1. PROVIDE CONDUITS C/W PULL STRINGS AND END GROMMETS(BUSHINGS). (BUSHINGS).
2. CONNECT INTO THE FURNITURE SYSTEM THROUGH LIQUID-TIGHT FLEX CONDUIT SUPPLIED BY FURNITURE VENDOR. COORDINATE INSTALLATION OF FURNITURE WHIPS WITH SYSTEMS FURNITURE MANUFACTURER.
3. FOR COMMUNICATION CABLING PROVIDE STAINLESS STEEL COVERPLATE, OPENING WITH GROMMET AND BLACK SPLIT LOOM TUBING SIZED TO SUIT.

5 E6.09 **TYPICAL SYSTEMS FURNITURE WALL FEED**

NTS

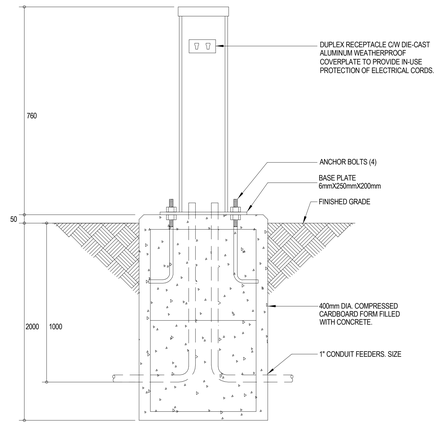


GENERAL NOTES:

1. CONDUIT AND ROUGH-INS ONLY. PROVIDE BLANK COVER PLATES FOR ALL BLANK DEVICES BOXES.
2. REFER TO FLOOR PLANS FOR DEVICE TYPES, LOCATIONS AND QUANTITIES. PROVIDE ROUGH-IN COMPLETE WITH PULL STRINGS.
3. ALL CONDUIT, OUTLET BOXES (SINGLE GANG) TO BE SUPPLIED BY ELECTRICAL DIVISION.
4. ALL JUNCTION BOXES SHALL BE MOUNTED IN SECURE SIDE OF THE CEILING SPACE.
5. SECURITY DEVICES SHALL BE RECESSED MOUNTED IN SINGLE GANG BACKBOXES.
6. COORDINATE ALL SECURITY CONDUIT REQUIREMENTS WITH CLIENT SECURITY VENDOR, PRIOR TO SUBMITTING BID.

6 E6.09 **CARD READER/DOOR DETAIL**

NTS

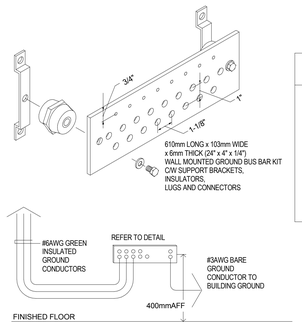


NOTES:

1. USE REBAR IN BASE. 5-15M VERTICAL & 3-10M TIES AT 200mm O.C.

7 E6.09 **STANDARD CAR PLUG-IN PEDESTAL DETAIL**

NTS

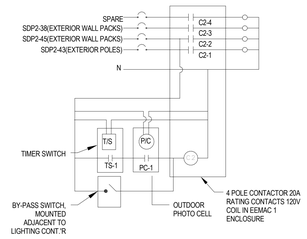


GENERAL NOTES:

1. GROUND AND BOND INCOMING COPPER TELEPHONE CABLES, RACKS, CONDUITS AND CABLE TRAY WITH #6AWG GREEN INSULATED CONDUCTORS.
2. LOCATE BUS BAR NEAR ASSOCIATED EQUIPMENT.
3. BUS BAR SHALL BE DIRECT BONDED TO THE BUILDING'S MAIN ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM.
4. BUS BAR SHALL BE FACTORY PRE-DRILLED WITH HOLES FOR USE WITH STANDARD SIZE LUGS AND BE AVAILABLE IN VARIABLE LENGTHS. BUS BAR SHALL BE COMPLETE WITH RAISED SUPPORTS AND BE UL/CSA LISTED.

8 E6.09 **GROUNDING BUS BAR DETAIL**

NTS

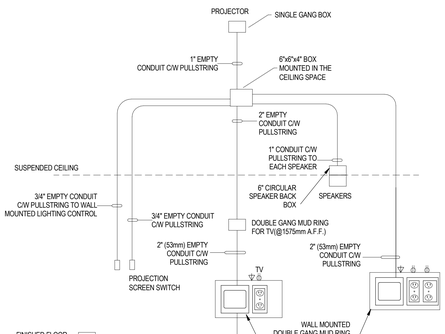


WIRING SCHEMATIC GENERAL NOTES

1. RISER IS DIAGRAMMATIC ONLY. PROVIDE ALL RELAYS, CONTACTORS AND ACCESSORIES AS REQUIRED FOR A FULLY FUNCTIONAL AND OPERATING CONTROL SYSTEM.
2. PROVIDE PHOTOCELL, CONTACTORS, RELAYS ETC TO CONTROL ALL EXTERIOR LIGHTING, SITE LIGHTING AND SIGNAGE PROVIDED AS PART OF THIS SCOPE OF WORK. COORDINATE EXTERIOR MOUNTING LOCATION OF PHOTOCELL WITH DEPARTMENTAL REPRESENTATIVE ON SITE.

9 E6.09 **EXTERIOR LIGHTS CONTROL WIRING SCHEMATIC**

NTS

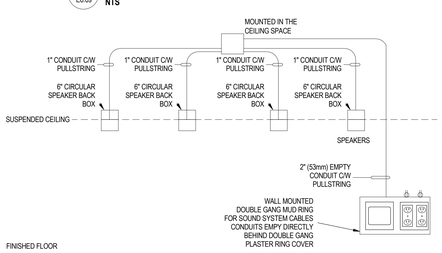


DETAIL NOTES

1. A/V DEVICES AND CABLING BY OTHERS. THIS CONTRACTOR TO PROVIDE CONDUITS C/W PULLSTRING, BACK BOXES AND PLASTER RINGS.
2. REFER TO POWER AND SYSTEMS PLAN FOR A/V SHELF LOCATION.

10 E6.09 **A/V SYSTEM REQUIREMENTS - MEETING ROOM 209**

NTS

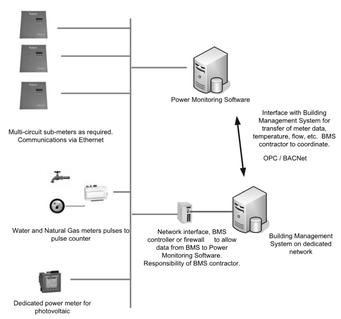


DETAIL NOTES

1. SOUND DEVICES AND CABLING BY OTHERS. THIS CONTRACTOR TO PROVIDE CONDUITS C/W PULLSTRING, BACK BOXES AND PLASTER RINGS.
2. REFER TO POWER AND SYSTEMS PLAN FOR A/V SHELF LOCATION.

12 E6.09 **SOUND SYSTEM REQUIREMENTS - MEETING ROOM 121**

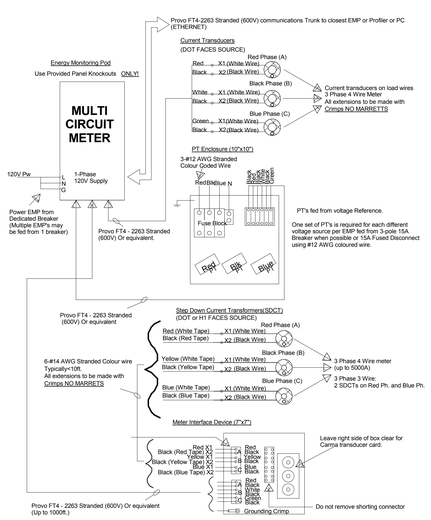
NTS



System notes:
- Any user on the network will have access to all meter data, reports and alarms via web client or thick client.
- All devices communicate via Ethernet.
- Communications protocols shall be Modbus RTU, Modbus TCP, OPC or SNMP protocols.
- Networking equipment (switches) not indicated on diagram for simplicity, but assumed to be supplied.

11 E6.09 **DIGITAL METERING NETWORK**

N.T.S.



*Notes: - A 3-Phase 3-Wire 600V Meter only requires 2 PT's + 2 CT's/SDCT's
- All Provo FT4 is 3 Pair Twisted Shielded Cable (22AWG)

13 E6.09 **TYPICAL DIGITAL METERING SYSTEM DETAIL**

SCALE: 1 : 1

GENERAL NOTES

1. WATER AND GAS METERS TO BE PROVIDED BY MECHANICAL CONTRACTOR, ELECTRICAL CONTRACTOR CONNECT WIRES AND CONDUITS.
2. ALLOW FOR 10 ADDITIONAL SETS OF CT'S IN THE BID PRICE.

DIGITAL METER AND CTs SCHEDULE

METER #	LOCATION	METERED LOAD	LOAD DESCRIPTION	VOLTAGE/PH	AMPS	REMARKS
DM1	BOILER AND EQUIPMENT ROOM(002)-BASEMENT	PANEL "SDP-3"	PUMPS P1 TO P8	347/600V/3PH/4W	100	
DM2	ELECTRICAL SWITCH ROOM(010)- BASEMENT	PANEL " SDP-1"	AIR SOURCE HEAT PUMPS- CU-1 TO CU-4	347/600V/3PH/4W	200	
DM3	BOILER AND EQUIPMENT ROOM(002)-BASEMENT	PANEL " SDP-5"	BULK METER-FLOOR MECHANICAL LOADS	347/600V/3PH/4W	100	
DM4	BOILER AND EQUIPMENT ROOM(002)-BASEMENT	PANEL " SDP-6"	AIR SOURCE HEAT PUMPS- CU-1 TO CU-4	347/600V/3PH/4W	60	
DM5	ELECTRICAL ROOM (113A)- GROUND FLOOR	PANEL "LP-L01D"	INTERIOR LIGHTING	120/208V/3PH/4W	60	
DM6	ELECTRICAL ROOM (113A)- GROUND FLOOR	PANEL "RP-L01A"	BULK METER-RECEPTACLE LOADS	120/208V/3PH/4W	200	
DM7	ELECTRICAL ROOM (113A)- GROUND FLOOR	PANEL "RP-L01B"	BULK METER-RECEPTACLE LOADS	120/208V/3PH/4W	200	
DM8	ELECTRICAL ROOM (113A)- GROUND FLOOR	PANEL "MP-L01C"	BULK METER-FLOOR MECHANICAL LOADS	120/208V/3PH/4W	100	
DM9	KITCHENETTE (160)- ENVIRONMENT CANADA	PANEL "LP-L01F"	INTERIOR LIGHTING	120/208V/3PH/4W	60	
DM10	KITCHENETTE (160)- ENVIRONMENT CANADA	PANEL "RP-L01E"	BULK METER-RECEPTACLE LOADS	120/208V/3PH/4W	100	
DM11	ELECTRICAL ROOM (205)- SECOND FLOOR	PANEL "LP-L02D"	INTERIOR LIGHTING	120/208V/3PH/4W	60	
DM12	ELECTRICAL ROOM (205)- SECOND FLOOR	PANEL "MP-L02C"	BULK METER-FLOOR MECHANICAL LOADS	120/208V/3PH/4W	100	
DM13	ELECTRICAL ROOM (205)- SECOND FLOOR	PANEL "RP-L02A"	BULK METER-RECEPTACLE LOADS	120/208V/3PH/4W	150	
DM14	ELECTRICAL ROOM (205)- SECOND FLOOR	PANEL "RP-L02B"	BULK METER-RECEPTACLE LOADS	120/208V/3PH/4W	150	
DM15	PANEL "SDP-4" (CCT# 1,3,5) - ELECTRICAL SWITCH ROOM(010)- BASEMENT	DOAS-01(EXHAUST)	DEDICATED OUTDOOR AIR SYSTEM	347/600V/3PH/4W	25	
DM16	PANEL "SDP-4" (CCT# 2,4,6) - ELECTRICAL SWITCH ROOM(010)- BASEMENT	DOAS-01(SUPPLY)	DEDICATED OUTDOOR AIR SYSTEM	347/600V/3PH/4W	40	
DM17	PANEL "SDP-4" (CCT# 7,9,11) - ELECTRICAL SWITCH ROOM(010)- BASEMENT	HU-1	HUMIDIFIER	347/600V/3PH/4W	100	
DM18	PANEL "SDP-4" (CCT# 8,10,12) - ELECTRICAL SWITCH ROOM(010)- BASEMENT	CU-7	AIR SOURCE HEAT PUMP	347/600V/3PH/4W	50	
DM19	PANEL "SDP-4" (CCT# 8,10,12) - ELECTRICAL SWITCH ROOM(010)- BASEMENT	DOAS-01(RECOVERY WHEEL)	AIR SOURCE HEAT PUMP	347/600V/3PH/4W	25	
DM20	PANEL "MP-L01C" (CCT# 9,11)- ELECTRICAL ROOM (113A)- GROUND FLOOR	HWT-1	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM21	PANEL "MP-L01C" (CCT# 14,16)- ELECTRICAL ROOM (113A)- GROUND FLOOR	HWT-2	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM22	PANEL "MP-L01C" (CCT# 13,15)- ELECTRICAL ROOM (113A)- GROUND FLOOR	HWT-6	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM23	PANEL "MP-L01C" (CCT# 18,20)- ELECTRICAL ROOM (113A)- GROUND FLOOR	HWT-5	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM24	PANEL "MP-L01C" (CCT# 17,19)- ELECTRICAL ROOM (113A)- GROUND FLOOR	HWT-10	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM25	PANEL "MP-L02C" (CCT# 13,15)- ELECTRICAL ROOM (205)- SECOND FLOOR	HWT-7	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM26	PANEL "MP-L02C" (CCT# 14,16)- ELECTRICAL ROOM (205)- SECOND FLOOR	HWT-8	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM27	PANEL "MP-L02C" (CCT# 17,19)- ELECTRICAL ROOM (205)- SECOND FLOOR	HWT-9	ELECTRIC DOMESTIC WATER HEATER	120/208V/3PH/4W	20	
DM28	PANEL "SDP-5" (CCT# 21,23)- BOILER AND EQUIPMENT ROOM(002)-BASEMENT	CU-5	AIR SOURCE HEAT PUMP	120/208V/3PH/4W	40	
DM29	PANEL "SDP-5" (CCT# 22,24)- BOILER AND EQUIPMENT ROOM(002)-BASEMENT	CU-6	AIR SOURCE HEAT PUMP	120/208V/3PH/4W	40	

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region
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Services d'architecture et de génie
Région de l'Ontario

seal(s)

LICENSED PROFESSIONAL ENGINEER
N. K. ARORA
March 24, 2014
PROVINCE OF ONTARIO

rev.	description	date
2	ADDENDUM 01	2017-03-24
1	ISSUE FOR BID	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG®

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
ELECTRICAL DETAILS

drawn by / dessine par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: E6.09

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

PANEL NUMBER MP-L01C

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1	MTR.	EVAPORATORS	15 A	0.18	0.14					15 A	EVAPORATORS	MTR.	2
3						0.16	0.15						4
5	MTR.	EVAPORATORS	15 A					0.17	0.20	15 A	EVAPORATORS	MTR.	6
7				0.16	0.17								8
9	MTR.	HWT-1	20 A			1.50	0.11			15 A	EVAPORATORS	MTR.	10
11								1.50	0.10				12
13	MTR.	HWT-6	20 A	1.50	1.50					20 A	HWT-2	MTR.	14
15						1.50	1.50						16
17	MTR.	HWT-10	20 A					1.50	1.50	20 A	HWT-5	MTR.	18
19				1.50	1.50								20
21	MTR.	MECHANICAL CONTROL JB.	15 A			0.30	0.15			15 A	BC-2	MTR.	22
23	MTR.	MECHANICAL CONTROL JB.	15 A					0.60	0.15				24
25	MTR.	MECHANICAL CONTROL JB.	15 A	0.30	0.30					15 A	MECHANICAL CONTROL JB.	MTR.	26
27	MTR.	SPLIT SYSTEM-AC-2,AC-3,AC-4,AC-5	15 A			0.06	0.30			15 A	MECHANICAL CONTROL JB.	MTR.	28
29								0.06	0.24	15 A	FFH-3FFH-4,FFH-5,FFH-6	MTR.	30
31	MTR.	ELEVATOR	40 A	4.00	3.25					40 A	WH-1	MTR.	32
33						4.00	3.25						34
35								4.00	0.04	20 A	FFH-7	MTR.	36
37	MTR.	MECHANICAL CONTROL JB.	15 A	0.30									38
39													40
41													42
			Total...	14.80 kVA		12.98 kVA		10.06 kVA					
			Total...	127 A		112 A		84 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	14.80 kVA	Mechanical...	37835 VA	70.00%	26485 VA	**Total Conn. Load:** 37835 VA
Phase B	12.98 kVA					**Total Est. Demand:** 26485 VA
Phase C	10.06 kVA					**Total Conn. Current:** 105 A
TOTAL	37.84 kVA					**Total Est. Demand Current:** 74 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER MP-L02C

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1	MECH.	EVAPORATORS	15 A	0.19	0.17					15 A	EVAPORATORS	MECH.	2
3						0.16	0.16						4
5	MECH.	EVAPORATORS	15 A					0.19	0.19	15 A	EVAPORATORS	MECH.	6
7				0.17	0.16								8
9	MECH.	EVAPORATORS	15 A			0.07	0.17			15 A	EVAPORATORS	MECH.	10
11								0.06	0.16				12
13	MECH.	HWT-7	20 A	1.50	1.50					20 A	HWT-8	MECH.	14
15						1.50	1.50						16
17	MECH.	HWT-9	20 A					1.50	0.15	15 A	BC-4	MECH.	18
19				1.50	0.15								20
21	MECH.	MECHANICAL CONTROL JB.	15 A			0.30	0.30			15 A	MECHANICAL CONTROL JB.	MECH.	22
23	MECH.	MECHANICAL CONTROL JB.	15 A					0.30	0.30	15 A	MECHANICAL CONTROL JB.	MECH.	24
25	MECH.	MECHANICAL CONTROL JB.	15 A	0.30	0.30					15 A	MECHANICAL CONTROL JB.	MECH.	26
27	MECH.	MECHANICAL CONTROL JB.	15 A			0.30	0.05			15 A	SPLIT SYSTEM-AC-6,AC-7	MECH.	28
29	MECH.	FFH-8,FFH-9,FFH-11	15 A					0.14	0.05				30
31	MECH.	FFH-12	15 A	0.04									32
33													34
35													36
37													38
39													40
41													42
			Total...	5.97 kVA		4.50 kVA		3.03 kVA					
			Total...	52 A		39 A		25 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	5.97 kVA	Mechanical...	13500 VA	70.00%	9450 VA	**Total Conn. Load:** 13500 VA
Phase B	4.50 kVA					**Total Est. Demand:** 9450 VA
Phase C	3.03 kVA					**Total Conn. Current:** 37 A
TOTAL	13.50 kVA					**Total Est. Demand Current:** 26 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER SDP-1

Mounting: | **Voltage** 600V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1				6.67	6.67								2
3	MTR.	AIR SOURCE HEAT PUMP-CU-1-MODULE 1	30 A			6.67	6.67			30 A	AIR SOURCE HEAT PUMP-CU-1-MODULE 2	MTR.	4
5								6.67	6.67				6
7				7.00	7.00								8
9	MTR.	AIR SOURCE HEAT PUMP-CU-2-MODULE 1	35 A			7.00	7.00			30 A	AIR SOURCE HEAT PUMP-CU-2-MODULE 2	MTR.	10
11								7.00	7.00				12
13				7.00	7.00								14
15	MTR.	AIR SOURCE HEAT PUMP-CU-3-MODULE 1	35 A			7.00	7.00			35 A	AIR SOURCE HEAT PUMP-CU-3-MODULE 2	MTR.	16
17								7.00	7.00				18
19				7.00	7.00								20
21	MTR.	AIR SOURCE HEAT PUMP-CU-4-MODULE 1	35 A			7.00	7.00			35 A	AIR SOURCE HEAT PUMP-CU-4-MODULE 1	MTR.	22
23								7.00	7.00				24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total...	55.33 kVA		55.33 kVA		55.33 kVA					
			Total...	159 A		159 A		159 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	55.33 kVA	Mechanical...	165996 VA	70.00%	116197 VA	**Total Conn. Load:** 165996 VA
Phase B	55.33 kVA					**Total Est. Demand:** 116197 VA
Phase C	55.33 kVA					**Total Conn. Current:** 160 A
TOTAL	166.00 kVA					**Total Est. Demand Current:** 112 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER SDP-4

Mounting: | **Voltage** 600V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1				3.00	5.33								2
3	MECH.	DOAS-01(EXHAUST)	25 A			3.00	5.33			40 A	DOAS-01(SUPPLY)	MECH.	4
5								3.00	5.33				6
7				3.00	12.00								8
9	MECH.	DOAS-01(RECOVERY WHEEL)	25 A			3.00	12.00			50 A	AIR SOURCE HEAT PUMP-CU-7	MECH.	10
11								3.00	12.00				12
13				26.67	0.13								14
15	MECH.	HUMIDIFIER	100 A			26.67	0.13			30 A	GATE OPERATOR MOTOR	REC.	16
17								26.67	0.13				18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total...	50.13 kVA		50.13 kVA		50.13 kVA					
			Total...	144 A		144 A		144 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	50.13 kVA	REC.	400 VA	50.00%	200 VA	**Total Conn. Load:** 150397 VA
Phase B	50.13 kVA	Mechanical...	149997 VA	70.00%	104998 VA	**Total Est. Demand:** 105198 VA
Phase C	50.13 kVA					**Total Conn. Current:** 145 A
TOTAL	150.40 kVA					**Total Est. Demand Current:** 101 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER SDP-2

Mounting: | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 72 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1				25.10	16.00								2
3	PNL..	PANEL " RP-L01A"- GROUND FLOOR	200 A			22.75	13.00			150 A	PANEL " RP-L01B"- GROUND FLOOR	PNL..	4
5								20.75	17.40				6
7				14.80	5.58								8
9	PNL..	PANEL " MP-L01C"- GROUND FLOOR	100 A			12.98	4.65			60 A	PANEL " LP-L01D"- GROUND FLOOR	PNL..	10
11								10.06	3.54				12
13				1.21	7.86								14
15	PNL..	PANEL " LP-L01F"- ENVIRONMENT CANADA	60 A			0.88	8.71			100 A	PANEL " LP-L01E"- ENVIRONMENT CANADA	PNL..	16
17								0.04	7.40				18
19				17.00	15.10								20
21	PNL..	PANEL " RP-L02B"- SECOND FLOOR	150 A			13.90	12.00			150 A	PANEL "RP-L02A"- SECOND FLOOR	PNL..	22
23								14.20	14.90				24
25				5.24	5.97								26
27	PNL..	PANEL " LP-L02D"- SECOND FLOOR	60 A			4.49	4.50			100 A	PANEL " MP-L02C"- SECOND FLOOR	PNL..	28
29								3.27	3.03				30
31				13.33	2.17								32
33	PNL..	SPLITER- T0- FUTURE TENANT	200 A			13.33	1.33			60 A	PANEL " SDP-6"- BASEMENT	BR	34
35								13.33	0.93				36
37				1.99	8.17								38
39	PNL..	FUTURE TENANT-SECOND FLOOR	200 A			0.86	9.43			100 A	PANEL " SDP-5"- BASEMENT	PNL..	40
41								1.78	12.62				42
43	LTG.	EXTERIOR POLES	15 A	2.00	0.10					15 A	BATTERY PACK-BP-5	EM Lighting	44
45	LTG.	EXTERIOR WALL PACKS	15 A			0.00	0.30			15 A	FIRE ALARM	REC.	46
47	REC.	MULTI CIRCUIT METER-ELEC. RM. 010	15 A					0.30	0.18	15 A	EXTERIOR WALL PACKS	LTG.	48
49	REC.	MULTI CIRCUIT METER-ELEC. RM. 010	15 A	0.30	0.20					70 A	ELECTRIC VEHICLE CHARGER	REC.	50
51	REC.	MULTI CIRCUIT METER-ELEC. RM. 010	15 A			0.30	0.20						52
53	EM Lighting	BATTERY PACK-BP-6	15 A					0.10	0.20	70 A	ELECTRIC VEHICLE CHARGER	REC.	54
55					0.20								56
57													58
59													60
61													62
63													64
65													66
67													68
69													70
71													72
			Total...	142.32 kVA		123.60 kVA		124.03 kVA					
			Total...	1187 A		1030 A		1034 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	142.32 kVA	Lighting	31710 VA	100.00%	31710 VA	**Total Conn. Load:** 350174 VA
Phase B	123.60 kVA	LTG.	30 VA	100.00%	30 VA	**Total Est. Demand:** 208666 VA
Phase C	124.03 kVA	REC.	231600 VA	50.00%	115800 VA	**Total Conn. Current:** 972 A
TOTAL	350.17 kVA	EM Lighting	1140 VA	100.00%	1140 VA	**Total Est. Demand Current:** 579 A
Summer Load		Mechanical...	85694 VA	70.00%	59986 VA	
Winter Load						
Maximum						

Notes:

PANEL NUMBER SDP-3

Mounting: | **Voltage** 600V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 30 | Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1				0.67	0.67								2
3	Motor	PUMP- P1	15 A			0.67	0.67			15 A	PUMP- P2	Motor	4
5								0.67	0.67				6
7				1.33	1.33								8
9	Motor	PUMP- P3	15 A			1.33	1.33			15 A	PUMP- P4	Motor	10
11								1.33	1.33				12
13				1.33	1.33								14
15	MTR.	PUMP- P5	15 A			1.33	1.33			15 A	PUMP- P6	Motor	16
17								1.33	1.33				18
19				1.33	1.33								20
21	Motor	PUMP- P7	15 A			1.33	1.33			15 A	PUMP- P8	Motor	22
23								1.33	1.33				24
25													26
27													28
29													30
			Total...	9.33 kVA		9.33 kVA		9.33 kVA					
			Total...	27 A		27 A		27 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	9.33 kVA	Mechanical...	27990 VA	70.00%	19593 VA	**Total Conn. Load:** 27990 VA
Phase B	9.33 kVA					**Total Est. Demand:** 19593 VA
Phase C	9.33 kVA					**Total Conn. Current:** 27 A
TOTAL	27.99 kVA					**Total Est. Demand Current:** 19 A
Summer Load						
Winter Load						
Maximum						

Notes:

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region
Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

seal(s)

LICENSED PROFESSIONAL ENGINEER
N. K. ARORA
March 24, 2017
PROVINCE OF ONTARIO

rev.	description	date
2	ADDENDUM 01	2017-03-24
1	ISSUE FOR BID	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
PANEL SCHEDULS

drawn by / dessine par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: E6.11

PANEL NUMBER LP-L01D

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 Project
Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1	LTG.	OPEN OFFICE SPACE - 128	15 A	0.59	0.87					15 A	OPEN OFFICE SPACE - 128	LTG.	2
3	LTG.	OPEN OFFICE SPACE - 128	15 A			0.63	0.82			15 A	OPEN OFFICE SPACE - 128	LTG.	4
5	LTG.	OPEN OFFICE SPACE - 128	15 A					0.78	0.67	15 A	CORRIDOR- 109	LTG.	6
7	LTG.	CORRIDOR 107, MAIL ROOM - 111	15 A	0.49	0.67					15 A	ELE.RM-113A,...	LTG.	8
9	LTG.	KITCHENETTE, MTG.RM.118,...	15 A			0.95	0.55			15 A	SHARED EQUIPMENT 119,OFFICE 120	LTG.	10
11	LTG.	MTG.RM.121	15 A					0.55	0.85	15 A	OPEN OFFICE SPACE - 115	LTG.	12
13	LTG.	OPEN OFFICE SPACE - 115	15 A	0.74	0.70					15 A	OPEN OFFICE SPACE - 115	LTG.	14
15	LTG.	OPEN OFFICE SPACE - 115	15 A			0.59	0.60			15 A	OPEN OFFICE SPACE - 115	LTG.	16
17	LTG.	PSPC OFFICE-101, CORRIDOR...	15 A					0.50	0.00	15 A	ELEVATOR LTG.	LTG.	18
19	LTG.	VESTIBULE 104, INTERVIEW RM.106,...	15 A	0.67	0.51					15 A	WASHRM-123,125, JANITOR-124, STAIR-3	LTG.	20
21	LTG.	EXIT SIGNS	15 A			0.06	0.10			15 A	EMERGENCY BATTERY PACK-BP-2	LTG.	22
23	LTG.	EMERGENCY BATTERY PACK-BP-1	15 A					0.10	0.10	15 A	EXIT SIGNS	LTG.	24
25	LTG.	OFFICE 112,OFFICE 130	15 A	0.35	0.00					15 A	ELEVATOR LTG.	LTG.	26
27	Lighting		20 A			0.36							28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total...	5.60 kVA		4.65 kVA		3.55 kVA					
			Total...	48 A		40 A		30 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	5.60 kVA	Lighting	13447 VA	100.00%	13447 VA	**Total Conn. Load:** 13827 VA
Phase B	4.65 kVA	LTG.	20 VA	100.00%	20 VA	**Total Est. Demand:** 13827 VA
Phase C	3.55 kVA	EM Lighting	360 VA	100.00%	360 VA	**Total Conn. Current:** 38 A
TOTAL	13.83 kVA					**Total Est. Demand Current:** 38 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER LP-L01F

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 Project
Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1	LTG.	EVIDENCE-154, CASE...	15 A	0.59	0.64					15 A	LOCKER ROOM-156, UNIVERSAL...	LTG.	2
3	LTG.	WORKSATATION 158, MTG.RM.150A	15 A			0.64	0.24			15 A	KITCHENETTE-160, TC ROOM-161	LTG.	4
5								0.04	1.49	15 A	EXIT SIGNS	EM Lighting	6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total...	1.22 kVA		0.88 kVA		0.04 kVA					
			Total...	11 A		8 A		0 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	1.22 kVA	Lighting	2109 VA	100.00%	2109 VA	**Total Conn. Load:** 2149 VA
Phase B	0.88 kVA	EM Lighting	40 VA	100.00%	40 VA	**Total Est. Demand:** 2149 VA
Phase C	0.04 kVA					**Total Conn. Current:** 6 A
TOTAL	2.15 kVA					**Total Est. Demand Current:** 6 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER LP-L02D

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 42 Project
Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	kVA A		kVA B		kVA C		BRK SIZE	Comments	TYPE	CCT NO.
1	LTG.	OPEN OFFICE SPACE - 222	15 A	0.50	0.54					15 A	OPEN OFFICE SPACE - 222	LTG.	2
3	LTG.	OPEN OFFICE SPACE - 222	15 A			0.63	0.60			15 A	OPEN OFFICE SPACE - 222	LTG.	4
5	LTG.	OPEN OFFICE SPACE - 222	15 A					0.78	0.44	15 A	CORRIDOR-202B	LTG.	6
7	LTG.	OPEN OFFICE SPACE - 224	15 A	0.50	0.71					15 A	ELE.RM-205,...	LTG.	8
9	LTG.	KITCHENETTE-204, MTG.RM.207,...	15 A			0.95	0.47			15 A	SHARED EQUIPMENT 219,OCOMM.208	LTG.	10
11	LTG.	MTG.RM.209	15 A					0.55	0.57	15 A	OPEN OFFICE SPACE - 201	LTG.	12
13	LTG.	OPEN OFFICE SPACE - 201	15 A	0.82	0.50					15 A	OPEN OFFICE SPACE - 201	LTG.	14
15	LTG.	OPEN OFFICE SPACE - 201	15 A			0.67	0.48			15 A	OPEN OFFICE SPACE - 201	LTG.	16
17	LTG.	OPEN OFFICE SPACE - 201	15 A					0.63	0.06	15 A	OPEN OFFICE SPACE - 211	LTG.	18
19	LTG.	MTG.RM.212,OPEN OFFICE...	15 A	0.88	0.21					15 A	CORRIDOR-200, UNIVERSAL WASHROOM	LTG.	20
21	LTG.	WASHRM-216,218, JANITOR-217, STAIR-3	15 A			0.59	0.11			20 A		EM Lighting	22
23	EM Lighting		20 A					0.05	0.20	20 A		EM Lighting	24
25	Lighting		20 A	0.63									26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total...	5.28 kVA		4.49 kVA		3.27 kVA					
			Total...	46 A		39 A		27 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	5.28 kVA	Lighting	12710 VA	100.00%	12710 VA	**Total Conn. Load:** 13070 VA
Phase B	4.49 kVA	LTG.	10 VA	100.00%	10 VA	**Total Est. Demand:** 13070 VA
Phase C	3.27 kVA	EM Lighting	350 VA	100.00%	350 VA	**Total Conn. Current:** 36 A
TOTAL	13.07 kVA					**Total Est. Demand Current:** 36 A
Summer Load						
Winter Load						
Maximum						

Notes:

2

PANEL NUMBER RP-L01A

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 84 Project
Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	2
3	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 128	REC.	4
5	REC.	WS. OPEN OFFICE SPACE 128	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 128	REC.	6
7	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	8
9	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 128	REC.	10
11	REC.	WS. OPEN OFFICE SPACE 128	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 128	REC.	12
13	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	14
15	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 128	REC.	16
17	REC.	WS. OPEN OFFICE SPACE 128	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 128	REC.	18
19	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	20
21	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 128	REC.	22
23	REC.	WS. OPEN OFFICE SPACE 128	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 128	REC.	24
25	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	26
27	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 128	REC.	28
29	REC.	WS. OPEN OFFICE SPACE 128	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 128	REC.	30
31	REC.	WS. OPEN OFFICE SPACE 128	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 128	REC.	32
33	REC.	WS. OPEN OFFICE SPACE 128	15 A			0.60	0.90			15 A	SERVICE RECEPTACLES	REC.	34
35	REC.	WS. OPEN OFFICE SPACE 128	15 A					1.20	0.40	20 A	WOMEN'S WR.125- GFI REC.	REC.	36
37	REC.	QR.127	15 A	1.20	0.90					15 A	ELECTRIC FAUCET AND TOILET	REC.	38
39	REC.	MOTORIZED SHADES	15 A			0.30	0.30			15 A	KITCHENETTE-FRIDGE	REC.	40
41	REC.	WOMEN'S WR.125-HAND DRYER	20 A					0.10	0.30	15 A	KITCHENETTE-FRIDGE	REC.	42
43	REC.	MOTORIZED SHADES	15 A	0.30	0.40					20 A	KITCHENETTE-COUNTER REC.	REC.	44
45	REC.	MAIL ROOM-111	15 A			1.20	0.40			20 A	KITCHENETTE-COUNTER REC.	REC.	46
47	REC.	KITCHENETTE-MICROWAVE	15 A					0.30	0.40	15 A	MEETING RM. 183	REC.	48
49	REC.	KITCHENETTE-COUNTER REC.	20 A	0.40	0.40					15 A	MEETING RM. 183	REC.	50
51	REC.	KITCHENETTE-COUNTER REC.	20 A			0.40	1.20			15 A	MEETING RM. 183-184	REC.	52
53	REC.	MEETING RM. 184	15 A					0.40	1.20	15 A	MEETING RM. 183-184	REC.	54
55	REC.	MEETING RM. 184	15 A	0.40	12.10								56
57	REC.	SERVICE REC.	15 A			0.60	9.35			60 A	PANEL " RP-L01F"- GROUND FLOOR	PNL.	58
59	REC.	SERVICE REC.	15 A					0.90	7.75				60
61	REC.	OFFICE-130, OFFICE-112	15 A	0.90	0.90					15 A	OFFICE-130, OFFICE-112	REC.	62
63	REC.	MAIL ROOM-111	15 A			0.90	0.60			15 A	MAIL ROOM-111	REC.	64
65									1.80	15 A	STORAGE AND RECORDS-113	REC.	66
67													68
69													70
71													72
73													74
75													76
77													78
79													80
81													82
83													84
			Total...	25.10 kVA		22.75 kVA		20.75 kVA					
			Total...	212 A		192 A		173 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	25.10 kVA	REC.	68600 VA	50.00%	34300 VA	**Total Conn. Load:** 68600 VA
Phase B	22.75 kVA					**Total Est. Demand:** 34300 VA
Phase C	20.75 kVA					**Total Conn. Current:** 190 A
TOTAL	68.60 kVA					**Total Est. Demand Current:** 95 A
Summer Load						
Winter Load						
Maximum						

Notes:

PROVIDE TWO(2) 42 CIRCUITS POSITION PANELBOARDS(DOUBLE TOPPED)

PANEL NUMBER RP-L01B

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 84 Project
Print Date:

WT

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 115	REC.	2
3	WRKS.	WS. OPEN OFFICE SPACE 115	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 115	REC.	4
5	WRKS.	WS. OPEN OFFICE SPACE 115	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 115	REC.	6
7	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 115	REC.	8
9	WRKS.	WS. OPEN OFFICE SPACE 115	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 115	REC.	10
11	WRKS.	WS. OPEN OFFICE SPACE 115	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 115	REC.	12
13	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 115	REC.	14
15	WRKS.	WS. OPEN OFFICE SPACE 115	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 115	REC.	16
17	WRKS.	WS. OPEN OFFICE SPACE 115	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 115	REC.	18
19	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 115	REC.	20
21	WRKS.	WS. OPEN OFFICE SPACE 115	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 115	REC.	22
23	WRKS.	WS. OPEN OFFICE SPACE 115	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 115	REC.	24
25	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 115	REC.	26
27	WRKS.	WS. OPEN OFFICE SPACE 115	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 115	REC.	28
29	WRKS.	WS. OPEN OFFICE SPACE 115	15 A					0.60	0.40	15 A	OPEN OFFICE SPACE 115	REC.	30
31	WRKS.	WS. OPEN OFFICE SPACE 115	15 A	0.60	0.90					15 A	INTERVIEW RM. 106,105	REC.	32
33	REC.	SHARED EQUIPMENT- COUNTER REC.	15 A			0.30	0.90			15 A	INTERVIEW RM. 106,105	REC.	34
35	REC.	SHARED EQUIPMENT- COUNTER REC.	15 A					0.60	1.60	15 A	MEETING RM. 121	REC.	36
37	REC.	SHARED EQUIPMENT- PRINTER	15 A	0.30	1.60					15 A	MEETING RM. 121	REC.	38
39	REC.	SHARED EQUIPMENT- PRINTER	15 A			0.30	1.60			15 A	MEETING RM. 121	REC.	40
41	REC.	MEETING RM. 121	15 A					1.10	0.30	20 A	OFFICE 120	REC.	42
43	REC.	MEETING RM. 121	15 A	1.40	0.90					15 A	OFFICE 120	REC.	44
45	REC.	MEETING RM. 121	15 A			1.10	0.90			15 A	PSPC OFFICE 101	REC.	46
47	REC.	MEETING RM. 121	15 A					1.40	0.30	15 A	MOTORIZED SHADES	MECH.	48
49	REC.	MEETING RM. 121	15 A	1.60	0.30					15 A	MOTORIZED SHADES	REC.	50
51	REC.	MEN'S WR.123-GFI REC.	20 A			0.40	0.40			15 A	UNIVERSAL WASHROOM	REC.	52
53	REC.	WASHROOMS, JANITOR RM. SERVICE...	15 A					0.90	0.20	20 A	UNIVERSAL WASHROOM	REC.	54
55	REC.	CORRIDOR-102, VESTIBULE-104	15 A	0.90	0.30					15 A	ELEVATOR SERVICE RECEPTACLE	REC.	56
57	REC.	ELEVATOR SERVICE RECEPTACLE	15 A			0.30	0.40			15 A	SOUND SYSTEM	REC.	58
59	REC.	SERVICE REC.	15 A					1.20	2.00	15 A	FRONT ENTRANCE 100-DOOR...	REC.	60
61	REC.	FRONT ENTRANCE 100-SECURITY DESK	15 A	0.30	0.90					15 A	SECURITY RM. 122	REC.	62
63	REC.	BAS	15 A			0.30	0.10			20 A	MEN'S WR.123-HAND DRYER	REC.	64
65									2.00	15 A	WASHROOMS DOOR OPERATORS	REC.	66
67													68
69													70
71													72
73													74
75													76
77													78
79													80
81													82
83													84
			Total...	16.00 kVA		13.00 kVA		17.40 kVA					
			Total...	137 A		108 A		149 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	16.00 kVA	REC.	46400 VA	50.00%	23200 VA	**Total Conn. Load:** 46400 VA
Phase B	13.00 kVA					**Total Est. Demand:** 23200 VA
Phase C	17.40 kVA					**Total Conn. Current:** 129 A
TOTAL	46.40 kVA					**Total Est. Demand Current:** 64 A
Summer Load						
Winter Load						
Maximum						

Notes:

PROVIDE TWO(2) 42 CIRCUITS POSITION PANELBOARDS(DOUBLE TOPPED)

PANEL NUMBER RP-L01E

Mounting: SDP-2 | **Voltage** 208V | **BUS RAT.:**
Fed From: Surface | **Phases** 3 | **MAIN BRKR:**
Panel Loc: Type 1 | **Wire** 4
Circuits 66 Project
Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	COMM. ROOM 161-DATA RACK	20 A	0.50	1.20					15 A	TC ROOM	REC.	2
3						0.50	0.40			20 A	TC ROOM-CONTROL PANELS	REC.	4
5	REC.	COMM. ROOM 161-DATA RACK	20 A					0.50	0.40	20 A	TC ROOM-CONTROL PANELS	REC.	6
7				0.50	0.30					15 A	MECHANICAL CONTROL JB.	MECH.	8
9	REC.	COMM. ROOM 161-FUTURE DATA RACK	20 A			0.50	0.30			15 A	KITCHENETTE-MICROWAVE	REC.	10
11								0.50	0.40	20 A	KITCHENETTE-COUNTER REC.	REC.	12
13	REC.	KITCHENETTE-COUNTER REC.	20 A	0.40	0.40					20 A	KITCHENETTE-COUNTER REC.	REC.	14
15	REC.	KITCHENETTE-COUNTER REC.	20 A			0.40	0.60			15 A	MTG.RM.150A	REC.	16
17	REC.	KITCHENETTE- FRIDGE	15 A					0.30	0.30	15 A	MTG.RM.150A	REC.	18
19	MECH.	EVAPORATORS	15 A	0.12	0.30					15 A	SHARED EQUIPMENT-159	REC.	20
21						0.11	0.30			15 A	SHARED EQUIPMENT-159	REC.	22
23	REC.	WORKSTATIONS-158	15 A					0.60	0.60	15 A	WORKSTATIONS-158	REC.	24
25	REC.	WORKSTATIONS-158	15 A	0.30	0.90					15 A	WORKSTATIONS-158	REC.	26
27	REC.	ENTRY LOBBY-150, WASHROOM...	15 A			0.90	1.00			15 A	DOOR OPERATOR	DIR.	28
29	REC.	FIRE ARMS-156A, LOCKER ROOM 156	15 A					1.30	0.60	15 A	CASE ROOM-153, EVIDENCE-154	REC.	30
31	REC.	CASE ROOM-153, EVIDENCE-154	15 A	0.90	0.04					15 A	EXHAUST FAN	MECH.	32
33	REC.	LIVE EVIDENCE-152, EQUIPMENT...	15 A			0.90	0.90			15 A	LIVE EVIDENCE-152, EQUIPMENT...	REC.	34
35	REC.	MECHANICAL CONTROL JB.	15 A					0.30	0.20	20 A	ELECTRIC FAUCET AND TOILET	REC.	36
37	REC.	UNIVERSAL WASHROOM 157	15 A	0.40	0.10					20 A	LOCKER ROOM-156-DRYER	REC.	38
39	REC.	WASHROOM 156C	15 A			0.20	0.30			15 A	MOTORIZED SHADES	REC.	40
41	REC.	COMM. ROOM 161-FUTURE DATA RACK	20 A					0.50	0.30	15 A	LOCKER ROOM-156-CHARGER REC.	REC.	42
43				0.50	0.30					15 A	LOCKER ROOM-156-CHARGER REC.	REC.	44
45	REC.	LOCKER ROOM-156-CHARGER REC.	15 A			0.30	0.30			15 A	LOCKER ROOM-156-CHARGER REC.	REC.	46
47	REC.	LIVE EVIDENCE-152-CHARGER REC.	15 A					0.30	0.30	15 A	LIVE EVIDENCE-152-CHARGER REC.	REC.	48
49	REC.	LIVE EVIDENCE-152-CHARGER REC.	15 A	0.30	0.40					15 A	LIVE EVIDENCE-152-CHARGER REC.	REC.	50
51	REC.	LIVE EVIDENCE-152-CHARGER REC.	15 A			0.40	0.40			15 A	LIVE EVIDENCE-152-CHARGER REC.	REC.	52
53													54
55													56
57													58
59													60
61													62
63													64
65													66
			Total...	7.86 kVA		8.71 kVA		7.40 kVA					
			Total...	66 A		73 A		62 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	7.86 kVA	REC.	23100 VA	50.00%	11550 VA	**Total Conn. Load:** 23966 VA
Phase B	8.71 kVA	Mechanical...	866 VA	70.00%	606 VA	**Total Est. Demand:** 12156 VA
Phase C	7.40 kVA					**Total Conn. Current:** 67 A
TOTAL	23.97 kVA					**Total Est. Demand Current:** 34 A
Summer Load						
Winter Load						
Maximum						

Notes:

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region
Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

seal(s)

MANITOBA PROFESSIONAL ENGINEER
N. K. JROJA
March 24 2014
PROVINCE OF ONTARIO

rev.	description	date
2	ADDENDUM 01	2017-03-24
1	ISSUE FOR BID	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG®

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
PANEL SCHEDULES

drawn by / dessiné par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B. | project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessiné no.: E6.12

GSC-A2 | DATE PLOTTED: | PLOT SCALE: | CAD FILE:

PANEL NUMBER RP-L02A

Mounting: SDP-2 **Voltage** 208V **BUS RAT.:**
Fed From: Surface **Phases** 3 **MAIN BRKR:**
Panel Loc: Type 1 **Wire** 4
Circuits 84 Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	WS. OPEN OFFICE SPACE 222	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 222	REC.	2
3	REC.	WS. OPEN OFFICE SPACE 222	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 222	REC.	4
5	REC.	WS. OPEN OFFICE SPACE 222	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 222	REC.	6
7	REC.	WS. OPEN OFFICE SPACE 222	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 222	REC.	8
9	REC.	WS. OPEN OFFICE SPACE 222	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 222	REC.	10
11	REC.	WS. OPEN OFFICE SPACE 222	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 222	REC.	12
13	REC.	WS. OPEN OFFICE SPACE 222	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 222	REC.	14
15	REC.	WS. OPEN OFFICE SPACE 222	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 222	REC.	16
17	REC.	WS. OPEN OFFICE SPACE 222	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 222	REC.	18
19	REC.	WS. OPEN OFFICE SPACE 222	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 222	REC.	20
21	REC.	WS. OPEN OFFICE SPACE 222	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 222	REC.	22
23	REC.	WS. OPEN OFFICE SPACE 222	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 222	REC.	24
25	REC.	WS. OPEN OFFICE SPACE 222	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 222	REC.	26
27	REC.	WS. OPEN OFFICE SPACE 222	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 222	REC.	28
29	REC.	WS. OPEN OFFICE SPACE 224	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 224	REC.	30
31	REC.	WS. OPEN OFFICE SPACE 224	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 224	REC.	32
33	REC.	STORAGE&RECORDS 203	15 A			0.90							34
35	REC.	OFFICE 223, QR-221	15 A					1.20	0.30	15 A	KITCHENETTE-FRIDGE	REC.	36
37	REC.	KITCHENETTE-FRIDGE	15 A	0.30	0.30					15 A	KITCHENETTE-MICROWAVE	REC.	38
39	REC.	KITCHENETTE-COUNTER REC.	20 A			0.40	0.40			20 A	KITCHENETTE-COUNTER REC.	REC.	40
41	REC.	KITCHENETTE-COUNTER REC.	20 A					0.40	0.40	20 A	KITCHENETTE-COUNTER REC.	REC.	42
43	REC.	MEETING RM. 220,207	15 A	1.20	1.20					15 A	MEETING RM. 220,207	REC.	44
45	REC.	MEETING RM. 220	15 A			0.40	0.40			15 A	MEETING RM. 220	REC.	46
47	REC.	MEETING RM. 207	15 A					0.40	0.40	15 A	MEETING RM. 207	REC.	48
49	REC.	KITCHENETTE-SERVICE REC.	15 A	0.90	0.90					20 A	ELEC.RM.205,QR.206	REC.	50
51	REC.	COMM. ROOM 208- DATA RACK	20 A			0.50	0.50			20 A	COMM. ROOM 208- FUTURE DATA RACK	REC.	52
53								0.50	0.50				54
55	REC.	COMM. ROOM 208- DATA RACK	20 A	0.50	0.40					20 A	COMM. RM. 208-CONTROL PANELS	REC.	56
57						0.50	0.40			20 A	COMM. RM. 208-CONTROL PANELS	REC.	58
59	REC.	COMM. RM. 208-CONTROL PANELS	20 A					0.40	1.20	15 A	COMM. RM. 208-SERVICE REC.	REC.	60
61	REC.	QR.215, CORRIDOR 202B	20 A	0.90	0.40					15 A	WOMEN'S WR.215- GFI REC.	REC.	62
63	REC.	WOMEN'S WR.218-HAND DRYER	20 A			0.10	0.60			15 A	WASHROOMS SERVICE REC.	REC.	64
65	DO.	WASHROOMS DOOR OPERATORS	15 A					2.00	0.60	15 A	ELECTRIC FAUCET AND TOILET	REC.	66
67	REC.	ELECTRIC FAUCET AND TOILET	15 A	0.40	0.50					20 A	COMM. ROOM 208- FUTURE DATA RACK	REC.	68
69	REC.	COMM. ROOM 208-SOUND MASKING...	15 A			0.40	0.50						70
71	REC.	MOTORIZED SHADES	20 A					0.30	0.30	20 A	MOTORIZED SHADES	REC.	72
73													74
75													76
77													78
79													80
81													82
83													84
			Total...	15.10 kVA	12.00 kVA			14.90 kVA					
			Total...	130 A	100 A			128 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	15.10 kVA	REC.	42000 VA	50.00%	21000 VA	**Total Conn. Load:** 42000 VA
Phase B	12.00 kVA					**Total Est. Demand:** 21000 VA
Phase C	14.90 kVA					**Total Conn. Current:** 117 A
TOTAL	42.00 kVA					**Total Est. Demand Current:** 58 A
Summer Load						
Winter Load						
Maximum						

Notes:

PROVIDE TWO(2) 42 CIRCUITS POSITION PANELBOARDS(DOUBLE TOPPED)

PANEL NUMBER RP-L02B

Mounting: SDP-2 **Voltage** 208V **BUS RAT.:**
Fed From: Surface **Phases** 3 **MAIN BRKR:**
Panel Loc: Type 1 **Wire** 4
Circuits 84 Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 201	REC.	2
3	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 201	REC.	4
5	REC.	WS. OPEN OFFICE SPACE 201	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 201	REC.	6
7	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 201	REC.	8
9	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 201	REC.	10
11	REC.	WS. OPEN OFFICE SPACE 201	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 201	REC.	12
13	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.60					15 A	IT WORKSPACE 211	REC.	14
15	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	IT WORKSPACE 211	REC.	16
17	REC.	WS. OPEN OFFICE SPACE 201	15 A					0.60	0.60	15 A	IT WORKSPACE 211	REC.	18
19	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 201	REC.	20
21	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 201	REC.	22
23	REC.	WS. OPEN OFFICE SPACE 201	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 201	REC.	24
25	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.60					15 A	WS. OPEN OFFICE SPACE 201	REC.	26
27	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 201	REC.	28
29	REC.	WS. OPEN OFFICE SPACE 201	15 A					0.60	0.60	15 A	WS. OPEN OFFICE SPACE 201	REC.	30
31	REC.	WS. OPEN OFFICE SPACE 201	15 A	0.60	0.90					15 A	WS. OPEN OFFICE SPACE 201	REC.	32
33	REC.	WS. OPEN OFFICE SPACE 201	15 A			0.60	0.60			15 A	WS. OPEN OFFICE SPACE 201	Other	34
35	REC.	SHARED EQUIPMENT-PRINTER	15 A					0.30	0.60	15 A	SHARED EQUIPMENT-COUNTER REC.	REC.	36
37	REC.	SHARED EQUIPMENT-PRINTER	15 A	0.30	0.90					15 A	MEETING RM. 209	REC.	38
39	REC.	SHARED EQUIPMENT-COUNTER REC.	15 A			0.30	1.60			15 A	MEETING RM. 209	REC.	40
41	REC.	MEETING RM. 209	15 A					1.60	0.80	15 A	MEETING RM. 209	REC.	42
43	REC.	MEETING RM. 209	15 A	0.80	0.30					15 A	MOTORIZED SHADES	REC.	44
45	REC.	MEETING RM. 209	20 A			0.80	0.60			15 A	OFFICE 214	REC.	46
47	REC.	OFFICE 214	15 A					0.30	0.30	15 A	MOTORIZED SHADES	REC.	48
49	REC.	MEETING RM. 209	20 A	1.60	0.40					20 A	MEN'S WR.216- GFI REC.	REC.	50
51	REC.	MEN'S WR.218-HAND DRYER	20 A			0.10	1.00			15 A	MEETING RM.212,OPEN OFFICE SPACE...	REC.	52
53	REC.	MEETING RM.212,OPEN OFFICE SPACE...	15 A					0.70	0.60	15 A	IT WORKSPACE 211	REC.	54
55	REC.	SERVICE REC.	15 A	1.80	0.60					15 A	IT WORKSPACE 211	REC.	56
57	REC.	SERVICE REC.	15 A			0.90	0.60			15 A	OFFICE 208	REC.	58
59	REC.	SERVICE REC.	15 A					1.80	0.30	15 A	OFFICE 208	REC.	60
61	REC.	MEETING RM. 209	15 A	1.60	0.60					15 A	WS. OPEN OFFICE SPACE 213	REC.	62
63	REC.	MEETING RM. 209	15 A			0.80							64
65	REC.	MEETING RM. 209	15 A					0.90					66
67	REC.	WS. OPEN OFFICE SPACE 213	15 A	0.60									68
69													70
71													72
73													74
75													76
77													78
79													80
81													82
83													84
			Total...	17.00 kVA	13.90 kVA			14.20 kVA					
			Total...	142 A	116 A			119 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	17.00 kVA	REC.	45100 VA	50.00%	22550 VA	**Total Conn. Load:** 45100 VA
Phase B	13.90 kVA					**Total Est. Demand:** 22550 VA
Phase C	14.20 kVA					**Total Conn. Current:** 125 A
TOTAL	45.10 kVA					**Total Est. Demand Current:** 63 A
Summer Load						
Winter Load						
Maximum						

Notes:

PROVIDE TWO(2) 42 CIRCUITS POSITION PANELBOARDS(DOUBLE TOPPED)

PANEL NUMBER SDP-6

Mounting: SDP-2 **Voltage** 208V **BUS RAT.:**
Fed From: Surface **Phases** 3 **MAIN BRKR:**
Panel Loc: Type 1 **Wire** 4
Circuits 60 Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	DEMARK POINT	15 A	0.40	1.30					15 A	DEMARK POINT	REC.	2
3	REC.	SERVICE RECEPTACLES	15 A			0.60	0.43			15 A	BOILER ROOM 002	LTG.	4
5	REC.	ELEC.RM - 009	15 A					0.60	0.33	15 A	FAN ROOM 003	LTG.	6
7	EM Lighting	EXIT SIGNS	15 A	0.04	0.43					15 A	IT EQUIPMENT ROOM 004	LTG.	8
9						0.30				15 A	MULTI CIRCUIT METER-BOILER RM. 002	REC.	10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
43													44
45													46
47													48
49													50
51													52
53													54
55													56
57													58
59													60
			Total...	2.17 kVA	1.33 kVA	0.93 kVA							
			Total...	19 A	12 A	8 A							

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	2.17 kVA	Lighting	1196 VA	100.00%	1196 VA	**Total Conn. Load:** 4436 VA
Phase B	1.33 kVA	REC.	3200 VA	50.00%	1600 VA	**Total Est. Demand:** 2836 VA
Phase C	0.93 kVA	EM Lighting	40 VA	100.00%	40 VA	**Total Conn. Current:** 12 A
TOTAL	4.44 kVA					**Total Est. Demand Current:** 8 A
Summer Load						
Winter Load						
Maximum						

Notes:

PANEL NUMBER RP-L01G

Mounting: RP-L01A **Voltage** 208V **BUS RAT.:**
Fed From: Surface **Phases** 3 **MAIN BRKR:**
Panel Loc: Type 1 **Wire** 4
Circuits 42 Project

Print Date:

CCT NO.	TYPE	Comments	BRK SIZE	A		B		C		BRK SIZE	Comments	TYPE	CCT NO.
1	REC.	MAIN EQUIPMENT ROOM 102A	20 A	1.25	1.25					20 A	MAIN EQUIPMENT ROOM 102A	REC.	2
3						1.25	1.25						4
5	REC.	MAIN EQUIPMENT ROOM 102A	20 A					1.25	1.25	30 A	MAIN EQUIPMENT ROOM 102A	REC.	6
7				1.25	1.25								8
9	REC.	MAIN EQUIPMENT ROOM 102A	20 A			1.25	0.50			20 A	MAIN EQUIPMENT ROOM 102A	REC.	10
11								1.25	0.50				12
13	REC.	MAIN EQUIPMENT ROOM 102A	20 A	1.25	1.25					20 A	MAIN EQUIPMENT ROOM 102A	REC.	14
15						1.25	1.25						16
17	REC.	COMM. ROOM 129-DATA RACK	20 A					0.50	0.50	20 A	COMM. ROOM 129-DATA RACK	REC.	18
19				0.50	0.50								20
21	REC.	COMM. ROOM 129- DATA RACK	20 A			0.50	0.50			20 A	COMM. ROOM 129-DATA RACK	REC.	22
23								0.50	0.50				24
25	REC.	COMM. ROOM 129-SERVICE...	15 A	1.20	0.40					15 A	COMM. ROOM 129- CONTROL PANELS	REC.	26
27	REC.	COMM. ROOM 129- CONTROL PANELS	15 A			0.40	0.40			15 A	COMM. ROOM 129- CONTROL PANELS	REC.	28
29	REC.	COMM. ROOM 129- CONTROL PANELS	15 A					0.40	0.40	15 A	COMM. ROOM 129- CONTROL PANELS	REC.	30
31	REC.	COMM. ROOM 129- CONTROL PANELS	15 A	0.40	0.40					15 A	COMM. ROOM 129- CONTROL PANELS	REC.	32
33	REC.	COMM. ROOM 129- CONTROL PANELS	15 A			0.40	0.40			15 A	COMM. ROOM 129-SOUND MASKING...	REC.	34
35	REC.	MAIN EQUIPMENT ROOM 102A	20 A					0.40	0.30	15 A	MAIN EQUIPMENT ROOM 102A	REC.	36
37	REC.	MAIN EQUIPMENT ROOM 102A	15 A	1.20									38
39													40
41													42
			Total...	12.10 kVA		9.35 kVA		7.75 kVA					
			Total...	103 A		80 A		65 A					

CONNECTED LOAD		LOAD TYPE		DIVERSITY FACTOR	DEMAND	Panel Totals
Phase A	12.10 kVA	REC.	29200 VA	50.00%	14600 VA	**Total Conn. Load:** 29200 VA
Phase B	9.35 kVA					**Total Est. Demand:** 14600 VA
Phase C	7.75 kVA					**Total Conn. Current:** 81 A
TOTAL	29.20 kVA					**Total Est. Demand Current:** 41 A
Summer Load						
Winter Load						
Maximum						

Notes:

Public Works and Government Services Canada
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Ontario Region

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seal(s)

LICENSED PROFESSIONAL ENGINEER N. K. ARORA March 24 2017 PROVINCE OF ONTARIO

rev.	description	date
2	ADDENDUM 01	2017-03-24
1	ISSUE FOR BID	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG®

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
PANEL SCHEDULES

drawn by / dessine par: D.D.
designed by / conc par: M.A.
approved by / approuve par: N.A.
bid / soumission: M.B. — project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: E6.13

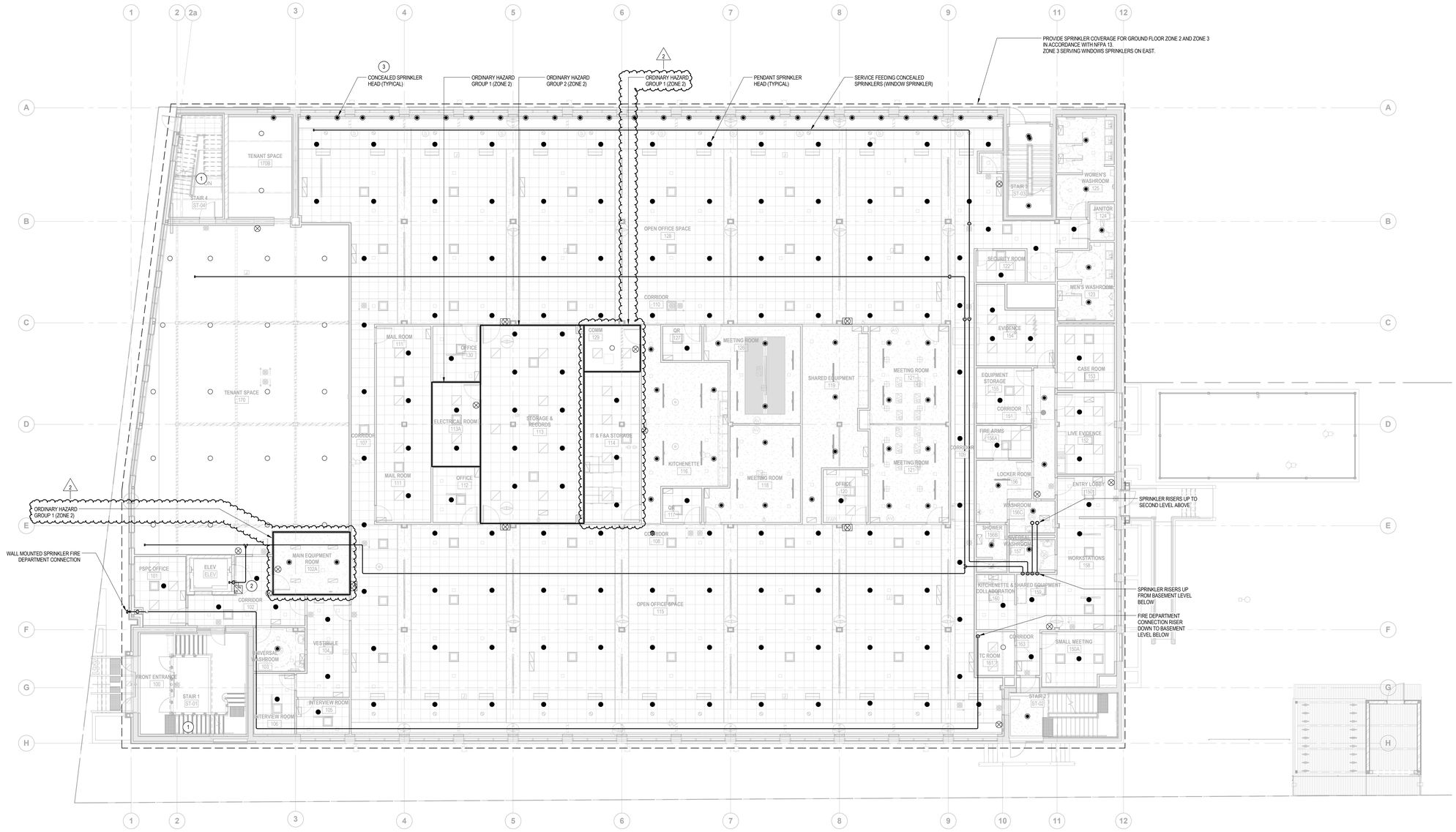
GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

GENERAL NOTES

1. UNLESS NOTED OTHERWISE SPRINKLER SYSTEM SHALL BE DESIGNED FOR LIGHT HAZARD IN ACCORDANCE WITH NFPA 13.
2. PROVIDE ADDITIONAL SPRINKLER HEADS AS REQUIRED BASED ON FINAL DUCT LOCATIONS. COORDINATE WITH DIVISION 23.
3. REMOVE ALL RUBBISH & DEBRIS ONCE JOB IS COMPLETE.
4. ALL EXPOSED PIPING AND ASSOCIATED TRIM TO BE PRIMED AND MADE READY FOR FIELD PAINTING. PROTECT ALL MANUFACTURERS LABELS ON VALVES, FITTINGS, EQUIPMENT AND TRIM.
5. COORDINATE ROUTING OF PIPE ABOVE NEW AND EXISTING CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES, ELEVATIONS, AND LOCATIONS.
6. ALL SPRINKLER HEADS BELOW 2400 MM TO BE COMPLETE WITH SPRINKLER GUARDS.
7. PROPOSED SPRINKELR HEAD LOCATIONS AND PIPE ROUTING SHOWN ON DRAWINGS TO BE REVIEWED AND VERIFIED BY DELEGATED PROFESSIONAL SPRINKLER ENGINEER.

KEYNOTES

1. PROVIDE SPRINKLER COVERAGE AT LOWEST LANDING.
2. SPRINKLER SERVICE TO ELEVATOR PIT C/W FLOW SWITCH.
3. MAXIMUM DISTANCE BETWEEN HEADS 1800mm AND 150mm TO 300mm FROM GLASS.



1 / M2.20 FIRE PROTECTION UPGRADE - GROUND FLOOR PLAN
SCALE: 1 : 100

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2017-03-24

rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

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DIALOG

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
FIRE PROTECTION UPGRADE - GROUND FLOOR PLAN

drawn by / dessine par: J.B.
designed by / conc par: R.D. / Z.H.
approved by / approuve par: R.D.
tender / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: M2.11

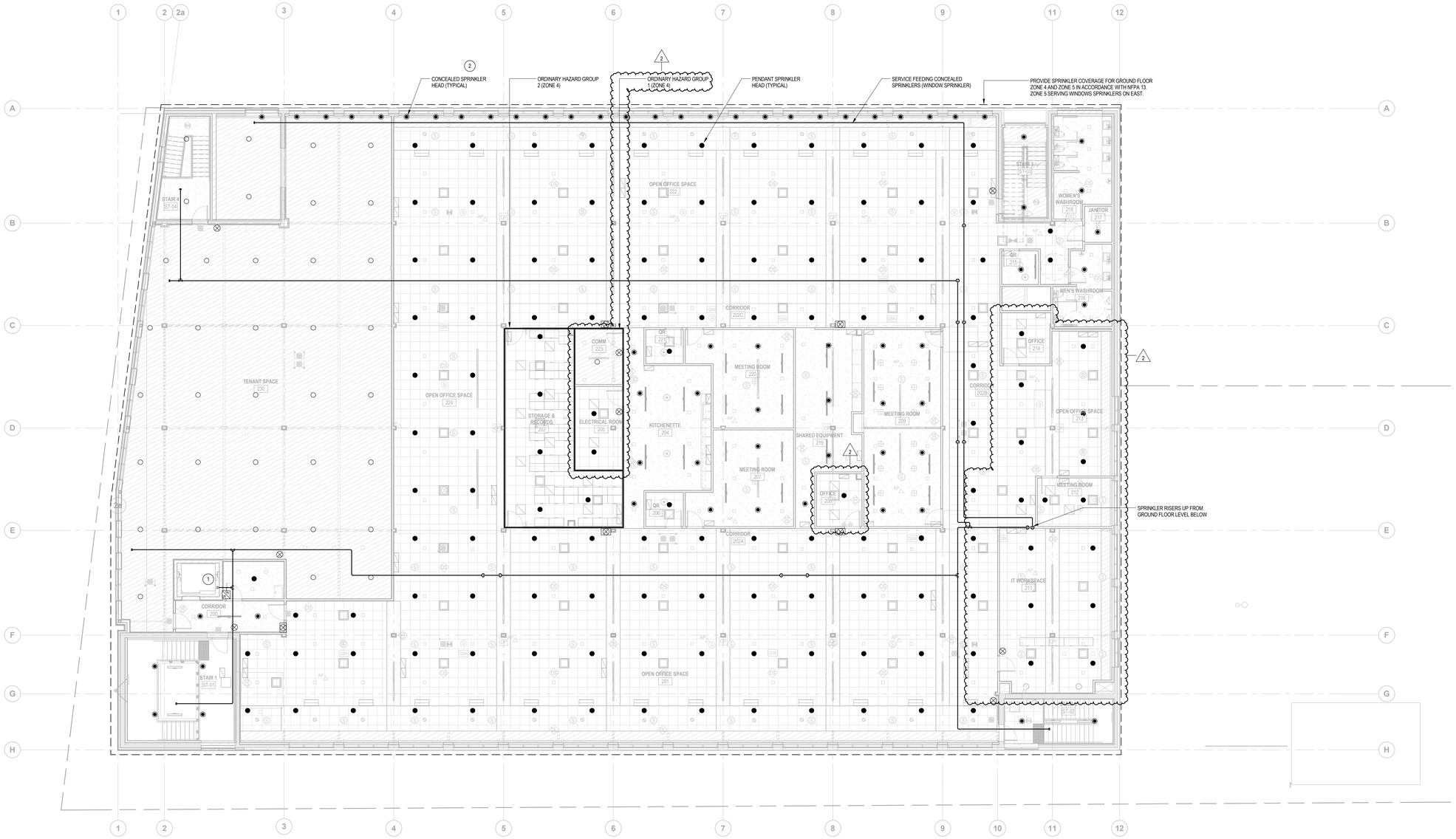
GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

GENERAL NOTES

1. UNLESS NOTED OTHERWISE SPRINKLER SYSTEM SHALL BE DESIGNED FOR LIGHT HAZARD IN ACCORDANCE WITH NFPA 13.
2. PROVIDE ADDITIONAL SPRINKLER HEADS AS REQUIRED BASED ON FINAL DUCT LOCATIONS. COORDINATE WITH DIVISION 23.
3. REMOVE ALL RUBBISH & DEBRIS ONCE JOB IS COMPLETE.
4. ALL EXPOSED PIPING AND ASSOCIATED TRIM TO BE PRIMED AND MADE READY FOR FIELD PAINTING. PROTECT ALL MANUFACTURERS LABELS ON VALVES, FITTINGS, EQUIPMENT AND TRIM.
5. COORDINATE ROUTING OF PIPE ABOVE NEW AND EXISTING CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES, ELEVATIONS, AND LOCATIONS.
6. ALL SPRINKLER HEADS BELOW 2400 MM TO BE COMPLETE WITH SPRINKLER GUARDS.
7. PROPOSED SPRINKELR HEAD LOCATIONS AND PIPE ROUTING SHOWN ON DRAWINGS TO BE REVIEWED AND VERIFIED BY DELEGATED PROFESSIONAL SPRINKLER ENGINEER.

KEYNOTES

1. SPRINKLER SERVICE C/W FLOW SWITCH.
2. MAXIMUM DISTANCE BETWEEN HEADS 1800mm AND 150mm TO 300mm FROM GLASS.



2 M2.12 SECOND FL FIRE PROTECTION
SCALE: 1 : 100

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2017-03-24

rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

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Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG

project title / titre du projet

441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin

FIRE PROTECTION UPGRADE - SECOND FLOOR PLAN

drawn by / dessiné par: J.B.

designed by / conc par: R.D. / Z.H.

approved by / approuvé par: R.D.

tender / soumission: M.B. — project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

drawing no. / dessine no.: M2.12

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

GENERAL NOTES

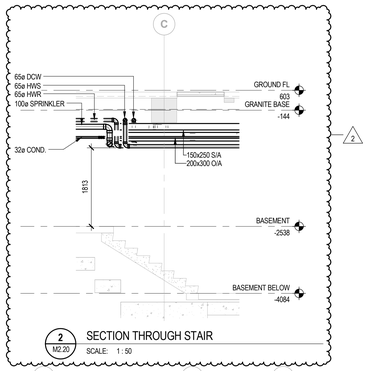
1. THIS DRAWING INDICATED GENERAL INTENT OF DESIGN ONLY. CONTRACTOR TO VERIFY SITE CONDITIONS BEFORE ORDERING MATERIALS AND COMMENCING WORK. REPORT TO DEPARTMENT REPRESENTATIVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DESIGN DRAWINGS.
2. PROVIDE NEW EQUIPMENT INCLUDING PIPING, VALVES, FITTINGS, FIXTURES, DOMESTIC WATER TANK, HUMIDIFICATION SYSTEM AND ACCESSORIES AS INDICATED.
3. ALL PLUMBING FIXTURES SHALL BE VENTED & ALL TRAPS SHALL BE PRIMED IN ACCORDANCE WITH NATIONAL BUILDING CODE.
4. ALL PIPING SHALL BE INSULATED AS SPECIFIED IN THE SPECIFICATION.
5. SEAL ALL SLAB AND WALL PENETRATIONS THAT REMAIN AS A RESULT OF THE DEMOLITION PHASE OF WORK. PROVIDE SUITABLE FIRE STOP AND SMOKE SEAL MATERIALS AS REQUIRED. COORDINATE ALL REQUIREMENTS WITH THE GENERAL TRADE ON SITE.
6. REMOVE ALL DEBRIS AND RUBBISH ONCE JOB IS COMPLETE.

KEYNOTES

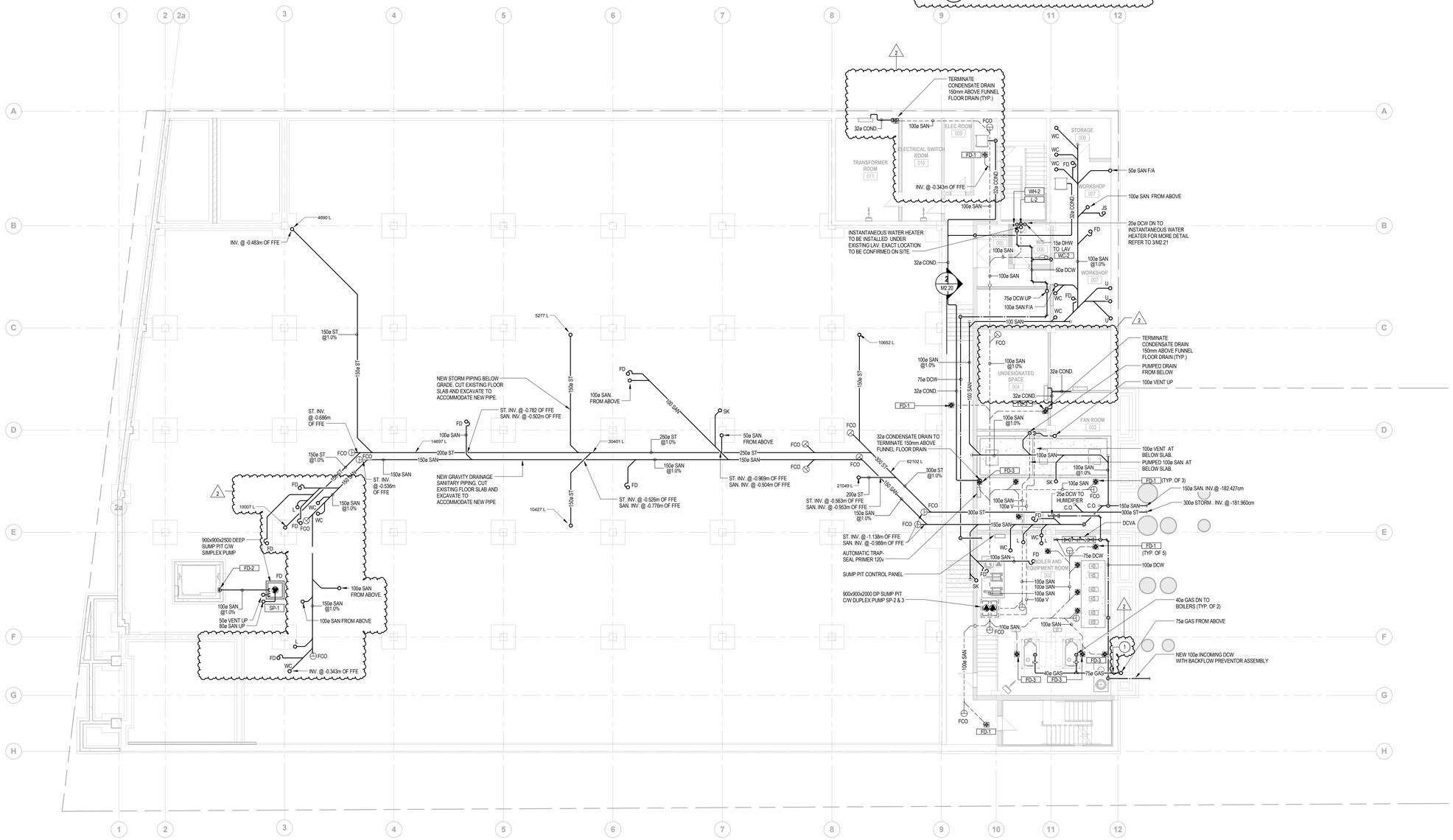
1. PROVIDE CHECK METER FOR CONNECTION TO BAS.

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	CAST IRON / DWV COPPER	VENT	COLD WATER	HOT WATER
HB-1			32ø	-
JS-1	75ø	75ø	15ø	15ø
L-1	32ø	32ø	15ø	15ø
L-2	32ø	32ø	15ø	15ø
SH-1	-	-	20ø	20ø
SK-1	40ø	40ø	15ø	15ø
U-1	50ø	50ø	20ø	-
WC-1	100ø	40ø	25ø	-
WC-2	100ø	40ø	25ø	-



2 M2.20 SECTION THROUGH STAIR
SCALE: 1 : 50



1 M2.20 PLUMBING UPGRADE - BASEMENT FLOOR PLAN
SCALE: 1 : 100

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seal(s)

2017-03-24

rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

Do not scale drawings.
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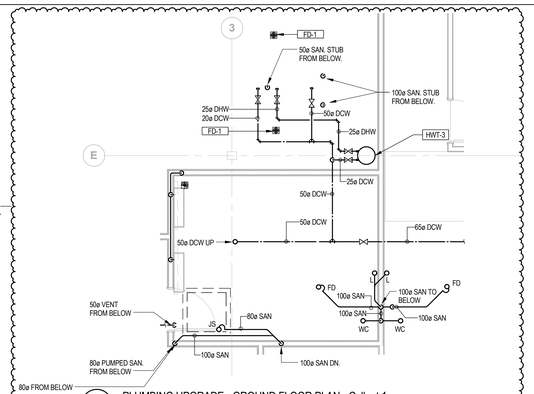
DIALOG

project title / titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

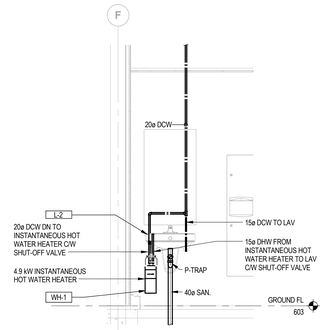
drawing title / titre du dessin
PLUMBING UPGRADE - BASEMENT FLOOR PLAN

drawn by / dessine par: J.B.
designed by / conc par: R.D. / Z.H.
approved by / approuve par: R.D.
tender / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: M2.20

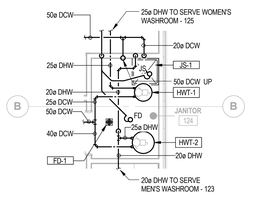
GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:



4 M2.21 PLUMBING UPGRADE - GROUND FLOOR PLAN - Callout 1
SCALE: 1 : 50



3 M2.21 INSTANTANEOUS WATER HEATER
SCALE: 1 : 25



2 M2.21 JANITOR - 124
SCALE: 1 : 50

GENERAL NOTES

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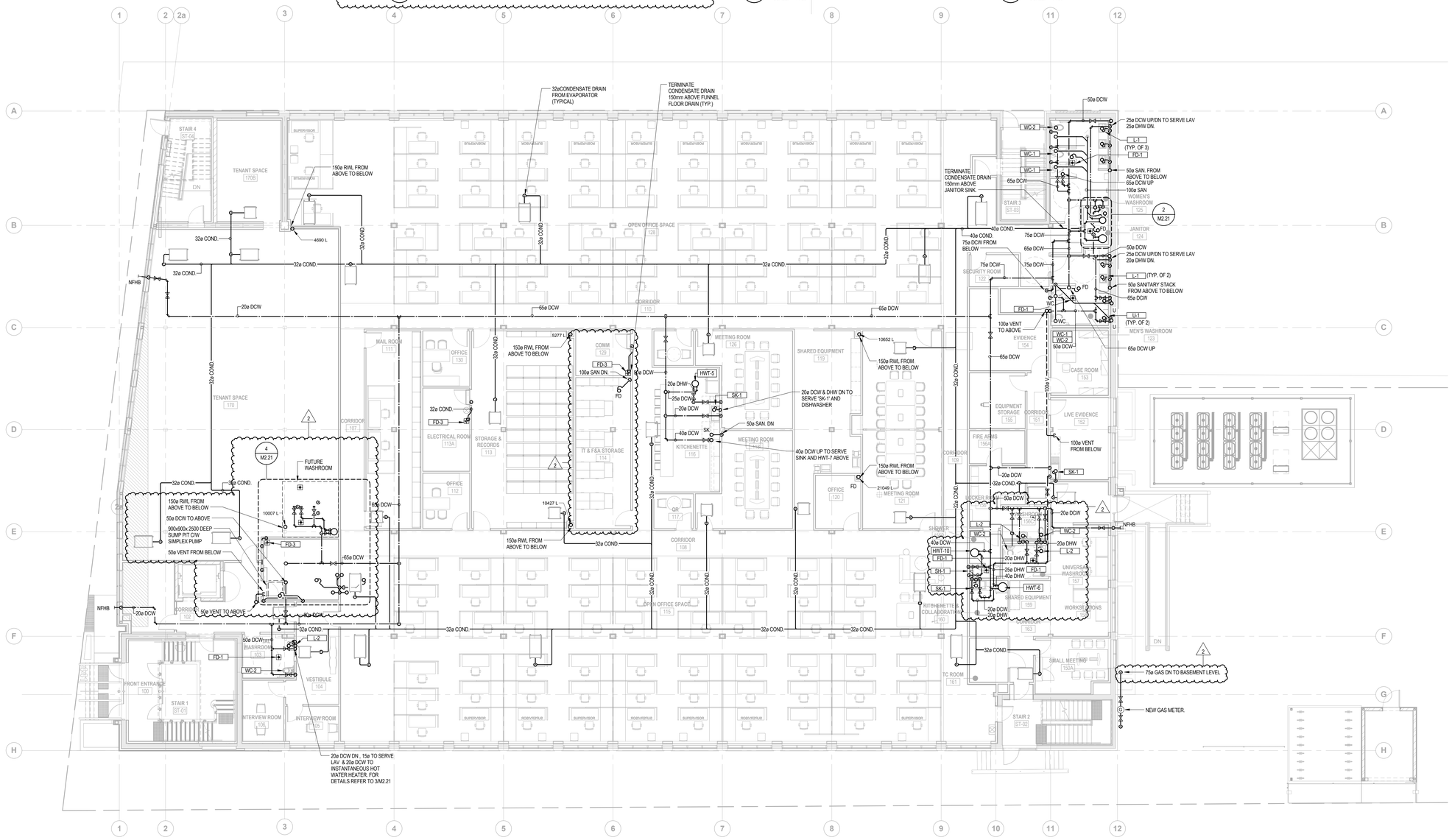
2. PROVIDE NEW EQUIPMENT INCLUDING PIPING, VALVES, FITTINGS, FIXTURES, DOMESTIC WATER TANK, HUMIDIFICATION SYSTEM AND ACCESSORIES AS INDICATED.
3. ALL PLUMBING FIXTURES SHALL BE VENTED & ALL TRAPS SHALL BE PRIMED IN ACCORDANCE WITH NATIONAL BUILDING CODE.
4. ALL PIPING SHALL BE INSULATED AS SPECIFIED IN THE SPECIFICATION .
5. SEAL ALL SLAB AND WALL PENETRATIONS THAT REMAIN AS A RESULT OF THE DEMOLITION PHASE OF WORK. PROVIDE SUITABLE FIRE STOP AND SMOKE SEAL MATERIALS AS REQUIRED. COORDINATE ALL REQUIREMENTS WITH THE GENERAL TRADE ON SITE.
6. REMOVE ALL DEBRIS AND RUBBISH ONCE JOB IS COMPLETE.

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	CAST IRON / DWV / COPPER	VENT	COLD WATER	HOT WATER
HB-1	-	-	32ø	-
JS-1	75ø	75ø	15ø	15ø
L-1	32ø	32ø	15ø	15ø
L-2	32ø	32ø	15ø	15ø
SH-1	-	-	20ø	20ø
SK-1	40ø	40ø	15ø	15ø
U-1	50ø	50ø	20ø	-
WC-1	100ø	40ø	25ø	-
WC-2	100ø	40ø	25ø	-



1 M2.21 PLUMBING UPGRADE - GROUND FLOOR PLAN
SCALE: 1 : 100

Public Works and Government Services Canada
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2017-03-24

rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

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DIALOG

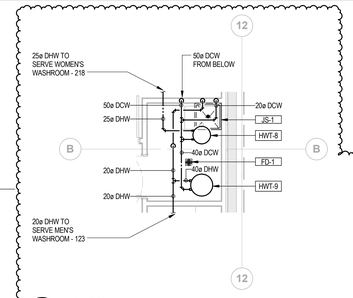
project title / titre du projet
441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
PLUMBING UPGRADE - GROUND FLOOR PLAN

drawn by / dessine par: J.B.
designed by / conc par: R.D. / Z.H.
approved by / approuve par: R.D.
tender / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: M2.21

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:



2 M2.22 JANITOR - 217

SCALE: 1 : 50

GENERAL NOTES

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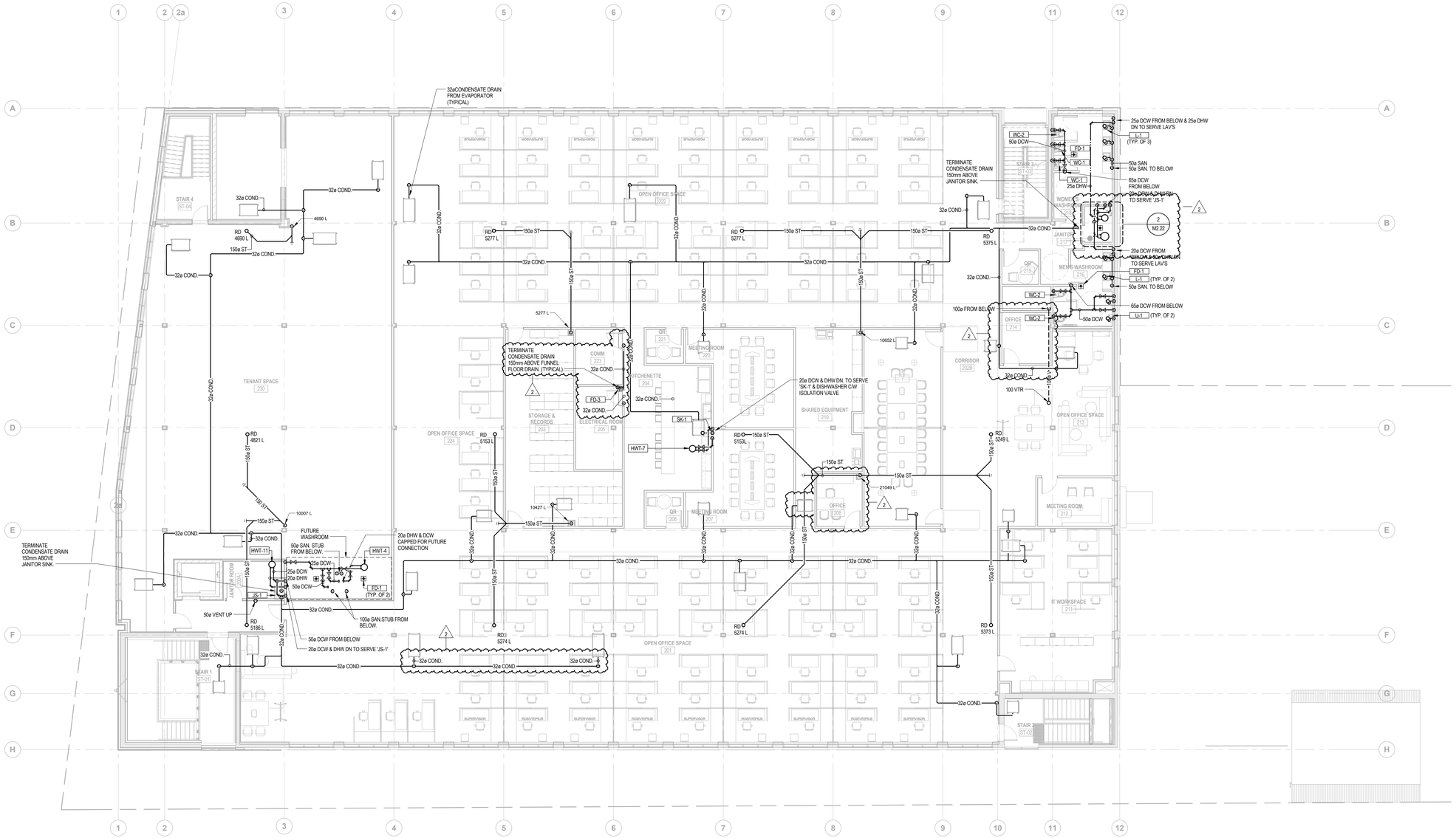
6. REMOVE ALL DEBRIS AND RUBBISH ONCE JOB IS COMPLETE.

PLUMBING FIXTURE CONNECTION SCHEDULE

TAG	CAST IRON / DWV COPPER	VENT	COLD WATER	HOT WATER
HB-1	-	-	32ø	-
JS-1	75ø	75ø	15ø	15ø
L-1	32ø	32ø	15ø	15ø
L-2	32ø	32ø	15ø	15ø
SH-1	-	-	20ø	20ø
SK-1	40ø	40ø	15ø	15ø
U-1	50ø	50ø	20ø	-
WC-1	100ø	40ø	25ø	-
WC-2	100ø	40ø	25ø	-



1 M2.22 PLUMBING UPGRADE - SECOND FLOOR PLAN

SCALE: 1 : 100

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PLUMBING UPGRADE - SECOND FLOOR PLAN

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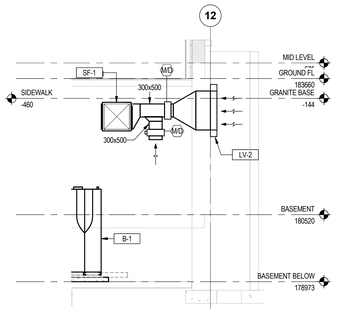
tender / soumission: M.B. — project manager / administrateur de projets

project date / date du projet: 2017-02-24

project no. / no. du projet: R.076516.013

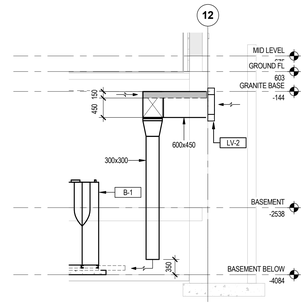
drawing no. / dessine no.: M2.22

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:



2 M2.30 SUPPLY FAN SECTION

SCALE: 1 : 50



3 M2.30 COMBUSTION AIR INTAKE SECTION

SCALE: 1 : 50

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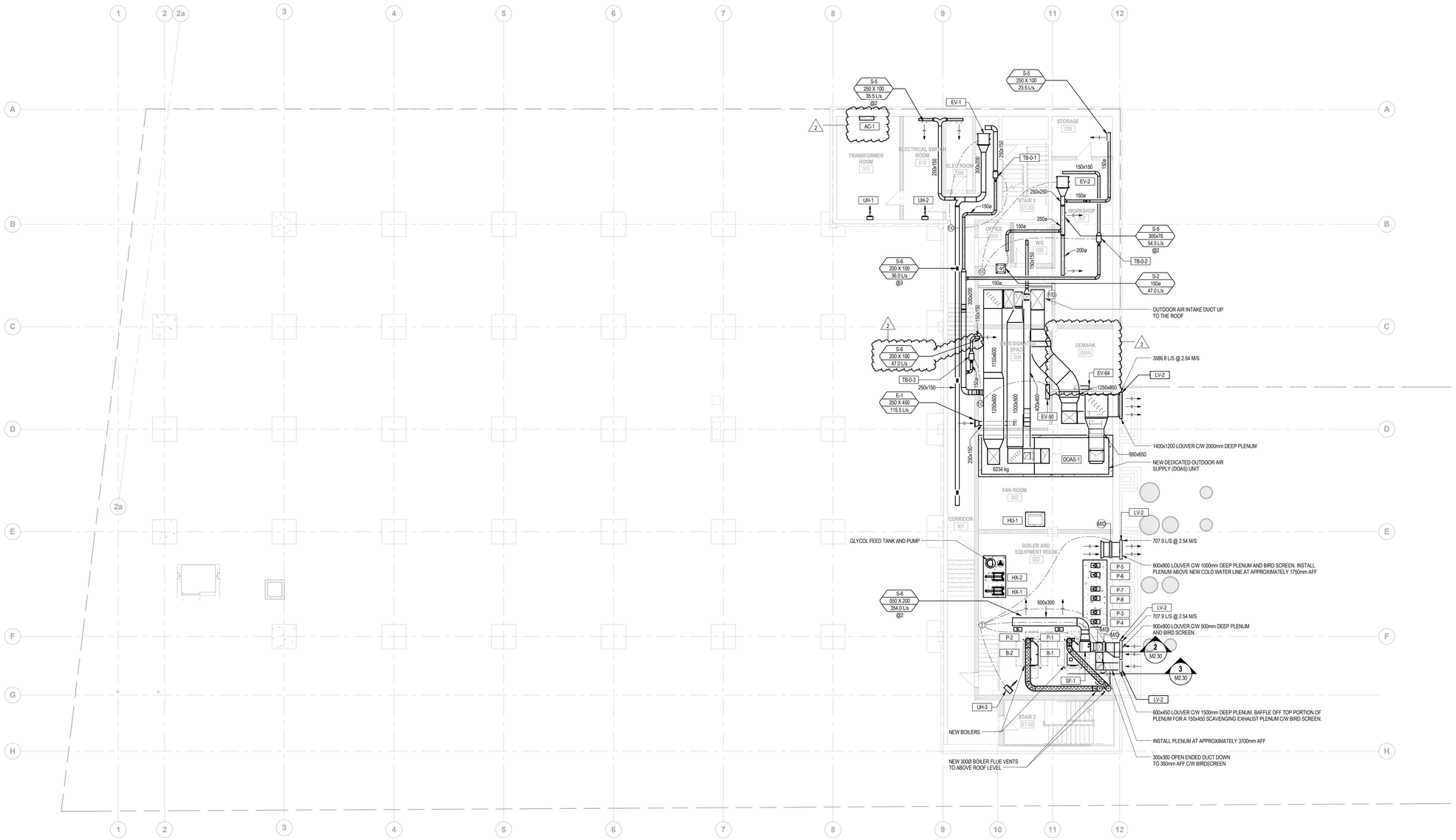
8. ALL BRANCHES SHALL BE COMPLETED WITH BALANCING DAMPERS.
9. ALL EVAPORATORS SUPPLY AIR DUCTWORK SHALL BE INTERNALLY LINED 3000mm DOWN STREAM OF UNIT. CLEAR DIMENSIONS SHOWN ON DUCT SIZES.
10. DIAMETER AND WIDTH OF DUCTWORK SERVING VAV BOXES SHALL NOT BE LESS THAN THE BOX NECKSIZE OR 150mm, WHICHEVER IS MORE STRINGENT.
11. ALL CONCRETE HOUSEKEEPING PADS BY GENERAL CONTRACTOR. SIZE AND LOCATION DETERMINED BY THE MECHANICAL CONTRACTOR.



1 M2.30 HVAC UPGRADE - BASEMENT FLOOR PLAN

SCALE: 1 : 100

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441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin

HVAC UPGRADE - BASEMENT FLOOR PLAN

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designed by / conc par: R.D. / Z.H.

approved by / approuve par: R.D.

tender / soumission: M.B. — project manager / administrateur de projets

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drawing no. / dessine no.: **M2.30**

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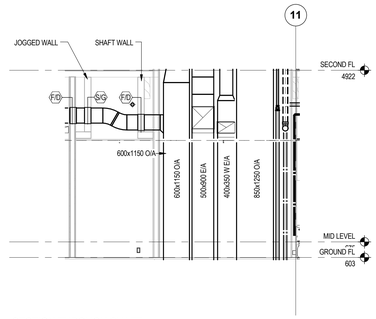
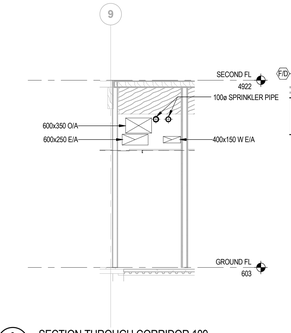
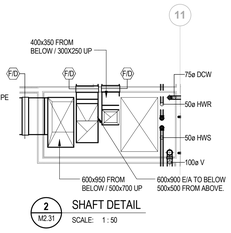


4 M2.31 SECTION THROUGH SHAFT
SCALE: 1 : 50



3 M2.31 SECTION THROUGH CORRIDOR 109
SCALE: 1 : 50



2 M2.31 SHAFT DETAIL
SCALE: 1 : 50

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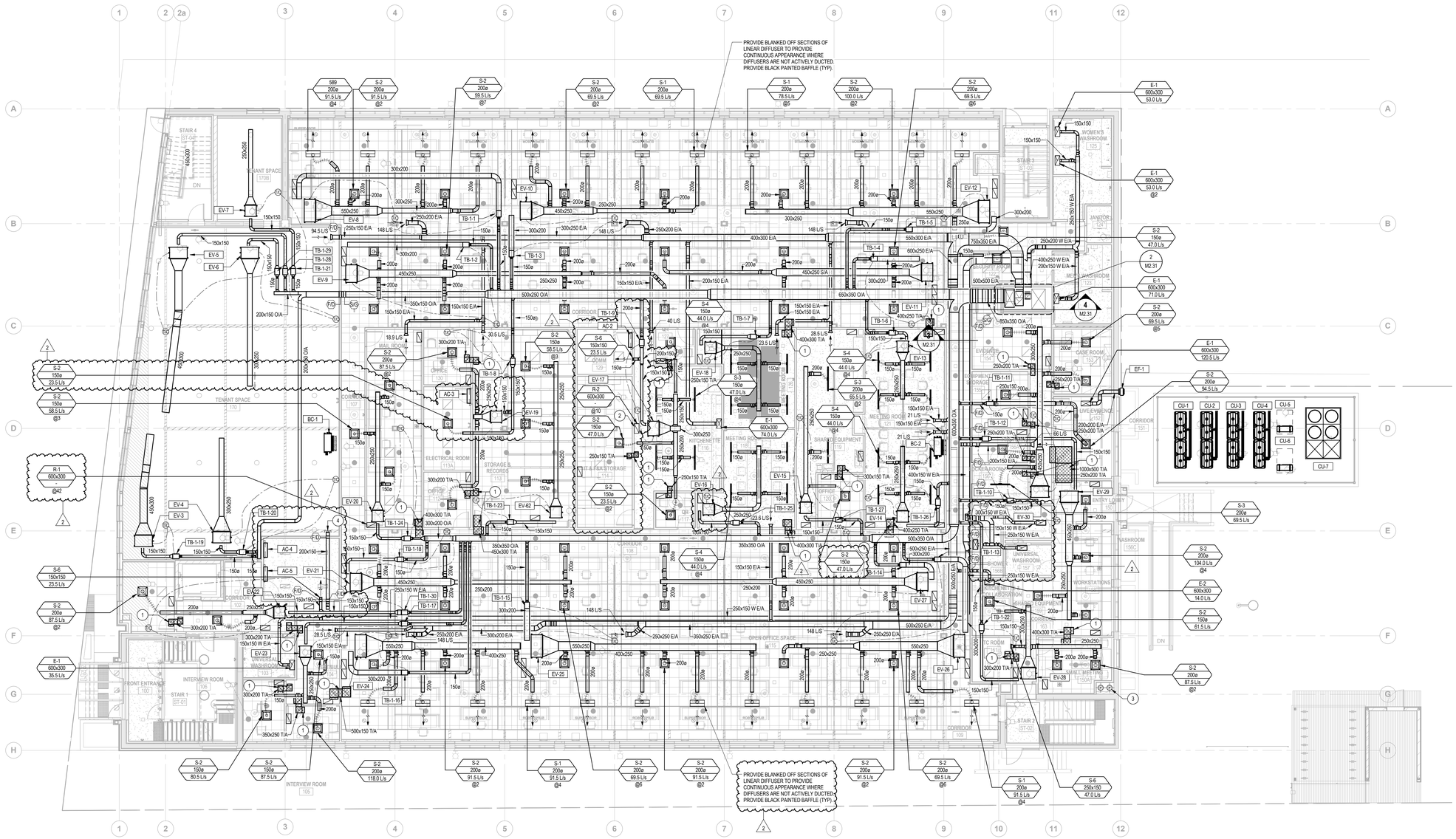
10. DIAMETER AND WIDTH OF DUCTWORK SERVING VAV BOXES SHALL NOT BE LESS THAN THE BOX NECKSIZE OR 150mm, WHICHEVER IS MORE STRINGENT.

KEYNOTES

1. TRANSFER AIR DUCT C/W ACOUSTIC LINING (TYPICAL).
2. ALL RETURN GRILL IN A DRY WALL FINISH CEILING SHALL BE TYPE 'R-2'
3. 300ø EXHAUST FLUE FROM BELOW TO ABOVE.
4. 200x150 WASHROOM EXHAUST CAPPED FOR FUTURE CONNECTION.



1 M2.31 HVAC UPGRADE - GROUND FLOOR PLAN
SCALE: 1 : 100

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441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin
HVAC UPGRADE - GROUND FLOOR PLAN

drawn by / dessine par: J.B.
designed by / conc par: R.D. / Z.H.
approved by / approuve par: R.D.
tender / soumission: M.B.
project manager / administrateur de projets:
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: M2.31

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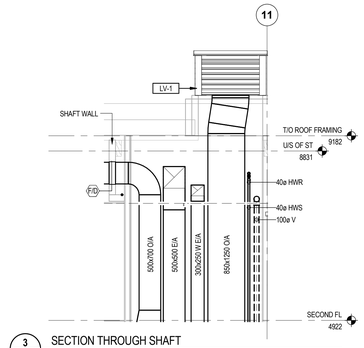
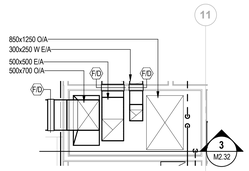


3 M2.32 SECTION THROUGH SHAFT

SCALE: 1 : 50



2 M2.32 SHAFT DETAIL

SCALE: 1 : 50

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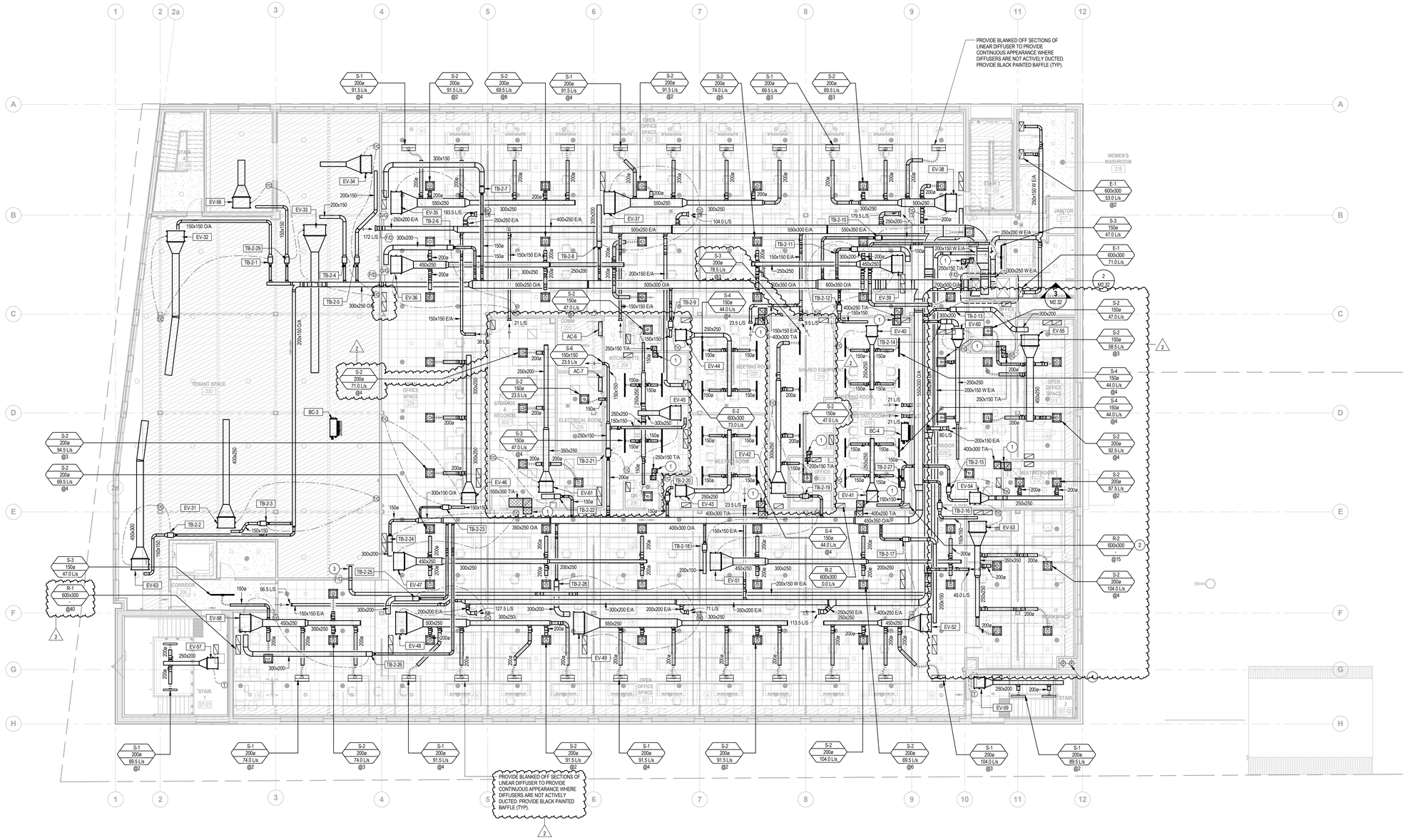

1 M2.32 HVAC UPGRADE - SECOND FLOOR PLAN

SCALE: 1 : 100

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441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin

HVAC UPGRADE - SECOND FLOOR PLAN

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designed by / conc par: R.D. / Z.H.

approved by / approuve par: R.D.

tender / soumission: M.B. — project manager / administrateur de projets

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drawing no. / dessine no.: **M2.32**

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

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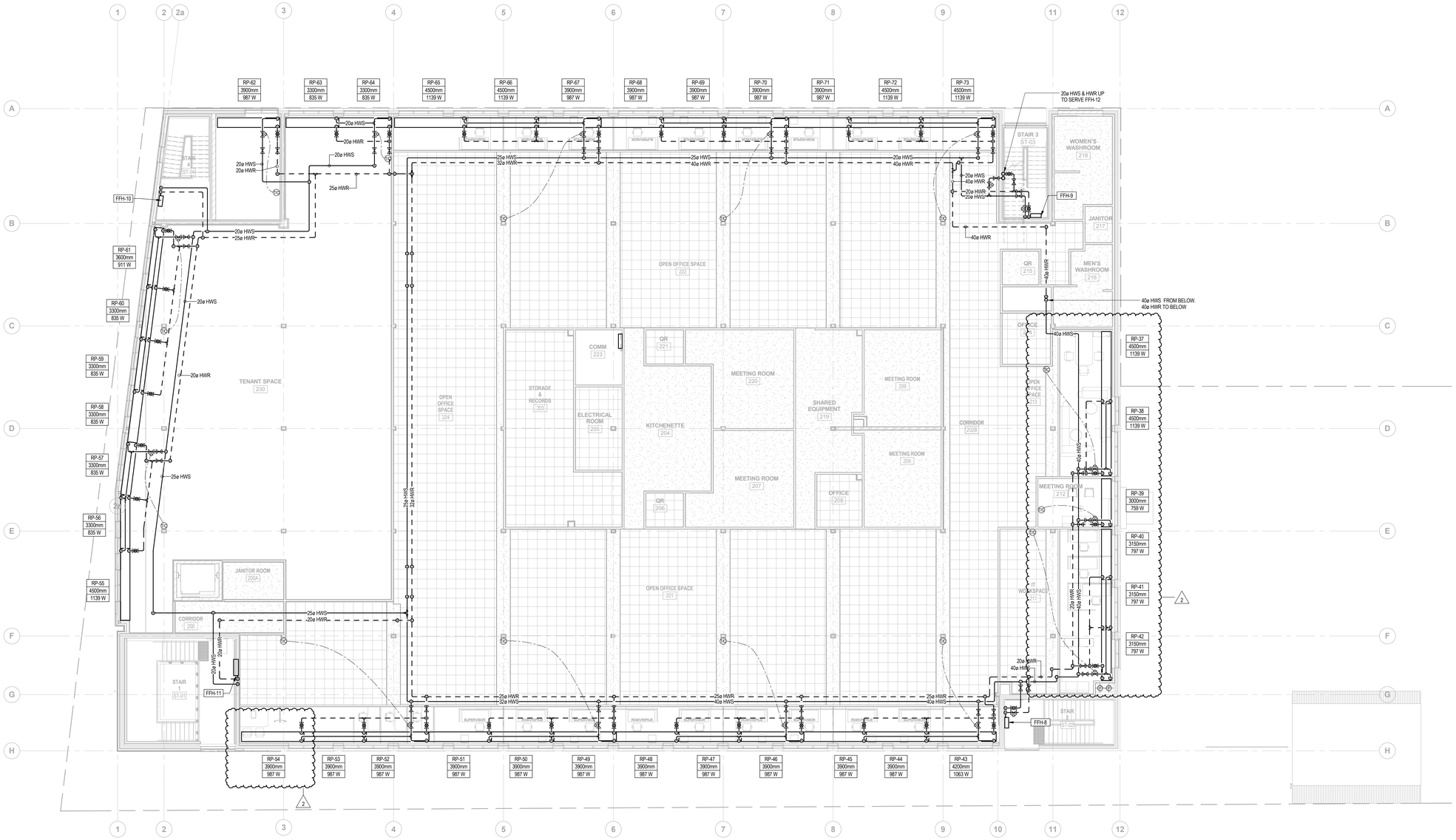
3. ALL EQUIPMENT PIPE CONNECTIONS TO BE 20MM UNLESS OTHERWISE INDICATED.
4. REFER TO MECHANICAL DETAILS FOR UNIT CONNECTION DETAILS AND ARRANGEMENT.
5. COORDINATE WORK WITH ALL TRADES.
6. REMOVE ALL DEBRIS DAILY AND ONCE WORK IS COMPLETE.
7. TEMPERATURE AND CO2 SENSORS HAVE BEEN SHOWN ON THIS DRAWING FOR COODRINATION WITH CONTROL VALVE. REFER TO DUCTWORK DRAWINGS FOR ADDITIONAL REQUIREMENTS AND INTERCONNECTION WITH EVAPORATOR UNITS AND DEMAND CONTROL VAV BOXES.
8. CONTRACTOR TO PROVIDE PERIMETER ANGLE AND TRACK FOR LINEAR RADIANT PANELS.



1 / M2.35 HVAC PIPING - SECOND FLOOR PLAN

SCALE: 1 : 100

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drawing title / titre du dessin
HVAC PIPING - SECOND FLOOR PLAN

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approved by / approuve par: R.D.
tender / soumission: M.B.
project manager / administrateur de projets
project date / date du projet: 2017-02-24
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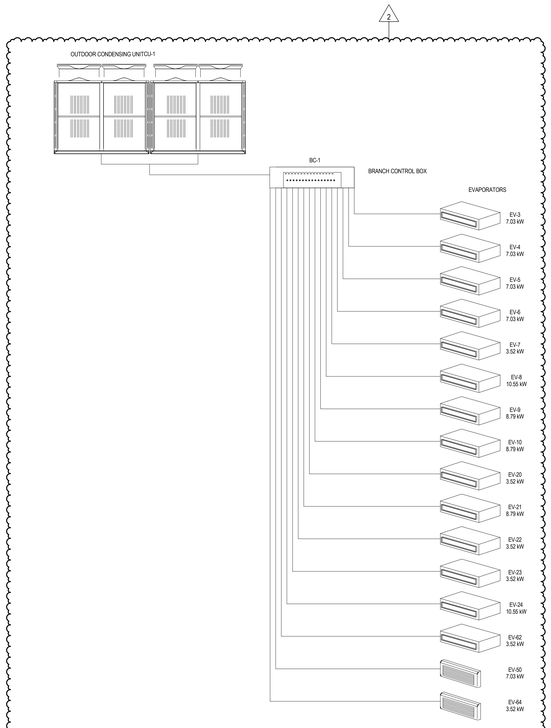
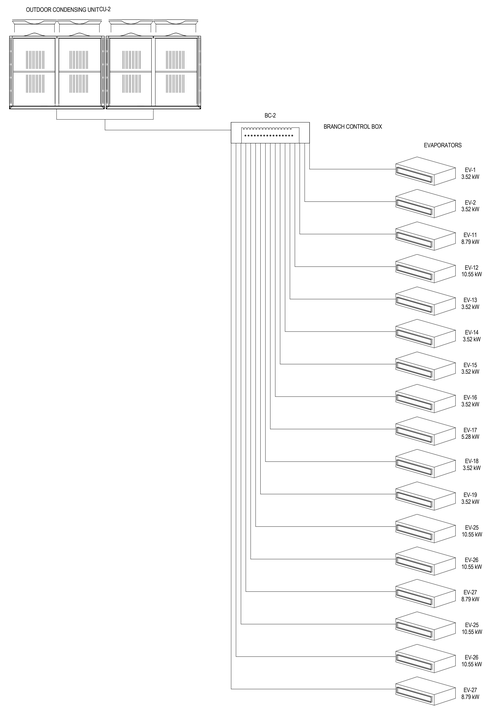
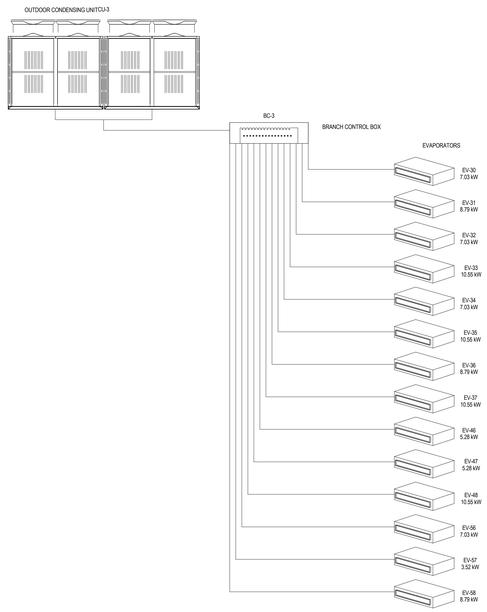


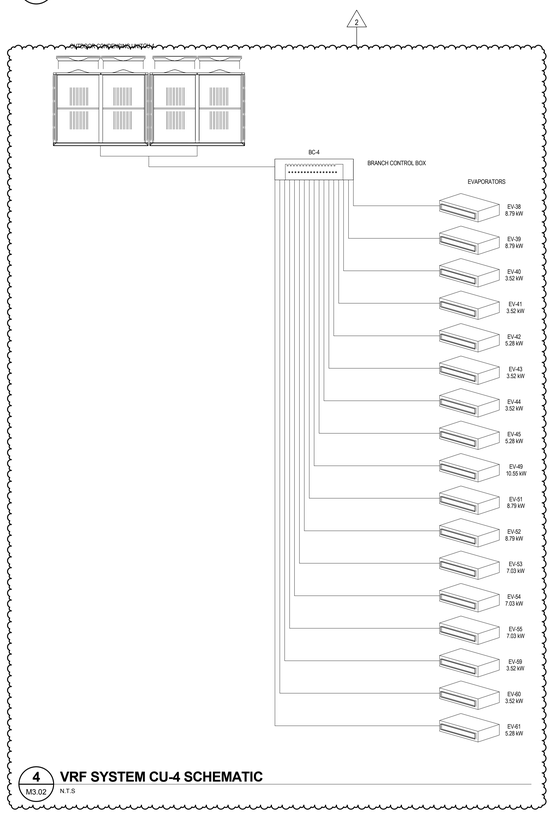
1 M3.02 **VRF SYSTEM CU-1 SCHEMATIC**
N.T.S



2 M3.02 **VRF SYSTEM CU-2 SCHEMATIC**
N.T.S



3 M3.02 **VRF SYSTEM CU-3 SCHEMATIC**
N.T.S



4 M3.02 **VRF SYSTEM CU-4 SCHEMATIC**
N.T.S

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VRF SYSTEMS SCHEMATICS

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designed by / conc par: R.D. / Z.H.

approved by / approuve par: R.D.

tender / soumission: M.B.

project manager / administrateur de projets

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project no. / no. du projet: **R.076516.013**

drawing no. / dessine no.: **M3.02**

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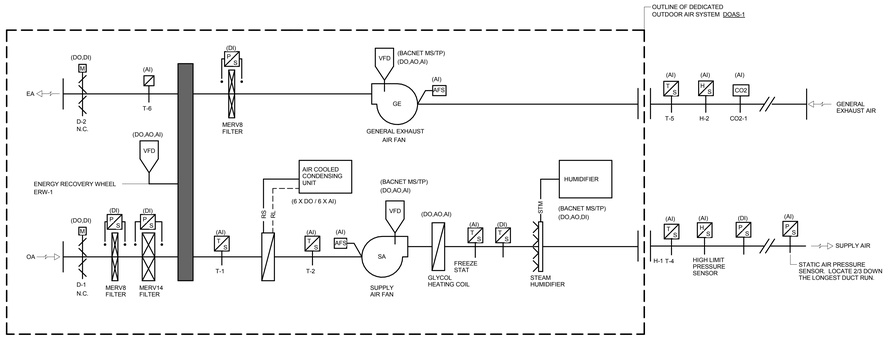


SEQUENCE OF OPERATION:

1. DEDICATED OUTDOOR AIR HANDLING SYSTEM IS ENABLED THROUGH THE BAS BASED ON AN OPERATOR DEFINED OCCUPANCY SCHEDULE. THE SUPPLY AIR AND GENERAL EXHAUST AIR HANDLING SYSTEMS SHALL BE ENABLED AND DISABLED IN A SIMILAR FASHION. ONCE ENABLED EACH SYSTEM SHALL OPERATE CONTINUOUSLY IN ACCORDANCE WITH THE FOLLOWING SEQUENCE OF OPERATION.
2. ENERGY RECOVERY WHEEL, COOLING SYSTEM AND HEATING SYSTEM SHALL OPERATE IN SEQUENCE TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT (T-4) OF 18.3°C (ADJUSTABLE).

FAN AND DAMPER CONTROL:

1. THE SUPPLY AIR AND GENERAL EXHAUST AIR FANS SHALL BE CONTROLLED INDIVIDUALLY.
2. WHENEVER THE SYSTEM IS ENABLED, OUTDOOR AIR DAMPER (D-1) AND EXHAUST AIR DAMPER (D-2) SHALL OPEN. ONCE THE OUTDOOR AIR DAMPER IS CONFIRMED OPEN, THE SUPPLY AIR FAN SHALL BE ENABLED AND OPERATE CONTINUOUSLY. ONCE THE EXHAUST AIR DAMPER IS CONFIRMED OPEN, THE GENERAL EXHAUST AIR FAN SHALL BE ENABLED AND OPERATE CONTINUOUSLY.
3. SUPPLY AIR FAN SHALL MODULATE TO MAINTAIN SUPPLY AIR DUCT PRESSURE SETPOINT, AS SENSED BY STATIC AIR PRESSURE SENSOR LOCATED 2/3 DOWN THE LONGEST DUCT RUN. AS PRESSURE DECREASES SUPPLY AIR FAN SPEED SHALL INCREASE. AS PRESSURE INCREASES SUPPLY AIR FAN SPEED SHALL DECREASE.
4. GENERAL EXHAUST AIR FAN SHALL TRACK SUPPLY AIR FAN TO MAINTAIN POSITIVE BUILDING PRESSURIZATION THOROUGH THE PRESCRIBED VOLUMETRIC AIRFLOW OFFSET.
5. WHENEVER THE SYSTEM IS DISABLED, THE SUPPLY AIR AND GENERAL EXHAUST AIR FANS SHALL STOP, OUTDOOR AIR AND EXHAUST AIR DAMPERS SHALL CLOSE.
6. STATUS OF EACH FAN SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF FAN STATUS DOES NOT MATCH COMMAND.
7. STATUS OF EACH DAMPER SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF DAMPER STATUS DOES NOT MATCH COMMAND.

ENERGY RECOVERY WHEEL CONTROL:

1. WHENEVER THE SYSTEM IS ENABLED, ENERGY RECOVERY WHEEL ERW-1 SHALL BE ENABLED AND MODULATE TO MAINTAIN THE FOLLOWING BASED ON OUTDOOR AIR TEMPERATURE, AS SENSED BY THE OUTDOOR AIR TEMPERATURE MONITORING STATION.

OUTDOOR AIR TEMPERATURE:	ROTATIONAL SPEED:
GREATER THAN T-5	MAXIMUM RPM
LESS THAN T-5	VARIES TO SUIT T-1 SETPONT OF 12.8°C (ADJUSTABLE)

2. FROST PROTECTION SHALL BE PROVIDED BY MODULATING THE SPEED OF THE ENERGY RECOVERY WHEEL AS REQUIRED TO MAINTAIN EXHAUST AIR TEMPERATURE T-6 ABOVE A SETPOINT OF 1°C (ADJUSTABLE).
3. ENERGY RECOVERY WHEEL ROTATION STATUS SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF STATUS DOES NOT MATCH COMMAND.

DX COOLING CONTROL:

1. COOLING SYSTEM CAPACITY SHALL MODULATE BY ENABLING/DISABLING STAGES OF COOLING AS REQUIRED TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT T-4 AND MAXIMUM SUPPLY AIR HUMIDITY OF 60% R.H. (ADJUSTABLE), AS SENSED BY SUPPLY AIR HUMIDITY SENSOR H-1.
2. STATUS OF EACH CONDENSING UNIT COMPRESSOR SHALL BE MONITORED BY THE BAS (TYPICAL FOR 6)

HEATING CONTROL:

1. HEATING SHALL BE ENABLED THROUGH THE BAS, ONCE SYSTEM IS ENABLED, GLYCOL HEATING PUMPS SHALL BE ENABLED AND SUPPLY AIR TEMPERATURE SHALL BE MAINTAINED BY MODULATING TWO WAY CONTROL VALVE.

HUMIDIFIER CONTROL:

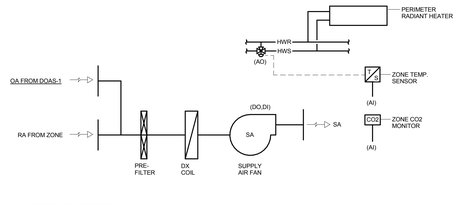
1. STEAM HUMIDIFIER SHALL BE ENABLED/DISABLED WHENEVER OUTDOOR AIR TEMPERATURE IS SENSED TO BE BELOW 10°C (ADJUSTABLE).
2. ONCE ENABLED, PACKAGE STEAM HUMIDIFIER SHALL MODULATE TO MAINTAIN GENERAL EXHAUST AIR HUMIDITY (H-2) SETPOINT OF 30% R.H. (ADJUSTABLE). CAPACITY CONTROL SHALL BE THROUGH THE BAS; HOWEVER, PACKAGE STEAM HUMIDIFIER SHALL OPERATE UNDER ITS OWN SYSTEM OF CONTROLS AND SAFETIES TO SATISFY DEMAND.
3. PACKAGE STEAM HUMIDIFIER STATUS SHALL BE MONITORED BY THE BAS
4. PACKAGE STEAM HUMIDIFIER SHALL BE INTERLOCKED WITH SUPPLY AIR FAN OPERATION. WHENEVER THE SUPPLY AIR FAN IS ENABLED, THE HUMIDIFICATION SYSTEM SHALL BE ALLOWED TO OPERATE. WHENEVER THE SUPPLY AIR FAN IS DISABLED THE HUMIDIFICATION SYSTEM SHALL NOT BE ALLOWED TO OPERATE.

NOTES:

1. FREEZE STAT: UPON ACTIVATION OF THE FREEZE STAT, SUPPLY AIR FAN AND GENERAL EXHAUST AIR FAN SHALL BE DE-ENERGIZED VIA A HARDWIRE INTERLOCK, OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL CLOSE AND AN ALARM SHALL BE GENERATED BY THE BAS.
2. HIGH PRESSURE SAFETY: UPON ACTIVATION OF A HIGH PRESSURE SAFETY SWITCH THE SUPPLY AIR HANDLING SYSTEM AND GENERAL EXHAUST AIR HANDLING SYSTEM SHALL BE DISABLED. SUPPLY AIR FAN(S) AND GENERAL EXHAUST AIR FAN(S) SHALL BE DE-ENRGIZED VIA A HARDWIRE INTERLOCK. OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL CLOSE AND A ALARM SHALL BE GENERATED BY THE BAS.
3. HIGH LIMIT HUMIDITY: HUMIDITY SENSOR H-2 SHALL MONITOR SUPPLY AIR HUMIDITY AND SHALL OVERRIDE ALL HUMIDIFICATION CONTROLS TO MAINTAIN A MAXIMUM SUPPLY AIR HUMIDITY SETPOINT OF 80% R.H. (ADJUSTABLE).
4. SMOKE DETECTOR: UPON INDICATION OF SMOKE BY A SMOKE DETECTOR THE SUPPLY AIR HANDLING SYSTEM AND GENERAL EXHAUST AIR HANDLING SYSTEM SHALL BE DISABLED AND AN ALARM SHALL BE GENERATED BY THE BAS.
5. FILTER MONITORING: DIFFERENTIAL PRESSURE SHALL BE MONITORED ACROSS EACH FILTER. A FILTER MAINTENANCE ALARM SHALL BE GENERATED BY THE BAS WHENEVER REPORTED PRESSURE DROP EXCEEDS SETPOINT.
6. CARBON DIOXIDE SENSOR CO2-1 SHALL MONITOR AVERAGE BUILDING CO2 CONCENTRATION AND REPORT VALUE TO THE BAS.
7. MONITOR TOTAL SUPPLY AIRFLOW AND GENERAL EXHAUST AIRFLOW THROUGH INTEGRAL AIRFLOW MONITORING STATIONS AND REPORT VALUE TO BAS (2 X AI).
8. MONITOR TOTAL SANITARY EXHAUST AIRFLOW THROUGH AIRFLOW MONITORING STATION AND REPORT VALUE TO BAS (1 X AI)

1 M3.04 DEDICATED OUTDOOR AIR SYSTEM DOAS-1 CONTROL SCHEMATIC

N.T.S.



SEQUENCE OF OPERATION:

1. SYSTEM SHALL BE ENABLED AND CONTROLLED BY THE BAS BASED ON ZONE OCCUPANCY AS FOLLOWS.
2. UPON CONFIRMATION OF OCCUPANCY BY ZONE OCCUPANCY SENSOR, THE ASSOCIATED ZONE FAN COIL UNIT AND PERIMETER RADIANT HEATING DEVICE SHALL ENTER 'OCCUPIED MODE'.
3. UPON CONFIRMATION OF NO OCCUPANCY BY ZONE OCCUPANCY SENSOR, THE ASSOCIATED ZONE FAN COIL UNIT AND PERIMETER RADIANT HEATING DEVICE SHALL ENTER 'UNOCCUPIED MODE' AFTER A TIME DELAY OF 15 MIN. (ADJUSTABLE)

OCCUPIED MODE:

1. FAN COIL UNIT SUPPLY AIR FAN SHALL BE ENABLED AND OPERATE CONTINUOUSLY.
2. ON A CALL FOR COOLING, CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 23°C (ADJUSTABLE). PERIMETER RADIATOR VALVE SHALL BE FULLY CLOSED DURING COOLING OPERATION.
3. ON A CALL FOR HEATING, PERIMETER RADIATOR CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 22°C (ADJUSTABLE). COOLING COIL VALVE SHALL BE FULLY CLOSED DURING HEATING OPERATION.

UNOCCUPIED MODE:

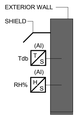
1. FAN COIL UNIT SUPPLY AIR FAN SHALL BE DISABLED.
2. ON A CALL FOR COOLING, FAN COIL UNIT SUPPLY AIR FAN SHALL BE ENABLED AND CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 26°C (ADJUSTABLE). PERIMETER RADIATOR VALVE SHALL BE FULLY CLOSED DURING COOLING OPERATION.
3. ON A CALL FOR HEATING, PERIMETER RADIATOR CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 20°C (ADJUSTABLE). COOLING COIL VALVE SHALL BE FULLY CLOSED DURING HEATING OPERATION.

NOTES:

1. ZONE CARBON DIOXIDE MONITOR SHALL REPORT CO2 CONCENTRATION TO THE BAS.
2. REFER TO PLANS FOR QUANTITY AND LOCATION OF FAN COIL UNITS, ZONE TEMPERATURE SENSORS AND CO2 MONITORS REQUIRED.

2 M3.04 TYPICAL FAN COIL UNIT AND PERIMETER RADIANT HEATER CONTROL SCHEMATIC

N.T.S.



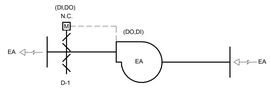
NOTES:

1. PROVIDE ONE (1) STRATEGICALLY LOCATED OUTDOOR AIR TEMPERATURE AND HUMIDITY MONITORING STATION.
2. REQUIRED OUTDOOR AIR ENTHALPY SHALL BE CALCULATED USING MEASURED TEMPERATURE AND HUMIDITY RATIO AS FOLLOWS:

   ENTHALPY = 0.24t + W(1061+0.444t) [BTU/LB]
   WHERE: t = TEMPERATURE [°F]
   W = HUMIDITY RATIO [LB WATER/LB AIR]
3. INFORMATION PROVIDED BY THE OUTDOOR AIR AND HUMIDITY MONITORING STATION SHALL BE GLOBAL AND SHARED

3 M3.04 OUTDOOR AIR TEMPERATURE HUMIDITIY MONITORING STATION CONTROL SCHEMATIC

N.T.S.

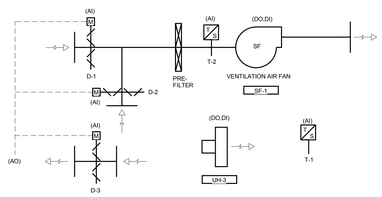


SEQUENCE OF OPERATION:

1. EXHAUST AIR FAN SHALL BE ENABLED THROUGH THE BAS BASED ON AN OPERATOR DEFINED OCCUPANCY SCHEDULE. ONCE ENABLED THE EXHAUST AIR FAN SHALL OPERATE CONTINUOUSLY IN ACCORDANCE WITH THE FOLLOWING SEQUENCE OF OPERATION.
2. ON SIGNAL TO ENABLE EXHAUST AIR FAN, MOTORIZED EXHAUST AIR DAMPER D-1 SHALL OPEN AND ONCE CONFIRMED OPEN EXHAUST AIR FAN SHALL BE ENABLED AND OPERATE CONTINUOUSLY. DAMPER STATUS SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF DAMPER STATUS DOES NOT MATCH COMMAND.
3. FAN STATUS SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF FAN STATUS DOES NOT MATCH COMMAND.

5 M3.04 TYPICAL EXHAUST AIR AND CONTROL SCHEMATIC

N.T.S.

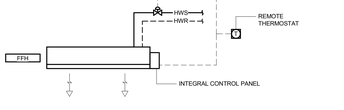


SEQUENCE OF OPERATION:

1. ELECTRICAL ROOM VENTILATION AND TEMPERATURE CONTROL SYSTEM COMPONENTS SHALL BE ENABLED THROUGH THE BAS. ONCE ENABLED, THE SYSTEM SHALL OPERATE CONTINUOUSLY IN ACCORDANCE WITH THE FOLLOWING SEQUENCE OF OPERATION.
2. ON SIGNAL TO ENABLE SUPPLY AIR FAN, RECIRCULATION AIR DAMPER D-2 SHALL MODULATE OPEN TO MAXIMUM POSITION. OUTDOOR AIR DAMPER D-1 AND EXHAUST AIR DAMPER D-3 SHALL BE POSITIONED TO PROVIDE 5% OUTDOOR AIR. ONCE DAMPERS ARE CONFIRMED OPEN SUPPLY AIR FAN SHALL BE ENABLED AND OPERATE CONTINUOUSLY.
3. ON A CALL FOR COOLING, OUTDOOR AIR DAMPER D-1, RECIRCULATION AIR DAMPER D-2 AND EXHAUST AIR DAMPER D-3 SHALL MODULATE IN UNISON TO ALLOW MORE OUTDOOR AIR INTO THE SPACE AS REQUIRED MAINTAIN SPACE AIR TEMPERATURE SETPOINT OF 26°C (ADJUSTABLE). MIXED AIR TEMPERATURE SENSOR T-2 SHALL OVERRIDE SPACE TEMPERATURE SENSOR T-1 TO ENSURE MIXED AIR TEMPERATURE DOES NOT DROP BELOW 12.8°C.
4. ON A CALL FOR HEATING, OUTDOOR AIR DAMPER D-1, RECIRCULATION AIR DAMPER D-2 AND EXHAUST AIR DAMPER D-3 SHALL MODULATE IN UNISON TO ALLOW LESS OUTDOOR AIR INTO THE SPACE AS REQUIRED TO MAINTAIN SPACE AIR TEMPERATURE SETPOINT OF 18°C (ADJUSTABLE). WITH OUTDOOR AIR DAMPER IN MINIMUM POSITION AND ON A FURTHER CALL FOR HEATING, UNIT HEATER UH-1 SHALL BE ENABLED TO MAINTAIN SPACE TEMPERATURE SETPOINT.
5. FAN STATUS AND UNIT HEATER STATUS SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF STATUS DOES NOT MATCH COMMAND.
6. OUTDOOR AIR DAMPER (D-1), RECIRCULATION AIR DAMPER (D-2) AND EXHAUST AIR DAMPER (D-3) STATUS/POSITION SHALL BE MONITORED BY THE BAS.

4 M3.04 MECHANICAL ROOM VENTILATION & TEMPERATURE CONTROL SCHEMATIC

N.T.S.



SEQUENCE OF OPERATION:

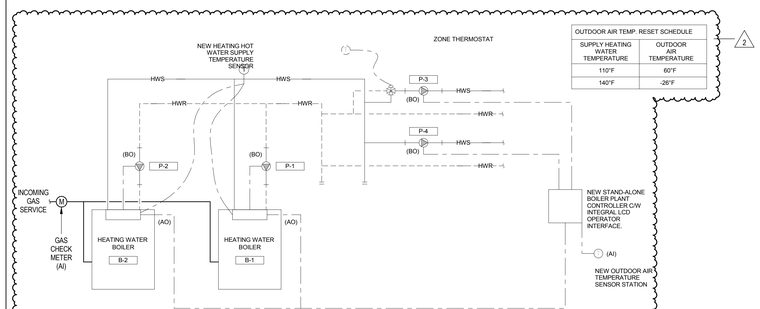
1. ON A CALL FOR HEATING, AIR CURTAIN SHALL BE ENABLED AND CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN VESTIBULE TEMPERATURE SETPOINT OF 18°C (ADJUSTABLE).

NOTES:

1. CABINET UNIT HEATER SHALL OPERATE AS A STAND-ALONE SYSTEM UNDER ITS OWN SYSTEM OF CONTROL AND SAFETIES TO CARRY OUT THE ABOVE SEQUENCE OF OPERATION.

9 M3.04 TYPICAL CABINET UNIT HEATER SCHEMATIC

N.T.S.

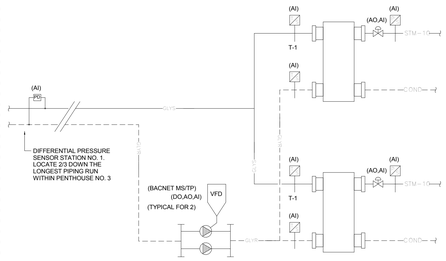


OUTDOOR AIR TEMP. RESET SCHEDULE	
SUPPLY HEATING WATER TEMPERATURE	OUTDOOR AIR TEMPERATURE
110°F	60°F
140°F	-26°F

SEQUENCE OF OPERATION:	
1.	THE SYSTEM IS ENABLED AUTOMATICALLY THROUGH THE STAND-ALONE BOILER PLANT CONTROLLER BASED ON OUTDOOR AIR TEMPERATURE.
2.	WHENEVER THE SYSTEM IS ENABLED, SECONDARY HEATING WATER PUMPS P-3 & P-4 SHALL BE ENABLED AND OPERATE CONTINUOUSLY. EXISTING ZONE THERMOSTAT SHALL MODULATE CORRESPONDING 3-WAY ZONE MIXING VALVE AS REQUIRED TO SATISFY DEMAND. ON A CALL FOR HEATING, AS SENSED BY HEATING HOT WATER SUPPLY TEMPERATURE SENSOR, THE BOILER SHALL BE ENABLED AND MODULATE FROM MINIMUM OUTPUT TO MAXIMUM OUTPUT AS REQUIRED TO MAINTAIN A SUPPLY WATER TEMPERATURE OF 140°F (ADJUSTABLE). HEATING HOT WATER SUPPLY TEMPERATURE SHALL BE RESET BY THE BOILER PLANT CONTROLLER BASED ON AN OUTDOOR AIR TEMPERATURE RESET SCHEDULE.
3.	ANYTIME THE BOILERS ARE ENABLED, THE PRIMARY BOILER CIRCULATOR PUMPS P-1 & P-2 SHALL BE ENABLED AND AS FLOW IS PROVEN, THE BOILERS SHALL PERFORM THEIR OWN START-UP SEQUENCE AND SAFETY CHECKS PRIOR TO FIRING AS NOTED ABOVE. ANYTIME THE BOILERS ARE DISABLED, THE PRIMARY CIRCULATOR PUMPS SHALL CONTINUE TO OPERATE FOR A PERIOD OF 5 MINUTES (ADJUSTABLE) PRIOR TO BEING DISABLED.

12 M3.04 HEATING HOT WATER BOILER CONTROL DIAGRAM

NTS



SEQUENCE OF OPERATION:	
1.	SYSTEM IS ENABLED THROUGH THE BAS BASED ON AN OPERATOR DEFINED OUTDOOR AIR TEMPERATURE SETPOINT AND SCHEDULE. ONCE ENABLED THE SYSTEM SHALL OPERATE IN ACCORDANCE WITH THE FOLLOWING SEQUENCE OF OPERATION. HEATING WATER SHALL BE AVAILABLE CONTINUOUSLY THROUGHOUT THE HEATING SEASON.

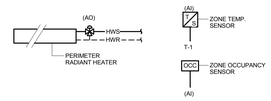
TEMPERATURE CONTROL:	
1.	TWO-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN GLYCOL SUPPLY WATER TEMPERATURE SENSOR T-1 SETPOINT OF 140°F (ADJUSTABLE).
2.	TWO-WAY CONTROL VALVE STATUS/POSITION SHALL BE MONITORED BY THE BAS.

GLYCOL WATER PUMP CONTROL:	
1.	GLYCOL WATER CIRCULATING PUMPS SHALL OPERATE IN A DUTY/STANDBY ARRANGEMENT. THE DUTY CIRCULATING PUMP SHALL MODULATE TO MAINTAIN PRESSURE DIFFERENTIAL SETPOINT, AS SENSED BY DIFFERENTIAL PRESSURE SENSOR STATION NO. 1. AS PRESSURE INCREASES PUMP SPEED SHALL DECREASE. AS PRESSURE DECREASES PUMP SPEED SHALL INCREASE. SHOULD THE DUTY PUMP NOT BE CAPABLE OF MAINTAINING PRESSURE DIFFERENTIAL SETPOINT, THE STANDBY PUMP SHALL AUTOMATICALLY BE ENERGIZED.
2.	STATUS OF EACH GLYCOL WATER CIRCULATING PUMP SHALL BE MONITORED BY THE BAS. IF THE DUTY PUMP FAILS TO OPERATE THE BAS SHALL GENERATE AN ALARM AND AUTOMATICALLY ENABLE THE STANDBY PUMP. STANDBY PUMP SHALL OPERATE UNTIL THE ALARM CONDITION IS CLEARED.
3.	DUTY/STANDBY PUMP OPERATION SHALL BE ALTERNATED AUTOMATICALLY THROUGH THE BAS TO ENSURE EQUAL RUNTIME.

NOTES:	
1.	REFER TO POINT SCHEDULES INCLUDED WITHIN THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

13 M3.04 GLYCOL HEAT EXCHANGER HX-1 & HX-2 AND CIRCULATING PUMPS P-7/P-8 CONTROL SCHEMATIC

NTS



SEQUENCE OF OPERATION:

1. SYSTEM SHALL BE ENABLED AND CONTROLLED BY THE BAS BASED ON ZONE OCCUPANCY AS FOLLOWS.
2. UPON CONFIRMATION OF OCCUPANCY BY ZONE OCCUPANCY SENSOR, THE ASSOCIATED PERIMETER RADIANT HEATING DEVICE SHALL ENTER 'OCCUPIED MODE'.
3. UPON CONFIRMATION OF NO OCCUPANCY BY ZONE OCCUPANCY SENSOR, THE ASSOCIATED PERIMETER RADIANT HEATING DEVICE SHALL ENTER 'UNOCCUPIED MODE' AFTER A TIME DELAY OF 15 MIN. (ADJUSTABLE)

OCCUPIED MODE:

1. ON A CALL FOR HEATING, PERIMETER RADIATOR CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 22°C (ADJUSTABLE).

UNOCCUPIED MODE:

1. ON A CALL FOR HEATING, PERIMETER RADIATOR CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 20°C (ADJUSTABLE).

NOTES:

1. REFER TO PLANS FOR QUANTITY AND LOCATION OF RADIANT HEATERS, VALVES, ZONE TEMPERATURE SENSORS AND OCCUPANCY SENSORS

10 M3.04 TYPICAL RADIANT HEATER CONTROL SCHEMATIC

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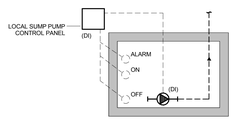


SEQUENCE OF OPERATION:

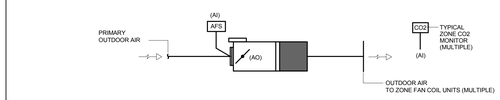
1. SUMP PUMP SHALL OPERATE AS A STAND-ALONE SYSTEM UNDER ITS OWN SYSTEM OF CONTROL AND SAFETIES TO CARRY OUT THE FOLLOWING SEQUENCE OF OPERATION.
2. LOCAL CONTROL SYSTEM SHALL ENABLE/DISABLE PUMP AS REQUIRED TO MAINTAIN ACCEPTABLE WATER LEVEL WITHIN EACH SUMP PIT.
3. PUMP STATUS AND HIGH WATER LEVEL ALARM SHALL BE MONITORED BY THE BAS.

NOTES:

1. TYPICAL FOR SUMP PUMP P-1, P-2 & P-3.

8 M3.04 TYPICAL SUMP PUMP CONTROL SCHEMATIC

N.T.S



SEQUENCE OF OPERATION:

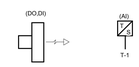
1. AVERAGE ZONE CARBON DIOXIDE CONCENTRATION SHALL MODULATE VARIABLE AIR VOLUME (VAV) TERMINAL UNIT DAMPER BETWEEN MINIMUM POSITION (50% OPEN) AND MAXIMUM POSITION (100% OPEN) TO MAINTAIN AVERAGE ZONE CO2 CONCENTRATION OF 800PPM (ADJUSTABLE).
2. ZONE CARBON DIOXIDE MONITOR SHALL REPORT CO2 CONCENTRATION TO THE BAS.
3. VAV TERMINAL UNIT AIRFLOW SHALL BE REPORTED TO THE BAS

NOTES:

1. THE ABOVE CONTROL SEQUENCE OF OPERATION IS APPLICABLE TO MULTI-ZONE VARIABLE AIR VOLUME TERMINAL UNITS CONFIGURED TO PROVIDE OUTDOOR AIR TO FAN COIL UNITS.
2. REFER TO PLANS FOR QUANTITY AND LOCATION OF MULTI-ZONE VARIABLE AIR VOLUME TERMINAL UNITS AND CO2 MONITORS REQUIRED.

7 M3.04 TYPICAL MULTI-ZONE VARIABLE AIR VOLUME TERMINAL UNIT CONTROL SCHEMATIC

1 : 1



SEQUENCE OF OPERATION:

1. TEMPERATURE SENSOR T-1 SHALL ENABLE/DISABLE MOTORIZED HEATER TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 18°C (ADJUSTABLE).
2. MOTORIZED HEATER STATUS SHALL BE MONITORED BY THE BAS. GENERATE AN ALARM IF STATUS DOES NOT MATCH COMMAND.

NOTES:

1. REFER TO FLOOR PLANS AND SCHEDULE DRAWING FOR LOCATIONS AND QUANTITIES OF MOTORIZED HEATERS.

6 M3.04 TYPICAL MOTORIZED HEATER CONTROL SCHEMATIC

N.T.S.

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE:

Public Works and Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

seal(s)

2017-03-24

rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG

project title / titre du projet: 441 UNIVERSITY RECAPITALIZATION

441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title / titre du dessin: MECHANICAL CONTROL SCHEMATICS

drawn by / dessine par: J.B.
designed by / conc par: R.D. / Z.H.
approved by / approuve par: R.D.
tender submission: M.B.
project manager administrateur de projets
project date / date du projet: 2017-02-24
project no. / no. du projet: R.076516.013
drawing no. / dessine no.: M3.04

DEDICATED OUTDOOR AIR SYSTEM SCHEDULE

TAG	SUPPLY FAN			RETURN FAN			GLYCOL HEATING COIL				DX COOLING							EFFICIENCY		FILTERS		NOTES
	AIR FLOW	E.S.P.	MOTOR POWER	AIR FLOW	E.S.P.	MOTOR POWER	EWT/LWT	FLOW RATE	E.A.T. DB	L.A.T. DB	E.A.T. DB	E.A.T. WB	L.A.T. DB	L.A.T. WB	TOTAL CAPACITY	SENSIBLE CAPACITY	REFRIGERANT TYPE	EER	IEER	PRE	FINAL	
DOAS-1	4247.5 L/s	1.22 kPa	22 kW	4247.5 L/s	1.49 kPa	11 kW	71.1°C / 60°C	5.5 L/s	-23 °C	23 °C	25 °C	19 °C	12 °C	12 °C	111 kW	68 kW	R410A	10.8	14.1	50mm MERV 8	350mm MERV 14	

DEDICATED OUTDOOR AIR SYSTEM SCHEDULE - CONTINUED

TAG	HEAT RECOVERY																WEIGHT	ELECTRICAL			NOTES
	WINTER								SUMMER												
	OUTDOOR AIR			EXHAUST AIR			TEMPERED AIR		OUTDOOR AIR			EXHAUST AIR			TEMPERED AIR			V	Ø	Hz.	
	E.A.T. DB	E.A.T. WB	AIR FLOW	L.A.T. DB	L.A.T. WB	AIR FLOW	L.A.T. DB	L.A.T. WB	E.A.T. DB	E.A.T. WB	AIR FLOW	L.A.T. DB	L.A.T. WB	AIR FLOW	L.A.T. DB	L.A.T. WB					
DOAS-1	-23 °C	-24 °C	4444.0 L/s	22 °C	13 °C	4247.5 L/s	14 °C	8 °C	32 °C	24 °C	4444.0 L/s	24 °C	17 °C	4247.5 L/s	25 °C	19 °C	6207.87 kg	575	3	60	

SPLIT SYSTEM SCHEDULE

TAG	TOTAL COOLING CAPACITY (kW)	ELECTRICAL DATA					CONDENSING UNIT
		VOLTAGE	PHASE	HERTZ	M.O.P.	M.C.A.	
AC-1	3.52	208 V	1	60 Hz	0.4 A	15 A	CU-5
AC-2	2.34	208 V	1	60 Hz	0.4 A	15 A	CU-5
AC-3	2.34	208 V	1	60 Hz	0.4 A	15 A	CU-5
AC-4	5.28	208 V	1	60 Hz	1.0 A	0 A	CU-6
AC-5	5.28	208 V	1	60 Hz	1.0 A	0 A	CU-6
AC-6	2.34	208 V	1	60 Hz	0.4 A	15 A	CU-5
AC-7	2.34	208 V	1	60 Hz	0.4 A	15 A	CU-5

EVAPORATOR SCHEDULE

TAG	TOTAL COOLING CAPACITY (kW)	TOTAL HEATING CAPACITY (kW)	ELECTRICAL DATA					CONDENSING UNIT
			VOLTAGE	PHASE	HERTZ	M.O.P.	M.C.A.	
EV-1	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-2	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-3	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-4	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-5	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-6	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-7	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-1
EV-8	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-1
EV-9	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-10	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-11	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-2
EV-12	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-2
EV-13	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-14	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-15	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-16	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-17	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-2
EV-18	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-19	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-2
EV-20	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-1
EV-21	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-1
EV-22	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-1
EV-23	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-1
EV-24	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-1
EV-25	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-2
EV-26	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-2
EV-27	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-2
EV-28	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-2
EV-29	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-2
EV-30	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-31	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-32	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-33	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-3
EV-34	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-35	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-3
EV-36	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-37	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-3
EV-38	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-39	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-40	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-4
~~EV-41~~	~~3.52~~	~~3.96 kW~~	~~208 V~~	~~1~~	~~60 Hz~~	~~15.0 A~~	~~1.2 A~~	~~CU-4~~
EV-42	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-4
~~EV-43~~	~~3.52~~	~~3.96 kW~~	~~208 V~~	~~1~~	~~60 Hz~~	~~15.0 A~~	~~1.2 A~~	~~CU-4~~
EV-44	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-4
EV-45	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-4
EV-46	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-3
EV-47	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-48	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-3
EV-49	10.55	11.72 kW	208 V	1	60 Hz	15.0 A	3.5 A	CU-4
EV-50	5.28	5.57 kW	208 V	1	60 Hz	1.0 A	0.0 A	CU-1
EV-51	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-52	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-53	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-54	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-4
EV-55	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-4
EV-56	7.03	7.91 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-57	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-3
EV-58	8.79	9.96 kW	208 V	1	60 Hz	15.0 A	2.7 A	CU-3
EV-59	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-4
EV-60	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-4
EV-61	5.28	5.86 kW	208 V	1	60 Hz	15.0 A	1.6 A	CU-4
EV-62	3.52	3.96 kW	208 V	1	60 Hz	15.0 A	1.2 A	CU-1
~~EV-63~~	~~7.03~~	~~7.91 kW~~	~~208 V~~	~~1~~	~~60 Hz~~	~~15.0 A~~	~~2.7 A~~	~~CU-2~~
EV-64	3.52	3.96 kW	208 V	1	60 Hz	0.4 A	15.0 A	CU-1

NOTE:
1. EACH EVAPORATOR UNIT SHOULD HAVE THEIR OWN THERMOSTAT.
2. PRIMARY HEATING (AIR SOURCE HEAT PUMP) TO BE INTEGRATED TO SECONDARY HEATING (RADIANT PANELS).
3. ~~PROVIDE CENTRAL CONTROLLER BACNET INTEGRATION OF VRF SYSTEM.~~
4. THERMOSTAT TO BE LOCKABLE FOR LIMITED OVERRIDE FUNCTION AND ±1°C TEMPERATURE ADJUSTMENT.

SUMP PUMP SCHEDULE

TAG	SOLID HANDLING	IMPELLER	MECHANICAL SEAL	OPERATION	SQUARE RING & GASKET	MOTOR TYPE	MOTOR PROTECTION	RPM	MOTOR	FLUID			ELECTRICAL				AMPS	NOTES
										TYPE	FLOW	PRESSURE HEAD	V	Ø	Hz.	EMERGENCY POWER		
SP-1	50mm SPHERICAL SOLIDS	CAST IRON	CARBON AND CERAMIC	Automatic	NEOPRENE SQUARE & GASKET	SUBMERSIBLE	AUTO RESET THERMAL OVERLOAD	3450	0.373 kW	WASTE WATER	3.5 L/s	86 kPa	115	1	60 Hz	No	15	
SP-2	135mm SPHERICAL SOLIDS	CAST IRON	SILICON CARBIDE	Automatic	BUNA-N O-Rings	GRINDER PUMPS	AUTO SHUT-DOWN SWITCH	2/3450	1.5 kW	WASTE WATER	1.3 L/s	82 kPa	208	1	60 Hz	No	14.94	
SP-3	135mm SPHERICAL SOLIDS	CAST IRON	SILICON CARBIDE	Automatic	BUNA-N O-Rings	GRINDER PUMPS	AUTO SHUT-DOWN SWITCH	2/3450	1.5 kW	WASTE WATER	1.3 L/s	82 kPa	208	1	60 Hz	No	14.94	

NOTE:
1. C/W PUMP OVERLOAD FAULT LOCKOUT, TRANSFER AND ALARM - MANUAL RESET.
2. C/W FOUR FLOAT CIRCUTRY, MANUAL RESET ALARM.
3. C/W 9 METER 6.35mm GALVANIZE LIFTING CHAIN WITH 6.35mm 316 STAINLESS STEEL QUICK LINK & 9.5mm 316 STAINLESS STEEL SHACKLE.
4. CONTROL PANEL.

AIR SOURCE HEAT PUMPS SCHEDULE

TAG	COOLING CAPACITY (kW)	HEATING CAPACITY (kW)	AIR FLOW RATE (L/S)	DIMENSIONS			ELECTRICAL DATA					REFRIGERANT TYPE	SOUND PRESSURE LEVEL (dB(A))	UNIT WEIGHT (kg)	NOTES
				Height (mm)	Width (mm)	Depth (mm)	VOLTAGE	PHASE	HERTZ	M.C.A.	M.O.P.				
CU-1	70.3	79.1	640	1650	3530	740	575 V	3	60 Hz	42	60	R410A	63	700	1, 2 AND 3
CU-2	84.4	94.7	640	1650	3530	740	575 V	3	60 Hz	46	70	R410A	64	700	1, 2 AND 3
CU-3	84.4	94.7	640	1650	3530	740	575 V	3	60 Hz	46	70	R410A	64	700	1, 2 AND 3
CU-4	84.4	94.7	640	1650	3530	740	575 V	3	60 Hz	46	70	R410A	64	700	1, 2 AND 3
CU-5	10.6	12.3	110	1338	1050	355	208 V	1	60 Hz	31	44	R410A	53	122	3
CU-6	10.6	12.3	110	1338	1050	355	208 V	1	60 Hz	31	44	R410A	53	122	3
CU-7	101.3	0	872	950	2225	3225	575 V	3	60 Hz	47	50	R410A	92	853	

NOTE:
1. RAISE THE CONDENSING UNIT AT LEAST 350MM FROM THE GROUND BY USING BASE STAND.
2. ~~DIV 16 TO PROVIDE DISCONNECT SWITCH FOR CONDENSER.~~
3. CONTRACTOR TO VERIFY AND COMPLY WITH CSA-B52 REQUIREMENTS FOR EACH CONDENSING UNIT.

BOILER SCHEDULE

TAG	SERVICE	HEATING INPUT (KW)	HEATING OUTPUT (KW)	FLOW (L/S)	P.D. (KPA)	ELECTRICAL SERVICE (V/PH/Hz)	WEIGHT (KG)	NOTES
B-1	BUILDING HEATING	440	359	9.1 L/s	9.3 Pa	120/1/60	1046	
B-2	BUILDING HEATING	440	359	9.1 L/s	9.3 Pa	120/1/60	1046	

HEAT EXCHANGER SCHEDULE

TAG	SOURCE SIDE					LOAD SIDE					OUTPUT (KW)	NOTES
	FLUID	FLOW	MAX P.D.	E.F.T.	L.F.T.	FLUID	FLOW	MAX P.D.	E.F.T.	L.F.T.		
HX-1	WATER	5.1 L/s	6.1 kPa	54.4 °C	43.3 °C	40% P. GLYCOL	6.8 L/s	22.2 kPa	42.8 °C	51.7 °C	234	
HX-2	WATER	5.1 L/s	6.1 kPa	54.4 °C	43.3 °C	40% P. GLYCOL	6.8 L/s	22.2 kPa	42.8 °C	51.7 °C	234	

PUMP SCHEDULE

TAG	SERVICE	FLUID			ELECTRICAL				MOTOR		VFD	NOTES
		TYPE	FLOW	PRESSURE HEAD	V	Ø	Hz.	EMERGENCY POWER	POWER	RPM		
P-1	PRIMARY HEATING LOOP	VERTICAL INLINE	3.8 L/s	120 kPa	575	3	60 Hz	No	1.12 kW	3520	N	
P-2	PRIMARY HEATING LOOP	VERTICAL INLINE	3.8 L/s	120 kPa	575	3	60 Hz	No	1.12 kW	3520	N	
P-3	PERIMETER HEATING LOOP	VERTICAL INLINE	3.8 L/s	194 kPa	575	3	60 Hz	No	2.24 kW	2916	Y	
P-4	PERIMETER HEATING LOOP	VERTICAL INLINE	3.8 L/s	194 kPa	575	3	60 Hz	No	2.24 kW	2916	Y	
P-5	DOAS HEATING COIL LOOP	VERTICAL INLINE	5.7 L/s	150 kPa	575	3	60 Hz	No	2.24 kW	3024	Y	
P-6	DOAS HEATING COIL LOOP	VERTICAL INLINE	5.7 L/s	150 kPa	575	3	60 Hz	No	2.24 kW	3024	Y	
P-7	HEAT EXCHANGER HEATING LOOP	VERTICAL INLINE	5.0 L/s	135 kPa	575	3	60 Hz	No	2.24 kW	2783	Y	
P-8	HEAT EXCHANGER HEATING LOOP	VERTICAL INLINE	5.0 L/s	135 kPa	575	3	60 Hz	No	2.24 kW	2783	Y	

HUMIDIFIER SCHEDULE

TAG	SERVICE	LOAD (LBS/HR)	AIR FLOW	ENERGY SOURCE	WATER TYPE	AIR CONDTIONS				DUCT AREA (W x H)	ELECTRICAL				NOTES
						ENTERING		LEAVING			Voltage	Frequency	Phase	Amps	
						TEMPERATURE	RH	TEMPERATURE L	RH						
HU-1	DOAS-1	240	4247.5 L/s	ELECTRICITY	POTABLE	22 °C	1.3 %	23 °C	34.8 %	1250 x 600	600 V	60 Hz	3	81 A	

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE	DESCRIPTION/TRIM
FD-1	FLOOR DRAIN	FINISHED AREA FLOOR DRAIN, EPOXY COATED CAST IRON BODY, ANCHOR FLANGE AND CLAMPING COLLAR TO SUIT THE FLOOR CONSTRUCTION WITH PRIMARY AND SECONDARY WEEPHOLES, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, NO HUB OUTLET, VANDAL PROOF SCREWS
FD-2	PIT DRAIN	SCUPPER DRAIN ANGLE GRATE, ALL DUCO COATED CAST IRON BODY, FLASHING CLAMP TO SUIT THE FLOOR CONSTRUCTION, 45 DEGREE OUTLET C/W BACKWATER VALVE
FD-3	FUNNEL FLOOR DRAIN	FLOOR DRAIN - EPOXY COATED, CAST IRON BODY, 5" (127 MM) DIAMETER NICKEL BRONZE, ADJUSTABLE ROUND STRAINER, 4"Ø (102 MM) CAST IRON FUNNEL, TRAP PRIMER CONNECTION WITH PLUG, ANCHOR FLANGE AND WEEPHOLES, NO HUB OUTLET.
HB-1	HOSE BIBB	EXTERIOR HOSE BIBB, CONCEALED NON-FREEZE WALL HYDRANT, NICKEL BRONZE BOX AND DOOR, CHROME PLATED HYDRANT FACE, INTEGRAL VACUUM BREAKER, 20mm HOSE CONNECTION. ALL BRONZE HEAD, SEAT CASING AND INTERNAL WORKING PARTS.
JS-1	JANITOR SINK	PRECAST TERRAZZO FLOOR MOUNTED MOP SINK, 914mm X 610mm X 305mm, 152mm FRONT DROP, MARBLE CHIPS CAST IN PORTLAND CEMENT GROUTED AND SEALED, CAST INTEGRAL ONE PIECE SS CAP ON FRONT DROP, INTEGRAL CAST BRASS DRAIN, SS STRAINER, 75mm OUTLET, SS BACK SPLASH PANELS ON ALL WALL SIDES, C/W WALL MOUNTED FAUCET, SOLID CAST BRASS BODY, LEAD-FREE, 200mm CENTRES, 1/4 TURN CERAMIC DISC CARTRIDGES, CAST METAL LEVER HANDLES, HOSE END VACUUM BREAKER, INTEGRAL STOPS, 787mm HOSE WITH HANGER
L-1	COUNTER MOUNTED ABOVE COUNTER	COUNTER MOUNTED ABOVE COUNTER, RECTANGULAR DESIGN, SEALED OVERFLOW, CENTRE HOLE ONLY, 565m X 470mm X 105, C/W C/W HARD WIRED C.P. 102mm C.C., SOLID CAST BRASS BODY WITH INTEGRAL PROXIMITY SENSOR, WITH VANDAL-RESISTANT 1.9 LPM FLOW SPRAY OUTLET, CONTROL MODULE, SOLENOID, STRAINER, TEMPERED WATER SUPPLIED BY THERMOSTATIC MIXING VALVE WITH BACK CHECKS AND STOPS HOUSED IN 305mm SQ. RECESSED METAL BOX WITH 330mm SQ. V.P. S.S. FACE, LOCATED IN WALL UNDER BASIN. FLEXIBLE CONDUIT FROM CONTROL MODULE TO FAUCET AND SOLENOID PROVIDED. POWER REQUIREMENT 15 VA.
L-2	WALL MOUNT	VITREOUS CHINA WALL HUNG BASIN,CAN/CSA B651-04 COMPLIANT, SEALED OVERFLOW,102mm CENTRES, 616mm X 508mm X 191mm DEEP, C/W SEMI PEDESTAL P-TRAP COVER. EXTENDED CONCEALED ARM BASIN CARRIER, INTEGRAL BACKSPLASH, SELF DRAINIG DECK AREA, C/W HARD WIRED C.P. 102mm C.C., SOLID CAST BRASS BODY WITH INTEGRAL PROXIMITY SENSOR, WITH VANDAL-RESISTANT 1.9 LPM FLOW SPRAY OUTLET, CONTROL MODULE, SOLENOID, STRAINER, TEMPERED WATER SUPPLIED BY THERMOSTATIC MIXING VALVE WITH BACK CHECKS AND STOPS HOUSED IN 305mm SQ. RECESSED METAL BOX WITH 330MM SQ. V.P. S.S. FACE, LOCATED IN WALL UNDER BASIN. FLEXIBLE CONDUIT FROM CONTROL MODULE TO FAUCET AND SOLENOID PROVIDED. POWER REQUIREMENT 15 VA.
RD-1	ROOF DRAIN	CAST IRON BODY FLOW CONTROL ROOF DRAIN, 390mm DIA, COMBINED FLASHING CLAMP AND GRAVEL STOP, LOW-PROFILE VANDAL-PROOF CAST IRON DOME, SUMP RECEIVER, EXTENSION, UNDERDECK CLAMP
SH-1	SHOWER VALVE AND HAND SHOWERHAND	PRECAST TERRAZZO SHOWER RECEPTOR, 813mm X 1920mm, MARBLE CHIPS CAST IN PORTLAND CEMENT, GROUTED AND SEALED, THRESHOLD ON ONE SIDE, INTEGRAL CAST BRASS DRAIN WITH SS STRAINER, C/W HAND SHOWER SYSTEM WITH LEVEL HANDLES, PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN, HAND SHOWER WITH 1524mm FLEXIBLE METAL HOSE, IN-LINE VACUUM BREAKER, ADJUSTABLE CRADLE FOR HAND SHOWER TO BE MOUNTED TO VERTICAL MOUNTING BAR, C/W 5.7 LPM FLOW RESITRICTOR PLATE.
SK-1	COUNTER MOUNTED COUNTERTOP MOUNT SINK	SS COUNTER MOUNT SINK, 1 HOLE LOCATED CENTRE BACK, 203mm CENTRES, 587mm X 529mm X 203mm DEEP, BACK LEDGE, SATIN FINISH, SELF RIMMING, CRUMB CUP STRAINERS, 38mm TAILPIECE, SOUND DEADENING AND MOUNTING KIT, C/W DECK MOUNTED FAUCET, SOLID CAST BRASS BODY, LEAD-FREE, 1/4 TURN CERAMIC DISC VALVE CARTRIDGES, SWING GOOSENECK SPOUT, 8.3LPM VANDAL RESISTANT LAMINAR FLOW OUTLET, METAL WRISTBLADE LEVER HANDLES, CAST BRASS P-TRAP, CLEANOUT, CHROME PLATED FLEXIBLE SUPPLY PIPES WITH SCREWDRIVER STOP, REDUCERS, ESCUTCHEON
U-1	WALL HUNG URINAL	VITREOUS CHINA BARRIER-FREE URINAL, WALL HUNG FOR FLUSH VALVE, WASH OUT FLUSH AC TION 0.5 LPF TO 3.8 LPF, EXTENDED SIDES FOR PRIVACY, INTEGRAL FLUSH SPREADER, 19mm TOP SPUD, WALL HANGERS, OPEN TRAP, C/W REMOVABLE STAINLESS STEEL STRAINER, NO-TOUCH' FLUSH VALVE UNIT, HIGH EFFICIENCY 0.47 LPF FACTORY SET FLOW, QUIET ACTION, 'PERMEX' DIAPHRAGM TYPE, WITH DUAL FILTERED BY-PASS INFRARED PROXIMITY SENSOR, SOLENOID FLUSH CONTROLLER, CIRCUITRY, IN S.S. WALL ACCESS PLATE, HIGH PRESSURE VACUUM BREAKER AND BACK-CHECK ANGLE STOP. POWER REQUIREMENT 5 VA., TRANSFORMER (120/24 VAC 50 VA.), WALL ACCESS CLEANOUT WITH 108mm V.P. ROUND S.S. ACCESS COVER, URINAL CARRIER WITH BEARING PLATES AND STEEL PIPE LEGS, 102MM SQ. ELECT. BOX IN-WALL FOR SENSOR MOUNTING.
WC-1	FLOOR MOUNTED TOILET	VITREOUS CHINA FLOOR MOUNTED TOILET, WHITE, ELONGATED BOWL, HIGH EFFICIENCY, FULLY GLAZED 54MM INTERNAL TRAPWAY, TOP SPUD, C/W HEAVY DUTY OPEN FRONT SEAT LESS COVER. EXPOSED, ELECTRONIC FLUSH VALVE C/W MANUAL OVERRIDE, HARD WIRED CONNECTION, REDUCED FLUSH 4.2 LPF. PROVIDE BOLTS, FLOOR FLANGE, BOLT CAPS. PERFORMANCE RATING: 800 MAP @ 4.2 LPF.
WC-2	FLOOR MOUNTED BARRIER FREE TOILET	VITREOUS CHINA FLOOR MOUNTED TOILET, WHITE, CAN/CSA B651-04 COMPLIANT, ELONGATED BOWL, HIGH EFFICIENCY, FULLY GLAZED 54MM INTERNAL TRAPWAY, TOP SPUD, C/W HEAVY DUTY OPEN FRONT SEAT C/W COVER. EXPOSED, ELECTRONIC FLUSH VALVE C/W MANUAL OVERRIDE, HARD WIRED CONNECTION, REDUCED FLUSH 4.2 LPF. PROVIDE BOLTS, FLOOR FLANGE, BOLT CAPS. MOUNT ELECTRONIC SENSOR ABOVE SEAT COVER WHEN FULLY OPEN. PERFORMANCE RATING: 800 MAP @ 4.2 LPF.

VIBRATION ISOLATION SCHEDULE

EQUIPMENT TYPE	LOCATION	BASE TYPE	ISOLATOR TYPE	MINIMUM DEFLECTION (mm)	NOTES
AIR HANDLING UNIT	FAN ROOM	-	NSN / EP3	3.81	
AIR TERMINAL UNITS	VARIOUS	-	NH / H1	8.89	
BASEMOUNTED FAN	SOUTH SIDE WALL	STEEL	FS / M2	50.8	
VERTICAL INLINE PUMPS	MECHANICAL ROOM	-	NSN / EP3	3.81	1

NOTE:
1. PROVIDE SH OR FS ISOLATORS ON ADJACENT PIPING/DUCTWORK

ISOLATOR TYPE:
NSN / EP3 - NEPRENE / STEEL / NEOPRENE PAD
NH / H1 - ELASTOMERIC HANGER
FS / M2 - OPEN SPRING FLOOR MOUNT

ELECTRIC DOMESTIC WATER HEATER SCHEDULE

TAG	HEATING ELEMENT	STORAGE (L)	RECOVERY (L/H)	ELECTRICAL	VOLT	NOTES
HWT-1	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-2	SINGLE ELEMENT	65	53	3kW	240 V	
HWT-3	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-4	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-5	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-6	SINGLE ELEMENT	108	53	3kW	240 V	
HWT-7	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-8	SINGLE ELEMENT	43	53	3kW	240 V	
HWT-9	SINGLE ELEMENT	65	53	3kW	240 V	
HWT-10	SINGLE ELEMENT	65	53	3kW	240 V	
HWT-11	SINGLE ELEMENT	43	53	3kW	240 V	

INSTANTEOUS WATER HEATER SCHEDULE

TAG	WATTS	AMPS	VOLTAGE
WH-1	6500 W	27 A	240 V
WH-2	6500 W	27 A	240 V

CABINET UNIT HEATER

MARK	ARRANGEMENT	AIR FLOW (L/S)	OUTPUT (KW)	EWT (°C)	TEMPERATURE DIFFERENCE (°C)	MOTOR (KW)	VOLTS/PH/HZ	Amps	RPM	NOTES
FFH-1	SURFACE MOUNTED	87	2.75	60.00	11.11	0.03	115/1/60	0.6 A	1625	
FFH-2	SURFACE MOUNTED	87	2.75	60.00	11.11	0.03	115/1/60	0.6 A	1625	
FFH-3	FULLY RECESSED	229	6.12	60.00	11.11	0.04	115/1/60	2.4 A	1625	
FFH-4	FULLY RECESSED	229	6.12	60.00	11.11	0.04	115/1/60	2.4 A	1625	
FFH-5	FULLY RECESSED	382	9.67	60.00	11.11	0.08	115/1/60	3.4 A	1625	
FFH-6	FULLY RECESSED	382	9.67	60.00	11.11	0.08	115/1/60	3.4 A	1625	
FFH-7	SURFACE MOUNTED	229	6.12	60.00	11.11	0.04	115/1/60	2.4 A	1625	
FFH-8	SURFACE MOUNTED	87	2.75	60.00	11.11	0.03	115/1/60	0.6 A	1625	
FFH-9	SURFACE MOUNTED	87	2.75	60.00	11.11	0.03	115/1/60	0.6 A	1625	
FFH-10	SURFACE MOUNTED	87	2.75	60.00	11.11	0.03	115/1/60	0.6 A	1625	
FFH-11	FULLY RECESSED	382	9.67	60.00	11.11	0.08	115/1/60	3.4 A	1625	
FFH-12	FULLY RECESSED	229	6.12	60.00	11.11	0.04	115/1/60	2.4 A	1625	

UNIT HEATER SCHEDULE

MARK	ARRANGEMENT	AIR FLOW (L/S)	OUTPUT (KW)	EWT (°C)	TEMPERATURE DIFFERENCE (°C)	MOTOR (KW)	VOLTS/PH/HZ	APERAGE	RPM	NOTES
UH-1	HORIZONTAL	260	4.22	60.00	11.11	0.04	115/1/60	2 A	1500	
UH-2	HORIZONTAL	260	4.22	60.00	11.11	0.04	115/1/60	2 A	1500	
UH-3	HORIZONTAL	293	5.86	60.00	11.11	0.04	115/1/60	2 A	1500	

EXPANSION TANK SCHEDULE

TAG	LOCATION	TYPE	FLUID			PHYSICAL			NOTES
			MEDIUM	TANK VOLUME	MAXTANK ACCEPTANCE	DIAMETER (MM)	HEIGHT (MM)	NPT FITTING (MM)	
ET-1	BOILER ROOM	HYDRONIC EXPANSION TANK	WATER	210.8 L	109.78 L	610	822	25	
ET-2	BOILER ROOM	HEAT EXCHANGERS COLD SIDE EXPANSION TANK	PROPYLENE GLYCOL 40%	127.2 L	42.78 L	406	1102	13	

EXHAUST FAN SCHEDULE

TAG	SERVICE	AIR FLOW (L/S)	STATIC PRESSURE (PA)	RPM	MOTOR POWER (WATTS)	VOLTS/PH/HZ	FLA	NOTES
EF-1	LIVE EVIDENCE RM 152	120.50	31.1	1300	124.280	115/1/60	3	C/W DIAL ON MOTOR CONTROL

SUPPLY FAN SCHEDULE

TAG	SERVICE	AIR FLOW (L/S)	STATIC PRESSURE (PA)	RPM	MOTOR POWER (KW)	BRAKE MOTOR (HP)	VOLTS/PH/HZ	NOTES
SF-1	BOILER ROOM	707.92	62.0	690	0.110	0.12	120/1/60	IN-LINE FAN C/W VFD, REVERSE ACTING THERMOSTAT, AND MOTORIZED DAMPER, C/W MOTOR STARTER

RADIANT PANEL SCHEDULE

TAG	WIDTH (MM)	LENGHT (MM)	HEATING EWT/LWT (°C)	Heat Output W	Flow Rate (L/S)	NOTES
RP-01	600	2500	60°/48.9°	633 W	0.014 L/s	
RP-02	600	2500	60°/48.9°	633 W	0.014 L/s	
RP-03	600	2500	60°/48.9°	633 W	0.014 L/s	
RP-04	600	3500	60°/48.9°	886 W	0.019 L/s	
RP-05	600	3500	60°/48.9°	886 W	0.019 L/s	
RP-06	600	2600	60°/48.9°	658 W	0.014 L/s	
RP-07	600	4800	60°/48.9°	1214 W	0.026 L/s	
RP-08	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-09	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-10	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-11	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-12	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-13	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-14	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-15	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-16	600	4800	60°/48.9°	1214 W	0.026 L/s	
RP-17	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-18	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-19	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-20	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-21	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-22	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-23	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-24	600	3600	60°/48.9°	911 W	0.020 L/s	
RP-25	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-26	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-27	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-28	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-29	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-30	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-31	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-32	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-33	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-34	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-35	600	3900	60°/48.9°	987 W	0.021 L/s	
~~RP-36~~	~~600~~	~~4500~~	~~60°/48.9°~~	~~1139 W~~	~~0.024 L/s~~	
RP-37	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-38	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-39	600	3000	60°/48.9°	759 W	0.016 L/s	
RP-40	600	3150	60°/48.9°	797 W	0.017 L/s	
RP-41	600	3150	60°/48.9°	797 W	0.017 L/s	
~~RP-42~~	~~600~~	~~3150~~	~~60°/48.9°~~	~~797 W~~	~~0.017 L/s~~	
RP-43	600	4200	60°/48.9°	1063 W	0.023 L/s	
RP-44	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-45	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-46	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-47	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-48	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-49	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-50	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-51	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-52	600	3900	60°/48.9°	987 W	0.021 L/s	
~~RP-53~~	~~600~~	~~3900~~	~~60°/48.9°~~	~~987 W~~	~~0.021 L/s~~	
RP-54	600	3900	60°/48.9°	987 W	0.021 L/s	
~~RP-55~~	~~600~~	~~4500~~	~~60°/48.9°~~	~~1139 W~~	~~0.024 L/s~~	
RP-56	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-57	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-58	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-59	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-60	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-61	600	3600	60°/48.9°	911 W	0.020 L/s	
RP-62	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-63	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-64	600	3300	60°/48.9°	835 W	0.018 L/s	
RP-65	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-66	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-67	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-68	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-69	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-70	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-71	600	3900	60°/48.9°	987 W	0.021 L/s	
RP-72	600	4500	60°/48.9°	1139 W	0.024 L/s	
RP-73	600	4500	60°/48.9°	1139 W	0.024 L/s	

DIFFUSER AND GRILLE SCHEDULE

TAG	TYPE	MOUNTING	NOTES
E-1	EGG CRATE	GYPSUM CEILING	ALUMINUM CONSTRUCTION, WHITE, FLAT FRAMES, COUNTERSUNK SCREWS
E-2	EGG CRATE	CEILING TILE MOUNT	ALUMINUM CONSTRUCTION, WHITE
R-1	EGG CRATE	CEILING TILE MOUNT	ALUMINUM CONSTRUCTION, WHITE
R-2	EGG CRATE	GYPSUM CEILING	ALUMINUM CONSTRUCTION, WHITE, FLAT FRAMES, COUNTERSUNK SCREWS
S-1	LINEAR DIFFUSER	GYPSUM CEILING/WALL	875mm LONG, 2-SLOT - 19mm SLOT, MITERED END CAP, C/W ENGINEERED PLENUM, WHITE
S-2	SQUARE PLAQUE	CEILING TILE MOUNT	600X600, WHITE, PROVIDE WITH MOUNTING FRAME IN GYPSUM CEILING
S-3	LINEAR JET SLOT	GYPSUM CEILING	1500mm LONG, 2-SLOT - 19mm SLOT, MITERED END CAP, C/W ENGINEERED PLENUM, WHITE
S-4	LINEAR JET SLOT	GYPSUM CEILING	1200mm LONG, 2-SLOT - 19mm SLOT, MITERED END CAP, C/W ENGINEERED PLENUM, WHITE
S-5	SPRIAL DUCT GRILL	DUCT	EXTRUDED ALUMINUM CONSTRUCTION, LIGHT GRAY
S-6	RECTANGULAR DUCT GRILL	DUCT / WALL	EXTRUDED ALUMINUM CONSTRUCTION, LIGHT GRAY

NOTE:
1. SUBMIT A PAINT COLOUR SAMPLE FOR TYPE S-5, S-6 GRILLES FOR APPROVAL PRIOR TO FABRICATION.

LOUVER SCHEDULE

TAG	TYPE	MOUNTING	NOTES
LV-1	STATIONARY DRAINBALE BLADE LOUVER	ROOF CURB MOUNT	ALUMINUM CONSTRUCTION AND BLANK-OFFS WITH INSULATION, WHITE, INTERIOR FRAMES, COUNTERSUNK SCREWS
LV-2	STATIONARY DRAINBALE BLADE LOUVER	CONCRETE WALL MOUNT	ALUMINUM CONSTRUCTION AND BLANK-OFFS WITH INSULATION, WHITE, INTERIOR FRAMES, COUNTERSUNK SCREWS

TERMINAL BOX UNIT SCHEDULE

TAG	TERMINAL SIZE	AIR SYSTEM	AIR FLOW (L/S)		NOTES
			MAX	MIN	
TB-0-1	Size 4	OUTDOOR AIR	94.5 L/s	28.5 L/s	
~~TB-0-2~~	~~Size 4~~	~~OUTDOOR AIR~~	~~71.0 L/s~~	~~21.0 L/s~~	
TB-0-3	Size 4	OUTDOOR AIR	47.0 L/s	14.0 L/s	
~~TB-1-1~~	~~Size 6~~	~~OUTDOOR AIR~~	~~134.0 L/s~~	~~40.0 L/s~~	
TB-1-2	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-3	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-4	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-5	Size 6	OUTDOOR AIR	134.5 L/s	40.5 L/s	
TB-1-6	Size 4	OUTDOOR AIR	33.0 L/s	10.0 L/s	
~~TB-1-7~~	~~Size 4~~	~~OUTDOOR AIR~~	~~38.0 L/s~~	~~11.5 L/s~~	
TB-1-8	Size 4	OUTDOOR AIR	42.5 L/s	12.5 L/s	
TB-1-9	Size 5	OUTDOOR AIR	85.0 L/s	25.5 L/s	
~~TB-1-10~~	~~Size 4~~	~~OUTDOOR AIR~~	~~40.0 L/s~~	~~12.0 L/s~~	
TB-1-11	Size 4	OUTDOOR AIR	94.5 L/s	28.5 L/s	C/W REHEAT COIL
TB-1-12	Size 4	OUTDOOR AIR	26.0 L/s	8.0 L/s	
TB-1-13	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-14	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-15	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-16	Size 6	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-17	Size 4	OUTDOOR AIR	26.0 L/s	8.0 L/s	
TB-1-18	Size 4	OUTDOOR AIR	134.0 L/s	40.0 L/s	
TB-1-19	Size 4	OUTDOOR AIR	16.5 L/s	5.0 L/s	
TB-1-20	Size 4	OUTDOOR AIR	47.0 L/s	14.0 L/s	
TB-1-21	Size 4	OUTDOOR AIR	14.0 L/s	4.0 L/s	
TB-1-22	Size 4	OUTDOOR AIR	35.5 L/s	10.5 L/s	
TB-1-23	Size 6	OUTDOOR AIR	28.5 L/s	8.5 L/s	
TB-1-24	Size 4	OUTDOOR AIR	28.5 L/s	8.5 L/s	
TB-1-25	Size 4	OUTDOOR AIR	38.0 L/s	11.5 L/s	
TB-1-26	Size 4	OUTDOOR AIR	33.0 L/s	10.0 L/s	
TB-1-27	Size 4	OUTDOOR AIR	28.5 L/s	8.5 L/s	
TB-1-28	Size 4	OUTDOOR AIR	16.5 L/s	5.0 L/s	
~~TB-1-29~~	~~Size 4~~	~~OUTDOOR AIR~~	~~47.0 L/s~~	~~14.0 L/s~~	
TB-1-30	Size 4	OUTDOOR AIR	42.5 L/s	12.5 L/s	
~~TB-2-1~~	~~Size 4~~	~~OUTDOOR AIR~~	~~40.0 L/s~~	~~12.0 L/s~~	
TB-2-2	Size 4	OUTDOOR AIR	40.0 L/s	12.0 L/s	
TB-2-3	Size 5	OUTDOOR AIR	61.5 L/s	18.5 L/s	
TB-2-4	Size 4	OUTDOOR AIR	56.5 L/s	17.0 L/s	
TB-2-5	Size 4	OUTDOOR AIR	40.0 L/s	12.0 L/s	
TB-2-6	Size 6	OUTDOOR AIR	134.5 L/s	40.5 L/s	
TB-2-7	Size 6	OUTDOOR AIR	158.0 L/s	47.5 L/s	
TB-2-8	Size 6	OUTDOOR AIR	158.0 L/s	47.5 L/s	
TB-2-9	Size 4	OUTDOOR AIR	38.0 L/s	11.5 L/s	
TB-2-10	Size 6	OUTDOOR AIR	134.5 L/s	40.5 L/s	
TB-2-11	Size 6	OUTDOOR AIR	134.5 L/s	40.5 L/s	
TB-2-12	Size 4	OUTDOOR AIR	33.0 L/s	10.0 L/s	
TB-2-13	Size 5	OUTDOOR AIR	68.5 L/s	20.5 L/s	
TB-2-14	Size 5	OUTDOOR AIR	35.5 L/s	10.5 L/s	
TB-2-15	Size 5	OUTDOOR AIR	19.0 L/s	5.5 L/s	
TB-2-16	Size 5	OUTDOOR AIR	68.5 L/s	20.5 L/s	
TB-2-17	Size 5	OUTDOOR AIR	85.0 L/s	25.5 L/s	
TB-2-18	Size 5	OUTDOOR AIR	85.0 L/s	25.5 L/s	
TB-2-19	Size 4	OUTDOOR AIR	19.0 L/s	5.5 L/s	
~~TB-2-20~~	~~Size 4~~	~~OUTDOOR AIR~~	~~38.0 L/s~~	~~11.5 L/s~~	
TB-2-21	Size 6	OUTDOOR AIR	108.5 L/s	32.5 L/s	
~~TB-2-22~~	~~Size 4~~	~~OUTDOOR AIR~~	~~33.0 L/s~~	~~10.0 L/s~~	
TB-2-23	Size 4	OUTDOOR AIR	56.5 L/s	17.0 L/s	
TB-2-24	Size 6	OUTDOOR AIR	85.0 L/s	25.5 L/s	
TB-2-25	Size 6	OUTDOOR AIR	104.0 L/s	31.0 L/s	
TB-2-26	Size 5	OUTDOOR AIR	85.0 L/s	25.5 L/s	
TB-2-27	Size 4	OUTDOOR AIR	70.0 L/s	21.0 L/s	
TB-2-28	Size 6	OUTDOOR AIR	104.0 L/s	31.0 L/s	
TB-2-29	Size 4	OUTDOOR AIR	23.5 L/s	7.0 L/s	

TERMINAL BOX UNIT REHEAT COIL SCHEDULE

TAG	REHEAT COIL					NOTES
	EWT	LWT	FLOW RATE (L/S)	CAPACITY	RE-HEAT COIL # ROW	
TB-1-11	60.00 °C	48.89 °C	0.019 L/s	0.88kW	1	C/W REHEAT COIL

Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

seal(s)

R. A. DOMINGUEZ PINEDA
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rev.	description	date
2	Addendum #1	2017-03-24
1	Issued For Bid	2017-02-24

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the engineer of all discrepancies.

DIALOG®

project title
titre du projet
441 UNIVERSITY RECAPITALIZATION
441 UNIVERSITY AVENUE
WINDSOR, ON.

drawing title
titre du dessin
MECHANICAL SCHEDULES

drawn by
dessine par
J.B.

designed by
conc par
R.D. / Z.H.

approved by
approuve par
R.D.

tender
soumission
R.D. / Z.H.

project manager
administrateur de projets

project date
date du projet
2017-02-24

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no. du projet
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dessin no.
M5.01

GSC-A2 DATE PLOTTED: PLOT SCALE: CAD FILE: