## VENTILATION LEGEND

| | |
|---|---|
| 700 / 18-14 | SUPPLY AIR DUCT |
| | RETURN OR EXHAUST AIR DUCT |
| 105 / C-10 | DENOTES – SUPPLY 105 cfm THRU TYPE 'C' DIFFUSER c/w 10 NECK |
| 105 / B-20 | DENOTES – SUPPLY 105 cfm THRU TYPE 'B' GRILLE 20 ft LENGTH |
| 105 / E-24X12 | DENOTES – RETURN OR EXHAUST 105 cfm THRU 18x10 TYPE 'E' GRILLE |
| | SQUARE S/A DIFFUSER |
| | ROUND S/A DIFFUSER |
| | PERIMETER BOOT |
| | AIR SUPPLY BOOT OVER LIGHT FIXTURE |
| | V.A.V. BOX C/W ATTENUATOR |
| | V.A.V. BOX C/W ATTENUATOR & REHEAT COIL |
| SA / SA / SA | FAN DESIGNATIONS |
| RAU | AIR HANDLING UNIT |
| | ACOUSTIC DUCT LINING |
| XYZ | DUCT SILENCER |
| | SILENCER NUMBER |
| | SYPPLY / RETURN |
| | SYSTEM NUMBER |
| | SILENCER |
| | TURNING VANES |
| | FLEXIBLE DUCT |
| U/C | DOOR UNDERCUT |
| AD | ACCESS DOOR |
| | TAKE-OFF WITH VOLUME DAMPER |
| FC | FLEXIBLE CONNECTION |
| VD | VOLUME DAMPER |
| BD | BACKDRAFT DAMPER |
| SD | SPLITTER DAMPER |
| F/D | ACOUSTIC LINED TRANSFER DUCT C/W FIRE DAMPER |
| | CARBON MONOXIDE DETECTOR |
| | SMOKE DETECTOR DUCT MOUNTED |
| F | FIRE DAMPER |
| SD or SD-XYZ | SD – DENOTES SMOKE DAMPER<br>XYZ – DENOTES DAMPER NUMBER |
| | DAMPER NUMBER |
| | SYSTEM NUMBER |
| | FLOOR LEVEL |
| FSD or FSD-XYZ | FSD – DENOTES FIRE SMOKE DAMPER<br>XYZ – DENOTES DAMPER NUMBER FOR SUPPLY/RETURN SYSTEM |
| | DAMPER NUMBER |
| | SYSTEM NUMBER |
| | FLOOR LEVEL |
| FSD-XY | XYZ – DENOTES DAMPER NUMBER FOR EXHAUST SYSTEM |
| | 'EF-Y' SYSTEM NUMBER |
| | FLOOR LEVEL |
| CMD or MD-X | MD – MOTORIZED DAMPER<br>X – DENOTES MOTORIZED DAMPER NUMBER |

## VALVES & SPECIALTIES LEGEND

| | |
|---|---|
| | ISOLATING VALVE |
| | GLOBE VALVE |
| | BALL VALVE |
| | SUPERVISED VALVE |
| | COMBINATION BALANCE & SHUT-OFF VALVE |
| | CONTROL VALVE |
| | SOLENOID VALVE |
| | PRESSURE REDUCING VALVE |
| | PRESSURE RELIEF VALVE |
| | PRESSURE & TEMPERATURE RELIEF VALVE |
| | MIXING OR DIVERTER VALVE (3-WAY) |
| | BUTTERFLY VALVE |
| | PLUG VALVE (GAS) |
| | CHECK VALVE |
| | BASKET STRAINER |
| | 'Y' STRAINER |
| BWV | BACK WATER VALVE |
| BFPA | BACK FLOW PREVENTER ASSEMBLY |
| FS | FLOW SWITCH |
| PS | PRESSURE SWITCH |
| | UNION |
| | PET COCK |
| | THERMOMETER |
| | THERMOWELL C/W TEMPERATURE SENSOR |
| | AUTO AIR VENT (TYP.) |
| PG | PRESSURE GAUGE |
| UH | UNIT HEATER |
| | WALL FIN CONVECTOR |
| | UNINSULATED PIPE (IN SECTION) |
| | INSULATED PIPE (IN SECTION) |
| WHA | WATER HAMMER ARRESTERS |

1 MECHANICAL LEGENDS
M-001 N.T.S.

## HEATING & COOLING LEGEND

| | |
|---|---|
| HWS | HEATING WATER SUPPLY |
| HWR-E | HEATING WATER RETURN EXPRESS LINE |
| HWR | HEATING WATER RETURN |
| HWS(E) | HEATING WATER SUPPLY EXPRESS LINE |
| HWR(E) | HEATING WATER RETURN EXPRESS LINE |
| GLS | GLYCOL/WATER SUPPLY |
| GLR | GLYCOL/WATER RETURN |
| RG | REFRIGERANT GAS LINE |
| RL | REFRIGERANT LIQUID LINE |
| RS | REFRIGERANT SUCTION LINE |
| PC | PUMP CONDENSATE |
| COND | CONDENSATE RETURN |
| ST-LP | STEAM LOW PRESSURE |
| | EXPANSION COMPENSATOR |
| | FLOAT & THERMOSTATIC TRAP |
| | THERMOSTATIC TRAP |
| | FLEXIBLE CONNECTION |
| | PIPE SLEEVE |
| | PIPE ANCHOR POINT |
| | PIPE GUIDE |
| T | THERMOSTAT/TEMPERATURE SENSOR |
| H | HUMIDISTAT/HUMIDITY SENSOR |
| C | WALL MOUNTED SPEED CONTROLLER |
| A.A.V. | AUTOMATIC AIR VENT |
| MV | MANUAL VENT |
| F.V. | FLOAT VENT |
| | STEAM TRAP |

## PLUMBING & FIRE PROTECTION LEGEND

| | |
|---|---|
| X | PIPE TO BE REMOVED |
| | EXPOSED SANITARY DRAIN |
| | BURIED SANITARY DRAIN |
| ST | EXPOSED STORM DRAIN |
| ST | BURIED STORM DRAIN |
| WT | WEEPING TILE |
| | SANITARY VENT |
| | DOMESTIC COLD WATER (DCW / CW) |
| | DOMESTIC HOT WATER (DHWS / HWS) |
| HW-160 | DOMESTIC HOT WATER @ 160°F(HW-160) |
| | DOMESTIC HOT WATER RECIRC.(DHWR/HWR) |
| HW-S | HOT WATER- SOFT |
| CW-S | COLD WATER- SOFT |
| HP | HIGH PRESSURE COLD WATER LINE |
| F | FIRE LINE |
| CA | COMPRESSED AIR LINE |
| G | NATURAL GAS LINE |
| G-LP | NATURAL GAS LINE- LOW PRESSURE |
| G-MP | NATURAL GAS LINE- MEDIUM PRESSURE |
| ARC | ACID WASTE DRAINAGE |
| P | PROPANE GAS LINE |
| | SIAMESE CONNECTION |
| C.O. | CLEANOUT PLUG |
| C.O. | FLOOR CLEANOUT |
| | PLUMBING TRAP |
| H.B. | HOSE BIBB |
| N.F.W.H. | NON-FREEZE WALL HYDRANT |
| N.F.G.H. | NON-FREEZE GROUND HYDRANT |
| F.D. | FLOOR DRAIN |
| F.F.D. | FUNNEL FLOOR DRAIN |
| H.D. | HUB DRAIN |
| R.D. | ROOF DRAIN |
| M.H. | MANHOLE |
| C.B. | CATCHBASIN |
| C.B.M.H. | CATCHBASIN OVER MANHOLE |
| DR | DRAIN (PLANTER, PODIUM, MISC.) |
| A.D. | AREA DRAIN |
| | WATER METER |
| | FLOW METER |
| | GAS METER ASSEMBLY |
| R.W.L. | RAIN WATER LEADER |
| FV | FIRE VALVE |
| FVC | FIRE VALVE CABINET |
| F.E. | FIRE EXTINGUISHER |
| P | PENDENT SPRINKLER HEAD |
| DP | PENDENT DRY SPRINKLER HEAD |
| | UPRIGHT SPRINKLER HEAD |
| | CONCEALED SPRINKLER HEAD |
| | SIDEWALL SPRINKLER HEAD |
| X | EXTENDED COVERAGE SIDEWALL SPRINKLER HEAD |
| WS | WINDOW SPRINKLER HEAD |
| | RECESSED SPRINKLER HEAD |
| SP | SPRINKLER LINE |
| | FIRE HYDRANT (PUMPER TYPE) c/w VALVE |
| | ELECTRICALLY HEAT TRACED PIPING |
| S PIV | POST INDICATING VALVE |
| W.C.O. | WALL CLEANOUT PLUG |

A / 50(250)
A – DENOTES VAV UNIT TYPE A – REFER TO SCHEDULES
50 – DENOTES AIR QUANTITY – IN CFM. MINIMUM
250 – DENOTES AIR QUANTITY – IN CFM. MAXIMUM

CV-A / 1.0
CV – DENOTES CONVECTOR HEATING UNIT
A – DENOTES UNIT TYPE – REFER TO SPECIFICATION
1.0 – DENOTES HEATING CAPACITY – IN MBH.

R-A / 1.0
R – DENOTES RUNTAL HEATING UNIT
A – DENOTES UNIT TYPE – REFER TO SPECIFICATION
1.0 – DENOTES HEATING CAPACITY – IN MBH.

FF / 1
FF – DENOTES FORCE FLOW HEATER
1 – DENOTES FORCE FLOW HEATER NUMBER

UH / 1
UH – DENOTES UNIT HEATER
1 – DENOTES UNIT HEATER NUMBER

RH / 1
RH – DENOTES REHEAT COIL
1 – DENOTES REHEAT COIL NUMBER

HWT / 1
HWT – DENOTES HOT WATER TANK
1 – DENOTES HOT WATER TANK NUMBER

B / 1
B – DENOTES BOILER
1 – DENOTES BOILER NUMBER

ET / 1
ET – DENOTES EXPANSION TANK
1 – DENOTES EXPANSION TANK NUMBER

P / 1
P – DENOTES PUMP
1 – DENOTES PUMP NUMBER

CHW-R / 1
CHW-R – DENOTES CHILLED WATER SUPPLY & RETURN RISERS
1 – DENOTES RISER NUMBER

HW-R / 1
HW-R – DENOTES HEATING WATER SUPPLY & RETURN RISERS
1 – DENOTES RISER NUMBER

AH / 1
AH – DENOTES AIR HANDLIG UNIT
1 – DENOTES AIR HANDLIG UNIT NUMBER

SEF / 1
SEF – DENOTES SMOKE EXHAUST FAN
1 – DENOTES SMOKE EXHAUST FAN NUMBER

RF / 1
RF – DENOTES RETURN FAN
1 – DENOTES RETURN FAN NUMBER

SF / 1
SF – DENOTES SUPPLY FAN
1 – DENOTES SUPPLY FAN NUMBER

TF / 1
TR – DENOTES TRANSFER FAN
1 – DENOTES TRANSFER FAN NUMBER

EF / 1
TR – DENOTES EXHAUST FAN
1 – DENOTES EXHAUST FAN NUMBER

HR / S1
HR – DENOTES HEATING RISER
S1 – DENOTES SUPPLY OR RETURN RISER HEATING RISER NUMBER

RH / 1
RH – DENOTES REHEAT COIL
1 – DENOTES REHEAT COIL NUMBER

RH / 1E
RH – DENOTES REHEAT COIL
1E – DENOTES ELECTRIC REHEAT COIL NUMBER

MC –320
LEVEL 2 PLAN
FIRE PROTECTION

DRAWING NUMBER

FLOOR LEVEL
1– LEVEL 1
2– LEVEL 2
3– LEVEL 3
4– LEVEL 4
5– LEVEL 5
6– LEVEL 6
7– LEVEL 7
8– PENTHHOUSE & ROOF

DISCIPLINE
1 – GENERAL
2 – PLUMBING & DRAINAGE
3 – FIRE PROTECTION
4 – H.V.A.C. DUCTWORK
5 – H.V.A.C. PIPING
6 – DETAIL PLANS & SECTIONS
7 – CONTROL DIAGRAMS
8 – SCHEMATICS
9 – DETAILS

MECHANICAL DRAWINGS FOR CANAL SITE BUILDING

◆ – DENOTES ISSUE
◇ – DENOTES REVIEW

100 / 2A–150
100 – DENOTES AIR QUANTITY – IN CFM.
2A – DENOTES NUMBER OF SLOTS AND TYPE OF DIFFUSER
150 – DENOTES SIZE OF GRILLE OR DIFFUSER NECK DIAMETER – (mm)

100 / E–200X150
100 – DENOTES AIR QUANTITY – IN CFM.
E – DENOTES TYPE OF GRILLE OR DIFFUSER
200X150 – DENOTES SIZE OF GRILLE OR DIFFUSER NECK DIAMETER – (mm)

AD
ACCESS DOOR

WHERE DISCREPANCIES EXISTS BETWEEN THE ARCHITECTURAL BACKGROUNDS AND MECHANICAL DRAWINGS, REFERENCE SHALL BE MADE TO THE LATEST SET OF ARCHITECTURAL DRAWINGS, ADDENDUMS AND BULLETINS ISSUED TO DATE.

2 GENERAL NOTES
M-001 N.T.S.

## DRAWING LIST

| DWG NO. | DRAWING NAME | SCALE | SD | DD | SD % | BUILDING PERMIT | CLASS B+ | TENDER | CONSTRUCTION | RECORD DRAWINGS | DATE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MC–001 | MECHANICAL LEGEND & DRAWING LIST | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–002 | MACKENZIE BUILDING TUNNEL PHOTO | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–110 | UNDER SLAB FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–210 | LEVEL 1 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–220 | LEVEL 2 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–230 | LEVEL 3 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–240 | LEVEL 4 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–250 | LEVEL 5 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–260 | LEVEL 6 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–270 | LEVEL 7 FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–280 | ROOF FLOOR PLAN – PLUMBING & DRAINAGE | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–310 | LEVEL 1 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–320 | LEVEL 2 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–330 | LEVEL 3 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–340 | LEVEL 4 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–350 | LEVEL 5 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–360 | LEVEL 6 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–370 | LEVEL 7 FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–380 | ROOF FLOOR PLAN – FIRE PROTECTION | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–410 | LEVEL 1 FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–420 | LEVEL 2 FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–430 | LEVEL 3 FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–440 | LEVEL 4 FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–450 | LEVEL 5 FLOOR PLAN – HVAC DUCT WORK | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–460 | LEVEL 6 FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–470 | LEVEL 7 FLOOR PLAN – HVAC DUCT WORK | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–480 | ROOF FLOOR PLAN – HVAC DUCT WORK | 1:100 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–490 | RESERVED | 1:100 | | | | | | | | | | |
| MC–510 | LEVEL 1 FLOOR PLAN – HVAC PIPING | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–520 | LEVEL 2 FLOOR PLAN – HVAC PIPING | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–530 | LEVEL 3 FLOOR PLAN – HVAC PIPING | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–540 | LEVEL 4 FLOOR PLAN – HVAC PIPING | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–550 | LEVEL 5 FLOOR PLAN – HVAC PIPING | 1:100 | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–560 | LEVEL 6 FLOOR PLAN – HVAC PIPING | 1:100 | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–570 | LEVEL 7 FLOOR PLAN – HVAC PIPING | 1:100 | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–580 | ROOF FLOOR PLAN – HVAC PIPING | 1:100 | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–601 | SECTIONS – SHEET 1 | 1:50 | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–602 | SECTIONS – SHEET 2 | 1:50 | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–603 | LEVEL 1 FLOOR PLAN – MECHANICAL ROOM | 1:100 | | | | | | | ◆ | ◆ | JULY 7, 2011 | |
| MC–604 | RESERVED | | | | | | | | | | | |
| MC–700 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–701 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–702 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–703 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–800 | SCHEMATIC – CHILLED WATER SYSTEM | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–810 | SCHEMATIC – SUPPLY AIR | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–820 | SCHEMATIC – EXHAUST AIR | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–830 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–840 | RESERVED | N.T.S. | | | | | | | | | | |
| MC–850 | SCHEMATIC – FIRE PROTECTION & DETAILS | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–860 | SCHEMATIC – DOMESTIC COLD, HOT WATER & SANITARY RISERS. | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–870 | SCHEMATIC – STEAM AND HOT WATER DISTRIBUTION SYSTEM | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–880 | SCHEMATIC – 24/7 COOLING WATER | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–900 | MECHANICAL DETAILS – SHEET 1 | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–901 | MECHANICAL DETAILS – SHEET 2 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–902 | MECHANICAL DETAILS – SHEET 3 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–903 | MECHANICAL DETAILS – SHEET 4 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–904 | MECHANICAL DETAILS – SHEET 5 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–905 | MECHANICAL DETAILS – SHEET 6 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–906 | MECHANICAL DETAILS – SHEET 7 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–907 | MECHANICAL DETAILS – SHEET 8 | N.T.S. | | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–908 | MECHANICAL DETAILS – SHEET 9 | N.T.S. | | | | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |
| MC–910 | SCHEMATIC HVAC – ZONING DIAGRAM | N.T.S. | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | JULY 7, 2011 | |

3 DRAWING LIST
M-001 N.T.S.

1. LOCATION: OTTAWA
2. SITE CLASS: C AS PER REPORT (ON GEOTECHNICAL INVESTIGATION PROPOSED ACADEMIC BUILDING CANAL SITE CARLETON UNIVERSITY OTTAWA, ONTARIO) No.: 07-1121-0184 DATED JAN. 2008 AND PREPARED BY GOLDER ASSOCIATES LTD.
3. IMPORTANCE CATEGORY: NORMAL (OBC TABLE 4.1.2.1.B)
4. IMPORTANCE FACTOR: 1.0 (OBC TABLE 4.1.8.5)

4 SEISMIC DESIGN CRITERIA
M-001 N.T.S.


Carleton UNIVERSITY
Construction Services
Department Of Physical Plant
209 Maintenance Building
1125 Colonel By Drive,
Ottawa, Canada, K1S 5B6
Telephone: (613) 520-2600

CROSSEY ENGINEERING LTD.
2255 Sheppard Avenue. E.
Suite E 331
North York, On M2J 4Y1
(416)497.3111 fax (416)497.7210


RECORD DRAWINGS HAVE BEEN PREPARED FROM THE AS-BUILT DOCUMENTS ISSUED BY R.E. HEIN JULY 7, 2011

| no. | date | revision | by |
|---|---|---|---|
| 3. | JULY 7, 2011 | RECORD DRAWINGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
MECHANICAL LEGEND & DRAWING LIST

| | |
|---|---|
| date | job no. 06226.201 |
| scales NTS | |
| drawn AP | drawing no. MC–001 |
| approved MG/HK | |
| plot date | |

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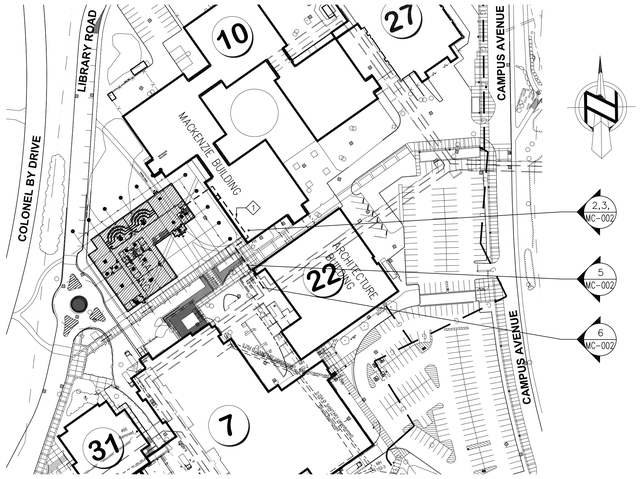
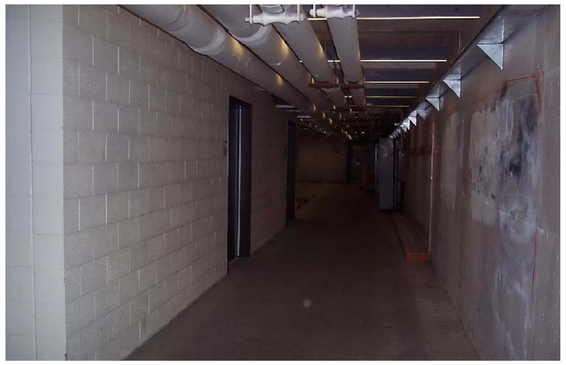



NOTES:
1. HIGH PRESSURE STEAM & CONDENSATE TO BE CONNECTED TO MAINS IN BUILDING 22 (ARCHITECTURE BUILDING) & RUN INSIDE THE EXISTING TUNNEL.

1 PART SITE PLAN
MC-002 1:1000

LOOKING EAST

2 IMAGE 001
MC-002 NTS



LOOKING WEST

3 IMAGE 002
MC-002 NTS

INSIDE TUNNEL

4 IMAGE 003
MC-002 NTS

NOTES:
1. REVISE EXISTING PIPING TO SUIT WITH NEW PIPING. CONNECTION POINT FOR STEAM & CONDENSATE.

5 IMAGE 004
MC-002 NTS

INSIDE THE BUILDING # 22

6 IMAGE 005
MC-002 NTS

INSIDE TUNNEL

7 IMAGE 006
MC-002 NTS

INSIDE TUNNEL

8 IMAGE 007
MC-002 NTS

9 RESERVED
MC-002 NTS

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IN JOINT VENTURE
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K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180

consultant

professional stamp

PROJECT NORTH

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
MACKENZIE BUILDING
TUNNEL PHOTO

| | |
|---|---|
| date | |
| scales NTS | job.no. 06226.201 |
| drawn AP | |
| approved MG/HK | drawing no. MC-002 |
| plot date | |

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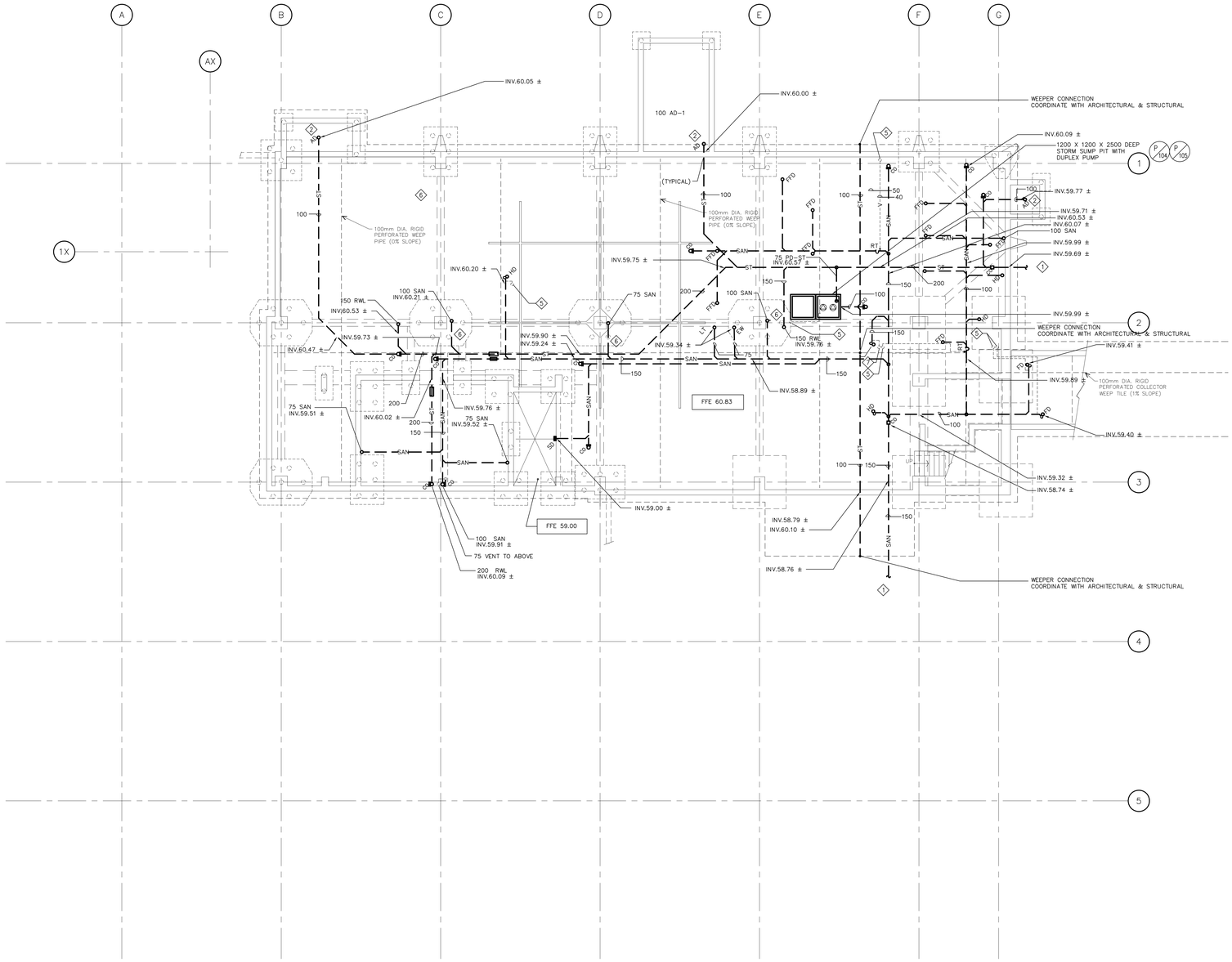


## CONSTRUCTION NOTES:

1. EXTEND FROM THE BUILDING 1.5 METERS. FOR CONTINUATION REFER TO SITE SERVICE DRAWING C-01.
2. STORM LINE TO BE INSULATED.
3. TOTAL FLOW FROM THE ROOF TO BE CONTROLLED TO 11 L/S. AS PER STORM WATER MANAGEMENT REPORT.
4. 75 VENT TO ABOVE
5. 40 VENT TO ABOVE
6. PROVIDE SLEEVE FOR PIPE PASSING THROUGH STRUCTURAL ELEMENTS.
7. 50 VENT TO ABOVE


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PROJECT NORTH

project title

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ACADEMIC BUILDING
CANAL SITE

drawing title

UNDER SLAB FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | |
| approved MG/HK | drawing no. MC-110 |
| plot date | |

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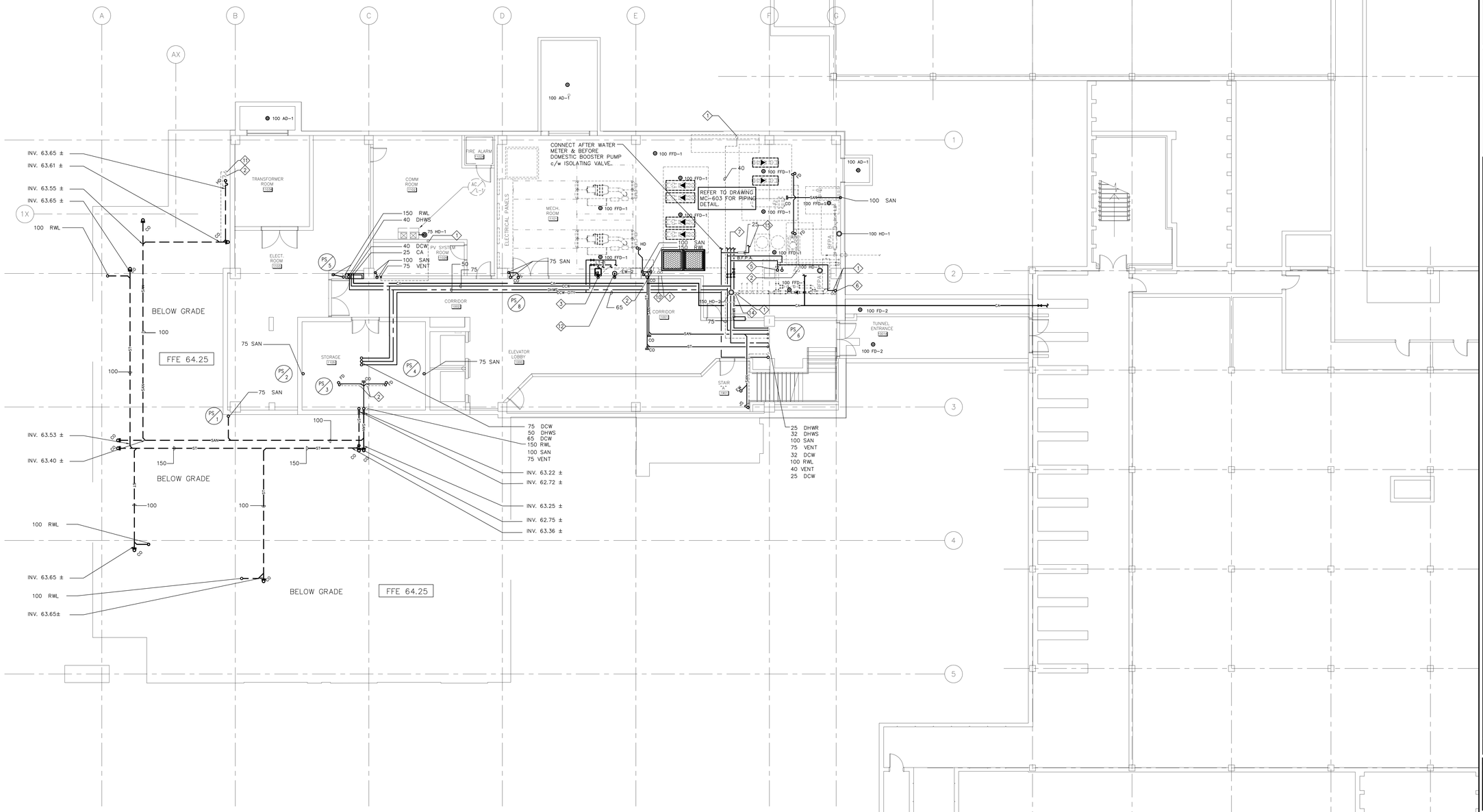


**CONSTRUCTION NOTES:**

1. 40 VENT FROM BELOW
2. 40 VENT TO ABOVE
3. 40 SAN & 32 VENT ,20 DCW & DHWS TO SERVE SINK
4. RESERVED
5. 25 DCW TO ABOVE.
6. 20 DCW TO ABOVE.
7. FOR CONTINUATION REFER TO DRAWING MC-603
8. RESERVED.
9. RESERVED
10. 75 VENT FROM BELOW.
11. 75 VENT TO ABOVE.
12. 32 SAN, 32 VENT, 20 DCW & 20 DHWS TO SERVE EYE WASH
13. RESERVED
14. 50 VENT FROM BELOW
15. TO HVAC EQUIPMENT MAKE-UP WATER CONNECTION. FOR CONTINUATION REFER TO HVAC DRAWINGS.

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consultant

professional stamp

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project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 1 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-210 |
| approved MG/HK | |
| slot date | |

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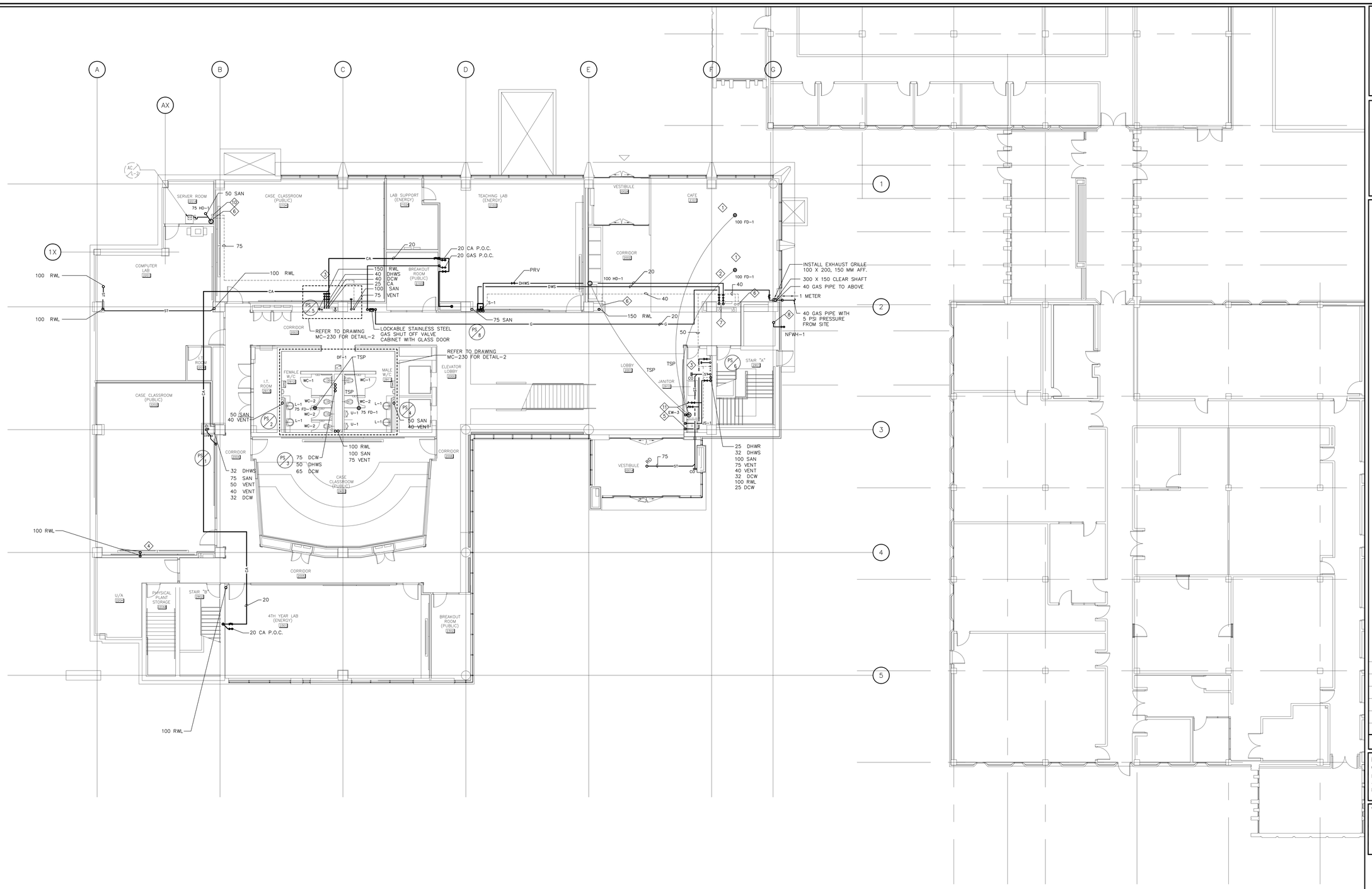


**CONSTRUCTION NOTES:**

1. FINAL LOCATION FOR FLOOR DRAIN/FFD'S , DCW & DHWS TO BE COORDINATED.
2. PROVIDE VALVE CONNECTION.
3. PROVIDE 20 DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
4. 150 MM PLUMBING WALL
5. 75 SAN, 40 VENT, 20 DCW & 20 DHWS TO SERVE JANITOR SINK
6. 40 VENT FROM BELOW
7. 25 DCW & DHWS FROM BELOW.
8. 20 DCW FROM BELOW.
9. RESERVED.
10. 75 VENT FROM BELOW.
11. 32 SAN, 32 VENT, 20 DCW & 20 DHWS TO SERVE EYE WASH


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ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 2 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-220 |
| approved MG/HK | |
| plot date | |

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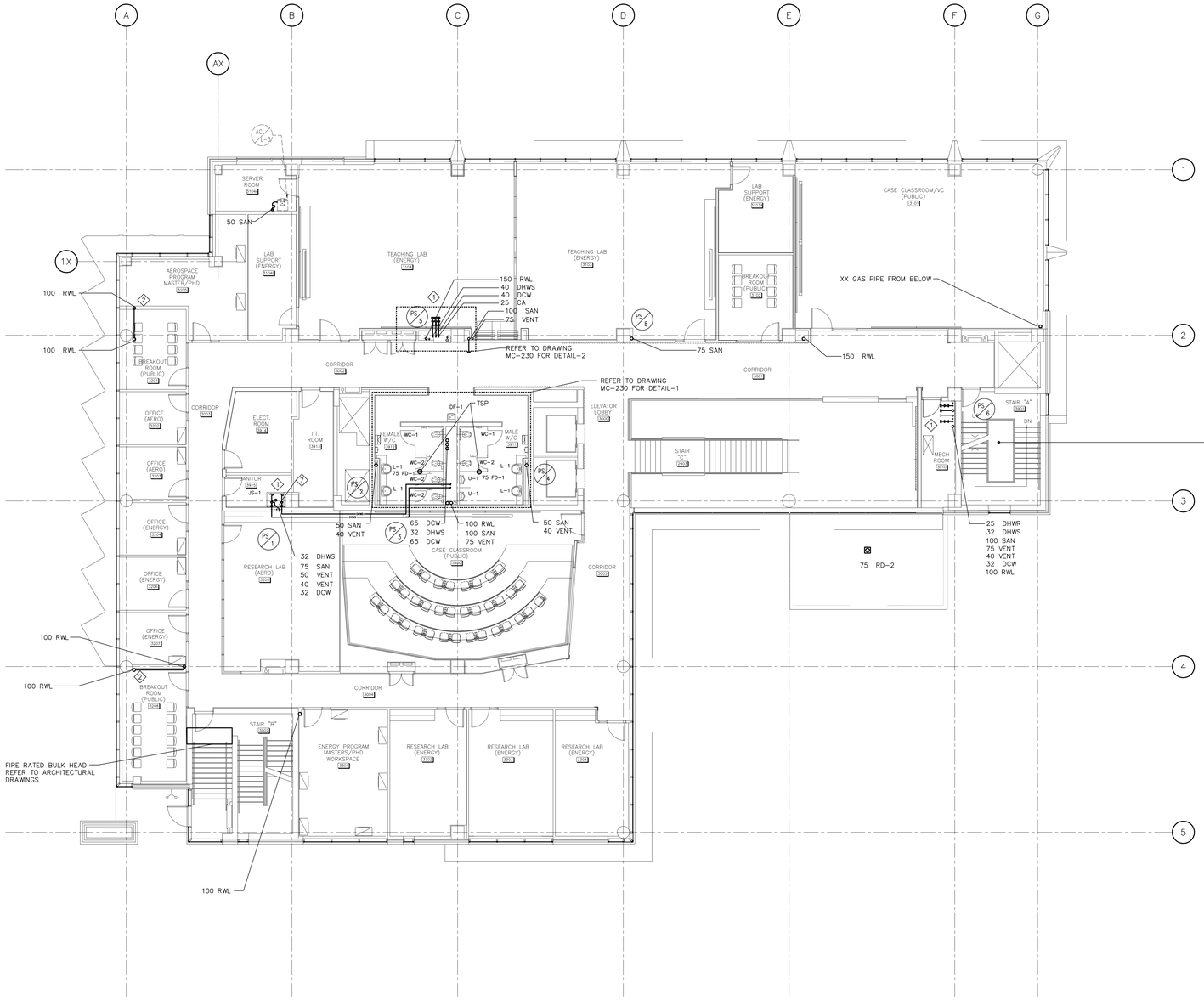
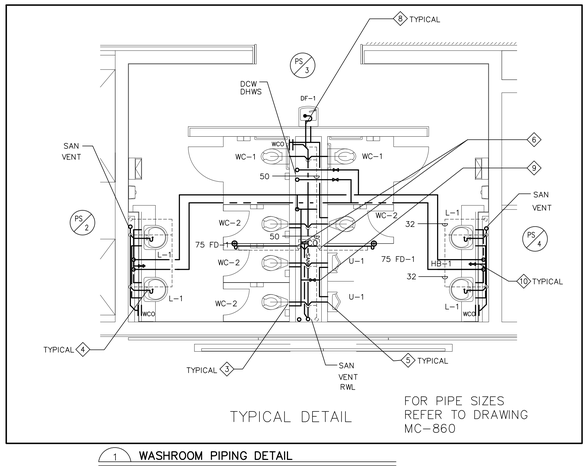
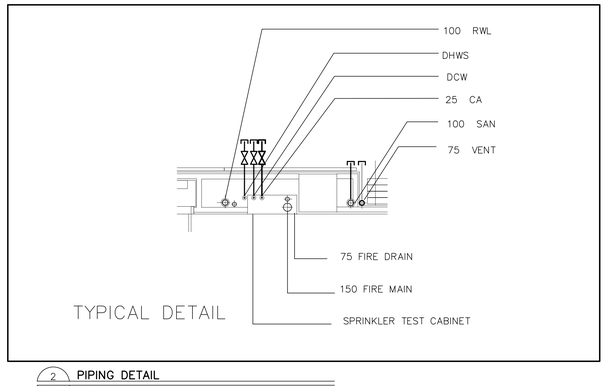



1 WASHROOM PIPING DETAIL
MC-230 1:50




2 PIPING DETAIL
MC-230 N.T.S.

**CONSTRUCTION NOTES:**

1. PROVIDE 20 DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
2. 150 MM PLUMBING WALL
3. 75 SAN, 40 VENT, 32 DCW TO SERVE WC
4. 32 SAN, 32 VENT, 12 DCW & 12 DHWS TO SERVE LAVATORY
5. 50 SAN, 40 VENT, TO SERVE URINAL
6. 40 VENT TO SERVE FLOOR DRAIN.
7. 75 SAN, 40 VENT, 20 DCW & 20 DHWS TO SERVE JANITOR SINK
8. 32 SAN, 32 VENT, 12 DCW TO SERVE DRINKING FOUNTAIN
9. 32 DCW WITH ISOLATING VALVE FOR URINAL CONNECTION. PROVIDE 25 DCW CONNECTION TO ALL URINALS. TYPICAL FOR ALL FLOOR.
10. 20 DCW TO HOSE BIB BELOW THE COUNTER FOR HOUSEKEEPING PURPOSE.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ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 3 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | |
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| drawn I.V. | |
| approved MG/HK | drawing no. MC-230 |
| plot date | |

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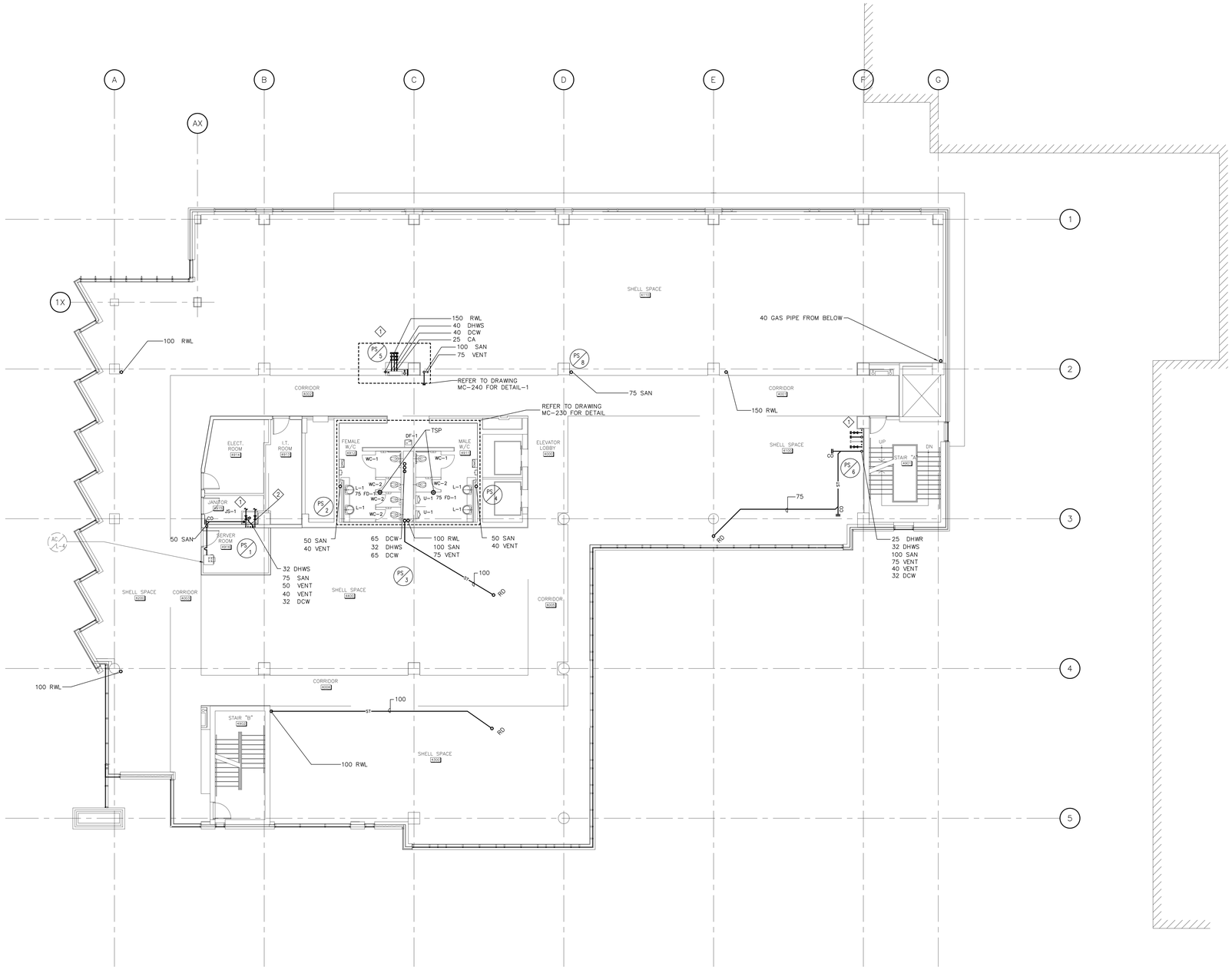


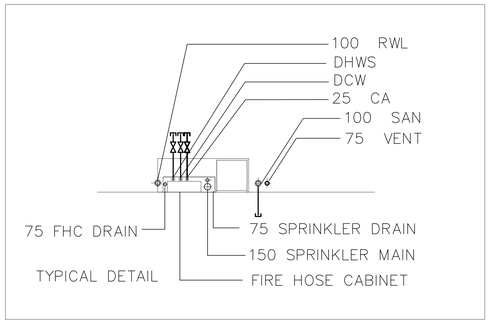


1 PIPING DETAIL
MC-240 N.T.S.

**CONSTRUCTION NOTES:**

1. PROVIDE 20 MM DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
2. 75 SAN, 40 VENT, 20 DCW & 20 DHWS TO SERVE JANITOR SINK


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PROJECT NORTH

project title
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ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 4 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
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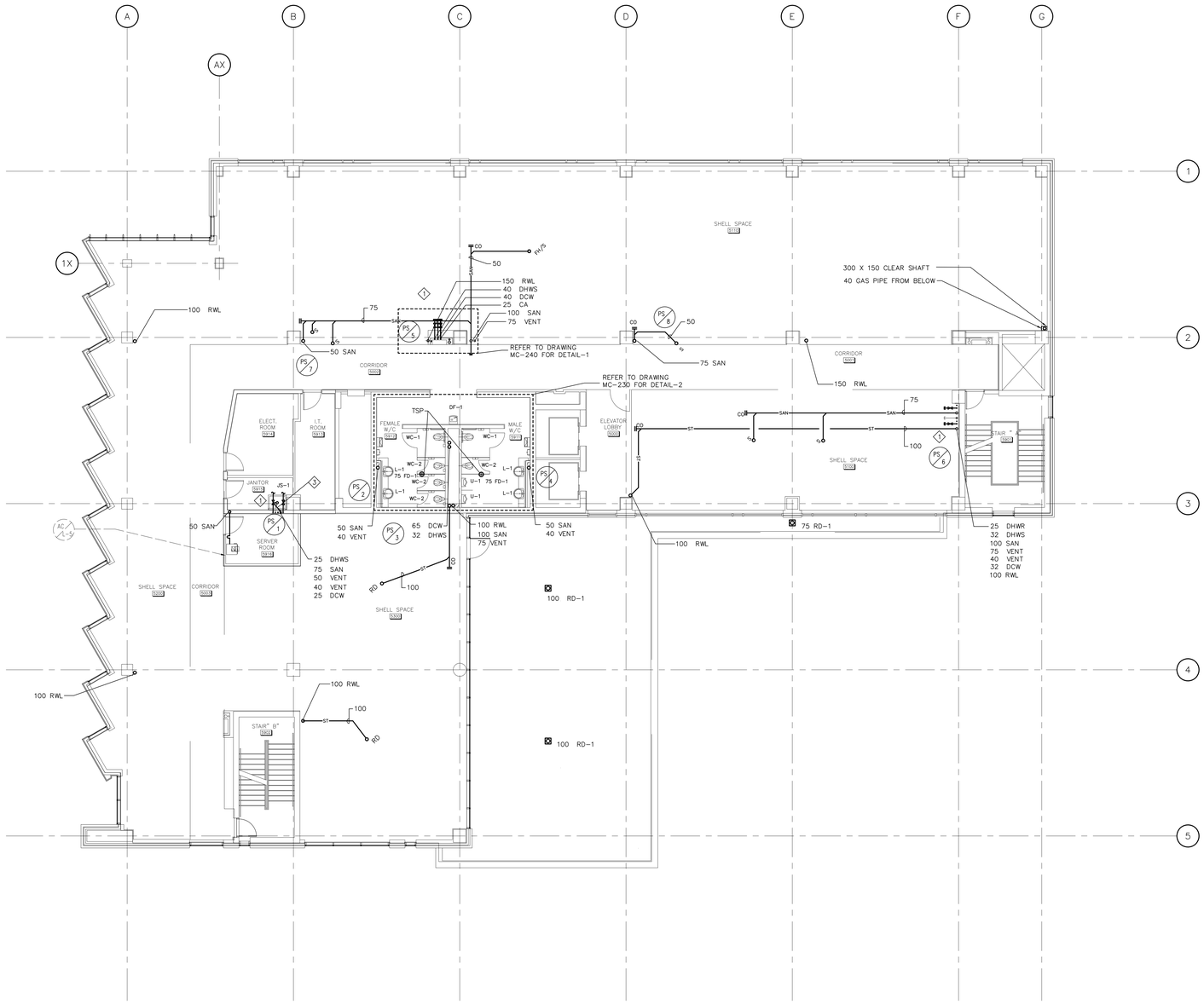


**CONSTRUCTION NOTES:**

1. PROVIDE 20 MM DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
2. RESERVED.
3. 75 SAN, 40 VENT, 20 CWS & 20 DHWS TO SERVE JANITOR SINK


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professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 5 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-250 |
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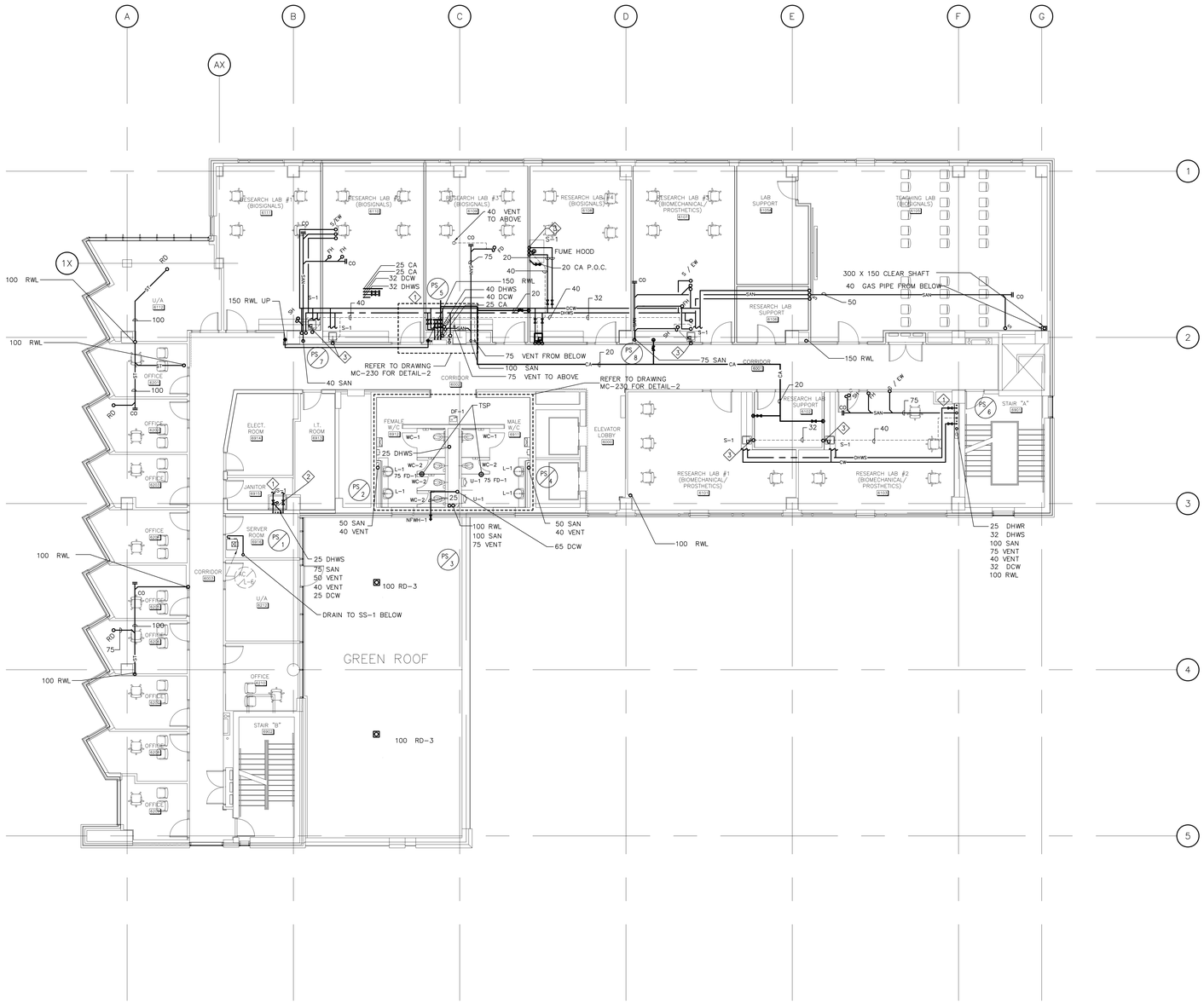


## CONSTRUCTION NOTES:

1. PROVIDE 20 MM DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
2. 75 SAN, 40 VENT, 20 DCW & 20 DHWS TO SERVE JANITOR SINK
3. 40 SAN, 32 VENT, 20 DCW & 20 DHWS TO SERVE SINK


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project title

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ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 6 FLOOR PLAN
PLUMBING & DRAINAGE

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|---|---|
| date | job no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-260 |
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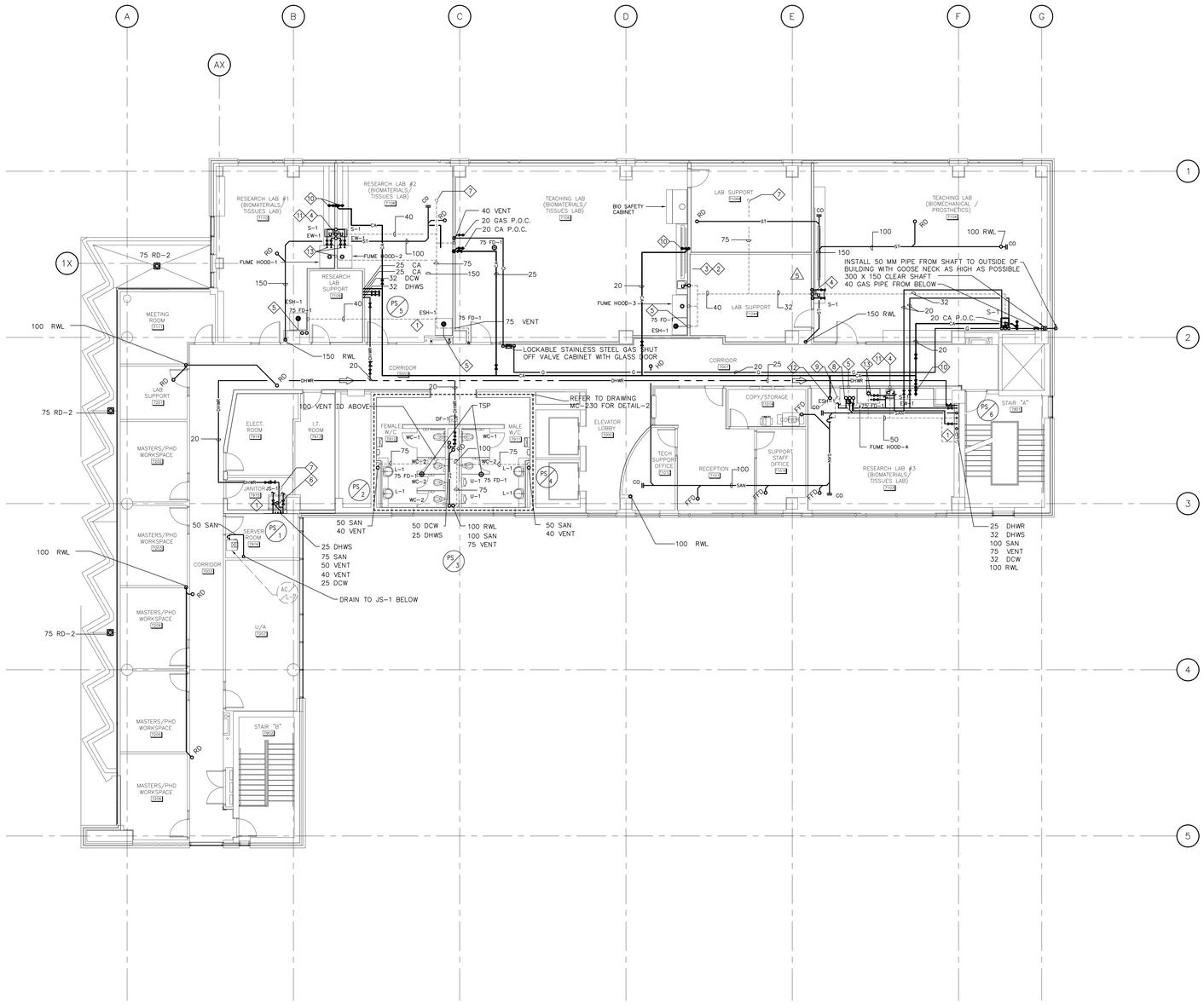


## CONSTRUCTION NOTES:

1. PROVIDE 20 MM DCW & DHWS CONNECTION c/w VALVE , 75 SAN & 50 VENT ON EACH FLOOR.
2. PLUMBING WALL (200 MM) TYPICAL (REFER TO ARCHITECTURAL DRAWINGS)
3. 150 MM PLUMBING WALL
4. 40 SAN, 32 VENT, 20 DCW & 20 DHWS TO SERVE SINK
5. 75 SAN, 40 VENT, 32 DCW & 32 DHWS TO SERVE SHOWER
6. 75 SAN, 40 VENT, 20 DCW & 20 DHWS TO SERVE JANITOR SINK
7. 100 VENT THROUGH ROOF.
8. 25 DCW & 20 DHWS TO ABOVE & 50 SAN FROM ABOVE.
9. 40 VENT TO ABOVE.
10. 20 COMPRESSED AIR CONNECTION, REFER TO SPECIFICATION.
11. 20 DCW & 20 DHWS TO SERVE EYEWASH.
12. 20 COMPRESSED AIR TO ABOVE.
13. 20 DCW & DHWS, 40 DRAIN c/w TRAP AND 32 VENT TO FUME HOOD.


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| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203. Fax. 613 241 4180


consultant

PROJECT NORTH

professional stamp

project title

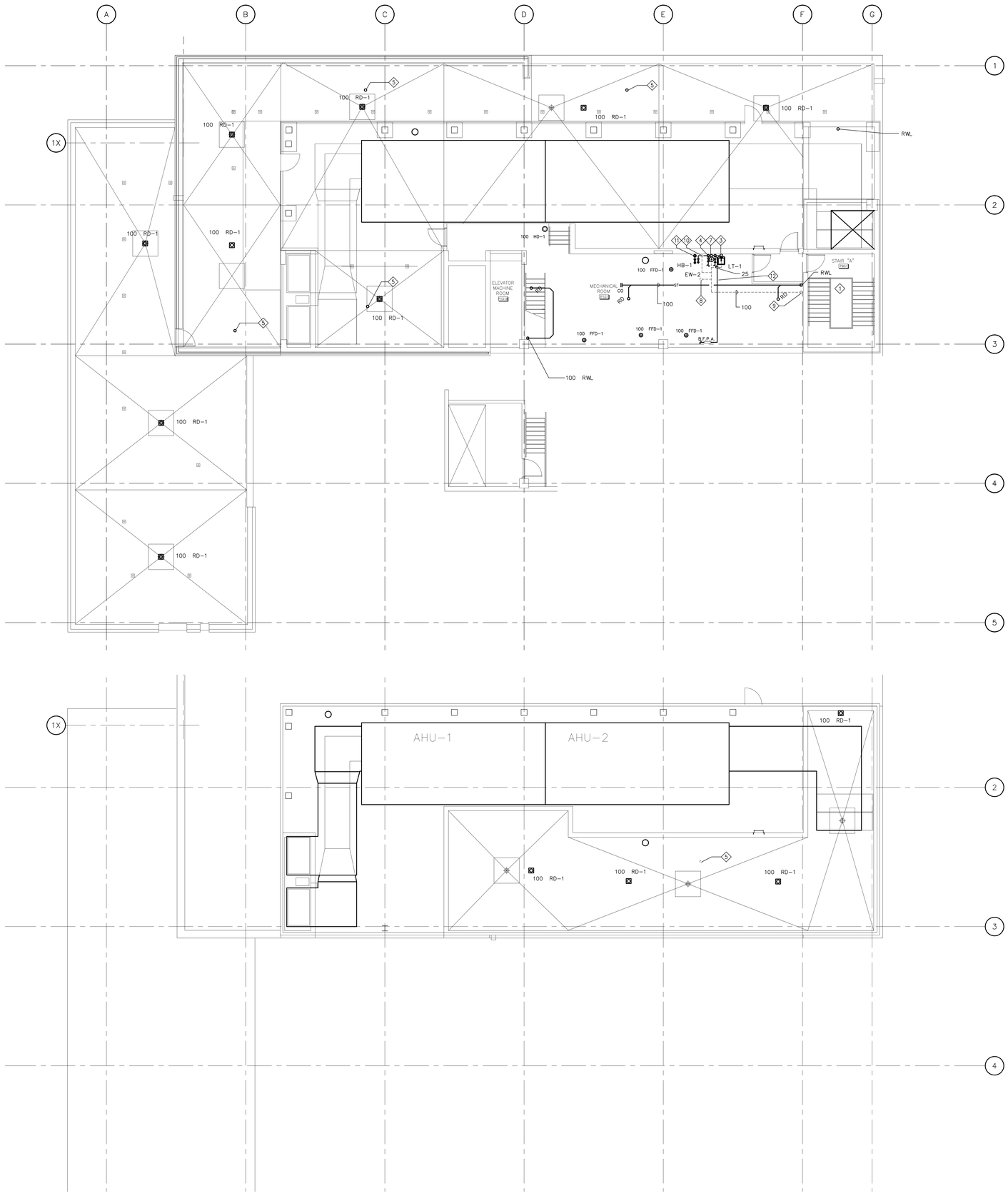
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 7 FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-270 |
| approved MG/HK | |
| plot date | |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## CONSTRUCTION NOTES:

1. STAIR ROOF TO BE SCUPPER DRAIN.
2. FOR LOCATION OF SCUPPER OVERFLOW REFER TO ARCHITECTURAL DRAWINGS.
3. 40 SAN, 32 VENT, 20 CWS TO SERVE SINK
4. 32 SAN, 32 VENT, 20 DCW & 20 DHWS TO SERVE EYE WASH
5. 100 VENT THROUGH ROOF.
6. TOTAL FLOW FROM THE ROOF TO BE CONTROLLED TO 11 L/S. AS PER STORM WATER MANAGEMENT REPORT. REFER TO DRAWING. C-01
7. 25 DCW & 20 DHWS FROM BELOW & 50 SAN DN.
8. 100 VENT TO ABOVE.
9. 100 VENT FROM BELOW
10. 40 VENT FROM BELOW.
11. 20 COMPRESSED AIR CONNECTION. REFER TO SPECIFICATION.
12. TO HVAC EQUIPMENTS MAKE-UP WATER CONNECTION C/W RP TYPE BACK FLOW PREVENTER. FOR CONTINUATION REFER TO HVAC DRAWINGS.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| no. | date | revision | by |
|---|---|---|---|
| 3. | JULY 7, 2011 | RECORD DRAWNGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


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consultant

PROJECT NORTH

professional stamp

project title

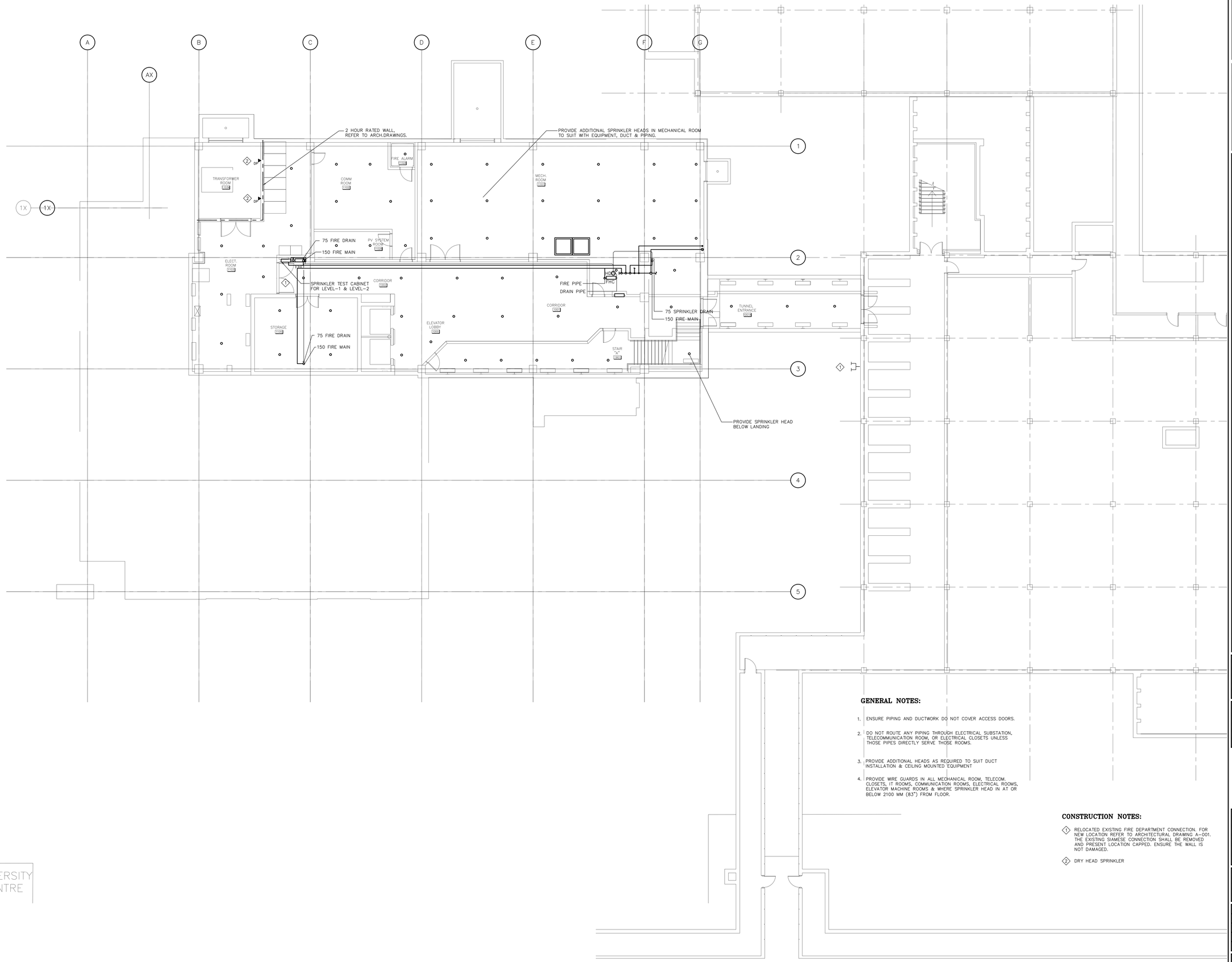
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

ROOF FLOOR PLAN
PLUMBING & DRAINAGE

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn I.V. | drawing no. MC-280 |
| approved MG/HK | |
| plot date | |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM. CLOSETS, IT ROOMS, COMMUNICATION ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.

## CONSTRUCTION NOTES:

1. RELOCATED EXISTING FIRE DEPARTMENT CONNECTION. FOR NEW LOCATION REFER TO ARCHITECTURAL DRAWING A-001. THE EXISTING SIAMESE CONNECTION SHALL BE REMOVED AND PRESENT LOCATION CAPPED. ENSURE THE WALL IS NOT DAMAGED.
2. DRY HEAD SPRINKLER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|---|---|---|---|
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| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


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IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
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consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

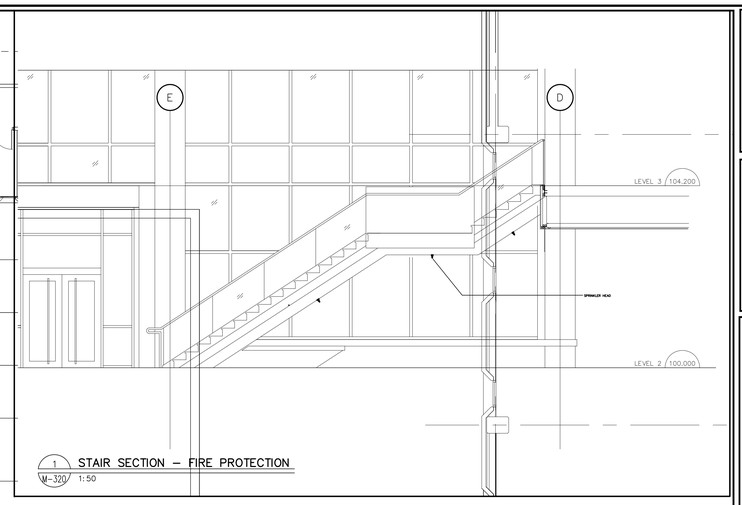
LEVEL 1 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |

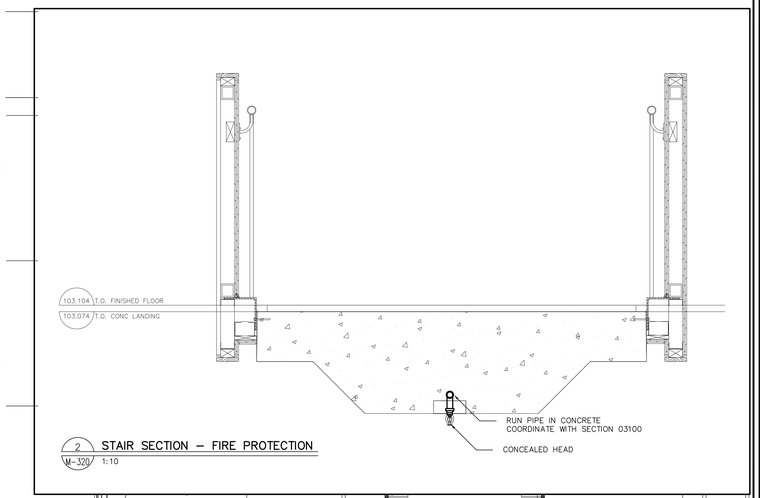
job.no. 06226.201

drawing no. MC-310

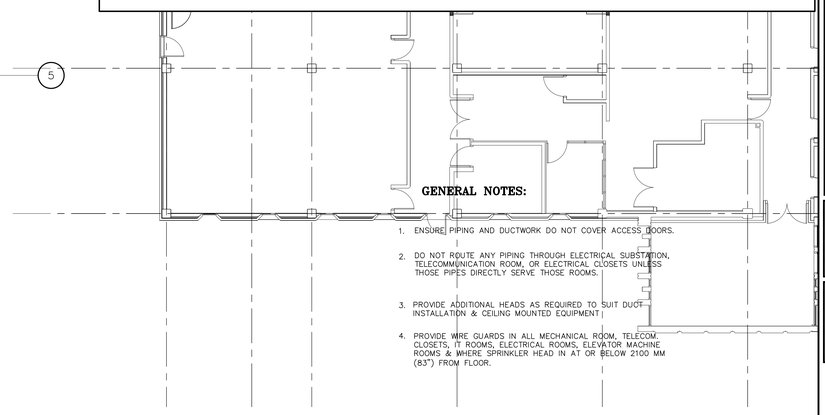
1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




1 STAIR SECTION – FIRE PROTECTION
M-320 1:50




2 STAIR SECTION – FIRE PROTECTION
M-320 1:10



**GENERAL NOTES:**

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2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT.
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM CLOSETS, IT ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.

**CONSTRUCTION NOTES:**

1. SPRINKLER VALVE ASSEMBLY.
2. CLOSED SPACE SPRINKLER HEAD AS PER NFPA 13.


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consultant

professional stamp

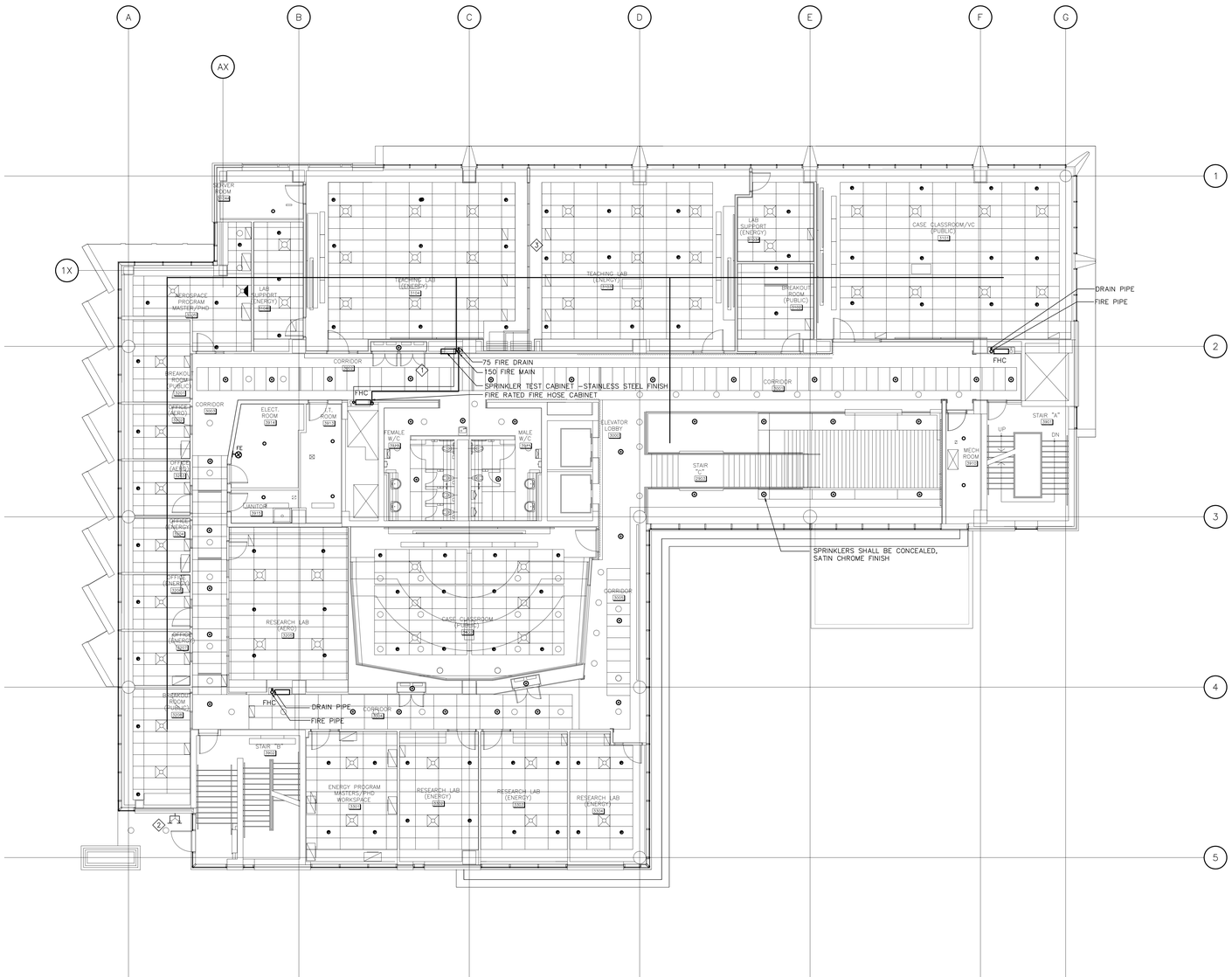
PROJECT NORTH

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 2 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-320 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

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2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM. CLOSETS, IT ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.
5. PIPING SHOWN IS FOR FOR INFORMATION ONLY. COORDINATE FINAL LOCATION W/ OTHER TRADES.

## CONSTRUCTION NOTES:

1. SPRINKLER VALVE ASSEMBLY.
2. FIRE DEPARTMENT CONNECTION.
3. COORDINATE INSTALLATION WITH PARTITION CONSTRUCTOR


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K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

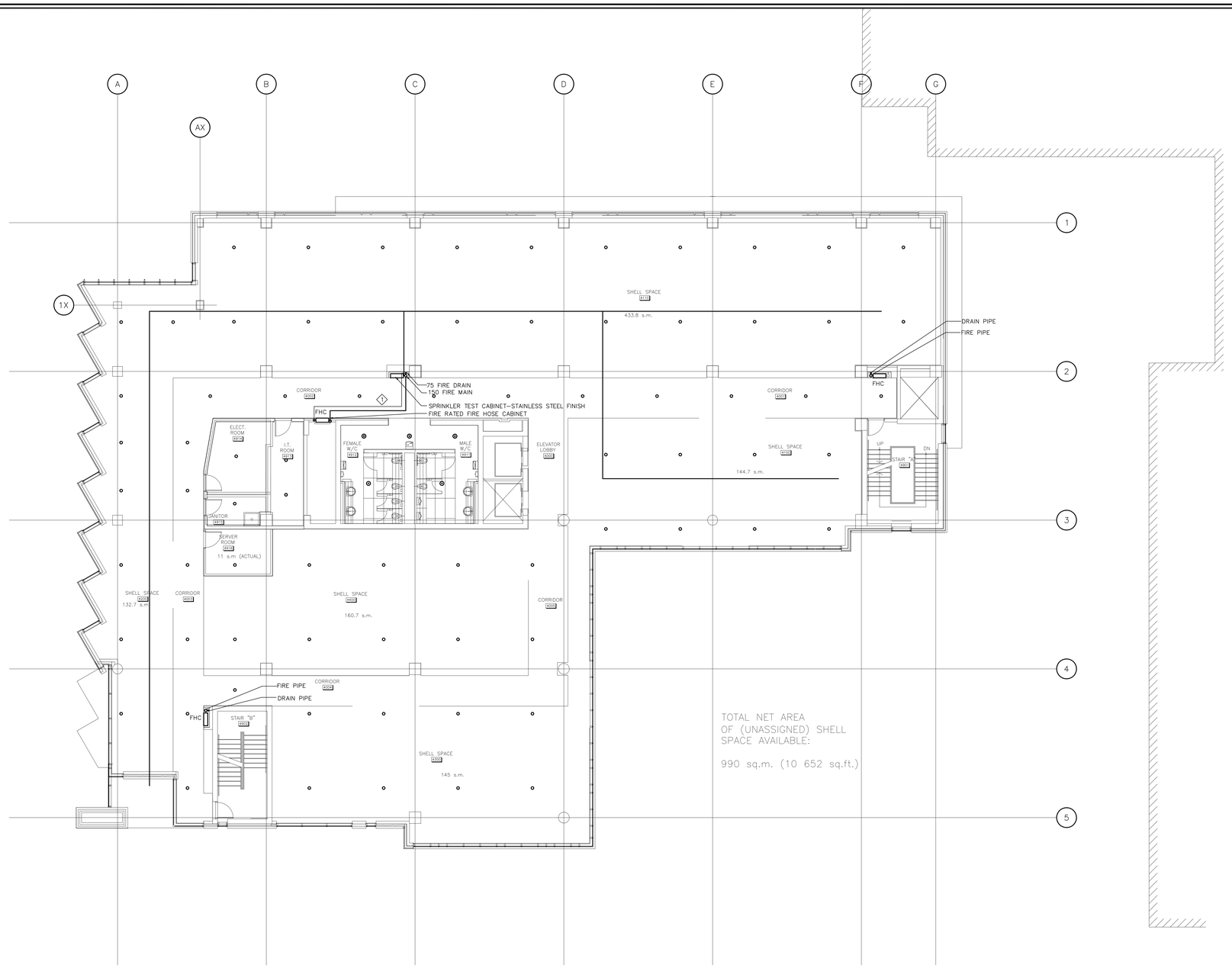
LEVEL 3 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales 1:100 | |
| drawn AP | |
| approved MG/HK | |
| plot date | |

job no. 06226.201

drawing no. MC–330

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




TOTAL NET AREA
OF (UNASSIGNED) SHELL
SPACE AVAILABLE:

990 sq.m. (10 652 sq.ft.)

## GENERAL NOTES:

1. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM. CLOSETS, IT ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.
5. PIPING SHOWN IS FOR FOR INFORMATION ONLY. COORDINATE FINAL LOCATION W/ OTHER TRADES.
6. SPRINKLER SYSTEM IN THIS FLOOR SHALL BE DESIGNED TO BE ABLE TO EXPANDE TO SAME CONFIGERATION AS LEVEL 6 & 7 MAINS.
7. SPRINKLER PIPES SHALLE BE INSTALLED SAME AS LEVEL 6 & 7

## CONSTRUCTION NOTES:

1. SPRINKLER VALVE ASSEMBLY.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| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
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consultant

professional stamp

PROJECT NORTH

project title

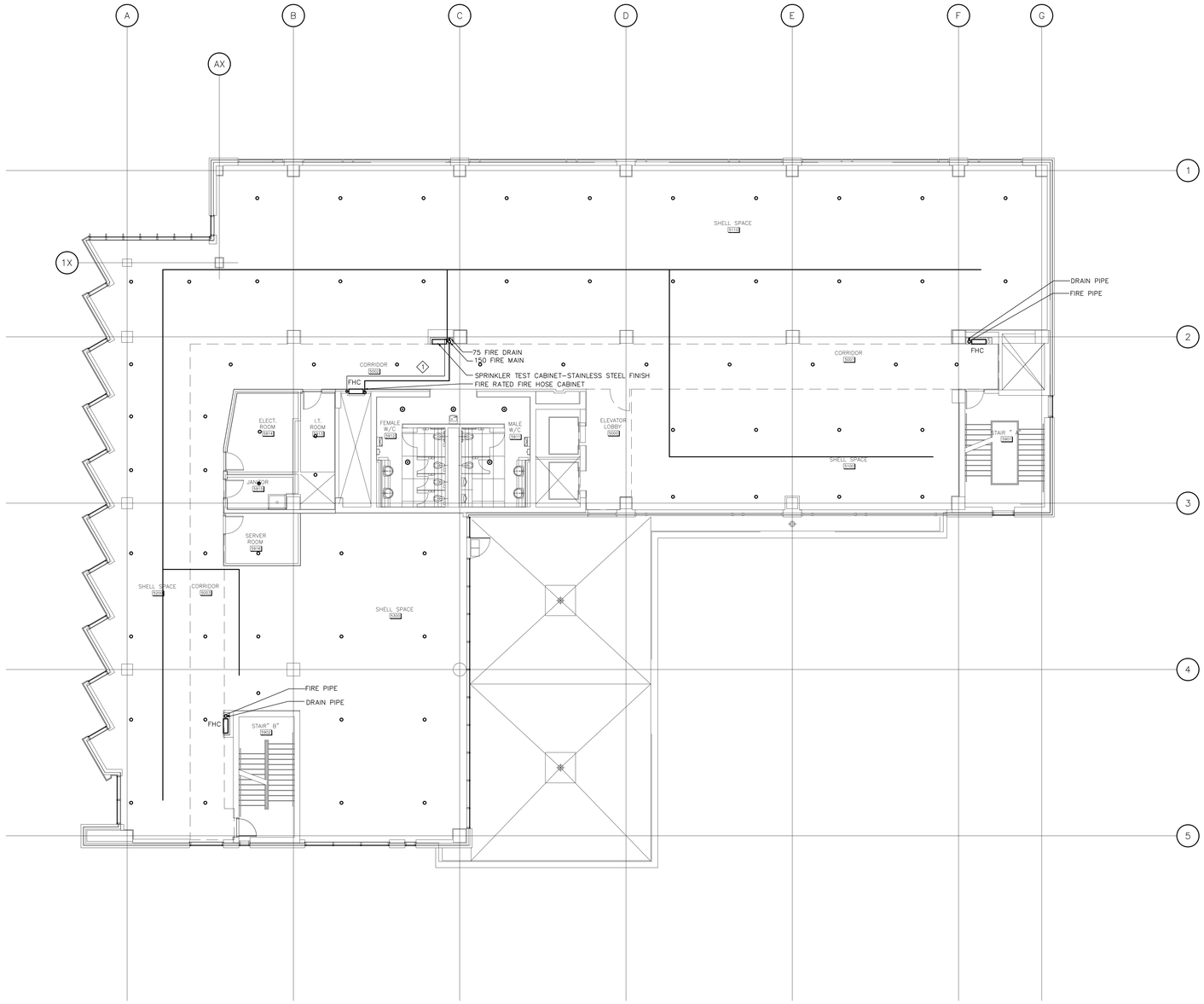
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 4 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC–340 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM. CLOSETS, IT ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.
5. PIPING SHOWN IS FOR FOR INFORMATION ONLY. COORDINATE FINAL LOCATION W/ OTHER TRADES.
6. SPRINKLER SYSTEM IN THIS FLOOR SHALL BE DESIGNED TO BE ABLE TO EXPANDE TO SAME CONFIGERATION AS LEVEL 6 & 7 MAINS.
7. SPRINKLER PIPES SHALLE BE INSTALLED SAME AS LEVEL 6 & 7

## CONSTRUCTION NOTES:

1. SPRINKLER VALVE ASSEMBLY.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| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


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consultant

PROJECT NORTH

professional stamp

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 5 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-350 |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

## GENERAL NOTES:

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5. SPRINKLER HEADS TO BE INSTALLED IN CENTER OF CEILING TILE. REFER TO ARCHITECTURAL DRAWINGS.
6. COORDINATE SPRINKLER HEADS WITH CABLE TRAY. REFER TO ELECTRICAL DRAWINGS.
7. PIPING SHOWN IS FOR FOR INFORMATION ONLY. COORDINATE FINAL LOCATION W/ OTHER TRADES.

## CONSTRUCTION NOTES:

◇1 SPRINKLER VALVE ASSEMBLY.


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consultant

professional stamp

PROJECT NORTH

project title

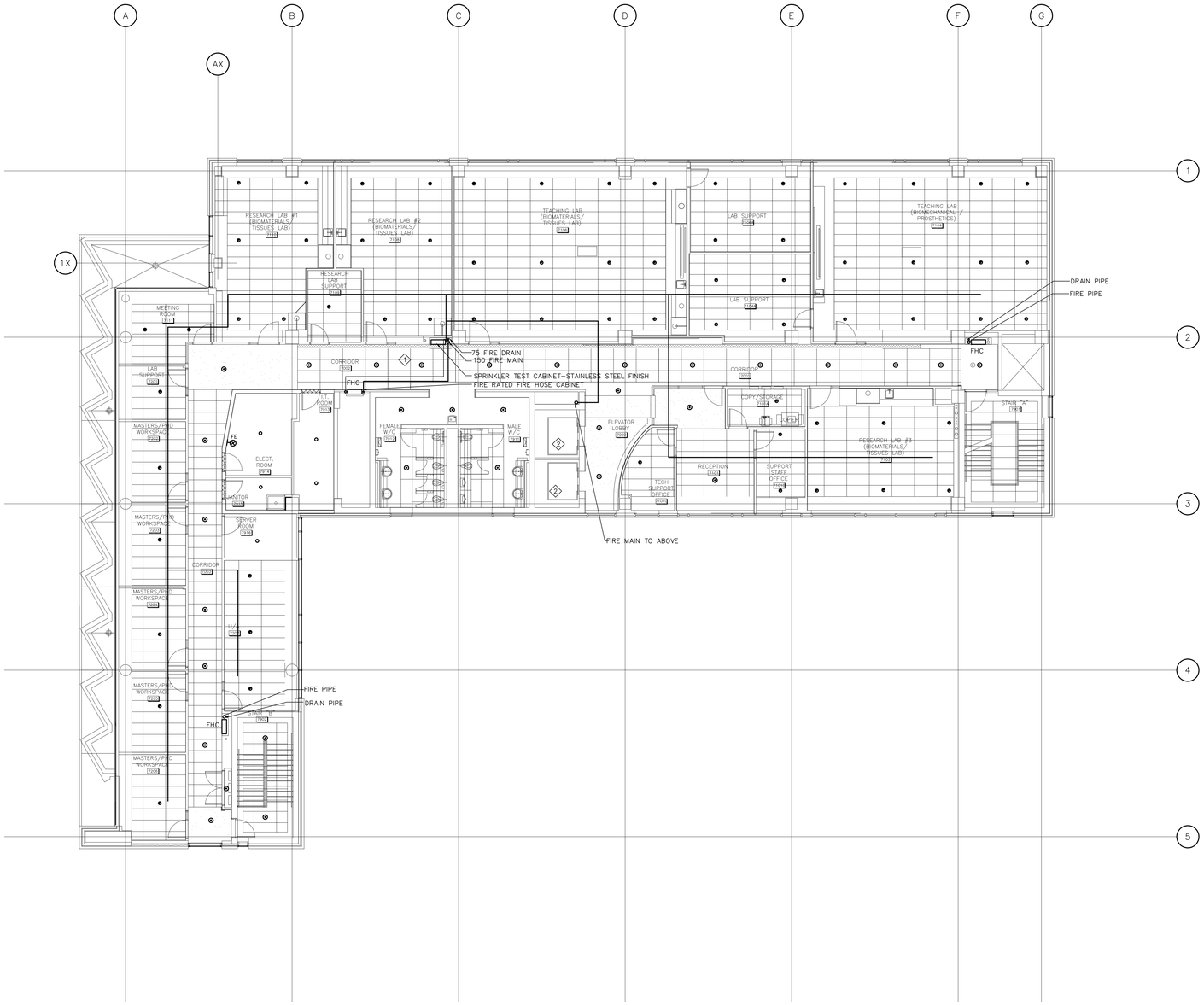
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 6 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-360 |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
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5. SPRINKLER HEADS TO BE INSTALLED IN CENTER OF CEILING TILE. REFER TO ARCHITECTURAL DRAWINGS.
6. COORDINATE SPRINKLER HEADS WITH CABLE TRAY. REFER TO ELECTRICAL DRAWINGS.
7. PIPING SHOWN IS FOR FOR INFORMATION ONLY. COORDINATE FINAL LOCATION W/ OTHER TRADES.

## CONSTRUCTION NOTES:

1. SPRINKLER VALVE ASSEMBLY.
2. UPRIGHT OR PENDANT SPRAY SPRINKLER SHALL BE INSTALLED AT THE TOP OF ELEVATOR HOISTWAYS.


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| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

PROJECT NORTH

professional stamp

project title

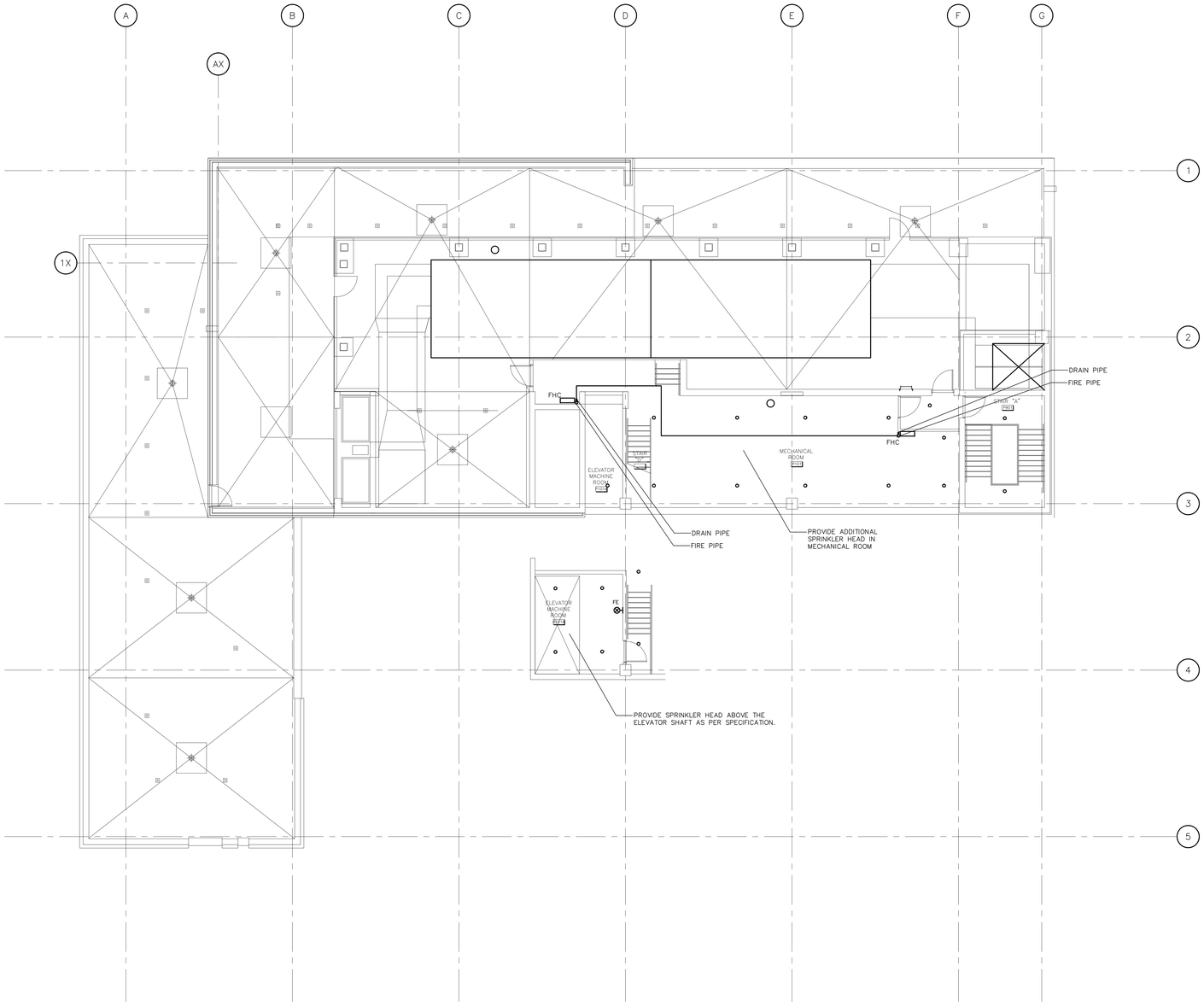
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 7 FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn AP | drawing no. MC-370 |
| approved MG/HK | |
| plot date | |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
2. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
3. PROVIDE ADDITIONAL HEADS AS REQUIRED TO SUIT DUCT INSTALLATION & CEILING MOUNTED EQUIPMENT
4. PROVIDE WIRE GUARDS IN ALL MECHANICAL ROOM, TELECOM. CLOSETS, IT ROOMS, ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS & WHERE SPRINKLER HEAD IN AT OR BELOW 2100 MM (83") FROM FLOOR.
5. SPRINKLER HEADS TO BE INSTALLED IN CENTER OF CEILING TILE. REFER TO ARCHITECTURAL DRAWINGS.
6. COORDINATE SPRINKLER HEADS WITH CABLE TRAY. REFER TO ELECTRICAL DRAWINGS.
7. PROVIDE SPRINKLER COVERAGE TO MECHANICAL ROOMS AT ONE (1) HEAD PER (130 SQ FT) OF FLOOR AREA. ALLOW FOR ADDITIONAL HEADS TO BE PROVIDED FOR PROTECTION OF MECHANICAL DUCTS OVER 48" WIDTH AND OBSTRUCTIONS. PROVIDE WIRE GUARDS TO ALL HEADS IN MECHANICAL ROOM CONTRACTOR TO CO-ORDINATE WITH OTHER TRADES AND PROVIDE THE REQUIRED COVERAGE ACCORDINGLY.

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| 3. | JULY 7, 2011 | RECORD DRAWINGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |

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consultant

professional stamp

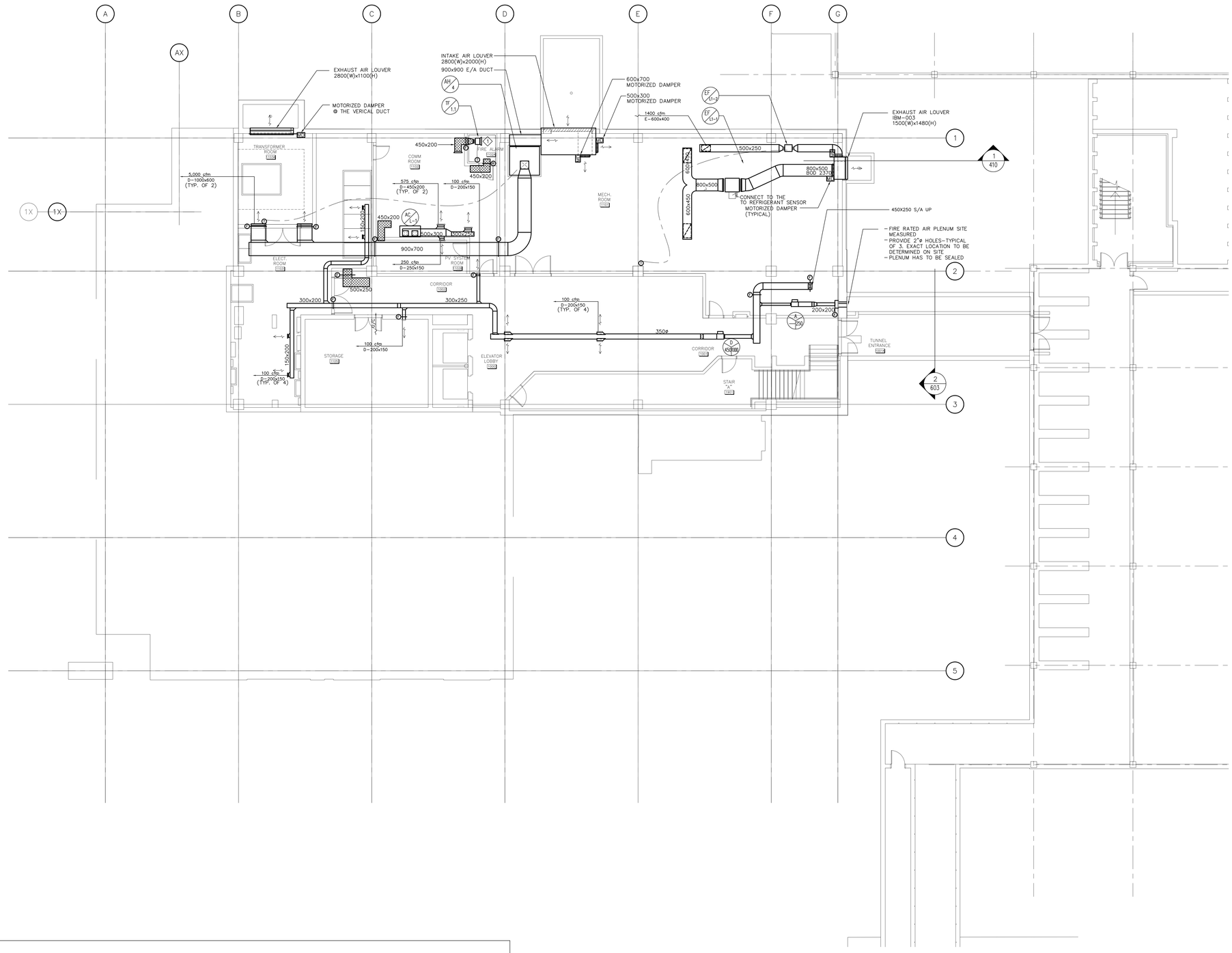
PROJECT NORTH

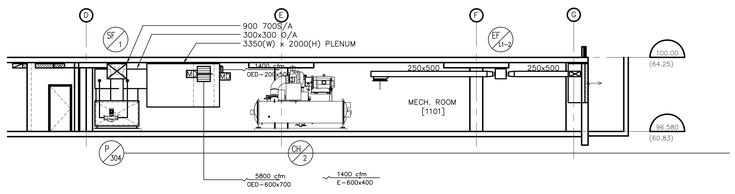
project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
ROOF FLOOR PLAN
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-380 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




1 SECTION THRU MECHANICAL ROOM
MC-410 1:100

**CONSTRUCTION NOTES:**

1. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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consultant

professional stamp

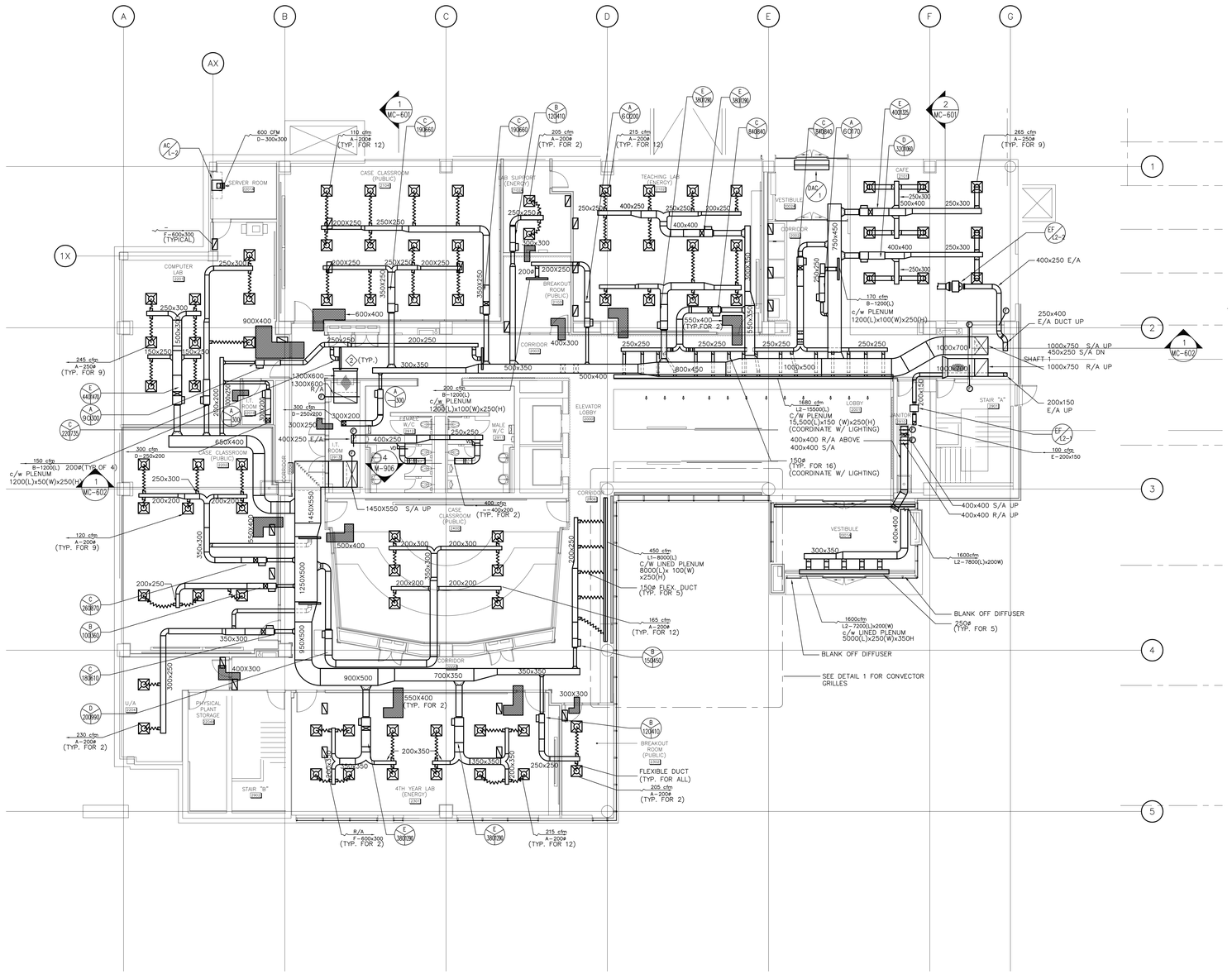
PROJECT NORTH

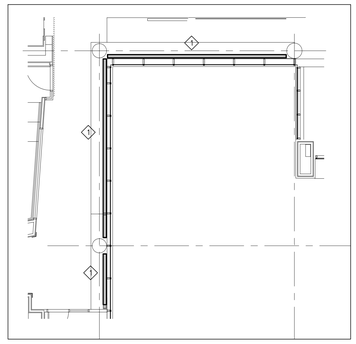
project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 1 FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn BA | drawing no. MC-410 |
| approved MG/HK | |
| plot date | |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL.



1 CONVECTOR GRILLES
MC-420 1:100

## GENERAL NOTES:

1. FOR THERMOSTAT LOCATION REFER TO DRAWING M-520.
2. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. PROVIDE LINEAR BAR GRILLE TYPE L3 FOR COSTOM MADE CONVECTORS. REFER TO ARCHITECTURAL DETAIL 5/A312. GRILLE LENGTH SHALL BE SITE MEASURED.
2. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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consultant

PROJECT NORTH

professional stamp

project title

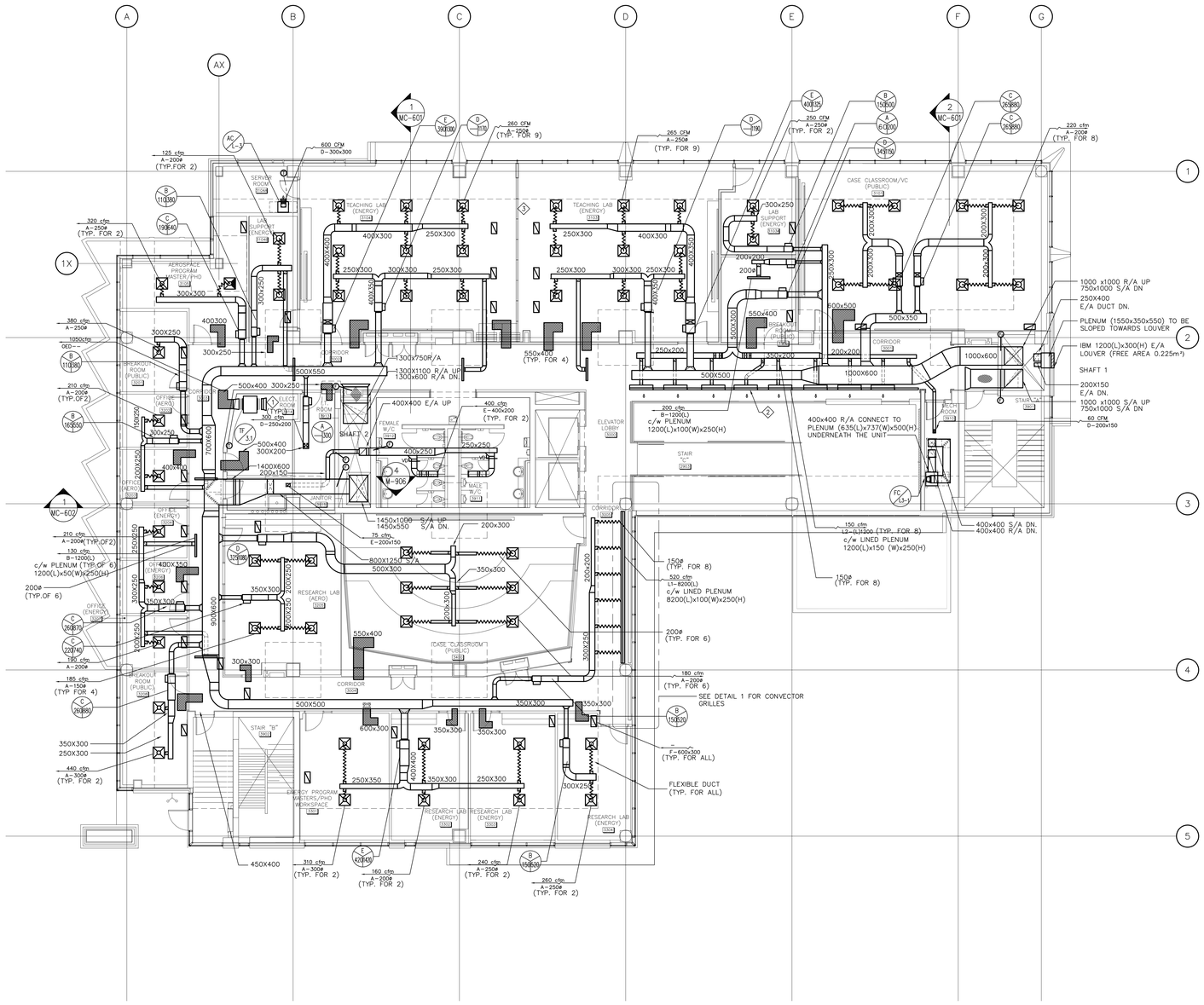
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

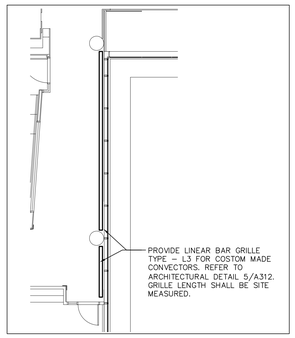
drawing title

LEVEL 2 FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-420 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




1 / MC-430 CONVECTOR GRILLES
1:100

## GENERAL NOTES:

1. FOR THERMOSTAT LOCATION REFER TO DRAWING M-520.
2. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.
2. BLANK OFF THE GRILLE AS SHOWN, TYPICAL
3. COORDINATE INSTALLATION WITH PARTITION CONSTRUCTOR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consultant

PROJECT NORTH

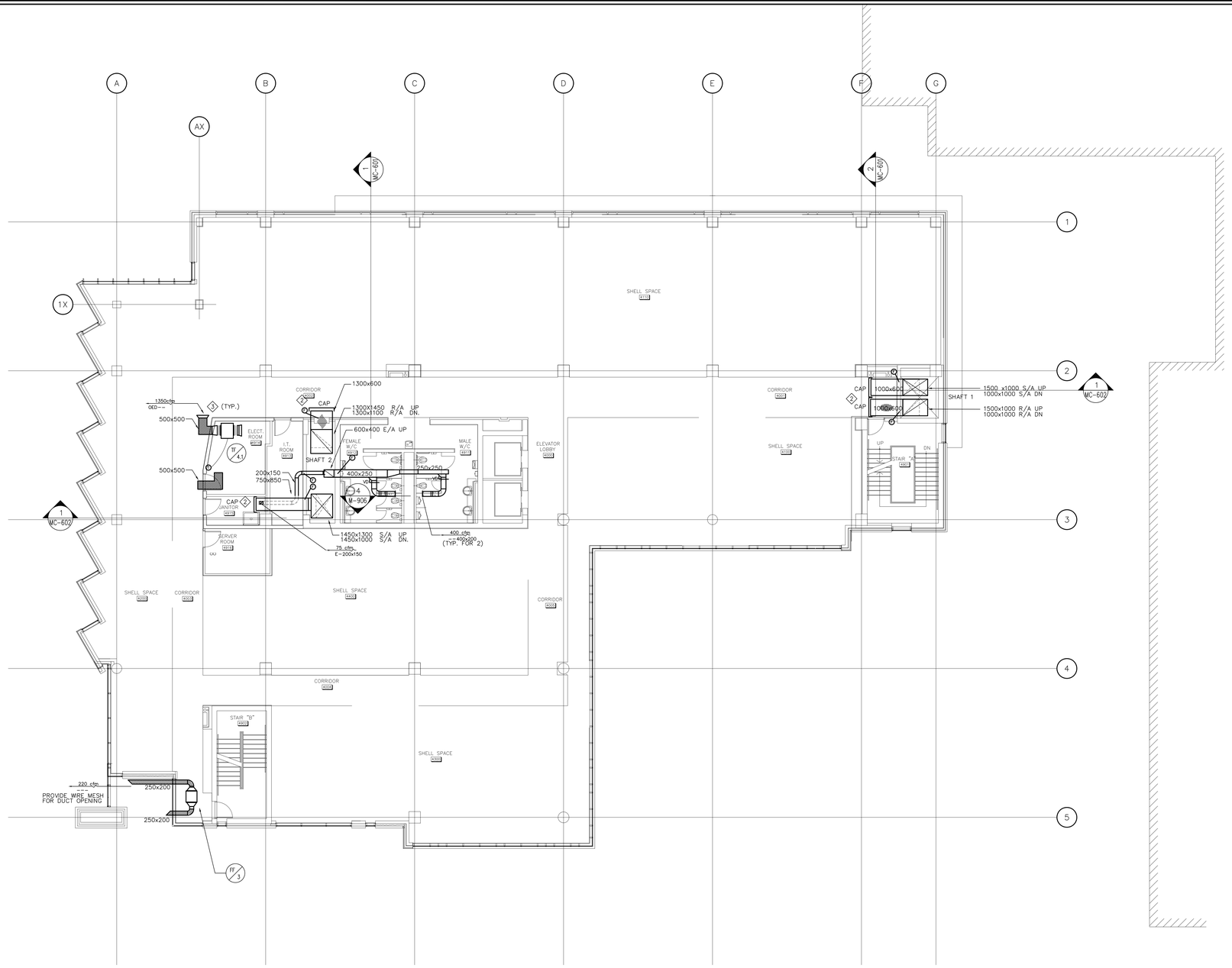
professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 3 FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-430 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. SHELL SPACE NO DUCT WORK WITH ECCEPTION OR W/R
2. BLANK OFF SUPPLY & RETURN DUCTWORK.
3. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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consultant

professional stamp

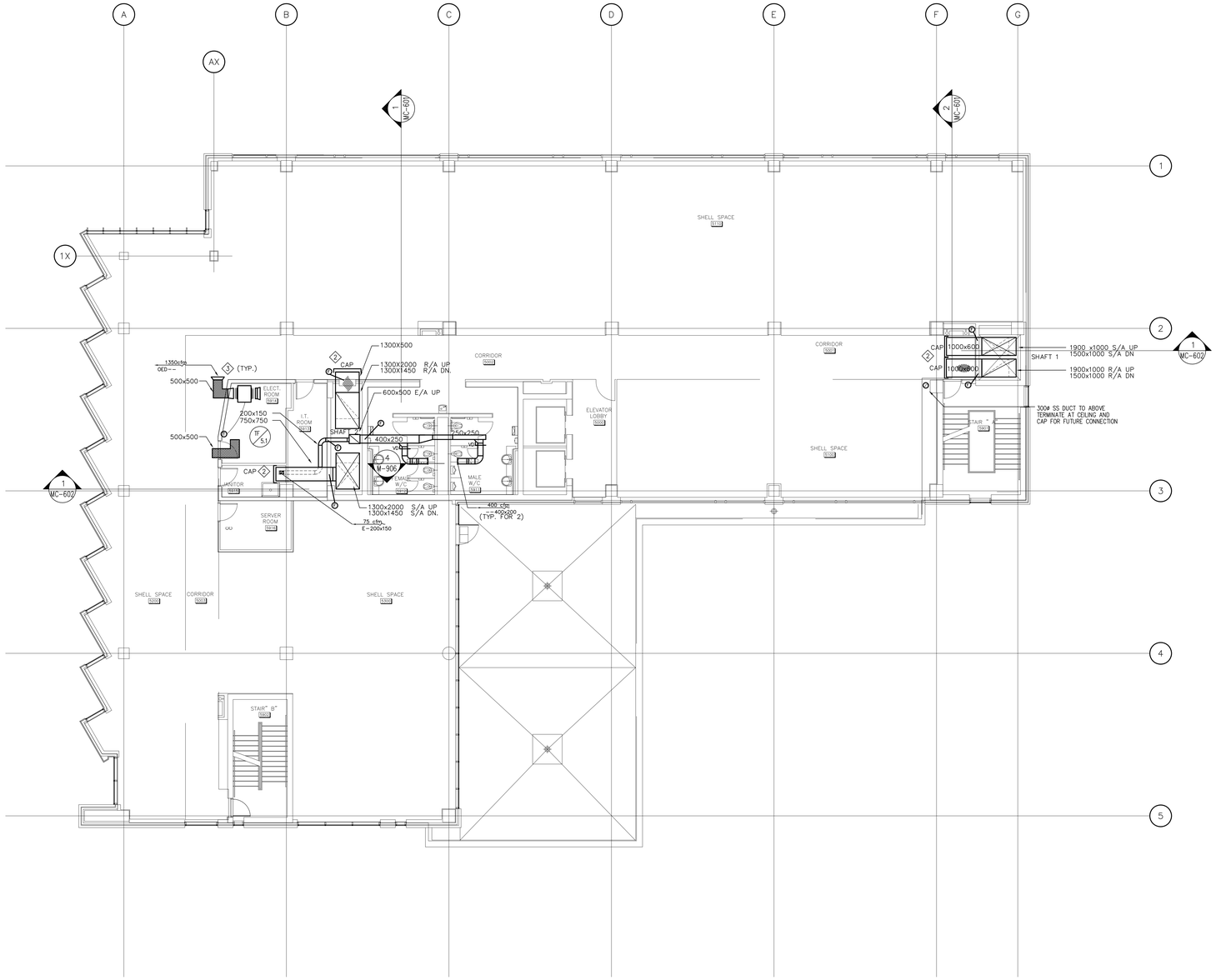
PROJECT NORTH

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 4 FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | job no. 06226.201 |
| scales 1:100 | |
| drawn BA | drawing no. MC-440 |
| approved MG/HK | |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. SHELL SPACE NO DUCT WORK WITH ECCEPTION OR W/R
2. BLANK OFF SUPPLY & RETURN DUCTWORK.
3. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 5 FLOOR PLAN
HVAC DUCT WORK

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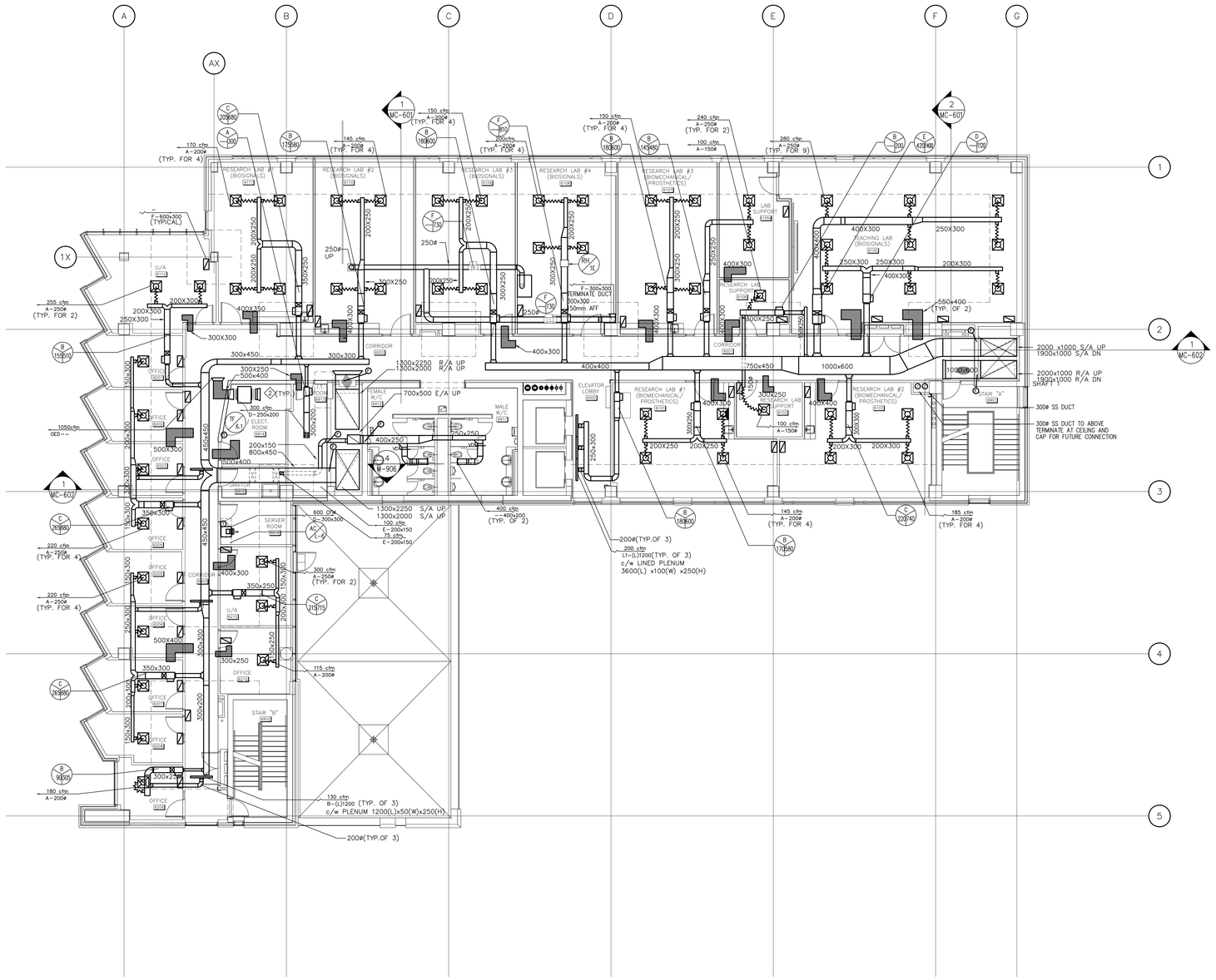
|---|---|
| date | |
| scales 1:100 | job no. 06226.201 |
| drawn AP | drawing no. |
| approved MG/HK | MC-450 |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. FOR THERMOSTAT LOCATION REFER TO DRAWING M-560.
2. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. RESERVED
2. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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IN JOINT VENTURE
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K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

PROJECT NORTH

project title

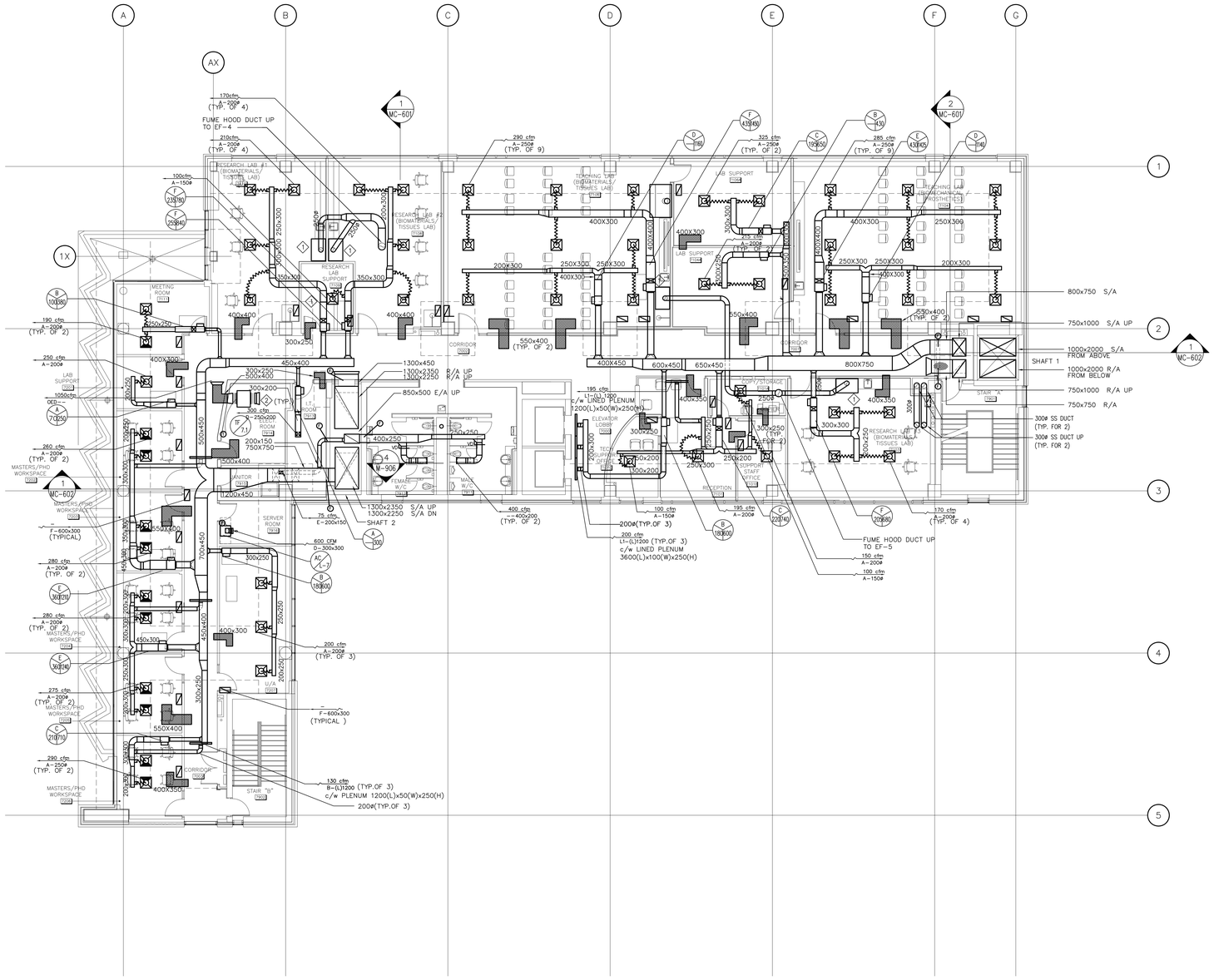
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 6 FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn BA | |
| approved MG/HK | drawing no. MC-460 |
| plot date | |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL.




## GENERAL NOTES:

1. FOR THERMOSTAT LOCATION REFER TO DRAWING M-570.
2. PROVIDE DUCT FOR RETURN DUCTWORK . EXTEND LINING TO INSIDE SHAFT. DUCT INSIDE SHAFT DOES NOT REQUIRE TO BE LINED.

## CONSTRUCTION NOTES:

1. FOR VAV BOX ARRAGEMENT & CONTROLS FOR THIS ROOM REFER TO SECTION 15901
2. PROVIDE CHICKEN WIRE MESH FOR THE OPEN DUCT.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consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 7 FLOOR PLAN
HVAC DUCT WORK

| | |
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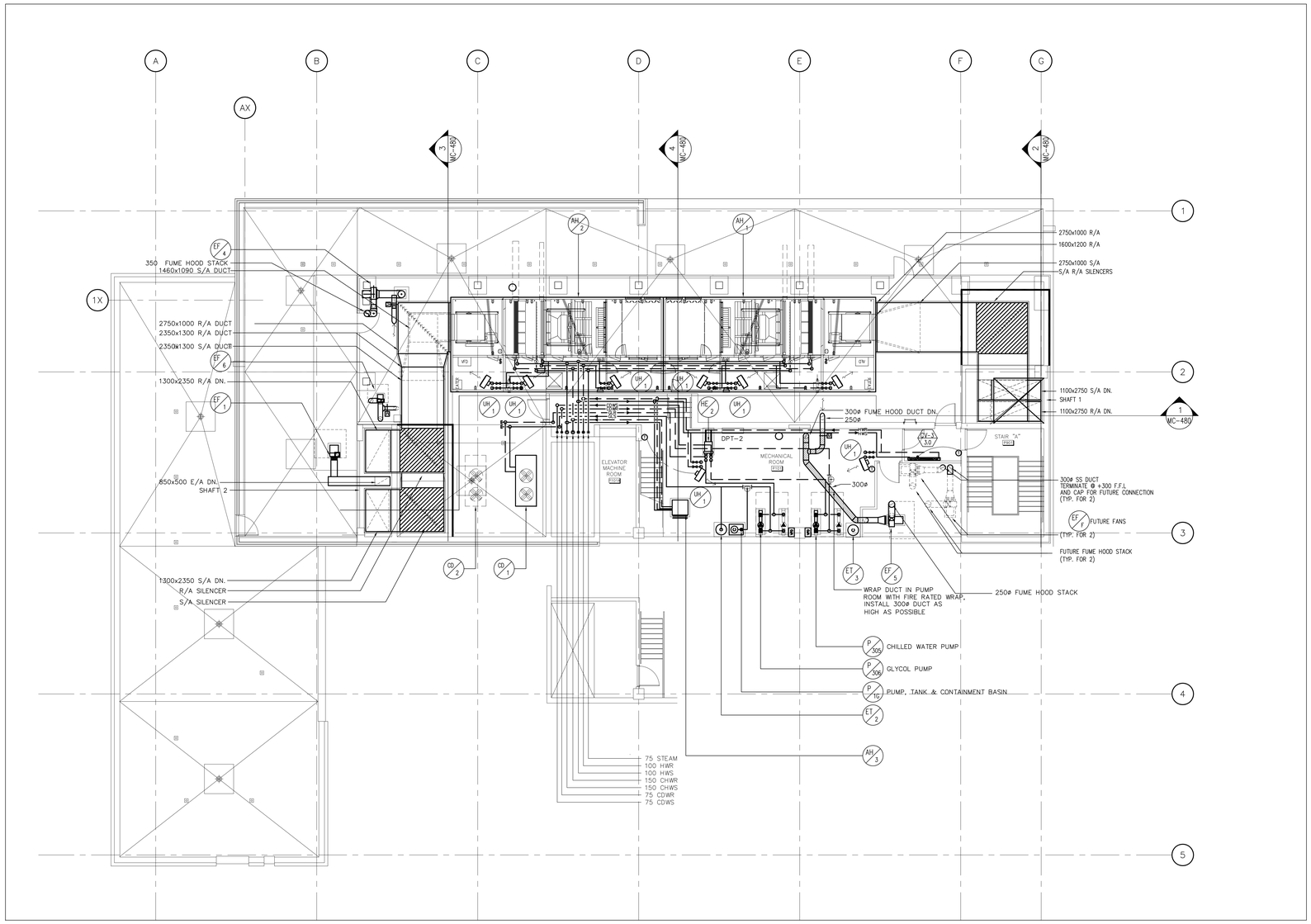
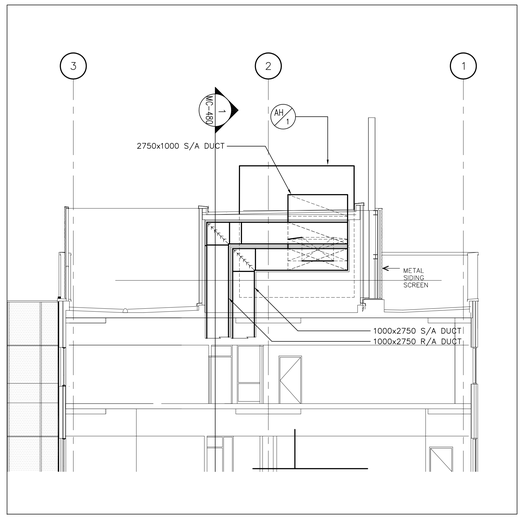
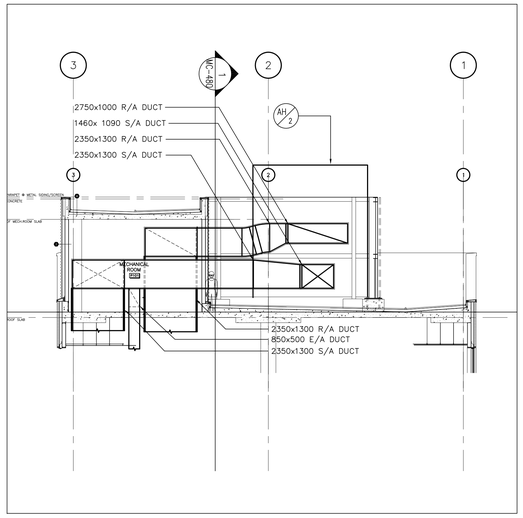
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-470 |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




2 / 480 SECTION
1:100.




3 / 480 SECTION
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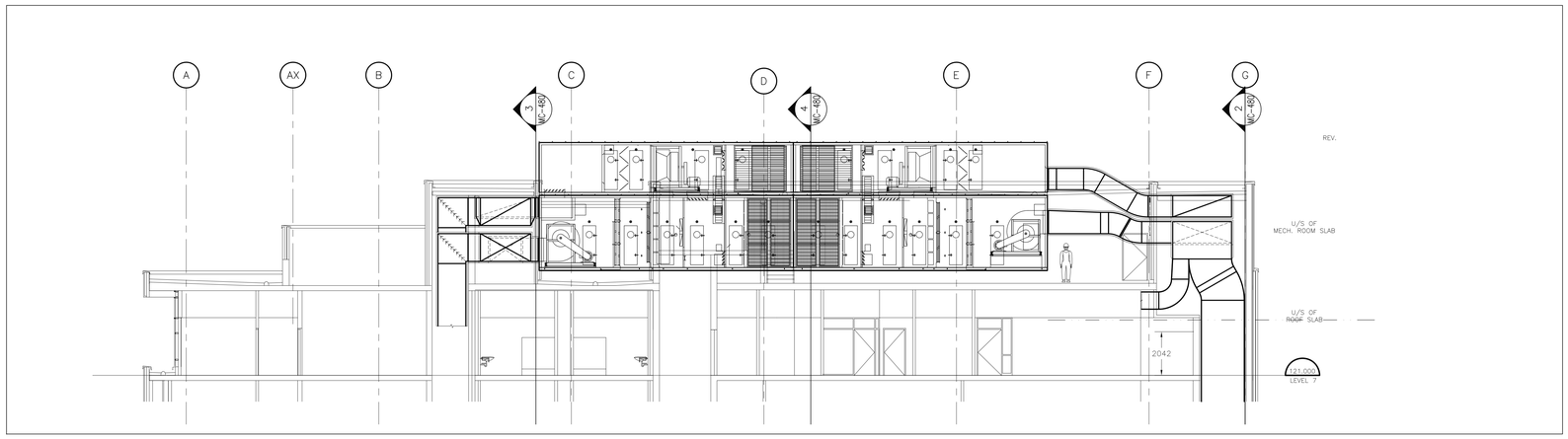
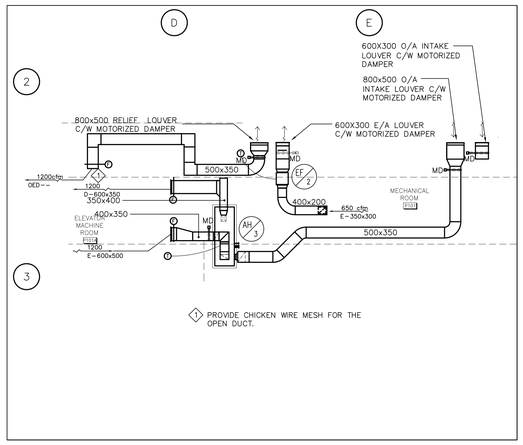



1 / 480 SECTION
1:100.




4 / 480 PARTIAL PENTHOUSE FLOOR PLAN – HVAC
1:100.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Suite E 331
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(416)497.3111 fax (416)497.7210


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| 3. | JULY 7, 2011 | RECORD DRAWINGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
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IN JOINT VENTURE
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consultant

professional stamp

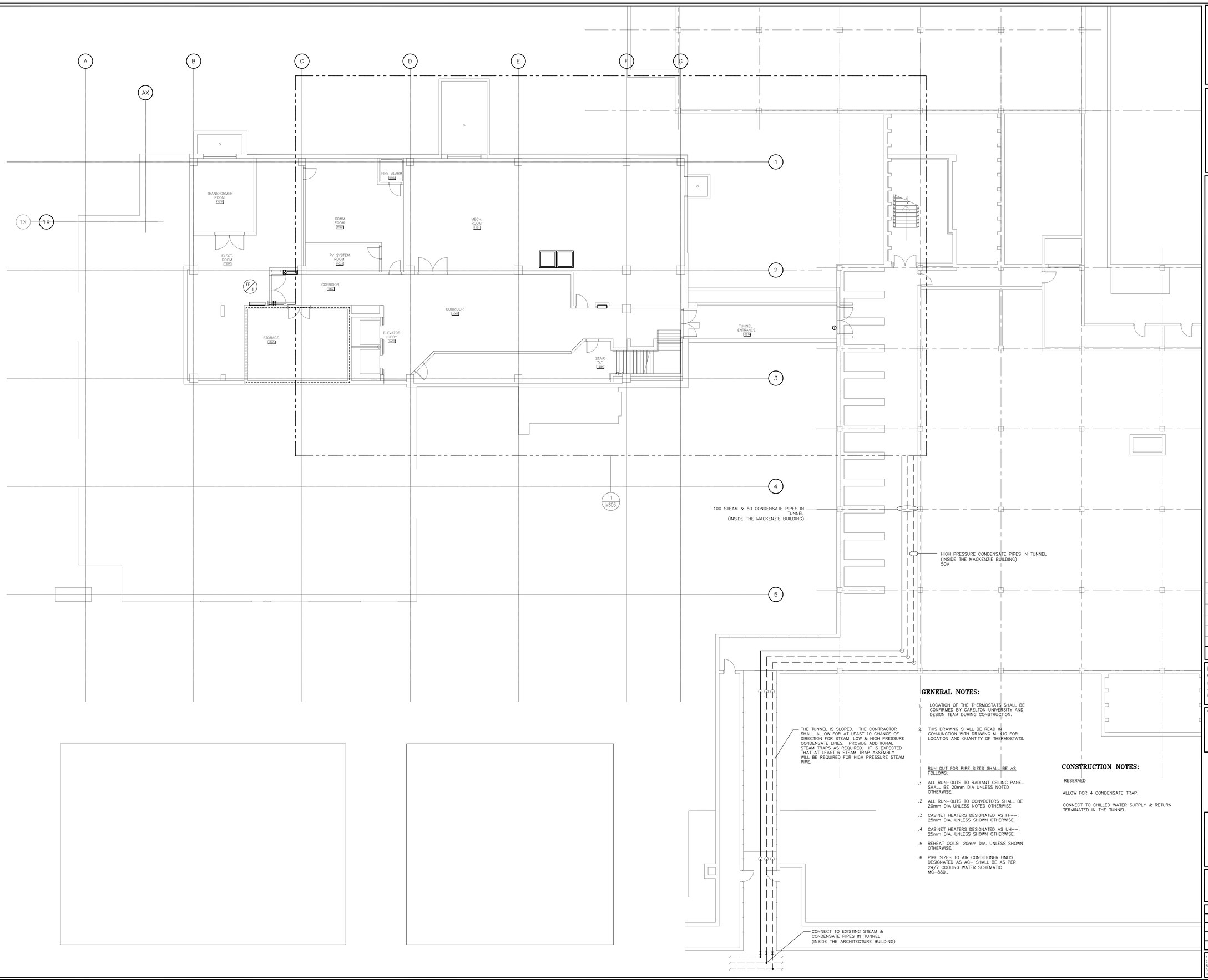
PROJECT NORTH

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
ROOF FLOOR PLAN
HVAC DUCT WORK

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-480 |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL.




## GENERAL NOTES:

1. LOCATION OF THE THERMOSTATS SHALL BE CONFIRMED BY CARELTON UNIVERSITY AND DESIGN TEAM DURING CONSTRUCTION.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-410 FOR LOCATION AND QUANTITY OF THERMOSTATS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 ALL RUN-OUTS TO RADIANT CEILING PANEL SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.2 ALL RUN-OUTS TO CONVECTORS SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.3 CABINET HEATERS DESIGNATED AS FF--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.4 CABINET HEATERS DESIGNATED AS UH--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.5 REHEAT COILS: 20mm DIA. UNLESS SHOWN OTHERWISE.

.6 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..

## CONSTRUCTION NOTES:

RESERVED

ALLOW FOR 4 CONDENSATE TRAP.

CONNECT TO CHILLED WATER SUPPLY & RETURN TERMINATED IN THE TUNNEL.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consultant

professional stamp

PROJECT NORTH

project title

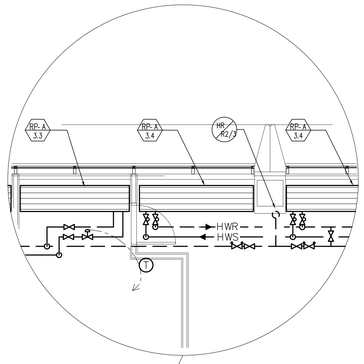
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

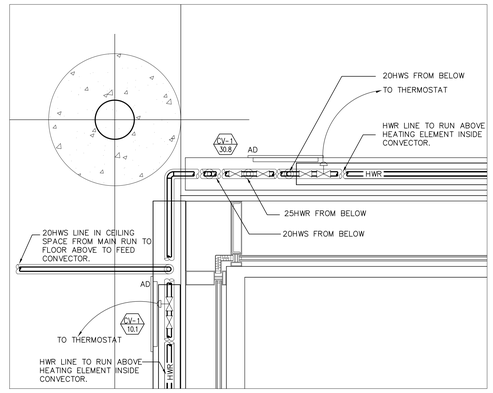
drawing title

LEVEL 1 FLOOR PLAN
HVAC PIPING

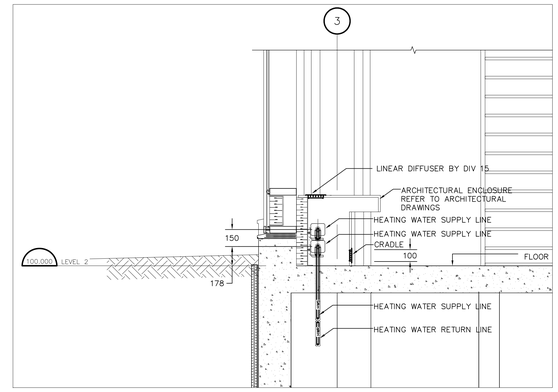
| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn AP | drawing no. MC-510 |
| approved MG/HK | |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

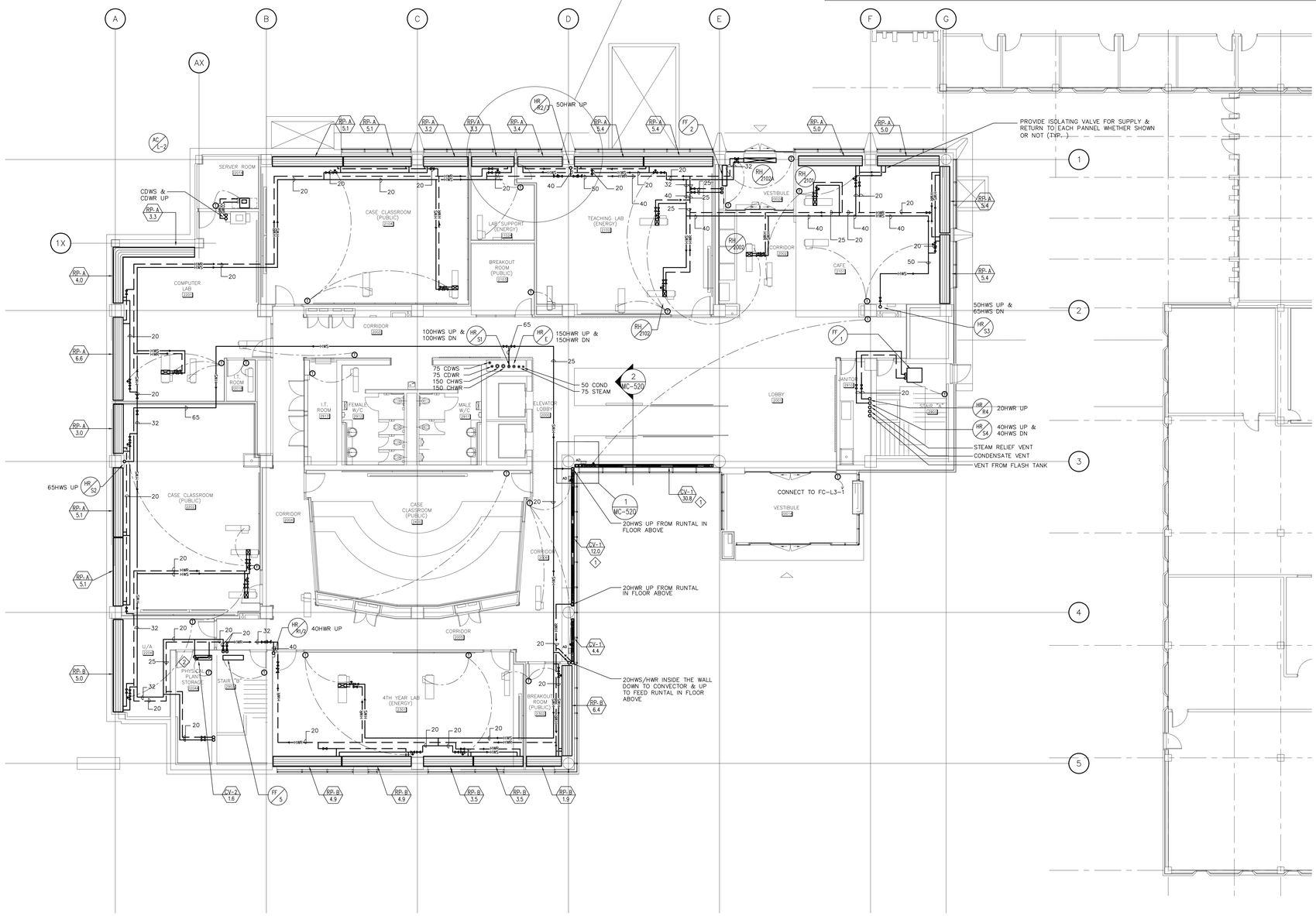



1 DETAILS OF PIPE CONNECTION
MC-520 1:10




2 DETAIL OF WALL MOUNTED CONVECTOR TYPE 'A'
MC-520 1:20




## GENERAL NOTES:

1. LOCATION OF THE THERMOSTATS SHALL BE CONFIRMED BY CARELTON UNIVERSITY AND DESIGN TEAM DURING CONSTRUCTION.
2. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
3. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
4. FOR CONVECTOR GRILLES REFER TO DRAWING M-420
5. ALL RUN-OUTS TO CONVECTORS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
6. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-420 FOR LOCATION AND QUANTITY OF THERMOSTATS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 ALL RUN-OUTS TO RADIANT CEILING PANEL SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.
.2 ALL RUN-OUTS TO CONVECTORS SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.
.3 CABINET HEATERS DESIGNATED AS FF--: 25mm DIA. UNLESS SHOWN OTHERWISE.
.4 CABINET HEATERS DESIGNATED AS UH--: 25mm DIA. UNLESS SHOWN OTHERWISE.
.5 REHEAT COILS: 20mm DIA. UNLESS SHOWN OTHERWISE.
.6 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..

## CONSTRUCTION NOTES:

1. CONTROL & INSOLATING VALVES ARE IN FLOOR BELOW. REFER TO DETAIL 11/MC-903 FOR PIPING DETAIL
2. INSTAL LCONVECTOR AT HIGH LEVEL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consultant

PROJECT NORTH

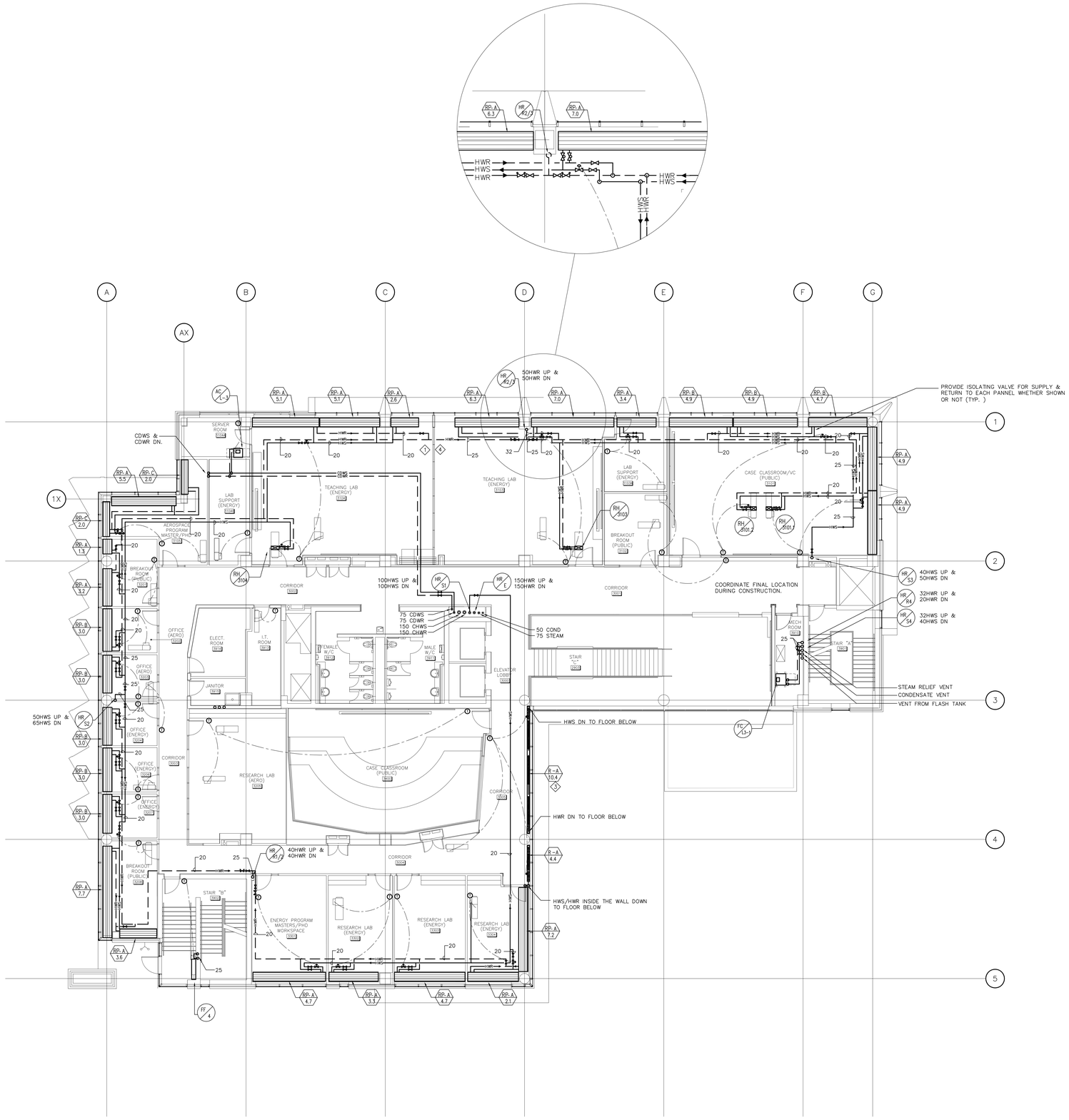
professional stamp

project title
CARLETON UNIVERSITY ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 2 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | job no. 06226.201 |
| scales 1:100 | |
| drawn BA | drawing no. MC-520 |
| approved MG/HK | |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. LOCATION OF THE THERMOSTATS SHALL BE CONFIRMED BY CARELTON UNIVERSITY AND DESIGN TEAM DURING CONSTRUCTION.
2. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
3. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
4. FOR CONVECTOR GRILLES REFER TO DRAWING M-430
5. ALL RUN-OUTS TO CONVECTORS SHALL BE 3/4" UNLESS NOTED OTHERWSE.
6. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-420 FOR LOCATION AND QUANTITY OF THERMOSTATS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 ALL RUN-OUTS TO RADIANT CEILING PANEL SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

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.4 CABINET HEATERS DESIGNATED AS UH--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.5 REHEAT COILS: 20mm DIA. UNLESS SHOWN OTHERWISE.

.6 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..

## CONSTRUCTION NOTES:

1. COORDINATE PIPING WITH MOVABLE PARTITION
2. CONNECT THERMOSTAT TO VAV BOX
3. CONTROL & INSOLATING VALVES ARE IN FLOOR BELOW
4. COORDINATE INSTALLATION WITH PARTITION CONSTRUCTOR


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consultant

professional stamp

PROJECT NORTH

project title

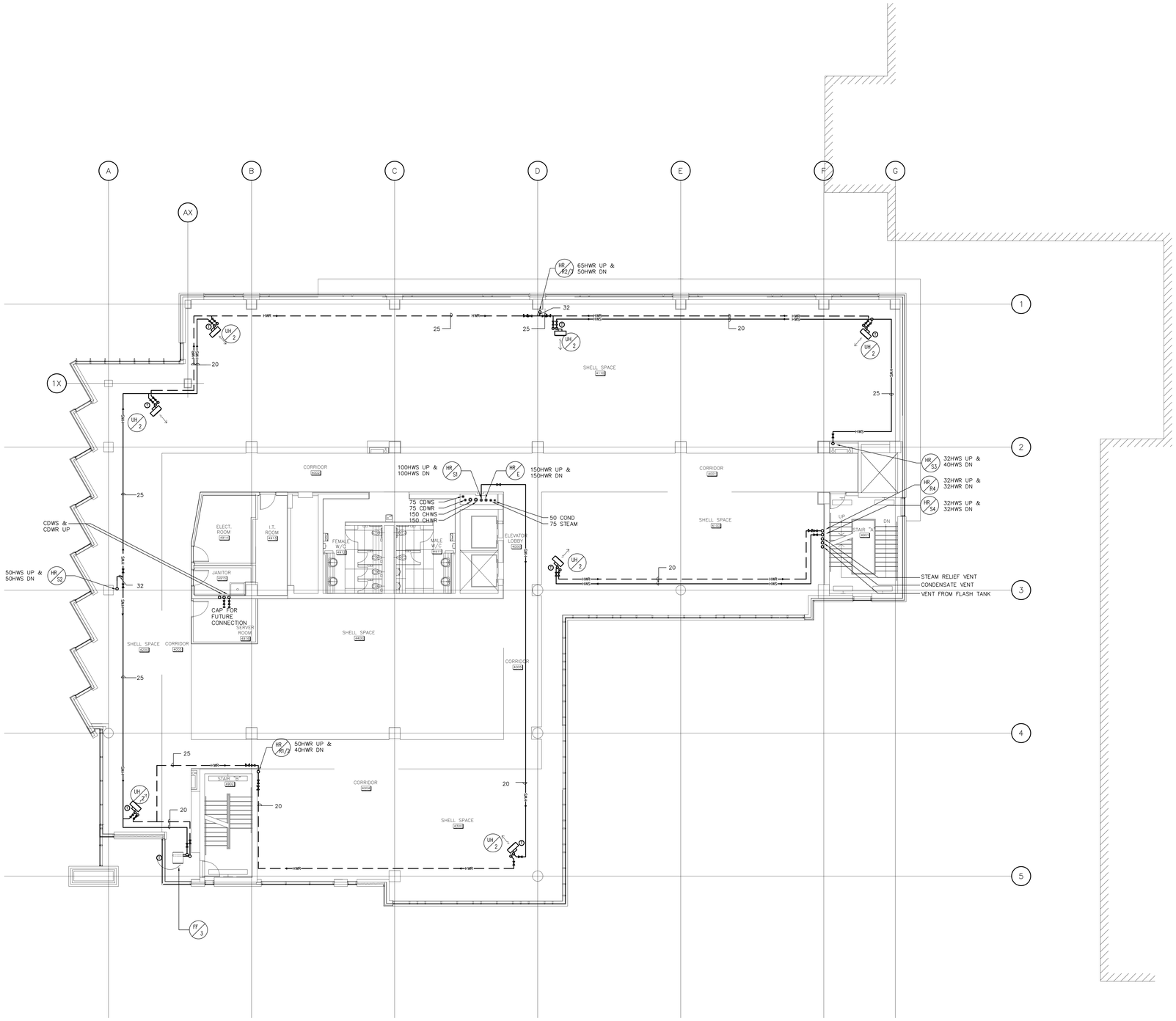
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 3 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | |
| scales 1:100 | job no. 06226.201 |
| drawn BA | |
| approved MG/HK | drawing no. MC-530 |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




## GENERAL NOTES:

1. LOCATION OF THE THERMOSTATS SHALL BE CONFIRMED BY CARELTON UNIVERSITY AND DESIGN TEAM DURING CONSTRUCTION.
2. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
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| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


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consultant

professional stamp

PROJECT NORTH

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 4 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-540 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
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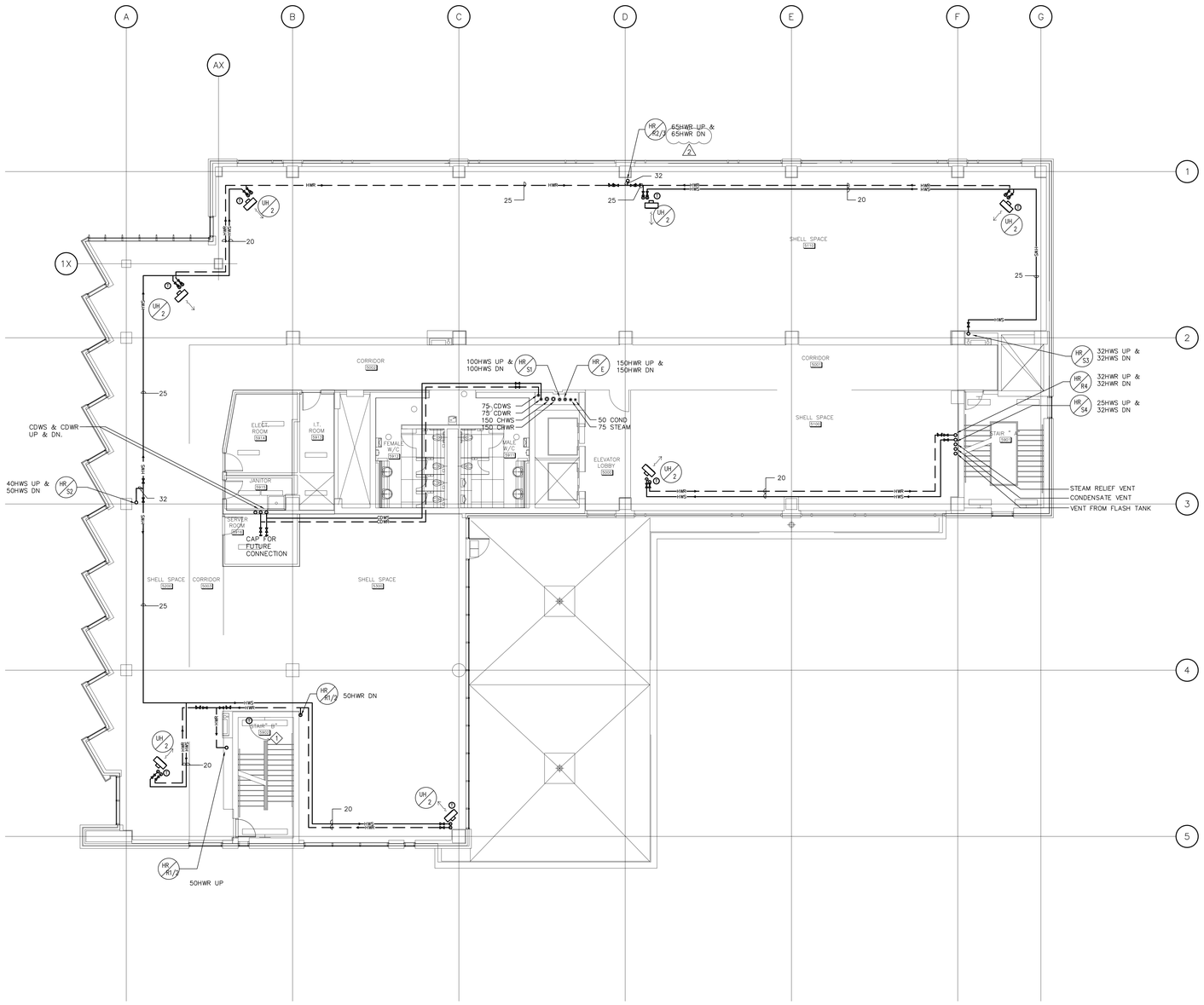


## CONSTRUCTION NOTES:

1. CONNECT THEMOSTAT TO FF-5 IN LEVEL 2

## GENERAL NOTES:

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professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 5 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | |
| scales | 1:100 |
| drawn | BA |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-550 |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
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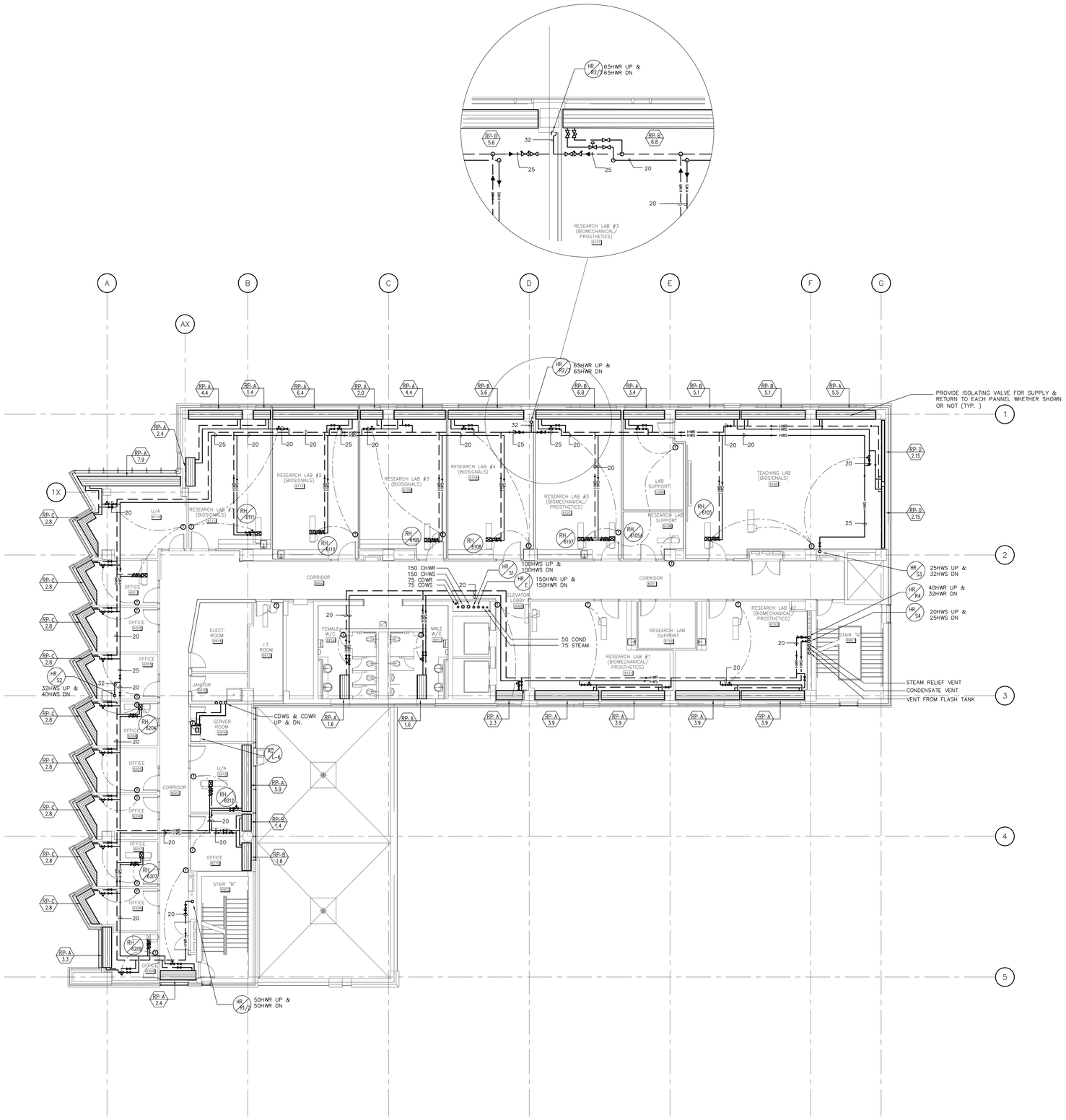


## GENERAL NOTES:

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4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-460 FOR LOCATION AND QUANTITY OF THERMOSTATS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 ALL RUN-OUTS TO RADIANT CEILING PANEL SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.2 ALL RUN-OUTS TO CONVECTORS SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.3 CABINET HEATERS DESIGNATED AS FF--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.4 CABINET HEATERS DESIGNATED AS UH--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.5 REHEAT COILS: 20mm DIA. UNLESS SHOWN OTHERWISE.

.6 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..


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consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 6 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | |
| scales 1:100 | job.no. 06226.201 |
| drawn BA | |
| approved MG/HK | drawing no. MC-560 |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

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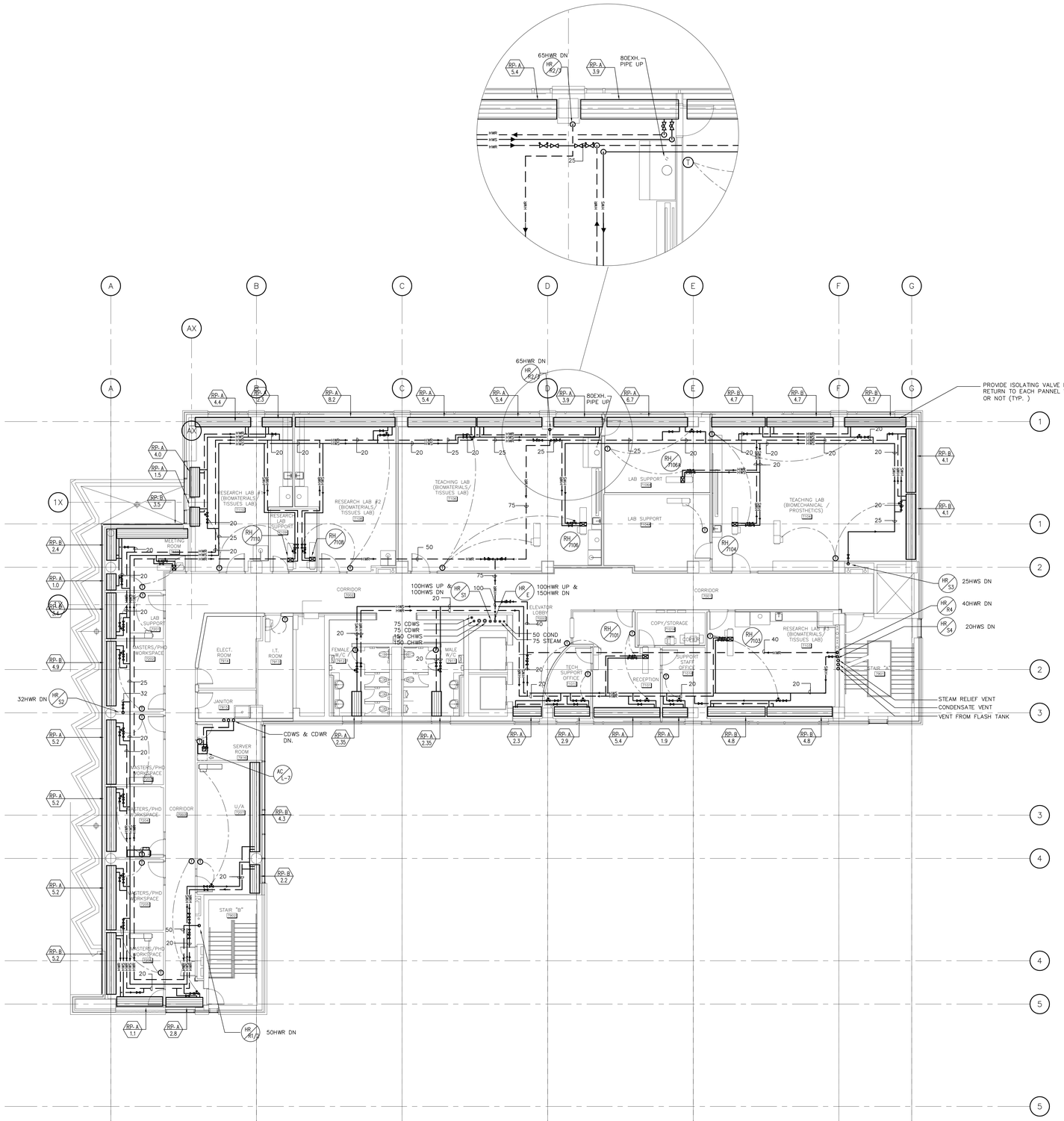
LAST EDIT: 22/SEP/10 17:05:12




## GENERAL NOTES:

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2. ENSURE PIPING AND DUCTWORK DO NOT COVER ACCESS DOORS.
3. DO NOT ROUTE ANY PIPING THROUGH ELECTRICAL SUBSTATION, TELECOMMUNICATION ROOM, OR ELECTRICAL CLOSETS UNLESS THOSE PIPES DIRECTLY SERVE THOSE ROOMS.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-470 FOR LOCATION AND QUANTITY OF THERMOSTATS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 ALL RUN-OUTS TO RADIANT CEILING PANEL SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.2 ALL RUN-OUTS TO CONVECTORS SHALL BE 20mm DIA UNLESS NOTED OTHERWISE.

.3 CABINET HEATERS DESIGNATED AS FF--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.4 CABINET HEATERS DESIGNATED AS UH--: 25mm DIA. UNLESS SHOWN OTHERWISE.

.5 REHEAT COILS: 20mm DIA. UNLESS SHOWN OTHERWISE.

.6 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC-- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..

.7 RADIANT PANELS TO FOLLOW THE PROFILE AS INDICATED ON AECHITECTURAL RCP.

.8 PROVIDE AN ALL WELDED 3" DIA EXHAUST PIPE FOR THE SAFETY CABINET IN ROOM 07016.EXTEND ABOVE ROOF.


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IN JOINT VENTURE
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consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

LEVEL 7 FLOOR PLAN
HVAC PIPING

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn BA | drawing no. MC-570 |
| approved MG/HK | |
| plot date | |

1 DO NOT SCALE THIS DRAWING.
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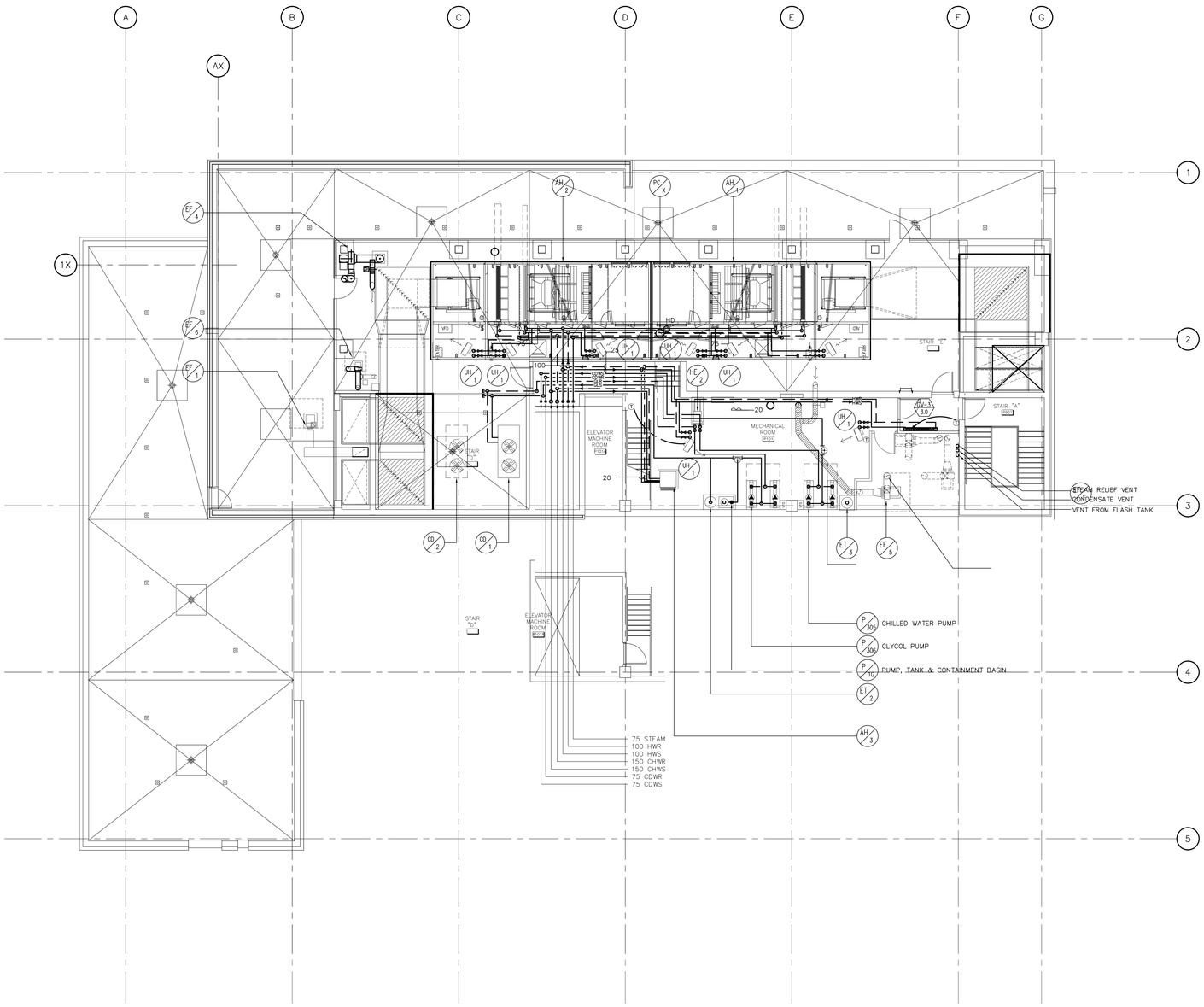
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




**GENERAL NOTES:**

.1 PROVIDE THREE UNIT HEATERS FOR EACH AIR HANDLER AH-1 AND AH-2 TO BE INSTALLED IN THE ACCESS CORRIDORS.


Carleton UNIVERSITY

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**Department Of Physical Plant**
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| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
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MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

ROOF & PENTHOUSE PLAN
H.V.A.C. PIPING

| | |
|---|---|
| date | job no. 06226.201 |
| scales 1:100 | |
| drawn BA | drawing no. MC-580 |
| approved MG/HK | |
| plot date | |

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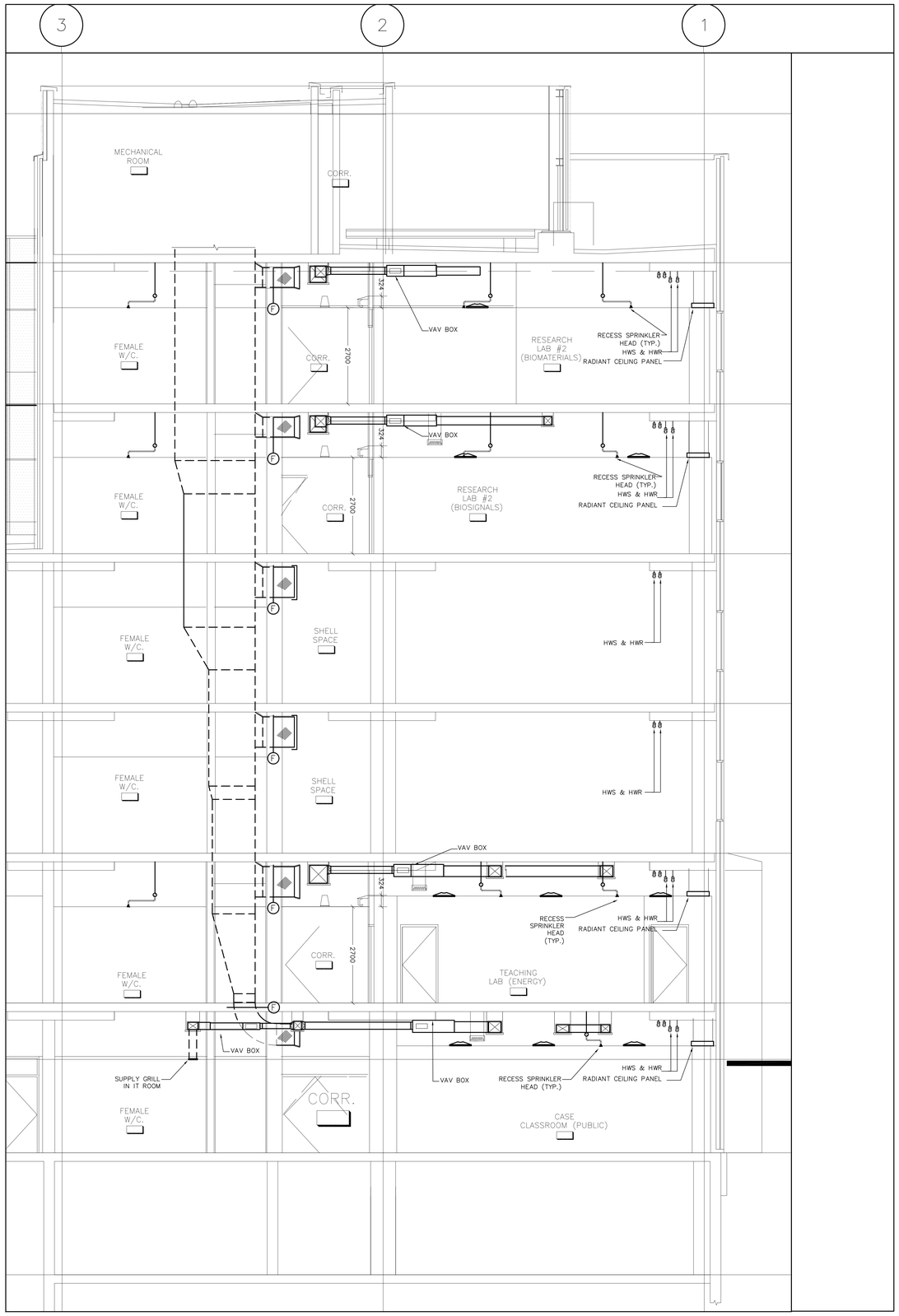
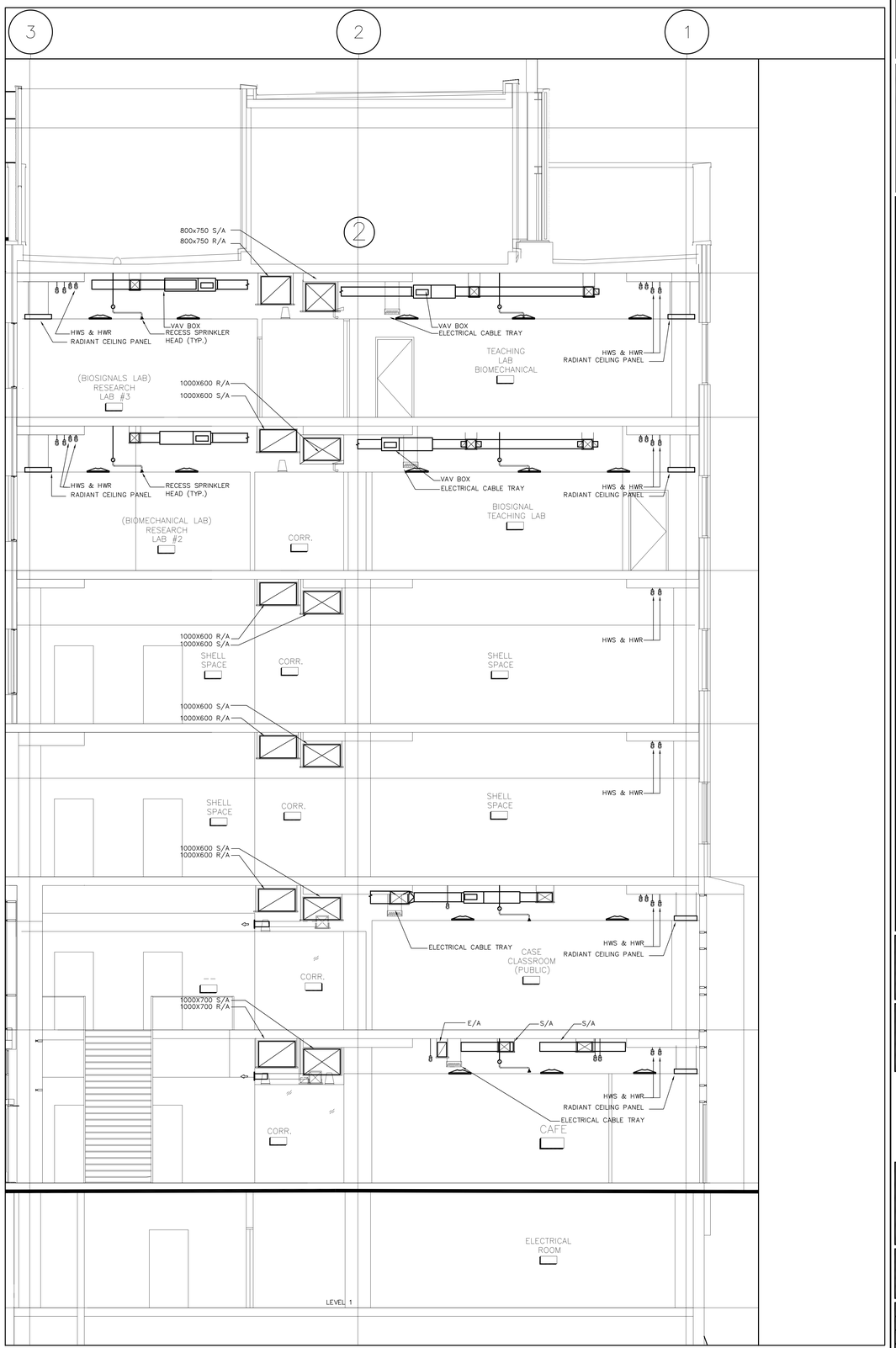



1 SECTION
MC-601 1:50




2 SECTION
MC-601 1:50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project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SECTIONS – SHEET 1
MECHANICAL

| | |
|---|---|
| date | |
| scales 1:50 | job.no. 06226.201 |
| drawn AP | |
| approved MG/HK | drawing no. MC-601 |
| plot date | |

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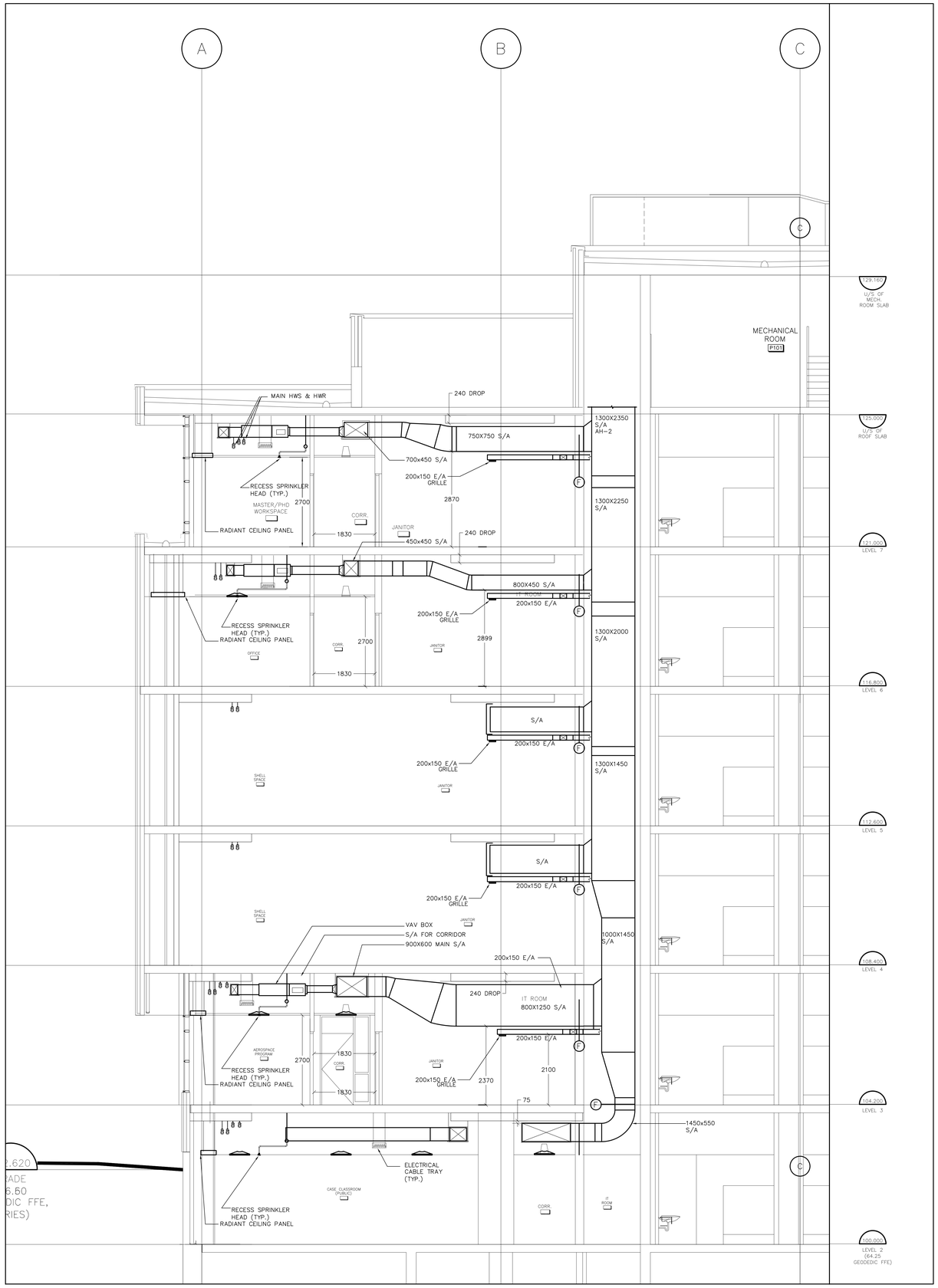
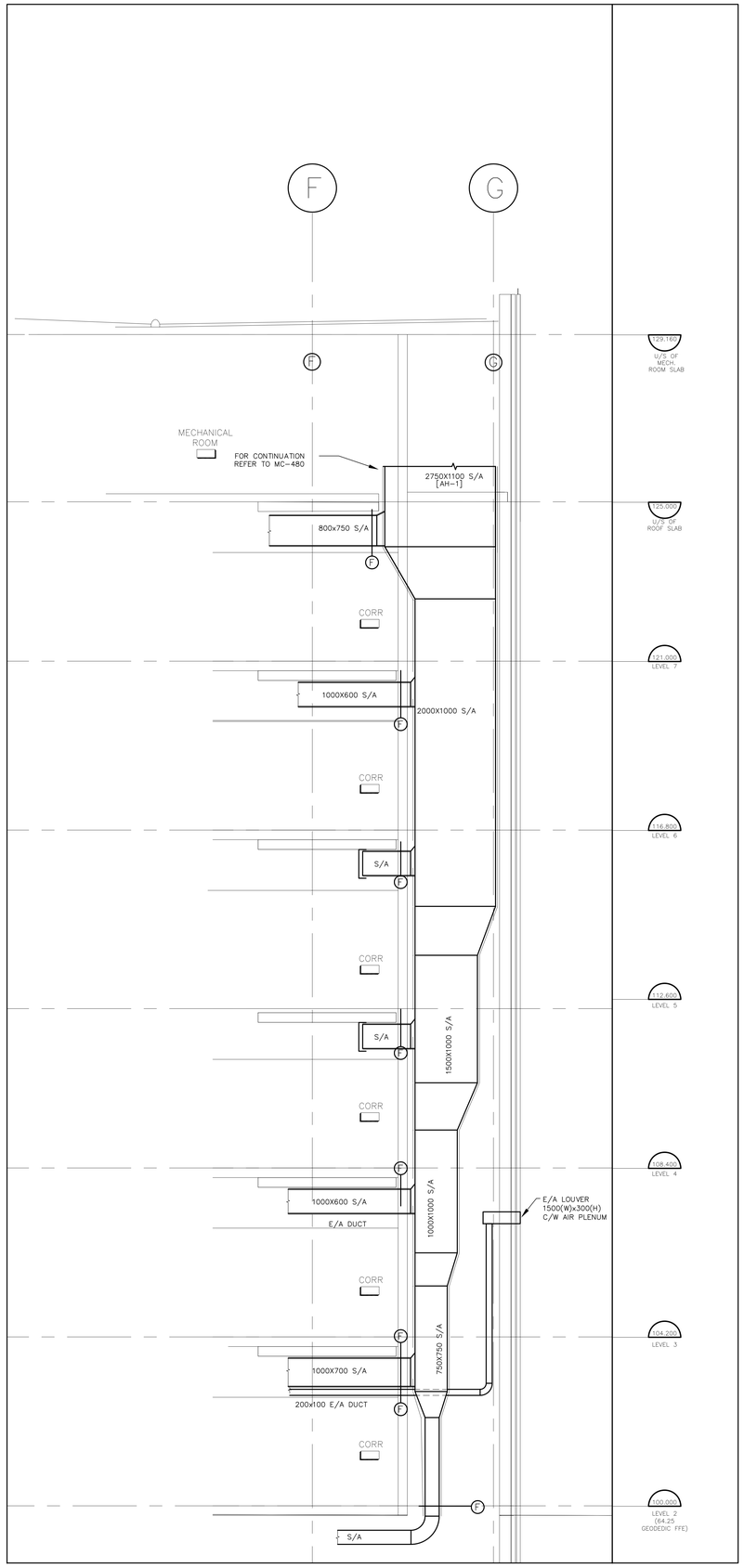



1 SECTION A, THROUGH THE BUILDING
MC-602 1:50




2 SECTION A, THROUGH MECHANICAL SHAFT
MC-602 1:50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professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SECTIONS – SHEET 2
MECHANICAL

| | |
|---|---|
| date | |
| scales 1:50 | job.no. 06226.201 |
| drawn AP | |
| approved MG/HK | drawing no. MC-602 |
| plot date | |

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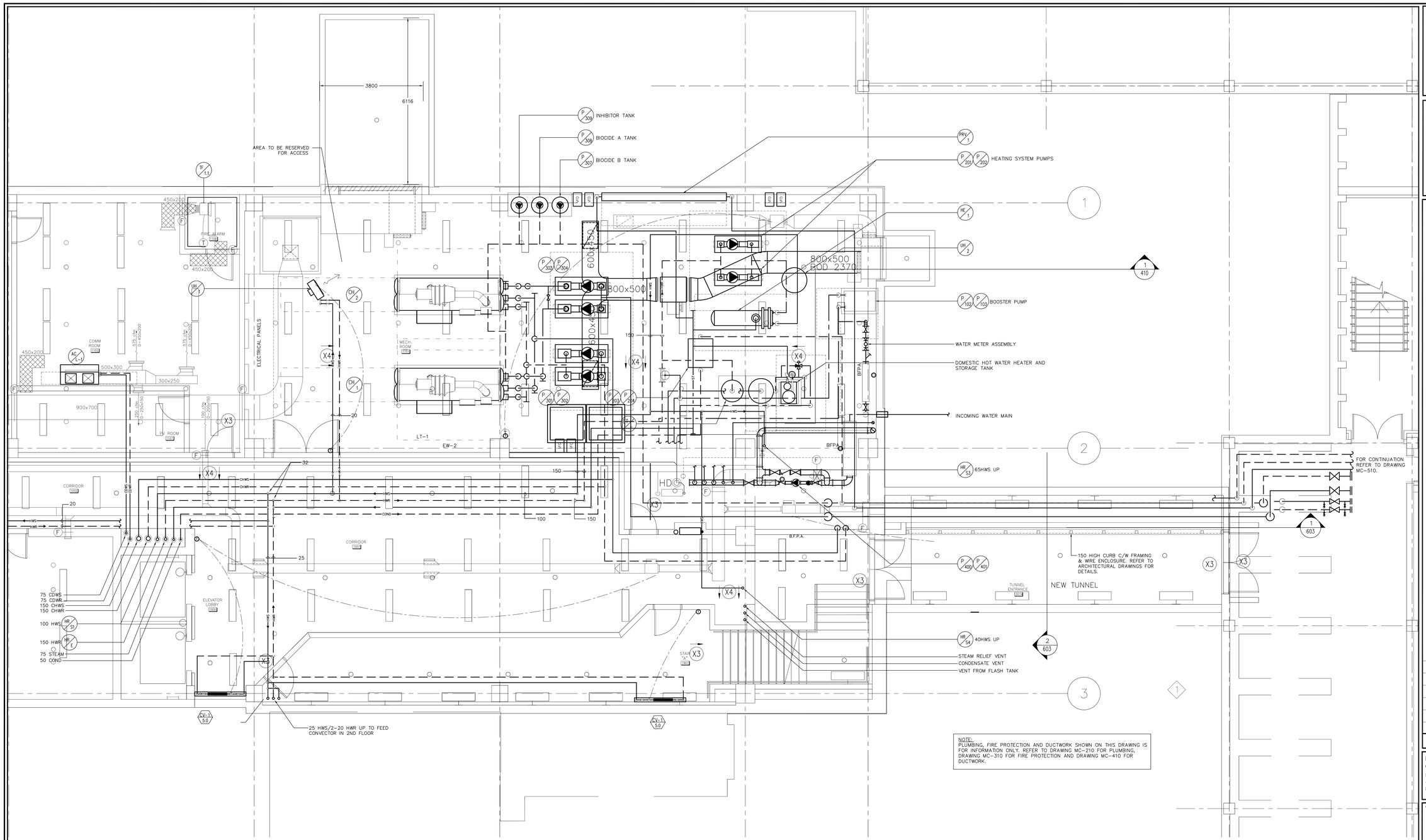
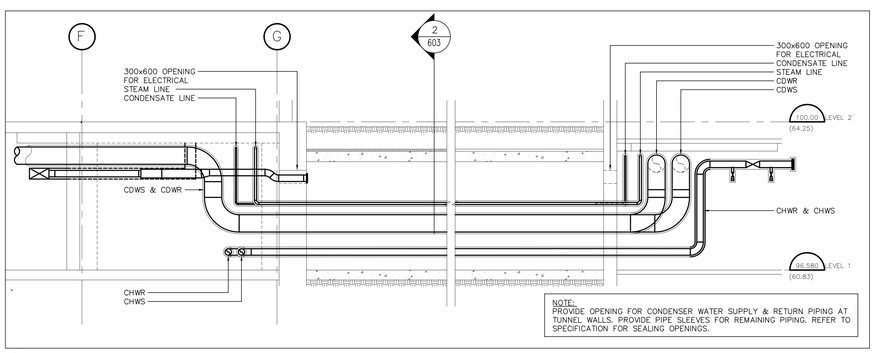
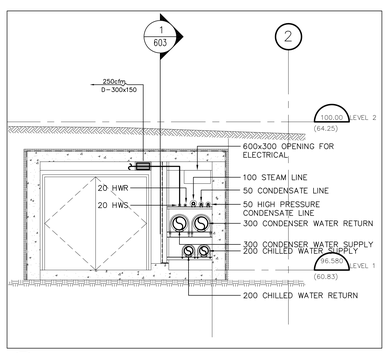



NOTE:
PLUMBING, FIRE PROTECTION AND DUCTWORK SHOWN ON THIS DRAWING IS FOR INFORMATION ONLY. REFER TO DRAWING MC-210 FOR PLUMBING, DRAWING MC-310 FOR FIRE PROTECTION AND DRAWING MC-410 FOR DUCTWORK.




NOTE:
PROVIDE OPENING FOR CONDENSER WATER SUPPLY & RETURN PIPING AT TUNNEL WALLS. PROVIDE PIPE SLEEVES FOR REMAINING PIPING. REFER TO SPECIFICATION FOR SEALING OPENINGS.

1 SECTION THRU MECHANICAL ROOM
MC-603 1:50




2 SECTION THRU TUNNEL
MC-603 1:50

## GENERAL NOTES:

1. LOCATION OF THE THERMOSTATS SHALL BE CONFIRMED BY CARELTON UNIVERSITY AND DESIGN TEAM DURING CONSTRUCTION.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING M-410 FOR LOCATION AND QUANTITY OF THERMOSTATS.
3. FOR PIPE SIZES AND VALVING ARRANGEMENT REFER TO SCHEMATIC DRAWINGS.

RUN OUT FOR PIPE SIZES SHALL BE AS FOLLOWS:

.1 PIPE SIZES TO AIR CONDITIONER UNITS DESIGNATED AS AC- SHALL BE AS PER 24/7 COOLING WATER SCHEMATIC MC-880..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IN JOINT VENTURE
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K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

PROJECT NORTH

project title
CARLETON UNIVERSITY ACADEMIC BUILDING
CANAL SITE

drawing title
LEVEL 1 FLOOR PLAN MECHANICAL ROOM

| | |
|---|---|
| date | job.no. 06226.201 |
| scales 1:100 | |
| drawn GM | drawing no. MC-603 |
| approved MG/HK | |
| plot date | |

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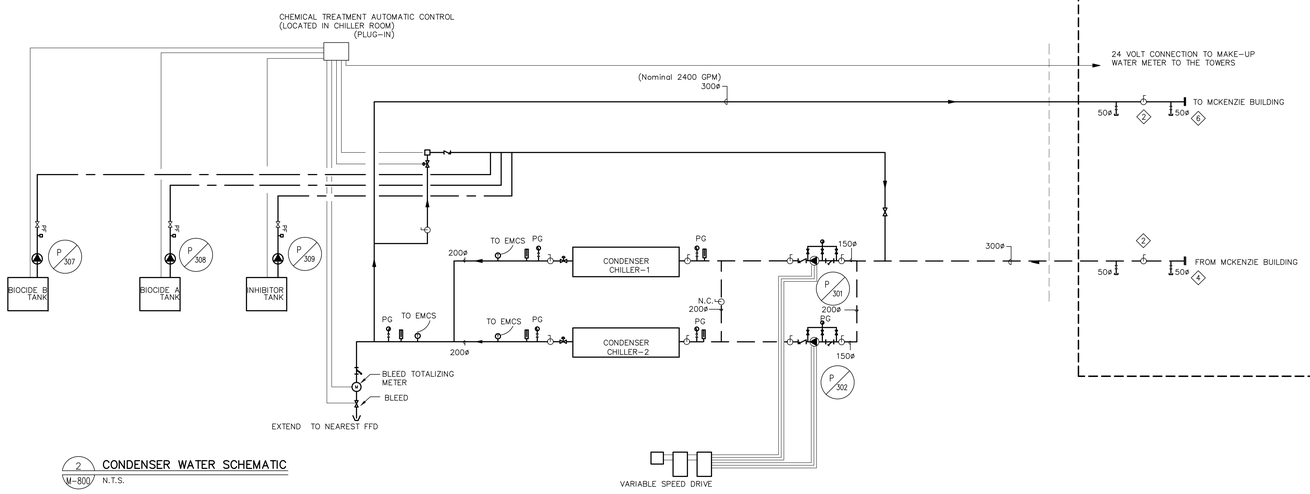
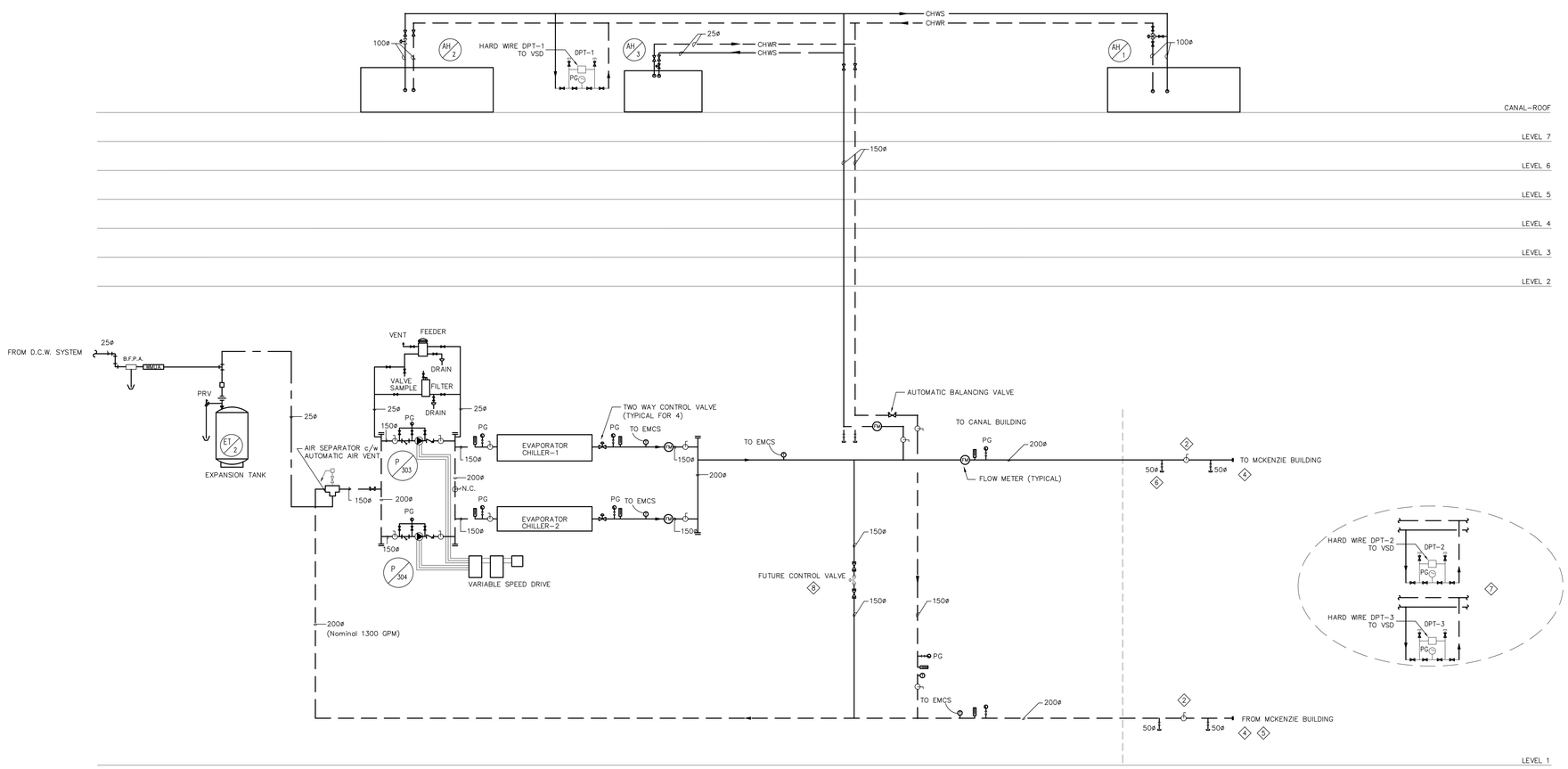



2 CONDENSER WATER SCHEMATIC
M-800 N.T.S.

NOTE: VSD TO BE SET FOR PRE-SET SPEED TO COMPENSATE FOR PRESSURE DROP WHEN ONE CHILLER IS OPERATING.

N.I.C.




1 CHILLED WATER SCHEMATIC
M-800 N.T.S.

## GENERAL NOTES:

1) FOR PUMP INSTALLATION DETAIL REFER TO DRAWING M-730.
2) TEST PORTS SHALL BE PROVIDED ADJACENT TO ALL EMCS SENSOR LOCATIONS.
3) REFER TO SPECIFICATION REGARDING CHEMICAL TREATMENT AUTOMATIC CONTROL.
4) PROOF OF FLOW DEVICES ASSOCIATED WITH CHEMICAL TREATMENT TO BE CONNECTED TO CHEMICAL TREATMENT CONTROLLER.

## CONSTRUCTION NOTES:

1. FOR COIL PIPING DETAIL REFER TO M-900 SERIES.
2. ISOLATING VALVE IN MCKENZIE BUILDING.
3. COOLING TOWERS SHALL BE INSTALLED IN MCKENZIE TOWER. THIS WORK IS NOT PART OF CURRENT CONTRACT.
4. EXTEND PIPING THROUGH TUNNEL ON LEVEL L-1 & TERMINATE INSIDE MCKENZIE BUILDING.
5. THERE SHALL BE AT LEAST ONE 3 WAY CONTROL VALVE SIZED AT ..... GPM IN MCKENZIE BUILDING.
6. PRIOR TO INTERCONNECTING THE TWO BUILDINGS, FLUSH CLEAN ALL PIPING. SUBMIT WATER SAMPLE & TEST RESULTS. PROVIDE DRAIN VALVES FOR FLUSHING.
7. DPT-2 & DPT-3 TO BE INSTALLED IN MACKENZIE BUILDING. THIS WORK IS NOT PART OF THIS CONTRACT.
8. CONTRACTOR TO PROVIDE A SPOOL PIECE APPROXIMATELY 250mm LONG FOR A *FUTURE* CONTROL BYPASS VALVE, PROVIDING TWO 150mm. ISOLATING VALVE IS PART OF THIS CONTRACT.
9. SLOPE THE CHILLED WATER LINES AND PROVIDE ADDITIONAL DRAIN VALVES FOR THE CHILLED WATER LINES TO ACCOMMODATE DRAINING THE CHILLED WATER LINES IN WINTER. DRAIN VALVES TO BE BALL VALVES WITH CAP AND CHAIN AND TO HAVE HOSE CONNECTION.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consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
CHILLED WATER

| | |
|---|---|
| date | job.no. 06226.201 |
| scales NTS | |
| drawn AP | drawing no. MC-800 |
| approved MG/HK | |
| plot date | |

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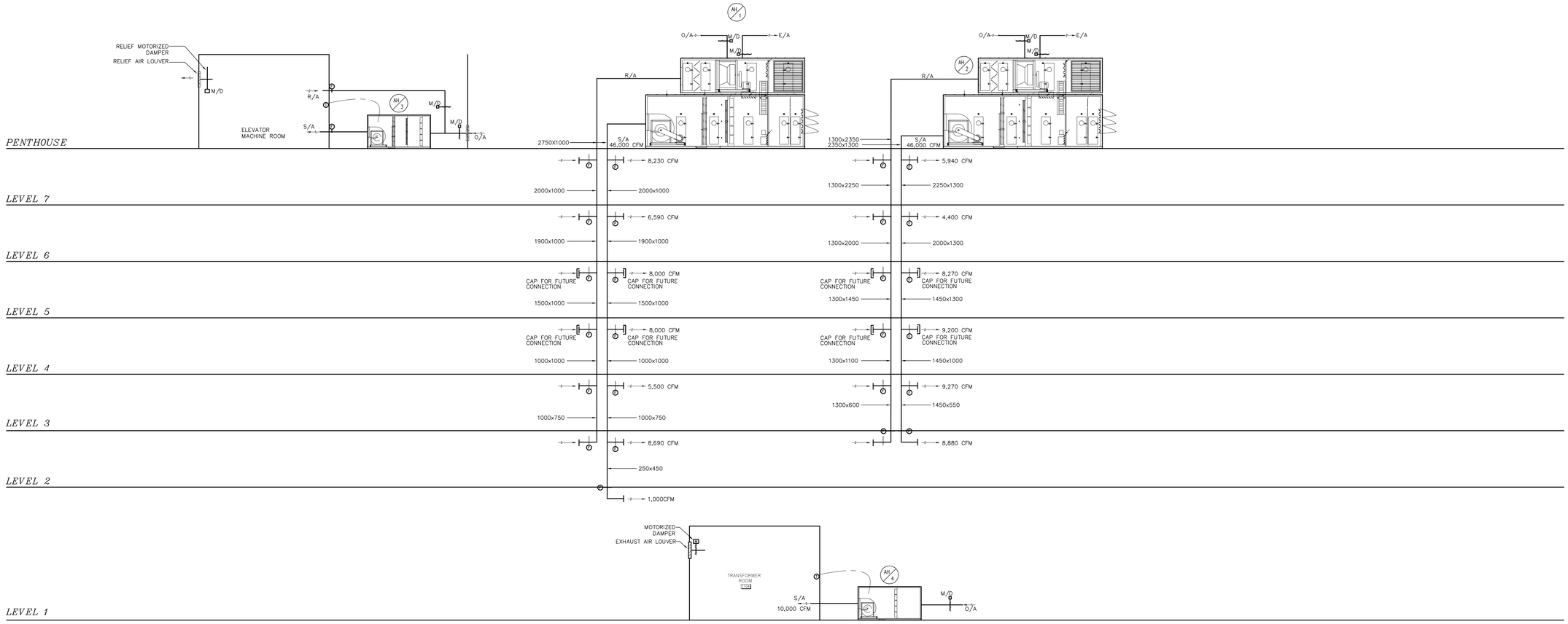


1 SUPPLY AIR RISER DIAGRAM
M-810 N.T.S.


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project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
SUPPLY AIR

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|---|---|
| date | |
| scales | NTS |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-810 |

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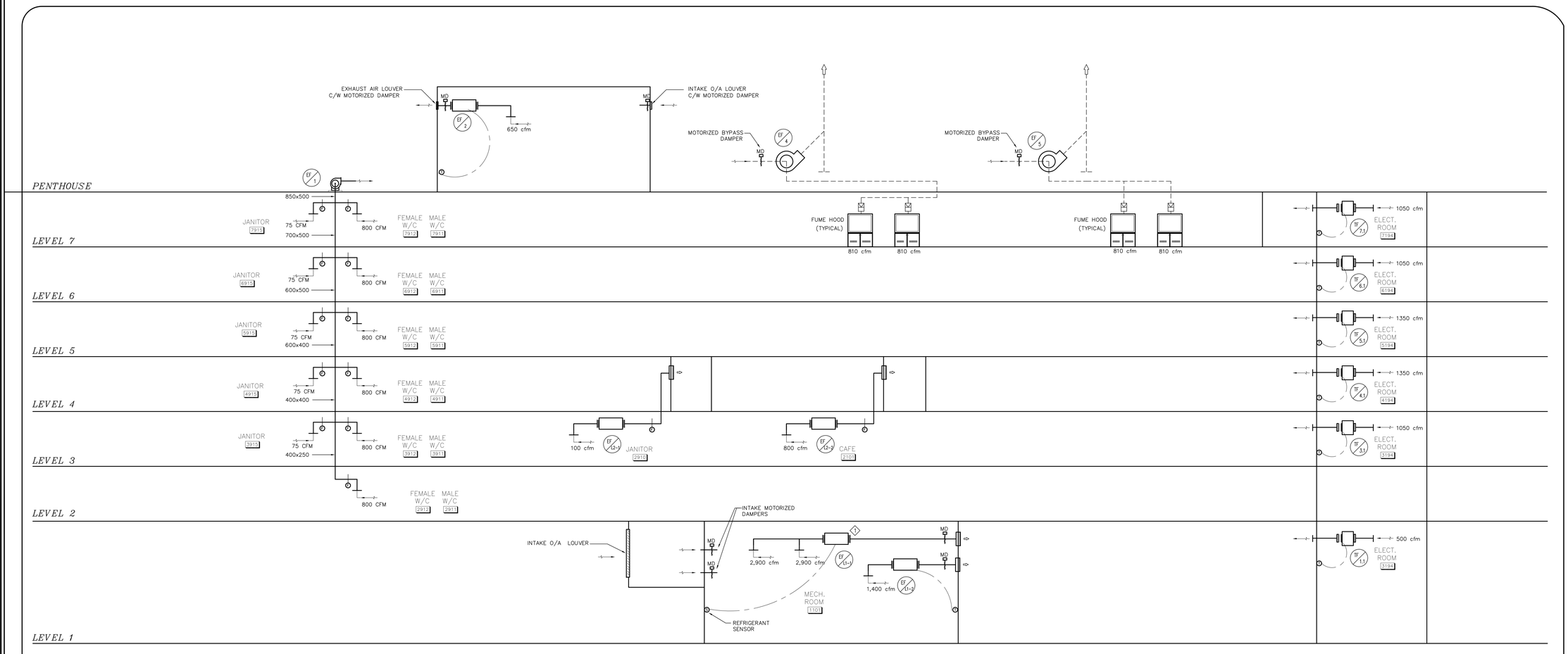


1 SUPPLY AIR RISER DIAGRAM
M-820 N.T.S.

**CONSTRUCTION NOTES:**

1. FAN TO BE INTERLOCKED WITH REFREGERANT SENSOR.


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professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
EXHAUST AIR

| | |
|---|---|
| date | job no. 06226.201 |
| scales NTS | |
| drawn AP | drawing no. MC-820 |
| approved MG/HK | |
| plot date | |

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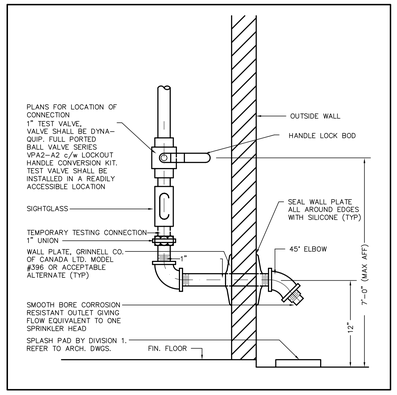
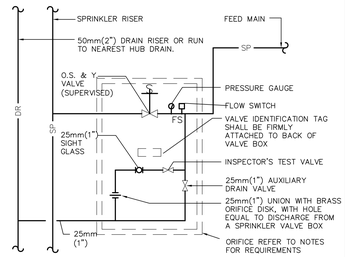



1 WET SYSTEM INSPECTORS TEST CONNECTION
MC-805 N.T.S.

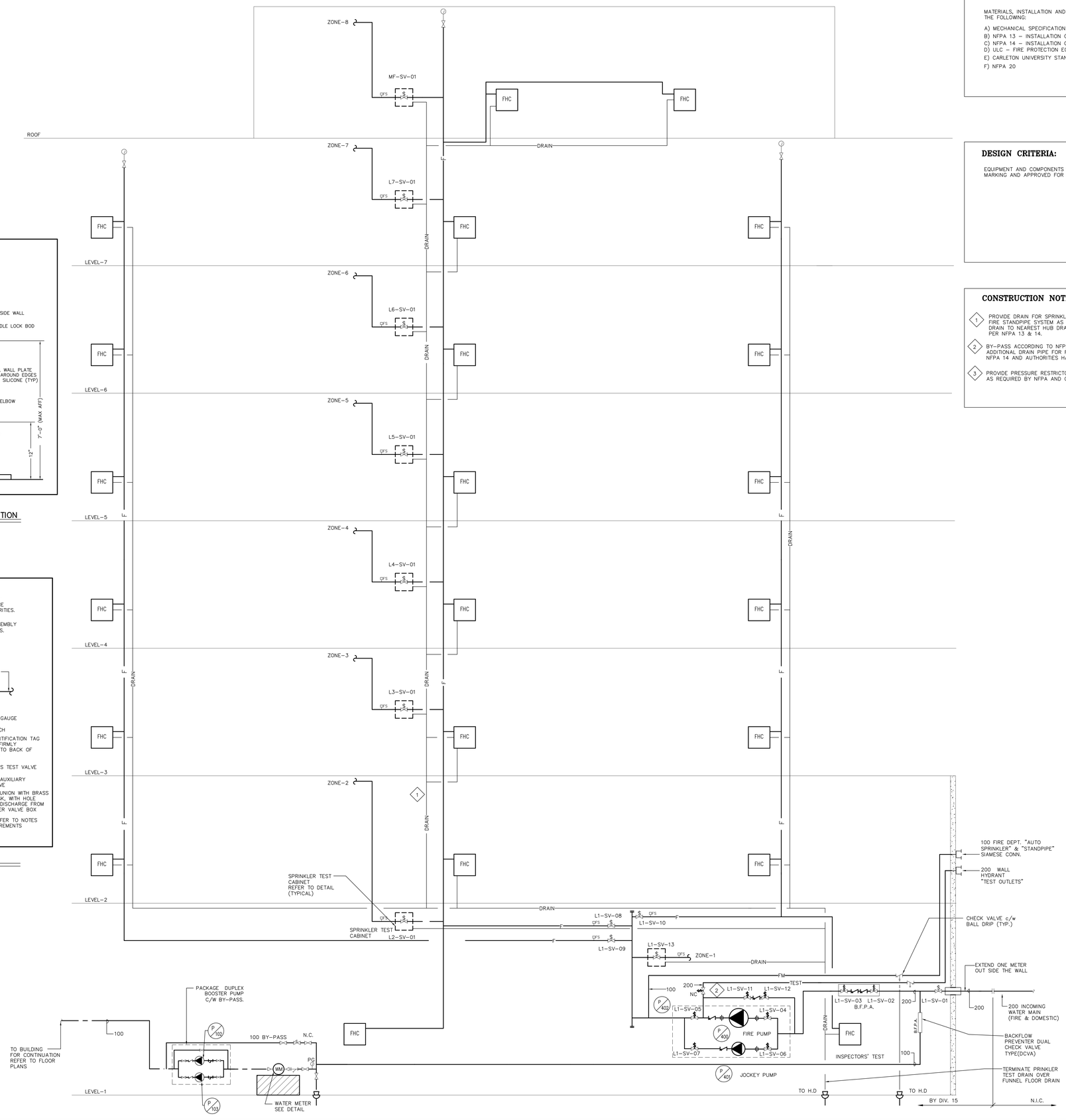
NOTES:

1. VALVE BOX SHALL BE OF SUITABLE SIZE AS SPECIFIED FOR FIRE HOSECABINET EXCEPT DO NOT PROVIDE GLASS DOOR. PROVIDE NAME PLATE TO CABINET EMBOSSED AS REQUIRED BY GOVERNING AUTHORITIES. RIGHT OR LEFT HAND DOOR HINGE AS REQUIRED
2. VALVE BOX IS NOT REQUIRED WHEN FLOOR CONTROL VALVE ASSEMBLY IS LOCATED IN CEILING SPACE, OR IN MECHANICAL /JANITOR ROOMS. PROVIDE NAME PLATE TO CEILING LOCATION AS PER GOVERNING AUTHORITIES
3. FURTHER DETAILS SHALL REFER TO NFPA 13 AND OBC.




1 SPRINKLER FLOW CONTROL VALVE BOX & FLOW SWITCH

2 SPRINKLER TEST CABINET
MC-805 N.T.S.




## GENERAL NOTES:

MATERIALS, INSTALLATION AND TESTING SHALL COMPLY WITH THE FOLLOWING:

A) MECHANICAL SPECIFICATION.
B) NFPA 13 – INSTALLATION OF SPRINKLER SYSTEMS.
C) NFPA 14 – INSTALLATION OF STANDPIPE AND HOSE SYSTEM.
D) ULC – FIRE PROTECTION EQUIPMENT DIRECTORY
E) CARLETON UNIVERSITY STANDARD.
F) NFPA 20

## DESIGN CRITERIA:

EQUIPMENT AND COMPONENTS SHALL BEAR ULC LABEL OR MARKING AND APPROVED FOR FIRE SERVICES.

## CONSTRUCTION NOTES:

1. PROVIDE DRAIN FOR SPRINKLER ZONE VALVE ASSEMBLY & FIRE STANDPIPE SYSTEM AS PER NFPA 13 & 14. RUN DRAIN TO NEAREST HUB DRAINS. DRAIN TO OUTSIDE AS PER NFPA 13 & 14.
2. BY-PASS ACCORDING TO NFPA 20. PROVIDE ADDITIONAL DRAIN PIPE FOR FHC TESTING AS PER NFPA 14 AND AUTHORITIES HAVING JURISDICATION.
3. PROVIDE PRESSURE RESTRICTORS FOR FIRE HOSE AS REQUIRED BY NFPA AND OBC.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consultant

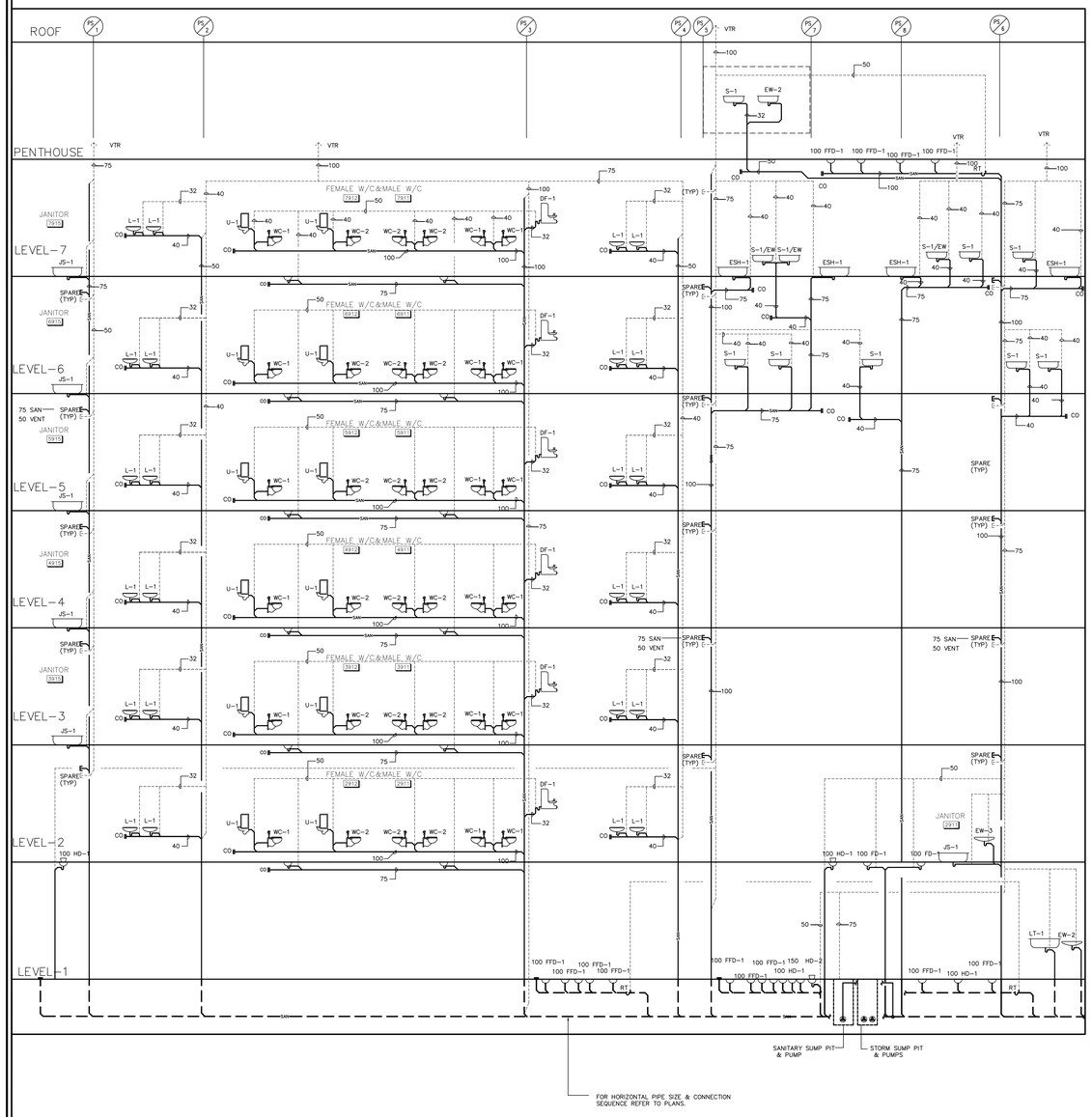
professional stamp

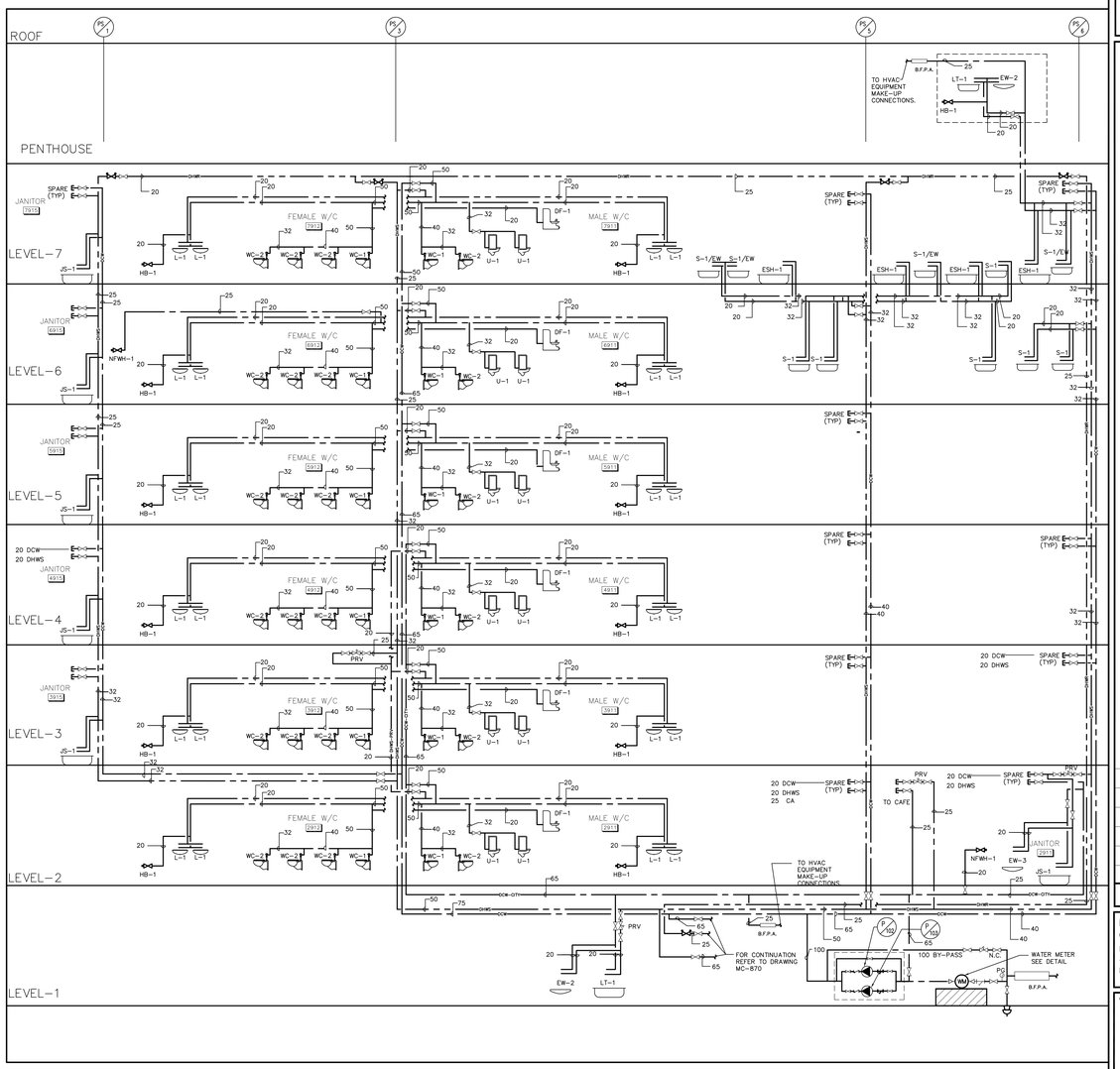
project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC –
FIRE PROTECTION

| | |
|---|---|
| date | |
| scales | NTS |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-850 |

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL





Carleton UNIVERSITY

**Construction Services**
**Department Of Physical Plant**
209 Maintenance Building
1125 Colonel By Drive,
Ottawa, Canada, K1S 5B6
Telephone: (613) 520-2600

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2255 Sheppard Avenue. E.
Suite E 331
North York, On M2J 4Y1
(416)497.3111 fax (416)497.7210


RECORD DRAWINGS HAVE BEEN PREPARED FROM THE AS-BUILT DOCUMENTS ISSUED BY R.E. HEIN JULY 7, 2011

| no. | date | revision | by |
|---|---|---|---|
| 3. | JULY 7, 2011 | RECORD DRAWINGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
DOMESTIC COLD, HOT WATER & SANITARY RISERS.

| | |
|---|---|
| date | |
| scales | NTS |
| drawn | I.V. |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-860 |

1 DO NOT SCALE THIS DRAWING.
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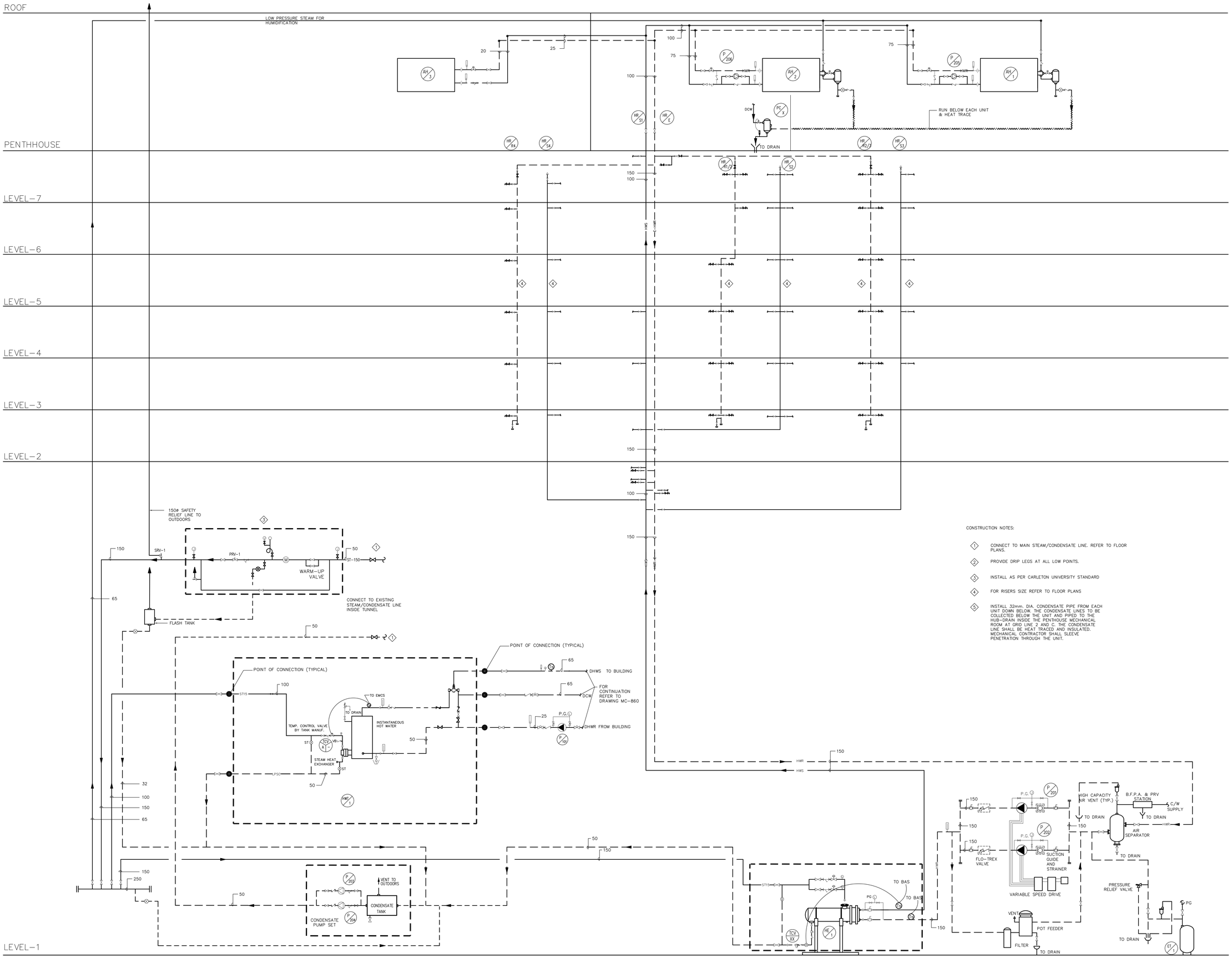
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL




CONSTRUCTION NOTES:

1. CONNECT TO MAIN STEAM/CONDENSATE LINE. REFER TO FLOOR PLANS.
2. PROVIDE DRIP LEGS AT ALL LOW POINTS.
3. INSTALL AS PER CARLETON UNIVERSITY STANDARD
4. FOR RISERS SIZE REFER TO FLOOR PLANS
5. INSTALL 32mm. DIA. CONDENSATE PIPE FROM EACH UNIT DOWN BELOW. THE CONDENSATE LINES TO BE COLLECTED BELOW THE UNIT AND PIPED TO THE HUB-DRAIN INSIDE THE PENTHOUSE MECHANICAL ROOM AT GRID LINE 2 AND C. THE CONDENSATE LINE SHALL BE HEAT TRACED AND INSULATED. MECHANICAL CONTRACTOR SHALL SLEEVE PENETRATION THROUGH THE UNIT.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| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


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consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
STEAM AND HOT WATER
DISTRIBUTION SYSTEM

| | |
|---|---|
| date | |
| scales | NTS |
| drawn | FB |
| approved | MG/HK |
| plot date | |
| job.no. | 06226.201 |
| drawing no. | MC-870 |

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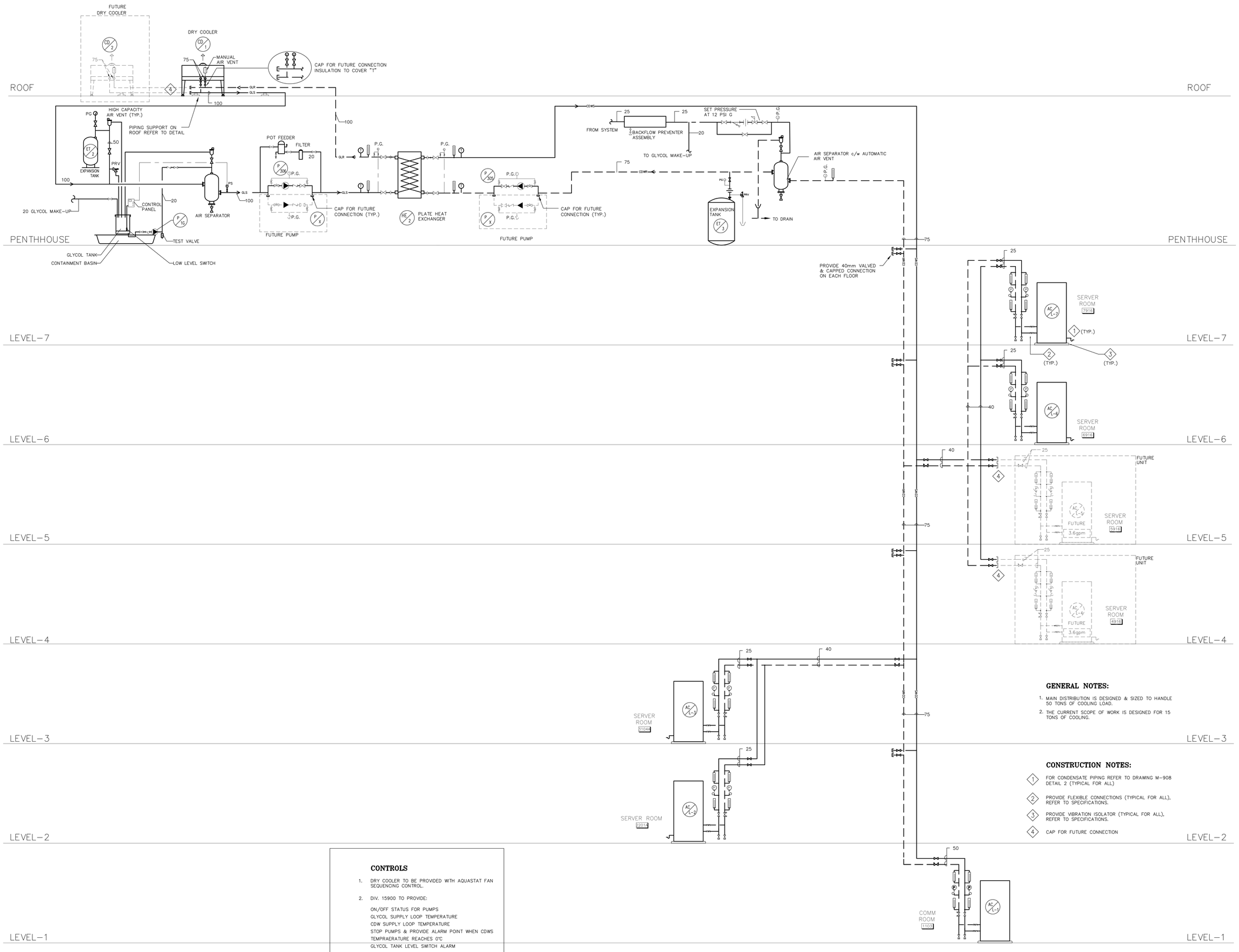


## GENERAL NOTES:

1. MAIN DISTRIBUTION IS DESIGNED & SIZED TO HANDLE 50 TONS OF COOLING LOAD.
2. THE CURRENT SCOPE OF WORK IS DESIGNED FOR 15 TONS OF COOLING.

## CONSTRUCTION NOTES:

1. FOR CONDENSATE PIPING REFER TO DRAWING M-908 DETAIL 2 (TYPICAL FOR ALL)
2. PROVIDE FLEXIBLE CONNECTIONS (TYPICAL FOR ALL), REFER TO SPECIFICATIONS.
3. PROVIDE VIBRATION ISOLATOR (TYPICAL FOR ALL), REFER TO SPECIFICATIONS.
4. CAP FOR FUTURE CONNECTION

## CONTROLS

1. DRY COOLER TO BE PROVIDED WITH AQUASTAT FAN SEQUENCING CONTROL.
2. DIV. 15900 TO PROVIDE:

   ON/OFF STATUS FOR PUMPS
   GLYCOL SUPPLY LOOP TEMPERATURE
   CDW SUPPLY LOOP TEMPERATURE
   STOP PUMPS & PROVIDE ALARM POINT WHEN CDWS TEMPRAERATURE REACHES 0°C
   GLYCOL TANK LEVEL SWITCH ALARM


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consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
SCHEMATIC
24/7 COOLING WATER

| | |
|---|---|
| date | job no. 06226.201 |
| scales NTS | |
| drawn BA | |
| approved MG/HK | drawing no. MC-880 |
| plot date | |

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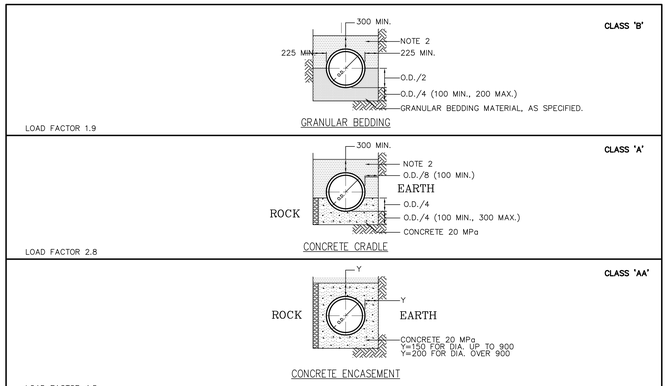
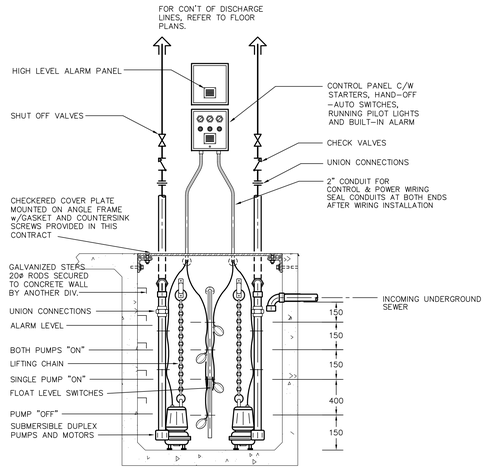



NOTES

1. IN ROCK EXCAVATION PROVIDE A 50mm LAYER OF COMPRESSIBLE MATERIAL BETWEEN THE TRENCH WALLS AND CONCRETE ENCASEMENT.
2. COVER MATERIAL, NO STONES GREATER THAN 25mm WILL BE PERMITTED.
3. IN ROCK EXCAVATION, A MINIMUM OF 150mm GRAN. MATERIAL BEDDING IS REQUIRED UNDERNEATH THE PIPE.

| TRENCH WIDTHS AT TOP OF PIPE | |
|---|---|
| INSIDE PIPE DIA. mm | MAX. mm |
| 300 | OD + 450 |
| 375 | OD + 600 |
| 450 | " |
| 525 | " |
| 600 | " |
| 750 | |
| 900 | OD + 750 |
| 1050 | " |
| 1200 | " |
| 1350 | " |
| 1500 | " |
| 1650 | " |
| 1800 | " |
| 2150 | " |

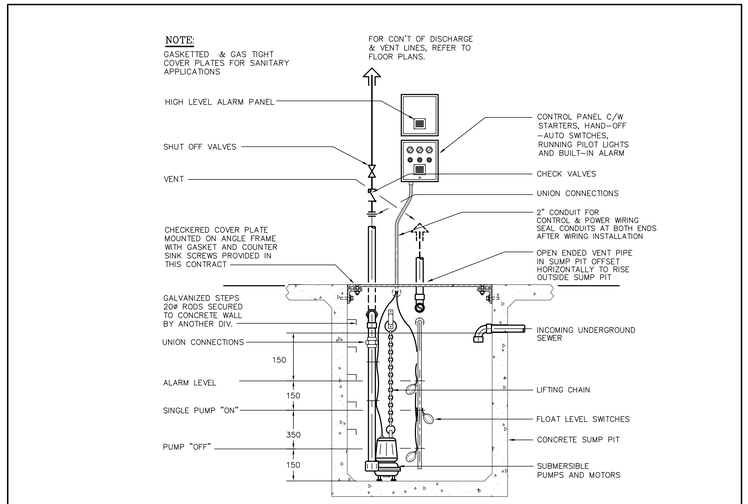
1 / M-900 BEDDING DETAILS FOR SANITARY SEWERS




NOTE:

1. REFER TO FLOOR PLAN(S) FOR SIZE AND DEPTH OF SUMP-PIT
2. SET "OFF" SWITCH TO ALLOW PUMP SUCTIONS TO REMAIN UNDER WATER AT ALL TIMES TO PREVENT AIR-LOCKED
3. SET "ON" SWITCH TO ALLOW PUMP TO OPERATE FOR A APPROXIMATELY 2 MINUTES PER "ON" CYCLE.
4. PROVIDE ADDITIONAL UNIONS AS REQUIRED TO ALLOW PUMP DISCHARGE PIPE TO BE REMOVED AND DISASSEMBLED WITH AVAILABLE CEILING HEIGHT.
5. NO PIPES WIRES ETC. TO PASS THROUGH SUMP COVER PLATE.

2 / M-900 SUBMERSIBLE DUPLEX STORM SUMP PUMP DETAIL




NOTE:

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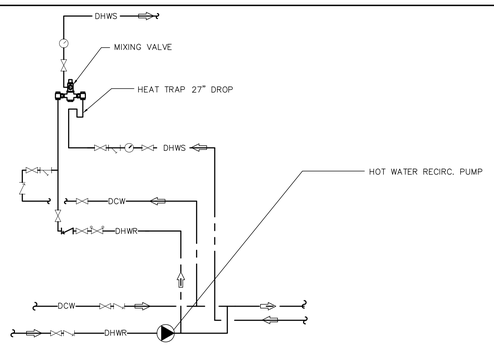
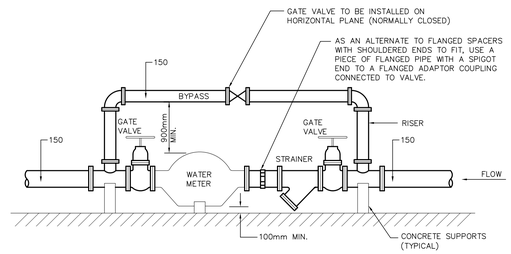
4. PROVIDE ADDITIONAL UNIONS AS REQUIRED TO ALLOW PUMP DISCHARGE PIPE TO BE REMOVED AND DISASSEMBLED WITH AVAILABLE CEILING HEIGHT.
5. NO PIPES WIRES ETC. TO PASS THROUGH SUMP COVER PLATE.

3 / M-900 SUBMERSIBLE SIMPLEX SANITARY SUMP PUMP DETAIL




4 / M-900 DOMESTIC HOT WATER MIXING VALVE DETAIL

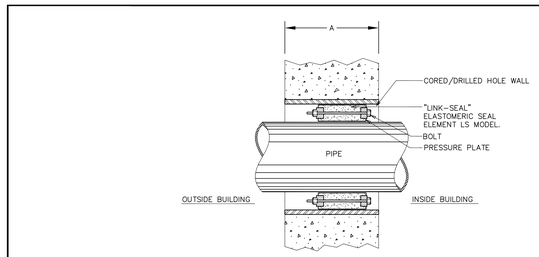



VERTICAL BYPASS INSIDE BUILDING
N.T.S.

NOTES:

1. THE GATE VALVES ON THE METER LINE MAY BE INSTALLED AT 30° OR 45° TO VERTICAL IF REQUIRED

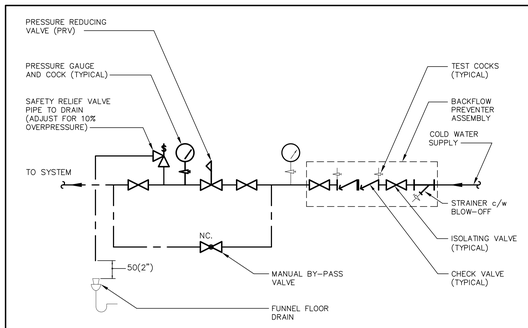
5 / M-900 WATER METER DETAIL




GENERAL NOTES

1. INSTALL AND TEST LINK-SEAL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. LENGTH OF THE CORE (A) SHALL BE SITE MEASURED AND LINK SEAL TO BE SELECTED ACCORDINGLY. SUBMIT SHOP DRAWING TO ENGINEER IN ADVANCE.

6 / M-900 PIPE SLEEVE INSTALLATION DETAIL THRU BUILDING EXTERIOR WALL

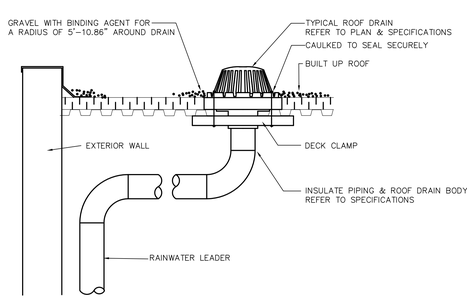



WATER MAKE-UP ASSEMBLY BACKFLOW PREVENTOR ASSEMBLY

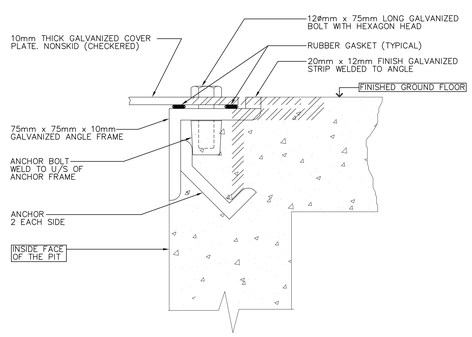
NOTE:

INSTALLATION OF BACKFLOW PREVENTION DEVICE SHALL BE IN ACCORDANCE WITH THE 2001 VERSION OF CSA B64.
BACKFLOW PREVENTION DEVICE TO BE MOUNTED BETWEEN 750mm AND 1500mm OF THE FLOOR.
THERE IS TO BE A MINIMUM CLEARANCE OF 300mm ABOVE AND BELOW THE DEVICE.
THERE IS TO BE A MINIMUM CLEARANCE OF 750mm IN FRONT OF THE DEVICE.
THERE IS TO BE A MINIMUM CLEARANCE OF 20mm BETWEEN THE BACKSIDE OF THE DEVICE AND THE WALL.

7 / M-900 WATER MAKE-UP ASSEMBLY AND BACKFLOW PREVENTER ASSEMBLY




8 / M-900 ROOF DRAIN DETAIL




9 / M-900 TYPICAL DETAIL OF COVER PLATE AND FRAME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consultant

professional stamp

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

MECHANICAL DETAILS
SHEET 1

| | |
|---|---|
| date | |
| scales | NTS |
| drawn | AP |
| approved | MG/HK |
| plot date | |
| job no. | 06226.201 |
| drawing no. | MC-900 |

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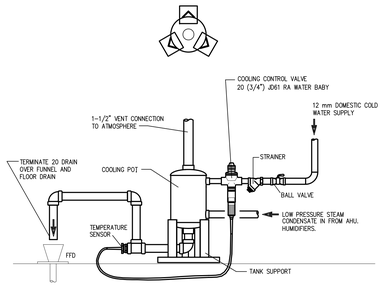
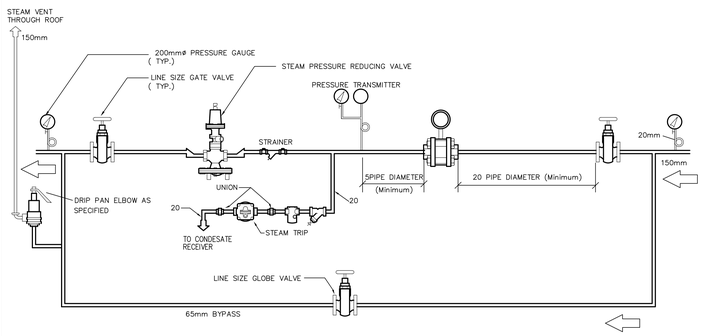



NOTE: 1. THIS DRAWING IS A SCHEMATIC ONLY AND NOT DRAWN TO SCALE.

2. PROVIDE "SPIRAX SARCO" HYGROMATIK MODEL # JC200FCC FLASH CONDENSER/ COOLER, TYPICAL FOR CP-F1, CP-N1, CP-S1 & CP-S2.

1 / M-901 FLASH CONDENSER/COOLING POT PIPING DETAIL



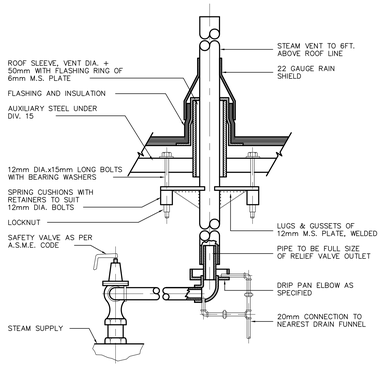

THIS DETAIL SHALL BE READ IN CONJUNCTION WITH CARLETON UNIVERSITY DETAIL AND SHALL BE INSTALLED TO SATISFACTION OF CARLETON UNIVERSITY'S DESIGNEE.

NOTES:

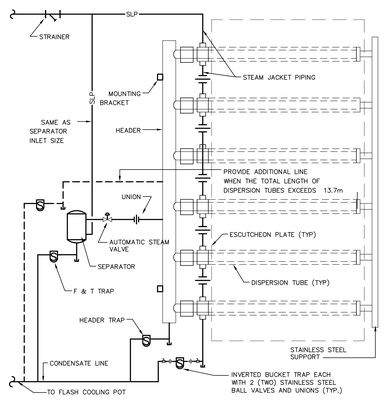
1. SIZE AS DIRECTED ON PRESSURE REDUCING VALVE SCHEDULE
2. REFER TO STEAM SCHEMATIC ON DRAWING M701 FOR PRV. STEAM LINE SIZES.

2 / M-901 PRESSURE REDUCING VALVE FROM 150 PSIG TO 15 PSIG

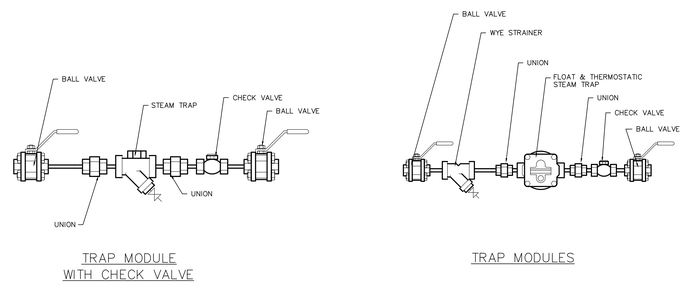
3 / M-901 RESERVED



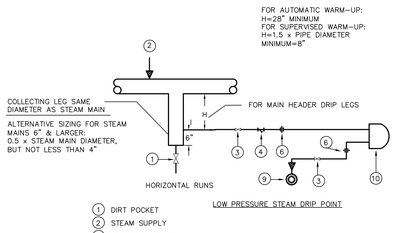

4 / M-901 STEAM VENT FROM SAFETY VALVE




5 / M-901 HUMIDIFIER DETAIL

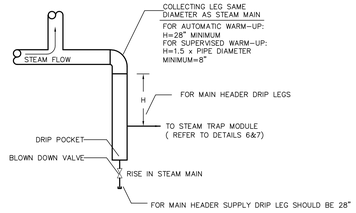



6 / M-901 HIGH & LOW PRESSURE STEAM DRIP POINTS

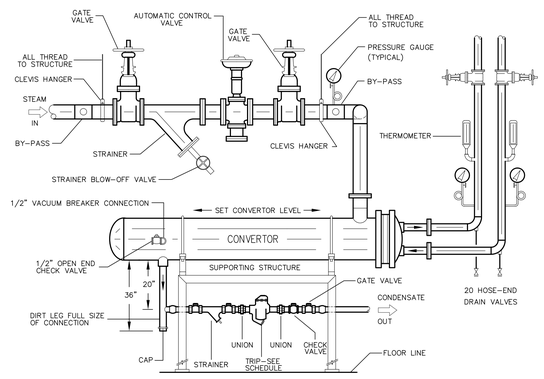



1. DIRT POCKET
2. STEAM SUPPLY
3. ISOLATING VALVE
4. STRAINER
5. ISOLATING VALVE
6. UNION
7. TRAP
8. CHECK VALVE
9. CONDENSATE PIPE
10. BUCKET TRAP

7 / M-901 LOW PRESSURE STEAM DRIP POINT




8 / M-901 DRIP LEG DETAIL 1




9 / M-901 STEAM TO WATER CONVERTOR INSTALLATION DETAIL


Carleton UNIVERSITY

Construction Services
Department Of Physical Plant
209 Maintenance Building
1125 Colonel By Drive,
Ottawa, Canada, K1S 5B6
Telephone: (613) 520-2600

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consultant

professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title
MECHANICAL DETAILS
SHEET 2

| | |
|---|---|
| date | job.no. 06226.201 |
| scales NTS | |
| drawn B.A. | drawing no. |
| approved MG/HK | MC-901 |
| plot date | |

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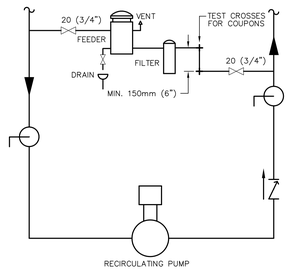
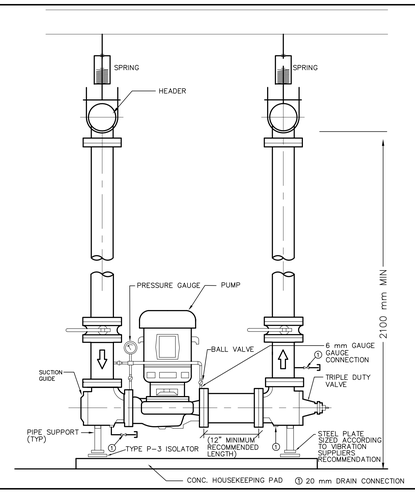
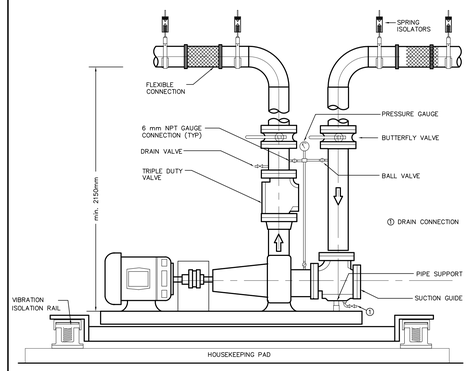



NOTE:
INSTALL FILTER AND FEEDER IN AN ACCESSIBLE LOCATION, LESS THAN 1.5m (5 FT.) ABOVE THE FLOOR

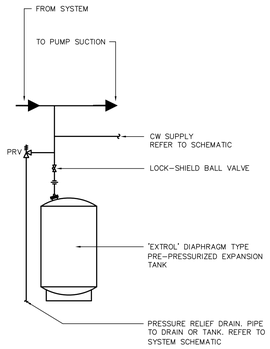
1 BY-PASS FEEDER/MICRON FILTER INSTALLATION ARRANGEMENT
M-902 NTS



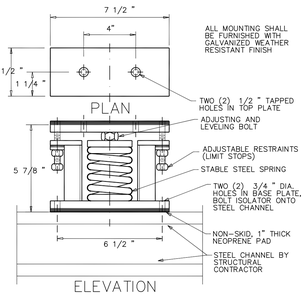

2 IN-LINE PUMP DETAIL
M-902 NTS



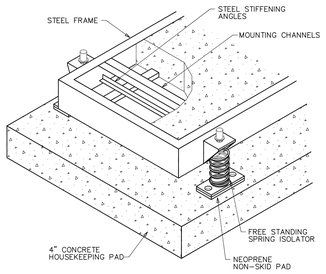

3 TYPICAL BASE MOUNTED PUMP INSTALLATION DETAIL
M-902 NTS



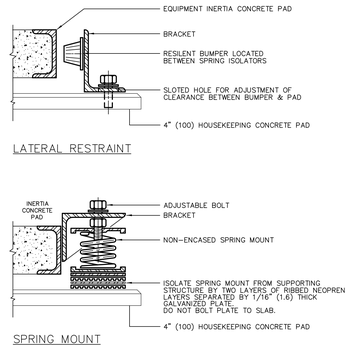

4 DIAPHRAGM EXPANSION TANK DETAIL
M-902 NTS



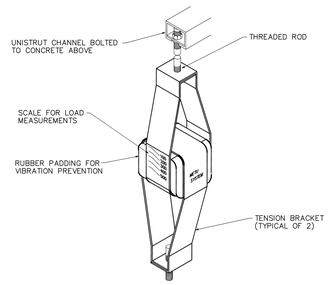

5 VIBRATION ISOLATOR INSTALLATION DETAIL
M-902 NTS



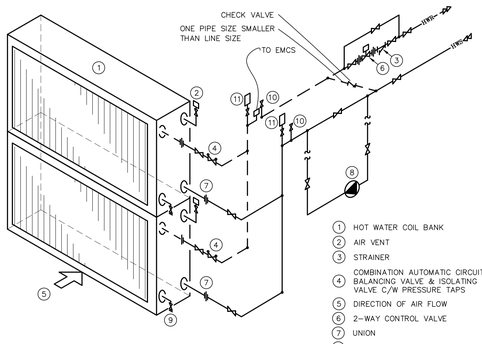

6 INERTIA BASE INSTALLATION DETAIL
M-902 NTS




7 EQUIPMENT INERTIA CONC. PAD – DETAIL
M-902 NTS




8 ISOLATION SUPPORT HANGER INSTALLATION DETAIL
M-902 NTS

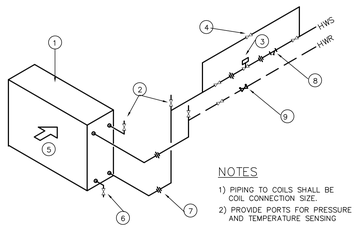



1 HOT WATER COIL BANK
2 AIR VENT
3 STRAINER
4 COMBINATION AUTOMATIC CIRCUIT BALANCING VALVE & ISOLATING VALVE C/W PRESSURE TAPS
5 DIRECTION OF AIR FLOW
6 2-WAY CONTROL VALVE
7 UNION
8 PUMP
9 20mm (3/4") DRAIN VALVE (PIPE TO DRAIN)
10 PRESSURE GAUGE CONNECTION
11 AUTOMATIC AIR VENT AT HIGH POINT IN SYSTEM
12 CIRCULATING PUMP

USING 2-WAY CONTROL VALVE & PUMP

NOTE
1. PIPING TO COILS SHALL BE COIL CONNECTION SIZE.
2. INSTALL PIPING TO ALLOW FOR EASY REMOVAL OF COIL.

9 HOT WATER HEATING COIL PIPING CONNECTION DETAIL FOR STACKED COILS
M-902 NTS

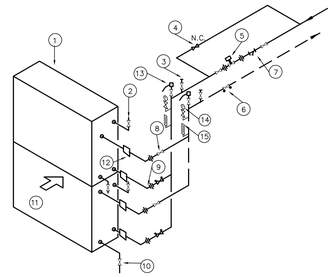



NOTES
1) PIPING TO COILS SHALL BE COIL CONNECTION SIZE.
2) PROVIDE PORTS FOR PRESSURE AND TEMPERATURE SENSING

1 HOT WATER COIL BANK
2 MANUAL AIR VENT
3 MODULATING CONTROL VALVE
4 BY-PASS VALVE
5 DIRECTION OF AIR FLOW
6 20 DRAIN VALVE
7 UNION
8 STRAINER
9 CBV-T BALANCING VALVE

USING 2-WAY CONTROL VALVE

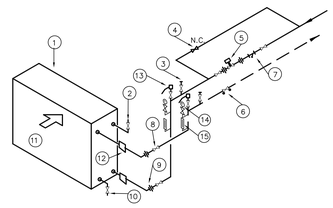
10 TYPICAL REHEAT COIL HOOK-UP DETAIL
M-902 NTS




1 HOT WATER COIL BANK
2 AIR VENT
3 PRESURE GAUGE CONNECTION
4 GLOBE OR BUTTERFLY VALVE
5 MODULATING CONTROL VALVE
6 CIRCUIT BALANCING VALVE
7 STRAINER
8 ISOLATING VALVE
9 UNION
10 3/4" DRAIN VALVE
11 DIRECTION OF AIR FLOW
12 REDUCER
13 AUTOMATIC AIR VENT
14 PRESSURE GAUGE
15 TEMPERATURE GAUGE

USING MODULATING CONTROL VALVE

11 DOUBLE HOT (CHILLED) WATER COIL INSTALLATION DETAIL
M-902 NTS




1 HOT WATER COIL BANK
2 AIR VENT
3 PRESURE GAUGE CONNECTION
4 GLOBE OR BUTTERFLY VALVE
5 MODULATING CONTROL VALVE
6 CIRCUIT BALANCING VALVE
7 STRAINER
8 ISOLATING VALVE
9 UNION
10 3/4" DRAIN VALVE
11 DIRECTION OF AIR FLOW
12 REDUCER
13 AUTOMATIC AIR VENT
14 PRESSURE GAUGE
15 TEMPERATURE GAUGE

USING MODULATING CONTROL VALVE

12 SINGLE HOT & CHILLED WATER COIL INSTALLATION DETAIL
M-902 NTS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MECHANICAL DETAILS
SHEET 3

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| scales NTS | job.no. 06226.201 |
| drawn B.A. | drawing no. |
| approved MG/HK | MC-902 |
| plot date | |

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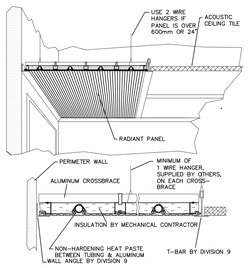
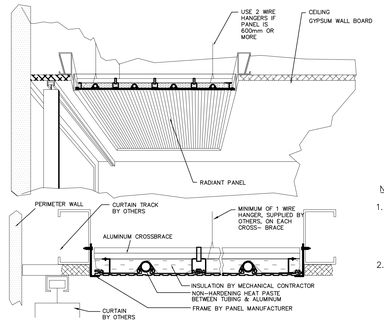



NOTE: OPENING FOR RADIANT PANEL OBTAINED FROM L-7.

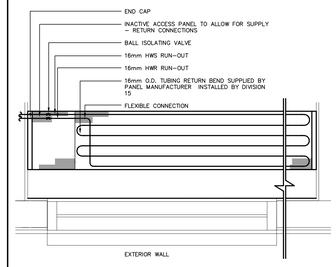
1 M-903 DETAIL OF LINEAR PANEL INSTALLED IN PERIMETER T-BAR CEILING
N.T.S




NOTE:

1. OPENING FOR RADIANT PANEL OBTAINED FROM L-7. ACCESS TO SUPPLY, RETURN AND INTERCONNECTION BETWEEN PANELS WILL BE REQUIRED.
2. THIS DETAIL IS TO BE USED FOR THE INSTALLATION OF REFLECTED CEILING PLAN FOR DETAILS ASSOCIATED WITH THE CEILING & CURTAIN TRACK REFER TO ARCH. DWG'S.

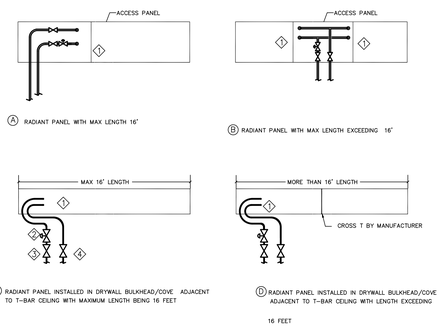
2 M-903 LINEAR PANEL AT PERIMETER WALL IN DRYWALL CEILING
N.T.S



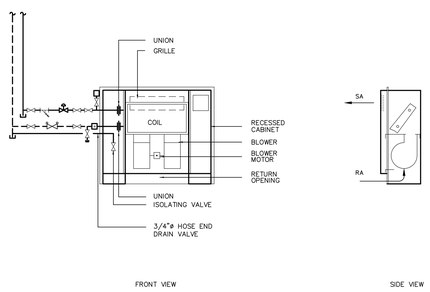

GENERAL NOTES:

1. SHOP DRAWINGS MUST BE AVAILABLE TO THE INSTALLERS PRIOR TO THE START OF PIPING ROUGH-IN. PIPING FOR RADIANT PANELS MUST NOT CHANGE FROM THE MECHANICAL DRAWING FOR PROJECT.
2. RADIANT PANEL DRAWING, ARCHITECTURAL DRAWING AND MECHANICAL DRAWINGS MUST BE CONSULTED BEFORE INSTALLATION BEGINS. REFER TO MECHANICAL DRAWINGS FOR PIPE SIZES AND VALVE LOCATIONS. ANY PANEL INSTALLED AGAINST EXTERIOR WALLS SHOULD HAVE THE FIRST SUPPLIED NEAREST THE WALL.
3. INSTALL RADIANT PANELS WITH FEMALE EDGE TOWARD EXTERIOR WALL PLEASE NOTE THAT ALL PANELS ARE MADE WITH A RED LABEL INDICATING FEMALE EDGE.
4. ALL RADIANT PANELS MUST HAVE AT LEAST ONE TIE WIRE ON EACH CROSS BRACE.
5. CROSS BRACING ON RADIANT PANELS:
   2 BRACES – UP TO 1500mm (5 ft)
   3 BRACES – 1501mm TO 3360mm (11 ft)
   4 BRACES – 3361mm TO 4275mm (14 ft)
   5 BRACES – 4276mm TO 4887mm (16 ft)
6. FOR CUTTING OF RADIANT PANELS USE CIRCULAR SAW WITH A CARBIDE TIPPED BLADE CUT WITH THE FINISH SURFACE FACING THE SAW. ENSURE YOU PROTECT THE FINISH SURFACE BEFORE CUTTING BEGINS.
7. WHEN PANEL REQUIRES SITE CUTTING, FOLLOW THESE STEPS;
   1. INSTALL ALL BUT THE LAST PANEL, MEASURE LENGTH REQUIRED,
   2. CUT LAST PANEL TO REQUIRED LENGTH USING PROCEDURE LISTED IN PART 6 ABOVE.
   3. CUT COIL BACK THE SAME AMOUNT THAT THE PANEL WAS CUT BACK IE. IF PANEL HAS 200mm CUT OFF,CUT 200mm OFF COIL.
   4. INSTALL KICKUPS ON SUPPLY AND RETURN, INSTALL RETURN BENDS AS REQUIRED,
   5. INSTALL FINAL PANEL IN CEILING.
8. RADIANT PANEL MANUFACTURER IS RESPONSIBLE ONLY FOR THE SUPPLY OF RADIANT PANELS. OTHERS ARE TO SUPPLY AND INSTALL THE FOLLOWING:
   1. NECESSARY PIPING BETWEEN PANELS (OTHER THAN PANEL INTERCONNECTORS, AS
   2. PIPING FROM PANELS TO SUPPLY AND RETURN MAINS.
   3. SPECIFIED INSULATION AND HANGER WIRES.
   4. SUSPENDED CEILING GRIDS AND PANEL SUPPORT MOULDINGS.

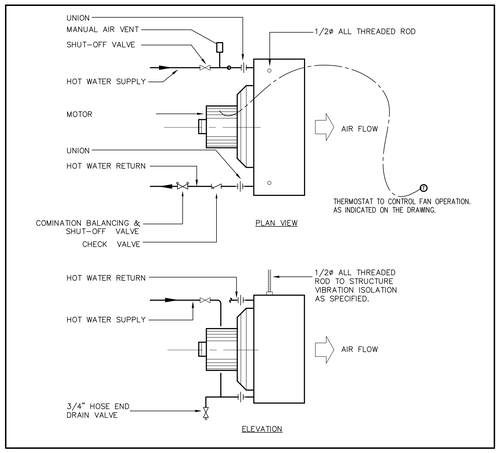
3 M-903 PIPING SCHEMATIC FOR TYPE 1 RADIANT HEATING PANEL
N.T.S



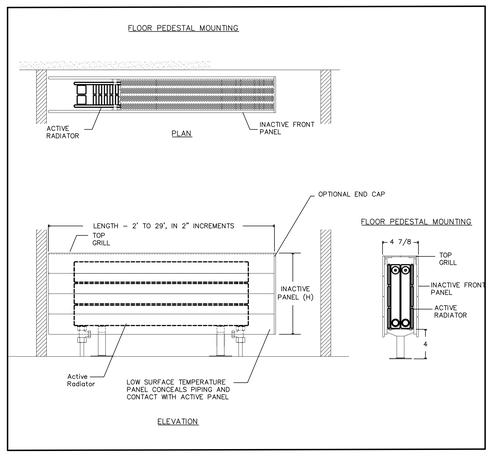

4 M-903 ACCESS PANEL CONFIGURATION
N.T.S



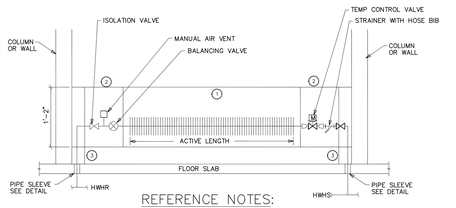

5 M-903 FORCE FLOW CABINET UNIT HEATER DETAIL
N.T.S




6 M-903 HOT WATER UNIT HEATER HORIZONTAL
N.T.S



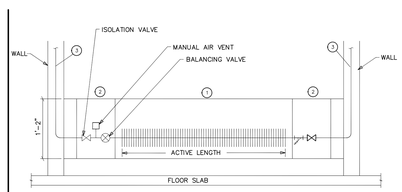

7 M-903 DETAIL OF PEDESTAL MOUNTED RUNTAL
N.T.S




REFERENCE NOTES:

1. WALL TO WALL FIN TUBE ENCLOSURE.
2. REMOVABLE SECTION IN ENCLOSURE, MIN. 18" OR LONGER REQUIRED TO ACCESS ALL VALVES; BALANCING VALVE, STRAINER ETC.
3. METAL PIPING ENCLOSURE, MATCHING FIN TUBE ENCLOSURE TO CONCEAL PIPE FROM FLOOR BELOW, TO BE FURNISHED BY FT MFR.

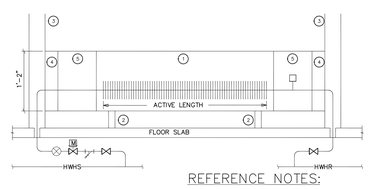
8 M-903 TYPICAL HOT WATER FIN-TUBE PIPING DETAIL
N.T.S




REFERENCE NOTES:

1. WALL TO WALL FIN TUBE ENCLOSURE.
2. REMOVABLE SECTION IN ENCLOSURE, MIN. 18" OR LONGER REQUIRED TO ACCESS ALL VALVES; BALANCING VALVE, STRAINER ETC.
3. CONCEAL PIPING IN WALL AND CONNECT TO MAINS ABOVE CEILING.

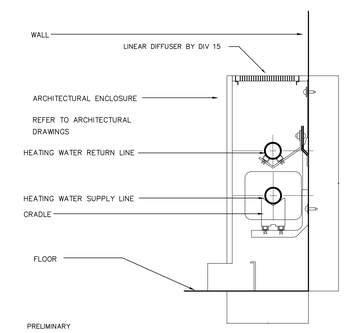
9 M-903 TYPICAL HOT WATER FIN-TUBE PIPING DETAIL
N.T.S




REFERENCE NOTES:

1. WALL TO WALL ENCLOSURE ASSEMBLY.
2. PEDESTAL BRACKET ASSEMBLY.
3. PARTITION WALL.
4. WALL SLEEVE SUPPORT W/ SLOT FOR PIPING.
5. WALL SLEEVE SUPPORT W/ ACCESS DOOR.

10 M-903 TYPICAL PEDESTAL MOUNTED FIN-TUBE PIPING DETAIL
N.T.S




11 M-903 DETAIL OF WALL MOUNTED CONVECTOR
N.T.S


Carleton UNIVERSITY
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SHEET 4

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| approved | MG/HK |
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| drawing no. | MC-903 |

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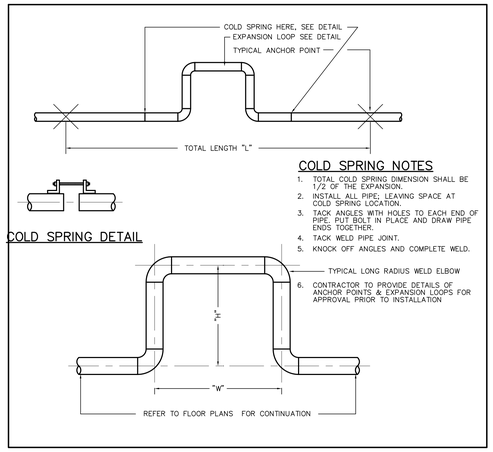


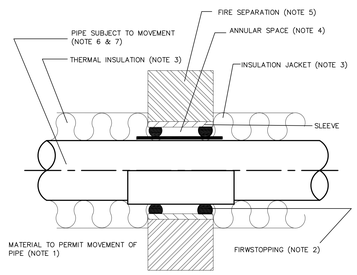

## COLD SPRING NOTES

1. TOTAL COLD SPRING DIMENSION SHALL BE 1/2 OF THE EXPANSION.
2. INSTALL ALL PIPE; LEAVING SPACE AT COLD SPRING LOCATION.
3. TACK ANGLES WITH HOLES TO EACH END OF PIPE. PUT BOLT IN PLACE AND DRAW PIPE ENDS TOGETHER.
4. TACK WELD PIPE JOINT.
5. KNOCK OFF ANGLES AND COMPLETE WELD.
6. CONTRACTOR TO PROVIDE DETAILS OF ANCHOR POINTS & EXPANSION LOOPS FOR APPROVAL PRIOR TO INSTALLATION

1 / M-904 EXPANSION LOOP DETAIL
N..T.S

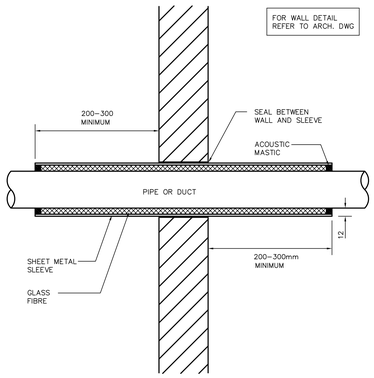
2 / M-904 RESERVED
N..T.S

3 / M-904 RESERVED
N..T.S

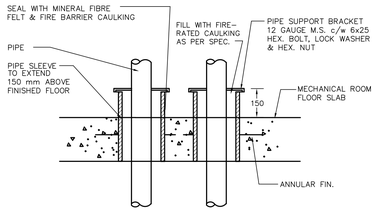



NOTES:
1. THIS MATERIAL MAY BE OMITTED WHEN THERE IS NO PIPE MOVEMENT
2. WHERE NECESSARY, FIRESTOPPING TO WITHSTAND ELEVATED TEMPERATURES
3. THERMAL INSULATION AND JACKET – SEE SPECIFICATION
4. ANNULAR SPACE BETWEEN PIPE AND SLEEVE TO BE 6 MM AND 25 MM MAXIMUM
5. FIRE RESISTANCE RATING OF FIRE SEPARATION TO BE SHOWN ON PROJECT DRAWINGS
6. PIPE MOVEMENT MUST NOT CHANGE INSULATION OR JACKET
7. PIPE MOVEMENT MUST NOT BREAK FIRESTOPPING

4 / M-904 FIRESTOPPING FOR HOT AND UNHEATED PIPE
N..T.S




5 / M-904 TYPICAL PIPE OR DUCT PENETRATION THROUGH FULL HEIGHT WALL
N..T.S




6 / M-904 PIPE PENETRATION THRU MECHANICAL ROOM FLOOR
N..T.S

7 / M-904 –
N..T.S

8 / M-904 RESERVED
N..T.S

9 / M-904 RESERVED
N..T.S

10 / M-904 RESERVED
N..T.S

11 / M-904 RESERVED
N..T.S

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MECHANICAL DETAILS
SHEET 5

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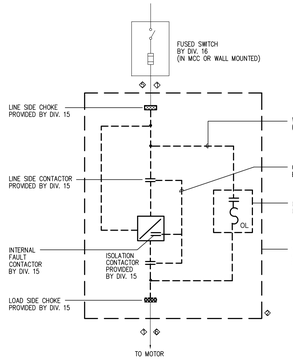
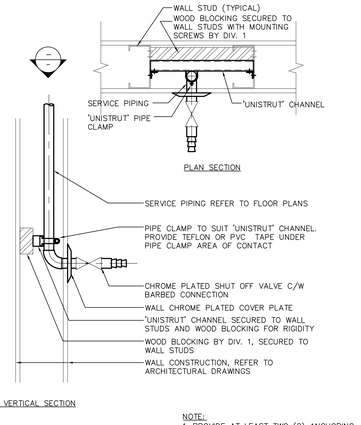



NOTES:

- EXTERNAL WIRING OF VSD SHALL BE ALCATEL TYPE "DRIVE RX" CABLE BY DIV 16.
- NEMA 12 ENCLOSURE MAY HAVE TO BE SPECIFIED WITH FANS FOR HEAT DISSIPATION; BY DIVISION 15.
3. ALL CONTROL WIRING IS PROVIDED BY DIVISION 15.
4. ALL LUGS ARE BY DIVISION 15. CO-ORDINATE WITH DIVISION 16. FOR SIZE.
- DIVISION 16 TO PROVIDE WIRING BETWEEN DISCONNECT SWITCH AND VSD.
- FOR REMOTE MOUNTED VSD, DIVISION 16 TO PROVIDE MOTOR WIRING BETWEEN VSD AND MOTOR.

1 VARIABLE SPPED DRIVE CONTROLLER WIRING SCHEMATIC
M-905 N.T.S.




NOTE:
1. PROVIDE AT LEAST TWO (2) ANCHORING SUPPORTS TO VERTICAL PIPES LONGER THAN 10 FT. IN LENGTH

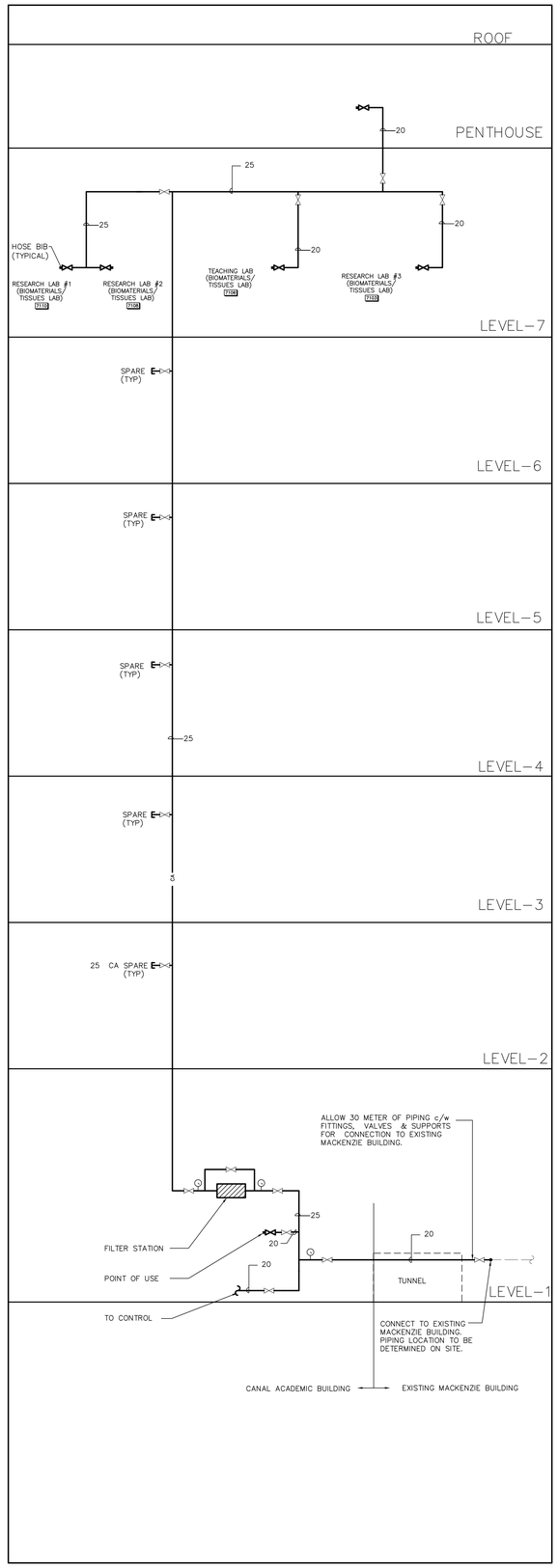
2 COMPRESSED AIR WALL OUTLET PIPE ANCHORING DETAIL
M-905 N.T.S.

3 RESERVED
M-905 N.T.S.

4 RESERVED
M-905 N.T.S.

5 RESERVED
M-905 N.T.S.

6 RESERVED
M-905 N.T.S.




7 COMPRESSED AIR SYSTEM SCHEMATIC
M-905 N.T.S.


Carleton UNIVERSITY
Construction Services
Department Of Physical Plant
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1125 Colonel By Drive,
Ottawa, Canada, K1S 5B6
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professional stamp

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CANAL SITE

drawing title
MECHANICAL DETAILS
SHEET 6

| | |
|---|---|
| date | |
| scales NTS | job no. 06226.201 |
| drawn B.A. | drawing no. MC-905 |
| approved MG/HK | |
| plot date | |

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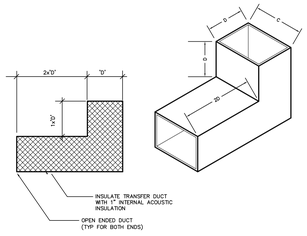
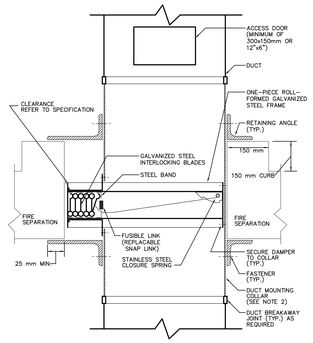


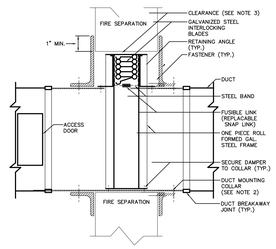

NOTE: REFER TO PLANS FOR TRANSFER DUCT SIZE

1 TYPICAL TRANSFER DUCT DETAIL
M-906 N.T.S.



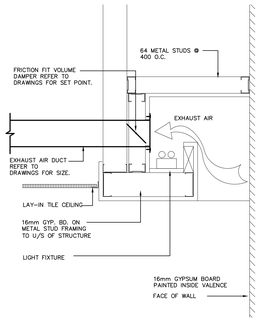

NOTES:
1. ASSEMBLY SHALL BE IN ACCORDANCE WITH UL555 AND INSTALLATION IN ACCORDANCE WITH NFPA 90A
2. DUCT MOUNTING COLLAR SHALL BE OF THE SAME GAUGE OR HEAVIER AS THE DUCT BUT SHALL NOT BE LIGHTER THAN 20 GAUGE.
3. CLEARANCE SHALL BE 3mm PER 300mm ON HEIGHT AND WIDTH OF DAMPER TO A MAXIMUM OF 12mm.

2 DUCT PENETRATION THROUGH FLOOR c/w FIRE DAMPER
M-906 N.T.S.

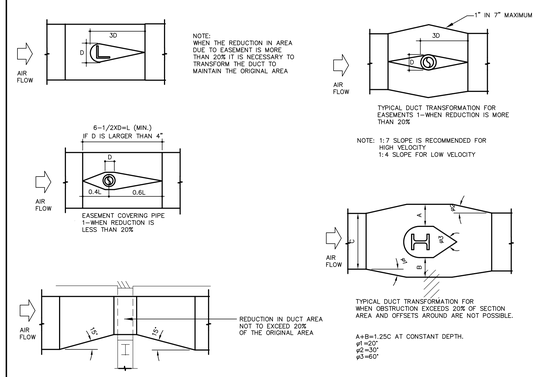



NOTES:
1. ASSEMBLY SHALL BE U.L.C. APPROVED AND INSTALLED AS SUCH.
2. DUCT MOUNTING COLLAR SHALL BE OF THE SAME GAUGE OR HEAVIER AS THE DUCT BUT SHALL NOT BE LIGHTER THAN 20 GAUGE.
3. CLEARANCE SHALL BE 3mm PER FOOT ON HEIGHT AND WIDTH OF DAMPER TO A MAXIMUM OF 1/2".
4. FIRE DAMPER SHALL BE INSTALLED AS PER ULC LISTING.

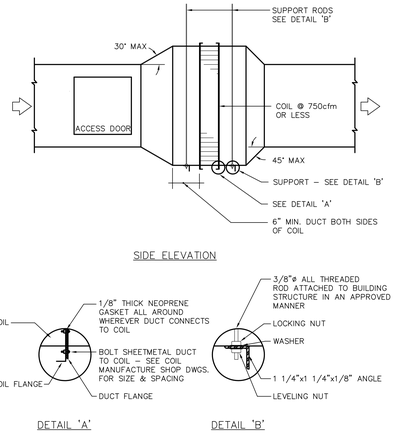
3 DUCT PENETRATION THROUGH WALL c/w FIRE DAMPER
M-906 N.T.S.




4 LIGHT VALENCE EXHAUST AIR DETAIL
M-906 N.T.S.




5 DUCTWORK WITH OBSTRUCTION
M-906 N.T.S.




6 HOT WATER DUCT HEATER COIL DETAIL
M-906 N.T.S.

7 RESERVED
M-906 N.T.S.

8 RESERVED
M-906 N.T.S.

9 RESERVED
M-906 N.T.S.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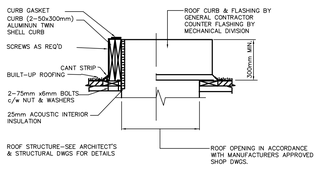
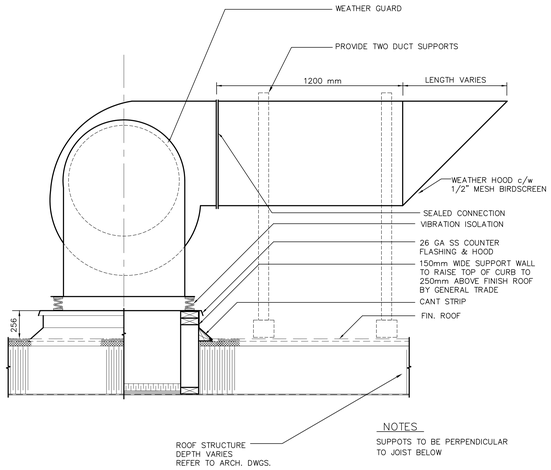



NOTES

1 FOR METAL ROOF DECK APPLICATION PACK FLUTES WITH WOOD SHIMS

2 STRUCTURAL DIVISION TO PROVIDE ANGLE SUPPORT FRAMES & MEMBERS

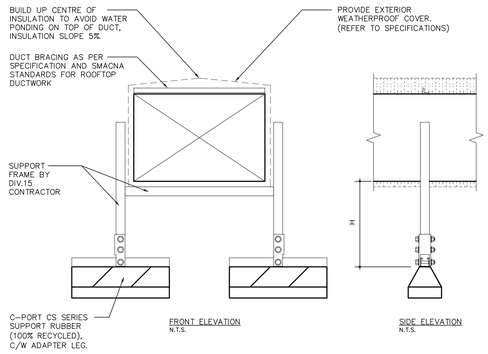
1 ROOF CURB DETAIL
M-907 N.T.S.




NOTES

SUPPOTS TO BE PERPENDICULAR TO JOIST BELOW

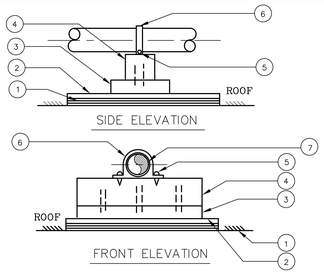
2 ROOF MOUNTED UTILITY FAN – DETAIL
M-907 N.T.S.




SUPPORT LOCATIONS IN ACCORDANCE TO SMACNA STANDARDS

| WIDTH OF DUCT | HEIGHT H |
|---|---|
| UP TO 24" (600 mm) | 14" (350 mm) |
| 25" TO 36" (625 mm TO 900 mm) | 18" (450 mm) |
| 37" TO 48" (925 mm TO 1200 mm) | 24" (600 mm) |
| 49" to 60" (1225 TO 1500 mm) | 30" (750 mm) |
| 61" (1525 mm) AND WIDER | 48" (1200 mm) |

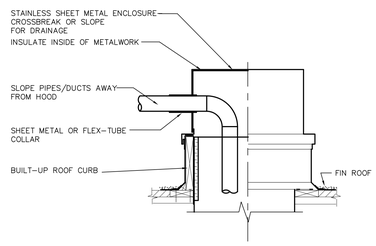
3 ROOF MOUNTED DUCTWORK DETAIL
M-907 N.T.S.



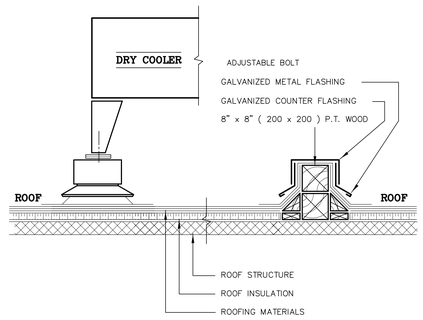

① 24"x24"x1" RIGID INSULATION PLACED ON FINISHED ROOF.
② 24"x24"x3/4" PRESSURE TREATED EXTERIOR GRADE PLYWOOD.
③ 2"x8"x18" LONG PRESSURE TREATED CEDAR PLANK.
④ 4"x4"x18" LONG PRESSURE TREATED CEDAR BLOCK.
⑤ 2" LONG CADMIUM PLATED NO. 12 WOOD SCREWS
⑥ WROUGHT IRON STRAPS-GRINNEL FIG. 262 OR EQUAL OVERSIZE (2 SIZES LARGER) TO ALLOW FOR PIPE MOVEMENT-PAINT STRAPS WITH ANTI CORROSIVE PAINT.
⑦ PIPE.

NOTE:
- PIPE SUPPORTS TO BE 8'-0" APART FOR 1" PIPE & 10'-0' APART FOR 1-1/4" PIPE & OVER.THERE MUST BE A SUPPORT WITHIN 24" OF EVERY BEND AND TAKE-OFF.
- CUT ENDS OF PRESSURE TREATED LUMBER TO BE SEALED WITH END CUT PRESERVATIVE.

4 DETAIL OF SUPPORTS FOR PIPING LAID ON ROOF
M-907 N.T.S.

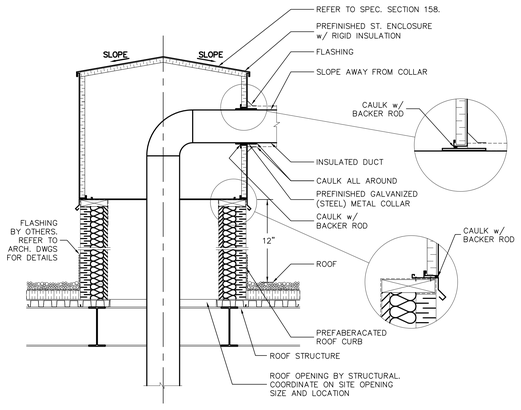



5 PIPE OR CONDUIT THROUGH ROOF DECK
M-907 N.T.S.




NOTE:
- SLEEPERS SHALL BE INSTALLED
- PERPENDICULAR TO ROOF JOISTS

6 EQUIPMENT ROOF SUPPORT – DETAIL
M-907 N.T.S.

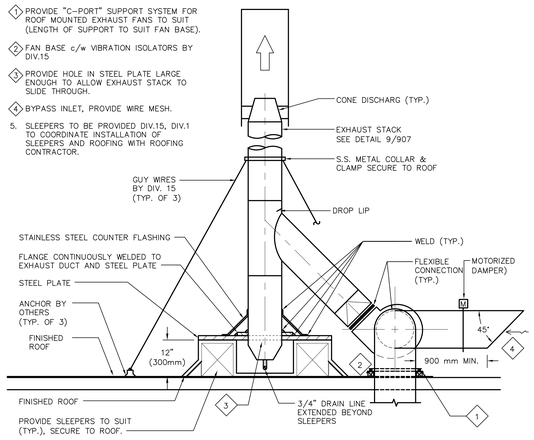



NOTES:
1. REFER TO ENCLOSURE SCHEDULE FOR INSIDE CLEAR DIMENSIONS.

7 DUCT THROUGH MECH. PENTHOUSE ROOF DETAIL
M-907 N.T.S.

NOTES:

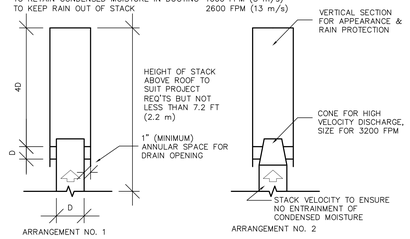
1. PROVIDE "C-PORT" SUPPORT SYSTEM FOR ROOF MOUNTED EXHAUST FANS TO SUIT (LENGTH OF SUPPORT TO SUIT FAN BASE).
2. FAN BASE c/w VIBRATION ISOLATORS BY DIV.15
3. PROVIDE HOLE IN STEEL PLATE LARGE ENOUGH TO ALLOW EXHAUST STACK TO SLIDE THROUGH.
4. BYPASS INLET, PROVIDE WIRE MESH.
5. SLEEPERS TO BE PROVIDED DIV.15, DIV.1 TO COORDINATE INSTALLATION OF SLEEPERS AND ROOFING WITH ROOFING CONTRACTOR.



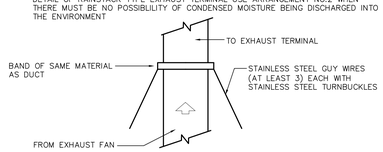

8 INDIVIDUAL EXHAUST STACK – FAN ON THE ROOF
M-907 N.T.S.

RAIN STACK TYPE EXHAUST TERMINAL

STACK VELOCITIES:
TO DISCHARGE CONDENSED MOISTURE 2600 FPM (13 m/s)
TO RETAIN CONDENSED MOISTURE IN DUCTING 1000 FPM (5 m/s)
TO KEEP RAIN OUT OF STACK 2600 FPM (13 m/s)




DETAIL OF RAINSTACK TYPE EXHAUST TERMINAL USE ARRANGEMENT NO.2 WHEN THERE MUST BE NO POSSIBILITY OF CONDENSED MOISTURE BEING DISCHARGED INTO THE ENVIRONMENT




DETAIL OF GUY SUPPORTS (USE WHEN STACK IS NOT SELF-SUPPORTING)

9 RAIN STACK TYPE EXHAUST TERMINAL
M-907 N.T.S.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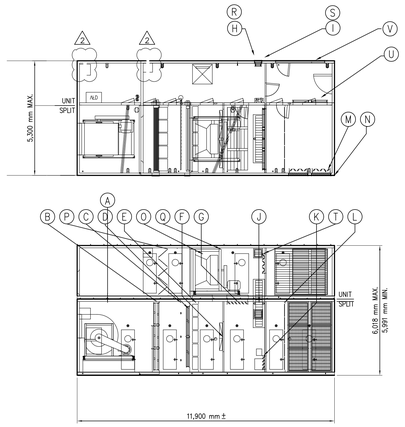
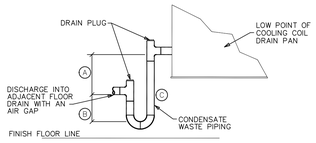



| | |
|---|---|
| A | FAN |
| B | COOLING COIL |
| C | STEAM HUMIDIFIER |
| D | HEATING COIL |
| E | FILTERS |
| F | STRATIFICATION ELIMINATORS |
| G | RECIRC DAMPER |
| H | VENT LOWER CORR DAMPER |
| I | LOUVRE |
| J | HEAT WHEEL |
| K | BYPASS DAMPER |
| L | FILTERS |
| M | OA DAMPER |
| N | LOUVRE |
| O | LADDER |
| P | FILTERS |
| Q | FAN |
| R | VENT UPPER CORR DAMPER |
| S | LOUVRE |
| T | EA BYPASS DAMPER |
| U | EA DAMPER |
| V | LOUVRE |

NOTE: PROVIDE HYDRONIC UNIT HEATER INSIDE THE CORRIDOR, TWO ON LEVEL 1 AND ONE ON LEVEL 2 (EXHAUST FAN SECTION).

1 AIR HANDLING UNIT AH– 1
M–908 N.T.S.




SIZING SCHEDULE

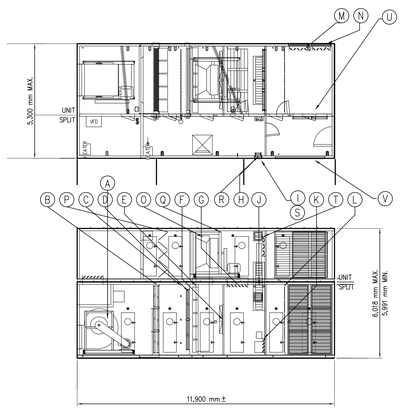
| MARK | A LENGTH (IN) | B LENGTH (IN) | C PIPE SIZE (IN) |
|---|---|---|---|
| AHU–1 | 5 | 3 | 8 |
| AHU–2 | 5 | 3 | 8 |
| | | | |
| | | | |

REFERENCE NOTES

A GENERALLY SIZE DIMENSION FOR MAXIMUM SUCTION PRESSURE (WC) AT DISCHARGE OF AHU COOLING COIL

B GENERALLY SIZE DIMENSION FOR A/2, PLUS, IF CLEARANCE ALLOWS, A SAFETY FACTOR OF 1".

3 DRAIN PAN CONDENSATE DETAIL
M–908 N.T.S.

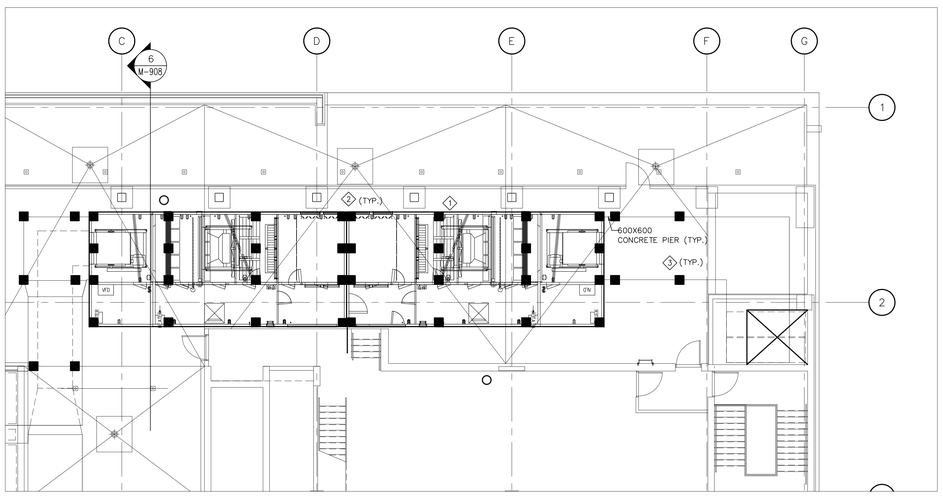



| | |
|---|---|
| A | FAN |
| B | COOLING COIL |
| C | STEAM HUMIDIFIER |
| D | HEATING COIL |
| E | FILTERS |
| F | STRATIFICATION ELIMINATORS |
| G | RECIRC DAMPER |
| H | VENT LOWER CORR DAMPER |
| I | LOUVRE |
| J | HEAT WHEEL |
| K | BYPASS DAMPER |
| L | FILTERS |
| M | OA DAMPER |
| N | LOUVRE |
| O | LADDER |
| P | FILTERS |
| Q | FAN |
| R | VENT UPPER CORR DAMPER |
| S | LOUVRE |
| T | EA BYPASS DAMPER |
| U | EA DAMPER |
| V | LOUVRE |

NOTE: PROVIDE HYDRONIC UNIT HEATER INSIDE THE CORRIDOR, TWO ON LEVEL 1 AND ONE ON LEVEL 2 (EXHAUST FAN SECTION).

2 AIR HANDLING UNIT AH– 2
M–908 N.T.S.

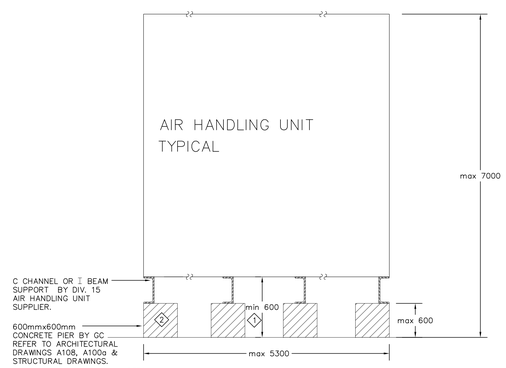
4 RESERVED
M–908 N.T.S.




NOTES & DIMENSION:

1. FINAL LOCATION OF CONCRETE PIERS TO BE DETERMINED DURING SHOP DRAWING STAGE.
2. CONCRETE PIERS FOR AIR HANDLING UNITS
3. TYPICAL CONCRETE PIERS FOR DUCTWORK

5 AIR HANDLING UNIT & DUCTWORK SUPPORT
M–908 N.T.S.




NOTES :

1. HEIGHT TO BE CONFIRMED DURING SHOP DRAWING STAGE.
2. LOCATION OF PIERS TO BE FINALIZED DURING CONSTRUCTION. REFER TO SPECIFICATION.

6 SECTION AT AIR HANDLING UNIT
M–908 N.T.S.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| no. | date | revision | by |
|---|---|---|---|
| 3. | JULY 7, 2011 | RECORD DRAWINGS | CEL |
| 2. | MAR 16, 2009 | ISSUED FOR TENDER | CEL |
| 1. | NOV 12, 2008 | ISSUED FOR TENDER | CEL |


MORIYAMA & TESHIMA ARCHITECTS
GRIFFITHS RANKIN COOK ARCHITECTS
IN JOINT VENTURE
47 CLARENCE STREET SUITE 401 OTTAWA ONTARIO
K1N-9K1 Tel. 613 241 8203 Fax. 613 241 4180


consultant

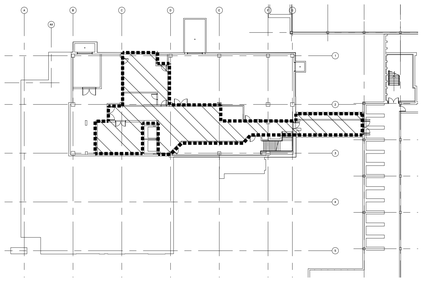
professional stamp

project title
CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

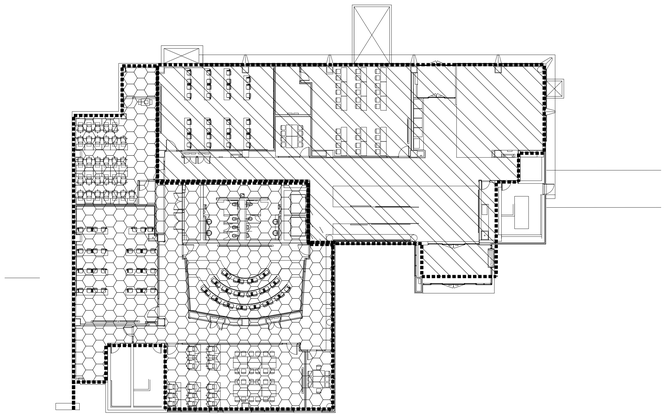
drawing title
MECHANICAL DETAILS
SHEET 9

| | |
|---|---|
| date | |
| scales NTS | job.no. 06226.201 |
| drawn B.A. | drawing no. |
| approved MG/HK | MC–908 |
| plot date | |

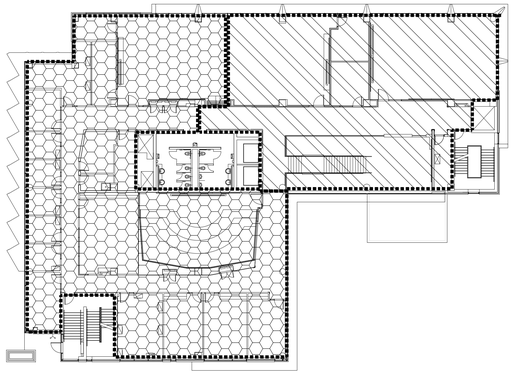
1 DO NOT SCALE THIS DRAWING.
2 CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
3 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL



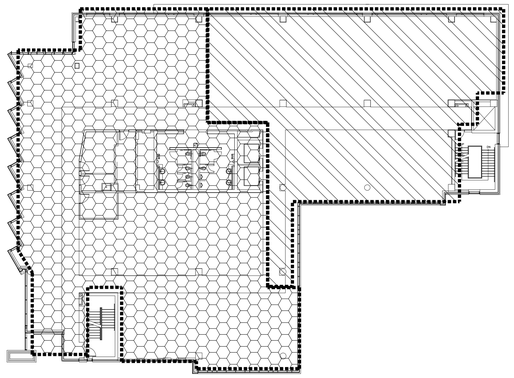
LEVEL 1



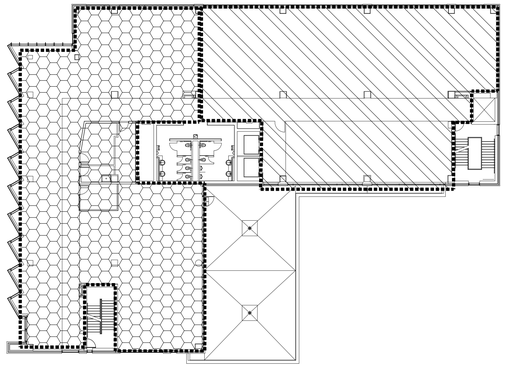
LEVEL 2



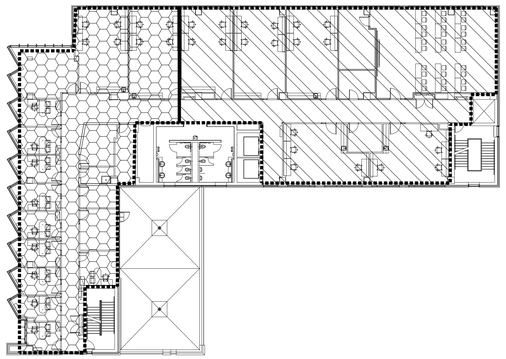
LEVEL 3



LEVEL 4



LEVEL 5



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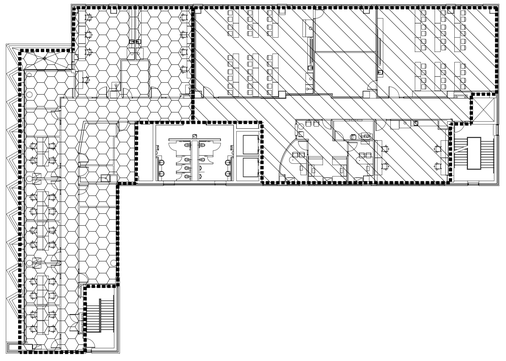

LEVEL 7

LEGEND :

- AH-1
- AH-2


Carleton UNIVERSITY

**Construction Services**
**Department Of Physical Plant**
209 Maintenance Building
1125 Colonel By Drive,
Ottawa, Canada, K1S 5B6
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consultant

professional stamp

PROJECT NORTH

project title

CARLETON UNIVERSITY
ACADEMIC BUILDING
CANAL SITE

drawing title

SCHEMATIC HVAC
ZONING DIAGRAM

| | |
|---|---|
| date | job.no. 06226.201 |
| scales NTS | |
| drawn BA | |
| approved MG/HK | drawing no. MC-910 |
| plot date | |

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