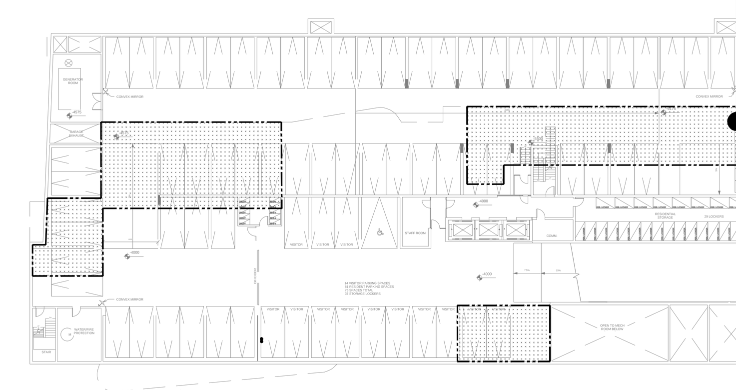
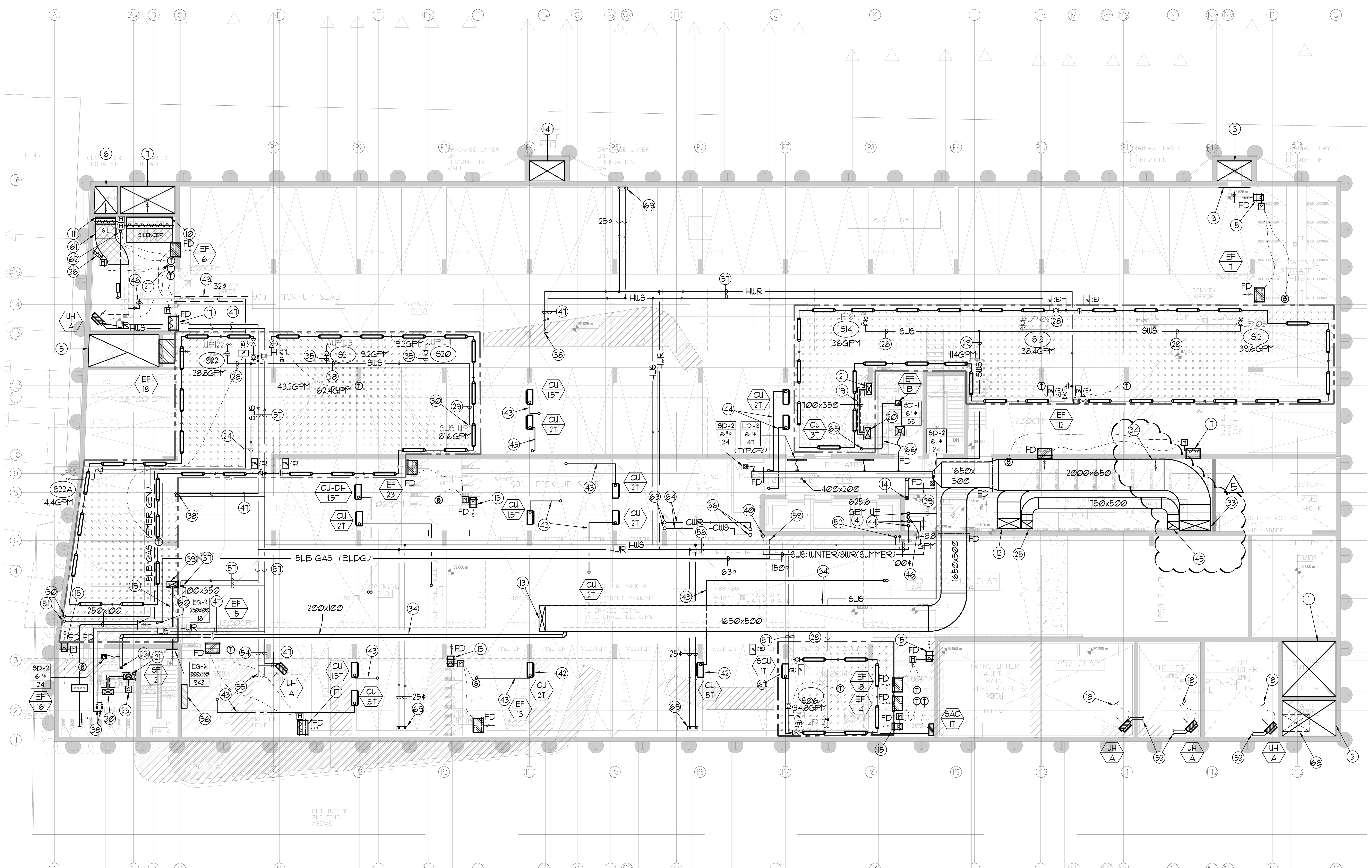
HATCHED AREA DENOTES
HEATED PLENUM ON THIS LEVEL



P-1 HEATED PLENUM | N.T.S.

53. 100φ HWS & R FROM ABOVE.
54. 32φ HWS & R.
55. 25φ HWS & R FOR RADIANT IN FLOOR HEATING.
56. HATCHED AREA DENOTES WALL SPACE FOR RADIANT IN FLOOR HEATING EQUIPMENT SEE DRAWING M-40 FOR DETAILS.
57. 32φ HWS & R.
58. 38φ HWS & R.
59. 63φ 5LB GAS (BLDG.) UP.
60. 13φ 5LB GAS UP.
61. PROVIDE ELBOW SILENCER PER ACOUSTIC REPORT.
62. 300φ MUFFLER EXHAUST UP C/W 75mm HIGH TEMPERATURE INSULATION.
63. 150φ CWS & R DOWN.
64. 150φ CWS & R.
65. 150φ EXHAUST DUCT UP.
66. 150φ DUCT.
67. REFRIGERANT PIPES FROM SPLIT COOLING INDOOR UNIT (SAC-1T) TO CONDENSING UNIT (SCU-1T). PIPE SIZING AND INSTALLATION AS PER MANUFACTURER'S RECOMMENDATIONS (TYPICAL).
68. 1,750x1,100 FRESH AIR DUCT FROM FRESH AIR PLENUM ABOVE AND DOWN TO AHU P-2. FRESH AIR DUCT SHALL BE INSULATED WITH 25MM EXTERNAL INSULATION.
69. 25φ HWS & R REHAU MANIFOLD FOR RADIANT IN FLOOR HEATING ON GROUND FLOOR.



ACOUSTIC NOTES:

1) ALL PIPES 50 MM AND LARGER SHALL BE ISOLATED USING 12 MM RUBBER PADS IN THE SADDLES OF CLEVIS HANGERS.

2) ALL MAIN VERTICAL PIPE RISERS REQUIRE VIBRATION ISOLATION. NONE OF THESE PIPES MAY TOUCH THE SLAB OR ANY PENETRATED PARTITION. ALL RISER ANCHORS MUST INCLUDE 1-INCH THICK NSN ISOLATION PADS, TO BE HELD IN PLACE WITH HORIZONTAL STEEL PLATES WELDED TO BRACKETS THAT ARE IN TURN WELDED TO THE RISER. BOLTING THROUGH THE PADS IS NOT ACCEPTABLE.

3) FOR THE MAIN RISERS, ANY PIPE GUIDES USED IN CONNECTION WITH EXPANSION JOINTS OR LOOPS MUST BE ISOLATED WITH RUBBER PADS AND SLEEVES WHERE FASTENED TO THE BUILDING STRUCTURE.

4) IN-LINE AND CABINET FANS SHOULD BE ISOLATED WITH SPRINGS OR NEOPRENE-IN-SHEAR MOUNTS. SIDEWALL FANS SHOULD BE ISOLATED USING NEOPRENE MOUNTS, PADS OR GROMMETS. ALL FANS SUSPENDED ON P1 LEVEL SHALL BE WELL ISOLATED USING ISOLATORS INCORPORATING BOTH A SPRING ELEMENT AND A SECONDARY NEOPRENE-IN-SHEAR ELEMENT IN SERIES. DUCTWORK SHALL BE DE-COUPLED FROM FAN BY FLEXIBLE CONNECTORS.

5) ALL RUBBER PADS OR MOUNTS USED TO ISOLATE PIPES SHOULD BE 45 DUROMETER OR LOWER.

6) ACOUSTICS PANELS ARE REQUIRED TO BE OF NONCOMBUSTIBLE MATERIAL OR MEET FLAME-SPREAD RATINGS TESTED IN ACCORDANCE WITH CAN/ULC-S102 "TESTING FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS AND ASSEMBLIES."

7) SPLIT HEAT PUMP OR SPLIT AC SYSTEM CONDENSERS SHOULD BE MOUNTED WITH RUBBER PADS. REFRIGERANT PIPING BETWEEN THE TWO SHOULD BE ISOLATED AT POINTS OF SUPPORT OUTSIDE OF THE ARMAFLEX WRAP AROUND THE PIPE, OR A SECTION OF SUCH WRAP SHOULD BE INCLUDED AT ANY POINT OF SUSPENSION.

8) DOMESTIC COLD WATER BOOSTER PUMP SHALL BE ISOLATED FROM THE SLAB WITH 2" THICK RUBBER PADS(NSN), AND A TWIN-SPHERE RUBBER EXPANSION JOINT, WITH HIGH PRESSURE RATING (MASON SFDEJ HIGH PRESSURE OR EQUIVALENT) USED ON BOTH INLET AND DISCHARGE PIPING CONNECTIONS TO THE BOOSTER SET. RUBBER EXPANSION JOINT TO BE RATED FOR POTABLE/DRINKING WATER USE. DCWBP VFD SHALL BE MOUNTED ON RUBBER PADS.

9) ALL PIPE HANGERS FOR THE MAIN DCW LINE SHALL BE ISOLATED USING NEOPRENE-IN-SHEAR HANGERS FOR THE FIRST 10 POINTS OF SUPPORT FROM THE PUMPS, AND USING 12 MM RUBBER PADS IN THE SADDLES OF CLEVIS HANGERS IN ALL OTHER POINTS OF SUPPORT TO THE MAIN VERTICAL RISER LOCATION.

10) ALL PIPES 50 MM AND BELOW SUPPORTED FROM WITHIN MECHANICAL ROOMS SHOULD BE ISOLATED WITH THICK RUBBER PADS, OR FOAM RUBBER SLEEVES IN PIPE CLAMPS. POT FEEDERS, PRVS AND OTHER ANCILLARY EQUIPMENT MUST BE SIMILARLY ISOLATED.

11) AT THE MECHANICAL ROOM, ALL PIPING PENETRATIONS THROUGH PARTITIONS SHOULD NOT HAVE DIRECT CONTACT WITH THE WALLS OR CEILING. PIPES SHALL BE WRAPPED IN MINERAL WOOL AND THE OPENING SHALL BE CAULKED.

12) AT THE MECHANICAL ROOM , IF ANY H/C PIPES MUST BE SUSPENEDED FROM ABOVE, THE PIPES SHOULD BE SUSPENEDED USING UPGRADED VIBRATION ISOLATION HANGERS INCLUDING SPRINGS WITH AT LEAST 38MM STATIC DEFLECTION, NEOPRENE-IN-SHEAR ELEMENTS IN SERIES (ADDITIONAL 6MM DEFLECTION), AND RUBBER PADS IN HANGER SADDLES (6MM THICK MINIMUM).

13) SWP SHALL BE DECOUPLED FROM THE ATTACHED PIPING USING TWIN-SPHERE RUBBER EXPANSION JOINTS ON BOTH THE SUCTION AND DISCHARGE SIDES. SECONDARY TWIN-SPHERE JOINTS SHOULD ALSO BE USED FOR SWP PIPING, WHERE THEY EXIT THE MECHANICAL ROOM. FOR VIL PUMPS, THESE EXPANSION JOINTS ARE TYPICALLY LOCATED IN THE VERTICAL SECTION ABOVE THE SUCTION STRAINER AND SHUT-OFF VALVE. THE PUMPS AND DIRECTLY ATTACHED PIPING (UP TO THE TWIN-SPHERE JOINT) SHALL BE MOUNTED ON CONCRETE INERTIA BASES, AND ISOLATED FROM THE STRUCTURAL SLAB BELOW USING SPRING ISOLATORS WITH MINIMUM 38 MM STATIC DEFLECTION AND 25 MM THICK NSN PADS UNDER THE SPRING BASE, PROPERLY LOADED.

14) SMALL PUMPS SHALL BE ISOLATED USING NEOPRENE-IN-SHEAR ISOLATORS FOR THE FIRST 3 POINTS OF SUPPORT ON EITHER SIDE OF THE PUMP.

15) ALL PUMPS (OTHER THAN THE DCWBP) SHALL BE MOUNTED ON ND MOUNTS FROM MASON INDUSTRIES OR EQUAL. STANDARD WAFFLE PADS WILL NOT BE SUFFICIENT.

16) ALL AHU/FAU/MAU SHALL BE MOUNTED ON DOUBLE LAYER (NSN) PADS BETWEEN UNIT CASING AND HOUSEKEEPING PAD. ALL UNIT DUCTWORK WITHIN THE MECHANICAL ROOM SHALL BE C/W 25MM INTERNAL ACOUSTIC LINING, 25MM INSULATION AND JACKETTING. ALL ASSOCIATED DUCTWORK SHALL BE HUNG BY HANGERS WITH NEOPRENE PADS.

17) MAIN FRESH AIR SHAFT TO BE C/W 25MM THICK ACOUSTIC DUCT LINER STARTING FROM THE AHU ROOM AND UP THREE FLOORS.

18) CHILLER ROOM IS TO BE CONSTRUCTED WITH A MINIMUMN 100MM FLOATING CONCRETE FLOOR ON 50 MM THICK ISOLATORS, DESIGNED FOR A FUNDAMENTAL FREQUENCY OF 10 HZ OR LESS, WITH BATT INSULATION IN THE CAVITY.

THE FLOATING FLOOR DESIGN SHALL INCLUDE SEPARATE CONCRETE PIERS WHICH PENETRATE THE FLOATING FLOOR TO SUPPORT THE CHILLER. THE PAD MATERIAL UNDER THE PIER SHALL BE CDM-42 OR EQUIVALENT.

THE CHILLER BODY SHALL BE ISOLATED FROM THE PIERS USING MULTIPLE-COIL SPRING ISOLATORS HAVING A STATIC DEFLECTION OF APPROXIMATELY 2", PLUS A THICK NOISE PAD UNDER THE SPRING BASE. THE NOISE PAD SHALL CONSIST OF MULTIPLE LAYERS OF RUBBER, MAXIMUM 45 DUROMETER, SEPARATED BY STEEL SHIMS AND TOPPED BY A STEEL LOAD PLATE. THE NOISE PAD SHALL BE SIZED TO ACHIEVE A STATIC DEFLECTION OF APPROXIMATELY 0.3" AT A LOAD EQUAL TO 2/3 OF THE MAXIMUM EXPECTED POINT LOAD OF THE CHILLER.

CHILLER SHALL BE COMPLETE WITH ACOUSTIC BLANKET.

19) ALL CONNECTIONS BETWEEN THE CHILLER AND THE ATTACHED PIPING SHALL INCLUDE TWIN-SPHERE RUBBER EXPANSION JOINTS.

REFER TO DWG. M-3 FOR GENERAL NOTES

3800 mm CLEAR
FLOOR TO UNDERSLAB

NOTES:

1. 3,300x3,600 (12.26 M^2, 132 FT^2) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
2. 3,300x2,300 (7.8 M^2, 84 FT^2) FRESH AIR INTAKE SHAFT FOR MAU.
3. 2,250x1,300 (2.93 M^2, 31.5 FT^2) FRESH AIR INTAKE SHAFT FOR P-1 LEVEL.
4. 2,250x1,300 (2.93 M^2, 31.5 FT^2) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
5. 5,500x2,000 (11.61 M^2, 125 FT^2) EXHAUST AIR SHAFT FOR P-1 & P-2 LEVEL.
6. 3,500x1,700 (6.2 M^2, 66.8 FT^2) INTAKE AIR SHAFT FOR GENERATOR.
7. 1,400x1,700 (2.5 M^2, 27.6 FT^2) EXHAUST AIR SHAFT FOR GENERATOR.
8. FOR FUTURE USE.
9. 2,000x3,200 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN. (17,000 CFM)
10. 3,400x2,500 WEATHERPROOF INTAKE LOUVRE C/W MOTORIZED DAMPER AND WIRE MESH. (24,100 CFM)
11. 1,300x3,200 WEATHERPROOF EXHAUST LOUVRE C/W MOTORIZED DAMPER AND WIRE MESH. (23,000 CFM)
12. 1,500x650 F/A DUCT UP C/W FIRE DAMPER AT SLAB.
13. 1,650x400 F/A DUCT UP C/W FIRE DAMPER AT SLAB.
14. 200x200 F/A DUCT DOWN C/W FIRE DAMPER AT SLAB.
15. 400x200 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
16. 400X400 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
17. 800X400 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
18. WIRING SHALL BE CONNECTED TO THERMOSTAT IN LOWER LEVEL.
19. DUCT INSIDE 2HR FIRE RATED ENCLOSURE. ENCLOSURE BY OTHERS.
20. 700x350 STAIR PRESSURIZATION DUCT FROM ABOVE C/W FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
21. 700x350 STAIR PRESSURIZATION DUCT DOWN C/W FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
22. 150x100 FRESH AIR DUCT DOWN c/w FIRE DAMPER AT SLAB.
23. EACH PRESSURIZATION SUPPLY FAN TO BE C/W INDIVIDUAL SMOKE DETECTOR AND FIRE RATED ENCLOSURE. SMOKE DETECTOR TO BE INSTALLED AT DOWNSTREAM OF SUPPLY FAN. SMOKE DETECTOR BY DIV.16 AND FIRE RATED ENCLOSURE BY OTHERS.
24. 32φ SWS.
25. 750x500 EXHAUST DUCT UP C/W FIRE DAMPER AT SLAB.
26. 600x600 BY PASS MOTORIZED DAMPER CONNECTS TO THE TEMPERATURE CONTROLLER.
27. TEMPERATURE CONTROLLER TO BE INTERLOCKED TO GENERATOR INTAKE, RECIRCULATED AND EXHAUST MOTORIZED DAMPERS TO MAINTAIN ROOM TEMPERATURE @70 DEGREES F.
28. 50φ SWS.
29. 63φ SWS.
30. 63φ SWS FROM ABOVE.
31. FOR FUTURE USE.
32. 150φ SWS.
33. 2,000x650 F/A DUCT ENTER THE RESIDENTIAL STORAGE ROOM FROM P-2 LEVEL C/W FIRE DAMPER AND RISE TO HIGH LEVEL IN RESIDENTIAL STORAGE ROOM. (5)
34. F/A DUCT SHALL BE C/W 25MM EXTERNAL INSULATION & JACKET IN ANY UNHEATED AREAS.
35. 38φ SWS.
36. 150φ CWS & R FROM ABOVE.
37. 32φ HWS & R UP TO SERVE FIN TUBES..
38. 19φ HWS & R UP TO SERVE FFH.
39. 700x350 STAIR RELIEF DUCT UP c/w FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
40. 150φ SWS (WINTER) / SWR (SUMMER) FROM ABOVE.
41. 150φ SWS FROM BELOW AND UP.
42. CONDENSING UNITS FOR AMENITY AREA FCU DX COIL TO BE MOUNTED AT HIGH LEVEL. (TYPICAL)
43. REFRIGERANT PIPES FROM CONDENSING UNIT AS PER MANUFACTURER'S RECOMMENDATIONS.
44. 100φ HWS & R DOWN.
45. 750x500 EXHAUST DUCT ENTER RESIDENTIAL STORAGE ROOM FROM P-2 LEVEL C/W FIRE DAMPER AND RISE TO HIGH LEVEL IN RESIDENTIAL STORAGE ROOM. (5)
46. 150φ SWS (WINTER) / SWR (SUMMER) DOWN.
47. 19φ HWS & R.
48. 5 LB TO LOW PRESSURE (7" WC) GAS REGULATOR.
49. GAS PIPE FOR EMERGENCY GENERATOR TO BE WITHIN 2 HR. FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
50. 32φ 5LB GAS PIPE FROM METER ASSEMBLY ABOVE, TO SERVE EMERGENCY GENERATOR.
51. 63φ 5LB GAS PIPE FROM METER ASSEMBLY ABOVE, TO SERVE BUILDING.
52. 19φ HWS & R FROM LOWER LEVEL.

LEGEND MECHANICAL

SYMBOL	DESCRIPTION
	SUPPLY AIR DIFFUSER
	SUPPLY AIR TROFFER
	LINEAR SUPPLY DIFFUSER
	THERMOSTAT
	FAN SWITCH
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
FD	FIRE DAMPER
BD	BALANCING DAMPER
M	MOTORIZED DAMPER
MFD	MOTORIZED FIRE DAMPER
BDD	BACKDRAFT DAMPER
OBD	OPPOSED BLADE VOLUME CONTROL DAMPER C/W LOCKING QUADRANT
	TURNING VANES
	FLEXIBLE CONNECTION
	ACOUSTIC INSULATION
XX / X	TYPE OF EQUIPMENT / EQUIPMENT IDENTIFICATION
XX-X / XXX / XXX	TYPE OF DIFFUSER OR GRILLE / GRILLE SIZE OR DIFFUSER NECK SIZE / AIRFLOW (CFM OR L/S)
	STARTER (3 PHASE , 1 PHASE)
	IN-SUITE ERV MASTER SWITCH
	FAN SWITCH / IN-SUITE ERV OVERRIDE BUTTON
CO	CO SENSOR
G	GAS LINE
G	GAS METER
	GAS COCK
	PRESSURE REDUCING VALVE
	SANITARY ABOVE GRADE
	SANITARY BELOW GRADE
	STORM ABOVE GRADE
	STORM BELOW GRADE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
	SANITARY VENT
M	WATER METER
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
HD	HUB DRAIN
RD	ROOF DRAIN
SLD	SLAB DRAIN
AD	AREA DRAIN
BLAD	BI-LEVEL AREA DRAIN
CB	CATCH BASIN
	SANITARY TRAP
	ELBOW UP
	ELBOW DOWN
CO	WALL CLEANOUT
CO	FLOOR CLEANOUT
HB	HOSE BIBB
NFHB	NON-FREEZE HOSE BIBB
	GLOBE VALVE
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE
	CAP
	COMPRESSED AIR OUTLET
	BACKFLOW PREVENTER
	CIRCUIT BALANCING VALVE
	MULTIPLE PIPES / - DENOTES NO. OF PIPES
T	TEMPERATURE SENSOR
	THERMOMETER
	2-WAY MODULATING VALVE
	3-WAY MODULATING VALVE
TW	1/2"x4"(D) THERMOWELL C/W 1/2" BUSHING & 1/2" PLUG
XXX / XXX / XXX	FLOOR ELEVATION ABOVE LEVEL / FLOOR ELEVATION THIS LEVEL / HEADROOM (FLOOR TO U/S HEIGHT)

REVISIONS

DATE	NO.	DESCRIPTION	BY
04/27/15	5	ISSUED FOR SITE INSTRUCTION #M-3	E.P.
02/27/15	4	ISSUED FOR SITE INSTRUCTION #M-1	E.P.
09/23/14	3	ISSUED FOR TENDER	E.P.
07/10/14	2	RE-ISSUED FOR PERMIT	E.P.
05/30/14	1	ISSUED FOR PERMIT	E.P.

MARK VOID ALL PRINTS DATED PREVIOUS TO FINAL DATE ABOVE

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT DISCREPANCIES TO THE ENGINEERS BEFORE PROCEEDING WITH THE WORK. THIS DRAWING IS THE PROPERTY OF THE ENGINEERS AND MUST BE RETURNED UPON COMPLETION OF THE WORK.

DRAWINGS ARE NOT TO BE SCALED

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DRAWING TITLE:
P-1 FLOOR PLAN
HVAC LAYOUT

PROJECT TITLE:
SQ ALEXANDRA PARK
BLOCK 11
38 CAMERON STREET
TORONTO ONTARIO

DRAWN BY:	CHECKED BY:	SCALE:
G.S.	E.P.	1:100
DATE: FEB, 13	PROJECT NUMBER: 1313	DRAWING NUMBER: M-4 OF 43

Drawing name: \\CADSERVER\Current Dwg\13\1313 - Alexandra Park\DIV15\1313M- 4(P-1 PLAN - HVAC LAYOUT).dwg Plotted: Apr 27, 2015 - 10:01am