



- 52) 19" HUS 4 R FROM LOWER LEVEL.
- 53) 100" HUS 4 R FROM ABOVE.
- 54) 32" HUS 4 R.
- 55) 25" HUS 4 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) 32" HUS 4 R.
- 58) 38" HUS 4 R.
- 59) 63" 5LB GAS (BLDG.) UP.
- 60) 13" 5LB GAS UP.
- 61) PROVIDE ELBOW SILENCER PER ACOUSTIC REPORT.
- 62) 300" MUFFLER EXHAUST UP C/W 15mm HIGH TEMPERATURE INSULATION AND FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
- 63) 150" CU5 4 R DOWN.
- 64) 150" CU5 4 R.
- 65) 150" EXHAUST DUCT UP.
- 66) 150" DUCT.
- 67) REFRIGERANT PIPES FROM SPLIT COOLING INDOOR UNIT (SAC-IT) TO CONDENSING UNIT (SCU-IT). PIPE SIZING AND INSTALLATION AS PER MANUFACTURER'S RECOMMENDATIONS (TYPICAL).
- 68) 1750x1000 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) 25" HUS 4 R REHAU MANIFOLD FOR RADIANT IN FLOOR HEATING ON GROUND.

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, OR PADS. ALL FANS SUSPENDED ON FI 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) 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 ARMYLEX WRAP AROUND THE PIPE, OR A SECTION OF SUCH WRAP SHOULD BE INCLUDED AT ANY POINT OF SUSPENSION.
- 7) 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 SPEC) 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. DCUBP VFD SHALL BE MOUNTED ON RUBBER PADS.
- 8) ALL PIPE HANGERS FOR THE MAIN DCUW 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.
- 9) 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, POT AND OTHER ANCILLARY EQUIPMENT MUST BE SIMILARLY ISOLATED.
- 10) 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.
- 11) AT THE MECHANICAL ROOM, IF ANY H/C PIPES MUST BE SUSPENDED FROM ABOVE USING AN ISOLATED PIPE GRID, THE PIPES SHOULD BE SUSPENDED 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).
- 12) SUP 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 SUP 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.
- 13) SMALL PUMPS SHALL BE ISOLATED USING NEOPRENE-IN-SHEAR ISOLATORS FOR THE FIRST 3 POINTS OF SUPPORT ON EITHER SIDE OF THE PUMP.
- 14) ALL PUMPS (OTHER THAN THE DCUBP) SHALL BE MOUNTED ON ND MOUNTS FROM MASON INDUSTRIES OR EQUAL STANDARD WAFFLE PADS WILL NOT BE SUFFICIENT.
- 15) 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 JACKETING. ALL ASSOCIATED DUCTWORK SHALL BE HUNG BY HANGERS WITH NEOPRENE PADS.
- 16) MAIN FRESH AIR SHAFT TO BE C/W 25MM THICK INTERNAL ACOUSTIC DUCT LINER STARTING FROM THE AHU ROOM AND UP THREE FLOORS.
- 17) CHILLER ROOM IS TO BE CONSTRUCTED WITH A MINIMUM 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 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 2" AT A LOAD EQUAL TO 2/3 OF THE MAXIMUM EXPECTED POINT LOAD OF THE CHILLER.

CHILLER SHALL BE COMPLETE WITH ACOUSTIC BLANKET.
- 18) ALL CONNECTIONS BETWEEN THE CHILLER AND THE ATTACHED PIPING SHALL INCLUDE TWIN-SPHERE RUBBER EXPANSION JOINTS.

REFER TO DIAG. M-3 FOR GENERAL NOTES

3800 mm CLEAR FLOOR TO UNDERSLAB

- NOTES:**
- 1) 3300x3600 (1226 M², 132 FT²) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
 - 2) 3300x3300 (1.8 M², 84 FT²) FRESH AIR INTAKE SHAFT FOR MAU.
 - 3) 2250x1300 (2.93 M², 315 FT²) FRESH AIR INTAKE SHAFT FOR P-1 LEVEL.
 - 4) 2250x1300 (2.93 M², 315 FT²) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
 - 5) 5500x2000 (11.61 M², 125 FT²) EXHAUST AIR SHAFT FOR P-1 & P-2 LEVEL.
 - 6) 3500x1700 (6.2 M², 66.8 FT²) INTAKE AIR SHAFT FOR GENERATOR.
 - 7) 1400x1700 (2.5 M², 27.6 FT²) EXHAUST AIR SHAFT FOR GENERATOR.
 - 8) FOR FUTURE USE.
 - 9) 2000x4500 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN & ACCESS DOOR. ACCESS DOOR BY OTHER REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS. (11,000 CFM)
 - 10) 3400x3500 WEATHERPROOF INTAKE LOUVRE C/W MOTORIZED DAMPER AND WIRE MESH. (12,000 CFM)
 - 11) 1300x3200 WEATHERPROOF EXHAUST LOUVRE C/W MOTORIZED DAMPER AND WIRE MESH. (13,000 CFM)
 - 12) 1500x650 F/A DUCT UP C/W FIRE DAMPER AT SLAB.
 - 13) 1650x400 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) 100x350 STAIR PRESSURIZATION DUCT FROM ABOVE C/W FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
 - 21) 100x350 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) 32" SUS.
 - 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 +10 DEGREES F.
 - 28) 50" SUS.
 - 29) 63" SUS.
 - 30) 63" SUS FROM ABOVE.
 - 31) FOR FUTURE USE.
 - 32) 150" SUS.
 - 33) 2000x650 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.
 - 34) F/A DUCT SHALL BE C/W 25MM EXTERNAL INSULATION & JACKET IN ANY UNHEATED AREAS.
 - 35) 38" SUS.
 - 36) 150" CU5 4 R FROM ABOVE.
 - 37) 32" HUS 4 R UP TO SERVE FIN TUBES.
 - 38) 19" HUS 4 R UP TO SERVE FFH.
 - 39) 100x350 STAIR RELIEF DUCT UP C/W FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
 - 40) 150" SUS (WINTER) / SUR (SUMMER) FROM ABOVE.
 - 41) 150" SUS 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) 100" HUS 4 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.
 - 46) 150" SUS (WINTER) / SUR (SUMMER) DOWN.
 - 47) 19" HUS 4 R.
 - 48) 5 LB TO LOW PRESSURE (1" WC) GAS REGULATOR.
 - 49) GAS PIPE FOR EMERGENCY GENERATOR TO BE WITHIN 2 HR FIRE RATED ENCLOSURE. FIRE RATED ENCLOSURE BY OTHERS.
 - 50) 32" 5LB GAS PIPE FROM METER ASSEMBLY ABOVE, TO SERVE EMERGENCY GENERATOR.
 - 51) 63" 5LB GAS PIPE FROM METER ASSEMBLY ABOVE, TO SERVE BUILDING.

LEGEND MECHANICAL

SYMBOL	DESCRIPTION
[Symbol]	SUPPLY AIR DIFFUSER
[Symbol]	SUPPLY AIR TROOPER
[Symbol]	LINEAR SUPPLY DIFFUSER
[Symbol]	THROOPER
[Symbol]	FAN SWITCH
[Symbol]	RETURN AIR GRIFF
[Symbol]	EXHAUST AIR GRIFF
[Symbol]	SUPPLY DUCT UP
[Symbol]	RETURN DUCT UP
[Symbol]	SUPPLY DUCT DOWN
[Symbol]	RETURN DUCT DOWN
[Symbol]	EXHAUST DUCT UP
[Symbol]	EXHAUST DUCT DOWN
[Symbol]	FIRE DAMPER
[Symbol]	BALANCING DAMPER
[Symbol]	MOTORIZED DAMPER
[Symbol]	MOTORIZED FIRE DAMPER
[Symbol]	BACKGROUND DAMPER
[Symbol]	OPPOSED BLADE VOLUME CONTROL DAMPER
[Symbol]	TRIP WIRE
[Symbol]	FLEXIBLE CONNECTION
[Symbol]	ACOUSTIC INSULATION
[Symbol]	TYPE OF EQUIPMENT
[Symbol]	EQUIPMENT IDENTIFICATION
[Symbol]	TYPE OF DIFFUSER OR GRIFF
[Symbol]	SHALL SIZE OR DIFFUSER NECK SIZE
[Symbol]	APPROX. (TOP OR BOTTOM)
[Symbol]	STARTER (3 PHASE / PHASE 1)
[Symbol]	IN-SITE BRV PARTER SWITCH
[Symbol]	IN-SITE BRV PARTER SWITCH
[Symbol]	GAS METER
[Symbol]	GAS METER
[Symbol]	GAS METER
[Symbol]	PRESSURE REDUCING VALVE
[Symbol]	MANIFOLD ABOVE GRADE
[Symbol]	MANIFOLD BELOW GRADE
[Symbol]	STAIR ABOVE GRADE
[Symbol]	STAIR BELOW GRADE
[Symbol]	DOMESTIC COLD WATER
[Symbol]	DOMESTIC HOT WATER
[Symbol]	DOMESTIC HOT WATER RECIRCULATION
[Symbol]	WATER TREAT
[Symbol]	FLOOR DRAIN
[Symbol]	PANEL FLOOR DRAIN
[Symbol]	HUB DRAIN
[Symbol]	ROOF DRAIN
[Symbol]	ALIAS DRAIN
[Symbol]	AREA DRAIN
[Symbol]	IN-LEVEL AREA DRAIN
[Symbol]	CATCH BASIN
[Symbol]	BAZILLARY TRAP
[Symbol]	ELBOW UP
[Symbol]	ELBOW DOWN
[Symbol]	SMALL CLEANOUT
[Symbol]	FLOOR CLEANOUT
[Symbol]	HOSE BIBB
[Symbol]	NON-FREEZE HOSE BIBB
[Symbol]	SHOWER VALVE
[Symbol]	GATE VALVE
[Symbol]	BALL VALVE
[Symbol]	PRESSURE REDUCING VALVE
[Symbol]	BUTTERFLY VALVE
[Symbol]	CHECK VALVE
[Symbol]	CHECK VALVE
[Symbol]	COMPRESSED AIR OUTLET
[Symbol]	BACKFLOW PREVENTER
[Symbol]	CREDIT BALANCING VALVE
[Symbol]	MULTIPLE PIPES
[Symbol]	DRONES NO. OF PIPES
[Symbol]	TEMPERATURE SENSOR
[Symbol]	THERMOPETER
[Symbol]	2-WAY MODULATING VALVE
[Symbol]	3-WAY MODULATING VALVE
[Symbol]	15/40/40 THERMOWELL
[Symbol]	C/W 12" THERMOWELL
[Symbol]	FLOOR ELEVATION ABOVE LEVEL
[Symbol]	FLOOR ELEVATION BELOW LEVEL
[Symbol]	HEADROOM (FLOOR TO US' HEIGHT)

NO.	DESCRIPTION	DATE	BY
1	BASED FOR SITE INTERSECTION #14.		EP
2	BASED FOR CITY COMMENTS.		EP
3	BASED FOR SITE INTERSECTION #15.		EP
4	BASED FOR SITE INTERSECTION #16.		EP
5	BASED FOR TENDER.		EP
6	RE-BASED FOR PERMIT.		EP
7	BASED FOR PERMIT.		EP
8	DESCRIPTION		BY

REVISIONS

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE DRAWINGS ARE THE PROPERTY OF THE ENGINEER AND ARE NOT TO BE REPRODUCED OR COPIED WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER.

NOVA TEND

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PROJECT TITLE:
P-1 FLOOR PLAN
HVAC LAYOUT

PROJECT FILE:
50 ALEXANDRA PARK
BLOCK II
38 CAMERON STREET
TORONTO ONTARIO

DRAWN BY: G.S. **CHECKED BY:** E.P. **SCALE:** 1:100

DATE: FEB 13 **PROJECT NUMBER:** 1313 **DRAWING NUMBER:** M-4 **OF 43**