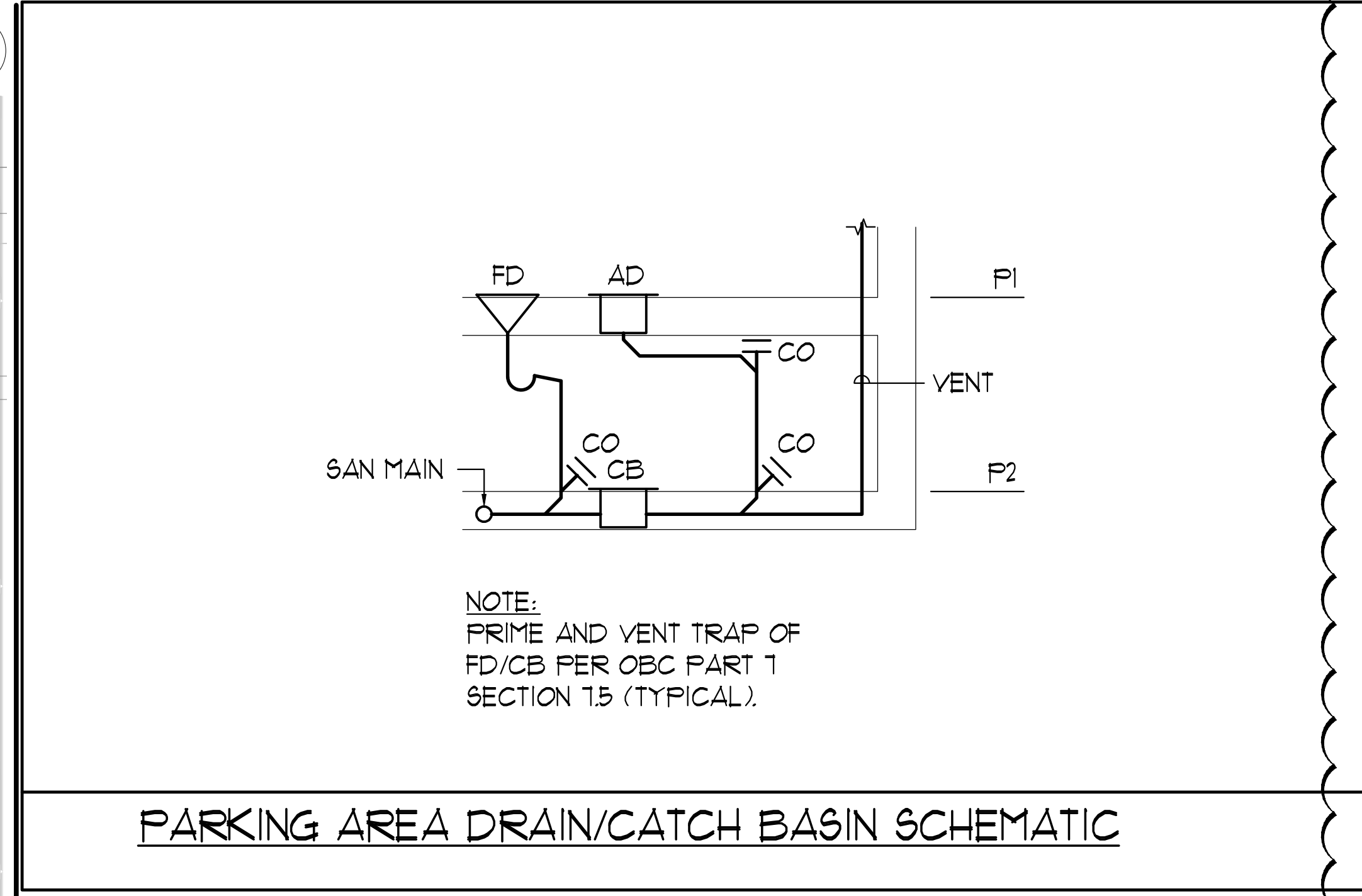
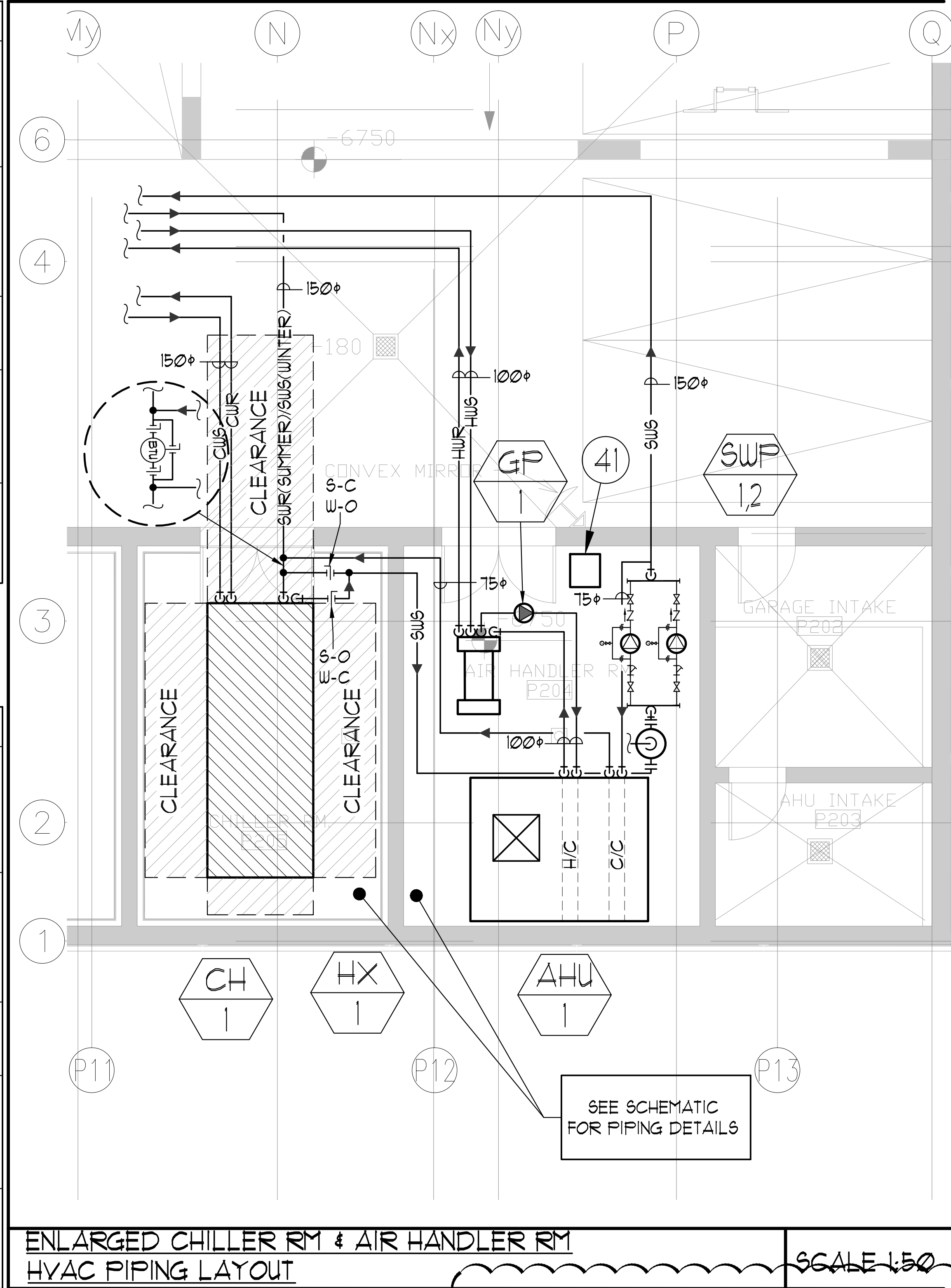


SANITARY PIT SP-1, SP-2	
QTY.	DESCRIPTION
2	BARNES 2SE-554L SUBMERSIBLE PUMPS INSIDE A 900MMØ SUMP PIT, EACH C/W 1/2 HP, 575 VOLT, 3 PHASE, 60 CYCLE MOTOR WITH 30 FT POWER CORD, 2" N.P.T. DISCHARGE, HANDLES 2" DIAMETER SOLIDS AND DELIVERS 35 U.S. G.P.M. AT 22 FT TOTAL HEAD.
1	LDP 575 DUPLEX ELECTRICAL ALTERNATOR, STARTER AND CONTROL PANEL, WITH LOCKABLE DEAD-FRONT, 575 VOLT, 3 PHASE, 60 CYCLE C/W H.O.A. SELECTOR SWITCHES, RUN LIGHTS, THERMAL OVERLOAD HEATERS TO SUIT PUMP MOTORS WITH RESET BUTTON, AND CIRCUIT BREAKERS IN EEMAC 3R ENCLOSURE.
4	LS 20 MECHANICAL LEVEL SENSORS, 1 FOR PUMP "ON", 1 FOR PUMP "OFF", 1 FOR BOTH PUMPS "ON", AND 1 FOR ALARM LEVEL.
1	LHW 115 HIGH WATER ALARM PANEL, 115 VOLT, 1 PHASE WITH PILOT LIGHT, ON-OFF-TEST SWITCH, BUZZER AND EXTRA RELAY FOR REMOTE SIGNALING, IN EEMAC 1 ENCLOSURE.
1	TRIM BAR CURB FRAME C/W CHECKERED COVER PLATE IN 2 SECTIONS, FOR INSPECTION AND ACCESS.

SANITARY PIT SP-3, SP-4	
QTY.	DESCRIPTION
2	BARNES 6GVF-2052L SUBMERSIBLE GRINDER PUMPS INSIDE A 900MMØ SUMP PIT, EACH C/W 2 HP, 575 VOLT, 3 PHASE, 60 CYCLE MOTOR WITH 30 FT POWER CORD, 125" N.P.T. DISCHARGE, AND DELIVERS 50 U.S. G.P.M. AT 30 FT TOTAL HEAD.
1	LDP 575 DUPLEX ELECTRICAL ALTERNATOR, STARTER AND CONTROL PANEL, WITH LOCKABLE DEAD-FRONT, 575 VOLT, 3 PHASE, 60 CYCLE C/W H.O.A. SELECTOR SWITCHES, RUN LIGHTS, THERMAL OVERLOAD HEATERS TO SUIT PUMP MOTORS WITH RESET BUTTON, AND CIRCUIT BREAKERS IN EEMAC 3R ENCLOSURE.
4	LS 20 MECHANICAL LEVEL SENSORS, 1 FOR PUMP "ON", 1 FOR PUMP "OFF", 1 FOR BOTH PUMPS "ON", AND 1 FOR ALARM LEVEL.
1	LHW 115 HIGH WATER ALARM PANEL, 115 VOLT, 1 PHASE WITH PILOT LIGHT, ON-OFF-TEST SWITCH, BUZZER AND EXTRA RELAY FOR REMOTE SIGNALING, IN EEMAC 1 ENCLOSURE.
1	TRIM BAR CURB FRAME C/W CHECKERED COVER PLATE IN 2 SECTIONS, FOR INSPECTION AND ACCESS.



- 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 ANTI-FLEX 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. DCW/BP VFD SHALL BE MOUNTED ON RUBBER PADS.
- 8) 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.
- 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, FRYS 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 DCW/BP) 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 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.
- 18) ALL CONNECTIONS BETWEEN THE CHILLER AND THE ATTACHED PIPING SHALL INCLUDE TWIN-SPHERE RUBBER EXPANSION JOINTS.

- GENERAL NOTES:**
- 1) CONTRACTOR SHALL CO-ORDINATE ARCHITECTURAL, STRUCTURAL, LIGHTING, HVAC, SPRINKLER DRAWINGS TO AVOID AREAS OF CONFLICT AND TO MAINTAIN CEILING HEIGHTS.
- 2) CONTRACTOR SHALL REPORT ALL DISCREPANCIES AND AREAS OF CONFLICT TO THE ENGINEER PRIOR TO BEGINNING WORK.
- 3) MINIMUM HEAD ROOM IS 2100 mm ABOVE FINISH FLOOR LEVEL.
- 4) WHERE THERE IS A DROPPED CEILING, GAS PIPING SHALL BE HUNG BELOW AND TIGHT TO CEILING.
- 5) ALL EQUIPMENT TO BE INSTALLED PER SPECIFICATION AND MANUFACTURER'S INSTALLATION MANUAL. PROVIDE ACCESS PANEL FOR CONCEALED EQUIPMENT VALVES, ETC.
- 6) ALLOW 3M SEPARATION BETWEEN THE CONNECTION OF THE MAIN SANITARY RISER AND ITS AUXILIARY RISER.
- 7) ALL SANITARY PIPE OUTSIDE OF HEATED CEILING SPACE SHALL BE INSULATED, CANVASSED AND PAINTED.
- 8) ALL VENTS SHALL COMPLY WITH O.B.C. AND PLUMBING CODE.
- 9) FOR STORAGE ROOM VENTILATION SYSTEM, DIV.16 TO PROVIDE CONDUIT, WIRING AND SWITCH TO START / STOP FAN & DAMPER. FAN AND 110V ACTUATOR TO BE SUPPLIED AND INSTALLED BY DIV. 15.
- 10) FOR UTILITY ROOM VENTILATION SYSTEM, DIV.16 WILL PROVIDE LINE VOLTAGE THERMOSTAT TO DIV.16. DIV.16 TO PROVIDE CONDUIT & WIRING TO START/STOP FAN & DAMPER VIA THERMOSTAT. FAN AND 110V ACTUATOR TO BE SUPPLIED AND INSTALLED BY DIV. 15.
- 11) FOR UNIT HEATER, DIV. 15 TO PROVIDE LINE VOLTAGE THERMOSTAT TO DIV. 16. DIV. 16 TO PROVIDE CONDUIT & WIRING TO START/STOP UNIT HEATER.
- 12) FIRE DAMPERS ARE REQUIRED TO BE LISTED AND ARE TO HAVE FIRE-PROTECTION RATING OF THE PENETRATED FIRE SEPARATION.
- 13) THE PIPING PENETRATING THE VARIOUS FIRE SEPARATION IS REQUIRED TO BE FIRESTOPPED WITH A LISTED FIRESTOPPING MATERIAL IN ACCORDANCE WITH OBC ARTICLE 3.13.1.
- 14) DIV. 16 TO PROVIDE START/STOP FOR ALL THE MAIN GARAGE EXHAUST FANS INSIDE CACF ROOM.
- 15) ALL TRAPS & PRIMERS TO BE HEAT TRACED BY DIV.16, INSULATED & JACKETED BY THIS CONTRACTOR.
- ± 2550 mm CLEAR FLOOR TO UNDERSLAB

- NOTES:**
- 3300x3600 (1226 M², 132 FT²) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
- 3300x21300 (7.8 M², 84 FT²) FRESH AIR INTAKE SHAFT FOR MAU.
- 2250x1300 (2.93 M², 31.5 FT²) FRESH AIR SHAFT FOR P-2 LEVEL.
- 5500x2000 (11.61 M², 125 FT²) EXHAUST AIR SHAFT FOR F-1 & F-2 LEVEL.
- 3100x2000 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN. (16,500 CFM)
- 2000x1500 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN. (10,000 CFM)
- 1200x1200 FRESH AIR DUCT FROM ABOVE C/W FIRE DAMPER AT SLAB.
- 400x1200 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- 800x1400 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- 800x800 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- 800x400 INTAKE LOUVRE C/W FIRE DAMPER & WIRE MESH.
- 600x400 EXHAUST LOUVRE C/W FIRE DAMPER & WIRE MESH.
- 1200x800 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- 100x350 STAIR PRESSURIZATION DUCT FROM ABOVE C/W FIRE RATED ENCLOSURE, FIRE RATED ENCLOSURE BY OTHERS.
- 750x400 DUCT DOWN TO 450 mm AFPL C/W OPEN END AND WIRE MESH.
- REFRIGERANT MONITORING MASTER & SLAVE PANELS AND SENSOR SLAVE PANEL SHOWING STATUS OF REFRIGERATION MONITORING SYSTEM TO BE MOUNTED OUTSIDE OF CHILLER ROOM, UPON SENSING OF REFRIGERANT LEAKAGE CHILLER WILL BE SHUT DOWN AND EF-10 LOCATED IN 2/F (LOADING) TO BE ACTIVATED TO RUN IN HIGH SPEED.
- ALARM STROBE LIGHT SUPPLIED AND WIRED TO THE REFRIGERANT MONITORING SYSTEM BY MECHANICAL CONTRACTOR.
- 150x100 FRESH AIR DUCT FROM ABOVE C/W FIRE DAMPER AT SLAB.
- 100x SAN FROM ABOVE AND DOWN C/W CLEANOUT AT BASE.
- 100x SAN @ 1%.
- 150x SAN @ 1%.
- SANITARY SUMP PIT. SEE DETAIL ON THIS DRAWING.
- 75x PUMPED SAN UP C/W HEAT TRACING. HEAT TRACING BY DIV. 16. INSULATION AND JACKET BY THIS CONTRACTOR.
- SCUFFER DRAIN.
- BACKWATER VALVE AND CLEANOUT PRIMED & VENTED INSIDE 900x MANHOLE C/W COVER. SEE DETAIL ON THIS DRAWING.
- ELEVATOR SUMP PIT. SEE DETAIL ON DRAWING M-40.
- 100x SAN DOWN C/W CLEANOUT AT BASE.
- DRAIN TRAP TO BE HEAT TRACED BY DIV. 16. THIS CONTRACTOR TO INSULATE & JACKET (TYPICAL).
- 750x150 F/A DUCT FROM AHU AND TRANSITION TO 2000x650 F/A DUCT IN VERTICAL RUN & UP.
- 2000x650 DUCT BELOW RAMP AND ENTER RESIDENTIAL STORAGE ROOM AT HIGH LEVEL IN F-1 C/W FIRE DAMPER FOR CONTINUATION SEE DRAWING M-4.

LEGEND MECHANICAL	
SYMBOL	DESCRIPTION
	SUPPLY AIR DAMPER
	SUPPLY AIR TRAP
	LINEAR SUPPLY DIFFUSER
	THERMOSTAT
	FAN MOTOR
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
	FIRE DAMPER
	BALANCING DAMPER
	MOTORIZED DAMPER
	MOTORIZED FIRE DAMPER
	BACKDRAFT DAMPER
	OPPOSED BLADE VOLUME CONTROL DAMPER
	CO LOCKING GASUCANT
	TURNING VANE
	FLEXIBLE CONNECTION
	ACOUSTIC INSULATION
	TYPE OF EQUIPMENT
	TYPE OF INSULATION
	TYPE OF DAMPER OR GRILLE
	TYPE OF PIPE OR TUBING
	TYPE OF VALVE
	STARTER / 3 PHASE / 1 PHASE
	IN-SITE SERV. THERMOSTAT
	FAN MOTOR / 3 PHASE / 1 PHASE
	CO SENSOR
	GAS LINE
	GAS METER
	GAS COOK
	PRESSURE REDUCING VALVE
	SANITARY ABOVE GRADE
	SANITARY BELOW GRADE
	STORY ABOVE GRADE
	STORY BELOW GRADE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRCULATION
	WATER METER
	FLOOR DRAIN
	FLOOR DRAIN
	ROOF DRAIN
	SLAB DRAIN
	AREA DRAIN
	BILGE DRAIN
	CATCH BASIN
	SANITARY TRAP
	ELBOW UP
	ELBOW DOWN
	WALL CLEANOUT
	FLOOR CLEANOUT
	HOSE BIBB
	NON-FREEZE HOSE BIBB
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE
	CAP
	COPPER-BRASS AIR OUTLET
	BACKFLOW PREVENTER
	CIRCUIT BALANCING VALVE
	MULTIPLE PIPES
	/ - DENOTES NO. OF PIPES
	TEMPERATURE SENSOR
	THERMOMETER
	2-WAY INSULATING VALVE
	3-WAY INSULATING VALVE