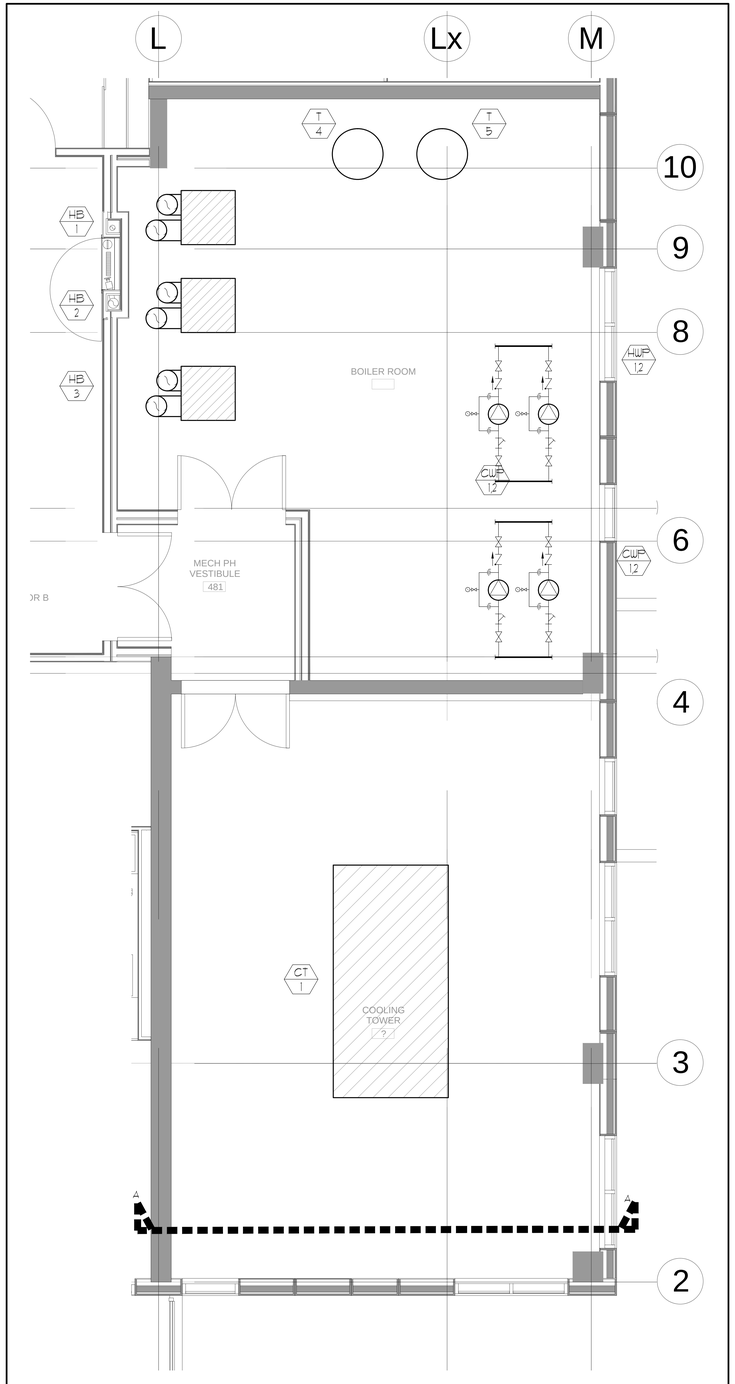
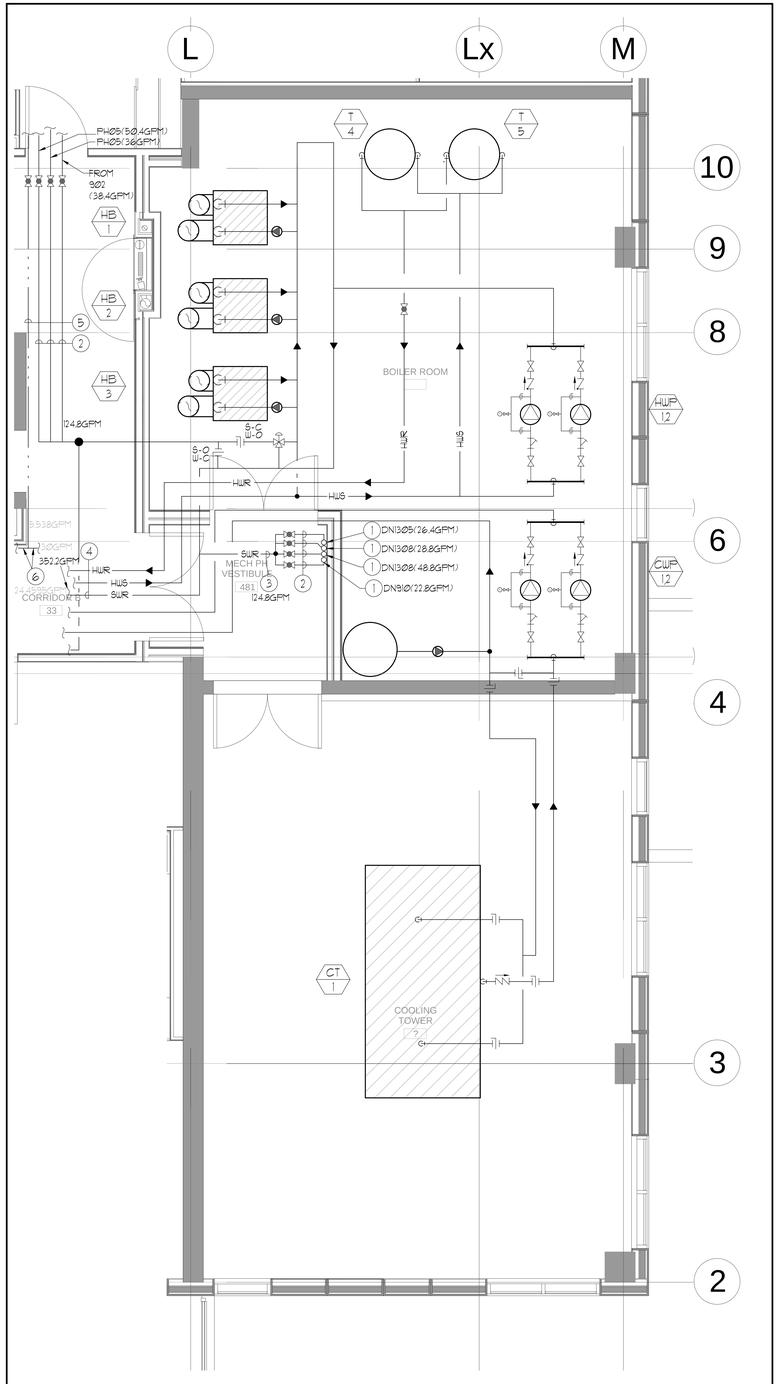


ENLARGED COOLING TOWER & BOILER ROOM P&ID LAYOUT — SCALE 1:25



ENLARGED COOLING TOWER & BOILER ROOM HVAC PIPING LAYOUT — SCALE 1:25

GENERAL AND ACOUSTIC NOTES:

1) CONTRACTOR SHALL CO-ORDINATE ARCHITECTURAL, STRUCTURAL, LIGHTING, HVAC AND SPRINKLER DRAWINGS TO AVOID AREAS OF CONFLICT AND TO MAINTAIN CEILING HEIGHTS.

2) CONTRACTOR SHALL REPORT ALL DISCREPANCIES AND AREA OF CONFLICTS TO THE ENGINEER PRIOR TO WORK BEGINS.

3) REFER TO ACOUSTIC ENGINEER'S REPORT FOR ACOUSTIC TREATMENT REQUIRED.

4) FIRE DAMPERS ARE REQUIRED TO BE LISTED AND ARE TO HAVE FIRE-PROTECTION RATING OF THE PENETRATED FIRE SEPARATION.

5) THE PIPING PENETRATING THE VARIOUS FIRE SEPARATION IS REQUIRED TO BE FIRESTOPPED WITH A LISTED FIRESTOPPING MATERIAL IN ACCORDANCE WITH OBC ARTICLE 3.1.9.1.

6) THE FIRE HOSE CABINETS THAT ARE RECESSED INTO THE EXIT STAIR SHAFTS ARE REQUIRED TO BE SEPARATED FROM THE EXIT STAIR BY A 2 HR. FIRE SEPARATION.

7) ALL AHU/FAU/MAU SHALL BE MOUNTED ON DOUBLE LAYER (NSN) PADS BETWEEN UNIT CASING AND HOUSEKEEPING PAD. EXTERNAL HEAT RECOVERY FAN SHALL BE ISOLATED USING SPRING ISOLATORS WITH MINIMUM 38MM STATIC DEFLECTION, PLUS A NEOPRENE-IN-SHEAR ELEMENT IN SERIES. 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.

8) MAIN FRESH AIR SHAFT TO BE C/W 25MM THICK ACOUSTIC DUCT LINER STARTING FROM THE MECHANICAL PENTHOUSE AND DOWN THREE FLOORS.

9) 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 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 Ø.3" AT A LOAD EQUAL TO 2/3 OF THE MAXIMUM EXPECTED POINT LOAD OF THE CHILLER.

CHILLER SHALL BE COMPLETE WITH ACOUSTIC BLANKET.

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

11) COOLING TOWER SHALL BE ISOLATED USING DISCRETE SPRING ISOLATORS, WITH MINIMUM 75MM STATIC DEFLECTION AND DOUBLE-LAYER PADS UNDER THE SPRING BASE. TWIN-SPHERE RUBBER EXPANSION JOINTS THAT ARE RATED FOR OUTDOOR USE, SHALL BE PROVIDED BETWEEN THE COOLING TOWER AND ATTACHED PIPING.

12) BOILERS AND HEAT EXCHANGERS SHALL BE SUPPORTED ON DOUBLE-LAYER NEOPRENE-STEEL-NEOPRENE RUBBER PADS BETWEEN THE SUPPORT CHANNELS AND THE HOUSEKEEPING PADS BELOW.

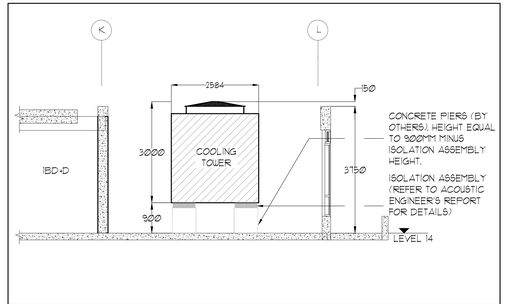
13) CUP, SUP, CHUP AND HUP SHALL BE DECOUPLED FROM THE ATTACHED PIPING USING TWIN-SPHERE RUBBER EXPANSION JOINTS ON BOTH THE SUCTION AND DISCHARGE SIDES. FOR VIL PUMPS, THESE EXPANSION JOINTS ARE TYPICALLY LOCATED IN THE VERTICAL SECTION ABOVE THE SUCTION STRAINER AND SHUT-OFF VALVE. THE PUMPS AND DIRECTLY ATTACHED PIPING (UP TO THE TWIN-SPHERE JOINT) SHALL BE MOUNTED ON CONCRETE INERTIA BASES, AND ISOLATED FROM THE FLOATING FLOOR BELOW USING SPRING ISOLATORS WITH MINIMUM 38 MM STATIC DEFLECTION AND 25 MM THICK NSN PADS UNDER THE SPRING BASE, PROPERLY LOADED.

14) ALL BASE MOUNTED PUMPS SHALL BE MOUNTED C/W CONCRETE INERTIA BASES SUPPORTED ON STEEL SPRINGS WITH A STATIC DEFLECTION OF AT LEAST 15" AND INCLUDING AT LEAST TWO LAYERS OF WAFFLED NEOPRENE PADS BELOW.

15) SMALLER PUMPS MAY BE SUPPORTED USING PIPE STANDS UNDER THE ELBOWS (NOT DIRECTLY FROM THE CASING ITSELF) WITH 38MM DEFLECTION SPRING ISOLATORS PLUS NEOPRENE. SMALL PUMPS SHALL BE ISOLATED USING NEOPRENE-IN-SHEAR ISOLATORS FOR THE FIRST 3 POINTS OF SUPPORT ON EITHER SIDE OF THE PUMP.

16) ALL VFD'S TO BE MOUNTED ON RUBBER PADS.

17) IN-LINE AND CABINET FANS SHALL BE ISOLATED WITH SPRINGS OR NEOPRENE-IN-SHEAR MOUNTS. SIDEWALL FANS SHALL BE ISOLATED USING NEOPRENE MOUNTS, PADS OR GROMMETS.



SECTION A-A — N.T.S.

NOTES:

1. 50Ø SWR FROM BELOW.
2. 50Ø SWR.
3. 75Ø SWR.
4. 150Ø SWR.
5. 25Ø CHWR.
6. 50Ø CHWR.

LEGEND
MECHANICAL

SYMBOL	DESCRIPTION
	SUPPLY AIR DIFFUSER
	SUPPLY AIR TROFFER
	LINEAR SUPPLY DIFFUSER
T	THERMOSTAT
S	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
MD	MOTORIZED DAMPER
MFD	MOTORIZED FIRE DAMPER
BDD	BACKDRAFT DAMPER
OBD	OPPOSED BLADE VOLPE CONTROL DAMPER C/S LOCKING QUADRANT
	TURNING VANES
	FLEXIBLE CONNECTION
	ACOUSTIC INSULATION
XXX	TYPE OF EQUIPMENT
XXX	EQUIPMENT IDENTIFICATION
XXX/XXX	TYPE OF DIFFUSER OR GRILLE
XXX/XXX	CFM OF DIFFUSER OR GRILLE/ NECK SIZE
XXX/XXX	AIRFLOW (CFM OR L/s)
S, S	STARTER (3 PHASE , 1 PHASE)
S	N-SUITE ENV MASTER SWITCH
S	FAN SWITCH / N-SUITE ENV OVERRIDE BUTTON
CO	CO SENSOR
G	GAS LINE
G	GAS METER
G	GAS COCK
PR	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
	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
NHB	NON-FREEZE HOSE BIBB
	GLOBE VALVE
	GATE VALVE
	BALL VALVE
	BUTTERFLY VALVE
PR	PRESSURE REDUCING VALVE
	CHECK VALVE
C	CAP
CA	COMPRESSED AIR OUTLET
VV	BACKFLOW PREVENTER
	CIRCUIT BALANCING VALVE
	MULTIPLE PIPES / - DENOTES NO. OF PIPES
T	TEMPERATURE SENSOR
T	THERMOMETER
	2-WAY MODULATING VALVE
	3-WAY MODULATING VALVE
T	1/2"x4"OD THERMOWELL C/W 1/2" BUSHING X 1/2" PLUG
XXX.X	FLOOR ELEVATION ABOVE LEVEL
XXX.X	FLOOR ELEVATION THIS LEVEL
XXX.X	HEADROOM (FLOOR TO U/S HEIGHT)

DATE	NO	DESCRIPTION	BY
07/10/14	3	RE-ISSUED FOR PERMIT	E.P.
05/30/14	2	ISSUED FOR PERMIT	E.P.
DATE	NO	DESCRIPTION	BY

MARK VOID ALL PRINTS DATED PREVIOUS TO FINAL DATE ABOVE

REVISIONS

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

NOVA TREND ENGINEERING GROUP INC.

PROFESSIONAL ENGINEER — 07/10/14 — ERIC PUI KAI PUN — PROVINCE OF ONTARIO

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DRAWING TITLE
ROOF
MECHANICAL LAYOUT

PROJECT TITLE
ALEXANDRA PARK

XXX
TORONTO — ONTARIO

DRAWN BY:	CHECKED BY:	SCALE:
G.S.	E.P.	1:25
DATE:	PROJECT NUMBER:	DRAWING NUMBER:
FEB. 13	1313	M-33 OF 39

Drawing name: \\CADSERVER\Current Dwg\13\1313 - Alexandra Park\2013\1313M - 3280OF PLAN - MECHANICAL LAYOUT.dwg Plotted: Jul 09, 2014 - 4:03pm