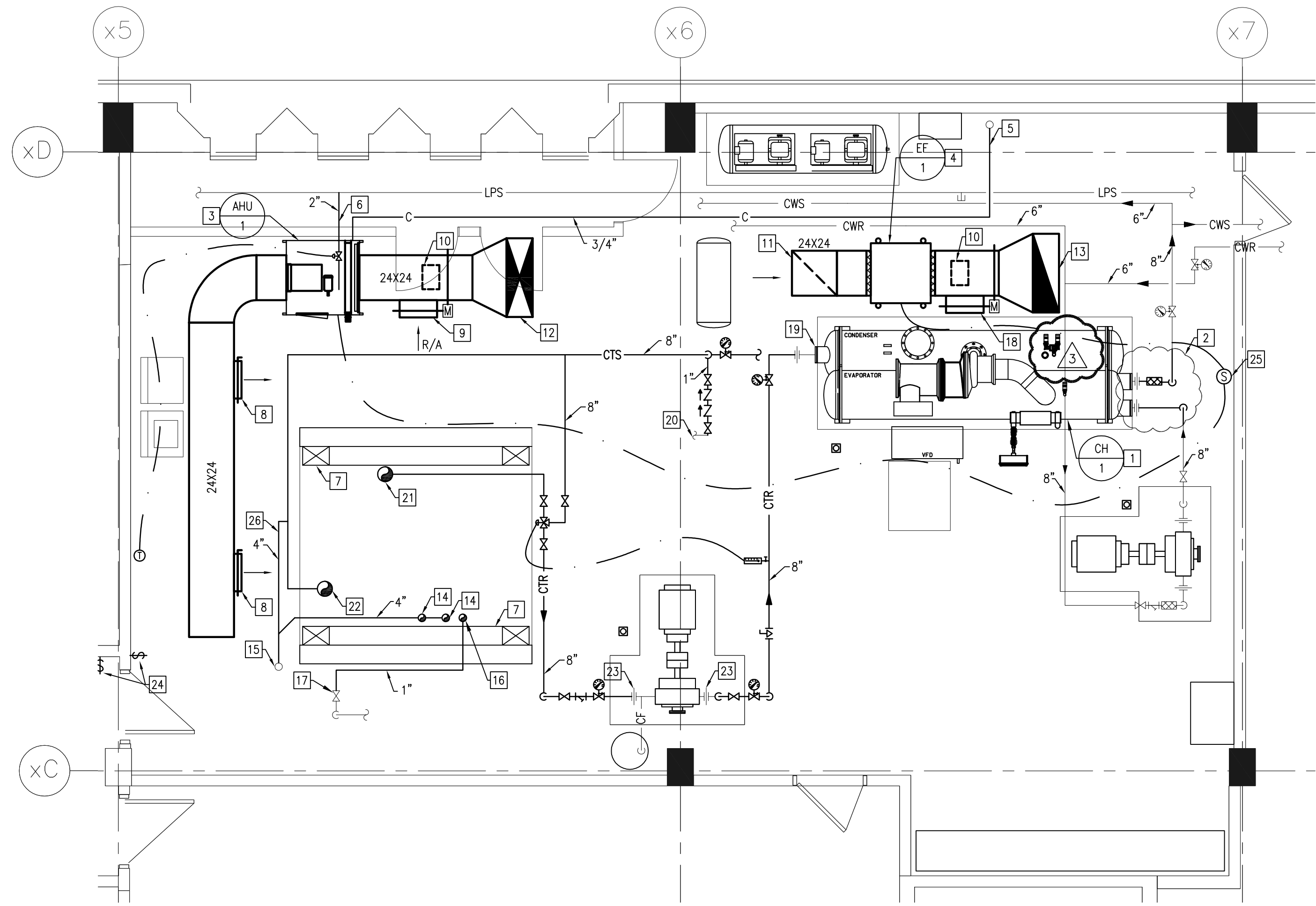
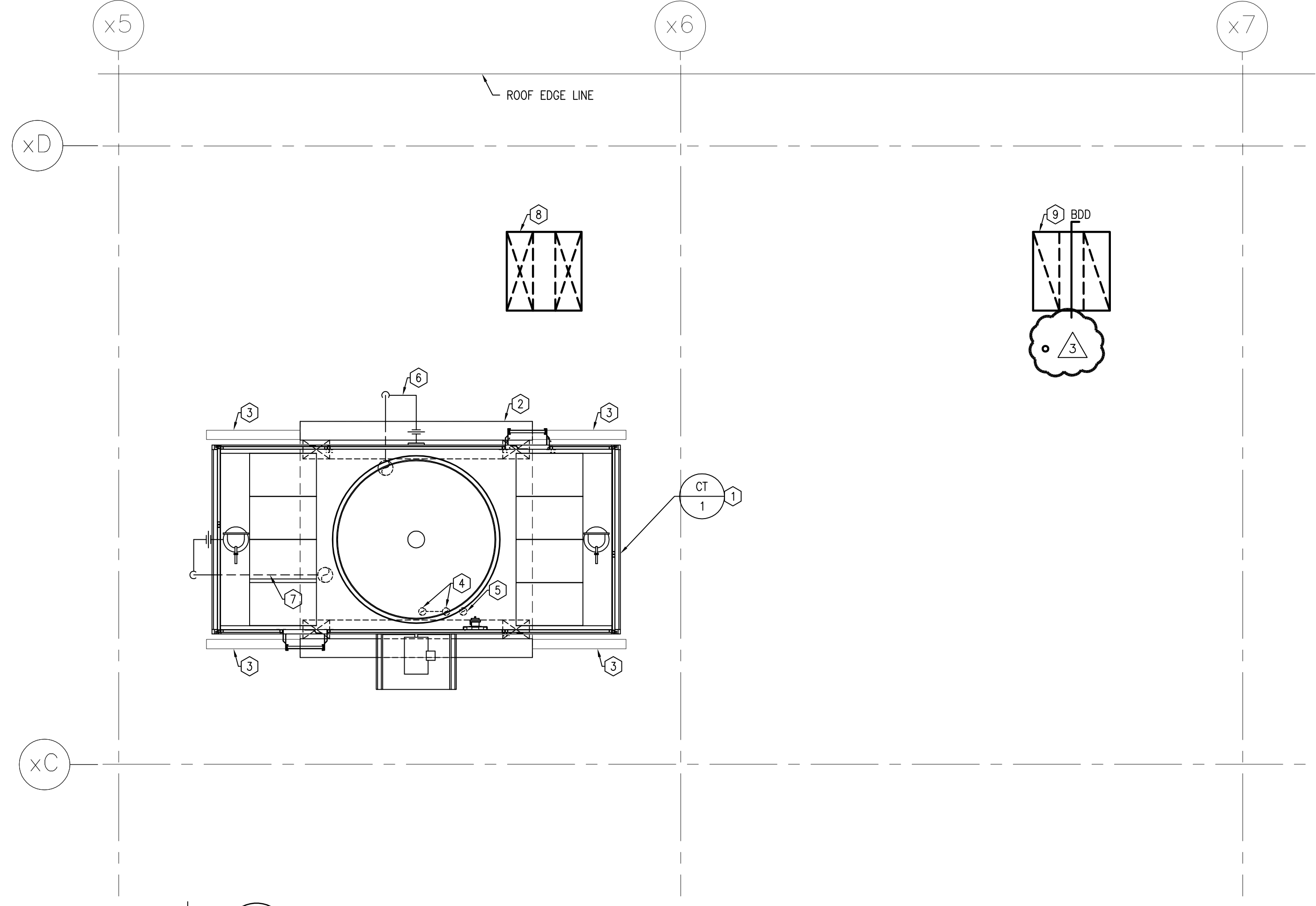


1 SIXTH FLOOR MACHINE ROOM PLAN - DEMO  
SCALE: 1/4"=1'-0"



2 SIXTH FLOOR MACHINE ROOM PLAN - NEW CONSTRUCTION  
SCALE: 1/4"=1'-0"



3 ROOF MECHANICAL PLAN - NEW CONSTRUCTION  
SCALE: 1/4"=1'-0"

**GENERAL NOTES**

- A. VERIFY ALL EXISTING MECHANICAL EQUIPMENT, PIPING, CONTROLS, ETC. ON SITE.
- B. COORDINATE MECHANICAL EQUIPMENT AND PIPING INSTALLATION WITH OTHER TRADES TO SUIT EXISTING CONDITIONS.
- C. WORK TO BE PERFORMED AND COMPLETED DURING THE HEATING SEASON WHEN COOLING TOWER AND CHILLER ARE NOT IN OPERATION.
- D. PROVIDE PROTECTIVE COVERING OVER EXISTING COOLING TOWER ROOF OPENING DURING CONSTRUCTION TO PROTECT MACHINE ROOM FROM THE ELEMENTS.
- E. AFTER DEMOLITION NEW CHILLER TO BE TRANSPORTED INTO MACHINE ROOM THROUGH EXISTING ROOF OPENING PRIOR TO ROOF WORK AND NEW COOLING TOWER BEING INSTALLED.

**DRAWING NOTES (DEMO) #1**

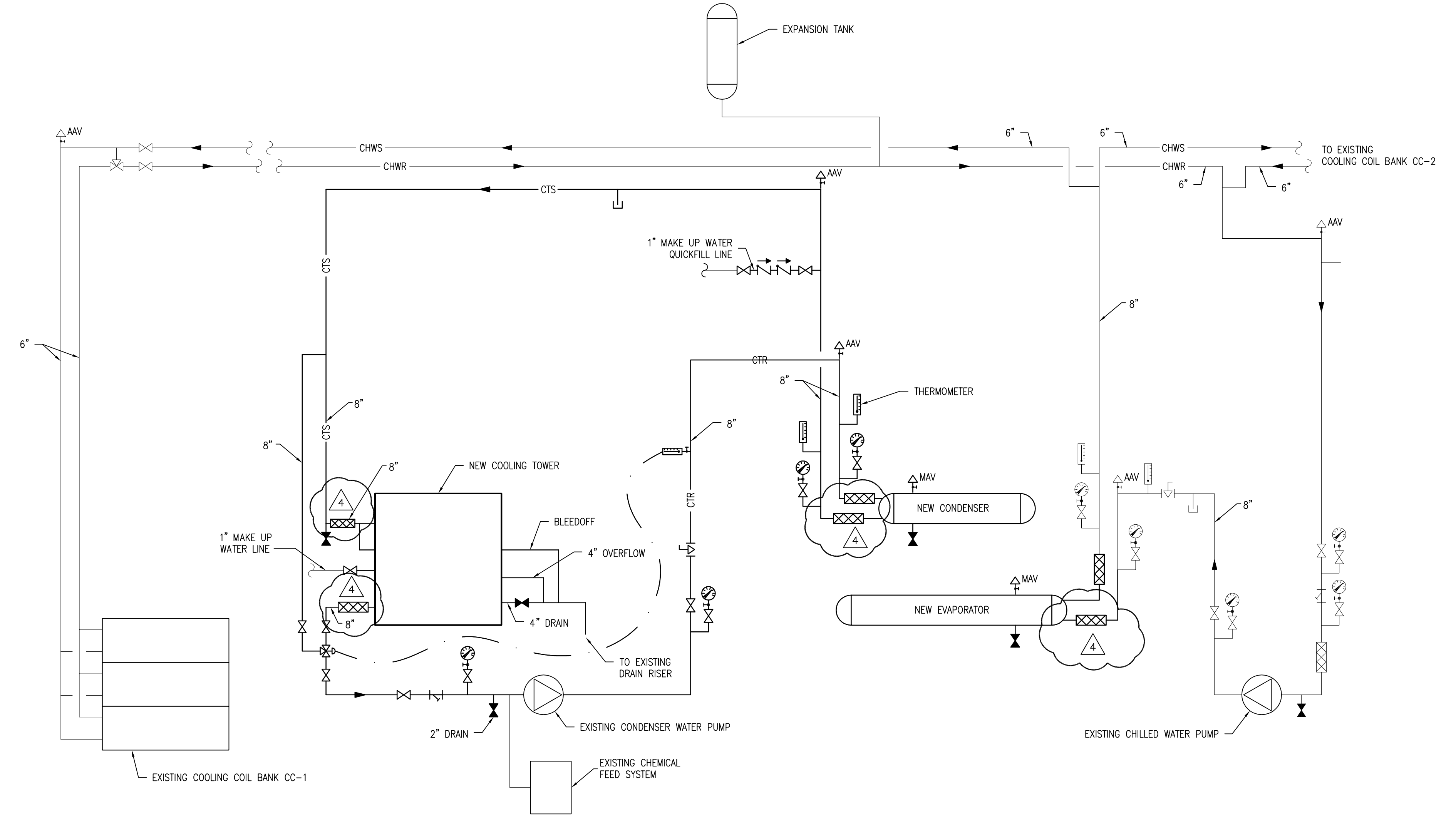
1. EXISTING MARLEY COOLING TOWER C/W H-BEAM STEEL SUPPORT, VIBRATION ISOLATORS AND BRACKETS TO BE REMOVED. EXISTING 8" THICK CONCRETE PAD W/ 8" THICK X 20" HIGH CONCRETE STUB WALLS TO REMAIN IN PLACE. EXISTING SPRINKLER HEAD AND PIPING LOCATED UNDERNEATH THE EXISTING COOLING TOWER TO BE ADJUSTED TO ENSURE SPRINKLER COVERAGE PERFORMANCE TO MEET L3 CODE REQUIREMENTS.
2. EXISTING ALCO CENTRIFUGAL CONDENSER WATER PUMP (1050 GPM, 60FT HEAD PRESSURE) TO REMAIN.
3. EXISTING ALCO CENTRIFUGAL CHILLED WATER PUMP (840 GPM, 60FT HEAD PRESSURE) TO REMAIN.
4. EXISTING CARRIER CHILLER TO BE REMOVED. EXISTING 6" THICK CONCRETE PAD TO REMAIN.
5. EXISTING CONCRETE PAD TO REMAIN.
6. EXISTING FLOOR DRAIN TO REMAIN.
7. EXISTING ELECTRICAL EQUIPMENT.
8. EXISTING AIR COMPRESSOR TO REMAIN.
9. EXISTING AIR DRYER TO REMAIN.
10. EXISTING EXPANSION TANK BETWEEN CONCRETE CEILING JOISTS TO REMAIN.
11. EXISTING STEAM UNIT HEATER TO BE REMOVED. REMOVE ASSOCIATED STEAM AND CONDENSATE PIPING BACK TO MAIN AND CAP.
12. EXISTING DRAINAGE RISER TO REMAIN AND TO BE UTILIZED IN NEW CONSTRUCTION. REFER TO NEW CONSTRUCTION PLAN. REMOVE DRAINAGE LINES TO EXISTING COOLING TOWER.
13. EXISTING WASHER AND DRYER TO REMAIN.
14. EXISTING CHEMICAL FEED SYSTEM TO REMAIN.
15. EXISTING COOLING TOWER RETURN PIPING AND ASSOCIATED VALVES AND GAUGES BETWEEN EXISTING CHILLER AND EXISTING CONDENSER PUMP FLANGE TO BE REMOVED.
16. EXISTING COOLING TOWER RETURN PIPING AND ASSOCIATED VALVES AND GAUGES BETWEEN EXISTING COOLING TOWER AND EXISTING CONDENSER PUMP FLANGE TO BE REMOVED.
17. EXISTING COOLING TOWER SUPPLY PIPING AND ASSOCIATED VALVES AND GAUGES BETWEEN EXISTING CHILLER AND EXISTING COOLING TOWER TO BE REMOVED.
18. CHILLED WATER SUPPLY AND RETURN LINES TO REMAIN.
19. EXISTING MAKEUP WATER FEED LINE TO EXISTING COOLING TOWER. REMOVE PIPING AND ASSOCIATED VALVES FROM EXISTING COOLING TOWER TO SECOND EXISTING SHUT OFF VALVE. REFER TO NEW CONSTRUCTION PLAN.
20. EXISTING MAKEUP WATER FEED LINE FOR QUICKFILL. REMOVE PIPING AND ASSOCIATED VALVE TO IMMEDIATELY AFTER BACKFLOW VALVE. REFER TO NEW CONSTRUCTION PLAN.
21. EXISTING CONDENSATE RISER TO REMAIN.
22. EXISTING LOW PRESSURE STEAM LINE TO REMAIN.
23. EXISTING SLIDING DOORS, ABOVE COOLING TOWER ON ROOF, TO BE REMOVED.

**DRAWING NOTES (NEW CONSTRUCTION) #2**

1. NEW CHILLER TO BE MOUNTED ON EXISTING CONCRETE PAD.
2. MODIFY AND PROVIDE NEW PIPING TO EXISTING CHILLED WATER PIPING AS NECESSARY TO CONNECT TO NEW CHILLER EXHAUST PORTS. PROVIDE NEW FLEX CONNECTOR AS SHOWN.
3. NEW AIR HANDLING UNIT SUSPENDED FROM CEILING C/W SPRING ISOLATORS.
4. NEW EXHAUST FAN SUSPENDED FROM CEILING C/W SPRING ISOLATORS.
5. CONNECT NEW CONDENSATE LINE SERVING AHU-1 TO EXISTING CONDENSATE SERVICE AT THIS LOCATION.
6. CONNECT NEW LOW PRESSURE STEAM LINE SERVING AHU-1 TO EXISTING LOW PRESSURE STEAM SERVICE.
7. STEEL SUPPORT STRUCTURE FOR NEW COOLING TOWER LOCATED ABOVE ROOF. REFER TO STRUCTURAL DRAWINGS.
8. SINGLE DEFLECTION SUPPLY GRILLE EH, PRICE MODEL 36X24/S100/F/A/A/B12 OR EQUAL, BALANCE TO 2500 CFM.
9. 24X24 RETURN AIR DAMPER C/W METAL MESH GRILLE OVER OPENING.
10. PROVIDE INSULATED 18X18 ACCESS DOOR FOR DAMPER INSPECTION.
11. 24X24 EXHAUST DUCT DOWN TO 12" ABOVE FLOOR. PROVIDE METAL MESH GRILLE OVER INLET, BALANCE TO 5000 CFM.
12. 14X42 SUPPLY DUCT THROUGH ROOF, BETWEEN EXISTING CONCRETE ROOF JOIST, TO GOOSENECK C/W 2" EXTERNAL INSULATION.
13. 14X42 EXHAUST DUCT UP THROUGH ROOF, BETWEEN EXISTING CONCRETE ROOF JOIST, TO GOOSENECK C/W 2" EXTERNAL INSULATION.
14. NEW 4" DRAIN & OVERFLOW PIPE UP THROUGH ROOF TO NEW COOLING TOWER C/W HEAT TRACING, INSULATION AND ALUMINUM JACKET.
15. CONNECT NEW COOLING TOWER DRAIN AND OVERFLOW PIPE TO EXISTING DRAINAGE RISER.
16. NEW 1" MAKE UP WATER LINE UP THROUGH ROOF TO NEW COOLING TOWER C/W HEAT TRACING, INSULATION AND ALUMINUM JACKET.
17. CONNECT NEW MAKE UP WATER LINE TO EXISTING MAKE UP WATER LINE. REFER TO DEMOLITION PLAN.
18. 24X24 CIRCULATION AIR DAMPER C/W METAL MESH GRILLE OVER OPENING.
19. COOLING TOWER RETURN AND SUPPLY LINES CONNECTION TO NEW CHILLER.
20. CONNECT NEW MAKE UP WATER LINE FOR QUICK FILL TO EXISTING MAKE UP WATER QUICKFILL LINE C/W REDUCED PRESSURE BACKFLOW PREVENTER, DRAIN OPEN ENDED OVER NEAREST FLOOR DRAIN. REFER TO DEMOLITION PLAN.
21. NEW 8" COOLING TOWER RETURN LINE UP THROUGH ROOF.
22. NEW 8" COOLING TOWER SUPPLY LINE UP THROUGH ROOF.
23. CONNECT NEW 8" COOLING TOWER RETURN LINE TO EXISTING CONDENSER PUMP.
24. MANUAL EXHAUST FAN SWITCH FOR EMERGENCY USE INTERLOCKED TO EF-1. THE SWITCH OUTSIDE THE MACHINE ROOM IS TO BE CAPABLE OF STARTING BUT NOT STOPPING THE EXHAUST FAN. REFER TO ELECTRICAL DRAWINGS.
25. REFRIGERANT VAPOUR DETECTOR INTERLOCKED TO AHU-1 AND EF-1 VENTILATION SYSTEM.
26. NEW BLEEDOFF LINE BETWEEN NEW COOLING TOWER SUPPLY LINE AND EXISTING DRAINAGE RISER.

**DRAWING NOTES (ROOF CONSTRUCTION) #3**

1. NEW COOLING TOWER SUPPORTED BY STEEL STRUCTURE. REFER TO STRUCTURAL DRAWINGS.
2. EXISTING ROOF OPENING TO BE FILLED IN TO MAINTAIN ROOF CONSTRUCTION. REFER TO STRUCTURAL.
3. REMOVE EXISTING GUIDE RAIL AND EXISTING HATCH DOORS. PATCH/REPAIR ROOF TO MAINTAIN EXISTING ROOF CONSTRUCTION.
4. NEW 4" DRAIN AND OVERFLOW PIPE TO NEW COOLING TOWER C/W HEAT TRACING, INSULATION AND ALUMINUM JACKET.
5. NEW 1" MAKE UP WATER LINE TO NEW COOLING TOWER C/W HEAT TRACING, INSULATION AND ALUMINUM JACKET.
6. NEW COOLING TOWER RETURN LINE FROM NEW COOLING TOWER.
7. NEW COOLING TOWER SUPPLY LINE TO NEW COOLING TOWER.
8. 14X42 SUPPLY DUCT FOR AHU-1 C/W GOOSENECK. REFER TO STRUCTURAL FOR ROOF PENETRATION DETAILS.
9. 14X42 EXHAUST DUCT FOR EF-1 C/W GOOSENECK AND BACKDRAFT DAMPER. REFER TO STRUCTURAL FOR ROOF PENETRATION DETAILS.



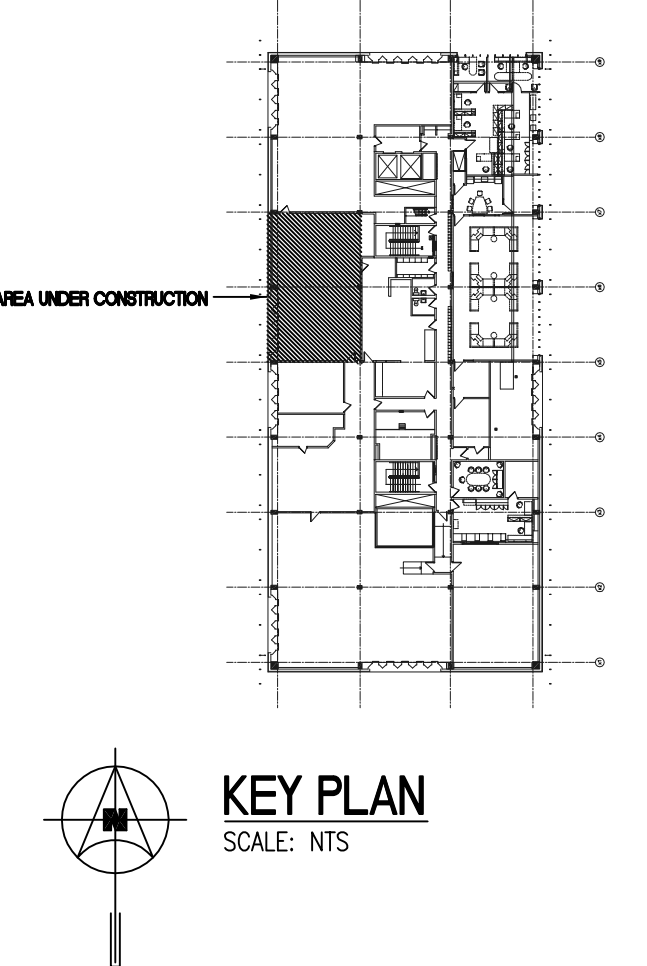
3 SCHEMATIC OF CHILLED & CONDENSER WATER PIPING  
SCALE: 1/2"=1'-0"

**LEGEND**

C	COIL CONDENSATE	PRV	PRESSURE RELIEF VALVE
CTS	COOLING TOWER SUPPLY	VR	VALVE IN RISER
CTR	COOLING TOWER RETURN	BFP	BACKFLOW PREVENTER
LPS	LOW PRESSURE STEAM	FD	FLOOR DRAIN
SOV	SHUT-OFF VALVE	BD	BACK DRAFT DAMPER
NCSOV	NORMALLY CLOSED SHUT-OFF VALVE	MBD	MANUAL BALANCING DAMPER
MBAV	MANUAL BALANCING VALVE	MD	MOTORIZED DAMPER
CV	CHECK VALVE	SD	SINGLE LINE DUCT PLAN ELEVATION/SECTION
PRV	PRESSURE REDUCING VALVE	TV	TURNING VANES
FC	FLEX CONNECTION	FDC	FLEXIBLE DUCT CONNECTION
P	PUMP	SMAU	SUPPLY/MAKE-UP/OUTSIDE/COMBUSTION AIR DUCT SHAFT
DF	DIRECTION OF FLOW	REAU	RETURN/EXHAUST/RELIEF AIR DUCT
PC	PIPE CAP	SMAU	SUPPLY/MAKE-UP/OUTSIDE/COMBUSTION AIR DUCT
UN	UNION	REAU	RETURN/EXHAUST/RELIEF AIR DUCT
PG	PRESSURE GAUGE C/W SHUT-OFF	S	SWITCH
TV	THERMOMETER CAUSE C/W SHUT-OFF	EQ	EQUIPMENT DESIGNATION
PS	PRESSURE SWITCH		
FS	FLOW SWITCH		
AV	AUTO AIR VENT		
ST	STEAM TRAP		
STR	STRAINER		
CV	CONTROL VALVE		
3WV	3-WAY VALVE		

**ADDENDUM #1**

1. EXISTING CONTROLS SERVING EXISTING CHILLER, COOLING TOWER, CHILLED WATER PUMP AND CONDENSER WATER PUMP TO BE REMOVED AND NEW CONTROLS SERVING NEW CHILLER, COOLING TOWER AND EXISTING CHILLED WATER PUMP AND CONDENSER WATER PUMP TO BE INSTALLED AS PER SPECIFICATIONS.
2. REMOVE EXISTING RELIEF VALVE VENT PIPING SERVING EXISTING CHILLER. VENT PIPING CURRENTLY ROUTES FROM NORTH SIDE OF CHILLER TO FRESH AIR PLENUM AT GRID 20/MS. FILL IN PENETRATION IN FRESH AIR PLENUM.
3. PROVIDE AND INSTALL 1 1/2" DIAMETER STEEL RELIEF VALVE VENT PIPING FOR NEW CHILLER RELIEF VALVES. DISCHARGE PIPE THROUGH ROOF IMMEDIATELY EAST OF EXHAUST DUCT PENETRATION. INSTALL VENT PIPING SYSTEM AS PER THE LATEST CSA B52 CODE AND MANUFACTURER'S RECOMMENDATIONS, WHICH EVER IS MORE STRINGENT.
4. FLEXIBLE PIPE CONNECTIONS REQUIRED FOR CHILLER AND COOLING TOWER AS PER SPECIFICATION SECTION 15600 2.5 FLEXIBLE PIPE CONNECTIONS.



KEY PLAN  
SCALE: NTS

7.			
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2.			
1.	ISSUED FOR ADDENDUM #1	DH	29/11/12
NO.	Revisions	BY	DD/MM/YY

**APEGM**  
Certificate of Authorization  
SMS Engineering Ltd.  
No. 166 Expiry: April 30, 2019

ORIGINAL CONTRACT DRAWING  
BONDED AND SEALED BY  
H.J. WAHED, P. ENG  
NOVEMBER 8, 2012

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Project Title  
**CITY OF WINNIPEG  
COOLING PLANT REPLACEMENT  
151 PRINCESS STREET  
BID OPPORTUNITY 887-2012**

Drawing Title  
**MACHINE ROOM COOLING PLANT  
MECHANICAL PLANS**

Drawn By	TSU	Checked By	DH	Approved By	None
Scale	AS NOTED	Date	NOV. 2012	Project No.	09-307-02
Revision Number	1	Drawing Number	M1	Sheet	09 of 1