
1ST FLOOR— PIPING DEMO PLAN
 SCALE: 1/4"=1'-0"

REPLACE COOLING TOWER

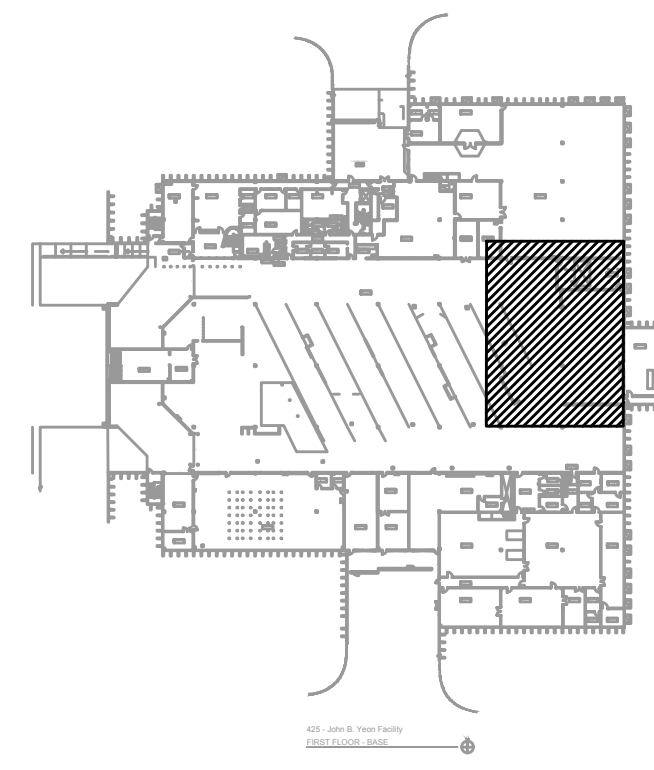
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 GRESHAM, OREGON, 97233

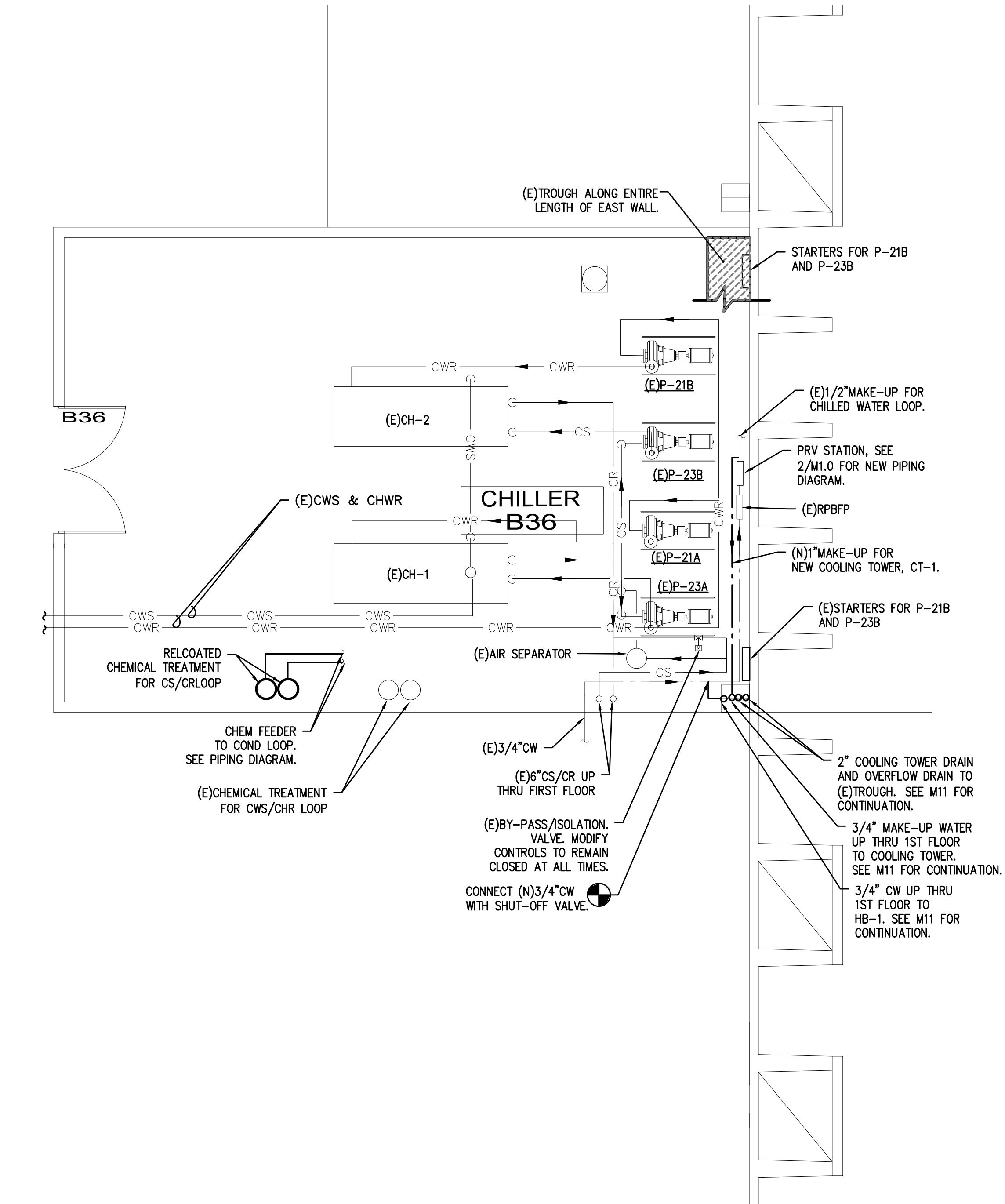
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Mark	Date	Description of Revision	By

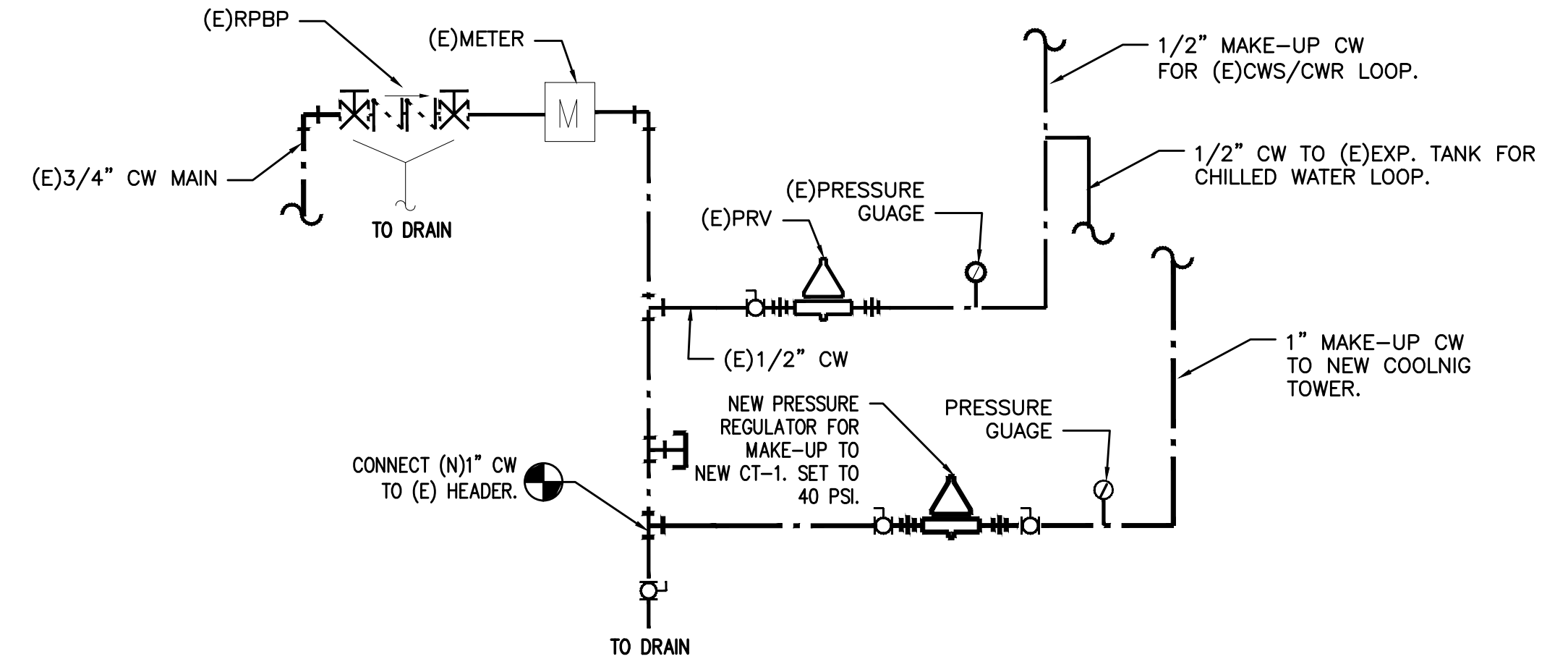
Consultant Project No: 16050-16
 CAD DWG File: MD11.0 Drawn By:
 Checked By: Approved By:
 M.C. Bldg # - Proj # B425 - CP08.18.24
 Sheet Title
1ST FLOOR- PIPING DEMO PLAN

Date: 09.12.2018
MD1.1
 M Sheet of TNS

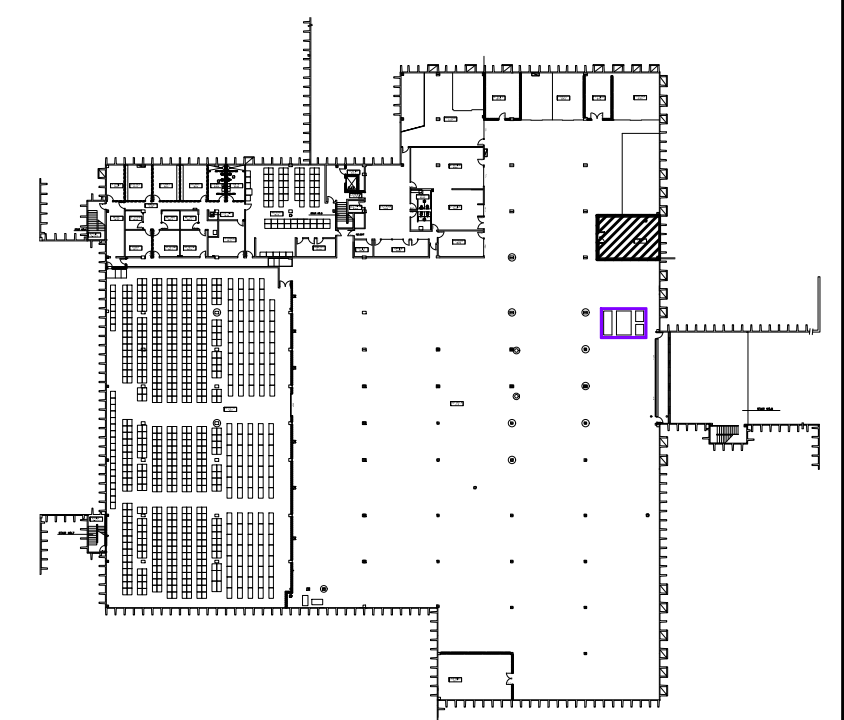




1
M1.0
 CHILLER ROOM - BASEMENT PIPING PLAN
 SCALE: 1/4" = 1'-0"



2
M1.0
 NO SCALE
 PRV STATION PIPING DETAIL



REPLACE COOLING TOWER

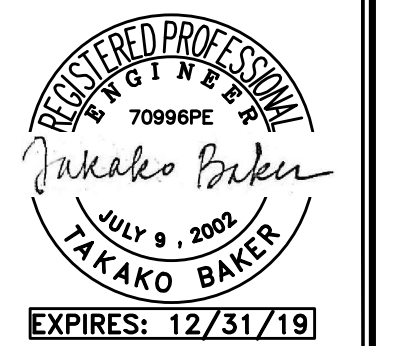
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Consultant Project No: 16050-16
 CAD DWG FILE: M1.0
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 Sheet Title: CHILLER ROOM-BASEMENT PIPING PLAN
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12 SEPTEMBER 2018

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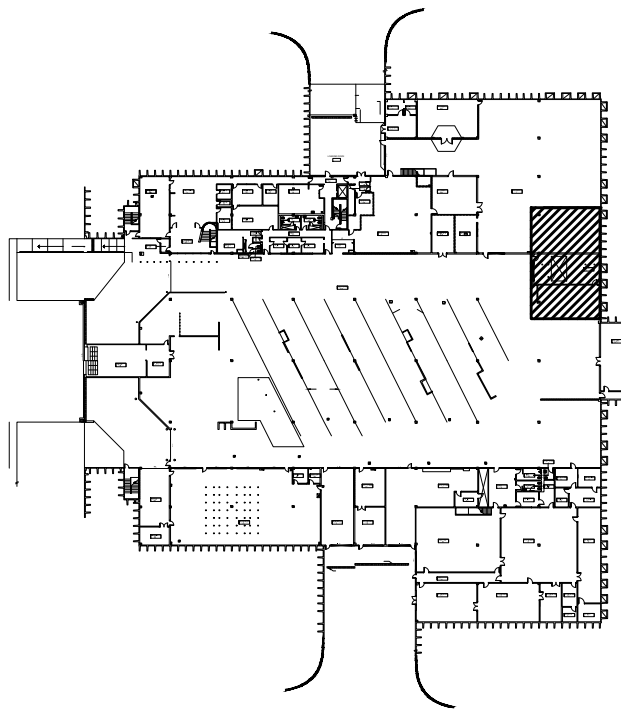
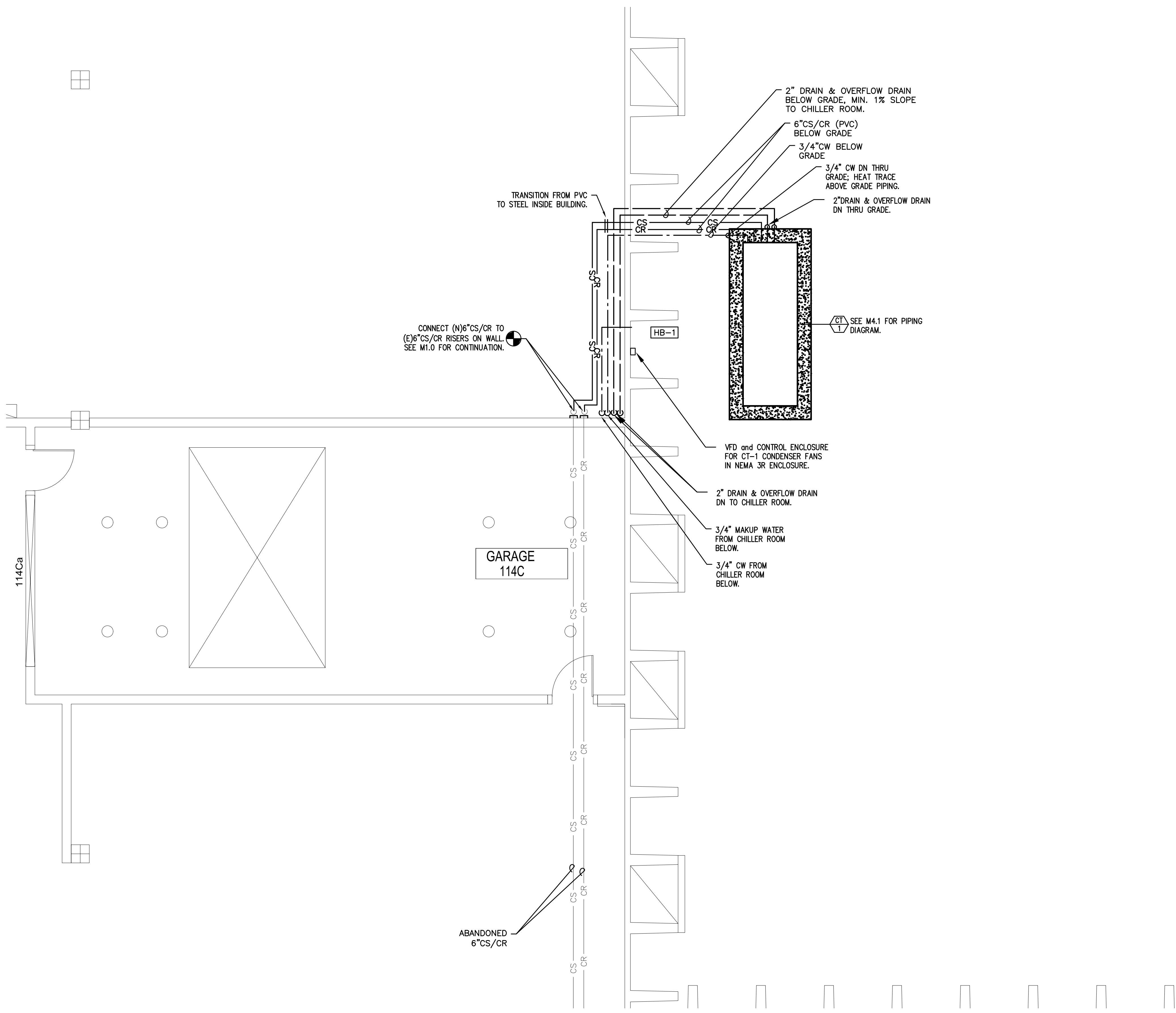
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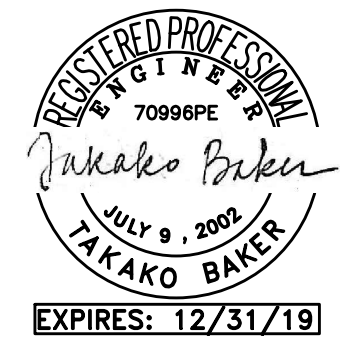
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1 1ST FLOOR - PIPING PLAN
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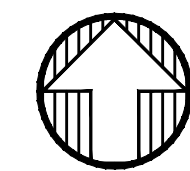
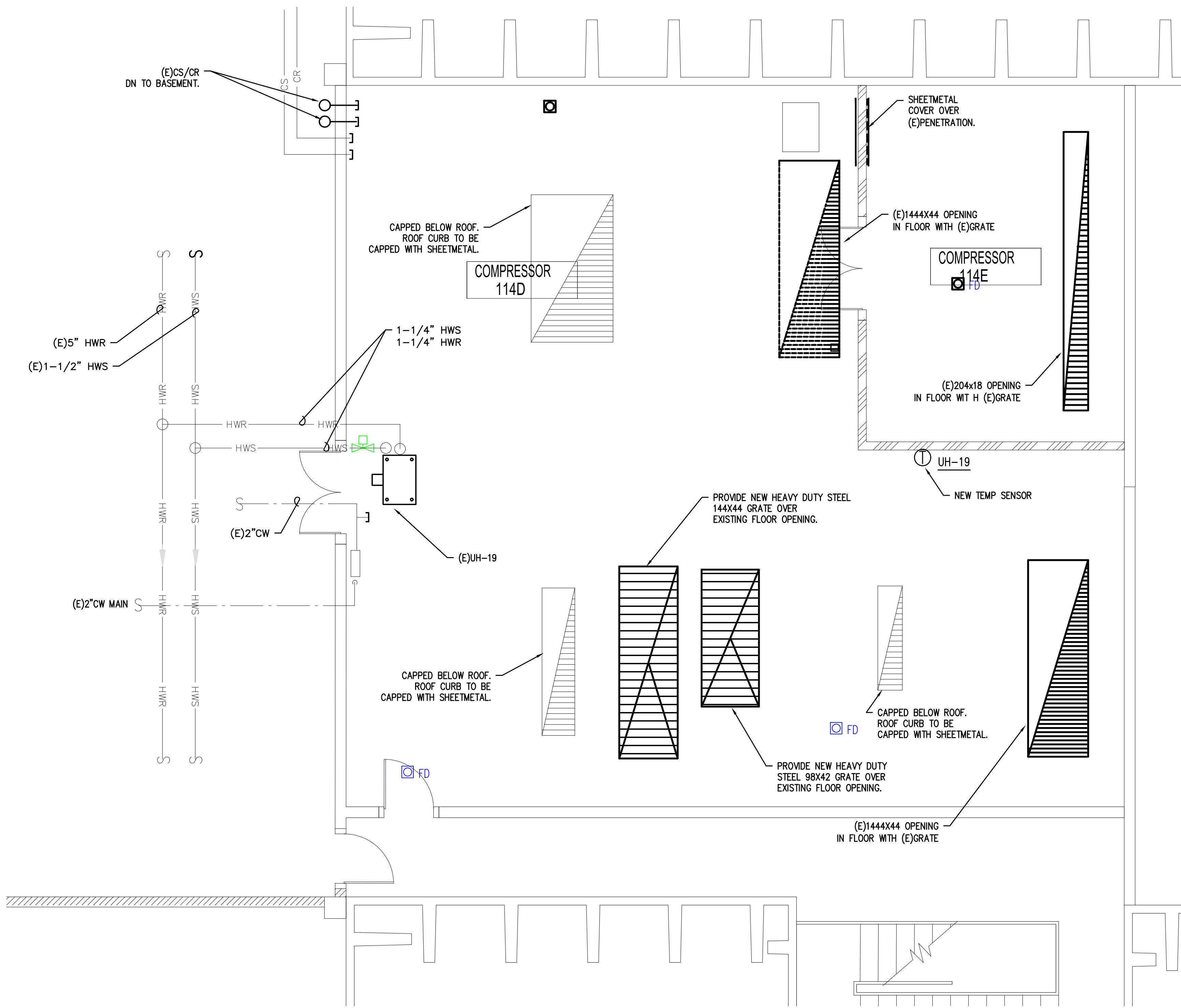


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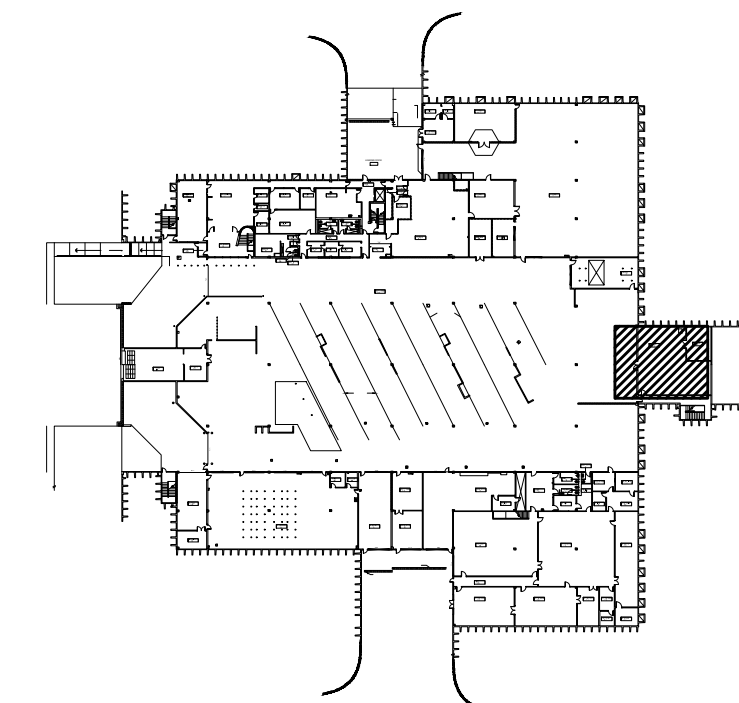
REPLACE COOLING TOWER

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1 **COOLING TOWER ROOM - 1ST FLOOR- PIPING PLAN**
M12 SCALE: 1/4"=1'-0"



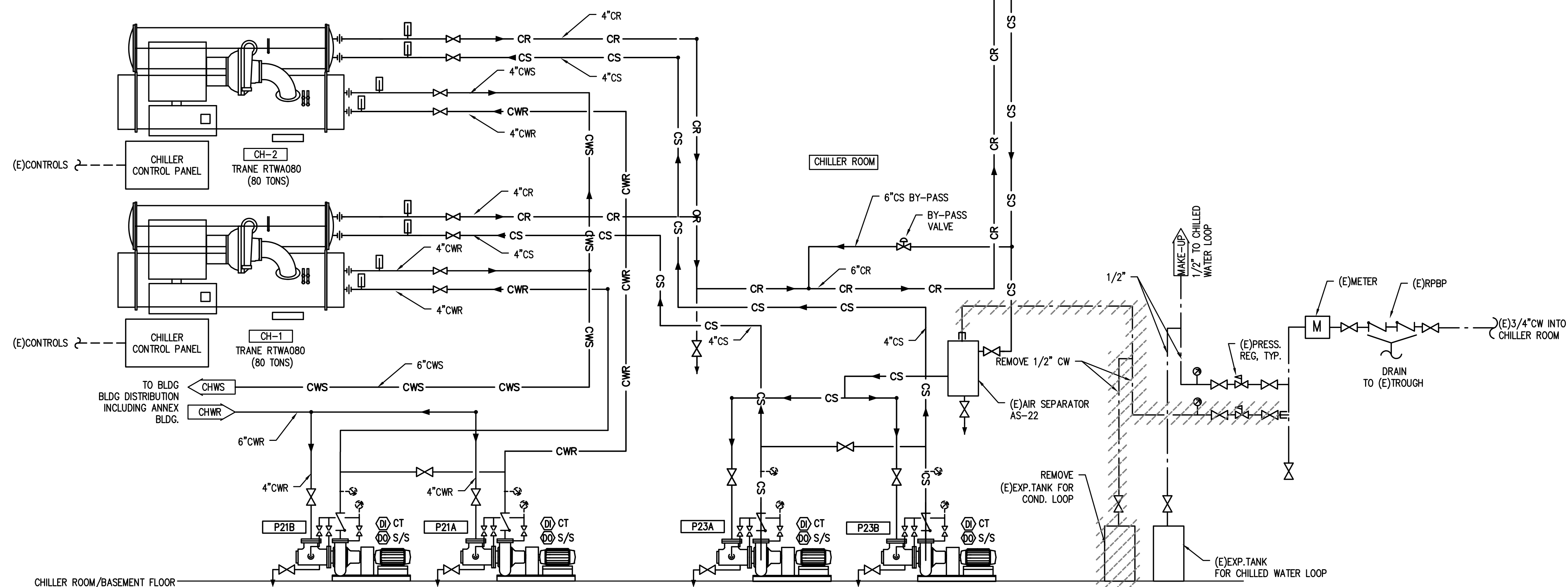
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Consultant Project No: 16050-16	
CAD DWG File: M12	Drawn By:
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M.C. Bldg # - Proj # B425 - CP08.18.24	
Sheet Title COOLING TOWER ROOM 1ST FLOOR - PIPING PLAN	
Date	09.12.2018
M1.2	
M Sheet	of TNS

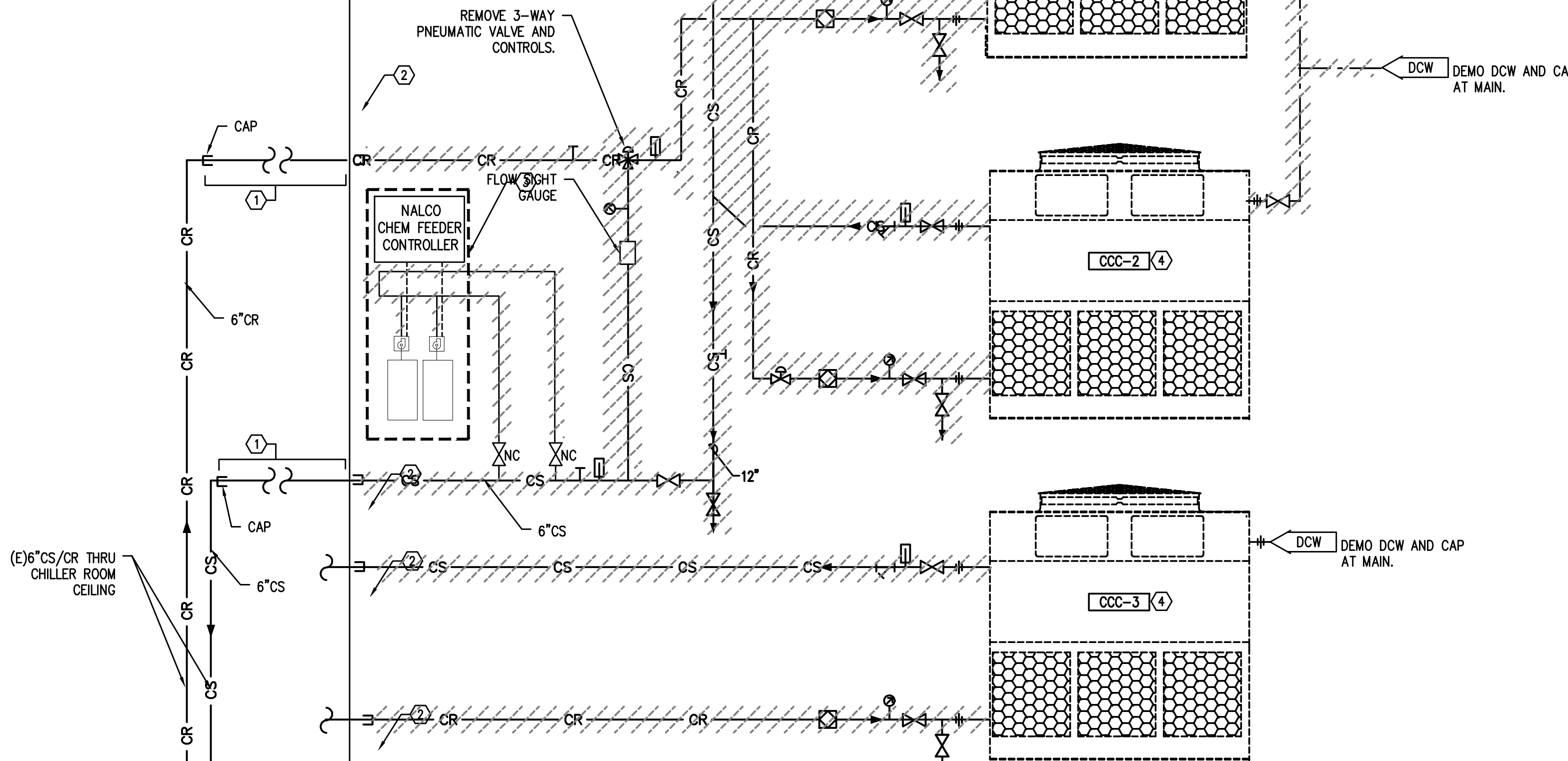
KEYED NOTES:

1. ABANDON (E)6"CS/CR LINES IN PLACE.
2. CAP AT WALL AND DEMO ALL PIPING IN MECHANICAL ROOM.
3. RELOCATE (E)CHEM FEEDERS AND CONTROLLER TO CHILLER ROOM.
4. REMOVE (E)COOLING TOWER.

1ST FLOOR



CHILLER ROOM/BASEMENT FLOOR



COOLING TOWER ROOM

1 COOLING TOWER PIPING DIAGRAM - DEMO
M4.0 SCALE: N/A

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REPLACE COOLING TOWER

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KEYED NOTES:

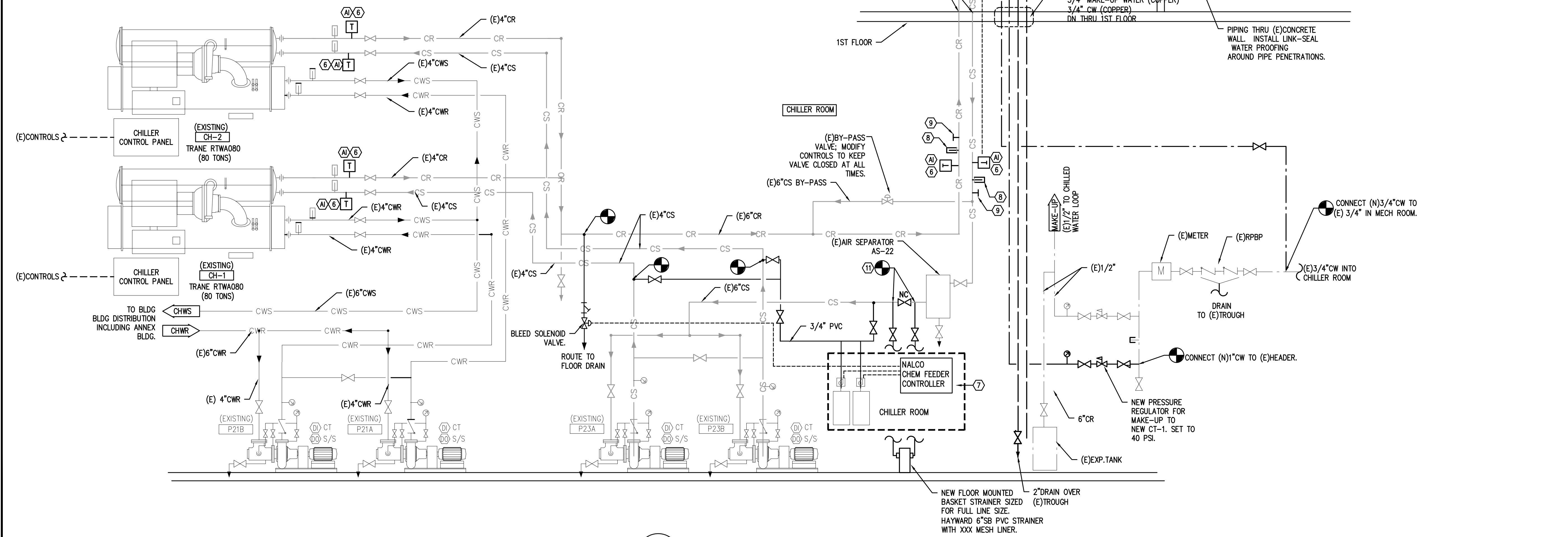
1. CONTROLS ENCLOSURE: MOUNTED ON EXTERIOR WALL OF BUILDING ACROSS FROM THE COOLING TOWER. NEMA 4 OUTDOOR RATED ENCLOSURE, 250 #. SEE ELECTRICAL PLANS FOR POWER CONNECTION. ELECTRICAL CONTRACTOR TO PROVIDE LINE VOLTAGE WIRING TO CONTROL PANEL, AND FROM CONTROL PANEL TO (2) CONDENSER FANS AND TO PAN HEATER.
2. FIELD INSTALLED PAN HEATER LOW WATER CUT OFF
3. FIELD INSTALLED PAN HEATER THERMOSTAT
4. VIBRATION SWITCH
5. FIELD INSTALLED CT-1 CONTROLLER
6. NEW TEMP SENSOR.
7. RELOCATED CHEM FEEDERS CONTROLLER; COORDINATE REQUIREMENTS WITH EXISTING CHEMICAL TREATMENT CONTRACTOR.
8. NEW THERMOMETER.
9. NEW PT PORT.
10. TRANSITION FROM PVD TO SCH 40 STEEL PIPING INSIDE PIPING. SEE SPECS. FOR DETAILS.
11. CONNECT (N)6"CS LINES TO MAIN FOR INSTALLATION OF NEW BASKET STRAINER. INSTALL A NEW VALVE IN THE BY-PASS.

SEQUENCE OF OPERATION:

1. EXISTING BAS CONTROLS SOO'S WILL REMAIN TO GOVERN PUMP OPERATION AND CHILLER OPERATION.
2. WHEN EITHER CONDENSER PUMP IS ENABLED, THE CT-1 WILL BE ENABLED FOR OPERATION, AND BOTH FAN VFD'S WILL MODULATE IN UNISON TO MAINTAIN CS TEMPERATURE SET POINT.
3. IF ONE FAN IS SHUT OFF OR FAILS, BAS TO SEND AN ALARM TO OPERATE INTERFACE, AND MODULATE REMAINING FAN TO MEET CS TEMPERATURE SETPOINT.
4. ALL CONTROL POINTS SHOWN WILL BE MAPPED TO OPERATOR INTERFACE, EVEN IF JUST FOR INFORMATIONAL PURPOSES.

GENERAL NOTES:

1. COOLING TOWER TO BE DRAINED IN THE HEATING SEASON. AS SUCH, HEAT TRACE AND INSULATION IS ONLY PROVIDED ON EXPOSED WATER LINE.
2. SEE SPECIFICATIONS FOR APPROVED PIPING MATERIALS.
3. CONTROLS CONTRACTOR TO PROVIDE ALL LOW VOLTAGE CONTROL WIRING SHOWN ON THE PLAN. SEE ELECT. FOR LINE VOLTAGE WIRING.
4. NOTE TO BALANCER: TAB CONTRACTOR TO MEASURE FLOW AND PRESSURES WITH ONE AND TWO CHILLER OPERATION ON THE CONDENSER SIDE.



1
M4.0 COOLING TOWER PIPING DIAGRAM
SCALE: N/A

REPLACE COOLING TOWER

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MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFF	ABOVE FINISH FLOOR
	RETURN AIR GRILLE	AHU	AIR HANDLING UNIT
	EXHAUST AIR GRILLE	B.D.	BOTTOM OF DUCT
	PERFORATED RETURN AIR PANEL	BHP	BRAKE HORSEPOWER
	DIRECTIONAL AIR FLOW	BTU	BRITISH THERMAL UNITS
	MANUAL VOLUME DAMPER	CFM	CUBIC FEET PER MINUTE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	CONN.	CONNECTION
	RETURN AIR DUCT UP & DOWN	CONT.	CONTINUATION
	EXHAUST AIR DUCT UP & DOWN	CW	DOMESTIC COLD WATER
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	DB	DRY BULB
	RETURN AIR DUCT UP & DOWN	DIA.	DIAMETER
	EXHAUST AIR DUCT UP & DOWN	DIST.	DISTRIBUTION
	VAV TERMINAL UNIT	EA	EXHAUST AIR
	WT TERMINAL UNIT	EDB	ENTERING DRY BULB TEMPERATURE
	EXISTING	EWB	ENTERING WET BULB TEMPERATURE
	CONNECT TO EXISTING	EWT	ENTERING WATER TEMPERATURE
	THERMOSTAT OR TEMP. SENSOR	FF	FINISH FLOOR
	NOTE	FIXT.	FIXTURE
	EQUIPMENT DESIGNATOR	FPM	FEET PER MINUTE
	BALL VALVE	FPS	FEET PER SECOND
	GATE VALVE	FT.	FEET / FOOT
	CHECK VALVE	GA.	GAUGE
	BALANCING VALVE	GPM	GALLONS PER MINUTE
	THERMOMETER	H	HEIGHT
	DIRECTION OF FLOW	HP	HORSEPOWER
	PUMP	I.D.	INSIDE DIAMETER
	STRAINER	IN.	INCHES
	PRESSURE GAUGE	L	LENGTH
	PETE'S PLUG	LBS.	POUNDS
	DOUBLE CHECK ASSEMBLY	LDB	LEAVING DRY BULB
	PRESSURE REDUCING VALVE	LWB	LEAVING WET BULB
	UNION	LWT	LEAVING WATER TEMPERATURE
	2-WAY CONTROL VALVE	MAX.	MAXIMUM
	3-WAY CONTROL VALVE	MBH	THOUSANDS OF BTUs PER HOUR
	CAP	MIN.	MINIMUM
	SMOKE DETECTOR	NC	NOISE CRITERIA
	MOTORIZED DAMPER	N.C.	NORMALLY CLOSED
		N.I.M.	NOT IN MECHANICAL
		NO.	NUMBER
		N.O.	NORMALLY OPEN
		O.A.	OUTSIDE AIR
		P	PERSON
		PSI	POUNDS PER SQUARE INCH
		P/T	PRESSURE / TEMPERATURE
		R.A.	RETURN AIR
		RECT.	RECTANGULAR
		REQ'D	REQUIRED
		S.A.	SUPPLY AIR
		S.P.	STATIC PRESSURE
		SQ.	SQUARE
		TEMP.	TEMPERATURE
		TYP.	TYPICAL
		VAV	VARIABLE AIR VOLUME
		W	WIDTH
		WB	WET BULB
		WPD	WATER PRESSURE DROP
		Ø	DIAMETER
		(E)	EXISTING
		(D)	DEMOLISH
		---	NEW WORK
		HWS	(HWS) HEATING WATER SUPPLY
		HWR	(HWR) HEATING WATER RETURN
		CS	(CS) CONDENSER SUPPLY
		CR	(CR) CONDENSER RETURN
		CWS	(CWS) CHILLED WATER SUPPLY
		CWR	(CWR) CHILLED WATER RETURN

COOLING TOWER

MARK NUMBER	
NOMINAL TONS	160 T
GPM	480 GPM
ENT. WATER (° F.)	90°F
LVG. WATER (° F.)	80°F
AMBIENT WET BULB (°F.)	70 °F
NUMBER OF FAN MOTORS	2
FAN MOTOR (HP EACH)	5 HP
VFD	YES
EVAP. WATER RATE @ FULL LOAD	3.84 GPM
BLOW DOWN RATE (GPM)	0.5 GPM
OPERATING WEIGHT (LBS)	4940 #
BASIS OF DESIGN (EVAPCO)	AT-14-3G12

NOTES:
 1. PROVIDE UNIT WITH BASIN HEATER PACKAGE, VIBRATION CUTOFF SWITCH & MAKE-UP FLOAT VALVE ASSEMBLY.

PLUMBING CONNECTION SCHEDULE

MARK	FIXTURE	W	V	CW	HW	REMARKS
HB-1	HOSE BIB			3/4"		NON-FREEZE, SEE NOTE 1 FOR SPECS.

NOTES:
 1. NON-FREEZE TYPE WITH VACUUM BREAKER, BRONZE WALL CASING AND WALL CLAMP. ZURN Z-1310-6, WADE-8620, WOODFORD 67 SERIES, SMITH 5609-PB, OR WATTS HY420.

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 M.C. Bldg # - Proj # B425 - CP08.18.24
 Sheet Title
 MECHANICAL SCHEDULES, LEGENDS, AND SCHEDULES

Date: 09.12.2018
M6.0
 M Sheet or TNS

12 SEPTEMBER 2018

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