

SOUTHERN UTAH UNIVERSITY STUDENT CENTER CHILLER REPLACEMENT DFCM# 06310730



State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018

DRAWING INDEX:
M000 - TITLE SHEET
MG001- MECHANICAL GENERAL NOTES AND LEGEND
MD101- MECHANICAL DEMOLITION LOCATION
MD102- MECHANICAL DEMOLITION PLAN
MD401- LARGE SCALE MECHANICAL DEMOLITON FLOOR PLAN
ME401- LARGE SCALE MECHANICAL FLOOR PLAN AND SECTION
ME501- MECHANICAL DETAILS
ME502- MECHANICAL DETAILS
ME601- MECHANICAL SCHEDULES
ME701- CHILLED WATER FLOW SHEET
EE101- EXISTING ELECTRICAL PANELS

DFCM DESIGN AND CODE CRITERIA			
(Fee A.E: Attach and fill in applicable data for each drawing submittal)			
Applicable Codes:		Year 2006	Year 2006
International Building Code	International Mechanical Code	2006	2006
Planning & Design Criteria to Prevent Architectural Barriers for the Aged and the Physically Handicapped.	International Plumbing Code	2006	2006
	Ashrae/IES Energy Code	90.1-2004	
	National Electrical Code	2005	
A. Occupancy and Group : B / S-1 EXISTING			
Change in Use : Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Mixed Occupancy : Yes <input type="checkbox"/> No <input type="checkbox"/>			
EXISTING			
B. Type of Construction (Circle)	I F.R.	II F.R.	III 1 HR.
		IV B	V 1 HR.
		VI N	VII H.T.
		VIII 1 HR.	IX N
		X 1 HR.	XI N
C. Location on Property : F.R. Ext. Walls (Hrs.):	N/A		Ext. Wall Opening(s) Protection (Hrs.):
			N/A
D. Occupancy separation required (Hrs.):	N/A		
Sprinklered: Indicate (Yes) or No			
Stories :	1 or <u>multiple</u>		
a. Actual Area ² (ft)	N/A		
b. Basic allowable area :	N/A		
c. Allowable Area Increase due to side yards: N.A.	%	Area (ft ²)	% Area (ft ²)
	N/A		
d. Side yard area increase (ft):	N/A		
Accumulative sub-total (b=d):			
Sprinkler: area increase (x3 single) (x 2 multi)			
e. Total Allowable Area for a single story:	N/A		
x 2 for multi-story building:			
f. Ratio = a/e (Actual divided by allowable)	N/A		
E. Fire-Resistive Requirements (Hrs.): (1 Hr., 2Hr., 3Hr., 4Hr., N. H.T.)			
Exterior Bearing Walls:	N/A	Floors - Ceiling Floors	N/A
Interior Bearing Walls:	N/A	Roofs - Ceiling Roofs	N/A
Exterior Non-bearing Walls:	N/A	Exterior Doors and Windows	N/A
Structural Frame:	N/A	Shaft Enclosures	N/A
Partitions - Permanent:	N/A		
(OCCUPANCY SEPARATION - N.A.)			



WHW
ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
1354 East 3300 South Suite 200
SALT LAKE CITY, UTAH 84106
(801)466-4021, FAX 466-8536
EMAIL: excellence@whw-engineering.com

MECHANICAL ENGINEER
WHW ENGINEERING, INC.
1354 EAST 3300 SOUTH
SUITE 200
SALT LAKE CITY, UTAH 84106
PHONE: (801) 466-4021 FAX: (801) 466-8536



* THIS PROJECT DOES NOT TOUCH OR CHANGE ANY OF THE BUILDING'S STRUCTURE, DESIGN, USAGE, OCCUPANCY OR ANY OTHER BUILDING FUNCTION. THIS PROJECT IS REPLACING A SPLIT SYSTEM 100 TON CHILLER AND EXTERIOR CONDENSING UNIT WITH ONE PACKAGED 100 TON AIR COOLED CHILLER.

CONSULTANTS



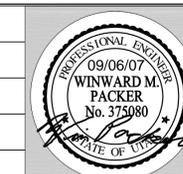
PROJECT NAME & ADDRESS

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STUDENT
CENTER CHILLER
REPLACEMENT
DFCM# 06310730**

Cedar City, Utah

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SHEET TITLE

**MECHANICAL GENERAL
NOTES AND LEGEND**

SHEET NO.

MG001

MECHANICAL LEGEND

SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION	SYMBOL	ABR.	DESCRIPTION
GENERAL TERMINOLOGY			WET SIDE			WET SIDE CONT		
		SECTION LETTER DESIGNATION			PUMP			ELBOW UP
		SECTION DRAWN ON THIS SHEET			UNION			ELBOW DOWN
		DETAIL NUMBER DESIGNATION CORRESPONDING WITH GRID LOCATION			MANUAL ACTUATOR (BALL, BUTTERFLY, NEEDLE, ETC. VALVES)			TEE UP
		MECHANICAL EQUIPMENT DESIGNATION			ELECTRIC MOTOR ACTUATOR			TEE DOWN
		EQUIPMENT ITEM DESIGNATION			THREADED OR SWEAT VALVE CONNECTION			EXISTING PIPING TO BE REMOVED
		REVISION DESIGNATOR AND NUMBER			FLANGED VALVE CONNECTION			EXISTING PIPING TO REMAIN
		KEY NOTE DESIGNATOR AND NUMBER			BUTTERFLY VALVE			NEW PIPING
	POC	POINT OF CONNECTION			GATE VALVE			PIPE CAP OR PLUG
	POR	POINT OF REMOVAL			MOTORIZED 2-WAY CONTROL VALVE			CONCENTRIC REDUCER
	AFF	ABOVE FINISHED FLOOR			MOTORIZED 3-WAY CONTROL VALVE			ECCENTRIC REDUCER
	GC	GENERAL CONTRACTOR			CHECK VALVE			FLEXIBLE CONNECTION
	MC	MECHANICAL CONTRACTOR		PRV	PRESSURE REDUCING VALVE		CF	CHEMICAL FEED LINE
	CC	CONTROL CONTRACTOR		CBV	CIRCUIT BALANCING VALVE		MU	MAKE-UP WATER LINE
	EC	ELECTRICAL CONTRACTOR		BV	BALL VALVE		DR	EQUIPMENT DRAIN
	NIC	NOT IN CONTRACT		PRV	PRESSURE RELIEF VALVE		CW	CULINARY COLD WATER
	NTS	NOT TO SCALE			NEEDLE VALVE		CHWS	CHILLED WATER SUPPLY
	C	COMMON			AUTOMATIC AIR VENT		CHWS	CHILLED WATER RETURN
	NC	NORMALLY CLOSED			MANUAL AIR VENT		GL	GLYCOL
	NO	NORMALLY OPEN			STRAINER			
		COIL			STRAINER W/ PLUGGED BLOW OFF			
		EXISTING EQUIPMENT TO BE REMOVED		VTI	VENTURI			
		EXISTING EQUIPMENT TO REMAIN			PRESSURE GAUGE AND GAUGE COCK - WATER			
		NEW EQUIPMENT			THERMOMETER AND THERMOWELL			
					WATER TEMPERATURE SENSOR AND THERMOWELL			
					FLOW SWITCH			
				PS	PRESSURE SWITCH			
				TW	THERMOWELL			
					DIRECTION OF FLOW			

GENERAL NOTES:

- G-1 MECHANICAL INFORMATION IS NOT LIMITED TO THE MECHANICAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ON SITE EXISTING CONDITIONS AND OBSTRUCTIONS THAT WILL AFFECT HIS WORK. CONTRACTOR SHALL COORDINATE BUILDING OPENINGS WITH EQUIPMENT SIZES AND MAKE ADJUSTMENTS ACCORDINGLY.
- A - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.
- B - THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEMS ACCORDING TO THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.
- C - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.
- D - THE CONTRACTOR SHALL CONSULT MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SIZES, METHODS, ACCESSORIES, AND CLEARANCES IN SPACE AVAILABLE PRIOR TO BIDDING PROJECT.
- E - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ENGINEER IN WRITING.
- G-2 ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CHANGES FOR APPROVAL. CONTRACTOR SHALL NOT START ANY CHANGES UNTIL NOTIFIED IN WRITING. IF CHANGES ARE MADE PRIOR TO APPROVAL CONTRACTOR SHALL TAKE ALL RESPONSIBILITY FOR THE CHANGES MADE AND ALL COSTS RELATING TO FAILURE OR REPLACEMENT OF ALTERATIONS.
- G-3 CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.
- G-4 THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS.
- G-5 THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.
- G-6 THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY IN HANDLING AND DISPOSING OF REFRIGERANTS, OILS, ETC. ALL SUCH MATERIALS SHALL BE HANDLED, DISPOSED, AND USED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.
- G-7 THE MECHANICAL CONTRACTOR SHALL VERIFY MOTOR VOLTAGES WITH THE EXISTING ELECTRICAL SERVICE BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
- G-8 SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BIDDING.
- G-9 CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEERS REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.
- G-10 ALL MECHANICAL SHALL BE INSTALLED AND CONFORM TO THE 2006 EDITION OF THE IMC AND IPC WITH UTAH ANNOTATIONS.
- G-11 THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DRAINING DOWN AND RE-FILLING OF THE EXISTING CHILLED WATER SYSTEM NECESSARY TO COMPLETE THE WORK OUTLINED BY THIS PROJECT. THIS INCLUDES PROVIDING THE REQUIRED CHEMICAL TREATMENT/GLYCOL WHEN RE-FILLING THE SYSTEM.
- G-12 ALL PIPING AND MATERIALS SHALL BE AMERICAN MADE. "NO EXCEPTIONS."
- G-13 THIS CONTRACTOR SHALL CONTRACT WITH A DESIGN BUILD ELECTRICAL CONTRACTOR FOR THE DESIGN AND CONSTRUCTION OF THE ELECTRICAL PORTION OF THIS PROJECT. ELECTRICAL INSTALLATION AND DESIGN SHALL BE PER NEC LATEST EDITION.

SHEET NOTES

- SHEET NOTES:
- ① SEE LARGE SCALE SHEET MD401 FOR THIS AREA.
 - ② EXISTING STUDENT CENTER.

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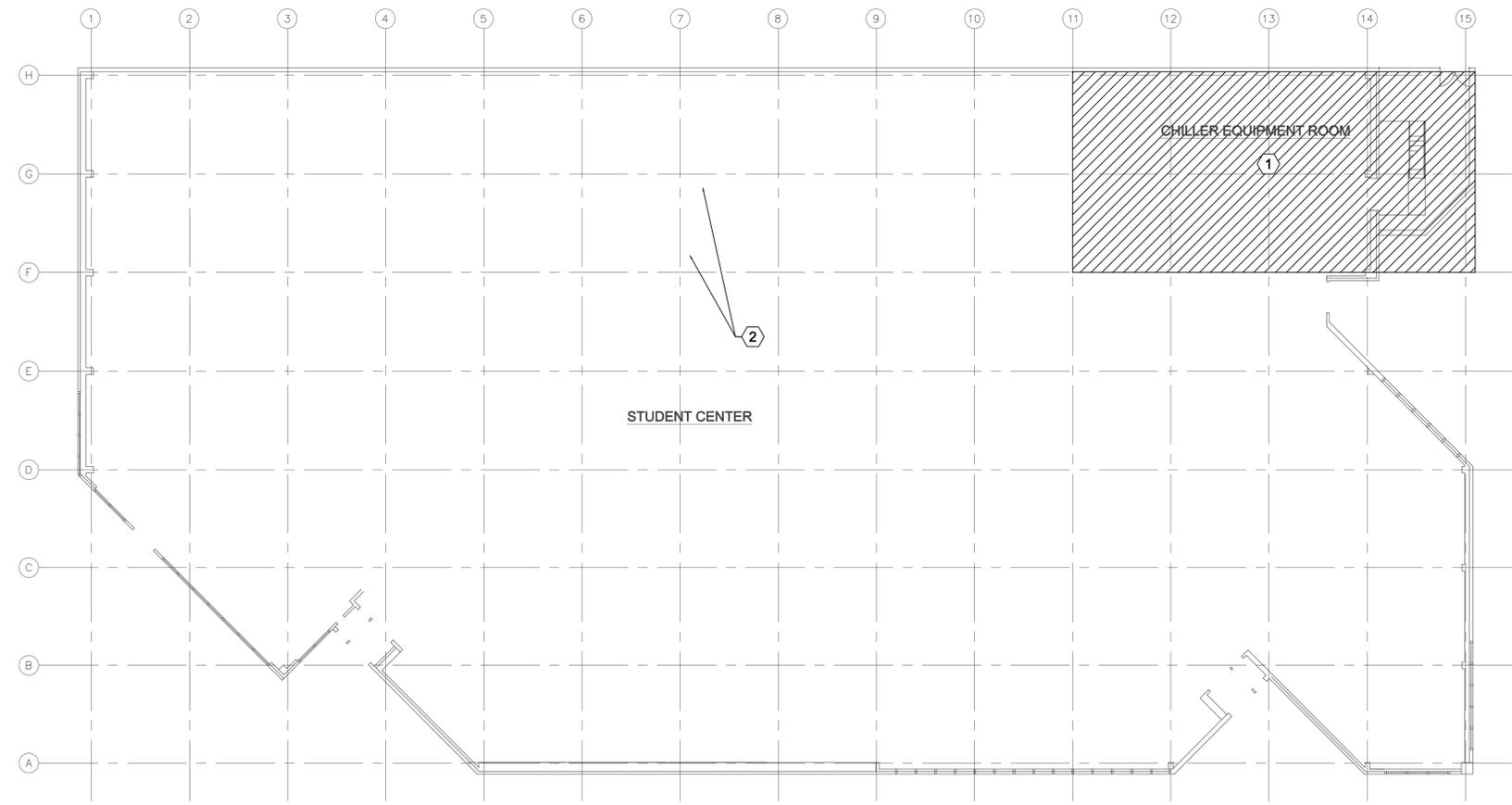
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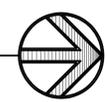


SHEET TITLE
**MECHANICAL DEMOLITION
LOCATION**

SHEET NO.
MD101



MECHANICAL DEMOLITION LOCATION
SCALE: 1/16" = 1'-0"



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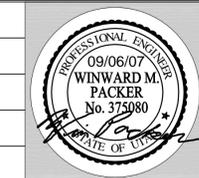
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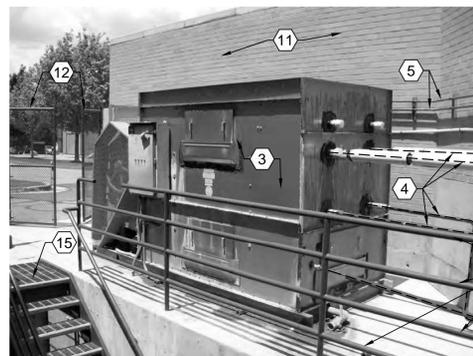
SHEET TITLE
**MECHANICAL DEMOLITION
PLAN**

SHEET NO.

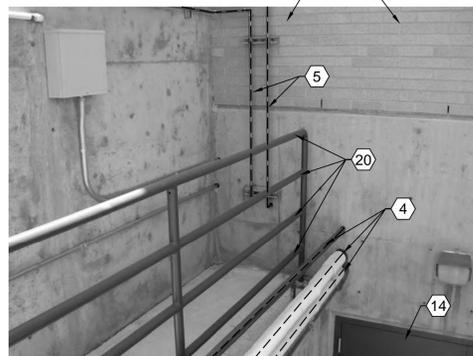
MD102

SHEET NOTES:

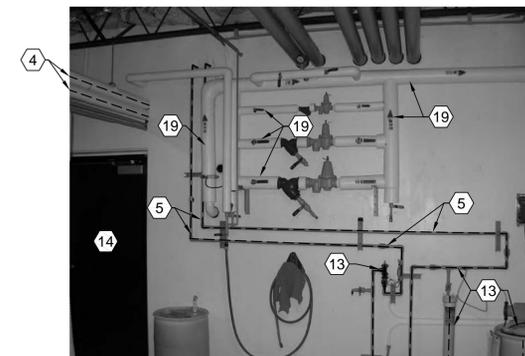
- 1 EXISTING AIR HANDLING UNIT SHALL REMAIN.
- 2 REMOVE EXISTING CHILLER AND ALL ASSOCIATED ELECTRICAL, CONTROLS, PIPING ETC.
- 3 REMOVE EXISTING WATER AND AIR COOLED CONDENSING UNIT AND ALL ASSOCIATED ELECTRICAL, CONTROLS, PIPING ETC.
- 4 REMOVE EXISTING REFRIGERANT PIPING HANGERS ETC.
- 5 REMOVE EXISTING TREATED WATER SUPPLY AND RETURN FOR CONDENSING UNIT PRE-COOL EVAPORATIVE COIL.
- 6 REMOVE EXISTING PUMPS.
- 7 EXISTING CHILLED WATER PIPING SHALL REMAIN.
- 8 REMOVE EXISTING AIR SEPARATOR.
- 9 REMOVE EXISTING EXPANSION TANK ALONG WITH PIPING.
- 10 EXISTING SOFTENERS AND BRINE TANK SHALL REMAIN.
- 11 EXISTING WALL SHALL REMAIN.
- 12 EXISTING METAL FENCE AND GATE SHALL REMAIN.
- 13 REMOVE WATER TREATMENT EQUIPMENT AND WATER PIPING, HANGERS, ELECTRICAL ETC.
- 14 CHILLER ROOM ACCESS DOOR 6'-0".
- 15 EXISTING STAIRS TO CHILLER ROOM.
- 16 REMOVE EXISTING POT FEEDER AND PIPING. CAP PIPING AT MAIN CONNECTIONS.
- 17 REMOVE EXISTING CHILLED WATER PIPING, HANGERS ETC.
- 18 EXISTING CONCRETE PAD SHALL REMAIN.
- 19 EXISTING CULINARY WATER SHALL REMAIN.
- 20 EXISTING HANDRAIL TO REMAIN.



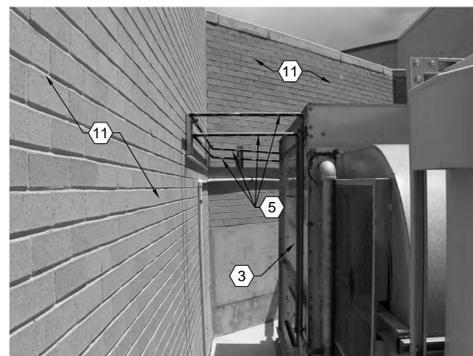
**C1 WATER AND AIR
COOLED CONDENSING UNIT**
SCALE: NONE



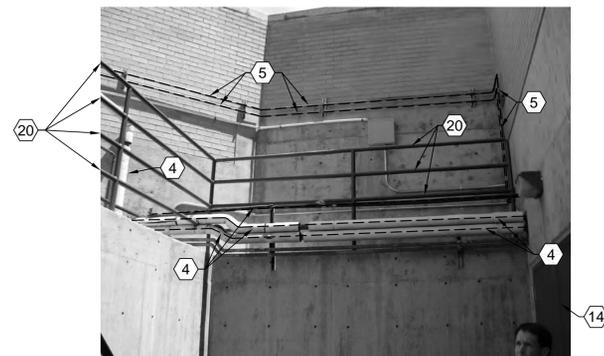
C2 EXTERIOR PIPING DEMOLITION
SCALE: NONE



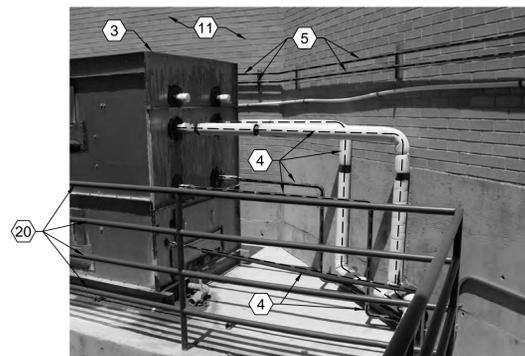
**C4 EXISTING CULINARY WATER
AND TREATED WATER TO AIR
& WATER COOLED CONDENSING UNIT**
SCALE: NONE



**B1 EXTERIOR PIPING AND
EQUIPMENT DEMOLITION**
SCALE: NONE



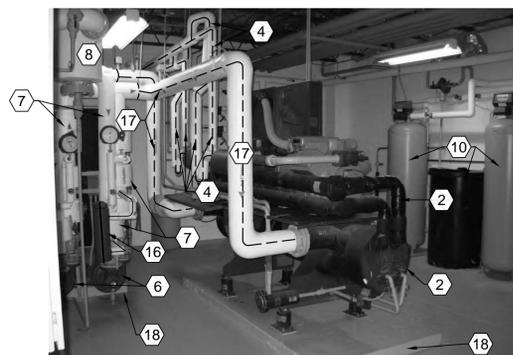
B2 EXTERIOR PIPING DEMOLITION
SCALE: NONE



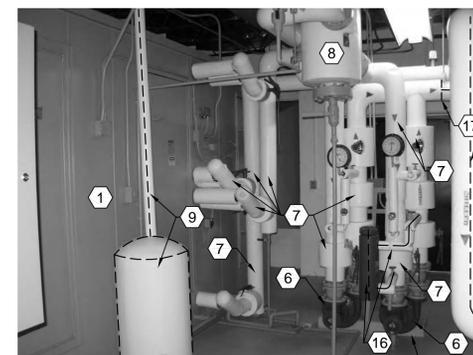
B4 EXTERIOR DEMOLITION
SCALE: NONE



**A1 EXTERIOR WALL
AND GATE ENTRANCE**
SCALE: NONE



A2 EXISTING CHILLER AND PIPING
SCALE: NONE



**A4 EXISTING AIR HANDLING
UNIT, PUMPS AND PIPING**
SCALE: NONE

SHEET NOTES

- SHEET NOTES:**
- ① REMOVE EXISTING CHILLER INCLUDING REFRIGERANT PIPING, TRAPS, ELECTRICAL AND ALL ASSOCIATED EQUIPMENT ETC. EXISTING PAD SHALL REMAIN.
 - ② REMOVE EXISTING REFRIGERANT PIPING, HANGERS ETC.
 - ③ REMOVE EXISTING CHILLED WATER PUMPS.
 - ④ REMOVE EXISTING FLOOR MOUNTED EXPANSION TANK AND PIPING.
 - ⑤ REMOVE EXISTING AIR SEPERATOR.
 - ⑥ CHILLED WATER COIL SHALL REMAIN.
 - ⑦ REMOVE CHILLED WATER RETURN PIPING TO THIS POINT.
 - ⑧ REMOVE CHILLED WATER SUPPLY PIPING TO THIS POINT.
 - ⑨ EXISTING AIR HANDLING UNIT SHALL REMAIN.
 - ⑩ EXISTING CONTROL VALVE SHALL REMAIN.
 - ⑪ EXISTING WATER SOFTENER AND BRINE TANK SHALL REMAIN.
 - ⑫ EXISTING FLOOR SINK SHALL REMAIN.
 - ⑬ EXISTING CHILLED WATER RETURN PIPING SHALL REMAIN.
 - ⑭ EXISTING CHILLED WATER SUPPLY PIPING SHALL REMAIN.
 - ⑮ REMOVE EXISTING AIR AND WATER COOLED CONDENSING UNIT INCLUDING EXISTING WATER PIPING, ELECTRICAL, CONTROLS, SUPPORTS, REFRIGERANTS AND PIPING AND ALL OTHER ASSOCIATED ITEMS.
 - ⑯ EXISTING ELECTRICAL TRANSFORMER SHALL REMAIN.
 - ⑰ EXISTING ACCESS GATE.
 - ⑱ EXISTING CHAIN FENCE.
 - ⑲ EXISTING ELECTRICAL PANEL M1. SEE SHEET EE101.
 - ⑳ STAIRS FROM CHILLER AREA TO GRADE.
 - ㉑ 6'-0" ACCESS DOOR TO CHILLER ROOM.
 - ㉒ EXISTING EXTERIOR WALL.
 - ㉓ EXISTING SWITCH BOARD, PANEL AND MAIN SWITCH.
 - ㉔ REMOVE EXISTING TREATED WATER SUPPLY AND RETURN PIPING SERVING THE EVAP. COIL IN REMOVED CONDENSER UNIT. (ONE ON TOP OF THE OTHER.)
 - ㉕ REMOVE EXISTING CHEMICAL POT FEEDER AND CAP PIPING NEXT TO CHILLED WATER PIPING.
 - ㉖ REMOVE EXISTING PUMP STARTERS AND DISCONNECTS. STRUCTURAL SUPPORTS SHALL REMAIN.

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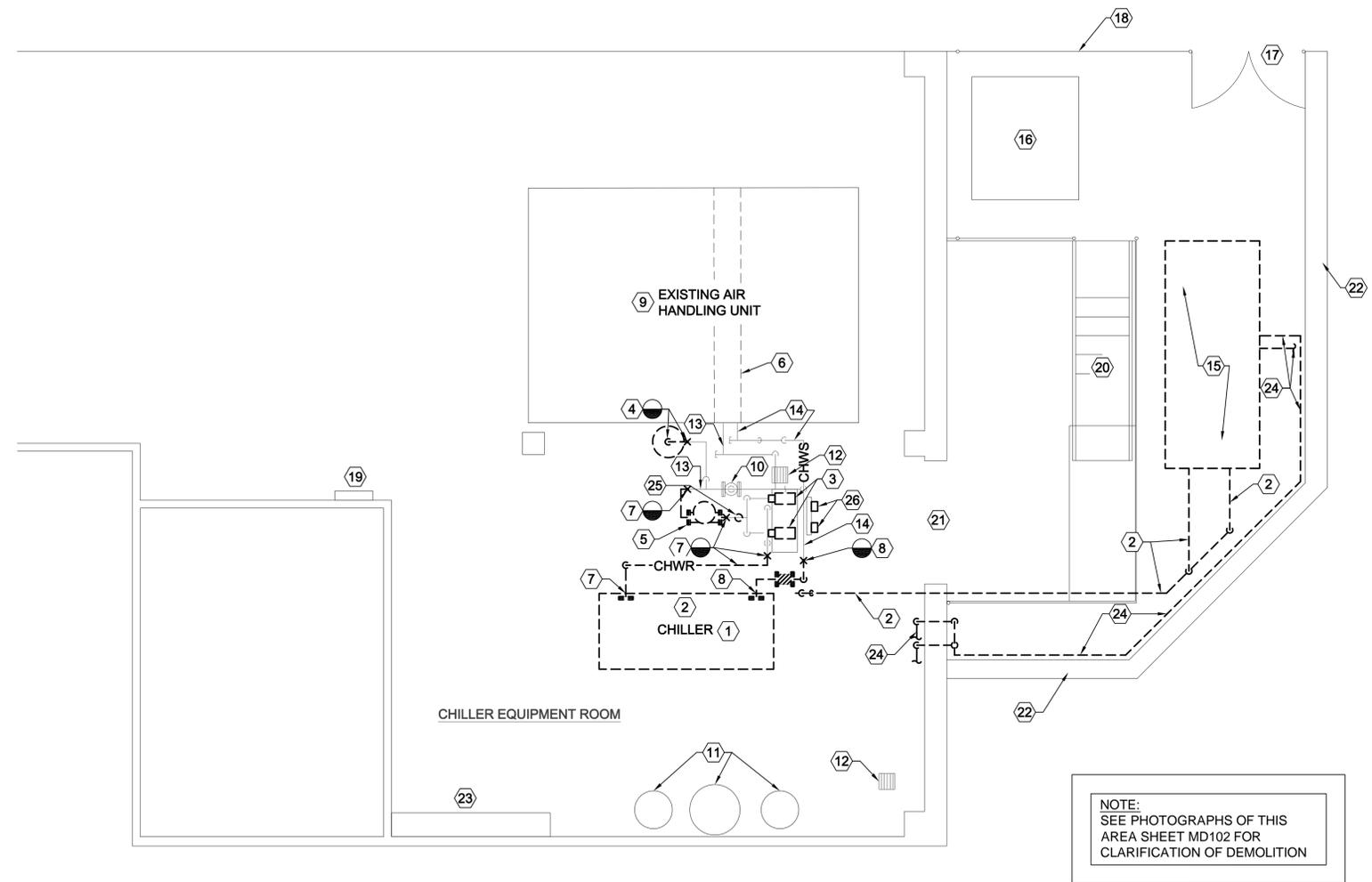


SHEET TITLE

LARGE SCALE
MECHANICAL DEMOLITION
FLOOR PLAN

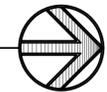
SHEET NO.

MD401



LARGE SCALE MECHANICAL DEMOLITION FLOOR PLAN

SCALE: 1/4" = 1'-0"



SHEET NOTES

- ① PROVIDE NEW AIR COOLED CHILLER. MOUNT ON NEW 4" THK CONCRETE PAD. SEE PAD CONNECTION TO EXISTING CONCRETE FLOOR DETAIL C4/ME501.
- ② PROVIDE NEW 4" CHWS.
- ③ PROVIDE NEW 4" CHWR.
- ④ PROVIDE NEW 42" DIA. X 6'-0" HIGH TANK. SEE DETAIL B4/ME501. MOUNT ON EXISTING CHILLER PAD.
- ⑤ CONNECT NEW CHWS TO EXISTING CHWS AT THIS LOCATION. FIELD VERIFY EXACT LOCATION.
- ⑥ CONNECT NEW CHWR TO EXISTING CHWR AT THIS LOCATION. FIELD VERIFY EXACT LOCATION.
- ⑦ PROVIDE NEW AIR SEPARATOR AND RELOCATE AS SHOWN. SEE DETAIL C4/ME502.
- ⑧ PROVIDE NEW FLOOR MOUNTED EXPANSION TANK. SEE A4/ME502.
- ⑨ PROVIDE NEW CHILLED WATER PUMPS P-1 AND P-2.
- ⑩ EXISTING AIR HANDLING UNIT SHALL REMAIN.
- ⑪ EXISTING EXTERIOR WALL SHALL REMAIN.
- ⑫ EXISTING SOFTENERS AND BRINE TANK SHALL REMAIN.
- ⑬ EXISTING ELECTRICAL TRANSFORMER SHALL REMAIN.
- ⑭ EXISTING CONCRETE PAD SHALL REMAIN.
- ⑮ EXISTING ELECTRICAL PANEL M1. SEE SHEET EE101.
- ⑯ EXISTING MAIN SWITCH, PANEL ETC. SEE SHEET EE101.
- ⑰ EXISTING FLOOR SINKS.
- ⑱ EXISTING MAKE-UP WATER SHALL REMAIN. RECONNECT INTO NEW CHWR.
- ⑲ PROVIDE NEW GLYCOL TANK AND PUMP. PROVIDE 1/2" GLYCOL SUPPLY TO CHWR. SEE DETAIL C2/ME501.
- ⑳ ROUTE NEW PIPING UNDER AIR COOLED CHILLER.
- ㉑ EXISTING ACCESS GATE AND METAL FENCE.
- ㉒ NEW ACCESS LADDER WITH GUARD. SEE LADDER DETAIL A1 & B1/ME502.
- ㉓ 4" BUTTERFLY VALVE.
- ㉔ 1-1/4" DRAIN LINE WITH UNION, BALL VALVE AND HOSE END.
- ㉕ BUILDING EXTERIOR WALL.
- ㉖ PROVIDE THERMOMETER.
- ㉗ PROVIDE 4" FLG'D STRAINER WITH BLOW-OFF VALVE AND CAP.
- ㉘ PROVIDE FLOW SWITCH-FLOW SWITCH PROVIDED BY CHILLER MANUFACTURER AND INSTALLED BY CONTRACTOR.
- ㉙ PROVIDE 4" FLG'D FLEXIBLE CONNECTION.
- ㉚ PROVIDE PRESSURE GAUGE WITH SHUT-OFF VALVE AND SNUBBER.
- ㉛ PROVIDE NEW PIPING SUPPORTS COMPRISING OF 1-5/8" UNISTRUT WITH PIPING CLAMP. USE EXPANSION BOLT TO SECURE UNISTRUT TO EXISTING CONCRETE AND BLOCK WALLS.
- ㉜ PROVIDE NEW 4" THK CONCRETE PAD. SEE DETAIL C4/ME501.
- ㉝ EXISTING STAIRS TO GRADE.
- ㉞ CORE DRILL THROUGH EXISTING CONCRETE WALL FOR NEW PIPING. SEAL WITH LINK SEAL. SEE DETAIL C3/ME502.
- ㉟ EXISTING 6" CONCRETE SLAB.
- ㊱ AIR VENT (MANUAL) CONSISTING OF 3/4" THRED-O-LET, NIPPLE, BALL VALVE AND NIPPLE.
- ㊲ EXISTING HAND RAILS AND POST SHALL REMAIN.
- ㊳ 3/4" AIR RELIEF PIPING FROM NEW EXPANSION TANK TO CONNECTION TO EXISTING PIPING.

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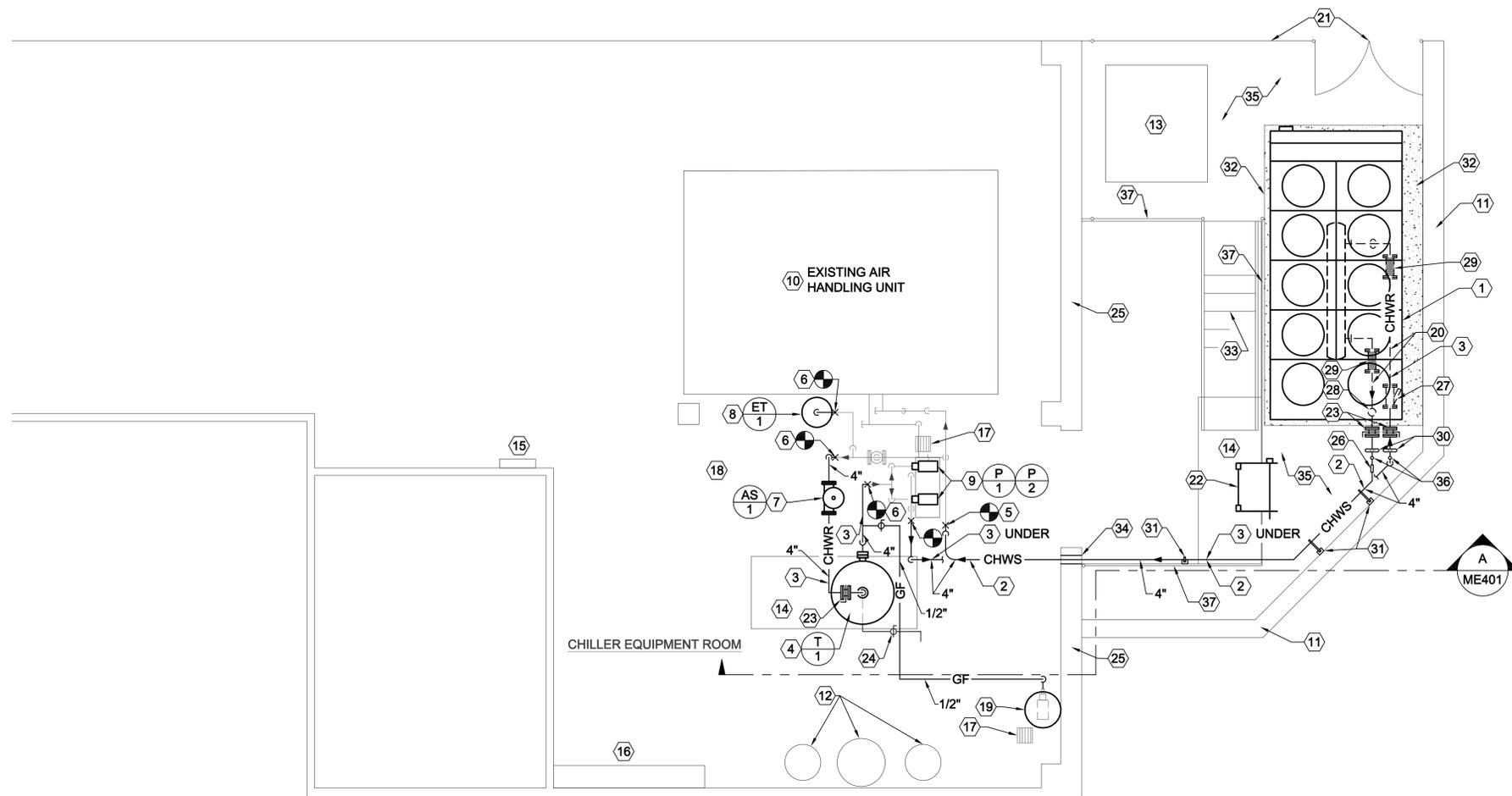
07019

SHEET TITLE

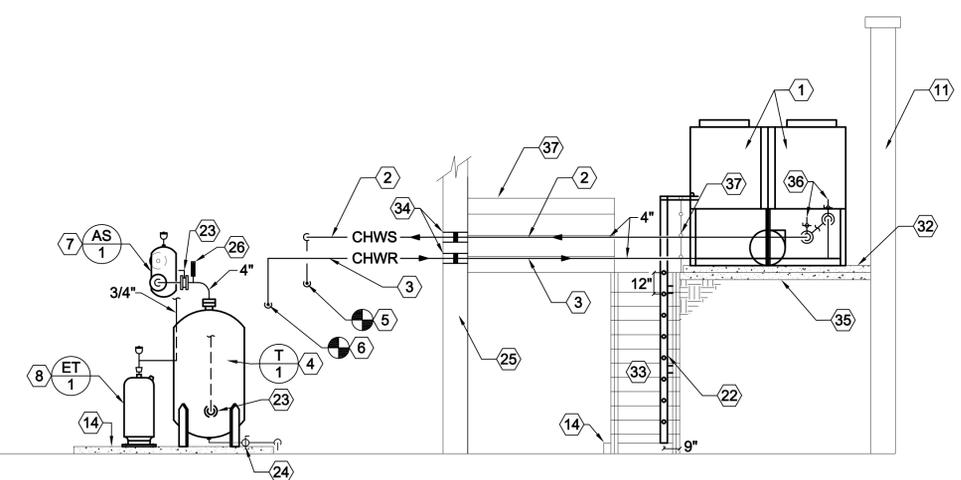
**LARGE SCALE
MECHANICAL FLOOR PLAN
AND SECTION**

SHEET NO.

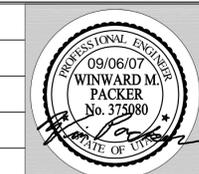
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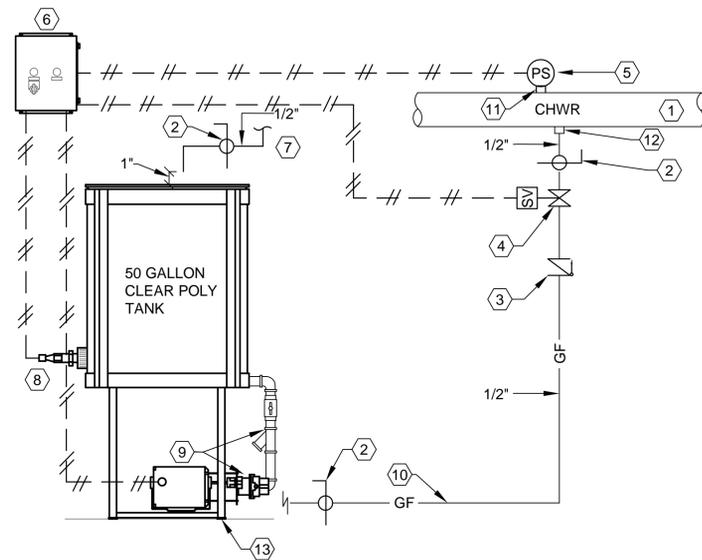


LARGE SCALE MECHANICAL FLOOR PLAN AND SECTION
SCALE: 1/4" = 1'-0"



ELEVATIONS
SCALE: 1/4" = 1'-0"

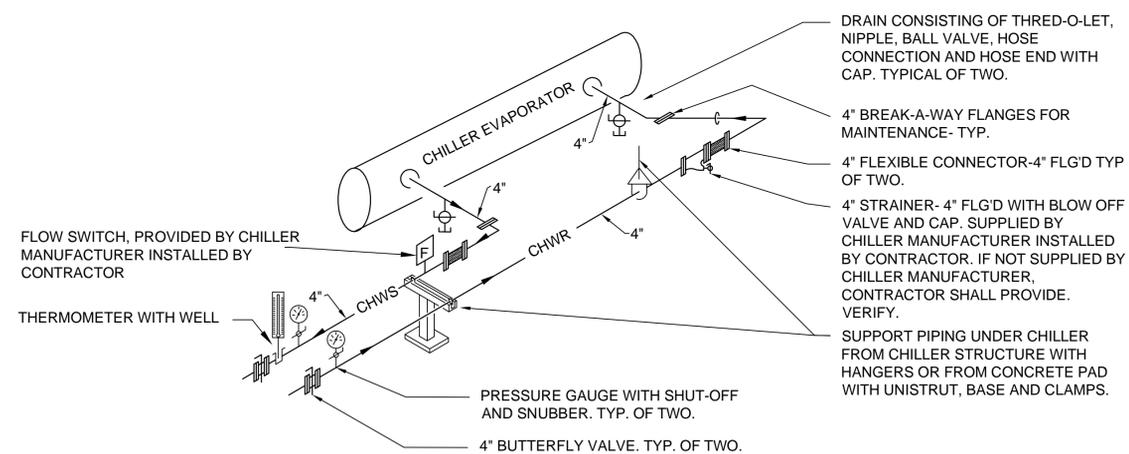




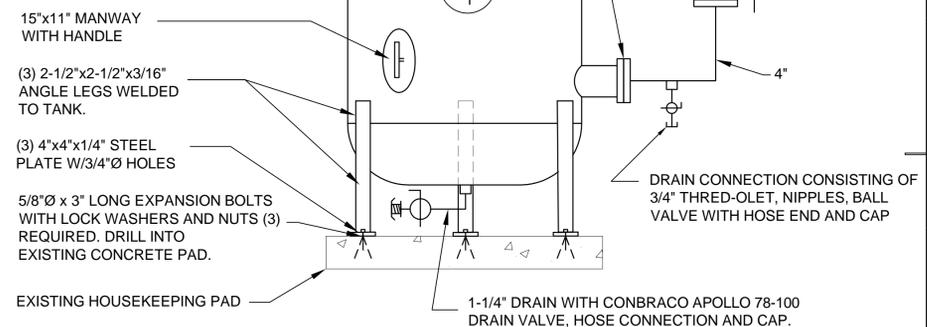
C2 GLYCOL FEED SYSTEM
SCALE: NONE

NOTE:
COORDINATE WITH ELECTRICIAN
TO PROVIDE GFCI DUPLEX
OUTLET FOR GLYCOL FEED PUMP.

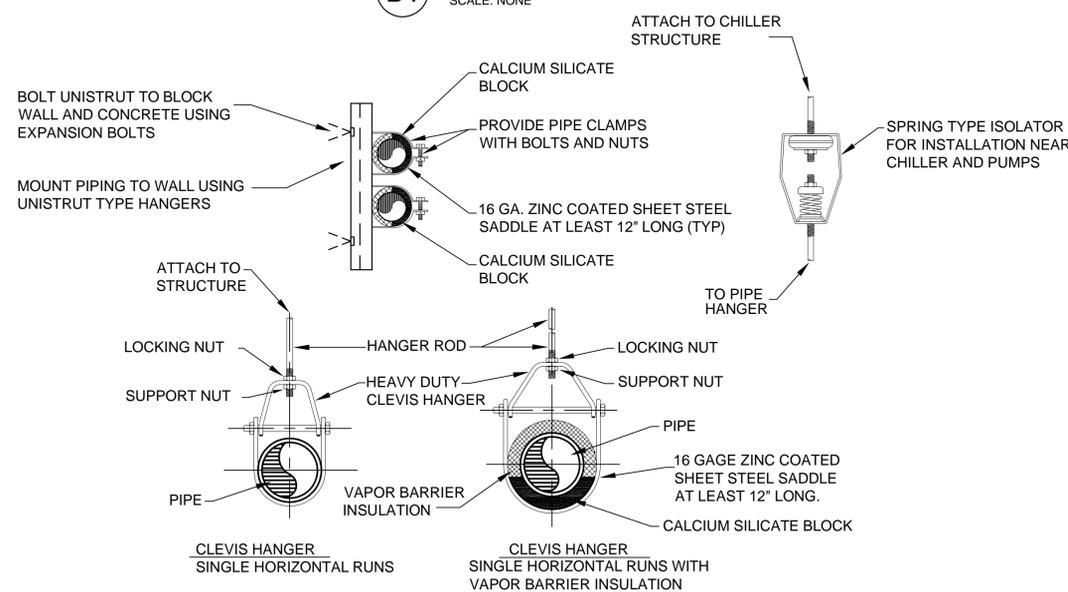
- 1 CLOSED RECIRCULATING CHILLED WATER GLYCOL SYSTEM PUMP SUCTION SIDE.
- 2 BALL VALVE.
- 3 CHECK VALVE.
- 4 SOLENOID VALVE.
- 5 PRESSURE SWITCH CHILLED WATER.
- 6 CONTROL PANEL MOUNTED ON TANK SUPPORT STAND.
- 7 MANUAL WATER MAKE-UP FILL LINE WITH 1" AIR GAP TO TANK. CONNECT TO EXISTING COLD WATER SUPPLY TO SOFTENER OR WATER SUPPLY TO REMOVED CHEMICAL FEED SYSTEM.
- 8 LOW LEVEL SWITCH.
- 9 PUMP AND SUCTION PIPING WITH BALL VALVE AND STRAINER SHALL BE PART OF PACKAGE.
- 10 1/2" DISCHARGE PIPING.
- 11 THRED-O-LET SIZE AS REQUIRED FOR PRESSURE SWITCH.
- 12 1/2" THRED-O-LET.
- 13 MOUNT ON EXISTING CONCRETE FLOOR



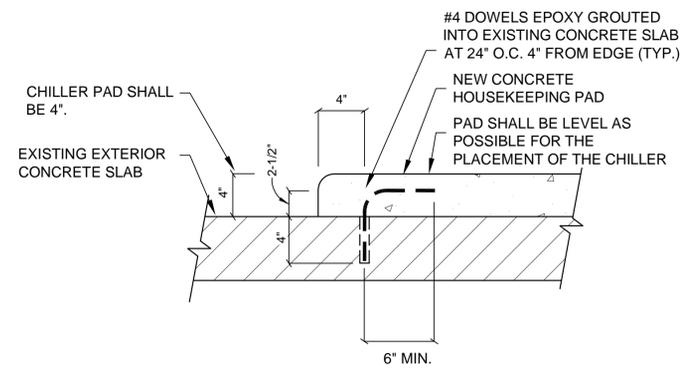
B2 CHILLED WATER PIPING
SCALE: NONE



B4 CHILLED WATER STORAGE TANK DETAIL
SCALE: NONE



A4 PIPE HANGER DETAIL
SCALE: NONE



C4 HOUSEKEEPING PAD DETAIL
SCALE: NONE

CONSULTANTS

WHW ENGINEERING INC.
PROFESSIONAL MECHANICAL ENGINEERING
1354 East 3300 South Suite 200
SALT LAKE CITY, UTAH 84106
(801) 465-4021, FAX 465-5536
EMAIL: excellence@whw-engineering.com

PROJECT NAME & ADDRESS

SOUTHERN UTAH UNIVERSITY STUDENT CENTER CHILLER REPLACEMENT
DFCM# 06310730
Cedar City, Utah

MARK	DATE	REVISION

PROJECT MANAGER: **WP**
DRAWN BY: **LGD**
CHECKED BY: **SLW**
DATE: **09/06/07**
WHW JOB NO.: **07019**
SHEET TITLE

MECHANICAL DETAILS

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SALT LAKE CITY, UTAH 84106
(801) 965-4021, FAX 468-3536
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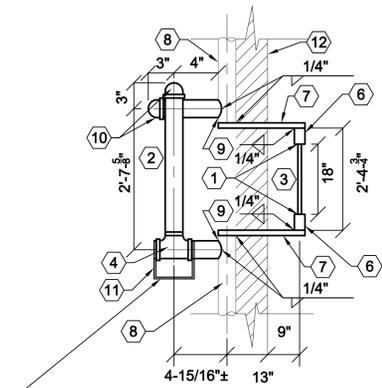
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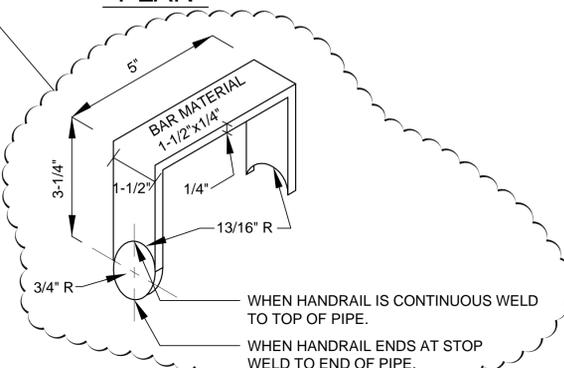
SHEET NO.
ME502

B1- DETAIL NOTES:

- 1 STRINGERS SHALL BE 2"x1/2".
- 2 PROVIDE 1-1/4" DIAM. STD. PIPE SAFETY GUARD.
- 3 3/4" DIAM. RUNGS AT 12" O.C. START AT TOP RUNG. CENTER LINE OF TOP RUNG TO LINE WITH TOP OF WALL.
- 4 PROVIDE 1-1/2"x1-1/2"x1-1/2" TEE FOR SAFETY GUARD BAR.
- 5 PAINT LADDER, RUNGS ETC. BLACK.
- 6 2"x2"x3/8" CHANNEL WELDED TO LADDER STRINGERS AND LADDER SUPPORT.
- 7 4"x3/8" PLATE WELDED TO CHANNEL AND EXISTING 1-1/4" HAND RAIL.
- 8 EXISTING 1-1/4" DIAM. HAND RAIL.
- 9 NEW 1-1/4" DIAM. HAND RAIL WELDED TO EXISTING HANDRAIL.
- 10 1-1/4" PIPE CAPS.
- 11 NEW STOP FOR SAFETY GUARD. SEE DETAIL B1/ THIS SHEET.
- 12 EXISTING CONCRETE FLOOR.



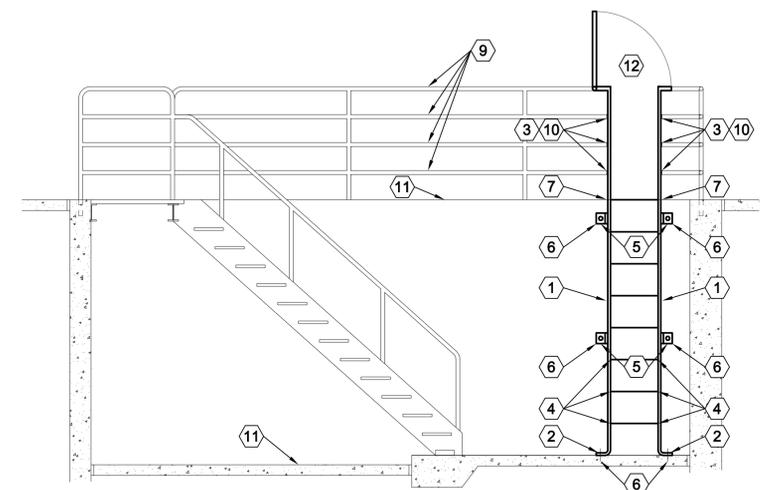
PLAN



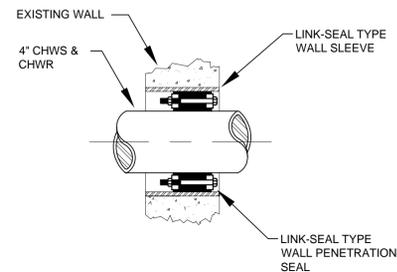
B1 STOP FOR SAFETY GUARD DETAIL
SCALE: NONE

A1- DETAIL NOTES:

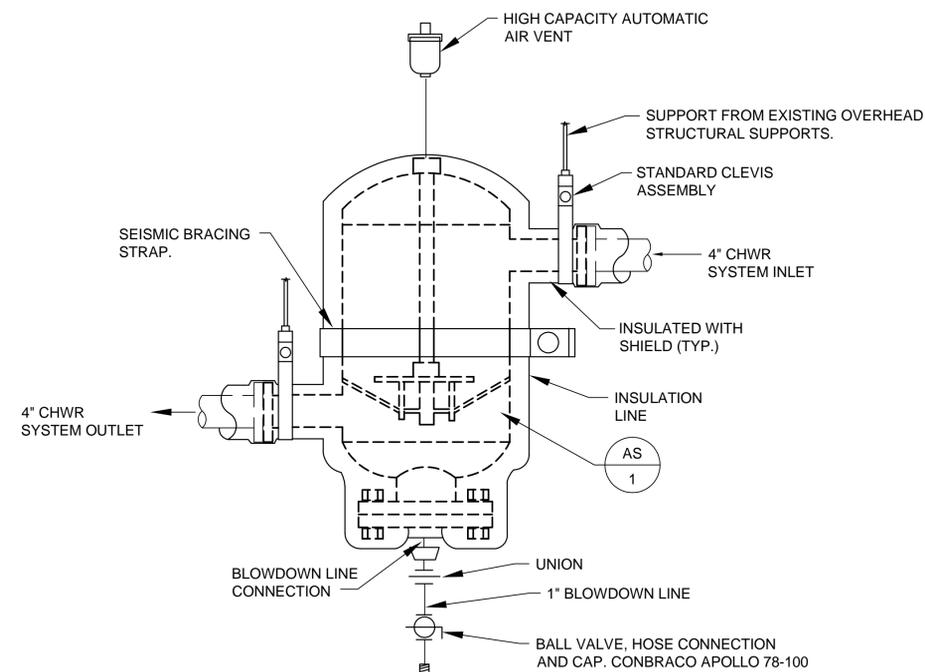
- 1 STRINGERS SHALL BE 2"x1/2".
- 2 BEND STRINGERS AT BOTTOM FOR 6" LONG FOOT.
- 3 CUT AND CAP EXISTING RAILS.
- 4 3/4" DIAM. RUNGS AT 12" O.C. START AT TOP RUNG. CENTER LINE OF TOP RUNG TO LINE WITH TOP OF WALL.
- 5 4"x3/8"x15" LONG PLATE STRINGER SUPPORTS. BEND PLATE TO FORM 9"x4" LEGS.
- 6 5/8" EXPANSION BOLTS INTO EXISTING CONCRETE SLAB AND WALL. PROVIDE 1 1/16" HOLES IN CENTER OF PLATE.
- 7 PUNCH HOLES IN LADDER STRINGERS TO SUIT RUNGS. WELD RUNGS TO STRINGERS ON OUTSIDE OF STRINGERS. GRIND SMOOTH ON OUTSIDE OF STRINGERS TO A SMOOTH SURFACE.
- 8 PAINT LADDER, RUNGS ETC. BLACK.
- 9 EXISTING 1-1/4" DIAM. HAND RAIL.
- 10 1-1/4" PIPE CAPS.
- 11 EXISTING CONCRETE FLOOR.
- 12 SEE B1/THIS SHEET FOR PLAN VIEW TOP OF LADDER.



A1 STAIR AND LADDER DETAIL
SCALE: 3/8" = 1'-0"



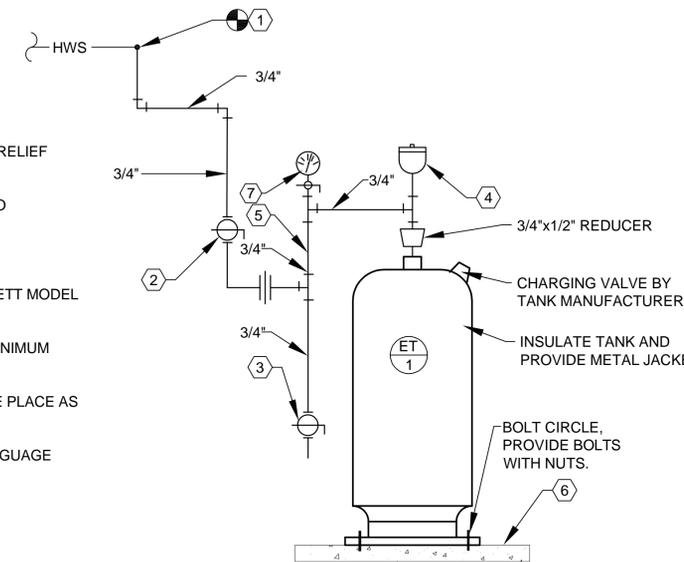
C3 PIPE SLEEVE THROUGH WALL DETAIL
SCALE: NONE



C4 AIR SEPARATOR DETAIL
SCALE: NONE

DETAIL NOTES:

- 1 CONNECT TO SIDE OF EXISTING AIR RELIEF PIPING.
- 2 SHUT OFF BALL VALVE. REQUIRED TO PROPERLY PRECHARGE TANK.
- 3 DRAIN VALVE.
- 4 AUTOMATIC AIR VENT. BELL & GOSSETT MODEL #7 OR #87.
- 5 ANTI-THERMO-SYPHON LOOP. 12" MINIMUM DROP.
- 6 MOUNT ON EXISTING FLOOR IN SAME PLACE AS EXISTING REMOVED TANK.
- 7 PRESSURE GAUGE -0- 60 PSIG WITH GAUGE COCK.



A4 EXPANSION TANK DETAIL
SCALE: NONE

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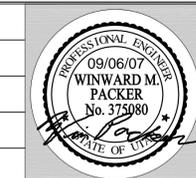
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SHEET TITLE

MECHANICAL SCHEDULES

SHEET NO.

ME601

AIR COOLED CHILLER SCHEDULE

SYMBOL	MIN. CAPACITY TONS	GPM	COOLER DATA			CONDENSER DATA		ELECTRICAL								MANUFACTURER AND MODEL #
			MAX PRESS. DROP FT	WATER IN TEMP. °F	WATER OUT TEMP. °F	EAT	ALTITUDE	VOLTS	Ø	Hz	RLA	LRA	MCA	MOP	CONTROL CIRCUIT	
CH 1	100	237	14	54	44	95°		208	3	60	192 (EA)	330 (EA)	483	600	120 V, 15A	TRANE MODEL ①②③ RTAA100

- DESIGN BUILD ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY ELECTRICAL AND CONTROL POWER.
- MINIMUM CAPACITY SHALL BE 10%.
- CHILLED WATER LOOP VOLUME IS 240 GALLONS,

CHILLER WATER STORAGE TANK SCHEDULE

SYMBOL	VOLUME (GAL)	DIAMETER (INCH)	HEIGHT (INCH)	INLET (INCH) FLG'D	OUTLET (INCH) FLG'D	DRAIN (INCH) SCR'D	MANUFACTURER AND MODEL #
T 1	365	42"	72"	4"	4"	1-1/4"	

- TANK SHALL BE ASME 125# RATING.
- PROVIDE THREE(3) 2-1/2"x2-1/2"x3/16" ANGLE LEGS WELDED TO TANK TO SUPPORT FROM FLOOR.
- PROVIDE WITH 11"x15" MANWAY.

AIR SEPARATOR SCHEDULE

SYMBOL	CAPACITY GPM	MAX PRESSURE DROP FT.	INLET / OUTLET SIZE	WEIGHT LBS	MAKE & MODEL	COMMENTS	SCHEDULE NOTES
AS 1	240	1 FT.	4" FLG'D	151	BELL & GOSSETT RL4	SEE DETAIL C4/ME502	1

- FOR OTHER APPROVED MANUFACTURERS SEE SPECIFICATIONS.

EXPANSION TANK SCHEDULE

SYMBOL	ACCEPT TANK VOLUME GAL.	LENGTH	DIAMETER	OPERATION WEIGHT LBS	COMMENTS	SCHEDULE NOTES
ET 1	22	29-1/2"	16-1/4"	271	BELL & GOSSETT D40V	1,2

- FOR OTHER APPROVED MANUFACTURERS SEE SPECIFICATIONS.
- FLOOR MOUNTED DIAPHRAM TYPE.

PUMP SCHEDULE

SYMBOL	TYPE	MAKE / MODEL	GPM	FT. HEAD	SUCTION SIZE	DISCHARGE SIZE	IMPELLER DIAM.	MOTOR			WEIGHT LBS	SERVICE	SCHEDULE NOTES
								V - Ø - Hz	HP	RPM			
P 1	BASE MTD. CLOSE COUPLED END SUCTION	BELL & GOSSETT MODEL 1531 2-1/2 BB	240	60	3"	2-1/2"	8.25"	208/3/60	7.5	1750	220	CHILLED WATER	1,2,3,4
P 2	BASE MTD. CLOSE COUPLED END SUCTION	BELL & GOSSETT MODEL 1531 2-1/2 BB	240	60	3"	2-1/2"	8.25"	208/3/60	7.5	1750	220	CHILLED WATER	1,2,3,4

- PROVIDE REMOVABLE INSULATION KIT AROUND PUMP SUCTION.
- ALL PUMPS SHALL BE SIZED IN THE FLAT PART OF THE CURVE.
- SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURERS.
- PROVIDE WITH 4"x3" SUCTION DIFFUSER. VERIFY THAT EXISTING PIPE IS 4" OR 3". 3"x3" SUCTION DIFFUSER IF EXISTING PIPING IS 3".

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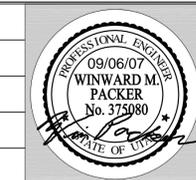
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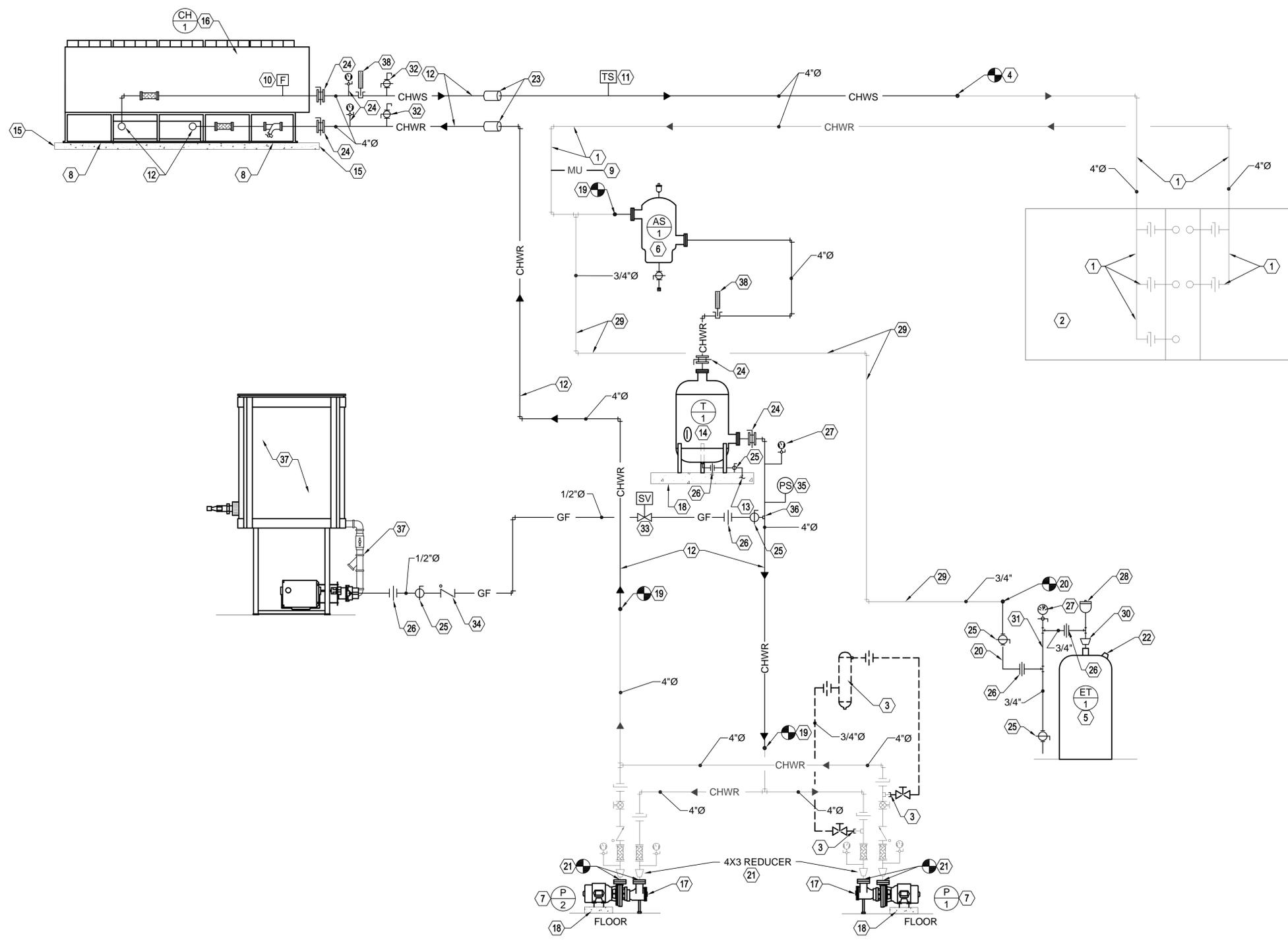
**CHILLED WATER
FLOW SHEET**

SHEET NO.

ME701

SHEET NOTES:

- 1 EXISTING CHILLED WATER PIPING SERVING EXISTING COIL SHALL REMAIN.
- 2 EXISTING AIR HANDLING UNIT WITH CHILLED WATER COIL SHALL REMAIN.
- 3 EXISTING CHEMICAL POT FEEDER TREATMENT SYSTEM SHALL BE REMOVED. CAP AT MAIN.
- 4 CONNECT NEW CHILLED WATER PIPING INTO EXISTING CHILLED WATER PIPING SERVING THE CHILLED WATER COIL.
- 5 PROVIDE NEW FLOOR MOUNTED EXPANSION TANK. SEE DETAIL A4/ME502.
- 6 PROVIDE NEW AIR SEPARATOR. SEE DETAIL C4/ME502
- 7 PROVIDE NEW CLOSE COUPLED BASE MOUNTED PUMPS.
- 8 MOUNT NEW AIR COOLED CHILLER ON NEW 4" THK PAD WITH VIBRATION ISOLATORS. ANCHOR ISOLATORS TO NEW CONCRETE PAD.
- 9 EXISTING MAKE-UP WATER PRV STATION AND BACKFLOW PREVENTER SHALL REMAIN.
- 10 FLOW SWITCH BY CHILLER MANUFACTURER. INSTALL PER MANUFACTURERS RECOMMENDATIONS BY CONTRACTOR.
- 11 WATER TEMPERATURE SENSOR. COORDINATE WITH ATC CONTRACTOR.
- 12 PROVIDE NEW CHILLED WATER SUPPLY AND RETURN PIPING FROM NEW CHILLER TO EXISTING CHILLED WATER SUPPLY AND RETURN PIPING IN CHILLER ROOM.
- 13 1-1/4" DRAIN CONNECTION TO FLOOR.
- 14 PROVIDE NEW CHILLED WATER STORAGE TANK. SEE DETAIL B4/ME501.
- 15 PROVIDE NEW CONCRETE PAD. SEE DETAIL C4/ME501.
- 16 PROVIDE NEW AIR COOLED CHILLER SEE SCHEDULE ME601.
- 17 PROVIDE NEW SUCTION DIFFUSERS. FIELD VERIFY SIZE.
- 18 EXISTING CONCRETE HOUSEKEEPING PAD.
- 19 CONNECT NEW CHILLED WATER PIPING INTO EXISTING AS SHOWN.
- 20 PROVIDE NEW AIR RELIEF PIPING AND CONNECT TO EXISTING.
- 21 PROVIDE NEW CONNECTION BETWEEN EXISTING PIPING AND NEW PUMPS. VERIFY SIZE OF EXISTING PIPING AND REDUCERS.
- 22 CHARGING VALVE SUPPLIED BY TANK MANUFACTURER.
- 23 NEW OPENINGS, SLEEVES AND LINK SEALS. SEE DETAIL C3/ME502.
- 24 BUTTERFLY VALVE.
- 25 BALL VALVE.
- 26 UNION.
- 27 PRESSURE GAUGE.
- 28 AUTO AIR VENT.
- 29 EXISTING AIR RELIEF PIPING.
- 30 3/4"x1/2" REDUCER.
- 31 ANIT-SIPHON LOOP.
- 32 MANUAL AIR VENT CONSISTING OF 3/4" THRED-O-LET, NIPPLE, BALL VALVE, AND DISCHARGE PIPING TURNED DOWN.
- 33 SOLENOID VALVE.
- 34 CHECK VALVE.
- 35 PRESSURE SWITCH.
- 36 1/2" THRED-O-LET.
- 37 50 GAL. GLYCOL STORAGE TANK AND PUMP PACKAGE INCLUDING SUCTION PIPING WITH BALL VALVE AND STRAINER.
- 38 THERMOMETER WITH WELL.



A3 CHILLED WATER FLOW SHEET
SCALE = NONE

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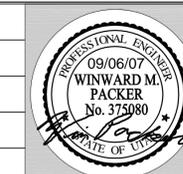
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SHEET TITLE
**EXISTING ELECTRICAL
PANELS**

SHEET NO.
EE101

- SHEET NOTES:
- ① EXISTING ITE SWITCHBOARD FC-1- SERIES 6, 208Y/120-1600 AMP, 3 PHASE/4 WIRE SO# 19-88007-01-DATE 6/87.
 - ② PANEL KF-200A
 - ③ PANEL KD-200A
 - ④ PANEL KC-200A
 - ⑤ PANEL KB-200A
 - ⑥ PANEL KA-200A
 - ⑦ PANEL B1 & C1-200A
 - ⑧ PANEL L4-100A
 - ⑨ PANEL L4-100A
 - ⑩ PANEL L3-100A
 - ⑪ PANEL L3-100A
 - ⑫ PANEL L2-100A
 - ⑬ PANEL L-1-100A
 - ⑭ SPARE
 - ⑮ PANEL M1-600A
 - ⑯ DISHWASHER-400A
 - ⑰ MAIN SWITCH
 - ⑱ PANEL M1-ITE TYPE VERONICA B-6 SERIES 6, 208/600 AMP. SO# 19.88007-02, DATE 11/87
 - ⑲ EC-1-30A
 - ⑳ AIR COMPRESSOR-30A
 - ㉑ PUMP P-1-60A
 - ㉒ PUMP P-2-60A
 - ㉓ COOLING TOWER/CONDENSING UNIT-60A
 - ㉔ SOUTH DINING RTU-100A
 - ㉕ AIR HANDLING UNIT-200A
 - ㉖ CHILLER-400A

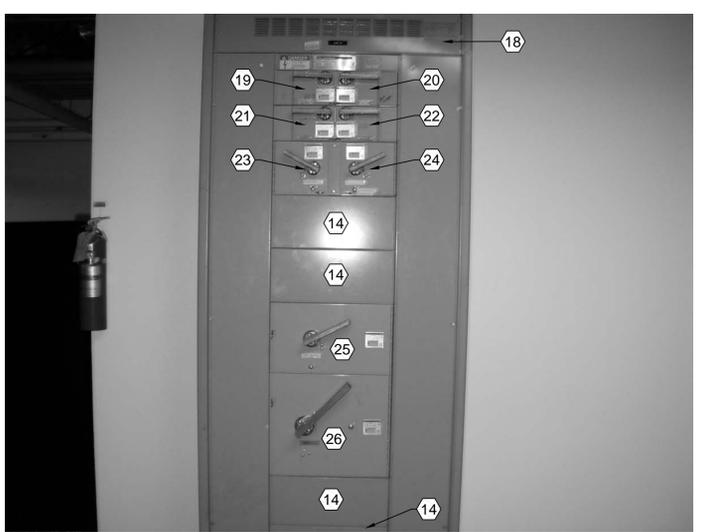
NOTES:
DESIGN BUILD ELECTRICAL CONTRACTOR SHALL COORDINATE BETWEEN EXISTING PANELS WITH EXISTING EQUIPMENT REMOVED AND NEW EQUIPMENT INSTALLED AND AVAILABLE AMPS.



C1 EXISTING ITE SWITCHBOARD FC-1
SCALE: NONE



C3 EXISTING ITE SWITCHBOARD FC-1
SCALE: NONE



A2 EXISTING PANEL M1
SCALE: NONE