

MIDLANDS TECHNICAL COLLEGE

316 S. BELTLINE BLVD
COLUMBIA, SC 29205

BSC BUILDING CHILLER REPLACEMENT

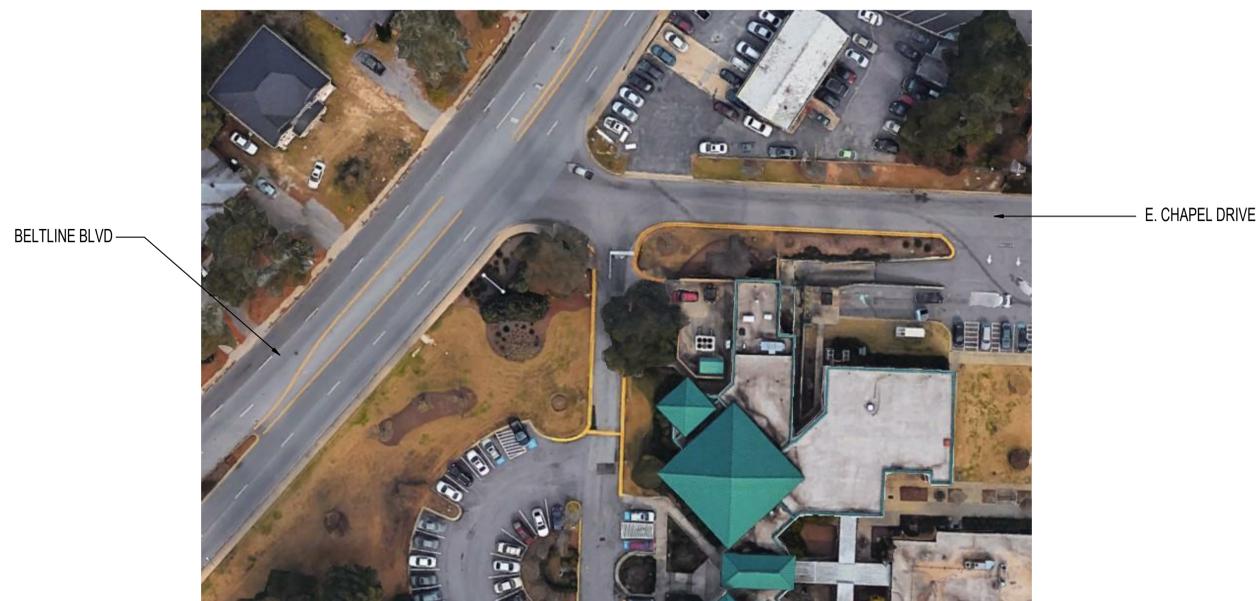
H59-N071-FW

A/E Project Number: 20074.01

MAY 3, 2021

ISSUED FOR

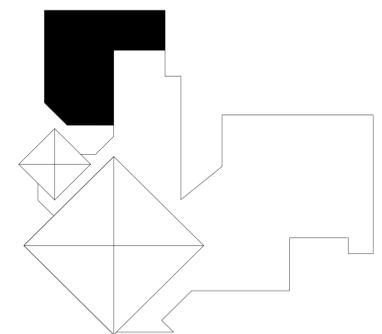
CONSTRUCTION



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DRAWING INDEX

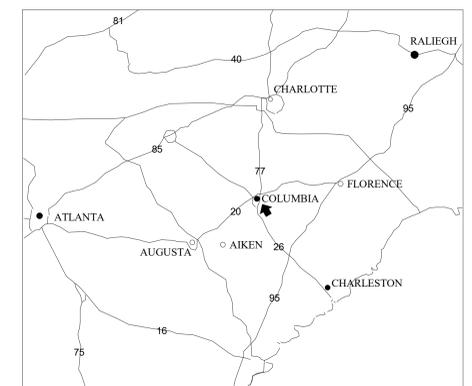
MECHANICAL

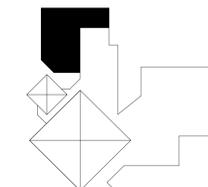
M0.0 HVAC LEGENDS, NOTES, ABBREVIATIONS, AND SCHEDULES
M1.2 PARTIAL SECOND FLOOR PLAN - HVAC DEMOLITION
M2.2 PARTIAL SECOND FLOOR PLAN - HVAC RENOVATION
M6.1 HVAC SCHEDULES

ELECTRICAL

E0.0 SYMBOLS, NOTES, SCHEDULES, AND ABBREVIATIONS
E3.1 ELECTRICAL MECHANICAL EQUIPMENT PLAN

KEY PLAN





HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	HOT WATER SUPPLY		UNION		BUTTERFLY VALVE
	HOT WATER RETURN		STRAINER		GATE VALVE
	CHILLED WATER SUPPLY		STRAINER WITH BLOW OFF		ANGLE VALVE
	CHILLED WATER RETURN		THERMOMETER		GLOBE VALVE
	SUCTION DIFFUSER WITH STRAINER		CIRCUIT SETTER		CONTROL VALVE, THREE WAY
	PUMP SYMBOL		PRESSURE INDICATOR		CONTROL VALVE, TWO WAY
	CONCENTRIC REDUCER		TRIPLE DUTY VALVE		PRESSURE REDUCING VALVE
	ECCENTRIC REDUCER FLAT ON BOTTOM		BALANCING VALVE		AUTOMATIC FLOW CONTROL VALVE
	ECCENTRIC REDUCER FLAT ON TOP		AUTOMATIC AIR VALVE		CHECK VALVE
	ELBOW TURNED DOWN		MANUAL AIR VALVE WITH DISCHARGE TUBE		NEEDLE VALVE
	ELBOW TURNED UP		TEE		END CAP
	TEE OUTLET UP		PLUG VALVE		BLIND FLANGED
	EXISTING PIPING TO REMAIN		BALL VALVE		FLOW METER STATION
	PIPING TO BE DEMOLISHED		TEE OUTLET DOWN		
	EXISTING PIPING BELOW GRADE		CONNECT TO EXISTING		

ABBREVIATIONS			
ACC#	Air Cooled Chiller - No.	MIN	Minimum
AC	Air Conditioning	MOD	Motor Operated Damper
AAV	Automatic Air Vent	MPT	Male Pipe Thread
ABV	Above	N/A	Not Applicable
AD	Access Door	NC	Normally Closed
ADP	Apparatus Dew Point	NIC	Not in Contract
AFF	Above Finished Floor	NO	Normally Open
BFP	Backflow Preventer	NPSM	Net Positive Suction Head
BHP	Brake Horsepower	NPT	National Pipe Thread
BMS	Building Management System	NTS	Not To Scale
BOP	Bottom of Pipe	PD	Pressure Drop
CHWR	Chilled Water Return	PI	Pressure Indicator
CHWS	Chilled Water Supply	POC	Point of Connection
CO	Clean Out	PRV	Pressure Reducing Valve
COL	Column Line	PS	Pressure Switch
DB	Dry Bulb Temperature	PSI	Pounds Per Square Inch
DP	Dew Point	PSIA	Pounds Per Square Inch Absolute
EAT	Entering Air Temperature	PSIG	Pounds Per Square Inch Gauge
EDB	Entering Air Dry Bulb	REG	Register
ELEC	Electric or Electrical	RH	Relative Humidity
ELEV	Elevation	SEER	Seasonal Energy Efficiency Ratio
EWB	Entering Air Wet Bulb	SHT	Sheet
EWT	Entering Water Temperature	SP	Static Pressure
FL	Floor	SPEC	Specifications
FOB	Flat On Bottom	SPL	Supply
FOT	Flat On Top	SS	Stainless Steel
FPT	Female Pipe Thread	STD	Standard
FT	Feet	T	Thermostat
FT HD	Feet of Head	T#	Tank - No.
FZ	Freezestat (low limit thermostat)	TDH	Total Dynamic Head
GAL	Gallons	TEMP	Temperature
GPD	Gallons Per Day	TOC	Top of Concrete
GPH	Gallons Per Hour	TOD	Top of Duct
GPM	Gallons Per Minute	TOP	Top of Pipe
HD	Head	TOS	Top of Steel
HP	Horsepower	TSTAT	Thermostat
HVAC	"Heating, Ventilating & Air Conditioning"	TYP	Typical
ID	Inside Diameter	VB	Vacuum Breaker
IE	Invert Elevation	VENT	Vent
LAT	Leaving Air Temperature	VFD	Variable Frequency Drive
LWB	Leaving Air Wet Bulb	WB	Wet Bulb Temperature
LWT	Leaving Water Temperature	XFMR	Transformer
MAV	Manual Air Vent		
MAX	Maximum		
MBH	Thousand BTU/Hr (thousands)		

AIR COOLED CHILLER SCHEDULE															
EQUIPMENT TAG	TONS	REFRIGERANT	EER	IPLV	WATER				ELECTRICAL				MFG	MODEL	NOTES
					WPD (FT)	EWT	LWT	GPM	MCA (A)	MOCP (A)	VOLTAGE	Phase			
ACC-1	90	R410A	9.3	13.3	10.70	55	45	200	182	200	460	3	Trane	CGAM090	

PUMP SCHEDULE											
EQUIPMENT TAG	GPM	PUMP HEAD (FT)	Pump Efficiency	MOTOR			Voltage	Phase	MANUFACTURER	MODEL	REMARKS
				HP	RPM	TYPE					
P-3	210	75	75.20%	7.5	1800	COB	460 V	3	Beil & Gossett	SERIES 1510 - 2 BD	
P-4	210	75	75.20%	7.5	1800	COB	460 V	3	Beil & Gossett	SERIES 1510 - 2 BD	

MECHANICAL GENERAL NOTES	
1.	DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2.	USE ECCENTRIC REDUCERS ON AUTOMATIC VALVES WHERE REQUIRED.
3.	EXTEND ALL DRAIN LINES TO NEAREST FLOOR DRAIN OR AS INDICATED. ROUTE TO AVOID INTERFERENCE WITH PASSAGEWAYS. CONDENSATE DRAINS SHALL BE TRAPPED. SLOPE DRAIN LINES 1/8" PER FOOT.
4.	ALL PIPING SHALL PITCH DOWN IN DIRECTION OF FLOW OR AS INDICATED ON DRAWINGS. 1" PER 40 FEET WITH MANUAL AIR VENTS AT ALL HIGH POINTS. AND 3/4" DRAIN VALVES AT ALL LOW POINTS. ALL PIPING AND DUCTWORK INSULATION SHALL BE RIB CONTINUOUSLY THROUGH FLOORS, ROOFS AND PARTITIONS EXCEPT WHERE PROHIBITED BY FIRE CODES.
6.	EXTEND DRAIN LINES FROM RELIEF VALVES TO 2" ABOVE NEAREST FLOOR DRAIN OR AS INDICATED.
7.	ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS ON HANGERS SHALL BE ADJACENT TO ELBOWS, TO PREVENT WEIGHT OF PIPING BEING PLACED ON THE EQUIPMENT. SUPPORT DETAILS SHALL BE SUBMITTED TO THE MECHANICAL ENGINEER.
8.	ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID INTERFERENCE.
9.	CORRECT SETTINGS ON ALL BALANCING FITTINGS SHALL BE PERMANENTLY MARKED.
10.	RUNOUTS SHALL PITCH DOWN IN DIRECTION OF FLOW A MINIMUM OF 1" IN 30 FEET.
11.	ALL PIPING, DUCTS, VENTS, ETC. EXTENDING THRU EXTERIOR WALLS AND ROOFS SHALL BE FLASHED AND COUNTERFLASHED. COORDINATE ORIENTATION OF SUPPLY AND RETURN PIPING BEFORE FABRICATION.
12.	PROVIDE DIELECTRIC FITTINGS AT ALL LOCATIONS WHERE DISSIMILAR METALS ARE JOINED IN PIPING AND DUCT SYSTEMS.

owner
**MIDLANDS TECHNICAL
COLLEGE - BELTLINE
CAMPUS**

project name
**BSC BUILDING CHILLER
REPLACEMENT
H59-N071-FW**

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seals/signature

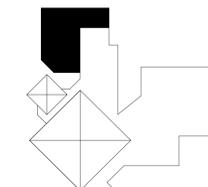


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key plan



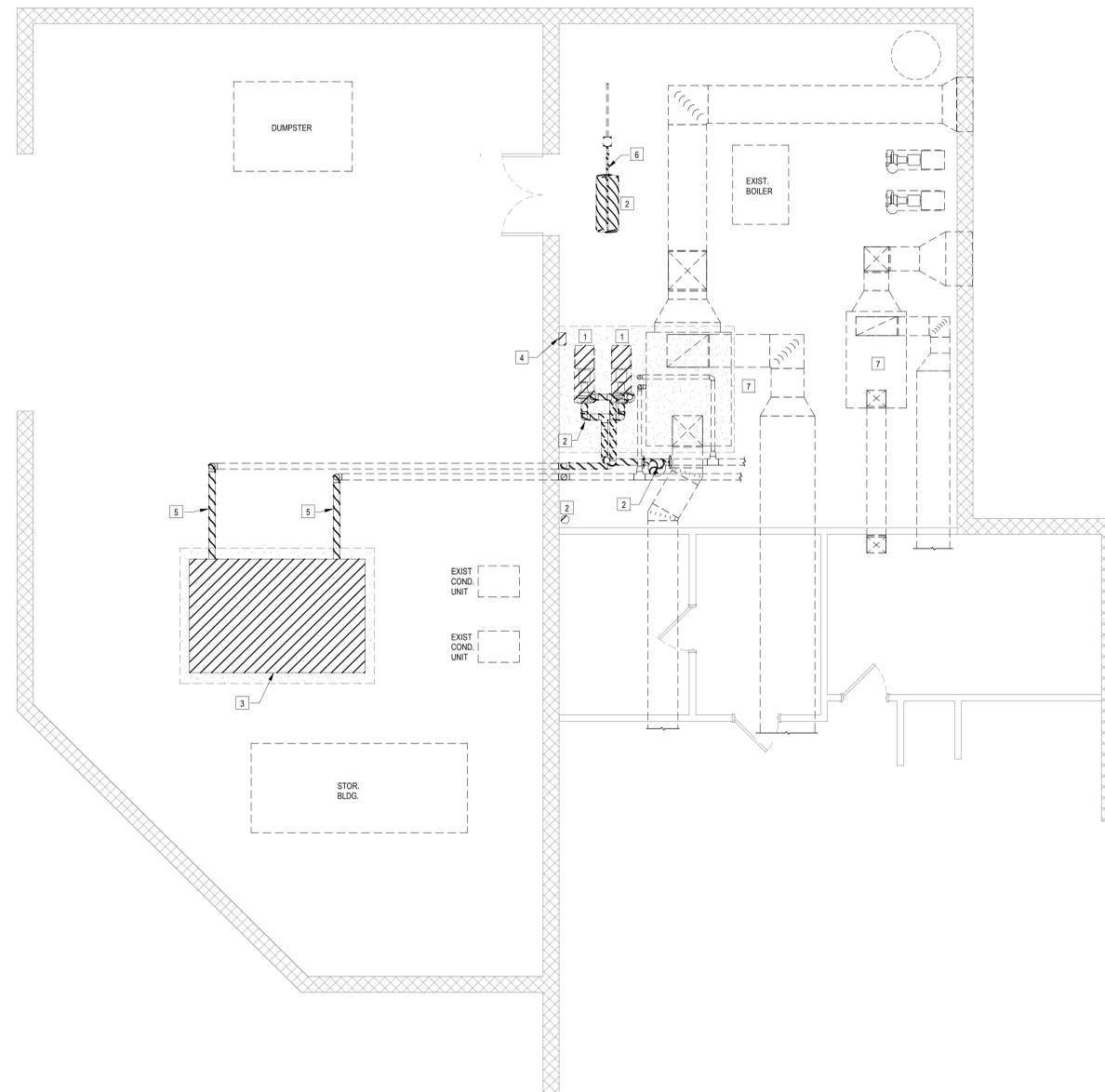
Key Plan

sheet title
**PARTIAL SECOND FLOOR PLAN -
HVAC DEMOLITION**

sheet number

M1.2

drawn by JDR
checked by JWB

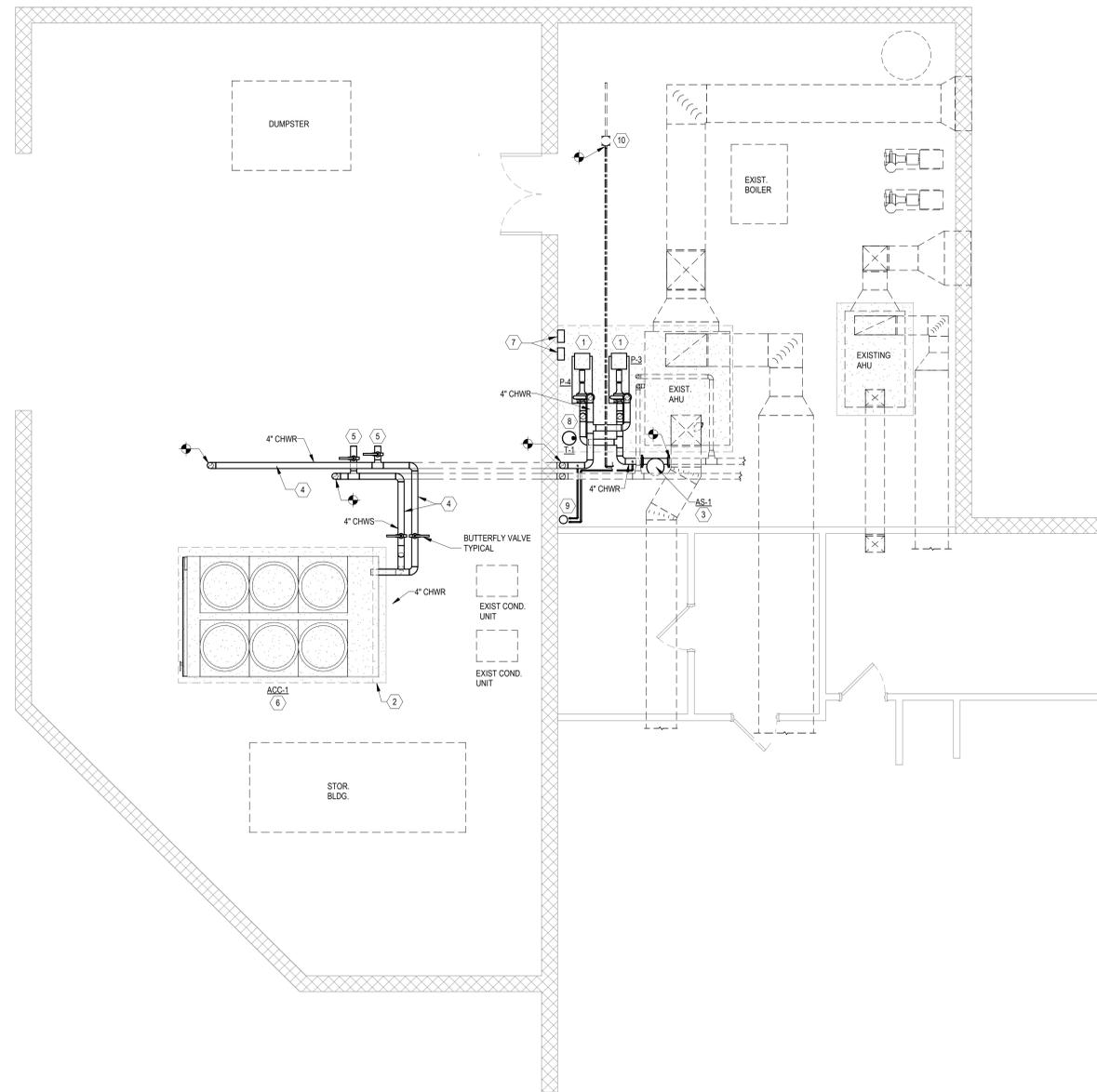
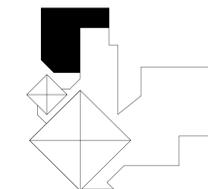


DEMOLITION NOTES:

- 1 REMOVE EXISTING CHILLED WATER PUMP AND ASSOCIATED CONTROLS AS HATCHED.
- 2 REMOVE AIR SEPARATOR, EXPANSION TANK, AND CHEMICAL POT FEEDER.
- 3 REMOVE AIR COOLED CHILLER, PIPING, AND CONTROLS AS HATCHED.
- 4 REMOVE PUMP STARTERS AS INDICATED.
- 5 REMOVE PIPING AS INDICATED.
- 6 REMOVE DOMESTIC WATER PIPING BACK TO SHUT-OFF VALVE. SEE RENOVATION DRAWING FOR ADDITIONAL INFORMATION.
- 7 CONTRACTOR SHALL MEASURE AND DOCUMENT FLOW AND PRESSURE AT EACH AIR HANDLER AND ROOFTOP. CHILLED WATER SYSTEM HAS THE FOLLOWING EQUIPMENT:
 1. AHU-1 - 20.95 GPM
 2. AHU-2 - 55.48 GPM
 3. AHU-3 - 71.53 GPM
 4. RTU-1 - 27 GPM
 5. RTU-2 - 31 GPM

DOCUMENT MEASURED FLOW COMPARED TO DESIGN FLOW AND SUBMIT REPORT TO ENGINEER FOR REVIEW PRIOR TO DEMOLITION ANY OF THE CHILLED WATER SYSTEM.

1 PARTIAL SECOND FLOOR PLAN - DEMOLITION
1/4" = 1'-0"



RENOVATION NOTES:

- 1 INSTALL PUMP ON EXISTING HOUSEKEEPING PAD.
- 2 EXTEND HOUSEKEEPING PAD (APPROXIMATELY 11 SF) AS REQUIRED SO THE HOUSEKEEPING PAD IS 6' LARGER THAN EQUIPMENT.
- 3 PROVIDE NEW AIR/SEEDMENT SEPARATOR AND SUSPEND FROM STRUCTURE. SEE DETAIL AND SCHEDULE FOR ADDITIONAL INFORMATION.
- 4 HEAT TRACE ALL CHILLED WATER PIPING LOCATED OUTSIDE. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 5 FUTURE CHILLER CONNECTIONS.
- 6 INSTALL NEW CHILLER ON EXISTING HOUSEKEEPING PAD. ANCHOR TO PAD IN ACCORDANCE WITH SEISMIC REQUIREMENTS.
- 7 PROVIDE NEW VARIABLE FREQUENCY DRIVES FOR CHILLED WATER PUMPS (P-3 & P-4). SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 8 INSTALL EXPANSION TANK ON EXISTING HOUSEKEEPING PAD.
- 9 PROVIDE CHEMICAL POT FEEDER AT LOCATION SHOWN. SEE DETAIL FOR ADDITIONAL INFORMATION.
- 10 PROVIDE MAKE-UP WATER ASSEMBLY. SEE DETAILS FOR ADDITIONAL INFORMATION.

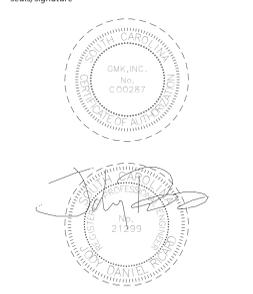
1 PARTIAL SECOND FLOOR PLAN - RENOVATION
1/4" = 1'-0"

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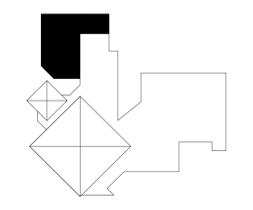


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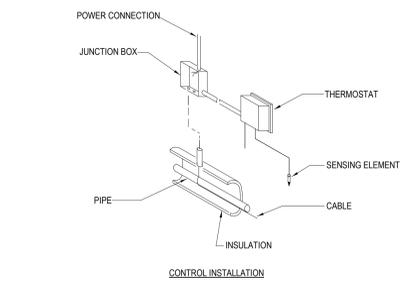
Key Plan

sheet title
HVAC DETAILS

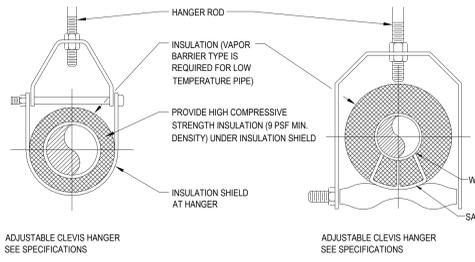
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M6.1

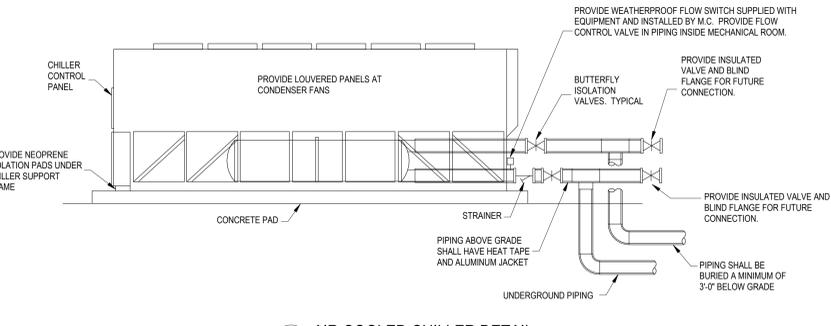
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 checked by Checker



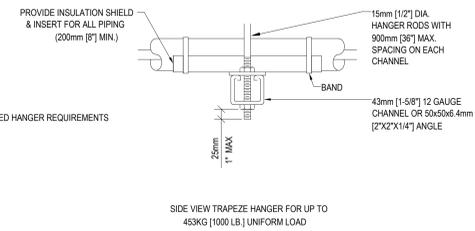
1 HEAT TRACING DETAIL
 NTS



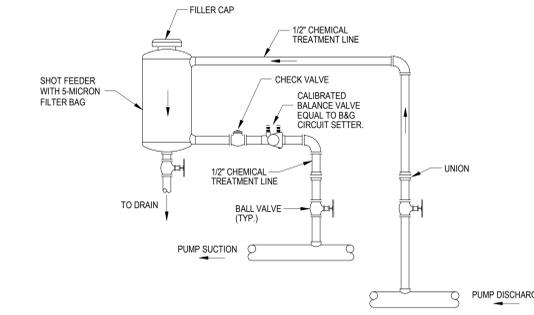
2 BASE MOUNTED PUMP DETAIL
 NTS



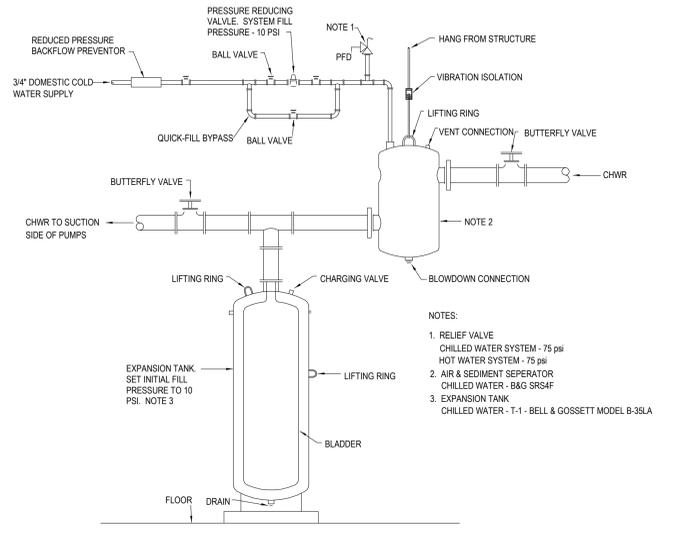
3 AIR COOLED CHILLER DETAIL
 NTS



4 PIPE HANGER DETAIL
 NTS



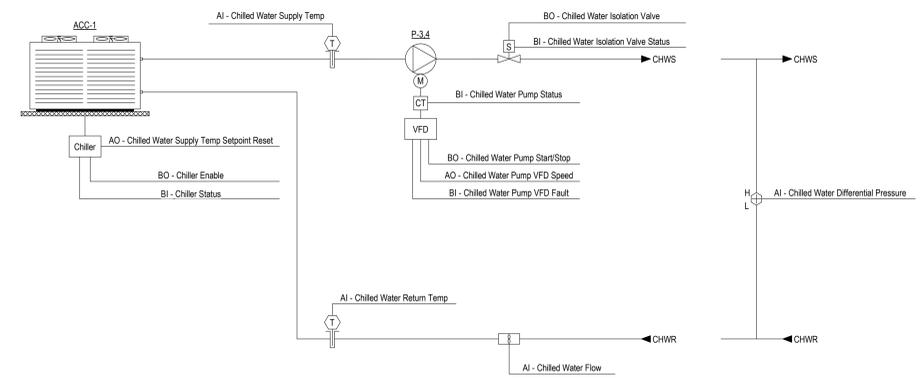
5 CHEMICAL TREATMENT SHOT FEEDER DETAIL
 NTS



6 AIR SEPARATOR AND EXPANSION TANK DETAIL
 NTS

MAXIMUM PIPE/TUBING SUPPORT SPACING																			
NOM. SIZE	mm [IN]	THRU 20 [THRU 3/4]	25 [1]	32 [1 1/4]	40 [1 1/2]	50 [2]	65 [2 1/2]	75 [3]	100 [4]	125 [5]	150 [6]	200 [8]							
PIPE	mm [FT]	2100 [7]	2100 [7]	2100 [7]	2700 [9]	3000 [10]	3400 [11]	3700 [12]	4100 [14]	4900 [16]	5200 [17]	5800 [19]	6700 [22]	7000 [23]	7600 [25]	8200 [27]	8600 [28]	9100 [30]	9600 [32]
TUBING	mm [FT]	1500 [5]	1800 [6]	2100 [7]	2400 [8]	2700 [9]	3000 [10]	3700 [12]	4000 [13]	4100 [14]	4900 [16]	-	-	-	-	-	-	-	-

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.



7 CHILLER CONTROL SCHEMATIC
 NTS

POINT NAME	HARDWARE POINTS					SOFTWARE POINTS				SHOW ON GRAPHIC	
	AI	AO	BI	BO	AV	BV	LOOP	SCHEDULE	TREND		ALARM
CHILLED WATER DIFFERENTIAL PRESSURE	X								X		X
CHILLED WATER FLOW	X								X		X
CHILLED WATER RETURN TEMPERATURE	X								X		X
CHILLED WATER SUPPLY TEMPERATURE	X								X		X
CHILLED WATER BYPASS VALVE	X								X		X
CHILLED WATER PUMP VFD SPEED	X								X		X
CHILLED WATER SUPPLY TEMPERATURE SETPOINT RESET	X								X		X
CHILLED WATER ISOLATION VALVE STATUS			X						X		X
CHILLED WATER PUMP STATUS			X						X		X
CHILLED WATER PUMP VFD FAULT			X						X		X
CHILLER STATUS			X						X		X
CHILLED WATER ISOLATION VALVE			X						X		X
CHILLED WATER PUMP START/STOP			X						X		X
CHILLER ENABLE			X						X		X
CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT			X						X		X
CHILLED WATER FLOW SETPOINT			X						X		X
OUTSIDE AIR TEMPERATURE			X						X		X
CHILLED WATER ISOLATION VALVE FAILURE										X	
CHILLED WATER ISOLATION VALVE IN HAND										X	
CHILLED WATER ISOLATION VALVE RUNTIME EXCEEDED										X	
CHILLED WATER PUMP FAILURE										X	
CHILLED WATER PUMP RUNNING IN HAND										X	
CHILLED WATER PUMP RUNTIME EXCEEDED										X	
CHILLER FAILURE										X	
CHILLER RUNNING IN HAND										X	
CHILLER RUNTIME EXCEEDED										X	
HIGH CHILLED WATER DIFFERENTIAL PRESSURE										X	
HIGH CHILLED WATER SUPPLY TEMPERATURE										X	
LOW CHILLED WATER DIFFERENTIAL PRESSURE										X	
LOW CHILLED WATER FLOW										X	
LOW CHILLED WATER SUPPLY TEMPERATURE										X	

Chiller - Run Conditions:
 The chiller shall be enabled to run whenever:
 • A definable number of chilled water coils need cooling
 • AND the outside air temperature is greater than 54°F (adj.).

To prevent short cycling, the chiller shall run for and be off for minimum adjustable times (both user definable), unless shutdown on safeties or outside air conditions.
 The chiller shall run subject to its own internal safeties and controls.

Chilled Water Isolation Valve:
 The valve shall open anytime the chiller is called to run. The valve shall also open whenever the chilled water pump runs for freeze protection.

The valve shall open prior to the chiller being enabled and shall close only after the chiller is disabled. The valve shall therefore have:
 • A user adjustable delay on start.
 • AND a user adjustable delay on stop.

The delay times shall be set appropriately to allow for orderly chilled water system start-up, shutdown and sequencing.

Alarms shall be provided as follows:
 • Failure Valve commanded open but the status indicates closed.
 • Open in Hand: Valve commanded closed but the status indicates open.
 • Runtime Exceeded: Valve status runtime exceeds a user-definable limit.

Chilled Water Pump:
 The chilled water pump shall run anytime the chiller is called to run. The chilled water pump shall also run for freeze protection whenever the outside air temperature is less than a user definable setpoint (adj.).

The chilled water pump shall start prior to the chiller being enabled and shall stop only after the chiller is disabled. The chilled water pump shall therefore have:
 • A user adjustable delay on start.
 • AND a user adjustable delay on stop.

The delay times shall be set appropriately to allow for orderly chilled water system start-up, shutdown and sequencing.

Alarms shall be provided as follows:
 • Chilled Water Pump Failure: Commanded on, but the status is off.
 • Chilled Water Pump Running in Hand: Commanded off, but the status is on.
 • Chilled Water Pump Runtime Exceeded: Status runtime exceeds a user definable limit.
 • Chilled Water Pump VFD Fault.

Chilled Water Differential Pressure Control:
 The controller shall measure chilled water differential pressure and modulate the chilled water pump VFD to maintain its chilled water differential pressure setpoint. The following setpoints are recommended values. All setpoints shall be field adjusted during the commissioning period to meet the requirements of actual field conditions.

The controller shall modulate chilled water pump speed to maintain a chilled water differential pressure of 120ft/in2 (adj.). The VFD minimum speed shall not drop below 10% (adj.).

Alarms shall be provided as follows:
 • High Chilled Water Differential Pressure: If the chilled water differential pressure is 25% (adj.) greater than setpoint.
 • Low Chilled Water Differential Pressure: If the chilled water differential pressure is 25% (adj.) less than setpoint.

Alarms shall be provided as follows:
 • Low Chilled Water Flow: If the chilled water flow is 25% (adj.) less than setpoint.

Chiller:
 The chiller shall be enabled a user adjustable time after pump statuses are proven on. The chiller shall therefore have a user adjustable delay on start.

The delay time shall be set appropriately to allow for orderly chilled water system start-up, shutdown and sequencing.

The chiller shall run subject to its own internal safeties and controls.

Alarms shall be provided as follows:
 • Chiller Failure: Commanded on, but the status is off.
 • Chiller Running in Hand: Commanded off, but the status is on.
 • Chiller Runtime Exceeded: Status runtime exceeds a user definable limit.

Chilled Water Supply Temperature Setpoint:
 The chilled water supply temperature setpoint shall reset based on outside air temperature.

As outside air temperature drops from 75°F (adj.) to 50°F (adj.) the chilled water supply temperature setpoint shall reset upwards by adding from 0°F (adj.) to 10°F (adj.) to the current setpoint.

Chilled Water Temperature Monitoring:
 The following temperatures shall be monitored:
 • Chilled water supply.
 • Chilled water return.

Alarms shall be provided as follows:
 • High Chilled Water Supply Temp: If the chilled water supply temperature is greater than 55°F (adj.).
 • Low Chilled Water Supply Temp: If the chilled water supply temperature is less than 38°F (adj.).

GENERAL NOTES

- DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC.
- ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT.
- BRANCH CIRCUIT TO BE 2#12, 12GND, 3/4" MINIMUM. 20A 120V CIRCUITS LONGER THAN 75 TO BE 2#10, #10GND, 3/4" MINIMUM FOR VOLTAGE DROP. 120V CIRCUITS LONGER THAN 150 TO BE 2#8, #8GND, 3/4" MINIMUM FOR VOLTAGE DROP. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS.
- ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
- ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122.
- PROVIDE PULL STRINGS IN ALL EMPTY RACEWAYS.
- COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS.
- DO NOT FLUSH MOUNT JUNCTION BOXES BACK TO BACK, STAGGER TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
- CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUGH-IN DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS.
- MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON JOB BY ARCHITECT UNLESS NOTED OTHERWISE.
- SEAL ALL PENETRATIONS TO RATED WALLS, CEILINGS AND FLOORS WITH UL LISTED FIREPROOFING SYSTEM. THIS IS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL.
- WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122.
- ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE.
- REMOVE DRYWALL DUST AND MUD FROM THE INTERIOR OF BOXES BEFORE INSTALLING DEVICES.
- AT SUBSTANTIAL COMPLETION CLEAN ALL LIGHT FIXTURES AND ALL DEVICES IN THE CONSTRUCTION AREAS. REPLACE DAMAGED DEVICES AND DEVICE PLATES AS NEEDED.
- VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK WITH POWER, TELEPHONE AND CATV UTILITIES. ELECTRICAL CONTRACTOR TO PROVIDE ALL MATERIALS AND WORK FOR AS REQUIRED BY EACH UTILITY FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE RACEWAYS TO UTILITY CONNECTION POINT.
- CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT.
- ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES.
- ELECTRICAL WORK SHALL COMPLY WITH LATEST NECA 1 STANDARDS FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION.
- ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE.
- ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT.
- ALL EQUIPMENT WITH 75°C OR 90°C TERMINATIONS. ALL WIRE SIZING INDICATED ON PLANS IS BASED ON 75°C TERMINATIONS. WHERE EQUIPMENT IS PROVIDED BY OTHERS AND IS NOT SPECIFICALLY LISTED AND MARKED WITH 75°C TERMINATIONS INCREASE CONDUCTOR SIZE BASED ON NEC TABLE 310.15(B)(16) 90°C COLUMN FOR CIRCUITS 100 AMPERES AND LESS IN SIZE.
- ALL EMERGENCY CIRCUITING SHALL BE RUN IN SEPARATE CONDUIT FROM NORMAL POWER CIRCUITING.

MOUNTING HEIGHT SCHEDULE

DEVICES/EQUIPMENT	MOUNTING HEIGHT (AFF)	MEASURED TO:
RECEPTACLES	AS INDICATED ON LEGEND/PLANS	CENTER
TOGGLE SWITCHES	4'-0"	CENTER
WALL DIMMERS	4'-0"	CENTER
MANUAL MOTOR STARTERS	4'-0"	CENTER
OCCUPANCY SENSORS - WALL MOUNTED	4'-0"	CENTER
LIGHTING CONTROL PANEL	6'-6"	TOP
LIGHTING CONTROL STATION	4'-0"	CENTER
JUNCTION BOXES	AS INDICATED ON LEGEND/PLANS	CENTER
MONITORING/CONTROL PANEL	5'-0"	TOP
SURFACE METAL RACEWAYS	AS INDICATED ON LEGEND/PLANS	TOP
PANELBOARDS	6'-6"	TOP
DISCONNECT SWITCHES	5'-0"	TOP
AUTOMATIC TRANSFER SWITCHES	6'-6"	TOP
MANUAL TRANSFER SWITCHES	6'-6"	TOP
CONTROL STATIONS	6'-6"	TOP
TVSS (NON-INTEGRAL)	6'-0" (NTE)	TOP
MAGNETIC MOTOR CONTROLLERS	6'-6"	TOP
LIGHTING CONTACTORS ENCLOSURES	6'-6"	TOP
INDIVIDUAL CKT BREAKERS ENCLOSURES	6'-6"	TOP
EMERGENCY POWER OFF SWITCHES	5'-6"	CENTER
TIME SWITCHES	6'-6"	TOP
TELECOMMUNICATIONS OUTLETS	1'-6"	CENTER
TELECOMMUNICATIONS OUTLETS - OVER COUNTER	6"	CENTER (OVER TOP OF COUNTER)
GROUND FAULT CIRCUIT INTERRUPTER	4'-0"	CENTER
GROUND BUS BARS	2'-0"	CENTER
INTEGRATED COMMUNICATIONS PANELS	6'-0"	TOP
GENERATOR REMOTE ALARM ANNUNCIATOR	5'-0"	TOP
GENERATOR TERMINAL BLOCKS	5'-0"	TOP
BAS TERMINAL BLOCKS	5'-0"	TOP
GENERATOR STOP SWITCH	5'-6"	CENTER
GENERATOR TANK FUEL LEVEL INDICATORS	5'-0"	TOP
UPS REMOTE MONITORING PANEL	5'-0"	TOP
UPS BATTERY MONITORING / CONTROL PANEL	5'-0"	TOP
MAIN SWITCHGEAR BATTERY CHARGER	5'-0"	TOP
RELAY CONTROL PANELS	6'-6"	TOP
FIRE ALARM AUDIO/VISUAL DEVICES (NOTE 3)	6'-8"	BOTTOM
FIRE ALARM VISUAL DEVICES (NOTE 3)	6'-8"	BOTTOM
FIRE ALARM HORNS (NOTE 3)	6'-8"	BOTTOM
FIRE ALARM PULL STATIONS	4'-0"	CENTER
FIRE FIGHTER PHONE JACKS	4'-6"	CENTER
FIRE FIGHTER MASTER PHONE CABINET	4'-6"	CENTER
FIRE ALARM SMOKE DETECTORS - WALL MOUNTED	6"	FROM CEILING
FIRE ALARM BEAM SMOKE DETECTORS	WITHIN 3'-0"	FROM CEILING
FIRE ALARM CONTROL PANEL	6'-0"	TOP
FIRE ALARM ANNUNCIATORS	6'-0"	TOP
FIRE ALARM GRAPHIC ANNUNCIATOR	6'-0"	TOP
FIRE PUMP CONTROL PANEL	6'-6"	TOP
SMOKE EXHAUST PANEL	6'-0"	TOP
REMOTE DUCT SMOKE DETECTOR STATUS INDICATOR	4'-6"	CENTER
FIRE ALARM BELL	8'-0"	CENTER

MOUNTING HEIGHT SCHEDULE NOTES:

- USE ABOVE INDICATED MOUNTING HEIGHTS UNLESS INDICATED OTHER WISE ON DRAWINGS OR SPECIFICATIONS.
- COORDINATE MOUNTING HEIGHTS WITH FIELD CONDITIONS, OTHER TRADES, AND RELATED EQUIPMENT.
- MOUNT IN ACCORDANCE WITH NFPA 72. REDUCE MOUNTING HEIGHTS OF FIRE ALARM VISUAL AND AUDIO/VISUAL ALARMS WHERE REQUIRED TO MAINTAIN 6" MINIMUM SPACING FROM CEILING.

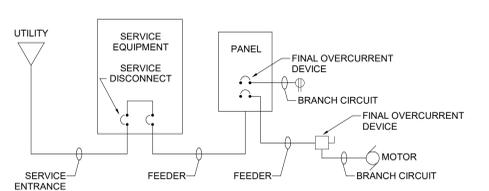
DISCONNECT SWITCH SCHEDULE

S1	30A/2P
S2	60A/2P
S3	100A/2P
S4	200A/2P
S5	400A/2P
S6	30A/3P
S7	60A/3P
S8	100A/3P
S9	200A/3P
S10	400A/3P
S11	30A/4P
S12	60A/4P
S13	100A/4P
S14	200A/4P
S15	400A/4P

SWITCH NOTES:

- ALL DISCONNECT SHALL BE HEAVY DUTY TYPE.
- 240V OR 600V TO SUIT CIRCUIT VOLTAGE.
- ALL DISCONNECTS FUSIBLE UNLESS OTHERWISE NOTED, PROVIDE FUSES TO SUIT LOAD.
- ENCLOSURES NEMA 3R OUTDOORS AND IN WET LOCATIONS, NEMA 1 ELSEWHERE UNLESS OTHERWISE NOTED.
- ALL OUTDOOR DISCONNECT SERVING GROUND MOUNTED HVAC UNITS SHALL NOT BE MOUNTED HIGHER THAN 36" ABOVE FINISHED GRADE.
- MAINTAIN A MINIMUM CLEARANCE IN FRONT OF THE DISCONNECT AS PER NEC.

RACEWAY MATERIAL SCHEDULE



RACEWAY MATERIALS:

- FEEDERS: EMT, IMC, GRS
 BRANCH CIRCUITS CONCEALED ABOVE CEILING IN WALLS: EMT, IMC, GRS, HOSPITAL GRADE MC CABLE.
 BRANCH CIRCUITS EXPOSED WITHIN MECHANICAL EQUIPMENT ROOMS: EMT, IMC, GRS
 FINAL CONNECTIONS TO MECHANICAL EQUIPMENT (3" MAX): FLEXIBLE WATERTIGHT CONDUIT IN DAMP AND WET LOCATIONS, FLEXIBLE METAL CONDUIT IN DRY LOCATIONS.
 LIGHT FIXTURE WHIPS (3" MAX): MC CABLE IN DRY LOCATIONS.

ABBREVIATIONS

A, AMP	AMPERE
AA	AMBIENT AIR
ABBREV	ABBREVIATION
ABV	ABOVE
AC	ALTERNATING CURRENT
ACT	ABOVE COUNTER TOP
AF	AMP FRAME, CIRCUIT BREAKER FRAME AND TRIP DEVICE SENSOR SIZE (AMPS)
AFG	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AM	AMPERE METER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ANSM	ANMMETER SWITCH
ASYM	ASYMMETRICAL
AT	AMP TRIP, TRIP DEVICE RATING PLUG SIZE (AMPS)
ATC	AIR TERMINAL CHAMBER
ATS	AUTOMATIC TRANSFER SWITCH, TRIP DEVICE LONG TIME PICKUP SETTING (AMPS)
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BATT	BATTERY, BATTERIES
BIAX	BIAXIAL
BIL	BASIC IMPULSE LEVEL
BKR	BREAKER
BLDG	BUILDING
B, O, D,	BOTTOM OF DUCT
B, O, T,	BOTTOM OF TRAY
C	CELSIUS
cm	CENTIMETER
C, CND	CONDUIT
CAT, NO,	CATALOG
CAT	CATALOG
CATV	CABLE TELEVISION
CBM	CERTIFIED BALLAST MANUFACTURER
CCTV	CLOSED CIRCUIT TELEVISION CAMERA
CEG	COMMON EQUIPMENT GROUND
CFM	CUBIC FEET PER MINUTE
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CLO	CLOSET
COMPT	COMPARTMENT
CONT	CONTINUOUS
CPT	CONTROL POWER TRANSFORMER
CPU	CENTRAL PROCESSING UNIT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CRI	COLOR RENDERING INDEX
CS	CONTROL SWITCH
CSA	CANADIAN STANDARDS ASSOCIATION
CSOEN	CENTRAL SCIENTIFIC COMMUNICATIONS NETWORK
CT	CURRENT TRANSFORMER, CABLE TRAY
CU	COPPER, COEFFICIENT OF UTILIZATION
CY	CYCLE(S)

ABBREVIATIONS

G	GRAM
G, GND	GROUND
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR, DIVISION 00 THROUGH 14
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT CIRCUIT INTERRUPTER
GFE	GENOTES GOVERNMENT FURNISHED EQUIPMENT, CONTRACTOR INSTALLED
GFCI	GROUND FAULT EQUIPMENT PROTECTIVE DEVICE
GFFPD	GROUND FAULT EQUIPMENT PROTECTIVE DEVICE
GFP	GROUND FAULT PROTECTION
GP	GENERAL PURPOSE
GRS	GALVANIZED RIGID STEEL CONDUIT
H	HEIGHT
HALOG	HALOGEN
HE	HIGH EXPOSURE
HID	HIGH INTENSITY DISCHARGE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HRG	HIGH RESISTANCE GROUND
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HZ	HERTZ
IAW	IN ACCORDANCE WITH
IECA	INSULATED CABLE ENGINEERS ASSOCIATION
IEC	INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IDS	INTRUSION DETECTION SYSTEM
IESCR	INTEGRATED EQUIPMENT SHORT CIRCUIT RATING
IESNA, IES	ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA
IS	INTERMEDIATE METAL CONDUIT
INC,	INCANDESCENT
INCAND	INCANDESCENT
INST	INSTRUCTIONS, INSTRUMENT/INSTRUMENTATION
INTER	INTERMEDIATE
J	JOINT
JB OR	JUNCTION BOX
J-BOX	J-BOX
K	DEGREES KELVIN
K, KCMIL	ONE THOUSAND CIRCULAR MILS
KA	KILO-AMPERES
KG	KILO-GRAM
KM	KILO-METER
KV	KILO-VOLTS
KVA	KILO-VOLT AMPERES
KVAC	KILO-VOLT AMPERES CONNECTED
KVAD	KILO-VOLT AMPERES DEMAND
KVAR	KILO-VOLT AMPERES REACTIVE
KW	KILOWATT
KWD	KILOWATT DEMAND
L	LUMEN, LENGTH
LA	LIGHTNING ARRESTER
LAN	LOCAL AREA NETWORK
LB(S)	POUND(S)
LED(S)	LIGHT EMITTING DIODE(S)
LRS	LOW RESISTANCE GROUND
LSGM	LONG-TIME/SHORT-TIME TRIP
LSI	LONG-TIME/SHORT-TIME/INSTANTANEOUS TRIP
LSIM	LONG-TIME/SHORT-TIME/INSTANTANEOUS TRIP AND METERING
LSIG	LONG-TIME/SHORT-TIME/INSTANTANEOUS/GROUND FAULT TRIP
LSIGM	LONG-TIME/SHORT-TIME/INSTANTANEOUS/GROUND FAULT TRIP AND METERING
LT	LIQUID TIGHT
LTG	LIGHTING
LTS	LIGHTS
LPF	LOW POWER FACTOR
m	METER
mm	MILLIMETER
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR, DIVISION 23 (DIV 23)
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
M/G	MOTOR/GENERATOR
MH	MOUNTING HEIGHT, MAN HOLE
MHL	METAL HALIDE LAMP
MI	MINERAL INSULATED
MIN	MINIMUM
MIP	MEDICAL ISOLATION PANEL
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MO	MECHANICALLY OPERATED
MP	MOTOR PROTECTOR
MS	MASTER SUBSTATION
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTTOE	MOUNTED TO TOP OF EQUIPMENT
MV	MEDIUM VOLTAGE
N, NEUT	NEUTRAL
N/A	NOT APPLICABLE
N, C,	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NMC	NONMETALLIC-SHEATHED CABLE
N, O,	NORMALLY OPEN

POWER DISTRIBUTION / EQUIPMENT LEGEND

SYMBOLS	DESCRIPTION
PP1	FLOOR OR SURFACE MOUNTED MAIN PROTECTIVE DEVICE PANELBOARD. TEXT DENOTES NAME, REFER TO DRAWINGS FOR LOCATION. SEE PANEL SCHEDULES.
PP2	FLOOR OR SURFACE MOUNTED MAIN LUG ONLY PANELBOARD. TEXT DENOTES NAME, REFER TO DRAWINGS FOR LOCATION. SEE PANEL SCHEDULES.
S1	HEAVY DUTY FUSED DISCONNECT SWITCH. SEE SCHEDULE. TEXT DENOTES DISCONNECT SWITCH TYPE (DISCONNECT TYPE S1 THIS EXAMPLE.)
DESIGNATION	DEVICE DESIGNATION
-	MOUNTING HEIGHT AND/OR MOUNTING TO BE COORDINATED WITH WORK AND EQUIPMENT AT JUNCTION BOX LOCATION PROVIDED UNDER DIVISION 26 AND ALL OTHER DIVISIONS.
C	MOUNTING ABOVE CEILING.
S	SURFACE MOUNTED.
DO	DOOR OPERATOR POWER. COORDINATE LOCATION WITH TELECOMMUNICATIONS DRAWINGS. MOUNT CONCEALED ABOVE CEILING ADJACENT TO DOOR OPERATOR CONTROLS. INSTALL POWER PER MANUFACTURERS INSTRUCTIONS.

ABBREVIATIONS

NO,	NUMBER
NOS	NUMBERS
NPF	NORMAL POWER FACTOR
NPT	NATIONAL PIPE THREAD
NTE	NOT TO EXCEED
NTS	NOT TO SCALE
OPT	OPTIONAL
ON CENTER	ON CENTER
OWNER FURNISHED EQUIPMENT, CONTRACTOR INSTALLED	OWNER FURNISHED EQUIPMENT, CONTRACTOR INSTALLED
P	POLE
PB	PRIVATE BRANCH EXCHANGE
PCC	POINT OF COMMON COUPLING
POU	POWER DISTRIBUTION UNIT
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMCS	POWER MONITORING AND CONTROL SYSTEM
PBRD,	PANEL
P/NL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RECP(S)	RECEPTACLE(S)
REQMTS	REQUIREMENTS
R	RESISTANCE
%R	PERCENT RESISTANCE
RGR	ROOM CAVITY RATIO
RI	RECTIFIER/INVERTER
REQD	REQUIRED
IECA	INSULATED CABLE ENGINEERS ASSOCIATION
RFS	RADIO FREQUENCY INTERFERENCE
RG	RIGID GALVANIZED STEEL
RIE	ROOM
RMS	ROOT MEAN SQUARE
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
SCHED	SCHEDULE
SE	SERVICE ENTRANCE
SECT	SECTION
SHLD	SHIELDED, SHIELD
SKVA	STARTING KILO-VOLT AMPERES
SMH	SPACING TO MOUNTING HEIGHT RATIO
SM	SOLID NEUTRAL
SMR	SURFACE METAL RACEWAY
SN	SHARED NEUTRAL
SQ	SQUARE
SS	STAINLESS STEEL
SSBJ	SUPPLY-SIDE BONDING JUMPER
SSL	SOLID STATE LIGHT
SSM	SOLID STATE METERING
SST	SOLID STATE TRIP
STA	STATION
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYMR	SYMMETRICAL
T, TX	TRANSFORMER
T & B	TOP AND BOTTOM
TEL	TELEPHONE
TEL CAB	TELEPHONE CABINET
TP	TRANSFORMER PROTECTION
TYP	TYPICAL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UDS	UNITIZED DISTRIBUTION SUBSTATION
UG, UGND	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS' LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
UV	ULTRAVIOLET
V	VOLT(S)
VAC	VOLTS ALTERNATING CURRENT
VAR	VOLT AMPERE REACTIVE
VDC	VOLTS DIRECT CURRENT
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
VPE	VACUUM PRESSURE ENCAPSULATED
VPI	VACUUM PRESSURE IMPREGNATED
VS	VOLTMETER SWITCH
VSD	VARIABLE SPEED DRIVE
W	WATT(S), WIRE, WIDTH
WC	WATER COOLER
WG	WATER GAGE
W	WITH
WO	WITHOUT
WP	WEATHERPROOF
X	REACTANCE
%X	PERCENT REACTANCE
XFMR	TRANSFORMER
	CROSS-LINK POLYETHYLENE INSULATION
Z	IMPEDANCE
%Z	PERCENT IMPEDANCE
1/C	SINGLE CONDUCTOR CABLE
3/C	THREE CONDUCTOR CABLE
SPST	SINGLE POLE-SINGLE THROW
DPST	DOUBLE POLE-SINGLE THROW
3PST	THREE POLE-SINGLE THROW
SPDT	SINGLE POLE-DOUBLE THROW
DPDT	DOUBLE POLE-DOUBLE THROW
3PDT	THREE POLE-DOUBLE THROW



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consultants

owner
MIDLANDS TECHNICAL COLLEGE - BELTLINE CAMPUS

project name
BSC BUILDING CHILLER REPLACEMENT H59-N071-FW

project number
20074.01

seals/signature

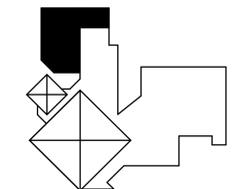


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CONSTRUCTION

date
MAY 3, 2021

number	item	date

key plan



Key Plan

sheet title
ELECTRICAL SYMBOLS, NOTES, SCHED., AND ABBR.

sheet number

E0.0

drawn by **RM**

checked by **RM**

Panelboard: 2MH

Location:
Supply From: MDP
Mounting: SURFACE
Enclosure: TYPE 1
Conduit Entry: BOTTOM

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: EXISTING
Mains Type: MLO
Bus Rating (Amps): 250

CKT	Breaker Acc.	Circuit Description	Circuit Size	Trip	Poles	A	B	C	Poles	Trip	Circuit Size	Circuit Description	Breaker Acc.	CKT
1	--	EXISTING LOAD	--	20 A	1	0 VA	0 VA						--	2
3	--	SPACE	--	--	--								--	4
5	NOTE 1	P-3	3#12,#12G, 3/4"	15 A	3	3048 VA	0 VA	3048 VA	0 VA		15 A	EXISTING LOAD	--	6
7													--	8
9	NOTE 1	P-4	3#12,#12G, 3/4"	15 A	3	3048 VA	0 VA	3048 VA	0 VA		15 A	EXISTING LOAD	--	10
11													--	12
13	NOTE 1	P-4	3#12,#12G, 3/4"	15 A	3	3048 VA	0 VA	3048 VA	0 VA		15 A	EXISTING LOAD	--	14
15													--	16
17	--	EXISTING LOAD	--	15 A	3	0 VA	0 VA	0 VA	0 VA		15 A	EXISTING LOAD	--	18
19													--	20
21	--	EXISTING LOAD	--	15 A	3	0 VA	0 VA	0 VA	0 VA		15 A	EXISTING LOAD	--	22
23													--	24
25	--	EXISTING LOAD	--	15 A	3	0 VA	0 VA	0 VA	0 VA		15 A	EXISTING LOAD	--	26
27													--	28
29	--	SPACE	--	--	--								--	30
31	--	SPACE	--	--	--	0 VA	0 VA						--	32
33	--	SPACE	--	--	--	0 VA	0 VA						--	34
35	--	SPACE	--	--	--	0 VA	0 VA						--	36
37	--	SPACE	--	--	--	0 VA	0 VA						--	38
39	--	SPACE	--	--	--	0 VA	0 VA						--	40
41	--	SPACE	--	--	--	0 VA	0 VA						--	42
Total Load:						6097 VA	6097 VA	6097 VA						

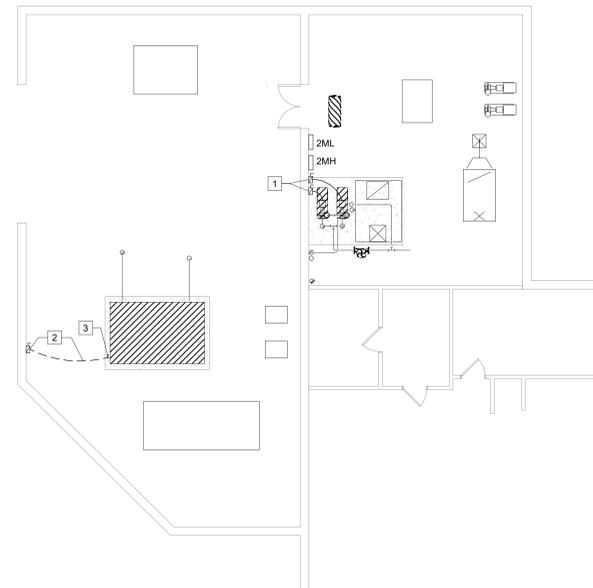
Panel Totals
Total Conn. Load: 18290 VA
Total Est. Demand: 18290 VA
Total Conn.: 22 A
Total Est. Demand: 22 A

Notes:
1. CONTRACTOR TO VERIFY WHICH EXISTING 15A/3P CIRCUIT BREAKER FEEDS EACH PUMP BEING DEMOED. CONTRACTOR TO REUSE EXISTING CIRCUIT BREAKER TO FEED NEW PUMP.

MECHANICAL EQUIPMENT SCHEDULE

EQUIPMENT TAG	VOLTAGE	AMPERE RATING	NUMBER OF POLES	DISCONNECT TYPE	NEMA ENCLOSURE	PANEL	CIRCUIT #	COMMENTS
ACC-1	480 V	15 A	3	FUSED	NEMA 3R	MDP	20,22,24	
P-3	480 V	15 A	3	VFD (FWE)	NEMA 1	2MH	5,7,9	
P-4	480 V	15 A	3	VFD (FWE)	NEMA 1	2MH	11,13,15	

2 PARTIAL SECOND FLOOR PLAN - DEMOLITION
SCALE: 1/8" = 1'-0"



- DEMOLITION KEYED NOTES:**
1. REMOVE EXISTING MOTOR STARTERS AND DISCONNECTS FOR EXISTING CHILLED WATER PUMPS BEING DEMOLISHED. REMOVE WIRING AND CONDUIT BACK TO EXISTING PANELBOARD 2MH.
 2. REMOVE EXISTING DISCONNECT AND SECONDARY WIRING FEEDING EXISTING CHILLER BEING REPLACED. EXISTING UNDERGROUND CONDUIT FROM CHILLER TO DISCONNECT TO REMAIN FOR INSTALLATION OF NEW CONDUCTORS DURING RENOVATION. PRIMARY WIRING FROM PANELBOARD MDP SHALL REMAIN FOR CONNECTION TO NEW CHILLER DISCONNECT DURING RENOVATION.
 3. EXISTING HEAT TRACING CIRCUIT TO REMAIN. REMOVE FROM EXISTING CHILLER BEING REPLACED AND REINSTALL ON NEW CHILLER PIPING DURING RENOVATION.

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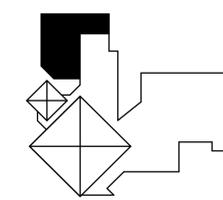
- RENOVATION KEYED NOTES:**
1. INSTALL NEW CONDUCTORS FEEDING NEW CHILLER VIA EXISTING UNDERSLAB CONDUIT. PROVIDE 3#30,#6G FROM DISCONNECT SWITCH TO THE CHILLER.
 2. CONNECT EXISTING HEAT TRACING CIRCUIT SALVAGED DURING DEMOLITION TO NEW HEAT TRACING ON NEW CHILLED WATER PIPING. EXTEND EXISTING CIRCUIT AS NECESSARY FOR NEW CONNECTIONS.
 3. INSTALL DISCONNECT SWITCHES IN A MANNER SUCH THAT NATIONAL ELECTRICAL CODE CLEARANCE REQUIREMENTS ARE MET.

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date
MAY 3, 2021

number	item	date

key plan



Key Plan

sheet title
ELECTRICAL MECHANICAL EQUIPMENT PLAN

sheet number

E3.1

drawn by RM
checked by RM

1 PARTIAL SECOND FLOOR PLAN - RENOVATION
SCALE: 1/8" = 1'-0"

