

IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

BID ISSUE

RCE RESOURCE CONSULTING ENGINEERS, LLC

MEP ENGINEER:
RESOURCE CONSULTING ENGINEERS, LLC

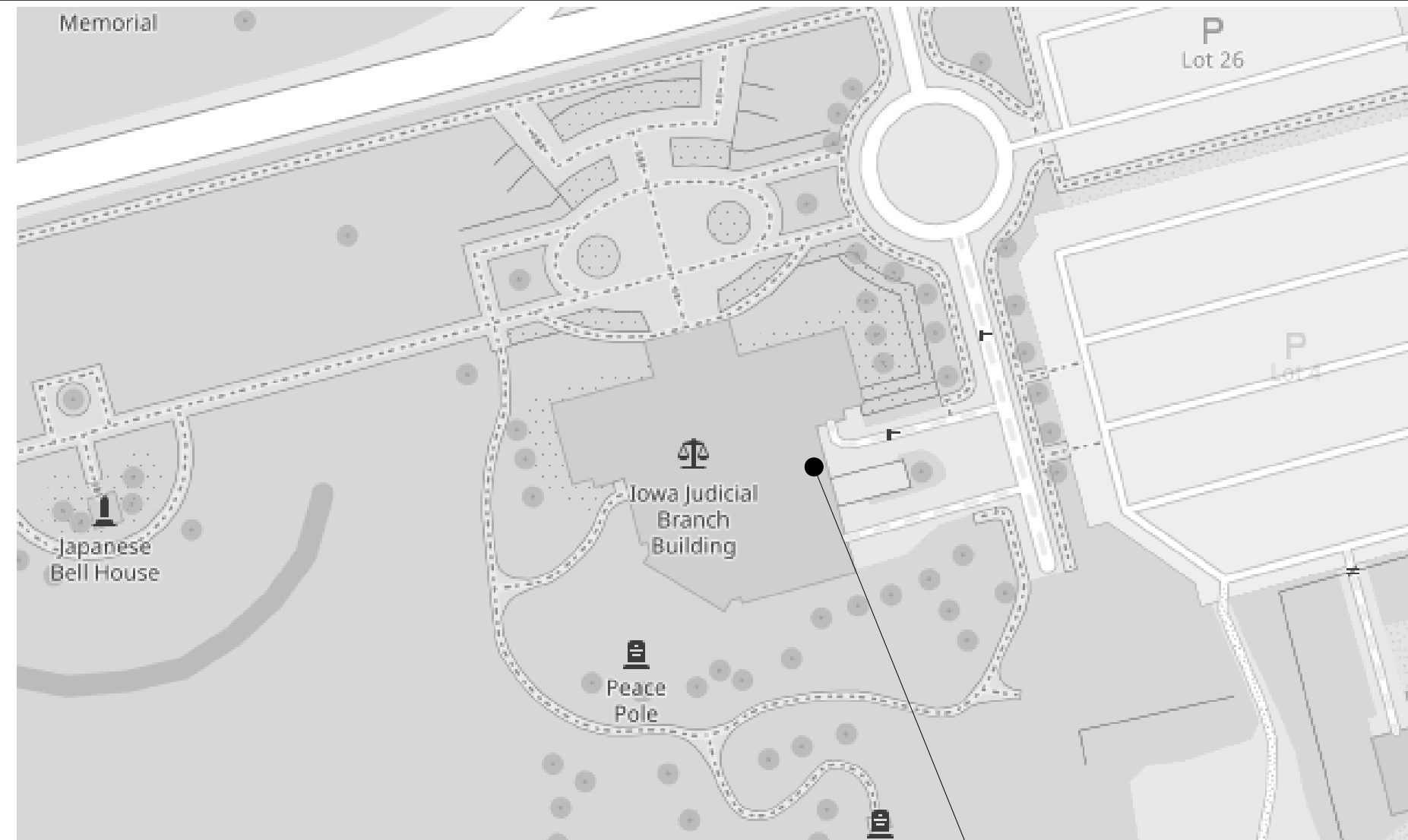
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PROJECT LOCATION:

JUDICIAL BRANCH BUILDING
1111 EAST COURT AVENUE,
DES MOINES, IA 50319



PROJECT LOCATION

DRAWING INDEX:

G000	COVER SHEET
M000	HVAC SYMBOLS AND ABBREVIATIONS
MD101	GROUND LEVEL - MECHANICAL HVAC PLAN - DEMOLITION
MD201	GROUND LEVEL - MECHANICAL PIPING PLAN - DEMOLITION
M101	GROUND LEVEL - MECHANICAL HVAC PLAN - NEW WORK
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E000	ELECTRICAL SYMBOL LEGEND
E001	ELECTRICAL PROJECT NOTES AND ABBREVIATIONS
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- APPLICABLE CODES:
- A. 2015 INTERNATIONAL BUILDING CODE AS ADOPTED BY IOWA ADMINISTRATIVE RULES 661-201 AND 661-301
 - B. 2015 INTERNATIONAL FIRE CODE AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-201
 - C. 2012 INTERNATIONAL ENERGY CONSERVATION CODE AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-303
 - D. 2015 INTERNATIONAL EXISTING BUILDING CODE AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-301 AND 661-350, AS APPLICABLE.
 - E. 2010 AMERICANS WITH DISABILITIES ACT AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-302
 - F. 2024 INTERNATIONAL MECHANICAL CODE AS ADOPTED BY THE IOWA DEPARTMENT OF PUBLIC HEALTH, IOWA ADMINISTRATIVE RULE 641-61
 - G. 2024 UNIFORM PLUMBING CODE AS ADOPTED BY THE IOWA DEPARTMENT OF PUBLIC HEALTH, IOWA ADMINISTRATIVE RULE 641-25
 - H. 2023 NATIONAL ELECTRICAL CODE AS ADOPTED BY THE IOWA ELECTRICAL LICENSING BOARD, IOWA ADMINISTRATIVE RULE 661-504.

IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

IOWA JUDICIAL BRANCH

1111 E COURT AVE
DES MOINES, IA 50319

REVISION INFORMATION

MARK	DATE	DESCRIPTION

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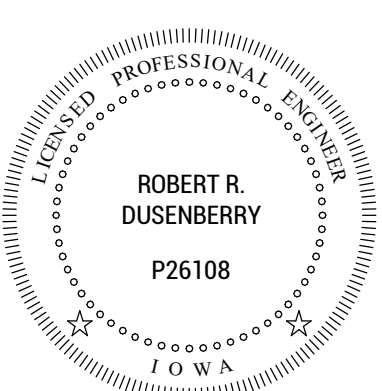
ISSUED: 09/23/2025

PROJECT NO: 2025.023.00

COVER SHEET

G000

RCE PROJECT NUMBER: 2025.023.00



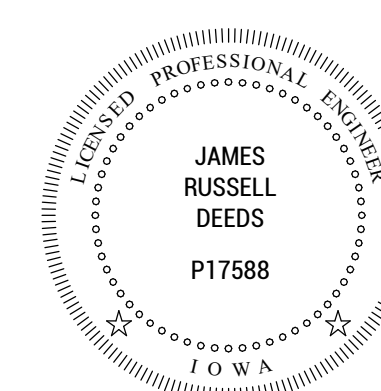
I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Robert Dusenberry
ROBERT R. DUSENBERRY, PE

REG. NO. P26108 DATE: 2025-09-23

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2025

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL MECHANICAL SHEETS



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

JAMES RUSSELL DEEDS
JAMES RUSSELL DEEDS, PE

REG. NO. P17588 DATE: _____

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2026

PAGES OR SHEETS COVERED BY THIS SEAL:
ALL ELECTRICAL SHEETS

GENERAL MECHANICAL SYMBOLS	
	REVISION NUMBER - SHOWN ON PLANS
	POINT WHERE NEW CONNECTS TO EXISTING
	NUMBER OF DETAIL ON SHEET
	NUMBER OF SHEET WHERE DETAIL APPEARS
	KEYNOTE
	CONTINUATION SYMBOL
	ROOM NAME AND NUMBER
	SECTION VIEW
	ELEVATION VIEW
	ITEM TO BE DEMOLISHED
	AREA NOT IN CONTRACT
	PIPE SIZE TAG (DIAMETER)
	ABOVE GROUND PIPING
	BELOW GROUND PIPING
	PIPE INVERT ELEVATION TAG
	EXISTING PIPE TAG
	PIPING BEING DEMOLISHED

EQUIPMENT ABBREVIATIONS			
AC	AIR-COOLED CHILLER	F	FURNACE
ACCU	AIR COOLING CONDENSING UNIT	FCU	FAN COIL UNIT
AFMS	AIR FLOW MEASURING STATION	FTR	FIN TUBE RADIATOR
AHU	AIR HANDLING UNIT	GFP	GLYCOL FEED PUMP
AS	AIR SEPARATOR	GIH	GRAVITY INTAKE HOOD
B	BOILER	GRV	GRAVITY ROOF VENTILATOR
CB	CHILLED BEAM	H	HUMIDITY SENSOR
CCV	COOLING CONTROL VALVE	HC	HEATING COIL
CD	CONTROL DAMPER	HCV	HEATING CONTROL VALVE
CH	CHILLER	HP	HEAT PUMP
CO	CARBON MONOXIDE	HRU	HEATING RECOVERY UNIT
CO2	CARBON DIOXIDE SENSOR	HWP	HEATING WATER PUMP
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CCT	CLOSED CIRCUIT COOLING TOWER	HU	HUMIDIFICATION UNIT
CPF	CHEMICAL POT FEEDER	HV	HEAT EXCHANGER
CRU	CONDENSATE RETURN UNIT	KEH	KITCHEN EXHAUST HOOD
CU	CONDENSING UNIT (ALSO COND)	L	LOUVER
CUH	CABINET UNIT HEATER	MAU	MAKEUP AIR UNIT
CV	CONTROL VALVE	OAT	OUTDOOR AIR TEMPERATURE
CHWP	CHILLED WATER PUMP	PPFB	PARALLEL FAN POWERED BOX
CPF	CHEMICAL POT FEEDER	PHC	ELECTRICAL PREHEAT COIL
DBP	DOMESTIC WATER BOOSTER PUMP	PR	PANEL RADIATOR
DC	DRY COOLER	PRV	POWER ROOF VENTILATOR
DF	DUCT FILTER	RTU	ROOFTOP UNIT
DHU	DEHUMIDIFICATION UNIT	SFPB	SERIES FAN POWER BOX
DOAS	DEDICATED OUTDOOR AIR UNIT	ST	STEAM TRAP
DP	DIFFERENTIAL PRESSURE SENSOR	T	TEMPERATURE SENSOR
DWH	DOMESTIC WATER HEATER	UH	UNIT HEATER
ERF	ENERGY RECOVERY FAN	VAV	VARIABLE VOLUME AIR TERMINAL
ERM	ENERGY RECOVERY MODULE	VFD	VARIABLE FREQUENCY DRIVE
ERW	ENERGY RECOVERY WHEEL	VT	VOLUME TANK
ET	EXPANSION TANK	VRF	VARIABLE REFRIGERANT FLOW
EWH	ELECTRIC WATER HEATER	WWHP	WATER-TO-WATER HEAT PUMP
xF	FANS (ALSO SF, EF, RF, KEF)		
xAS	AIR SILENCER (ALSO SAS, RAS, OAS, EAS)		
xABD	AIR BALANCING DAMPER (ALSO SABD, EABD, RABD, OABD)		
xAT	AIR TERMINAL (ALSO SAT, EAT, RAT, TAB, VAV)		
xP	PUMP (ALSO CP, CBP, CHP, ERP, GWP)		
xC	COIL (ALSO PHC, RHC, ERC, HC, CC)		
xCV	CONTROL VALVE (ALSO CCV, HC)		

APPLICABLE CODES:

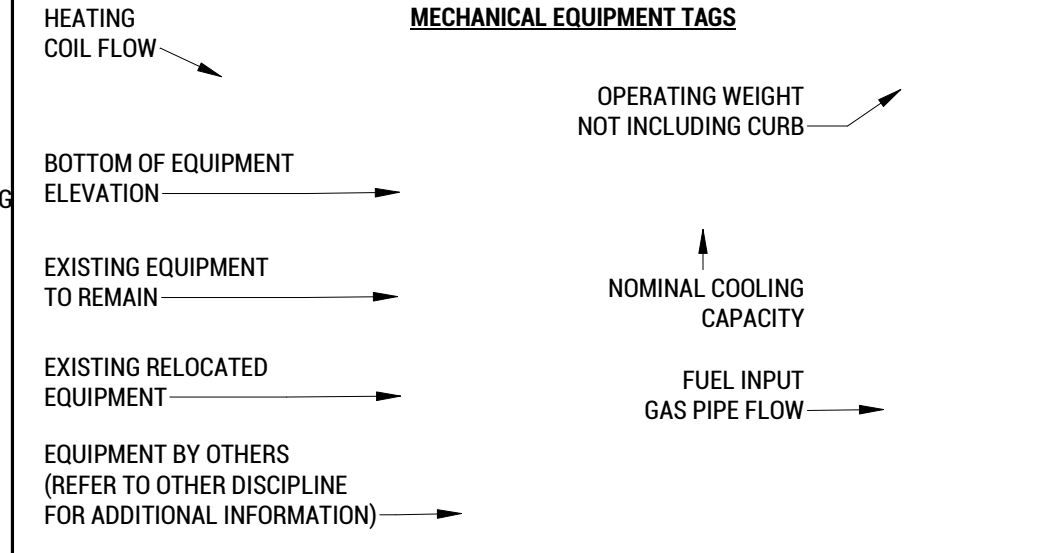
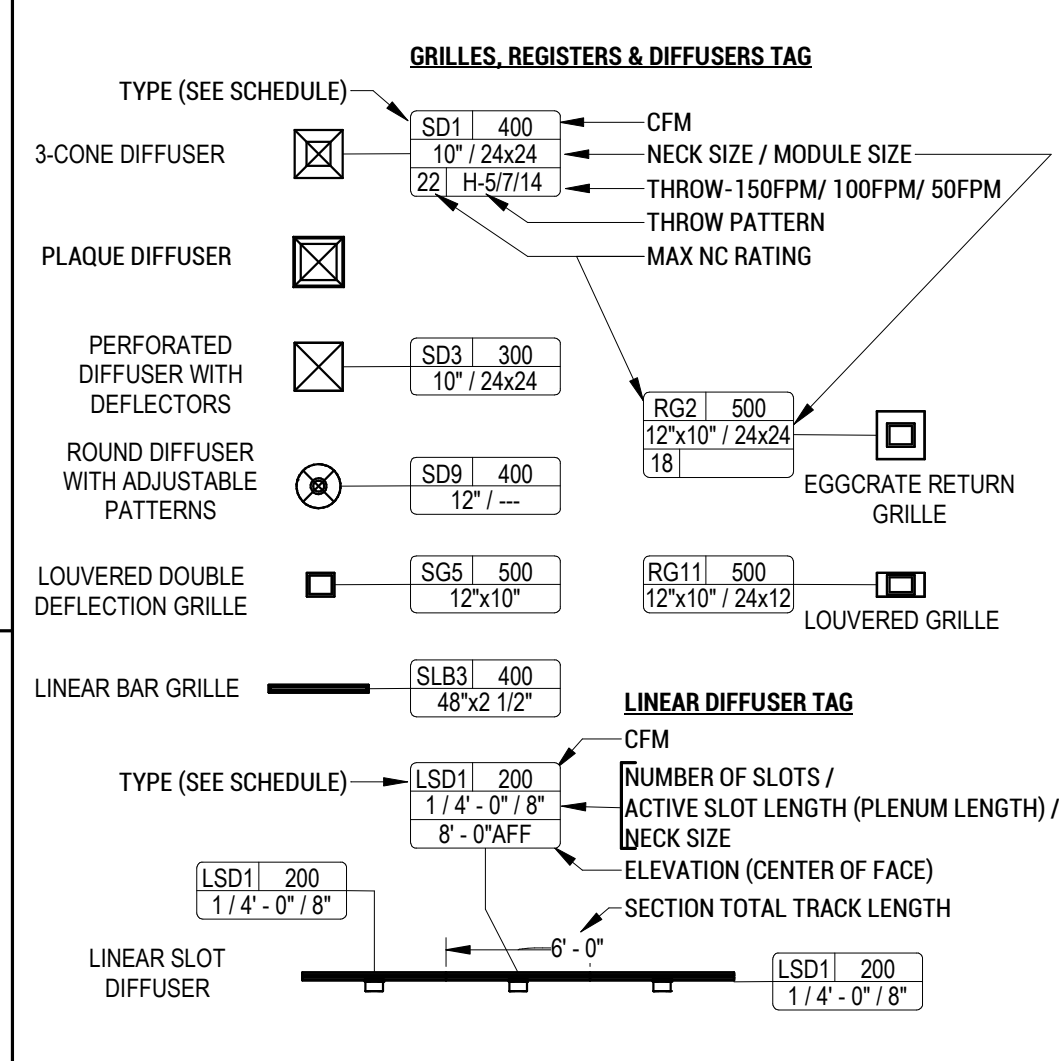
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- 2012 NFPA 101 LIFE SAFETY CODE AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-205
- 2010 AMERICANS WITH DISABILITIES ACT AS ADOPTED BY IOWA ADMINISTRATIVE RULE 661-302
- 2021 INTERNATIONAL MECHANICAL CODE AS ADOPTED BY THE IOWA DEPARTMENT OF PUBLIC HEALTH, IOWA ADMINISTRATIVE RULE 641-61
- 2021 UNIFORM PLUMBING CODE AS ADOPTED BY THE IOWA DEPARTMENT OF PUBLIC HEALTH, IOWA ADMINISTRATIVE RULE 641-25

PROJECT MECHANICAL DESIGN NOTES:

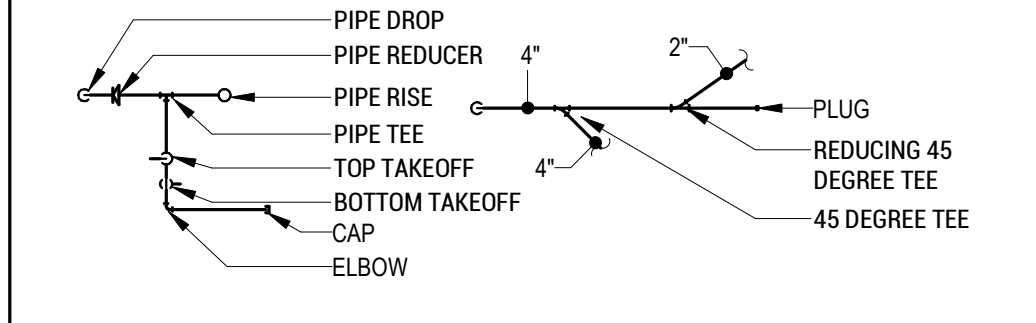
- MECHANICAL DESIGN TO PROVIDE SETBACK CONTROLS PER ASHRAE 90.1-2010 SECTION 6.4.3.2 AND BE SET TO THE FOLLOWING TEMPERATURE SETPOINTS DURING NORMAL BUILDING OPERATION:
 - OCCUPIED COOLING SETPOINT: 75 F.
 - UNOCCUPIED COOLING SETPOINT: 80 F.
 - OCCUPIED HEATING SETPOINT: 68 F.
 - UNOCCUPIED HEATING SETPOINT: 65 F.

HVAC SYMBOLS	
	SQUARE DUCT SIZE TAG (WIDTH X HEIGHT)
	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
	ROUND DUCT SIZE TAG (DIAMETER)
	EXISTING DUCT TAG
	DUCT BEING DEMOLISHED
	SUPPLY AIR
	CONDITIONED OUTSIDE AIR
	OUTSIDE AIR
	RETURN AIR
	TRANSFER AIR
	EXHAUST AIR
	RELIEF AIR
	GREASE EXHAUST AIR
	SMOKE EXHAUST AIR
	EXHAUST GAS FLUE
	COMBUSTION AIR

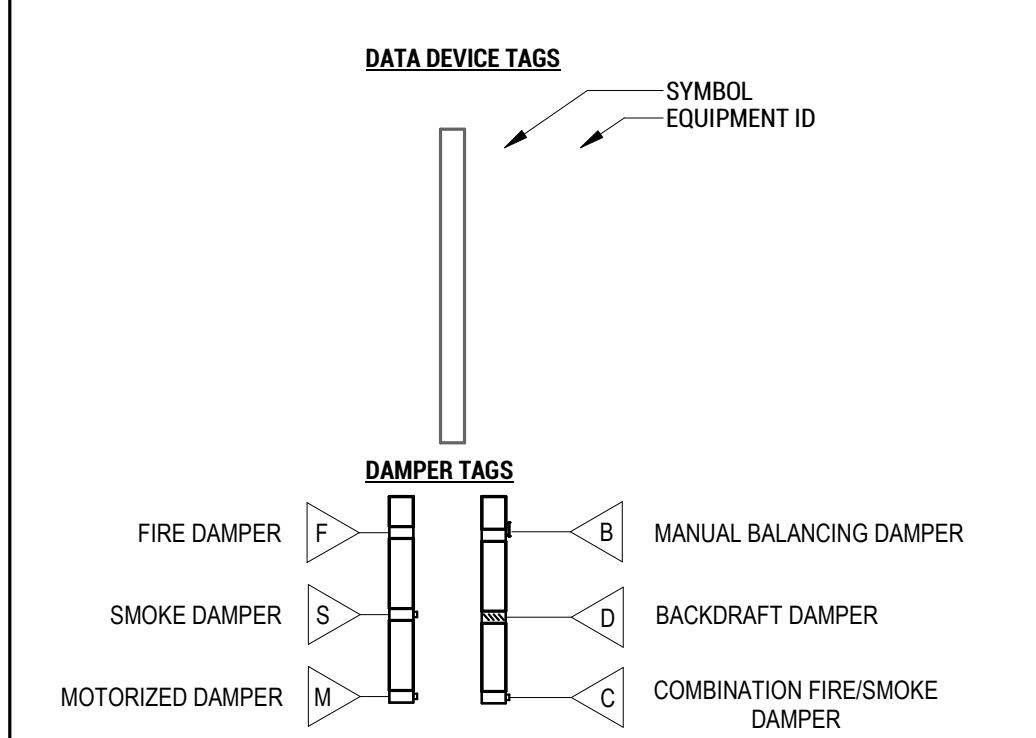
	RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
	ROUND SUPPLY/OUTSIDE AIR DUCT RISE
	RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
	ROUND RETURN/TRANSFER AIR DUCT RISE
	RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
	ROUND EXHAUST/RELIEF AIR DUCT RISE
	ELBOW-RADIUS
	ELBOW-MITERED
	BOTTOM TAKE-OFF
	TOP TAKE-OFF
	TAKE-OFF
	DUCT TRANSITION



MECHANICAL PIPING SYMBOLS	
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CONDENSATE DRAIN
	CONDENSER WATER RETURN
	CONDENSER WATER SUPPLY
	GEO THERMAL WATER RETURN
	GEO THERMAL WATER SUPPLY
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	NATURAL GAS
	PROPANE GAS
	REFRIGERANT-LIQUID
	REFRIGERANT-SUCTION
	REFRIGERANT-HOT GAS
	STEAM
	CONDENSATE RETURN
	FUEL OIL SUPPLY
	FUEL OIL RETURN
	FUEL OIL VENT
	NON-POTABLE COLD WATER



PIPE ACCESSORY TAGS	
	DOMESTIC WATER METER
	BALANCING VALVE
	SHUTOFF BALL VALVE
	CHECK VALVE
	3-WAY MIXING VALVE
	MOTORIZED CONTROL VALVE
	3 WAY MOTORIZED CONTROL VALVE
	PRESSURE REDUCING VALVE
	REFRIGERANT SOLENOID VALVE
	BUTTERFLY VALVE



ABBREVIATIONS			
A	AMPS	LDB	LEAVING DRY BULB TEMPERATURE
AAV	AUTOMATIC AIR VENT	LF	LINEAL FOOT / LINEAL FEET
ABV	ABOVE	LP	LOW PRESSURE
AC	AIR CONDITIONING	LP	LIQUEFIED PETROLEUM GAS
ADJ	ADJUSTABLE	LRA	LOCKED ROTOR AMPS
ADD	ADDENDUM	LVR	LOUVER
AFF	ABOVE FINISHED FLOOR	LWB	LEAVING WET BULB TEMPERATURE
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LWT	LEAVING WATER TEMPERATURE
AL	ALUMINUM	MAV	MANUAL AIR VENT
ALT	ALTERNATE	MAX	MAXIMUM
AP	ACCESS PANEL	MBH	THOUSANDS OF BTU PER HOUR
ARCH	ARCHITECT/ARCHITECTURAL	MC	MECHANICAL CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM	MCA	MINIMUM CIRCUIT AMPACITY
BFF	BELOW FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
BLW	BELOW	MCP	MAXIMUM OCCURRENCE PROTECTION (ALSO MOCP)
BOD	BOTTOM OF DUCT	MD	MOTORIZED DAMPER
BOP	BOTTOM OF PIPE	MECH	MECHANICAL
BTU	BRITISH THERMAL UNIT	MEP	MECHANICAL, ELECTRICAL AND PLUMBING
BTUH	BRITISH THERMAL UNIT PER HOUR	MFR	MANUFACTURER
°C	DEGREES CELSIUS	MN	MINIMUM
CAP	CAPACITY	MISC	MISCELLANEOUS
CB	CATCH BASIN	MTR	MOTOR
CC	COOLING COIL	NA	NOT APPLICABLE (ALSO N/A)
CEA	COMBINED EXHAUST AIR (LAB/GENERAL)	NC	NORMALLY CLOSED
CFH	CUBIC FEET PER HOUR	NC	NOISE CRITERIA
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CL	CENTERLINE	NO	NORMALLY OPEN
CLG	CEILING	NO	NUMBER
CO	CLEAN OUT	NPS	NOMINAL PIPE SIZE
COD	CENTER OF DUCT	NPT	NATIONAL PIPE THREAD
COND	CONDENSATE/CONDENSER	NTS	NOT TO SCALE
COP	CENTER OF PIPE	O	OXYGEN
CS	CARBON STEEL	OC	ON CENTER
CU	COPPER	OED	OPEN ENDED DUCT
CV	CONSTANT VOLUME	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CW	COLD WATER	OFOI	OWNER FURNISHED, OWNER INSTALLED
D	DEGREE	OV	OUTLET VELOCITY
DB	DRY BULB	PC	PLUMBING CONTRACTOR
DBA	A-WEIGHTED DECIBELS	PCF	POUNDS PER CUBIC FOOT
DDC	DIRECT DIGITAL CONTROL	PD	PRESSURE DROP
DIA	DIAMETER	PG	PROPYLENE GLYCOL
DP	DIFFERENTIAL PRESSURE	PH	PHASE
DN	DOWN	PLB	PLUMBING
DT	DIFFERENTIAL TEMPERATURE	PRESS	PRESSURE
DW	DISTILLED WATER	PRV	PRESSURE REDUCING VALVE
EAT	ENTERING AIR TEMPERATURE	PSF	POUNDS PER SQUARE FOOT
EC	ELECTRICAL CONTRACTOR	PSI	POUNDS PER SQUARE INCH
EDB	ENTERING DRY BULB TEMPERATURE	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
EFT	ENTERING FLUID TEMPERATURE	PSIG	POUNDS PER SQUARE INCH GAUGE
EG	ETHYLENE GLYCOL	PWR	POWER
EL	ELEVATION	QTY.	QUANTITY
ELEC	ELECTRICAL	RCP	REFLECTED CEILING PLAN
EQUIP	EQUIPMENT	REC	RECESSED
ERV	ENERGY RECOVERY VENTILATION	RED	REDUCER
ESP	EXTERNAL STATIC PRESSURE	RH	RELATIVE HUMIDITY
ETR	EXISTING TO REMAIN	RM	ROOM
EWB	ENTERING WET BULB TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
EWC	ELECTRIC WATER COOLER	SCH	SCHEDULE
EWT	ENTERING WATER TEMPERATURE	SD	SMOKE DAMPER
EXH	EXHAUST	SF	SQUARE FEET
EXST	EXISTING	SM	SURFACE MOUNT
FC	FAIL CLOSED	SP	STATIC PRESSURE
FCO	FLOOR CLEANOUT OUT	STM	STEAM
FD	FLOOR DRAIN	SS	STAINLESS STEEL
FD	FIRE DAMPER	TC	TEMPERATURE CONTROL
FDV	FIRE DEPARTMENT VALVE	TD	TEMPERATURE DROP
FH	FUME HOOD	TEMP	TEMPERATURE
FL	FAIL LAST POSITION	TEMP	TEMPORARY
FLA	FULL LOAD AMPS	TOD	TOP OF DUCT
FO	FAIL OPEN	TOP	TOP OF PIPE
FO	FUEL OIL	TSP	TOTAL STATIC PRESSURE
FPI	FPS PER INCH	TYP	TYPICAL
FPM	FEET PER MINUTE	UG	UNDERGROUND
FPS	FEET PER SECOND	V	VENT
FS	FLOOR SINK	VAC	VACUUM
FSD	COMBINATION FIRE/SMOKE DAMPER	VAV	VARIABLE AIR VOLUME
FT	FOOT OR FEET	VENT	VENTILATION
FTG	FOOTING	VFD	VARIABLE FREQUENCY DRIVE
GA	GAGE	VP	VELOCITY PRESSURE
GAL	GALLONS	W	WASTE
GC	GENERAL CONTRACTOR	WB	WET BULB
GPH	GALLONS PER HOUR	WC	WATER COLUMN
GPM	GALLONS PER MINUTE	WCO	WALL CLEAN OUT
GS	GALVANIZED STEEL	WG	WATER GAUGE
H	ENTHALPY	WH	WALL HYDRANT
HB	HOSE BIBB	W/	WITH
HD	HUB DRAIN	WMS	WIRE MESH SCREEN
HP	HORSEPOWER		
HTG	HEATING		
HTR	HEATER		
HW	HOT WATER		
HYD	HYDRANT		
HZ	HERTZ		
ID	INDIRECT		
IN	INCH OR INCHES		
INV	INVERT		
KW	KILOWATT/DV		
KWH	KILOWATT-HOURS		
LAT	LEAVING AIR TEMPERATURE		
LB	POUND OR POUNDS		
LB/HR	POUND PER HOUR		
LBS	POUNDS		



* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

MECHANICAL SHEET INDEX	
M000	HVAC SYMBOLS AND ABBREVIATIONS
MD101	GROUND LEVEL - MECHANICAL HVAC PLAN - DEMOLITION
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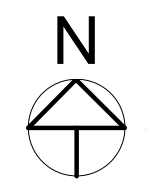
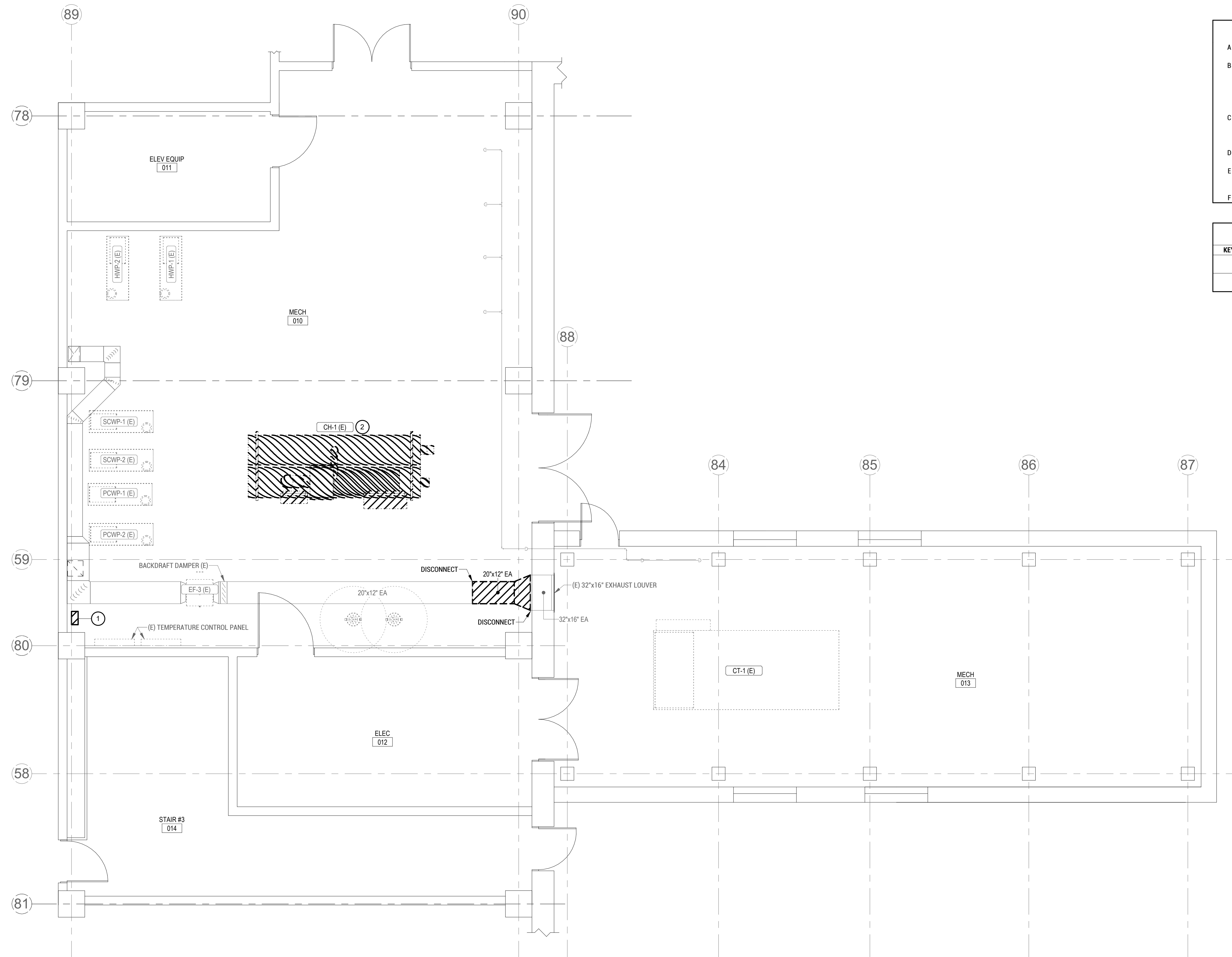
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HVAC SYMBOLS AND ABBREVIATIONS



1 GROUND LEVEL - MECHANICAL HVAC PLAN - DEMOLITION
1/4" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES

- A ALL DUCT, PIPING, AND EQUIPMENT SHOWN DASHED OR HATCHED WITHIN THE AREA OF DEMOLITION SHALL BE DEMOLISHED, UNLESS NOTED OTHERWISE.
- B DEMOLITION DRAWINGS SHOWING CONDITIONS BASED ON FIELD OBSERVATION AND EXISTING DRAWINGS. ADDITIONAL COMPONENTS REQUIRING REMOVAL OR MODIFICATIONS MAY NOT BE SHOWN. CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH EXISTING SYSTEM AND COMPONENTS, AND SHALL BE RESPONSIBLE FOR INCLUDING NECESSARY WORK TO PREPARE SYSTEMS FOR REQUIRED MODIFICATIONS.
- C FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE DEMOLITION OF EXISTING MECHANICAL EQUIPMENT AS SPECIFIED OR INDICATED. DISCONNECT, REMOVE AND RELOCATE ALL ITEMS REQUIRED TO FACILITATE THE WORK.
- D CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING MECHANICAL SYSTEM(S), WHICH WILL BE AFFECTED BY THE DEMOLITION WORK.
- E CONTRACTOR SHALL OBTAIN PERMISSION FROM OWNER PRIOR TO SHUT OFF OF SERVICES WHICH MAY AFFECT OTHER AREAS BEYOND THE LIMITS OF THE IMMEDIATE AREA.
- F ALL WORK SHALL BE SCHEDULED WITH OWNER.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	REMOVE REFRIGERANT MONITORING SYSTEM AND PREPARE FOR INSTALLATION OF NEW REFRIGERANT MONITORING SYSTEM.
2	REMOVE CHILLER, ACCESSORIES, SUPPORTS, AND CONTROLS. REMOVE PIPING TO EXTENT INDICATED AND PREPARE FOR INSTALLATION OF NEW CHILLER.

BID ISSUE



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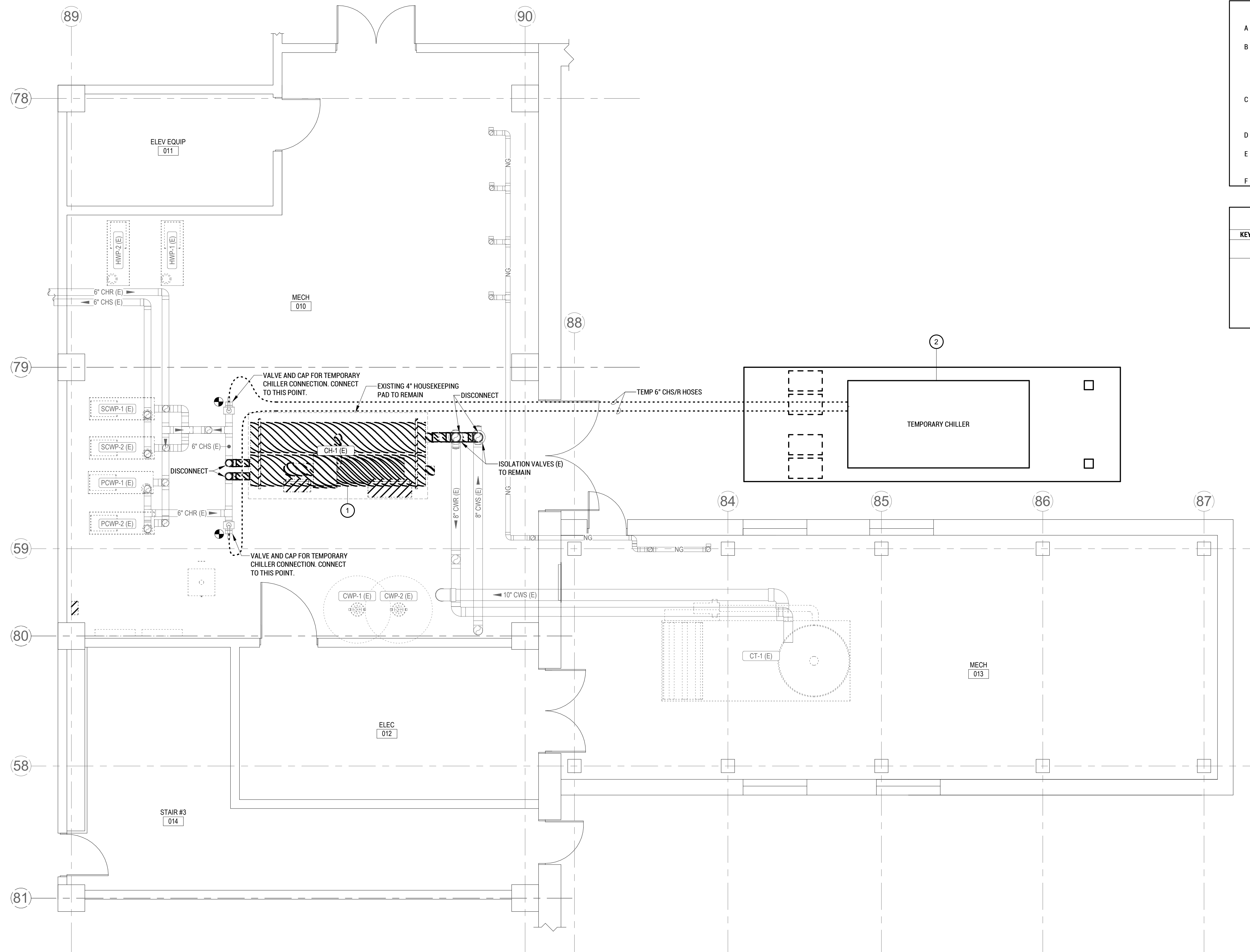
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GROUND LEVEL -
MECHANICAL HVAC PLAN
- DEMOLITION

MD101



- MECHANICAL DEMOLITION GENERAL NOTES**
- A ALL DUCT, PIPING, AND EQUIPMENT SHOWN DASHED OR HATCHED WITHIN THE AREA OF DEMOLITION SHALL BE DEMOLISHED, UNLESS NOTED OTHERWISE.
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 - F ALL WORK SHALL BE SCHEDULED WITH OWNER.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	REMOVE CHILLER, ACCESSORIES, SUPPORTS, AND CONTROLS. REMOVE PIPING TO EXTENT INDICATED AND PREPARE FOR INSTALLATION OF NEW CHILLER.
2	PROVIDE 100-TON TEMPORARY CHILLER AND ALL ASSOCIATED PIPING, HOSES, SUPPORTS, ACCESSORIES, CONTROLS, CONDUCTORS, POWER CONNECTIONS, AND PIPING CONNECTIONS TO PROVIDE A TEMPORARY, OPERATIONAL CHILLED WATER PLANT. THE TEMPORARY CHILLER SHALL BE OPERATIONAL DURING REMOVAL OF THE EXISTING CHILLER AND INSTALLATION OF THE NEW CHILLER. MINIMIZE COOLING SYSTEM DOWN TIME. COORDINATE WITH THE OWNER ON EXACT LOCATION OF TEMPORARY CHILLER TRAILER.

① GROUND LEVEL - MECHANICAL PIPING PLAN - DEMOLITION
 1/4" = 1'-0"

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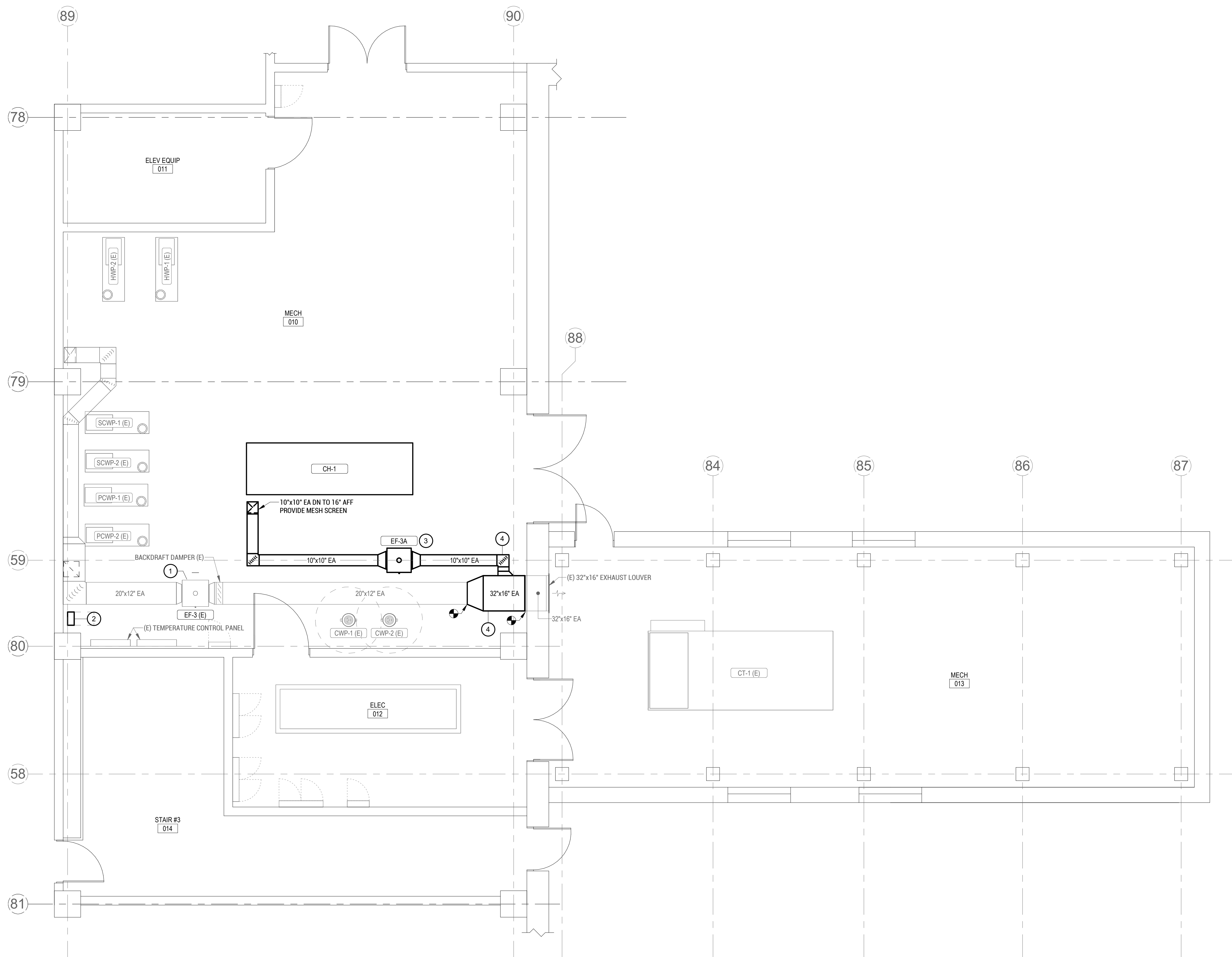
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ISSUED: 09/23/2025
 PROJECT NO: 2025.023.00

GROUND LEVEL -
 MECHANICAL PIPING
 PLAN - DEMOLITION

MD201



- ### HVAC GENERAL NOTES
- A REFER TO PIPING DRAWINGS FOR THERMOSTAT AND TEMPERATURE SENSOR LOCATIONS.
 - B PROVIDE A 4" HOUSEKEEPING PAD FOR EACH PIECE OF MECHANICAL EQUIPMENT MOUNTED ON THE FLOOR. COORDINATE SIZES WITH MECHANICAL EQUIPMENT SELECTED.
 - C ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - D THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH.
 - E CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO WORK.
 - F CONTRACTOR IS RESPONSIBLE FOR ALL RIGGING, HANDLING, AND PROTECTION OF MATERIALS.
 - G ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS REQUIRED FOR A COMPLETE INSTALLATION.
 - H FOR CLARITY OF INFORMATION ON DRAWING, ALL EXISTING CONDUIT, PIPING, DUCTWORK, EQUIPMENT, DEVICES, ETC. ARE NOT SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ACTUAL SITE CONDITIONS AND COORDINATING WORK WITH EXISTING SYSTEMS, UTILITIES, AND GENERAL CONSTRUCTION COMPONENTS IN SPACE.
 - I WORK SHALL BE SCHEDULED TO MINIMIZE DURATION OF INTERRUPTIONS TO MECHANICAL SYSTEMS IN BUILDING. SHUTDOWNS AFFECTING AREAS OUTSIDE OF WORK AREA SHALL BE SCHEDULED WITH OWNER, WITH MINIMUM OF 48 HOURS NOTICE PRIOR TO SHUTDOWN. SHUTDOWNS IMPACTING HEATING OR COOLING OF OTHER BUILDING AREAS SHALL BE LIMITED IN DURATION, AND SHALL BE APPROVED BY OWNER PRIOR TO WORK PROGRESSING.
 - J CONTRACTOR SHALL TEMPORARILY REMOVE REQUIRED PORTIONS OF EXISTING CEILING SYSTEM AS NECESSARY TO PROVIDE ACCESS FOR PROJECT WORK, OR SHALL WORK THROUGH OPENINGS IN CEILING AS APPROPRIATE. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO CEILING DUE TO PROJECT WORK.
 - K CONTROLS SYSTEM SHALL BE MODIFIED AS INDICATED ON DRAWINGS, WITH EXISTING SENSORS/CONTROL DEVICES RELOCATED TO NEW LOCATIONS AS INDICATED. WIRING WILL BE RE-ROUTED FROM NEW LOCATION BACK TO CONTROLLER OR EQUIPMENT SERVED.
 - L NEW CONTROL COMPONENTS SHALL MATCH EXISTING CONTROL COMPONENTS. ALL CONTROLLED DEVICES SHALL BE INTEGRATED INTO BUILDING AUTOMATION SYSTEM.
 - M PROVIDE BALANCING DAMPER FOR EACH AIR INLET OR OUTLET, WHETHER INDICATED ON DRAWINGS, DETAILS, SPECIFICATIONS, ETC. OR NOT. THIS SHALL INCLUDE REGISTERS, GRILLES, DIFFUSERS, AND PLENUM INTAKES. REFER TO SPECIFICATIONS FOR BALANCING DAMPERS REQUIREMENTS.
 - N REQUIRED ACCESS AREA FOR MECHANICAL EQUIPMENT IS TYPICALLY INDICATED ON DRAWINGS. CONTRACTOR SHALL COORDINATE FINAL EQUIPMENT LOCATIONS WITH WORK OF OTHER TRADES TO ENSURE EQUIPMENT IS ACCESSIBLE FOR MAINTENANCE, FILTER REPLACEMENTS, ETC.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	BALANCE EXHAUST FAN EF-3 TO 1750 CFM WITH EXHAUST FAN EF-3A ON.
2	INSTALL REFRIGERANT MONITORING SYSTEM THAT IS COMPATIBLE WITH THE NEW CHILLER REFRIGERANT (R-513A). PROVIDE DRY CONTACTS FOR CONTROL OF EF-3A.
3	CONNECT EXHAUST FAN EF-3A TO NEW REFRIGERANT MONITORING SYSTEM. FAN SHALL NORMALLY BE "OFF". WHEN REFRIGERANT IS DETECTED, THE FAN SHALL BE "ON".
4	INSULATE DUCTWORK WITHIN 10 FEET OF THE EXTERIOR PENETRATION. PROVIDE 1" MINERAL FIBER DUCT INSULATION.

N
 1 GROUND LEVEL - MECHANICAL HVAC PLAN - NEW WORK
 1/4" = 1'-0"

DESIGNATION	LOCATION	BASIS OF DESIGN		SERVICE	TYPE	CAPACITY (CFM)	BALANCED FLOW (CFM)	FAN RPM	FAN WHEEL/PROPELLER DIAMETER (IN.)	STATIC PRESSURE (IN. W.C.)	APPROX. AIR TEMP. (°F)	PROJECT ELEVATION (FT ABOVE SEA LEVEL)	DRIVE TYPE	ELECTRICAL DATA					NOTES	
		MANUFACTURER	MODEL											BRAKE HP	MOTOR HP	MOTOR RPM	VOLTAGE	PHASE		VFD
EF-3A	MECH RM	COOK	120 SQN-D	REFRIGERANT PURGE	INLINE	375	375	1266	12	0.5	70	1000	DIRECT	0.1	1/8	1725	120	1	NO	1,2,3,4,5

- NOTES:
- FAN SHALL BE CONTROLLED BY THE REFRIGERANT MONITORING SYSTEM. THE FAN SHALL NORMALLY BE "OFF". WHEN A REFRIGERANT LEAK IS DETECTED, THE FAN SHALL BE "ON".
 - PROVIDE BACKDRAFT DAMPER.
 - FAN SHALL HAVE A DUCTED INLET AND DUCTED OUTLET.
 - PROVIDE FAN MOUNTED SPEED CONTROLLER.
 - PROVIDE VIBRATION ISOLATION.

IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

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BID ISSUE

IOWA JUDICIAL BRANCH CHILLER REPLACEMENT

IOWA JUDICIAL BRANCH

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DES MOINES, IA 50319

IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

REVISION INFORMATION

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IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

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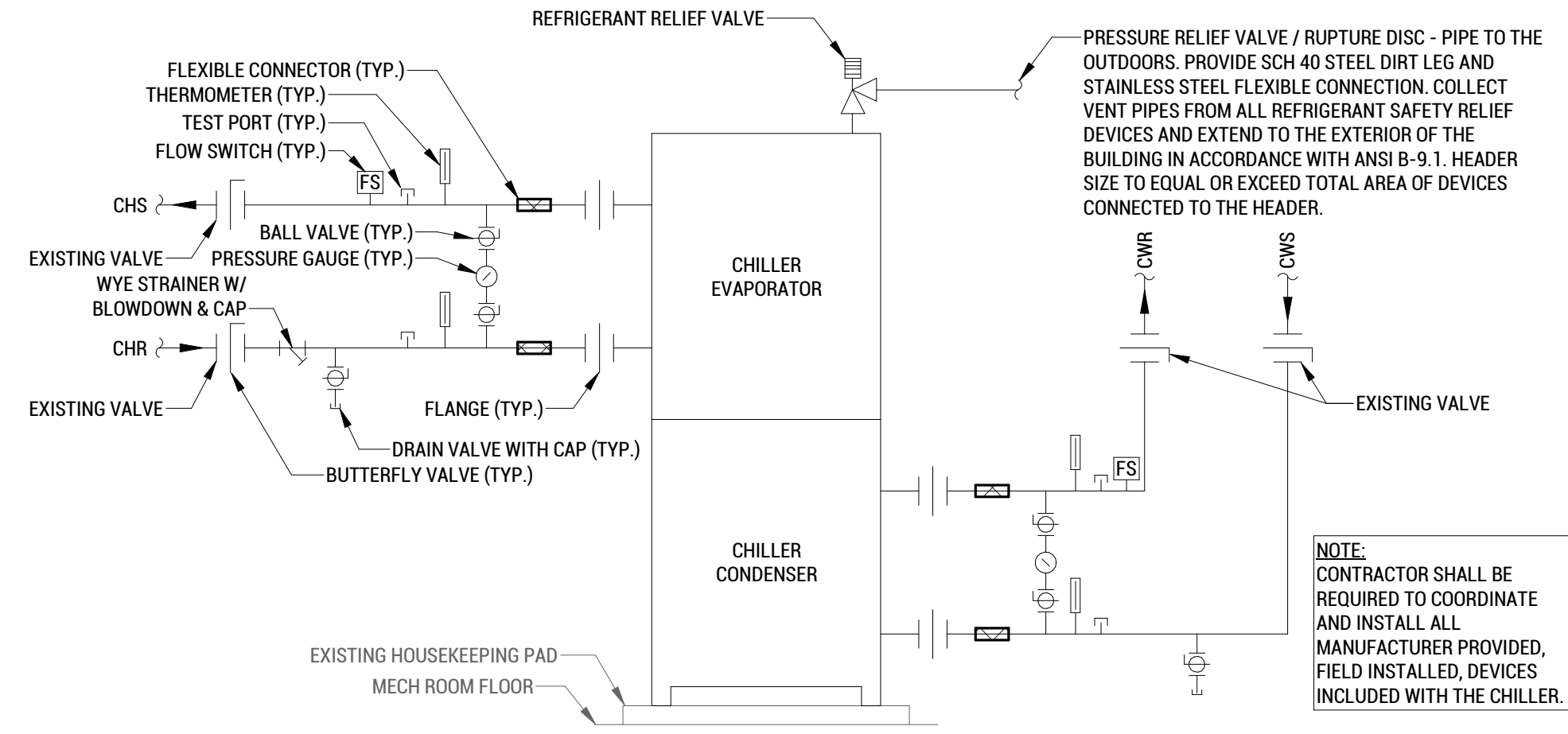
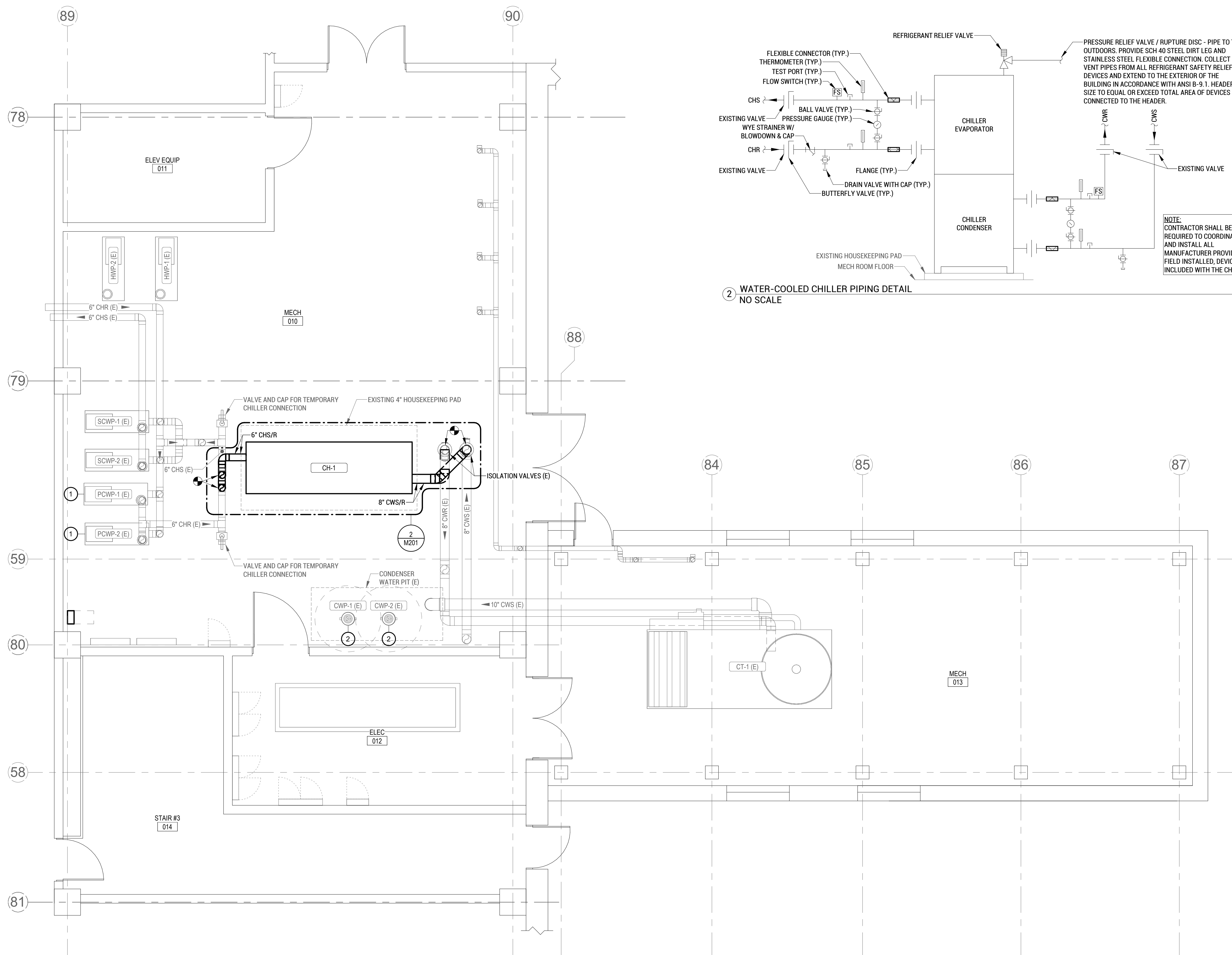
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IOWA JUDICIAL BRANCH BUILDING CHILLER REPLACEMENT

GROUND LEVEL - MECHANICAL HVAC PLAN - NEW WORK

M101



2 WATER-COOLED CHILLER PIPING DETAIL
NO SCALE

- MECHANICAL PIPING GENERAL NOTES**
- A SUPPLY AND RETURN PIPING TO ALL TERMINAL EQUIPMENT SHALL BE THE SAME SIZE.
 - B CONDENSATE DRAINS SHALL BE SUPPLIED FOR ALL COOLING EQUIPMENT. CONTRACTOR SHALL ENSURE PROPER INSTALLATION AND DRAINAGE AS REQUIRED BY FEDERAL, STATE, AND LOCAL CODES. CONDENSATE PIPING SHALL BE TYPE "L" COPPER.
 - C PROVIDE A 4" HOUSEKEEPING PAD FOR EACH PIECE OF MECHANICAL EQUIPMENT MOUNTED ON THE FLOOR. COORDINATE SIZES WITH MECHANICAL EQUIPMENT SELECTED.
 - D CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO WORK.
 - E CONTRACTOR IS RESPONSIBLE FOR ALL RIGGING, HANDLING, AND PROTECTION OF MATERIALS.
 - F ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS REQUIRED FOR A COMPLETE INSTALLATION.
 - G FOR CLARITY OF INFORMATION ON DRAWING, ALL CONDUIT, PIPING, DUCTWORK, EQUIPMENT, DEVICES, ETC. ARE NOT SHOWN ON THIS DRAWING. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK WITH WORK OF OTHER TRADES AND BUILDING ARCHITECTURAL.
 - H REQUIRED ACCESS AREA FOR MECHANICAL EQUIPMENT IS TYPICALLY INDICATED ON DRAWINGS. CONTRACTOR SHALL COORDINATE FINAL EQUIPMENT LOCATIONS WITH WORK OF OTHER TRADES TO ENSURE EQUIPMENT IS ACCESSIBLE FOR MAINTENANCE, FILTER REPLACEMENTS, ETC.
 - I CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS FOR DUCT WORK, HVAC PIPING, PLUMBING PIPING, FIRE SPRINKLER PIPING, STRUCTURE, ELECTRICAL PANELS AND TRANSFORMERS, CONDUITS 2" DIAMETER AND LARGER, CABLE TRAYS, ETC.
 - J DRAWINGS ARE DIAGRAMMATIC IN NATURE AND SHOULD NOT BE USED TO DETERMINE EXACT LOCATIONS OF EQUIPMENT, PIPING AND ACCESSORIES, ETC. REFER TO ALL AVAILABLE INFORMATION WITHIN CONTRACT DOCUMENTS (INCLUDING, BUT NOT NECESSARILY LIMITED TO, STRUCTURAL PLANS, FLOOR PLANS, REFLECTED CEILING PLANS, ELECTRICAL LIGHTING, POWER AND SYSTEM PLANS, PLUMBING PLANS, MECHANICAL PIPING PLANS, ETC.) TO COORDINATE EXACT LOCATIONS FOR INSTALLATION OF WORK INDICATED ON THIS DRAWINGS.
 - K CONTRACTOR SHALL LOCATE THERMOSTATS AND TEMPERATURE SENSORS AT 4'-0" AFF, A MINIMUM OF 8" FROM LIGHT SWITCH.
 - L CONDENSATE DRAINS SHALL BE SUPPLIED FOR ALL COOLING EQUIPMENT. CONTRACTOR SHALL ENSURE PROPER INSTALLATION AND DRAINAGE AS REQUIRED BY FEDERAL, STATE, AND LOCAL CODES. CONDENSATE PIPING SHALL BE TYPE "L" COPPER.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	BALANCE PRIMARY CHILLED WATER PUMP TO THE EVAPORATOR FLOW RATE LISTED IN THE WATER-COOLED CHILLER SCHEDULE.
2	BALANCE CONDENSER WATER PUMP TO THE CONDENSER FLOW RATE LISTED IN THE WATER-COOLED CHILLER SCHEDULE.

1 GROUND LEVEL - MECHANICAL PIPING PLAN - NEW WORK
1/4" = 1'-0"

WATER-COOLED CHILLER SCHEDULE

DESIGNATION	LOCATION	BASIS OF DESIGN		SERVICE	COMPRESSOR TYPE	QUANTITY OF COMPRESSORS	REFRIGERANT TYPE	MAX. REFRIGERANT CHARGE (LBS.)	NOMINAL CAPACITY (TONS)	UNIT CAPACITY (TONS)	EFFICIENCY		EVAPORATOR PERFORMANCE					CONDENSER PERFORMANCE					VFD	ELECTRICAL DATA									
		MANUFACTURER	MODEL								KW/TON	IPLV	FLUID TYPE	DESIGN FLOW (GPM)	ENT. FLUID TEMP. (°F)	LVG. FLUID TEMP. (°F)	MIN. FLOW (GPM)	MAX. PRESSURE DROP (FEET WG)	FOULING FACTOR	UNIT CAPACITY (TONS)	FLUID TYPE	DESIGN FLOW (GPM)		ENT. FLUID TEMP. (°F)	LVG. FLUID TEMP. (°F)	MAX. PRESSURE DROP (FEET WG)	FOULING FACTOR	VOLTAGE	PHASE	KW	MCA	MOCP	NOTES
CH-1	MECH RM	DUNHAM BUSH	DCLC240M	CHILLED WATER SYSTEM	MAGNETIC BEARING CENTRIFUGAL	2	R513A	968	200	200	0.538	0.376	WATER	400	54	42	400	7.33	0.0001	200	WATER	548	85	95	9.37	0.00025	YES	460	3	107.6	213	300	1,2,3

- NOTES:**
- THE EVAPORATOR AND CONDENSER SHALL BE 2 PASS.
 - THE WATER CHILLER SHALL NOT EXCEED A SOUND PRESSURE OF 78 DBA AT 100 PERCENT LOAD AT DESIGN CONDITIONS AS TESTED PER AHRI STANDARD 575.
 - PROVIDE 2 INDEPENDENT REFRIGERANT CIRCUITS.

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ISSUED: 09/23/2025

PROJECT NO: 2025.023.00

GROUND LEVEL - MECHANICAL PIPING PLAN - NEW WORK

M201

ELECTRICAL STANDARDS SCHEDULE	
UL STANDARDS	
STANDARD	TOPIC
1	FLEXIBLE METAL CONDUIT
6	ELECTRICAL RIGID METAL CONDUIT - STEEL
20	GENERAL-USE SNAP SWITCHES
44	XHHW-2 CONDUCTORS
50/50E	ELECTRICAL EQUIPMENT ENCLOSURE TESTING
83	THHN/THWN-2 CONDUCTORS
98	ENCLOSED AND DEAD-FRONT SWITCHES
467	GROUNDING AND BONDING EQUIPMENT
486A-486B	WIRE CONNECTORS
489	MOLDED-CASE CIRCUIT BREAKERS, SWITCHES, AND CIRCUIT BREAKER ENCLOSURES
498	ATTACHMENT PLUGS AND RECEPTACLES
508A	INDUSTRIAL CONTROL PANELS
514A	METALLIC OUTLET BOXES
514B	CONDUIT, TUBING, AND CABLE FITTINGS
514D	COVER PLATES FOR FLUSH MOUNTED WIRING DEVICES
797	ELECTRICAL METALLIC TUBING - STEEL
869A	SERVICE EQUIPMENT
916	ENERGY MANAGEMENT EQUIPMENT
969	MARKING AND LABELING SYSTEMS
1077	SUPPLEMENTARY PROTECTORS
1242	ELECTRICAL INTERMEDIATE METAL CONDUIT - STEEL
AXUT	ATTACHMENT PLUGS, FUSELESS
BOJZ	BOXES, JUNCTION AND PULL
DWIT	CONDUIT FITTINGS
DXUZ	FLEXIBLE METAL CONDUIT
DYBV	INTERMEDIATE FERROUS METAL CONDUIT
DYVW	RIGID NONFERROUS METALLIC CONDUIT
FJMX	ELECTRICAL METALLIC TUBING
FKAV	ELECTRICAL METALLIC TUBING FITTINGS
FOIZ	ELECTRICALLY CONDUCTIVE CORROSION-RESISTANT COMPOUND FOR THREADED CONDUIT
ILNR	FITTINGS, FLEXIBLE METALLIC TUBING
KDER	GROUNDING AND BONDING EQUIPMENT
QCIT	METALLIC OUTLET BOXES
RTRT	RECEPTACLES FOR PLUGS AND ATTACHMENT PLUGS
WMUZ	SWITCHES, FLUSH
NEMA STANDARDS	
STANDARD	TOPIC
250	ENCLOSURE TYPES
FB 2.10	FITTINGS FOR USE WITH NON-FLEXIBLE ELECTRICAL METAL CONDUIT OR TUBING
FB 2.20	FITTINGS FOR USE WITH FLEXIBLE ELECTRICAL CONDUIT AND CABLE
FU 1	LOW-VOLTAGE CARTRIDGE FUSES
KS 1	ENCLOSED AND MISCELLANEOUS DISTRIBUTION EQUIPMENT SWITCHES
PB1.1	PANELBOARDS RATED 600V OR LESS
NECA STANDARDS	
STANDARD	TOPIC
1	GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION
101	INSTALLATION AND SUPPORT OF STEEL CONDUIT
130	INSTALLING AND MAINTAINING WIRING DEVICES
407	INSTALLING AND MAINTAINING PANELBOARDS
ANSI STANDARDS	
STANDARD	TOPIC
Z535.1	SAFETY COLORS
Z535.2	FACILITY SAFETY SIGNS
Z535.3	SAFETY SYMBOLS
Z535.4	PRODUCT SAFETY SIGNS AND LABELS
ASTM STANDARDS	
STANDARD	TOPIC
A36/A36M	CARBON STRUCTURAL STEEL
A240/240M	STAINLESS STEEL
A568/A568M	SHEET STEEL
A641/A641M	ZINC-COATED CARBON STEEL WIRE
A653/A653M	GALVANIZED STEEL
B3	SOFT OR ANNEALED COPPER WIRE
B8	CONCENTRIC-LAY-STRANDED COPPER WIRES
F3125/F3125M	HIGH STRENGTH STRUCTURAL BOLTS AND ASSEMBLIES

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL INDICATED STANDARDS MAY NOT BE APPLICABLE TO ALL PROJECTS. COMPLY W/ ALL STANDARDS APPLICABLE TO THIS PROJECT.

ACCEPTABLE MANUFACTURERS SCHEDULE	
DEVICE/EQUIPMENT TYPE	ACCEPTABLE MANUFACTURER(S)
ENCLOSED SWITCHES AND BREAKERS	ABB LEGRAND LEVITON
WIRING DEVICES	EATON HUBBELL
BUILDING WIRE CONDUCTORS	BELDEN SOUTHWIRE CERRO ENCORE

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL DEVICE/EQMT TYPES MAY NOT BE PRESENT IN ALL PROJECTS.
B. PROVIDE SINGLE MANUFACTURER FOR EACH DEVICE/EQMT TYPE.

CONDUCTOR COLOR SCHEDULE		
CONDUCTOR TYPE	APPLICATION	COLOR
208Y/120V 3 PHASE	PHASE A	BLACK
	PHASE B	RED
	PHASE C	BLUE
480Y/277V 3 PHASE	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW
GROUND	208Y/120V	GREEN
	480Y/277V	GREEN/YELLOW
NEUTRAL	208Y/120V	WHITE
	480Y/277V	GRAY
0-10V	+	VIOLET
	-	PINK

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL APPLICATIONS MAY NOT BE PRESENT ON ALL PROJECTS.
B. CONDUCTOR COLOR CODING MUST BE FACTORY-APPLIED FOR CONDUCTOR SIZES #10 AWG AND SMALLER. FIELD-APPLIED COLOR CODING IS ACCEPTABLE FOR CONDUCTOR SIZES #8 AWG AND LARGER PENDING AHJ APPROVAL.
C. FOR FIELD-APPLIED COLOR CODING, FACTORY-APPLIED CONDUCTOR COLOR SHALL BE BLACK. FIELD-APPLIED COLOR CODING SHALL BE PROVIDED VIA SELF-ADHESIVE VINYL IN HALF-LAPPED TURNS FOR MIN 6" ON EACH END OF EACH CONDUCTOR.
D. FOR ANY CONDUCTOR TYPES NOT INDICATED, PROVIDE COLOR CODING AS REQUIRED BY CODE, MANUFACTURER, AND/OR INDUSTRY STANDARDS.

ELECTRICAL WARRANTY SCHEDULE		
DEVICE/EQUIPMENT TYPE	WARRANTY PERIOD (YEARS)	
	MFR	INSTALLER
GENERAL PROJECT INSTALLATION	-	1
WIRING DEVICES	3	3
ENCLOSED SWITCHES AND CIRCUIT BREAKERS	2	2

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL INDICATED DEVICE/EQMT TYPES MAY NOT BE PRESENT IN ALL PROJECTS. PROVIDE INDICATED WARRANTIES FOR ALL APPLICABLE DEVICE/EQMT TYPES.
B. MANUFACTURER AND INSTALLER SHALL WARRANT THE DEVICES, EQMT, COMPONENTS, ASSOCIATED SOFTWARE, ETC. AND INSTALLATION FOR THE INDICATED PERIOD. FAILURE OF THE DEVICE, EQMT, SYSTEM, INSTALLATION, ETC. SHALL RESULT IN THE MANUFACTURER OR INSTALLER REPAIRING OR REPLACING ANY COMPONENTS OR PART OF THE INSTALLATION AS REQUIRED TO PROVIDE A FULLY FUNCTIONING SYSTEM IN ACCORDANCE W/ THE DESIGN INTENT AT NO ADDITIONAL COST TO OWNER.

CONDUIT BEND RADIUS SCHEDULE	
TRADE SIZE	MIN BEND RADIUS
1/2"	4"
3/4"	4-1/2"
1"	5-3/4"
1-1/4"	7-1/4"
1-1/2"	8-1/4"
2"	9-1/2"
2-1/2"	10-1/2"
3"	13"
3-1/2"	15"
4"	16"

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL CONDITIONS MAY NOT BE PRESENT IN ALL PROJECTS.
B. UTILIZE ONE SHOT AND/OR FULL SHOE TYPE BENDERS.
C. THE INDICATED MIN BEND RADII ARE APPLICABLE TO ALL CONDUIT TYPES.
D. REFERENCE NEC CHAPTER 9, TABLE 2 FOR FURTHER INFO.

CONDUIT TYPES SCHEDULE						
TYPE	DESCRIPTION	COATING		SECURING/SUPPORTING		REMARKS
		EXTERIOR	INTERIOR	MAX INTERVAL	MAX DISTANCE FROM TERMINATION POINT	
EMT	ELECTRICAL METALLIC TUBING	ZINC	ZINC WITH ORGANIC TOP COATING	10'-0"	3'-0"	1,3
FMC	FLEXIBLE METAL CONDUIT	-	-	4'-6"	1'-0"	2,5
GRC	GALVANIZED RIGID CONDUIT	ZINC	ZINC WITH ORGANIC TOP COATING	10'-0"	3'-0"	1,3,4

GENERAL NOTES
A. THE TOTAL NUMBER OF BENDS B/W PULL POINTS SHALL NOT EXCEED THE EQUIVALENT OF (4) QUARTER BENDS (360 DEGREES TOTAL).
B. NO INDIVIDUAL PIECE OF CONDUIT SHALL BE UNSUPPORTED, EVEN IF THE INDICATED MAX INTERVAL B/W SUPPORTS WOULD OTHERWISE NOT BE EXCEEDED.
C. METALLIC CONDUIT TYPES SHALL BE STEEL UNO.
D. WHERE GALVANIZED, STAINLESS STEEL, ETC. VERSIONS OF THE INDICATED CONDUIT TYPES ARE SPEC'D, THE REQUIREMENTS INDICATED FOR THE ASSOCIATED BASE CONDUIT TYPE SHALL APPLY.

REMARKS
1. WHERE STRUCTURAL MEMBERS DO NOT READILY PERMIT SECURELY FASTENING WITHIN 3'-0" FROM TERMINATION POINT, SECURELY FASTENING UNBROKEN LENGTHS UP TO 5'-0" FROM TERMINATION POINT IS ACCEPTABLE.
2. WHEN FLEXIBILITY IS NECESSARY AFTER INSTALLATION, LENGTHS FROM THE LAST SECURED/SUPPORTED POINT SHALL NOT EXCEED:
A. 1/2" THRU 1-1/4", 3'-0"
B. 1-1/2" THRU 2", 4'-0"
C. 2-1/2" AND LARGER 5'-0"
3. HORIZONTAL RUNS SUPPORTED BY OPENINGS THROUGH FRAMING MEMBERS AT INTERVALS NOT EXCEEDING 10'-0" AND SECURELY FASTENED W/IN 3'-0" OF TERMINATION POINTS ARE ACCEPTABLE.
4. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND THAT MAINTAINS ELEC CONDUCTIVITY TO THREADS OF RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S PUBLISHED INSTRUCTIONS.
5. PROVIDE MAX 72" RUN FOR RECESSED AND SEMIRECESSED LUMINAIRES, XFMRs, MOTORS, AND EQMT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT.

ELECTRICAL ENCLOSURE SCHEDULE		
ENVIRONMENTAL CONDITIONS	NEMA ENCLOSURE TYPE	REMARKS
INDOOR DRY AND CLEAN	TYPE 1	
INDOOR WET OR DAMP	TYPE 4	1,2

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL CONDITIONS MAY NOT BE PRESENT IN ALL PROJECTS. FOR EACH ELEC ENCLOSURE PRESENT, PROVIDE ENCLOSURE TYPE MOST CLOSELY MATCHING THE ASSOCIATED ENVIRONMENTAL CONDITION. WHERE THE APPLICABLE ENVIRONMENTAL CONDITION IS NOT CLEAR, NOTIFY ENGINEER PRIOR TO ORDERING EQMT, ENCLOSURES, ETC.

REMARKS
1. ENCLOSURE SHALL NOT CONTAIN KNOCKOUTS.
2. PROVIDE DUAL COVER INTERLOCK MECHANISM TO PREVENT UNINTENTIONAL OPENING OF COVER.

ELECTRICAL SUBMITTALS SCHEDULE				
PRODUCT DATA (PD) / SHOP DRAWINGS (SD)				
SUBMITTAL NUMBER	DEVICE / EQUIPMENT TYPE	PD	SD	REMARKS
262816-01A-#	SAFETY DISCONNECT SWITCHES	X		

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL INDICATED DEVICES, EQMT, ETC. MAY NOT BE PRESENT ON ALL PROJECTS. PROVIDE SUBMITTAL FOR EACH DEVICE / EQMT TYPE PRESENT ON PROJECT.
B. DESIGNATIONS INDICATED ON SUBMITTALS SHALL MATCH DESIGNATIONS INDICATED ON PLANS AS APPLICABLE.
C. SUBMITTALS SHALL HAVE APPLICABLE OPTIONS CLEARLY INDICATED VIA HIGHLIGHTING OR OTHER SIMILAR MEANS.
D. EACH SUBMITTAL SHALL INCLUDE EACH APPLICABLE DEVICE / EQMT TYPE PRESENT ON PROJECT. PARTIAL SUBMITTALS W/O PRIOR APPROVAL WILL BE REJECTED W/O BEING REVIEWED.
E. FOR DEVICE / EQMT TYPES REQUIRING PRODUCT DATA AND SHOP DRAWING SUBMITTALS, SUBMIT PRODUCT DATA AND SHOP DRAWINGS AS ONE COMBINED SUBMITTAL.
F. "*" IN SUBMITTAL NUMBER COLUMN = PLACEHOLDER FOR SUBMITTAL VERSION IDENTIFIER. "*" SHALL = "1" FOR INITIAL SUBMITTAL AND INCREASE SEQUENTIALLY FOR EACH ENSUING RESUBMITTAL.
G. BOOK SPECS MAY NOT BE PROVIDED FOR ALL SECTIONS ON ALL PROJECTS.

REMARKS
1. SUBMITTAL SHALL INCLUDE SYMBOL LEGEND, FIRE ALARM SYSTEM ONE-LINE DIAGRAM(S), ANY OTHER INFO AS REQUIRED BY FIRE MARSHAL AND AHJ, AND PLAN(S) W/ EACH APPLICABLE FIRE ALARM DEVICE.

CONDUIT APPLICATIONS SCHEDULE			
CONDITION	INTERIOR	CONDUIT TYPE	REMARKS
EXPOSED AND NOT SUBJECT TO PHYSICAL DAMAGE		EMT	
CONCEALED IN CEILINGS, WALLS, AND PARTITIONS		EMT	
DAMP OR WET LOCATIONS		GRC	
CONNECTION TO VIBRATING EQUIPMENT		FMC	1

GENERAL NOTES
A. THIS IS A MASTER SCHEDULE. ALL CONDITIONS MAY NOT BE PRESENT IN ALL PROJECTS.
B. GRC AND IMC TYPE CONDUIT: PROVIDE THREADED-TYPE FITTINGS UNO.

REMARKS
1. VIBRATING EQMT INCLUDES XFMRs AND HYDRAULIC, PNEUMATIC, ELEC SOLENOID, OR MOTOR-DRIVEN EQMT.

GENERAL NOTE	
ALL SYMBOLS, ABBREVIATIONS, NOTES, ETC. MAY NOT BE USED ON ALL PROJECTS.	
ANNOTATIONS	
#	KEY NOTE, AS INDICATED
⚠	REVISION, AS INDICATED
## XX	CALLOUT; # INDICATES VIEW, XX INDICATES SHEET
XXX	LIGHTING CONTROL TAG, REFERENCE SOO
WLE	WIRELESS LIGHTING CONTROL TAG, REFERENCE WIRELESS LIGHTING CONTROL DETAIL, # = WIRELESS TYPE NUMBER
XXX-X	FEEDER TAG, REFERENCE SCHEDULE
HXXX	HORIZONTAL CABLE PATHWAY TAG, REFERENCE SCHEDULE
XXX	FOOD SERVICE EQUIPMENT TAG, REFERENCE SCHEDULE
EXX	MISCELLANEOUS EQUIPMENT TAG, REFERENCE SCHEDULE
AAA BBB CCC DDD	PANEL ZONE BOUNDARY TAG AAA = NORMAL CIRCUIT BBB = EMERGENCY/LIFE SAFETY CIRCUIT (WHEN PRESENT) CCC = REQUIRED STANDBY CRITICAL CIRCUIT (WHEN PRESENT) DDD = OPTIONAL STANDBY CIRCUIT (WHEN PRESENT)
↗	CONTINUATION
—	CONDUIT STUB
—	PANEL ZONE BOUNDARY
---	UNDERGROUND WIRING / CONDUIT
.....	DAYLIGHT ZONE BOUNDARY, P = PRIMARY AND S = SECONDARY WHERE PRESENT
	LIGHTING CONTROL AREA
	NOT IN CONTRACT
	DEMOLISHED ITEM / AREA

POWER DISTRIBUTION	
	PANELBOARD, SURFACE MOUNT, AS INDICATED
	PANELBOARD, RECESS MOUNT, AS INDICATED
	ELECTRICAL EQUIPMENT ON CONCRETE PAD, AS INDICATED
	INTERIOR DRY-TYPE TRANSFORMER AS INDICATED
	PAD MOUNT UTILITY TRANSFORMER
	POLE MOUNT UTILITY TRANSFORMER
	NON-FUSED DISCONNECT SAFETY SWITCH
	FUSED DISCONNECT SAFETY SWITCH
	MOTOR STARTER
	COMBINATION MOTOR STARTER / FUSED DISCONNECT SAFETY SWITCH
	MOTOR
	ENCLOSED CIRCUIT BREAKER
	METER
	GROUND BAR, AS INDICATED
	REMOTE GENERATOR ANNUNCIATOR PANEL
	SURGE PROTECTIVE DEVICE
	VARIABLE FREQUENCY DRIVE
	MANHOLE
	HANDHOLE
	POWER DISTRIBUTION EQUIPMENT - WHERE APPLICABLE
###/###	EQUIPMENT RATING [A]/FUSE RATING [A]

STANDARD MOUNTING HEIGHTS UNO	
MOUNTING HEIGHT NOTES	
RECEPTACLES IN EQUIPMENT ROOMS	46"
JUNCTION BOXES	18"
OTHER ALARMS, SWITCHES, AND CONTROL DEVICES NOT INDICATED HERE OR ON WALL DEVICE MOUNTING ELEVATION	46"
PANELBOARDS	72" (TOP BREAKER)
CONTROL PANELS	66" (TOP)
ANNUNCIATOR PANELS	48" (TOP)
SAFETY DISCONNECT SWITCHES	54"
STARTERS	54"

ELECTRICAL SHEET INDEX		
SHEET	DESCRIPTION	
E000	ELECTRICAL SYMBOL LEGEND	
E001	ELECTRICAL PROJECT NOTES AND ABBREVIATIONS	
E201	GROUND - POWER PLAN - NEW WORK	

REVISION INFORMATION

MARK	DATE	DESCRIPTION

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ISSUED: 09/23/2025

PROJECT NO: 2025.023.00

ELECTRICAL SYMBOL LEGEND

E000



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BID ISSUE

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MARK	DATE	DESCRIPTION

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ISSUED: 09/23/2025

PROJECT NO: 2025.023.00

ELECTRICAL PROJECT NOTES AND ABBREVIATIONS

E001

DEMOLITION PROJECT NOTES	
A.	THESE PLANS REPRESENT THE BEST INFO AVAILABLE DURING ON-SITE INVESTIGATION AND/OR EXISTING DRAWINGS. DEMO SCOPE IN ADDITION TO THE SCOPE INDICATED ON THE DRAWINGS MAY BE REQUIRED. PERFORM A FIELD VERIFICATION SITE VISIT PRIOR TO BID SUBMITTAL.
B.	EXISTING TO REMAIN ITEMS ARE INDICATED IN HALFTONE. DEMO'D ITEMS ARE INDICATED IN BOLD.
C.	EXTEND EXISTING CONDUITS AND WIRES AS REQUIRED TO MAINTAIN THE INTEGRITY OF ANY EXISTING TO REMAIN FEEDER, BRANCH CKT, SYSTEMS PATHWAY, ETC.
D.	MAINTAIN THE INTEGRITY OF ALL LUMINAIRES, EQMT, DEVICES, ETC. NOT REQUIRED TO BE REMOVED.
E.	SUPPORT EXISTING TO REMAIN CONDUIT PER NEC.
F.	WHERE A NEW DEVICE IS INDICATED TO BE INSTALLED IN THE SAME LOCATION AS A DEMO'D EXISTING DEVICE: REUSE THE EXISTING CONDUIT, CONDUCTORS, CONTROLS, AND BOX TO THE EXTENT POSSIBLE UNO.
G.	DEMO'D EQMT, DEVICES, ETC.: REMOVE ASSOCIATED CONDUCTORS, CONDUIT, ETC. BACK TO SOURCE, ETC.
H.	REMOVE ABANDONED AND/OR UNUSED EXISTING CABLING UNO.
I.	REMOVE EXISTING ELEC CONDUIT WHICH IS NOT CONCEALED IN WALLS OR FLOOR SLAB AND WHICH IS NOT BEING REUSED: REMOVE ASSOCIATED WIRING. CUT CONDUIT FLUSH WHERE IT ENTERS THE FLOOR OR WALL AND SEAL.
J.	WHERE DEVICES ARE TO BE REMOVED FROM EXISTING SURFACES OR ABANDONED, INSTALL BLANK WALL PLATES. ENSURE EXISTING TO REMAIN SURFACES AND FINISHES ARE NOT DAMAGED. ALL REPAIR COSTS SHALL BE AT THE EXPENSE OF THE CONTRACTOR. REPAIR ALL HOLES FROM THE REMOVAL OF ELEC ITEMS AND PATCH/PAINT AS REQUIRED TO MATCH EXISTING CONDITIONS.
K.	THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL REMOVED EQMT, DEVICES, ETC.
L.	REMOVE FROM SITE ALL DEMO'D CONDUITS, BOXES, WIRING, AND ANY OTHER MISC ELEC SCRAP; AND ALL DEMO'D EQMT, DEVICES, ETC. NOT RETAINED BY OWNER.
M.	CUT IN AND RECESS NEW BOXES IN EXISTING WALLS WHERE POSSIBLE.
N.	COORDINATE ANY DEMO-RELATED ELEC SYSTEM OUTAGES IMPACTING ANY FUNCTIONAL BLDG AREA(S) W/ OWNER MIN TO BUSINESS DAYS AHEAD OF TIME. PROVIDE TEMPORARY POWER AS REQUIRED.

CONDUIT PROJECT NOTES	
A.	FOR THE FOLLOWING NOTES, "CONDUIT" SHALL BE CONSIDERED SYNONYMOUS W/ "RACEWAY" UNO.
B.	MIN CONDUIT SIZE: 3/4" UNO.
C.	COMPLETE RACEWAY INSTALLATION B/W CONDUCTOR AND CABLE TERMINATION POINTS PRIOR TO PULLING CONDUCTORS AND CABLES.
D.	CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS SIZE 2" AND LARGER, USE ROLL CUTTER OR GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH. REAM INSIDE OF CONDUIT TO REMOVE BURRS.
E.	INSTALL CONDUIT IN STRAIGHT LINES PARALLEL TO OR AT RIGHT ANGLES TO BLDG LINES.
F.	CONCEAL CONDUIT W/IN FINISHED WALLS, CEILINGS, AND FLOORS UNO.
G.	DO NOT INSTALL CONDUITS W/IN 2" OF BOTTOM SIDE OF A METAL DECK ROOF.
H.	PROVIDE CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS OR ANY OTHER CONDUIT RUNS NOT TERMINATED IN HUBS OR IN AN ENCLOSURE.
I.	PROVIDE NYLON PULL STRING W/ MIN 12" SLACK AT EACH END FOR EACH EMPTY RACEWAY.
J.	PROVIDE STEEL COMPRESSION TYPE FITTINGS UNO.
K.	PROVIDE INSULATING BUSHINGS FOR RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION.
L.	COORDINATE ALL ROOF AND WALL PENETRATIONS W/ STRUCTURAL CONDITIONS. MAINTAIN ALL ROOF WARRANTIES. ALL PENETRATIONS THRU FIRE-RATED WALLS AND FLOORS SHALL BE CAULKED AND SEALED W/ APPROVED FIRE-RATED CAULKING MATERIAL.
M.	INSTALL RACEWAYS SQUARE TO THE ENCLOSURE. TERMINATE AT ENCLOSURES W/O HUBS W/ LOCKNUTS ON BOTH SIDES OF ENCLOSURE WALL.
N.	CONDUITS TERMINATED W/ LOCKNUTS: PROVIDE BUSHINGS UP TO SIZE 1-1/4" AND INSULATED THROAT METAL BUSHINGS ON TRADE SIZE 1-1/2" AND LARGER.

ELECTRICAL BOX PROJECT NOTES	
A.	FOR THE FOLLOWING NOTES, "WALLPLATE" CAN BE CONSIDERED SYNONYMOUS WITH "COVER PLATE" UNO.
B.	PROVIDE BOXES AS REQUIRED FOR PULLING OF WIRES, MAKING CONNECTIONS, AND/OR MOUNTING OF DEVICES OR FIXTURES. CONFIRM REQUIRED LOCATION(S) AND SIZE(S) OF JUNCTION AND/OR PULL BOXES.
C.	ALL ELEC BOXES MUST BE ACCESSIBLE AFTER CONSTRUCTION IS COMPLETE.
D.	PROVIDE CAST METAL BOXES FOR EXPOSED LOCATIONS LESS THAN 8'-0" AFF/AFG. PROVIDE SHEET STEEL BOXES FOR ALL OTHER APPLICATIONS UNO.
E.	MIN BOX SIZE SHALL BE 4"x4"x2-1/8" DEEP UNO. PROVIDE SINGLE GANG MUD RING FOR SINGLE GANG DEVICE APPLICATIONS.
F.	PLUG ALL OPEN AND UNUSED KNOCKOUTS FOR ANY BOXES INSTALLED OR MODIFIED AS A PART OF THIS PROJECT.
G.	DEVICE BOXES SHALL HAVE PROVISIONS FOR MOUNTING THE ASSOCIATED TYPE OF WIRING DEVICE DIRECTLY TO BOX.
H.	PROVIDE GASKETS AND ALL REQUIRED ACCESSORIES FOR DAMP AND WET LOCATIONS.
I.	WALLPLATE MATERIAL: <ul style="list-style-type: none"> a. INTERIOR UNFINISHED SPACES: 0.032" THICK, TYPE 302/304 NON-MAGNETIC STAINLESS STEEL W/ BRUSHED FINISH b. INTERIOR FINISHED SPACES: 0.060" THICK, HIGH-IMPACT THERMOPLASTIC (NYLON) W/ SMOOTH FINISH
J.	WALLPLATE-SECURING SCREWS SHALL BE METAL W/ HEAD COLOR MATCHING WALLPLATE FINISH.
K.	LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BLDG FINISHES.
L.	SUPPORT BOXES OF (3) GANGS OR MORE FROM MORE THAN (1) SIDE BY PLANNING (2) FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR PURPOSE.
M.	FASTEN JUNCTION AND PULL BOXES TO, OR SUPPORT FROM, BLDG STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
N.	DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ENSURE A CONTINUOUS GND PATH.

ENCLOSED SWITCHES PROJECT NOTES	
A.	DISCONNECT SAFETY SWITCHES SHALL BE HEAVY DUTY, SINGLE THROW, 600 V, HP-RATED, LOCKABLE HANDLE W/ CAPABILITY TO ACCEPT (3) PADLOCKS, AND INTERLOCKED W/ COVER IN CLOSED POSITION.
B.	COORDINATE LAYOUT AND INSTALLATION OF SWITCHES AND COMPONENTS W/ EQMT SERVED AND ADJACENT SURFACES.
C.	INSTALL WALL-MOUNTED SWITCHES ADJACENT TO EACH OTHER W/ TOPS AT UNIFORM HEIGHT UNO.
D.	REMOVE TEMPORARY LIFTING OF EYES, CHANNELS, AND BRACKETS AND TEMPORARY BLOCKING OF MOVING PARTS FROM ENCLOSURES AND COMPONENTS.

CONDUCTOR PROJECT NOTES	
A.	FOR THE FOLLOWING NOTES, "CONDUCTOR" CAN BE CONSIDERED SYNONYMOUS W/ "CABLE" UNO.
B.	PROVIDE THHN/THWN-2 TYPE CONDUCTORS UNO.
C.	CONDUCTORS SHALL BE INSULATED, RATED FOR 600V, AND ROUTED IN RACEWAYS UNO.
D.	RACEWAYS SHALL NOT CONTAIN MORE THAN (3) PHASE CONDUCTORS, (3) NEUTRAL CONDUCTORS, AND (1) GND CONDUCTOR UNO.
E.	PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH CKT REQUIRING A NEUTRAL.
F.	CONDUCTORS ASSOCIATED W/ CKTS OF DIFFERENT VOLTAGES SHALL NOT SHARE A COMMON CONDUIT.
G.	CONDUCTORS ASSOCIATED W/ DIFFERENT BRANCHES OF POWER (NORMAL, EM, ETC.) SHALL NOT SHARE A COMMON CONDUIT.
H.	DO NOT INSTALL BRUISED, KINKED, SCORED, DEFORMED, OR ABRADED CONDUCTORS.
I.	DO NOT SPLICE CONDUCTORS B/W NORMAL TERMINATION POINTS.
J.	CONDUCTORS SHALL BE SOLID TYPE FOR #10 AWG AND SMALLER, AND STRANDED TYPE FOR #8 AWG AND LARGER.
K.	CONDUCTOR MATERIAL SHALL BE CU.
L.	CONDUCTOR TYPE SHALL BE SINGLE CONDUCTOR IN RACEWAY UNO.
M.	USE PULLING MEANS, INCLUDING FISH TAPE, CABLE ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS, THAT WILL NOT DAMAGE CABLES OR RACEWAY.
N.	PROVIDE MIN 12" SLACK FOR EACH CONDUIT AT EACH OUTLET.
O.	MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE W/ CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.
P.	TIGHTEN ELEC CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES.
Q.	PROVIDE CONDUCTOR AND CABLE MARKING PER UL'S "WIRE AND CABLE MARKING AND APPLICATION GUIDE."
R.	MIN CONDUCTOR SIZE PER APPLICATION (UNO): <ul style="list-style-type: none"> a. LOW VOLTAGE: #18 AWG b. ALL OTHER APPLICATIONS: #12 AWG
S.	INSTALL CONDUCTORS PARALLEL W/ OR AT RIGHT ANGLES TO SIDES AND BACK OF ENCLOSURE. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS W/ NO EXCESS.
T.	CONNECTIONS, SPLICES, AND LUGS SHALL BE FACTORY-FABRICATED AND OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED.
U.	LUGS SHALL BE CU, ONE PIECE, SEAMLESS, HAVE COMPRESSION TYPE CONDUCTOR TERMINATIONS, AND BE TWO-HOLE TYPE W/ STANDARD BARRELS.

HANGERS AND SUPPORTS PROJECT NOTES	
A.	UNO: UNISTRUT FRAMING MEMBERS SHALL BE MIN 1-5/8" WIDTH PREFORMED GALVANIZED STEEL CHANNELS W/ MIN 13/32" DIAMETER HOLES AT MAX 8" OC SPACING IN AT LEAST ONE SURFACE. METALLIC COATINGS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AND APPLIED ACCORDING TO MFMA-4. CONNECT EACH FRAMING MEMBER AT EACH INTERSECTION USING WELDED OR BOLTED CONNECTIONS.
B.	CONDUIT AND CABLE SUPPORT DEVICES SHALL BE STEEL HANGERS, CLAMPS, AND ASSOCIATED FITTINGS DESIGNED FOR TYPES AND SIZES OF CONDUITS OR CABLES TO BE SUPPORTED.
C.	HANGER RODS SHALL BE THREADED STEEL AND MIN 1/4" DIAMETER UNO.
D.	SUPPORT ASSEMBLIES SHALL BE SIZED TO ACCOMMODATE THE SUPPORTED COMPONENTS PLUS MIN 200 POUNDS.
E.	INSTALL TRAPEZE-TYPE SUPPORTS CONSISTING OF UNISTRUT FRAMING MEMBER AND HANGER RODS FOR MULTIPLE RACEWAYS OR CABLES ADJACENT TO EACH OTHER. SUPPORT SHALL BE SIZED SO THAT THE CAPACITY CAN BE INCREASED BY MIN 25% IN THE FUTURE W/O EXCEEDING DESIGN LOAD LIMITS. SECURE CONDUITS AND CABLES VIA TWO-BOLT CONDUIT CLAMPS.
F.	SUPPORTS SHALL BE PROVIDED W/O CAUSING DEFLECTION OF CEILING, WALL, FLOOR, ETC.
G.	PROVIDE SUPPORTS AND FASTENERS SUITABLE TO THE ASSOCIATED LOAD AND ENVIRONMENT.

GROUNDING AND BONDING PROJECT NOTES	
A.	GROUNDING AND BONDING CONDUCTORS SHALL BE CU AND SOLID TYPE FOR #8 AWG AND SMALLER, AND STRANDED TYPE FOR #6 AWG AND LARGER UNO.
B.	BONDING JUMPERS AND CONDUCTORS SHALL BE #6 AWG UNO.
C.	ROUTE CONDUCTORS ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE UNO. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECT TO STRAIN, IMPACT, OR DAMAGE.
D.	MAKE CONNECTIONS W/ CLEAN, BARE METAL AT POINTS OF CONTACT.
E.	BONDING BUSHINGS SHALL BE THREADED TYPE W/ INSULATED THROAT.
F.	GROUNDING BUSHINGS SHALL BE THREADED W/ INSULATED THROAT AND MECHANICAL-TYPE WIRE TERMINAL.
G.	GROUNDING AND BONDING HUBS SHALL BE INSULATED, GASKETED, AND WATERTIGHT W/ MECHANICAL-TYPE WIRE TERMINAL.
H.	AFTER INSTALLATION, PROTECT GROUNDING AND BONDING CABLES AND EQMT FROM CONSTRUCTION ACTIVITIES. REMOVE AND REPLACE ITEMS THAT ARE CONTAMINATED, DEFACED, DAMAGED, OR OTHERWISE CAUSED TO BE UNFIT FOR USE PRIOR TO ACCEPTANCE BY OWNER.

IDENTIFICATION PROJECT NOTES	
A.	SECURELY FASTEN LABELS, IDENTIFYING DEVICES, ETC. TO LOCATION W/ HIGH VISIBILITY AND ACCESSIBILITY.
B.	THOROUGHLY CLEAN SURFACES WHERE SELF-ADHESIVE IDENTIFICATION DEVICES WILL BE APPLIED BEFORE APPLYING DEVICES.
C.	LABELS SHALL BE ABLE TO ACCOMMODATE THERMAL MOVEMENTS RESULTING FROM AMBIENT TEMPERATURE CHANGES OF 120 DEG F AND SURFACE TEMPERATURE CHANGES OF 180 DEG F.
D.	SELF-ADHESIVE LABELS SHALL BE POLYESTER, THERMAL, TRANSFER-PRINTED, 3 MIL THICK, MULTICOLOR, WEATHER- AND UV-RESISTANT, PRESSURE-SENSITIVE ADHESIVE LABELS, AND CONFIGURED FOR INTENDED USE AND LOCATION. MIN NOMINAL SIZE SHALL BE 1-1/2" BY 6" FOR CONDUITS AND 3-1/2" BY 5" FOR EQMT. TEXT SHALL BE MIN 1/2" HIGH.
E.	ELEC TAPE SHALL BE COLORED, HEAVY DUTY, WATERPROOF, FADE RESISTANT, COMPOUNDED FOR OUTDOOR USE, AND NOT LESS THAN 3 MIL THICK BY 1" WIDE.
F.	CABLE TIES SHALL BE ONE PIECE, SELF-LOCKING, SUITABLE FOR THE INSTALLED ENVIRONMENT, AND BLACK UNO.

PANELBOARDS PROJECT NOTES	
A.	PROVIDE NEW UPDATED TYPED PANELBOARD DIRECTORIES W/ TRANSPARENT PLASTIC PROTECTIVE COVER FOR PANELS MODIFIED OR INSTALLED IN THIS PROJECT.
B.	INSTALL FILLER PLATES IN UNUSED SPACES FOR ANY PANEL INSTALLED OR MODIFIED IN THIS PROJECT.
C.	ENSURE ALL SPARE CB'S IN PANELS INSTALLED OR MODIFIED IN THIS PROJECT ARE PUT TO "OFF" POSITION.
D.	ANY MCCB'S W/ GPP SHALL HAVE AN INTEGRALLY MOUNTED RELAY AND TRIP UNIT W/ ADJUSTABLE PICKUP AND TIME-DELAY SETTINGS, A PUSH-TO-TEST FEATURE, AND A GROUND-FAULT INDICATOR.
E.	MCCB LUGS SHALL BE MECHANICAL, STYLE AND SUITABLE FOR THE NUMBER, SIZE, TRIP RATING, AND MATERIAL OF THE ASSOCIATED CONDUCTORS.
F.	INSTALL OCPD'S AND CONTROLLERS NOT ALREADY FACTORY INSTALLED. SET FIELD-ADJUSTABLE CB TRIP RANGES.
G.	CB LABELS SHALL BE LOCATED ON THE FACEPLATE AND INCLUDE THE CURRENT RATING, UL AND IEC CERTIFICATION STANDARDS, AND SCCR RATING.

GENERAL PROJECT NOTES	
A.	THE ENTIRE INSTALLATION SHOWN IN THE CONSTRUCTION DOCUMENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS INDICATED BELOW. IN THE EVENT OF CONFLICT B/W THESE CONSTRUCTION DOCUMENTS AND THE INDICATED REQUIREMENTS, THE STRICTER SHALL APPLY. ANY ADDITIONAL COSTS ASSOCIATED W/ ENSURING THE PROJECT COMPLIES W/ THE INDICATED REQUIREMENTS SHALL BE INCLUDED IN THE PROJECT BID(S).
a.	ALL APPLICABLE LOCAL, CITY, STATE, AND NATIONAL CODES, LAWS, ACTS, AND ORDINANCES.
b.	ALL AHJ'S
c.	THE OWNER'S INSURANCE COMPANY REQUIREMENTS
d.	APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY
e.	THE MANUFACTURER'S STRICTEST REQUIREMENTS AND RECOMMENDATIONS FOR EQMT AND PRODUCT APPLICATION AND INSTALLATION
B.	THE CONSTRUCTION DOCUMENTS ARE SCHEMATIC IN NATURE. REVIEW ALL CONTRACT DOCUMENTS AND COORDINATE W/ ALL OTHER TRADES AND EXISTING/SITE CONDITIONS TO PROVIDE A FULLY FUNCTIONAL SYSTEM PER THE INDICATED DESIGN INTENT.
C.	CLEAN UP DURING AND AT CONCLUSION OF CONSTRUCTION PERIOD. NO MATERIALS SHALL BE LEFT ON SITE WHEN WORK IS COMPLETED, UNLESS REQUESTED BY OWNER'S REPRESENTATIVE. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY.
D.	PERFORM ELEC WORK ON DE-ENERGIZED SYSTEMS ONLY. WHERE WORK ON EXISTING SYSTEMS WILL REQUIRE INTERRUPTION OF ELEC SERVICE, TEMPORARY PROVISIONS ACCEPTABLE TO THE OWNER FOR TEMPORARY POWER SHALL BE UTILIZED UNTIL THE WORK IS COMPLETE.
E.	COORDINATE FINAL LOCATIONS OF DEVICES IN UNFINISHED AREAS WITH PIPING, DUCTWORK, EQMT, CABLE TRAY, ETC. TO AVOID CONFLICTS. MAKE MINOR ADJUSTMENTS TO DEVICE LOCATIONS AS REQUIRED.
F.	WORK INDICATED IN THESE DOCUMENTS SHALL BE PERFORMED BY INDIVIDUALS LICENSED TO PERFORM SUCH WORK BY THE STATE IN WHICH THE WORK IS PERFORMED AND ADEQUATELY QUALIFIED TO WORK ON THE ASSOCIATED EQMT, SYSTEM, ETC.
G.	ENSURE NEC WORKING CLEARANCE AND DEDICATED SPACE REQUIREMENTS ARE COMPLIED WITH.
H.	OBTAIN ALL PERMITS REQUIRED TO FULLY COMPLETE INDICATED WORK.
I.	PROVIDE PULL AND JUNCTION BOXES AS REQUIRED TO MEET CODE AND INSTALLATION REQUIREMENTS. CONCEAL PULL AND JUNCTION BOXES IN FINISHED SPACES.
J.	ALL DEVICES, EQMT, HARDWARE, COMPONENTS, ETC. USED ON THE PROJECT SHALL BE LISTED AND LABELED IN ACCORDANCE W/ THE NEC BY A QUALIFIED ELEC TESTING LABORATORY RECOGNIZED BY AHJ AND MARKED FOR INTENDED LOCATION AND APPLICATION.
K.	PENETRATIONS THRU FIRE-RATED WALLS OR CEILINGS OR SMOKE BARRIER SURFACES: <ul style="list-style-type: none"> a. REFERENCE CONDUIT PENETRATION AND CABLE PATHWAY PENETRATION DETAILS b. MAINTAIN THE SURFACE RATING OR SMOKE BARRIER INTENT c. OPENINGS FOR STEEL ELEC BOXES NOT EXCEEDING 16 SQUARE INCHES ARE PERMITTED PROVIDED OPENINGS DO NOT AGGREGATE MORE THAN 100 SQUARE INCHES FOR ANY 100 SQUARE FEET OF WALL OR PARTITION
L.	TEST EQMT, DEVICES, ETC. FOR PROPER CONNECTIVITY AND FUNCTIONALITY AFTER INSTALLATION. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS. REMOVE AND REPLACE DEFECTIVE EQMT, DEVICES, ETC. AND RETEST UNTIL PROPER FUNCTIONALITY IS CONFIRMED.
M.	EQMT, DEVICES, CONDUCTORS, CABLES, ETC. INSTALLED IN PLENUM SPACES SHALL BE PLENUM RATED.
N.	SECURELY FASTEN EQMT, DEVICES, ETC. TO STRUCTURAL SUPPORT W/O DISTORTION AND INSTALLED LEVEL, PLUMB, AND SQUARE WITH CEILINGS, WALLS, FLOORS, AND FINISHED GRADE AS APPLICABLE UNO.
O.	VISIBLY INSPECT ALL EQMT, DEVICES, ETC. FOR PHYSICAL AND MECHANICAL CONDITION, CLEANLINESS, ETC. PRIOR TO INSTALLATION. REPLACE ANY ITEMS THAT ARE DAMAGED, DEFECTIVE, OR OTHERWISE UNSUITABLE FOR INSTALLATION.
P.	AFTER INSTALLATION, PROTECT EQMT, DEVICES, ETC. FROM CONSTRUCTION ACTIVITIES. REMOVE AND REPLACE ITEMS THAT ARE CONTAMINATED, DEFACED, DAMAGED, OR OTHERWISE CAUSED TO BE UNFIT FOR USE PRIOR TO ACCEPTANCE BY OWNER.
Q.	EXAMINE WALLS, FLOORS, CEILINGS, ROOFS, ETC. FOR SUITABLE MOUNTING CONDITIONS PRIOR TO INSTALLATION OF EQMT, DEVICES, ETC.
R.	COORDINATE SERVICE INTERRUPTIONS WITH THE OWNER'S REPRESENTATIVE 10 DAYS IN ADVANCE MIN.
S.	TRAIN OWNER'S MAINTENANCE PERSONNEL ON THE FIRE ALARM SYSTEM WHEN PRESENT ON THE PROJECT. ENGAGE FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO ASSIST WITH TRAINING AS REQUIRED. ALLOW OWNER TO RECORD TRAINING SESSIONS.
T.	PROVIDE ANY PROPRIETARY EQMT AND SOFTWARE REQUIRED TO MAINTAIN, REPAIR, ADJUST, OR IMPLEMENT FUTURE CHANGES TO DEVICES/EQMT INSTALLED AS A PART OF THIS PROJECT.
U.	FOR ANY SYSTEMS, DEVICES, ETC. REQUIRING CONNECTION TO OWNER'S IT INFRASTRUCTURE, COORDINATE W/ OWNER'S IT REPRESENTATIVE AS REQUIRED PRIOR TO COMMENCING CONSTRUCTION.
V.	DO NOT USE AL IN CONTACT W/ EARTH OR CONCRETE. WHEN IN DIRECT CONTACT W/ A DISSIMILAR METAL, PROTECT AL BY INSULATING FITTINGS OR TREATMENT.
W.	PROTECT EQMT, DEVICES, ETC. FROM MOISTURE DURING SHIPPING, STORAGE, AND HANDLING.
X.	EQMT, DEVICES, ETC. SHALL BE DELIVERED IN MANUFACTURER'S ORIGINAL UNOPENED AND UNDAMAGED PACKAGES WITH MANUFACTURER'S LABELS LEGIBLE AND INTACT. INSPECT MANUFACTURER'S PACKAGES UPON RECEIPT.

EQUIPMENT PROJECT NOTES	
A.	DO NOT USE PANELBOARDS, DISCONNECT SWITCHES, AND ANY OTHER TYPE OF ELEC EQMT AS PULL BOXES OR JUNCTION BOXES.
B.	SECURE ALL COVERS, PLATES, ETC. AND TIGHTEN ALL FASTENERS TO MANUFACTURER-RECOMMENDED TORQUES.
C.	IN A MANNER SATISFACTORY TO THE OWNER'S REPRESENTATIVE, TOUCH-UP OR REFINISH FACTORY-APPLIED PAINTS OR FINISHES WHICH ARE CHIPPED, DEFACED, SCRATCHED, OR IN ANY OTHER WAY DISTURBED DUE TO HANDLING, INSTALLATION, OR GENERAL CONSTRUCTION WORK.
D.	REMOVE PACKING MATERIAL AND ACCESSORIES NOT REQUIRED FOR INSTALLATION PRIOR TO INSTALLATION.
E.	EQMT ENCLOSURES SHALL BE FINISHED WITH GRAY BAKED ENAMEL PAINT UNO.
F.	FOR EACH PIECE OF EQMT TAGGED ON PLANS, PROVIDE A PERMANENTLY FASTENED TYPED OR ENGRAVED PLASTIC LABEL SUITABLE FOR USE IN THE ASSOCIATED ENVIRONMENT INDICATING THE EQMT TAG AND WHERE THE EQMT IS FED FROM. LABEL SHALL BE MIN 1"x3.5" AND CONSIST OF BLACK LETTERS ON WHITE BACKGROUND.

WIRING DEVICE PROJECT NOTES	
A.	GENERAL-GRADE RCPTS SHALL BE HEAVY-DUTY, SMOOTH FACE, NEMA 5-20R UNO.
B.	ORIENT RCPTS WITH GND PIN UP UNO.
C.	DEVICE COVER PLATES SHALL BE SMOOTH FINISH THERMOPLASTIC FROM SAME MANUFACTURER AS WIRING DEVICE UNO.
D.	SCHEDULE AND SEQUENCE INSTALLATION TO MINIMIZE RISK OF CONTAMINATION OF WIRES AND CABLES, DEVICES, DEVICE BOXES, OUTLET BOXES, COVERS, AND COVER PLATES BY PLASTER, DRYWALL, JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIALS.
E.	PROVIDE WHITE DEVICES AND COVER PLATES IN FINISHED AREAS, AND WHITE DEVICES W/ STAINLESS STEEL COVER PLATES IN UNFINISHED AREAS.

ABBREVIATIONS	
A	AMPERE
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
B/W	BETWEEN
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR-FURNISHED, CONTRACTOR-INSTALLED
CKT	CIRCUIT
CU	COPPER
DEM	DEMOLISHED
DC	DIRECT CURRENT
DEMO	DEMOLISH/DEMOLITION
DP	DISTRIBUTION PANEL
DS	SAFETY DISCONNECT SWITCH
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
E.G.	FOR EXAMPLE
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRIC / ELECTRICAL
EM	EMERGENCY
EMD	ESTIMATED MAXIMUM DEMAND
EMT	ELECTRICAL METALLIC TUBING
EMT	EQUIPMENT
ETC	ET CETERA
ETR	EXISTING TO REMAIN
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FDS	FUSED SAFETY DISCONNECT SWITCH
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FMC	FLEXIBLE METAL CONDUIT
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
HD	HEAVY DUTY
HOOR	HOURS OF OPERATION
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
IMC	INTERMEDIATE METAL CONDUIT
INFO	INFORMATION
KAIC	KILOAMP INTERRUPTING CURRENT
KCMIL	KILO CIRCULAR MILS
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT-HOUR
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MLO	MAIN LUG ONLY
MOPD	MAXIMUM OVERCURRENT PROTECTION DEVICE
MRS	MOTOR-RATED TOGGLE SWITCH
MSB	MAIN SWITCHBOARD
N1	NEMA 1
N3R	NEMA 3R
NA	NOT APPLICABLE
NDS	NON-FUSED SAFETY DISCONNECT SWITCH
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NF	NON-FUSED
NPFA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NIS	NOT TO SCALE
OC	ON CENTER
OCPD	OVERCURRENT PROTECTION DEVICE
OFCI	OWNER-FURNISHED, CONTRACTOR-INSTALLED
OFI	OWNER-FURNISHED, OWNER-INSTALLED
PH	PHASE
(R)	RELOCATED
RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL CONDUIT
RSC	RIGID STEEL CONDUIT
SB	SWITCHBOARD
SPD	SURGE PROTECTIVE DEVICE
SCCR	SHORT CIRCUIT CURRENT RATING
THRU	THROUGH
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTED POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VD	VOLTAGE DROP
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

MECHANICAL EQUIPMENT CONNECTION SCHEDULE																			
TAG	DESCRIPTION	EQUIPMENT					ELECTRICAL CONNECTION					DISCONNECT				REMARKS			
		HP	KW	FLA	MCA	MOCF	LOAD (VA)	VOLTAGE	CIRCUIT	FEEDER	PLUG	NEMA CONFIG.	DIRECT	FB	IB		TYPE	RATING (A)	FUSE RATING (A)
CH-1	CHILLER	-	108	189	213	300	177,003	480/3	MDP(E)-7	225-3G	-	-	X	MFR	INT	VFD	400	-	N1
EF-3A	EXHAUST FAN	1/8	-	4	5	15	600	120/1	N02A(E)-33	20-2G	-	-	X	EC	EC	MRS	20	-	-

- GENERAL NOTES**
- LOCATE DISCONNECT AT EQMT PER NEC UNO.
 - CONTROLLER AND LOW VOLTAGE CONTROL WIRE BY MC UNO.

- REMARKS**
- CONNECT TO EXISTING SPARE CIRCUIT IN PANEL N02A(E).

KEYNOTE LEGEND	
KEY VALUE	KEYNOTE TEXT

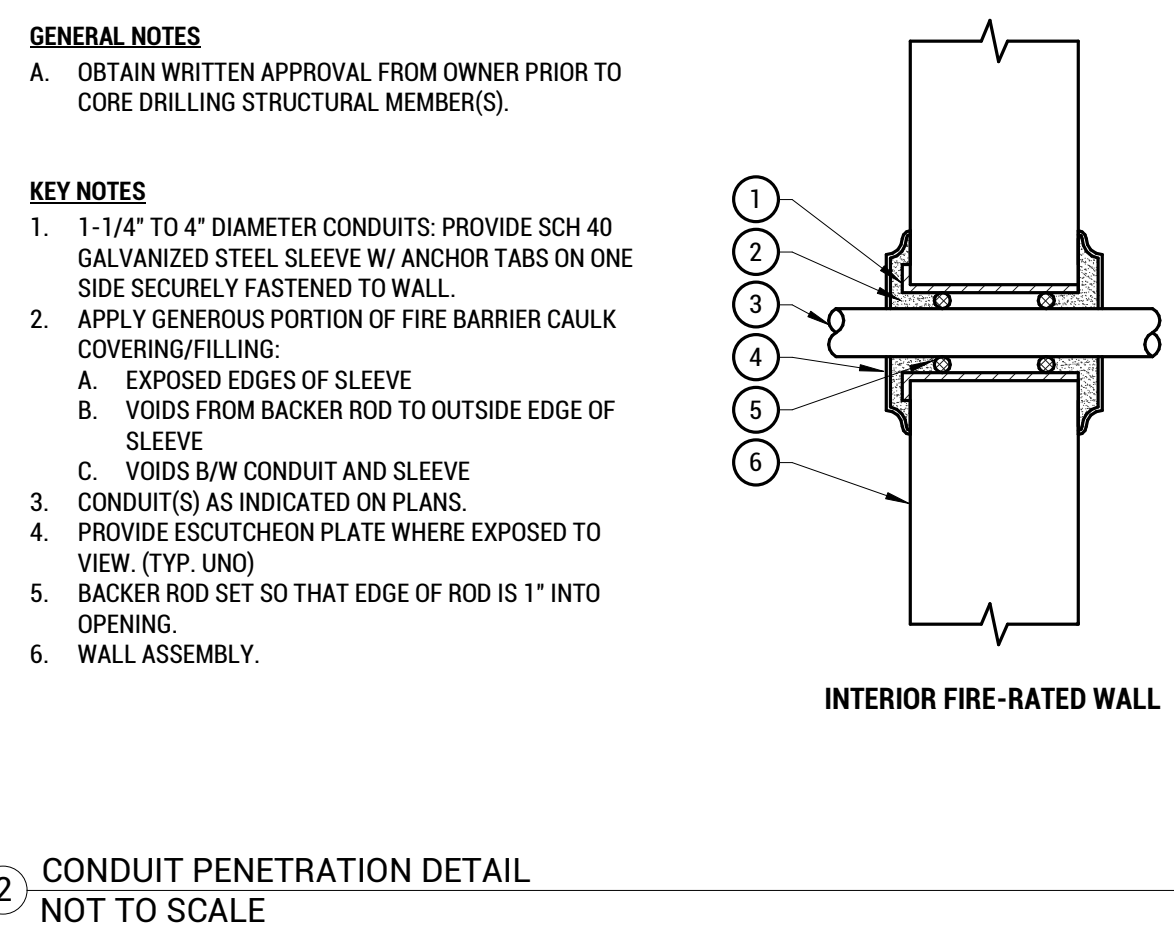
EXISTING SWITCHBOARD: MDP(E)				
LOCATION: ELEC 012				
SUPPLY FROM: UTILITY				
MOUNTING: SURFACE - FLOOR				
ENCLOSURE: N1				
VOLTAGE: 480V/277V, 3PH, 4W				
SCCR (KA): 100				
MAINS TYPE: FUSED SWITCH				
OCPD RATING (A): 2500				
PANEL NOTES				
(E) GE SPECTRA SERIES SWITCHBOARD. FEEDER OCPD DEVICES ARE CIRCUIT BREAKERS. DEMO'D CIRCUIT(S) INDICATED IN BOLD.				
REMARKS	CKT	DESCRIPTION	FRAME (A)	TRIP (A/P)
	1	TVSS	250	30/3
	2	PANEL N04B	250	250/3
	3	PANEL N04A	250	200/3
	4	ATS-0A	1200	1000/3
	5	BUS DUCT NB	600	600/3
	6	CHILLER	600	350/3

- GENERAL NOTES**
- THE INDICATED INFO IS BASED ON (E) CONSTRUCTION DOCUMENTS AND SITE SURVEYS TO THE EXTENT KNOWN AND CANNOT BE GUARANTEED AS A FULLY ACCURATE REPRESENTATION OF (E) CONDITIONS. FIELD VERIFY (E) CONDITIONS PRIOR TO COMMENCING CONSTRUCTION.
 - REFERENCE NEW WORK PANEL SCHEDULE(S) FOR ANY ETR PANELS BEING MODIFIED.

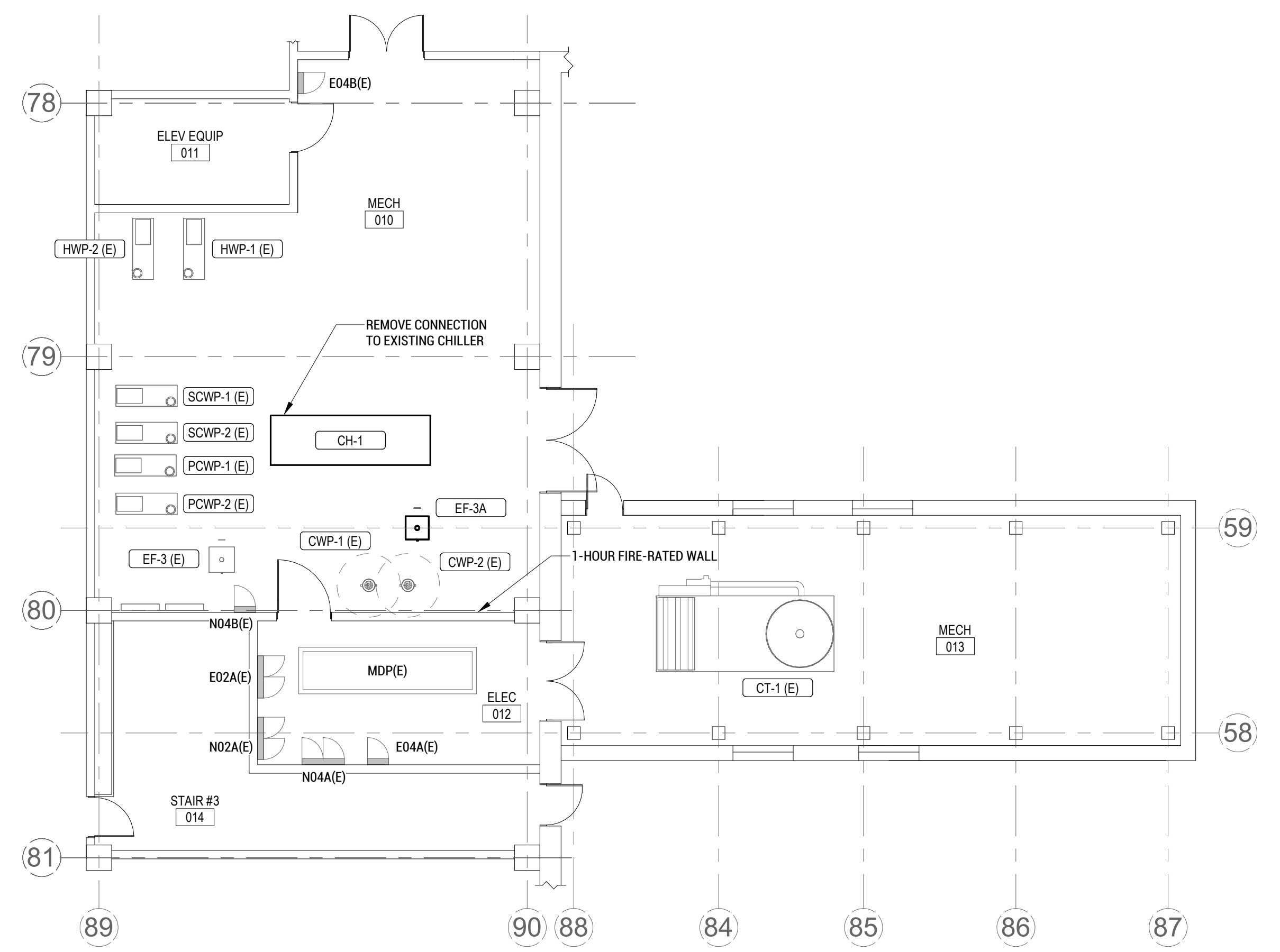
FEEDER SCHEDULE	
TAG	COPPER
2 WIRE + GROUND	
20-2G	(2)#12, (1)#12 GND IN 3/4"C
30-2G	(2)#10, (1)#10 GND IN 3/4"C
40-2G	(2)#8, (1)#10 GND IN 3/4"C
50-2G	(2)#6, (1)#10 GND IN 3/4"C
60-2G	(2)#4, (1)#10 GND IN 1"C
70-2G	(2)#4, (1)#8 GND IN 1"C
80-2G	(2)#3, (1)#8 GND IN 1"C
90-2G	(2)#2, (1)#8 GND IN 1"C
100-2G	(2)#1, (1)#8 GND IN 1-1/4"C
3 WIRE + GROUND	
20-3G	(3)#12, (1)#12 GND IN 3/4"C
30-3G	(3)#10, (1)#10 GND IN 3/4"C
40-3G	(3)#8, (1)#10 GND IN 3/4"C
50-3G	(3)#6, (1)#10 GND IN 1"C
60-3G	(3)#4, (1)#10 GND IN 1"C
70-3G	(3)#4, (1)#8 GND IN 1-1/4"C
80-3G	(3)#3, (1)#8 GND IN 1-1/4"C
90-3G	(3)#2, (1)#8 GND IN 1-1/4"C
100-3G	(3)#1, (1)#8 GND IN 1-1/2"C
110-3G	(3)#1, (1)#6 GND IN 1-1/2"C
125-3G	(3)#1/0, (1)#6 GND IN 1-1/2"C
150-3G	(3)#1/0, (1)#6 GND IN 1-1/2"C
175-3G	(3)#2/0, (1)#6 GND IN 2"C
200-3G	(3)#3/0, (1)#6 GND IN 2"C
225-3G	(3)#4/0, (1)#4 GND IN 2"C
250-3G	(3)250 KCMIL, (1)#4 GND IN 2-1/2"C
300-3G	(3)350 KCMIL, (1)#4 GND IN 3"C
350-3G	(3)500 KCMIL, (1)#3 GND IN 3"C
400-3G	2 SETS OF (3)#3/0, (1)#3 GND IN 2"C
450-3G	2 SETS OF (3)#4/0, (1)#2 GND IN 2"C
500-3G	2 SETS OF (3)250 KCMIL, (1)#1 GND IN 2-1/2"C
600-3G	2 SETS OF (3)350 KCMIL, (1)#1 GND IN 3"C
EQUIPMENT	
MECH	REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE
XFMR	REFER TO TRANSFORMER SCHEDULE

- GENERAL NOTES**
- THIS IS A MASTER SCHEDULE. ALL SIZES MAY NOT OCCUR IN ALL PROJECTS.
 - AL CONDUCTORS ARE NOT ALLOWED.
 - FIELD VERIFY CONDUCTOR SIZES DO NOT RESULT IN TOTAL CKT VD GREATER THAN 5% AFTER ACCOUNTING FOR INTENDED CONDUCTOR ROUTING.

SWITCHBOARD: MDP(E)							
LOCATION: ELEC 012		VOLTAGE: 480V/277		SCCR (KA): 100			
SUPPLY FROM: UTILITY		PHASE: 3		MAINS TYPE: FUSED SWITCH			
MOUNTING: SURFACE - FLOOR		WIRE: 4		OCPD (A): 2500			
ENCLOSURE: N1							
SWITCHBOARD NOTES							
GE SPECTRA SERIES SWITCHBOARD. NEW LOAD(S) INDICATED IN BOLD.							
CKT	LOAD CLASS	DESCRIPTION	POLES	FRAME (A)	TRIP (A)	LOAD (VA)	REMARKS
1	--	TVSS	3	250	30	0	--
2	--	PANEL N04B	3	250	250	0	--
3	--	PANEL N04A	3	250	200	0	--
4	--	ATS-0A	3	1200	1000	0	--
5	--	BUS DUCT NB	3	600	600	0	--
6	--	SPARE	1	600	350	0	--
7	HVAC	MECH: CH-1	3	600	300	177003	
						TOTAL (KVA):	177
						TOTAL (A):	213
REMARKS							
A = AFCI TYPE CB, G = GFCI TYPE CB, S = SHUNT TRIP TYPE CB							
LOAD CLASS	CONN'D LOAD...	DEMAND FACTOR	EMD (VA)	TOTALS			
HVAC	177003 VA	100.00%	177003 VA	TOTAL CONN. (KVA):	177		
				TOTAL EMD (KVA):	177		
				TOTAL CONN. (A):	213		
				TOTAL EMD (A):	213		



- GENERAL NOTES**
- OBTAIN WRITTEN APPROVAL FROM OWNER PRIOR TO CORE DRILLING STRUCTURAL MEMBER(S).
- KEY NOTES**
- 1-1/4" TO 4" DIAMETER CONDUITS: PROVIDE SCH 40 GALVANIZED STEEL SLEEVE W/ ANCHOR TABS ON ONE SIDE SECURELY FASTENED TO WALL.
 - APPLY GENEROUS PORTION OF FIRE BARRIER CAULK COVERING/FILLING:
 - EXPOSED EDGES OF SLEEVE
 - VOIDS FROM BACKER ROD TO OUTSIDE EDGE OF SLEEVE
 - VOIDS B/W CONDUIT AND SLEEVE
 - CONDUIT(S) AS INDICATED ON PLANS.
 - PROVIDE ESCUTCHEON PLATE WHERE EXPOSED TO VIEW. (TYP. UNO)
 - BACKER ROD SET SO THAT EDGE OF ROD IS 1" INTO OPENING.
 - WALL ASSEMBLY.



N
 1 LEVEL 1 - POWER PLAN - NEW WORK
 1/8" = 1'-0"

REVISION INFORMATION		
MARK	DATE	DESCRIPTION