

CUMBERLAND COUNTY CENTER 2788-S FAYETTEVILLE, NORTH CAROLINA CHILLER REPLACEMENT NOVEMBER 2024



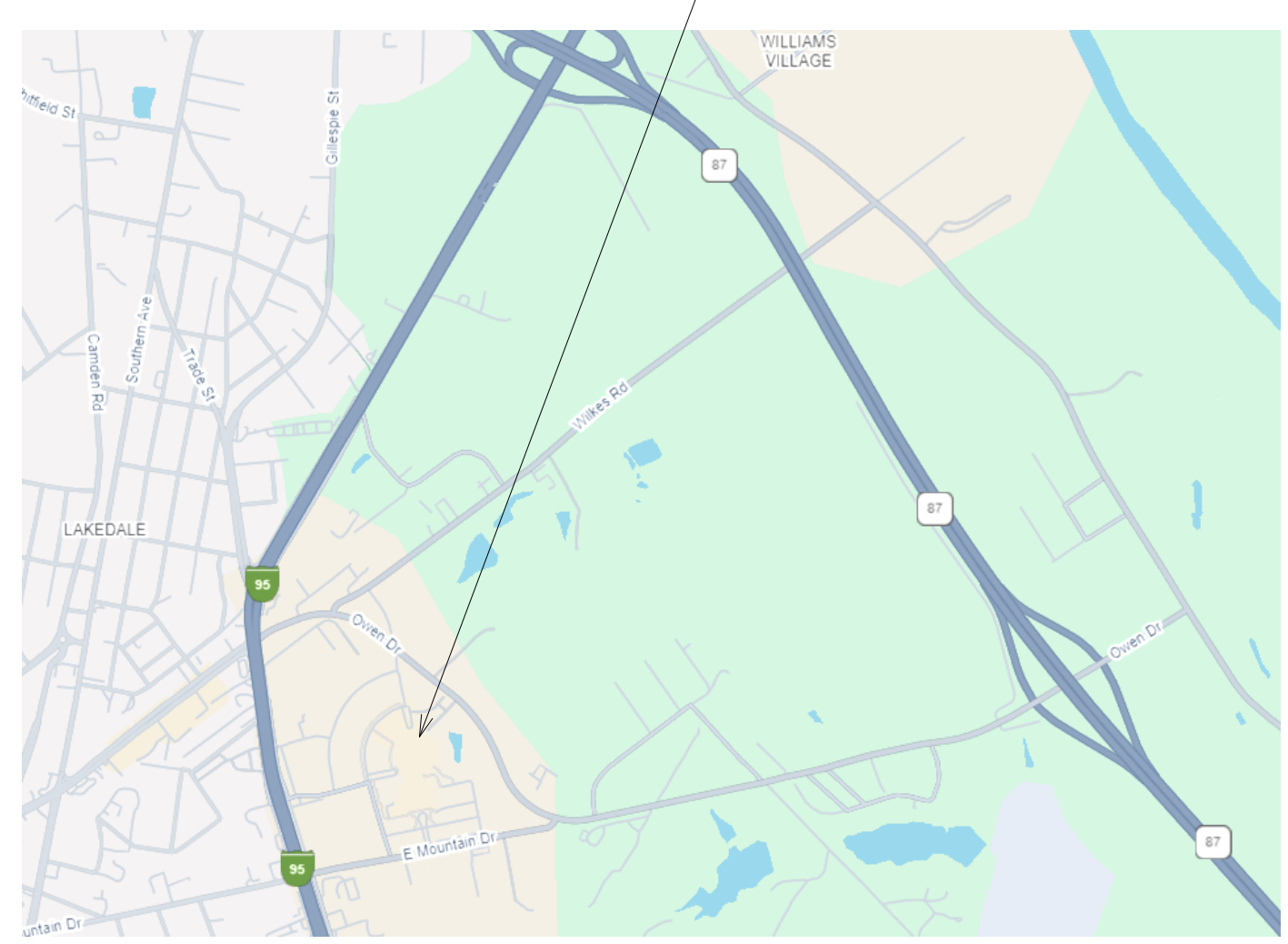
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License Number: F-0115

PROJECT LOCATION



FULL SHEET INDEX			
Sheet Number	Sheet Name	Current Revision	Current Revision Date
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CHARLIE ROSE CENTER
CUMBERLAND COUNTY CROWN COMPLEX
1960 COLISEUM DRIVE
FAYETTEVILLE, NORTH CAROLINA 28306



MECHANICAL SYMBOL LEGEND

	HEATING WATER SUPPLY PIPING (ENLARGED PLAN)
	HEATING WATER RETURN PIPING (ENLARGED PLAN)
	CHILLED WATER SUPPLY PIPING (ENLARGED PLAN)
	CHILLED WATER RETURN PIPING (ENLARGED PLAN)
	CONDENSATE DRAIN PIPING (ENLARGED PLAN)
	HEATING WATER SUPPLY PIPING
	HEATING WATER RETURN PIPING
	CHILLED WATER SUPPLY PIPING
	CHILLED WATER RETURN PIPING
	CONDENSATE DRAIN PIPING
	DIRECTION OF SLOPE FOR PIPE OR DUCT
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	SUPPLY DIFFUSER
	RETURN GRILLE OR REGISTER
	EXHAUST GRILLE OR REGISTER
	TEMPERATURE SENSOR - EQUIPMENT NUMBER
	HUMIDISTAT
	FIRE DAMPER
	SMOKE DAMPER
	SMOKE DETECTOR
	DUCT DOWN
	DUCT UP
	MANUAL VOLUME DAMPER
	BUTTERFLY VALVE
	PIPE TURN DOWN
	PIPE TURN UP
	PIPE REDUCER
	FLEXIBLE DUCT
	CARBON DIOXIDE SENSOR
	TWIST TIMER - EQUIPMENT NUMBER
	VAV TEMPERATURE SENSOR
	DUCT STATIC PRESSURE SENSOR
	MOTOR OPERATED DAMPER
	MOTOR STARTER/DISCONNECT
	WALL SWITCH - EQUIPMENT NUMBER
	ISOLATION VALVES
	POINT OF CONNECTION
	POINT OF DISCONNECTION

ENERGY CODE COMPLIANCE STATEMENT

MECHANICAL SYSTEM, SERVICE
SYSTEMS,AND EQUIPMENT METHOD
OF COMPLIANCE

PRESCRIPTIVE ☒ ENERGY COST BUDGET ☐

THERMAL ZONE: 3A

EXTERIOR DESIGN CONDITIONS

WINTER DRY BULB: 22.2°
SUMMER DRY BULB: 96.4°

INTERIOR DESIGN CONDITIONS:

WINTER DRY BULB: 70° F
SUMMER DRY BULB: 75° F
RELATIVE HUMIDITY: 50%

BUILDING HEATING LOAD: SEE SCHEDULES

BUILDING COOLING LOAD: SEE SCHEDULES

MECHANICAL SPACING CONDITIONING SYSTEM
UNITARY - SEE SCHEDULES ON THIS DRAWING
BOILER - SEE SCHEDULES
CHILLER - SEE SCHEDULES

EQUIPMENT EFFICIENCIES
FREE SCHEDULESEQUIPMENT SCHEDULES WITH MOTORS
SEE SCHEDULES

DESIGNER STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS
BUILDING COMPLIES WITH THE MECHANICAL SYSTEM AND EQUIPMENT
REQUIREMENTS OF THE 2012 INTERNATIONAL MECHANICAL CODE.

COTT LAWRENCE ENNIS, PE

AN ONSITE SYSTEM INSTALLATION COMPLIANCE REVIEW ALL BE CONDUCTED BY A DESIGN PROFESSIONAL PRIOR TO FINAL INSPECTION AND ISSUANCE OF CERTIFICATION OR OCCUPANCY. THE MECHANICAL CONTRACTOR SHALL MAKE APPROPRIATE PERSONNEL AVAILABLE DURING DESIGN PROFESSIONAL'S ONSITE INSPECTION TO ASSIST WITH REVIEW AND ADDITIONAL EQUIPMENT AND CONTROLS TESTING. CONTRACTOR SHALL SCHEDULE ONSITE INSPECTION WITH DESIGN PROFESSIONAL. A MINIMUM ONE WEEK PRIOR TO VISIT. AT THE TIME OF THE VISIT THE MECHANICAL CONTRACTOR SHALL PROVIDE THE FOLLOWING FOR REVIEW BY THE LOCAL AHJ AND DESIGN PROFESSIONAL:

- A COMPLETED TEST AND BALANCE REPORT
- A COPY OF ALL OPERATION AND MAINTENANCE MANUALS
- DOCUMENTATION THAT EQUIPMENT INSTALLER HAS FOLLOWED THE MANUFACTURER'S RECOMMENDATIONS FOR STARTUP AND TESTING OF ALL EQUIPMENT.

1. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.

2. COORDINATE ALL WORK WITH THAT OF THE OTHER DISCIPLINES PRIOR TO THE INSTALLATION OF ANY PIPING, OR EQUIPMENT.

3. PERFORM A COMPLETE REVIEW OF THE CONTRACT DOCUMENTS PRIOR TO INSTALLATION OF THE MECHANICAL SYSTEMS AND REVIEW ANY CONFLICTS WITH THE ENGINEER.

4. DURING THE CONSTRUCTION PROCESS PROTECT ALL MECHANICAL EQUIPMENT, DEVICES, PIPING AND APPURTENANCES FROM DIRT AND DEBRIS. STORE IN A COVERED LOCATION OFF OF THE FLOOR AND OUT OF STANDING WATER.

5. ENSURE THAT ITEMS TO BE FURNISHED OR PROVIDED WILL FIT IN THE SPACE AVAILABLE. MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND PROVIDE SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS. PROVIDE THE ENGINEER WITH SCALED COORDINATION DRAWINGS OF ALL MECHANICAL SPACES AND ABOVE CEILING INSTALLATIONS.

6. LOCATE ALL EQUIPMENT TO PROVIDE MAXIMUM SPACE FOR MAINTENANCE AND SERVICE. INSTALLATION OF PIPING AND DUCTWORK SHALL NOT INTERFERE WITH WALKWAYS, PATHS, OR SERVICE ACCESS.

7. PROVIDE ALL ELECTRICAL AND CONTROL CONNECTIONS TO THE EQUIPMENT PROVIDED. REFER TO THE ELECTRICAL DRAWINGS FOR LOCATIONS OF JUNCTION BOXES, DISCONNECTS, CIRCUIT BREAKERS (PANELBOARDS), TYPE, SIZE, AND NUMBER OF CONDUCTORS AND CONDUITS TO EQUIPMENT SHALL BE EQUIVALENT TO THE CONDUCTORS AND CONDUITS PROVIDED BY DIVISION 26. EACH MECHANICAL EQUIPMENT CONNECTION TO A CIRCUIT BREAKER, THE NUMBER AND SIZE OF THE CONDUCTORS AND CONDUITS SHALL CONFORM TO THE LATEST NATIONAL ELECTRICAL CODE REGULATIONS. ALL MOTOR STARTERS, SWITCHES, CONTROL DEVICES, ETC., PROVIDED BY DIVISION 23 SHALL BE RECESSED IN THE WALLS, EXCEPT WHEN THESE ITEMS ARE LOCATED IN MECHANICAL SPACES. PROVIDE A NAMEPLATE FOR ALL EQUIPMENT, SWITCHES, CONTROL DEVICES, ETC. REFER TO THE GENERAL PROVISIONS SECTION OF THE DIVISION 23 SPECIFICATIONS.

8. PROVIDE ALL SUPPORT DEVICES NECESSARY FOR THE WORK. COORDINATE ALL LOCATIONS WITH OTHER DISCIPLINES PRIOR TO INSTALLATION.

9. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR PLAN DIMENSIONS AND ELEVATIONS. DO NOT SCALE THESE DRAWINGS.

10. PROVIDE ALL PENETRATIONS PERTAINING TO THE WORK THROUGH THE ROOF, WALLS, AND FLOORS. PROVIDE THE WATERPROOFING AROUND THE OPENINGS.

11. COORDINATE THE SIZE AND LOCATION OF ALL PENETRATIONS THROUGH THE ROOF WITH DIVISION 07 AND OTHER DISCIPLINES.

12. ALL WALL AND FLOOR PENETRATIONS SHALL BE SEALED. SEAL ALL RATED FLOOR AND WALL PENETRATIONS WITH A UL APPROVED METHOD. FOR NON-RATED WALLS AND FLOORS, THE ANNULAR SPACE SHALL BE PACKED WITH MINERAL WOOL, OR ANOTHER SUITABLE NON-COMBUSTIBLE MATERIAL, AND CAULKED AIR TIGHT.

13. PROVIDE ALL CUTTING AND PATCHING OF FLOORS AND WALLS FOR THE WORK UNLESS OTHERWISE INDICATED.

14. CONDENSATE DRAINS SHALL BE A MINIMUM OF 1"Ø COPPER, INSULATED WITH A 25/50 RATED CLOSED CELL RUBBER TUBING HAVING A NOMINAL WALL THICKNESS OF 1". PROVIDE A P-TRAP WITH VENT AND CLEANOUT PLUG AT THE UNIT. ALL CONDENSATE LINES SHALL BE ROUTED TO A FLOOR DRAIN OR AS INDICATED ON THE DRAWINGS. PIPE ROUTING SHALL NOT CREATE A TRIP HAZARD.

15. WHERE EXISTING DUCTWORK, PIPING, OR EQUIPMENT HAS BEEN REMOVED, COMPLETELY REMOVE ALL EXISTING ABANDONED HANGERS AND APPURTENANCES.

16. PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS THROUGH THE FIRE RATED PARTITIONS, BARRIERS, AND WALLS AS INDICATED ON THE DRAWINGS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. PENETRATIONS THROUGH FIRE RATED WALLS OF 3 HOURS OR MORE SHALL BE PROTECTED BY A LISTED FIRE DOOR, SATISFACTORY FOR CLASS A OPENINGS, ON BOTH SIDES OF THE WALL.

17. INSTALL THERMOSTATS, SENSORS, AND OTHER CONTROLS 48" ABOVE FINISHED FLOOR OR AS INDICATED ON THE DRAWINGS. COORDINATE WITH OTHER DISCIPLINES TO ALIGN EXACTLY WITH ADJACENT DEVICES SUCH AS LIGHT SWITCHES AND CONTROLS.

18. PROVIDE ALL THERMOSTATS, SENSORS, CONTROLS, WIRING, AND CONDUIT.

19. WHERE DUCTWORK CONNECTS TO EXTERIOR LOUVERS, PRIME AND PAINT DUCTWORK BLACK TO PREVENT DUCTWORK FROM BEING VISIBLE THROUGH THE LOUVER.

20. FRESH AIR INTAKES SHALL BE A MINIMUM OF 10 (30) FEET FROM ALL EXHAUST AIR TERMINATIONS AND PLUMBING VENT THRU ROOF TERMINATIONS.

21. ALL DUCT LAYOUT AND LOCATIONS INDICATED ARE DIAGRAMMATIC. VISIT THE SITE, BECOME FAMILIAR WITH THE EXISTING CONDITIONS, AND COORDINATE THE DUCT LAYOUT WITH ALL DISCIPLINES PRIOR TO INSTALLATION.

22. SUPPORT ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES FROM THE BUILDING STRUCTURE AND NOT THE ROOF DECK.

23. ALL HANGER RODS SHALL BE CUT TO WITHIN 1" OF THE BOTTOM NUT. IN MECHANICAL ROOMS, ALL HANGERS BELOW 7'-0" SHALL BE WRAPPED WITH FOAM INSULATION FOR PERSONNEL PROTECTION.

24. INSULATE ALL SUPPLY DIFFUSERS AND DUCTED RETURN DIFFUSERS WITH 2" - 1# R-6 DUCT WRAP. CUT DIFFUSERS SO THERE IS A FOLDED 2" LAP ON ALL FOUR SIDES. TAPE WITH FSK TAPE WHERE INSULATED FLEX MEETS DUCT INSULATION, AND SO THERE ARE NO RAW EDGES OF FIBERGLASS.

25. EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS IN THE LATEST VERSION OF ASHRAE STANDARD 90.1 AND THE INTERNATIONAL ENERGY CONSERVATION CODE WITH NORTH CAROLINA AMENDMENTS.

26. COORDINATE THE ROUGH-IN OF HYDRONIC PIPING WITH THE GENERAL CONTRACTOR AND OTHER TRADES. ALL UNDERGROUND PIPING SHALL BE COORDINATED WITH STRUCTURAL FOOTINGS PRIOR TO INSTALLATION.

27. ALL HYDRONIC PIPING SHALL BE PERMANENTLY IDENTIFIED BY CONTENT, FUNCTION, AND DIRECTION OF FLOW (I.E., HOT WATER SUPPLY →). ALL IDENTIFICATION MARKERS SHALL BE PERMANENTLY STENCILED ON THE PIPING IN A LEGIBLE MANNER AT NO GREATER DISTANCE THAN 10'-0" ON CENTER. WHERE COLOR CODED PVC INSULATION JACKETING IS NOT SPECIFIED, ALL PIPING IN MECHANICAL ROOMS AND FINISHED AREAS ARE TO BE PAINTED AS FOLLOWS:

CHILLED WATER	BLUE WITH WHITE BACKGROUND AND BLUE LETTERS
HOT WATER	RED WITH WHITE BACKGROUND AND RED LETTERS
DOMESTIC WATER	GREEN WITH WHITE BACKGROUND AND GREEN LETTERS
REFRIGERANT	GREEN WITH BLACK BACKGROUND AND YELLOW LETTERS

28. PROVIDE FLEXIBLE PIPE CONNECTIONS AT ALL HYDRONIC PIPING CONNECTIONS AT CHILLERS, PUMPS, AIR HANDLING UNITS, FAN BOXES, AND OTHER ROTATING EQUIPMENT.

29. INSTALL ALL UNDERGROUND WATER PIPING A MINIMUM OF 24" BELOW FINISHED GRADE TO PIPE CROWN. COORDINATE WITH ALL DISCIPLINES PRIOR TO INSTALLING UNDERGROUND PIPING.

30. WRAP ALL EXTERIOR ABOVE GROUND HYDRONIC PIPING WITH ELECTRIC TRACE LINE PRIOR TO INSULATING. WRAP INSULATION WITH ALUMINUM JACKET AND SEAL ALL JOINTS.

31. ALL EQUIPMENT REMOVED FROM THE BUILDING DURING DEMOLITION SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE TURNED OVER TO THE OWNER FOR DISPOSAL. CARE SHOULD BE TAKEN IN REMOVAL OF ITEMS TO MINIMIZE DAMAGE. ANY ITEM NOT WANTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.

32. DO NOT INSTALL PIPING OVER ANY ELECTRICAL PANEL OR SWITCHGEAR.

33. PROVIDE EQUIPMENT SUPPORT PAD FOR ALL BASE MOUNTED EQUIPMENT. PAD SHALL BE 6" HIGH FOR CHILLERS AND BOILERS AND 4" HIGH FOR ALL OTHER MECHANICAL EQUIPMENT, INCLUDING AIR HANDLING UNITS AND PUMPS. PROVIDE 8" MINIMUM FROM EQUIPMENT TO END OF PAD ON ALL SIDES.

34. WHERE MECHANICAL ROOMS HAVE GYPSUM BOARD CEILINGS, INSTALL HANGER RODS BEFORE THE CEILING IS INSTALLED; COMPLETE PIPING INSTALLATION AFTER THE CEILING HAS BEEN INSTALLED.

35. ZIP TIES WILL NOT BE PERMITTED FOR USE AS CABLE SUPPORTS. WHERE NOT REQUIRED TO BE IN CONDUIT BY THE SPECIFICATIONS, PROVIDE J-HOOK SUPPORTS AND BRIDLE RINGS. CABLE SHALL BE INDEPENDENTLY SUPPORTED AND SHALL NOT BE SUPPORTED OFF THE WORK OF OTHER TRADES.

36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETELY CLEANING THE FIREPROOFING FROM ALL MATERIALS AND EQUIPMENT INSTALLED AS PART OF THIS CONTRACT. THIS INCLUDES, BUT IS NOT LIMITED TO, DUCTWORK, PIPING, CONDUIT, EQUIPMENT, FACEPLATES, BOXES, DISCONNECTS, CONTROL PANELS, AND CABLING.

SHEET INDEX - MECHANICAL

Sheet Number	Sheet Name	Current Revision	Current Revision Date
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M-101	DEMOLITION AND NEW WORK PLAN		
M-102	DIFFERENTIAL PRESSURE TRANSMITTER PLAN		
M-401	CONTROL DIAGRAMS		
M-601	DETAILS AND SCHEDULES		

ABBREVIATIONS

AREA DRAIN	LEV	LEVEL
ADJ ADJUSTABLE	LF	LINEAR FOOT
AFG ABOVE FINISHED FLOOR	LFH	LEFT HAND
AFG ABOVE FINISHED GRADE	LKR RM	LOOKER ROOM
AGGR AGGREGATE	LOUV	LOUVER
AL ALUMINUM	LP	LOW POINT
AP ACCESS PANEL	LT	LIGHT
APPD APPROVED	LTG	LIGHTING
APPROX APPROXIMATE	LVT	LINE VOLTAGE THERMOSTAT
ARCH ARCHITECT	MCH	MACHINE
BAS BUILDING AUTOMATION SYSTEM	MAS	MASONRY
BLDG BUILDING	MATL	MATERIAL
BLK BLOCK	MAX	MAXIMUM
BLKG BLOCKING	MECH	MECHANICAL
BN BEAM	MET	METAL
BOT BOTTOM	MFR	MANUFACTURER
BRK BRICK	MH	MANHOLE
BRKT BRACKET	MIN	MINIMUM
BTU BRITISH THERMAL UNIT	MISC	MISCELLANEOUS
CA CATCH BASIN	MO	MASONRY OPENING
CFM CUBIC FEET PER MINUTE	MTD	MOUNTED
CHWS CHILLED WATER SUPPLY	MU	MAKE UP
CHWR CHILLED WATER RETURN	N	NORTH
CI CAST IRON	NC	NORMALLY CLOSED
CKT CIRCUIT	NG	NATURAL GAS
CL CENTERLINE	NI	NOT IN CONTRACT
CLG CELING	NO	NUMBER, NORMALLY OPEN
CLKG CAULKING	NOM	NOMINAL
CLR CLEAR	NTS	NOT TO SCALE
CMU CONCRETE MASONRY UNIT	OA	OUTSIDE AIR
CO CLEAN OUT	OC	ON CENTER
COL COLUMN	OD	OUTSIDE DIAMETER
COM COMMON	OFF	OFFICE
CONC CONCRETE	OPNG	OPENING
CONN CONNECTION	OPP	OPPOSITE
CONST CONSTRUCTION	OHD	OVERHEAD
CONT CONTINUOUS	PART	PARTIAL PARTITION
CONTR CONTRACTOR	PD	PRESSURE DROP
CTR CENTER	PERP	PERPENDICULAR
CTRL CONTROL	PLUMB	PLUMBING
CU FT CUBIC FOOT	PAL	PANEL
DW COLD WATER	POS	POSITION
DB DRY DRAIN	PREFAB	PREFABRICATED
DB DEPTH BULB	P SL	PIPE SADDLE
DBL DOUBLE	PT	PAINT
DDC DIRECT DIGITAL CONTROL	PVC	POLYVINYL CHLORIDE
DET DETAIL	QTY	QUANTITY
DIA DIAMETER	R	RADIUS
DIAG DIAGONAL	RA	RETURN AIR
DIM DIMENSION	RD	ROOF DRAIN
DIST DISTANCE	REC	RECESS
DN DIVISION	REC	RECEPTACLE
DN DOWN	RECT	RECTANGLE
DO DITTO	REF	REFERENCE
DWG E	REG	REGISTER
DWG EAST	RENF	REINFORCED
E EACH EXHAUST AIR	REQD	REQUIRED
EAT ENTERING AIR TEMPERATURE	REV	REVISED
ELEC ELECTRICAL	RH	RIGHT HAND
ELEV ELEVATION	RM	ROOM
ENCL ENCLOSURE	RO	ROUGH OPENING
EQ ELECTRICAL PANELBOARD	RWC	RAIN WATER CONDUCTOR
EQ EQUAL	S	SOUTH
EQUIP EQUIPMENT	SA	SUPPLY AIR
EW ELECTRIC WATER COOLER	SB	SMOKE BARRIER
EXIST EXISTING	SCHED	SCHEDULE
EXP EXPANSION	SCUP	SCUPPED
EXT EXTERIOR	SD	SMOKE DAMPER, SMOKE DETECTOR
F FAHRENHEIT	SEC	SECOND
FA FIRE ALARM	SEC	SECTION
FCU FAN COIL UNIT	SHWR	SHOWER
FD FIRE DAMPER, FLOOR DRAIN	SHT	SHEET
FE FIRE EXTINGUISHER	SM	SIMILAR
FE FIRE EXTINGUISHER CABINET	SP	SUMP PUMP
FF FINISH FLOOR	SPEC	SPECIFICATION
FHC FIRE HOUSE CABINET	SQ	SQUARE
FIG FIGURE	SQ FT	SQUARE FEET
FIN FINISH	SS	STAINLESS STEEL
FIX FIXTURE	ST	STREET
FL FLOOR	STA	STATION
FLAS FLASHING	STD	STANDARD
FLOOR FLUORESCENT	STL	STEEL
FOC FACE OF CONCRETE	STRUCT	STRUCTURE
FOF FACE OF FINISH	SUB	SUBSTITUTE
FOS FACE OF STUD	SUSP	SUSPEND
FRFR FIREPROOF	SYMM	SYMMETRICAL
FTS FIRE FULL STATION	TC	TOP OF CURB
FT FEET	TEL	TELEPHONE
FG FOOTING	TEMP	TEMPERATURE
FURR FURRING	THK	THICK
GA GAUGE	TOS	TOP OF STEEL
GAL GALLON	TP	TOP OF PAVEMENT
GC GENERAL CONTRACTOR	TV	TELEVISION
GND GROUND	TW	TOP OF WALL
GPM GALLONS PER MINUTE	TY	TYPICAL
GR GRADE	UNF	UNFINISHED
GWB HIGH WALL BOARD	UNO	UNLESS NOTED OTHERWISE
H HYPHEN	VAR	VARIABLE, VARIABLE
H2O WATER	VERT	VERTICAL
HB HOSE BIBB	VOL	VOLUME
HGT HEIGHT	VTR	VENT THRU ROOF
HORIZ HORIZONTAL	W	WEST, WEST, WIDE
HP HIGH POINT	WI	WITH
HOUR HOUR	W/O	WITHOUT
HVAC HEATING, VENTILATION AND AIR CONDITIONING	WC	WATERCLOSET
HW HOT WATER	WB	WET BULB
HWS HOT WATER SUPPLY	WGT	WEIGHT
HWR HOT WATER RETURN	WL	WATERLINE
ID INSIDE DIAMETER	WP	WATERPROOF
IN INCH	YD	YARD
INCL INCLUDE	YR	YEAR

REVISIONS

Wooten

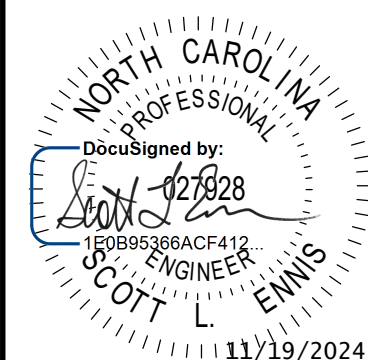
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NORTH CAROLINA

CROWN COLISEUM

AGRI-EXPO CHILLER REPLACEMENT

COVER SHEET



DESIGNED BY: SLE

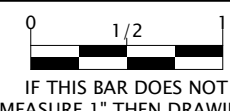
DRAWN BY: IHF

CHECKED BY: SLE

PROJECT NO.: 2877-R

DATE: 15 NOVEMBER 2024

SCALE:



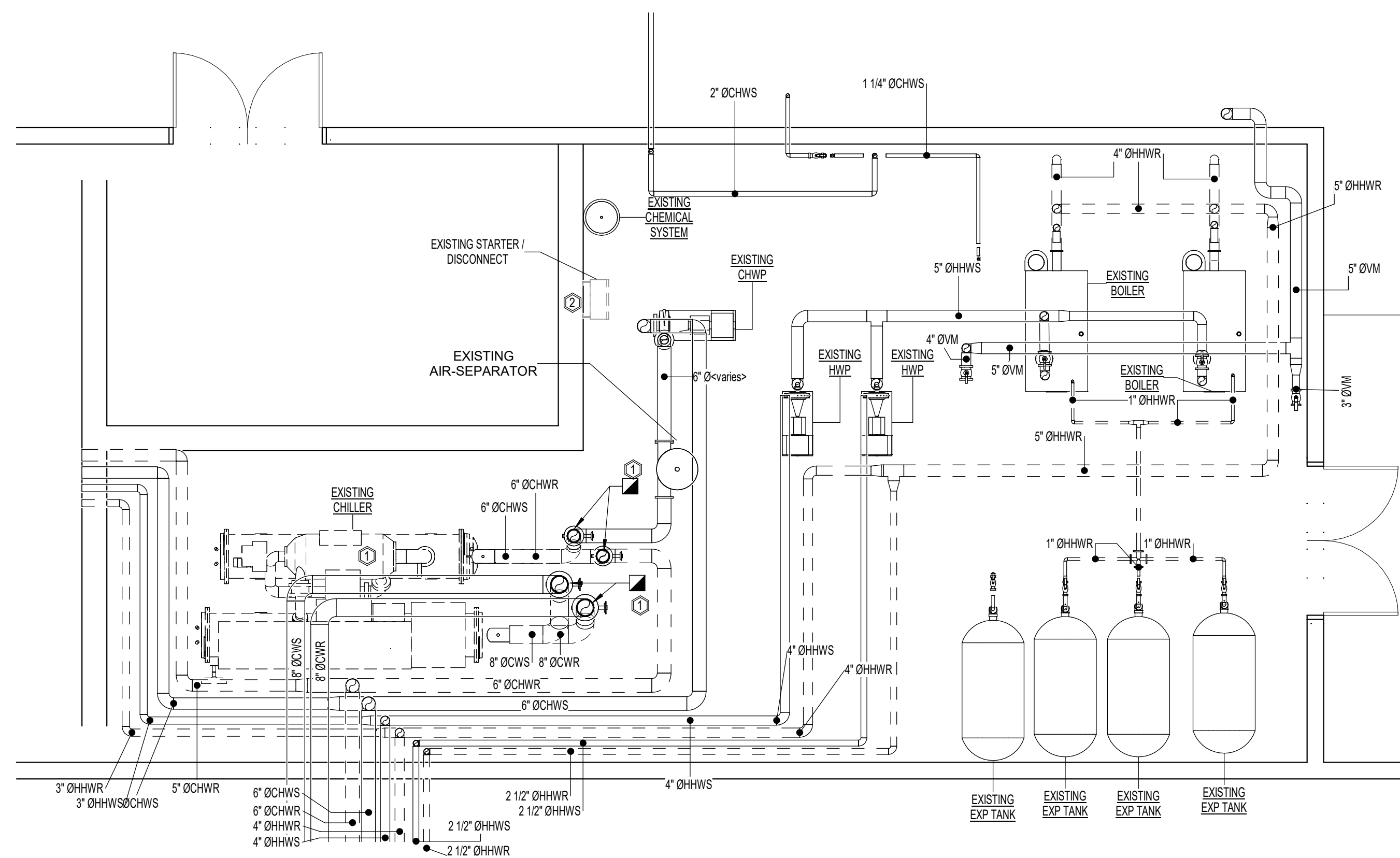
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING
IS NOT TO FULL SCALE



CUMBERLAND
COUNTY
NORTH CAROLINA

FINAL DRAWING
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NOT RELEASED FOR CONSTRUCTION

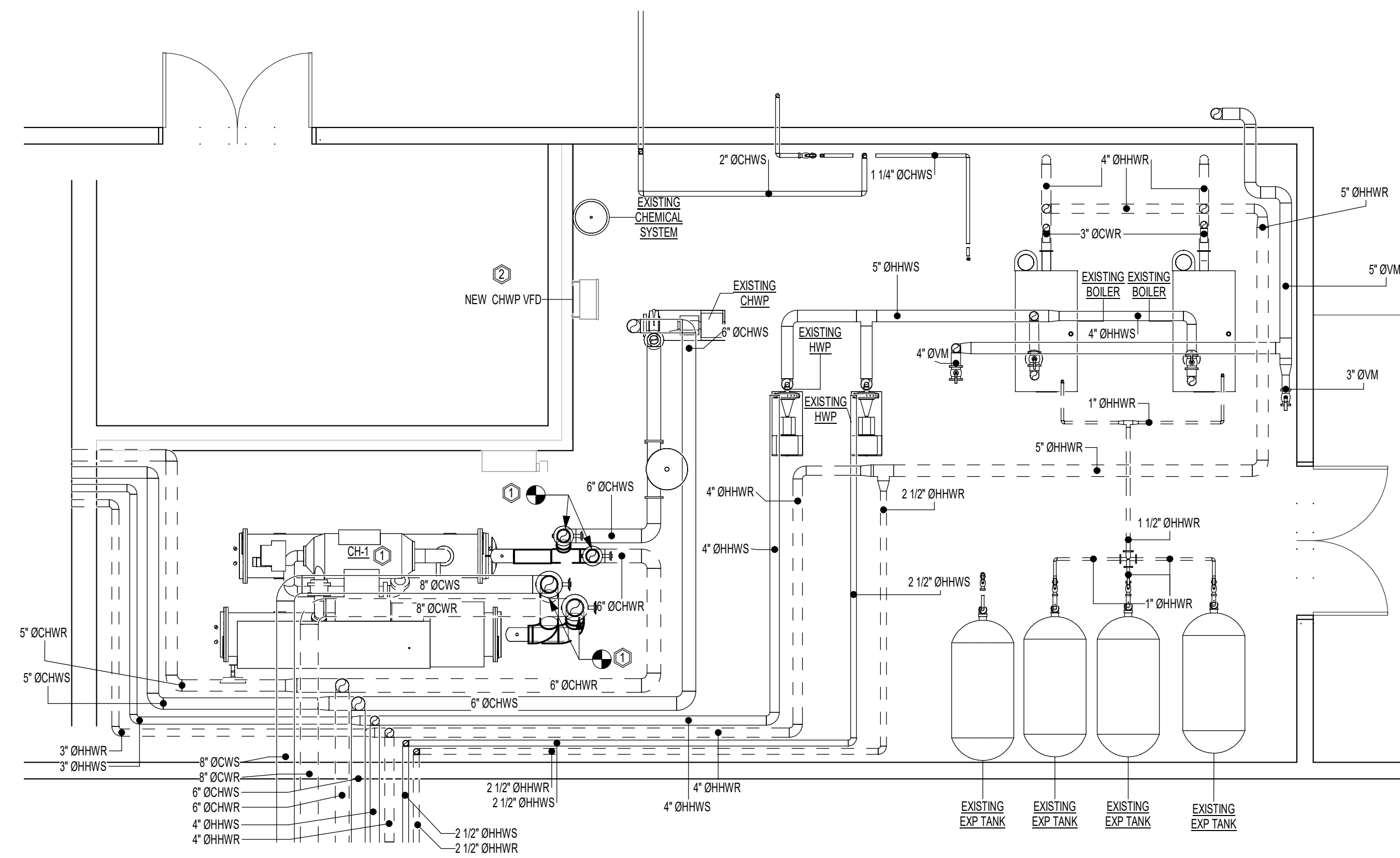
M-001



2
M-101 1/4" = 1'-0" ENLARGED PIPING PLANS - DEMOLITION WORK

KEY NOTES

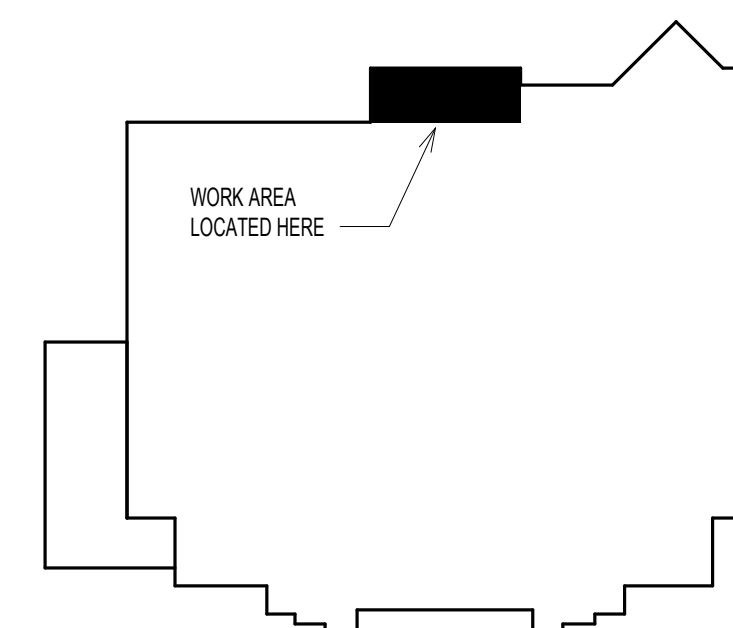
1. CHILLER AND CONNECTIONS TO BE DEMOLISHED AS INDICATED. TESTING AND BALANCING REQUIRED PRIOR TO COMMENCEMENT OF WORK.
2. COORDINATE WITH ELECTRICAL CONTRACTOR THE REMOVAL OF THE EXISTING STARTER / DISCONNECT.



1 ENLARGED PIPING PLANS - NEW WORK
M-101 1/4" = 1'-0"

KEY NOTES

1. TO CHILLER AND CONNECTIONS TO BE REPLACED AS INDICATED
2. PROVIDE NEW VFD FOR EXISTING 15 HP CHWP. PROVIDE DDC CONNECTIONS AS SHOWN ON M-401.



FINAL DRAWING
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REVISIONS

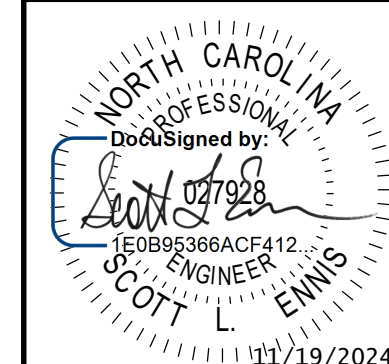
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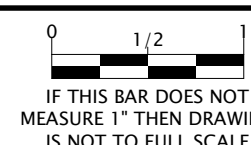
NORTH CAROLINA

CROWN COLISEUM
AGRI-EXPO CHILLER REPLACEMENT

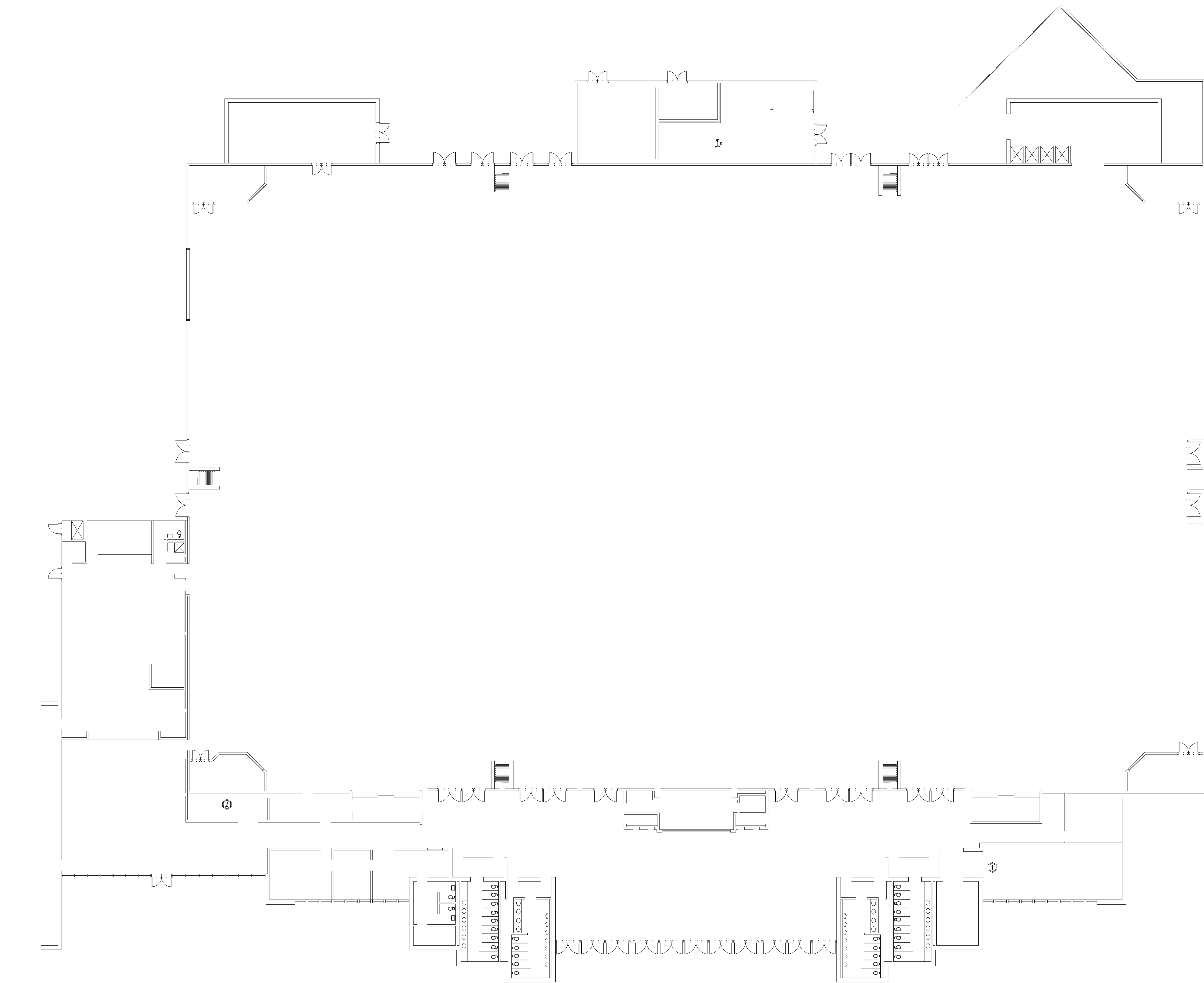
DEMOLITION AND NEW WORK PLAN



DESIGNED BY:	SLE
DRAWN BY:	JHF
CHECKED BY:	SLE
PROJECT NO.:	2877-R
DATE:	15 NOVEMBER 2024
SCALE:	



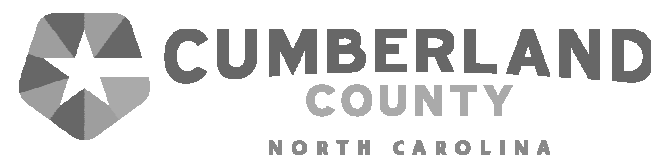
M-101



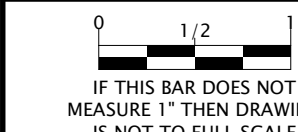
1 DIFFERENTIAL PRESSURE TRANSMITTER PLAN
M-102 1/16" = 1'-0"

KEY NOTES

1. PROVIDE DIFFERENTIAL PRESSURE TRANSMITTER ON THE SUPPLY & RETURN PIPING IN THE MECHANICAL MEZZANINE ABOVE.
2. PROVIDE DIFFERENTIAL PRESSURE TRANSMITTER ON THE SUPPLY & RETURN PIPING IN THIS MECHANICAL ROOM.

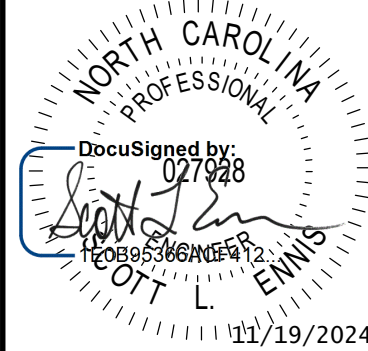


FINAL DRAWING
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M-102

DESIGNED BY: SLE
DRAWN BY: JHF
CHECKED BY: SLE
PROJECT NO.: 2877-R
DATE: 15 NOVEMBER 2024
SCALE:



CUMBERLAND COUNTY CROWN COLISEUM
AGRI-EXPO CHILLER REPLACEMENT
NORTH CAROLINA
DIFFERENTIAL PRESSURE TRANSMITTER PLAN

REVISIONS

Wooten
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BASIS OF DESIGN														
BRAND	MODEL	COMPRESSOR TYPE	DESIGN CAP. (TONS)	EFFICIENCY	EVAPORATOR				ELECTRICAL					WEIGHT (TONS)
				IPLV (100%)	EWFT ("F)	LWFT ("F)	GPM	ΔP (FT)	KW	MCA	RLA	V	P	

AIR-COOLED CHILLER SCHEDULE (ALTERNATIVE 1)															
MARK	BRAND	MODEL	COMPRESSOR TYPE	DESIGN CAP. (TONS)	EFFICIENCY	EVAPORATOR					ELECTRICAL				WEIGHT (TONS)
					IPLV (100%)	EWT (°F)	LWT (°F)	GPM	ΔP (FT)	KW	MCA	FLA	V	P	
CH-1	YORK	YZ_MA024AN022P033HA	CENTRIFUGAL	250	0.6084	54	44	598.1	14.2	152.1	450	201	460	3	7.181

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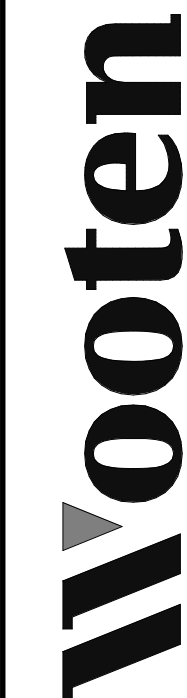
CHILLER ACOUSTICS

THE NOISE REDUCTION SYSTEM SHALL BE SPECIFICALLY ENGINEERED AND INCLUDE, BUT NOT LIMITED TO, HUSH COVER™ REMOVABLE INSULATION COVERS FOR THE CHILLER COMPRESSORS, DISCHARGE/SUCTION LINES AND OIL SEPARATORS, HUSH QUILT™ ACoustICAL INSULATION BLANKETS MANUFACTURED WITH TANERA GORE™ THREAD AND VINYL COATED POLYESTER MATERIALS. THE NOISE REDUCTION SYSTEM SHALL BE MANUFACTURED BY A COMPANY SPECIALIZING IN THE MANUFACTURE OF ACoustICAL SYSTEMS AND RELATED ACCESSORIES WITH NOT LESS THAN 10 YEARS DOCUMENTED SUCCESSFUL EXPERIENCE WITH WORK COMPARABLE TO WORK OF THIS PROJECT. ALL NOISE CONTROL MATERIALS MANUFACTURERS SHALL DELIVER A COMPLETE SUBMITTAL INCLUDING A COPY OF AN ACoustICAL REPORT IN COMPLIANCE WITH THE ACoustICAL PERFORMANCE AS PER THIS SPECIFICATION AND THE COMPLETED SYSTEM SHALL RESULT IN A CHILLER DEGRADATION OF NO MORE THAN 2.5%.

IF OVERALL NC LEVEL TEST RESULTS DO NOT MEET THE REQUIREMENTS OF THIS SPECIFICATION, THEN THE CHILLER MANUFACTURER/VENDOR SHALL SUPPLY ADDITIONAL SOUND ATTENUATION AND/OR FACILITY MODIFICATIONS TO MEET THIS REQUIREMENT AT NO ADDITIONAL COST TO THE OWNER.

PUMP SCHEDULE								
MARK	MANUFACTURER	MODEL	GPM	HEAD (FT)	HP	RPM	V	PH
	EXISTING	EXISTING	600	60	15	1750	480	3
EXISTING CHWP	EXISTING	EXISTING	600	60	15	1750	480	3

A. PROVIDE AEGIS SHAFT GROUNDING RING FOR EXISTING PUMP
B. CONTROLS CONTRACTOR TO PROVIDE VFD FOR PUMP.

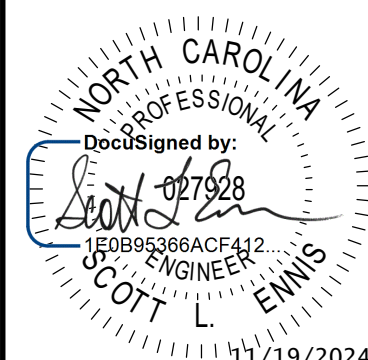


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CROWN COLISEUM

AGRI-EXPO CHILLER REPLACEMENT

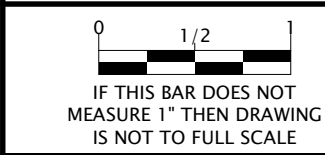
DETAILS AND SCHEDULES



DRAWN BY: JHF

PROJECT NO.: 2877-R

SCALE: _____



M-601



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ABBREVIATIONS

- | SYMBOL | DESCRIPTION | REMARKS |
|--------|--|---------|
| | MANHOLE - REFER TO SITE PLAN. | |
| | MOTORIZED DAMPER - INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. | |
| | 4" X 4" X 3/4" FIRE RETARDANT PLYWOOD EQUIPMENT BACKBOARD COORDINATE LOCATION, PLACEMENT WITH OWNER. | |
| | CONDUIT UP OR DOWN AS INDICATED ON PLANS | |
| | RECESS ACTIVATED FIRE RATED POKE-THROUGH FLOOR BOX | |
| | OVERHEAD PROJECTOR | |
| | PROJECTION SCREEN SWITCH FURNISHED BY SCREEN PROVIDER AND INSTALLED BY ELECTRICAL CONTRACTOR | |
| | DISHWASHER TOGGLE ON/OFF SWITCH MOUNTED AT +42" AFF. | |
| | REMOTE STATION FOR ELEVATOR EMERGENCY TWO-WAY COMMUNICATION SYSTEM | |
| | MAIN STATION FOR ELEVATOR EMERGENCY TWO-WAY COMMUNICATION SYSTEM | |
| | BACK-UP BATTERY FOR ELEVATOR EMERGENCY TWO-WAY COMMUNICATION SYSTEM | |
| | FACELESS GFI FOR UNDERCOUNTER REFRIGERATOR - MOUNT AT +42" AFF. | |
| | DIGITAL DIRECT CONTROLS FOR HVAC BY HVAC CONTRACTOR | |
| | SIMPLEX RECEPTACLE FOR SUMP PUMP | |
| | AUDIO/VISUAL OUTLET BOX AT PROJECTION SCREEN | |
| | AUDIO/VISUAL OUTLET BOX AT INSTRUCTOR LOCATION | |
| | GENERATOR ANNUNCIATOR PANEL | |
| | SCIENCE ROOM EMERGENCY SHUT-OFF MUSHROOM HEAD KEYED PUSH BUTTON WITH LEXAN COVER - REFER TO DETAILS E005-4 & E005-5 | |
| | VARIABLE FREQUENCY DRIVE FOR HVAC EQUIPMENT FURNISHED BY MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. | |
| | CONDUIT SLEEVES - SIZE AND QUANTITY AS SHOWN ON PLANS | |
| | JUNCTION BOX WITH REMOVABLE COVER - SIZE PER NATIONAL ELECTRICAL CODE | |
| | FIRE ALARM TEMPERATURE SENSOR FOR FIRELINE BACK FLOW PREVENTER | |
| | VIDEO SURVEILLANCE CAMERA | |
| | MDF ROOM MAIN GROUND BAR. REFER TO SPECIFICATIONS AND REFER TO DETAILS. | |
| | IDF ROOM GROUND BAR. REFER TO SPECIFICATIONS AND REFER TO DETAILS. | |
| | MAIN GROUND BAR. REFER TO SPECIFICATIONS AND REFER TO DETAILS. | |
| | NUMERICAL REMOTE SECURITY KEYPAD. LOCATE AT 60" AFF. | |
| | SECURITY CARD READER. LOCATE +48" TO TOP OF OUTLET. | |
| | 277/480 VOLT SWITCHBOARD WITH MAIN BREAKER, NEUTRAL, AND GROUND BUS BAR ACCESSORIES. | |
| | 120/208 VOLT PANELBOARD WITH NEUTRAL AND GROUND BUS ACCESSORIES. | |
| | 277/480 VOLT PANELBOARD WITH NEUTRAL, AND GROUND BUS ACCESSORIES. | |
| | SURGE PROTECTIVE DEVICE | |
| | DRY TYPE STEP DOWN TRANSFORMER 480-120/208 3 PHASE. | |
| | DISCONNECT SWITCH, HEAVY DUTY | |
| | WIRING AND CONDUIT INSTALLED CONCEALED IN WALL SPACE OR ABOVE FINISHED CEILING | |
| | UNSWITCHED WIRING AND CONDUIT LEG ON LIGHTING PLANS. UNDER FLOOR WIRING AND CONDUIT ON POWER PLANS. UNDER GROUND WIRING AND CONDUIT ON SITE PLANS. | |
| | HOME RUN CIRCUIT TO PANELBOARD | |

Sheet Number	Sheet Name	Current Revision	Current Revision Date
E-001	COVER SHEET		
E-100	MECHANICAL ROOM POWER PLAN		

- | ABBREV. | DEFINITION |
|-----------|--|
| A | AMPS, AMPERE, AMPERAGE |
| AC | ABOVE COUNTER |
| ACC | ALTERNATING CURRENT |
| ADA | AMERICANS WITH DISABILITIES ACT |
| AFF | ABOVE FINISHED FLOOR |
| AFH | ABOVE FINISHED GRADE |
| AG | AUTHORITY HAVING JURISDICTION |
| AIC | AMPERE INTERRUPTING CURRENT |
| AI | ALUMINUM |
| ANSI | AMERICAN NATIONAL STANDARD INSTITUTE |
| ATSC | AUTOMATIC TRANSFER SWITCH CONTROL |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AV | AUDIO/VISUAL |
| AWG | AMERICAN WIRE GAUGE |
| BAS | BUILDING AUTOMATION SYSTEM |
| BFC | BELOW FINISHED CEILING |
| CB | CONDUIT |
| CB | CIRCUIT BREAKER |
| CKT | CLOSED CIRCUIT TELEVISION |
| CKT | CIRCUIT |
| CT | CURRENT TRANSFORMER |
| CU | COPPER |
| DI | DIMMING OR DIMMER |
| DB | DISTRIBUTION BOARD |
| DC | DIRECT CURRENT |
| DL | DAY-LIGHTING |
| DISC | DISCONNECT SWITCH |
| E | EMERGENCY |
| EC | ENCLOSED CIRCUIT BREAKER |
| EOR | ENGINEER OF RECORD |
| EWC | ELECTRIC WATER COOLER |
| EX | EXISTING |
| FUT | FUTURE |
| FA | FIRE ALARM |
| FACP | FIRE ALARM CONTROL PANEL |
| FATC | FIRE ALARM TERMINAL CABINET |
| FDR | FEEDER |
| FFMR | FUSE PER MANUFACTURER RECOMMENDATIONS |
| GAA | GENERATOR ALARM ANNUNCIATOR |
| GAP | GENERATOR ALARM PANEL |
| GEN | GENERATOR |
| GEC | GROUNDING ELECTRODE CONDUCTOR |
| GFI | GROUND FAULT CIRCUIT INTERRUPTER |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER |
| GFEP | GROUND FAULT EQUIPMENT PROTECTION |
| GFP | GROUND FAULT PROTECTION |
| GRS | GROUND |
| GH | GROUND-ANCHORED RIGID STEEL |
| HN | HAND HOLD |
| HOA | HAND-OFF AUTOMATIC |
| HP | HORSEPOWER |
| IEEE | INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS |
| IG | ISOLATED GROUND |
| KCMIL | THOUSAND CIRCULAR MILS |
| KV | KILOVOLT |
| KVA | KILOVOLT AMPS |
| KW | KILOWATT |
| KWH | KILOWATT HOURS |
| LC | LIGHTING CONTACTOR |
| LS | LOUD SPEAKER |
| LSIG | LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT PROTECTION |
| MAX | MAXIMUM |
| MCB | MAIN CIRCUIT BREAKER |
| MCC | MOTOR CONTROL CENTER |
| MDP | MAIN DISTRIBUTION PANEL |
| MIN | MINIMUM |
| MH | MAN HOLE |
| MLO | MAN LUGS ONLY |
| MTS | MANUAL TRANSFER SWITCH |
| N/A | NOT APPLICABLE |
| NC | NORMALLY CLOSED |
| NEC | NATIONAL ELECTRIC CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION |
| N or NEUT | NEUTRAL |
| NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| NFIC | NOT IN CONTRACT |
| NO | NORMALLY OPEN |
| O/H | OVER HEAD |
| P | POLE |
| PA | PUBLIC ADDRESS |
| PB | PULL BOX |
| PC | PHOTOCELL |
| PH | PHASE POTENTIAL TRANSFORMER |
| PT | POTENTIAL TRANSFORMER |
| RSC | RECEPTACLE CONTACTOR |
| RSC | RIGID STEEL CONDUIT |
| SEC | SECURITY |
| SPD | SURGE PROTECTIVE DEVICE |
| SW | SWITCH |
| SWBD | SWITCHBOARD |
| SWGR | SWITCHGEAR |
| TC | TIME CLOCK |
| TEMP | TEMPORARY |
| TGB | TECHNOLOGY GROUND BAR |
| TGMB | TECHNOLOGY MAIN GROUND BAR |
| TV | TELEPHONE TERMINAL BOARD |
| TV | TELEVISION |
| TV | TYPICAL |
| UC | UNDER COUNTER |
| UG | UNDERGROUND |
| UGE | UNDERGROUND ELECTRIC |
| UL | UNDERWRITERS' LABORATORIES |
| UON | UNLESS OTHERWISE NOTED |
| UPS | UNINTERRUPTABLE POWER SUPPLY |
| V | VOLTS |
| VFD | VARIABLE FREQUENCY DRIVE |
| WG | WIRE GUARD |
| WP | WEATHERPROOF |
| XFER | TRANSFER |
| XFMR | TRANSFORMER |

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E-001

