VOLUSIA
COUNTY SCHOOLS
"LEADING WITH GRACE AND RESPECT"

TIMBERCREST ELEMENTARY
UPGRADE BOILERS

THE SCHOOL BOARD OF VOLUSIA
COUNTY FLORIDA
200 North Clara Avenue
Deland, Florida 32720

VCS Project NO. 2648255

2401 EUSTACE AVE, DELTONA, FL 32725

SCHOOL BOARD MEMBERS

RUBEN COLON	BOARD CHAIR
KRISTA GOODRICH	BOARD VICE CHAIR
DONNA BROSEMER	MEMBER
JAMIE HAYNES	MEMBER
JESSIE THOMPSON	MEMBER
CARMEN J. BALGOBIN	SUPERINTENDENT

DESCRIPTION OF WORK

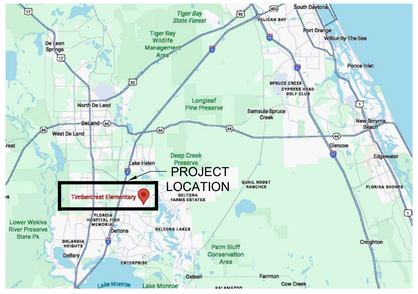
Replace two (2) hydronic boilers, two (2) hot water distribution pumps, and associated hot water piping within the pump room.

Engineer's Statement of Compliance
To the best of my knowledge, these drawings and the project manual are complete and comply with the Florida Building Code.

BUILDING DATA

A.	SURVEY PARCEL ID	XXX
B.	LEGAL DESCRIPTION	XXX
C.	OCCUPANCY TYPE	XXX
D.	CONSTRUCTION TYPE	TYPE XXX
E.	RISK CATEGORY	XXX
F.	AUTOMATIC SPRINKLER	XXX
G.	BUILDING AREA	XXX
H.	BUILDING HEIGHT	XXX
I.	OCCUPANT LOAD	XXX

LOCATION MAP



NOT TO SCALE

ENGINEERS & CONSULTANTS

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Drawing Index

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M100	MECHANICAL RENOVATION PLAN
M500	MECHANICAL DETAILS
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M600	MECHANICAL SCHEDULES
M800	MECHANICAL CONTROLS
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E602	ELECTRICAL SCHEDULES

CONSTRUCTION DOCUMENTS - 9/15/2026

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NO.	DATE	DESCRIPTION

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DJS	DJS
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
Cover Sheet

DRAWING NO.
G001

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
AVER	AVERAGE
B	BOILER
BDD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
BLDG	BUILDING
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
CAP	CAPACITY
CD	CEILING DIFFUSER
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CT	COOLING TOWER
CU	CONDENSING UNIT
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DIA	DIAMETER
DIFF	DIFFERENTIAL
DISCH	DISCHARGE
DN	DOWN
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ELEC	ELECTRIC
EQUIV	EQUIVALENT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETC	AND SO FORTH
EWT	ENTERING WATER TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRG	FILTER RETURN GRILLE
FRICT	FRICTION
FT	FEET
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS/LB	GRAINS PER POUND
H2O	WATER
HB	HOSE BIBB
HD	HEAD (SEE SCHEDULES)
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTR	HEATER
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INTERNAL DIAMETER
IN	INCHES
INCL	INCLUDING
KW	KILOWATT
L	LENGTH
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LBS/HR	POUNDS PER HOUR (#/HR)
LD	LOUVERED DOOR (24X24 UNO)
LF	LINEAR FEET
LRA	LOCK ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OZ	OUNCE
P	PUMP
PD	PRESSURE DROP (SEE SCHEDULE)
PERF	PERFORATED
PH	PHASE
POS	POSITIVE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PVC	POLYVINYL CHLORIDE
QUAN	QUANTITY
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RBJ	RUN BETWEEN JOIST
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REQD	REQUIRED
RET	RETURN
RH	RELATIVE HUMIDITY
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
SUCT	SUCTION
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDERCUT
UH	UNIT HEATER
UNOCC	UNOCCUPIED
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VAV	VARIABLE AIR VOLUME UNIT
VEL	VELOCITY
VTR	VENT THRU ROOF
W	WIDTH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WG	WATER GAUGE
WMS	WIRE MESH SCREEN

SUMMARY OF WORK

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS AS REQUIRED AND AS INDICATED ON THESE DRAWINGS AND NOTES. THIS WORK SHALL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING:

1. PERFORMANCE OF ALL WORK AS DESCRIBED ON PROPOSED CONTRACT DRAWINGS AND AS REFERRED TO IN THE SPECIFICATIONS AND NOTES AS APPLICABLE FOR EACH PARTICULAR CONSTRUCTION DISCIPLINE.
2. RESTORATION OF EXISTING SYSTEMS, DEVICES, FINISHES, ETC. DAMAGED OR ALTERED BY NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY THE OWNER, ARCHITECT, AND/OR ENGINEER.
3. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT, GENERAL CHARACTER AND LOCATION OF THE WORK INCLUDED. OFFSETS AND/OR CHANGES IN ELEVATION OF PIPING AND DUCTWORK DUE TO STRUCTURAL OR OTHER INTERFERENCES SHALL BE PROVIDED WITHOUT EXTRA COST. CONTRACTOR SHALL VERIFY AND EVALUATE ALL EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.
4. COORDINATE WORK WITH THE PRIME CONTRACTOR TO MEET THE CONSTRUCTION SCHEDULE AND PHASING REQUIREMENTS.

MECHANICAL SYMBOL LEGEND

GENERAL		CONTROLS	
X / YZ	EQUIPMENT TAG (X=TYPE, Y=SYSTEM, Z=NUMBER)	T	THERMOSTAT OR TEMPERATURE SENSOR
# # #	KEYED NOTES	H	HUMIDITY SENSOR
LD	DOOR GRILLE (24"X24" UNO)	C	CARBON DIOXIDE SENSOR
UC	UNDERCUT DOOR (1" UNO)		DUCT MOUNTED SMOKE DETECTOR
#	DRAWING REVISION INDICATOR	M	MOTORIZED CONTROL DAMPER
	EXISTING TO REMAIN	P	DUCT PRESSURE SENSOR
	EXISTING TO BE DEMOLISHED	EMS	ENERGY MANAGEMENT SYSTEM PANEL
	POINT OF CONNECTION		
AIR MOVING DEVICES AND COMPONENTS		**PIPING, VALVES AND SPECIALTIES**	
	SUPPLY AIR FLOW	CHWS	CHILLED WATER SUPPLY
	RETURN AIR FLOW	CHWR	CHILLED WATER RETURN
TAG / CFM	SUPPLY AIR DIFFUSER	HWS	HOT WATER SUPPLY
TAG / CFM	RETURN AIR GRILLE	HWR	HOT WATER RETURN
TAG / CFM	EXHAUST AIR GRILLE	CWS	CONDENSER WATER SUPPLY
TAG / CFM	SIDEWALL SUPPLY GRILLE	CWR	CONDENSER WATER RETURN
TAG / CFM	SIDEWALL RETURN OR EXHAUST GRILLE	R	REFRIGERANT PIPING
	ROOFTOP EXHAUST FAN	HG	HOT GAS REFRIGERANT PIPING
	HVAC EQUIPMENT	C	CHILLED WATER SUPPLY
	SECTION, SUPPLY DUCT		SHUTOFF VALVE (BS=BALANCING/SHUTOFF)
	SECTION, RETURN DUCT		THREE-WAY VALVE
	SECTION, EXHAUST DUCT		PLUG VALVE
	SECTION, ROUND DUCT		CHECK VALVE
	FLEXIBLE DUCT		PRESSURE REDUCING VALVE
12X20	DUCT SIZE IN INCHES, WIDTH X DEPTH (INSIDE)		BACKFLOW PREVENTOR ASSEMBLY
	INTERNALLY LINED OR DOUBLEWALL DUCT	M	MOTORIZED ACTUATOR
R	CHANGE OF ELEVATION (R=RISE, D=DROP)	S	SOLENOID ACTUATOR
	DUCTWORK ELBOW UP		PIPE CAP
	DUCTWORK ELBOW DOWN		AUTOMATIC AIR VENT
	MITERED ELBOW		MANUAL AIR VENT
	RADIUS ELBOW		STRAINER WITH BLOWDOWN VALVE
	TURNING VANES		THERMOMETER
S R	STANDARD BRANCH, SUPPLY OR RETURN		PRESSURE GAGE
	TRANSITION, CONCENTRIC		ELBOW TURNED UP
	TRANSITION, ECCENTRIC		ELBOW TURNED DOWN
AD	ACCESS DOOR		TEE, OUTLET UP
	ELECTRIC DUCT HEATER		TEE, OUTLET DOWN
AFS	AIR FLOW STATION		CONNECTION, TOP
	FLEXIBLE CONNECTION		CONNECTION, BOTTOM
	FIRE DAMPER		UNION
FS	SMOKE DAMPER (FS = FIRE/SMOKE DAMPER)		FLEXIBLE CONNECTOR
	RADIATION DAMPER		VENTURI FLOWMETER
	MANUAL DAMPER		

BIDDING PROCEEDURES

1. SUBMISSION OF BID DIRECTLY OR INDIRECTLY IN CONNECTION WITH THIS WORK SHALL IMPLY THAT THE BIDDER HAS EXAMINED THE JOB SITE UNDER WHICH HE WILL BE OBLIGATED TO OPERATE SHOULD HE BE AWARDED THE WORK UNDER THIS CONTRACT. NO EXTRA CHARGE WILL BE ALLOWED FOR FAILURE OF ANY BIDDER TO EXAMINE THE SITE PRIOR TO BID.
2. REVIEW CONSTRUCTION SCHEDULE AND EQUIPMENT LEAD TIMES AND INCLUDE ALL COSTS AND QUICKSHIP CHARGES FOR ALL EQUIPMENT NEEDED TO MEET SCHEDULE.

GENERAL NOTES

1. THE WORD "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
2. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ANY INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE FACILITY WHICH ARE TO REMAIN IN OPERATION. ISOLATE WORK AREAS BY MEANS OF TEMPORARY PARTITIONS AND/OR TARPS TO KEEP DUST AND DIRT WITHIN THE CONSTRUCTION AREA.
3. NO PIPING, EQUIPMENT, ETC. SHALL BE REMOVED, DISCONNECTED OR SHUT DOWN WITHOUT PRIOR REVIEW WITH THE OWNER AND/OR ENGINEER TO CONFIRM THAT AREAS TO REMAIN IN OPERATION WILL NOT BE AFFECTED. IF ANY AREAS NOT WITHIN THE SCOPE OF WORK ARE AFFECTED BY ANY SHUTDOWN, REMOVAL OR DISCONNECTION, SUFFICIENT ADVANCE NOTICE MUST BE GIVEN TO THE OWNER INDICATING WHICH AREAS WILL BE AFFECTED, WHEN THE PROPOSED SHUTDOWN WILL OCCUR, AND FOR HOW LONG A PERIOD OF TIME.
4. THE OWNER HAS THE RIGHT OF FIRST REFUSAL FOR ALL ITEMS REMOVED. ALL ITEMS REFUSED BY THE OWNER SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
5. THE JOB SITE SHALL BE CLEANED DAILY TO REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES OTHER THAN THE OWNERS.
7. FLUSH AND SUCCESSFULLY PRESSURE TEST ALL PIPING SYSTEMS PRIOR TO PLACING IN SERVICE. ACCEPTABLE BACTERIOLOGICAL TESTS MUST BE PROVIDED ON ALL DOMESTIC SUPPLY WATER PIPING AFFECTED BY THE WORK.
8. EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED, EXCEPT WHERE INDICATED AS BEING RELOCATED.
9. PROVIDE ALL NECESSARY TEMPORARY OR PERMANENT CAPS, PLUGS, OR VALVES FOR PIPING TO ALLOW COMPLETION OF WORK. DO NOT LEAVE PIPING OPEN ENDED.
10. COORDINATE WORK WITH ALL OTHER TRADES PRIOR TO BID, FABRICATION, PURCHASE AND INSTALLATION OF ALL WORK.
11. VISIT THE SITE AND VERIFY ALL DIMENSIONS IN THE FIELD, AND SHALL ADVISE THE ARCHITECT/ENGINEER AND THE OWNER OF ANY DISCREPANCIES BEFORE PERFORMING THE WORK. ALL WORK SHALL CONFORM TO ALL STATE AND LOCAL CODES, RULES AND REGULATIONS AND ORDINANCES.
12. SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO THE CONTRACT.
13. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
14. PROVIDE ALL HANGERS AND SUPPORTS REQUIRED FOR A COMPLETE INSTALLATION.
15. PROVIDE ALL RIGGING, HANDLING AND PROTECTION OF MATERIALS.
16. WHERE CONDUIT, CABLES, DUCTWORK OR PIPING PASSES THROUGH FIRE RATED FLOORS OR WALLS, THE SLEEVES SHALL BE FIRE STOPPED PER NEC 300-21 USING A THROUGH PENETRATION FIRESTOP SYSTEM (XHEZ) LISTED IN THE UL FIRE RESISTANCE DIRECTORY. THIS MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER TO MAINTAIN THE FIRE RATING OF THE PENETRATED WALL OR FLOOR.
17. PROVIDE ALL CORING, LINTELS, BEAM PENETRATIONS, AND STRUCTURAL SUPPORTS AND FRAMING AS IT RELATES TO THE WORK.
18. SUBMIT SHOP DRAWINGS AND EQUIPMENT CUTS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING ANY MATERIALS. ALL SHOP DRAWING SUBMITTALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
19. MAINTAIN ON-SITE A SET OF FINAL CONSTRUCTION DOCUMENTS (INCLUDING ADDENDA) WITH MARKUP AS-BUILT INFORMATION.
20. NOTIFY THE ENGINEER PRIOR TO CONCEALING ANY WORK.
21. ALL EQUIPMENT INSTALLED SHALL PROVIDE THE MANUFACTURERS RECOMMENDED AND CODE REQUIRED ACCESS AREAS. ACCESS TO CEILING MOUNTED EQUIPMENT SHALL BE PROVIDED BY REMOVAL OF CEILING TILES ONLY.
22. PROVIDE ALL MODIFICATIONS RESULTING FROM USING EQUIPMENT OTHER THAN THE BASIS OF DESIGN.
23. CLEAN, PRIME, AND PAINT ALL BARE METAL SURFACES TO PREVENT RUST.
24. ALL DRAIN PIPES SHALL BE INSTALLED WITH A MINIMUM OF 1/8" PER FOOT SLOPE. SANITARY PIPES LARGER THAN 2 1/2" REQUIRE A MINIMUM OF 1/4" PER FOOT SLOPE.
25. PRIOR TO DISCONNECTING PIPING OR CONNECTING NEW PIPING, FIELD VERIFY THE EXISTING PIPING PROVIDES THE SERVICE INDICATED IN THE DRAWINGS.

ENGINEERS COMPLIANCE NOTE

1. TO THE BEST OF MY KNOWLEDGE, THE DRAWINGS AND SPECIFICATIONS COMPLY WITH THE MINIMUM BUILDING CODE REQUIREMENTS OF THE FLORIDA BUILDING CODE 2023 (7TH EDITION), AND THE FLORIDA FIRE PREVENTION CODE 2023 (8TH EDITION).

APPLICABLE CODES:

BUILDING CODE:	FLORIDA BUILDING CODE - 8th EDITION (2023)
MECHANICAL CODE:	FLORIDA MECHANICAL CODE - 8th EDITION (2023)
PLUMBING CODE:	FLORIDA PLUMBING CODE - 8th EDITION (2023)
GAS CODE:	FLORIDA GAS CODE - 8th EDITION (2023)
ELECTRICAL CODE:	NATIONAL ELECTRIC CODE 2017 EDITION
LIFE SAFETY CODE:	FLORIDA FIRE PREVENTION - 8th EDITION (2023) NFPA 101 CODE 2018
SREF:	STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES 2014

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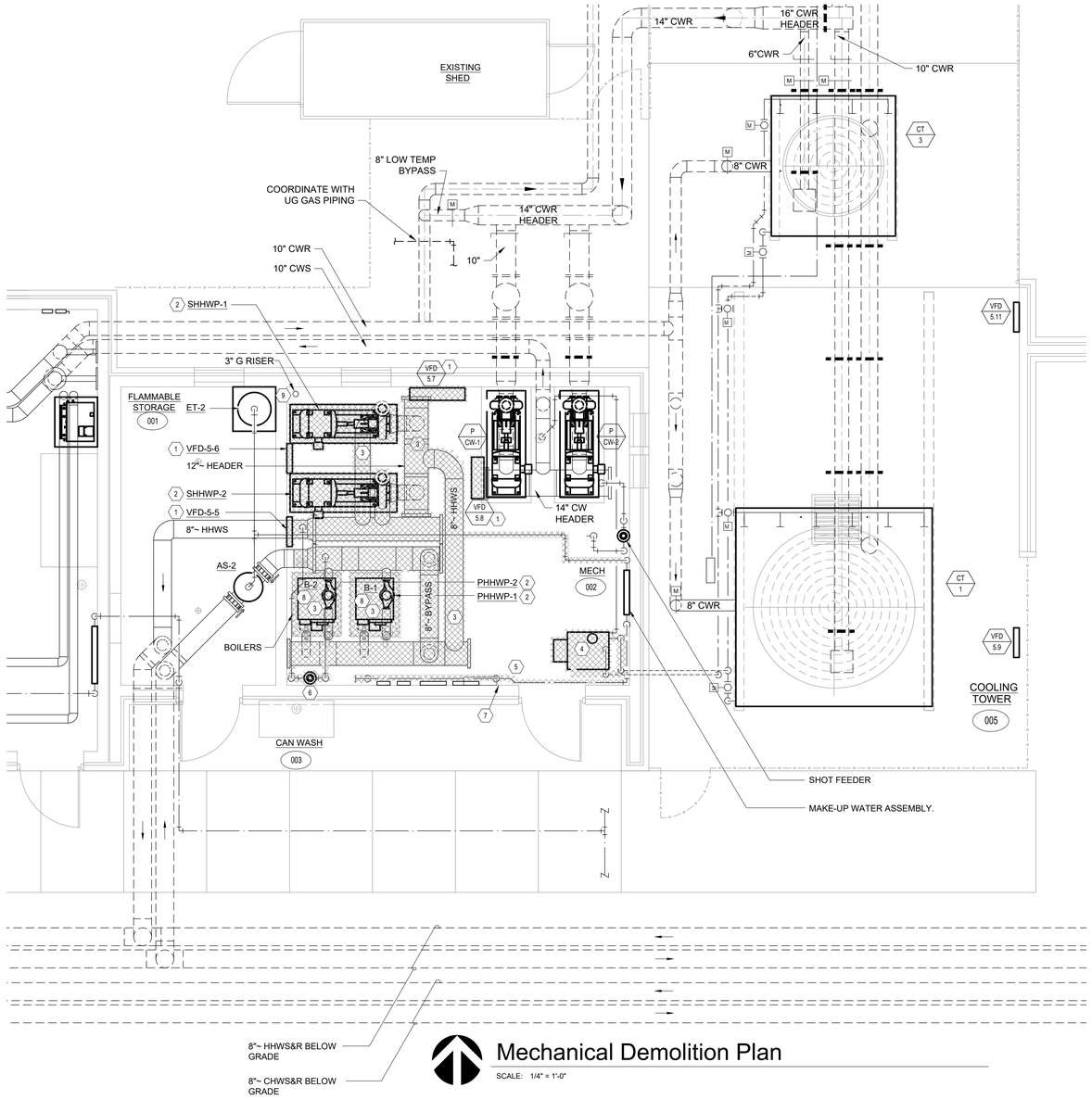
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SHEET TITLE
Mechanical Legends and Notes

DRAWING NO.
M001



Mechanical Demolition Plan

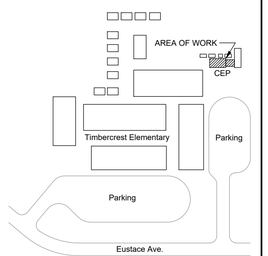
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. DEMOLISH ALL EQUIPMENT INDICATED WITH HATCHING OR INDICATED TO BE DEMOLISHED. DEMOLISH ALL WORK ASSOCIATED WITH THE SYSTEMS DEMOLISHED (INCLUDING CONTROLS, PIPING AND ELECTRICAL WORK) UNLESS NOTED OTHERWISE.
2. WHERE EQUIPMENT BEING DEMOLISHED IS INSTALLED ON A HOUSEKEEPING PAD, DEMOLISH THE HOUSEKEEPING PAD AND PATCH THE FLOOR TO MATCH SURROUNDING SURFACES.
3. WHERE CONDUIT AND/OR PIPING STUB-UPS REMAIN THAT SERVED DEMOLISHED EQUIPMENT, DOCUMENT SIZE AND LOCATION ON AS-BUILTS, CUT BELOW FLOOR SURFACE, PLUG CONDUIT (OR PIPING), AND PATCH FLOOR TO MATCH SURROUNDINGS.
4. WHERE OPENINGS RESULT FROM THE DEMOLITION WORK PATCH, SEAL, AND FINISH TO MATCH THE SURROUNDING CONDITIONS. EXISTING FIRE AND SMOKE RATINGS SHALL BE MAINTAINED.
5. FIELD INVESTIGATE REQUIREMENTS FOR DEMOLITION. PROVIDE ALL LABOR AND MATERIALS NEEDED.
6. EXISTING EQUIPMENT THAT IS TO REMAIN SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. ALL EXISTING TO REMAIN DUCTWORK SYSTEMS SHALL BE SEALED WITH VISQUEEN DURING THE ENTIRE CONSTRUCTION PROCESS.
7. PROVIDE NEW LAMINATED EQUIPMENT LABELS FOR ALL EXISTING EQUIPMENT TO REMAIN.
8. WHERE WORK IS REQUIRED ABOVE AN EXISTING CEILING NOT BEING DEMOLISHED, THE CONTRACTOR SHALL PROVIDE SELECTIVE DEMOLITION OF THE CEILING AS REQUIRED TO ACCOMPLISH THE WORK. AFTER COMPLETION OF THE WORK, THE CEILING SHALL BE REINSTALLED OR REPLACED TO MATCH THE PRE-CONSTRUCTION CONDITION.

KEY NOTES:

1. DEMOLISH VFD.
2. DEMOLISH PUMP AND HOUSEKEEPING PAD.
3. DEMOLISH PIPING.
4. DEMOLISH FILTRATION SYSTEM AND ASSOCIATED PIPING. CAP PIPING STUB-UPS 4" ABOVE GRADE. DEMO HOUSEKEEPING PADS.
5. DEMOLISH MAKEUP WATER ASSEMBLY AND OVERHEAD PIPING.
6. DEMOLISH CHEMICAL POT FEEDER AND ASSOCIATED PIPING.
7. DEMOLISH BOILER EPO SWITCH.
8. DEMOLISH BOILER, HOUSEKEEPING PAD AND ALL ASSOCIATED EQUIPMENT.
9. DEMOLISH ALL GAS PIPING IN PUMP ROOM BACK TO ISOLATION VALVE IN 3" RISER. VALVE TO REMAIN.
10. DEMOLISH BOILER FLUE THROUGH ROOF. CURB TO REMAIN. CAP PER DETAIL.



Keyplan
N.T.S.

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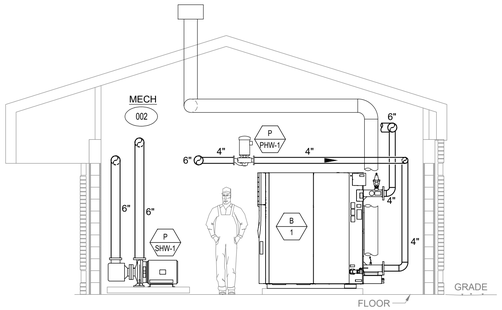
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ARCHENGR OF RECORD
Engineer
Donald J. Sabiston P.E.

DESIGNED BY	DRAWN BY
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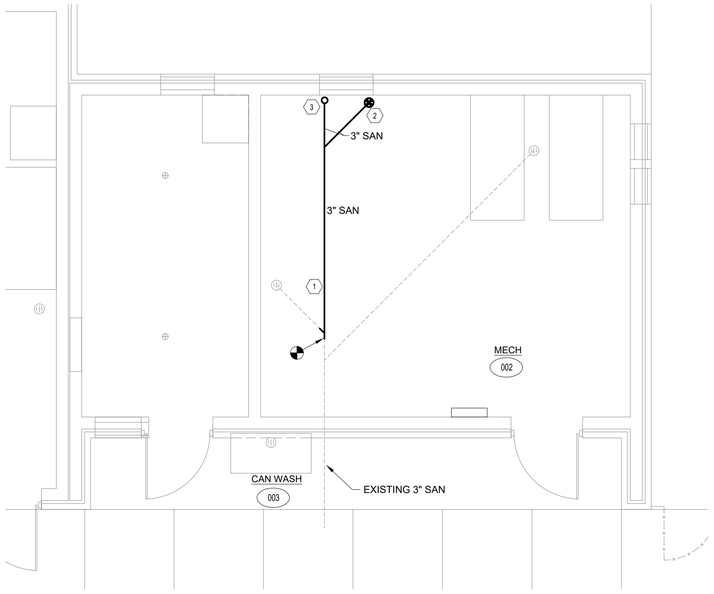
SHEET TITLE
Mechanical Demolition Plan

DRAWING NO.
MD100



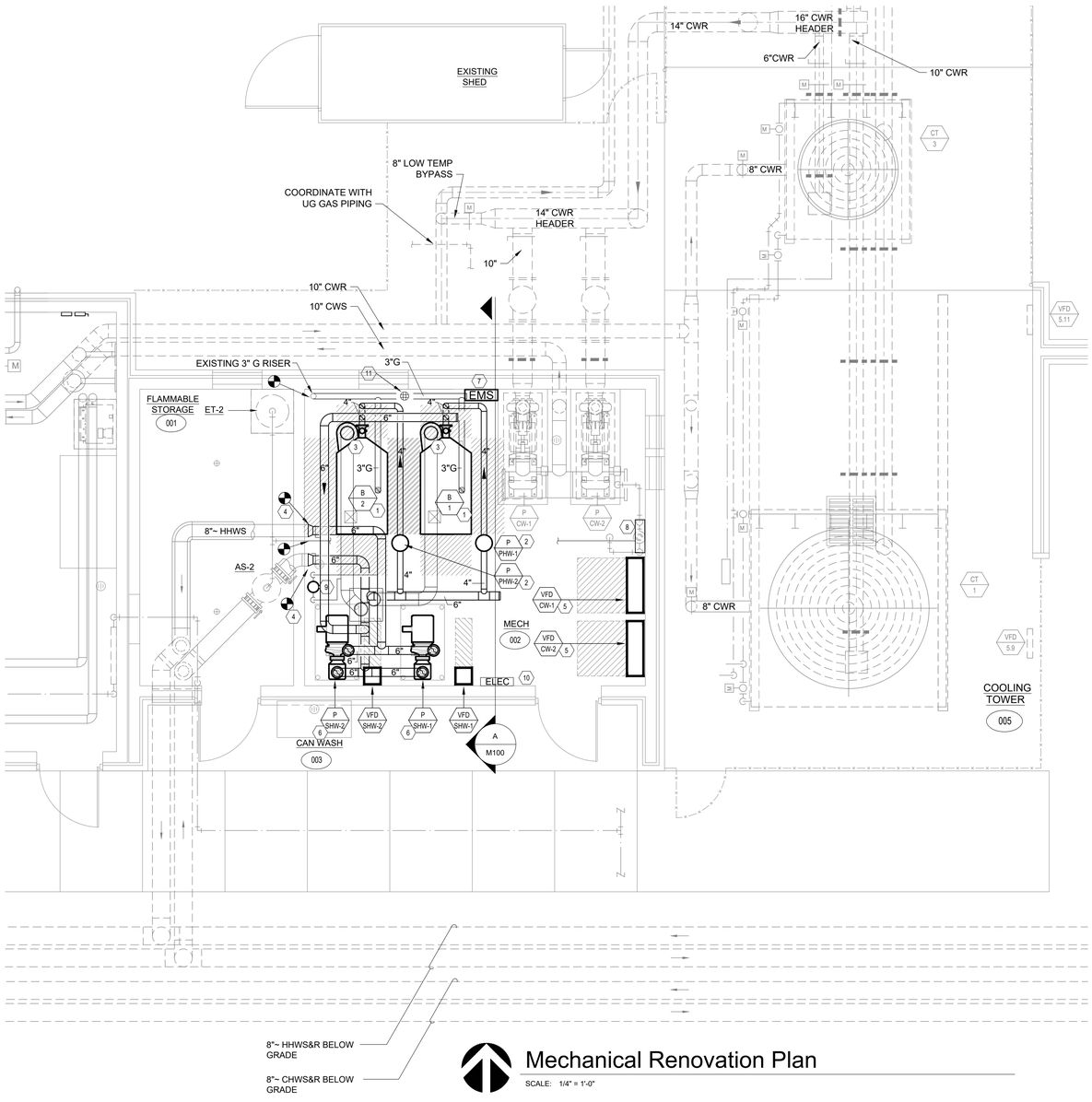
A Mechanical Section

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



Plumbing Renovation Plan

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



Mechanical Renovation Plan

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

PLUMBING GENERAL NOTES:

1. FIELD VERIFY EXISTING CONDITIONS.
2. CUT AND PATCH CONCRETE AS REQUIRED.

PLUMBING KEY NOTES:

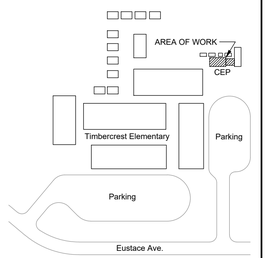
1. LOCATE EXISTING 3" SAN. CONNECT BELOW GRADE AND EXTEND AS INDICATED WITH 3" PVC SAN.
2. PROVIDE HUB DRAIN (ACID RESISTANT EPOXY COATED CAST IRON, WATER DAM, DEEP SEAL TRAP, ZURN Z-415B OR EQUAL).
3. TURN PIPING UP AND PROVIDE 2" AIR ADMITTANCE VALVE 24" AFF. SECURE TO WALL.

GENERAL NOTES:

1. ALL OVERHEAD PIPING SHALL BE MIN 7' AFF.
2. CLOSELY COORDINATE ALL WORK IN MECHANICAL ROOM. PROVIDE 1/4" COORDINATION PLAN TO ENGINEER FOR REVIEW PRIOR TO PERFORMING ANY NEW WORK. PLAN TO INDICATE NEC CLEARANCES FOR ELECTRICAL DEVICES.
3. PRESSURE WASH THE MECHANICAL ROOM FLOOR AND PREPARE FOR PAINT. PAINT FLOOR WITH GREY 2-PART EPOXY PAINT WITH PAINT CHIPS AND CLEAR COAT. PAINT BOILER HOUSEKEEPING PADS SAFETY YELLOW.
4. CLEAN MECHANICAL ROOM WALLS AND PREPARE FOR PAINT. PAINT WALLS WITH GLOSS WHITE ACRYLIC LATEX. CAREFULLY PAINT AROUND EXISTING DEVICES AND EQUIPMENT TO REMAIN. PAINT SURFACE MOUNTED CONDUIT TO MATCH WALL.
5. RELOCATE LIGHT FIXTURES TO ACCOMMODATE NEW EQUIPMENT AND PIPING.
6. SUPPORT PIPING FROM OVERHEAD STRUCTURE WHERE POSSIBLE.

KEY NOTES:

1. PROVIDE BOILER ON 4" HOUSEKEEPING PAD PER DETAIL. EXTEND COPPER PRESSURE RELIEF PIPING THROUGH EXTERIOR WALL AND ELBOW DOWN APPROX. 12" ABOVE GRADE.
2. PROVIDE BOILER PRIMARY PUMP IN ACCESSIBLE LOCATION APPROX 8' AFF. ROUTE PIPING OVERHEAD TO BOILER CONNECTION.
3. EXTEND 9"Ø BOILER FLUE PIPE TO EXISTING ROOF PENETRATION. MODIFY PENETRATION AS NEEDED TO ACCOMMODATE LARGER FLUE PIPE. PROVIDE NEW 18GA SS CAP FOR CURB. SECURE AND REINSTALL LIGHTNING PROTECTION AERIALS.
4. CONNECT TO EXISTING HW PIPING. PROVIDE ISOLATION VALVE.
5. NEW CONDENSER WATER PUMP VFD. EXISTING CONTROLS TO BE REUSED.
6. NEW HW SECONDARY PUMP ON CONC INERTIA BASE.
7. NEW EMS PANEL LOCATION.
8. PROVIDE WALL MOUNTED 1-1/2" MAKEUP WATER ASSEMBLY ABOVE CHEMICAL FEEDER. PROVIDE UNISTRUT TO SPAN ACROSS LOUVERED OPENING. EXTEND 1-1/2" COPPER AND RECONNECT TO EXIST.
9. PROVIDE CHEMICAL POT FEEDER. CONNECT TO HW MAINS AS SHOWN.
10. PROVIDE NEW EPO SWITCH. WIRE TO SHUTDOWN B-1 AND B-2 BOILERS PER MANUF RECOMMENDATIONS.
11. NEW FLOOR DRAIN LOCATION.



Keyplan

N.T.S.

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REVISIONS

NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

TIMBERCREST ELEMENTARY UPGRADE BOILERS VCS Project NO. 2648255

2401 EUSTACE AVE, DELTONA, FL 32725

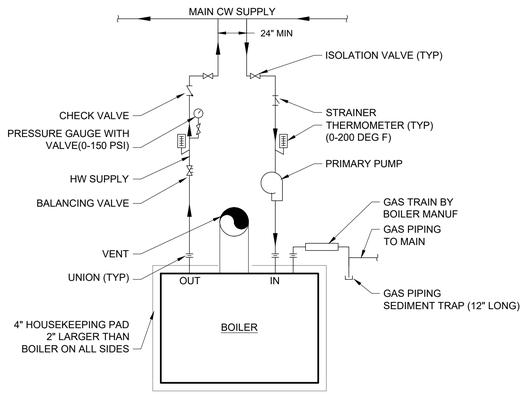
ARCHENGR OF RECORD

Engineer
Donald J. Sabiston P.E.

DESIGNED BY	DRAWN BY
DJS	DJS
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
Mechanical Renovation Plan

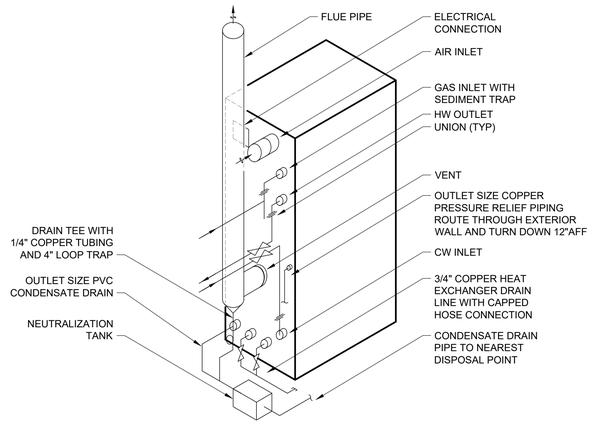
DRAWING NO.
M100



NOTES:
1. DEVICES (GAS VALVES, PRESSURE SWITCHES, ETC.) REQUIRING VENTING SHALL BE PIPED TO OPEN ATMOSPHERIC LOCATION.
2. PROVIDE DRAIN PIPE AND VALVE TO ALLOW BOILER HEAT EXCHANGER TO BE DRAINED COMPLETELY. PROVIDE HOSE CONNECTION ON END OF PIPE.
3. HW OUTLET PIPE SHALL HAVE ASME PRESSURE RELIEF VALVE PIPED FULL SIZE COPPER TO SAFE OUTDOOR LOCATION AND TURNED DOWN.

1 BOILER INSTALLATION DETAIL

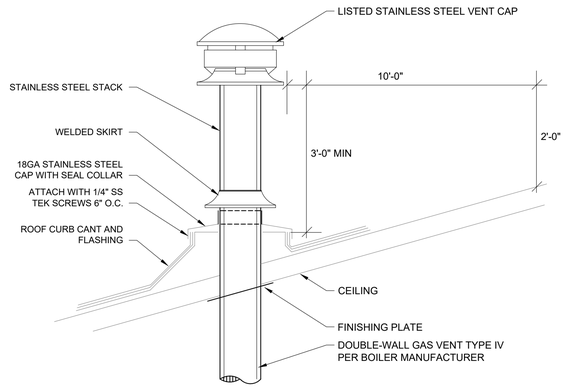
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NOTES:
1. DEVICES (GAS VALVES, PRESSURE SWITCHES, ETC.) REQUIRING VENTING SHALL BE PIPED TO OPEN ATMOSPHERIC LOCATION.

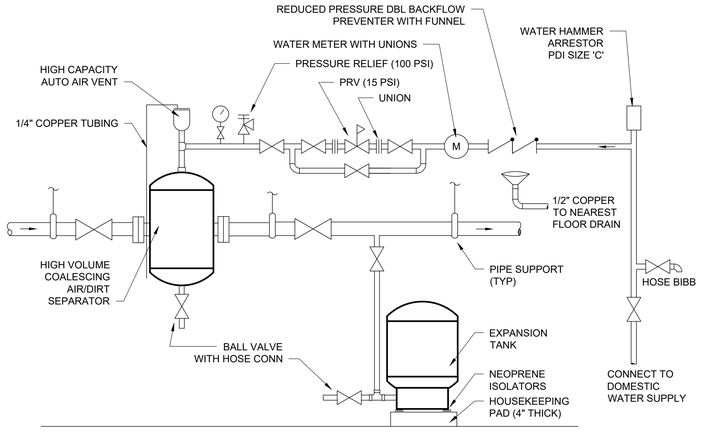
2 BOILER PIPING DETAIL - CAT IV

SCALE: NOT TO SCALE



3 GAS FLUE VENT DETAIL - CAT IV

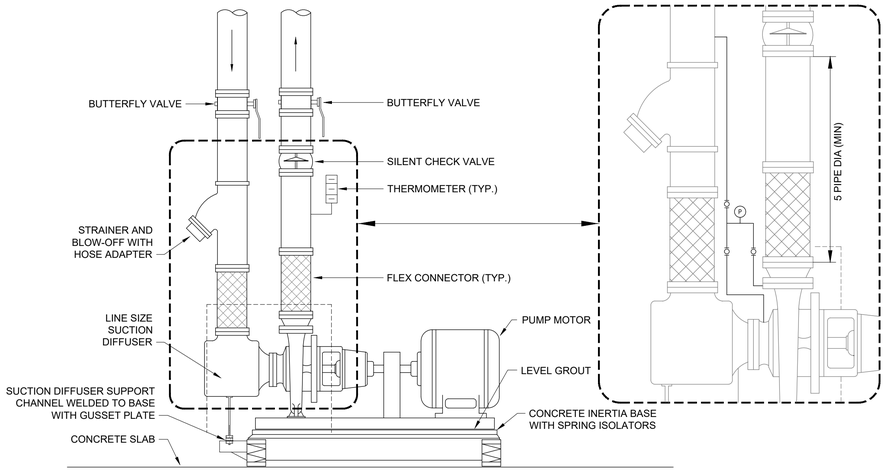
SCALE: NOT TO SCALE



NOTES:
1. ROUTE 1/4" COPPER TUBING FROM AIR VENT AND PRESSURE RELIEF TO NEAREST FLOOR DRAIN.

4 AIR SEPARATOR AND EXPANSION TANK DETAIL

SCALE: NOT TO SCALE



5 CHILLED WATER PUMP DETAIL

SCALE: NOT TO SCALE

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REVISIONS

NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

TIMBERCREST ELEMENTARY UPGRADE BOILERS VCS Project NO. 2648255

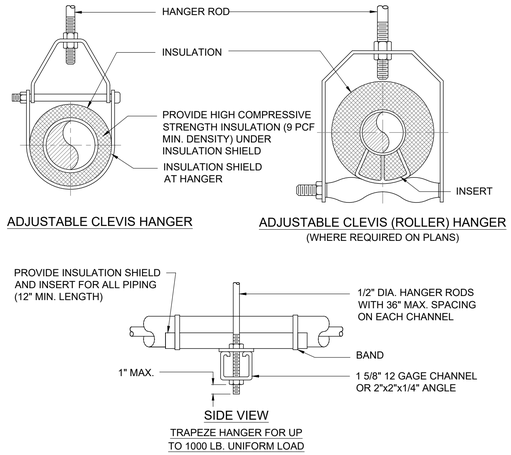
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ARCH/ENGR OF RECORD
Engineer
Donald J. Sabiston P.E.

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DJS	DJS
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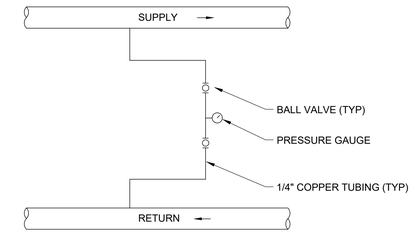
SHEET TITLE
Mechanical Details

DRAWING NO.
M500



5 PIPE HANGER DETAILS

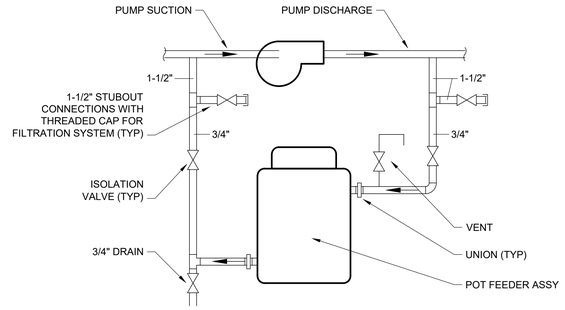
SCALE: NOT TO SCALE



NOTES:
1. SEE EQUIPMENT PIPING DETAIL FOR INSTALLATION LOCATION.
2. INSULATE MANIFOLD AS REQUIRED TO PREVENT CONDENSATION.

2 PIPING SENSOR MANIFOLD DETAIL

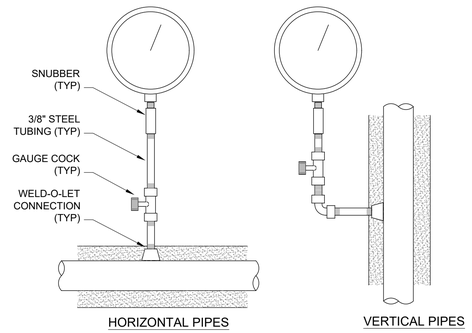
SCALE: NOT TO SCALE



NOTES:
1. TOP OF FEEDER SHALL BE MAX 3' AFF.
2. POT FEEDER ASSEMBLY AND ALL FEEDER PIPING SHALL BE INSULATED. POT FEEDER LID INSULATION SHALL BE REMOVABLE WITHOUT DAMAGE.

3 CHEMICAL POT FEEDER PIPING DETAIL

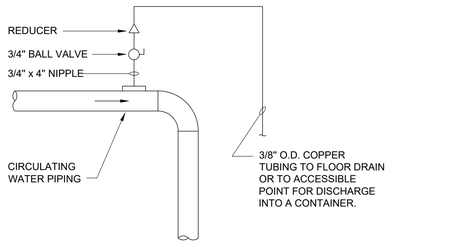
SCALE: NOT TO SCALE



NOTE:
1. WHERE CARRIER PIPE IS INSULATED, INSULATE GAUGE TUBING TO GAUGE.

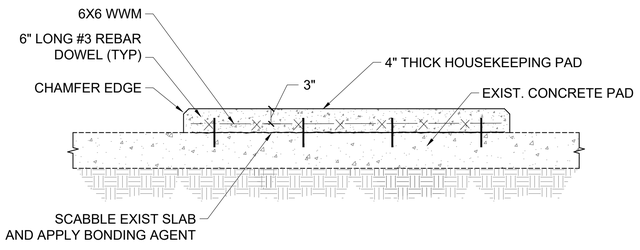
4 HYDRONIC SYSTEM PRESSURE GAUGE DETAIL

SCALE: NOT TO SCALE



5 TYPICAL HIGH POINT AIR VENT DETAIL

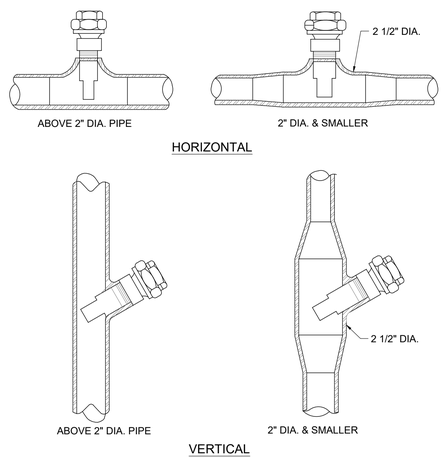
SCALE: NOT TO SCALE



NOTES:
1. DOWELS SHALL BE 6" FROM EDGE OF NEW PAD SPACED 24" O.C. EPOXY EMBED MIN 3" INTO EXISTING SLAB.

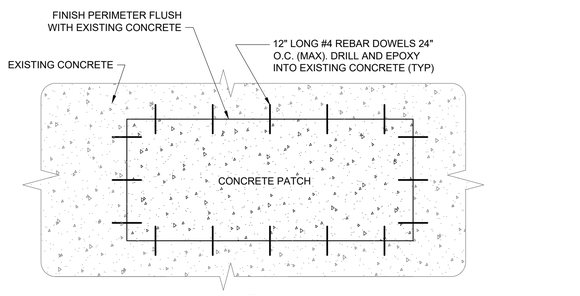
6 HOUSEKEEPING PAD DETAIL

SCALE: NOT TO SCALE



7 THERMOMETER WELL INSTALLATION DETAIL

SCALE: NOT TO SCALE



NOTES:
1. COMPACT SUBGRADE TO 95% AASHTO T-180.
2. PROVIDE TERMITE TREATMENT AT ALL AREAS PATCHED. OWNER TO OBSERVE.
3. MATCH SLOPE OF EXISTING CONCRETE.
4. WHERE PATCH ABUTS A STEM WALL, DELETE DOWELS AND PROVIDE EXPANSION JOINT MATERIAL.
5. WHERE SIDES OF PATCH ARE OPEN TO SOIL, PROVIDE 8"X8" THICKENED EDGE.

8 CONCRETE PATCH DETAIL

SCALE: NOT TO SCALE

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REVISIONS

NO.	DATE	DOCUMENT HISTORY DESCRIPTION

TIMBERCREST ELEMENTARY
UPGRADE BOILERS
VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Donald J. Sabiston P.E.

DESIGNED BY	DRAWN BY
DJS	DJS
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
Mechanical Details

DRAWING NO.
M501

Boiler Schedule

Mark	Basis of Design Manuf.	Basis of Design Model	Fuel Type	Performance Input (Mbh)	Performance AHRI Output (Mbh)	Performance Thermal Efficiency	Turndown	Flowrate (GPM) Min	Flowrate (GPM) Design	Flowrate (GPM) Max	Design dT (Deg F)	Pressure Drop (Ft)	Gas Conn. (In.)	Inlet/Outlet Water Conn. (In.)	Air Inlet Size (In.)	Vent Size (In.)	Electrical Data V/Ph/Hz.	Electrical Data MCA	Physical Data Dimensions (LxWxH, In.)	Physical Data Weight (lbs.)	Remarks
B-1	Lochinvar	FBN-2501	Nat'l Gas	2,500	2,087	96.1%	20:1	25	120	350	40	5.3	2"	4"/4"	8"	9"	208/3/60	5.6	68x30x78	3,600	1,2,3
B-2	Lochinvar	FBN-2501	Nat'l Gas	2,500	2,087	96.1%	20:1	25	120	350	40	5.3	2"	4"/4"	8"	9"	208/3/60	5.6	68x30x78	3,600	1,2,3

Remarks:

1. Provide Neutralization kit.
2. BACnet Gateway
3. Motorized Isolation valve

Notes:

1. The electrical data is based upon the manufacturer's published data at the time of design.
2. The mechanical contractor shall coordinate any electrical differences with the electrical contractor.
3. The cost of all modifications resulting from electrical differences shall be the responsibility of the mechanical contractor.

MCA - Minimum Circuit Amps, MOCP - Maximum Over Current Protection

Variable Frequency Drive Schedule

Mark	Basis of Design Manuf.	Basis of Design Model	NEMA Rating	Service	Min SCCR	Motor HP	Min Rated Output (Amps)	V/Ph./Hz.	Remarks
VFD-CW-1	ABB	ACH580	NEMA 3R	P-CW-1	100 KA	125	156	460/3/60	1
VFD-CW-2	ABB	ACH580	NEMA 3R	P-CW-2	100 KA	125	156	460/3/60	1
VFD-SHW-1	ABB	ACH580	NEMA 3R	P-SHW-1	100 KA	40	52	460/3/60	1
VFD-SHW-2	ABB	ACH580	NEMA 3R	P-SHW-2	100 KA	40	52	460/3/60	1

Remarks

1. Provide bypass and disconnect.

Notes:

1. Provide phase loss and undervoltage protection on all phases.
2. Provide manual load operation capability under full load conditions.

Pump Schedule

Tag	Basis of Design Manuf.	Basis of Design Model	Service	Flowrate (GPM)	Head (Ft.)	Fluid Temp (F)	Duty Pt Efficiency	Motor HP	Motor Style	Motor RPM	Motor V/Ph./Hz.	Remarks
P-SHW-1	B&G	e1532-3GB	HW Secondary	500	160	70	77%	40	ODP	1750	460/3/60	1,4
P-SHW-2	B&G	e1532-3GB	HW Secondary	500	160	70	77%	40	ODP	1750	460/3/60	1,2,4
P-PHW-1	B&G	e-90-2AB	HW Primary	120	30	120	68%	1 1/2	ODP	1750	460/3/60	3,5
P-PHW-2	B&G	e-90-2AB	HW Primary	120	30	120	68%	1 1/2	ODP	1750	460/3/60	3,5

Remarks:

1. Provide suction diffuser with strainer removed.
2. Stand-by Pump
3. Support pump from overhead structure
4. Provide inverter duty motor.
5. Mech contractor to provide combination starter/disconnect to Elec for installation.

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NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

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VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Donald J. Sabiston P.E.

DESIGNED BY	DRAWN BY
DJS	DJS
ISSUE DATE: 9/15/2026	AE PROJECT NUMBER: SEG No. 25010

SHEET TITLE
Mechanical Schedules

DRAWING NO.
M600

GENERAL NOTES:

SEQUENCE OF OPERATION

1.1 GENERAL REQUIREMENTS:

A. Bidding Procedures:

1. Conformance: Prior to submitting a bid for this project, the controls contractor shall thoroughly review the following sequences. The contractor shall, at least 10 days prior to bid date, submit to the engineer a written statement indicating any sequences that cannot be provided due to limitations in the control system. The engineer may, at his discretion, review and modify the sequences through addenda. Any controls contractor that cannot provide all the sequences of operations as stated in the final bid documents, including addenda, will be removed from the project.
2. Coordination: Prior to submitting a bid for the work, the controls contractor shall coordinate the interconnection of the EMS with internal equipment controllers and provide all materials and labor needed to meet the sequences of operation.
3. The following sequence of operation outlines the general means by which the EMCS shall initiate and respond to events. The requirements for the control system are shown on the drawings, in the sequence of operations, in the schedules, and in the specifications.
4. Modifications to the means of control will be considered, but will not be allowed if energy efficiency is decreased.

B. SCOPE:

1. PARTIAL CONTROL SYSTEM UPGRADE: Provide a web-based control system manufactured by the existing campus BAS manufacturer to control all new equipment or items specified to have a control system upgrade in this project.
   a. Existing equipment not affected by the project shall remain on the existing BAS and shall be fully operational and accessible via the existing interface.
   b. Where point communications are required between the existing and new BAS for proper system operation, provide an interface device or dry contact relay system to communicate information.
   c. Provide all reprogramming of the existing BAS system to remove new equipment from the existing system and graphics.
2. Where the BAS is upgraded, the existing EMCS shall be completely demolished, including all associated panels, sensors, wiring, and devices. The new control system shall control all mechanical equipment per the following sequences of operation. Provide all labor, materials, and engineering needed to provide a fully functional control system.
3. COMMUNICATIONS: Each piece of equipment shall be controlled independently by a stand-alone controller. If communications are lost with the EMCS network, the equipment controller shall continue to operate the equipment without changing operating modes or reducing local functionality.

1.2 MISCELLANEOUS SEQUENCES:

A. Minimum Run Times:

1. Equipment shall be programmed to provide manufacturer required minimum ON and OFF times. Minimums shall not be less than the following.
2. Boilers:
   a. ON: 15 minutes
   b. OFF: 5 minutes

1.3 HEATING AND AIR CONDITIONING EQUIPMENT

A. CENTRAL ENERGY PLANT - GENERAL

1. CENTRAL HEATING PLANT: The Plant shall be controlled by a stand-alone microprocessor based controller with resident control logic. If communications are lost with EMCS network, local control shall be maintained by the local controller. The EMCS shall perform the following control strategies, provide the points indicated on the points list and provide the specified monitoring and diagnostics.
2. ENABLE/DISABLE: Each piece of central plant equipment and controls shall be enabled/disabled by EMCS. Chiller and boiler internal controls shall operate automatically when enabled.
3. AUTOMATIC START/STOP: The EMCS shall automatically start and stop the cooling and/or heating equipment based upon call for central plant capacity from the HVAC units.
4. AUTOMATIC LEAD/LAG: The EMCS shall automatically rotate the lead/lag sequence of the central plant equipment based upon an operator defined time schedule and upon monitoring of flows.
5. EQUIPMENT FAILURE RESPONSE: The EMCS shall monitor startup of all pumps. Upon a failure to respond to a start signal, the failed equipment shall be shut-down and locked out and an "Equipment Failure" alarm shall be issued. If a backup is provided for the failed equipment, the startup procedure for the backup device shall be initiated. If the failed equipment is the lead device, the startup of the lag device shall be initiated.

B. HYDRONIC HOT WATER PLANT - VARIABLE SPEED PUMPING

1. HW START/STOP CONTROL:
   a. The hot water plant shall be OFF. When any AHU or VAV (at Timbercrest Elem or Galaxy Middle) calls for hot water, the HW heating system shall start. Provide input point interface to the existing control system on each campus. Upon a call for hot water, the BAS shall start the secondary HW circulating pump and verify operation.
2. PUMP SPEED CONTROL:
   a. PRESSURE CONTROL: System differential pressure transmitters, located at the most hydraulically distant coils shall communicate data to the HW central plant EMCS controller. The controller shall adjust the operating speed of the pump (via a VFD) to maintain the system differential pressure at the set point.
      1) Alarm: Provide a "dP out of range" alarm if the dP is more than 5 psi from setpoint for more than 15 min.
   b. BACKUP PRESSURE CONTROL: If communications are lost with the outlying dP sensor, the EMCS shall automatically revert to using the backup differential pressure sensor information for controlling the pump.
   c. PUMP BACKUP: If the lead pump fails, the EMCS shall automatically switch to the backup pump and issue a "Failed Pump" alarm.
3. PUMP STATUS: Pump flow verification shall be obtained via a pressure switch installed on each pump.
4. PERIODIC HW LOOP CHEMICAL CIRCULATION:
   a. Provide a countdown timer in the BAS.
   b. When neither HW secondary pump has operated for 48 hours, open both boiler isolation valves, start the lead secondary HW pump and start both boiler circulation pumps. Circulate water for 15 minutes (do not start a boiler) to help maintain chemical distribution in the HW piping system.

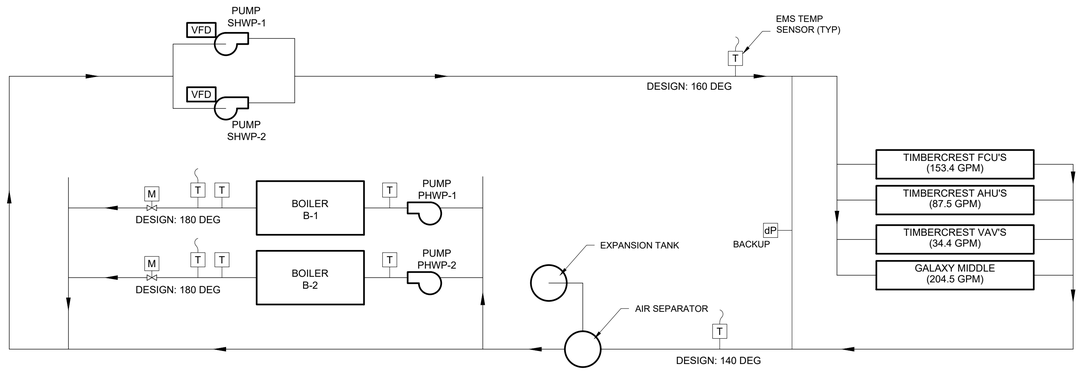
C. BOILERS

1. INTERFACE: The boiler shall interface with the BAS via BACnet. The BAS vendor shall coordinate with the boiler manufacturer to enable all necessary control points within the boiler to meet the control sequences.
2. BOILER INITIATED OPERATION:
   a. If the boiler requests pump operation via a BAS input point, the BAS shall open the control valve and turn ON the circulating pump.
3. BOILER START/STOP:
   a. Start boiler operation per the following sequence.
      1) Confirm secondary pump flow.
      2) Wait 2 minutes
      3) Open the lead boiler motorized isolation valve
      4) Wait 1 minute
      5) Start the lead boiler circulating pump
      6) Wait 1 minute and confirm flow
      7) Start the lead boiler
4. BOILER STAGING:
   a. Add lag boiler:
      1) Start the lead boiler
      2) Wait 15 minutes
      3) If the Campus HW supply temperature is less than 160 deg F for more than 15 minutes, start the second boiler.
   b. Stop lag boiler:
      1) If both boilers are operating at less than 40% capacity for more than 10 minutes, stop the lag boiler.
   c. When started, the boiler(s) shall modulate capacity on internal controls to maintain the leaving water temperature at setpoint (see equipment schedule).

D. CENTRAL HEATING PLANT POINTS

1. The following points shall be displayed at the Central Plant in the EMCS:
   a. Campus System
      1) HW Request (ON/OFF)
      2) Campus HW EWT
      3) Campus HW LWT
      4) System dP setpoint
      5) System dP (each field sensor)
      6) System dP (backup sensor)
   b. HW Secondary Pump(s) (each pump)
      1) Pump START/STOP
      2) Pump Status
      3) VFD Speed (percent)
      4) Isolation Valve OPEN/CLOSED
      5) Isolation Valve Feedback (percent open)
   c. Boilers (each)
      1) Boiler START/STOP
      2) Boiler Status/General Alarm
      3) Boiler EWT (internal point)
      4) Boiler LWT (internal point)
      5) Percent of capacity
2. The following points will be operator adjustable and/or automatically reset by a EMCS program:
   a. HW Request Enable/Disable
   b. Boiler Enable/Disable
   c. HW Pump VFD Speed limit (percent)

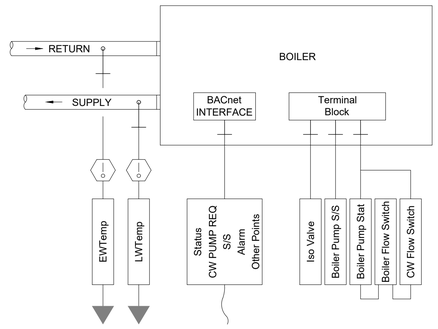
END OF SEQUENCES



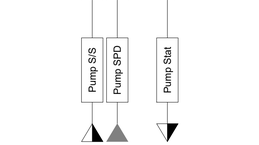
NOTES:

1. REFER TO DETAILS FOR INDIVIDUAL EQUIPMENT INSTALLATION REQUIREMENTS.
2. PROVIDE BACKUP DP SENSOR IN CHILLER PLANT FOR EMS. ADD CONTROL SEQUENCE TO REVERT TO BACKUP DP SENSOR IF PRIMARY SENSOR FAILS.
3. REUSE EXISTING DP SENSORS.

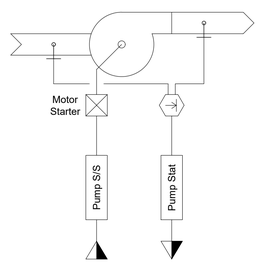
1 HW HEATING LOOP SCHEMATIC
SCALE: NOT TO SCALE



2 BOILER
SCALE: NOT TO SCALE



3 VARIABLE SPEED PUMP
SCALE: NOT TO SCALE



4 CONSTANT SPEED PUMP
SCALE: NOT TO SCALE

CONTROL SYSTEM LEGEND:

	DIGITAL POINT - INPUT
	DIGITAL POINT - OUTPUT
	ANALOG POINT - INPUT
	ANALOG POINT - OUTPUT
NO SYMBOL	HARDWIRED CONTROL

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STATE OF FLORIDA CERTIFICATE NO. 9811
SEG PROJECT NO. 25010

Donald J. Sabiston, P.E.
State of Florida No. 54689

REVISIONS

NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

TIMBERCREST ELEMENTARY
UPGRADE BOILERS
VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Donald J. Sabiston P.E.

DESIGNED BY	DRAWN BY
DJS	DJS
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
Mechanical Controls

DRAWING NO.
M800

GENERAL NOTES

1. NO MULTI-WIRE BRANCH CIRCUITS ARE TO BE USED. EACH CIRCUIT IS TO HAVE SEPARATE INDIVIDUAL NEUTRAL.
2. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 0-100 FEET, ARE TO HAVE #12 MINIMUM BRANCH CIRCUIT WIRING THROUGHOUT CIRCUIT. (CONDUIT SIZE PER SPECIFICATION AND NEC).
3. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 101-125 FEET, ARE TO HAVE #10 MINIMUM BRANCH CIRCUIT WIRING HOMERUN (3/4"C.) FROM PANEL CIRCUIT BREAKER TO FIRST DEVICE AND #12 BRANCH CIRCUIT WIRING THROUGHOUT THE REMAINDER OF THE CIRCUIT. (CONDUIT SIZE PER SPECIFICATION AND NEC). NOT LESS THAN THE FIRST 75 FEET OF COMBINED HOMERUN AND BRANCH CIRCUIT TO BE MINIMUM #10 WIRE (3/4"C).
4. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 126-160 FEET, ARE TO HAVE #10 MINIMUM BRANCH CIRCUIT WIRING THROUGHOUT CIRCUIT (3/4"C).
5. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 161-205 FEET, ARE TO HAVE #8 MINIMUM BRANCH CIRCUIT WIRING HOMERUN (1"C.) FROM PANEL CIRCUIT BREAKER TO FIRST DEVICE AND #10 BRANCH CIRCUIT WIRING THROUGHOUT THE REMAINDER OF THE CIRCUIT (3/4"C.). NOT LESS THAN THE FIRST 125 FEET OF COMBINED HOMERUN AND BRANCH CIRCUIT TO BE MINIMUM #8 WIRE (1"C.)
6. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 206-230 FEET, ARE TO HAVE #8 MINIMUM BRANCH CIRCUIT WIRING THROUGHOUT CIRCUIT (1"C.).
7. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 231-250 FEET, ARE TO HAVE #6 MINIMUM BRANCH CIRCUIT WIRING HOMERUN (1-1/4"C.) FROM PANEL CIRCUIT BREAKER TO FIRST DEVICE AND #10 BRANCH CIRCUIT WIRING THROUGHOUT THE REMAINDER OF THE CIRCUIT (3/4"C.). NOT LESS THAN THE FIRST 175 FEET OF COMBINED HOMERUN AND BRANCH CIRCUIT TO BE MINIMUM #6 WIRE (1-1/4"C.).
8. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 251-325 FEET, ARE TO HAVE #6 MINIMUM BRANCH CIRCUIT WIRING HOMERUN (1-1/4"C.) FROM PANEL CIRCUIT BREAKER TO FIRST DEVICE AND #8 BRANCH CIRCUIT WIRING THROUGHOUT THE REMAINDER OF THE CIRCUIT (1"C.). NOT LESS THAN THE FIRST 250 FEET OF COMBINED HOMERUN AND BRANCH CIRCUIT TO BE MINIMUM #6 WIRE (1-1/4"C.).
9. 120 VOLT BRANCH CIRCUITS, WHERE THE LENGTH OF CIRCUIT CONDUCTORS COMPLETE FROM CIRCUIT BREAKER IN SOURCE PANEL TO ANY DEVICE ON THE CIRCUIT IS 336-370 FEET FROM THE PANEL, ARE TO HAVE #6 MINIMUM BRANCH CIRCUIT WIRING THROUGHOUT CIRCUIT (1-1/4"C.).
10. ALL 277V, 20A CIRCUITS WITH HOMERUNS LESS THAN 70 FEET SHALL BE #12 CU. MINIMUM THROUGHOUT CIRCUIT UNLESS OTHERWISE NOTED (CONDUIT SIZE PER SPECIFICATION AND NEC). THE HOMERUN LENGTH IS THE LENGTH OF THE CIRCUIT CONDUCTORS FROM THE FIRST LIGHT FIXTURE/LOAD TO THE BREAKER IN THE SOURCE PANEL.
11. ALL 277V, 20A CIRCUITS WITH HOMERUNS 71-100 FEET SHALL BE #10 CU. MINIMUM FOR HOMERUN (3/4"C.), WITH #12 FOR REMAINDER OF CIRCUIT UNLESS OTHERWISE NOTED (CONDUIT SIZE PER SPECIFICATION AND NEC). THE HOMERUN LENGTH IS THE LENGTH OF THE CIRCUIT CONDUCTORS FROM THE FIRST LIGHT FIXTURE/LOAD TO THE BREAKER IN THE SOURCE PANEL.
12. ALL 277V, 20A CIRCUITS WITH HOMERUNS 101-150 FEET SHALL BE #10 CU. MINIMUM FOR HOMERUN (3/4"C.), WITH #10 FOR REMAINDER OF CIRCUIT UNLESS OTHERWISE NOTED (CONDUIT SIZE PER SPECIFICATION AND NEC). THE HOMERUN LENGTH IS THE LENGTH OF THE CIRCUIT CONDUCTORS FROM THE FIRST LIGHT FIXTURE/LOAD TO THE BREAKER IN THE SOURCE PANEL.
13. ALL 277V, 20A CIRCUITS WITH HOMERUNS 151-250 FEET SHALL BE #8 CU. MINIMUM FOR HOMERUN (1"C), WITH #10 FOR REMAINDER OF CIRCUIT UNLESS OTHERWISE NOTED (CONDUIT SIZE PER SPECIFICATION AND NEC). THE HOMERUN LENGTH IS THE LENGTH OF THE CIRCUIT CONDUCTORS FROM THE FIRST LIGHT FIXTURE/LOAD TO THE BREAKER IN THE SOURCE PANEL.
14. ALL 277V, 20A CIRCUITS WITH HOMERUNS 251-400 FEET SHALL BE #6 CU. MINIMUM FOR HOMERUN (1-1/4" C.), WITH #10 FOR REMAINDER OF CIRCUIT UNLESS OTHERWISE NOTED (CONDUIT SIZE PER SPECIFICATION AND NEC). THE HOMERUN LENGTH IS THE LENGTH OF THE CIRCUIT CONDUCTORS FROM THE FIRST LIGHT FIXTURE/LOAD TO THE BREAKER IN THE SOURCE PANEL.
15. COORDINATE EXACT LOCATION OF LIGHTING FIXTURES IN ALL MECH. ROOMS, AND SPACES WITH NO CEILING (EXPOSED STRUCTURE AREAS), SPACES, ETC., WITH DUCTWORK INSTALLER PRIOR TO ROUGH-IN. LOCATE BELOW DUCTWORK (8'-0" A.F.F. MINIMUM) CENTERED IN ROOM AS MUCH AS FEASIBLE.
16. VERIFY EXACT LOCATION OF ALL MECH. EQUIP. INCLUDING WALL SWITCHES, T'STATS, ETC. WITH MECH. CONTRACTOR AND MECH. DRAWINGS.
17. REFER TO MECHANICAL EQUIPMENT SCHEDULE, FOR RESPECTIVE CONDUIT/CONDUCTORS, DISCONNECTS, MISC. EQUIPMENT REQUIRED FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO PANEL SCHEDULES FOR CIRCUITS NUMBERS OF CIRCUITS FOR MECHANICAL AND PLUMBING EQUIPMENT.
18. VISIT AND CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AND SITE AFFECTED BY THIS WORK BEFORE SUBMITTING PROPOSALS, SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT EXECUTION OF THE WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED.
19. READ SPECIFICATIONS.
20. SEE RISER DIAGRAMS AND BUILDING PLANS.
21. ALL EMPTY CONDUITS ARE TO HAVE PULL-STRINGS PROVIDED IN THEM.
22. ALL CONDUIT TERMINATIONS AT TERMINAL BOARDS ARE TO HAVE BUSHED CONDUIT ENDS.
23. SPLICES IN POWER AND LIGHTING OUTLET BOXES SHALL BE KEPT TO A MINIMUM, PULL CONDUCTORS THROUGH TO DEVICES, EQUIPMENT CABINETS/PANELBOARDS. SPLICING IN WIREWAYS IS NOT PERMITTED UNLESS SPECIAL WRITTEN PERMISSION IS GRANTED BY A/E.
24. NO SPLICES SHALL BE MADE IN COMMUNICATIONS OUTLET BOXES OR PULL BOXES (I.E., FIRE ALARM, COMPUTER, TELEPHONE, ETC.) UNLESS SPECIFIC WRITTEN APPROVAL HAS BEEN GIVEN BY ENGINEER. PULL CABLES THROUGH TO EQUIPMENT/TERMINAL CABINETS.
25. NO SPLICES SHALL BE MADE IN UNDERGROUND (OR FLUSH) IN-GRADE PULL BOXES UNLESS ENGINEER HAS GIVEN SPECIFIC ACCEPTANCE.
26. CONTRACTOR SHALL INCLUDE IN HIS BID THE TRANSPORT AND DISPOSAL OR RECYCLING OF ALL WASTE MATERIALS GENERATED BY THIS PROJECT IN ACCORDANCE WITH ALL RULES, REGULATIONS AND GUIDELINES APPLICABLE. CONTRACTOR SHALL COMPLY FULLY WITH FLORIDA STATUTE 403.7186 REGARDING MERCURY CONTAINING DEVICES AND LAMPS. LAMPS, BALLASTS AND OTHER MATERIALS SHALL BE TRANSPORTED AND DISPOSED OF IN ACCORDANCE WITH ALL DEP AND EPA GUIDELINES APPLICABLE AT TIME OF DISPOSAL. CONTRACTOR SHALL PROVIDE OWNER WITH WRITTEN CERTIFICATION OF ACCEPTED DISPOSAL.
27. MOUNT ALL DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT WITHIN 6 FT. OF EQUIPMENT CONNECTION POINT. VERIFY LOCATION OF POINT OF CONNECTION WITH EQUIPMENT INSTALLER PRIOR TO ELECTRICAL ROUGH-IN. (DRAWINGS ONLY SHOW DIAGRAMMATIC LOCATION OF CONNECTION).
28. EXISTING CONDITIONS AND UTILITIES INDICATED ARE TAKEN FROM EXISTING CONSTRUCTION DOCUMENTS, VARIOUS SURVEYS, AND FIELD INVESTIGATIONS. IT IS TO BE UNDERSTOOD THAT UNFORESEEN CONDITIONS PROBABLY EXIST AND NEW WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON THE DRAWINGS. COOPERATION WITH OTHER TRADES IN ROUTING AND/OR BURIAL DEPTHS AS DETERMINED DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER MAY BE NECESSARY AND IT IS INTENDED THAT SUCH DEVIATIONS SHALL BE CONSIDERED A PART OF THIS CONTRACT. IT IS ALSO UNDERSTOOD THAT THE PLANS ARE NOT COMPLETELY TO SCALE. THIS CONTRACTOR IS TO FIELD VERIFY DIMENSIONS OF ALL SITE UTILITIES, ETC., PRIOR TO BID AND INCLUDE ANY DEVIATIONS IN THE CONTRACT.
29. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN ON PLANS OR NOT AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE FOR REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE COMPLETION OF THIS WORK. THE CONTRACTOR SHALL LOCATE ALL UTILITIES (BOTH KNOWN AND UNKNOWN) IN AREA OF WORK PRIOR TO EXCAVATION WITH THE USE OF ELECTRONIC LOCATOR/TRACER DEVICES AND EQUIPMENT SUITABLE FOR SUCH USE. REFLECT LOCATED UTILITIES ON AS-BUILT DOCUMENTS.
30. REMOVE EXISTING POWER, LIGHTING, SYSTEMS, MATERIAL AND EQUIPMENT WHICH ARE MADE OBSOLETE OR WHICH INTERFERE WITH THE CONSTRUCTION OF THE PROJECT.
31. REINSTALL ANY SUCH POWER, LIGHTING, SYSTEMS, MATERIALS AND EQUIPMENT WHICH ARE REQUIRED TO REMAIN ACTIVE FOR THE FACILITY TO BE FULLY FUNCTIONAL.
32. ALL EXISTING ELECTRICAL IS NOT SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO BID, AND INCLUDE IN HIS BID THE REMOVAL OF ALL ELECTRICAL EQUIPMENT, WIRE, CONDUIT, DEVICES, FIXTURES, ETC. THAT IS NOT BEING REUSED, BACK TO ITS SOURCE.
33. ALL RECEPTACLES, DEVICES AND EQUIPMENT NOT SHOWN, AND IN AREAS OUTSIDE OF REMODELING SHALL REMAIN ACTIVE UNLESS OTHERWISE NOTED. FURNISH AND INSTALL ACCESSIBLE JUNCTION BOXES AND REWORK EXISTING CIRCUITS AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY TO RECEPTACLES, DEVICES AND EQUIPMENT REMAINING.
34. ALL CONDUIT TO BE CONCEALED UNLESS IMPOSSIBLE DUE TO EXISTING CONDITIONS (I.E. EXPOSED CEILINGS, BUILDING EXTERIOR WALL RUNS, IMPOSSIBLE UNDERGROUND RUNS). CONCEAL ALL CONDUITS ABOVE CEILINGS OR IN WALL/COUNTERS.
35. ALL NEW DEVICES TO BE FLUSH MOUNTED UNLESS SPECIFICALLY NOTED OTHERWISE.
36. FURNISH AND INSTALL JUNCTION BOX(S) ABOVE ACCESSIBLE CEILING WITH FLEXIBLE CONDUIT FLUSH/CONCEALED DOWN EXISTING WALL(S) TO NEW FLUSH WALL DEVICES. REWORK EXISTING CIRCUITS AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY TO RECEPTACLE, DEVICES AND EQUIPMENT REMAINING. CUT AND PATCH WALL TO LIKE NEW CONDITION AS REQUIRED. (IF CONCEALING CONDUIT DOWN EXISTING WALL IS NOT FEASIBLE, EXPOSED WIREMOLD DROPPED DOWN WALL, UNLESS OTHERWISE NOTED BY SPECIFICATIONS, IS ACCEPTABLE. PAINT TO MATCH MOUNTING SURFACE.) METHOD OF ROUTING WIREMOLD SHALL BE SUBMITTED TO A/E FOR APPROVAL. A/E RESERVES THE RIGHT TO CONTROL SURFACE APPLICATIONS.
37. ALL OUTLET BOXES WHERE FIXTURES OR DEVICES ARE REMOVED SHALL BE REMOVED AND CEILING OR WALL SHALL BE PATCHED TO MATCH EXISTING OR NEW FINISH. IF OUTLET BOX MUST REMAIN TO MAINTAIN CONTINUITY OF CIRCUITRY, AN APPROPRIATE ACCESSIBLE BLANK PLATE SHALL BE INSTALLED WITH FINISH TO MATCH EXISTING OR NEW, WHERE APPLICABLE. ALL OUTLET BOXES WHICH MUST BE REMOVED DUE TO REMOVAL OF WALL, AND WHICH MUST REMAIN ACTIVE IN ORDER TO MAINTAIN CIRCUIT CONTINUITY SHALL BE RELOCATED IN CEILING OR FLOOR, SHALL BE ACCESSIBLE, AND SHALL HAVE BLANK COVERPLATE AS DESCRIBED ABOVE.
38. ELECTRICAL CONTRACTOR SHALL INCLUDE ALL EXISTING PANELBOARD SCHEDULES FOR PANELBOARDS RELATED/ASSOCIATED WITH OR WITHIN CONTRACT LIMITS WHETHER SHOWN ON PLANS OR NOT AS PART OF A COMPLETE AS-BUILT SET OF DRAWINGS. SCHEDULES SHALL SHOW FINAL CONFIGURATION, ETC. OF CIRCUITS, CIRCUIT BREAKERS, DIRECTORY, ETC.
39. ALL EXISTING BRANCH CIRCUITS AND FEEDERS (REMAINING ACTIVE) WHICH ARE CONNECTED TO EXISTING PANELBOARDS THAT ARE AFFECTED BY THIS CONTRACT, SHALL BE TRACED-OUT AND PROPERLY NOTED AND IDENTIFIED ON NEW PANEL DIRECTORIES.
40. ALL PANELS, CIRCUIT BREAKERS, JUNCTION BOXES, ETC. THAT ARE WITHIN AREA OF REMODEL SHALL BE PROPERLY IDENTIFIED AS PER SPECIFICATIONS.
41. ALL EXISTING CONDUIT, WIRE, FITTINGS, BOXES, ETC. REMAINING AND/OR UTILIZED WITHIN AREA OF REMODEL/RENOVATION MUST COMPLY WITH SPECIFICATIONS. ELECTRICAL COMPONENTS WHICH DO NOT COMPLY WITH SPECIFICATIONS, AND IS NOT IN COMPLIANCE WITH NATIONAL ELECTRICAL CODE AND LOCAL CODES SHALL BE REPLACED AND/OR REWORKED AT NO ADDITIONAL COST TO OWNER UNDER THIS CONTRACT (I.E. CONDUIT SIZING, ROUTING, SUPPORTS, ETC.).
42. PROVIDE NEW TYPED PANEL DIRECTORIES FOR ALL EXISTING AND NEW PANELBOARDS FOR PANELBOARDS ASSOCIATED WITH CONTRACT WHETHER SHOWN ON PLANS OR NOT REGARDLESS IF SCHEDULES/CIRCUITRY HAS BEEN CHANGED.
43. PROVIDE NEW PHENOLIC LABELS (PER SPEC'S) ON ALL NEW (2) TWO POLE AND (3) THREE POLE CIRCUIT BREAKERS WITHIN ALL EXISTING AND NEW PANELBOARDS ASSOCIATED WITH CONTRACT WHETHER SHOWN ON PLANS OR NOT REGARDLESS IF SCHEDULES/CIRCUITRY HAS BEEN CHANGED.
44. ALL EXISTING AND NEW CIRCUIT BREAKERS WITHIN EACH EXISTING PANELBOARD SHALL BE THE SAME MFG. TYPE, STYLE AND A.I.C. RATING OF EXISTING PANELBOARD REGARDLESS OF WHAT IS SHOWN ON PANEL SCHEDULE. FIELD VERIFY ALL EXISTING PANELBOARD(S) RELATED WITH CONTRACT AND PROVIDE CIRCUIT BREAKERS AS NECESSARY TO COMPLY WITH THIS REQUIREMENT.
45. ALL CONCRETE, WALL PATCHING, CEILING REPAIR, WALL FINISHES, AND OTHER GENERAL WORK REQUIRED FOR INSTALLING ELECTRICAL SYSTEMS SHALL BE REPAIRED TO "LIKE NEW/ORIGINAL CONDITION." (COORDINATE WITH GENERAL CONTRACTOR PRIOR TO BID.)
46. ALL PATCHES OR CEILING PLATES SHALL BE PATCHED OR PAINTED AS DIRECTED BY ENGINEER.
47. PAINT ALL EXPOSED CONDUIT, BOXES, ETC. TO MATCH WALL SURFACE.
48. ALL OPENINGS IN FIRE RATED WALLS AND FLOORS, ETC. MADE BY RENOVATION SHALL BE SEALED AND FIREPROOFED. PROVIDE AND INSTALL FIRESTOPPING ON ALL NEW OR EXISTING CONDUIT AND/OR CABLE THAT PENETRATES ANY FIRE RATED NEW OR EXISTING WALL IN ALL AREAS AFFECTED BY THIS PROJECT. VERIFY LOCATION OF FIRE RATED WALLS WITH EXISTING CONDITIONS PRIOR TO BID. FIRESTOPPING SYSTEM SHALL BE AS REQUIRED BY UL FOR RATING OF WALL AND CONDUIT/CABLE PENETRATION.
49. DASHED ITEMS INDICATE EXISTING TO REMAIN.
50. "R" ADJACENT TO DEVICE INDICATES EXISTING TO BE REMOVED COMPLETE.
51. NEW UNDERGROUND RACEWAYS ARE TO BE HAND DUG. ROUTE UNDER EXISTING WALKWAYS AS REQUIRED BY OWNER.
52. ALL ITEMS REMOVED AND NOT RE-USED SHALL BE IMMEDIATELY TURNED OVER TO OWNER AS THEY ARE MADE AVAILABLE BY RENOVATION. REMOVE ITEMS FROM JOB SITE AND DELIVER TO OWNERS STORAGE LOCATION(S) AS DIRECTED BY PROJECT MANAGER. DISCARD COMPLETE ITEMS WHICH OWNER ELECTS TO REFUSE.
53. WORK TO BE PERFORMED IN STRICT COMPLIANCE WITH ESTABLISHED WORK SCHEDULE BEING SET FORTH BY OWNER/TENANT. COORDINATE ALL WORK. THE CONTRACTOR SHALL FURNISH ADEQUATE FORCES, CONSTRUCTION PLANT, AND EQUIPMENT, AND SHALL WORK SUCH HOURS, INCLUDING NIGHT SHIFTS, OVERTIME OPERATIONS, SUNDAY, AND HOLIDAYS IN ACCORDANCE WITH THE OWNERS OPERATIONAL SCHEDULE. IF THE CONTRACTOR FALLS BEHIND PROGRESS REQUIRED IN THE OPERATIONAL SCHEDULE, THE CONTRACTOR SHALL TAKE SUCH STEPS AS MAY BE NECESSARY TO IMPROVE HIS PROGRESS, AND THE OWNER MAY REQUIRE HIM TO INCREASE THE NUMBER OF SHIFTS AND/OR OVERTIME OPERATIONS, DAY OF WORK AND/OR THE AMOUNT OF CONSTRUCTION PLANT, AT NO ADDITIONAL COST TO THE OWNER UNDER THIS CONTRACT. (IT SHALL BE UNDERSTOOD THAT SEVERAL BID PACKAGES MAY BE CONSTRUCTED BY VARIOUS CONTRACTOR/SUB-CONTRACTORS WITHIN THE SAME WORK SPACE SIMULTANEOUSLY.)
54. COORDINATE WITH OWNER DEMOLITION IN BUILDINGS, PROVIDE ALL ELECTRICAL AS REQUIRED, WHETHER SHOWN OR NOT, TO PROVIDE TEMPORARY RELOCATION AND REACTIVATION OF POWER, INTERCOM AND FIRE ALARM TO EXISTING BUILDING AREAS DURING DEMOLITION IN EXISTING BUILDING.
55. PROVIDE ALL ELECTRICAL AS REQUIRED WHETHER SHOWN OR NOT TO PROVIDE TEMPORARY OUTAGE AND REACTIVATION OF POWER, SECURITY, AND FIRE ALARM TO EXISTING CAMPUS DURING DEMOLITION AND NEW WORK.
56. CONTRACTOR MAY REUSE EXISTING CONDUIT (MIN. OF 10' LENGTHS) AND ASSOCIATED FITTINGS, PULL BOXES, ETC., WHICH ARE IN "LIKE NEW CONDITION" AND WHICH MEET THE INTENT OF THE SPECIFICATIONS FOR NEW PRODUCTS. WHERE EXISTING RACEWAYS ARE REUSED, THE CONTRACTOR SHALL REMOVE EXISTING WIRING, PULL IN NEW WIRING, AND CONNECT TO NEW DEVICES AS SHOWN ON THE DRAWINGS AND CALLED FOR IN THE SPECIFICATIONS. REUSE OF EXISTING DEVICES AND WIRING SHALL NOT BE ALLOWED UNLESS SPECIFICALLY NOTED OTHERWISE. ALL EXISTING CONDUITS THAT ARE REUSED SHALL BE PERMANENTLY IDENTIFIED IN ACCORDANCE WITH THE SPECIFICATIONS.
57. USE OF MC CABLE IS NOT ACCEPTABLE.
58. EMT FITTINGS SHALL BE STEEL SET SCREW TYPE. CONDUIT FITTINGS FOR RACEWAYS OTHER THAN EMT SHALL BE MADE OF STEEL OR MALLEABLE IRON.
59. SPRING STEEL CONDUIT STRAPS AND HANGERS (IE CADDY TYPE) SHALL NOT BE UTILIZED. CEILING WIRES AND INDEPENDENT SUPPORT WIRES SHALL NOT BE USED FOR SUPPORT OF CONDUITS OR BOXES.

ELECTRICAL SHEET INDEX

SHEET NO.	SHEET NAME	SCALE
E001	GENERAL NOTES, ABBREVIATIONS, AND ELECTRICAL SHEET INDEX	NONE
E002	SYMBOL LEGEND AND LIGHT FIXTURE SCHEDULE	NONE
ED101	ELECTRICAL DEMOLITION PLAN	1/4" = 1'-0"
ED102	LIGHTING DEMOLITION PLAN	1/4" = 1'-0"
E101	ELECTRICAL RENOVATION PLAN	1/4" = 1'-0"
E102	LIGHTING RENOVATION PLAN	1/4" = 1'-0"
E501	ELECTRICAL DETAILS	NONE
E601	ELECTRICAL SCHEDULES	NONE
E602	ELECTRICAL SCHEDULES	NONE

ELECTRICAL ABBREVIATIONS

A/C - AIR CONDITIONING
A.C. - ALTERNATING CURRENT
ADD # - ADDENDA #
A/E - ARCHITECT/ENGINEER (OR ENGINEER WHEN ARCHITECT NOT APPLICABLE)
AFD - ADJUSTABLE FREQUENCY DRIVE
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
AHU - AIR HANDLER UNIT
AIC - AMPS INTERRUPTING CAPACITY
AL - ALUMINUM
ALT - ALTERNATE
AMP - AMPERE
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
AWG - AMERICAN WIRE GAUGE
@ - AT
B.C. - BARE COPPER
BIDS - BAGGAGE INFORMATION DISPLAY SYSTEM
BLDG - BUILDING
BRKR - BREAKER
BTU - BRITISH THERMAL UNIT
BTUH - BTU PER HOUR
C. - CONDUIT
C.B. - CIRCUIT BREAKER
CD - CANDELA
CBM - CERTIFIED BALLAST MANUFACTURERS
CFM - CUBIC FEET PER MINUTE
CKT. - CIRCUIT
CKT BRKR - CIRCUIT BREAKER
C/L - CENTER LINE
CLG. - CEILING
COMP. - COMPRESSOR
CONN. - CONNECTION
COND. - CONDENSER
CONT. - CONTINUOUS
C.R.I. - COLOR RENDERING INDEX
C.T. - CURRENT TRANSFORMER
CU - COPPER
C.U. - COMPRESSOR CONDENSER UNIT
C.W. - COLD WATER
D.B. - DIRECT BURIAL
D.C. - DIRECT CURRENT
DISC. - DISCONNECT
DN. - DOWN
DPST - DOUBLE POLE SINGLE THROW
DWG - DRAWING
E.C. - ELECTRICAL CONTRACTOR (OR GENERAL CONTRACTOR)
ELEV. - ELEVATOR
EMT - ELECTRIC METALLIC TUBING
EQUIP. - EQUIPMENT
EST - ESTIMATE
FAAP - FIRE ALARM ANNUNCIATOR PANEL
FACP - FIRE ALARM CONTROL PANEL
FATC - FIRE ALARM TERMINAL CABINET
FCCP - FIRE ALARM COMMAND CENTER PANEL
FHC - FIRE HOSE CABINET
FIDS - FLIGHT INFORMATION DISPLAY SYSTEM
FLA - FULL LOAD AMPERES
FT. - FEET
FLR - FLOOR
F.C. - FOOTCANDLES
FVNR - FULL VOLTAGE NON-REVERSING
GAL - GALLON
GALV. - GALVANIZED
GPH - GALLONS PER HOUR
GPM - GALLONS PER MINUTE
GFI - GROUND FAULT INTERRUPTING
GRS - GALVANIZED RIGID STEEL CONDUIT
GND. - GROUND
HTG - HEATERS
HT - HEIGHT
HZ - HERTZ (CYCLES)
HPF - HIGH POWER FACTOR
HPS - HIGH PRESSURE SODIUM
HP. - HORSEPOWER
HR. - HOUR
H.S. - HEAT STRIP
IMC - INTERMEDIATE METALLIC CONDUIT
INCAND. - INCANDESCENT
IN. - INCHES
J.B. - JUNCTION BOX
KVA - KILOVOLT AMPERE
KW - KILOWATTS
KWH - KILOWATT HOUR
K - KELVIN
L.L.D. - LAMP LUMEN DEPRECIATION
LED - LIGHT EMITTING DIODE
LIU - LIGHT INTERFACE UNIT
LT. - LIGHT
LTG. - LIGHTING
LTS. - LIGHTS
L.P.F. - LOW POWER FACTOR
M.C.B. - MAIN CIRCUIT BREAKER
M.L.O. - MAIN LUGS ONLY
MAINT. - MAINTENANCE
MH. - MANHOLE; METAL HALIDE
MFG. - MANUFACTURER
MAX. - MAXIMUM
MCM - THOUSAND CIRCULAR MILS
MOCP - MINIMUM OVERCURRENT PROTECTION
MPH - MILES PER HOUR
MM - MILLIMETER
MIN. - MINIMUM
MCP - MOTOR CIRCUIT PROTECTOR
MTD - MOUNTED
N. - NEUTRAL
NEC - NATIONAL ELECTRIC CODE
NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
N.P.T. - NATIONAL PIPE THREAD
NF - NON FUSED
N.C. - NORMALLY CLOSED
N.O. - NORMALLY OPEN
NIC. - NOT IN CONTRACT
NO. - NUMBER
OB - OUTLET BOX
OD - OUTSIDE DIAMETER
O.L. - OVERLOAD
OLS - OVERLOADS
OS&Y - OUTSIDE SCREW AND YOKE (SPRINKLER)
% - PERCENT
/ - PHASE
P. - POLE
PL - COMPACT FLUORESCENT LAMP
P.T. - POTENTIAL TRANSFORMER
PSF - POUNDS PER SQUARE FOOT
PSI - POUNDS PER SQUARE INCH
PB - PULLBOX
PNL - PANEL
PR - PAIR
PRI. - PRIMARY
PVC - POLYVINYL CHLORIDE
RECEPT. - RECEPTACLE
RPM - REVOLUTIONS PER MINUTE
R.S. - RAPID START
SCA - SHORT CIRCUIT AMPS
SEC. - SECONDARY
SHT - SHEET
S/N - SOLID NEUTRAL
SPST - SINGLE POLE SINGLE THROW
SF - SQUARE FOOT
SW. - SWITCH
SWBD - SWITCHBOARD
SYS. - SYSTEM
THHN; - THWN NYLON JACKETED WIRE
TTB - TELEPHONE TERMINAL BOARD
TTC - TELEPHONE TERMINAL CABINET
TV - TELEVISION
TVTC - TELEVISION TERMINAL CABINET
TVEC - TELEVISION EQUIPMENT CABINET
TYP - TYPICAL
TEMP. - TEMPERATURE
U.L. - UNDERWRITERS' LABORATORIES
VFD - VARIABLE FREQUENCY DRIVE
VHF - VERY HIGH FREQUENCY
VHO - VERY HIGH OUTPUT
V - VOLT
VA - VOLT AMPERES
VOL. - VOLUME
W - WIRE
W.P. - WEATHERPROOF
XFMR - TRANSFORMER
Y - WYE
YD. - YARD
YR. - YEAR
3R - RAINPROOF
4X - STAINLESS STEEL DUSTIGHT, WATERTIGHT

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SEG PROJECT NO. 22011

REVISIONS

NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

TIMBERCREST ELEMENTARY
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VCS Project NO. 2648255
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ARCH/ENGR OF RECORD
Engineer
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9/15/2026	SEG No. 25010

SHEET TITLE
GENERAL NOTES, ABBREVIATIONS, AND ELECTRICAL SHEET INDEX

DRAWING NO.
E001

SYMBOL LEGEND

SYMBOL	DESCRIPTION	DESIGN SELECTION	APPROVED SUBSTITUTION	APPROVED SUBSTITUTION	REMARKS
○	CEILING OUTLET BOX AND FLUORESCENT OR LED FIXTURE	SEE FIXTURE SCHEDULE			d
●	OUTLET BOX AND FLUORESCENT OR LED LIGHT FIXTURE ON EMERGENCY SYSTEM BRANCH CIRCUIT (LIFE SAFETY BRANCH)	SEE FIXTURE SCHEDULE			d
⏚	WALL OUTLET BOX AND FLUORESCENT OR LED FIXTURE	SEE FIXTURE SCHEDULE			d
$	WALL OUTLET BOX AND 20 AMP SINGLE POLE SWITCH (o INDICATES SWITCH-LEG)	WATT STOPPER LMSW-101			d
R	RELAY, AS NOTED				
$L	WALL OUTLET BOX AND SECURITY LOCKING KEY SWITCH, 20 AMP, SINGLE POLE, WITH S.S. PLATE, PROVIDE TWO KEYS	P&S #PS20AC1-KL-55-717	DEVICE: HUBBELL HBL1221RKL PLATE: S12RKL		d
$WP	FLUSH WALL OUTLET BOX AND 20 AMP SINGLE POLE SWITCH, WITH DIE CAST WEATHERPROOF COVER	DEVICE: P&S #PS20AC1 PLATE: P&S #CAT-G	DEVICE: HUBBELL #HBL1221 PLATE: P&S #CAT-G	DEVICE: LEVITON #1221-2	a, d
$T	WALL OUTLET BOX AND 6 HOUR MECHANICAL TIME SWITCH WITH HOLD, RATED 20 AMPS @ 120V, 10 AMPS @ 277V.	TORK # A506HH	INTERMATIC # FF6HH		d
⊜	WALL OUTLET BOX AND 20 AMP DUPLEX RECEPTACLE	P&S #PS5362	HUBBELL #HBL5352	LEVITON #5362	d
⊜	TWO GANG WALL OUTLET BOX AND TWO 20 AMP DUPLEX RECEPTACLES	(2)-P&S #PS5362	(2)-HUBBELL #HBL-5352	(2)-LEVITON #5362	d
G⊜	WALL OUTLET BOX WITH 20 AMP SELF-TESTING GFCI DUPLEX RECEPTACLE	P&S #2097TRGRY	HUBBELL #GFR5352GYST	LEVITON #S7899-GY	d
WPG ⊜	FLUSH WALL OUTLET BOX AND 20 AMP WEATHER RESISTANT SELF-TESTING GFCI DUPLEX RECEPTACLE WITH CAST ALUMINUM WEATHER PROOF IN USE COVER	P&S #2095TRWR WITH THOMAS & BETTS #CKXUV OR INTERMATIC #WP1010MC	HUBBELL #GFR5362S WITH THOMAS & BETTS #CKMUV OR HUBBELL #WP26M COVER	LEVITON #W7899-TR WITH THOMAS & BETTS #CKMUV OR INTERMATIC #WP1010MC	a, d
WPG ⊜	CAST IRON PLATED SURFACE MTD. OUTLET BOX AND 20 AMP WEATHER RESISTANT GFCI DUPLEX RECEPTACLE WITH CAST ALUMINUM WEATHERPROOF IN USE COVER	P&S #2095TRWR WITH APPLETON #FS-ID AND THOMAS & BETTS #CKXUV OR INTERMATIC #WP1010MC	HUBBELL #GFR5362S APPLETON #FS-ID AND HUBBELL #WP26M COVER	LEVITON #W7899-TR APPLETON #FS-ID AND THOMAS & BETTS #CKXUV OR INTERMATIC #WP1010MC	a, c, d, e, f, g
⊜	WALL OUTLET BOX AND SPECIAL PURPOSE RECEPTACLE AS NOTED ON PLANS	P&S	HUBBELL	LEVITON	d
◕	FLUSH WALL JUNCTION BOX AND BLANK PLATE	STEEL CITY	RACO		d
◕	JUNCTION BOX AND BLANK PLATE ABOVE CEILING	STEEL CITY	RACO		b,d
□	SURFACE JUNCTION BOX AND BLANK PLATE, WALL MTD. OR MTD. TO CEILING/STRUCTURE AS INDICATED	STEEL CITY	RACO		b, d, g, h
□WP	SURFACE MTD. WEATHERPROOF JUNCTION BOX AND COVER, AS NOTED ON PLANS	HOFFMAN			d, g, h
⬓	CAST IRON ZINC PLATED SURFACE MTD. OUTLET BOX AND WEATHERPROOF BLANK PLATE	APPLETON #FS-ID WITH #DS-100G COVER			a, d, e, f, g, h
⊡	PUSHBUTTON, AS NOTED, MOUNTED AT 48" TO TOP				d
⊡S	FLUSH SHUNT-TRIP BUTTON, LABEL "EMERGENCY MAIN DISCONNECT", MOUNTED AT 48" TO TOP	SQUARE "D" #K-15	ASCO #124200		d
⌔	MOTOR CONNECTION, AS NOTED				i
R	RELAY, AS NOTED				
C	CONTROL AND/OR POWER CONNECTION ON EQUIPMENT				i
BAS	BUILDING AUTOMATION SYSTEM CONTROL PANEL. PROVIDE 20 AMP, 120 VOLT DEDICATED CIRCUIT WITH 3/12 MIN. CONDUCTORS IN 1/2 INCH CONDUIT TO NEAREST NORMAL POWER PANEL WHERE CIRCUIT IS NOT PROVIDED OR NOTED. USE 20 AMP, 1 P CIRCUIT BREAKER MARKED SPARE IN PANEL SCHEDULE.				
⊤⊤	BUSBAR				
⊠	MAGNETIC MOTOR STARTER, MOTOR CONTROLLER OR CONTACTOR, AS NOTED	SQUARE "D"	G.E.	SIEMENS	g, i
⊠	DISCONNECT SWITCH, SIZE AS NOTED	SQUARE "D"	G.E.	SIEMENS	g, i
⊠	STARTER/DISCONNECT SWITCH, SIZE AS NOTED	SQUARE "D"	G.E.	SIEMENS	g, i
AFD	ADJUSTABLE FREQUENCY DRIVE W/DISC. SW. FURNISHED BY DIVISION 15				i

SYMBOL LEGEND (CONTINUED)

SYMBOL	DESCRIPTION	DESIGN SELECTION	APPROVED SUBSTITUTION	APPROVED SUBSTITUTION	REMARKS
▬	120/208V BRANCH CIRCUIT PANELBOARD SURFACE MOUNTED	SQUARE "D"	G.E.	SIEMENS	j
▬	120/208V BRANCH CIRCUIT PANELBOARD FLUSH MOUNTED	SQUARE "D"	G.E.	SIEMENS	j
▨	277/480V BRANCH CIRCUIT PANELBOARD SURFACE MOUNTED	SQUARE "D"	G.E.	SIEMENS	j
▨	277/480V BRANCH CIRCUIT PANELBOARD FLUSH MOUNTED	SQUARE "D"	G.E.	SIEMENS	j
T	TRANSFORMER	SQUARE "D"	G.E.	SIEMENS	j
	BRANCH CIRCUIT CONDUIT CONCEALED ABOVE CEILING OR IN WALL SLASH MARKS INDICATE NUMBER OF CONDUCTORS (GROUND WIRE NOT SHOWN). TWO CONDUCTORS PLUS GROUND REQUIRED (UNLESS OTHERWISE NOTED OR MARKED)				
	BRANCH CIRCUIT CONDUIT CONCEALED BELOW SLAB OR UNDERGROUND				
	BRANCH CIRCUIT CONDUIT EXPOSED				
	HOME RUN WIRING. ONE CIRCUIT PER ARROW HEAD				
	CONDUIT CAPPED OFF				
	CONDUIT CONTINUED				
○	CONDUIT RUN UP				
●	CONDUIT RUN DOWN				
	CONDUIT SEAL-OFF FITTING	CROUSE HINDS	APPLETON		c
—G—	GROUND WIRE, CONCEALED				
	GROUND OR GROUND ROD AS NOTED				

NOTES:

1) ALL DEVICES TO BE GREY WITH SMOOTH METAL #302 S.S. PLATES UNLESS OTHERWISE NOTED.
2) DASHED ITEM DENOTES "EXISTING".
3) "R" BY DEVICE DENOTES EXISTING TO BE REMOVED COMPLETELY.
4) "H" BY DEVICE DENOTES DEVICE TO BE MOUNTED HORIZONTALLY.
5) MOUNT SWITCHES AT 48" AFF TO TOP.
6) SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7) ALL ITEMS NOTED ON THE LEGENDS DO NOT NECESSARILY APPEAR ON PLANS.

REMARKS:

a) U.L. LISTED FOR WET LOCATION IN CLOSED POSITION.

b) SUPPORT OUTLET BOX FROM STRUCTURE WITH (1) 3/8" ALL THREADS MINIMUM. BOXES LARGER THAN 25 SQUARE INCHES SHALL BE SUPPORTED WITH (2) 3/8" ALL THREADS MINIMUM.

c) U.L. LISTED FOR WET LOCATION IN OPEN POSITION WITH ATTACHMENT PLUG INSERTED.

d) JUNCTION/OUTLET BOX SHALL BE SIZED AS REQUIRED FOR CONDUCTOR/DEVICE FILL PER N.E.C.

e) THREADED CONDUIT HUBS SHALL BE SIZED AND CONFIGURED AS REQUIRED FOR APPLICATION.

f) IF WITHIN 30 MILES OF THE COAST LINE, COPPER FREE CAST ALUMINUM OUTLET BOXES SHALL BE USED FOR EXTERIOR APPLICATIONS.

g) PROVIDE KINDORF MTG. RACK FOR FREE STANDING APPLICATIONS. KINDORF SHALL BE PVC COATED FOR EXTERIOR APPLICATIONS. ALL CUT ENDS ARE TO BE SEALED.

h) WHEN SURFACE JUNCTION BOX SYMBOL IS COMBINED WITH DEVICE SYMBOL, PROVIDE APPROPRIATE SURFACE PLATE FOR OUTLET APPLICATION.

i) MAINTAIN WORKING CLEARANCES IN STRICT ACCORDANCE WITH N.E.C. COORDINATE EXACT LOCATION OF EQUIPMENT WITH ALL DISCIPLINES (I.E. STRUCTURAL, HVAC, PLUMBING, FIRE PROTECTION, KITCHEN, MILLWORK, ETC.) PRIOR TO ROUGH-IN TO MAINTAIN CLEARANCES.

LIGHTING FIXTURE SCHEDULE

TIMBERCREST ELEMENTARY

TYPE	DESCRIPTION	DESIGN SELECTION	APPROVED SUBSTITUTION	APPROVED SUBSTITUTION	VOLTS	CCT	WATTAGE	LUMENS	LAMP
P1	FOUR (4) FOOT LED, INDIVIDUAL SURFACE OR WALL MOUNT, IMPACT RESISTANT POLY CARBONATE LENS, STAINLESS DOOR CLIPS. FIELD SELECTABLE LUMENS.	RAB LIGHTING# SEAL 4 WITH FIELD SUPPLIED GLR AND DISCONNECT PLUG SET LUMENS TO LOW AND 40K	COLUMBIA #	WILLIAMS# LITHONIA #	120-277	4000K	30	4,140	LED
P1E	FOUR (4) FOOT LED, INDIVIDUAL SURFACE OR WALL MOUNT, IMPACT RESISTANT POLY CARBONATE LENS, STAINLESS DOOR CLIPS. FIELD SELECTABLE LUMENS. EMERGENCY BATTERY MAY BE FACTORY SUPPLIED OR FIELD INSTALLED.	RAB LIGHTING# SEAL 4/E WITH FIELD SUPPLIED GLR AND DISCONNECT PLUG SET LUMENS TO LOW AND 40K	COLUMBIA #	WILLIAMS# LITHONIA #	120-277	4000K	30	4,140	LED

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

(1) CONTRACTOR SHALL CAREFULLY COORDINATE THE LIGHTING FIXTURE TRIM TYPES WITH THE TYPE OF CEILING WHERE THE LIGHTING FIXTURES ARE TO BE INSTALLED. MODIFY FIXTURE CATALOG NUMBER AS REQUIRED TO COORDINATE FIXTURE WITH CEILING.

(2) ALL BALLASTED FIXTURES TO HAVE IN-LINE FUSE AND FUSE HOLDER.

(3) PROVIDE MANUFACTURER'S POINT BY POINT PHOTOMETRIC ANALYSIS FOR SITE LIGHTING WITH SUBMITTALS 10 DAYS PRIOR TO BID FOR APPROVAL BY DESIGN ENGINEER.. PROVDIE EMBEDMENT DETAILS FOR SAND

(4) CONTRACTOR, AT HIS OPTION, MAY USE A U.L. LISTED FLEXIBLE WIRING SYSTEM FOR LIGHTING FIXTURE BRANCH CIRCUITRY ABOVE ACCESSIBLE LAY-IN CEILINGS. ALL HOMERUNS, CONNECTIONS TO LIGHT SWITCHES, AND BRANCH CIRCUITRY FOR ALL OTHER CEILING CONDITIONS SHALL BE IN A CONVENTIONAL RACEWAY SYSTEM PER SPECIFICATIONS.

(5) WHEN FIXTURE MODEL NUMBER DIFFERS FROM FIXTURE DESCRIPTION, CONTRACTOR IS TO SUBMIT RFI REQUESTING CLARIFICATION PRIOR TO BID, PRIOR TO SHOP DRAWING SUBMITTAL AND PRIOR TO ORDERING OF FIXTURE. WHERE CONTRACTOR DOES NOT REQUEST CLARIFICATION PRIOR TO BID, CONTRACTOR SHALL PROVIDE THE MOST EXPENSIVE OPTION BETWEEN A FIXTURE THAT MATCHES THE DESCRIPTION AND A FIXTURE THAT MATCHES THE MODEL NUMBER. AFTER BID, CONTRACTOR SHALL SUBMIT RFI REQUESTING CLARIFICATION SO PROPER FIXTURE GETS SUBMITTED, PROVIDED AND INSTALLED.

(6) MOUNT LINEAR FIXTURES TOGETHER, END TO END, WHERE SHOWN IN CONTINUOUS ROWS.

(7) MANUFACTURER SHALL PROVIDE A WARRENTY AGAINST LOSS OF PERFORMANCE AND DEFECTS IN MATERIALS AND WORKMANSHIP FOR THE LUNINAIRS FOR A PERIOD OF 5 YEARS AFTER ACCEPTANCE OF THE LUMINAIRES. WARRANTY SHALL COVER ALL COMPONENTS COMPRISING THE LUMINAIRE.

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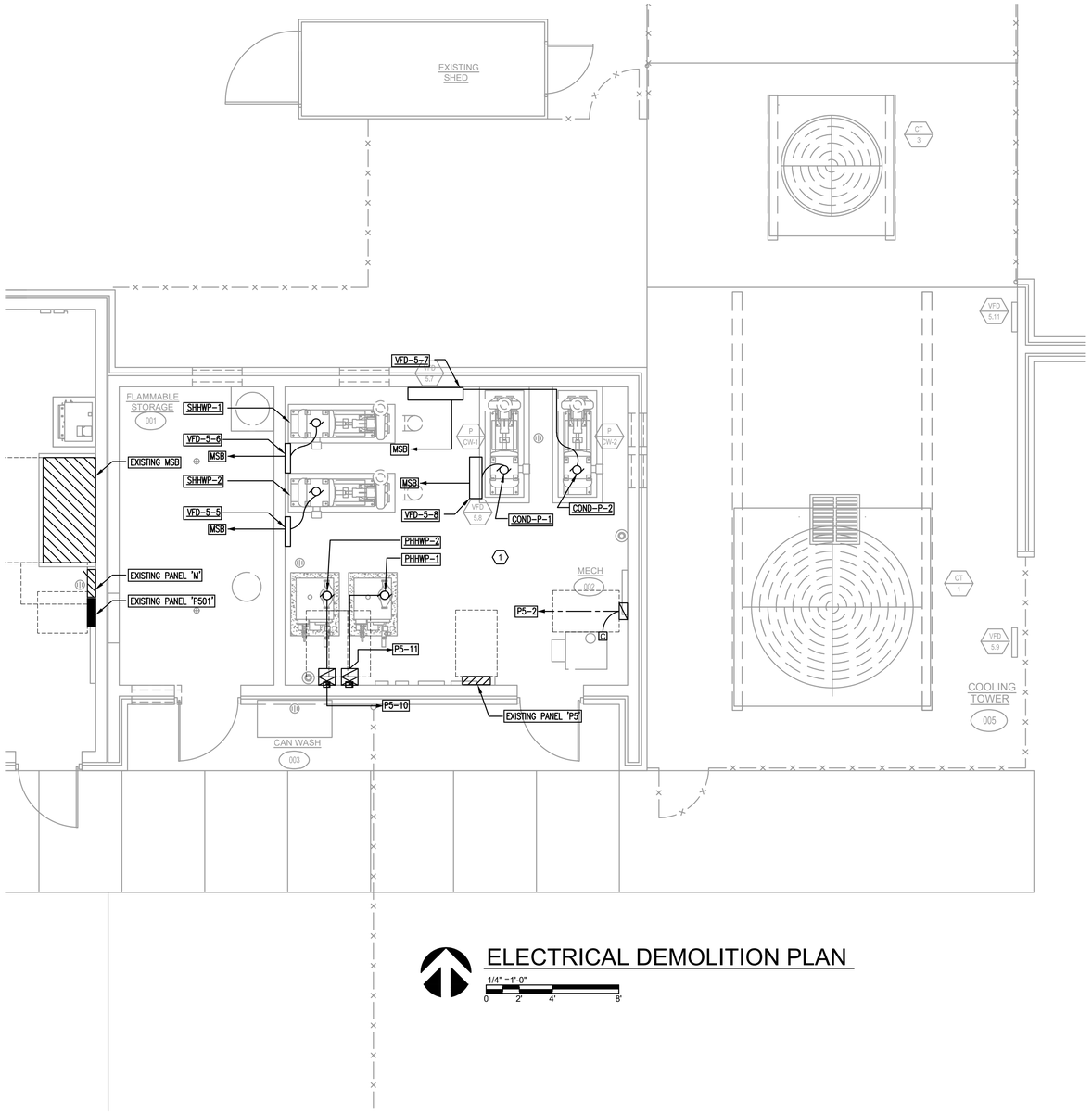
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Engineer
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ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
SYMBOL LEGEND AND LIGHT FIXTURE SCHEDULE

DRAWING NO.
E002



ELECTRICAL DEMOLITION PLAN

1/4" = 1'-0"

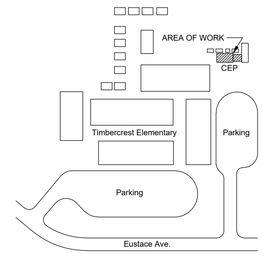
0 2' 4' 8'

GENERAL NOTES

1) REFER TO GENERAL NOTES FOR THIS DISCIPLINE.
2) REFER TO SPECIFICATIONS.
3) WHERE CONDUIT ROUTING IS SHOWN, THE CONDUITS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND ARE NOT NECESSARILY REPRESENTATIVE OF EXACT PLACEMENT.
4) REWORK/RELOCATE EXISTING ELECTRICAL AS REQUIRED TO FACILITATE CONSTRUCTION.
5) CONTRACTOR SHALL MAINTAIN CONTINUITY TO EXISTING DEVICES REMAINING.
6) ALL EXISTING ELECTRICAL IS NOT SHOWN.
7) VERIFY EXISTING PHASE ROTATIONS AT ALL EXISTING EQUIPMENT PRIOR TO DISCONNECTING ANY LOADS. VERIFY PHASE ROTATION HAS NOT CHANGED PRIOR TO REENERGIZING ANY LOADS.
8) ALL CONNECTIONS TO EXTERIOR ENCLOSURES MADE AT OTHER THAN BOTTOM OF ENCLOSURE SHALL BE MADE WITH WEATHERPROOF MYERS HUBS.
9) PROVIDE ALL MISCELLANEOUS ELECTRICAL REQUIRED FOR COMPLETE AND OPERATIONAL INSTALLATIONS.
10) PROVIDE PERMANENT LOCKOUT PROVISIONS THAT REMAIN IN PLACE FOR ALL BREAKERS FEEDING NEW OR RELOCATED EQUIPMENT.

HEX NOTES

(1) REMOVE ELECTRICAL ASSOCIATED WITH MECHANICAL EQUIPMENT BEING REPLACED OR ELIMINATED. REMOVE CONDUIT, CONDUCTORS, STARTERS, DRIVES, AND DISCONNECTS. CAP ANY UNDERGROUND CONDUITS. FIELD VERIFY EXISTING CIRCUITS PRIOR TO STARTING DEMOLITION.



Keyplan
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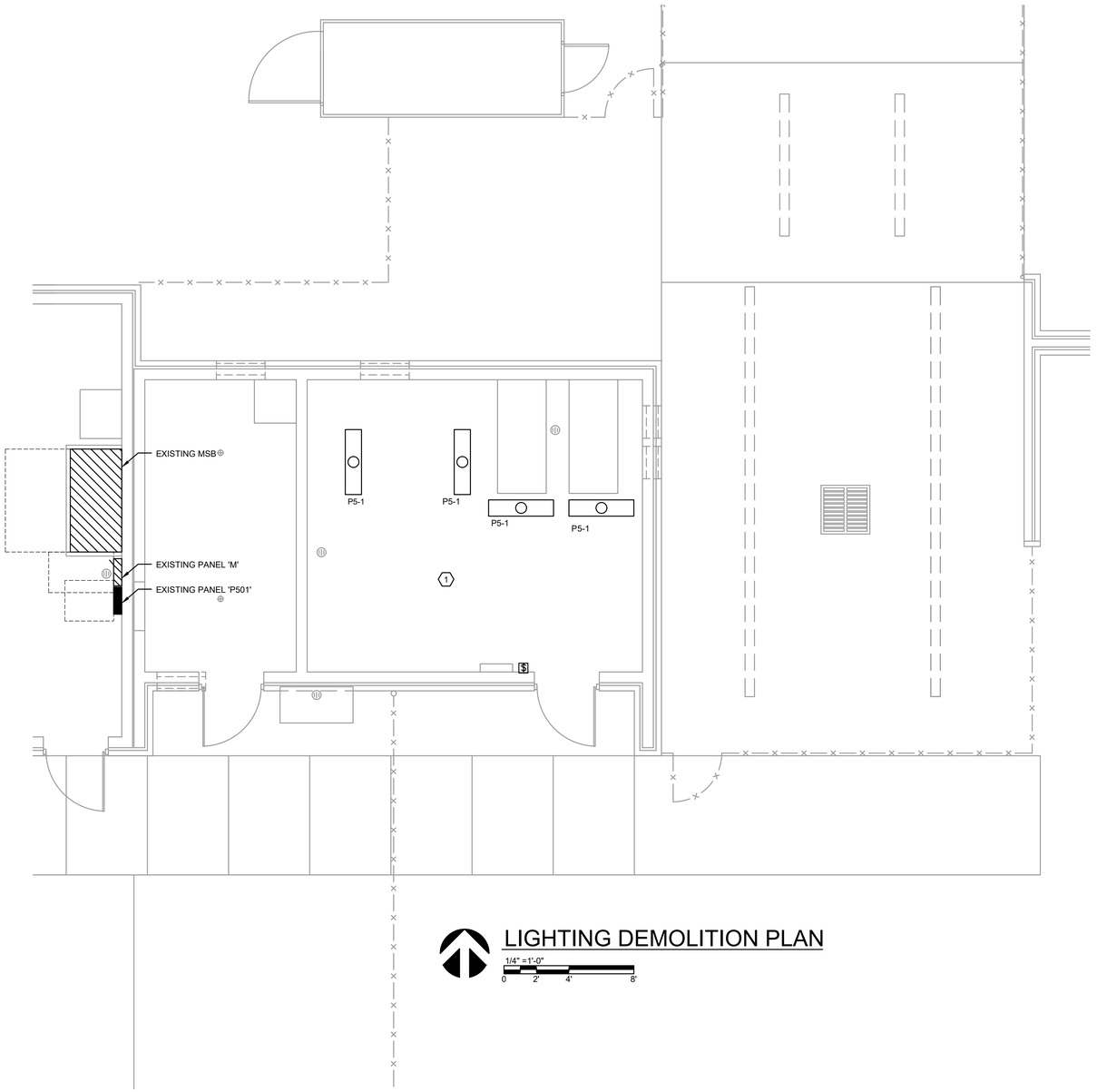
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ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
ELECTRICAL DEMOLITION PLAN

DRAWING NO.
ED101



LIGHTING DEMOLITION PLAN

1/4" = 1'-0"

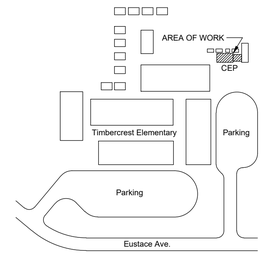
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GENERAL NOTES

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2) REFER TO SPECIFICATIONS.
3) WHERE CONDUIT ROUTING IS SHOWN, THE CONDUITS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND ARE NOT NECESSARILY REPRESENTATIVE OF EXACT PLACEMENT.
4) REWORK/RELOCATE EXISTING ELECTRICAL AS REQUIRED TO FACILITATE CONSTRUCTION.
5) CONTRACTOR SHALL MAINTAIN CONTINUITY TO EXISTING DEVICES REMAINING.
6) ALL EXISTING ELECTRICAL IS NOT SHOWN.
7) VERIFY EXISTING PHASE ROTATIONS AT ALL EXISTING EQUIPMENT PRIOR TO DISCONNECTING ANY LOADS. VERIFY PHASE ROTATION HAS NOT CHANGED PRIOR TO REENERGIZING ANY LOADS.
8) ALL CONNECTIONS TO EXTERIOR ENCLOSURES MADE AT OTHER THAN BOTTOM OF ENCLOSURE SHALL BE MADE WITH WEATHERPROOF MYERS HUBS.
9) PROVIDE ALL MISCELLANEOUS ELECTRICAL REQUIRED FOR COMPLETE AND OPERATIONAL INSTALLATIONS.
10) PROVIDE PERMANENT LOCKOUT PROVISIONS THAT REMAIN IN PLACE FOR ALL BREAKERS FEEDING NEW OR RELOCATED EQUIPMENT.

HEX NOTES

1 REMOVE EXISTING LIGHTING AND SWITCHES IN MECHANICAL ROOM. REFER TO RENOVATION PLAN FOR ADDITIONAL REQUIREMENTS.



Keyplan
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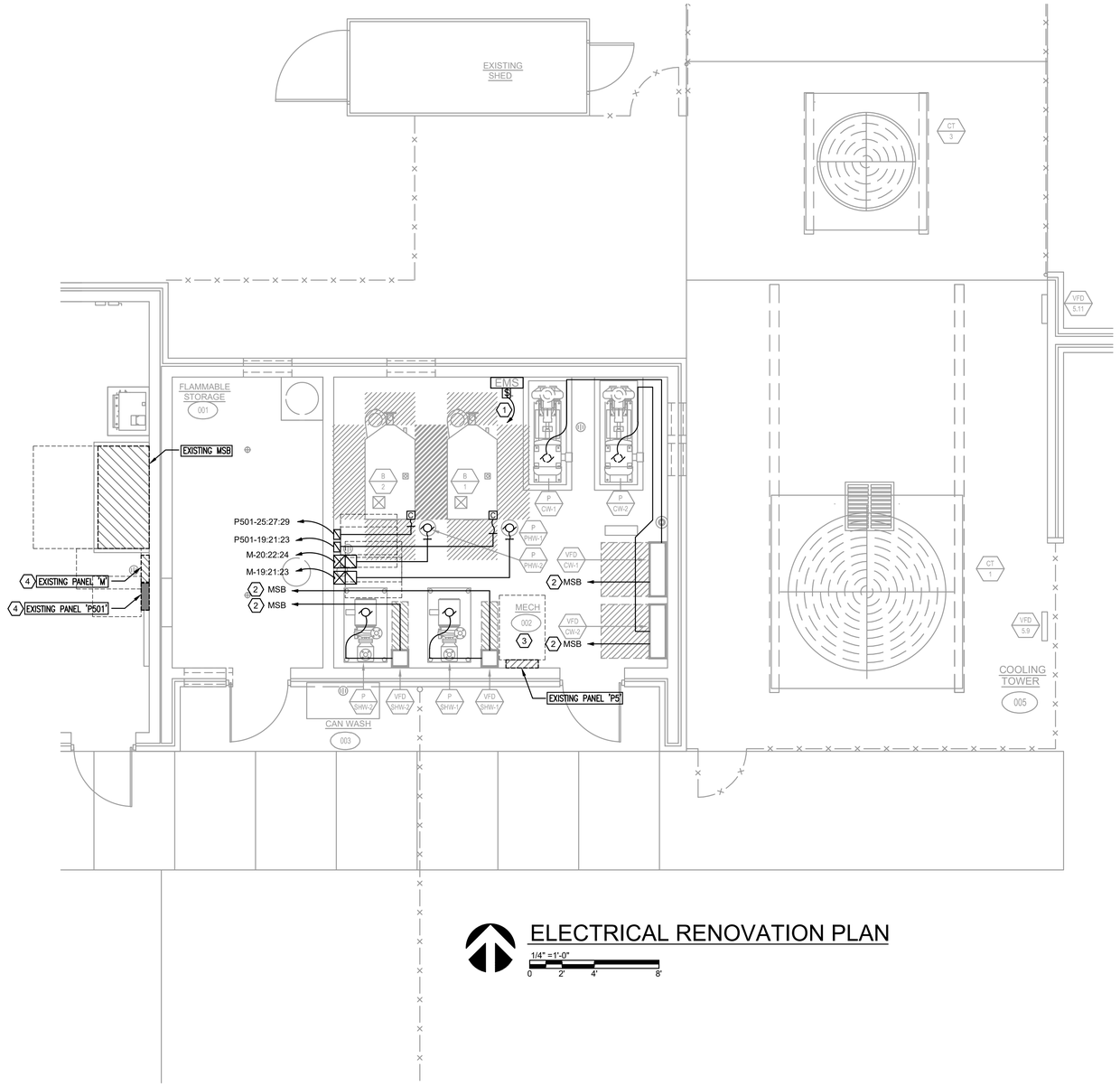
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SHEET TITLE
LIGHTING DEMOLITION PLAN

DRAWING NO.
ED102



ELECTRICAL RENOVATION PLAN

1/4" = 1'-0"

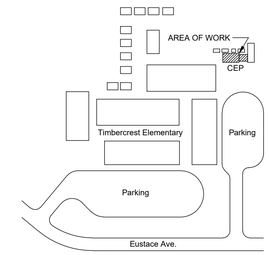
0 2' 4' 8'

GENERAL NOTES

1) REFER TO SPECIFICATIONS.
2) REMOVE EXISTING ELECTRICAL MADE OBSOLETE BY PROJECT.
3) WHERE CONDUIT ROUTING IS SHOWN, THE CONDUITS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND ARE NOT NECESSARILY REPRESENTATIVE OF EXACT PLACEMENT.
4) CONTRACTOR SHALL IDENTIFY ALL EXISTING CONDUITS, JUNCTION BOXES, ETC. (ABOVE WORK AREAS) IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
5) REWORK/RELOCATE EXISTING ELECTRICAL AS REQUIRED TO FACILITATE PROJECT.
6) CONTRACTOR SHALL MAINTAIN CONTINUITY TO EXISTING DEVICES REMAINING.
7) CONTRACTOR SHALL SUPPORT ALL EXISTING CONDUITS AND CABLES (ABOVE WORK AREAS) IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
8) ALL EXISTING ELECTRICAL IS NOT SHOWN.
9) FIRE STOP ALL NEW AND EXISTING PENETRATIONS OF FIRE RATED WALLS.
10) VERIFY EXISTING PHASE ROTATIONS AT ALL EXISTING EQUIPMENT PRIOR TO DISCONNECTING ANY LOADS. VERIFY PHASE ROTATION HAS NOT CHANGED PRIOR TO REENERGIZING ANY LOADS.
11) ALL CONNECTIONS TO EXTERIOR ENCLOSURES MADE AT OTHER THAN BOTTOM OF ENCLOSURE SHALL BE MADE WITH WEATHERPROOF MYERS HUBS.
12) PROVIDE PERMANENT LOCKOUT PROVISIONS THAT REMAIN IN PLACE FOR ALL BREAKERS FEEDING NEW OR REPLACED EQUIPMENT.

HEX NOTES

1. CONNECT TO EXISTING CIRCUIT FEEDING EMS PANELS IN BUILDING OR PROVIDE NEW.
2. CONNECT NEW VFD TO EXISTING CIRCUIT BREAKER THAT FED EXISTING VFD OR PROVIDE NEW.
3. REPLACE EXISTING RECEPTACLES WITHIN MECHANICAL ROOM WITH NEW GFCI DEVICES.
4. PROVIDE SURGE PROTECTION DEVICE FOR PANEL. REFER TO SPECIFICATIONS.



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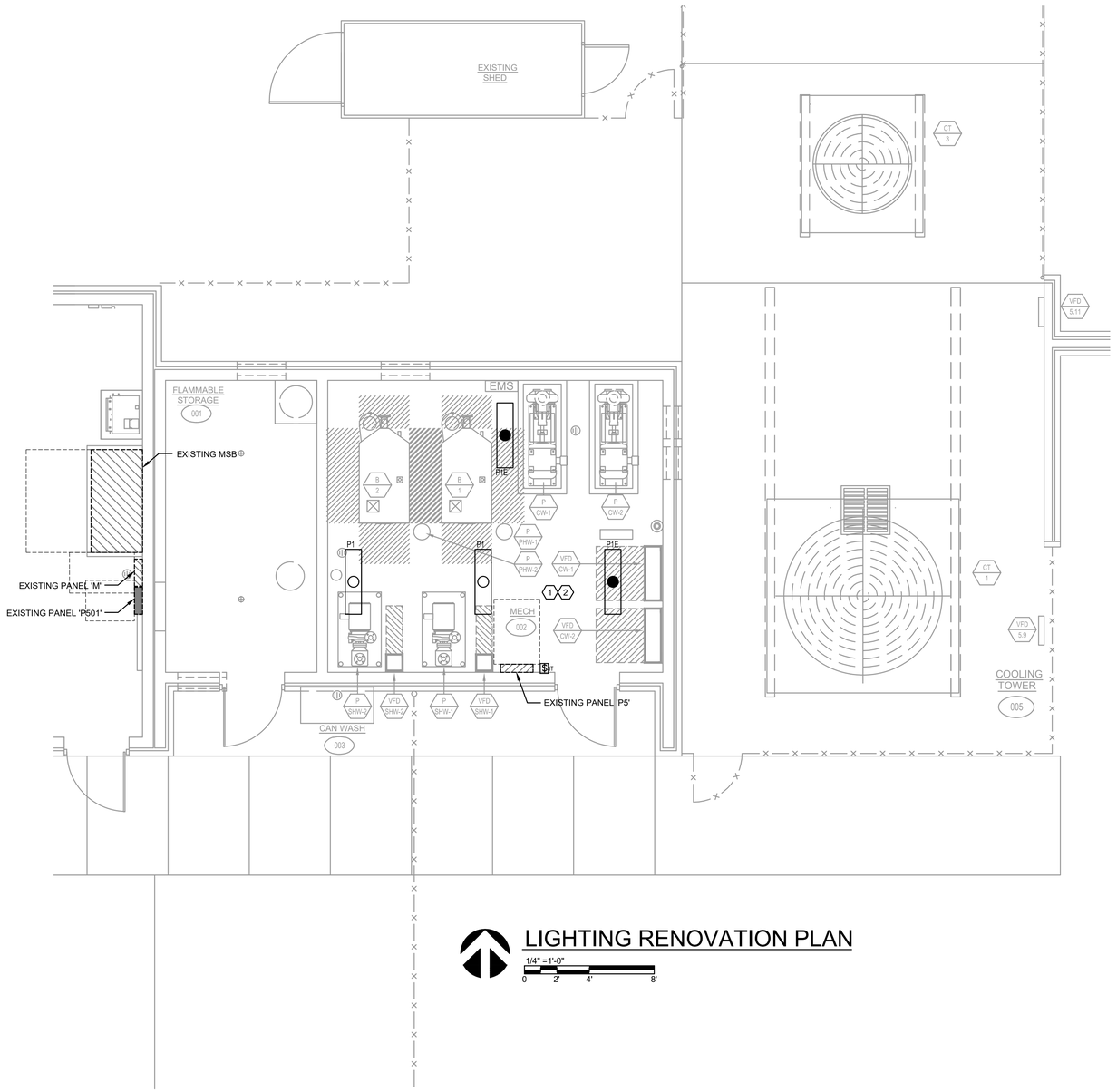
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SHEET TITLE
ELECTRICAL RENOVATION PLAN

DRAWING NO.
E101



LIGHTING RENOVATION PLAN

1/4" = 1'-0"

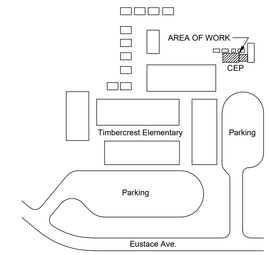
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GENERAL NOTES

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2) REMOVE EXISTING ELECTRICAL MADE OBSOLETE BY PROJECT.
3) WHERE CONDUIT ROUTING IS SHOWN, THE CONDUITS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND ARE NOT NECESSARILY REPRESENTATIVE OF EXACT PLACEMENT.
4) CONTRACTOR SHALL IDENTIFY ALL EXISTING CONDUITS, JUNCTION BOXES, ETC. (ABOVE WORK AREAS) IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
5) REWORK/RELOCATE EXISTING ELECTRICAL AS REQUIRED TO FACILITATE PROJECT.
6) CONTRACTOR SHALL MAINTAIN CONTINUITY TO EXISTING DEVICES REMAINING.
7) CONTRACTOR SHALL SUPPORT ALL EXISTING CONDUITS AND CABLES (ABOVE WORK AREAS) IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.
8) ALL EXISTING ELECTRICAL IS NOT SHOWN.
9) FIRE STOP ALL NEW AND EXISTING PENETRATIONS OF FIRE RATED WALLS.
10) VERIFY EXISTING PHASE ROTATIONS AT ALL EXISTING EQUIPMENT PRIOR TO DISCONNECTING ANY LOADS. VERIFY PHASE ROTATION HAS NOT CHANGED PRIOR TO REENERGIZING ANY LOADS.
11) ALL CONNECTIONS TO EXTERIOR ENCLOSURES MADE AT OTHER THAN BOTTOM OF ENCLOSURE SHALL BE MADE WITH WEATHERPROOF MYERS HUBS.
12) PROVIDE PERMANENT LOCKOUT PROVISIONS THAT REMAIN IN PLACE FOR ALL BREAKERS FEEDING NEW OR REPLACED EQUIPMENT.

HEX NOTES

1. CONNECT NEW LIGHTS TO SAME CIRCUIT BREAKER THAT FED ROOM PREVIOUSLY. PROVIDE NEW WIRE BACK TO EXISTING PANEL.
2. FIXTURE PLACEMENT SHOWN IS DIAGRAMMATIC. FIXTURE PLACEMENT SHALL BE COORDINATED WITH MECHANICAL EQUIPMENT, PIPING, AND DUCTWORK FOR OPTIMAL ILLUMINATION OF ENTIRE ROOM.



Keyplan
N.T.S.

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STATE OF FLORIDA CERTIFICATE NO. 9811
SEG PROJECT NO. 22011

REVISIONS

NO.	DATE	DESCRIPTION

DOCUMENT HISTORY

TIMBERCREST ELEMENTARY
UPGRADE BOILERS
VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Adrian W. Baus, P.E.

DESIGNED BY	DRAWN BY
AWB	MM/AWB
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
LIGHTING RENOVATION PLAN

DRAWING NO.
E102

CHILLER CH-1
HEAT TAPE

20 AMP 120V 1PH 2W
FED FROM
1L1-73 LOCATED IN
BUILDING 1 ROOM 01-142

BLACK LAMACOID WITH WHITE CORE

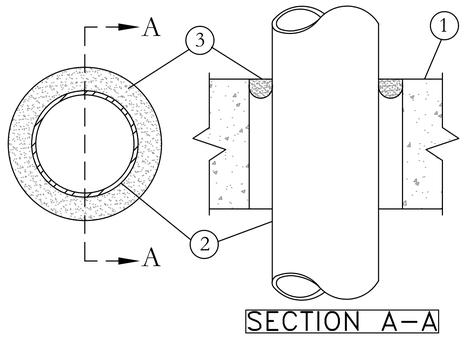
GENERAL NOTES:

1. EQUIPMENT NAMEPLATES SHALL BE PROVIDED FOR ALL PANELS, SWITCHES AND LOADS.
2. NAMEPLATES SHALL COMPLY WITH NEC REQUIREMENTS AND CLEARLY IDENTIFY THE LOAD SERVED, THE SOURCE AND THE LOCATION OF THE SOURCE.
3. NAMEPLATES SHALL BE COLOR CODED PER SPECIFICATIONS AND EXISTING BUILDING CONVENTIONS.

TYPICAL NAMEPLATE

N.T.S

SYSTEM NO C-AJ-1027
F RATING--3 HR
T RATING--0 HR



SECTION A–A

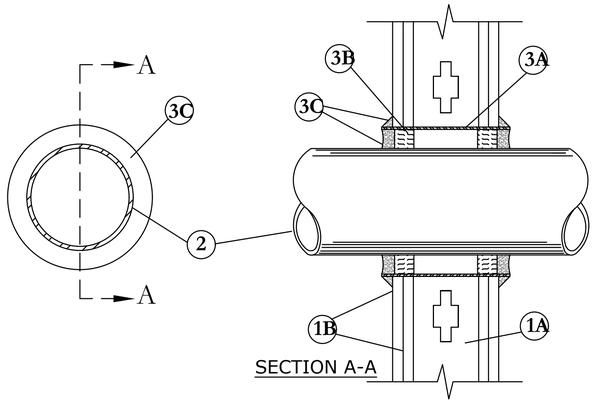
1. Floor or Wall Assembly - Min 4-1/2 in. thick lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of through opening is 12-1/4 in. See Concrete Blocks (CAZT) category in Fire Resistance Directory for names of manufacturers.
2. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Min annular space between pipe, conduit or tubing and edge of opening is 0 in. (point contact). Max annular space is dependent on pipe, conduit or tubing type and size as well as the F Rating of the system, as shown in the table below. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
A. Steel Pipe - Nom 10 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Conduit - Nom 6 in. diam (or smaller) rigid steel conduit.
C. Conduit - Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
D. Copper - Tubing Nom 3 in. diam (or smaller) Type L (or heavier) copper tubing.
E. Copper - Pipe Nom 3 in. diam (or smaller) Regular (or heavier) copper pipe.
F. Iron Pipe - Nom 10 in. diam (or smaller) cast or ductile iron pipe.

Pipe Conduit or Tubing Type	Max Nom Pipe Conduit or Tubing Diam In.	F Rating Hr	Max Annular Space In.
2-1/2	1/2-12	3	3/4
2-1/2	1/2-12	3	3/4
4-1/2	1/2-6	3	1-1/2
4-1/2	1/2-12	3	3/4
4-1/2	1/2-20	2	7/8

3. Fill,Void or Cavity Materials* - Putty - Moldable putty material kneaded by hand and applied to fill annular space to a min depth of 1 in., flush with top surface of floor. In wall assemblies, required putty thickness to be installed symmetrically on both sides of wall.
MINNESOTA MINING & MFG CO - MPS-2+
*Bearing the UL Classification Marking

PENETRATION FIRESTOP FOR 10" MAX. DIA.
METAL PIPE/CONDUIT THROUGH A CONCRETE WALL OR FLOOR
N.T.S. UL SYSTEM #202 (1 OR 2 HOUR RATING)

System No.W-L-1003
September 03, 2004
(Formerly System No. 147)
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr



SECTION A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-1/2 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
B. Gypsum Board* - Nom 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 15 in.
The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The space between pipes, conduits or tubing and the steel sleeve (Item 3A) shall be min of 0 in. (point contact) to max 2-3/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe - Nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
C. Conduit - Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing.
D. Copper Tubing - Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
E. Copper Pipe - Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Firestop System - Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows.

A. Steel Sleeve - Cylindrical sleeve fabricated from min 0.019 in. thick (No. 28 gauge) galv sheet steel and having a min 2 in. lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall plus 1 to 4 in. such that, when installed, the ends of the sleeve will project approximately 1/2 to 2 in. beyond the surface of the wall on both sides of the wall assembly. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the openings and releasing the coil to let it uncoil against the circular cutouts in the gypsum wallboard layers.
B. Packing Material - Min 1 in. thickness of mineral wool batt insulation firmly packed into steel sleeve on both sides of the wall assembly as permanent forms. Packing material to be recessed min 1/2 in. from end of steel sleeve (flush with or recessed into gypsum wallboard surface) on both sides of wall assembly.
B1. Packing Material - (Not shown) - As an alternate to Item B, nom 1 in. thick polyethylene backer rod may be used. The backer rod is to be recessed within the steel sleeve a min of 1 in. from each surface of wall.
C. Fill,Void or Cavity Materials* - Caulk or Sealant - When mineral wool batt insulation is used, applied to fill the steel sleeve to a min depth of 1/2 in. on both sides of wall assembly. When backer rod is used, a min thickness of 1 in. of CP-25WB+ caulk is required flush with surface of wall. A nom 1/4 in. diam continuous bead of caulk or sealant shall be applied around the circumference of the steel sleeve at its egress from the gypsum wallboard layers on both sides of the wall assembly.

3M COMPANY - CP 25WB+ caulk or FB-3000 WT sealant.

*Bearing the UL Classification Marking

PENETRATION FIRESTOP FOR 12" MAX. DIA. METAL
PIPE/CONDUIT THROUGH GYPSUM WALLBOARD ASSEMBLY
N.T.S. UL SYSTEM #147A (1 OR 2 HOUR RATING) FIREST5

NOTES FOR FIRE STOPPING DETAILS (NEC & UL)

1) FIRE STOPPING DETAILS ARE SHOWN FOR GENERAL INTENT. PROVIDE FIRE STOPPING ASSEMBLY SUITABLE FOR THE APPLICATION IN COMPLIANCE WITH FLORIDA BUILDING CODE AND U.L.

2) DETAILS ARE BASED ON 3M PRODUCTS AND THEIR RECOMMENDED USAGE/ DETAILS. SUBSTITUTED PRODUCTS SHALL BE SUBMITTED AS OUTLINED IN SPECIFICATIONS. U.L. FIRE STOPPING ASSEMBLY DETAILS SHALL BE INCLUDED WITH PRODUCT DATA FOR REVIEW PRIOR TO INSTALLATION.

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SEG PROJECT No. 22011

REVISIONS

NO.	DATE	DESCRIPTION

TIMBERCREST ELEMENTARY
UPGRADE BOILERS
VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Adrian W. Baus, P.E.

DESIGNED BY	DRAWN BY
AWB	MM/AWB
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
ELECTRICAL DETAILS

DRAWING NO.
E501

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VERSION: C14c REVISED: 02/19/25

VOLTS L/N: 277
VOLTS PH.: 480
PHASE : 3
MOUNTING : Surface
TYPE :
MFR : GE

PANEL : M (EXIST)
MLO(***) 225
MCB
SH.TRIP

LOCATI0N: CHILLER PLANT 05-006

EXISTING : YES
SECTIONS : 1
NEMA 3R :

GENERAL NOTES:
(1) ALL C.B.'S FEEDING HVAC EQUIPMENT TO BE HACR TYPE.
(2) ALL C.B.'S FEEDING ELEV EQUIP TO BE SHUNT-TRIP TYPE.
(3) ALL C.B.'S FEEDING ELEV EQUIP TO BE SIZED AS REQ'D BY MFR.
(4) ALL C.B.'S FEEDING HID LTG TO BE HID RATED.
(5) NO MULTIWIRE BRANCH CKTS ARE ALLOWED
(6) NOT USED.

<----------AIC RATING----------->

SERIES RATED		KA(*)
FULLY RATED	65	KA

(*) NOTE: MAY REQUIRE FULL RATING TO ACHIEVE

NOTES AND REFERENCE NOTES:

MFR = SIZE CB PER MFR. RECOMMENDATIONS.
$ = NEW CB IN EXIST SPACE
& = REPLACE EXIST CB WITH NEW
SH = SHUNT TRIP C.B.
AF = ARC FAULT CB
G1 GFCI CB
G2 GFPE CB

TOTAL AMPS A PH 113
TOTAL AMPS B PH 113
TOTAL AMPS C PH 113
INFO CODE:

(***) NOTE: SIZE SHOWN IS MINIMUM ACCEPTABLE MLO AMPERAGE. INCREASE SIZE IF REQUIRED TO ACHIEVE QUANTITY OF POLES OR BREAKER SIZE/AIC RATING AS CALLED FOR IN SCHEDULE.

OPTIONAL CALC	NO		
CONNECTED LOAD	94	KVA	113 AMPS
DEMAND	94	KVA	113 AMPS
DIVERSITY	94	KVA	113 AMPS
TRANSFORMER SIZE		KVA	

SECTION 1 WITH MAINS — WIDTH: 20 DEPTH: 5.75

LOAD DESCRIPTION	CONN	TYPE	AMPS	AMPS	AMPS	C.B. AMPS	C.B. POLE	REF NOTE	CKT. NO.	CKT. NO.	REF NOTE	C.B. POLE	C.B. AMPS	AMPS	AMPS	AMPS	LOAD DESCRIPTION	CONN	TYPE
SPACE							3		1	2		3					SPACE		
---------						---------	---------		3	4		---------	---------				---------		
---------						---------	---------		5	6		---------	---------				---------		
SPACE							3		7	8		3					SPACE		
---------						---------	---------		9	10		---------	---------				---------		
---------						---------	---------		11	12		---------	---------				---------		
SPACE							3		13	14		3					SPACE		
---------						---------	---------		15	16		---------	---------				---------		
---------						---------	---------		17	18		---------	---------				---------		
SPACE							3		19	20		3					SPACE		
---------						---------	---------		21	22		---------	---------				---------		
---------						---------	---------		23	24		---------	---------				---------		
EXHAUST FAN	3	9.0	3			15	3		25	26		3	15	3			EXHAUST FAN	3	9.0
---------	3	9.0		3		---------	---------		27	28		---------	---------			3	---------	3	9.0
---------	3	9.0			3	---------	---------		29	30		---------	---------			3	---------	3	9.0
AC #5	2	10.0	2			15	3		31	32		3	20				SPARE		0.2
---------	2	10.0		2		---------	---------		33	34		---------	---------				---------		0.2
---------	2	10.0			2	---------	---------		35	36		---------	---------				---------		0.2
COOLING TOWER CT-1	52	13.1	52			90	3		37	38		3	90	52			COOLING TOWER CT-2	52	13.1
---------	52	13.1		52		---------	---------		39	40		---------	---------		52		---------	52	13.1
---------	52	13.1			52	---------	---------		41	42		---------	---------			52	---------	52	13.1

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VERSION: C14c REVISED: 02/19/25

VOLTS L/N: 277
VOLTS PH.: 480
PHASE : 3
MOUNTING : Surface
TYPE :
MFR : GE

PANEL : M (EXIST-REVISED)
MLO(***) 225
MCB
SH.TRIP

LOCATI0N: CHILLER PLANT 05-006

EXISTING : YES
SECTIONS : 1
NEMA 3R :

GENERAL NOTES:
(1) ALL C.B.'S FEEDING HVAC EQUIPMENT TO BE HACR TYPE.
(2) ALL C.B.'S FEEDING ELEV EQUIP TO BE SHUNT-TRIP TYPE.
(3) ALL C.B.'S FEEDING ELEV EQUIP TO BE SIZED AS REQ'D BY MFR.
(4) ALL C.B.'S FEEDING HID LTG TO BE HID RATED.
(5) NO MULTIWIRE BRANCH CKTS ARE ALLOWED
(6) NOT USED.

<----------AIC RATING----------->

SERIES RATED		KA(*)
FULLY RATED	65	KA

(*) NOTE: MAY REQUIRE FULL RATING TO ACHIEVE

NOTES AND REFERENCE NOTES:

MFR = SIZE CB PER MFR. RECOMMENDATIONS.
$ = NEW CB IN EXIST SPACE
& = REPLACE EXIST CB WITH NEW
SH = SHUNT TRIP C.B.
AF = ARC FAULT CB
G1 GFCI CB
G2 GFPE CB

TOTAL AMPS A PH 119
TOTAL AMPS B PH 119
TOTAL AMPS C PH 119
INFO CODE:

(***) NOTE: SIZE SHOWN IS MINIMUM ACCEPTABLE MLO AMPERAGE. INCREASE SIZE IF REQUIRED TO ACHIEVE QUANTITY OF POLES OR BREAKER SIZE/AIC RATING AS CALLED FOR IN SCHEDULE.

OPTIONAL CALC	NO		
CONNECTED LOAD	99	KVA	119 AMPS
DEMAND	99	KVA	119 AMPS
DIVERSITY	99	KVA	119 AMPS
TRANSFORMER SIZE		KVA	

SECTION 1 WITH MAINS — WIDTH: 20 DEPTH: 5.75

LOAD DESCRIPTION	CONN	TYPE	AMPS	AMPS	AMPS	C.B. AMPS	C.B. POLE	REF NOTE	CKT. NO.	CKT. NO.	REF NOTE	C.B. POLE	C.B. AMPS	AMPS	AMPS	AMPS	LOAD DESCRIPTION	CONN	TYPE
SPACE							3		1	2	$	3	30				SURGE PROTECTION		
---------						---------	---------		3	4		---------	---------				---------		
---------						---------	---------		5	6		---------	---------				---------		
SPACE							3		7	8		3					SPACE		
---------						---------	---------		9	10		---------	---------				---------		
---------						---------	---------		11	12		---------	---------				---------		
SPACE							3		13	14		3					SPACE		
---------						---------	---------		15	16		---------	---------				---------		
---------						---------	---------		17	18		---------	---------				---------		
PUMP P-PWH-1	3	8.0	3			15	3	$	19	20	$	3	15	3			PUMP P-PWH-2	3	8.0
---------	3	8.0		3		---------	---------		21	22		---------	---------		3		---------	3	8.0
---------	3	8.0			3	---------	---------		23	24		---------	---------			3	---------	3	8.0
EXHAUST FAN	3	9.0	3			15	3		25	26		3	15	3			EXHAUST FAN	3	9.0
---------	3	9.0		3		---------	---------		27	28		---------	---------		3		---------	3	9.0
---------	3	9.0			3	---------	---------		29	30		---------	---------			3	---------	3	9.0
AC #5	2	10.0	2			15	3		31	32		3	20				SPARE		0.2
---------	2	10.0		2		---------	---------		33	34		---------	---------				---------		0.2
---------	2	10.0			2	---------	---------		35	36		---------	---------				---------		0.2
COOLING TOWER CT-1	52	13.1	52			90	3		37	38		3	90	52			COOLING TOWER CT-2	52	13.1
---------	52	13.1		52		---------	---------		39	40		---------	---------		52		---------	52	13.1
---------	52	13.1			52	---------	---------		41	42		---------	---------			52	---------	52	13.1

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VERSION: C14c REVISED: 02/19/25

VOLTS L/N: 120
VOLTS PH.: 208
PHASE : 3
MOUNTING : Surface
TYPE :
MFR : GE

PANEL : P501 (EXIST)
MLO(***)
MCB 60
SH.TRIP

LOCATI0N: CHILLER PLANT 05-006

EXISTING : YES
SECTIONS : 1
NEMA 3R :

GENERAL NOTES:
(1) ALL C.B.'S FEEDING HVAC EQUIPMENT TO BE HACR TYPE.
(2) ALL C.B.'S FEEDING ELEV EQUIP TO BE SHUNT-TRIP TYPE.
(3) ALL C.B.'S FEEDING ELEV EQUIP TO BE SIZED AS REQ'D BY MFR.
(4) ALL C.B.'S FEEDING HID LTG TO BE HID RATED.
(5) NO MULTIWIRE BRANCH CKTS ARE ALLOWED
(6) NOT USED.

<----------AIC RATING----------->

SERIES RATED		KA(*)
FULLY RATED	10	KA

(*) NOTE: MAY REQUIRE FULL RATING TO ACHIEVE

NOTES AND REFERENCE NOTES:

MFR = SIZE CB PER MFR. RECOMMENDATIONS.
$ = NEW CB IN EXIST SPACE
& = REPLACE EXIST CB WITH NEW
SH = SHUNT TRIP C.B.
AF = ARC FAULT CB
G1 GFCI CB
G2 GFPE CB

TOTAL AMPS A PH 32
TOTAL AMPS B PH 35
TOTAL AMPS C PH 45
INFO CODE:

(***) NOTE: SIZE SHOWN IS MINIMUM ACCEPTABLE MLO AMPERAGE. INCREASE SIZE IF REQUIRED TO ACHIEVE QUANTITY OF POLES OR BREAKER SIZE/AIC RATING AS CALLED FOR IN SCHEDULE.

OPTIONAL CALC	NO		
CONNECTED LOAD	31	KVA	37 AMPS
DEMAND	31	KVA	37 AMPS
DIVERSITY	31	KVA	37 AMPS
TRANSFORMER SIZE		KVA	

SECTION 1 WITH MAINS — WIDTH: 20 DEPTH: 5.75

LOAD DESCRIPTION	CONN	TYPE	AMPS	AMPS	AMPS	C.B. AMPS	C.B. POLE	REF NOTE	CKT. NO.	CKT. NO.	REF NOTE	C.B. POLE	C.B. AMPS	AMPS	AMPS	AMPS	LOAD DESCRIPTION	CONN	TYPE
BOILER 1 CONTROL POWER	8	5.0	8			20	1		1	2		3	60				MAIN		0.2
PUMP ROOM GFI/FLAMABLE RM 3	6	4.0		4		20	1		3	4		---------	---------				---------		0.2
COOLING TOWER LIGHTS	7	2.0			7	20	1		5	6		---------	---------				-----		0.2
BOILER 2 CONTROL POWER	8	5.0	8			20	1		7	8		1	20	7			BAS CABINETS AND SNIFFER	7	5.0
BOILER 1 PUMP	8,8	5.0		8,8		20	1		9	10		1	20		4		PLANT GFCI'S	6	4.0
BOILER 2 PUMP	9	5.0			9	20	1		11	12		1	20			7	STARTER CONTROLS AND SBC	7	5.0
ABC CONTROLS	7	5.0	7			20	1		13	14		1	20	1			SHUNT TRIP POWER	1	5.0
ABC CONTROLS	7	5.0		7		20	1		15	16		2	30		20		30 AMP TWIST LOCK	20	5.0
EXTERIOR RECEPTS	4	4.0			3	20	1		17	18		---------	---------			20	---------	20	5.0
SPACE							1		19	20		1					SPACE		
SPACE							1		21	22		1					SPACE		
SPACE							1		23	24		1					SPACE		
SPACE							1		25	26		1					SPACE		
SPACE							1		27	28		1					SPACE		
SPACE							1		29	30		1					SPACE		

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VERSION: C14c REVISED: 02/19/25

VOLTS L/N: 120
VOLTS PH.: 208
PHASE : 3
MOUNTING : Surface
TYPE :
MFR : GE

PANEL : P501 (EXIST-REVISED)
MLO(***) 100
MCB
SH.TRIP

LOCATI0N: CHILLER PLANT 05-006

EXISTING : YES
SECTIONS : 1
NEMA 3R :

GENERAL NOTES:
(1) ALL C.B.'S FEEDING HVAC EQUIPMENT TO BE HACR TYPE.
(2) ALL C.B.'S FEEDING ELEV EQUIP TO BE SHUNT-TRIP TYPE.
(3) ALL C.B.'S FEEDING ELEV EQUIP TO BE SIZED AS REQ'D BY MFR.
(4) ALL C.B.'S FEEDING HID LTG TO BE HID RATED.
(5) NO MULTIWIRE BRANCH CKTS ARE ALLOWED
(6) NOT USED.

<----------AIC RATING----------->

SERIES RATED		KA(*)
FULLY RATED	10	KA

(*) NOTE: MAY REQUIRE FULL RATING TO ACHIEVE

NOTES AND REFERENCE NOTES:

MFR = SIZE CB PER MFR. RECOMMENDATIONS.
$ = NEW CB IN EXIST SPACE
& = REPLACE EXIST CB WITH NEW
SH = SHUNT TRIP C.B.
AF = ARC FAULT CB
G1 GFCI CB
G2 GFPE CB

TOTAL AMPS A PH 25
TOTAL AMPS B PH 45
TOTAL AMPS C PH 46
INFO CODE:

(***) NOTE: SIZE SHOWN IS MINIMUM ACCEPTABLE MLO AMPERAGE. INCREASE SIZE IF REQUIRED TO ACHIEVE QUANTITY OF POLES OR BREAKER SIZE/AIC RATING AS CALLED FOR IN SCHEDULE.

OPTIONAL CALC	NO		
CONNECTED LOAD	32	KVA	39 AMPS
DEMAND	32	KVA	39 AMPS
DIVERSITY	32	KVA	39 AMPS
TRANSFORMER SIZE		KVA	

SECTION 1 WITH MAINS — WIDTH: 20 DEPTH: 5.75

LOAD DESCRIPTION	CONN	TYPE	AMPS	AMPS	AMPS	C.B. AMPS	C.B. POLE	REF NOTE	CKT. NO.	CKT. NO.	REF NOTE	C.B. POLE	C.B. AMPS	AMPS	AMPS	AMPS	LOAD DESCRIPTION	CONN	TYPE
SPARE		0.2				20	1		1	2		3	60				MAIN		0.2
PUMP ROOM GFI/FLAMABLE RM 3	6	4.0		4		20	1		3	4		---------	---------				---------		0.2
COOLING TOWER LIGHTS	7	2.0			7	20	1		5	6		-----	-----				-----		0.2
SPARE		0.2				20	1		7	8		1	20	7			BAS CABINETS AND SNIFFER	7	5.0
SPARE		0.2				20	1		9	10		1	20		4		PLANT GFCI'S	6	4.0
SPARE		0.2				20	1		11	12		1	20			7	STARTER CONTROLS AND SBC	7	5.0
ABC CONTROLS	7	5.0	7			20	1		13	14		1	20	1			SHUNT TRIP POWER	1	5.0
ABC CONTROLS	7	5.0		7		20	1		15	16		2	30		20		30 AMP TWIST LOCK	20	5.0
EXTERIOR RECEPTS	4	4.0			3	20	1		17	18		---------	---------			20	---------	20	5.0
BOILER B-1	5	5.0	5			15	3	$	19	20		1					SPACE		
---------	5	5.0		5		---------	---------		21	22		1					SPACE		
---------	5	5.0			5	---------	---------		23	24		1					SPACE		
BOILER B-2	5	5.0	5			15	3	$	25	26	$	3	30				SURGE PROTECTION		0.2
---------	5	5.0		5		---------	---------		27	28		---------	---------				---------		0.2
---------	5	5.0			5	---------	---------		29	30		---------	---------				---------		0.2

TYPE WRITTEN PANEL DIRECTORIES SHALL BE PROVIDED FOR EACH PANEL AS REQUIRED BY THE 2020 NEC. DIRECTORIES SHALL IDENTIFY LOAD AND THE ROOM(S) WHERE LOADS ARE LOCATED IN SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. ROOM NUMBERS SHALL BE ACTUAL ROOM NUMBERS USED FOR ROOM SIGNAGE.

SCHEDULE KEY

M (EXIST)	M (EXIST-REVISED)
P501 (EXIST)	P501 (EXIST-REVISED)

MATERN
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STATE OF FLORIDA CERTIFICATE No. 9811
SEG PROJECT NO. 22011

REVISIONS

NO.	DATE	DESCRIPTION

TIMBERCREST ELEMENTARY
UPGRADE BOILERS
VCS Project NO. 2648255
2401 EUSTACE AVE, DELTONA, FL 32725

ARCH/ENGR OF RECORD
Engineer
Adrian W. Baus, P.E.

DESIGNED BY	DRAWN BY
AWB	MM/AWB
ISSUE DATE	AE PROJECT NUMBER
9/15/2026	SEG No. 25010

SHEET TITLE
ELECTRICAL SCHEDULES

DRAWING NO.
E601

MECHANICAL EQUIPMENT FEEDER SCHEDULE FOR:: TIMBERCREST ELEMENTARY UPGRADE BOILERS

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REVISED: May 5, 2026

DATE: September 15, 2026

EQUIPMENT DESCRIPTION	VOLTS	PH	NEUTRAL Y/N	LARGEST MOTOR			COMPRESSOR		ADD'L MOTORS		HEAT STRIPS		MISC AMPS	TOTAL FLA	MCA (10)	MOCP (10)	VFD IRC	PANEL CB (5)	DISCONNECT SWITCH				STARTER		WIRE PER PHASE (6)	NEUTRAL WIRE (7)	GROUND WIRE	WIRE MATERIAL	# OF RUNS	CONDUIT SIZE	% VD	NOTES (SEE BELOW)
				HP	FLA	LRA	FLA(11)	LRA	FLA	LRA	KW	AMPS							CODE	SIZE (1)	FUSE (2)	TYPE (3)	CODE	TYPE								
BOILER B-1	208	3	N										5	5	5.6	15		15	2	30	6				#12		#12	COPPER	1	0.75	0.71	
BOILER B-2	208	3	N										5	5	5.6	15		15	2	30	6.3				#12		#12	COPPER	1	0.75	0.71	
PUMP P-CW-1 VFD/AFD	480	3	N	125.00	156.0	908.0								156			156.0	350							#3/0		#3	COPPER	1	2.00	0.53	C
PUMP P-CW-2 VFD/AFD	480	3	N	125.00	156.0	908.0								156			156.0	350							#3/0		#3	COPPER	1	2.00	0.53	C
PUMP P-SHW-1 VFD/AFD	480	3	N	40.00	52.0	290.0								52		125	52.0	125							#6		#6	COPPER	1	0.75	0.84	C
PUMP P-SHW-2 VFD/AFD	480	3	N	40.00	52.0	290.0								52		125	52.0	125							#6		#6	COPPER	1	0.75	0.84	C
PUMP P-PHW-1	480	3	N	1.50	3.0	20.0								3				15							#12		#12	COPPER	1	0.75	0.19	D
PUMP P-PHW-2	480	3	N	1.50	3.0	20.0								3				15							#12		#12	COPPER	1	0.75	0.19	D

NOTES ( )

(1) PROVIDE DISC SW AT ALL PIECES OF EQUIPMENT AS REQUIRED BY THE N.E.C. AND AHJ UNLESS PROVIDED BY OTHERS (INCLUDING AT MOTORS AND AT STARTERS).

(2) FUSES SHOWN FOR REFERENCE ONLY, PROVIDE FUSES AS RECOMMENDED BY EQUIPMENT MANUFACTURER.

(3) PROVIDE NEMA OUTDOOR RATED ENCLOSURES FOR ALL DISC SWS MOUNTED OUTDOORS.

(4) COORDINATE STARTER TYPE WITH MECH EQUIP INSTALLER .

(5) CONTRACTOR TO VERIFY THAT C.B. FOR COMPRESSORS IS SUFFICIENT TO ALLOW STARTING OF UNIT, IF REQUIRED FOR STARTING, C.B. TO BE INCREASED TO MAX ALLOWED BY NEC. CB TO BE HACR RATED.

(6) #12 FEEDERS SHOWN AND OVER 50FT. LONG TO BE #10 FOR 120V CIRCUITS. #12 FEEDERS SHOWN AND OVER 100 FT. LONG TO BE #10 FOR 277 V CIRCUITS.

(7) NEUTRAL CONDUCTOR TO BE SAME SIZE AS PHASE CONDUCTORS.

(8) MOTOR CB IS SIZED BASED ON NEMA CODE 'F' OR HIGHER. CHANGE CB SIZE IF REQUIRED DUE TO NEMA CODE OF MOTOR PER N.E.C.

(9) NOT USED

(10) BASED ON MANUFACTURER'S RECOMMENDATION.

MCP = MOTOR CIRCUIT PROTECTOR W/COMBINATION STARTER

I = NEMA I ENCLOSURE

3R = NEMA 3R ENCLOSURE

4SS = NEMA 4 WATER TIGHT STAINLESS STEEL ENCLOSURE

4 = NEMA 4 WATER TIGHT NON-CORROSIVE ENCLOSURE

MMS = MANUAL MOTOR STARTER SWITCH, 16 AMP MAX, WITH OVERLOADS AND PILOT LIGHT, 1 HP RATED. 120V, 240V, 277V RATED (SIMILAR TO SQ D TYPE FG SERIES).

MS = MANUAL SWITCH (NO OVERLOADS), 20/30 AMP, 1HP UP TO 7.5HP, 5KA SCCR RATED. (SIMILAR TO P&S 20AC1/2 AND 7803MD SERIES) . 120V, 277V, 240V, 480V WHERE CALLED FOR.

VFD/AFD = VARIABLE (ADJUSTABLE-AFD) FREQ DRIVE UNIT

NF = NON-FUSED.

AHJ = AUTHORITY HAVING JURISDICTION.

FNVR = FULL VOLTAGE NON-REVERSING

DFNVR = DUAL VOLTAGE NON-REVERSING

FVC = FULL VOLTAGE CONTACTOR

NOTES:

(A)=CONNECT VIA LINE VOLTAGE T'STAT BY DIV. 23 CONTRACTOR.

(B)=CONNECT VIA CONTROL DEVICES BY DIV. 23 CONTRACTOR.

(C)=CONNECT MOTOR(S) VIA VFD/AFD WITH INTEGRAL DISC. SW.

(D)=CONNECT VIA COMBINATION DISC/STARTER BY DIV. 23 CONTRACTOR.

(E)=CONNECT VIA DISC SWITCH AT EQUIP. BY DIV. 23 CONTRACTOR.

(F)=PROVIDE FULL SIZE NEUTRAL.

(G)=MMS WITHOUT OVERLOADS.

(H)=CONNECT VIA STARTER IN MCC (BY DIV 26).

(I)=2 SPEED,1 WINDING MOTOR/STARTER.

(J)=COORDINATE WITH DIV.23 TO BALANCE LOAD OF 1 PHASE FTB MOTORS.

(K)=PROVIDE NEW STARTER IN MCC TO MATCH EXISTING. SEE MCC SCHED.

(L)=WHERE MOTOR IS FED FROM MCC, PANEL CB NOT REQUIRED.

(M)=CONNECT EXIST DISC SWITCH AT MOTOR. MODIFY AS NOTED ON DRWGS.

(N)= PROVIDE SHUNT TRIP OPERATED CIRCUIT BREAKER FOR ELEVATOR MOTORS.

(O)=

(P)=

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E602

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