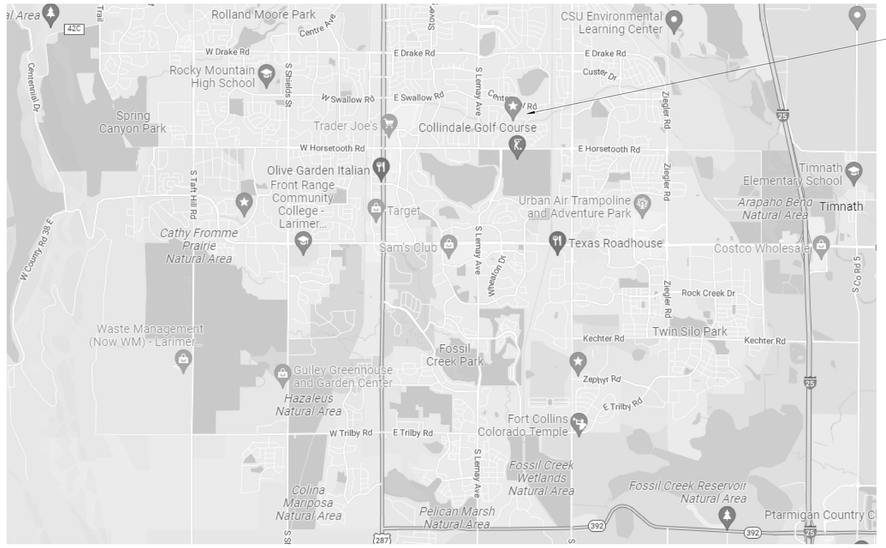
POUDRE SCHOOL DISTRICT - BOILER REPLACEMENT

Shepardson Elementary School

1501 Springwood Dr, Fort Collins, CO 80525



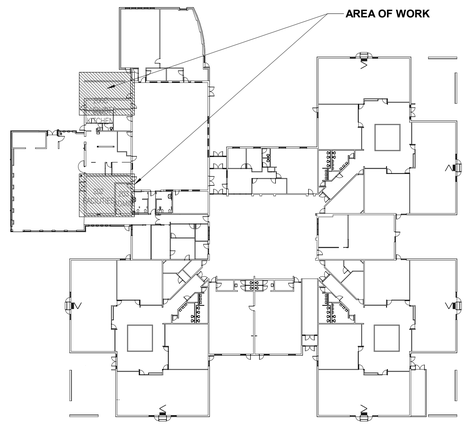
NORTH

1 VICINITY MAP
SCALE: NO SCALE

OWNER	CONSULTANTS	PROJECT INFORMATION
POUDRE SCHOOL DISTRICT 2445 LAPORTE AVE. FORT COLLINS, CO 80521 CONTACT: JASON LEE PSD - PROJECT COORDINATOR PHONE (970) 222-9795 EMAIL jlee@psdschools.org	MECHANICAL & ELECTRICAL ENGINEERS IMEG CORP 7600 EAST ORCHARD ROAD, SUITE 250S GREENWOOD VILLAGE, COLORADO 80111 CONTACT: BRIAN EAGLETON PHONE (303) 796-6019 CELL (303) 720-4829	PROJECT LOCATION: FORT COLLINS, COLORADO PROJECT ALTITUDE: 5003 FEET ABOVE SEA LEVEL

APPLICABLE CODES	
CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.	
BUILDING CODE:	IBC 2021 EDITION
FIRE CODE:	IFC 2021 EDITION
PLUMBING CODE:	IPC 2018 EDITION
MECHANICAL CODE:	IMC 2021 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2020 EDITION
ENERGY CONSERVATION CODE:	IECC 2021

SHEET LIST



1 KEYPLAN
NO SCALE

POUDRE SCHOOL DISTRICT

PSD - Shepardson ES
Boiler Replacement

Fort Collins, CO

IMEG

7600 E. ORCHARD ROAD, SUITE 250-S
GREENWOOD VILLAGE, CO
80111-2539

PH: 303.796.6000
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PROFESSIONAL SEAL

COLORADO LICENSED
BRIAN EAGLETON
43928
3/15/22
PROFESSIONAL ENGINEER

AGENCY APPROVAL

DISCLAIMER

0 1 REF. SCALE IN INCHES 2 3

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**100% CONSTRUCTION DOCUMENTS**
Date	**03.15.2022**
Job Number	**22000573.00**
Drawn	**BRE**
Checked	**RCW**
Approved	**BRE**

SHEET TITLE

COVERSHEET

SCALE

Scale: **As indicated**

SHEET NUMBER

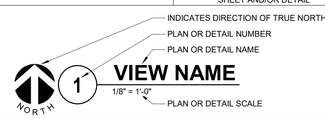
G0.0

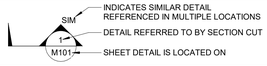
22000573.00 3/15/2022 11:29:08 AM PSD - Shepardson ES Boiler Replacement

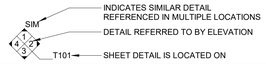
VIEW KEY

NAME
10' - 0"
LEVEL NAME
HEIGHT ABOVE PROJECT 0' - 0"

1
INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED. SPECIFIC TO THE SHEET AND/OR DETAIL







LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

MECHANICAL ABBREVIATION KEY

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BT	BATHTUB
C	COMMON
CB	CATCH BASIN
CD-E	CEILING DIFFUSER - EXISTING
CFSD	CONTROL/FIRE/SMOKE DAMPER
CI	CAST IRON
CO	CLEANOUT
CS	CLINICAL SINK
DB	DIALYSIS BOX
DF	DRINKING FOUNTAIN
DI	DUCTILE IRON
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
E	EXISTING
EA	EXHAUST/RELIEF AIR
ECFSD	EXISTING CONTROL FIRE SMOKE DAMPER
EE	EMERGENCY EYEWASH
EFD	EXISTING FIRE DAMPER
EFSD	EXISTING FIRE SMOKE DAMPER
EP	ELECTRICAL TO PNEUMATIC VALVE
ES	EMERGENCY SHOWER
ESD	EXISTING SMOKE DAMPER
ESE	EMERGENCY SHOWER/EYEWASH
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER
FM	FLOW METER
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FS	FLOOR SINK
FSD	FIRE/SMOKE DAMPER
GD	GARBAGE DISPOSER
GI	GREASE INTERCEPTOR
HB	HOSE BIBB
I.E.	INVERT ELEVATION (FOR REFERENCE ONLY)
LAV	LAVATORY
MA	MIXED AIR
MB	MOP BASIN
MH	MANHOLE
MV	MIXING VALVE
NC	NEW CONNECTION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NT	NEUTRALIZATION TANK
OA	OUTSIDE AIR
OS	OIL SEPARATOR
PS	PRESSURE SWITCH
RA	RETURN AIR
RD	ROOF DRAIN
SA	SUPPLY AIR
SD	SMOKE DAMPER
SH	SHOWER
SK	SINK
SS	SERVICE SINK
TAB	TERMINAL AIR BOX
TD	TRANSFER DUCT
TP	TRAP PRIMER
TYP	TYPICAL
UB	UTILITY BOX
UC-1	DOOR UNDERCUT BY OTHERS (1" TYPICAL)
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WH	WATER HEATER
WMF	WASHING MACHINE FIXTURE
WM	WATER METER
WS	WATER SOFTENER
YCO	YARD CLEANOUT

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
AV	ACID VENT
AW	ACID WASTE
CA	COMPRESSED AIR
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CW	COLD WATER - POTABLE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN - PLUMBING
FP	FIRE PROTECTION
G	NATURAL GAS
GRV	GAS REGULATOR VENT
GRV	GAS VENT
GSAN	SANITARY DRAINAGE (GREASE SANITARY DRAINAGE)
GV	GREASE VENT
HCR	HEATING/CHILLED WATER RETURN
HCS	HEATING/CHILLED WATER SUPPLY
HG	REFRIGERANT HOT GAS
HPC	HIGH PRESSURE CONDENSATE
HW	HOT WATER - POTABLE
HWC	HOT WATER CIRCULATING - POTABLE
HW140	HOT WATER - POTABLE NUMBER INDICATES TEMP
HWC140	HOT WATER CIRC. - POTABLE NUMBER INDICATES TEMP
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LIQ	REFRIGERANT LIQUID
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LWR	LOOP WATER RETURN
LWS	LOOP WATER SUPPLY
P	PROPANE GAS
PC	PUMPED CONDENSATE
PD	PUMPED DISCHARGE
RO	REVERSE OSMOSIS WATER
SAN	SANITARY DRAINAGE
ST(1,000)	STORM DRAINAGE (ROOF SQUARE FOOTAGE)
STS	STORM DRAINAGE (SECONDARY)
STW	SOFT TEMPERED WATER
SUC	REFRIGERANT SUCTION
SV	SAFETY RELIEF VENT
TW	TEMPERED WATER
V	VENT
W	SERVICE WATER - POTABLE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
FD	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
RD-1 6"(1000)	ROOF DRAIN PROPERTIES SYMBOL / SIZE (ROOF SQ. FT.)
	NEW CONNECTION
	DIELECTRIC CONNECTION
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE (NUMBER INDICATES GPM)
	AUTOMATIC BALANCING VALVE
	MIXING VALVE
	CONTROL VALVE (THREE-WAY)
	CONTROL VALVE (TWO-WAY)
	SOLENOID VALVE
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	PRESSURE REDUCING VALVE (STEAM)
	TRIPLE DUTY VALVE (ANGLE TYPE)
	TRIPLE DUTY VALVE (IN-LINE TYPE)
	PUMP
	VACUUM BREAKER
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
	AUTOMATIC DRAIN VALVE
	AIR PRESSURE MAINTENANCE DEVICE
	AIR SUPERVISORY SWITCH
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	INSPECTOR TEST AND DRAIN VALVE
	OS&Y GATE VALVE
	OS&Y GATE VALVE WITH MONITOR SWITCH
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	BASKET STRAINER
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
	SUCTION DIFFUSER WITH SUPPORT FOOT
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	DRAIN VALVE WITH HOSE CONNECTION AND CAP
T T-*	STEAM TRAP (REFER TO SCHEDULE)
T-*	F&T STEAM TRAP (REFER TO SCHEDULE)
T-*	INVERTED BUCKET STEAM TRAP (REFER TO SCHEDULE)
	ALIGNMENT GUIDE
	PIPE ANCHOR

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
	EXPANSION JOINT
M	METER
	VALVE BOX
	MEDICAL GAS OUTLET (MGO)
	ALARM PANEL
	HEADWALL
A	SINGLE GAS OUTLET (AIR)
O	SINGLE GAS OUTLET (OXYGEN)
V	SINGLE GAS OUTLET (VACUUM)
	NITROGEN PRESSURE CONTROL CABINET
	PRESSURE TRANSDUCER WITH ALARM WIRING
NO HATCH	LIGHT HAZARD
	ORDINARY GROUP 1
	ORDINARY GROUP 2
	DEMOLITION
	EXTRA GROUP 1
	EXTRA GROUP 2
	SPRINKLER - WALL MOUNTED
	SPRINKLER
	SPRINKLER - CONCEALED
	SPRINKLER
	SPRINKLER
	SPRINKLER
A	SPRINKLER
A	SPRINKLER
	DIRECTION OF AIR FLOW
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
R	RISE IN DIRECTION OF AIR FLOW
D	DROP IN DIRECTION OF AIR FLOW
	DUCT CAP
	DUCT DOWN
	DUCT UP
	SUPPLY/OUTSIDE AIR DUCT SECTION
	RETURN AIR DUCT SECTION
	EXHAUST/RELIEF AIR DUCT SECTION
	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION
CD-1 6/115	AIR TERMINAL PROPERTIES SYMBOL / NECK SIZE/CFM
###	TERMINAL AIR BOX (REFER TO SCHEDULE)
###	TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
	SERIES FAN POWERED TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
	PARALLEL FAN POWERED TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
H	HUMIDIFIER
	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)
	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)
XX-Y	AIRFLOW MEASUREMENT SYMBOL XX - AHU SYMBOL Y - SEQUENTIAL NUMBER
ACT	ACTUATOR
DS	DOOR SWITCH
DP	DIFFERENTIAL PRESSURE SWITCH
CS	CURRENT SWITCH
VS	VIBRATION SWITCH
FM	FLOW METER
	FAN
MTR	MOTOR
R	CONTACTOR
	NORMALL CLOSED CONTACT
	NORMALLY OPEN CONTACT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
FM	FLOW METER
F	FLOW SWITCH
FS	FLOW SENSOR
FS	AIR FLOW SWITCH
FM	DUCT FLOW METER
P	PRESSURE SWITCH
	MONITOR SWITCH
P	PRESSURE SENSOR (FURNISHED WITH BALL VALVE)
(P)	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	DIFFERENTIAL PRESSURE SENSOR
P	PRESSURE SENSOR (DUCT MOUNTED)
SP	STATIC SWITCH
T	THERMOSTAT
T	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE
T	TEMPERATURE SENSOR (DUCT MOUNTED)
T	TEMPERATURE SENSOR WITH WELL
T	THERMOMETER WITH WELL (DIAL TYPE)
T	THERMOMETER WITH WELL (FILLED TYPE)
T	AVERAGING TEMPERATURE SENSOR
T	LOW LIMIT TEMPERATURE SWITCH
T	PROBE TEMPERATURE SENSOR
H	HUMIDISTAT SENSOR
H	HUMIDISTAT / SENSOR
H	HUMIDITY SENSOR (DUCT MOUNTED)
C	CARBON MONOXIDE SENSOR
C 2	CARBON DIOXIDE SENSOR
C	CARBON MONOXIDE SENSOR (DUCT MOUNTED)
C 2	CARBON DIOXIDE SENSOR (DUCT MOUNTED)
	FILTER
DSD	DUCT SMOKE DETECTOR
	HEATING/ COOLING COIL
	AIR BLENDER
	MANUAL MOTOR STARTER W/THERMAL OVERLOAD

GENERAL NOTES COLORADO:

1. ALL BOILERS THAT EXCEED 200,000 BTU'S WITHIN COMMERCIAL BUILDINGS MUST ALSO BE PERMITTED, INSPECTED, AND APPROVED BY THE STATE OF COLORADO, THIS IS THE PERMIT APPLICANTS RESPONSIBILITY TO CONTACT CDLE THE DIVISION OF OIL AND PUBLIC SAFETY AT (303-318-8494) OR VISIT THEIR WEBSITE TO OBTAIN THE PERMIT APPLICATION FORM.
2. ANY ROUGH-IN AND/OR FINAL PLUMBING INSPECTIONS SHALL BE PERFORMED BY THE STATE OF COLORADO DEPARTMENT OF REGULATORY AGENCIES (DORA).
3. CARBON MONOXIDE SENSORS ARE EXISTING.
4. BUILDING SHALL NOT BE CONSIDERED ACCEPTABLE FOR FINAL INSPECTIONS PRIOR TO CODE OFFICIAL RECEIVING A LETTER ACKNOWLEDING THE BUILDER OWNER HAS RECEIVED AT LEAST A PRELIMINARY COMMISSIONING REPORT.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL FLOOR, WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
13. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
14. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
15. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

PLUMBING GENERAL NOTES:

1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.
3. CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
4. ALL FIXTURES SHALL CONFORM TO FEDERAL ACT S.3874
5. INVERT ELEVATIONS ARE FROM EXISTING DRAWINGS AND MAY NOT BE ACCURATE. VERIFY ALL ELEVATIONS BEFORE BEGINNING WORK.
6. VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING ANY WORK.
7. REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO PLUMBING FIXTURES.
8. FOR CLARITY, NOT ALL VALVES HAVE BEEN SHOWN. PROVIDE SHUTOFF VALVES IN DOMESTIC WATER PIPING SERVING EACH ROOM WITH FIXTURES. ANGLE STOPS SHALL NOT BE CONSIDERED SHUTOFF VALVES.
9. EXISTING CONDITIONS ON DEMOLITION PLANS ARE PROVIDED TO INDICATE THE GENERAL SCOPE OF ITEMS TO BE REMOVED. REFER TO SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL DEMOLITION INFORMATION.
10. P.C. SHALL CUT AND PATCH EXISTING AS REQUIRED FOR NEW OR DEMOLITION WORK UNLESS NOTED OTHERWISE. REFER TO SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL INFORMATION.

PIPING GENERAL NOTES:

1. THE SIZE OF BRANCH PIPING TO TERMINAL HEATING DEVICES AND COILS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
2. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.
3. INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING SIZED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.

VENTILATION GENERAL NOTES:

1. THE SIZE OF EACH BRANCH DUCT TO A TERMINAL AIR BOX (TAB) SHALL MATCH THE TAB'S INLET SIZE UNLESS THE BRANCH IS GREATER THAN 6 FEET IN LENGTH, IN WHICH CASE THE BRANCH SHOULD BE INCREASED ONE DUCT SIZE, OR NOTED OTHERWISE.
2. ALIGN TEMPERATURE SENSORS WITH LIGHT SWITCHES AND WHEN IN CLOSE PROXIMITY TO EACH OTHER.
3. PROVIDE ACCESS DOORS AT ALL DUCT MOUNTED EQUIPMENT.
4. EXISTING AIR INLET AND OUTLET CFM SHOWN ON DRAWINGS ARE FROM EXISTING DRAWINGS, AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL USE PRE-BALANCE VALUES, AND NOT EXISTING CFM SHOWN ON DRAWINGS.
5. CONTRACTOR MAY REUSE PORTIONS OF EXISTING DUCT PROVIDED SIZES AND PRESSURE CLASSES ARE CORRECT. DUCT IS THOROUGHLY CLEANED AND FREE OF DEFECTS, AND ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS ARE SEALED AS SPECIFIED FOR NEW DUCTWORK.
6. CLEAN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK UPSTREAM OF ALL NEW CONNECTIONS PER SPECIFICATION SECTION 23 31 00.

TEMPERATURE CONTROL GENERAL NOTES:

1. REFER TO EQUIPMENT SCHEDULES TO CROSS REFERENCE WHICH CONTROL DIAGRAMS APPLY TO WHICH ITEMS OF EQUIPMENT. REFER TO TERMINAL AIR BOX (TAB) SCHEDULES FOR TEMP SENSOR REQUIREMENTS FOR EACH TAB.
2. EACH D.I., D.O., A.I. AND A.O. POINT SHOWN FOR ALL CONTROL DIAGRAMS SHALL BE DISCRETE FROM ALL OTHER POINTS EXCEPT AS SPECIFICALLY NOTED.
3. ALL WIRING, CONTROL COMPONENTS, DEVICES AND PROGRAMMING SHOWN ON THESE CONTROL DRAWINGS SHALL BE PROVIDED BY THE TCC UNLESS SPECIFICALLY NOTED OTHERWISE.

POUDRE SCHOOL DISTRICT

PSD - Shepardson ES Boiler Replacement

Fort Collins, CO

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PROFESSIONAL SEAL

COLORADO LICENSED
BRIAN EGELTON
43928
3/15/22
PROFESSIONAL ENGINEER

AGENCY APPROVAL

DISCLAIMER

0 1 REF. SCALE IN INCHES 2 3

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	100% CONSTRUCTION DOCUMENTS
Date	03.15.2022
Job Number	22000573.00
Drawn	BRE
Checked	RCW
Approved	BRE

SHEET TITLE

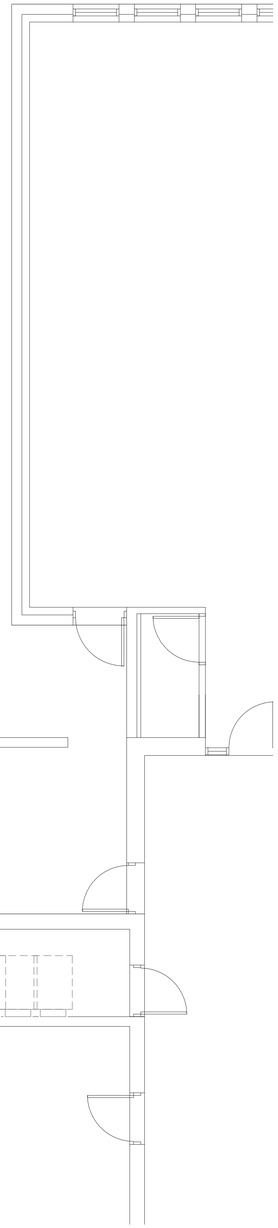
MECHANICAL/PLUMBING COVER SHEET

SCALE

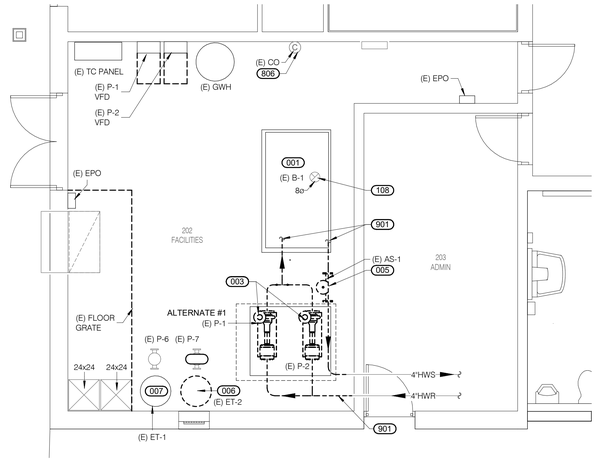
Scale: As indicated

SHEET NUMBER

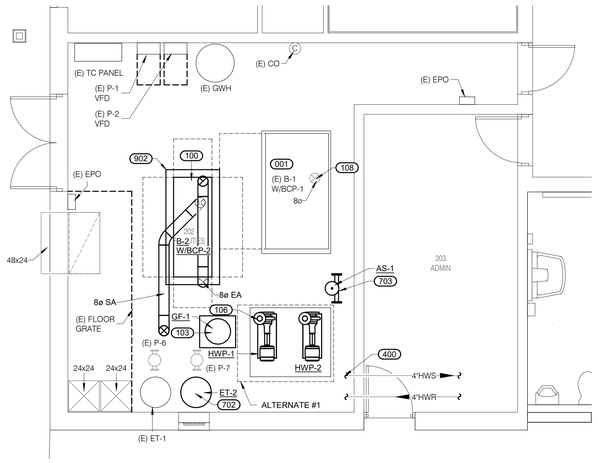
M0.0



NORTH 3 **FIRST FLOOR - MECHANICAL - GAS METER**
1/4" = 1'-0"



NORTH 1 **FIRST FLOOR DEMOLITION - MECHANICAL - SHEPARDSON ELEMENTARY SCHOOL**
1/4" = 1'-0"



NORTH 2 **FIRST FLOOR - MECHANICAL - SHEPARDSON ELEMENTARY SCHOOL**
1/4" = 1'-0"

KEYNOTES

001	EXISTING BOILER TO REMAIN. DEMOLISH HEATING WATER SUPPLY AND RETURN PIPING TO LOCATIONS INDICATED.
003	EXISTING HEATING WATER PIPING SYSTEM TO BE REVISED FROM PUMPING THROUGH THE BOILERS TO PUMPING THROUGH THE SYSTEM. REFER TO FLOW DIAGRAMS. REPLACING EXISTING HEATING WATER PUMPS TO BE PART OF ALTERNATE #1. REFER TO SCHEDULE FOR NEW PUMPS.
005	REMOVE EXISTING AIR SEPARATOR.
006	REMOVE EXISTING EXPANSION TANK.
007	DRAIN DOWN EXISTING EXPANSION TANK AND RESET TO PRESSURE PRIOR TO CONSTRUCTION.
100	B-# W/ BCP-#. NEW BOILER WITH BOILER CIRCULATION PUMP. REFER TO SCHEDULE, DETAILS, FLOW DIAGRAMS, AND CONTROLS. ROUTE AND SIZE BOILER FLUE AND INTAKE UP TROUGH ROOF PER MANUFACTURES WRITTEN INSTRUCTIONS. REFER TO FLUE THROUGH ROOF DETAIL. RECONNECT TO EXISTING EPO'S. PROVIDE ON NEW 4" CONCRETE PAD. REFER TO DEMO HEATING WATER FLOW DIAGRAM. BOILER WILL BE PROVIDED WITH NEW BOILER CIRCULATION PUMP BCP-2.
103	NEW GLYCOL FEEDER. REFER TO FLOW DIAGRAMS. PROVIDE ON NEW 4" CONCRETE PAD.
106	HWP-# NEW HEATING WATER PUMPS. REFER TO SCHEDULE, FLOW DIAGRAM AND CONTROLS. REPLACEMENT WILL BE PART OF ALTERNATE #1. EXISTING VFD'S FOR THE PUMPS TO REMAIN.
108	EXISTING 12" RD FLUE TO REMAIN.
400	REFER TO HEATING WATER FLOW DIAGRAM FOR PIPING.
702	ET-#. PROVIDE NEW EXPANSION TANK. REFER TO SCHEDULE AND FLOW DIAGRAM.
703	AS-#. NEW AIR SEPARATOR. REFER TO SCHEDULE AND HEATING WATER SCHEMATIC.
806	EXISTING CARBON MONOXIDE SENSOR TO REMAIN.
901	REFER TO DEMO HEATING WATER FLOW DIAGRAM.
902	NEW CONCRETE PAD EXTENDING 6" AROUND NEW BOILER.
1408	MECHANICAL CONTRACTOR TO COORDINATE WITH UTILITY COMPANY ON REPLACEMENT OF GAS METER.

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3/15/22
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DISCLAIMER

0 **1 REF. SCALE IN INCHES 2** 3

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

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Date	**03.15.2022**
Job Number	**22000573.00**
Drawn	**BRE**
Checked	**RCW**
Approved	**BRE**

SHEET TITLE

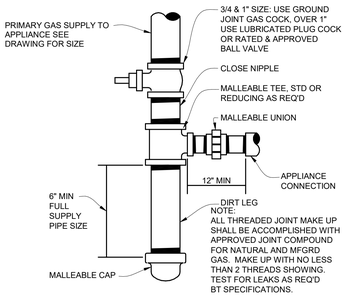
SHEPARDSON ELEMENTARY SCHOOL ENLARGED BOILER DEMO AND NEW MECHANICAL PLAN

SCALE

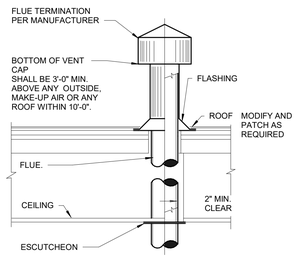
Scale: **1/4" = 1'-0"**

SHEET NUMBER

M1.0



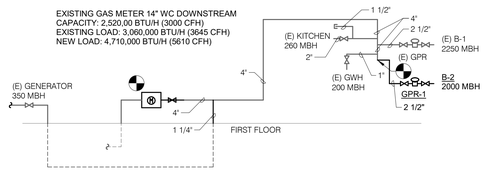
1 GAS CONNECTION DETAIL
NO SCALE



DESIGNER NOTES:

1. MODIFY/PATCH ROOF TO MATCH EXISTING AND MAINTAIN CURRENT WARRANTEE. COORDINATE WITH SCHOOL DISTRICT ON ROOF WARRANTEE. MECHANICAL CONTRACTOR TO BID AND MANAGE THE ROOF SCOPE OF WORK.
2. CONFIRM ALL SIZING AND ROUTING WITH BOILER AND FLUE MANUFACTURERS WRITTEN INSTRUCTIONS. PROVIDE GUY WIRES IF REQUIRED BY MANUFACTURER.

2 FLUE THROUGH ROOF
NO SCALE



NOTES:
1. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY SWITCHIN OUT GAS METER WITH A CAPACITY OF 6000 CFH OR GREATER.

3 NATURAL GAS SCHEMATIC- SES
NO SCALE

PLUMBING MATERIAL LIST

GPR-1	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. SINGLE STAGE, STEEL JACKETED, CORROSION-RESISTANT GAS PRESSURE REGULATORS; WITH ATMOSPHERIC VENT, ELEVATION COMPENSATOR; WITH THREADED ENDS FOR 2 INCH AND SMALLER, FLANGED ENDS FOR 2-1/2 INCH AND LARGER; FOR INLET AND OUTLET GAS PRESSURES, SPECIFIC GRAVITY, AND VOLUME FLOW. PROVIDE GAS COCKS AND UNIONS ON BOTH SIDES OF REGULATORS. 2 PSI INLET PRESSURE, 14" W.C OUTLET PRESSURE, 23840 CFH (2000 MBH) CAPACITY AS SHOWN ON NATURAL GAS SCHEMATIC, MINIMUM CONTROLLABLE FLOW OF 120 CFH (100 MBH)	FISHER , ITRON , SENSUS , MAXITROL

SHEPERDSON BOILER SCHEDULE - HOT WATER

NOTES:
1. PROVIDE CSD-1 COMPLIANT GAS TRAIN.
2. INSTALL VENT CAP AND BAROMETRIC DAMPER ON FLUE PER MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE BOILER WITH AL29-4-C FLUE.
4. 30% PROPYLENE GLYCOL.
5. HIGH ALTITUDE MODEL.

								ELECTRICAL						MAX. DIMENSIONS			WEIGHT				
TAG NAME	FUEL	INLET FUEL PRESSURE	TURNDOWN RATIO	INPUT BTUH/HR (S.L.)	OUTPUT BTU/HR (ALT.)	EWT °F	LWT °F	FULL LOAD AMPS	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)	LENGTH	WIDTH	HEIGHT	DRY	OPERATING	MANUFACTURER	MODEL	NOTES
B-2	NG	14	25:1	2000000	1808000	160	180	13 A	120	1	EC	F	MFR	68	30	78	1961	2307	LOCHINVAR	FB-2000	NOTES 1, 2, 3,4, & 5

GLYCOL FEED SYSTEM

NOTES:
1. SEE 23 21 00 FOR ADDITIONAL SYSTEM REQUIREMENTS.
2. LOW LEVEL ALRAM PANEL C/W REMOTE MONITORING DRY CONTACTS AND SELECTABLE AUDIBLE ALARM.

						ELECTRICAL				MAX. DIMENSIONS					
TAG NAME	AREA SERVED	TANK VOLUME	SYSTEM FILL PRESSURE	PUMP HEAD PSI	GPM	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	CONTROLLER/ STARTER BY (NOTE A)	DIAMETER	HEIGHT	WEIGHT	MANUFACTURER	MODEL (NOTE 1)	NOTES
GF-1	HEATING WATER LOOP	55.0	20	15	1.0	120	1	EC	MFR	24	50	525	AXIOM	SF-100	NOTES 1, 2

SHEPERDSON PUMP SCHEDULE

NOTES:
1.PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.
2.SIZE WITH 30% PROPYLENE GLYCOL.
3.PROVIDE ECM THAT CAN BE CONTROLLED BY BOILER (0-10V).

							ELECTRICAL (NOTE 1)								MAX. DIMENSIONS					
											DISCONNECT		CONTROLLER/ STARTER							
	TAG NAME	AREA SERVED	GPM	PUMP FT. HEAD AT DESIGN	MINIMUM PUMP EFFICIENCY	INLET SIZE	HP (NOTE E)	RPM	VOLTAGE	PHASES	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	MANUFACTURER	MODEL	NOTES
	BCP-1	BOILER CIRCULATION	225.0	30.00	72	4"	3	3900	208	3	EC	F	MFG	ECM	15	9	21	GRUNDFOS	TPE3 80-180	NOTES 1, 2, & 3
	BCP-2	BOILER CIRCULATION	190.0	30.00	60	4"	3	5500	208	3	EC	F	MFG	ECM	11	7	20	GRUNDFOS	TPE3 50-240	NOTES 1, 2, & 3
	HWP-1	HEATING WATER LOOP	155.0	60.00	69.5	2 1/2"	5	1800	208	3	EC	F	MC	VFD	34	16	18	BELL & GOSSETT	2BD	NOTES 1, 2
ALTERNATE #1	HWP-2	HEATING WATER LOOP	155.0	60.00	69.5	2 1/2"	5	1800	208	3	EC	F	MC	VFD	34	16	18	BELL & GOSSETT	2BD	NOTES 1, 2

AIR/DIRT SEPARATOR SCHEDULE

ITEM	DEVICE-TYPE	SERVICE	UNIT PIPE SIZE IN.	SEPERATOR PROCESS	DESIGN FLOW GPM	MAX PRESS. DROP FT WC	DIMENSIONS		OP. WT. LBS.	MANUFACTURER	MODEL	NOTES
							W (FLANGE TO FLANGE) IN.	HT. IN.				
AS-1	Air and Dirt Separator	HEATING WATER LOOP	4	Standard Velocity Coalescing	200	5	21	32	233	SPHIROTHERM	VDN400	1

GENERAL NOTES:
1) CONTRACTOR SHALL PROVIDE ECENTRIC TRANSITIONS AT UNIT CONNECTION AS REQUIRED.

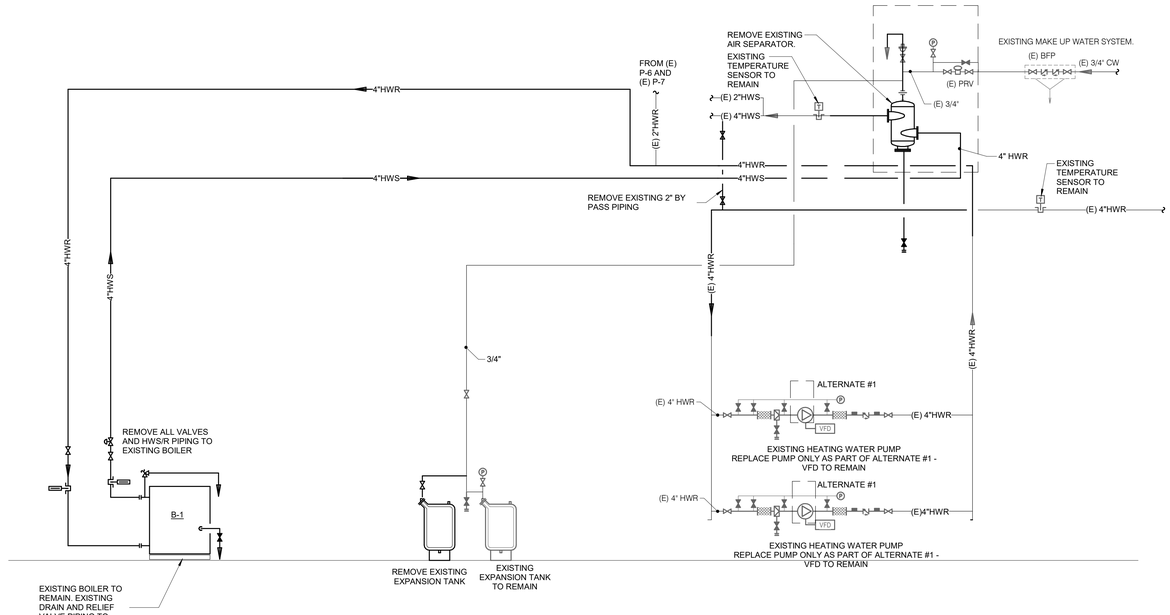
SPECIFIC NOTES:
1) PROVIDE AIR/DIRT SEPARATOR WITH REMOVABLE LOWER HEAD TO FACILITATE CLEANING FOR MANUAL BLOWDOWN.

EXPANSION TANK SCHEDULE

ITEM	SERVICE	TYPE	TANK MIN. ACCEPTANCE VOL [GAL]	TANK VOL [GAL]	BRANCH PIPE SIZE [IN]	GLYCOL %	FILL PRESS [PSI]	DIMENSIONS		OP. WT. [LBS]	MANUFACTURER & MODEL NO.	NOTES
								DIAMETER [IN]	HEIGHT [IN]			
ET-2	HEATING WATER LOOP	BLADDER	80.0	80	1	30%	12.0	24	52	1840	AMTROL 300-L	1

GENERAL NOTES:
1) ALL THERMAL EXPANSION ABSORBERS USED ON DOMESTIC WATER SYSTEMS SHALL BE NSF LISTED.
2) ALL BLADDER TANKS SHALL BE FULL ACCEPTANCE WITH REPLACEABLE BLADDER.

SPECIFIC NOTES:
1) PROVIDE ASME RATED TANK.



4 DEMO HEATING WATER FLOW DIAGRAM
NO SCALE

HEATING WATER FLOW DIAGRAM SYMBOL LIST

SYMBOL:	DESCRIPTION:
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
CW	COLD WATER - POTABLE
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
M	METER
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT
	AUTOMATIC AIR VENT
	MANUAL AIR VENT W/ BALL VALVE
	DRAIN WITH HOSE CONNECTION, CAP & BALL VALVE
F	FLOW SWITCH
FM	FLOW METER
T	TEMPERATURE SENSOR WITH WELL
	THERMOMETER WITH WELL (FILLED TYPE)
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE
	CONTROL VALVE (TWO-WAY)
	CONTROL VALVE (THREE-WAY)
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP

KEYNOTES

1. PRESSURE GAUGE WITH SNUBBER PER SECTION 23 09 13. INSTALL WITH MOUNTING ON WALL, STAND, OR VIBRATION-FREE PIPE ABOVE PUMP FLEXIBLE CONNECTOR. INSTALL FLEXIBLE COPPER TUBING TO PIPING CONNECTIONS TO AVOID VIBRATION DAMAGE TO THE GAUGE. PREFERRED CONNECTION LOCATIONS ARE: (a) JUST UPSTREAM OF STRAINER, (b) GAUGE PORT ON SUCTION DIFFUSER OR BETWEEN STRAINER AND PUMP INLET (c) GAUGE TAPPING ON PUMP INLET FLANGE. (d) GAUGE TAPPING ON PUMP OUTLET FLANGE.
2. INSTALL SAFETY RELIEF VALVE PROVIDED BY BOILER MANUFACTURER. PIPE TO DRAIN. SUPPORT SOLIDLY.

22000573.00 3/15/2022 11:29:19 AM PSD - Shepardson ES Boiler Replacement

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0 1 REF. SCALE IN INCHES 2 3

REVISIONS

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SHEET INFORMATION

Issue	**100% CONSTRUCTION DOCUMENTS**
Date	**03.15.2022**
Job Number	**22000573.00**
Drawn	**BRE**
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Approved	**BRE**

SHEET TITLE

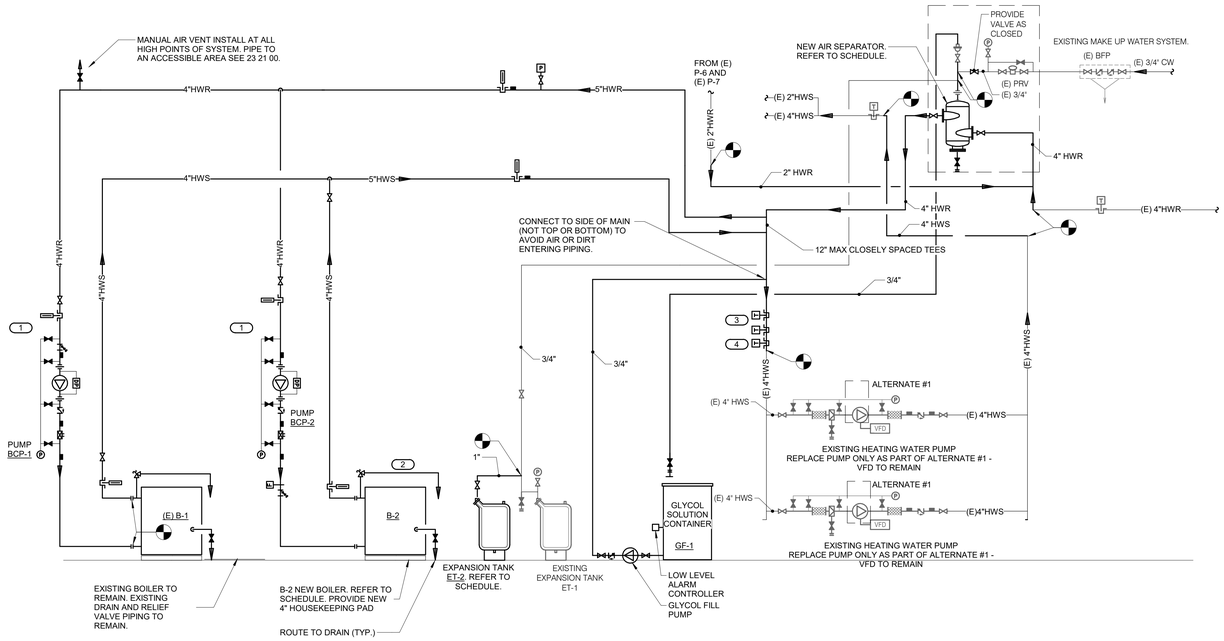
SHEPARDSON ELEMENTARY SCHOOL MECHANICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

Scale: **12" = 1'-0"**

SHEET NUMBER

M2.0



1 HEATING WATER FLOW DIAGRAM - CONDENSING BOILER PRIMARY/SECONDARY- SES

NO SCALE

HEATING WATER FLOW DIAGRAM SYMBOL LIST

SYMBOL:	DESCRIPTION:
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
CW	COLD WATER - POTABLE
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
M	METER
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT
	AUTOMATIC AIR VENT
	MANUAL AIR VENT W/ BALL VALVE
	DRAIN WITH HOSE CONNECTION, CAP & BALL VALVE
F	FLOW SWITCH
FM	FLOW METER
T	TEMPERATURE SENSOR WITH WELL
	THERMOMETER WITH WELL (FILLED TYPE)
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE
	CONTROL VALVE (TWO-WAY)
	CONTROL VALVE (THREE-WAY)
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP

KEYNOTES

1. PRESSURE GAUGE WITH SNUBBER PER SECTION 23 09 13. INSTALL WITH MOUNTING ON WALL, STAND, OR VIBRATION-FREE PIPE ABOVE PUMP FLEXIBLE CONNECTOR. INSTALL FLEXIBLE COPPER TUBING TO PIPING CONNECTIONS TO AVOID VIBRATION DAMAGE TO THE GAUGE. PREFERRED CONNECTION LOCATIONS ARE: (a) JUST UPSTREAM OF STRAINER, (b) GAUGE PORT ON SUCTION DIFFUSER OR BETWEEN STRAINER AND PUMP INLET (c) GAUGE TAPPING ON PUMP INLET FLANGE. (d) GAUGE TAPPING ON PUMP OUTLET FLANGE.
2. INSTALL SAFETY RELIEF VALVE PROVIDED BY BOILER MANUFACTURER. PIPE TO DRAIN. SUPPORT SOLIDLY.
3. TEMPERATURE SENSOR PROVIDED BY BOILER (B-2) MANUFACTURE. WIRED TO BOILER CONTROL PANEL.
4. TEMPERATURE SENSOR PROVIDED BY BOILER (B-1) MANUFACTURER. CONTROLLED BY FMCS. RELOCATE TO NEW PIPING.

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SHEET TITLE

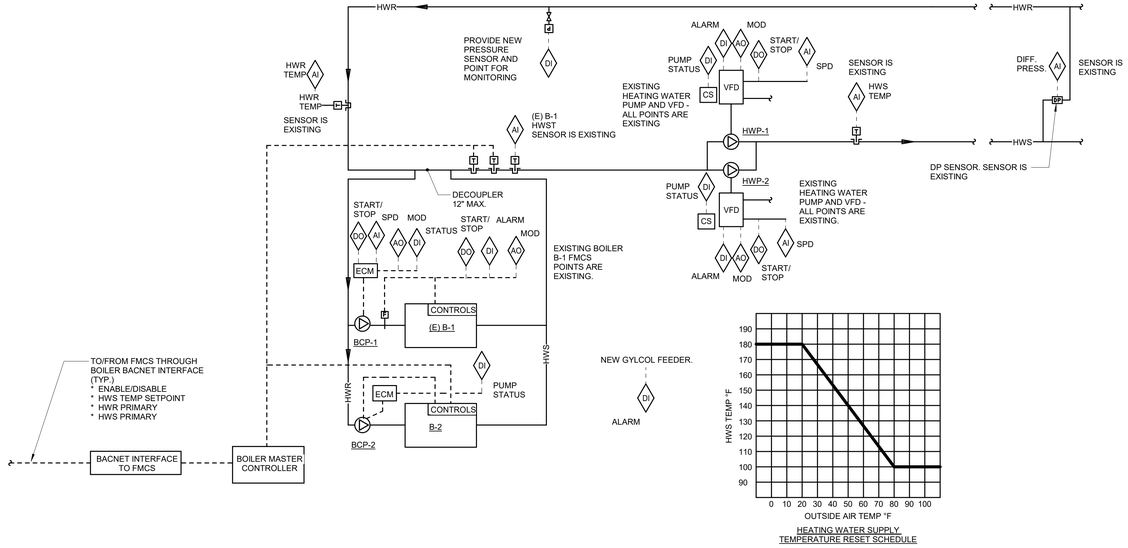
SHEPERDSON ELEMENTARY SCHOOL ELECTRICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

Scale: **12" = 1'-0"**

SHEET NUMBER

M2.1



HEATING WATER SUPPLY
TEMPERATURE RESET SCHEDULE

SEQUENCE OF OPERATION:
THE NEW HEATING WATER BOILER SHALL HAVE UNIT MOUNTED CONTROLS AND A BOILER MANAGEMENT CONTROL PANEL PROVIDED BY THE BOILER MANUFACTURER. TCC SHALL INTERFACE WITH BOILER MANUFACTURER CONTROLS AS DESCRIBED IN THIS SEQUENCE OF OPERATION. BOILER MANUFACTURER SHALL PROVIDE A GATEWAY INTERFACE CARD THAT IS COMPATIBLE WITH THE COMMUNICATION PROTOCOL OF THE FMCS NETWORK. THE EXISTING BOILER B-1 WILL BE CONTROLLED BY THE FMCS. SEQUENCES OF OPERATION FOR BOTH BOILER CONTROL SYSTEM AND FMCS SHALL BE AS FOLLOWS:

THERE TWO EXISTING EPO FOR THE BOILERS. FMCS TO COORDINATE RECONNECTION TO NEW BOILERS WITH EC.

BOILER CONTROL PANEL SEQUENCE OF OPERATION:
WHEN THE FMCS ENABLES THE BOILER MASTER CONTROLLER TO RUN, THE BOILER MASTER CONTROLLER SHALL ENABLE THE LEAD BOILER (B-2). WHEN BOILER B-2 IS ENABLED THE ASSOCIATED CIRCULATING PUMP BCP-2 SHALL RUN CONTINUOUSLY.

THE ON BOARD BOILER CONTROLLER SHALL STAGE AND MODULATE BOILER B-2 TO PROVIDE THE REQUIRED SUPPLY WATER TEMPERATURE. THE ON BOARD BOILER CONTROLLER SHALL START BOILER PUMP TO PROVIDE PRE AND POST FLOW. THE ON BOARD BOILER CONTROLLER SHALL VERIFY PROOF OF WATER FLOW BEFORE FIRING BOILER.

THE FOLLOWING BACNET MS/TP VIRTUAL OBJECTS WILL BE MAPPED FOR BOILER B-2 TO THE FMCS:

1. BOILER STATUS CODE
2. BOILER LOCKOUT CODE
3. BOILER FIRING RATE
4. BOILER HEATING WATER SUPPLY TEMPERATURE
5. BOILER HEATING WATER RETURN TEMPERATURE
6. BOILER FLUE TEMPERATURE
7. BOILER PUMP COMMAND

THE FOLLOWING POINTS WILL BE HARDWIRED BETWEEN BOILER B-2 AND THE FMCS:

1. BOILER ENABLE
2. BOILER FAULT

THE FOLLOWING POINTS WILL ARE EXISTING BETWEEN BOILER B-1 AND THE FMCS:

1. BOILER ENABLE
2. BOILER FAULT
3. BOILER ALARM

ALARMS, INTERLOCKS & SAFETIES:
BOILER CONTROLS SHALL BE PROGRAMMED TO MAINTAIN CONSTANT SETPOINT (LAST KNOWN VALUE) IN THE EVENT THE FMCS NETWORK COMMUNICATION SIGNAL IS LOST.

BUILDING FREEZE ALARM TO BE GENERATED WHEN THE HWST DROPS BELOW 100(ADJ) DEGREES F AND THE OAT IS BELOW 30(ADJ) DEGREES F. RELAY NEEDS WIRED TO ZONE 2 ON THE BURGLAR ALARM PANEL FOR MONITORING BY SAFE SYSTEMS.

FMCS SEQUENCE OF OPERATION:
FMCS SHALL ENABLE THE BOILER B-2 ON A CALL FOR HEATING AND THE OUTSIDE AIR TEMPERATURE IS BELOW 55 DEG. F.

EXISTING BOILER B-1 AND NEW BOILER CIRCULATING PUMP BCP-1 WILL BE CONTROLLED BY THE FMCS.

IF BOILER B-2 CANNOT MAINTAIN THE HEATING WATER SET POINT FOR A PERIOD OF 30 MINUTES (ADJ). EXISTING BOILER B-1 AND ASSOCIATED CIRCULATION PUMP SHALL BE ENABLED.THE FMCS SHALL MODULATE BOILER B-1 WITH BOILER B-2 AT 100% TO MAINTAIN THE HEATING WATER SUPPLY TEMPERATURE SETPOINT.

FMCS TO PROVIDE PROGRAMMING TO ALTERNATE FROM THE ABOVE SOO AND USING EXISTING BOILER B-1 AS THE LEAD BOILER AT 100% AND NEW BOILER B-2 AS THE MODULATING BOILER.

FMCS TO COORDINATE WITH NEW BOILER MANUFACTURE ON UTILIZING NEW BOILER B-2 AND EXISTING BOILER B-1 AND MODULATING BOTH BOILERS AT THE SAME TIME TO MAINTAIN THE SUPPLY WATER TEMPERATURE SETPOINT. PROVIDE PROGRAMMING FOR THIS SETUP IF DETERMINED FEASIBLE WITH THE NEW BOILER MANUFACTURE.

ONLY ONE SECONDARY EXISTING HEATING WATER PUMP SHALL RUN AT TIME. THE SECOND EXISTING HEATING WATER PUMP IS FULLY REDUNDANT. FMCS SHALL AUTOMATICALLY ROTATE THE LEAD HEATING WATER PUMP ONCE/WEEK (10:00 AM EACH TUESDAY, ADJ.) TO EQUALIZE RUN TIME BETWEEN PUMPS. PROVIDE GRAPHICAL BUTTON ON OPERATOR WORKSTATION GRAPHICAL SCREEN TO ALLOW FMCS OPERATOR TO SWITCH LEAD PUMP TO NEXT ROTATION IN THE EVENT THE CURRENT LEAD PUMP REQUIRES MAINTENANCE.

FMCS SHALL MODULATE SIGNAL TO LEAD SECONDARY PUMP VFD AS REQUIRED TO MAINTAIN HEATING WATER DIFFERENTIAL PRESSURE (DP) SETPOINT OF 10 PSI (ADJUSTABLE - CONFIRM ACTUAL SET POINT WITH SCHOOL DISTRICT ON EXISTING SYSTEM). MINIMUM PUMP SPEED SHALL REMAIN ON EXISTING PUMPS.

ALL CONTROLLED AND MONITORED POINTS LISTED IN THE BOILER CONTROL PANEL SEQUENCE ABOVE SHALL BE DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN.

ALARMS, INTERLOCKS & SAFETIES:
TCC SHALL COORDINATE ALL SAFETY AND INTERLOCK REQUIREMENTS WITH BOILER MANUFACTURER. TCC SHALL COORDINATE AND PROVIDE THE INSTALLATION AND WIRING OF BOILER WATER DIFFERENTIAL PRESSURE/FLOW SWITCHES AND OTHER COMPONENTS PROVIDED WITH THE BOILER AS REQUIRED FOR PROPER OPERATION. TCC SHALL PROVIDE AND TERMINATE ALL SAFETY AND INTERLOCK WIRING WITH BOILER CONTROL PANELS AS REQUIRED.

FMCS SHALL AUTOMATICALLY ENABLE THE LAG SECONDARY HEATING WATER PUMP TO RUN IN THE EVENT THE LEAD SECONDARY HEATING WATER PUMP FAILS TO OPERATE.

TCC SHALL VERIFY THE ACCEPTABLE TEMPERATURE RANGES THE BOILERS ARE APPROVED TO OPERATE AT AS PUBLISHED IN THE BOILER MANUFACTURER'S LITERATURE. IF THE TEMPERATURE RANGES LISTED IN THE MANUFACTURER'S LITERATURE DIFFER FROM THOSE IN THIS SEQUENCE OF OPERATION, CONTACT PROJECT ARCHITECT/ENGINEER FOR DIRECTION.

AN ALARM SHALL BE INDICATED TO THE FMCS OPERATOR WORKSTATION IN THE EVENT ANY OF THE FOLLOWING OCCUR:
- PRIMARY HWR TEMPERATURE DROPS BELOW 180F (ADJ.) FOR 5 MINUTES (ADJ.) (AUTO RESET).
- PRIMARY HWS TEMPERATURE RISES MORE THAN 10°F (ADJ.) ABOVE SETPOINT (AUTO RESET).
- PRIMARY HWS TEMPERATURE DROPS MORE THAN 10°F (ADJ.) BELOW SETPOINT (AUTO RESET).
- AN ALARM IS INDICATED AT ANY BOILER ALARM PANEL
- AN ALARM IS INDICATED AT ANY PUMP VFD
- SHOULD THE FMCS COMMAND THE LEAD HEATING WATER PUMP TO OPERATE AND THE PUMP FAILS TO DO SO AS DETERMINED BY THE VFD STATUS, AN ALARM SHALL BE INDICATED AT THE FMCS OPERATOR WORKSTATION AND THE LAG HW PUMP SHALL AUTOMATICALLY START.
- [illegible]

1 **HEATING CONTROL - CONDENSING BOILER PRIMARY/SECONDARY - SES**
NO SCALE

BOILER PLANT REPORT GENERATION:
FMCS SHALL MONITOR THE FOLLOWING POINTS ON 5 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 14-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL OVERWRITE THE OLDEST VALUES:

- DATE
- TIME
- OUTSIDE AIR TEMP [°F]
- HWS TEMP [°F]
- HWR TEMP [°F]

THIS INFORMATION SHALL BE ACCESSIBLE TO VIEW IN EITHER TABULAR OR GRAPHICAL FORM ON THE FMCS OPERATOR WORKSTATION.

BOILER PLANT REPORT GENERATION

POUDRE SCHOOL DISTRICT

IMEG
7600 E. ORCHARD ROAD, SUITE 250-S
GREENWOOD VILLAGE, CO
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PROFESSIONAL SEAL

COLORADO LICENSED
BRIAN EAGLETON
43928
3/15/22
PROFESSIONAL ENGINEER

AGENCY APPROVAL

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**100% CONSTRUCTION DOCUMENTS**
Date	**03.15.2022**
Job Number	**22000573.00**
Drawn	**BRE**
Checked	**RCW**
Approved	**BRE**

SHEET TITLE

SHEPARDSON ELEMENTARY SCHOOL MECHANICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

Scale: **12" = 1'-0"**

SHEET NUMBER

M2.2

PSD - Shepardson ES Boiler Replacement

Fort Collins, CO

22000573.00 3/15/2022 11:29:21 AM PSD - Shepardson ES Boiler Replacement

COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	90.1 (2019) Standard
Project Title:	PSD SHEPERDSON ELEMENTARY SCHOOL BOILER REPLACEMENT
Location:	Fort Collins, Colorado
Climate Zone:	5b
Project Type:	Addition
Permit Date:	03.15.2022
Permit No.	100% CONSTRUCTION

Construction Site:
1501 Springwood Dr.
Fort Collins, Colorado 80525

Owner/Agent:
JASON LEE
POUDRE SCHOOL DISTRICT
2445 LAPORTE AVE.
FORT COLLINS, Colorado 80521
(970) 222-9795
jlee@psdschools.org

Designer/Contractor:
Brian Eagleton
IMEG Corp.
7600 EAST ORCHARD ROAD, SUITE 250S GREENWOOD VILLAGE
Denver, Colorado 80111
(303) 796-6019
brian.r.eagleton@imegcorp.com

Mechanical Systems List

Quantity **System Type & Description**

1 Boiler B-2:
Heating: Hot Water Boiler, Capacity 2000 kBtu/h, Gas
Proposed Efficiency: 96.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Brian Eagleton- Mechanical Engineer		03/15/2022
Name - Title	Signature	Date

1 **COMCHECK REPORT- SES**
NO SCALE

POUDRE SCHOOL DISTRICT

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PROFESSIONAL SEAL

COLORADO LICENSED BRIAN EAGLETON 43928 3/15/22 PROFESSIONAL ENGINEER

AGENCY APPROVAL

DISCLAIMER

0 1 REF. SCALE IN INCHES 2 3

REVISIONS

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SHEET TITLE

MECHANICAL COMCHECK

SCALE

Scale: **12" = 1'-0"**

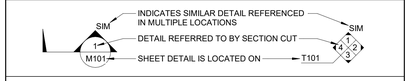
SHEET NUMBER

M3.0

VIEW KEY

NAME — LEVEL NAME
10'-0" — HEIGHT ABOVE PROJECT 0'-0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL



LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
——— NEW
- - - - - - - - EXISTING TO BE REMOVED (SHORT DASHED PATTERN)
— — — — — NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
——— EXISTING
- - - - - - - - EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)
— — — — — EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

"TAG'-E — TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG-1 — UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
GB	GB	26 05 26	GROUND BUS
E / E	ECONN	26 05 33	ELECTRICAL CONNECTION
J / J	JB	26 05 33	JUNCTION BOX
	PANEL '###'	26 24 16	PANELBOARD - RECESS MOUNT
	PANEL '###'	26 24 16	PANELBOARD - SURFACE MOUNT
	DS-#/FDS-#/DSS-#	26 28 16	DISCONNECT SWITCH
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
G	REC-DUP-GFI-R	26 27 26	GROUND FAULT DEVICE
W	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE 125V
U	REC-USB	26 27 26	DUPLEX RECEPTACLE, USB CHARGING
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
	REC-QUAD-GFI	26 27 26	QUAD GFI RECEPTACLE, 125V

ELECTRICAL ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
GFI	GROUND FAULT INTERRUPTER
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
SV	SOLENOID VALVE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
H.C.	HEATING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR

ELECTRICAL GENERAL NOTES:

DEVICE KEY:
DEVICE — A = MOUNTING (IF APPLICABLE)
1 = CIRCUIT NUMBER

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: A / 1

ELECTRICAL MOUNTING SUBSCRIPT KEY:
- A — MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH
- C — MOUNT AT CEILING
- H — MOUNT ORIENTED HORIZONTALLY
- L — MOUNT IN CASEWORK
- M — MOUNT IN MODULAR FURNITURE
- R — MOUNT IN SURFACE RACEWAY
- EWC — ELECTRIC WATER COOLER

ELECTRICAL INSTALLATION NOTES:

1. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
2. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
3. FLUSH MOUNT ALL DUPLEX RECEPTACLES AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. RECEPTACLES AND OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED. MOUNT EXTERIOR LOCATED RECEPTACLES WITH WHILE-IN-USE COVERS AT +20" FROM FINISHED GRADE (CENTER DIMENSIONS) TO MAINTAIN INSTALLATION ADA COMPLIANCE.
4. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO 26 05 03 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
5. ELECTRICAL EQUIPMENT SHALL BE MOUNTED TO AVOID IMPEDANCE OF, OPERATION OF, AND/OR ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT, ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR, SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
7. ALL WELDING SHALL BE ACCORDING TO AMERICAN WELDING SOCIETY STANDARDS. CONTRACTOR SHALL FURNISH TO THE ARCHITECT/ENGINEER CERTIFICATES QUALIFYING EACH WELDER, PRIOR TO START OF WORK. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO REQUIRE QUALIFYING DEMONSTRATION, AT THE CONTRACTOR'S EXPENSE, OF ANY WELDERS ASSIGNED TO THE JOB.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO THE WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. ELECTRICAL IDENTIFICATION. REFER TO SPECIFICATION SECTION 26 05 53 FOR COLOR/LABEL REQUIREMENTS FOR CONDUIT, BOX, CABLE/WIRE, AND EQUIPMENT.

ELECTRICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL ELECTRICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, LIGHTING, POWER, AND SYSTEMS.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING EQUIPMENT ARE NOT SHOWN. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS WITH NEW WORK BEFORE STARTING WORK.
3. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF THEIR WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO THEIR AREA OF WORK.
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY THE GC OF AFFECTED AREAS PRIOR TO BIDDING.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE GENERAL CONTRACTOR OF AFFECTED AREAS PRIOR TO BIDDING.
6. WHERE EXISTING ELECTRICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, CONDUIT, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING ELECTRICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.

ELECTRICAL PHASING NOTES:

1. REFER CONSTRUCTION MANAGER'S/GENERAL CONTRACTOR'S INSTRUCTIONS FOR MORE DETAILS AND PHASING SCHEDULES AND FOR CONCURRENT WORK. MECHANICAL AND ELECTRICAL DRAWINGS DEPICT THE INTENT OF THE FINAL DESIGN. THE MECHANICAL AND ELECTRICAL DRAWINGS DO NOT DEPICT THE MEANS AND METHODS TO MEET THE REQUIREMENTS OF THE PHASING CRITERIA.
2. REVIEW PROJECT PHASING PLANS TO COORDINATE DEMOLITION WORK, OUTAGES, ETC. WITH AFFECTED ADJACENT AREAS.
3. PROVIDE TEMPORARY LIGHTING, POWER, SYSTEMS, ETC. AS NEEDED TO MAINTAIN SERVICE TO ALL AREAS DURING ALL PHASES OF PROJECT.
4. PHASE DEMOLITION WORK TO MINIMIZE DOWNTIME.

POUDRE SCHOOL DISTRICT

PSD - Shepardson ES Boiler Replacement

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PROFESSIONAL SEAL

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CHARLES M. WHITE
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PROFESSIONAL ENGINEER
3-15-22

AGENCY APPROVAL

DISCLAIMER

0 — 1 REF. SCALE IN INCHES 2 — 3

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

Issue	**100% CONSTRUCTION DOCUMENTS**
Date	**03.15.2022**
Job Number	**22000573.00**
Drawn	**CW**
Checked	**CW**
Approved	**MHM**

SHEET TITLE

ELECTRICAL COVERSHEET

SCALE

Scale: **As indicated**

SHEET NUMBER

E0.0

22000573.00 3/15/2022 1:13:09 PM PSD - Shepardson ES Boiler Replacement

KEYNOTES

2002	DISCONNECT AND REMOVE EXISTING 208V 3PHASE HOT WATER PUMP (HWP) TO BE REPLACED WITH NEW OF SAME SIZE AND VOLTAGE. SAVE AND PROTECT WIRES FED FROM PANEL KP FOR REUSE. ALTERNATE #1
2200	INSTALL NEW 5HP 208V-3PHASE HOT WATER PUMP (HWP) TO BE PROVIDED BY MECHANICAL AND INSTALLED BY ELECTRICAL. CONNECT TO EXISTING WIRES SAVED DURING DEMOLITION.
2202	EXISTING EPO TO REMAIN. DISCONNECT FROM DEMOED BOILERS AND RECONNECT TO NEW BOILERS. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE AND FUNCTIONING SYSTEM.

ELECTRICAL CONNECTION SCHEDULE

HWP-1	HOT WATER PUMP	208 V, 3Ø	Motor	1	@	5	6.30 kVA	17.5 A	0 A	0 A	0 A		EXISTING	EC	30A3P 25A LPN-RK	MFG	VFD	SHEPERDSON. CONNECT TO EXISITING CIRCUIT SAVED DURING DEMOLITION. PROVIDE NEW HEAVY DUTY 30A FUSED DISCONNECT.
HWP-2	HOT WATER PUMP	208 V, 3Ø	Motor	1	@	5	6.30 kVA	17.5 A	0 A	0 A	0 A		EXISTING	EC	30A3P 25A LPN-RK	MFG	VFD	SHEPERDSON. CONNECT TO EXISITING CIRCUIT SAVED DURING DEMOLITION. PROVIDE NEW HEAVY DUTY 30A FUSED DISCONNECT.
L1J																		
B-2	BOILER	120 V, 1Ø	Power	0	-	0	0.60 kVA	5 A	0 A	0 A	20 A	41	2#12 & 1#12 EGC IN 3/4" C.	EC	MOTOR RATED SWITCH			SHEPERDSON. PROVIDE MOTOR RATED SWITCH AS MEANS OF DISCONNECT.
GF-1	GLYCOL FEEDER	120 V, 1Ø	Motor	1	@	0.33	0.83 kVA	7 A	0 A	0 A	20 A	30	2#12 & 1#12 EGC IN 3/4" C.	EC	20A GFCI RECEPTACLE			SHEPERDSON. PROVIDE 20A GFCI RECEPTACLE AS MEANS OF DISCONNECT.
BCP-1	BOILER CIRC PUMP	208 V, 3Ø	Motor	1	@	3	4.00 kVA	11 A	0 A	0 A	20 A	29,31,33	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P 15A LPN-RK	MFG		SHEPERDSON. PROVIDE NEW HEAVY DUTY 30A FUSED DISCONNECT.
BCP-2	BOILER CIRC PUMP	208 V, 3Ø	Motor	1	@	3	4.00 kVA	11 A	0 A	0 A	20 A	35,37,39	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P 15A LPN-RK	MFG		SHEPERDSON. PROVIDE NEW HEAVY DUTY 30A FUSED DISCONNECT.

PANEL L1J

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 20 A/3P @
LOCATION:

SOLID NEUTRAL
GROUND BUS

MAIN: 225 A MLO
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
SCCR: 10 kA
ISC UNKNOWN 0.00 kA

NOTES:

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H	N	G	VD %	A	B	C	VD %	WIRE SIZE G	N	H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
--	1	EXISTING LIGHTING	20 A	1	--	--	--	--	0	0		--	--	--	--	1	20 A	EXISTING TCP	2	--
--	3	EXISTING LIGHTING	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING TCP	4	--
--	5	EXISTING LIGHTING	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING BOILER B-1	6	--
--	7	EXISTING PROJECTOR	20 A	1	--	--	--	--	0	0		--	--	--	--	1	20 A	EXISTING RECEPTS	8	--
--	9	EXISTING RECEPTS	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING RECEPTS	10	--
--	11	EXISTING RECEPTS	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING EWC	12	--
--	13	EXISTING RECEPTS	20 A	1	--	--	--	--	0	0		--	--	--	--	1	20 A	EXISTING CONTACTOR	14	--
--	15	EXISTING MECH	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING UH-1	16	--
--	17	EXISTING AV	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING FCU-1	18	--
--	19	EXISTING PWH-1	20 A	1	--	--	--	--	0	0		--	--	--	--	3	30 A	EXISTING AHU-1	20	--
--	21	EXISTING RECEPTS	20 A	1	--	--	--	--			0 0	--	--	--	--	--	--	--	22	--
--	23	EXISTING EF-1	20 A	1	--	--	--	--			0 0	--	--	--	--	--	--	--	24	--
--	25	EXISTING P1A & P1B	20 A	1	--	--	--	--	0	0		--	--	--	--	1	20 A	EXISTING EWC	26	--
--	27	EXISTING RECEPTS	20 A	1	--	--	--	--			0 0	--	--	--	--	1	20 A	EXISTING SHADES	28	--
(1)	29	**NEW BCP-1**	20 A	3	12	12	12	0.47			1.33 0.83	0.64	12	12	12	1	20 A	**NEW GLYCOL FEEDER GF-1**	30	(2)
--	31	--	--	--	--	--	--	--	1.33	0		--	--	--	--	1	20 A	SPARE	32	--
--	33	--	--	--	--	--	--	--			1.33 0	--	--	--	--	1	20 A	SPARE	34	--
(1)	35	**NEW BCP-2**	20 A	3	12	12	12	0.53			1.33 0	--	--	--	--	1	20 A	SPARE	36	--
--	37	--	--	--	--	--	--	--	1.33	0		--	--	--	--	3	45 A	EXISTING RTU-4	38	--
--	39	--	--	--	--	--	--	--			1.33 0	--	--	--	--	--	--	--	40	--
(2)	41	**NEW BOILER B-2**	20 A	1	12	12	12	0.38			0.6 0	--	--	--	--	--	--	--	42	--
					Total Load:				2.67 kVA		2.67 kVA 4.10 kVA									
					Total Amps:				22.22		22.22 34.14									

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
Motor	8.83 kVA	100.00%	8.83 kVA		
Power	0.6 kVA	100.00%	0.6 kVA	**TOTAL CONNECTED LOAD:**	9.43 kVA
				TOTAL ESTIMATED DEMAND LOAD:	9.43 kVA
				TOTAL CONNECTED AMPS:	26.18 A
				TOTAL ESTIMATED DEMAND AMPS:	26.2 A

*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES: [1] PROVIDE NEW 3 POLE BREAKER. [2] UTILIZE EXISTING 20A SINGLE POLE BREAKER.

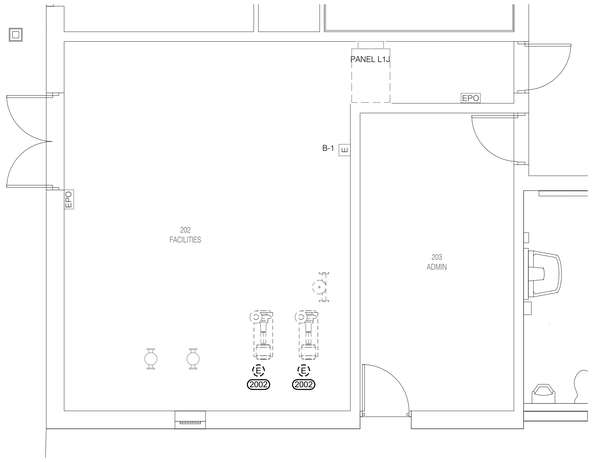
EXISTING PANEL L1J - 120/208V, 225A LOAD SUMMARY

EXISTING LOAD IS BASED ON RECORD DRAWINGS DATED 2011
EXISTING = + 34.2 KVA

NEW LOAD ADDED = + 9.43 KVA
TOTAL 43.63 KVA

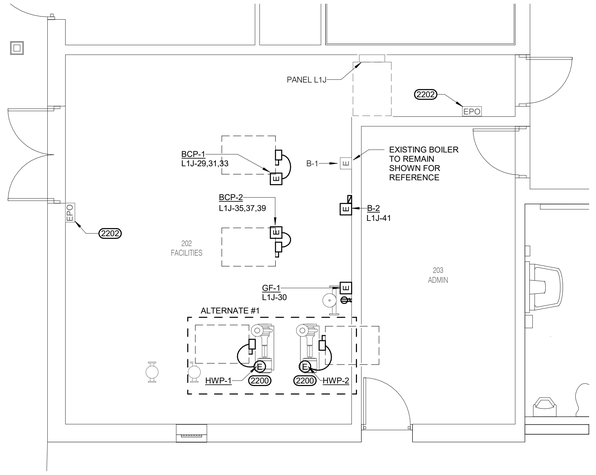
TOTAL 43.63KVA AT 208V-3PHASE = 121.1 AMPS

EXISTING 225A PANELBOARD IS ADEQUATE FOR NEW LOADS.



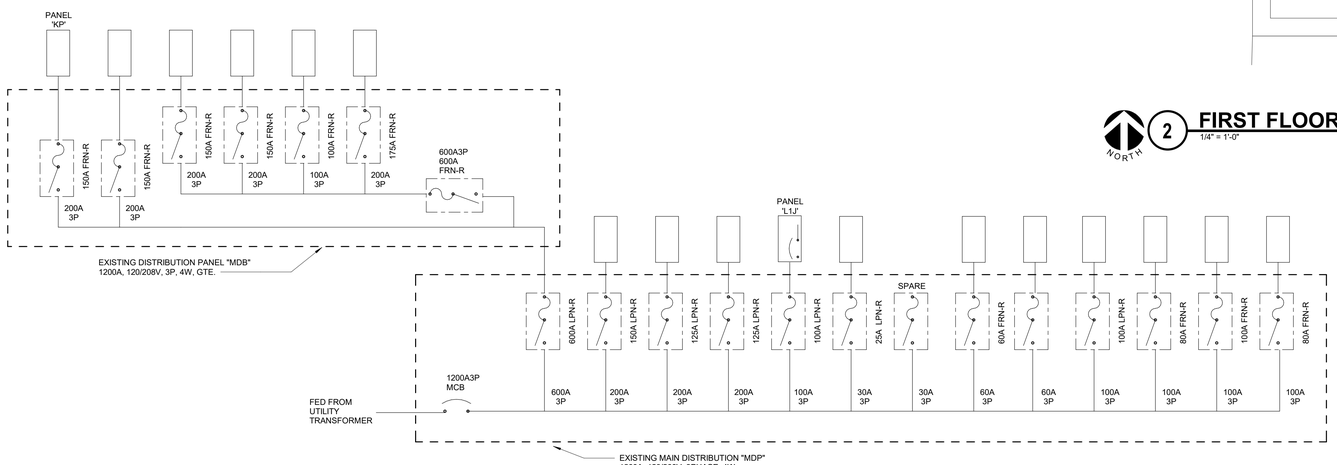
1 FIRST FLOOR DEMOLITION - ELECTRICAL - SHEPARDSON ELEMENTARY SCHOOL

1/4" = 1'-0"



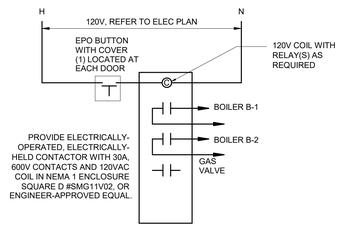
2 FIRST FLOOR - ELECTRICAL - SHEPARDSON ELEMENTARY SCHOOL

1/4" = 1'-0"



3 PARTIAL ONE-LINE DIAGRAM

NO SCALE



4 MECHANICAL RM EPO - GAS SERVICE SHUT-DOWN

12" = 1'-0"

POUDRE SCHOOL DISTRICT

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PROFESSIONAL SEAL

COLORADO LICENSED
MICHAEL P. MOHR
55583
PROFESSIONAL ENGINEER
3-15-22

AGENCY APPROVAL

DISCLAIMER

0 1 REF. SCALE IN INCHES 2 3

REVISIONS

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SHEET INFORMATION

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Drawn	**CW**
Checked	**CW**
Approved	**MHM**

SHEET TITLE

SHEPARDSON ELEMENTARY SCHOOL ENLARGED BOILER DEMO AND NEW ELECTRICAL PLAN

SCALE

Scale: **As indicated**

SHEET NUMBER

E2.0

22000573.00 3/15/2022 1:13:09 PM PSD - Shepardson ES Boiler Replacement