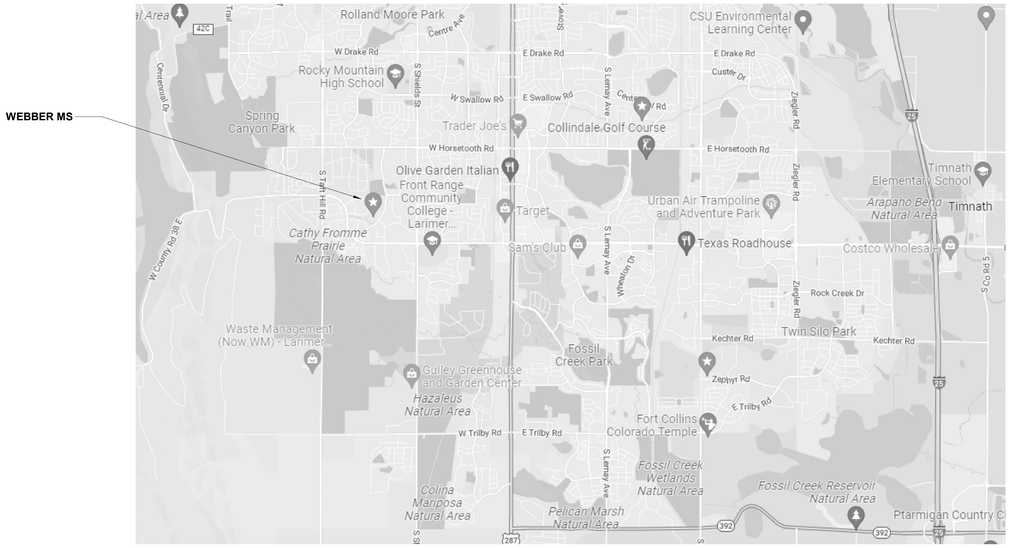
POUDRE SCHOOL DISTRICT - BOILER REPLACEMENT

Webber Middle School

4201 Seneca St., Fort Collins, CO 80526



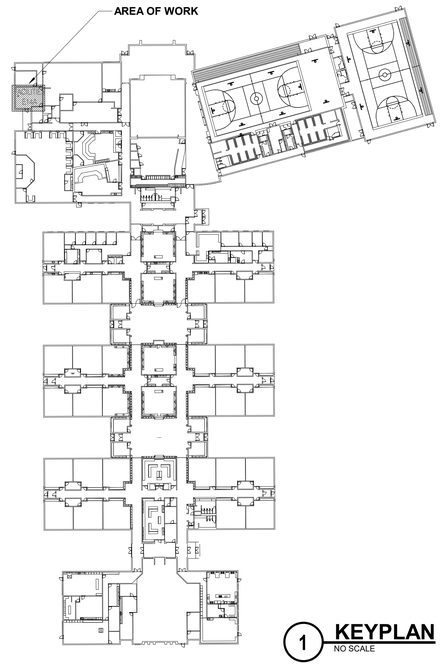
NORTH

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 - Webber MS Boiler Replacement

Fort Collins, CO

IMEG

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

PH: 303.796.6000
FX: 720.501.6713
www.imegcorp.com

PROFESSIONAL SEAL

COLORADO LICENSED BRIAN EAGLETON 43928 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	**BRE**
Checked	**RCW**
Approved	**BRE**

SHEET TITLE

COVERSHEET

SCALE

Scale: **As indicated**

SHEET NUMBER

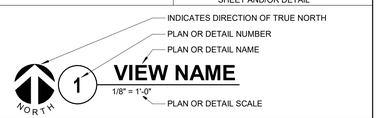
G0.0

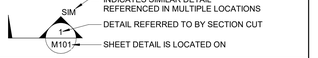
22000573.00 3/15/2022 11:30:33 AM PSD - Webber MS Boiler Replacement

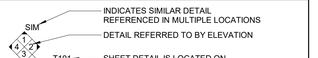
VIEW KEY

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 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)
	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 (303-318-8484) 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.

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PROFESSIONAL SEAL

COLORADO LICENSED
HUMAN EAGLE
43928
3/15/2022
PROFESSIONAL ENGINEER

AGENCY APPROVAL

DISCLAIMER

PROJECT # 22000573.00

0 1 REF. SCALE IN INCHES 2 3

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No.	Date	Revision / Issue

SHEET INFORMATION

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Drawn	BRE
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SHEET TITLE

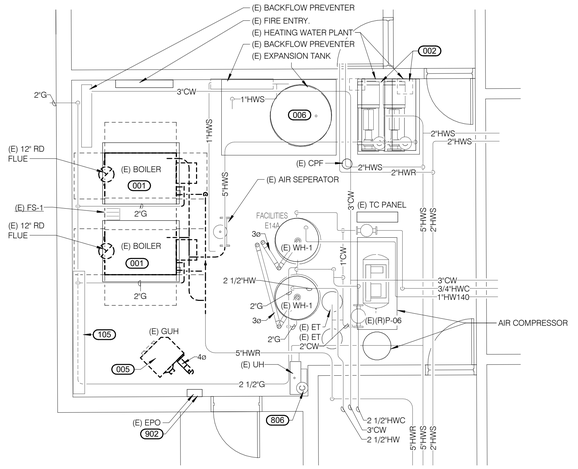
MECHANICAL/PLUMBING COVER SHEET

SCALE

Scale: As indicated

SHEET NUMBER

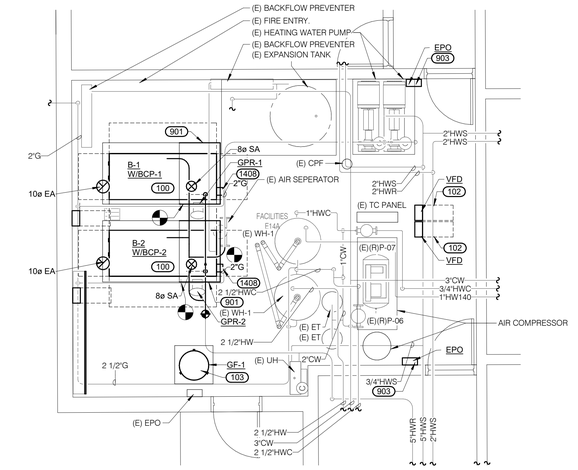
M0.0



NORTH 3 **FIRST FLOOR DEMOLITION - MECHANICAL - WEBBER MIDDLE SCHOOL**
1/4" = 1'-0"

KEYNOTES

001	REMOVE EXISTING BOILER, BURNER, FLUE PIPING, AND ALL ASSOCIATED COMPONENTS. REMOVE EXISTING BRANCH GAS PIPING, REGULATOR, AND AND DEMOLISH HEATING WATER SUPPLY AND RETURN PIPING TO LOCATIONS INDICATED.
002	REMOVE EXISTING HEATING WATER PUMP VFD'S TO BE REPLACED WITH NEW VFD'S BY OWNER. INSTALLED BY CONTRACTOR. COORDINATE WITH SCHOOL DISTRICT.
005	REMOVE EXISTING GAS UNIT HEATER. PATCH AND SEAL ROOF. CAP NATURAL GAS PIPING.
006	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 THROUGH ROOF PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PATCH/MODIFY ROOF TO MATCH. EXTEND EXISTING BOILER CONCRETE PAD AS NECESSARY. RECONNECT TO EXISTING EPO'S.
102	NEW VFD'S FOR THE EXISTING 10HP HEATING WATER PUMPS. MAINTAIN ALL CLEARANCES. MOUNT ON NEW UNISTRUCT RACKS.
103	NEW GLYCOL FEEDER. REFER TO FLOW DIAGRAMS. PROVIDE ON EXISTING 4" CONCRETE PAD.
105	PATCH AND SEAL EXISTING BOTH HIGH AND LOW 96/32 OPENINGS WITH 14 GAUGE SHEET METAL AND R 15 INSULATION BOARD. DISABLE DAMPERS CLOSED AND REMOVE ACTUATORS.
806	EXISTING CARBON MONOXIDE SENSOR TO REMAIN.
901	PROVIDE EXTENDED CONCRETE FOR NEW BOILER. EXTEND PAD OUT 6" ON ALL SIDES OF THE BOILER.
902	EXISTING EPO TO REMAIN. RECONNECT TO NEW BOILER. COORDINATE WITH ELECTRICAL CONTRACTOR.
903	PROVIDE NEW EPO. PROVIDE BY TEMPERATURE CONTROL CONTRACTOR. WIRED BY ELECTRICAL CONTRACTOR.
1408	PROVIDE NEW GAS CONNECTION WITH NEW GPR. REFER TO DETAIL AND GAS SCHEMATIC.



NORTH 4 **FIRST FLOOR - MECHANICAL - WEBBER MIDDLE SCHOOL**
1/4" = 1'-0"

POUDRE SCHOOL DISTRICT

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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

WEBBER MIDDLE SCHOOL ENLARGED BOILER DEMO AND NEW MECHANICAL PLAN

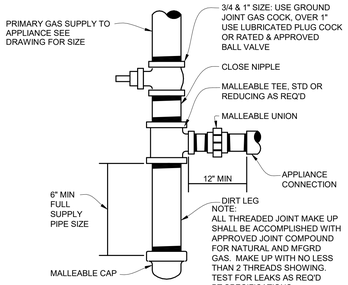
SCALE

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

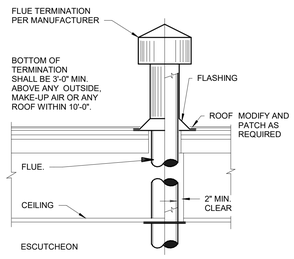
SHEET NUMBER

M1.0

22000573.00 3/15/2022 11:30:42 AM PSD - Webber MS Boiler Replacement



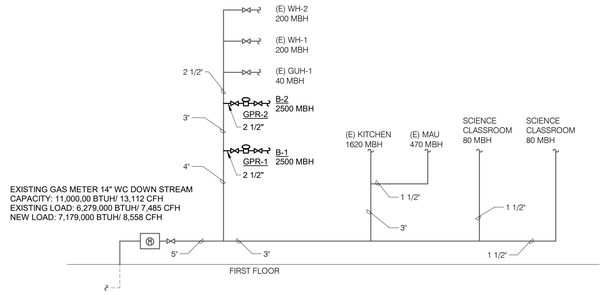
1 GAS CONNECTION DETAIL
NO SCALE



2 FLUE THROUGH ROOF
NO SCALE

DESIGNER NOTES:

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



3 NATURAL GAS SCHEMATIC - WES
NO SCALE

PLUMBING MATERIAL LIST

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
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, 2980 CFH (2500 MBH) CAPACITY AS SHOWN ON NATURAL GAS SCHEMATIC, MINIMUM CONTROLLABLE FLOW OF 149 CFH (125 MBH)	FISHER , ITRON , SENSUS , MAXITROL
GPR-2	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, 2980 CFH (2500 MBH) CAPACITY AS SHOWN ON NATURAL GAS SCHEMATIC, MINIMUM CONTROLLABLE FLOW OF 149 CFH (125 MBH)	FISHER , ITRON , SENSUS , MAXITROL

WEBBER BOILER SCHEDULE - HOT WATER

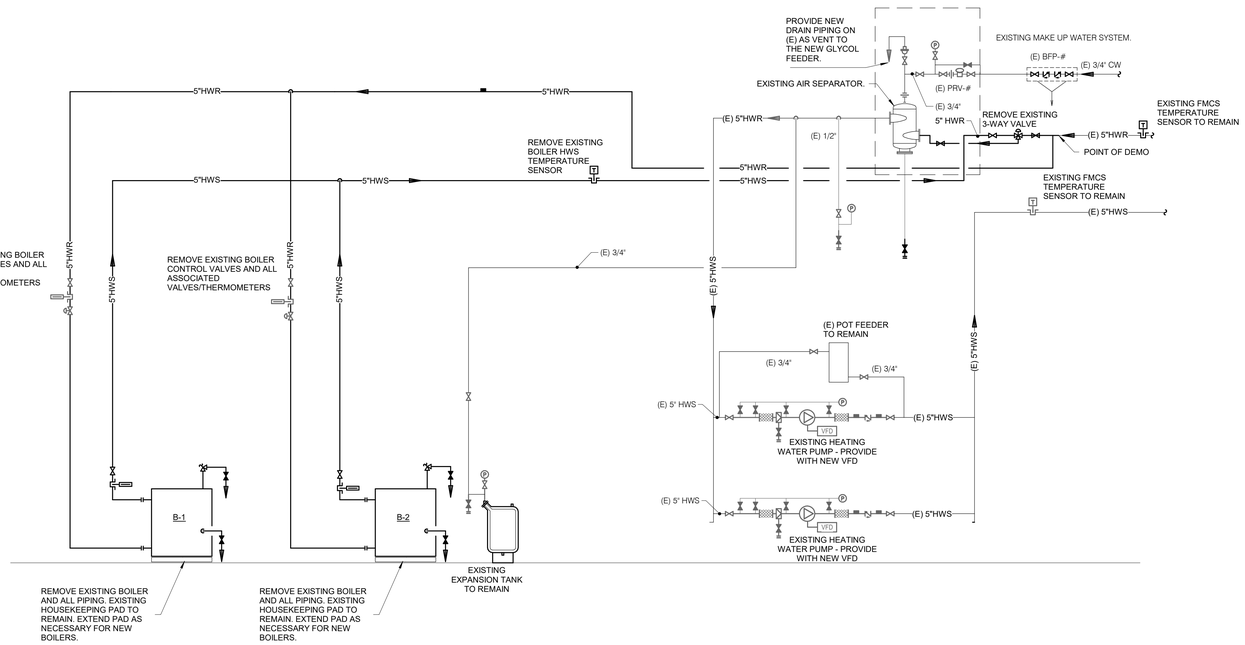
NOTES:
1. PROVIDE CSD-1 COMPLIANT GAS TRAIN.
2. INSTALL VENT CAP AND BAROMETRIC DAMPER ON FLUE PER MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE BOILER WITH AL29-4-C FLUE.
4. 30% PROPYLENE GLYCOL.
5. PROVIDE WITH 480-3 TO 208-3 STEP DOWN TRANSFORMER.
6. HIGH ALTITUDE MODEL.

									ELECTRICAL						MAX. DIMENSIONS			WEIGHT				
TAG NAME	FUEL	INLET FUEL PRESSURE (IN W.C.)	TURNDOWN RATIO	INPUT BTUH/HR (S.L.)	OUTPUT BTUH/HR (ALT.)	EWT °F	LWT °F	OPERATING PRESSURE PSI	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-1	NG	14	20:1	2500000	2265000	160	180	0.5	4.5 A	208	3	EC	F	MFR	84	35	78	2577	3600	LOCHINVAR	FB-2501	NOTES 1, 2, 3, 4, 5, & 6
B-2	NG	14	20:1	2500000	2265000	160	180	0.5	4.5 A	208	3	EC	F	MFR	84	35	78	2577	3600	LOCHINVAR	FB-2501	NOTES 1, 2, 3, 4, 5, & 6

WEBBER 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					
TAG NAME	AREA SERVED	GPM	PUMP FT. HEAD AT DESIGN	MINIMUM PUMP EFFICIENCY	INLET SIZE	HP (NOTE E)	RPM	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)	CONTROLLER/ STARTER TYPE (NOTE C)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	MANUFACTURER	MODEL	NOTES
BCP-1	BOILER CIRCULATION	260.0	30.00	68.1	4"	3	3025	480	3	EC	F	MC	ECM	15	9	24	GRUNFOS	TPE3-80-180	NOTES 1, 2, & 3
BCP-2	BOILER CIRCULATION	260.0	30.00	68.1	4"	3	3025	480	3	EC	F	MC	ECM	15	9	24	GRUNFOS	TPE3-80-180	NOTES 1, 2, & 3



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.

POUDRE SCHOOL DISTRICT

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Fort Collins, CO

IMEG
7600 E. ORCHARD ROAD, SUITE 250-S
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PROFESSIONAL ENGINEER

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SHEET INFORMATION

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

SHEET TITLE

WEBBER MIDDLE SCHOOL MECHANICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

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

SHEET NUMBER

M2.0

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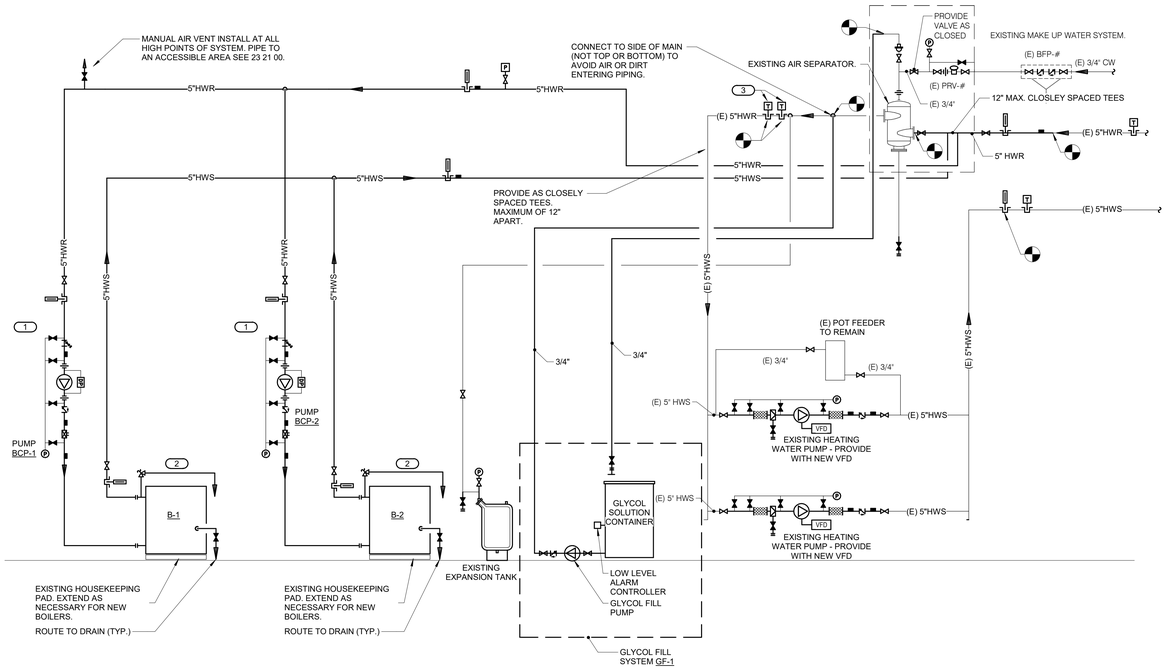

1 HEATING WATER FLOW DIAGRAM - CONDENSING BOILER PRIMARY/SECONDARY - WMS

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
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	BALANCING VALVE
	CONTROL VALVE (TWO-WAY)
	CONTROL VALVE (THREE-WAY)
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	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 MANUFACTURER. WIRED TO BOILER CONTROL PANEL.

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

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SHEET TITLE

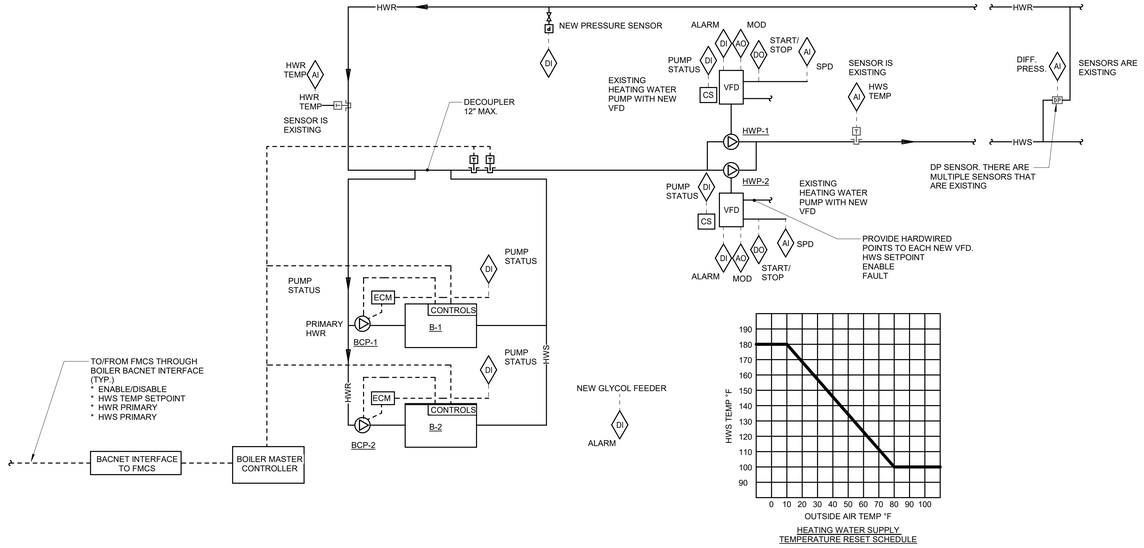
WEBBER MIDDLE SCHOOL MECHANICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

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

SHEET NUMBER

M2.1



HEATING WATER SUPPLY
TEMPERATURE RESET SCHEDULE

SEQUENCE OF OPERATION:
HEATING WATER BOILERS 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. SEQUENCES OF OPERATION FOR BOTH BOILER CONTROL SYSTEM AND FMCS SHALL BE AS FOLLOWS:

THERE IS AN EXISTING EPO FOR THE BOILERS. FMCS TO COORDINATE RECONNECTION TO NEW BOILERS WITH EC. FMCS TO PROVIDE TWO NEW EPO'S PER THE FLOOR PLANS AND COORDINATE WIRING 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. WHEN BOILER IS ENABLED THE ASSOCIATED CIRCULATING PUMP SHALL RUN CONTINUOUSLY.

THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL STAGE AND MODULATE THE BOILER PLANT TO MAINTAIN THE HIGHEST PLANT EFFICIENCY THAT WILL PROVIDE THE REQUIRED SUPPLY WATER TEMPERATURE. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL START BOILER PUMP TO PROVIDE PRE AND POST FLOW. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL VERIFY PROOF OF WATER FLOW BEFORE FIRING BOILERS. BOILER SEQUENCING CONTROLLER PANEL SHALL START/STOP BOILERS ON A FIRST ON/FIRST OFF BASIS TO EQUALIZE RUN TIME BETWEEN BOILERS.

THE FOLLOWING BACNET MS/TP VIRTUAL OBJECTS WILL BE MAPPED FOR EACH BOILER 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 EACH BOILER AND THE FMCS:

1. BOILER ENABLE
2. BOILER FAULT

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 BOILERS ON A CALL FOR HEATING AND THE OUTSIDE AIR TEMPERATURE IS BELOW 55 DEG. F. THE BOILERS SHALL ENABLE THE BOILER CIRCULATION PUMPS. FMCS TO MONITOR STATUS.

ONCE ENABLED, HOT WATER LOOP DIFFERENTIAL PRESSURE SHALL BE MAINTAINED AT SETPOINT, 10 PSI (ADJUSTABLE - CONFIRM ACTUAL SET PINT WITH SCHOOL DISTRICT ON EXISTING SYSTEM)BY FIRST STARTING THE LEAD HOT WATER PUMP AND MODULATING THE ASSOCIATED NEW VFD. MULTIPLE DPT SENSORS ARE EXISTING, WORST CASE DPT SENSOR SHALL CONTROL PUMP SPEED. MINIMUM PUMP SPEED SHALL REMAIN WITH EXISTING PUMPS. WHEN LEAD HOT WATER PUMP IS AT 100% AND LOOP PRESSURE IS 2 PSI BELOW SETPOINT FOR MORE THAN 15 MINUTES THE LAG PUMP SHALL BE STAGED ON AT 60% AND THE LEAD PUMP SHALL REDUCE TO 60%. BOTH PUMPS SHALL THEN STAGE UP AND DOWN TO MAINTAIN LOOP PRESSURE. WHEN BOTH PUMPS ARE BELOW 40% THE LAG PUMP SHALL STAGE OFF. THE LEAD AND LAG POSITIONS OF HOT WATER PUMPS ARE TO ALTERNATE WEEKLY. GENERATE ALARM TO BAS IF ANY SYSTEM DIFFERENTIAL PRESSURE SENSOR FALLS 4 PSI (ADJ.) BELOW AVERAGE TRENDING VALUE FOR LONGER THAN 15 MIN (ADJ.)

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/ECM
- 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.
- WHEN THE GYLCOL FEEDER IS LOW.

1 HEATING CONTROL - CONDENSING BOILER PRIMARY/SECONDARY - WMS

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

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PROFESSIONAL SEAL

COLORADO LICENSED
BRIAN EAGLETON
43928
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PROFESSIONAL ENGINEER

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SHEET TITLE

WEBBER MIDDLE SCHOOL MECHANICAL DETAILS, SCHEDULES, & CONTROLS

SCALE

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

SHEET NUMBER

M2.2

COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

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

Construction Site:
4201 Seneca St.
Fort Collins, Colorado 80526

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-1: Heating: Hot Water Boiler, Capacity 2500 kBtu/h, Gas Proposed Efficiency: 96.00 % Ec, Required Efficiency: 82.00 % Ec
1	Boiler B-2: Heating: Hot Water Boiler, Capacity 2500 kBtu/h, Gas Proposed Efficiency: 96.00 % Ec, Required Efficiency: 82.00 % Ec

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- WMS**
NO SCALE

22000573.00 3/15/2022 11:30:48 AM PSD - Webber MS Boiler Replacement

POUDRE SCHOOL DISTRICT

PSD - Webber MS Boiler Replacement

Fort Collins, CO

IMEG

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

PH: 303.796.6000
FX: 720.501.6713
www.imegcorp.com

PROFESSIONAL SEAL

COLORADO LICENSED BRIAN EAGLETON 43928 PROFESSIONAL ENGINEER 3/15/2022

AGENCY APPROVAL

DISCLAIMER

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 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

INDICATES DIRECTION OF TRUE NORTH
PLAN OR DETAIL NUMBER
PLAN OR DETAIL NAME
NORTH — 1 — VIEW NAME
1/8" = 1'-0"
PLAN OR DETAIL SCALE

SIM — INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS — SIM
1 — DETAIL REFERRED TO BY SECTION CUT — 1 2 3 4
M101 — SHEET DETAIL IS LOCATED ON — T101

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/1
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

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PROFESSIONAL SEAL

COLORADO LICENSED MARSHALL H. MOORE 55583 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	**MHM**
Approved	**MHM**

SHEET TITLE

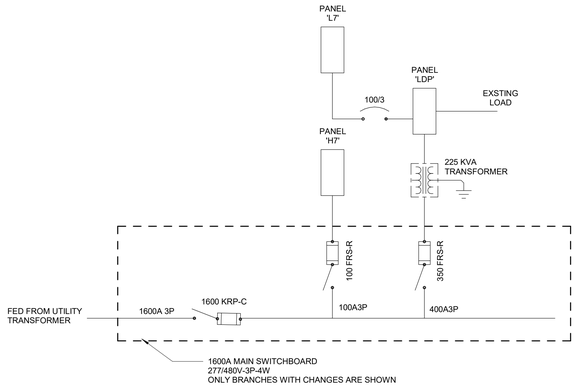
ELECTRICAL COVERSHEET

SCALE

Scale: **As indicated**

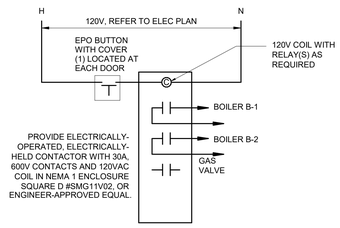
SHEET NUMBER

E0.0



3 PARTIAL ELECTRICAL ONE LINE

NO SCALE

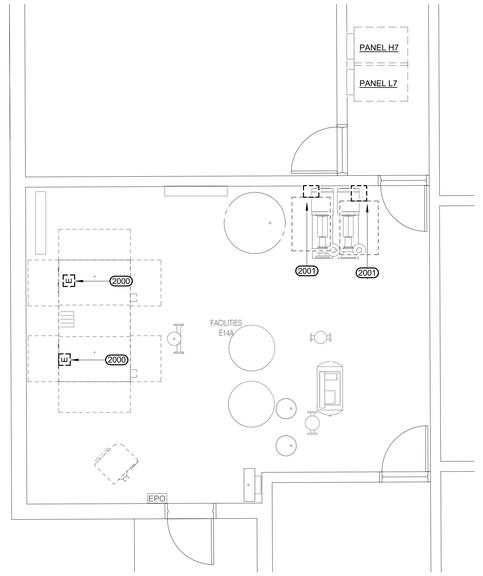


4 MECHANICAL RM EPO - GAS SERVICE SHUT-DOWN

12" = 1'-0"

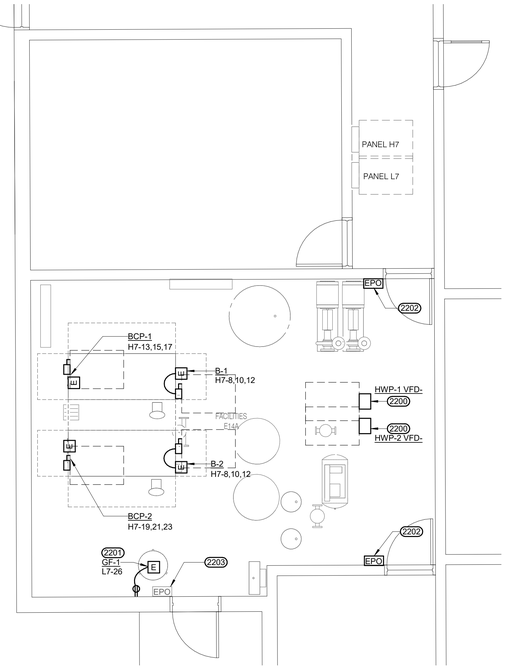
KEYNOTES

2000	DISCONNECT EXISTING 480V-3PHASE 1-1/2HP BOILER BURNER AND 120V CONTROLS TO BE REPLACED WITH NEW. SAVE AND PROTECT 480V WIRES FOR CONNECTION OF NEW BOILER. REMOVE 120V CONTROLS BACK TO SOURCE AND LABEL CIRCUIT BREAKER 'SPARE'.
2001	DISCONNECT AND REMOVE EXISTING 10HP 480V-3PHASE VFD FOR EXISTING PUMP TO BE REPLACED WITH NEW IN A NEW LOCATION. REMOVE EXISTING CONDUCTOR AND CONDUIT BACK TO SOURCE.
2200	INSTALL 10HP 480V-3PHASE VFD TO BE PROVIDED BY OWNER AND INSTALLED BY ELECTRICAL. PROVIDE (3#12 + 1#12G IN 3/4"C) AS SHOWN. COORDINATE LOCATION WITH EXISTING CONDITIONS. NO NEW LOAD ADDED.
2201	CONNECT NEW GLYCOL FEEDER TO EXISTING CIRCUIT BREAKER MADE SPARE IN DEMO OF EXISTING BOILER CONTROLS. NEW GF-1 LOAD ADDED TO EXISTING PANEL IS LESS THAN BOILER CONTROL LOAS REMOVED.
2202	EMERGENCY POWER OFF "EPO" BUTTON PROVIDED BY TEMPERATURE CONTROL CONTRACTOR AND WIRED BY EC. ROUTE CIRCUITS FEEDING ALL GAS FIRED EQUIPMENT INCLUDING BOILERS, WATER HEATERS AND GAS VALVE(S) THRU CONTACTOR FOR SHUT DOWN BY EPO. REFER TO DETAIL ON DRAWING 4/E1.0.
2203	EXISTING EPO TO REMAIN, DISCONNECT FROM DEMOED BOILERS AND RECONNECT TO NEW BOILERS. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE AND FUNCTIONING SYSTEM.



1 FIRST FLOOR DEMOLITION - ELECTRICAL - WEBBER MIDDLE SCHOOL

1/4" = 1'-0"



2 FIRST FLOOR - ELECTRICAL - WEBBER MIDDLE SCHOOL

1/4" = 1'-0"

PANEL L7

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 0 A/0P @
LOCATION:

SOLID NEUTRAL
GROUND BUS

MAIN: 100 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 RECEPTS	20 A	1	--	--	--	--	1.64	1.26		--	--	--	--	1	20 A	EXISTING RECEPTS	2	--
--	3	EXISTING RECEPTS	20 A	1	--	--	--	--		1.46	1.38	--	--	--	--	1	20 A	EXISTING MECH	4	--
--	5	EXISTING RECEPTS	20 A	1	--	--	--	--			1.71	0.8	--	--	--	1	20 A	EXISTING MECH	6	--
--	7	EXISTING RECEPTS	20 A	1	--	--	--	--	1.59	1.33		--	--	--	--	1	20 A	EXISTING RECEPTS	8	--
--	9	EXISTING RECEPTS	20 A	1	--	--	--	--		1.26	1.26	--	--	--	--	1	20 A	EXISTING RECEPTS	10	--
--	11	EXISTING RECEPTS	20 A	1	--	--	--	--			1.26	1.51	--	--	--	1	20 A	EXISTING RECEPTS	12	--
--	13	EXISTING MECH	20 A	1	--	--	--	--	0.4	1.73		--	--	--	--	1	20 A	EXISTING RECEPTS	14	--
--	15	EXISTING MECH	20 A	1	--	--	--	--		0.97	1	--	--	--	--	1	20 A	EXISTING MECH	16	--
--	17	EXISTING MECH	20 A	1	--	--	--	--			1.51	1	--	--	--	1	20 A	EXISTING MECH	18	--
--	19	EXISTING MECH	20 A	1	--	--	--	--	0.72	1		--	--	--	--	1	20 A	EXISTING MECH	20	--
--	21	EXISTING RECEPTS	20 A	1	--	--	--	--		0.18	1.53	--	--	--	--	1	20 A	EXISTING MECH	22	--
--	23	EXISTING MECH	20 A	1	--	--	--	--			1.78	1.6	--	--	--	1	20 A	EXISTING RECEPTS	24	--
--	25	EXISTING RECEPTS	20 A	1	--	--	--	--	0.36	0.83		1.02	12	12	12	1	20 A	NEW GLYCOL FEEDER GF-1	26	[2]
--	27	EXISTING RECEPTS	20 A	1	--	--	--	--		0.4	0	--	--	--	--	1	20 A	EXISTING	28	--
--	29	EXISTING RECEPTS	20 A	1	--	--	--	--			0.4	0	--	--	--	1	20 A	EXISTING	30	--
--	31	EXISTING SHADES	20 A	1	--	--	--	--	1	--		--	--	--	--	1	--	SPACE	32	--
--	33	EXISTING SHADES	20 A	1	--	--	--	--		1	--	--	--	--	--	1	--	SPACE	34	--
	35											--	--	--	--	1	--	SPACE	36	--
	37																		38	
	39																		40	
	41																		42	
								Total Load:	11.86 kVA	10.44 kVA	11.57 kVA									
								Total Amps:	100.28	87.02	97.89									

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
Motor	0.83 kVA	100.00%	0.83 kVA		
Spare	33.045 kVA	80.00%	26.436 kVA	TOTAL CONNECTED LOAD:	33.88 kVA
				TOTAL ESTIMATED DEMAND LOAD:	27.266 kVA
				TOTAL CONNECTED AMPS:	94.03 A
				TOTAL ESTIMATED DEMAND AMPS:	75.7 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 CIRCUIT BREAKER TO MATCH EXISTING MANUFACTURER AND AIC RATING OF PANEL. [2] EXISTING SPARE CIRCUIT BREAKER.

EXISTING PANEL L7 - LOAD SUMMARY

EXISTING LOAD IS BASED ON RECORD DRAWINGS DATED 2005
EXISTING = + 27.8 KVA

NEW LOAD ADDED
GF-1 = + 0.83 KVA

TOTAL = 28.63KVA AT 208V-3PHASE = 73.91 AMPS

EXISTING 100A PANELBOARD IS ADEQUATE FOR NEW LOADS.

PANEL H7

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 0 A/0P @
LOCATION:

SOLID NEUTRAL
GROUND BUS

MAIN: 100 A MLO
VOLTS: 480/277 Wye
PHASE: 3
WIRE: 4
SCCR: 14 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 LIGHTING	2	--
--	3	EXISTING LIGHTING	20 A	1	--	--	--	--		0	0	--	--	--	--	1	20 A	EXISTING LIGHTING	4	--
--	5	EXISTING LIGHTING	20 A	1	--	--	--	--			0	0	--	--	--	1	20 A	EXISTING LIGHTING	6	--
--	7	EXISTING LIGHTING	20 A	1	--	--	--	--	0	1.47			12	12	12	3	15 A	**NEW BOILER 1,2**	8	[2]
--	9	EXISTING LIGHTING	20 A	1	--	--	--	--		0	1.47	--	--	--	--	--	--	--	10	--
--	11	EXISTING LIGHTING	20 A	1	--	--	--	--			0	1.47	--	--	--	--	--	--	12	--
[1]	13	**BOILER CIRC PUMP BCP-1**	15 A	3	12	12	12	0.14	1.33	0		--	--	--	--	3	15 A	EXISTING AIR COMPRESSOR	14	--
--	15	--	--	--	--	--	--	--		1.33	0	--	--	--	--	--	--	--	16	--
--	17	--	--	--	--	--	--	--			1.33	0	--	--	--	--	--	--	18	--
[1]	19	**BOILER CIRC PUMP BCP-2**	15 A	3	12	12	12	0.17	1.33	0		--	--	--	--	3	20 A	EXISTING DUST COLLECTOR	20	--
--	21	--	--	--	--	--	--	--		1.33	0	--	--	--	--	--	--	--	22	--
--	23	--	--	--	--	--	--	--			1.33	0	--	--	--	--	--	--	24	--
--	25	EXISTING ROOF TOP VENT	15 A	3	--	--	--	--	0	0		--	--	--	--	3	15 A	EXISTING EX. FAN	26	--
--	27	--	--	--	--	--	--	--		0	0	--	--	--	--	--	--	--	28	--
--	29	--	--	--	--	--	--	--			0	0	--	--	--	--	--	--	30	--
--	31	EXISTING LIGHTING	20 A	1	--	--	--	--	0	0		--	--	--	--	3	15 A	EXISTING EX. FAN	32	--
--	33	EXISTING LIGHTING	20 A	1	--	--	--	--		0	0	--	--	--	--	--	--	--	34	--
--	35	EXISTING LIGHTING	20 A	1	--	--	--	--			0	0	--	--	--	--	--	--	36	--
--	37	EXISTING KEF-1	15 A	3	--	--	--	--	0	0		--	--	--	--	3	20 A	EXISTING RTU-4	38	--
--	39	--	--	--	--	--	--	--		0	0	--	--	--	--	--	--	--	40	--
--	41	--	--	--	--	--	--	--				0	0	--	--	--	--	--	42	--
								Total Load:	4.13 kVA	4.13 kVA	4.13 kVA									
								Total Amps:	14.92	14.92	14.92									

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
Motor	8 kVA	100.00%	8 kVA		
Power	4.4 kVA	100.00%	4.4 kVA	TOTAL CONNECTED LOAD:	12.40 kVA
				TOTAL ESTIMATED DEMAND LOAD:	12.4 kVA
				TOTAL CONNECTED AMPS:	14.91 A
				TOTAL ESTIMATED DEMAND AMPS:	14.9 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] EXISTING CIRCUIT BREAKER MADE AVAILABLE DURING DEMO OF EXISTING BOILER. [2] PROVIDE NEW THREE POLE BREAKER.

EXISTING PANEL H7, 100A 277/480V LOAD SUMMARY

EXISTING LOAD IS BASED ON RECORD DRAWINGS DATED 2012
EXISTING = + 70.8 KVA

EXISTING LOAD REMOVED
B-1 = - 2.39 KVA
B-2 = - 2.39 KVA

NEW LOAD ADDED
B-1 = + 2.39 KVA
B-2 = + 2.39 KVA
BCP-1 = + 4.00 KVA
BCP-2 = +4.00 KVA

TOTAL = 78.80KVA AT 480V-3PHASE = 94.78 AMPS
EXISTING 100A PANELBOARD IS ADEQUATE FOR NEW LOADS.

MECHANICAL CONNECTION SCHEDULE

TAG NAME	Description	VOLTAGE	LOAD CLASS.	MOTORS QTY	@	HP	APPARENT LOAD	FLA	MCA	MOCP	OCPD	CIRCUIT NUMBER	WIRE AND RACEWAY	DISCONNECT BY	DISCONNECT TYPE	CONTROLLER / STARTER BY	CONTROLLER / STARTER TYPE	COMMENTS
H7																		
B-1	BOILER	480 V, 3Ø	Power	0	-	0	2.20 kVA	5 A	6.3 A	15 A	15 A	8,10,12	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P 10A LPS-RK			WEBBER - A 480V3P-208V3PH TRANSFORMER PROVIDED INTEGRAL WITH BOILER. PROVIDE HEAVY DUTY 30A FUSED DISCONNECT.
B-2	BOILER	480 V, 3Ø	Power	0	-	0	2.20 kVA	5 A	6.3 A	15 A	15 A	8,10,12	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P 10A LPS-RK			WEBBER - A 480V3P-208V3PH TRANSFORMER PROVIDED INTEGRAL WITH BOILER. PROVIDE HEAVY DUTY 30A FUSED DISCONNECT.
BCP-1	BOILER CIRC PUMP, 3HP	480 V, 3Ø	Motor	1	@	3	4.00 kVA	5 A	0 A	15 A	15 A	13,15,17	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P LPS-RK	MFG	ECM	WEBBER. PROVIDE HEAVY DUTY 30A FUSED DISCONNECT.
BCP-2	BOILER CIRC PUMP, 3HP	480 V, 3Ø	Motor	1	@	3	4.00 kVA	5 A	0 A	15 A	15 A	19,21,23	3#12 & 1#12 EGC IN 3/4" C.	EC	30A3P LPS-RK	MFG	ECM	WEBBER. PROVIDE HEAVY DUTY 30A FUSED DISCONNECT.
L7																		
GF-1	GLYCOL FEEDER, 1/3HP	120 V, 1Ø	Motor	1	@	0.33	0.83 kVA	7 A	0 A	0 A	20 A	26	2#12 & 1#12 EGC IN 3/4" C.	EC	20A GFCI RECEPTACLE			WEBBER. PROVIDE 20 GFCI RECEPTACLE AS A MEANS OF DISCONNECT.

POUDRE SCHOOL DISTRICT

PSD - Webber MS Boiler Replacement

Webber Middle School

4201 Seneca St.
Fort Collins, CO

IMEG

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

PH: 303.796.6000
FX: 720.501.6713
www.imegcorp.com

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PROFESSIONAL ENGINEER
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5-15-22

AGENCY APPROVAL

REVISIONS

No.	Date	Revision / Issue

SHEET INFORMATION

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

SHEET TITLE

ENLARGED BOILER DEMO AND NEW ELECTRICAL PLAN

SCALE

Scale: **As indicated**

SHEET NUMBER

E1.0

3/15/2022 1:03:19 PM PSD - Webber MS Boiler Replacement

22000573.00