

| BOILER SCHEDULE | | | | | | | | | | | | | | B | | | | |
|-----------------|-------------------------------|----------------|-------------------|------------|-----------|--------------------|---------------------|-----------------|----------------------------------|---------------|----------------|-------------|-----------------|------------------|----------------------------|-------|---------------------|----------------------------------|
| ID | MANUFACTURER AND MODEL NUMBER | LOCATION | TYPE | DRAFT TYPE | FUEL TYPE | INPUT LOAD (BTU/H) | OUTPUT LOAD (BTU/H) | FLUID | | | ELECTRICAL | | | PHYSICAL | | NOTES | | |
| | | | | | | | | FLOW RATE (GPM) | ENTERING/LEAVING TEMP. (°F)(MAX) | WORKING FLUID | HEAD LOSS (FT) | MOTOR QUAN. | MOTOR SIZE (HP) | MOTOR VOLT/PH/Hz | CONTROL CIRCUIT VOLT/PH/Hz | | STACK DIAMETER (IN) | LENGTH/ WIDTH/ HEIGHT (IN)(WT #) |
| B-1 | WEIL MCLAIN SF 1500 | MECHANICAL 117 | HIGH EFF/ALUM HEX | INDUCED | NAT GAS | 1,500,000 | 1,220,511 | 96.0 | 120/175 | 100% WATER | 9.7 | 2 | FRACTION | 120/1/60 | 24/1/60 | 8" | 61X33X51 | 1,2,3,4,5,6,7,8 |
| B-2 | WEIL MCLAIN SF 1500 | MECHANICAL 117 | HIGH EFF/ALUM HEX | INDUCED | NAT GAS | 1,500,000 | 1,220,511 | 96.0 | 120/175 | 100% WATER | 9.7 | 2 | FRACTION | 120/1/60 | 24/1/60 | 8" | 61X33X51 | 1,2,3,4,5,6,7,8 |

NOTES:
 1. PROVIDE FACTORY AUTHORIZED STARTUP ASSISTANCE AS PART OF THIS CONTRACT.
 2. PROVIDE BOILER WITH ALL OSD-1 SAFETIES WHETHER THEY ARE SHOWN IN DRAWING DETAIL OR NOT.
 3. PROVIDE BOILER WITH MFR. RECOMMENDED SIZED BOILER CIRCULATOR OF GRUNDFOS BRAND.
 4. THIS CONTRACT SHALL MAKE PROVISION FOR ALL POWER WIRING INCLUDING SAFETIES AND CIRCULATOR.
 5. INSTALL BOILERS IN STRICT ACCORDANCE WITH THE MFR SPECIFIC WRITTEN DIRECTIONS.
 6. INSTALL SINGLE AXIOM NT20 NEUTRALIZER KIT FOR ALL BOILERS AT EACH LOCATION. LOCATE FOR EASE OF MAINTENANCE.
 7. BOILER MUST INTEGRATE VIA BACNET TO EXISTING NIAGARA AX SYSTEM AND ALLOW DEMAND CONTROL AS WELL AS ALL ONBOARD POINT MONITORING THROUGH BMS.
 8. VERIFY BOILER RELIEF PRESSURE WITH EXISTING SYSTEM REQUIREMENTS PRIOR TO ORDERING.

| PUMP SCHEDULE | | | | | | | | | | P |
|---------------|-------------------|----------|------------|-----------|----------|-------|------|-------------------|----------------------|-----------------------------------|
| TAG NO. | SERVICE | LOCATION | FLOW (GPM) | HEAD (FT) | FLG SIZE | MOTOR | | | MANUFACTURER & MODEL | OPTIONS-ACCESSORIES |
| | | | | | | HP | RPM | VOLT.-PH.-CY. FLA | | |
| P-1 | HEATING-BLDG LOOP | MECH 117 | 150 | 52 | 2-1/2" | 5.0 | 3450 | 480-3-60 | 7.8 | GRUNDFOS CR 32-1-A-G-A-V-KUHV 1,2 |
| P-2 | HEATING-BLDG LOOP | MECH 117 | 150 | 52 | 2-1/2" | 5.0 | 3450 | 480-3-60 | 7.8 | GRUNDFOS CR 32-1-A-G-A-V-KUHV 1,2 |

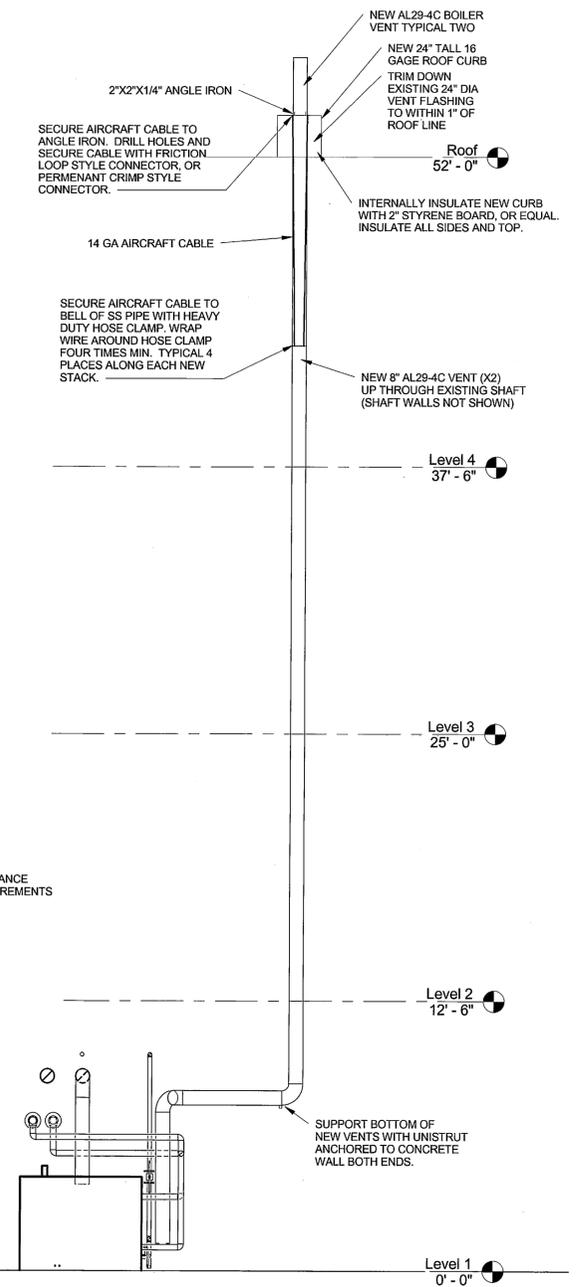
NOTES:
 1. PROVIDE WITH GRUNDFOS CRE 5-4 A-B-A-E-HQQE VARIABLE SPEED DRIVE PACKAGE, INCLUDE FACTORY AUTHORIZED STARTUP FOR PUMP AND VFD.
 2. RE-USE EXISTING MANUAL DISCONNECTS AND RE-FUSE FOR NEW LOAD.

| PIPE MATERIAL AND INSTALLATION SCHEDULE | | | | | |
|-----------------------------------------|----------------------------------------------------------------------------------|-------------|--------------------------------|-----------------|--------|
| SERVICE OR SYSTEM | MATERIAL | PIPE SIZE | INSULATION THICKNESS | PIPE SIZE | NOTES: |
| DOMESTIC COLD WATER | TYPE L COPPER, VIEGA PRO-PRESS | ALL | 1/2" FIBERGLASS | ALL | 1,2 |
| NATURAL GAS | BLACK T&C WITH BMI FITTINGS WELDED STEEL SCH 40 | <=2" >2" | NONE | N/A | 2 |
| HEATING HOT WATER S&R | TYPE L COPPER, BLACK STEEL T&C WELDED STEEL SCH 40, GROOVED STEEL, MEGA-PRESS | <=2" >2" | 1" FIBERGLASS 2" FIBERGLASS | <=1.5" >1.5" | 1,2 |
| CONDENSATE | SCHEDULE 40 PVC DWV (FLEXIBLE TUBING NOT ALLOWED) | ALL | NONE | N/A | |

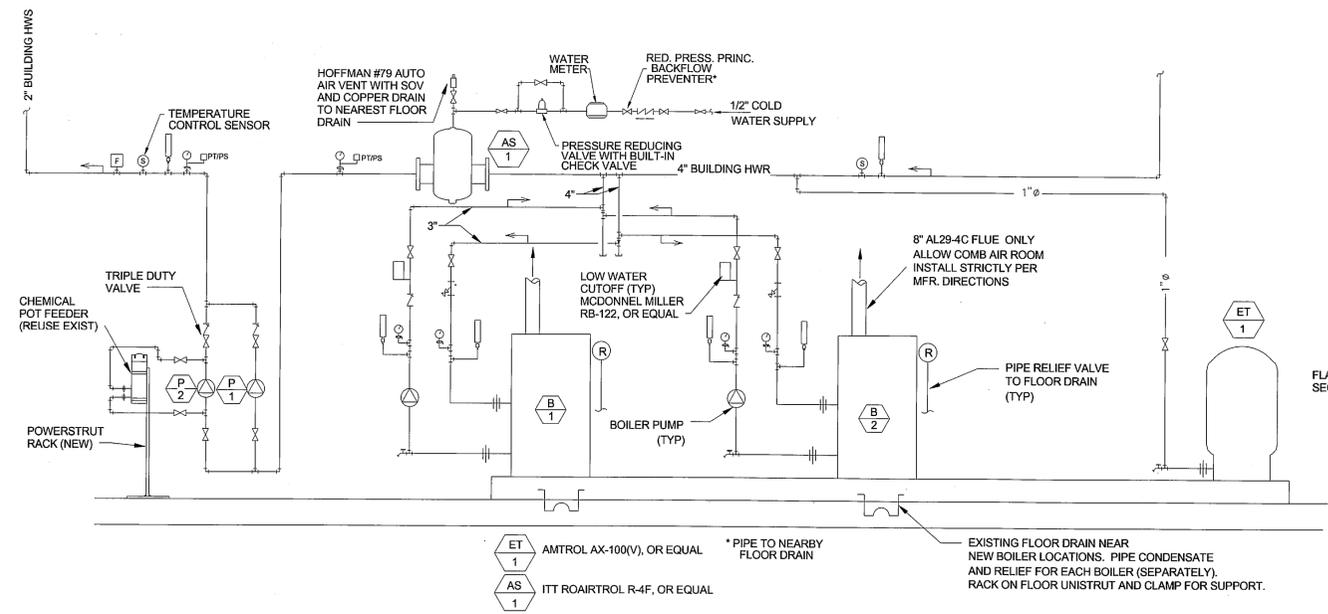
NOTES:
 1. INSULATION TO BE OF HEAVY DENSITY BONDED FIBERGLASS WITH ALL SERVICE JACKET (WHITE). FITTING TO BE PVC ZESTON COVERS WITH FLEXIBLE INSULATION WRAP. SEAL ALL JOINTS WITH SEALANT. K VALUE NOT EXCEEDING 0.27 BTU PER IN/HT*2/DEG F.
 2. SEISMIC BRACE ALL PIPE GREATER THAN 2-1/2" ID PER LOCAL CODE.
 GENERAL NOTE ALL
 SEAL ALL NON RATED STRUCTURE PIPE PENETRATIONS INCLUDING DRAFT STOPS WITH SILICON OR FIRE RATED EXPANDING FOAM. SEAL ALL RATED PIPE PENETRATIONS IN ACCORDANCE WITH CONTRACTOR SELECTED MFR FIRE CAULK SYSTEM (AND/OR FIRE COLLAR) AND MATCH RATING WITH SPECIFIC UL LISTING. PROVIDE ENGINEER AND INSPECTOR FOR AHJ WITH SHOP DRAWING OF RATED ASSEMBLY PRIOR TO INSTALLATION.

GENERAL ROOFING NOTE:
 CONTRACTOR SHALL OBTAIN SERVICES FROM AUTHORIZED ROOFING COMPANY THAT SUPPORTS THE EXISTING ROOF WARRANTY AND PATCH NEW CURB INCIDENCE TO EXISTING ROOF. ADDITIONALLY THE ROOFING CONTRACTOR SHALL WRAP AND SEAL NEW CURB, TOP OF CURB, AND SEAL TWO NEW BOILER VENT FLUES, CAPABLE OF 180 DEGREES.

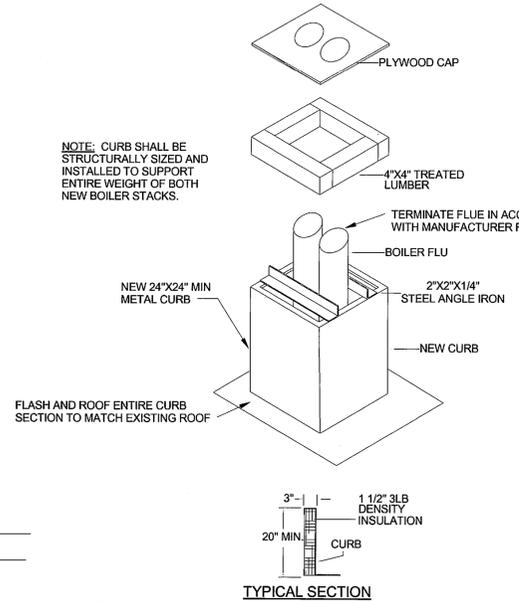
PROVIDE 3/4" PLYWOOD COVER OVER THE TOP OF THE ANGLE IRON (PLYWOOD COVER NOT SHOWN) PROVIDE FRAMING SPACER TO ADJUST FOR ANGLE IRON.



2 Boiler Vent Section
1/4" = 1'-0"



1 Boiler Piping Schematic
1/8" = 1'-0"



3 New Chimney Curb Detail
1/8" = 1'-0"

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A/E # 2014-30-04
 REPLACE 215 N. SANDERS BOILER
 BUILDING #12-STATE LAW LIBRARY
 215 NORTH SANDERS
 HELENA, MT 59601

Dawes Engineering & Design
 314 N. Last Chance Gulch Suite #101
 Helena, MT 59601 (406) 441-4000 p

SHEET CONTENTS
 Schedules & Details

ISSUE DATE:
 APR 04, 2014
 Drawn by: RD
 Checked by: RD
 REV # 0
 REV DATE: XXXXXXXX

SHEET NUMBER
 M2.0

A/E#2014-30-04 IS AN INTEGRATED CONTROL PROJECT THAT IS A TRIDIUM NIAGARA AX PROJECT EXCLUSIVELY. ANY NEW CONTROLLERS INSTALLED MUST COMMUNICATE DIRECTLY TO EXISTING JACE WITH NATIVE/UNCONVERTED BACNET READWRITE PROTOCOL.

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