## HOT WATER UNIT HEATER SCHEDULE

| UNIT NO. | SERVING | BUILDING | MANF. | CAT. NO. | MBH | GPM | HP | CFM | THROW | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| UH-1 | STORAGE ROOM | BISULFITE | WING | 19 | 79.2 | 7.9 | 1/4 | 2000 | 55 | SEE NOTES 1 THRU 3 |
| UH-2 | STORAGE ROOM | BISULFITE | WING | 19 | 79.2 | 7.9 | 1/4 | 2000 | 55 | SEE NOTES 1 THRU 3 |
| UH-3 | CHEMICAL FEED ROOM | BISULFITE | WING | 22 | 118 | 11.8 | 1/4 | 2750 | 65 | SEE NOTES 1 THRU 3 |
| UH-4 | SPARE ROOM | BISULFITE | WING | 19 | 79.2 | 7.9 | 1/4 | 2000 | 55 | SEE NOTES 1 THRU 3 |
| UH-5 | ELECTRICAL ROOM | BISULFITE | WING | 1½U | 6.6 | .7 | 1/20 | 256 | 20 | SEE NOTES 1 THRU 3 |
| UH-6 | STORAGE ROOM | HYPOCHLORITE | WING | 23 | 159 | 15.9 | 1/2 | 3600 | 70 | SEE NOTES 1 THRU 4 |
| UH-7 | STORAGE ROOM | HYPOCHLORITE | WING | 23 | 159 | 15.9 | 1/2 | 3600 | 70 | SEE NOTES 1 THRU 4 |
| UH-8 | CHEMICAL FEED ROOM | HYPOCHLORITE | WING | 22 | 118 | 11.8 | 1/4 | 2750 | 65 | SEE NOTES 1 THRU 4 |
| UH-9 | ANALYSIS ROOM | HYPOCHLORITE | WING | 19 | 79.2 | 7.9 | 1/4 | 2000 | 55 | SEE NOTES 1 THRU 4 |

NOTE:
1. BASED ON 200°F EWT, 60°F EAT, 20°F WTD.
2. FAN MOTORS 120V, 1ø.
3. 5FT H20 WPD MAXIMUM.
4. PHENOLIC RESIN COATING.

## CIRCULATING PUMP SCHEDULE

| PUMP NO. | MANUFACTURER | PUMP SIZE | CIRCULATING FLUID | | | | | MIN % EFF. | MOTOR | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FLUID | GPM | PUMP HEAD FEET FLUID | TEMP. °F | SP GR | | NOM. HP. | VOLT | PHASE | RPM |
| CP-1 | B & G SERIES 60 | 2A | WATER | 90 | 35 | 180 | 1.0 | 50 | 1 1/2 | 115/230 | 1 | 1750 |
| CP-2 | B & G SERIES 60 | 2A | WATER | 90 | 35 | 180 | 1.0 | 50 | 1 1/2 | 115/230 | 1 | 1750 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

## SEQUENCE OF OPERATION

1. HOT WATER UNIT HEATERS UH-1 UH-9
A WALL MOUNTED T'STAT SET AT 60° TURNS ON THE FAN AS REQUIRED TO MAINTAIN THE SET POINT ROOM TEMP.

2. LOW TEMPERATURE T'STAT & ALARM

WHEN THE TEMPERATURE IN THE SPACES DROPS BELOW THE T'STAT SET POINT, AN OUTDOOR AUDIBLE ALARM IS GIVEN.

3. INTERMITTANT VENTILATION FANS, EF-1,2,3,5,7 & 8

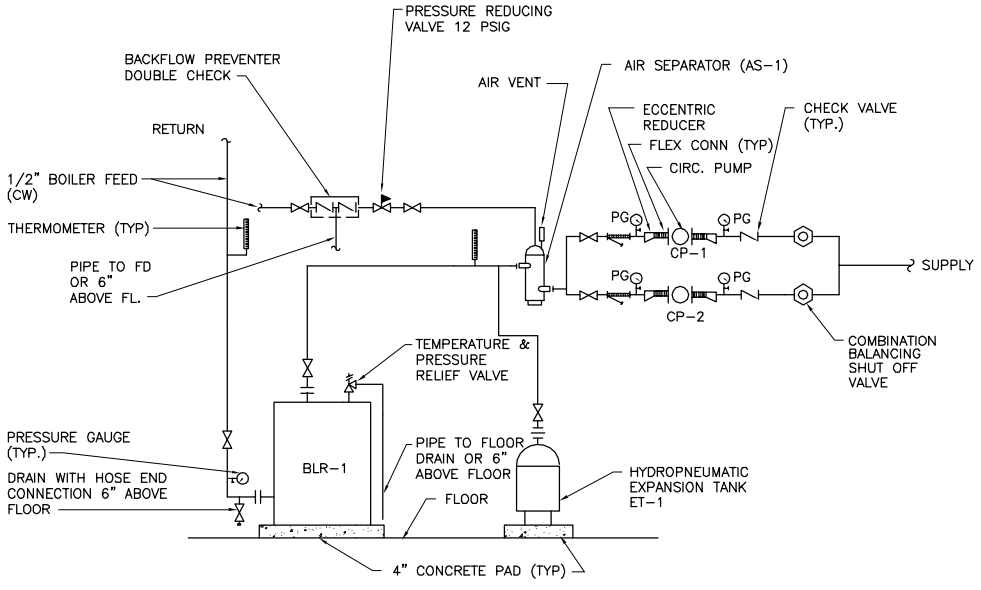
THE FANS PROVIDE VENTILATION DURING OCCUPIED PERIODS AND COOLING OF THE SPACE DURING THE SUMMER. A LIGHT SWITCH WILL ACTIVATE THE FAN WHEN THE SPACE IS BEING OCCUPIED. A COOLING T'STAT SET AT 80° WILL ALSD ACTIVATE THE FAN.

4. CONTINOUS VENTILATION FANS EF-4 & 6
THE FANS RUN CONTINUOUSLY AND ARE CONTROLLED FROM THE BREAKER PANEL IN THE ELECTRICAL ROOM.

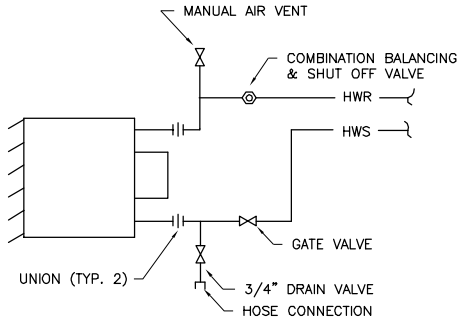
5. MOTOR CONTROL DAMPERS
1. MOTOR OPERATED AIR INTAKE DAMPERS WILL FULLY OPEN WHEN THE ASSOCIATED FAN IS ACTIVATED. THE DAMPER WILL FULLY CLOSED WHEN THE FAN IS DEACTIVATED.
2. MOTOR OPERATED EXHAUST DAMPERS SHALL BE FULLY OPENED WHEN THE ASSOCIATED FAN IS ACTIVIATED. THE DAMPER SHALL BE FULLY CLOSED WHEN THE FAN IS DEACTIVATED.

6. COMBUSTION AIR INTAKE DAMPERS
AIR INTAKE DAMPERS IN THE BOILER ROOM SHALL BE INTERLOCK WITH THE BOILER BURNER AND EF-3. WHEN ONE OR BOTH ARE RUNNING THE DAMPERS SHALL BE WIDE OPEN. A PROVING SWITCH ON THE DAMPERS WILL PREVENT THE BURNER OR FAN FROM OPERATING UNTIL THE DAMPERS ARE WIDE OPEN.

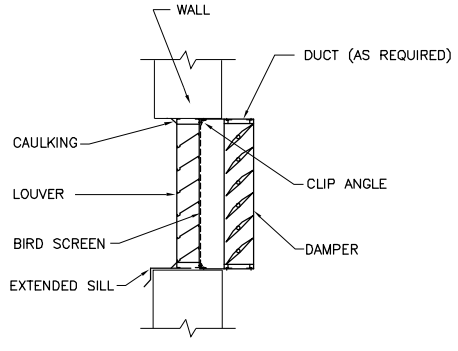
7. CIRCULATING PUMPS
CIRCULATING PUMPS SHALL BE CONTROLLED BY A ON/OFF SWITCH LOCATED IN THE BOILER ROOM.




**BOILER/HEATING SYSTEM PIPING DIAGRAM**
NTS




**UNIT HEATER PIPING DETAIL**
NTS




**LOUVER & DAMPER DETAIL**
NTS

## EXHAUST FAN SCHEDULE

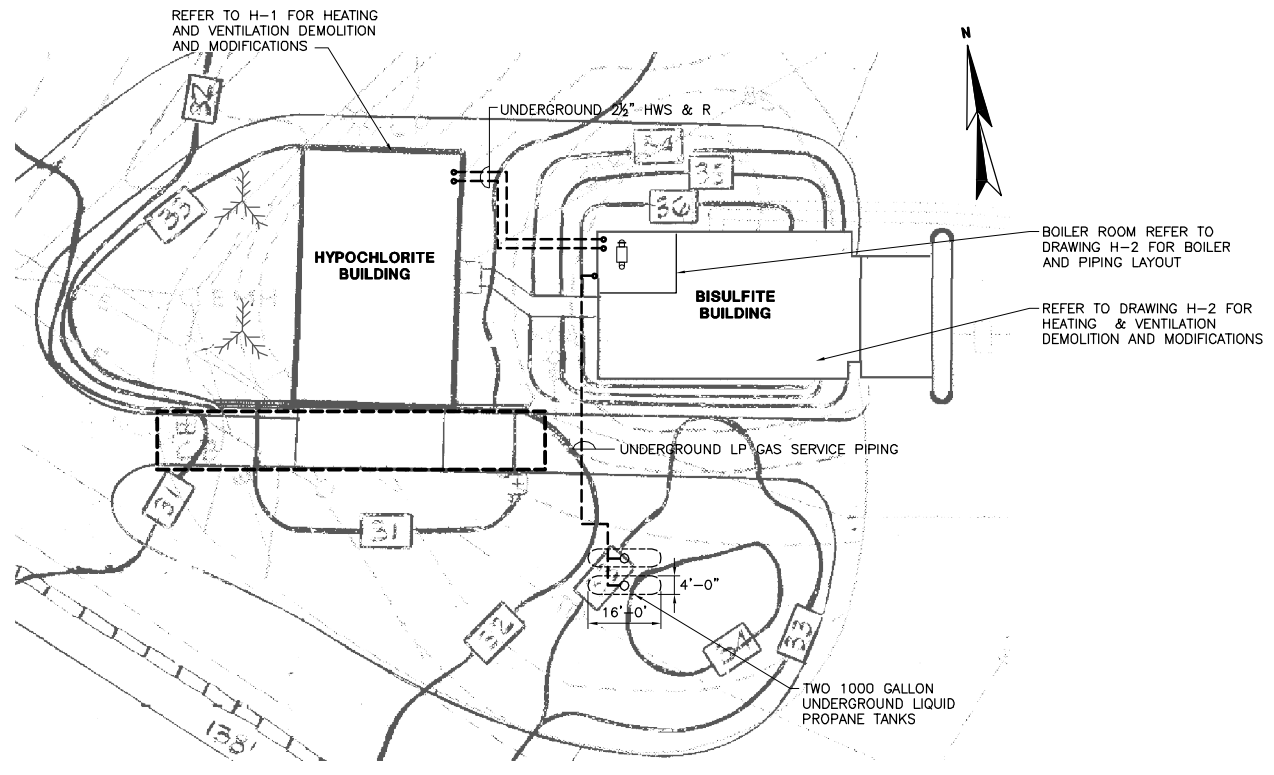
| TAG | SERVING | BUILDING | MANF. | MODEL | TYPE | CAT. NO. | AIR | | MOTOR | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CFM | ESP | HP | BHP | RPM | VOLTS | PHASE | |
| EF-1 | STORAGE ROOM | BISULFITE | COOK | CVD | IN-LINE | 14CV11D | 1000 | ⅜ | ¼ | .25 | 1140 | 120 | 1 | |
| EF-2 | CHEMICAL FEED ROOM | BISULFITE | COOK | CVD | IN-LINE | 12CV11D | 710 | ¼ | ⅛ | .10 | 1140 | 120 | 1 | |
| EF-3 | BOILER ROOM | BISULFITE | COOK | CVD | IN-LINE | 12CV11D | 460 | ⅜ | ⅛ | .10 | 1140 | 120 | 1 | |
| EF-4 | STORAGE ROOM | HYPOCHLORITE | COOK | ACE-B | ROOF | 80C3B | 590 | ⅜ | ¼ | .19 | 1750 | 120 | 1 | |
| EF-5 | STORAGE ROOM | HYPOCHLORITE | COOK | ACE-B | ROOF | 150C2B | 1060 | ⅜ | ⅛ | .13 | 1550 | 120 | 1 | |
| EF-6 | CHEMICAL FEED ROOM | HYPOCHLORITE | COOK | ACE-B | ROOF | 70C3B | 250 | ⅜ | ¼ | .19 | 1750 | 120 | 1 | |
| EF-7 | CHEMICAL FEED ROOM | HYPOCHLORITE | COOK | ACE-B | ROOF | 80C3B | 460 | ⅜ | ¼ | .19 | 1750 | 120 | 1 | |
| EF-8 | ANALYSIS ROOM | HYPOCHLORITE | COOK | CVD | IN-LINE | 12CV11D | 460 | ⅜ | ⅛ | .04 | 1750 | 120 | 1 | |

NOTE:
1. FANS ARE ALL ALUMINUM CONSTRUCTION.

## BOILER SCHEDULE

| UNIT NO. | MANUFACTURER | MODEL/SIZE | INPUT MBH RATING | GROSS I-B-R OUTPUT RATING MBH | FUEL TYPE | ELEC. | BURNER MOTOR HP | REMARKS |
|---|---|---|---|---|---|---|---|---|
| BLR-1 | WEIL-MCLAIN | 488 | 1010 | 810 | LIQUID PROPANE | 120/1ø | 1/6 | SEE NOTES |

NOTE:
1. FIELD ASSEMBLIED BOILER SECTIONS.
2. STANDARD BOILER & BURNER CONTROLS.




**SITE MODIFICATIONS**
SCANNED
APPROX SCALE: 1" = 20'

## EXPANSION TANK SCHEDULE

| TAG | MANF. | MODEL | SIZE | ACCEPTABLE VALUE |
|---|---|---|---|---|
| ET-1 | TACO | CAx84 | 16"ø x 41"H | 12 |

## AIR SEPERATION SCHEDULE

| TAG | MANF. | MODEL | SIZE | NOTES |
|---|---|---|---|---|
| AS-1 | TACO | TENGENTIAL FLANGED | 3" | SCREEN INCLUDED |

PROGRESS PRINTS
ISSUED FOR REVIEW: 12-15-04
ISSUED FOR BIDDING: 2-18-05
FF 36
VAULT LOCATION:
LAST WORKED ON:
FILENAME:

| NO | REVISIONS | APP'D | DATE |
|---|---|---|---|

DRAWN BY BAG/CJB
CHECKED BY GPO/PFB
DATE 2-18-05
APPROVED BY GPO/PFB
DATE 2-18-05
BOOK NO. –
PROJECT NO. 10301C
SCALE AS NOTED

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PORTLAND WATER DISTRICT
PORTLAND, MAINE
EAST END WWTF DISINFECTION AND DECHLORINATION SYSTEMS UPGRADE

SITE PLAN, SCHEDULES, AND DETAILS

DWG H-3
20 OF 33

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