AIR-COOLED CHILLER PIPING CONNECTION DETAIL

- LEFT SIDE
- RIGHT SIDE
- 6" CONCRETE PAD
- CONTROL PANEL
- FLEXIBLE CONNECTION
- CHILLED WATER S & R
- PRESSURE GAUGE W/GATE VALVE
- UNION (UP TO 2-1/2") FLANGE (3" & OVER)
- SEPARABLE SOCKET (GAUGE WELL)
- GATE VALVE
Rain Cap

Double Wall Positive Pressure Type Smoke Stack

3'-0" Above Roof (5'-0" for Natural Draft Boilers)

Vent Storm Collar

For Detail of Roof Flashing See Arch. Drawings

Roof Support Assembly

14" Dia Inside Dia. Stack From Boilers. See DWG. M-4 For Stack Layout.

Boiler Stack Detail
SEE PLAN FOR SIZE & CAPACITIES OF UNIT

INVERTED FLOW

PROVIDE 1" RIGID INSULATION IF UNIT IS LOCATED ON OUTSIDE WALL

6" UNLESS NOTED OTHERWISE

CABINET HEATER DETAIL
CABINET HEATER PIPING DETAIL

- MANUAL AIR VENT
- THERMOSTAT
- FLOW METERING DEVICE
- BALANCING COCK
- UNION
- GATE VALVE
- COIL
- HWR
- HWS
- FASTEN BULB TO R.A. BACKPLATE
- RUN PIPING BACK TO WALL

Samples from www.AutoCADDetails.net
ELBOW SUPPORT
FLOOR
GROUT
FLOOR FLANGE

BUTTERFLY VALVE (TYPICAL)
VIBRATION ISOLATOR (TYPICAL)
CHECK VALVE
PRESSURE GAGE WITH SERVICE COCK (RANGE AS SPECIFIED ON DRAWINGS)
GUARD
PUMP
MOTOR
ANCHOR PUMP TO 4" THICK CONCRETE BASE. BASE IS 3" LARGER THAN PUMP IN BOTH DIMENSIONS
DRAIN VALVE
MIN. STRAIGHT PIPE 5 X DIAMETER SUCTION OR USE SUCTION DIFFUSER

(CBASE MOUNTED)

CENTRIFUGAL PUMP
GATE VALVE

STRAINER WITH BLOWDOWN

CONCENTRIC REDUCER (TYPICAL)

ELBOW SUPPORT

FLOOR

GROUT

FLOOR FLANGE

GATE VALVE

FLOW CONTROL-BALANCING VALVE

VIBRATION ISOLATOR (TYPICAL)

CHECK VALVE

PRESSURE GAGE WITH SERVICE COCK (RANGE AS SPECIFIED ON DRAWINGS)

PUMP

MOTOR

ANCHOR PUMP TO 4" THICK CONCRETE BASE. BASE IS 3" LARGER THAN PUMP IN BOTH DIMENSIONS

1/2" DRAIN VALVE

MIN. STRAIGHT PIPE 5 X DIAMETER SUCTION OR USE SUCTION DIFFUSER

(CLOSE COUPLED)

CENTRIFUGAL PUMP
MANUAL VENT

CHILLED WATER COIL
COMPUTER ROOM AIR CONDITIONING UNIT DETAIL
PRESSURE RELIEF VALVE
SEE SCHEDULE

PRESSURE GAGE

VACUUM BREAKER

BY-PASS SAME SIZE AS CONTROL VALVE

STEAM SUPPLY

CONTROL VALVE
SEE SCHEDULE

BY-PASS IF STEAM SUPPLY LINE IS GREATER THAN 2"

TRAP-SEE SCHEDULE

CONDENSATE RETURN

CONVERTER PIPE TO FLR. DRAIN

PIPE TO FLR. DRAIN

THERMOMETER RANGE 0 TO 250 F

CONVERTER PIPING DETAIL
CONVERTOR

CAST STEEL FRAME

BOLT SADDLE TO FRAME

4'-0'

6"X6"X
1/2"STEEL
PLATES
(ALL LEGS)

2"X2"X1/4"S

2 X CONVERTOR DIAMETER

FLOOR LINE

CONVERTOR SUPPORT DETAIL
COOLING COIL PIPING DETAIL

- THERMOMETER
- STRAINER
- AUTOMATIC CONTROL VALVE
- UNION
- AIR VENT
- GATE VALVE
- BALANCING COCK
- 3/4" DRAIN VALVE WITH HOSE CONNECTION
- FLOW METERING DEVICE

Samples from www.AutoCADDetails.net
BUTTERFLY VALVE, TYP.
(BOLT-IN TYPE VS. BOLT THRU)

CDR FROM CHILLER BYPASS, CONNECT TO THE TOWER BASIN PER THE MFR'S RECOMMENDATIONS

VACUUM BREAKER

STEAM CONTROL VALVE, SEE CONTROL DIAGRAM

GATE VALVE

LPS, CONNECT TO TOWER BASIN STEAM COIL

STRAINER

CDS TO PUMP

CONDENSATE TO FLOAT & THERMOSTATIC STEAM TRAP, LBS/HR AT PSI DIFFERENTIAL PRESSURE

NOTES:

1. PROVIDE THERMOSTATICALLY-CONTROLLED ELECTRIC SELF-LIMITING HEAT TRACING TAPE UNDERNEATH THE INSULATION ON ALL NEW PIPING LOCATED OUTDOORS EXCLUDING THE STEAM, CONDENSATE, AND DRAIN PIPING SERVING THE TOWER. LOCATE THE THERMOSTAT AS SHOWN ON THE PLANS WITH A SUN SHIELD AND SET IT TO ENERGIZE THE HEAT TAPE AT AN OUTDOOR TEMPERATURE BELOW 45 DEG. F.

2. PROVIDE PIPE SUPPORTS PER DETAIL ON SHEET. SPACE SUPPORTS IN ACCORDANCE WITH SECTION 15501 OF THE SPECIFICATIONS.

3. INSTALL PIPING TO PERMIT COMPLETE MAINTENANCE ACCESS TO THE TOWER.

COOLING TOWER PIPING
X" CWR FROM
CONDENSER
WATER PUMP

1-1/4" CW MAKE-UP
TO FLOAT VALVE

FLOAT VALVE

2" DRAIN LINE
W/GATE VALVE

2" OVERFLOW TO
GRADE DRAIN

X" CWS TO
CONDENSER
WATER PUMP

GATE VALVE
SUPPLY & RETURN

CROSS-FLOW COOLING TOWER DETAIL

COOLING TOWER

COOLING TOWER
SUPPORT FRAME.

6" CONCRETE PAD
GRADE
DETAIL-DOOR SWITCH INSTALLATION

TO NEXT DEVICE

JCT. BOX

CEILING

DOOR SWITCHES INSTALLED BY ELEC. CONTR.

TO NEXT DEVICE

CONDUIT CONCEALED IN WAL & STUBBED INTO DOOR HEAD.’ DOOR HEAD.

INSTALL BUSHING ON CONDUIT.

CABLE PULLED INTO DOOR HEAD AND CONNECTED BY ELE. CONTR.

Samples from www.AutoCADDetails.net
NOTE TO DESIGNER:

N.S.P.C. 10.16.7 REQUIRES: WHERE A HOT WATER STORAGE TANK OR INDIRECT WATER HEATER IS LOCATED AT AN ELEVATION ABOVE THE FIXTURE OUTLETS IN THE SYSTEM A VACUUM RELIEF VALVE SHALL BE INSTALLED ON THE STORAGE TANK.

DOMESTIC ELECTRIC WATER HEATER
DOMESTIC HOT WATER SCHEMATIC DETAIL

THERMOMETERS

RELIEF VALVE

ROUTE PIPE TO 12" AFF

STORAGE TANK

PRESSURE AND TEMPERATURE RELIEF VALVE

VENT TO ROOF

WATER HEATER

CIRCULATING PUMP

MIXING VALVE

PRESSURE GAUGE

DRAIN

STRAINER

110 F SUPPLY

COLD WATER SUPPLY

SUPPLY

DOMESTIC HOT WATER
DOMESTIC HOT WATER TANK AND TANK HEATER WITH STEAM INPUT
GAGE GLASS W/GUARD & SHUT OFF VALVES

AIR REMOVAL FITTING W/VENT
3/4" UP TO 7' HORIZ.
1" 7' TO 70'

RELIEF VALVE SEE DWGS. FOR SETTING

PRV SEE DWGS. FOR OUTLET SETTING
FULL SIZE TO FLOOR DRAIN
TO AIR SEPARATOR

EXPANSION TANK SEE DWGS. FOR SIZE

TANK DRAIN AND CHARGE VALVE W/HOSE CONNECTION
TO C.W. MAKE-UP CONTINUATION

(A) DIA
CLIP ANGLE WELD TO SUPPORT ANGLE

ANGLE "B"X"C"X"D"
NUTS AND WASHERS

GAL
A
B
C
D

0-50
1/2"
2"
2"
1/4"

0-100
5/8"
3"
3"
1/4"

EXPANSION TANK

(0-100 GALLONS)
FAN COIL UNIT PIPING DETAIL
FIN TUBE RADIATION DETAIL

- GATE VALVE
- AUTOMATIC CONTROL VALVE
- ACCESS DOOR
- GLOBE VALVE
- ECCENTRIC REDUCER WHERE PIPE SIZE CHANGES
- PARTITION WALL
- ACTIVE FIN LENGTH
- FLOOR
LOUVERS

TRIM STRIP 4" MIN. TO 9" MAX. MUST BE EQUAL ON BOTH ENDS.

4" MIN. MUST BE EQUAL BOTH ENDS.

TOP VIEW

TOP OF FINISH FLOOR

ELEVATION

(TOP DISCHARGE)

FINTUBE ENCLOSURE DETAIL

NOTE:
SYMMETRY SHALL ALSO BE MAINTAINED WHERE ENCLOSURE IS NOT INSTALLED BETWEEN WALLS.

4" NOMINAL

SECTIONS SHALL BE NO LONGER THAN 5'-0" AND BE SYMMETRICAL BETWEEN WALLS.
TRIM STRIP 4" MIN. TO 9" MAX. MUST BE EQUAL ON BOTH ENDS.

TOP VIEW

LOUVERS

4" MIN. MUST BE EQUAL BOTH ENDS

TOP OF FINISH FLOOR

4" NORMAL

NOTE: SYMMETRY SHALL ALSO BE MAINTAINED WHERE ENCLOSURE IS NOT INSTALLED BETWEEN WALLS.

ELEVATION

(SECTIONS SHALL BE NO LONGER THAN 5'-0" AND BE SYMMETRICAL BETWEEN WALLS)

FINTUBE ENCLOSURE DETAIL

(FRONT DISCHARGE)
FLOOR MOUNTED ELECTRIC WATER HEATER DETAIL
COMBINATION BALANCING/SHUT-OFF VALVE ON DOWNSTREAM SIDE OF F.I.

FLOW INDICATOR (F.I.)

1. ONLY STRAIGHT PIPE IS TO BE WITHIN MINIMUM UPSTREAM & DOWNSTREAM DIMENSIONS, NO FITTINGS OR VALVES ARE ALLOWED.

2. F.I. & VALVES SHALL BE ORIENTED FOR EASY ACCESS. IF TOP OF PIPE IS CLOSE TO STRUCTURE OR OBSTRUCTIONS, ARRANGE PIPING TO LOCATE VALVE OPERATOR & F.I. CONNECTIONS ON SIDE OF PIPE. NO VALVE SHALL BE INSTALLED WITH THE OPERATOR BELOW THE HORIZONTAL.

NOTES:

FLOW INDICATOR (F.I.) DETAIL
FLUSH VALVE SUPPORT DETAIL

FINISHED FLOOR

2 1/4" MIN.

11 1/2"

24"

FINISHED FLOOR

2 1/4" MIN.

WALL

24"(P-1 & P-1A)

15"(P-1)

18"(P-1A)
DELUGE TYPE EMERGENCY SHOWER

SHOWER AND EYE WASH SIGN

HANDLE SHOWN IN STAY OPEN POSITION

CHROME PLATED BRASS EYE WASH SPRAY HEADS W/PROTECTIVE COVERS

(3) 3/8" ANCHOR BOLTS IN CONCRETE FOOTING

FINISHED GRADE

CONCRETE FOOTING

MIN. 3 CUBIC YARDS OF CRUSHED STONE

FROST-PROOF VALVE WITH 1-1/4" DRAIN DOWN WASTE

1-1/4" WATER SUPPLY INLET (REFER PLAN FOR ROUTING)

FROST-PROOF COMBINATION DRENCH SHOWER/EYE WASH UNIT
3" W. X 3/16" T. STEEL HOLD DOWN STRAPS (TYP. OF 2)

COMPACTED SAND

#5 AT 12" O/C BOTH WAYS

FUEL OIL TANK ANTI-FLOTATION PAD & ANCHORAGE DETAILS

(TYPICAL FOR 275 & 550 GAL. STORAGE TANKS WHERE EXISTING CONCRETE PADS ARE FOUND.)
FUEL STORAGE TANK DETAIL
1. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

FULLY RECESSED DRINKING WATER COOLER
GAS FIRED HOT WATER HEATER CONNECTIONS

- Metal Flue Up Thru Roof, See Metal Flue Detail
- Ball Valve or Gage Valve
- X" C.W. Inlet
- Dielectric Unions as required by specs.
- Temperature - Pressure Relief Valve
- X" H.W. Outlet
- Ball Valve
- Relief Pipe
- Gas Supply
- Shut Off Cock
- Union
- Dirt Leg
- Pipe Cap
- Drain Valve with Hose End
- Water Heater

Samples from www.AutoCADDetails.net
GAS FIRED HOT WATER HEATER
CONNECTIONS WITH REcirculating LOOP

DIELECTRIC UNIONS
DRAIN VALVE, ROUTE TO FLOOR DRAIN

DIELECTRIC UNION
3/4" CIRCULATING LINE

SHUT OFF COCK
DIRT LEG
PIPE CAP
CONCRETE PAD

3/4" GAS SUPPLY

VENT PIPE

OFFICE SUPPLY TO FIXTURES

FLUE CONNECTION (CLASS "B")

COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE

X" C.W. INLET

X" H.W. SUPPLY TO FIXTURES

DOMESTIC HOT WATER CIRCULATING PUIMP DWP-1 SEE DETAIL
GAS FIRED UNIT HEATER DETAIL

UNIT HEATER

GAS CONTROL VALVE (FURNISHED BY HEATER MANUFACTURER)

8" DIRT LEG W/CAP BALL VALVE

TYPE B GAS VENT UNION
GAS FIRED WATER HEATER

NOTE TO DESIGNER: N.S.P.C. 10.16.7 REQUIRES: WHERE A HOT WATER STORAGE TANK OR INDIRECT WATER HEATER IS LOCATED AT AN ELEVATION ABOVE THE FIXTURE OUTLETS IN THE SYSTEM A VACUUM RELIEF VALVE SHALL BE INSTALLED ON THE STORAGE TANK.
6 GA. SHEET METAL (GALV.) FLASHING COLLAR

FLASHING & COUNTER FLASHING

ROOF

WELD TO VENT

AS REQUIRED FOR DIFFERENT PIPE SIZES

1/2" ALL AROUND

WELD (TYP.)

INSULATION WHERE REQUIRED

1" X 1/8" X LENGHT OF SLEEVE (4 REQ'D)

PIPE SLEEVE 2" LARGER I.D. THAN PIPE O.D.

HOT VENT DETAIL
HOT WATER COIL CONNECTION
LOCATE HANGER AT LAST ELBOW BEFORE HUMIDIFIER

HUMIDIFIER PIPING DETAIL
GATE VALVE

CHECK VALVE REQUIRED IF SYSTEM IS PRESSUREIZED BY OTHER SOURCES

GATE VALVE - N.O.
(CLOSE FOR PUMP SUCTION PRESSURE)

PRESSURE GAGE

BALANCING/SHUT-OFF VALVE WITH PRESSURE TAPS

GATE VALVE - N.C.
(OPEN FOR PUMP SUCTION PRESSURE)

IF PUMP SUCTION AND DISCHARGE FLANGES ARE TAPPED, USE THESE POINTS FOR PRESSURE GAGE CONNECTIONS

INLINE CENTRIFUGAL PUMP
1,000 LB CAPACITY JIB CRANE

8' 0" SPAN

10' 0" CLEAR BEAM HEIGHT

ELECTRIC WIRE ROPE HOIST, 1/2 - TON CAPACITY, 40 FT. MIN. LIFT, 115 V, SINGLE PHASE

ELECTRICAL CONTROL PENDANT WITH 15 FT. CABLE MIN.

NOTE: SEE PLAN FOR JIB CRANE LOCATION.

3 FT. DIA. BASE, 6 HOLE BOLT PATTERN AT 60 DEGREES.

JIB CRANE DETAIL
LAUNDRY SINK DRAIN CONNECTION DETAIL

- **2" VENT**
- **ENCLOSURE**
  - REFER TO ARCH DWGS
- **HOT & COLD WATER SUPPLY TO SINK**
- **P-7**
  - (1 BOWL SHOWN)
- **WATER SUPPLY PIPE SUPPORT**
  - REFER TO ARCH DRAWINGS
- **6" COLLECTION DRAIN ABOVE FLOOR**
- **DOUBLE BOWL TYPE**
LAVATORY TAILPIECE DETAIL

1 1/2" TAILPIECE
1 1/2" X 1 1/2" x 1" TEE
1 1/2" 'P' TRAP
1 1/2" TRAP ARM

1" COPPER COUPLING
1" COPPER ELBOW COPPER TO INCH PIPE SIZE

1" CONDENSATE DRAIN FROM A/C UNITS

CHROME PLATED ESCUTCHEON

LAVATORY OR SINK

WALL

1 1/2" TRAP ARM

LAVATORY TAILPIECE DETAIL
LOW PRESSURE DRIP DETAIL

FLOW

LAST BRANCH LINE FROM MAIN

GATE VALVE

STRAINER

UNION

F & T TRAP USE 200 LBS/HR @ 2 PSI P.D.

3/4"

6" MINIMUM

4" MINIMUM

DIRT POCKET FULL SIZE OF MAIN

RETURN TO MAIN

LOW PRESSURE DRIP DETAIL

Samples from www.AutoCADDetails.net
WEATHERPROOF CAP

METAL FLUE

GUY WIRES IF REQUIRED BY HEIGHT (3 TYPICAL)

STORM COLLAR

FLASHING

ROOF

METAL FLUE

METAL FLUE STACK DETAIL

IN ACCORDANCE WITH NFPA AS SPECIFIED

Samples from www.AutoCADDetails.net
SEE PLANS FOR SIZE & CAPACITIES OF UNIT

PROVIDE 1" RIGID INSULATION IF UNIT IS LOCATED ON OUTSIDE WALL

6" ± UNLESS NOTED OTHERWISE

RECESSED CONVERTOR DETAIL
TURN GAGE FACE TO ALLOW READING

BYPASS 1 PIPE SIZE SMALLER THAN H.P. STEAM, 3/4" MIN.

GLOBE VALVE

PRESSURE SENSING LINE

ECCENTRIC REDUCER

H.P. STEAM STRAINER

PRESSURE REDUCING VALVE SEE DWGS. FOR SIZE

RELIEF VALVE-SEE DWGS. FOR SIZE AND CAPACITY

PRESSURE GAGE, SEE DWGS. FOR RANGE

REDUCED PRESSURE STEAM

10 PIPE DIA. MIN.

SINGLE STEAM PRV STATION
STEAM MAIN

BUCKET TRAP
SEE SCHEDULE

DIET LEG (FULL SIZE OF MAIN)

CONDENSATE RETURN

STEAM MAIN DRIP DETAIL

(MEDIUM PRESSURE)

12" MIN.

Samples from www.AutoCADDetails.net
ANCHOR SECURELY TO BLDG. CONST.

RELIEF VALVE SEE DWGS FOR SIZE & SETTING

TO OUTSIDE OF BLDG

SEAT DRAIN

TO FLOOR DRAIN

STEAM RELIEF VALVE DRIP PAN ELL

3/4"

TO DRAIN FLOOR
STEAM WATER-TUBE ATOMSPHERIC BOILER DETAIL

DESIGNER NOTE:
HAND HOLE OPENING FOR GROSS OUTPUT OF 1,600,000 BtuH & LARGER
TO DISCONNECT SWITCH

SUBMERSIBLE SUMP PUMP

UNION

FOR CONT. OF PIPING SEE PLUMBING FLOOR PLAN

CHECK VALVE

FLOAT SWITCH

SUMP PIT "X"

SUMP PUMP DETAIL
TERMINAL UNIT DUCT TAKE-OFF

APPLICABLE FOR DIFFUSERS SERVED BY ROUND DUCTS ONLY

SUPPLY DIFFUSER

CEILING

FLEXIBLE DUCT

DIFFUSER NECK SIZE

6'-0" MIN. 12'-0" MAX.

PROVIDE HANGER

SHEET METAL RUN OUT SIZE AS SHOWN ON PLAN

REDUCER OR INCREASER IF REQUIRED

B.D.

SHEET METAL PLENUM OR BOX INTEGRAL OUTLETS

REDUCER OR INCREASER IF REQUIRED

TERMINAL UNIT

H.V. DUCT

SHEET METAL

MIN. OF 4 DIA. STRAIGHT DUCT AT BOX INLET (NO BENDS)

REDUCER OR INCREASER IF REQUIRED

6'-0" MAX. FLEX DUCT

TERMINAL UNIT DUCT TAKE-OFF

Samples from www.AutoCADDetails.net

Samples from www.AutoCADDetails.net
ACOUSTICAL LINING

TRANSFER DUCT DETAIL
TRANSFER/INTERLOCK MECHANISM
3" VENT LINE

DOUBLE-WALLED UNDERGROUND STORAGE TANK.

PROVIDE SPILL CONTAINER WITH RETURN TO TANK

4" STORAGE TANK FILL

ACCESS MANHOLE

GAGE HATCH

DAYTANK

BOILER

3/4" BOILER SUPPLY

3/4" BOILER RETURN

1" DAYTANK SUPPLY

1" DAYTANK RETURN

TYP. BOILER FUEL OIL FLOW SCHEMATIC
**TYPICAL BRANCH CONNECTION**

1. **3/4 D THROAT RADIUS**
   - May be used anywhere.
   - Use only at last takeoff before outlets & then only where rectangular runouts are indicated on drawings.

2. **D-3/4 D HEEL R**
   - Use only at last takeoff before outlets & then only where round runouts are indicated on drawings.

---

**SAMPLES FROM www.AutoCADDetails.net**
MAKE BRANCH CONNECTION AT TOP OF MAIN

COMPRESSOR AIR MAIN

SUPPORT AS REQUIRED

QUICK-CONNECT HOSE COUPLING

BALL VALVE (OR GATE VALVE)

DRIP LEG WITH BALL VALVE (OR GATE VALVE)

FLOOR

TYPICAL COMPRESSED AIR DROP
MAKE BRANCH CONNECTION AT TOP OF MAIN

COMPRESSED AIR MAIN

SUPPORT AS REQ'D.

STRAINER

PRV W/PRESSURE GAUGE WHERE REQ'D.

LUBRICATOR

QUICK-CONNECT HOSE COUPLING

BALL VALVE (OR GATE VALVE)

DRIP LEG WITH BALL VALVE (OR GATE VALVE)

FLOOR

TYP COMP AIR TOOL STATION
TYPICAL FIRE DAMPER

- WALL OR PARTITION
- 1/8" ANGLE TO FIT
- DUCT
- 14 GA. SLEEVE PAINTED RED
- FIRE DAMPER
- 14 GA. SLEEVE PAINTED RED
- DAMPER ACCESS PANEL, LOCATED ON CORRIDOR SIDE PAINTED RED
- 1 1/2"x1 1/2"x1/8" ANGLE ON ALL 4 SIDES
- (9" MAX.) (2" MIN.)
TYPICAL FIRE/SMOKE DAMPER

EXISTING WALL

14 GA. SLEEVE
PAINTED RED

SEALANT: DOW CORNING 999

14 GA. SLEEVE
PAINTED RED

EXISTING DUCT

1 1/2"x1 1/2"x1/8" ANGLE TO FIT

1/8" ANGLE TO FIT

ACCESSIBLE CEILING

OPERATOR/ACTUATOR
PNEUMATIC

COMBINATION FIRE/SMOKE DAMPER, WELD OR BOLT TO SLEEVE

14 GA. SLEEVE
PAINTED RED

NEW HINGED FIRE DAMPER
ACCESS PANEL. LOCATED ON CORRIDOR SIDE. PAINTED

1/2"x1 1/2"x1/8" ANGLE ON ALL 4 SIDES
REFER ARCHITECTURAL DRAWINGS FOR ROOF PENETRATION DETAILS

ANGLE IRON

BOLTS

GAS VALVE

ISOLATION VALVE

GAS PIPING (REFER HVAC PLAN FOR SIZES)

DRIP LEG

HANGER RODS

ADJUSTABLE HORIZONTAL AND VERTICAL LOUVERS

UNIT HEATER

ELECTRIC AUTOMATIC VENT DAMPER

TYPICAL GAS FIRED UNIT HEATER DETAIL
NOTE: LINE SIZES AS CALLED FOR ON SITE PLAN

TYPICAL GAS SERVICE CONNECTION DETAIL
GAS METER DATA BY BUILDING

<table>
<thead>
<tr>
<th>BLDG.</th>
<th>BY-PASS LINE SIZE</th>
<th>STD. CU. FT./HR.</th>
<th>REG. CAP. (CFH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORMITORY BUILDINGS</td>
<td>3&quot;</td>
<td>3,900</td>
<td>4,485</td>
</tr>
<tr>
<td>ADMINISTRATION BUILDING</td>
<td>3&quot;</td>
<td>5,495</td>
<td>6,295</td>
</tr>
</tbody>
</table>

NOTE: LINE SIZES AS CALLED FOR ON SITE PLAN

TYPICAL GAS SERVICE (W/BY-PASS) DETAIL

Samples from www.AutoCADDetails.net

Samples from www.AutoCADDetails.net
OUTSIDE AIR VENT COMPLETE WITH BIRDS SCREEN

FOR FLASHING AND ROOF DETAILS SEE ARCHITECTURAL DWGS.

1/4" MANUAL AIR VENT

GALV. CURB CAP

4-WAY DIFFUSER

TYPICAL MAKE-UP AIR UNIT DETAIL
RELIEF VENT

BIRDSSCREEN

ROOF

PREFAB CURB, FURNNISHED BY VENT MFR.

COUNTER BALANCED BACKDRAFT DAMPER

DUCT & DAMPER-FULL SIZE OF CURB OPENING

ACCESS PANEL 6" X 6" TO DAMPER

PAINT INSIDE BOTTOM & UP 12" ON SIDES OF DUCT W/BITUMASTIC PAINT

SEE PLANS FOR DUCT SIZES & ARRANGEMENTS

(WITH DUCT WORK)

TYPICAL RELIEF VENT DETAIL

Samples from www.AutoCADDetails.net
RELIEF VENT

PREFAB CURB, FURNISHED BY VENT MFR.

2" DEEP SHEET METAL DRIP PAN SUSPENDED FROM ROOF DECK-6" LARGER THAN ROOF OPENING (3" EACH SIDE). COAT INSIDE OF PAN W/BITUMASTIC PAINT.

STRAP HANGER

COUNTER BALANCED BACKDRAFT DAMPER, FULL SIZE OF CURB OPENING, MOUNT AT BOTTOM OF ROOF DECK

12" OR 1/2 DIMENSION OF ROOF OPENING-WHICHEVER IS GREATER

12"

EXHAUST AIR

TYPICAL RELIEF VENT DETAIL
UNIT HEATER WITH PIPING

SUPPLY & RETURN
RUNOUTS TO MAINS

GATE VALVE

MOTOR

HOT WATER SUPPLY

3/4" HOSE END DRAIN VALVE

UNION

UNIT HEATER WITH PIPING

AIR FLOW

Samples from www.AutoCADDetails.net
UTILITY WALL BOX FOR CLOTHES WASHER

3/4" COMBINATION SWEAT CONNECTION
1" COMBINATION SWEAT CONNECTION

WATER HAMMER ARRESTOR
ACCESS PANEL

CLOTHES WASHER WALL BOX

3/4" DHW
1" DCW

2" WASTE

42" FLOOR LINE

SAMPLES FROM WWW.AUTOCADETAILS.NET
HOT WATER SUPPLY

TEMPERATURE RELIEF VALVE

TO FLOOR DRAIN

COLD WATER SUPPLY

TEMPERATURE REGULATING THERMOMETER

VALVE (HR.)

STRAINER

STEAM LINE

OFFSET FOR TUBE BUNDLE REMOVAL

F&T TRAP (HR.)

TO CONDENSATE RECEIVER

SCALE POCKET

HOT WATER RETURN

H.W. CIRCULATING PUMP (G.P.M. HD.)

PRESSURE RELIEF VALVE

GAL. STORAGE G.P.H. RECOVERY BASE ON 100D TEMP. RISE FROM 40D TO 140D

VERTICAL HOT WATER GENERATOR CONNECTIONS
MAY EXTEND AS WASTE OR VENT
FOR WALL CONST.
SEE DRAWINGS
C.I. CLEANOUT TEE
CLEANOUT PLUG
COUNTERSUNK SCREW
POLISHED S.S. ACCESS COVER
WASTE LINE LENGTH TO SUIT
1/8" BEND AND END OF LINE CLEANOUT
WASTE LINE
FLOW
WALL CLEANOUT-FINISHED ROOMS

Samples from www.AutoCADDetails.net
COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVE

DRAIN TO EXTERIOR OF BUILDING

AQUASTAT

HEATING ELEMENT

WALL

3/4" HW SUPPLY

3/4" CW MAKE UP

VACUUM RELIEF VALVE

GATE VALVE

DIP TUBE INSIDE OF TANK

ELECTRIC WATER HEATER

HOSE BIBB

3/4" PLYWOOD

1/4" NUT AND BOLT, TYPICAL

2"x 2"x 1/8" ANGLE (2 BRACKETS REQ'D.)

1/2" ANCHOR BOLT OR EXPANSION BOLT (2 PER BRACKET)

NOTE TO DESIGNER: N.S.P.C. 10.16.7 REQUIRES: WHERE A HOT WATER STORAGE TANK OR INDIRECT WATER HEATER IS LOCATED AT AN ELEVATION ABOVE THE FIXTURE OUTLETS IN THE SYSTEM A VACUUM RELIEF VALVE SHALL BE INSTALLED ON THE STORAGE TANK.

WALL MOUNTED ELECTRIC WATER HEATER DETAIL
WATER HEATER DETAIL

- VACUUM BREAKER
- COLD WATER LINE
- GATE VALVE
- TEMP./PRESS. RELIEF VALVE
- FOR CAPACITY SEE WATER HEATER SCHEDULE
- HOT WATER LINE
- DIELECTRIC UNIONS
- FULL SIZE RELIEF PIPE TO DRAIN
- DRAIN VALVE
- AIR GAP
- FLOOR DRAIN