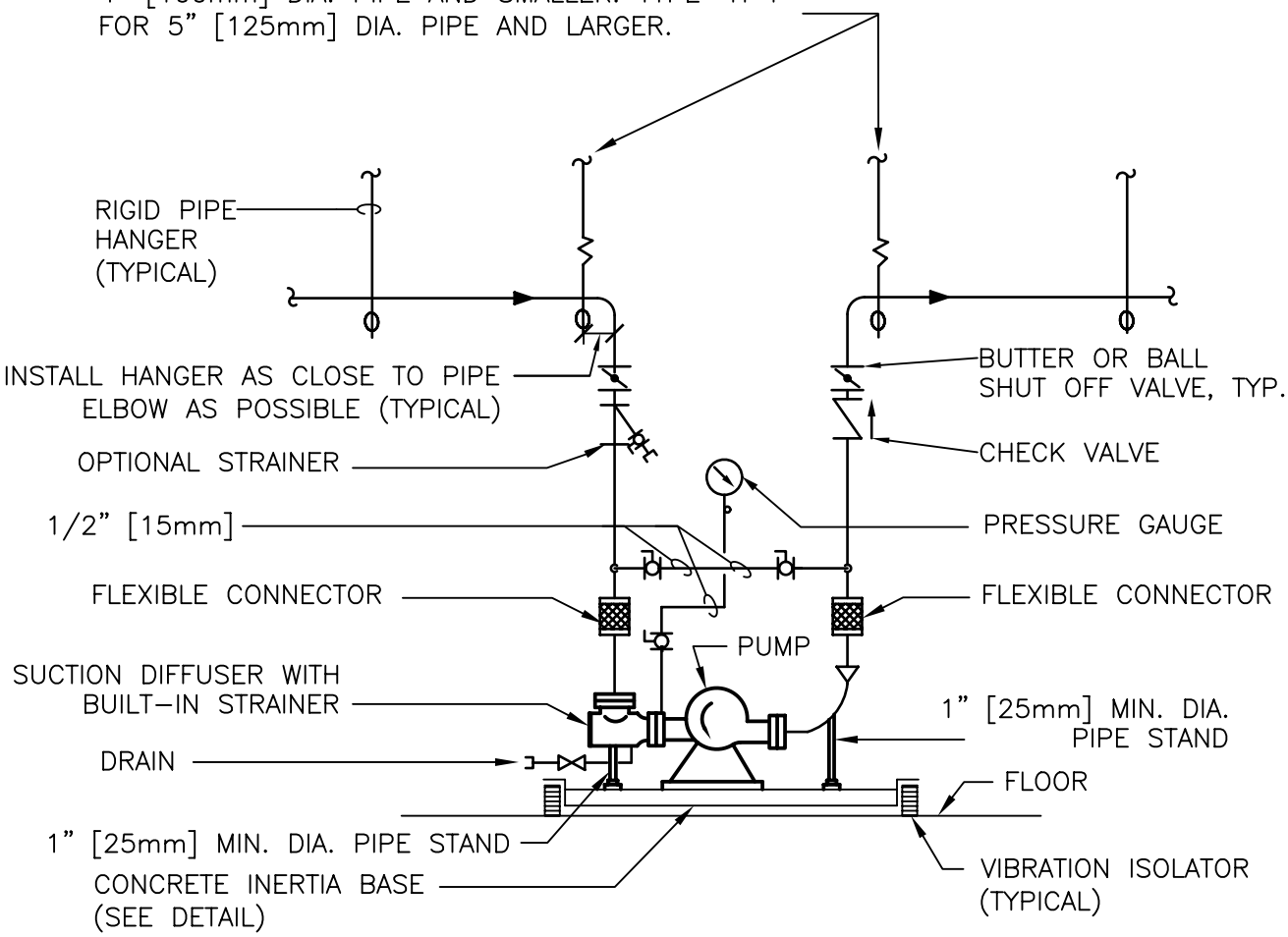


NOTE:
SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION.

DESIGNER'S NOTE:
CHECK VALVE IS OPTIONAL FOR SINGLE PUMPS, EXCEPT FOR COOLING TOWER PUMP.

DOUBLE SUCTION FLOOR-MOUNTED PUMPS - CONNECTIONS WITH FLEXIBLE CONNECTORS

#

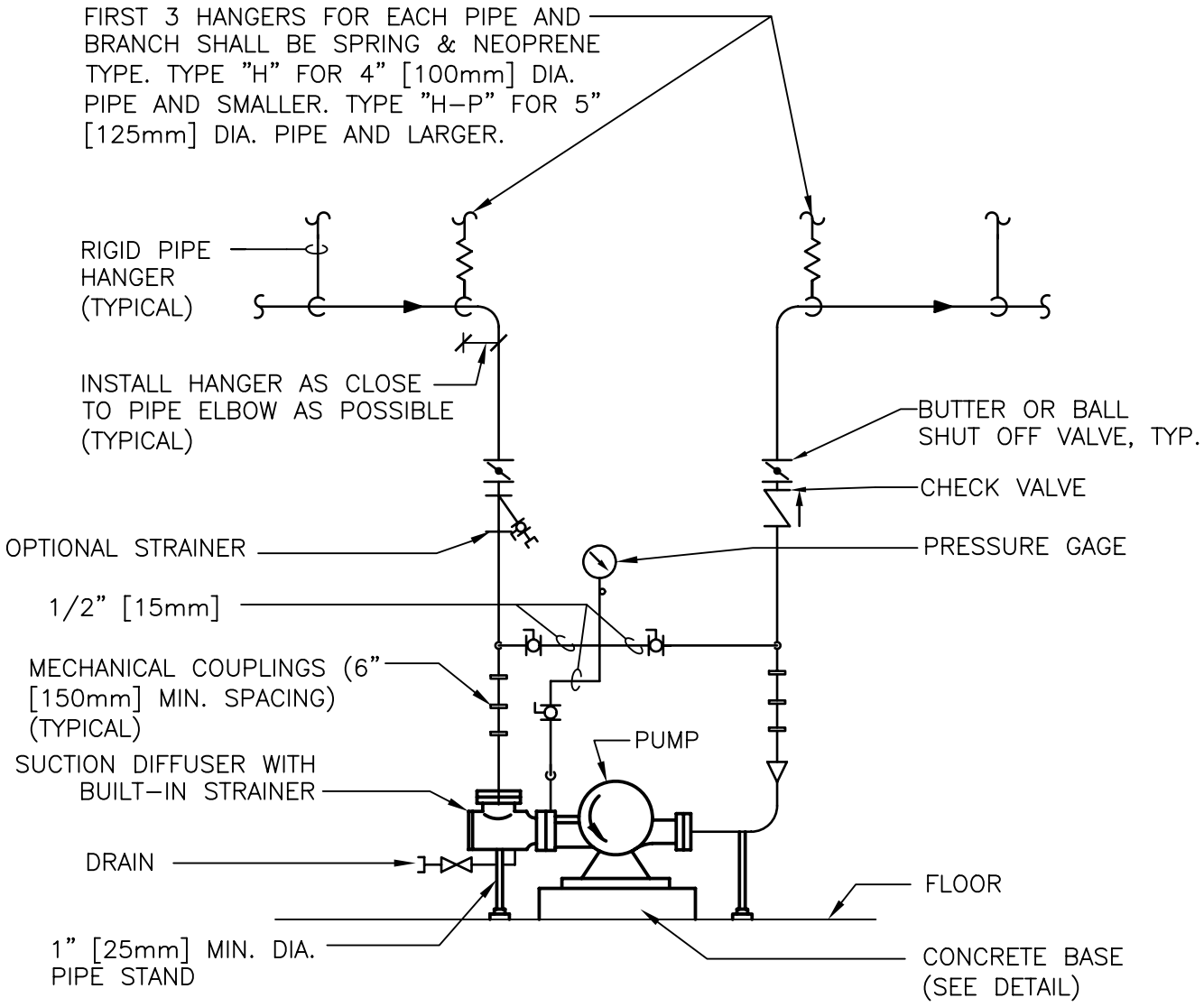
NTS

Department of Veterans Affairs

DETAIL TITLE / DOUBLE SUCTION FLOOR-MOUNTED PUMPS - CONNECTIONS WITH FLEXIBLE CONNECTORS

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD232123-04.DWG



NOTES:
SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION.

DOUBLE SUCTION FLOOR-MOUNTED PUMPS - CONNECTIONS WITH MECHANICAL COUPLINGS

#

NTS

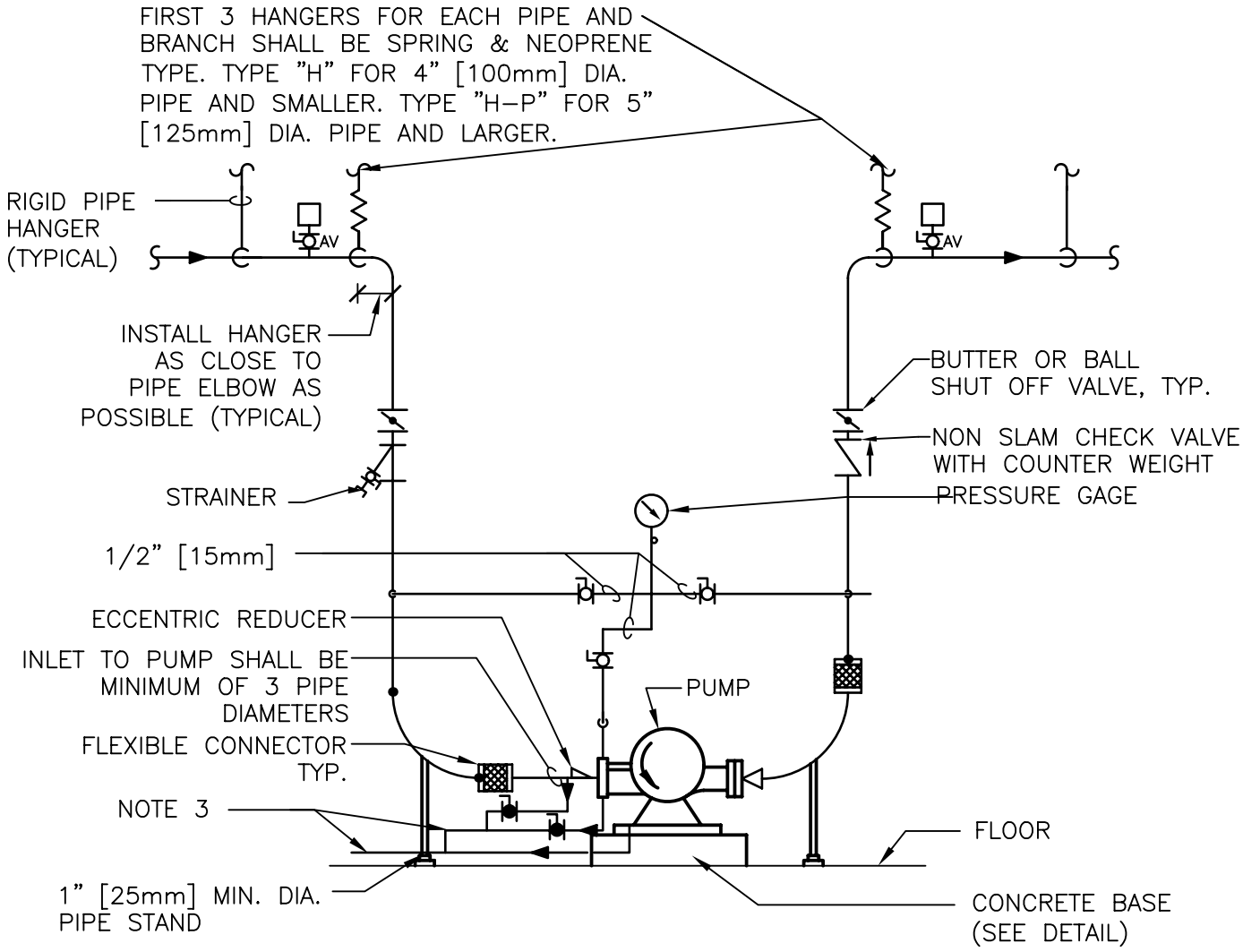
DESIGNER'S NOTE:
1. CHECK VALVE IS OPTIONAL FOR SINGLE PUMP EXCEPT FOR COOLING TOWER PUMP. USE THIS DETAIL ONLY FOR PUMPS IN A MECHANICAL BUILDING WHERE POSSIBLE VIBRATION WILL NOT BE OBJECTIONABLE AND WHERE APPROVED BY VA.
2. COUPLINGS SHALL NOT BE USED IN HOT WATER APPLICATIONS.

Department of Veterans Affairs

DETAIL TITLE / DOUBLE SUCTION FLOOR-MOUNTED PUMPS - CONNECTIONS WITH MECHANICAL COUPLINGS

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD232123-05.DWG



1. Y TYPE STRAINER BLOWDOWN HEIGHT SHALL ACCOMMODATE 55 GALLON DRUM.

2. PUMP INSTALLATION IS DIAGRAMMATIC AND INTENDED TO SHOW THE MAJOR COMPONENTS REQUIRED FOR INSTALLATION. THE INSTALLED PIPING CONFIGURATION SHALL BE BASED ON THE ACTUAL PUMP PROVIDED. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COORDINATION DRAWING SHOWING PUMP, PIPING, AND ACCESSORIES AS REQUIRED BY THIS INSTALLATION DETAIL.

3. ALL PAD, PUMP, AND PIPING DRAINS SHALL BE HARD PIPED TO NEAREST FLOOR DRAIN, TYPICAL.

HORIZONTAL SPLIT CASE PUMP - FLEXIBLE CONNECTORS

#

NTS

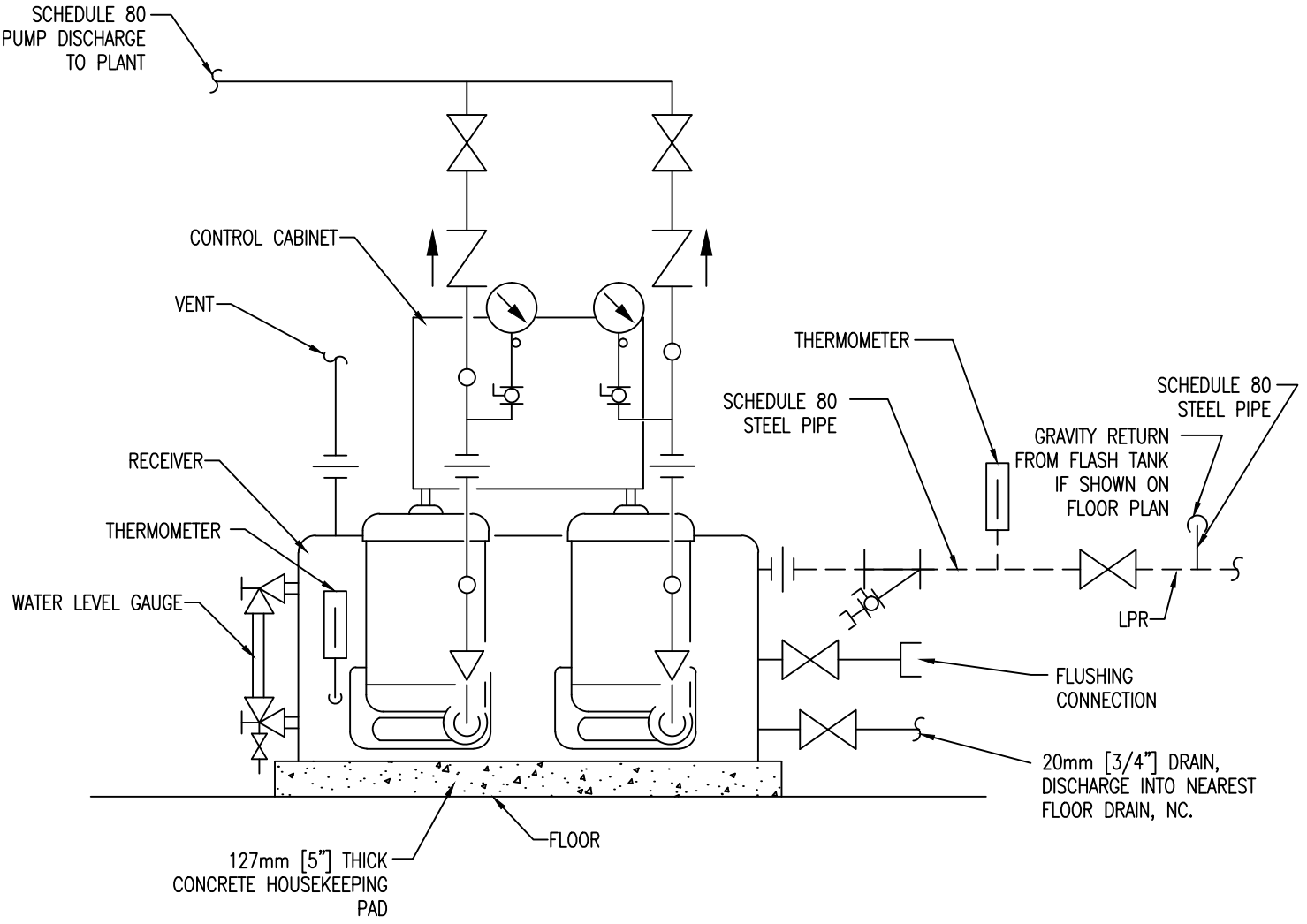
DESIGNER'S NOTE:
CHECK VALVE IS OPTIONAL FOR SINGLE PUMP EXCEPT FOR COOLING TOWER PUMP. USE THIS DETAIL ONLY FOR PUMPS IN A MECHANICAL BUILDING WHERE POSSIBLE VIBRATION WILL NOT BE OBJECTIONABLE OR WHERE APPROVED BY VA.

Department of Veterans Affairs

DETAIL TITLE / HORIZONTAL SPLIT CASE PUMP - FLEXIBLE CONNECTORS

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD232123-06.DWG



CONDENSATE PUMPS - PIPING CONNECTIONS

NTS

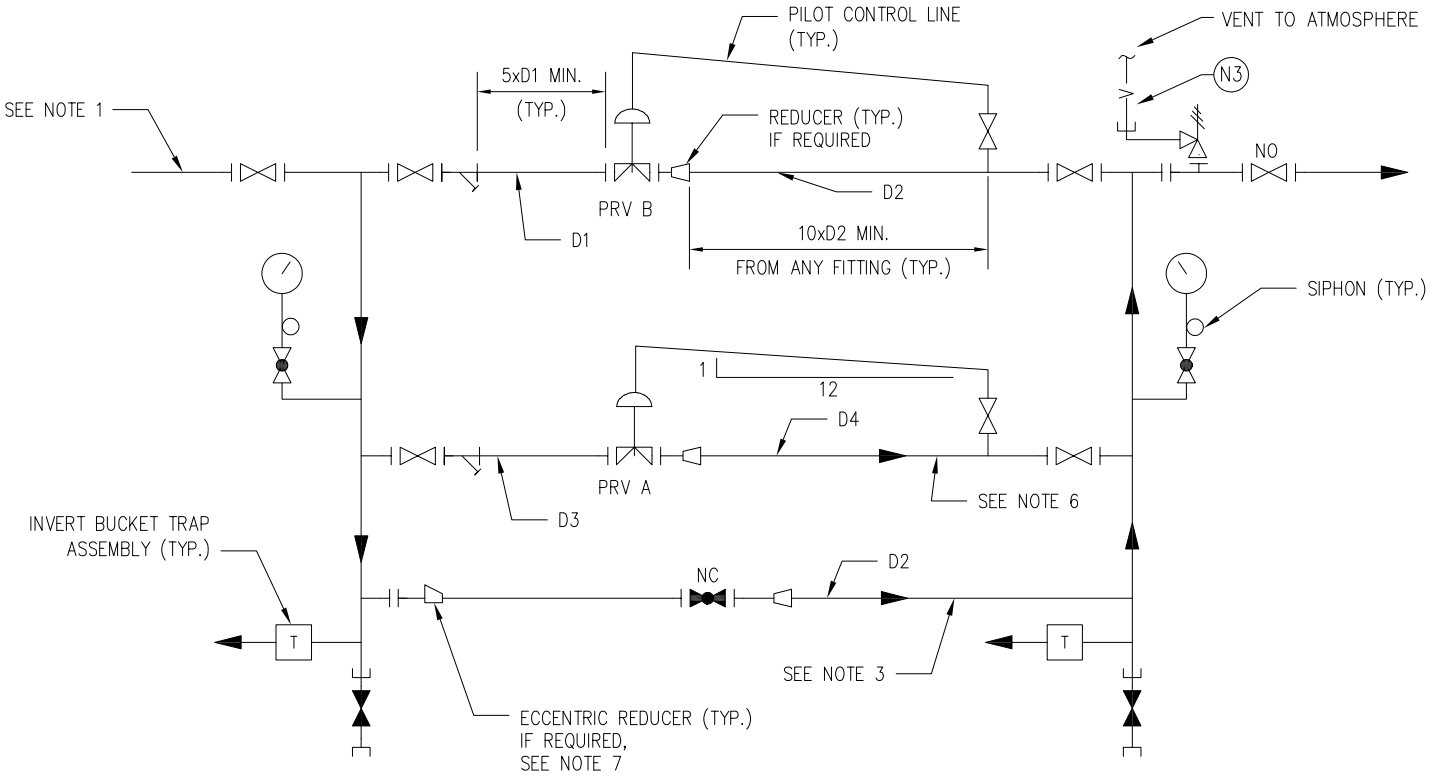
Department of Veterans Affairs

DETAIL TITLE: CONDENSATE PUMPS – PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD232123-07.DWG



NOTES:

1. SEE FLOOR PLANS FOR PIPE SIZES.
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. BYPASS WILL BE SIZED TO MEET THE CAPACITY OF THE COMBINED CAPACITY OF THE TWO PRV'S.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH THREADED CONNECTIONS.
5. SLOPE PILOT CONTROL LINE FROM THE PRESSURE REDUCING VALVE TO DOWNSTREAM STEAM PIPING. MIN SLOPE WILL BE 25mm/300mm (1"/12").
6. PROVIDE MINIMUM 5 PIPE DIAMETERS STRAIGHT PIPE UPSTREAM AND MINIMUM 10 PIPE DIAMETER STRAIGHT PIPE DOWNSTREAM OF ALL PRV'S.
7. ALL UPSTREAM REDUCERS WILL BE ECCENTRIC IF REQUIRED.

DESIGNERS'S NOTES:

(N1) DESIGNATE MIDDLE PRV VALVE A AND UPPER PRV VALVE B (1-PRV1A, 1-PRV1B). USE SYSTEM PRESSURE FOR 1-PRV1A AND SET PRESSURE 13.8kPa (2 PSIG) HIGHER.

(N2) USE DUAL VALVE PRESSURE REDUCING STATION WHEN THE MINIMUM LOAD IS 10% OR LESS THAN PEAK LOAD.

(N3) SAFETY VALVES WILL BE SIZED TO PROTECT DOWNSTREAM SYSTEM FROM OVER PRESSURIZATION. VENT PIPE WILL BE SIZED PER ASME REQUIREMENTS. VENTS FROM SAFETY VALVES WILL RUN THE SHORTEST AND MOST DIRECT ROUTE TO OUTDOOR THRU THE ROOF. WHERE VENTS RUN IN FINISHED SPACE, THEY WILL BE FURRED IN TO MATCH ADJACENT BUILDING CONSTRUCTION; IN UNFINISHED SPACE, PIPE TO BE COVERED ONLY. THE SAFETY VALVES WILL BE LOCATED AS SHOWN ON THE FLOOR PLANS..

(N4) PIPE DIMENSION WILL BE AS INDICATED IN CONTRACT DRAWINGS OR BY MANUFACTURER'S RECOMMENDATION.

(N5) DELETE DESIGNER'S NOTE WHEN COMPLETED.

STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 AND 2/3)

NTS

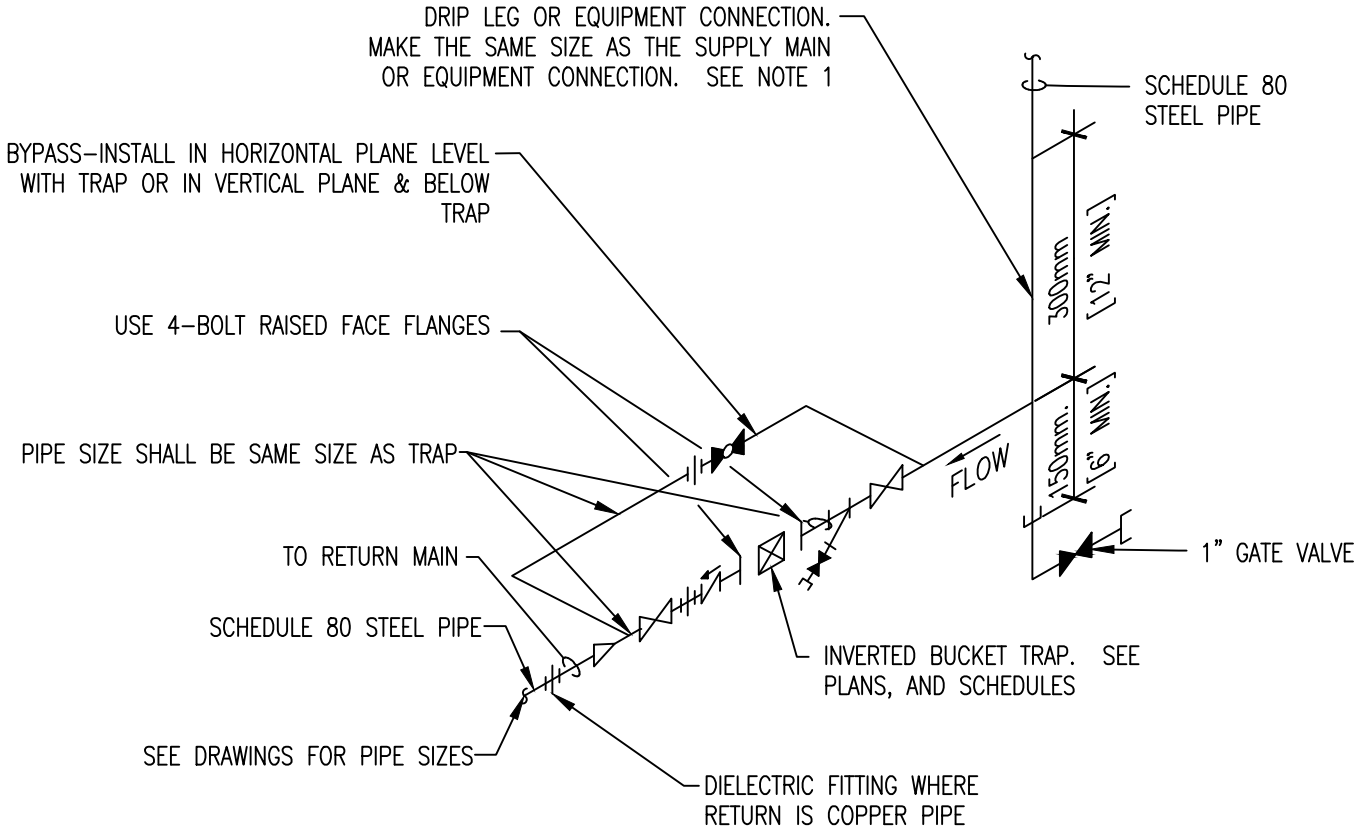
VA | U.S. Department of Veterans Affairs

DETAIL TITLE / STEAM PRESSURE REDUCING STATION
DOUBLE VALVE (1/3 AND 2/3)

SCALE: NONE

DATE ISSUED: OCTOBER 01, 2022

SD232213-01 DWG



NOTES:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 300mm [12"] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 150mm [6"] SCALE POCKET BELOW TRAP INLET.

2. PROVIDE BYPASS PIPING.

INVERTED BUCKET STEAM TRAP ASSEMBLY

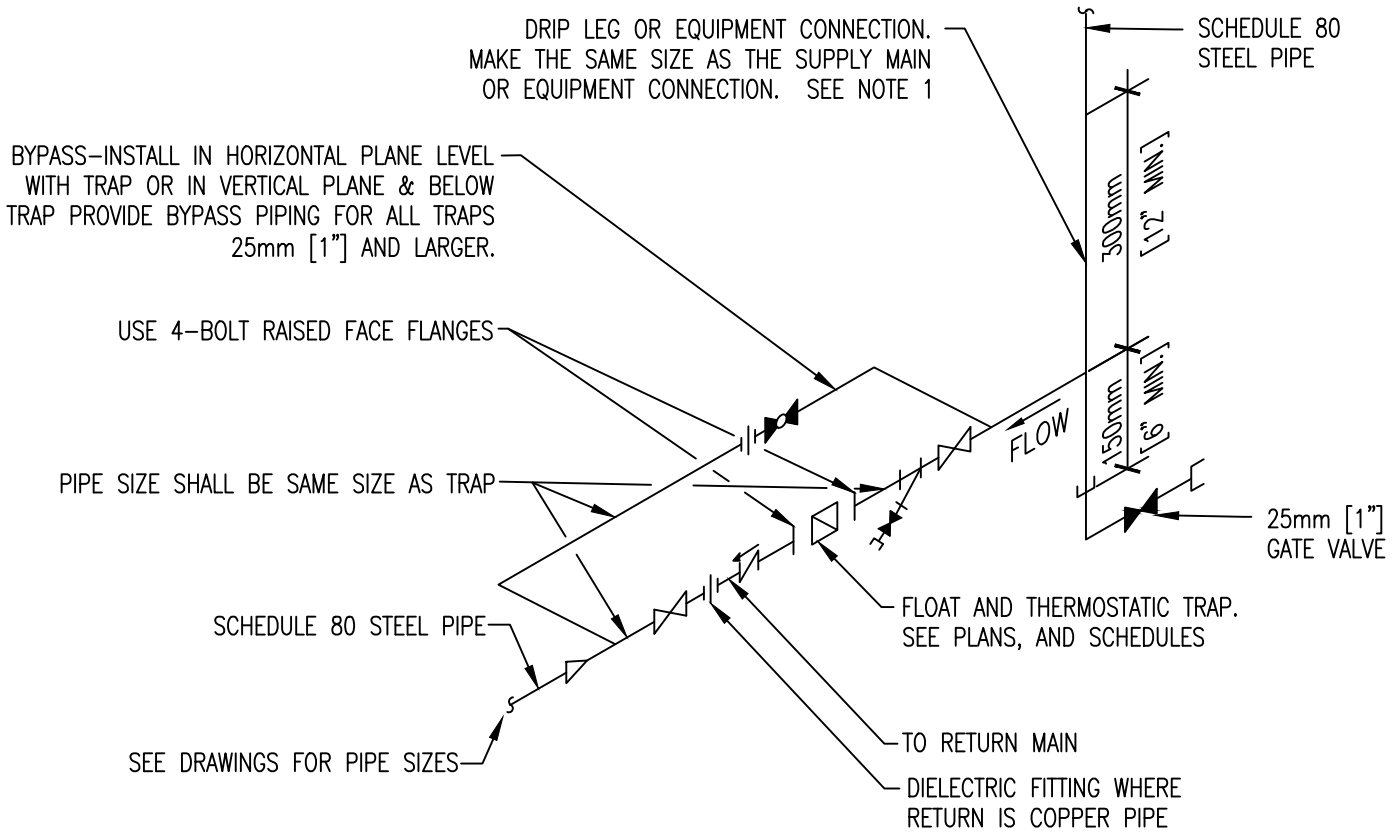
NTS

Department of Veterans Affairs

DETAIL TITLE: INVERTED BUCKET STEAM TRAP ASSEMBLY

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD232213–02.DWG



NOTE:
ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 300mm [12"] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 150mm [6"] SCALE POCKET BELOW TRAP INLET.

FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY

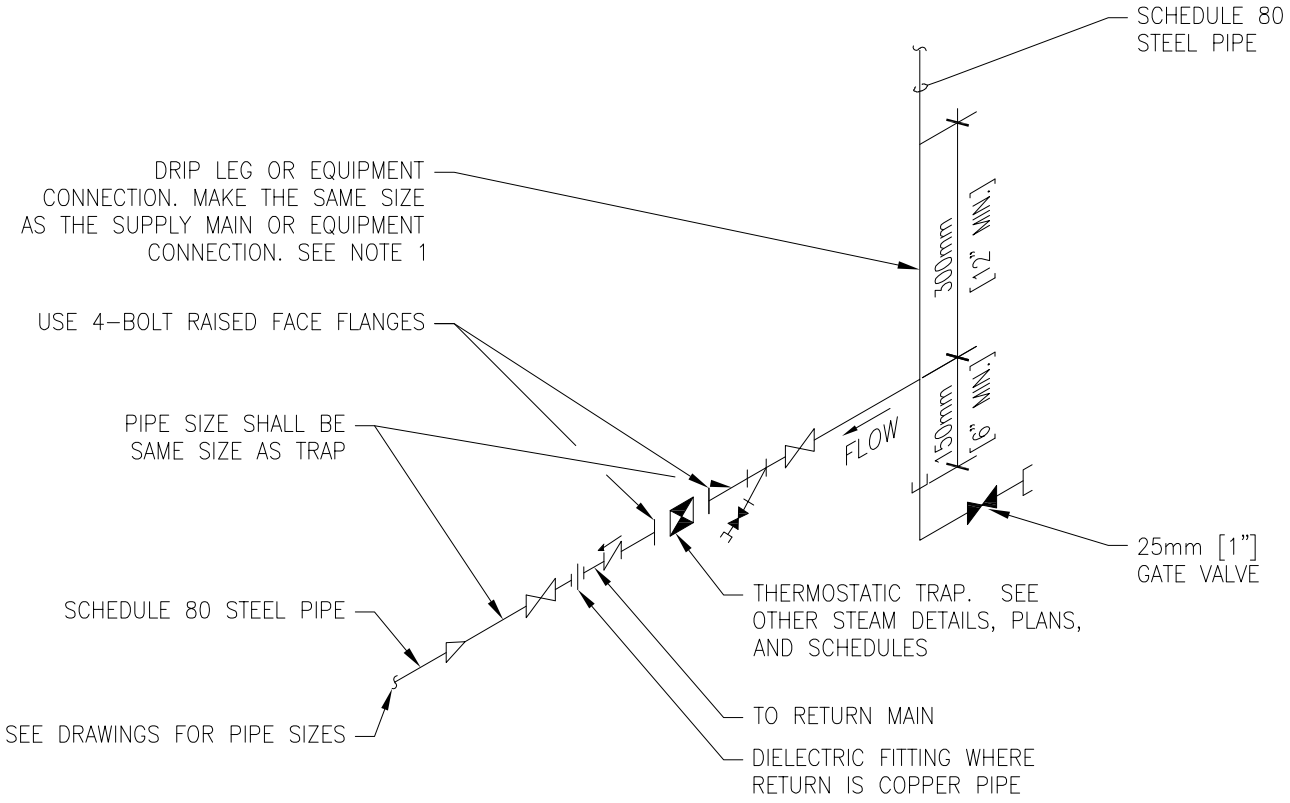
NTS

Department of Veterans Affairs

DETAIL TITLE: FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD232213–03.DWG



NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 300mm [12"] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 150mm [6"] SCALE POCKET BELOW TRAP INLET.

THERMOSTATIC STEAM TRAP ASSEMBLY

NTS

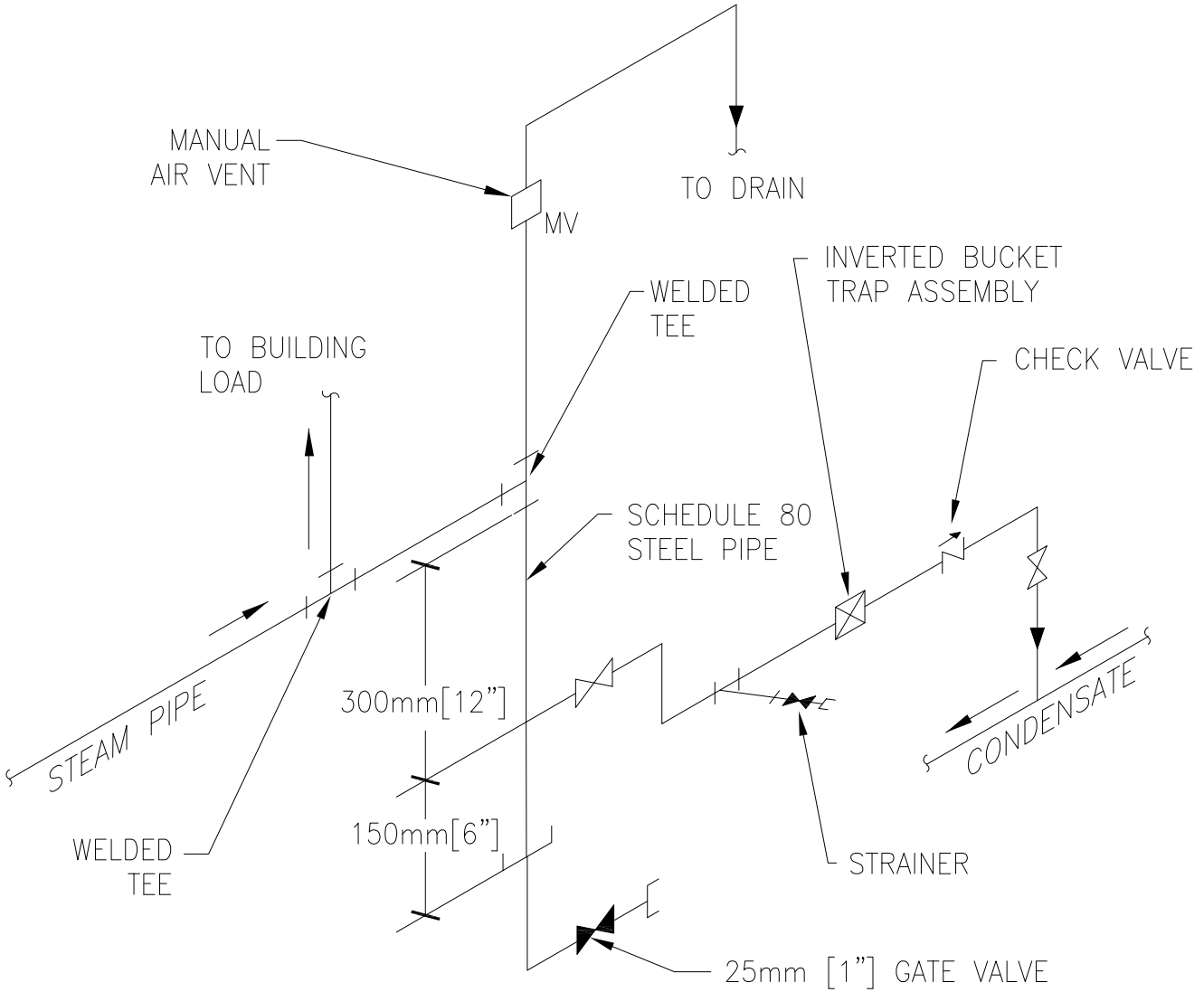
VA | U.S. Department of Veterans Affairs

DETAIL TITLE / THERMOSTATIC STEAM TRAP ASSEMBLY

SCALE: NONE

DATE ISSUED: NOVEMBER 1, 2020

SD232213-04 DWG



END OF STEAM LINE DRIP TRAP

NTS

DETAIL TITLE / END OF STEAM LINE DRIP TRAP

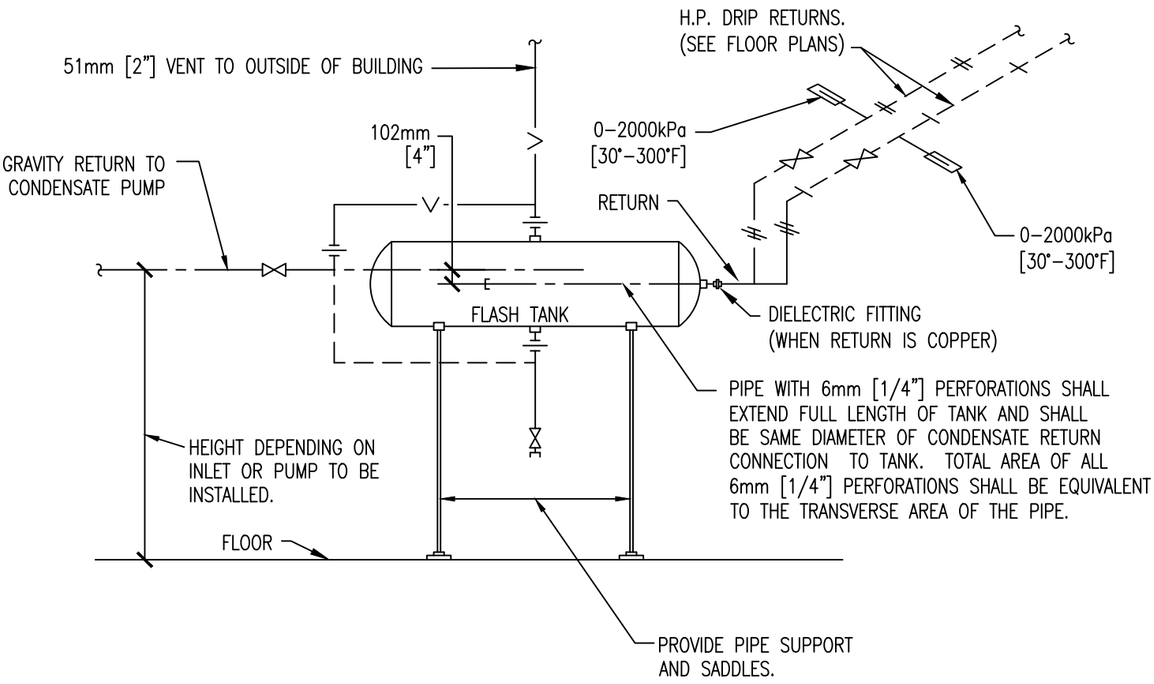
U.S. Department of Veterans Affairs

VA

SCALE: NONE

DATE ISSUED: MAY 01, 2024

SD232213-05.DWG



FLASH TANK SCHEDULE		
CONDENSATE PUMP CAPACITY– L/S [GPM]	APPROX. CAPACITY OF FLASH TANK– L [GALLONS]	SIZE OF FLASH TANK– mm [in]
0 THRU 237 [0 THRU 15]	61[16]	356mm DIA X 610mm LONG [14 DIA. X 24 LONG]
253 THRU 349 [16 THRU 22]	91[24]	365mm DIA X 914mm LONG [14 DIA. X 36 LONG]
364 THRU 475 [23 THRU 30]	117[31]	406mm DIA X 914mm LONG [16 DIA. X 36 LONG]
491 THRU 586 [31 THRU 37]	140[37]	406mm DIA X 1067mm LONG [16 DIA. X 42 LONG]
602 THRU 713 [38 THRU 45]	159[42]	406mm DIA X 1219mm LONG [16 DIA. X 48 LONG]
729 THRU 951 [46 THRU 60]	231[61]	457mm DIA X 1372mm LONG [18 DIA. X 54 LONG]
967 THRU 1189 [61 THRU 75]	284[75]	457mm DIA X 1676mm LONG [18 DIA. X 66 LONG]
1205 THRU 1537 [76 THRU 97]	360[95]	610mm DIA X 1372mm LONG [24 DIA. X 54 LONG]
1553 THRU 2377 [98 THRU 150]	587155]	610mm DIA X 1981mm LONG [24 DIA. X 78 LONG]

DESIGNER'S NOTE:

1. INDICATE THE HEIGHT ON FLOOR PLANS AND/OR SECTIONS. PROVIDE A FLASH TANK FOR EACH CONDENSATE PUMP, THAT SERVES HPR CONDENSATE.
2. FOR FLASH STEAM RECOVERY, FLASH TANK TO BE VERTICAL TYPE. PROVIDE BACK PRESSURE VALVE AND SAFETY RELIEF VALVE AT FLASH STEAM LINE. PROVIDE TRAP AT BOTTOM CONDENSATE DISCHARGE LINE. NO VENT INTERCONNECTION BETWEEN CONDENSATE DISCHARGE AND THE FLASH STEAM LINE.

TYPICAL CONNECTIONS TO FLASH TANK

NTS

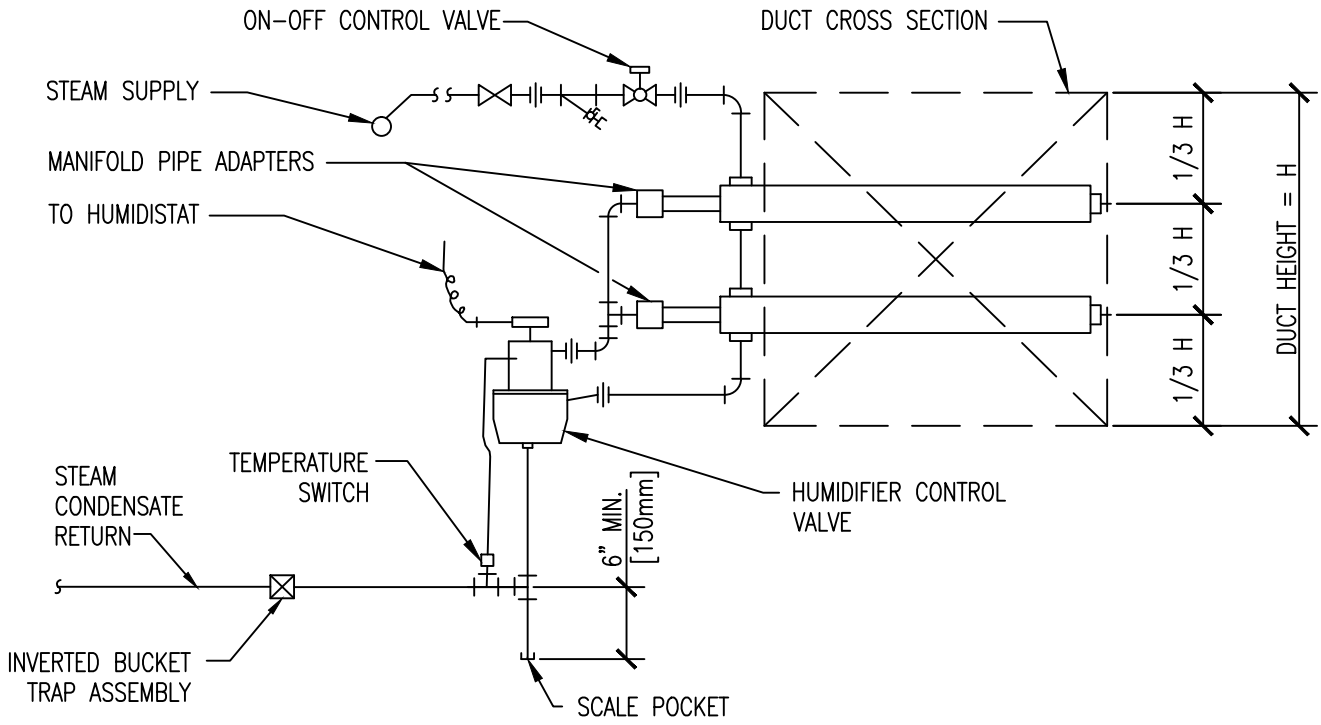
Department of Veterans Affairs

DETAIL TITLE: TYPICAL CONNECTIONS TO FLASH TANK

SCALE :NONE

DATE ISSUED: 11/01/2017

CAD DETAIL NO.: SD232213–06.DWG



NOTE:
SEE MANUFACTURER'S PIPING RECOMMENDATIONS FOR FINAL LAYOUT

DESIGNER NOTE:
PROVIDE ADDITIONAL CONTROLS FOR VAV OPERATION AND FOR PREVENTING OVER SATURATION OF THE SUPPLY AIR.

STEAM HUMIDIFIER - PIPING CONNECTIONS (MULTIPLE DISPERSION TUBES)

#

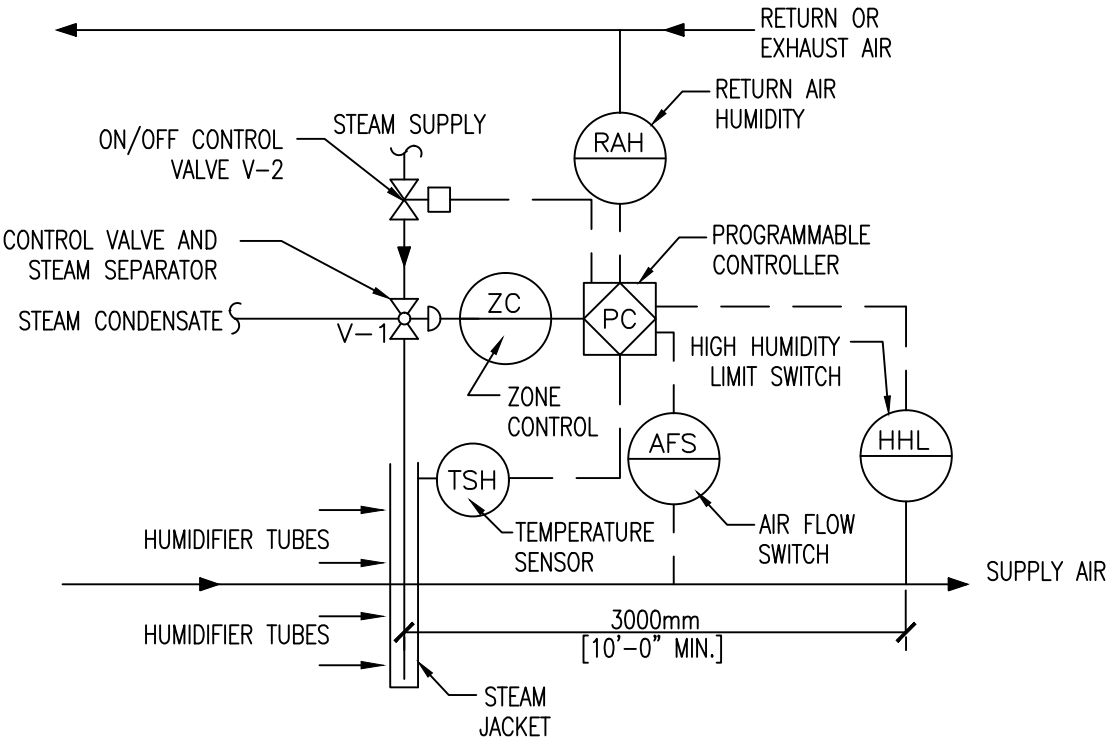
NTS

Department of Veterans Affairs

DETAIL TITLE: STEAM HUMIDIFIER – PIPING CONNECTIONS (MULTIPLE DISPERSION TUBES)

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD232213-07.DWG



STEAM HUMIDIFIER CONTROL NOTES:

RETURN (OR EXHAUST) AIR HUMIDITY SHALL BE MONITORED. ON A CALL FOR HUMIDIFICATION, HUMIDIFIER VALVE V-1 SHALL MODULATE TO MAINTAIN THE RETURN (OR EXHAUST) AIR HUMIDITY SET POINT TO 30% (ADJUSTABLE). PRIOR TO ACTIVATION OF V-1, THE ON/OFF CONTROL VALVE V-2 SHALL BE ENABLED THROUGH ECC AND JACKET TEMPERATURE SENSED BY TSH SHALL BE WARM ENOUGH TO PREVENT CONDENSATION. THE HIGH LIMIT HUMIDITY SENSOR, LOCATED IN THE SUPPLY AIR DUCT 3000MM [10 FEET] AWAY FROM THE HUMIDIFIER SHALL DISABLE THE HUMIDIFIER AND GIVE AN ALARM SIGNAL TO THE ECC, IF THE SUPPLY AIR HUMIDITY EXCEEDS 90% RH (ADJUSTABLE). THE AIRFLOW SWITCH SHALL PROVE AIRFLOW BEFORE HUMIDITY CONTROLS ARE ACTIVATED.

JACKETED STEAM HUMIDIFIER CONTROLS

#

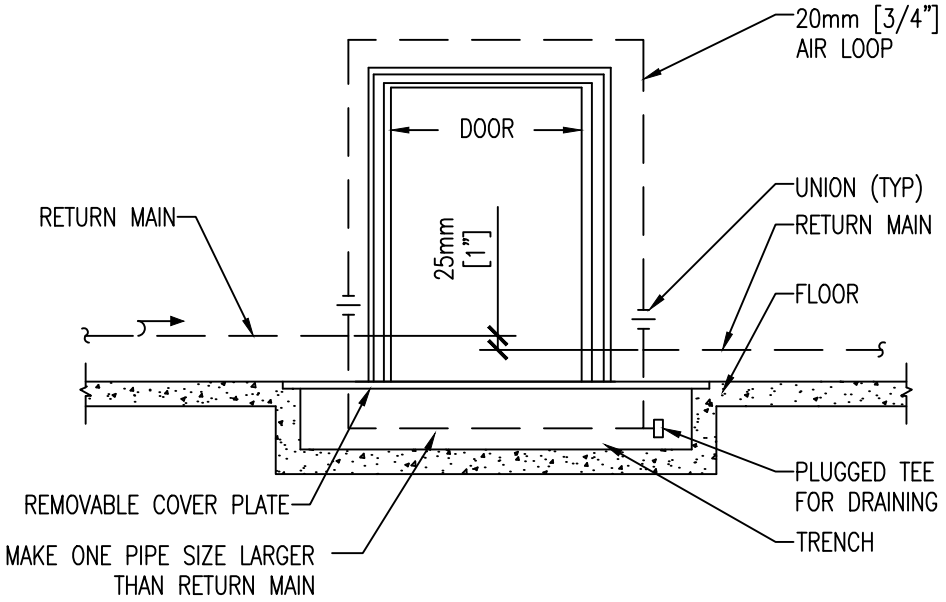
NTS

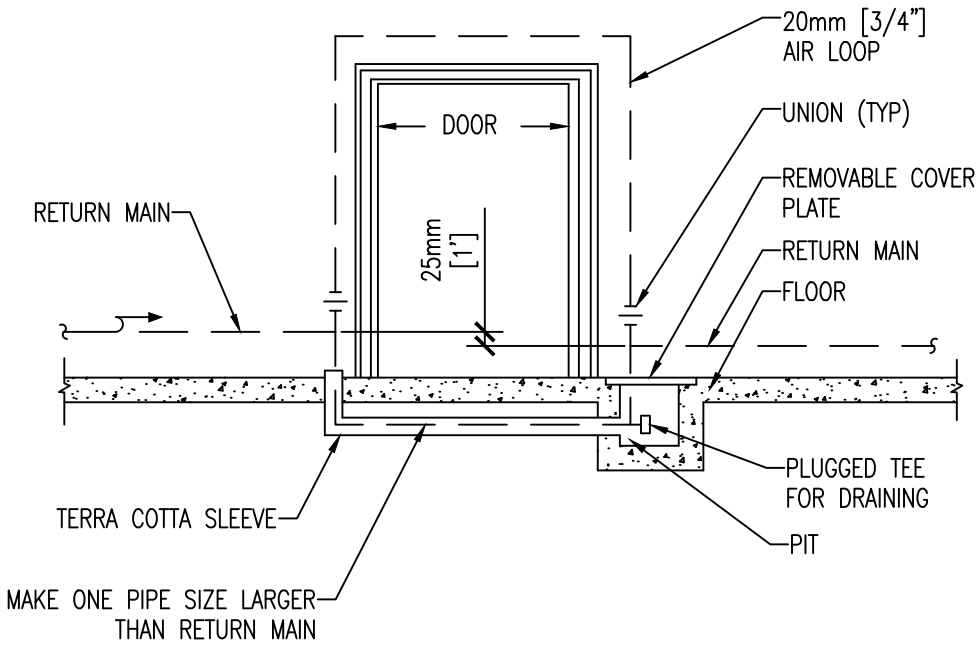
Department of Veterans Affairs

DETAIL TITLE: 11/01/2017

SCALE :NONE

DATE ISSUED :SEPTEMBER 2017 CADD DETAIL NO. : SD232213-08.DWG





CONDENSATE RETURN PIPING AROUND OPENINGS

#

NTS

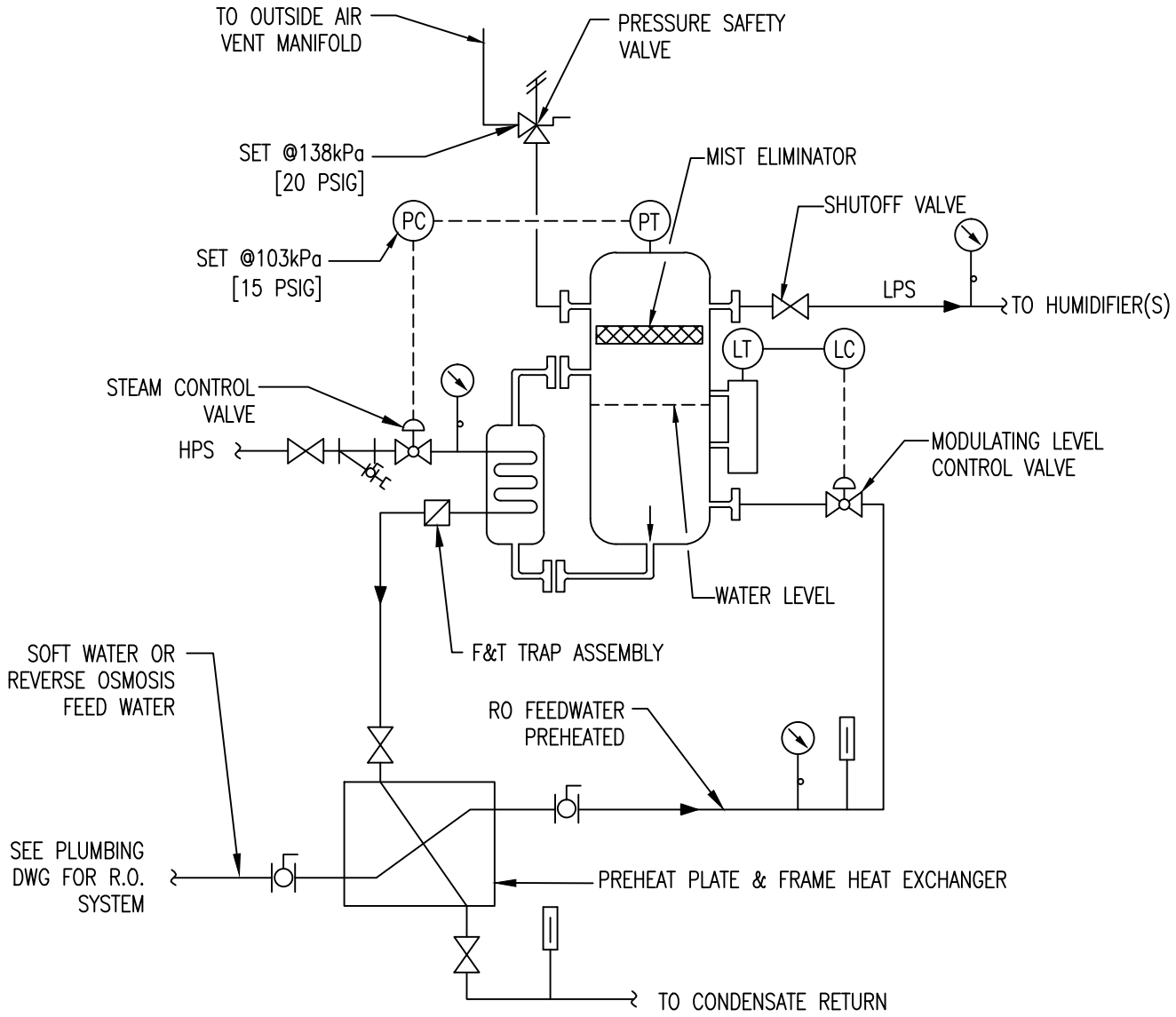
Department of Veterans Affairs

DETAIL TITLE: CONDENSATE RETURN PIPING AROUND OPENINGS

SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD232213-09.DWG



DESIGNER NOTE:
PREHEAT HEAT EXCHANGER IS OPTIONAL.

CLEAN STEAM GENERATOR

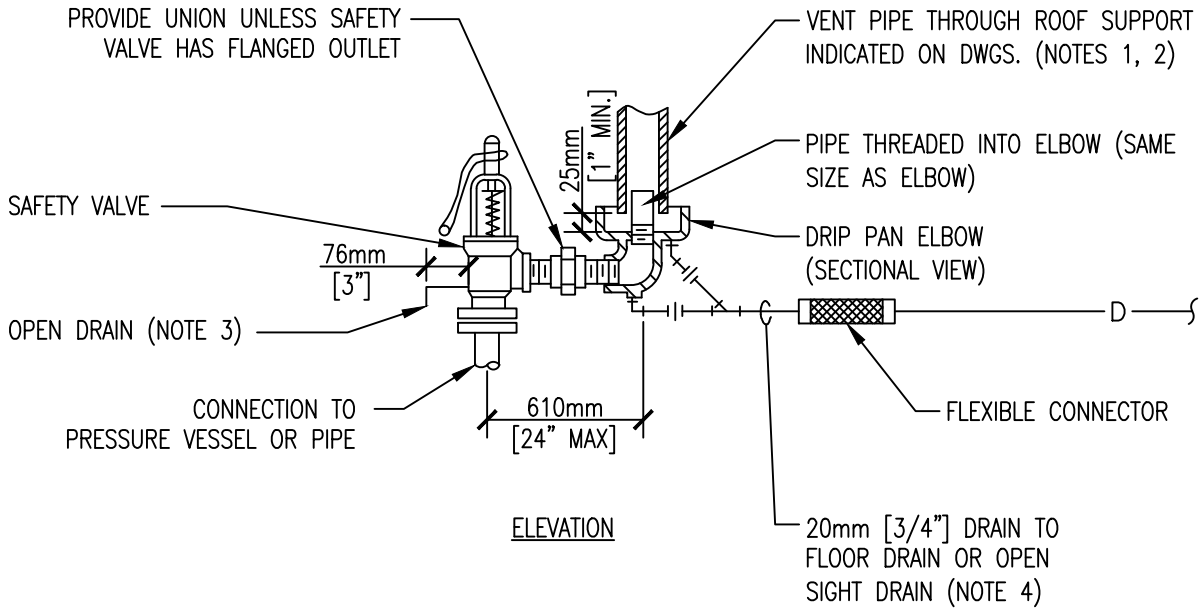
NTS

Department of Veterans Affairs

DETAIL TITLE: CLEAN STEAM GENERATOR

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD232213-10.DWG



NOTES:

1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1. POWER PIPING CODE, APPENDIX II. THE VENT PIPE SHOULD GO VERTICAL THRU THE ROOF WITH NO TURNS OR ANGLES. WHERE REQUIRED THERE SHALL BE NO MORE THEN A TOTAL OR 180 DEGREES IN DIRECTIONAL CHANGES MADE WITH 45 DEG. ELBOWS.
2. VENT PIPE SHALL TERMINATE 1829mm [6'] MIN. ABOVE FINISHED ROOF.
3. DISCHARGE OF DRAIN SHALL BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHERE PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.
5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STEAM SAFETY VALVE

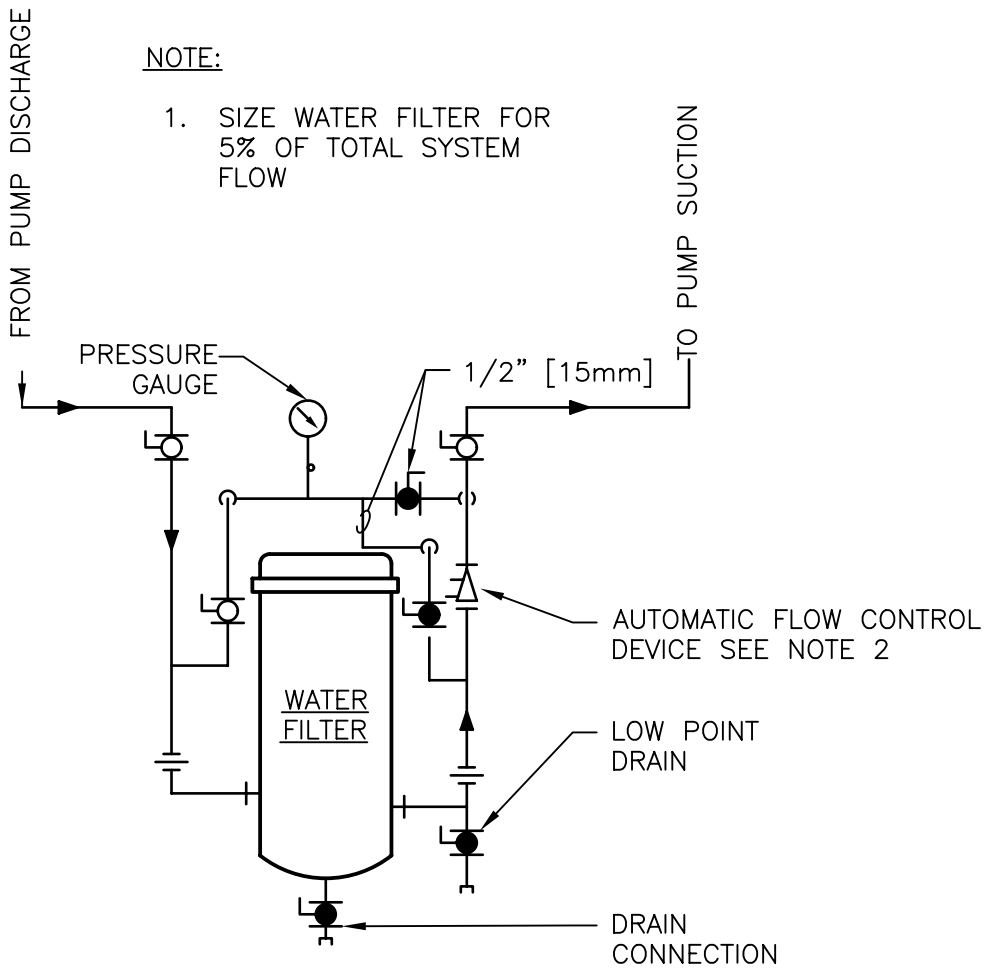
NTS

Department of Veterans Affairs

DETAIL TITLE: STEAM SAFETY VALVE

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD232213-11.DWG



WATER FILTERS - CLOSED LOOP HYDRONIC SYSTEMS

#

NTS

DESIGNER'S NOTE:

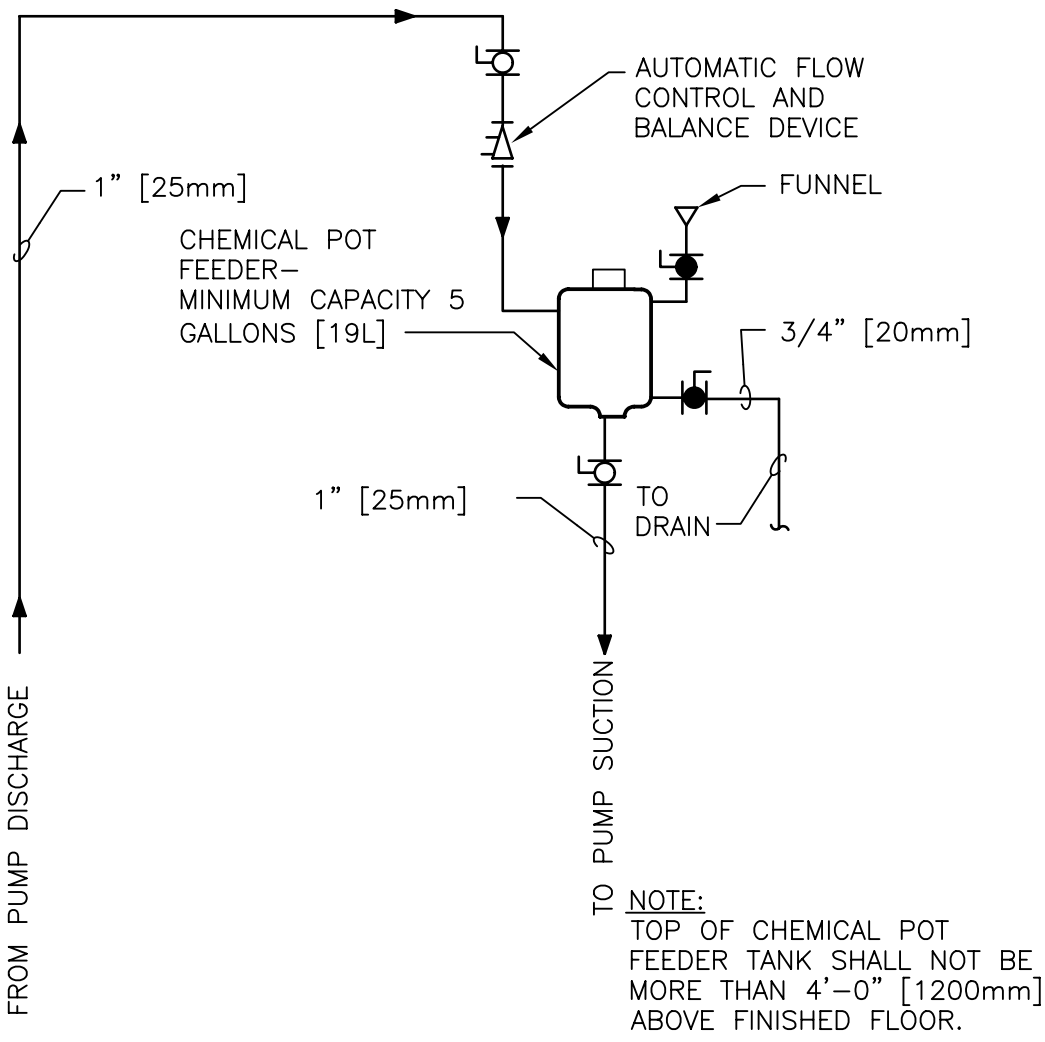
1. PROVIDE SEDIMENT WATER FILTER ON EACH CHILLED WATER, HOT WATER AND GLYCOL WATER HEATING SYSTEM. CAPACITY SHALL BE APPROXIMATELY 5% OF THE TOTAL CIRCULATING FLOW. SHOW FILTER LOCATIONS ON THE DRAWINGS. INCLUDE THE FILTER FLOW RATE IN PUMP CAPACITIES. SIZE PIPES TO WATER FILTER.
2. SELECT PRESSURE RANGE PER PROJECT NEED. SPECIFY PRESSURE RANGE ON DRAWINGS.

Department of Veterans Affairs

DETAIL TITLE / WATER FILTERS - CLOSED LOOP HYDRONIC SYSTEMS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD232500-01.DWG



WATER TREATMENT – CLOSED SYSTEMS

#

NTS

DESIGNER'S NOTE:

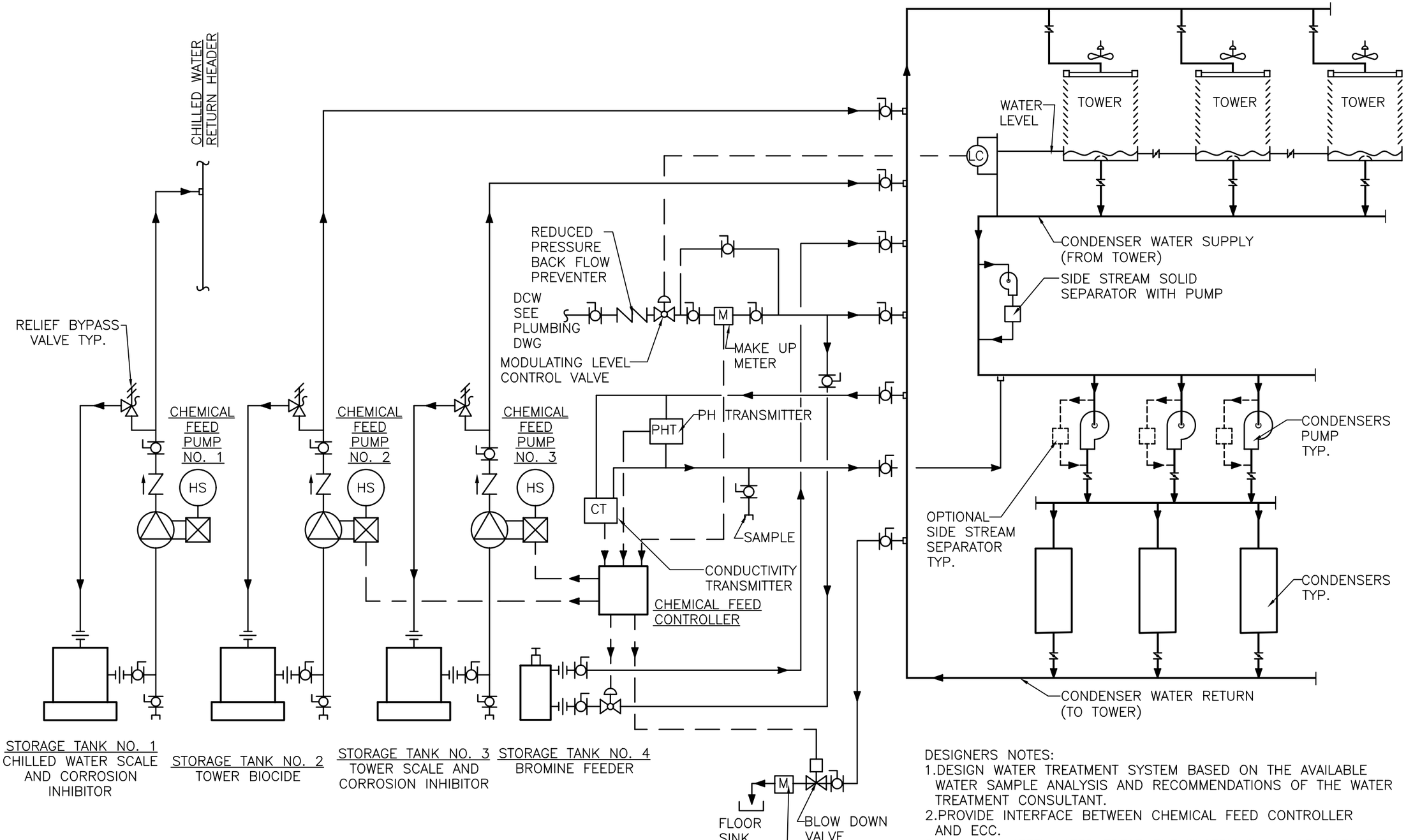
1. SHOW LOCATION OF ALL CHEMICAL POT FEEDER TANKS ON PIPING DIAGRAMS FOR EACH CHILLED WATER AND HEATING HOT WATER SYSTEM. FEEDER MAY ALSO BE USED FOR MAKE–UP FOR SMALL GLYCOL–WATER SYSTEMS (UNDER 50 GPM [190 LPM] IN LIEU OF A TANK/PUMP MAKE–UP SYSTEM.

Department of Veterans Affairs

DETAIL TITLE / WATER TREATMENT – CLOSED SYSTEMS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD232500–02.DWG



WATER TREATMENT SYSTEM - COOLING TOWER

#

NTS

DESIGNERS NOTES:

1. DESIGN WATER TREATMENT SYSTEM BASED ON THE AVAILABLE WATER SAMPLE ANALYSIS AND RECOMMENDATIONS OF THE WATER TREATMENT CONSULTANT.
2. PROVIDE INTERFACE BETWEEN CHEMICAL FEED CONTROLLER AND ECC.
3. CHILLED WATER WATER TREATMENT SYSTEM SHALL BE OPERATED MANUALLY.
4. ADDITIONAL STORAGE TANKS AND FEED PUMPS MAY BE REQUIRED BASED ON THE OUTCOME OF THE WATER SAMPLE ANALYSIS.
5. ENSURE CLOSE COORDINATION BETWEEN THE CONTRACT SPECIFICATIONS AND DETAILS.

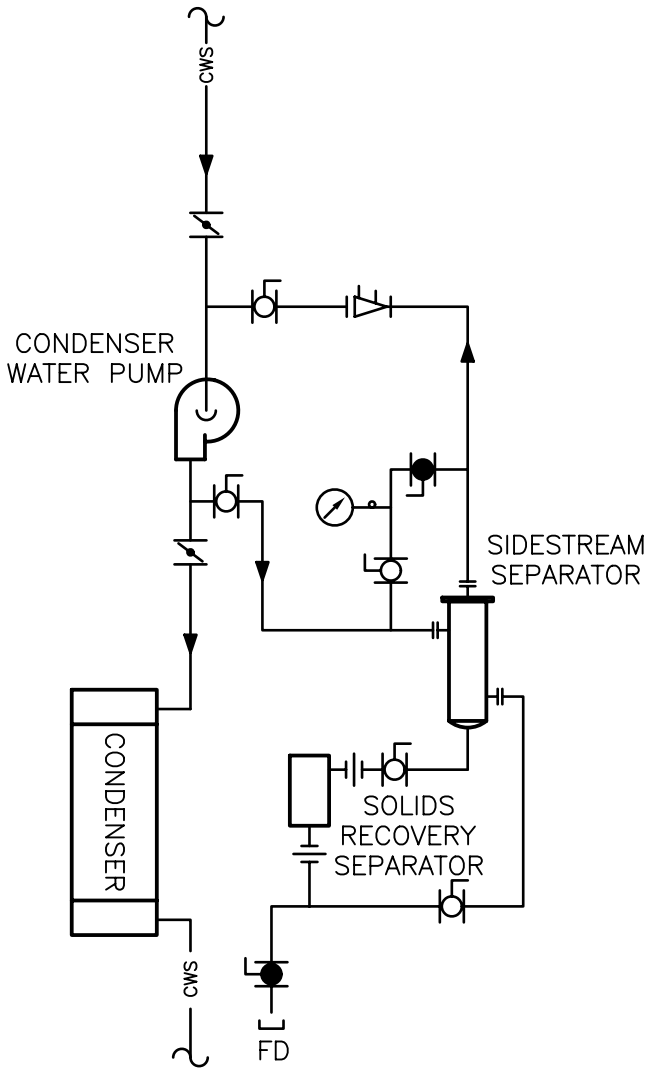
DETAIL TITLE / WATER TREATMENT SYSTEM - COOLING TOWER

SCALE :NONE

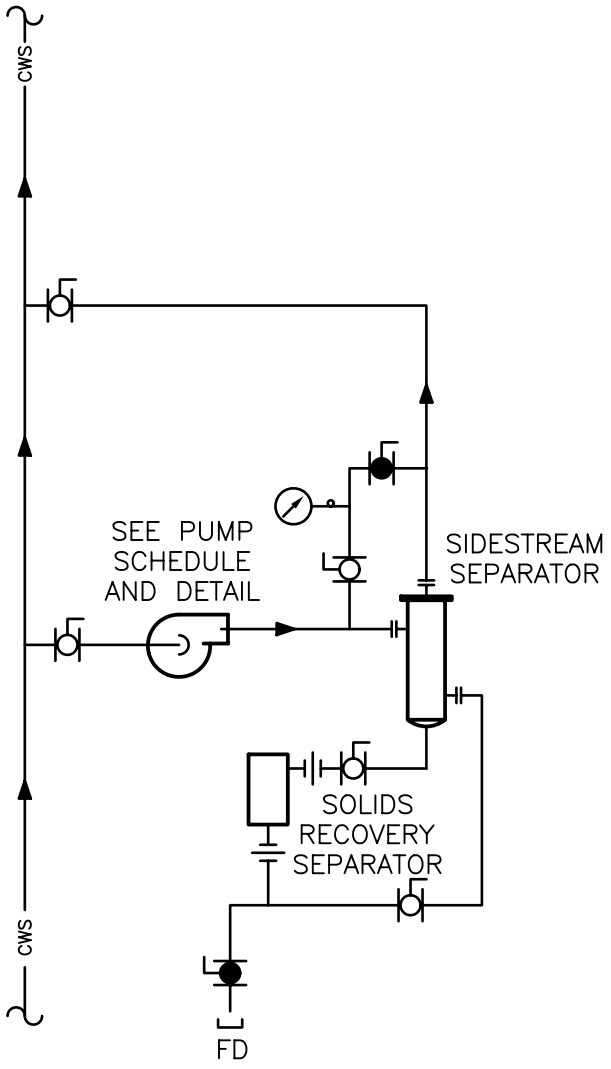
DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD232500-03.DWG

Department of Veterans Affairs



SEPARATOR DETAIL WITHOUT SIDESTREAM PUMP



SEPARATOR DETAIL WITH SIDESTREAM PUMP

DESIGNER'S NOTE:

1. PROVIDE EITHER A COMMON SIDESTREAM SOLID SEPARATOR WITH PUMP OR A DEDICATED SEPARATOR FOR EACH CONDENSER WATER SYSTEM.

2. INCREASE CONDENSER WATER PUMP CAPACITY 5%–8% FOR A DEDICATED SIDESTREAM SEPARATOR.

SIDESTREAM SOLID SEPARATOR

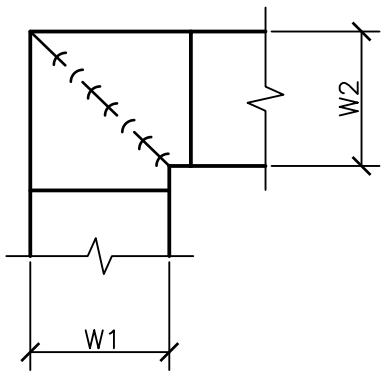
NTS

Department of Veterans Affairs

DETAIL TITLE / SIDE STREAM SOLID SEPARATOR

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD232500–04.DWG



NOTE:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

DUCTWORK SQUARE VANE ELBOWS

NTS

Department of Veterans Affairs

DETAIL TITLE / DUCTWORK SQUARE VANED ELBOWS

SCALE :NONE

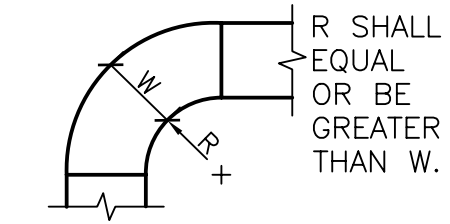
DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-01.DWG

Department of Veterans Affairs

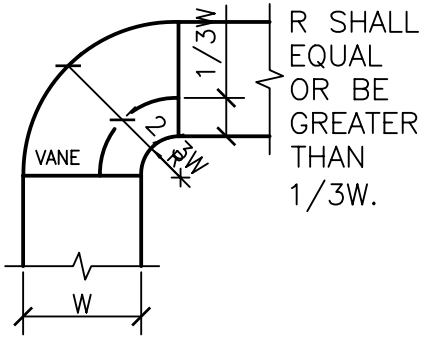
DETAIL TITLE / DUCTWORK RADIUS ELBOWS

SCALE :NONE

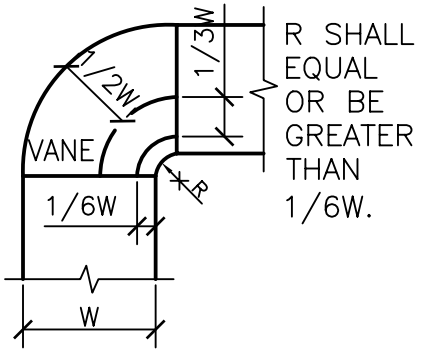
DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-02.DWG



STANDARD RADIUS OR LONG RADIUS ELBOW



SHORT RADIUS ELBOW WITH ONE VANE



SHORT RADIUS ELBOW WITH TWO VANES

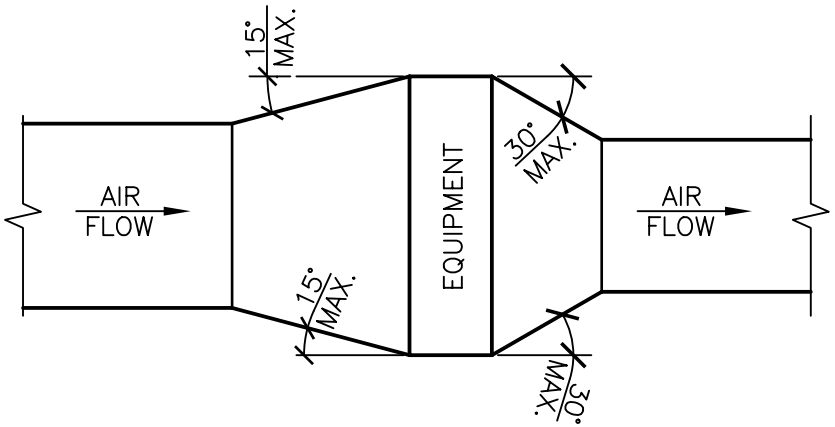
NOTE:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

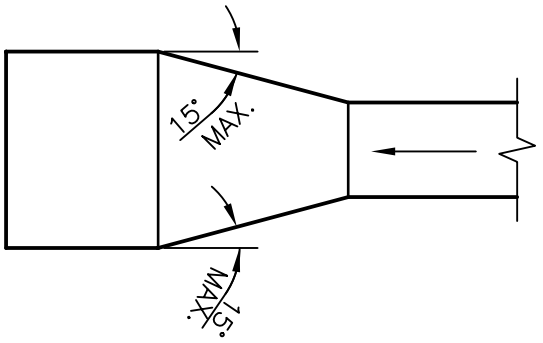
DUCTWORK RADIUS ELBOWS

NTS

DESIGNER'S NOTE:
DO NOT SHOW MITERED ELBOWS AND MITERED OFFSETS (TRANSITIONS) GREATER THAN 15 DEGREES ON DRAWINGS.



TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW



TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)

#

NTS

Department of Veterans Affairs

DETAIL TITLE / DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-03.DWG

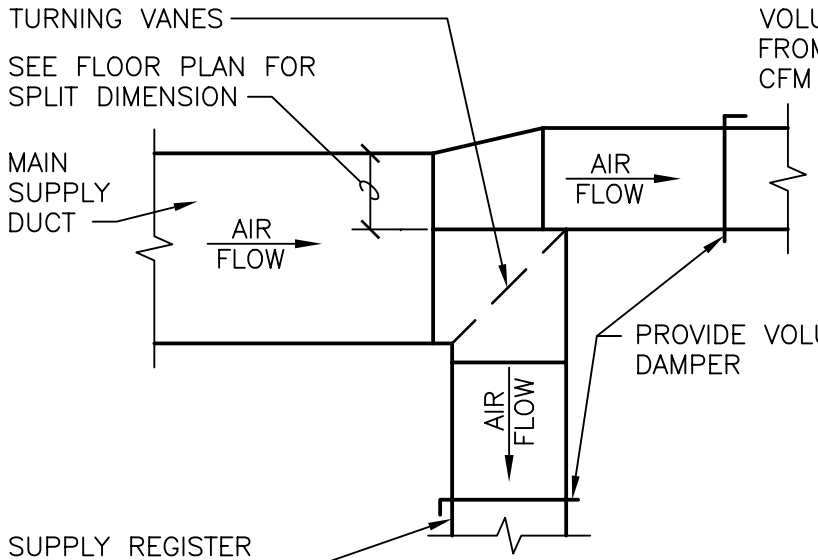
Department of Veterans Affairs

DETAIL TITLE / SUPPLY DUCTWORK TAKE-OFFS

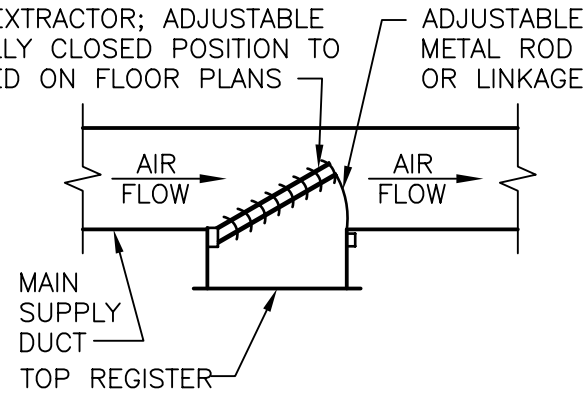
SCALE :NONE

DATE ISSUED: DECEMBER 2008

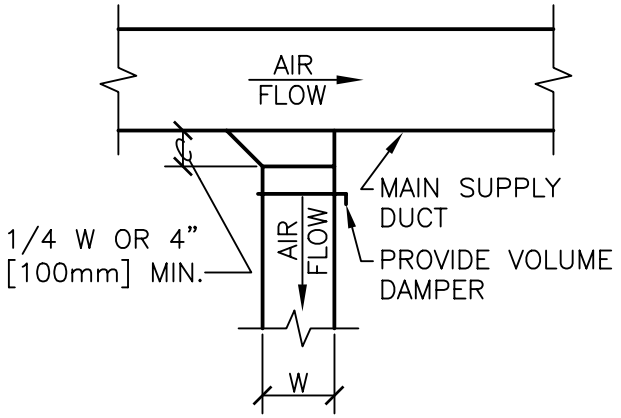
CAD DETAIL NO.: SD233100-04.DWG



AIR SPLIT DUCT TAKE-OFF
PLAN VIEW



SUPPLY REGISTER TAKE-OFF
PLAN VIEW



BRANCH DUCT TAKE-OFF PLAN VIEW

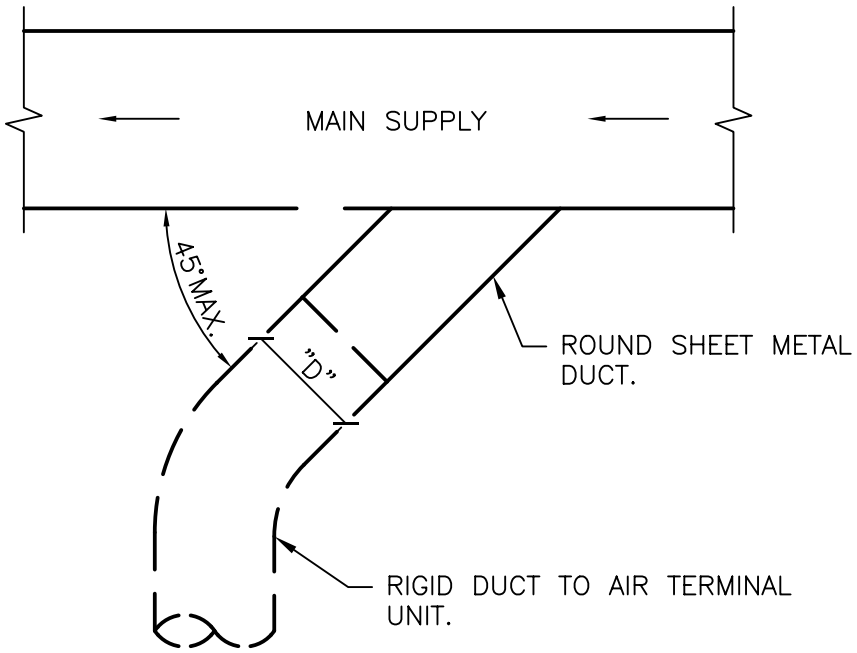
SUPPLY DUCTWORK TAKE-OFFS

NTS

DESIGNER'S NOTES:

1. THE SUPPLY REGISTER TAKE-OFF MAY BE USED FOR UP UP TO 25% OF THE MAIN DUCT CFM. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM [5.1 M/S] OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES AND MAY BE USED AT ANYTIME.

2. SHOW ALL VOLUME DAMPERS ON FLOOR PLANS.



PLAN VIEW

SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT

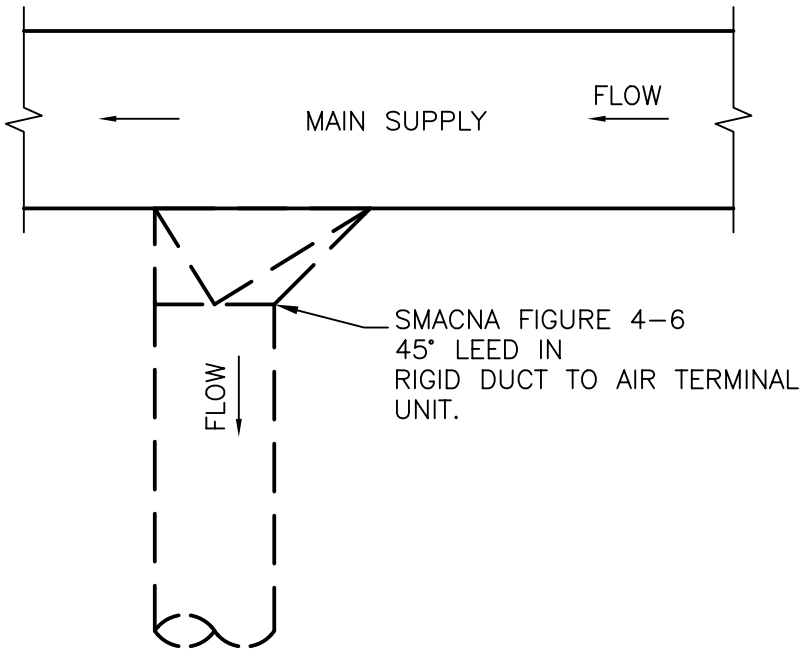
NTS

Department of Veterans Affairs

DETAIL TITLE / SUPPLY DUCT TAKEOFF- AIR TERMINAL UNITS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-05.DWG



PLAN VIEW

ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

#

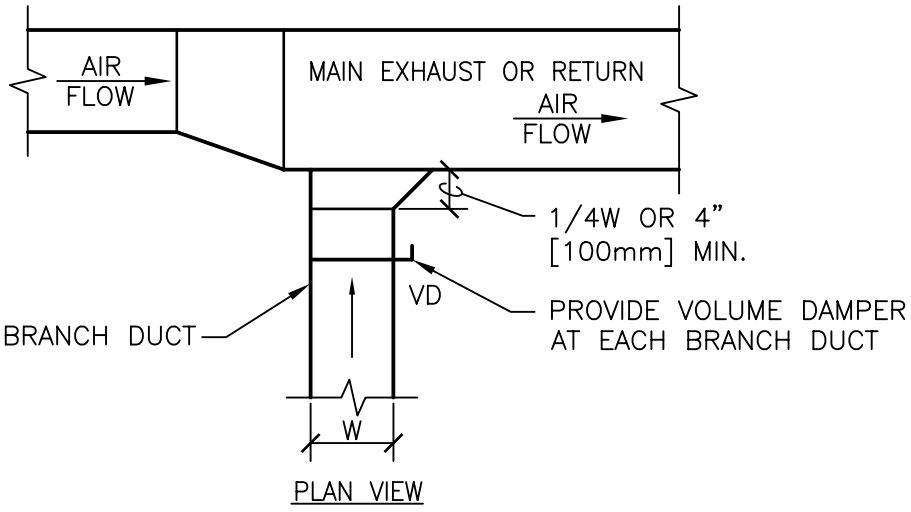
NTS

Department of Veterans Affairs

DETAIL TITLE / ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-06.DWG



EXHAUST OR RETURN BRANCH DUCTWORK

NTS

DESIGNER'S NOTE:

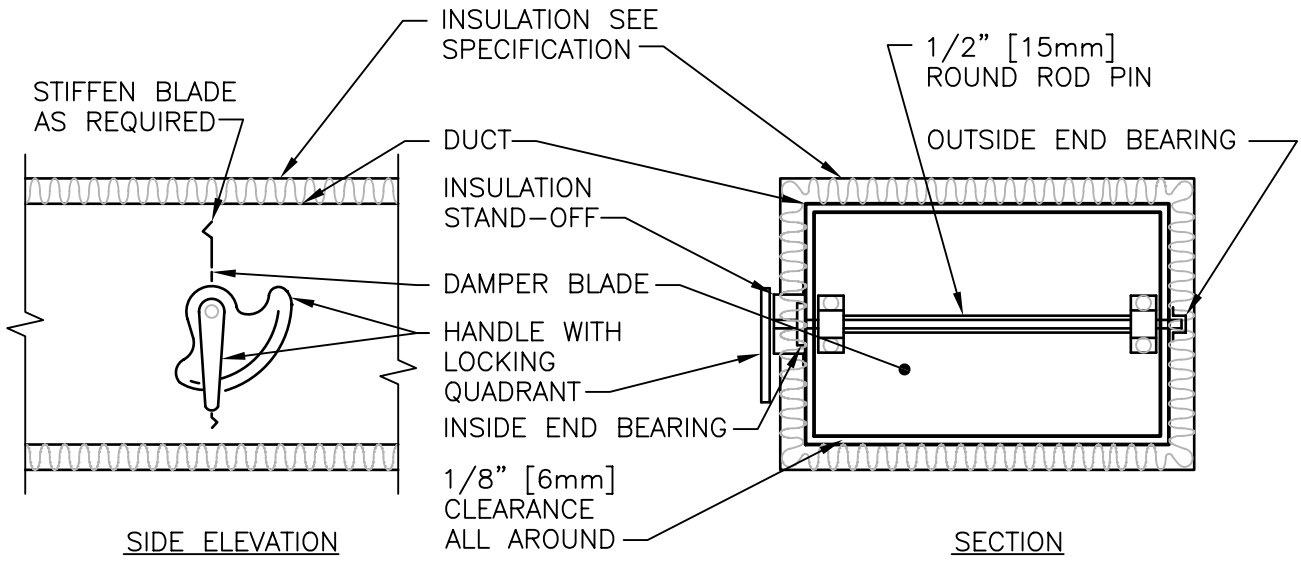
1. SHOW ALL VOLUME DAMPERS ON FLOOR PLANS.

Department of Veterans Affairs

DETAIL TITLE / EXHAUST OR RETURN BRANCH DUCTWORK

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-07.DWG



NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

VOLUME DAMPER DETAIL

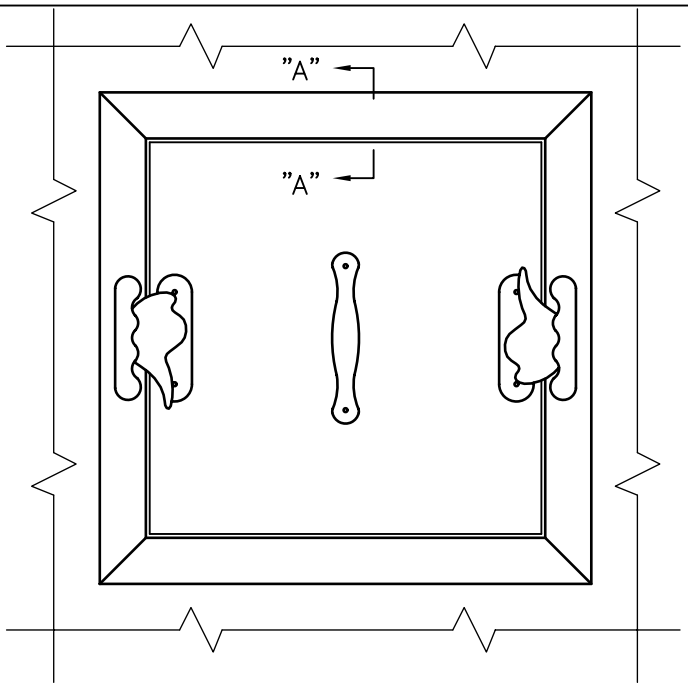
NTS

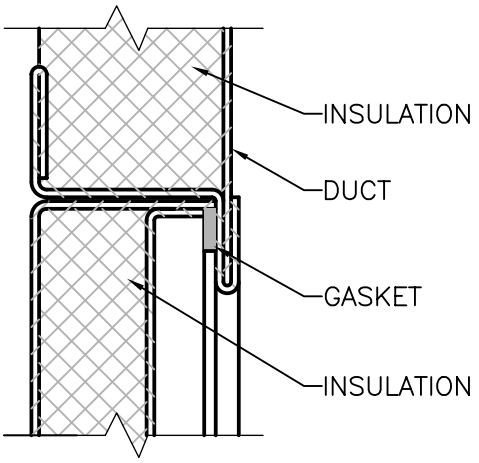
Department of Veterans Affairs

DETAIL TITLE / VOLUME DAMPER DETAIL

SCALE :NONE

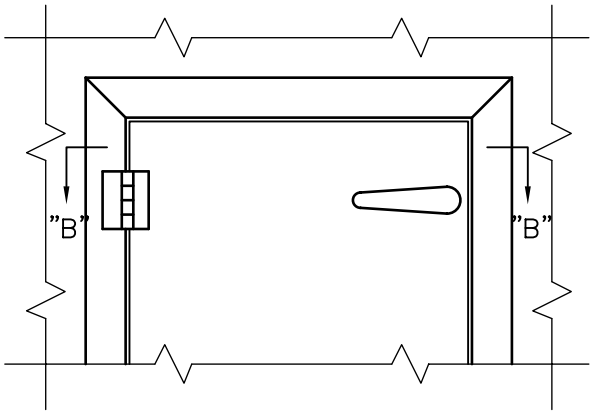
DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-08.DWG

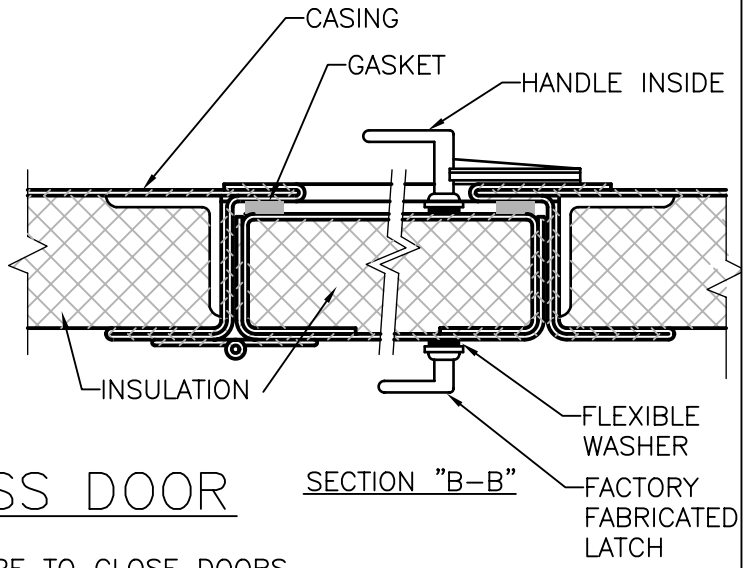




SECTION "A–A"

ACCESS PANEL





SECTION "B–B"

ACCESS DOOR

NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON–CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9–15

ACCESS PANEL AND DOOR DETAIL

#

NTS

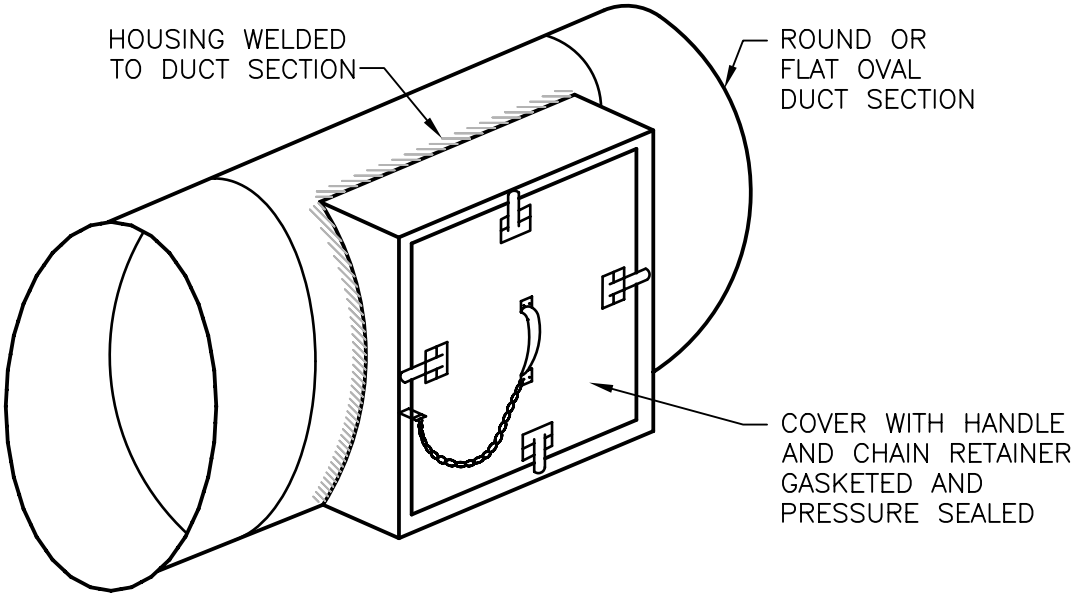
DESIGNERS NOTES:
1. USE ACCESS DOORS ON AIR HANDLING UNITS AND DUCTWORK INSTALLED IN EQUIPMENT ROOMS.
2. USE ACCESS PANELS ON ALL EQUIPMENT AND DUCTWORK INSTALLED ABOVE FINISHED CEILINGS.

Department of Veterans Affairs

DETAIL TITLE / ACCESS PANEL AND DOOR DETAIL

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD233100–09.DWG



ACCESS SECTION FOR ROUND/OVAL DUCT

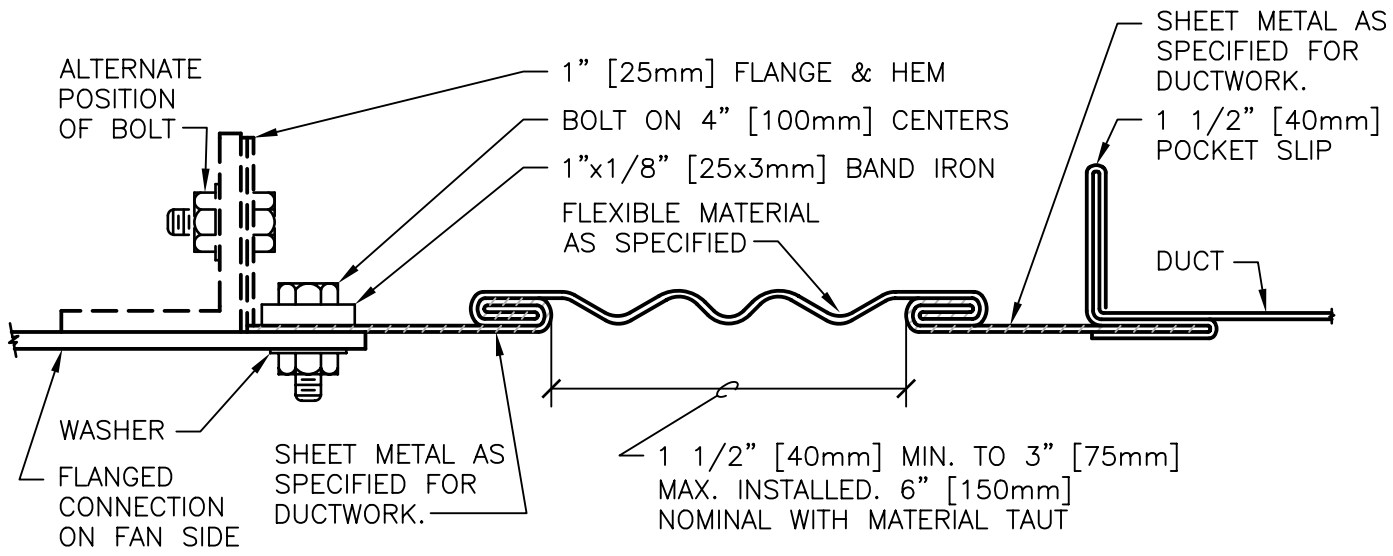
NTS

Department of Veterans Affairs

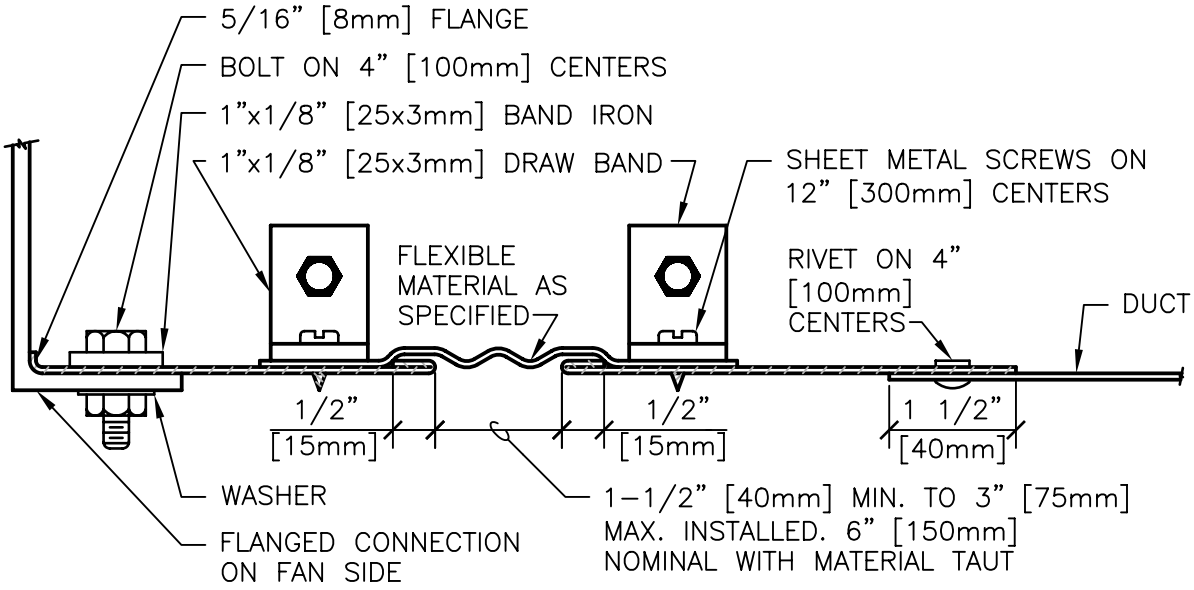
DETAIL TITLE / ACCESS SECTION FOR ROUND/OVAL DUCT

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-10.DWG



RECTANGULAR FLEXIBLE CONNECTION



ROUND FLEXIBLE CONNECTION

FLEXIBLE DUCT CONNECTIONS

#

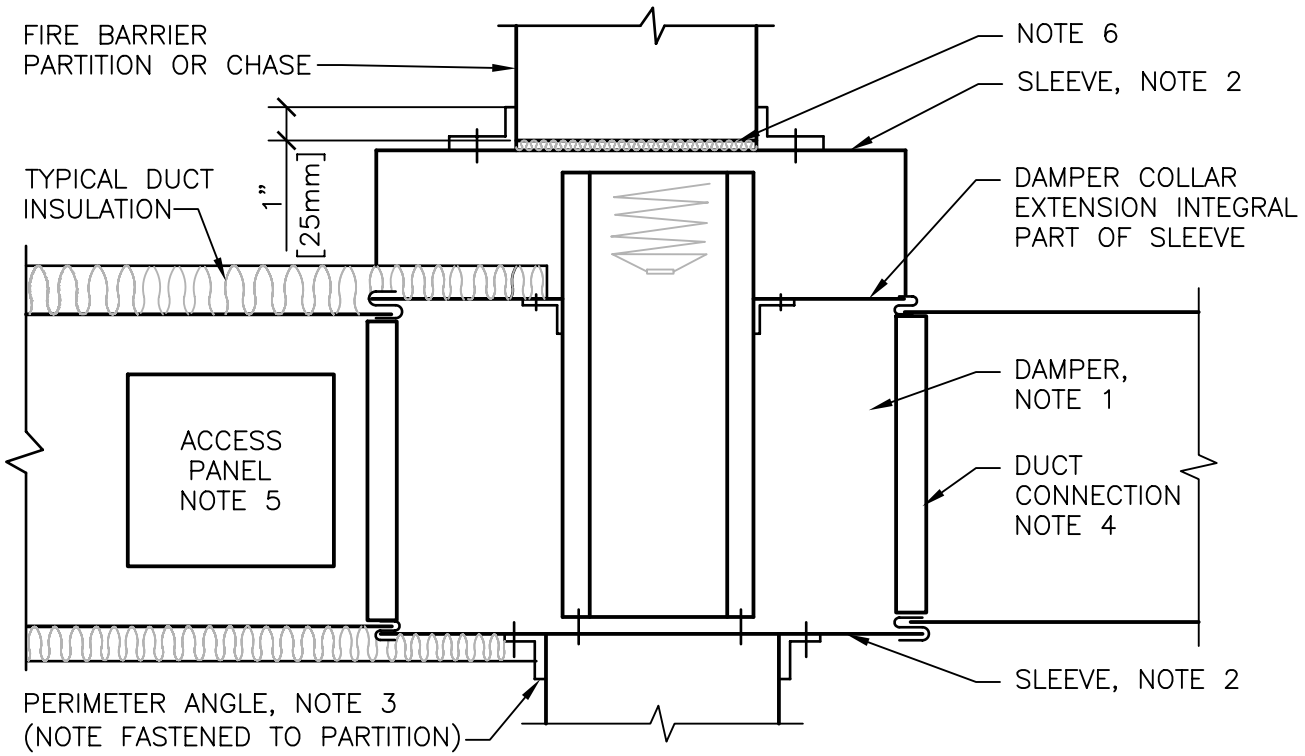
NTS

Department of Veterans Affairs

DETAIL TITLE / FLEXIBLE DUCT CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-11.DWG



NOTE:

1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, 1S SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION.

2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.

3. PERIMETER ANGELS: GALVANIZED STEEL, NOT LESS THAN 1 1/2"x1 1/2" [40x40mm], 14 GAGE, TO PROVIDE 1" [25mm] MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.

4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.

5. PROVIDE 1/4" TO 1/2" [6 TO 15mm] CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.

6. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" [75mm] HIGH

7. CONCRETE CURB AROUND OPENING FOR DUCT.

SECTION THRU
FIRE DAMPER INSTALLATION

#

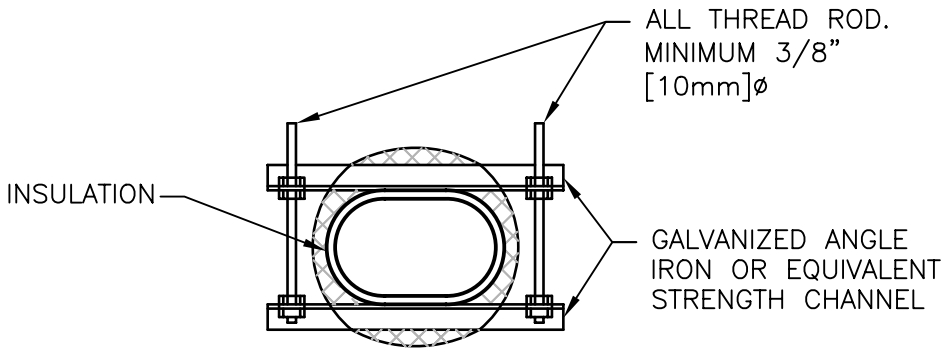
NTS

Department of Veterans Affairs

DETAIL TITLE / SECTION THRU
FIRE DAMPER INSTALLATION

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-12.DWG



NOTE:

1. PROVIDE BRACING TO LIMIT THE AMPLITUDE OF WALL VIBRATION AND WALL DEFLECTION TO SPECIFIED MAXIMUMS.

2. MINIMUM BRACING REQUIREMENTS:

MAXIMUM DUCT WIDTH IN. [mm]	MAXIMUM SIZE ANGLE IN. [mm]	MAXIMUM SPACING IN. [mm]
UP TO 26 [650]	NONE	
27 [675] TO 40 [1000]	1-1/2x1-1/2x3/16 [40x40x7]	72 [1800]
41 [1000] TO 60 [1500]	2x2x3/16 [50x50x7]	48 [1200]
61 [1500] TO 72 [1800]	2x2x3/16 [50x50x7]	24 [600]

3. INSULATION: FOR COLD DUCTS INSULATE BRACES AND PROVIDE VAPOR BARRIER.

FLAT OVAL DUCT HANGERS/REINFORCEMENT

NTS

Department of Veterans Affairs

DETAIL TITLE / FLAT OVAL DUCT HANGERS/REINFORCEMENT

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-13.DWG

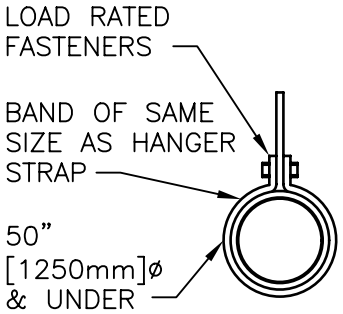
Department of Veterans Affairs

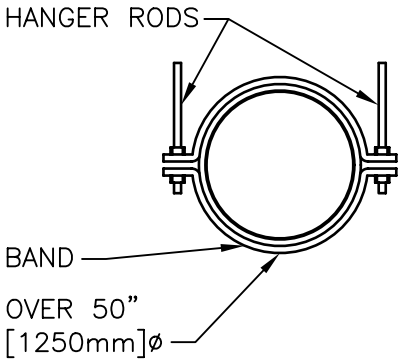
DETAIL TITLE / ROUND DUCT HANGERS

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD233100-14.DWG





HANGER STRAPS OR RODS

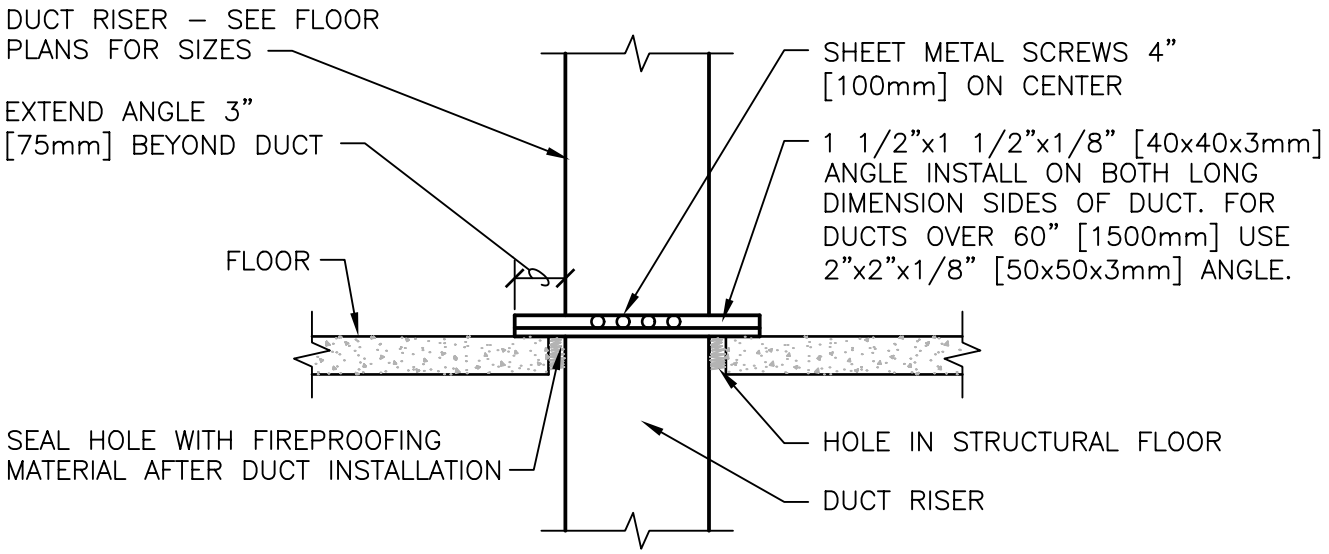
MAX. DUCT ø IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10]ø. RODS	1320 [598]	144 [3600]
84 [2100]	TWO 1/2 [13]ø RODS	2500 [1133]	144 [3600]

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

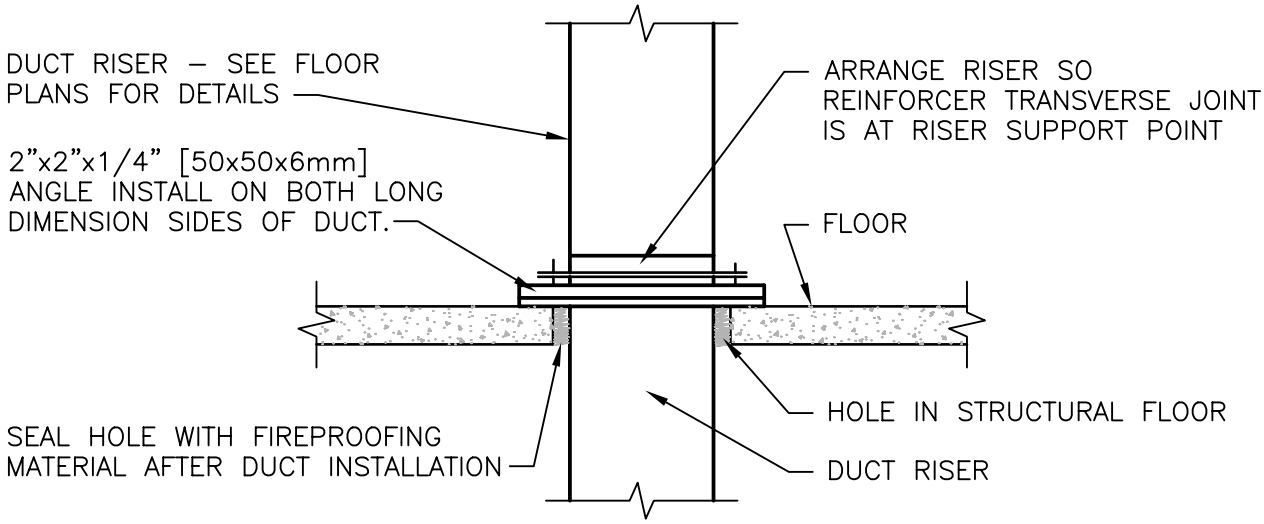
ROUND DUCT HANGERS

NTS

DESIGNER'S NOTE:
DESCRIBE OR DETAIL UPPER ATTACHMENTS APPLICABLE TO PARTICULAR PROJECTS.



0.5 INCH WG [125Pa] TO 2 INCHES WG [500Pa] DUCT RISER SUPPORT



2 INCHES WG [500Pa] TO 4 INCHES WG [1000Pa] DUCT RISER SUPPORT

NOTE:
ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND FAN ROOM FLOORS SHALL BE PROVIDED WITH A 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

DUCT RISER SUPPORTS

NTS

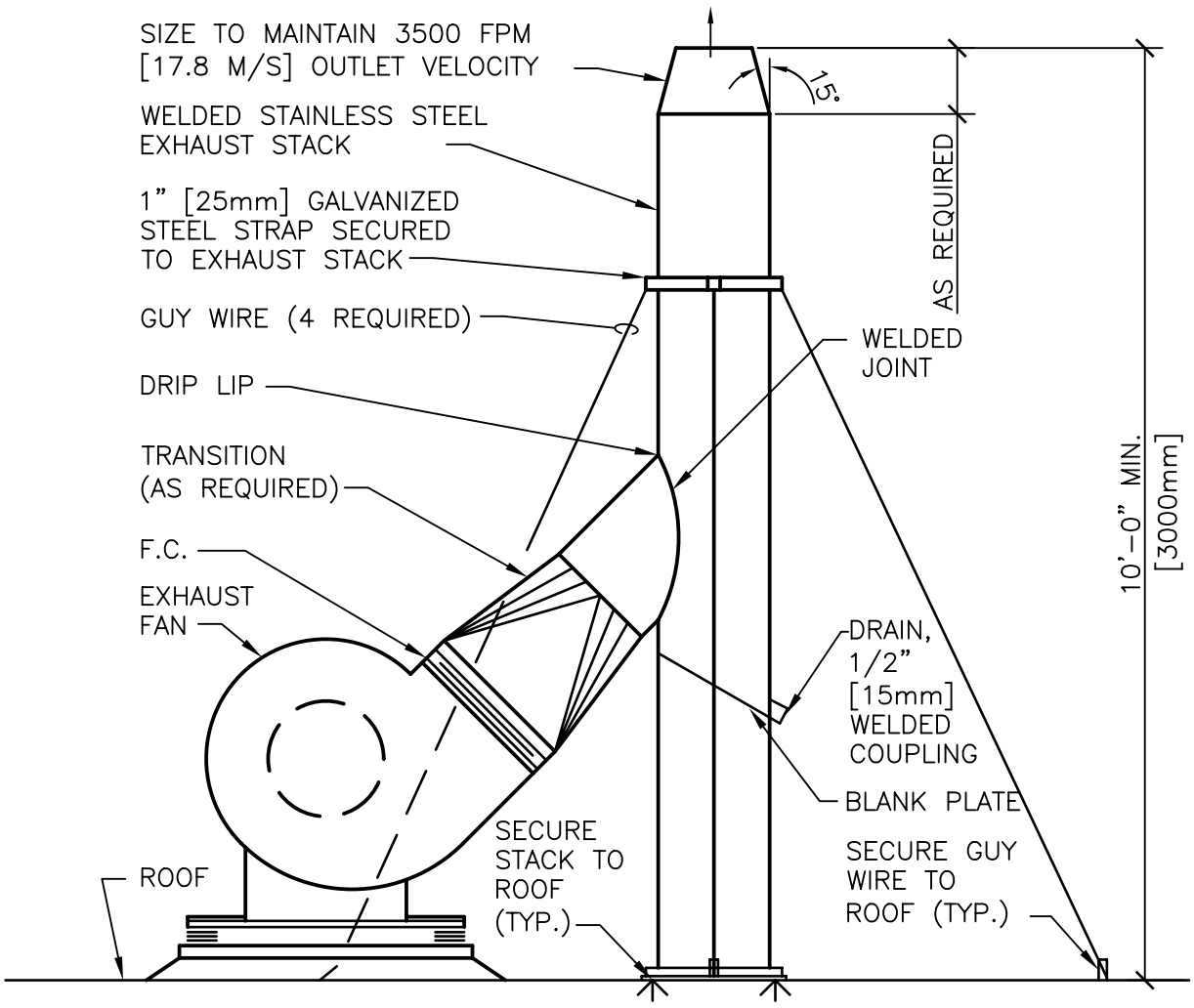
DESIGNER'S NOTE:
INDICATE ON DRAWING THE DUCT PRESSURE CLASS 2" WG [500Pa] WG, 3" WG [750Pa] OR 4" WG [1000Pa].

Department of Veterans Affairs

DETAIL TITLE / DUCT RISER SUPPORTS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-15.DWG



EXHAUST STACK DETAIL

NTS

DESIGNER'S NOTE:

1. 10 FEET MINIMUM HEIGHT IS SHOWN. INCREASE THE HEIGHT, AS REQUIRED, TO COMPLY WITH THE RECOMMENDATIONS OF THE DISPERSION ANALYSIS.

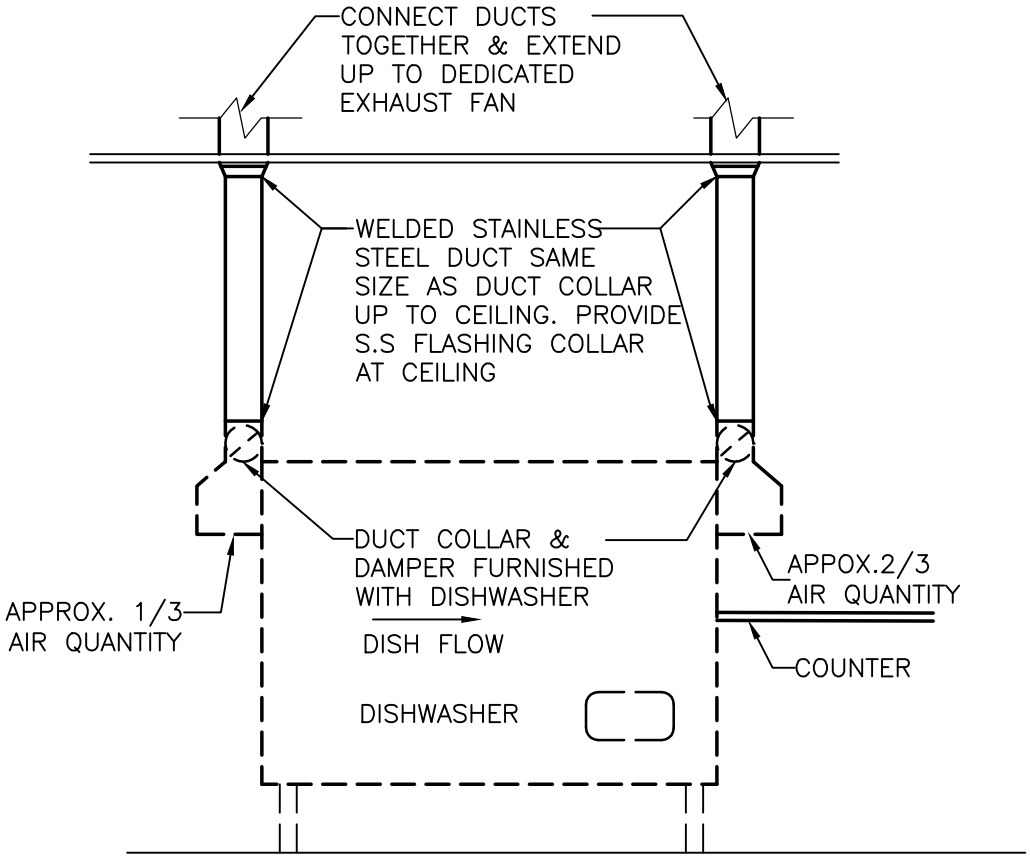
2. USE THIS DETAIL FOR FUME HOODS,BIOLOGICAL SAFETY CABINETS, ISOLATION ROOM EXHAUST AND ANY OTHER APPLICABLE AREA.

Department of Veterans Affairs

DETAIL TITLE / EXHAUST STACK DETAIL

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-16.DWG



NOTES:

1. ALL DUCTS SHALL BE WATER TIGHT WELDED STAINLESS STEEL TO EXHAUST FAN.
2. PITCH DUCTS DOWN TOWARD INTAKE OPENINGS OR PROVIDE DRAIN AT ANY POINT WHERE WATER WILL COLLECT.
3. SEE FLOOR PLANS FOR EXHAUST AIR VOLUME AND DUCT SIZES.

EXHAUST DUCTWORK - GLASSWASHER

NTS

DESIGNER'S NOTES:

1. DETAIL IS FOR DISHWASHER/GLASSWASHER SEE EQUIPMENT DRAWINGS.

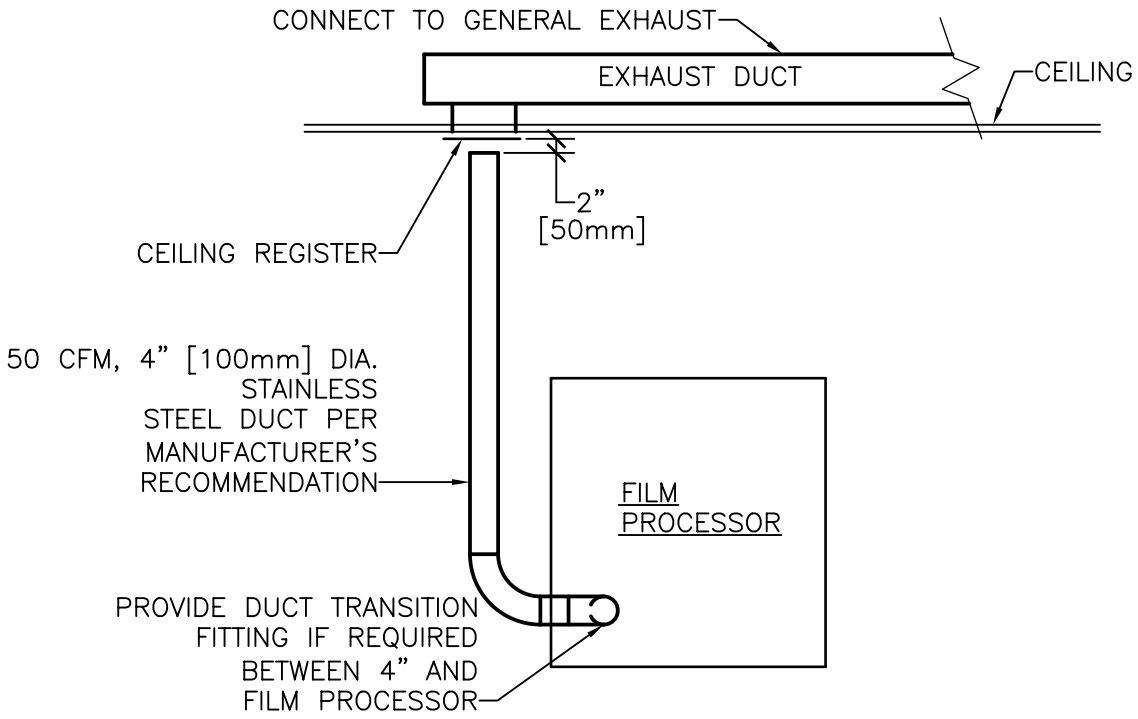
Department of Veterans Affairs

DETAIL TITLE / EXHAUST DUCTWORK -GLASSWASHER

SCALE :NONE

DATE ISSUED :MAY 2011

CADD DETAIL NO. : SD233100-17.DWG



NOTE:

1. USE THIS DETAIL ONLY IF THE FILM PROCESSING INVOLVES USE OF CHEMICALS.

DUCTWORK CONNECTION - FILM PROCESSOR

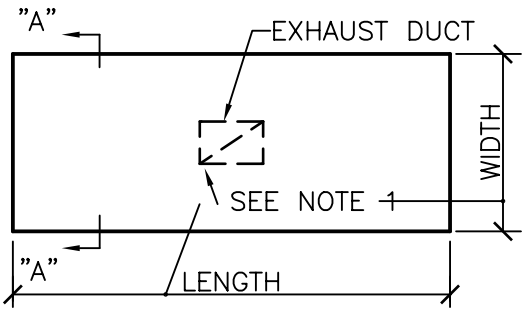
NTS

Department of Veterans Affairs

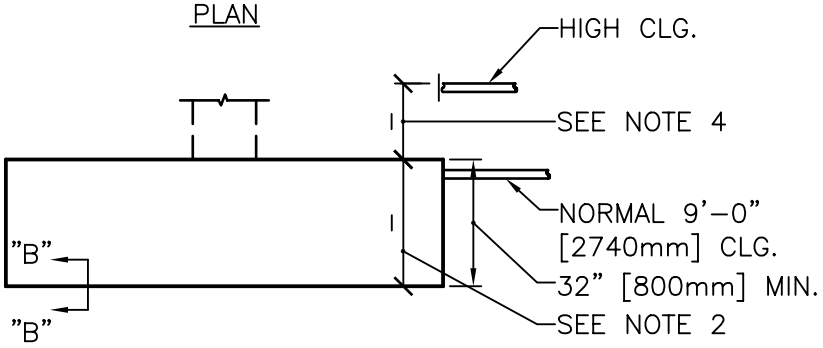
DETAIL TITLE / DUCTWORK CONNECTION - FILM PROCESSOR

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD233100-18.DWG

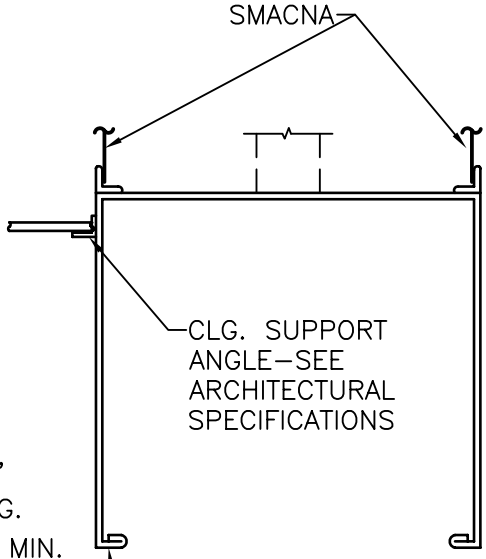


PLAN

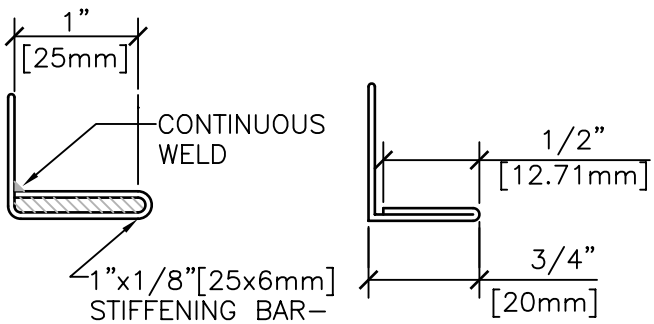


FRONT ELEVATION

SUPPORT ANGLES OR STANDING SEAMS SECURE TO STRUCTURE TO ABOVE AS RECOMMENDED BY SMACNA



SECTION "A–A"



SECTION "B–B"

NOTES:

1. HOODS SHALL BE STAINLESS STEEL, SEE SPECIFICATIONS. FOR HOOD SIZE & LOCATION SEE EQUIPMENT SCHEDULE. FOR EXHAUST DUCT CONNECTIONS – SEE FLOOR PLANS.
2. ALL HOODS SHALL BE 6'–6" [2m] ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. HOODS OVER URNS SHALL BE 7'–6" [2.3m] MINIMUM ABOVE FINISHED FLOOR.
3. HOODS OVER 6'–0" [1.9m] LONG WITH 2 OR MORE SECTIONS, SHALL HAVE INSIDE STANDING SEAM AND 1"x1/8" [25x6mm] STIFFENING BAR – SEE SECTION "B–B".
4. EXTEND SIDE & END SHEET TO SUIT HIGH CEILING WHEN REQUIRED.
5. DETAIL SHOWS HOOD IN OPEN SPACE. WHEN HOOD IS INSTALLED AT WALL OR PARTITION SECURE TO WALL OR PARTITION WITH EXPANSION BOLTS.

HOOD TYPE "A"

NTS

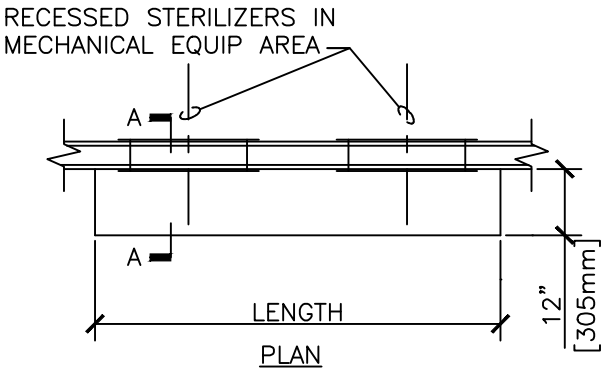
DESIGNER'S NOTE:
VERIFY ALL DIMENSIONS. SEE ARCHITECTURAL FLOOR PLANS FOR REQUIRED HOOD LOCATIONS.

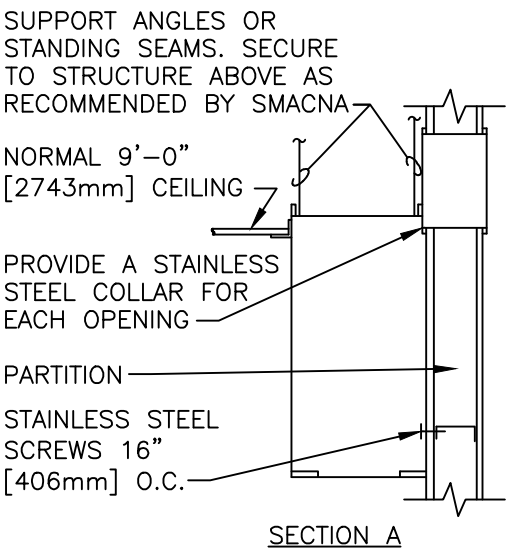
Department of Veterans Affairs

DETAIL TITLE / HOOD TYPE "A"

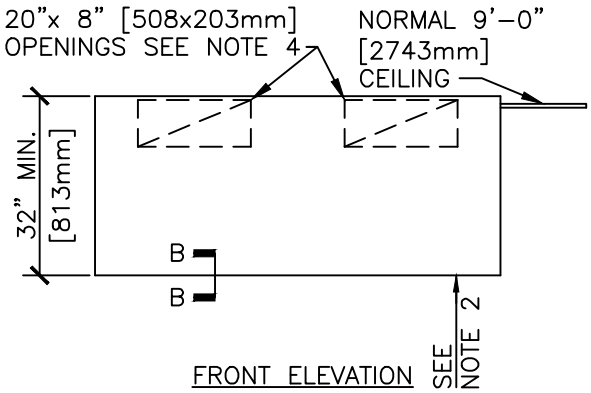
SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD233100–19.DWG

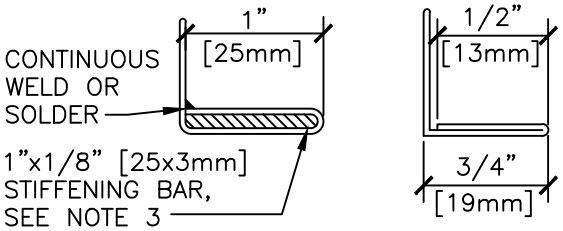




SECTION A



FRONT ELEVATION



SECTION B

NOTE:

1. HOODS SHALL BE STAINLESS STEEL. SEE SPECIFICATIONS. FOR HOOD SIZES & LOCATIONS SEE EQUIPMENT SCHEDULE OR FLOOR PLANS.
2. HOODS SHALL BE 6'-6" [1981mm] ABOVE FINISHED FLOOR.
3. HOODS OVER 6'-0" [1828mm] LONG WITH 2 OR MORE SECTIONS SHALL HAVE INSIDE STANDING SEAM AND 1"x1/8" [25x3mm] STIFFENING BAR. SEE SECTION B.
4. PROVIDE A 20"x 8" [508x203mm] OPENING OVER EACH STERILIZER. LOCATE OPENING AS HIGH AS POSSIBLE IN HOOD, BUT BELOW CEILING IN MECHANICAL EQUIPMENT AREA IF ROOM HAS A CEILING.

HOOD TYPE "B"

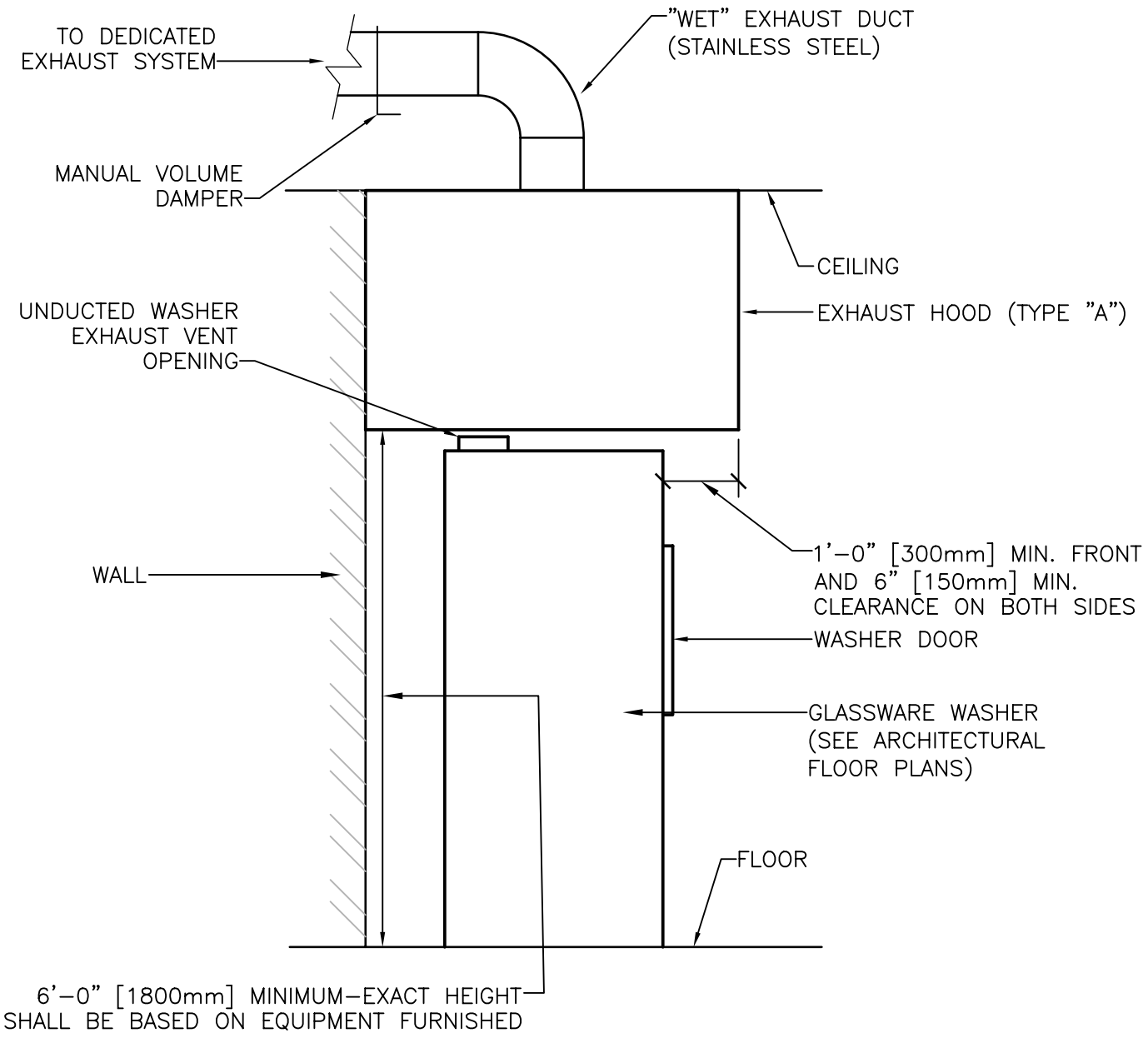
NTS

VA | U.S. Department of Veterans Affairs

DETAIL/TITLE: HOOD TYPE "B"

SCALE: NONE

DATE ISSUED: FEBRUARY 2017 CADD DETAIL NO. : SD233100-20



EXHAUST DUCTWORK- GLASSWARE WASHER

NTS

DESIGNER'S NOTES:

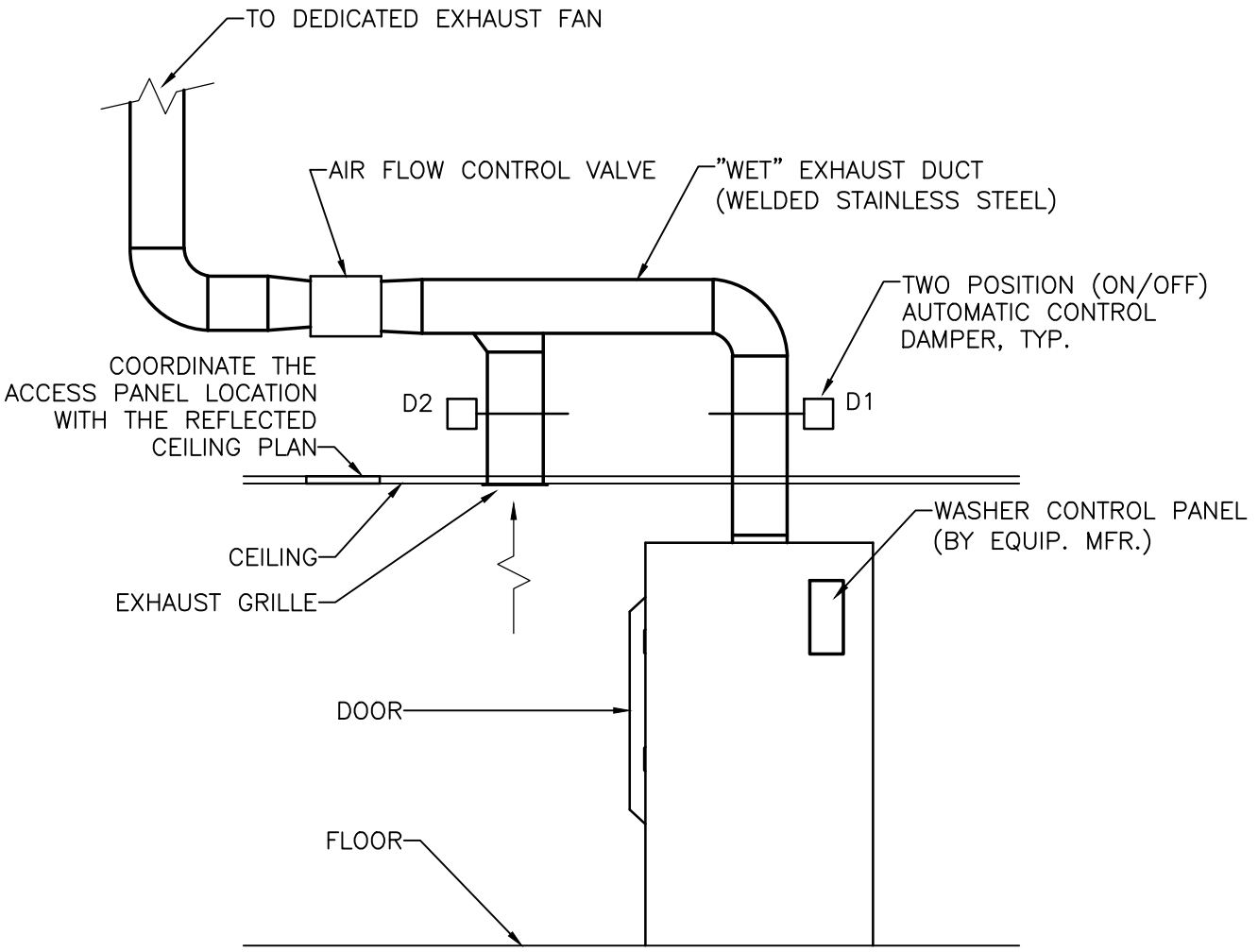
1. SEE VA STANDARD DETAIL 23 31 00-20 FOR CONSTRUCTION & INSTALLATION DETAILS.
2. COORDINATE HOOD DIMENSIONS AND EXHAUST AIR VOLUME SHOWN ON THE EQUIPMENT DRAWINGS. EXHAUST AIR VOLUME SHALL BE BASED ON THE 100 FPM [.5 M/sec] VELOCITY THRU THE FACE AREA OF THE HOOD.

Department of Veterans Affairs

DETAIL TITLE / EXHAUST DUCTWORK - GLASSWARE WASHER

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD233100-21.DWG



SEQUENCE OF CONTROL

1. WHEN WASHER DOOR IS OPEN CONTROL DAMPER D1 OPENS AND CONTROL DAMPER D2 CLOSES.
2. WHEN WASHER DOOR IS CLOSED CONTROL DAMPER D1 CLOSES AND CONTROL DAMPER D2 OPENS.
3. MAINTAIN EXHAUST DUCT UNDER NEGATIVE PRESSURE THROUGHOUT ITS RUN.

EXHAUST DUCTWORK - CAGE WASHER

NTS

DESIGNER'S NOTES:

1. COORDINATE EXHAUST CFM WITH THE ARCHITECTURAL EQUIPMENT DRAWINGS.
2. COORDINATE DAMPER OPERATION WITH WASHER DOOR, THRU THE WASHER CONTROL PANEL.

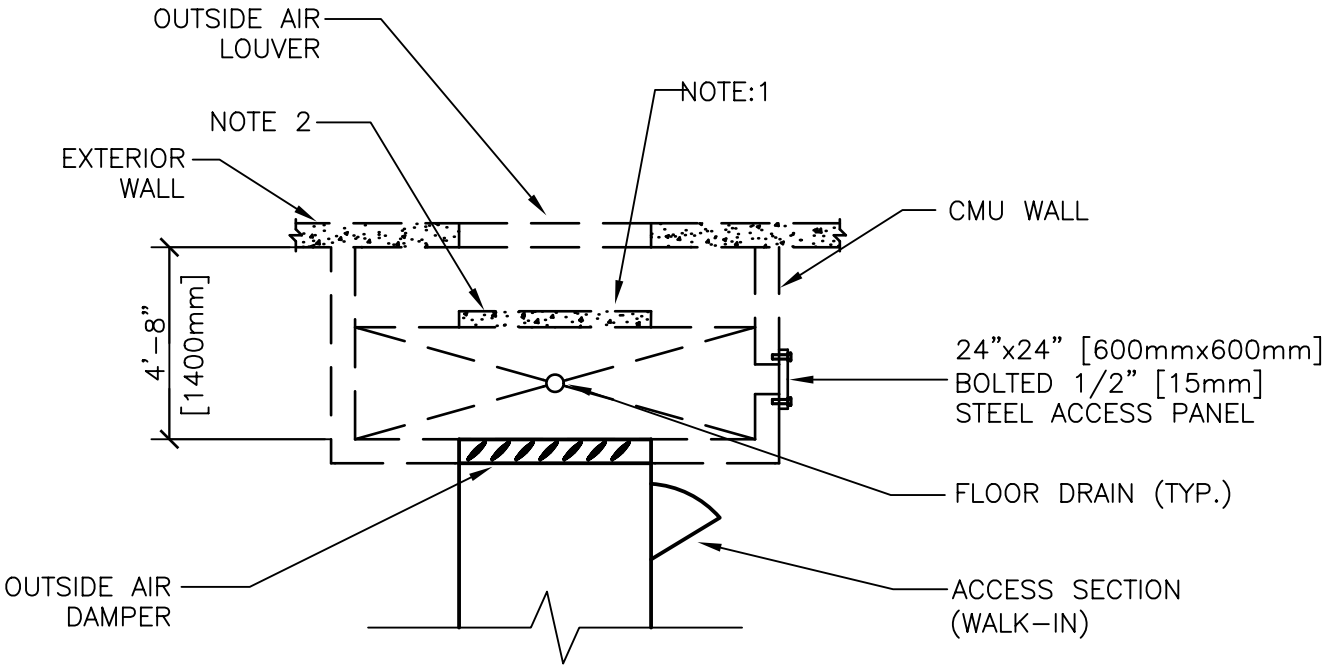
Department of Veterans Affairs

DETAIL TITLE / EXHAUST DUCTWORK - CAGE WASHER

SCALE :NONE

DATE ISSUED :MAY 2011

CADD DETAIL NO. : SD233100-22.DWG



DETAIL KEYNOTES:

1. THE DESIGN AND SUPPORTING DOCUMENTATION FOR THE BLAST RESISTANT CONCRETE WALL SHALL BE COORDINATED AND APPROVED BY A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER SPECIALIZING IN BLAST RESISTANT CONSTRUCTION.

2. LIMIT AIR VELOCITY TO 800 FPM [4.0 m/s] THRU PLENUM.

OUTSIDE AIR INTAKE FOR AIR HANDLER UNIT FOR MISSION CRITICAL FACILITY

#

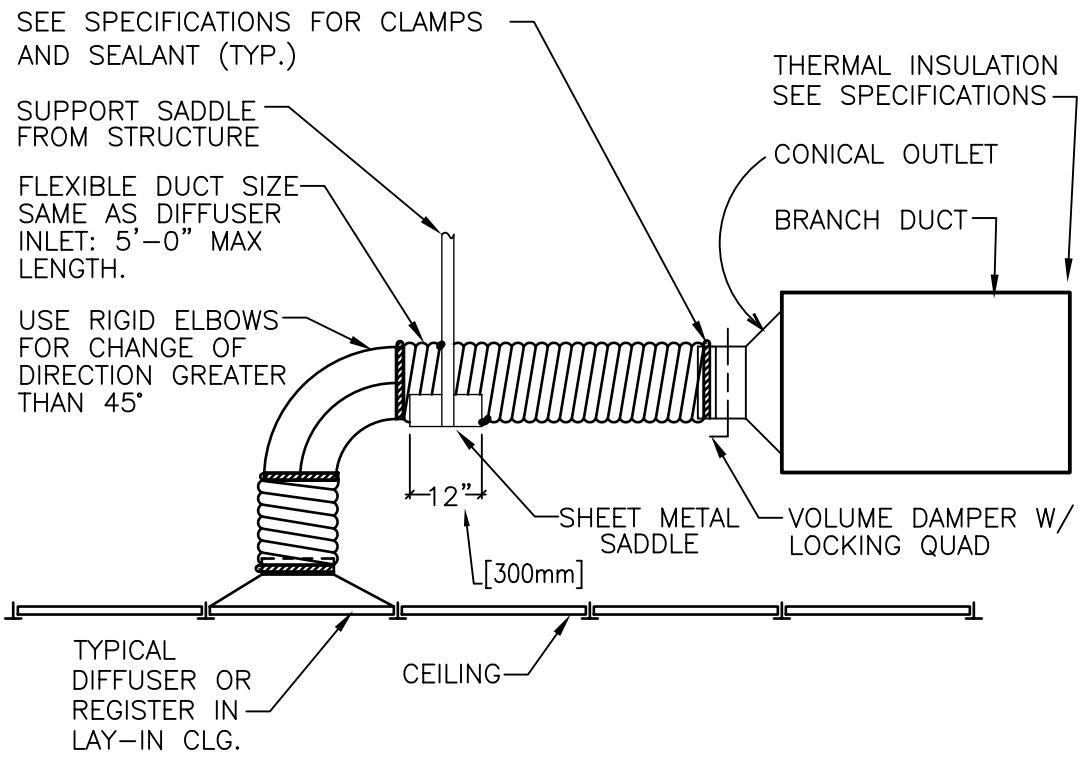
NTS

Department of Veterans Affairs

DETAIL TITLE / OUTSIDE AIR INTAKE FOR AIR HANDLER UNIT FOR MISSION CRITICAL FACILITY

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-23.DWG



NOTE:
THE USE OF FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

FLEXIBLE AIR DUCT CONNECTOR

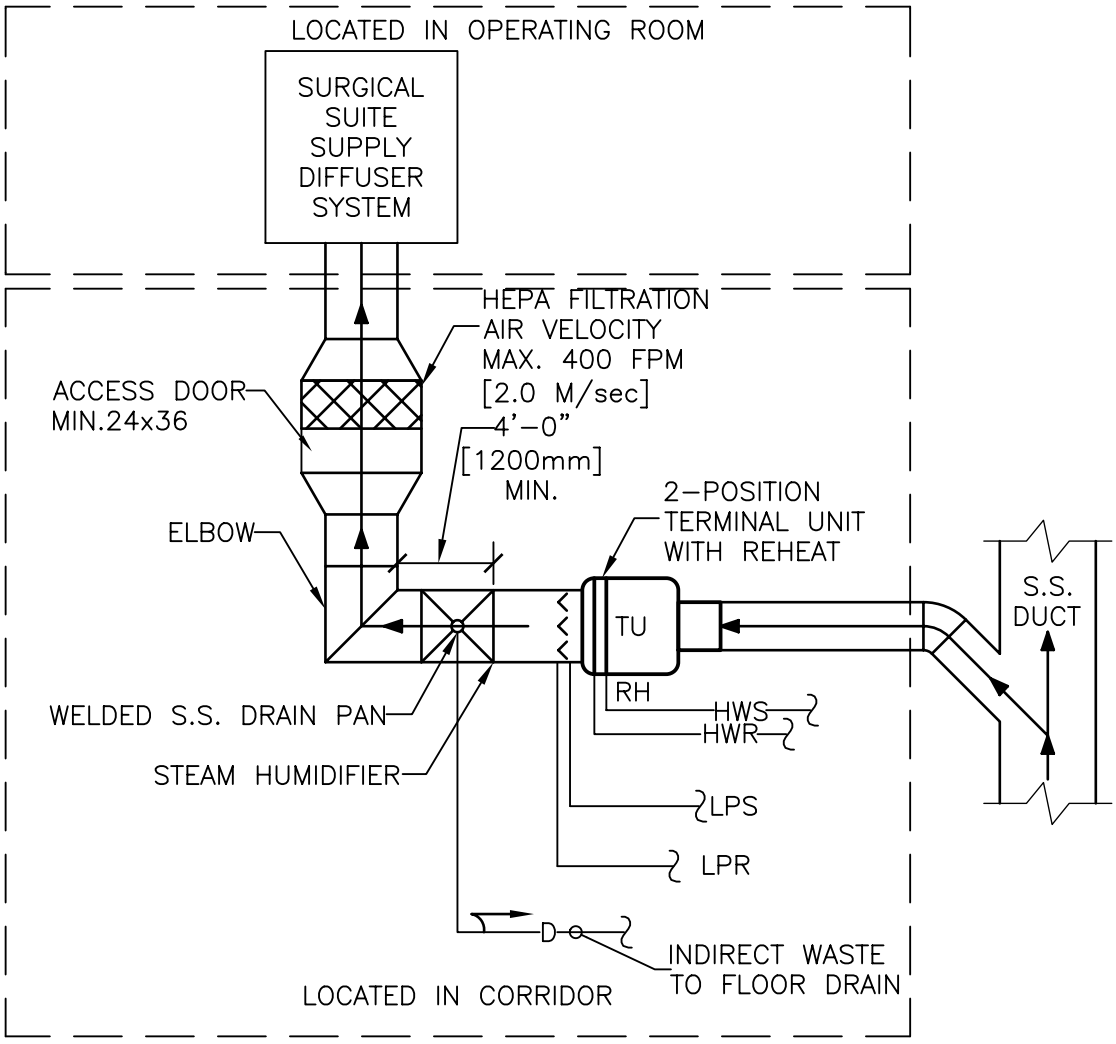
NTS

Department of Veterans Affairs

DETAIL TITLE / FLEXIBLE AIR DUCT CONNECTOR

SCALE :NONE

DATE ISSUED : DECEMBER 2008 CADD DETAIL NO. : SD233100-24.DWG



NOTES:
1.ALL DUCTWORK IS STAINLESS STEEL

SUPPLY DUCT DETAIL - OPERATING ROOM

#

NTS

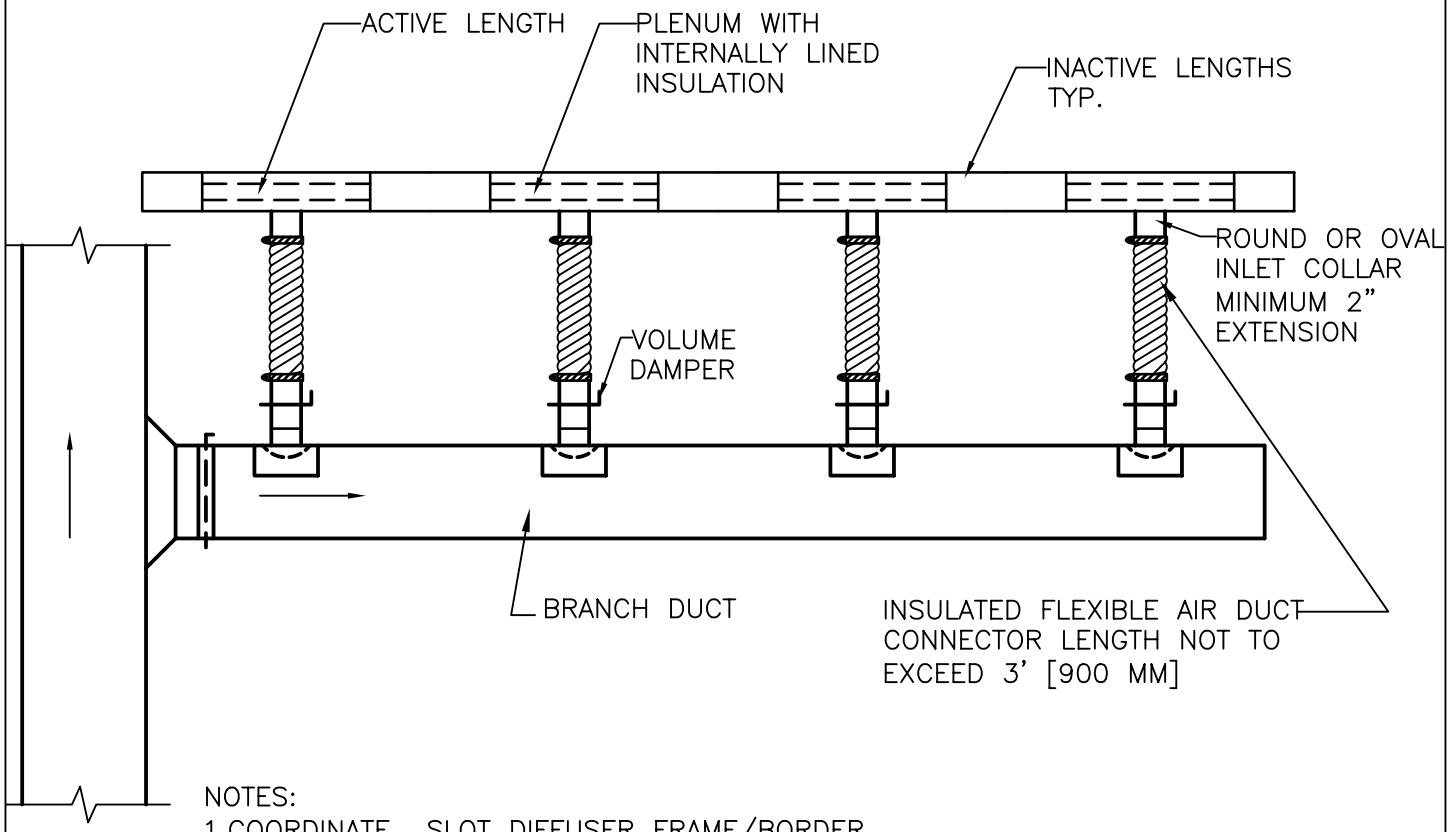
DESIGNERS NOTES:
1.PROVIDE 2 FULL CROSS SECTIONS THRU EACH OR.

Department of Veterans Affairs

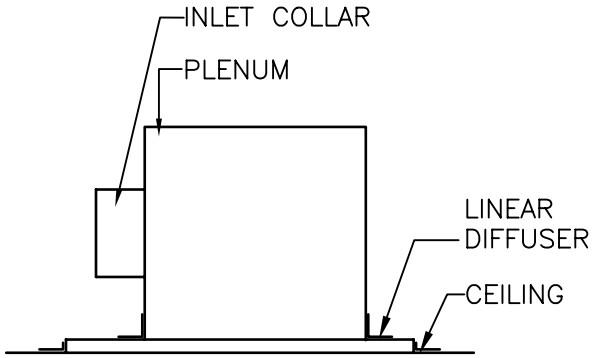
DETAIL TITLE / SUPPLY DUCT TAKEOFF DETAIL - OPERATING ROOM

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD233100-25.DWG



NOTES:
1. COORDINATE SLOT DIFFUSER FRAME/BORDER TYPE AND END BORDER CONFIGURATION WITH CEILING TYPE.



LINEAR SLOT DIFFUSER

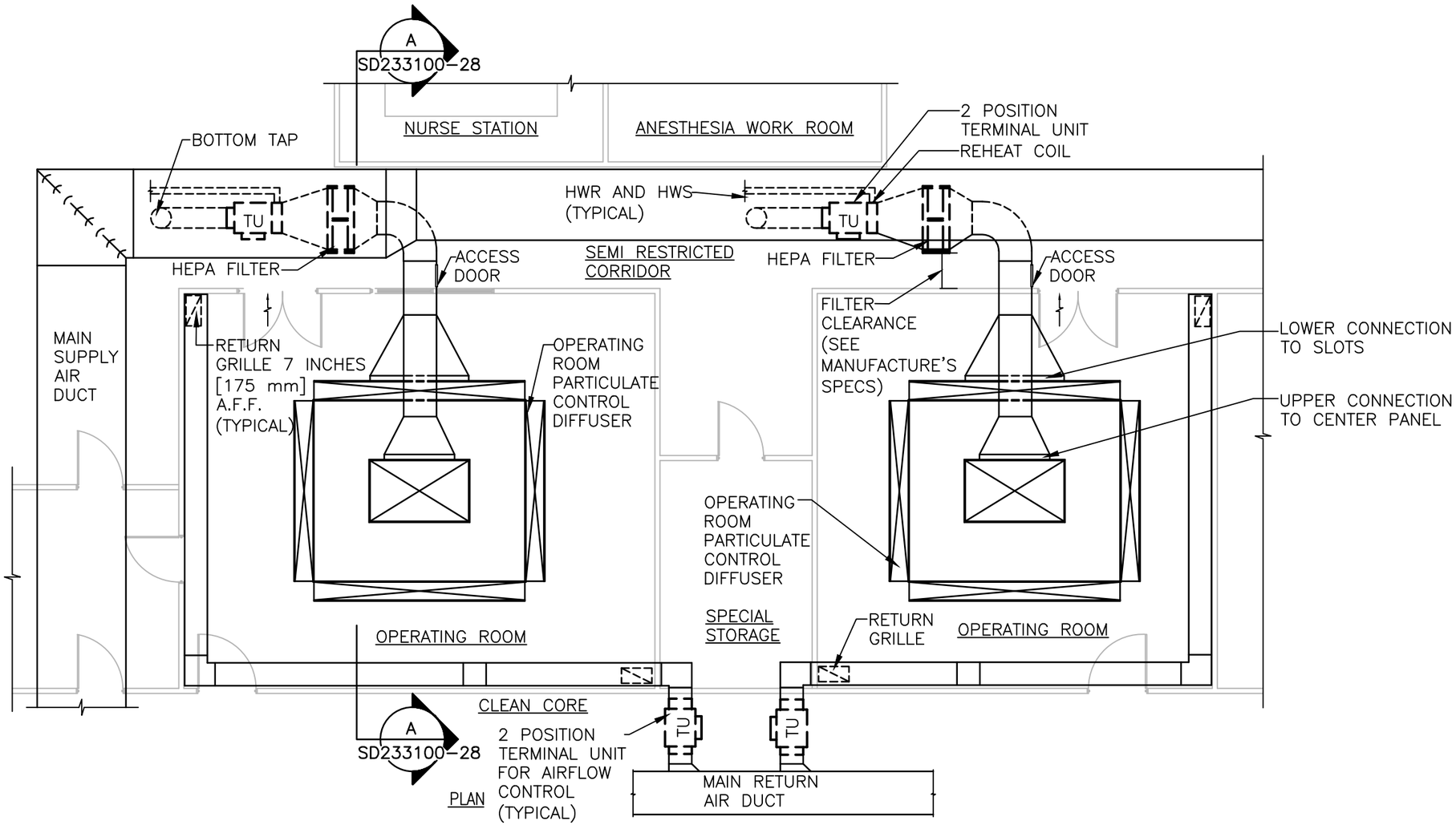
NTS

Department of Veterans Affairs

DETAIL TITLE / LINEAR SLOT DIFFUSERS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233100-26.DWG



NOTES: 1. ROOMS SHOWN ARE TYPICAL FOR VA DESIGN GUIDE PLATE FOR SURGERY. REFER TO ACTUAL FLOOR PLANS FOR SIZE AND LOCATION OF ROOMS.

2. THE AIR DISTRIBUTION LAYOUT IS APPLICABLE TO THE CYSTOSCOPY ROOM WHEN LOCATED WITHIN THE SURGERY SUITE.

OPERATING ROOM HVAC SYSTEM (TYPICAL)

NTS

DETAIL TITLE / OPERATING ROOM HVAC SYSTEM (TYPICAL)

SCALE :NONE

DATE ISSUED :MARCH 2010

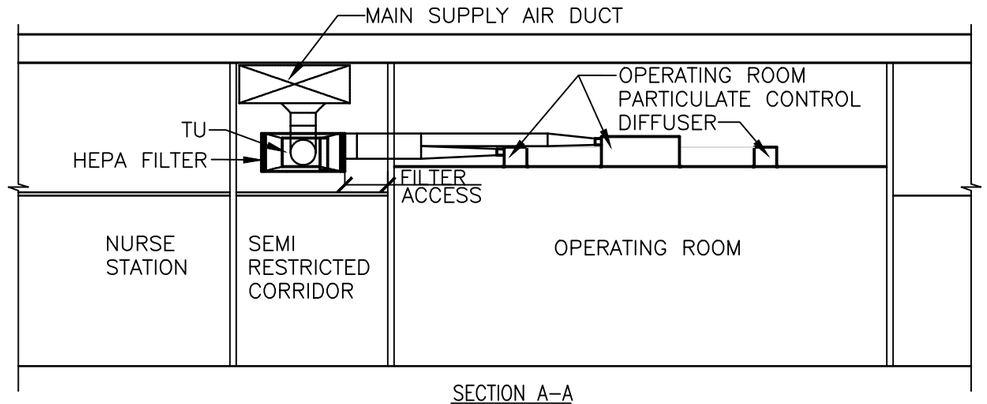
CADD DETAIL NO. SD233100-27.DWG

Department of Veterans Affairs

HEPA FILTER SIZING

FILTER IN SECTION VIEW	AIRFLOW RANGE		NOMINAL HEPA SIZE		NO. REQ.	APPROXIMATE OVERALL HOUSING SIZE		NET MAX FACE VELOCITY		AIR SIDE PRESSURE DROP			
										MAX INITIAL RESISTANCE		MAX CHANGE OUT RESISTANCE	
	CFM	(L/S)	INxINxIN	(mmxmmxmm)		INxINxIN	(mmxmmxmm)	FPM	(M/S)	IN WG	[Pa]	IN WG	[Pa]
	0–230	0–109	12x12x12	305x305x305	1	15x15x21	380x380x530	250	2	1	340	1.5	370
	230–500	109–236	24x12x12	610x305x305	1	24x15x21	610x380x530	250	2	1	340	1.5	370
	500–1100	236–519	24x24x12	610x610x305	1	24x27x21	610x685x530	250	2	1	250	1.5	370
	500–1100	236–519	24x12x12	610x305x305	2	48x15x21	1220x380x530	250	2	1	250	1.5	370
	1100–2200	519–1038	24x24x12	610x610x305	2	48x27x21	1220x685x530	250	2	1	250	1.5	370

NOTES:
1. SEE FILTER SCHEDULE SS234000–01



SECTION A–A

NOTES:
1.COORDINATE ACTUAL HEPA FILTER AND HOUSING SIZES WITH SELECTED MANUFACTURER.

HEPA FILTER SIZING CHART AND SURGICAL ROOM SECTION A-A

#

NTS

DESIGNER NOTES:
1.FOR GUIDANCE ONLY

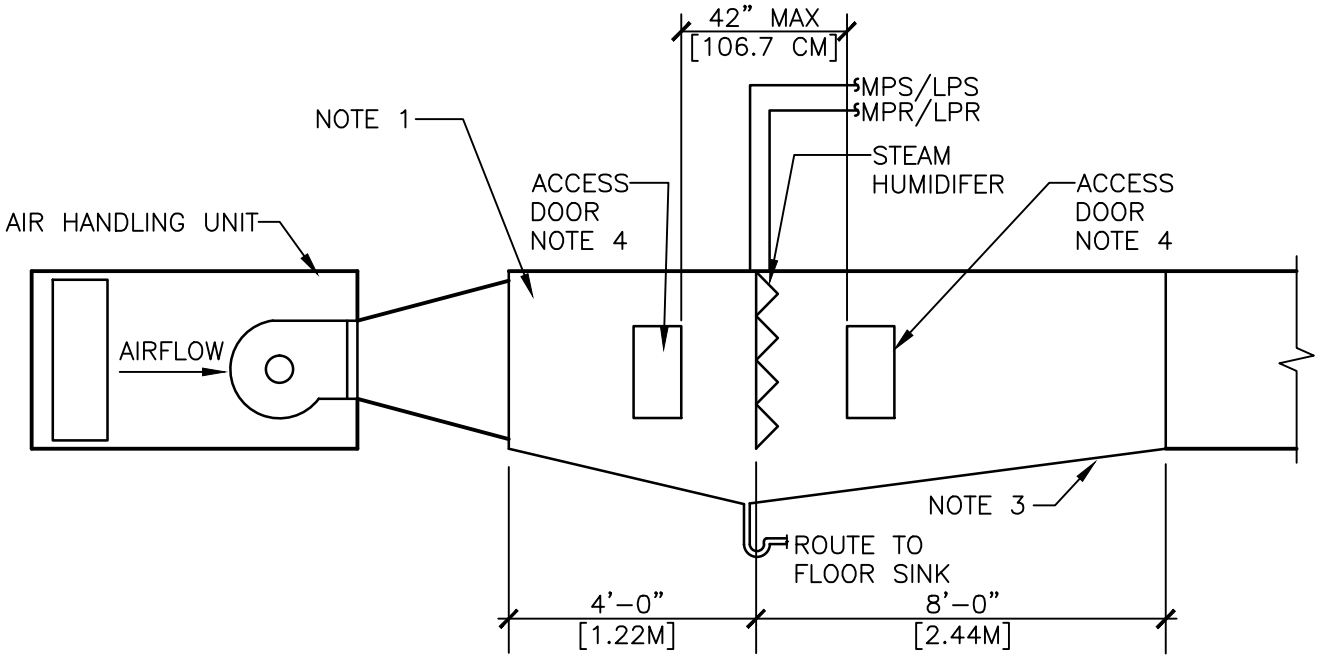
DETAIL TITLE / HEPA FILTER SIZING CHART & SURGICAL ROOM SECTION A-A

SCALE :NONE

DATE ISSUED :MARCH 2010

CADD DETAIL NO. SD233100-28.DWG

Department of Veterans Affairs



NOTES:

1. TRANSITION WELDED STAINLESS STEEL 4'[1.22M] UPSTREAM OF HUMIDIFIER AND 8' [2.44M] DOWNSTREAM OF HUMIDIFIER.
2. DETAIL ONLY APPLICABLE TO AHU'S WITHOUT AFTER FILTER DOWNSTREAM OF THE SUPPLY AIR FAN.
3. INTEGRAL STAINLESS STEEL DRAIN PAN SLOPE FROM ALL DIRECTIONS TO DRAIN CONNECTION. SLOPE .125" PER 1'-0" [0.3 CM PER 0.3 M].
4. PROVIDE MIN. 18" [45 CM] WIDE ACCESS DOOR, DIRECTLY UPSTREAM AND DOWNSTREAM OF HUMIDIFIER.

DUCT MOUNTED HUMIDIFIER

NTS

DESIGNER'S NOTE:

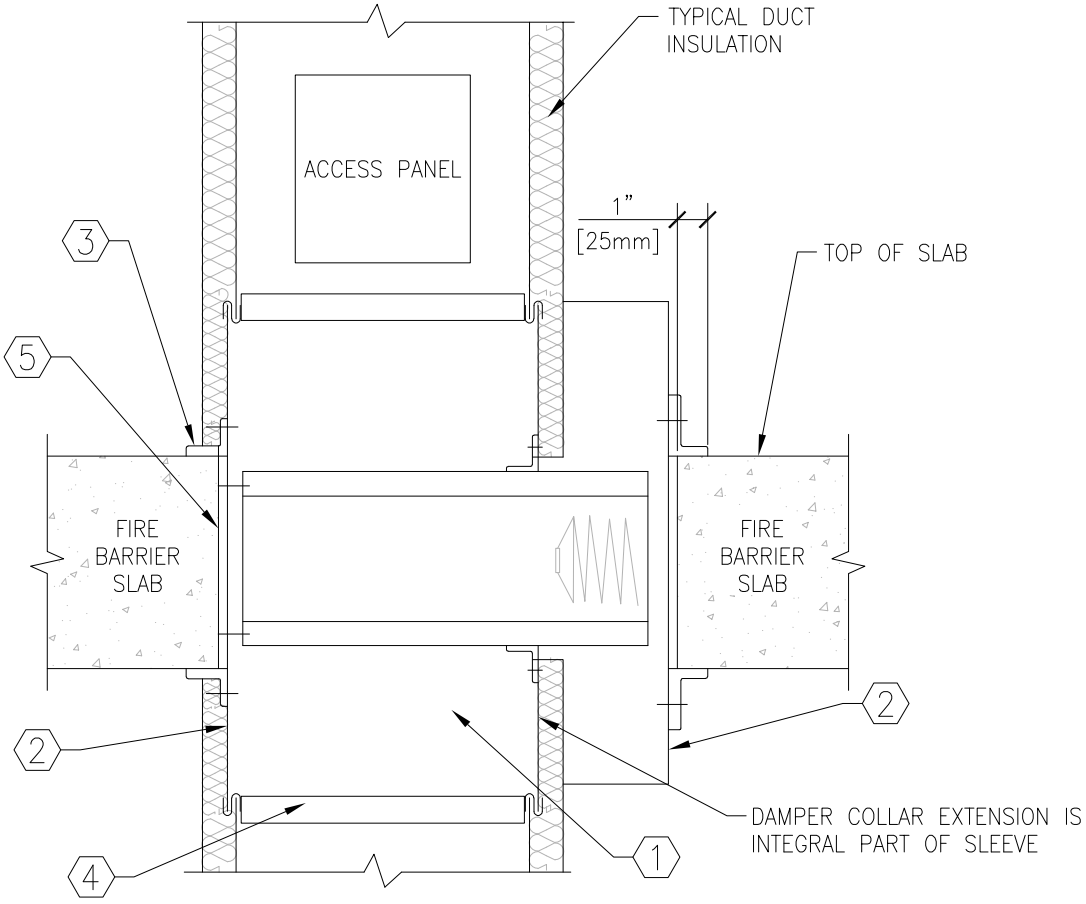
1. SEE DETAIL SD232213-07 FOR STEAM HUMIDIFIER PIPING CONNECTIONS.

Department of Veterans Affairs

DETAIL TITLE / DUCT MOUNTED HUMIDIFIER

SCALE :NONE

DATE ISSUED: MARCH 2010 CAD DETAIL NO.: SD233100-29.DWG



KEYED NOTES:

1. HORIZONTAL DAMPER SHOWN, FOLLOW MANUFACTURER'S INSTRUCTIONS, INCLUDING GAGES FOR SLEEVE AND PERIMETER ANGLES, FIRE DAMPERS MUST BE INSTALLED IN LINE WITH FLOOR AND NOT OUTSIDE THE PENETRATION.
2. GALVANIZED SLEEVE GAGE NOT LESS THAN CONNECTING DUCT, FASTEN SLEEVE TO DAMPER AND FLOOR SLAB WITH PERIMETER ANGLES.
3. USE GALVANIZED STEEL PERIMETER ANGLES NOT LESS THAN 1-1/2" X 1-1/2" (40mm x 40mm), MIN 14 GAGE, AND SHALL PROVIDE 1" (25mm) MINIMUM OVERLAP OF OPENING ON ALL SIDES. PERIMETER ANGLE IS FASTENED TO PARTITION.
4. BREAKAWAY DUCT CONNECTION OF TYPES INDICATED IN SMACNA. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING FUSIBLE LINK OR LINKS.
5. PROVIDE $\frac{1}{4}$"TO $\frac{1}{2}$" (6mm TO 15mm) CLEARANCE ON HEIGHT AND WIDTH.

NOTES:

1. ALL DUCTWORK RISERS THAT RUN EXPOSED, SUCH AS THROUGH ATTIC FLOORS AND MECHANICAL ROOM FLOORS SHALL BE PROVIDED WITH 3" (75mm) HIGH CONCRETE CURB AROUND OPENING FOR DUCT.
2. ALL DETAILS SHALL COMPLY WITH FIRE DAMPER MANUFACTURER'S UL MOUNTING AND INSTALLATION REQUIREMENTS.
3. WHERE HVAC AIR DUCT PENETRATES ONLY ONE FLOOR AND PROTECTED WITH A FIRE DAMPER, AN AIR DUCT ENCLOSURE IS NOT REQUIRED.

FIRE DAMPER AT FLOOR PENETRATION

NTS

VA | U.S. Department of Veterans Affairs

DETAIL TITLE / FIRE DAMPER AT FLOOR PENETRATION SECTION

SCALE: NONE

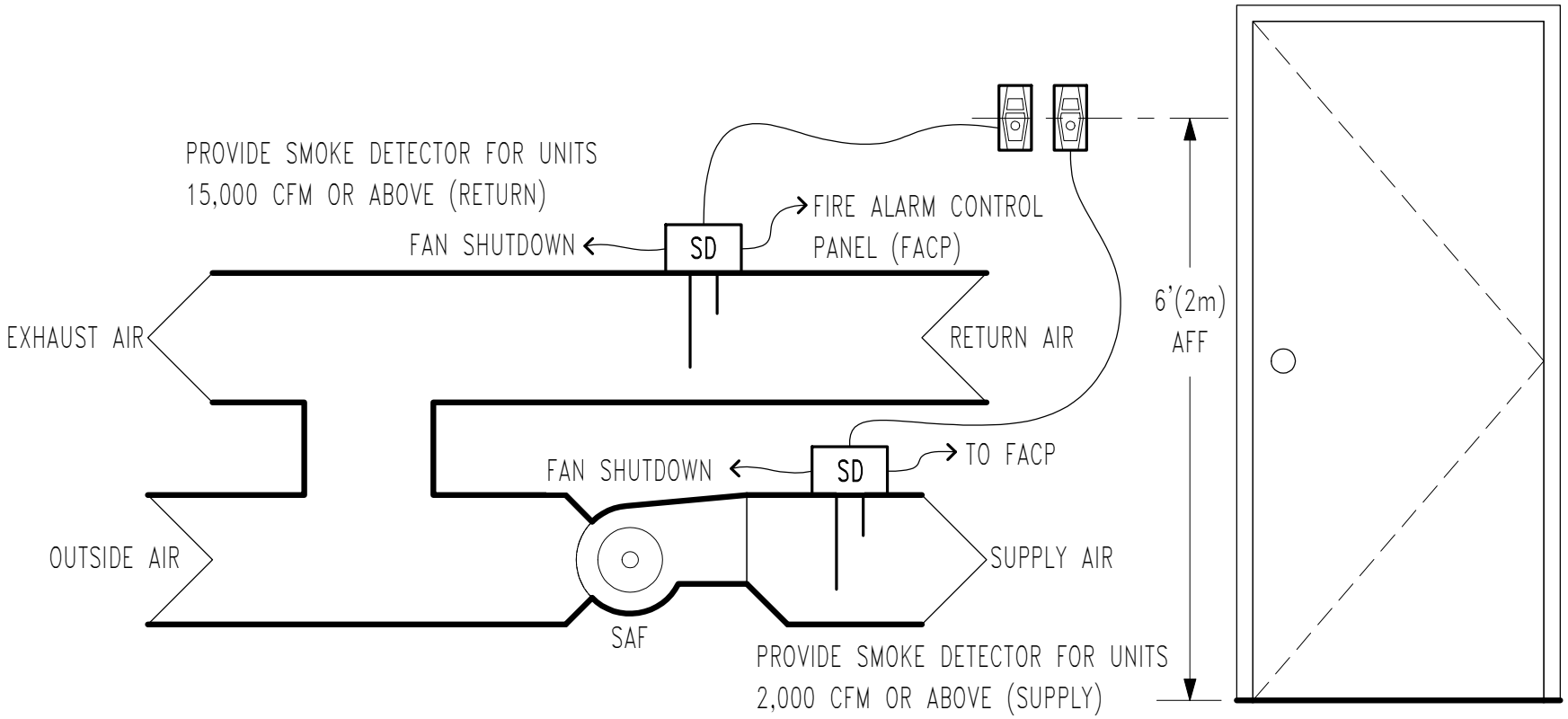
DATE ISSUED: OCTOBER 1, 2021

SD233100-30 DWG

NOTE:

1. PROVIDE MINIMUM 3/4" (19mm) (MIN.) EMT CONDUIT FOR ALL FIRE ALARM WIRING. PROVIDE BUSHINGS FOR ALL WIRING ENTRIES INTO JUNCTION BOXES.

2. PROVIDE DUCT SMOKE DETECTOR REMOTE INDICATOR TEST SWITCH AT 6 FEET (2m) ABOVE THE FINISH FLOOR INSIDE MECHANICAL ROOM ADJACENT TO DOOR.



DUCT SMOKE DETECTOR

Scale: 3/4" = 1'-0"

DETAIL TITLE: DUCT SMOKE DETECTOR

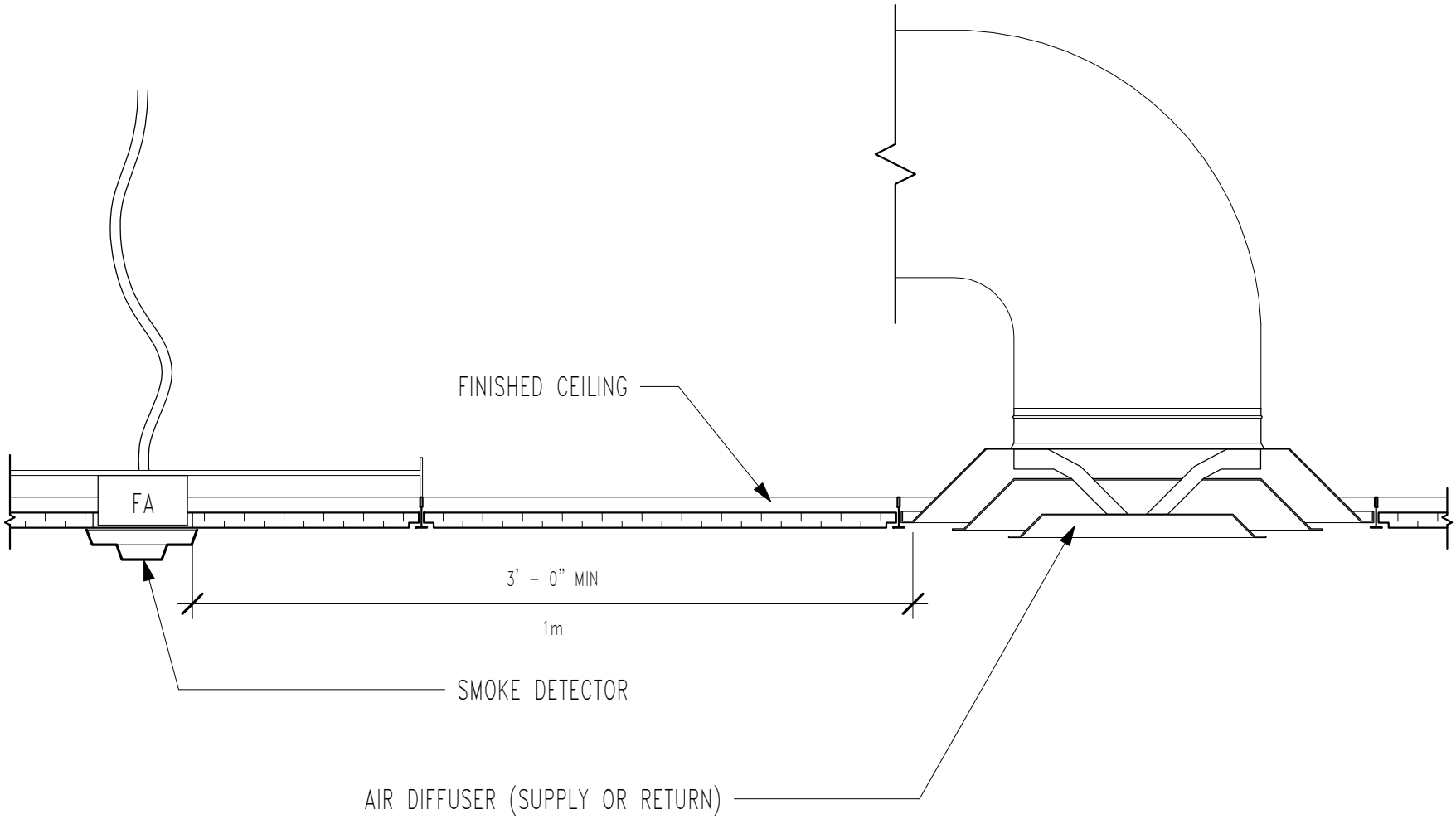
U.S. Department of Veterans Affairs

VA

SCALE: 3/4" = 1'-0"

DATE ISSUED: 03/01/23

CAD DETAIL NO.: SD233100-31



SMOKE DETECTOR/AIR DIFFUSER MINIMUM DISTANCE

Scale: 1 1/2" = 1'-0"

DETAIL TITLE: SMOKE DETECTOR/AIR DIFFUSER MINIMUM DISTANCE

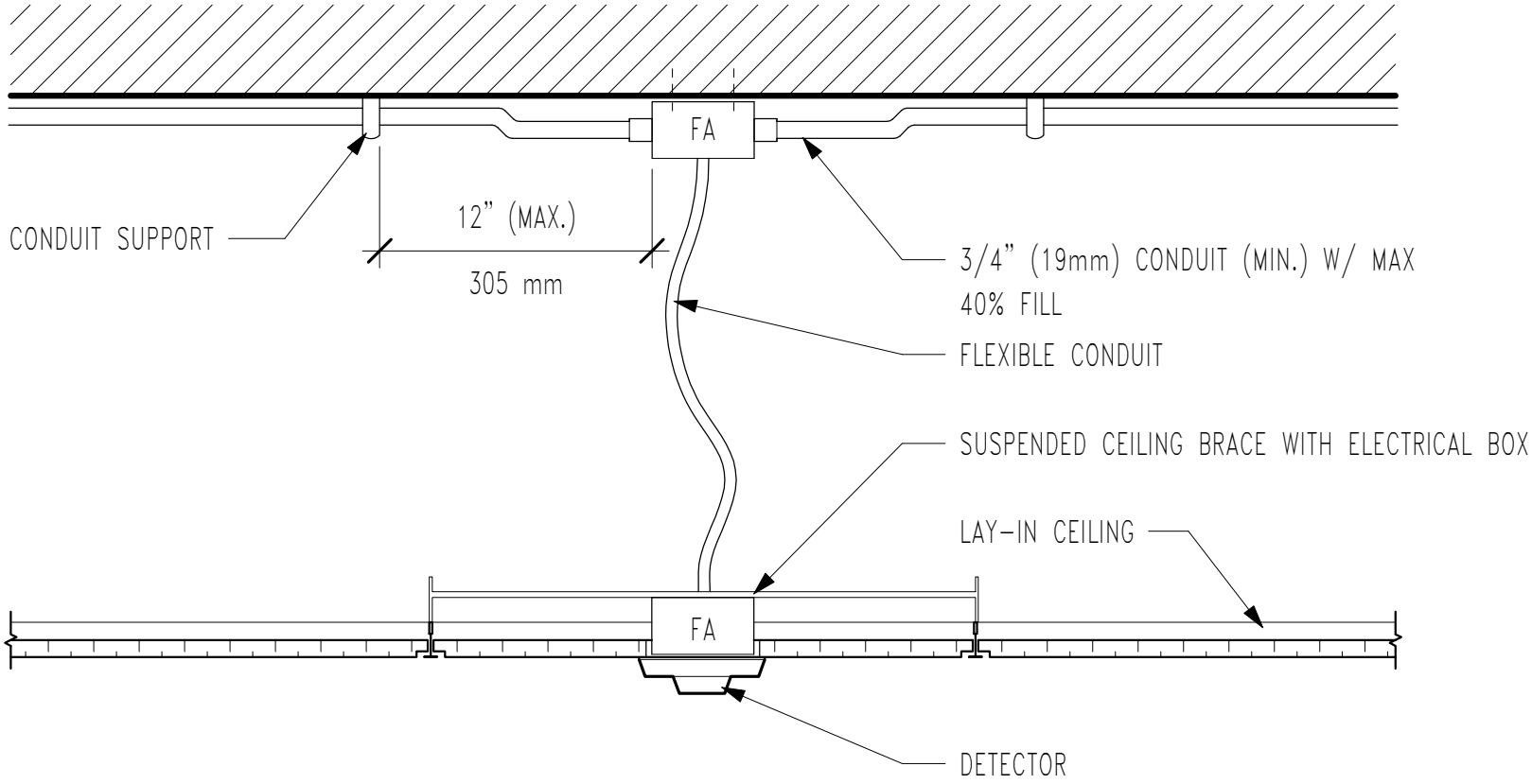
SCALE: 1 1/2" = 1'-0"

DATE ISSUED: 03/01/23

CAD DETAIL NO.: SD233100-32

U.S. Department of Veterans Affairs

VA



TYPICAL SMOKE DETECTOR MOUNTING DETAIL

Scale: 1 1/2" = 1'-0"

DETAIL TITLE: TYPICAL SMOKE DETECTOR MOUNTING DETAIL

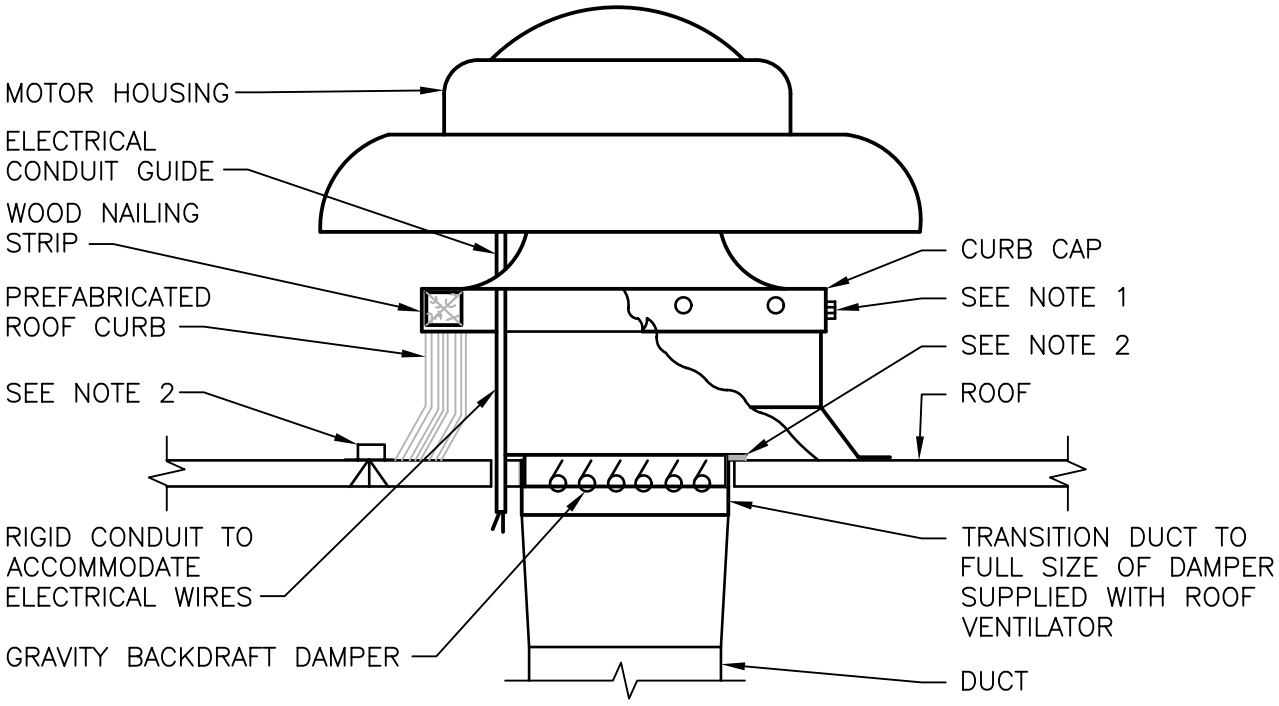
SCALE: 1 1/2" = 1'-0"

DATE ISSUED: 03/01/23

CAD DETAIL NO.: SD233100-33

U.S. Department of Veterans Affairs

VA



NOTE:

1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" [10mm] CADMIUM PLATED LAG BOLTS NOT OVER 12" [300mm] ON CENTER.

2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).

3. RUN ELECTRICAL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

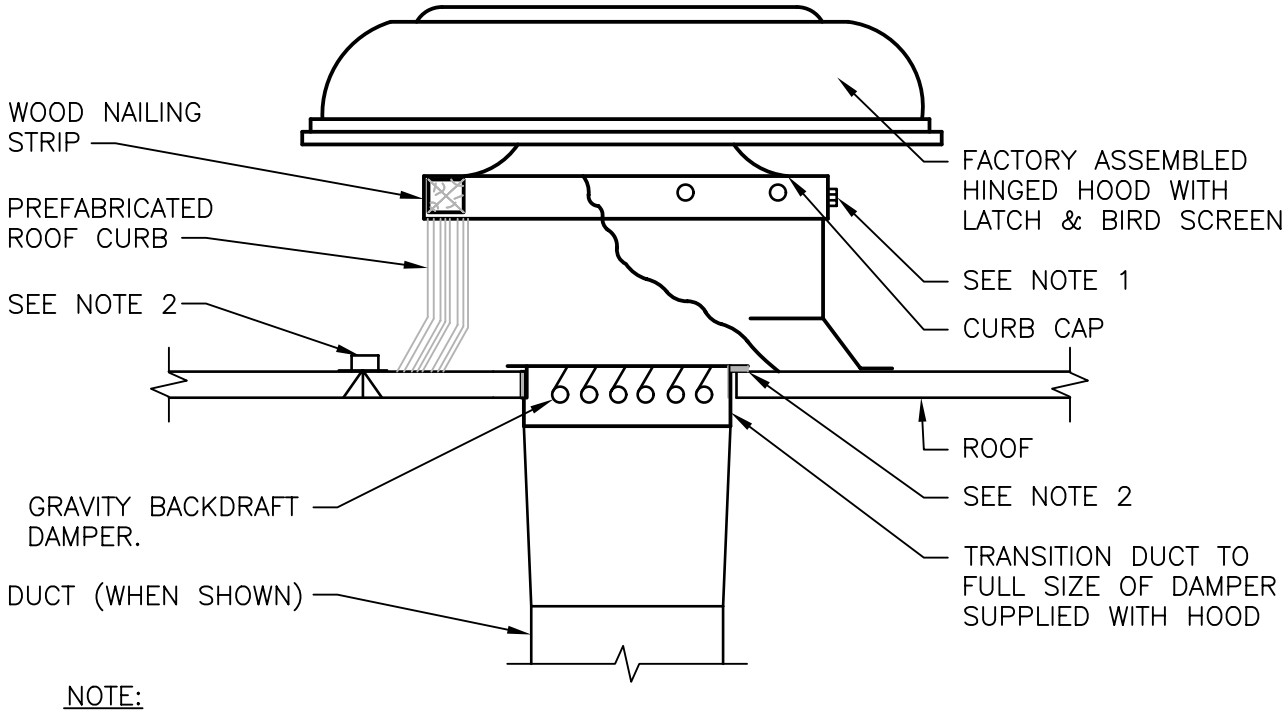
POWER ROOF VENTILATOR

NTS

DESIGNERS NOTES:
1.PROVIDE A MOTORIZED DAMPER, IF APPLICABLE.

2.PROVIDE DIRECT DRIVE FANS FOR LOCATIONS NOT EASILY ACCESSIBLE. AS ATTIC OR PIPE BASEMENT AND LESS THAN 2 HP.

3.MINIMUM CURB HEIGHT SHALL BE 12 INCHES [300 mm]. INCREASE HEIGHT, IF REQUIRED, TO OVERCOME SNOW DRIFT.



NOTE:

1. SECURE HOOD TO WOOD NAILING STRIP WITH 3/8" [10mm] CADMIUM PLATED LAG BOLTS NOT OVER 12" [300mm] ON CENTER.

2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (MENTAL DECK & BAR JOIST ROOF).

LOW-SILHOUETTE EXHAUST OR INTAKE HOOD

NTS

DESIGNER'S NOTE:
1.PROVIDE A MOTORIZED DAMPER, WHERE APPLICABLE.

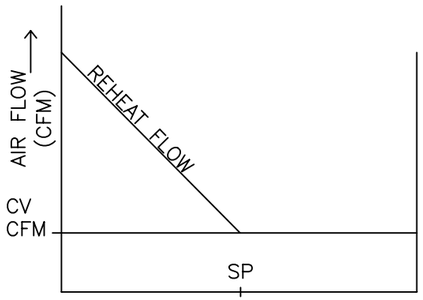
2.MINIMUM CURB HEIGHT SHALL BE 12" [300 MM]. INCREASE HEIGHT, IF REQUIRED, TO OVER COME SNOW DRIFT

Department of Veterans Affairs

DETAIL TITLE / LOW-SILHOUETTE EXHAUST OR INTAKE HOOD

SCALE :NONE

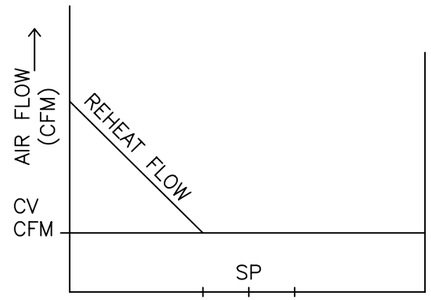
DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233400-02.DWG



CV BOX CONTROL SEQUENCE

NO DEADBAND

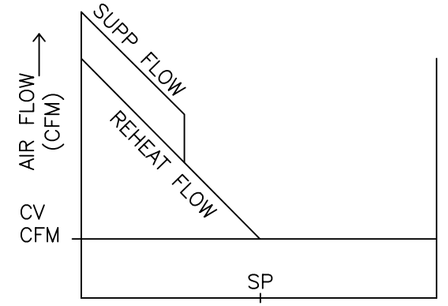
A. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5°, THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING
B. THE REVERSE SHALL OCCUR ON RISE IN SPACE TEMPERATURE.



CV BOX CONTROL SEQUENCE

W/DEADBAND

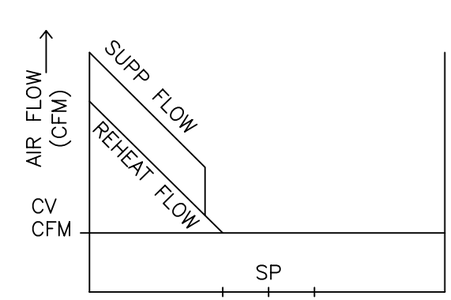
A. SET POINTS SHALL SET AS FOLLOWS:
COOLING 75° F (ADJ)
HEATING 70° F (ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINT WILL BE MAINTAINED
B. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5°,THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING
C. THE REVERSE SHALL OCCUR ON RISE IN SPACE TEMPERATURE.



CV BOX CONTROL SEQUENCE

NO DEADBAND

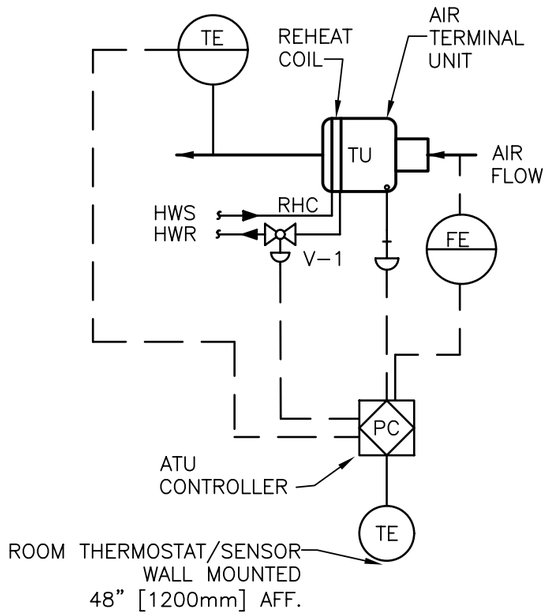
A. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5°, THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING
B. VALVE V–2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V–1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ) V–2 SHALL THEN BE MODULATED TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
C. THE REVERSE SHALL OCCUR ON RISE IN AIR SPACE TEMPERATURE.



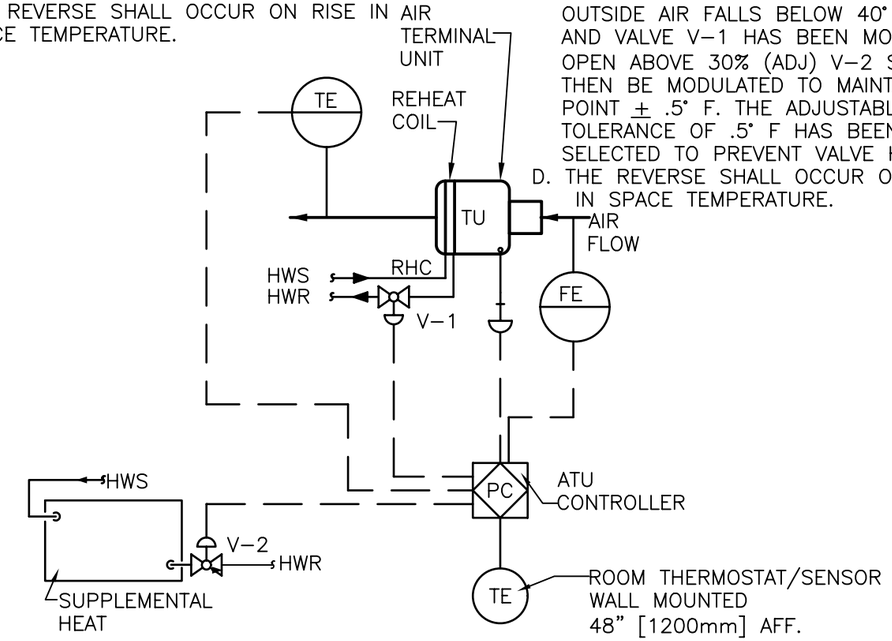
CV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL SET AS FOLLOWS:
COOLING 75° F (ADJ)
HEATING 70° F (ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINT WILL BE MAINTAINED
B. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5°,
THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING
C. VALVE V–2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V–1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ) V–2 SHALL THEN BE MODULATED TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
D. THE REVERSE SHALL OCCUR ON RISE IN SPACE TEMPERATURE.



NO SUPPLEMENTAL HEATING



WITH SUPPLEMENTAL HEATING

CONSTANT VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

NTS

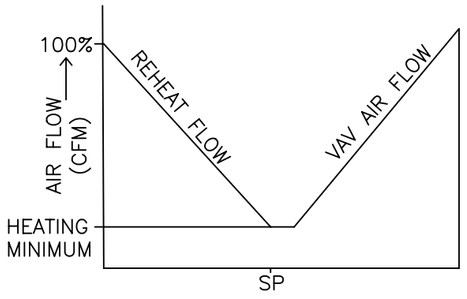
DETAIL TITLE / CONSTANT VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD233600–01.DWG

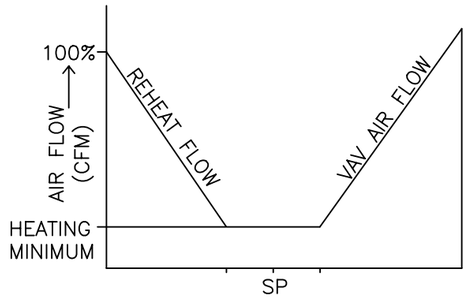
Department of Veterans Affairs



VAV BOX CONTROL SEQUENCE

NO DEADBAND

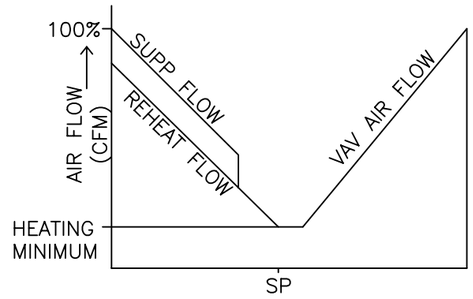
A. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
B. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING
C. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



VAV BOX CONTROL SEQUENCE

W/DEADBAND

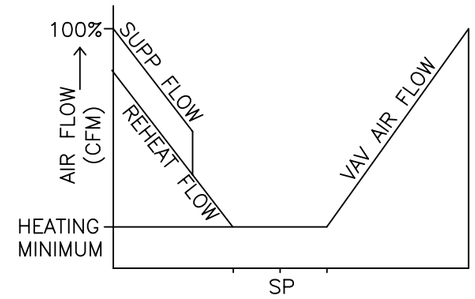
A. SET POINTS SHALL BE SET AS FOLLOWS:
COOLING 75°F (ADJ)
HEATING 70°F(ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
B. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
C. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING
D. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



VAV BOX CONTROL SEQUENCE

NO DEADBAND

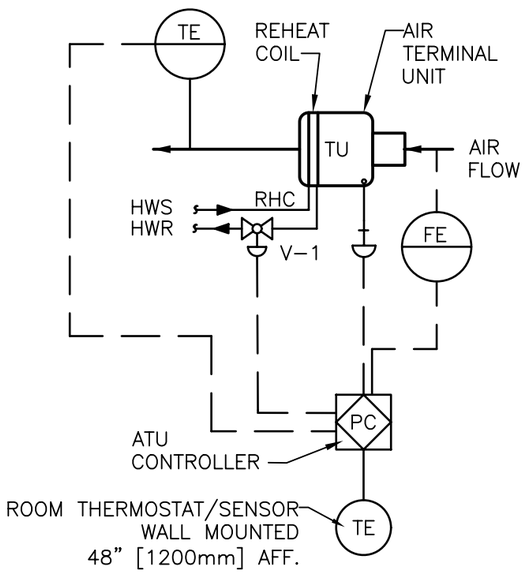
A. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
B. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING
C. VALVE V–2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V–1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ). VALVE V–2 SHALL MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5°F HAS BEEN SELECTED TO PREVENT VALVE HUNTING. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.



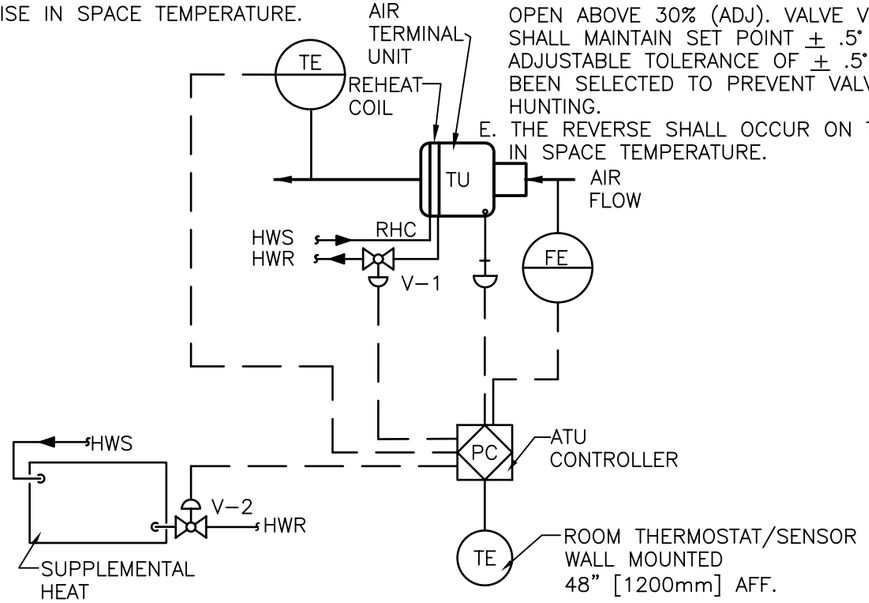
VAV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
COOLING 75°F (ADJ)
HEATING 70°F(ADJ)
DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
B. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
C. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V–1 WILL MODULATE TO MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING
D. VALVE V–2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V–1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ). VALVE V–2 SHALL MAINTAIN SET POINT ± .5° F. THE ADJUSTABLE TOLERANCE OF ± .5°F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
E. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



NO SUPPLEMENTAL HEATING



WITH SUPPLEMENTAL HEATING

VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

NTS

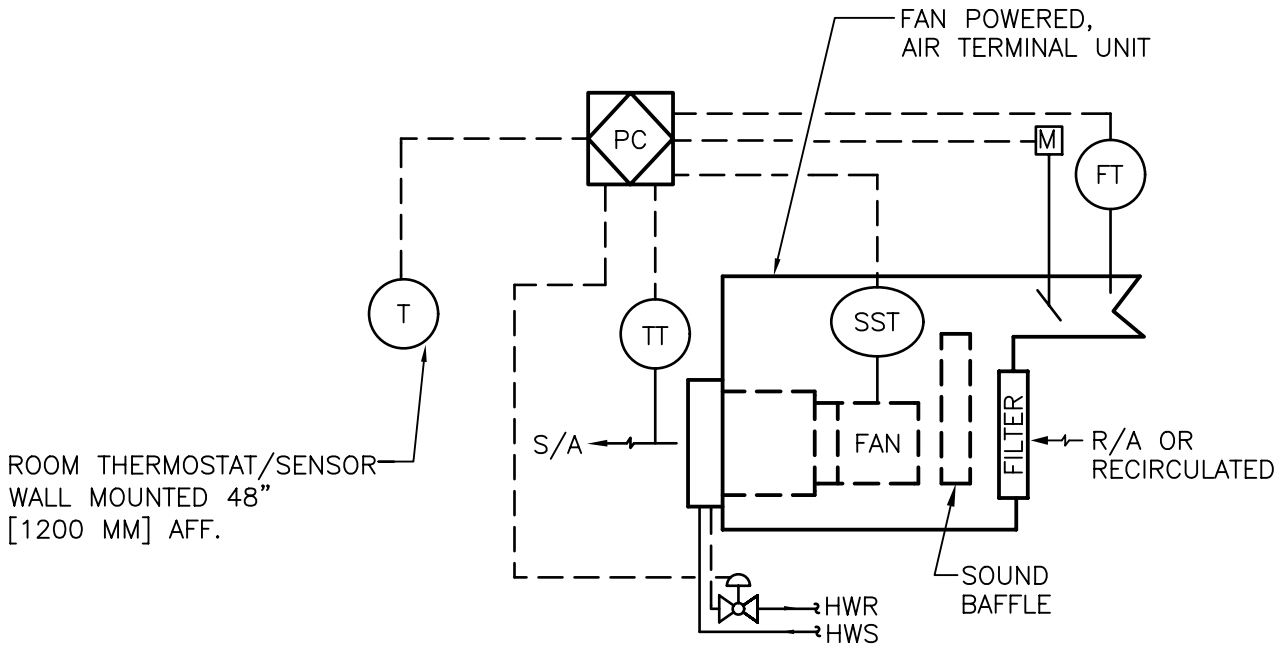
DETAIL TITLE / VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD233600–02.DWG

Department of Veterans Affairs



NOTES:

A. TERMINAL UNIT SHALL OPERATE ON A SCHEDULE SET BY THE ECC. THE SERIES FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. THE SPACE TEMPERATURE SHALL BE MAINTAINED BETWEEN 70° (ADJ) AND 75°F (ADJ) BY MODULATING PRIMARY AIR VOLUME AND HOT WATER CONTROL VALVE IN SEQUENCE.

B. UPON FALL IN SPACE TEMPERATURE THE PRIMARY AIR DAMPER SHALL MODULATE TO PRESET MINIMUM AIR VOLUME. UPON FURTHER FALL IN SPACE TEMPERATURE BELOW 70° F THE HOT WATER VALVE SHALL MODULATE TO OPEN POSITION TO MAINTAIN SET POINT WITHIN $\pm$.5° (ADJ). THE TOLERANCE RANGE OF $\pm$ .5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.

C. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

SERIES FAN POWERED AIR TERMINAL UNIT CONTROL DIAGRAM

#

NTS

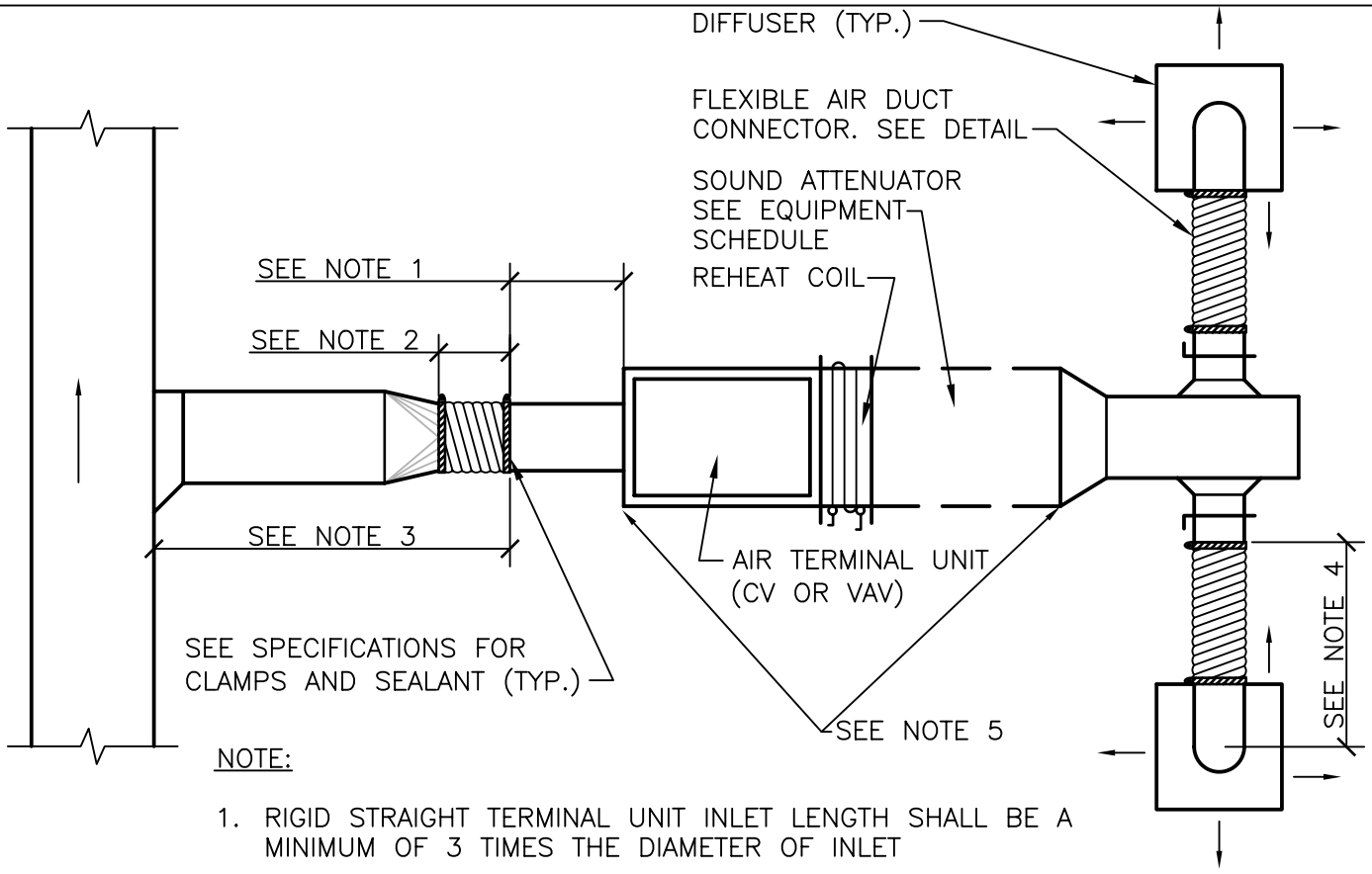
Department of Veterans Affairs

DETAIL TITLE / FAN POWERED AIR TERMINAL UNIT CONTROL DIAGRAM

SCALE :NONE

DATE ISSUED :DECEMBER 2008

CADD DETAIL NO. : SD233600-03.DWG



NOTE:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET

2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'–0" [900mm].

3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET (3 METERS). FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100' [1.64Pa/m].

4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'–0" [1500mm]. USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.

5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.

6. USE OF THE FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

DUCT CONNECTIONS - AIR TERMINAL UNITS

NTS

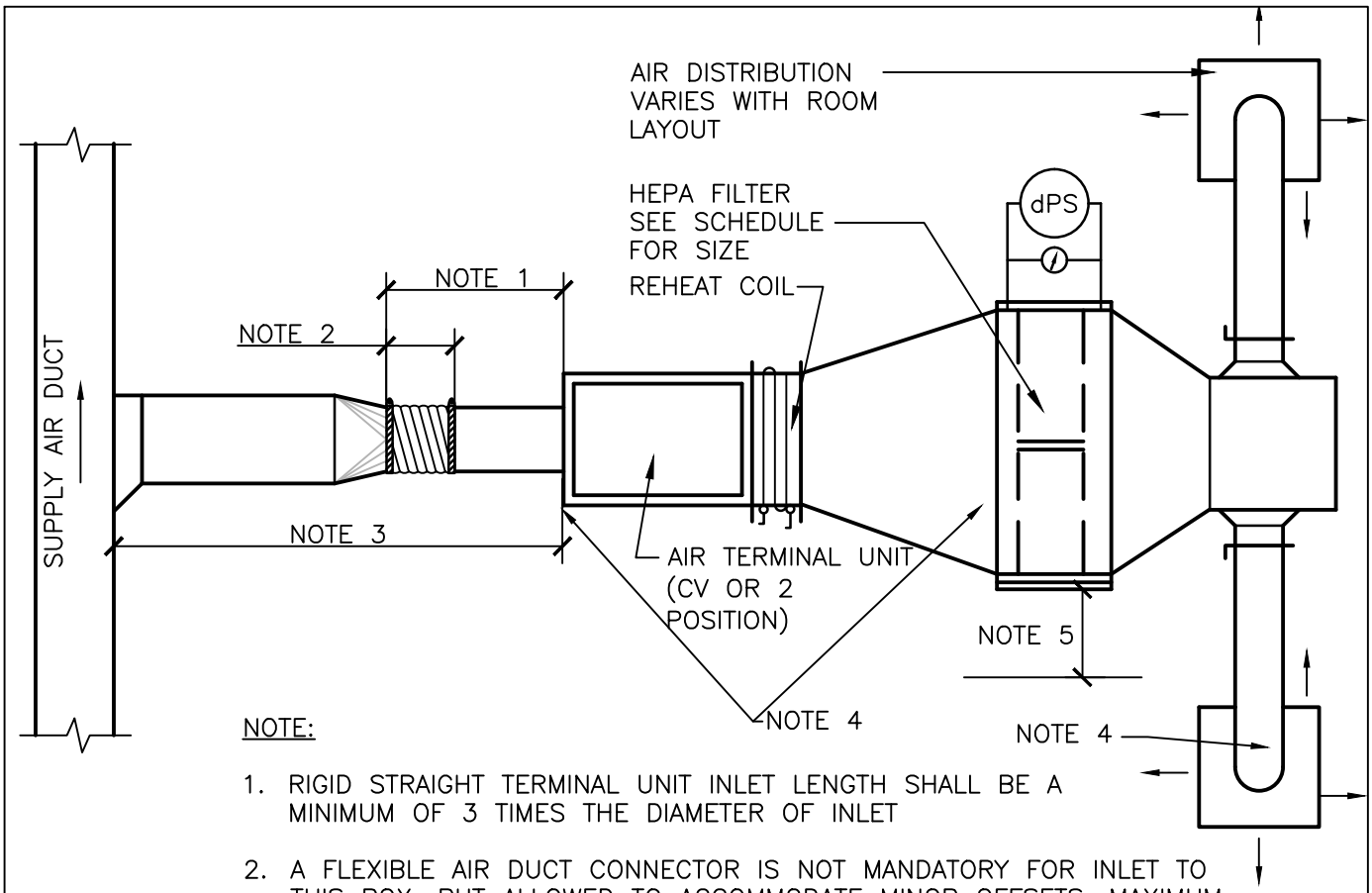
DESIGNER'S NOTE: 1.INDICATE SOUND ATTENUATOR AS REQUIRED BY ACOUSTICAL ANALYSIS

Department of Veterans Affairs

DETAIL TITLE / DUCT CONNECTIONS – AIR TERMINAL UNITS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD233600–04.DWG



NOTE:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET

2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 2'–0" [610mm].

3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET [3 M]. FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100' [1.6894Pa/m].

4. ALL DUCTWORK UPSTREAM AND DOWNSTREAM OF THE HEPA FILTER SHALL BE GALVANIZED STEEL,

5. PROVIDE SIDE ACCESS FOR FILTER SERVICE. SEE MANUFACTURER'S SPECIFICATION FOR CLEARANCE REQUIREMENT.

AIR TERMINAL UNITS WITH HEPA FILTER (BMT SUITE, POSITIVE ISOLATION ROOMS)

#

NTS

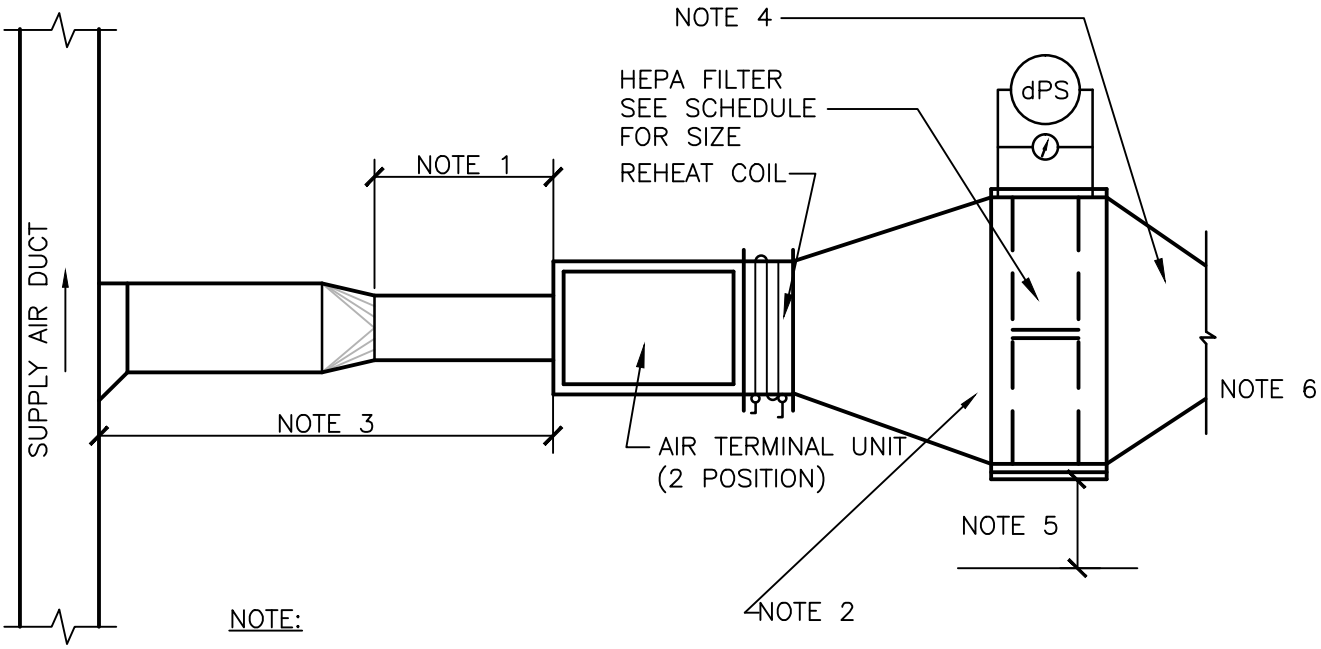
DESIGNER'S NOTE:1. IN LIEU OF DUCT MOUNTED HEPA FILTER, CEILING MOUNTED PANEL HEPA FILTERS MAY BE UTILIZED.
2. THIS DETAIL SHALL BE USED FOR SURGICAL SUITE ROOMS EXCLUDING OPERATING AND CYSTOSCOPY ROOMS.

Department of Veterans Affairs

DETAIL TITLE / AIR TERMINAL UNITS WITH HEPA FILTER BMT SUITE, POSITIVE ISOLATION ROOMS

SCALE :NONE

DATE ISSUED: MARCH 2010 CAD DETAIL NO.: SD233600–05.DWG



NOTE:

1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET.

2. ALL DUCTWORK UPSTREAM OF THE HEPA FILTER SHALL BE GALVANIZED STEEL.

3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET [3 M]. FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.1"/100' [0.6894Pa/m].

4. ALL DUCTWORK DOWNSTREAM OF THE HEPA FILTER SHALL BE STAINLESS STEEL, PROVIDE ACCESS DOOR FOR CLEANING. SEE DETAIL SD233100–27 FOR LOCATION.

5. PROVIDE SIDE ACCESS FOR FILTER SERVICE. SEE MANUFACTURER'S SPECIFICATION FOR CLEARANCES.

6. SEE DETAIL SD233100–27 FOR CONTINUATION OF DUCTWORK.

AIR TERMINAL UNITS WITH HEPA FILTER (OPERATING AND CYSTOSCOPY ROOMS)

#

NTS

Department of Veterans Affairs

DETAIL TITLE / AIR TERMINAL UNITS WITH HEPA FILTER OPERATING AND CYSTOSCOPY ROOMS

SCALE :NONE

DATE ISSUED: MARCH 2010 CAD DETAIL NO.: SD233600–06.DWG

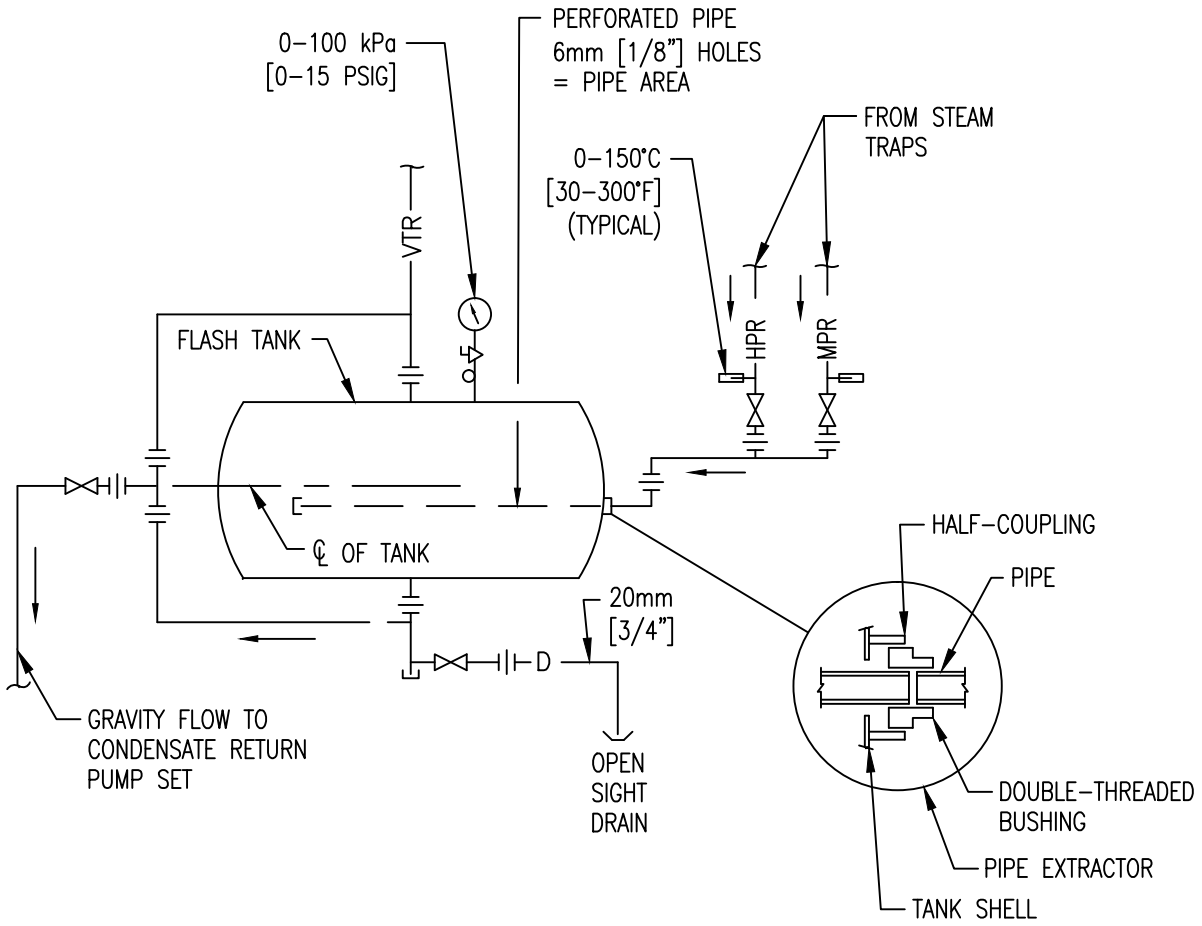
Department of Veterans Affairs

DETAIL TITLE: FLASH TANK

SCALE :NONE

DATE ISSUED: 11/01/2017

CAD DETAIL NO.: SD235011-01.DWG



STEAM PRESSURE kPa [PSIG] NOTE 1	TANK AREA SQ. M [SQ. FT.] NOTE 2
1034 [150]	0.35 [3.71]
862 [125]	0.32 [3.40]
758 [110]	0.29 [3.15]
689 [110]	0.28 [3.00]
414 [60]	0.21 [2.23]
207 [30]	0.13 [1.34]

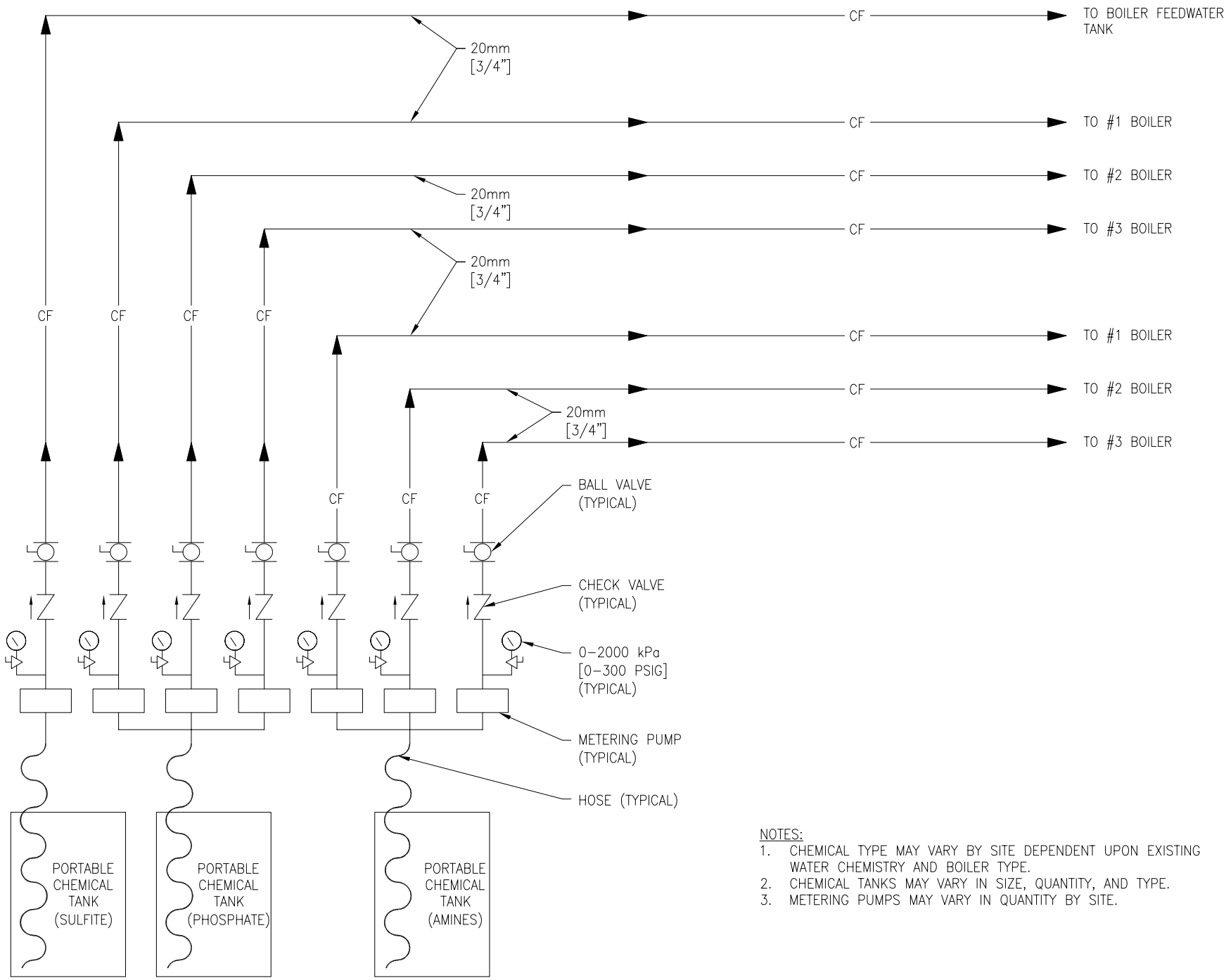
NOTES:

1. PRESSURE UPSTREAM OF STEAM TRAPS ON HPR AND MPR LINES.
2. LENGTH x DIAMETER AT CENTER OF TANK PER 1,000 LBS/HR OF CONDENSATE. TANK AT ATMOSPHERIC PRESSURE.

DESIGNER NOTE:
FOR FLASH STEAM RECOVERY, FLASH TANK TO BE VERTICAL TYPE. PROVIDE BACK PRESSURE VALVE AND SAFETY RELIEF VALVE AT FLASH STEAM LINE. PROVIDE TRAP AT BOTTOM CONDENSATE DISCHARGE LINE. NO VENT INTERCONNECTION BETWEEN CONDENSATE DISCHARGE AND THE FLASH STEAM LINE.

FLASH TANK

NTS



NOTES:
1. CHEMICAL TYPE MAY VARY BY SITE DEPENDENT UPON EXISTING WATER CHEMISTRY AND BOILER TYPE.
2. CHEMICAL TANKS MAY VARY IN SIZE, QUANTITY, AND TYPE.
3. METERING PUMPS MAY VARY IN QUANTITY BY SITE.

CHEMICAL FEED SYSTEM - PUMPED TYPE

NTS

DETAIL TITLE / CHEMICAL FEED SYSTEM - PUMPED TYPE

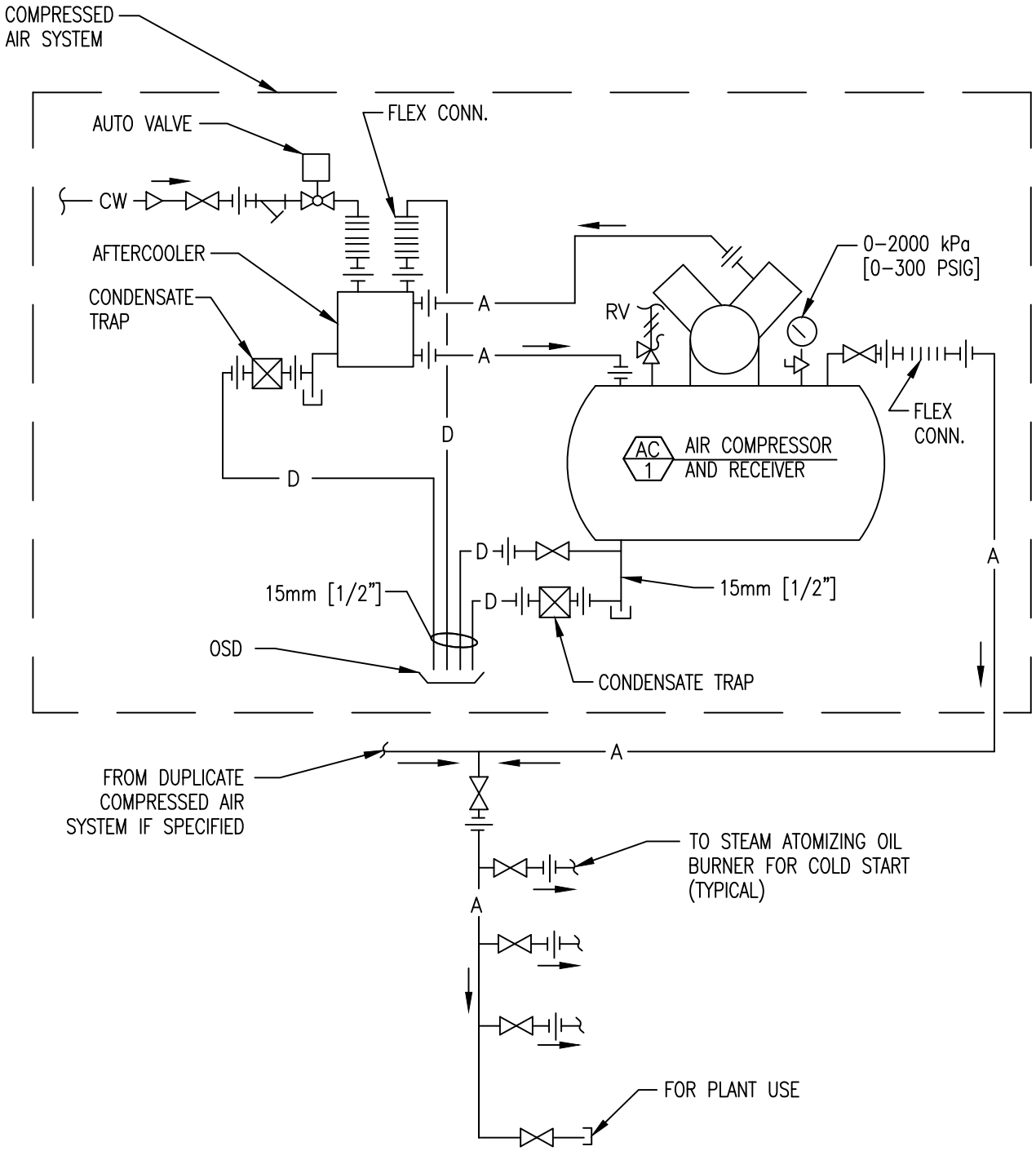
U.S. Department of Veterans Affairs

VA

SCALE: NONE

DATE ISSUED: FEBRUARY 01, 2023

SD235011-02.DWG



COMPRESSED AIR SYSTEM – STANDARD PIPING DIAGRAM

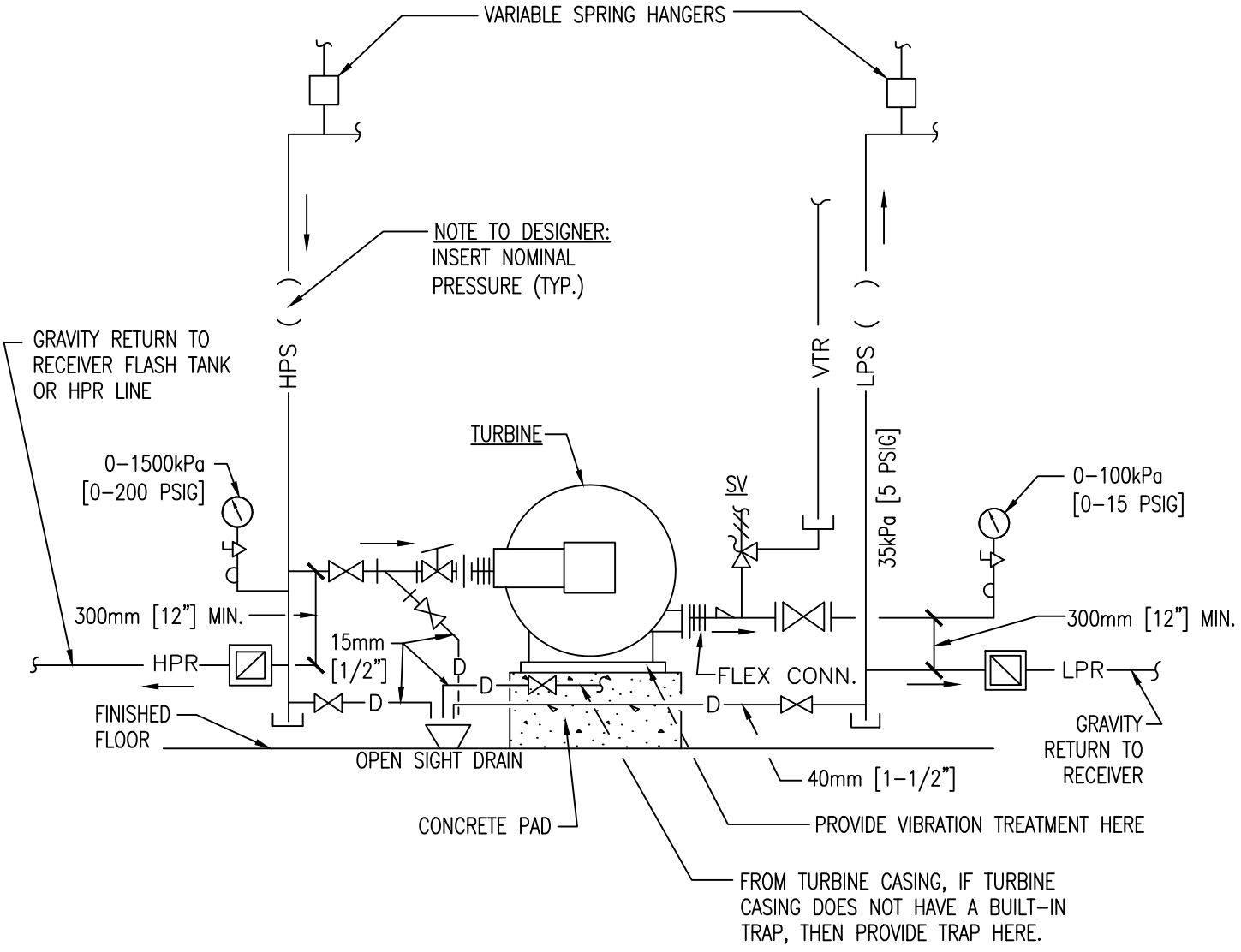
NTS

Department of Veterans Affairs

DETAIL TITLE: COMPRESSED AIR SYSTEM – STANDARD PIPING DIAGRAM

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD235011–03.DWG



ELEVATION (END VIEW)

STEAM TURBINE DRIVE

NTS

Department of Veterans Affairs

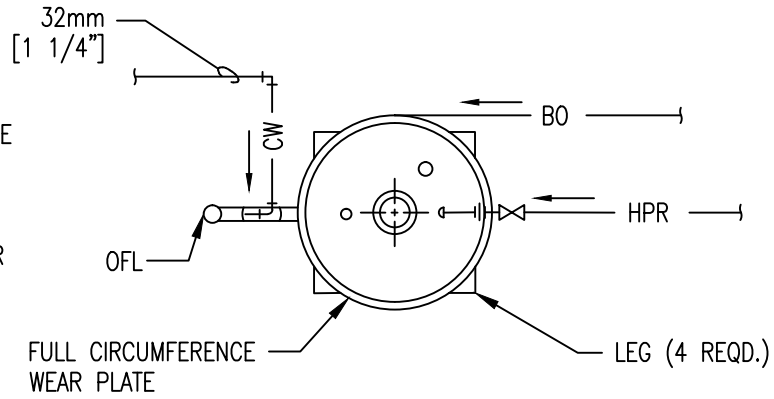
DETAIL TITLE: STEAM TURBINE DRIVE

SCALE :NONE

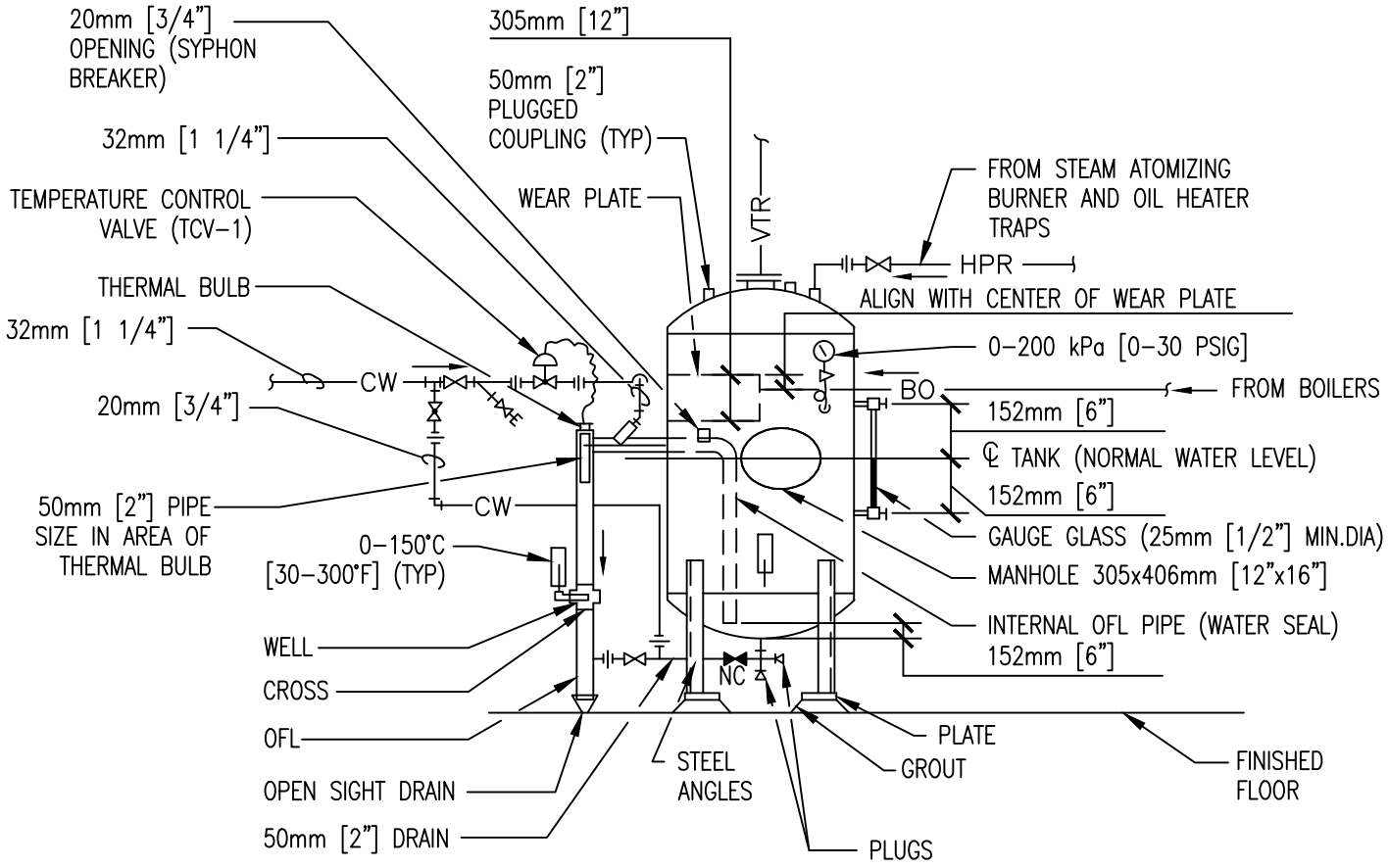
DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD235011–04.DWG

NOTE:
TANK SHALL BE MANUFACTURED AND FURNISHED IN ACCORDANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE AND AMERICAN NATIONAL STANDARD ANSI/ASME BPV VIII–1. INSPECTION AND REGISTRATION ARE WITH THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS



PLAN VIEW



ELEVATION

BOILER BLOWOFF TANK

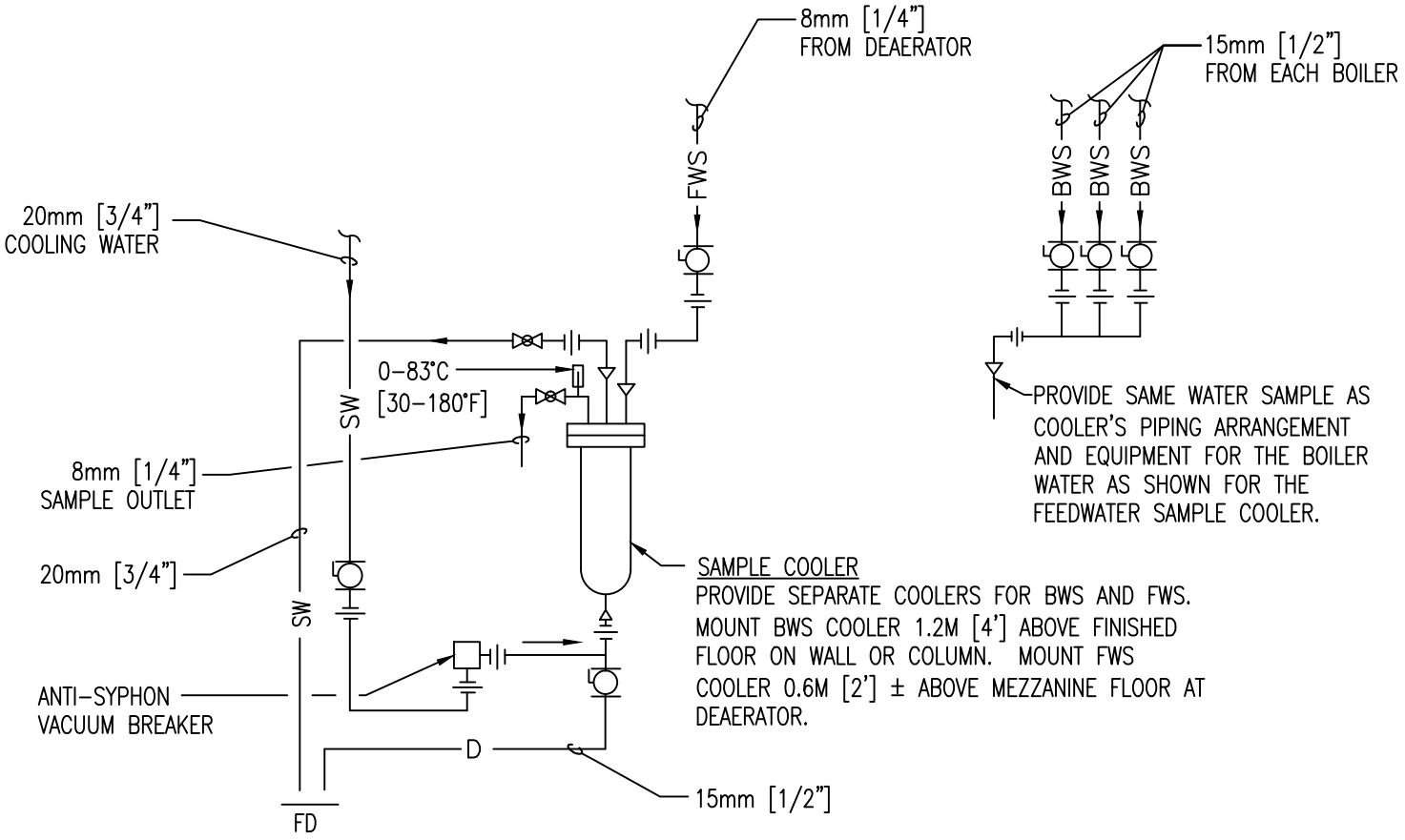
NTS

Department of Veterans Affairs

DETAIL TITLE: BOILER BLOWOFF TANK

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD235011–05.DWG



ELEVATION

WATER SAMPLE COOLERS BOILER WATER AND FEEDWATER

#

NTS

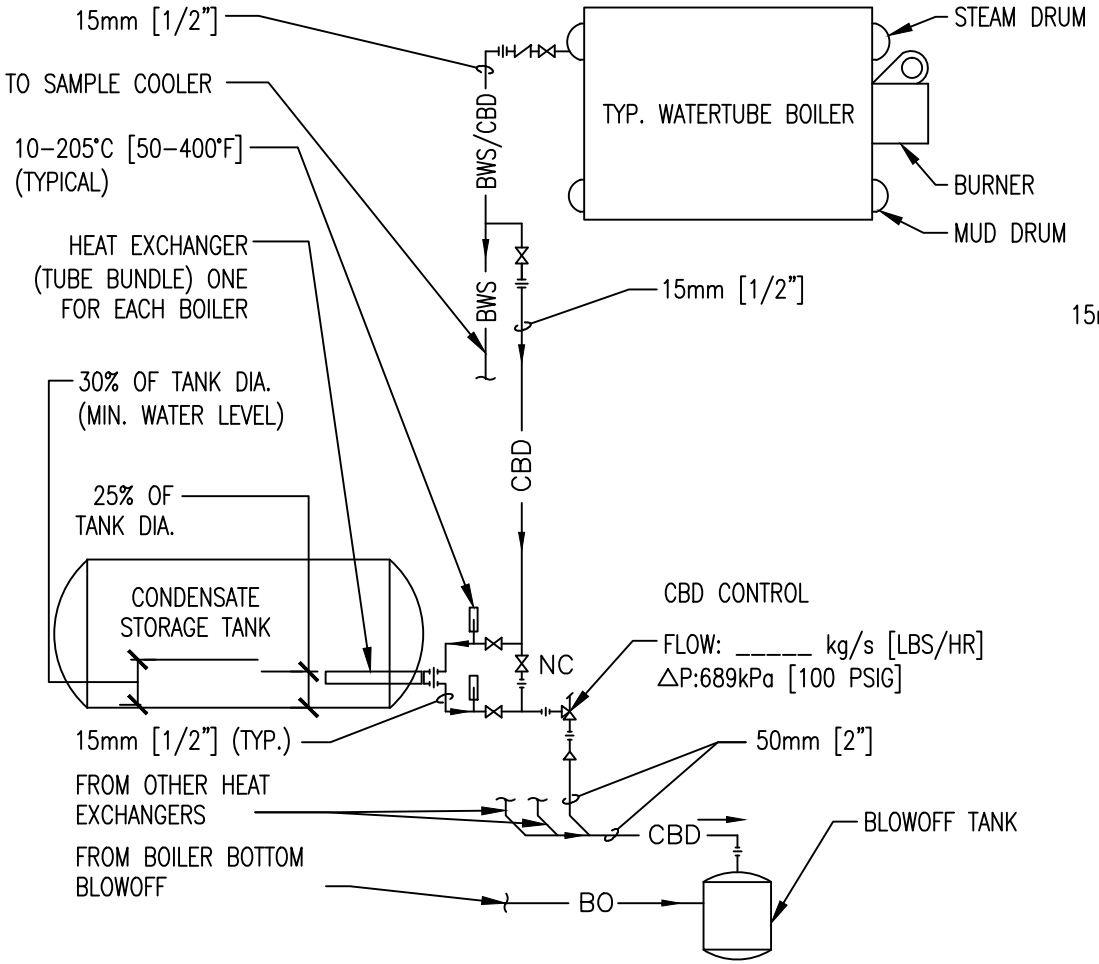
Department of Veterans Affairs

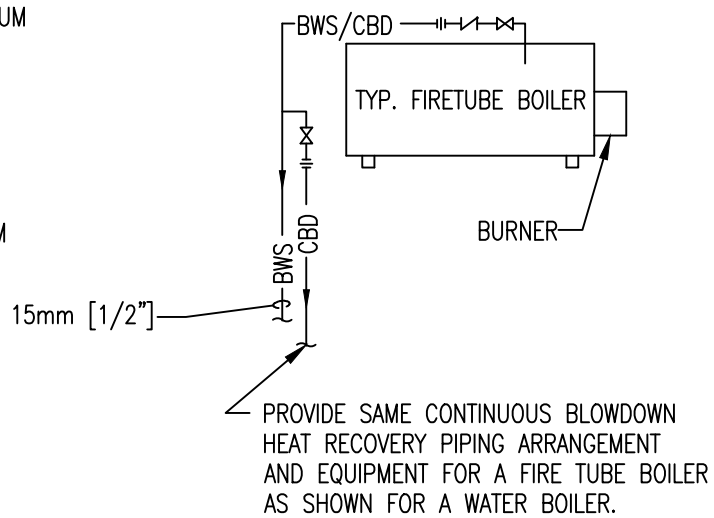
DETAIL TITLE: WATER SAMPLE COOLERS
BOILER WATER AND FEEDWATER

SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD235011–06.DWG





PROVIDE SAME CONTINUOUS BLOWDOWN HEAT RECOVERY PIPING ARRANGEMENT AND EQUIPMENT FOR A FIRE TUBE BOILER AS SHOWN FOR A WATER BOILER.

NOTE:
BWS/CBD PIPING IS TYPICAL FOR EACH BOILER

DESIGNER NOTE:
EVALUATE IF IT IS BETTER TO PREHEAT BOILER MAKE-UP WATER INSTEAD OF HEATING THE CONDENSATE STORAGE TANK. THE WIDER TEMPER TEMPERATURE DIFFERENTIAL BETWEEN MAKE-UP WATER AND CBD MAY RESULT IN OPTIMUM HEAT RECOVERY. HOWEVER, THIS WILL REQUIRE ADDITION OF A SEPARATE HEAT RECOVERY VESSEL. EVALUATION SHOULD INCLUDE AN LCC ANALYSIS.

CONTINUOUS BLOWDOWN HEAT RECOVERY STANDARD PIPING DIAGRAM

#

NTS

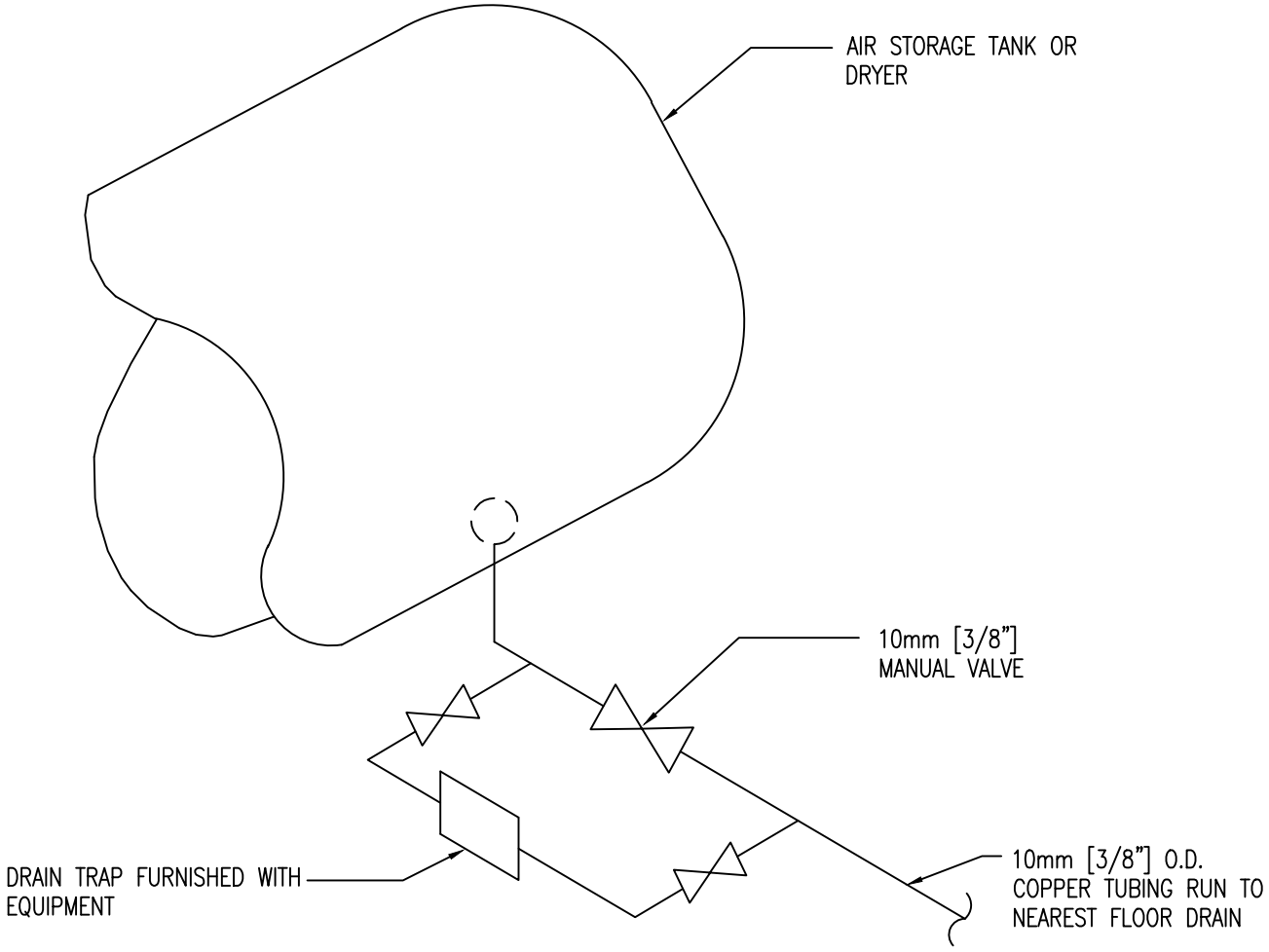
Department of Veterans Affairs

DETAIL TITLE: CONTINUOUS BLOWDOWN HEAT RECOVERY STANDARD PIPING DIAGRAM

SCALE :NONE

DATE ISSUED: 11/01/2017

CAD DETAIL NO.: SD235011-07.DWG



TYPICAL DRAIN FOR AIR COMPRESSOR AND DRYER

#

NTS

Department of Veterans Affairs

DETAIL TITLE: TYPICAL DRAIN FOR AIR COMPRESSOR AND DRYER

SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD235011-09.DWG

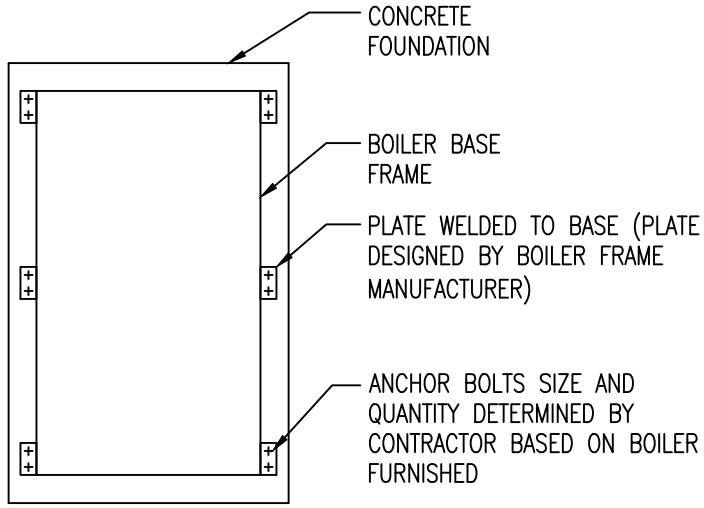
Department of Veterans Affairs

DETAIL TITLE: EQUIPMENT ANCHORING–PACKAGED BOILER AND DAEERATOR AND CONDENSATE STORAGE TANKS

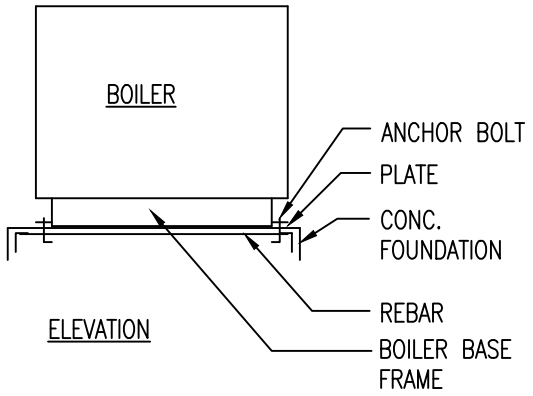
SCALE :NONE

DATE ISSUED :11/01/2017

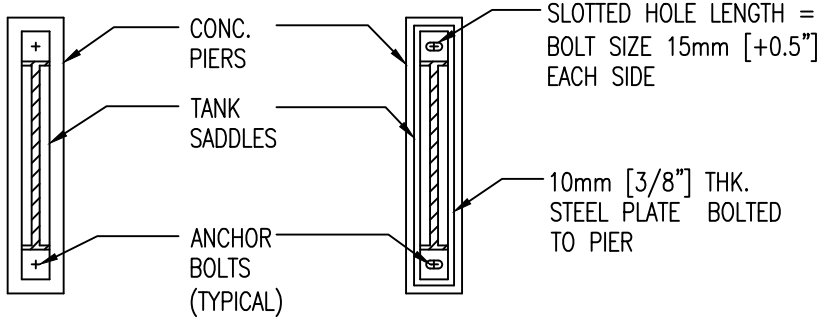
CADD DETAIL NO. : SD235011–10.DWG



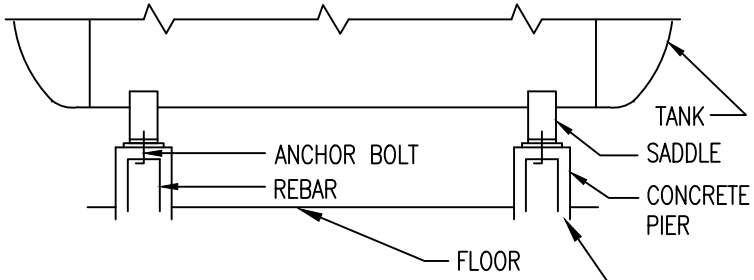
PLAN



ELEVATION

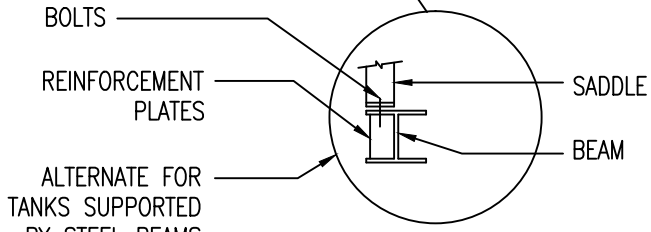


PLAN



ELEVATION

DESIGNER NOTE;
STATE LOCATION AND QUANTITY OF REINFORCEMENT PLATES



NOTES:
1. REFER TO SYMBOL AND SCHEDULE SHEETS FOR SEISMIC FORCE DESIGN INFORMATION
2. PROVIDE SLOTTED HOLES IN PLATES TO ALLOW THERMAL EXPANSION IF RECOMMENDED BY BOILER MANUFACTURER

EQUIPMENT ANCHORING - PACKAGED BOILER AND DEAERATOR AND CONDENSATE STORAGE TANKS

#

NTS

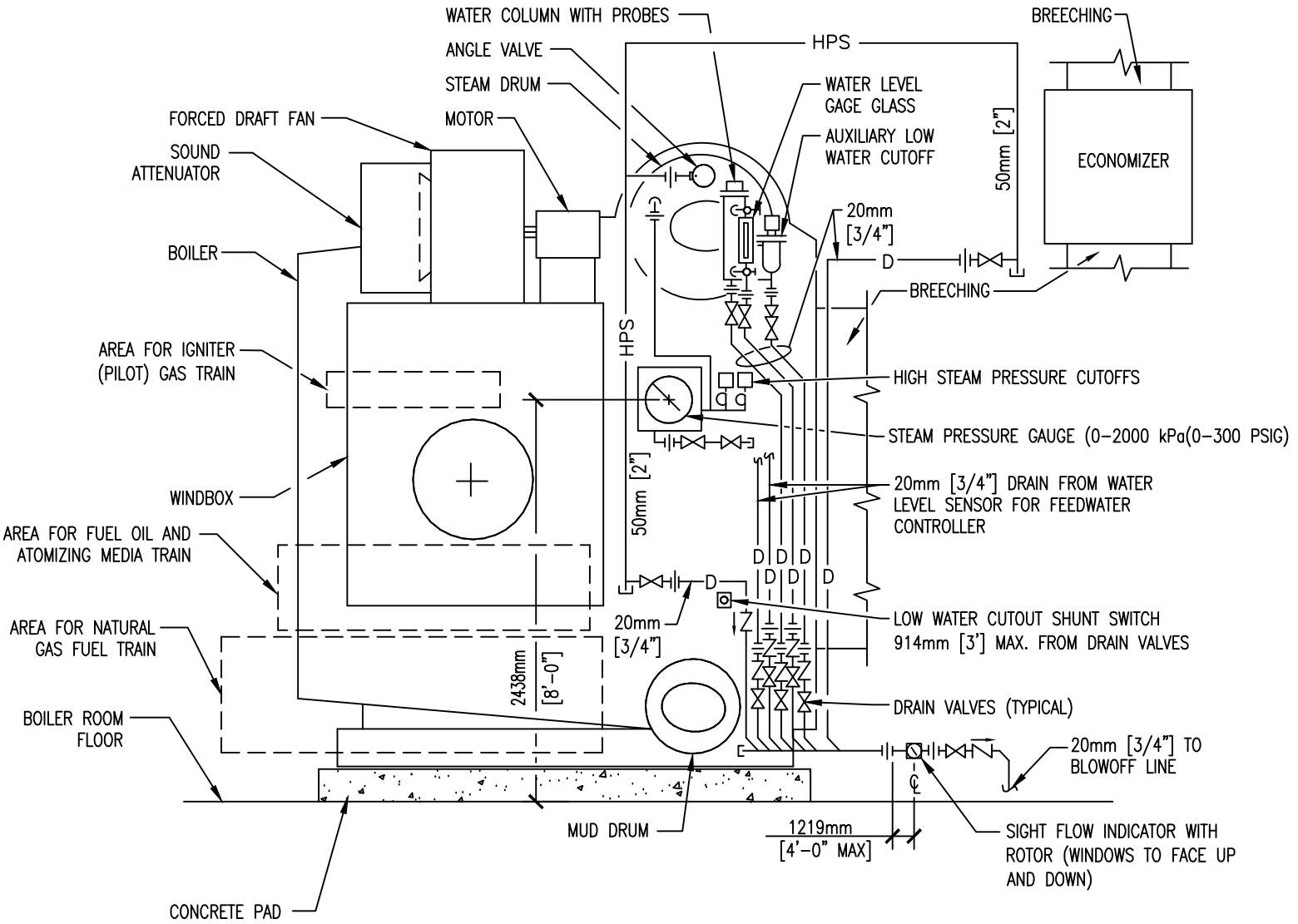
Department of Veterans Affairs

DETAIL TITLE: WATER TUBE BOILER

SCALE :NONE

DATE ISSUED: 11/01/2017

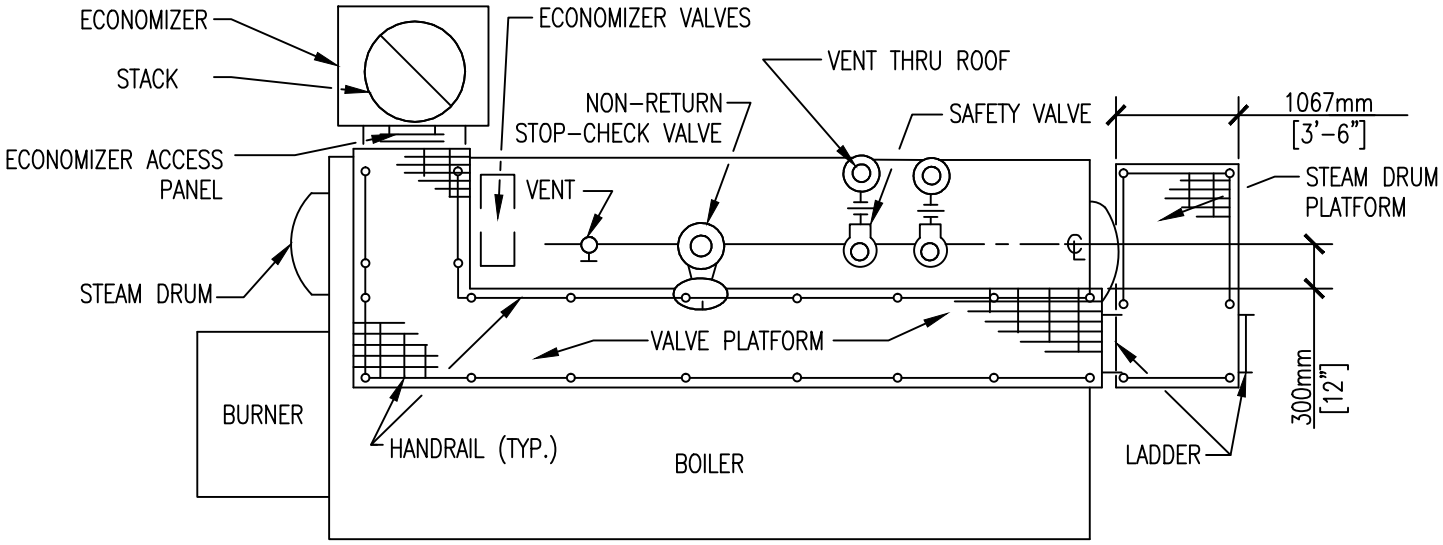
CAD DETAIL NO.: SD235233-01.DWG



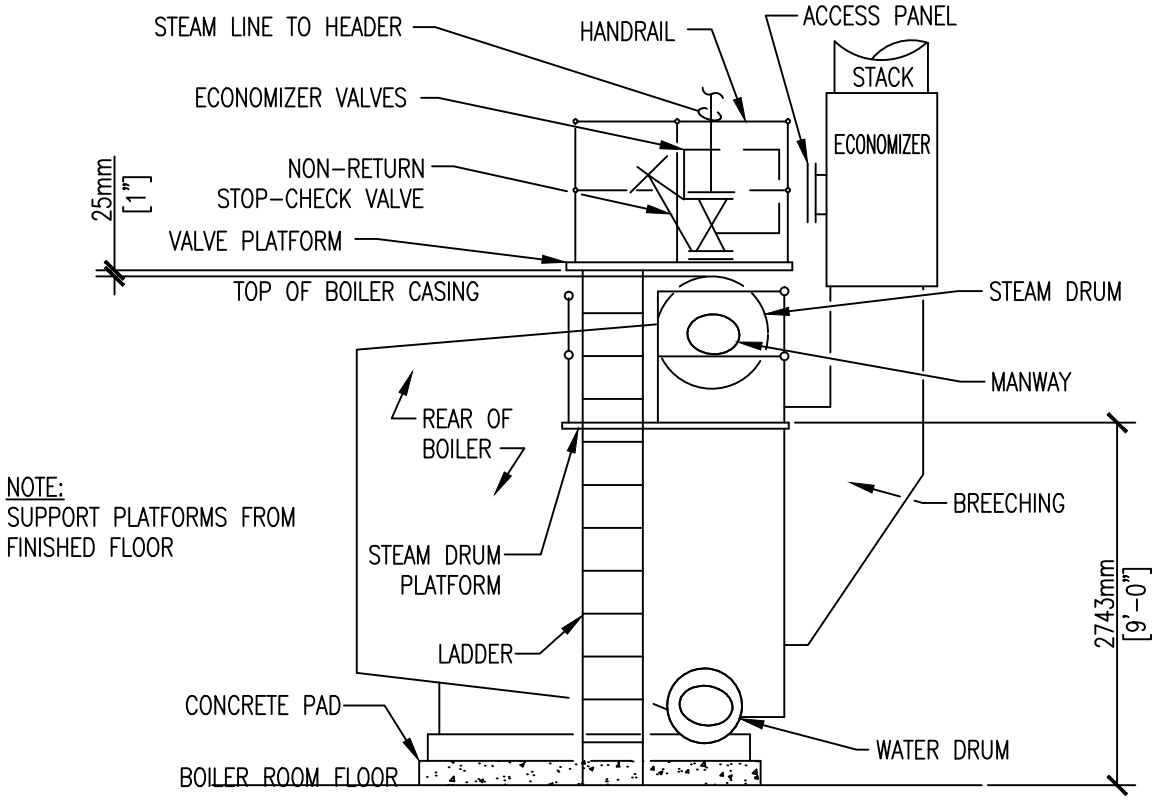
FRONT ELEVATION

WATER TUBE BOILER

NTS



PLAN VIEW



NOTE:
SUPPORT PLATFORMS FROM FINISHED FLOOR

ELEVATION

ACCESS PLATFORM ARRANGEMENT D-TYPE WATER TUBE BOILER

#

NTS

Department of Veterans Affairs

DETAIL TITLE: ACCESS PLATFORM ARRANGEMENT WATER TUBE BOILER

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD235233-02.DWG

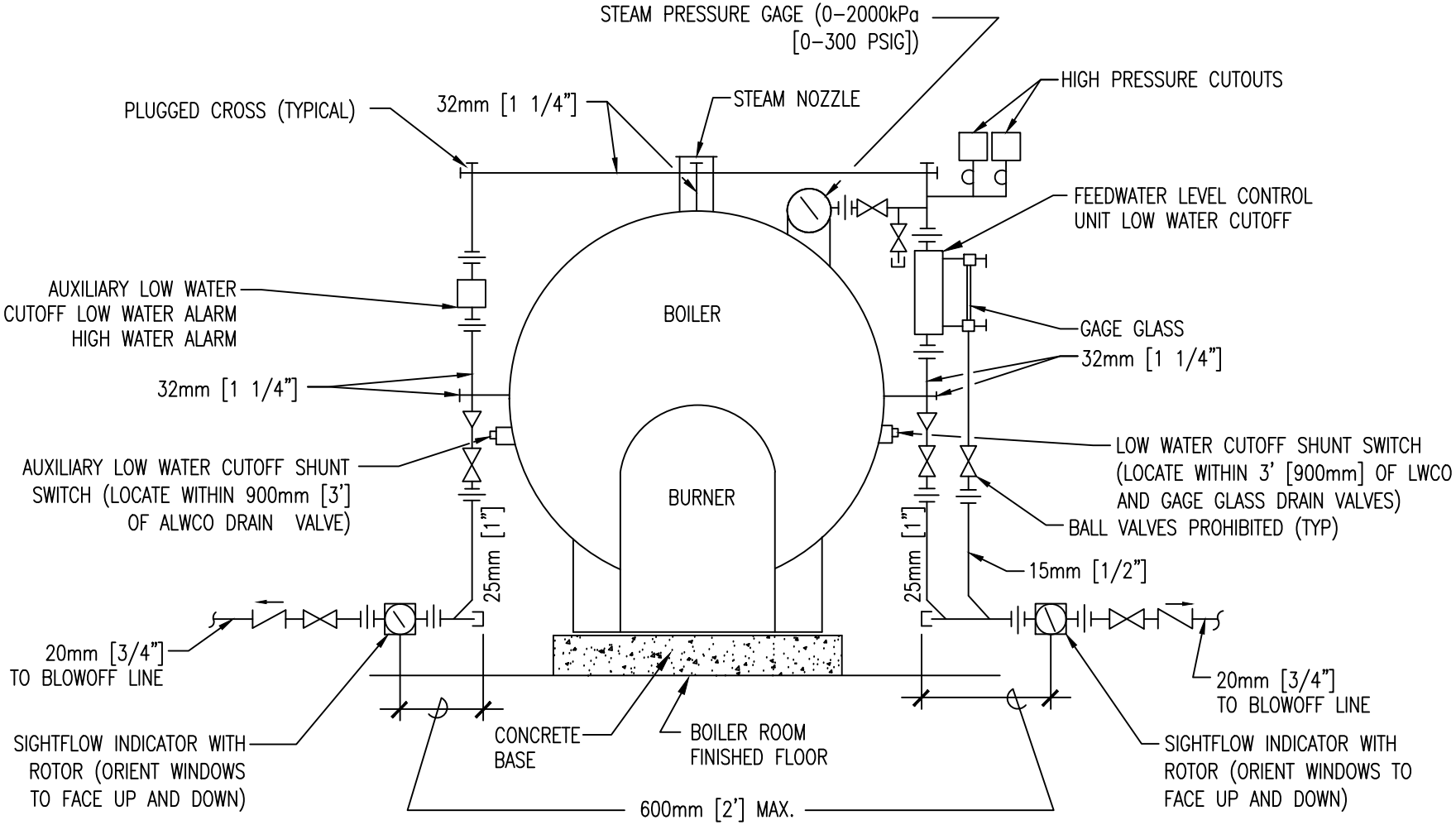
Department of Veterans Affairs

DETAIL TITLE: FIRE TUBE BOILER

SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD235239-01.DWG

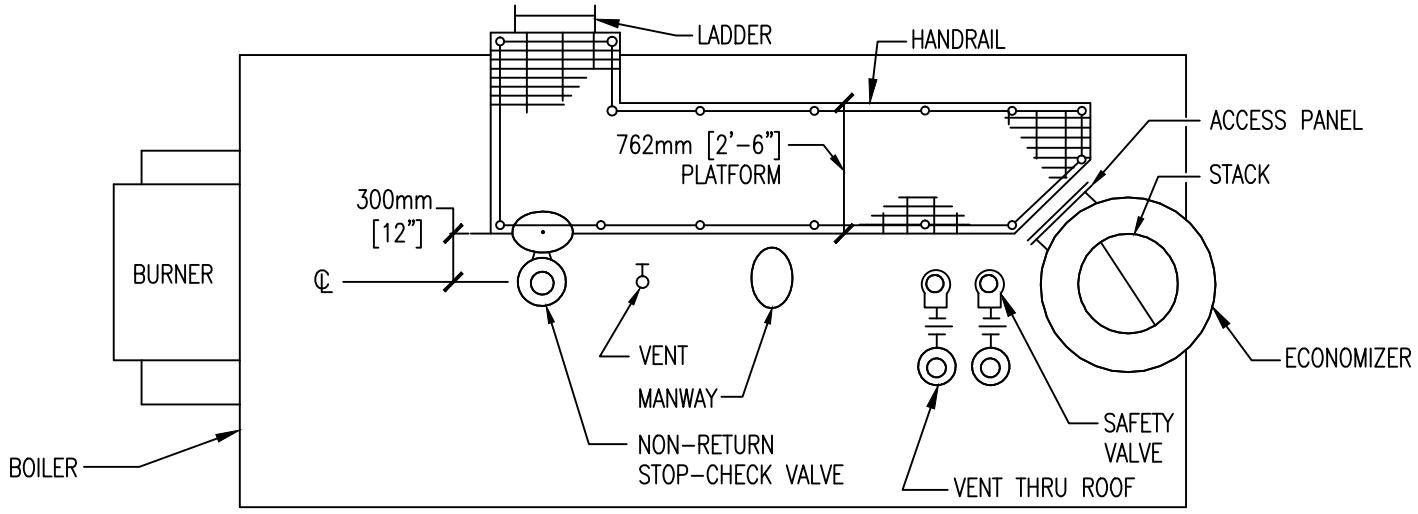


ELEVATION

FIRE TUBE BOILER AUXILIARY WATER LEVEL SAFETY PIPING

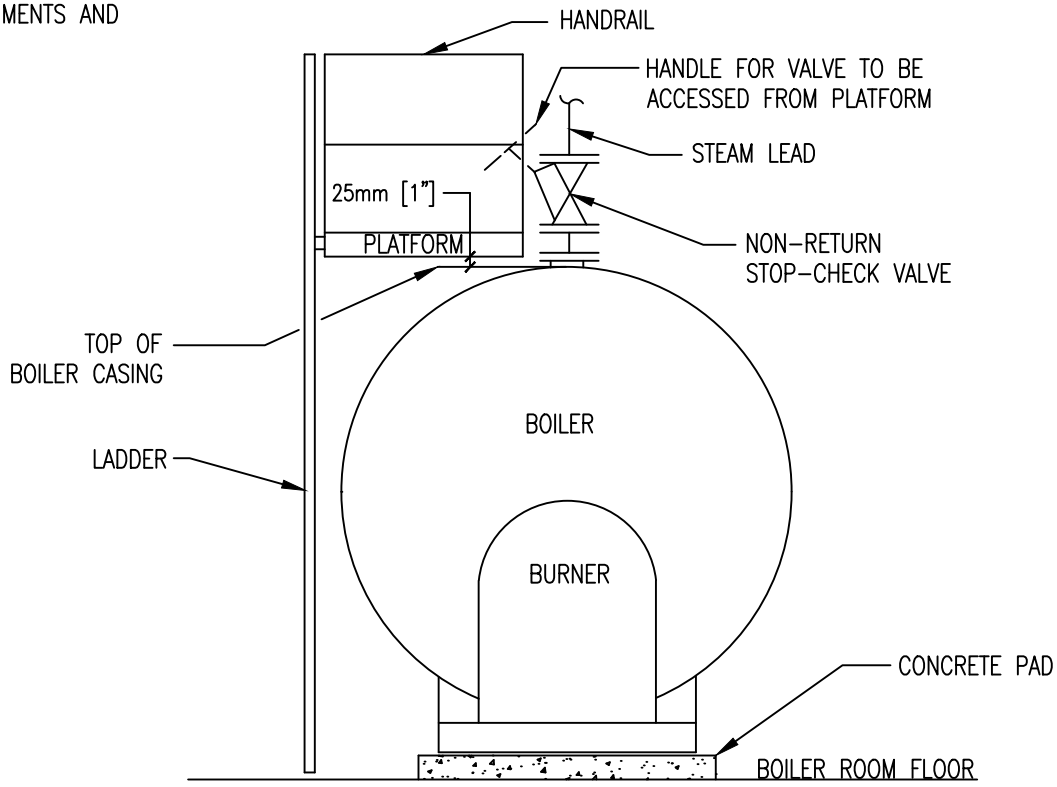
#

NTS



PLAN VIEW

NOTE:
SUPPORT PLATFORM FROM FINISHED FLOOR OR FROM BOILER IF BOILER MANUFACTURER PROVIDES BOILER ATTACHMENTS AND APPROVES INSTALLATION.



ELEVATION

ACCESS PLATFORM ARRANGEMENT

NTS

Department of Veterans Affairs

DETAIL TITLE: ACCESS PLATFORM ARRANGEMENT

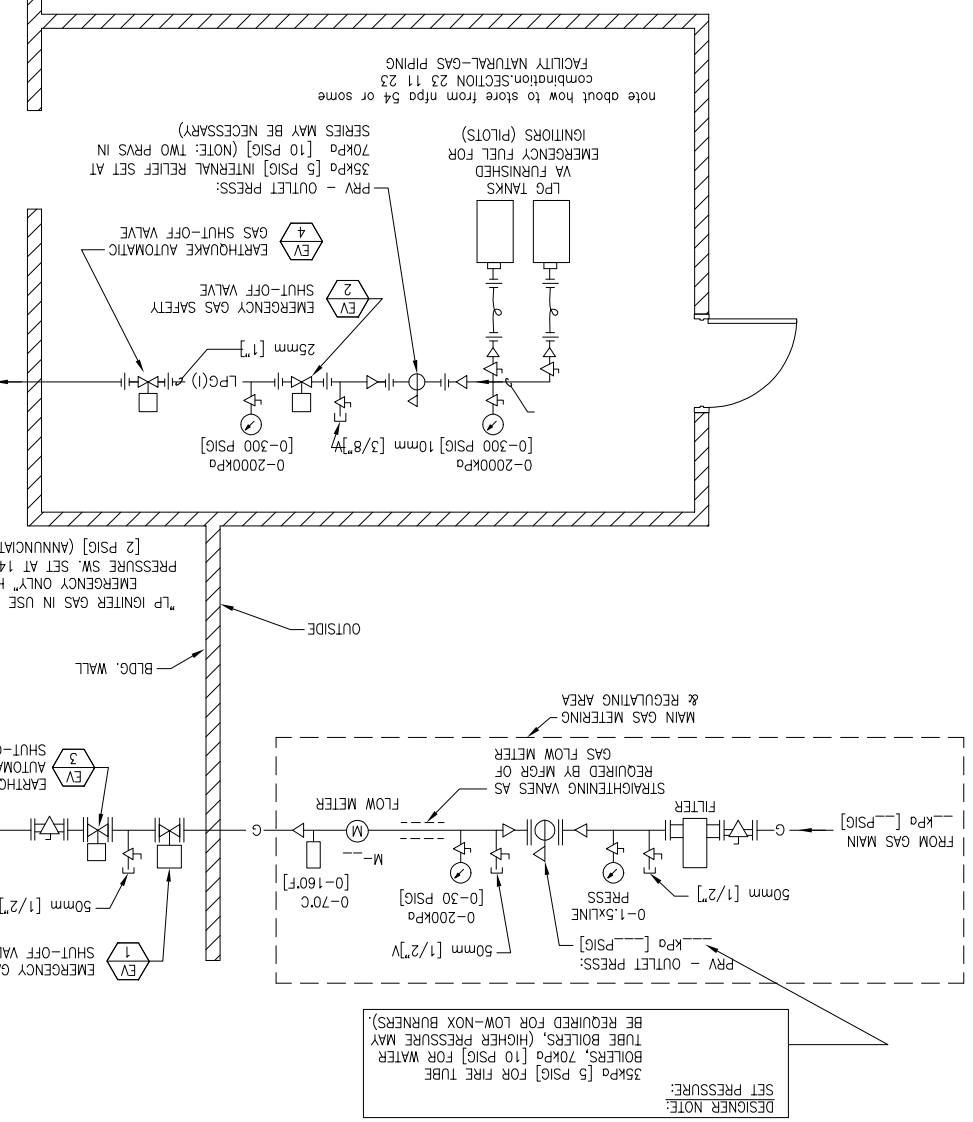
SCALE :NONE

DATE ISSUED :11/01/2017

CADD DETAIL NO. : SD235239-02.DWG

DESIGNER'S NOTES :

1. PROJECT DESIGN AND FLOW DIAGRAM SHALL BE IN CONFORMANCE.
2. SHOW VALVES FLANGED OR THREADED AS DICTATED BY PIPE SIZES.
3. SHOW ALL PIPE SIZES.
4. IN SOME LOCATIONS, IT MY BE NECESSARY TO PROVIDE "FIRM" GAS SERVICE TO THE IGNITERS. COORDINATE THIS WITH THE GAS COMPANY.
5. DELETE "DESIGNER NOTES" FROM PROJECT DRAWINGS.
6. EARTHQUAKE VALVES REQUIRED IN SEISMIC AREAS ONLY. REFER TO THE TIL: H-18-8, "SEISMIC DESIGN REQUIREMENTS".
7. ADD THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS AND ALL DETAILS TO THE DRAWING LEGEND.
8. MAY BE INSTALLED BY GAS CO. ON SOME PROJECT.



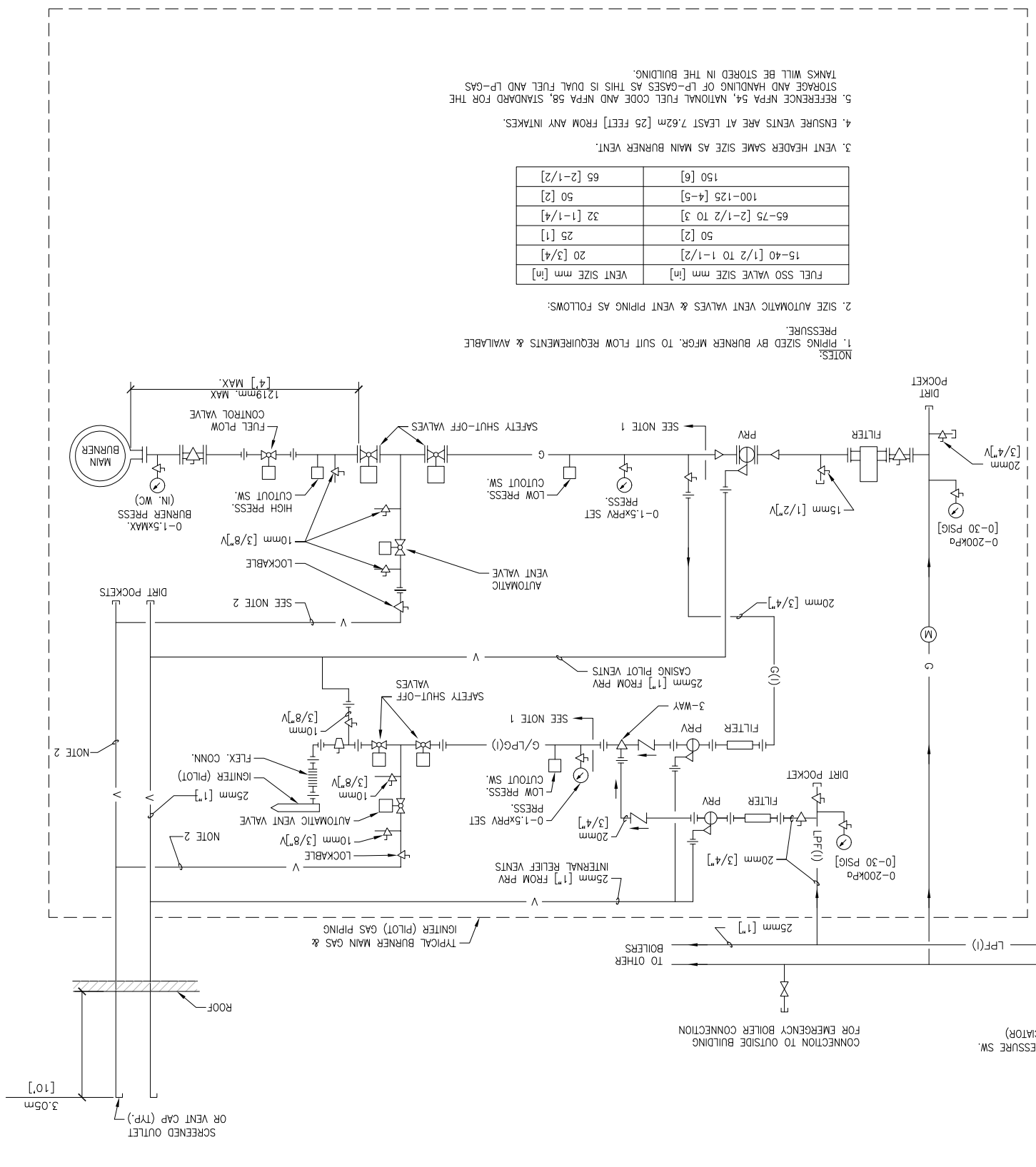
NATURAL GAS AND LIQUEFIED PETROLEUM GAS - BURNER AND IGNITER FUEL STANDARD PIPING DIAGRAM

NTS

NOTES:
1. PIPING SIZED BY BURNER MFGR. TO SUIT FLOW REQUIREMENTS & AVAILABLE PRESSURE.
2. SIZE AUTOMATIC VENT VALVES & VENT PIPING AS FOLLOWS:

FUEL SSO VALVE SIZE mm [in]	VENT SIZE mm [in]
15-40 [1/2 TO 1-1/2]	20 [3/4]
50 [2]	25 [1]
65-75 [2-1/2 TO 3]	32 [1-1/4]
100-125 [4-5]	50 [2]
150 [6]	65 [2-1/2]

3. VENT HEADER SAME SIZE AS MAIN BURNER VENT.
4. ENSURE VENTS ARE AT LEAST 7.62m [25 FEET] FROM ANY INTAKES.
5. REFERENCE NFPA 54, NATIONAL FUEL CODE AND NFPA 58, STANDARD FOR THE STORAGE AND HANDLING OF LP-GASES AS THIS IS DUAL FUEL AND LP-GAS TANKS WILL BE STORED IN THE BUILDING.



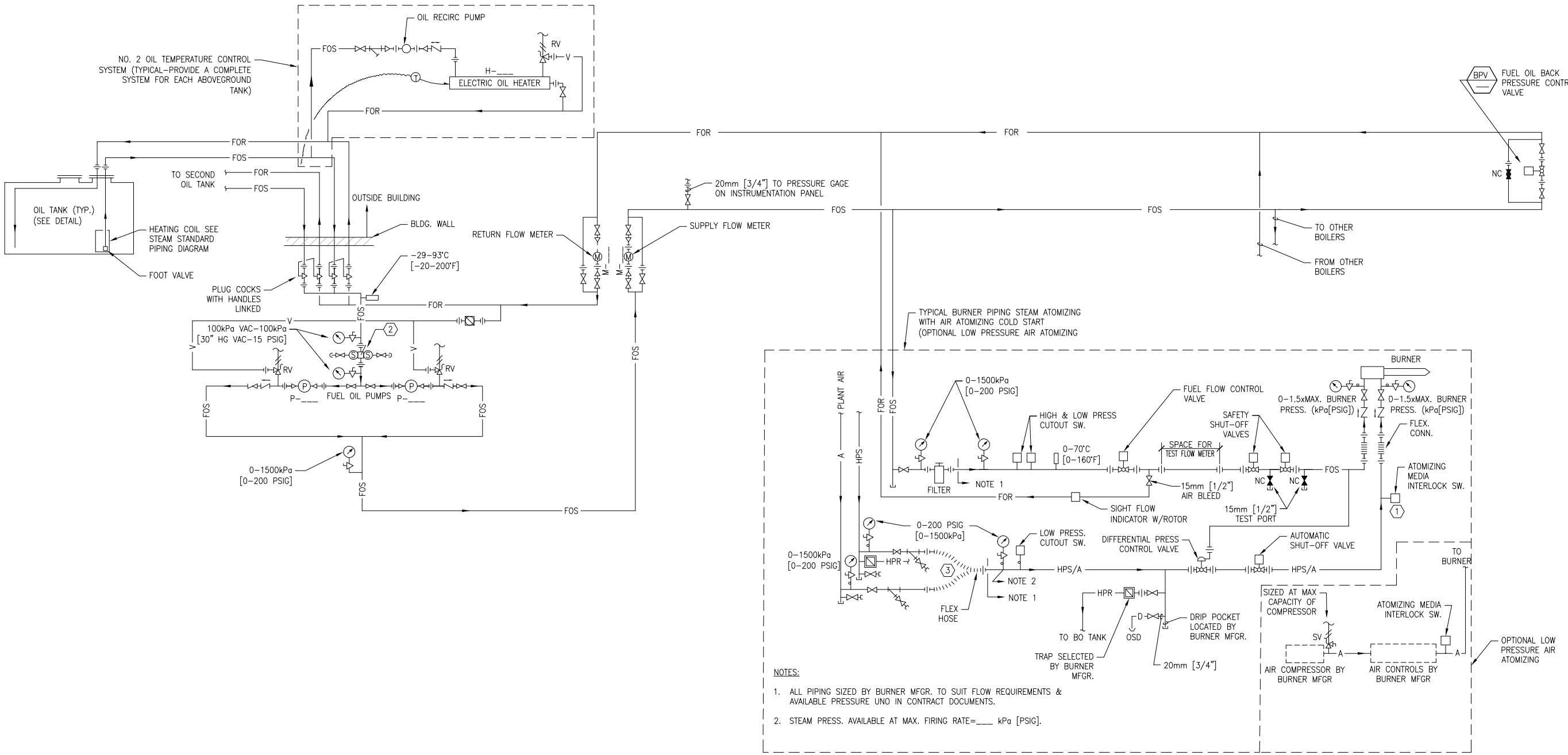
SCALE: NONE

DATE ISSUED: AUGUST 01, 2023

SD235239-03.DWG

DETAIL TITLE / NATURAL GAS AND LIQUEFIED PETROLEUM GAS - BURNER AND IGNITER FUEL

U.S. Department of Veterans Affairs



NOTES:

1. ALL PIPING SIZED BY BURNER MFGR. TO SUIT FLOW REQUIREMENTS & AVAILABLE PRESSURE UNO IN CONTRACT DOCUMENTS.
2. STEAM PRESS. AVAILABLE AT MAX. FIRING RATE=____ kPa [PSIG].

KEYED NOTES:

〈1〉 INTERLOCK SWITCH SHALL HAVE PROOF OF MINIMUM FLOW.

〈2〉 DUPLEX STRAINER WITH 15mm [1/2"] VALVED DRAINS.

〈3〉 FLEX HOSE CONNECTIONS SHALL HAVE ABILITY TO BE PIPE FROM EITHER HEADER, BUT NOT BOTH AT THE SAME TIME.

DESIGNER'S NOTES:

1. PROJECT DESIGN AND FLOW DIAGRAM SHALL BE IN CONFORMANCE.
2. SHOW VALVES THREADED OR FLANGED TO SUIT THE PROJECT.
3. SHOW ALL PIPE SIZES.
4. ON FIRE TUBE BOILERS WITH NO. 2 OIL SHOW LOW PRESSURE AIR ATOMIZING INSTEAD OF STEAM ATOMIZING.
5. DELETE "ENGINEERING NOTES" FROM PROJECT DRAWINGS.
6. ADD THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS AND ALL DETAILS TO THE DRAWING LEGEND.
7. PROVIDE NO.2 OIL TEMPERATURE CONTROL SYSTEMS IN CLIMATES WHERE OIL STORAGE TEMPERATURE MAY APPROACH THE OIL POUR POINT TEMPERATURE

NO.2 BURNER FUEL OIL SYSTEMS – STANDARD PIPING DIAGRAM AND BURNER FUEL OIL SYSTEMS – STANDARD PIPING DIAGRAM

NTS

DETAIL TITLE / NO.2 BURNER FUEL OIL SYSTEMS – STANDARD PIPING DIAGRAM AND BURNER FUEL OIL SYSTEMS – STANDARD PIPING DIAGRAM

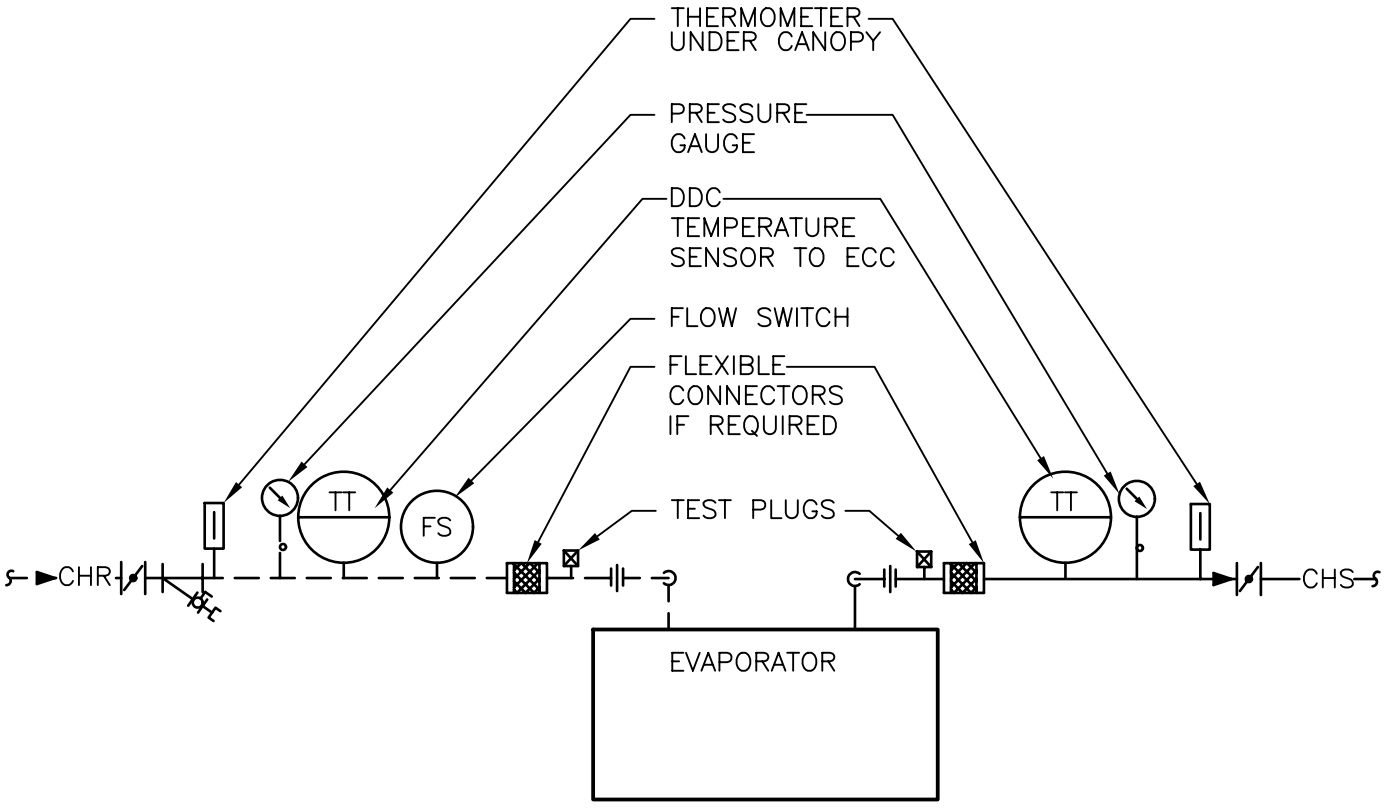
U.S. Department of Veterans Affairs

VA

SCALE: NONE

DATE ISSUED: SEPTEMBER 1, 2021

SD235239–04.DWG



AIR COOLED CHILLER - PIPING CONNECTIONS

NTS

DESIGNER NOTE:

1. PROVIDE HEAT TRACING WHEN THE EXPOSED PIPING CARRYING CHILLED WATER IS NOT MIXED WITH PROPYLENE CLYCOL. ALL VALVES, STRAINER, FLOW SWITCH, FLEXIBLE CONNECTORS, ETC., SHALL BE WRAPPED WITH ELECTRIC HEAT TRACE CABLE UNDER INSULATION.

2. VERIFY NEED FOR FLEXIBLE CONNECTOR.

3. PROVIDE ALUMINUM JACKETING ON ALL EXPOSED, INSULATED PIPING.

Department of Veterans Affairs

DETAIL TITLE / AIR COOLED CHILLER - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD236400-01.DWG

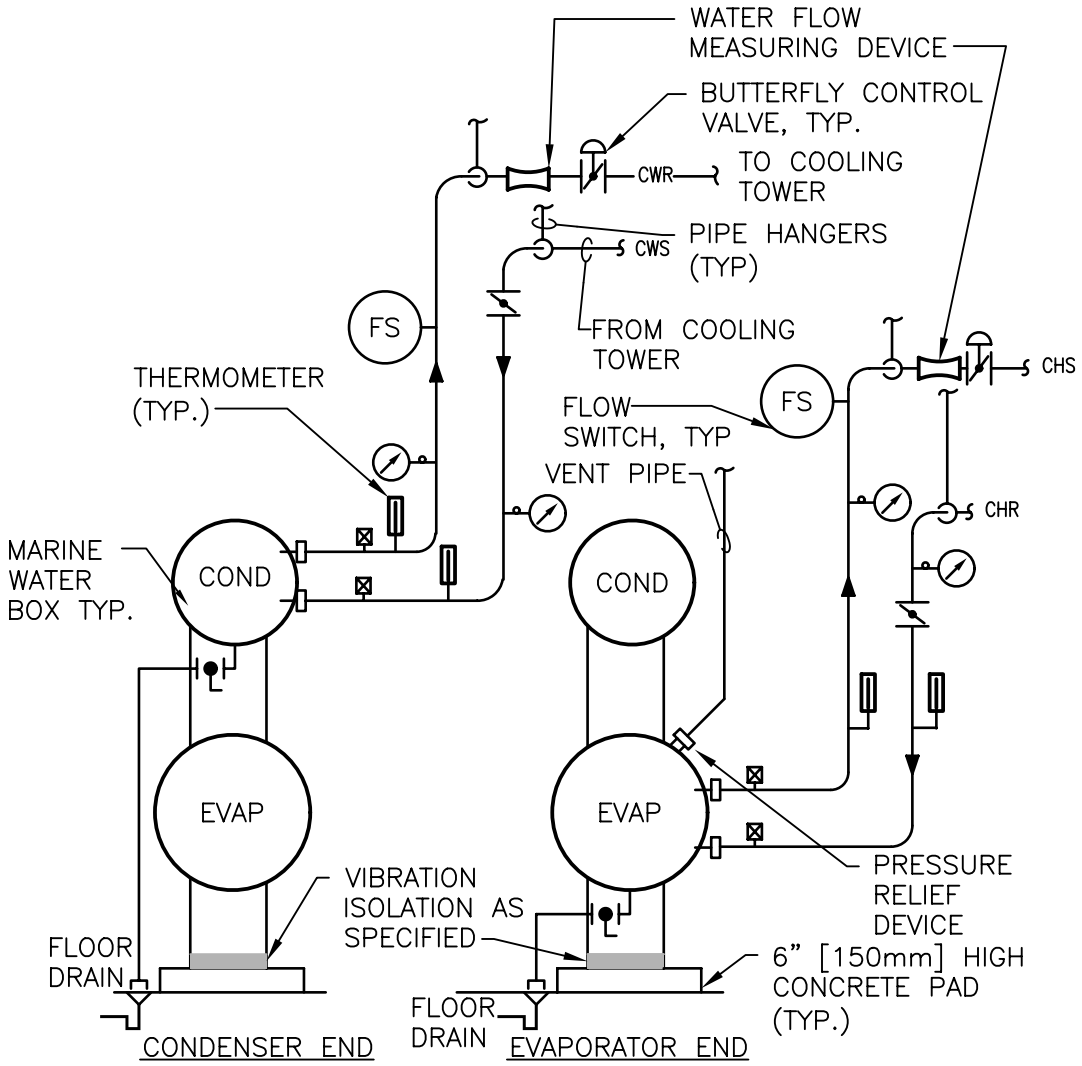
Department of Veterans Affairs

DETAIL TITLE / WATER COOLED CHILLER - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD236400-02.DWG



NOTE:

1. DRAIN ALL LOW POINTS OF SYSTEMS TO NEAREST FLOOR DRAIN.
2. PROVIDE MARINE WATER BOXES FOR BOTH CONDENSER AND EVAPORATOR.
3. COLLECT VENT PIPES FROM ALL REFRIGERANT PRESSURE RELIEF DEVICES AND EXTEND TO EXTERIOR OF BUILDING IN ACCORDANCE WITH ASHRAE STANDARD 15. HEADER SIZE TO EQUAL OR EXCEED TOTAL AREA OF DEVICES CONNECTED TO THE HEADER.
4. PROVIDE MODULATING BUTTERFLY VALVES ON BOTH CHWR & CWR. VALVES CONTROLLED BY ECC.
5. FOR PIPING 6" AND BELOW, MECHANICAL COUPLINGS ARE OPTIONAL. ABOVE 6", WELDED PIPE WITH FLANGES IS THE ONLY APPROVED JOINING METHOD.

WATER COOLED CHILLER - PIPING CONNECTIONS

#

NTS

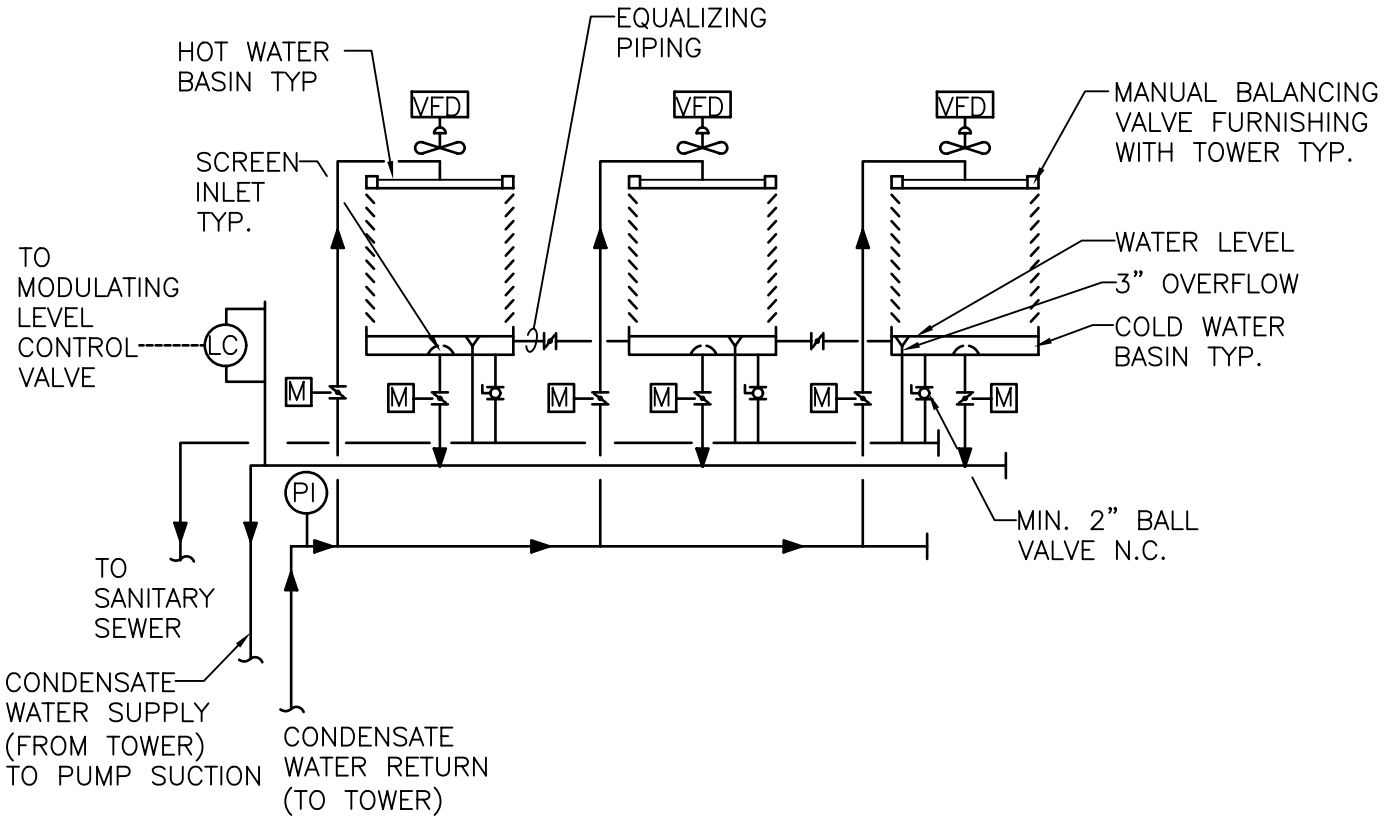
Department of Veterans Affairs

DETAIL TITLE / MULTIPLE CELL COOLING TOWER - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD236500-01.DWG



NOTE:

1. THE BASINS SHALL BE INTERCONNECTED BY FLUMES. EACH CELL SHALL BE PROVIDED WITH ITS OWN SUMP AND ANTI-CAVITATION PLATE.

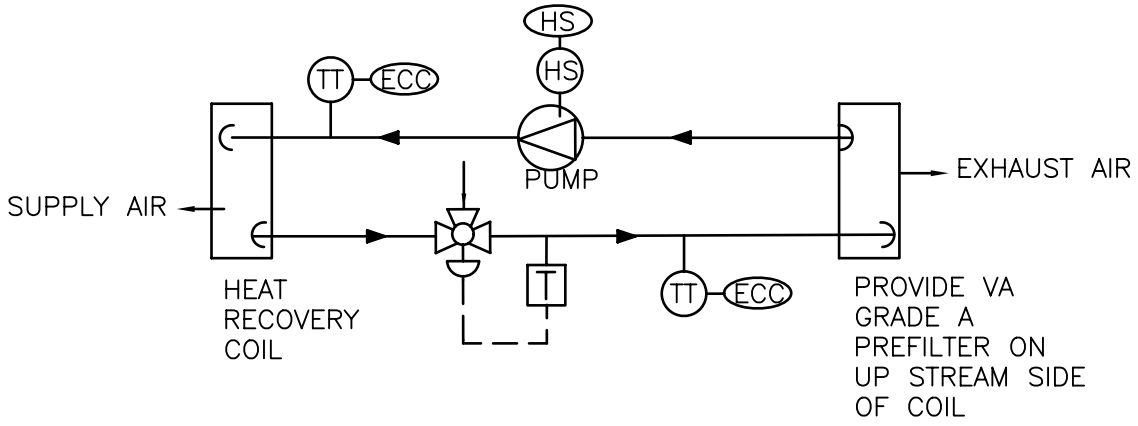
MULTIPLE CELL COOLING TOWER - PIPING CONNECTIONS

#

NTS

DESIGNERS NOTES:

1. IF TOWER IS INSTALLED MORE THAN 5 FT [1500 MM] ABOVE THE ROOF OR GRADE PROVIDE A PLATFORM AROUND THE PERIMETER.
2. PROVIDE ACCESS FOR ALL ELEVATED VALVES AND CONTROL DEVICES AND TO EACH FAN MOTOR.
3. SEE HVAC DESIGN MANUAL.
4. COORDINATE WITH ELECTRICAL ON BASIN HEATER.



NOTES:

1. TO PREVENT ICING ON EXHAUST COIL MAINTAIN TEMPERATURE OF SOLUTION ENTERING EXHAUST AIR COIL $\geq$ 35° F BY MODULATING 3 WAY VALVE.

2. DISCONTINUE HEAT RECOVERY IF OUTSIDE AIR TEMPERATURE $\geq$ BETWEEN 60 TO 80° F (ADJUSTABLE)

3. FOR SYSTEMS WITH WINTER DESIGN CONDITIONS $\leq$ 32° F, PROVIDE APPROPRIATE PROPYLENE GLYCOL SOLUTION.

RUN AROUND HEAT RECOVERY COIL DETAIL

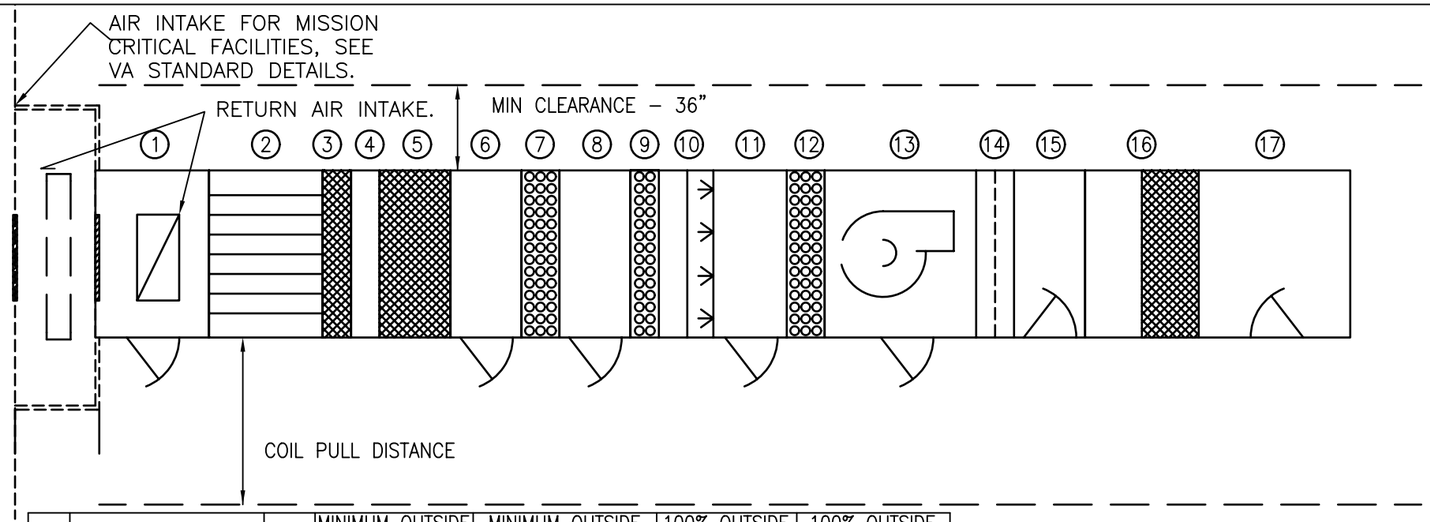
NTS

Department of Veterans Affairs

DETAIL TITLE / RUN AROUND ENERGY RECOVERY DETAIL

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD237200-01.DWG



	AIR HANDLING UNIT	ITEM	MINIMUM OUTSIDE AIR TWO BEDS OF FILTERS VAV	MINIMUM OUTSIDE AIR THREE BEDS OF FILTERS CV	100% OUTSIDE AIR TWO BEDS OF FILTERS CV	100% OUTSIDE AIR THREE BEDS OF FILTERS CV
*	MIXING BOX	1	YES	YES	NO	NO
*	BLENDER SECTION	2	YES	YES	NO	NO
	PRE–FILTERS (SIDE ACCESS)	3	YES	YES	YES	YES
	INSPECTION SECTION, SMALL	4	YES	YES	YES	YES
	AFTER FILTER (SIDE ACCESS)	5	YES	YES	YES	YES
	ACCESS SECTION, MED–LARGE	6	YES	YES	YES	YES
*	HEAT RECOVERY COIL	7	NO	NO	YES	YES
*	ACCESS SECTION, MED–LARGE	8	NO	NO	YES	YES
*	PRE–HEAT COIL	9	YES	YES	YES	YES
*	INSPECTION SECTION,SMALL	10	YES	YES	YES	YES
	HUMIDIFIER	11	YES	YES	YES	YES
	COOLING COIL	12	YES	YES	YES	YES
	FAN	13	YES	YES	YES	YES
*	DIFFUSER PLATE	14	NO	NO	NO	YES
*	ACCESS SECTION,MED–LARGE	15	NO	NO	YES	YES
*	HEPA FILTER	16	NO	NO	NO	YES
*	DISCHARGE PLENUM (VERTICAL)	17	YES	YES	YES	YES
* AS REQUIRED						

NOTE:

1. ACCESS DOORS SHALL BE GASKETED AND HINGED TO OPEN AGAINST FAN OPERATING PRESSURE TO PREVENT AIR LEAKAGE.
2. MINIMUM ACCESS DOOR WIDTH SHALL BE 24" [600mm].
3. ACCESS DOOR HEIGHT SHALL BE DETERMINED BY UNIT CASING BUT NOT TO EXCEED 6'–0" [1800mm].
4. ACCESS DOORS ON FAN SUCTION SHALL OPEN OUTWARD.
5. ACCESS DOORS ON FAN DISCHARGE SIZE SHALL OPEN INWARD.

ACCESS DOOR SWING DETAIL FOR AIR HANDLING UNITS

NTS

DESIGNER'S NOTES:

1. ALL AHU SECTIONS SHOWN IN THIS DETAIL MAY NOT BE APPLICABLE TO EACH AIR HANDLING UNIT INCLUDED IN THE PROJECT.
2. SEE DETAIL FOR AIR INTAKE FOR MISSION CRITICAL FACILITIES.
3. USING THIS FORMAT, DESIGNER SHALL DEVELOP A SIMILAR VIEW OF EACH AHU INCLUDED IN THE PROJECT. SELECTION OF THE AHU SECTIONS SHALL BE APPLICATION SPECIFIC. EACH VIEW SHALL INCLUDE OVERALL DIMENSIONS AND AVAILABLE ACCESS SPACE FOR EACH AIR HANDLING UNIT. NOTE THAT THESE VIEWS DO NOT NEGATE THE NEED TO PROVIDE CROSS–SECTIONS/ELEVATIONS OF THE MECHANICAL ROOMS, SHOWING EQUIPMENT SECTIONS AND DETAILS OF EACH AHU.

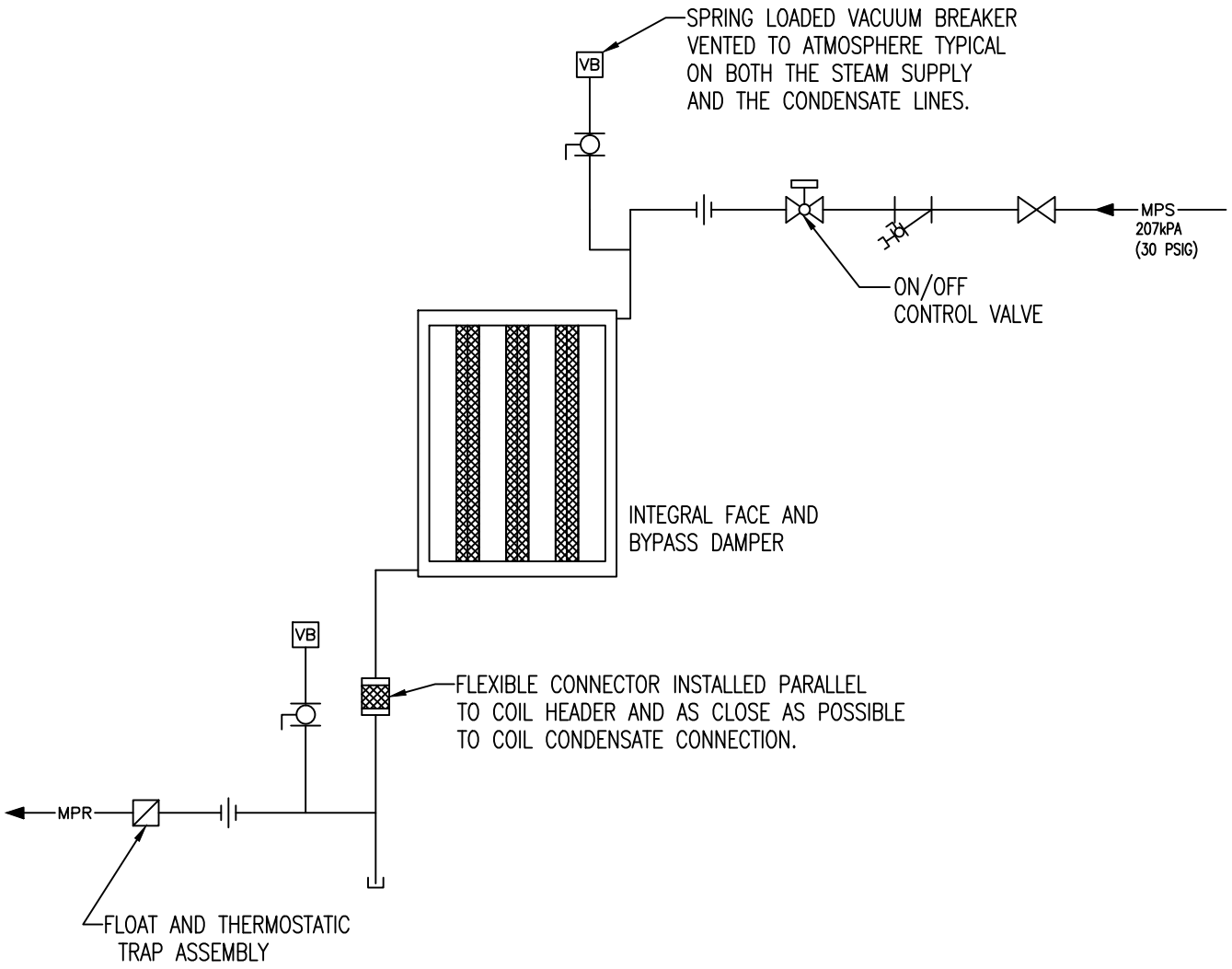
DETAIL TITLE / ACCESS DOOR SWING DETAIL FOR AIR HANDLING UNITS

SCALE :NONE

DATE ISSUED: DECEMBER 2008

CAD DETAIL NO.: SD237300–01.DWG

Department of Veterans Affairs



DESIGNER'S NOTE:

1. USE THIS DETAIL FOR UNIT MOUNTED PREHEAT COIL.

2. EDIT DETAIL FOR LOW PRESSURE STEAM, IF NECESSARY.

INTEGRAL FACE AND BYPASS STEAM COIL DETAIL

#

NTS

Department of Veterans Affairs

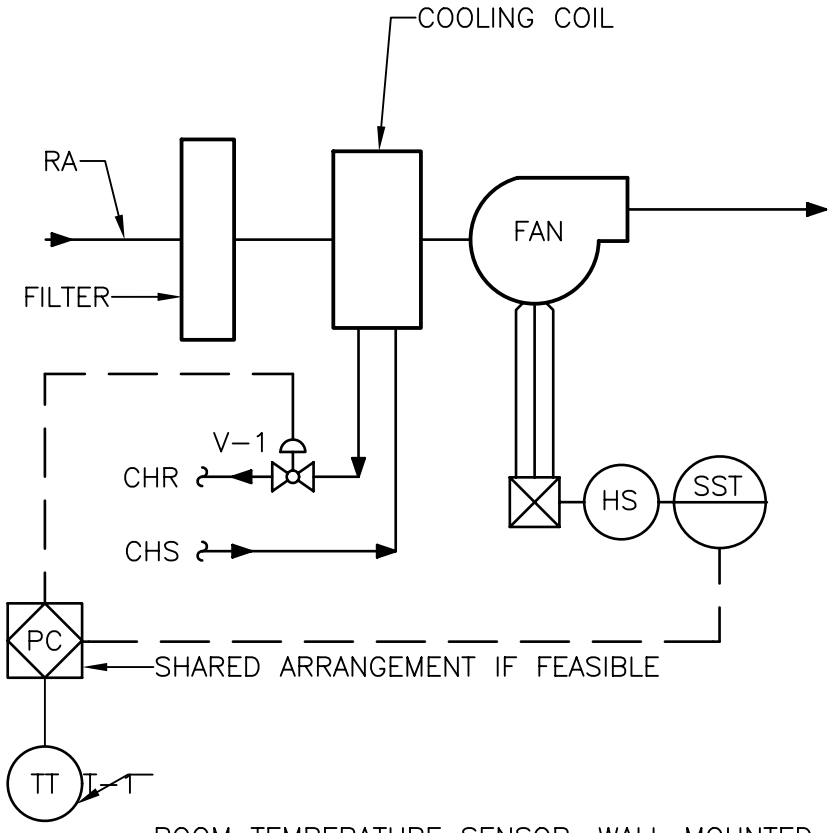
DETAIL TITLE: INTEGRAL FACE AND BYPASS STEAM COIL

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD237300-02.DWG

FAN COIL SEQUENCE OF OPERATION (COOLING ONLY)

1. FAN COIL UNIT SHALL OPERATE ON A SCHEDULE AS SET BY THE DCC.
2. MODULATE V-1 TO MAINTAIN SPACE SET POINT AND FAN SHALL CYCLE W/TEMPERATURE.
3. ALARM IF SPACE TEMPERATURE OUTSIDE OF RANGES.



COOLING ONLY FAN COIL UNIT CONTROLS

#

NTS

DESIGNER'S NOTE

1. MODIFY THE DETAIL IF DCC IS NOT USED.

Department of Veterans Affairs

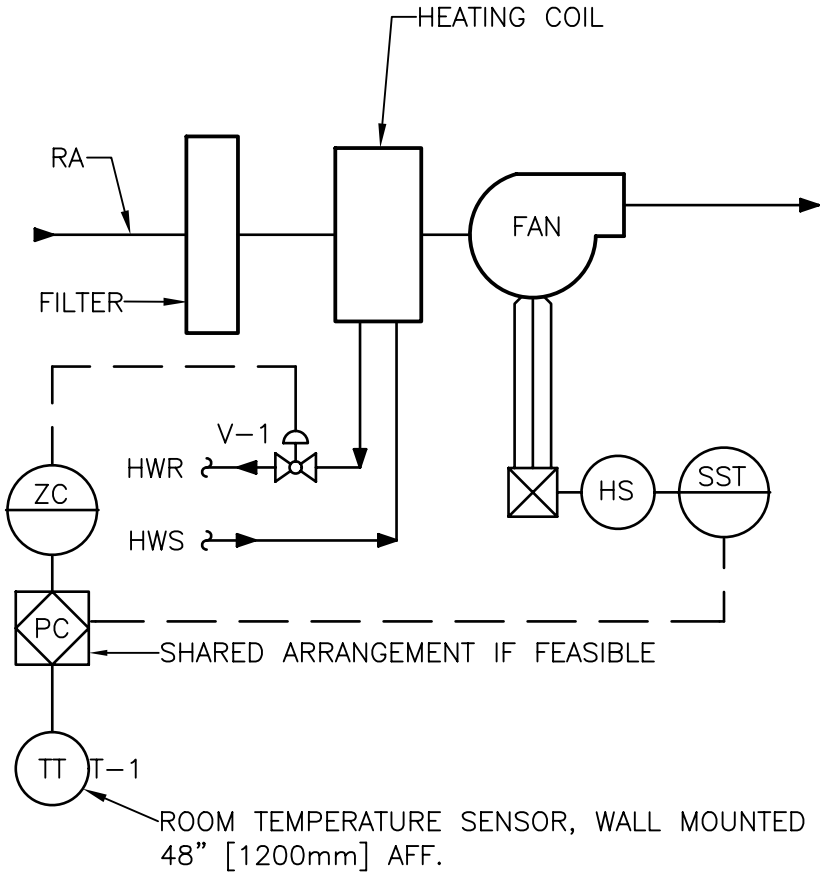
DETAIL TITLE / COOLING ONLY FAN COIL UNIT CONTROLS

SCALE :NONE

DATE ISSUED : DECEMBER 2008 CADD DETAIL NO. : SD238200-01.DWG

FAN COIL SEQUENCE OF OPERATION (HEATING ONLY)

1. FAN COIL UNIT SHALL OPERATE ON A SCHEDULE AS SET BY THE DCC.
2. MODULATE V-1 TO MAINTAIN SPACE SET POINT AND FAN SHALL CYCLE W/TEMPERATURE.
3. ALARM IF SPACE TEMPERATURE OUTSIDE OF RANGES.



HEATING ONLY FAN COIL UNIT CONTROLS

NTS

DESIGNER'S NOTE
MODIFY DETAIL IF DCC IS NOT USED.

Department of Veterans Affairs

DETAIL TITLE / HEATING ONLY FAN COIL UNIT CONTROLS

SCALE :NONE

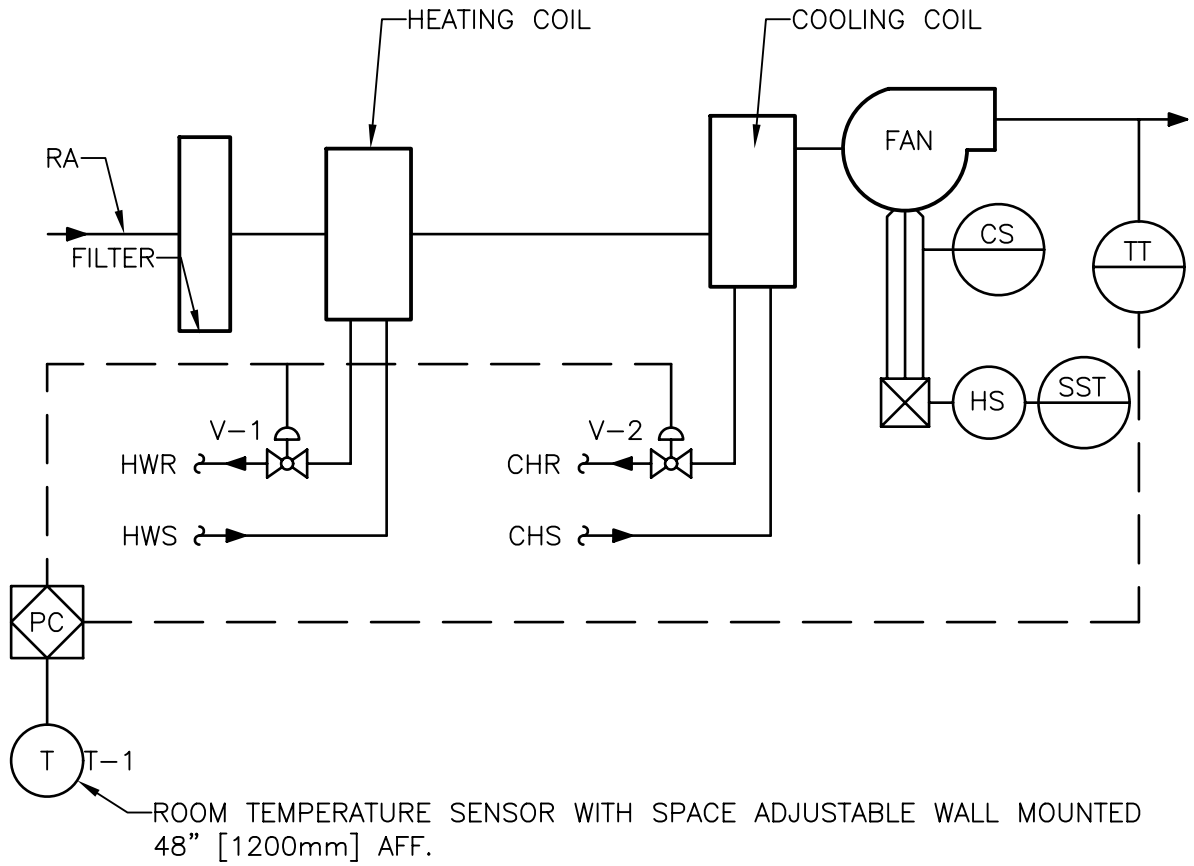
DATE ISSUED : DECEMBER 2008 CADD DETAIL NO. : SD238200-02.DWG

FAN COIL SEQUENCE OF OPERATION (PATIENT ROOMS)

FAN COIL UNIT SHALL OPERATE ON A SCHEDULE AS SET BY THE ECC. FAN SHALL RUN CONTINUOUSLY. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN. THE ADJUSTABLE ROOM TEMP SET POINT WILL BE 70°–75° WITH 0.5° HEATING/COOLING OFFSETS. VALVE V–1 & V–2 WILL NOT BE OPEN SIMULTANEOUSLY. ROOM OCCUPANT WILL HAVE ABILITY OF ADJUSTING ROOM TEMPERATURE BETWEEN 70°–75°.

FAN COIL SEQUENCE OF OPERATION (NONPATIENT ROOMS)

FAN COIL SHALL OPERATE ON A SCHEDULE AS SET BY ECC. FAN SHALL RUN CONTINUOUSLY IN OCCUPIED MODE. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE SHALL BE GENERATED IN THE EVENT THE UNIT FAILS TO RUN BETWEEN THE RANGE OF 70°–75° SPACE TEMPERATURE BOTH V–1 & V–2 SHALL BE CLOSED. UPON RISE IN TEMPERATURE ABOVE 75° V–2 SHALL MODULATE OPEN TO MAINTAIN 75° F. UPON FALL IN TEMPERATURE BELOW 70° F. HEATING VALVE V–1 SHALL MODULATE TO OPEN TO MAINTAIN 70° F.



FOUR PIPE FAN COIL UNIT CONTROLS

#

NTS

Department of Veterans Affairs

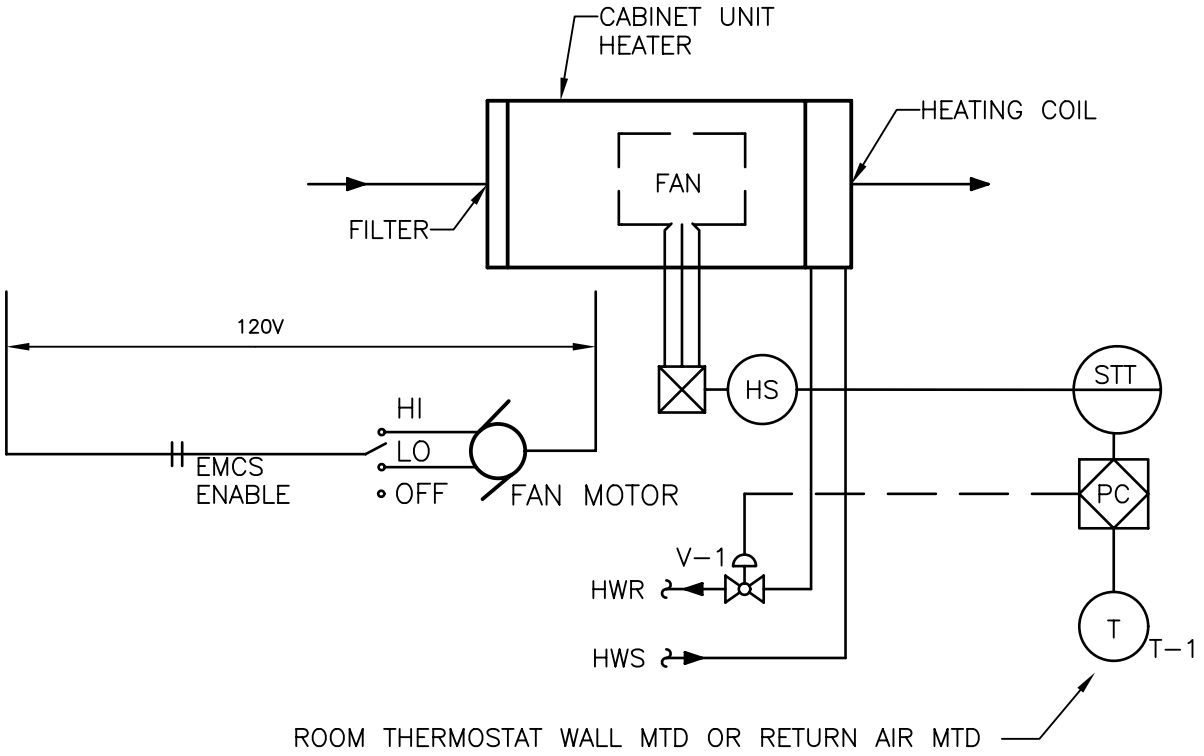
DETAIL TITLE / FOUR PIPE FAN COIL UNIT CONTROLS

SCALE :NONE

DATE ISSUED : DECEMBER 2008 CADD DETAIL NO. : SD238200–03.DWG

HOT WATER CABINET UNIT HEATER SEQUENCE

1. CABINET HEATER SHALL OPERATE ON A SCHEDULE AS SET BY THE ECC. FAN STATUS SHALL BE MONITORED AND AN ALARM MESSAGE GENERATED IN THE EVENT THE UNIT FAILS TO RUN. THE ROOM TEMP SETPOINT WILL BE 74° (ADJ). THE HOT WATER VALVE WILL BE ENABLED AS REQUIRED TO MAINTAIN SPACE TEMP SETPOINT. HI/LO/OFF SWITCH WILL ALLOW LOCAL FAN SPEED ADJUSTMENT.



HOT WATER CABINET UNIT CONTROLS

NTS

DESIGNER'S NOTES:

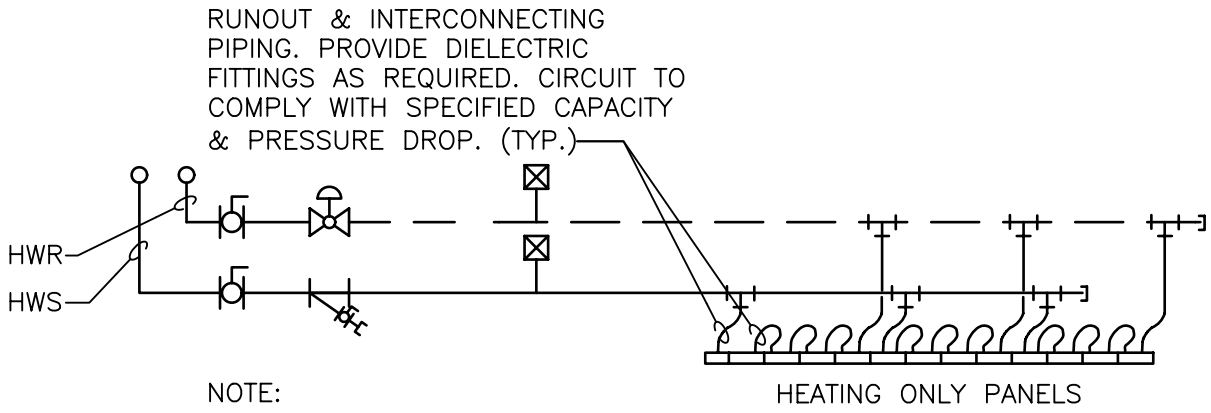
1. CONNECT TO ECC NETWORK IS OPTIONAL.
2. PROVIDE NON-DDC CLOSED LOOP AUTOMATIC TEMPERATURE CONTROLS FOR THE HOT WATER CABINET UNIT HEATER. COORDINATE THE INTERFACE, IF ANY, WITH THE DDC SYSTEM FOR APPLICATIONS SUCH AS ALARM INDICATION WITH PROJECT SCOPE OF WORK.
3. PROVIDE A STEP CONTROL FOR NON-CRITICAL APPLICATIONS. WHEN TEMPERATURE FALLS BELOW SET POINT, THE CABINET UNIT HEATER SHALL BE ENERGIZED AND THE TWO-POSITION, TWO-WAY VALVE SHALL OPEN.

Department of Veterans Affairs

DETAIL TITLE / HOT WATER CABINET UNIT CONTROLS

SCALE :NONE

DATE ISSUED :DECEMBER 2008 CADD DETAIL NO. : SD238200-04.DWG



HYDRONIC RADIANT CEILING PANELS - PIPING CONNECTIONS

#

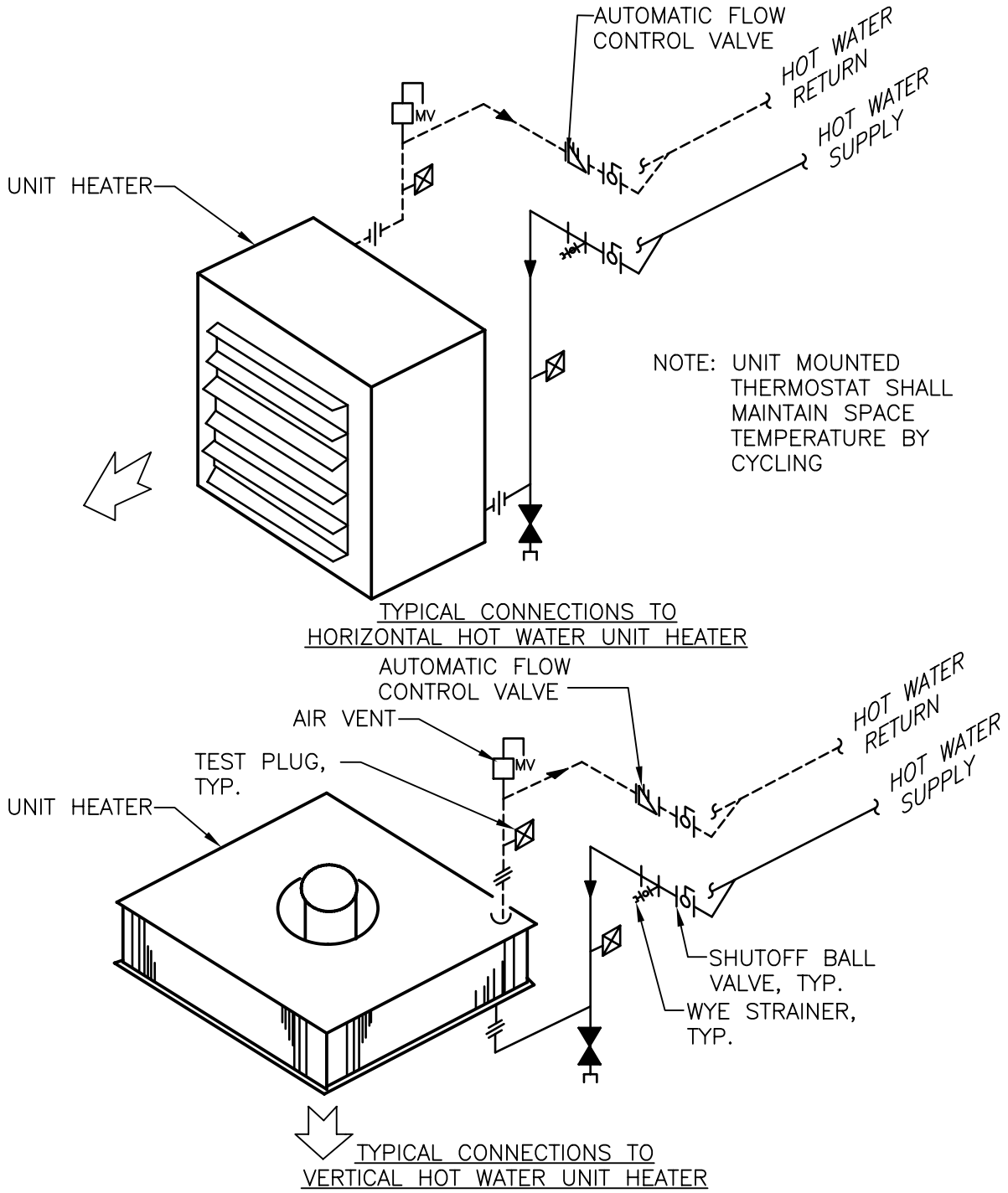
NTS

Department of Veterans Affairs

DETAIL TITLE / HYDRONIC RADIANT CEILING PANELS - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD238200-05.DWG



UNIT HEATERS (HOT WATER) - PIPING CONNECTIONS

#

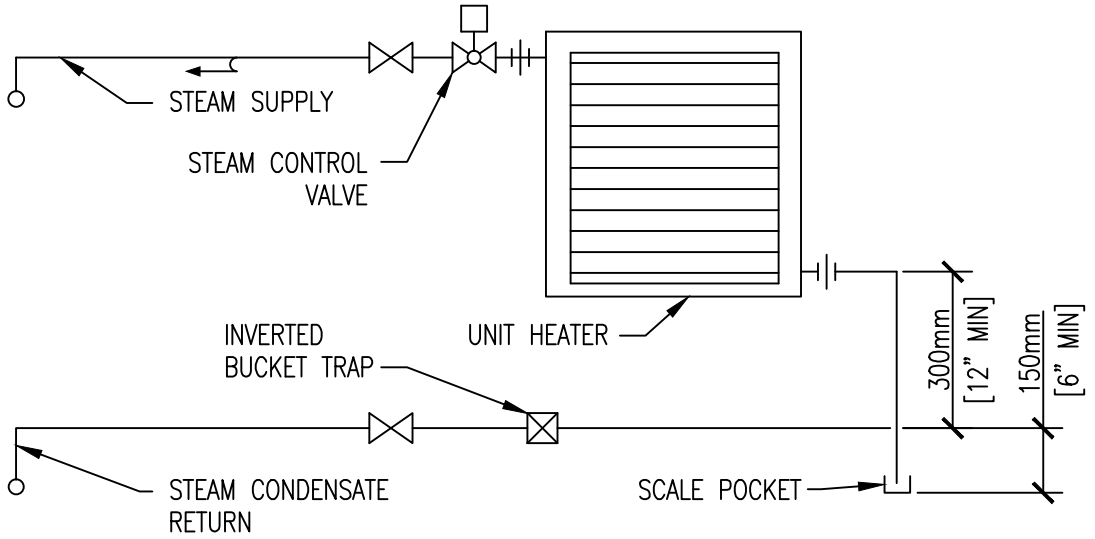
NTS

Department of Veterans Affairs

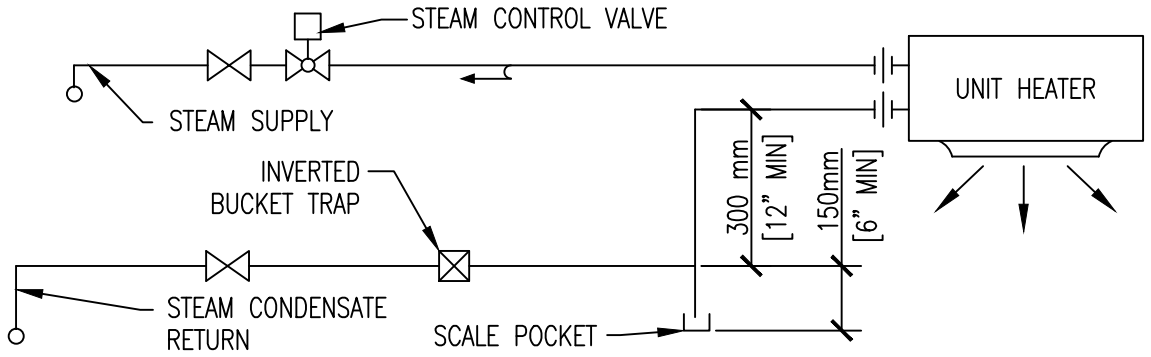
DETAIL TITLE / UNIT HEATERS (HOT WATER) - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: DECEMBER 2008 CAD DETAIL NO.: SD238200-06.DWG



PIPING CONNECTIONS TO HORIZONTAL TYPE STEAM UNIT HEATER



PIPING CONNECTIONS TO VERTICAL TYPE STEAM UNIT HEATER

NOTE:
UNIT MOUNTED THERMOSTAT SHALL MAINTAIN SPACE TEMPERATURE AS INDICATED IN CONTROL SEQUENCE OR HVAC CONTROL DRAWINGS.

UNIT HEATERS (STEAM) PIPING CONNECTIONS

#

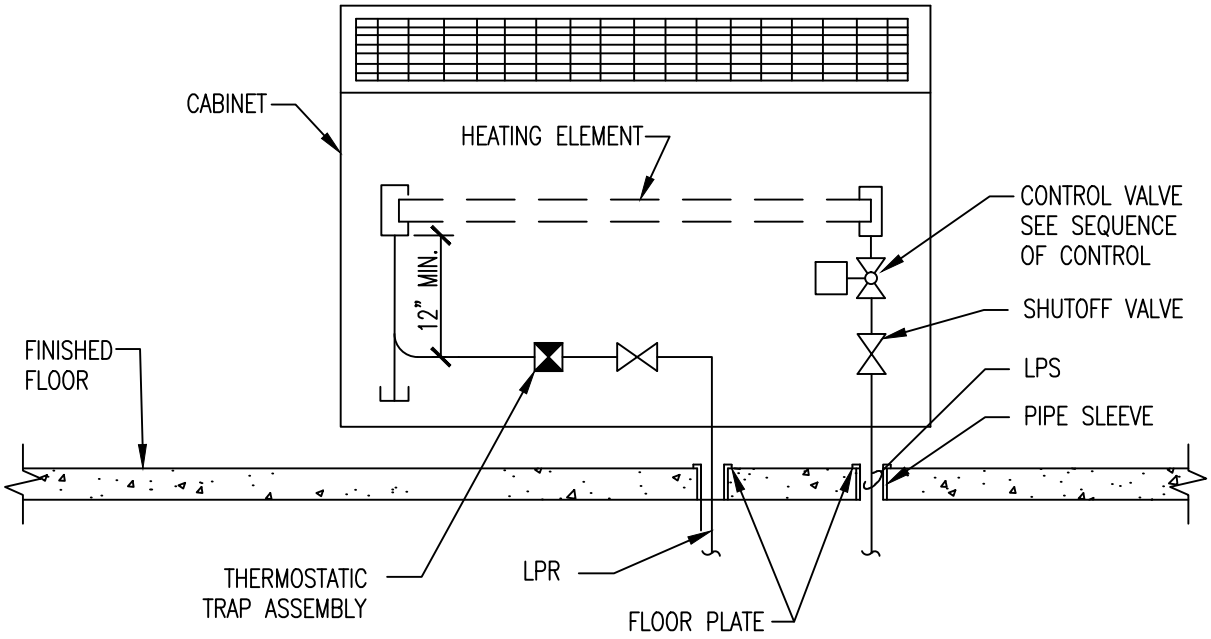
NTS

Department of Veterans Affairs

DETAIL TITLE: UNIT HEATERS (STEAM) PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD238200-07.DWG



DESIGNER'S NOTE:
USE THIS DETAIL WHEN THE CONVECTOR (OR STEAM RADIATOR) IS USED IN CONJUNCTION WITH AN AIR TERMINAL UNIT TO SERVE AN OCCUPIED SPACE, REPLACE RADIATOR VALVE WITH A STEAM CONTROL VALVE AND CONTROL SPACE WITH COMMON THERMOSTAT.

CONVECTOR-STEAM PIPING CONNECTION

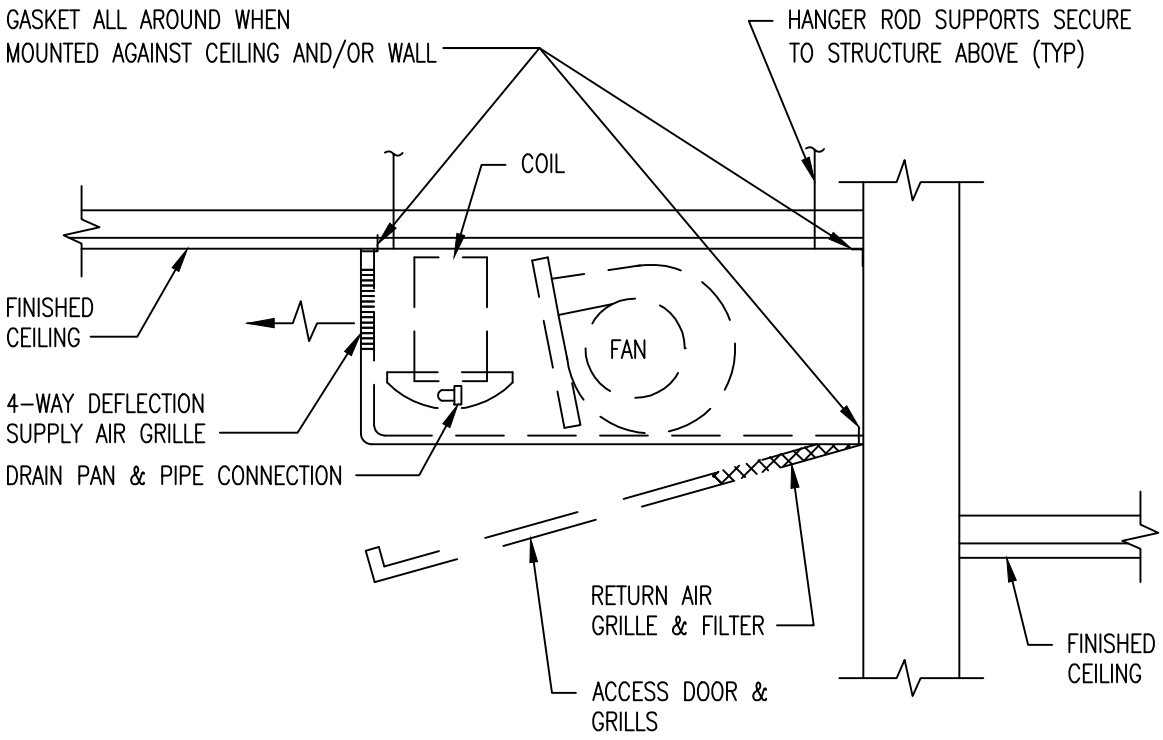
NTS

Department of Veterans Affairs

DETAIL TITLE: CONVECTOR-STEAM PIPING CONNECTION

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD238200-08.DWG



NOTE:
UNLESS OTHERWISE NOTED, ALL UNITS SHALL BE MOUNTED AGAINST FINISHED CEILING.

FAN COIL UNIT - HORIZONTAL EXPOSED

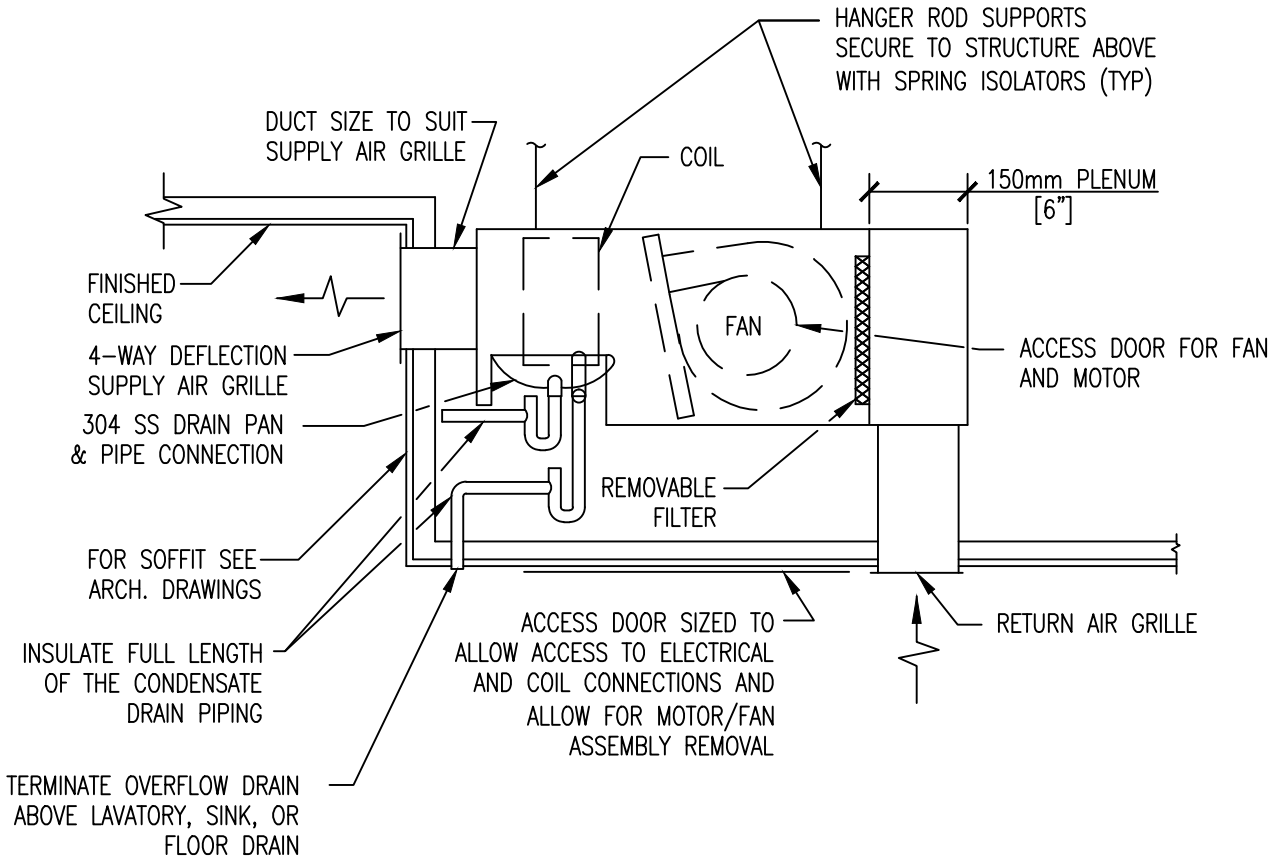
NTS

Department of Veterans Affairs

DETAIL TITLE: FAN COIL UNIT – HORIZONTAL EXPOSED

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD238200-09.DWG



NOTES:

1. 150mm [6"] PLENUM AS SHOWN SHALL BE SUPPLIED BY MANUFACTURER OF FAN COIL UNIT.
2. SEE DETAIL SD2382216-01 FOR SUPPLY & RETURN PIPING CONNECTIONS.
3. PROVIDE ACCESS FOR FILTER REMOVAL.
4. SEE FAN COIL UNIT SCHEDULE FOR PIPE SIZES.
5. SUPPLY & RETURN GRILLES SHALL BE SIZED TO SUIT CONNECTIONS ON FAN COIL UNIT. DUCTWORK SHALL SUIT GRILLES AND FAN COIL UNIT FURNISHED.

FAN COIL UNIT - HORIZONTAL CONCEALED

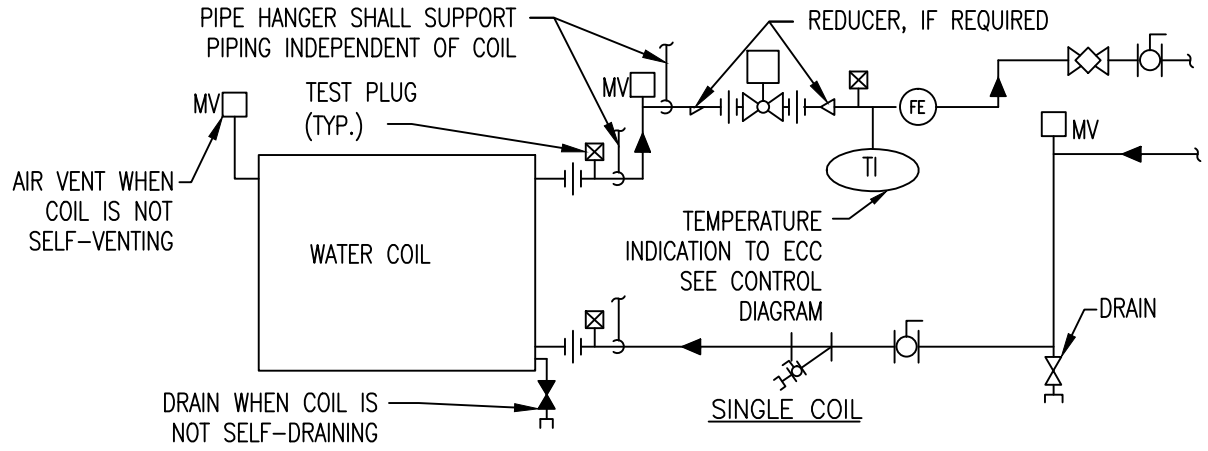
NTS

Department of Veterans Affairs

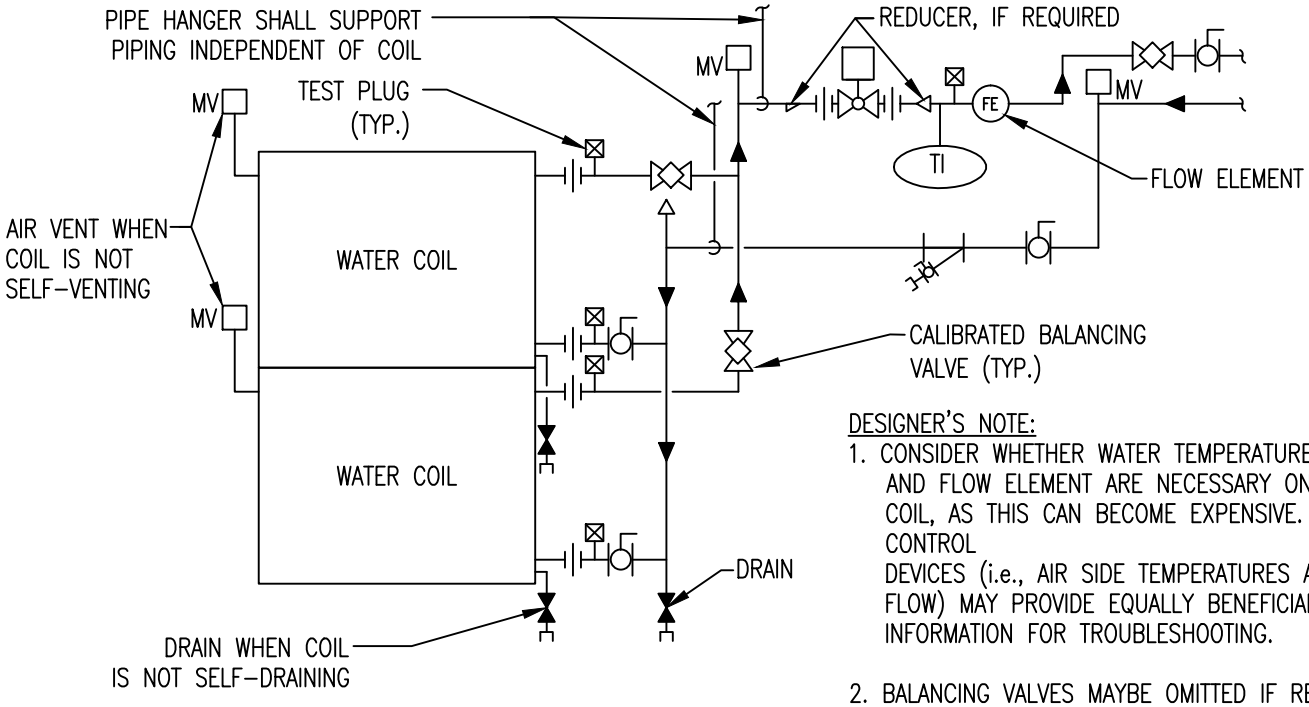
DETAIL TITLE: FAN COIL UNIT – HORIZONTAL CONCEALED

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD238200-10.DWG



SINGLE COIL



DOUBLE COIL

DESIGNER'S NOTE:

1. CONSIDER WHETHER WATER TEMPERATURE SENSOR AND FLOW ELEMENT ARE NECESSARY ON EVERY COIL, AS THIS CAN BECOME EXPENSIVE. OTHER CONTROL DEVICES (i.e., AIR SIDE TEMPERATURES AND AIR FLOW) MAY PROVIDE EQUALLY BENEFICIAL INFORMATION FOR TROUBLESHOOTING.

2. BALANCING VALVES MAYBE OMITTED IF REVERSE PIPING PROVIDED.

NOTES:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 100mm [4"]ø PIPE & SMALLER. TYPE "H-P" FOR 125mm [5"]ø PIPE & LARGER.

2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.

3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

WATER COILS - PIPING CONNECTIONS

#

NTS

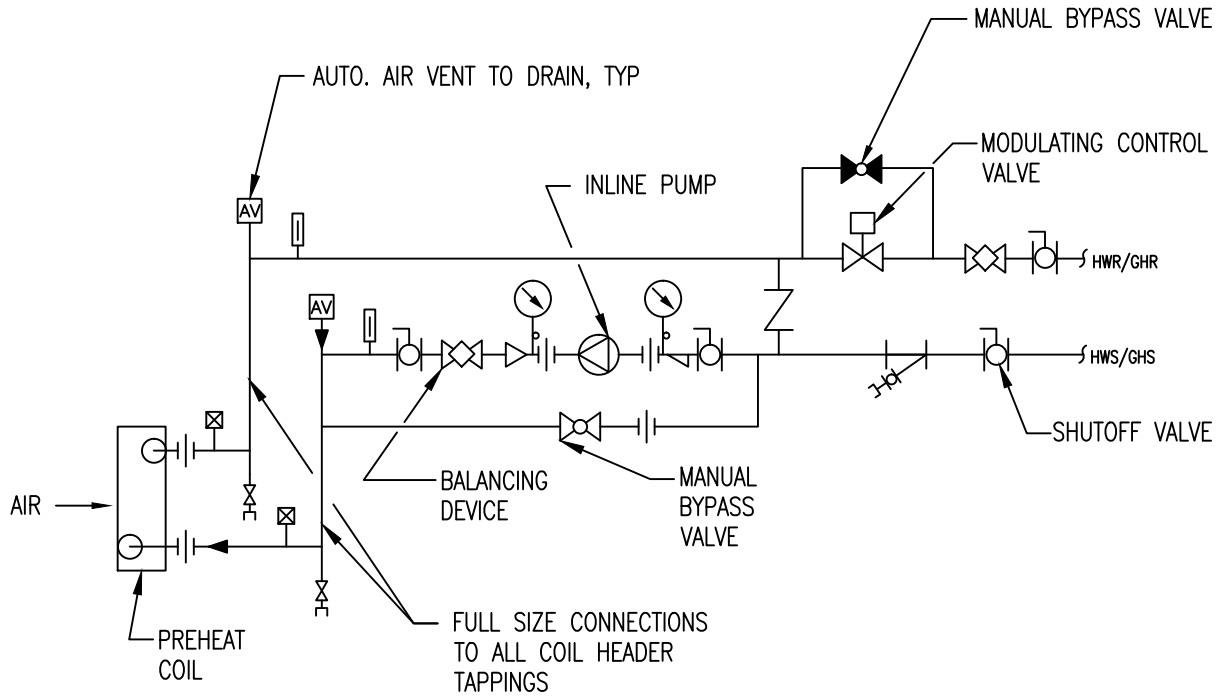
Department of Veterans Affairs

DETAIL TITLE: WATER COILS - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: 11/01/2017 CAD DETAIL NO.: SD238216-01.DWG

Department of Veterans Affairs



NOTE:
SIZE AND SELECT COIL FOR PARALLEL FLOW AND MINIMUM TUBE WATER VELOCITY OF .91 M/S [3.0 FPS]

DESIGNER'S NOTE:
1. COORDINATE WITH HVAC DESIGN MANUAL.
2. CONSIDER REMOVING MANUAL BYPASS, BECAUSE CONTROL VALVES ARE REASONABLY RELIABLE AND THE PRESENCE OF THE BYPASS MAY ENCOURAGE POSTPONING REPAIRS, THEREBY LESSENING THE EFFECTIVENESS OF VARIABLE SPEED PUMPING SYSTEMS

PREHEAT COIL (HOT WATER) - PIPING CONNECTIONS

NTS

DETAIL TITLE: PREHEAT COIL (HOT WATER) - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: 11/01/2017

CAD DETAIL NO.: SD238216-02.DWG

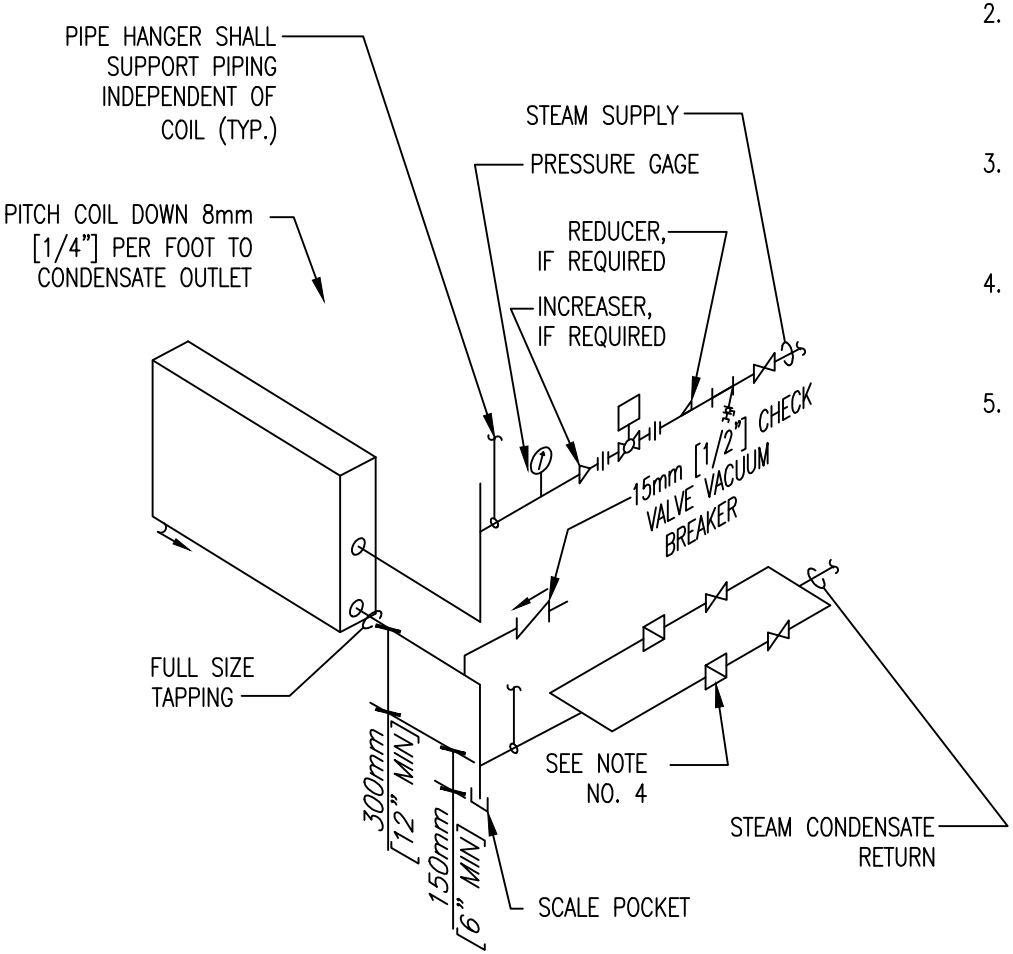
Department of Veterans Affairs

DETAIL TITLE: STEAM COIL - PIPING CONNECTIONS

SCALE :NONE

DATE ISSUED: 11/01/2017

CAD DETAIL NO.: SD238216-03.DWG



NOTES:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO COIL SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. TWO TRAP ASSEMBLIES IN PARALLEL ARE SHOWN. TWO TRAPS REQUIRED WHEN CONDENSATE LOAD IS 2400 KG/HR [5,000 LBS/HR] OR GREATER.
5. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. REHEAT COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.

DESIGNER'S NOTE:

FOR VACUUM RETURN SYSTEMS CONNECT 15mm [1/2"] CHECK VALVE VACUUM BREAKER INTO DISCHARGE SIDE OF TRAP SET. CHANGE F & T TRAP SET TO SHOW PIPING LOCATION CONNECTION.

STEAM COIL - PIPING CONNECTIONS

NTS