ABBREVIATIONS

Abbreviation	Meaning
A/E	ARCHITECT / ENGINEER
AAHX	AIR TO AIR HEAT EXCHANGER
AB	AIR BLENDER
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCH	AIR COOLED CHILLER
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
ACD	AUTOMATIC CONTROL DAMPER,MODULATING
ACD-TP	AUTOMATIC CONTROL DAMPER,TWO POSITION
AD	ACCESS DOOR
AF	AFTER FILTER
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AFW	AIR FOIL WHEEL (FAN)
AHU	AIR-HANDLING UNIT
AMP	AMPERGE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AW	AIR WASHER
AXF	AXIAL FLOW
B	BOILER
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BDR	BASE BOARD RADIATOR
BFP	BACKFLOW PREVENTER
BFT	BOILER PLANT FIRE TUBE
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BHW	HOT WATER HEATING BOILER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BIW	BACKWARD INCLINED WHEEL (FAN)
BMT	BONE MARROW TRANSPLANT
BR	BOTTOM REGISTER
BSC	BIOLOGICAL SAFETY CABINETS
BT	BLOWOFF TANK
BTC	BLOWOFF TANK CONTROL VALVE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWT	BOILER PLANT WATER TUBE
C	CENTIGRADE (CELCIUS)
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD-1	CONSTRUCTION DOCUMENTS (SUBMISSION1)
CD-2	CONSTRUCTION DOCUMENTS (SUBMISSION2)
CENT	CENTRIFICAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CG	CEILING GRILLE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHW	CHILLER WATER
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CM	CARBON MONOXIDE
CM	CUBIC METER
CM/S	CUBIC METER PER SECOND
CO	CLEAN OUT
CO2	CARBON DIOXODE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CS	CONDENSATE STORAGE TANK
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CW	COLD WATER (POTABLE)
CWCC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DAMPER - AUTOMATIC
D-1	OUTDOOR AIR DAMPER
D-2	RETURN AIR DAMPER
D-3	RELIEF AIR DAMPER
DB	DECIBELS
Db	DRY-BULB TEMPERATURE
DD-1	DESIGN DEVELOPMENT (SUBMISSION1)
DD-2	DESIGN DEVELOPMENT (SUBMISSION2)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DF	DIFFUSER
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DP	DIFFUSER PLATE
DPA	DIFFERENTIAL PRESSURE ASSEMBLY
DPS	DIFFERENTIAL PRESSURE SENSOR
DX	DIRECT EXPANSION
DXCC	DIRECT EXPANSION COOLING COIL
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE COOLER
ECC	ENGINEERING CONTROL CENTER
ECU	EVAPORATIVE CONDENSER UNIT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EGS	EMERGENCY GAS SHUTOFF
EGT	ENTERING GLYCOL TEMPERATURE
EH	EXHAUST HOOD
EJ	EXPANSION JOINT
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRIC RADIANT PANEL
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETO	ETHYLENE OXIDE
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
F/SDPR	COMBINATION FIRE SMOKE DAMPER
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT (4 PIPE)
FCUC	FAN COIL UNIT COOLING ONLY
FCUH	FAN COIL UNIT HEATING ONLY
FCW	FORWARD CURVED WHEEL (FAN)
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FOP	FUEL OIL PUMP
FOT	FUEL OIL TANK
FOHX	FUEL OIL HEAT EXCHANGER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FR	FLOOR REGISTER
FRP	FIBER REINFORCED POLYESTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT-LB	FOOT-POUND
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLONS
GH	GRAVITY HOOD
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GS	GALVANIZED STEEL
H	HUMIDIFER
H&CW	HOT & COLD WATER
HAC	HOUSEKEEPING AID CLOSET
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HD	HOOD
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HPDT	HIGH PRESSURE DRIP TRAP
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HPS	HIGH PRESSURE SUPPLY (STEAM)
HRC	HEAT RECOVERY COIL
HRD	HEAT RECOVERY DEVICE
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRW	HEAT RECOVERY WHEEL
HSTAT	HUMIDISTAT
HTM	HUMIDIFIER TERMINAL
HUM	HUMIDIFIER UNIT MOUNTED
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWC	HOT WATER COIL
HWHC	HOT WATER HEATING COIL
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWUH	HOT WATER UNIT HEATER
HVD	HOISTWAY VENT DAMPER
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN-LINE CENTRIFUGAL FAN
ICU	INTENSIVE CARE UNIT
ID	INSIDE DIAMETER
IFB	INTEGRAL FACE AND BYPASS
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
IPLV	INTERGRATED PART LOAD VALUE
IRH	INTRARED HEATER
IS	INSECT SCREEN
IU	INDUCTION UNIT
IV	INLET VANES
J	INTENTIALLY LEFT BLANK
kg	KILOGRAM
kg/HR	KILOGRAM PER HOUR
kPa	KILOPASCAL
kW	KILOWATT
kWh	KILOWATT HOUR
L	LITER
L/h	LITERS PER HOUR (OR LITERS/HOUR)
L/m	LITERS PER MINUTE (OR LITERS/MINUTE)
L/s	LITERS PER SECOND (OR LITERS/SECOND)
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LGT	LEAVING GLYCOL TEMPERATURE
LH	LATENT HEAT
LPG	LIQUID PROPANE GAS
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPRC	LOW PRESSURE STEAM RETURN (CLEAN)
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
LPS	LOW PRESSURE STEAM
LPSC	LOW PRESSURE STEAM (CLEAN)
LSD	LINEAR SLOT DIFFUSER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
M	METER, SI UNIT
M/s	METERS PER SECOND (OR METERS/SECOND)
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOV	MOTOR OPERATED VALVE
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MTD	MEAN TEMPERATURE DIFFERENCE
MVD	MANUAL VOLUME DAMPER
MZ	MULTI-ZONE
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NGFM	NATURAL GAS FLOWMETER
NO	NORMALLY OPEN
NOM	NOMINAL
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAG	OUTSIDE AIR GRILLE
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
OR	OPERATING ROOM
P	PUMP
PA	PASCAL
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PEF	PROPELLER (TYPE) EXHAUST FAN
PF	PRE-FILTER
PG	PRESSURE GAGE
PGW	PROPYLENE GLYCOL-WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
PSS	PRIMARY SECONDARY SYSTEM
PSV	PRESSURE SAFETY VALVE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
R/E	RETURN OR EXHAUST
RA	RETURN AIR
RAD	REFRIGERANT AIR DRYER
RAF	RADIO FREQUENCY
RAHX	ROTARY AIR HEAT EXCHANGER
RAT	RETURN AIR TEMPERATURE
RCCH	REMOTE CONDENSER CHILLER
RCU	RECIPROCATING CHILLER UNIT
RD	REFRIGERANT DISCHARGE
RDS	ROOM DATA SHEETS
REA	RELIEF AIR
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCI	SPINAL CODE INJURY
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SD	SUPPLY AIR DIFFUSER
SD-1	SCHEMATIC DESIGN (SUBMISSION1)
SD-2	SCHEMATIC DESIGN (SUBMISSION2)
SDPR	SMOKE DAMPER
SDR	SMOKE DAMPER (RETURN)
SDS	SMOKE DAMPER (SUPPLY)
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SI	SQUARE INCHES
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPD	SUPPLY PROCESS AND DISTRIBUTION
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SQ FT	SQUARE FOOT (FEET)
SR	SUPPLY AIR REGISTER
SS	STAINLESS STEEL
SSHX	STEAM TO STEAM HEAT EXCHANGER
SSR	SOLID SEPARATOR
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SV	STEAM PRESSURE REDUCING VALVE
SVS	STEAM VENT SILENCER
SWHX	STEAM TO WATER HEAT EXCHANGER
T & PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TG	TRANSFER GRILLE
TP	TRAP
TR	TOP REGISTER
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
TWU	THRU-WALL UNIT
UC	UNDER CUT
UC	UNIT COOLER
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
URV	UPBLAST UNIT VENTILATOR
V	VALVE
VAF	VANE-AXIAL FAN
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
VHA	VETERANS HEALTH ADMINISTRATION
VI	VIBRATION ISOLATOR
VIV	VARIABLE INLET VANES
VP	VACUUM PUMP
VPS	VARIABLE PRIMARY SYSTEM
VR	VACUUM (STEAM CONDENSATE) RETURN
VSD	VARIABLE SPEED DRIVE
VUH	VERTICAL UNIT HEATER
W	WATTS
WAG	WASTE ANETHESIA GAS
Wb	WET-BULB (TEMPERATURE)
WC	WATER COOLED
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WEF	WALL EXHAUST FAN
WF	WATER FILTER
WFCV	WATER FLOW CONTROL VALVE
WFM	WATER FLOWMETER
WFMD	WATER FLOW MEASURING DEVICE
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP

SYMBOL LEGEND

Symbol	Description
2 / H4	DETAIL DESIGNATION — DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
A / H7	SECTION DESIGNATION — SECTION LETTER; DRAWING NUMBER WHERE SHOWN
26-SF 3	BUILDING NO. WHERE EQUIPMENT IS LOCATED. EQUIPMENT ABBREVIATION (SUPPLY FAN) SUPPLY FAN NO. 3 IN BUILDING NO. 26 TYPICAL UNIT NO.
26-TU-I-I	BUILDING NO. WHERE EQUIPMENT IS LOCATED ITEM (TERMINAL UNIT SHOWN) ITEM NUMBER (TERMINAL UNIT NO. 1) SERVED BY AIR HANDLER UNIT NO. 1
UP / DN	SUPPLY DUCT (UP & DOWN)
UP / DN	EXHAUST DUCT (UP & DOWN)
UP / DN	RETURN DUCT (UP & DOWN)
	ROUND AND SQUARE 4-WAY CEILING DIFFUSERS
	SQUARE 3-WAY CEILING DIFFUSERS
	SQUARE 2-WAY CEILING DIFFUSERS
	SQUARE 1-WAY CEILING DIFFUSERS
	LINEAR SLOT DIFFUSER
	SUPPLY TOP REGISTER OR GRILLE (WALL TYPE)
	EXHAUST OR RETURN CEILING REGISTER OR GRILLE
	EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE (WALL TYPE)
	EXHAUST OR RETURN REGISTER OR TOP GRILLE (WALL TYPE)
	VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
	CONNECT NEW DUCT TO EXISTING DUCT
R	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	INCLINED DROP, IN DIRECTION OF AIR FLOW
	LIMIT OF DEMOLITION
FC	FLEXIBLE CONNECTION, EQUIPMENT, VIBRATION, OR SEISMIC
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
	VANED ELBOW (SHORT RADIUS)
	STANDARD RADIUS ELBOW (LONG RADIUS)
10x8	NEW DUCT (INSIDE DIM: WIDTH x DEPTH)
	EXISTING DUCT TO REMAIN
	EXISTING DUCT TO BE REMOVED
	LOUVER (LOUVER SPECIFIED IN ARCHITECTURAL SECTION.)
	FLEXIBLE DUCTWORK (INSULATED)
	DUCT WITH SOUND LINING
VD	MANUAL VOLUME DAMPER
FD	FIRE DAMPER
BDD	BACK DRAFT DAMPER
F/S DPR, N	COMBINATION FIRE/SMOKE DAMPER
2 1, 4, 1/2	POINT OF CHANGE IN DUCT CONSTRUCTION BY STATIC PRESSURE CLASS. THE NUMBER ASSIGNS PRESSURE CLASS (IN. OF WATER) WHICH WILL ACCOMMODATE MAXIMUM OPERATING PRESSURE IN THE DUCT SUBSECTION. THE SYMBOL CONT. THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. A "N" SUPERSCRIPT INDICATES NEGATIVE PRESSURE.
	AUTOMATIC CONTROL DAMPER MODULATING
	AUTOMATIC CONTROL DAMPER TWO POSITION
	STAINLESS STEEL DUCT
	MANUAL SPLITTER DAMPER

SYMBOL LEGEND

Symbol	Description
45° SUPPLY / 45° RETURN	STANDARD BRANCH SUPPLY OR RETURN, NO SPLITTER (45° TAP)
	DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
	DUCT MOUNTED COIL (ELECTRIC)
	CONVECTOR OR RADIATOR (RECESSED)
	CONVECTOR OR RADIATOR (WALL HUNG)
A FCU	FLOOR MOUNTED VERTICAL RECESSED FAN COIL UNIT. LETTER INDICATES UNIT SIZE.
A FCU	FLOOR MOUNTED VERTICAL CABINET FAN COIL UNIT. LETTER INDICATES UNIT SIZE.
A TWU	THRU WALL AIR CONDITIONING UNIT. LETTER INDICATES UNIT SIZE.
A PTAC	WINDOW TYPE AIR CONDITIONING UNIT. LETTER INDICATES UNIT SIZE.
A PTAC	FLOOR MOUNTED HEAT PUMP. LETTER INDICATES UNIT SIZE.
	AIR CURTAIN
	UNIT HEATER (HORIZONTAL)
	UNIT HEATER (VERTICAL)
	2'x2' RADIANT CEILING PANEL
	2'x4' RADIANT CEILING PANEL
	TERMINAL UNIT WITH REHEAT COIL
MB	DOUBLE DUCT MIXING BOX.
	FAN POWERED VARIABLE VOLUME TERMINAL UNIT WITH HEATING COIL.
HPS	HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM (16 PSIG TO 59 PSIG)
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM (15 PSIG AND BELOW)
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
PC	CONDENSATE PUMP DISCHARGE
HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GHR	GLYCOL-WATER HEATING RETURN
SWS	SOLAR WATER SUPPLY
SWR	SOLAR WATER RETURN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RHG	REFRIGERANT HOT GAS
CWS	CONDENSER WATER SUPPLY (FROM TOWER)
CWR	CONDENSER WATER RETURN (TO TOWER)
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
GCS	CHILLED GLYCOL-WATER SUPPLY
GCR	CHILLED GLYCOL-WATER RETURN
MW	MAKE-UP WATER
D	DRAIN LINE
V	VENT LINE
GRS	GLYCOL-WATER RUN AROUND SUPPLY
GRR	GLYCOL-WATER RUN AROUND RETURN
X	EXISTING PIPE TO BE REMOVED
FWPD	FEEDWATER PUMP DISCHARGE
FWPS	FEEDWATER PUMP SUCTION
CTPD	CONDENSATE TRANSFER PUMP DISCHARGE
CTPS	CONDENSATE TRANSFER PUMP SUCTION
VR	VACUUM CONDENSATE RETURN
TC	TUBE CLEANER WATER SUPPLY
BO	BOILER BLOWOFF
CBD	CONTINUOUS BLOWDOWN
BWS	BOILER WATER SAMPLE
FWS	FEEDWATER SAMPLE (FROM DEAERATOR)
CF	CHEMICAL FEED
OFL	OVERFLOW
A	COMPRESSED AIR
G	NATURAL GAS MAIN FUEL
G(I)	NATURAL GAS IGNITER FUEL
LPG(I)	LIQUEFIED PETROLEUM GAS IGNITER FUEL
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
CW	COLD WATER (CITY WATER)
SW	SOFTENED WATER
HW	HOT WATER

SYMBOL LEGEND

Symbol	Description
RH	ROLLER-TYPE HANGER
SH	VARIABLE SPRING-TYPE HANGER (TYPE 51)*
SCH	SPRING CUSHION-TYPE HANGER (TYPE 48 OR 49)*
	CLEVIS-TYPE HANGER
TH	TRAPEZE HANGER (PROVIDE U-BOLT PIPE ATTACHMENT TO TRAPEZE EXCEPT WHERE RH ARE INDICATED)
PS	FLOOR-SUPPORTED PIPE STAND
RC	RISER CLAMP (TYPE 42)*
WB	WALL BRACKET (TYPE 31, 32, 33)*
CSH	CONSTANT SUPPORT HANGER (TYPE 54, 55, 56)*
SS	SLIDING SUPPORTS (TYPE 35)*

* TYPE NUMBERS REFER TO MANUFACTURER'S STANDARDIZATION SOCIETY STANDARD PRACTICE SP-58

Symbol	Description
	DIRECTION OF PIPE PITCH (DOWN)
	DIRECTION OF FLOW
	ANCHOR
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	PIPE UP
	PIPE DOWN
	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
	THERMOMETER
	PRESSURE GAGE
FE	FLOW ELEMENT
	REFRIGERANT SIGHT GLASS
	TEST PLUG (PRESSURE/TEMPERATURE)
AV	AUTOMATIC AIR VENT
MV	MANUAL AIR VENT
	QUICK-COUPLE HOSE CONNECTOR
	GATE VALVE - THREADED/FLANGED
	GLOBE VALVE - THREADED/FLANGED
	GATE VALVE WITH 3/4" HOSE ADAPTER
	CHECK VALVE
	WYE STRAINER (WITH BALL VALVE & HOSE CONN.)
	WYE STRAINER WITH VALVED DRAIN AND QUICK-COUPLE HOSE CONNECTOR
	FLEXIBLE CONNECTION
	ANGLE GLOBE VALVE
	BUTTERFLY VALVE
	BALL VALVE
	MODULATING CONTROL VALVE
	MODULATING CONTROL BUTTERFLY VALVE
	TWO POSITION CONTROL VALVE
	THREE-WAY MODULATING CONTROL VALVE
	THREE-WAY TWO POSITION CONTROL VALVE
	PRESSURE REGULATING VALVE
	PRESSURE SAFETY VALVE
	AUTOMATIC BALANCING CONTROL VALVE
	WATER BALANCE DEVICE
	CIRCUIT SETTER VALVE
	GATE VALVE WITH GLOBE-VALVED BYPASS
	PLUG VALVE
	CONTROL VALVE (CV) – FLOAT–OPERATED
	PRESSURE REDUCING VALVE (PRV)
LC	WATER LEVEL CONTROLLER
M	FLOW METER
T	ROOM THERMOSTAT/TRANSMITTER - WALL MOUNT
M	ROOM HUMIDISTAT/TRANSMITTER - WALL MOUNT
TT	TEMPERATURE TRANSMITTER
TT	TEMPERATURE TRANSMITTER, AVERAGING ELEMENT
MT	MOISTURE (HUMIDITY) TRANSMITTER
PT	PRESSURE TRANSMITTER
SPS	STATIC PRESSURE SENSOR
FT	FLOW TRANSMITTER
IT	CURRENT TRANSMITTER
CT	CONDUCTIVITY TRANSMITTER
SD	SMOKE DETECTOR

SYMBOL LEGEND

Symbol	Description
PDT	PRESSURE DIFFERENTIAL TRANSMITTER
PDS	PRESSURE DIFFERENTIAL SWITCH
HS	HAND SWITCH (HAND-OFF-AUTO SWITCH)
ZC	VALVE OR DAMPER POSITION CONTROLLER
KR	LOCAL RECORDING TIME CLOCK (RUNTIME)
TSL	TEMPERATURE SWITCH, LOW (FREEZESTAT)
TSH	TEMPERATURE SWITCH, HIGH (FREEZESTAT)
LC	LEVEL CONTROLLER
LT	LEVEL TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
EPT	ELECTRONIC TO PNEUMATIC TRANSDUCER
AT CO2	CARBON DIOXIDE TRANSMITTER
AT CO	CARBON MONOXIDE TRANSMITTER
AT OC	OCCUPANCY SENSOR
LTCP	LOCAL TEMPERATURE CONTROL PANEL
HVAC	HVAC CONTROL PANEL
VSMC	VARIABLE SPEED MOTOR CONTROLLER
ECC	INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER
TC	TEMPERATURE CONTROLLER. SEE SEQUENCE OF OPERATION
PC	PRESSURE CONTROLLER. SEE SEQUENCE OF OPERATION
SC	SPEED CONTROLLER. SEE SEQUENCE OF OPERATION
FC	FLOW CONTROLLER. SEE SEQUENCE OF OPERATION
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
KC	TIME CLOCK CONTROLLING EQUIPMENT ON A SCHEDULE
	TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO EMCS (PROVIDE 12 INCHES [200mm] MINIMUM LENGTH IN DUCT WHEN SPACE PERMITS.)
A	SENSOR WITH AVERAGING ELEMENT TO TRANSMIT TEMPERATURE TO EMCS
	MOTOR STARTER
M	ELECTRIC OPERATED CONTROL DAMPER/OR VALVE

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. IN THE EVENT OF A DISCREPANCY BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS, THE MOST STRINGENT SHALL GOVERN.
3. INSTALL ALL PIPING AND DUCTWORK TO AVOID ARCHITECTURAL FRAMING, STRUCTURAL MEMBERS, AND OTHER OBSTRUCTIONS. COORDINATE PIPING AND DUCTWORK LOCATION WITH ALL APPLICABLE CONTRACT DRAWINGS PRIOR TO PLACING SLEEVES IN FLOORS OR WALLS.
4. INSTALL ALL PIPING AND DUCTWORK TO BEST SUIT FIELD CONDITIONS AND COORDINATE WITH THE INSTALLATION WORK OF OTHER TRADES. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATIONS OF PIPING OR DUCTWORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT DIFFUSER LOCATIONS AND FINISHED CEILING.
6. COORDINATE DUCTWORK, PIPING WITH STRUCTURAL DRAWINGS, LIGHTING AND SPRINKLER SYSTEM. PROVIDE TRANSITIONS AS REQUIRED.
7. CONTRACTOR TO COORDINATE WITH ARCHITECTS CEILING ACCESS PANELS FOR ALL FIRE, SMOKE AND VOLUME DAMPERS IN INACCESSIBLE CEILING AS REQUIRED.
8. ALL DUCT DIMENSIONS ARE AIRSTREAM DIMENSIONS.
9. REFER TO SPECIFICATION, DIVISION I FOR ADDITIONAL PROVISIONS REQUIRED UNDER THIS CONTRACT.
10. SEAL ALL FIRE RATED PENETRATIONS WITH FIRE RETARDANT MATERIAL AS SPECIFIED.
11. PROVIDE REMOTE OPERATORS FOR ALL VOLUME DAMPERS LOCATED ABOVE INACCESSIBLE CEILING.
12. PROVIDE OPERATING HANDLES FOR ALL VALVE AND COCKS WITHOUT INTEGRAL OPERATORS.
13. PROVIDE VALVES AND OTHER PIPING SPECIALTIES SAME SIZE AS LINE SIZE SHOWN UNLESS OTHERWISE NOTED.
14. INSTALL SWING CHECK VALVES IN THE HORIZONTAL POSITION.
15. PROVIDE 3/8" BLOW-OFF VALVE AND 1/2" IPS TO HOSE THREAD ADAPTER ON ALL STRAINERS.
16. ALL BRANCH DUCTS TO AIR OUTLET SHALL BE EQUIPPED WITH DUCT VOLUME DAMPER.
17. PROVIDE UNIONS OR FLANGES ON EACH SIDE OF CONTROL VALVES. EVERY PIPING ASSEMBLY SHALL BE MADE SO AS TO MAKE EVERY VALVE AND PIECE OF EQUIPMENT EASILY REMOVABLE. WELDED OR SOLDER-JOINT VALVES ARE EXCEPTED FROM THIS REQUIREMENT.
18. CEILING DIFFUSER SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
19. SEPARATE ALL CEILING HANGING AND BRACING WIRES AT LEAST 6" FROM ALL UNBRACED DUCTS, PIPES, CONDUITS, ETC. AT THE CONTRACTOR'S OPTION HE MAY BRACE UNBRACED DUCTS, PIPES, CONDUITS, ETC. IN A MANNER CONFORMING TO REQUIREMENTS ESTABLISHED BY THE MECHANICAL AND ELECTRICAL CONTRACT DOCUMENTS, OR THE CONTRACTOR MAY INSTALL TRAPEZE SUPPORTS TO RECEIVE THE CEILING HANGING AND BRACING WIRES. THE GENERAL CONTRACTOR SHALL COORDINATE THE WORK AND RESPONSIBILITY FOR ACCOMMODATING SUCH WORK.
20. PROVIDE BALANCING DAMPERS AT EACH SUPPLY, RETURN, AND EXHAUST BRANCH TAKE-OFF.
21. DUCTS STORED ON THE CONSTRUCTION SITE SHALL BE PROTECTED AND ISOLATED FROM DUST CONTAMINATION.
22. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF WORK.

GENERAL NOTES

24. SEE ARCHITECTURAL DOCUMENTS FOR PAINTING OF ALL EXPOSED DUCTWORK, PIPING, AIR OUTLET AND FIXTURE TRIM. PAINT FLAT BLACK THE INSIDE OF ALL DUCTWORK VISIBLE THROUGH DIFFUSERS, GRILLES, AND REGISTERS..
25. INSTALL SHUT-OFF VALVES AT EACH BRANCH PIPE LINE.
26. UNLESS SPECIFICALLY SPECIFIED OR SHOWN OTHERWISE ALL CONSTRUCTION IS TO CONFORM TO SMACNA HVAC CONSTRUCTION STANDARDS, TWO INCH PRESSURE CLASSIFICATION.
27. REFER TO ARCHITECTURAL SPECIFICATION FOR APPROVED FIRESTOPPING SYSTEM.
28. MOUNT ROOM THERMOSTATS AND OTHER CONTROL DEVICES AT 48-INCHES ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED.
29. ALL PLENUM BOXES, DUCTWORK ETC TO BE LOCATED INSIDE WALL CAVITIES OR INACCESSIBLE SPACES SHALL BE TESTED FOR AIRTIGHT CONSTRUCTION BEFORE INSTALLATION (TYPICAL).
30. ALL PIPING TO BE LOCATED INSIDE WALL CAVITIES OR INACCESSIBLE SPACES SHALL BE LEAK TESTED AND INSULATED WITH VAPOR BARRIER SEAL BEFORE INSTALLATION (TYPICAL).
31. INSTALL AUTOMATIC AIR VENTS AT ALL HIGH POINTS OF HYDRONIC PIPING.
32. PROVIDE ALL REQUIRED PERMITS, INSPECTIONS AND COORDINATION WITH GOVERNING AUTHORITIES, INSTALLATION TO CONFORM WITH CURRENT APPLICABLE PROVISIONS OF:
    2012 INTERNATIONAL BUILDING CODE
    2012 INTERNATIONAL MECHANICAL CODE
    2012 INTERNATIONAL PLUMBING CODE
33. ALL PIPING TO BE FLEXIBLE CONNECTED TO EQUIPMENT.
34. NOT ALL SYMBOLS, ABBREVIATIONS AND NOTES MAY BE USED FOR THIS PROJECT.
35. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
36. PROVIDE ACCESS DOORS OR PANELS FOR ALL EQUIPMENT, VALVES, AND ALL OTHER ITEMS LOCATED IN OTHERWISE INACCESSIBLE LOCATION WHICH REQUIRED ROUTINE ADJUSTMENT OR SERVICING. PROVIDE ACCESS LARGE ENOUGH TO ADEQUATELY PERMIT MAINTENANCE AND INSPECTION OF THE DEVICE.
37. CONTRACTOR TO INCLUDE ALL OFFSETS AND TRANSITIONS OF DUCTWORK AND PIPING FOR PROPER FUNCTION OF THESE SYSTEMS WHETHER OR NOT SHOWN IN DRAWINGS.
38. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. PROVIDE TRANSITION FOR FINAL CONNECTION TO EQUIPMENT.
39. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF WORK.
40. PAINT INSIDE OF ALL DUCTWORK VISIBLE THROUGH DIFFUSERS, GRILLES, AND REGISTERS FLAT BLACK.
41. DUCT SYSTEMS SHALL BE BALANCED TO QUANTITIES SHOWN ON THE DRAWINGS.

GENERAL CONDITION

1. ALL WORK TO BE IN ACCORDANCE WITH REQUIREMENTS OF GOVERNING LOCAL FIRE CODES AND BUILDING CODES.
2. VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES FOUND. VERIFY DIMENSIONS OF ALL OWNER FURNISHED OPERATING EQUIPMENT TO ENSURE PROPER COORDINATION WITH CONSTRUCTION.
3. SCHEDULE ALL WORK ACCESS AND STORAGE WITH THE FACILITY ADMINISTRATOR.
4. CONTRACTOR SHALL PROVIDE DUST COVERS AS REQUIRED TO CONTAIN DUST AND DEBRIS WITHIN CONSTRUCTION AREA AND KEEP DIRT AND DUST TO A MINIMUM.
5. ALL REMOVED ITEMS DEEMED TO HAVE VALUE BY THE OWNER SHALL BE DELIVERED TO A PLACE OF STORAGE AT THE SITE AS DIRECTED. ALL OTHER ITEMS MUST BE DISPOSED OF OFF SITE IN A LEGAL MANNER.
6. WHERE EXISTING CONSTRUCTION IS CUT, DAMAGED, OR REMODELED, PATCH WITH MATERIALS TO MATCH IN KIND, QUALITY AND PERFORMANCE.
7. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR SAFETY OF ALL PERSONS ON OR ABOUT THE CONSTRUCTION SITE IN ACCORDANCE WITH APPLICABLE LAWS AND CODES. GUARD ALL HAZARDS IN ACCORDANCE WITH THE SAFETY PROVISIONS OF THE LATEST MANUAL OF ACCIDENT PREVENTION PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA.
8. CLEAN ALL EXPOSED SURFACES AND NEW EQUIPMENT AFTER COMPLETION.
9. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
10. HANG AND BRACE ALL UTILITIES PER SPEC 130451.

MECHANICAL SHEET INDEX - PTSD

Sheet Number	Sheet Name	Scale
334 MH001	MECHANICAL LEGEND ABBREVIATIONS AND GENERAL NOTES - PTSD	NTS
334 MH002	MECHANICAL SCHEDULES - PTSD	NTS
334 MH003	MECHANICAL SCHEDULES - PTSD	NTS
334 MH004	MECHANICAL ZONING PLAN - PTSD	1/8" = 1' - 0"
334 MD201	MECHANICAL DEMO PLAN - PTSD	1/8" = 1' - 0"
334 MH201	MECHANICAL FLOOR PLAN - PTSD	1/8" = 1' - 0"
334 MH202	MECHANICAL ROOF PLAN - PTSD	1/8" = 1' - 0"
334 MP201	MECHANICAL PIPING FLOOR PLAN - PTSD	1/8" = 1' - 0"
334 MH401	AIRFLOW AND PIPING DIAGRAMS - PTSD	NTS
334 MH501	DETAILS - PTSD	NTS

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Drawing Title: MECHANICAL LEGEND ABBREVIATIONS AND GENERAL NOTES - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date: 06/04/15 | Checked: MT | Drawn: NS

Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MH001

Office of Construction and Facilities Management

Department of Veterans Affairs

ROOM AIR BALANCE SCHEDULE-PTSD

ROOM NO	ROOM NAME	AHU	VAV	INDIVIDUAL ROOM TEMP CONTROL	SUPPLY ROOM AIR FLOW CFM	SUPPLY ROOM AIR FLOW L/S	SUPPLY # OF AIR DEVICES	SUPPLY AIR DEVICE MARK	SUPPLY OUTSIDE AIR SUPPLY FAN	RETURN OR EXHAUST (R/E)	RETURN ROOM AIR FLOW CFM	RETURN ROOM AIR FLOW L/S	RETURN # OF AIR DEVICES	RETURN AIR DEVICE MARK	ROOM AIR FLOW CV	ROOM AIR FLOW VAV	ROOM AIR BALANCE	NET INFILTRATION CFM	NET INFILTRATION [L/s]	NET EXFILTRATION CFM	NET EXFILTRATION [L/s]	REMARKS
B202	WORKSTATIONS	AHU-7	VAV-1	Y	740	[350]	3	SD-11 SD-62	SF-7	R	740	[350]	2	RG-23		X	NR		[ ]		[ ]	
B203	TEAM ROOM	AHU-7	VAV-2	Y	150	N/A	1	SD-22	SF-7	R	150	[71]	1	RG-22		X	NR		[ ]		[ ]	
B203	WORKSTATIONS (NORTHWEST)	AHU-7	VAV-3	Y	850	N/A	2	SD-23	SF-7	R	900	[420]	2	RG-24		X	NR		[ ]		[ ]	
B204	TEAM ROOM	AHU-7	VAV-4	Y	145	[68]	1	SD-22	SF-7	R	145	N/A	1	RG-22		X	NR		[ ]		[ ]	
B202	WORKSTATIONS	AHU-7	VAV-5	Y	395	[190]	3	SD-62	SF-7	R	395	[190]	2	RG-64		X	NR		[ ]		[ ]	
B202	WORKSTATIONS (CORE)	AHU-7	VAV-6	N	555	[260]	7	SD-22	SF-7	R	720	[340]	3	RG-22		X	NR	165	[78]		[ ]	
B205	OFFICE	AHU-7	VAV-6	Y	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-21		X	NR		[ ]		[ ]	
B206	OFFICE	AHU-7	VAV-6	N	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-21		X	NR		[ ]		[ ]	
B207	FOCUS	AHU-7	VAV-6	N	65	[31]	1	SD-21	SF-7	R		[ ]	0			X	NR		[ ]	65	[31]	
B208	OFFICE	AHU-7	VAV-6	N	100	[47]	1	SD-21	SF-7	R		[ ]	1	RG-21		X	NR		[ ]		[ ]	
B211	WORKSTATIONS (SOUTH)	AHU-7	VAV-7	N	520	[250]	2	SD-23	SF-7	R	645	[300]	1	RG-26		X	NR	125	[59]		[ ]	
B209	FOCUS	AHU-7	VAV-7	N	60	[28]	1	SD-20	SF-7	R	60	[28]	0			X	NR		[ ]	60	[28]	
B210	FOCUS	AHU-7	VAV-7	N	65	[31]	1	SD-21	SF-7	R	65	[31]	0			X	NR		[ ]	65	[31]	
B212	TEAM ROOM	AHU-7	VAV-7	Y	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-22		X	NR		[ ]		[ ]	
B201	WAITING AREA	AHU-7	VAV-8	Y	405	[190]	1	LD	SF-7	R	405	[190]	1	LD		X	NR		[ ]		[ ]	
B218	LG. CONFERENCE ROOM	AHU-7	VAV-9	Y	475	[220]	2	SD-22	SF-7	R	475	[220]	1	RG-26		X	NR		[ ]		[ ]	
B217	SM CONFERENCE ROOM	AHU-7	VAV-10	Y	120	[57]	1	SD-22	SF-7	R	120	[57]	1	RG-22		X	NR		[ ]		[ ]	
B216	KITCHEN/BREAK	AHU-7	VAV-11	Y	710	[340]	2	SD-64	SF-7	E/R	710	[340]	3	RG-63 EG-63		X	NR		[ ]		[ ]	500 RA, 210 EA
B219	DOCUMENT CONTROL	AHU-7	VAV-12	Y	275	[130]	1	SD-23	SF-7	E	275	[130]	1	EG-24		X	NR		[ ]		[ ]	
B221	WORKSTATIONS (SOUTH)	AHU-7	VAV-13	Y	525	[250]	3	SD-23 SD-21	SF-7	R	630	[300]	2	RG-24		X	NR	105	[50]		[ ]	
B221	WORKSTATIONS (SOUTHEAST)	AHU-7	VAV-14	Y	485	[230]	2	SD-23	SF-7	R	315	[150]	1	RG-24		X	NR		[ ]	170	[80]	
B202	WORKSTATIONS	AHU-7	VAV-15	N	195	[92]	1	SD-22	SF-7	R	555	[260]	1	RG-26		X	NR	360	[170]		[ ]	
B231	TEAM ROOM A	AHU-7	VAV-15	Y	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-22		X	NR		[ ]		[ ]	
B239	WORKSTATIONS	AHU-7	VAV-15	N	195	[92]	1	SD-22	SF-7	R		[ ]	0			X	NR		[ ]	195	[92]	
B239	WORKSTATIONS	AHU-7	VAV-15	N	195	[92]	1	SD-22	SF-7	R	450	[210]	1	RG-26		X	NR	255	[120]		[ ]	
B228	OFFICE	AHU-7	VAV-15	N	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-22		X	NR		[ ]		[ ]	
B229	FOCUS	AHU-7	VAV-15	N	50	[24]	1	SD-21	SF-7	R		[ ]	0			X	NR		[ ]		[ ]	
B225	FOCUS	AHU-7	VAV-15	N	50	[24]	1	SD-21	SF-7	R		[ ]	0			X	NR		[ ]		[ ]	
B230	OFFICE	AHU-7	VAV-15	Y	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-22		X	NR		[ ]		[ ]	
B202	WORKSATIONS (NORTH)	AHU-7	VAV-16	Y	920	[430]	2	SD-24	SF-7	R	1400	[660]	2	RG-26		X	NR	420	[200]		[ ]	
B202	WORKSATIONS (NORTH)	AHU-7	VAV-17	Y	570	[270]	1	SD-24	SF-7	R	700	[330]	1	RG-26		X	NR	130	[61]		[ ]	
B236	TEAM ROOM	AHU-7	VAV-18	Y	315	[150]	1	SD-23	SF-7	R	315	[150]	1	RG-23		X	NR		[ ]		[ ]	
B237	TEAM ROOM	AHU-7	VAV-19	Y	180	[85]	1	SD-23	SF-7	R	180	[85]	1	RG-23		X	NR		[ ]		[ ]	
B239	WORKSATIONS (NORTHEAST)	AHU-7	VAV-20	Y	255	[120]	1	SD-24	SF-7		0	[ ]	0			X	NR		[ ]	255	[120]	
B239	WORKSATIONS (EAST)	AHU-7	VAV-21	Y	960	[450]	3	SD-23	SF-7	R	445	[210]	1	RG-26		X	NR		[ ]	515	[240]	
B232	OFFICE	AHU-7	VAV-22	N	100	[47]	1	SD-21	SF-7	R	100	[47]	1	RG-22		X	NR		[ ]		[ ]	
B234	FOCUS	AHU-7	VAV-22	N	60	[28]	1	SD-21	SF-7	R		[ ]	0			X	NR		[ ]		[ ]	
B235	FOCUS	AHU-7	VAV-22	N	60	[28]	1	SD-21	SF-7	R		[ ]	0			X	NR		[ ]		[ ]	
B202	WORKSTATIONS	AHU-7	VAV-22	N	120	[57]	1	SD-22	SF-7	R	445	[210]	1	RG-26		X	NR	325	[150]		[ ]	
B227	DIRECTOR'S OFFICE	AHU-7	VAV-23	Y	155	[73]	1	SD-22	SF-7	R	155	[73]	1	RG-22		X	NR		[ ]		[ ]	
B223	EQUIP STORAGE	AHU-7	VAV-24	N	100	[47]	1	SD-52	SF-7	R	100	[47]	1	RR-56	X		NR		[ ]		[ ]	
B224	IDF	AHU-7	VAV-24	N	100	[47]	1	SD-52	SF-7	R	100	[47]	1	RR-52	X		NR		[ ]		[ ]	SERVED BY (E)FCU
B226	ELECTRICAL	AHU-7	VAV-24	Y	200	[94]	1	SD-53	SF-7	E	200	[94]	1	RR--52	X		E		[ ]		[ ]	
B213	ELECTRICAL	AHU-7	VAV-25	Y	200	[94]	1	SD-53	SF-7	E	200	[94]	1	RR--52	X		E		[ ]		[ ]	

NOTES:

HVAC DESIGN DATA - PTSD

DESIGN CONDITIONS	SUMMER TEMP °F	SUMMER TEMP [°C]	SUMMER WET BULB TEMP °F	SUMMER WET BULB TEMP [°C]	SUMMER % HUMIDITY	WINTER TEMP °F	WINTER TEMP [°C]	WINTER DEWPOINT TEMP °F	WINTER DEWPOINT TEMP [°C]	WINTER % HUMIDITY	LOWEST AVERAGE ANNUAL DEWPOINT °F	LOWEST AVERAGE ANNUAL DEWPOINT [°C]
OUTDOOR DESIGN CONDITIONS	92.3	[34]	66.9	[19]		31.9	[-]					
INDOOR AREA DESIGN CONDITIONS												
OFFICE	75	[24]			20-60	70	[21]			20-60		
CONFERENCE	75	[24]			20-60	70	[21]			20-60		
STAFF LOUNGE	75	[24]			20-60	70	[21]			20-60		
RESTROOM	75	[24]			NA	70	[21]			NA		
ELECTRICAL ROOM	86	[30]			20-60	40	[4]			20-60		
TELEPHONE DATA	75	N/A			30-55	64	[18]			30-55		
KITCHENETTE	75	[24]			N/A	70	[21]			N/A		

AIR DEVICE SCHEDULE (SUPPLY)

MARK	TYPE	AIR FLOW MIN CFM	AIR FLOW MIN [L/s]	AIR FLOW MAX CFM	AIR FLOW MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN x IN	PANEL/FRAME SIZE [mm x mm]	NECK SIZE IN	NECK SIZE [mm]	NC	DAMPER	FINISH	REMARKS
SD-11	LOUVERED FACE	40	[19]	160	[76]	0.080	[20]	CEILING	24 x 24	[600 x 600]	6 ø	[152 ø]	19	NONE	WHITE	1
SD-21	PERFORATED	60	[28]	180	[85]	0.100	[25]	CEILING	24 x 24	[600 x 600]	6 ø	[152 ø]	25	NONE	WHITE	1
SD-22	PERFORATED	110	[52]	320	[150]	0.100	[25]	CEILING	24 x 24	[600 x 600]	8 ø	[203 ø]	30	NONE	WHITE	1
SD-23	PERFORATED	160	[76]	450	[210]	0.100	[25]	CEILING	24 x 24	[600 x 600]	10 ø	[254 ø]	33	NONE	WHITE	1
SD-24	PERFORATED	240	[110]	700	[330]	0.100	[25]	CEILING	24 x 24	[600 x 600]	12 ø	[305 ø]	36	NONE	WHITE	1
SD-53	SUPPLY REGISTER	130	[61]	350	[170]	0.080	[20]	WALL	14 x 10	[356 x 254]	12 x 8	[305 x 203]	26	OBD	WHITE	-----
SD-63	DRUM LOUVER	150	[71]	300	[140]	0.090	[23]	DUCT MOUNTED	16 x 8	[406 x 203]	14 x 6	[356 x 152]	18	NONE	WHITE	-----

NOTES

1. PROVIDE SQUARE TO ROUND ADAPTER.

AIR DEVICE SCHEDULE (RETURN)

MARK	TYPE	AIR FLOW MIN CFM	AIR FLOW MIN [L/s]	AIR FLOW MAX CFM	AIR FLOW MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN x IN	PANEL/FRAME SIZE [mm x mm]	NECK SIZE IN x IN	NECK SIZE [mm x mm]	NC	DAMPER	FINISH	REMARKS
RG-21	PERFORATED	60	[28]	100	[47]	0.090	23.000	CEILING	24 x 24	[600 x 600]	6 ø	[152 ø]	14	NONE	WHITE	1
RG-22	PERFORATED	100	[47]	175	[83]	0.090	23.000	CEILING	24 x 24	[600 x 600]	8 ø	[203 ø]	13	NONE	WHITE	1
RG-23	PERFORATED	175	[83]	275	[130]	0.090	23.000	CEILING	24 x 24	[600 x 600]	10 ø	[254 ø]	16	NONE	WHITE	1
RG-24	PERFORATED	175	[83]	275	[130]	0.090	23.000	CEILING	24 x 24	[600 x 600]	12 ø	[254 ø]	17	NONE	WHITE	1
RR-52	RETURN REGISTER	200	[94]	330	[160]	0.078	20.000	WALL	12 x 12	[305 x 305]	10 x 10	[254 x 254]	15	OBD	WHITE	-----
RR-59	RETURN REGISTER	190	[90]	320	[150]	0.078	20.000	WALL	14 x 10	[356 x 254]	12 x 8	[305 x 203]	15	OBD	WHITE	-----

NOTE

1. PROVIDE SQUARE TO ROUND ADAPTER.

AIR DEVICE SCHEDULE (EXHAUST)

MARK	TYPE	AIR FLOW MIN CFM	AIR FLOW MIN [L/s]	AIR FLOW MAX CFM	AIR FLOW MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MOUNTING	PANEL/FRAME SIZE IN x IN	PANEL/FRAME SIZE [mm x mm]	NECK SIZE IN x IN	NECK SIZE [mm x mm]	NC	DAMPER	FINISH	REMARKS
EG-21	PERFORATED	30	[14]	100	[47]	0.090	23.000	CEILING	24 x 24	[600 x 600]	6 ø	[152 ø]	-	NONE	WHITE	1
EG-22	PERFORATED	110	[52]	170	[80]	0.088	22.000	CEILING	24 x 24	[600 x 600]	8 DIAM	[203 DIAM]	13	NONE	WHITE	1
EG-23	PERFORATED	175	[83]	275	[130]	0.090	23.000	CEILING	24 x 24	[600 x 600]	10ø	[254 ø]	16	NONE	WHITE	1
EG-24	PERFORATED	240	[110]	400	[190]	0.088	22.000	CEILING	24 x 24	[600 x 600]	12 DIAM	[305 DIAM]	12	NONE	WHITE	1
RR-52	EXHAUST REGISTER	200	[94]	330	[160]	0.078	20.000	WALL	12 x 12	[305 x 305]	10 x 10	[254 x 254]	15	OBD	WHITE	-----
EG-25	PERFORATED	320	[150]	500	[240]	0.087	22.000	CEILING	24 x 24	[600 x 600]	14 DIAM	[356 DIAM]	14	NONE	WHITE	-----
EG-62	DRUM LOUVER	80	[38]	150	[71]	0.091	23.000	DUCT MOUNTED	14 x 6	[356 x 152]	12 x 4	[305 x 102]	15	NONE	WHITE	-----

NOTE

1. PROVIDE SQUARE TO ROUND ADAPTER AS NECESSARY.

AIR DEVICE SCHEDULE (LINEAR) - PHARMACY

MARK	TYPE	AIR FLOW MIN CFM	AIR FLOW MIN [L/s]	AIR FLOW MAX CFM	AIR FLOW MAX [L/s]	MAX APD IN WG	MAX APD [Pa]	MIN THROW FT	MIN THROW [M]	MAX THROW FT	MAX THROW [M]	# OF SLOTS	SLOT WIDTH IN	SLOT WIDTH [mm]	PANEL/FRAME SIZE IN	PANEL/FRAME SIZE [mm]	NECK SIZE IN	NECK SIZE [mm]	THROW PATTERN	THROW TYPE	NC	DAMPER	FINISH	REMARKS
SD-314	LINEAR	40	19	460	220	0.286	71.2	1 - 1 - 5	0.2 - 0.4 - 1.6	26 - 36 - 51	8.0 - 10.9 - 15.4	2	2	50	48 x 9	[1219 x 229]	10 ø	[254 ø]	1 WAY	VERTICAL	33	NONE	WHITE	-----
RD-31	LINEAR	120	9.4	320	94	0.335	83.3	2 - 3 - 6	0.5 - 0.9 - 1.8	17 - 21 - 30	5.2 - 6.4 - 9.0	1	1	25	48 x 3	[1219 x 76]	10 ø	[254 ø]	1 WAY	VERTICAL	42	NONE	WHITE	-----

NOTES

100% CD/BID SUBMISSION
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Revisions:	Date
65% CD SUBMISSION	03/16/15
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Drawing Title: MECHANICAL SCHEDULES - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date: 01/13/15 | Checked: MT | Drawn: NS

Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MH002

Office of Construction and Facilities Management

Department of Veterans Affairs

HOT WATER HEATING COIL SCHEDULE - PTSD

MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM AND/OR SERVICE	APPLICATION	AIR FLOW CFM	AIR FLOW [L/s]	MAX FACE VELOCITY FPM	MAX FACE VELOCITY [M/s]	APD IN WG	APD [Pa]	TEMPERATURES EAT °F	EAT [°C]	LAT °F	LAT [°C]	TOTAL MIN CAPACITY MBH	TOTAL MIN CAPACITY [kW]	HOT WATER FLOW GPM	FLOW [L/s]	EWT °F	EWT [°C]	LWT °F	LWT [°C]	WPD FT	WPD [kPa]	% GLYCOL	REMARKS
VAV-1		WORKSTATIONS (SOUTH)	AHU-7	REHEAT	375	[180]	700	[4]	0.2	[50]	55	[13]	90	[32]	14.2	[49]	1.4	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-2		TEAM ROOM	AHU-7	REHEAT	75	[35]	700	[4]	0.2	[50]	55	[13]	83	[28]	2.3	[8]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-3		WORKSTATIONS (NORTHWEST)	AHU-7	REHEAT	425	[200]	700	[4]	0.2	[50]	55	[13]	88	[31]	15.2	[52]	1.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-4		TEAM ROOM	AHU-7	REHEAT	75	[35]	700	[4]	0.2	[50]	55	[13]	83	[28]	2.3	[8]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-5		WORKSTATIONS	AHU-7	REHEAT	195	[92]	700	[4]	0.2	[50]	55	[13]	100	[38]	9.5	[32]	1.0	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-6		OFFICES/FOCUS WORKSTATIONS (CORE)	AHU-7	REHEAT	510	[240]	700	[4]	0.2	[50]	55	[13]	80	[27]	13.8	[47]	1.4	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-7		OFFICES/ WORKSTATIONS (SOUTH)	AHU-7	REHEAT	325	[150]	700	[4]	0.2	[50]	55	[13]	81	[27]	9.2	[31]	0.9	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-8		WAITING AREA	AHU-7	REHEAT	205	[97]	700	[4]	0.2	[50]	55	[13]	76	[24]	4.7	[16]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-9		LG CONFERENCE ROOM	AHU-7	REHEAT	240	[110]	700	[4]	0.2	[50]	55	[13]	86	[30]	8.1	[28]	0.8	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-10		SM CONFERENCE ROOM	AHU-7	REHEAT	60	[28]	700	[4]	0.2	[50]	55	[13]	79	[26]	1.6	[5]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-11		KITCHEN/BREAK	AHU-7	REHEAT	355	[170]	700	[4]	0.2	[50]	55	[13]	80	[27]	9.6	[33]	1.0	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-12		DOCUMENT CONTROL	AHU-7	REHEAT	275	[130]	700	[4]	0.2	[50]	55	[13]	77	[25]	6.6	[22]	0.7	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-13		WORKSTATIONS (SOUTH)	AHU-7	REHEAT	265	[130]	700	[4]	0.2	[50]	55	[13]	81	[27]	7.5	[26]	0.7	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-14		WORKSTATIONS (SOUTHEAST)	AHU-7	REHEAT	245	[120]	700	[4]	0.2	[50]	55	[13]	82	[28]	7.2	[24]	0.7	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-15		OFFICES/ WORKSTATIONS/FOCUS	AHU-7	REHEAT	375	[180]	700	[4]	0.2	[50]	55	[13]	81	[27]	10.6	[36]	1.1	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-16		WORKSTATIONS (NORTH)	AHU-7	REHEAT	460	[220]	700	[4]	0.2	[50]	55	[13]	87	[31]	16.0	[55]	1.6	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-17		WORKSTATIONS (NORTH)	AHU-7	REHEAT	285	[130]	700	[4]	0.2	[50]	55	[13]	86	[30]	9.6	[33]	1.0	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-18		TEAM ROOM	AHU-7	REHEAT	160	[76]	700	[4]	0.2	[50]	55	[13]	83	[28]	4.9	[17]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-19		TEAM ROOM	AHU-7	REHEAT	90	[42]	700	[4]	0.2	[50]	55	[13]	82	[28]	2.6	[9]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-20		WORKSTATIONS (NORTHEAST)	AHU-7	REHEAT	130	[61]	700	[4]	0.2	[50]	55	[13]	83	[28]	3.9	[13]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-21		WORKSTATIONS (EAST)	AHU-7	REHEAT	480	[230]	700	[4]	0.2	[50]	55	[13]	92	[33]	19.3	[66]	1.9	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-22		OFFICES/ FOCUS/ WORKSTATIONS	AHU-7	REHEAT	220	[100]	700	[4]	0.2	[50]	55	[13]	81	[27]	6.2	[21]	0.6	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-23		DIRECTOR'S OFFICE	AHU-7	REHEAT	80	[38]	700	[4]	0.2	[50]	55	[13]	76	[24]	1.8	[6]	0.5	[ ]	180	[82]	160	[71]	0.1	[ ]	N/A	---
VAV-24		EQUIP STORAGE/ELECTRICAL/IDF	AHU-7	REHEAT	365	[170]	700	[4]	0.2	[50]	55	[13]	76	[24]	8.3	[28]	0.5	[ ]	180	[82]	140	[60]	0.1	[ ]	N/A	---
VAV-25		ELECTRICAL	AHU-7	REHEAT	200	[94]	700	[4]	0.2	[50]	56	[13]	77	[25]	4.6	[16]	0.5	[ ]	181	[83]	141	[61]	1.1	[3]	N/A	---

NOTES

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE

MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM AIR HANDLING	SIZE	AIR FLOW MAX CFM	MAX [L/s]	MIN CFM	MIN [L/s]	ADDITIONAL SOUND ATTUNATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	REHEAT HW	REHEAT ELEC	REHEAT NONE	PERIMETER SUPPLEMENTAL HEAT LINK	REMARKS
VAV-1	2ND FLOOR	SOUTH OFFICES	AHU-7	9	745	[350]	375	[180]	----			X			----	----
VAV-2	2ND FLOOR	TEAM ROOM	AHU-7	6	150	[71]	75	[35]	----			X			----	----
VAV-3	2ND FLOOR	WEST OFFICES	AHU-7	9	850	[400]	425	[200]	----			X			----	----
VAV-4	2ND FLOOR	TEAM ROOM	AHU-7	6	145	[68]	75	[35]	----			X			----	----
VAV-5	2ND FLOOR	NORTH OFFICES	AHU-7	7	395	[190]	195	[92]	----			X			----	----
VAV-6	2ND FLOOR	INTERIOR OFFICES	AHU-7	12	1020	[480]	510	[240]	----			X			----	----
VAV-7	2ND FLOOR	INTERIOR OFFICES	AHU-7	9	645	[300]	325	[150]	----			X			----	----
VAV-8	2ND FLOOR	RECEPTION	AHU-7	8	405	[190]	205	[97]	----			X			----	----
VAV-9	2ND FLOOR	CONFERENCE ROOM	AHU-7	8	475	[220]	240	[110]	----			X			----	----
VAV-10	2ND FLOOR	CONFERENCR ROOM	AHU-7	6	120	[57]	60	[28]	----			X			----	----
VAV-11	2ND FLOOR	KITCHEN/BREAK	AHU-7	9	710	[340]	355	[170]	----			X			----	----
VAV-12	2ND FLOOR	DOCUMENT CONTROL	AHU-7	7	275	[130]	275	[130]	----			X			----	----
VAV-13	2ND FLOOR	INTERIOR OFFICES	AHU-7	8	525	[250]	265	[130]	----			X			----	----
VAV-14	2ND FLOOR	INTERIOR OFFICES	AHU-7	8	485	[230]	245	[120]	----			X			----	----
VAV-15	2ND FLOOR	OFFICES	AHU-7	9	745	[350]	375	[180]	----			X			----	----
VAV-16	2ND FLOOR	WEST OFFICES	AHU-7	10	920	[430]	460	[220]	----			X			----	----
VAV-17	2ND FLOOR	WEST OFFICES	AHU-7	10	570	[270]	285	[130]	----			X			----	----
VAV-18	2ND FLOOR	TEAM ROOM	AHU-7	7	315	[150]	160	[76]	----			X			----	----
VAV-19	2ND FLOOR	TEAM ROOM	AHU-7	6	180	[85]	90	[42]	----			X			----	----
VAV-20	2ND FLOOR	NE OFFICES	AHU-7	6	255	[120]	130	[61]	----			X			----	----
VAV-21	2ND FLOOR	NE OFFICES	AHU-7	12	960	[450]	480	[230]	----			X			----	----
VAV-22	2ND FLOOR	OFFICES	AHU-7	8	440	[210]	220	[100]	----			X			----	----
VAV-23	2ND FLOOR	DIRECTOR'S OFFICE	AHU-7	6	155	[73]	80	[38]	----			X			----	----
VAV-24	2ND FLOOR	EQUIP STORAGE	AHU-7	7	365	[170]	365	[170]	----			X			----	----
VAV-25	2ND FLOOR	ELECTRICAL	AHU-7	7	200	[94]	200	[94]	----			X			----	----

NOTES:

AIR HANDLING UNIT SCHEDULE - PTSD

MARK	LOCATION	AREA AND/OR BLDG SERVED	TYPE	AIR FLOW	AIR FLOW SUPPLY CFM	SUPPLY [L/s]	MIN OA CFM	MIN OA [L/s]	RETURN CFM	RETURN [L/s]	SUPPLY FAN MARK	RETURN / RELIEF FAN MARK	EXHAUST FAN MARK	PRE-FILTER MARK	AFTER FILTER MARK	FINAL FILTER MARK	HEAT RECOVERY MARK	PREHEAT COIL MARK	COOLING COIL MARK	REHEAT COIL	HUMIDIFIER MARK	REMARKS
(E) AHU-7	ROOF	334		VAV	28,250	[13000]	2,990	[1400]	27,000	[13000]	SF-7	RF-7					N/A					-----

NOTES:

AIR FILTER SCHEDULE

MARK	LOCATION	AREA AND/OR BLDG SERVED	TYPE	SYSTEM AND/OR SERVICE	MERV RATING	AIR FLOW CFM	AIR FLOW [L/s]	APD INITIAL IN	INITIAL [mm]	CHANGEOVER IN	CHANGEOVER [mm]	HOUSING TYPE	CARTRIDGES #	SIZE IN	SIZE [mm]	ARRANGEMENT	REMARKS
PF-1	ROOF	BLDG. 334	PRE-FILTER	AHU-7	8	28250	[13000]	3	[75]		[ ]	SIDE		24 x 24 x 2	[600 x 600 x 50]		-----
PF-1	ROOF	BLDG. 334	PRIMARY	AHU-7	12	28250	[13000]	3	[75]		[ ]	SIDE	18	24 x 24 x 2	[600 x 600 x 300]		----

NOTES:

CHILLED WATER COOLING COIL SCHEDULE - PTSD

MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW CFM	AIR FLOW [L/s]	MAX FACE VELOCITY FPM	MAX FACE VELOCITY [M/s]	APD IN WG	APD [Pa]	EAT Db °F	EAT Db [°C]	EAT Wb °F	EAT Wb [°C]	LAT Db °F	LAT Db [°C]	LAT Wb °F	LAT Wb [°C]	TOTAL CAPACITY MBH	TOTAL CAPACITY [kW]	SENSIBLE CAPACITY MBH	SENSIBLE CAPACITY [kW]	CHILLED WATER FLOW GPM	FLOW [L/s]	EWT °F	EWT [°C]	LWT °F	LWT [°C]	WPD FT	WPD [M]	REMARKS
CC-7	ROOF	334	AHU-7	28,250	[13000]	500	[3]	85	[21000]	77	[25]	64	[18]	51		51	[11]		[ ]		[ ]	172	[11]	45	[7]	60	[16]	7.21	[2]	

NOTES:

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

Revisions	Date
65% CD SUBMISSION	03/16/15
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Drawing Title: MECHANICAL SCHEDULES - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date: 01/22/15 | Checked: MT | Drawn: NS

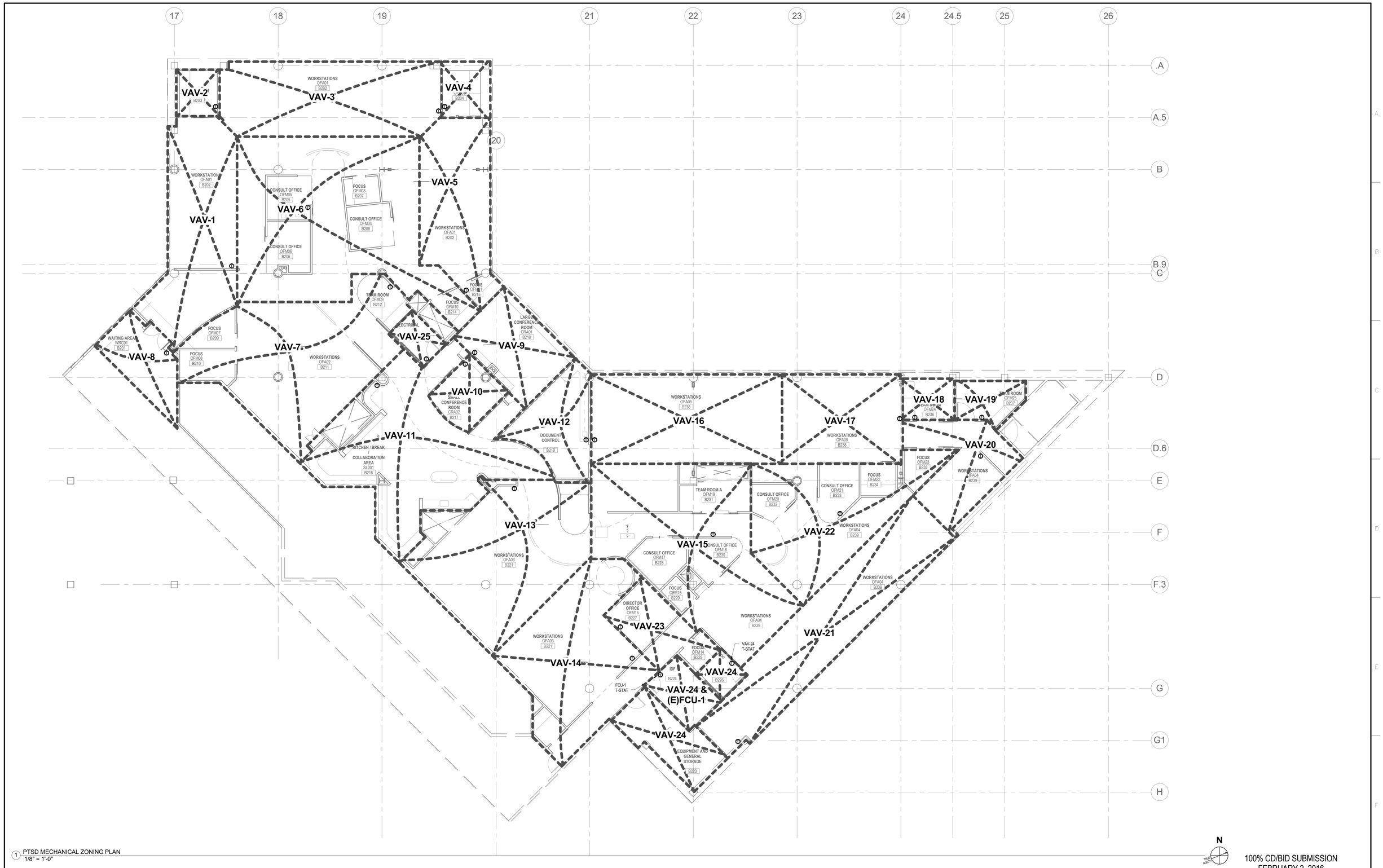
Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MH003

Office of Construction and Facilities Management

Department of Veterans Affairs



1 PTSD MECHANICAL ZONING PLAN
1/8" = 1'-0"

N
TRUE NORTH

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

Revisions:	Date
65% CD SUBMISSION	03/16/15
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MECHANICAL ZONING PLAN - PTSD

Approved: Project Director

Project Title
POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location
795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
10/22/14	MT	NS

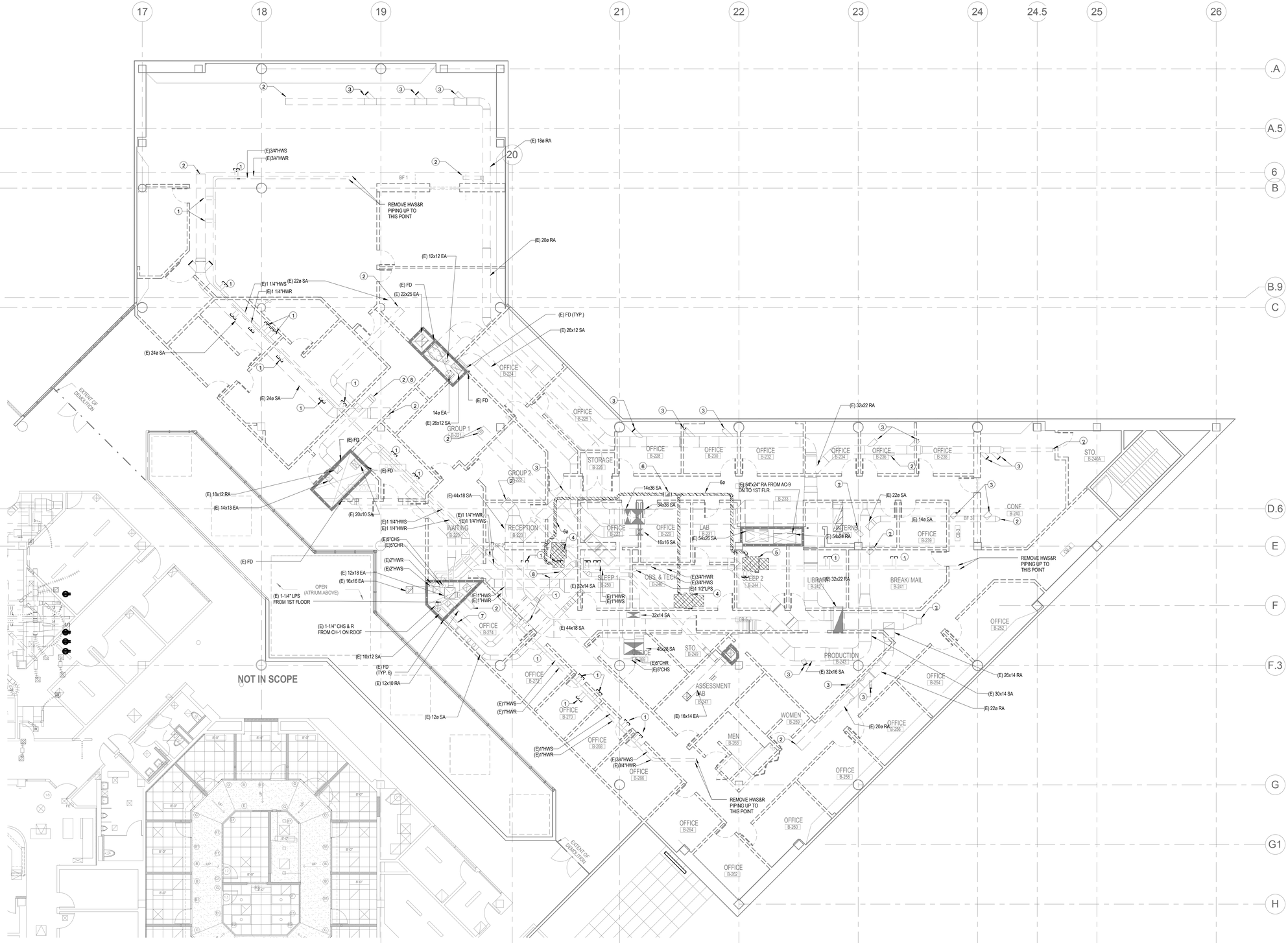
Project Number
612-125

Building Number
Building 334

Drawing Number
334 MH004

Office of Construction and Facilities Management

Department of Veterans Affairs



1 PTSD MECHANICAL DEMOLITION FLOOR PLAN
1/8" = 1'-0"

SHEET NOTES

1. U.O.N. ALL EQUIPMENT, DUCTS AND PIPING SHOWN ON THIS PLAN ARE EXISTING TO REMAIN. DEMO ALL OTHER ITEMS UP TO LOCATIONS INDICATED ON PLAN.

KEY NOTES

1 REMOVE 1/2" HWS&R PIPING UP TO HWS&R MAIN AND CAP.
2 REMOVE 1/2" HWS&R PIPING UP TO HWS&R MAIN AND CAP.
2 REMOVE ALL HVAC DUCTS UP TO THIS POINT.
3 REMOVE ALL HVAC DUCTS UP TO THIS POINT AND CAP.
4 (E) FCU TO BE REMOVED. DEMO CHS & R AND HWS & R PIPIING, VALVES, CONDENSATE DRAINS , OUTSIDE AIR DUCTS, THERMOSTATS AND ANY OTHER COMPONENT ASSOCIATED WITH IT.
5 (E) FCU TO BE RELOCATED TO (N) IDF RM B224. DEMO CHS & R AND HWS & R PIPING , OUTSIDE AIR DUCTS & CONDENSATE DRAINS. ALL VALVES, THERMOSTATS AND ANY OTHER COMPONENT ASSOCIATED ARE TO BE RELOCATED WITH FCU. SEE DWG. 334 MH201,NOTE 12 FOR NEW LOCATION.
6 (E) 10"x 10" OA UP TO ROOF. DEMO BOTH 6" BRANCHES UP TO IT AND CAP.
7 1-1/4" CHS & R TO (E) FCU'S. REMOVE ALL PIPING BEYOND THIS POINT.
8 RECORD CFM & SP PRIOR TO CONSTRUCTION USING AN PITOT TRAVERSE. ISOLATE 1ST FLOOR USING INDICATED (E) MANUAL DAMPERS. AFTER COMPLETION OF CONSTRUCTION, BALANCE BRANCH DUCTS SERVING 1ST FLOOR TO RECORDED CFM & SP.

100% CD/BID SUBMISSION
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Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
10/22/14	MT	NS

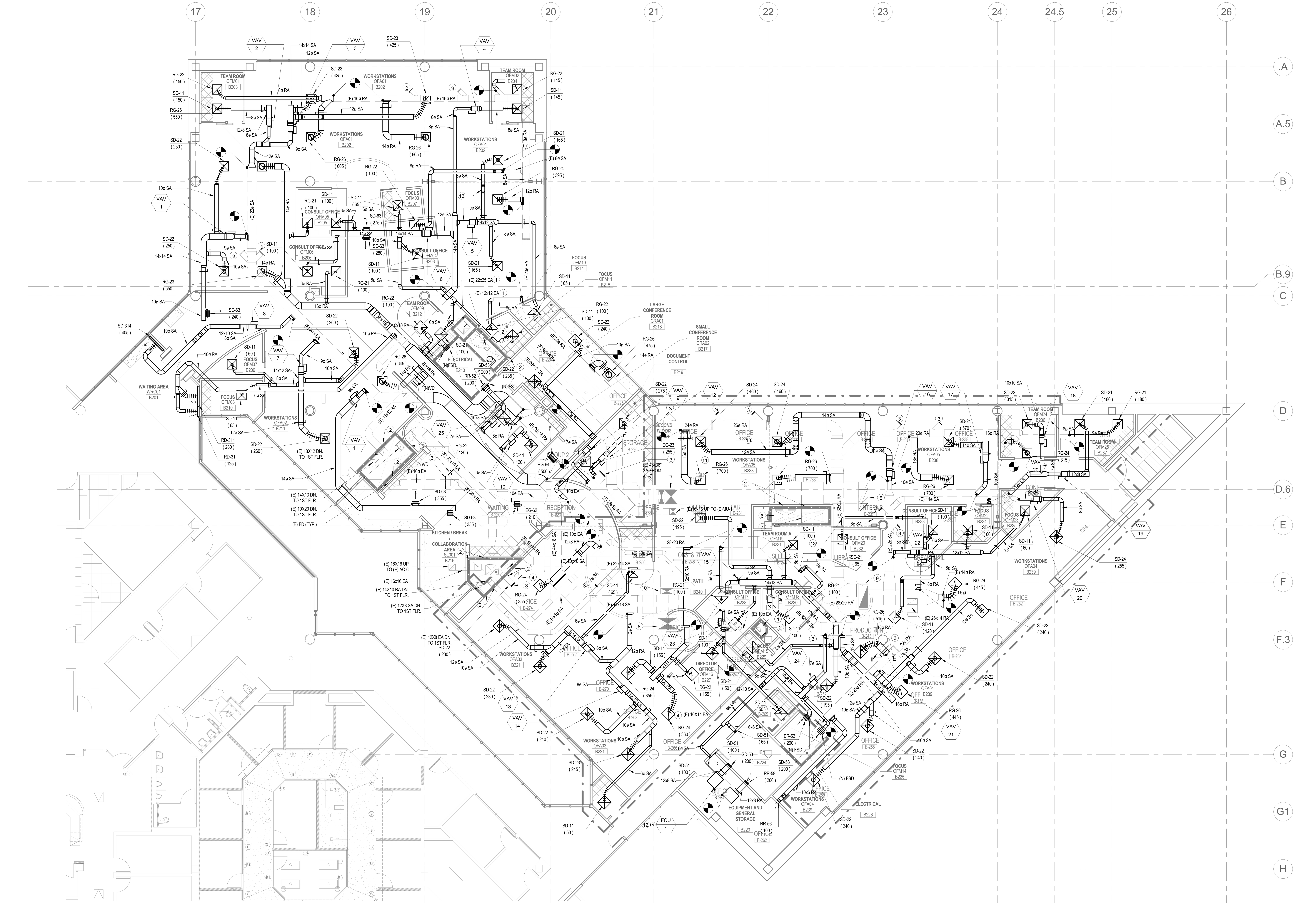
Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MD201

Office of Construction and Facilities Management

Department of Veterans Affairs



1 PTSD MECHANICAL PLAN
1/8" = 1'-0"

SHEET NOTES

1. SEE ZONING PLAN DWG. 334 MH 11 FOR VAV ZONING AND THERMOSTAT LOCATIONS.
2. SEE DWG. MH-17 & 18 FOR DUCT DETAILS.
3. SEE ARCHITECTURAL CEILING PLAN DWG. 334 AS 104 FOR EXACT LOCATIONS FOR ALL CEILING DIFFUSERS AND SIDEWALL GRILLES.

KEY NOTES

1 (E) DUCT DN. TO 1ST FLOOR
2 (E) FIRE DAMPER
3 CAP (E) DUCT.
4 (E) 16"X14" UP TO (E) EF-34 ON ROOF
5 (E) 54"X24" UP TO (E) AHU-9
6 (E) 54"X26" SA DN. TO 1ST FLOOR
7 (E) 54"X24" RA DN. TO 1ST FLOOR
8 (E) 48"X28" SA UP TO (E) AHU-7 ON ROOF
9 (E) 60"X24" RA UP TO (E) AHU-7 ON ROOF
10 (E) 32"X14" SA UP TO (E) AHU-7 ON ROOF
11 CAPPED (E) 10"x 10" UP TO ROOF.
12 RELOCATED FCU-1. INTERNATIONAL ENVIRONMENTAL MODEL CPY 04A; 200 CFM SA. HEATING COIL; .5 GPM, EWT : 180° COOLING COIL: 2.2 GPM EWT: 44°. SEE 334 MD201 (NOTE 5) FOR PREVIOUS LOCATION. CONTRACTOR TO ROUTE ¾" CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR MOP SINK.
13 OFFSET DUCT AS NEEDED TO AVOID STRUCTURAL BRACE.

N
TRUE NORTH

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

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Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
10/22/14	MT	NS

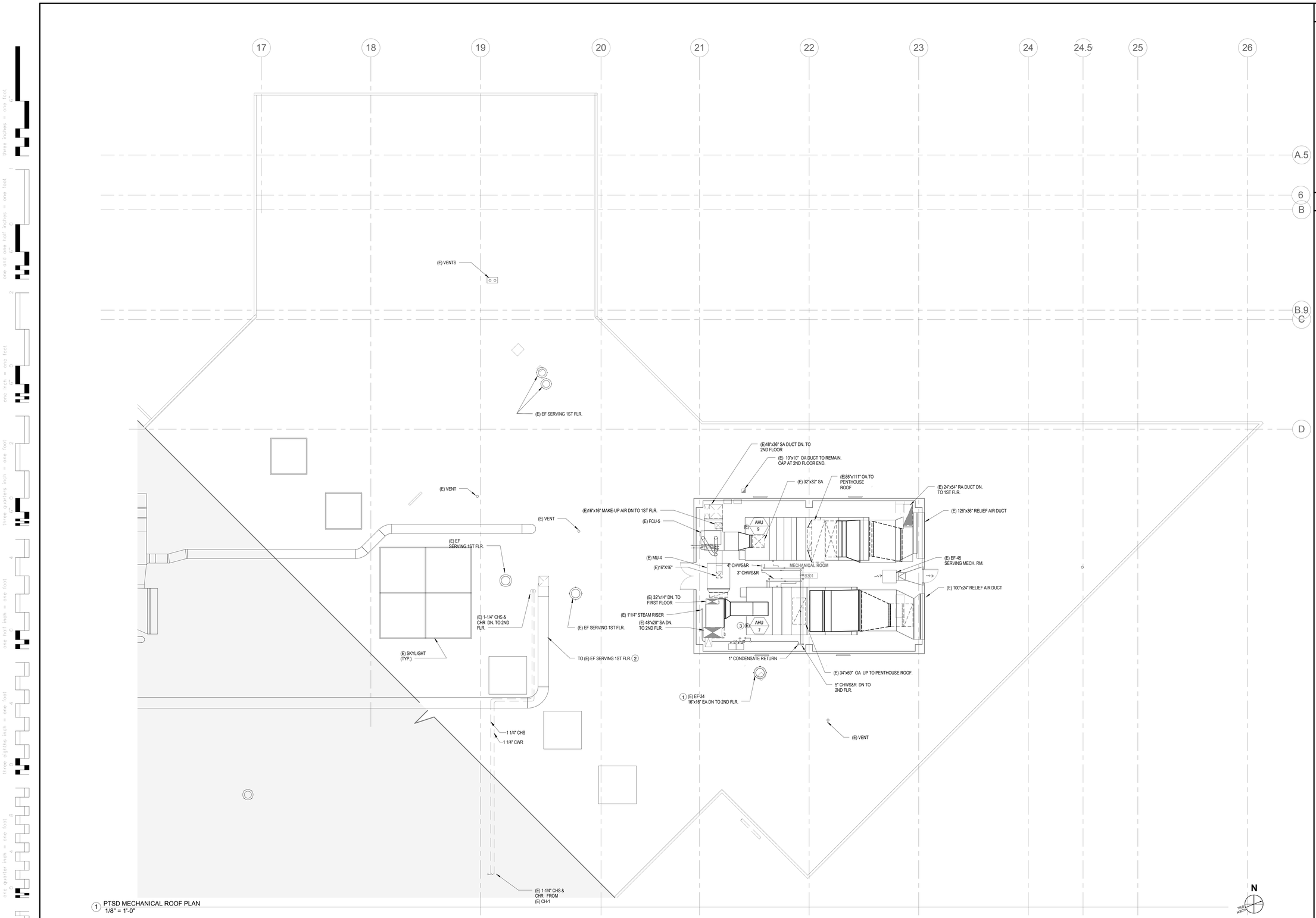
Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MH201

Office of Construction and Facilities Management

Department of Veterans Affairs



1 PTSD MECHANICAL ROOF PLAN
1/8" = 1'-0"

SHEET NOTES

1. ALL ROOF EQUIPMENT IS EXISTING AND SHOWN FOR REFERENCE ONLY.

KEY NOTES

1. EF-34 SERVING 2ND FLOOR. RE-BALANCE TO 1,175 CFM
2. TO (E) EF PREVIOUSLY SERVING 1ST & 2ND FLOOR. IT IS NO LONGER SERVING 2ND FLOOR. RE-BALANCE TO MEET 1ST FLOOR EA REQUIREMENTS.
3. ADJUST SA FROM (E) AHU-7 TO 13,690 CFM.

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

Revisions:	Date
65% CD SUBMISSION	03/16/15
100% CD/BID SUBMISSION	02/02/16

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Drawing Title: MECHANICAL ROOF PLAN - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
10/22/14	MT	NS

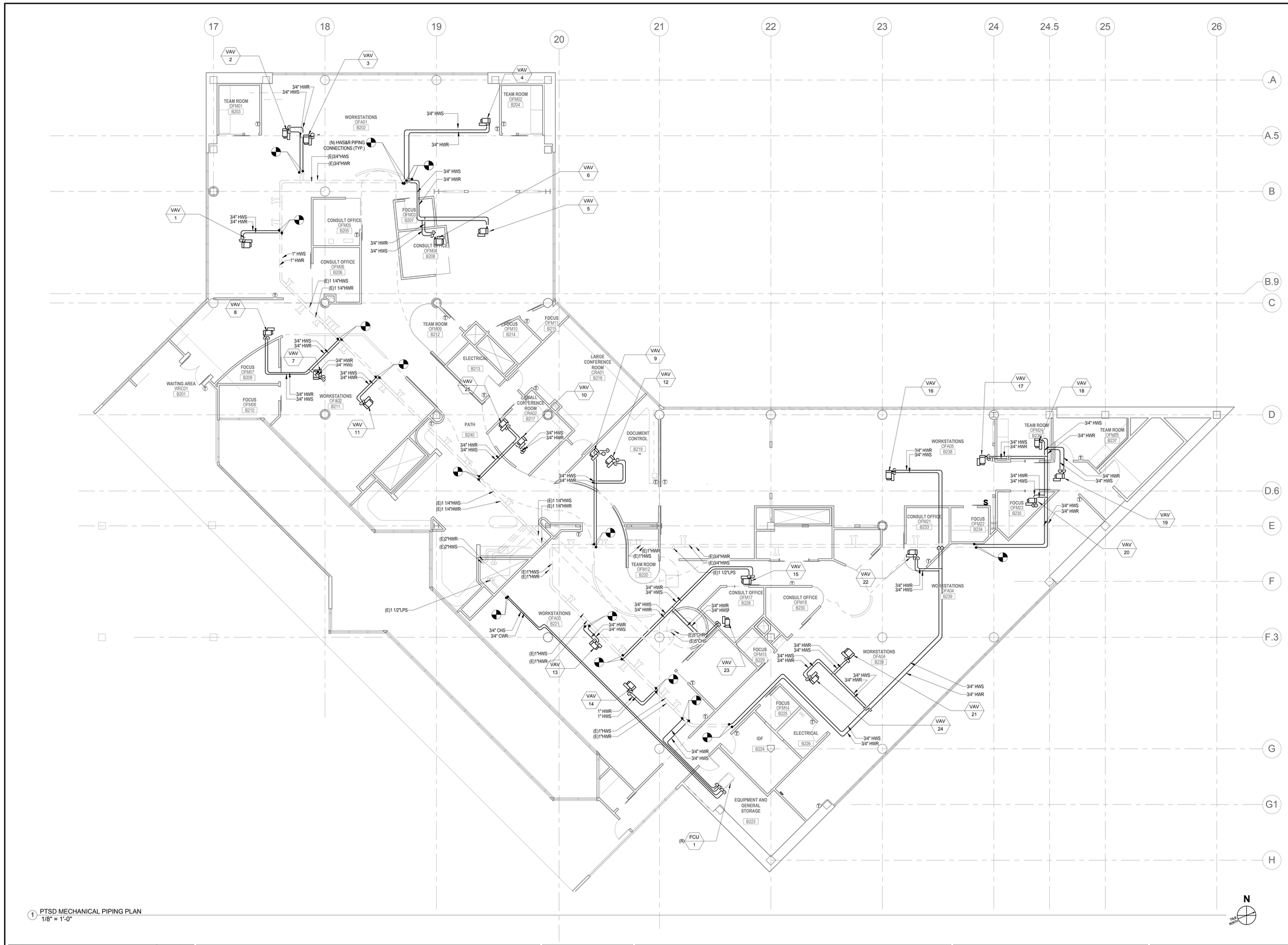
Project Number: 612-125

Building Number: Building 334

Drawing Number: 334 MH202

Office of Construction and Facilities Management

Department of Veterans Affairs



1 PTSD MECHANICAL PIPING PLAN
1/8" = 1'-0"

SHEET NOTES

1. REFER TO 334 MH5.01 FOR PIPE HANGER DETAIL.
2. REFER TO ZONING PLAN 334-J MH004 FOR THERMOSTAT LOCATIONS.
3. PIPING OFFSETS INTO BEAMSPACE SHALL BE PROVIDED AS NECESARY. SOME OFFSETS HAVE BEEN SHOWN ON THE DRAWINGS. IF ADDITIONAL ARE NEEDED FOR COORDINATION PURPOSES, THESE SHALL BE PROVIDED.

KEY NOTES

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

Revisions:	Date
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Drawing Title: MECHANICAL PIPING FLOOR PLAN - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
10/22/14	MT	NS

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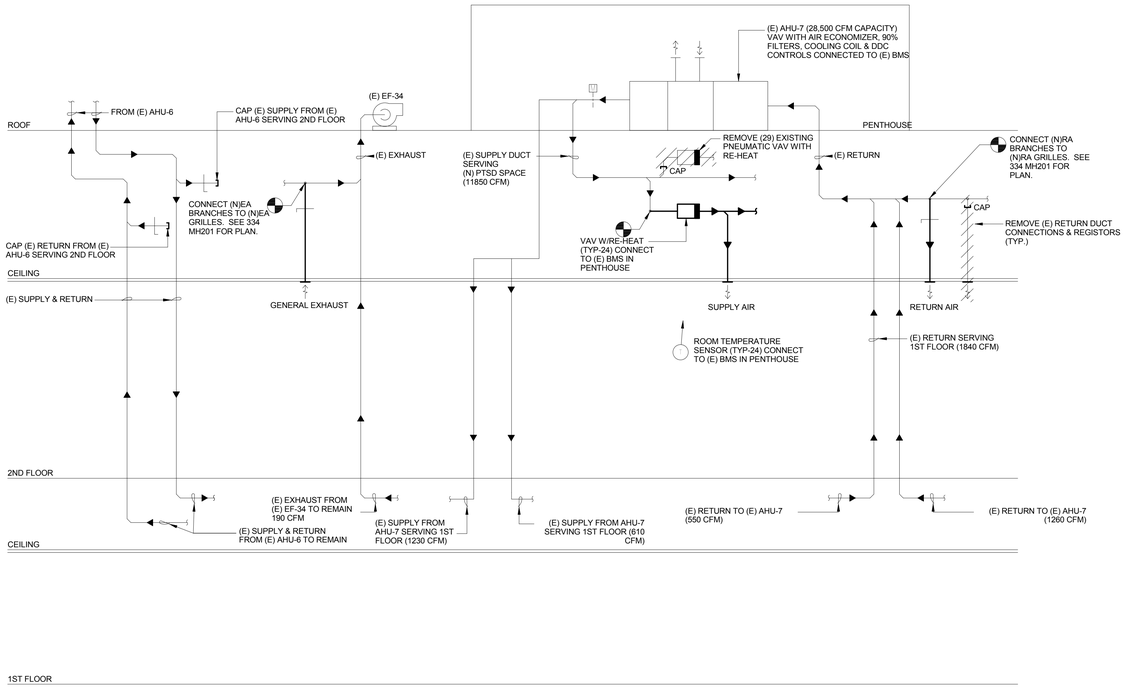
Building Number: Building 334

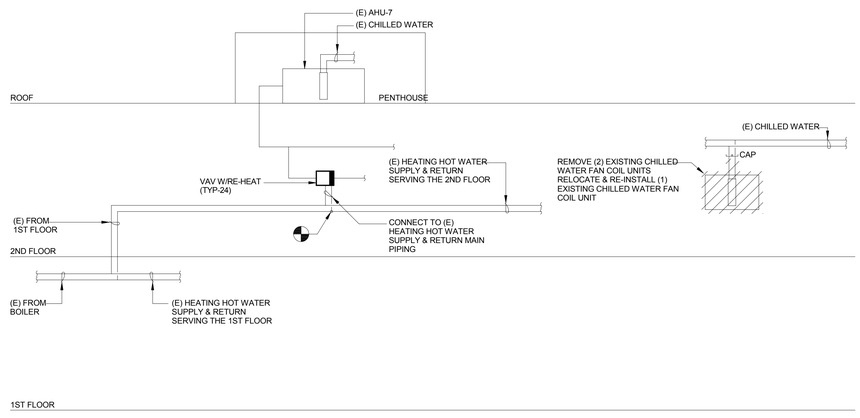
Drawing Number: 334 MP201

Office of Construction and Facilities Management

Department of Veterans Affairs



1 334 MH401 PTSD AIRFLOW DIAGRAM NTS



2 334 MH401 PTSD PIPING DIAGRAM NTS

100% CD/BID SUBMISSION
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Drawing Title: AIRFLOW AND PIPING DIAGRAMS - PTSD

Approved: Project Director

Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION

Location: 795 WILLOW ROAD, MENLO PARK, CA

Date	Checked	Drawn
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Building Number: Building 334

Drawing Number: 334 MH401

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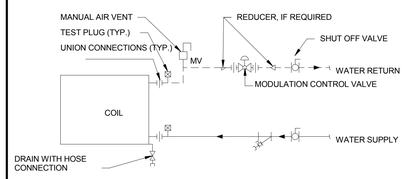
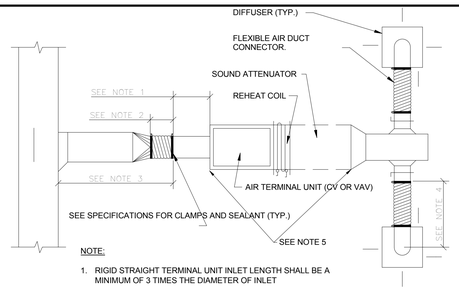


11 TERMINAL UNIT WATER COILS - PIPING CONNECTIONS

NTS

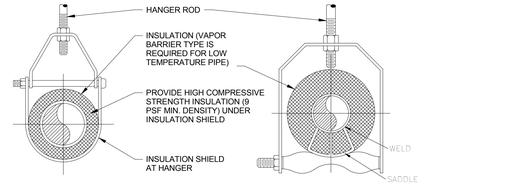


NOTE:

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.

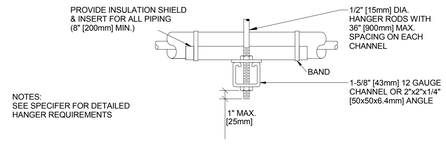
8 DUCT CONNECTIONS - AIR TERMINAL UNITS

NTS



ADJUSTABLE CLEVIS HANGER TYPE 1 - SEE SPECIFICATIONS

ADJUSTABLE CLEVIS HANGER TYPE 43 - SEE SPECIFICATIONS



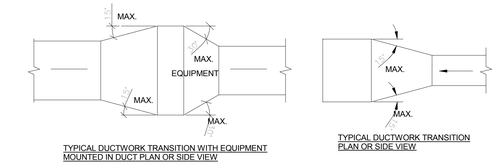
NOTES:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. [453KG] UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING																				
NOM. SIZE	IN. [mm]	THRU 3/4 THRU [20]	1 [25]	1 1/4 [32]	1 1/2 [40]	2 [50]	2 1/2 [65]	3 [75]	4 [100]	5 [125]	6 [150]	8 [200]	10 [250]	12 [300]	14 [350]	16 [400]	18 [450]	20 [500]	24 [600]
PIPE	FT. [mm]	7 [2100]	7 [2100]	7 [2100]	9 [2700]	10 [3000]	11 [3400]	12 [3700]	14 [4100]	16 [4900]	17 [5200]	19 [5800]	22 [6700]	23 [7000]	25 [7600]	27 [8200]	28 [8500]	30 [9100]	32 [9600]
TUBING	FT. [mm]	5 FT [1500]	6 [1800]	7 [2100]	8 [2400]	8 [2400]	9 [2700]	10 [3000]	12 [3700]	13 [4000]	14 [4100]	16 [4900]	- -	- -	- -	- -	- -	- -	- -
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.																				

4 PIPE HANGERS

NTS



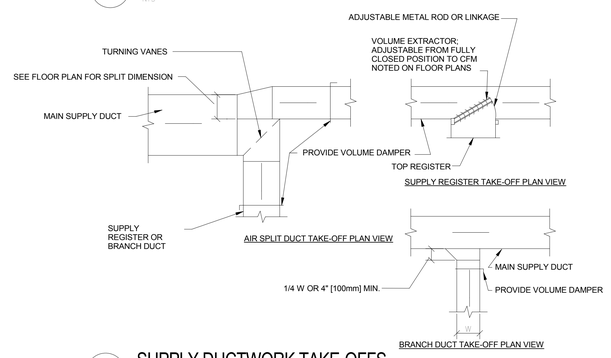
TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

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

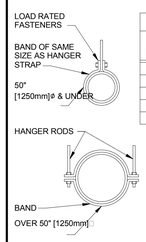
1 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)

NTS



2 SUPPLY DUCTWORK TAKE-OFFS

NTS

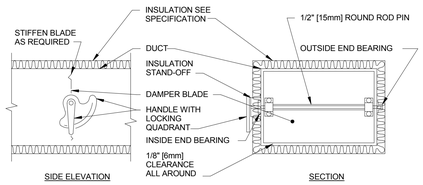


HANGER STRAPS OR RODS			
MAX. DUCT □ IN. [mm]	QUANTITY/SIZE IN. [mm]	MAX. LOAD LBS. [kg]	MAX. SPACING IN. [mm]
26 [650]	ONE 1 [25] x 22 GA STRAP	260 [119]	144 [3600]
36 [900]	ONE 1 [25] x 18 GA STRAP	420 [190]	144 [3600]
50 [1250]	ONE 1 [25] x 16 GA STRAP	700 [317]	144 [3600]
60 [1500]	TWO 3/8 [10] □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

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

12 ROUND DUCT HANGERS

NTS

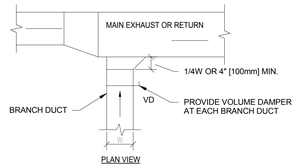


NOTE:

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.

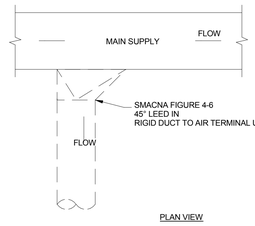
9 VOLUME DAMPER DETAIL

NTS



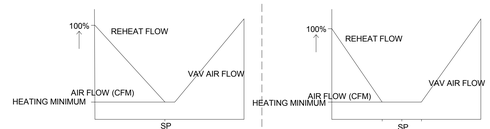
7 EXHAUST OR RETURN BRANCH DUCTWORK

NTS



5 ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

NTS



VAV BOX CONTROL SEQUENCE

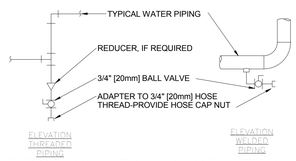
NO DEADBAND

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

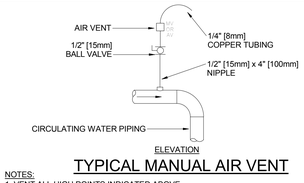
W/DEADBAND

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.



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

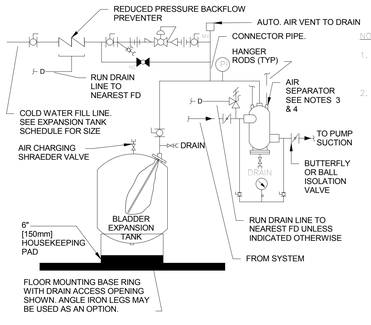


TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

13 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)

NTS

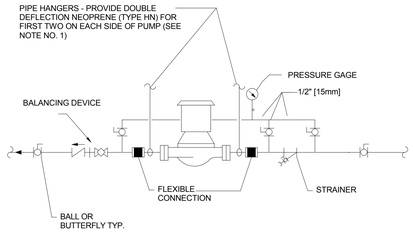


NOTE:

1. SEE EXPANSION TANK SYSTEM SCHEDULE FOR COMPONENT SIZES.
2. SET PRESSURE REDUCING VALVE SO PRESSURE AT HIGHEST POINT IN SYSTEM HAS A MINIMUM OF 4 PSIG [28kPa].

10 FLOOR MOUNTED EXPANSION TANK - PIPING CONNECTIONS

NTS

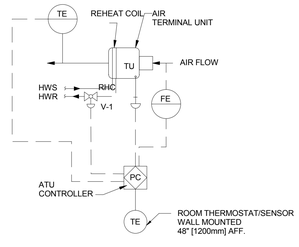


NOTES:

1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

6 IN-LINE PUMPS - CONNECTIONS

NTS



NO SUPPLEMENTAL HEATING

3 VARIABLE VOLUME AIR TERMINAL UNIT CONTROL DIAGRAM

NTS

100% CD/BID SUBMISSION
FEBRUARY 2, 2016

Revisions:	Date
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Drawing Title: DETAILS - PTSD	Project Title: POST TRAUMATIC STRESS DIAGNOSIS (PTSD) EXPANSION AND RENOVATION		Project Number: 612-125
			Building Number: Building 334
Approved: Project Director	Location: 795 WILLOW ROAD, MENLO PARK, CA		Drawing Number: 334 MH501
	Date: 06/04/15	Checked: MT / Drawn: NS	

Office of Construction and Facilities Management

Department of Veterans Affairs