



**LEGEND**

**PIPING**

—BD—	BOILER BLOW DOWN
—CWR—	CHILLED WATER RETURN
—CWS—	CHILLED WATER SUPPLY
—CR—	CONDENSER WATER RETURN
—CS—	CONDENSER WATER SUPPLY
—D—	DRAIN LINE
—FR—	FUEL OIL RETURN
—FS—	FUEL OIL SUCTION
—G—	GAS
---HR---	HOT WATER RETURN
—HS—	HOT WATER SUPPLY
—H—	HUMIDIFICATION LINE
—LG—	LIQUID PETROLEUM GAS
—MU—	MAKEUP WATER
—RD—	REFRIGERANT DISCHARGE
—RL—	REFRIGERANT LIQUID
—RS—	REFRIGERANT SUCTION
—W—	WASTE
-----	UNDERGROUND STORAGE TANK - ELECTRICAL CONDUIT
-----	UNDERGROUND STORAGE TANK - GASOLINE OR DIESEL
-----	UNDERGROUND STORAGE TANK - STAGE II VAPOR RECOVERY
.....	VENT

**FITTINGS**

	BRANCH OFF TOP OF MAIN
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	PIPE RISER DOWN
	PIPE RISER UP
	UNION

**VALVES**

	AIR ELIMINATOR
	BALL
	CHECK
	FLOW CONTROL
	GAS
	HOT WATER CONTROL
	PLUG
	PRESSURE AND TEMPERATURE RELIEF
	PRESSURE REDUCING
	SAFETY
	SHOW
	SOLENOID
	THREE-WAY MIXING
	TRIPLE DUTY
	TWO-WAY MIXING

**PIPING SPECIALTIES**

	AIR SEPARATOR
	AIR VENT
	REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER
	CABINET UNIT HEATER
	CAP
	CIRCUIT SETTER WITH GAUGE CONNECTIONS
	CONVECTUR
	DIAL TYPE THERMOMETER
	DRAW OFF DRAIN
	EXPANSION JOINT
	FINNED TUBE RADIATION
	FLEXIBLE CONNECTOR
	FLOW SWITCH
	HORIZONTAL UNIT HEATER (UH), PLAN VIEW
	IMMERSION SENSOR IN SENSOR WELL

**LEGEND CONT.**

**PIPING SPECIALTIES CONT.**

	FLOWMETER, ORIFICE
	FLOWMETER, VENTURI
	OIL TRANSFER PUMP
	PRESSURE GUAGE WITH BRASS PETCOCK
	RUNNING TRAP
	STRAIGHT TYPE THERMOMETER
	STRAINER
	WATER HAMMER ARRESTOR (WITH ACCESS DOOR IF REQUIRED)
	ZONE CIRCULATING WATER PUMP

**AIR MOVING DEVICES**

	DETECTOR, CARBON DIOXIDE
	DETECTOR, CARBON MONOXIDE #X
	DETECTOR, NITROGEN DIOXIDE #X
	FAN, AXIAL FLOW (AF-X)
	FAN, AXIAL FLOW - PLAN VIEW (AF-X)
	FAN, CENTRIFUGAL (CF-X)
	FAN, PADDLE (PF-X)
	FAN, PADDLE - PLAN VIEW (PF-X)
	FAN SPEED CONTROL SWITCH
	ROOF VENTILATOR, EXHAUST
	ROOF VENTILATOR, INTAKE
	ROOF VENTILATOR, LOUVERED
	UNIT VENTILATOR, PLAN VIEW

**DUCTWORK**

	ACCESS DOOR
	DAMPENER, BACKDRAFT
	DAMPENER, ELECTRIC OPERATED
	DAMPENER, FIRE
	DAMPENER, PNEUMATIC
	DAMPENER, SMOKE
	DAMPENER, SPLITTER
	DAMPENER, VOLUME
	DUCT SECTION, RETURN OR EXHAUST
	DUCT SECTION, SUPPLY
	DUCT SIZE (WIDTH x DEPTH) - INCHES (DUCT SIZES ARE INSIDE DIMENSIONS)
	DUCT SMOKE DETECTOR
	FLEXIBLE CONNECTION
	FLEXIBLE DUCT
	FREEZESTAT
	LOW LIMIT THERMOSTAT
	MIXING BOX
	PRESSURE AIR FLOW, NEGATIVE
	PRESSURE AIR FLOW, POSITIVE
	TERMINAL UNIT, REHEAT VARIABLE VOLUME
	TERMINAL UNIT, VARIABLE VOLUME SENSOR, DUCT
	TERMINAL UNIT, VARIABLE VOLUME SENSOR, VELOCITY
	TERMINAL UNIT, REHEAT VARIABLE VOLUME
	TERMINAL UNIT, VARIABLE VOLUME

**LEGEND CONT.**

**GRILLES, REGISTERS, AND DIFFUSERS**

	2-WAY CEILING DIFFUSER (D)
	4-WAY CEILING DIFFUSER (D)
	DOOR GRILLE
	INTAKE LOUVERS ON SCREEN
	LINEAR DIFFUSER
	LOUVER OPENING
	RETURN GRILLE (RG)
	UNDERCUT DOOR

**MISCELLANEOUS**

	CENTER LINE
	COMPRESSOR SUCTION VALVE, PRESSURE LIMITING THROTTLING TYPE (COMPRESSOR SIDE)
	CONDENSING UNIT
	CONSTANT PRESSURE VALVE, SUCTION
	CURRENT SWITCH
	DOOR POSITION SWITCH
	DRYER
	EVAPORATOR PRESSURE REGULATING VALVE, SNAP-ACTION
	EVAPORATOR PRESSURE REGULATING VALVE, THERMOSTATIC, THROTTLING TYPE
	EVAPORATOR PRESSURE REGULATING VALVE, THROTTLING TYPE (EVAPORATOR SIDE)
	EXPANSION VALVE
	FILTER
	FILTER AND STRAINER
	FILTER DRYER
	OUTDOOR AIR TEMPERATURE SENSOR
	PRESSURE SWITCH
	SCALE TRAP
	SIGHT GLASS
	SPACE SENSOR
	SPACE SENSOR WITH EMERGENCY OVERRIDE
	SPACE SENSOR WITH TIMED OVERRIDE
	SPACE SENSOR-WEATHERPROOF
	THERMAL BULB

**GENERAL NOTES**

- THE INSTALLER SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE TO NOTIFY THE ENGINEER WILL NOT RELIEVE THE INSTALLER OF RESPONSIBILITY. THE INSTALLER SHALL CORRECT ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.
- MECHANICAL INSTALLER SHALL BE REQUIRED TO COORDINATE WITH ALL NECESSARY CONTRACTORS TO PREVENT INSTALLATION CONFLICTS.
- ALL DUCTWORK AND EQUIPMENT SHALL BE SUPPORTED TO SUIT FIELD CONDITIONS AS APPROVED BY THE DESIGNER.
- USE FLEXIBLE CONNECTIONS ON ALL EQUIPMENT SUPPLY, RETURN, & EXHAUST OPENINGS.
- METHOD OF SEALING HVAC WALL PENETRATIONS SHALL BE IN ACCORDANCE WITH NFPA STANDARDS.
- HVAC EQUIPMENT CLEARANCES SHALL BE IN ACCORDANCE WITH NFPA STANDARDS, INCLUDING NFPA 90A AND NFPA 251.
  - ALL SPACE SENSORS IN THE OFFICE CORE SHALL BE MOUNTED 48" AFF MAX TO TOP OF SENSOR WHILE ALL SPACE SENSORS IN THE BAY AREAS SHALL BE MOUNTED 72" AFF MAX TO TOP OF SENSOR.
  - ALL CARBON DIOXIDE SENSORS IN THE OFFICE CORE SHALL BE MOUNTED 48" AFF MAX TO TOP OF SENSOR.
  - ALL REMOTE CARBON MONOXIDE SENSORS SHALL BE MOUNTED AT THE BOTTOM OF STEEL JOISTS.
  - ALL NITROGEN DIOXIDE SENSORS SHALL BE MOUNTED 18" AFF. PROVIDE GUARDS TO PROTECT SENSORS. PROVIDE RAINSHIELD FOR WASH BAY SENSOR.

**ABBREVIATIONS**

AC	AIR CONDITIONING
AD	ACCESS DOOR
AF	AXIAL FAN
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ACOUSTICAL LINING
AMB	AMBIENT
ATC	AUTOMATIC TEMPERATURE CONTROL
AVG	AVERAGE
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BO	BLANK OFF
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STEEL
BTUH	BRITISH THERMAL UNITS/HOUR
C	CONVECTOR
CA	COMBUSTION AIR
CAP	CAPACITY
CCH	CABINET CONVECTION HEATER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CSBV	COMBINATION SHUTOFF & BALANCE
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
D	DIFFUSER
DBT	DRY BULB TEMPERATURE
DC	DOOR CONTACT
dia	DIAMETER
DN	DOWN
DOD	DRAW OFF DRAIN
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FA	FRESH AIR
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FO	FUEL OIL
FPM	FEET PER MINUTE
FRP	FIBERGLASS REINFORCED PIPE
FT	FOOT/FEET
FTR	FINNED TUBE RADIATION
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
H	HOT
HM	HOT WATER MAIN LOOP
HP	HORSEPOWER
HGT	HEIGHT
HV	HEATING AND VENTILATION
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HWB	HOT WATER BOILER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
Hz	HERTZ

**ABBREVIATIONS CONT.**

id	INSIDE DIAMETER
JB	JUNCTION BOX
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAINT	MAINTENANCE
max	MAXIMUM
MBH	THOUSAND BTUH
min	MINIMUM
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
N	NEUTRAL
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTDOOR AIR
oc	ON CENTER
od	OUTSIDE DIAMETER
OL	OVER LOAD
OPP	OPPOSITE
PD	PRESSURE DROP
PF	PADDLE FAN
PH	PHASE
PLCS	PLACES
PVC	POLY VINYL CHLORIDE CONDUIT
R	RETURN
rad	RADIUS
RA	RETURN AIR
REQ'D	REQUIRED
RG	RETURN GRILLE
RHC	REHEAT COIL
RMC	RIGID METAL CONDUIT
RPM	REVOLUTIONS PER MINUTE
RSC	RIGID STEEL CONDUIT
S	SUPPLY
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SP	STATIC PRESSURE
SQ	SQUARE
STD	STANDARD
TCM	THERMOSTAT CONTROL MODULE
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UST	UNDERGROUND STORAGE TANK
UV	UNIT VENTILATOR
V	VOLT
VAC	VOLTAGE ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VIF	VERIFY IN FIELD
W/	WITH
WG	WATER GAUGE
WBT	WET BULB TEMPERATURE
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DROP

**GENERAL NOTES CONT.**

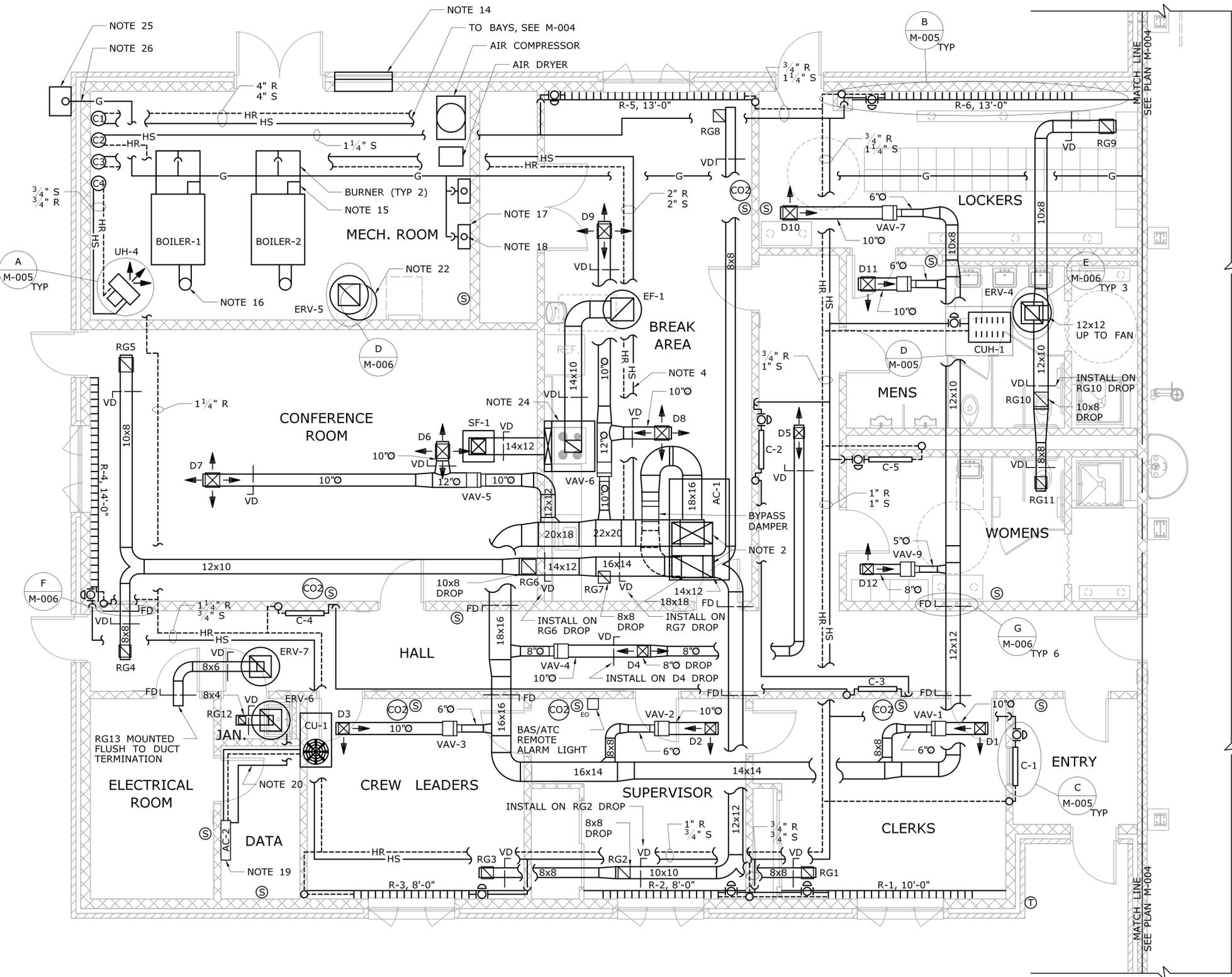
- METHODS OF ATTACHMENT OF SEISMIC RESTRAINT CABLES SHALL COMPLY WITH THE FOLLOWING:
  - TO EQUIPMENT: BOLT ANGLE CLIPS TO SUSPENDED EQUIPMENT ADJACENT TO THE HANGER RODS. ORIENT THE FOUR SEISMIC CABLES 90° TO EACH OTHER. ATTACH SEISMIC CABLES TO ANGLE CLIPS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - TO STRUCTURE: ATTACH SEISMIC CABLE TO TOP CHORD OF ROOF JOISTS WITH APPROPRIATE FASTENING DEVICES. WELDING, BURNING, OR DRILLING OF THE ROOF JOISTS SHALL NOT BE PERMITTED. THE SEISMIC CABLE SHALL BE DRAWN TAUT BUT SHALL NOT DISPLACE THE UNITS. ATTACHMENT TO BOTTOM CHORD OF ROOF JOISTS SHALL NOT BE PERMITTED! PROVIDE DESIGNER WITH METHOD OF ATTACHMENT TO ROOF JOISTS FOR APPROVAL.
- UNLESS OTHERWISE INDICATED, ALL BRANCH PIPING SHALL BE OFF THE BOTTOM OF THE MAIN PIPING RUN.
- EXCAVATION FOR MECHANICAL SYSTEMS WITHIN THE BUILDING TO A POINT 5-FEET OFF THE OUTSIDE OF THE FOUNDATION WALL IS INCLUDED FOR PAYMENT IN THE MLSI. THERE WILL BE NO SEPARATE PAYMENT FOR EXCAVATION FOR THESE SYSTEMS. REFER TO SUPPORTING DOCUMENTS SUBSET FOR PAY LIMITS FOR MAJOR LUMP ITEM (MLSI).

DESIGNER/DRAFTER: <b>NAR</b>	<p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p>	SIGNATURE/ BLOCK: 	PROJECT TITLE: <b>OCCUM MAINTENANCE FACILITY</b>	TOWN: <b>OCCUM</b>	PROJECT NO. <b>103-247</b>
CHECKED BY: <b>JJT</b>		APPROVED BY:		DRAWING TITLE: <b>LEGEND &amp; GENERAL NOTES</b>	DRAWING NO. <b>M-002</b>
NOT TO SCALE	Filename: ...FD_MSH_MEC.0103_0247_M002.dgn				SHEET NO. <b>09.02</b>

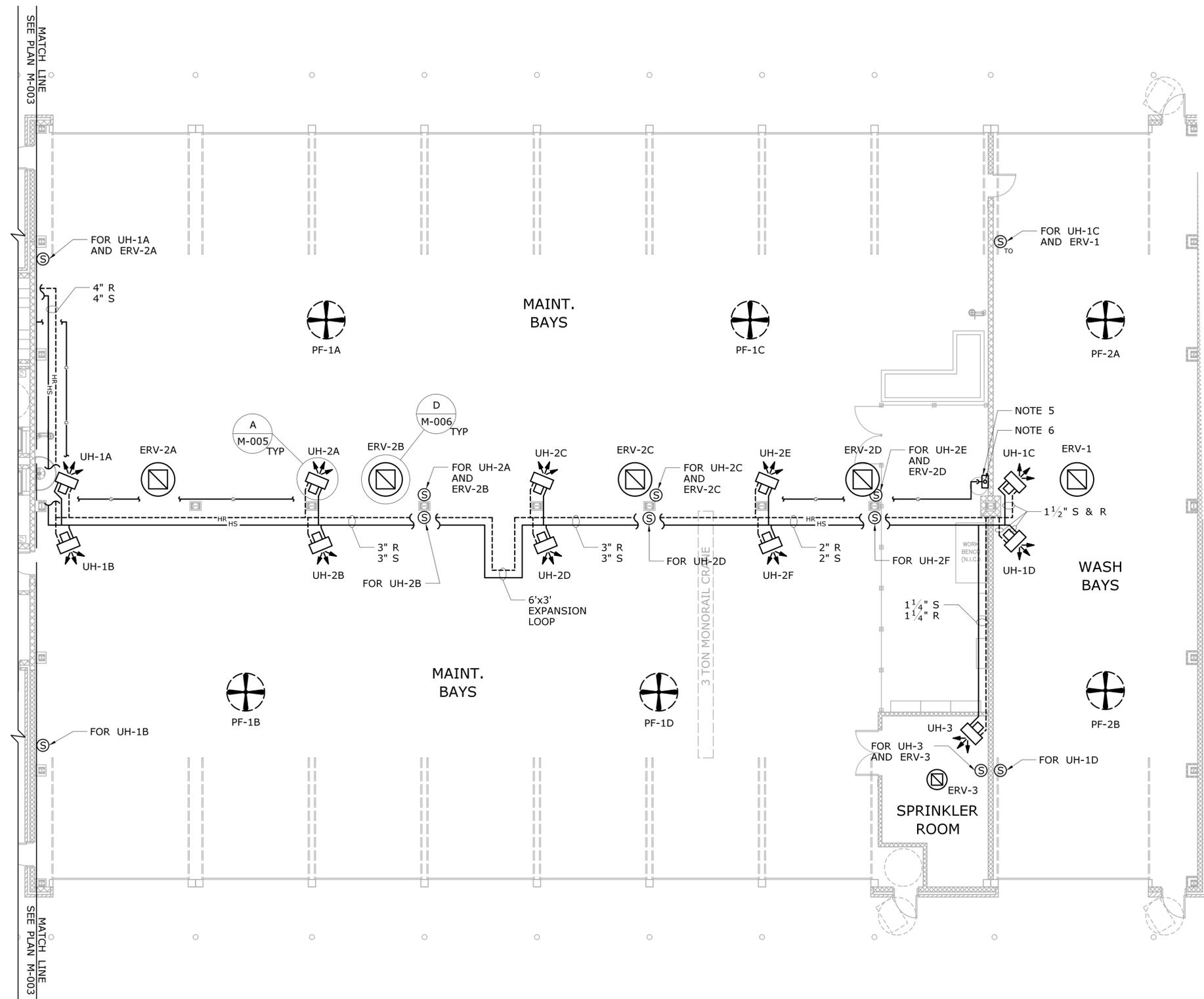
REV.	DATE	REVISION DESCRIPTION	SHEET NO.
			Plotted Date: 5/20/2015

NOTES:

- DUCT MOUNTED SMOKE DETECTOR TO BE FURNISHED IN SUPPLY AND RETURN PLENUM, WIRED, AND CONNECTED BY THE ELECTRICAL INSTALLER. TO BE INSTALLED BY THE MECHANICAL INSTALLER. REFER TO ELECTRICAL DRAWINGS.
- OPENING THRU ROOF FOR AC-1. FIELD VERIFY SIZE WITH APPROVED AC UNIT BASED UPON AS SPECIFIED.
- L, S, V, IN SUPPLY DUCTWORK UP THROUGH ROOF TO ROOFTOP UNIT.
- TO HYDRONIC HEATING COIL (HWC-1) IN SUPPLY DUCTWORK. REFER TO DRAWING NO. M-005 FOR HWC PIPING DIAGRAM.
- PROVIDE RECTANGULAR TO ROUND DUCT TRANSITIONS AT VAV DAMPER LOCATIONS.
- EXHAUST DUCTWORK IN BATHROOMS AND JANITOR'S CLOSET SHALL BE ALUMINUM IN ACCORDANCE WITH CSI SECTION 233113.
- REFER TO DRAWING NO. A-501 FOR THE REFLECTED CEILING PLAN.
- REFER TO DRAWING NO. M-006 FOR DUCT DETAILS.
- INSTALL CONVECTOR AND FIN TUBE RADIATION PIPING IN ACCORDANCE WITH THE DETAILS ON DRAWING NO. M-005. ALL PIPING DROPS AND RISES SHALL BE IN THE ENCLOSURE AND WALLS. SOME LOCATIONS SHOWN ARE FOR CLARITY ONLY. TWO POSITION HOT WATER CONTROL VALVES SHALL BE WITHIN THE ENCLOSURES, LOCATIONS SHOWN ARE FOR CLARITY ONLY.
- REFER TO PLAN M-005 FOR HYDRONIC PIPING DIAGRAM.
- REFER TO DRAWING NO. P-010 FOR EXTERIOR WALL, FLOOR, AND FIRE WALL PIPE SLEEVE DETAILS.
- SURFACE MOUNTED CONDUITS IN THE MECHANICAL, ELECTRICAL, DATA, AND BAY AREAS SHALL BE: RMC BELOW 10'-0" AFF, EMT ABOVE 10'-0". REFER TO CSI SECTION 260533 FOR ADDITIONAL INFORMATION.
- EQUIPMENT IS TO BE INSTALLED ON 6" THICK CONCRETE PADS, SIZED 4" LARGER ON EACH SIDE THAN THE EQUIPMENT BASE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - BOILERS 1 & 2 - ONE PAD
  - EXPANSION TANK - ONE PAD
 CONCRETE PADS SHALL BE INSTALLED BY THE CONCRETE INSTALLER IN THE LOCATIONS INDICATED BY THE MECHANICAL INSTALLER.
- TWO COMBUSTION AIR LOUVERS WITH MOTORIZED ACTUATORS, WITH A MINIMUM OF 6.00 SQUARE FEET OF FREE AREA EACH, ONE 12" ABOVE FLOOR LEVEL AND ONE 12" BELOW CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND SIZE. INTERLOCK WITH BURNERS FOR BOILERS (BY BAS/INSTALLER).
- BOILER OVERRIDE (AUTO/MANUAL) SWITCH TO BE INSTALLED BY BAS/ATC INSTALLER (TYP 2 PLCS).
- 10" i.d. BREECHING AND CHIMNEY (TYP 2 PLCS), REFER TO DETAIL ON DRAWING NO. M-007.
- TANKLESS WATER HEATER (TYP 2), REFER TO DETAIL ON DRAWING NO. P-008.
- 3"/5" CONCENTRIC TYPE III CHIMNEY PIPE THROUGH ROOF (TYP 2) FOR TANKLESS WATER HEATERS. REFER TO DETAIL ON M-007
- AC-2 MOUNTED 7' AFF TO BOTTOM OF UNIT, CU-1 IS ROOF MOUNTED. PROVIDE REFRIGERANT PIPING FROM FEU-1 TO AC-2. SIZE REFRIGERANT PIPING PER MANUFACTURERS REQUIREMENTS.
- PROVIDE CONDENSATE DRAIN PIPING FROM AC-2 THRU WALL TO JANITORS SINK. CONTRACTOR SHALL MAINTAIN 1/8" PER FOOT MINIMUM DRAINING PITCH AND RUN PIPING TIGHT TO WALLS. PROVIDE 4" AIR GAP ABOVE SINK.
- PIPE CONDENSATE DRAIN FOR AC-1 AND CU-1 A MINIMUM OF 1'-0" AWAY TOWARDS ROOF DRAIN.
- 159 GALLON (FULL ACCEPTANCE) BLADDER-TYPE EXPANSION TANK, FLOOR MOUNTED.
- CONTRACTOR SHALL INSULATE BEHIND SENSORS.
- TYPE II COMMERCIAL KITCHEN EXHAUST HOOD WITH BACK SUPPLY PLENUM. REFER TO CSI SECTION 233813 FOR MORE INFORMATION.
- METER-SET INSTALLED BY NORWICH PUBLIC UTILITIES (NPU). REFER TO DRAWING C-004 FOR LOCATION OF GAS SERVICE LINE BY NPU. REFER TO DRAWING M-007 FOR GAS PIPING RISER DIAGRAM. INSTALL ON CONCRETE SLAB SIZED IN ACCORDANCE WITH CNG REQUIREMENTS.
- GAS PIPING PENETRATION THRU WALL AT APPROXIMATELY 5'-0" AFF, PROVIDE SLEEVE THRU WALL.



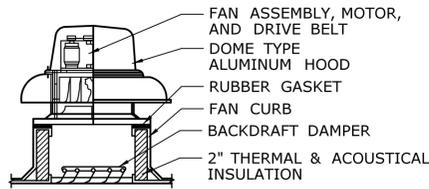
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: <b>NAR</b> CHECKED BY: <b>JJT</b>	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:  APPROVED BY:	PROJECT TITLE: <b>OCCUM                  MAINTENANCE                  FACILITY</b>	TOWN: <b>OCCUM</b>	PROJECT NO. <b>103-247</b> DRAWING NO. <b>M-003</b> SHEET NO. <b>09.03</b>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/20/2015	SCALE: 1/4" = 1'-0"	Filename: ...FD_MSH_MEC.0103_0247_M003.dgn	



- NOTES:
1. CONTRACTOR SHALL INSULATE BEHIND SENSORS.
  2. REFER TO DRAWING NO. P-010 FOR WALL SLEEVE DETAILS.
  3. THE FOLLOWING TYPES OF SURFACE MOUNTED CONDUIT SHALL BE INSTALLED IN THE BAY AREAS: RMC BELOW 10'-0" AFF, EMT ABOVE 10'-0". REFER TO CSI SECTION 260533 FOR ADDITIONAL INFORMATION.
  4. REFER TO ELECTRICAL DRAWINGS FOR PADDLE FAN SPEED CONTROLLER LOCATIONS.
  5. TANKLESS WATER HEATER, REFER TO DETAIL ON DRAWING NO. P-008.
  6. 3"/5" CONCENTRIC TYPE III CHIMNEY PIPE THROUGH ROOF FOR TANKLESS WATER HEATER, REFER TO DETAIL ON M-007

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: <b>NAR</b> CHECKED BY: <b>JJT</b>	<b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY: 	PROJECT TITLE: <b>OCCUM MAINTENANCE FACILITY</b>	TOWN: <b>OCCUM</b>	PROJECT NO. <b>103-247</b> DRAWING NO. <b>M-004</b> SHEET NO. <b>09.04</b>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/20/2015	SCALE: 1/8" = 1'-0"	FILENAME: ...FD_MSH_MEC.0103_0247_M004.dgn	DRAWING TITLE: <b>BAY AREA MECHANICAL PLAN</b>

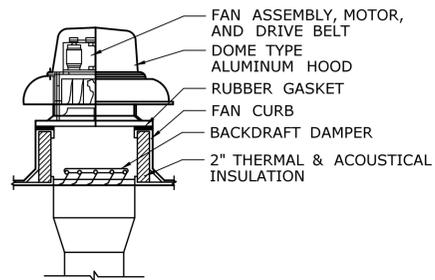
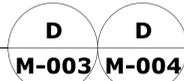




NOTE:

1. OPENING THROUGH ROOF AS SPECIFIED IN SCHEDULE. FIELD VERIFY SIZE WITH EXHAUST FAN AND ROOF CURB.

**ROOF MOUNTED EXHAUST FAN (ERV) DETAIL**



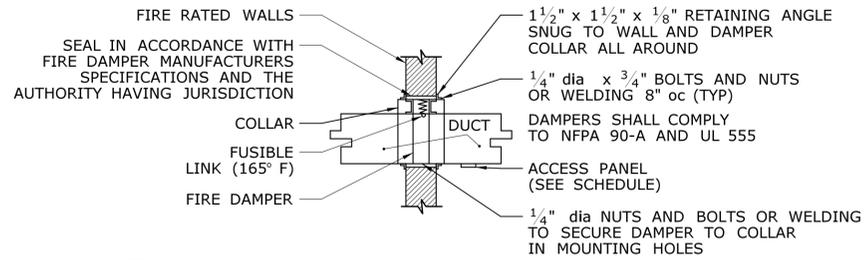
NOTE:

1. OPENING THROUGH ROOF AS SPECIFIED IN SCHEDULE. FIELD VERIFY SIZE WITH EXHAUST FAN AND ROOF CURB.

**DUCTED ROOF MOUNTED EXHAUST FAN (ERV) DETAIL**



ACCESS PANEL SCHEDULE	
DUCT WIDTH	MINIMUM PANEL SIZE
UP TO 12"	6" x 12"



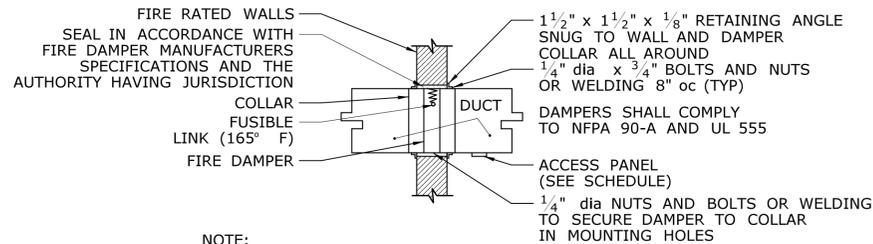
NOTE:

1. FOR USE IN HIGH AND MEDIUM PRESSURE DUCTWORK AND LOW PRESSURE DUCTWORK WITH SIDE DIMENSION LESS THAN 12".

**FIRE DAMPER DETAIL FOR DUCTWORK WITH SIDE DIMENSION UP TO 12"**



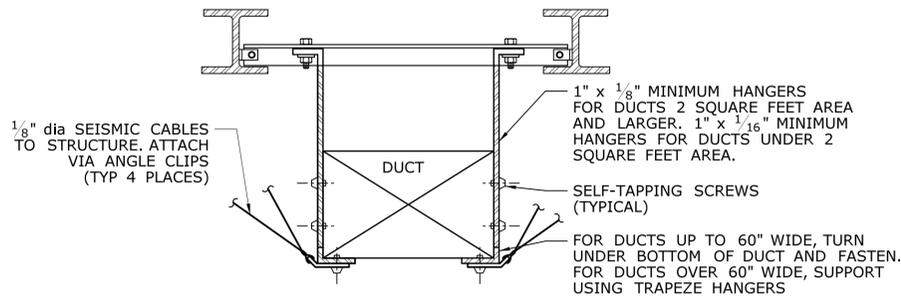
ACCESS PANEL SCHEDULE	
DUCT WIDTH	MINIMUM PANEL SIZE
UP TO 12"	6" x 12"
13" TO 24"	12" x 12"
25" AND UP	18" x 18"



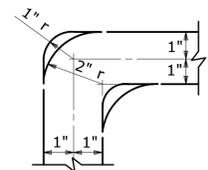
NOTE:

1. FOR USE IN LOW PRESSURE DUCTWORK.

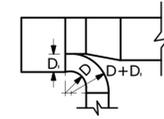
**FIRE DAMPER DETAIL FOR DUCTWORK WITH SIDE DIMENSION 12" AND GREATER**



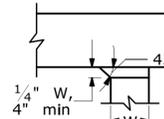
**METHOD OF HANGING DUCTWORK**



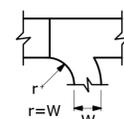
**TURNING VANES**  
SUPPLY & RETURN DUCTS



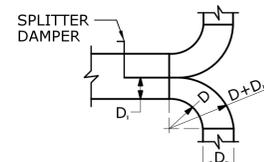
**TAKE - OFF**  
SUPPLY DUCTS ONLY



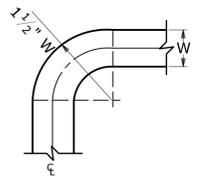
**TAKE - OFF**  
SUPPLY DUCTS ONLY



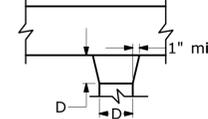
**CONVERGING WYE**  
RETURN DUCTS ONLY



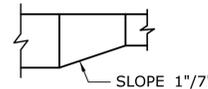
**LONG RADIUS TEE**  
SUPPLY DUCTS ONLY



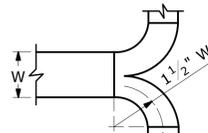
**FULL RADIUS ELBOW**  
SUPPLY & RETURN DUCTS



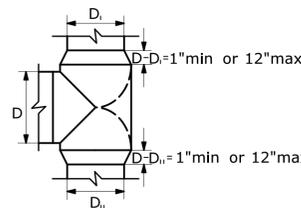
**TAKE - OFF**  
SUPPLY DUCTS ONLY



**TRANSITION**  
SUPPLY & RETURN DUCTS

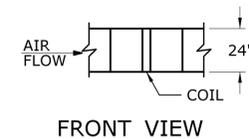


**LONG RADIUS TEE**  
RETURN DUCTS ONLY

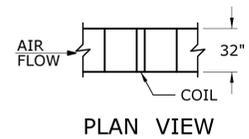


**BULLHEAD TEE WITH VANES**  
ROUND SUPPLY DUCTS ONLY

**TYPICAL DUCT DETAILS**



**FRONT VIEW**



**PLAN VIEW**

**HEATING COIL DUCT TRANSITIONS**

NOTES:

1. REFER TO A-802 FOR FLASHING DETAILS.
2. REFER TO P-010 FOR PIPING SUPPORT AND SLEEVE DETAILS.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/20/2015

DESIGNER/DRAFTER:  
**NAR**  
CHECKED BY:  
**JJT**  
NOT TO SCALE

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

SIGNATURE/BLOCK:  
**OFFICE OF ENGINEERING**  
APPROVED BY:  
*Anthony M. Di...*

PROJECT TITLE:  
**OCCUM MAINTENANCE FACILITY**

TOWN:  
**OCCUM**  
DRAWING TITLE:  
**TYPICAL HVAC DETAILS**

PROJECT NO.  
**103-247**  
DRAWING NO.  
**M-006**  
SHEET NO.  
**09.06**



ROOFTOP AIR CONDITIONER SCHEDULE																	
MARK	AREA SERVED	MODEL NO.	CFM	OA CFM	COOLING LOAD		EDB	EWB	LDB	LWB	ESP	EER	SEER	COMP MOTOR	IND FAN MOTOR	OUT FAN MOTOR	VOLT/PH/HZ
					SENSIBLE	LATENT											
AC-1	OFFICE	THC092F3R0A	3377	926	95.33	33.83	77.30	65.10	60.27	56.64	1.90	12.6	----	5.71 kW	2.4 HP	0.71 kW	208V, 3PH, 60HZ
AC-2	DATA ROOM	CS-S9NKUA	230-395	0	8.5	-	-	-	-	-	-	13.1	21.0	-	-	-	208V, 1PH, 60HZ

NOTES:  
1. AC-1 BASED ON TRANE CO., AC-2 BASED ON PANASONIC  
2. WITH ECONOMIZERS  
3. TEMPERATURES IN DEGREES - FAHRENHEIT  
4. AMBIENT TEMPERATURE = 90 DEGREES

PUMP SCHEDULE					
PUMP	AREA SERVED	TYPE & MODEL NO.	GPM	HEAD (FT)	MOTOR
C1	BAY AREA	1941-2"	125	41	2HP, 208V, 3PH, 60HZ
C2	OFFICE - FTR & CONV.	IL-0011-1 1/4"	10	14	1/8HP, 115V, 1PH, 60HZ
C3	OFFICE - HEATING COIL	1915-1 1/2"	27	22	1/3HP, 115V, 1PH, 60HZ
C4	MECHANICAL ROOM	IL 009-3/4"	5	14	1/8HP, 115V, 1PH, 60HZ
C5	BOILER SECONDARY	KV 3006-3"x3"	126	10	3/4HP, 208V, 3PH, 60HZ
C6	BOILER SECONDARY	KV 3006-3"x3"	126	10	3/4HP, 208V, 3PH, 60HZ

NOTE: BASED ON TACO.

HYDRONIC COIL SCHEDULE													
MARK	LOCATION	TYPE & MODEL NO.	FINS/FT	MBH	GPM	CFM	EAT	EWT	LAT	WTD	WPD	APD	FACE VELOCITY (FPM)
HWC-1	DUCT MOUNTED, AC-1	24"x32" TYPE WL - 2 ROW	149	265.52	26.46	3377	47.5	200	120	20	2.00	0.26	608

NOTES:  
1. BASED ON TRANE CO.  
2. TEMPERATURES ARE IN DEGREES - FAHRENHEIT

CONVECTOR/CABINET UNIT HEATER SCHEDULE											
MARK	LOCATION	MODEL NO.	GPM	MBH	H x D x L	EWT	LWT	EAT	TYPE		
C-1	VESTIBULE	SW-A	0.40	3.9	14" x 4" x 32"	200	180	65	SLOPETOP		
C-2, C-3, C-4	HALLWAY	SW-A	0.40	3.9	14" x 4" x 32"	200	180	65	SLOPETOP		
C-5	WOMEN'S RESTROOM	SW-A	0.46	4.5	14" x 4" x 36"	200	180	65	SLOPETOP		
CUH-1	MEN'S RESTROOM	RC-1200	1.22	11.8	25" x9 1/2" x 35"	200	180	65	CEILING		

NOTES:  
1. BASED ON VULCAN RADIATOR  
2. TEMPERATURES ARE IN DEGREES - FAHRENHEIT  
3. H x D x L DIMENSIONS DO NOT INCLUDE END POCKETS  
4. CUH-1 MOTOR: 1/15HP, 115V, 1PH, 60HZ

VARIABLE AIR VOLUME BOX SCHEDULE						
MARK	MOUNTING LOCATION	AREA SERVED	REQUIRED CFM	ELECTRICAL	MODEL NO.	REMARKS
VAV-1	CLERKS 102	CLERKS 102	275	24 VAC	VCCF06	6" INLET
VAV-2	SUPERVISOR 101	SUPERVISOR 101	260	24 VAC	VCCF06	6" INLET
VAV-3	CREW LEADER 103	CREW LEADER 103	250	24 VAC	VCCF06	6" INLET
VAV-4	HALLWAY 107	HALLWAY 107	400	24 VAC	VCCF08	8" INLET
VAV-5	CONFERENCE ROOM 108	CONFERENCE ROOM 108	800	24 VAC	VCCF10	10" INLET
VAV-6	BREAK AREA 110	BREAK AREA 110	600	24 VAC	VCCF08	8" INLET
VAV-7	LOCKERS 111	LOCKERS 111	292	24 VAC	VCCF06	6" INLET
VAV-8	MEN'S RESTROOM 112	MEN'S RESTROOM 112	300	24 VAC	VCCF06	6" INLET
VAV-9	WOMEN'S RESTROOM 113	WOMEN'S RESTROOM 113	200	24 VAC	VCCF05	5" INLET
BYPASS	CEILING PLENUM - BYPASS DUCT	-	1985	24 VAC	VADA-14x12	14"x12" INLET

NOTE: BASED ON VARITRAC DAMPERS BY TRANE CO.

FINNED TUBE RADIATION SCHEDULE									
MARK	AREA SERVED	BTU PER FT @ 190° F AVG. WT. TEMP	TUBE SIZE	TUBE TYPE	FIN SPACING	FIN SIZE	COVER STYLE	ENCLOSURE HEIGHT	MOUNTING
R-4, R-5	OFFICE	1140	1-1/4"	CU - AL	48 FINS/FT	3 1/4" x 3 1/4"	FS5	14"	WALL
R-1, R-2, R-3, R-6	OFFICE	900	1-1/4"	CU - AL	32 FINS/FT	3 1/4" x 3 1/4"	FS5	14"	WALL

NOTE: BASED ON RITTLING

UNIT HEATER SCHEDULE									
MARK	TYPE & MODEL NO.	MBH	GPM	CFM	EWT	LWT	WPD	MOUNTING HGT	MOTOR
UH-1(A) THRU (D)	HORIZONTAL - 204 - S	148	14.9	2900	200	180	0.79'	13'	1/3HP, 115V, 1PH, 60HZ
UH-2(A) THRU (F)	HORIZONTAL - 144 - S	104	10.4	2200	200	180	0.43'	13'	1/3HP, 115V, 1PH, 60HZ
UH-3	HORIZONTAL - 036 - S	23.5	2.7	480	200	180	0.09'	9'	25W, 115V, 1PH, 60HZ
UH-4	HORIZONTAL - 060 - S	43.6	4.4	1000	200	180	0.17'	10'	25W, 115V, 1PH, 60HZ

NOTES:  
1. BASED ON TRANE CO.  
2. MOUNTING HEIGHT IS THE DISTANCE FROM THE FLOOR TO THE BOTTOM OF THE HEATER  
3. TEMPERATURES ARE IN DEGREES - FAHRENHEIT

EXHAUST FAN SCHEDULE								
MARK	AREA SERVED	TYPE & MODEL NO.	CFM	SP"	TIP SPEED	FAN RPM	MOTOR	
ERV-1	WASH BAYS	ROOF MOUNTED 195C7B	4092	.125	4609	903	3/4HP, 208V, 3PH, 60HZ	
ERV-2(A) THRU (D)	BAY AREA	ROOF MOUNTED 195C7B	4876	.125	5442	1066	1HP, 208V, 3PH, 60HZ	
ERV-3	SPRINKLER ROOM	ROOF MOUNTED 100C2B	510	.125	3241	1238	1/6HP, 115V, 1PH, 60HZ	
ERV-4	RESTROOMS & LOCKERS	ROOF MOUNTED 100C3B	890	.500	4932	1884	1/4HP, 115V, 1PH, 60HZ	
ERV-5	MECHANICAL ROOM	ROOF MOUNTED 100C2B	696	.125	3523	1346	1/6HP, 115V, 1PH, 60HZ	
ERV-6	JANITOR'S CLOSET	ROOF MOUNTED 60C2B	41	.250	2453	937	1/6HP, 115V, 1PH, 60HZ	
ERV-7	ELECTRICAL ROOM	ROOF MOUNTED 70C2B	216	.250	3426	1310	1/6HP, 115V, 1PH, 60HZ	
EF-1	BREAK AREA	ROOF MOUNTED CUBE-99	674	.500	-	1336	1/6HP, 115V, 1PH, 60HZ	

NOTES:  
1. ERV'S BASED ON LOREN COOK  
2. EF-1 BASED ON GREENHECK

SUPPLY FAN SCHEDULE						
MARK	AREA SERVED	TYPE	CFM	SP"	FAN RPM	MOTOR
SF-1	BREAK AREA	ROOF MOUNTED RSF-90	679	.250	1180	1/4HP, 120V, 1PH, 60HZ

NOTE: BASED ON GREENHECK

CONDENSING UNIT SCHEDULE									
MARK	AREA SERVED	EQUIPMENT SERVED	MODEL NO.	TONS	REFRIG.	NO. OF CIRCUITS	SEER	MOTOR	VOLT/PH/HZ
CU-1	DATA ROOM	AC-2	CU-S9NKUA	0.75	R-410A	1	21.0	-	208V, 1PH, 60 HZ

NOTES: 1. BASED ON SANYO CO. 2. PROVIDE WITH LOW AMBIENT CONTROLS

PADDLE FAN SCHEDULE						
MARK	MODEL NO.	BLADE SWEEP	DOWN ROD LENGTH	CFM	RPM	MOTOR
PF-1(A) THRU (D)	56301RDP	56"	24"	27,000	275	110W, 115V, 1PH, 60HZ
PF-2(A) THRU (B)	56101	56"	24"	25,500	265	110W, 115V, 1PH, 60HZ

NOTES:  
1. BASED ON LEADING EDGE INC.  
2. COLOR: WHITE  
3. PF-2 SHALL BE WATERPROOF  
4. BOTTOM OF FAN SHALL BE 16' min ABOVE SLAB. CUT DOWN ROD AS REQUIRED

RETURN GRILLE SCHEDULE			
MARK	LOCATION	DIMENSION	CFM
RG1	CLERKS	10" x 10"	247
RG2	SUPERVISOR	10" x 10"	261
RG3	CREW LEADERS	10" x 10"	238
RG4	HALLWAY	10" x 10"	281
RG5, RG6	CONFERENCE ROOM	12" x 12"	380
RG7, RG8	BREAK AREA	10" x 10"	285
RG9	LOCKERS	12" x 12"	321
RG10	MEN'S RESTROOM	12" x 12"	330
RG11	WOMEN'S RESTROOM	10" x 10"	220
RG12	JANITOR'S CLOSET	6" x 6"	25
RG13	ELECTRICAL ROOM	8" x 8"	180

NOTES:  
1. BASED ON TITUS.  
2. DIMENSIONS ARE BASED ON CORE AREA.

DIFFUSER SCHEDULE							
MARK	LOCATION	FACE	DIMENSION	MOUNTING	MODEL	CFM	PATTERN
D1	CLERKS	SQ	9" x 9"	FL	G2	260	2 - W
D2	SUPERVISOR	SQ	9" x 9"	FL	G2	275	2 - W
D3	CREW LEADER	SQ	9" x 9"	FL	G2	250	2 - W
D4,D5	HALLWAY	SQ	9" x 9"	FL	S2	200	2 - W
D6,D7	CONFERENCE ROOM	SQ	12" x 12"	FL	A4	400	4 - W
D8, D9	BREAK AREA	SQ	12" x 12"	FL	A4	300	4 - W
D10	LOCKERS	SQ	12" x 12"	FL	G2	292	2 - W
D11	MEN'S RESTROOM	SQ	12" x 12"	FL	G2	300	2 - W
D12	WOMEN'S RESTROOM	SQ	9" x 9"	FL	G2	200	2 - W

NOTES:  
1. BASED ON TITUS.  
2. DIMENSIONS ARE BASED ON NECK AREA

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/20/2015	DESIGNER/DRAFTER: <b>NAR</b>	CHECKED BY: <b>JJT</b>	NOT TO SCALE	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	 SIGNATURE/ BLOCK: <b>OFFICE OF ENGINEERING</b> APPROVED BY: <i>[Signature]</i>	PROJECT TITLE: <b>OCCUM MAINTENANCE FACILITY</b>	TOWN: <b>OCCUM</b>	PROJECT NO. <b>103-247</b> DRAWING NO. <b>M-008</b> SHEET NO. <b>09.08</b>
------	------	----------------------	-----------	-------------------------	---------------------------------	---------------------------	--------------	--	---	---	-----------------------	---

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Filename: ...FD\_MSH\_MEC.0103\_0247\_M008.dgn