

Approved
 Mechanical Plan Review: APPROVED
 Final approval shall be based upon HVAC inspection for adherence to the 2012 IMC, 2012 IFGC, Idaho Statute Title 54 Chapter 50, stamped approved plans and manufacturers installation instructions.
 F:\141019 151 Animal Care Life Science\141019-M13.dwg Sep 05, 2014 - 5:28pm
 Project: ISU LIFE SCIENCE BUILDING ANIMAL CARE FACILITY
 Mechanical Schedules
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SYMBOL	DESCRIPTION
SA	SUPPLY AIR
RA	RETURN AIR
OA	OUTSIDE AIR
REFR	REFRIGERANT
AFF	ABOVE FINISHED FLOOR
VFD	VARIABLE FREQUENCY DRIVE
(T)	ELECTRONIC THERMOSTAT
(S)	REMOTE SENSOR
(I)	PLAN NOTE
(EC)	EQUIPMENT SYMBOL
G	GAS PIPING
HWS	HOT WATER SUPPLY PIPING
HWR	HOT WATER RETURN PIPING
GV	GATE VALVE
BV	BALL VALVE
PD	PIPE DROP
PR	PIPE RISE
(M)	MOTORIZED DAMPER
(M3)	MOTORIZED 3 WAY MIXING OR DIVERTING VALVE
(M2)	2 POSITION MOTORIZED VALVE
(SR)	SIDEWALL REGISTER (SUPPLY AIR)
(SR)	SIDEWALL GRILLE (RETURN AIR)
(RG)	RETURN AIR GRILLE
(CD)	CEILING DIFFUSER
(EG)	EXHAUST AIR GRILLE
(HD)	HAND DAMPER
(RBD)	ROUND BRANCH DUCT WITH HAND DAMPER
(RBR)	RECTANGULAR SUPPLY AND RETURN AIR DUCT TAKE-OFF
(TV)	TURNING VANES
(DT)	DUCT TRANSITION
(IFD)	INSULATED FLEXIBLE DUCT
(RSD)	ROUND SPIRAL DUCTWORK
(VAB)	VARIABLE AIR BOX WITH WITH RE-HEAT COIL
(RTF)	ROOF TOP EXHAUST FAN

HUMIDIFIER SCHEDULE	
Application	1
System Quantity	United States
System Location	4500.0
Elevation at project site (ft)	4500.0
Ventilation system type	Making-up-air System, Dispersion Installed in Duct Of AHU
Outside air dry bulb temperature (°F)	-8.0
Outside air moisture content (lb/lb)	20.0
Outside air intake rate	Constant
Outside air intake (%)	100.0
Total air volume (cfm)	12000.0
Desired air dry bulb temperature (°F) in humidified space	70.0
Desired air moisture content (% RH) in humidified space	40.0
Actual moisture content (% RH) in humidified space	40.0
Non-wetting distance (inches)	44
Calculated load	Calculated
Load (lb/hr)	326.24
Load plus loss (lb/hr)	339.74
Dispersion installation location	Duct
Airflow direction	Horizontal
Airflow pressure drop (inches w.c.)	0.0
Duct dry bulb temp before dispersion (°F)	51.8
Duct RH before dispersion (%)	1
Duct dry bulb temp after dispersion (°F)	55.0
Duct RH after dispersion (%)	67
Heat gain from steam (°F)	2.19
Heat gain from assembly (°F)	1.01
Steam dispersion	
Dispersion product	Multi Tube
Dispersion model	60
Tube Size	60
Unit quantity	1
Energy source	Direct Steam
Steam pressure (psi)	10
Header location	Outside Duct
Trap location	Outside Duct
Air movement	Through Dispersion Assembly
Available inside duct/AHU width (inches)	48.0
Available inside duct/AHU height (inches)	18.0
Duct/AHU wall thickness (inches)	0.0
Face width (inches)	48.0
Face height (inches)	18.0
Header diameter (inches)	2.0
Header and Separator Dimensions (inches)	23.0 X 11.0 X NA
Air velocity (ft/min)	2000.0
Tube diameter (inches)	1.0
Tube spacing on-center (inches)	9.0
Tube quantity	2
Duct plate material	Galvanized Steel
Second set of duct plates	No
High-Efficiency Insulated Tubes	No
Separator/header tube material	304 Stainless Steel
Separator orientation	Vertical
Piping material	Black Iron
Separator size	7.0
Hand Direction	Left
Steam valve provided by	Dist Steam
Steam valve material	Bronze
Steam valve control type	Electric
Steam valve voltage (Vac)	24 V
Steam valve size (inches)	1.0
Steam valve (Cv)	10.0
Capacity driven dual valve	No
Controlability (10 - 20)	No
Valve Max Capacity (lb/hr)	357.77
Strainer	Cast Iron
Steam trap	Cast Iron F & T
Maxi-bank option	Yes
Seismic-certified	No
Operating weight (lbs)	93
Shipping weight (lbs)	120
Connections	
Steam generator outlet diameter (inches)	
Dispersion steam inlet connection type	NPT
Dispersion steam inlet diameter (inches)	1
Control	
Input signal by	Others
Accessories	
High-limit humidistat	Electric
Airflow proving switch	Electric Pressure
Dispersion Condensate pump	None
Temperature switch	Yes

AIR HANDLING UNIT SCHEDULE															
SYM.	CFM	SP.T	H.P.	CHAR	MCA	GAS HEATING	MBH	OAT	TR	REFR	COOLING	LIQ.	SUC.	REMARKS	
(AH-1)	12,000	---	25	480/60/3	---	---	---	---	---	---	490	100°F	67°F	1-5/8"	EXISTING TRANE AIR HANDLER. REPLACE (E) DX COIL WITH NEW DX COIL. REPLACE (E) 20 HP MOTOR WITH NEW 25 HP MOTOR. PROVIDE AND INSTALL NEW VFD.
(AH-2)	2,400	3.5"	5	208/60/3	77	182	20°F	70°F	12.7	128	100°F	67°F	---	ANNEX AIR MODEL ERP-E-SM-G-H6-AZ WITH DX COOLING COIL, CROSS FLOW HEAT EXCHANGER, AND NATURAL GAS HEATING COIL.	
① CONDENSING UNIT AND COOLING COIL HAS BEEN PURCHASED BY AGENCY AND IS ON CAMPUS. CONTRACTOR TO ARRANGE FOR TRANSPORT TO PROJECT SITE WHEN READY TO INSTALL. ALL EQUIPMENT, FACTORY START-UP HAS ALL READY BEEN INCLUDED.															

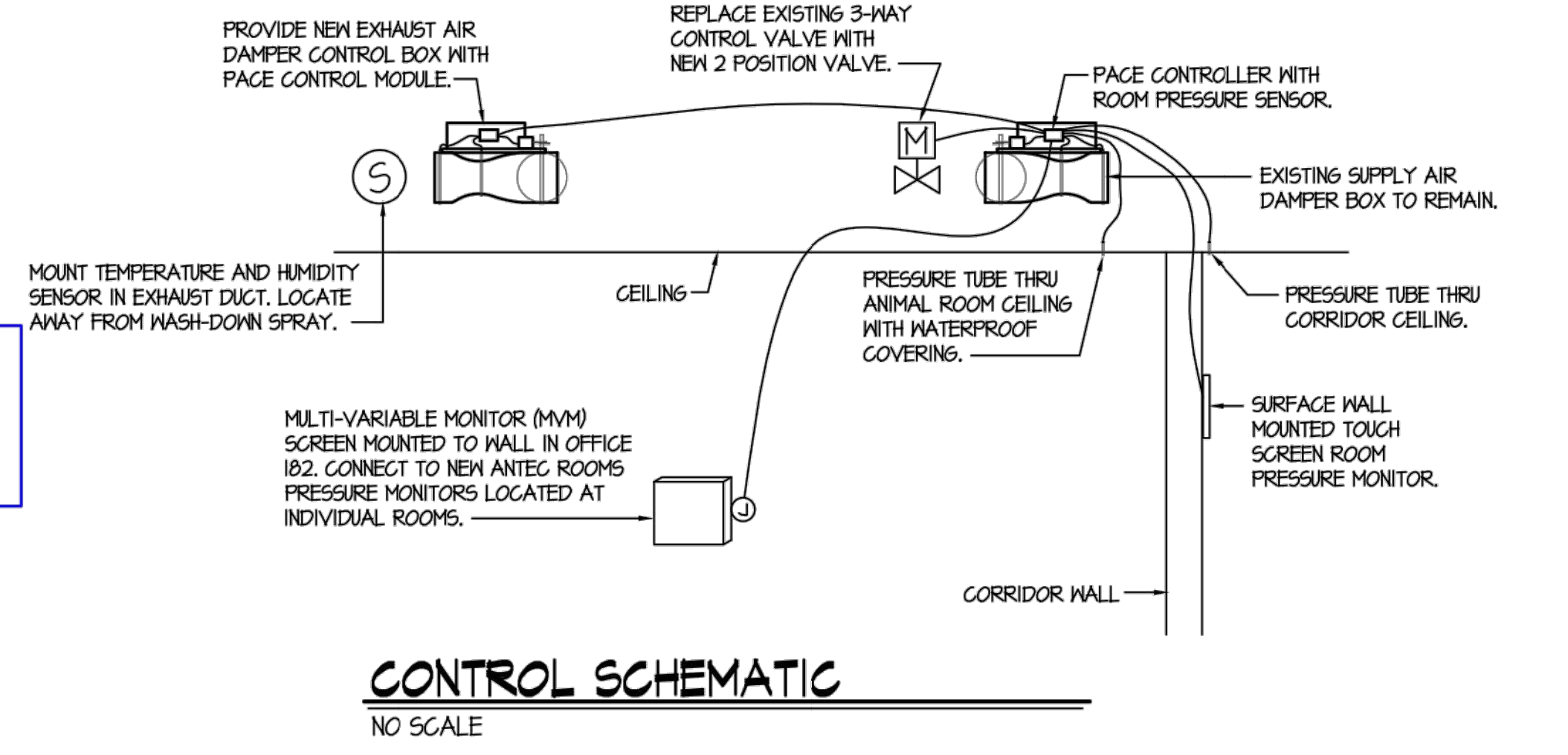
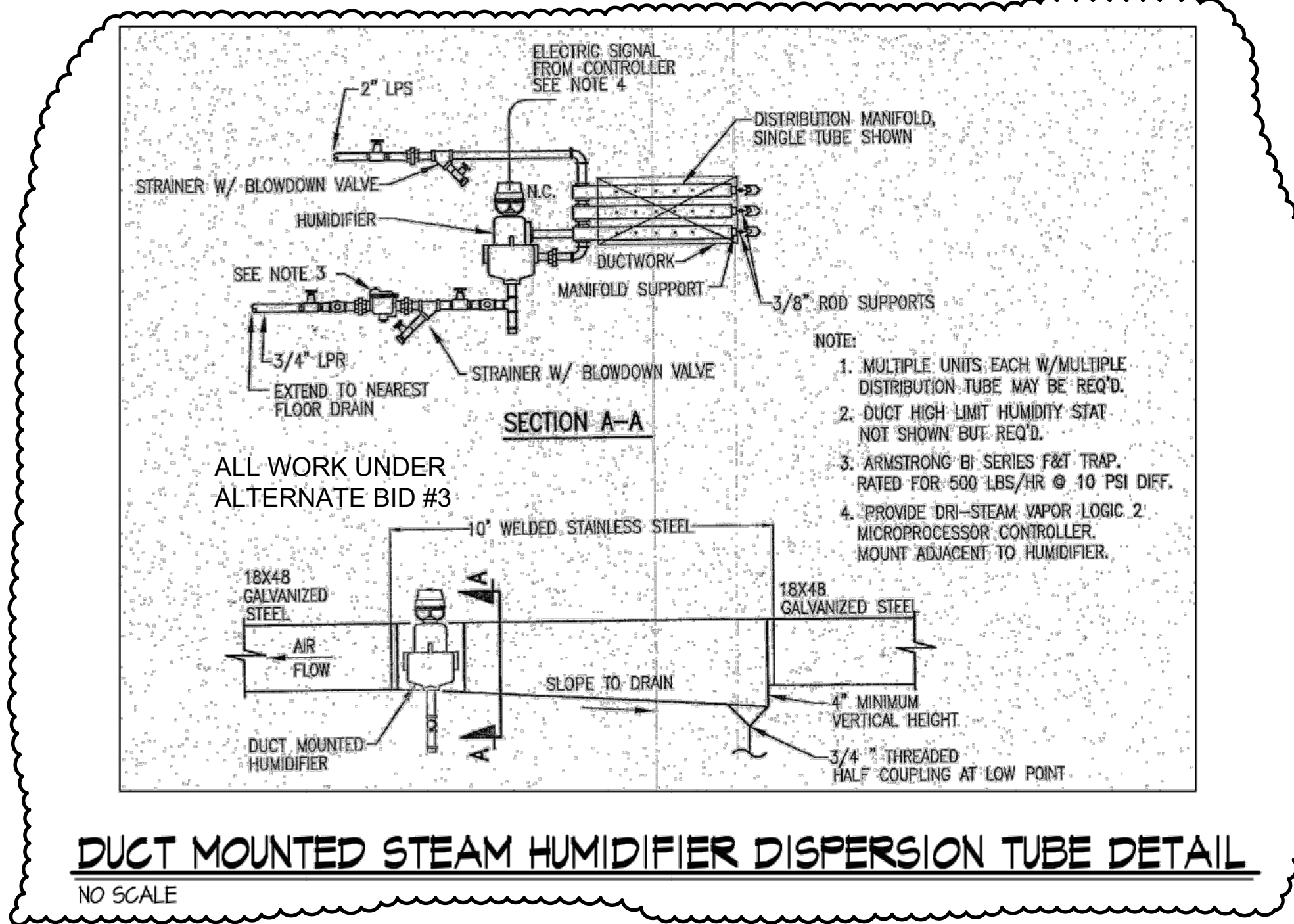
CIRCULATING PUMP SCHEDULE							
SYM.	TYPE	G.P.M.	HEAD	H.P.	CHAR	RPM	REMARKS
(CP-2)	IN-LINE	146	35'	3	208/60/3	1705	HOT WATER CIRCULATING B46 MODEL 80, SIZE 3x3x18

ALL WORK UNDER ALTERNATE BID #1 MANUFACTURER'S MODEL NO.

CONDENSING UNIT SCHEDULE									
SYM.	BTU	EAT	CHAR	MCA	WEIGHT	LIQ. PIPING	LIQ. SECTION	REMARKS	
(CU-1)	522	100°F	480/60/3	87	3200#	11.7	5/8"	1-5/8"	TRANE MODEL RAUC-C40 AIR COOLED CONDENSING UNIT WITH LOW AMBIENT HARD-START KIT.
(CU-2)	72,000	100°F	208/60/3	22.8	450#	11.7	3/8"	5/8"	LS MODEL AR1M02BTES AIR COOLED CONDENSING UNIT WITH LOW AMBIENT HARD-START KIT.
① CONDENSING UNIT AND COOLING COIL HAS BEEN PURCHASED BY AGENCY AND IS ON CAMPUS. CONTRACTOR TO ARRANGE FOR TRANSPORT TO PROJECT SITE WHEN READY TO INSTALL. ALL EQUIPMENT, FACTORY START-UP HAS ALL READY BEEN INCLUDED.									


EXHAUST FAN SCHEDULE							
SYM.	TYPE	G.F.M.	S.P.E.	H.P.	CHAR	R.P.M.	CONTROL
(EF-1)	VENT SET	15,000	4.0"	20	208/60/3	1800	VFD

ALL WORK UNDER ALTERNATE BID #2 REMARKS: TWIN CITY MODEL BAIFE, SIZE 402MVT WITH WEATHER COVER. PROVIDE DISCHARGE NOZZLE FOR REQUIRED PLUME HEIGHT.



VOLUME BOX SCHEDULE														
SYM.	TYPE	SIZE (C.F.M.)	RANGE (C.F.M.)	AIR INLET	AIR OUTLET	MEH	GPM	T.R.	ENT	LWT	PIPE SIZE	CONTROL	REMARKS	
(VB-1)	SINGLE DUCT	800	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-2)	SINGLE DUCT	350	80-450	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-3)	SINGLE DUCT	350	80-450	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-4)	SINGLE DUCT	250	80-350	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-5)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-6)	SINGLE DUCT	500	80-600	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-7)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-8)	SINGLE DUCT	500	80-600	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-9)	SINGLE DUCT	500	80-600	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-10)	SINGLE DUCT	1200	250-1300	14"	14"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 114	(I)
(VB-11)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-12)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-13)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-14)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-15)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-16)	SINGLE DUCT	700	120-800	10"	10"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-17)	SINGLE DUCT	450	80-550	8"	8"	---	---	---	---	---	---	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-18)	SINGLE DUCT	800	120-800	10"	10"	35.2	2	67°F	160°F	140°F	3/4"	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 110	(I)
(VB-19)	SINGLE DUCT	250	80-350	8"	8"	4.3	1	65°F	160°F	140°F	3/4"	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-20)	SINGLE DUCT	250	80-350	8"	8"	4.3	1	65°F	160°F	140°F	3/4"	DUCT MOUNTED PRESSURE SENSOR WITH HUMIDISTAT	VENTURI VFX SIZE 108	(I)
(VB-21)	SINGLE DUCT	330	80-500	8"	12x10	11.8	1	50°F	160°F	140°F	3/4"	WALL MOUNTED THERMOSTAT	PRICE SDV-500B WITH 1 ROW HOT WATER COIL.	(I)
(VB-22)	SINGLE DUCT	220	80-500	8"	12x10	4.3	1	65°F	160°F	140°F	3/4"	WALL MOUNTED THERMOSTAT	PRICE SDV-500B WITH 1 ROW HOT WATER COIL.	(I)
(VB-23)	SINGLE DUCT	240	80-500	8"	12x10	10.5	1	56°F	160°F	140°F	3/4"	WALL MOUNTED THERMOSTAT	PRICE SDV-500B WITH 1 ROW HOT WATER COIL.	(I)
(VB-24)	SINGLE DUCT	210	80-500	8"	12x10	10.2	1	50°F	160°F	140°F	3/4"	WALL MOUNTED THERMOSTAT	PRICE SDV-500B WITH 1 ROW HOT WATER COIL.	(I)
① CONTROL DAMPER TO BE COMPLETE WITH PRECISION ACTUATOR AND DAMPER AND WITH HIGH ACCURACY PTX TRANSDUCER. MOUNT SENSOR WITH HUMIDISTAT IN DUCT.														

GRILLE AND REGISTER SCHEDULE									
SYM.	SIZE	THROW	CFM	CONSTR.	FINISH	BRANCH DUCT	F.D.	O.B.	REMARKS
(GR-1)	4 x 4	(I)	50-200	ALUM.	WHITE	8"	NO	YES	PRICE MODEL AMD WITH BEVELED FRAME
(GR-2)	12 x 12	(I)	200-450	ALUM.	WHITE	10"	NO	YES	PRICE MODEL AMD WITH BEVELED FRAME
(RG-1)	12 x 8		50-350	ALUM.	WHITE	12 x 8	NO	NO	PRICE MODEL 635 WITH SURFACE MOUNTING FRAME
(D-1)	12 x 12	(I)	50-199	ALUM.	WHITE	10"	NO	NO	PRICE MODEL AMD WITH BEVELED FRAME AND ROUND DUCT ADAPTOR
(D-2)	24 x 24	(I)	200-650	ALUM.	WHITE	12"	NO	NO	PRICE MODEL AMD WITH BEVELED FRAME AND ROUND DUCT ADAPTOR
(D-3)	24 x 24	(I)	651-1200	ALUM.	WHITE	16"	NO	NO	PRICE MODEL AMD WITH BEVELED FRAME AND ROUND DUCT ADAPTOR
(R-1)	12 x 8		50-450	ALUM.	WHITE	10"	NO	NO	PRICE MODEL 635 WITH SURFACE MOUNTING FRAME AND ROUND DUCT ADAPTOR
(R-2)	16 x 8		451-699	ALUM.	WHITE	10"	NO	NO	PRICE MODEL 635 WITH SURFACE MOUNTING FRAME AND ROUND DUCT ADAPTOR
(R-3)	16 x 12		700-1200	ALUM.	WHITE	10"	NO	NO	PRICE MODEL 635 WITH SURFACE MOUNTING FRAME AND ROUND DUCT ADAPTOR


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HVAC UPGRADE FOR: DPW PROJECT # 19243
ISU LIFE SCIENCE BUILDING
 ANIMAL CARE FACILITY
 POCATELLO, IDAHO
 SHEET TITLE: MECHANICAL SCHEDULES
 SHEET: M.3
 OF: FIVE