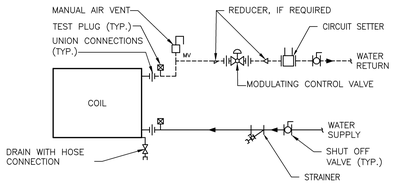
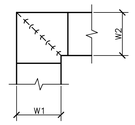


1 TERMINAL UNIT WATER COILS - PIPING CONNECTIONS

NTS

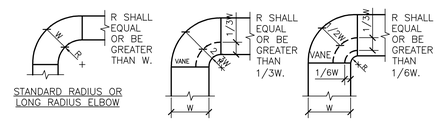


NOTE:

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

2 DUCTWORK SQUARE VANE ELBOWS

NTS

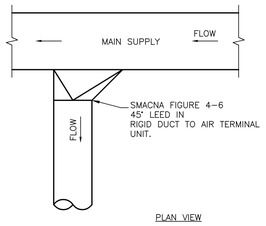


NOTE:

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

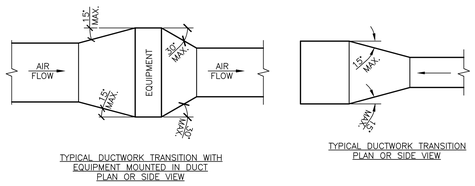
3 DUCTWORK RADIUS ELBOWS

NTS



4 ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS

NTS



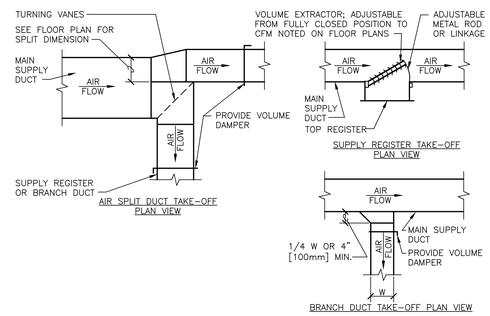
TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

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

5 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)

NTS

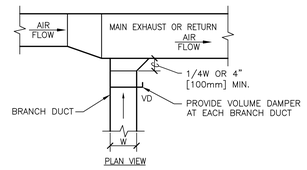


DESIGNER'S NOTES:

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

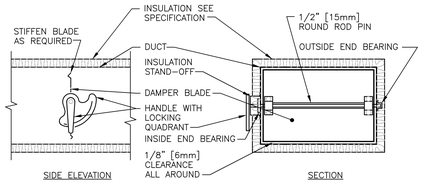
6 SUPPLY DUCTWORK TAKE-OFFS

NTS



7 EXHAUST OR RETURN BRANCH DUCTWORK

NTS

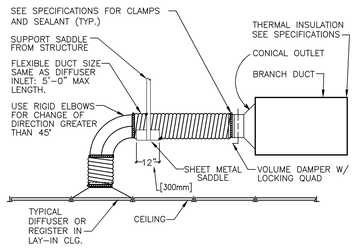


NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION. REFER TO SPECIFICATION SECTION 23 07 11 FOR APPLICATION OF DUCT INSULATION WITH RESPECT TO DUCT TYPE AND LOCATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

8 VOLUME DAMPER DETAIL

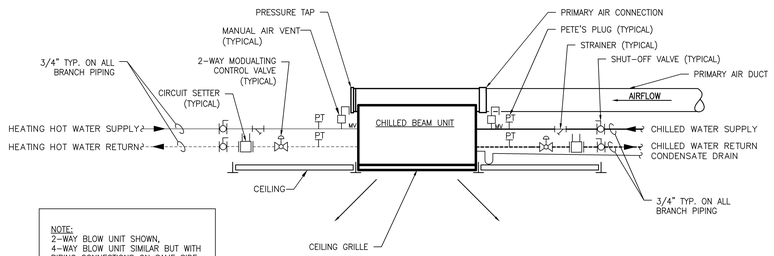
NTS



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

9 FLEXIBLE AIR DUCT CONNECTOR

NTS



NOTE:
2-WAY BLOW UNIT SHOWN,
4-WAY BLOW UNIT SIMILAR BUT WITH PIPING CONNECTIONS ON SAME SIDE

10 CHILLED BEAM CONNECTION DETAIL

NTS

100% CONTRACT DOCUMENTS
FULLY SPRINKLERED

Revisions	Date

Miller-Remick LLC
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Reviewed: Facility Manager
Reviewed: Facility Director
Reviewed:
Reviewed:

Drawing Title: MECHANICAL DETAILS

Approved: Project Director

Project Title: AUDIOLOGY LAB RENOVATION

Building Number: NO. 1 | Checked: GFE | Drawn: VRR

Location: VAMC SYRACUSE, NY

Date: 05-19-2014

Project No. 528A7-13-750

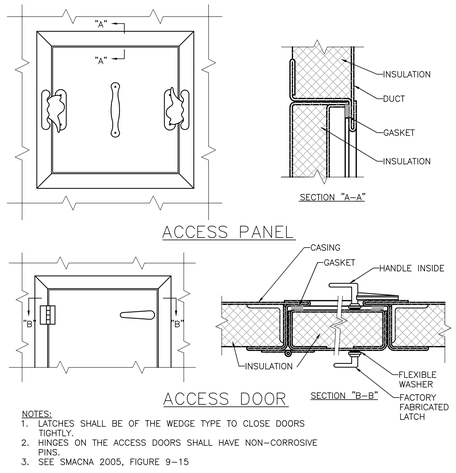
DRAWING NO. M-501

Dwg. 27 Of 46

VA HEALTHCARE NETWORK UPSTATE NEW YORK

Department of Veterans Affairs

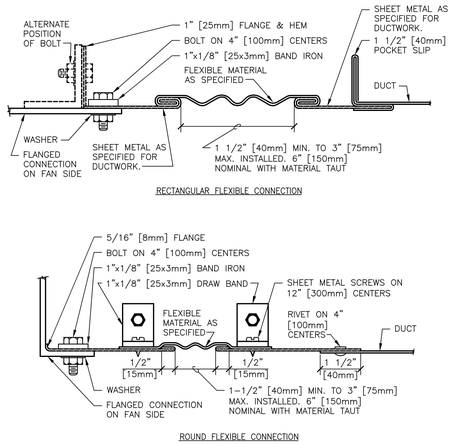
VA FORM 08-6231



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

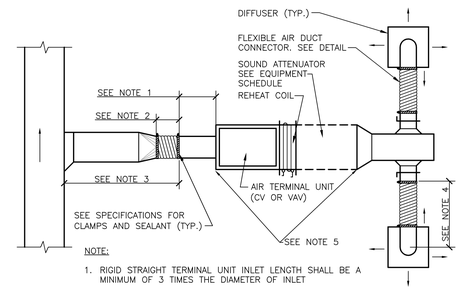
1 ACCESS PANEL AND DOOR DETAIL

NTS



2 FLEXIBLE DUCT CONNECTIONS

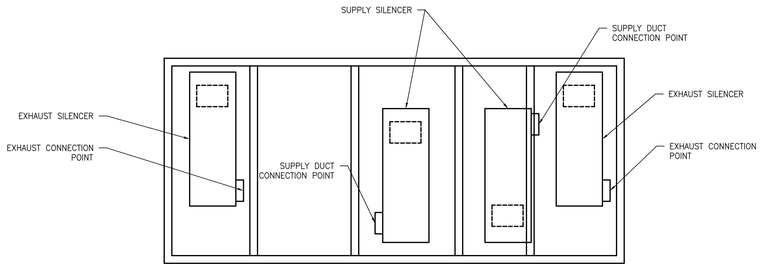
NTS



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.
7. PROVIDE AND INSTALL ASSOCIATED THERMOSTAT.

3 DUCT CONNECTIONS - AIR TERMINAL UNITS

NTS



4 DUCT CONNECTION AT AUDIO BOOTH

NTS

100% CONTRACT DOCUMENTS
FULLY SPRINKLERED

Revisions	Date

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Reviewed: Facility Manager
Reviewed: Facility Director
Reviewed:
Reviewed:

Drawing Title: MECHANICAL DETAILS

Approved: Project Director

Project Title: **AUDIOLOGY LAB RENOVATION**

Building Number: NO. 1
Checked: GFE
Drawn: VRR
Location: VAMC SYRACUSE, NY

Date: 05-19-2014
Project No. **528A7-13-750**
DRAWING NO. M–502
Dwg. 28 Of 46

VA HEALTHCARE NETWORK UPSTATE NEW YORK
Department of Veterans Affairs

VA FORM 08-6231

CHILLED INDUCTION BEAM SCHEDULE

Room Description		Induction Beam/Chilled Beam Units					Air Side					Cooling														Heating									Sound & Throw	
Unit ID	Room Name	2 or 4 Pipe	Pressure (inch of water)	Total Heating GPM (All Beams)	Cooling GPM (All Beams)	Model	Qty	Required Vent. CFM	Total Room Air (CFM)	Area Sq. Ft.	CFM/Sq. Ft	Actual Cooling GPM/Unit	EWT °F	LWT °F	Coil EAT DB °F	Coil EAT WB °F	LAT DB °F	LAT WB °F	Fluid PD /Unit	Coil Sensible Cooling BTU	Total Room Sensible BTU	Condensate Gallon/Hr	Total Latent BTU	Total Room Cooling BTU	Target Room Total BTU Cooling	Actual Heating GPM/Unit	EWT °F	LWT (°F)	Coil EAT DB °F (room return)	LAT DB °F	Fluid PD /Unit	Coil Sensible Heating BTU	Total BTU Heating	Target Room Total BTU Heating	NC Sound	Throw Terminal Velocity Under 100 fpm
51-CB-1	VEST/ROTARY	4 Pipe	0.4	0.5	0.6	Mini Q-31	1	60	253	202	1.25	0.6	45	53.5	72	61.1	59.4	0	0.15	2372	3726	0	370	4096	3520	0.5	160	131.9	72	107.6	0.37	6635	5197	1990	NC18	8
51-CB-2,3	HALLWAY 014B	4 Pipe	0.4	1.2	1.2	ACB-222-38	2	85	356	273	1.3	0.6	45	50.7	72	61.1	61.1	0	0.63	3167	4673	0	411	5084	1030	0.6	160	149.6	72	92.4	0.17	5863	4263	1000	NC20	4
51-CB-4	OFFICE AG17A	4 Pipe	0.5	0.6	1	Mini Q-24	1	75	249	100	2.49	1	45	51.8	72	61.1	56.4	55.1	0.4	3021	4184	0.014	443	4628	4140	0.6	160	134.4	72	109.5	0.53	7257	6022	1980	NC21	10
4-CB-1,2	WAITING AG10	4 Pipe	0.4	1.2	1.2	ACB-222-38	2	120	356	323	1.1	0.6	45	50.7	72	61.1	61.1	0	0.63	3167	4673	0	411	5084	9050	0.6	160	149.6	72	92.4	0.17	5863	4263	1	NC20	4
4-CB-3	RECEPT. AG17	4 Pipe	0.4	0.6	0.6	ACB-222-38	1	50	178	157	1.13	0.6	45	50.7	72	61.1	61.1	0	0.63	1584	2337	0	206	2542	1770	0.6	160	149.6	72	92.4	0.17	2932	2132	1	NC20	4
4-CB-4	OFFICE AG18	4 Pipe	0.4	0.6	0.6	ACB-222-38	1	60	178	190	0.94	0.6	45	50.7	72	61.1	61.1	0	0.63	1584	2337	0	206	2542	2640	0.6	160	149.6	72	92.4	0.17	2932	2132	1730	NC20	4
4-CB-5	OFFICE AG20	4 Pipe	0.4	0.6	0.6	Mini Q-38	1	55	248	173	1.44	0.6	45	53.1	72	61.1	58.6	0	0.15	2274	3837	0	427	4263	2890	0.6	160	136	72	112.3	0.53	6806	5145	2380	NC18	8
4-CB-6	OFFICE AG21	4 Pipe	0.4	0.6	0.6	ACB-222-38	1	35	178	117	1.52	0.6	45	50.7	72	61.1	61.1	0	0.63	1584	2337	0	206	2542	1660	0.6	160	149.6	72	92.4	0.17	2932	2132	1	NC20	4
4-CB-7	OFFICE AG22	4 Pipe	0.4	0.7	0.6	ACB-222-38	1	35	178	106	1.68	0.6	45	50.7	72	61.1	61.1	0	0.63	1584	2337	0	206	2542	2170	0.7	160	150.7	72	93.4	0.23	3077	2277	2130	NC20	4
4-CB-8,9	AUD REHAB AG24	4 Pipe	0.4	1.2	1.2	Mini Q-38	2	125	497	408	1.22	0.6	45	53.1	72	61.1	58.6	0	0.15	4549	7674	0	853	8527	7140	0.6	160	136	72	112.3	0.53	13611	10291	4250	NC18	8
4-C3-10	CALIB/FAB AG25	4 Pipe	0.4	0.6	0.6	Mini Q-38	1	35	248	174	1.43	0.6	45	53.1	72	61.1	58.6	0	0.15	2274	3837	0	427	4263	3130	0.6	160	136	72	112.3	0.53	6806	5145	2310	NC18	8
4-C3-11	OFFICE AG29	4 Pipe	0.4	0.6	0.6	Mini Q-38	1	50	248	157	1.58	0.6	45	53.1	72	61.1	58.6	0	0.15	2274	3837	0	427	4263	2750	0.6	160	136	72	112.3	0.53	6806	5145	2290	NC18	8
4-C3-12	OFFICE AG31	4 Pipe	0.4	0.6	0.6	Mini Q-38	1	40	248	128	1.94	0.6	45	53.1	72	61.1	58.6	0	0.15	2274	3837	0	427	4263	2280	0.6	160	136	72	112.3	0.53	6806	5145	1790	NC18	8
4-C3-13	HALLWAY 010A	4 Pipe	0.4	0.6	0.6	ACB-222-38	1	55	178	170	1.05	0.6	45	50.7	72	61.1	61.1	0	0.63	1584	2337	0	206	2542	195	0.6	160	149.6	72	92.4	0.17	2932	2132	100	NC20	4

NOTES:
1. PROVIDE 1/2" DISPOSABLE AIR FILTER FOR ALL UNITS.
2. PROVIDE FACTORY INSTALLED EXTERNAL INSULATION ON CABINET AND AIR TUBE FOR ALL CHILLED BEAMS.

ROOM AIR BALANCE SCHEDULE

ROOM NO	ROOM NAME	AIR HANDLING UNIT NO	TERMINAL UNIT/CHILLED BEAM	INDIVIDUAL ROOM TEMP CONTROL	SUPPLY					RETURN OR EXHAUST						ROOM AIR FLOW		ROOM AIR BALANCE	NET INFILTRATION		NET EXFILTRATION		REMARKS
					AIR FLOW TO THE ROOM		# OF AIR DEVICES	AIR DEVICE MARK	SUPPLY FAN	RETURN OR EXHAUST (R/E)	ROOM AIR FLOW		# OF AIR DEVICES	AIR DEVICE MARK	RETURN OR EXHAUST FAN								
					CFM	L/S					CFM	L/S				CV	VAV		CFM	[L/s]	CFM	[L/s]	
AG32	AUDIO BOOTH 1	1-AC-4	4-TU-1	NO	125	[59]	1	NA	SF-4	EXHAUST	125	[59]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG32A	AUDIO CONTROL 1	1-AC-4	4-TU-1	YES	75	[35]	1	NA	SF-4	EXHAUST	75	[35]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG28	AUDIO BOOTH 2	1-AC-4	4-TU-2	NO	125	[59]	1	NA	SF-4	EXHAUST	125	[59]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG28	AUDIO CONTROL 2	1-AC-4	4-TU-2	YES	75	[35]	1	NA	SF-4	EXHAUST	75	[35]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
012A/B	HALLWAY	1-AC-4	4-TU-3	YES	150	[71]	3	CD-1	SF-4	EXHAUST	-	-	-	-	-	X		(+)		[ ]		[ ]	
11	HALLWAY	1-AC-4	4-TU-4/6	YES	365	[170]	3	CD-2	SF-4	EXHAUST	415	[200]	3	EG-2	EF-4	X		(-)		[ ]		[ ]	
AG31	OFFICE	1-AC-4	4-CB-12	YES	40	[19]	1	NA	SF-4	EXHAUST	40	[19]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG29	OFFICE	1-AC-4	4-CB-11	YES	50	[24]	1	NA	SF-4	EXHAUST	50	[24]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG25	CALIBR./FAB.	1-AC-4	4-CB-10	YES	30	[14]	1	NA	SF-4	EXHAUST	30	[14]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG26	AUDIO BOOTH 3	1-AC-4	4-TU-5	NO	75	[35]	1	NA	SF-4	EXHAUST	75	[35]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG26A	AUDIO CONTROL 3	1-AC-4	4-TU-5	YES	50	[24]	1	NA	SF-4	EXHAUST	50	[24]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG23	AUDIO BOOTH 4	1-AC-4	4-TU-9	NO	75	[35]	1	NA	SF-4	EXHAUST	75	[35]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG23A	AUDIO CONTROL 4	1-AC-4	4-TU-9	YES	50	[24]	1	NA	SF-4	EXHAUST	50	[24]	NA	NA	EF-4	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
13	HALLWAY	1-AC-4	4-TU-6	YES	110	[52]	1		SF-4	EXHAUST	135	[64]	1	EG-2	EF-4	X		(-)		[ ]		[ ]	
AG24	AUD. REHAB	1-AC-4	4-CB-8 & 9	YES	125	[59]	2	NA	SF-4	EXHAUST	125	[59]	1	EG-2	EF-4	X		(o)		[ ]		[ ]	
AG22	OFFICE	1-AC-4	4-CB-7	YES	35	[17]	1	NA	SF-4	EXHAUST	35	[17]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG21	OFFICE	1-AC-4	4-CB-6	YES	35	[17]	1	NA	SF-4	EXHAUST	35	[17]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG20	OFFICE	1-AC-4	4-CB-5	YES	55	[26]	1	NA	SF-4	EXHAUST	55	[26]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG18	OFFICE	1-AC-4	4-CB-4	YES	60	[28]	1	NA	SF-4	EXHAUST	60	[28]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG19	TOILET	1-AC-4	-	-	-	-	-	NA	SF-4	EXHAUST	75	[35]	1	EG-1	EF-4	X		(-)	75	[35]		[ ]	
AG34	ELEC.	1-AC-4	-	-	-	-	-	-	-	EXHAUST	50	[24]	1	-	-	X		(-)	50	[24]		[ ]	EXISTING
AG17	RECPT.	1-AC-4	4-CB-3	YES	50	[24]	1	NA	SF-4	EXHAUST	50	[24]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
010A	HALLWAY	1-AC-4	4-CB-14	YES	55	[26]	1	NA	SF-4	EXHAUST	55	[26]	1	EG-1	EF-4	X		(o)		[ ]		[ ]	
AG10	WAITING	1-AC-4	4-CB-1 & 2	YES	120	[57]	2	NA	SF-4	EXHAUST	120	[57]	1	EG-2	EF-4	X		(o)		[ ]		[ ]	
AG10A	TOILET	1-AC-4	-	-	-	-	-	NA	SF-4	EXHAUST	100	[47]	1	EG-1	EF-4	X		(-)	100	[47]		[ ]	
AG 34	ELECT.	1-AC-4	-	-	-	-	-	-	-	-	-	-	-	-	EF-4	X		(o)		[ ]		[ ]	
AG17A	OFFICE	1-AC-51	4-CB-13	YES	60	[28]	1	NA	SF-51	EXHAUST	60	[28]	1	EG-1	EF-51	X		(o)		[ ]		[ ]	
014B	HALLWAY	1-AC-51	51-CB-2	YES	85	[40]	2	NA	SF-51	EXHAUST	85	[40]	1	EG-1	EF-51	X		(o)		[ ]		[ ]	
AG16A	AUDIO CONTROL 6	1-AC-51	51-TU-7	YES	75	[35]	1	NA	SF-51	EXHAUST	75	[35]	NA	NA	EF-51	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG16	AUDIO BOOTH 6	1-AC-51	51-TU-7	NO	100	[47]	1	NA	SF-51	EXHAUST	100	[47]	NA	NA	EF-51	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG15A	AUDIO CONTROL 5	1-AC-51	51-TU-8	YES	75	[35]	1	NA	SF-51	EXHAUST	75	[35]	NA	NA	EF-51	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG15	AUDIO BOOTH 5	1-AC-51	51-TU-8	NO	100	[47]	1	NA	SF-51	EXHAUST	100	[47]	NA	NA	EF-51	X		(o)		[ ]		[ ]	PREFABRICATED ROOM
AG14	VEST/ROTARY	1-AC-51	51-CB-1	YES	60	[28]	1	NA	SF-51	EXHAUST	60	[28]	1	EG-1	EF-51	X		(o)		[ ]		[ ]	

NOTE

ROOMS OR AREAS DO NOT HAVE INDIVIDUAL HUMIDITY CONTROL UNLESS NOTED.

AIR FLOW CONTROL DEVICE SCHEDULE (CVS & CVE)

TAG	NECK SIZE	DUCT SIZE	MIN CFM	MAX CFM	BASIS OF DESIGN
1	3	6	25	95	TROX RN
2	4	8	50	190	TROX RN
3	5	10	75	300	TROX RN
4	6	12	130	510	TROX RN
5	10	16	300	1200	TROX RN

NOTES:
1. CONTRACTOR TO MAINTAIN 1.5 TIMES THE DIAMETER OF STRAIGHT DUCT PRIOR TO INLET OF DEVICE.
2. CONTRACTOR TO INSTALL PER THE MANUFACTURER.
3. CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING FROM THE CONTROL DEVISE TO THE DUCT WORK.

FIRE DAMPER SCHEDULE

MARK	LOCATION	FAN SYSTEM	SYSTEM AND/OR SERVICE	DUCT SIZE	DUCT PRESSURE CLASS	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
				IN	IN WG		
4-F/SD-1	SHAFT	SF-4	AC-4	24x8	4.1		
4-F/SD-2	SHAFT	EF-4	EF-4	38x10	3.7		
4-F/SD-3	SHAFT	SF-4	AC-4	38x8	4.1		

NOTE:
1. CONTRACTOR TO PROVIDE ACCESS DOOR ON BOTH SIDES OF THE DEVICE.
2. INSTALL PER THE MANUFACTURER AND ALL APPLICABLE CODES.

AIR TERMINIAL UNIT

MODEL	TAG ID	UNIT SIZE	MAX (PRIMARY CFM)	MIN (PRIMARY CFM)	MIN OPER PD (in.wg)	MAX DISCHARGE NC	MAX RADIATED NC	MIN DISCHARGE NC	MIN RADIATED NC	REHEAT (CFM)	CAPACITY (MBH)	EAT °F	LAT °F	FLUID FLOW(GPM)	EWT °F	LWT °F	FLUID PD (ft.wg)	ROWS
SDV5	4-TU-1	5	200	200	0.05	28	--	28	--	200	7.92	55	90.50	1.20	160	146.80	0.60	1
SDV5	4-TU-2	5	200	200	0.05	28	--	28	--	200	7.92	55	90.50	1.20	160	146.80	0.60	1
SDV5	4-TU-3	4	150	150	0.04	29	--	29	--	150	5.86	55	90	0.51	160	137.02	0.15	1
SDV5	4-TU-4	5	255	255	0.09	28	--	28	--	255	9.96	55	89.99	1.24	160	143.94	0.64	1HC*
SDV5	4-TU-5	4	125	125	0.03	25	--	25	--	125	5.50	55	94.42	0.56	160	140.36	0.18	1
SDV5	4-TU-6	5	220	220	0.07	29	--	29	--	220	8.59	55	90	0.83	160	139.30	0.34	1HC*
SDV5	4-TU-7	4	175	175	0.04	28	--	28	--	175	6.84	55	90	0.74	160	141.51	0.28	1
SDV5	4-TU-8	4	175	175	0.04	28	--	28	--	175	6.84	55	90	0.74	160	141.51	0.28	1
SDV5	4-TU-9	4	125	125	0.03	25	--	25	--	125	5.58	55	94.99	0.61	160	141.70	0.20	1

NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING FROM THE AIR TERMINAL UNIT TO THE DUCT WORK.
2. FURNISH AND INSTALL A THERMOSTAT WITH EACH TERMINAL UNIT.
3. INSTALL TERMINAL UNITS PER THE MANUFACTURER'S RECOMMENDATIONS.
4. HC MEANS HIGH CAPACITY. *

AIR DEVICE SCHEDULE (SUPPLY)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL/FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
		MIN	MAX			IN x IN	IN					
		CFM	CFM	IN WG								
CD-1	SQUARE CONE DIFFUSER	45	60	0.022	LAY IN	12x12	4	20	NO	WHITE	PRICE/SCDA	-----
CD-2	SQUARE CONE DIFFUSER	85	110	0.193	LAY IN	12x12	5	17	NO	WHITE	PRICE/SCDA	-----
CD-3	SQUARE CONE DIFFUSER	115	135	0.145	LAY IN	12x12	6	18	NO	WHITE	PRICE/SCDA	-----

NOTES:
1. PROVIDE A TRANSITION BETWEEN SUPPLY DUCT AND DIFFUSER AS NEEDED.
2. ISTALL PER THE MANUFACTURER.

AIR DEVICE SCHEDULE (EXHAUST)

MARK	TYPE	AIR FLOW		MAX APD	MOUNTING	PANEL/FRAME SIZE	NECK SIZE	NC	DAMPER	FINISH	BASIS OF DESIGN (OR APPROVED EQUAL)	REMARKS
		MIN	MAX			IN x IN	IN x IN					
		CFM	CFM	IN WG								
EG-1	PERFORATED	35	100	0.042	CEILING	24 x 24	6 DIAM	15	NONE	WHITE	PRICE	-----
EG-2	PERFORATED	110	175	0.042	CEILING	24 x 24	8 DIAM	15	NONE	WHITE	PRICE	-----

NOTE:
1. INSTALL PER THE MANUFACTURER.
2. CONTRACTOR TO TRANSITION BETWEEN AIR DEVICE AND DUCT WORK.

100% CONTRACT DOCUMENTS
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Revisions	Date

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Reviewed: Facility Director
Reviewed:
Reviewed:

Drawing Title: MECHANICAL SCHEDULES

Approved: Project Director

Project Title: AUDIOLOGY LAB RENOVATION

Building Number: NO. 1
Checked: GPE
Drawn: VRR
Location: VAMC SYRACUSE, NY

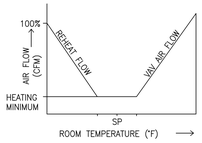
Date: 05-19-2014
Project No. 528A7-13-750
DRAWING NO. M-601
Dwg. 29 Of 46

VA HEALTHCARE NETWORK UPSTATE NEW YORK
Department of Veterans Affairs

VA FORM 08-6231

SHEET KEYNOTES:

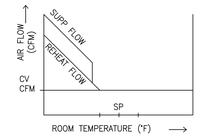
1. THROUGH TRANFER DUCT/GRILLE



VAV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
   OCCUPIED:
      COOLING 75°F (ADJ)
      HEATING 70°F(ADJ)
      DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
   UNOCCUPIED:
      COOLING 80°F (ADJ)
      HEATING 65°F (ADJ)
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.



CHILLED BEAM CONTROL SEQUENCE (PUBLIC AREAS)

W/DEADBAND

A. ROOM SET POINTS SHALL SET AS FOLLOWS:
   OCCUPIED:
      COOLING 75°F (ADJ)
      HEATING 70°F (ADJ)
      DEAD BAND OF 5°F BETWEEN HEATING & COOLING SET POINT WILL BE MAINTAINED.
   UNOCCUPIED:
      COOLING 80°F (ADJ)
      HEATING 65°F (ADJ)
B. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE HWV-1 WILL MODULATE TO MAINTAIN SET POINT ± .5°, & CHWV-1 SHALL BE CLOSED. THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
C. UPON RISE IN SPACE TEMPERATURE ABOVE SET POINT VALVE CHWV-1 WILL MODULATE TO MAINTAIN SET POINT ± .5° & HWV-1 SHALL BE CLOSED.

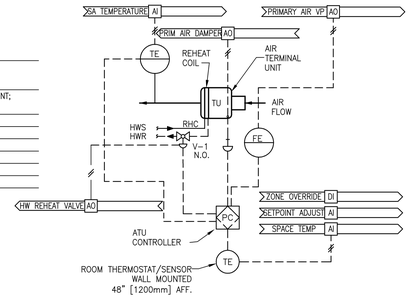
CHILLED BEAM CONTROL SEQUENCE (OFFICE AREAS)

W/DEADBAND

A. OFFICE SPACES SHALL HAVE AN ADJUSTABLE THERMOSTAT WITH OVERRIDE SWITCH.
B. ROOM SET POINTS SHALL SET AS FOLLOWS:
   OCCUPIED:
      COOLING 72°F (ADJ)
      HEATING 70°F (ADJ)
      DEAD BAND OF 5°F BETWEEN HEATING & COOLING SET POINT WILL BE MAINTAINED.
   UNOCCUPIED:
      COOLING 80°F (ADJ)
      HEATING 65°F (ADJ)
C. UPON FALL IN SPACE TEMPERATURE BELOW SET POINT VALVE HWV-1 WILL MODULATE TO MAINTAIN SET POINT ± .5°, & CHWV-1 SHALL BE CLOSED. THE ADJUSTABLE TOLERANCE OF ± .5° HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
D. UPON RISE IN SPACE TEMPERATURE ABOVE SET POINT VALVE CHWV-1 WILL MODULATE TO MAINTAIN SET POINT ± .5° & HWV-1 SHALL BE CLOSED.

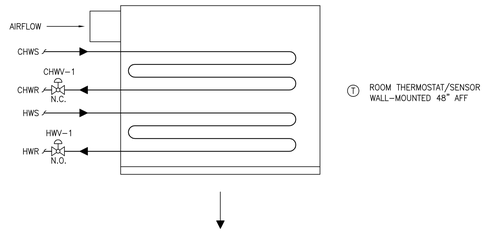
POINTS LIST

POINT DESCRIPTOR	POINT TYPE DI	AI	DO	AO	COMMENTS
ZONE TEMPERATURE		•			ALARM 3°F ABOVE & BELOW SETPOINT; CRITCAL ALARM < 50°F;
ZONE SETPOINT ADJUST		•			
ZONE OVERRIDE	•				
HW REHEAT VALVE				•	
SUPPLY AIR TEMPERATURE		•			
PRIMARY AIR DAMPER				•	
PRIMARY AIR FLOW (CFM)		•			



VARIABLE AIR VOLUME TERMINAL UNIT

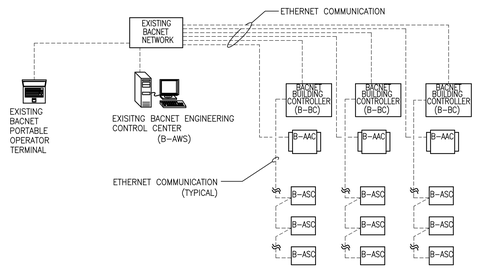
NOTE:
CONTROL POINTS FOR ACTIVE BEAM UNITS SIMILAR TO VARIABLE AIR VOLUME TERMINAL UNITS.



ACTIVE CHILLED BEAM

1 CONTROL DIAGRAMS

SCALE: N.T.S.



CONTROL SYSTEM CONFIGURATION

EXISTING JOHNSON CONTROLS "METASYS" BACNET ECC TO REMAIN. ALL NEW WORK SHALL BE AN EXTENSION OF THE EXISTING SYSTEM AND SHALL BE FULLY COMPATIBLE. EXISTING SYSTEM SHALL BE UPGRADED AND MODIFIED AS NECESSARY TO ACCOMMODATE NEW WORK. INSTALL NEW BACNET CONTROLS ON CURRENT PROJECT. EXTEND EXISTING ETHERNET COMMUNICATIONS NETWORK AND INSTALL PROJECT GRAPHICS ON THE JOHNSON CONTROLS ECC.

NOTES:
1. PROVIDE NEW BACNET CONTROLLERS ON ALL EXISTING EQUIPMENT TO REMAIN AND BE RE-USED AS REQUIRED.
2. INSTALL NEW ETHERNET COMMUNICATION NETWORK ON ALL NEW EQUIPMENT.
3. INSTALL MULTIPLE BUILDING CONTROLLERS (B-BC) AS REQUIRED.
4. INSTALL NEW CONTROLLERS (B-AAC, B-ASC) AS REQUIRED.

2 BACNET SYSTEM ARCHITECTURE

SCALE: N.T.S.

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Revisions	Date

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Reviewed: Facility Manager
Reviewed: Facility Director
Reviewed:
Reviewed:

Drawing Title: MECHANICAL FLOW DIAGRAMS

Approved: Project Director

Project Title: AUDIOLOGY LAB RENOVATION

Building Number: NO. 1
Checked: QFE
Drawn: ATF
Location: VAMC SYRACUSE, NY

Date: 05-19-2014
Project No.: 528A7-13-750
DRAWING NO.: M-602
Dwg. 30 Of 46

VA HEALTHCARE NETWORK UPSTATE NEW YORK
Department of Veterans Affairs

VA FORM 08-6231