	VAF	RIABLE ,	AIR	$\vee \bigcirc  $	_UM	E TE	ERM	INA	7 [	SC	HED	)ULE	
				AIR QU	ANTITY	INLET	UNIT	DIM	ENSIC	)NS	MAX.	VAV	
PLAN	MANUF. &	T-STAT	INLET	(MAX)	(MIN)	S.P.	P.D.	I	L	W	SOUND	ZONE	REMARKS
CODE	MODEL NO.	LOCATION	SIZE	(CFM)	(CFM)	@ S.L.	(IN.)				(db)	EXPOSURE	
VAV-101-A	PRICE SDV	LAB 101	16"ø	3670	600	1"	0.01	18"	24"	ı	30	INTERNAL	NOTE: 1,2
VAV-101-B	PRICE SDV	CONTAINMENT CELL	12"ø	1380	600	1"	0.01	16"	20"	ı	30	INTERNAL	NOTE: 1,2

- 1. MAXIMUM SOUND POWER SCHEDULED IS END DISCHARGE SOUND POWER LEVEL BASED ON
- MAXIMUM SCHEDULED AIRFLOW AT 1.0 W.G. INLET PRESSURE AT 500 HZ. OCTAVE BAND. 2. MAXIMUM DIFFERENTIAL PRESSURE ( P) IS AT MAXIMUM SCHEDULED AIRFLOW WITH REHEAT
  - COIL WHERE INDICATED.

				EXHAU	ST AIR	RTERM	IINAL	SCHEDI	JLE
					AIR QU	ANTITY	INLET	UNIT	
PLAN	MANUF. &	SERVICE	TERMINAL	INLET	(MAX)	(MIN)	S.P.	P.D.	REMARKS
CODE	MODEL NO.		TYPE	SIZE	(CFM)	(CFM)	@ S.L.	(IN.)	
E-VAV-101-A	TEK AIR ACCUVALVE	EXHAUST	VAV	8"	460	0	0.6	0.3	NOTE: 1,3,4
E-VAV-101-B	TEK AIR ACCUVALVE	EXHAUST	VAV	14"	1770	250	0.6	0.3	NOTE: 1,2
E-VAV-101-C	ACCOVALVE	EXHAUST	VAV	8"	650	80	0.6	0.3	NOTE: 1,2
E-VAV-101-D	ACCOVALVE	EXHAUST	VAV	14"	1700	250	0.6	0.3	NOTE: 1,3
E-VAV-101-E	TEK AIR ACCUVALVE	EXHAUST	VAV	8"	650	120	0.6	0.3	NOTE: 1,2

- EXHAUST VALVE SHALL MODULATE TO MAINTAIN A CONSTANT EXHAUST AIR FLOW GIVEN A DUCT INLET PRESSURE FROM -1.0 IN WC TO -3.0 IN WC.
- THE VALVE SHALL MODULATE AIRFLOW FROM MIN TO MAX AS REQUIRED TO MAINTAIN A CONSTANT FACE VELOCITY ACROSS THE ASSOCIATED FUME HOOD SASH OPENING. (100 fpm)
- VALVE SHALL MODULATE TO MAINTAIN ROOM STATIC PRESSURE. VALVE SHALL BE CAPABLE OF CLOSING COMPLETLY TO ALLOW FOR GAS CABINET EXHAUST. REFER TO EV SEQUENCING.

			LOUV	ER SO	CHEDU	ILE						
PLAN	MANUFACTURER	SERVICE	FREE	CFM	FREE AREA	A.P.D.	MOUNTING	MATERIALS		SIZE		REMARKS
CODE	& MODEL NO.		AREA		VEL.	(IN. W.C.)	TYPE		(	INCHES	S)	
			(SQ. FT.)		(FPM)				W	Н	D	
LVR-1	GREENHECK EAD-601	MUA-5 INTAKE	29.78	15,000	491	0.03	STANDARD	EXTRD. ALUMINUM	100"	80"	6"	1,2
LVR-2	GREENHECK EAD-601	EAU-5 BYPASS	14.09	7,170 MAX	488	0.03	STANDARD	EXTRD. ALUMINUM	64"	68"	6"	1,2
LVR-3	GREENHECK EAD-601	FANLOFT INTAKE	5.92	2,755	465	0.03	STANDARD	EXTRD. ALUMINUM	40"	48"	6"	1,2
LVR-4	GREENHECK EAD-601	PENTHOUSE EXHAUST	5.92	2,755	465	0.03	STANDARD	EXTRD. ALUMINUM	40"	48"	6"	1,2
LALOTEC												

PROVIDE INTERNAL MESH ALUMINUM BIRDSCREEN. ANODIZED FINISH WITH COLOR SELECTION BY ARCHITECT.

			PUI	MP	SCH	HED	ULE	-						
				IMP.				ELE	CTRICAL		SI	ZE (IN)		
PLAN	MANUFACTURER	TYPE	SERVICE	DIA.	GPM	TDH	%	HP	VOLT/	RPM			WT.	REMARKS
CODE	& MODEL NO.			(IN)		(FT)	EFF.		ø/HZ		SUCTION	DISCHARGE	(LBS)	
P-9A	ARMSTRONG 4360-3D	VERTICAL INLINE	MUA-5 HEATING COIL	6.21	89	35	65.82	2	460/3/60	1800	3"	3"	290	-
P-9B	ARMSTRONG 4360-3D	VERTICAL INLINE	MUA-5 HEATING COIL	6.21	89	35	65.82	2	460/3/60	1800	3"	3"	290	-
P-11A	ARMSTRONG 4360-3D	VERTICAL INLINE	MUA-5 COOLING COIL	6.23	92	35	66.39	2	460/3/60	1800	3"	3"	172	_
P-11B	ARMSTRONG 4360-3D	VERTICAL INLINE	MUA-5 COOLING COIL	6.23	92	35	66.39	2	460/3/60	1800	3"	3"	172	_
P-10A	ARMSTRONG 4280 1.5x1x8	END SUCTION	ENERGY RECOVERY LOOP	7.58	60	55	53.52	3	460/3/60	1800	1.5"	1.5"	114	_
P-10B	ARMSTRONG 4280 1.5x1x8	END SUCTION	ENERGY RECOVERY LOOP	7.58	60	55	53.52	3	460/3/60	1800	1.5"	1.5"	114	_
NOTES:						ı	<u> </u>				1			

		GRILLES,	REGIS	TERS &	DIFFU	ISERS S	SCHEDU	LE	
PLAN	MANUFACTURER	TYPE &	NECK	FACE	VOLUME		MOUNTING		REMARKS
CODE	& MODEL NO.	SERVICE	SIZE	SIZE	DAMPER	MATERIAL	TYPE	FINISH	
					(OBD)				
CD-1	PRICE SCD	SUPPLY	AS NOTED	AS NOTED	YES	STEEL	LAY-IN	WHITE	1
SWR-1	PRICE 510	SUPPLY	AS NOTED	AS NOTED	YES	STEEL	SIDEWALL	WHITE	2
EG-1	PRICE 530	EXHAUST	AS NOTED	AS NOTED	NO	STEEL	LAY-IN	WHITE	
RG-1	PRICE PDDR	EXHAUST	AS NOTED	AS NOTED	NO	STEEL	LAY-IN	WHITE	
NOTES:									

1. MODULE WITH FULL LOUVERED FACE.

2. FRONT BLADES PARALLEL TO LONG DIMENSION.

				F.	AN S	SCHE	DUL	E.						
PLAN	MANUFACTURER				CFM	T.S.P.	RPM	М	OTOR	WT	VIB.	CONTROL	DAMPER	
CODE	& MODEL NO.	TYPE	SERVICE	Dba		@ S.L.	@ S.L.	HP	V/ø/HZ	(LBS)	ISOL.		TYPE	REMARKS
EF-308	GREENHECK CW-141-A	SIDEWALL	PENTHOUSE	71.0	2,755	0.5	1750	1	460/3/60	92	NOTE: 1	_	GRAVITY	5

- 1. REFER TO SPECIFICATIONS FOR VIBRATION AND SOUND ISOLATION REQUIREMENTS.
- PROVIDE GRAVITY DAMPER.
- PROVIDE ALUMINUM BIRDSCREEN.

		U	NIT	HE	ATE	ER	SCH	HED	ULE		HOT	$\bigvee$	AT(	ER)				
PLAN	MANUFACT.	LOCATION	MBH	CFM	EAT	EWT	LWT	GPM	WPD	[	ELECTR	ICAL		DISCHARGE	MOUNT.	WT.	CONTROL	REMARKS
CODE	& MODEL NO.				۴	۴	۴		(FT)	HP	VOLTS	Ø	RPM		HT.	(LBS)		
UH-309	TRANE UHSA-060S	FAN LOFT	28.3	900	60.0	180	150	2.5	1.4	1/20	115	1	1550	HORIZ.	8'-0"	50	NOTE: 1	NOTE: 1
UH-308	TRANE UHSA-060S	PENTHOUSE	28.3	900	60.0	180	150	2.5	1.4	1/20	115	1	1550	HORIZ.	8'-0''	50	NOTE: 1	NOTE: 1
NOTES:																		

PROVIDE UNIT MOUNTED THERMOSTAT.

			EXP.	ANS	SION	TAN	IK S	CHEC	)ULE				
				WA	TER			TA	NK				
PLAN	MANUFACT.	TYPE	FILL	OPER	OPER	PROP	MIN	ACCEPT	PRE-	PRESS	TANK	TANK	REMARKS
CODE	& MODEL NO.		ТЕМР	TEMP	PRESS	GLYCOL	VOLUME	VOLUME	CHARGE	RATING	DIMENSIONS	WEIGHT	
			(°F)	(°F)	(PSI)	(%)	(GAL)	(GAL)	(PSI)	(PSI)	(H"xDIA")	(LBS)	
ET-1	AMTROL ST-5-C	IN-LINE	42.4	90.0	23.8	40.0	2.1	0.9	55.0	150	11"×10"	21	NOTE: 1,2
NOTES:			•		•								

- ACCEPTABLE MANUFACTURERS: ARMSTRONG, BELL & GOSSETT, JON WOOD, AND TACO.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

AIR SEPARATOR SCHEDULE										
PLAN				WA	TER					
CODE	MANUFACTURER	TYPE	SIZE IN	FLOW	VOLUME	WPD	HEIGHT	DIA.	WEIGHT	REMARKS
	& MODEL NO.		(IN)	(GPM)	(GAL)	(FT)	(IN)	(IN)	(LBS)	
AS-1	SPIROVENT	VSR250	2.5"	60.0	1.3	0.6	19.0"	6.3"	59	NOTES: 1,2
NOTES:										

- ACCEPTABLE MANUFACTURERS: AMTROL, BELL & GOSSETT, TACO, AND ARMSTRONG.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

		GLY	'COL	FEED	ER SC	CHED	ULE					
PLAN			MAX	TANK	SYSTEM	ELECT	RICAL		SIZE			
CODE	MANUFACTURER	MODEL	FLOW	VOLUME	CONN.	VOLTS/	WATTS	(	INCHES	S)	WEIGHT	REMARKS
			(GPM)	(GAL)	(IN)	PHASE		W	Н	D	(LBS)	
GF-1	AXIOM	MF-300S	0.7	17.0	1/4"	115/1	50.0	12"	36"	12"	15.0	NOTES: 1,2,3,4

- ACCEPTABLE MANUFACTURERS ARE SUBJECT TO COMPLIANCE WITH ALL REQUIREMENTS AND ARE REQUIRED FOR PRIOR APPROVAL BY OWNER AND ENGINEER. PROVIDE OPTIONAL LOW PRESSURE ALARM PANEL. UNIT SHALL BE COMPLETELY ASSEMBLED. HYDRONIC SYSTEM FEEDER SHALL INCLUDE 17 U.S. GALLON STORAGE/MIXING TANK WITH MOLDED-IN LEVEL GAUGE, 5"
- FILL ACCESS OPENING AND COVER; PUMP SUCTION HOSE WITH INLET STRAINER AND CHECK VALVE; PRESSURE PUMP WITH FUSE PROTECTION; LOW FLUID LEVEL PUMP CUT-OUT FLOAT SWITCH; MANUAL DIVERTER VALVE FOR PURGING AIR AND AGITATING CONTENTS OF STORAGE TANK; PRESSURE SWITCH WITH SNUBBER AND TWO SETS OF SPST DRY CONTACTS, EACH INDIVIDUALLY ADJUSTABLE FROM 10 PSIG TO 25 PSIG CUT-OUT PRESSURE; FACTORY CUT-OUT PRESSURE SET TO 15 PSIG; AND LIQUID FILLED PRESSURE GAUGE. FEEDER SHALL BE COMPATIBLE WITH GLYCOL SOLUTIONS OF UP TO 50% CONCENTRATION.
- UNIT TO BE C/W FUSED POWER SUPPLY ADAPTER WITH LED POWER INDICATOR LIGHT, 115/60/1 50 WATTS AC SUPPLIED LOOSE FOR FIELD INSTALLATION. PUMP SHALL BE CAPABLE OF RUNNING DRY WITHOUT DAMAGE. THE SECOND SET OF CONTACTS IN THE PRESSURE SWITCH SHALL BE WIRED TO A TERMINAL STRIP FOR USE AS LOW PRESSURE ALARM CONTACTS FOR REMOTE ALARM CIRCUIT SUPPLIED BY OTHERS.

NO	. REVISIONS	DATE	BY	APP'D.	BAE	NO. REVISIONS	DATE BY APP'D. BAE	FILE INFORMATION	ENGINEERI	NG REVIEW
0	50% CONSTRUCTION DOCUMENTS	8-25-11	•			· [:		USER: DLD DATE: 1/20/12 TIME: . XREF'S: .	AF	PPROVAL DATE
1	90% CONSTRUCTION DOCUMENTS	9-30-11				• :		DWG. FILE: LAYOUT: . D	DESIGNER	DLD
2	100% CONSTRUCTION DOCUMENTS	11-3-11				• :		DWG. FOLDER:	NGINEER	DLD
3	FOR CONSTRUCTION	1-20-12				• :		ACAD VERSION: AUTOCAD 2010 C	CHECKED BY	МТМ
	:					• :		PLATFORM: WINDOWS XP A,	/E APPROVED BY	
	:		•			• :		BORDER: ZBD2234D-3.DWG PLOT SCALE: 1:1 UNITS: ARCH N	IREL APPROVED BY	
	·							PLOT INFO.: NREL.STB B	BLDG. AREA ENG.	



<b>₩</b> NREL
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THERMO-CHEM LABORATORY 101 CONVERSION TASK ORDER 13 HVAC SCHEDULES

DRAWING NO. PREFIX FLTB-135-	drawing no. M-07	REVISION NO.
NREL PROJECT NO. EX2010034	NREL WORK ORDER NO. 13	a/e project no. 11261