

7 Series

Geothermal Heat Pump 3-5 ton (variable speed)

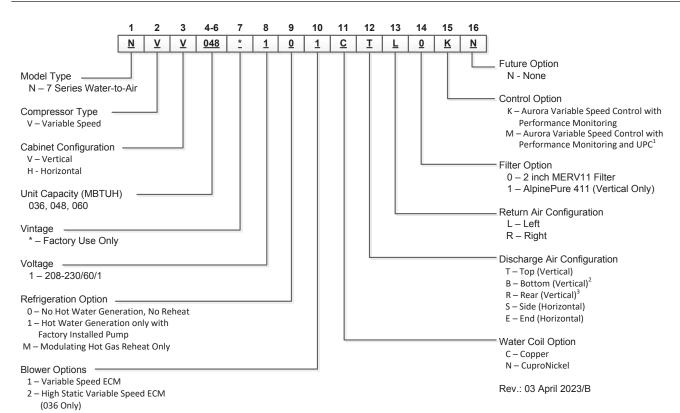


Submittal Data English Language/IP Units SD2700ANC 11/23

Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:



Model Nomenclature



Notes:

- ¹UPC is not compatible with Symphony or IntelliZone2
- ²B Bottom (Vertical) Not available with Modulating Hot Gas Reheat
- ³ R Rear (Vertical) Not available with Modulating Hot Gas Reheat

Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:





AHRI/ISO 13256-1 Performance Ratings

Variable Speed ECM Motor

AHRI/ASHRAE/ISO 13256-1 English (IP) Units

			Wa	ter Loop I	Heat Pump		Grou	ınd Water	Heat Pum	р	Grou	ınd Loop	Heat Pump	כ
Model	Capacity Modulation	Flow Rate Clg/Htg	Cooling EWT 86°F		Heating EWT 68°F		Cooling EWT 59°F		Heati EWT 5	_	Cool Full Loa Part Loa	d 77°F	Heating Full Load 32°F Part Load 41°F	
		cfm	Capacity Btuh	EER Btuh/W	Capacity Btuh	СОР	Capacity Btuh	EER Btuh/W	Capacity Btuh	СОР	Capacity Btuh	EER Btuh/W	Capacity Btuh	СОР
076	Full	1300/1500	32,300	17.7	51,000	5.3	38,000	31.2	41,700	4.5	35,800	21.6	32,900	3.5
036	Part	1300/1500	11,000	21.1	17,000	7.6	12,500	50.0	14,000	5.9	13,400	39.0	12,000	5.1
048	Full	1500/1800	40,700	16.9	67,000	4.9	49,000	30.0	55,200	4.0	45,000	20.0	43,500	3.4
046	Part	1500/1600	16,000	24.0	24,000	7.8	19,000	56.0	19,000	6.0	18,000	43.5	16,300	5.1
060	Full	1800/2200	50,000	15.9	79,000	4.9	60,000	27.1	66,000	4.3	56,000	19.1	51,700	3.4
060	Part	1800/2200	20,100	22.3	29,100	7.6	22,500	55.0	23,000	5.8	22,800	40.0	20,000	5.1

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature Heating capacities based upon 68°F DB, 59°F WB entering air temperature All ratings based upon 208V operation

1/15/21

Energy Star Compliance Table

Model	Tie	r 3
Model	Ground Water	Ground Loop
036	Yes	Yes
048	Yes	Yes
060	Yes	Yes

6/1/12

Energy Star Rating Criteria

In order for water-source heat pumps to be Energy Star rated they must meet or exceed the minimum efficiency requirements listed below. Tier 3 represents the current minimum efficiency water source heat pumps must have in order to be Energy Start rated.

Tier 3: 1/1/2012 - No Effective End Date Published

Water-to-Air	EER	COP
Ground Loop	17.1	3.6
Ground Water	21.1	4.1
Water-to-Water		
Ground Loop	16.1	3.1
Ground Water	20.1	3.5





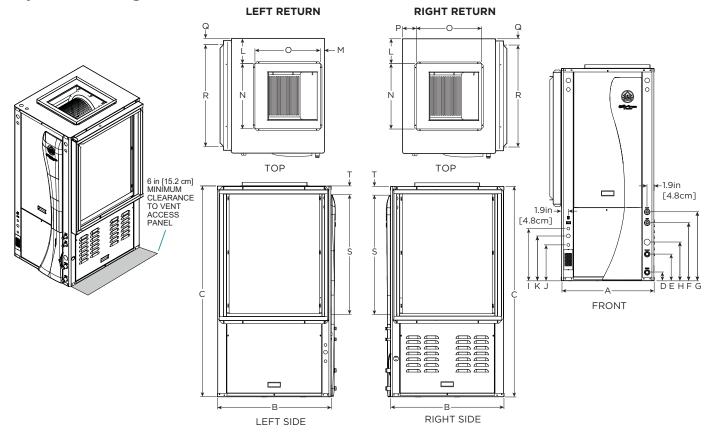
Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:





Vertical Dimensional Data

Top Air Discharge



el A Width	В	c	D	Е													Return Connection using std deluxe filter rack (±0.10 in)																						
IVVIGU												-		-	C Height	-					Loop	Loop	F HWG	G HWG	H Cond-			I 1/2 in. cond	J 1/2 in. cond	K 3/4 in. cond	L	М	N Supply	O Supply	P	Q	R Return	S Return	т
	Depth	Height	In	Out	In	Out	ensate	FPT	(I.D.)	Low Voltage	Ext Pump	Power Supply			Width	Depth			Depth	Height																			
. 25.6	31.6	54.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	6.9	1.1	18.0	18.0	3.8	1.7	28.1	30.0	1.7																		
n. 65.0	80.3	138.2	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	17.5	2.8	45.7	45.7	9.7	4.3	71.4	76.2	4.3																		
. 25.6	31.6	54.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	6.9	1.1	18.0	18.0	3.8	1.7	28.1	30.0	1.7																		
n. 65.0	80.3	138.2	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	17.5	2.8	45.7	45.7	9.7	4.3	71.4	76.2	4.3																		
. 25.6	31.6	58.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	6.9	1.1	18.0	18.0	3.8	1.7	28.1	34.0	1.7																		
n. 65.0	80.3	148.3	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	17.5	2.8	45.7	45.7	9.7	4.3	71.4	86.4	4.3																		
า. า.	25.6 . 65.0 . 25.6 . 65.0	65.0 80.3 25.6 31.6 65.0 80.3 25.6 31.6 65.0 80.3	65.0 80.3 138.2 25.6 31.6 54.4 65.0 80.3 138.2 25.6 31.6 58.4 65.0 80.3 148.3	25.6 31.6 54.4 2.3 65.0 80.3 138.2 5.8 25.6 31.6 54.4 2.3 65.0 80.3 138.2 5.8 25.6 31.6 58.4 2.3 25.6 31.6 58.4 2.3 65.0 80.3 148.3 5.8	25.6 31.6 54.4 2.3 7.3 65.0 80.3 138.2 5.8 18.5 25.6 31.6 54.4 2.3 7.3 65.0 80.3 138.2 5.8 18.5 25.6 31.6 54.4 2.3 7.3 25.6 31.6 58.4 2.3 7.3 65.0 80.3 148.3 5.8 18.5	25.6 31.6 54.4 2.3 7.3 15.9 65.0 80.3 138.2 5.8 18.5 40.4 25.6 31.6 54.4 2.3 7.3 15.9 65.0 80.3 138.2 5.8 18.5 40.4 25.6 31.6 58.4 2.3 7.3 15.9 25.6 31.6 58.4 2.3 7.3 15.9 65.0 80.3 148.3 5.8 18.5 40.4	25.6 31.6 54.4 2.3 7.3 15.9 18.9 65.0 80.3 138.2 5.8 18.5 40.4 48.0 25.6 31.6 54.4 2.3 7.3 15.9 18.9 65.0 80.3 138.2 5.8 18.5 40.4 48.0 25.6 31.6 58.4 2.3 7.3 15.9 18.9 65.0 80.3 148.3 5.8 18.5 40.4 48.0	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 25.6 31.6 58.4 2.3 7.3 15.9 18.9 10.6 65.0 80.3 148.3 5.8 18.5 40.4 48.0 26.9	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 Swivel 25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 Swivel 25.6 31.6 58.4 2.3 7.3 15.9 18.9 10.6 1 in.	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 Swivel Female 25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 65.0 80.3 138.2 5.8 18.5 40.4 48.0 26.9 Swivel Female 25.6 31.6 58.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. Female 25.6 31.6 58.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 65.0 80.3 148.3 5.8 18.5 40.4 48.0 26.9 Swivel Female Female	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 18.5 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 18.5 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 18.5 31.6 31.6 31.6 31.8	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 1.7	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 1.7 28.1	25.6 31.6 54.4 2.3 7.3 15.9 18.9 10.6 1 in. 1/2 in. 14.3 9.8 12.3 6.9 1.1 18.0 18.0 3.8 1.7 28.1 30.0																		

Condensate is 3/4 in. PVC female glue socket and is switchable from side to front
Unit shipped with deluxe 2 in. (field adjustable to 1 in.) duct collar/filter rack extending from unit 3.25 in. and is suitable for duct connection.
Discharge flange is field installed and extends 1 in. [25.4mm] from cabinet

Decorative molding and/or water connections extend 1.2 in. [30.5mm] beyond front of cabinet.

Louvered vents in the compressor section right side access panel extend 1/2 in. [12.7 mm] from side of cabinet. Allow 6" clearance for venting.

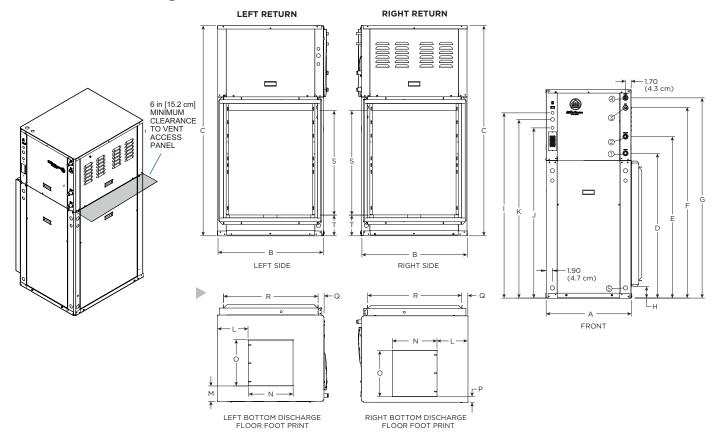
Contractor:	P.O.:	
Engineer:		
Project Name:	Unit Tag:	





Vertical Dimensional Data cont.

Bottom Air Discharge



		Water Connections									Electri	cal Kno	ckouts						Return Connection					
Botto		<u>"</u>	Ove	rall Cab	inet	1	2	3	4	5	Loop	HWG Con		J 1/2 in. cond	n. 3/4 in. duct flange installed (±0				Discharge Connection duct flange installed (±0.10 in)				uxe filte	
Moc	1613	ľ	A Width	B Depth	C Height	D In	E Out	F HWG In	G HWG Out	H Cond- ensate	FPT	(I.D.)	Low	Ext Pump	Power Supply	L	М		O Supply Depth	Р			S Return Height	
036-	in	. [25.5	31.5	62.5	43.4	48.4	57.0	60.0	3.1	1 in.	1/2 in.	51.1	55.6	53.6	9.1	4.8	13.4	13.6	1.7	1.8	28.1	34.0	5.6
060	cm	n.	64.8	80.0	158.8	110.2	122.9	144.8	152.4	7.9	Swivel	Female	129.8	141.2	136.1	23.1	12.2	34.0	34.5	4.3	4.6	71.4	86.4	14.2

Condensate is 3/4 in. PVC female glue socket and is switchable from side to front

4/30/12

Unit shipped with deluxe 2 in. (field adjustable to 1 in.) duct collar/filter rack extending from unit 3.25 in. and is suitable for duct connection. Water connections extend 1.2 in. [30.5mm] beyond front of cabinet.

Louvered vents in the compressor section right side access panel extend 1/2 in. [12.7 mm] from side of cabinet. Allow 6" clearance for venting.

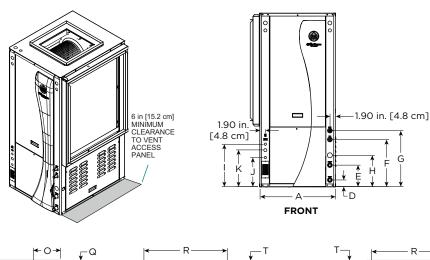
Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:

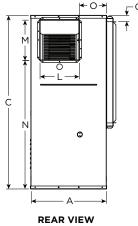




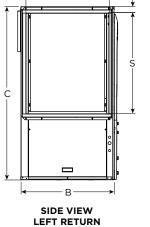
Vertical Dimensional Data cont.

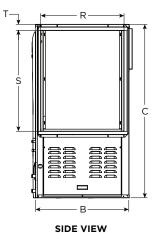
Rear Air Discharge



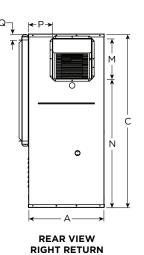


LEFT RETURN





RIGHT RETURN



Ver	ti-	Ove	rall Cab	inet			Water	Conne	ctions			_	lectrica nnectio			Dischar t flange			Return Connection using std deluxe filter rack (±0.10 in)					
cal F Disch Mod	arge	A Width	B	C Height	D Loop	E Loop	F HWG	G HWG	H Cond-		HWG Sweat		J 1/2 in. cond		L Supply	M Supply	N	0	P	Q	R Return	S Return	т	
			Deptil	пеідііі	In	Out	In	Out	ensate	FPT	(I.D.)	Low Voltage	Ext Pump	Power Supply		Depth					Depth	Height		
036	in.	25.6	31.6	54.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	13.3	13.6	39.4	9.1	8.1	1.7	28.1	30.0	1.7	
036	cm.	65.0	80.3	138.2	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	33.8	34.5	100.1	23.1	20.6	4.3	71.4	76.2	4.3	
048	in.	25.6	31.6	54.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	13.3	13.6	39.4	9.1	8.1	1.7	28.1	30.0	1.7	
048	cm.	65.0	80.3	138.2	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	33.8	34.5	100.1	23.1	20.6	4.3	71.4	76.2	4.3	
000	in.	25.6	31.6	58.4	2.3	7.3	15.9	18.9	10.6	1 in.	1/2 in.	14.3	9.8	12.3	13.3	13.6	43.4	9.1	8.1	1.7	28.1	34.0	1.7	
060	cm.	65.0	80.3	148.3	5.8	18.5	40.4	48.0	26.9	Swivel	Female	36.3	24.9	31.2	33.8	34.5	110.2	23.1	20.6	4.3	71.4	86.4	4.3	

6/29/12

Condensate is 3/4 in. PVC female glue socket and is switchable from side to front
Unit shipped with deluxe 2 in. (field adjustable to 1 in.) duct collar/filter rack extending from unit 3.25 in. and is suitable for duct connection.

Discharge flange is field installed and extends 1 in. [25.4mm] from cabinet

Decorative molding and/or water connections extend 1.2 in. [30.5mm] beyond front of cabinet.

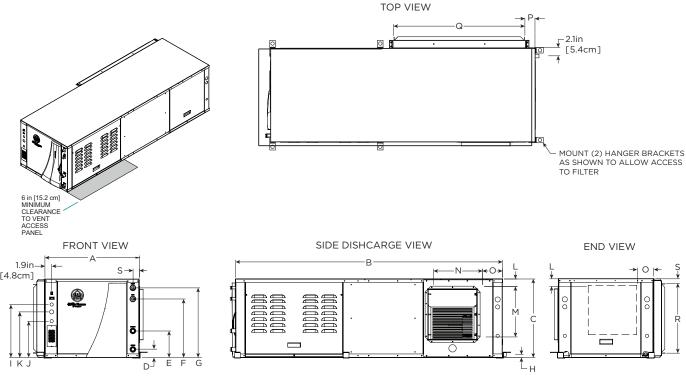
Louvered vents in the compressor section right side access panel extend 1/2 in. [12.7 mm] from side of cabinet. Allow 6" clearance for venting.

Contractor:	P.O.:	
Engineer:		
Project Name:	Unit Tag:	_





Horizontal Dimensional Data



AS SHOWN LR UNIT (RR UNIT ON OPPOSITE SIDE—SAME DIMENSIONS)

										Electric	al Conr	nections					Return Connection					
Horizontal Models			rall Cab	inet	Water Connections							l 1/2 in. cond	J 1/2 in. cond	K 3/4 in. cond	Discharge Connection duct flange installed (±0.10 in				union abal alaluna filban na ala			
		A Width	B Depth	C Height	D In	E Out	F HWG In	G HWG Out	H Cond- ensate	Loop Water FPT		Low Voltage	Ext Pump	Power Supply	L	M N L Supply Supply O Height Depth			Р	Q Return Depth	R Return Height	s
036	in.	25.6	77.0	21.3	2.3	7.3	15.9	18.9	0.8	1 in.	1/2 in.	14.3	9.8	12.3	SEE	13.6	13.2	SEE	2.8	40.4	18.9	1.3
036	cm.	65.0	195.6	54.1	5.8	18.5	40.4	48.0	2.0	Swivel	Female	36.3	24.9	31.2	CHART	34.5	33.5	CHART	7.1	102.6	48.0	3.3
048	in.	25.6	77.0	21.3	2.3	7.3	15.9	18.9	0.8	1 in.	1/2 in.	14.3	9.8	12.3	SEE	13.6	13.2	SEE	2.8	40.4	18.9	1.3
048	cm.	65.0	195.6	54.1	5.8	18.5	40.4	48.0	2.0	Swivel	Female	36.3	24.9	31.2	CHART	34.5	33.5	CHART	7.1	102.6	48.0	3.3
060	in.	25.6	82.0	21.3	2.3	7.3	15.9	18.9	0.8	1 in.	1/2 in.	14.3	9.8	12.3	SEE	13.6	13.2	SEE	2.8	45.4	18.9	1.3
060	cm.	65.0	208.3	54.1	5.8	18.5	40.4	48.0	2.0	Swivel	Female	36.3	24.9	31.2	CHART	34.5	33.5	CHART	7.1	115.3	48.0	3.3
Cond	ensate	is 3/4 i	in. PVC	female g	lue soc	ket and	is switch	nable fro	om side	to front												6/29/12

Unit shipped with deluxe 2 in. (field adjustable to 1 in.) duct collar/filter rack extending from unit 3.25 in. and is suitable for duct connection.

Discharge flange is field installed and extends 1 in. [25.4mm] from cabinet

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Louvered vents in the compressor section right side access panel extend 1/2 in. [12.7 mm] from side of cabinet. Allow 6" clearance for venting.

Units Not Shown Above		L	0
Right Return End Discharge	in	2.8	4.6
Right Return End Discharge	cm	7.1	11.8
Dight Datum Cida Disabanga	in	4.9	6.9
Right Return Side Discharge	cm	12.4	17.5
Left Detum End Discharge	in	4.9	7.6
Left Return End Discharge	cm	12.4	19.4
Left Detum Side Dischause	in	2.8	6.9
Left Return Side Discharge	cm	7.1	17.5

Contractor:	P.O.:	
Engineer:		
Project Name:	Unit Tag:	



Physical Data

		Ī		
Model	NV*036	NV*048	NV*060	
Compressor (1 each)	,	Variable Speed Scr	oll	
Factory Charge R410a, oz [kg] Vertical		90 [2.55]	120 [3.40]	140 [3.96]
Factory Charge R410a, oz [kg] Horizontal		86 [2.44]	108 [3.06]	148 [4.19]
Factory Charge R410a, oz [kg] Vertical	MHGR Only	106 [3.00]	128 [3.63]	140 [3.96]
Factory Charge R410a, oz [kg] Horizontal	MHGR Only	102 [2.89]	116 [3.29]	148 [4.19]
ECM Blower Motor & Blower				
Blower Motor Type/Speeds	ECM		Variable Speed	
Blower Motor- hp [W]	ECM	1/2 [373]	1 [746]	1 [746]
High Static Blower Motor - hp [W]	ECM	1 [746]	n/a	n/a
, , ,		11 x 10	11 x 10	11 x 10
Blower Wheel Size (Dia x W), in. [mm]	ECM	[279 x 254]	Γ279 x 2541	Γ279 x 2541
			[270 X 201]	[270 / 201]
High Static Blower Wheel Size - [Dia. x W], in. [mm]	ECM	11 x 10 [279 x 254]	n/a	n/a
		[279 X 254]		
Coax and Water Piping		1// 505 43	1// 505 43	1// 505 43
Water Connections Size - Swivel - in [mm]		1" [25.4]	1" [25.4]	1" [25.4]
HWG Connection Size - Female Sweat I.D in [mm]		1/2" [12.7]	1/2" [12.7]	1/2" [12.7]
Coax & Piping Water Volume - gal [l]		1.3 [4.9]	2.3 [8.7]	2.3 [8.7]
Vertical				
Air Coil Dimensions (H x W), in. [mm]		32 x 25	32 x 25	36 x 25
		[813 x 635]	[813 x 635]	[914 x 635]
Air Coil Total Face Area, ft2 [m2]		5.6 [0.570]	5.6 [0.570]	6.3 [0.641]
Air Coil Tube Size, in [mm]		3/8 [9.5]	3/8 [9.5]	3/8 [9.5]
Air Coil Number of rows		3	3	4
Reheat Coil Dimensions (H x W), in. [mm] (MHGR Only)		23 x 30	23 x 30	23 x 34
		[584 x 762]	[584 x 762]	[584 x 864]
Filter Standard - 2" [51mm] Pleated MERV11 Throwaway, in [[mm]	32 x 30	32 x 30	36 x 30
Majaht Operating Ib [kg]		[813 x 762]	[813 x 762]	[914 x 762]
Weight - Operating, lb [kg]		331 [150]	354 [161]	372 [169]
Weight - Packaged, lb [kg]		351 [159]	374 [170]	392 [178]
Weight - Operating, lb [kg] (MHGR Only)		382 [173]	418 [190]	444 [201]
Weight - Packaged, lb [kg] (MHGR Only)		402 [182]	438 [199]	464 [210]
Horizontal				
Air Coil Dimensions (H x W), in. [mm]		20 x 40	20 x 40	20 x 45
		[508 x 1016]	[508 x 1016]	[508 x 1143]
Air Coil Total Face Area, ft2 [m2]		5.6 [0.570]	5.6 [0.570]	6.3 [0.641]
Air Coil Tube Size, in [mm]		3/8 [9.5]	3/8 [9.5]	3/8 [9.5]
Air Coil Number of rows		3	3	4
Reheat Coil Dimensions (H x W), in. [mm] (MHGR Only)		18 x 33	18 x 33	18 x 38
Reneat con Burnerisions (17 x vv), in: [mm] (1 mert only)		[457 x 838]	[457 x 838]	[457 x 965]
		1 - 20 x 20	1 - 20 x 20	1 - 20 x 25
Filter Standard - 2" [51mm] Pleated MERV11 Throwaway, in [m	nm]	[508 x 508]	[508 x 508]	[508 x 635]
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-	1 - 20 x 22	1 - 20 x 22	1 - 20 x 22
Mariable On sortion Ha Florid		[508 x 559]	[508 x 559]	[508 x 559]
Weight - Operating, lb [kg]		365 [166]	388 [176]	402 [182]
Weight - Packaged, lb [kg]		395 [179]	418 [190]	432 [196]
Weight - Operating, lb [kg] (MHGR Only)		387 [176]	452 [205]	494 [224]
Weight - Packaged, lb [kg] (MHGR Only)		407 [185]	482 [219]	514 [233]

9/7/2023

Contractor:	P.O.:	-
Engineer:		_
Project Name:	Unit Tag:	



Auxiliary Heat Ratings

Model	k¹	W	Stamon	Btı	ı/h	Min CFM	Model Compatibility				
Model	208V	230V	Stages	208V	230V	MIN CFM	036	048	060		
EAL(H)10*	7.2	9.6	2	24,600	32,700	1100	•	•	•		
EAL(H)15*	10.8	14.4	3	36,900	49,100	1250	•	•	•		
EAL(H)20*	14.4	19.2	4	49,200	65,500	1500		•	•		

Air flow level for auxiliary heat (Aux) must be above the minimum cfm in this table Order the "H" part number when installed on horizontal and vertical rear discharge units 11/30/17

Auxiliary Heat Electrical Data

Model	Supply Circuit	Heater Amps		Min Circuit Amp		Max Fuse (USA)		Max Fuse (CAN)		Max CKT BRK	
Model		208 V	240 V	208 V	240 V	208 V	240 V	208 V	240 V	208 V	240 V
EAL(H)10*	Single	34.7	40	53.3	60	60	60	60	60	60	60
	Single	52.0	60	75	85	80	90	80	90	70	100
EAL(H)15*	L1/L2	34.7	40	53.3	60	60	60	60	60	60	60
	L3/L4	17.3	20	21.7	25	25	25	25	25	20	30
	Single	69.3	80	96.7	110	100	110	100	110	100	100
EAL(H)20*	L1/L2	34.7	40	53.3	60	60	60	60	60	60	60
	L3/L4	34.7	40	43.3	50	45	50	45	50	40	50

All heaters rated single phase 60 cycle and include unit fan Ioad All fuses type "D" time delay (or HACR circuit breaker in USA)

11/30/17

Electrical Data

	Rated	Voltage	Compressor		Drive		HWG	Ext Loop	Blower	Total Unit	Minimum	Max Fuse	
Model	Voltage	Min/Max	LRA	СМСС	RLA	Internal Breaker	Pump FLA	FLA	Motor FLA	FLA	Circuit Amp	HACR Breaker	
036	208-230/60/1	187/253	10.2	18.0	22.0	30.0	0.4	5.4	4.0	31.8	37.3	40	
*036	208-230/60/1	187/253	10.2	18.0	22.0	30.0	0.4	5.4	7.0	34.8	40.3	45	
048	208-230/60/1	187/253	12.0	23.5	28.0	35.0	0.4	5.4	7.0	40.8	47.8	50	
060	208-230/60/1	187/253	12.0	30.0	33.0	40.0	0.4	5.4	7.0	45.8	54.1	60	

*With optional 1 hp Variable Speed ECM Motor Rated Voltage of 208/230/60/1 HACR circuit breaker in USA only All fuses Class RK-5 3/26/12

Contractor:	P.O.:	
Engineer:		
Droject Name:	Unit Tage	





Blower Performance Data

Variable Speed ECM Blower Motor

							Air Flow						
Model	Max ESP	Speed 1	Speed 2	Speed 3	Speed 4	Speed 5	Speed 6	Speed 7	Speed 8	Speed 9	Speed 10	Speed 11	Speed 12
036	0.50	285	380 G	525 L	675	815	980	1100	1220	1330	1440 H	1540 Aux	1575
036 w/1hp*	0.75	480	565 G	665 L	761	870	1000	1100	1200	1300	1410 H	1520 Aux	1630
048	0.75	475	620 G	730 L	850	1020	1140	1270	1400	1520	1650 H	1790 Aux	1925
060	0.75	400	600 G	830 L	1050	1230	1400	1560	1700	1870	2010 H	2140 Aux	2265
**VS Compressor Speed 1-2 3-4 5-6 7-8 9-10 11-12													
** VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the 6/7/12													

^{**} VS Compressor speed is given for the factory default cfm settings. When the cfm default settings are changed it will change the relationship to the compressor speed that is shown in the table. In cooling mode compressor speeds 10-12 are only available when SuperBoost mode is selected at the thermostat.

Factory settings are at recommended L , H and Aux positions

Max ESP includes allowance for wet coil and standard filter

Setting Blower Speed - Variable Speed ECM

The ABC board's Yellow Config LED will flash the current ECM blower speed selections for G, low, and high continuously with a short pause in between. The speeds can also be confirmed with the AID Tool under the Setup/ECM Setup screen. The Aux will not be flashed but can be viewed in the AID Tool. The ECM blower motor speeds can be field adjusted with or without using an AID Tool.

Variable speed ECM Setup without an AID Tool

The blower speeds for G only, Low (Y1), and High (Y2/Aux) can be adjusted directly at the Aurora ABC board which utilizes the push button (SW1) on the ABC board. This procedure is outlined in the ECM Configuration Mode portion of the Aurora 'Base' Control System section. The Aux cannot be set manually without an AID Tool.

Variable speed ECM Setup with an AID Tool

A much easier method utilizes the AID Tool to change the airflow using the procedure below. First navigate to the Setup screen and then select ECM Setup. This screen displays the current ECM settings. It allows the technician to enter the setup screens to change the ECM settings. Change

ECM Speed Info

Blower Only Speed 3
Lo Compressor 6
Hi Compressor 9
Aux Heat 10

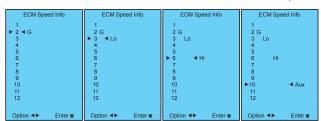
Want To Change?

Yes No
Option ◀▶ Enter ■

the highlighted item using the ◀ and ▶ buttons and then press the ▶ button to select the item.

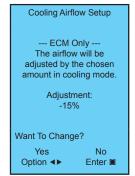
Selecting YES will enter ECM speed setup, while selecting NO will return to the previous screen.

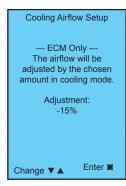
ECM Speed Setup - These screens allow the technician to select the G, low, high, and auxiliary heat blower speed for the ECM blower motor. Change the highlighted item using the \blacktriangle and \blacktriangledown buttons. Press the \blacksquare button to select the speed.



After the auxiliary heat speed setting is selected the AID Tool will automatically transfer back to the ECM Setup screen.

Cooling Airflow Setup - These screens allow the technician to select -15%, -10%, -5%, None or +5% change from the heating airflow. Change the adjustment percentage using the ▲ and ▼ buttons. Press the ■ button to save the change.





Optional 1 hp Variable Speed ECM

[&]quot;G" may be located anywhere within the airflow table

[&]quot;L" setting should be located within the boldface cfm range

[&]quot;H" setting MUST be located within the shaded cfm range

[&]quot;Aux" setting MUST be equal to or greater than "H" setting

[&]quot;Aux" setting MUST be equal to or greater than the minimum allowable cfm for the auxiliary heater kit (see auxiliary heat ratings table)

Cfm is controlled within 5% up to the maximum ESP

Contractor:	P.O.:	
Engineer:		
Project Name:	Unit Tag:	



Operating Limits

On avating Limits	Coo	ling	Hea	ting
Operating Limits	(°F)	(°C)	(°F)	(°C)
Air Limits				
Min. Ambient Air	45	7.2	45	7.2
Rated Ambient Air	80	26.7	70	21.1
Max. Ambient Air	100	37.8	85	29.4
Min. Entering Air	50	10.0	40	4.4
Rated Entering Air db/wb	80.6/66.2	27/19	68	20.0
Max. Entering Air db/wb	110/83	43/28.3	80	26.7
Water Limits				
Min. Entering Water	30	-1.1	20	-6.7
Normal Entering Water	50-110	10-43.3	30-70	-1.1
Max. Entering Water	120	48.9	90	32.2

NOTE: Minimum/maximum limits are only for start-up conditions, and are meant for bringing the space up to occupancy temperature. Units are not designed to operate at the minimum/maximum conditions on a regular basis. The operating limits are dependent upon three primary factors: 1) water temperature, 2) return air temperature, and 3) ambient temperature. When any of the factors are at the minimum or maximum levels, the other two factors must be at the normal level for proper and reliable unit operation.

Definitions

Abbreviations and Definitions

cfm = airflow. cubic feet/minute

EWT = entering water temperature, Fahrenheit

gpm = water flow in gallons/minute

WPD = water pressure drop, psi and feet of water

EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)

HC = air heating capacity, MBtu/h
TC = total cooling capacity, MBtu/h
SC = sensible cooling capacity, MBtu/h
kW = total power unit input, kilowatts
HR = total heat of rejection, MBtu/h
HE = total heat of extraction, MBtu/h

HWC = hot water generator capacity, MBtu/h

EER = Energy Efficient Ratio

= Btu output/Watt input

COP = Coefficient of Performance

= Btu output/Btu input

LWT = leaving water temperature, °F
LAT = leaving air temperature, °F
TH = total heating capacity, MBtu/h
LC = latent cooling capacity, MBtu/h
S/T = sensible to total cooling ratio

Pressure Drop

Marilal	6014		Press	ure Drop	(psi)	
Model	GPM	30°F	50°F	70°F	90°F 2.90 1.90 1.20 1.05 0.60 3.80 2.30 1.40 0.58 5.20 3.80 1.80 1.40 0.55	110°F
	11.5	3.60	3.30	3.10	2.90	2.70
	9.0	2.30	2.10	2.00	1.90	1.70
36	7.0	1.50	1.40	1.30	1.20	1.10
	6.0	1.20	1.15	1.10	1.05	1.00
	4.5	0.70	0.66	0.64	0.60	0.55
	13.5	4.60	4.40	4.10	3.80	3.50
	10.5	2.90	2.70	2.50	2.30	2.20
48	7.5	1.70	1.60	1.50	1.40	1.30
	6.0	1.20	1.10	1.00	0.96	0.91
	4.0	0.62	0.61	0.60	0.58	0.56
	17.0	6.40	6.00	5.60	5.20	4.80
	13.5	4.60	4.40	4.10	3.80	3.50
60	9.5	2.20	2.10	2.00	1.80	1.70
	7.5	1.70	1.60	1.50	1.40	1.30
	5.0	0.68	0.62	0.58	0.55	0.53

12/02/20

Notes to Performance Data Tables

The following notes apply to all performance data tables:

- Performance ratings are based on 80°F DB/67°F WB EAT for cooling and 70°F DB EAT for heating.
- Three flow rates are shown for each unit. The lowest flow rate shown is used for geothermal open loop/well water systems with a minimum of 50°F EWT. The middle flow rate shown is the minimum geothermal closed loop flow rate. The highest flow rate shown is optimum for geothermal closed loop systems and the suggested flow rate for boiler/tower applications.
- The hot water generator numbers are based on a flow rate of 0.4 gpm/ton of rated capacity with an EWT of 90°F.
- Entering water temperatures below 40°F assumes 15% antifreeze solution.
- For non-standard EAT conditions, apply the appropriate Correction Factor tables.
- Interpolation between EWT, gpm, and cfm data is permissible, extrapolation is not.

Contractor:	P.O.:	
Engineer:		
Project Name:	Unit Tag:	





Correction Factor Tables

Air Flow Corrections (Compressor Speeds 1-3)

Airl	low		Coo	ling			Heating	
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.940	0.740	0.967	0.951	0.943	1.106	0.902
275	69	0.950	0.783	0.973	0.959	0.953	1.088	0.918
300	75	0.960	0.827	0.978	0.967	0.962	1.070	0.935
325	81	0.970	0.870	0.984	0.975	0.972	1.053	0.951
350	88	0.980	0.913	0.989	0.984	0.981	1.035	0.967
375	94	0.990	0.957	0.995	0.992	0.991	1.018	0.984
400	100	1.000	1.000	1.000	1.000	1.000	1.000	1.000
425	106	1.030	1.022	1.024	1.026	1.009	0.982	1.016
450	113	1.060	1.045	1.048	1.051	1.019	0.965	1.033
475	119	1.091	1.067	1.071	1.077	1.028	0.947	1.049
500	125	1.121	1.089	1.095	1.103	1.038	0.930	1.065
520	130	1.151	1.111	1.110	1.129	1.047	0.912	1.082

6/29/12

Air Flow Corrections (Compressor Speeds 4-12)

Air	flow		Cod	oling			Heating	
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.928	0.747	0.936	0.929	0.961	1.097	0.938
275	69	0.940	0.789	0.946	0.941	0.967	1.081	0.948
300	75	0.952	0.831	0.957	0.953	0.974	1.064	0.959
325	81	0.964	0.873	0.968	0.965	0.980	1.048	0.969
350	88	0.976	0.916	0.979	0.976	0.987	1.032	0.979
375	94	0.988	0.958	0.989	0.988	0.993	1.016	0.990
400	100	1.000	1.000	1.000	1.000	1.000	1.000	1.000
425	106	1.020	1.023	1.004	1.018	1.010	0.966	1.018
450	113	1.056	1.056 1.042 1.00		1.035	1.020	0.932	1.036
475	119	1.072	1.079	1.011	1.053	1.029	0.898	1.054
500	125	1.087	1.095	1.015	1.070	1.039	0.865	1.071
520	130	1.099	1.113	1.019	1.088	1.049	0.831	1.089

6/14/12

Cooling Capacity Corrections

Entering	Total Clg			Sensik	le Cooling	Capacity	Multipliers	- Entering	DB °F			Power	Heat of
Air WB °F	Cap	60	65	70	75	80	80.6	85	90	95	100	Input	Rejection
55	0.898	0.723	0.866	1.048	1.185	*	*	*	*	*	*	0.985	0.913
60	0.912		0.632	0.880	1.078	1.244	1.260	*	*	*	*	0.994	0.927
63	0.945			0.768	0.960	1.150	1.175	*	*	*	*	0.996	0.954
65	0.976			0.694	0.881	1.079	1.085	1.270	*	*	*	0.997	0.972
66.2	0.983			0.655	0.842	1.040	1.060	1.232	*	*	*	0.999	0.986
67	1.000			0.616	0.806	1.000	1.023	1.193	1.330	1.480	*	1.000	1.000
70	1.053				0.693	0.879	0.900	1.075	1.205	1.404	*	1.003	1.044
75	1.168					0.687	0.715	0.875	1.040	1.261	1.476	1.007	1.141

NOTE: *Sensible capacity equals total capacity at conditions shown.

4/22/12

Heating Capacity Corrections

Ent Air DB °F	ŀ	leating Correction	s
EIIL AII DB 'F	Htg Cap	Power	Heat of Ext
45	1.062	0.739	1.158
50	1.050	0.790	1.130
55	1.037	0.842	1.096
60	1.025	0.893	1.064
65	1.012	0.945	1.030
68	1.005	0.976	1.012
70	1.000	1.000	1.000
75	0.987	1.048	0.970
80	0.975	1.099	0.930

11/10/09

Contractor:	P.O.:
Engineer:	
Project Namo:	Unit Tag:



ag: ______ Smarter from the Ground Up

Antifreeze Corrections

Catalog performance can be corrected for antifreeze use. Please use the following table and note the example given.

Antifreeze Type	Antifreeze % by wt	Heating	Cooling	Pressure Drop
EWT - °F [°C]		30 [-1.1]	90 [32.2]	30 [-1.1]
Water	0	1.000	1.000	1.000
	10	0.973	0.991	1.075
	20	0.943	0.979	1.163
Ethylene Glycol	30	0.917	0.965	1.225
	40	0.890	0.955	1.324
	50	0.865	0.943	1.419
	10	0.958	0.981	1.130
	20	0.913	0.969	1.270
Propylene Glycol	30	0.854	0.950	1.433
	40	0.813	0.937	1.614
	50	0.770	0.922	1.816
	10	0.927	0.991	1.242
	20	0.887	0.972	1.343
Ethanol	30	0.856	0.947	1.383
	40	0.815	0.930	1.523
	50	0.779	0.911	1.639
	10	0.957	0.986	1.127
	20	0.924	0.970	1.197
Methanol	30	0.895	0.951	1.235
	40	0.863	0.936	1.323
	50	0.833	0.920	1.399



WARNING: Gray area represents antifreeze concentrations greater than 35% by weight and should be avoided due to the extreme performance penalty they represent.

Antifreeze Correction Example

Antifreeze solution is Propylene Glycol 20% by weight. Determine the corrected heating and cooling performance at 30°F and 90°F respectively as well as pressure drop at 30°F for a 036 operating at 100% capacity.

The corrected cooling capacity at 90°F would be: 35,200 Btu/h x 0.969 = 34,109 Btu/h

The corrected heating capacity at 30° F would be: 37,400 Btu/h x 0.913 = 34,146 Btu/h

The corrected pressure drop at 30°F and 11.5 gpm would be: 7.9 feet of head x 1.270 = 10.03 feet of head

Contractor:	P.O.:
Engineer:	
Project Name:	_Unit Tag:





Performance Data

036 - 50% Part Load

036	- 50			art Load																		
EWT	Flow	WF	D			HEATII	NG - EA	T 70°F			EWT	Flow	WI	PD			COOL	ING - E	AT 80/	67 °F		
°F	gpm	PSI	FT	Airflow cfm	HC MBtuh	Power kW	HE MBtuh	°F	СОР	HWC MBtuh	°F	gpm	PSI	FT	Airflow cfm		SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
	3.0 4.5	0.30			Оре	eration	not reco	mmen	ded			2.5 3.5	0.15 0.46	0.4								
20	5.5	1.09		550 750	12.7	1.43	7.8 8.5	91.4 85.8	2.61	2.2	20	5.0		1.8	Operation not recommended							
	3.0	0.30	0.7	550	13.3	1.19	9.2	92.3	3.26	2.3		2.5	0.15	0.3	500	18.3	12.5	0.68	0.57	20.2	32.2	-
	3.0	0.50	0.7	750	13.8	1.22	9.7	87.1	3.31	2.0		2.5	0.13	0.5	650	18.6	13.7	0.74	0.59	20.7	31.5	-
30	4.5	0.68	1.6	550 750	13.6 14.2	1.20	9.5	92.9 87.5	3.33	2.6	30	3.5	0.45	1.0	500 650	18.5 18.8	12.6 13.8	0.68	0.54	20.4	34.3 33.1	-
	5.5	1.06	2.4	550	15.0	1.43	10.1	95.3	3.07	2.7		5.0	0.75	1.7	500	18.6	12.6	0.68	0.52	20.4	35.6	-
				750 550	15.1 15.6	1.26	10.8 11.4	88.6 96.2	3.51 3.77	2.2			\vdash		650 500	19.1 20.4	13.8 13.3	0.72	0.55	21.0	34.7 39.7	-
	3.0	0.29	0.7	750	16.1	1.23	11.9	89.9	3.83	2.2		2.5	0.14	0.3	650	20.8	14.5	0.70	0.53	22.6	38.9	-
40	4.5	0.66	1.5	550	16.1	1.21	11.9	97.0	3.88	2.8	40	3.5	0.44	1.0	500	20.6	13.4	0.65	0.49	22.3	42.3	-
				750 550	16.6 16.9	1.24	12.4 12.7	90.5 98.5	3.94 3.99	2.3					650 500	21.0	14.7 13.4	0.70	0.51	22.8	41.1 43.9	-
	5.5	1.02	2.4	750	17.5	1.27	13.2	91.6	4.05	2.4		5.0	0.73	1.7	650	21.3	14.7	0.69	0.50	22.9	42.9	-
	3.0	0.28	0.6	550 750	17.8 18.4	1.23	13.7 14.2	100.0 92.7	4.27	2.8		2.5	0.14	0.3	500 650	22.2	13.6 15.0	0.61	0.45	23.7	49.7 50.1	-
	4.5	0.64	1 -	550	18.5	1.23	14.3	101.1	4.41	3.0		7.5	0.40	10	500	22.4	13.7	0.61	0.46	23.9	51.4	-
50	4.5	0.64	1.5	750	19.0	1.24	14.8	93.5	4.49	2.5	50	3.5	0.42	1.0	650	23.0	15.1	0.66	0.44	24.5	51.9	-
	5.5	0.99	2.3	550 750	19.3 19.9	1.26 1.27	15.0 15.6	102.5 94.6	4.51 4.59	3.1 2.8		5.0	0.70	1.6	500 650	22.8	14.0 15.5	0.62	0.43	24.2	52.7 53.2	-
	3.0	0.27	0.6	550	20.2	1.24	16.0	104.0	4.77	3.0		2.5	0.17	0.7	500	20.0	13.4	0.67	0.59	22.0	34.0	1.0
	3.0	0.27	0.6	750	20.7	1.25	16.4	95.6	4.85	2.5		2.5	0.13	0.5	650	20.6	14.8	0.72	0.60	22.6	34.3	1.0
60	4.5	0.62	1.4	550 750	21.0	1.24	16.8 17.3	105.4 96.6	4.97 5.05	3.2 2.7	60	3.5	0.41	0.9	500 650	20.2	13.5 14.9	0.67	0.57	22.2	35.2 35.5	1.1
	5.5	0.96	22	550	21.8	1.27	17.4	106.6	5.03	3.3		5.0	0.68	16	500	20.5	13.8	0.67	0.57	22.5	36.1	1.2
	3.3	0.30	2.2	750	22.3	1.28	17.9	97.5	5.11	2.8		3.0	0.00	1.0	650	21.1	15.3	0.73	0.58	23.1	36.4	1.2
	3.0	0.26	0.6	550 750	22.6 22.9	1.26 1.27	18.3 18.6	108.0 98.3	5.25 5.28	3.2 2.6		2.5	0.13	0.3	500 650	17.8 18.6	13.2 14.9	0.74	0.73	20.3	24.4	1.3
70	4.5	0.60	14	550	23.6	1.26	19.3	109.7	5.50	3.4	70	3.5	0.40	0.9	500	18.0	13.3	0.74	0.71	20.4	25.3	1.4
'				750 550	24.0	1.25	19.7 19.8	99.6 110.7	5.61 5.53	2.9 3.5			00	0.0	650 500	18.5 18.3	14.7 13.6	0.80	0.73	21.0	25.5 25.9	1.4
	5.5	0.93	2.1	750	24.6	1.28	20.2	100.4	5.63	2.9		5.0	0.66	1.5	650	18.8	15.1	0.80	0.71	21.3	26.1	1.5
	3.0	0.25	0.6	550	24.8	1.28	20.4	111.8	5.67	3.4		2.5	0.13	0.3	500	16.7	12.3	0.73	0.90	19.8	18.6	1.9
				750 550	25.2 26.0	1.28	20.8	101.1 113.8	5.78 5.98	2.8 3.6		-			650 500	17.2 16.8	13.6 12.3	0.79	0.92	20.3 19.8	18.7 19.2	2.0
80	4.5	0.57	1.3	750	26.3	1.27	22.0	102.5	6.09	3.0	80	3.5	0.38	0.9	650	17.3	13.7	0.79	0.89	20.4	19.4	2.1
	5.5	0.90	2.1	550 750	26.4 26.7	1.30	21.9 22.2	114.4 102.9	5.94 6.05	3.8		5.0	0.64	1.5	500 650	17.1 17.6	12.6 14.0	0.74	0.87	20.1	19.7 19.9	2.2
				550	27.1	1.31	22.2	115.5	6.07	3.6		 			500	15.6	11.3	0.80	1.07	19.2	14.6	2.6
	3.0	0.24	0.6	750	27.3	1.29	22.9	103.7	6.19	2.9		2.5	0.12	0.3	650	16.0	12.5	0.78	1.09	19.7	14.7	2.6
90	4.5	0.55	1.3	550 750	28.4 28.6	1.30	24.0	117.9 105.3	6.44	3.8	90	3.5	0.37	0.9	500 650	15.7 16.1	11.4 12.6	0.72 0.78	1.04	19.2 19.7	15.1 15.2	2.7
	5.5	0.87	2.0	550	28.6	1.32	24.1	118.1	6.34	4.1		5.0	0.61	1.4	500	16.7	12.0	0.72	1.06	20.3	15.8	2.8
	5.5	0.67	2.0	750	28.7	1.30	24.3	105.4	6.47	3.4		3.0	0.61	1.4	650	16.4	12.9	0.79	1.05	20.0	15.6	2.8
	3.0	0.23	0.5									2.5	0.12	0.3	500 650	14.5 14.9	10.9 12.0	0.75 0.81	1.29 1.32	18.9 19.4	11.2	3.1
100	4.5	0.53	12								100	3.5	0.35	0.8	500	14.6	10.9	0.75	1.26	18.9	11.7	3.2
	\vdash		\vdash									-	\vdash		650 500	15.1 14.9	12.1 11.2	0.80	1.28	19.4 19.1	11.7 11.9	3.2
	5.5	0.84	1.9									5.0	0.59	1.4	650	15.3	12.4	0.81	1.27	19.6	12.0	3.3
	3.0	0.22	0.5									2.5	0.11	0.3	500 650	13.5 13.8	10.4 11.5	0.77	1.51 1.54	18.6 19.1	9.0	3.0
110		0 [1	1.0		0		not ::::	no no -	طمط		110	7.	0.74	0.0	500	13.6	10.5	0.83	1.47	18.6	9.0	3.3
110	4.5	0.51	1.2		Ope	eration	not reco	men	uea		110	3.5	0.34	0.8	650	14.0	11.6	0.83	1.50	19.1	9.3	3.2
	5.5	0.80	1.9									5.0	0.57	1.3	500 650	13.8 14.2	10.8 11.9	0.78	1.46 1.49	18.8 19.3	9.5 9.5	3.4
	3.0	0.22	0.5									2.5	0.11	02	500	12.6	10.6	0.84	1.93	19.1	6.5	4.3
	\vdash	J.22	0.5									_	J.11	U.Z	650 500	12.8 12.7	11.6 10.7	0.90	1.97 1.82	19.6 18.9	6.5 7.0	4.4
120	4.5	0.49	1.1								120	3.5	0.33	0.8	650	12.7	11.6	0.90	1.87	19.3	6.9	4.4
	5.5	0.77	1.8									5.0	0.55	1.3	500	12.8	10.7	0.83	1.76	18.8	7.3	4.6
			1									1	1 - 3		650	13.1	11.6	0.89	1.82	19.3	7.2	4.6

Performance capacities shown in thousands of Btuh.

11/2/20

Contractor:	P.O.:	_
Engineer:		_
Project Name:	Unit Tag:	





036 - 100% Full Load

		 	WF		Loac	-	HEATII	NG - EAT	70°F					w				COOLIN	NG - F4	AT 80/	67 °F		
	EWT	Flow	***		A inflore	шс					нис	EWT	Flow			A inflore	1						HWC
14 15 15 15 15 15 15 15	°F									СОР		°F							.,		HR MBtuh	EER	MBtuh
1						Оре	eration	not reco	mmend	ed													
14 15 16 16 16 16 16 16 16	20											20					0	peration	n not re	ecomm	ended		
100 100		5.5	106	25		1	1						45	0.68	16						38.2	36.4	-
140 150			1.00	2.0									-1.5	0.00	1.0				_	_	39.0	35.6	-
15	30	8.0	2.61	6.0								30	7.0	1.65	3.8						38.6 39.3	38.8 37.4	-
100 100		11.5	7 41	7.0										A 77	6.7				_	_	38.7	40.2	-
1		11.5	3.41	7.9	1500	33.8	2.93	23.8	90.9	-	5.0		9.0	2.73	6.3	1300	36.5	26.3	0.72	0.93	39.7	39.2	-
1		5.5	1.02	2.4									4.5	0.66	1.5						40.9	32.1	-
140 150																	_		_		41.8 41.1	31.4 34.2	-
10	40	8.0	2.53	5.9								40	7.0	1.60	3.7		_				42.0	33.2	-
1		11 -	7 71	7.0										2.65	C 1		_		_	_	41.3	35.5	-
10 10 10 10 10 10 10 10		11.5	3.31	7.6	1500	39.4	2.97	29.3	94.3	3.89	5.2		9.0	2.65	6.1	1300	38.6	28.4	0.74	1.11	42.3	34.7	-
1		5.5	0.99	2.3			1						4.5	0.64	1.5						41.9	28.0	-
10												- 1							_	_	44.1	28.0 30.3	-
1	50	8.0	2.46	5.7						1		50	7.0	1.55	3.6						44.7	30.4	
1		11 5	7.00	7.4		_								0.50	- ^		_		_		42.7	31.4	-
10 10 10 10 10 10 10 10		11.5	3.20	7.4	1500	45.0	3.00	34.8	97.8	4.40	6.8		9.0	2.56	5.9	1300	40.6	30.4	0.75	1.29	45.0	31.5	-
100 100		5.5	0.93	2.2									4.5	0.62	1.4						41.1	23.4	1.9
10																	_		_	_	43.1 41.7	23.5 25.2	2.0
1.5 3.10 7.2 1150 48.4 3.00 38.2 109.0 4.73 6.9 7.0 7.0 4.97 6.6 7.0 7	60	8.0	2.38	5.5		_						60	7.0	1.50	3.5						43.7	25.4	2.1
11.5 3.10 7.2 1500 5.00 3.02 3.97 10.09 4.86 6.0 6.0 7		11.5	7.10	7.0										0.40			_		_	_	42.0	26.1	2.0
10		11.5	3.10	7.2		50.0				4.86	6.0		9.0	2.48	5./	1300			0.77	1.49	44.0	26.2	2.2
10		5.5	0 90	21			1						4.5	0.60	14						41.0	17.9	2.7
10			0.00											0.00					_	_	43.0	19.1	2.9
1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.8 1.2 1.2 1.8 1.2	70	8.0	2.30	5.3						1		70	7.0	1.45	3.4						41.0 42.7	21.3	3.1 3.1
1.5		11.5	7.00							1							_		_	_	41.2	22.1	3.2
S.5 O.8 O.1 1500 54.6 2.94 44.5 103.7 5.44 6.1 B.0 2.22 5.1 1150 55.8 3.08 45.3 114.9 5.31 7.5 II.5 2.90 6.7 1150 57.4 3.12 46.7 116.2 5.39 7.7 II.5 2.90 6.7 1150 59.4 3.08 48.9 106.6 5.66 7.2 II.5 2.90 6.7 1150 59.4 3.08 48.9 106.6 5.66 7.2 II.5 2.90 6.5 1150 61.8 3.10 51.2 108.2 5.85 7.8 II.5 2.90 6.5 1150 61.8 3.20 50.7 119.6 5.64 8.6 II.5 2.90 6.5 1150 61.8 3.20 50.7 119.6 5.64 8.6 II.5 2.90 6.5 1300 33.4 28.2 0.82 2.96 II.5 2.90 6.5 1150 61.8 3.20 50.7 119.6 5.64 8.6 II.5 2.69 6.2 1500 63.7 3.12 53.1 109.3 5.98 7.9 II.5 2.59 6.0 1.8 1.8 1.9 II.5 2.59 6.0 1.8 1.9 1.9 1.9 II.5 2.59 6.0 0.9 2.56 0.88 2.93 II.5 2.59 6.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 II.5 2.59 6.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9		11.5	3.00	6.9				_		1			9.0	2.40	5.5						43.0	22.2	3.3
80 2.22 5.1 150 54.6 2.94 44.5 103.7 5.4 6.1 14.9 5.31 7.5 11.5 2.99 6.7 1150 57.4 3.12 46.7 116.2 5.39 7.7 11.5 2.79 6.5 1150 58.2 3.02 45.9 115.2 5.45 7.4 11.5 2.79 11.5 2.79 6.5 1150 61.6 3.20 50.7 119.6 5.6 4.8 6.1 1500 63.7 3.12 53.1 109.3 5.98 7.9 11.5 2.59 6.0 13.0 2.07 1.8 1500 63.7 3.12 53.1 109.3 5.98 7.9 11.5 2.59 6.0 13.0 2.07 1.8 1500 63.7 3.12 53.1 109.3 5.98 7.9 11.5 2.59 6.0 13.0 2.27 2.28 2.08 2.08 2.08 2.09 11.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.		5.5	0.87	0.1		1							45	0 57	13						39.7	16.5	4.0
115 150			0.07	0.1									-1.0	0.57	10		_		_		41.2	16.6	4.0
11.5 2.90 6.7 1150 57.4 3.12 46.7 116.2 5.39 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.7 7.89 7.89 7.7 7.89 7.89 7.7 7.89	80	8.0	2.22	5.1						_		80	7.0	1.40	3.2						40.4	17.5 17.7	4.2 4.2
11.5 2.90 6.7 1500 59.4 3.08 48.9 106.6 5.66 7.2 7.2 7.4 7.4 7.4 7.5 7.8 7.5 7.8 7.5																			_	_	40.6	18.1	4.4
90 8.0 2.14 5.0 1500 58.2 2.97 48.0 105.9 5.74 6.7 8.0 2.14 5.0 1150 59.7 3.15 48.9 118.1 5.55 7.8 7.2 1150 61.6 3.20 50.7 119.6 5.64 8.6 1500 63.7 3.12 53.1 109.3 5.98 7.9 100 2.24 5.2 100.0 32.2 25.4 0.79 2.20 11.5 1.50 1.50 63.7 3.12 53.1 109.3 5.98 7.9 100 2.24 5.2 100.0 32.8 24.9 0.76 2.17 1.25		11.5	2.90	6.7		_							9.0	2.32	5.4						42.2	18.3	4.4
100 100		5.5	0.84	19			1						45	0 55	13						39.0	13.8	5.3
100 8.0 2.14 5.0 1500 61.8 3.10 51.2 108.2 5.85 7.2 11.5 2.79 6.5 1150 61.6 3.20 50.7 119.6 5.64 8.6 1500 63.7 3.12 53.1 109.3 5.98 7.9 100 2.24 5.2 1000 32.8 24.9 0.76 2.17 1000 33.8 28.4 0.84 2.21 1000 33.8 28.4 0.84 2.21 1000 33.8 28.4 0.84 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.18 2.21 1000 2.21 2.21			0.0 1	1									-1.0	0.00	10				_	_	40.3	14.0	5.3
11.5 2.79 6.5 1150 61.6 3.20 50.7 119.6 5.64 8.6 1500 63.7 3.12 53.1 109.3 5.98 7.9 100 2.24 5.2 1000 32.8 24.9 0.76 2.17 100 3.8 28.4 0.84 2.21 100 3.8 28.4 0.84 2.85 100 3.0 24.2 2.8 0.89 2.67 100 3.0 3.4 24.2 0.83 2.57 100 3.0 3.4 24.2 0.83 2.57 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.1 27.2 0.87 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2.4 0.8 2.8 100 3.8 2	90	8.0	2.14	5.0		1				1		90	7.0	1.35	3.1						39.7 41.1	14.6 14.8	5.6 5.6
11.5 2.79 6.5 1500 63.7 3.12 53.1 109.3 5.98 7.9 9.0 2.24 5.2 1300 33.8 28.4 0.84 2.21 100 2.70 4.8							1			1									_		40.2	15.1	5.9
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		11.5	2./9	6.5									9.0	2.24	5.2						41.3	15.3	5.6
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		5.5	0.80	18									45	0 53	12						38.1	11.1	6.8
100 8.0 2.0 4.8 100 2.16 5.0 1300 31.1 27.2 0.87 2.61 11.5 2.69 6.2 2.60 11.5 2.69 6.2 3.00 31.4 27.0 0.86 2.57 110 2.50 3.00 3.14 27.0 0.86 2.57 110 3.00 3.14 27.0 0.86 2.57 110 3.00 3.14 27.0 0.86 2.57 110 3.00 3.14 27.0 0.86 2.57 110 3.00 3.14 27.0 0.86 2.57 110 3.00 3.14 27.0 0.86 2.57 120 3.00 3.14 27.0 0.86 2.57 1300 3.14 27.0 0.86 2.57 1300 3.14 27.2 0.87 2.61 1300 3.14 27.2 0.87 2.61 1300 3.14 27.2 0.87 2.81 1300 3.14 27.2 2.81 1300 3.14 27.2 2.81 1300 3.14 27.2 2.81 1300 3.14 27.2 2.81 1300 3.14		0.0	0.00	1.0	ļ								1.0	0.00			_		_	_	39.1	11.3	6.7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	100	8.0	2.07	4.8								100	7.0	1.30	3.0						38.9 40.0	11.7	7.1 7.0
11.5 2.69 6.2 11.6 2.69 6.2 11.7 2.69 6.2 11.8 3.0 3.4 27.0 0.86 2.57 11.0 2.69 3.3 0.87 2.98 11.0 2.69 3.0 1.20 2.00 2.70 2.58 0.93 3.01 11.0 2.69 3.0 1.20 2.00 2.00 2.00 2.00 2.00 2.30 0.87 2.98 11.0 2.69 3.0 1.20 2.00 2.00 2.00 2.00 2.00 2.00 2.																					39.0	12.0	7.5
110 8.0 1.99 4.6 Operation not recommended 110 7.0 1.25 2.9 1000 27.7 25.8 0.93 3.01 2.05 1		11.5	2.69	6.2										2.16	5.0	1300	31.4	27.0	0.86	2.57	40.2	12.2	6.2 8.1
110 8.0 1.99 4.6 Operation not recommended 110 7.0 1.25 2.9 1000 27.9 23.5 0.84 2.95 1300 28.7 26.1 0.91 2.97 13.0 28.2 23.2 0.82 2.90 13.0 28.7 26.1 0.91 2.97 13.0 28.2 23.2 0.82 2.90 13.0 29.0 25.6 0.88 2.93 1.7 2.5 0.7 2.5 0.7 2.5 0.7 2		5.5	0.77	1.8							4.5	0.51	1.2						37.1	9.2	8.0		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	110	۰,	100	16		0:-	oration	not roos	mman	od		110	70	1 25	20						38.0	9.5	8.5
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	110	0.0	1.99	4.0		Оре	eration	not reco	mmena	eu		110	7.0	1.25	2.9						38.9	9.7	8.5
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11.5	2.59	6.0									9.0	2.07	4.8						38.1 39.0	9.7	8.9 8.1
5.5 0.73 1.7 4.5 0.49 0.8 1300 24.4 24.8 1.02 3.62 120 8.0 191 4.4			0 77	17	1								1 -	0.40	0.0	_					36.0	6.7	9.9
1 120 80 1914 4		5.5	0./3	1./									4.5	0.49	0.8	1300	24.4	24.8	1.02	3.62	36.7	6.7	10.2
	120	8.0	1.91	4.4								120	7.0	1.20	2.8						35.6	7.2	10.3
115 2 4 0 5 0			_											-						3.43	36.3 35.4	7.2	10.5 10.7
9.0 1.99 4.6 1000 24.4 22.9 0.94 3.24 1300 24.9 24.9 1.00 3.34		11.5	2.49	5.8									9.0	1.99	4.6						36.3	7.5	10.7

Contractor:	P.O.:
Engineer:	
Project Name:	_Unit Tag:





048 - 50% Part Load

	[WF	D		·	HEATIN	G - EAT	70°F					WF	PD	COOLING - EAT 80/67 °F							
°F	Flow- gpm	PSI	FT	Airflow	HC	Power	HE	LAT °F	СОР	HWC	°F	Flow gpm	PSI	FT	Airflow	TC	SC	S/T	Power		EER	HWC
	3.5	0.56	1 7	cfm	mBtuh	kW	MBtuh	*F		MBtuh		3.0	0.47	1.1	cfm	MBtuh	MBtuh	Ratio	kW	MBtuh		MBtul
20		0.97			Oper	ration n	ot reco	mmen	ded		20	4.5	0.81	1.9)noratio	n not	rocomn	aandad		
20	6.5	1.37	3.2	650 900	16.5 16.9	1.83 1.65	10.3	93.6 87.4	2.65 3.00	2.4 3.1	20	6.0	1.16	2.7			Operatio	n not i	recomm	nenaea		
	7.5	0.55	17	650	16.7	1.57	11.4	93.9	3.12	2.7		7.0	0.45	11	500	23.9	14.1	0.59	0.57	25.8	42.0	-
	3.5	0.55	1.5	900	17.3	1.60	11.9	87.8	3.17	2.4		3.0	0.45	1.1	750	24.3	15.5	0.64	0.59	26.3	41.1	-
30	5.0	0.94	2.2	650 900	18.1 18.6	1.64	12.5 13.0	95.8 89.2	3.22	3.0 2.6	30	4.5	0.79	1.8	500 750	24.2	14.3 15.6	0.59	0.54	26.0 26.5	44.8 43.2	-
	0.5			650	18.8	1.86	12.5	96.8	2.96	3.1			110	0.0	500	24.3	14.3	0.59	0.52	26.1	46.4	-
	6.5	1.33	3.1	900	19.2	1.68	13.5	89.8	3.35	2.6		6.0	1.12	2.6	750	24.9	15.6	0.63	0.55	26.8	45.3	-
	3.5	0.53	1.2	650	19.8	1.61	14.3	98.3	3.61	3.0		3.0	0.44	1.0	500	27.0	18.1	0.67	0.49	28.6	55.3	-
				900 650	20.5	1.62	14.9 15.7	91.1	3.70 3.75	2.6 3.3					750 500	27.5	19.7 18.2	0.72	0.51	29.2 28.9	54.1 58.9	-
40	5.0	0.91	2.1	900	22.1	1.67	16.4	92.8	3.88	2.8	40	4.5	0.77	1.8	750	27.8	19.9	0.72	0.49	29.4	57.2	-
	6.5	1.29	3.0	650	22.1	1.68	16.4	101.5	3.85	3.4		6.0	1.09	2.5	500	27.5	18.2	0.66	0.45	29.0	61.2	-
				900	22.9	1.70	17.1	93.5	3.95	2.8					750	28.1	19.9	0.71	0.47	29.7	59.8	-
	3.5	0.51	1.2	650 900	22.9	1.65 1.65	17.3 18.0	102.7 94.3	4.08	3.3 2.8		3.0	0.43	1.0	500 750	25.8 26.6	16.3 19.2	0.63	0.68	28.1 29.0	38.1 37.7	-
50	E 0	0.00	20	650	24.7	1.70	18.9	105.2	4.26	3.6	50	1 =	0.74	1.7	500	26.3	16.4	0.62	0.59	28.3	45.0	-
30	5.0	0.88	2.0	900	25.7	1.69	19.9	96.4	4.45	3.0	30	4.5	0.74	1.7	750	27.1	19.3	0.71	0.61	29.2	44.2	-
	6.5	1.25	2.9	650 900	25.7	1.71	19.8	106.6 97.3	4.40	3.8		6.0	1.06	2.4	500 750	26.5	16.4 19.3	0.62	0.55	28.4	48.0 47.1	-
				650	26.5 25.7	1.71	19.9	106.6	4.41	3.7					500	24.7	15.9	0.64	0.83	27.6	29.8	1.2
	3.5	0.50	1.1	900	26.7	1.70	20.9	97.4	4.60	3.0		3.0	0.41	1.0	750	25.5	18.7	0.73	0.87	28.5	29.5	1.2
60	5.0	0.85	2.0	650	27.8	1.75	21.9	109.7	4.66	3.9	60	4.5	0.72	1.7	500	25.1	16.0	0.64	0.74	27.7	34.2	1.3
				900 650	28.9 29.0	1.73	23.0	99.8	4.90 4.82	3.3 4.1	- }				750 500	25.9 25.4	18.9 16.1	0.73	0.77	28.5 27.8	33.6 36.4	1.3
	6.5	1.21	2.8	900	30.1	1.75	24.1	100.9	5.05	3.5		6.0	1.02	2.4	750	26.2	18.9	0.72	0.73	28.7	35.9	1.4
	3.5	0.48	1.1	650	28.5	1.77	22.5	110.7	4.73	4.0		3.0	0.40	Λa	500	23.7	15.5	0.65	0.98	27.0	24.2	1.7
	5.5	0.40	1.1	900	31.1	1.77	25.1	102.0	5.15	3.3		3.0	0.40	0.5	750	24.6	18.3	0.74	1.03	28.1	23.9	1.8
70	5.0	0.83	1.9	650 900	31.0 32.2	1.80	24.8	114.1 103.1	5.04	4.3 3.6	70	4.5	0.70	1.6	500 750	23.9	15.7 18.4	0.65	0.89	27.0 27.8	27.0 26.7	1.9 1.9
		117	2.7	650	32.4	1.82	26.2	116.1	5.21	4.5			0.00	2.7	500	24.4	15.8	0.65	0.85	27.2	28.7	1.9
	6.5	1.17	2.7	900	33.6	1.78	27.5	104.6	5.53	3.7		6.0	0.99	2.5	750	25.1	18.5	0.74	0.88	28.1	28.5	2.0
	3.5	0.46	1.1	650	30.5	1.87	24.1	113.4	4.78	4.2		3.0	0.39	0.9	500	22.6	15.0	0.66	1.16	26.5	19.5	2.5
				900 650	31.6 33.1	1.83	25.4 26.6	102.6 117.1	5.06 5.14	3.5 4.5					750 500	23.3	17.6 15.2	0.76	1.21	27.4 26.3	19.3 21.1	2.5
80	5.0	0.80	1.8	900	34.4	1.84	28.1	105.4	5.48	3.8	80	4.5	0.67	1.6	750	23.4	17.8	0.76	1.12	27.2	20.9	2.7
	6.5	1.13	2.6	650	34.8	1.91	28.3	119.5	5.34	4.8		6.0	0.96	2.2	500	23.2	15.3	0.66	1.03	26.7	22.6	2.8
				900 650	36.2 32.4	1.86	29.8 25.7	107.2	5.71 4.84	4.0					750 500	23.9	18.0	0.75	1.07	27.6 26.0	22.3 16.1	3.2
	3.5	0.45	1.0	900	33.6	1.90	27.1	104.6	5.14	3.7		3.0	0.37	0.9	750	22.1	17.0	0.08	1.38	26.8	16.0	3.4
90	5.0	0.77	1.8	650	35.2	1.97	28.5	120.1	5.23	4.8	90	4.5	0.65	15	500	21.4	14.6	0.68	1.26	25.7	17.0	3.5
30	3.0	0.77	1.0	900	36.7	1.91	30.1	107.7	5.63	4.0	30	4.5	0.03	1.5	750	22.0	17.2	0.78	1.31	26.5	16.9	3.6
	6.5	1.09	2.5	650 900	37.1 38.7	1.99	30.3 32.1	122.9 109.8	5.46 5.88	5.2 4.3		6.0	0.92	2.1	500 750	20.5	13.8 17.4	0.67	1.27	24.8	16.1 18.0	3.7
	7.5	0.47	1.0	000	00.7	1.00	OZ.	100.0	0.00			7.0	0.70	0.0	500	19.3	13.3	0.69	1.56	24.6	12.4	4.3
	3.5	0.43	1.0									3.0	0.36	0.8	750	19.9	15.6	0.78	1.62	25.5	12.3	4.3
100	5.0	0.74	1.7								100	4.5	0.62	1.4	500 750	19.2 19.8	13.4	0.70	1.52 1.58	24.4 25.2	12.7	4.4
															500	19.6	15.8 13.6	0.68		24.9	12.6 13.6	4.4
	6.5	1.05	2.4									6.0	0.89	2.1	750	20.5	16.0	0.78	1.53	25.7	13.4	4.6
	3.5	0.41	1.0									3.0	0.35	0.8	500	17.2	12.1	0.70	1.78	23.3	9.7	5.0
	-												_		750 500	17.7 17.0	14.2	0.80	1.85 1.77	24.1	9.6 9.6	5.0 5.4
110	5.0	0.71	1.6		Oper	ration n	ot reco	mmen	ded		110	4.5	0.60	1.4	750	17.6	14.4	0.72	1.85	23.9	9.5	5.4
	6.5	1.01	2 3									6.0	0.86	20	500	17.8	12.4	0.70	1.72	23.7	10.4	5.8
	0.5		2.5								\sqcup	0.0	3.50	2.0	750	18.3	14.6	0.80	1.79	24.4	10.2	5.8
	3.5	0.40	0.9									3.0	0.33	0.8	500 750	16.0 16.4	12.8 13.9	0.80	2.22	23.6 24.1	7.2 7.2	6.4
120		0.60	1.0								120 4.5	4 -	0 50	17	500	16.2	12.9	0.80	<u> </u>	23.4	7.7	6.6
120	5.0	0.68	1.6									4.5	0.58	1.5	750	16.5	14.0	0.85	2.15	23.8	7.7	6.6
	6.5	0.97	2.2									6.0	0.82	1.9	500 750	16.4	12.9 14.0	0.79	2.03	23.3	8.1	6.8
- ·				: L:	wn in t		-lf D	la							/30	16.7	14.0	0.84	2.09	23.8		6.8 11/2/20

Performance capacities shown in thousands of Btuh.

Contractor:	P.O.:
Engineer:	
Project Name:	_Unit Tag:





048 - 100% Full Load

048	- 10	0% I	-uII	Load																			
EVACE	Flow	WF	PD		Н		E\A/T	Flow	WF	PD	COOLING - EAT 80/67 °F												
°F	Flow gpm	PSI	FT	Airflow cfm	HC mBtuh	Power kW	HE MBtuh	LAT °F	СОР	HWC MBtuh	°F	Flow gpm	PSI	FT	Airflow cfm	TC MBtuh	SC MBtuh		Power kW	HR MB- tuh	EER	HWC MBtuh	
	6.5	1.40	3.2		Opera	ation no	ot recon	nmend	led			5.5		2.4									
20	10.0	2.85	6.6	1500	39.4	4.05	25.6	94.3	2.86	6.05	20	8.0	2.00	4.6		О	peratio	n not r	ecomm	ended			
	13.5	4.79	11.1	1800	39.7	3.97	26.2	90.4	2.93	5.6		10.5	2.94	6.8									
	6.5	1.36	3.2	1500	39.9	3.84	26.7	94.6	3.04	6.6		5.5	1.02	2.4	1000	42.8	28.0	0.65	1.20	46.9	35.7	-	
				1800 1500	41.2 43.0	3.90 4.01	27.9 29.3	91.2 96.6	3.10	6.1 6.8					1400	43.6 43.4	30.8 28.3	0.70	1.25 1.14	47.9 47.3	35.0 38.1	-	
30	10.0	2.77	6.4	1800	44.4	4.04	30.6	92.8	3.22	6.1	30	8.0	1.94	4.5	1400	44.1	30.9	0.70	1.20	48.2	36.8	-	
	13.5	4.65	10.7	1500	45.4 45.7	4.18	31.1 31.7	98.0 93.5	3.18	6.9		10.5	2.85	6.6	1000	43.6 44.7	28.3 30.9	0.65	1.10	47.4 48.7	39.5 38.5	-	
				1800 1500	45.4	4.10	31.8	98.0	3.33	7.0					1400	44.7	29.0	0.69	1.16 1.42	49.5	31.4	-	
	6.5	1.32	3.1	1800	46.9	4.02	33.2	94.1	3.42	6.2		5.5	0.99	2.3	1400	45.5	31.7	0.70	1.48	50.6	30.8	-	
40	10.0	2.69	6.2	1500 1800	49.0 50.7	4.15 4.15	34.9 36.6	100.3 96.1	3.46 3.58	7.3 6.4	40	8.0	1.88	4.3	1000 1400	45.2 46.0	29.2 31.9	0.65	1.35 1.42	49.8 50.9	33.5 32.5	-	
	17.5	4 51	10.4	1500	50.7	4.13	36.4	101.2	3.55	7.5		10.5	0.77	C 4	1000	45.5	29.2	0.64	1.31	50.0	34.8	-	
	13.5	4.51	10.4	1800	52.4	4.21	38.0	96.9	3.65	6.5		10.5	2.77	6.4	1400	46.6	31.9	0.69	1.37	51.2	34.0	-	
	6.5	1.28	3.0	1500 1800	51.0 52.7	4.15 4.15	36.9 38.5	101.5 97.1	3.61	7.5 7.0		5.5	0.96	2.2	1000	45.7 47.1	27.8 32.8	0.61	1.84 1.92	52.0 53.7	24.8	-	
50	10.0	2.60	6.0	1500	55.0	4.28	40.4	104.0	3.77	8.2	50	8.0	1.82	12	1000	46.7	27.9	0.60	1.60	52.1	29.3	-	
30	10.0	2.00	0.0	1800	57.1	4.26	42.6	99.4	3.93	7.2	30	0.0	1.02	4.2	1400	48.1	32.9	0.68	1.67	53.8	28.8	-	
	13.5	4.37	10.1	1500 1800	57.1 59.0	4.31	42.4 44.3	105.3	3.88 4.01	8.4 8.6		10.5	2.68	6.2	1000	47.0 48.4	27.9 32.9	0.59	1.50 1.58	52.1 53.8	31.3 30.6	-	
	6.5	1.24	2.9	1500	57.1	4.32	42.3	105.2	3.87	7.6		5.5	0.93	22	1000	43.9	27.2	0.62	2.06	50.9	21.3	2.6	
	0.5	1.2	2.5	1800 1500	59.1 61.7	4.29	44.5 46.7	100.4	4.04	7.1 8.4		0.5	0.55	2.2	1400	45.2 44.6	32.1 27.4	0.71	2.15 1.83	52.6 50.8	21.1	2.8	
60	10.0	2.52	5.8	1800	64.1	4.42	49.2	103.0	4.30	7.2	60	8.0	1.76	4.1	1400	45.9	32.3	0.62	1.91	52.5	24.4	2.9	
	13.5	4.23	9.8	1500	64.4	4.46	49.1	109.7	4.23	8.6		10.5	2.60	6.0	1000	45.1	27.5	0.61	1.73	51.0	26.0	2.8	
				1800 1500	66.7 63.1	4.41 4.48	51.6 47.8	104.3	4.43	7.4 8.1					1400	46.5 42.0	32.4 26.7	0.70	1.81 2.27	52.6 49.7	25.7 18.5	3.0	
	6.5	1.20	2.8	1800	67.8	4.49	52.5	104.9	4.43	7.5		5.5	0.90	2.1	1400	43.7	31.7	0.73	2.27	51.4	19.3	3.7	
70	10.0	2.44	5.6	1500	68.5	4.56	52.9	112.3	4.40	8.6	70	8.0	1.71	3.9	1000	42.4	26.9	0.63	2.06	49.5	20.7	3.9	
				1800 1500	71.2 63.7	4.48 4.28	55.9 49.1	106.6	4.65 4.36	7.9 9.4					1400	43.8 43.2	31.7 27.1	0.72	2.15 1.96	51.1 49.9	20.4	3.9 3.9	
	13.5	4.09	9.5	1800	74.3	4.51	58.9	108.2	4.83	8.2		10.5	2.51	5.8	1400	44.5	31.8	0.71	2.04	51.5	21.8	4.1	
	6.5	1.16	2.7	1500 1800	68.3 71.0	4.71 4.63	52.3 55.2	112.2 106.5	4.25	9.0 7.7		5.5	0.87	2.0	1000	39.8 41.0	25.7 30.2	0.65	2.54	48.5 50.1	15.6 15.5	5.4 5.4	
	10.0	2.75	г 4	1500	74.2	4.76	58.0	115.8	4.57	9.5	00	00	1.05	7.0	1000	40.0	26.0	0.65	2.36	48.1	16.9	5.7	
80	10.0	2.35	5.4	1800	77.2	4.64	61.4	109.7	4.88	7.9	80	8.0	1.65	3.8	1400	41.2	30.6	0.74	2.46	49.6	16.8	5.7	
	13.5	3.95	9.1	1500 1800	78.0 81.1	4.81 4.68	61.6 65.1	118.1 111.7	4.75 5.08	9.6 9.0		10.5	2.42	5.6	1000	40.9	26.2 30.8	0.64	2.26	48.6 50.2	18.1 17.9	5.9 5.9	
	6.5	1.12	2.6	1500	73.5	4.93	56.7	115.4	4.37	9.7		5.5	0.84	10	1000	37.6	24.8	0.66	2.82	47.2	13.3	6.7	
	0.5	1.12	2.0	1800 1500	76.4	4.82	60.0	109.3	4.64 4.73	8.6		5.5	0.04	1.5	1400	38.8	29.1 25.1	0.75	2.93	48.7	13.2	6.6 7.0	
90	10.0	2.27	5.2	1800	79.9 83.3	4.96 4.80	63.0 66.9	119.4 112.8	5.09	9.5 8.9	90	8.0	1.59	3.7	1000	37.6 38.6	29.5	0.67	2.67	46.7 48.0	14.1	7.0	
	13.5	3.81	8.8	1500	84.4	5.01	67.3	122.1	4.93	10.4		10.5	2.34	5.4	1000	37.3	24.9	0.67	2.59	46.1	14.4	7.3	
-				1800	87.9	4.85	71.4	115.2	5.31	9.7					1400	39.8 35.1	29.8	0.75	2.67 3.14	48.9 45.8	14.9	7.4 8.9	
	6.5	1.08	2.5									5.5	0.81	1.9	1400	36.2	28.1	0.78	3.27	47.3	11.1	8.8	
100	10.0	2.19	5.1								100	8.0	1.53	3.5	1000	34.9	24.2	0.69	3.05	45.3	11.4	9.3	
		7.07	0.5									10.5			1400 1000	36.0 36.2	28.5	0.79	3.17 2.94	46.8 46.2	11.3 12.3	9.2	
	13.5	3.67	8.5									10.5	2.25	5.2	1400	37.3	28.9	0.77	3.07	47.7	12.1	8.2	
	6.5	1.04	2.4									5.5	0.78	1.8	1000 1400	32.7 33.6	23.1 27.0	0.71	3.45 3.59	44.5 45.9	9.5 9.4	10.6	
110	10.0	0.11	4.0	ĺ	0		_				110		1 47	7.4	1000	32.2	23.3	0.72	3.43	43.9	9.4	11.1	
110	10.0	2.11	4.9		Opera	ation no	ot recon	nmena	iea		110	8.0	1.47	3.4	1400	33.3	27.5	0.82	3.58	45.5	9.3	11.1	
	13.5	3.53	8.2									10.5	2.17	5.0	1000 1400	33.8 34.7	23.8 27.9	0.70	3.33 3.47	45.1 46.5	10.1	11.6	
	6.5	1.00	2.3								\vdash	5.5	0.75	17	1000	30.9	24.4	0.79	4.15	45.0	7.4	12.8	
	0.5	1.00	۷.۷									J.J	0.73	1.7	1400	31.5	26.6	0.84	4.25	46.0	7.4	13.1	
120	10.0	2.02	4.7								120	8.0	1.42	3.3	1000 1400	31.3 31.8	24.6 26.7	0.79	3.93 4.03	44.7 45.6	8.0 7.9	13.2 13.6	
	13.5	3.39	7.8									10.5	2.08	4.8	1000	31.5	24.6	0.78	3.80	44.5	8.3	13.8	
David				es show			· (D) - 1								1400	32.2	26.7	0.83	3.92	45.6	8.2	14.0 1/2/20	

Performance capacities shown in thousands of Btuh.

11/2/20

Contractor:	P.O.:
Engineer:	
Project Name:	_Unit Tag:





060 - 50% Part Load

		WPD HEATING - EAT 70°F									WF	PD	COOLING - EAT 80/67 °F									
	Flow			Airflow	нс	Power	HE	LAT		HWC	EWT	Flow	- ***		Airflow	тс	sc	S/T	Power			HWC
°F	gpm	PSI	FT	cfm	mBtuh		MBtuh	°F	СОР	MBtuh	°F	gpm	PSI	FT	cfm		MBtuh	1 -	kW	MBtuh	EER	MBtuh
	4.5 6.3	0.63 1.17	1.5 2.7		Oper	ration n	ot recor	nmenc	ded			4.0 6.0	0.43 1.22	1.0 2.8								
20	8.5	1.94	4.5	850 1100	21.0	2.18	13.5 14.5	92.9 88.0	2.82	3.4	20	7.5	1.80	4.2		C	peratio	n not r	recomn	nended		
	4.5	0.01		850	23.8	2.02	16.9	95.9	3.47	3.9		4.0	0.40	1.0	700	31.5	18.0	0.57	0.76	34.1	41.2	-
	4.5	0.61	1.4	1100	24.6	2.03	17.7	90.7	3.54	3.4		4.0	0.42	1.0	950	32.1	19.7	0.61	0.80	34.8	40.3	-
30	6.3	1.14	2.6	850	23.6	2.03	16.7	95.7	3.40	4.1	30	6.0	1.18	2.7	700	32.0	18.1	0.57	0.73	34.4	44.0	-
				1100 850	24.5 24.8	2.06	17.4 17.2	90.6 97.0	3.48	3.5 4.2					950 700	32.5 32.1	19.8 18.1	0.61	0.77	35.1 34.5	42.4 45.6	-
	8.5	1.89	4.4	1100	25.3	2.06	18.3	91.3	3.60	3.6		7.5	1.75	4.0	950	32.9	19.8	0.60	0.74	35.4	44.5	-
	4.5	0.60	1.4	850	27.5	2.05	20.5	100.0	3.94	4.3		4.0	0.41	0.9	700	32.5	20.5	0.63	0.81	35.3	39.9	-
		0.00		1100	28.4	2.06	21.3	93.9	4.03	3.7				0.0	950	33.2	22.4	0.68	0.85	36.1	39.1	-
40	6.3	1.10	2.5	850 1100	27.7 28.5	2.08	20.6 21.4	100.2 94.0	3.90 4.00	4.5 3.8	40	6.0	1.15	2.6	700 950	32.9 33.5	20.7 22.6	0.63	0.77	35.5 36.3	42.5 41.3	-
	0.5	1.07	4.0	850	28.6	2.09	21.5	101.2	4.02	4.7		7.	1.70	7.0	700	33.2	20.7	0.62	0.75	35.7	44.2	-
	8.5	1.83	4.2	1100	29.4	2.10	22.3	94.7	4.11	3.9		7.5	1.70	3.9	950	33.9	22.6	0.67	0.79	36.6	43.2	-
	4.5	0.58	1.3	850	31.3	2.09	24.2	104.1	4.39	4.7		4.0	0.40	0.9	700	33.7	22.2	0.66	0.84	36.6	40.3	-
				1100 850	32.2 31.8	2.09	25.0 24.5	97.1 104.6	4.51 4.38	3.9 4.9					950 700	34.7 33.8	25.2 22.4	0.73	0.88	37.7 36.6	39.3 41.9	-
50	6.3	1.07	2.5	1100	32.5	2.12	25.3	97.4	4.50	4.1	50	6.0	1.11	2.6	950	34.8	25.4	0.73	0.85	37.7	41.2	-
	8.5	1.77	4.1	850	32.8	2.14	25.5	105.7	4.48	5.2		7.5	1.64	3.8	700	33.9	22.4	0.66	0.79	36.6	42.8	-
	0.5	1.77	4.1	1100	33.5	2.13	26.2	98.2	4.61	4.6		7.5	1.04	3.0	950	34.9	25.4	0.73	0.83	37.7	42.0	-
	4.5	0.56	1.3	850 1100	35.3 36.1	2.13	28.0 28.9	108.5 100.4	4.86 5.01	5.1 4.2		4.0	0.38	0.9	700 950	32.7 33.7	21.9 24.7	0.67	1.03	36.2 37.4	31.8 31.3	1.5 1.6
				850	36.4	2.17	29.0	100.4	4.92	5.3					700	32.9	22.1	0.73	1.00	36.3	33.0	1.7
60	6.3	1.03	2.4	1100	37.0	2.14	29.7	101.1	5.07	4.5	60	6.0	1.08	2.5	950	33.9	25.0	0.74	1.04	37.4	32.5	1.7
	8.5	1.72	4.0	850	37.3	2.19	29.8	110.6	5.00	5.6		7.5	1.59	3.7	700	33.0	22.1	0.67	0.98	36.3	33.9	1.8
	0.0			1100	37.9	2.16	30.5	101.9	5.15	4.7		/.0		0.7	950	34.0	25.0	0.74	1.02	37.5	33.3	1.8
	4.5	0.54	1.2	850 1100	39.3 38.6	2.17	31.9 31.3	112.8 102.5	5.31	5.4 4.5		4.0	0.37	0.9	700 950	31.7 33.0	21.6 24.7	0.68	1.22	35.9 37.7	26.0 23.7	2.1
70	C 7	100	2.7	850	41.0	2.20	33.5	114.6	5.45	5.8	70		104	2.4	700	31.9	21.8	0.68	1.18	36.0	27.0	2.4
70	6.3	1.00	2.3	1100	41.4	2.16	34.1	104.9	5.63	4.8	70	6.0	1.04	2.4	950	32.9	24.5	0.74	1.24	37.1	26.6	2.4
	8.5	1.66	3.8	850	41.8	2.23	34.1	115.5	5.49	6.0		7.5	1.54	3.6	700	32.1	21.9	0.68	1.16	36.1	27.7	2.5
				1100 850	42.2 42.9	2.18	34.8 35.3	105.5 116.7	5.67 5.64	5.0 5.8		<u> </u>			950 700	33.1 29.9	24.6 21.2	0.74	1.21 1.45	37.2 34.8	27.4 20.6	2.5 3.1
	4.5	0.52	1.2	1100	43.3	2.18	35.8	106.4	5.81	4.8		4.0	0.36	0.8	950	30.8	23.6	0.77	1.50	35.9	20.5	3.2
80	6.3	0.97	2.2	850	45.3	2.27	37.6	119.3	5.86	6.2	80	6.0	1.00	2.3	700	30.1	21.4	0.71	1.41	35.0	21.3	3.3
•		0.57		1100	45.5	2.20	38.0	108.3	6.06	5.1		0.0		2.0	950	31.0	23.9	0.77	1.47	36.1	21.2	3.4
	8.5	1.60	3.7	850 1100	45.8 46.0	2.30	38.0 38.4	119.9 108.7	5.85 6.05	6.6 5.4		7.5	1.49	3.4	700 950	30.3 31.3	21.5 24.1	0.71	1.39	35.1 36.2	21.8	3.5 4.0
				850	46.5	2.29	38.6	120.6	5.94	6.2					700	28.0	20.7	0.74	1.68	33.8	16.7	4.4
	4.5	0.50	1.2	1100	46.6	2.23	39.0	109.2	6.12	5.0		4.0	0.34	0.8	950	28.9	23.0	0.80	1.73	34.8	16.7	4.4
90	6.3	0.93	2.2	850	49.6	2.33	41.6	124.0	6.24	6.6	90	6.0	0.97	2.2	700	28.4	20.9	0.74	1.64	34.0	17.3	4.6
	\vdash			1100 850	49.6 49.9	2.24	41.9 41.8	111.7 124.4	6.48	5.4 7.1					950 700	29.2 28.2	23.3 19.4	0.80	1.70 1.67	35.0 33.9	17.2 16.9	4.6 4.8
	8.5	1.55	3.6	1100	49.8	2.28	42.0	111.9	6.40	5.8		7.5	1.43	3.3	950	29.5	23.5	0.80	1.67	35.2	17.7	4.8
	4.5	0.48	1.1									4.0	0.33	0.8	700	26.1	20.1	0.77	2.02	33.0	12.9	5.4
	4.5	0.40	1.1									4.0	0.55	0.0	950	26.9	22.2	0.83	2.07	34.0	13.0	5.4
100	6.3	0.90	2.1								100	6.0	0.93	2.2	700 950	26.4 27.2	20.3	0.77	1.99 2.04	33.2 34.2	13.3	5.5 5.5
															700	26.7	20.6	0.83	1.96	33.4	13.6	5.8
	8.5	1.49	3.4									7.5	1.38	3.2	950	27.6	22.8	0.83	2.01	34.4	13.7	5.8
	4.5	0.47	1.1									4.0	0.32	0.7	700	24.2	19.6	0.81	2.36	32.2	10.2	6.3
															950 700	24.9	21.5 19.8	0.86	2.41	33.2 32.5	10.4	6.3 6.8
110	6.3	0.86	2.0		Oper	ration n	ot recor	nmenc	ded		110	6.0	0.90	2.1	950	25.3	21.7	0.86	2.34	33.4	10.5	6.8
	8.5	1.43	77									7.5	1.33	3.1	700	24.8	20.1	0.81		32.7	10.8	7.2
	0.0	1.43	5.5									7.5	1.33	J.1	950	25.6	22.0	0.86		33.6	10.9	7.2
	4.5	0.45	1.0									4.0	0.31	0.7	700 950	23.6	19.3	0.82	2.88	33.4	8.2	8.2
															700	24.1	21.0 19.4	0.87	2.95	34.2 33.2	8.2 8.8	8.2 8.4
120	6.3	0.83	1.9								120	6.0	0.86	2.0	950	24.3	21.1	0.87	2.80	33.8	8.7	8.4
	8.5	1.38	3.2									7.5	1.28	3.0	700	24.1	19.4	0.81	2.64	33.1	9.1	8.7
	\Box						of Btuh								950	24.6	21.1	0.86	2.72	33.9	9.0	8.7 11/2/20

Performance capacities shown in thousands of Btuh.

Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:



Performance Data cont.

060 - 100% Full Load

060	- 10			Load																		
EWT	Flow	WF	D				G - EAT	70°F		I	EWT	Flow	WF	PD			COOLI	NG - E		57 °F		1
°F	gpm	PSI	FT	Airflow cfm	HC mBtuh	Power kW	HE MBtuh	°F	СОР	HWC MBtuh	°F	gpm	PSI	FT	Airflow cfm	TC MBtuh	SC MBtuh	S/T Ratio	Power kW	HR MBtuh	EER	HWC MBtuh
	8.5 13.0	2.00 3.52	4.6 8.1		Ope	ration n	ot recon	nmend	ded			6.5 10.0	1.21 2.70	2.8 6.2								
20	17.0	6.55	15.1	1800 2200	47.9 48.9	5.26 5.23	29.9 31.1	94.6 90.6	2.67 2.74	8.1 7.5	20	13.5	4.20			C	peratio	n not r	ecomm	ended		
	8.5	1.95	4.5	1800	48.2	4.41	33.2	94.8	3.21	8.4		6.5	1.17	2.7	1500	59.6	37.0	0.62	1.75	65.5	34.1	-
				2200 1800	49.4 51.6	4.64 4.45	33.5 36.4	90.8	3.12	7.8 8.6					1800 1500	60.7 60.4	40.6 37.3	0.67	1.82 1.66	66.9 66.1	33.4 36.4	-
30	13.0	3.42	7.9	2200	53.0	4.74	36.9	92.3	3.28	7.9	30	10.0	2.62	6.1	1800	61.4	40.8	0.66	1.75	67.3	35.1	-
	17.0	6.36	14.7	1800	52.5	4.81	36.1	97.0	3.20	8.8		13.5	4.08	9.4	1500	60.7	37.3	0.61	1.61	66.2	37.7	-
				2200 1800	53.6 56.0	4.78 4.58	37.3 40.4	92.6 98.8	3.29 3.58	8.0 8.9					1800 1500	62.2 60.6	40.8 39.5	0.66	1.69 2.04	68.0 67.5	36.8 29.7	-
	8.5	1.90	4.4	2200	57.3	4.77	41.0	94.1	3.52	8.2		6.5	1.14	2.6	1800	61.8	43.2	0.70	2.12	69.0	29.1	-
40	13.0	3.32	7.7	1800	59.6	4.65	43.7	100.6	3.75	9.2	40	10.0	2.55	5.9	1500	61.3	39.9	0.65	1.94	67.9	31.7	-
	.0.0			2200	60.9	4.85 4.74	44.4	95.6	3.68	8.4 9.5					1800	62.4	43.5 39.9	0.70	2.03	69.4 68.2	30.7 32.9	-
	17.0	6.17	14.3	1800 2200	60.5 61.9	4.74	44.3	101.1 96.0	3.70	8.6		13.5	3.96	9.1	1500 1800	61.8 63.2	43.5	0.65	1.88 1.97	69.9	32.9	-
	٥٠	1.05	4.7	1800	63.8	4.75	47.6	102.8	3.93	9.5			110	2.5	1500	61.6	41.7	0.68	2.19	69.1	28.1	-
	8.5	1.85	4.3	2200	65.2	4.90	48.4	97.4	3.90	8.6		6.5	1.10	2.5	1800	62.8	45.3	0.72	2.33	70.8	27.0	-
50	13.0	3.21	7.4	1800	67.5	4.85	51.0	104.7	4.08	9.9	50	10.0	2.47	5.7	1500	62.2	42.1	0.68	2.14	69.5	29.0	-
			_	2200 1800	68.9 68.6	4.97 4.90	51.9 51.9	99.0	4.06 4.10	8.9 10.3					1800 1500	63.5 62.8	45.8 42.6	0.72	2.28	71.2 70.0	27.9 29.8	-
	17.0	5.98	13.8	2200	70.1	5.02	53.0	99.5	4.09	9.3		13.5	3.83	8.9	1800	64.1	46.2	0.72	2.24	71.7	28.6	-
	8.5	1.80	4.2	1800	72.5	4.94	55.7	107.3	4.30	10.1		6.5	1.07	2.5	1500	59.2	40.9	0.69	2.46	67.6	24.0	3.1
				2200	74.1	5.02	57.0	101.2	4.33	9.0					1800	60.7	44.4	0.73	2.62	69.6	23.1	3.1
60	13.0	3.11	7.2	1800 2200	75.9 77.5	5.02 5.08	58.7 60.1	109.0 102.6	4.43	10.6 9.5	60	10.0	2.39	5.5	1500 1800	59.8 61.3	44.9	0.69	2.42	68.0 70.1	23.9	2.9
	17.0	F 70	17 /	1800	77.5	5.08	60.2	109.9	4.47	11.1		17 5	7 71	0.0	1500	60.4	41.7	0.69	2.37	68.5	25.4	2.7
	17.0	5.79	13.4	2200	79.3	5.14	61.7	103.4	4.52	9.9		13.5	3.71	8.6	1800	61.9	45.3	0.73	2.53	70.5	24.5	2.7
	8.5	1.75	4.0	1800	81.3	5.12	63.8	111.8 104.3	4.65	10.6		6.5	1.03	2.4	1500	56.7	40.1	0.71	2.74	66.1	20.7	4.6 4.6
				2200 1800	81.5 84.2	5.15 5.19	63.9 66.5	113.3	4.64 4.76	9.5 11.2					1800 1500	58.1 57.3	44.0	0.76	3.20 2.69	69.0 66.5	18.2	4.6
70	13.0	3.01	7.0	2200	86.1	5.20	68.4	106.3	4.85	10.0	70	10.0	2.31	5.3	1800	59.1	43.9	0.74	2.86	68.9	20.7	4.3
	17.0	5.60	12.9	1800	86.4	5.25	68.5	114.4	4.82	11.9		13.5	3.59	8.3	1500	57.8	40.8	0.71	2.64	66.9	21.9	4.2
				2200 1800	88.4 90.5	5.25 5.41	70.5 72.1	107.2 116.6	4.93	10.6 11.8					1800 1500	59.7 52.9	44.4 38.8	0.74	2.81 3.13	69.3 63.6	21.2	4.1 6.1
	8.5	1.68	3.9	2200	90.5	5.38	74.2	109.0	5.05	9.9		6.5	0.99	2.3	1800	54.9	42.2	0.73	3.34	66.3	16.9 16.4	6.1
80	13.0	2.91	6.7	1800	92.7	5.48	74.0	117.7	4.96	12.2	80	10.0	2.23	E 2	1500	53.5	39.2	0.73	3.07	64.0	17.4	5.8
00	13.0	2.31	0.7	2200	94.9	5.42	76.4	109.9	5.13	10.6	00	10.0	2.23	J.Z	1800	55.4	42.6	0.77	3.27	66.6	17.0	5.8
	17.0	5.41	12.5	1800 2200	95.5 97.9	5.54 5.48	76.6 79.2	119.1 111.2	5.05	12.6 11.2		13.5	3.47	8.0	1500 1800	54.0 56.0	39.6 43.0	0.73	3.02 3.22	64.3	17.9 17.4	5.5 5.5
				1800	99.8	5.70	80.3	121.3	5.13	11.7					1500	49.1	37.6	0.77	3.53	61.1	13.9	8.2
	8.5	1.60	3.7	2200	102.2	5.62	83.0	113.0	5.33	10.3		6.5	0.96	2.2	1800	51.3	40.8	0.80	3.76	64.1	13.6	8.2
90	13.0	2.80	6.5	1800	101.1	5.76	81.4	122.0	5.14	12.6	90	10.0	2.15	5.0	1500	49.7	37.9	0.76	3.46	61.4	14.4	7.8
				2200 1800	103.6 104.5	5.64 5.83	84.3 84.6	113.6 123.8	5.38 5.25	11.1 13.4					1800 1500	51.7 50.7	41.2 38.2	0.80	3.68 3.50	64.3	14.1	7.8 7.3
	17.0	5.22	12.1	2200	107.3	5.70	87.9	115.2	5.52	11.9		13.5	3.34	7.7	1800	52.3	41.6	0.80	3.62	64.7	14.4	7.4
	8.5	1.55	3.6									6.5	0.92	2.1	1500	44.7	36.4	0.81	4.02	58.4	11.1	10.3
	0.5	1.55	5.0									0.5	0.52	2.1	1800	46.9	39.5	0.84	4.29	61.5	10.9	10.3
100	13.0	2.70	6.2								100	10.0	2.07	4.8	1500 1800	45.2 47.3	36.7 39.9	0.81	3.94 4.20	58.6 61.7	11.5	9.7 9.8
	17.0	- O 7	11.0									17.5	7.00	7.5	1500	45.6	37.1	0.81	3.87	58.8	11.8	9.2
	17.0	5.03	11.6									13.5	3.22	7.5	1800	47.8	40.3	0.84	4.13	61.9	11.6	9.2
	8.5	1.50	3.5									6.5	0.89	2.1	1500	40.3	35.2	0.87	4.52	55.7	8.9	13.0
	\vdash			1											1800 1500	42.4 40.7	38.2 35.5	0.90	4.82 4.42	58.9 55.8	9.2	13.1 12.3
110	13.0	2.60	6.0		Ope	ration n	ot recon	nmend	ded		110	10.0	2.00	4.6	1800	42.9	38.6	0.90	4.72	59.0	9.1	12.4
	17.0	4.84	11 2									13.5	3.10	7.2	1500	41.1	35.9	0.87	4.35	55.9	9.5	11.6
	.,.0	7.57	11.2									1.5.5	5.10	,.2	1800	43.3	39.0	0.90	4.64	59.1	9.3	11.7
	8.5	1.40	3.2									6.5	0.85	2.0	1500 1800	38.7 39.6	34.1 37.1	0.88	5.54 5.67	57.6 58.9	7.0	16.1 16.2
120	17.0	2 50	E 0								120	10.0	102	1 1	1500	39.2	34.4	0.88	5.24	57.1	7.5	15.2
120	13.0	2.50	5.8								120	10.0	1.92	4.4	1800	39.9	37.3	0.93	5.38	58.3	7.4	15.3
	17.0	4.65	10.7									13.5	2.98	6.9	1500	39.6	34.4	0.87	5.07	56.9	7.8	14.3
					n in tho		· C Division						ш		1800	40.4	37.3	0.92	5.23	58.2	7.7	14.5

Performance capacities shown in thousands of Btuh.

11/2/20

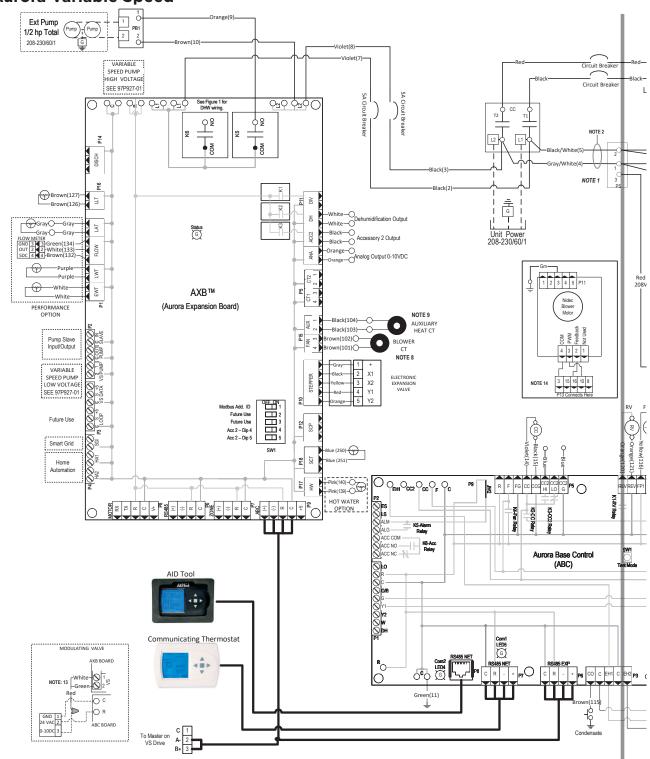
Contractor:	P.O.:
Engineer:	



Wiring Schematics

Project Name: _____Unit Tag: __

Aurora Variable Speed



97P842-01A

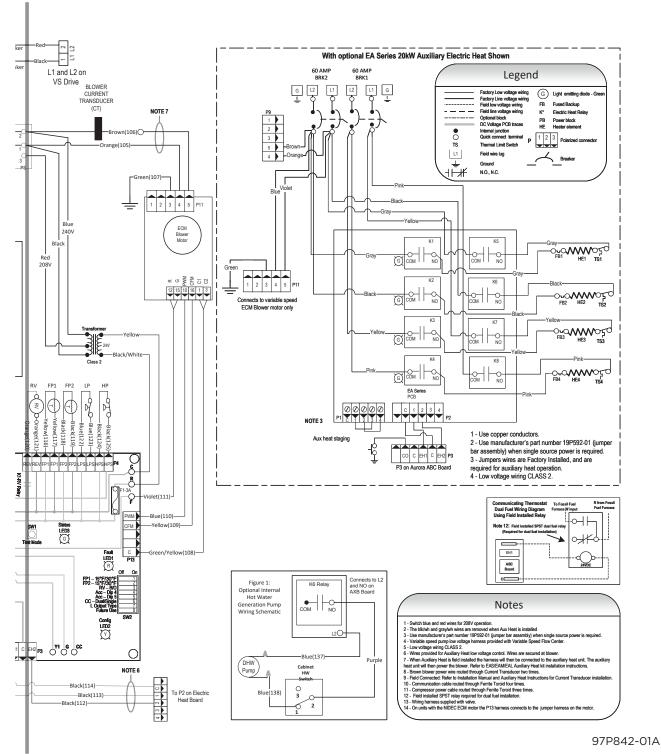
Contractor:_	P.O.:
Engineer:	



Wiring Schematics cont.

Project Name: _____ Unit Tag: ___

Aurora Variable Speed cont.

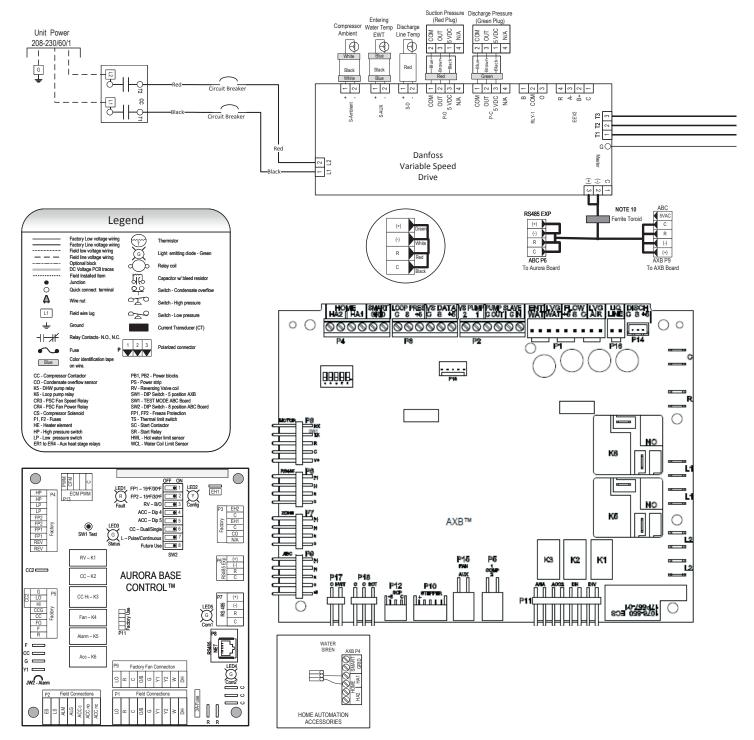


Contractor:	P.O.:
Engineer:	
Project Name:	Unit Tag:



Wiring Schematics cont.

Aurora Variable Speed Drive



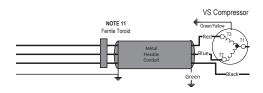
97P842-01B

Contractor:	P.O.:
Engineer:	
Project Name:	_Unit Tag:





Aurora Variable Speed Drive cont.



ABC SW2 Accessory Relay		
DESCRIPTION	SW2-4	SW2-5
Cycle with Blower	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Cycle with Comm. T-stat Hum Cmd	OFF	ON

AXB Accessory 2 DIP Settings		
SW1-4	SW1-5	DESCRIPTION
ON	ON	Cycles with Blower
OFF	ON	Cycles with CC first stage compressor or compressor spd 1-12
ON	OFF	Cycles with CC2 second stage of compressor or comp spd 7-12
OFF	OFF	Cycles with DH from ABC board
		•

EEV 1 (not used)
© 0 0 EEV 2 (not used) © 0 0 EXT. FAN © 0 0 S_AMBIENT
• • S.AUX • • S.D • • • P_O • • • P_C
L1 POWER TO VS DRIVE

VARIABLE SPEED DRIVE END VIEWS



		Aurora LED	Flash Codes	
Slow Flash	1 second on and 1 second off			
Fast Flash	100 milliseconds on and 100 mil	liseconds off		
Flash Code	100 milliseconds on and 400 mil	liseconds off with a	2 second pause before repeating	
	Fault LED (LED 1, Red)		Random Start Delay (Alternatin	g Colors)
Normal Mode	9	OFF	Status LED (LED1, Green)	Fast Flash
Input Fault Lo	ockout	Flash Code 1	Configuration LED (LED 2, Yellow)	Fast Flash
High Pressur	e Lockout	Flash Code 2	Fault LED (LED 3, Red)	Fast Flash
Low Pressure	e Lockout	Flash Code 3	Configuration LED (LED 2, Y	'ellow)
Freeze Prote	ction- FP2	Flash Code 4	No Software Overide	OFF
Freeze Prote	ction - FP1	Flash Code 5	DIP Switch Overide	Slow Flash
Loss of Char	rge	Flash Code 6	Status LED (LED 3, Gree	n)
Condensate (Overflow Lockout	Flash Code 7	Normal Mode	ON
Over/Under \	Voltage Shutdown	Flash Code 8	Control is Non - Functional	OFF
Future Use		Flash Code 9	Test Mode	Slow Flash
Fault- FP1 ar	nd FP2 Sensor Error	Flash Code 11	Dehumidification Mode	Flash Code 2
Future Use		Flash Code 12	Future Use	Flash Code 3
Non-Critical A	AXB Sensor Error	Flash Code 13	Future Use	Flash Code 4
Critical AXB 9	Sensor Error	Flash Code 14	Load Shed	Flash Code 5
Alarm - Hot V	Vater	Flash Code 15	ESD	Flash Code 6
Fault Variable	e Speed Pump	Flash Code 16	Future Use	Flash Code 7
Future Use		Flash Code 17	Fault LED (LED 1, Red) Co	ont.
Non-Critical C	Communication Error	Flash Code 18	Safe Mode - Ambient Temperature Sensor	Flash Code 49
Fault - Critica	Communication Error	Flash Code 19	Fault - Discharge Temperature Sensor	Flash Code 51
Alarm - Low I	Loop Pressure	Flash Code 21	Fault - Suction Pressure Sensor	Flash Code 52
Fault - Comm	nunication ECM Fan Motor Error	Flash Code 22	Fault - Condensing Pressure Sensor	Flash Code 53
Alarm - Home	e Automation 1	Flash Code 23	Fault - Low Supply Voltage	Flash Code 54
Alarm - Home	e Automation 2	Flash Code 24	Fault - Compressor Out of Envelope	Flash Code 55
Fault - EEV E	rror	Flash Code 25	Fault - Over Current	Flash Code 56
Derate - Driv	e Temperature	Flash Code 41	Fault - Over/Under Voltage	Flash Code 57
Derate - High	Discharge Temperature	Flash Code 42	Fault - High Drive Temperature	Flash Code 58
Derate - Low	Suction Temperature	Flash Code 43	Fault - Drive Internal Error MOC/AOC	Flash Code 59
Derate - Low	Condensing Pressure	Flash Code 44	Fault - Multiple Safe Modes	Flash Code 61
Derate - High	Condensing Pressure	Flash Code 45	Fault - Loss of Charge	Flash Code 71
Derate - Oute	er Power Limit	Flash Code 46	Safe Mode - Suction Temperature Sensor	Flash Code 72
Safe Mode - I	EEV (Indoor) Communication	Flash Code 47	Safe Mode - LAT Temperature Sensor	Flash Code 73
Safe Mode -	EEV (Outdoor) Communication	Flash Code 48	Safe Mode - Max Operating Pressure	Flash Code 74

97P842-01B

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Engineer:		

Unit Tag: _

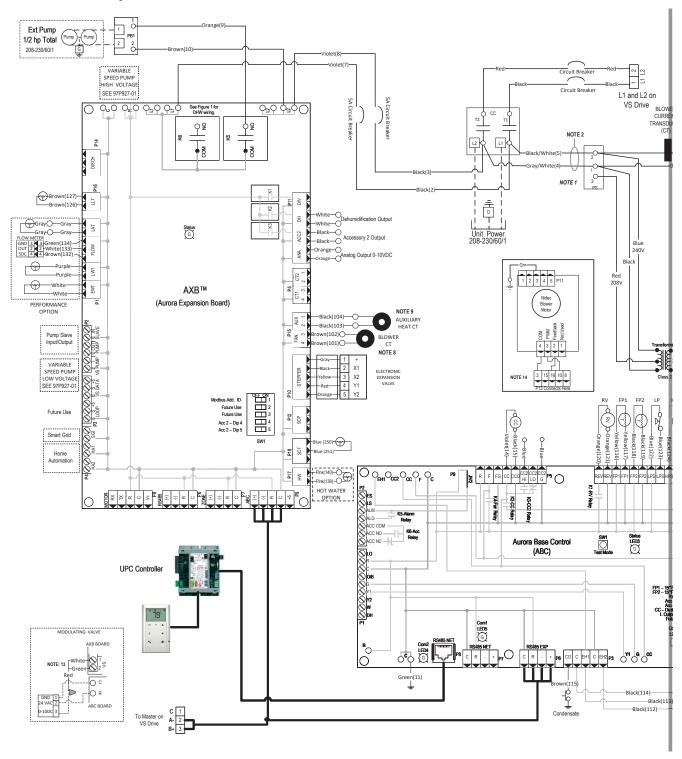
7 Series 700A11 3-5 Ton 60Hz



Wiring Schematics cont.

Project Name: _

Aurora Variable Speed with UPC



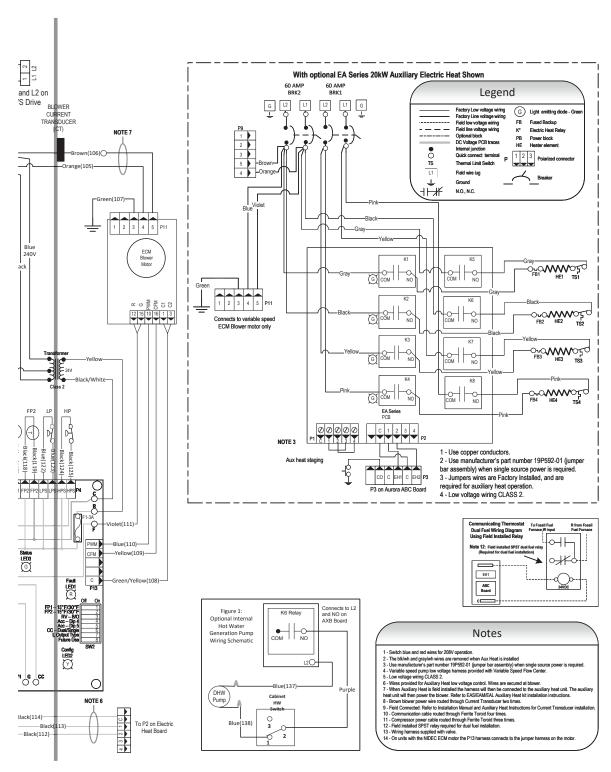
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Project Name:	Unit Tag:





Aurora Variable Speed with UPC cont.



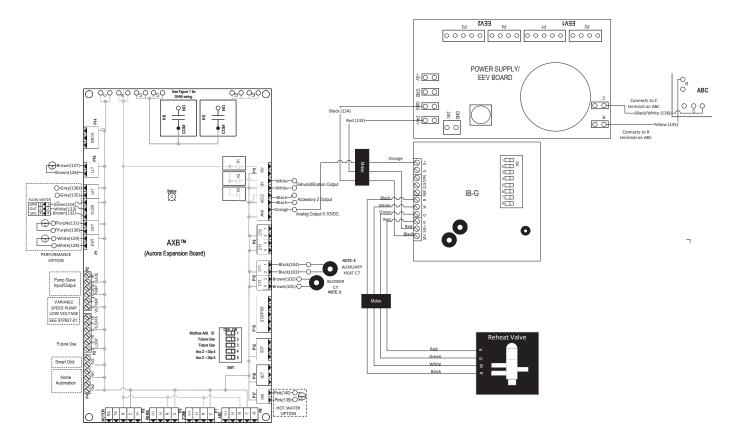
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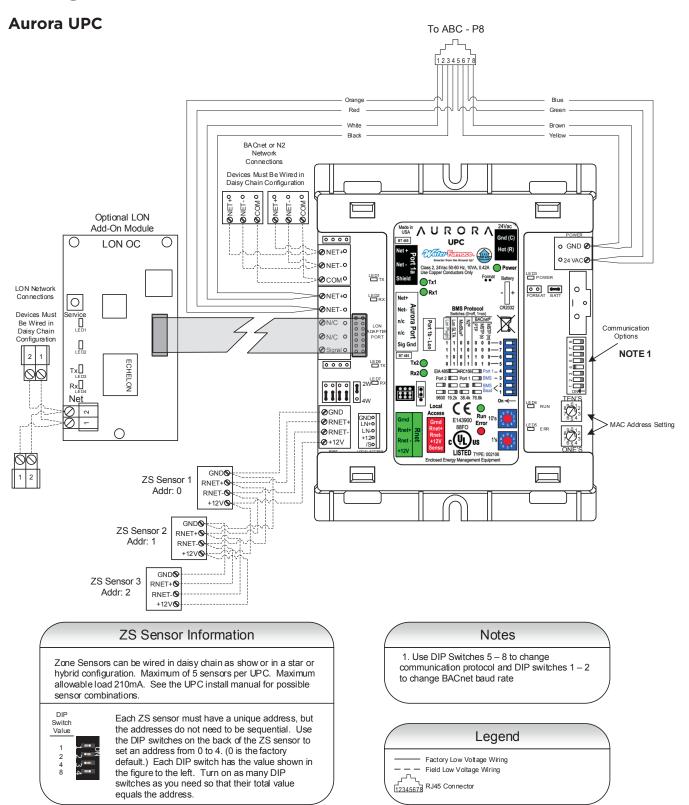
Modulating Hot Gas Reheat (MHGR)



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Engineering Guide Specifications

General

Furnish and install WaterFurnace Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow. The reverse cycle heating/ cooling units shall be either suspended type with horizontal air inlet and discharge or floor mounted type with horizontal air inlet and vertical upflow, downflow, or rear air discharge. Units shall be AHRI/ISO 13256-1 certified and listed by a nationally recognized safety-testing laboratory or agency, such as ETL Testing Laboratory. Each unit shall be computer run-tested at the factory with conditioned water and operation verified to catalog data. Each unit shall be mounted on a pallet and shipped in a corrugated box or stretch-wrapped. The units shall be designed to operate with entering liquid temperature between 20°F and 120°F [-6.7°C and 48.9°C].

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and finished with corrosion-resistant powder coating. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. The interior shall be insulated with 1/2-inch thick, multi-density, cleanable aluminum foil coated glass fiber with edges sealed or tucked under flanges to prevent the introduction of glass fibers into the discharge air. Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. Unit insulation must meet these stringent requirements or unit(s) will not be accepted.

One (horizontal) to two (vertical) blower and three compressor compartment access panels shall be 'lift-out' removable with supply and return ductwork in place. The front access panel shall be lift-out to provide easy access to the electrical/compressor section. The control box shall be hinged and removable to allow easy access to the compressor. The internal component layout shall provide for service access from the front side for restricted installations.

A duct collar shall be provided on the supply air opening. Standard size 2 in. [5.1 cm] MERV 11 pleated filters shall be provided with each unit. Vertical and horizontal units shall have a return air filter rack/duct collar which is field convertible from 2 in. [5.1 cm] to 1 in. [2.5 cm]. The upflow vertical units shall have a removable insulated divider panel between the air handling section and the compressor section to minimize the transmission of compressor noise and to permit operational service testing without air bypass. Vertical units shall be supplied with left or right horizontal air inlet and top, bottom, or rear vertical air

discharge. Horizontal units shall be supplied with left or right air inlet and side or end air discharge.

The compressor shall be double isolation mounted using selected durometer grommets to provide vibration free compressor mounting.

The drain pan shall be of plastic construction to inhibit corrosion and bacterial growth. Drain outlet shall be located on pan as to allow complete and unobstructed drainage of condensate. The unit as standard will be supplied with solid-state electronic condensate overflow protection. Mechanical float switches WILL NOT be accepted. Vertical units shall be furnished with a PVC slip condensate drain connection and an internal factory installed condensate trap.

Refrigerant Circuit

All units shall contain a sealed refrigerant circuit including a hermetic motor-compressor, discharge line muffler, bidirectional electronic expansion valve, finned tube airto-refrigerant heat exchanger, reversing valve, coaxial tube water-to-refrigerant heat exchanger, optional hot water generator coil, and service ports. Compressors shall be high-efficiency variable speed scroll type designed for heat pump duty and mounted on double vibration isolators.

Compressor motors shall be permanent magnet type. The all-aluminum PinnaCoil shall be sized for low-face velocity and constructed of aluminum fins bonded to aluminum tubes in a staggered pattern not less than three rows deep for enhanced performance. All models shall include discharge mufflers to help quiet compressor discharge gas pulsations.

Refrigerant to air heat exchangers shall utilize tube construction rated to withstand 600 psig (4135 kPa) refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper (cupronickel optional) inner water tube and steel refrigerant outer tube design, rated to withstand 600 psig (4135 kPa) working refrigerant pressure and 450 psig (3101 kPa) working water pressure. An electronic expansion valve shall provide proper superheat over the entire liquid temperature range with minimal "hunting." The valve shall operate bidirectionally without the use of check valves.

All units shall have the source coaxial tube refrigerant-to water heat exchanger and the optional hot water generator coil coated with ThermaShield insulation. Refrigerant suction lines shall be insulated to prevent condensation at low liquid temperatures.

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Engineering Guide Specifications cont.

Blower Motor and Assembly

The blower shall be a direct drive centrifugal type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low outlet velocity operation. The blower housing shall be removable from the unit without disconnecting the supply air ductwork for servicing of the blower motor. The blower motor shall be a variable-speed ECM type. The ECM blower motor shall be soft starting, shall maintain constant cfm over its operating static range, and shall provide 12 cfm settings. The blower motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated, have thermostatic overload protection and be long-life ball bearing type.

Electrical

A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 Volt activated, 2 pole compressor contactor, circuit breakers for protecting loop pumps and compressor drive, removable terminal block for thermostat wiring, variable speed compressor drive and solid-state controller for complete unit operation. Electromechanical operation WILL NOT be accepted. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be communicating type and provide heating or cooling as required by the remote thermostat/sensor. An Aurora Advanced VS Control, a microprocessor based controller, interfaces with a digital communicating thermostat to monitor and control unit operation shall be provided. The control shall provide operational sequencing, blower speed control, blower failure, high and low pressure switch monitoring, freeze detection, hot water limit thermistor sensing, condensate overflow sensing, auxiliary heat staging, lockout mode control, hot water and loop pump control, LED status and fault indicators, fault memory, field selectable options, compressor envelope management, energy consumption measurement, and accessory output. The fault signals shall be plain English text and displayed on the thermostat.

The Aurora Advanced VS Control shall also feature an On Peak input signal for utility controlled demand programs, intelligent hot water generation with user adjustable temperature limit, loop pump linking for multiple units driving a common flow center and up to two optional home automation inputs to drive dedicated alarms for sump pump, security system, and smoke/CO2 or dirty air filter sensors. As standard, the energy and refrigerant monitoring kits will provide real time data including total power consumption, refrigerant superheat and subcooling. Optional performance monitoring kit to provide real time data including, entering and leaving water temperature, flow rate and heat of extraction/rejection capacity data. The capability for communicating to advanced zoning packages with up to six zones shall also be provided with complete fault and information display on the zoning MasterStat.

A detachable terminal block with screw terminals will be provided for field control wiring. All units shall have knockouts for entrance of low and line voltage wiring. The blower motor and control box shall be harness plug wired for easy removal.

An optional Aurora Interface Diagnostic (AID) Tool shall communicate with the Aurora control allowing quick and easy access to setup, monitoring, and troubleshooting of any Aurora control. The device shall include the features of ECM airflow setup, VS pump and modulating water valve setup, fault description and history, manual operation capability, sensor readings, timings, and other diagnostic tools.

Option: An Aurora Unitary Protocol Converter (UPC) shall be included that communicates directly with the Aurora Heat Pump Control and allows access/control of a variety of internal Aurora heat pump operations such as sensors, relay operation, faults and other information. In turn, the UPC shall convert the internal Aurora Modbus protocol to BACnet MS/TP protocol for communication over a HAS system. Additional individual unit configuration items such as ECM fan speeds or freeze protection settings shall be directly available over the HAS without the need for access to the actual heat pump.

Piping

Supply and return water connections shall be 1 in. [25.4 mm] FPT brass swivel fittings, which provide a union and eliminate the need for pipe wrenches and sealants when making field connections. The optional hot water generator shall have sweat type connections. All source water piping shall be insulated to prevent condensation at low liquid temperatures. On the vertical units, the condensate connection shall be a 3/4 in. [19.1 mm] PVC socket with internally-trapped hose that can be routed to front or side locations.

Hanger Kit

(field-installed horizontal units only)

The hanger kit shall consist of galvanized steel brackets, bolts, lock washers, and isolators and shall be designed to fasten to the unit bottom panel for suspension from 3/8-inch threaded rods. All unit size shall include six brackets hanging brackets.

Options and Accessories Cupronickel Heat Exchanger

An optional cupronickel water-to-refrigerant heat exchanger shall be provided.

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Engineering Guide Specifications cont.

Hot Water Generator

An optional ThermaShield coated heat reclaiming hot water generator coil of vented double-wall copper construction suitable for potable water shall be provided. The coil and hot water circulating pump shall be factory mounted inside the unit with integral electronic high limit temperature monitoring and external on/off switch. Hot water set point is selectable through the AID Tool.

AlpinePure 411-Rack 4 in. Pleated Filter Accessory

A 4 in. [102 mm] thick MERV 11 filter and filter rack shall be provided in lieu of the standard filter and rack.

Thermostat (field-installed)

A communicating auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer variable speed heating and cooling staging with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO-INTERMITTENT blower switch, and indicating display shall be provided. The thermostat shall display in °F or °C. The thermostat shall provide real time energy consumption data of the unit.

Color Touchscreen Thermostat (field-installed)

A color touchscreen communicating auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer variable speed heating and cooling staging with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO-INTERMITTENT blower switch, and indicating display shall be provided. The thermostat shall display in °F or °C. The thermostat shall provide real time and historical energy consumption data of the unit.

Electronic Air Cleaner (field-installed)

A 1 in. [25 mm] electronic air cleaner, cleanable 97% efficiency at 0.3 microns and larger, shall be provided in lieu of the standard throwaway filter. The initial pressure drop across the filter shall not exceed 0.2 in. w.g. at 300 fpm force velocity.

Electrostatic Air Cleaner (field-installed)

A 1 in. [25 mm] electrostatic air cleaner, cleanable 90% efficiency, shall be provided in lieu of the standard throwaway filter. The initial pressure drop across the filter shall not exceed 0.15 in. w.g. at 300 fpm force velocity.

AlpinePure MERV 13 Filter (field-installed)

A 2 in. [50 mm] thick MERV 13 filter shall be provided in lieu of the standard filter and fits the factory filter rack. The filter maintains MERV 13 rating in full ASHRAE 52.2 independent testing as required for LEED* certification. Helps fulfill a full credit under the LEED rating system.

AlpinePure Drain Pan Treatment (field-installed)

Provides dependable, sustained time-release protection from slime build-up and foul smelling odors in the drain pan. Also adds a light, pleasant scent to the air.

Earth Loop Flow Center (field-installed)

A self-contained module shall provide all liquid flow, fill and connection requirements for ground source closed loop systems up to 20 gpm. The pumps shall be wired to a power block located in the nearest unit. The heat pump units shall contain low voltage pump linking control so that two units may share one flow center.

Auxiliary Heater (field-installed)

An electric resistance heater shall provide supplemental and/or emergency heating capability. Vertical units shall have the control panel and resistance heater coil assembly mounted internally. For horizontal units, the control panel shall be mounted internally while the resistance heater coil assembly shall be mounted externally. A low voltage plug shall be provided in each unit for quick auxiliary heat connection. The heater shall operate in sequenced stages as controlled by the unit's microprocessor. The heater shall feed line voltage power to the unit blower and transformer to provide emergency heat capability in the event of an open compressor circuit breaker.

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Revision Guide

Pages:	Description:	Date:	By:
Misc	Added MHGR option	10 July 2023	MA
Misc.	AXB controlling EEV	30 Nov 2022	JM
Misc	Updated with Aluminum Air Coils	04 Dec 2020	MA
16-19	Updated wiring schematics (UPMXL)	12 Sept 2019	MA
24,25	Updated Wiring Schematics, Engineering Specifications to include UPC option	21 Nov 2017	MA
All	Misc. Updates	9 Dec 2016	MA
All	Misc. Updates, Performance Data Update	12 Aug 2016	MA
All	Electric heating updates, multiple areas effected	07 Jan 2015	MA
20 - 23	Updated Wiring Diagrams	31 May 2013	DS
27	Added Revision Guide	31 May 2013	DS