



ASTON SERIES AIR HANDLER

HYDRONIC AND R-410A
2 TO 5 TONS

Submittal Data
English Language
IP/Metric Units
SD1008HG 05/14

GEOSTAR

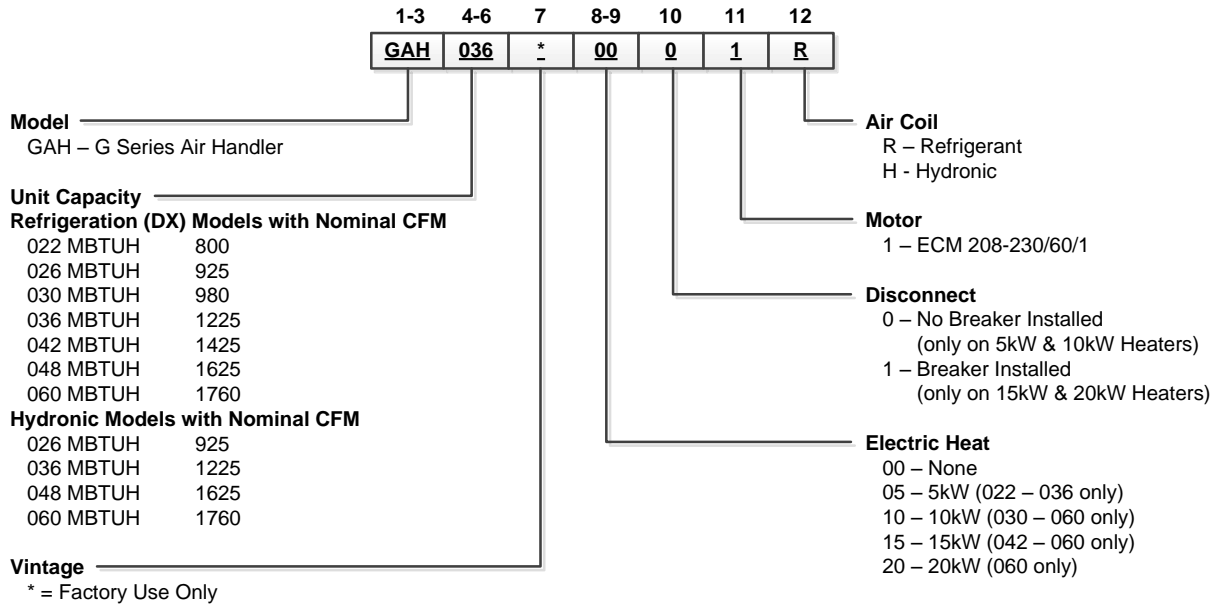
Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____



Model Nomenclature



Rev.: 08 April 2013D

NOTE: To field convert the GAH042-060 to bottomflow air discharge, the NAHBC kit must be ordered.

Compatibility

Air Handler Sizing Selection

The Aston Series Air Handlers are designed for R410a refrigerant and should be matched with Aston indoor and outdoor series compressor section according to the table below.

Air Handler	Indoor Split Model (Single)	Indoor Split Model (Dual Capacity)	Outdoor Split Model (Dual Capacity)	Airflow(CFM)	Electric Heat (kW)
GAH022B***1R	103*022	-		800	5
GAH026B***1R	-	103*026	104*026	925	5
GAH030B***1R	103*030	-	-	980	5, 10
GAH036B***1R	103*036	-	-	1225	5, 10
GAH036B***1R	-	103*038	104*038	1225	5, 10
GAH042B***1R	103*042	-	-	1425	10, 15
GAH048B***1R	103*048	-	-	1625	10, 15
GAH048B***1R	-	103*049	104*049	1625	10, 15
GAH060B***1R	103*060	-	-	1760	10, 15, 20
GAH060B***1R	-	103*064	104*064	1760	10, 15, 20
GAH060B***1R	103*070	-	-	1760	10, 15, 20
GAH060B***1R	-	103*072	104*072	1760	10, 15, 20

4/28/14

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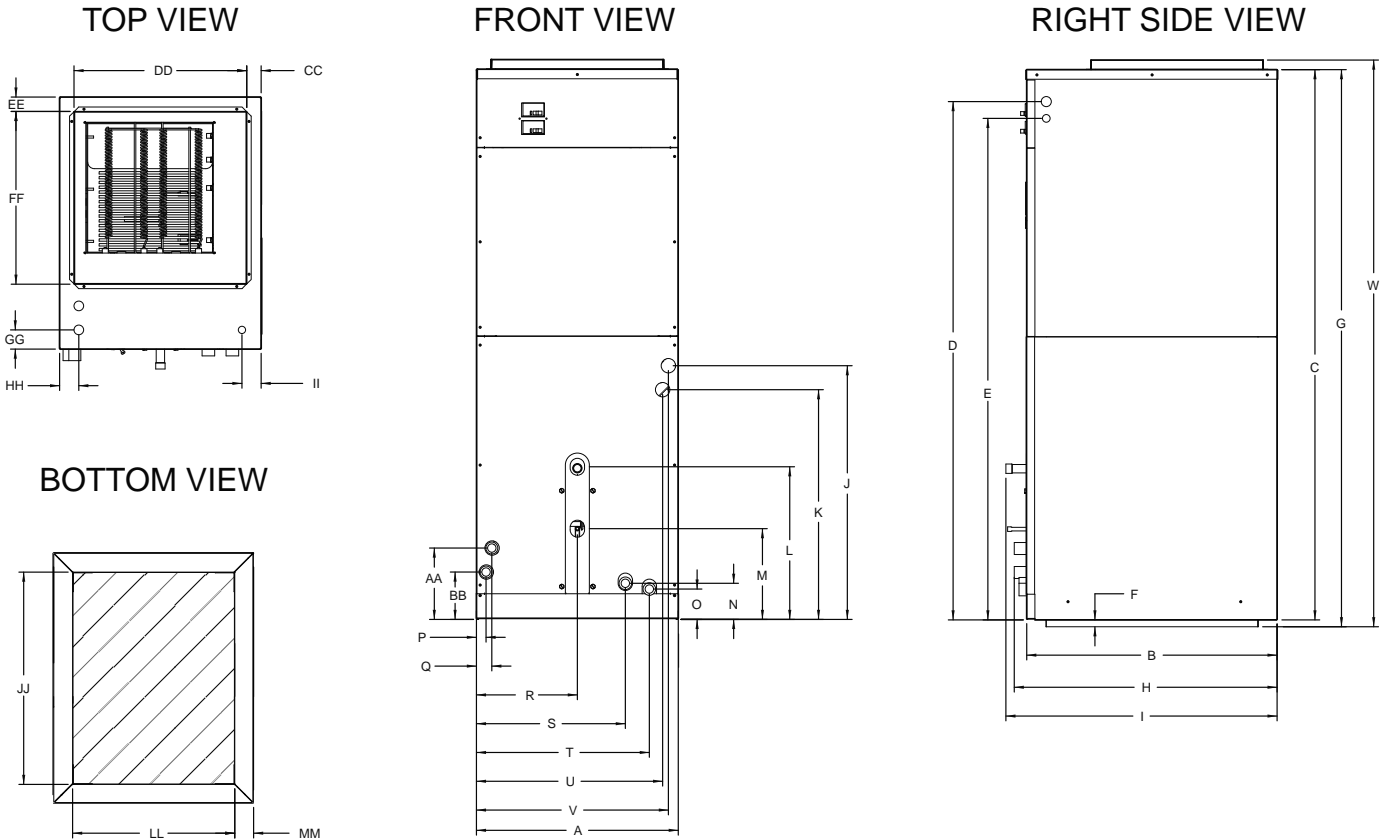
Project Name: _____ Unit Tag: _____

Aston Series Air Handler
2 - 5 Tons 60Hz



Dimensional Data - DX Air Handler

Top Flow/Horizontal Unit Configuration



Topflow/ Horizontal Configuration	Overall Cabinet											Refrigerant/Water Connections								
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
				3/4" cond Power Supply	1/2" cond Low Voltage	Return Air Duct Flange														Suction / Water Out
026-060	in.	21.0	26.1	57.3	54.0	52.3	0.7	58.1	27.4	28.3	26.8	24.3	16.0	9.8	4.0	3.1	0.8	1.5	10.5	15.5
	cm.	53.4	66.3	145.6	137.2	132.7	1.8	147.4	69.6	71.8	68.1	61.7	40.6	24.9	10.2	7.9	2.0	3.9	26.7	39.4

S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM
														1" cond Power Supply	1/2" cond Low Voltage					
15.5	18.0	19.5	20.1	59.5	15.1	53.1	51.3	7.8	5.2	1.5	18.0	1.5	18.0	2.0	2.0	2.0	22.1	2.0	16.9	1.96
39.4	45.8	49.5	51.0	151.1	38.4	134.9	130.2	19.8	13.2	3.8	45.7	3.8	45.7	5.1	5.1	5.1	56.2	5.0	42.9	5.0

Condensate is stainless steel 3/4" O.D. tube
Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

Rev: 4/28/14

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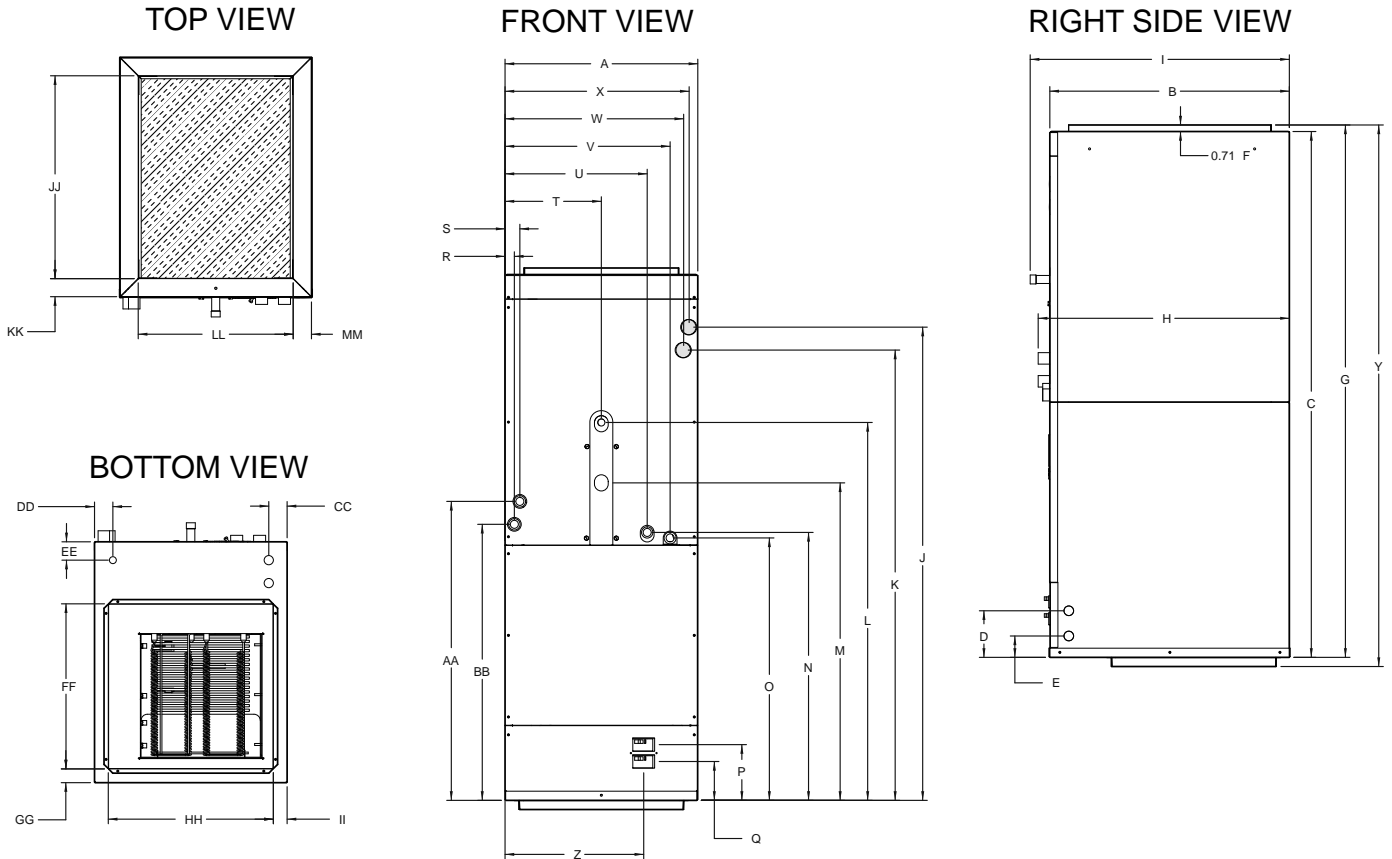
Project Name: _____ Unit Tag: _____

Aston Series Air Handler
2 - 5 Tons 60Hz



Dimensional Data - DX Air Handler

Bottom Flow Unit Configuration



Bottomflow Configuration	Overall Cabinet			Refrigerant/Water Connections															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
	Width	Depth	Height	3/4" cond Low Voltage	1" cond Power Supply	Return Air Duct Flange						Suction / Water Out	Liquid / Water In						
026-060	in. cm.	21.0 53.4	26.1 66.3	57.3 145.6	5.1 12.9	3.3 8.5	0.7 1.8	58.1 147.4	27.4 69.6	28.3 71.8	51.9 131.8	49.4 125.5	41.2 104.7	34.9 88.7	29.2 74.2	28.2 71.6	6.1 15.4	4.2 10.8	0.9 2.4

											CC	DD	EE										
S	T	U	V	W	X	Y	Z	AA	BB		1" cond Power Supply	1/2" cond Low Voltage	FF	GG	HH	II	JJ	KK	LL	MM			
1.5	10.5	15.5	18.0	19.5	20.1	59.1	15.1	32.9	30.4	2.0	2.0	2.0	18.0	1.5	18.0	1.5	22.1	2.0	16.9	1.96			
3.9	26.7	39.4	45.8	49.5	51.0	150.0	38.4	83.6	77.2	5.1	5.1	5.1	45.7	3.8	45.7	3.8	56.2	5.0	42.9	5.0			

Condensate is stainless steel 3/4" O.D. tube
Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

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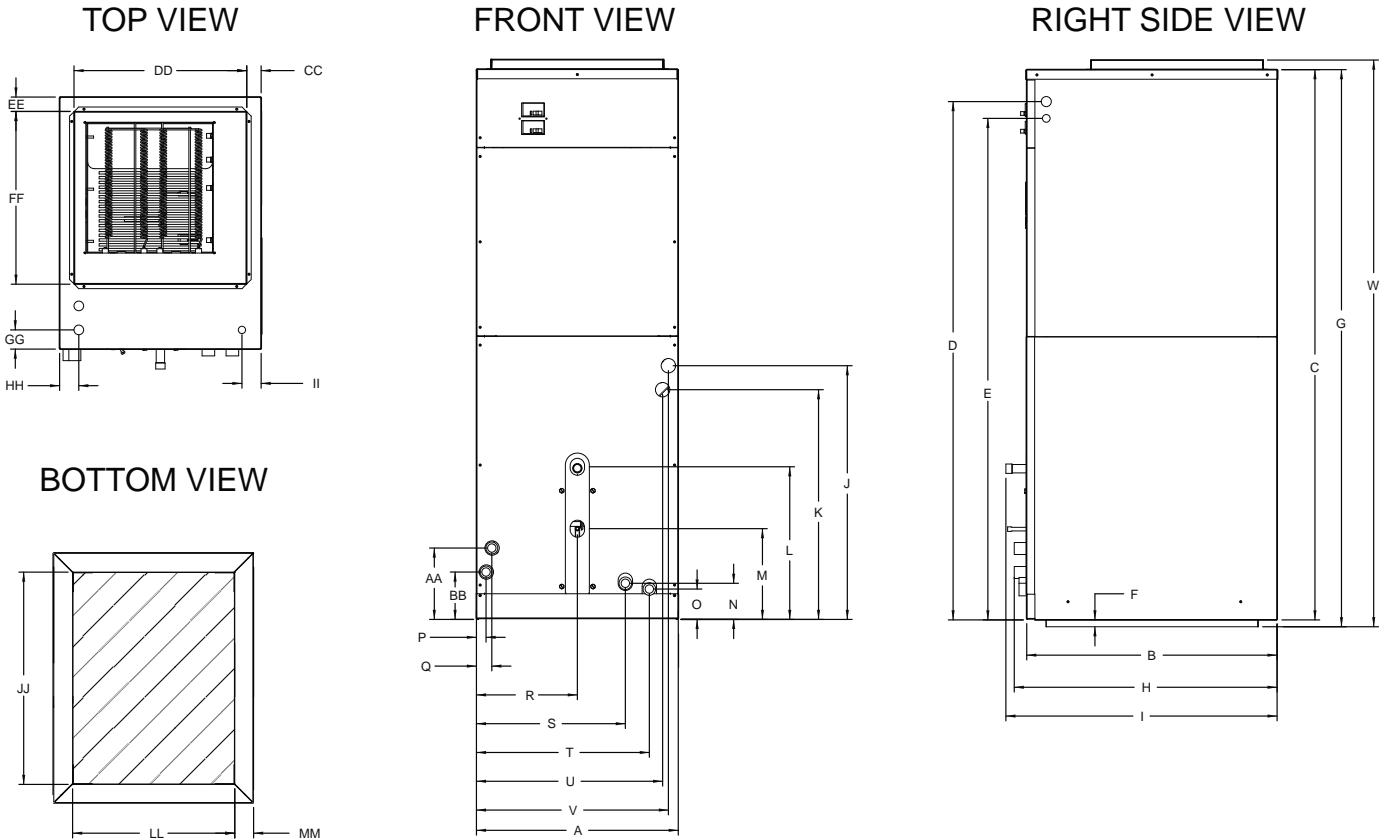
Project Name: _____ Unit Tag: _____

Aston Series Air Handler
2 - 5 Tons 60Hz



Dimensional Data - Hydronic Air Handler

Top Flow/Horizontal Unit Configuration



Topflow/ Horizontal Configuration	Overall Cabinet											Refrigerant/Water Connections								
	A B C			D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
	Width	Depth	Height	3/4" cond Power Supply	1/2" cond Low Voltage	Return Air Duct Flange						Suction / Water Out	Liquid / Water In							
026-060	in. cm.	21.0 53.4	26.1 66.3	57.3 145.6	54.0 137.2	52.3 132.7	0.7 1.8	58.1 147.4	27.4 69.6	28.3 71.8	26.4 67.2	23.9 60.8	15.9 40.4	9.5 24.0	3.8 9.6	3.2 8.1	0.9 2.4	1.5 3.9	10.5 26.7	15.5 39.4

														GG	HH	II						
S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	1" cond Power Supply	1/2" cond Low Voltage	JJ	KK	LL	MM			
15.5	18.0	19.5	20.1	59.5	15.1	53.1	51.3	7.4	4.9	1.5	18.0	1.5	18.0	2.0	2.0	2.0	22.1	2.0	16.9	1.96		
39.4	45.8	49.5	51.0	151.1	38.4	134.9	130.2	18.9	12.5	3.8	45.7	3.8	45.7	5.1	5.1	5.1	56.2	5.0	42.9	5.0		

Condensate is stainless steel 3/4" FPT
Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

Rev: 5/02/14

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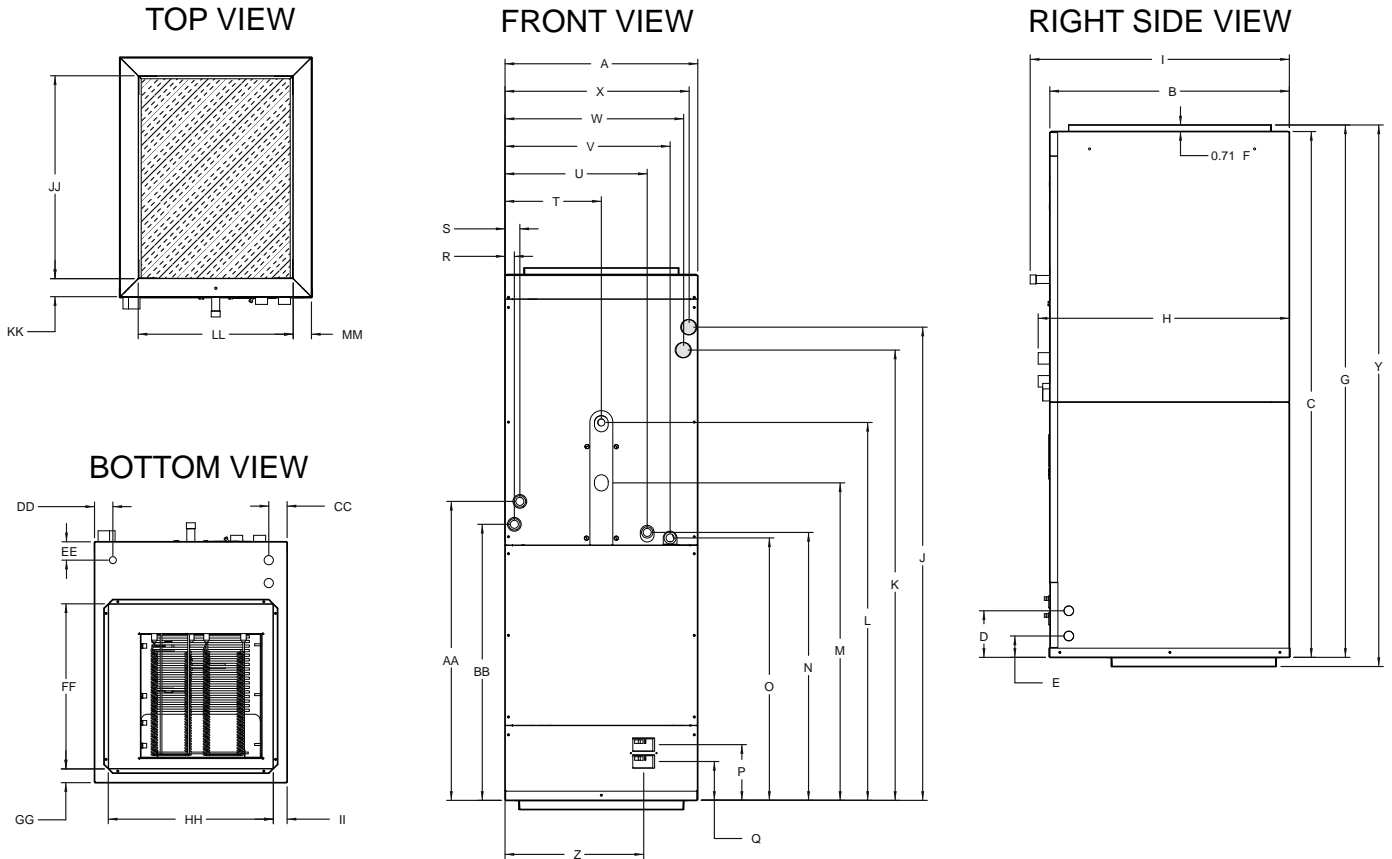
Project Name: _____ Unit Tag: _____

Aston Series Air Handler
2 - 5 Tons 60Hz



Dimensional Data - Hydronic Air Handler

Bottom Flow Unit Configuration



Bottomflow Configuration	Overall Cabinet												Refrigerant/Water Connections							
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R		
				3/4" cond Low Voltage	1" cond Power Supply	Return Air Duct Flange													Suction / Water Out	Liquid / Water In
026-060	in.	21.0	26.1	57.3	5.1	3.3	0.7	58.1	27.4	28.3	51.6	49.1	41.2	34.6	29.2	28.6	6.1	4.2	0.9	
	cm.	53.4	66.3	145.6	12.9	8.5	1.8	147.4	69.6	71.8	131.1	124.7	104.7	87.9	74.2	72.7	15.4	10.8	2.4	

											CC	DD	EE									
S	T	U	V	W	X	Y	Z	AA	BB		1" cond Power Supply	1/2" cond Low Voltage	FF	GG	HH	II	JJ	KK	LL	MM		
1.5	10.5	15.5	18.0	19.5	20.1	59.1	15.1	32.6	30.1		2.0	2.0	2.0	18.0	1.5	18.0	1.5	22.1	2.0	16.9	1.96	
3.9	26.7	39.4	45.8	49.5	51.0	150.0	38.4	82.8	76.5		5.1	5.1	5.1	45.7	3.8	45.7	3.8	56.2	5.0	42.9	5.0	

Condensate is stainless steel 3/4" FPT
Discharge flange is field installed and extends 1" (25.4 mm) from cabinet

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Engineer: _____

Project Name: _____ Unit Tag: _____



Physical Data

Air Handler Model Number (Refrigerant)		GAH022	GAH026	GAH030	GAH036	GAH042	GAH048	GAH060	
Evaporator Coil	Air Coil Total Face Area, ft2 [m2]	5.83 [0.54]							
	Tube outside diameter - in. [mm]	3/8 [9.52]							
	Number of rows	2				3			
	Fins per inch	12							
	Suction line connection - in. [mm] sweat	5/8 [15.87]				7/8 [22.22]			
	Liquid line connection - in. [mm] sweat	3/8 [9.52]							
Refrigerant		R-410a							
Nominal cooling capacity - tons [kW]		1.8 [6.44]	2.1 [7.59]	2.5 [8.79]	3 [10.55]	3.5 [12.30]	4 [14.06]	5 [17.58]	
Condensate drain connection - (O.D.) in. [mm]		3/4 [19.05]							
Blower Wheel Size (Dia x W), in. [mm]		11 x 10 [279 x 254]							
Blower motor type/speeds		ECM variable speed							
Blower motor output - hp [W]		1/2 [373]				1 [746]			
Filter Standard - 1" [51mm] MERV3 disposable, in. [mm]		20 x 24 [508 x 635]							
Electrical characteristics (60hz)		208/230 - 1ph							
Shipping weight - lbs. [kg]		215 [97.52]				220 [99.79]			
Operating weight - lbs. [kg]		195 [88.45]				200 [90.71]			

4/28/14

Air Handler Model Number (Hydronic)		GAH026	GAH036	GAH048	GAH060
Hydronic Coil	Air Coil Total Face Area, ft2 [m2]	6.94 [0.64]			
	Tube outside diameter - in. [mm]	3/8 [9.52]			
	Number of rows	3			
	Fins per inch	13			
	Water In connection - in. [mm] sweat	7/8 [22.22]			
	Water Out connection - in. [mm] sweat	7/8 [22.22]			
Nominal cooling capacity - tons [kW]		2.1 [7.59]	3 [10.55]	4 [14.06]	5 [17.58]
Condensate drain connection - (FPT) in. [mm]		3/4 [19.05]			
Blower Wheel Size (Dia x W), in. [mm]		11 x 10 [279 x 254]			
Blower motor type/speeds		ECM variable speed			
Blower motor output - hp [W]		1/2 [373]		1 [746]	
Filter Standard - 1" [51mm] MERV3 disposable, in. [mm]		20 x 24 [508 x 635]			
Electrical characteristics (60hz)		208/230 - 1ph			
Shipping weight - lbs. [kg]		220 [99.79]			
Operating weight - lbs. [kg]		200 [90.71]			

Note: Water connection dimensions are O.D.

4/28/14

Pressure Drop

Water Pressure Drop - Hydronic Coil

Flow gpm	Pressure Drop (PSI)						
	40°F	50°F	60°F	100°F	110°F	120°F	130°F
3.0	0.5	0.5	0.5	0.4	0.4	0.4	0.4
4.5	0.9	0.9	0.9	0.8	0.8	0.8	0.8
6.0	1.4	1.4	1.4	1.2	1.2	1.2	1.2
9.0	2.8	2.6	2.5	2.4	2.4	2.4	2.3
12.0	4.6	4.4	4.2	4.0	4.0	4.0	3.9
15.0	7.0	6.8	6.6	6.0	6.0	5.9	5.8

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Engineer: _____

Project Name: _____ Unit Tag: _____



Blower Performance

Blower Performance Variable Speed ECM

Model	Max ESP (wg)	Blower Motor (hp)	HP CFM Setting		Normal Mode Htg & Clg			Dehumidification Mode Clg				Aux CFM Setting		Aux Emerg Mode
			S1	S2	Stg 2	Stg 1	Blower	S9	Stg 2	Stg 1	Blower	S5	S6	
022	0.50	1/2	On	On	900	700	450	Off	775	600	450	On	On	1000
	0.50	1/2	Off	On	800	625	400	Off	680	530	400	Off	On	800
	0.50	1/2	On	Off	700	540	375	Off	600	450	375	On	Off	775
	0.50	1/2	Off	Off	640	480	350					Off	Off	740
026	0.50	1/2	On	On	1050	800	525	Off	850	700	525	On	On	1150
	0.50	1/2	Off	On	925	725	475	Off	760	620	475	Off	On	950
	0.50	1/2	On	Off	800	625	425	Off	670	540	425	On	Off	925
	0.50	1/2	Off	Off	740	575	400					Off	Off	825
030	0.50	1/2	On	On	1150	950	600	Off	975	775	600	On	On	1250
	0.50	1/2	Off	On	980	780	500	Off	825	640	500	Off	On	1000
	0.50	1/2	On	Off	900	700	440	Off	750	580	440	On	Off	975
	0.50	1/2	Off	Off	800	630	425					Off	Off	900
036	0.50	1/2	On	On	1300	1025	760	Off	1105	871	760	On	On	1300
	0.50	1/2	Off	On	1225	950	685	Off	1041	808	685	Off	On	1250
	0.50	1/2	On	Off	1150	850	620	Off	940	690	620	On	Off	1225
	0.50	1/2	Off	Off	1075	800	550					Off	Off	1200
042	0.75	1	On	On	1500	1100	750	Off	1250	900	750	On	On	1550
	0.75	1	Off	On	1425	1010	650	Off	1180	840	650	Off	On	1450
	0.75	1	On	Off	1300	975	635	Off	1080	800	635	On	Off	1400
	0.75	1	Off	Off	1150	850	625					Off	Off	1275
048	0.75	1	On	On	1700	1300	975	Off	1400	1080	975	On	On	1700
	0.75	1	Off	On	1625	1240	875	Off	1350	1025	875	Off	On	1550
	0.75	1	On	Off	1450	1100	750	Off	1200	900	750	On	Off	1525
	0.75	1	Off	Off	1300	1000	675					Off	Off	1400
060	0.75	1	On	On	1850	1750	1175	Off	1540	1450	1175	On	On	1850
	0.75	1	Off	On	1760	1625	1050	Off	1460	1350	1050	Off	On	1760
	0.75	1	On	Off	1720	1575	1015	Off	1425	1300	1015	On	Off	1725
	0.75	1	Off	Off	1680	1525	975		1428			Off	Off	1700

Factory CFM settings are in boldface

CFM is controlled within 5% up to maximum ESP

Maximum ESP includes allowance for wet coil and standard filter

DIP switch 9 must be 'OFF' to select dehumidification mode

2/3/10

Air Handler DIP Switches	DIPS	Switch Description
	1	Used to set normal CFM
	2	
	3	Not used
	4	
	5	Used to set aux./emergency heat CFM
	6	
	7	Not used
	8	
	9	Used to set dehumidification CFM
10	Not used	

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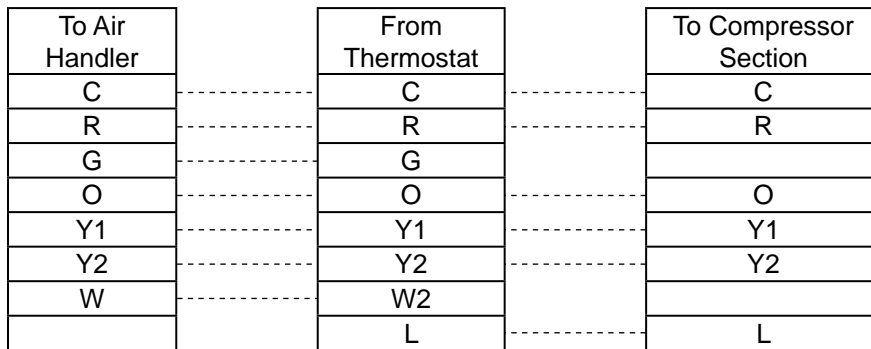
Electrical Data

Model	Electric Heat Capacity		Supply Circuit	Aux. Heat Minimum CFM	Rated Voltage	Voltage Min/Max	Blower Motor FLA	Heater Ampacity		Total Unit FLA		Minimum Circuit Ampacity		Maximum Fuse/HACR			
	KW	BTUH						208v	240v	208v	240v	208v	240v	208v	240v	208v	240v
	240v	240v															
022	0	0	-		208-230/60/1	197/253	4.0	-	-	4.0	4.0	5.0	5.0	10	10		
	4.8	16,382	single	740			4.0	17.3	20.0	21.3	24.0	26.6	30.0	30	30		
026	0	0	-				4.0	-	-	4.0	4.0	5.0	5.0	10	10		
	4.8	16,382	single	740			4.0	17.3	20.0	21.3	24.0	26.6	30.0	30	30		
030	0	0	-				4.0	-	-	4.0	4.0	5.0	5.0	10	10		
	4.8	16,382	single	740			4.0	17.3	20.0	21.3	24.0	26.6	30.0	30	30		
	9.6	32,765	single	900			4.0	34.7	40.0	38.7	44.0	48.4	55.0	50	60		
036	0	0	-				4.0	-	-	4.0	4.0	5.0	5.0	10	10		
	4.8	16,382	single	740			4.0	17.3	20.0	21.3	24.0	26.6	30.0	30	30		
	9.6	32,765	single	900			4.0	34.7	40.0	38.7	44.0	48.4	55.0	50	60		
042	0	0	-				7.0	-	-	7.0	7.0	8.8	8.8	15	15		
	9.6	32,765	single	900			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
	14.4	49,147	single	1,275			7.0	52.0	60.0	59.0	67.0	73.8	83.8	80	90		
	14.4	49,147	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
			L3/L4				-	17.3	20.0	17.3	20.0	21.6	25.0	25	25		
048	0	0	-				7.0	-	-	7.0	7.0	8.8	8.8	15	15		
	9.6	32,765	single	900			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
	14.4	49,147	single	1,275			7.0	52.0	60.0	59.0	67.0	73.8	83.8	80	90		
	14.4	49,147	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
			L3/L4				-	17.3	20.0	17.3	20.0	21.6	25.0	25	25		
060	0	0	-				7.0	-	-	7.0	7.0	8.8	8.8	15	15		
	9.6	32,765	single	900			7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
	14.4	49,147	single	1,275			7.0	52.0	60.0	59.0	67.0	73.8	83.8	80	90		
	14.4	49,147	L1/L2				7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60		
			L3/L4		-	17.3	20.0	17.3	20.0	21.6	25.0	25	25				
	19.2	65,530	single	1,700	7.0	69.3	80.0	76.3	87.0	95.4	108.8	100	110				
	19.2	65,530	L1/L2		7.0	34.7	40.0	41.7	47.0	52.1	58.8	60	60				
		L3/L4	-	34.7	40.0	34.7	40.0	43.4	50.0	50	50						

7/11/08

Rated Voltage of 208/230/60/1
HACR circuit breaker in USA only

Low Voltage Point to Point Wiring



Air Handler transformer must be 75VA.

5/29/08

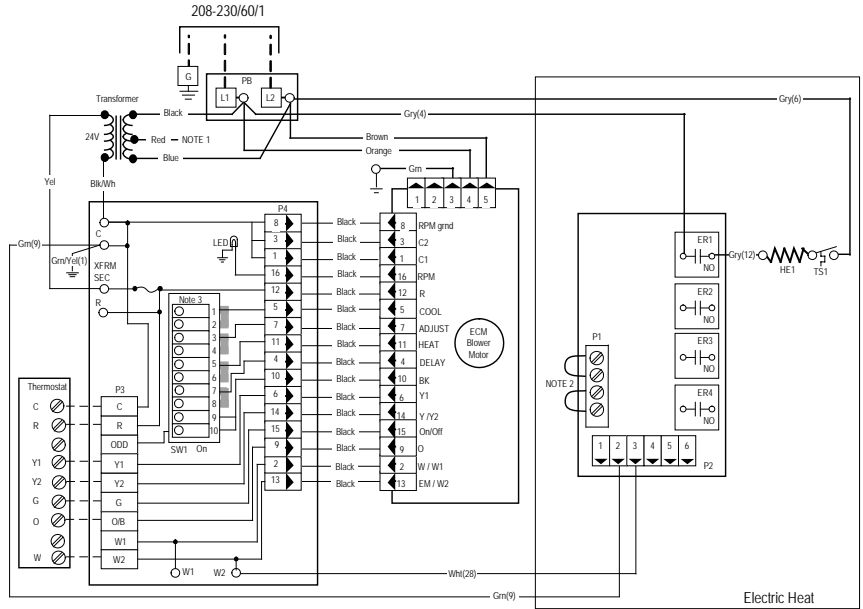
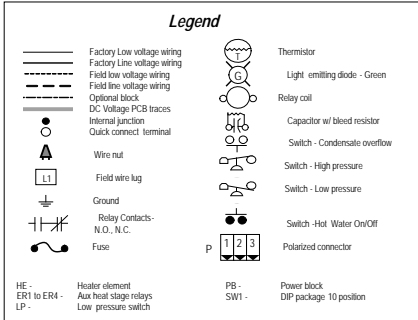
Contractor: _____ P.O.: _____

Engineer: _____

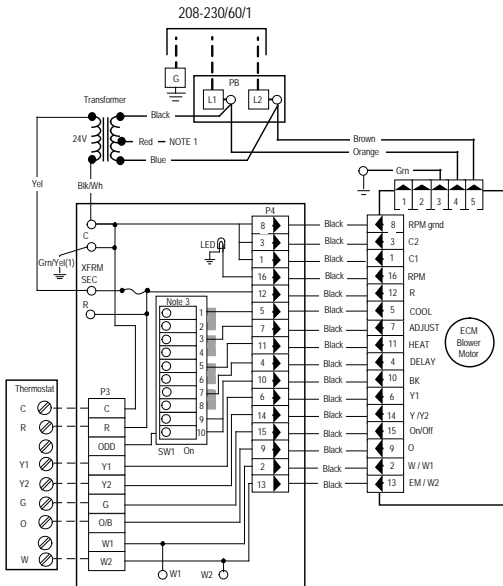
Project Name: _____ Unit Tag: _____



Wiring Schematics

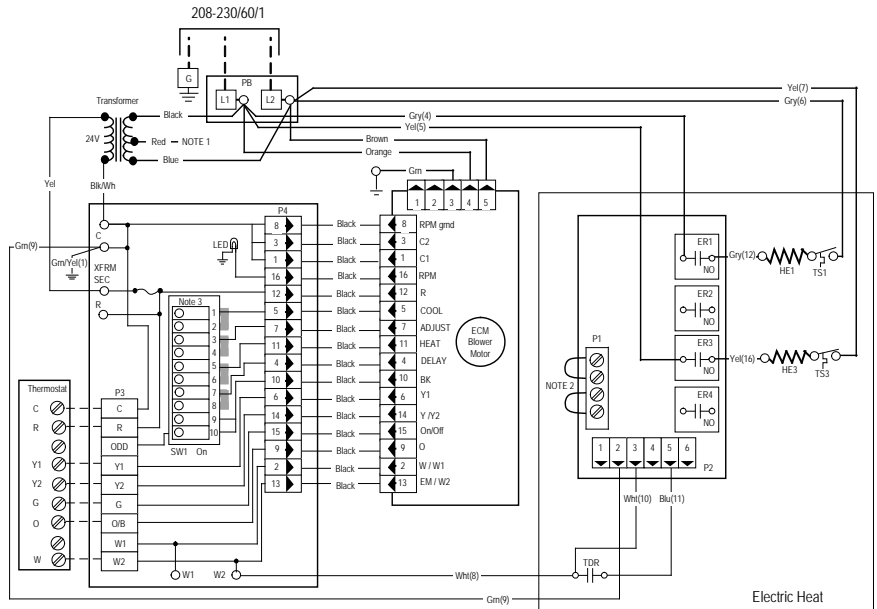


Air Handler w/ 5kW Electric Heat



Air Handler No Electric Heat

Notes:
1 - To operate in 208V mode replace the blue transformer wire connected to PB-L2 with red transformer wire.
2 - Jumper wires tie stages (1) with (2) and (3) with (4).
3 - Dip switches are used to select the air flow.



Air Handler w/ 10kW Electric Heat

97P787-01 02/05/13

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

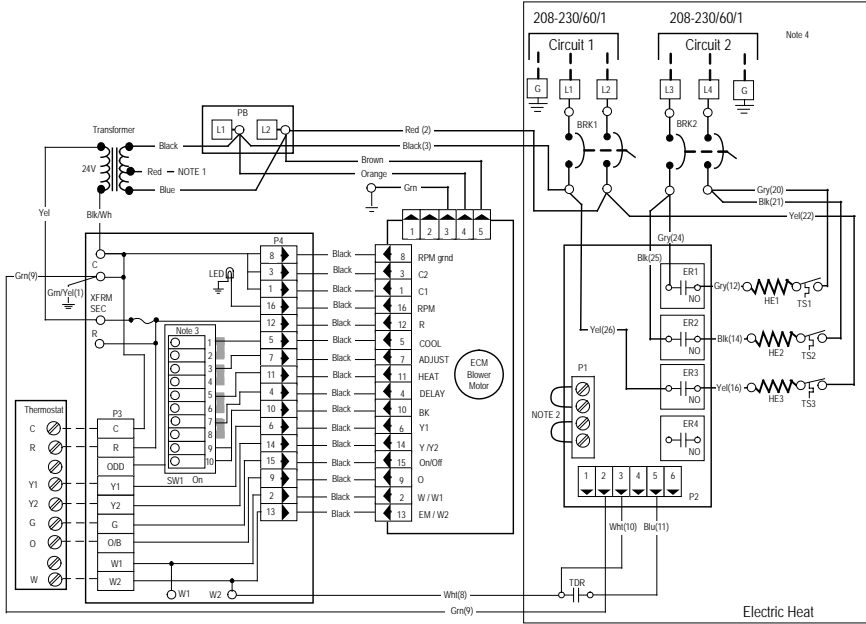
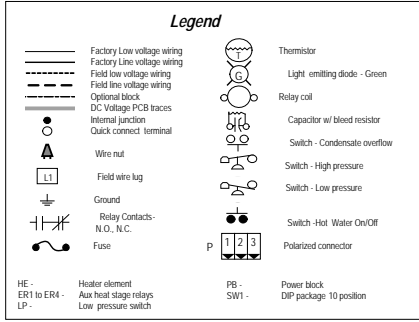
Contractor: _____ P.O.: _____

Engineer: _____

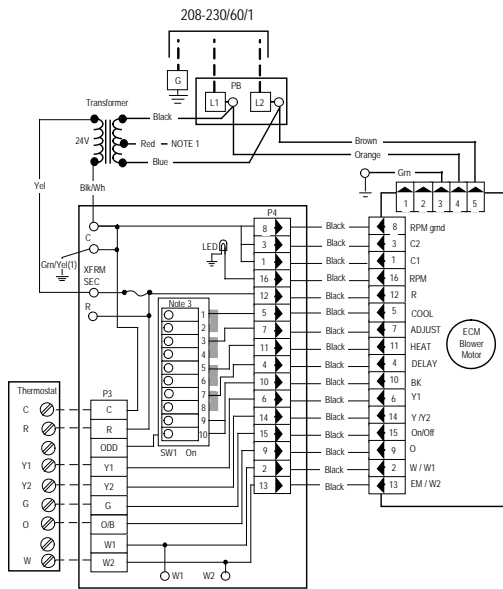
Project Name: _____ Unit Tag: _____



Wiring Schematics cont.

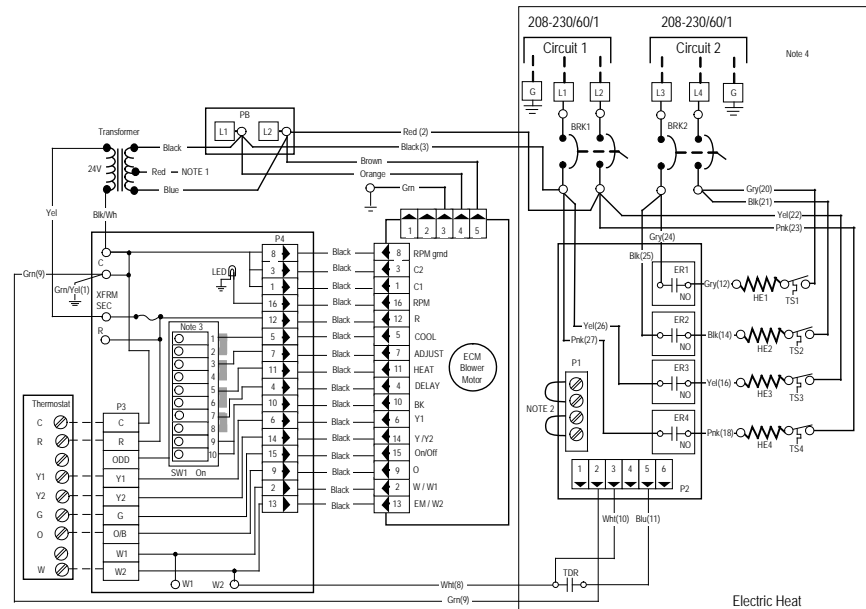


Air Handler w/ 15kW Electric Heat



Air Handler No Electric Heat

- Notes:
- 1 - To operate in 208V mode replace the blue transformer wire connected to PB-L2 with red transformer wire.
 - 2 - Jumper wire ties stages (1) with (2) and (3) with (4).
 - 3 - Dip switches are used to select the air flow.
 - 4 - For single circuit operation field supplied jumper wires should be applied between L1 & L3 and L2 & L4. Jumper wires must be sized to carry the single circuit ampacity of the equipment.



Air Handler w/ 20kW Electric Heat

97P787-01 02/05/13

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____



Engineering Guide Specifications

General

The air handler shall provide vertical upflow, downflow, or horizontal configurations in one package. Units shall be listed by a nationally recognized safety-testing laboratory or agency, such as Underwriter's Laboratory (UL) or Environmental Testing Laboratories (Intertek-ETL). The air handler units shall be designed and ARI performance listed to operate with the G Series geothermal split condensing units. Each unit shall be pallet mounted and shipped using dense cardboard corners/top and stretch wrap for easy shipping damage inspection.

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and polyester powder coat paint to withstand 1000 hours of salt spray testing. The interior shall be insulated with 1/2"-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. One large blower compartment access panel shall be provided and shall be removable with supply and return ductwork in place. The internal components layout shall provide for major service with the unit in-place for restricted access installations. The blower assembly access shall be slide-out serviceable via a 'works-in-a-drawer' design. The cabinet shall be convertible to horizontal or downflow applications by reconfiguring the cabinet using only a nut driver. The unit shall be 'zero clearance' approved on any of its surfaces. The cabinet shall be divided into two cubes to facilitate easy transport up attic ladders when needed. Standard-size MERV 3 1" filters shall be provided with each unit.

Refrigeration Circuit

All units shall provide a fin tube air-to-refrigerant heat exchanger of the "A" coil design. The finned tube coil shall be sized for low-face velocity and constructed of lanced aluminum fins bonded to rifled copper tubes in a staggered pattern. The coil shall include an integral corrosion resistant e-coated galvanized steel drain pan.

The thermal expansion valve shall be factory installed and provide proper superheat over the entire liquid temperature range with minimal "hunting." The valve shall operate in the cooling mode through the use of an internal check valve.

Blower Motor and Assembly

The blower shall be an oversized direct drive centrifugal type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low outlet velocity operation and of galvanized or galvalume steel construction. Tight blower housing geometry shall not be permitted. The blower housing shall be removable from the unit without disconnecting the supply air ductwork for servicing of the blower motor through a 'works-in-a-drawer' design. The high efficiency blower motor shall be a variable speed ECM type. The blower motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated ball bearings and have thermal overload protection.

Electrical

A solid state electronic control module shall be provided for the control of the blower and each stage of electric heat. Single or dual circuit line voltage terminal blocks shall be provided for the air handler power supply. Fuse protection shall be provided for the 75 VA control transformer. Units shall have knockouts for entrance of the low and line voltage wiring. The blower motor shall incorporate a harness plug-connection for easy removal. An integral circuit breaker shall be provided on all units employing 15 or 20 kW electric heat. The control shall maintain the blower operation 30 seconds after the compressor or electric heat have shut off to improve efficiency.

Piping

Refrigerant connections shall be made using sweat copper joints. The condensate connections shall be a 3/4" O.D. tube on DX coils, and 3/4" on hydronic coils.

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____



Revision Guide

Pages:	Description:	Date:	By:
All	Updated Dimensional Data for New Vertical Condensate Drain	02 May 2014	DS
All	Updated Nomenclature For New ECM Motor	20 Feb 2013	DS
13	Added Revision Guide	20 Feb 2013	DS
2,4-6,11	Drain Pan Update	20 May 2014	DS/MA