

Email: jlegler@boundshvac.com

Project Information

For: Dobin, Ronald Clark Construction

Notes:



Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

Outside db	33 °F
Inside db	68 °F
Design TD	35 °F

Heating Summary

Structure	19765	Btuh
Ducts	6141	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	25906	Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

	Heating	Cooling
Area (ft ²)	1805	1805
Volume (ft ³)	16241	16241
Air changes/hour	0.26	0.14
Equiv. AVF (cfm)	70	38

Heating Equipment Summary

Make	Carrier
Trade	
Model	CH14NB03600G0B0
AHRI ref	9162429

Efficiency	8.2 HSPF
Heating input	
Heating output	33800 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1100 cfm
Air flow factor	0.042 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 27 °F	

Backup:
Input = 0 kW, Output = 0 Btuh, 100 AFUE

Summer Design Conditions

Outside db	92 °F
Inside db	75 °F
Design TD	17 °F
Daily range	M
Relative humidity	50 %
Moisture difference	47 gr/lb

Sensible Cooling Equipment Load Sizing

Structure	16734	Btuh
Ducts	7745	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.97	
Equipment sensible load	23744	Btuh

Latent Cooling Equipment Load Sizing

Structure	2015	Btuh
Ducts	1651	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	3665	Btuh
Equipment Total Load (Sen+Lat)	27410	Btuh
Req. total capacity at 0.70 SHR	2.8	ton

Cooling Equipment Summary

Make	Carrier		
Trade			
Cond	CH14NB03600G0B0		
Coil	FB4CNP036L		
AHRI ref	9162429		
Efficiency	11.5 EER, 14 SEER		
Sensible cooling		23100	Btuh
Latent cooling		9900	Btuh
Total cooling		33000	Btuh
Actual air flow		1100	cfm
Air flow factor		0.045	cfm/Btuh
Static pressure		0.50	in H2O
Load sensible heat ratio		0.87	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



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2021-Mar-09 08:58:22

Page 1



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job:
Date: Mar 09, 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Dobin, Ronald Clark Construction

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	24479	Btuh	Entering coil DB:	77.2°F
Outdoor design WB:	76.3°F	Latent gain:	3665	Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	28144	Btuh		
Indoor RH:	50%	Estimated airflow:	1100	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	CH14NB03600G0B0+FB4CNP036L
Actual airflow:	1100	cfm	
Sensible capacity:	23100	Btuh	94% of load
Latent capacity:	9900	Btuh	270% of load
Total capacity:	33000	Btuh	117% of load SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	25906	Btuh	Entering coil DB:	67.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	CH14NB03600G0B0+FB4CNP036L
Actual airflow:	1100	cfm	
Output capacity:	33800	Btuh	130% of load
Supplemental heat required:	0	Btuh	
			Capacity balance: 27 °F
			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	1100	cfm	
Output capacity:	0	kW	0% of load Temp. rise: 0 °F

Meets all requirements of ACCA Manual S.



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Page 1



Load Short Form

Entire House

Bounds Heating and Air

Job:
Date: Mar 09, 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Dobin, Ronald Clark Construction

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	68	75	Construction quality	Semi-tight
Design TD (°F)	35	17	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	47		

HEATING EQUIPMENT

Make	Carrier
Trade	
Model	CH14NB03600G0B0
AHRI ref	9162429
Efficiency	8.2 HSPF
Heating input	
Heating output	33800 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1100 cfm
Air flow factor	0.042 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 27 °F	

Backup:

Input = 0 kW, Output = 0 Btuh, 100 AFUE

COOLING EQUIPMENT

Make	Carrier
Trade	
Cond	CH14NB03600G0B0
Coil	FB4CNP036L
AHRI ref	9162429
Efficiency	11.5 EER, 14 SEER
Sensible cooling	23100 Btuh
Latent cooling	9900 Btuh
Total cooling	33000 Btuh
Actual air flow	1100 cfm
Air flow factor	0.045 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.87

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
bedroom 1	178	3431	2204	146	99
bath	81	1225	637	52	29
bedroom 2	182	3817	3171	162	143
hall	32	0	0	0	0
great room	694	6996	9061	297	407
kitchen	163	1693	2831	72	127
wic	36	42	71	2	3
master bedroom	284	5374	4256	228	191
master bath	66	847	442	36	20
laundry	88	2481	1806	105	81

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Page 1



Duct System Summary

Entire House

Bounds Heating and Air

Job:
Date: Mar 09, 2021
By:

Email: jiegler@boundshvac.com

Project Information

For: Dobin, Ronald Clark Construction

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.50 in H2O	0.50 in H2O
Supply / return available pressure	0.379 / 0.121 in H2O	0.379 / 0.121 in H2O
Lowest friction rate	0.238 in/100ft	0.238 in/100ft
Actual air flow	1100 cfm	1100 cfm
Total effective length (TEL)	210 ft	

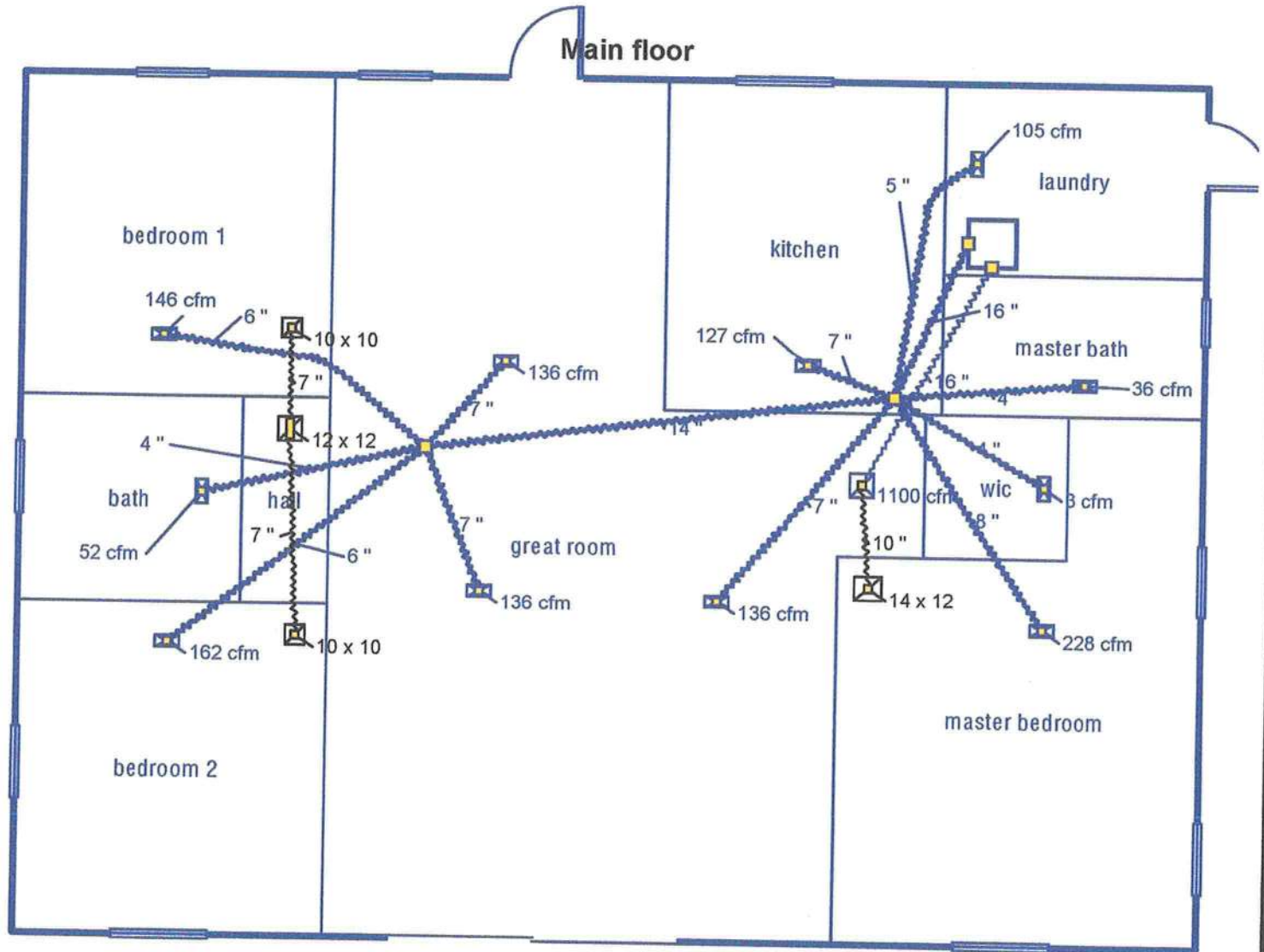
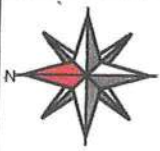
Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
bath	h 1225	52	29	0.259	4.0	0x 0	VIFx	36.7	110.0	st2
bedroom 1	h 3431	146	99	0.238	6.0	0x 0	VIFx	39.5	120.0	st2
bedroom 2	h 3817	162	143	0.252	6.0	0x 0	VIFx	40.7	110.0	st2
great room	c 3021	99	136	0.267	7.0	0x 0	VIFx	32.1	110.0	st2
great room-A	c 3020	99	136	0.264	7.0	0x 0	VIFx	33.6	110.0	st2
great room-B	c 3020	99	136	0.349	7.0	0x 0	VIFx	18.7	90.0	st1
kitchen	c 2831	72	127	0.375	7.0	0x 0	VIFx	11.2	90.0	st1
laundry	h 2481	105	81	0.334	5.0	0x 0	VIFx	18.5	95.0	st1
master bath	h 847	36	20	0.360	4.0	0x 0	VIFx	15.3	90.0	st1
master bedroom-A	h 5374	228	191	0.348	8.0	0x 0	VIFx	18.9	90.0	st1
wic	c 71	2	3	0.363	4.0	0x 0	VIFx	14.6	90.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	Peak AVF	558	542	0.238	522	14.0	0 x 0	VinIFlx	st1
st1	Peak AVF	1100	1100	0.238	788	16.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden



Job #:
Performed for:
Dobin

Bounds Heating and Air

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Scale: 1 : 83

Page 1
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Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x 0	1100	1100	50.7	0.238	504	20.0	0x 0		VIFx	rst2

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst2	Peak AVF	1100	1100	0.238	788	<i>16.0</i>	<i>0 x 0</i>	VinIFlx	

Bold/italic values have been manually overridden



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Page 2

Entire House	d	1805	25906	24479	1100	1100
Other equip loads			0	0		
Equip. @ 0.97 RSM				23744		
Latent cooling				3665		
TOTALS		1805	25906	27410	1100	1100

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



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Page 2

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