



Manual S Compliance Report
Entire House
Bounds Heating and Air

Job:
 Date: **Oct 21, 2020**
 By:

Email: jlegler@boundshvac.com

Project Information

For: Thomas, Amira

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	28925 Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.3°F	Latent gain:	4581 Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	33506 Btuh		
Indoor RH:	50%	Estimated airflow:	1333 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	CH14NB04200G0A0+FB4CNF042L++TXV	
Actual airflow:	1333 cfm			
Sensible capacity:	28000 Btuh	97% of load		
Latent capacity:	12000 Btuh	262% of load		
Total capacity:	40000 Btuh	119% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	37435 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:	CH14NB04200G0A0+FB4CNF042L++TXV	
Actual airflow:	1333 cfm			
Output capacity:	41000 Btuh	110% of load		Capacity balance: 32 °F
Supplemental heat required:	0 Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1333 cfm			
Output capacity:	0 kW	0% of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.





Load Short Form
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Design Information

	Htg	Clg	Method	Infiltration
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	68	75	Construction quality	Semi-tight
Design TD (°F)	35	17	Fireplaces	1 (Average)
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	47		

HEATING EQUIPMENT

Make	Carrier
Trade	
Model	CH14NB04200G0A0
AHRI ref	9162729
Efficiency	8.2 HSPF
Heating input	
Heating output	41000 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1333 cfm
Air flow factor	0.036 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 32 °F	

COOLING EQUIPMENT

Make	Carrier
Trade	
Cond	CH14NB04200G0A0
Coil	FB4CNF042L++TXV
AHRI ref	9162729
Efficiency	11.5 EER, 14 SEER
Sensible cooling	28000 Btuh
Latent cooling	12000 Btuh
Total cooling	40000 Btuh
Actual air flow	1333 cfm
Air flow factor	0.046 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.86

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

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
bedroom 3	178	5304	2748	189	127
bath 3	68	885	521	31	24
bath 2	68	885	521	31	24
bedroom 2	173	2476	2504	88	115
hall	56	0	0	0	0
office	113	3199	1993	114	92
living/dining	617	9216	7324	328	338
pantry	72	1678	877	60	40
kitchen	253	2260	3103	80	143
hall 2	81	713	477	25	22
master suite	252	4507	2929	160	135
laundry	103	171	979	6	45
ah	31	0	0	0	0
wic	123	1766	1090	63	50

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



toilet		26	821	660	29	30
master bath		160	3555	3200	127	147
Entire House	d	2374	37435	28925	1333	1333
Other equip loads			0	0		
Equip. @ 0.97 RSM				28057		
Latent cooling				4581		
TOTALS		2374	37435	32638	1333	1333

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Project Summary
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Bounds Heating and Air

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Project Information

For: Thomas, Amira

Notes:

Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

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

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

Heating Summary

Structure 29361 Btuh
 Ducts 8074 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 37435 Btuh

Sensible Cooling Equipment Load Sizing

Structure 18877 Btuh
 Ducts 10048 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 28057 Btuh

Infiltration

Method Simplified
 Construction quality Semi-tight
 Fireplaces 1 (Average)

Latent Cooling Equipment Load Sizing

Structure 2395 Btuh
 Ducts 2187 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Equipment latent load 4581 Btuh

	Heating	Cooling
Area (ft ²)	2374	2374
Volume (ft ³)	23739	23739
Air changes/hour	0.27	0.11
Equiv. AVF (cfm)	107	44

Equipment Total Load (Sen+Lat) 32638 Btuh
 Req. total capacity at 0.70 SHR 3.3 ton

Heating Equipment Summary

Make Carrier
 Trade
 Model CH14NB04200G0A0
 AHRI ref 9162729

Efficiency 8.2 HSPF
 Heating input
 Heating output 41000 Btuh @ 47°F
 Temperature rise 28 °F
 Actual air flow 1333 cfm
 Air flow factor 0.036 cfm/Btuh
 Static pressure 0.50 in H2O
 Space thermostat
 Capacity balance point = 32 °F

Cooling Equipment Summary

Make Carrier
 Trade
 Cond CH14NB04200G0A0
 Coil FB4CNF042L++TXV
 AHRI ref 9162729

Efficiency 11.5 EER, 14 SEER
 Sensible cooling 28000 Btuh
 Latent cooling 12000 Btuh
 Total cooling 40000 Btuh
 Actual air flow 1333 cfm
 Air flow factor 0.046 cfm/Btuh
 Static pressure 0.50 in H2O
 Load sensible heat ratio 0.86

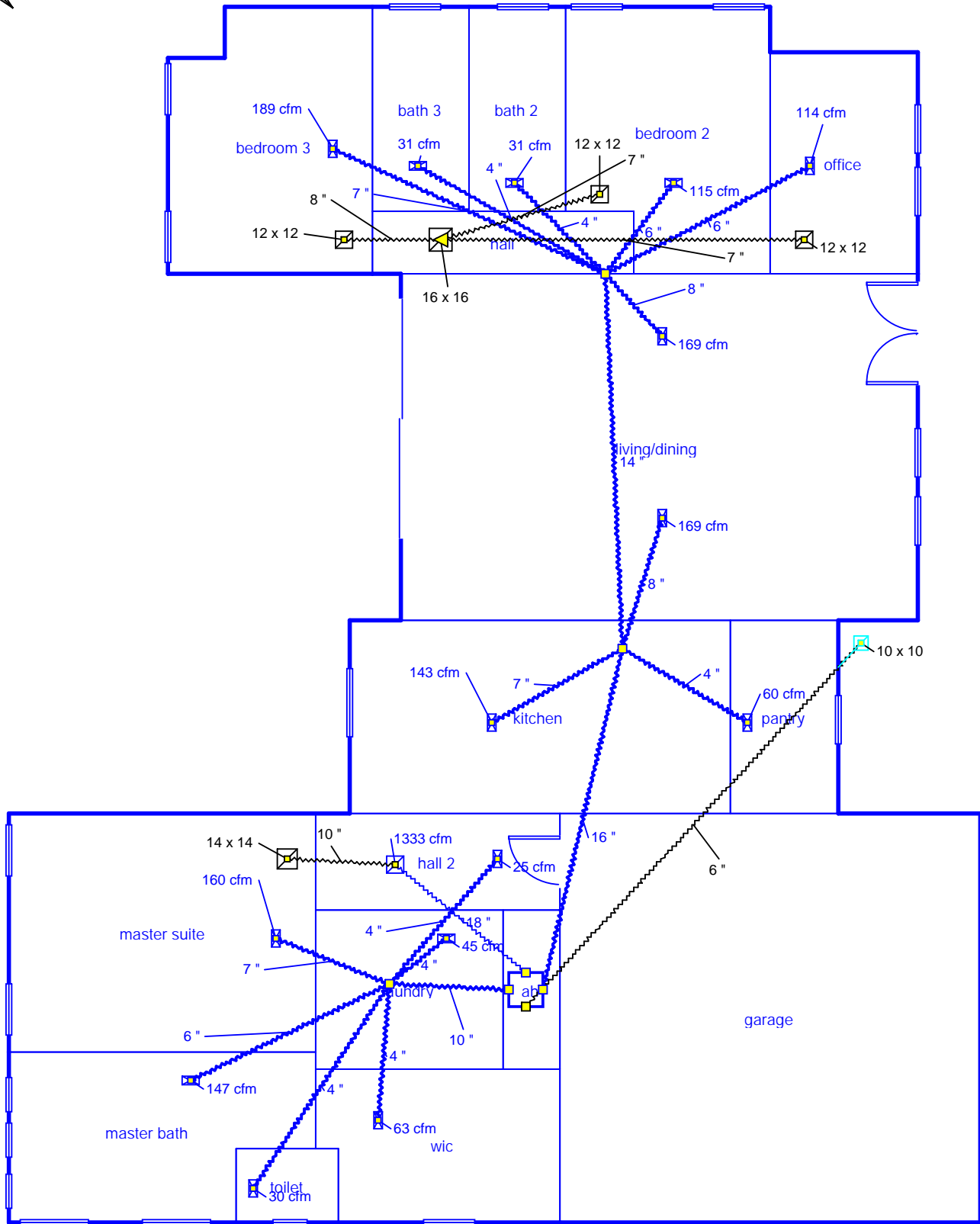
Backup:
 Input = 0 kW, Output = 0 Btuh, 100 AFUE

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





Main floor



Job #:
Performed for:
Thomas

Bounds Heating and Air

jlegler@boundshvac.com

Scale: 1 : 103

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Duct System Summary

Entire House
Bounds Heating and Air

Job:
Date: Oct 21, 2020
By:

Email: jlegler@boundshvac.com

Project Information

For: Thomas, Amira

	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	0.387 / 0.113 in H2O	0.387 / 0.113 in H2O
Lowest friction rate	0.227 in/100ft	0.227 in/100ft
Actual air flow	1333 cfm	1333 cfm
Total effective length (TEL)		220 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 2	h 885	31	24	0.241	4.0	0x0	VIFx	50.1	110.0	st3
bath 3	h 885	31	24	0.234	4.0	0x0	VIFx	55.3	110.0	st3
bedroom 2	c 2504	88	115	0.243	6.0	0x0	VIFx	49.2	110.0	st3
bedroom 3	h 5304	189	127	0.227	7.0	0x0	VIFx	60.2	110.0	st3
hall 2	h 713	25	22	0.362	4.0	0x0	VIFx	16.7	90.0	st2
kitchen	c 3103	80	143	0.324	7.0	0x0	VIFx	29.3	90.0	st1
laundry	c 979	6	45	0.382	4.0	0x0	VIFx	11.3	90.0	st2
living/dining	c 3662	164	169	0.326	8.0	0x0	VIFx	28.6	90.0	st1
living/dining-A	c 3662	164	169	0.245	8.0	0x0	VIFx	47.5	110.0	st3
master bath	c 3200	127	147	0.351	6.0	0x0	VIFx	20.0	90.0	st2
master suite	h 4507	160	135	0.371	7.0	0x0	VIFx	14.2	90.0	st2
office	h 3199	114	92	0.233	6.0	0x0	VIFx	56.1	110.0	st3
pantry	h 1678	60	40	0.325	4.0	0x0	VIFx	29.1	90.0	st1
toilet	c 660	29	30	0.347	4.0	0x0	VIFx	21.4	90.0	st2
wic	h 1766	63	50	0.368	4.0	0x0	VIFx	15.0	90.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	Peak AVF	618	551	0.227	578	14.0	0 x 0	VinIFlx	st1
st1	Peak AVF	922	903	0.227	661	16.0	0 x 0	VinIFlx	
st2	Peak AVF	411	430	0.347	789	10.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden

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	0x0	1333	1333	49.9	0.227	505	22.0	0x 0		VIFx	rst4

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst4	Peak AVF	1333	1333	0.227	754	<i>18.0</i>	<i>0 x 0</i>	VinIFlx	

Bold/italic values have been manually overridden