



Manual S Compliance Report
Entire House
Bounds Heating and Air

Job:
 Date: Jul 26, 2021
 By:

Email: jlegler@boundshvac.com

Project Information

For: Hicks, Amira Custom Homes

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	28938 Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.3°F	Latent gain:	4559 Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	33497 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	263% of load		
Total capacity:	40000 Btuh	119% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	34665 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	118% of load		Capacity balance: 30 °F
Supplemental heat required:	0 Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1333 cfm			
Output capacity:	10.0 kW	99% of load	Temp. rise:	50 °F

Meets all requirements of ACCA Manual S.





Load Short Form
Entire House
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Design Information

	Htg	Clg	Method	Infiltration
Outside db (°F)	33	92		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	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	0.038 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 30 °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 = 10 kW, Output = 34145 Btuh, 100 AFUE

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
master suite	289	6334	5049	244	233
powder	31	1247	521	48	24
ah	18	0	0	0	0
drop zone	125	264	346	10	16
bedroom 3	165	1769	1308	68	60
j&j a	42	60	101	2	5
wic 3	35	575	203	22	9
j&j b	46	1432	491	55	23
pantry	36	52	87	2	4
wic 2	25	36	60	1	3
bedroom 2	165	2546	2221	98	102
butler	44	848	524	33	24
dining	167	2802	2560	108	118
kitchen/living	609	6474	7044	249	325

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



foyer		56	1472	697	57	32
study		120	2499	2724	96	126
hall 1		34	0	0	0	0
laundry		75	592	1352	23	62
wic		171	2661	2233	102	103
toilet		27	1160	377	45	17
master bath		186	1841	1041	71	48
Entire House	d	2465	34665	28938	1333	1333
Other equip loads			0	0		
Equip. @ 0.97 RSM				28070		
Latent cooling				4559		
TOTALS		2465	34665	32629	1333	1333

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Project Summary
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Project Information

For: Hicks, Amira Custom Homes

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 26375 Btuh
 Ducts 8290 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 34665 Btuh

Sensible Cooling Equipment Load Sizing

Structure 18656 Btuh
 Ducts 10282 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 28070 Btuh

Infiltration

Method Simplified
 Construction quality Semi-tight
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2304 Btuh
 Ducts 2255 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Equipment latent load 4559 Btuh

	Heating	Cooling
Area (ft ²)	2465	2465
Volume (ft ³)	22188	22188
Air changes/hour	0.22	0.11
Equiv. AVF (cfm)	81	41

Equipment Total Load (Sen+Lat) 32629 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 0.038 cfm/Btuh
 Static pressure 0.50 in H2O
 Space thermostat
 Capacity balance point = 30 °F

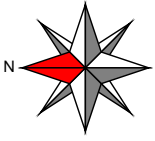
Cooling Equipment Summary

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

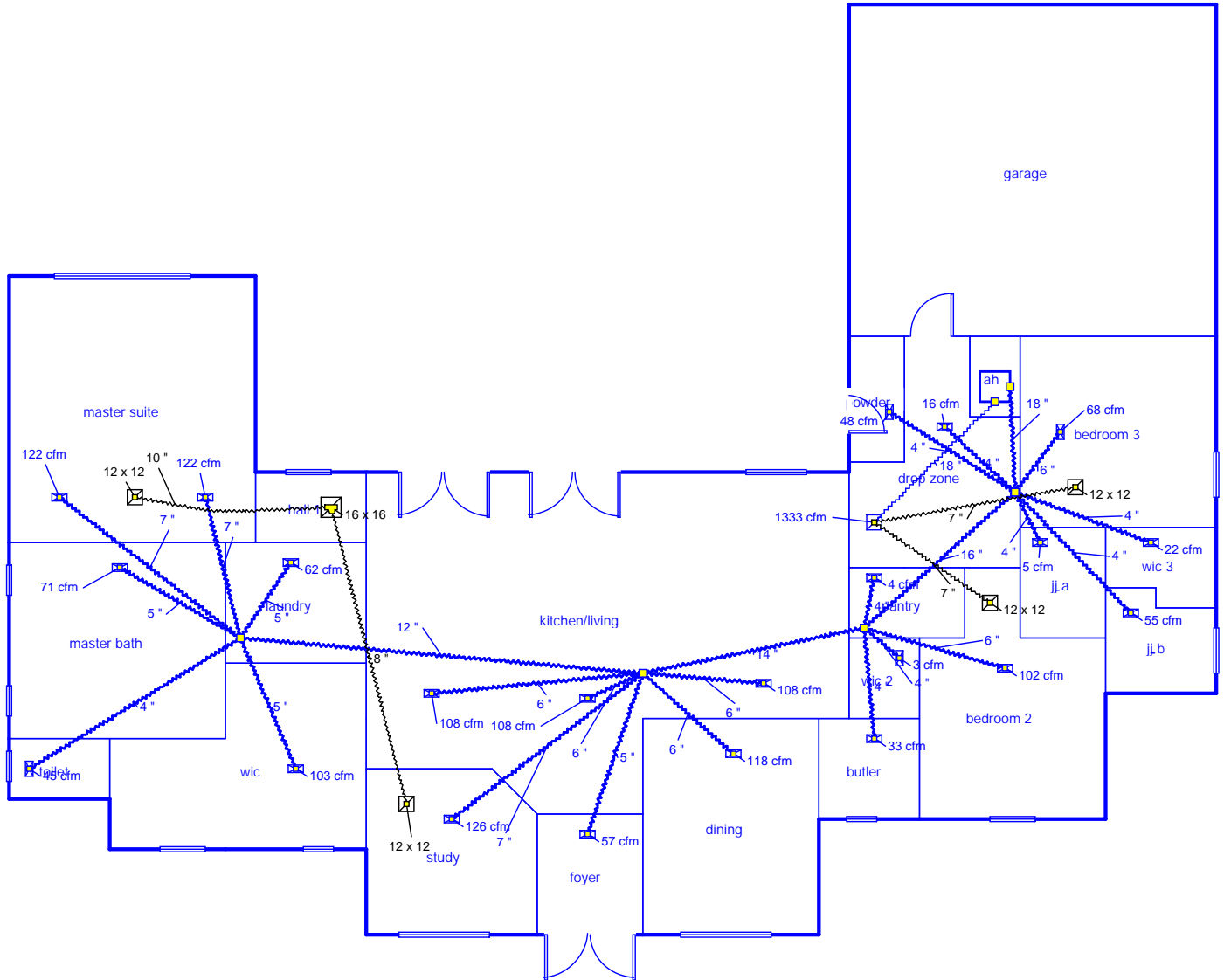
Backup:
 Input = 10 kW, Output = 34145 Btuh, 100 AFUE

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





Main floor



Job #:
Performed for:
Hicks

Bounds Heating and Air

jlegler@boundshvac.com

Scale: 1 : 133

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Duct System Summary

Entire House

Bounds Heating and Air

Job:
Date: Jul 26, 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Hicks, Amira Custom Homes

	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	0.408 / 0.092 in H2O	0.408 / 0.092 in H2O
Lowest friction rate	0.179 in/100ft	0.179 in/100ft
Actual air flow	1333 cfm	1333 cfm
Total effective length (TEL)		280 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	
bedroom 2	c	2221	98	102	0.291	6.0	<i>0x0</i>	VIFx	30.2	110.0	st2
bedroom 3	h	1769	68	60	0.400	6.0	<i>0x0</i>	VIFx	12.0	90.0	st1
butler	h	848	33	24	0.296	4.0	<i>0x0</i>	VIFx	27.8	110.0	st2
dining	c	2560	108	118	0.235	6.0	<i>0x0</i>	VIFx	43.5	130.0	st3
drop zone	c	346	10	16	0.395	4.0	<i>0x0</i>	VIFx	13.4	90.0	st1
foyer	h	1472	57	32	0.231	5.0	<i>0x0</i>	VIFx	46.7	130.0	st3
j&j a	c	101	2	5	0.405	4.0	<i>0x0</i>	VIFx	10.7	90.0	st1
j&j b	h	1432	55	23	0.378	4.0	<i>0x0</i>	VIFx	18.1	90.0	st1
kitchen/living	c	2348	83	108	0.228	6.0	<i>0x0</i>	VIFx	49.5	130.0	st3
kitchen/living-A	c	2348	83	108	0.235	6.0	<i>0x0</i>	VIFx	43.5	130.0	st3
kitchen/living-B	c	2348	83	108	0.241	6.0	<i>0x0</i>	VIFx	39.5	130.0	st3
laundry	c	1352	23	62	0.187	5.0	<i>0x0</i>	VIFx	68.2	150.0	st4
master bath	h	1841	71	48	0.184	5.0	<i>0x0</i>	VIFx	71.5	150.0	st4
master suite	h	3167	122	116	0.180	7.0	<i>0x0</i>	VIFx	77.4	150.0	st4
master suite-A	h	3167	122	116	0.184	7.0	<i>0x0</i>	VIFx	71.8	150.0	st4
pantry	c	87	2	4	0.305	4.0	<i>0x0</i>	VIFx	23.9	110.0	st2
powder	h	1247	48	24	0.382	4.0	<i>0x0</i>	VIFx	16.9	90.0	st1
study	c	2724	96	126	0.225	7.0	<i>0x0</i>	VIFx	51.4	130.0	st3
toilet	h	1160	45	17	0.179	4.0	<i>0x0</i>	VIFx	78.7	150.0	st4
wic	c	2233	102	103	0.184	5.0	<i>0x0</i>	VIFx	71.6	150.0	st4
wic 2	c	60	1	3	0.306	4.0	<i>0x0</i>	VIFx	23.5	110.0	st2
wic 3	h	575	22	9	0.383	4.0	<i>0x0</i>	VIFx	16.6	90.0	st1

Bold/italic values have been manually overridden

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	484	463	0.179	617	12.0	0 x 0	VinIFlx	st3
st3	Peak AVF	994	1063	0.179	995	14.0	0 x 0	VinIFlx	st2
st2	Peak AVF	1128	1197	0.179	857	16.0	0 x 0	VinIFlx	st1
st1	Peak AVF	1333	1333	0.179	755	18.0	0 x 0	VinIFlx	

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	51.3	0.179	505	22.0	0x 0		VIFx	rst3

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst3	Peak AVF	1333	1333	0.179	755	18.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden

