



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job:
Date: May 17, 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: DeLoach, Amira Builders

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	26308 Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.3°F	Latent gain:	4515 Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	30823 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	106% of load	
Latent capacity:	12000 Btuh	266% of load	
Total capacity:	40000 Btuh	130% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	32864 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	125% of load	Capacity balance: 29 °F
Supplemental heat required:	0 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	1333 cfm		
Output capacity:	9.1 kW	94% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



Load Short Form

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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	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	0.041 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 29 °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	0.051 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.85

Backup:

Input = 9 kW, Output = 30968 Btuh, 100 AFUE

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
master bath	174	3579	1690	145	86
toilet	23	387	148	16	8
wic	37	619	237	25	12
master suite	258	2453	3191	100	162
hall 1	98	1459	941	59	48
1/2	28	1240	365	50	18
laundry	69	1142	1323	46	67
study	144	2570	1893	104	96
pantry	47	809	305	33	15
kitchen/living	992	9804	10385	398	526
bedroom 2	208	3938	2321	160	118
hall 2	42	0	0	0	0
bath a	44	82	151	3	8
bath b	46	844	313	34	16

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

ah		13	0	0	0	0
bedroom 3		185	3938	3047	160	154
Entire House	d	2409	32864	26308	1333	1333
Other equip loads			0	0		
Equip. @ 0.97 RSM				25519		
Latent cooling				4515		
TOTALS		2409	32864	30034	1333	1333

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Project Summary

Entire House

Bounds Heating and Air

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Project Information

For: DeLoach, Amira Builders

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	24654 Btuh
Ducts	8210 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	32864 Btuh

Sensible Cooling Equipment Load Sizing

Structure	16095 Btuh
Ducts	10213 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	25519 Btuh

Infiltration

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

Latent Cooling Equipment Load Sizing

Structure	2274 Btuh
Ducts	2241 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	4515 Btuh

	Heating	Cooling
Area (ft ²)	2409	2409
Volume (ft ³)	21677	21677
Air changes/hour	0.28	0.11
Equiv. AVF (cfm)	99	40

Equipment Total Load (Sen+Lat)	30034 Btuh
Req. total capacity at 0.70 SHR	3.0 ton

Heating Equipment Summary

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Trade	
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AHRI ref	9162729
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Heating input	
Heating output	41000 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1333 cfm
Air flow factor	0.041 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 29 °F	
Backup:	
Input = 9 kW, Output = 30968 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	
Cond	CH14NB04200G0A0
Coil	FB4CNF042L++TXV
AHRI ref	9162729
Efficiency	11.5 EER, 14 SEER
Sensible cooling	28000 Btuh
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Total cooling	40000 Btuh
Actual air flow	1333 cfm
Air flow factor	0.051 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.85

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

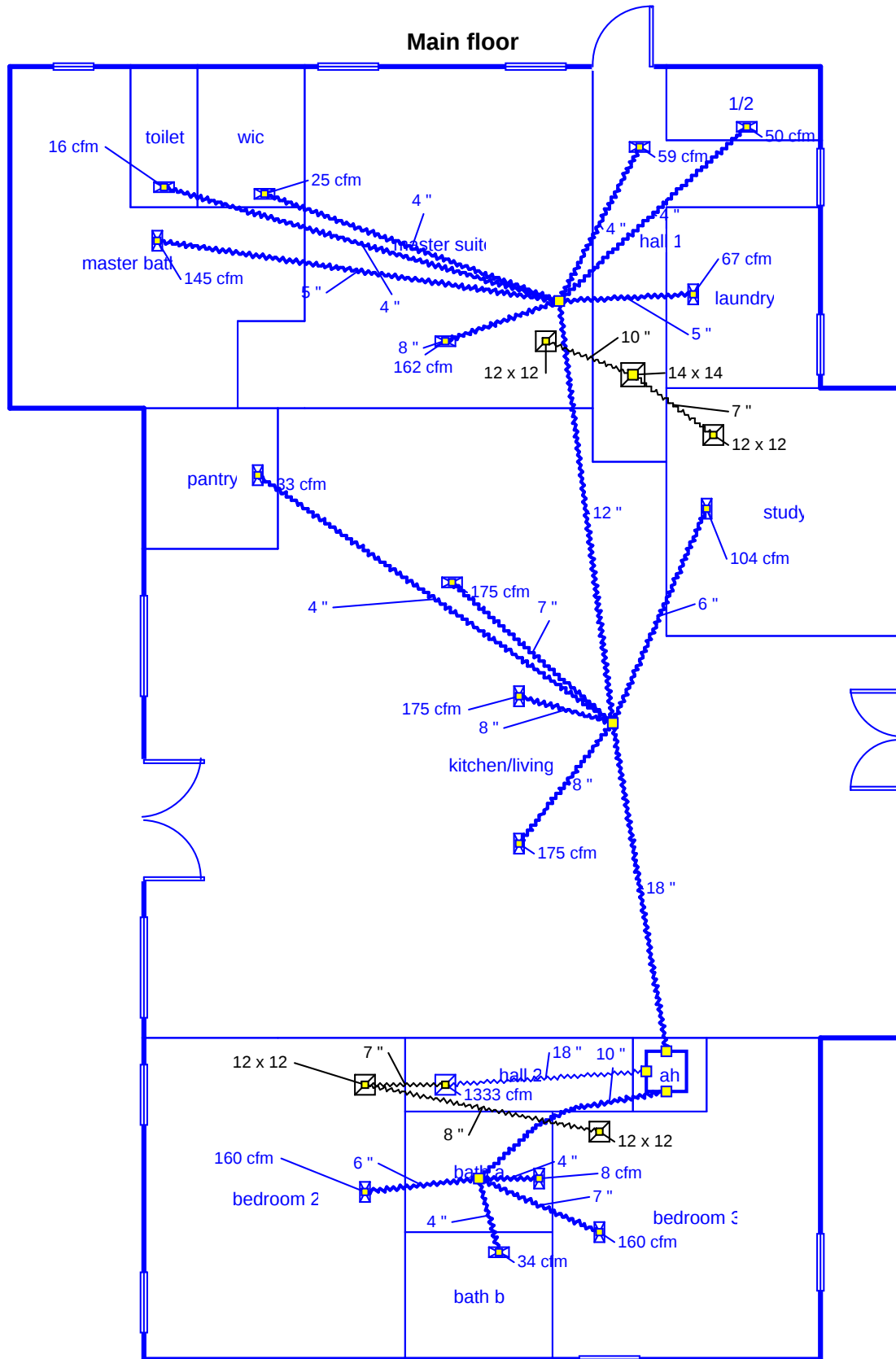


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Job #:
Performed for:
DeLoach

Bounds Heating and Air

jlegler@boundshvac.com

Scale: 1 : 93

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Duct System Summary

Entire House

Bounds Heating and Air

Job:
Date: May 17, 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: DeLoach, Amira Builders

	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Supply / return available pressure	0.385 / 0.115 in H ₂ O	0.385 / 0.115 in H ₂ O
Lowest friction rate	0.229 in/100ft	0.229 in/100ft
Actual air flow	1333 cfm	1333 cfm
Total effective length (TEL)	218 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
1/2	h 1240	50	18	0.240	4.0	0x0	VIFx	50.5	110.0	st3
bath a	c 151	3	8	0.355	4.0	0x0	VIFx	13.7	95.0	st2
bath b	h 844	34	16	0.352	4.0	0x0	VIFx	14.5	95.0	st2
bedroom 2	h 3938	160	118	0.346	6.0	0x0	VIFx	16.4	95.0	st2
bedroom 3	h 3938	160	154	0.343	7.0	0x0	VIFx	17.3	95.0	st2
hall 1	h 1459	59	48	0.246	4.0	0x0	VIFx	46.4	110.0	st3
kitchen/living	c 3462	133	175	0.329	7.0	0x0	VIFx	27.2	90.0	st1
kitchen/living-A	c 3461	133	175	0.346	8.0	0x0	VIFx	21.4	90.0	st1
kitchen/living-B	c 3461	133	175	0.338	8.0	0x0	VIFx	24.2	90.0	st1
laundry	c 1323	46	67	0.250	5.0	0x0	VIFx	44.4	110.0	st3
master bath	h 3579	145	86	0.229	5.0	0x0	VIFx	57.9	110.0	st3
master suite	c 3191	100	162	0.251	8.0	0x0	VIFx	43.7	110.0	st3
pantry	h 809	33	15	0.301	4.0	0x0	VIFx	38.1	90.0	st1
study	h 2570	104	96	0.326	6.0	0x0	VIFx	28.2	90.0	st1
toilet	h 387	16	8	0.229	4.0	0x0	VIFx	58.2	110.0	st3
wic	h 619	25	12	0.236	4.0	0x0	VIFx	53.3	110.0	st3

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	441	400	0.229	562	12.0	0 x 0	VinIFlx	st1
st1	Peak AVF	976	1038	0.229	587	18.0	0 x 0	VinIFlx	
st2	Peak AVF	357	296	0.343	655	10.0	0 x 0	VinIFlx	

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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	1333	1333	50.0	0.229	505	22.0	0x 0		VIFx	rst5

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst5	Peak AVF	1333	1333	0.229	755	18.0	0 x 0	VinIFlx	

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