



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job:
Date: Jun 23, 2020
By: Josh Legler

25645 West Newberry Road, Newberry, FL 32669 Phone: 352-472-2761 Fax: 352-472-1809 Email: jlegler@boundshvac.com Web: www.boundshvac.com

Project Information

For: amira

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	40084 Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.0°F	Latent gain:	6038 Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	46121 Btuh		
Indoor RH:	50%	Estimated airflow:	1883 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	CH17NA0600G00B0+FV4CNB006L
Actual airflow:	1883 cfm		
Sensible capacity:	44125 Btuh	110% of load	
Latent capacity:	8437 Btuh	140% of load	
Total capacity:	52562 Btuh	114% of load	SHR: 84%

Heating Equipment

Design Conditions

Outdoor design DB:	33.0°F	Heat loss:	52331 Btuh	Entering coil DB:	68.9°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	CH17NA0600G00B0+FV4CNB006L
Actual airflow:	1883 cfm		
Output capacity:	46676 Btuh	89% of load	Capacity balance: 31 °F
Supplemental heat required:	5655 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	1883 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	Infiltration	
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	70	75	Construction quality	Semi-tight
Design TD (°F)	37	17	Fireplaces	
Daily range	-	M		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	11	45		

0

HEATING EQUIPMENT

Make Carrier
Trade CARRIER
Model CH17NA0600G00B0
AHRI ref 202345479

Efficiency 9 HSPF
Heating input
Heating output 57000 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 1883 cfm
Air flow factor 0.036 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 31 °F

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

COOLING EQUIPMENT

Make Carrier
Trade CARRIER
Cond CH17NA0600G00B0
Coil FV4CNB006L
AHRI ref 202345479

Efficiency 12.5 EER, 16 SEER
Sensible cooling 39550 Btuh
Latent cooling 16950 Btuh
Total cooling 56500 Btuh
Actual air flow 1883 cfm
Air flow factor 0.047 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)
bonus room	417	5934	3505	214	165
panic room	137	2574	1483	93	70
study	212	3912	2002	141	94
hall	299	4494	1871	162	88
bedroom 5	198	2330	2321	84	109
bath2	68	191	168	7	8
bedroom 2	197	2293	2309	83	108
bath3	79	224	533	8	25
pantry	190	534	530	19	25
laundry	118	3038	2348	109	110
dining	208	2776	2687	100	126
great room	347	4963	6423	179	302
foyer	115	1880	937	68	44
kitchen	325	3690	3902	133	183

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

wic a		104	884	410	32	19
master suite		422	6714	6081	242	286
toilet		21	59	52	2	2
master bath		209	2799	1323	101	62
wic b		149	3041	1201	109	56
Entire House	d	3814	52331	40084	1883	1883
Other equip loads			0	0		
Equip. @ 0.97 RSM				38881		
Latent cooling				6038		
TOTALS		3814	52331	44919	1883	1883

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Project Summary

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Notes:

Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

Outside db	33 °F
Inside db	70 °F
Design TD	37 °F

Summer Design Conditions

Outside db	92 °F
Inside db	75 °F
Design TD	17 °F
Daily range	M
Relative humidity	50 %
Moisture difference	45 gr/lb

Heating Summary

Structure	38912 Btuh
Ducts	13420 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	52331 Btuh

Sensible Cooling Equipment Load Sizing

Structure	23623 Btuh
Ducts	16460 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	38881 Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	3150 Btuh
Ducts	2887 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	6038 Btuh

	Heating	Cooling
Area (ft ²)	3814	3814
Volume (ft ³)	34188	34188
Air changes/hour	0.19	0.10
Equiv. AVF (cfm)	108	57

Equipment Total Load (Sen+Lat)	44919 Btuh
Req. total capacity at 0.70 SHR	4.6 ton

Heating Equipment Summary

Make	Carrier
Trade	CARRIER
Model	CH17NA0600G00B0
AHRI ref	202345479
Efficiency	9 HSPF
Heating input	
Heating output	57000 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1883 cfm
Air flow factor	0.036 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 31 °F	
Backup:	
Input = 0 kW, Output = 0 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	CARRIER
Cond	CH17NA0600G00B0
Coil	FV4CNB006L
AHRI ref	202345479
Efficiency	12.5 EER, 16 SEER
Sensible cooling	39550 Btuh
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Total cooling	56500 Btuh
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Air flow factor	0.047 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.87

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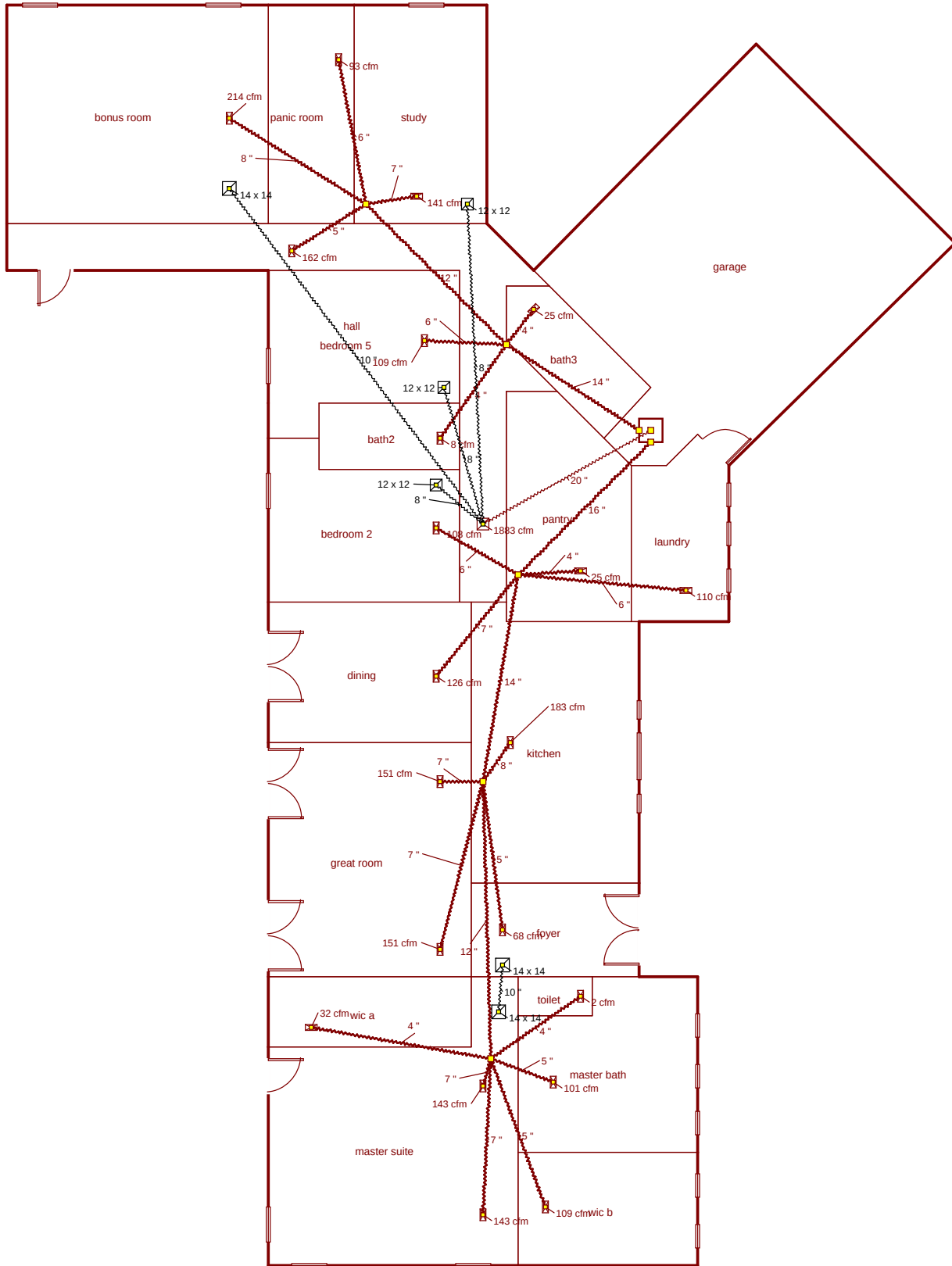
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Job #:
Performed by Josh Legler for:
 amira

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Duct System Summary

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Project Information

For: amira

	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0.23 in H ₂ O	0.23 in H ₂ O
Available static pressure	0.27 in H ₂ O	0.27 in H ₂ O
Supply / return available pressure	0.216 / 0.054 in H ₂ O	0.216 / 0.054 in H ₂ O
Lowest friction rate	0.095 in/100ft	0.095 in/100ft
Actual air flow	1883 cfm	1883 cfm
Total effective length (TEL)	285 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
bath2	c 168	7	8	0.157	4.0	0x0	VIFx	23.3	115.0	st2
bath3	c 533	8	25	0.164	4.0	0x0	VIFx	17.3	115.0	st2
bedroom 2	c 2309	83	108	0.156	6.0	0x0	VIFx	24.1	115.0	st1
bedroom 5	c 2321	84	109	0.160	6.0	0x0	VIFx	20.5	115.0	st2
bonus room	h 5934	214	165	0.121	8.0	0x0	VIFx	44.2	135.0	st5
dining	c 2687	100	126	0.152	7.0	0x0	VIFx	27.2	115.0	st1
foyer	h 1880	68	44	0.119	5.0	0x0	VIFx	46.7	135.0	st3
great room	c 3212	89	151	0.118	7.0	0x0	VIFx	48.7	135.0	st3
great room-A	c 3212	89	151	0.125	7.0	0x0	VIFx	37.6	135.0	st3
hall	h 4494	162	88	0.125	5.0	0x0	VIFx	38.0	135.0	st5
kitchen	c 3902	133	183	0.125	8.0	0x0	VIFx	38.0	135.0	st3
laundry	c 2348	109	110	0.149	6.0	0x0	VIFx	30.4	115.0	st1
master bath	h 2799	101	62	0.099	5.0	0x0	VIFx	63.3	155.0	st4
master suite	c 3040	121	143	0.096	7.0	0x0	VIFx	71.0	155.0	st4
master suite-A	c 3040	121	143	0.101	7.0	0x0	VIFx	60.1	155.0	st4
panic room	h 2574	93	70	0.122	6.0	0x0	VIFx	43.0	135.0	st5
pantry	c 530	19	25	0.159	4.0	0x0	VIFx	21.4	115.0	st1
study	h 3912	141	94	0.127	7.0	0x0	VIFx	34.9	135.0	st5
toilet	c 52	2	2	0.098	4.0	0x0	VIFx	67.0	155.0	st4
wic a	h 884	32	19	0.095	4.0	0x0	VIFx	73.2	155.0	st4
wic b	h 3041	109	56	0.096	5.0	0x0	VIFx	71.1	155.0	st4



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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	486	426	0.095	618	12.0	0 x 0	VinIFlx	st3
st3	Peak AVF	865	955	0.095	893	14.0	0 x 0	VinIFlx	st1
st1	Peak AVF	1176	1325	0.095	949	16.0	0 x 0	VinIFlx	
st5	Peak AVF	609	416	0.121	775	12.0	0 x 0	VinIFlx	st2
st2	Peak AVF	708	558	0.121	662	14.0	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	0x 0	1883	1883	56.4	0.095	599	24.0	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	1883	1883	0.095	863	20.0	0 x 0	VinIFlx	