Manual S Compliance Report
Entire House
Bounds Heating and Air

Job:
Date: Apr 22, 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

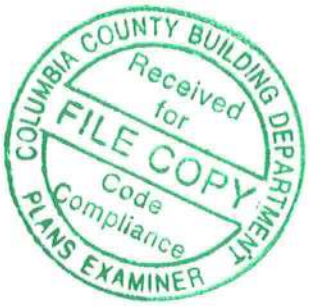
Project Information

For: Amira

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	19276	Btuh	Entering coil DB: 75.0°F
Outdoor design WB:	76.0°F	Latent gain:	2111	Btuh	Entering coil WB: 62.5°F
Indoor design DB:	75.0°F	Total gain:	21387	Btuh	
Indoor RH:	50%	Estimated airflow:	1100	cfm	



Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier		Model:	CH17NA03600G+FV4CNF002L00
Actual airflow:	1100	cfm		
Sensible capacity:	25235	Btuh	131% of load	
Latent capacity:	4862	Btuh	230% of load	
Total capacity:	30098	Btuh	141% of load	SHR: 84%

Heating Equipment

Design Conditions

Outdoor design DB:	33.0°F	Heat loss:	25250	Btuh	Entering coil DB: 70.0°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Carrier		Model:	CH17NA03600G+FV4CNF002L00	
Actual airflow:	1100	cfm			
Output capacity:	33800	Btuh	134% of load		Capacity balance: 26 °F
Supplemental heat required:	0	Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip				
Manufacturer:			Model:		
Actual airflow:	1100	cfm			
Output capacity:	7.8	kW	105% of load	Temp. rise:	50 °F

Meets all requirements of ACCA Manual S.

Load Short Form
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Design Information

	Htg	Clg
Outside db (°F)	33	92
Inside db (°F)	70	75
Design TD (°F)	37	17
Daily range	-	M
Inside humidity (%)	30	50
Moisture difference (gr/lb)	11	45

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

HEATING EQUIPMENT

Make	Carrier
Trade	CARRIER
Model	CH17NA03600G
AHRI ref	

Efficiency	8.2 HSPF	
Heating input		
Heating output	33800	Btuh @ 47°F
Temperature rise	28	°F
Actual air flow	1100	cfm
Air flow factor	0.044	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

Capacity balance point = 26 °F

Backup:
Input = 8 kW, Output = 26553 Btuh, 100 AFUE

COOLING EQUIPMENT

Make	Carrier
Trade	CARRIER
Cond	CH17NA03600G
Coil	FV4CNF002L00
AHRI ref	

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	0.057	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.90	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Bedroom 3	189	3396	1628	148	93
Bath	72	929	370	40	21
Bedroom 2	194	3400	2262	148	129
Hall 2	59	0	0	0	0
Great room	374	3025	2242	132	128
Foyer	69	1351	435	59	25
Office	144	2226	1998	97	114
Kitchen/Nook	400	3432	4428	149	253
Pantry	59	1101	1163	48	66
Hall	70	450	280	20	16
Laundry	72	151	604	7	34
toilet	22	556	169	24	10
Mastert bath	116	1834	964	80	55
Master bedroom	235	2303	2308	100	132

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

wic		117	1097	426	48	24
Entire House	d	2191	25250	19276	1100	1100
Other equip loads			0	0		
Equip. @ 0.97 RSM				18698		
Latent cooling				2111		
TOTALS		2191	25250	20809	1100	1100

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Project Information

For: Amira

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	25250	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	25250	Btuh

Sensible Cooling Equipment Load Sizing

Structure	19276	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.97	
Equipment sensible load	18698	Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

	Heating	Cooling
Area (ft²)	2192	2192
Volume (ft³)	19724	19724
Air changes/hour	0.22	0.11
Equiv. AVF (cfm)	72	36

Latent Cooling Equipment Load Sizing

Structure	2111	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	2111	Btuh
Equipment Total Load (Sen+Lat)	20809	Btuh
Req. total capacity at 0.70 SHR	2.2	ton

Heating Equipment Summary

Make	Carrier
Trade	CARRIER
Model	CH17NA03600G
AHRI ref	

Efficiency	8.2 HSPF	
Heating input		
Heating output	33800	Btuh @ 47°F
Temperature rise	28	°F
Actual air flow	1100	cfm
Air flow factor	0.044	cfm/Btuh
Static pressure	0.50	in H2O

Space thermostat
Capacity balance point = 26 °F

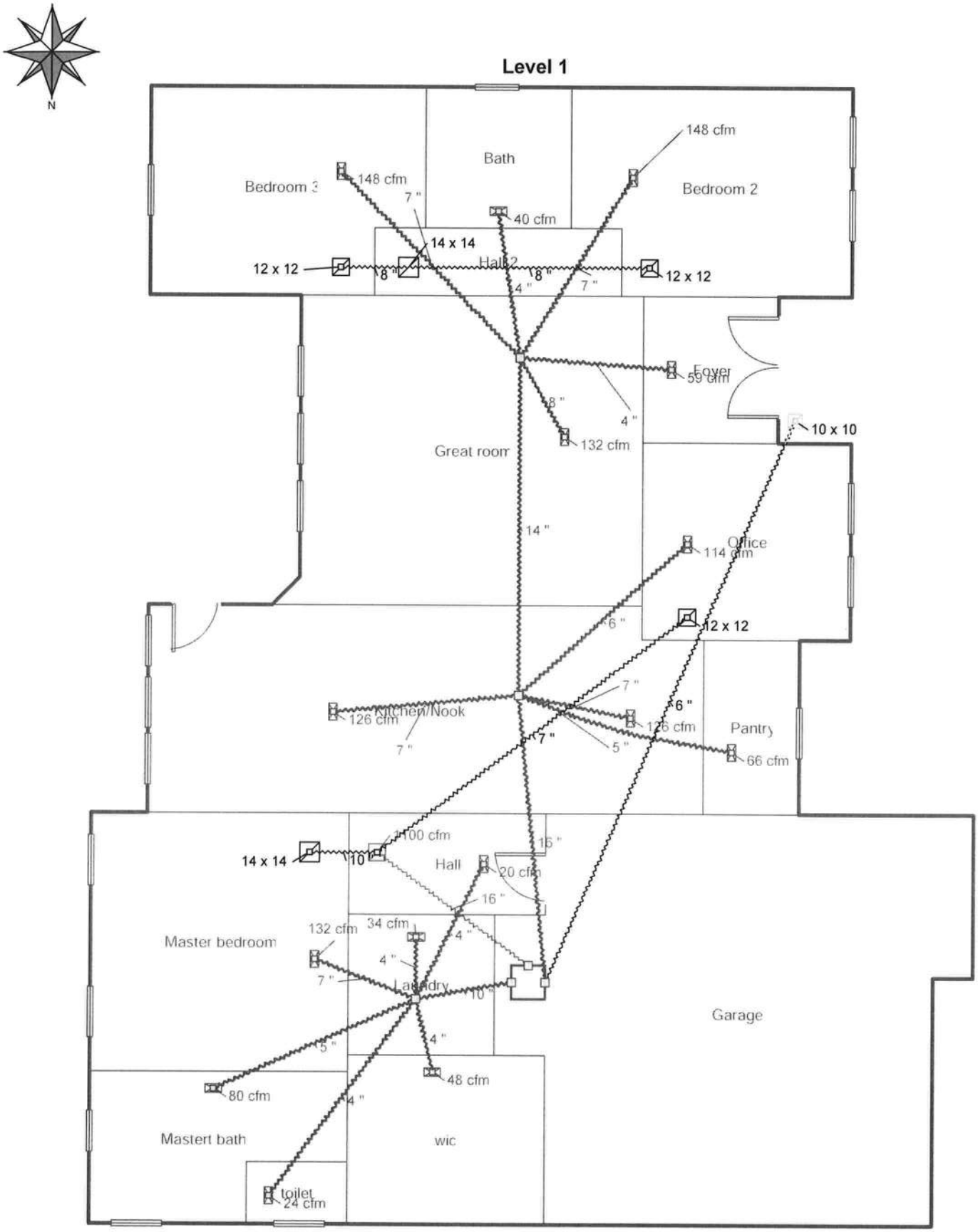
Backup:
Input = 8 kW, Output = 26553 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Carrier
Trade	CARRIER
Cond	CH17NA03600G
Coil	FV4CNF002L00
AHRI ref	

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	0.057	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.90	

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



Job #:
Performed by Josh Legler for:
Amira

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Scale: 1 : 98

Comfort Builder by Wrightsoft
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Duct System Summary
Entire House
Bounds Heating and Air

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Project Information

For: Amira

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.23 in H2O	0.23 in H2O
Available static pressure	0.27 in H2O	0.27 in H2O
Supply / return available pressure	0.212 / 0.058 in H2O	0.212 / 0.058 in H2O
Lowest friction rate	0.113 in/100ft	0.113 in/100ft
Actual air flow	1100 cfm	1100 cfm
Total effective length (TEL)	239 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	929	40	21	0.117	4.0	0x 0	VlFx	45.9	135.0	st3
Bedroom 2	h	3400	148	129	0.115	7.0	0x 0	VlFx	49.7	135.0	st3
Bedroom 3	h	3396	148	93	0.113	7.0	0x 0	VlFx	52.4	135.0	st3
Foyer	h	1351	59	25	0.117	4.0	0x 0	VlFx	46.1	135.0	st3
Great room	h	3025	132	128	0.120	8.0	0x 0	VlFx	42.5	135.0	st3
Hall	h	450	20	16	0.164	4.0	0x 0	VlFx	14.7	115.0	st2
Kitchen/Nook	c	2214	75	126	0.148	7.0	0x 0	VlFx	28.1	115.0	st1
Kitchen/Nook-A	c	2214	75	126	0.153	7.0	0x 0	VlFx	23.9	115.0	st1
Laundry	c	604	7	34	0.170	4.0	0x 0	VlFx	9.4	115.0	st2
Master bedroom	c	2308	100	132	0.167	7.0	0x 0	VlFx	12.2	115.0	st2
Mastert bath	h	1834	80	55	0.158	5.0	0x 0	VlFx	18.9	115.0	st2
Office	c	1998	97	114	0.146	6.0	0x 0	VlFx	30.5	115.0	st1
Pantry	c	1163	48	66	0.137	5.0	0x 0	VlFx	30.2	125.0	st1
toilet	h	556	24	10	0.157	4.0	0x 0	VlFx	20.3	115.0	st2
wic	h	1097	48	24	0.169	4.0	0x 0	VlFx	10.2	115.0	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	527	396	0.113	493	14.0	0 x 0	VinlFlx	st1
st1	Peak AVF	822	829	0.113	594	16.0	0 x 0	VinlFlx	
st2	Peak AVF	278	271	0.157	510	10.0	0 x 0	VinlFlx	

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	51.2	0.113	504	20.0	0x 0		VlFx	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	1100	1100	0.113	788	16.0	0 x 0	VinlFlx	