



Load Short Form

Entire House

Bounds Heating and Air

Job: Varner
Date: Jan 09, 2023
By:

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

Project Information

For: Amira

Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	33	92	Method	Average
Inside db (°F)	68	75	Construction quality	0
Design TD (°F)	35	17	Fireplaces	
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	44		

HEATING EQUIPMENT

Make Carrier
Trade 2-STAGE 17 SEER HP
Model GH7TAN44800AA0
AHRI ref 207863661

Efficiency 9.5 HSPF
Heating input
Heating output 47000 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 1567 cfm
Air flow factor 0.041 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 30 °F

Backup: n/a n/a

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

COOLING EQUIPMENT

Make Carrier
Trade 2-STAGE 17 SEER HP
Cond GH7TAN44800AA0
Coil FV4CNB006L
AHRI ref 207863661

Efficiency 12.5 EER, 17 SEER
Sensible cooling 32900 Btuh
Latent cooling 14100 Btuh
Total cooling 47000 Btuh
Actual air flow 1567 cfm
Air flow factor 0.048 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
BED 3	217	5254	4064	216	196
BATH 2	77	1725	1314	71	63
AH	24	0	0	0	0
MUD	76	0	0	0	0
BED 4	191	4964	4069	204	196
BED 2	160	2456	1978	101	95
BATH 3	87	1818	1046	75	50
WIC	32	75	137	3	7
PANTRY	25	0	0	0	0
STORAGE	25	0	0	0	0
LAUNDRY	32	109	1034	4	50
HALL	122	0	0	0	0
FAMILY/DINING	973	10400	11741	427	566
MASTER	306	5567	4128	228	199

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

HIS	61	115	211	5	10
HERS	64	1296	522	53	25
TOILET	25	39	71	2	3
MASTER BATH	203	4366	2215	179	107
HALL 2	35	0	0	0	0
Entire House	2736	38184	32529	1567	1567
Other equip loads		0	0		
Equip. @ 0.97 RSM			31618		
Latent cooling			5842		
TOTALS	2736	38184	37460	1567	1567

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Project Summary

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Project Information

For: Amira

Notes:

Design Information

Weather: Gainesville Regional, 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	44 gr/lb

Heating Summary

Structure	27354 Btuh
Ducts	10831 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	38184 Btuh

Sensible Cooling Equipment Load Sizing

Structure	19087 Btuh
Ducts	13442 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	31618 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	3130 Btuh
Ducts	2712 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	5842 Btuh

	Heating	Cooling
Area (ft ²)	2736	2736
Volume (ft ³)	26934	26934
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	144	72

Equipment Total Load (Sen+Lat)	37460 Btuh
Req. total capacity at 0.70 SHR	3.8 ton

Heating Equipment Summary

Make	Carrier
Trade	2-STAGE 17 SEER HP
Model	GH7TAN44800AA0
AHRI ref	207863661
Efficiency	9.5 HSPF
Heating input	
Heating output	47000 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	1567 cfm
Air flow factor	0.041 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 30 °F	
Backup: n/a n/a	
Input = 0 kW, Output = 0 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	2-STAGE 17 SEER HP
Cond	GH7TAN44800AA0
Coil	FV4CNB006L
AHRI ref	207863661
Efficiency	12.5 EER, 17 SEER
Sensible cooling	32900 Btuh
Latent cooling	14100 Btuh
Total cooling	47000 Btuh
Actual air flow	1567 cfm
Air flow factor	0.048 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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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 in H2O	0 in H2O
Available static pressure	0.50 in H2O	0.50 in H2O
Supply / return available pressure	0.397 / 0.103 in H2O	0.397 / 0.103 in H2O
Lowest friction rate	0.210 in/100ft	0.210 in/100ft
Actual air flow	1567 cfm	1567 cfm
Total effective length (TEL)	238 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 1725	71	63	0.373	5.0	0x0	VIFx	16.5	90.0	st1
BATH 3	h 1818	75	50	0.365	5.0	0x0	VIFx	18.9	90.0	st1
BED 2	h 2456	101	95	0.328	6.0	0x0	VIFx	26.0	95.0	st1
BED 3	h 5254	216	196	0.342	8.0	0x0	VIFx	26.1	90.0	st1
BED 4	h 4964	204	196	0.369	8.0	0x0	VIFx	17.8	90.0	st1
FAMILY/DINING	c 2935	107	141	0.265	7.0	0x0	VIFx	39.7	110.0	st2
FAMILY/DINING-A	c 2935	107	141	0.264	7.0	0x0	VIFx	40.5	110.0	st2
FAMILY/DINING-B	c 2935	107	141	0.266	7.0	0x0	VIFx	39.1	110.0	st2
FAMILY/DINING-C	c 2935	107	141	0.264	7.0	0x0	VIFx	40.8	110.0	st2
HERS	h 1296	53	25	0.216	4.0	0x0	VIFx	54.3	130.0	st3
HIS	c 211	5	10	0.217	4.0	0x0	VIFx	53.5	130.0	st3
LAUNDRY	c 1034	4	50	0.362	4.0	0x0	VIFx	14.7	95.0	st1
MASTER	h 2783	114	99	0.213	6.0	0x0	VIFx	56.6	130.0	st3
MASTER BATH	h 4366	179	107	0.210	6.0	0x0	VIFx	58.9	130.0	st3
MASTER-A	h 2783	114	99	0.212	6.0	0x0	VIFx	57.4	130.0	st3
TOILET	c 71	2	3	0.210	4.0	0x0	VIFx	59.4	130.0	st3
WIC	c 137	3	7	0.359	4.0	0x0	VIFx	20.7	90.0	st1

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	467	344	0.210	595	12.0	0 x 0	VinIFlx	st2
st2	Peak AVF	894	910	0.210	652	16.0	0 x 0	VinIFlx	st1
st1	Peak AVF	1567	1567	0.210	887	18.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden



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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	1567	1567	49.0	0.210	594	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	1567	1567	0.210	887	18.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden



Manual S Compliance Report

Entire House

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Project Information

For: Amira

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	32529	Btuh	Entering coil DB:	77.6°F
Outdoor design WB:	75.8°F	Latent gain:	5842	Btuh	Entering coil WB:	63.7°F
Indoor design DB:	75.0°F	Total gain:	38371	Btuh		
Indoor RH:	50%	Estimated airflow:	1567	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	GH7TAN44800AA0+FV4CNB006L	
Actual airflow:	1567	cfm		
Sensible capacity:	32900	Btuh	101% of load	
Latent capacity:	14100	Btuh	241% of load	
Total capacity:	47000	Btuh	122% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	38184	Btuh	Entering coil DB:	66.8°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

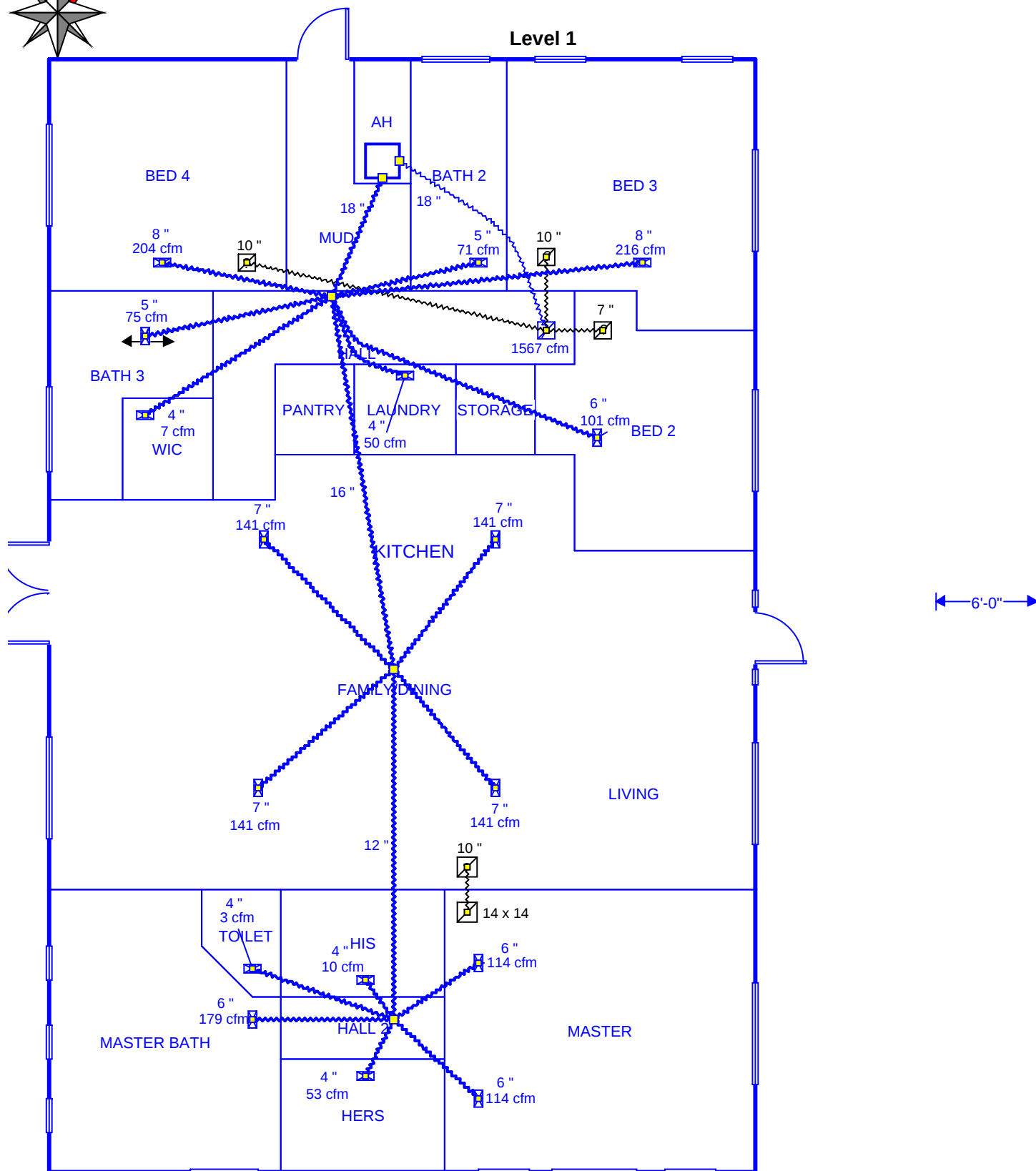
Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	GH7TAN44800AA0+FV4CNB006L	
Actual airflow:	1567	cfm		
Output capacity:	37410	Btuh	98% of load	Capacity balance: 30 °F
Supplemental heat required:	775	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:	n/a	Model:	n/a+n/a	
Actual airflow:	1567	cfm		
Output capacity:	0	kW	0% of load	Temp. rise: 0 °F

Meets all requirements of ACCA Manual S.



Level 1



Job #: Varner
Performed for:
Amira

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