



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job: McGill
Date:
By:

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

Project Information

For: Hartley

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	22220 Btuh	Entering coil DB:	77.4°F
Outdoor design WB:	75.8°F	Latent gain:	3815 Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	26035 Btuh		
Indoor RH:	50%	Estimated airflow:	1133 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	GH5SAN43600AA0+FX4DNF043L
Actual airflow:	1133 cfm		
Sensible capacity:	23800 Btuh	107% of load	
Latent capacity:	10200 Btuh	267% of load	
Total capacity:	34000 Btuh	131% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	30179 Btuh	Entering coil DB:	66.9°F
Indoor design DB:	68.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	GH5SAN43600AA0+FX4DNF043L
Actual airflow:	1133 cfm		
Output capacity:	33120 Btuh	110% of load	Capacity balance: 32 °F
Supplemental heat required:	0 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	n/a	Model:	n/a+n/a
Actual airflow:	1133 cfm		
Output capacity:	0 kW	0% of load	Temp. rise: 0 °F

Meets all requirements of ACCA Manual S.



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Load Short Form

Entire House

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Project Information

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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	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	44		

HEATING EQUIPMENT

Make Carrier
Trade 15 SEER2 HP
Model GH5SAN43600AA0
AHRI ref 209692874

Efficiency 7.5 HSPF2
Heating input
Heating output 33120 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 1133 cfm
Air flow factor 0.038 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 32 °F

Backup: n/a n/a

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

COOLING EQUIPMENT

Make Carrier
Trade 15 SEER2 HP
Cond GH5SAN43600AA0
Coil FX4DNF043L
AHRI ref 209692874

Efficiency 12.0 EER2, 14.3 SEER2
Sensible cooling 23800 Btuh
Latent cooling 10200 Btuh
Total cooling 34000 Btuh
Actual air flow 1133 cfm
Air flow factor 0.051 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)
WIC	78	1806	548	68	28
MASTER BATH	170	2154	996	81	51
AC	17	0	0	0	0
MASTER BED	217	3415	2912	128	149
LAUNDRY	46	938	365	35	19
GREAT ROOM	771	8319	8374	312	427
PANTRY	43	1094	260	41	13
BED 4	152	1607	2058	60	105
BATH 2	54	98	177	4	9
HALL	98	0	0	0	0
BATH 3	55	67	122	3	6
WIC 4	62	1818	520	68	27
BED 2	172	4012	2814	151	144
WIC 3	42	716	238	27	12

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



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BED 3	147	3061	2554	115	130
TOILET	34	1074	284	40	14
Entire House	2159	30179	22220	1133	1133
Other equip loads		0	0		
Equip. @ 0.97 RSM			21598		
Latent cooling			3815		
TOTALS	2159	30179	25413	1133	1133

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Project Summary

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Project Information

For: Hartley

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	23397 Btuh
Ducts	6782 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	30179 Btuh

Sensible Cooling Equipment Load Sizing

Structure	13655 Btuh
Ducts	8565 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	21598 Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2098 Btuh
Ducts	1717 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	3815 Btuh

	Heating	Cooling
Area (ft ²)	2159	2159
Volume (ft ³)	20202	20202
Air changes/hour	0.22	0.11
Equiv. AVF (cfm)	74	37

Equipment Total Load (Sen+Lat)	25413 Btuh
Req. total capacity at 0.70 SHR	2.6 ton

Heating Equipment Summary

Make	Carrier
Trade	15 SEER2 HP
Model	GH5SAN43600AA0
AHRI ref	209692874
Efficiency	7.5 HSPF2
Heating input	
Heating output	33120 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	1133 cfm
Air flow factor	0.038 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 32 °F	
Backup: n/a n/a	
Input = 0 kW, Output = 0 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	15 SEER2 HP
Cond	GH5SAN43600AA0
Coil	FX4DNF043L
AHRI ref	209692874
Efficiency	12.0 EER2, 14.3 SEER2
Sensible cooling	23800 Btuh
Latent cooling	10200 Btuh
Total cooling	34000 Btuh
Actual air flow	1133 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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Hartley

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Duct System Summary

Entire House

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By:

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Project Information

For: Hartley

	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	0.396 / 0.104 in H ₂ O	0.396 / 0.104 in H ₂ O
Lowest friction rate	0.222 in/100ft	0.222 in/100ft
Actual air flow	1133 cfm	1133 cfm
Total effective length (TEL)	225 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	c 177	4	9	0.247	4.0	0x0	VIFx	50.5	110.0	st3
BATH 3	c 122	3	6	0.223	4.0	0x0	VIFx	57.5	120.0	st3
BED 2	h 4012	151	144	0.235	7.0	0x0	VIFx	58.2	110.0	st3
BED 3	c 2554	115	130	0.241	7.0	0x0	VIFx	54.2	110.0	st3
BED 4	c 2058	60	105	0.244	6.0	0x0	VIFx	52.2	110.0	st3
GREAT ROOM	c 1675	62	85	0.313	6.0	0x0	VIFx	36.6	90.0	st1
GREAT ROOM-A	c 1675	62	85	0.326	6.0	0x0	VIFx	31.3	90.0	st1
GREAT ROOM-B	c 1675	62	85	0.311	6.0	0x0	VIFx	37.3	90.0	st1
GREAT ROOM-C	c 1675	62	85	0.299	6.0	0x0	VIFx	42.3	90.0	st1
GREAT ROOM-D	c 1675	62	85	0.325	6.0	0x0	VIFx	31.8	90.0	st1
LAUNDRY	h 938	35	19	0.385	4.0	0x0	VIFx	12.9	90.0	st2
MASTER BATH	h 2154	81	51	0.401	5.0	0x0	VIFx	8.8	90.0	st2
MASTER BED	c 2912	128	149	0.397	8.0	0x0	VIFx	9.7	90.0	st2
PANTRY	h 1094	41	13	0.313	4.0	0x0	VIFx	36.5	90.0	st1
TOILET	h 1074	40	14	0.395	4.0	0x0	VIFx	10.3	90.0	st2
WIC	h 1806	68	28	0.373	4.0	0x0	VIFx	16.1	90.0	st2
WIC 3	h 716	27	12	0.235	4.0	0x0	VIFx	58.8	110.0	st3
WIC 4	h 1818	68	27	0.222	4.0	0x0	VIFx	63.4	115.0	st3

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
st3	Peak AVF	427	433	0.222	551	12.0	0 x 0	VinIFlx	st1
st1	Peak AVF	781	873	0.222	817	14.0	0 x 0	VinIFlx	
st2	Peak AVF	353	260	0.373	646	10.0	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	1133	1133	46.9	0.222	519	20.0	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	1133	1133	0.222	812	16.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden

