



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job: Mahn
Date: Sep 9, 2022
By:

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

Project Information

For: Mahn, Hartley Brothers

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	35375 Btuh	Entering coil DB:	77.7°F
Outdoor design WB:	75.8°F	Latent gain:	5514 Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	40888 Btuh		
Indoor RH:	50%	Estimated airflow:	1420 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	25HBC548B00310+FX4DNB049L
Actual airflow:	1420 cfm		
Sensible capacity:	38597 Btuh	109% of load	
Latent capacity:	7411 Btuh	134% of load	
Total capacity:	46008 Btuh	113% of load	SHR: 84%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	41774 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:	25HBC548B00310+FX4DNB049L
Actual airflow:	1600 cfm		
Output capacity:	38605 Btuh	92% of load	Capacity balance: 31 °F
Supplemental heat required:	3169 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	n/a	Model:	n/a+n/a
Actual airflow:	1600 cfm		
Output capacity:	0 kW	0% of load	Temp. rise: 0 °F

Meets all requirements of ACCA Manual S.



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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 CARRIER
Model 25HBC548B00310
AHRI ref 203938300

Efficiency 8.5 HSPF
Heating input
Heating output 46500 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 1600 cfm
Air flow factor 0.038 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 31 °F

Backup: n/a n/a

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

COOLING EQUIPMENT

Make Carrier
Trade CARRIER
Cond 25HBC548B00310
Coil FX4DNB049L
AHRI ref 203938300

Efficiency 12.5 EER, 15.5 SEER
Sensible cooling 33600 Btuh
Latent cooling 14400 Btuh
Total cooling 48000 Btuh
Actual air flow 1420 cfm
Air flow factor 0.040 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)
PANTRY	74	2325	1026	89	41
LAUNDRY	46	1054	1264	40	51
1/2 BATH	31	1773	851	68	34
DROP ZONE	53	0	0	0	0
KITCHEN	249	4054	4903	155	197
LIVING ROOM	534	9892	8746	379	351
FOYER	103	2303	1998	88	80
TOILET 2	36	370	317	14	13
BATH 2	86	627	588	24	24
AH	16	0	0	0	0
HALLWAY	108	0	0	0	0
MASTER	240	4592	4096	176	164
HALL	79	0	0	0	0
BED 4	175	3526	3081	135	124

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

WIC	97	143	250	5	10
BED 3	189	3767	2492	144	100
BED 2	170	2355	2299	90	92
TOILET	29	684	803	26	32
MASTER BATH	195	4309	2660	165	107
Entire House	2510	41774	35375	1600	1420
Other equip loads		0	0		
Equip. @ 0.97 RSM			34384		
Latent cooling			5514		
TOTALS	2510	41774	39898	1600	1420

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Project Information

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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	31415 Btuh
Ducts	10360 Btuh
Central vent (0 cfm) (none)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	41774 Btuh

Sensible Cooling Equipment Load Sizing

Structure	22525 Btuh
Ducts	12849 Btuh
Central vent (0 cfm) (none)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	34384 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2907 Btuh
Ducts	2607 Btuh
Central vent (0 cfm) (none)	0 Btuh
Equipment latent load	5514 Btuh

	Heating	Cooling
Area (ft²)	2510	2510
Volume (ft³)	24116	24116
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	129	64

Equipment Total Load (Sen+Lat)	39898 Btuh
Req. total capacity at 0.70 SHR	4.1 ton

Heating Equipment Summary

Make	Carrier
Trade	CARRIER
Model	25HBC548B00310
AHRI ref	203938300
Efficiency	8.5 HSPF
Heating input	
Heating output	46500 Btuh @ 47°F
Temperature rise	27 °F
Actual air flow	1600 cfm
Air flow factor	0.038 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 31 °F	
Backup: n/a n/a	
Input = 0 kW, Output = 0 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	CARRIER
Cond	25HBC548B00310
Coil	FX4DNB049L
AHRI ref	203938300
Efficiency	12.5 EER, 15.5 SEER
Sensible cooling	33600 Btuh
Latent cooling	14400 Btuh
Total cooling	48000 Btuh
Actual air flow	1420 cfm
Air flow factor	0.040 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.87

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



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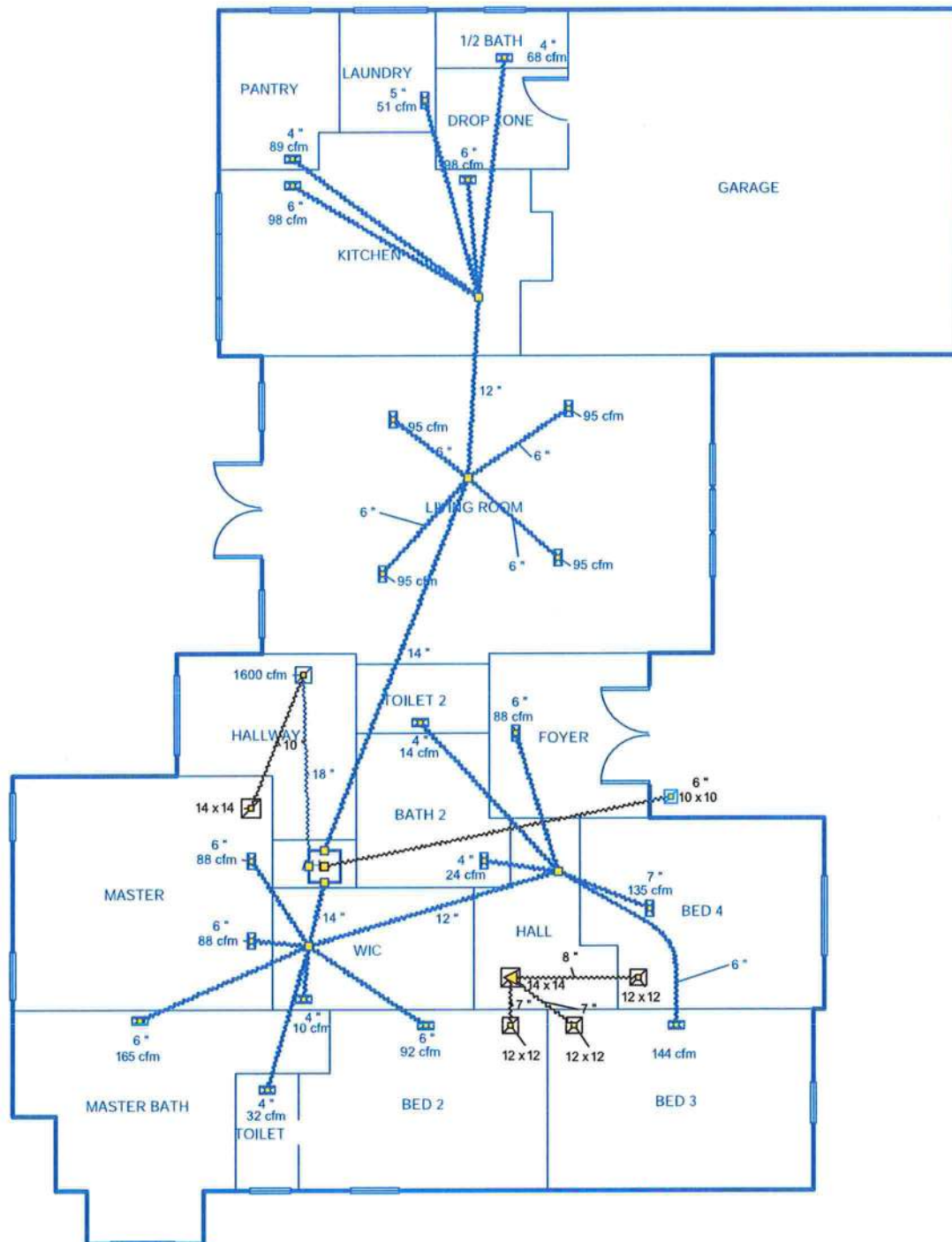
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Level 1

3'-0"



Job #: Mahn
Performed for:
Mahn

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Duct System Summary

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	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	0.378 / 0.122 in H2O	0.378 / 0.122 in H2O
Lowest friction rate	0.234 in/100ft	0.234 in/100ft
Actual air flow	1600 cfm	1420 cfm
Total effective length (TEL)	213 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 BATH	h 1773	68	34	0.234	4.0	0x0	VIFx	51.5	110.0	st3
BATH 2	h 627	24	24	0.280	4.0	0x0	VIFx	25.2	110.0	st4
BED 2	c 2299	90	92	0.367	6.0	0x0	VIFx	13.0	90.0	st2
BED 3	h 3767	144	100	0.253	6.0	0x0	VIFx	34.4	115.0	st4
BED 4	h 3526	135	124	0.277	7.0	0x0	VIFx	26.6	110.0	st4
FOYER	h 2303	88	80	0.271	6.0	0x0	VIFx	29.5	110.0	st4
KITCHEN	c 2452	78	98	0.236	6.0	0x0	VIFx	50.0	110.0	st3
KITCHEN-A	c 2452	78	98	0.246	6.0	0x0	VIFx	43.7	110.0	st3
LAUNDRY	c 1264	40	51	0.238	5.0	0x0	VIFx	49.1	110.0	st3
LIVING ROOM-B	h 2473	95	88	0.313	6.0	0x0	VIFx	30.9	90.0	st1
LIVING ROOM-C	h 2473	95	88	0.308	6.0	0x0	VIFx	32.7	90.0	st1
LIVING ROOM-D	h 2473	95	88	0.309	6.0	0x0	VIFx	32.6	90.0	st1
LIVING ROOM-E	h 2473	95	88	0.307	6.0	0x0	VIFx	33.0	90.0	st1
MASTER	h 2296	88	82	0.376	6.0	0x0	VIFx	10.6	90.0	st2
MASTER BATH	h 4309	165	107	0.358	6.0	0x0	VIFx	15.8	90.0	st2
MASTER-A	h 2296	88	82	0.387	6.0	0x0	VIFx	7.8	90.0	st2
PANTRY	h 2325	89	41	0.235	4.0	0x0	VIFx	50.9	110.0	st3
TOILET	c 803	26	32	0.365	4.0	0x0	VIFx	13.5	90.0	st2
TOILET 2	h 370	14	13	0.264	4.0	0x0	VIFx	33.2	110.0	st4
WIC	c 250	5	10	0.388	4.0	0x0	VIFx	7.5	90.0	st2

Bold/italic values have been manually overridden



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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
st3	Peak AVF	353	323	0.234	449	12.0	0 x 0	VinIFlx	st1
st1	Peak AVF	731	674	0.234	684	14.0	0 x 0	VinIFlx	
st4	Peak AVF	406	340	0.253	517	12.0	0 x 0	VinIFlx	st2
st2	Peak AVF	869	746	0.253	812	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	1600	1420	52.0	0.234	509	24.0	0x 0		VIFx	rst13

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst13	Peak AVF	1600	1420	0.234	905	18.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden