



Load Short Form

Entire House

Bounds Heating and Air

Job:
Date: Feb. 1 2021
By:

31

Email: jlegler@boundshvac.com

Project Information

For: Arrington, Harvey

Design Information

	Htg	Clg
Outside db (°F)	33	92
Inside db (°F)	68	75
Design TD (°F)	35	17
Daily range	-	M
Inside humidity (%)	50	50
Moisture difference (gr/lb)	29	47

Method
Construction quality
Fireplaces

Infiltration



Simplified
Semi-tight
0

HEATING EQUIPMENT

Make Carrier
Trade
Model CH14NB04200G0A0
AHRI ref 9162729

Efficiency 8.2 HSPF
Heating input
Heating output 41000 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 1333 cfm
Air flow factor 0.041 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 28 °F

COOLING EQUIPMENT

Make Carrier
Trade
Cond CH14NB04200G0A0
Coil FB4CNF042L++TXV
AHRI ref 9162729

Efficiency 11.5 EER, 14 SEER
Sensible cooling 28000 Btuh
Latent cooling 12000 Btuh
Total cooling 40000 Btuh
Actual air flow 1333 cfm
Air flow factor 0.051 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 0.86

Backup:

Input = 9 kW, Output = 31545 Btuh, 100 AFUE

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
wic	117	1242	578	51	29
master bedroom	254	3679	3970	151	201
master bath	115	1699	1030	70	52
toilet	18	47	44	2	2
laundry	81	1642	1856	67	94
pwdr	26	66	61	3	3
hall	124	1167	686	48	35
kitchen/living	904	11274	10833	462	550
clst a	23	59	54	2	3
clst b	20	77	71	3	4
hall 2	67	0	0	0	0
bath	70	232	214	10	11
bedroom 2	173	4270	3264	175	166
wic 2	36	1212	443	50	22

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



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Manual S Compliance Report

Entire House

Bounds Heating and Air

Job:
Date: Feb. 1 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Arrington, Harvey

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	26282	Btuh	Entering coil DB:	77.2°F
Outdoor design WB:	76.3°F	Latent gain:	4129	Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	30411	Btuh		
Indoor RH:	50%	Estimated airflow:	1333	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	CH14NB04200G0A0+FB4CNF042L++TXV	
Actual airflow:	1333	cfm		
Sensible capacity:	28000	Btuh	107% of load	
Latent capacity:	12000	Btuh	291% of load	
Total capacity:	40000	Btuh	132% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	32502	Btuh	Entering coil DB:	67.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Carrier	Model:	CH14NB04200G0A0+FB4CNF042L++TXV	
Actual airflow:	1333	cfm		
Output capacity:	41000	Btuh	126% of load	Capacity balance: 28 °F
Supplemental heat required:	0	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1333	cfm		
Output capacity:	9.2	kW	97% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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Project Summary

Entire House

Bounds Heating and Air

Job:
Date: Feb. 1 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Arrington, Harvey

Notes:

Design Information

Weather: Gainesville Regional AP, 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	47 gr/lb

Heating Summary

Structure	24610 Btuh
Ducts	7891 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	32502 Btuh

Sensible Cooling Equipment Load Sizing

Structure	16491 Btuh
Ducts	9791 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	25494 Btuh

Infiltration

Method	Simplified
Construction quality	Semi-tight
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	1981 Btuh
Ducts	2147 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	4129 Btuh

	Heating	Cooling
Area (ft ²)	2234	2234
Volume (ft ³)	20108	20108
Air changes/hour	0.22	0.11
Equiv. AVF (cfm)	74	37

Equipment Total Load (Sen+Lat)	29623 Btuh
Req. total capacity at 0.70 SHR	3.0 ton

Heating Equipment Summary

Make	Carrier
Trade	
Model	CH14NB04200G0A0
AHRI ref	9162729
Efficiency	8.2 HSPF
Heating input	
Heating output	41000 Btuh @ 47°F
Temperature rise	28 °F
Actual air flow	1333 cfm
Air flow factor	0.041 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 28 °F	
Backup:	
Input = 9 kW, Output = 31545 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	Carrier
Trade	
Cond	CH14NB04200G0A0
Coil	FB4CNF042L++TXV
AHRI ref	9162729
Efficiency	11.5 EER, 14 SEER
Sensible cooling	28000 Btuh
Latent cooling	12000 Btuh
Total cooling	40000 Btuh
Actual air flow	1333 cfm
Air flow factor	0.051 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.86

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



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wic 3		34	1162	424	48	22
bedroom 3		173	4674	2754	192	140
Entire House	d	2234	32502	26282	1333	1333
Other equip loads			0	0		
Equip. @ 0.97 RSM				25494		
Latent cooling				4129		
TOTALS		2234	32502	29623	1333	1333

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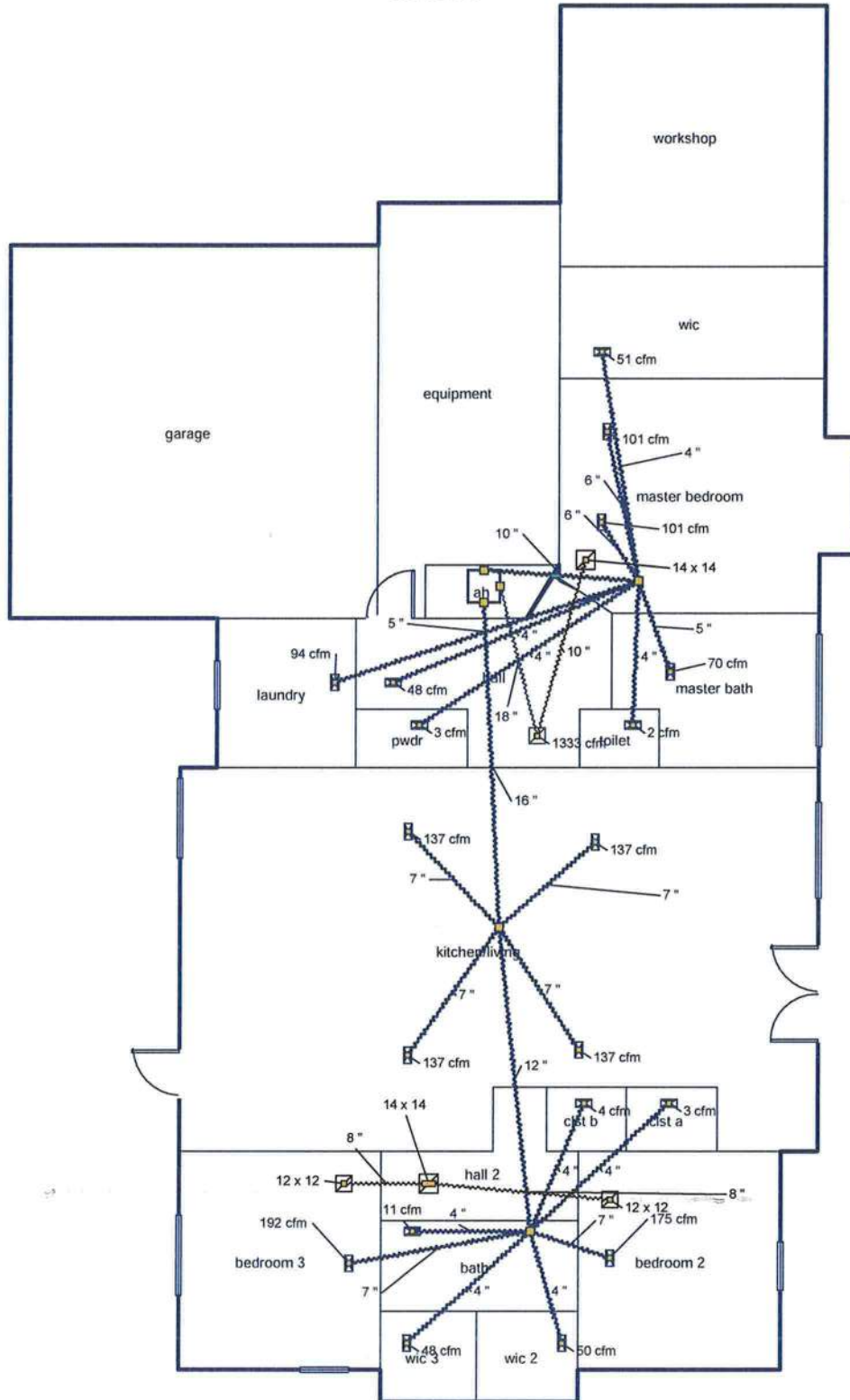
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Main floor



Job #:
Performed for:
Arrington

Bounds Heating and Air

jlegler@boundshvac.com

Scale: 1 : 125

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Duct System Summary

Entire House

Bounds Heating and Air

Job:
Date: Feb. 1 2021
By:

Email: jlegler@boundshvac.com

Project Information

For: Arrington, Harvey

	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	0.382 / 0.118 in H2O	0.382 / 0.118 in H2O
Lowest friction rate	0.237 in/100ft	0.237 in/100ft
Actual air flow	1333 cfm	1333 cfm
Total effective length (TEL)	211 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	c 214	10	11	0.244	4.0	0x 0	VIFx	46.8	110.0	st3
bedroom 2	h 4270	175	166	0.247	7.0	0x 0	VIFx	44.7	110.0	st3
bedroom 3	h 4674	192	140	0.238	7.0	0x 0	VIFx	51.0	110.0	st3
clst a	c 54	2	3	0.237	4.0	0x 0	VIFx	51.3	110.0	st3
clst b	c 71	3	4	0.242	4.0	0x 0	VIFx	48.1	110.0	st3
hall	h 1167	48	35	0.329	4.0	0x 0	VIFx	26.3	90.0	st1
kitchen/living	c 2708	116	137	0.322	7.0	0x 0	VIFx	28.6	90.0	st2
kitchen/living-A	c 2708	116	137	0.318	7.0	0x 0	VIFx	30.2	90.0	st2
kitchen/living-B	c 2708	116	137	0.323	7.0	0x 0	VIFx	28.4	90.0	st2
kitchen/living-C	c 2708	116	137	0.320	7.0	0x 0	VIFx	29.5	90.0	st2
laundry	c 1856	67	94	0.319	5.0	0x 0	VIFx	29.7	90.0	st1
master bath	h 1699	70	52	0.362	5.0	0x 0	VIFx	15.7	90.0	st1
master bedroom	c 1985	75	101	0.350	6.0	0x 0	VIFx	19.2	90.0	st1
master bedroom-A	c 1985	75	101	0.368	6.0	0x 0	VIFx	14.0	90.0	st1
pwdr	c 61	3	3	0.329	4.0	0x 0	VIFx	26.1	90.0	st1
toilet	c 44	2	2	0.352	4.0	0x 0	VIFx	18.7	90.0	st1
wic	h 1242	51	29	0.335	4.0	0x 0	VIFx	24.2	90.0	st1
wic 2	h 1212	50	22	0.244	4.0	0x 0	VIFx	46.7	110.0	st3
wic 3	h 1162	48	22	0.239	4.0	0x 0	VIFx	49.8	110.0	st3

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	479	366	0.237	610	12.0	0 x 0	VinIFlx	st2
st2	Peak AVF	942	916	0.237	675	16.0	0 x 0	VinIFlx	
st1	Peak AVF	391	417	0.319	765	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	1333	1333	49.6	0.237	505	22.0	0x 0		VIFx	rst5

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst5	Peak AVF	1333	1333	0.237	755	18.0	0 x 0	VinIFlx	

Bold/italic values have been manually overridden