



Load Short Form

Entire House

Bertie Heating and Air Conditioning

Job: Columbia County
Date: Sep 12, 2022
By: Ryan Johnston

1730 NE 23rd Ave, Gainesville, FL 32609 Phone: 352-331-2005 Email: ryanj@bertieair.com Web: www.bertieair.com License: CAC058522

Project Information

For: David & Lynn Hope Residence, Forest Hope Constrution
Gainesville, FL

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	33	92	Method	Simplified
Inside db (°F)	70	75	Construction quality	Semi-tight
Design TD (°F)	37	17	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	32	47		

HEATING EQUIPMENT

Make Bryant
Trade BRYANT HEATING AND COOLING SYS...
Model 215BNA037P000A
AHRI ref 204836289

Efficiency 8.2 HSPF
Heating input
Heating output 34600 Btuh @ 47°F
Temperature rise 30 °F
Actual air flow 1050 cfm
Air flow factor 0.034 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 32 °F

Backup:
Input = 9 kW, Output = 30657 Btuh, 100 AFUE

COOLING EQUIPMENT

Make Bryant
Trade BRYANT HEATING AND COOLING SYS...
Cond 215BNA037P000A
Coil FB4CNP042L
AHRI ref 204836289

Efficiency 12.5 EER, 15.5 SEER
Sensible cooling 24500 Btuh
Latent cooling 10500 Btuh
Total cooling 35000 Btuh
Actual air flow 1050 cfm
Air flow factor 0.043 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)
Laundry	84	2428	2325	82	100
1/2 Bath	26	32	50	1	2
Pantry	48	58	90	2	4
Kitchen	280	3749	3771	126	162
Toilet	18	926	852	31	37
M Bath	120	1599	1198	54	52
WIC	43	1982	780	67	34
WIC 1	36	44	69	1	3
M Bed	218	2586	2675	87	115
Great Room	380	3861	4024	130	173
Bed 3	150	3743	2893	126	125
WIC 3	43	678	285	23	12
Bath 2	94	1765	1367	59	59
WIC 2	30	663	261	22	11

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



Bed 2	141	4969	2842	167	122
Dining Room	169	2085	918	70	40
Hall	97	0	0	0	0
Entire House	1974	31168	24401	1050	1050
Other equip loads		0	0		
Equip. @ 0.97 RSM			23645		
Latent cooling			4474		
TOTALS	1974	31168	28119	1050	1050

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Project Information

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Gainesville, FL

Notes:

Design Information

Weather: Gainesville Rgnl, 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 47 gr/lb

Heating Summary

Structure 24289 Btuh
Ducts 6879 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 31168 Btuh

Sensible Cooling Equipment Load Sizing

Structure 16977 Btuh
Ducts 7424 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 23645 Btuh

Infiltration

Method Simplified
Construction quality Semi-tight
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3089 Btuh
Ducts 1386 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 4474 Btuh

	Heating	Cooling
Area (ft²)	1974	1974
Volume (ft³)	20118	20118
Air changes/hour	0.26	0.14
Equiv. AVF (cfm)	87	47

Equipment Total Load (Sen+Lat) 28119 Btuh
Req. total capacity at 0.70 SHR 2.8 ton

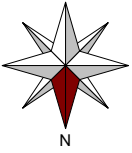
Heating Equipment Summary

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Trade BRYANT HEATING AND COOLING SYS...
Model 215BNA037P000A
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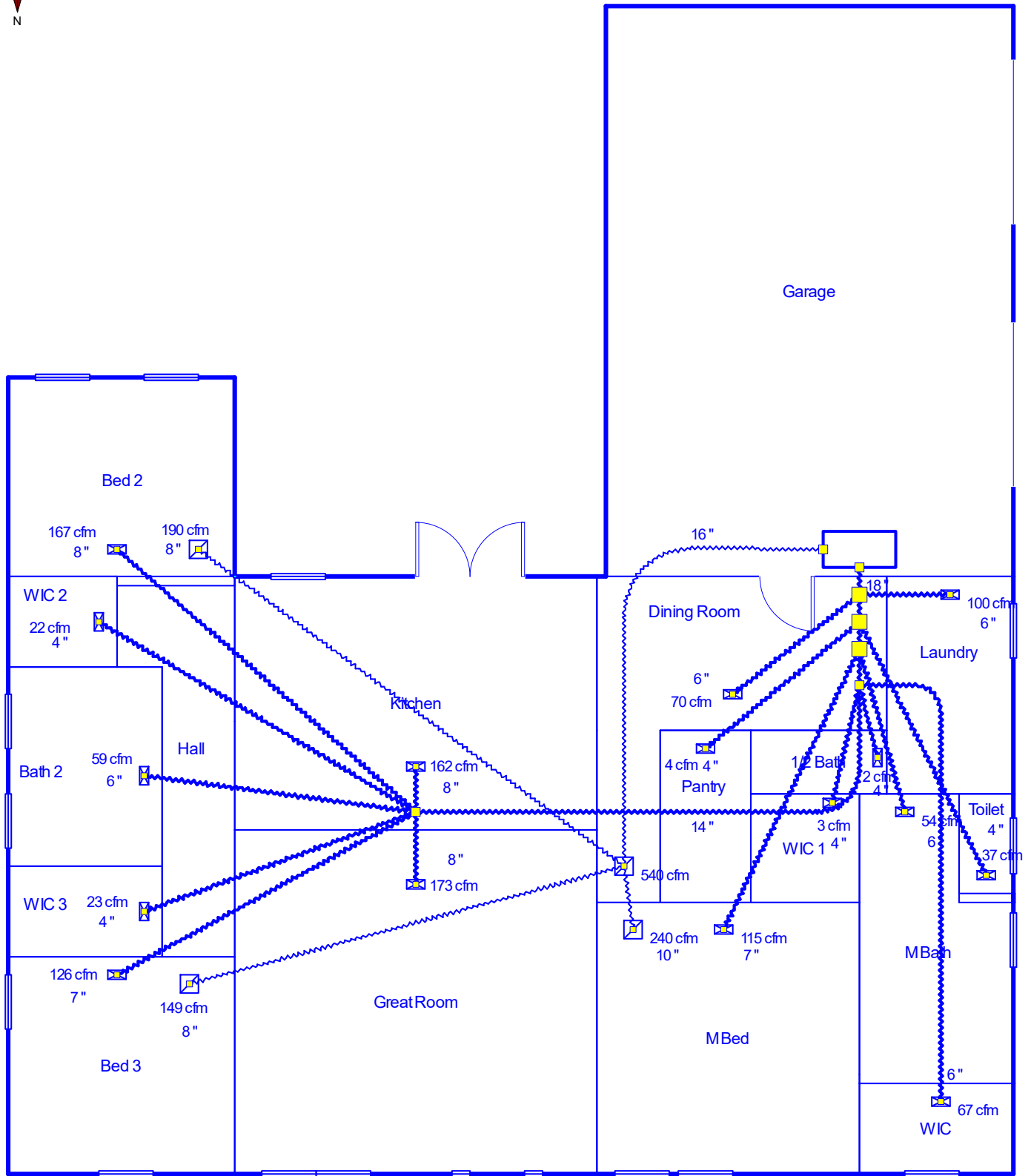
Cooling Equipment Summary

Make Bryant
Trade BRYANT HEATING AND COOLING SYS...
Cond 215BNA037P000A
Coil FB4CNP042L
AHRI ref 204836289
Efficiency 12.5 EER, 15.5 SEER
Sensible cooling 24500 Btuh
Latent cooling 10500 Btuh
Total cooling 35000 Btuh
Actual air flow 1050 cfm
Air flow factor 0.043 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.



Level 1



Job #: Columbia County
Performed by Ryan Johnston for:
David & Lynn Hope Residence

Gainesville, FL

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Gainesville, FL 32609
Phone: 352-331-2005
www.bertieair.com ryanj@bertieair.com

Scale: 1 : 94

Page 1
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Manual S Compliance Report

Entire House

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By: Ryan Johnston

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Project Information

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Gainesville, FL

Cooling Equipment

Design Conditions

Outdoor design DB:	91.9°F	Sensible gain:	24401	Btuh	Entering coil DB:	77.1°F
Outdoor design WB:	76.2°F	Latent gain:	4474	Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	28875	Btuh		
Indoor RH:	50%	Estimated airflow:	1050	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Bryant	Model:	215BNA037P000A+FB4CNP042L	
Actual airflow:	1050	cfm		
Sensible capacity:	27757	Btuh	114% of load	
Latent capacity:	4784	Btuh	107% of load	
Total capacity:	32541	Btuh	113% of load	SHR: 85%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	31168	Btuh	Entering coil DB:	68.6°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Bryant	Model:	215BNA037P000A+FB4CNP042L	
Actual airflow:	1050	cfm		
Output capacity:	27393	Btuh	88% of load	
Supplemental heat required:	3775	Btuh		
			Capacity balance:	32 °F
			Economic balance:	-99 °F

Backup equipment type:	Elec strip			
Manufacturer:		Model:		
Actual airflow:	1050	cfm		
Output capacity:	9.0	kW	98% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.





Duct System Summary

Entire House

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	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.22 in H2O	0.22 in H2O
Available static pressure	0.28 in H2O	0.28 in H2O
Supply / return available pressure	0.190 / 0.090 in H2O	0.190 / 0.090 in H2O
Lowest friction rate	0.073 in/100ft	0.073 in/100ft
Actual air flow	1050 cfm	1050 cfm
Total effective length (TEL)	383 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	c 50	1	2	0.102	4.0	0x0	VIFx	10.6	175.0	st1
Bath 2	h 1765	59	59	0.075	6.0	0x0	VIFx	53.1	200.0	st2
Bed 2	h 4969	167	122	0.073	8.0	0x0	VIFx	60.0	200.0	st2
Bed 3	h 3743	126	125	0.074	7.0	0x0	VIFx	56.8	200.0	st2
Dining Room	h 2085	70	40	0.152	6.0	0x0	VIFx	10.4	115.0	st1
Great Room	c 4024	130	173	0.079	8.0	0x0	VIFx	42.0	200.0	st2
Kitchen	c 3771	126	162	0.079	8.0	0x0	VIFx	40.5	200.0	st2
Laundry	c 2325	82	100	0.156	6.0	0x0	VIFx	6.5	115.0	st1
M Bath	h 1599	54	52	0.113	6.0	0x0	VIFx	13.8	155.0	st1
M Bed	c 2675	87	115	0.108	7.0	0x0	VIFx	21.7	155.0	st1
Pantry	c 90	2	4	0.128	4.0	0x0	VIFx	14.0	135.0	st1
Toilet	c 852	31	37	0.124	4.0	0x0	VIFx	18.7	135.0	st1
WIC	h 1982	67	34	0.087	6.0	0x0	VIFx	34.0	185.0	st1
WIC 1	c 69	1	3	0.101	4.0	0x0	VIFx	13.2	175.0	st1
WIC 2	h 663	22	11	0.074	4.0	0x0	VIFx	58.4	200.0	st2
WIC 3	h 678	23	12	0.075	4.0	0x0	VIFx	54.0	200.0	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
st2	Peak AVF	655	665	0.073	622	14.0	0 x 0	VinIFlx	st1
st1	Peak AVF	1050	1050	0.073	594	18.0	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
rb3	0x 0	149	137	118.4	0.076	427	8.0	0x 0		VIFx	rt1
rb4	0x 0	190	134	122.9	0.073	544	8.0	0x 0		VIFx	rt1
rb2	0x 0	240	240	97.1	0.093	441	10.0	0x 0		VIFx	rt1
rb1	0x 0	471	540	103.6	0.087	505	14.0	0x 0		VIFx	rt1

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	1050	1050	0.073	752	16.0	0 x 0	VinIFlx	

