



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	2396	2321	81	100
1/2 Bath	26	32	50	1	2
Pantry	48	58	91	2	4
Kitchen	280	3694	3764	125	162
Toilet	17	846	827	29	36
M Bath	120	1569	1189	53	51
WIC	47	2007	792	68	34
WIC 1	36	44	69	1	3
M Bed	225	2554	2684	86	115
Great Room	390	3812	4035	129	173
Bed 3	156	3739	2905	127	125
WIC 3	43	663	279	22	12
Bath 2	94	1733	1359	59	58
WIC 2	30	648	255	22	11

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



Bed 2	150	5118	2899	173	125
Dining Room	169	2094	923	71	40
Hall	97	0	0	0	0
Entire House	2010	31009	24443	1050	1050
Other equip loads		0	0		
Equip. @ 0.97 RSM			23685		
Latent cooling			4213		
TOTALS	2010	31009	27898	1050	1050

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



Project Information

For: David & Lynn Hope Residence, Forest Hope Constrution
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 24031 Btuh
Ducts 6977 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 31009 Btuh

Sensible Cooling Equipment Load Sizing

Structure 16908 Btuh
Ducts 7535 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 23685 Btuh

Infiltration

Method Simplified
Construction quality Semi-tight
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2791 Btuh
Ducts 1422 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 4213 Btuh

	Heating	Cooling
Area (ft²)	2010	2010
Volume (ft³)	20487	20487
Air changes/hour	0.22	0.11
Equiv. AVF (cfm)	75	38

Equipment Total Load (Sen+Lat) 27898 Btuh
Req. total capacity at 0.75 SHR 2.6 ton

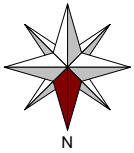
Heating Equipment Summary

Make Bryant
Trade BRYANT HEATING AND COOLING SYS...
Model 215BNA037P000A
AHRI ref 204836289
Efficiency 8.2 HSPF
Heating input 34600 Btuh @ 47°F
Heating output 30 °F
Temperature rise 1050 cfm
Actual air flow 0.034 cfm/Btuh
Air flow factor 0.50 in H2O
Static pressure
Space thermostat
Capacity balance point = 32 °F
Backup:
Input = 9 kW, Output = 30657 Btuh, 100 AFUE

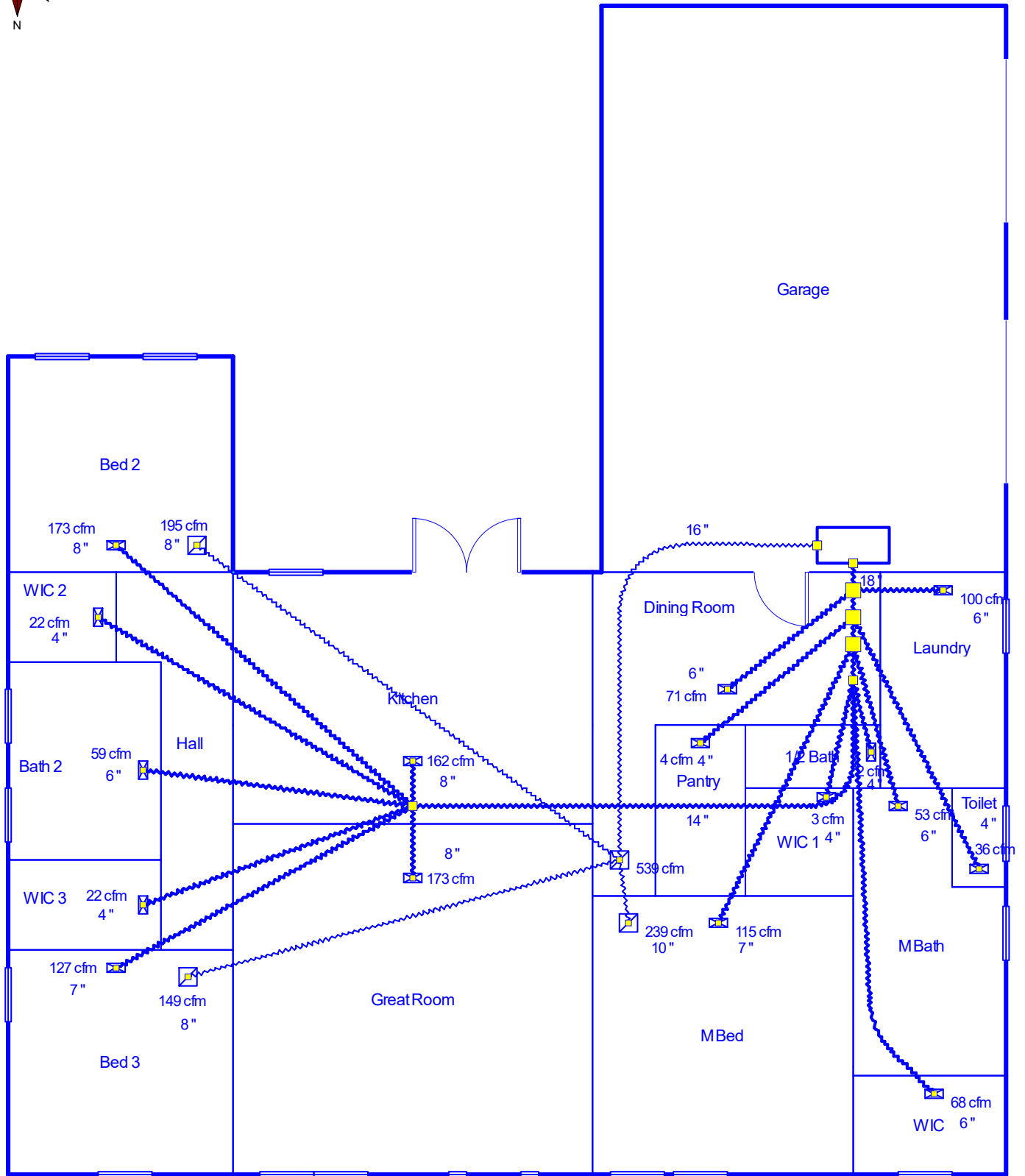
Cooling Equipment Summary

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

Bertie Heating and Air Conditioning

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

Scale: 1 : 94

Page 1
Right-Suite® Universal 2022
22.0.01 RSU08133
2022-Sep-21 15:53:10
...Hope Residence - Manual JD&S.rup



Manual S Compliance Report

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

Cooling Equipment

Design Conditions

Outdoor design DB:	91.9°F	Sensible gain:	24443	Btuh	Entering coil DB:	77.1°F
Outdoor design WB:	76.2°F	Latent gain:	4213	Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	28656	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	114% of load	
Total capacity:	32541	Btuh	114% of load	SHR: 85%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	31009	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:	3616	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	99% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.





Duct System Summary

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

	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 1733	59	58	0.075	6.0	0x0	VIFx	53.1	200.0	st2
Bed 2	h 5118	173	125	0.073	8.0	0x0	VIFx	60.0	200.0	st2
Bed 3	h 3739	127	125	0.074	7.0	0x0	VIFx	56.8	200.0	st2
Dining Room	h 2094	71	40	0.152	6.0	0x0	VIFx	10.4	115.0	st1
Great Room	c 4035	129	173	0.079	8.0	0x0	VIFx	42.0	200.0	st2
Kitchen	c 3764	125	162	0.079	8.0	0x0	VIFx	40.5	200.0	st2
Laundry	c 2321	81	100	0.156	6.0	0x0	VIFx	6.5	115.0	st1
M Bath	h 1569	53	51	0.113	6.0	0x0	VIFx	13.8	155.0	st1
M Bed	c 2684	86	115	0.108	7.0	0x0	VIFx	21.7	155.0	st1
Pantry	c 91	2	4	0.128	4.0	0x0	VIFx	14.0	135.0	st1
Toilet	c 827	29	36	0.124	4.0	0x0	VIFx	18.7	135.0	st1
WIC	h 2007	68	34	0.090	6.0	0x0	VIFx	31.0	180.0	st1
WIC 1	c 69	1	3	0.101	4.0	0x0	VIFx	13.2	175.0	st1
WIC 2	h 648	22	11	0.074	4.0	0x0	VIFx	58.4	200.0	st2
WIC 3	h 663	22	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	657	666	0.073	623	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	195	136	122.9	0.073	559	8.0	0x 0		VIFx	rt1
rb2	0x 0	238	239	97.1	0.093	438	10.0	0x 0		VIFx	rt1
rb1	0x 0	468	539	103.6	0.087	504	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	

