



Manual S Compliance Report Entire House DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES
Date: 10/15/2020
By: ESW

31

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: AMERICAS HOME PLACE GAINESVILLE

Cooling Equipment

Design Conditions

Outdoor design DB:	91.9 °F	Sensible gain:	28544	Btuh	Entering coil DB:	78.3 °F
Outdoor design WB:	76.2 °F	Latent gain:	4402	Btuh	Entering coil WB:	64.1 °F
Indoor design DB:	75.0 °F	Total gain:	32946	Btuh		
Indoor RH:	50%	Estimated airflow:	1160	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6036H1+TEM6A0C36H31++TDR
Actual airflow:	1160	cfm	
Sensible capacity:	29745	Btuh	104% of load
Latent capacity:	4507	Btuh	102% of load
Total capacity:	34251	Btuh	104% of load SHR: 87%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4 °F	Heat loss:	31878	Btuh	Entering coil DB:	68.4 °F
Indoor design DB:	70.0 °F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Trane	Model:	4TWR6036H1+TEM6A0C36H31++TDR
Actual airflow:	1160	cfm	
Output capacity:	25572	Btuh	80% of load
Supplemental heat required:	6306	Btuh	
Capacity balance:	33	°F	
Economic balance:	-99	°F	

Backup equipment type:	Elec strip		
Manufacturer:		Model:	
Actual airflow:	1160	cfm	
Output capacity:	5.0	kW	54% of load Temp. rise: 13 °F

Meets all requirements of ACCA Manual S.



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Component Constructions
Entire House
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Design Conditions

Location:			Indoor:		Heating	Cooling
Gainesville Rgnl, FL, US			Indoor temperature (°F)		70	75
Elevation: 164 ft			Design TD (°F)		37	17
Latitude: 30 °N			Relative humidity (%)		30	50
Outdoor:			Moisture difference (gr/lb)		10.3	46.9
Heating			Cooling			
Dry bulb (°F)			33	92		
Daily range (°F)			-	18 (M)		
Wet bulb (°F)			-	76		
Wind speed (mph)			15.0	7.5		
			Infiltration:		Simplified	
			Method		Average	
			Construction quality		0	
			Fireplaces			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12C-0sw: Fm wall, vnl ext, r-13 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	281	0.091	13.0	3.33	937	2.71	763
	e	550	0.091	13.0	3.33	1831	2.71	1490
	s	435	0.091	13.0	3.33	1450	2.71	1180
	w	411	0.091	13.0	3.33	1369	2.71	1114
	all	1677	0.091	13.0	3.33	5587	2.71	4546

Partitions

12C-0sw: Fm wall, 1/2" gyp.bd ext, r-13 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud		341	0.091	13.0	3.33	1136	1.31	448
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Windows

10C-v: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 15.33 ft overhang (6.67 ft window ht, 1.75 ft sep.); 6.67 ft head ht	n	20	0.300	0	11.0	220	7.48	150
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 1.33 ft overhang (4 ft window ht, 1.58 ft sep.); 6.67 ft head ht	n	11	0.330	0	12.1	129	9.59	102
	w	16	0.330	0	12.1	193	26.8	429
	all	27	0.330	0	12.1	322	19.9	531
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 11.33 ft overhang (6 ft window ht, 1.33 ft sep.); 6.67 ft head ht	n	72	0.330	0	12.1	870	9.59	690
2B-2fv: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 15.33 ft overhang (6.67 ft window ht, 1.83 ft sep.); 6.67 ft head ht	n	13	0.330	0	12.1	161	9.59	128
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 1 ft overhang (6 ft window ht, 8.92 ft sep.); 6.67 ft head ht	e	18	0.330	0	12.1	217	26.8	483
10C-v: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 11.33 ft overhang (6.67 ft window ht, 1.42 ft sep.); 6.67 ft head ht	s	20	0.300	0	11.0	220	7.48	150
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 1 ft overhang (6 ft window ht, 5.25 ft sep.); 6.67 ft head ht	s	18	0.330	0	12.1	217	12.9	233



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2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 1 ft overhang (6 ft window ht, 14 ft sep.); 6.67 ft head ht	s	18	0.330	0	12.1	217	13.0	234
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 1 ft overhang (4 ft window ht, 8.58 ft sep.); 6.67 ft head ht	s	9	0.330	0	12.1	113	11.3	106
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 1.33 ft overhang (6 ft window ht, 1.58 ft sep.); 6.67 ft head ht	s	54	0.330	0	12.1	652	9.70	524
2A-2ov: 2 glazing, clr outr, air gas, vnl frm mat, clr low-e innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.27); 50% drapes, medium; 11.33 ft overhang (6 ft window ht, 1.25 ft sep.); 6.67 ft head ht	s	54	0.330	0	12.1	652	9.59	518

Doors

11D0: Door, wd sc type	n	18	0.390	0	14.3	254	11.4	203
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Ceilings

16B-30ad: Attic ceiling, asphalt shingles roof mat, r-30 ceil ins, 1/2" gypsum board int fnsh		2240	0.032	30.0	1.17	2623	1.69	3787
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Floors

22A-tpl: Bg floor, light dry soil, on grade depth		220	0.989	0	36.2	7945	0	0
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Project Summary
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Project Information

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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	25758 Btuh
Ducts	6120 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	31878 Btuh

Sensible Cooling Equipment Load Sizing

Structure	20056 Btuh
Ducts	8488 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	28544 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	2524 Btuh
Ducts	1877 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	4402 Btuh

	Heating	Cooling
Area (ft ²)	2193	2193
Volume (ft ³)	20390	20390
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	109	54

Equipment Total Load (Sen+Lat)	32946 Btuh
Req. total capacity at 0.75 SHR	3.2 ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR6036H1
AHRI ref	7562981
Efficiency	9 HSPF
Heating input	
Heating output	33000 Btuh @ 47 °F
Temperature rise	26 °F
Actual air flow	1160 cfm
Air flow factor	0.036 cfm/Btuh
Static pressure	0.37 in H2O
Space thermostat	
Capacity balance point = 33 °F	

Backup:
Input = 5 kW, Output = 17061 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR6036H1
Coil	TEM6A0C36H31++TDR
AHRI ref	7562981
Efficiency	13.0 EER, 16 SEER
Sensible cooling	26100 Btuh
Latent cooling	8700 Btuh
Total cooling	34800 Btuh
Actual air flow	1160 cfm
Air flow factor	0.041 cfm/Btuh
Static pressure	0.37 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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Right-J® Worksheet

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES
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By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					Entire House					BED 2				
2	Exposed wall					219.5 ft					36.5 ft				
3	Room height					9.1 ft					9.1 ft 13.5 x 13.0 ft				
4	Room dimensions										heat/cool				
5	Room area					2239.5 ft²					175.5 ft²				
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12C-0sw	0.091	n	3.33	2.71	397	281	937	763	0	0	0	0	
11	G	10C-v	0.300	n	10.98	7.48	20	0	220	150	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	11	0	129	102	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	72	0	870	690	0	0	0	0	
	G	2B-2lv	0.330	n	12.08	9.59	13	0	161	128	0	0	0	0	
	W	12C-0sw	0.091	e	3.33	2.71	568	550	1831	1490	118	100	333	271	
	G	2A-2ov	0.330	e	12.08	26.82	18	0	217	483	18	0	217	483	
	W	12C-0sw	0.091	s	3.33	2.71	609	435	1450	1180	123	105	348	284	
	G	10C-v	0.300	s	10.98	7.48	20	20	220	150	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.94	18	0	217	233	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.98	18	0	217	234	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	11.35	9	0	113	106	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.70	54	51	652	524	18	17	217	175	
	G	2A-2ov	0.330	s	12.08	9.59	54	54	652	518	0	0	0	0	
	W	12C-0sw	0.091	w	3.33	2.71	427	411	1369	1114	91	91	303	246	
	G	2B-2lv	0.330	w	12.08	26.82	16	0	193	429	0	0	0	0	
	R	12C-0sw	0.091	-	3.33	1.31	359	341	1136	448	0	0	0	0	
	D	11D0	0.390	n	14.27	11.45	18	18	254	203	0	0	0	0	
	C	16B-30ad	0.032	-	1.17	1.69	2240	2240	2623	3787	176	176	206	297	
	F	22A-tpi	0.989	-	36.20	0.00	2240	220	7945	0	176	37	1321	0	

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

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Entire House

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1	Room name					B2 WIC					BATH 2				
2	Exposed wall					5.0 ft					5.5 ft				
3	Room height					9.1 ft 7.0 x 5.0 ft heat/cool					9.1 ft 9.5 x 5.5 ft heat/cool				
4	Room dimensions					35.0 ft²					52.3 ft²				
5	Room area														
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12C-0sw	0.091	n	3.33	2.71	0	0	0	0	0	0	0	0	
11	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	G	2B-2lv	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	e	3.33	2.71	45	45	151	123	50	50	166	135	
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0	0	0	0	0	
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	w	3.33	2.71	0	0	0	0	0	0	0	0	
	G	2B-2lv	0.330	w	12.08	26.82	0	0	0	0	0	0	0	0	
	R	12C-0sw	0.091	-	3.33	1.31	0	0	0	0	0	0	0	0	
	D	11D0	0.390	n	14.27	11.45	0	0	0	0	0	0	0	0	
	C	16B-30ad	0.032	-	1.17	1.69	35	35	41	59	52	52	61	88	
	F	22A-tpi	0.989	-	36.20	0.00	35	5	181	0	52	6	199	0	

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1	Room name					B3 WIC					BED 3				
2	Exposed wall					5.0 ft					30.0 ft				
3	Room height					9.1 ft 7.0 x 5.0 ft heat/cool					9.1 ft 13.5 x 12.5 ft heat/cool				
4	Room dimensions					35.0 ft²					168.8 ft²				
5	Room area														
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6	W	12C-0sw	0.091	n	3.33	2.71	0	0	0	0	123	87	289	235	
11	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	36	0	435	345	
	G	2B-2lv	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	e	3.33	2.71	45	45	151	123	114	114	378	308	
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0	0	0	0	0	
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	w	3.33	2.71	0	0	0	0	36	36	121	98	
	G	2B-2lv	0.330	w	12.08	26.82	0	0	0	0	0	0	0	0	
	R	12C-0sw	0.091	-	3.33	1.31	0	0	0	0	0	0	0	0	
	D	11D0	0.390	n	14.27	11.45	0	0	0	0	0	0	0	0	
	C	16B-30ad	0.032	-	1.17	1.69	35	35	41	59	169	169	198	285	
	F	22A-tpi	0.989	-	36.20	0.00	35	5	181	0	169	30	1086	0	

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1	Room name						STUDY 21.0 ft				PANTRY 9.0 ft			
2	Exposed wall						9.1 ft 13.0 x 11.0 ft heat/cool				9.1 ft 9.5 x 7.0 ft heat/cool			
3	Room height													
4	Room dimensions													
5	Room area						143.0 ft²				66.5 ft²			
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12C-0sw	0.091	n	3.33	2.71	118	82	273	222	82	71	237	193
11	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	11	0	129	102
	G	2A-2ov	0.330	n	12.08	9.59	36	0	435	345	0	0	0	0
	G	2B-2iv	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	e	3.33	2.71	36	36	121	98	0	0	0	0
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0	0	0	0	0
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.33	2.71	36	36	121	98	0	0	0	0
	G	2B-2iv	0.330	w	12.08	26.82	0	0	0	0	0	0	0	0
	R	12C-0sw	0.091	-	3.33	1.31	0	0	0	0	68	68	227	90
	D	11D0	0.390	n	14.27	11.45	0	0	0	0	0	0	0	0
	C	16B-30ad	0.032	-	1.17	1.69	143	143	167	242	67	67	78	112
	F	22A-tpi	0.989	-	36.20	0.00	143	21	760	0	67	9	326	0

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



Right-J® Worksheet **Entire House** **DEL-AIR HEATING & AIR CONDITIONING**

Job: BONANZA RES
Date: 10/15/2020
By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					DINING 22.5 ft					GREAT ROOM 16.5 ft				
2	Exposed wall					9.1 ft 12.5 x 10.0 ft heat/cool					9.1 ft 1.0 x 417.0 ft heat/cool				
3	Room height														
4	Room dimensions														
5	Room area					125.0 ft²					417.0 ft²				
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6 11 .<															

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



Right-Suite® Universal 2019 19.0.16 RSU24017

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Right-J® Worksheet

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES

Date: 10/15/2020

By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					KITCHEN					MBED				
2	Exposed wall					0 ft					21.5 ft				
3	Room height					9.1 ft					9.1 ft				
4	Room dimensions					1.0 x 309.3 ft					14.0 x 19.5 ft				
5	Room area					309.3 ft²					273.0 ft²				
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
6 . . . 11	W	12C-0sw	0.091	n	3.33	2.71	0	0	0	0	0	0	0	0	
	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	G	2B-2lv	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	e	3.33	2.71	0	0	0	0	68	68	227	185	
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0	127	91	304	247	
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	18	0	217	233	
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	18	0	217	234	
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0	0	0	
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0	0	0	
	W	12C-0sw	0.091	w	3.33	2.71	0	0	0	0	0	0	0	0	
	G	2B-2lv	0.330	w	12.08	26.82	0	0	0	0	0	0	0	0	
	R	12C-0sw	0.091	-	3.33	1.31	127	109	364	144	0	0	0	0	
	D	11D0	0.390	n	14.27	11.45	18	18	254	203	0	0	0	0	
	C	16B-30ad	0.032	-	1.17	1.69	309	309	362	523	273	273	320	462	
	F	22A-tpi	0.989	-	36.20	0.00	309	0	0	0	273	22	778	0	

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

Right-J® Worksheet

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES
Date: 10/15/2020
By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1 2 3 4 5	Room name Exposed wall Room height Room dimensions Room area				MBATH 18.0 ft 9.1 ft 1.0 x 166.8 ft 166.8 ft²				WC 10.0 ft 9.1 ft 4.0 x 6.0 ft 24.0 ft²			
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S
6	W	12C-0sw	0.091	n	3.33	2.71	0	0	0	0	0	0
	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0
11	G	2B-2lv	0.330	n	12.08	9.59	0	0	0	0	0	0
	W	12C-0sw	0.091	e	3.33	2.71	0	0	0	0	0	0
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.33	2.71	59	50	166	135	36	36
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	11.35	9	0	113	106	0	0
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.33	2.71	104	88	295	240	55	55
	G	2B-2lv	0.330	w	12.08	26.82	16	0	193	429	0	0
	R	12C-0sw	0.091	-	3.33	1.31	0	0	0	0	0	0
	D	11D0	0.390	n	14.27	11.45	0	0	0	0	0	0
	C	16B-30ad	0.032	-	1.17	1.69	167	167	195	282	24	24
	F	22A-tpi	0.989	-	36.20	0.00	167	18	652	0	24	10
6	c) AED excursion								159			
	Envelope loss/gain								1613	1350		
12	a) Infiltration								356	82		
	b) Room ventilation								0	0		
13	Internal gains: Occupants @ 230						0		0	0		
	Appliances/other								0	0		
	Subtotal (lines 6 to 13)								1969	1433		
	Less external load								0	0		
	Less transfer								0	0		
	Redistribution								0	0		
14	Subtotal								1969	1433		
15	Duct loads						24%	42%	468	606	24%	42%
	Total room load								2436	2039		
	Air required (cfm)								89	83		
											1102	465
											40	19

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

Right-J® Worksheet

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES
Date: 10/15/2020
By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1 2 3 4 5	Room name		Exposed wall		Room height		Room dimensions		Room area		MWIC				UTILITY			
											9.1 ft		11.5 ft		9.1 ft		0 ft	
											94.8 ft		1.0		94.8 ft		101.3 ft	
	Ty	Construction number	U-value (Btu/h/ft²-F)	Or	HTM (Btu/h/ft²)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)		Area (ft²) or perimeter (ft)		Load (Btu/h)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12C-0sw	0.091	n	3.33	2.71	0	0	0	0	0	0	0	0	0	0	0	0
	G	10C-v	0.300	n	10.98	7.48	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	0	0	0	0
11	G	2B-2lv	0.330	n	12.08	9.59	0	0	0	0	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	e	3.33	2.71	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0	0	0	0	0	0	0	0	0
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0	0	0	0	0	0	0	0	0
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0	0	0	0	0	0	0	0	0
	W	12C-0sw	0.091	w	3.33	2.71	104	104	348	283	0	0	0	0	0	0	0	0
	G	2B-2lv	0.330	w	12.08	26.82	0	0	0	0	0	0	0	0	0	0	0	0
	R	12C-0sw	0.091	-	3.33	1.31	77	77	257	102	86	86	287	113	0	0	0	0
	D	11D0	0.390	n	14.27	11.45	0	0	0	0	0	0	0	0	0	0	0	0
	C	16B-30ad	0.032	-	1.17	1.69	95	95	111	160	101	101	119	171	0	0	0	0
	F	22A-tpi	0.989	-	36.20	0.00	95	12	416	0	101	0	0	0	0	0	0	0
6	c) AED excursion									-10								-15
	Envelope loss/gain								1132	534			406	269				
12	a) Infiltration								227	52			0	0				
	b) Room ventilation								0	0			0	0				
13	Internal gains:		Occupants @	230			0		0	0	0		0	0				
			Appliances/other						0	0			0	0				
	Subtotal (lines 6 to 13)								1360	587			406	869				
	Less external load								0	0			0	0				
	Less transfer								0	0			0	0				
	Redistribution								0	0			0	0				
14	Subtotal								1360	587			406	869				
15	Duct loads						24%	42%	323	248	24%	42%	96	368				
	Total room load								1683	835			502	1237				
	Air required (cfm)								61	34			18	50				

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

Right-J® Worksheet

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES

Date: 10/15/2020

By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

1	Room name					FOYER								
2	Exposed wall					7.5 ft								
3	Room height					10.0 ft					heat/cool			
4	Room dimensions					52.5 ft ² x 7.0 ft								
5	Room area													
	Ty	Construction number	U-value (Btu/h/ft ² -F)	Or	HTM (Btu/h/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btu/h)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12C-0sw	0.091	n	3.33	2.71	75	42	139	113				
	G	10C-v	0.300	n	10.98	7.48	20	0	220	150				
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0				
	G	2A-2ov	0.330	n	12.08	9.59	0	0	0	0				
11	G	2B-2fv	0.330	n	12.08	9.59	13	0	161	128				
	W	12C-0sw	0.091	e	3.33	2.71	0	0	0	0				
	G	2A-2ov	0.330	e	12.08	26.82	0	0	0	0				
	W	12C-0sw	0.091	s	3.33	2.71	0	0	0	0				
	G	10C-v	0.300	s	10.98	7.48	0	0	0	0				
	G	2A-2ov	0.330	s	12.08	12.94	0	0	0	0				
	G	2A-2ov	0.330	s	12.08	12.98	0	0	0	0				
	G	2A-2ov	0.330	s	12.08	11.35	0	0	0	0				
	G	2A-2ov	0.330	s	12.08	9.70	0	0	0	0				
	G	2A-2ov	0.330	s	12.08	9.59	0	0	0	0				
	W	12C-0sw	0.091	w	3.33	2.71	0	0	0	0				
	G	2B-2fv	0.330	w	12.08	26.82	0	0	0	0				
	R	12C-0sw	0.091	-	3.33	1.31	0	0	0	0				
	D	11D0	0.390	n	14.27	11.45	0	0	0	0				
	C	16B-30ad	0.032	-	1.17	1.69	53	53	61	89				
	F	22A-tpi	0.989	-	36.20	0.00	53	8	271	0				
										</				

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



Duct System Summary

Entire House

DEL-AIR HEATING & AIR CONDITIONING

Job: BONANZA RES
Date: 10/15/2020
By: ESW

531 CODISCO WAY, SANFORD, FL 32771 Phone: 407-831-2665 Fax: 407-333-3853 Web: WWW.DEL-AIR.COM

Project Information

For: AMERICAS HOME PLACE GAINESVILLE

	Heating	Cooling
External static pressure	0.37 in H ₂ O	0.37 in H ₂ O
Pressure losses	0.06 in H ₂ O	0.06 in H ₂ O
Available static pressure	0.31 in H ₂ O	0.31 in H ₂ O
Supply / return available pressure	0.155 / 0.155 in H ₂ O	0.155 / 0.155 in H ₂ O
Lowest friction rate	0.195 in/100ft	0.195 in/100ft
Actual air flow	1160 cfm	1160 cfm
Total effective length (TEL)	159 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
B2 WIC	h 584	21	12	0.196	4.0	0x0	VIFx	52.8	105.0	st3
B3 WIC	h 584	21	12	0.199	4.0	0x0	VIFx	50.6	105.0	st3
BATH 2	h 663	24	14	0.206	4.0	0x0	VIFx	45.5	105.0	st3
BED 2	h 4538	165	158	0.195	8.0	0x0	VIFx	53.8	105.0	st3
BED 3	h 3835	140	127	0.200	7.0	0x0	VIFx	50.4	105.0	st3
DINING	h 2972	108	67	0.276	6.0	0x0	VIFx	27.4	85.0	st1
FOYER	h 1257	46	29	0.261	4.0	0x0	VIFx	33.6	85.0	st2
GREAT ROOM	c 1995	57	81	0.281	6.0	0x0	VIFx	25.3	85.0	st2
GREAT ROOM-A	c 1995	57	81	0.264	6.0	0x0	VIFx	32.6	85.0	st2
KITCHEN	c 2895	44	118	0.372	6.0	0x0	VIFx	13.3	70.0	
MBATH	h 2436	89	83	0.300	6.0	0x0	VIFx	18.4	85.0	st1
MBED	c 3640	112	148	0.312	7.0	0x0	VIFx	14.4	85.0	st1
MWIC	h 1683	61	34	0.297	5.0	0x0	VIFx	19.3	85.0	st1
PANTRY	h 1453	53	31	0.367	4.0	0x0	VIFx	14.6	70.0	
STUDY	h 2838	103	97	0.281	6.0	0x0	VIFx	25.4	85.0	st2
UTILITY	c 1237	18	50	0.406	4.0	0x0	VIFx	6.3	70.0	
WC	h 1102	40	19	0.272	4.0	0x0	VIFx	29.1	85.0	st1

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	371	323	0.195	681	10.0	0 x 0	VinIFlx	st2
st2	Peak AVF	635	611	0.195	594	14.0	0 x 0	VinIFlx	
st1	Peak AVF	410	351	0.272	522	12.0	0 x 0	VinIFlx	



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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	1160	1160	0	0	0	0	0x 0		VIFx	



Florida Building Code, Energy Conservation, 6th Edition (2017)
Mandatory Requirements for Residential Performance, Prescriptive and ERI Methods

ADDRESS: _____ JEANLEA PLACE
_____, FL, 32038

Permit Number: _____

MANDATORY REQUIREMENTS See individual code sections for full details.

SECTION R401 GENERAL

- ☐ **R401.3 Energy Performance Level (EPL) display card (Mandatory).** The building official shall require that an energy performance level (EPL) display card be completed and certified by the builder to be accurate and correct before final approval of the building for occupancy. Florida law (Section 553.9085, Florida Statutes) requires the EPL display card to be included as an addendum to each sales contract for both presold and nonpresold residential buildings. The EPL display card contains information indicating the energy performance level and efficiencies of components installed in a dwelling unit. The building official shall verify that the EPL display card completed and signed by the builder accurately reflects the plans and specifications submitted to demonstrate code compliance for the building. A copy of the EPL display card can be found in Appendix RD.

- ☐ **R402.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.

Exception: Dwelling units of R-2 Occupancies and multiple attached single family dwellings shall be permitted to comply with Section C402.5.

- ☐ **R402.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

- ☐ **R402.4.1.1 Installation.** The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

- ☐ **R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding seven air changes per hour in Climate Zones 1 and 2, and three air changes per hour in Climate Zones 3 through 8. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

Exception: Testing is not required for additions, alterations, renovations, or repairs, of the building thermal envelope of existing buildings in which the new construction is less than 85 percent of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

- ☐ **R402.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

- ☐ **R402.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

Exception: Site-built windows, skylights and doors.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R402.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.

Exceptions:

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the Florida Building Code, Residential.

- ☐ **R402.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and labeled as having an air leakage rate not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a 1.57 psf (75 Pa) pressure differential. All recessed luminaires shall be sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

SECTION R403 SYSTEMS

R403.1 Controls.

- ☐ **R403.1.1 Thermostat provision (Mandatory).** At least one thermostat shall be provided for each separate heating and cooling system.

- ☐ **R403.1.3 Heat pump supplementary heat (Mandatory).** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

- ☐ **R403.3.2 Sealing (Mandatory)** All ducts, air handlers, filter boxes and building cavities that form the primary air containment passageways for air distribution systems shall be considered ducts or plenum chambers, shall be constructed and sealed in accordance with Section C403.2.9.2 of the Commercial Provisions of this code and shall be shown to meet duct tightness criteria below.

Duct tightness shall be verified by testing in accordance with ANSI/RESNET/ICC 380 by either individuals as defined in Section 553.993(5) or (7), Florida Statutes, or individuals licensed as set forth in Section 489.105(3)(f), (g) or (i), Florida Statutes, to be "substantially leak free" in accordance with Section R403.3.3.

- ☐ **R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design airflow rate when tested in accordance with ASHRAE 193.

- ☐ **R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exceptions:

1. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
2. Duct testing is not mandatory for buildings complying by Section 405 of this code.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

- ☐ **R403.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as ducts or plenums.

- ☐ **R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

- ☐ **R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

- ☐ **R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory)** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

- ☐ **R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

- ☐ **R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

MANDATORY REQUIREMENTS - (Continued)

- ☐ **R403.5.5 Heat traps (Mandatory).** Storage water heaters not equipped with integral heat traps and having vertical pipe risers shall have heat traps installed on both the inlets and outlets. External heat traps shall consist of either a commercially available heat trap or a downward and upward bend of at least 3 ½ inches (89 mm) in the hot water distribution line and cold water line located as close as possible to the storage tank.
- R403.5.6 Water heater efficiencies (Mandatory).**
- ☐ **R403.5.6.1.1 Automatic controls.** Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. The minimum temperature setting range shall be from 100°F to 140°F (38°C to 60°C).
- ☐ **R403.5.6.1.2 Shut down.** A separate switch or a clearly marked circuit breaker shall be provided to permit the power supplied to electric service systems to be turned off. A separate valve shall be provided to permit the energy supplied to the main burner(s) of combustion types of service water-heating systems to be turned off.
- ☐ **R403.5.6.2 Water-heating equipment.** Water-heating equipment installed in residential units shall meet the minimum efficiencies of Table C404.2 in Chapter 4 of the Florida Building Code, Energy Conservation, Commercial Provisions, for the type of equipment installed. Equipment used to provide heating functions as part of a combination system shall satisfy all stated requirements for the appropriate water-heating category. Solar water heaters shall meet the criteria of Section R403.5.6.2.1.
- ☐ **R403.5.6.2.1 Solar water-heating systems.** Solar systems for domestic hot water production are rated by the annual solar energy factor of the system. The solar energy factor of a system shall be determined from the Florida Solar Energy Center Directory of Certified Solar Systems. Solar collectors shall be tested in accordance with ISO Standard 9806, Test Methods for Solar Collectors, and SRCC Standard TM-1, Solar Domestic Hot Water System and Component Test Protocol. Collectors in installed solar water-heating systems should meet the following criteria:
1. Be installed with a tilt angle between 10 degrees and 40 degrees of the horizontal; and
 2. Be installed at an orientation within 45 degrees of true south.
- ☐ **R403.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that meets the requirements of the Florida Building Code, Residential, or Florida Building Code, Mechanical, as applicable, or with other approved means of ventilation including: Natural, Infiltration or Mechanical means. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- ☐ **R403.6.1 Whole-house mechanical ventilation system fan efficacy.** When installed to function as a whole-house mechanical ventilation system, fans shall meet the efficacy requirements of Table R403.6.1.
- Exception:** Where whole-house mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.
- ☐ **R403.6.2 Ventilation air.** Residential buildings designed to be operated at a positive indoor pressure or for mechanical ventilation shall meet the following criteria:
1. The design air change per hour minimums for residential buildings in ASHRAE 62.2, Ventilation for Acceptable Indoor Air Quality, shall be the maximum rates allowed for residential applications.
 2. No ventilation or air-conditioning system make-up air shall be provided to conditioned space from attics, crawlspaces, attached enclosed garages or outdoor spaces adjacent to swimming pools or spas.
 3. If ventilation air is drawn from enclosed space(s), then the walls of the space(s) from which air is drawn shall be insulated to a minimum of R-11 and the ceiling shall be insulated to a minimum of R-19, space permitting, or R-10 otherwise.
- ☐ **R403.7 Heating and cooling equipment (Mandatory).**
- R403.7.1 Equipment sizing.** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on the equipment loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies, based on building loads for the directional orientation of the building. The manufacturer and model number of the outdoor and indoor units (if split system) shall be submitted along with the sensible and total cooling capacities at the design conditions described in Section R302.1. This Code does not allow designer safety factors, provisions for future expansion or other factors that affect equipment sizing. System sizing calculations shall not include loads created by local intermittent mechanical ventilation such as standard kitchen and bathroom exhaust systems. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**TABLE R403.6.1
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY**

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY ^a (CFM/WATT)	AIRFLOW RATE MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

MANDATORY REQUIREMENTS - (Continued)



R403.7.1.1 Cooling equipment capacity.

Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section 403.7, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.

The published value for AHRI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment. This selection shall be based on the outdoor design dry-bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet-bulb temperature and the design value for entering dry-bulb temperature.

Design values for entering wet-bulb and dry-bulb temperatures shall be for the indoor dry bulb and relative humidity used for the load calculation and shall be adjusted for return side gains if the return duct(s) is installed in an unconditioned space.

Exceptions:

1. Attached single- and multiple-family residential equipment sizing may be selected so that its cooling capacity is less than the calculated total sensible load but not less than 80 percent of that load.
2. When signed and sealed by a Florida-registered engineer, in attached single- and multiple-family units, the capacity of equipment may be sized in accordance with good design practice.

R403.7.1.2 Heating equipment capacity.



R403.7.1.2.1 Heat pumps.

Heat pump sizing shall be based on the cooling requirements as calculated according to Section R403.7.1.1, and the heat pump total cooling capacity shall not be more than 1.15 times greater than the design cooling load even if the design heating load is 1.15 times greater than the design cooling load.



R403.7.1.2.2 Electric resistance furnaces.

Electric resistance furnaces shall be sized within 4 kW of the design requirements calculated according to the procedure selected in Section R403.7.1.



R403.7.1.2.3 Fossil fuel heating equipment.

The capacity of fossil fuel heating equipment with natural draft atmospheric burners shall not be less than the design load calculated in accordance with Section R403.7.1.



R403.7.1.3 Extra capacity required for special occasions.

Residences requiring excess cooling or heating equipment capacity on an intermittent basis, such as anticipated additional loads caused by major entertainment events, shall have equipment sized or controlled to prevent continuous space cooling or heating within that space by one or more of the following options:

1. A separate cooling or heating system is utilized to provide cooling or heating to the major entertainment areas.
2. A variable capacity system sized for optimum performance during base load periods is utilized.



R403.8 Systems serving multiple dwelling units (Mandatory). Systems serving multiple dwelling units shall comply with Sections C403 and C404 of the IECC—Commercial Provisions in lieu of Section R403.



R403.9 Snow melt and ice system controls (Mandatory) Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is above 50°F (10°C), and no precipitation is falling and an automatic or manual control that will allow shutoff when the outdoor temperature is above 40°F (4.8°C).



R403.10 Pools and permanent spa energy consumption (Mandatory).

shall be in accordance with Sections R403.10.1 through R403.10.5.

The energy consumption of pools and permanent spas



R403.10.1 Heaters.

The electric power to heaters shall be controlled by a readily accessible on-off switch that is an integral part of the heater mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.



R403.10.2 Time switches. Time switches or other control methods that can automatically turn off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat-recovery pool heating systems.
3. Where pumps are powered exclusively from on-site renewable generation.



R403.10.3 Covers. Outdoor heated swimming pools and outdoor permanent spas shall be equipped with a vapor-retardant cover on or at the water surface or a liquid cover or other means proven to reduce heat loss.

Exception: Where more than 70 percent of the energy for heating, computed over an operation season, is from site-recovered energy, such as from a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.



R403.10.4 Gas- and oil-fired pool and spa heaters. All gas- and oil-fired pool and spa heaters shall have a minimum thermal efficiency of 82 percent for heaters manufactured on or after April 16, 2013, when tested in accordance with ANSI Z 21.56. Pool heaters fired by natural or LP gas shall not have continuously burning pilot lights.

- ☐ **R403.10.5 Heat pump pool heaters.** Heat pump pool heaters shall have a minimum COP of 4.0 when tested in accordance with AHRI 1160, Table 2, Standard Rating Conditions-Low Air Temperature. A test report from an independent laboratory is required to verify procedure compliance. Geothermal swimming pool heat pumps are not required to meet this standard.
- ☐ **R403.11 Portable spas (Mandatory)** The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP-14.

SECTION R404

ELECTRICAL POWER AND LIGHTING SYSTEMS

- ☐ **R404.1 Lighting equipment (Mandatory).** Not less than 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Exception: Low-voltage lighting.

R404.1.1 Lighting equipment (Mandatory) Fuel gas lighting systems shall not have continuously burning pilot lights.

2017 - AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

TABLE 402.4.1.1
AIR BARRIER AND INSULATION INSPECTION COMPONENT CRITERIA

Project Name: BonanzaRes Street: _____ JEANLEA PLACE City, State, Zip: _____, FL, 32038 Owner: AMERICAS HOME PLACE GAINESVILLE Design Location: FL, Gainesville			Builder Name: AMERICAS HOME PLACE GAINESVILLE Permit Office: Permit Number: Jurisdiction:	CHECK
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA		
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.		
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.		
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.		
Windows, skylights and doors	The space between window/door jambs and framing, and skylights and framing shall be sealed.			
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.		
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.		
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided instead of floor insulation, insulation shall be permanently attached to the crawlspace		
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.			
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity spaces.		
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.			
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the drywall.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.		
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.		
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.		
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.			
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.			
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.			

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

RESIDENTIAL ENERGY CONSERVATION CODE DOCUMENTATION CHECKLIST

Florida Department of Business and Professional Regulation Simulated Performance Alternative (Performance) Method

Applications for compliance with the 2017 Florida Building Code, Energy Conservation via the residential Simulated Performance Method shall include:

- ☐ *This checklist*
- ☐ *A Form R405 report that documents that the Proposed Design complies with Section R405.3 of the Florida Energy Code. This form shall include a summary page indicating home address, e-ratio and the pass or fail status along with summary areas and types of components, whether the home was simulated as a worst-case orientation, name and version of the compliance software tool, name of individual completing the compliance report (one page) and an input summary checklist that can be used for field verification (usually four pages/may be greater).*
- ☐ *Energy Performance Level (EPL) Display Card (one page)*
- ☐ *HVAC system sizing and selection based on ACCA Manual S or per exceptions provided in Section R403.7*
- ☐ *Mandatory Requirements (five pages)*

Required prior to CO for the Performance Method:

- ☐ *Air Barrier and Insulation Inspection Component Criteria checklist (Table R402.4.1.1 - one page)*
- ☐ *A completed Envelope Leakage Test Report (usually one page)*
- ☐ *If Form R405 duct leakage type indicates anything other than "default leakage", then a completed Form R405 Duct Leakage Test Report (usually one page)*

Envelope Leakage Test Report (Blower Door Test)
Residential Prescriptive, Performance or ERI Method Compliance
2017 Florida Building Code, Energy Conservation, 6th Edition

Jurisdiction: _____

Permit #: _____

Job Information

Builder: AMERICAS HOME PLACE GARDEN CITY

Lot: NA

Address: _____ JEANLEA PLACE

City: _____

State: FL

Zip: 32038

Air Leakage Test Results *Passing results must meet either the Performance, Prescriptive, or ERI Method*

☐ **PRESCRIPTIVE METHOD**-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 7 air changes per hour at a pressure of 0.2 inch w.g. (50 Pascals) in Climate Zones 1 and 2.

☐ **PERFORMANCE or ERI METHOD**-The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding the selected ACH(50) value, as shown on Form R405-2017 (Performance) or R406-2017 (ERI), section labeled as infiltration, sub-section ACH50.
ACH(50) specified on Form R405-2017-Energy Calc (Performance) or R406-2017 (ERI): 7.000

$$\frac{\text{CFM}(50)}{\text{Building Volume}} \times 60 + \frac{19956}{\text{ACH}(50)} = \text{PASS}$$

☐ **PASS**

☐ When ACH(50) is less than 3, Mechanical Ventilation installation must be verified by building department.

Method for calculating building volume:

- ☐ Retrieved from architectural plans
☒ Code software calculated
☐ Field measured and calculated

R402.4.1.2 Testing. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by either individuals as defined in Section 553.993(5) or (7), *Florida Statutes*, or individuals licensed as set forth in Section 489.105(3)(f), (g), or (i) or an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, back draft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Testing Company

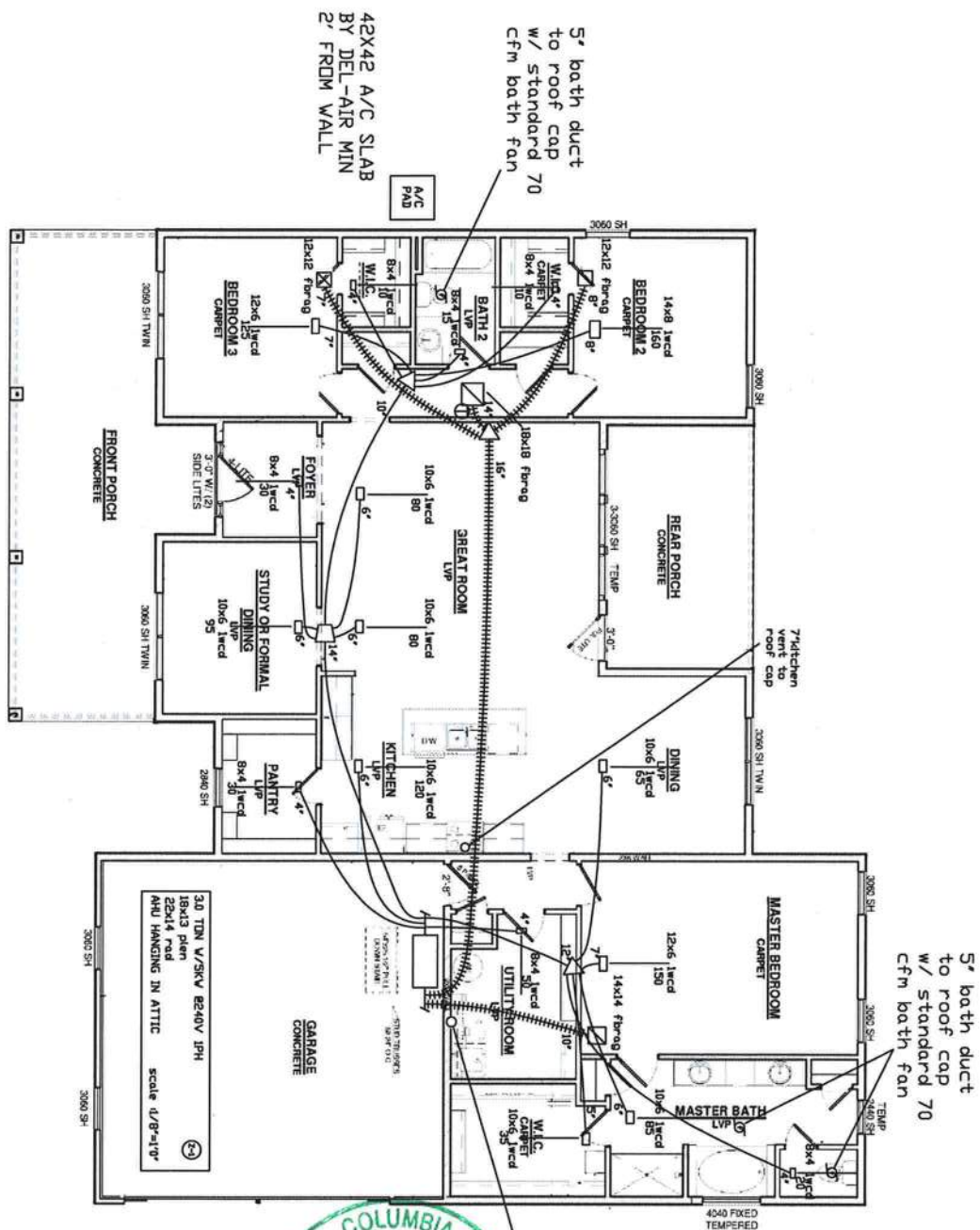
Company Name: _____ Phone: _____

I hereby verify that the above Air Leakage results are in accordance with the 2017 6th Edition Florida Building Code Energy Conservation requirements according to the compliance method selected above.

Signature of Tester: _____ Date of Test: _____

Printed Name of Tester: _____

License/Certification #: _____ Issuing Authority: _____



Must have a minimum clearance of 4 inches around the air handler per the State Energy code. All duct has an R=6 insulation value.

BUILDER:	AMERICAS HOME PLACE GAINESVILLE
PLAN :	BONANZA RES
LOT :	-
SUBDIVISION:	-
DATE:	10/15/2020
DRAWN BY:	ESM

Del Air
Heating, Air Conditioning & Refrigeration, Inc.
531 Codisco Way
Lake Mary Fl. 32746-6206
Phone: 407-831-2665
Fax: 407-333-3863