



Building Analysis

Entire House

EnergyCalcs.net

Job: Willis-Ruffo Res.
Date: Sep 12, 2021
By:

267 Deleon Road, DeBary, FL 32713 Phone: 386-775-0908 Email: info@energycalcs.net Web: www.energycalcs.net License: ER-1339

Project Information

For: JEFFREY RUFFO
278 Thompkins Loop, LAKE CITY, FL 32855

Design Conditions

Location:

Gainesville Regional, FL, US
Elevation: 123 ft
Latitude: 30°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

33
-
-
15.0

Cooling

92
18 (M)
76
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
37
50
32.6

Cooling

75
17
50
43.8

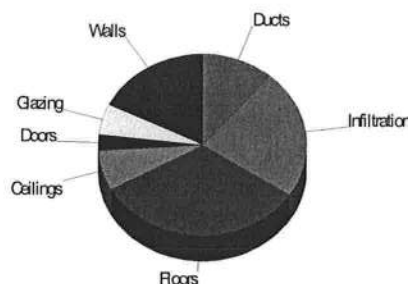
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Semi-loose
0

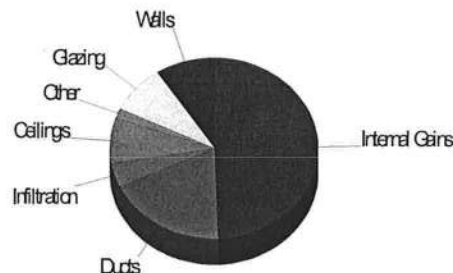
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.3	3828	17.7
Glazing	10.7	1185	5.5
Doors	14.4	603	2.8
Ceilings	1.2	1554	7.2
Floors	5.3	7035	32.6
Infiltration	3.8	4965	23.0
Ducts		2407	11.2
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		21576	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	2569	9.3
Glazing	21.4	2377	8.6
Doors	11.6	486	1.8
Ceilings	1.7	2247	8.1
Floors	0	0	0
Infiltration	0.9	1193	4.3
Ducts		5116	18.5
Ventilation		0	0
Internal gains		13640	49.4
Blower		0	0
Adjustments		0	0
Total		27629	100.0



Latent Cooling Load = 4440 Btuh
Overall U-value = 0.098 Btuh/ft²·°F

Data entries checked.



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Project Information

For: JEFFREY RUFFO
278 Thompkins Loop, LAKE CITY, FL 32855

Notes:

Design Information

Weather: Gainesville Regional, 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	44 gr/lb

Heating Summary

Structure	19169 Btuh
Ducts	2407 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	21576 Btuh

Sensible Cooling Equipment Load Sizing

Structure	22513 Btuh
Ducts	5116 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	27629 Btuh

Infiltration

Method	Simplified
Construction quality	Semi-loose
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	3479 Btuh
Ducts	961 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	4440 Btuh

	Heating	Cooling
Area (ft²)	1320	1320
Volume (ft³)	10560	10560
Air changes/hour	0.70	0.36
Equiv. AVF (cfm)	123	63

Equipment Total Load (Sen+Lat)	32069 Btuh
Req. total capacity at 0.80 SHR	2.9 ton

Heating Equipment Summary

Make	Generic 3 ton 15 seer Heat Pump
Trade	
Model	
AHRI ref	
Efficiency	8.5 HSPF
Heating input	
Heating output	36000 Btuh @ 47°F
Temperature rise	0 °F
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 0 °F	

Cooling Equipment Summary

Make	Generic 3 ton 15 seer Heat Pump
Trade	
Cond	
Coil	
AHRI ref	
Efficiency	15 SEER
Sensible cooling	28800 Btuh
Latent cooling	7200 Btuh
Total cooling	36000 Btuh
Actual air flow	1200 cfm
Air flow factor	0.043 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.86

Bold/italic values have been manually overridden

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



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 in H2O	0 in H2O
Available static pressure	0.50 in H2O	0.50 in H2O
Supply / return available pressure	0.250 / 0.250 in H2O	0.250 / 0.250 in H2O
Lowest friction rate	0.436 in/100ft	0.436 in/100ft
Actual air flow	0 cfm	1200 cfm
Total effective length (TEL)	115 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 1	c 967	0	42	0.520	4.0	0x0	VIFx	11.2	85.0	st2
Bed 1	c 3495	0	152	0.476	7.0	0x0	VIFx	20.0	85.0	st2
Bed 2	c 3424	0	149	0.477	7.0	0x0	VIFx	19.8	85.0	st2
Bed 3	c 3291	0	143	0.522	7.0	0x0	VIFx	10.8	85.0	st2
Kitchen/Dining-A	c 4864	0	211	0.473	9.0	0x0	VIFx	20.7	85.0	st1
Living-A	c 2635	0	114	0.477	6.0	0x0	VIFx	19.8	85.0	st1
Living-B	c 2635	0	114	0.498	6.0	0x0	VIFx	15.3	85.0	st1
WIC	c 600	0	26	0.462	4.0	0x0	VIFx	23.2	85.0	st1
new bath	c 690	0	30	0.448	4.0	0x0	VIFx	21.5	90.0	st1
new bed-A	c 2514	0	109	0.488	6.0	0x0	VIFx	17.6	85.0	st1
new bed-B	c 2514	0	109	0.436	6.0	0x0	VIFx	24.6	90.0	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
st1	Peak AVF	0	715	0.436	512	16.0	0 x 0	VinIFlx	
st2	Peak AVF	0	485	0.476	454	14.0	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
rb2	0x 0	0	1200	0	0	0	0	0x 0		VIFx	



Manual S Compliance Report

Entire House

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Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	27629 Btuh	Entering coil DB:	76.2°F
Outdoor design WB:	75.8°F	Latent gain:	4440 Btuh	Entering coil WB:	63.1°F
Indoor design DB:	75.0°F	Total gain:	32069 Btuh		
Indoor RH:	50%	Estimated airflow:	1200 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Generic 3 ton 15 s	Model:	
Actual airflow:	1200 cfm		
Sensible capacity:	30000 Btuh	109% of load	
Latent capacity:	6000 Btuh	135% of load	
Total capacity:	36000 Btuh	112% of load	SHR: 83%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	21576 Btuh	Entering coil DB:	70.0°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Generic 3 ton 15 s	Model:			
Actual airflow:	0 cfm				
Output capacity:	36000 Btuh	167% of load		Capacity balance:	0 °F
Supplemental heat required:	0 Btuh			Economic balance:	0 °F

Meets all requirements of ACCA Manual S.

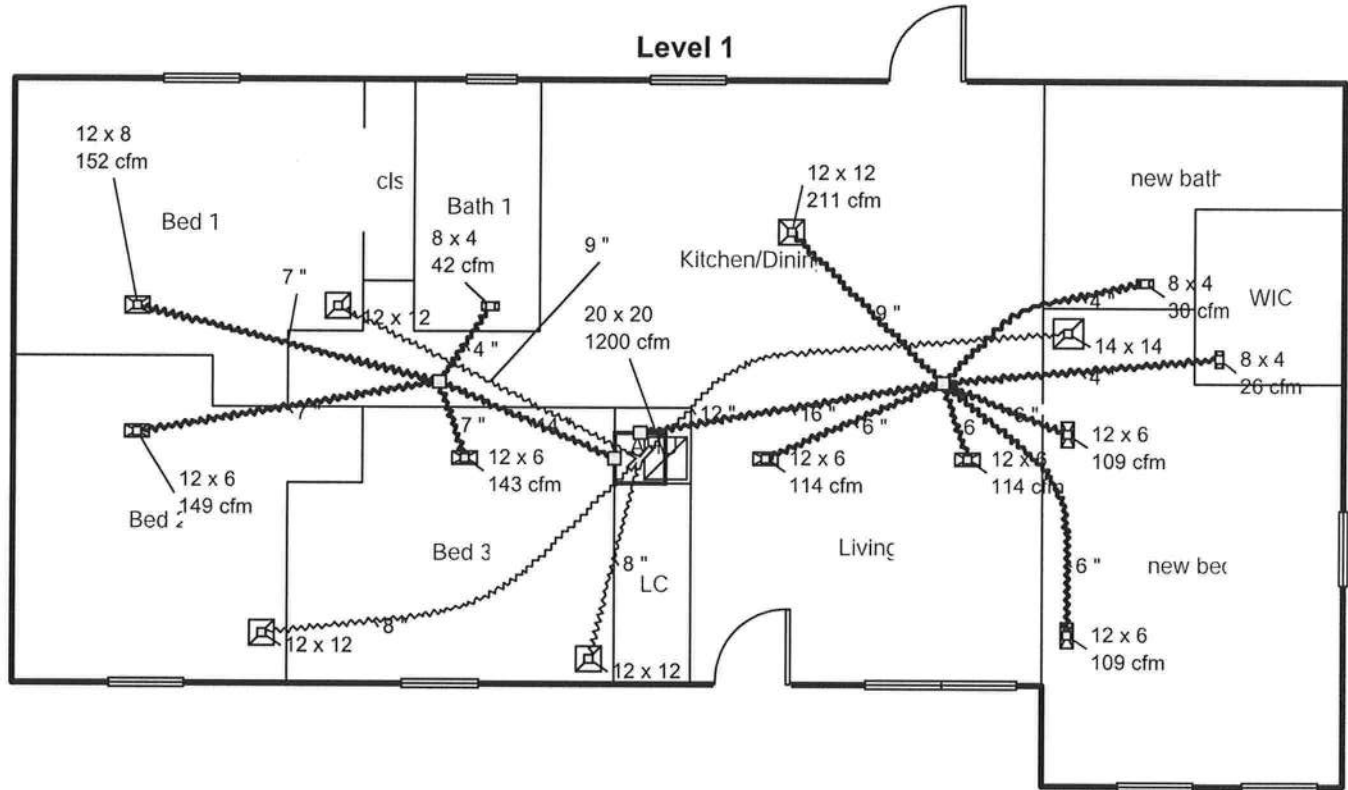


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