



Right-J8® Form J1
Entire House

DL Williams Heating & Cooling LLC

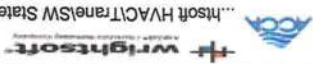
Job: 1
Date: May 31, 2023
By: DL Williams Heating and Co...
Plan: 1

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

1	Name of Room	Type of Exposure	Const., Number	Panel	Faces	HTM	Area or Length	Heating	S-Cig	L-Cig	Area or Length	Heating	S-Cig	L-Cig
2	Running Feet of Exposed Wall													
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)													
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)													
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)													
6	Wall	12C-0sw	12C-0sw	ne	ne	3.17	2.25	240	638	453	0	0	0	0
	Wall	4A5-2ov	4A5-2ov	ne	ne	16.36	22.29	9	139	189	0	0	0	0
	Wall	11J0	11J0	ne	ne	20.88	17.82	21	438	374	0	0	0	0
	Wall	12C-0sw	12C-0sw	se	se	3.17	2.25	240	760	539	120	380	270	270
	Wall	12C-0sw	12C-0sw	sw	sw	3.17	2.25	240	504	357	104	234	166	171
	Wall	4A5-2ov	4A5-2ov	sw	sw	16.36	17.82	30	491	537	15	245	269	269
	Wall	11J0	11J0	sw	sw	20.88	17.82	30	491	537	15	245	269	269
	Wall	12C-0sw	12C-0sw	sw	sw	3.17	2.25	240	438	374	0	0	0	0
	Wall	4A5-2ov	4A5-2ov	nw	nw	16.36	22.29	15	245	334	0	0	0	0
	Wall	4A5-2ov	4A5-2ov	nw	nw	16.36	22.29	15	245	334	0	0	0	0
	Cell	16B-38md	16B-38md	-	-	0.90	1.38	900	814	1245	195	176	270	270
	Cell	22A-tbl	22A-tbl	-	-	34.42	0.00	900	4130	0	195	964	0	0
12	Infiltration	Heating Load (Btuh)	0.61	Effect	ACH	0.32	WAR	2790			WAR	651		
		Sensible Load (Btuh)					1.00		723		0.23		169	
		Latent Load (Btuh)							1139					
13	Internal	a Occupants at 230 and 200 Btuh	3						690	600	0			
		b Scenario number							2400					
		c Default Adjustments												
		d Custom Appliances							0					
		e Plants							0					
14	Subtotals	Sum lines 6 through 12							13187	11289	1739	2896	1701	
15	Duct Loads	EHLF & ESGF	0.213						2811	3591		617	541	
		ELG									682		148	
16	Ventilation Loads	Vent Cfm	0						0	0				
		E Cfm	0						0	0				
17	Winter Humidification Load	Gal/Day	0											
18	Piping Load								0					
19	Blower Heat								0					
20	AED Excursion & Latent Moisture Migration Load								1341				387	
21	Total Load	Sum lines 13 through 19							15997	14879	2421	3513	2243	



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



[illegible]

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Job: 1
Date: 1
By: Plan: 1

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PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Name of Room		Running Feet of Exposed Wall		Ceiling Ht (Ft) and Gross Wall Area (SqFt)		Room Dimensions (Ft) and Floor Plan Area (SqFt)		Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)		Type of Exposure		Const. Number		Panel Faces		HTM		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating		Area or Length		Bluh		S-Cig		Heating			
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Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Right-Suite@ Universal 2023 23.0.01 RSU02245
...hsoft HVACTrans\SW State Rd 247 Residence.rup Calc = MJ8 Front Door faces: N

DL Williams Heating & Cooling LLC

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Job: 1
Date: M
By: D
Plan: 1

L. Williams Heating and Co...

[illegible]

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



Right-Suite@ Universal 2023.0.01 RSU02245
rd 247 Residence.rup Calc = MJB Front Door faces: N

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

Load Short Form Entire House DL Williams Heating & Cooling LLC

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Information

	Htg	Cig	Infiltration
Outside db (°F)	33	92	
Inside db (°F)	68	75	
Design TD (°F)	35	17	
Daily range	-	M	
Inside humidity (%)	30	50	
Moisture difference (gr/lb)	8	44	

HEATING EQUIPMENT

Make	Trane	Model	4TWR5018N1000	AHRI ref	209842249
Efficiency	7.8 HSPF2	Heating input	20682 Btu/h @ 47°F	Heating output	693 cfm
Temperature rise	27 °F	Actual air flow	0.043 cfm/Btu/h	Air flow factor	0.50 in H2O
Static pressure		Space thermostat		Capacity balance point = 23 °F	
Backup:		Input = 5 kW, Output = 15875 Btu/h, 100 AFUE			

COOLING EQUIPMENT

Make	Trane	Model	4TWR5018N1000	AHRI ref	209842249
Efficiency	12.2 EER2, 15.2 SEER2	Sensible cooling	14550 Btu/h	Latent cooling	6236 Btu/h
Total cooling		Actual air flow	693 cfm	Air flow factor	0.047 cfm/Btu/h
Static pressure		Load sensible heat ratio	0.50 in H2O		

ROOM NAME	Area (ft²)	Htg load (Btu/h)	Cig load (Btu/h)	Htg AVF (cfm)	Cig AVF (cfm)
BR1	195	3513	2243	152	104
Living	362	5738	7092	249	330
kitchen	165	3386	3385	147	158
wic	49	759	309	33	14
bath	88	2154	995	93	46
utility	32	438	840	19	39
ah	9	10	16	0	1

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

Entire House	900	15997	14879	693
Other equip loads		0	0	
Equip. @ 0.97 RSM			14463	
Latent cooling			2421	
TOTALS	900	15997	16884	693

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

Loads for Multiple Orientations Entire House DL Williams Heating & Cooling LLC



PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
 Lake City, FL 32024

Design Conditions

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

Outdoor:
 Drybulb (°F) 33
 Daily range (°F) -
 Wetbulb (°F) -
 Wind speed (mph) 15.0

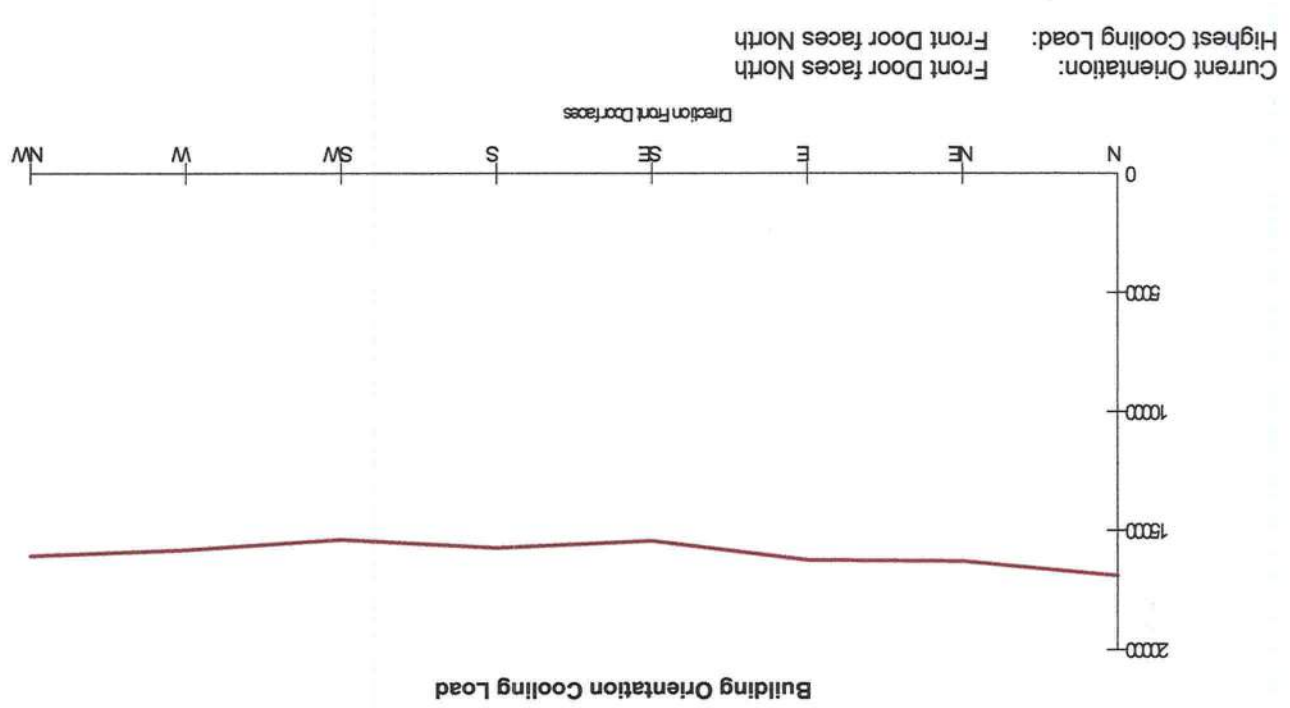
Heating
 92
 18 (M)
 76
 7.5

Cooling
 92
 18 (M)
 76
 7.5

Indoor:
 Indoor temperature (°F) 68
 Design TD (°F) 35
 Relative humidity (%) 30
 Moisture difference (gr/lb) 8.2

Infiltration:
 Cooling 43.8
 Heating 76
 17
 50

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	14463	13858	13816	13021	13307	12971	13388	13639
Latent Load (Btuh)	2421	2421	2421	2421	2421	2421	2421	2421
Total Load (Btuh)	16884	16279	16237	15442	15728	15392	15809	16060
Heating AVF (cfm)	693	693	693	693	693	693	693	693
Cooling AVF (cfm)	693	693	693	693	693	693	693	693



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

For: SW State RD 247 Residence
Lake City, FL 32024

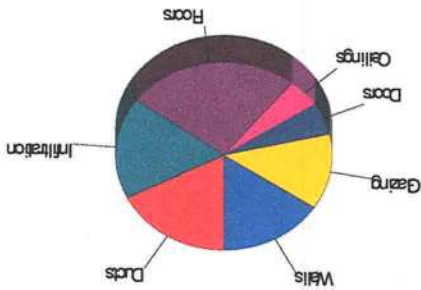
SW State RD 247 Residence
Lake City, FL 32024

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

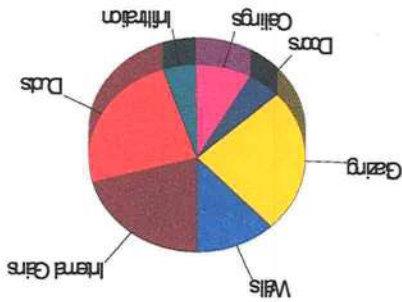
Outdoor:
Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Indoor:		Infiltration:	
Indoor temperature (°F)	68	Moisture difference (gr/lb)	8.2
Design TD (°F)	35	Relative humidity (%)	30
	17		50
	75		43.8
Cooling		Heating	
		Simplified	Average
		0	0

Component	Bluh/ft ²	Bluh	% of load
Walls	3.2	2507	15.7
Glazing	16.4	2069	12.9
Doors	20.9	877	5.5
Cellings	0.9	814	5.1
Floors	4.6	4130	25.8
Infiltration	2.9	2790	17.4
Ducts		2811	17.6
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		15997	100.0



Component	Bluh/ft ²	Bluh	% of load
Walls	2.2	1779	12.0
Glazing	29.3	3703	24.9
Doors	17.8	748	5.0
Ceilings	1.4	1245	8.4
Floors	0	0	0
Infiltration	0.8	723	4.9
Ducts		3591	24.1
Ventilation		0	0
Internal gains		3090	20.8
Blower		0	0
Adjustments		0	0
Total		14879	100.0



Latent Cooling Load = 2421 Btuh
Overall U-value = 0.108 Btuh/ft²-F, Window / Floor Area = 14.1 %
Data entries checked.

Data entries checked.

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

J1 Form - Worksheet A
Entire House
DL Williams Heating & Cooling LLC



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Supporting Detail	
Project Name:	SW State Rd 247 Residence
Address:	Lake City, FL 32024
Phone:	Job ID: 1

Worksheet A Location and Design Conditions	
Weather Location:	Gainesville Regional, FL, US
Indoor Conditions, Heating:	DB = 68 °F RH = 30 %
Indoor Conditions, Cooling:	DB = 75 °F RH = 50 %
Table 1 Conditions	99% DB = 33 °F 1% DB = 92 °F Grains Difference = 44 gr/lb Daily Range = M
Design Temperature Differences	HTD = 35 °F CTD = 17 °F

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Component Constructions
Entire House
DL Williams Heating & Cooling LLC



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Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Gainesville Regional, FL, US		Indoor:		Heating		Cooling		Outdoor:	
Elevation:		123 ft		Indoor temperature (°F)		33		92		Dry bulb (°F)	
Latitude:		30°N		Design TD (°F)		18		76		Daily range (°F)	
				Relative humidity (%)		-		7.5		Wet bulb (°F)	
				Moisture difference (gr/lb)		-		15.0		Wind speed (mph)	
				Infiltration:							
				Method							
				Construction quality							
				Fireplaces							

Floors

16B-38md: Attic ceiling, mtl roof mat, r-38 cell ins, 1/2" gypsum board int	900	0.026	38.0	0.90	814	1.38	1245
22A-1pl: Bg floor, light dry soil, on grade depth, carp 80% fir fnsh	120	0.989	0	34.4	4130	0	0

fnsh

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Indoor:		Infiltration:		Cooling		Heating		Outdoor:	
Gainesville Regional, FL, US		Indoor temperature (°F)	68	Moisture difference (gr/lb)	8.2	Relative humidity (%)	30	Dry bulb (°F)	33	Latitude:	30°N
Elevation: 123 ft		Design TD (°F)	35					Daily range (°F)	-		
			17					Wet bulb (°F)	-		
			50					Wind speed (mph)	15.0		
			43.8								
		Heating		Simplified		Method					
				Average		Construction quality					
		Cooling		0		Fireplaces					

Construction descriptions		Or	Area	t^2	U-value	$t^2 \cdot F/B_{uh}$	Insul R	$t^2 \cdot F/B_{uh}$	Htg HTM	B_{uh}/t^2	Loss	Cig HTM	Buh	Gain
---------------------------	--	----	------	-------	---------	----------------------	---------	----------------------	---------	--------------	------	---------	-----	------

Walls

12C-05w: Fm wall, 1/2" gyp.bd ext, 3/8" wood shth, r-13 cav ins, 1/2" gypsum board int ftnsh, 2"x4" wood frm, 16" o.c. stud

Partitions

(none)

Windows

50% outdoor insect screen; 2 ft overhang (5 ft window ht, 1 ft sep.);
inrr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 50% blinds 4.5" light;

4/4S-20V: 2 glazing, air low-e out, air gas, insulated vinyl frm mat, clr sw innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31; 50% blinds 45°, lght; 50% outdoor insect screen; 7 ft overhang (5 ft window ht, 1 ft sep.); 6.67 ft head ht

Doors (none)

(none)

Ceilings

16B-38md: Attic ceiling, mtl roof mat, r-38 cell ins, 1/2" gypsum board int
fnsh

Floors

22A-tp: Bg floor, light dry soil, on grade depth, carp 80% fir fnsh

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Gainessville Regional, FL, US	
Elevation:		123 ft	
Latitude:		30°N	
Outdoor:			
Dry bulb (°F)	33		
Daily range (°F)	-		
Wet bulb (°F)	-		
Wind speed (mph)	15.0		
Heating		Cooling	
	92		76
	18		7.5
(M)		(M)	
Indoor:		Infiltration:	
Indoor temperature (°F)	68	Moisture difference (gr/lb)	8.2
Design TD (°F)	35	Relative humidity (%)	30
	17		50
	75		43.8
Heating		Cooling	
	0		0
Simplified	Average	Method	Construction quality
		Fireplaces	

Construction descriptions		Or	Area	U-value	Insul R	Htg HTM	Loss Cig HTM	Gain Bluh
		ft²	Btuh/ft²-F	ft²-F/Btuh	Btuh/ft²	Btuh/ft²	Btuh/ft²	Btuh/ft²
Walls								
1'2C-0Sw: Frm wall, 1/2" gyp.bd ext, 3/8" wood shth, r-13 cav ins, 1/2"		sw	85	0.091	13.0	3.17	269	2.25
12C-0Sw: Frm wall, 1/2" gyp.bd ext, 3/8" wood shth, r-13 cav ins, 1/2"		nw	103	0.091	13.0	3.17	326	2.25
gypsum board int frsh, 2"x4" wood frm, 16" o.c. stud		all	188	0.091	13.0	3.17	595	2.25
								423

Partitions		Windows		Doors		Ceilings		Floors	
(none)									
4A5-20v: 2 glazing, clr low-e outr, air gas, insulated vinyl frm mat, clr	inrr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 50% blinds 45°, lght;	50% outdoor insect screen; 2 ft overhang (5 ft window ht, 1 ft sep.);	inrr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 50% blinds 45°, lght;	50% outdoor insect screen; 7 ft overhang (5 ft window ht, 1 ft sep.);	4A5-20v: 2 glazing, clr low-e outr, air gas, insulated vinyl frm mat, clr	6.67 ft head ht	4A5-20v: 2 glazing, clr low-e outr, air gas, insulated vinyl frm mat, clr	6.67 ft head ht	50% outdoor insect screen; 2 ft overhang (6.8 ft window ht, 1 ft sep.);
15	0.470	0	16.4	245	17.9	269	15	0.470	0
15	0.470	0	16.4	245	22.3	334	15	0.470	0
all	0.470	0	16.4	491	20.1	603	30	0.470	0
sw	15	0.470	0	245	11.4	171	15	0.470	0
nw	15	0.470	0	16.4	245	334	15	0.470	0
sw	34	0.470	0	16.4	556	758	34	0.470	0
sw	21	0.600	6.3	20.9	438	374	21	0.600	0.989
16B-38md: Attic ceiling, mtl roof mat, r-38 cell ins, 1/2" gypsum board int	362	0.026	38.0	0.90	328	501	362	0.026	0
22A-tp: Bg floor, lght dry soil, on grade depth, carp 80% fir fnsh	36	0.989	0	34.4	1239	0	36	0.989	0

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

Component Constructions
kitchen
DL Williams Heating & Cooling LLC



PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Gainesville Regional, FL, US		Elevation: 123 ft		Latitude: 30°N	
Outdoor:		Dry bulb (°F)		33		Daily range (°F)	
		Wet bulb (°F)		-		Wind speed (mph)	
		15.0					
Heating		92		(M)			
Cooling		76					
		7.5					
Indoor:		Indoor temperature (°F)		68		Heating	
		Design TD (°F)		35			
		Relative humidity (%)		30			
		Moisture difference (gr/lb)		8.2			
Infiltration:		Method		Simplified		Average	
		Construction quality		0		Fireplaces	
Cooling							
				</			

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Gainesville Regional, FL, US	
Elevation:		123 ft	
Latitude:		30°N	
Outdoor:			
Dry bulb (°F)	33	Heating	33
Daily range (°F)	-		-
Wet bulb (°F)	-		-
Wind speed (mph)	15.0		15.0
Indoor:			
Indoor temperature (°F)	68	Heating	68
Design TD (°F)	35		35
Relative humidity (%)	30		30
Moisture difference (gr/lb)	8.2	Cooling	43.8
Infiltration:			
Method	Simplified		
Construction quality	Average		
Fireplaces	0		

Construction descriptions	Or Area	U-value	Insul R	Htg H/M	Loss Cig H/M	Gain
	<i>R²</i>	Btu/h·ft ² ·°F	ft ² ·°F/Btu	Btu/h·ft ²	Btu/h·ft ²	Btu/h·ft ²

WALLS
12C-05W: Fm wall, 1/2" gyp. bd ext, 3/8" wood shth, f-
gypsum board int ftnsh, 2"x4" wood frm, 16" o.c. stud

Partitions (none)

Wind (none)

Doors (none)

Ceilings
16B-38md

first

Floors 22A-1p: Bg floor, light dry soil, on grade depth, carp 80% fir finish



Project Information

For: SW State RD 247 Residence
 Lake City, FL 32024

Design Conditions

Location:			
Gainesville Regional, FL, US			
Elevation:	123 ft		
Latitude:	30°N		
Outdoor:			
Dry bulb (°F)	33		
Daily range (°F)	-		
Wet bulb (°F)	-		
Wind speed (mph)	15.0		
Heating			
	92		
Cooling			
	76		
	7.5		
Infiltration:			
Method	Construction quality		
Fireplaces			
Indoor:			
Indoor temperature (°F)	68		
Design TD (°F)	35		
Relative humidity (%)	30		
Moisture difference (gr/lb)	8.2		
Heating			
	30		
Cooling			
	43.8		
Simplified	Average		
	0		

Construction descriptions

Walls	12C-0sw: Frm wall, 1/2" gyp, bd ext, 3/8" wood shth, r-13 cav ins, 1/2"	ne	79	0.091	13.0	3.17	250	2.25	178
	gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud	se	64	0.091	13.0	3.17	203	2.25	144
		all	143	0.091	13.0	3.17	453	2.25	321
Partitions	(none)								
Windows	4A5-2ov: 2 glazing, clr low-e out, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.31); 50% blinds 45°, lght; 50% outdoor insect screen; 2 ft overhang (3 ft window ht, 1 ft sep.); 6.67 ft head ht	ne	9	0.470	0	16.4	147	22.3	201
Doors	(none)								
Ceilings	16B-38md: Attic ceiling, mtl roof mat, r-38 cell ins, 1/2" gypsum board int fnsh	88	0.026	38.0	0.90	80	1.38	122	
Floors	22A-tp: Bg floor, lght dry soil, on grade depth, carp 80% flr fnsh	19	0.989	0	34.4	654	0	0	



Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

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		15.0	
Cooling		7.5	
Infiltration:		Method	
		Construction quality	
		Fireplaces	
Indoor:		Indoor temperature (°F)	
		Design TD (°F)	
		Relative humidity (%)	
		Moisture difference (gr/lb)	
Heating		Simplified	
		Average	
Cooling		0	

Construction descriptions

Walls		12C-0sw: Frm wall, 1/2" gyp. bd ext, 3/8" wood shth, r-13 cav ins, 1/2" gypsum board int fsh, 2"x4" wood frm, 16" o.c. stud	
Partitions		(none)	
Windows		(none)	
Doors		(none)	
Ceilings		16B-38md: Attic ceiling, mtl roof mat, r-38 cell ins, 1/2" gypsum board int fsh	
Floors		22A-1pl: Bg floor, lght dry soil, on grade depth, carp 80% fir fsh	

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

Component Constructions
ah
DL Williams Heating & Cooling LLC



PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:		Indoor:		Infiltration:		Cooling		Heating		Outdoor:	
Gainesville Regional, FL, US		Indoor temperature (°F)		Moisture difference (gr/lb)		Cooling		Heating		Dry bulb (°F)	
Elevation: 123 ft		Design TD (°F)		Relative humidity (%)		Method		-		Daily range (°F)	
Latitude: 30°N		35		30		Construction quality		-		Wet bulb (°F)	
		68		8.2		Fireplaces		15.0		Wind speed (mph)	
		Heating				Simplified Average					
		Cooling				0					

Job: 1
Date: May 31, 2023
By: DL Williams Heating and Cooling LLC
Plan: 1

Project Summary

DL Williams Heating & Cooling LLC

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Notes:

Design Information

Weather: Gainesville Regional, 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
M 50 %
Relative humidity 44 gr/lb

Heating Summary

Structure 13187 Btuh
Ducts 2811 Btuh
Central vent (0 cfm) 0 Btuh
Humidification (none) 0 Btuh
Piping 0 Btuh
Equipment load 15997 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11289 Btuh
Ducts 3591 Btuh
Central vent (0 cfm) 0 Btuh
Blower (none) 0 Btuh
Use manufacturer's data 0.97 n
Equipment sensible load 14463 Btuh

Infiltration

Method Construction quality
Fireplaces
Simplified Average 0

Latent Cooling Equipment Load Sizing

Structure 1739 Btuh
Ducts 682 Btuh
Central vent (0 cfm) 0 Btuh
Equipment latent load 2421 Btuh
Equipment Total Load (Sen+Lat) 16884 Btuh
Req. total capacity at 0.70 SHR 1.7 ton

Heating Equipment Summary

Area (ft²) 900
Volume (ft³) 7200
Air changes/hour 0.61
Equiv. AVF (cfm) 73
Heating 900
Cooling 900

Cooling Equipment Summary

Make Trane
Model 4TWR5018N1000
AHR1 ref 209842249
Efficiency 7.8 HSPF2
Heating input 20682 Btuh @ 47°F
Heating output 27 °F
Actual air flow 693 cfm
Air flow factor 0.043 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat Capacity balance point = 23 °F
Backup: Input = 5 kW, Output = 15875 Btuh, 100 AFUE

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



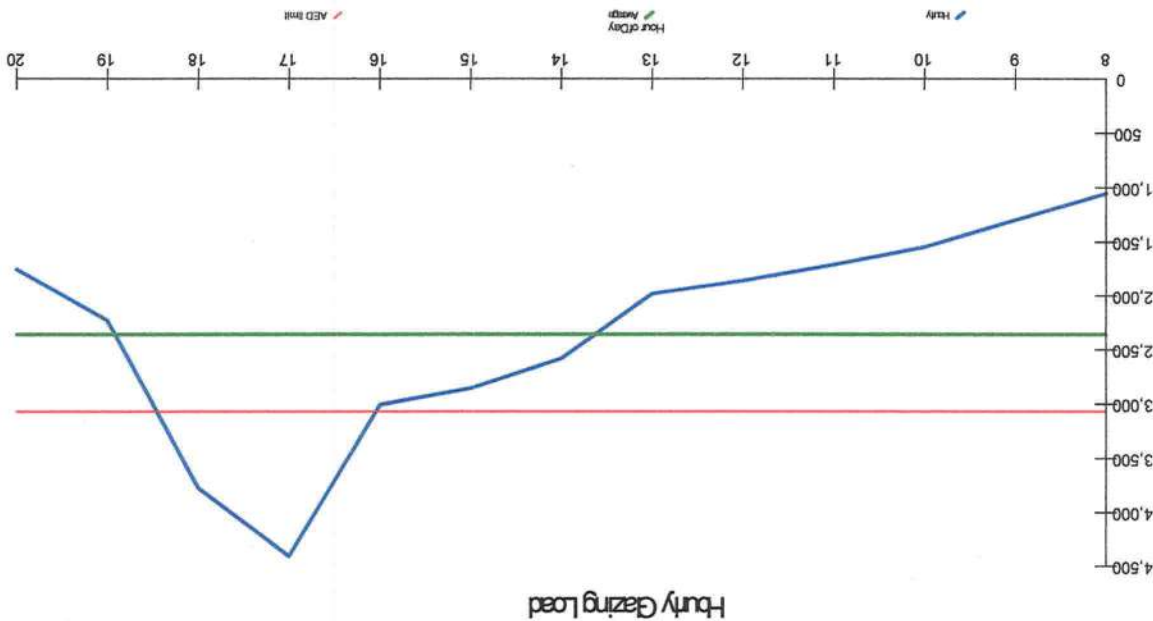
Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Design Conditions

Location:			
Gainesville Regional, FL, US			
Elevation: 123 ft			
Latitude: 30°N			
Outdoor:			
Drybulb (°F)			
Daily range (°F)			
Wetbulb (°F)			
Wind speed (mph)			
Heating			
33			
Cooling			
92			
Infiltration:			
(M)			
92			
Moisture difference (gr/lb)			
Indoor:			
Indoor temperature (°F)			
Design TD (°F)			
Relative humidity (%)			
Heating			
68			
Cooling			
75			
17			
50			
43.8			

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 86.9%.
House does not have adequate exposure diversity (AED), based on AED limit of 30%.
AED excursion: 1341 Btu/h (PFG - 1.3*AFG)

1	Room name											U-value (Btu/h.ft ² .°F)	Or	HTM (Btu/h.ft ²)	Gross	N/P/S	Heat	Cool	Area (ft ²) or perimeter (ft)	Load (Btu/h)	Gross	N/P/S	Heat	Cool	Area (ft ²) or perimeter (ft)	Load (Btu/h)					
2	Exposed wall																														
3	Room height																														
4	Room dimensions																														
5	Room area																														
		Entire House 120.0 ft										900.0 ft ²										BR1 28.0 ft 8.0 ft 13.0 ft x 15.0 ft 195.0 ft ²									
6	W	12C-0sw	0.091	ne	3.17	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	D	11J0	0.600	ne	20.88	17.82	20.88	16.36	17.91	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25				
	G	4A5-20v	0.470	ne	16.36	17.91	16.36	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25				
	G	4A5-20v	0.470	ne	16.36	17.91	16.36	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25				
	G	4A5-20v	0.470	ne	16.36	17.91	16.36	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25	16.36	17.91	2.25	2.25				
	W	12C-0sw	0.091	se	3.17	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	D	11J0	0.600	ne	20.88	17.82	20.88	16.36	17.91	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25				
	W	12C-0sw	0.091	sw	3.17	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	D	11J0	0.600	sw	20.88	17.82	20.88	16.36	17.91	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25	20.88	17.82	2.25	2.25				
	G	4A5-20v	0.470	nmw	3.17	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	G	4A5-20v	0.470	nmw	3.17	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	C	16B-38md	0.026	-	1.38	0.90	1.38	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
	F	22A-tdl	0.989	-	34.42	0.00	34.42	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25	16.36	22.29	2.25	2.25				
14	Less external load											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
14	Redistribution											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
14	Subtotal											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
13	Internal gains:	Occupants @ Appliances/other										0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790				
12	a) Infiltration											0	723	0	723	0	723	0	723	0	723	0	723	0	723	0	723				
12	b) Room ventilation											0	651	0	651	0	651	0	651	0	651	0	651	0	651	0	651				
Envelope loss/gain												10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475				
6	c) AED excursion											1341		1341		1341		1341		1341		1341		1341		1341					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Internal gains:		Occupants @ Appliances/other										3		3		3		3		3		3		3		3					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Less transfer											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Redistribution											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Subtotal											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
13	Internal gains:	Occupants @ Appliances/other										0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790				
12	a) Infiltration											0	723	0	723	0	723	0	723	0	723	0	723	0	723	0	723				
12	b) Room ventilation											0	651	0	651	0	651	0	651	0	651	0	651	0	651	0	651				
Envelope loss/gain												10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475				
6	c) AED excursion											1341		1341		1341		1341		1341		1341		1341		1341					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Internal gains:		Occupants @ Appliances/other										3		3		3		3		3		3		3		3					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Less transfer											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Redistribution											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Subtotal											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
13	Internal gains:	Occupants @ Appliances/other										0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790	0	2790				
12	a) Infiltration											0	723	0	723	0	723	0	723	0	723	0	723	0	723	0	723				
12	b) Room ventilation											0	651	0	651	0	651	0	651	0	651	0	651	0	651	0	651				
Envelope loss/gain												10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475	10397	7475				
6	c) AED excursion											1341		1341		1341		1341		1341		1341		1341		1341					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Internal gains:		Occupants @ Appliances/other										3		3		3		3		3		3		3		3					
Subtotal (lines 6 to 13)												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Less transfer											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Redistribution											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14	Subtotal											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15	Duct loads											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total room load												13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289	13187	11289				
Air required (cfm)												230	3	230	3	230	3	230	3	230	3	230	3	230	3	230	3				
13	Internal gains:																														

Job: 1
Date: M
By: D
Plan: 1

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[illegible]

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Job: 1
Date: May 31, 2023
By: DL Williams Heating and Co...
Plan: 1

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dwiliamsheatingandcooling.com Web: www.dwiliamsheatingandcooling.com

Right-J® Worksheet
Entire House
DL Williams Heating & Cooling LLC



Duct system multi orientation report

Entire House

DL Williams Heating & Cooling LLC



Job: 1
 Date: May 31, 2023
 By: DL Williams Heating and...
 Plan: 1

PO Box 2156, Lake City, FL 32056 Phone: 386-754-1987 Email: office@dlwilliamsheatingandcooling.com Web: www.dlwilliamsheatingandcooling.com

Project Information

For: SW State RD 247 Residence
 Lake City, FL 32024

Group 1: (N, NE, SE, S, SW, W, NW) Group 2: (E)

Duct Name	(N)	(NE)	(E)	(SE)
Reg CFM	152 h	152 h	152 h	152 h
Duct Size	12x12	12x12	12x12	12x12
Reg CFM	174 c	152 c	138 c	156 c
Duct Size	12x12	12x12	12x12	12x12
Living-A	174 c	152 c	138 c	156 c
Living	174 c	152 c	138 c	156 c
Reg CFM	163 c	180 c	190 c	171 c
Duct Size	12x12	12x12	12x12	12x12
Kitchen	163 c	180 c	190 c	171 c
Utility	42 c	43 c	44 c	42 c
Duct Size	12x12	12x12	12x12	12x12
Wic	33 h	33 h	33 h	33 h
Duct Size	12x12	12x12	12x12	12x12
Return Branches	33 h	33 h	33 h	33 h
Reg CFM	693 c	693 c	693 c	693 c
Duct Size	12x12	12x12	12x12	12x12
Friction Rates	14	14	14	14
Heating FR	0.291	0.291	0.291	0.291
Cooling FR	0.291	0.291	0.291	0.291

For: SW State RD 247 Residence
Lake City, FL 32024

Duct Name	(S)			(SW)			(W)			(NW)		
	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size
BR1	152 h	12x12	7	152 h	12x12	7	152 h	12x12	7	152 h	12x12	7
Living	163 c	12x12	7	151 c	12x12	7	143 c	12x12	7	165 c	12x12	7
Living-A	163 c	12x12	7	151 c	12x12	7	143 c	12x12	7	165 c	12x12	7
ah	1 c	12x12	4	1 c	12x12	4	1 c	12x12	4	1 c	12x12	4
bath	93 h	12x12	6	93 h	12x12	6	93 h	12x12	6	93 h	12x12	6
kitchen	174 c	12x12	7	163 c	12x12	7	167 c	12x12	7	158 c	12x12	7
utility	45 c	12x12	4	41 c	12x12	4	41 c	12x12	4	39 c	12x12	4
wic	33 h	12x12	4	33 h	12x12	4	33 h	12x12	4	33 h	12x12	4
Return Branches												
th1	693 c	12x12	14	693 c	12x12	14	693 c	12x12	14	693 c	12x12	14
Friction Rates												
Heating FR	0.291			0.291			0.291			0.291		
Cooling FR	0.291			0.291			0.291			0.291		

Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Duct Name		Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size
Supply Branches							
BR1	152 h	12x12	7	152 h	12x12	7	
Living	174 c	12x12	7	138 c	12x12	7	6
Living-A	174 c	12x12	7	138 c	12x12	7	7
ah	1 c	12x12	4	1 c	12x12	4	4
bath	93 h	12x12	6	93 h	12x12	6	6
kitchen	190 c	12x12	7	158 c	12x12	7	7
utility	45 c	12x12	4	39 c	12x12	4	4
wic	33 h	12x12	4	33 h	12x12	4	4
Return Branches							
fb1	693 c	12x12	14	693 c	12x12	14	14
Friction Rates							
Heating FR	0.291			0.291			
Cooling FR	0.291			0.291			

Background Color Legend

Yellow background

Duct Size - duct size is smaller than the largest duct size in the row
Reg Size - register size is smaller than the largest register size in the row
Reg CFM - register design cfm is larger than 150 CFM
Friction Rate - friction rate is outside ACCA Manual-D recommended range (0.06 - 0.18)

Pink background column header

Largest cooling load orientation



Static Pressure and Friction Rate



DL Williams Heating & Cooling LLC

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

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Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Available Static Pressure

External static pressure	Heating	Cooling
Pressure losses	0.50	0.50
Coil	0	0
Heat exchanger	0	0
Supply diffusers	0	0
Return grilles	0	0
Filter	0	0
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.50	0.50

Total Effective Length

Measured length of run-out	Supply	Return
Measured length of trunk	13	3
Equivalent length of fittings	95	60
Total length	108	63
Total effective length	108	172

Friction Rate

Supply Ducts	Heating	Cooling
Return Ducts	0.291	0.291
	> 0.18	> 0.18

Fitting Equivalent Length Details

Supply 4AD=60, 1A=35: TotalEL=95
Return 5D=40, 6M=20: TotalEL=60

Job: 1
Date: May 31, 2023
By: DL Williams Heating and...
Plan: 1

Duct System Summary

Entire House

DL Williams Heating & Cooling LLC



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Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

External static pressure 0.50 in H2O
Pressure losses 0 in H2O
Available static pressure 0.50 in H2O
Supply / return available pressure 0.316 / 0.184 in H2O
Lowest friction rate 0.291 in/100ft
Actual air flow 693 cfm
Total effective length (TEL) 172 ft

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Cig (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Fig.Eqv Ln (ft)	Trunk
BR1	3513	152	104	0.303	7.0	0x0	VFX	9.2	95.0	
Living	3546	124	165	0.318	7.0	0x0	VFX	4.2	95.0	
Living-A	3546	124	165	0.291	7.0	0x0	VFX	13.3	95.0	
ah	16	0	1	0.327	4.0	0x0	VFX	1.4	95.0	
bath	2154	93	46	0.306	6.0	0x0	VFX	8.1	95.0	
kitchen	3385	147	158	0.303	7.0	0x0	VFX	9.1	95.0	
utility	840	19	39	0.322	4.0	0x0	VFX	3.0	95.0	
wic	759	33	14	0.308	4.0	0x0	VFX	7.3	95.0	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Cig (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	693	693	63.4	0.291	648	14.0	0x0		VFX	

Manual S Compliance Report
Entire House
DL Williams Heating & Cooling LLC



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Project Information

For: SW State RD 247 Residence
Lake City, FL 32024

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	14879 Btu/h	Entering coil DB:	76.8°F
Outdoor design WB:	75.8°F	Latent gain:	2421 Btu/h	Entering coil WB:	63.3°F
Indoor design DB:	75.0°F	Total gain:	17300 Btu/h		
Indoor RH:	50%	Estimated airflow:	693 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR5018N1000+TEM4B0B24M21S
Manufacturer:	Trane		
Actual airflow:	693 cfm		
Sensible capacity:	14550 Btu/h	98% of load	
Latent capacity:	6236 Btu/h	258% of load	
Total capacity:	20786 Btu/h	120% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	15997 Btu/h	Entering coil DB:	67.2°F
Indoor design DB:	68.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR5018N1000+TEM4B0B24M21S
Manufacturer:	Trane		
Actual airflow:	693 cfm		
Output capacity:	20682 Btu/h	129% of load	
Supplemental heat required:	0 Btu/h		
Capacity balance:	23 °F		
Economic balance:	-99 °F		

Meets all requirements of ACCA Manual S.

Backup equipment type:	Elec strip	Model:	
Manufacturer:			
Actual airflow:	693 cfm		
Output capacity:	4.7 kW	99% of load	
Temp. rise:	50 °F		



Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Columbia Header Information

Contractor: DL Williams Heating & Cooling LLC

Derrick Williams

Mechanical license:

Building plan #: 1

Home address (Street or Lot#, Block, Subdivision): , Entire House

REQUIRED ATTACHMENTS
Manual J1 Form (and supporting worksheets): Yes ☐ No ☐
or M11AE Form* (and supporting worksheets): Yes ☐ No ☐
CEM performance data (heating, cooling, blower): Yes ☐ No ☐
Manual D Friction Rate Worksheet: Yes ☐ No ☐
Duct distribution sketch: Yes ☐ No ☐
ATTACHED

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: 33 °F
Indoor temperature: 68 °F
Total heat loss: 15997 Btu/h

Summer Design Conditions

Outdoor temperature: 92 °F
Indoor temperature: 75 °F
Grains difference: 44 gr/lb @ 50% RH
Sensible heat gain: 15308 Btu/h
Latent heat gain: 2491 Btu/h
Total heat gain: 17799 Btu/h

Windows

Eave overhang depth: Internal shade: Blinds, drapes, etc.
Number of bedrooms: 0
Conditioned floor area: 900 ft²
Number of occupants: 3

Front Door Faces North
Orientation: North, East, West, South, Northwest, Northeast, Southeast, Southwest



Heating Equipment Data

Cooling Equipment Data

Blower Data

Equipment type: Split ASHP
Furnace, Heat pump, Boiler, etc.
Model: 4TWR5018N1000+TEM4B0B24M21S
Trane
Heating output capacity: 0 Btu/h
Heat pumps - capacity at winter design outdoor conditions
Aux. heating output capacity: 15875 Btu/h
Total cooling capacity: 4TWR5018N1000+TEM4B0B24M21S
Trane
Sensible cooling capacity: 0 Btu/h
Latent cooling capacity: 0 Btu/h
Equipment type: Split ASHP
Air conditioner, Heat pump, etc.
Model: 4TWR5018N1000+TEM4B0B24M21S
Trane
Heating cfm: 693
Cooling cfm: 693
Fan's rated external static pressure for design airflow: 0.50 in H2O

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: 693 cfm
Equipment design ESP: 0.50 in H2O
Total device pressure losses: 0 in H2O
Available static pressure (ASP): 0.50 in H2O
Longest supply duct: 108 ft
Longest return duct: 63 ft
Duct Materials Used
Trunk duct: Round flex vinyl
Branch duct: 0.291 in/100ft
Friction rate: 0.291 in/100ft
Friction rate = ASP + (TEL x 100)
I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name:

Contractor's signature:

Date:

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for M11AE Form based on Abridged Edition Checklist

