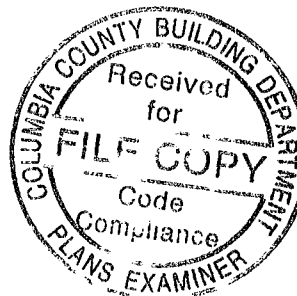
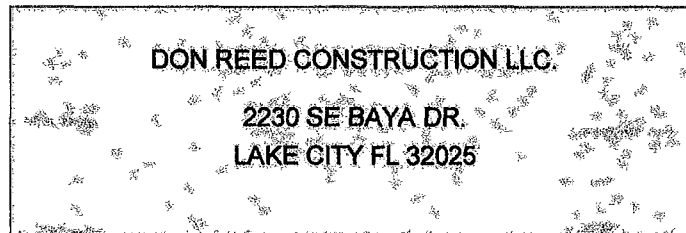


BOARDMAN RESIDENCE HVAC LOAD ANALYSIS

for



Prepared By

DAVID HALL
DAVID HALL'S INC.
PO BOX 244
LAKE CITY FL 32056
386-755-9792
03/12/14

Miscellaneous Project Data

Project File Name: UNTITLED

System Input Data

---System 1---	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum.	Indoor Dry Bulb	Grains Difference
Winter:	31	N/A	N/A	72	N/A
Summer:	96	78	50%	75	52

External Overhangs

No.	Projection	Offset	No.	Projection	Offset
1	3	1	6	0	0
2	5	0	7	0	0
3	4	0.5	8	0	0
4	0	0	9	0	0
5	0	0	10	0	0

Duct Sizing Inputs

	Runouts		Main Trunk
Duct Material:	Flexible Duct		Galvanized Steel
Roughness Factor:	0.010000		0.000300
Pressure Drop:	0.1000 In.wg/100 Ft.		0.1000 In.wg/100 Ft.
Minimum Velocity:	450.0 Ft./Minute		650.0 Ft./Minute
Maximum Velocity:	750.0 Ft./Minute		900.0 Ft./Minute
Minimum Height:	0 Inches		0 Inches
Maximum Height:	0 Inches		0 Inches

Outside Air Data

	Winter		Summer
Infiltration:	0.900 AC/Hr		0.400 AC/Hr
Volume of Conditioned Space:	X 13342 Cu.Ft.		X 13342 Cu.Ft.
	12,008 Cu.Ft./Hr		5,337 Cu.Ft./Hr
	X 0.0167		X 0.0167
Total Building Infiltration:	200.13 CFM		88.94667 CFM
Total Building Ventilation:	0 CFM		0 CFM
---System 1---			
Infiltration & Ventilation Sensible Gain Multiplier:	23.10	= (1.10 X 21.00 Summer Temp. Difference)	
Infiltration & Ventilation Latent Gain Multiplier:	35.12	= (0.68 X 51.65 Grains Difference)	
Infiltration & Ventilation Sensible Loss Multiplier:	45.10	= (1.10 X 41.00 Winter Temp. Difference)	

Total Building Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3B Window Double Pane Clear Glass TIM Frame	108	2,698	0	5,828	5,828
8O Glass Door Double Clear Glass Metal Frame	96	2,854	0	4,598	4,598
9G French Door Double Clear Glass Wood Frame	84	1,798	0	2,596	2,596
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	967	2,577	0	1,546	1,546
16G Ceiling R-30 Insulation	1,482	2,004	0	2,201	2,201
22A Slab on Grade No Edge Insulation	157	5,215	0	0	0
Subtotals for structure:	2,894	17,146	0	16,769	16,769
Active People:	7	0	1,610	2,100	3,710
Inactive People:	0	0	0	0	0
Appliances:	0	0	0	0	0
Lighting:	0	0		3,410	
Ductwork:	0	1,308	0	2,433	2,433
Infiltration: Winter CFM: 200.1, Summer CFM: 88.9	288	9,025	3,124	2,055	5,179
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	0	0	0	0
Sensible Gain Total:				26,767	
Temperature Swing Multiplier:				X1.00	
Building Load Totals:		27,479	4,734	26,767	31,501

Check Figures

Total Building Supply CFM:	1217	CFM per square foot:	0.821
Square feet of room area:	1,482	Square feet per ton:	511.588

Building Loads

Total heating required with outside air:	27,479 Btuh	27.479 MBH
Total sensible gain:	26,767 Btuh	85 %
Total latent gain:	4,734 Btuh	15 %
Total cooling required with outside air:	31,501 Btuh	2.625 Tons (based on sensible + latent)
		2.897 Tons (based on 77% sensible capacity)

Notes

Calculations are based on 7th edition of ACCA Manual J.
 All computed results are estimates as building use and weather may vary.
 Be sure to select a unit that meets both sensible and latent loads.

System #1 Zone #1 Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3B Window Double Pane Clear Glass TIM Frame	24	600	0	562	562
9G French Door Double Clear Glass Wood Frame	42	899	0	983	983
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	302	805	0	483	483
16G Ceiling R-30 Insulation	480	649	0	713	713
22A Slab on Grade No Edge Insulation	46	1,528	0	0	0
Subtotals for structure:	894	4,481	0	2,741	2,741
Active People:	1	0	230	300	530
Inactive People:	0	0	0	0	0
Appliances:	0	0	0	0	0
Lighting:	0	0		1,364	
Ductwork:	0	327	0	488	488
Infiltration: Winter CFM: 45.9, Summer CFM: 20.4	66	2,068	716	471	1,187
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	n/a	n/a	n/a	n/a
Sensible Gain Total:				5,364	
Temperature Swing Multiplier:				X1.00	
Zone Load Totals:		6,876	946	5,364	6,310

Check Figures

Supply CFM:	244	CFM per square foot:	0.508
Square feet of room area:	480	Square feet per ton:	827.382

Zone Loads

Total heating required with outside air:	6,876 Btuh	6.876 MBH
Total sensible gain:	5,364 Btuh	85 %
Total latent gain:	946 Btuh	15 %
Total cooling required with outside air:	6,310 Btuh	0.526 Tons (based on sensible + latent)
		0.580 Tons (based on 77% sensible capacity)

System #1 Zone #2 Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3B Window Double Pane Clear Glass TIM Frame	24	600	0	922	922
9G French Door Double Clear Glass Wood Frame	42	899	0	1,613	1,613
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	226	602	0	361	361
16G Ceiling R-30 Insulation	420	568	0	624	624
22A Slab on Grade No Edge Insulation	37	1,229	0	0	0
Subtotals for structure:	749	3,898	0	3,520	3,520
Active People:	4	0	920	1,200	2,120
Inactive People:	0	0	0	0	0
Appliances:	0	0	0	0	0
Lighting:	0	0		1,023	
Ductwork:	0	298	0	621	621
Infiltration: Winter CFM: 45.9, Summer CFM: 20.4	66	2,068	716	471	1,187
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	n/a	n/a	n/a	n/a
Sensible Gain Total:				6,835	
Temperature Swing Multiplier:				X1.00	
Zone Load Totals:		6,264	1,636	6,835	8,471

Check Figures

Supply CFM:	311	CFM per square foot:	0.74
Square feet of room area:	420	Square feet per ton:	525.106

Zone Loads

Total heating required with outside air:	6,264 Btuh	6.264 MBH
Total sensible gain:	6,835 Btuh	81 %
Total latent gain:	1,636 Btuh	19 %
Total cooling required with outside air:	8,471 Btuh	0.706 Tons (based on sensible + latent)
		0.800 Tons (based on 77% sensible capacity)

System #1 Zone #3 Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3B Window Double Pane Clear Glass TIM Frame	60	1,498	0	4,344	4,344
8O Glass Door Double Clear Glass Metal Frame	96	2,854	0	4,598	4,598
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	439	1,170	0	702	702
16G Ceiling R-30 Insulation	582	787	0	864	864
22A Slab on Grade No Edge Insulation	74	2,458	0	0	0
Subtotals for structure:	1,251	8,767	0	10,508	10,508
Active People:	2	0	460	600	1,060
Inactive People:	0	0	0	0	0
Appliances:	0	0	0	0	0
Lighting:	0	0		1,023	
Ductwork:	0	683	0	1,324	1,324
Infiltration: Winter CFM: 108.4, Summer CFM: 48.2	156	4,889	1,692	1,113	2,805
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	n/a	n/a	n/a	n/a
Sensible Gain Total:				14,568	
Temperature Swing Multiplier:				X1.00	
Zone Load Totals:		14,339	2,152	14,568	16,720

Check Figures

Supply CFM:	662	CFM per square foot:	1.138
Square feet of room area:	582	Square feet per ton:	383.682

Zone Loads

Total heating required with outside air:	14,339 Btuh	14.339 MBH
Total sensible gain:	14,568 Btuh	87 %
Total latent gain:	2,152 Btuh	13 %
Total cooling required with outside air:	16,720 Btuh	1.393 Tons (based on sensible + latent)
		1.517 Tons (based on 77% sensible capacity)

Room Load Summary Reports

System #1 Room Load Summary

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
1	Master Suite	480	6,876	89	3-5	596	5,364	946	244	1.00	244	244
Zone 1 Subtotal		480	6,876	89			5,364	946	244		244	244
---Zone 2---												
2	Theater Room	420	6,264	81	2-9	475	6,835	1,636	311	1.35	419	311
Zone 2 Subtotal		420	6,264	81			6,835	1,636	311		419	311
---Zone 3---												
3	MultiPurpose Room	582	14,339	186	2-11	627	14,568	2,152	662	1.25	828	662
Zone 3 Subtotal		582	14,339	186			14,568	2,152	662		828	662
System 1 Totals		1482	27,479	357			26,767	4,734	1,217		1,491	1,217
Main Trunk Size: 16x14 in.												

System #1 Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	2.625	85%/15%	26,767	4,734	31,501
Recommended:	2.897	77%/23%	26,767	7,995	34,762
Actual:	3.000				36,000

Project Information

Project: BOARDMAN RESIDENCE
Client: DON REED CONSTRUCTION LLC.
Address: 2230 SE BAYA DR.
City: LAKE CITY FL 32025
Phone: 386-752-4072
Fax:

Company: DAVID HALL'S INC.
Representative: DAVID HALL
Address: PO BOX 244
City: LAKE CITY FL 32056
Phone: 386-755-9792
Fax: 386-755-9100
Comment:

Equipment and Labor Data

	Cooling System	Heating System
Description	CONDENSER	AIR HANDLER
Model Number	4TWB4036	TAM7AOC36
Model Type	Air Source Heat Pump	Air Source Heat Pump
Capacity	36,000	36,000
Efficiency	15 SEER	8.2 HSPF

Notes:

Terms and Conditions

Payment to be made as follows: Upon completion

ACCEPTANCE OF PROPOSAL:

The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Date: _____ Signature: _____