

GEORGE & SUSAN BOHLMANN HVAC LOAD ANALYSIS

for

DON REED CONSTRUCTION



Prepared By:

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09/30/12

Miscellaneous Project Data

Project File Name: REED, BOHLMANN

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:	93	78	50%	75	57

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 7720 Cu.Ft.		X 7720 Cu.Ft.
	6,948 Cu.Ft./Hr		3,088 Cu.Ft./Hr
	X 0.0167		X 0.0167
Total Building Infiltration:	115.8 CFM		51.46667 CFM
Total Building Ventilation:	0 CFM		0 CFM
---System 1---			
Infiltration & Ventilation Sensible Gain Multiplier:	19.80 = (1.10 X 18.00 Summer Temp. Difference)		
Infiltration & Ventilation Latent Gain Multiplier:	38.46 = (0.68 X 56.56 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
3C Window Double Pane Clear Glass Metal Frame	136	4,043	0	5,519	5,519
8O Glass Door Double Clear Glass Metal Frame	42	1,248	0	2,990	2,990
9G French Door Double Clear Glass Wood Frame	42	899	0	932	932
11A Door Metal Fiberglass Core	42	1,016	0	535	535
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	840	2,238	0	1,180	1,180
16G Ceiling R-30 Insulation	966	1,307	0	1,338	1,338
22A Slab on Grade No Edge Insulation	138	4,583	0	0	0
Subtotals for structure:	2,206	15,334	0	12,494	12,494
Active People:	2	0	460	600	1,060
Inactive People:	0	0	0	0	0
Appliances:	0	0	800	800	1,600
Lighting:	0	0		3,751	
Ductwork:	0	1,028	0	1,868	1,868
Infiltration: Winter CFM: 115.8, Summer CFM: 51.5	262	5,223	1,979	1,019	2,998
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	0	0	0	0
Sensible Gain Total:				20,532	
Temperature Swing Multiplier:				X1.00	
Building Load Totals:		21,585	3,239	20,532	23,771

Check Figures

Total Building Supply CFM:	933	CFM per square foot:	0.966
Square feet of room area:	966	Square feet per ton:	434.728

Building Loads

Total heating required with outside air:	21,585 Btuh	21.585 MBH
Total sensible gain:	20,532 Btuh	86 %
Total latent gain:	3,239 Btuh	14 %
Total cooling required with outside air:	23,771 Btuh	1.981 Tons (based on sensible + latent)
		2.222 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 Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
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Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	0	0	0	0
Sensible Gain Total:				20,532	
Temperature Swing Multiplier:				X1.00	
System Load Totals:		21,585	3,239	20,532	23,771

Check Figures

Supply CFM:	933	CFM per square foot:	0.966
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System Loads

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		2.222 Tons (based on 77% sensible capacity)

Notes

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Be sure to select a unit that meets both sensible and latent loads.

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	Bedroom	201	5,083	66	1-9	508	4,935	774	224	1.00	224	224
2	Closet	34	380	5	1-3	458	495	0	23	1.00	23	23
3	Toilet Room	21	210	3	1-3	416	449	0	20	1.00	20	20
4	Bath	98	647	8	1-4	525	1,007	0	46	1.00	46	46
5	Dining Room	115	4,964	64	1-10	563	5,409	544	246	1.25	307	246
6	Kitchen	211	537	7	1-6	454	1,960	1,030	89	1.00	89	89
7	Laundry Room	55	1,573	20	1-5	451	1,353	45	62	1.00	62	62
8	Living Room	231	8,191	106	1-9	585	4,924	846	224	1.15	258	224
System 1 Totals		966	21,585	280			20,532	3,239	933		1,029	933
Main Trunk Size: 14x12 in.												

System #1 Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.981	86%/14%	20,532	3,239	23,771
Recommended:	2.222	77%/23%	20,532	6,133	26,665