

Company	Acme
Preparer	J White
Phone	252-555-1028
Date	10/25/09

Customer	James Brown
Address	5735 Shady Lane AnytownEarth
Phone	555-555-5555

1. Design Conditions

	Indoor	Outdoor	Temp. Diff.
Winter	70	20	50
Summer	75	95	20

2. How would you describe the summer humidity in your area? Moderately Humid 40

3. Volume of building (cubic feet) 23112

4. How tight is the house? Average-over 1500 Sq. Ft. 0

5. Number of occupants 5

6. Overhang Characteristics (this section optional)

	East	West	South
Distance of overhang from top of window (Ft.)	0	0	0
Length of overhang	0	0	0

7. Solar gain through glasses

Facing	Total area	Type of glass/HTM		Linear ft.	Unshaded	Shaded	BTUH	
N/Shaded	56	Double	24	below OH		56		
South	0	Double	40	0	0	0	0	
East	64	Double	75	15	64	0	4800	
West	69	Double	75	15	69	0	5175	
					Total North and Shaded		56	1344
Skylight	0	clear	150				0	
					Total solar gain			11319
Adjust for tinted or reflective window coating					NO	1	11319	

8. Ducts

Location Enclosed in unconditioned space 0.7
 Insulation R-2 0.15
 Duct Loss/Gain 0.105

9. Load Calculation

Elements of Load	Insulation	Area/lin.ft.	U-value	BTUH Loss	BTUH Gain
Gross Wall		2196	Glass	Solar Gain	11319
Glass 1	Double	189	0.6	5670	
Glass 2	Single	0	1	0	
Skylights	Single glass	0	1.2	0	
Doors	Insulated or Storm	43	0.4	860	344
Net walls	R-11	1964	0.08	7856	3142.4
Ceilings	R-19	2568	0.055	7062	6355.8
Floors	NO INSULATION	0	0.15	0	0
Open Floors	NO INSULATION	0	0.31	0	0
Slab Floors	2" INSULATION, R-10	244	0.35	643.942	0
Infiltration				14830.2	5932.08
People					1500
Appliances					1800
Sub total				36922.141	30393.279
Ducts				3876.825	3191.294
Sub total				40798.965	33584.574
Latent load					7334.208
TOTAL BTUH				40798.965	40918.781

Basement Calculation

Elements of Load	Insulation	Area/lin.ft.	U-value	BTUH Loss	BTUH Gain
Walls above grade		0			
Glass		0	0	0	
North		0	0		0
South		0	0		0
East		0	0		0
West		0	0		0
Doors		0	0	0	0
Net walls above		0	0	0	0
Walls below grade		0	0	0	0
Ceilings		0	0	0	0
Floors		0	0.024	0	0
Infiltration		0		0	0
Number of people		0	300		0
Appliances					0
Sub total				0	0
Latent load					0
Total BTUH				0	0
Total whole house load including basement				40798.965	40918.781

Energy Cost Analysis

Heat Loss	40798.965	Heating degree days (from map)	3300
Heat Gain	40918.781	Cooling degree days (from map)	1700
Summer Design Temp.	95	Summer Design Temp. Diff.	20
Winter Design Temp.	20	Winter Design Temp. Diff.	50

System #1 (less efficient)

		Efficiency	Fuel Cost	Price
Air Conditioning		13	0.11	\$470.881
Heating	NATURAL GAS	0.8	1.25	\$1009.774
Total annual operating cost of system 1				\$1480

System #2 (more efficient)

		Efficiency	Fuel Cost	Price
Air Conditioning		15	0.11	\$408.097
Heating	NATURAL GAS	0.92	1.25	\$878.065
Total annual operating cost of system 2				\$1286

Payback and ROI

Cost of new or more efficient system	\$9756
Cost of less efficient system	\$8278
Additional investment	\$1478
Yearly savings	\$194
Payback (years)	7.6
Return on Investment (ROI)	13.2%

Total Heat Loss	41419.047
Total Heat Gain	40144.855
System CFM	1600

Room name	Kitchen	utility room	den/dining	m bath	M BR	Bath 2	BR 2	BR 3
Gross Wall	270	288	207	63	270	72	252	162
North Windows	10	0	12	0	12	9	12	0
South Windows	0	0	0	0	0	0	0	0
East Windows	19	0	24	9	12	0	0	0
West Windows	0	0	0	0	0	0	12	24
Doors	22	0	0	0	0	0	0	0
Net Walls	219	288	171	54	246	63	228	138
Ceiling	210	126	634	98	224	72	196	252
Floor-crawl	0	0	0	0	0	0	0	0
Floor-open	0	0	0	0	0	0	0	0
Floor-slab	30	32	23	7	30	7	28	18
Volume	1890	1134	5706	882	2016	648	1764	2268
People	1	0	1	0	1	0	1	1
Appliance	1200	0	600	0	0	0	0	0
Duct Loss	472	292	794	151	450	135	412	401
Duct Gain	493	111	661	129	339	76	321	408
Latent	599	359	1810	279	639	205	559	719
Heat Loss	4973	3078	8366	1595	4738	1429	4345	4226
Heat Gain	5789	1535	8767	1639	4208	1015	3948	5014
Cooling CFM	230	61	349	65	167	40	157	199
Heating CFM	192	118	323	61	183	55	167	163

Room name	foyer	liv room						
Gross Wall	72	324						
North Windows	0	0						
South Windows	0	0						
East Windows	0	0						
West Windows	7	32						
Doors	42	0						
Net Walls	23	292						
Ceiling	112	308						
Floor-crawl	0	0						
Floor-open	0	0						
Floor-slab	8	36						
Volume	1008	2772						
People	0	0						
Appliance	0	0						
Duct Loss	239	584						
Duct Gain	161	506						
Latent	319	879						
Heat Loss	2515	6147						

Heat Gain	2020	6206						
Cooling CFM	80	247						
Heating CFM	97	237						