



Load Short Form
Entire House
 Fresh Air Corporation

Job: 456
 Date: October 1, 2006
 By: John Contractor

Project Information

For: Mr. and Ms. Smith
 1 Easy Lane, Perfect, ST 12345
 Phone: 555-555-5555 Fax: 555-555-5556
 Email: smiths@email.com

Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	63	88	Method	Simplified
Inside db (°F)	68	75	Construction quality	Average
Design TD (°F)	5	13	Fireplaces	0
Daily range	-	L		
Inside humidity (%)	-	50		
Moisture difference (gr/lb)	-	33		

HEATING EQUIPMENT

Make
 Trade
 Model

Efficiency 80 AFUE
 Heating input 0 Btuh
 Heating output 0 Btuh
 Temperature rise 0 °F
 Actual air flow 505 cfm
 Air flow factor 0.175 cfm/Btuh
 Static pressure 0.50 in H2O
 Space thermostat

COOLING EQUIPMENT

Make
 Trade
 Cond
 Coil

Efficiency 0 EER
 Sensible cooling 0 Btuh
 Latent cooling 0 Btuh
 Total cooling 0 Btuh
 Actual air flow 505 cfm
 Air flow factor 0.042 cfm/Btuh
 Static pressure 0.50 in H2O
 Load sensible heat ratio 0.87

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Living room	150	297	2263	52	95
Dining	140	261	892	46	37
Kitchen	165	345	2086	60	88
Bedroom 1	180	376	1307	66	55
Hall	130	121	423	21	18
Master	240	310	854	54	36
Laundry	77	163	365	29	15
Bedroom 2	168	251	646	44	27
Master Bath	60	142	306	25	13
Office	100	106	323	19	14
Room28	230	212	698	37	29
Mudroom	110	298	1867	52	78

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Entire House	1750	2882	12031	505	505
Other equip loads		296	384		
Equip. @ 0.93 RSM			11583		
Latent cooling			1874		
TOTALS	1750	3178	13457	505	505

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Project Information

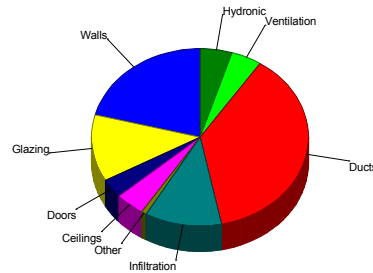
For: Mr. and Ms. Smith
 1 Easy Lane, Perfect, ST 12345
 Phone: 555-555-5555 Fax: 555-555-5556
 Email: smiths@email.com

Design Conditions

Location: Honolulu, HI, US Elevation: 16 ft Latitude: 21°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 68 5 50 -18.0	Cooling 75 13 50 32.5
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 63 - - 15.0	Cooling 88 12 (L) 73 7.5	Infiltration: Method Construction quality Fireplaces		Simplified Average 0

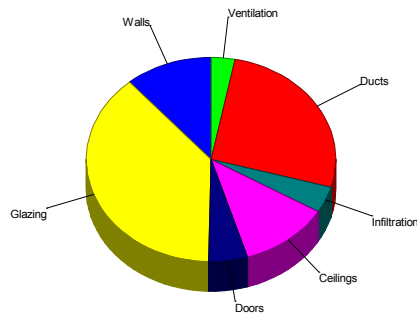
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	0.4	664	20.9
Glazing	2.8	388	12.2
Doors	1.9	109	3.4
Ceilings	0.2	140	4.4
Floors	0.0	24	0.8
Infiltration	0.3	366	11.5
Ducts		1191	37.5
Piping		152	4.8
Humidification		0	0.0
Ventilation		144	4.5
Adjustments		0	0
Total		3178	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.8	1409	11.3
Glazing	35.0	4758	38.3
Doors	11.2	627	5.0
Ceilings	1.7	1462	11.8
Floors	0.0	0	0.0
Infiltration	0.4	512	4.1
Ducts		3263	26.3
Ventilation		384	3.1
Internal gains		0	0.0
Blower		0	0.0
Adjustments		0	0
Total		12414	100.0



Overall U-value = 0.065 Btuh/ft²-°F

Data entries checked.



Component Constructions
Entire House
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Design Conditions

Location: Honolulu, HI, US Elevation: 16 ft Latitude: 21°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 68 5 50 -18.0	Cooling 75 13 50 32.5
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 63 - - 15.0	Cooling 88 12 (L) 73 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

Construction descriptions

Walls

15B-10sfc-2: Basement - 8" concrete, no framing or interior finish, R-10 foam bd to floor, 2'

Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
n	492	0.061	10.0	0.38	189	0.81	397
e	368	0.061	10.0	0.39	142	0.82	303
s	484	0.061	10.0	0.38	185	0.80	388
w	384	0.061	10.0	0.39	148	0.83	321
all	1728	0.061	10.0	0.38	664	0.82	1409

Partitions

(none)

Windows

1D-c2ow: Operable, clear glass, wood frame, 2 pane

n	40	0.570	0.0	2.85	114	19.3	773
e	32	0.570	0.0	2.85	91	61.4	1965
s	48	0.570	0.0	2.85	137	21.6	1039
w	16	0.570	0.0	2.85	46	61.4	982
all	136	0.570	0.0	2.85	388	35.0	4758

Doors

11D0: Wood door, solid core, no storm

n	28	0.390	0.0	1.95	55	11.2	313
s	28	0.390	0.0	1.95	55	11.2	313
all	56	0.390	0.0	1.95	109	11.2	627

Ceilings

16B-30ad: Ceiling under vented attic, no radiant barrier, dark shingles, R-30 insulation

	875	0.032	30.0	0.16	140	1.67	1462
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Floors

41B0: Radiant panel over basement, 3/4" ply subflr, Omega heat xfer plates

21B-28t: Tile covered basement floor, R-3 or higher insul, 28' wide

	555	0.000	0.0	0.00	0	0.00	0
	320	0.015	3.0	0.07	24	0.00	0





Project Summary
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 Phone: 555-555-5555 Fax: 555-555-5556
 Email: smiths@email.com
 Notes: Location known for high winds.

Design Information

Weather: Honolulu, HI, US

Winter Design Conditions

Outside db 63 °F
 Inside db 68 °F
 Design TD 5 °F

Summer Design Conditions

Outside db 88 °F
 Inside db 75 °F
 Design TD 13 °F
 Daily range L
 Relative humidity 50 %
 Moisture difference 33 gr/lb

Heating Summary

Structure 1691 Btuh
 Ducts 1191 Btuh
 Central vent (26 cfm) 144 Btuh
 Humidification 0 Btuh
 Piping 152 Btuh
 Equipment load 3178 Btuh

Sensible Cooling Equipment Load Sizing

Structure 8767 Btuh
 Ducts 3263 Btuh
 Central vent (26 cfm) 384 Btuh
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.93
 Equipment sensible load 11583 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 773 Btuh
 Ducts 521 Btuh
 Central vent (26 cfm) 580 Btuh
 Equipment latent load 1874 Btuh
 Equipment total load 13457 Btuh
 Req. total capacity at 0.70 SHR 1.4 ton

	Heating	Cooling
Area (ft ²)	1750	1750
Volume (ft ³)	10500	10500
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	67	35

Heating Equipment Summary

Make
 Trade
 Model
 Efficiency 80 AFUE
 Heating input 0 Btuh
 Heating output 0 Btuh
 Temperature rise 0 °F
 Actual air flow 505 cfm
 Air flow factor 0.175 cfm/Btuh
 Static pressure 0.50 in H2O
 Space thermostat

Cooling Equipment Summary

Make
 Trade
 Cond
 Coil
 Efficiency 0 EER
 Sensible cooling 0 Btuh
 Latent cooling 0 Btuh
 Total cooling 0 Btuh
 Actual air flow 505 cfm
 Air flow factor 0.042 cfm/Btuh
 Static pressure 0.50 in H2O
 Load sensible heat ratio 0.87

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AED Assessment
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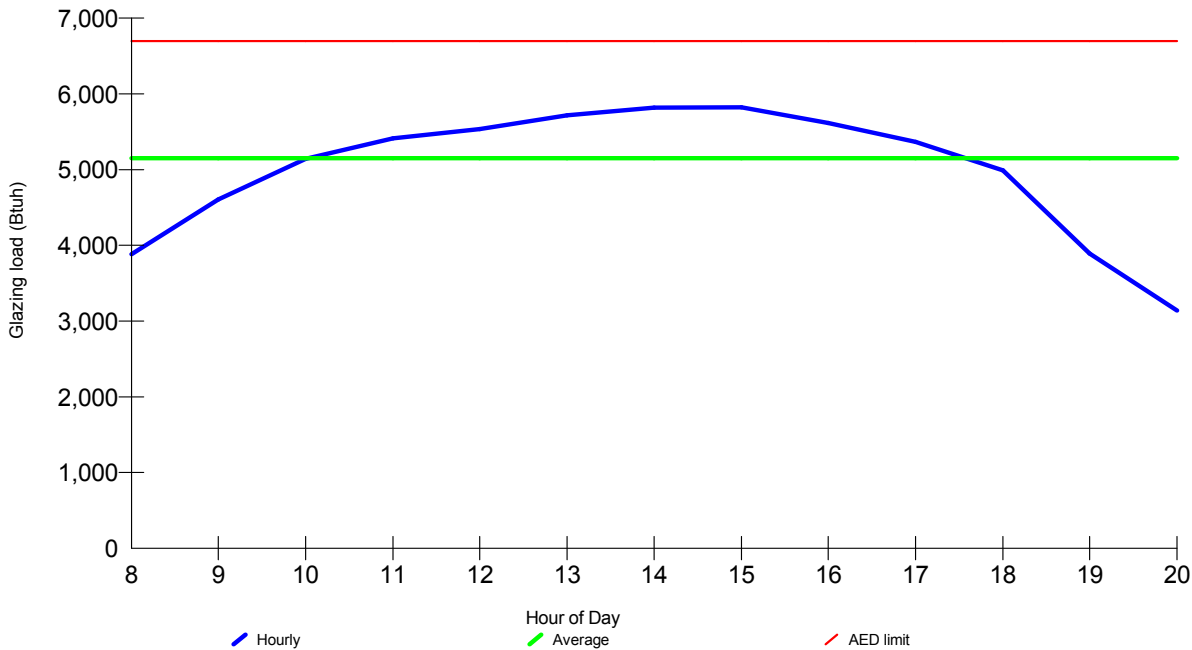
For: Mr. and Ms. Smith
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Design Conditions

Location:		Indoor:		Heating	Cooling
Honolulu, HI, US		Indoor temperature (°F)		68	75
Elevation:	16 ft	Design TD (°F)		5	13
Latitude:	21°N	Relative humidity (%)		50	50
Outdoor:		Heating	Cooling	Moisture difference (gr/lb)	-18.0
Dry bulb (°F)		63	88		32.5
Daily range (°F)		-	12 (L)	Infiltration:	
Wet bulb (°F)		-	73		
Wind speed (mph)		15.0	7.5		

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 13.1%.

House has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh



Right-J Worksheet
Entire House
Fresh Air Corporation

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1 Room name		Entire House							Living room					
2 Exposed wall		240.0 ft							25.0 ft					
3 Ceiling height		8.0 ft							8.0 ft					
4 Room dimensions									10.0 x 15.0 ft					
5 Room area		1750.0 ft ²							150.0 ft ²					
	Ty	Construction number	U-value (Btuh/ft ² -F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	15B-10sfc-2	0.083	n	0.31	1.13	560	492	189	397	80	72	28	59
	G	1D-c2ow	0.570	n	2.85	19.32	40	0	114	773	8	0	23	155
	D	11D0	0.390	n	1.95	11.19	28	28	55	313	0	0	0	0
	W	15B-10sfc-2	0.083	e	0.31	1.13	400	368	142	303	0	0	0	0
11	G	1D-c2ow	0.570	e	2.85	61.39	32	0	91	1965	0	0	0	0
	W	15B-10sfc-2	0.083	s	0.31	1.13	560	484	185	388	0	0	0	0
	G	1D-c2ow	0.570	s	2.85	21.64	48	0	137	1039	0	0	0	0
	D	11D0	0.390	s	1.95	11.19	28	28	55	313	0	0	0	0
	W	15B-10sfc-2	0.083	w	0.31	1.13	400	384	148	321	120	104	40	84
	G	1D-c2ow	0.570	w	2.85	61.39	16	0	46	982	16	0	46	982
	C	16B-30ad	0.032	-	0.16	1.67	875	875	140	1462	0	0	0	0
	F	41B0	0.047	-	0.00	0.00	555	78	0	0	150	25	0	0
	F	21B-28t	0.015	-	0.07	0.00	320	42	24	0	0	0	0	0
6	c) AED excursion													317
	Envelope loss/gain								1325	8256			136	1596
12	a) Infiltration								366	512			38	53
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230			0			0	0			0
			Appliances @	1200			0			0	0			0
	Subtotal (lines 6 to 13)								1691	8767			174	1649
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1691	8767			174	1649
15	Duct loads						70%	37%	1191	3263	70%	37%	123	614
	Total room load								2882	12031			297	2263
	Air required (cfm)								505	505			52	95

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Right-J Worksheet
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1 Room name				Bedroom 1				Hall						
2 Exposed wall				28.0 ft				6.0 ft						
3 Ceiling height				8.0 ft heat/cool				8.0 ft heat/cool						
4 Room dimensions				18.0 x 10.0 ft				1.0 x 130.0 ft						
5 Room area				180.0 ft ²				130.0 ft ²						
	Ty	Construction number	U-value (Btuh/ft ² -F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	15B-10sfc-2	0.083	n	0.31	1.13	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	2.85	19.32	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	1.95	11.19	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	e	0.31	1.13	0	0	0	0	0	0	0	0
11	G	1D-c2ow	0.570	e	2.85	61.39	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	s	0.31	1.13	144	112	43	86	48	20	7	9
	G	1D-c2ow	0.570	s	2.85	21.64	32	0	91	692	0	0	0	0
	D	11D0	0.390	s	1.95	11.19	0	0	0	0	28	28	55	313
	W	15B-10sfc-2	0.083	w	0.31	1.13	80	80	31	68	0	0	0	0
	G	1D-c2ow	0.570	w	2.85	61.39	0	0	0	0	0	0	0	0
	C	16B-30ad	0.032	-	0.16	1.67	0	0	0	0	0	0	0	0
	F	41B0	0.047	-	0.00	0.00	0	0	0	0	130	6	0	0
	F	21B-28t	0.015	-	0.07	0.00	180	28	13	0	0	0	0	0
6	c) AED excursion									47				-27
	Envelope loss/gain								178	893			62	295
12	a) Infiltration								43	60			9	13
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230	0				0	0			0	0
			Appliances @	1200	0				0	0			0	0
	Subtotal (lines 6 to 13)								221	953			71	308
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								221	953			71	308
15	Duct loads						70%	37%	156	355	70%	37%	50	115
	Total room load								376	1307			121	423
	Air required (cfm)								66	55			21	18

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Right-J Worksheet
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1 Room name				Bedroom 2 26.0 ft 8.0 ft 12.0 x 14.0 ft heat/cool 168.0 ft ²				Master Bath 16.0 ft 8.0 ft 6.0 x 10.0 ft heat/cool 60.0 ft ²									
2 Exposed wall	3 Ceiling height	4 Room dimensions	5 Room area	Ty	Construction number	U-value (Btuh/ft ² -°F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)	
								Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	15B-10sfc-2	0.083	n	0.31	1.13		0	0	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	n	2.85	19.32		0	0	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	1.95	11.19		0	0	0	0	0	0	0	0	0	0
11	W	15B-10sfc-2	0.083	e	0.31	1.13	112	112	43	95	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	e	2.85	61.39	0	0	0	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	s	0.31	1.13	96	96	37	81	48	48	19	41	0	0	0
	G	1D-c2ow	0.570	s	2.85	21.64	0	0	0	0	0	0	0	0	0	0	0
	D	11D0	0.390	s	1.95	11.19	0	0	0	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	w	0.31	1.13	0	0	0	0	80	80	31	68	0	0	0
	G	1D-c2ow	0.570	w	2.85	61.39	0	0	0	0	0	0	0	0	0	0	0
	C	16B-30ad	0.032	-	0.16	1.67	168	168	27	281	60	60	10	100	0	0	0
	F	41B0	0.047	-	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
	F	21B-28t	0.015	-	0.07	0.00	0	0	0	0	0	0	0	0	0	0	0
6	c) AED excursion																
	Envelope loss/gain								107	416			59	189			
12	a) Infiltration								40	55			24	34			
	b) Room ventilation								0	0			0	0			
13	Internal gains:		Occupants @	230			0			0	0		0				
			Appliances @	1200			0			0	0		0				
	Subtotal (lines 6 to 13)								147	471			84	223			
	Less external load								0	0			0	0			
	Less transfer								0	0			0	0			
	Redistribution								0	0			0	0			
14	Subtotal								147	471			84	223			
15	Duct loads						70%	37%	104	175	70%	37%	59	83			
	Total room load								251	646			142	306			
	Air required (cfm)								44	27			25	13			

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1 Room name				Office 10.0 ft 8.0 ft 10.0 x 10.0 ft heat/cool 100.0 ft ²				Room28 19.0 ft 8.0 ft 1.0 x 230.0 ft heat/cool 230.0 ft ²						
2 Exposed wall				HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area (ft ²) or perimeter (ft)		Load (Btuh)		
3 Ceiling height				Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	
4 Room dimensions				U-value (Btuh/ft ² -°F)		Or								
5 Room area														
6	W	15B-10sfc-2	0.083	n	0.31	1.13	0	0	0	0	96	96	37	81
	G	1D-c2ow	0.570	n	2.85	19.32	0	0	0	0	0	0	0	0
	D	11D0	0.390	n	1.95	11.19	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	e	0.31	1.13	0	0	0	0	0	0	0	0
11	G	1D-c2ow	0.570	e	2.85	61.39	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	s	0.31	1.13	80	80	31	68	56	56	22	47
	G	1D-c2ow	0.570	s	2.85	21.64	0	0	0	0	0	0	0	0
	D	11D0	0.390	s	1.95	11.19	0	0	0	0	0	0	0	0
	W	15B-10sfc-2	0.083	w	0.31	1.13	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.570	w	2.85	61.39	0	0	0	0	0	0	0	0
	C	16B-30ad	0.032	-	0.16	1.67	100	100	16	167	230	230	37	384
	F	41B0	0.047	-	0.00	0.00	0	0	0	0	0	0	0	0
	F	21B-28t	0.015	-	0.07	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion													
	Envelope loss/gain								47	214			96	468
12	a) Infiltration								15	21			29	41
	b) Room ventilation								0	0			0	0
13	Internal gains:		Occupants @	230	0				0	0			0	0
			Appliances @	1200	0				0	0			0	0
	Subtotal (lines 6 to 13)								62	236			125	509
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								62	236			125	509
15	Duct loads						70%	37%	44	88	70%	37%	88	189
	Total room load								106	323			212	698
	Air required (cfm)								19	14			37	29

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Right-J Worksheet
Entire House
Fresh Air Corporation

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By: John Contractor

1 Room name					Mudroom									
2 Exposed wall					21.0 ft									
3 Ceiling height					8.0 ft					heat/cool				
4 Room dimensions					110.0 ft ² x 10.0 ft									
5 Room area					110.0 ft ²									
	Ty	Construction number	U-value (Btuh/ft ² -°F)	Or	HTM (Btuh/ft ²)		Area (ft ²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	15B-10sfc-2	0.083	n	0.31	1.13	0	0	0	0				
	G	1D-c2ow	0.570	n	2.85	19.32	0	0	0	0				
	D	11D0	0.390	n	1.95	11.19	0	0	0	0				
11	W	15B-10sfc-2	0.083	e	0.31	1.13	80	64	24	50				
	G	1D-c2ow	0.570	e	2.85	61.39	16	0	46	982				
	W	15B-10sfc-2	0.083	s	0.31	1.13	88	72	27	56				
	G	1D-c2ow	0.570	s	2.85	21.64	16	0	46	346				
	D	11D0	0.390	s	1.95	11.19	0	0	0	0				
	W	15B-10sfc-2	0.083	w	0.31	1.13	0	0	0	0				
	G	1D-c2ow	0.570	w	2.85	61.39	0	0	0	0				
	C	16B-30ad	0.032	-	0.16	1.67	0	0	0	0				
	F	41B0	0.047	-	0.00	0.00	110	21	0	0				
	F	21B-28t	0.015	-	0.07	0.00	0	0	0	0				
6	c) AED excursion									-119				
	Envelope loss/gain								143	1316				
12	a) Infiltration								32	45				
	b) Room ventilation								0	0				
13	Internal gains:		Occupants @	230			0			0				
			Appliances @	1200			0			0				
	Subtotal (lines 6 to 13)								175	1361				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								175	1361				
15	Duct loads						70%	37%	123	506				
	Total room load								298	1867				
	Air required (cfm)								52	78				

Printout certified by ACCA to meet all requirements of Manual J 8th Ed.

