

*Jackson Barracks  
HVAC Load Calculations*

for

Jackson Barracks



**RHVAC** RESIDENTIAL  
HVAC LOADS

Prepared By:

Monday, November 4, 2024



## Project Report

### General Project Information

Project Title: Jackson Baracks  
 Designed By: PJ Campo  
 Project Date: Monday, November 4, 2024  
 Client Name: Jackson Barracks

### Design Data

Reference City: New Orleans Lakefront AP, Louisiana  
 Building Orientation: Front door faces Southeast  
 Daily Temperature Range: Low  
 Latitude: 30 Degrees  
 Elevation: 10 ft.  
 Altitude Factor: 1.000

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	39	36.58	n/a	n/a	70	n/a
Summer:	92	78	54%	50%	75	58

### Check Figures

Total Building Supply CFM:	4,031	CFM Per Square ft.:	0.936
Square ft. of Room Area:	4,306	Square ft. Per Ton:	509
Volume (ft³):	42,140		

### Building Loads

Total Heating Required Including Ventilation Air:	90,698 Btuh	90.698 MBH
Total Sensible Gain:	88,674 Btuh	87 %
Total Latent Gain:	12,854 Btuh	13 %
Total Cooling Required Including Ventilation Air:	101,528 Btuh	8.46 Tons (Based On Sensible + Latent)

### Notes

Rhvac is an ACCA approved Manual J, D and S computer program.  
 Calculations are performed per ACCA Manual J 8th Edition, Version 2.50, and ACCA Manual D.  
 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 according to the manufacturer's performance data at your design conditions.



### Miscellaneous Report

#### System 1 Downstairs Input Data

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	39	36.58	80%	n/a	70	n/a
Summer:	92	78	54%	50%	75	57.77

#### System 2 Upstairs Input Data

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	39	36.58	80%	n/a	70	n/a
Summer:	92	78	54%	50%	75	57.77

#### System 3 Addition Input Data

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	39	36.58	80%	n/a	70	n/a
Summer:	92	78	54%	50%	75	57.77

#### Duct Sizing Inputs

	Main Trunk	Runouts
Calculate:	Yes	Yes
Use Schedule:	Yes	Yes
Roughness Factor:	0.00300	0.01000
Pressure Drop:	0.1000 in.wg./100 ft.	0.1000 in.wg./100 ft.
Minimum Velocity:	0 ft./min	0 ft./min
Maximum Velocity:	900 ft./min	750 ft./min
Minimum Height:	0 in.	0 in.
Maximum Height:	0 in.	0 in.

#### Outside Air Data

	Winter	Summer
Infiltration Specified:	0.580 AC/hr 407 CFM	0.300 AC/hr 211 CFM
Infiltration Actual:	0.580 AC/hr	0.300 AC/hr
Above Grade Volume:	X 42,140 Cu.ft. 24,441 Cu.ft./hr X 0.0167	X 42,140 Cu.ft. 12,642 Cu.ft./hr X 0.0167
Total Building Infiltration:	407 CFM	211 CFM
Total Building Ventilation:	0 CFM	0 CFM

#### ---System 1---

Infiltration & Ventilation Sensible Gain Multiplier:	18.69	= (1.10 X 1.000 X 17.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier:	39.27	= (0.68 X 1.000 X 57.77 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier:	34.09	= (1.10 X 1.000 X 31.00 Winter Temp. Difference)
Winter Infiltration Specified:	0.580 AC/hr (168 CFM), Construction: Loose	
Summer Infiltration Specified:	0.300 AC/hr (87 CFM), Construction: Loose	

#### ---System 2---

Infiltration & Ventilation Sensible Gain Multiplier:	18.69	= (1.10 X 1.000 X 17.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier:	39.27	= (0.68 X 1.000 X 57.77 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier:	34.09	= (1.10 X 1.000 X 31.00 Winter Temp. Difference)
Winter Infiltration Specified:	0.580 AC/hr (174 CFM), Construction: Loose	
Summer Infiltration Specified:	0.300 AC/hr (90 CFM), Construction: Loose	

#### ---System 3---

Infiltration & Ventilation Sensible Gain Multiplier:	18.69	= (1.10 X 1.000 X 17.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier:	39.27	= (0.68 X 1.000 X 57.77 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier:	34.09	= (1.10 X 1.000 X 31.00 Winter Temp. Difference)
Winter Infiltration Specified:	0.580 AC/hr (65 CFM), Construction: Loose	
Summer Infiltration Specified:	0.300 AC/hr (34 CFM), Construction: Loose	

#### Duct Load Factor Scenarios for System 1

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Supply		Attic	16B	0.12	6	504	No



*Miscellaneous Report (cont'd)*

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Return		Attic	16B	0.12	6	1	No

Duct Load Factor Scenarios for System 2

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Return		Attic	16B	0.12	6	1	No

Duct Load Factor Scenarios for System 3

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Supply		Attic	16B	0.12	6	658	No
1	Return		Attic	16B	0.12	6	1	No



## Load Preview Report

Scope	Net Ton	ft. <sup>2</sup> /Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Min Htg CFM	Min Clg CFM	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	8.46	509	4,306	88,674	12,854	101,528	90,698	1,178	4,031	1,178	4,031	4,031	
System 1 Downstairs	3.14	613	1,924	32,742	4,916	37,658	37,817	491	1,488	491	1,488	1,488	16x16
Supply Duct Latent					1,291	1,291							
Return Duct				11	4	15	4						
Zone 1			1,924	32,731	3,621	36,352	37,813	491	1,488	491	1,488	1,488	16x16
1-Kitchen			359	3,240	501	3,741	4,631	60	147	60	147	147	2--6
2-Walk In Area			28	1,166	235	1,401	2,406	31	53	31	53	53	1--5
3-Bath 1			41	508	140	648	1,293	17	23	17	23	23	1--4
4-Pantry			25	0	0	0	0	0	0	0	0	0	1--0
5-Walkway			25	528	102	630	1,049	14	24	14	24	24	1--4
6-Bedroom 1			347	12,195	1,166	13,361	11,791	153	555	153	555	555	3--8
7-Bath 2			35	521	143	664	1,316	17	24	17	24	24	1--4
8-Dining			347	4,342	383	4,725	4,706	61	197	61	197	197	1--8
9-Foyer			307	3,018	337	3,355	3,935	51	137	51	137	137	1--7
10-Den			354	5,278	373	5,651	4,586	60	240	60	240	240	1--9
15-Bath Vanity			56	1,936	241	2,177	2,100	27	88	27	88	88	1--6
System 2 Upstairs	3.48	471	1,637	37,314	4,403	41,717	31,135	404	1,696	404	1,696	1,696	18x18
Supply Duct Latent					65	65							
Return Duct				11	4	15	4						
Zone 1			1,637	37,304	4,334	41,638	31,131	404	1,696	404	1,696	1,696	18x18
12-Bedroom 1			375	12,005	1,276	13,281	9,598	125	546	125	546	546	2--10
13-Hallway			51	2,643	302	2,945	2,464	32	120	32	120	120	1--7
14-Bedroom 2			124	1,383	200	1,583	181	2	63	2	63	63	1--6
16-Bath 1			67	1,744	178	1,922	1,558	20	79	20	79	79	1--6
17-Master Suite 1			380	3,030	356	3,386	3,175	41	138	41	138	138	2--6
18-Master Suite 2			359	12,216	1,443	13,659	9,370	122	555	122	555	555	2--10
19-Closet 1			26	28	0	28	38	0	1	0	1	1	1--4
20-Bath Vanity			56	59	0	59	81	1	3	1	3	3	1--4
21-Bath Toilet			39	551	118	669	811	11	25	11	25	25	1--4
22-Bath Tub			43	1,402	104	1,506	1,053	14	64	14	64	64	1--6
23-Hallway			79	2,202	357	2,559	2,747	36	100	36	100	100	1--7
24-Stairway			38	40	0	40	55	1	2	1	2	2	1--4
System 3 Addition	1.85	404	745	18,618	3,535	22,153	21,746	282	846	282	846	846	10x16
Supply Duct Latent					2,215	2,215							
Return Duct				11	4	15	4						
Zone 1			745	18,607	1,317	19,924	21,742	282	846	282	846	846	10x16
11-Addition Living			745	18,607	1,317	19,924	21,742	282	846	282	846	846	6--7



## Duct Size Preview

Room or Duct Name	Source	Minimum Velocity	Maximum Velocity	Rough Factor	Design L/100	SP Loss	Duct Velocity	Duct Length	Htg Flow	Clg Flow	Act. Flow	Duct Size	Reg Size
<b>System 1</b>													
<b>Supply Runouts</b>													
Zone 1													
1-Kitchen	Built-In	0	750	0.01	0.1		375.2		60	147	147	2--6	
2-Walk In Area	Built-In	0	750	0.01	0.1		388.8		31	53	53	1--5	
3-Bath 1	Built-In	0	750	0.01	0.1		264.7		17	23	23	1--4	
4-Pantry	Built-In	0	750	0.01	0.1		0		0	0	0	1--0	
5-Walkway	Built-In	0	750	0.01	0.1		275.1		14	24	24	1--4	
6-Bedroom 1	Built-In	0	750	0.01	0.1		529.5		153	555	555	3--8	
7-Bath 2	Built-In	0	750	0.01	0.1		271.4		17	24	24	1--4	
8-Dining	Built-In	0	750	0.01	0.1		565.6		61	197	197	1--8	
9-Foyer	Built-In	0	750	0.01	0.1		513.5		51	137	137	1--7	
10-Den	Built-In	0	750	0.01	0.1		543.2		60	240	240	1--9	
15-Bath Vanity	Built-In	0	750	0.01	0.1		448.3		27	88	88	1--6	
<b>Other Ducts in System 1</b>													
Supply Main Trunk	Built-In	0	900	0.003	0.1		837.2		491	1,488	1,488	16x16	
<b>System 2</b>													
<b>Supply Runouts</b>													
Zone 1													
12-Bedroom 1	Built-In	0	750	0.01	0.1		500.4		125	546	546	2--10	
13-Hallway	Built-In	0	750	0.01	0.1		449.7		32	120	120	1--7	
14-Bedroom 2	Built-In	0	750	0.01	0.1		320.4		2	63	63	1--6	
16-Bath 1	Built-In	0	750	0.01	0.1		403.9		20	79	79	1--6	
17-Master Suite 1	Built-In	0	750	0.01	0.1		350.9		41	138	138	2--6	
18-Master Suite 2	Built-In	0	750	0.01	0.1		509.2		122	555	555	2--10	
19-Closet 1	Built-In	0	750	0.01	0.1		14.6		0	1	1	1--4	
20-Bath Vanity	Built-In	0	750	0.01	0.1		30.9		1	3	3	1--4	
21-Bath Toilet	Built-In	0	750	0.01	0.1		287.2		11	25	25	1--4	
22-Bath Tub	Built-In	0	750	0.01	0.1		324.6		14	64	64	1--6	
23-Hallway	Built-In	0	750	0.01	0.1		374.7		36	100	100	1--7	
24-Stairway	Built-In	0	750	0.01	0.1		20.8		1	2	2	1--4	
<b>Other Ducts in System 2</b>													
Supply Main Trunk	Built-In	0	900	0.003	0.1		753.9		404	1,696	1,696	18x18	
<b>System 3</b>													
<b>Supply Runouts</b>													
Zone 1													
11-Addition Living	Built-In	0	750	0.01	0.1		527.7		282	846	846	6--7	
<b>Other Ducts in System 3</b>													
Supply Main Trunk	Built-In	0	900	0.003	0.1		761.5		282	846	846	10x16	

### Summary

<b>System 1</b>	
Heating Flow:	491
Cooling Flow:	1488
<b>System 2</b>	
Heating Flow:	404
Cooling Flow:	1696
<b>System 3</b>	
Heating Flow:	282
Cooling Flow:	846



**Total Building Summary Loads**

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
1A-cw-o: Glazing-Single pane, operable window, clear, wood frame, U-value 0.9, SHGC 0.64	574.4	16,027	0	34,119	34,119
11D: Door-Wood - Solid Core, U-value 0.39	490.7	5,931	0	6,124	6,124
12A-0bw: Wall-Frame, no insulation in stud cavity, no board insulation, brick finish, wood studs, U-value 0.253	2711.2	21,263	0	16,048	16,048
12F-0bw: Wall-Frame, R-21 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs, U-value 0.065	599.8	1,209	0	647	647
18C1-21o: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Spray Foam Insulation, White or Light Color Tile, Slate or Concrete, White Metal, White Membrane, R-21 open cell 1/2 lb. spray foam, 5.5 inches in 2 x 6 joist cavity, 1 inch on joist, U-value 0.047	1692.4	2,466	0	1,670	1,670
18B1-21c: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Spray Foam Insulation, White or Light Color Asphalt Shingle, Any Wood Shake, Dark or Medium Color Tile, Slate or Concrete, Light or Unpainted Metal, Light or Silver Membrane, Light Tar and Gravel, R-21 closed cell 2 lb. spray foam, 3.5 inches in 2 x 4 joist cavity, 1 inch on joist, U-value 0.046	745.3	1,063	0	1,303	1,303
22A-ph: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, heavy moist soil, U-value 1.358	241	10,146	0	0	0
Subtotals for structure:		58,105	0	59,911	59,911
People:	5		1,000	1,150	2,150
Equipment:			0	7,651	7,651
Lighting:	0			0	0
Ductwork:		18,710	3,582	11,607	15,188
Infiltration: Winter CFM: 407, Summer CFM: 211		13,883	8,272	3,939	12,211
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	4,417	4,417
<b>Total Building Load Totals:</b>		<b>90,698</b>	<b>12,854</b>	<b>88,674</b>	<b>101,528</b>

**Check Figures**

Total Building Supply CFM:	4,031	CFM Per Square ft.:	0.936
Square ft. of Room Area:	4,306	Square ft. Per Ton:	509
Volume (ft³):	42,140		

**Building Loads**

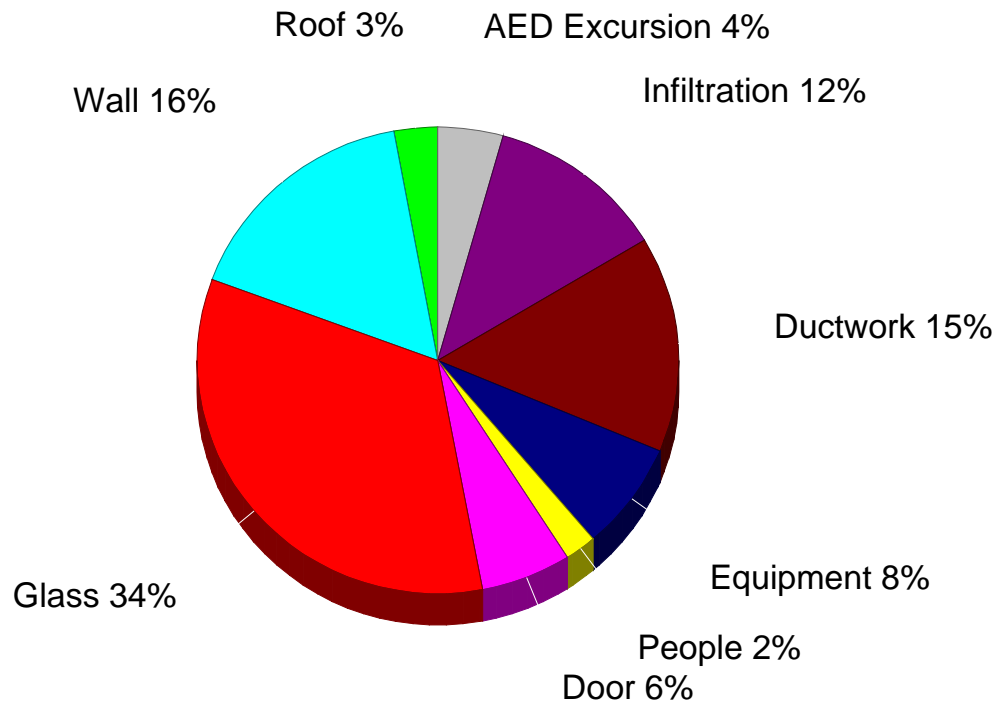
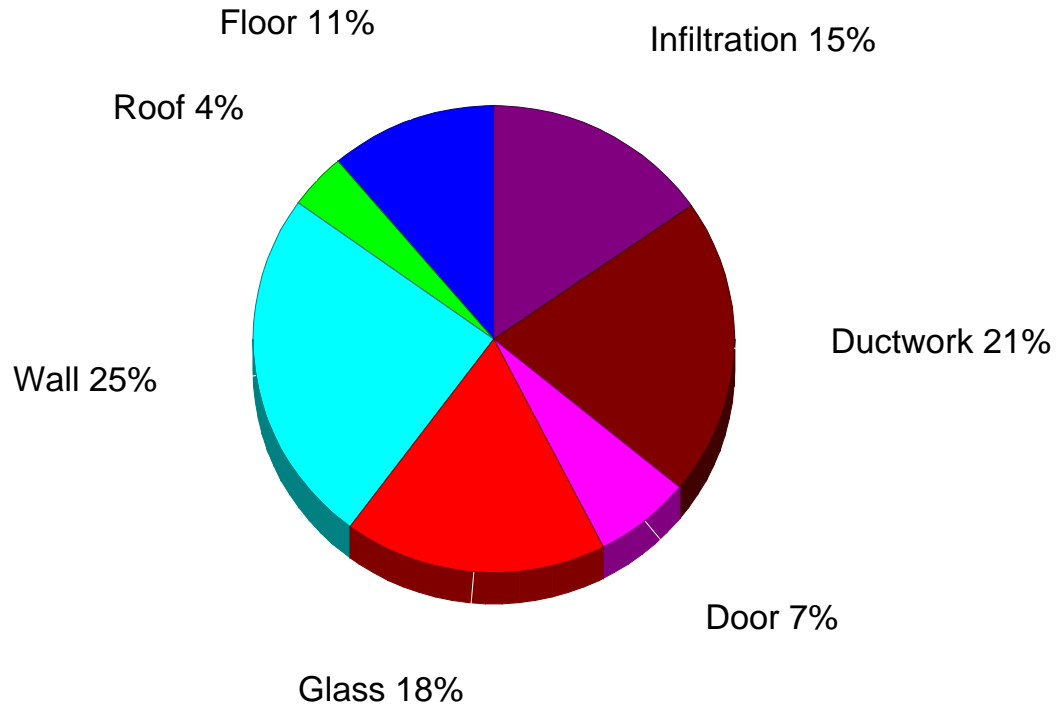
Total Heating Required Including Ventilation Air:	90,698 Btuh	90.698 MBH
Total Sensible Gain:	88,674 Btuh	87 %
Total Latent Gain:	12,854 Btuh	13 %
Total Cooling Required Including Ventilation Air:	101,528 Btuh	8.46 Tons (Based On Sensible + Latent)

**Notes**

Rhvac is an ACCA approved Manual J, D and S computer program. Calculations are performed per ACCA Manual J 8th Edition, Version 2.50, and ACCA Manual D. 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 according to the manufacturer's performance data at your design conditions.



**Building Pie Chart**





**Detailed Room Loads - Room 1 - Kitchen (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	14.7 ft.	System Number:	1
Room Width:	24.5 ft.	Zone Number:	1
Area:	359.3 sq.ft.	Supply Air:	147 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	2.7 AC/hr
Volume:	3,234 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	0 CFM
Runout Air:	74 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	375 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	375 ft./min.	Actual Winter Infil.:	25 CFM
Actual Loss:	0.091 in.wg./100 ft.	Actual Summer Infil.:	13 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 24.5 X 9	220.5	0.253	7.8	1,729	5.9	0	1,305
Floor-22A-ph 25 ft..Per.	25	1.358	42.1	1,052	0.0	0	0
Subtotals for Structure:				2,781		0	1,305
Infil.: Win.: 24.7, Sum.: 12.8	221		3.810	840	1.079	501	238
Ductwork:				1,010			497
Equipment:						0	1,200
Room Totals:				4,631		501	3,240

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Whole House Default Appliance Load, Refrigerator and range with vented hood. Note: 1200 Btuh applied to the kitchen.	1200	0	100	100	1200	0
Total					1200	0



**Detailed Room Loads - Room 2 - Walk In Area (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	3.6 ft.	System Number:	1
Room Width:	7.9 ft.	Zone Number:	1
Area:	28.4 sq.ft.	Supply Air:	53 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	12.5 AC/hr
Volume:	255 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	53 CFM	Percent of Supply.:	0 %
Runout Duct Size:	5 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	389 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	389 ft./min.	Actual Winter Infil.:	12 CFM
Actual Loss:	0.126 in.wg./100 ft.	Actual Summer Infil.:	6 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-0bw 7.9 X 9	51.3	0.253	7.8	402	5.9	0	303
SE-Wall-12A-0bw 3.6 X 9	12.2	0.253	7.8	96	5.9	0	72
NW-Door-11D 3 X 6.7	20	0.390	12.1	242	12.5	0	250
SE-Door-11D 3 X 6.7	20	0.390	12.1	242	12.5	0	250
Floor-22A-ph 12 ft..Per.	12	1.358	42.1	505	0.0	0	0
Subtotals for Structure:				1,487		0	875
Infil.: Win.: 11.6, Sum.: 6.0	104		3.807	394	1.082	235	112
Ductwork:				525			179
Room Totals:				2,406		235	1,166



**Detailed Room Loads - Room 3 - Bath 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	6.8 ft.	System Number:	1
Room Width:	6.0 ft.	Zone Number:	1
Area:	41.0 sq.ft.	Supply Air:	23 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	3.8 AC/hr
Volume:	369 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	23 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	265 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	265 ft./min.	Actual Winter Infil.:	7 CFM
Actual Loss:	0.081 in.wg./100 ft.	Actual Summer Infil.:	4 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 6.8 X 9	61.5	0.253	7.8	482	5.9	0	364
Floor-22A-ph 7 ft..Per.	7	1.358	42.1	295	0.0	0	0
Subtotals for Structure:				777		0	364
Infil.: Win.: 6.9, Sum.: 3.6	61		3.805	234	1.073	140	66
Ductwork:				282			78
Room Totals:				1,293		140	508



**Detailed Room Loads - Room 4 - Pantry (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	5.0 ft.	System Number:	1
Room Width:	5.0 ft.	Zone Number:	1
Area:	25.0 sq.ft.	Supply Air:	0 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	0.0 AC/hr
Volume:	225 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	0 CFM	Percent of Supply.:	0 %
Runout Duct Size:	0 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	0 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	0 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.000 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
Subtotals for Structure:				0		0	0
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Room Totals:				0		0	0



**Detailed Room Loads - Room 5 - Walkway (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	5.0 ft.	System Number:	1
Room Width:	5.0 ft.	Zone Number:	1
Area:	25.0 sq.ft.	Supply Air:	24 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	6.4 AC/hr
Volume:	225 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	24 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	275 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	275 ft./min.	Actual Winter Infil.:	5 CFM
Actual Loss:	0.088 in.wg./100 ft.	Actual Summer Infil.:	3 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 5 X 9	25	0.253	7.8	196	5.9	0	148
NW-Door-11D 3 X 6.7	20	0.390	12.1	242	12.5	0	250
Floor-22A-ph 5 ft..Per.	5	1.358	42.1	210	0.0	0	0
Subtotals for Structure:				648		0	398
Infil.: Win.: 5.0, Sum.: 2.6	45		3.822	172	1.089	102	49
Ductwork:				229			81
Room Totals:				1,049		102	528



**Detailed Room Loads - Room 6 - Bedroom 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	18.4 ft.	System Number:	1
Room Width:	18.8 ft.	Zone Number:	1
Area:	346.8 sq.ft.	Supply Air:	555 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	10.7 AC/hr
Volume:	3,122 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	3	Actual Winter Vent.:	0 CFM
Runout Air:	185 CFM	Percent of Supply.:	0 %
Runout Duct Size:	8 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	530 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	530 ft./min.	Actual Winter Infil.:	48 CFM
Actual Loss:	0.121 in.wg./100 ft.	Actual Summer Infil.:	25 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 18.8 X 9	123.9	0.253	7.8	972	5.9	0	734
SW-Wall-12A-0bw 18.4 X 9	120.2	0.253	7.8	943	5.9	0	712
NW-Wall-12A-0bw 10 X 9	67.2	0.253	7.8	527	5.9	0	398
SE-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	60.7	0	2,765
SW-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	60.7	0	2,765
NW-Gls-1A-cw-o shgc-0.64 0%S	22.8	0.900	27.9	636	58.2	0	1,327
Floor-22A-ph 47 ft..Per.	47	1.358	42.1	1,979	0.0	0	0
Subtotals for Structure:				7,599		0	8,701
Infil.: Win.: 47.5, Sum.: 24.6	425		3.812	1,621	1.082	966	460
Ductwork:				2,571			1,871
People: 200 lat/per, 230 sen/per:	1					200	230
Equipment:						0	933
Room Totals:				11,791		1,166	12,195

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Ceiling fan	250	0	100	100	250	0
Color television	683	0	100	100	683	0
Total					933	0



**Detailed Room Loads - Room 7 - Bath 2 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	5.0 ft.	System Number:	1
Room Width:	7.0 ft.	Zone Number:	1
Area:	35.0 sq.ft.	Supply Air:	24 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	4.5 AC/hr
Volume:	315 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	24 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	271 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	271 ft./min.	Actual Winter Infil.:	7 CFM
Actual Loss:	0.085 in.wg./100 ft.	Actual Summer Infil.:	4 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-0bw 7 X 9	63	0.253	7.8	494	5.9	0	373
Floor-22A-ph 7 ft..Per.	7	1.358	42.1	295	0.0	0	0
Subtotals for Structure:				789		0	373
Infil.: Win.: 7.0, Sum.: 3.6	63		3.810	240	1.079	143	68
Ductwork:				287			80
Room Totals:				1,316		143	521



**Detailed Room Loads - Room 8 - Dining (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	18.5 ft.	System Number:	1
Room Width:	18.8 ft.	Zone Number:	1
Area:	346.9 sq.ft.	Supply Air:	197 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	3.8 AC/hr
Volume:	3,122 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	197 CFM	Percent of Supply.:	0 %
Runout Duct Size:	8 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	566 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	566 ft./min.	Actual Winter Infil.:	19 CFM
Actual Loss:	0.138 in.wg./100 ft.	Actual Summer Infil.:	10 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 18.8 X 9	123.2	0.253	7.8	966	5.9	0	729
SE-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	60.7	0	2,765
Floor-22A-ph 19 ft..Per.	19	1.358	42.1	800	0.0	0	0
Subtotals for Structure:				3,037		0	3,494
Infil.: Win.: 18.9, Sum.: 9.8	169		3.810	643	1.079	383	182
Ductwork:				1,026			666
Room Totals:				4,706		383	4,342



**Detailed Room Loads - Room 9 - Foyer (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	18.6 ft.	System Number:	1
Room Width:	16.5 ft.	Zone Number:	1
Area:	306.6 sq.ft.	Supply Air:	137 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	3.0 AC/hr
Volume:	2,760 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	137 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	513 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	513 ft./min.	Actual Winter Infil.:	17 CFM
Actual Loss:	0.137 in.wg./100 ft.	Actual Summer Infil.:	9 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 16.5 X 9	85	0.253	7.8	667	5.9	0	503
SE-Door-11D 3.4 X 11.9	40.7	0.390	12.1	492	12.5	0	508
SE-Gls-1A-cw-o shgc-0.64 0%S	22.8	0.900	27.9	636	60.7	0	1,383
Floor-22A-ph 17 ft..Per.	17	1.358	42.1	716	0.0	0	0
Subtotals for Structure:				2,511		0	2,394
Infil.: Win.: 16.6, Sum.: 8.6	149		3.811	566	1.084	337	161
Ductwork:				858			463
Room Totals:				3,935		337	3,018



**Detailed Room Loads - Room 10 - Den (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	19.4 ft.	System Number:	1
Room Width:	18.3 ft.	Zone Number:	1
Area:	354.4 sq.ft.	Supply Air:	240 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	4.5 AC/hr
Volume:	3,189 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	240 CFM	Percent of Supply.:	0 %
Runout Duct Size:	9 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	543 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	543 ft./min.	Actual Winter Infil.:	18 CFM
Actual Loss:	0.108 in.wg./100 ft.	Actual Summer Infil.:	9 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NE-Wall-12A-0bw 18.2 X 9	118.7	0.253	7.8	931	5.9	0	703
NE-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	58.3	0	2,654
Floor-22A-ph 18 ft..Per.	18	1.358	42.1	758	0.0	0	0
Subtotals for Structure:				2,960		0	3,357
Infil.: Win.: 18.4, Sum.: 9.5	164		3.811	626	1.084	373	178
Ductwork:				1,000			810
Equipment:						0	933
Room Totals:				4,586		373	5,278

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Color television	683	0	100	100	683	0
Ceiling fan	250	0	100	100	250	0
Total					933	0



**Detailed Room Loads - Room 15 - Bath Vanity (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	6.0 ft.	System Number:	1
Room Width:	9.3 ft.	Zone Number:	1
Area:	55.5 sq.ft.	Supply Air:	88 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	8.7 AC/hr
Volume:	611 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	88 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	448 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	448 ft./min.	Actual Winter Infil.:	12 CFM
Actual Loss:	0.129 in.wg./100 ft.	Actual Summer Infil.:	6 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 9.7 X 11	90.3	0.253	7.8	708	5.9	0	534
NW-Gls-1A-cw-o shgc-0.64 0%S	16.1	0.900	27.9	448	58.2	0	935
UP-Roof-18C1-21o 6 X 9.2	55.5	0.047	1.5	81	1.0	0	55
Subtotals for Structure:				1,237		0	1,524
Infil.: Win.: 11.9, Sum.: 6.2	106		3.809	405	1.081	241	115
Ductwork:				458			297
Room Totals:				2,100		241	1,936



**Detailed Room Loads - Room 12 - Bedroom 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	19.1 ft.	System Number:	2
Room Width:	19.7 ft.	Zone Number:	1
Area:	375.3 sq.ft.	Supply Air:	546 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	7.9 AC/hr
Volume:	4,128 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	0 CFM
Runout Air:	273 CFM	Percent of Supply.:	0 %
Runout Duct Size:	10 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	500 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	500 ft./min.	Actual Winter Infil.:	53 CFM
Actual Loss:	0.080 in.wg./100 ft.	Actual Summer Infil.:	27 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 19.7 X 11	134.9	0.253	7.8	1,058	5.9	0	799
NE-Wall-12A-0bw 19.1 X 11	164.4	0.253	7.8	1,289	5.9	0	973
NW-Wall-12A-0bw 19.7 X 11	170.8	0.253	7.8	1,339	5.9	0	1,011
SE-Door-11D 6.8 X 11.9	81.4	0.390	12.1	984	12.5	0	1,016
NE-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	58.3	0	2,654
NW-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	58.3	0	2,654
UP-Roof-18C1-21o 19.1 X 19.7	375.3	0.047	1.5	547	1.0	0	370
Subtotals for Structure:				7,759		0	9,477
Infil.: Win.: 53.0, Sum.: 27.4	643		2.809	1,805	0.797	1,076	512
Ductwork:				34			9
AED Excursion:							844
People: 200 lat/per, 230 sen/per:	1					200	230
Equipment:						0	933
Room Totals:				9,598		1,276	12,005

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Ceiling fan	250	0	100	100	250	0
Color television	683	0	100	100	683	0
Total					933	0



**Detailed Room Loads - Room 13 - Hallway (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	3.1 ft.	System Number:	2
Room Width:	16.4 ft.	Zone Number:	1
Area:	50.6 sq.ft.	Supply Air:	120 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	13.0 AC/hr
Volume:	557 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	120 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	450 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	450 ft./min.	Actual Winter Infil.:	15 CFM
Actual Loss:	0.105 in.wg./100 ft.	Actual Summer Infil.:	8 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 16.4 X 11	157.8	0.253	7.8	1,238	5.9	0	934
NW-Gls-1A-cw-o shgc-0.64 0%S	22.8	0.900	27.9	636	58.2	0	1,327
UP-Roof-18C1-21o 3.1 X 16.4	50.6	0.047	1.5	74	1.0	0	50
Subtotals for Structure:				1,948		0	2,311
Infil.: Win.: 14.9, Sum.: 7.7	181		2.808	507	0.797	302	144
Ductwork:				9			2
AED Excursion:							186
Room Totals:				2,464		302	2,643



**Detailed Room Loads - Room 14 - Bedroom 2 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	9.2 ft.	System Number:	2
Room Width:	13.5 ft.	Zone Number:	1
Area:	123.8 sq.ft.	Supply Air:	63 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	2.8 AC/hr
Volume:	1,361 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	63 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	320 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	320 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.067 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
UP-Roof-18C1-21o 9.2 X 13.5	123.8	0.047	1.5	180	1.0	0	122
Subtotals for Structure:				180		0	122
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				1			1
AED Excursion:							97
People: 200 lat/per, 230 sen/per:	1					200	230
Equipment:						0	933
Room Totals:				181		200	1,383

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Ceiling fan	250	0	100	100	250	0
Color television	683	0	100	100	683	0
Total					933	0



**Detailed Room Loads - Room 16 - Bath 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	9.7 ft.	System Number:	2
Room Width:	6.9 ft.	Zone Number:	1
Area:	66.9 sq.ft.	Supply Air:	79 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	6.5 AC/hr
Volume:	736 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	79 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	404 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	404 ft./min.	Actual Winter Infil.:	9 CFM
Actual Loss:	0.105 in.wg./100 ft.	Actual Summer Infil.:	5 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 9.7 X 11	90.3	0.253	7.8	708	5.9	0	534
NW-Gls-1A-cw-o shgc-0.64 0%S	16.1	0.900	27.9	448	58.2	0	935
UP-Roof-18C1-21o 9.7 X 6.9	66.9	0.047	1.5	97	1.0	0	66
Subtotals for Structure:				1,253		0	1,535
Infil.: Win.: 8.8, Sum.: 4.5	106		2.812	299	0.799	178	85
Ductwork:				6			1
AED Excursion:							123
Room Totals:				1,558		178	1,744



**Detailed Room Loads - Room 17 - Master Suite 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	19.7 ft.	System Number:	2
Room Width:	19.3 ft.	Zone Number:	1
Area:	380.2 sq.ft.	Supply Air:	138 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	2.0 AC/hr
Volume:	4,182 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	0 CFM
Runout Air:	69 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	351 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	351 ft./min.	Actual Winter Infil.:	18 CFM
Actual Loss:	0.080 in.wg./100 ft.	Actual Summer Infil.:	9 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 19.3 X 11	131.2	0.253	7.8	1,029	5.9	0	777
SE-Door-11D 6.8 X 11.9	81.4	0.390	12.1	984	12.5	0	1,016
UP-Roof-18C1-21o 19.7 X 19.3	380.2	0.047	1.5	554	1.0	0	375
Subtotals for Structure:				2,567		0	2,168
Infil.: Win.: 17.5, Sum.: 9.1	213		2.807	597	0.795	356	169
Ductwork:				11			2
AED Excursion:							213
Equipment:						0	478
Room Totals:				3,175		356	3,030

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Vented clothes dryer - 10 percent to space	1707	0	50	50	427	0
Clothes washing machine - 10 percent to space	205	0	50	50	51	0
Total					478	0



**Detailed Room Loads - Room 18 - Master Suite 2 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	19.2 ft.	System Number:	2
Room Width:	18.8 ft.	Zone Number:	1
Area:	359.4 sq.ft.	Supply Air:	555 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	8.4 AC/hr
Volume:	3,953 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	0 CFM
Runout Air:	278 CFM	Percent of Supply.:	0 %
Runout Duct Size:	10 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	509 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	509 ft./min.	Actual Winter Infil.:	51 CFM
Actual Loss:	0.083 in.wg./100 ft.	Actual Summer Infil.:	27 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 18.8 X 11	124.8	0.253	7.8	979	5.9	0	739
SW-Wall-12A-0bw 19.2 X 11	165.3	0.253	7.8	1,296	5.9	0	978
NW-Wall-12A-0bw 18.8 X 11	160.7	0.253	7.8	1,260	5.9	0	951
SE-Door-11D 6.8 X 11.9	81.4	0.390	12.1	984	12.5	0	1,016
SW-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	60.7	0	2,765
NW-Gls-1A-cw-o shgc-0.64 0%S	45.6	0.900	27.9	1,271	58.3	0	2,654
UP-Roof-18C1-21o 19.2 X 18.8	359.4	0.047	1.5	524	1.0	0	355
Subtotals for Structure:				7,585		0	9,458
Infil.: Win.: 51.4, Sum.: 26.6	623		2.809	1,751	0.797	1,043	497
Ductwork:				34			9
AED Excursion:							859
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	933
Room Totals:				9,370		1,443	12,216

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Color television	683	0	100	100	683	0
Ceiling fan	250	0	100	100	250	0
Total					933	0



**Detailed Room Loads - Room 19 - Closet 1 (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	3.9 ft.	System Number:	2
Room Width:	6.7 ft.	Zone Number:	1
Area:	26.1 sq.ft.	Supply Air:	1 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	0.3 AC/hr
Volume:	287 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	1 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	15 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	15 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.000 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
UP-Roof-18C1-21o 3.9 X 6.7	26.1	0.047	1.5	38	1.0	0	26
Subtotals for Structure:				38		0	26
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				0			0
AED Excursion:							2
Room Totals:				38		0	28



**Detailed Room Loads - Room 20 - Bath Vanity (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	5.7 ft.	System Number:	2
Room Width:	9.8 ft.	Zone Number:	1
Area:	55.7 sq.ft.	Supply Air:	3 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	0.3 AC/hr
Volume:	613 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	3 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	31 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	31 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.001 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
UP-Roof-18C1-21o 5.7 X 9.8	55.7	0.047	1.5	81	1.0	0	55
Subtotals for Structure:				81		0	55
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				0			0
AED Excursion:							4
Room Totals:				81		0	59



**Detailed Room Loads - Room 21 - Bath Toilet (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	6.0 ft.	System Number:	2
Room Width:	6.4 ft.	Zone Number:	1
Area:	38.5 sq.ft.	Supply Air:	25 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	3.6 AC/hr
Volume:	424 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	25 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	287 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	287 ft./min.	Actual Winter Infil.:	6 CFM
Actual Loss:	0.095 in.wg./100 ft.	Actual Summer Infil.:	3 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 6.4 X 11	70.6	0.253	7.8	554	5.9	0	418
UP-Roof-18C1-21o 6 X 6.4	38.5	0.047	1.5	56	1.0	0	38
Subtotals for Structure:				610		0	456
Infil.: Win.: 5.8, Sum.: 3.0	71		2.805	198	0.793	118	56
Ductwork:				3			0
AED Excursion:							39
Room Totals:				811		118	551



**Detailed Room Loads - Room 22 - Bath Tub (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	5.7 ft.	System Number:	2
Room Width:	7.7 ft.	Zone Number:	1
Area:	43.4 sq.ft.	Supply Air:	64 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	8.0 AC/hr
Volume:	478 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	64 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	325 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	325 ft./min.	Actual Winter Infil.:	5 CFM
Actual Loss:	0.069 in.wg./100 ft.	Actual Summer Infil.:	3 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
NW-Wall-12A-Obw 5.7 X 11	46.3	0.253	7.8	363	5.9	0	274
NW-Gls-1A-cw-o shgc-0.64 0%S	16.1	0.900	27.9	448	58.2	0	935
UP-Roof-18C1-21o 5.7 X 7.7	43.4	0.047	1.5	63	1.0	0	43
Subtotals for Structure:				874		0	1,252
Infil.: Win.: 5.1, Sum.: 2.7	62		2.807	175	0.802	104	50
Ductwork:				4			1
AED Excursion:							99
Room Totals:				1,053		104	1,402



**Detailed Room Loads - Room 23 - Hallway (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	4.1 ft.	System Number:	2
Room Width:	19.4 ft.	Zone Number:	1
Area:	79.3 sq.ft.	Supply Air:	100 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	6.9 AC/hr
Volume:	872 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	100 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	375 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	375 ft./min.	Actual Winter Infil.:	18 CFM
Actual Loss:	0.074 in.wg./100 ft.	Actual Summer Infil.:	9 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SE-Wall-12A-0bw 19.4 X 11	132.2	0.253	7.8	1,037	5.9	0	782
SE-Door-11D 6.8 X 11.9	81.4	0.390	12.1	984	12.5	0	1,016
UP-Roof-18C1-21o 4.1 X 19.4	79.3	0.047	1.5	116	1.0	0	78
Subtotals for Structure:				2,137		0	1,876
Infil.: Win.: 17.6, Sum.: 9.1	214		2.809	600	0.796	357	170
Ductwork:				10			2
AED Excursion:							155
Room Totals:				2,747		357	2,202



**Detailed Room Loads - Room 24 - Stairway (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	3.3 ft.	System Number:	2
Room Width:	11.6 ft.	Zone Number:	1
Area:	37.6 sq.ft.	Supply Air:	2 CFM
Ceiling Height:	11.0 ft.	Supply Air Changes:	0.3 AC/hr
Volume:	414 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	0 CFM
Runout Air:	2 CFM	Percent of Supply.:	0 %
Runout Duct Size:	4 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	21 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	21 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.001 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
UP-Roof-18C1-21o 3.2 X 11.6	37.6	0.047	1.5	55	1.0	0	37
Subtotals for Structure:				55		0	37
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				0			0
AED Excursion:							3
Room Totals:				55		0	40



**Detailed Room Loads - Room 11 - Addition Living (Average Load Procedure)**

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	34.7 ft.	System Number:	3
Room Width:	21.5 ft.	Zone Number:	1
Area:	745.3 sq.ft.	Supply Air:	846 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	7.6 AC/hr
Volume:	6,708 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	6	Actual Winter Vent.:	0 CFM
Runout Air:	141 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	528 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	528 ft./min.	Actual Winter Infil.:	65 CFM
Actual Loss:	0.144 in.wg./100 ft.	Actual Summer Infil.:	34 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
SW-Wall-12F-0bw 28 X 9	123.4	0.065	2.0	249	1.1	0	133
NW-Wall-12F-0bw 21.5 X 9	164.3	0.065	2.0	331	1.1	0	177
NE-Wall-12F-0bw 34.7 X 9	312	0.065	2.0	629	1.1	0	337
SW-Door-11D 8.7 X 7.4	64.3	0.390	12.1	777	12.5	0	802
SW-Gls-1A-cw-o shgc-0.64 0%S	64.3	0.900	27.9	1,793	60.7	0	3,902
NW-Gls-1A-cw-o shgc-0.64 0%S	29.2	0.900	27.9	814	58.3	0	1,699
UP-Roof-18B1-21c 34.7 X 21.5	745.3	0.046	1.4	1,063	1.7	0	1,303
Floor-22A-ph 84 ft..Per.	84	1.358	42.1	3,536	0.0	0	0
Subtotals for Structure:				9,192		0	8,353
Infil.: Win.: 64.8, Sum.: 33.5	758		2.917	2,210	0.828	1,317	627
Ductwork:				10,340			6,525
AED Excursion:							1,794
Equipment:						0	1,308
Room Totals:				21,742		1,317	18,607

**Equipment Cooling Loads**

Item Name	Cont. Output Sens. Btuh	Cont. Output Lat. Btuh	Avg. In-Use Output	Pct Used /Hour	Sens. Load Btuh	Lat. Load Btuh
Color television	683	0	100	100	683	0
Ceiling fan	250	0	100	100	250	0
Stereo	375	0	100	100	375	0
Total					1308	0





### System 2 Room Load Summary

Room No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
12	Bedroom 1	375	9,598	125	2-10	500	12,005	1,276	546	546
13	Hallway	51	2,464	32	1-7	450	2,643	302	120	120
14	Bedroom 2	124	181	2	1-6	320	1,383	200	63	63
16	Bath 1	67	1,558	20	1-6	404	1,744	178	79	79
17	Master Suite 1	380	3,175	41	2-6	351	3,030	356	138	138
18	Master Suite 2	359	9,370	122	2-10	509	12,216	1,443	555	555
19	Closet 1	26	38	0	1-4	15	28	0	1	1
20	Bath Vanity	56	81	1	1-4	31	59	0	3	3
21	Bath Toilet	39	811	11	1-4	287	551	118	25	25
22	Bath Tub	43	1,053	14	1-6	325	1,402	104	64	64
23	Hallway	79	2,747	36	1-7	375	2,202	357	100	100
24	Stairway	38	55	1	1-4	21	40	0	2	2

Duct Latent Return Duct		4		11	65	4
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System 2 total	1,637	31,135	404		37,314	4,403	1,696	1,696
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System 2 Main Trunk Size: 18x18 in.  
Velocity: 754 ft./min  
Loss per 100 ft.: 0.060 in.wg

### Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	3.48	89% / 11%	37,314	4,403	41,717

### Equipment Data

	Heating System	Cooling System
Type:	Electric Resistance	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0%	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh



### System 3 Room Load Summary

Room No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
11	Addition Living	745	21,742	282	6-7	528	18,607	1,317	846	846
	Duct Latent Return Duct		4				11	2,215	4	
	System 3 total	745	21,746	282			18,618	3,535	846	846

System 3 Main Trunk Size: 10x16 in.  
 Velocity: 761 ft./min  
 Loss per 100 ft.: 0.100 in.wg

### Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.85	84% / 16%	18,618	3,535	22,153

### Equipment Data

	Heating System	Cooling System
Type:	Electric Resistance	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0%	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh