MEP Engineer:

Joe E. Hutchison, PE

Pleasant Valley - Unit A1
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A1
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	310	CFM Per Square ft.:	0.587
Square ft. of Room Area:	528	Square ft. Per Ton:	712
Volume (ft³) of Cond. Space:	4,796		

Building Loads

Total Heating Required Including Ventilation Air:	5,822	Btuh	5.822	MBH
Total Sensible Gain:	6,675	Btuh	89	%
Total Latent Gain:	798	Btuh	11	%
Total Cooling Required Including Ventilation Air:	7,473	Btuh	0.62	Tons (Based On Sensible + Latent)
			0.74	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	49	CFM	26	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 4,796	Cu.ft.	X 4,796	Cu.ft.
	2,926	Cu.ft./hr	1,535	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	49	CFM	26	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (49 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (26 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.62	0.74	712	528	6,675	798	7,473	5,822	77	310	310	
System 1	0.62	0.74	712	528	6,675	798	7,473	5,822	77	310	310	0*
Zone 1				528	6,675	798	7,473	5,822	77	310	310	
1-Pleasant Valley - Unit A1				528	6,675	798	7,473	5,822	77	310	310	3--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A1	Built-In	450	750	0.01	0.1		0		77	310	310	3--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		77	310	310	0

Summary

System 1

Heating Flow:	77
Cooling Flow:	310

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	83	1,328	0	1,295	1,295
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	334.8	858	0	463	463
IECC2012: Part-Frame, Custom, R-20	198	507	0	329	329
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	528	549	0	700	700
Subtotals for structure:		3,722	0	3,099	3,099
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 49, Summer CFM: 26		2,100	398	716	1,114
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Total Building Load Totals:		5,822	798	6,675	7,473

Check Figures

Total Building Supply CFM:	310	CFM Per Square ft.:	0.587
Square ft. of Room Area:	528	Square ft. Per Ton:	712
Volume (ft³) of Cond. Space:	4,796		

Building Loads

Total Heating Required Including Ventilation Air:	5,822 Btuh	5.822	MBH
Total Sensible Gain:	6,675 Btuh	89	%
Total Latent Gain:	798 Btuh	11	%
Total Cooling Required Including Ventilation Air:	7,473 Btuh	0.62	Tons (Based On Sensible + Latent)
		0.74	Tons (Based On 75% Sensible Capacity)

Notes

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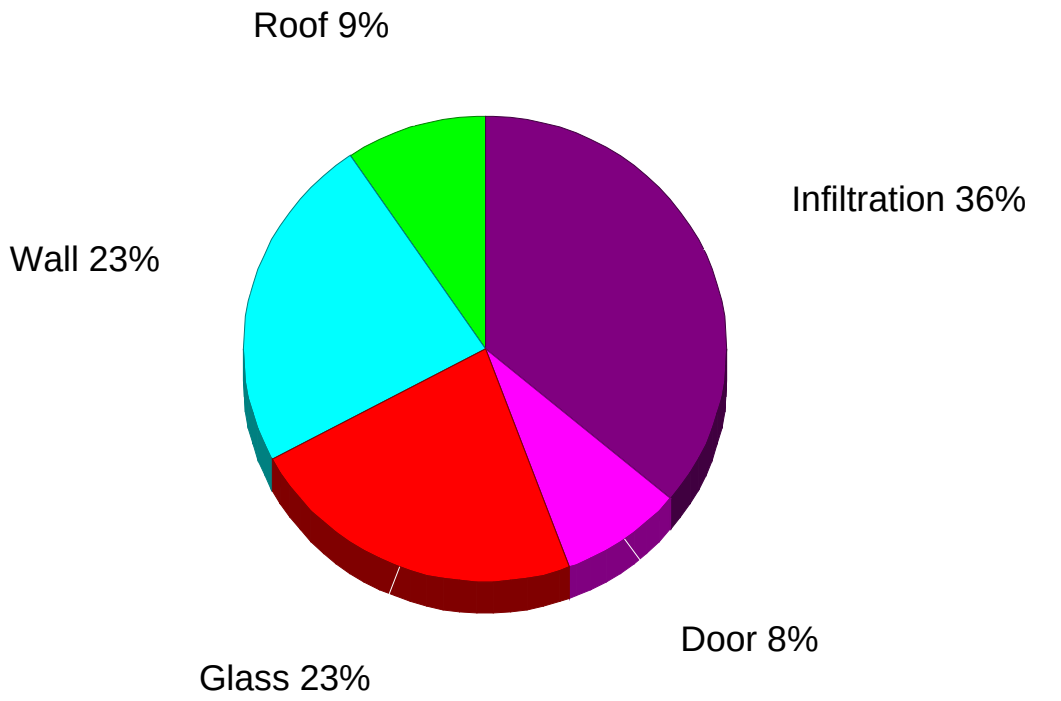
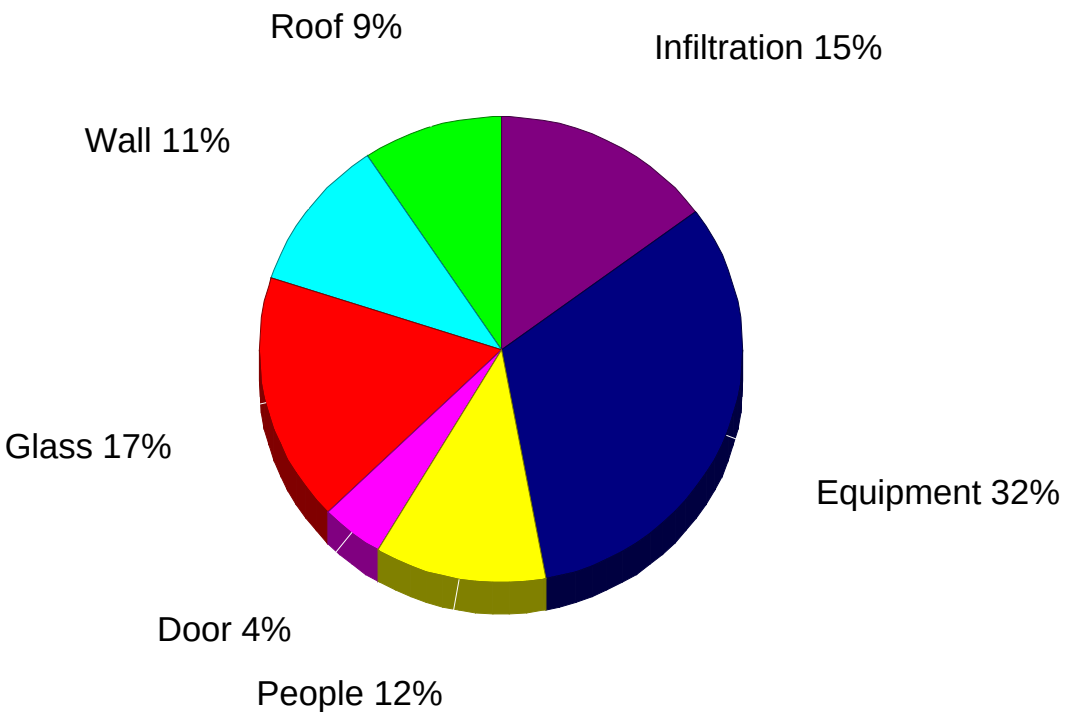
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A1 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	528.0	sq.ft.	Supply Air:	310	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.9	AC/hr
Volume:	4,795.8	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	3		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	49	CFM
			Actual Summer Infil.:	26	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 24 X 9.1	135	0.064	2.6	346	1.4	0	187
W -Wall-IECC2012 22 X 9.1	199.8	0.064	2.6	512	1.4	0	276
S -Part-26°/40°-IECC2012 24 X 9.1	198	0.064	2.6	507	1.7	0	329
S -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	28	0.400	16.0	448	15.6	0	437
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	15	0.400	16.0	240	15.6	0	234
UP-Ceil-16CR-38 528 X 1	528	0.026	1.0	549	1.3	0	700
Subtotals for Structure:				3,722		0	3,099
Infil.: Win.: 48.8, Sum.: 25.6	636		3.303	2,100	1.126	398	716
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				5,822		798	6,675

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A1	528	5,822	77	3-0	0	6,675	798	310	310
	System 1 total	528	5,822	77			6,675	798	310	310

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.62	89% / 11%	6,675	798	7,473
Recommended:	0.74	75% / 25%	6,675	2,225	8,900

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A2
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

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Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A2
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	465	CFM Per Square ft.:	0.721
Square ft. of Room Area:	644	Square ft. Per Ton:	579
Volume (ft³) of Cond. Space:	5,849		

Building Loads

Total Heating Required Including Ventilation Air:	7,098	Btuh	7.098	MBH
Total Sensible Gain:	10,003	Btuh	92	%
Total Latent Gain:	885	Btuh	8	%
Total Cooling Required Including Ventilation Air:	10,888	Btuh	0.91	Tons (Based On Sensible + Latent)
			1.11	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	59	CFM	31	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 5,849	Cu.ft.	X 5,849	Cu.ft.
	3,568	Cu.ft./hr	1,872	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	59	CFM	31	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (59 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (31 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.91	1.11	579	644	10,003	885	10,888	7,098	94	465	465	
System 1	0.91	1.11	579	644	10,003	885	10,888	7,098	94	465	465	0*
Zone 1				644	10,003	885	10,888	7,098	94	465	465	
1-Pleasant Valley - Unit A2				644	10,003	885	10,888	7,098	94	465	465	5--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A2	Built-In	450	750	0.01	0.1		0		94	465	465	5--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		94	465	465	0

Summary

System 1

Heating Flow:	94
Cooling Flow:	465

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	126	2,016	0	3,356	3,356
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	356.1	911	0	493	493
IECC2012: Part-Frame, Custom, R-20	179.8	460	0	299	299
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	644	670	0	854	854
Subtotals for structure:		4,537	0	5,314	5,314
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 59, Summer CFM: 31		2,561	485	873	1,358
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	956	956
Total Building Load Totals:		7,098	885	10,003	10,888

Check Figures

Total Building Supply CFM:	465	CFM Per Square ft.:	0.721
Square ft. of Room Area:	644	Square ft. Per Ton:	579
Volume (ft³) of Cond. Space:	5,849		

Building Loads

Total Heating Required Including Ventilation Air:	7,098	Btuh	7.098	MBH
Total Sensible Gain:	10,003	Btuh	92	%
Total Latent Gain:	885	Btuh	8	%
Total Cooling Required Including Ventilation Air:	10,888	Btuh	0.91	Tons (Based On Sensible + Latent)
			1.11	Tons (Based On 75% Sensible Capacity)

Notes

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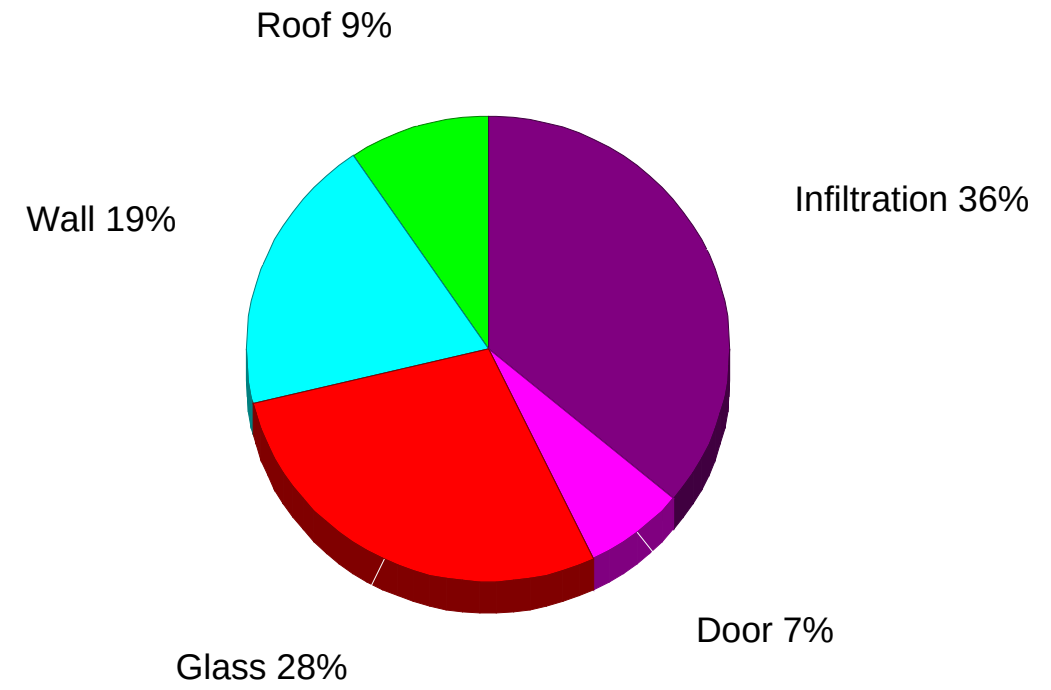
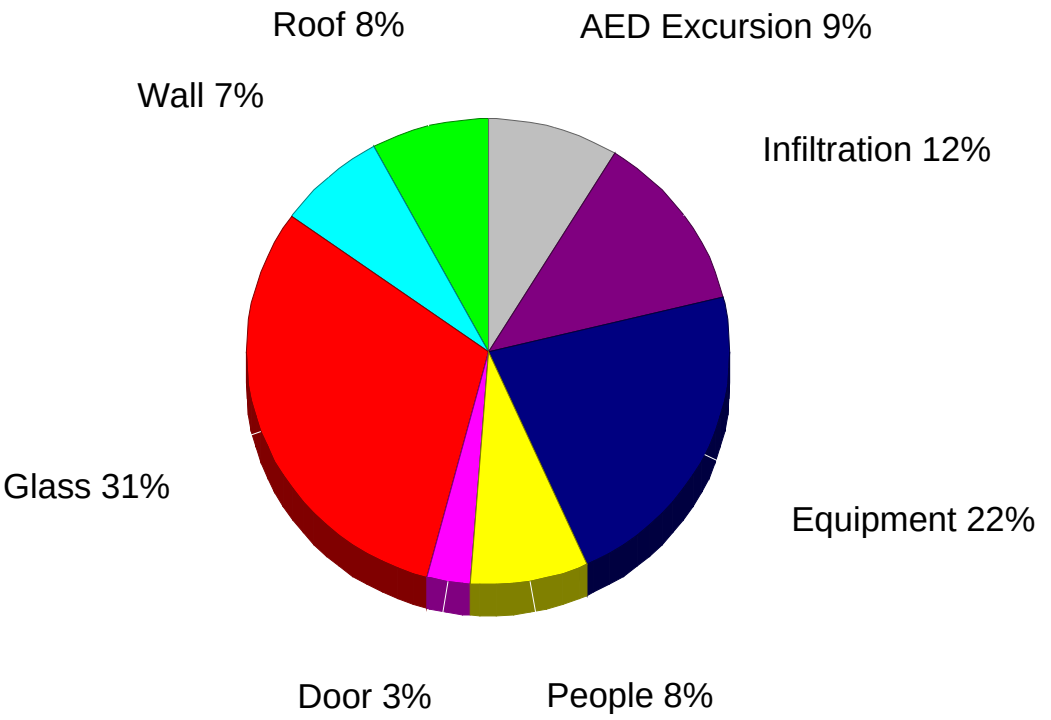
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A2 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	644.0	sq.ft.	Supply Air:	465	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	4.8	AC/hr
Volume:	5,849.5	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	5		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	59	CFM
			Actual Summer Infil.:	31	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 1 X 9.1	9.1	0.064	2.6	23	1.4	0	13
W -Wall-IECC2012 23 X 9.1	125.9	0.064	2.6	322	1.4	0	174
S -Wall-IECC2012 28 X 9.1	211.3	0.064	2.6	541	1.4	0	292
E -Wall-IECC2012 1.1 X 9.1	9.8	0.064	2.6	25	1.4	0	14
E -Part-26°/40°-IECC2012 22 X 9.1	179.8	0.064	2.6	460	1.7	0	299
E -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
W -Gls-COA 2012 IECC Min shgc-0.25 0%S	28	0.400	16.0	448	34.4	0	963
W -Gls-COA 2012 IECC Min shgc-0.25 0%S	15	0.400	16.0	240	34.4	0	516
W -Gls-COA 2012 IECC Min shgc-0.25 32%S	40	0.400	16.0	640	28.3	0	1,131
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	15	0.400	16.0	240	17.3	0	260
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	28	0.400	16.0	448	17.4	0	486
UP-Ceil-16CR-38 644 X 1	644	0.026	1.0	670	1.3	0	854
Subtotals for Structure:				4,537		0	5,314
Infil.: Win.: 59.5, Sum.: 31.2	682		3.755	2,561	1.280	485	873
AED Excursion:							956
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				7,098		885	10,003

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A2	644	7,098	94	5-0	0	10,003	885	465	465
	System 1 total	644	7,098	94			10,003	885	465	465

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.91	92% / 8%	10,003	885	10,888
Recommended:	1.11	75% / 25%	10,003	3,334	13,338

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A2-LW
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

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General Project Information

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Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	503	CFM Per Square ft.:	0.780
Square ft. of Room Area:	645	Square ft. Per Ton:	536
Volume (ft³) of Cond. Space:	6,826		

Building Loads

Total Heating Required Including Ventilation Air:	8,230	Btuh	8.230	MBH
Total Sensible Gain:	10,838	Btuh	92	%
Total Latent Gain:	966	Btuh	8	%
Total Cooling Required Including Ventilation Air:	11,804	Btuh	0.98	Tons (Based On Sensible + Latent)
			1.20	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	69	CFM	36	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 6,826	Cu.ft.	X 6,826	Cu.ft.
	4,164	Cu.ft./hr	2,184	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	69	CFM	36	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (69 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (36 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.98	1.20	536	645	10,838	966	11,804	8,230	109	503	503	
System 1	0.98	1.20	536	645	10,838	966	11,804	8,230	109	503	503	0*
Zone 1				645	10,838	966	11,804	8,230	109	503	503	
1-Pleasant Valley - Unit A2-LW				645	10,838	966	11,804	8,230	109	503	503	5--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A2-LW	Built-In	450	750	0.01	0.1		0		109	503	503	5--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		109	503	503	0

Summary

System 1

Heating Flow: 109

Cooling Flow: 503

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	147	2,352	0	4,600	4,600
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	159.9	409	0	221	221
IECC2012: Part-Frame, Custom, R-20	519.7	1,330	0	865	865
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	645	671	0	855	855
Subtotals for structure:		5,242	0	6,853	6,853
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 69, Summer CFM: 36		2,988	566	1,019	1,585
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	106	106
Total Building Load Totals:		8,230	966	10,838	11,804

Check Figures

Total Building Supply CFM:	503	CFM Per Square ft.:	0.780
Square ft. of Room Area:	645	Square ft. Per Ton:	536
Volume (ft³) of Cond. Space:	6,826		

Building Loads

Total Heating Required Including Ventilation Air:	8,230	Btuh	8.230	MBH
Total Sensible Gain:	10,838	Btuh	92	%
Total Latent Gain:	966	Btuh	8	%
Total Cooling Required Including Ventilation Air:	11,804	Btuh	0.98	Tons (Based On Sensible + Latent)
			1.20	Tons (Based On 75% Sensible Capacity)

Notes

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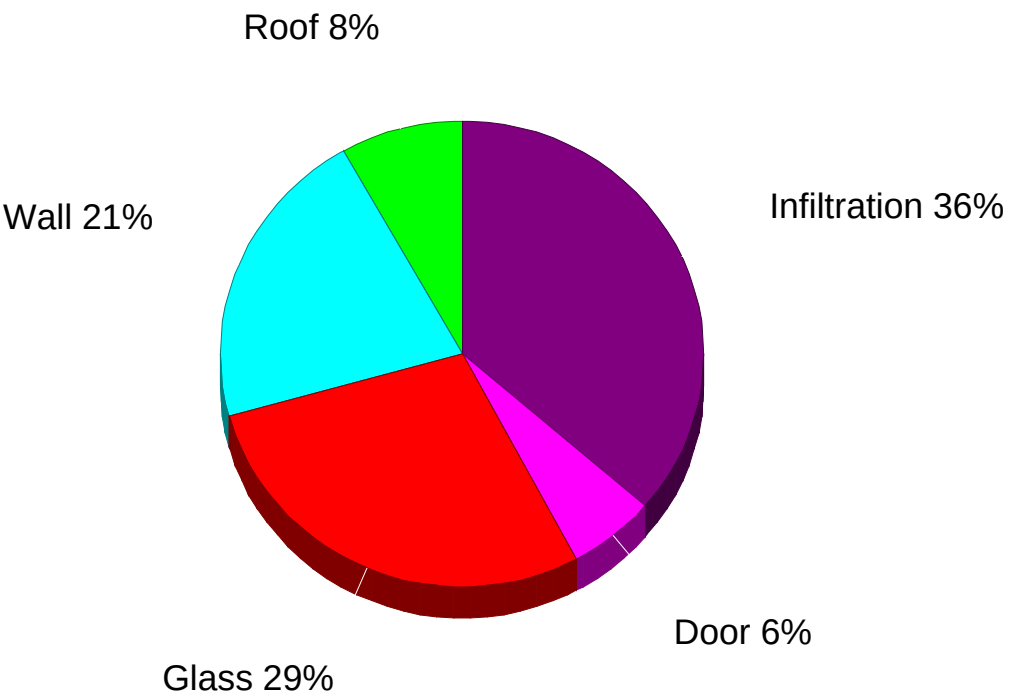
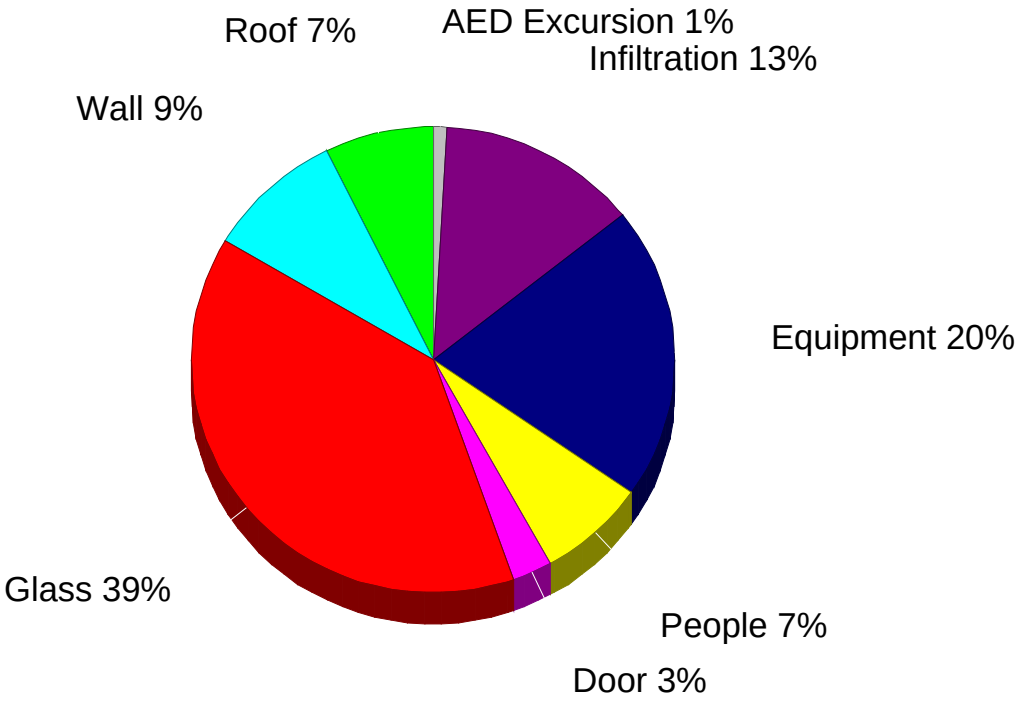
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A2-LW (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	645.0	sq.ft.	Supply Air:	503	CFM
Ceiling Height:	10.6	ft.	Supply Air Changes:	4.4	AC/hr
Volume:	6,826.3	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	5		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	69	CFM
			Actual Summer Infil.:	36	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
S -Wall-IECC2012 1 X 10.6	10.6	0.064	2.6	27	1.4	0	15
E -Wall-IECC2012 28 X 10.6	149.3	0.064	2.6	382	1.4	0	206
S -Part-26°/40°-IECC2012 23 X 10.6	243.4	0.064	2.6	623	1.7	0	405
W -Part-26°/40°-IECC2012 28 X 10.6	276.3	0.064	2.6	707	1.7	0	460
W -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
E -Gls-COA 2012 IECC Min shgc-0.25 0%S	84	0.400	16.0	1,344	34.4	0	2,888
E -Gls-COA 2012 IECC Min shgc-0.25 38%S	63	0.400	16.0	1,008	27.2	0	1,712
UP-Ceil-16CR-38 645 X 1	645	0.026	1.0	671	1.3	0	855
Subtotals for Structure:				5,242		0	6,853
Infil.: Win.: 69.4, Sum.: 36.4	847		3.529	2,988	1.204	566	1,019
AED Excursion:							106
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				8,230		966	10,838

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A2-LW	645	8,230	109	5-0	0	10,838	966	503	503
	System 1 total	645	8,230	109			10,838	966	503	503

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.98	92% / 8%	10,838	966	11,804
Recommended:	1.20	75% / 25%	10,838	3,613	14,451

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A3
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A3
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	335	CFM Per Square ft.:	0.498
Square ft. of Room Area:	672	Square ft. Per Ton:	839
Volume (ft³) of Cond. Space:	6,104		

Building Loads

Total Heating Required Including Ventilation Air:	6,683	Btuh	6.683	MBH
Total Sensible Gain:	7,212	Btuh	89	%
Total Latent Gain:	906	Btuh	11	%
Total Cooling Required Including Ventilation Air:	8,118	Btuh	0.68	Tons (Based On Sensible + Latent)
			0.80	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	62	CFM	33	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 6,104	Cu.ft.	X 6,104	Cu.ft.
	3,723	Cu.ft./hr	1,953	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	62	CFM	33	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (62 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (33 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.68	0.80	839	672	7,212	906	8,118	6,683	89	335	335	
System 1	0.68	0.80	839	672	7,212	906	8,118	6,683	89	335	335	0*
Zone 1				672	7,212	906	8,118	6,683	89	335	335	
1-Pleasant Valley - Unit A3				672	7,212	906	8,118	6,683	89	335	335	4--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A3	Built-In	450	750	0.01	0.1		0		89	335	335	4--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		89	335	335	0

Summary

System 1

Heating Flow: 89

Cooling Flow: 335

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	83	1,328	0	1,370	1,370
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Part-Frame, Custom, R-20	198	507	0	329	329
IECC2012: Wall-Frame, Custom, R-20	389.3	997	0	539	539
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	672	699	0	891	891
Subtotals for structure:		4,011	0	3,441	3,441
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 62, Summer CFM: 33		2,672	506	911	1,417
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Total Building Load Totals:		6,683	906	7,212	8,118

Check Figures

Total Building Supply CFM:	335	CFM Per Square ft.:	0.498
Square ft. of Room Area:	672	Square ft. Per Ton:	839
Volume (ft³) of Cond. Space:	6,104		

Building Loads

Total Heating Required Including Ventilation Air:	6,683 Btuh	6.683	MBH
Total Sensible Gain:	7,212 Btuh	89	%
Total Latent Gain:	906 Btuh	11	%
Total Cooling Required Including Ventilation Air:	8,118 Btuh	0.68	Tons (Based On Sensible + Latent)
		0.80	Tons (Based On 75% Sensible Capacity)

Notes

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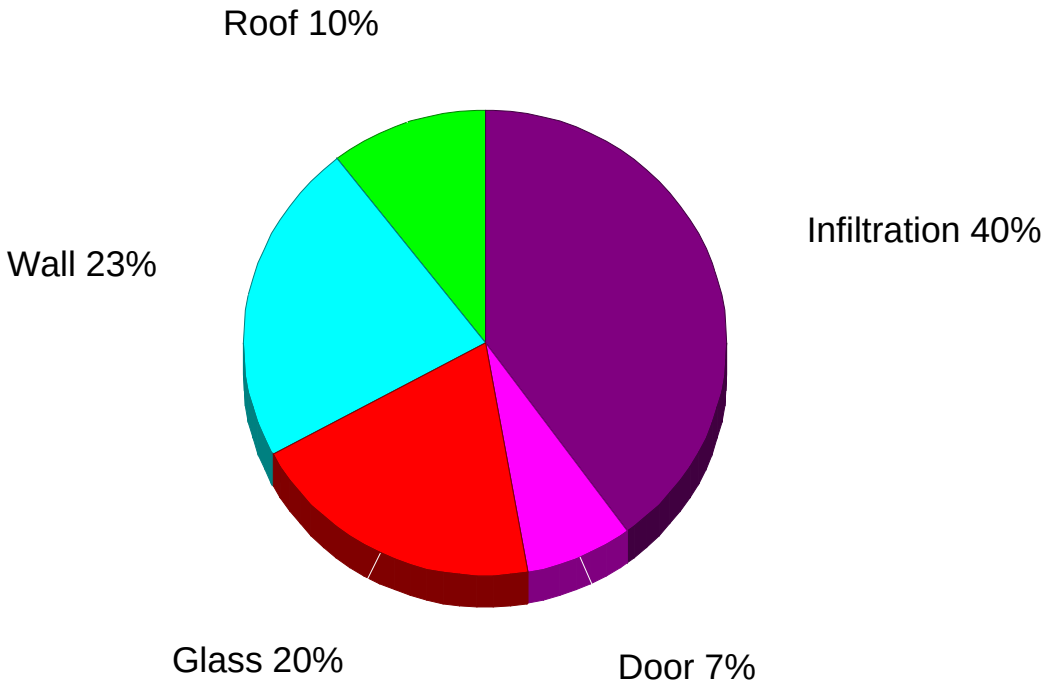
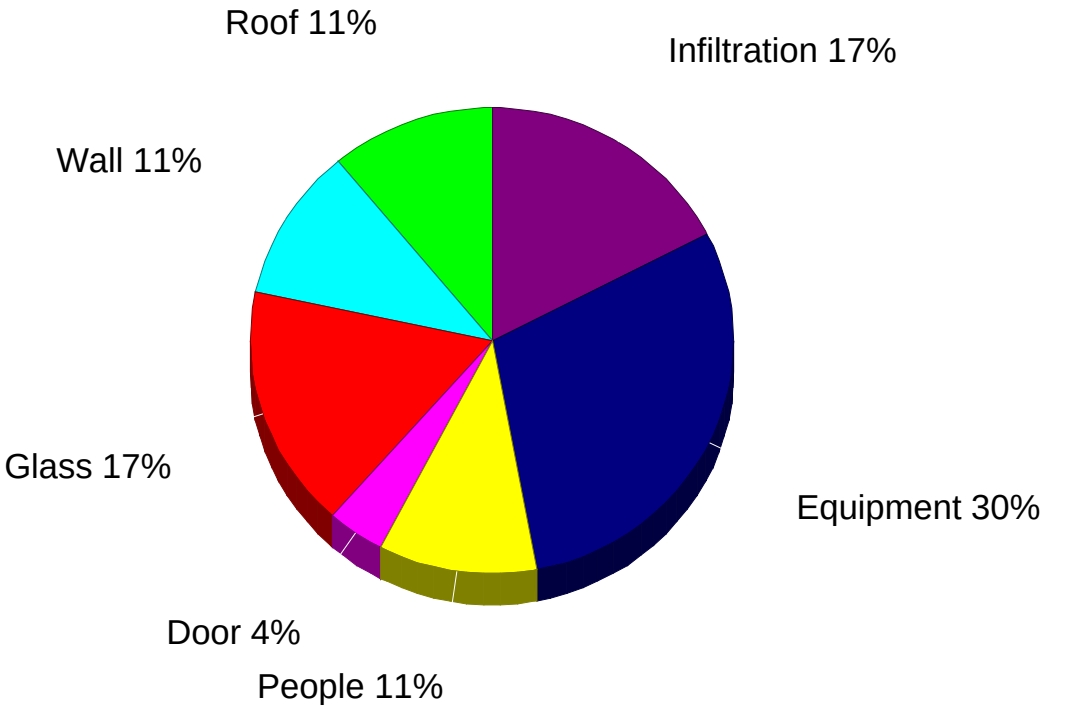
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A3 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	672.0	sq.ft.	Supply Air:	335	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.3	AC/hr
Volume:	6,103.8	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	4		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	62	CFM
			Actual Summer Infil.:	33	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Part-26°/40°-IECC2012 24 X 9.1	198	0.064	2.6	507	1.7	0	329
E -Wall-IECC2012 28 X 9.1	254.3	0.064	2.6	651	1.4	0	352
S -Wall-IECC2012 24 X 9.1	135	0.064	2.6	346	1.4	0	187
N -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	28	0.400	16.0	448	17.4	0	486
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	15	0.400	16.0	240	17.3	0	260
S -Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
UP-Ceil-16CR-38 672 X 1	672	0.026	1.0	699	1.3	0	891
Subtotals for Structure:				4,011		0	3,441
Infil.: Win.: 62.1, Sum.: 32.6	690		3.871	2,672	1.320	506	911
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				6,683		906	7,212

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A3	672	6,683	89	4-0	0	7,212	906	335	335
	System 1 total	672	6,683	89			7,212	906	335	335

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.68	89% / 11%	7,212	906	8,118
Recommended:	0.80	75% / 25%	7,212	2,404	9,616

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A4
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A4
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	480	CFM Per Square ft.:	0.659
Square ft. of Room Area:	728	Square ft. Per Ton:	634
Volume (ft³) of Cond. Space:	6,612		

Building Loads

Total Heating Required Including Ventilation Air:	7,657	Btuh	7.657	MBH
Total Sensible Gain:	10,331	Btuh	92	%
Total Latent Gain:	949	Btuh	8	%
Total Cooling Required Including Ventilation Air:	11,280	Btuh	0.94	Tons (Based On Sensible + Latent)
			1.15	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	67	CFM	35	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 6,612	Cu.ft.	X 6,612	Cu.ft.
	4,033	Cu.ft./hr	2,116	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	67	CFM	35	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (67 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (35 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.94	1.15	634	728	10,331	949	11,280	7,657	102	480	480	
System 1	0.94	1.15	634	728	10,331	949	11,280	7,657	102	480	480	0*
Zone 1				728	10,331	949	11,280	7,657	102	480	480	
1-Pleasant Valley - Unit A4				728	10,331	949	11,280	7,657	102	480	480	5--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A4	Built-In	450	750	0.01	0.1		0		102	480	480	5--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		102	480	480	0

Summary

System 1

Heating Flow: 102

Cooling Flow: 480

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	126	2,016	0	3,356	3,356
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	308.5	789	0	427	427
IECC2012: Part-Frame, Custom, R-20	281.3	720	0	468	468
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	728	757	0	965	965
Subtotals for structure:		4,762	0	5,528	5,528
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 67, Summer CFM: 35		2,895	549	987	1,536
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	956	956
Total Building Load Totals:		7,657	949	10,331	11,280

Check Figures

Total Building Supply CFM:	480	CFM Per Square ft.:	0.659
Square ft. of Room Area:	728	Square ft. Per Ton:	634
Volume (ft³) of Cond. Space:	6,612		

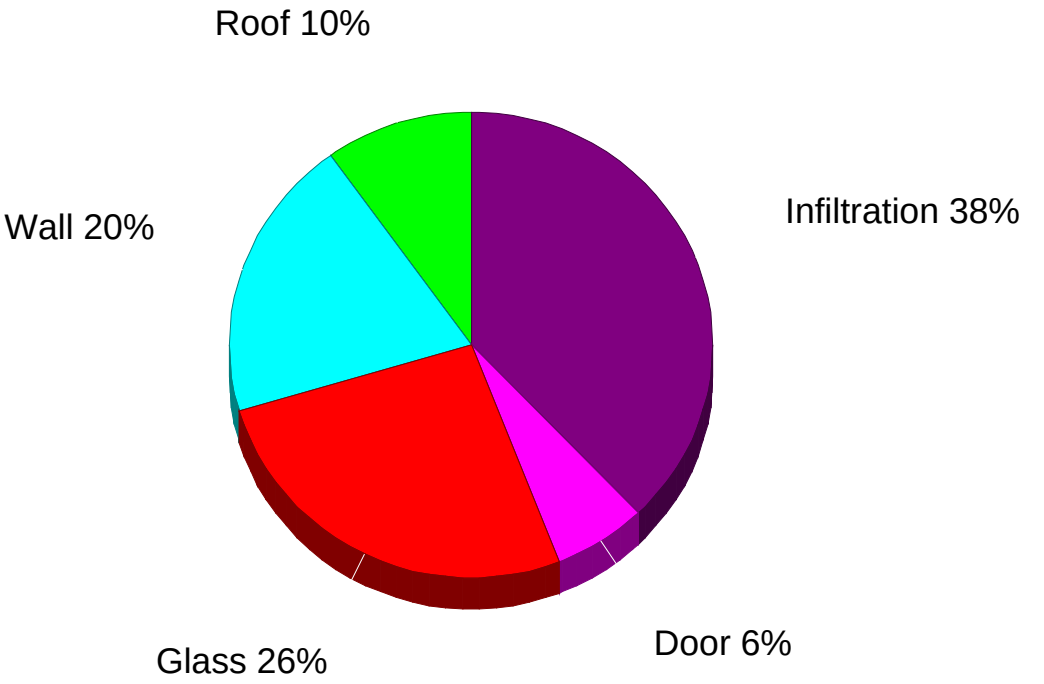
Building Loads

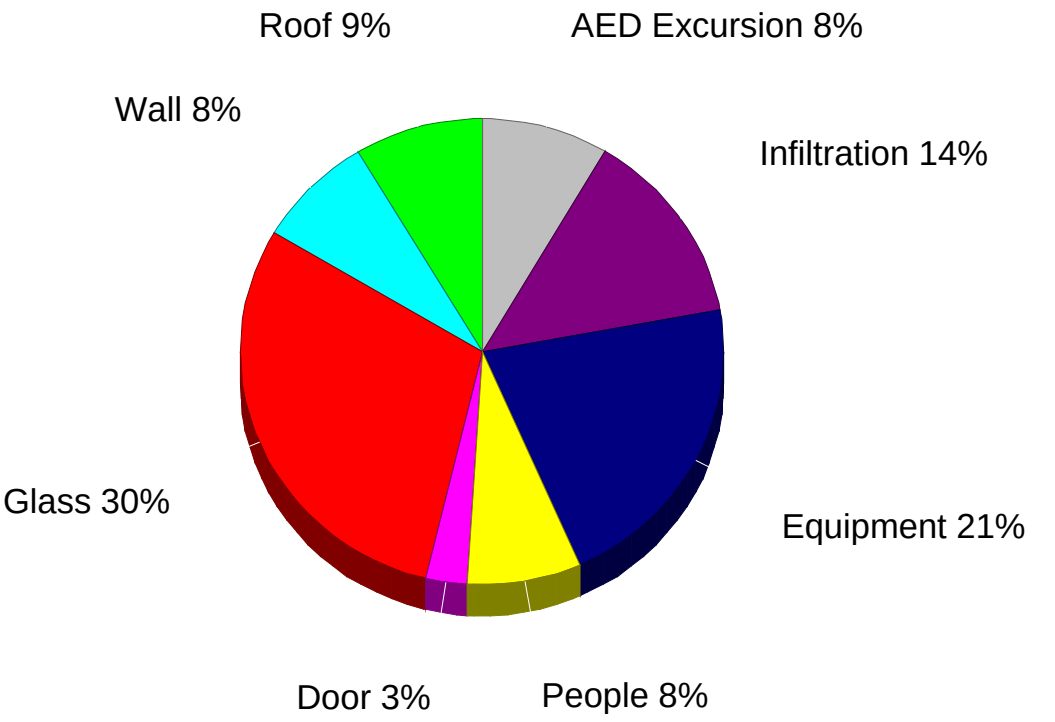
Total Heating Required Including Ventilation Air:	7,657	Btuh	7.657	MBH
Total Sensible Gain:	10,331	Btuh	92	%
Total Latent Gain:	949	Btuh	8	%
Total Cooling Required Including Ventilation Air:	11,280	Btuh	0.94	Tons (Based On Sensible + Latent)
			1.15	Tons (Based On 75% Sensible Capacity)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 - Pleasant Valley - Unit A4 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	728.0	sq.ft.	Supply Air:	480	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	4.4	AC/hr
Volume:	6,612.4	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	5		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	67	CFM
			Actual Summer Infil.:	35	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 1 X 9.1	9.1	0.064	2.6	23	1.4	0	13
W -Wall-IECC2012 26 X 9.1	153.2	0.064	2.6	392	1.4	0	212
S -Wall-IECC2012 20.8 X 9.1	146.2	0.064	2.6	374	1.4	0	202
S -Part-26°/40°-IECC2012 7.2 X 9.1	65.1	0.064	2.6	167	1.7	0	108
E -Part-26°/40°-IECC2012 26 X 9.1	216.2	0.064	2.6	553	1.7	0	360
E -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
W -Gls-COA 2012 IECC Min shgc-0.25 0%S	28	0.400	16.0	448	34.4	0	963
W -Gls-COA 2012 IECC Min shgc-0.25 0%S	15	0.400	16.0	240	34.4	0	516
W -Gls-COA 2012 IECC Min shgc-0.25 32%S	40	0.400	16.0	640	28.3	0	1,131
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	15	0.400	16.0	240	17.3	0	260
S -Gls-COA 2012 IECC Min shgc-0.25 0%S	28	0.400	16.0	448	17.4	0	486
UP-Ceil-16CR-38 728 X 1	728	0.026	1.0	757	1.3	0	965
Subtotals for Structure:				4,762		0	5,528
Infil.: Win.: 67.2, Sum.: 35.3	736		3.935	2,895	1.342	549	987
AED Excursion:							956
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				7,657		949	10,331

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A4	728	7,657	102	5-0	0	10,331	949	480	480
	System 1 total	728	7,657	102			10,331	949	480	480

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.94	92% / 8%	10,331	949	11,280
Recommended:	1.15	75% / 25%	10,331	3,444	13,775

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A5
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A5
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	356	CFM Per Square ft.:	0.463
Square ft. of Room Area:	768	Square ft. Per Ton:	903
Volume (ft³) of Cond. Space:	6,976		

Building Loads

Total Heating Required Including Ventilation Air:	7,521	Btuh	7.521	MBH
Total Sensible Gain:	7,655	Btuh	89	%
Total Latent Gain:	979	Btuh	11	%
Total Cooling Required Including Ventilation Air:	8,634	Btuh	0.72	Tons (Based On Sensible + Latent)
			0.85	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	71	CFM	37	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 6,976	Cu.ft.	X 6,976	Cu.ft.
	4,255	Cu.ft./hr	2,232	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	71	CFM	37	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (71 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (37 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.72	0.85	903	768	7,655	979	8,634	7,521	100	356	356	
System 1	0.72	0.85	903	768	7,655	979	8,634	7,521	100	356	356	0*
Zone 1				768	7,655	979	8,634	7,521	100	356	356	
1-Pleasant Valley - Unit A5				768	7,655	979	8,634	7,521	100	356	356	4--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A5	Built-In	450	750	0.01	0.1		0		100	356	356	4--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		100	356	356	0

Summary

System 1

Heating Flow:	100
Cooling Flow:	356

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	85	1,360	0	1,326	1,326
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	319.2	817	0	442	442
IECC2012: Part-Frame, Custom, R-20	394.8	1,011	0	656	656
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	768	799	0	1,018	1,018
Subtotals for structure:		4,467	0	3,754	3,754
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 71, Summer CFM: 37		3,054	579	1,041	1,620
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Total Building Load Totals:		7,521	979	7,655	8,634

Check Figures

Total Building Supply CFM:	356	CFM Per Square ft.:	0.463
Square ft. of Room Area:	768	Square ft. Per Ton:	903
Volume (ft³) of Cond. Space:	6,976		

Building Loads

Total Heating Required Including Ventilation Air:	7,521 Btuh	7.521	MBH
Total Sensible Gain:	7,655 Btuh	89	%
Total Latent Gain:	979 Btuh	11	%
Total Cooling Required Including Ventilation Air:	8,634 Btuh	0.72	Tons (Based On Sensible + Latent)
		0.85	Tons (Based On 75% Sensible Capacity)

Notes

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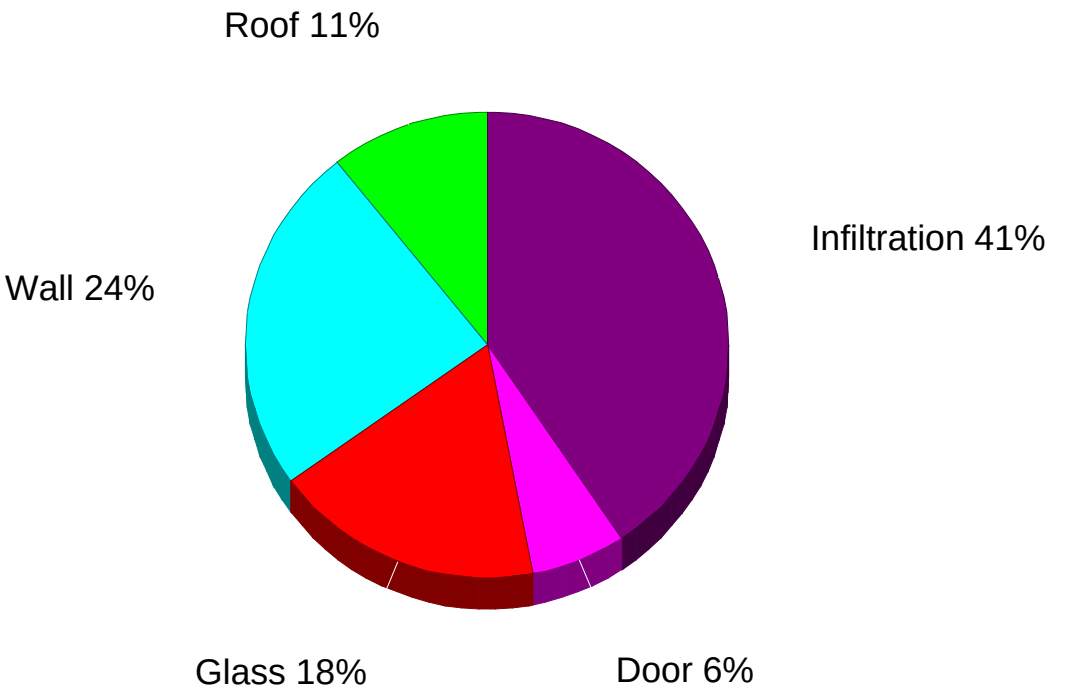
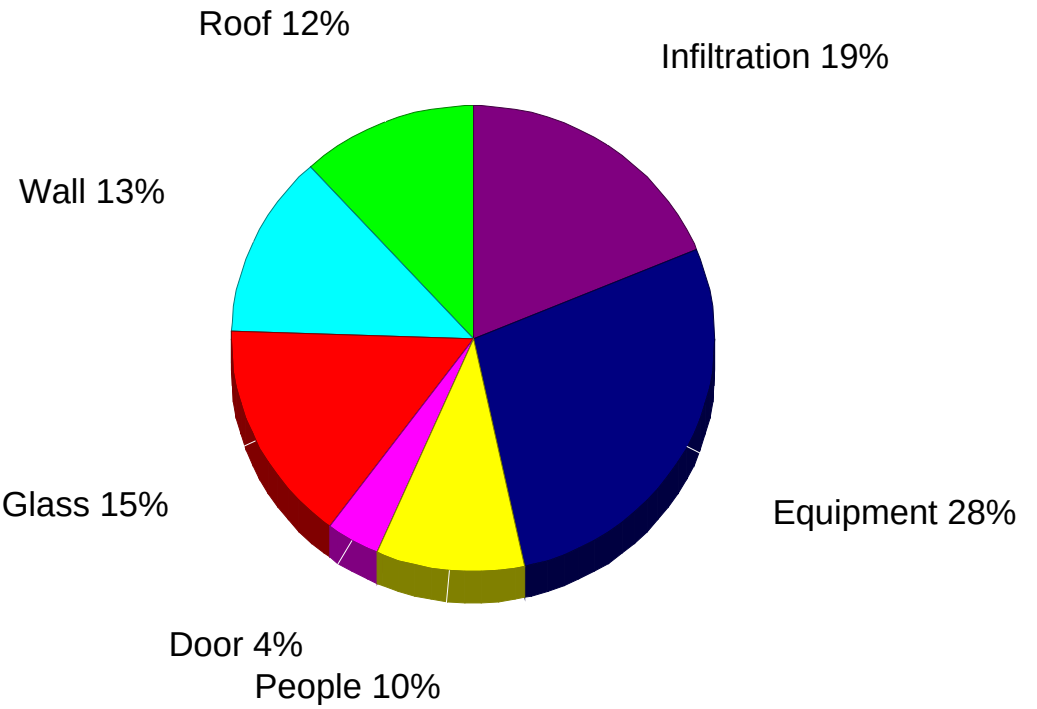
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A5 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	768.0	sq.ft.	Supply Air:	356	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.1	AC/hr
Volume:	6,975.7	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	4		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	71	CFM
			Actual Summer Infil.:	37	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 24.1 X 9.1	133.7	0.064	2.6	342	1.4	0	185
W -Wall-IECC2012 10.4 X 9.1	94.6	0.064	2.6	242	1.4	0	131
W -Part-26°/40°-IECC2012 21.7 X 9.1	196.8	0.064	2.6	504	1.7	0	327
S -Part-26°/40°-IECC2012 24 X 9.1	198	0.064	2.6	507	1.7	0	329
E -Wall-IECC2012 10 X 9.1	90.8	0.064	2.6	233	1.4	0	126
S -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
N -Gls-COA 2012 IECC Min shgc-0.25 100%S (3)	45	0.400	16.0	720	15.6	0	702
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
UP-Ceil-16CR-38 768 X 1	768	0.026	1.0	799	1.3	0	1,018
Subtotals for Structure:				4,467		0	3,754
Infil.: Win.: 70.9, Sum.: 37.2	819		3.729	3,054	1.271	579	1,041
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				7,521		979	7,655

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A5	768	7,521	100	4-0	0	7,655	979	356	356
	System 1 total	768	7,521	100			7,655	979	356	356

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.72	89% / 11%	7,655	979	8,634
Recommended:	0.85	75% / 25%	7,655	2,552	10,207

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A5-LW
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A5-LW
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	515	CFM Per Square ft.:	0.671
Square ft. of Room Area:	768	Square ft. Per Ton:	623
Volume (ft³) of Cond. Space:	8,128		

Building Loads

Total Heating Required Including Ventilation Air:	8,929	Btuh	8.929	MBH
Total Sensible Gain:	11,094	Btuh	91	%
Total Latent Gain:	1,074	Btuh	9	%
Total Cooling Required Including Ventilation Air:	12,168	Btuh	1.01	Tons (Based On Sensible + Latent)
			1.23	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	83	CFM	43	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 8,128	Cu.ft.	X 8,128	Cu.ft.
	4,958	Cu.ft./hr	2,601	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	83	CFM	43	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (83 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (43 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	1.01	1.23	623	768	11,094	1,074	12,168	8,929	118	515	515	
System 1	1.01	1.23	623	768	11,094	1,074	12,168	8,929	118	515	515	0*
Zone 1				768	11,094	1,074	12,168	8,929	118	515	515	
1-Pleasant Valley - Unit A5-LW				768	11,094	1,074	12,168	8,929	118	515	515	5--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A5-LW	Built-In	450	750	0.01	0.1		0		118	515	515	5--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		118	515	515	0

Summary

System 1

Heating Flow: 118

Cooling Flow: 515

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	147	2,352	0	4,430	4,430
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	211.9	543	0	293	293
IECC2012: Part-Frame, Custom, R-20	467.7	1,197	0	778	778
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	768	799	0	1,018	1,018
Subtotals for structure:		5,371	0	6,831	6,831
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 83, Summer CFM: 43		3,558	674	1,213	1,887
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	190	190
Total Building Load Totals:		8,929	1,074	11,094	12,168

Check Figures

Total Building Supply CFM:	515	CFM Per Square ft.:	0.671
Square ft. of Room Area:	768	Square ft. Per Ton:	623
Volume (ft³) of Cond. Space:	8,128		

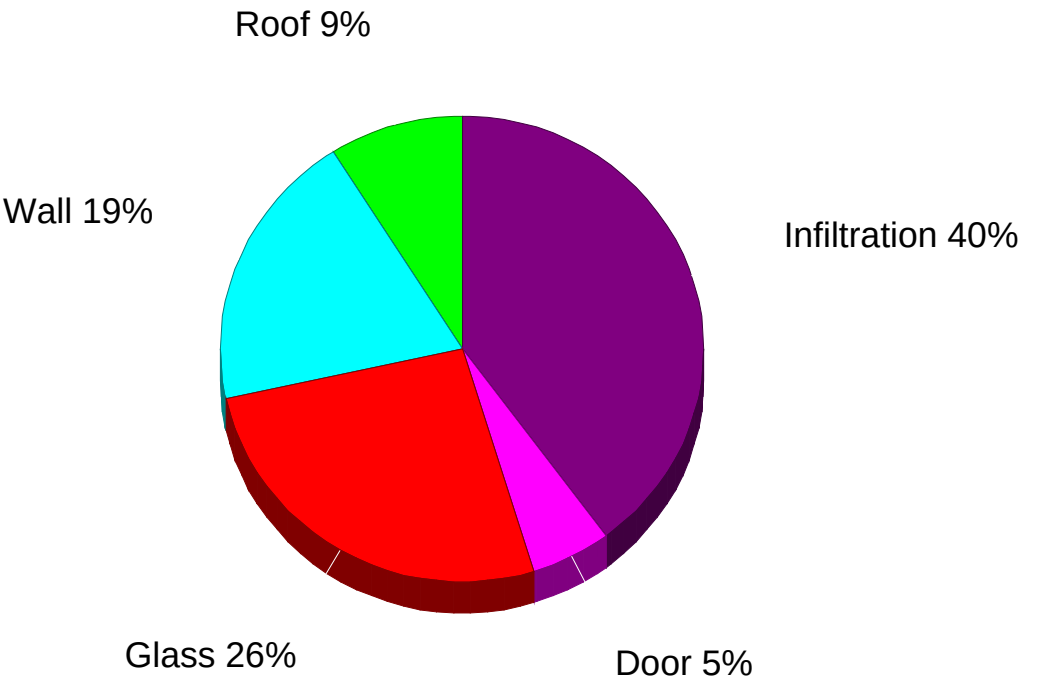
Building Loads

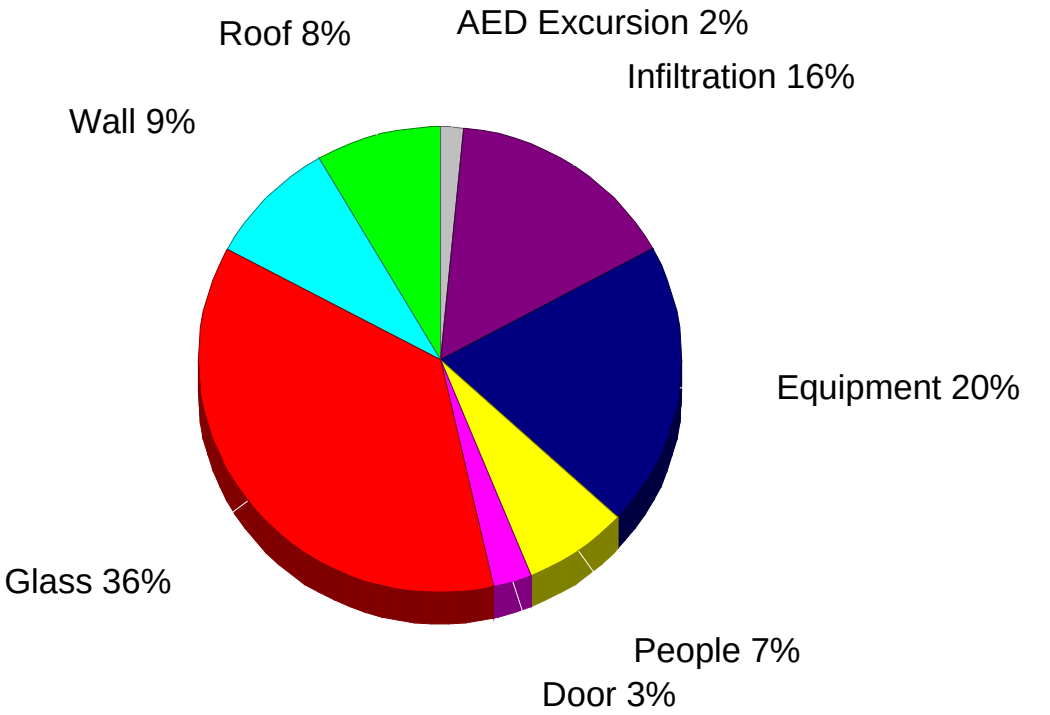
Total Heating Required Including Ventilation Air:	8,929	Btuh	8.929	MBH
Total Sensible Gain:	11,094	Btuh	91	%
Total Latent Gain:	1,074	Btuh	9	%
Total Cooling Required Including Ventilation Air:	12,168	Btuh	1.01	Tons (Based On Sensible + Latent)
			1.23	Tons (Based On 75% Sensible Capacity)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 - Pleasant Valley - Unit A5-LW (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	768.0	sq.ft.	Supply Air:	515	CFM
Ceiling Height:	10.6	ft.	Supply Air Changes:	3.8	AC/hr
Volume:	8,127.7	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	5		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	83	CFM
			Actual Summer Infil.:	43	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-IECC2012 24 X 10.6	107	0.064	2.6	274	1.4	0	148
S -Wall-IECC2012 9.9 X 10.6	105	0.064	2.6	269	1.4	0	145
S -Part-26°/40°-IECC2012 22.1 X 10.6	233.7	0.064	2.6	598	1.7	0	389
W -Part-26°/40°-IECC2012 24 X 10.6	234	0.064	2.6	599	1.7	0	389
W -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
E -Gls-COA 2012 IECC Min shgc-0.25 0%S	84	0.400	16.0	1,344	34.4	0	2,888
E -Gls-COA 2012 IECC Min shgc-0.25 52%S	63	0.400	16.0	1,008	24.5	0	1,542
UP-Ceil-16CR-38 768 X 1	768	0.026	1.0	799	1.3	0	1,018
Subtotals for Structure:				5,371		0	6,831
Infil.: Win.: 82.6, Sum.: 43.3	847		4.202	3,558	1.433	674	1,213
AED Excursion:							190
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				8,929		1,074	11,094

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A5-LW	768	8,929	118	5-0	0	11,094	1,074	515	515
	System 1 total	768	8,929	118			11,094	1,074	515	515

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.01	91% / 9%	11,094	1,074	12,168
Recommended:	1.23	75% / 25%	11,094	3,698	14,792

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit A6
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit A6
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	397	CFM Per Square ft.:	0.475
Square ft. of Room Area:	836	Square ft. Per Ton:	879
Volume (ft³) of Cond. Space:	7,593		

Building Loads

Total Heating Required Including Ventilation Air:	8,594	Btuh	8.594	MBH
Total Sensible Gain:	8,557	Btuh	89	%
Total Latent Gain:	1,030	Btuh	11	%
Total Cooling Required Including Ventilation Air:	9,587	Btuh	0.80	Tons (Based On Sensible + Latent)
			0.95	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.610	AC/hr	0.320	AC/hr
	77	CFM	40	CFM
Infiltration Actual:	0.610	AC/hr	0.320	AC/hr
Above Grade Volume:	X 7,593	Cu.ft.	X 7,593	Cu.ft.
	4,632	Cu.ft./hr	2,430	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	77	CFM	40	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.610 AC/hr (77 CFM), Construction: Average
Summer Infiltration Specified: 0.320 AC/hr (40 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.80	0.95	879	836	8,557	1,030	9,587	8,594	114	397	397	
System 1	0.80	0.95	879	836	8,557	1,030	9,587	8,594	114	397	397	0*
Zone 1				836	8,557	1,030	9,587	8,594	114	397	397	
1-Pleasant Valley - Unit A6				836	8,557	1,030	9,587	8,594	114	397	397	4--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit A6	Built-In	450	750	0.01	0.1		0		114	397	397	4--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		114	397	397	0

Summary

System 1

Heating Flow: 114

Cooling Flow: 397

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	126	2,016	0	1,966	1,966
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	219.2	561	0	303	303
IECC2012: Part-Frame, Custom, R-20	525	1,344	0	874	874
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	836	869	0	1,109	1,109
Subtotals for structure:		5,270	0	4,564	4,564
People:	2		400	460	860
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 77, Summer CFM: 40		3,324	630	1,133	1,763
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Total Building Load Totals:		8,594	1,030	8,557	9,587

Check Figures

Total Building Supply CFM:	397	CFM Per Square ft.:	0.475
Square ft. of Room Area:	836	Square ft. Per Ton:	879
Volume (ft³) of Cond. Space:	7,593		

Building Loads

Total Heating Required Including Ventilation Air:	8,594 Btuh	8.594	MBH
Total Sensible Gain:	8,557 Btuh	89	%
Total Latent Gain:	1,030 Btuh	11	%
Total Cooling Required Including Ventilation Air:	9,587 Btuh	0.80	Tons (Based On Sensible + Latent)
		0.95	Tons (Based On 75% Sensible Capacity)

Notes

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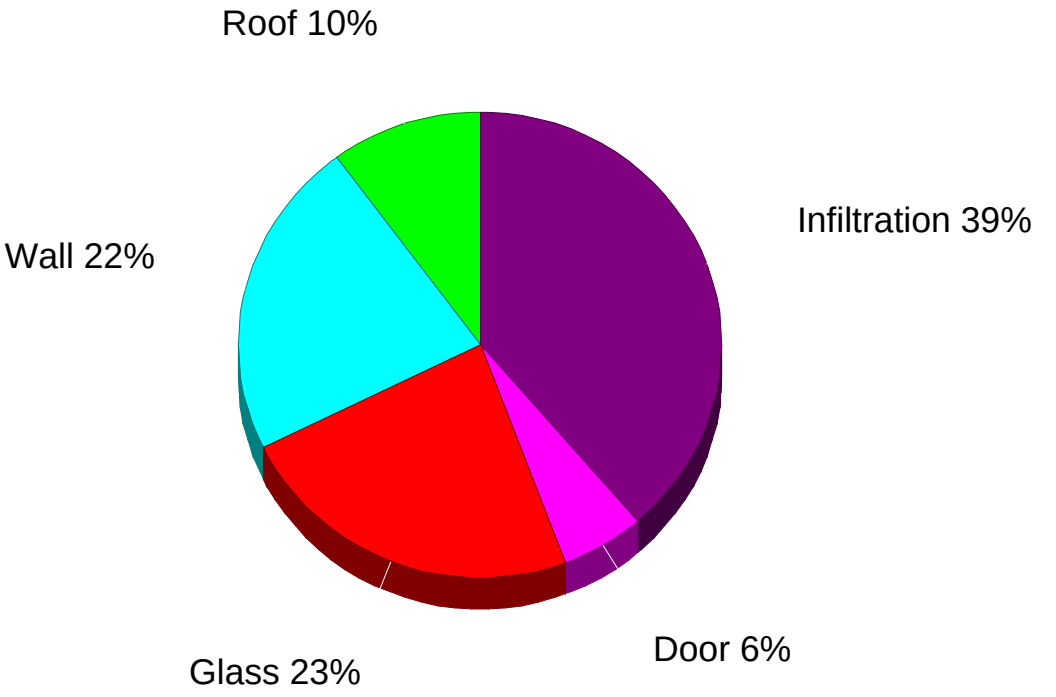
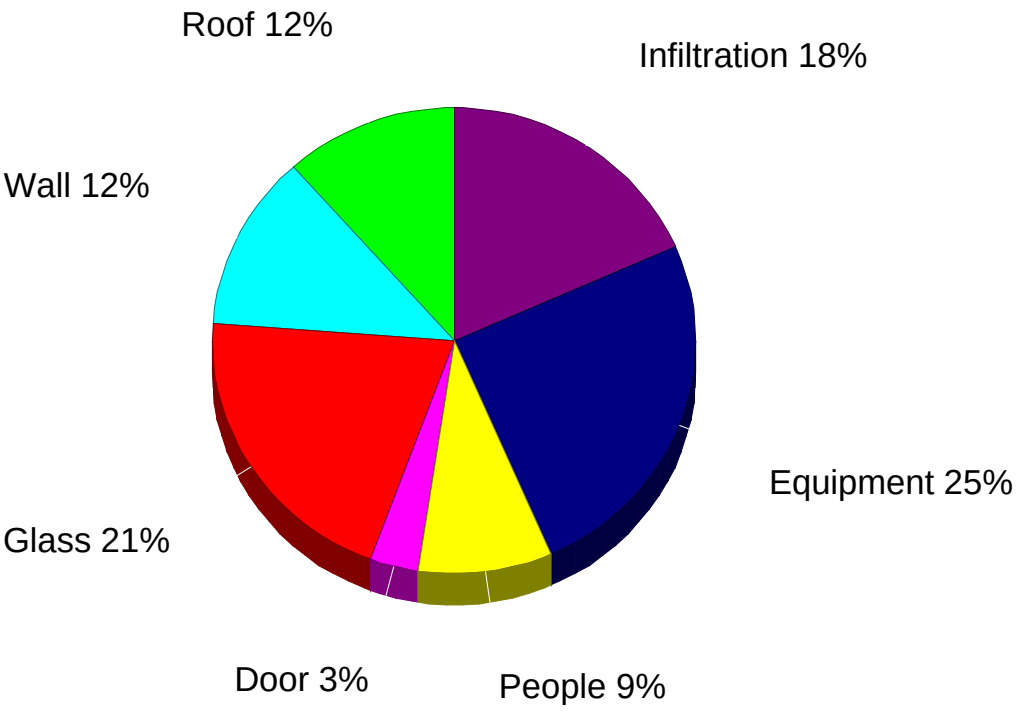
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit A6 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	836.0	sq.ft.	Supply Air:	397	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.1	AC/hr
Volume:	7,593.4	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	4		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	77	CFM
			Actual Summer Infil.:	40	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 38 X 9.1	219.2	0.064	2.6	561	1.4	0	303
E -Part-26°/40°-IECC2012 22 X 9.1	199.8	0.064	2.6	512	1.7	0	333
S -Part-26°/40°-IECC2012 38 X 9.1	325.2	0.064	2.6	832	1.7	0	541
S -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
N -Gls-COA 2012 IECC Min shgc-0.25 100%S (2)	30	0.400	16.0	480	15.6	0	468
N -Gls-COA 2012 IECC Min shgc-0.25 100%S (2)	56	0.400	16.0	896	15.6	0	874
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
UP-Ceil-16CR-38 836 X 1	836	0.026	1.0	869	1.3	0	1,109
Subtotals for Structure:				5,270		0	4,564
Infil.: Win.: 77.2, Sum.: 40.5	890		3.734	3,324	1.273	630	1,133
People: 200 lat/per, 230 sen/per:	2					400	460
Equipment:						0	2,400
Room Totals:				8,594		1,030	8,557

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit A6	836	8,594	114	4-0	0	8,557	1,030	397	397
	System 1 total	836	8,594	114			8,557	1,030	397	397

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.80	89% / 11%	8,557	1,030	9,587
Recommended:	0.95	75% / 25%	8,557	2,852	11,409

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B1
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B1
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	604	CFM Per Square ft.:	0.599
Square ft. of Room Area:	1,008	Square ft. Per Ton:	698
Volume (ft³) of Cond. Space:	9,156		

Building Loads

Total Heating Required Including Ventilation Air:	8,453	Btuh	8.453	MBH
Total Sensible Gain:	13,001	Btuh	91	%
Total Latent Gain:	1,346	Btuh	9	%
Total Cooling Required Including Ventilation Air:	14,347	Btuh	1.20	Tons (Based On Sensible + Latent)
			1.44	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	69	CFM	35	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 9,156	Cu.ft.	X 9,156	Cu.ft.
	4,120	Cu.ft./hr	2,106	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	69	CFM	35	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (69 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (35 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	1.20	1.44	698	1,008	13,001	1,346	14,347	8,453	112	604	604	
System 1	1.20	1.44	698	1,008	13,001	1,346	14,347	8,453	112	604	604	0*
Zone 1				1,008	13,001	1,346	14,347	8,453	112	604	604	
1-Pleasant Valley - Unit B1				1,008	13,001	1,346	14,347	8,453	112	604	604	6--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B1	Built-In	450	750	0.01	0.1		0		112	604	604	6--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		112	604	604	0

Summary

System 1

Heating Flow: 112

Cooling Flow: 604

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	126	2,016	0	4,082	4,082
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	201	515	0	278	278
IECC2012: Part-Frame, Custom, R-20	561.3	1,437	0	934	934
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1008	1,048	0	1,337	1,337
Subtotals for structure:		5,496	0	6,943	6,943
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 69, Summer CFM: 35		2,957	546	982	1,528
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1,756	1,756
Total Building Load Totals:		8,453	1,346	13,001	14,347

Check Figures

Total Building Supply CFM:	604	CFM Per Square ft.:	0.599
Square ft. of Room Area:	1,008	Square ft. Per Ton:	698
Volume (ft³) of Cond. Space:	9,156		

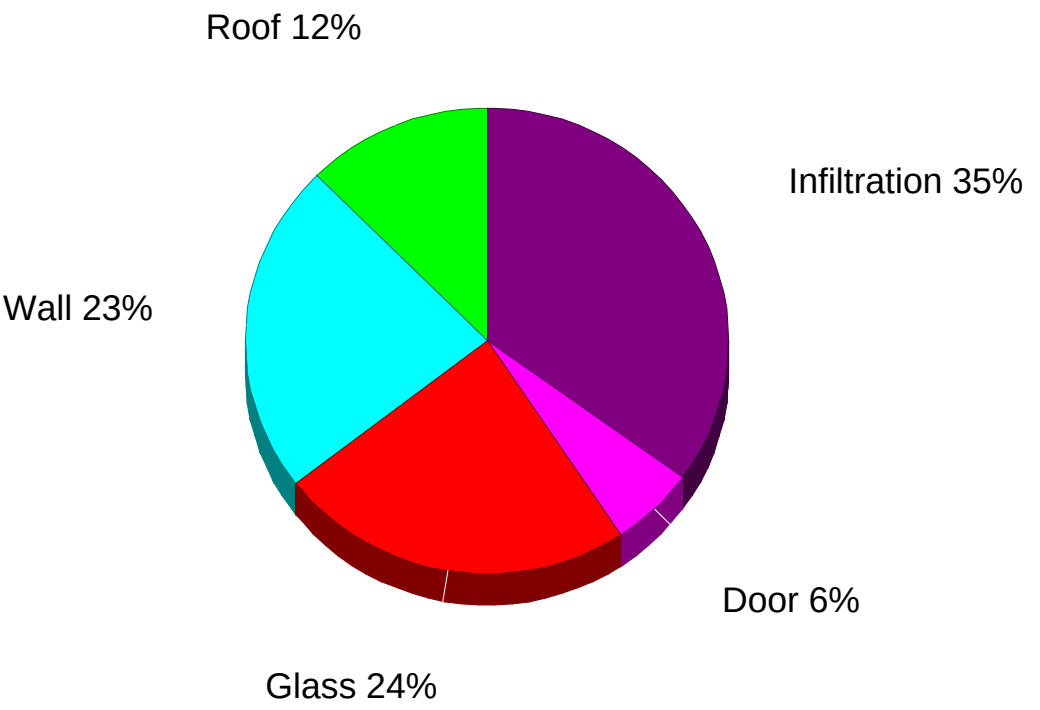
Building Loads

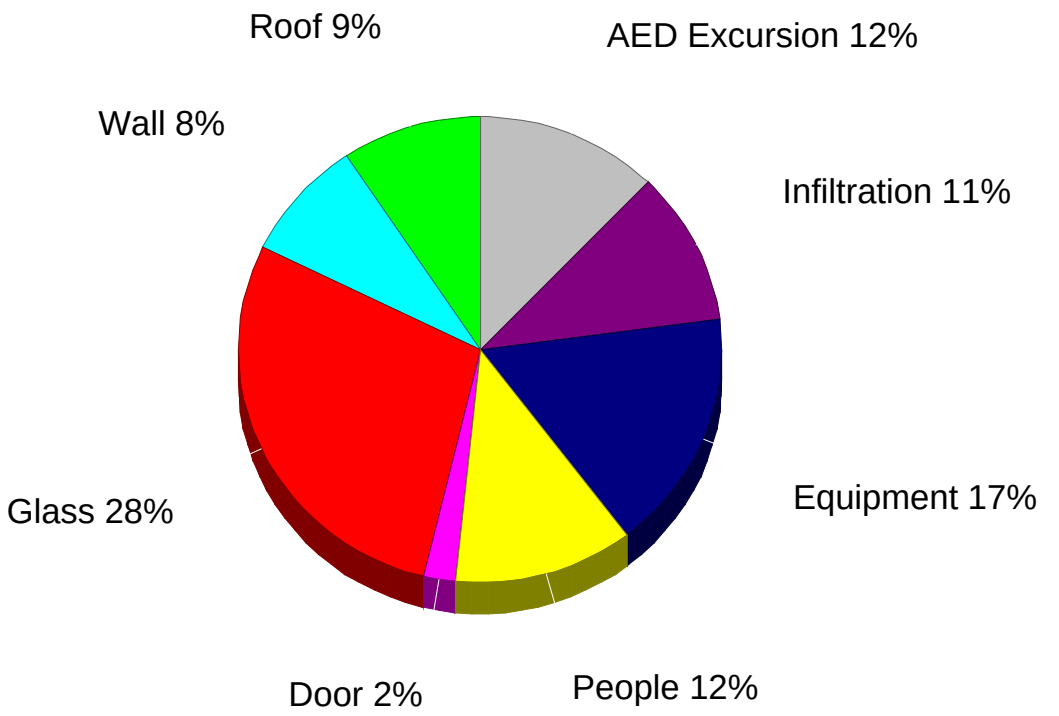
Total Heating Required Including Ventilation Air:	8,453	Btuh	8.453	MBH
Total Sensible Gain:	13,001	Btuh	91	%
Total Latent Gain:	1,346	Btuh	9	%
Total Cooling Required Including Ventilation Air:	14,347	Btuh	1.20	Tons (Based On Sensible + Latent)
			1.44	Tons (Based On 75% Sensible Capacity)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 - Pleasant Valley - Unit B1 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,008.0	sq.ft.	Supply Air:	604	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	4.0	AC/hr
Volume:	9,155.7	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	6		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	69	CFM
			Actual Summer Infil.:	35	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
W -Wall-IECC2012 36 X 9.1	201	0.064	2.6	515	1.4	0	278
S -Part-26°/40°-IECC2012 28 X 9.1	254.3	0.064	2.6	651	1.7	0	423
E -Part-26°/40°-IECC2012 36 X 9.1	307	0.064	2.6	786	1.7	0	511
E -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
W -Gls-COA 2012 IECC Min shgc-0.25 0%S (2)	30	0.400	16.0	480	34.4	0	1,032
W -Gls-COA 2012 IECC Min shgc-0.25 0%S (2)	56	0.400	16.0	896	34.4	0	1,926
W -Gls-COA 2012 IECC Min shgc-0.25 33%S	40	0.400	16.0	640	28.1	0	1,124
UP-Ceil-16CR-38 1008 X 1	1008	0.026	1.0	1,048	1.3	0	1,337
Subtotals for Structure:				5,496		0	6,943
Infil.: Win.: 68.7, Sum.: 35.1	908		3.256	2,957	1.081	546	982
AED Excursion:							1,756
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				8,453		1,346	13,001

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B1	1,008	8,453	112	6-0	0	13,001	1,346	604	604
	System 1 total	1,008	8,453	112			13,001	1,346	604	604

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.20	91% / 9%	13,001	1,346	14,347
Recommended:	1.44	75% / 25%	13,001	4,334	17,334

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B2
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B2
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	612	CFM Per Square ft.:	0.575
Square ft. of Room Area:	1,064	Square ft. Per Ton:	727
Volume (ft³) of Cond. Space:	9,664		

Building Loads

Total Heating Required Including Ventilation Air:	8,768	Btuh	8.768	MBH
Total Sensible Gain:	13,166	Btuh	91	%
Total Latent Gain:	1,376	Btuh	9	%
Total Cooling Required Including Ventilation Air:	14,542	Btuh	1.21	Tons (Based On Sensible + Latent)
			1.46	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	72	CFM	37	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 9,664	Cu.ft.	X 9,664	Cu.ft.
	4,349	Cu.ft./hr	2,223	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	72	CFM	37	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (72 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (37 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	1.21	1.46	727	1,064	13,166	1,376	14,542	8,768	116	612	612	
System 1	1.21	1.46	727	1,064	13,166	1,376	14,542	8,768	116	612	612	0*
Zone 1				1,064	13,166	1,376	14,542	8,768	116	612	612	
1-Pleasant Valley - Unit B2				1,064	13,166	1,376	14,542	8,768	116	612	612	6--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B2	Built-In	450	750	0.01	0.1		0		116	612	612	6--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		116	612	612	0

Summary

System 1

Heating Flow: 116

Cooling Flow: 612

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	126	2,016	0	4,082	4,082
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	286.5	733	0	396	396
IECC2012: Part-Frame, Custom, R-20	512.1	1,311	0	852	852
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1064	1,107	0	1,411	1,411
Subtotals for structure:		5,647	0	7,053	7,053
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 72, Summer CFM: 37		3,121	576	1,037	1,613
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1,756	1,756
Total Building Load Totals:		8,768	1,376	13,166	14,542

Check Figures

Total Building Supply CFM:	612	CFM Per Square ft.:	0.575
Square ft. of Room Area:	1,064	Square ft. Per Ton:	727
Volume (ft³) of Cond. Space:	9,664		

Building Loads

Total Heating Required Including Ventilation Air:	8,768	Btuh	8.768	MBH
Total Sensible Gain:	13,166	Btuh	91	%
Total Latent Gain:	1,376	Btuh	9	%
Total Cooling Required Including Ventilation Air:	14,542	Btuh	1.21	Tons (Based On Sensible + Latent)
			1.46	Tons (Based On 75% Sensible Capacity)

Notes

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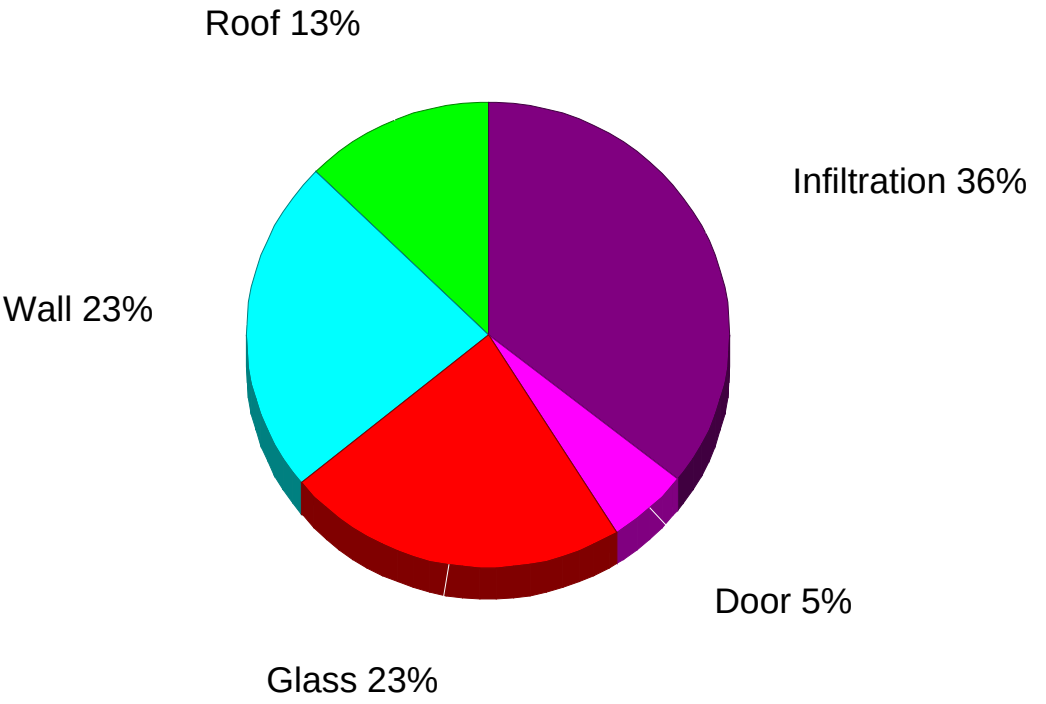
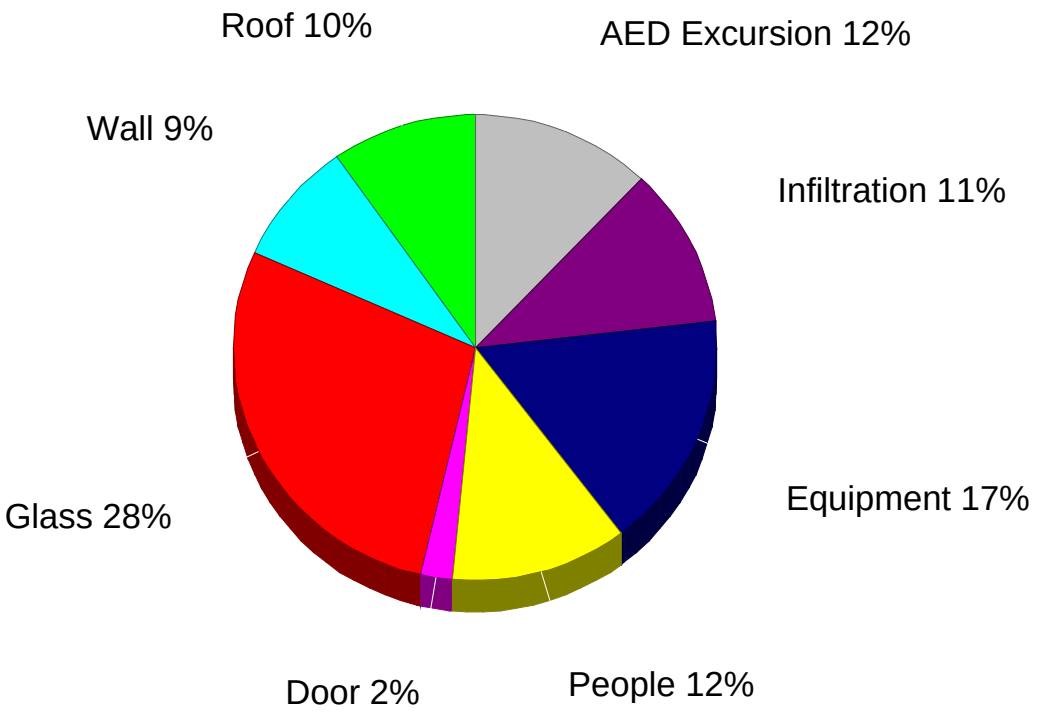
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit B2 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,064.0	sq.ft.	Supply Air:	612	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.8	AC/hr
Volume:	9,664.3	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	6		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	72	CFM
			Actual Summer Infil.:	37	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
W -Wall-IECC2012 38 X 9.1	219.1	0.064	2.6	561	1.4	0	303
N -Wall-IECC2012 7.4 X 9.1	67.4	0.064	2.6	172	1.4	0	93
N -Part-26°/40°-IECC2012 20.6 X 9.1	167	0.064	2.6	427	1.7	0	278
E -Part-26°/40°-IECC2012 38 X 9.1	345.2	0.064	2.6	884	1.7	0	574
N -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
W -Gls-COA 2012 IECC Min shgc-0.25 0%S (2)	30	0.400	16.0	480	34.4	0	1,032
W -Gls-COA 2012 IECC Min shgc-0.25 0%S (2)	56	0.400	16.0	896	34.4	0	1,926
W -Gls-COA 2012 IECC Min shgc-0.25 33%S	40	0.400	16.0	640	28.1	0	1,124
UP-Ceil-16CR-38 1064 X 1	1064	0.026	1.0	1,107	1.3	0	1,411
Subtotals for Structure:				5,647		0	7,053
Infil.: Win.: 72.5, Sum.: 37.0	945		3.304	3,121	1.098	576	1,037
AED Excursion:							1,756
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				8,768		1,376	13,166

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B2	1,064	8,768	116	6-0	0	13,166	1,376	612	612
	System 1 total	1,064	8,768	116			13,166	1,376	612	612

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.21	91% / 9%	13,166	1,376	14,542
Recommended:	1.46	75% / 25%	13,166	4,389	17,554

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B3
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B3
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	477	CFM Per Square ft.:	0.419
Square ft. of Room Area:	1,137	Square ft. Per Ton:	997
Volume (ft³) of Cond. Space:	10,327		

Building Loads

Total Heating Required Including Ventilation Air:	8,780	Btuh	8.780	MBH
Total Sensible Gain:	10,268	Btuh	88	%
Total Latent Gain:	1,416	Btuh	12	%
Total Cooling Required Including Ventilation Air:	11,684	Btuh	0.97	Tons (Based On Sensible + Latent)
			1.14	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	77	CFM	40	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 10,327	Cu.ft.	X 10,327	Cu.ft.
	4,647	Cu.ft./hr	2,375	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	77	CFM	40	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (77 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (40 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.97	1.14	997	1,137	10,268	1,416	11,684	8,780	117	477	477	
System 1	0.97	1.14	997	1,137	10,268	1,416	11,684	8,780	117	477	477	0*
Zone 1				1,137	10,268	1,416	11,684	8,780	117	477	477	
1-Pleasant Valley - Unit B3				1,137	10,268	1,416	11,684	8,780	117	477	477	5--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B3	Built-In	450	750	0.01	0.1		0		117	477	477	5--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		117	477	477	0

Summary

System 1

Heating Flow: 117

Cooling Flow: 477

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	100	1,600	0	1,560	1,560
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	182.3	467	0	252	252
IECC2012: Part-Frame, Custom, R-20	670.3	1,716	0	1,115	1,115
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1137	1,182	0	1,508	1,508
Subtotals for structure:		5,445	0	4,747	4,747
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 77, Summer CFM: 40		3,335	616	1,108	1,724
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1,093	1,093
Total Building Load Totals:		8,780	1,416	10,268	11,684

Check Figures

Total Building Supply CFM:	477	CFM Per Square ft.:	0.419
Square ft. of Room Area:	1,137	Square ft. Per Ton:	997
Volume (ft³) of Cond. Space:	10,327		

Building Loads

Total Heating Required Including Ventilation Air:	8,780	Btuh	8.780	MBH
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			1.14	Tons (Based On 75% Sensible Capacity)

Notes

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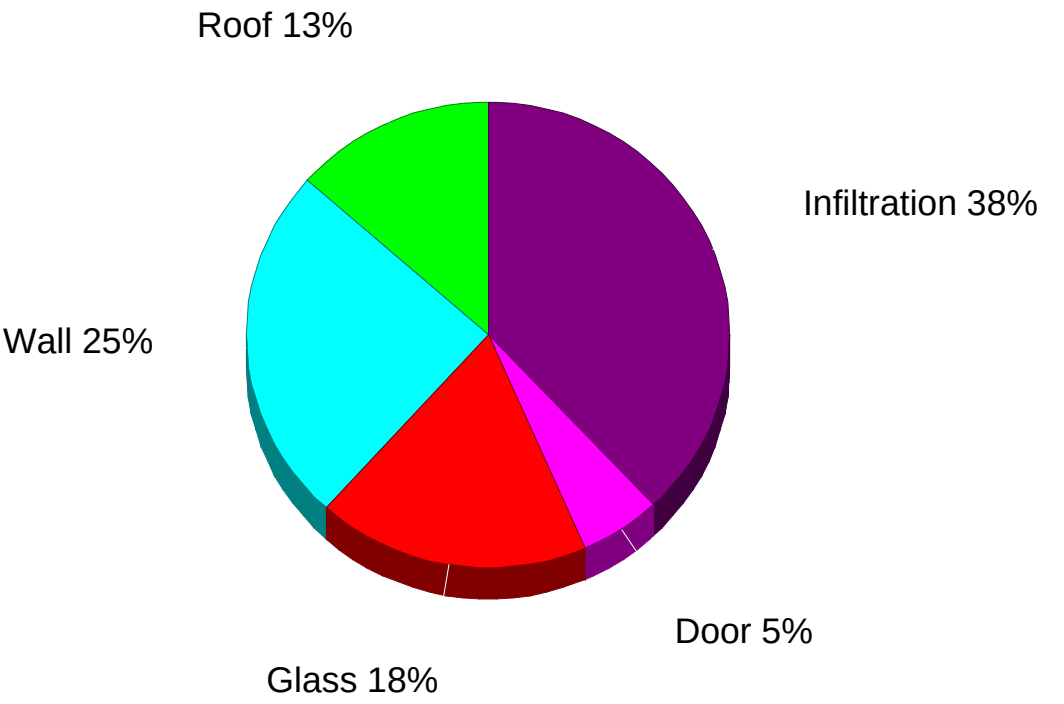
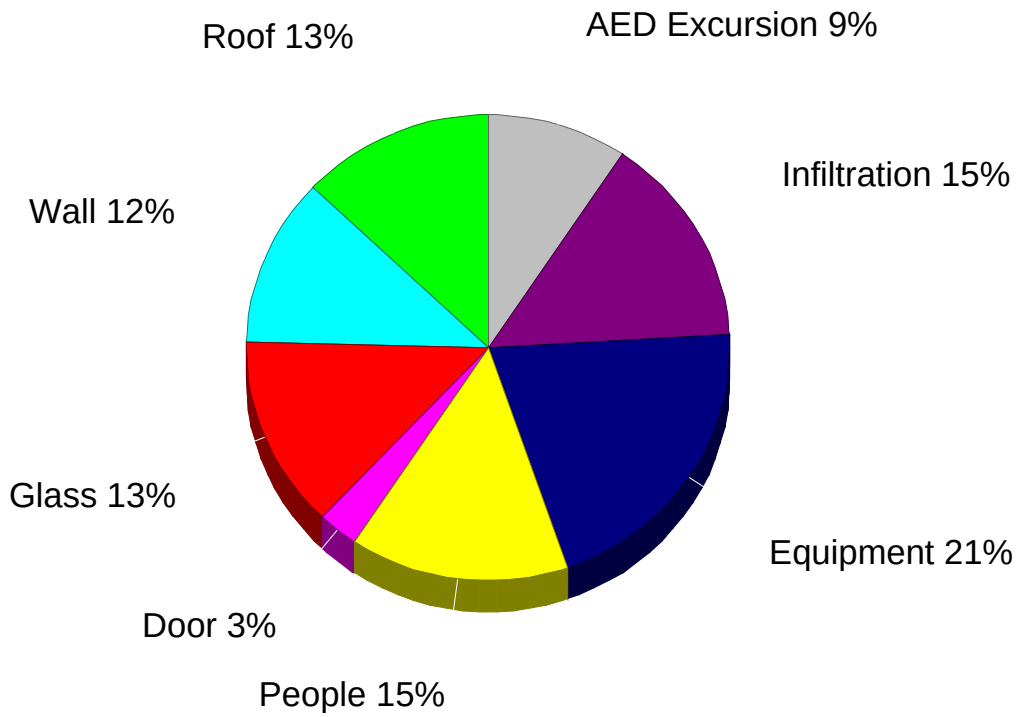
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit B3 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,137.0	sq.ft.	Supply Air:	477	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	2.8	AC/hr
Volume:	10,327.4	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	5		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	77	CFM
			Actual Summer Infil.:	40	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
S -Wall-IECC2012 9.6 X 9.1	57	0.064	2.6	146	1.4	0	79
SW-Wall-IECC2012 11.9 X 9.1	68.2	0.064	2.6	175	1.4	0	94
W -Wall-IECC2012 9.6 X 9.1	57	0.064	2.6	146	1.4	0	79
E -Part-26°/40°-IECC2012 38 X 9.1	345.2	0.064	2.6	884	1.7	0	574
N -Part-26°/40°-IECC2012 38 X 9.1	325.2	0.064	2.6	832	1.7	0	541
N -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
S -Gls-COA 2012 IECC Min shgc-0.25 100%S (2)	30	0.400	16.0	480	15.6	0	468
SW-Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
W -Gls-COA 2012 IECC Min shgc-0.25 100%S (2)	30	0.400	16.0	480	15.6	0	468
UP-Ceil-16CR-38 1137 X 1	1137	0.026	1.0	1,182	1.3	0	1,508
Subtotals for Structure:				5,445		0	4,747
Infil.: Win.: 77.5, Sum.: 39.6	973		3.429	3,335	1.139	616	1,108
AED Excursion:							1,093
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				8,780		1,416	10,268

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B3	1,137	8,780	117	5-0	0	10,268	1,416	477	477
	System 1 total	1,137	8,780	117			10,268	1,416	477	477

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.97	88% / 12%	10,268	1,416	11,684
Recommended:	1.14	75% / 25%	10,268	3,423	13,691

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B4
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Tuesday, May 12, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B4
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	384	CFM Per Square ft.:	0.311
Square ft. of Room Area:	1,233	Square ft. Per Ton:	1,344
Volume (ft³) of Cond. Space:	11,199		

Building Loads

Total Heating Required Including Ventilation Air:	12,264	Btuh	12.264	MBH
Total Sensible Gain:	8,258	Btuh	85	%
Total Latent Gain:	1,468	Btuh	15	%
Total Cooling Required Including Ventilation Air:	9,726	Btuh	0.81	Tons (Based On Sensible + Latent)
			0.92	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	84	CFM	43	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 11,199	Cu.ft.	X 11,199	Cu.ft.
	5,040	Cu.ft./hr	2,576	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	84	CFM	43	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (84 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (43 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	0.81	0.92	1,344	1,233	8,258	1,468	9,726	12,264	163	384	384	
System 1	0.81	0.92	1,344	1,233	8,258	1,468	9,726	12,264	163	384	384	0*
Zone 1				1,233	8,258	1,468	9,726	12,264	163	384	384	
1-Pleasant Valley - Unit B4				1,233	8,258	1,468	9,726	12,264	163	384	384	4--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B4	Built-In	450	750	0.01	0.1		0		163	384	384	4--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		163	384	384	0

Summary

System 1

Heating Flow: 163

Cooling Flow: 384

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	160	2,560	0	2,496	2,496
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	279.8	716	0	387	387
IECC2012: Part-Frame, Custom, R-20	325.2	832	0	541	541
22A-pm: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, heavy dry or light wet soil	86	4,059	0	0	0
Subtotals for structure:		8,647	0	3,736	3,736
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 84, Summer CFM: 43		3,617	668	1,202	1,870
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Total Building Load Totals:		12,264	1,468	8,258	9,726

Check Figures

Total Building Supply CFM:	384	CFM Per Square ft.:	0.311
Square ft. of Room Area:	1,233	Square ft. Per Ton:	1,344
Volume (ft³) of Cond. Space:	11,199		

Building Loads

Total Heating Required Including Ventilation Air:	12,264	Btuh	12.264	MBH
Total Sensible Gain:	8,258	Btuh	85	%
Total Latent Gain:	1,468	Btuh	15	%
Total Cooling Required Including Ventilation Air:	9,726	Btuh	0.81	Tons (Based On Sensible + Latent)
			0.92	Tons (Based On 75% Sensible Capacity)

Notes

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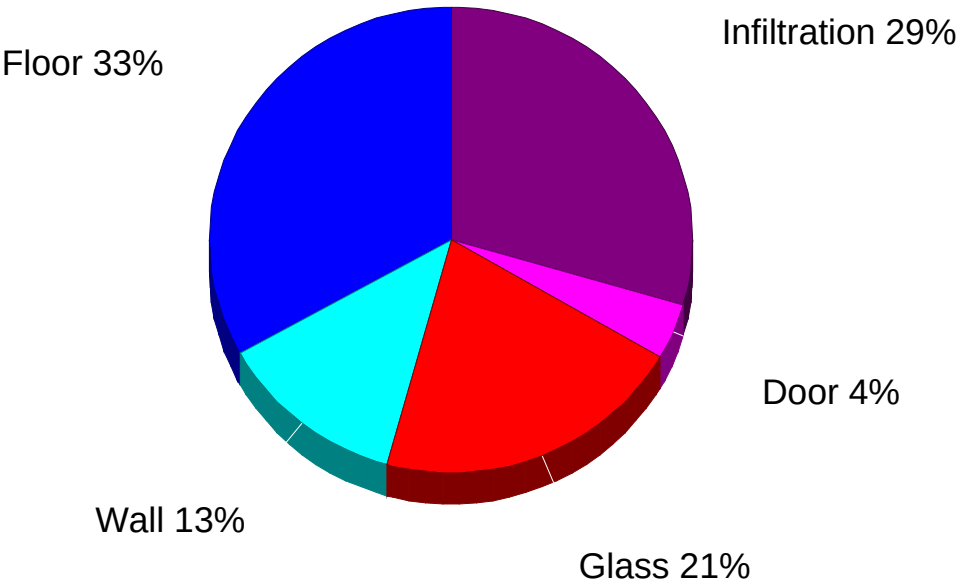
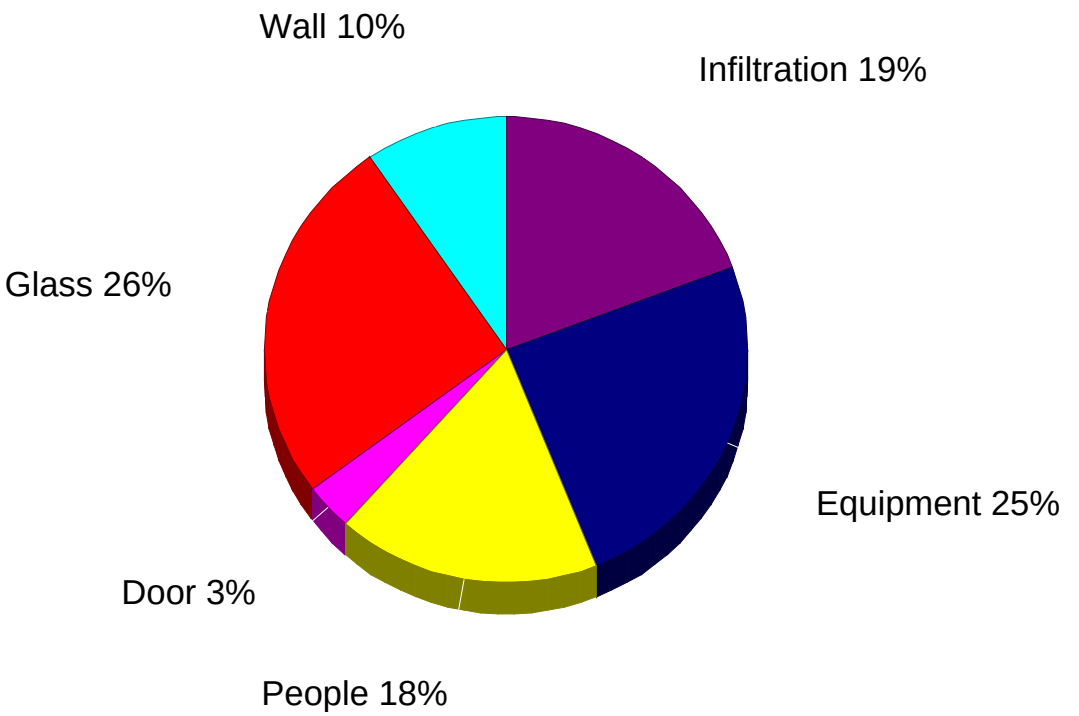
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit B4 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,233.0	sq.ft.	Supply Air:	384	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	2.1	AC/hr
Volume:	11,199.3	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	4		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	84	CFM
			Actual Summer Infil.:	43	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 38 X 9.1	185.2	0.064	2.6	474	1.4	0	256
E -Wall-IECC2012 10.4 X 9.1	94.6	0.064	2.6	242	1.4	0	131
S -Part-26°/40°-IECC2012 38 X 9.1	325.2	0.064	2.6	832	1.7	0	541
S -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
N -Gls-COA 2012 IECC Min shgc-0.25 100%S (6)	120	0.400	16.0	1,920	15.6	0	1,872
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	40	0.400	16.0	640	15.6	0	624
Floor-22A-pm 86 ft..Per.	86	1.180	47.2	4,059	0.0	0	0
Subtotals for Structure:				8,647		0	3,736
Infil.: Win.: 84.0, Sum.: 42.9	785		4.608	3,617	1.531	668	1,202
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				12,264		1,468	8,258

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B4	1,233	12,264	163	4-0	0	8,258	1,468	384	384
	System 1 total	1,233	12,264	163			8,258	1,468	384	384

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.81	85% / 15%	8,258	1,468	9,726
Recommended:	0.92	75% / 25%	8,258	2,753	11,011

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B4-LW
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Monday, May 11, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B4-LW
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	696	CFM Per Square ft.:	0.572
Square ft. of Room Area:	1,216	Square ft. Per Ton:	730
Volume (ft³) of Cond. Space:	12,869		

Building Loads

Total Heating Required Including Ventilation Air:	11,013	Btuh	11.013	MBH
Total Sensible Gain:	14,987	Btuh	91	%
Total Latent Gain:	1,568	Btuh	9	%
Total Cooling Required Including Ventilation Air:	16,555	Btuh	1.38	Tons (Based On Sensible + Latent)
			1.67	Tons (Based On 75% Sensible Capacity)

Notes

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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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	97	CFM	49	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 12,869	Cu.ft.	X 12,869	Cu.ft.
	5,791	Cu.ft./hr	2,960	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	97	CFM	49	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (97 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (49 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	1.38	1.67	730	1,216	14,987	1,568	16,555	11,013	146	696	696	
System 1	1.38	1.67	730	1,216	14,987	1,568	16,555	11,013	146	696	696	0*
Zone 1				1,216	14,987	1,568	16,555	11,013	146	696	696	
1-Pleasant Valley - Unit B4-LW				1,216	14,987	1,568	16,555	11,013	146	696	696	7--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B4-LW	Built-In	450	750	0.01	0.1		0		146	696	696	7--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		146	696	696	0

Summary

System 1

Heating Flow: 146

Cooling Flow: 696

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	231	3,696	0	7,488	7,488
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	171.2	438	0	237	237
IECC2012: Part-Frame, Custom, R-20	382.2	978	0	636	636
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1216	1,265	0	1,612	1,612
Subtotals for structure:		6,857	0	10,285	10,285
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 97, Summer CFM: 49		4,156	768	1,381	2,149
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1	1
Total Building Load Totals:		11,013	1,568	14,987	16,555

Check Figures

Total Building Supply CFM:	696	CFM Per Square ft.:	0.572
Square ft. of Room Area:	1,216	Square ft. Per Ton:	730
Volume (ft³) of Cond. Space:	12,869		

Building Loads

Total Heating Required Including Ventilation Air:	11,013	Btuh	11.013	MBH
Total Sensible Gain:	14,987	Btuh	91	%
Total Latent Gain:	1,568	Btuh	9	%
Total Cooling Required Including Ventilation Air:	16,555	Btuh	1.38	Tons (Based On Sensible + Latent)
			1.67	Tons (Based On 75% Sensible Capacity)

Notes

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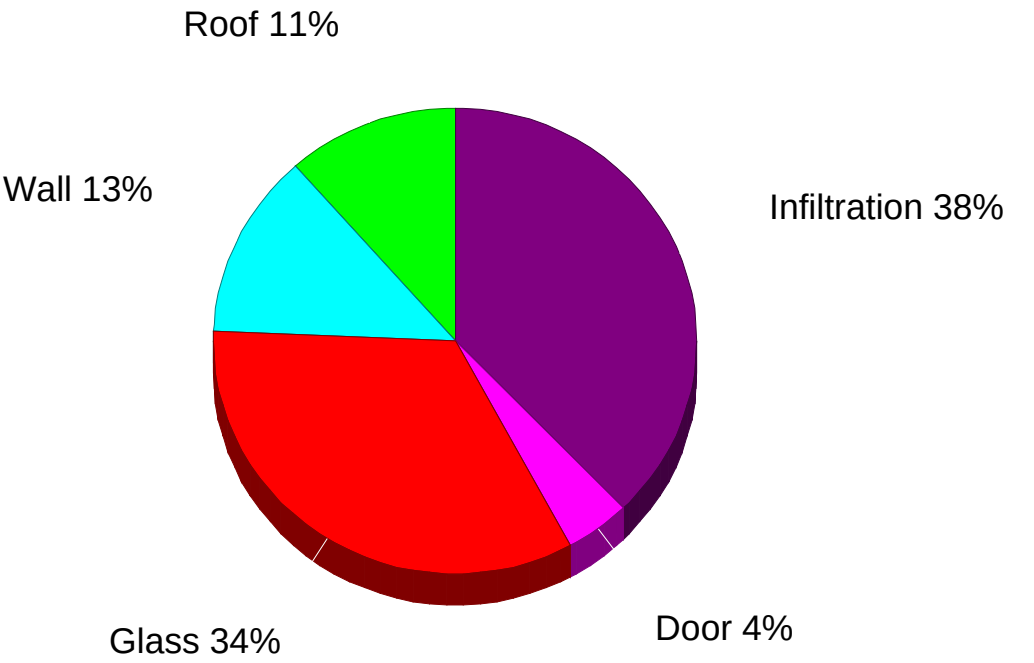
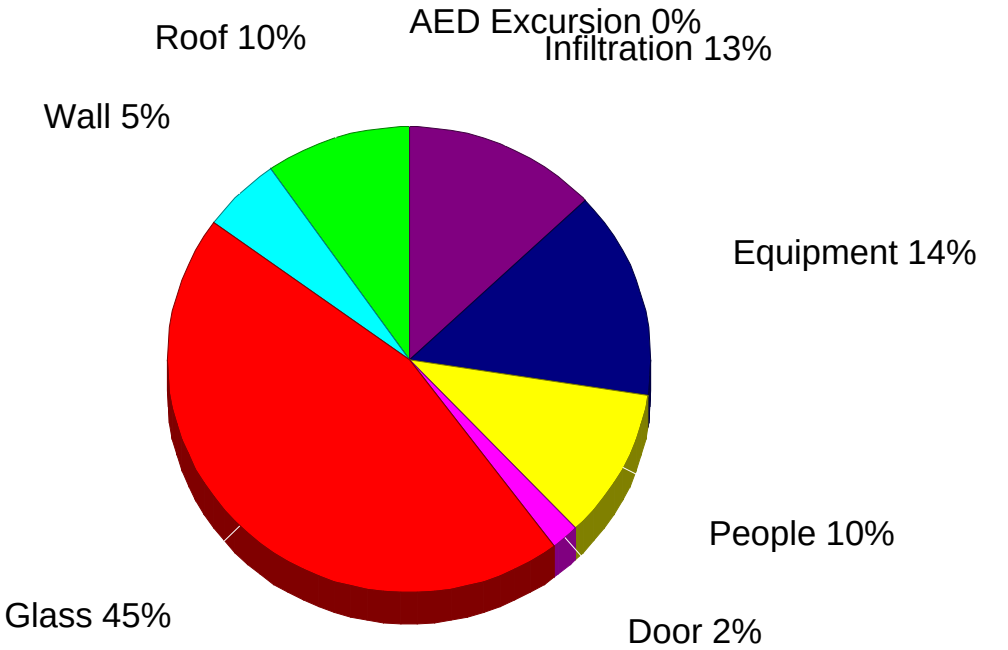
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit B4-LW (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,216.0	sq.ft.	Supply Air:	696	CFM
Ceiling Height:	10.6	ft.	Supply Air Changes:	3.2	AC/hr
Volume:	12,868.9	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	7		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	97	CFM
			Actual Summer Infil.:	49	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-IECC2012 38 X 10.6	171.2	0.064	2.6	438	1.4	0	237
W -Part-26°/40°-IECC2012 38 X 10.6	382.2	0.064	2.6	978	1.7	0	636
W -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
E -Gls-COA 2012 IECC Min shgc-0.25 0%S (2)	168	0.400	16.0	2,688	34.4	0	5,776
E -Gls-COA 2012 IECC Min shgc-0.25 38%S	63	0.400	16.0	1,008	27.2	0	1,712
UP-Ceil-16CR-38 1216 X 1	1216	0.026	1.0	1,265	1.3	0	1,612
Subtotals for Structure:				6,857		0	10,285
Infil.: Win.: 96.5, Sum.: 49.3	804		5.167	4,156	1.717	768	1,381
AED Excursion:							1
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				11,013		1,568	14,987

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B4-LW	1,216	11,013	146	7-0	0	14,987	1,568	696	696
	System 1 total	1,216	11,013	146			14,987	1,568	696	696

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.38	91% / 9%	14,987	1,568	16,555
Recommended:	1.67	75% / 25%	14,987	4,996	19,983

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

Pleasant Valley - Unit B5
HVAC Load Calculations

for

Oden Hughes
901 S. Mopac Expressway, Suite 200
Austin, Texas 78746

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Erin Good
MEP Delta Design, LLC
5453 Burnet Road, Suite 202
Austin, Texas 78756
512.215.9792
Tuesday, May 12, 2015

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	Pleasant Valley - Unit B5
Designed By:	Erin Good
Project Date:	Monday, May 11, 2015
Client Name:	Oden Hughes
Client Address:	901 S. Mopac Expressway, Suite 200
Client City:	Austin, Texas 78746
Client Phone:	512-813-7111
Company Name:	MEP Delta Design, LLC
Company Representative:	Erin Good
Company Address:	5453 Burnet Road, Suite 202
Company City:	Austin, Texas 78756
Company Phone:	512.215.9792

Design Data

Reference City:		Austin AP, Texas
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	597	ft.
Altitude Factor:	0.979	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	n/a	n/a	70	n/a
Summer:	100	74	30%	50%	74	23

Check Figures

Total Building Supply CFM:	612	CFM Per Square ft.:	0.509
Square ft. of Room Area:	1,202	Square ft. Per Ton:	822
Volume (ft³) of Cond. Space:	10,918		

Building Loads

Total Heating Required Including Ventilation Air:	10,374	Btuh	10.374	MBH
Total Sensible Gain:	13,167	Btuh	90	%
Total Latent Gain:	1,451	Btuh	10	%
Total Cooling Required Including Ventilation Air:	14,618	Btuh	1.22	Tons (Based On Sensible + Latent)
			1.46	Tons (Based On 75% Sensible Capacity)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, 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 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	30	28.01	80%	n/a	70	n/a
Summer:	100	74	30%	50%	74	23.38

Duct Sizing Inputs

	Main Trunk		Runouts	
Calculate:	No		No	
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:	650	ft./min	450	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:	0.450	AC/hr	0.230	AC/hr
	82	CFM	42	CFM
Infiltration Actual:	0.450	AC/hr	0.230	AC/hr
Above Grade Volume:	X 10,918	Cu.ft.	X 10,918	Cu.ft.
	4,913	Cu.ft./hr	2,511	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	82	CFM	42	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 27.99 = (1.10 X 0.979 X 26.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 15.56 = (0.68 X 0.979 X 23.38 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 43.06 = (1.10 X 0.979 X 40.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.450 AC/hr (82 CFM), Construction: Average
Summer Infiltration Specified: 0.230 AC/hr (42 CFM), Construction: Average

Load Preview Report

Scope	Net Ton	Rec Ton	ft.²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	1.22	1.46	822	1,202	13,167	1,451	14,618	10,374	138	612	612	
System 1	1.22	1.46	822	1,202	13,167	1,451	14,618	10,374	138	612	612	0*
Zone 1				1,202	13,167	1,451	14,618	10,374	138	612	612	
1-Pleasant Valley - Unit B5				1,202	13,167	1,451	14,618	10,374	138	612	612	6--0*

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
System 1												
Supply Runouts												
Zone 1												
1-Pleasant Valley - Unit B5	Built-In	450	750	0.01	0.1		0		138	612	612	6--0
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0.003	0.1		0		138	612	612	0

Summary

System 1

Heating Flow: 138

Cooling Flow: 612

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
COA 2012 IECC Min: Glazing-Walnut Park - COA Min, u-value 0.4, SHGC 0.25	244.9	3,918	0	5,165	5,165
11J: Door-Metal - Fiberglass Core	20	480	0	312	312
IECC2012: Wall-Frame, Custom, R-20	559	1,431	0	773	773
IECC2012: Part-Frame, Custom, R-20	123.1	316	0	205	205
16CR-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic with Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	676	703	0	896	896
Subtotals for structure:		6,848	0	7,351	7,351
People:	4		800	920	1,720
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 82, Summer CFM: 42		3,526	651	1,171	1,822
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1,325	1,325
Total Building Load Totals:		10,374	1,451	13,167	14,618

Check Figures

Total Building Supply CFM:	612	CFM Per Square ft.:	0.509
Square ft. of Room Area:	1,202	Square ft. Per Ton:	822
Volume (ft³) of Cond. Space:	10,918		

Building Loads

Total Heating Required Including Ventilation Air:	10,374	Btuh	10.374	MBH
Total Sensible Gain:	13,167	Btuh	90	%
Total Latent Gain:	1,451	Btuh	10	%
Total Cooling Required Including Ventilation Air:	14,618	Btuh	1.22	Tons (Based On Sensible + Latent)
			1.46	Tons (Based On 75% Sensible Capacity)

Notes

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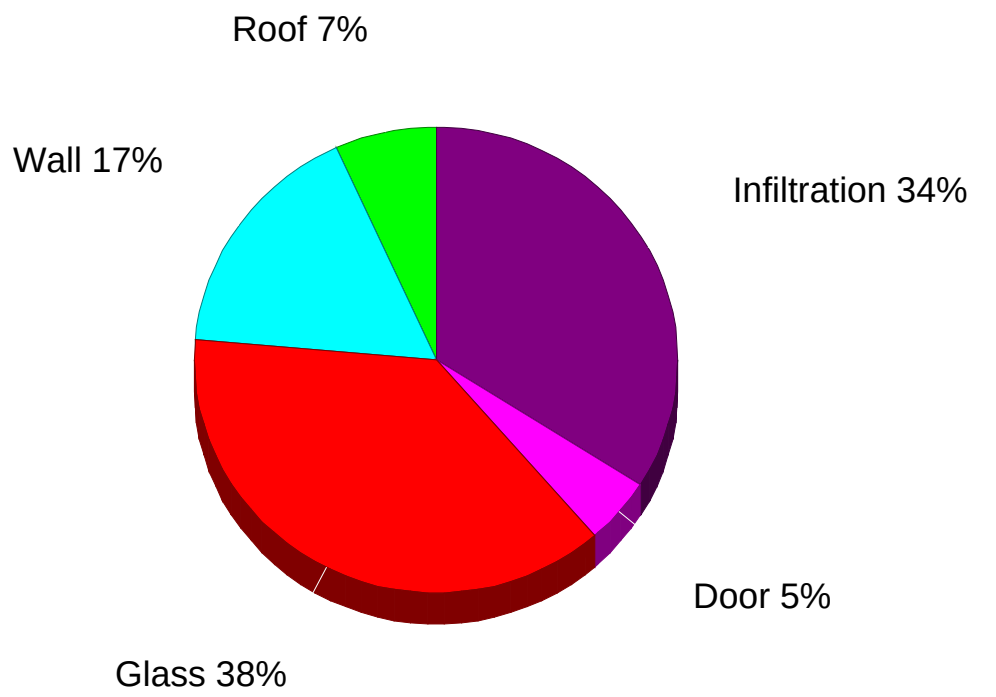
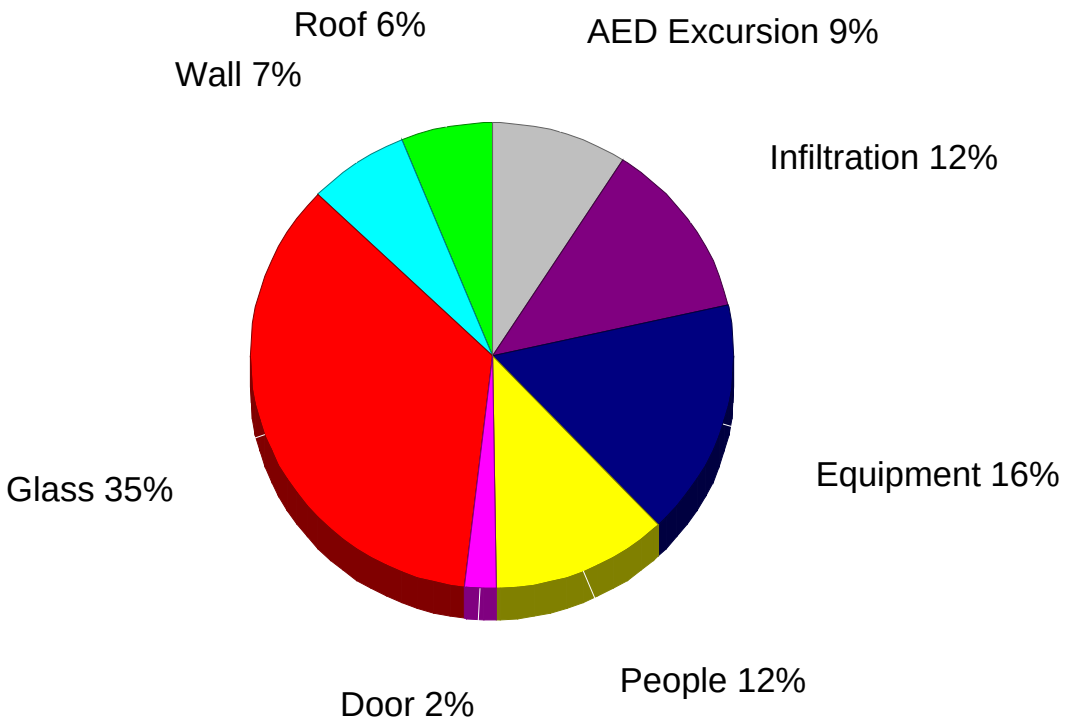
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart





Detailed Room Loads - Room 1 - Pleasant Valley - Unit B5 (Average Load Procedure)

General

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	n/a		System Number:	1	
Room Width:	n/a		Zone Number:	1	
Area:	1,202.0	sq.ft.	Supply Air:	612	CFM
Ceiling Height:	9.1	ft.	Supply Air Changes:	3.4	AC/hr
Volume:	10,917.8	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	6		Actual Winter Vent.:	0	CFM
Runout Air:	0	CFM	Percent of Supply.:	0	%
			Actual Summer Vent.:	0	CFM
			Percent of Supply:	0	%
			Actual Winter Infil.:	82	CFM
			Actual Summer Infil.:	42	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-IECC2012 34.5 X 9.1	180.4	0.064	2.6	462	1.4	0	249
W -Wall-IECC2012 39.1 X 9.1	243.1	0.064	2.6	622	1.4	0	336
S -Wall-IECC2012 4.9 X 9.1	44.7	0.064	2.6	114	1.4	0	62
E -Part-26°/40°-IECC2012 8.4 X 9.1	56.5	0.064	2.6	145	1.7	0	94
SE-Part-26°/40°-IECC2012 2.7 X 9.1	24.2	0.064	2.6	62	1.7	0	40
S -Part-26°/40°-IECC2012 4.7 X 9.1	42.4	0.064	2.6	109	1.7	0	71
E -Wall-IECC2012 10 X 9.1	90.8	0.064	2.6	233	1.4	0	126
E -Door-11J 3 X 6.7	20	0.600	24.0	480	15.6	0	312
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	48	0.400	16.0	768	15.6	0	749
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	48	0.400	16.0	768	15.6	0	749
N -Gls-COA 2012 IECC Min shgc-0.25 100%S	37	0.400	16.0	592	15.6	0	577
W -Gls-COA 2012 IECC Min shgc-0.25 67%S (2)	25	0.400	16.0	400	21.8	0	544
W -Gls-COA 2012 IECC Min shgc-0.25 60%S	38.9	0.400	16.0	622	23.0	0	895
W -Gls-COA 2012 IECC Min shgc-0.25 0%S	48	0.400	16.0	768	34.4	0	1,651
UP-Ceil-16CR-38 676 X 1	676	0.026	1.0	703	1.3	0	896
Subtotals for Structure:				6,848		0	7,351
Infil.: Win.: 81.9, Sum.: 41.9	947		3.724	3,526	1.237	651	1,171
AED Excursion:							1,325
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	2,400
Room Totals:				10,374		1,451	13,167

System 1 Room Load Summary

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---										
1	Pleasant Valley - Unit B5	1,202	10,374	138	6-0	0	13,167	1,451	612	612
	System 1 total	1,202	10,374	138			13,167	1,451	612	612

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.22	90% / 10%	13,167	1,451	14,618
Recommended:	1.46	75% / 25%	13,167	4,389	17,556

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh