

*OG&E Savannah Builders
Lytle Residence @ Lot 362 Prairie Sky Way
HVAC Load Calculations*

for

OG&E Positive Energy Home
PO Box 321, M/C 402
Oklahoma City, OK 73101-0321



Prepared By:

Kelly Parker, P.E.
Guaranteed Watt Saver Systems, Inc.
6444 N.W. Expressway, Suite 836A
Oklahoma City, Ok. 73132
(405) 946-0206
Wednesday, March 11, 2009

2005 EPACT ENERGY EFFICIENT HOME TAX CREDIT

Date:	March 11, 2009	Rating No.:	gws 9441
Building Name:	OG&E Savannah Build	Rating Org.:	Guaranteed Watt Saver Systems
Owner's Name:	Lytle Residence	Phone No.:	405.946.0206
Property:	Lot 362 Rose Creek	Rater's Name:	Kelly Parker, P.E.
Address:	, OK	Rater's No.:	GWS001
Builder's Name:			
Weather Site:	Oklahoma City, OK	Rating Type:	Based On Plans
File Name:	ogoSavannahBuildersLytleResidenceGeo@Lot36	Rating Date:	Monday, March 09, 2009

Normalized Energy Consumption (MMBtu/year)

Envelope Loads (MMBtu/year)

	2004 IECC		2004 IECC	
	50% Target	As Designed	90% Target	As Designed
Heating:	59.3	17.3	161.0	79.4
Cooling:	16.6	7.0	81.4	43.5
Total:	75.8	24.2	242.4	123.0

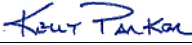
This home MEETS the requirements for the residential energy efficiency tax credits under Section 1332, Credit for Construction of New Energy Efficient Homes, of the Energy Policy Act of 2005.

As demonstrated above, this dwelling unit has a projected level of annual heating and cooling energy consumption that is at least 50% below the annual level of heating cooling energy consumption of a reference dwelling in the same climate zone, and the building envelope components improvements alone account for at least 10% of those savings. The projected heating and cooling energy savings above have been calculated in the manner prescribed in Section 2.02 of Notice 2006-27 of the Internal Revenue Service. Field inspections of the dwelling unit performed by the undersigned eligible certifier during and after the completion of construction have confirmed that all features of the home affecting such heating and cooling energy consumption comply with the design specifications provided to the undersigned certifier.

Building Features

Ceiling Flat:	NA	Slab:	R-5.0 Edge, R-0.0 Under
Vaulted Ceiling:	R-38	Duct:	R-8.0
Above Grade Walls:	R-29	Window:	U-Value = 0.240, SHGC = 0.190
Foundation Walls:	R-29.0	Ground-Source HP:	Electric, Htg: 4.2 COP. Clg: 27.0 EER, w/DSH.
Exposed Floor:	R-30		

Under penalties of perjury, I declare that I have examined this certification, including accompanying documents, and to the best of my knowledge and belief, the facts presented in support of this certification are true, correct, and complete.

Name:	Kelly Parker, P.E.	Signature:	
Company:	Guaranteed Watt Saver Systems	Date:	March 11, 2009
Address:	6444 NW Expwy, Ste 836 A, Oklahoma City, OK 73132		

2005 OKLAHOMA ENERGY EFFICIENT NEW HOME TAX CREDIT

Date: March 11, 2009 Rating No.: gws 9441
Building Name: OG&E Savannah Build Rating Org.: Guaranteed Watt Saver Systems
Owner's Name: Lytle Residence Phone No.: 405.946.0206
Property: Lot 362 Rose Creek Rater's Name: Kelly Parker, P.E.
Address: , OK Rater's No.: GWS001
Builder's Name:
Weather Site: Oklahoma City, OK Rating Type: Based On Plans
File Name: ogoSavannahBuildersLytleResidenceGeo@Lot36: Rating Date: Monday, March 09, 2009

Normalized Energy Consumption (MMBtu/year)

	2004 IECC 40% Target	2004 IECC 20% Target	As Designed
Heating:	71.1	94.8	17.3
Cooling:	19.9	26.5	7.0
Total:	91.0	121.3	24.2

This home IS NOT eligible for the Oklahoma energy-efficient new home tax credit as defined by Section 2357.46 of Title 68 of Oklahoma Statutes because the home is greater than 2,000 square feet.

Building Features

Ceiling Flat: NA Slab: R-5.0 Edge, R-0.0 Under
Vaulted Ceiling: R-38 Duct: R-8.0
Above Grade Walls: R-29 Window: U-Value = 0.240, SHGC = 0.190
Foundation Walls: R-29.0 Ground-Source HP: Electric, Htg: 4.2 COP. Clg: 27.0 EER, w/DSH.
Exposed Floor: R-30

Under penalties of perjury, I declare that I have examined this certification, including accompanying documents, and to the best of my knowledge and belief, the facts presented in support of this certification are true, correct, and complete.

Name: Kelly Parker, P.E. Company: Guaranteed Watt Saver Systems
Signature: _____ Date: March 11, 2009

REM/Rate - Residential Energy Analysis and Rating Software v12.61

This information does not constitute any warranty of energy cost or savings.
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ENERGY STAR HOME REPORT

Date: March 11, 2009 Rating No.: gws 9441
Building Name: OG&E Savannah Build Rating Org.: Guaranteed Watt Saver Systems
Owner's Name: Lytle Residence Phone No.: 405.946.0206
Property: Lot 362 Rose Creek Rater's Name: Kelly Parker, P.E.
Address: , OK Rater's No.: GWS001
Builder's Name:
Weather Site: Oklahoma City, OK Rating Type: Based On Plans
File Name: ogoSavannahBuildersLytleResidenceGeo@Lot36: Rating Date: Monday, March 09, 2009

Normalized, Modified End-Use Loads (MMBtu/year)

Table with 3 columns: Category, ENERGY STAR, As Designed. Rows include Heating, Cooling, Water heating, Lighting & Appliances, Total, and HERS Index (85 vs 37). Includes GWS logo and 'Engineers - Consultants - Inspectors' text.

ENERGY STAR Mandatory Requirements

Form with checkboxes: Thermal Bypass Inspection Checklist *, ENERGY STAR Products *, Ductwork Requirements, ENERGY STAR Scoring Exceptions.

* Thermal Bypass Checklist and ENERGY STAR Products are not checked in REM/Rate at this time.

This home MEETS OR EXCEEDS the energy efficiency requirements for designation as an EPA ENERGY STAR Qualified Home.

Table with 2 main sections: Pollution Prevented (Type of Emissions, Reduction) and Energy Cost Savings (\$/year) (Heating, Cooling, Water Heating, Lights & Appliances, Total).

The energy savings and pollution prevented are calculated by comparing the Rated Home to the Reference Home as defined in the "Mortgage Industry National Home Energy Rating Systems Standards" as promulgated by the Residential Energy Services Network (RESNET).

REM/Rate - Residential Energy Analysis and Rating Software v12.61

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ENERGY STAR HOME VERIFICATION SUMMARY

Date: March 11, 2009 Rating No.: gws 9441
Building Name: OG&E Savannah Build Rating Org.: Guaranteed Watt Saver Systems
Owner's Name: Lytle Residence Phone No.: 405.946.0206
Property: Lot 362 Rose Creek Rater's Name: Kelly Parker, P.E.
Address: , OK Rater's No.: GWS001
Builder's Name:
Weather Site: Oklahoma City, OK Rating Type: Based On Plans
File Name: ogoSavannahBuildersLytleResidenceGeo@Lot36: Rating Date: Monday, March 09, 2009

Building Information

Conditioned Area (sq ft): 8236 Housing Type: Single-family detached
Conditioned Volume (cubic ft): 101799 Foundation Type: Conditioned basement
Insulated Shell Area (sq ft): 20103 HERS Index: 37 *****
Number of Bedrooms: 5

Building Shell

Ceiling w/Attic: None Window/Wall Ratio: 0.08
Vaulted Ceiling: R-38, Vaulted U=0.032 Window Type: U .24 SHGC .19
Above Grade Walls: R-29 ICF U=0.033 Window U-Value: 0.240
Found. Walls (Cond): R-29 ICF R=29.0 Window SHGC: 0.190
Found. Walls (Uncond): None Infiltration: Htg: 11877 Clg: 11877 CFM50
Frame Floors: R-30 U=0.035 Measured Duct Leakage: 412.00 CFM25
Slab Floors: R-5 Perimeter U=0.129 Leakage to Outside: 412.00 CFM

Mechanical Systems

GSHP: Htg: 36.0 kBtuh, 4.2 COP. Clg: 36.0 kBtuh, 27.0 EER, with Desuperheater.
GSHP: Htg: 48.0 kBtuh, 4.2 COP. Clg: 48.0 kBtuh, 27.0 EER, with Desuperheater.
Water Heating: Conventional, Elec, 0.92 EF.
Programmable Thermostat: Heat=Yes; Cool=Yes

Note: Where feature level varies in home, the dominant value is shown.

This home MEETS OR EXCEEDS the EPA's requirements for an ENERGY STAR Home.

Safety Concerns Noted: GWS recommends gas combustion HVAC or water tanks in conditioned space have direct vent, sealed combustion, or power vent for proper combustion ventilation and to reduce possibility of backdrafting.

RESNET HOME ENERGY RATING Standard Disclosure

For home located at: Lot 362 Rose Creek

City: _____ State: OK

1. The Rater or the Rater's employer is receiving a fee for providing the rating on this home.
2. In addition to the rating, the Rater or Rater's employer has also provided the following consulting services for this home:

- A. Mechanical system design
- B. Moisture control or indoor air quality consulting
- C. Performance testing and/or commissioning other than required for the rating itself
- D. Training for sales or construction personnel
- E. Other (specify below)

3. The Rater or Rater's employer is:
- A. The seller of this home or their agent
 - B. The mortgagor for some portion of the financed payments on this home
 - C. An employee, contractor or consultant of the electric and/or natural gas utility serving this home

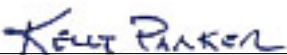
4. The Rater or Rater's employer is a supplier or installer of products, which may include:

	Installed in this home by:		OR	Is in the business of:	
HVAC systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Thermal insulation systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Air sealing of envelope or duct systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Windows or window shading systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Energy efficient appliances	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Construction (builder, developer, construction contractor, etc.)	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Other (specify below):	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer

I attest that the above information is true and correct to the best of my knowledge. As a Rater or Rating Provider I abide by the rating quality control provisions of the Mortgage Industry National Home Energy Rating Standard as set forth by the Residential Energy Services Network (RESNET). The national rating quality control provisions of the rating standard are contained in Chapter One 4.C.8 of the standard and are posted at <http://www.natresnet.org/accred/standards.pdf>. This home may have been verified under the provisions of Chapter Six, Section 603, "Technical Requirements for Sampling" of the Standard.

Kelly Parker, P.E.

Rater's Printed Name



Rater's Signature

GWS001

Certification #

March 11, 2009

Date



Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
G2419B: Glazing-U .24 SHGC .19, ground reflectance = 0.23, outdoor insect screen with 50% coverage, medium color blinds at 45° with 75% coverage, u-value 0.24, SHGC 0.19	200	2,733	0	3,710	3,710
FrDr B: Glazing-French Door, ground reflectance = 0.23, outdoor insect screen with 50% coverage, medium color blinds at 45° with 75% coverage, u-value 0.24, SHGC 0.19	44.1	603	0	633	633
G2419L: Glazing-U .24 SHGC .19, ground reflectance = 0.23, outdoor insect screen with 50% coverage, medium color blinds at 45° with 25% coverage, u-value 0.24, SHGC 0.19	248.8	3,402	0	3,139	3,139
FrDr L: Glazing-French Door, ground reflectance = 0.23, outdoor insect screen with 50% coverage, medium color blinds at 45° with 25% coverage, u-value 0.24, SHGC 0.19	231.3	3,162	0	3,254	3,254
G2419T: Glazing-U .24 SHGC .19, ground reflectance = 0.23, u-value 0.24, SHGC 0.19	22.5	310	0	459	459
D10: Door-Wood solid core	54.1	1,418	0	971	971
14D-33b: Wall-insulated concrete form (ICF), ASTM R-Value R-30 to R-36 foam matrix form filled with site-poured concrete, brick finish, plus interior finish	5175.4	10,025	0	4,148	4,148
g 14D-33b: Wall-	635.3	1,230	0	510	510
C12: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, R-19 Under Second Floor	3943	11,823	0	13,067	13,067
C38s: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Custom, R-38 Sloped Ceiling	4742	7,117	0	7,863	7,863
B-22: Floor-Slab on grade, Custom, Slab on Grade R-5	311	3,545	0	0	0
F12: Floor-Over enclosed unconditioned crawl space, Custom, Second Story Floor R-19	3904	3,132	0	1,539	1,539
F13: Floor-Over open crawl space or garage, Custom, Framed Floor R-30	212	402	0	162	162
Subtotals for structure:		48,902	0	39,455	39,455
People:	6		1,200	1,380	2,580
Equipment:			0	5,900	5,900
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 594, Summer CFM: 594		35,538	11,341	17,457	28,798
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	3,105	3,105
Total Building Load Totals:		84,440	12,541	67,297	79,838

Check Figures

Total Building Supply CFM:	3,205	CFM Per Square ft.:	0.387
Square ft. of Room Area:	8,271	Square ft. Per Ton:	1,136
Volume (ft ³) of Cond. Space:	101,803		

Building Loads

Total Heating Required Including Ventilation Air:	84,440 Btuh	84.440 MBH
Total Sensible Gain:	67,297 Btuh	84 %
Total Latent Gain:	12,541 Btuh	16 %
Total Cooling Required Including Ventilation Air:	79,838 Btuh	6.65 Tons (Based On Sensible + Latent)
		7.28 Tons (Based On 77% Sensible Capacity)



Total Building Summary Loads (cont'd)

Building Loads

Notes

Calculations are based on 8th edition of ACCA Manual J.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads.



System 1 Room Load Summary

Room No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
1	Club / Bar / Hall	1,417	7,958	108	3-6	518	6,410	687	305	305
2	Stairs	86	435	6	1-4	98	180	83	9	9
3	Bedroom 5	234	3,462	47	1-8	427	3,133	612	149	149
4	Bath	51	153	2	1-4	97	177	0	8	8
5	Bedroom 4	281	3,931	53	1-8	426	3,125	716	149	149
6	Pool Bath	112	2,216	30	1-5	531	1,521	318	72	72
7	Fitness Area	377	4,345	59	1-7	532	2,986	350	142	142
8	Mech Room	183	2,584	35	1-5	520	1,489	393	71	71
9	Home Theater	783	6,743	92	3-7	414	6,970	850	332	332
10	Storage	171	2,308	31	1-5	470	1,347	347	64	64
11	Safe Room	142	2,265	31	1-5	440	1,261	354	60	60
12	Bath 2	72	1,138	15	1-4	347	636	178	30	30
13	Lobby	120	360	5	1-4	227	417	0	20	20
System 1 total		4,029	37,898	516			29,651	4,888	1,412	1,412

System 1 Main Trunk Size: 16x16 in.
Velocity: 794 ft./min
Loss per 100 ft.: 0.075 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	2.88	86% / 14%	29,651	4,888	34,539
Recommended:	3.21	77% / 23%	29,651	8,857	38,508

Manual J Calculation Results for HVAC Sizing - System 1

Nominal CFM: **1412** (CFM is reported as minimum needed) Htg Btu/h: **37898**

Sensible Clg: **29651** + Latent Clg: **4888** = Total Clg Btu/h: **34539**

HVAC selection should be per ACCA Manual S (note: size by total need).
Registers/Grilles should be chosen pursuant to Manual T (note: airflow should hit the floor).
We recommend the HVAC layout/design be reviewed by GWS before installation.



System 2 Room Load Summary

Room No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
14	Stairs	91	712	10	1-4	343	628	104	30	30
15	Open To Club Room	35	59	1	1-4	37	68	0	3	3
16	Entry / Living	574	5,918	81	2-7	476	5,338	611	254	254
17	Study	207	4,305	59	2-6	492	4,056	720	193	193
18	Master Bath	312	1,700	23	1-5	451	1,292	205	62	62
19	M. Wic	271	4,507	61	1-7	499	2,798	877	133	133
20	Master Bedroom	444	5,550	76	2-7	412	4,620	1,194	220	220
21	Family / Ktichen	883	8,375	114	3-7	463	7,792	1,071	371	371
22	Powder	45	1,248	17	1-4	374	685	251	33	33
23	Laundry Room	96	1,182	16	1-5	572	1,638	227	78	78
24	Craft Room	152	1,435	20	1-4	482	882	254	42	42
25	Mud Room	74	1,434	20	1-4	499	915	183	44	44
26	Lydia's Bed	229	4,129	56	1-7	463	2,598	1,005	124	124
27	Dressing / Bath	136	1,435	20	1-4	478	875	247	42	42
28	Sally's Bed	228	1,687	23	1-5	485	1,389	419	66	66
29	Dining Room	254	2,343	32	1-5	550	1,574	285	75	75
30	Hallway	211	523	7	1-4	271	497	0	24	24
System 2 total		4,242	46,542	633			37,646	7,653	1,793	1,793

System 2 Main Trunk Size: 18x18 in.
Velocity: 797 ft./min
Loss per 100 ft.: 0.065 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	3.77	83% / 17%	37,646	7,653	45,299
Recommended:	4.07	77% / 23%	37,646	11,245	48,891

Manual J Calculation Results for HVAC Sizing - System 2

Nominal CFM: **1793** (CFM is reported as minimum needed) Htg Btu/h: **46542**

Sensible Clg: **37646** + Latent Clg: **7653** = Total Clg Btu/h: **45299**

HVAC selection should be per ACCA Manual S (note: size by total need).
Registers/Grilles should be chosen pursuant to Manual T (note: airflow should hit the floor).
We recommend the HVAC layout/design be reviewed by GWS before installation.



Building Rotation Report

All rotation degree values in this report are clockwise with respect to the project's original orientation.
Building orientation as entered (zero degrees rotation): Front door faces East

Individual Rooms

Rm. No.	Room Name	0° Rot. CFM	45° Rot. CFM	90° Rot. CFM	135° Rot. CFM	180° Rot. CFM	225° Rot. CFM	270° Rot. CFM	315° Rot. CFM	High Duct Size
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System 1:

Zone 1:

1	Club / Bar / Hall	*305	296	291	297	296	294	291	302	3-6
2	Stairs	*9	8	8	8	8	8	8	8	1-4
3	Bedroom 5	*149	135	114	135	145	131	107	134	1-8
4	Bath	*8	8	8	8	8	8	8	8	1-4
5	Bedroom 4	*149	138	123	138	144	135	119	138	1-8
6	Pool Bath	*72	65	56	66	70	66	59	68	1-5
7	Fitness Area	142	188	136	*189	138	137	136	141	1-8
8	Mech Room	*71	69	68	69	69	68	68	70	1-5
9	Home Theater	*332	321	317	323	322	320	317	328	3-7
10	Storage	*64	62	61	62	62	62	61	63	1-5
11	Safe Room	*60	58	57	58	58	58	57	59	1-5
12	Bath 2	*30	29	29	29	29	29	29	30	1-4
13	Lobby	*20	19	19	19	19	19	19	20	1-4

System 2:

Zone 1:

14	Stairs	*30	29	23	26	29	26	22	26	1-4
15	Open To Club Room	3	*3	3	3	3	3	3	3	1-4
16	Entry / Living	*254	238	181	220	242	226	193	228	2-7
17	Study	*193	184	146	170	184	167	139	169	2-6
18	Master Bath	62	*62	55	57	59	57	55	58	1-5
19	M. Wic	133	*134	118	124	127	124	117	125	1-7
20	Master Bedroom	220	*224	190	205	210	208	195	212	2-7
21	Family / Kitchen	371	391	*407	359	406	353	351	354	3-7
22	Powder	33	*37	31	34	31	31	31	31	1-4
23	Laundry Room	78	*80	75	74	74	74	74	75	1-6
24	Craft Room	42	*43	40	40	40	40	40	40	1-4
25	Mud Room	44	*45	42	42	42	42	42	42	1-4
26	Lydia's Bed	124	*127	118	117	118	124	117	126	1-7
27	Dressing / Bath	42	*43	40	40	40	42	40	43	1-4
28	Sally's Bed	66	67	63	62	63	70	62	*70	1-5
29	Dining Room	75	76	71	71	71	90	71	*91	1-6
30	Hallway	24	*24	23	23	23	23	23	23	1-4

* Indicates highest CFM of all rotations.

Whole Building

Rotation Degrees	Front door Faces	Supply CFM	Sensible Gain	Latent Gain	Net Tons	Recommended Tons
0°	East	*3,205	*67,297	*12,541	*6.65	*7.28
45°	Southeast	3,203	67,245	12,541	6.65	7.28
90°	South	2,915	61,216	12,541	6.15	6.63
135°	Southwest	3,066	64,385	12,541	6.41	6.97
180°	West	3,129	65,709	12,541	6.52	7.11
225°	Northwest	3,036	63,744	12,541	6.36	6.90
270°	North	2,853	59,900	12,541	6.04	6.48
315°	Northeast	3,085	64,781	12,541	6.44	7.01

* Indicates highest value of all rotations.



Building Rotation Report (cont'd)

System 1

Rotation Degrees	Front door Faces	Supply CFM	Sensible Gain	Latent Gain	Net Tons	Recommended Tons
0°	East	*1,412	*29,651	*4,888	*2.88	*3.21
45°	Southeast	1,396	29,315	4,888	2.85	3.17
90°	South	1,288	27,037	4,888	2.66	2.93
135°	Southwest	1,401	29,423	4,888	2.86	3.18
180°	West	1,368	28,724	4,888	2.80	3.11
225°	Northwest	1,337	28,072	4,888	2.75	3.04
270°	North	1,279	26,861	4,888	2.65	2.91
315°	Northeast	1,369	28,755	4,888	2.80	3.11

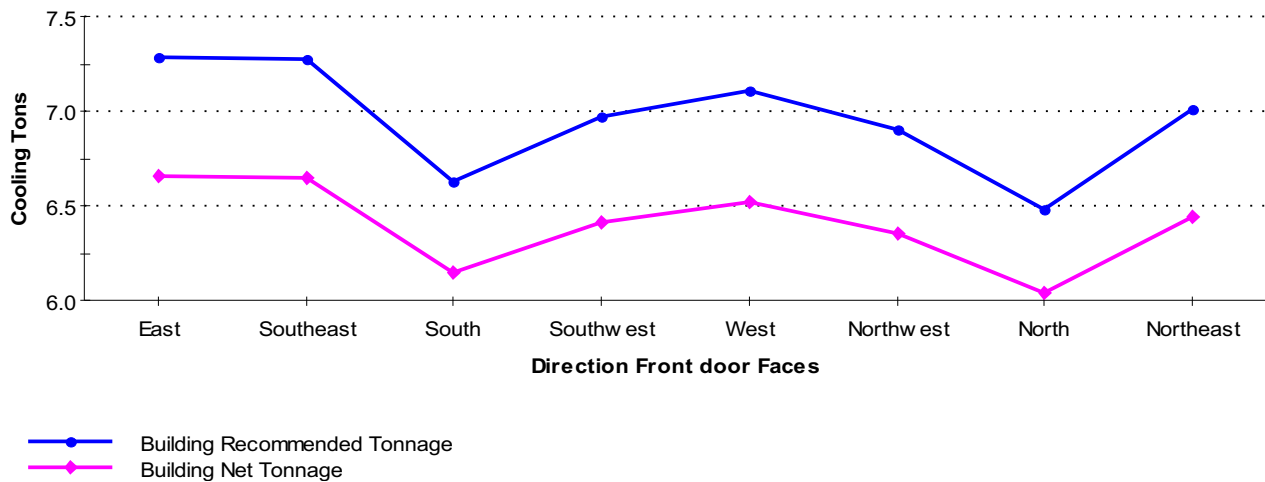
* Indicates highest value of all rotations.

System 2

Rotation Degrees	Front door Faces	Supply CFM	Sensible Gain	Latent Gain	Net Tons	Recommended Tons
0°	East	1,793	37,646	*7,653	3.77	4.07
45°	Southeast	*1,806	*37,930	7,653	*3.80	*4.11
90°	South	1,628	34,179	7,653	3.49	3.70
135°	Southwest	1,665	34,962	7,653	3.55	3.78
180°	West	1,761	36,985	7,653	3.72	4.00
225°	Northwest	1,699	35,672	7,653	3.61	3.86
270°	North	1,573	33,039	7,653	3.39	3.58
315°	Northeast	1,716	36,026	7,653	3.64	3.90

* Indicates highest value of all rotations.

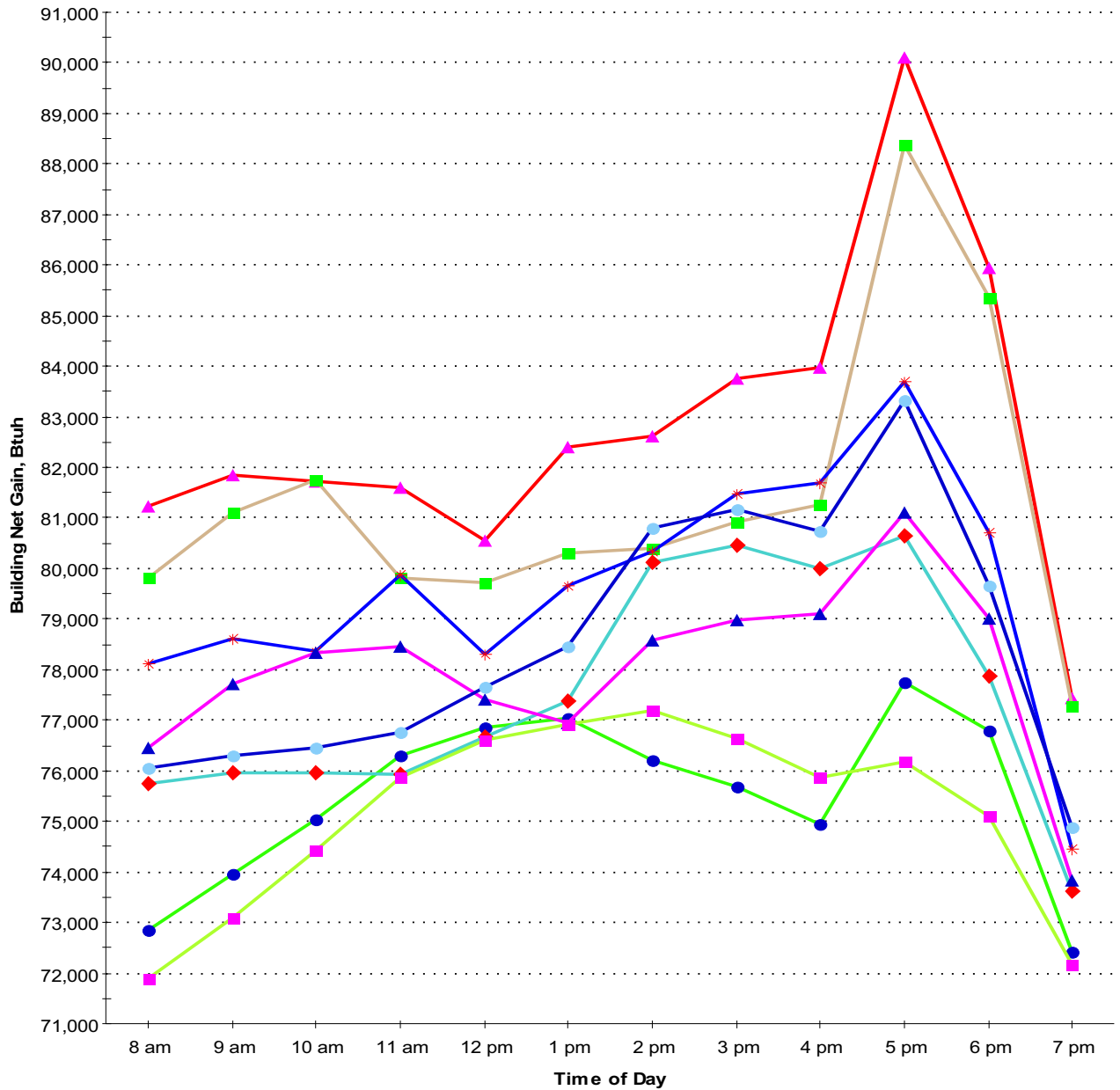
Building Rotation Tonnage





Building Rotation Report (cont'd)

Building Rotation Hourly Net Gain



- Front door faces East
- Front door faces Southeast
- Front door faces South
- Front door faces Southwest
- Front door faces West
- Front door faces Northwest
- Front door faces North
- Front door faces Northeast



Building Rotation Duct Sizes

Room or Duct Name	Direction Front door Faces																Max Duct Size
	E		SE		S		SW		W		NW		N		NE		
	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	Htg Flow	Clg Flow	
System 1																	
Supply Runouts																	
Zone 1																	
1-Club / Bar / Hall	108	305	108	296	108	291	108	297	108	296	108	294	108	291	108	302	3-6
2-Stairs	6	9	6	8	6	8	6	8	6	8	6	8	6	8	6	8	1-4
3-Bedroom 5	47	149	47	135	47	114	47	135	47	145	47	131	47	107	47	134	1-8
4-Bath	2	8	2	8	2	8	2	8	2	8	2	8	2	8	2	8	1-4
5-Bedroom 4	53	149	53	138	53	123	53	138	53	144	53	135	53	119	53	138	1-8
6-Pool Bath	30	72	30	65	30	56	30	66	30	70	30	66	30	59	30	68	1-5
7-Fitness Area	59	142	59	188	59	136	59	189	59	138	59	137	59	136	59	141	2-6
8-Mech Room	35	71	35	69	35	68	35	69	35	69	35	68	35	68	35	70	1-5
9-Home Theater	92	332	92	321	92	317	92	323	92	322	92	320	92	317	92	328	3-7
10-Storage	31	64	31	62	31	61	31	62	31	62	31	62	31	61	31	63	1-5
11-Safe Room	31	60	31	58	31	57	31	58	31	58	31	58	31	57	31	59	1-5
12-Bath 2	15	30	15	29	15	29	15	29	15	29	15	29	15	29	15	30	1-4
13-Lobby	5	20	5	19	5	19	5	19	5	19	5	19	5	19	5	20	1-4
Other Ducts																	
Supply Main Trunk	516	1,412	516	1,396	516	1,288	516	1,401	516	1,368	516	1,337	516	1,279	516	1,369	16x16
System 2																	
Supply Runouts																	
Zone 1																	
14-Stairs	10	30	10	29	10	23	10	26	10	29	10	26	10	22	10	26	1-4
15-Open To Club Room	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1-4
16-Entry / Living	81	254	81	238	81	181	81	220	81	242	81	226	81	193	81	228	2-7
17-Study	59	193	59	184	59	146	59	170	59	184	59	167	59	139	59	169	2-6
18-Master Bath	23	62	23	62	23	55	23	57	23	59	23	57	23	55	23	58	1-5
19-M. Wic	61	133	61	134	61	118	61	124	61	127	61	124	61	117	61	125	1-7
20-Master Bedroom	76	220	76	224	76	190	76	205	76	210	76	208	76	195	76	212	2-7
21-Family / Kitchen	114	371	114	391	114	407	114	359	114	406	114	353	114	351	114	354	4-6
22-Powder	17	33	17	37	17	31	17	34	17	31	17	31	17	31	17	31	1-4
23-Laundry Room	16	78	16	80	16	75	16	74	16	74	16	74	16	74	16	75	1-6
24-Craft Room	20	42	20	43	20	40	20	40	20	40	20	40	20	40	20	40	1-4
25-Mud Room	20	44	20	45	20	42	20	42	20	42	20	42	20	42	20	42	1-4
26-Lydia's Bed	56	124	56	127	56	118	56	117	56	118	56	124	56	117	56	126	1-7
27-Dressing / Bath	20	42	20	43	20	40	20	40	20	40	20	42	20	40	20	43	1-4
28-Sally's Bed	23	66	23	67	23	63	23	62	23	63	23	70	23	62	23	70	1-5
29-Dining Room	32	75	32	76	32	71	32	71	32	71	32	90	32	71	32	91	1-6
30-Hallway	7	24	7	24	7	23	7	23	7	23	7	23	7	23	7	23	1-4
Other Ducts																	
Supply Main Trunk	633	1,793	633	1,806	633	1,628	633	1,665	633	1,761	633	1,699	633	1,573	633	1,716	20x20
Bldg. High Dir.: East																	
Sensible Gain: 67,297																	
Latent Gain: 12,541																	