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Conservation and Renewable Energy
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Buildings Systems Division
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Technical Support Documentation for the Automated Residential Energy Standard (ARES) Data Base

In Support of Proposed Interim Energy Conservation Voluntary
Performance Standards for New Non-Federal Residential Buildings

September 1989

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MASTER

PREFACE

The Energy Conservation for New Buildings Act of 1976, as amended, 42 U.S.C. Section 6831 et.seq. requires the U.S. Department of Energy (DOE) to issue energy conservation standards for the design of new residential and commercial buildings. The standards will be mandatory only for the design of new federal buildings and will serve as voluntary guidelines for the design of new non-federal buildings.

The original recommendations for the non-federal residential standards were produced by the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., (ASHRAE) Special Projects Committee No. 53 under contract to Pacific Northwest Laboratory (PNL). Those recommendations were published in four volumes entitled Recommendations for Energy Conservation Standards for New Residential Buildings. DOE modified the original recommendations to accommodate an optional, more flexible economic analysis procedure. DOE also directed PNL to produce additional technical documentation for the software that embodies the standards and to assess the economic and environmental effects of the standards.

The final standards are documented in seven publications in support of the Proposed Interim Energy Conservation Voluntary Performance Standards for New Non-Federal Residential Buildings:

- ARES 1.2 User's Guide (Automated Residential Energy Standard) - Explains the use of the ARES program to develop locations-specific energy conservation requirements.
- Technical Support Documentation for the Automated Residential Energy Standard (ARES) - Explains the data and algorithms used by the ARES program to optimize energy-related features of new residences.
- Background to the Development Process for the Automated Residential Energy Standard (ARES) - Explains the background and philosophy of the standard development process.
- Technical Support Documentation for the Automated Residential Energy Standard (ARES) Data Base - Documents the assumptions and procedures used to develop the residential energy consumption data base in ARES.

- Description of the Testing Process for the Automated Residential Energy Standard (ARES) - Describes the process used by the development committee to initially test the ARES computer program.
- Economic Analysis - Describes an assessment of the likely impacts of the new standards on the nation's economy.
- Environmental Assessment - Describes an assessment of the likely impacts of the new standards on new home habitability, on institutions associated with residential construction, and on the economy in general.

SUMMARY

Starting in 1986, Pacific Northwest Laboratory (PNL) has been working with ASHRAE Special Project 53 to conduct research in support of a residential energy conservation standard. The Energy Analysis Program at Lawrence Berkeley Laboratory (LBL) has been contracted by PNL to develop a new residential energy use data base in support of this effort. The simulation methodology improves upon that used earlier by LBL in producing the voluntary energy guidelines data base. Significant enhancements were made in the modeling of underground heat flow, window operations and glazing types, and cooling loads. Since the proposed standards will be in a computerized format, the final data base was tailored to utilize the capabilities of a micro-computer program.

The residential energy use data base was developed using the DOE-2.1C building energy simulation program and covers three building prototypes (one-story, townhouse, and apartment), three foundation conditions (slab-on-grade, basement, and vented crawl space) in 45 U.S. locations. For each building prototype and location, a range of insulation, infiltration, and window conditions were considered. The calculated annual heating and cooling loads were analyzed and reduced to regression coefficients giving the contribution to building load of each component, i.e., ceiling walls, infiltration, as a function of its thermal and physical characteristics.

The primary format of the data base is a computer file of regression coefficients coded by prototype, location, building component, and separated by heating or cooling. The same information is also available in printed form on tables that also show the incremental changes in heating and cooling loads for typical conservation measures. The data base serves as the building loads calculation portion of the computer program being developed by PNL as a residential conservation standard.

ACKNOWLEDGEMENTS

A number of organizations and individuals contributed to the preparation of this document. Funding for the project was provided by the Department of Energy (DOE), Office of Buildings and Community Systems under the direction of John Millhone. Program management and contract monitoring at DOE were provided by Stephen Walder.

Joe Huang of Lawrence Berkeley Laboratory (LBL) conducted the numerous computer simulations that form the basis for this work, and is primary author of the documentation contained herein. Ron Ritschard served as overall manager of the work at LBL. J. Bull, also of LBL, assisted in the simulations and preparation of the report.

Technical recommendations for the work documented in this report were prepared by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Technical Evaluation Committee for Special Project 53. That committee consisted of the following persons:

Faye C. McQuiston (chairman), Oklahoma State University, Stillwater
M. Emanuel Levy (vice-chairman), The Levy Partnership, New York
Robert D. Busch, R.D. Busch & Associates, Albuquerque
Charles F. Gilbo, Charles F. Gilbo Consultant, Lancaster
L.M. Holder III, L.M. Holder III, Inc., Austin
Daniel Hugh Nall, Jones Nall & Davis, Atlanta
Glen A. Raymond, Carrier Corporation, Syracuse
Richard Tracy, Ryan Homes, Pittsburgh

Michael R. Brambley and, previously, Raymond Reilly and Allen Lee served as project manager for the Voluntary Residential Standards Project at Pacific Northwest Laboratory (PNL). Z. Todd Taylor provided overall technical guidance and subcontract monitoring.

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INTRODUCTION

Over the past decade, the Energy Analysis Program at Lawrence Berkeley Laboratory has conducted extensive computer analysis of the impact of various conservation measures on energy use in residential buildings in different U. S. locations. From 1982 to 1986, LBL was involved in the voluntary residential standards project funded by Department of Energy, and compiled a large data base of residential energy use from parametric simulations using the DOE-2.1A and DOE-2.1B energy simulation programs. The methodology used to build that data base have been extensively reviewed and documented in a technical support document (Huang et al. 1987). The final version of the data base is an interactive computer program called PEAR (Program for Energy Analysis of Residences; Energy Analysis Program 1987). The same data base is also used in the proposed energy conservation standards for new federal residential buildings, and the 1987 draft of ASHRAE-90.2 Standard.

The data base effort described in this report was done by LBL on contract to Pacific Northwest Laboratory for the ASHRAE Special Project 53, "Research in Support of a Residential Energy Conservation Standard". After reviewing the earlier voluntary energy guidelines work, the SP53 committee recommended that the data base be expanded to include additional conservation measures and upgraded with improved analysis of foundation and cooling loads. After discussions between the committee, PNL, and LBL, the decision was reached to create a new data base. This decision would insure compatibility throughout the data base, and utilize improved simulation techniques, more realistic operating assumptions, and better weather data developed over the past six years. Although repeating the DOE-2 simulations required a substantial amount of computer time, the staff effort was reduced since the methodology and analysis techniques had been developed already in the course of the voluntary energy guidelines work.

Whenever this data base work utilizes the same assumptions and analysis techniques as the earlier work, these will be briefly summarized in this report, and references made to the technical documentation for the earlier work for further details. This applies to the prototype building descriptions, the selection of base cities, internal loads, and construction details. This report will focus more on those areas where substantial improvements have been made in simulation techniques or in the analysis of results. The major areas include (1) use of a two-dimensional finite-difference program to calculate heat fluxes through the building-ground interface, (2) use of non-linear multi-variant regression analysis to correlate window loads, and (3) reduction of building loads data into regression coefficients.

BUILDING ENERGY ANALYSIS

BASIC SIMULATION METHOD

The data base simulations were done using a developmental version of the DOE-2.1C program (for a description of DOE-2, refer to Lawrence Berkeley Laboratory 1980). In addition, two smaller programs were used to generate inputs to DOE-2.1C for response factors and underground heat fluxes.

Compared to earlier versions of DOE-2, DOE-2.1C has improved modeling of solar gain, internal walls, residential infiltration, better custom weighting factor calculations, and new system performance curves that more accurately model part load effects in residential air-conditioners. DOE-2.1C also has the flexibility of permitting user-input functional values in the LOADS portion of the simulations. This feature was used in the data base work to define the summer window shading schedule based on cooling degree days, and to input heat fluxes calculated by a two-dimensional finite difference model in place of the standard DOE-2 calculations for underground surfaces.

The developmental 2.1C version used to generate the data base has the following enhancements to the Residential Systems portion of the program: (1) the natural ventilation rate is calculated as a function of exterior wind speed and temperature rather than a fixed input value, and (2) the natural ventilation controls are held fixed between midnight and 7 a.m., i.e., it is assumed that occupants will not operate the windows after going to bed. These modifications give more realistic modeling of typical window operations in residences and will be included in future public releases of DOE-2.1.

Two additional programs, WALFERF and a finite-difference program for underground heat flow developed by the Underground

Space Center at the University of Minnesota (here referred to as the USCUG model, were used to improve the modeling capabilities of DOE-2.1C.

Response Factors

WALFERF is a finite-element program developed at LBL to calculate wall response factors for two-dimensional heat conduction. The program is based on a DOE-2 subroutine originally written to model earth contact surfaces (Bull et al. 1981) and uses a technique developed by Ceylan and Myers (Ceylan et al. 1979). In addition to the standard input for thermal properties, thickness, and sequence of materials making up each block, WALFERF also requires the number of blocks and their widths. Figure 1.1 shows a sample input file and schematic representation of a R-11 wood-frame wall modeled as two blocks, a stud portion 2.25 inches wide. Figures 1.2 through 1.5 show similar input files for typical log wall, concrete wall, ceiling, and floor assemblies. The output from WALFERF are two-dimensional response factors that can be written into the standard DOE-2 response factor library format. For a wall composed of a single block, WALFERF produces the same response factors as the DOE-2 BDL program. Future release versions of DOE-2 program will include WALFERF as a utility program. For the residential data base, WALFERF was used to generate the response factor library for the delayed walls. This method accounts for two-dimensional heat flow in mixed walls and obviates the need to model separately the stud and non-stud portions of walls.

Below-grade Modeling

Since the existing DOE-2 program does not adequately model the building-to-ground interface, LBL has worked with the Underground Space Center (USC) at the University of Minnesota to incorporate into DOE-2.1C results from a below-grade heat transfer simulation program developed at the USC. The USCUG model is a two-dimensional fully-implicit integrated finite

Figure 1.1 WALFERF Input for R-11 Wood-frame Wall

r11rwall 0 0 1					(file name)
17					(number of material descriptions)
0.0925	0.26	50.0	3.	drywall	(conductance, specific heat,
0.0263	0.20	1.15	4.	insulation	and density of materials)
0.0342	0.31	22.0	6.	int. dens. sheathing	
0.0168	0.29	1.0	9.	aluminum siding	
0.9217	0.24	.075	16.	airlayh	
0.9901	0.24	.075	17.	airlayv	
4	3.0	No. of layers			(no. of layers and total width)
1	0.12	L-1			(no. of blocks and thickness for L-1)
9	3.0				(material and width)
1	0.5	L-2			(no. of blocks and thickness for L-2)
6	3.0				(material and width)
2	3.5	L-3			(no. of blocks and thickness for L-3)
4	2.25				(material and width)
2	0.75				(material and width)
1	0.5	L-4			(no. of blocks and thickness for L-4)
3	3.0				(material and width)
	0.680				(inside film resistance)

Layer 1 0.12"
 Blk 1 R 0.5952 aluminum siding
 Layer 2 0.50"
 Blk 1 R 1.2183 int. dens. sheathing
 Layer 3 3.50"
 Blk 1 R11.0900 insulation
 Blk 2 R 4.3597 wood
 Layer 4 0.50"
 Blk 1 R 0.4505 drywall
 I F R = 0.6800

	wood			
	0.0669	0.290	34.00
	insulation			
	0.0263	0.200	1.15
	aluminum siding			
	0.0168	0.290	1.00
	drywall			
	0.0925	0.260	50.00
	int. dens. sheathing			
	0.0342	0.310	22.00	

Figure 1.2 WALFERF Input for 8 inch Log Wall

8log 0 0 1				(file name)
12				(number of material descriptions)
.5	.22	70.0	1.	mason1
.5	.22	140.0	2.	mason2
.0669	.29	34.0	3.	wood
.0925	.26	50.0	4.	drywall
.0263	.20	1.15	5.	insulation
.4167	.22	116.0	6.	stucco
1	2.00	No. of layers		(no. of layers and total width)
1	8.00	L-1		(no. of blocks and thickness for L-1)
3	2.00			(material and width)
	.680			(inside film resistance)

Layer 1 8.00"
 Blk 1 R 9.9651 wood
 I F R = 0.6800

wood
 0.0669 0.290 34.00

Figure 1.3 WALFERF Input for R-10 Concrete-block Wall

r10cb95 0 0 1			(file name)	
12			(number of material descriptions)	
			(conductance, specific heat, and density of materials)	
.5	.22	70.0	1.	mason1
.5	.22	140.0	2.	mason2
.0925	.26	50.0	4.	drywall
.0263	.20	1.15	5.	insulation
.4167	.22	116.0	6.	stucco
.5	.22	70.0	7.	concblock1
.5	.22	140.0	8.	concblock2
.2	.30	5.0	9.	perlite1
.5	.30	5.0	10.	perlite2
.4026	.24	.0750	12.	4.88" block gap
5	3.06	No. of layers	(no. of layers and total width)	
1	0.50	L-1	(no. of blocks and thickness for L-1)	
6	3.06		(material and width)	
1	3.16	L-2	(no. of blocks and thickness for L-2)	
5	3.06		(material and width)	
1	1.38	L-3	(no. of blocks and thickness for L-3)	
7	3.06		(material and width)	
2	4.88	L-4	(no. of blocks and thickness for L-4)	
7	0.63		(material and width)	
12	2.43		(material and width)	
1	1.38	L-5	(no. of blocks and thickness for L-5)	
7	3.06		(material and width)	
	.680		(inside film resistance)

Layer 1 0.50"
 Blk 1 R 0.1000 stucco
 Layer 2 3.16"
 Blk 1 R10.0127 insulation
 Layer 3 1.38"
 Blk 1 R 0.2300 concblock3
 Layer 4 4.88"
 Blk 1 R 0.8133 concblock3
 Blk 2 R 1.0101 4.88" block gap
 Layer 5 1.38"
 Blk 1 R 0.2300 concblock3
 I F R = 0.6800

	stucco
0.4167 0.220 116.00	
	4.88" block gap
0.4026 0.240 0.07	
	insulation
0.0263 0.200 1.15	
	concblock3
0.5000 0.220 95.00	

Figure 1.4 WALTERF Input for R-19 Ceiling Assembly

r19roof 0 0 1				{file name}	
18				{number of material descriptions}	
.0669	.29	34.0	2.	wood	{conductance, specific heat,
.0472	.30	1.0	8.	shingle	and density of materials)
.6873	.24	.075	11.	attic	
.0249	.1897	1.15	13.	insuls	
.08775	.275	50.0	14.	drywalls	
.0633	.275	27.0	15.	woods	
.42245	.24	.075	16.	airlayh 5.50"	
.0384	.24	.075	17.	airlayh .50"	
1.0023	.24	.075	18.	roofgap	
7	9.75	No. of layers		(no. of layers and total width)	
1	.25	L-1		(no. of blocks and thickness for L-1)	
8	9.75			(material and width)	
1	.50	L-2		(no. of blocks and thickness for L-2)	
2	9.75			(material and width)	
2	5.50	L-3		(no. of blocks and thickness for L-3)	
18	9.00			(material and width)	
2	.75			(material and width)	
2	12.00	L-4		(no. of blocks and thickness for L-4)	
18	9.00			(material and width)	
11	.75			(material and width)	
2	.50	L-5		(no. of blocks and thickness for L-5)	
13	9.00			(material and width)	
18	.75			(material and width)	
2	5.50	L-6		(no. of blocks and thickness for L-6)	
13	9.00			(material and width)	
15	.75			(material and width)	
1	.50	L-7		(no. of blocks and thickness for L-7)	
14	9.75			(material and width)	
	.765			(inside film resistance)

Layer 1	0.25"					
Blk 1 R	0.4414	shingle		wood		
				0.0669	0.290	34.00
Layer 2	0.50"					
Blk 1 R	0.6228	wood		attic		
				0.6873	0.240	0.07
Layer 3	5.50"					
Blk 1 R	0.4573	roofgap		drywalls		
				0.0877	0.275	50.00
Layer 4	12.00"					
Blk 1 R	0.9977	roofgap		roofgap		
				1.0023	0.240	0.07
Layer 5	0.50"					
Blk 1 R	1.6734	insuls		shingle		
				0.0472	0.300	1.00
Layer 6	5.50"					
Blk 1 R	18.4070	insuls		insuls		
				0.0249	0.190	1.15
Blk 2 R	7.2407	woods		woods		
				0.0633	0.275	27.00
Layer 7	0.50"					
Blk 1 R	0.4748	drywalls
I F R =	0.7650					

Figure 1.5 WALFERF Input for R-11 Floor Assembly

r11fr 0 0 1				(file name)
				(number of material descriptions)
				(conductance, specific heat,
				and density of materials)
18	.0669	.29	34.0	wood
5.	.0263	.20	1.15	insulation
.02	.24	.075	4.	airlayh 6.00"
	.34	2.0	16.	rugnpad
4	7.00	No. of layers	18.	
2	6.00	L-1		(no. of layers and total width)
16	6.25			(no. of blocks and thickness for L-1)
2	.75			(material and width)
2	3.50	L-2		(material and width)
4	6.25			(no. of blocks and thickness for L-2)
2	.75			(material and width)
1	.75	L-3		(material and width)
2	7.00			(no. of blocks and thickness for L-3)
1	.50	L-4		(material and width)
18	7.00			(no. of blocks and thickness for L-4)
	.760			(material and width)
				(inside film resistance)

Layer 1 6.00"
 B1k 1 R 0.1000 airlayh 6.00"
 B1k 2 R 7.4738 wood
 Layer 2 3.50"
 B1k 1 R11.0900 insulation
 B1k 2 R 4.3597 wood
 Layer 3 0.75"
 B1k 1 R 0.9342 wood
 Layer 4 0.50"
 B1k 1 R 2.0833 rugnpad
 I F R = 0.7600

	insulation	0.0263	0.200	1.15
	rugnpad	0.0200	0.340	2.00
	wood	0.0669	0.290	34.00
	airlayh	6.00"		0.07

difference heat conduction program (Underground Space Center 1983). It was used to simulate on a daily time step the dynamic behavior of a representative one-foot vertical cross-section of the foundation and surrounding soil extending 50 feet down and 30 feet out from the building (Figure 1.6). The boundary conditions, i.e., the assumed indoor, outdoor and deep ground temperatures, were kept identical as those used for the DOE-2 simulations. Deep ground temperatures were based on existing data on well temperatures (Labs 1981), indoor temperatures set to the zone temperature in the DOE-2.1C Loads calculation, and the average outdoor daily air temperatures calculated from the DOE-2 weather tapes. A three-year initialization period was necessary for the representative section to stabilize.

The USCUG simulations yield daily fluxes at each node of the finite difference grid for the representative section. These fluxes were then integrated over the "footprint" of the prototype foundation to produce a file of average hourly fluxes through the underground surfaces of the prototype buildings for each day of the year (Figure 1.7). During the DOE-2.1C simulation, these fluxes are read as a function in Loads, supplanting the standard DOE-2 underground flux calculation. Although the DOE-2 program was not used for calculating underground heat conduction, it was still necessary to model the underground layers as delayed walls to calculate response factors. These are used in DOE-2 to generate correct zone weighting factors for either the living space (in the case of the slab-on-grade), basement, or crawl-space. For the data base work, we have modeled the underground layers with the maximum amount of thermal mass allowable in DOE-2 to produce suitably "heavy" weighting factors for the zones.

Since the USCUG fluxes are calculated at an assumed constant indoor temperature corresponding to the DOE-2 Loads temperature, it was also necessary to calculate "U-effectives" for the underground surfaces which would be used in DOE-2 Systems simulation to correct the underground fluxes for variations in the indoor temperature. This flux correction is significant for

Figure 1.6 Foundation Cross-Section Modeled in the USCUG Finite Difference Program

Figure 1.7 Average Hourly Fluxes for Basement Foundations in Denver CO Calculated by the USCUG Program

unconditioned basements and crawl-spaces where the seasonal fluctuation in zone temperatures may be large. The "U-effectives" used in the modeling have been computed by regression analysis correlating the underground flux to the temperature differential between indoor and outdoor temperatures (Figure 1.8). This "U-effective" can be regarded as the steady-state U-value for an underground surface approximated as one-dimensional heat transfer from the space to the outside air. *

BUILDING PROTOTYPES

There are three building prototypes covered in the data base: detached one-story, attached two-story townhouse unit, and a low-rise two-story apartment module with an upper and lower unit. Table 1.1 gives the basic building dimensions. These are based on previous LBL prototypes (Huang et al. 1987, Turiel et al. 1986), except that the window area has been increased from 10% to 12% of floor area.

These prototype descriptions were chosen to represent typical current construction practices. Since the final data base is expressed as component loads normalized by U-value, floor area, or perimeter length, the dimensions in Table 1.1 should not critically affect the data, unless the surface-to-volume ratios for the prototype buildings are highly atypical. Previous sensitivity analysis of the voluntary energy guidelines data base have already indicated that, in residential buildings, component loads vary linearly with its physical dimension (Huang et al. 1985).†

* The Underground Space Center and LBL have expanded on this approach in later research done for a Foundation Design Handbook. An improved procedure was developed to account for heat flux to the deep ground, as well as long-term seasonal fluctuations in the "U-effective" term. This was done by iterative simulations using the USCUG and DOE-2 programs (Shen et al. 1987).

Figure 1.8 Regression Analysis of Steady-State U-values
for Basement Foundations in One-Story Prototype for Denver CO

Foundation measure	U-effective	Intercept
□ FM0 (uninsulated)	1.647	-3.87
● FM1 (R-5 4 ft.)	.814	-3.86
○ FM2 (R-10 4 ft.)	.654	-3.84
▲ FM3 (R-5 8 ft.)	.652	-3.66
× FM4 (R-10 8 ft.)	.438	-3.56

Table 1.1 Prototype Building Dimensions

Building Component	House Prototype		
	Detached One-story	Attached Townhouse	Apartment module (2 units)
Building floor area (ft ²)	1540.0	1200.0	2400.0
Building volume (ft ³)	12320.0	9600.0	19200.0
Roof area (ft ²)	1623.3	632.4	1264.9
Ceiling area (ft ²)	1540.0	600.0	1200.0
Gross wall area (ft ²)	1328.0	640.0	960.0
Net wall area	1123.7	476.5	634.0
Window area (ft ²)	184.8	144.0	288.0
Door area (ft ²)	19.5	19.5	39.0
Foundation floor area (ft ²)	1540.0	600.0	1200.0
Perimeter length (ft)	166.0	40.0	60.0

Although the surface areas and volumes of the three prototypes are based on the typical house designs shown in Section 3.1 of the voluntary energy guidelines technical report (Huang et al. 1987) and the LBL multi-family prototype report (Turiet et al. 1985), an average orientation was achieved for modeling purposes by apportioning the amounts of wall, roof, windows, and door equally in four cardinal directions. Similarly, average shading from two adjacent houses was approximated by modeling building shades with a 0.50 transmittance located 20 feet away on all four sides of the prototype houses. The intent of the simulation is to model a prototypical building under average, rather than typical, conditions. The non-directional orientation used here, while hardly typical, gives results that are averages of thousands of typical houses with various orientations.

+ Component load is defined as the net annual contribution of each building component to the heating or cooling loads of the building. See Section 2 of this report for more discussion of this concept.

BUILDING ENVELOPE

Insulation

All three prototype buildings were simulated with typical light-weight wood-frame construction, with sensitivity analyses done for heavy mass log and concrete block walls. The assumed ceiling, wall, and foundation construction assemblies are based on Section 3.3.1 of the voluntary energy guidelines technical support document, to which the reader should refer for more details.

Previous analysis of the voluntary energy guidelines data base showed that the relationship between the change in loads and in the steady-state U-value of ceilings and walls to be a smooth and nearly linear function (Huang et al. 1985). The approach taken in the current data base effort has been to simulate not all typical ceiling and wall assemblies, but only enough variations in assembly U-value to determine the function relating component loads to U-values. These regression functions were then used to calculate ceiling and wall component loads based on their U-values.

The WALFERF program was used to calculate response factors and steady-state U-values for typical ceiling and wall assemblies. These are listed in Table 1.2. DOE-2.1C simulations were done for four ceiling (R-0, 19, 38, and 49) and four light-frame wall assemblies (R-0, 11, 19, and 34). For ventilated crawl-space foundations, simulations were done for three floor assemblies (R-0, 11, and 30). Component loads for the intermediate assemblies were interpolated using the regression equations and U-values shown in Table 1.2. For the log and concrete block walls, DOE-2.1C simulations were done for all 15 wall assemblies listed in Table 1.2.

Three foundation types were modeled for every base city: slab-on-grade, heated and unheated basements, and ventilated

Table 1.2 Steady-state U-values for Building Components
calculated using the WALFERF program

Building Component	File name	U-values (Btu/hr.F.ft ²)		Film resistances	
		w/ film resist. *	w/o film resist.	Interior	Exterior
Ceilings					
R-0	r0roof	.247034	.321041	.76	.17
R-7	r7roof	.092780	.101803	.76	.17
R-11	r11roof	.068155	.072925	.76	.17
R-19	r19roof	.046033	.048181	.76	.17
R-22	r22roof	.038894	.040401	.76	.17
R-30	r30roof	.029325	.030173	.76	.17
R-38	r38roof	.023549	.024092	.76	.17
R-49	r49roof	.018460	.018792	.76	.17
R-60	r60roof	.015177	.015401	.76	.17
Walls					
R-0 wood-frame	r0rwall	.224129	.277502	.68	.17
R-7 " "	r7rwall	.105057	.115688	.68	.17
R-11 " "	r11rwall	.088104	.095496	.68	.17
R-13 " "	r13rwall	.069298	.073808	.68	.17
R-19 " "	r19rwall	.059977	.063331	.68	.17
R-27 " "	r27rwall	.042740	.044414	.68	.17
R-34 " "	r34rwall	.032154	.033093	.68	.17
4in. log wall	4log	.171422	.200619	.68	.17
6in. " "	6log	.120122	.133764	.68	.17
8in. " "	8log	.092455	.100330	.68	.17
10in. " "	10log	.075146	.080267	.68	.17
12in. " "	12log	.063296	.066891	.68	.17
R-0 95# conc block	r0cb95	.295528	.394517	.68	.17
R-5 " "	r5cb95	.135494	.153107	.68	.17
R-10 " "	r10cb95	.080731	.086672	.68	.17
R-15 " "	r15cb95	.057599	.060561	.68	.17
R-30 " "	r30cb95	.030883	.031714	.68	.17
R-0 120# conc block	r0cb120	.295527	.394516	.68	.17
R-5 " "	r5cb120	.135493	.153107	.68	.17
R-10 " "	r10cb120	.080731	.086672	.68	.17
R-15 " "	r15cb120	.057599	.060561	.68	.17
R-30 " "	r30cb120	.030883	.031714	.68	.17
Floors					
R-0	r0flr	.213667	.316359	.76	.76
R-11	r11flr	.069285	.077474	.76	.76
R-19	r19flr	.047067	.050711	.76	.76
R-30	r30flr	.032783	.034511	.76	.76
R-38	r38flr	.029522	.030917	.76	.76
R-49	r49flr	.020114	.020752	.76	.76

* U-value used for matrix interpolations and regressions

crawl-space. Heated basement refers to unconditioned basement with insulated basement walls, while unheated basements refers to basements with insulation under the floor of the living space. Fully conditioned basements were not considered. For non-foundation energy conservation options, simulations were done assuming the most prevalent foundation type for each location. These are listed on column 4 of Table 1.7 later in this report.

The assumed foundation configurations are described in Section 3.3.1 of the voluntary energy guidelines technical support document (Huang et al. 1987), to which the reader should refer for details. Five levels of insulation were considered for the slab-on-grade and heated basement foundations, and three for the unheated basement and crawl-space foundations. These are listed in Table 1.3.

Table 1.3. Foundation Insulation Levels

Floor measure code	Level of Insulation		
	Slab-on grade	Ventilated Crawl-space	Heated and unheated Basements
FM0	Uninsulated	Uninsulated	Uninsulated
FM1	R-5 2ft.	R-11 floor	R-5 4ft. bsmt wall (heated)
FM2	R-10 2ft.	R-19 floor *	R-10 4ft. bsmt wall (heated)
FM3	R-5 4ft.	R-30 floor	R-5 8 ft. bsmt wall (heated)
FM4	R-10 4ft.	R-49 floor *	R-10 8ft. bsmt wall (heated)
FM5			R-0 bsmt wall, R-11 floor (unheated)
FM6			R-0 bsmt wall, R-30 floor (unheated)

* not used in generating data base

The heat fluxes through foundation underground surfaces were simulated using the USCUG two-dimensional finite-difference model and stored onto a large file. The USCUG flux file was then read into the DOE-2 input as a function call in the Loads portion of that program (see sample DOE-2.1C input file in Appendix A).

The above-grade portion of the basement wall and the slab edge of the slab-on-grade have been included in the USCUG model to account for two-dimensional heat flows within the concrete and subsoil. Crawl-space walls, however, have been simulated as exterior walls using DOE-2.1C. To model the effects of ventilation, the crawl-space has been treated as a separate unconditioned zone with 1 ft² of vents per 30 ft. of perimeter. The ventilation air change rate was then modeled using the Sherman-Grimsrud model (Sherman et al. 1980).

Infiltration

The effects of infiltration on building heating and cooling loads have been simulated using the Sherman-Grimsrud model. This is a simplified physical model for air infiltration in residential buildings developed at LBL. "The only information necessary for the model is the geometry and leakage of the structure. The leakage quantities, expressed in terms of effective areas, are total leakage area and the leakage areas of the floor and ceiling. Weather parameters are mean wind speed, terrain class, and average temperature difference. The model separates the infiltration problem into two distinct parts: stack and wind-regimes. Each regime is treated separately; the transition between them is sharp. The model has been tested with data from several sites, differing in climate and construction methods." (Sherman et al. 1980).

Parametric simulations were made for each prototype building at three infiltration levels with fractional effective-leakage-areas of 0.0007, 0.0005, and 0.0003, (expressed as a fraction of the total floor area). These conditions can be regarded roughly as tight, average, and loose constructions. For all simulations, the buildings are assumed to be located in areas of low buildings and trees within 30 feet of the house in most directions. The corresponding inputs for the Sherman-Grimsrud model are : Shielding-coefficient = 0.19, Terrain-parameter 1 = 0.85, and

Terrain-parameter 2 = 0.20. Since the Sherman-Grimsrud model adjusts wind speeds for the height differential between the weather station and the local site, care has been taken to input the tower heights at which the wind speeds were taken. These may vary by month since the WYEC weather tapes used for the simulations are composed of monthly data taken from different years.

Window Characteristics

One of the primary objectives for the current data base effort was to develop more comprehensive coverage of various new glazing products and window designs. With the proliferation of new glazing products, notably low-emissivity coatings, the previous method of simulating typical single-, double-, and triple-pane windows has proven to be too restrictive and ambiguous.

As in the analysis of insulation measures, the approach used for the current data base is not to simulate all possible window conditions, but a wide range of glazing characteristics from which equations can be developed through multiple regression analysis that would relate window component loads to their physical properties, namely U-values and shading coefficients. Previous LBL research have demonstrated the versatility of this technique for analyzing the energy performance of windows in buildings (Johnson et al. 1983; Sullivan et al. 1985).

The use of shading coefficient to describe window solar gain is approximate, but the errors thereby introduced are tolerable, and more than offset by common understanding of this term, and the availability of such data from window manufacturers or research institutions. For example, the WINDOW 2.0 microcomputer program can be used to calculate shading coefficients for any glazing product given its glass optical properties and construction (Windows and Daylighting Group 1986).

For the data base, DOE-2 simulations were done for three levels of window U-value while keeping shading coefficient fixed

at 1.00, equivalent to clear single-pane windows (Table 1.4).

Table 1.4. Window U-values

Number of Panels	File name	U-values (Btu/hr.F.ft ²)		Outside film resistance
		w/outside film resistances *	w/o outside film resistances	
Single-pane	1-pane	1.100	1.353	.17
Double-pane	2-pane	0.490	0.535	.17
Multiple-pane	M-pane	0.098	0.100	.17

* corresponds to ASHRAE U-values, used for interpolations and regressions.

These first U-values correspond to the ASHRAE value for single-pane windows, the second to that for double-pane windows with 1/2 inch air gap, and the third to a super window more efficient than any currently available product. The three data points thus span the range of possible U-values to be found in window products in the foreseeable future.

To analyze the effect of solar gain through windows, four shading coefficients were considered: 1.00, 0.666, 0.333, and 0.000. The first two cover the range of shading coefficients found in clear glass windows, and the second and third that found in some reflective glazings. The last shading coefficient corresponds to a totally opaque window, which is useful for diagnostic purposes. In the shading coefficient sensitivities, the glass U-value was held constant at 0.49, equivalent to double-pane windows.

Table 1.5 is shown for reference. It gives shading coefficients for common glazing products calculated using the WINDOW 2.0 program. These shading coefficients can be used with the multiple regression results to interpolate window solar component loads.

Table 1.5. Shading Coefficients for Typical Glazing Products
calculated using the WINDOW 2.0 program

Glass Type	Number of panes	DOE-2 Glass Type Code	Shading Coefficient WINDOW 2.0	Adjusted *
Regular	1	1	1.038	1.000
	2	1	.944	.909
	3	1	.865	.833
Reflective	1	10	.370	.356
	2	10	.287	.276
	3	10	.262	.252
Heat Absorbing	1	6	.727	.700
	2	6	.609	.587
	3	6	.542	.522

* Shading coefficient is defined as the solar heat gain ratio relative to that for a reference glazing material, generally double-strength clear sheet glass at normal incidence (ASHRAE 1985). Due to slight differences in the assumed optical properties of clear glass compared to DOE-2.1, the WINDOW 2.0 program calculated a shading coefficient slightly higher than 1.00 for the base case single-pane glazing. In Column 4, these values have been adjusted to yield 1.00 for the base case.

BUILDING OPERATING CONDITIONS

The assumed building operating conditions are taken from Section 4.0 of the voluntary energy guidelines technical document, to which the reader is referred for more details. The following describes only those operating conditions that have been modified from the earlier voluntary energy guidelines data base.

1. The heating thermostat setting has been changed to 70° F all day, with no night setback.
2. The internal loads profile has been changed from that shown in Table 4.4b of the voluntary energy guidelines technical document to that developed by the California Energy Commission for their Title 24 Residential Energy Standards (Figure 1.9 and Table 1.6). The new profile shows an internal loads

Figure 1.5 Internal Loads Profile

Table 1.6 Internal Loads Schedule

Hour of day	Internal Load (Btu)	Hour of day	Internal Load (Btu)
1	1346	13	2525
2	1234	14	1683
3	1178	15	1571
4	1178	16	1739
5	1178	17	3198
6	1459	18	3591
7	2132	19	3591
8	3310	20	2917
9	3142	21	2805
10	3366	22	3086
11	3310	23	2469
12	2581	24	1515

peak in the evening due to cooking loads, plus a smaller peak at breakfast time. Although the new internal loads profile has not been validated, we believe it is more typical than the previous profile used by LBL, which showed the highest peak at 8 a.m., and a secondary peak at 11 p.m.

3. A time of day schedule has been added to the building ventilation that assumes occupants will not open windows for natural ventilation between 11 p.m. and 7 a.m. even if it is desirable to do so. If the windows are open at 11 p.m., they are assumed open through the night unless indoor temperatures drop below 70° F. Windows are assumed closed below that temperature to avoid picking up spurious heating loads. The venting algorithm has also been changed from a fixed air change rate to a variable rate calculated using the Sherman-Grimsrud residential infiltration model. It is assumed that opened windows have an "effective-leakage-area" only 30% of the total glazing area, due to obstructions and physical constraints that limit maximum openable area to half of the window area. *

* The natural ventilation algorithm is an enhancement to the DOE-2.1C program not available on the current public release version of DOE-2.1C. However, it will be included in future release versions.

BUILDING LOCATIONS

The base cities included in the data base are the 45 cities used for the voluntary energy guidelines data base. For this current work, however, simulations were done using WYEC (Weather Year for Energy Calculations) weather tapes (Crow 1981). These weather data are judged to be more reliable for estimating average annual energy consumptions than the TRY weather tapes used for the voluntary energy guidelines data base. For the 11 locations for which WYEC weather tapes were unavailable, TMY weather tapes were used (Table 1.7).*

* ARES uses climate data on hour-by-hour basis. Heating loads are calculated to a base temperature of 70°F; cooling loads are based to 78°F. No night-time thermostat setbacks are assumed.

Table 1.7 Building locations for residential data base

Building location	Weather tape		Prevalent foundation type
	WYEC	TMY	
1. Albuquerque NM	X		Slab
2. Atlanta GA	X		Slab
3. Birmingham AL	X		Slab
4. Bismarck ND	X		Basement
5. Boise ID	X		Basement
6. Boston MA	X		Basement
7. Brownsville TX	X		Slab
8. Buffalo NY		X	Basement
9. Burlington VT	X		Basement
10. Charleston SC	X		Crawl-space
11. Cheyenne WY	X		Basement
12. Chicago IL	X		Basement
13. Cincinnati OH		X	Basement
14. Denver CO	X		Basement
15. El Paso TX	X		Slab
16. Fort Worth TX	X		Slab
17. Fresno CA		X	Slab
18. Great Falls MO	X		Basement
19. Honolulu HA		X	Slab
20. Jacksonville FL		X	Slab
21. Juneau AK		X	Basement
22. Kansas City MO	X		Basement
23. Lake Charles LA	X		Slab
24. Las Vegas NV	X		Slab
25. Los Angeles CA	X		Slab
26. Medford OR	X		Crawl-space
27. Memphis TN		X	Slab
28. Miami FL	X		Slab
29. Minneapolis MN	X		Basement
30. Nashville TN	X		Slab
31. New York NY	X		Basement
32. Oklahoma City OK	X		Slab
33. Omaha NB	X		Basement
34. Philadelphia PA		X	Basement
35. Phoenix AZ	X		Slab
36. Pittsburgh PA	X		Basement
37. Portland ME	X		Basement
38. Portland OR	X		Crawl-space
39. Reno NV		X	Slab
40. Salt Lake City UT	X		Slab
41. San Antonio TX	X		Slab
42. San Diego CA		X	Slab
43. San Francisco CA		X	Slab
44. Seattle WA	X		Basement
45. Washington DC	X		Basement

ANALYSIS OF BUILDING HEATING AND COOLING LOADS

COMPONENT LOADS

The new residential data base utilizes the concept of component loads developed through previous analysis of the voluntary energy guidelines data base. Component loads are defined as the net annual contribution of each building component to the heating or cooling loads of the building (Huang et al. 1985). They are calculated in a two-step process. First, Δ loads are calculated for different conservation levels in each component (ceiling, wall, window, etc.) relative to an arbitrarily chosen base case. Regression analysis is then done correlating these Δ loads to key physical parameters associated with each building component. For insulation, the parameter used is the steady-state conductance of the ceiling, wall, foundation, or window; for infiltration, the parameter is the effective-leakage-area; and for window solar gain, the solar aperture (shading coefficient * window area).

At the y-intercept of the regression curve, the component load is assumed to be zero. This corresponds to zero conductance for insulation, zero leakage-area for infiltration, and zero solar aperture for the solar gain measures. The component loads for the simulated cases are thus only a function of the regression curve :

$$\text{Component Load}_{\text{ceilings,walls,floors}} = f(\text{conductance}) \quad [1]$$

$$\text{Component Load}_{\text{infiltration}} = f(\text{effective-leakage-area}) \quad [2]$$

$$\text{Component Load}_{\text{solar gain}} = f(\text{solar aperture}) \quad [3]$$

The component loads thus calculated can be used to estimate the total loads for variations of the prototype house :

$$\begin{aligned} \text{Total Load} = & [(\text{Component Load}_{\text{ceiling}} * UA_{\text{ceiling}}) \\ & + (\text{Component Load}_{\text{wall}} * UA_{\text{wall}})] \end{aligned} \quad [4]$$

$$\begin{aligned}
 & +(\text{Component Load}_{\text{window}} * UA_{\text{window}}) \\
 & +(\text{Component Load}_{\text{solar gain}} * \text{Window solar aperture}) \\
 & +(\text{Component Load}_{\text{foundation}} * UA_{\text{foundation}}) \\
 & +(\text{Component Load}_{\text{infiltration}} * \text{Effect. leakage-area}) \\
 & +\text{Residual Load}
 \end{aligned}$$

The residual load is the difference between the total loads computed by this method and those from a DOE-2 simulation. They represent the net effect of internal loads and interactions not included in the component regression analyses.

To calculate Δ loads for insulation measures, 30 DOE-2 simulations were done for each prototype building in the 45 locations. Table 2.1 describes the thermal characteristics of the house for each parametric simulation. The arrows on the table indicate which simulations were used to derive Δ loads for successive insulation levels. These simulations are identical except for the change in insulation level in a single component. Cumulative Δ loads are derived by summing successive Δ loads, and are actually composite values that assume all building components are thermally tightened in unison. For example, the Δ load from R-0 to R-38 ceiling is the sum of the Δ load from R-0 to R-19 ceiling on a loose uninsulated house, plus the Δ load from R-19 to R-38 ceiling on a moderately insulated house. This procedure produces Δ loads that are most representative of typical construction practices.

CEILING AND WALL MEASURES

The data base includes Δ loads for the following ceiling and wall insulation measures : R-0, R-19, R-38, and R-60 ceilings, and R-0, R-11, R-19, and R-34 light-frame walls. A quadratic curve fit was developed through regression analysis, using the U-value of the ceiling or wall as the independent variable, and its area as a scalar:

Table 2.1 List of DOE-2.1C Runs for Parametric
Analysis of Insulation Measures

(↓'s indicate runs used to derive loads for incremental measures)

Option code	No. of runs	Ceiling R-value	Wall R-value	Foundation measures *			Effect. leak. frac.	Window U-value
				Slab	Basement	Crawl		
A00	1	R-0 ↓	R-0	FM0 prevalent found.			.0007	1.10
C00	1	R-19 ↓	R-0 ↓	FM0 prevalent found.			.0007	1.10
D00	1	R-19	R-11 ↓	FM0 prevalent found.			.0007 ↓	1.10
D01	3	R-19	R-11	FM0 ↓	FM0 ↓	FM0 ↓	.0005 ↓	1.10
E01	3	R-19	R-11	FM1 ↓	FM1 ↓	FM1 ↓	.0005	1.10 ↓
F02	1	R-19 ↓	R-11	FM1 prevalent found.			.0005	0.49 ↓
H09	1	R-38 ↓	R-11 ↓	FM1 prevalent found.			.0005	0.49
I06	3	R-38	R-19 ↓	FM1 ↓	FM1 ↓	FM1 ↓	.0005	0.49
J01	3	R-38	R-19	FM2 ↓	FM2 ↓	FM2 ↓	.0005	0.49
M02	1	R-38	R-19		FM5 ↓		.0005	0.49
N09	1	R-38	R-19		FM6 ↓		.0005	0.49
J51	1	R-38 ↓	R-19	FM2 prevalent found.			.0003 ↓	0.49
L60	1	R-60 ↓	R-19 ↓	FM2 prevalent found.			.0003	0.49
N55	3	R-60	R-34 ↓	FM2 ↓	FM2 ↓	FM2 ↓	.0003	0.49
O54	2	R-60	R-34	FM3 ↓	FM3 ↓	FM3 ↓	.0003	0.49
P53	3	R-60	R-34	FM4 ↓	FM4 ↓	FM4 ↓	.0003	0.49 ↓
Q52	1	R-60	R-34	FM4 prevalent found.			.0003	0.10 ↓

Total = 30 runs

* prevalent foundation based on NAHB survey of foundation types in each city and listed in Table 1.6; for explanation of foundation code see Table 1.3.

$$\text{Component Load} = A * (U * \text{Coef}_{\text{linear}} + U^2 * \text{Coef}_{\text{quadratic}}) \quad [5]$$

Sample regression plots for four cities are shown in Figures 2.1 through 2.4.

The computed and interpolated total Δ loads, and component loads per ft^2 , are shown on the tables in Section 3.A. The regression coefficients used for the interpolated values are listed on the tables directly below the Δ and component loads. "Slope" is the linear coefficient and in units of degree-days. "Curve" is the quadratic coefficient and in units of $(\text{degree-day})^2\text{-ft}^2/\text{Btu}$. The total component load of the ceiling or wall can be calculated as follows:

$$\text{Component Load (Btu)} = A * (U * \text{Slope} * 24 + U^2 * \text{Curve} * 576) \quad [6]$$

For example, for ceiling heating loads in Albuquerque the table in Section 3.A gives a "slope" of 4468.29 deg-days, and a "curve" of -111.14 $(\text{degree-day})^2\text{-ft}^2/\text{Btu}$. Since the U-value of a R-0 ceiling is .24703, the component heating load for an uninsulated ceiling in a 1540 ft^2 house would be :

$$\begin{aligned} &1540 * (.24703 * 4468.29 * 24 - .06102 * 111.14 * 576) \text{ Btu} \quad [7] \\ \text{or} &40.797 - 6.016 \text{ MBtu} = 34.781 \text{ MBtu} \end{aligned}$$

To analyze the effect of mass walls on energy use, simulations were done in the one-story prototype for five thicknesses of log walls (4, 6, 8, 10, and 12 inches), and five levels of interior insulation (R-0, R-5, R-10, R-15, R-30) in both 95 lb. and 120 lb. concrete block walls. For log and concrete block walls with less than R-10 insulation, the house was simulated with R-19 ceiling, R-11 wall, uninsulated foundation, single-pane windows, and 0.0005 effective-leakage-fraction. For concrete block walls above R-10, the house was simulated with R-38 ceiling, R-19 wall, and R-10 foundation insulation, double-pane windows, and 0.0005 effective-leakage-fraction. Mass walls with exterior insulation were not simulated.

Figure 2.1 Correlations of Δ Ceiling Heating Loads to U-values

Figure 2.2 Correlations of Δ Ceiling Cooling Loads to U-values

Figure 2.3 Correlations of Δ Wall Heating Loads to U-values

Figure 2.4 Correlations of Δ Wall Cooling Loads to U-values

A quadratic curve fit was derived through regression analysis, using the steady-state U-value of the mass wall as the independent variable, and the wall area as a scalar. In addition to the two regression coefficients, an intercept was also calculated for the Δ load in KBtu/ft² from a light-frame wall to the uninsulated mass wall. The following equation defines the component load for a mass wall :

$$\begin{aligned} \text{Component Load (Btu)} = & \text{Area} * (\text{U*Slope}*24 + \text{U}^2*\text{Curve}*576) [8] \\ & + \text{Area} * \text{Intercept} * 10^3 \end{aligned}$$

Two typical regression plots are shown in Figures 2.5 through 2.8. These indicate the Δ loads between light-frame and mass walls of the same steady-state U-value, as well as the non-linearity in cooling Δ loads compared to U-values for mass walls in cities with large daily temperature swings such as Fresno.

The Δ and component loads and regression coefficients for the three mass wall types are presented in Section 3.B. The format of the tables are identical to those in Section 3.A and explained earlier in this section.

Figure 2.5 Correlation of Δ Heating Loads to U-values for Mass Walls for Fresno CA

Figure 2.6 Correlation of Δ Cooling Loads to U-values for Mass Walls for Fresno CA

- Wood-frame R-34,19,11,0
- 95lb ConcBlock R-30,15,10,5,0
- 120lb ConcBlock R-30,15,10,5,0
- Log 12,10,8,6,4 in

Figure 2.7 Correlation of Δ Heating Loads to U-values for Mass Walls for Buffalo NY

Figure 2.8 Correlation of Δ Cooling Loads to U-values for Mass Walls for Miami FL

- Wood-frame R-34,19,11,0
- 95lb ConcBlock R-30,15,10,5,0
- 120lb ConcBlock R-30,15,10,5,0
- Log 12,10,8,6,4 in

FOUNDATION INSULATION MEASURES

The data base includes simulation results for five insulation levels in the slab-on-grade (uninsulated, R-5 extending down 2 ft. and 4 ft., and R-10 extending down 2 ft. and 4 ft.), and the heated basement (uninsulated, R-5 extending down 4 ft. and 8 ft., and R-10 extending down 4 ft. and 8 ft.), three in the unheated basement (uninsulated, R-11, and R-30 under the floor), and four in the vented crawl-space foundation (uninsulated, R-11, R-19, and R-38 under the floor).

For the slab and heated basement conservation measures, quadratic curve fits were derived through regression analyses, using steady-state "U-effectives" from the USCUG model as the independent variable and the perimeter length as a scalar. These correlations are approximate due to the complex heat flow paths and thermal storage effects of the foundation and subsoil (Figures 2.9 through 2.12). As a result, we did not use the quadratic coefficients in the data base, but stored instead the component loads for each individual measure, normalized by the perimeter length of the prototype buildings. These appear on the tables in Section 3.A in units of KBtu's per perimeter foot. The regressions, however, were needed to determine the y-intercept when the "U-effective" is 0. At this condition, the foundation component load was assumed to be zero.

For under-floor insulation measures in the unheated basement and crawl space foundations, quadratic curve fits were derived through regression analyses, using the floor U-value as the independent variable and the floor area as a scalar (Figures 2.13 to 2.16). Although the Δ loads are nonlinear due to interactions between the conditioned space and the basement or crawl space, they vary monotonically with floor U-value and can be reduced to regression coefficients. Equation 6 is used to estimate component loads for these foundation measures from the coefficients. The Δ and component loads and regression coefficients are given in Section 3.A in the same format as for ceilings and walls.

Figure 2.9 Correlation of Δ Slab Foundation Heating Loads to Effective U-values

Figure 2.10 Correlation of Δ Slab Foundation Cooling Loads to Effective U-values

Figure 2.11 Correlation of Δ Heated Basement Heating Loads to Effective U-values

Figure 2.12 Correlation of Δ Heated Basement Cooling Loads to Effective U-values

Figure 2.13 Correlation of Δ Unheated Basement Heating Loads to Effective U-values

Figure 2.14 Correlation of Δ Unheated Basement Cooling Loads to Effective U-values

Figure 2.15 Correlation of Δ Crawl Foundation Heating Loads to Floor U-values

Figure 2.16 Correlation of Δ Crawl Foundation Cooling Loads to Floor U-values

The differences in energy use between building foundation type is indicated by the "intercepts" in Section 3.A. These are given relative to the prevailing foundation type in each location (Table 1-7) and in units of KBtu's per perimeter feet for the slab and heated basement and per ft² of floor area for the unheated basement and crawl space foundations. These can be regarded as Δ loads not accounted for by the calculated building k-value.

INFILTRATION

The data base includes simulation results for the following three levels of infiltration : 0.0007, 0.0005, and 0.0003 effective-leakage-fractions (ELF). A quadratic curve fit was computed through regression analysis, using .001 ELF of the house as the independent variable, and the floor area as a scalar:

$$\text{Comp. Load (KBtu)} = \text{Area} * (\text{ELF} * 10^3 * \text{Slope} + \text{ELF}^2 * 10^6 * \text{Curve}) [9]$$

Sample plots of these regressions for four cities are shown in Figures 2.17 through 2.18. A function has also been added to the DOE-2.1C input to calculate the average infiltration air change rate for the three effective-leakage-fractions for each location and prototype.

The tables in Section 3 give the total Δ loads and component loads per ft² of floor due to infiltration, and the coefficients from the regression analyses. "Slope" is the linear regression coefficient in units of KBtu per .001 ELF, "Curve" is the quadratic coefficient in units of KBtu per (.001 ELF)².

The numbers in parenthesis next to the effective-leakage-fractions are the corresponding average yearly infiltration rates in ach (air changes/hour). As shown in Figure 2.19, these are location-specific, but linearly dependent on effective-leakage-fraction within a particular location.

Figure 2.17 Correlation of Δ Infiltration Heating Loads to Effective-leakage-fractions

Figure 2.18 Correlation of Δ Infiltration Cooling Loads to Effective-leakage-fractions

Figure 2.19 Correlation of Average Winter Air-change Rates to Effective Leakage-Fractions

WINDOWS

To analyze the impact on building loads due to changes in window U-value, three simulations were done for each prototype house and base city for 12% equally distributed windows with a constant shading coefficient of 1.00, and window U-values of 1.10, 0.49, and 0.10 (see Table 1.4). The assumed thermal integrity for the rest of the building is indicated in Table 2.1. Quadratic regressions were done, using the U-value of the window as the independent variable, and its area as a scalar:

$$\text{Comp. Load (Btu)} = \text{Area} * (U_{\text{wind}} * \text{Slope} * 24 + U_{\text{wind}}^2 * \text{Curve} * 576) [10]$$

Sample regression plots for four cities are shown in Figures 2.20 and 2.21. The Δ and component loads for window conduction per ft² are shown under "Window U-value" on the tables in Section 3.A. The loads for triple-pane windows are interpolated between double-pane and the R-10 multiple-pane windows. These loads are only for conductive losses and do not include the effects of solar gain through windows.

To analyze the impact on building loads due to variations in window solar gain, a set of 52 parametric simulations were designed for the one-story prototype in each base city (Table 2.2). Twelve of these simulations cover shading coefficients of 1.000, 0.667, 0.333, and 0.000 for 8%, 12%, and 20% window areas (of floor area) equally distributed in four cardinal orientations. Forty simulations cover various window configurations ranging from 1% to 14% glazing area in one orientation, and from 8% to 20% total glazing area.

Analysis of the sensitivity results indicated that a quadratic multi-variant regression equation using five independent parameters produced reliable correlations with R²'s typically above .999 for heating, and .997 for cooling loads, except for locations with insignificant loads. Tables 2.3 and 2.4 show sample regression results for heating loads in Albuquerque and

Figure 2.20 Correlation of Δ Window Conduction Heating Loads to Window U-values

Figure 2.21 Correlation of Δ Window Conduction Cooling Loads to Window U-values

Table 2.2 Parametric Analysis of Window Solar Gain Conditions
 (* = short parametric set done for 34 cities)

Run code	Shad. Coef.	Window/Floor Ratio (%)				Total
		North	South	East	West	
Shading coefficient simulations						
1 A north	1.000	2.00	2.00	2.00	2.00	8.00 *
2 A north	1.000	3.00	3.00	3.00	3.00	12.00 *
3 A north	1.000	5.00	5.00	5.00	5.00	20.00 *
1 B north	0.666	2.00	2.00	2.00	2.00	8.00 *
2 B north	0.666	3.00	3.00	3.00	3.00	12.00 *
3 B north	0.666	5.00	5.00	5.00	5.00	20.00
1 C north	0.333	2.00	2.00	2.00	2.00	8.00
2 C north	0.333	3.00	3.00	3.00	3.00	12.00 *
3 C north	0.333	5.00	5.00	5.00	5.00	20.00
1 D north	0.000	2.00	2.00	2.00	2.00	8.00 *
2 D north	0.000	3.00	3.00	3.00	3.00	12.00
3 D north	0.000	5.00	5.00	5.00	5.00	20.00 *
Window orientation simulations						
4 A north	1.000	0.00	2.67	2.67	2.67	8.00
5 A north	1.000	4.00	1.33	1.33	1.33	8.00 *
6 A north	1.000	4.00	0.00	4.00	0.00	8.00
7 A north	1.000	0.00	4.00	4.00	4.00	12.00 *
8 A north	1.000	6.00	2.00	2.00	2.00	12.00
9 A north	1.000	6.00	0.00	6.00	0.00	12.00
10 A north	1.000	1.00	6.33	6.33	6.33	20.00
11 A north	1.000	9.00	3.67	3.67	3.67	20.00
12 A north	1.000	9.00	1.00	9.00	1.00	20.00
13 A north	1.000	14.00	2.00	2.00	2.00	20.00
4 A south	1.000	2.67	2.67	0.00	2.67	8.00
5 A south	1.000	1.33	1.33	4.00	1.33	8.00 *
6 A south	1.000	4.00	0.00	4.00	0.00	8.00
7 A south	1.000	4.00	4.00	0.00	4.00	12.00 *
8 A south	1.000	2.00	2.00	6.00	2.00	12.00 *
9 A south	1.000	6.00	0.00	6.00	0.00	12.00
10 A south	1.000	6.33	6.33	1.00	6.33	20.00
11 A south	1.000	3.67	3.67	9.00	3.67	20.00
12 A south	1.000	9.00	1.00	9.00	1.00	20.00 *
13 A south	1.000	2.00	2.00	14.00	2.00	20.00 *
4 A east	1.000	2.67	2.67	2.67	0.00	8.00
5 A east	1.000	1.33	1.33	1.33	4.00	8.00 *
6 A east	1.000	0.00	4.00	0.00	4.00	8.00
7 A east	1.000	4.00	4.00	4.00	0.00	12.00 *
8 A east	1.000	2.00	2.00	2.00	6.00	12.00 *
9 A east	1.000	0.00	6.00	0.00	6.00	12.00
10 A east	1.000	6.33	6.33	6.33	1.00	20.00
11 A east	1.000	3.67	3.67	3.67	9.00	20.00
12 A east	1.000	1.00	9.00	1.00	9.00	20.00 *
13 A east	1.000	2.00	2.00	2.00	14.00	20.00 *
4 A west	1.000	2.67	0.00	2.67	2.67	8.00
5 A west	1.000	1.33	4.00	1.33	1.33	8.00 *
6 A west	1.000	0.00	4.00	0.00	4.00	8.00
7 A west	1.000	4.00	0.00	4.00	4.00	12.00 *
8 A west	1.000	2.00	6.00	2.00	2.00	12.00 *
9 A west	1.000	0.00	6.00	0.00	6.00	12.00
10 A west	1.000	6.33	1.00	6.33	6.33	20.00
11 A west	1.000	3.67	9.00	3.67	3.67	20.00
12 A west	1.000	1.00	9.00	1.00	9.00	20.00 *
13 A west	1.000	2.00	14.00	2.00	2.00	20.00 *

cooling loads in Phoenix. Because of the high reliability of this regression technique, the full set of 52 simulations were done for only 11 cities, and an abbreviated set of 25 done for the remaining 34 cities. *

The regression methodology reduces the DOE-2 test results to five coefficients, four related to the window solar aperture (shading coefficient * area) in each orientation, and one to the total solar gain into the house.

$$A = \sum_{i=1}^4 \text{Alpha}_i * (\text{area}_i * \text{shading coefficient}_i) \quad [11]$$

$$\text{Load}_{\text{window solar}} = A * (\text{Beta} * A + 1) + \text{Load 0 solar aperture}$$

The first term (A) is the total solar gain into the house. The second term (Beta*A + 1) is the "solar usability" expressed as a linear function of the total solar gain (A) and relative to 1 for a house with zero solar aperture. The linear relationship between usability and solar gain is based on analysis of test simulations that indicate dload/dsolar aperture of houses with equally distributed windows is roughly linear to the total solar aperture (Figure 2.22).

The "solar usability" term is not needed for estimating cooling loads, since a simple multi-linear regression produces good correlations to the DOE-2 Δ loads for changes in window orientation and shading coefficient (compare Figure 2.23 to Figure 2.24). For heating, however, Δ loads due to increased solar gain varies with the total amount of solar gain entering the house. As the solar gain increases, its usability decreases since increasing amounts are vented or occur on days when the house has no heating load. As a result, a simple multi-linear correlation

* The 11 cities correspond to the Window Sensitivity Base Cities selected out the 45 for the voluntary guidelines data base (see Section 5.5 of Huang et al. 1987). The cities are: Albuquerque, Atlanta, Chicago, Denver, Lake Charles, Miami, Minneapolis, New York, Phoenix, San Francisco, and Seattle.

Table 2.3 Window Regression Analysis for Denver Heating Loads

Denver CO	Shad	Heating Window area (sq.ft.)				Del Load Predicted	
Total	Coef	North	East	South	West	(MBtu)	(MBtu)
8.00%	1.000	30.8	30.8	30.8	30.8	-12.697	-12.574
12.00%	1.000	46.2	46.2	46.2	46.2	-17.690	-17.605
20.00%	1.000	77.0	77.0	77.0	77.0	-25.547	-25.259
8.00%	.666	30.8	30.8	30.8	30.8	-8.837	-8.766
12.00%	.666	46.2	46.2	46.2	46.2	-12.620	-12.563
20.00%	.666	77.0	77.0	77.0	77.0	-19.277	-19.089
8.00%	.333	30.8	30.8	30.8	30.8	-4.587	-4.613
12.00%	.333	46.2	46.2	46.2	46.2	-6.700	-6.734
20.00%	.333	77.0	77.0	77.0	77.0	-10.667	-10.709
8.00%	.000	30.8	30.8	30.8	30.8	-.037	-.105
12.00%	.000	46.2	46.2	46.2	46.2	.000	-.105
20.00%	.000	77.0	77.0	77.0	77.0	-.037	-.105
8.00%	1.000	.0	41.1	41.1	41.1	-14.697	-14.554
6.00%	1.000	61.6	20.5	20.5	20.5	-10.557	-10.481
8.00%	1.000	61.6	.0	61.6	.0	-13.077	-13.375
12.00%	1.000	.0	61.6	61.6	61.6	-20.150	-20.082
12.00%	1.000	92.4	30.8	30.8	30.8	-14.920	-14.875
12.00%	1.000	92.4	.0	92.4	.0	-18.280	-18.620
20.00%	1.000	15.4	97.5	97.5	97.5	-27.657	-27.301
20.00%	1.000	138.6	56.5	56.5	56.5	-22.937	-22.766
20.00%	1.000	138.6	15.4	138.6	15.4	-26.137	-26.125
20.00%	1.000	215.6	30.8	30.8	30.8	-18.987	-19.015
8.00%	1.000	41.1	41.1	.0	41.1	-10.187	-9.908
8.00%	1.000	20.5	20.5	61.6	20.5	-15.007	-15.060
12.00%	1.000	61.6	61.6	.0	61.6	-14.180	-14.108
12.00%	1.000	30.8	30.8	92.4	30.8	-20.630	-20.695
20.00%	1.000	97.5	97.5	15.4	97.5	-21.857	-22.029
20.00%	1.000	56.5	56.5	138.6	56.5	-28.027	-27.766
20.00%	1.000	30.8	30.8	215.6	30.8	-29.707	-29.885
6.00%	1.000	41.1	.0	41.1	41.1	-12.527	-12.625
8.00%	1.000	20.5	61.6	20.5	20.5	-12.667	-12.523
9.00%	1.000	.0	61.6	.0	61.6	-12.027	-11.755
12.00%	1.000	61.6	.0	61.6	61.6	-17.460	-17.670
12.00%	1.000	30.8	92.4	30.8	30.8	-17.500	-17.540
12.00%	1.000	.0	92.4	.0	92.4	-16.430	-16.550
20.00%	1.000	97.5	15.4	97.5	97.5	-25.337	-25.315
20.00%	1.000	56.5	138.6	56.5	56.5	-25.207	-25.202
20.00%	1.000	15.4	138.6	15.4	138.6	-24.017	-24.321
20.00%	1.000	30.8	215.6	30.8	30.8	-24.587	-25.130
8.00%	1.000	41.1	41.1	41.1	.0	-13.057	-13.060
8.00%	1.000	20.5	20.5	20.5	61.6	-12.217	-12.082
12.00%	1.000	61.6	61.6	61.6	.0	-18.190	-18.223
12.00%	1.000	30.8	30.8	30.8	92.4	-16.930	-16.973
20.00%	1.000	97.5	97.5	97.5	15.4	-26.047	-25.790
20.00%	1.000	56.5	56.5	56.5	138.6	-24.767	-24.701
20.00%	1.000	30.8	30.8	30.8	215.6	-23.657	-23.968
Alphas(KBtu/sf)		-50.000	-112.636	-195.523	-98.823	Beta= .00810 Inter= -.10450	
Fsumsq= 1.5273		Ifail= .0		Flag=			
Rsq= .999406		RMsq= .999332		Standard Error (MBtu) = .182212			

Table 2.4 Window Regression Analysis for Phoenix Cooling Loads

Phoenix AZ		Cooling Window area (sq.ft.)				Del Load Predicted	
Total	Shad Coef	North	East	South	West	(MBtu)	(MBtu)
0.00%	1.0000	37.3	30.8	30.8	30.8	2.253	8.190
12.00%	1.0000	46.2	46.2	46.2	46.2	13.040	12.410
20.00%	1.0000	77.0	77.0	77.0	77.0	20.753	21.139
0.00%	.666	30.8	30.8	30.8	30.8	5.323	5.429
17.00%	.666	46.2	46.2	46.2	46.2	8.120	8.181
20.00%	.666	77.0	77.0	77.0	77.0	13.423	13.618
0.00%	.333	30.8	30.8	30.8	30.8	2.663	2.667
12.00%	.333	46.2	46.2	46.2	46.2	3.970	4.034
20.00%	.333	77.0	77.0	77.0	77.0	6.513	6.791
0.00%	.000	30.8	30.8	30.8	30.8	.003	-.044
12.00%	.000	46.2	46.2	46.2	46.2	.000	-.044
20.00%	.000	77.0	77.0	77.0	77.0	.003	-.044
0.00%	1.000	.0	41.1	41.1	41.1	9.403	9.522
8.00%	1.000	61.6	20.5	20.5	20.5	7.083	6.855
8.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
10.00%	1.000	.0	61.6	61.6	61.6	14.130	14.459
12.00%	1.000	92.4	30.8	30.8	30.8	12.670	10.378
12.00%	1.000	92.4	.0	92.4	.0	9.290	9.542
20.00%	1.000	15.4	97.5	97.5	97.5	23.363	23.882
20.00%	1.000	138.6	56.5	56.5	56.5	18.253	18.764
20.00%	1.000	138.6	15.4	108.6	15.4	17.053	17.117
20.00%	1.000	215.6	30.8	30.8	30.8	15.363	14.810
0.00%	1.000	41.1	41.1	.0	41.1	8.523	8.112
8.00%	1.000	20.5	20.5	61.6	20.5	8.003	8.267
8.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
12.00%	1.000	61.6	61.6	.0	61.6	12.710	12.292
12.00%	1.000	30.8	30.8	92.4	30.8	12.070	12.538
12.00%	1.000	92.4	.0	92.4	.0	9.290	9.542
20.00%	1.000	97.5	97.5	15.4	97.5	20.903	20.896
20.00%	1.000	56.5	56.5	138.6	56.5	20.873	21.221
20.00%	1.000	138.6	15.4	138.6	15.4	17.053	17.117
20.00%	1.000	30.8	30.8	215.6	30.8	23.023	21.424
0.00%	1.000	41.1	41.1	41.1	.0	7.443	7.438
0.00%	1.000	20.5	20.5	20.5	61.6	9.023	8.944
0.00%	1.000	.0	61.6	.0	61.6	10.363	10.088
12.00%	1.000	61.6	61.6	61.6	.0	11.190	11.235
12.00%	1.000	30.8	30.8	30.8	92.4	13.570	13.561
12.00%	1.000	.0	92.4	.0	92.4	15.500	15.310
20.00%	1.000	97.5	97.5	97.5	15.4	19.193	19.483
20.00%	1.000	56.5	56.5	56.5	138.6	22.353	22.643
20.00%	1.000	15.4	138.6	15.4	138.6	24.723	25.057
20.00%	1.000	30.8	30.8	30.8	215.6	25.283	24.636
0.00%	1.000	41.1	.0	41.1	41.1	7.623	7.682
0.00%	1.000	20.5	61.6	20.5	20.5	8.873	8.698
0.00%	1.000	.0	61.6	.0	61.6	10.363	10.098
12.00%	1.000	61.6	.0	61.6	61.6	11.490	11.637
12.00%	1.000	30.8	92.4	30.8	30.8	13.300	13.186
12.00%	1.000	.0	92.4	.0	92.4	15.500	15.310
20.00%	1.000	97.5	15.4	97.5	97.5	19.833	19.994
20.00%	1.000	56.5	138.6	56.5	56.5	21.772	22.127
20.00%	1.000	15.4	138.6	15.4	138.6	24.703	25.057
20.00%	1.000	30.8	215.6	30.8	30.8	24.113	23.469
Alpha s (KBtu/sf)		34.200	77.679	67.536	83.439	Beta= .00211	Inter= -.04413
Fsumsq= 6.4316		Ifail= 5		Flag=****			
Rsq = .997369		RMsq = .997083		Standard Error (MBtu) = .351603			

Figure 2.22 $d(\text{Load})/d(\text{Solar Aperture})$ as a Function of Total Solar Aperture in Albuquerque NM

Figure 2.23 Multi-linear Correlation of Δ Cooling Loads to Solar Aperture in Phoenix

Figure 2.24 Correlation of Δ Heating Loads to Solar Aperture * Solar Usability in Phoenix

to the one in Figure 2.23 produces significant scatter with a standard error of 0.7MBtu in Albuquerque (Figure 2.25). Adding the "solar usability" term estimated as a linear function of total solar gain improves the regression and reduces the standard error to 0.12MBtu (Figure 2.26).

The window solar gain coefficients are listed in the tables in Section 3.B below the mass wall regression results. The units for the four Alphas are KBtu/ft², while the Beta relative "solar usability" term is dimensionless. An intercept from the regression is also shown, but was not used in the data base. The coefficients can be used with Equation 11 to calculate the solar gain component load for different window configurations.

Figure 2.25 Multi-linear Correlation of Δ Heating Loads to Solar Aperture in Albuquerque

Figure 2.26 Correlation of Δ Heating Loads to Solar Aperture * Solar Usability in Albuquerque

RESULTS

TABLES FOR INSULATION AND INFILTRATION MEASURES

Section 3.A contain tables of insulation and infiltration measures for the three prototype buildings in 45 base locations. For each conservation measure, the tables show the total Δ load for the prototype house in MBtu, and the component load in KBtu normalized by ft^2 for ceiling, wall, window, and floor insulation measures, by perimeter ft. for foundation perimeter insulation measures, and by ft^2 of floor area for infiltration measures. For the foundation measures, the Δ loads are relative to the foundation type with the highest load, generally the crawl space, while the component loads are relative to the regression intercept for the most prevalent foundation type in each location as listed in Table 1.7.

Following the Δ and component loads, the tables give the two regression coefficients. The linear coefficients are listed as "Slope", and the quadratic coefficients as "Curve". As described in Section 2.A, the component loads are assumed to be zero at zero U-value for insulation measures and zero leakage area for infiltration measures. Therefore, the intercepts are always zero except for the foundation measures. For foundations, the intercepts indicate Δ loads between foundation types unrelated to building conductance. These are given relative to the prevalent foundation type and in units of KBtu/ft for slabs and heated basements, and KBtu/ ft^2 for unheated basements and crawl-spaces.

At the bottom are listed the Base, Typical, and Residual Loads. The Base Load is the total building load for a worst case building with no insulation, 0.007 effective-leakage-fraction, and the foundation type with the highest load, generally crawl space. It is the reference condition from which the Δ loads are calculated. To estimate the total loads for a prototype house in other configurations, subtract the Δ loads for the appropriate conservation levels from the base load. In addition to the

loads in this section, the Δ loads for various mass walls and window solar effects in Section 3.B must also be included. For the Base Load, the windows are assumed to be single-pane of average orientation with a shading coefficient of 1.00.

The Typical Load is the total building load for an house of average thermal integrity in each location. This figure is not used in the data base and included only for reference.

The Residual Load is explained in Section 2.A, and corresponds to the difference from the DOE-2 data and the sum of the component loads calculated through the regression analyses. To estimate the total loads for a particular house configuration using the component loads approach, multiply the component loads by the normalization (i.g., square feet of ceiling, perimeter feet of slab edge, etc.), and then sum the results, including the residual load. Alternatively, the regression coefficients can be used as explained in Section 2.A.

Albuquerque NM WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	22.58	R-0	.00	19.81	R-0	.00	10.22	R-0	.00	4.18
R-7	-21.01	8.94	R-7	-11.65	9.44	R-7	-9.44	4.09	R-7	-2.28	2.14
R-11	-24.37	6.76	R-11	-13.31	7.98	R-11	-10.95	3.11	R-11	-2.61	1.85
R-19	-27.38	4.81	R-13	-15.32	6.18	R-19	-12.30	2.23	R-13	-3.09	1.43
R-22	-28.52	4.07	R-19	-16.31	5.29	R-22	-12.82	1.89	R-19	-3.33	1.21
R-30	-30.05	3.07	R-27	-17.95	3.84	R-30	-13.53	1.44	R-27	-3.68	.90
R-38	-30.97	2.47	R-34	-18.95	2.95	R-38	-13.95	1.16	R-34	-3.89	.71
R-49	-31.77	1.96				R-49	-14.33	.91			
R-60	-32.28	1.62				R-60	-14.58	.75			
Slope(DD)	4468.29		Slope(DD)	3773.11		Slope(DD)	2089.63		Slope(DD)	916.75	
Curve(DDS)	-111.142		Curve(DDS)	-16.709		Curve(DDS)	-61.701		Curve(DDS)	-26.036	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-16.12	39.78	R-0	-8.95	82.97	R-0	-4.66	-2.52	R-0	-2.63	9.71
R-5 2ft	-19.37	20.20	R-5 4ft	-14.13	51.78	R-5 2ft	-4.53	-1.74	R-5 4ft	-2.91	8.02
R-5 4ft	-19.96	16.64	R-5 8ft	-15.20	45.32	R-5 4ft	-4.46	-1.32	R-5 8ft	-2.93	7.90
R-10 2ft	-20.01	16.34	R-10 4ft	-15.42	43.99	R-10 2ft	-4.51	-1.62	R-10 4ft	-3.01	7.42
R-10 4ft	-20.81	11.52	R-10 8ft	-17.02	34.35	R-10 4ft	-4.42	-1.08	R-10 8ft	-3.06	7.12
Intercept	.000		Intercept	9.144		Intercept	.000		Intercept	5.693	
Slope(DD)	4155.71		Slope(DD)	2834.65		Slope(DD)	-446.08		Slope(DD)	158.13	
Curve(DDS)	-.186		Curve(DDS)	-22.466		Curve(DDS)	19.089		Curve(DDS)	-1.330	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.95	8.94	R-0	.00	14.76	R-0	-2.63	1.05	R-0	.00	2.75
R-11 flr	-17.49	3.40	R-11 flr	-16.95	3.75	R-11 flr	-1.14	2.01	R-11 flr	.35	2.98
R-19 flr	-19.79	1.90	R-19 flr	-19.79	1.90	R-19 flr	-.81	2.23	R-19 flr	.25	2.92
R-30 flr	-21.27	.94	R-30 flr	-21.41	.85	R-30 flr	-.59	2.37	R-30 flr	.20	2.88
			R-38 flr	-21.78	.61				R-38 flr	.19	2.88
			R-49 flr	-22.85	-.08				R-49 flr	.16	2.86
Intercept	-1.623		Intercept	-1.775		Intercept	2.731		Intercept	2.749	
Slope(DD)	3479.79		Slope(DD)	3339.94		Slope(DD)	-480.16		Slope(DD)	201.58	
Curve(DDS)	-276.762		Curve(DDS)	-22.680		Curve(DDS)	29.591		Curve(DDS)	-39.111	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	85.45	ELF Ach			1-Pane	.00	3.31
.0007(.71)	.00	8.89	2-Pane	-9.11	36.15	.0007(.53)	.00	.49	2-Pane	-.41	1.09
.0005(.50)	-4.46	5.99	3-Pane	-11.59	22.75	.0005(.38)	-.24	.33	3-Pane	-.49	.67
.0003(.30)	-8.48	3.38	R-10	-14.50	6.98	.0003(.23)	-.46	.19	R-10	-.58	.17
Slope/.001ELF	10.194		Slope(DD)	2943.49		Slope/.001ELF	.584		Slope(DD)	66.23	
Curve/.001ELF	3.572		Curve(DDS)	11.105		Curve/.001ELF	.162		Curve(DDS)	2.236	
Base Load = 100.60 MBtu			Base Load = 31.91 MBtu			Base Load = 31.91 MBtu			Base Load = 31.91 MBtu		
Typical Load = 36.08 MBtu			Typical Load = 12.23 MBtu			Typical Load = 12.23 MBtu			Typical Load = 12.23 MBtu		
Residual Load = 2.71 MBtu			Residual Load = -1.02 MBtu			Residual Load = -1.02 MBtu			Residual Load = -1.02 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	23.80	R-0	.00	18.51
R-7	-8.96	8.87	R-7	-5.03	7.95
R-11	-10.39	6.48	R-11	-5.75	6.44
R-19	-11.68	4.34	R-13	-6.52	4.83
R-22	-12.10	3.64	R-19	-6.90	4.03
R-30	-12.65	2.72	R-27	-7.43	2.92
R-38	-12.99	2.15	R-34	-7.75	2.25
R-49	-13.25	1.73			
R-60	-13.41	1.45			
Slope(DD)	3889.57		Slope(DD)	2715.90	
Curve(DDS)	21.183		Curve(DDS)	134.966	
Slab (/ft)			Heated Basement (/ft)		
R-0	-6.89	29.00	R-0	-4.74	82.75
R-5 2ft	-7.59	11.50	R-5 4ft	-6.23	45.50
R-5 4ft	-7.69	9.00	R-5 8ft	-6.48	39.25
R-10 2ft	-7.70	8.75	R-10 4ft	-6.52	38.25
R-10 4ft	-7.82	5.75	R-10 8ft	-6.79	31.50
Intercept	.000		Intercept	15.486	
Slope(DD)	1680.64		Slope(DD)	1573.11	
Curve(DDS)	140.817		Curve(DDS)	7.027	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.74	5.52	R-0	.00	13.42
R-11 flr	-6.61	2.40	R-11 flr	-5.85	3.67
R-19 flr	-7.16	1.49	R-19 flr	-6.75	2.17
R-30 flr	-7.51	.90	R-30 flr	-7.23	1.37
			R-38 flr	-7.34	1.18
			R-49 flr	-7.66	.68
Intercept	-.692		Intercept	-.635	
Slope(DD)	2170.87		Slope(DD)	2482.80	
Curve(DDS)	-187.229		Curve(DDS)	50.227	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	67.06
.0007(.69)	.00	6.38	2-Pane	-6.37	22.83
.0005(.50)	-3.15	3.76	3-Pane	-7.64	14.02
.0003(.29)	-5.53	1.77	R-10	-9.13	3.66
Slope/.001ELF	3.500		Slope(DD)	1459.66	
Curve/.001ELF	8.021		Curve(DDS)	40.931	
Base Load = 45.68 MBtu			Base Load = 20.12 MBtu		
Typical Load = 17.51 MBtu			Typical Load = 11.89 MBtu		
Residual Load = 6.49 MBtu			Residual Load = 4.25 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.66	R-0	.00	4.73
R-7	-3.88	4.19	R-7	-1.10	2.41
R-11	-4.50	3.15	R-11	-1.26	2.08
R-19	-5.08	2.23	R-13	-1.49	1.59
R-22	-5.26	1.89	R-19	-1.61	1.35
R-30	-5.54	1.43	R-27	-1.77	1.01
R-38	-5.70	1.16	R-34	-1.87	.80
R-49	-5.85	.91			
R-60	-5.95	.74			
Slope(DD)	2066.42		Slope(DD)	1020.93	
Curve(DDS)	-45.295		Curve(DDS)	-26.401	
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.81	-3.78	R-0	-.89	19.22
R-5 2ft	-1.77	-2.78	R-5 4ft	-.94	17.97
R-5 4ft	-1.75	-2.28	R-5 8ft	-.93	18.22
R-10 2ft	-1.78	-2.53	R-10 4ft	-.95	17.72
R-10 4ft	-1.73	-1.78	R-10 8ft	-.94	17.97
Intercept	.000		Intercept	18.199	
Slope(DD)	-751.14		Slope(DD)	-44.78	
Curve(DDS)	37.261		Curve(DDS)	1.977	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.89	1.28	R-0	.00	2.76
R-11 flr	-.40	2.10	R-11 flr	.22	3.13
R-19 flr	-.29	2.28	R-19 flr	.19	3.08
R-30 flr	-.22	2.40	R-30 flr	.19	3.08
			R-38 flr	.19	3.08
			R-49 flr	.19	3.08
Intercept	2.700		Intercept	2.993	
Slope(DD)	-402.69		Slope(DD)	135.56	
Curve(DDS)	24.593		Curve(DDS)	-35.102	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	.42
.0007(.53)	.00	.19	2-Pane	-.14	-.55
.0005(.38)	-.14	.07	3-Pane	-.12	-.39
.0003(.23)	-.22	.01	R-10	-.09	-.21
Slope/.001ELF	-.167		Slope(DD)	-97.54	
Curve/.001ELF	.625		Curve(DDS)	4.296	
Base Load = 20.12 MBtu			Base Load = 20.12 MBtu		
Typical Load = 11.89 MBtu			Typical Load = 11.89 MBtu		
Residual Load = 4.25 MBtu			Residual Load = 4.25 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	24.32	R-0	.00	18.72	R-0	.00	11.23	R-0	.00	4.09
R-7	-9.27	8.87	R-7	-3.45	7.83	R-7	-4.08	4.43	R-7	-.67	1.99
R-11	-10.75	8.41	R-11	-3.94	6.28	R-11	-4.73	3.34	R-11	-.76	1.70
R-19	-12.08	4.19	R-13	-4.45	4.69	R-19	-5.32	2.37	R-13	-.89	1.28
R-22	-12.49	3.51	R-19	-4.70	3.90	R-22	-5.54	2.00	R-19	-.95	1.08
R-30	-13.04	2.59	R-27	-5.04	2.81	R-30	-5.84	1.50	R-27	-1.04	.81
R-38	-13.37	2.04	R-34	-5.26	2.15	R-38	-6.02	1.20	R-34	-1.09	.64
R-49	-13.60	1.65				R-49	-6.16	.96			
R-60	-13.75	1.41				R-60	-6.26	.81			
Slope(DD)	3698.75		Slope(DD)	2568.19		Slope(DD)	2189.94		Slope(DD)	801.10	
Curve(DDS)	68.441		Curve(DDS)	169.861		Curve(DDS)	-49.826		Curve(DDS)	-7.420	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-7.59	34.34	R-0	-5.89	91.17	R-0	-1.26	-4.27	R-0	-.75	12.90
R-5 2ft	-8.19	14.50	R-5 4ft	-7.30	44.17	R-5 2ft	-1.24	-3.43	R-5 4ft	-.80	11.23
R-5 4ft	-8.28	11.34	R-5 8ft	-7.53	36.34	R-5 4ft	-1.22	-2.93	R-5 8ft	-.79	11.40
R-10 2ft	-8.29	11.17	R-10 4ft	-7.58	34.84	R-10 2ft	-1.23	-3.27	R-10 4ft	-.81	10.73
R-10 4ft	-8.40	7.50	R-10 8ft	-7.84	26.17	R-10 4ft	-1.20	-2.27	R-10 8ft	-.82	10.57
Intercept	.000		Intercept	5.186		Intercept	.000		Intercept	9.502	
Slope(DD)	2328.29		Slope(DD)	2083.38		Slope(DD)	-998.23		Slope(DD)	116.84	
Curve(DDS)	131.368		Curve(DDS)	7.005		Curve(DDS)	57.554		Curve(DDS)	-.664	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.89	4.56	R-0	.00	14.38	R-0	-.75	.65	R-0	.00	1.89
R-11 flr	-7.46	1.93	R-11 flr	-6.33	3.83	R-11 flr	-.31	1.37	R-11 flr	.24	2.29
R-19 flr	-7.96	1.11	R-19 flr	-7.31	2.19	R-19 flr	-.21	1.54	R-19 flr	.23	2.28
R-30 flr	-8.28	.58	R-30 flr	-7.85	1.29	R-30 flr	-.14	1.65	R-30 flr	.22	2.25
			R-38 flr	-7.97	1.08				R-38 flr	.21	2.25
			R-49 flr	-8.33	.49				R-49 flr	.20	2.23
Intercept	-.884		Intercept	-.934		Intercept	1.942		Intercept	2.174	
Slope(DD)	1997.97		Slope(DD)	2775.39		Slope(DD)	-387.86		Slope(DD)	129.43	
Curve(DDS)	-182.663		Curve(DDS)	41.007		Curve(DDS)	26.304		Curve(DDS)	-36.159	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	65.91	ELF Ach			1-Pane	.00	2.08
.0007(.69)	.00	8.42	2-Pane	-6.52	20.60	.0007(.53)	.00	.23	2-Pane	-.21	.60
.0005(.50)	-3.19	3.77	3-Pane	-7.69	12.51	.0005(.38)	-.15	.10	3-Pane	-.24	.36
.0003(.29)	-5.59	1.77	R-10	-9.06	2.99	.0003(.23)	-.25	.02	R-10	-.28	.08
Slope/.001ELF	3.416		Slope(DD)	1152.98		Slope/.001ELF	-.104		Slope(DD)	29.39	
Curve/.001ELF	8.230		Curve(DDS)	50.894		Curve/.001ELF	.625		Curve(DDS)	1.840	
Base Load =	43.65 MBtu		Base Load =	17.96 MBtu							
Typical Load =	16.25 MBtu		Typical Load =	10.49 MBtu							
Residual Load =	6.57 MBtu		Residual Load =	2.94 MBtu							

Atlanta GA WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	19.18	R-0	.00	17.13	R-0	.00	8.24	R-0	.00	3.62
R-7	-17.87	7.58	R-7	-10.04	8.20	R-7	-7.63	3.28	R-7	-1.97	1.87
R-11	-20.72	5.73	R-11	-11.47	6.92	R-11	-8.85	2.49	R-11	-2.25	1.62
R-19	-23.28	4.08	R-13	-13.19	5.40	R-19	-9.94	1.78	R-13	-2.83	1.28
R-22	-24.24	3.44	R-19	-14.04	4.64	R-22	-10.38	1.51	R-19	-2.82	1.11
R-30	-25.53	2.80	R-27	-15.48	3.35	R-30	-10.92	1.15	R-27	-3.16	.81
R-38	-26.31	2.10	R-34	-16.37	2.58	R-38	-11.28	.93	R-34	-3.37	.62
R-49	-26.99	1.86				R-49	-11.58	.73			
R-60	-27.43	1.37				R-60	-11.78	.60			
Slope(DD)	3778.18		Slope(DD)	3300.40		Slope(DD)	1664.39		Slope(DD)	819.03	
Curve(DDS)	-91.553		Curve(DDS)	-21.403		Curve(DDS)	-46.398		Curve(DDS)	-27.136	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.57	39.94	R-0	-7.18	60.36	R-0	-5.48	-15.17	R-0	-2.42	3.27
R-5 2ft	-13.63	21.50	R-5 4ft	-10.70	39.15	R-5 2ft	-5.37	-14.51	R-5 4ft	-2.76	1.22
R-5 4ft	-14.57	15.84	R-5 8ft	-11.96	31.58	R-5 4ft	-5.25	-13.78	R-5 8ft	-2.77	1.16
R-10 2ft	-14.12	18.55	R-10 4ft	-11.59	33.79	R-10 2ft	-5.35	-14.38	R-10 4ft	-2.85	.68
R-10 4ft	-15.33	11.26	R-10 8ft	-13.38	23.01	R-10 4ft	-5.19	-13.42	R-10 8ft	-2.88	.49
Intercept	-2.355		Intercept	.000		Intercept	-11.119		Intercept	.000	
Slope(DD)	3636.71		Slope(DD)	2227.25		Slope(DD)	-712.21		Slope(DD)	34.24	
Curve(DDS)	-16.729		Curve(DDS)	-18.673		Curve(DDS)	31.110		Curve(DDS)	1.060	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.18	6.51	R-0	.00	11.17	R-0	-2.42	.35	R-0	.00	1.92
R-11 flr	-14.59	1.69	R-11 flr	-14.44	1.79	R-11 flr	-.25	1.76	R-11 flr	1.20	2.70
R-19 flr	-16.46	.48	R-19 flr	-16.72	.31	R-19 flr	.42	2.20	R-19 flr	1.40	2.83
R-30 flr	-17.67	-.31	R-30 flr	-18.02	-.53	R-30 flr	.85	2.48	R-30 flr	1.86	3.00
			R-38 flr	-18.32	-.73				R-38 flr	1.72	3.04
			R-49 flr	-19.18	-1.28				R-49 flr	1.89	3.15
Intercept	-2.371		Intercept	-2.602		Intercept	3.240		Intercept	3.310	
Slope(DD)	2787.61		Slope(DD)	2600.69		Slope(DD)	-1045.97		Slope(DD)	-426.02	
Curve(DDS)	-206.014		Curve(DDS)	16.525		Curve(DDS)	94.145		Curve(DDS)	30.387	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	76.60	ELF Ach			1-Pane	.00	-2.60
.0007(.74)	.00	8.30	2-Pane	-8.02	33.20	.0007(.49)	.00	1.92	2-Pane	.08	-2.28
.0005(.54)	-4.00	5.70	3-Pane	-10.29	20.94	.0005(.35)	-.72	1.45	3-Pane	.20	-1.51
.0003(.32)	-7.72	3.28	R-10	-12.95	6.52	.0003(.21)	-1.54	.92	R-10	.37	-.60
Slope/.001ELF	10.280		Slope(DD)	2760.08		Slope/.001ELF	3.312		Slope(DD)	-269.92	
Curve/.001ELF	2.273		Curve(DDS)	5.353		Curve/.001ELF	-.812		Curve(DDS)	6.492	
Base Load = 85.11 MBtu			Base Load = 31.51 MBtu			Base Load = 31.51 MBtu			Base Load = 31.51 MBtu		
Typical Load = 22.04 MBtu			Typical Load = 14.01 MBtu			Typical Load = 14.01 MBtu			Typical Load = 14.01 MBtu		
Residual Load = .03 MBtu			Residual Load = 1.27 MBtu			Residual Load = 1.27 MBtu			Residual Load = 1.27 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	19.31	R-0	.00	15.75
R-7	-7.24	7.24	R-7	-4.18	8.97
R-11	-8.40	5.31	R-11	-4.78	5.72
R-19	-9.44	3.58	R-13	-5.42	4.37
R-22	-9.78	3.01	R-19	-5.74	3.71
R-30	-10.24	2.25	R-27	-6.24	2.67
R-38	-10.51	1.80	R-34	-6.54	2.03
R-49	-10.73	1.43			
R-60	-10.87	1.20			
Slope(DD)	3226.31		Slope(DD)	2522.10	
Curve(DDS)	5.259		Curve(DDS)	75.596	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-5.03	29.83	R-0	-3.91	57.83
R-5 2ft	-5.70	13.08	R-5 4ft	-4.97	31.33
R-5 4ft	-5.87	8.83	R-5 8ft	-5.26	24.08
R-10 2ft	-5.79	10.83	R-10 4ft	-5.18	26.08
R-10 4ft	-6.00	5.58	R-10 8ft	-5.54	17.08
Intercept	-2.679		Intercept	.000	
Slope(DD)	1960.11		Slope(DD)	1525.81	
Curve(DDS)	54.873		Curve(DDS)	-3.280	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-3.91	3.86	R-0	.00	10.37
R-11 flr	-5.52	1.17	R-11 flr	-5.04	1.97
R-19 flr	-6.01	.36	R-19 flr	-5.81	.69
R-30 flr	-6.32	-1.16	R-30 flr	-6.23	-.02
			R-38 flr	-6.33	-.18
			R-49 flr	-6.61	-.64
Intercept	-1.584		Intercept	-1.751	
Slope(DD)	1943.81		Slope(DD)	2156.78	
Curve(DDS)	-172.207		Curve(DDS)	40.449	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	61.28
.0007(.75)	.00	6.75	2-Pane	-5.60	22.39
.0005(.55)	-2.89	4.34	3-Pane	-6.83	13.87
.0003(.34)	-5.32	2.32	R-10	-8.27	3.85
Slope/.001ELF	6.292		Slope(DD)	1568.58	
Curve/.001ELF	4.792		Curve(DDS)	28.505	
Base Load =	38.46 MBtu				
Typical Load =	8.75 MBtu				
Residual Load =	2.61 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	7.50	R-0	.00	1.93
R-7	-2.93	2.62	R-7	-.78	.34
R-11	-3.40	1.84	R-11	-.87	.11
R-19	-3.82	1.13	R-13	-.90	.04
R-22	-3.95	.92	R-19	-.92	.00
R-30	-4.12	.63	R-27	-.94	-.04
R-38	-4.23	.45	R-34	-.95	-.06
R-49	-4.24	.43			
R-60	-4.25	.42			
Slope(DD)	939.79		Slope(DD)	-142.35	
Curve(DDS)	54.904		Curve(DDS)	93.285	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.98	-32.89	R-0	-.75	-2.14
R-5 2ft	-1.93	-31.64	R-5 4ft	-.81	-3.64
R-5 4ft	-1.88	-30.39	R-5 8ft	-.79	-3.14
R-10 2ft	-1.91	-31.14	R-10 4ft	-.81	-3.64
R-10 4ft	-1.85	-29.64	R-10 8ft	-.77	-2.64
Intercept	-25.694		Intercept	.000	
Slope(DD)	-1214.10		Slope(DD)	-299.05	
Curve(DDS)	51.066		Curve(DDS)	5.947	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-.75	-.14	R-0	.00	1.11
R-11 flr	.36	1.71	R-11 flr	.68	2.24
R-19 flr	.63	2.15	R-19 flr	.82	2.47
R-30 flr	.80	2.44	R-30 flr	.94	2.68
			R-38 flr	.97	2.72
			R-49 flr	1.05	2.86
Intercept	3.191		Intercept	3.122	
Slope(DD)	-1008.19		Slope(DD)	-604.31	
Curve(DDS)	69.844		Curve(DDS)	41.232	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-14.31
.0007(.49)	.00	1.40	2-Pane	.36	-11.81
.0005(.35)	-.48	1.00	3-Pane	.94	-7.79
.0003(.21)	-.98	.60	R-10	1.62	-3.06
Slope/.001ELF	2.000		Slope(DD)	-1375.63	
Curve/.001ELF	.000		Curve(DDS)	31.574	
Base Load =	20.78 MBtu				
Typical Load =	14.70 MBtu				
Residual Load =	8.79 MBtu				

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00 18.65	R-0	.00 15.44	R-0	.00 6.51	R-0	.00 2.32
R-7	-7.07 6.86	R-7	-2.81 6.59	R-7	-2.80 1.84	R-7	-.48 .82
R-11	-8.20 4.98	R-11	-3.21 5.33	R-11	-3.25 1.09	R-11	-.55 .60
R-19	-9.22 3.29	R-13	-3.62 4.03	R-19	-3.65 .42	R-13	-.61 .41
R-22	-9.53 2.76	R-19	-3.83 3.38	R-22	-3.70 .34	R-19	-.64 .32
R-30	-9.98 2.05	R-27	-4.13 2.43	R-30	-3.76 .24	R-27	-.66 .23
R-38	-10.22 1.63	R-34	-4.31 1.85	R-38	-3.80 .17	R-34	-.68 .18
R-49	-10.41 1.31			R-49	-3.83 .13		
R-60	-10.53 1.10			R-60	-3.85 .10		
Slope(DD)	2927.88	Slope(DD)	2249.34	Slope(DD)	220.60	Slope(DD)	175.48
Curve(DDS)	36.747	Curve(DDS)	115.689	Curve(DDS)	147.911	Curve(DDS)	47.682
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-5.62 37.69	R-0	-4.77 68.02	R-0	-1.49 -27.80	R-0	-.56 3.20
R-5 2ft	-6.18 19.02	R-5 4ft	-5.77 32.69	R-5 2ft	-1.45 -26.47	R-5 4ft	-.61 1.70
R-5 4ft	-6.31 14.52	R-5 8ft	-6.00 24.85	R-5 4ft	-1.41 -24.97	R-5 8ft	-.61 1.53
R-10 2ft	-6.25 16.52	R-10 4ft	-5.95 26.52	R-10 2ft	-1.45 -26.30	R-10 4ft	-.63 1.03
R-10 4ft	-6.42 11.02	R-10 8ft	-6.24 17.02	R-10 4ft	-1.39 -24.30	R-10 8ft	-.63 .87
Intercept	2.721	Intercept	.000	Intercept	-19.625	Intercept	.000
Slope(DD)	1891.98	Slope(DD)	1447.29	Slope(DD)	-1444.60	Slope(DD)	76.11
Curve(DDS)	76.556	Curve(DDS)	3.330	Curve(DDS)	63.345	Curve(DDS)	.019
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.77 3.30	R-0	.00 11.24	R-0	-.56 .16	R-0	.00 1.09
R-11 flr	-6.10 1.08	R-11 flr	-5.34 2.34	R-11 flr	.45 1.84	R-11 flr	.81 2.45
R-19 flr	-6.48 .44	R-19 flr	-6.11 1.06	R-19 flr	.78 2.40	R-19 flr	1.00 2.78
R-30 flr	-6.73 .03	R-30 flr	-6.54 .34	R-30 flr	1.00 2.76	R-30 flr	1.17 3.04
		R-38 flr	-6.64 .18			R-38 flr	1.21 3.11
		R-49 flr	-6.92 -.30			R-49 flr	1.32 3.30
Intercept	-1.085	Intercept	-1.371	Intercept	3.752	Intercept	3.665
Slope(DD)	1512.54	Slope(DD)	2107.09	Slope(DD)	-1382.68	Slope(DD)	-852.21
Curve(DDS)	-128.177	Curve(DDS)	68.784	Curve(DDS)	129.129	Curve(DDS)	68.422
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 59.12	ELF Ach		1-Pane	.00 -15.64
.0007(.75)	.00 6.47	2-Pane	-5.59 20.30	.0007(.49)	.00 1.16	2-Pane	.33 -13.35
.0005(.55)	-2.88 4.07	3-Pane	-6.72 12.48	.0005(.35)	-.47 .77	3-Pane	.98 -8.82
.0003(.34)	-5.23 2.11	R-10	-8.04 3.28	.0003(.21)	-.88 .43	R-10	1.75 -3.49
Slope/.001ELF	5.375	Slope(DD)	1313.67	Slope/.001ELF	1.250	Slope(DD)	-1571.39
Curve/.001ELF	5.521	Curve(DDS)	35.061	Curve/.001ELF	.573	Curve(DDS)	37.077
Base Load =	35.89 MBtu	Base Load =	18.91 MBtu	Base Load =	18.91 MBtu	Base Load =	18.91 MBtu
Typical Load =	7.62 MBtu	Typical Load =	13.73 MBtu	Typical Load =	13.73 MBtu	Typical Load =	13.73 MBtu
Residual Load =	3.18 MBtu	Residual Load =	8.19 MBtu	Residual Load =	8.19 MBtu	Residual Load =	8.19 MBtu

Birmingham AL WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	18.00	R-0	.00	14.15	R-0	.00	8.13	R-0	.00	4.53
R-7	-14.83	8.37	R-7	-8.12	6.92	R-7	-7.53	3.24	R-7	-2.53	2.28
R-11	-17.19	4.83	R-11	-9.28	5.89	R-11	-8.73	2.48	R-11	-2.89	1.98
R-19	-19.32	3.45	R-13	-10.73	4.80	R-19	-9.81	1.78	R-13	-3.40	1.50
R-22	-20.14	2.92	R-19	-11.45	3.98	R-22	-10.22	1.49	R-19	-3.65	1.28
R-30	-21.23	2.21	R-27	-12.67	2.87	R-30	-10.78	1.13	R-27	-4.02	.95
R-38	-21.89	1.78	R-34	-13.42	2.21	R-38	-11.11	.92	R-34	-4.25	.75
R-49	-22.47	1.41				R-49	-11.41	.72			
R-60	-22.84	1.17				R-60	-11.81	.59			
Slope(DD)	3220.21		Slope(DD)	2856.59		Slope(DD)	1645.37		Slope(DD)	955.69	
Curve(DDS)	-88.017		Curve(DDS)	-41.958		Curve(DDS)	-46.202		Curve(DDS)	-21.088	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-9.28	38.85	R-0	-6.27	58.98	R-0	-7.26	-2.15	R-0	-3.38	21.23
R-5 2ft	-12.08	21.98	R-5 4ft	-9.52	37.40	R-5 2ft	-7.31	-2.45	R-5 4ft	-3.93	17.91
R-5 4ft	-12.94	18.80	R-5 8ft	-10.89	30.35	R-5 4ft	-7.22	-1.90	R-5 8ft	-4.03	17.31
R-10 2ft	-12.54	19.21	R-10 4ft	-10.34	32.48	R-10 2ft	-7.30	-2.39	R-10 4ft	-4.10	16.89
R-10 4ft	-13.65	12.52	R-10 8ft	-11.98	22.58	R-10 4ft	-7.20	-1.78	R-10 8ft	-4.24	16.05
Intercept	.000		Intercept	1.505		Intercept	.000		Intercept	13.883	
Slope(DD)	3307.60		Slope(DD)	2039.55		Slope(DD)	-570.90		Slope(DD)	196.88	
Curve(DDS)	-15.395		Curve(DDS)	-18.907		Curve(DDS)	31.949		Curve(DDS)	-.473	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-6.27	6.14	R-0	.00	10.21	R-0	-3.38	2.29	R-0	.00	4.48
R-11 flr	-13.11	1.70	R-11 flr	-13.00	1.77	R-11 flr	-1.19	3.71	R-11 flr	.67	4.92
R-19 flr	-14.82	.59	R-19 flr	-15.04	.45	R-19 flr	-.71	4.02	R-19 flr	.80	4.87
R-30 flr	-15.92	-.12	R-30 flr	-16.18	-.29	R-30 flr	-.40	4.22	R-30 flr	.58	4.86
			R-38 flr	-18.44	-.48				R-38 flr	.58	4.88
			R-49 flr	-17.19	-.95				R-49 flr	.57	4.85
Intercept	-2.004		Intercept	-2.117		Intercept	4.737		Intercept	4.780	
Slope(DD)	2534.88		Slope(DD)	2285.33		Slope(DD)	-684.41		Slope(DD)	160.19	
Curve(DDS)	-184.528		Curve(DDS)	23.282		Curve(DDS)	40.351		Curve(DDS)	-41.751	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	80.24	ELF Ach			1-Pane	.00	1.47
.0007(.89)	.00	7.94	2-Pane	-6.14	27.02	.0007(.41)	.00	2.48	2-Pane	-.28	-.04
.0005(.48)	-3.77	5.50	3-Pane	-7.97	17.10	.0005(.29)	-1.09	1.77	3-Pane	-.28	-.07
.0003(.30)	-7.32	3.19	R-10	-10.13	5.43	.0003(.18)	-2.18	1.06	R-10	-.29	-.10
Slope/.001ELF	10.097		Slope(DD)	2309.91		Slope/.001ELF	3.539		Slope(DD)	-51.61	
Curve/.001ELF	1.786		Curve(DDS)	-1.060		Curve/.001ELF	.000		Curve(DDS)	4.064	
Base Load =	72.55 MBtu		Base Load =	39.43 MBtu							
Typical Load =	28.10 MBtu		Typical Load =	18.33 MBtu							
Residual Load =	.53 MBtu		Residual Load =	1.40 MBtu							

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	18.99	R-0	.00	13.33	R-0	.00	7.77	R-0	.00	4.04
R-7	-6.38	6.38	R-7	-3.59	5.80	R-7	-2.89	2.98	R-7	-1.02	1.89
R-11	-7.40	4.67	R-11	-4.10	4.72	R-11	-3.35	2.19	R-11	-1.17	1.59
R-19	-8.31	3.14	R-13	-4.65	3.58	R-19	-3.76	1.50	R-13	-1.33	1.25
R-22	-8.61	2.64	R-19	-4.93	2.98	R-22	-3.90	1.27	R-19	-1.41	1.08
R-30	-9.02	1.97	R-27	-5.32	2.18	R-30	-4.09	.95	R-27	-1.56	.77
R-38	-9.26	1.56	R-34	-5.58	1.68	R-38	-4.20	.77	R-34	-1.65	.58
R-49	-9.44	1.25				R-49	-4.30	.60			
R-60	-9.56	1.06				R-60	-4.36	.50			
Slope(DD)	2825.01		Slope(DD)	2024.77		Slope(DD)	1366.30		Slope(DD)	749.57	
Curve(DDS)	8.912		Curve(DDS)	84.304		Curve(DDS)	-9.528		Curve(DDS)	.293	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-4.46	25.70	R-0	-3.51	49.45	R-0	-2.79	-5.99	R-0	-1.22	33.28
R-5 2ft	-5.08	10.70	R-5 4ft	-4.47	25.45	R-5 2ft	-2.80	-6.24	R-5 4ft	-1.35	30.01
R-5 4ft	-5.20	7.20	R-5 8ft	-4.70	19.70	R-5 4ft	-2.77	-5.49	R-5 8ft	-1.37	29.51
R-10 2ft	-5.14	8.70	R-10 4ft	-4.65	20.95	R-10 2ft	-2.80	-6.24	R-10 4ft	-1.40	28.78
R-10 4ft	-5.29	4.95	R-10 8ft	-4.92	14.20	R-10 4ft	-2.73	-4.49	R-10 8ft	-1.42	28.26
Intercept	.000		Intercept	2.070		Intercept	.000		Intercept	26.423	
Slope(DD)	918.22		Slope(DD)	1025.00		Slope(DD)	-1485.10		Slope(DD)	159.61	
Curve(DDS)	91.674		Curve(DDS)	2.868		Curve(DDS)	80.605		Curve(DDS)	.133	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.51	3.30	R-0	.00	9.15	R-0	-1.22	2.22	R-0	.00	4.25
R-11 flr	-4.93	.93	R-11 flr	-4.52	1.61	R-11 flr	-.40	3.58	R-11 flr	.44	4.98
R-19 flr	-5.34	.25	R-19 flr	-5.16	.55	R-19 flr	-.21	3.91	R-19 flr	.44	4.98
R-30 flr	-5.60	-.19	R-30 flr	-5.46	.04	R-30 flr	-.08	4.12	R-30 flr	.46	5.02
			R-38 flr	-5.53	-.07				R-38 flr	.47	5.03
			R-49 flr	-5.73	-.40				R-49 flr	.49	5.06
Intercept	-1.368		Intercept	-1.243		Intercept	4.861		Intercept	5.018	
Slope(DD)	1608.53		Slope(DD)	1537.74		Slope(DD)	-729.77		Slope(DD)	30.99	
Curve(DDS)	-136.293		Curve(DDS)	95.247		Curve(DDS)	49.386		Curve(DDS)	-35.198	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	45.46	ELF Ach			1-Pane	.00	-6.32
.0007(.68)	.00	5.65	2-Pane	-4.32	15.46	.0007(.41)	.00	2.03	2-Pane	.08	-5.77
.0005(.49)	-2.70	3.40	3-Pane	-5.18	9.50	.0005(.29)	-.72	1.43	3-Pane	.36	-3.82
.0003(.28)	-4.79	1.66	R-10	-6.19	2.48	.0003(.18)	-1.42	.84	R-10	.69	-1.53
Slope/.001ELF	3.625		Slope(DD)	987.83		Slope/.001ELF	2.750		Slope(DD)	-692.23	
Curve/.001ELF	6.354		Curve(DDS)	27.813		Curve/.001ELF	.208		Curve(DDS)	17.146	
Base Load =	33.01 MBtu		Base Load =	26.40 MBtu		Base Load =	17.95 MBtu		Base Load =	8.39 MBtu	
Typical Load =	12.84 MBtu		Typical Load =	17.95 MBtu		Typical Load =	8.39 MBtu		Typical Load =		
Residual Load =	3.87 MBtu		Residual Load =			Residual Load =			Residual Load =		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	17.20	R-0	.00	13.18
R-7	-6.58	6.23	R-7	-2.43	5.50
R-11	-7.64	4.48	R-11	-2.78	4.41
R-19	-8.58	2.90	R-13	-3.14	3.28
R-22	-8.87	2.42	R-19	-3.32	2.72
R-30	-9.25	1.78	R-27	-3.55	1.97
R-38	-9.49	1.40	R-34	-3.70	1.51
R-49	-9.64	1.14			
R-60	-9.74	.98			
Slope(DD) 2544.62			Slope(DD) 1794.88		
Curve(DDS) 60.234			Curve(DDS) 121.914		
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.98	30.12	R-0	-4.26	54.12
R-5 2ft	-5.48	13.46	R-5 4ft	-5.18	23.96
R-5 4ft	-5.59	9.62	R-5 8ft	-5.38	16.98
R-10 2ft	-5.54	11.29	R-10 4ft	-5.34	18.12
R-10 4ft	-5.68	6.62	R-10 8ft	-5.57	10.46
Intercept	.000		Intercept	-3.355	
Slope(DD)	1415.64		Slope(DD)	1128.12	
Curve(DDS)	80.199		Curve(DDS)	6.288	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.26	2.71	R-0	.00	9.81
R-11 flr	-5.43	.76	R-11 flr	-4.82	1.77
R-19 flr	-5.78	.17	R-19 flr	-5.50	.64
R-30 flr	-6.01	-.21	R-30 flr	-5.83	.09
			R-38 flr	-5.90	-.04
			R-49 flr	-6.12	-.40
Intercept	-1.242		Intercept	-1.296	
Slope(DD)	1408.53		Slope(DD)	1681.81	
Curve(DDS)	-124.548		Curve(DDS)	98.167	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	44.71
.0007(.68)	.00	5.32	2-Pane	-4.43	13.98
.0005(.47)	-2.68	3.09	3-Pane	-5.22	8.49
.0003(.28)	-4.67	1.43	R-10	-6.15	2.03
Slope/.001ELF 2.645			Slope(DD) 782.91		
Curve/.001ELF 7.084			Curve(DDS) 34.488		
Base Load = 31.25 MBtu					
Typical Load = 11.74 MBtu					
Residual Load = 4.26 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	7.78	R-0	.00	3.80
R-7	-2.92	2.91	R-7	-.68	1.65
R-11	-3.39	2.13	R-11	-.78	1.34
R-19	-3.81	1.43	R-13	-.89	.99
R-22	-3.94	1.20	R-19	-.94	.82
R-30	-4.13	.90	R-27	-1.01	.60
R-38	-4.24	.71	R-34	-1.05	.47
R-49	-4.32	.57			
R-60	-4.38	.48			
Slope(DD) 1287.99			Slope(DD) 562.96		
Curve(DDS) 3.968			Curve(DDS) 26.687		
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.22	-6.02	R-0	-1.03	33.65
R-5 2ft	-2.24	-6.68	R-5 4ft	-1.15	29.82
R-5 4ft	-2.20	-5.18	R-5 8ft	-1.14	29.98
R-10 2ft	-2.24	-6.52	R-10 4ft	-1.17	29.15
R-10 4ft	-2.19	-4.85	R-10 8ft	-1.20	28.15
Intercept	.000		Intercept	28.371	
Slope(DD)	-1545.17		Slope(DD)	172.67	
Curve(DDS)	85.123		Curve(DDS)	.082	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.03	1.68	R-0	.00	3.40
R-11 flr	-.31	2.88	R-11 flr	.54	4.30
R-19 flr	-.12	3.20	R-19 flr	.55	4.31
R-30 flr	.00	3.41	R-30 flr	.56	4.33
			R-38 flr	.57	4.34
			R-49 flr	.58	4.36
Intercept	3.955		Intercept	4.306	
Slope(DD)	-742.03		Slope(DD)	70.80	
Curve(DDS)	58.274		Curve(DDS)	-48.292	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-5.02
.0007(.41)	.00	2.01	2-Pane	.02	-4.85
.0005(.29)	-.69	1.44	3-Pane	.26	-3.22
.0003(.18)	-1.38	.86	R-10	.54	-1.30
Slope/.001ELF 2.875			Slope(DD) -590.41		
Curve/.001ELF .000			Curve(DDS) 15.161		
Base Load = 24.49 MBtu					
Typical Load = 18.98 MBtu					
Residual Load = 7.54 MBtu					

Bismarck ND WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	49.78	R-0	.00	48.98	R-0	.00	4.35	R-0	.00	2.18
R-7	-45.95	19.94	R-7	-26.85	23.28	R-7	-4.01	1.75	R-7	-1.16	1.12
R-11	-53.29	15.17	R-11	-30.45	19.88	R-11	-4.65	1.33	R-11	-1.33	.98
R-19	-59.88	10.89	R-13	-35.15	15.70	R-19	-5.23	.98	R-13	-1.59	.74
R-22	-62.44	9.23	R-19	-37.48	13.83	R-22	-5.45	.81	R-19	-1.72	.63
R-30	-65.86	7.01	R-27	-41.76	9.82	R-30	-5.75	.62	R-27	-1.89	.47
R-38	-67.93	5.67	R-34	-44.39	7.48	R-38	-5.93	.50	R-34	-2.00	.38
R-49	-69.80	4.45				R-49	-6.10	.39			
R-60	-71.00	3.67				R-60	-6.21	.32			
Slope(DD)	10198.38		Slope(DD)	9802.28		Slope(DD)	897.75		Slope(DD)	483.36	
Curve(DDS)	-303.700		Curve(DDS)	-198.542		Curve(DDS)	-27.581		Curve(DDS)	-15.200	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-30.45	69.56	R-0	-18.90	151.19	R-0	-4.13	-3.40	R-0	-3.00	3.41
R-5 2ft	-38.03	23.90	R-5 4ft	-25.13	101.61	R-5 2ft	-3.97	-2.43	R-5 4ft	-3.39	1.06
R-5 4ft	-40.32	10.10	R-5 8ft	-28.05	84.02	R-5 4ft	-3.88	-1.89	R-5 8ft	-3.40	1.00
R-10 2ft	-39.47	15.22	R-10 4ft	-27.27	88.72	R-10 2ft	-3.94	-2.25	R-10 4ft	-3.49	.46
R-10 4ft	-42.71	-4.30	R-10 8ft	-31.82	61.31	R-10 4ft	-3.80	-1.41	R-10 8ft	-3.50	.40
Intercept	-45.887		Intercept	.000		Intercept	.514		Intercept	.000	
Slope(DD)	13282.32		Slope(DD)	8573.48		Slope(DD)	-869.17		Slope(DD)	19.50	
Curve(DDS)	-257.153		Curve(DDS)	-69.160		Curve(DDS)	28.515		Curve(DDS)	1.742	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-18.90	16.30	R-0	.00	27.27	R-0	-3.00	.37	R-0	.00	2.32
R-11 flr	-40.22	1.15	R-11 flr	-41.93	.04	R-11 flr	-1.28	1.48	R-11 flr	.57	2.69
R-19 flr	-46.89	-3.18	R-19 flr	-49.20	-4.68	R-19 flr	-.73	1.84	R-19 flr	.63	2.72
R-30 flr	-51.18	-5.98	R-30 flr	-53.90	-7.73	R-30 flr	-.38	2.07	R-30 flr	.70	2.77
			R-38 flr	-54.97	-8.42				R-38 flr	.72	2.78
			R-49 flr	-58.06	-10.43				R-49 flr	.77	2.81
Intercept	-13.486		Intercept	-14.994		Intercept	2.698		Intercept	2.849	
Slope(DD)	10241.98		Slope(DD)	9415.22		Slope(DD)	-861.68		Slope(DD)	-100.41	
Curve(DDS)	-864.685		Curve(DDS)	-228.785		Curve(DDS)	79.423		Curve(DDS)	-.712	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	226.21	ELF Ach			1-Pane	.00	2.31
.0007(.89)	.00	31.80	2-Pane	-21.54	109.65	.0007(.68)	.00	.43	2-Pane	-.21	1.17
.0005(.64)	-14.13	22.63	3-Pane	-28.89	69.87	.0005(.49)	-.25	.26	3-Pane	-.29	.75
.0003(.38)	-28.15	13.52	R-10	-37.54	23.07	.0003(.29)	-.45	.13	R-10	-.38	.25
Slope/.001ELF	44.805		Slope(DD)	9931.18		Slope/.001ELF	.325		Slope(DD)	109.61	
Curve/.001ELF	.893		Curve(DDS)	-51.613		Curve/.001ELF	.406		Curve(DDS)	-.838	
Base Load = 260.49 MBtu			Base Load = 14.48 MBtu			Base Load = 14.48 MBtu			Base Load = 14.48 MBtu		
Typical Load = 94.28 MBtu			Typical Load = 2.98 MBtu			Typical Load = 2.98 MBtu			Typical Load = 2.98 MBtu		
Residual Load = 14.27 MBtu			Residual Load = -2.91 MBtu			Residual Load = -2.91 MBtu			Residual Load = -2.91 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	52.17	R-0	.00	48.60
R-7	-19.04	20.44	R-7	-11.48	22.50
R-11	-22.08	16.37	R-11	-13.12	19.07
R-19	-24.81	10.82	R-13	-15.08	14.98
R-22	-25.81	9.15	R-19	-16.05	12.92
R-30	-27.15	8.92	R-27	-17.77	9.30
R-38	-27.98	6.57	R-34	-18.83	7.08
R-49	-28.87	4.40			
R-60	-29.12	3.64			
Slope(DD) 10013.88			Slope(DD) 9194.23		
Curve(DDS) -204.828			Curve(DDS) -98.550		
Slab (/ft)			Heated Basement (/ft)		
R-0	-14.87	74.13	R-0	-10.31	188.13
R-5 2ft	-16.77	26.83	R-5 4ft	-13.16	118.88
R-5 4ft	-17.32	12.88	R-5 8ft	-14.02	95.38
R-10 2ft	-17.12	17.88	R-10 4ft	-13.84	99.88
R-10 4ft	-17.87	-.87	R-10 8ft	-15.09	68.63
Intercept	-39.816		Intercept	.000	
Slope(DD)	12186.66		Slope(DD)	7159.45	
Curve(DDS)	-170.286		Curve(DDS)	-59.881	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-10.31	12.54	R-0	.00	29.73
R-11 flr	-15.95	3.14	R-11 flr	-15.54	3.83
R-19 flr	-17.93	-.15	R-19 flr	-18.24	-.67
R-30 flr	-19.20	-2.27	R-30 flr	-19.94	-3.51
			R-38 flr	-20.33	-4.16
			R-49 flr	-21.45	-8.03
Intercept	-8.185		Intercept	-10.348	
Slope(DD)	8141.35		Slope(DD)	8838.60	
Curve(DDS)	-799.405		Curve(DDS)	-199.638	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	213.11
.0007(.89)	.00	30.08	2-Pane	-16.58	97.97
.0005(.65)	-10.78	21.07	3-Pane	-21.74	82.13
.0003(.40)	-21.18	12.41	R-10	-27.81	19.99
Slope/.001ELF	40.167		Slope(DD)	8538.58	
Curve/.001ELF	3.958		Curve(DDS)	-17.680	
Base Load = 128.76 MBtu					
Typical Load = 44.23 MBtu					
Residual Load = 3.51 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.37	R-0	.00	2.35
R-7	-1.57	1.75	R-7	-.50	1.30
R-11	-1.82	1.33	R-11	-.57	1.15
R-19	-2.05	.95	R-13	-.69	.90
R-22	-2.14	.81	R-19	-.75	.77
R-30	-2.25	.62	R-27	-.84	.58
R-38	-2.32	.50	R-34	-.90	.46
R-49	-2.39	.39			
R-60	-2.43	.32			
Slope(DD) 890.41			Slope(DD) 599.93		
Curve(DDS) -25.945			Curve(DDS) -30.424		
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.59	-11.18	R-0	-1.07	1.82
R-5 2ft	-1.51	-9.18	R-5 4ft	-1.14	.07
R-5 4ft	-1.47	-8.18	R-5 8ft	-1.13	.32
R-10 2ft	-1.49	-8.68	R-10 4ft	-1.16	-.43
R-10 4ft	-1.43	-7.18	R-10 8ft	-1.15	-.18
Intercept	-3.572		Intercept	.000	
Slope(DD)	-1243.39		Slope(DD)	-38.59	
Curve(DDS)	50.216		Curve(DDS)	2.188	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.07	.12	R-0	.00	1.90
R-11 flr	-.44	1.17	R-11 flr	.30	2.40
R-19 flr	-.25	1.60	R-19 flr	.33	2.45
R-30 flr	-.12	1.70	R-30 flr	.37	2.52
			R-38 flr	.38	2.54
			R-49 flr	.41	2.58
Intercept	2.276		Intercept	2.628	
Slope(DD)	-781.34		Slope(DD)	-138.67	
Curve(DDS)	70.437		Curve(DDS)	-.484	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	.58
.0007(.88)	.00	.51	2-Pane	-.09	-.05
.0005(.49)	-.15	.39	3-Pane	-.09	-.05
.0003(.29)	-.32	.24	R-10	-.09	-.05
Slope/.001ELF	.875		Slope(DD)	-25.05	
Curve/.001ELF	-.208		Curve(DDS)	1.775	
Base Load = 9.87 MBtu					
Typical Load = 5.42 MBtu					
Residual Load = 1.68 MBtu					

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	50.86	R-0	.00	46.97	R-0	.00	4.33	R-0	.00	2.14
R-7	-18.63	19.81	R-7	-7.83	22.26	R-7	-1.57	1.72	R-7	-.32	1.13
R-11	-21.60	14.85	R-11	-8.95	18.74	R-11	-1.82	1.30	R-11	-.37	.98
R-19	-24.28	10.40	R-13	-10.25	14.85	R-19	-2.05	.93	R-13	-.44	.75
R-22	-25.24	8.79	R-19	-10.89	12.62	R-22	-2.13	.79	R-19	-.47	.64
R-30	-26.54	6.63	R-27	-12.01	9.07	R-30	-2.24	.60	R-27	-.52	.48
R-38	-27.32	5.32	R-34	-12.70	6.89	R-38	-2.31	.48	R-34	-.55	.39
R-49	-27.99	4.22				R-49	-2.37	.38			
R-60	-28.42	3.50				R-60	-2.42	.31			
Slope(DD) 9590.92			Slope(DD) 8891.27			Slope(DD) 863.84			Slope(DD) 493.41		
Curve(DDS) -170.816			Curve(DDS) -29.383			Curve(DDS) -22.395			Curve(DDS) -17.864		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-16.10	98.21	R-0	-12.41	219.37	R-0	-1.14	-6.63	R-0	-.92	.87
R-5 2ft	-17.61	45.87	R-5 4ft	-14.98	133.54	R-5 2ft	-1.09	-4.97	R-5 4ft	-.97	-.63
R-5 4ft	-18.06	31.04	R-5 8ft	-15.72	108.87	R-5 4ft	-1.06	-3.80	R-5 8ft	-.97	-.63
R-10 2ft	-17.89	38.71	R-10 4ft	-15.58	113.71	R-10 2ft	-1.08	-4.47	R-10 4ft	-.98	-.97
R-10 4ft	-18.51	16.04	R-10 8ft	-16.65	77.87	R-10 4ft	-1.04	-3.13	R-10 8ft	-.97	-.63
Intercept	-27.017		Intercept	.000		Intercept	.195		Intercept	.000	
Slope(DD)	13593.62		Slope(DD)	8071.34		Slope(DD)	-1129.15		Slope(DD)	-94.77	
Curve(DDS)	-221.731		Curve(DDS)	-82.728		Curve(DDS)	48.225		Curve(DDS)	3.003	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-12.41	10.97	R-0	.00	31.64	R-0	-.92	.04	R-0	.00	1.58
R-11 flr	-16.91	3.47	R-11 flr	-15.80	5.32	R-11 flr	-.45	.82	R-11 flr	.28	2.04
R-19 flr	-18.64	.57	R-19 flr	-18.53	.77	R-19 flr	-.30	1.08	R-19 flr	.29	2.06
R-30 flr	-19.76	-1.29	R-30 flr	-20.26	-2.12	R-30 flr	-.20	1.25	R-30 flr	.32	2.11
			R-38 flr	-20.66	-2.78				R-38 flr	.33	2.13
			R-49 flr	-21.80	-4.68				R-49 flr	.35	2.16
Intercept	-6.548		Intercept	-9.054		Intercept	1.723		Intercept	2.177	
Slope(DD)	7275.23		Slope(DD)	8961.55		Slope(DD)	-647.58		Slope(DD)	-78.23	
Curve(DDS)	-752.608		Curve(DDS)	-199.906		Curve(DDS)	62.424		Curve(DDS)	-7.546	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	214.12	ELF Ach			1-Pane	.00	.08
.0007(.89)	.00	29.73	2-Pane	-16.82	97.32	.0007(.88)	.00	.44	2-Pane	-.09	-.58
.0005(.85)	-10.78	20.74	3-Pane	-21.96	61.65	.0005(.49)	-.16	.31	3-Pane	-.07	-.40
.0003(.40)	-21.09	12.15	R-10	-27.99	19.71	.0003(.29)	-.32	.18	R-10	-.04	-.19
Slope/.001ELF	39.041		Slope(DD)	8407.35		Slope/.001ELF	.562		Slope(DD)	-90.87	
Curve/.001ELF	4.896		Curve(DDS)	-11.238		Curve/.001ELF	.104		Curve(DDS)	3.562	
Base Load = 121.82 MBtu			Base Load = 8.43 MBtu			Base Load = 8.43 MBtu			Base Load = 8.43 MBtu		
Typical Load = 41.03 MBtu			Typical Load = 4.42 MBtu			Typical Load = 4.42 MBtu			Typical Load = 4.42 MBtu		
Residual Load = 3.77 MBtu			Residual Load = 1.05 MBtu			Residual Load = 1.05 MBtu			Residual Load = 1.05 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	32.88	R-0	.00	30.91	R-0	.00	8.65	R-0	.00	3.17
R-7	-30.37	13.13	R-7	-17.69	15.16	R-7	-8.12	2.67	R-7	-1.68	1.67
R-11	-35.22	9.98	R-11	-20.21	12.92	R-11	-7.10	2.04	R-11	-1.92	1.48
R-19	-39.58	7.15	R-13	-23.31	10.16	R-19	-7.98	1.47	R-13	-2.29	1.13
R-22	-41.28	6.08	R-19	-24.85	8.79	R-22	-8.32	1.25	R-19	-2.47	.97
R-30	-43.52	4.80	R-27	-27.60	6.34	R-30	-8.78	.95	R-27	-2.75	.72
R-38	-44.88	3.71	R-34	-29.29	4.84	R-38	-9.08	.77	R-34	-2.92	.57
R-49	-46.10	2.92				R-49	-9.32	.60			
R-60	-48.88	2.41				R-60	-9.48	.49			
Slope(DD) 6687.88			Slope(DD) 6311.30			Slope(DD) 1377.38			Slope(DD) 738.23		
Curve(DDS) -193.322			Curve(DDS) -105.096			Curve(DDS) -43.127			Curve(DDS) -27.742		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-18.18	54.75	R-0	-10.22	102.70	R-0	-4.33	-5.42	R-0	-2.82	3.68
R-5 2ft	-23.39	23.38	R-5 4ft	-15.92	68.36	R-5 2ft	-4.17	-4.45	R-5 4ft	-3.22	1.27
R-5 4ft	-24.90	14.27	R-5 8ft	-17.94	58.20	R-5 4ft	-4.08	-3.91	R-5 8ft	-3.23	1.21
R-10 2ft	-24.36	17.52	R-10 4ft	-17.42	59.33	R-10 2ft	-4.14	-4.27	R-10 4ft	-3.32	.67
R-10 4ft	-26.43	5.05	R-10 8ft	-20.48	40.89	R-10 4ft	-4.02	-3.55	R-10 8ft	-3.34	.55
Intercept	-20.883		Intercept	.000		Intercept	-1.975		Intercept	.000	
Slope(DD)	8533.45		Slope(DD)	4403.26		Slope(DD)	-554.83		Slope(DD)	38.16	
Curve(DDS)	-155.085		Curve(DDS)	-45.670		Curve(DDS)	22.036		Curve(DDS)	1.389	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-10.22	11.07	R-0	.00	17.71	R-0	-2.82	.40	R-0	.00	2.23
R-11 flr	-25.20	1.34	R-11 flr	-26.42	.55	R-11 flr	-1.33	1.36	R-11 flr	.36	2.46
R-19 flr	-29.33	-1.34	R-19 flr	-30.91	-2.36	R-19 flr	-.89	1.65	R-19 flr	.34	2.45
R-30 flr	-31.99	-3.07	R-30 flr	-33.89	-4.17	R-30 flr	-.60	1.84	R-30 flr	.32	2.44
			R-38 flr	-34.32	-4.58				R-38 flr	.32	2.44
			R-49 flr	-36.15	-5.77				R-49 flr	.31	2.43
Intercept	-7.697		Intercept	-8.522		Intercept	2.343		Intercept	2.390	
Slope(DD)	6288.91		Slope(DD)	5599.02		Slope(DD)	-688.86		Slope(DD)	77.84	
Curve(DDS)	-512.712		Curve(DDS)	-94.387		Curve(DDS)	60.322		Curve(DDS)	-21.348	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach			ELF Ach			ELF Ach		
.0007(.77)	.00	16.21	1-Pane	.00	142.70	.0007(.58)	.00	.48	1-Pane	.00	4.54
.0005(.55)	-7.32	11.46	2-Pane	-13.89	67.53	.0005(.40)	-.20	.35	2-Pane	-.39	2.43
.0003(.33)	-14.49	6.80	3-Pane	-18.43	42.94	.0003(.24)	-.41	.22	3-Pane	-.55	1.58
			R-10	-23.78	14.02				R-10	-.74	.54
Slope/.001ELF	22.304		Slope(DD)	6013.87		Slope/.001ELF	.747		Slope(DD)	234.85	
Curve/.001ELF	1.218		Curve(DDS)	-23.058		Curve/.001ELF	-.081		Curve(DDS)	-2.377	
Base Load = 166.15 MBtu			Base Load = 20.80 MBtu			Base Load = 20.80 MBtu			Base Load = 20.80 MBtu		
Typical Load = 49.29 MBtu			Typical Load = 5.46 MBtu			Typical Load = 5.46 MBtu			Typical Load = 5.46 MBtu		
Residual Load = 6.68 MBtu			Residual Load = -3.16 MBtu			Residual Load = -3.16 MBtu			Residual Load = -3.16 MBtu		

Boise ID WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.15	R-0	.00	29.82	R-0	.00	6.75	R-0	.00	3.49
R-7	-12.59	13.16	R-7	-7.53	13.82	R-7	-2.40	2.75	R-7	-.78	1.86
R-11	-14.60	9.81	R-11	-8.60	11.57	R-11	-2.79	2.11	R-11	-.89	1.62
R-19	-16.41	8.80	R-13	-9.84	8.98	R-19	-3.13	1.54	R-13	-1.07	1.24
R-22	-17.05	5.74	R-19	-10.46	7.67	R-22	-3.27	1.30	R-19	-1.16	1.06
R-30	-17.90	4.32	R-27	-11.48	5.54	R-30	-3.46	.99	R-27	-1.28	.80
R-38	-18.41	3.47	R-34	-12.10	4.23	R-38	-3.57	.80	R-34	-1.36	.64
R-49	-18.84	2.75				R-49	-3.67	.63			
R-60	-19.12	2.28				R-60	-3.74	.52			
Slope(DD)	6233.86		Slope(DD)	5389.99		Slope(DD)	1449.07		Slope(DD)	817.95	
Curve(DDS)	-79.941		Curve(DDS)	21.901		Curve(DDS)	-52.284		Curve(DDS)	-31.359	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-8.85	50.75	R-0	-6.19	117.25	R-0	-1.64	-13.85	R-0	-1.00	2.15
R-5 2ft	-10.10	19.50	R-5 4ft	-8.10	89.50	R-5 2ft	-1.58	-12.35	R-5 4ft	-1.09	-.10
R-5 4ft	-10.42	11.50	R-5 8ft	-8.63	58.25	R-5 4ft	-1.55	-11.60	R-5 8ft	-1.09	-.10
R-10 2ft	-10.31	14.25	R-10 4ft	-8.53	58.75	R-10 2ft	-1.57	-12.10	R-10 4ft	-1.11	-.60
R-10 4ft	-10.74	3.50	R-10 8ft	-9.28	40.00	R-10 4ft	-1.52	-10.85	R-10 8ft	-1.10	-.35
Intercept	-17.474		Intercept	.000		Intercept	-8.145		Intercept	.000	
Slope(DD)	8848.82		Slope(DD)	4145.31		Slope(DD)	-975.75		Slope(DD)	-68.57	
Curve(DDS)	-45.318		Curve(DDS)	-29.830		Curve(DDS)	41.617		Curve(DDS)	3.112	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.19	7.82	R-0	.00	18.13	R-0	-1.00	.14	R-0	.00	1.81
R-11 flr	-9.71	1.95	R-11 flr	-9.50	2.30	R-11 flr	-.46	1.04	R-11 flr	.21	2.16
R-19 flr	-10.88	-.01	R-19 flr	-11.10	-.37	R-19 flr	-.28	1.34	R-19 flr	.20	2.14
R-30 flr	-11.64	-1.27	R-30 flr	-12.04	-1.94	R-30 flr	-.17	1.53	R-30 flr	.20	2.14
			R-38 flr	-12.26	-2.30				R-38 flr	.20	2.14
			R-49 flr	-12.88	-3.34				R-49 flr	.20	2.14
Intercept	-4.752		Intercept	-5.815		Intercept	2.049		Intercept	2.095	
Slope(DD)	4788.31		Slope(DD)	4948.51		Slope(DD)	-716.49		Slope(DD)	80.27	
Curve(DDS)	-455.800		Curve(DDS)	-54.235		Curve(DDS)	67.261		Curve(DDS)	-26.498	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	123.05	ELF Ach			1-Pane	.00	2.45
.0007(.78)	.00	13.90	2-Pane	-10.13	52.70	.0007(.56)	.00	.30	2-Pane	-.19	1.14
.0005(.58)	-5.49	9.32	3-Pane	-12.94	33.20	.0005(.40)	-.14	.18	3-Pane	-.25	.72
.0003(.35)	-10.40	5.23	R-10	-16.24	10.27	.0003(.24)	-.25	.09	R-10	-.32	.23
Slope/.001ELF	15.624		Slope(DD)	4336.90		Slope/.001ELF	.208		Slope(DD)	99.38	
Curve/.001ELF	6.042		Curve(DDS)	12.270		Curve/.001ELF	.313		Curve(DDS)	-.243	
Base Load =	72.83 MBtu		Base Load =	13.28 MBtu							
Typical Load =	20.24 MBtu		Typical Load =	7.13 MBtu							
Residual Load =	4.71 MBtu		Residual Load =	1.90 MBtu							

Boise ID WYEC M Apartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	33.12	R-0	.00	29.72
R-7	-12.31	12.60	R-7	-5.12	13.58
R-11	-14.27	9.33	R-11	-5.85	11.28
R-19	-16.04	6.38	R-13	-6.66	8.71
R-22	-16.64	5.38	R-19	-7.06	7.44
R-30	-17.46	4.02	R-27	-7.72	5.35
R-38	-17.95	3.21	R-34	-8.13	4.07
R-49	-18.33	2.57			
R-60	-18.58	2.15			
Slope(DD)	5802.16		Slope(DD)	5154.17	
Curve(DDS)	-36.494		Curve(DDS)	68.930	
Slab (/ft)			Heated Basement (/ft)		
R-0	-9.85	70.86	R-0	-7.75	141.03
R-5 2ft	-10.87	37.03	R-5 4ft	-9.51	82.20
R-5 4ft	-11.14	28.03	R-5 8ft	-9.98	66.53
R-10 2ft	-11.05	31.20	R-10 4ft	-9.90	89.20
R-10 4ft	-11.41	18.86	R-10 8ft	-10.57	47.03
Intercept	-5.720		Intercept	.000	
Slope(DD)	7922.12		Slope(DD)	4847.16	
Curve(DDS)	-92.347		Curve(DDS)	-32.365	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.75	7.05	R-0	.00	19.97
R-11 flr	-10.81	2.28	R-11 flr	-9.89	3.48
R-19 flr	-11.68	.54	R-19 flr	-11.53	.74
R-30 flr	-12.32	-.57	R-30 flr	-12.50	-.87
			R-38 flr	-12.72	-1.24
			R-49 flr	-13.36	-2.30
Intercept	-3.698		Intercept	-4.823	
Slope(DD)	4311.44		Slope(DD)	5034.51	
Curve(DDS)	-431.970		Curve(DDS)	-38.951	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.77)	.00	13.60	1-Pane	.00	121.99
.0005(.58)	-5.50	9.02	2-Pane	-10.27	50.67
.0003(.35)	-10.33	4.99	3-Pane	-12.98	31.82
			R-10	-16.18	9.66
Slope/.001ELF	14.542		Slope(DD)	4057.82	
Curve/.001ELF	6.979		Curve(DDS)	21.324	
Base Load = 88.43 MBtu			Base Load = 11.51 MBtu		
Typical Load = 18.14 MBtu			Typical Load = 6.88 MBtu		
Residual Load = 5.04 MBtu			Residual Load = .65 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	6.77	R-0	.00	3.26
R-7	-2.41	2.76	R-7	-.48	1.74
R-11	-2.79	2.12	R-11	-.55	1.53
R-19	-3.14	1.54	R-13	-.85	1.20
R-22	-3.28	1.31	R-19	-.70	1.04
R-30	-3.47	.99	R-27	-.79	.77
R-38	-3.59	.80	R-34	-.85	.60
R-49	-3.89	.63			
R-60	-3.75	.52			
Slope(DD)	1451.64		Slope(DD)	786.42	
Curve(DDS)	-52.111		Curve(DDS)	-33.407	
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.22	-8.44	R-0	-.91	2.06
R-5 2ft	-1.18	-7.11	R-5 4ft	-.95	.39
R-5 4ft	-1.18	-6.28	R-5 8ft	-.95	.56
R-10 2ft	-1.17	-6.78	R-10 4ft	-.97	-.11
R-10 4ft	-1.14	-5.61	R-10 8ft	-.96	.06
Intercept	-2.895		Intercept	.000	
Slope(DD)	-973.60		Slope(DD)	-10.65	
Curve(DDS)	42.676		Curve(DDS)	1.586	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.91	.10	R-0	.00	1.61
R-11 flr	-.47	.83	R-11 flr	.19	1.93
R-19 flr	-.33	1.07	R-19 flr	.18	1.91
R-30 flr	-.23	1.22	R-30 flr	.16	1.88
			R-38 flr	.15	1.87
			R-49 flr	.14	1.85
Intercept	1.643		Intercept	1.788	
Slope(DD)	-581.30		Slope(DD)	143.43	
Curve(DDS)	54.791		Curve(DDS)	-34.699	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.56)	.00	.40	1-Pane	.00	3.17
.0005(.40)	-.18	.27	2-Pane	-.23	1.54
.0003(.24)	-.30	.15	3-Pane	-.32	.98
			R-10	-.41	.32
Slope/.001ELF	.458		Slope(DD)	139.56	
Curve/.001ELF	.156		Curve(DDS)	-.736	
Base Load = 11.51 MBtu			Base Load = 11.51 MBtu		
Typical Load = 6.88 MBtu			Typical Load = 6.88 MBtu		
Residual Load = .65 MBtu			Residual Load = .65 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	33.45	R-0	.00	32.05	R-0	.00	3.16	R-0	.00	1.66
R-7	-30.95	13.35	R-7	-18.38	15.69	R-7	-2.77	1.36	R-7	-.85	.90
R-11	-35.89	10.14	R-11	-21.00	13.36	R-11	-3.21	1.07	R-11	-.97	.79
R-19	-40.33	7.26	R-13	-24.17	10.54	R-19	-3.61	.81	R-13	-1.16	.63
R-22	-42.04	6.15	R-19	-25.74	9.14	R-22	-3.80	.69	R-19	-1.25	.54
R-30	-44.32	4.67	R-27	-28.63	6.57	R-30	-4.06	.53	R-27	-1.41	.40
R-38	-45.70	3.77	R-34	-30.40	5.00	R-38	-4.21	.43	R-34	-1.51	.31
R-49	-46.94	2.96				R-49	-4.34	.34			
R-60	-47.74	2.45				R-60	-4.43	.28			
Slope(DD)	6780.42		Slope(DD)	6532.83		Slope(DD)	783.17		Slope(DD)	412.87	
Curve(DDS)	-192.163		Curve(DDS)	-106.827		Curve(DDS)	-42.224		Curve(DDS)	-19.532	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-21.09	52.69	R-0	-13.23	100.04	R-0	-3.62	-2.63	R-0	-2.49	4.17
R-5 2ft	-26.30	21.30	R-5 4ft	-18.45	68.59	R-5 2ft	-3.47	-1.73	R-5 4ft	-2.85	2.00
R-5 4ft	-27.86	11.90	R-5 8ft	-20.44	56.80	R-5 4ft	-3.38	-1.19	R-5 8ft	-2.89	1.76
R-10 2ft	-27.28	15.40	R-10 4ft	-19.87	60.04	R-10 2ft	-3.44	-1.55	R-10 4ft	-2.96	1.34
R-10 4ft	-29.46	2.27	R-10 8ft	-22.94	41.54	R-10 4ft	-3.31	-.77	R-10 8ft	-3.01	1.04
Intercept	-25.216		Intercept	.000		Intercept	1.006		Intercept	.000	
Slope(DD)	8397.27		Slope(DD)	4292.73		Slope(DD)	-587.52		Slope(DD)	91.26	
Curve(DDS)	-148.008		Curve(DDS)	-45.071		Curve(DDS)	23.623		Curve(DDS)	.280	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-13.23	10.78	R-0	.00	19.37	R-0	-2.49	.45	R-0	.00	2.07
R-11 flr	-29.16	.44	R-11 flr	-30.07	-.15	R-11 flr	-.64	1.65	R-11 flr	.70	2.52
R-19 flr	-33.62	-2.45	R-19 flr	-35.07	-3.40	R-19 flr	-.16	1.97	R-19 flr	.77	2.57
R-30 flr	-36.48	-4.31	R-30 flr	-38.17	-5.41	R-30 flr	.16	2.17	R-30 flr	.80	2.59
			R-38 flr	-38.88	-5.87				R-38 flr	.81	2.59
			R-49 flr	-40.92	-7.20				R-49 flr	.83	2.61
Intercept	-9.319		Intercept	-10.237		Intercept	2.711		Intercept	2.631	
Slope(DD)	6802.93		Slope(DD)	6183.54		Slope(DD)	-731.97		Slope(DD)	-44.47	
Curve(DDS)	-562.190		Curve(DDS)	-79.772		Curve(DDS)	58.737		Curve(DDS)	-12.808	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	158.76	ELF Ach			1-Pane	.00	1.44
.0007(.91)	.00	22.31	2-Pane	-15.88	73.90	.0007(.73)	.00	.70	2-Pane	-.11	.84
.0005(.87)	-9.93	15.88	3-Pane	-20.67	46.92	.0005(.52)	-.31	.50	3-Pane	-.17	.55
.0003(.40)	-19.77	9.47	R-10	-26.53	15.19	.0003(.31)	-.62	.30	R-10	-.23	.19
Slope/.001ELF	31.363		Slope(DD)	6501.80		Slope/.001ELF	1.006		Slope(DD)	85.67	
Curve/.001ELF	.731		Curve(DDS)	-18.505		Curve/.001ELF	.000		Curve(DDS)	-1.179	
Base Load =	175.80 MBtu		Base Load =	12.82 MBtu		Base Load =	12.82 MBtu		Base Load =	12.82 MBtu	
Typical Load =	60.30 MBtu		Typical Load =	4.09 MBtu		Typical Load =	4.09 MBtu		Typical Load =	4.09 MBtu	
Residual Load =	7.14 MBtu		Residual Load =	-2.66 MBtu		Residual Load =	-2.66 MBtu		Residual Load =	-2.66 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.92	R-0	.00	31.27	R-0	.00	3.02	R-0	.00	1.36
R-7	-12.82	13.56	R-7	-7.85	14.79	R-7	-1.08	1.22	R-7	-.32	.68
R-11	-14.86	10.15	R-11	-8.97	12.44	R-11	-1.25	.93	R-11	-.37	.58
R-19	-16.70	7.08	R-13	-10.26	9.73	R-19	-1.41	.67	R-13	-.44	.42
R-22	-17.36	5.98	R-19	-10.90	8.39	R-22	-1.47	.57	R-19	-.48	.35
R-30	-18.25	4.51	R-27	-12.03	6.02	R-30	-1.55	.44	R-27	-.52	.27
R-38	-18.78	3.82	R-34	-12.72	4.57	R-38	-1.60	.36	R-34	-.54	.22
R-49	-19.23	2.87				R-49	-1.65	.28			
R-60	-19.52	2.38				R-60	-1.68	.22			
Slope(DD) 6521.44			Slope(DD) 5898.01			Slope(DD) 635.74			Slope(DD) 271.65		
Curve(DDS) -106.568			Curve(DDS) -15.849			Curve(DDS) -21.177			Curve(DDS) -3.607		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.26	54.33	R-0	-7.54	122.33	R-0	-1.36	-8.45	R-0	-.92	2.55
R-5 2ft	-11.56	21.83	R-5 4ft	-9.43	75.08	R-5 2ft	-1.31	-7.20	R-5 4ft	-.99	.80
R-5 4ft	-11.92	12.83	R-5 8ft	-9.98	61.33	R-5 4ft	-1.27	-8.20	R-5 8ft	-.99	.80
R-10 2ft	-11.79	16.08	R-10 4ft	-9.87	64.08	R-10 2ft	-1.30	-8.95	R-10 4ft	-1.01	.30
R-10 4ft	-12.29	3.58	R-10 8ft	-10.68	43.83	R-10 4ft	-1.24	-5.45	R-10 8ft	-1.01	.30
Intercept	-21.615		Intercept	.000		Intercept	-2.009		Intercept	.000	
Slope(DD)	7543.72		Slope(DD)	4374.96		Slope(DD)	-1165.13		Slope(DD)	14.35	
Curve(DDS)	-89.299		Curve(DDS)	-33.606		Curve(DDS)	52.518		Curve(DDS)	1.189	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.54	8.16	R-0	.00	20.72	R-0	-.92	.17	R-0	.00	1.70
R-11 flr	-11.42	1.69	R-11 flr	-11.12	2.19	R-11 flr	-.18	1.40	R-11 flr	.38	2.34
R-19 flr	-12.72	-.48	R-19 flr	-12.94	-.84	R-19 flr	.02	1.74	R-19 flr	.50	2.54
R-30 flr	-13.56	-1.88	R-30 flr	-14.05	-2.69	R-30 flr	.15	1.95	R-30 flr	.55	2.62
			R-38 flr	-14.30	-3.11				R-38 flr	.56	2.64
			R-49 flr	-15.03	-4.33				R-49 flr	.59	2.69
Intercept	-6.746		Intercept	-7.126		Intercept	2.529		Intercept	2.906	
Slope(DD)	5315.57		Slope(DD)	5659.00		Slope(DD)	-781.24		Slope(DD)	-382.72	
Curve(DDS)	-507.945		Curve(DDS)	-44.511		Curve(DDS)	62.631		Curve(DDS)	28.870	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	145.04	ELF Ach			1-Pane	.00	-1.68
.0007(.93)	.00	20.41	2-Pane	-11.84	82.82	.0007(.73)	.00	.50	2-Pane	.01	-1.61
.0005(.68)	-7.56	14.11	3-Pane	-15.18	39.62	.0005(.52)	-.17	.35	3-Pane	.09	-1.07
.0003(.42)	-14.67	8.18	R-10	-19.11	12.33	.0003(.31)	-.34	.21	R-10	.18	-.43
Slope/.001ELF	25.875		Slope(DD)	5219.61		Slope/.001ELF	.708		Slope(DD)	-196.34	
Curve/.001ELF	4.688		Curve(DDS)	10.395		Curve/.001ELF	.000		Curve(DDS)	5.021	
Base Load = 85.28 MBtu			Base Load = 9.12 MBtu			Base Load = 9.12 MBtu			Base Load = 9.12 MBtu		
Typical Load = 26.77 MBtu			Typical Load = 5.89 MBtu			Typical Load = 5.89 MBtu			Typical Load = 5.89 MBtu		
Residual Load = 1.58 MBtu			Residual Load = 2.11 MBtu			Residual Load = 2.11 MBtu			Residual Load = 2.11 MBtu		

Boston MA

WYEC

MApartment Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.11	R-0	.00	31.47
R-7	-12.60	13.10	R-7	-5.34	14.63
R-11	-14.62	9.75	R-11	-8.10	12.23
R-19	-16.42	6.73	R-13	-6.96	9.52
R-22	-17.06	5.68	R-19	-7.38	8.17
R-30	-17.90	4.28	R-27	-8.12	6.87
R-38	-18.41	3.43	R-34	-8.56	4.45
R-49	-18.84	2.72			
R-60	-19.11	2.26			
Slope(DD)	6163.12		Slope(DD)	5697.56	
Curve(DDS)	-69.124		Curve(DDS)	28.509	
Slab (/ft)			Heated Basement (/ft)		
R-0	-11.31	71.13	R-0	-9.07	145.63
R-5 2ft	-12.33	38.96	R-5 4ft	-10.80	88.13
R-5 4ft	-12.63	27.30	R-5 8ft	-11.31	71.30
R-10 2ft	-12.51	30.96	R-10 4ft	-11.20	74.80
R-10 4ft	-12.91	17.63	R-10 8ft	-11.91	51.13
Intercept	-9.237		Intercept	.000	
Slope(DD)	8056.15		Slope(DD)	5061.53	
Curve(DDS)	-100.775		Curve(DDS)	-36.393	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-9.07	7.28	R-0	.00	22.41
R-11 flr	-12.22	2.04	R-11 flr	-11.43	3.35
R-19 flr	-13.38	.11	R-19 flr	-13.28	.27
R-30 flr	-14.12	-1.13	R-30 flr	-14.41	-1.61
			R-38 flr	-14.66	-2.04
			R-49 flr	-15.41	-3.27
Intercept	-4.604		Intercept	-6.092	
Slope(DD)	4800.78		Slope(DD)	5712.39	
Curve(DDS)	-484.196		Curve(DDS)	-30.183	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	143.54
.0007(.93)	.00	20.24	2-Pane	-12.00	60.21
.0005(.68)	-7.57	13.93	3-Pane	-15.22	37.85
.0003(.42)	-14.63	8.04	R-10	-19.01	11.56
Slope/.001ELF	25.229		Slope(DD)	4864.67	
Curve/.001ELF	5.261		Curve(DDS)	21.685	
Base Load = 80.84 MBtu			Base Load = 8.07 MBtu		
Typical Load = 24.68 MBtu			Typical Load = 5.20 MBtu		
Residual Load = 1.96 MBtu			Residual Load = 1.79 MBtu		

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	2.82	R-0	.00	1.41
R-7	-1.06	1.05	R-7	-.20	.79
R-11	-1.23	.77	R-11	-.22	.70
R-19	-1.39	.51	R-13	-.27	.58
R-22	-1.43	.43	R-19	-.28	.51
R-30	-1.50	.32	R-27	-.33	.37
R-38	-1.54	.26	R-34	-.36	.28
R-49	-1.57	.20			
R-60	-1.59	.17			
Slope(DD)	460.65		Slope(DD)	382.81	
Curve(DDS)	2.590		Curve(DDS)	-22.322	
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.04	-6.72	R-0	-.82	.78
R-5 2ft	-.99	-5.05	R-5 4ft	-.87	-1.05
R-5 4ft	-.98	-4.72	R-5 8ft	-.84	-.05
R-10 2ft	-.99	-4.88	R-10 4ft	-.88	-1.38
R-10 4ft	-.95	-3.88	R-10 8ft	-.87	-.88
Intercept	-1.927		Intercept	.000	
Slope(DD)	-652.68		Slope(DD)	-102.27	
Curve(DDS)	20.822		Curve(DDS)	2.981	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.82	.04	R-0	.00	1.40
R-11 flr	-.27	.95	R-11 flr	.35	1.99
R-19 flr	-.10	1.23	R-19 flr	.39	2.05
R-30 flr	.00	1.41	R-30 flr	.43	2.11
			R-38 flr	.43	2.12
			R-49 flr	.46	2.16
Intercept	1.896		Intercept	2.208	
Slope(DD)	-670.49		Slope(DD)	-124.08	
Curve(DDS)	60.133		Curve(DDS)	-6.612	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-2.52
.0007(.73)	.00	.40	2-Pane	-.01	-2.63
.0005(.52)	-.15	.28	3-Pane	.11	-1.75
.0003(.31)	-.29	.16	R-10	.26	-.72
Slope/.001ELF	.500		Slope(DD)	-326.28	
Curve/.001ELF	.104		Curve(DDS)	8.737	
Base Load = 8.07 MBtu			Base Load = 8.07 MBtu		
Typical Load = 5.20 MBtu			Typical Load = 5.20 MBtu		
Residual Load = 1.79 MBtu			Residual Load = 1.79 MBtu		

Brownsville TX WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	4.97	R-0	.00	3.68	R-0	.00	9.92	R-0	.00	5.88
R-7	-4.87	1.81	R-7	-2.45	1.50	R-7	-9.39	3.83	R-7	-3.53	2.54
R-11	-5.64	1.31	R-11	-2.80	1.19	R-11	-10.88	2.86	R-11	-4.03	2.10
R-19	-6.34	.86	R-13	-3.15	.88	R-19	-12.23	1.98	R-13	-4.54	1.64
R-22	-6.55	.72	R-19	-3.32	.73	R-22	-12.70	1.68	R-19	-4.79	1.42
R-30	-6.84	.53	R-27	-3.55	.53	R-30	-13.32	1.27	R-27	-5.26	1.00
R-38	-7.01	.42	R-34	-3.69	.40	R-38	-13.70	1.03	R-34	-5.55	.74
R-49	-7.14	.34				R-49	-14.05	.80			
R-60	-7.22	.29				R-60	-14.27	.66			
Slope(DD)	757.24		Slope(DD)	471.10		Slope(DD)	1823.09		Slope(DD)	952.87	
Curve(DDS)	13.772		Curve(DDS)	39.783		Curve(DDS)	-25.187		Curve(DDS)	19.233	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-3.85	2.58	R-0	-3.15	6.80	R-0	-10.29	5.74	R-0	-4.37	41.40
R-5 2ft	-4.18	.59	R-5 4ft	-3.93	2.10	R-5 2ft	-10.88	2.18	R-5 4ft	-4.97	37.78
R-5 4ft	-4.23	.29	R-5 8ft	-4.06	1.32	R-5 4ft	-11.01	1.40	R-5 8ft	-5.12	36.88
R-10 2ft	-4.22	.35	R-10 4ft	-4.05	1.38	R-10 2ft	-11.01	1.40	R-10 4ft	-5.18	36.64
R-10 4ft	-4.26	.11	R-10 8ft	-4.18	.59	R-10 4ft	-11.09	.92	R-10 8ft	-5.39	35.25
Intercept	.000		Intercept	-.689		Intercept	.000		Intercept	31.627	
Slope(DD)	-58.37		Slope(DD)	99.18		Slope(DD)	173.02		Slope(DD)	402.70	
Curve(DDS)	31.250		Curve(DDS)	2.597		Curve(DDS)	39.432		Curve(DDS)	-3.817	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.15	.73	R-0	.00	2.78	R-0	-4.37	4.46	R-0	.00	7.30
R-11 flr	-3.98	.19	R-11 flr	-3.25	.67	R-11 flr	-3.60	4.96	R-11 flr	-1.58	6.27
R-19 flr	-4.13	.10	R-19 flr	-3.65	.41	R-19 flr	-3.67	4.92	R-19 flr	-2.22	5.86
R-30 flr	-4.23	.03	R-30 flr	-3.85	.28	R-30 flr	-3.72	4.88	R-30 flr	-2.72	5.54
			R-38 flr	-3.90	.25				R-38 flr	-2.83	5.48
			R-49 flr	-4.03	.18				R-49 flr	-3.16	5.25
Intercept	-.123		Intercept	-.028		Intercept	4.744		Intercept	4.715	
Slope(DD)	202.10		Slope(DD)	351.90		Slope(DD)	220.56		Slope(DD)	1148.62	
Curve(DDS)	-6.867		Curve(DDS)	38.091		Curve(DDS)	-53.728		Curve(DDS)	-125.685	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	13.25	ELF Ach			1-Pane	.00	7.66
.0007(.73)	.00	1.47	2-Pane	-1.68	4.27	.0007(.68)	.00	9.82	2-Pane	-1.09	1.76
.0005(.52)	-.97	.84	3-Pane	-1.97	2.60	.0005(.48)	-4.01	7.22	3-Pane	-1.23	1.02
.0003(.31)	-1.68	.37	R-10	-2.33	.64	.0003(.30)	-8.27	4.45	R-10	-1.39	.14
Slope/.001ELF	.617		Slope(DD)	251.45		Slope/.001ELF	15.455		Slope(DD)	37.39	
Curve/.001ELF	2.110		Curve(DDS)	9.489		Curve/.001ELF	-2.029		Curve(DDS)	9.578	
Base Load =	19.74 MBtu		Base Load =	76.72 MBtu		Base Load =	76.72 MBtu		Base Load =	76.72 MBtu	
Typical Load =	5.45 MBtu		Typical Load =	45.57 MBtu		Typical Load =	45.57 MBtu		Typical Load =	45.57 MBtu	
Residual Load =	.19 MBtu		Residual Load =	11.31 MBtu		Residual Load =	11.31 MBtu		Residual Load =	11.31 MBtu	

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.86	R-0	.00	3.34
R-7	-1.90	1.70	R-7	-.96	1.31
R-11	-2.20	1.20	R-11	-1.10	1.03
R-19	-2.47	.74	R-13	-1.23	.76
R-22	-2.54	.62	R-19	-1.29	.63
R-30	-2.64	.46	R-27	-1.38	.45
R-38	-2.70	.36	R-34	-1.43	.33
R-49	-2.74	.29			
R-60	-2.77	.24			
Slope(DD)			Slope(DD)		
Curve(DDS)			Curve(DDS)		
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.43	2.22	R-0	-1.25	6.72
R-5 2ft	-1.48	.97	R-5 4ft	-1.43	2.22
R-5 4ft	-1.49	.72	R-5 8ft	-1.45	1.72
R-10 2ft	-1.49	.72	R-10 4ft	-1.45	1.72
R-10 4ft	-1.50	.47	R-10 8ft	-1.48	.97
Intercept	.000		Intercept	.062	
Slope(DD)	131.62		Slope(DD)	66.00	
Curve(DDS)	8.872		Curve(DDS)	2.908	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.25	.45	R-0	.00	2.53
R-11 flr	-1.41	.18	R-11 flr	-1.07	.75
R-19 flr	-1.45	.12	R-19 flr	-1.20	.53
R-30 flr	-1.47	.08	R-30 flr	-1.27	.42
			R-38 flr	-1.28	.40
			R-49 flr	-1.32	.33
Intercept	-.019		Intercept	.174	
Slope(DD)	135.12		Slope(DD)	286.61	
Curve(DDS)	-8.665		Curve(DDS)	33.781	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	10.91
.0007(.73)	.00	1.13	2-Pane	-1.11	3.21
.0005(.52)	-.65	.59	3-Pane	-1.29	1.93
.0003(.31)	-1.09	.22	R-10	-1.51	.43
Slope/.001ELF	.083		Slope(DD)	159.54	
Curve/.001ELF	2.188		Curve(DDS)	9.617	
Base Load =			8.49 MBtu		
Typical Load =			2.79 MBtu		
Residual Load =			.54 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.10	R-0	.00	5.12
R-7	-3.48	3.31	R-7	-1.33	2.33
R-11	-4.03	2.39	R-11	-1.52	1.93
R-19	-4.53	1.55	R-13	-1.73	1.50
R-22	-4.67	1.32	R-19	-1.83	1.28
R-30	-4.86	1.01	R-27	-2.00	.92
R-38	-4.97	.82	R-34	-2.11	.70
R-49	-5.09	.62			
R-60	-5.17	.49			
Slope(DD)			Slope(DD)		
Curve(DDS)			Curve(DDS)		
Slab (/ft)			Heated Basement (/ft)		
R-0	-3.91	2.21	R-0	-1.59	60.21
R-5 2ft	-4.03	-.79	R-5 4ft	-1.77	55.71
R-5 4ft	-4.03	-.79	R-5 8ft	-1.80	54.96
R-10 2ft	-4.05	-1.29	R-10 4ft	-1.82	54.46
R-10 4ft	-4.04	-1.04	R-10 8ft	-1.84	53.96
Intercept	.000		Intercept	52.238	
Slope(DD)	-582.45		Slope(DD)	149.11	
Curve(DDS)	79.563		Curve(DDS)	1.629	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.59	4.01	R-0	.00	6.66
R-11 flr	-1.08	4.88	R-11 flr	-.18	6.36
R-19 flr	-1.07	4.88	R-19 flr	-.40	6.00
R-30 flr	-1.06	4.90	R-30 flr	-.50	5.83
			R-38 flr	-.52	5.80
			R-49 flr	-.58	5.69
Intercept	4.864		Intercept	5.218	
Slope(DD)	78.90		Slope(DD)	861.61	
Curve(DDS)	-47.740		Curve(DDS)	-113.015	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-5.57
.0007(.68)	.00	9.56	2-Pane	-.38	-8.21
.0005(.49)	-2.94	7.11	3-Pane	.01	-5.53
.0003(.30)	-6.15	4.43	R-10	.46	-2.38
Slope/.001ELF	15.625		Slope(DD)	-1089.67	
Curve/.001ELF	-2.812		Curve(DDS)	33.279	
Base Load =			52.15 MBtu		
Typical Load =			39.13 MBtu		
Residual Load =			17.07 MBtu		

Brownsville-TX WYEC MApartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.97	R-0	.00	3.13	R-0	.00	9.53	R-0	.00	5.45
R-7	-1.95	1.71	R-7	-.62	1.17	R-7	-3.61	3.51	R-7	-.92	2.55
R-11	-2.26	1.19	R-11	-.71	.89	R-11	-4.19	2.55	R-11	-1.05	2.14
R-19	-2.55	.73	R-13	-.79	.65	R-19	-4.71	1.69	R-13	-1.20	1.67
R-22	-2.62	.61	R-19	-.83	.53	R-22	-4.87	1.41	R-19	-1.27	1.44
R-30	-2.71	.45	R-27	-.87	.37	R-30	-5.09	1.04	R-27	-1.40	1.03
R-38	-2.77	.35	R-34	-.91	.28	R-38	-5.22	.82	R-34	-1.48	.78
R-49	-2.81	.28				R-49	-5.32	.67			
R-60	-2.84	.23				R-60	-5.38	.57			
Slope(DD)	612.34		Slope(DD)	308.68		Slope(DD)	1498.21		Slope(DD)	1004.92	
Curve(DDS)	38.024		Curve(DDS)	50.882		Curve(DDS)	18.393		Curve(DDS)	1.488	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-1.48	1.67	R-0	-1.38	5.00	R-0	-3.16	5.39	R-0	-1.42	63.39
R-5 2ft	-1.51	.50	R-5 4ft	-1.52	.34	R-5 2ft	-3.28	1.22	R-5 4ft	-1.56	58.72
R-5 4ft	-1.52	.34	R-5 8ft	-1.54	-.33	R-5 4ft	-3.30	.72	R-5 8ft	-1.58	58.08
R-10 2ft	-1.52	.34	R-10 4ft	-1.54	-.33	R-10 2ft	-3.30	.72	R-10 4ft	-1.61	56.89
R-10 4ft	-1.52	.17	R-10 8ft	-1.56	-1.00	R-10 4ft	-3.31	.22	R-10 8ft	-1.63	56.22
Intercept	.000		Intercept	-1.948		Intercept	.000		Intercept	53.111	
Slope(DD)	12.31		Slope(DD)	62.83		Slope(DD)	-113.86		Slope(DD)	318.65	
Curve(DDS)	15.251		Curve(DDS)	3.197		Curve(DDS)	64.419		Curve(DDS)	-1.238	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.38	.25	R-0	.00	2.54	R-0	-1.42	3.17	R-0	.00	5.54
R-11 flr	-1.49	.07	R-11 flr	-1.14	.64	R-11 flr	-.81	4.19	R-11 flr	.06	5.63
R-19 flr	-1.51	.02	R-19 flr	-1.26	.44	R-19 flr	-.79	4.22	R-19 flr	-.17	5.25
R-30 flr	-1.53	-.01	R-30 flr	-1.33	.33	R-30 flr	-.77	4.24	R-30 flr	-.31	5.02
			R-38 flr	-1.35	.30				R-38 flr	-.35	4.96
			R-49 flr	-1.39	.22				R-49 flr	-.44	4.80
Intercept	-.085		Intercept	.097		Intercept	4.228		Intercept	4.281	
Slope(DD)	104.08		Slope(DD)	255.93		Slope(DD)	61.39		Slope(DD)	1085.37	
Curve(DDS)	-7.533		Curve(DDS)	43.048		Curve(DDS)	-52.245		Curve(DDS)	-163.147	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	10.29	ELF Ach			1-Pane	.00	-3.12
.0007(.73)	.00	1.07	2-Pane	-1.05	3.00	.0007(.68)	.00	9.54	2-Pane	-.47	-6.35
.0005(.52)	-.63	.55	3-Pane	-1.22	1.80	.0005(.49)	-2.86	7.16	3-Pane	-.17	-4.31
.0003(.31)	-1.05	.20	R-10	-1.43	.40	.0003(.30)	-6.05	4.50	R-10	.17	-1.91
Slope/.001ELF	-.000		Slope(DD)	146.96		Slope/.001ELF	16.042		Slope(DD)	-879.07	
Curve/.001ELF	2.188		Curve(DDS)	9.201		Curve/.001ELF	-3.438		Curve(DDS)	28.817	
Base Load = 7.90 MBtu			Base Load = 49.59 MBtu			Base Load = 49.59 MBtu			Base Load = 49.59 MBtu		
Typical Load = 2.51 MBtu			Typical Load = 37.69 MBtu			Typical Load = 37.69 MBtu			Typical Load = 37.69 MBtu		
Residual Load = .64 MBtu			Residual Load = 15.31 MBtu			Residual Load = 15.31 MBtu			Residual Load = 15.31 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	38.26	R-0	.00	38.62
R-7	-35.36	15.29	R-7	-20.90	18.02
R-11	-41.01	11.02	R-11	-23.87	15.38
R-19	-48.08	8.33	R-13	-27.51	12.14
R-22	-48.04	7.06	R-19	-29.31	10.53
R-30	-50.06	5.35	R-27	-32.63	7.58
R-38	-52.24	4.33	R-34	-34.67	5.78
R-49	-53.66	3.40			
R-60	-54.58	2.81			
Slope(DD)	7784.54		Slope(DD)	7549.53	
Curve(DDS)	-224.877		Curve(DDS)	-137.921	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-24.55	57.04	R-0	-14.70	118.37
R-5 2ft	-30.49	21.25	R-5 4ft	-20.76	79.87
R-5 4ft	-32.27	10.53	R-5 8ft	-23.05	66.07
R-10 2ft	-31.59	14.63	R-10 4ft	-22.39	70.05
R-10 4ft	-34.11	-1.58	R-10 8ft	-25.98	48.54
Intercept	-32.776		Intercept	.000	
Slope(DD)	10224.06		Slope(DD)	5152.42	
Curve(DDS)	-200.767		Curve(DDS)	-56.054	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-14.70	12.54	R-0	.00	22.09
R-11 flr	-32.96	.69	R-11 flr	-34.04	-.01
R-19 flr	-38.07	-2.63	R-19 flr	-39.75	-3.72
R-30 flr	-41.36	-4.77	R-30 flr	-43.36	-6.06
			R-38 flr	-44.18	-6.60
			R-49 flr	-46.58	-8.14
Intercept	-10.512		Intercept	-11.643	
Slope(DD)	7808.84		Slope(DD)	7175.68	
Curve(DDS)	-646.020		Curve(DDS)	-116.515	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	180.92
.0007(.96)	.00	26.14	2-Pane	-17.58	85.79
.0005(.69)	-11.64	18.58	3-Pane	-23.35	54.56
.0003(.43)	-23.17	11.10	R-10	-30.14	17.83
Slope/.001ELF	38.721		Slope(DD)	7650.43	
Curve/.001ELF	.893		Curve(DDS)	-30.202	
Base Load =	205.37 MBtu				
Typical Load =	73.84 MBtu				
Residual Load =	8.90 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	2.69	R-0	.00	1.23
R-7	-2.45	1.10	R-7	-.61	.68
R-11	-2.84	.85	R-11	-.70	.61
R-19	-3.19	.62	R-13	-.85	.47
R-22	-3.33	.53	R-19	-.93	.40
R-30	-3.51	.41	R-27	-1.04	.30
R-38	-3.62	.34	R-34	-1.11	.24
R-49	-3.75	.28			
R-60	-3.83	.20			
Slope(DD)	587.12		Slope(DD)	316.22	
Curve(DDS)	-22.544		Curve(DDS)	-18.249	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.91	-2.27	R-0	-2.04	2.97
R-5 2ft	-2.76	-1.37	R-5 4ft	-2.37	.98
R-5 4ft	-2.66	-.77	R-5 8ft	-2.40	.80
R-10 2ft	-2.72	-1.13	R-10 4ft	-2.48	.32
R-10 4ft	-2.58	-.29	R-10 8ft	-2.47	.38
Intercept	1.784		Intercept	.000	
Slope(DD)	-706.77		Slope(DD)	15.59	
Curve(DDS)	30.918		Curve(DDS)	1.474	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-2.04	.32	R-0	.00	1.64
R-11 flr	-.46	1.35	R-11 flr	.94	2.25
R-19 flr	.03	1.66	R-19 flr	1.10	2.36
R-30 flr	.34	1.87	R-30 flr	1.30	2.49
			R-38 flr	1.35	2.52
			R-49 flr	1.48	2.61
Intercept	2.421		Intercept	2.734	
Slope(DD)	-760.52		Slope(DD)	-336.42	
Curve(DDS)	68.392		Curve(DDS)	24.184	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.64
.0007(.70)	.00	.24	2-Pane	-.04	.43
.0005(.50)	-.13	.15	3-Pane	-.07	.28
.0003(.30)	-.24	.08	R-10	-.10	.10
Slope/.001ELF	.227		Slope(DD)	46.09	
Curve/.001ELF	.162		Curve(DDS)	-.820	
Base Load =	9.23 MBtu				
Typical Load =	2.14 MBtu				
Residual Load =	-1.92 MBtu				

Buffalo NY TMY Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 40.17	R-0	.00 38.20
R-7	-14.72 15.83	R-7	-9.03 17.28
R-11	-17.07 11.72	R-11	-10.31 14.57
R-19	-19.18 8.20	R-13	-11.81 11.42
R-22	-19.94 6.93	R-19	-12.55 9.86
R-30	-20.96 5.24	R-27	-13.88 7.08
R-38	-21.57 4.22	R-34	-14.69 5.37
R-49	-22.10 3.32		
R-60	-22.45 2.75		
Slope(DD)	7564.10	Slope(DD)	6960.26
Curve(DDS)	-133.141	Curve(DDS)	-42.685
Slab	(/ft)	Heated Basement	(/ft)
R-0	-11.96 62.17	R-0	-8.62 145.67
R-5 2ft	-13.45 24.92	R-5 4ft	-10.78 91.67
R-5 4ft	-13.87 14.42	R-5 8ft	-11.45 74.92
R-10 2ft	-13.71 18.42	R-10 4ft	-11.30 78.67
R-10 4ft	-14.30 3.67	R-10 8ft	-12.28 54.17
Intercept	-26.623	Intercept	.000
Slope(DD)	9453.89	Slope(DD)	5591.85
Curve(DDS)	-140.507	Curve(DDS)	-48.673
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-8.62 9.71	R-0	.00 24.08
R-11 flr	-13.04 2.34	R-11 flr	-12.67 2.96
R-19 flr	-14.55 -1.17	R-19 flr	-14.77 -.54
R-30 flr	-15.52 -1.79	R-30 flr	-16.10 -2.75
		R-38 flr	-16.40 -3.26
		R-49 flr	-17.27 -4.71
Intercept	-6.282	Intercept	-7.997
Slope(DD)	6180.86	Slope(DD)	6736.84
Curve(DDS)	-597.118	Curve(DDS)	-93.956
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 169.67
.0007(***)	.00 24.62	2-Pane	-13.41 76.54
.0005(.72)	-8.89 17.21	3-Pane	-17.45 48.46
.0003(.43)	-17.42 10.10	R-10	-22.21 15.43
Slope/.001ELF	32.541	Slope(DD)	6574.70
Curve/.001ELF	3.750	Curve(DDS)	-5.600

Base Load = 101.86 MBtu
Typical Load = 34.46 MBtu
Residual Load = .98 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 2.52	R-0	.00 1.05
R-7	-.92 .99	R-7	-.22 .60
R-11	-1.07 .74	R-11	-.25 .53
R-19	-1.20 .52	R-13	-.32 .39
R-22	-1.25 .44	R-19	-.35 .32
R-30	-1.31 .34	R-27	-.38 .26
R-38	-1.35 .27	R-34	-.40 .22
R-49	-1.39 .21		
R-60	-1.41 .17		
Slope(DD)	486.30	Slope(DD)	268.16
Curve(DDS)	-10.217	Curve(DDS)	-13.359
Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.13 -8.32	R-0	-.78 .43
R-5 2ft	-1.07 -6.82	R-5 4ft	-.84 -1.07
R-5 4ft	-1.03 -5.82	R-5 8ft	-.79 .18
R-10 2ft	-1.05 -6.32	R-10 4ft	-.85 -1.32
R-10 4ft	-1.03 -5.82	R-10 8ft	-.83 -.82
Intercept	-4.469	Intercept	.000
Slope(DD)	-373.61	Slope(DD)	-89.09
Curve(DDS)	2.732	Curve(DDS)	2.489
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.78 .03	R-0	.00 1.33
R-11 flr	-.10 1.16	R-11 flr	.47 2.11
R-19 flr	.15 1.58	R-19 flr	.56 2.26
R-30 flr	.31 1.85	R-30 flr	.66 2.42
		R-38 flr	.68 2.46
		R-49 flr	.74 2.57
Intercept	2.595	Intercept	2.747
Slope(DD)	-1035.61	Slope(DD)	-444.45
Curve(DDS)	104.338	Curve(DDS)	32.724
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -2.04
.0007(.70)	.00 .20	2-Pane	.08 -1.48
.0005(.50)	-.07 .15	3-Pane	.15 -.97
.0003(.30)	-.14 .09	R-10	.24 -.37
Slope/.001ELF	.292	Slope(DD)	-165.14
Curve/.001ELF	.000	Curve(DDS)	3.333

Base Load = 6.77 MBtu
Typical Load = 4.24 MBtu
Residual Load = 2.14 MBtu

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 39.22	R-0	.00 38.54
R-7	-14.43 15.17	R-7	-6.12 17.22
R-11	-16.73 11.34	R-11	-6.99 14.47
R-19	-18.80 7.89	R-13	-7.99 11.32
R-22	-19.53 6.66	R-19	-8.49 9.75
R-30	-20.52 5.03	R-27	-9.36 7.00
R-38	-21.11 4.04	R-34	-9.90 5.31
R-49	-21.62 3.19		
R-60	-21.94 2.65		
Slope(DD)	7249.68	Slope(DD)	6840.95
Curve(DDS)	-107.013	Curve(DDS)	-8.977
Slab	(/ft)	Heated Basement	(/ft)
R-0	-13.03 77.30	R-0	-10.29 108.80
R-5 2ft	-14.20 38.47	R-5 4ft	-12.25 103.30
R-5 4ft	-14.55 26.97	R-5 8ft	-12.83 84.14
R-10 2ft	-14.41 31.47	R-10 4ft	-12.71 88.14
R-10 4ft	-14.89 15.64	R-10 8ft	-13.54 60.47
Intercept	-17.417	Intercept	.000
Slope(DD)	10370.65	Slope(DD)	6183.67
Curve(DDS)	-175.171	Curve(DDS)	-48.985
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-10.29 8.44	R-0	.00 25.59
R-11 flr	-13.84 2.52	R-11 flr	-12.91 4.07
R-19 flr	-15.16 .32	R-19 flr	-15.03 .54
R-30 flr	-16.00 -1.08	R-30 flr	-16.37 -1.69
		R-38 flr	-16.67 -2.19
		R-49 flr	-17.55 -3.66
Intercept	-5.041	Intercept	-8.956
Slope(DD)	5463.17	Slope(DD)	6755.34
Curve(DDS)	-552.698	Curve(DDS)	-79.649
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 169.02
.0007(***)	.00 24.57	2-Pane	-13.54 75.00
.0005(.72)	-8.88 17.17	3-Pane	-17.51 47.41
.0003(.43)	-17.40 10.07	R-10	-22.19 14.96
Slope/.001ELF	32.437	Slope(DD)	6356.96
Curve/.001ELF	3.802	Curve(DDS)	1.722

Base Load = 96.20 MBtu
Typical Load = 31.93 MBtu
Residual Load = 1.00 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 2.34	R-0	.00 .92
R-7	-.87 .89	R-7	-.15 .45
R-11	-1.01 .68	R-11	-.17 .38
R-19	-1.14 .45	R-13	-.20 .29
R-22	-1.17 .39	R-19	-.22 .24
R-30	-1.23 .30	R-27	-.23 .18
R-38	-1.26 .24	R-34	-.25 .14
R-49	-1.30 .18		
R-60	-1.32 .14		
Slope(DD)	416.08	Slope(DD)	178.54
Curve(DDS)	-3.494	Curve(DDS)	-1.502
Slab	(/ft)	Heated Basement	(/ft)
R-0	-.79 -4.40	R-0	-.63 .93
R-5 2ft	-.74 -2.90	R-5 4ft	-.67 -.57
R-5 4ft	-.72 -2.07	R-5 8ft	-.67 -.40
R-10 2ft	-.74 -2.57	R-10 4ft	-.68 -.90
R-10 4ft	-.69 -1.07	R-10 8ft	-.67 -.57
Intercept	2.477	Intercept	.000
Slope(DD)	-1246.66	Slope(DD)	-82.18
Curve(DDS)	56.469	Curve(DDS)	2.643
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.63 .05	R-0	.00 1.10
R-11 flr	-.17 .80	R-11 flr	.34 1.65
R-19 flr	-.01 1.08	R-19 flr	.41 1.77
R-30 flr	.10 1.26	R-30 flr	.47 1.88
		R-38 flr	.49 1.90
		R-49 flr	.53 1.98
Intercept	1.767	Intercept	2.112
Slope(DD)	-694.92	Slope(DD)	-317.10
Curve(DDS)	70.105	Curve(DDS)	23.231
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -2.77
.0007(.70)	.00 .02	2-Pane	.07 -2.25
.0005(.50)	-.05 -.02	3-Pane	.19 -1.48
.0003(.30)	-.06 -.04	R-10	.32 -.58
Slope/.001ELF	-.229	Slope(DD)	-260.24
Curve/.001ELF	.365	Curve(DDS)	5.887

Base Load = 5.82 MBtu
Typical Load = 3.70 MBtu
Residual Load = 1.98 MBtu

Burlington VT TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	42.17	R-0	.00	40.42
R-7	-38.85	16.94	R-7	-22.98	19.97
R-11	-45.06	12.91	R-11	-26.25	17.06
R-19	-50.63	9.29	R-13	-30.28	13.47
R-22	-52.81	7.88	R-19	-32.28	11.70
R-30	-55.73	5.98	R-27	-35.96	8.42
R-38	-57.49	4.84	R-34	-38.22	6.41
R-49	-59.08	3.80			
R-60	-60.11	3.14			
Slope(DD)	8707.19		Slope(DD)	8401.19	
Curve(DDS)	-269.002		Curve(DDS)	-164.760	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-24.45	67.28	R-0	-13.68	132.16
R-5 2ft	-31.36	25.65	R-5 4ft	-20.69	89.93
R-5 4ft	-33.42	13.24	R-5 8ft	-23.26	74.46
R-10 2ft	-32.65	17.88	R-10 4ft	-22.56	78.66
R-10 4ft	-35.64	.47	R-10 8ft	-26.59	54.39
Intercept	-35.793		Intercept	.000	
Slope(DD)	11229.48		Slope(DD)	5641.92	
Curve(DDS)	-197.484		Curve(DDS)	-58.748	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-13.68	14.25	R-0	.00	23.13
R-11 flr	-34.15	.95	R-11 flr	-35.62	-.00
R-19 flr	-39.90	-2.78	R-19 flr	-41.83	-4.03
R-30 flr	-43.60	-5.18	R-30 flr	-45.82	-6.62
			R-38 flr	-46.73	-7.22
			R-49 flr	-49.38	-8.92
Intercept	-11.649		Intercept	-12.022	
Slope(DD)	8792.64		Slope(DD)	8031.50	
Curve(DDS)	-729.907		Curve(DDS)	-199.070	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	192.28
.0007(.81)	.00	24.90	2-Pane	-18.16	94.01
.0005(.58)	-11.13	17.67	3-Pane	-24.46	59.94
.0003(.35)	-22.12	10.53	R-10	-31.86	19.88
Slope/.001ELF	34.773		Slope(DD)	8585.09	
Curve/.001ELF	1.136		Curve(DDS)	-48.552	

Base Load = 216.81 MBtu
 Typical Load = 77.06 MBtu
 Residual Load = 11.20 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	3.25	R-0	.00	1.39
R-7	-2.96	1.33	R-7	-.70	.77
R-11	-3.44	1.02	R-11	-.80	.68
R-19	-3.86	.75	R-13	-.97	.53
R-22	-4.04	.63	R-19	-1.06	.45
R-30	-4.28	.47	R-27	-1.18	.34
R-38	-4.43	.38	R-34	-1.26	.27
R-49	-4.54	.31			
R-60	-4.61	.26			
Slope(DD)	701.65		Slope(DD)	352.00	
Curve(DDS)	-25.782		Curve(DDS)	-17.304	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.56	-2.97	R-0	-1.79	1.67
R-5 2ft	-2.38	-1.89	R-5 4ft	-2.04	.16
R-5 4ft	-2.28	-1.28	R-5 8ft	-2.02	.28
R-10 2ft	-2.34	-1.65	R-10 4ft	-2.09	-.14
R-10 4ft	-2.23	-.98	R-10 8ft	-2.08	-.08
Intercept	.512		Intercept	.000	
Slope(DD)	-477.19		Slope(DD)	-22.60	
Curve(DDS)	15.144		Curve(DDS)	1.574	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-1.79	.18	R-0	.00	1.34
R-11 flr	-.21	1.21	R-11 flr	.94	1.95
R-19 flr	.23	1.49	R-19 flr	1.06	2.03
R-30 flr	.51	1.67	R-30 flr	1.19	2.12
			R-38 flr	1.22	2.13
			R-49 flr	1.31	2.19
Intercept	2.165		Intercept	2.268	
Slope(DD)	-667.76		Slope(DD)	-199.55	
Curve(DDS)	54.732		Curve(DDS)	3.782	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-.03
.0007(.56)	.00	.19	2-Pane	.05	.24
.0005(.40)	-.07	.14	3-Pane	.04	.17
.0003(.24)	-.15	.09	R-10	.02	.08
Slope/.001ELF	.325		Slope(DD)	38.23	
Curve/.001ELF	-.081		Curve(DDS)	-1.486	

Base Load = 9.09 MBtu
 Typical Load = 1.54 MBtu
 Residual Load = -2.09 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	44.30	R-0	.00	39.80
R-7	-16.18	17.33	R-7	-9.88	19.11
R-11	-18.76	13.03	R-11	-11.26	16.17
R-19	-21.08	9.16	R-13	-12.92	12.67
R-22	-21.93	7.75	R-19	-13.75	10.94
R-30	-23.06	6.86	R-27	-15.21	7.87
R-38	-23.75	4.71	R-34	-16.11	6.99
R-49	-24.35	3.72			
R-60	-24.73	3.08			
Slope(DD)	8475.64		Slope(DD)	7763.74	
Curve(DDS)	-169.359		Curve(DDS)	-87.729	
Slab (/ft)			Heated Basement (/ft)		
R-0	-12.17	71.57	R-0	-8.49	163.57
R-5 2ft	-13.89	28.57	R-5 4ft	-10.98	101.32
R-5 4ft	-14.37	16.57	R-5 8ft	-11.73	82.57
R-10 2ft	-14.20	20.82	R-10 4ft	-11.58	86.32
R-10 4ft	-14.85	4.57	R-10 8ft	-12.68	59.32
Intercept	-28.240		Intercept	.000	
Slope(DD)	9904.23		Slope(DD)	5954.78	
Curve(DDS)	-106.941		Curve(DDS)	-47.318	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.49	10.90	R-0	.00	25.05
R-11 flr	-13.45	2.64	R-11 flr	-13.14	3.15
R-19 flr	-15.14	-.18	R-19 flr	-15.41	-.63
R-30 flr	-16.23	-2.00	R-30 flr	-16.84	-3.02
			R-38 flr	-17.17	-3.56
			R-49 flr	-18.11	-5.14
Intercept	-7.032		Intercept	-8.761	
Slope(DD)	6927.09		Slope(DD)	7419.60	
Curve(DDS)	-668.759		Curve(DDS)	-160.929	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	177.02
.0007(.83)	.00	23.19	2-Pane	-13.77	81.40
.0005(.59)	-8.45	16.15	3-Pane	-18.06	51.62
.0003(.36)	-16.50	9.44	R-10	-23.10	16.61
Slope/.001ELF	30.208		Slope(DD)	7095.28	
Curve/.001ELF	4.167		Curve(DDS)	-14.767	

Base Load = 105.13 MBtu
 Typical Load = 34.43 MBtu
 Residual Load = 2.67 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	3.02	R-0	.00	1.32
R-7	-1.11	1.17	R-7	-.27	.75
R-11	-1.28	.88	R-11	-.31	.67
R-19	-1.44	.62	R-13	-.38	.52
R-22	-1.51	.60	R-19	-.41	.46
R-30	-1.60	.36	R-27	-.47	.34
R-38	-1.65	.27	R-34	-.50	.27
R-49	-1.66	.24			
R-60	-1.67	.23			
Slope(DD)	552.88		Slope(DD)	354.11	
Curve(DDS)	-7.467		Curve(DDS)	-20.345	
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.01	-8.72	R-0	-.70	-.97
R-5 2ft	-.93	-6.72	R-5 4ft	-.73	-1.72
R-5 4ft	-.91	-6.22	R-5 8ft	-.71	-1.22
R-10 2ft	-.93	-6.72	R-10 4ft	-.73	-1.72
R-10 4ft	-.87	-5.22	R-10 8ft	-.71	-1.22
Intercept	-2.508		Intercept	.000	
Slope(DD)	-932.79		Slope(DD)	-139.88	
Curve(DDS)	34.214		Curve(DDS)	2.858	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.70	-.08	R-0	.00	1.10
R-11 flr	.00	1.10	R-11 flr	.38	1.74
R-19 flr	.19	1.42	R-19 flr	.41	1.79
R-30 flr	.31	1.62	R-30 flr	.46	1.87
			R-38 flr	.47	1.89
			R-49 flr	.50	1.94
Intercept	2.159		Intercept	1.979	
Slope(DD)	-732.58		Slope(DD)	-145.48	
Curve(DDS)	58.298		Curve(DDS)	-4.979	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-3.02
.0007(.56)	.00	.12	2-Pane	.13	-2.12
.0005(.40)	-.04	.08	3-Pane	.24	-1.39
.0003(.24)	-.08	.05	R-10	.36	-.52
Slope/.001ELF	.167		Slope(DD)	-233.21	
Curve/.001ELF	.000		Curve(DDS)	4.495	

Base Load = 6.31 MBtu
 Typical Load = 3.61 MBtu
 Residual Load = 1.92 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	43.13	R-0	.00	40.14
R-7	-15.81	16.77	R-7	-8.72	18.94
R-11	-18.34	12.67	R-11	-7.68	15.93
R-19	-20.60	8.79	R-13	-8.78	12.43
R-22	-21.42	7.42	R-19	-9.33	10.70
R-30	-22.52	5.59	R-27	-10.28	7.70
R-38	-23.18	4.49	R-34	-10.87	5.85
R-49	-23.74	3.66			
R-60	-24.10	2.96			
Slope(DD) 8092.48			Slope(DD) 7527.35		
Curve(DDS) -138.017			Curve(DDS) -12.101		
Slab (/ft)			Heated Basement (/ft)		
R-0	-13.37	91.14	R-0	-10.38	191.47
R-5 2ft	-14.73	45.97	R-5 4ft	-12.62	116.31
R-5 4ft	-15.13	32.64	R-5 8ft	-13.27	94.64
R-10 2ft	-14.97	37.81	R-10 4ft	-13.14	98.81
R-10 4ft	-15.53	19.31	R-10 8ft	-14.08	67.64
Intercept	-18.629		Intercept	.000	
Slope(DD)	11668.81		Slope(DD)	6748.76	
Curve(DDS)	-184.889		Curve(DDS)	-49.912	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-10.36	9.57	R-0	.00	26.84
R-11 flr	-14.34	2.95	R-11 flr	-13.40	4.51
R-19 flr	-15.82	.48	R-19 flr	-15.69	.68
R-30 flr	-16.77	-1.11	R-30 flr	-17.15	-1.75
			R-38 flr	-17.48	-2.30
			R-49 flr	-18.44	-3.90
Intercept	-5.574		Intercept	-7.557	
Slope(DD)	6187.77		Slope(DD)	7500.72	
Curve(DDS)	-626.709		Curve(DDS)	-154.621	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	177.02
.0007(.81)	.00	22.99	2-Pane	-13.97	80.00
.0005(.59)	-8.45	15.95	3-Pane	-18.20	50.66
.0003(.36)	-16.44	9.28	R-10	-23.16	16.15
Slope/.001ELF 29.520			Slope(DD) 6881.48		
Curve/.001ELF 4.740			Curve(DDS) -6.679		
Base Load = 99.28 MBtu					
Typical Load = 31.73 MBtu					
Residual Load = 2.94 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	3.20	R-0	.00	1.03
R-7	-1.13	1.31	R-7	-.15	.56
R-11	-1.31	1.01	R-11	-.17	.50
R-19	-1.47	.74	R-13	-.21	.38
R-22	-1.54	.63	R-19	-.22	.32
R-30	-1.64	.47	R-27	-.25	.25
R-38	-1.69	.37	R-34	-.26	.20
R-49	-1.74	.30			
R-60	-1.77	.26			
Slope(DD) 697.72			Slope(DD) 254.02		
Curve(DDS) -26.648			Curve(DDS) -11.500		
Slab (/ft)			Heated Basement (/ft)		
R-0	-.66	-3.70	R-0	-.54	.63
R-5 2ft	-.62	-2.03	R-5 4ft	-.57	-.37
R-5 4ft	-.57	-.53	R-5 8ft	-.56	-.20
R-10 2ft	-.60	-1.53	R-10 4ft	-.57	-.53
R-10 4ft	-.53	.80	R-10 8ft	-.56	-.37
Intercept	6.486		Intercept	.000	
Slope(DD)	-1972.86		Slope(DD)	-49.75	
Curve(DDS)	94.518		Curve(DDS)	1.614	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.54	.03	R-0	.00	.92
R-11 flr	-.10	.77	R-11 flr	.38	1.56
R-19 flr	.06	1.02	R-19 flr	.45	1.67
R-30 flr	.16	1.19	R-30 flr	.57	1.88
			R-38 flr	.60	1.92
			R-49 flr	.68	2.06
Intercept	1.654		Intercept	2.226	
Slope(DD)	-639.46		Slope(DD)	-496.78	
Curve(DDS)	63.002		Curve(DDS)	47.386	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-3.61
.0007(.56)	.00	-.09	2-Pane	.14	-2.64
.0005(.40)	-.05	-.13	3-Pane	.27	-1.73
.0003(.24)	-.04	-.12	R-10	.42	-.66
Slope/.001ELF -.604			Slope(DD) -294.85		
Curve/.001ELF .677			Curve(DDS) 5.986		
Base Load = 5.39 MBtu					
Typical Load = 2.99 MBtu					
Residual Load = 1.83 MBtu					

Charleston SC WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	14.45	R-0	.00	12.25
R-7	-13.49	5.69	R-7	-7.35	5.71
R-11	-15.65	4.29	R-11	-8.40	4.78
R-19	-17.58	3.04	R-13	-9.67	3.64
R-22	-18.31	2.56	R-19	-10.30	3.08
R-30	-19.30	1.92	R-27	-11.23	2.26
R-38	-19.89	1.54	R-34	-11.80	1.75
R-49	-20.36	1.23			
R-60	-20.66	1.04			

Slope(DD)	2809.71		Slope(DD)	2195.23	
Curve(DDS)	-62.746		Curve(DDS)	15.391	

Slab	(/ft)		Heated Basement	(/ft)	
R-0	-10.16	34.26	R-0	-7.08	52.82
R-5 2ft	-12.17	22.16	R-5 4ft	-10.00	35.23
R-5 4ft	-12.64	19.32	R-5 8ft	-10.81	30.35
R-10 2ft	-12.50	20.17	R-10 4ft	-10.70	31.01
R-10 4ft	-13.09	16.61	R-10 8ft	-11.73	24.81
Intercept	10.145		Intercept	10.943	
Slope(DD)	1891.66		Slope(DD)	1414.18	
Curve(DDS)	31.067		Curve(DDS)	-8.795	

Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-7.08	5.69	R-0	.00	10.29
R-11 flr	-11.88	2.58	R-11 flr	-11.08	3.10
R-19 flr	-13.08	1.80	R-19 flr	-12.77	2.00
R-30 flr	-13.85	1.30	R-30 flr	-13.64	1.43
			R-38 flr	-13.84	1.30
			R-49 flr	-14.41	.93
Intercept	-.020		Intercept	.000	
Slope(DD)	1776.59		Slope(DD)	1766.58	
Curve(DDS)	-129.158		Curve(DDS)	46.877	

Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	45.91
.0007(.71)	.00	5.79	2-Pane	-5.53	15.99
.0005(.53)	-3.26	3.67	3-Pane	-6.87	9.85
.0003(.32)	-5.95	1.93	R-10	-8.00	2.62

Slope/.001ELF	5.032		Slope(DD)	1054.92	
Curve/.001ELF	4.627		Curve(DDS)	25.920	

Base Load = 63.26 MBtu
 Typical Load = 22.94 MBtu
 Residual Load = -.18 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	8.49	R-0	.00	3.90
R-7	-8.37	3.05	R-7	-2.71	1.49
R-11	-9.71	2.18	R-11	-3.10	1.14
R-19	-10.91	1.40	R-13	-3.51	.78
R-22	-11.27	1.17	R-19	-3.71	.60
R-30	-11.75	.86	R-27	-3.87	.46
R-38	-12.04	.67	R-34	-3.97	.37
R-49	-12.22	.55			
R-60	-12.34	.47			

Slope(DD)	1219.54		Slope(DD)	381.44	
Curve(DDS)	35.707		Curve(DDS)	63.990	

Slab	(/ft)		Heated Basement	(/ft)	
R-0	-6.16	-42.54	R-0	-2.70	-21.69
R-5 2ft	-6.10	-42.18	R-5 4ft	-2.89	-22.84
R-5 4ft	-5.99	-41.51	R-5 8ft	-2.85	-22.60
R-10 2ft	-6.08	-42.06	R-10 4ft	-2.94	-23.14
R-10 4ft	-5.94	-41.21	R-10 8ft	-2.90	-22.90
Intercept	-39.154		Intercept	-22.612	
Slope(DD)	-756.41		Slope(DD)	-44.29	
Curve(DDS)	40.971		Curve(DDS)	1.730	

Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-2.70	-2.34	R-0	.00	-.59
R-11 flr	-.77	-1.09	R-11 flr	.92	.01
R-19 flr	-.33	-.80	R-19 flr	.92	.01
R-30 flr	-.04	-.61	R-30 flr	.94	.03
			R-38 flr	.95	.03
			R-49 flr	.97	.04
Intercept	-.131		Intercept	.000	
Slope(DD)	-642.35		Slope(DD)	60.08	
Curve(DDS)	41.332		Curve(DDS)	-33.961	

Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-7.28
.0007(.53)	.00	3.64	2-Pane	.15	-6.47
.0005(.39)	-1.55	2.63	3-Pane	.55	-4.28
.0003(.23)	-3.14	1.60	R-10	1.03	-1.71

Slope/.001ELF	5.422		Slope(DD)	-770.65	
Curve/.001ELF	-.325		Curve(DDS)	18.742	

Base Load = 42.15 MBtu
 Typical Load = 27.51 MBtu
 Residual Load = 9.38 MBtu

Charleston SC WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	14.98	R-0	.00	11.48
R-7	-5.67	5.50	R-7	-3.18	4.81
R-11	-6.58	3.99	R-11	-3.63	3.88
R-19	-7.39	2.64	R-13	-4.10	2.88
R-22	-7.65	2.21	R-19	-4.33	2.39
R-30	-7.99	1.64	R-27	-4.65	1.73
R-38	-8.20	1.29	R-34	-4.84	1.32
R-49	-8.35	1.05			
R-60	-8.44	.89			
Slope(DD)	2342.91		Slope(DD)	1582.34	
Curve(DDS)	30.303		Curve(DDS)	102.731	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-4.38	22.65	R-0	-3.49	44.90
R-5 2ft	-4.79	12.40	R-5 4ft	-4.30	24.65
R-5 4ft	-4.87	10.40	R-5 8ft	-4.46	20.65
R-10 2ft	-4.84	11.15	R-10 4ft	-4.45	20.90
R-10 4ft	-4.93	8.90	R-10 8ft	-4.62	16.65
Intercept	6.010		Intercept	8.485	
Slope(DD)	608.02		Slope(DD)	715.65	
Curve(DDS)	85.990		Curve(DDS)	5.485	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.49	2.99	R-0	.00	8.81
R-11 flr	-4.49	1.33	R-11 flr	-3.83	2.43
R-19 flr	-4.75	.89	R-19 flr	-4.36	1.54
R-30 flr	-4.92	.61	R-30 flr	-4.63	1.10
			R-38 flr	-4.69	.99
			R-49 flr	-4.87	.70
Intercept	-.135		Intercept	.000	
Slope(DD)	1008.29		Slope(DD)	1315.64	
Curve(DDS)	-77.650		Curve(DDS)	78.491	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	39.85
.0007(.74)	.00	4.35	2-Pane	-3.83	13.25
.0005(.53)	-2.39	2.35	3-Pane	-4.57	8.12
.0003(.32)	-4.06	.96	R-10	-5.44	2.07
Slope/.001ELF	.958		Slope(DD)	819.69	
Curve/.001ELF	7.500		Curve(DDS)	28.128	

Base Load = 28.75 MBtu
Typical Load = 11.51 MBtu
Residual Load = 2.89 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	7.80	R-0	.00	3.03
R-7	-3.09	2.64	R-7	-.93	1.08
R-11	-3.59	1.82	R-11	-1.06	.80
R-19	-4.03	1.08	R-13	-1.17	.58
R-22	-4.13	.92	R-19	-1.22	.47
R-30	-4.25	.71	R-27	-1.29	.33
R-38	-4.33	.58	R-34	-1.33	.24
R-49	-4.43	.42			
R-60	-4.49	.31			
Slope(DD)	913.36		Slope(DD)	254.05	
Curve(DDS)	67.726		Curve(DDS)	57.458	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.22	-75.26	R-0	-.78	-39.26
R-5 2ft	-2.19	-74.51	R-5 4ft	-.79	-39.51
R-5 4ft	-2.13	-73.01	R-5 8ft	-.78	-39.26
R-10 2ft	-2.18	-74.26	R-10 4ft	-.81	-40.01
R-10 4ft	-2.12	-72.76	R-10 8ft	-.76	-38.76
Intercept	-69.110		Intercept	-36.999	
Slope(DD)	-1304.48		Slope(DD)	-224.43	
Curve(DDS)	67.956		Curve(DDS)	4.268	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.78	-2.62	R-0	.00	-1.32
R-11 flr	-.02	-1.35	R-11 flr	.62	-.28
R-19 flr	.21	-.98	R-19 flr	.67	-.20
R-30 flr	.35	-.73	R-30 flr	.72	-.12
			R-38 flr	.73	-.10
			R-49 flr	.76	-.05
Intercept	-.078		Intercept	.000	
Slope(DD)	-894.86		Slope(DD)	-136.58	
Curve(DDS)	77.946		Curve(DDS)	-23.441	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-14.41
.0007(.53)	.00	2.94	2-Pane	.36	-11.91
.0005(.39)	-1.02	2.09	3-Pane	.94	-7.85
.0003(.24)	-2.03	1.25	R-10	1.63	-3.09
Slope/.001ELF	4.125		Slope(DD)	-1387.35	
Curve/.001ELF	.104		Curve(DDS)	31.881	

Base Load = 28.06 MBtu
Typical Load = 22.57 MBtu
Residual Load = 11.94 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.70	R-0	.00	11.26	R-0	.00	7.10	R-0	.00	2.48
R-7	-5.88	5.27	R-7	-2.13	4.55	R-7	-2.79	2.45	R-7	-.61	.56
R-11	-6.58	3.78	R-11	-2.43	3.60	R-11	-3.23	1.71	R-11	-.69	.29
R-19	-7.38	2.41	R-13	-2.73	2.65	R-19	-3.84	1.04	R-13	-.74	.14
R-22	-7.61	2.01	R-19	-2.88	2.18	R-22	-3.74	.87	R-19	-.78	.07
R-30	-7.93	1.49	R-27	-3.07	1.57	R-30	-3.87	.65	R-27	-.78	.03
R-38	-8.12	1.17	R-34	-3.19	1.20	R-38	-3.95	.51	R-34	-.78	.00
R-49	-8.25	.94				R-49	-4.02	.40			
R-60	-8.34	.80				R-60	-4.08	.33			
Slope(DD)	2098.79		Slope(DD)	1399.24		Slope(DD)	882.25		Slope(DD)	-83.82	
Curve(DDS)	64.225		Curve(DDS)	129.276		Curve(DDS)	53.184		Curve(DDS)	101.357	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-4.81	24.07	R-0	-4.16	45.74	R-0	-1.61	-80.04	R-0	-.60	-46.54
R-5 2ft	-5.15	12.74	R-5 4ft	-4.89	21.41	R-5 2ft	-1.58	-79.04	R-5 4ft	-.59	-46.04
R-5 4ft	-5.20	10.91	R-5 8ft	-5.00	17.57	R-5 4ft	-1.58	-78.88	R-5 8ft	-.59	-46.04
R-10 2ft	-5.18	11.57	R-10 4ft	-4.99	17.91	R-10 2ft	-1.60	-79.71	R-10 4ft	-.60	-46.54
R-10 4ft	-5.25	9.41	R-10 8ft	-5.14	12.91	R-10 4ft	-1.55	-78.04	R-10 8ft	-.59	-46.21
Intercept	7.347		Intercept	4.949		Intercept	-75.592		Intercept	-48.593	
Slope(DD)	253.31		Slope(DD)	670.13		Slope(DD)	-970.47		Slope(DD)	41.13	
Curve(DDS)	119.272		Curve(DDS)	9.492		Curve(DDS)	51.829		Curve(DDS)	-1.014	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.16	2.29	R-0	.00	9.21	R-0	-.60	-2.33	R-0	.00	-1.32
R-11 flr	-4.94	.97	R-11 flr	-4.13	2.34	R-11 flr	.13	-1.11	R-11 flr	.76	-.05
R-19 flr	-5.15	.62	R-19 flr	-4.68	1.41	R-19 flr	.28	-.85	R-19 flr	.79	-.00
R-30 flr	-5.29	.40	R-30 flr	-4.91	1.03	R-30 flr	.38	-.69	R-30 flr	.80	.02
			R-38 flr	-4.97	.94				R-38 flr	.80	.02
			R-49 flr	-5.12	.68				R-49 flr	.81	.04
Intercept	-.204		Intercept	.000		Intercept	-.263		Intercept	.000	
Slope(DD)	812.27		Slope(DD)	1182.85		Slope(DD)	-560.76		Slope(DD)	75.03	
Curve(DDS)	-63.658		Curve(DDS)	119.695		Curve(DDS)	30.871		Curve(DDS)	-64.782	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	39.09	ELF Ach			1-Pane	.00	-13.87
.0007(.74)	.00	4.19	2-Pane	-3.88	12.18	.0007(.53)	.00	2.72	2-Pane	.35	-11.44
.0005(.53)	-2.38	2.21	3-Pane	-4.56	7.39	.0005(.39)	-1.01	1.88	3-Pane	.91	-7.54
.0003(.32)	-4.00	.85	R-10	-5.38	1.76	.0003(.23)	-1.97	1.09	R-10	1.57	-2.96
Slope/.001ELF	.479		Slope(DD)	678.32		Slope/.001ELF	3.417		Slope(DD)	-1331.57	
Curve/.001ELF	7.865		Curve(DDS)	30.392		Curve/.001ELF	.677		Curve(DDS)	30.544	
Base Load = 26.98 MBtu			Base Load = 25.65 MBtu			Base Load = 25.65 MBtu			Base Load = 25.65 MBtu		
Typical Load = 10.66 MBtu			Typical Load = 10.66 MBtu			Typical Load = 21.06 MBtu			Typical Load = 21.06 MBtu		
Residual Load = 3.22 MBtu			Residual Load = 3.22 MBtu			Residual Load = 10.78 MBtu			Residual Load = 10.78 MBtu		

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Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	41.67	R-0	.00	39.93
R-7	-38.46	16.69	R-7	-22.90	19.55
R-11	-44.60	12.70	R-11	-26.16	16.65
R-19	-50.12	9.12	R-13	-30.14	13.11
R-22	-52.26	7.73	R-19	-32.11	11.35
R-30	-55.13	5.87	R-27	-35.68	8.18
R-38	-56.86	4.74	R-34	-37.87	6.23
R-49	-58.42	3.73			
R-60	-59.43	3.08			
Slope(DD) 8537.23			Slope(DD) 8129.91		
Curve(DDS) -254.593			Curve(DDS) -131.322		
Slab (/ft)			Heated Basement (/ft)		
R-0	-23.31	67.11	R-0	-13.57	125.79
R-5 2ft	-29.78	28.14	R-5 4ft	-20.01	86.99
R-5 4ft	-31.72	16.45	R-5 8ft	-22.56	71.63
R-10 2ft	-31.00	20.79	R-10 4ft	-21.80	76.21
R-10 4ft	-33.68	4.64	R-10 8ft	-25.68	52.84
Intercept	-29.669		Intercept	.000	
Slope(DD)	11734.06		Slope(DD)	5926.99	
Curve(DDS)	-242.249		Curve(DDS)	-69.101	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-13.57	13.56	R-0	.00	22.37
R-11 flr	-32.98	.96	R-11 flr	-35.06	-.40
R-19 flr	-38.47	-2.61	R-19 flr	-40.97	-4.23
R-30 flr	-42.00	-4.90	R-30 flr	-44.60	-6.59
			R-38 flr	-45.43	-7.13
			R-49 flr	-47.82	-8.68
Intercept	-11.081		Intercept	-12.289	
Slope(DD)	8406.20		Slope(DD)	7311.10	
Curve(DDS)	-702.252		Curve(DDS)	-107.654	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	196.99
.0007(.96)	.00	23.07	2-Pane	-19.64	90.71
.0005(.70)	-10.29	16.39	3-Pane	-25.77	57.54
.0003(.43)	-20.47	9.78	R-10	-32.98	18.52
Slope/.001ELF	32.338		Slope(DD)	7915.54	
Curve/.001ELF	.893		Curve(DDS)	-17.196	

Base Load = 205.76 MBtu
Typical Load = 66.85 MBtu
Residual Load = 10.64 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	3.43	R-0	.00	1.29
R-7	-3.26	1.31	R-7	-.74	.64
R-11	-3.78	.97	R-11	-.84	.55
R-19	-4.25	.67	R-13	-.99	.41
R-22	-4.41	.56	R-19	-1.07	.34
R-30	-4.63	.42	R-27	-1.16	.26
R-38	-4.76	.34	R-34	-1.22	.21
R-49	-4.86	.27			
R-60	-4.93	.22			
Slope(DD) 606.82			Slope(DD) 258.34		
Curve(DDS) -4.882			Curve(DDS) -3.303		
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.35	-3.29	R-0	-1.75	.33
R-5 2ft	-2.18	-2.26	R-5 4ft	-1.88	-.45
R-5 4ft	-2.11	-1.84	R-5 8ft	-1.88	-.33
R-10 2ft	-2.15	-2.08	R-10 4ft	-1.91	-.64
R-10 4ft	-2.05	-1.48	R-10 8ft	-1.87	-.39
Intercept	-.176		Intercept	.000	
Slope(DD)	-466.50		Slope(DD)	-57.04	
Curve(DDS)	16.268		Curve(DDS)	1.702	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.75	.04	R-0	.00	1.17
R-11 flr	-.72	.70	R-11 flr	.42	1.44
R-19 flr	-.42	.90	R-19 flr	.45	1.46
R-30 flr	-.23	1.02	R-30 flr	.47	1.47
			R-38 flr	.47	1.48
			R-49 flr	.48	1.48
Intercept	1.359		Intercept	1.489	
Slope(DD)	-459.24		Slope(DD)	-10.10	
Curve(DDS)	39.203		Curve(DDS)	-10.090	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	1.37
.0007(.59)	.00	.15	2-Pane	-.11	.77
.0005(.42)	-.08	.10	3-Pane	-.16	.50
.0003(.25)	-.15	.06	R-10	-.22	.17
Slope/.001ELF	.162		Slope(DD)	76.54	
Curve/.001ELF	.081		Curve(DDS)	-.940	

Base Load = 9.30 MBtu
Typical Load = 1.40 MBtu
Residual Load = -1.81 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	43.48	R-0	.00	38.18
R-7	-15.99	16.81	R-7	-9.69	17.85
R-11	-18.55	12.55	R-11	-11.07	14.95
R-19	-20.84	8.73	R-13	-12.67	11.60
R-22	-21.65	7.37	R-19	-13.46	9.94
R-30	-22.74	5.56	R-27	-14.78	7.17
R-38	-23.40	4.46	R-34	-15.59	5.47
R-49	-23.96	3.53			
R-60	-24.32	2.93			
Slope(DD)	8021.12		Slope(DD)	6980.25	
Curve(DDS)	-116.428		Curve(DDS)	22.190	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-11.57	80.98	R-0	-8.32	142.21
R-5 2ft	-13.12	22.21	R-5 4ft	-10.60	85.21
R-5 4ft	-13.53	11.96	R-5 8ft	-11.26	88.71
R-10 2ft	-13.38	15.71	R-10 4ft	-11.12	72.21
R-10 4ft	-13.91	2.46	R-10 8ft	-12.03	49.46
Intercept	-23.512		Intercept	.000	
Slope(DD)	8410.09		Slope(DD)	5300.72	
Curve(DDS)	-37.671		Curve(DDS)	-41.771	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-8.32	9.48	R-0	.00	23.35
R-11 flr	-12.85	1.93	R-11 flr	-12.71	2.16
R-19 flr	-14.38	-.63	R-19 flr	-14.80	-1.32
R-30 flr	-15.37	-2.27	R-30 flr	-16.01	-3.34
			R-38 flr	-16.29	-3.80
			R-49 flr	-17.09	-5.13
Intercept	-6.829		Intercept	-8.317	
Slope(DD)	6270.04		Slope(DD)	6317.77	
Curve(DDS)	-602.460		Curve(DDS)	-27.814	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	168.95
.0007(***)	.00	20.07	2-Pane	-14.46	68.54
.0005(.71)	-7.78	13.58	3-Pane	-18.15	42.94
.0003(.44)	-14.84	7.70	R-10	-22.48	12.84
Slope/.001ELF	23.416		Slope(DD)	5368.81	
Curve/.001ELF	7.501		Curve(DDS)	39.053	
Base Load =	97.55 MBtu				
Typical Load =	27.85 MBtu				
Residual Load =	7.27 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	3.73	R-0	.00	1.47
R-7	-1.34	1.51	R-7	-.32	.79
R-11	-1.55	1.15	R-11	-.37	.69
R-19	-1.74	.83	R-13	-.45	.53
R-22	-1.82	.70	R-19	-.49	.44
R-30	-1.92	.53	R-27	-.54	.34
R-38	-1.98	.43	R-34	-.57	.27
R-49	-2.03	.34			
R-60	-2.07	.28			
Slope(DD)	780.91		Slope(DD)	349.19	
Curve(DDS)	-25.545		Curve(DDS)	-14.056	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.95	-9.15	R-0	-.63	-1.15
R-5 2ft	-.88	-7.40	R-5 4ft	-.65	-1.65
R-5 4ft	-.84	-6.40	R-5 8ft	-.64	-1.40
R-10 2ft	-.86	-6.90	R-10 4ft	-.65	-1.65
R-10 4ft	-.80	-5.40	R-10 8ft	-.63	-1.15
Intercept	-1.714		Intercept	.000	
Slope(DD)	-1377.10		Slope(DD)	-145.21	
Curve(DDS)	63.689		Curve(DDS)	2.994	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.63	-.08	R-0	.00	.97
R-11 flr	-.23	.59	R-11 flr	.28	1.41
R-19 flr	-.11	.79	R-19 flr	.28	1.44
R-30 flr	-.03	.92	R-30 flr	.30	1.47
			R-38 flr	.30	1.47
			R-49 flr	.31	1.49
Intercept	1.279		Intercept	1.506	
Slope(DD)	-486.64		Slope(DD)	-40.62	
Curve(DDS)	43.330		Curve(DDS)	-12.334	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.35
.0007(.59)	.00	.12	2-Pane	-.01	.28
.0005(.42)	-.04	.08	3-Pane	-.02	.18
.0003(.25)	-.08	.05	R-10	-.04	.07
Slope/.001ELF	.167		Slope(DD)	32.36	
Curve/.001ELF	.000		Curve(DDS)	-.724	
Base Load =	6.38 MBtu				
Typical Load =	3.21 MBtu				
Residual Load =	1.26 MBtu				

Cheyenne WY WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0 .00 42.00		R-0 .00 38.33	
R-7 -15.61 15.98		R-7 -6.69 17.55	
R-11 -18.10 11.83		R-11 -7.53 14.59	
R-19 -20.34 8.10		R-13 -8.67 11.29	
R-22 -21.11 6.82		R-19 -9.09 9.68	
R-30 -22.13 5.11		R-27 -9.95 8.94	
R-38 -22.75 4.08		R-34 -10.48 5.27	
R-49 -23.25 3.25			
R-60 -23.57 2.72			
Slope(DD) 7363.18		Slope(DD) 6689.41	
Curve(DDS) -47.151		Curve(DDS) 81.306	
Slab (/ft)		Heated Basement (/ft)	
R-0 -12.80 88.83		R-0 -10.19 175.67	
R-5 2ft -14.06 46.87		R-5 4ft -12.30 105.33	
R-5 4ft -14.43 34.50		R-5 8ft -12.91 85.17	
R-10 2ft -14.28 39.17		R-10 4ft -12.79 89.17	
R-10 4ft -14.78 22.83		R-10 8ft -13.63 61.17	
Intercept -10.766		Intercept .000	
Slope(DD) 11278.88		Slope(DD) 6558.98	
Curve(DDS) -173.714		Curve(DDS) -51.893	
Unheated Basement (/sf)		Crawl (/sf)	
R-0 -10.19 8.78		R-0 .00 25.77	
R-11 flr -13.90 2.60		R-11 flr -13.19 3.78	
R-19 flr -15.28 .31		R-19 flr -15.35 .18	
R-30 flr -16.16 -1.17		R-30 flr -16.62 -1.94	
		R-38 flr -16.92 -2.42	
		R-49 flr -17.75 -3.82	
Intercept -5.307		Intercept -7.120	
Slope(DD) 5718.72		Slope(DD) 6584.08	
Curve(DDS) -579.352		Curve(DDS) -33.283	
Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		1-Pane .00 169.49	
.0007(.97) .00 19.80		2-Pane -14.70 67.41	
.0005(.71) -7.77 13.33		3-Pane -18.34 42.15	
.0003(.44) -14.78 7.50		R-10 -22.61 12.44	
Slope/.001ELF 22.562		Slope(DD) 5179.01	
Curve/.001ELF 8.177		Curve(DDS) 47.010	
Base Load = 92.10 MBtu			
Typical Load = 25.49 MBtu			
Residual Load = 7.54 MBtu			

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0 .00 3.82		R-0 .00 1.35	
R-7 -1.36 1.56		R-7 -.20 .71	
R-11 -1.58 1.19		R-11 -.23 .62	
R-19 -1.77 .87		R-13 -.28 .47	
R-22 -1.85 .74		R-19 -.30 .40	
R-30 -1.95 .57		R-27 -.33 .30	
R-38 -2.01 .47		R-34 -.35 .24	
R-49 -2.08 .36			
R-60 -2.12 .29			
Slope(DD) 825.13		Slope(DD) 311.59	
Curve(DDS) -30.492		Curve(DDS) -11.316	
Slab (/ft)		Heated Basement (/ft)	
R-0 -.57 -5.38		R-0 -.45 -1.36	
R-5 2ft -.53 -4.02		R-5 4ft -.46 -1.52	
R-5 4ft -.51 -3.19		R-5 8ft -.45 -1.19	
R-10 2ft -.52 -3.69		R-10 4ft -.46 -1.52	
R-10 4ft -.49 -2.69		R-10 8ft -.44 -1.02	
Intercept -.322		Intercept .000	
Slope(DD) -859.03		Slope(DD) -124.75	
Curve(DDS) 36.148		Curve(DDS) 2.324	
Unheated Basement (/sf)		Crawl (/sf)	
R-0 -.45 -.07		R-0 .00 .69	
R-11 flr -.18 .38		R-11 flr .20 1.02	
R-19 flr -.09 .53		R-19 flr .21 1.04	
R-30 flr -.04 .63		R-30 flr .21 1.05	
		R-38 flr .21 1.05	
		R-49 flr .22 1.05	
Intercept .904		Intercept 1.048	
Slope(DD) -373.12		Slope(DD) 11.32	
Curve(DDS) 35.821		Curve(DDS) -15.820	
Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		1-Pane .00 .78	
.0007(.59) .00 .17		2-Pane -.05 .40	
.0005(.42) -.05 .13		3-Pane -.08 .26	
.0003(.25) -.10 .08		R-10 -.10 .09	
Slope/.001ELF .313		Slope(DD) 37.40	
Curve/.001ELF -.104		Curve(DDS) -.296	
Base Load = 5.31 MBtu			
Typical Load = 2.44 MBtu			
Residual Load = .46 MBtu			

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.40	R-0	.00	32.85
R-7	-31.83	13.73	R-7	-18.92	16.01
R-11	-36.91	10.43	R-11	-21.61	13.62
R-19	-41.47	7.47	R-13	-24.87	10.72
R-22	-43.23	6.33	R-19	-26.48	9.28
R-30	-45.59	4.80	R-27	-29.40	6.68
R-38	-47.01	3.87	R-34	-31.20	5.08
R-49	-48.27	3.05			
R-60	-49.09	2.52			
Slope(DD)	6977.63		Slope(DD)	6627.85	
Curve(DDS)	-198.305		Curve(DDS)	-96.872	
Slab (/ft)			Heated Basement (/ft)		
R-0	-24.97	65.02	R-0	-16.35	116.95
R-5 2ft	-30.62	31.58	R-5 4ft	-23.03	76.71
R-5 4ft	-32.11	22.01	R-5 8ft	-25.20	63.63
R-10 2ft	-31.55	25.38	R-10 4ft	-24.79	66.10
R-10 4ft	-33.76	12.07	R-10 8ft	-28.14	45.92
Intercept	-15.715		Intercept	.000	
Slope(DD)	8407.39		Slope(DD)	4723.43	
Curve(DDS)	-121.212		Curve(DDS)	-45.205	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-16.35	12.61	R-0	.00	23.22
R-11 flr	-30.76	3.26	R-11 flr	-29.71	3.93
R-19 flr	-34.83	.60	R-19 flr	-34.79	.63
R-30 flr	-37.45	-1.10	R-30 flr	-38.01	-1.46
			R-38 flr	-38.74	-1.93
			R-49 flr	-40.88	-3.31
Intercept	-5.678		Intercept	-6.456	
Slope(DD)	6233.26		Slope(DD)	6450.79	
Curve(DDS)	-520.246		Curve(DDS)	-129.310	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	158.16
.0007(.89)	.00	21.74	2-Pane	-15.65	73.47
.0005(.64)	-9.79	15.38	3-Pane	-20.61	46.64
.0003(.39)	-19.40	9.14	R-10	-26.44	15.08
Slope/.001ELF	30.032		Slope(DD)	6453.57	
Curve/.001ELF	1.461		Curve(DDS)	-17.531	
Base Load = 178.08 MBtu			Typical Load = 56.12 MBtu		
Residual Load = 2.79 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	5.42	R-0	.00	2.61
R-7	-5.00	2.17	R-7	-1.45	1.32
R-11	-5.80	1.65	R-11	-1.68	1.14
R-19	-6.52	1.18	R-13	-1.95	.88
R-22	-6.79	1.01	R-19	-2.09	.75
R-30	-7.15	.77	R-27	-2.31	.56
R-38	-7.37	.63	R-34	-2.45	.43
R-49	-7.59	.49			
R-60	-7.74	.39			
Slope(DD)	1111.40		Slope(DD)	560.40	
Curve(DDS)	-33.356		Curve(DDS)	-13.795	
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.58	-7.72	R-0	-2.89	2.46
R-5 2ft	-4.37	-6.46	R-5 4ft	-3.17	.77
R-5 4ft	-4.21	-5.49	R-5 8ft	-3.16	.83
R-10 2ft	-4.31	-6.10	R-10 4ft	-3.26	.23
R-10 4ft	-4.11	-4.89	R-10 8ft	-3.25	.29
Intercept	-1.928		Intercept	.000	
Slope(DD)	-984.39		Slope(DD)	14.13	
Curve(DDS)	41.750		Curve(DDS)	1.163	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.89	.26	R-0	.00	2.14
R-11 flr	-.85	1.59	R-11 flr	.88	2.71
R-19 flr	-.31	1.94	R-19 flr	.94	2.75
R-30 flr	.03	2.16	R-30 flr	1.02	2.80
			R-38 flr	1.04	2.82
			R-49 flr	1.09	2.85
Intercept	2.756		Intercept	2.872	
Slope(DD)	-804.63		Slope(DD)	-80.06	
Curve(DDS)	62.194		Curve(DDS)	-12.173	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	2.43
.0007(.58)	.00	.98	2-Pane	-.25	1.08
.0005(.42)	-.47	.68	3-Pane	-.32	.68
.0003(.25)	-.91	.39	R-10	-.41	.22
Slope/.001ELF	1.234		Slope(DD)	91.81	
Curve/.001ELF	.244		Curve(DDS)	.016	
Base Load = 20.33 MBtu			Typical Load = 6.98 MBtu		
Residual Load = -1.96 MBtu					

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	35.96	R-0	.00	32.12
R-7	-13.22	13.92	R-7	-8.07	15.18
R-11	-15.33	10.41	R-11	-9.22	12.77
R-19	-17.23	7.25	R-13	-10.55	9.98
R-22	-17.90	6.12	R-19	-11.21	8.60
R-30	-18.81	4.62	R-27	-12.36	6.18
R-38	-19.35	3.71	R-34	-13.07	4.69
R-49	-19.82	2.93			
R-60	-20.12	2.43			
Slope(DD)	6664.27		Slope(DD)	6047.31	
Curve(DDS)	-100.948		Curve(DDS)	-13.993	
Slab (/ft)			Heated Basement (/ft)		
R-0	-11.57	68.93	R-0	-8.78	139.18
R-5 2ft	-12.95	34.43	R-5 4ft	-11.00	83.18
R-5 4ft	-13.33	24.93	R-5 8ft	-11.82	67.88
R-10 2ft	-13.20	28.18	R-10 4ft	-11.52	70.18
R-10 4ft	-13.71	15.43	R-10 8ft	-12.40	48.18
Intercept	-10.539		Intercept	.000	
Slope(DD)	7893.53		Slope(DD)	4788.34	
Curve(DDS)	-68.750		Curve(DDS)	-33.120	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.78	9.28	R-0	.00	23.88
R-11 flr	-12.26	3.45	R-11 flr	-11.10	5.38
R-19 flr	-13.43	1.49	R-19 flr	-12.95	2.30
R-30 flr	-14.19	.23	R-30 flr	-14.08	.41
			R-38 flr	-14.34	-.02
			R-49 flr	-15.09	-1.26
Intercept	-3.260		Intercept	-4.141	
Slope(DD)	4793.73		Slope(DD)	5825.21	
Curve(DDS)	-458.014		Curve(DDS)	-70.405	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	143.23
.0007(.90)	.00	19.79	2-Pane	-11.81	61.22
.0005(.66)	-7.46	13.57	3-Pane	-15.07	38.56
.0003(.40)	-14.38	7.81	R-10	-18.91	11.91
Slope/.001ELF	24.333		Slope(DD)	5028.87	
Curve/.001ELF	5.625		Curve(DDS)	15.020	
Base Load =	86.28 MBtu				
Typical Load =	25.45 MBtu				
Residual Load =	1.18 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	5.34	R-0	.00	2.54
R-7	-1.93	2.13	R-7	-.57	1.34
R-11	-2.23	1.61	R-11	-.85	1.17
R-19	-2.51	1.15	R-13	-.78	.89
R-22	-2.61	.98	R-19	-.85	.75
R-30	-2.76	.74	R-27	-.94	.57
R-38	-2.84	.60	R-34	-.99	.46
R-49	-2.92	.47			
R-60	-2.97	.39			
Slope(DD)	1077.39		Slope(DD)	587.23	
Curve(DDS)	-29.918		Curve(DDS)	-21.401	
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.75	-18.29	R-0	-1.00	.46
R-5 2ft	-1.65	-15.79	R-5 4ft	-1.03	-.29
R-5 4ft	-1.57	-13.79	R-5 8ft	-1.02	-.04
R-10 2ft	-1.62	-15.04	R-10 4ft	-1.04	-.54
R-10 4ft	-1.53	-12.79	R-10 8ft	-1.03	-.29
Intercept	-7.202		Intercept	.000	
Slope(DD)	-1832.85		Slope(DD)	-38.58	
Curve(DDS)	75.485		Curve(DDS)	1.242	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.00	.03	R-0	.00	1.70
R-11 flr	-.24	1.30	R-11 flr	.39	2.35
R-19 flr	.02	1.73	R-19 flr	.44	2.43
R-30 flr	.19	2.01	R-30 flr	.48	2.50
			R-38 flr	.49	2.51
			R-49 flr	.52	2.56
Intercept	2.794		Intercept	2.631	
Slope(DD)	-1073.42		Slope(DD)	-168.30	
Curve(DDS)	104.240		Curve(DDS)	-2.686	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-2.79
.0007(.58)	.00	.86	2-Pane	-.01	-2.86
.0005(.42)	-.27	.64	3-Pane	.13	-1.91
.0003(.25)	-.56	.39	R-10	.29	-.78
Slope/.001ELF	1.375		Slope(DD)	-354.17	
Curve/.001ELF	-.208		Curve(DDS)	9.406	
Base Load =	13.70 MBtu				
Typical Load =	8.70 MBtu				
Residual Load =	3.26 MBtu				

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 35.28	R-0	.00 32.45
R-7	-12.98 13.82	R-7	-5.50 15.10
R-11	-15.06 10.16	R-11	-6.28 12.63
R-19	-16.92 7.06	R-13	-7.17 9.83
R-22	-17.58 5.96	R-19	-7.61 8.45
R-30	-18.47 4.48	R-27	-8.37 6.06
R-38	-19.00 3.59	R-34	-8.83 4.60
R-49	-19.44 2.85		
R-60	-19.73 2.38		
Slope(DD)	6477.18	Slope(DD)	5891.16
Curve(DDS)	-89.410	Curve(DDS)	26.534
Slab	(/ft)	Heated Basement	(/ft)
R-0	-12.63 85.83	R-0	-10.35 161.66
R-5 2ft	-13.71 49.66	R-5 4ft	-12.38 94.33
R-5 4ft	-14.02 39.33	R-5 8ft	-12.91 76.66
R-10 2ft	-13.91 43.00	R-10 4ft	-12.83 79.16
R-10 4ft	-14.33 29.16	R-10 8ft	-13.58 54.16
Intercept	.603	Intercept	.000
Slope(DD)	8534.83	Slope(DD)	5337.97
Curve(DDS)	-98.337	Curve(DDS)	-32.913
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-10.35 8.08	R-0	.00 25.34
R-11 flr	-13.10 3.50	R-11 flr	-11.39 6.36
R-19 flr	-14.12 1.81	R-19 flr	-13.28 3.20
R-30 flr	-14.77 .72	R-30 flr	-14.47 1.23
		R-38 flr	-14.74 .77
		R-49 flr	-15.52 -.53
Intercept	-2.342	Intercept	-3.487
Slope(DD)	4223.82	Slope(DD)	6046.94
Curve(DDS)	-427.184	Curve(DDS)	-82.879
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 144.40
.0007(.89)	.00 19.78	2-Pane	-12.03 60.86
.0005(.66)	-7.47 13.55	3-Pane	-15.28 38.28
.0003(.40)	-14.39 7.78	R-10	-19.10 11.73
Slope/.001ELF	24.207	Slope(DD)	4938.34
Curve/.001ELF	5.782	Curve(DDS)	20.127
Base Load =	81.94 MBtu		
Typical Load =	23.45 MBtu		
Residual Load =	1.25 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 4.98	R-0	.00 2.24
R-7	-1.85 1.88	R-7	-.35 1.12
R-11	-2.14 1.39	R-11	-.40 .96
R-19	-2.41 .94	R-13	-.46 .78
R-22	-2.50 .79	R-19	-.49 .69
R-30	-2.62 .59	R-27	-.56 .49
R-38	-2.70 .47	R-34	-.59 .38
R-49	-2.75 .38		
R-60	-2.79 .32		
Slope(DD)	855.31	Slope(DD)	486.69
Curve(DDS)	-3.111	Curve(DDS)	-13.186
Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.26 -13.22	R-0	-.84 .78
R-5 2ft	-1.20 -11.39	R-5 4ft	-.87 -.39
R-5 4ft	-1.15 -9.55	R-5 8ft	-.86 -.05
R-10 2ft	-1.18 -10.55	R-10 4ft	-.87 -.55
R-10 4ft	-1.12 -8.72	R-10 8ft	-.87 -.39
Intercept	-3.700	Intercept	.000
Slope(DD)	-1652.06	Slope(DD)	-50.24
Curve(DDS)	71.556	Curve(DDS)	1.724
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.84 .04	R-0	.00 1.43
R-11 flr	-.25 1.02	R-11 flr	.44 2.17
R-19 flr	-.04 1.36	R-19 flr	.50 2.27
R-30 flr	.08 1.57	R-30 flr	.59 2.41
		R-38 flr	.60 2.44
		R-49 flr	.66 2.53
Intercept	2.170	Intercept	2.640
Slope(DD)	-821.95	Slope(DD)	-317.14
Curve(DDS)	79.250	Curve(DDS)	15.854
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -1.65
.0007(.58)	.00 .67	2-Pane	-.04 -1.93
.0005(.42)	-.28 .45	3-Pane	.05 -1.29
.0003(.25)	-.52 .25	R-10	.16 -.54
Slope/.001ELF	.708	Slope(DD)	-245.39
Curve/.001ELF	.365	Curve(DDS)	6.928
Base Load =	12.06 MBtu		
Typical Load =	7.68 MBtu		
Residual Load =	2.56 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	29.84	R-0	.00	27.85
R-7	-27.84	11.90	R-7	-15.98	13.62
R-11	-32.05	9.03	R-11	-18.26	11.60
R-19	-38.01	6.46	R-13	-21.03	9.13
R-22	-37.53	5.47	R-19	-22.40	7.91
R-30	-39.57	4.15	R-27	-24.89	5.70
R-38	-40.80	3.35	R-34	-26.42	4.34
R-49	-41.89	2.64			
R-60	-42.60	2.18			
Slope(DD)	6028.74		Slope(DD)	5661.34	
Curve(DDS)	-167.920		Curve(DDS)	-89.979	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-18.35	52.52	R-0	-10.83	97.82
R-5 2ft	-22.98	24.62	R-5 4ft	-16.40	64.26
R-5 4ft	-24.31	16.61	R-5 8ft	-18.25	53.12
R-10 2ft	-23.84	19.44	R-10 4ft	-17.86	55.47
R-10 4ft	-25.69	8.30	R-10 8ft	-20.68	38.48
Intercept	-14.907		Intercept	.000	
Slope(DD)	7086.38		Slope(DD)	3967.12	
Curve(DDS)	-101.690		Curve(DDS)	-38.115	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-10.83	10.54	R-0	.00	17.58
R-11 flr	-23.36	2.41	R-11 flr	-23.31	2.44
R-19 flr	-26.79	.18	R-19 flr	-27.35	-.18
R-30 flr	-29.00	-1.25	R-30 flr	-29.91	-1.85
			R-38 flr	-30.50	-2.23
			R-49 flr	-32.19	-3.33
Intercept	-5.096		Intercept	-5.847	
Slope(DD)	5214.56		Slope(DD)	5171.13	
Curve(DDS)	-422.115		Curve(DDS)	-117.633	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	131.50
.0007(.80)	.00	14.76	2-Pane	-12.85	61.96
.0005(.58)	-8.67	10.43	3-Pane	-17.02	39.38
.0003(.35)	-13.20	6.19	R-10	-21.93	12.83
Slope/.001ELF	20.292		Slope(DD)	5500.18	
Curve/.001ELF	1.137		Curve(DDS)	-19.668	

Base Load = 143.38 MBtu
 Typical Load = 44.26 MBtu
 Residual Load = 2.00 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	5.86	R-0	.00	2.93
R-7	-5.36	2.38	R-7	-1.55	1.56
R-11	-6.21	1.83	R-11	-1.77	1.36
R-19	-6.98	1.33	R-13	-2.12	1.05
R-22	-7.29	1.13	R-19	-2.29	.90
R-30	-7.70	.86	R-27	-2.54	.67
R-38	-7.95	.70	R-34	-2.70	.53
R-49	-8.19	.55			
R-60	-8.34	.45			
Slope(DD)	1255.66		Slope(DD)	687.52	
Curve(DDS)	-44.991		Curve(DDS)	-26.364	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-4.30	-7.32	R-0	-2.45	3.82
R-5 2ft	-4.18	-6.60	R-5 4ft	-2.85	1.41
R-5 4ft	-4.06	-5.88	R-5 8ft	-2.85	1.41
R-10 2ft	-4.15	-6.42	R-10 4ft	-2.96	.75
R-10 4ft	-3.98	-5.39	R-10 8ft	-2.98	.63
Intercept	-2.926		Intercept	.000	
Slope(DD)	-849.74		Slope(DD)	46.25	
Curve(DDS)	40.712		Curve(DDS)	1.221	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-2.45	.41	R-0	.00	2.00
R-11 flr	-.63	1.66	R-11 flr	.94	2.61
R-19 flr	-.00	2.00	R-19 flr	.98	2.64
R-30 flr	.34	2.22	R-30 flr	1.03	2.67
			R-38 flr	1.04	2.68
			R-49 flr	1.07	2.70
Intercept	2.817		Intercept	2.693	
Slope(DD)	-805.73		Slope(DD)	-10.94	
Curve(DDS)	65.667		Curve(DDS)	-24.097	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	1.02
.0007(.54)	.00	.76	2-Pane	-.13	.32
.0005(.39)	-.36	.53	3-Pane	-.15	.19
.0003(.23)	-.70	.31	R-10	-.18	.06
Slope/.001ELF	.974		Slope(DD)	17.44	
Curve/.001ELF	.162		Curve(DDS)	.802	

Base Load = 20.69 MBtu
 Typical Load = 7.11 MBtu
 Residual Load = -2.20 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	30.94	R-0	.00	27.01
R-7	-11.41	11.92	R-7	-8.82	12.70
R-11	-13.23	8.89	R-11	-7.79	10.87
R-19	-14.87	8.16	R-13	-8.91	8.32
R-22	-16.44	6.20	R-19	-9.48	7.18
R-30	-18.21	3.93	R-27	-10.42	5.15
R-38	-18.87	3.18	R-34	-11.01	3.91
R-49	-17.07	2.49			
R-60	-17.33	2.08			
Slope(DD) 5650.38			Slope(DD) 5024.58		
Curve(DDS) -72.804			Curve(DDS) -.409		
Slab (/ft)			Heated Basement (/ft)		
R-0	-8.71	51.31	R-0	-8.25	112.81
R-5 2ft	-9.83	23.31	R-5 4ft	-8.09	66.81
R-5 4ft	-10.12	18.08	R-5 8ft	-8.59	54.31
R-10 2ft	-10.02	18.56	R-10 4ft	-8.51	56.31
R-10 4ft	-10.43	8.31	R-10 8ft	-9.22	38.58
Intercept	-11.917		Intercept	.000	
Slope(DD)	6028.90		Slope(DD)	3830.70	
Curve(DDS)	-41.188		Curve(DDS)	-25.395	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.25	7.52	R-0	.00	17.94
R-11 flr	-9.22	2.57	R-11 flr	-8.55	3.69
R-19 flr	-10.19	.96	R-19 flr	-10.00	1.27
R-30 flr	-10.81	-.08	R-30 flr	-10.89	-.21
			R-38 flr	-11.09	-.55
			R-49 flr	-11.67	-1.52
Intercept	-2.940		Intercept	-3.798	
Slope(DD)	3925.81		Slope(DD)	4805.68	
Curve(DDS)	-367.746		Curve(DDS)	-71.642	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.81)	.00	13.38	1-Pane	.00	118.74
.0005(.80)	-5.05	9.17	2-Pane	-9.65	51.72
.0003(.35)	-9.73	5.27	3-Pane	-12.40	32.64
			R-10	-15.63	10.19
Slope/.001ELF 16.417			Slope(DD) 4318.25		
Curve/.001ELF 3.854			Curve(DDS) 8.792		
Base Load = 67.79 MBtu			Base Load = 13.65 MBtu		
Typical Load = 18.87 MBtu			Typical Load = 8.69 MBtu		
Residual Load = .47 MBtu			Residual Load = 3.24 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	5.55	R-0	.00	2.56
R-7	-2.03	2.17	R-7	-.62	1.28
R-11	-2.35	1.83	R-11	-.71	1.07
R-19	-2.64	1.15	R-13	-.82	.85
R-22	-2.74	.97	R-19	-.87	.74
R-30	-2.89	.74	R-27	-.97	.53
R-38	-2.97	.60	R-34	-1.03	.40
R-49	-3.05	.47			
R-60	-3.10	.38			
Slope(DD) 1085.15			Slope(DD) 526.97		
Curve(DDS) -21.795			Curve(DDS) -9.373		
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.60	-14.27	R-0	-.84	4.73
R-5 2ft	-1.54	-12.77	R-5 4ft	-.92	2.73
R-5 4ft	-1.47	-11.02	R-5 8ft	-.94	2.23
R-10 2ft	-1.52	-12.27	R-10 4ft	-.97	1.48
R-10 4ft	-1.43	-10.02	R-10 8ft	-.97	1.48
Intercept	-4.385		Intercept	.000	
Slope(DD)	-1931.61		Slope(DD)	129.76	
Curve(DDS)	93.378		Curve(DDS)	-.287	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.84	.32	R-0	.00	1.72
R-11 flr	-1.14	1.48	R-11 flr	.38	2.35
R-19 flr	.12	1.91	R-19 flr	.43	2.43
R-30 flr	.28	2.18	R-30 flr	.48	2.51
			R-38 flr	.49	2.53
			R-49 flr	.52	2.59
Intercept	2.950		Intercept	2.685	
Slope(DD)	-1059.94		Slope(DD)	-198.18	
Curve(DDS)	108.505		Curve(DDS)	2.543	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach		
.0007(.54)	.00	.61	1-Pane	.00	-4.13
.0005(.38)	-.22	.42	2-Pane	.02	-3.99
.0003(.22)	-.43	.25	3-Pane	.21	-2.65
			R-10	.44	-1.07
Slope/.001ELF .792			Slope(DD) -486.38		
Curve/.001ELF .104			Curve(DDS) 12.497		
Base Load = 13.65 MBtu			Base Load = 13.65 MBtu		
Typical Load = 8.69 MBtu			Typical Load = 8.69 MBtu		
Residual Load = 3.24 MBtu			Residual Load = 3.24 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 30.18	R-0	.00 27.22
R-7	-11.18 11.54	R-7	-4.63 12.61
R-11	-12.97 8.57	R-11	-5.29 10.53
R-19	-14.57 5.90	R-13	-6.03 8.20
R-22	-15.12 4.97	R-19	-6.39 7.04
R-30	-15.87 3.74	R-27	-7.03 5.05
R-38	-16.31 2.99	R-34	-7.41 3.82
R-49	-16.68 2.38		
R-60	-16.92 1.98		
Slope(DD)	5381.19	Slope(DD)	4895.17
Curve(DDS)	-49.044	Curve(DDS)	30.633
Slab	(/ft)	Heated Basement	(/ft)
R-0	-9.50 64.59	R-0	-7.53 130.28
R-5 2ft	-10.37 35.43	R-5 4ft	-9.16 75.76
R-5 4ft	-10.61 27.43	R-5 8ft	-9.59 61.43
R-10 2ft	-10.52 30.43	R-10 4ft	-9.53 63.59
R-10 4ft	-10.85 19.59	R-10 8ft	-10.13 43.43
Intercept	-1.912	Intercept	.000
Slope(DD)	6404.84	Slope(DD)	4283.57
Curve(DDS)	-48.830	Curve(DDS)	-25.843
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-7.53 6.51	R-0	.00 19.05
R-11 flr	-9.86 2.63	R-11 flr	-8.72 4.53
R-19 flr	-10.69 1.24	R-19 flr	-10.18 2.09
R-30 flr	-11.22 .35	R-30 flr	-11.10 .55
		R-38 flr	-11.32 .20
		R-49 flr	-11.92 -.82
Intercept	-2.133	Intercept	-3.125
Slope(DD)	3429.78	Slope(DD)	4725.73
Curve(DDS)	-340.028	Curve(DDS)	-78.071
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 117.58
.0007(.81)	.00 13.30	2-Pane	-9.72 50.11
.0005(.60)	-5.03 9.10	3-Pane	-12.39 31.56
.0003(.35)	-9.69 5.22	R-10	-15.63 9.73
Slope/.001ELF	16.228	Slope(DD)	4106.88
Curve/.001ELF	3.959	Curve(DDS)	13.139
Base Load =	63.71 MBtu		
Typical Load =	17.09 MBtu		
Residual Load =	.68 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 5.25	R-0	.00 2.11
R-7	-2.00 1.92	R-7	-.41 .82
R-11	-2.31 1.39	R-11	-.47 .63
R-19	-2.60 .91	R-13	-.53 .43
R-22	-2.69 .77	R-19	-.57 .33
R-30	-2.81 .57	R-27	-.59 .25
R-38	-2.88 .45	R-34	-.61 .21
R-49	-2.93 .36		
R-60	-2.96 .31		
Slope(DD)	810.41	Slope(DD)	216.04
Curve(DDS)	12.618	Curve(DDS)	32.979
Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.19 -11.34	R-0	-.72 4.50
R-5 2ft	-1.14 -9.67	R-5 4ft	-.77 2.83
R-5 4ft	-1.11 -8.67	R-5 8ft	-.77 2.83
R-10 2ft	-1.13 -9.34	R-10 4ft	-.79 2.00
R-10 4ft	-1.09 -8.00	R-10 8ft	-.80 1.66
Intercept	-4.958	Intercept	.000
Slope(DD)	-1009.43	Slope(DD)	171.99
Curve(DDS)	39.431	Curve(DDS)	-1.493
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.72 .22	R-0	.00 1.42
R-11 flr	-.07 1.29	R-11 flr	.48 2.22
R-19 flr	.17 1.69	R-19 flr	.57 2.37
R-30 flr	.32 1.95	R-30 flr	.64 2.49
		R-38 flr	.66 2.52
		R-49 flr	.71 2.59
Intercept	2.675	Intercept	2.750
Slope(DD)	-1001.83	Slope(DD)	-344.98
Curve(DDS)	102.197	Curve(DDS)	16.586
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -2.37
.0007(.54)	.00 .44	2-Pane	.01 -2.33
.0005(.39)	-.19 .28	3-Pane	.12 -1.55
.0003(.23)	-.35 .15	R-10	.25 -.63
Slope/.001ELF	.375	Slope(DD)	-285.58
Curve/.001ELF	.365	Curve(DDS)	7.422
Base Load =	12.10 MBtu		
Typical Load =	7.70 MBtu		
Residual Load =	2.55 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 34.17		R-0	.00 31.85	
R-7	-31.53 13.70		R-7	-18.28 15.60	
R-11	-36.57 10.43		R-11	-20.86 13.29	
R-19	-41.09 7.49		R-13	-24.07 10.43	
R-22	-42.85 6.35		R-19	-25.66 9.02	
R-30	-45.21 4.81		R-27	-28.47 6.51	
R-38	-46.64 3.89		R-34	-30.20 4.98	
R-49	-47.91 3.06				
R-60	-48.73 2.53				
Slope(DD)	7012.62		Slope(DD)	6475.21	
Curve(DDS)	-210.575		Curve(DDS)	-102.898	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-16.79 54.88		R-0	-9.02 101.68	
R-5 2ft	-22.04 23.25		R-5 4ft	-14.40 69.28	
R-5 4ft	-23.58 14.09		R-5 8ft	-16.43 57.05	
R-10 2ft	-23.01 17.41		R-10 4ft	-15.86 60.48	
R-10 4ft	-25.10 4.82		R-10 8ft	-18.94 41.93	
Intercept	-21.627		Intercept	.000	
Slope(DD)	8533.28		Slope(DD)	4511.61	
Curve(DDS)	-142.983		Curve(DDS)	-49.062	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-9.02 10.98		R-0	.00 16.82	
R-11 flr	-24.49 .92		R-11 flr	-26.19 -.19	
R-19 flr	-28.71 -1.83		R-19 flr	-30.67 -3.10	
R-30 flr	-31.43 -3.59		R-30 flr	-33.44 -4.90	
			R-38 flr	-34.07 -5.31	
			R-49 flr	-35.89 -6.49	
Intercept	-8.315		Intercept	-9.248	
Slope(DD)	6411.00		Slope(DD)	5601.06	
Curve(DDS)	-517.169		Curve(DDS)	-101.000	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 148.09	
.0007(.75)	.00 15.22		2-Pane	-14.39 70.22	
.0005(.54)	-6.97 10.69		3-Pane	-19.11 44.65	
.0003(.32)	-13.72 8.31		R-10	-24.67 14.59	
Slope/.001ELF	20.487		Slope(DD)	6261.38	
Curve/.001ELF	1.786		Curve(DDS)	-24.700	
Base Load =	155.85 MBtu				
Typical Load =	47.79 MBtu				
Residual Load =	8.23 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 6.91		R-0	.00 2.98	
R-7	-6.48 2.70		R-7	-1.65 1.50	
R-11	-7.52 2.02		R-11	-1.88 1.29	
R-19	-8.45 1.42		R-13	-2.24 .97	
R-22	-8.78 1.20		R-19	-2.42 .81	
R-30	-9.23 .91		R-27	-2.64 .61	
R-38	-9.50 .74		R-34	-2.77 .50	
R-49	-9.75 .58				
R-60	-9.91 .47				
Slope(DD)	1315.30		Slope(DD)	619.25	
Curve(DDS)	-25.323		Curve(DDS)	-12.749	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-3.96 -4.89		R-0	-2.70 2.70	
R-5 2ft	-3.79 -3.87		R-5 4ft	-3.03 .71	
R-5 4ft	-3.70 -3.33		R-5 8ft	-3.03 .71	
R-10 2ft	-3.75 -3.63		R-10 4ft	-3.11 .23	
R-10 4ft	-3.62 -2.84		R-10 8ft	-3.11 .23	
Intercept	-.996		Intercept	.000	
Slope(DD)	-649.47		Slope(DD)	4.94	
Curve(DDS)	26.830		Curve(DDS)	1.602	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-2.70 .29		R-0	.00 2.04	
R-11 flr	-1.21 1.26		R-11 flr	.58 2.42	
R-19 flr	-.80 1.53		R-19 flr	.59 2.43	
R-30 flr	-.53 1.70		R-30 flr	.61 2.44	
			R-38 flr	.61 2.44	
			R-49 flr	.62 2.45	
Intercept	2.164		Intercept	2.428	
Slope(DD)	-630.89		Slope(DD)	26.45	
Curve(DDS)	51.786		Curve(DDS)	-19.770	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 3.40	
.0007(.62)	.00 .36		2-Pane	-.28 1.89	
.0005(.45)	-.16 .26		3-Pane	-.40 1.21	
.0003(.27)	-.32 .16		R-10	-.55 .42	
Slope/.001ELF	.519		Slope(DD)	185.70	
Curve/.001ELF	.000		Curve(DDS)	-2.154	
Base Load =	19.16 MBtu				
Typical Load =	3.77 MBtu				
Residual Load =	-3.68 MBtu				

Denver CO WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	35.41	R-0	.00	30.10	R-0	.00	7.13	R-0	.00	3.47
R-7	-13.05	13.87	R-7	-7.68	13.99	R-7	-2.68	2.87	R-7	-.77	1.85
R-11	-15.13	10.19	R-11	-8.77	11.69	R-11	-2.98	2.19	R-11	-.88	1.62
R-19	-17.00	7.08	R-13	-10.03	9.04	R-19	-3.33	1.58	R-13	-1.05	1.28
R-22	-17.66	5.98	R-19	-10.66	7.73	R-22	-3.47	1.34	R-19	-1.14	1.08
R-30	-18.55	4.50	R-27	-11.68	5.58	R-30	-3.66	1.02	R-27	-1.27	.80
R-38	-19.08	3.61	R-34	-12.31	4.28	R-38	-3.78	.83	R-34	-1.35	.64
R-49	-19.53	2.86				R-49	-3.89	.65			
R-60	-19.82	2.38				R-60	-3.96	.53			
Slope(DD) 6493.21			Slope(DD) 5419.80			Slope(DD) 1484.31			Slope(DD) 826.29		
Curve(DDS) -87.831			Curve(DDS) 32.776			Curve(DDS) -47.517			Curve(DDS) -33.669		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-8.48	40.79	R-0	-5.84	106.79	R-0	-1.53	-12.83	R-0	-.98	.92
R-5 2ft	-9.89	10.54	R-5 4ft	-7.87	61.04	R-5 2ft	-1.47	-11.33	R-5 4ft	-1.04	-.58
R-5 4ft	-9.99	3.04	R-5 8ft	-8.16	48.79	R-5 4ft	-1.44	-10.58	R-5 8ft	-1.03	-.33
R-10 2ft	-9.89	5.54	R-10 4ft	-8.07	51.04	R-10 2ft	-1.46	-11.08	R-10 4ft	-1.06	-1.08
R-10 4ft	-10.27	-3.96	R-10 8ft	-8.72	34.79	R-10 4ft	-1.41	-9.83	R-10 8ft	-1.04	-.58
Intercept	-22.065		Intercept	.000		Intercept	-7.045		Intercept	.000	
Slope(DD)	5417.96		Slope(DD)	3517.06		Slope(DD)	-988.76		Slope(DD)	-85.91	
Curve(DDS)	27.498		Curve(DDS)	-20.629		Curve(DDS)	42.120		Curve(DDS)	2.766	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.84	7.12	R-0	.00	16.85	R-0	-.98	.06	R-0	.00	1.69
R-11 flr	-9.37	1.24	R-11 flr	-9.28	1.39	R-11 flr	-.42	.99	R-11 flr	.24	2.09
R-19 flr	-10.53	-.69	R-19 flr	-10.83	-1.20	R-19 flr	-.27	1.25	R-19 flr	.25	2.11
R-30 flr	-11.27	-1.93	R-30 flr	-11.68	-2.62	R-30 flr	-.17	1.41	R-30 flr	.26	2.13
			R-38 flr	-11.88	-2.95				R-38 flr	.26	2.13
			R-49 flr	-12.44	-3.89				R-49 flr	.27	2.14
Intercept	-5.353		Intercept	-6.236		Intercept	1.848		Intercept	2.130	
Slope(DD)	4696.30		Slope(DD)	4572.62		Slope(DD)	-592.02		Slope(DD)	7.93	
Curve(DDS)	-441.542		Curve(DDS)	-13.628		Curve(DDS)	47.515		Curve(DDS)	-18.077	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	118.64	ELF Ach			1-Pane	.00	1.72
.0007(.75)	.00	12.61	2-Pane	-10.26	47.39	.0007(.62)	.00	.20	2-Pane	-.15	.68
.0005(.55)	-5.11	8.35	3-Pane	-12.82	29.64	.0005(.45)	-.13	.09	3-Pane	-.19	.43
.0003(.33)	-9.69	4.62	R-10	-15.82	8.78	.0003(.27)	-.21	.02	R-10	-.23	.12
Slope/.001ELF	13.416		Slope(DD)	3656.51		Slope/.001ELF	-.083		Slope(DD)	51.95	
Curve/.001ELF	6.563		Curve(DDS)	31.718		Curve/.001ELF	.521		Curve(DDS)	.503	
Base Load = 71.51 MBtu			Base Load = 12.23 MBtu			Base Load = 5.99 MBtu			Base Load = 1.47 MBtu		
Typical Load = 18.73 MBtu			Typical Load = 5.99 MBtu			Typical Load = 5.99 MBtu			Typical Load = 5.99 MBtu		
Residual Load = 7.86 MBtu			Residual Load = 1.47 MBtu			Residual Load = 1.47 MBtu			Residual Load = 1.47 MBtu		

Denver CO

WYEC

MApartment Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.08	R-0	.00	29.83	R-0	.00	7.38	R-0	.00	3.10
R-7	-12.72	12.88	R-7	-5.20	13.42	R-7	-2.63	2.97	R-7	-.47	1.61
R-11	-14.75	9.48	R-11	-5.94	11.08	R-11	-3.05	2.27	R-11	-.54	1.39
R-19	-16.57	6.44	R-13	-6.77	8.49	R-19	-3.43	1.64	R-13	-.65	1.08
R-22	-17.19	5.42	R-19	-7.17	7.20	R-22	-3.58	1.39	R-19	-.70	.89
R-30	-18.01	4.04	R-27	-7.81	5.20	R-30	-3.78	1.08	R-27	-.77	.67
R-38	-18.51	3.21	R-34	-8.20	3.97	R-38	-3.89	.87	R-34	-.81	.54
R-49	-18.89	2.58				R-49	-4.01	.67			
R-60	-19.13	2.18				R-60	-4.08	.55			
Slope(DD) 5823.89			Slope(DD) 4962.33			Slope(DD) 1544.24			Slope(DD) 686.23		
Curve(DDS) -13.371			Curve(DDS) 108.735			Curve(DDS) -51.153			Curve(DDS) -20.484		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-9.45	64.52	R-0	-7.34	134.86	R-0	-1.04	-7.58	R-0	-.78	.92
R-5 2ft	-10.46	30.88	R-5 4ft	-9.07	77.19	R-5 2ft	-1.00	-6.24	R-5 4ft	-.82	-.41
R-5 4ft	-10.73	21.86	R-5 8ft	-9.53	61.86	R-5 4ft	-.97	-5.41	R-5 8ft	-.81	-.08
R-10 2ft	-10.63	25.02	R-10 4ft	-9.45	64.52	R-10 2ft	-.99	-5.91	R-10 4ft	-.83	-.58
R-10 4ft	-10.98	13.52	R-10 8ft	-10.06	44.02	R-10 4ft	-.95	-4.74	R-10 8ft	-.82	-.41
Intercept	-9.325		Intercept	.000		Intercept	-1.955		Intercept	.000	
Slope(DD)	7042.21		Slope(DD)	4455.78		Slope(DD)	-987.03		Slope(DD)	-56.17	
Curve(DDS)	-29.227		Curve(DDS)	-26.413		Curve(DDS)	43.241		Curve(DDS)	2.008	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.34	6.74	R-0	.00	18.98	R-0	-.78	.05	R-0	.00	1.35
R-11 flr	-10.30	1.81	R-11 flr	-9.76	2.70	R-11 flr	-.38	.72	R-11 flr	.23	1.73
R-19 flr	-11.34	.07	R-19 flr	-11.38	.04	R-19 flr	-.25	.93	R-19 flr	.23	1.74
R-30 flr	-12.01	-1.04	R-30 flr	-12.32	-1.57	R-30 flr	-.16	1.07	R-30 flr	.23	1.73
			R-38 flr	-12.55	-1.93				R-38 flr	.23	1.73
			R-49 flr	-13.18	-2.99				R-49 flr	.23	1.72
Intercept	-4.152		Intercept	-5.438		Intercept	1.447		Intercept	1.701	
Slope(DD)	4285.65		Slope(DD)	4935.56		Slope(DD)	-515.04		Slope(DD)	59.52	
Curve(DDS)	-421.444		Curve(DDS)	-34.022		Curve(DDS)	47.159		Curve(DDS)	-25.095	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	119.17	ELF Ach			1-Pane	.00	2.58
.0007(.75)	.00	12.28	2-Pane	-10.42	46.77	.0007(.62)	.00	.30	2-Pane	-.20	1.23
.0005(.55)	-5.12	8.01	3-Pane	-12.95	29.20	.0005(.45)	-.12	.20	3-Pane	-.26	.78
.0003(.33)	-9.51	4.35	R-10	-15.93	8.54	.0003(.27)	-.22	.11	R-10	-.34	.26
Slope/.001ELF	12.250		Slope(DD)	3546.14		Slope/.001ELF	.312		Slope(DD)	109.70	
Curve/.001ELF	7.552		Curve(DDS)	36.659		Curve/.001ELF	.156		Curve(DDS)	-.451	
Base Load = 67.06 MBtu			Base Load = 10.43 MBtu			Base Load = 10.43 MBtu			Base Load = 10.43 MBtu		
Typical Load = 16.76 MBtu			Typical Load = 4.70 MBtu			Typical Load = 4.70 MBtu			Typical Load = 4.70 MBtu		
Residual Load = 8.15 MBtu			Residual Load = .17 MBtu			Residual Load = .17 MBtu			Residual Load = .17 MBtu		

El Paso TX WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.89	R-0	.00	12.08	R-0	.00	12.23	R-0	.00	5.33
R-7	-14.04	5.77	R-7	-7.54	5.35	R-7	-11.43	4.81	R-7	-3.14	2.54
R-11	-16.29	4.32	R-11	-8.61	4.40	R-11	-13.28	3.62	R-11	-3.59	2.14
R-19	-18.30	3.01	R-13	-9.84	3.30	R-19	-14.90	2.56	R-13	-4.10	1.69
R-22	-19.03	2.54	R-19	-10.45	2.76	R-22	-15.60	2.17	R-19	-4.35	1.46
R-30	-20.01	1.90	R-27	-11.28	2.02	R-30	-16.31	1.64	R-27	-4.82	1.04
R-38	-20.60	1.52	R-34	-11.79	1.67	R-38	-16.80	1.33	R-34	-5.11	.79
R-49	-21.06	1.22				R-49	-17.24	1.04			
R-60	-21.38	1.02				R-60	-17.52	.86			
Slope(DD)	2762.28		Slope(DD)	1916.88		Slope(DD)	2374.29		Slope(DD)	1025.52	
Curve(DDS)	-42.219		Curve(DDS)	60.594		Curve(DDS)	-52.411		Curve(DDS)	-6.273	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.98	17.49	R-0	-6.58	44.00	R-0	-6.48	2.17	R-0	-2.92	23.62
R-5 2ft	-12.77	6.71	R-5 4ft	-9.88	24.12	R-5 2ft	-6.66	1.09	R-5 4ft	-3.55	19.82
R-5 4ft	-13.05	5.02	R-5 8ft	-10.48	20.51	R-5 4ft	-6.64	1.21	R-5 8ft	-3.63	19.34
R-10 2ft	-13.08	4.84	R-10 4ft	-10.60	19.78	R-10 2ft	-6.72	.73	R-10 4ft	-3.76	18.56
R-10 4ft	-13.35	3.22	R-10 8ft	-11.21	16.11	R-10 4ft	-6.73	.67	R-10 8ft	-3.93	17.53
Intercept	.000		Intercept	6.447		Intercept	.000		Intercept	13.893	
Slope(DD)	867.86		Slope(DD)	991.88		Slope(DD)	249.35		Slope(DD)	424.10	
Curve(DDS)	111.298		Curve(DDS)	1.379		Curve(DDS)	-1.537		Curve(DDS)	-4.283	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.58	4.74	R-0	.00	9.02	R-0	-2.92	2.55	R-0	.00	4.44
R-11 flr	-11.24	1.72	R-11 flr	-10.57	2.15	R-11 flr	-1.93	3.19	R-11 flr	-.28	4.26
R-19 flr	-12.31	1.02	R-19 flr	-12.09	1.16	R-19 flr	-1.75	3.30	R-19 flr	-.52	4.10
R-30 flr	-13.00	.57	R-30 flr	-12.90	.64	R-30 flr	-1.64	3.38	R-30 flr	-.75	3.96
			R-38 flr	-13.08	.52				R-38 flr	-.80	3.92
			R-49 flr	-13.61	.18				R-49 flr	-.95	3.82
Intercept	-.582		Intercept	-.634		Intercept	3.555		Intercept	3.597	
Slope(DD)	1547.91		Slope(DD)	1557.86		Slope(DD)	-231.57		Slope(DD)	518.53	
Curve(DDS)	-99.347		Curve(DDS)	63.195		Curve(DDS)	6.782		Curve(DDS)	-68.594	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	45.97	ELF Ach			1-Pane	.00	5.20
.0007(.73)	.00	4.82	2-Pane	-5.60	15.66	.0007(.55)	.00	.99	2-Pane	-.67	1.57
.0005(.52)	-2.82	2.79	3-Pane	-6.72	9.62	.0005(.39)	-.61	.59	3-Pane	-.78	.95
.0003(.31)	-5.01	1.37	R-10	-8.03	2.51	.0003(.23)	-1.08	.29	R-10	-.92	.22
Slope/.001ELF	3.019		Slope(DD)	1003.22		Slope/.001ELF	.617		Slope(DD)	82.85	
Curve/.001ELF	5.114		Curve(DDS)	27.952		Curve/.001ELF	1.136		Curve(DDS)	4.319	
Base Load = 62.20 MBtu			Base Load = 47.82 MBtu			Base Load = 47.82 MBtu			Base Load = 47.82 MBtu		
Typical Load = 19.70 MBtu			Typical Load = 22.06 MBtu			Typical Load = 22.06 MBtu			Typical Load = 22.06 MBtu		
Residual Load = 3.92 MBtu			Residual Load = 3.99 MBtu			Residual Load = 3.99 MBtu			Residual Load = 3.99 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	15.22	R-0	.00	10.94	R-0	.00	12.28	R-0	.00	5.61
R-7	-5.86	5.46	R-7	-3.11	4.42	R-7	-4.54	4.70	R-7	-1.39	2.69
R-11	-6.79	3.90	R-11	-3.55	3.49	R-11	-5.28	3.49	R-11	-1.59	2.27
R-19	-7.63	2.50	R-13	-3.98	2.58	R-19	-5.91	2.41	R-13	-1.84	1.74
R-22	-7.87	2.10	R-19	-4.20	2.13	R-22	-6.14	2.03	R-19	-1.97	1.48
R-30	-8.19	1.56	R-27	-4.48	1.53	R-30	-6.44	1.53	R-27	-2.16	1.09
R-38	-8.39	1.24	R-34	-4.66	1.16	R-38	-6.62	1.22	R-34	-2.27	.85
R-49	-8.54	.98				R-49	-6.77	.97			
R-60	-8.64	.82				R-60	-6.87	.81			
Slope(DD)	2191.14		Slope(DD)	1362.39		Slope(DD)	2200.23		Slope(DD)	1070.42	
Curve(DDS)	63.454		Curve(DDS)	125.058		Curve(DDS)	-22.402		Curve(DDS)	-5.044	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-4.34	12.97	R-0	-3.09	44.22	R-0	-2.51	.03	R-0	-1.08	35.78
R-5 2ft	-4.67	4.72	R-5 4ft	-3.90	23.97	R-5 2ft	-2.55	-.97	R-5 4ft	-1.24	31.78
R-5 4ft	-4.71	3.72	R-5 8ft	-4.02	20.97	R-5 4ft	-2.53	-.47	R-5 8ft	-1.26	31.28
R-10 2ft	-4.72	3.47	R-10 4ft	-4.04	20.47	R-10 2ft	-2.55	-.97	R-10 4ft	-1.30	30.28
R-10 4ft	-4.77	2.22	R-10 8ft	-4.18	16.97	R-10 4ft	-2.54	-.72	R-10 8ft	-1.31	30.03
Intercept	.000		Intercept	9.357		Intercept	.000		Intercept	27.600	
Slope(DD)	582.64		Slope(DD)	743.98		Slope(DD)	-362.38		Slope(DD)	247.06	
Curve(DDS)	89.073		Curve(DDS)	6.180		Curve(DDS)	39.488		Curve(DDS)	-.559	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.09	2.95	R-0	.00	8.10	R-0	-1.08	2.39	R-0	.00	4.19
R-11 flr	-4.05	1.35	R-11 flr	-3.42	2.40	R-11 flr	-.68	3.09	R-11 flr	.00	4.19
R-19 flr	-4.31	.91	R-19 flr	-3.90	1.60	R-19 flr	-.56	3.25	R-19 flr	-.09	4.04
R-30 flr	-4.48	.63	R-30 flr	-4.15	1.18	R-30 flr	-.50	3.35	R-30 flr	-.17	3.90
			R-38 flr	-4.21	1.08				R-38 flr	-.19	3.87
			R-49 flr	-4.38	.80				R-49 flr	-.24	3.78
Intercept	-.120		Intercept	.159		Intercept	3.622		Intercept	3.548	
Slope(DD)	1019.15		Slope(DD)	1234.43		Slope(DD)	-362.18		Slope(DD)	510.46	
Curve(DDS)	-82.083		Curve(DDS)	61.201		Curve(DDS)	23.585		Curve(DDS)	-75.317	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	37.71	ELF Ach			1-Pane	.00	2.87
.0007(.73)	.00	3.32	2-Pane	-3.54	13.13	.0007(.54)	.00	.85	2-Pane	-.30	.79
.0005(.52)	-1.85	1.78	3-Pane	-4.27	8.08	.0005(.38)	-.39	.52	3-Pane	-.35	.47
.0003(.31)	-3.13	.71	R-10	-5.12	2.15	.0003(.23)	-.70	.26	R-10	-.40	.09
Slope/.001ELF	.583		Slope(DD)	865.28		Slope/.001ELF	.625		Slope(DD)	33.62	
Curve/.001ELF	5.938		Curve(DDS)	21.329		Curve/.001ELF	.833		Curve(DDS)	2.848	
Base Load =	27.37 MBtu		Base Load =	30.16 MBtu		Base Load =	30.16 MBtu		Base Load =	30.16 MBtu	
Typical Load =	9.67 MBtu		Typical Load =	19.72 MBtu		Typical Load =	19.72 MBtu		Typical Load =	19.72 MBtu	
Residual Load =	5.14 MBtu		Residual Load =	8.71 MBtu		Residual Load =	8.71 MBtu		Residual Load =	8.71 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	15.57	R-0	.00	10.71	R-0	.00	12.99	R-0	.00	5.21
R-7	-8.03	5.52	R-7	-2.12	4.02	R-7	-4.79	5.00	R-7	-.91	2.34
R-11	-6.99	3.91	R-11	-2.42	3.07	R-11	-5.58	3.72	R-11	-1.04	1.93
R-19	-7.86	2.47	R-13	-2.68	2.24	R-19	-6.24	2.58	R-13	-1.20	1.41
R-22	-8.10	2.07	R-19	-2.82	1.83	R-22	-6.48	2.18	R-19	-1.28	1.15
R-30	-8.42	1.53	R-27	-2.99	1.29	R-30	-6.81	1.64	R-27	-1.37	.87
R-38	-8.62	1.20	R-34	-3.09	.96	R-38	-7.00	1.32	R-34	-1.43	.70
R-49	-8.76	.97				R-49	-7.17	1.04			
R-60	-8.85	.82				R-60	-7.27	.86			
Slope(DD)	2138.27		Slope(DD)	1072.10		Slope(DD)	2364.95		Slope(DD)	829.76	
Curve(DDS)	82.161		Curve(DDS)	170.802		Curve(DDS)	-29.417		Curve(DDS)	25.806	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-4.85	12.87	R-0	-3.91	44.21	R-0	-1.90	.50	R-0	-.91	33.68
R-5 2ft	-5.15	3.04	R-5 4ft	-4.70	17.87	R-5 2ft	-1.95	-1.00	R-5 4ft	-1.06	28.66
R-5 4ft	-5.17	2.21	R-5 8ft	-4.77	15.54	R-5 4ft	-1.94	-.67	R-5 8ft	-1.07	28.16
R-10 2ft	-5.18	2.04	R-10 4ft	-4.79	14.87	R-10 2ft	-1.95	-1.17	R-10 4ft	-1.09	27.50
R-10 4ft	-5.21	.87	R-10 8ft	-4.89	11.54	R-10 4ft	-1.94	-.84	R-10 8ft	-1.12	26.50
Intercept	.000		Intercept	8.913		Intercept	.000		Intercept	23.509	
Slope(DD)	-95.13		Slope(DD)	313.72		Slope(DD)	-462.00		Slope(DD)	328.61	
Curve(DDS)	161.248		Curve(DDS)	19.965		Curve(DDS)	55.842		Curve(DDS)	-1.306	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.91	2.21	R-0	.00	8.73	R-0	-.91	1.88	R-0	.00	3.19
R-11 flr	-4.73	.85	R-11 flr	-3.92	2.19	R-11 flr	-.42	2.50	R-11 flr	.16	3.46
R-19 flr	-4.88	.59	R-19 flr	-4.37	1.45	R-19 flr	-.33	2.65	R-19 flr	.08	3.33
R-30 flr	-4.99	.42	R-30 flr	-4.62	1.02	R-30 flr	-.27	2.74	R-30 flr	.02	3.22
			R-38 flr	-4.68	.93				R-38 flr	.00	3.19
			R-49 flr	-4.85	.65				R-49 flr	-.05	3.12
Intercept	-.001		Intercept	.134		Intercept	2.971		Intercept	2.900	
Slope(DD)	552.55		Slope(DD)	1027.45		Slope(DD)	-298.63		Slope(DD)	471.00	
Curve(DDS)	-23.643		Curve(DDS)	126.429		Curve(DDS)	9.255		Curve(DDS)	-80.777	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	35.93	ELF Ach			1-Pane	.00	3.89
.0007(.73)	.00	3.02	2-Pane	-3.57	11.11	.0007(.55)	.00	.78	2-Pane	-.35	1.43
.0005(.52)	-1.88	1.46	3-Pane	-4.20	6.73	.0005(.39)	-.38	.47	3-Pane	-.43	.88
.0003(.31)	-3.09	.45	R-10	-4.94	1.59	.0003(.23)	-.68	.23	R-10	-.52	.25
Slope/.001ELF	-.604		Slope(DD)	609.56		Slope/.001ELF	.500		Slope(DD)	100.31	
Curve/.001ELF	7.031		Curve(DDS)	28.465		Curve/.001ELF	.885		Curve(DDS)	1.784	
Base Load = 26.04 MBtu			Base Load = 27.72 MBtu			Base Load = 27.72 MBtu			Base Load = 27.72 MBtu		
Typical Load = 8.74 MBtu			Typical Load = 8.74 MBtu			Typical Load = 18.11 MBtu			Typical Load = 18.11 MBtu		
Residual Load = 5.66 MBtu			Residual Load = 5.66 MBtu			Residual Load = 7.38 MBtu			Residual Load = 7.38 MBtu		

Fort Worth TX WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.43	R-0	.00	12.90
R-7	-13.46	5.69	R-7	-7.66	6.08
R-11	-15.61	4.30	R-11	-8.75	5.11
R-19	-17.54	3.04	R-13	-10.05	3.95
R-22	-18.27	2.57	R-19	-10.69	3.38
R-30	-19.24	1.94	R-27	-11.74	2.45
R-38	-19.83	1.56	R-34	-12.38	1.88
R-49	-20.32	1.24			
R-60	-20.64	1.03			
Slope(DD) 2824.03			Slope(DD) 2396.43		
Curve(DDS) -65.673			Curve(DDS) .245		
Slab (/ft)			Heated Basement (/ft)		
R-0	-11.49	26.98	R-0	-8.04	47.77
R-5 2ft	-13.74	13.43	R-5 4ft	-11.23	28.55
R-5 4ft	-14.27	10.24	R-5 8ft	-12.10	23.31
R-10 2ft	-14.11	11.20	R-10 4ft	-12.00	23.91
R-10 4ft	-14.77	7.22	R-10 8ft	-13.17	18.86
Intercept	.000		Intercept	1.182	
Slope(DD)	1985.32		Slope(DD)	1545.79	
Curve(DDS)	31.749		Curve(DDS)	-9.541	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.04	5.15	R-0	.00	10.37
R-11 flr	-13.15	1.83	R-11 flr	-12.00	2.58
R-19 flr	-14.44	.99	R-19 flr	-13.88	1.36
R-30 flr	-15.27	.45	R-30 flr	-14.92	.68
			R-38 flr	-15.18	.53
			R-49 flr	-15.85	.08
Intercept	-.967		Intercept	-.993	
Slope(DD)	1917.75		Slope(DD)	2093.27	
Curve(DDS)	-141.391		Curve(DDS)	23.912	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	56.96
.0007(.71)	.00	6.99	2-Pane	-8.30	22.87
.0005(.53)	-3.50	4.72	3-Pane	-7.88	14.31
.0003(.32)	-8.66	2.66	R-10	-9.74	4.25
Slope/.001ELF	8.052		Slope(DD)	1773.22	
Curve/.001ELF	2.760		Curve(DDS)	14.554	
Base Load = 67.92 MBtu			Base Load = 51.72 MBtu		
Typical Load = 24.39 MBtu			Typical Load = 27.33 MBtu		
Residual Load = .28 MBtu			Residual Load = 4.65 MBtu		

Cooling Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling (/sf)			Wall (/sf)		
R-0	.00	8.86	R-0	.00	5.06
R-7	-8.30	3.47	R-7	-2.91	2.47
R-11	-9.63	2.61	R-11	-3.32	2.10
R-19	-10.82	1.84	R-13	-3.83	1.65
R-22	-11.26	1.55	R-19	-4.08	1.43
R-30	-11.85	1.17	R-27	-4.53	1.03
R-38	-12.21	.93	R-34	-4.80	.79
R-49	-12.50	.75			
R-60	-12.69	.62			
Slope(DD) 1697.12			Slope(DD) 1023.75		
Curve(DDS) -34.094			Curve(DDS) -15.484		
Slab (/ft)			Heated Basement (/ft)		
R-0	-7.71	4.42	R-0	-3.19	31.65
R-5 2ft	-8.19	1.52	R-5 4ft	-4.05	26.46
R-5 4ft	-8.26	1.10	R-5 8ft	-4.35	24.66
R-10 2ft	-8.30	.86	R-10 4ft	-4.39	24.42
R-10 4ft	-8.35	.56	R-10 8ft	-4.70	22.55
Intercept	.000		Intercept	17.017	
Slope(DD)	64.48		Slope(DD)	549.90	
Curve(DDS)	27.894		Curve(DDS)	-4.600	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.19	3.41	R-0	.00	5.48
R-11 flr	-2.28	4.00	R-11 flr	-.68	5.04
R-19 flr	-2.17	4.07	R-19 flr	-1.03	4.81
R-30 flr	-2.10	4.12	R-30 flr	-1.34	4.61
			R-38 flr	-1.41	4.57
			R-49 flr	-1.61	4.43
Intercept	4.213		Intercept	4.122	
Slope(DD)	-112.48		Slope(DD)	695.95	
Curve(DDS)	-8.549		Curve(DDS)	-83.996	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	9.82
.0007(.83)	.00	5.05	2-Pane	-1.12	3.76
.0005(.45)	-2.06	3.71	3-Pane	-1.38	2.34
.0003(.27)	-4.25	2.29	R-10	-1.69	.67
Slope/.001ELF	7.954		Slope(DD)	277.31	
Curve/.001ELF	-1.055		Curve(DDS)	3.581	
Base Load = 51.72 MBtu			Base Load = 51.72 MBtu		
Typical Load = 27.33 MBtu			Typical Load = 27.33 MBtu		
Residual Load = 4.65 MBtu			Residual Load = 4.65 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	15.19	R-0	.00	12.15
R-7	-6.75	5.61	R-7	-3.33	5.18
R-11	-6.67	4.08	R-11	-3.80	4.17
R-19	-7.49	2.70	R-13	-4.29	3.13
R-22	-7.75	2.27	R-19	-4.54	2.62
R-30	-8.10	1.69	R-27	-4.89	1.89
R-38	-8.31	1.34	R-34	-5.10	1.44
R-49	-8.47	1.07			
R-60	-8.57	.90			
Slope(DD) 2411.07			Slope(DD) 1744.31		
Curve(DDS) 25.415			Curve(DDS) 95.568		
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.92	20.50	R-0	-3.87	46.75
R-5 2ft	-5.39	8.75	R-5 4ft	-4.79	23.75
R-5 4ft	-5.49	6.25	R-5 8ft	-4.98	19.00
R-10 2ft	-5.46	7.00	R-10 4ft	-4.96	19.50
R-10 4ft	-5.57	4.25	R-10 8ft	-5.19	13.75
Intercept	.000		Intercept	2.817	
Slope(DD)	984.03		Slope(DD)	969.51	
Curve(DDS)	69.823		Curve(DDS)	3.203	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.87	3.12	R-0	.00	9.57
R-11 flr	-4.99	1.25	R-11 flr	-4.21	2.55
R-19 flr	-5.31	.72	R-19 flr	-4.84	1.50
R-30 flr	-5.51	.38	R-30 flr	-5.16	.97
			R-38 flr	-5.23	.85
			R-49 flr	-5.44	.50
Intercept	-.531		Intercept	-.374	
Slope(DD)	1243.53		Slope(DD)	1845.63	
Curve(DDS)	-103.791		Curve(DDS)	57.145	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	46.58
.0007(.74)	.00	5.32	2-Pane	-4.51	15.28
.0005(.52)	-2.50	3.24	3-Pane	-5.36	9.33
.0003(.31)	-4.46	1.61	R-10	-8.37	2.35
Slope/.001ELF 3.666			Slope(DD) 923.23		
Curve/.001ELF 5.625			Curve(DDS) 31.868		
Base Load = 31.33 MBtu					
Typical Load = 12.15 MBtu					
Residual Load = 2.78 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	8.66	R-0	.00	4.27
R-7	-3.19	3.34	R-7	-1.19	1.78
R-11	-3.70	2.49	R-11	-1.36	1.42
R-19	-4.16	1.72	R-13	-1.50	1.12
R-22	-4.32	1.46	R-19	-1.57	.98
R-30	-4.53	1.10	R-27	-1.72	.67
R-38	-4.66	.89	R-34	-1.81	.47
R-49	-4.78	.70			
R-60	-4.85	.57			
Slope(DD) 1582.42			Slope(DD) 606.92		
Curve(DDS) -20.652			Curve(DDS) 34.832		
Slab (/ft)			Heated Basement (/ft)		
R-0	-3.06	1.63	R-0	-1.30	45.63
R-5 2ft	-3.19	-1.62	R-5 4ft	-1.54	39.63
R-5 4ft	-3.18	-1.37	R-5 8ft	-1.58	38.63
R-10 2ft	-3.20	-1.87	R-10 4ft	-1.60	38.13
R-10 4ft	-3.19	-1.62	R-10 8ft	-1.66	36.63
Intercept	.000		Intercept	33.006	
Slope(DD)	-705.14		Slope(DD)	343.28	
Curve(DDS)	73.738		Curve(DDS)	-.696	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.30	3.04	R-0	.00	5.21
R-11 flr	-.74	3.98	R-11 flr	-.05	5.13
R-19 flr	-.65	4.13	R-19 flr	-.18	4.91
R-30 flr	-.59	4.23	R-30 flr	-.29	4.73
			R-38 flr	-.31	4.69
			R-49 flr	-.38	4.58
Intercept	4.455		Intercept	4.257	
Slope(DD)	-294.41		Slope(DD)	685.03	
Curve(DDS)	3.691		Curve(DDS)	-97.388	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	4.76
.0007(.63)	.00	4.67	2-Pane	-.58	.73
.0005(.45)	-1.44	3.47	3-Pane	-.63	.38
.0003(.27)	-3.01	2.17	R-10	-.69	-.03
Slope/.001ELF 7.625			Slope(DD) -32.60		
Curve/.001ELF -1.354			Curve(DDS) 8.064		
Base Load = 34.23 MBtu					
Typical Load = 24.08 MBtu					
Residual Load = 10.02 MBtu					

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	15.49	R-0	.00	12.15
R-7	-5.91	5.63	R-7	-2.26	5.02
R-11	-6.86	4.06	R-11	-2.58	4.01
R-19	-7.71	2.64	R-13	-2.90	2.99
R-22	-7.98	2.21	R-19	-3.06	2.48
R-30	-8.31	1.84	R-27	-3.28	1.79
R-38	-8.52	1.29	R-34	-3.42	1.36
R-49	-8.67	1.04			
R-60	-8.76	.89			
Slope(DD)	2328.59		Slope(DD)	1816.89	
Curve(DDS)	47.814		Curve(DDS)	119.397	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-5.36	22.17	R-0	-4.57	48.50
R-5 2ft	-5.75	9.34	R-5 4ft	-5.40	21.00
R-5 4ft	-5.83	6.67	R-5 8ft	-5.56	15.67
R-10 2ft	-5.80	7.50	R-10 4ft	-5.54	18.17
R-10 4ft	-5.89	4.50	R-10 8ft	-5.73	9.84
Intercept	.000		Intercept	-1.895	
Slope(DD)	1029.58		Slope(DD)	986.53	
Curve(DDS)	78.501		Curve(DDS)	6.687	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-4.57	2.43	R-0	.00	10.04
R-11 flr	-5.48	.92	R-11 flr	-4.47	2.59
R-19 flr	-5.73	.49	R-19 flr	-5.11	1.53
R-30 flr	-5.90	.21	R-30 flr	-5.45	.96
			R-38 flr	-5.53	.83
			R-49 flr	-5.78	.45
Intercept	-.540		Intercept	-.428	
Slope(DD)	1019.15		Slope(DD)	1887.19	
Curve(DDS)	-85.977		Curve(DDS)	69.095	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	45.38
.0007(.74)	.00	5.10	2-Pane	-4.53	13.92
.0005(.52)	-2.51	3.01	3-Pane	-5.32	8.43
.0003(.32)	-4.40	1.43	R-10	-6.25	1.97
Slope/.001ELF	2.875		Slope(DD)	753.89	
Curve/.001ELF	6.302		Curve(DDS)	36.559	
Base Load =	29.74 MBtu				
Typical Load =	11.20 MBtu				
Residual Load =	3.10 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	8.82	R-0	.00	4.47
R-7	-3.34	3.26	R-7	-.82	1.89
R-11	-3.87	2.37	R-11	-.93	1.52
R-19	-4.35	1.57	R-13	-1.03	1.24
R-22	-4.50	1.32	R-19	-1.07	1.10
R-30	-4.70	.99	R-27	-1.18	.73
R-38	-4.82	.79	R-34	-1.25	.51
R-49	-4.92	.62			
R-60	-4.98	.52			
Slope(DD)	1402.43		Slope(DD)	677.12	
Curve(DDS)	14.379		Curve(DDS)	28.602	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.60	-1.35	R-0	-1.19	45.81
R-5 2ft	-2.68	-3.85	R-5 4ft	-1.44	37.65
R-5 4ft	-2.67	-3.52	R-5 8ft	-1.50	35.31
R-10 2ft	-2.70	-4.52	R-10 4ft	-1.52	34.98
R-10 4ft	-2.66	-3.19	R-10 8ft	-1.57	33.15
Intercept	.000		Intercept	27.735	
Slope(DD)	-1289.36		Slope(DD)	492.54	
Curve(DDS)	102.082		Curve(DDS)	-1.008	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.19	2.29	R-0	.00	4.27
R-11 flr	-.87	3.17	R-11 flr	.07	4.39
R-19 flr	-.54	3.37	R-19 flr	-.08	4.18
R-30 flr	-.47	3.50	R-30 flr	-.16	4.01
			R-38 flr	-.18	3.97
			R-49 flr	-.25	3.86
Intercept	3.837		Intercept	3.540	
Slope(DD)	-452.73		Slope(DD)	688.99	
Curve(DDS)	29.483		Curve(DDS)	-106.426	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	5.30
.0007(.63)	.00	4.64	2-Pane	-.63	.89
.0005(.45)	-1.47	3.42	3-Pane	-.69	.48
.0003(.27)	-3.03	2.11	R-10	-.76	-.01
Slope/.001ELF	7.354		Slope(DD)	-24.49	
Curve/.001ELF	-1.042		Curve(DDS)	8.535	
Base Load =	32.41 MBtu				
Typical Load =	22.98 MBtu				
Residual Load =	9.25 MBtu				

Heating Load

Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	17.20	R-0	.00	14.33
R-7	-16.08	6.76	R-7	-8.44	6.82
R-11	-18.64	5.10	R-11	-9.64	5.75
R-19	-20.95	3.60	R-13	-11.11	4.44
R-22	-21.81	3.04	R-19	-11.84	3.79
R-30	-22.96	2.30	R-27	-13.00	2.76
R-38	-23.65	1.85	R-34	-13.71	2.13
R-49	-24.24	1.46			
R-60	-24.62	1.22			
Slope(DD)	3333.49		Slope(DD)	2710.38	
Curve(DDS)	-72.860		Curve(DDS)	-8.619	
Slab (/ft)			Heated Basement (/ft)		
R-0	-10.22	32.74	R-0	-6.55	54.85
R-5 2ft	-12.79	17.26	R-5 4ft	-9.93	34.49
R-5 4ft	-13.42	13.46	R-5 8ft	-10.88	28.76
R-10 2ft	-13.22	14.67	R-10 4ft	-10.73	29.67
R-10 4ft	-14.08	9.61	R-10 8ft	-12.11	21.35
Intercept	.000		Intercept	3.298	
Slope(DD)	2665.37		Slope(DD)	1752.24	
Curve(DDS)	3.752		Curve(DDS)	-12.045	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.55	5.91	R-0	.00	10.17
R-11 flr	-12.77	1.87	R-11 flr	-12.46	2.07
R-19 flr	-14.36	.84	R-19 flr	-14.42	.80
R-30 flr	-15.39	.17	R-30 flr	-15.52	.09
			R-38 flr	-15.77	-.07
			R-49 flr	-16.49	-.54
Intercept	-1.590		Intercept	-1.669	
Slope(DD)	2380.12		Slope(DD)	2203.92	
Curve(DDS)	-178.847		Curve(DDS)	20.288	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	57.86
.0007(.58)	.00	6.37	2-Pane	-6.08	24.98
.0005(.42)	-3.33	4.21	3-Pane	-7.78	15.74
.0003(.26)	-6.24	2.32	R-10	-9.79	4.89
Slope/.001ELF	6.721		Slope(DD)	2067.37	
Curve/.001ELF	3.409		Curve(DDS)	4.715	
Base Load = 72.63 MBtu					
Typical Load = 25.92 MBtu					
Residual Load = .90 MBtu					

Cooling Load

Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	13.17	R-0	.00	6.56
R-7	-12.16	5.28	R-7	-3.61	3.35
R-11	-14.10	4.02	R-11	-4.12	2.89
R-19	-15.84	2.88	R-13	-4.88	2.23
R-22	-16.51	2.45	R-19	-5.22	1.91
R-30	-17.42	1.86	R-27	-5.78	1.41
R-38	-17.96	1.51	R-34	-6.12	1.11
R-49	-18.46	1.18			
R-60	-18.79	.97			
Slope(DD)	2702.40		Slope(DD)	1430.21	
Curve(DDS)	-81.128		Curve(DDS)	-39.252	
Slab (/ft)			Heated Basement (/ft)		
R-0	-7.08	-1.02	R-0	-3.69	19.40
R-5 2ft	-7.09	-1.08	R-5 4ft	-4.13	16.75
R-5 4ft	-7.06	-.90	R-5 8ft	-4.20	16.33
R-10 2ft	-7.10	-1.14	R-10 4ft	-4.28	15.85
R-10 4ft	-7.04	-.78	R-10 8ft	-4.39	15.19
Intercept	.000		Intercept	13.169	
Slope(DD)	-273.47		Slope(DD)	191.43	
Curve(DDS)	15.668		Curve(DDS)	-.958	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.69	2.09	R-0	.00	4.49
R-11 flr	-2.40	2.93	R-11 flr	-.56	4.12
R-19 flr	-2.19	3.06	R-19 flr	-.89	3.91
R-30 flr	-2.06	3.15	R-30 flr	-1.13	3.75
			R-38 flr	-1.19	3.71
			R-49 flr	-1.35	3.61
Intercept	3.351		Intercept	3.324	
Slope(DD)	-257.81		Slope(DD)	602.26	
Curve(DDS)	2.367		Curve(DDS)	-73.202	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	9.26
.0007(.45)	.00	1.47	2-Pane	-.89	4.45
.0005(.32)	-.67	1.03	3-Pane	-1.19	2.83
.0003(.19)	-1.32	.61	R-10	-1.54	.93
Slope/.001ELF	1.981		Slope(DD)	400.21	
Curve/.001ELF	.162		Curve(DDS)	-1.867	
Base Load = 47.03 MBtu					
Typical Load = 19.31 MBtu					
Residual Load = -.66 MBtu					

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	17.99	R-0	.00	13.57
R-7	-6.78	6.68	R-7	-3.67	5.88
R-11	-7.87	4.88	R-11	-4.19	4.78
R-19	-8.84	3.25	R-13	-4.75	3.60
R-22	-9.15	2.74	R-19	-5.03	3.02
R-30	-9.57	2.04	R-27	-5.43	2.18
R-38	-9.82	1.62	R-34	-5.67	1.67
R-49	-10.01	1.30			
R-60	-10.14	1.09			
Slope(DD)	2913.88		Slope(DD)	2039.98	
Curve(DDS)	20.244		Curve(DDS)	89.953	
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.56	24.90	R-0	-3.34	55.40
R-5 2ft	-5.11	11.15	R-5 4ft	-4.34	30.40
R-5 4ft	-5.22	8.40	R-5 8ft	-4.58	24.40
R-10 2ft	-5.19	9.15	R-10 4ft	-4.55	25.15
R-10 4ft	-5.33	5.65	R-10 8ft	-4.82	18.40
Intercept	.000		Intercept	4.699	
Slope(DD)	1375.51		Slope(DD)	1201.77	
Curve(DDS)	56.810		Curve(DDS)	.908	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.34	3.69	R-0	.00	9.28
R-11 flr	-4.76	1.33	R-11 flr	-4.30	2.09
R-19 flr	-5.18	.63	R-19 flr	-4.95	1.01
R-30 flr	-5.45	.18	R-30 flr	-5.28	.45
			R-38 flr	-5.36	.33
			R-49 flr	-5.58	-.04
Intercept	-1.046		Intercept	-.953	
Slope(DD)	1688.03		Slope(DD)	1729.85	
Curve(DDS)	-145.055		Curve(DDS)	51.079	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	45.58
.0007(.58)	.00	4.83	2-Pane	-4.29	15.77
.0005(.44)	-2.32	2.90	3-Pane	-5.18	9.70
.0003(.27)	-4.11	1.41	R-10	-6.19	2.57
Slope/.001ELF	3.041		Slope(DD)	1031.32	
Curve/.001ELF	5.521		Curve(DDS)	26.301	

Base Load = 32.49 MBtu
 Typical Load = 12.03 MBtu
 Residual Load = 3.07 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	13.64	R-0	.00	7.10
R-7	-4.93	5.43	R-7	-1.71	3.52
R-11	-5.71	4.12	R-11	-1.95	3.01
R-19	-6.42	2.94	R-13	-2.28	2.31
R-22	-6.89	2.49	R-19	-2.45	1.98
R-30	-7.05	1.89	R-27	-2.69	1.45
R-38	-7.27	1.52	R-34	-2.84	1.14
R-49	-7.46	1.20			
R-60	-7.59	.99			
Slope(DD)	2744.43		Slope(DD)	1450.82	
Curve(DDS)	-74.812		Curve(DDS)	-24.262	
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.80	-2.93	R-0	-1.33	33.82
R-5 2ft	-2.77	-2.18	R-5 4ft	-1.47	30.32
R-5 4ft	-2.75	-1.68	R-5 8ft	-1.52	29.07
R-10 2ft	-2.77	-2.18	R-10 4ft	-1.54	28.57
R-10 4ft	-2.74	-1.43	R-10 8ft	-1.54	28.57
Intercept	.000		Intercept	26.937	
Slope(DD)	-461.42		Slope(DD)	109.09	
Curve(DDS)	18.109		Curve(DDS)	1.456	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.33	2.25	R-0	.00	4.47
R-11 flr	-.87	3.02	R-11 flr	-.16	4.20
R-19 flr	-.79	3.15	R-19 flr	-.28	4.00
R-30 flr	-.74	3.24	R-30 flr	-.35	3.88
			R-38 flr	-.37	3.85
			R-49 flr	-.42	3.77
Intercept	3.440		Intercept	3.512	
Slope(DD)	-262.03		Slope(DD)	521.15	
Curve(DDS)	6.006		Curve(DDS)	-65.130	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	6.79
.0007(.49)	.00	1.23	2-Pane	-.57	2.83
.0005(.35)	-.46	.85	3-Pane	-.72	1.78
.0003(.21)	-.89	.49	R-10	-.90	.54
Slope/.001ELF	1.542		Slope(DD)	227.87	
Curve/.001ELF	.313		Curve(DDS)	1.114	

Base Load = 29.29 MBtu
 Typical Load = 17.69 MBtu
 Residual Load = 5.53 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	18.37	R-0	.00	13.30
R-7	-7.03	6.66	R-7	-2.47	6.50
R-11	-8.16	4.79	R-11	-2.83	4.39
R-19	-9.16	3.11	R-13	-3.18	3.26
R-22	-9.46	2.60	R-19	-3.36	2.71
R-30	-9.87	1.92	R-27	-3.60	1.95
R-38	-10.12	1.51	R-34	-3.75	1.49
R-49	-10.29	1.22			
R-60	-10.40	1.04			
Slope(DD)	2728.53		Slope(DD)	1768.52	
Curve(DDS)	62.511		Curve(DDS)	131.163	
Slab (/ft)			Heated Basement (/ft)		
R-0	-5.05	20.45	R-0	-4.16	57.78
R-5 2ft	-5.51	12.95	R-5 4ft	-5.08	27.45
R-5 4ft	-5.61	9.61	R-5 8ft	-5.27	20.95
R-10 2ft	-5.58	10.61	R-10 4ft	-5.25	21.61
R-10 4ft	-5.70	6.61	R-10 8ft	-5.49	13.61
Intercept	.000		Intercept	-1.797	
Slope(DD)	1617.42		Slope(DD)	1342.36	
Curve(DDS)	61.106		Curve(DDS)	2.759	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.16	2.89	R-0	.00	9.83
R-11 flr	-5.31	.98	R-11 flr	-4.60	2.16
R-19 flr	-5.65	.41	R-19 flr	-5.25	1.07
R-30 flr	-5.87	.05	R-30 flr	-5.58	.52
			R-38 flr	-5.66	.40
			R-49 flr	-5.88	.04
Intercept	-.946		Intercept	-.834	
Slope(DD)	1355.80		Slope(DD)	1637.93	
Curve(DDS)	-118.553		Curve(DDS)	86.169	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	43.59
.0007(.58)	.00	4.51	2-Pane	-4.26	13.97
.0005(.44)	-2.31	2.59	3-Pane	-5.05	8.51
.0003(.27)	-4.01	1.17	R-10	-5.97	2.09
Slope/.001ELF	2.000		Slope(DD)	815.74	
Curve/.001ELF	6.354		Curve(DDS)	31.639	

Base Load = 30.60 MBtu
 Typical Load = 10.80 MBtu
 Residual Load = 3.52 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.57	R-0	.00	6.82
R-7	-5.27	5.79	R-7	-1.11	3.33
R-11	-6.11	4.39	R-11	-1.26	2.83
R-19	-6.87	3.13	R-13	-1.47	2.17
R-22	-7.15	2.65	R-19	-1.57	1.85
R-30	-7.54	2.01	R-27	-1.73	1.36
R-38	-7.77	1.62	R-34	-1.82	1.06
R-49	-7.98	1.28			
R-60	-8.11	1.05			
Slope(DD)	2917.57		Slope(DD)	1353.02	
Curve(DDS)	-77.565		Curve(DDS)	-15.786	
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.15	-3.73	R-0	-1.24	26.77
R-5 2ft	-2.18	-3.89	R-5 4ft	-1.34	23.27
R-5 4ft	-2.14	-3.23	R-5 8ft	-1.36	22.77
R-10 2ft	-2.15	-3.73	R-10 4ft	-1.37	22.27
R-10 4ft	-2.13	-2.73	R-10 8ft	-1.39	21.61
Intercept	.000		Intercept	19.733	
Slope(DD)	-941.30		Slope(DD)	165.60	
Curve(DDS)	52.377		Curve(DDS)	.156	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.24	1.34	R-0	.00	3.41
R-11 flr	-.81	2.05	R-11 flr	-.07	3.29
R-19 flr	-.73	2.18	R-19 flr	-.16	3.14
R-30 flr	-.68	2.27	R-30 flr	-.23	3.02
			R-38 flr	-.24	3.00
			R-49 flr	-.29	2.92
Intercept	2.490		Intercept	2.708	
Slope(DD)	-286.41		Slope(DD)	451.51	
Curve(DDS)	12.075		Curve(DDS)	-61.517	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	8.32
.0007(.45)	.00	1.23	2-Pane	-.66	3.74
.0005(.32)	-.44	.85	3-Pane	-.86	2.37
.0003(.19)	-.87	.50	R-10	-1.09	.75
Slope/.001ELF	1.604		Slope(DD)	319.95	
Curve/.001ELF	.208		Curve(DDS)	-.180	

Base Load = 26.44 MBtu
 Typical Load = 15.71 MBtu
 Residual Load = 3.78 MBtu

Great Falls MT WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	43.23	R-0	.00	41.60
R-7	-39.89	17.33	R-7	-23.66	20.54
R-11	-46.26	13.19	R-11	-27.03	17.55
R-19	-51.98	9.48	R-13	-31.20	13.84
R-22	-54.21	8.03	R-19	-33.26	12.00
R-30	-57.19	6.10	R-27	-37.03	8.65
R-38	-58.99	4.93	R-34	-39.34	6.59
R-49	-60.61	3.88			
R-60	-61.65	3.20			

Slope(DD)	8872.89	Slope(DD)	8628.80
Curve(DDS)	-266.684	Curve(DDS)	-186.309

Slab (/ft)			Heated Basement (/ft)		
R-0	-24.94	60.41	R-0	-12.69	134.20
R-5 2ft	-31.48	21.01	R-5 4ft	-19.45	93.48
R-5 4ft	-33.48	8.96	R-5 8ft	-22.27	78.49
R-10 2ft	-32.71	13.60	R-10 4ft	-21.28	82.46
R-10 4ft	-35.52	-3.33	R-10 8ft	-25.61	56.37
Intercept	-40.277		Intercept	.000	
Slope(DD)	16142.20		Slope(DD)	7255.03	
Curve(DDS)	-548.839		Curve(DDS)	-97.914	

Unheated Basement (/sf)			Crawl (/sf)		
R-0	-12.69	14.47	R-0	.00	22.71
R-11 flr	-33.50	.95	R-11 flr	-36.96	-1.29
R-19 flr	-39.57	-2.99	R-19 flr	-43.18	-5.33
R-30 flr	-43.47	-5.52	R-30 flr	-47.10	-7.88
			R-38 flr	-48.00	-8.46
			R-49 flr	-50.58	-10.14
Intercept	-12.387		Intercept	-13.960	
Slope(DD)	9359.54		Slope(DD)	7822.59	
Curve(DDS)	-804.004		Curve(DDS)	-131.083	

Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	202.24
.0007(.98)	.00	27.12	2-Pane	-19.71	95.58
.0005(.72)	-12.12	19.25	3-Pane	-26.14	60.77
.0003(.43)	-24.09	11.48	R-10	-33.71	19.82

Slope/.001ELF	37.890	Slope(DD)	8502.72
Curve/.001ELF	1.218	Curve(DDS)	-31.905

Base Load = 224.05 MBtu
 Typical Load = 80.52 MBtu
 Residual Load = 13.26 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	3.70	R-0	.00	1.45
R-7	-3.45	1.45	R-7	-.80	.74
R-11	-4.00	1.10	R-11	-.91	.64
R-19	-4.50	.77	R-13	-1.08	.48
R-22	-4.68	.65	R-19	-1.17	.41
R-30	-4.93	.49	R-27	-1.28	.31
R-38	-5.08	.40	R-34	-1.35	.25
R-49	-5.21	.31			
R-60	-5.29	.26			

Slope(DD)	717.58	Slope(DD)	310.67
Curve(DDS)	-15.876	Curve(DDS)	-7.708

Slab (/ft)			Heated Basement (/ft)		
R-0	-2.50	-2.75	R-0	-1.89	.92
R-5 2ft	-2.36	-1.91	R-5 4ft	-2.10	-.34
R-5 4ft	-2.29	-1.49	R-5 8ft	-2.08	-.22
R-10 2ft	-2.33	-1.73	R-10 4ft	-2.14	-.58
R-10 4ft	-2.23	-1.12	R-10 8ft	-2.10	-.34
Intercept	.242		Intercept	.000	
Slope(DD)	-626.66		Slope(DD)	-62.33	
Curve(DDS)	32.652		Curve(DDS)	2.480	

Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.89	.10	R-0	.00	1.33
R-11 flr	-.81	.80	R-11 flr	.47	1.63
R-19 flr	-.50	1.00	R-19 flr	.50	1.65
R-30 flr	-.30	1.13	R-30 flr	.51	1.66
			R-38 flr	.51	1.66
			R-49 flr	.52	1.66
Intercept	1.482		Intercept	1.662	
Slope(DD)	-477.14		Slope(DD)	5.55	
Curve(DDS)	40.459		Curve(DDS)	-13.815	

Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	1.34
.0007(.58)	.00	.18	2-Pane	-.09	.85
.0005(.41)	-.08	.13	3-Pane	-.15	.55
.0003(.25)	-.16	.08	R-10	-.21	.20

Slope/.001ELF	.260	Slope(DD)	90.00
Curve/.001ELF	.000	Curve(DDS)	-1.487

Base Load = 10.22 MBtu
 Typical Load = 1.70 MBtu
 Residual Load = -2.07 MBtu

Great Falls MT WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	45.31	R-0	.00	40.71
R-7	-16.69	17.66	R-7	-10.17	19.36
R-11	-19.24	13.24	R-11	-11.62	16.32
R-19	-21.62	9.28	R-13	-13.31	12.77
R-22	-22.48	7.85	R-19	-14.15	11.01
R-30	-23.63	5.93	R-27	-15.62	7.92
R-38	-24.32	4.78	R-34	-16.53	6.01
R-49	-24.93	3.76			
R-60	-25.32	3.11			
Slope(DD)	8563.47		Slope(DD)	7769.70	
Curve(DDS)	-155.390		Curve(DDS)	-37.520	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-12.39	59.48	R-0	-8.41	158.98
R-5 2ft	-13.98	19.73	R-5 4ft	-10.81	98.98
R-5 4ft	-14.43	8.48	R-5 8ft	-11.55	80.48
R-10 2ft	-14.26	12.73	R-10 4ft	-11.37	84.98
R-10 4ft	-14.88	-2.77	R-10 8ft	-12.45	57.98
Intercept	-35.643		Intercept	.000	
Slope(DD)	14116.76		Slope(DD)	7245.78	
Curve(DDS)	-392.290		Curve(DDS)	-78.097	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-8.41	10.60	R-0	.00	24.62
R-11 flr	-13.26	2.52	R-11 flr	-13.51	2.10
R-19 flr	-15.01	-.41	R-19 flr	-15.78	-1.68
R-30 flr	-16.14	-2.28	R-30 flr	-17.20	-4.05
			R-38 flr	-17.52	-4.58
			R-49 flr	-18.45	-6.14
Intercept	-7.544		Intercept	-9.704	
Slope(DD)	7254.65		Slope(DD)	7269.95	
Curve(DDS)	-724.787		Curve(DDS)	-112.589	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	184.69
.0007(***)	.00	24.67	2-Pane	-14.67	82.81
.0005(.74)	-9.12	17.07	3-Pane	-19.05	52.40
.0003(.44)	-17.71	9.91	R-10	-24.20	16.63
Slope/.001ELF	31.374		Slope(DD)	7079.01	
Curve/.001ELF	5.521		Curve(DDS)	-3.154	

Base Load = 109.31 MBtu
 Typical Load = 36.24 MBtu
 Residual Load = 5.24 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	4.05	R-0	.00	1.76
R-7	-1.45	1.63	R-7	-.39	.95
R-11	-1.68	1.24	R-11	-.44	.83
R-19	-1.89	.90	R-13	-.53	.64
R-22	-1.97	.76	R-19	-.58	.54
R-30	-2.08	.59	R-27	-.64	.41
R-38	-2.14	.48	R-34	-.68	.33
R-49	-2.21	.37			
R-60	-2.25	.30			
Slope(DD)	844.38		Slope(DD)	422.36	
Curve(DDS)	-27.311		Curve(DDS)	-17.790	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.01	-8.33	R-0	-.71	-.83
R-5 2ft	-.95	-6.83	R-5 4ft	-.74	-1.58
R-5 4ft	-.92	-6.08	R-5 8ft	-.72	-1.08
R-10 2ft	-.94	-6.58	R-10 4ft	-.75	-1.83
R-10 4ft	-.91	-5.83	R-10 8ft	-.72	-1.08
Intercept	-4.271		Intercept	.000	
Slope(DD)	-664.20		Slope(DD)	-158.62	
Curve(DDS)	23.581		Curve(DDS)	3.802	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.71	-.06	R-0	.00	1.13
R-11 flr	-.30	.63	R-11 flr	.23	1.51
R-19 flr	-.19	.81	R-19 flr	.26	1.56
R-30 flr	-.12	.93	R-30 flr	.26	1.56
			R-38 flr	.26	1.56
			R-49 flr	.26	1.56
Intercept	1.241		Intercept	1.589	
Slope(DD)	-424.40		Slope(DD)	-20.05	
Curve(DDS)	33.457		Curve(DDS)	-13.619	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.67
.0007(.58)	.00	.07	2-Pane	-.06	.25
.0005(.41)	-.06	.02	3-Pane	-.07	.16
.0003(.25)	-.09	-.01	R-10	-.09	.04
Slope/.001ELF	-.125		Slope(DD)	18.44	
Curve/.001ELF	.313		Curve(DDS)	.263	

Base Load = 6.98 MBtu
 Typical Load = 3.40 MBtu
 Residual Load = 1.21 MBtu

Great Falls MT WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	43.94	R-0	.00	40.98
R-7	-18.20	18.94	R-7	-6.92	19.13
R-11	-18.79	12.63	R-11	-7.90	18.02
R-19	-21.11	8.78	R-13	-9.02	12.49
R-22	-21.93	7.39	R-19	-9.58	10.74
R-30	-23.02	5.57	R-27	-10.54	7.71
R-38	-23.69	4.48	R-34	-11.13	5.85
R-49	-24.24	3.54			
R-60	-24.60	2.94			
Slope(DD) 8029.77			Slope(DD) 7502.64		
Curve(DDS) -104.329			Curve(DDS) 20.867		
Slab (/ft)			Heated Basement (/ft)		
R-0	-13.55	83.42	R-0	-10.39	188.78
R-5 2ft	-14.84	40.42	R-5 4ft	-12.60	115.26
R-5 4ft	-15.22	27.92	R-5 8ft	-13.26	93.09
R-10 2ft	-15.07	32.78	R-10 4ft	-13.11	98.26
R-10 4ft	-15.59	15.59	R-10 8ft	-14.04	87.09
Intercept	-21.027		Intercept	.000	
Slope(DD)	16780.18		Slope(DD)	8319.41	
Curve(DDS)	-461.812		Curve(DDS)	-84.751	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-10.39	9.44	R-0	.00	28.75
R-11 flr	-14.30	2.92	R-11 flr	-13.94	3.52
R-19 flr	-15.83	.37	R-19 flr	-16.23	-.29
R-30 flr	-18.82	-1.27	R-30 flr	-17.67	-2.70
			R-38 flr	-18.00	-3.25
			R-49 flr	-18.95	-4.83
Intercept	-5.910		Intercept	-8.388	
Slope(DD)	6423.47		Slope(DD)	7294.79	
Curve(DDS)	-668.987		Curve(DDS)	-88.178	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	183.76
.0007(***)	.00	24.39	2-Pane	-14.89	80.36
.0005(.74)	-9.12	18.79	3-Pane	-19.18	50.73
.0003(.44)	-17.63	9.70	R-10	-24.17	15.88
Slope/.001ELF	30.437		Slope(DD)	6730.81	
Curve/.001ELF	6.303		Curve(DDS)	8.708	
Base Load = 103.21 MBtu			Base Load = 5.81 MBtu		
Typical Load = 33.35 MBtu			Typical Load = 2.62 MBtu		
Residual Load = 5.56 MBtu			Residual Load = .31 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	4.14	R-0	.00	1.89
R-7	-1.46	1.71	R-7	-.25	.92
R-11	-1.69	1.32	R-11	-.28	.81
R-19	-1.90	.97	R-13	-.34	.63
R-22	-1.99	.83	R-19	-.37	.54
R-30	-2.11	.63	R-27	-.41	.40
R-38	-2.18	.51	R-34	-.44	.32
R-49	-2.24	.40			
R-60	-2.28	.33			
Slope(DD) 923.28			Slope(DD) 416.08		
Curve(DDS) -37.920			Curve(DDS) -18.894		
Slab (/ft)			Heated Basement (/ft)		
R-0	-.62	-4.80	R-0	-.51	-1.47
R-5 2ft	-.57	-3.47	R-5 4ft	-.53	-1.97
R-5 4ft	-.56	-2.97	R-5 8ft	-.51	-1.47
R-10 2ft	-.56	-3.14	R-10 4ft	-.52	-1.80
R-10 4ft	-.54	-2.30	R-10 8ft	-.51	-1.30
Intercept	-.312		Intercept	.000	
Slope(DD)	-917.53		Slope(DD)	-177.72	
Curve(DDS)	46.478		Curve(DDS)	3.829	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.51	-.07	R-0	.00	.78
R-11 flr	-.23	.39	R-11 flr	.19	1.11
R-19 flr	-.14	.55	R-19 flr	.20	1.12
R-30 flr	-.09	.64	R-30 flr	.20	1.12
			R-38 flr	.20	1.12
			R-49 flr	.20	1.12
Intercept	.913		Intercept	1.101	
Slope(DD)	-370.41		Slope(DD)	36.87	
Curve(DDS)	34.714		Curve(DDS)	-19.232	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	.91
.0007(.58)	.00	.18	2-Pane	-.06	.49
.0005(.41)	-.05	.13	3-Pane	-.09	.32
.0003(.25)	-.12	.08	R-10	-.12	.11
Slope/.001ELF	.292		Slope(DD)	47.72	
Curve/.001ELF	-.052		Curve(DDS)	-1.505	
Base Load = 5.81 MBtu			Base Load = 5.81 MBtu		
Typical Load = 2.62 MBtu			Typical Load = 2.62 MBtu		
Residual Load = .31 MBtu			Residual Load = .31 MBtu		

Honolulu HI TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	.35	R-0	.00	.08
R-7	-.42	.08	R-7	-.07	.02
R-11	-.49	.03	R-11	-.08	.01
R-19	-.55	-.01	R-13	-.09	.00
R-22	-.55	-.01	R-19	-.09	.00
R-30	-.55	-.01	R-27	-.09	.00
R-38	-.55	-.01	R-34	-.09	.00
R-49	-.55	-.01			
R-60	-.55	-.01			
Slope(DD)	-20.15		Slope(DD)	-3.50	
Curve(DDS)	13.383		Curve(DDS)	3.427	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.09	-.03	R-0	-.09	-.03
R-5 2ft	-.08	.03	R-5 4ft	-.10	-.10
R-5 4ft	-.08	.03	R-5 8ft	-.10	-.10
R-10 2ft	-.08	.03	R-10 4ft	-.10	-.10
R-10 4ft	-.08	.03	R-10 8ft	-.10	-.10
Intercept	.000		Intercept	-.078	
Slope(DD)	13.87		Slope(DD)	-2.99	
Curve(DDS)	-1.816		Curve(DDS)	.113	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.09	-.00	R-0	.00	.05
R-11 flr	-.10	-.01	R-11 flr	-.08	.02
R-19 flr	-.10	-.01	R-19 flr	-.08	.02
R-30 flr	-.10	-.01	R-30 flr	-.08	.02
			R-38 flr	-.08	.02
			R-49 flr	-.08	.02
Intercept	-.010		Intercept	.019	
Slope(DD)	-1.06		Slope(DD)	-6.00	
Curve(DDS)	.432		Curve(DDS)	2.531	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.20
.0007(.52)	.00	-.01	2-Pane	-.04	-.02
.0005(.37)	-.02	-.02	3-Pane	-.04	-.02
.0003(.22)	-.02	-.02	R-10	-.04	-.02
Slope/.001ELF	-.130		Slope(DD)	-8.68	
Curve/.001ELF	.162		Curve(DDS)	.615	
Base Load =		.78 MBtu			
Typical Load =		.05 MBtu			
Residual Load =		.06 MBtu			

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	8.18	R-0	.00	1.98
R-7	-8.30	2.79	R-7	-1.98	.21
R-11	-9.62	1.93	R-11	-2.24	-.04
R-19	-10.81	1.16	R-13	-2.40	-.18
R-22	-11.12	.96	R-19	-2.48	-.25
R-30	-11.53	.69	R-27	-2.39	-.17
R-38	-11.78	.53	R-34	-2.34	-.13
R-49	-11.91	.44			
R-60	-12.00	.38			
Slope(DD)	959.56		Slope(DD)	-299.19	
Curve(DDS)	70.790		Curve(DDS)	123.337	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-6.12	-.05	R-0	-.63	33.02
R-5 2ft	-8.13	-.11	R-5 4ft	.28	38.38
R-5 4ft	-6.14	-.17	R-5 8ft	.41	39.29
R-10 2ft	-6.15	-.23	R-10 4ft	.48	39.71
R-10 4ft	-6.13	-.11	R-10 8ft	.77	41.48
Intercept	.000		Intercept	45.601	
Slope(DD)	-64.53		Slope(DD)	-479.10	
Curve(DDS)	6.203		Curve(DDS)	3.683	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.63	3.56	R-0	.00	3.97
R-11 flr	.21	4.11	R-11 flr	1.28	4.80
R-19 flr	.11	4.04	R-19 flr	1.03	4.64
R-30 flr	.04	3.99	R-30 flr	.92	4.57
			R-38 flr	.90	4.55
			R-49 flr	.83	4.51
Intercept	3.810		Intercept	4.222	
Slope(DD)	285.94		Slope(DD)	523.16	
Curve(DDS)	-65.286		Curve(DDS)	-111.630	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-23.54
.0007(.68)	.00	4.47	2-Pane	1.28	-16.61
.0005(.48)	-1.69	3.37	3-Pane	2.34	-10.86
.0003(.29)	-3.60	2.13	R-10	3.59	-4.11
Slope/.001ELF	7.630		Slope(DD)	-1830.71	
Curve/.001ELF	-1.786		Curve(DDS)	35.576	
Base Load =		63.62 MBtu			
Typical Load =		42.75 MBtu			
Residual Load =		19.94 MBtu			

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	.21	R-0	.00	.06	R-0	.00	5.96	R-0	.00	.55
R-7	-.10	.05	R-7	-.03	.00	R-7	-2.71	1.44	R-7	-.55	-.61
R-11	-.12	.02	R-11	-.03	-.01	R-11	-3.14	.72	R-11	-.63	-.77
R-19	-.13	-.00	R-13	-.03	-.01	R-19	-3.53	.07	R-13	-.65	-.82
R-22	-.13	-.00	R-19	-.03	-.01	R-22	-3.54	.05	R-19	-.66	-.84
R-30	-.13	-.00	R-27	-.03	-.01	R-30	-3.56	.02	R-27	-.54	-.58
R-38	-.13	-.00	R-34	-.03	-.01	R-38	-3.57	.01	R-34	-.46	-.42
R-49	-.13	-.00				R-49	-3.59	-.02			
R-60	-.13	-.00				R-60	-3.60	-.04			
Slope(DD)	-12.23		Slope(DD)	-11.68		Slope(DD)	-139.31		Slope(DD)	-723.21	
Curve(DDS)	8.119		Curve(DDS)	4.101		Curve(DDS)	192.980		Curve(DDS)	153.501	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-.03	-.00	R-0	-.03	-.00	R-0	-2.41	-4.91	R-0	.00	55.34
R-5 2ft	-.03	-.00	R-5 4ft	-.03	-.00	R-5 2ft	-2.42	-5.16	R-5 4ft	.26	61.84
R-5 4ft	-.03	-.00	R-5 8ft	-.03	-.00	R-5 4ft	-2.42	-5.16	R-5 8ft	.27	62.09
R-10 2ft	-.03	-.00	R-10 4ft	-.03	-.00	R-10 2ft	-2.42	-5.16	R-10 4ft	.30	62.84
R-10 4ft	-.03	-.00	R-10 8ft	-.03	-.00	R-10 4ft	-2.36	-3.66	R-10 8ft	.39	65.09
Intercept	.000		Intercept	-.000		Intercept	.000		Intercept	69.472	
Slope(DD)	-.00		Slope(DD)	-.00		Slope(DD)	-1718.74		Slope(DD)	-526.05	
Curve(DDS)	.000		Curve(DDS)	.000		Curve(DDS)	125.667		Curve(DDS)	3.813	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.03	-.00	R-0	.00	.05	R-0	.00	3.69	R-0	-.42	2.99
R-11 flr	-.03	-.00	R-11 flr	-.02	.02	R-11 flr	.45	4.44	R-11 flr	.69	4.84
R-19 flr	-.03	-.00	R-19 flr	-.02	.02	R-19 flr	.49	4.51	R-19 flr	.66	4.79
R-30 flr	-.03	-.00	R-30 flr	-.02	.02	R-30 flr	.52	4.56	R-30 flr	.66	4.79
			R-38 flr	-.02	.02				R-38 flr	.66	4.79
			R-49 flr	-.02	.02				R-49 flr	.66	4.79
Intercept	-.000		Intercept	.019		Intercept	4.635		Intercept	4.580	
Slope(DD)	.00		Slope(DD)	-5.13		Slope(DD)	-86.18		Slope(DD)	364.02	
Curve(DDS)	.000		Curve(DDS)	2.165		Curve(DDS)	-19.181		Curve(DDS)	-131.463	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			ELF Ach			ELF Ach			ELF Ach		
.0007(.52)	.00	-.01	1-Pane	.00	.06	.0007(.68)	.00	3.22	1-Pane	.00	-27.61
.0005(.37)	-.01	-.02	2-Pane	-.01	-.01	.0005(.48)	-.94	2.43	2-Pane	1.44	-17.61
.0003(.22)	-.01	-.02	3-Pane	-.01	-.01	.0003(.28)	-2.01	1.54	3-Pane	2.33	-11.45
			R-10	-.01	-.01				R-10	3.37	-4.20
Slope/.001ELF	-.083		Slope(DD)	-2.78		Slope/.001ELF	5.542		Slope(DD)	-1859.78	
Curve/.001ELF	.104		Curve(DDS)	.197		Curve/.001ELF	-1.354		Curve(DDS)	30.837	
Base Load =		.21 MBtu	Base Load =		45.93 MBtu	Base Load =		45.93 MBtu	Base Load =		45.93 MBtu
Typical Load =		.01 MBtu	Typical Load =		38.41 MBtu	Typical Load =		38.41 MBtu	Typical Load =		38.41 MBtu
Residual Load =		.04 MBtu	Residual Load =		24.01 MBtu	Residual Load =		24.01 MBtu	Residual Load =		24.01 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	.34	R-0	.00	.04	R-0	.00	6.75	R-0	.00	-.34
R-7	-.15	.09	R-7	-.01	.00	R-7	-3.02	1.71	R-7	-.33	-1.38
R-11	-.18	.05	R-11	-.01	-.01	R-11	-3.51	.91	R-11	-.38	-1.52
R-19	-.20	.01	R-13	-.01	-.01	R-19	-3.94	.19	R-13	-.26	-1.18
R-22	-.20	.01	R-19	-.01	-.01	R-22	-4.00	.09	R-19	-.21	-1.00
R-30	-.20	.00	R-27	-.01	-.01	R-30	-4.08	-.04	R-27	-.17	-.87
R-38	-.20	.00	R-34	-.01	-.01	R-38	-4.13	-.12	R-34	-.14	-.78
R-49	-.20	.00				R-49	-4.05	.00			
R-60	-.20	.00				R-60	-4.00	.09			
Slope(DD)	-3.54		Slope(DD)	-8.78		Slope(DD)	-99.59		Slope(DD)	-1074.69	
Curve(DDS)	10.334		Curve(DDS)	3.082		Curve(DDS)	208.899		Curve(DDS)	187.817	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-.01	.00	R-0	-.01	.00	R-0	-1.71	-2.13	R-0	.00	54.87
R-5 2ft	-.01	.00	R-5 4ft	-.01	.00	R-5 2ft	-1.75	-3.30	R-5 4ft	.26	63.70
R-5 4ft	-.01	.00	R-5 8ft	-.01	.00	R-5 4ft	-1.75	-3.30	R-5 8ft	.35	66.37
R-10 2ft	-.01	.00	R-10 4ft	-.01	.00	R-10 2ft	-1.75	-3.30	R-10 4ft	.35	66.37
R-10 4ft	-.01	.00	R-10 8ft	-.01	.00	R-10 4ft	-1.72	-2.47	R-10 8ft	.41	68.53
Intercept	.000		Intercept	.000		Intercept	.000		Intercept	74.496	
Slope(DD)	.00		Slope(DD)	.00		Slope(DD)	-1191.48		Slope(DD)	-633.99	
Curve(DDS)	-.000		Curve(DDS)	.000		Curve(DDS)	100.802		Curve(DDS)	2.609	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.01	.00	R-0	.00	.02	R-0	.00	2.74	R-0	-.86	1.32
R-11 flr	-.01	.00	R-11 flr	-.01	.00	R-11 flr	.80	4.08	R-11 flr	.74	3.98
R-19 flr	-.01	.00	R-19 flr	-.01	.00	R-19 flr	.84	4.14	R-19 flr	.86	4.19
R-30 flr	-.01	.00	R-30 flr	-.01	.00	R-30 flr	.87	4.19	R-30 flr	.93	4.30
			R-38 flr	-.01	.00				R-38 flr	.95	4.33
			R-49 flr	-.01	.00				R-49 flr	1.00	4.40
Intercept	.000		Intercept	.001		Intercept	4.204		Intercept	4.477	
Slope(DD)	-.00		Slope(DD)	-2.57		Slope(DD)	23.70		Slope(DD)	-152.33	
Curve(DDS)	.000		Curve(DDS)	1.083		Curve(DDS)	-60.152		Curve(DDS)	-90.429	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	.10	ELF Ach			1-Pane	.00	-27.48
.0007(.52)	.00	-.00	2-Pane	-.01	-.01	.0007(.68)	.00	3.14	2-Pane	1.50	-17.10
.0005(.37)	-.01	-.01	3-Pane	-.01	-.01	.0005(.47)	-.77	2.50	3-Pane	2.38	-11.10
.0003(.22)	-.01	-.01	R-10	-.01	-.01	.0003(.28)	-1.78	1.65	R-10	3.38	-4.04
Slope/.001ELF	-.042		Slope(DD)	-4.18		Slope/.001ELF	6.271		Slope(DD)	-1785.91	
Curve/.001ELF	.052		Curve(DDS)	.298		Curve/.001ELF	-2.552		Curve(DDS)	28.217	
Base Load =			.25 MBtu			Base Load =			43.43 MBtu		
Typical Load =			.02 MBtu			Typical Load =			36.80 MBtu		
Residual Load =			.02 MBtu			Residual Load =			22.04 MBtu		

Jacksonville FL TMY One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	9.41	R-0	.00	7.61	R-0	.00	8.53	R-0	.00	3.94
R-7	-8.93	3.61	R-7	-4.70	3.43	R-7	-8.17	3.22	R-7	-2.48	1.73
R-11	-10.35	2.89	R-11	-6.37	2.83	R-11	-9.48	2.38	R-11	-2.83	1.42
R-19	-11.63	1.85	R-13	-6.13	2.16	R-19	-10.65	1.61	R-13	-3.23	1.06
R-22	-12.08	1.56	R-19	-6.50	1.83	R-22	-11.04	1.36	R-19	-3.43	.89
R-30	-12.69	1.17	R-27	-7.06	1.32	R-30	-11.57	1.02	R-27	-3.70	.85
R-38	-13.05	.93	R-34	-7.41	1.02	R-38	-11.89	.81	R-34	-3.86	.50
R-49	-13.34	.75				R-49	-12.14	.65			
R-60	-13.62	.63				R-60	-12.30	.54			
Slope(DD)	1693.93		Slope(DD)	1284.52		Slope(DD)	1460.70		Slope(DD)	613.32	
Curve(DDS)	-18.093		Curve(DDS)	27.986		Curve(DDS)	-3.716		Curve(DDS)	22.176	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-6.18	13.75	R-0	-4.74	22.42	R-0	-6.80	-1.59	R-0	-2.43	25.73
R-5 2ft	-7.38	6.62	R-5 4ft	-6.59	11.28	R-5 2ft	-6.95	-1.50	R-5 4ft	-2.44	25.67
R-5 4ft	-7.73	4.41	R-5 8ft	-7.06	8.45	R-5 4ft	-6.90	-1.20	R-5 8ft	-2.43	25.73
R-10 2ft	-7.73	4.41	R-10 4ft	-6.99	8.87	R-10 2ft	-7.00	-1.80	R-10 4ft	-2.42	25.79
R-10 4ft	-8.10	2.18	R-10 8ft	-7.54	5.55	R-10 4ft	-6.86	-.98	R-10 8ft	-2.49	25.37
Intercept	.000		Intercept	-1.000		Intercept	.000		Intercept	24.704	
Slope(DD)	676.79		Slope(DD)	595.79		Slope(DD)	-449.29		Slope(DD)	81.07	
Curve(DDS)	35.529		Curve(DDS)	-.531		Curve(DDS)	32.544		Curve(DDS)	-1.374	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-4.74	2.42	R-0	.00	5.49	R-0	-2.43	2.77	R-0	.00	4.35
R-11 flr	-7.39	.70	R-11 flr	-6.71	1.14	R-11 flr	-.86	3.79	R-11 flr	.74	4.83
R-19 flr	-7.99	.31	R-19 flr	-7.66	.52	R-19 flr	-.62	3.95	R-19 flr	.52	4.69
R-30 flr	-8.37	.06	R-30 flr	-8.05	.27	R-30 flr	-.46	4.05	R-30 flr	.45	4.65
			R-38 flr	-8.14	.21				R-38 flr	.44	4.64
			R-49 flr	-8.40	.04				R-49 flr	.40	4.61
Intercept	-.581		Intercept	-.430		Intercept	4.287		Intercept	4.386	
Slope(DD)	856.10		Slope(DD)	815.59		Slope(DD)	-297.79		Slope(DD)	385.13	
Curve(DDS)	-52.939		Curve(DDS)	66.291		Curve(DDS)	.527		Curve(DDS)	-76.378	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	26.88	ELF Ach			1-Pane	.00	-3.96
.0007(.68)	.00	3.52	2-Pane	-3.47	8.10	.0007(.58)	.00	3.99	2-Pane	-.04	-4.18
.0005(.45)	-1.95	2.26	3-Pane	-4.06	4.90	.0005(.41)	-1.58	2.96	3-Pane	.22	-2.78
.0003(.29)	-3.58	1.20	R-10	-4.76	1.12	.0003(.24)	-3.30	1.85	R-10	.52	-1.15
Slope/.001ELF	3.214		Slope(DD)	424.74		Slope/.001ELF	6.494		Slope(DD)	-519.79	
Curve/.001ELF	2.598		Curve(DDS)	22.480		Curve/.001ELF	-1.136		Curve(DDS)	14.009	
Base Load =	38.79 MBtu		Base Load =	48.97 MBtu		Base Load =	48.97 MBtu		Base Load =	48.97 MBtu	
Typical Load =	12.46 MBtu		Typical Load =	26.96 MBtu		Typical Load =	26.96 MBtu		Typical Load =	26.96 MBtu	
Residual Load =	1.16 MBtu		Residual Load =	6.95 MBtu		Residual Load =	6.95 MBtu		Residual Load =	6.95 MBtu	

Jacksonville FL TMY Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.39	R-0	.00	6.56	R-0	.00	7.85	R-0	.00	3.00
R-7	-3.65	3.31	R-7	-1.94	2.48	R-7	-2.97	2.90	R-7	-.90	1.11
R-11	-4.24	2.33	R-11	-2.22	1.90	R-11	-3.44	2.11	R-11	-1.03	.84
R-19	-4.76	1.46	R-13	-2.47	1.38	R-19	-3.87	1.40	R-13	-1.12	.65
R-22	-4.90	1.22	R-19	-2.59	1.12	R-22	-4.00	1.18	R-19	-1.17	.55
R-30	-5.09	.90	R-27	-2.74	.80	R-30	-4.18	.88	R-27	-1.26	.37
R-38	-5.21	.71	R-34	-2.84	.60	R-38	-4.29	.70	R-34	-1.31	.25
R-49	-5.30	.67				R-49	-4.38	.56			
R-60	-5.35	.48				R-60	-4.43	.46			
Slope(DD)	1255.72		Slope(DD)	685.57		Slope(DD)	1247.82		Slope(DD)	301.93	
Curve(DDS)	55.438		Curve(DDS)	102.919		Curve(DDS)	12.794		Curve(DDS)	47.675	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-2.59	7.79	R-0	-2.19	17.79	R-0	-2.53	-5.25	R-0	-.66	41.60
R-5 2ft	-2.81	2.29	R-5 4ft	-2.68	5.54	R-5 2ft	-2.56	-6.00	R-5 4ft	-.63	42.25
R-5 4ft	-2.85	1.29	R-5 8ft	-2.76	3.54	R-5 4ft	-2.51	-4.75	R-5 8ft	-.75	39.25
R-10 2ft	-2.85	1.29	R-10 4ft	-2.74	4.04	R-10 2ft	-2.53	-5.25	R-10 4ft	-.64	42.00
R-10 4ft	-2.89	.29	R-10 8ft	-2.82	2.04	R-10 4ft	-2.45	-3.25	R-10 8ft	-.64	42.00
Intercept	.000		Intercept	.037		Intercept	.000		Intercept	41.607	
Slope(DD)	-39.88		Slope(DD)	85.31		Slope(DD)	-1376.81		Slope(DD)	-24.77	
Curve(DDS)	54.376		Curve(DDS)	8.571		Curve(DDS)	77.020		Curve(DDS)	.581	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.19	1.19	R-0	.00	4.84	R-0	-.66	2.77	R-0	.00	3.87
R-11 flr	-2.73	.29	R-11 flr	-2.23	1.12	R-11 flr	.01	3.88	R-11 flr	.62	4.90
R-19 flr	-2.85	.09	R-19 flr	-2.49	.69	R-19 flr	.11	4.05	R-19 flr	.60	4.87
R-30 flr	-2.92	-.03	R-30 flr	-2.62	.47	R-30 flr	.17	4.15	R-30 flr	.49	4.69
			R-38 flr	-2.65	.42				R-38 flr	.47	4.65
			R-49 flr	-2.74	.28				R-49 flr	.40	4.53
Intercept	-.346		Intercept	-.017		Intercept	4.384		Intercept	4.339	
Slope(DD)	418.89		Slope(DD)	550.11		Slope(DD)	-294.32		Slope(DD)	567.02	
Curve(DDS)	-23.437		Curve(DDS)	77.306		Curve(DDS)	-4.113		Curve(DDS)	-128.557	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	22.18	ELF Ach			1-Pane	.00	-12.00
.0007(.64)	.00	1.98	2-Pane	-2.23	6.69	.0007(.57)	.00	3.33	2-Pane	.46	-8.80
.0005(.48)	-1.33	.87	3-Pane	-2.61	4.04	.0005(.41)	-1.13	2.39	3-Pane	.90	-5.77
.0003(.29)	-2.14	.20	R-10	-3.06	.93	.0003(.25)	-2.27	1.44	R-10	1.41	-2.20
Slope/.001ELF	-.959		Slope(DD)	351.44		Slope/.001ELF	4.833		Slope(DD)	-984.69	
Curve/.001ELF	5.417		Curve(DDS)	18.510		Curve/.001ELF	-.104		Curve(DDS)	20.086	
Base Load =	16.85 MBtu		Base Load =	33.62 MBtu		Base Load =	25.03 MBtu		Base Load =	13.27 MBtu	
Typical Load =	5.73 MBtu		Typical Load =	13.27 MBtu		Typical Load =			Typical Load =		
Residual Load =	3.11 MBtu		Residual Load =			Residual Load =			Residual Load =		

Jacksonville FL TMY M Apartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.53	R-0	.00	8.29	R-0	.00	7.87	R-0	.00	2.40
R-7	-3.77	3.25	R-7	-1.30	2.21	R-7	-3.10	2.70	R-7	-.60	.52
R-11	-4.37	2.24	R-11	-1.48	1.62	R-11	-3.60	1.88	R-11	-.68	.25
R-19	-4.91	1.34	R-13	-1.63	1.14	R-19	-4.04	1.14	R-13	-.75	.03
R-22	-5.04	1.12	R-19	-1.71	.90	R-22	-4.14	.98	R-19	-.79	-.08
R-30	-5.22	.83	R-27	-1.79	.63	R-30	-4.29	.73	R-27	-.77	-.03
R-38	-5.32	.65	R-34	-1.85	.47	R-38	-4.37	.59	R-34	-.76	.00
R-49	-5.41	.51				R-49	-4.46	.44			
R-60	-5.46	.43				R-60	-4.51	.35			
Slope(DD) 1123.01			Slope(DD) 479.55			Slope(DD) 968.76			Slope(DD) -139.48		
Curve(DDS) 81.603			Curve(DDS) 128.363			Curve(DDS) 60.525			Curve(DDS) 108.939		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-2.84	8.76	R-0	-2.57	17.76	R-0	-1.83	4.98	R-0	-.40	52.31
R-5 2ft	-3.03	2.60	R-5 4ft	-2.99	3.76	R-5 2ft	-1.85	3.98	R-5 4ft	-.40	52.48
R-5 4ft	-3.07	1.10	R-5 8ft	-3.06	1.43	R-5 4ft	-1.84	4.48	R-5 8ft	-.39	52.81
R-10 2ft	-3.07	1.10	R-10 4ft	-3.06	1.60	R-10 2ft	-1.85	3.98	R-10 4ft	-.40	52.48
R-10 4ft	-3.10	.26	R-10 8ft	-3.10	.26	R-10 4ft	-1.91	2.14	R-10 8ft	-.38	53.14
Intercept	.000		Intercept	-.780		Intercept	.000		Intercept	54.442	
Slope(DD)	-115.81		Slope(DD)	-58.79		Slope(DD)	989.74		Slope(DD)	-143.59	
Curve(DDS)	67.062		Curve(DDS)	12.537		Curve(DDS)	-47.883		Curve(DDS)	2.241	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.57	.89	R-0	.00	5.18	R-0	-.40	2.82	R-0	.00	3.29
R-11 flr	-3.01	.15	R-11 flr	-2.41	1.16	R-11 flr	.22	3.66	R-11 flr	.83	4.67
R-19 flr	-3.11	.00	R-19 flr	-2.71	.66	R-19 flr	.34	3.86	R-19 flr	.81	4.63
R-30 flr	-3.16	-.10	R-30 flr	-2.83	.47	R-30 flr	.42	3.99	R-30 flr	.85	4.71
			R-38 flr	-2.85	.42				R-38 flr	.86	4.73
			R-49 flr	-2.93	.29				R-49 flr	.90	4.79
Intercept	-.342		Intercept	-.047		Intercept	4.314		Intercept	4.668	
Slope(DD)	326.97		Slope(DD)	568.38		Slope(DD)	-425.57		Slope(DD)	100.59	
Curve(DDS)	-16.984		Curve(DDS)	87.970		Curve(DDS)	18.402		Curve(DDS)	-71.964	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	21.24	ELF Ach			1-Pane	.00	-11.99
.0007(.64)	.00	1.86	2-Pane	-2.21	5.89	.0007(.57)	.00	3.45	2-Pane	.37	-9.42
.0005(.48)	-1.32	.76	3-Pane	-2.55	3.52	.0005(.41)	-1.09	2.54	3-Pane	.83	-6.20
.0003(.29)	-2.09	.12	R-10	-2.95	.72	.0003(.24)	-2.25	1.57	R-10	1.38	-2.41
Slope/.001ELF	-1.313		Slope(DD)	257.45		Slope/.001ELF	5.479		Slope(DD)	-1080.02	
Curve/.001ELF	5.677		Curve(DDS)	20.725		Curve/.001ELF	-.781		Curve(DDS)	23.703	
Base Load = 15.94 MBtu			Base Load = 31.35 MBtu			Base Load = 31.35 MBtu			Base Load = 31.35 MBtu		
Typical Load = 5.20 MBtu			Typical Load = 23.68 MBtu			Typical Load = 23.68 MBtu			Typical Load = 23.68 MBtu		
Residual Load = 3.33 MBtu			Residual Load = 11.85 MBtu			Residual Load = 11.85 MBtu			Residual Load = 11.85 MBtu		

Juneau AK TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	49.32	R-0	.00	48.11
R-7	-45.32	19.89	R-7	-27.15	23.95
R-11	-52.58	15.19	R-11	-31.02	20.51
R-19	-59.08	10.97	R-13	-35.81	16.24
R-22	-61.83	9.30	R-19	-38.19	14.13
R-30	-65.06	7.07	R-27	-42.64	10.16
R-38	-67.14	5.72	R-34	-45.38	7.73
R-49	-69.03	4.49			
R-60	-70.25	3.70			
Slope(DD)	10298.72		Slope(DD)	10168.56	
Curve(DDS)	-334.001		Curve(DDS)	-227.541	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-23.37	122.39	R-0	-14.50	175.83
R-5 2ft	-33.15	63.48	R-5 4ft	-23.04	124.38
R-5 4ft	-38.61	42.84	R-5 8ft	-26.81	101.67
R-10 2ft	-34.90	52.94	R-10 4ft	-25.39	110.23
R-10 4ft	-39.60	24.62	R-10 8ft	-31.15	75.53
Intercept	-33.664		Intercept	.000	
Slope(DD)	16956.09		Slope(DD)	7827.98	
Curve(DDS)	-338.654		Curve(DDS)	-81.984	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-14.50	18.95	R-0	.00	28.37
R-11 flr	-40.28	2.21	R-11 flr	-42.28	.91
R-19 flr	-47.37	-2.39	R-19 flr	-49.68	-3.89
R-30 flr	-51.92	-5.35	R-30 flr	-54.40	-6.98
			R-38 flr	-55.48	-7.66
			R-49 flr	-58.59	-9.68
Intercept	-13.278		Intercept	-14.325	
Slope(DD)	10770.33		Slope(DD)	9545.62	
Curve(DDS)	-874.605		Curve(DDS)	-237.908	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	226.57
.0007(.77)	.00	28.20	2-Pane	-21.18	111.96
.0005(.56)	-12.46	20.11	3-Pane	-28.67	71.45
.0003(.33)	-24.88	12.05	R-10	-37.47	23.81
Slope/.001ELF	40.064		Slope(DD)	10273.97	
Curve/.001ELF	.325		Curve(DDS)	-64.083	

Base Load = 255.36 MBtu
Typical Load = 93.35 MBtu
Residual Load = 9.92 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	.05	R-0	.00	.00
R-7	-.05	.02	R-7	.00	.00
R-11	-.06	.01	R-11	.00	.00
R-19	-.07	.01	R-13	.00	.00
R-22	-.07	.01	R-19	.00	.00
R-30	-.07	.01	R-27	.00	.00
R-38	-.07	.01	R-34	.00	.00
R-49	-.08	.00			
R-60	-.08	.00			
Slope(DD)	6.60		Slope(DD)	.00	
Curve(DDS)	.375		Curve(DDS)	.000	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.03	-.31	R-0	-.01	-.19
R-5 2ft	-.02	-.25	R-5 4ft	-.01	-.19
R-5 4ft	-.02	-.25	R-5 8ft	-.01	-.19
R-10 2ft	-.02	-.25	R-10 4ft	-.01	-.19
R-10 4ft	-.01	-.19	R-10 8ft	.00	-.13
Intercept	-.070		Intercept	.000	
Slope(DD)	-39.84		Slope(DD)	-14.46	
Curve(DDS)	1.684		Curve(DDS)	.239	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-.01	-.02	R-0	.00	-.01
R-11 flr	.00	-.01	R-11 flr	.01	-.01
R-19 flr	.00	-.01	R-19 flr	.00	-.01
R-30 flr	.00	-.01	R-30 flr	.00	-.01
			R-38 flr	.00	-.01
			R-49 flr	.00	-.01
Intercept	-.014		Intercept	-.022	
Slope(DD)	1.06		Slope(DD)	11.27	
Curve(DDS)	-.432		Curve(DDS)	-1.887	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	.00
.0007(.58)	.00	.00	2-Pane	.00	.00
.0005(.42)	.00	.00	3-Pane	.00	.00
.0003(.25)	.00	.00	R-10	.00	.00
Slope/.001ELF	.000		Slope(DD)	.00	
Curve/.001ELF	.000		Curve(DDS)	.000	

Base Load = .10 MBtu
Typical Load = .02 MBtu
Residual Load = .00 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	52.42	R-0	.00	47.57
R-7	-19.12	20.56	R-7	-11.81	22.78
R-11	-22.17	15.48	R-11	-13.49	19.26
R-19	-24.91	10.91	R-13	-15.48	15.07
R-22	-25.92	9.22	R-19	-16.47	13.00
R-30	-27.27	6.97	R-27	-18.20	9.36
R-38	-28.09	5.61	R-34	-19.27	7.13
R-49	-28.80	4.43			
R-60	-29.25	3.87			
Slope(DD)	10098.13		Slope(DD)	9219.22	
Curve(DDS)	-211.528		Curve(DDS)	-69.836	
Slab (/ft)			Heated Basement (/ft)		
R-0	-12.62	136.65	R-0	-9.55	213.40
R-5 2ft	-15.09	74.90	R-5 4ft	-12.61	138.90
R-5 4ft	-15.91	64.40	R-5 8ft	-13.88	110.15
R-10 2ft	-15.51	64.40	R-10 4ft	-13.35	118.40
R-10 4ft	-16.58	37.65	R-10 8ft	-14.87	80.40
Intercept	-15.389		Intercept	.000	
Slope(DD)	15024.47		Slope(DD)	7872.97	
Curve(DDS)	-207.030		Curve(DDS)	-66.519	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-9.55	14.23	R-0	.00	30.14
R-11 flr	-15.73	3.93	R-11 flr	-15.53	4.26
R-19 flr	-17.77	.53	R-19 flr	-18.18	-.16
R-30 flr	-19.08	-1.66	R-30 flr	-19.86	-2.95
			R-38 flr	-20.24	-3.59
			R-49 flr	-21.34	-5.43
Intercept	-7.696		Intercept	-9.640	
Slope(DD)	8292.19		Slope(DD)	8627.40	
Curve(DDS)	-783.368		Curve(DDS)	-169.476	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	206.38
.0007(.78)	.00	25.90	2-Pane	-18.08	94.72
.0005(.57)	-9.53	17.96	3-Pane	-21.07	60.06
.0003(.35)	-18.54	10.45	R-10	-26.94	19.30
Slope/.001ELF	33.208		Slope(DD)	8244.36	
Curve/.001ELF	5.417		Curve(DDS)	-16.165	

Base Load = 123.53 MBtu
 Typical Load = 40.75 MBtu
 Residual Load = 1.44 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	.09	R-0	.00	.00
R-7	-.03	.03	R-7	.00	.00
R-11	-.04	.03	R-11	.00	.00
R-19	-.04	.02	R-13	.00	.00
R-22	-.04	.02	R-19	.00	.00
R-30	-.04	.02	R-27	.00	.00
R-38	-.04	.02	R-34	.00	.00
R-49	-.05	.01			
R-60	-.05	.00			
Slope(DD)	19.76		Slope(DD)	.00	
Curve(DDS)	-.912		Curve(DDS)	.000	
Slab (/ft)			Heated Basement (/ft)		
R-0	.00	.00	R-0	.00	.00
R-5 2ft	.00	.00	R-5 4ft	.00	.00
R-5 4ft	.01	.25	R-5 8ft	.00	.00
R-10 2ft	.00	.00	R-10 4ft	.00	.00
R-10 4ft	.01	.25	R-10 8ft	.00	.00
Intercept	.890		Intercept	.000	
Slope(DD)	-203.99		Slope(DD)	.00	
Curve(DDS)	10.738		Curve(DDS)	.000	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	.00	.00	R-0	.00	.00
R-11 flr	.00	.00	R-11 flr	.02	.03
R-19 flr	.00	.00	R-19 flr	.02	.03
R-30 flr	.00	.00	R-30 flr	.02	.03
			R-38 flr	.02	.03
			R-49 flr	.02	.03
Intercept	.000		Intercept	.031	
Slope(DD)	.00		Slope(DD)	5.13	
Curve(DDS)	.000		Curve(DDS)	-2.165	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-.10
.0007(.58)	.00	.00	2-Pane	.00	-.10
.0005(.42)	.00	.00	3-Pane	.00	-.06
.0003(.25)	.00	.00	R-10	.01	-.03
Slope/.001ELF	.000		Slope(DD)	-11.71	
Curve/.001ELF	.000		Curve(DDS)	.307	

Base Load = .08 MBtu
 Typical Load = .04 MBtu
 Residual Load = .02 MBtu

Juneau AK

TMY

MApartment Prototype Siding

Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	51.18	R-0	.00	48.04
R-7	-18.80	19.85	R-7	-8.06	22.62
R-11	-21.80	14.85	R-11	-9.21	19.00
R-19	-24.49	10.36	R-13	-10.52	14.84
R-22	-26.46	8.75	R-19	-11.18	12.78
R-30	-26.75	6.59	R-27	-12.32	9.18
R-38	-27.53	5.29	R-34	-13.02	6.96
R-49	-28.19	4.19			
R-60	-28.62	3.48			
Slope(DD)	9531.35		Slope(DD)	8968.45	
Curve(DDS)	-151.495		Curve(DDS)	-6.980	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-14.29	170.43	R-0	-11.93	249.10
R-5 2ft	-16.28	104.10	R-5 4ft	-14.76	154.93
R-5 4ft	-16.98	80.93	R-5 8ft	-15.69	123.93
R-10 2ft	-16.63	92.60	R-10 4ft	-15.42	132.77
R-10 4ft	-17.56	61.43	R-10 8ft	-16.71	89.93
Intercept	-1.880		Intercept	.000	
Slope(DD)	18297.85		Slope(DD)	8705.21	
Curve(DDS)	-339.012		Curve(DDS)	-66.109	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-11.93	12.45	R-0	.00	32.34
R-11 flr	-16.92	4.15	R-11 flr	-15.97	5.72
R-19 flr	-18.67	1.21	R-19 flr	-18.63	1.28
R-30 flr	-19.81	-.67	R-30 flr	-20.31	-1.52
			R-38 flr	-20.69	-2.15
			R-49 flr	-21.80	-3.99
Intercept	-5.930		Intercept	-8.174	
Slope(DD)	7247.64		Slope(DD)	8553.98	
Curve(DDS)	-714.192		Curve(DDS)	-127.477	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	206.72
.0007(.78)	.00	25.67	2-Pane	-16.37	93.04
.0005(.57)	-9.50	17.75	3-Pane	-21.29	58.89
.0003(.35)	-18.44	10.30	R-10	-27.07	18.73
Slope/.001ELF	32.583		Slope(DD)	7976.22	
Curve/.001ELF	5.834		Curve(DDS)	-5.533	

Base Load = 116.30 MBtu
 Typical Load = 36.97 MBtu
 Residual Load = 1.31 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	.08	R-0	.00	.03
R-7	-.03	.03	R-7	.00	.03
R-11	-.04	.02	R-11	.00	.03
R-19	-.04	.01	R-13	.00	.03
R-22	-.04	.01	R-19	.00	.03
R-30	-.04	.01	R-27	-.00	.02
R-38	-.05	.01	R-34	-.01	.01
R-49	-.05	.01			
R-60	-.05	.01			
Slope(DD)	11.51		Slope(DD)	20.54	
Curve(DDS)	.341		Curve(DDS)	-2.854	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.01	-.17	R-0	.00	.00
R-5 2ft	.00	.00	R-5 4ft	.00	.00
R-5 4ft	.00	.00	R-5 8ft	.00	.00
R-10 2ft	.00	.00	R-10 4ft	.00	.00
R-10 4ft	.00	.00	R-10 8ft	.00	.00
Intercept	-.081		Intercept	.000	
Slope(DD)	33.82		Slope(DD)	.00	
Curve(DDS)	-3.358		Curve(DDS)	.000	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	.00	.00	R-0	.00	.00
R-11 flr	.01	.01	R-11 flr	.00	.01
R-19 flr	.00	.00	R-19 flr	.00	.01
R-30 flr	.00	.00	R-30 flr	.00	.00
			R-38 flr	-.00	-.00
			R-49 flr	-.00	-.00
Intercept	-.011		Intercept	-.008	
Slope(DD)	16.24		Slope(DD)	14.94	
Curve(DDS)	-2.745		Curve(DDS)	-2.615	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.13
.0007(.58)	.00	-.02	2-Pane	-.00	.09
.0005(.42)	.00	-.02	3-Pane	-.01	.06
.0003(.25)	.01	-.01	R-10	-.01	.02
Slope/.001ELF	-.063		Slope(DD)	10.32	
Curve/.001ELF	.052		Curve(DDS)	-.208	

Base Load = .08 MBtu
 Typical Load = .02 MBtu
 Residual Load = -.00 MBtu

Kansas City MO WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	27.74	R-0	.00	25.89	R-0	.00	8.21	R-0	.00	4.88
R-7	-25.88	11.08	R-7	-14.80	12.72	R-7	-7.53	3.32	R-7	-2.52	2.42
R-11	-29.76	8.42	R-11	-16.91	10.84	R-11	-8.73	2.54	R-11	-2.88	2.10
R-19	-33.44	8.03	R-13	-19.49	8.55	R-19	-9.81	1.84	R-13	-3.37	1.88
R-22	-34.88	5.11	R-19	-20.77	7.41	R-22	-10.24	1.56	R-19	-3.62	1.44
R-30	-36.76	3.87	R-27	-23.10	5.34	R-30	-10.81	1.19	R-27	-4.06	1.05
R-38	-37.91	3.13	R-34	-24.53	4.06	R-38	-11.16	.96	R-34	-4.33	.81
R-49	-38.93	2.46				R-49	-11.48	.76			
R-60	-39.59	2.03				R-60	-11.69	.62			
Slope(DD)	5632.19		Slope(DD)	5311.20		Slope(DD)	1732.35		Slope(DD)	1065.41	
Curve(DDS)	-160.727		Curve(DDS)	-92.473		Curve(DDS)	-58.591		Curve(DDS)	-36.959	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-15.06	38.74	R-0	-7.75	82.78	R-0	-8.07	-1.65	R-0	-4.86	17.68
R-5 2ft	-19.21	13.74	R-5 4ft	-12.20	55.97	R-5 2ft	-8.28	-2.92	R-5 4ft	-6.24	9.37
R-5 4ft	-20.41	8.51	R-5 8ft	-13.82	46.21	R-5 4ft	-8.26	-2.80	R-5 8ft	-6.44	8.17
R-10 2ft	-19.97	9.16	R-10 4ft	-13.36	48.98	R-10 2ft	-8.33	-3.22	R-10 4ft	-6.64	6.98
R-10 4ft	-21.64	-9.90	R-10 8ft	-15.88	33.80	R-10 4ft	-8.27	-2.86	R-10 8ft	-6.94	5.15
Intercept	-21.898		Intercept	.000		Intercept	-1.950		Intercept	.000	
Slope(DD)	6812.03		Slope(DD)	3558.31		Slope(DD)	-394.88		Slope(DD)	493.43	
Curve(DDS)	-108.571		Curve(DDS)	-37.170		Curve(DDS)	37.454		Curve(DDS)	-1.278	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.75	8.92	R-0	.00	13.96	R-0	-4.86	1.91	R-0	.00	5.06
R-11 flr	-20.71	.51	R-11 flr	-21.84	-.23	R-11 flr	-1.80	3.89	R-11 flr	.95	5.68
R-19 flr	-24.28	-1.81	R-19 flr	-25.61	-2.67	R-19 flr	-.93	4.46	R-19 flr	.94	5.67
R-30 flr	-26.58	-3.30	R-30 flr	-27.96	-4.20	R-30 flr	-.37	4.82	R-30 flr	1.05	5.74
			R-38 flr	-28.50	-4.55				R-38 flr	1.07	5.76
			R-49 flr	-30.05	-5.56				R-49 flr	1.14	5.80
Intercept	-7.307		Intercept	-7.895		Intercept	5.802		Intercept	5.772	
Slope(DD)	5435.76		Slope(DD)	4764.07		Slope(DD)	-1334.50		Slope(DD)	-33.09	
Curve(DDS)	-442.821		Curve(DDS)	-98.069		Curve(DDS)	112.073		Curve(DDS)	-20.536	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	125.26	ELF Ach			1-Pane	.00	7.52
.0007(.76)	.00	13.74	2-Pane	-12.06	80.00	.0007(.80)	.00	2.40	2-Pane	-.69	3.79
.0005(.54)	-6.17	9.73	3-Pane	-16.09	38.19	.0005(.43)	-1.08	1.70	3-Pane	-.94	2.42
.0003(.33)	-12.24	5.79	R-10	-20.83	12.54	.0003(.26)	-2.14	1.01	R-10	-1.24	.81
Slope/.001ELF	19.058		Slope(DD)	5388.58		Slope/.001ELF	3.312		Slope(DD)	352.33	
Curve/.001ELF	.812		Curve(DDS)	-24.396		Curve/.001ELF	.162		Curve(DDS)	-2.549	
Base Load = 132.09 MBtu			Base Load = 35.83 MBtu			Base Load = 35.83 MBtu			Base Load = 35.83 MBtu		
Typical Load = 42.98 MBtu			Typical Load = 13.04 MBtu			Typical Load = 13.04 MBtu			Typical Load = 13.04 MBtu		
Residual Load = 6.32 MBtu			Residual Load = -3.64 MBtu			Residual Load = -3.64 MBtu			Residual Load = -3.64 MBtu		

Kansas City MO WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	28.80	R-0	.00	24.93	R-0	.00	7.89	R-0	.00	4.05
R-7	-10.61	11.11	R-7	-6.33	11.65	R-7	-2.91	3.05	R-7	-1.02	1.90
R-11	-12.31	8.28	R-11	-7.23	9.75	R-11	-3.37	2.27	R-11	-1.17	1.59
R-19	-13.83	5.75	R-13	-8.27	7.58	R-19	-3.79	1.58	R-13	-1.35	1.22
R-22	-14.37	4.85	R-19	-8.78	6.50	R-22	-3.94	1.33	R-19	-1.44	1.03
R-30	-15.09	3.65	R-27	-9.65	4.68	R-30	-4.13	1.01	R-27	-1.57	.75
R-38	-15.52	2.93	R-34	-10.18	3.56	R-38	-4.25	.81	R-34	-1.65	.59
R-49	-15.88	2.32				R-49	-4.35	.64			
R-60	-16.12	1.93				R-60	-4.42	.53			
Slope(DD)	5271.21		Slope(DD)	4558.11		Slope(DD)	1448.04		Slope(DD)	736.25	
Curve(DDS)	-69.852		Curve(DDS)	14.248		Curve(DDS)	-19.686		Curve(DDS)	3.120	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-7.38	33.09	R-0	-4.96	93.59	R-0	-3.21	-7.83	R-0	-2.01	22.17
R-5 2ft	-8.37	8.34	R-5 4ft	-6.48	55.59	R-5 2ft	-3.24	-8.58	R-5 4ft	-2.37	13.17
R-5 4ft	-8.61	2.34	R-5 8ft	-6.91	44.84	R-5 4ft	-3.20	-7.58	R-5 8ft	-2.40	12.42
R-10 2ft	-8.53	4.34	R-10 4ft	-6.82	47.09	R-10 2ft	-3.23	-8.33	R-10 4ft	-2.48	10.42
R-10 4ft	-8.85	-3.66	R-10 8ft	-7.42	32.09	R-10 4ft	-3.21	-7.83	R-10 8ft	-2.59	7.67
Intercept	-18.790		Intercept	.000		Intercept	-5.918		Intercept	.000	
Slope(DD)	4457.71		Slope(DD)	3223.85		Slope(DD)	-672.17		Slope(DD)	795.14	
Curve(DDS)	13.717		Curve(DDS)	-22.081		Curve(DDS)	44.530		Curve(DDS)	-6.027	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.96	6.24	R-0	.00	14.51	R-0	-2.01	1.48	R-0	.00	4.83
R-11 flr	-7.97	1.22	R-11 flr	-7.88	1.37	R-11 flr	-.71	3.64	R-11 flr	.62	5.89
R-19 flr	-8.96	-.43	R-19 flr	-9.20	-.83	R-19 flr	-.31	4.31	R-19 flr	.69	5.81
R-30 flr	-9.60	-1.49	R-30 flr	-10.00	-2.16	R-30 flr	-.05	4.74	R-30 flr	.65	5.91
			R-38 flr	-10.18	-2.46				R-38 flr	.66	5.93
			R-49 flr	-10.71	-3.34				R-49 flr	.70	5.99
Intercept	-4.432		Intercept	-5.388		Intercept	5.923		Intercept	6.098	
Slope(DD)	4033.98		Slope(DD)	4134.41		Slope(DD)	-1611.36		Slope(DD)	-242.29	
Curve(DDS)	-380.842		Curve(DDS)	-49.674		Curve(DDS)	145.208		Curve(DDS)	-.946	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	107.36	ELF Ach			1-Pane	.00	2.62
.0007(.78)	.00	11.97	2-Pane	-8.93	45.35	.0007(.60)	.00	2.05	2-Pane	-.38	-.02
.0005(.54)	-4.64	8.10	3-Pane	-11.35	28.53	.0005(.43)	-.79	1.39	3-Pane	-.39	-.08
.0003(.32)	-8.85	4.59	R-10	-14.20	8.75	.0003(.25)	-1.51	.79	R-10	-.40	-.16
Slope/.001ELF	13.958		Slope(DD)	3887.04		Slope/.001ELF	2.417		Slope(DD)	-82.35	
Curve/.001ELF	4.479		Curve(DDS)	14.384		Curve/.001ELF	.729		Curve(DDS)	6.882	
Base Load =	61.92 MBtu		Base Load =	23.78 MBtu							
Typical Load =	17.57 MBtu		Typical Load =	14.55 MBtu							
Residual Load =	3.84 MBtu		Residual Load =	4.62 MBtu							

Kansas City MO WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	27.86	R-0	.00	25.05
R-7	-10.37	10.68	R-7	-4.29	11.52
R-11	-12.02	7.82	R-11	-4.90	9.59
R-19	-13.51	5.34	R-13	-5.58	7.44
R-22	-14.01	4.50	R-19	-5.92	6.37
R-30	-14.69	3.37	R-27	-6.49	4.58
R-38	-15.10	2.69	R-34	-6.84	3.47
R-49	-15.43	2.15			
R-60	-15.64	1.79			
Slope(DD)	4854.69		Slope(DD)	4420.21	
Curve(DDS)	-26.220		Curve(DDS)	44.052	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-8.14	47.23	R-0	-6.11	114.89
R-5 2ft	-8.93	21.06	R-5 4ft	-7.51	68.23
R-5 4ft	-9.14	14.06	R-5 8ft	-7.91	55.06
R-10 2ft	-9.06	16.73	R-10 4ft	-7.82	57.89
R-10 4ft	-9.34	7.06	R-10 8ft	-8.38	39.39
Intercept	-12.030		Intercept	.000	
Slope(DD)	5858.81		Slope(DD)	3959.58	
Curve(DDS)	-52.566		Curve(DDS)	-27.158	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-6.11	5.74	R-0	.00	15.93
R-11 flr	-8.61	1.58	R-11 flr	-8.13	2.38
R-19 flr	-9.51	.07	R-19 flr	-9.49	.11
R-30 flr	-10.10	-.90	R-30 flr	-10.31	-1.26
			R-38 flr	-10.50	-1.57
			R-49 flr	-11.04	-2.47
Intercept	-3.609		Intercept	-4.587	
Slope(DD)	3740.86		Slope(DD)	4257.86	
Curve(DDS)	-373.799		Curve(DDS)	-50.093	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	107.29
.0007(.78)	.00	11.78	2-Pane	-9.01	44.68
.0005(.54)	-4.63	7.92	3-Pane	-11.41	28.07
.0003(.32)	-8.78	4.46	R-10	-14.22	8.54
Slope/.001ELF	13.395		Slope(DD)	3587.25	
Curve/.001ELF	4.897		Curve(DDS)	18.055	
Base Load =	58.17 MBtu				
Typical Load =	15.99 MBtu				
Residual Load =	3.97 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	7.46	R-0	.00	4.10
R-7	-2.79	2.81	R-7	-.67	1.98
R-11	-3.23	2.07	R-11	-.76	1.68
R-19	-3.64	1.40	R-13	-.88	1.32
R-22	-3.77	1.18	R-19	-.93	1.15
R-30	-3.95	.87	R-27	-1.04	.82
R-38	-4.07	.69	R-34	-1.10	.63
R-49	-4.14	.56			
R-60	-4.19	.48			
Slope(DD)	1265.20		Slope(DD)	814.87	
Curve(DDS)	-1.085		Curve(DDS)	-9.934	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.64	-9.17	R-0	-1.81	18.66
R-5 2ft	-2.68	-10.34	R-5 4ft	-2.11	8.66
R-5 4ft	-2.65	-9.51	R-5 8ft	-2.14	7.49
R-10 2ft	-2.67	-10.17	R-10 4ft	-2.18	6.33
R-10 4ft	-2.65	-9.51	R-10 8ft	-2.23	4.49
Intercept	-7.131		Intercept	.000	
Slope(DD)	-884.87		Slope(DD)	404.32	
Curve(DDS)	62.430		Curve(DDS)	1.560	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.81	.93	R-0	.00	3.94
R-11 flr	-.72	2.75	R-11 flr	.62	4.97
R-19 flr	-.38	3.30	R-19 flr	.70	5.11
R-30 flr	-.17	3.66	R-30 flr	.75	5.19
			R-38 flr	.76	5.21
			R-49 flr	.79	5.26
Intercept	4.628		Intercept	5.367	
Slope(DD)	-1326.10		Slope(DD)	-215.67	
Curve(DDS)	118.076		Curve(DDS)	-12.158	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	2.86
.0007(.60)	.00	1.97	2-Pane	-.33	.53
.0005(.43)	-.75	1.34	3-Pane	-.37	.29
.0003(.26)	-1.44	.77	R-10	-.41	.01
Slope/.001ELF	2.375		Slope(DD)	-5.40	
Curve/.001ELF	.625		Curve(DDS)	4.306	
Base Load =	21.66 MBtu				
Typical Load =	13.47 MBtu				
Residual Load =	3.98 MBtu				

Lake Charles LA WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.29	R-0	.00	8.73	R-0	.00	9.18	R-0	.00	4.88
R-7	-9.66	4.01	R-7	-5.27	4.04	R-7	-8.71	3.53	R-7	-2.84	2.34
R-11	-11.20	3.01	R-11	-6.02	3.37	R-11	-10.10	2.62	R-11	-3.24	1.98
R-19	-12.59	2.11	R-13	-8.90	2.59	R-19	-11.35	1.81	R-13	-3.71	1.56
R-22	-13.10	1.78	R-19	-7.33	2.21	R-22	-11.78	1.53	R-19	-3.95	1.35
R-30	-13.78	1.34	R-27	-8.01	1.60	R-30	-12.36	1.16	R-27	-4.38	.97
R-38	-14.19	1.07	R-34	-8.43	1.23	R-38	-12.71	.93	R-34	-4.64	.73
R-49	-14.52	.86				R-49	-13.01	.73			
R-60	-14.74	.72				R-60	-13.21	.60			
Slope(DD) 1946.25			Slope(DD) 1552.08			Slope(DD) 1660.30			Slope(DD) 953.67		
Curve(DDS) -35.618			Curve(DDS) 13.261			Curve(DDS) -18.809			Curve(DDS) -9.237		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-7.48	16.36	R-0	-5.67	27.27	R-0	-7.94	-1.25	R-0	-3.01	28.45
R-5 2ft	-8.94	7.57	R-5 4ft	-7.77	14.62	R-5 2ft	-8.23	-3.00	R-5 4ft	-3.47	25.68
R-5 4ft	-9.28	5.52	R-5 8ft	-8.30	11.42	R-5 4ft	-8.17	-2.64	R-5 8ft	-3.55	25.19
R-10 2ft	-9.13	6.42	R-10 4ft	-8.24	11.78	R-10 2ft	-8.27	-3.24	R-10 4ft	-3.61	24.83
R-10 4ft	-9.58	3.83	R-10 8ft	-8.91	7.75	R-10 4ft	-8.14	-2.46	R-10 8ft	-3.74	24.05
Intercept	.000		Intercept	-.497		Intercept	.000		Intercept	22.070	
Slope(DD)	924.73		Slope(DD)	788.34		Slope(DD)	-920.30		Slope(DD)	191.14	
Curve(DDS)	39.256		Curve(DDS)	-2.090		Curve(DDS)	69.043		Curve(DDS)	-.842	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.67	2.94	R-0	.00	6.62	R-0	-3.01	3.07	R-0	.00	5.02
R-11 flr	-8.91	.84	R-11 flr	-8.15	1.33	R-11 flr	-1.56	4.01	R-11 flr	.22	5.16
R-19 flr	-9.66	.35	R-19 flr	-9.33	.56	R-19 flr	-1.37	4.13	R-19 flr	-.04	4.99
R-30 flr	-10.15	.03	R-30 flr	-9.93	.17	R-30 flr	-1.25	4.21	R-30 flr	-.22	4.88
			R-38 flr	-10.07	.08				R-38 flr	-.26	4.85
			R-49 flr	-10.47	-.18				R-49 flr	-.38	4.78
Intercept	-.787		Intercept	-.803		Intercept	4.377		Intercept	4.519	
Slope(DD)	1095.14		Slope(DD)	1184.54		Slope(DD)	-206.12		Slope(DD)	523.22	
Curve(DDS)	-71.859		Curve(DDS)	51.327		Curve(DDS)	-9.661		Curve(DDS)	-82.922	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	34.85	ELF Ach			1-Pane	.00	1.52
.0007(.76)	.00	4.68	2-Pane	-4.04	12.99	.0007(.48)	.00	5.10	2-Pane	-.26	.11
.0005(.51)	-2.46	3.08	3-Pane	-4.95	8.06	.0005(.34)	-2.03	3.78	3-Pane	-.27	.04
.0003(.31)	-4.60	1.69	R-10	-6.02	2.27	.0003(.22)	-4.23	2.35	R-10	-.29	-.05
Slope/.001ELF	4.870		Slope(DD)	930.87		Slope/.001ELF	8.247		Slope(DD)	-29.01	
Curve/.001ELF	2.598		Curve(DDS)	14.738		Curve/.001ELF	-1.380		Curve(DDS)	3.279	
Base Load = 45.64 MBtu			Base Load = 53.31 MBtu			Base Load = 53.31 MBtu			Base Load = 53.31 MBtu		
Typical Load = 15.63 MBtu			Typical Load = 28.46 MBtu			Typical Load = 28.46 MBtu			Typical Load = 28.46 MBtu		
Residual Load = .49 MBtu			Residual Load = 6.26 MBtu			Residual Load = 6.26 MBtu			Residual Load = 6.26 MBtu		

Lake Charles LA WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	10.58	R-0	.00	7.95
R-7	-4.04	3.84	R-7	-2.23	3.27
R-11	-4.69	2.77	R-11	-2.55	2.80
R-19	-5.27	1.80	R-13	-2.87	1.92
R-22	-5.44	1.51	R-19	-3.03	1.59
R-30	-5.68	1.12	R-27	-3.24	1.15
R-38	-5.82	.88	R-34	-3.37	.88
R-49	-5.92	.71			
R-60	-5.99	.60			
Slope(DD)	1583.70		Slope(DD)	1034.78	
Curve(DDS)	33.922		Curve(DDS)	82.453	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-3.19	11.31	R-0	-2.66	24.56
R-5 2ft	-3.47	4.31	R-5 4ft	-3.22	10.58
R-5 4ft	-3.53	2.81	R-5 8ft	-3.33	7.81
R-10 2ft	-3.51	3.31	R-10 4ft	-3.31	8.31
R-10 4ft	-3.57	1.81	R-10 8ft	-3.44	5.08
Intercept	.000		Intercept	-.122	
Slope(DD)	291.60		Slope(DD)	417.16	
Curve(DDS)	58.640		Curve(DDS)	4.684	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-2.66	1.64	R-0	.00	6.07
R-11 flr	-3.33	.52	R-11 flr	-2.78	1.44
R-19 flr	-3.50	.24	R-19 flr	-3.16	.80
R-30 flr	-3.61	.05	R-30 flr	-3.35	.49
			R-38 flr	-3.39	.42
			R-49 flr	-3.51	.22
Intercept	-.429		Intercept	-.277	
Slope(DD)	651.41		Slope(DD)	916.50	
Curve(DDS)	-48.470		Curve(DDS)	82.697	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	28.40
.0007(.71)	.00	3.11	2-Pane	-2.74	9.37
.0005(.51)	-1.68	1.71	3-Pane	-3.26	5.73
.0003(.30)	-2.87	.72	R-10	-3.88	1.45
Slope/.001ELF	.876		Slope(DD)	572.59	
Curve/.001ELF	5.104		Curve(DDS)	19.055	

Base Load = 20.49 MBtu
Typical Load = 7.52 MBtu
Residual Load = 2.46 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	8.42	R-0	.00	4.12
R-7	-3.20	3.08	R-7	-1.02	1.97
R-11	-3.71	2.23	R-11	-1.17	1.67
R-19	-4.17	1.47	R-13	-1.35	1.29
R-22	-4.31	1.23	R-19	-1.44	1.10
R-30	-4.50	.92	R-27	-1.58	.80
R-38	-4.61	.73	R-34	-1.67	.62
R-49	-4.70	.58			
R-60	-4.76	.48			
Slope(DD)	1304.21		Slope(DD)	790.90	
Curve(DDS)	19.491		Curve(DDS)	-4.474	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-3.00	-5.07	R-0	-1.03	44.18
R-5 2ft	-3.05	-6.32	R-5 4ft	-1.17	40.68
R-5 4ft	-3.02	-5.57	R-5 8ft	-1.17	40.68
R-10 2ft	-3.07	-6.82	R-10 4ft	-1.19	40.18
R-10 4ft	-2.99	-4.82	R-10 8ft	-1.19	40.18
Intercept	.000		Intercept	40.639	
Slope(DD)	-1737.62		Slope(DD)	-84.15	
Curve(DDS)	110.972		Curve(DDS)	4.216	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.03	2.95	R-0	.00	4.68
R-11 flr	-.45	3.91	R-11 flr	.41	5.35
R-19 flr	-.33	4.10	R-19 flr	.36	5.26
R-30 flr	-.26	4.23	R-30 flr	.36	5.26
			R-38 flr	.36	5.26
			R-49 flr	.36	5.26
Intercept	4.538		Intercept	5.109	
Slope(DD)	-408.03		Slope(DD)	237.08	
Curve(DDS)	19.005		Curve(DDS)	-63.195	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-6.45
.0007(.51)	.00	4.13	2-Pane	.13	-5.55
.0005(.37)	-1.48	2.90	3-Pane	.40	-3.67
.0003(.22)	-2.91	1.71	R-10	.72	-1.45
Slope/.001ELF	5.542		Slope(DD)	-654.88	
Curve/.001ELF	.521		Curve(DDS)	15.546	

Base Load = 35.72 MBtu
Typical Load = 25.85 MBtu
Residual Load = 12.82 MBtu

Lake Charles LA WYEC MApartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.72	R-0	.00	7.65	R-0	.00	8.57	R-0	.00	4.04
R-7	-4.16	3.81	R-7	-1.49	2.94	R-7	-3.23	3.18	R-7	-.69	1.87
R-11	-4.81	2.71	R-11	-1.70	2.27	R-11	-3.75	2.32	R-11	-.78	1.57
R-19	-5.40	1.72	R-13	-1.90	1.65	R-19	-4.21	1.55	R-13	-.90	1.20
R-22	-5.57	1.44	R-19	-2.00	1.34	R-22	-4.36	1.30	R-19	-.96	1.01
R-30	-5.80	1.08	R-27	-2.12	.96	R-30	-4.56	.97	R-27	-1.05	.74
R-38	-5.93	.83	R-34	-2.20	.73	R-38	-4.67	.77	R-34	-1.10	.57
R-49	-6.03	.67				R-49	-4.77	.62			
R-60	-6.09	.57				R-60	-4.83	.52			
Slope(DD)	1486.40		Slope(DD)	817.94		Slope(DD)	1388.55		Slope(DD)	717.66	
Curve(DDS)	54.392		Curve(DDS)	112.456		Curve(DDS)	9.499		Curve(DDS)	6.301	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-3.50	10.99	R-0	-3.14	23.16	R-0	-2.33	.94	R-0	-.78	52.77
R-5 2ft	-3.72	3.49	R-5 4ft	-3.63	6.66	R-5 2ft	-2.36	-.06	R-5 4ft	-.89	49.10
R-5 4ft	-3.77	1.99	R-5 8ft	-3.73	3.49	R-5 4ft	-2.37	-.23	R-5 8ft	-.91	48.27
R-10 2ft	-3.75	2.49	R-10 4ft	-3.71	3.99	R-10 2ft	-2.37	-.23	R-10 4ft	-.93	47.77
R-10 4ft	-3.80	1.16	R-10 8ft	-3.77	2.16	R-10 4ft	-2.37	-.23	R-10 8ft	-.92	47.94
Intercept	.000		Intercept	.227		Intercept	.000		Intercept	.000	47.509
Slope(DD)	38.30		Slope(DD)	2.02		Slope(DD)	-133.00		Slope(DD)	-12.87	
Curve(DDS)	75.868		Curve(DDS)	13.858		Curve(DDS)	18.044		Curve(DDS)	3.516	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.14	1.16	R-0	.00	6.38	R-0	-.78	2.64	R-0	.00	3.93
R-11 flr	-3.68	.25	R-11 flr	-2.98	1.41	R-11 flr	-.20	3.60	R-11 flr	.66	4.88
R-19 flr	-3.80	.04	R-19 flr	-3.38	.74	R-19 flr	-.11	3.74	R-19 flr	.49	4.75
R-30 flr	-3.88	-.09	R-30 flr	-3.55	.47	R-30 flr	-.06	3.84	R-30 flr	.42	4.62
			R-38 flr	-3.58	.41				R-38 flr	.40	4.60
			R-49 flr	-3.69	.23				R-49 flr	.35	4.52
Intercept	-.437		Intercept	-.258		Intercept	4.055		Intercept	4.254	
Slope(DD)	462.14		Slope(DD)	834.64		Slope(DD)	-275.47		Slope(DD)	574.16	
Curve(DDS)	-29.451		Curve(DDS)	89.811		Curve(DDS)	-.161		Curve(DDS)	-124.279	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	27.33	ELF Ach			1-Pane	.00	-3.54
.0007(.71)	.00	2.92	2-Pane	-2.76	8.17	.0007(.48)	.00	4.36	2-Pane	-.02	-3.68
.0005(.50)	-1.69	1.52	3-Pane	-3.23	4.93	.0005(.37)	-1.49	3.12	3-Pane	.16	-2.45
.0003(.30)	-2.83	.57	R-10	-3.78	1.12	.0003(.22)	-2.99	1.88	R-10	.36	-1.01
Slope/.001ELF	.166		Slope(DD)	420.61		Slope/.001ELF	6.271		Slope(DD)	-456.52	
Curve/.001ELF	5.729		Curve(DDS)	23.286		Curve/.001ELF	-.052		Curve(DDS)	12.212	
Base Load = 19.38 MBtu			Base Load = 33.65 MBtu			Base Load = 33.65 MBtu			Base Load = 33.65 MBtu		
Typical Load = 6.86 MBtu			Typical Load = 24.81 MBtu			Typical Load = 24.81 MBtu			Typical Load = 24.81 MBtu		
Residual Load = 2.82 MBtu			Residual Load = 11.08 MBtu			Residual Load = 11.08 MBtu			Residual Load = 11.08 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	14.55	R-0	.00	12.22
R-7	-13.61	5.71	R-7	-7.39	5.64
R-11	-15.79	4.30	R-11	-8.44	4.71
R-19	-17.74	3.04	R-13	-9.70	3.59
R-22	-18.47	2.56	R-19	-10.32	3.03
R-30	-19.44	1.93	R-27	-11.24	2.22
R-38	-20.03	1.55	R-34	-11.80	1.72
R-49	-20.52	1.23			
R-60	-20.83	1.03			
Slope(DD) 2807.54			Slope(DD) 2146.02		
Curve(DDS) -59.478			Curve(DDS) 23.353		
Slab (/ft)			Heated Basement (/ft)		
R-0	-12.05	18.76	R-0	-7.51	46.11
R-5 2ft	-13.89	7.68	R-5 4ft	-10.69	26.95
R-5 4ft	-14.19	5.87	R-5 8ft	-11.34	23.04
R-10 2ft	-14.23	5.63	R-10 4ft	-11.46	22.32
R-10 4ft	-14.55	3.70	R-10 8ft	-12.22	17.74
Intercept	.000		Intercept	5.420	
Slope(DD)	1001.40		Slope(DD)	1331.67	
Curve(DDS)	121.241		Curve(DDS)	-5.812	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.51	4.97	R-0	.00	9.85
R-11 flr	-12.58	1.68	R-11 flr	-11.74	2.22
R-19 flr	-13.86	.84	R-19 flr	-13.55	1.05
R-30 flr	-14.69	.31	R-30 flr	-14.43	.48
			R-38 flr	-14.63	.35
			R-49 flr	-15.21	-.03
Intercept	-1.107		Intercept	-1.019	
Slope(DD)	1910.40		Slope(DD)	1834.49	
Curve(DDS)	-141.412		Curve(DDS)	55.515	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	48.35
.0007(.71)	.00	6.30	2-Pane	-5.75	17.23
.0005(.55)	-3.42	4.07	3-Pane	-6.97	10.84
.0003(.31)	-8.32	2.19	R-10	-8.40	2.89
Slope/.001ELF	6.039		Slope(DD)	1171.48	
Curve/.001ELF	4.221		Curve(DDS)	24.998	
Base Load = 64.86 MBtu					
Typical Load = 21.37 MBtu					
Residual Load = 2.58 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	15.59	R-0	.00	9.21
R-7	-14.47	6.19	R-7	-5.21	4.58
R-11	-16.78	4.69	R-11	-5.95	3.92
R-19	-18.86	3.34	R-13	-6.90	3.07
R-22	-19.64	2.83	R-19	-7.37	2.68
R-30	-20.70	2.15	R-27	-8.19	1.92
R-38	-21.33	1.74	R-34	-8.69	1.48
R-49	-21.91	1.36			
R-60	-22.28	1.12			
Slope(DD) 3118.09			Slope(DD) 1925.31		
Curve(DDS) -82.404			Curve(DDS) -39.535		
Slab (/ft)			Heated Basement (/ft)		
R-0	-11.13	8.26	R-0	-5.75	40.67
R-5 2ft	-11.59	5.49	R-5 4ft	-7.36	30.97
R-5 4ft	-11.66	5.07	R-5 8ft	-7.59	29.59
R-10 2ft	-11.74	4.59	R-10 4ft	-7.83	28.14
R-10 4ft	-11.92	3.50	R-10 8ft	-8.23	25.73
Intercept	.000		Intercept	17.872	
Slope(DD)	1443.33		Slope(DD)	885.68	
Curve(DDS)	-58.323		Curve(DDS)	-7.103	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.75	4.38	R-0	.00	8.12
R-11 flr	-5.51	4.54	R-11 flr	-3.07	6.12
R-19 flr	-5.64	4.46	R-19 flr	-3.87	5.60
R-30 flr	-5.72	4.40	R-30 flr	-4.46	5.22
			R-38 flr	-4.59	5.14
			R-49 flr	-4.98	4.89
Intercept	4.220		Intercept	4.285	
Slope(DD)	268.87		Slope(DD)	1281.02	
Curve(DDS)	-46.215		Curve(DDS)	-104.050	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	22.75
.0007(.69)	.00	3.57	2-Pane	-2.15	11.12
.0005(.49)	-1.61	2.53	3-Pane	-2.89	7.09
.0003(.29)	-3.19	1.50	R-10	-3.77	2.35
Slope/.001ELF	4.935		Slope(DD)	1012.24	
Curve/.001ELF	.244		Curve(DDS)	-5.701	
Base Load = 69.53 MBtu					
Typical Load = 31.52 MBtu					
Residual Load = 2.66 MBtu					

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	15.16	R-0	.00	11.27
R-7	-5.77	5.54	R-7	-3.17	4.62
R-11	-6.69	4.00	R-11	-3.62	3.68
R-19	-7.52	2.63	R-13	-4.08	2.71
R-22	-7.77	2.20	R-19	-4.31	2.23
R-30	-8.11	1.63	R-27	-4.60	1.62
R-38	-8.32	1.29	R-34	-4.78	1.24
R-49	-8.47	1.04			
R-60	-8.57	.88			
Slope(DD)	2323.66		Slope(DD)	1454.01	
Curve(DDS)	39.327		Curve(DDS)	119.411	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-4.89	12.97	R-0	-3.54	46.72
R-5 2ft	-5.25	3.97	R-5 4ft	-4.39	25.47
R-5 4ft	-5.29	2.97	R-5 8ft	-4.52	22.22
R-10 2ft	-5.30	2.72	R-10 4ft	-4.54	21.72
R-10 4ft	-5.35	1.47	R-10 8ft	-4.67	18.47
Intercept	.000		Intercept	11.333	
Slope(DD)	147.57		Slope(DD)	850.40	
Curve(DDS)	144.451		Curve(DDS)	8.925	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.54	3.11	R-0	.00	9.01
R-11 flr	-4.63	1.30	R-11 flr	-4.00	2.35
R-19 flr	-4.93	.80	R-19 flr	-4.55	1.43
R-30 flr	-5.12	.48	R-30 flr	-4.82	.98
			R-38 flr	-4.88	.88
			R-49 flr	-5.06	.59
Intercept	-.375		Intercept	-.128	
Slope(DD)	1162.43		Slope(DD)	1324.71	
Curve(DDS)	-93.974		Curve(DDS)	89.377	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	39.44
.0007(.77)	.00	4.15	2-Pane	-3.87	12.56
.0005(.52)	-2.36	2.18	3-Pane	-4.58	7.65
.0003(.33)	-3.97	.84	R-10	-5.41	1.87
Slope/.001ELF	.458		Slope(DD)	726.57	
Curve/.001ELF	7.813		Curve(DDS)	29.066	

Base Load = 29.33 MBtu
 Typical Load = 10.58 MBtu
 Residual Load = 5.11 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	16.41	R-0	.00	9.83
R-7	-5.96	6.49	R-7	-2.34	4.93
R-11	-6.91	4.90	R-11	-2.67	4.23
R-19	-7.76	3.48	R-13	-3.11	3.30
R-22	-8.08	2.95	R-19	-3.33	2.84
R-30	-8.50	2.24	R-27	-3.70	2.08
R-38	-8.76	1.81	R-34	-3.92	1.60
R-49	-9.00	1.42			
R-60	-9.15	1.16			
Slope(DD)	3241.08		Slope(DD)	2083.23	
Curve(DDS)	-79.696		Curve(DDS)	-47.461	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-4.46	5.45	R-0	-2.36	57.95
R-5 2ft	-4.55	3.20	R-5 4ft	-2.85	45.70
R-5 4ft	-4.58	2.95	R-5 8ft	-2.92	43.95
R-10 2ft	-4.58	2.45	R-10 4ft	-2.98	42.45
R-10 4ft	-4.60	1.95	R-10 8ft	-3.08	39.95
Intercept	.000		Intercept	31.944	
Slope(DD)	747.97		Slope(DD)	868.86	
Curve(DDS)	-15.669		Curve(DDS)	-4.205	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-2.36	3.86	R-0	.00	7.80
R-11 flr	-2.14	4.23	R-11 flr	-1.03	6.08
R-19 flr	-2.13	4.24	R-19 flr	-1.33	5.58
R-30 flr	-2.13	4.25	R-30 flr	-1.55	5.21
			R-38 flr	-1.60	5.13
			R-49 flr	-1.74	4.89
Intercept	4.236		Intercept	4.293	
Slope(DD)	29.97		Slope(DD)	1264.10	
Curve(DDS)	-19.995		Curve(DDS)	-113.275	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	21.45
.0007(.89)	.00	3.33	2-Pane	-1.61	10.27
.0005(.49)	-1.23	2.31	3-Pane	-2.15	6.54
.0003(.29)	-2.39	1.34	R-10	-2.78	2.15
Slope/.001ELF	4.250		Slope(DD)	922.27	
Curve/.001ELF	.729		Curve(DDS)	-4.155	

Base Load = 42.49 MBtu
 Typical Load = 26.28 MBtu
 Residual Load = 8.25 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	15.43	R-0	.00	11.09
R-7	-5.97	5.49	R-7	-2.14	4.33
R-11	-6.92	3.90	R-11	-2.46	3.36
R-19	-7.77	2.48	R-13	-2.76	2.43
R-22	-8.02	2.07	R-19	-2.89	1.96
R-30	-8.34	1.53	R-27	-3.07	1.42
R-38	-8.54	1.20	R-34	-3.17	1.09
R-49	-8.68	.97			
R-60	-8.77	.82			
Slope(DD)	2145.73		Slope(DD)	1228.55	
Curve(DDS)	77.174		Curve(DDS)	155.510	
Slab (/ft)			Heated Basement (/ft)		
R-0	-5.34	14.51	R-0	-4.30	49.17
R-5 2ft	-5.65	4.17	R-5 4ft	-5.11	22.17
R-5 4ft	-5.70	2.87	R-5 8ft	-5.23	18.17
R-10 2ft	-5.70	2.67	R-10 4ft	-5.25	17.67
R-10 4ft	-5.74	1.34	R-10 8ft	-5.35	14.17
Intercept	.000		Intercept	6.994	
Slope(DD)	-23.47		Slope(DD)	579.42	
Curve(DDS)	182.597		Curve(DDS)	16.030	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.30	2.46	R-0	.00	9.63
R-11 flr	-5.22	.93	R-11 flr	-4.40	2.30
R-19 flr	-5.44	.56	R-19 flr	-5.01	1.28
R-30 flr	-5.59	.31	R-30 flr	-5.27	.84
			R-38 flr	-5.33	.74
			R-49 flr	-5.50	.45
Intercept	-.335		Intercept	-.324	
Slope(DD)	867.69		Slope(DD)	1367.83	
Curve(DDS)	-62.967		Curve(DDS)	111.653	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	38.16
.0007(.77)	.00	3.85	2-Pane	-3.96	10.66
.0005(.62)	-2.37	1.87	3-Pane	-4.58	6.36
.0003(.33)	-3.90	.60	R-10	-5.31	1.32
Slope/.001ELF	-.625		Slope(DD)	473.11	
Curve/.001ELF	8.750		Curve(DDS)	36.827	

Base Load = 27.91 MBtu
 Typical Load = 9.66 MBtu
 Residual Load = 6.56 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	17.47	R-0	.00	9.71
R-7	-6.30	6.98	R-7	-1.56	4.80
R-11	-7.30	5.30	R-11	-1.78	4.10
R-19	-8.20	3.80	R-13	-2.06	3.21
R-22	-8.55	3.22	R-19	-2.20	2.77
R-30	-9.02	2.44	R-27	-2.44	2.01
R-38	-9.30	1.97	R-34	-2.59	1.54
R-49	-9.55	1.55			
R-60	-9.72	1.28			
Slope(DD)	3548.13		Slope(DD)	2005.10	
Curve(DDS)	-101.408		Curve(DDS)	-37.074	
Slab (/ft)			Heated Basement (/ft)		
R-0	-3.80	6.73	R-0	-2.33	55.73
R-5 2ft	-3.90	3.40	R-5 4ft	-2.74	41.90
R-5 4ft	-3.92	2.89	R-5 8ft	-2.81	39.56
R-10 2ft	-3.93	2.39	R-10 4ft	-2.86	38.06
R-10 4ft	-3.95	1.89	R-10 8ft	-2.95	35.06
Intercept	.000		Intercept	25.462	
Slope(DD)	635.98		Slope(DD)	1047.02	
Curve(DDS)	12.683		Curve(DDS)	-5.880	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.33	2.79	R-0	.00	6.67
R-11 flr	-2.08	3.20	R-11 flr	-.98	5.04
R-19 flr	-2.07	3.22	R-19 flr	-1.26	4.57
R-30 flr	-2.06	3.24	R-30 flr	-1.48	4.20
			R-38 flr	-1.53	4.12
			R-49 flr	-1.67	3.88
Intercept	3.242		Intercept	3.305	
Slope(DD)	8.34		Slope(DD)	1238.68	
Curve(DDS)	-18.935		Curve(DDS)	-113.590	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	22.77
.0007(.69)	.00	3.34	2-Pane	-1.70	10.93
.0005(.49)	-1.24	2.31	3-Pane	-2.28	6.96
.0003(.29)	-2.40	1.34	R-10	-2.95	2.29
Slope/.001ELF	4.229		Slope(DD)	983.67	
Curve/.001ELF	.781		Curve(DDS)	-4.584	

Base Load = 39.37 MBtu
 Typical Load = 24.24 MBtu
 Residual Load = 6.57 MBtu

Los Angeles CA WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	13.07	R-0	.00	9.87	R-0	.00	2.48	R-0	.00	.79
R-7	-12.35	5.05	R-7	-6.38	4.19	R-7	-2.61	.77	R-7	-.42	.42
R-11	-14.32	3.77	R-11	-7.29	3.38	R-11	-3.03	.50	R-11	-.48	.36
R-19	-16.09	2.62	R-13	-8.28	2.50	R-19	-3.40	.28	R-13	-.57	.28
R-22	-16.73	2.21	R-19	-8.77	2.06	R-22	-3.48	.20	R-19	-.62	.24
R-30	-17.59	1.65	R-27	-9.39	1.51	R-30	-3.59	.14	R-27	-.69	.18
R-38	-18.11	1.31	R-34	-9.77	1.17	R-38	-3.85	.09	R-34	-.73	.14
R-49	-18.50	1.06				R-49	-3.88	.09			
R-60	-18.75	.89				R-60	-3.66	.09			
Slope(DD) 2400.17			Slope(DD) 1391.46			Slope(DD) 182.02			Slope(DD) 184.09		
Curve(DDS) -32.995			Curve(DDS) 82.403			Curve(DDS) 39.389			Curve(DDS) -6.835		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-5.67	16.83	R-0	-4.13	26.11	R-0	-1.19	-2.81	R-0	-.98	-1.54
R-5 2ft	-7.48	5.93	R-5 4ft	-6.18	13.76	R-5 2ft	-1.04	-1.91	R-5 4ft	-.96	-1.42
R-5 4ft	-7.80	4.00	R-5 8ft	-6.65	10.93	R-5 4ft	-.98	-1.54	R-5 8ft	-.94	-1.30
R-10 2ft	-7.71	4.54	R-10 4ft	-6.55	11.53	R-10 2ft	-1.01	-1.73	R-10 4ft	-.96	-1.42
R-10 4ft	-8.03	2.61	R-10 8ft	-7.02	8.70	R-10 4ft	-.92	-1.18	R-10 8ft	-.93	-1.24
Intercept	.000		Intercept	3.187		Intercept	.000		Intercept	-.949	
Slope(DD)	642.26		Slope(DD)	556.89		Slope(DD)	-492.23		Slope(DD)	-36.62	
Curve(DDS)	111.044		Curve(DDS)	1.277		Curve(DDS)	20.935		Curve(DDS)	.552	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.13	2.81	R-0	.00	5.50	R-0	-.98	-.17	R-0	.00	.47
R-11 flr	-8.38	.05	R-11 flr	-9.72	-.82	R-11 flr	-.28	.29	R-11 flr	.68	.91
R-19 flr	-9.22	-.49	R-19 flr	-10.69	-1.45	R-19 flr	-.08	.42	R-19 flr	.77	.97
R-30 flr	-9.76	-.84	R-30 flr	-11.11	-1.72	R-30 flr	.05	.50	R-30 flr	.79	.99
			R-38 flr	-11.21	-1.78				R-38 flr	.80	.99
			R-49 flr	-11.49	-1.96				R-49 flr	.82	1.00
Intercept	-1.715		Intercept	-2.301		Intercept	.729		Intercept	1.039	
Slope(DD)	1150.68		Slope(DD)	577.69		Slope(DD)	-308.61		Slope(DD)	-56.36	
Curve(DDS)	-52.166		Curve(DDS)	183.867		Curve(DDS)	26.129		Curve(DDS)	-10.650	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	33.30	ELF Ach			1-Pane	.00	-.18
.0007(.63)	.00	3.05	2-Pane	-4.43	9.33	.0007(.56)	.00	-.01	2-Pane	.05	.10
.0005(.44)	-2.54	1.40	3-Pane	-5.12	5.67	.0005(.40)	.03	.01	3-Pane	.05	.07
.0003(.28)	-4.12	.37	R-10	-5.94	1.18	.0003(.24)	.04	.01	R-10	.04	.04
Slope/.001ELF	-1.104		Slope(DD)	417.30		Slope/.001ELF	.097		Slope(DD)	19.97	
Curve/.001ELF	7.793		Curve(DDS)	31.974		Curve/.001ELF	-.162		Curve(DDS)	-1.008	
Base Load = 48.89 MBtu			Base Load = 6.60 MBtu			Base Load = 6.60 MBtu			Base Load = 6.60 MBtu		
Typical Load = 15.49 MBtu			Typical Load = 1.71 MBtu			Typical Load = 1.71 MBtu			Typical Load = 1.71 MBtu		
Residual Load = 7.29 MBtu			Residual Load = -.52 MBtu			Residual Load = -.52 MBtu			Residual Load = -.52 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	12.66	R-0	.00	7.95
R-7	-5.00	4.33	R-7	-2.40	2.92
R-11	-5.79	3.01	R-11	-2.74	2.20
R-19	-6.51	1.81	R-13	-3.02	1.61
R-22	-6.89	1.52	R-19	-3.16	1.32
R-30	-6.93	1.12	R-27	-3.35	.92
R-38	-7.07	.88	R-34	-3.47	.67
R-49	-7.18	.70			
R-60	-7.25	.58			
Slope(DD)	1521.14		Slope(DD)	741.48	
Curve(DDS)	103.639		Curve(DDS)	136.948	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.54	11.81	R-0	-1.90	27.81
R-5 2ft	-2.81	5.06	R-5 4ft	-2.36	16.31
R-5 4ft	-2.86	3.81	R-5 8ft	-2.45	14.06
R-10 2ft	-2.85	4.06	R-10 4ft	-2.43	14.56
R-10 4ft	-2.91	2.56	R-10 8ft	-2.53	12.06
Intercept	.000		Intercept	7.886	
Slope(DD)	834.51		Slope(DD)	429.18	
Curve(DDS)	38.524		Curve(DDS)	2.680	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.90	1.85	R-0	.00	5.02
R-11 flr	-2.74	.45	R-11 flr	-2.76	.42
R-19 flr	-2.95	.10	R-19 flr	-3.06	-.08
R-30 flr	-3.09	-.13	R-30 flr	-3.21	-.34
			R-38 flr	-3.25	-.40
			R-49 flr	-3.35	-.57
Intercept	-.732		Intercept	-.883	
Slope(DD)	813.63		Slope(DD)	601.46	
Curve(DDS)	-60.317		Curve(DDS)	107.206	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	23.51
.0007(.66)	.00	1.81	2-Pane	-2.26	7.82
.0005(.45)	-1.32	.71	3-Pane	-2.70	4.79
.0003(.26)	-2.08	.07	R-10	-3.21	1.22
Slope/.001ELF	-1.500		Slope(DD)	483.65	
Curve/.001ELF	5.834		Curve(DDS)	15.419	
Base Load =	19.37 MBtu				
Typical Load =	5.99 MBtu				
Residual Load =	6.94 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	3.80	R-0	.00	1.11
R-7	-1.25	1.71	R-7	-.25	.59
R-11	-1.45	1.38	R-11	-.28	.52
R-19	-1.63	1.08	R-13	-.34	.39
R-22	-1.73	.92	R-19	-.37	.33
R-30	-1.86	.70	R-27	-.41	.25
R-38	-1.94	.56	R-34	-.43	.21
R-49	-2.01	.45			
R-60	-2.05	.38			
Slope(DD)	1052.05		Slope(DD)	260.92	
Curve(DDS)	-69.429		Curve(DDS)	-10.200	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.36	-4.86	R-0	-.30	-3.36
R-5 2ft	-.30	-3.36	R-5 4ft	-.27	-2.61
R-5 4ft	-.28	-2.86	R-5 8ft	-.27	-2.61
R-10 2ft	-.29	-3.11	R-10 4ft	-.26	-2.36
R-10 4ft	-.25	-2.11	R-10 8ft	-.24	-1.86
Intercept	.000		Intercept	-.605	
Slope(DD)	-901.80		Slope(DD)	-159.02	
Curve(DDS)	41.362		Curve(DDS)	2.278	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.30	-.22	R-0	.00	.28
R-11 flr	.15	.53	R-11 flr	.45	1.03
R-19 flr	.22	.64	R-19 flr	.50	1.11
R-30 flr	.26	.71	R-30 flr	.53	1.16
			R-38 flr	.54	1.18
			R-49 flr	.56	1.21
Intercept	.872		Intercept	1.270	
Slope(DD)	-205.23		Slope(DD)	-125.58	
Curve(DDS)	-1.651		Curve(DDS)	-13.329	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-6.81
.0007(.56)	.00	-2.24	2-Pane	.35	-4.38
.0005(.40)	.38	-1.92	3-Pane	.57	-2.85
.0003(.24)	1.07	-1.35	R-10	.83	-1.05
Slope/.001ELF	-5.458		Slope(DD)	-464.80	
Curve/.001ELF	3.229		Curve(DDS)	7.830	
Base Load =	5.06 MBtu				
Typical Load =	3.23 MBtu				
Residual Load =	4.67 MBtu				

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	12.41	R-0	.00	7.33	R-0	.00	3.57	R-0	.00	.96
R-7	-5.02	4.04	R-7	-1.58	2.42	R-7	-1.27	1.48	R-7	-.15	.49
R-11	-6.82	2.71	R-11	-1.78	1.72	R-11	-1.47	1.12	R-11	-.17	.42
R-19	-6.54	1.51	R-13	-1.94	1.21	R-19	-1.65	.82	R-13	-.22	.27
R-22	-6.89	1.25	R-19	-2.02	.98	R-22	-1.72	.71	R-19	-.24	.20
R-30	-6.90	.91	R-27	-2.12	.65	R-30	-1.81	.55	R-27	-.25	.18
R-38	-7.02	.71	R-34	-2.18	.46	R-38	-1.88	.48	R-34	-.25	.17
R-49	-7.11	.58				R-49	-1.94	.34			
R-60	-7.18	.47				R-60	-1.98	.26			
Slope(DD) 1191.69			Slope(DD) 441.08			Slope(DD) 783.58			Slope(DD) 182.39		
Curve(DDS) 151.959			Curve(DDS) 171.445			Curve(DDS) -30.612			Curve(DDS) -.815		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-2.97	11.48	R-0	-2.68	21.98	R-0	-.22	-5.77	R-0	-.17	-4.27
R-5 2ft	-3.23	2.98	R-5 4ft	-3.12	8.65	R-5 2ft	-.19	-4.94	R-5 4ft	-.19	-4.77
R-5 4ft	-3.26	1.98	R-5 8ft	-3.18	4.65	R-5 4ft	-.15	-3.61	R-5 8ft	-.18	-4.61
R-10 2ft	-3.25	2.31	R-10 4ft	-3.16	5.15	R-10 2ft	-.19	-4.77	R-10 4ft	-.19	-4.77
R-10 4ft	-3.29	.98	R-10 8ft	-3.24	2.65	R-10 4ft	-.14	-3.27	R-10 8ft	-.18	-4.44
Intercept	.000		Intercept	-.220		Intercept	.000		Intercept	-3.674	
Slope(DD)	86.18		Slope(DD)	212.68		Slope(DD)	-1397.61		Slope(DD)	-103.45	
Curve(DDS)	113.770		Curve(DDS)	9.830		Curve(DDS)	82.520		Curve(DDS)	2.312	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.68	1.10	R-0	.00	5.53	R-0	-.17	-.21	R-0	.00	.07
R-11 flr	-3.32	-.01	R-11 flr	-3.20	.20	R-11 flr	-.07	-.05	R-11 flr	.15	.32
R-19 flr	-3.45	-.22	R-19 flr	-3.42	-.17	R-19 flr	-.00	.07	R-19 flr	.22	.44
R-30 flr	-3.53	-.35	R-30 flr	-3.55	-.38	R-30 flr	.04	.14	R-30 flr	.25	.49
			R-38 flr	-3.57	-.43				R-38 flr	.28	.50
			R-49 flr	-3.66	-.58				R-49 flr	.28	.54
Intercept	-.679		Intercept	-.646		Intercept	.368		Intercept	.677	
Slope(DD)	429.56		Slope(DD)	182.00		Slope(DD)	-315.10		Slope(DD)	-255.31	
Curve(DDS)	-16.155		Curve(DDS)	199.446		Curve(DDS)	39.319		Curve(DDS)	26.674	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	21.13	ELF Ach			1-Pane	.00	-3.71
.0007(.66)	.00	1.33	2-Pane	-2.11	6.47	.0007(.58)	.00	-.84	2-Pane	.21	-2.22
.0005(.45)	-1.24	.30	3-Pane	-2.48	3.92	.0005(.40)	.17	-.69	3-Pane	.33	-1.44
.0003(.26)	-1.86	-.22	R-10	-2.91	.92	.0003(.24)	.44	-.47	R-10	.46	-.52
Slope/.001ELF -2.688			Slope(DD) 349.71			Slope/.001ELF -1.854			Slope(DD) -227.12		
Curve/.001ELF 6.583			Curve(DDS) 17.064			Curve/.001ELF .938			Curve(DDS) 3.279		
Base Load = 17.76 MBtu			Base Load = 3.83 MBtu			Base Load = 1.99 MBtu			Base Load = 1.80 MBtu		
Typical Load = 4.97 MBtu			Typical Load = 1.99 MBtu			Typical Load = 1.99 MBtu			Typical Load = 1.99 MBtu		
Residual Load = 7.55 MBtu			Residual Load = 1.80 MBtu			Residual Load = 1.80 MBtu			Residual Load = 1.80 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 28.06	R-0	.00 25.46
R-7	-25.80 11.30	R-7	-14.68 12.39
R-11	-29.92 8.63	R-11	-16.77 10.53
R-19	-33.62 6.22	R-13	-19.40 8.20
R-22	-35.10 5.27	R-19	-20.70 7.04
R-30	-37.08 3.98	R-27	-22.86 5.12
R-38	-38.27 3.21	R-34	-24.18 3.94
R-49	-39.29 2.55		
R-60	-39.94 2.12		
Slope(DD)	5830.59	Slope(DD)	5077.75
Curve(DDS)	-185.269	Curve(DDS)	-63.974
Slab	(/ft)	Heated Basement	(/ft)
R-0	-10.14 134.63	R-0	-5.49 162.64
R-5 2ft	-15.19 104.21	R-5 4ft	-10.12 134.75
R-5 4ft	-16.87 94.09	R-5 8ft	-12.07 123.00
R-10 2ft	-16.05 99.03	R-10 4ft	-11.35 127.34
R-10 4ft	-18.31 85.41	R-10 8ft	-14.29 109.83
Intercept	58.895	Intercept	71.868
Slope(DD)	7296.29	Slope(DD)	3672.53
Curve(DDS)	-108.274	Curve(DDS)	-36.189
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.49 17.53	R-0	.00 21.10
R-11 flr	-19.24 8.60	R-11 flr	-21.10 7.40
R-19 flr	-22.93 6.20	R-19 flr	-24.76 5.02
R-30 flr	-25.31 4.66	R-30 flr	-27.01 3.56
		R-38 flr	-27.52 3.23
		R-49 flr	-29.00 2.27
Intercept	.542	Intercept	.000
Slope(DD)	5584.08	Slope(DD)	4586.68
Curve(DDS)	-442.862	Curve(DDS)	-92.157
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 98.22
.0007(.58)	.00 10.37	2-Pane	-9.75 45.46
.0005(.42)	-5.30 6.93	3-Pane	-12.82 28.85
.0003(.26)	-10.01 3.87	R-10	-16.43 9.31
Slope/.001ELF	11.461	Slope(DD)	3982.07
Curve/.001ELF	4.789	Curve(DDS)	-9.913

Base Load = 125.13 MBtu
 Typical Load = 48.34 MBtu
 Residual Load = -4.64 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 7.93	R-0	.00 3.62
R-7	-7.34 3.16	R-7	-2.00 1.85
R-11	-8.51 2.40	R-11	-2.28 1.59
R-19	-9.56 1.72	R-13	-2.71 1.21
R-22	-9.98 1.46	R-19	-2.93 1.01
R-30	-10.50 1.11	R-27	-3.21 .77
R-38	-10.82 .90	R-34	-3.38 .61
R-49	-11.12 .70		
R-60	-11.32 .58		
Slope(DD)	1806.92	Slope(DD)	775.83
Curve(DDS)	-45.560	Curve(DDS)	-18.978
Slab	(/ft)	Heated Basement	(/ft)
R-0	-4.11 -26.32	R-0	-2.70 -17.82
R-5 2ft	-3.80 -24.45	R-5 4ft	-2.84 -18.67
R-5 4ft	-3.66 -23.61	R-5 8ft	-2.81 -18.48
R-10 2ft	-3.74 -24.09	R-10 4ft	-2.88 -18.91
R-10 4ft	-3.56 -23.00	R-10 8ft	-2.84 -18.67
Intercept	-20.700	Intercept	-18.255
Slope(DD)	-658.27	Slope(DD)	-50.26
Curve(DDS)	17.164	Curve(DDS)	1.418
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-2.70 -1.92	R-0	.00 -.17
R-11 flr	-1.21 -.95	R-11 flr	.41 .10
R-19 flr	-.84 -.72	R-19 flr	.39 .09
R-30 flr	-.61 -.56	R-30 flr	.36 .06
		R-38 flr	.35 .06
		R-49 flr	.33 .05
Intercept	-.164	Intercept	.000
Slope(DD)	-538.14	Slope(DD)	104.12
Curve(DDS)	38.128	Curve(DDS)	-26.688
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 2.71
.0007(.43)	.00 .50	2-Pane	-.29 1.14
.0005(.30)	-.22 .36	3-Pane	-.37 .72
.0003(.18)	-.44 .21	R-10	-.46 .22
Slope/.001ELF	.714	Slope(DD)	92.26
Curve/.001ELF	.000	Curve(DDS)	.391

Base Load = 21.60 MBtu
 Typical Load = 9.95 MBtu
 Residual Load = -.27 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	29.45	R-0	.00	24.99
R-7	-10.83	11.40	R-7	-8.43	11.51
R-11	-12.56	8.52	R-11	-7.34	9.59
R-19	-14.11	5.93	R-13	-8.40	7.37
R-22	-14.67	5.01	R-19	-8.92	6.27
R-30	-15.41	3.77	R-27	-9.74	4.54
R-38	-15.86	3.02	R-34	-10.25	3.48
R-49	-16.23	2.40			
R-60	-16.47	2.00			
Slope(DD)	5451.54		Slope(DD)	4392.60	
Curve(DDS)	-81.643		Curve(DDS)	47.308	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-5.77	138.92	R-0	-4.05	181.92
R-5 2ft	-6.97	108.92	R-5 4ft	-5.63	142.42
R-5 4ft	-7.33	99.92	R-5 8ft	-6.16	129.17
R-10 2ft	-7.18	104.17	R-10 4ft	-5.99	133.42
R-10 4ft	-7.63	92.42	R-10 8ft	-6.72	115.17
Intercept	70.850		Intercept	78.157	
Slope(DD)	5716.81		Slope(DD)	3457.80	
Curve(DDS)	-31.726		Curve(DDS)	-23.980	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-4.05	12.13	R-0	.00	18.88
R-11 flr	-7.28	6.74	R-11 flr	-7.48	6.41
R-19 flr	-8.33	5.00	R-19 flr	-8.74	4.31
R-30 flr	-9.00	3.88	R-30 flr	-9.49	3.06
			R-38 flr	-9.68	2.78
			R-49 flr	-10.15	1.96
Intercept	.785		Intercept	.000	
Slope(DD)	4242.08		Slope(DD)	3914.97	
Curve(DDS)	-395.904		Curve(DDS)	-45.532	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	83.59
.0007(.58)	.00	9.10	2-Pane	-7.21	33.52
.0005(.43)	-3.97	5.79	3-Pane	-9.02	20.98
.0003(.25)	-7.26	3.05	R-10	-11.14	6.23
Slope/.001ELF	8.041		Slope(DD)	2596.27	
Curve/.001ELF	7.084		Curve(DDS)	21.587	

Base Load = 56.90 MBtu
 Typical Load = 24.00 MBtu
 Residual Load = .14 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	8.05	R-0	.00	3.78
R-7	-2.82	3.34	R-7	-.88	1.95
R-11	-3.27	2.59	R-11	-1.00	1.88
R-19	-3.68	1.91	R-13	-1.21	1.25
R-22	-3.85	1.63	R-19	-1.31	1.03
R-30	-4.08	1.24	R-27	-1.42	.80
R-38	-4.22	1.01	R-34	-1.49	.66
R-49	-4.35	.79			
R-60	-4.44	.65			
Slope(DD)	1820.31		Slope(DD)	812.01	
Curve(DDS)	-78.121		Curve(DDS)	-20.147	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.59	-45.21	R-0	-1.00	-30.46
R-5 2ft	-1.49	-42.71	R-5 4ft	-1.01	-30.71
R-5 4ft	-1.44	-41.46	R-5 8ft	-.99	-30.21
R-10 2ft	-1.47	-42.21	R-10 4ft	-1.01	-30.71
R-10 4ft	-1.40	-40.46	R-10 8ft	-.98	-29.98
Intercept	-36.636		Intercept	-28.336	
Slope(DD)	-1123.92		Slope(DD)	-171.25	
Curve(DDS)	35.502		Curve(DDS)	2.851	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.00	-2.03	R-0	.00	-.36
R-11 flr	-.48	-1.16	R-11 flr	.17	-.08
R-19 flr	-.34	-.93	R-19 flr	.19	-.05
R-30 flr	-.25	-.78	R-30 flr	.20	-.03
			R-38 flr	.20	-.03
			R-49 flr	.21	-.02
Intercept	-.380		Intercept	.000	
Slope(DD)	-543.36		Slope(DD)	-36.41	
Curve(DDS)	43.183		Curve(DDS)	-6.737	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	1.60
.0007(.43)	.00	.36	2-Pane	-.16	.48
.0005(.30)	-.15	.24	3-Pane	-.19	.29
.0003(.18)	-.28	.13	R-10	-.22	.07
Slope/.001ELF	.375		Slope(DD)	25.74	
Curve/.001ELF	.208		Curve(DDS)	1.314	

Base Load = 13.28 MBtu
 Typical Load = 8.82 MBtu
 Residual Load = 2.91 MBtu

Medford OR WYEC MApartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	29.15	R-0	.00	24.88	R-0	.00	7.98	R-0	.00	3.57
R-7	-10.82	11.11	R-7	-4.32	11.22	R-7	-2.81	3.28	R-7	-.58	1.81
R-11	-12.55	8.23	R-11	-4.94	9.27	R-11	-3.28	2.53	R-11	-.63	1.56
R-19	-14.10	5.84	R-13	-5.63	7.10	R-19	-3.68	1.88	R-13	-.78	1.19
R-22	-14.84	4.75	R-19	-5.97	6.02	R-22	-3.83	1.58	R-19	-.81	1.00
R-30	-15.35	3.56	R-27	-6.50	4.35	R-30	-4.08	1.20	R-27	-.89	.75
R-38	-15.78	2.84	R-34	-6.82	3.33	R-38	-4.20	.97	R-34	-.94	.60
R-49	-18.13	2.27				R-49	-4.32	.77			
R-60	-18.35	1.90				R-60	-4.39	.63			
Slope(DD)	5132.42		Slope(DD)	4184.15		Slope(DD)	1759.90		Slope(DD)	761.05	
Curve(DDS)	-36.417		Curve(DDS)	85.086		Curve(DDS)	-70.394		Curve(DDS)	-18.107	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-6.63	166.22	R-0	-5.31	210.05	R-0	-1.07	-40.18	R-0	-.80	-30.99
R-5 2ft	-7.61	133.55	R-5 4ft	-6.81	180.38	R-5 2ft	-1.00	-37.68	R-5 4ft	-.80	-31.16
R-5 4ft	-7.93	123.05	R-5 8ft	-7.27	144.88	R-5 4ft	-.97	-36.86	R-5 8ft	-.81	-31.16
R-10 2ft	-7.77	128.22	R-10 4ft	-7.13	149.55	R-10 2ft	-.99	-37.33	R-10 4ft	-.82	-31.49
R-10 4ft	-8.18	114.55	R-10 8ft	-7.77	128.22	R-10 4ft	-.94	-35.83	R-10 8ft	-.80	-30.99
Intercept	88.698		Intercept	85.750		Intercept	-32.871		Intercept	-30.427	
Slope(DD)	6971.56		Slope(DD)	3926.05		Slope(DD)	-852.86		Slope(DD)	-68.81	
Curve(DDS)	-72.046		Curve(DDS)	-23.651		Curve(DDS)	22.170		Curve(DDS)	1.307	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-5.31	10.50	R-0	.00	19.36	R-0	-.80	-1.55	R-0	.00	-.22
R-11 flr	-7.99	6.04	R-11 flr	-7.76	6.43	R-11 flr	-.42	-.92	R-11 flr	.16	.08
R-19 flr	-8.90	4.52	R-19 flr	-9.03	4.30	R-19 flr	-.30	-.71	R-19 flr	.15	.04
R-30 flr	-9.49	3.54	R-30 flr	-9.78	3.05	R-30 flr	-.21	-.57	R-30 flr	.15	.04
			R-38 flr	-9.95	2.77				R-38 flr	.15	.04
			R-49 flr	-10.45	1.95				R-49 flr	.15	.04
Intercept	.838		Intercept	.000		Intercept	-.205		Intercept	.000	
Slope(DD)	3721.73		Slope(DD)	3882.69		Slope(DD)	-508.95		Slope(DD)	68.72	
Curve(DDS)	-358.234		Curve(DDS)	-20.886		Curve(DDS)	47.737		Curve(DDS)	-21.626	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach						ELF Ach					
.0007(.58)	.00	8.83	1-Pane	.00	82.30	.0007(.43)	.00	.40	1-Pane	.00	2.41
.0005(.43)	-3.94	5.55	2-Pane	-7.27	31.82	.0005(.30)	-.17	.26	2-Pane	-.19	1.09
.0003(.25)	-7.15	2.88	3-Pane	-9.00	19.83	.0003(.18)	-.32	.14	3-Pane	-.25	.69
			R-10	-11.03	5.74				R-10	-.32	.22
Slope/.001ELF	7.333		Slope(DD)	2374.59		Slope/.001ELF	.396		Slope(DD)	93.52	
Curve/.001ELF	7.552		Curve(DDS)	28.142		Curve/.001ELF	.260		Curve(DDS)	-.089	
Base Load =	52.96 MBtu		Base Load =	11.26 MBtu							
Typical Load =	22.22 MBtu		Typical Load =	6.96 MBtu							
Residual Load =	.62 MBtu		Residual Load =	1.36 MBtu							

Memphis TN TMY One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	17.73	R-0	.00	18.26	R-0	.00	8.26	R-0	.00	4.67
R-7	-16.40	7.08	R-7	-9.34	7.95	R-7	-7.82	3.31	R-7	-2.61	2.35
R-11	-19.02	5.38	R-11	-10.67	6.77	R-11	-8.84	2.52	R-11	-2.98	2.02
R-19	-21.37	3.85	R-13	-12.31	5.31	R-19	-9.93	1.81	R-13	-3.45	1.60
R-22	-22.28	3.26	R-19	-13.13	4.58	R-22	-10.36	1.54	R-19	-3.69	1.39
R-30	-23.50	2.47	R-27	-14.55	3.31	R-30	-10.93	1.17	R-27	-4.12	1.00
R-38	-24.23	2.00	R-34	-15.43	2.53	R-38	-11.27	.94	R-34	-4.39	.77
R-49	-24.88	1.57				R-49	-11.58	.74			
R-60	-25.30	1.30				R-60	-11.78	.61			
Slope(DD)	3600.04		Slope(DD)	3290.95		Slope(DD)	1697.71		Slope(DD)	1008.18	
Curve(DDS)	-102.808		Curve(DDS)	-49.627		Curve(DDS)	-51.330		Curve(DDS)	-25.919	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-11.41	43.90	R-0	-7.69	66.31	R-0	-7.71	-1.15	R-0	-3.62	23.49
R-5 2ft	-14.52	25.17	R-5 4ft	-11.24	44.93	R-5 2ft	-7.87	-2.12	R-5 4ft	-4.43	18.61
R-5 4ft	-15.49	19.33	R-5 8ft	-12.58	36.98	R-5 4ft	-7.79	-1.64	R-5 8ft	-4.68	17.10
R-10 2ft	-15.03	22.10	R-10 4ft	-12.14	39.51	R-10 2ft	-7.89	-2.24	R-10 4ft	-4.73	16.80
R-10 4ft	-16.30	14.45	R-10 8ft	-14.07	27.88	R-10 4ft	-7.80	-1.70	R-10 8ft	-5.02	15.05
Intercept	.000		Intercept	3.198		Intercept	.000		Intercept	10.389	
Slope(DD)	3824.72		Slope(DD)	2373.59		Slope(DD)	-561.67		Slope(DD)	432.96	
Curve(DDS)	-27.226		Curve(DDS)	-20.744		Curve(DDS)	37.246		Curve(DDS)	-2.883	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.69	7.15	R-0	.00	12.14	R-0	-3.62	2.53	R-0	.00	4.88
R-11 flr	-15.43	2.12	R-11 flr	-15.01	2.39	R-11 flr	-1.21	4.10	R-11 flr	.79	5.40
R-19 flr	-17.43	.83	R-19 flr	-17.49	.78	R-19 flr	-.86	4.46	R-19 flr	.77	5.38
R-30 flr	-18.71	-.01	R-30 flr	-18.95	-.16	R-30 flr	-.30	4.69	R-30 flr	.85	5.44
			R-38 flr	-19.28	-.38				R-38 flr	.87	5.46
			R-49 flr	-20.24	-1.00				R-49 flr	.92	5.48
Intercept	-2.216		Intercept	-2.481		Intercept	5.285		Intercept	5.446	
Slope(DD)	2984.60		Slope(DD)	2951.38		Slope(DD)	-800.30		Slope(DD)	-6.88	
Curve(DDS)	-225.916		Curve(DDS)	-19.439		Curve(DDS)	51.345		Curve(DDS)	-20.100	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach						ELF Ach					
.0007(.78)	.00	9.41	1-Pane	.00	75.82	.0007(.47)	.00	2.89	1-Pane	.00	4.00
.0005(.57)	-4.38	6.57	2-Pane	-7.67	34.31	.0005(.34)	-1.22	2.09	2-Pane	-.52	1.19
.0003(.34)	-8.57	3.85	3-Pane	-10.00	21.73	.0003(.20)	-2.48	1.28	3-Pane	-.61	.72
			R-10	-12.73	6.93				R-10	-.71	.16
Slope/.001ELF	12.370		Slope(DD)	2954.65		Slope/.001ELF	4.351		Slope(DD)	60.62	
Curve/.001ELF	1.542		Curve(DDS)	-3.136		Curve/.001ELF	-.325		Curve(DDS)	3.448	
Base Load = 85.92 MBtu			Base Load = 40.70 MBtu			Base Load = 40.70 MBtu			Base Load = 40.70 MBtu		
Typical Load = 34.98 MBtu			Typical Load = 18.70 MBtu			Typical Load = 18.70 MBtu			Typical Load = 18.70 MBtu		
Residual Load = .88 MBtu			Residual Load = 1.25 MBtu			Residual Load = 1.25 MBtu			Residual Load = 1.25 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	19.15	R-0	.00	15.87	R-0	.00	7.33	R-0	.00	3.75
R-7	-7.12	7.28	R-7	-4.15	7.18	R-7	-2.85	2.59	R-7	-1.00	1.68
R-11	-8.26	5.38	R-11	-4.74	5.92	R-11	-3.30	1.83	R-11	-1.14	1.36
R-19	-9.28	3.68	R-13	-5.40	4.55	R-19	-3.71	1.15	R-13	-1.29	1.05
R-22	-9.63	3.11	R-19	-5.72	3.87	R-22	-3.82	.97	R-19	-1.36	.90
R-30	-10.09	2.33	R-27	-6.23	2.79	R-30	-3.98	.73	R-27	-1.48	.64
R-38	-10.37	1.87	R-34	-6.55	2.12	R-38	-4.05	.58	R-34	-1.56	.48
R-49	-10.60	1.48				R-49	-4.13	.45			
R-60	-10.75	1.23				R-60	-4.18	.36			
Slope(DD)	3349.48		Slope(DD)	2865.44		Slope(DD)	995.06		Slope(DD)	806.17	
Curve(DDS)	-20.183		Curve(DDS)	53.025		Curve(DDS)	40.716		Curve(DDS)	17.090	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-5.41	35.34	R-0	-4.21	65.34	R-0	-2.98	-5.03	R-0	-1.35	35.22
R-5 2ft	-6.12	17.59	R-5 4ft	-5.33	37.34	R-5 2ft	-2.98	-5.53	R-5 4ft	-1.59	29.22
R-5 4ft	-6.31	12.84	R-5 8ft	-5.64	29.59	R-5 4ft	-2.94	-4.53	R-5 8ft	-1.63	28.22
R-10 2ft	-6.22	15.09	R-10 4ft	-5.56	31.59	R-10 2ft	-2.98	-5.53	R-10 4ft	-1.65	27.72
R-10 4ft	-6.45	9.34	R-10 8ft	-5.96	21.59	R-10 4ft	-2.92	-4.03	R-10 8ft	-1.69	26.72
Intercept	.000		Intercept	2.340		Intercept	.000		Intercept	24.528	
Slope(DD)	2215.95		Slope(DD)	1719.35		Slope(DD)	-1298.19		Slope(DD)	163.29	
Curve(DDS)	46.496		Curve(DDS)	-5.239		Curve(DDS)	71.253		Curve(DDS)	2.168	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-4.21	4.36	R-0	.00	11.37	R-0	-1.35	2.35	R-0	.00	4.60
R-11 flr	-5.94	1.47	R-11 flr	-5.40	2.37	R-11 flr	-.35	4.01	R-11 flr	.52	5.48
R-19 flr	-6.46	.61	R-19 flr	-6.24	.97	R-19 flr	-.09	4.44	R-19 flr	.52	5.46
R-30 flr	-6.79	.06	R-30 flr	-6.70	.20	R-30 flr	.07	4.71	R-30 flr	.53	5.48
			R-38 flr	-6.81	.02				R-38 flr	.53	5.48
			R-49 flr	-7.12	-.49				R-49 flr	.54	5.49
Intercept	-1.453		Intercept	-1.711		Intercept	5.439		Intercept	5.425	
Slope(DD)	2060.08		Slope(DD)	2385.52		Slope(DD)	-978.52		Slope(DD)	106.16	
Curve(DDS)	-180.830		Curve(DDS)	32.362		Curve(DDS)	73.266		Curve(DDS)	-52.153	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	63.41	ELF Ach			1-Pane	.00	-3.36
.0007(.79)	.00	7.63	2-Pane	-5.88	23.97	.0007(.47)	.00	2.61	2-Pane	-.13	-4.26
.0005(.56)	-3.23	4.94	3-Pane	-6.99	14.90	.0005(.35)	-.87	1.89	3-Pane	.07	-2.86
.0003(.34)	-5.97	2.66	R-10	-8.52	4.24	.0003(.21)	-1.76	1.14	R-10	.31	-1.21
Slope/.001ELF	7.333		Slope(DD)	1745.44		Slope/.001ELF	3.875		Slope(DD)	-551.56	
Curve/.001ELF	5.104		Curve(DDS)	24.865		Curve/.001ELF	-.208		Curve(DDS)	16.070	
Base Load =	40.28 MBtu		Base Load =	27.23 MBtu		Base Load =	27.23 MBtu		Base Load =	27.23 MBtu	
Typical Load =	16.91 MBtu		Typical Load =	18.53 MBtu		Typical Load =	18.53 MBtu		Typical Load =	18.53 MBtu	
Residual Load =	2.39 MBtu		Residual Load =	8.78 MBtu		Residual Load =	8.78 MBtu		Residual Load =	8.78 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	19.51	R-0	.00	15.98	R-0	.00	7.56	R-0	.00	3.38
R-7	-7.36	7.24	R-7	-2.84	7.00	R-7	-2.91	2.70	R-7	-.64	1.35
R-11	-8.54	5.28	R-11	-3.25	5.72	R-11	-3.37	1.93	R-11	-.74	1.06
R-19	-9.80	3.52	R-13	-3.68	4.36	R-19	-3.79	1.23	R-13	-.82	.78
R-22	-9.93	2.96	R-19	-3.89	3.69	R-22	-3.91	1.03	R-19	-.86	.66
R-30	-10.39	2.20	R-27	-4.22	2.65	R-30	-4.08	.75	R-27	-.92	.46
R-38	-10.86	1.75	R-34	-4.42	2.02	R-38	-4.18	.58	R-34	-.96	.35
R-49	-10.87	1.40				R-49	-4.24	.48			
R-60	-11.00	1.18				R-60	-4.28	.42			
Slope(DD)	3149.35		Slope(DD)	2496.79		Slope(DD)	1069.69		Slope(DD)	407.27	
Curve(DDS)	23.928		Curve(DDS)	87.496		Curve(DDS)	34.374		Curve(DDS)	41.021	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-6.02	40.52	R-0	-5.04	73.02	R-0	-2.46	-2.36	R-0	-1.20	39.64
R-5 2ft	-6.59	21.35	R-5 4ft	-6.07	38.69	R-5 2ft	-2.46	-2.36	R-5 4ft	-1.38	33.81
R-5 4ft	-6.76	15.85	R-5 8ft	-6.36	29.19	R-5 4ft	-2.45	-1.86	R-5 8ft	-1.40	32.98
R-10 2ft	-6.68	18.35	R-10 4ft	-6.28	31.69	R-10 2ft	-2.46	-2.36	R-10 4ft	-1.42	32.31
R-10 4ft	-6.88	11.69	R-10 8ft	-6.65	19.52	R-10 4ft	-2.44	-1.69	R-10 8ft	-1.47	30.81
Intercept	.000		Intercept	-3.799		Intercept	.000		Intercept	27.483	
Slope(DD)	2901.78		Slope(DD)	2076.94		Slope(DD)	-529.98		Slope(DD)	296.48	
Curve(DDS)	24.704		Curve(DDS)	-5.922		Curve(DDS)	27.188		Curve(DDS)	-.173	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.04	3.65	R-0	.00	12.06	R-0	-1.20	1.98	R-0	.00	3.99
R-11 flr	-8.44	1.32	R-11 flr	-5.63	2.68	R-11 flr	-.28	3.52	R-11 flr	.63	5.04
R-19 flr	-8.90	.57	R-19 flr	-6.50	1.23	R-19 flr	-.07	3.87	R-19 flr	.65	5.07
R-30 flr	-7.18	.08	R-30 flr	-7.00	.39	R-30 flr	.08	4.09	R-30 flr	.67	5.11
			R-38 flr	-7.11	.20				R-38 flr	.68	5.12
			R-49 flr	-7.44	-.35				R-49 flr	.70	5.16
Intercept	-1.245		Intercept	-1.625		Intercept	4.660		Intercept	5.118	
Slope(DD)	1822.26		Slope(DD)	2528.47		Slope(DD)	-760.80		Slope(DD)	26.65	
Curve(DDS)	-169.182		Curve(DDS)	27.327		Curve(DDS)	46.517		Curve(DDS)	-48.054	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	63.48	ELF Ach			1-Pane	.00	-2.47
.0007(.79)	.00	7.60	2-Pane	-5.80	23.24	.0007(.47)	.00	2.32	2-Pane	-.14	-3.41
.0005(.56)	-3.23	4.91	3-Pane	-7.07	14.40	.0005(.34)	-.89	1.57	3-Pane	.03	-2.29
.0003(.34)	-5.96	2.63	R-10	-8.56	4.00	.0003(.20)	-1.71	.89	R-10	.22	-.98
Slope/.001ELF	7.208		Slope(DD)	1631.43		Slope/.001ELF	2.729		Slope(DD)	-447.53	
Curve/.001ELF	5.209		Curve(DDS)	29.282		Curve/.001ELF	.833		Curve(DDS)	13.406	
Base Load =	38.51 MBtu		Base Load =	25.45 MBtu		Base Load =	17.57 MBtu		Base Load =	8.18 MBtu	
Typical Load =	15.85 MBtu		Typical Load =	17.57 MBtu		Typical Load =	8.18 MBtu		Typical Load =		
Residual Load =	2.52 MBtu		Residual Load =			Residual Load =			Residual Load =		

Miami FL

WYEC

One Story Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	2.06	R-0	.00	1.26	R-0	.00	10.29	R-0	.00	4.78
R-7	-2.10	.68	R-7	-.88	.48	R-7	-9.92	3.85	R-7	-3.09	2.03
R-11	-2.44	.46	R-11	-1.01	.36	R-11	-11.60	2.82	R-11	-3.53	1.64
R-19	-2.74	.27	R-13	-1.12	.26	R-19	-12.92	1.90	R-13	-3.97	1.26
R-22	-2.81	.22	R-19	-1.18	.21	R-22	-13.37	1.61	R-19	-4.19	1.06
R-30	-2.90	.16	R-27	-1.25	.15	R-30	-13.97	1.22	R-27	-4.53	.75
R-38	-2.96	.12	R-34	-1.29	.11	R-38	-14.33	.98	R-34	-4.74	.57
R-49	-3.00	.10				R-49	-14.67	.76			
R-60	-3.02	.09				R-60	-14.89	.62			
Slope(DD)	216.32		Slope(DD)	125.69		Slope(DD)	1717.25		Slope(DD)	695.02	
Curve(DDS)	21.729		Curve(DDS)	20.256		Curve(DDS)	3.017		Curve(DDS)	36.169	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-1.58	.17	R-0	-1.53	.47	R-0	-6.06	.41	R-0	.00	36.91
R-5 2ft	-1.63	-.13	R-5 4ft	-1.79	-1.09	R-5 2ft	-6.36	-1.40	R-5 4ft	1.18	44.02
R-5 4ft	-1.63	-.13	R-5 8ft	-1.81	-1.21	R-5 4ft	-6.39	-1.58	R-5 8ft	1.25	44.44
R-10 2ft	-1.63	-.13	R-10 4ft	-1.82	-1.28	R-10 2ft	-6.37	-1.46	R-10 4ft	1.42	45.47
R-10 4ft	-1.63	-.13	R-10 8ft	-1.84	-1.40	R-10 4ft	-6.33	-1.22	R-10 8ft	1.57	46.37
Intercept	.000		Intercept	-1.425		Intercept	.000		Intercept	48.287	
Slope(DD)	-66.72		Slope(DD)	-12.51		Slope(DD)	-615.40		Slope(DD)	-167.26	
Curve(DDS)	8.113		Curve(DDS)	1.614		Curve(DDS)	63.848		Curve(DDS)	-3.361	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.53	.05	R-0	.00	1.04	R-0	.00	3.98	R-0	-.18	3.86
R-11 flr	-1.65	-.03	R-11 flr	-1.05	.36	R-11 flr	-1.22	3.19	R-11 flr	-.94	3.37
R-19 flr	-1.65	-.03	R-19 flr	-1.17	.28	R-19 flr	-1.88	2.76	R-19 flr	-1.66	2.90
R-30 flr	-1.65	-.03	R-30 flr	-1.24	.24	R-30 flr	-2.30	2.49	R-30 flr	-2.11	2.61
			R-38 flr	-1.25	.23				R-38 flr	-2.21	2.54
			R-49 flr	-1.29	.20				R-49 flr	-2.50	2.35
Intercept	-.020		Intercept	.152		Intercept	1.683		Intercept	1.726	
Slope(DD)	-12.69		Slope(DD)	103.40		Slope(DD)	1123.24		Slope(DD)	1248.92	
Curve(DDS)	5.180		Curve(DDS)	13.783		Curve(DDS)	-131.739		Curve(DDS)	-162.303	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	3.93	ELF Ach			1-Pane	.00	-6.98
.0007(.59)	.00	.39	2-Pane	-.52	1.12	.0007(.58)	.00	8.41	2-Pane	.12	-6.34
.0005(.42)	-.31	.19	3-Pane	-.60	.67	.0005(.40)	-3.14	6.38	3-Pane	.52	-4.20
.0003(.25)	-.51	.06	R-10	-.70	.14	.0003(.25)	-6.73	4.04	R-10	.98	-1.68
Slope/.001ELF	-.065		Slope(DD)	51.50		Slope/.001ELF	14.578		Slope(DD)	-758.90	
Curve/.001ELF	.893		Curve(DDS)	3.687		Curve/.001ELF	-3.653		Curve(DDS)	18.725	
Base Load =			7.24 MBtu			Base Load =			76.25 MBtu		
Typical Load =			1.55 MBtu			Typical Load =			50.30 MBtu		
Residual Load =			.06 MBtu			Residual Load =			19.39 MBtu		

Miami FL WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	1.90	R-0	.00	1.12	R-0	.00	9.68	R-0	.00	4.17
R-7	-.76	.63	R-7	-.34	.40	R-7	-3.62	3.62	R-7	-1.24	1.56
R-11	-.88	.43	R-11	-.39	.30	R-11	-4.20	2.66	R-11	-1.42	1.19
R-19	-.99	.25	R-13	-.43	.21	R-19	-4.72	1.79	R-13	-1.58	.85
R-22	-1.02	.20	R-19	-.45	.17	R-22	-4.89	1.60	R-19	-1.68	.69
R-30	-1.05	.15	R-27	-.47	.12	R-30	-5.13	1.11	R-27	-1.75	.49
R-38	-1.07	.11	R-34	-.49	.09	R-38	-5.27	.88	R-34	-1.81	.37
R-49	-1.08	.09				R-49	-5.37	.72			
R-60	-1.09	.08				R-60	-5.43	.61			
Slope(DD) 198.23			Slope(DD) 94.77			Slope(DD) 1611.92			Slope(DD) 406.28		
Curve(DDS) 20.501			Curve(DDS) 20.996			Curve(DDS) 2.980			Curve(DDS) 68.642		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-.54	.14	R-0	-.53	.39	R-0	-2.54	1.27	R-0	.00	64.77
R-5 2ft	-.55	-.11	R-5 4ft	-.59	-1.11	R-5 2ft	-2.61	-.48	R-5 4ft	.29	72.02
R-5 4ft	-.55	-.11	R-5 8ft	-.60	-1.36	R-5 4ft	-2.63	-.98	R-5 8ft	.33	73.02
R-10 2ft	-.55	-.11	R-10 4ft	-.60	-1.36	R-10 2ft	-2.60	-.23	R-10 4ft	.35	73.52
R-10 4ft	-.55	-.11	R-10 8ft	-.61	-1.61	R-10 4ft	-2.61	-.48	R-10 8ft	.42	75.27
Intercept	.000		Intercept	-2.018		Intercept	.000		Intercept	78.852	
Slope(DD)	-55.40		Slope(DD)	32.99		Slope(DD)	-320.60		Slope(DD)	-368.11	
Curve(DDS)	6.736		Curve(DDS)	.777		Curve(DDS)	43.329		Curve(DDS)	.034	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.53	.03	R-0	.00	.91	R-0	.00	4.32	R-0	-.29	3.83
R-11 flr	-.55	-.01	R-11 flr	-.34	.34	R-11 flr	-.05	4.23	R-11 flr	-.21	3.97
R-19 flr	-.55	-.01	R-19 flr	-.38	.28	R-19 flr	-.29	3.83	R-19 flr	-.40	3.65
R-30 flr	-.55	-.01	R-30 flr	-.40	.24	R-30 flr	-.45	3.57	R-30 flr	-.57	3.37
			R-38 flr	-.41	.23				R-38 flr	-.61	3.30
			R-49 flr	-.43	.20				R-49 flr	-.72	3.11
Intercept	-.004		Intercept	.151		Intercept	2.747		Intercept	2.618	
Slope(DD)	-5.43		Slope(DD)	100.13		Slope(DD)	1176.85		Slope(DD)	1095.13	
Curve(DDS)	2.216		Curve(DDS)	9.328		Curve(DDS)	-169.758		Curve(DDS)	-167.203	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	3.54	ELF Ach			1-Pane	.00	-13.46
.0007(.59)	.00	.35	2-Pane	-.36	1.04	.0007(.56)	.00	6.59	2-Pane	.51	-9.92
.0005(.42)	-.22	.17	3-Pane	-.42	.63	.0005(.40)	-2.16	4.79	3-Pane	1.00	-6.50
.0003(.25)	-.36	.05	R-10	-.49	.14	.0003(.25)	-4.40	2.92	R-10	1.58	-2.49
Slope/.001ELF	-.083		Slope(DD)	52.06		Slope/.001ELF	10.000		Slope(DD)	-1111.33	
Curve/.001ELF	.833		Curve(DDS)	3.111		Curve/.001ELF	-.833		Curve(DDS)	22.783	
Base Load = 3.02 MBtu			Base Load = 52.26 MBtu			Base Load = 52.26 MBtu			Base Load = 52.26 MBtu		
Typical Load = .87 MBtu			Typical Load = 41.35 MBtu			Typical Load = 41.35 MBtu			Typical Load = 41.35 MBtu		
Residual Load = .13 MBtu			Residual Load = 21.84 MBtu			Residual Load = 21.84 MBtu			Residual Load = 21.84 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	2.08	R-0	.00	1.11
R-7	-.82	.68	R-7	-.22	.42
R-11	-.96	.47	R-11	-.25	.32
R-19	-1.08	.27	R-13	-.28	.24
R-22	-1.10	.22	R-19	-.29	.20
R-30	-1.14	.16	R-27	-.31	.14
R-38	-1.16	.13	R-34	-.32	.10
R-49	-1.18	.10			
R-60	-1.19	.08			
Slope(DD)	217.28		Slope(DD)	114.52	
Curve(DDS)	21.949		Curve(DDS)	17.083	
Slab (/ft)			Heated Basement (/ft)		
R-0	-.53	.09	R-0	-.53	-.07
R-5 2ft	-.53	-.07	R-5 4ft	-.57	-1.24
R-5 4ft	-.53	-.07	R-5 8ft	-.57	-1.24
R-10 2ft	-.53	-.07	R-10 4ft	-.57	-1.24
R-10 4ft	-.53	-.07	R-10 8ft	-.57	-1.41
Intercept	.000		Intercept	-1.367	
Slope(DD)	-38.89		Slope(DD)	-12.51	
Curve(DDS)	4.487		Curve(DDS)	1.203	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-.53	-.00	R-0	.00	.88
R-11 flr	-.54	-.02	R-11 flr	-.35	.30
R-19 flr	-.54	-.02	R-19 flr	-.39	.23
R-30 flr	-.54	-.01	R-30 flr	-.41	.19
			R-38 flr	-.42	.18
			R-49 flr	-.44	.15
Intercept	-.000		Intercept	.108	
Slope(DD)	-17.59		Slope(DD)	97.58	
Curve(DDS)	3.299		Curve(DDS)	10.410	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	3.43
.0007(.59)	.00	.31	2-Pane	-.35	1.00
.0005(.42)	-.21	.14	3-Pane	-.41	.60
.0003(.25)	-.33	.03	R-10	-.47	.13
Slope/.001ELF	-.146		Slope(DD)	48.99	
Curve/.001ELF	.833		Curve(DDS)	3.067	
Base Load =	2.88 MBtu				
Typical Load =	.82 MBtu				
Residual Load =	.16 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.08	R-0	.00	4.67
R-7	-3.93	3.52	R-7	-.87	1.92
R-11	-4.55	2.47	R-11	-.99	1.53
R-19	-5.11	1.53	R-13	-1.13	1.12
R-22	-5.27	1.27	R-19	-1.19	.91
R-30	-5.48	.92	R-27	-1.27	.67
R-38	-5.61	.71	R-34	-1.32	.52
R-49	-5.88	.59			
R-60	-5.72	.52			
Slope(DD)	1300.97		Slope(DD)	601.95	
Curve(DDS)	66.722		Curve(DDS)	49.429	
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.02	3.37	R-0	.00	70.71
R-5 2ft	-2.06	1.87	R-5 4ft	.22	77.87
R-5 4ft	-2.08	1.37	R-5 8ft	.24	78.54
R-10 2ft	-2.08	1.54	R-10 4ft	.25	79.04
R-10 4ft	-2.09	1.04	R-10 8ft	.29	80.54
Intercept	.000		Intercept	83.131	
Slope(DD)	345.13		Slope(DD)	-253.81	
Curve(DDS)	-1.584		Curve(DDS)	-1.818	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	.00	3.54	R-0	-.57	2.59
R-11 flr	.09	3.69	R-11 flr	-.10	3.36
R-19 flr	-.10	3.38	R-19 flr	-.26	3.10
R-30 flr	-.21	3.18	R-30 flr	-.35	2.95
			R-38 flr	-.37	2.92
			R-49 flr	-.43	2.82
Intercept	2.533		Intercept	2.394	
Slope(DD)	932.12		Slope(DD)	828.50	
Curve(DDS)	-143.636		Curve(DDS)	-154.258	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-9.05
.0007(.58)	.00	6.42	2-Pane	.32	-6.83
.0005(.40)	-2.12	4.85	3-Pane	.66	-4.48
.0003(.25)	-4.30	2.83	R-10	1.05	-1.73
Slope/.001ELF	9.646		Slope(DD)	-771.83	
Curve/.001ELF	-.677		Curve(DDS)	16.249	
Base Load =	50.09 MBtu				
Typical Load =	39.80 MBtu				
Residual Load =	19.98 MBtu				

Minneapolis MN WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0 .00 43.75		R-0 .00 41.64	
R-7 -40.37 17.53		R-7 -23.67 20.57	
R-11 -46.82 13.35		R-11 -27.04 17.57	
R-19 -52.61 9.59		R-13 -31.19 13.88	
R-22 -54.86 8.12		R-19 -33.24 12.06	
R-30 -57.88 6.16		R-27 -37.04 8.68	
R-38 -59.70 4.98		R-34 -39.37 6.60	
R-49 -61.34 3.92			
R-60 -62.39 3.23			
Slope(DD) 8972.33		Slope(DD) 8655.96	
Curve(DDS) -268.783		Curve(DDS) -170.145	
Slab (/ft)		Heated Basement (/ft)	
R-0 -26.96 66.15		R-0 -15.41 135.73	
R-5 2ft -34.00 23.74		R-5 4ft -22.70 91.81	
R-5 4ft -36.07 11.27		R-5 8ft -25.32 76.03	
R-10 2ft -35.31 15.85		R-10 4ft -24.64 80.13	
R-10 4ft -38.23 -1.74		R-10 8ft -28.74 55.43	
Intercept -38.713		Intercept .000	
Slope(DD) 11467.25		Slope(DD) 5800.95	
Curve(DDS) -203.604		Curve(DDS) -60.331	
Unheated Basement (/sf)		Crawl (/sf)	
R-0 -15.41 14.63		R-0 .00 24.64	
R-11 flr -35.88 1.34		R-11 flr -36.98 .64	
R-19 flr -41.72 -2.46		R-19 flr -43.43 -3.56	
R-30 flr -45.48 -4.90		R-30 flr -47.62 -6.29	
		R-38 flr -48.58 -6.91	
		R-49 flr -51.34 -8.70	
Intercept -11.483		Intercept -12.783	
Slope(DD) 8966.55		Slope(DD) 8430.60	
Curve(DDS) -755.517		Curve(DDS) -221.029	
Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		1-Pane .00 200.73	
.0007(.88) .00 26.97		2-Pane -19.17 97.00	
.0005(.63) -11.98 19.19		3-Pane -25.68 61.79	
.0003(.39) -23.87 11.47		R-10 -33.33 20.37	
Slope/.001ELF 38.020		Slope(DD) 8765.87	
Curve/.001ELF .730		Curve(DDS) -44.031	

Base Load = 228.00 MBtu
Typical Load = 81.21 MBtu
Residual Load = 11.24 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling (/sf)		Wall (/sf)	
R-0 .00 4.38		R-0 .00 2.31	
R-7 -3.96 1.81		R-7 -1.17 1.27	
R-11 -4.59 1.40		R-11 -1.34 1.12	
R-19 -5.16 1.03		R-13 -1.62 .87	
R-22 -5.40 .88		R-19 -1.76 .75	
R-30 -5.72 .67		R-27 -1.97 .56	
R-38 -5.91 .54		R-34 -2.10 .44	
R-49 -6.09 .42			
R-60 -6.21 .35			
Slope(DD) 978.14		Slope(DD) 580.36	
Curve(DDS) -40.346		Curve(DDS) -27.913	
Slab (/ft)		Heated Basement (/ft)	
R-0 -4.80 -3.71		R-0 -3.34 5.08	
R-5 2ft -4.66 -2.87		R-5 4ft -3.92 1.59	
R-5 4ft -4.56 -2.26		R-5 8ft -3.92 1.59	
R-10 2ft -4.63 -2.69		R-10 4ft -4.04 .87	
R-10 4ft -4.48 -1.78		R-10 8ft -4.08 .63	
Intercept .318		Intercept .000	
Slope(DD) -718.93		Slope(DD) 37.95	
Curve(DDS) 32.049		Curve(DDS) 2.199	
Unheated Basement (/sf)		Crawl (/sf)	
R-0 -3.34 .55		R-0 .00 2.72	
R-11 flr -1.00 2.07		R-11 flr 1.00 3.37	
R-19 flr -.37 2.47		R-19 flr 1.18 3.48	
R-30 flr .03 2.74		R-30 flr 1.31 3.57	
		R-38 flr 1.34 3.59	
		R-49 flr 1.43 3.64	
Intercept 3.435		Intercept 3.761	
Slope(DD) -946.84		Slope(DD) -255.17	
Curve(DDS) 74.856		Curve(DDS) 10.043	
Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach		1-Pane .00 1.74	
.0007(.61) .00 .73		2-Pane -.17 .82	
.0005(.44) -.37 .49		3-Pane -.23 .52	
.0003(.26) -.70 .27		R-10 -.29 .17	
Slope/.001ELF .812		Slope(DD) 72.65	
Curve/.001ELF .325		Curve(DDS) -.257	

Base Load = 15.99 MBtu
Typical Load = 3.86 MBtu
Residual Load = -3.20 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 45.92		R-0	.00 41.22	
R-7	-16.78 17.98		R-7	-10.18 19.86	
R-11	-19.45 13.49		R-11	-11.63 16.81	
R-19	-21.88 9.48		R-13	-13.35 13.21	
R-22	-22.74 8.02		R-19	-14.20 11.42	
R-30	-23.91 6.07		R-27	-15.73 8.21	
R-38	-24.62 4.88		R-34	-16.67 6.24	
R-49	-25.24 3.85				
R-60	-25.64 3.18				
Slope(DD)	8771.15		Slope(DD)	8103.33	
Curve(DDS)	-173.100		Curve(DDS)	-81.751	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-13.16 71.82		R-0	-9.18 171.32	
R-5 2ft	-14.92 27.81		R-5 4ft	-11.78 106.32	
R-5 4ft	-15.42 15.31		R-5 8ft	-12.56 86.82	
R-10 2ft	-15.24 19.81		R-10 4ft	-12.41 90.57	
R-10 4ft	-15.93 2.57		R-10 8ft	-13.54 62.32	
Intercept	-33.041		Intercept	.000	
Slope(DD)	10890.37		Slope(DD)	8330.01	
Curve(DDS)	-153.419		Curve(DDS)	-51.470	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-9.18 11.42		R-0	.00 26.72	
R-11 flr	-14.24 2.99		R-11 flr	-13.73 3.84	
R-19 flr	-16.00 .06		R-19 flr	-16.13 -.16	
R-30 flr	-17.13 -1.83		R-30 flr	-17.65 -2.70	
			R-38 flr	-18.00 -3.28	
			R-49 flr	-19.00 -4.95	
Intercept	-7.078		Intercept	-8.811	
Slope(DD)	7227.34		Slope(DD)	7911.40	
Curve(DDS)	-705.891		Curve(DDS)	-191.561	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 188.72	
.0007(.90)	.00 25.32		2-Pane	-14.63 87.12	
.0005(.64)	-9.13 17.71		3-Pane	-19.22 55.27	
.0003(.38)	-17.90 10.40		R-10	-24.61 17.82	
Slope/.001ELF	33.542		Slope(DD)	7617.25	
Curve/.001ELF	3.750		Curve(DDS)	-17.756	
Base Load =	111.71 MBtu				
Typical Load =	37.35 MBtu				
Residual Load =	2.13 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 4.19		R-0	.00 2.26	
R-7	-1.49 1.71		R-7	-.49 1.23	
R-11	-1.73 1.31		R-11	-.56 1.08	
R-19	-1.94 .95		R-13	-.69 .81	
R-22	-2.03 .81		R-19	-.75 .68	
R-30	-2.14 .62		R-27	-.82 .53	
R-38	-2.21 .50		R-34	-.87 .43	
R-49	-2.28 .39				
R-60	-2.32 .32				
Slope(DD)	900.75		Slope(DD)	544.73	
Curve(DDS)	-32.818		Curve(DDS)	-23.255	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.91 -11.49		R-0	-1.30 3.76	
R-5 2ft	-1.82 -9.24		R-5 4ft	-1.44 .26	
R-5 4ft	-1.77 -7.99		R-5 8ft	-1.43 .51	
R-10 2ft	-1.81 -8.99		R-10 4ft	-1.46 -.24	
R-10 4ft	-1.74 -7.24		R-10 8ft	-1.46 -.24	
Intercept	-3.642		Intercept	.000	
Slope(DD)	-1191.04		Slope(DD)	-56.98	
Curve(DDS)	44.184		Curve(DDS)	3.737	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.30 .25		R-0	.00 2.42	
R-11 flr	-.44 1.68		R-11 flr	.50 3.25	
R-19 flr	-.16 2.15		R-19 flr	.63 3.47	
R-30 flr	.02 2.45		R-30 flr	.71 3.60	
			R-38 flr	.73 3.63	
			R-49 flr	.78 3.72	
Intercept	3.278		Intercept	3.965	
Slope(DD)	-1135.55		Slope(DD)	-487.56	
Curve(DDS)	106.307		Curve(DDS)	36.226	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 -1.21	
.0007(.61)	.00 .64		2-Pane	.04 -.93	
.0005(.44)	-.17 .50		3-Pane	.09 -.61	
.0003(.26)	-.38 .32		R-10	.14 -.24	
Slope/.001ELF	1.208		Slope(DD)	-106.00	
Curve/.001ELF	-.417		Curve(DDS)	2.280	
Base Load =	11.11 MBtu				
Typical Load =	6.58 MBtu				
Residual Load =	2.38 MBtu				

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	44.84	R-0	.00	41.79	R-0	.00	3.99	R-0	.00	1.98
R-7	-16.42	17.46	R-7	-6.95	19.85	R-7	-1.41	1.64	R-7	-.32	.96
R-11	-19.04	13.09	R-11	-7.94	16.73	R-11	-1.64	1.26	R-11	-.37	.81
R-19	-21.40	9.17	R-13	-9.09	13.11	R-19	-1.84	.93	R-13	-.44	.60
R-22	-22.25	7.75	R-19	-9.66	11.32	R-22	-1.93	.77	R-19	-.47	.49
R-30	-23.40	5.84	R-27	-10.67	8.12	R-30	-2.06	.57	R-27	-.51	.38
R-38	-24.08	4.69	R-34	-11.29	6.18	R-38	-2.13	.44	R-34	-.53	.31
R-49	-24.67	3.72				R-49	-2.17	.38			
R-60	-25.05	3.09				R-60	-2.20	.34			
Slope(DD) 8455.97			Slope(DD) 7988.00			Slope(DD) 865.40			Slope(DD) 373.93		
Curve(DDS) -150.713			Curve(DDS) -36.595			Curve(DDS) -32.341			Curve(DDS) -1.130		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-14.38	89.71	R-0	-11.12	198.21	R-0	-1.38	-5.59	R-0	-1.07	5.08
R-5 2ft	-15.74	44.05	R-5 4ft	-13.46	120.21	R-5 2ft	-1.33	-3.92	R-5 4ft	-1.15	2.25
R-5 4ft	-16.15	30.55	R-5 8ft	-14.14	97.71	R-5 4ft	-1.32	-3.42	R-5 8ft	-1.16	1.91
R-10 2ft	-18.00	35.55	R-10 4ft	-14.01	101.88	R-10 2ft	-1.33	-3.75	R-10 4ft	-1.19	1.08
R-10 4ft	-18.56	18.88	R-10 8ft	-14.97	69.88	R-10 4ft	-1.28	-2.25	R-10 8ft	-1.19	1.08
Intercept	-22.241		Intercept	.000		Intercept	.933		Intercept	.000	
Slope(DD)	12079.04		Slope(DD)	7037.91		Slope(DD)	-1117.83		Slope(DD)	81.56	
Curve(DDS)	-203.082		Curve(DDS)	-52.437		Curve(DDS)	47.972		Curve(DDS)	1.118	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-11.12	9.91	R-0	.00	28.44	R-0	-1.07	.25	R-0	.00	2.03
R-11 flr	-15.13	3.23	R-11 flr	-13.97	5.15	R-11 flr	-.38	1.40	R-11 flr	.44	2.76
R-19 flr	-16.67	.86	R-19 flr	-16.41	1.09	R-19 flr	-.16	1.77	R-19 flr	.55	2.95
R-30 flr	-17.66	-.99	R-30 flr	-17.97	-1.50	R-30 flr	-.02	2.00	R-30 flr	.60	3.03
			R-38 flr	-18.32	-2.09				R-38 flr	.61	3.05
			R-49 flr	-19.34	-3.79				R-49 flr	.64	3.10
Intercept	-5.646		Intercept	-7.716		Intercept	2.649		Intercept	3.288	
Slope(DD)	6441.08		Slope(DD)	8049.60		Slope(DD)	-884.10		Slope(DD)	-340.96	
Curve(DDS)	-684.479		Curve(DDS)	-194.597		Curve(DDS)	81.319		Curve(DDS)	18.614	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	189.87	ELF Ach			1-Pane	.00	-1.54
.0007(.90)	.00	25.12	2-Pane	-14.87	86.61	.0007(.61)	.00	.32	2-Pane	-.00	-1.58
.0005(.64)	-9.13	17.52	3-Pane	-19.44	54.89	.0005(.44)	-.19	.17	3-Pane	.07	-1.05
.0003(.38)	-17.84	10.25	R-10	-24.81	17.58	.0003(.26)	-.31	.06	R-10	.16	-.43
Slope/.001ELF	32.895		Slope(DD)	7503.59		Slope/.001ELF	.021		Slope(DD)	-194.66	
Curve/.001ELF	4.272		Curve(DDS)	-11.794		Curve/.001ELF	.625		Curve(DDS)	5.163	
Base Load = 105.72 MBtu			Base Load = 9.61 MBtu			Base Load = 9.61 MBtu			Base Load = 9.61 MBtu		
Typical Load = 34.53 MBtu			Typical Load = 5.68 MBtu			Typical Load = 5.68 MBtu			Typical Load = 5.68 MBtu		
Residual Load = 2.22 MBtu			Residual Load = 2.12 MBtu			Residual Load = 2.12 MBtu			Residual Load = 2.12 MBtu		

Nashville TN WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	20.05
R-7	-18.48	8.05
R-11	-21.43	6.14
R-19	-24.08	4.41
R-22	-25.12	3.74
R-30	-26.51	2.84
R-38	-27.35	2.29
R-49	-28.10	1.81
R-60	-28.58	1.49

Slope(DD) 4135.22
Curve(DDS) -127.039

Slab		(/ft)
R-0	-12.54	54.09
R-5 2ft	-16.17	32.22
R-5 4ft	-17.38	24.93
R-10 2ft	-16.79	28.49
R-10 4ft	-18.39	18.85
Intercept	.000	
Slope(DD)	4953.52	
Curve(DDS)	-58.774	

Unheated Basement		(/sf)
R-0	-8.27	8.60
R-11 flr	-17.72	2.47
R-19 flr	-20.25	.83
R-30 flr	-21.87	-.23
Intercept	-3.042	
Slope(DD)	3812.59	
Curve(DDS)	-300.658	

Infiltration		(/sf flr)
ELF Ach		
.0007(.75)	.00	11.58
.0005(.56)	-5.27	8.16
.0003(.33)	-10.40	4.83

Slope/.001ELF 15.747
Curve/.001ELF 1.136

Base Load = 100.98 MBtu
Typical Load = 43.32 MBtu
Residual Load = .86 MBtu

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	18.67
R-7	-10.63	9.22
R-11	-12.14	7.87
R-13	-14.03	6.19
R-19	-14.98	5.38
R-27	-16.63	3.87
R-34	-17.66	2.96

Slope(DD) 3861.13
Curve(DDS) -72.401

Heated Basement		(/ft)
R-0	-8.27	79.81
R-5 4ft	-12.14	58.50
R-5 8ft	-13.63	47.52
R-10 4ft	-13.13	50.53
R-10 8ft	-15.40	36.86
Intercept	7.685	
Slope(DD)	2772.52	
Curve(DDS)	-25.374	

Crawl		(/sf)
R-0	.00	13.97
R-11 flr	-17.66	2.51
R-19 flr	-20.62	.58
R-30 flr	-22.43	-.59
R-38 flr	-22.84	-.86
R-49 flr	-24.03	-1.63
Intercept	-3.429	
Slope(DD)	3636.99	
Curve(DDS)	-47.453	

Window U-value		(/sf)
1-Pane	.00	88.77
2-Pane	-8.60	42.23
3-Pane	-11.44	28.87
R-10	-14.78	8.79

Slope(DD) 3775.14
Curve(DDS) -15.629

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	8.25
R-7	-7.60	3.32
R-11	-8.81	2.53
R-19	-9.90	1.82
R-22	-10.33	1.54
R-30	-10.90	1.17
R-38	-11.24	.95
R-49	-11.58	.75
R-60	-11.76	.61

Slope(DD) 1707.97
Curve(DDS) -53.389

Slab		(/ft)
R-0	-6.89	-5.71
R-5 2ft	-6.87	-5.59
R-5 4ft	-6.87	-4.38
R-10 2ft	-6.86	-5.47
R-10 4ft	-6.80	-3.96
Intercept	.000	
Slope(DD)	-1202.22	
Curve(DDS)	58.852	

Unheated Basement		(/sf)
R-0	-3.52	1.57
R-11 flr	-.83	3.32
R-19 flr	-.17	3.75
R-30 flr	.26	4.03
Intercept	4.755	
Slope(DD)	-979.40	
Curve(DDS)	69.992	

Infiltration		(/sf flr)
ELF Ach		
.0007(.41)	.00	1.95
.0005(.29)	-.88	1.40
.0003(.18)	-1.72	.84

Slope/.001ELF 2.792
Curve/.001ELF -.000

Base Load = 34.35 MBtu
Typical Load = 14.09 MBtu
Residual Load = -.30 MBtu

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	4.17
R-7	-2.30	2.12
R-11	-2.63	1.83
R-13	-3.06	1.44
R-19	-3.27	1.28
R-27	-3.66	.91
R-34	-3.90	.70

Slope(DD) 916.92
Curve(DDS) -26.462

Heated Basement		(/ft)
R-0	-3.52	14.59
R-5 4ft	-4.14	10.86
R-5 8ft	-4.26	10.13
R-10 4ft	-4.35	9.59
R-10 8ft	-4.50	8.69
Intercept	6.201	
Slope(DD)	218.65	
Curve(DDS)	-.470	

Crawl		(/sf)
R-0	.00	3.86
R-11 flr	1.18	4.62
R-19 flr	1.28	4.69
R-30 flr	1.39	4.76
R-38 flr	1.41	4.77
R-49 flr	1.48	4.82
Intercept	4.881	
Slope(DD)	-123.07	
Curve(DDS)	-14.120	

Window U-value		(/sf)
1-Pane	.00	2.51
2-Pane	-.28	.99
3-Pane	-.35	.82
R-10	-.43	.18

Slope(DD) 76.17
Curve(DDS) .718

Nashville TN WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	21.91	R-0	.00	18.74	R-0	.00	7.90	R-0	.00	3.50
R-7	-8.07	8.45	R-7	-4.79	8.69	R-7	-2.92	3.02	R-7	-.91	1.59
R-11	-9.36	6.30	R-11	-5.47	7.26	R-11	-3.39	2.25	R-11	-1.04	1.31
R-19	-10.52	4.37	R-13	-6.26	5.61	R-19	-3.81	1.55	R-13	-1.19	.99
R-22	-10.93	3.69	R-19	-6.65	4.79	R-22	-3.97	1.29	R-19	-1.27	.83
R-30	-11.48	2.77	R-27	-7.28	3.46	R-30	-4.17	.94	R-27	-1.38	.61
R-38	-11.81	2.22	R-34	-7.67	2.65	R-38	-4.30	.73	R-34	-1.44	.48
R-49	-12.08	1.77				R-49	-4.37	.62			
R-60	-12.26	1.47				R-60	-4.41	.55			
Slope(DD) 4008.21			Slope(DD) 3358.13			Slope(DD) 1396.70			Slope(DD) 586.01		
Curve(DDS) -52.878			Curve(DDS) 23.578			Curve(DDS) -10.921			Curve(DDS) 11.957		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-6.16	45.17	R-0	-4.69	81.92	R-0	-2.61	-5.02	R-0	-1.25	28.98
R-5 2ft	-7.02	23.67	R-5 4ft	-5.98	49.67	R-5 2ft	-2.56	-3.77	R-5 4ft	-1.38	25.73
R-5 4ft	-7.26	17.67	R-5 8ft	-6.37	39.92	R-5 4ft	-2.53	-3.02	R-5 8ft	-1.39	25.48
R-10 2ft	-7.15	20.42	R-10 4ft	-6.26	42.67	R-10 2ft	-2.56	-3.77	R-10 4ft	-1.42	24.73
R-10 4ft	-7.45	12.92	R-10 8ft	-6.76	30.17	R-10 4ft	-2.51	-2.52	R-10 8ft	-1.48	23.73
Intercept	.000		Intercept	5.355		Intercept	.000		Intercept	21.248	
Slope(DD)	3115.17		Slope(DD)	2202.48		Slope(DD)	-733.88		Slope(DD)	234.34	
Curve(DDS)	30.184		Curve(DDS)	-9.575		Curve(DDS)	28.753		Curve(DDS)	-1.248	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.69	5.46	R-0	.00	13.28	R-0	-1.25	1.93	R-0	.00	4.02
R-11 flr	-6.91	1.76	R-11 flr	-6.46	2.51	R-11 flr	-.12	3.82	R-11 flr	.58	4.98
R-19 flr	-7.59	.63	R-19 flr	-7.49	.79	R-19 flr	.13	4.23	R-19 flr	.68	5.15
R-30 flr	-8.03	-.11	R-30 flr	-8.07	-.17	R-30 flr	.29	4.50	R-30 flr	.74	5.24
			R-38 flr	-8.20	-.39				R-38 flr	.75	5.27
			R-49 flr	-8.58	-1.02				R-49 flr	.79	5.33
Intercept	-2.102		Intercept	-2.552		Intercept	5.184		Intercept	5.484	
Slope(DD)	2730.83		Slope(DD)	2996.78		Slope(DD)	-913.48		Slope(DD)	-305.97	
Curve(DDS)	-244.868		Curve(DDS)	17.614		Curve(DDS)	54.481		Curve(DDS)	3.840	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	77.65	ELF Ach			1-Pane	.00	-6.17
.0007(.78)	.00	10.03	2-Pane	-6.81	31.75	.0007(.44)	.00	1.79	2-Pane	.07	-5.68
.0005(.56)	-3.95	6.73	3-Pane	-8.31	19.91	.0005(.31)	-.60	1.29	3-Pane	.35	-3.78
.0003(.35)	-7.49	3.78	R-10	-10.32	5.98	.0003(.19)	-1.21	.78	R-10	.67	-1.51
Slope/.001ELF	11.333		Slope(DD)	2505.60		Slope/.001ELF	2.625		Slope(DD)	-683.30	
Curve/.001ELF	4.271		Curve(DDS)	16.505		Curve/.001ELF	-.104		Curve(DDS)	17.036	
Base Load = 48.31 MBtu			Base Load = 22.91 MBtu			Base Load = 22.91 MBtu			Base Load = 22.91 MBtu		
Typical Load = 21.35 MBtu			Typical Load = 14.90 MBtu			Typical Load = 14.90 MBtu			Typical Load = 14.90 MBtu		
Residual Load = 1.12 MBtu			Residual Load = 6.75 MBtu			Residual Load = 6.75 MBtu			Residual Load = 6.75 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 22.48	R-0	.00 18.90
R-7	-8.38 8.51	R-7	-3.28 8.58
R-11	-9.72 6.28	R-11	-3.75 7.09
R-19	-10.92 4.28	R-13	-4.28 5.45
R-22	-11.33 3.60	R-19	-4.52 4.84
R-30	-11.88 2.68	R-27	-4.93 3.34
R-38	-12.21 2.13	R-34	-5.18 2.55
R-49	-12.48 1.72		
R-60	-12.62 1.45		
Slope(DD)	3878.50	Slope(DD)	3205.89
Curve(DDS)	-14.253	Curve(DDS)	57.401
Slab	(/ft)	Heated Basement	(/ft)
R-0	-6.85 51.74	R-0	-5.88 90.74
R-5 2ft	-7.53 28.91	R-5 4ft	-6.84 51.91
R-5 4ft	-7.74 21.91	R-5 8ft	-7.20 40.07
R-10 2ft	-7.64 25.41	R-10 4ft	-7.10 43.41
R-10 4ft	-7.91 18.41	R-10 8ft	-7.57 27.74
Intercept	.000	Intercept	-3.585
Slope(DD)	4143.37	Slope(DD)	2805.61
Curve(DDS)	-10.083	Curve(DDS)	-13.972
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.68 4.54	R-0	.00 14.00
R-11 flr	-7.48 1.53	R-11 flr	-8.71 2.81
R-19 flr	-8.09 .51	R-19 flr	-7.77 1.05
R-30 flr	-8.48 -.14	R-30 flr	-8.38 .02
		R-38 flr	-8.52 -.21
		R-49 flr	-8.93 -.89
Intercept	-1.947	Intercept	-2.488
Slope(DD)	2488.15	Slope(DD)	3134.80
Curve(DDS)	-238.260	Curve(DDS)	14.743
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 77.85
.0007(.78)	.00 9.72	2-Pane	-8.73 31.11
.0005(.58)	-3.94 8.43	3-Pane	-8.41 19.48
.0003(.35)	-7.40 3.55	R-10	-10.38 5.78
Slope/.001ELF	10.312	Slope(DD)	2401.92
Curve/.001ELF	5.104	Curve(DDS)	20.714
Base Load =	46.08 MBtu		
Typical Load =	19.94 MBtu		
Residual Load =	1.39 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 7.45	R-0	.00 3.22
R-7	-2.90 2.61	R-7	-.57 1.41
R-11	-3.36 1.84	R-11	-.65 1.15
R-19	-3.78 1.15	R-13	-.78 .84
R-22	-3.90 .94	R-19	-.80 .68
R-30	-4.08 .67	R-27	-.86 .51
R-38	-4.16 .51	R-34	-.89 .41
R-49	-4.20 .44		
R-60	-4.23 .40		
Slope(DD)	969.53	Slope(DD)	481.82
Curve(DDS)	48.295	Curve(DDS)	21.707
Slab	(/ft)	Heated Basement	(/ft)
R-0	-2.01 -7.43	R-0	-1.04 24.74
R-5 2ft	-1.98 -8.59	R-5 4ft	-1.16 20.91
R-5 4ft	-1.95 -5.59	R-5 8ft	-1.18 20.91
R-10 2ft	-1.98 -8.59	R-10 4ft	-1.18 20.07
R-10 4ft	-1.92 -4.59	R-10 8ft	-1.20 19.41
Intercept	.000	Intercept	18.109
Slope(DD)	-1414.73	Slope(DD)	107.21
Curve(DDS)	65.077	Curve(DDS)	1.120
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-1.04 1.24	R-0	.00 2.97
R-11 flr	-.13 2.78	R-11 flr	.75 4.22
R-19 flr	.15 3.21	R-19 flr	.84 4.37
R-30 flr	.32 3.50	R-30 flr	.87 4.42
		R-38 flr	.88 4.44
		R-49 flr	.90 4.47
Intercept	4.292	Intercept	4.589
Slope(DD)	-1075.99	Slope(DD)	-154.03
Curve(DDS)	93.640	Curve(DDS)	-30.785
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -4.88
.0007(.41)	.00 1.54	2-Pane	.03 -4.65
.0005(.29)	-.59 1.05	3-Pane	.28 -3.09
.0003(.18)	-1.13 .60	R-10	.52 -1.25
Slope/.001ELF	1.833	Slope(DD)	-565.59
Curve/.001ELF	.521	Curve(DDS)	14.449
Base Load =	20.94 MBtu		
Typical Load =	13.93 MBtu		
Residual Load =	6.43 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 29.52	R-0	.00 27.61
R-7	-27.39 11.74	R-7	-15.87 13.49
R-11	-31.76 8.90	R-11	-18.13 11.48
R-19	-35.69 6.35	R-13	-20.86 9.06
R-22	-37.19 5.38	R-19	-22.21 7.85
R-30	-39.19 4.07	R-27	-24.69 5.64
R-38	-40.40 3.29	R-34	-26.21 4.29
R-49	-41.48 2.59		
R-60	-42.17 2.14		
Slope(DD)	5917.73	Slope(DD)	5801.43
Curve(DDS)	-158.268	Curve(DDS)	-87.037
Slab	(/ft)	Heated Basement	(/ft)
R-0	-19.16 46.80	R-0	-12.19 88.78
R-5 2ft	-23.67 19.63	R-5 4ft	-17.06 59.45
R-5 4ft	-24.96 11.86	R-5 8ft	-18.78 49.20
R-10 2ft	-24.51 14.57	R-10 4ft	-18.38 51.61
R-10 4ft	-26.31 3.72	R-10 8ft	-20.99 35.77
Intercept	-18.707	Intercept	.000
Slope(DD)	6446.43	Slope(DD)	3571.11
Curve(DDS)	-84.030	Curve(DDS)	-34.332
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-12.19 9.57	R-0	.00 17.49
R-11 flr	-25.22 1.11	R-11 flr	-25.39 1.00
R-19 flr	-28.82 -1.23	R-19 flr	-29.62 -1.75
R-30 flr	-31.14 -2.74	R-30 flr	-32.35 -3.52
		R-38 flr	-32.97 -3.92
		R-49 flr	-34.77 -5.09
Intercept	-6.774	Intercept	-7.689
Slope(DD)	5486.27	Slope(DD)	5371.10
Curve(DDS)	-448.327	Curve(DDS)	-90.041
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 139.08
.0007(.89)	.00 18.12	2-Pane	-13.88 63.97
.0005(.64)	-8.15 12.83	3-Pane	-18.20 40.57
.0003(.38)	-16.16 7.63	R-10	-23.29 13.05
Slope/.001ELF	25.097	Slope(DD)	5577.95
Curve/.001ELF	1.137	Curve(DDS)	-11.730

Base Load = 150.95 MBtu
 Typical Load = 49.25 MBtu
 Residual Load = 4.24 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 4.28	R-0	.00 2.32
R-7	-3.85 1.78	R-7	-1.18 1.26
R-11	-4.47 1.38	R-11	-1.35 1.11
R-19	-5.02 1.02	R-13	-1.60 .89
R-22	-5.28 .87	R-19	-1.73 .78
R-30	-5.58 .66	R-27	-1.97 .57
R-38	-5.77 .54	R-34	-2.11 .44
R-49	-5.95 .42		
R-60	-6.06 .35		
Slope(DD)	974.08	Slope(DD)	586.24
Curve(DDS)	-42.421	Curve(DDS)	-28.932
Slab	(/ft)	Heated Basement	(/ft)
R-0	-4.25 -3.37	R-0	-2.74 5.72
R-5 2ft	-4.16 -2.83	R-5 4ft	-3.23 2.77
R-5 4ft	-4.01 -1.93	R-5 8ft	-3.27 2.53
R-10 2ft	-4.12 -2.59	R-10 4ft	-3.37 1.93
R-10 4ft	-3.98 -1.62	R-10 8ft	-3.45 1.45
Intercept	.853	Intercept	.000
Slope(DD)	-793.08	Slope(DD)	126.98
Curve(DDS)	38.670	Curve(DDS)	.299
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-2.74 .62	R-0	.00 2.40
R-11 flr	-.55 2.04	R-11 flr	1.05 3.08
R-19 flr	-.01 2.39	R-19 flr	1.18 3.16
R-30 flr	.34 2.62	R-30 flr	1.35 3.27
		R-38 flr	1.39 3.30
		R-49 flr	1.50 3.37
Intercept	3.211	Intercept	3.461
Slope(DD)	-800.37	Slope(DD)	-252.04
Curve(DDS)	57.427	Curve(DDS)	8.686
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 1.24
.0007(.70)	.00 .86	2-Pane	-.13 .54
.0005(.60)	-.38 .62	3-Pane	-.17 .34
.0003(.30)	-.76 .37	R-10	-.21 .11
Slope/.001ELF	1.234	Slope(DD)	44.82
Curve/.001ELF	.000	Curve(DDS)	.086

Base Load = 17.02 MBtu
 Typical Load = 5.78 MBtu
 Residual Load = -2.39 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	30.68	R-0	.00	27.20	R-0	.00	3.73	R-0	.00	1.93
R-7	-11.27	11.89	R-7	-6.82	12.89	R-7	-1.37	1.44	R-7	-.45	.99
R-11	-13.07	8.89	R-11	-7.79	10.85	R-11	-1.59	1.07	R-11	-.51	.86
R-19	-14.69	6.19	R-13	-8.91	8.50	R-19	-1.79	.74	R-13	-.61	.65
R-22	-15.26	5.23	R-19	-9.47	7.33	R-22	-1.88	.63	R-19	-.66	.54
R-30	-16.04	3.95	R-27	-10.46	5.26	R-30	-1.95	.48	R-27	-.72	.41
R-38	-16.50	3.18	R-34	-11.06	3.99	R-38	-2.00	.39	R-34	-.76	.33
R-49	-16.90	2.51				R-49	-2.05	.30			
R-60	-17.16	2.08				R-60	-2.09	.24			
Slope(DD) 5697.80			Slope(DD) 5158.81			Slope(DD) 884.59			Slope(DD) 418.00		
Curve(DDS) -88.352			Curve(DDS) -18.457			Curve(DDS) -9.481			Curve(DDS) -11.076		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-9.17	48.85	R-0	-6.77	108.85	R-0	-1.62	-11.59	R-0	-1.00	3.91
R-5 2ft	-10.29	20.85	R-5 4ft	-8.47	66.35	R-5 2ft	-1.58	-10.09	R-5 4ft	-1.11	1.16
R-5 4ft	-10.59	13.35	R-5 8ft	-8.96	54.10	R-5 4ft	-1.50	-8.59	R-5 8ft	-1.10	1.41
R-10 2ft	-10.49	15.85	R-10 4ft	-8.87	56.35	R-10 2ft	-1.54	-9.59	R-10 4ft	-1.14	.41
R-10 4ft	-10.90	5.60	R-10 8ft	-9.58	38.60	R-10 4ft	-1.48	-8.09	R-10 8ft	-1.14	.41
Intercept	-14.874		Intercept	.000		Intercept	-4.334		Intercept	.000	
Slope(DD)	5743.60		Slope(DD)	3726.98		Slope(DD)	-1167.66		Slope(DD)	20.38	
Curve(DDS)	-37.943		Curve(DDS)	-26.237		Curve(DDS)	46.832		Curve(DDS)	1.816	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.77	7.26	R-0	.00	18.54	R-0	-1.00	.26	R-0	.00	1.93
R-11 flr	-10.00	1.87	R-11 flr	-9.43	2.82	R-11 flr	-.16	1.66	R-11 flr	.56	2.86
R-19 flr	-11.08	.07	R-19 flr	-10.99	.22	R-19 flr	.15	2.18	R-19 flr	.64	2.99
R-30 flr	-11.78	-1.09	R-30 flr	-11.92	-1.32	R-30 flr	.35	2.51	R-30 flr	.74	3.16
			R-38 flr	-12.13	-1.68				R-38 flr	.76	3.19
			R-49 flr	-12.74	-2.70				R-49 flr	.82	3.30
Intercept	-4.310		Intercept	-5.094		Intercept	3.445		Intercept	3.448	
Slope(DD)	4420.60		Slope(DD)	4806.33		Slope(DD)	-1289.79		Slope(DD)	-394.98	
Curve(DDS)	-422.192		Curve(DDS)	-38.467		Curve(DDS)	130.436		Curve(DDS)	19.218	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	126.72	ELF Ach			1-Pane	.00	-2.26
.0007(.89)	.00	17.03	2-Pane	-10.51	53.73	.0007(.70)	.00	.90	2-Pane	.04	-1.98
.0005(.66)	-6.19	11.87	3-Pane	-13.38	33.82	.0005(.50)	-.28	.69	3-Pane	.14	-1.31
.0003(.39)	-12.10	6.95	R-10	-16.75	10.40	.0003(.30)	-.56	.44	R-10	.25	-.52
Slope/.001ELF	22.292		Slope(DD)	4383.39		Slope/.001ELF	1.583		Slope(DD)	-234.84	
Curve/.001ELF	2.917		Curve(DDS)	15.776		Curve/.001ELF	-.417		Curve(DDS)	5.657	
Base Load = 72.95 MBtu			Base Load = 11.75 MBtu			Base Load = 11.75 MBtu			Base Load = 11.75 MBtu		
Typical Load = 21.81 MBtu			Typical Load = 7.76 MBtu			Typical Load = 7.76 MBtu			Typical Load = 7.76 MBtu		
Residual Load = .07 MBtu			Residual Load = 2.92 MBtu			Residual Load = 2.92 MBtu			Residual Load = 2.92 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	29.94	R-0	.00	27.22	R-0	.00	3.65	R-0	.00	1.73
R-7	-11.05	11.53	R-7	-4.62	12.64	R-7	-1.35	1.39	R-7	-.27	.89
R-11	-12.81	8.59	R-11	-5.28	10.56	R-11	-1.57	1.03	R-11	-.30	.77
R-19	-14.40	5.95	R-13	-6.02	8.22	R-19	-1.76	.70	R-13	-.36	.61
R-22	-14.95	5.01	R-19	-6.39	7.08	R-22	-1.84	.58	R-19	-.38	.53
R-30	-15.70	3.77	R-27	-7.02	5.07	R-30	-1.94	.42	R-27	-.43	.38
R-38	-16.16	3.01	R-34	-7.41	3.84	R-38	-2.00	.32	R-34	-.45	.29
R-49	-16.52	2.40				R-49	-2.02	.28			
R-60	-16.76	2.00				R-60	-2.04	.25			
Slope(DD) 5443.63			Slope(DD) 4918.20			Slope(DD) 630.43			Slope(DD) 387.58		
Curve(DDS) -66.471			Curve(DDS) 26.437			Curve(DDS) -2.619			Curve(DDS) -12.320		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.05	61.57	R-0	-8.08	126.90	R-0	-1.28	-7.75	R-0	-.90	4.92
R-5 2ft	-10.93	32.23	R-5 4ft	-9.63	75.57	R-5 2ft	-1.24	-6.25	R-5 4ft	-1.00	1.58
R-5 4ft	-11.18	23.90	R-5 8ft	-10.06	61.23	R-5 4ft	-1.21	-5.42	R-5 8ft	-1.01	1.25
R-10 2ft	-11.09	26.90	R-10 4ft	-9.98	63.90	R-10 2ft	-1.23	-6.08	R-10 4ft	-1.03	.75
R-10 4ft	-11.42	15.73	R-10 8ft	-10.59	43.57	R-10 4ft	-1.19	-4.58	R-10 8ft	-1.03	.58
Intercept	-8.908		Intercept	.000		Intercept	-1.348		Intercept	.000	
Slope(DD)	6402.25		Slope(DD)	4165.68		Slope(DD)	-1046.39		Slope(DD)	22.88	
Curve(DDS)	-59.884		Curve(DDS)	-26.224		Curve(DDS)	42.745		Curve(DDS)	2.356	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.08	6.35	R-0	.00	19.82	R-0	-.90	.25	R-0	.00	1.75
R-11 flr	-10.65	2.07	R-11 flr	-9.68	3.70	R-11 flr	-.21	1.40	R-11 flr	.48	2.55
R-19 flr	-11.59	.50	R-19 flr	-11.27	1.05	R-19 flr	.03	1.79	R-19 flr	.55	2.85
R-30 flr	-12.20	-.50	R-30 flr	-12.25	-.60	R-30 flr	.17	2.04	R-30 flr	.70	2.91
			R-38 flr	-12.48	-.97				R-38 flr	.74	2.97
			R-49 flr	-13.12	-2.05				R-49 flr	.84	3.14
Intercept	-3.332		Intercept	-4.516		Intercept	2.723		Intercept	3.297	
Slope(DD)	3901.64		Slope(DD)	5013.76		Slope(DD)	-942.26		Slope(DD)	-552.75	
Curve(DDS)	-392.871		Curve(DDS)	-52.251		Curve(DDS)	89.529		Curve(DDS)	48.844	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	126.82	ELF Ach			1-Pane	.00	-4.27
.0007(.89)	.00	16.71	2-Pane	-10.63	53.00	.0007(.70)	.00	.84	2-Pane	.05	-3.93
.0005(.66)	-6.18	11.55	3-Pane	-13.47	33.31	.0005(.50)	-.28	.61	3-Pane	.24	-2.60
.0003(.39)	-12.00	6.70	R-10	-16.80	10.15	.0003(.30)	-.56	.37	R-10	.47	-1.05
Slope/.001ELF	21.208		Slope(DD)	4268.01		Slope/.001ELF	1.271		Slope(DD)	-472.17	
Curve/.001ELF	3.802		Curve(DDS)	20.291		Curve/.001ELF	-.104		Curve(DDS)	11.752	
Base Load = 68.96 MBtu			Base Load = 10.60 MBtu			Base Load = 10.60 MBtu			Base Load = 10.60 MBtu		
Typical Load = 19.97 MBtu			Typical Load = 7.01 MBtu			Typical Load = 7.01 MBtu			Typical Load = 7.01 MBtu		
Residual Load = .46 MBtu			Residual Load = 2.67 MBtu			Residual Load = 2.67 MBtu			Residual Load = 2.67 MBtu		

Oklahoma City OK WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	21.07	R-0	.00	19.67	R-0	.00	7.54	R-0	.00	4.26
R-7	-19.51	8.41	R-7	-11.29	9.62	R-7	-6.93	3.04	R-7	-2.38	2.14
R-11	-22.62	6.38	R-11	-12.90	8.19	R-11	-8.04	2.32	R-11	-2.72	1.84
R-19	-25.42	4.57	R-13	-14.88	6.43	R-19	-9.03	1.68	R-13	-3.16	1.44
R-22	-26.50	3.87	R-19	-15.86	5.56	R-22	-9.43	1.42	R-19	-3.38	1.26
R-30	-27.94	2.93	R-27	-17.59	4.01	R-30	-9.97	1.07	R-27	-3.76	.91
R-38	-28.81	2.37	R-34	-18.66	3.06	R-38	-10.29	.86	R-34	-4.00	.70
R-49	-29.58	1.87				R-49	-10.56	.69			
R-60	-30.08	1.54				R-60	-10.73	.57			
Slope(DD)	4265.52		Slope(DD)	3987.38		Slope(DD)	1571.39		Slope(DD)	909.89	
Curve(DDS)	-119.912		Curve(DDS)	-61.393		Curve(DDS)	-50.489		Curve(DDS)	-22.057	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-16.69	47.97	R-0	-11.17	81.22	R-0	-7.61	-1.61	R-0	-4.03	19.96
R-5 2ft	-20.13	27.25	R-5 4ft	-15.62	54.41	R-5 2ft	-7.77	-2.57	R-5 4ft	-4.84	15.08
R-5 4ft	-21.07	21.58	R-5 8ft	-17.01	46.04	R-5 4ft	-7.70	-2.15	R-5 8ft	-4.89	14.78
R-10 2ft	-20.76	23.45	R-10 4ft	-16.77	47.49	R-10 2ft	-7.79	-2.69	R-10 4ft	-5.09	13.57
R-10 4ft	-22.03	15.80	R-10 8ft	-18.86	34.90	R-10 4ft	-7.67	-1.97	R-10 8ft	-5.30	12.31
Intercept	.000		Intercept	6.419		Intercept	.000		Intercept	8.584	
Slope(DD)	4854.82		Slope(DD)	2937.50		Slope(DD)	-763.37		Slope(DD)	379.63	
Curve(DDS)	-53.133		Curve(DDS)	-26.678		Curve(DDS)	55.055		Curve(DDS)	-2.385	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-11.17	8.76	R-0	.00	16.01	R-0	-4.03	2.15	R-0	.00	4.77
R-11 flr	-20.01	3.01	R-11 flr	-18.95	3.70	R-11 flr	-1.56	3.76	R-11 flr	.28	4.94
R-19 flr	-22.42	1.45	R-19 flr	-22.10	1.66	R-19 flr	-1.01	4.11	R-19 flr	.27	4.94
R-30 flr	-23.97	.44	R-30 flr	-23.96	.45	R-30 flr	-.66	4.34	R-30 flr	.34	4.99
			R-38 flr	-24.39	.17				R-38 flr	.36	5.00
			R-49 flr	-25.62	-.63				R-49 flr	.41	5.03
Intercept	-2.251		Intercept	-2.516		Intercept	4.926		Intercept	5.047	
Slope(DD)	3656.79		Slope(DD)	3777.68		Slope(DD)	-782.35		Slope(DD)	-80.06	
Curve(DDS)	-294.547		Curve(DDS)	-32.195		Curve(DDS)	47.047		Curve(DDS)	5.038	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	95.40	ELF Ach			1-Pane	.00	5.55
.0007(.87)	.00	12.97	2-Pane	-9.81	42.31	.0007(.84)	.00	3.41	2-Pane	-.71	1.70
.0005(.62)	-5.97	9.09	3-Pane	-12.69	26.75	.0005(.45)	-1.45	2.47	3-Pane	-.83	1.03
.0003(.36)	-11.73	5.35	R-10	-16.07	8.44	.0003(.29)	-2.94	1.50	R-10	-.98	.24
Slope/.001ELF	17.337		Slope(DD)	3585.71		Slope/.001ELF	5.097		Slope(DD)	92.43	
Curve/.001ELF	1.705		Curve(DDS)	1.055		Curve/.001ELF	-.325		Curve(DDS)	4.455	
Base Load = 107.79 MBtu			Base Load = 39.81 MBtu			Base Load = 39.81 MBtu			Base Load = 39.81 MBtu		
Typical Load = 43.37 MBtu			Typical Load = 18.84 MBtu			Typical Load = 18.84 MBtu			Typical Load = 18.84 MBtu		
Residual Load = .47 MBtu			Residual Load = .74 MBtu			Residual Load = .74 MBtu			Residual Load = .74 MBtu		

Oklahoma City OK WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	22.80	R-0	.00	19.31	R-0	.00	8.67	R-0	.00	2.85
R-7	-8.47	8.68	R-7	-5.05	8.71	R-7	-2.58	2.37	R-7	-.95	.85
R-11	-9.82	6.42	R-11	-5.77	7.20	R-11	-2.99	1.69	R-11	-1.09	.56
R-19	-11.04	4.40	R-13	-6.58	5.50	R-19	-3.36	1.07	R-13	-1.17	.39
R-22	-11.48	3.70	R-19	-8.98	4.66	R-22	-3.45	.92	R-19	-1.21	.31
R-30	-12.01	2.77	R-27	-7.59	3.37	R-30	-3.58	.71	R-27	-1.27	.19
R-38	-12.35	2.21	R-34	-7.97	2.58	R-38	-3.65	.59	R-34	-1.30	.12
R-49	-12.62	1.77				R-49	-3.75	.42			
R-60	-12.79	1.48				R-60	-3.81	.32			
Slope(DD) 3996.89			Slope(DD) 3228.02			Slope(DD) 945.85			Slope(DD) 96.15		
Curve(DDS) -25.622			Curve(DDS) 67.412			Curve(DDS) 30.194			Curve(DDS) 80.673		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-7.54	38.86	R-0	-5.80	82.38	R-0	-2.96	-1.03	R-0	-1.56	33.97
R-5 2ft	-8.34	18.86	R-5 4ft	-7.21	47.11	R-5 2ft	-2.97	-1.28	R-5 4ft	-1.79	28.22
R-5 4ft	-8.52	14.36	R-5 8ft	-7.56	38.36	R-5 4ft	-2.95	-.78	R-5 8ft	-1.86	26.47
R-10 2ft	-8.46	15.86	R-10 4ft	-7.51	39.61	R-10 2ft	-2.99	-1.78	R-10 4ft	-1.84	26.97
R-10 4ft	-8.69	10.11	R-10 8ft	-7.93	29.11	R-10 4ft	-2.96	-1.03	R-10 8ft	-1.92	24.97
Intercept	.000		Intercept	7.096		Intercept	.000		Intercept	20.790	
Slope(DD)	2798.30		Slope(DD)	2083.05		Slope(DD)	-382.39		Slope(DD)	403.48	
Curve(DDS)	57.634		Curve(DDS)	-5.001		Curve(DDS)	25.820		Curve(DDS)	-1.843	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.80	5.49	R-0	.00	15.16	R-0	-1.56	2.26	R-0	.00	4.86
R-11 flr	-7.83	2.11	R-11 flr	-6.93	3.61	R-11 flr	-.63	3.81	R-11 flr	.23	5.25
R-19 flr	-8.46	1.06	R-19 flr	-8.01	1.81	R-19 flr	-.39	4.22	R-19 flr	.25	5.28
R-30 flr	-8.86	.39	R-30 flr	-8.59	.84	R-30 flr	-.23	4.48	R-30 flr	.24	5.27
			R-38 flr	-8.72	.82				R-38 flr	.24	5.26
			R-49 flr	-9.10	-.01				R-49 flr	.23	5.26
Intercept	-1.447		Intercept	-1.573		Intercept	5.175		Intercept	5.258	
Slope(DD)	2514.33		Slope(DD)	3007.95		Slope(DD)	-938.00		Slope(DD)	33.63	
Curve(DDS)	-226.473		Curve(DDS)	49.695		Curve(DDS)	72.257		Curve(DDS)	-21.627	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	81.85	ELF Ach			1-Pane	.00	-2.34
.0007(.87)	.00	10.57	2-Pane	-7.40	30.46	.0007(.87)	.00	2.93	2-Pane	-.29	-4.35
.0005(.60)	-4.45	8.86	3-Pane	-9.06	18.91	.0005(.48)	-1.08	2.03	3-Pane	-.09	-2.95
.0003(.37)	-8.24	3.71	R-10	-11.02	5.32	.0003(.29)	-2.10	1.18	R-10	.15	-1.30
Slope/.001ELF	10.291		Slope(DD)	2180.28		Slope/.001ELF	3.750		Slope(DD)	-596.10	
Curve/.001ELF	6.875		Curve(DDS)	34.850		Curve/.001ELF	.625		Curve(DDS)	19.226	
Base Load = 51.77 MBtu			Base Load = 26.86 MBtu			Base Load = 26.86 MBtu			Base Load = 26.86 MBtu		
Typical Load = 22.17 MBtu			Typical Load = 18.36 MBtu			Typical Load = 18.36 MBtu			Typical Load = 18.36 MBtu		
Residual Load = 3.01 MBtu			Residual Load = 8.33 MBtu			Residual Load = 8.33 MBtu			Residual Load = 8.33 MBtu		

Oklahoma City OK WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	23.34	R-0	.00	19.60
R-7	-8.76	8.74	R-7	-3.47	8.66
R-11	-10.16	6.41	R-11	-3.96	7.11
R-19	-11.42	4.32	R-13	-4.49	5.42
R-22	-11.83	3.62	R-19	-4.76	4.58
R-30	-12.39	2.69	R-27	-5.17	3.30
R-38	-12.73	2.13	R-34	-5.41	2.52
R-49	-12.97	1.72			
R-60	-13.13	1.46			
Slope(DD)	3879.24		Slope(DD)	3125.00	
Curve(DDS)	9.744		Curve(DDS)	96.557	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-8.19	44.50	R-0	-6.81	90.83
R-5 2ft	-8.84	23.00	R-5 4ft	-8.08	48.33
R-5 4ft	-9.01	17.33	R-5 8ft	-8.39	38.00
R-10 2ft	-8.95	19.16	R-10 4ft	-8.35	39.33
R-10 4ft	-9.15	12.66	R-10 8ft	-8.73	26.66
Intercept	.000		Intercept	.127	
Slope(DD)	3609.25		Slope(DD)	2515.44	
Curve(DDS)	30.142		Curve(DDS)	-6.160	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-6.81	4.54	R-0	.00	15.88
R-11 flr	-8.46	1.78	R-11 flr	-7.23	3.82
R-19 flr	-9.03	.84	R-19 flr	-8.38	1.92
R-30 flr	-9.39	.23	R-30 flr	-8.99	.90
			R-38 flr	-9.13	.67
			R-49 flr	-9.53	-.00
Intercept	-1.452		Intercept	-1.674	
Slope(DD)	2318.52		Slope(DD)	3210.30	
Curve(DDS)	-224.199		Curve(DDS)	41.684	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	81.79
.0007(.87)	.00	10.45	2-Pane	-7.60	29.02
.0005(.62)	-4.45	6.74	3-Pane	-9.20	17.91
.0003(.37)	-8.20	3.61	R-10	-11.08	4.85
Slope/.001ELF	9.854		Slope(DD)	1960.62	
Curve/.001ELF	7.240		Curve(DDS)	43.093	

Base Load = 49.51 MBtu
Typical Load = 20.85 MBtu
Residual Load = 3.14 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	6.88	R-0	.00	2.86
R-7	-2.64	2.48	R-7	-.63	.88
R-11	-3.07	1.77	R-11	-.72	.60
R-19	-3.44	1.14	R-13	-.78	.39
R-22	-3.58	.95	R-19	-.82	.29
R-30	-3.71	.70	R-27	-.84	.20
R-38	-3.80	.55	R-34	-.86	.15
R-49	-3.86	.45			
R-60	-3.90	.38			
Slope(DD)	995.24		Slope(DD)	110.37	
Curve(DDS)	27.926		Curve(DDS)	78.324	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.44	-2.48	R-0	-1.36	33.52
R-5 2ft	-2.43	-2.31	R-5 4ft	-1.57	26.69
R-5 4ft	-2.42	-1.81	R-5 8ft	-1.61	25.02
R-10 2ft	-2.44	-2.48	R-10 4ft	-1.65	24.02
R-10 4ft	-2.42	-1.64	R-10 8ft	-1.67	23.36
Intercept	.000		Intercept	19.778	
Slope(DD)	-595.21		Slope(DD)	298.81	
Curve(DDS)	33.328		Curve(DDS)	1.142	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.36	1.88	R-0	.00	3.94
R-11 flr	-.50	3.11	R-11 flr	.39	4.58
R-19 flr	-.26	3.52	R-19 flr	.39	4.58
R-30 flr	-.10	3.78	R-30 flr	.38	4.58
			R-38 flr	.38	4.58
			R-49 flr	.38	4.57
Intercept	4.480		Intercept	4.517	
Slope(DD)	-957.00		Slope(DD)	112.49	
Curve(DDS)	80.013		Curve(DDS)	-43.758	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-1.49
.0007(.84)	.00	2.85	2-Pane	-.31	-3.65
.0005(.48)	-1.01	2.01	3-Pane	-.14	-2.48
.0003(.29)	-1.99	1.19	R-10	.06	-1.11
Slope/.001ELF	3.896		Slope(DD)	-513.82	
Curve/.001ELF	.260		Curve(DDS)	17.318	

Base Load = 24.86 MBtu
Typical Load = 17.26 MBtu
Residual Load = 7.19 MBtu

Omaha NB

WYEC

One Story Prototype Siding

Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 34.31		R-0	.00 32.24	
R-7	-31.75 13.70		R-7	-18.54 15.74	
R-11	-36.82 10.40		R-11	-21.18 13.39	
R-19	-41.37 7.45		R-13	-24.37 10.56	
R-22	-43.12 6.31		R-19	-25.95 9.15	
R-30	-45.47 4.78		R-27	-28.84 6.58	
R-38	-46.89 3.86		R-34	-30.61 5.00	
R-49	-48.15 3.04				
R-60	-48.97 2.51				
Slope(DD)	6957.46		Slope(DD)	6532.25	
Curve(DDS)	-197.385		Curve(DDS)	-100.028	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-21.55 56.77		R-0	-12.93 108.70	
R-5 2ft	-26.98 24.18		R-5 4ft	-18.90 72.74	
R-5 4ft	-28.52 14.78		R-5 8ft	-20.97 60.27	
R-10 2ft	-27.97 18.10		R-10 4ft	-20.48 63.22	
R-10 4ft	-30.16 4.91		R-10 8ft	-23.71 43.76	
Intercept	-22.786		Intercept	.000	
Slope(DD)	8396.37		Slope(DD)	4463.37	
Curve(DDS)	-135.822		Curve(DDS)	-44.083	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-12.93 11.72		R-0	.00 20.11	
R-11 flr	-27.98 1.98		R-11 flr	-28.04 1.91	
R-19 flr	-32.18 -.79		R-19 flr	-32.92 -1.26	
R-30 flr	-34.90 -2.55		R-30 flr	-36.06 -3.30	
			R-38 flr	-36.78 -3.77	
			R-49 flr	-38.85 -5.11	
Intercept	-7.298		Intercept	-8.178	
Slope(DD)	6457.53		Slope(DD)	6316.58	
Curve(DDS)	-536.162		Curve(DDS)	-155.906	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 154.62	
.0007(.85)	.00 19.90		2-Pane	-14.94 73.77	
.0005(.59)	-8.93 14.10		3-Pane	-19.90 46.94	
.0003(.35)	-17.72 8.39		R-10	-25.73 15.38	
Slope/.001ELF	27.630		Slope(DD)	6607.56	
Curve/.001ELF	1.137		Curve(DDS)	-28.444	
Base Load =	172.10 MBtu				
Typical Load =	56.49 MBtu				
Residual Load =	5.69 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 6.56		R-0	.00 3.59	
R-7	-5.98 2.69		R-7	-1.93 1.87	
R-11	-6.91 2.08		R-11	-2.21 1.62	
R-19	-7.76 1.52		R-13	-2.60 1.28	
R-22	-8.12 1.29		R-19	-2.79 1.11	
R-30	-8.60 .98		R-27	-3.12 .81	
R-38	-8.89 .79		R-34	-3.33 .63	
R-49	-9.14 .62				
R-60	-9.30 .52				
Slope(DD)	1435.75		Slope(DD)	823.75	
Curve(DDS)	-55.555		Curve(DDS)	-29.054	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-8.23 -5.75		R-0	-3.83 8.71	
R-5 2ft	-6.19 -5.51		R-5 4ft	-4.55 4.37	
R-5 4ft	-6.08 -4.85		R-5 8ft	-4.63 3.89	
R-10 2ft	-6.17 -5.39		R-10 4ft	-4.78 2.98	
R-10 4ft	-8.02 -4.49		R-10 8ft	-4.89 2.32	
Intercept	-2.222		Intercept	.000	
Slope(DD)	-782.46		Slope(DD)	207.86	
Curve(DDS)	41.095		Curve(DDS)	.142	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.83 .94		R-0	.00 3.43	
R-11 flr	-1.11 2.70		R-11 flr	.96 4.05	
R-19 flr	-.37 3.19		R-19 flr	1.08 4.13	
R-30 flr	.11 3.50		R-30 flr	1.17 4.18	
			R-38 flr	1.19 4.20	
			R-49 flr	1.25 4.24	
Intercept	4.327		Intercept	4.301	
Slope(DD)	-1126.95		Slope(DD)	-144.33	
Curve(DDS)	90.893		Curve(DDS)	-5.140	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 4.05	
.0007(.58)	.00 1.72		2-Pane	-.38 1.99	
.0005(.42)	-.72 1.25		3-Pane	-.51 1.27	
.0003(.25)	-1.47 .77		R-10	-.67 .42	
Slope/.001ELF	2.630		Slope(DD)	182.26	
Curve/.001ELF	-.243		Curve(DDS)	-1.096	
Base Load =	26.80 MBtu				
Typical Load =	9.47 MBtu				
Residual Load =	-3.14 MBtu				

Heating Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	35.65	R-0	.00	31.58
R-7	-13.07	13.87	R-7	-7.89	15.03
R-11	-15.16	10.40	R-11	-9.01	12.67
R-19	-17.03	7.27	R-13	-10.33	9.89
R-22	-17.70	6.15	R-19	-10.99	8.51
R-30	-18.61	4.65	R-27	-12.12	6.14
R-38	-19.15	3.74	R-34	-12.82	4.67
R-49	-19.82	2.95			
R-60	-19.93	2.44			

Slope(DD)	6706.65	Slope(DD)	6024.22
Curve(DDS)	-116.857	Curve(DDS)	-28.456

Slab			Heated Basement		
(/ft)			(/ft)		
R-0	-10.33	56.92	R-0	-7.40	130.17
R-5 2ft	-11.66	23.67	R-5 4ft	-9.47	78.42
R-5 4ft	-12.02	14.67	R-5 8ft	-10.08	63.67
R-10 2ft	-11.90	17.67	R-10 4ft	-9.96	66.17
R-10 4ft	-12.38	5.67	R-10 8ft	-10.79	45.42
Intercept	-18.662		Intercept	.000	
Slope(DD)	7154.36		Slope(DD)	4454.47	
Curve(DDS)	-58.578		Curve(DDS)	-30.928	

Unheated Basement			Crawl		
(/sf)			(/sf)		
R-0	-7.40	8.68	R-0	.00	21.01
R-11 flr	-11.09	2.53	R-11 flr	-10.40	3.68
R-19 flr	-12.33	.47	R-19 flr	-12.18	.71
R-30 flr	-13.12	-.86	R-30 flr	-13.25	-1.08
			R-38 flr	-13.50	-1.49
			R-49 flr	-14.21	-2.67
Intercept	-4.523		Intercept	-5.465	
Slope(DD)	5039.74		Slope(DD)	5629.07	
Curve(DDS)	-480.784		Curve(DDS)	-90.830	

Infiltration			Window U-value		
(/sf flr)			(/sf)		
ELF Ach			1-Pane	.00	140.00
.0007(.82)	.00	18.46	2-Pane	-11.35	61.18
.0005(.61)	-6.78	12.81	3-Pane	-14.60	38.62
.0003(.37)	-13.20	7.46	R-10	-18.42	12.08

Slope/.001ELF	23.750	Slope(DD)	5121.76
Curve/.001ELF	3.750	Curve(DDS)	6.868

Base Load = 82.80 MBtu
 Typical Load = 25.06 MBtu
 Residual Load = 1.76 MBtu

Cooling Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	6.15	R-0	.00	2.80
R-7	-2.25	2.40	R-7	-.71	1.31
R-11	-2.61	1.81	R-11	-.81	1.10
R-19	-2.93	1.27	R-13	-.94	.83
R-22	-3.04	1.08	R-19	-1.00	.70
R-30	-3.20	.82	R-27	-1.09	.52
R-38	-3.29	.67	R-34	-1.14	.40
R-49	-3.38	.52			
R-60	-3.44	.42			

Slope(DD)	1176.53	Slope(DD)	502.04
Curve(DDS)	-23.445	Curve(DDS)	3.328

Slab			Heated Basement		
(/ft)			(/ft)		
R-0	-2.36	-16.85	R-0	-1.39	7.40
R-5 2ft	-2.33	-16.10	R-5 4ft	-1.58	2.65
R-5 4ft	-2.28	-14.85	R-5 8ft	-1.58	2.65
R-10 2ft	-2.32	-15.85	R-10 4ft	-1.63	1.40
R-10 4ft	-2.27	-14.60	R-10 8ft	-1.64	1.15
Intercept	-11.548		Intercept	.000	
Slope(DD)	-1010.68		Slope(DD)	79.44	
Curve(DDS)	47.545		Curve(DDS)	2.501	

Unheated Basement			Crawl		
(/sf)			(/sf)		
R-0	-1.39	.49	R-0	.00	2.81
R-11 flr	-.39	2.16	R-11 flr	.43	3.53
R-19 flr	-.10	2.64	R-19 flr	.46	3.58
R-30 flr	.08	2.94	R-30 flr	.50	3.64
			R-38 flr	.51	3.66
			R-49 flr	.54	3.70
Intercept	3.771		Intercept	3.732	
Slope(DD)	-1127.32		Slope(DD)	-105.30	
Curve(DDS)	95.179		Curve(DDS)	-14.539	

Infiltration			Window U-value		
(/sf flr)			(/sf)		
ELF Ach			1-Pane	.00	-1.36
.0007(.54)	.00	1.68	2-Pane	-.10	-2.06
.0005(.38)	-.54	1.23	3-Pane	-.00	-1.39
.0003(.23)	-1.11	.76	R-10	.11	-.60

Slope/.001ELF	2.625	Slope(DD)	-273.81
Curve/.001ELF	-.312	Curve(DDS)	8.418

Base Load = 17.96 MBtu
 Typical Load = 11.45 MBtu
 Residual Load = 3.97 MBtu

Omaha NB

WYEC

MApartment Prototype Siding

Series Two

Heating Load

Delta Component		Delta Component	
(MBtu)	(KBtu)	(MBtu)	(KBtu)
Ceiling	(/sf)	Wall	(/sf)
R-0 .00	34.84	R-0 .00	31.82
R-7 -12.80	13.50	R-7 -5.37	14.86
R-11 -14.85	10.10	R-11 -6.14	12.45
R-19 -16.68	7.04	R-13 -7.01	9.69
R-22 -17.35	5.94	R-19 -7.44	8.33
R-30 -18.23	4.46	R-27 -8.19	5.98
R-38 -18.76	3.57	R-34 -8.65	4.54
R-49 -19.20	2.85		
R-60 -19.48	2.38		
Slope(DD)	6464.09	Slope(DD)	5825.14
Curve(DDS)	-98.986	Curve(DDS)	16.727
Slab	(/ft)	Heated Basement	(/ft)
R-0 -11.30	72.40	R-0 -8.90	152.23
R-5 2ft -12.34	37.56	R-5 4ft -10.75	90.56
R-5 4ft -12.64	27.56	R-5 8ft -11.27	73.40
R-10 2ft -12.53	31.23	R-10 4ft -11.18	76.40
R-10 4ft -12.94	17.73	R-10 8ft -11.90	52.23
Intercept	-10.081	Intercept	.000
Slope(DD)	8314.40	Slope(DD)	5101.15
Curve(DDS)	-107.372	Curve(DDS)	-33.520
Unheated Basement	(/sf)	Crawl	(/sf)
R-0 -8.90	7.61	R-0 .00	22.45
R-11 flr -11.82	2.74	R-11 flr -10.63	4.74
R-19 flr -12.91	.94	R-19 flr -12.45	1.70
R-30 flr -13.00	-.21	R-30 flr -13.59	-.20
		R-38 flr -13.85	-.63
		R-49 flr -14.60	-1.88
Intercept	-3.465	Intercept	-4.769
Slope(DD)	4489.92	Slope(DD)	5894.06
Curve(DDS)	-454.357	Curve(DDS)	-114.152
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane .00	140.40
.0007(.82) .00	18.26	2-Pane -11.50	60.58
.0006(.61) -6.78	12.61	3-Pane -14.72	38.19
.0003(.36) -13.15	7.31	R-10 -18.51	11.86
Slope/.001ELF	23.063	Slope(DD)	5016.96
Curve/.001ELF	4.322	Curve(DDS)	11.417

Base Load = 78.27 MBtu
 Typical Load = 23.03 MBtu
 Residual Load = 2.00 MBtu

Cooling Load

Delta Component		Delta Component	
(MBtu)	(KBtu)	(MBtu)	(KBtu)
Ceiling	(/sf)	Wall	(/sf)
R-0 .00	5.78	R-0 .00	2.78
R-7 -2.18	2.15	R-7 -.47	1.31
R-11 -2.52	1.58	R-11 -.53	1.09
R-19 -2.83	1.06	R-13 -.61	.85
R-22 -2.93	.89	R-19 -.65	.73
R-30 -3.07	.67	R-27 -.72	.53
R-38 -3.14	.64	R-34 -.76	.40
R-49 -3.21	.42		
R-60 -3.26	.35		
Slope(DD)	950.47	Slope(DD)	513.81
Curve(DDS)	4.125	Curve(DDS)	.652
Slab	(/ft)	Heated Basement	(/ft)
R-0 -1.88	-13.05	R-0 -1.24	8.11
R-5 2ft -1.85	-12.22	R-5 4ft -1.36	3.95
R-5 4ft -1.82	-11.05	R-5 8ft -1.37	3.78
R-10 2ft -1.84	-11.89	R-10 4ft -1.39	2.95
R-10 4ft -1.81	-10.72	R-10 8ft -1.42	2.11
Intercept	-7.750	Intercept	.000
Slope(DD)	-979.80	Slope(DD)	197.97
Curve(DDS)	44.930	Curve(DDS)	.022
Unheated Basement	(/sf)	Crawl	(/sf)
R-0 -1.24	.41	R-0 .00	2.47
R-11 flr -.43	1.76	R-11 flr .54	3.37
R-19 flr -.11	2.29	R-19 flr .59	3.46
R-30 flr .10	2.63	R-30 flr .62	3.51
		R-38 flr .63	3.52
		R-49 flr .65	3.55
Intercept	3.589	Intercept	3.607
Slope(DD)	-1326.33	Slope(DD)	-102.00
Curve(DDS)	137.588	Curve(DDS)	-23.266
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane .00	-2.98
.0007(.58) .00	1.54	2-Pane -.15	-3.99
.0005(.42) -.49	1.13	3-Pane .04	-2.68
.0003(.25) -1.01	.70	R-10 .26	-1.14
Slope/.001ELF	2.417	Slope(DD)	-520.60
Curve/.001ELF	-.313	Curve(DDS)	15.445

Base Load = 16.08 MBtu
 Typical Load = 10.29 MBtu
 Residual Load = 3.38 MBtu

Philadelphia PA TMY One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	29.25	R-0	.00	27.10	R-0	.00	5.42	R-0	.00	2.84
R-7	-27.15	11.82	R-7	-15.52	13.29	R-7	-4.94	2.21	R-7	-1.48	1.52
R-11	-31.49	8.81	R-11	-17.73	11.32	R-11	-5.73	1.70	R-11	-1.69	1.33
R-19	-35.38	6.28	R-13	-20.42	8.92	R-19	-8.44	1.24	R-13	-2.02	1.04
R-22	-38.88	5.32	R-19	-21.78	7.73	R-22	-8.73	1.05	R-19	-2.19	.89
R-30	-38.84	4.03	R-27	-24.19	5.57	R-30	-7.12	.80	R-27	-2.44	.66
R-38	-40.04	3.25	R-34	-25.69	4.24	R-38	-7.36	.64	R-34	-2.60	.52
R-49	-41.10	2.58				R-49	-7.57	.51			
R-60	-41.79	2.12				R-60	-7.70	.42			
Slope(DD)	5851.26		Slope(DD)	5537.79		Slope(DD)	1170.14		Slope(DD)	681.32	
Curve(DDS)	-154.747		Curve(DDS)	-92.893		Curve(DDS)	-43.084		Curve(DDS)	-28.580	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-18.68	50.28	R-0	-11.79	91.65	R-0	-4.70	-5.65	R-0	-2.97	4.78
R-5 2ft	-23.21	22.85	R-5 4ft	-18.79	61.53	R-5 2ft	-4.57	-4.86	R-5 4ft	-3.44	1.94
R-5 4ft	-24.52	14.96	R-5 8ft	-18.53	51.04	R-5 4ft	-4.47	-4.26	R-5 8ft	-3.45	1.88
R-10 2ft	-24.04	17.85	R-10 4ft	-18.13	53.45	R-10 2ft	-4.55	-4.74	R-10 4ft	-3.57	1.16
R-10 4ft	-25.87	6.83	R-10 8ft	-20.85	37.07	R-10 4ft	-4.40	-3.84	R-10 8ft	-3.61	.92
Intercept	-15.917		Intercept	.000		Intercept	-1.810		Intercept	.000	
Slope(DD)	8735.14		Slope(DD)	3756.49		Slope(DD)	-670.90		Slope(DD)	72.76	
Curve(DDS)	-95.899		Curve(DDS)	-37.037		Curve(DDS)	29.299		Curve(DDS)	1.081	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-11.79	9.88	R-0	.00	17.53	R-0	-2.97	.51	R-0	.00	2.44
R-11 flr	-24.56	1.59	R-11 flr	-24.56	1.59	R-11 flr	-.80	1.92	R-11 flr	.86	3.00
R-19 flr	-28.08	-.70	R-19 flr	-28.08	-1.09	R-19 flr	-.23	2.30	R-19 flr	.98	3.07
R-30 flr	-30.35	-2.17	R-30 flr	-31.27	-2.77	R-30 flr	.14	2.53	R-30 flr	1.09	3.15
			R-38 flr	-31.86	-3.15				R-38 flr	1.12	3.17
			R-49 flr	-33.57	-4.26				R-49 flr	1.21	3.23
Intercept	-6.122		Intercept	-6.784		Intercept	3.170		Intercept	3.291	
Slope(DD)	5363.04		Slope(DD)	5180.17		Slope(DD)	-860.46		Slope(DD)	-187.00	
Curve(DDS)	-437.355		Curve(DDS)	-81.467		Curve(DDS)	66.828		Curve(DDS)	4.226	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	131.25	ELF Ach			1-Pane	.00	2.36
.0007(.81)	.00	17.44	2-Pane	-12.74	82.31	.0007(.55)	.00	1.17	2-Pane	-.22	1.17
.0005(.57)	-7.85	12.35	3-Pane	-16.93	39.63	.0005(.39)	-.54	.82	3-Pane	-.30	.75
.0003(.34)	-15.56	7.34	R-10	-21.86	12.96	.0003(.24)	-1.06	.48	R-10	-.39	.25
Slope/.001ELF	24.123		Slope(DD)	5560.54		Slope/.001ELF	1.558		Slope(DD)	107.44	
Curve/.001ELF	1.136		Curve(DDS)	-22.316		Curve/.001ELF	.162		Curve(DDS)	-.685	
Base Load = 145.77 MBtu			Base Load = 20.84 MBtu			Base Load = 20.84 MBtu			Base Load = 20.84 MBtu		
Typical Load = 46.59 MBtu			Typical Load = 7.09 MBtu			Typical Load = 7.09 MBtu			Typical Load = 7.09 MBtu		
Residual Load = 3.09 MBtu			Residual Load = -2.45 MBtu			Residual Load = -2.45 MBtu			Residual Load = -2.45 MBtu		

Philadelphia PA TMY Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 30.41		R-0	.00 26.52	
R-7	-11.17 11.79		R-7	-6.68 12.50	
R-11	-12.96 8.82		R-11	-7.63 10.51	
R-19	-14.56 6.15		R-13	-8.73 8.21	
R-22	-15.13 5.19		R-19	-9.27 7.07	
R-30	-15.90 3.92		R-27	-10.22 5.08	
R-38	-16.36 3.15		R-34	-10.80 3.86	
R-49	-16.76 2.49				
R-60	-17.01 2.06				
Slope(DD)	5656.04		Slope(DD)	4963.57	
Curve(DDS)	-88.758		Curve(DDS)	-6.124	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-8.91 49.68		R-0	-8.59 107.68	
R-5 2ft	-10.02 21.93		R-5 4ft	-8.31 64.68	
R-5 4ft	-10.31 14.68		R-5 8ft	-8.80 52.43	
R-10 2ft	-10.21 17.18		R-10 4ft	-8.71 54.68	
R-10 4ft	-10.61 7.18		R-10 8ft	-9.40 37.43	
Intercept	-12.491		Intercept	.000	
Slope(DD)	5651.70		Slope(DD)	3638.79	
Curve(DDS)	-32.933		Curve(DDS)	-24.533	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-6.59 7.18		R-0	.00 18.16	
R-11 flr	-9.67 2.05		R-11 flr	-9.09 3.01	
R-19 flr	-10.69 .34		R-19 flr	-10.59 .51	
R-30 flr	-11.35 -.75		R-30 flr	-11.49 -.98	
			R-38 flr	-11.69 -1.32	
			R-49 flr	-12.28 -2.30	
Intercept	-3.786		Intercept	-4.610	
Slope(DD)	4163.75		Slope(DD)	4626.17	
Curve(DDS)	-394.993		Curve(DDS)	-36.128	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 116.83	
.0007(.80)	.00 15.86		2-Pane	-9.59 50.23	
.0005(.80)	-5.95 10.90		3-Pane	-12.28 31.66	
.0003(.36)	-11.49 6.28		R-10	-15.41 9.81	
Slope/.001ELF	19.666		Slope(DD)	4147.54	
Curve/.001ELF	4.272		Curve(DDS)	10.520	
Base Load =	69.76 MBtu				
Typical Load =	20.28 MBtu				
Residual Load =	.91 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00 5.11		R-0	.00 2.30	
R-7	-1.83 2.07		R-7	-.59 1.07	
R-11	-2.12 1.58		R-11	-.67 .90	
R-19	-2.38 1.15		R-13	-.78 .67	
R-22	-2.48 .98		R-19	-.83 .50	
R-30	-2.62 .75		R-27	-.90 .42	
R-38	-2.70 .61		R-34	-.94 .33	
R-49	-2.79 .47				
R-60	-2.84 .38				
Slope(DD)	1082.61		Slope(DD)	405.91	
Curve(DDS)	-37.133		Curve(DDS)	4.144	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.82 -13.37		R-0	-1.13 3.88	
R-5 2ft	-1.76 -11.87		R-5 4ft	-1.24 1.13	
R-5 4ft	-1.72 -10.87		R-5 8ft	-1.24 1.13	
R-10 2ft	-1.75 -11.62		R-10 4ft	-1.27 .38	
R-10 4ft	-1.69 -10.12		R-10 8ft	-1.27 .38	
Intercept	-6.754		Intercept	.000	
Slope(DD)	-1105.10		Slope(DD)	12.21	
Curve(DDS)	46.132		Curve(DDS)	2.028	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.13 .26		R-0	.00 2.14	
R-11 flr	-.26 1.71		R-11 flr	.41 2.83	
R-19 flr	-.02 2.11		R-19 flr	.53 3.03	
R-30 flr	.14 2.38		R-30 flr	.57 3.09	
			R-38 flr	.58 3.11	
			R-49 flr	.61 3.15	
Intercept	3.077		Intercept	3.360	
Slope(DD)	-954.28		Slope(DD)	-347.70	
Curve(DDS)	78.905		Curve(DDS)	21.475	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00 -2.45	
.0007(.55)	.00 1.10		2-Pane	.01 -2.38	
.0005(.39)	-.39 .78		3-Pane	.12 -1.58	
.0003(.23)	-.77 .46		R-10	.26 -.64	
Slope/.001ELF	1.500		Slope(DD)	-290.04	
Curve/.001ELF	.104		Curve(DDS)	7.476	
Base Load =	14.06 MBtu				
Typical Load =	8.91 MBtu				
Residual Load =	3.23 MBtu				

Philadelphia PA TMY MApartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	29.69
R-7	-10.97	11.41
R-11	-12.72	8.49
R-19	-14.30	5.87
R-22	-14.85	4.95
R-30	-15.58	3.72
R-38	-16.03	2.97
R-49	-16.39	2.37
R-60	-16.63	1.97

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	26.59
R-7	-4.52	12.34
R-11	-5.16	10.32
R-13	-5.89	8.02
R-19	-6.25	6.88
R-27	-6.86	4.94
R-34	-7.24	3.75

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	4.92
R-7	-1.77	1.98
R-11	-2.06	1.49
R-19	-2.31	1.07
R-22	-2.41	.89
R-30	-2.55	.66
R-38	-2.63	.52
R-49	-2.69	.43
R-60	-2.72	.37

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	2.34
R-7	-.39	1.13
R-11	-.44	.96
R-13	-.51	.73
R-19	-.55	.62
R-27	-.60	.46
R-34	-.63	.36

Slope(DD)	5364.80
Curve(DDS)	-60.207

Slope(DD)	4796.42
Curve(DDS)	27.481

Slope(DD)	986.86
Curve(DDS)	-26.608

Slope(DD)	452.86
Curve(DDS)	-3.161

Slab	(/ft)	
R-0	-9.77	82.21
R-5 2ft	-10.64	33.04
R-5 4ft	-10.88	25.21
R-10 2ft	-10.80	28.04
R-10 4ft	-11.12	17.21
Intercept	-4.258	
Slope(DD)	8216.31	
Curve(DDS)	-49.834	

Heated Basement	(/ft)	
R-0	-7.86	125.88
R-5 4ft	-9.42	73.88
R-5 8ft	-9.85	59.54
R-10 4ft	-9.77	62.21
R-10 8ft	-10.36	42.38
Intercept	.000	
Slope(DD)	4080.98	
Curve(DDS)	-24.448	

Slab	(/ft)	
R-0	-1.40	-10.45
R-5 2ft	-1.36	-8.95
R-5 4ft	-1.34	-8.28
R-10 2ft	-1.35	-8.78
R-10 4ft	-1.32	-7.62
Intercept	-5.190	
Slope(DD)	-789.11	
Curve(DDS)	29.122	

Heated Basement	(/ft)	
R-0	-.95	4.38
R-5 4ft	-1.05	1.22
R-5 8ft	-1.05	1.22
R-10 4ft	-1.08	.38
R-10 8ft	-1.08	.38
Intercept	.000	
Slope(DD)	8.16	
Curve(DDS)	2.429	

Unheated Basement	(/sf)	
R-0	-7.86	6.29
R-11 flr	-10.34	2.16
R-19 flr	-11.23	.67
R-30 flr	-11.80	-.28
Intercept	-2.955	
Slope(DD)	3686.83	
Curve(DDS)	-367.260	

Crawl	(/sf)	
R-0	.00	19.39
R-11 flr	-9.33	3.84
R-19 flr	-10.87	1.28
R-30 flr	-11.81	-.28
R-38 flr	-12.02	-.64
R-49 flr	-12.64	-1.67
Intercept	-4.036	
Slope(DD)	4792.15	
Curve(DDS)	-43.500	

Unheated Basement	(/sf)	
R-0	-.95	.22
R-11 flr	-.26	1.39
R-19 flr	-.03	1.77
R-30 flr	.12	2.01
Intercept	2.686	
Slope(DD)	-926.02	
Curve(DDS)	86.784	

Crawl	(/sf)	
R-0	.00	1.81
R-11 flr	.48	2.60
R-19 flr	.58	2.79
R-30 flr	.66	2.91
R-38 flr	.68	2.94
R-49 flr	.73	3.03
Intercept	3.232	
Slope(DD)	-427.59	
Curve(DDS)	29.336	

Infiltration	(/sf flr)	
ELF Ach		
.0007(.80)	.00	15.84
.0005(.60)	-5.93	10.90
.0003(.36)	-11.46	6.29

Window U-value	(/sf)	
1-Pane	.00	116.99
2-Pane	-9.72	49.49
3-Pane	-12.36	31.14
R-10	-15.47	9.56

Infiltration	(/sf flr)	
ELF Ach		
.0007(.55)	.00	.79
.0005(.39)	-.36	.49
.0003(.24)	-.65	.25

Window U-value	(/sf)	
1-Pane	.00	-2.75
2-Pane	.03	-2.51
3-Pane	.16	-1.66
R-10	.30	-.67

Slope/.001ELF	19.708
Curve/.001ELF	4.167

Slope(DD)	4029.36
Curve(DDS)	15.233

Slope/.001ELF	.625
Curve/.001ELF	.729

Slope(DD)	-300.65
Curve(DDS)	7.444

Base Load = 65.95 MBtu
Typical Load = 18.60 MBtu
Residual Load = 1.00 MBtu

Base Load = 12.56 MBtu
Typical Load = 8.01 MBtu
Residual Load = 2.81 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.67	R-0	.00	6.92	R-0	.00	20.05	R-0	.00	11.97
R-7	-9.37	3.59	R-7	-4.58	2.88	R-7	-18.55	8.01	R-7	-6.85	6.05
R-11	-10.87	2.82	R-11	-5.21	2.28	R-11	-21.51	6.08	R-11	-7.60	5.21
R-19	-12.21	1.75	R-13	-5.91	1.68	R-19	-24.17	4.38	R-13	-8.82	4.13
R-22	-12.64	1.48	R-19	-6.26	1.35	R-22	-25.19	3.69	R-19	-9.42	3.59
R-30	-13.23	1.08	R-27	-6.66	1.00	R-30	-28.58	2.80	R-27	-10.54	2.59
R-38	-13.58	.86	R-34	-6.90	.78	R-38	-27.39	2.27	R-34	-11.23	1.98
R-49	-13.83	.69				R-49	-28.14	1.78			
R-60	-13.99	.59				R-60	-28.62	1.47			
Slope(DD)	1558.23		Slope(DD)	900.41		Slope(DD)	4072.38		Slope(DD)	2608.90	
Curve(DDS)	12.393		Curve(DDS)	71.850		Curve(DDS)	-116.435		Curve(DDS)	-71.211	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-8.81	8.22	R-0	-4.40	20.73	R-0	-12.36	10.20	R-0	-5.23	53.15
R-5 2ft	-7.71	.79	R-5 4ft	-6.18	10.01	R-5 2ft	-12.67	8.33	R-5 4ft	-6.94	42.85
R-5 4ft	-7.82	.13	R-5 8ft	-6.47	8.28	R-5 4ft	-12.83	7.37	R-5 8ft	-7.21	41.22
R-10 2ft	-7.83	.07	R-10 4ft	-6.51	8.02	R-10 2ft	-12.89	7.01	R-10 4ft	-7.42	39.98
R-10 4ft	-7.93	-.53	R-10 8ft	-6.78	6.40	R-10 4ft	-13.13	5.68	R-10 8ft	-7.90	37.07
Intercept	.000		Intercept	2.731		Intercept	.000		Intercept	28.408	
Slope(DD)	-880.83		Slope(DD)	325.97		Slope(DD)	2345.73		Slope(DD)	970.48	
Curve(DDS)	189.737		Curve(DDS)	4.631		Curve(DDS)	-134.458		Curve(DDS)	-8.048	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-4.40	2.23	R-0	.00	5.09	R-0	-5.23	5.73	R-0	.00	9.13
R-11 flr	-6.58	.82	R-11 flr	-5.84	1.30	R-11 flr	-6.18	5.13	R-11 flr	-3.89	6.60
R-19 flr	-7.06	.51	R-19 flr	-6.63	.79	R-19 flr	-6.88	4.79	R-19 flr	-5.05	5.85
R-30 flr	-7.37	.31	R-30 flr	-6.99	.55	R-30 flr	-7.01	4.67	R-30 flr	-5.88	5.31
			R-38 flr	-7.07	.50				R-38 flr	-6.07	5.18
			R-49 flr	-7.31	.35				R-49 flr	-6.62	4.83
Intercept	-.208		Intercept	-.040		Intercept	3.940		Intercept	3.932	
Slope(DD)	885.46		Slope(DD)	696.69		Slope(DD)	887.23		Slope(DD)	1888.09	
Curve(DDS)	-40.782		Curve(DDS)	59.500		Curve(DDS)	-104.988		Curve(DDS)	-170.681	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	22.85	ELF Ach			1-Pane	.00	27.98
.0007(.55)	.00	2.18	2-Pane	-2.83	7.34	.0007(.51)	.00	4.52	2-Pane	-2.57	14.08
.0005(.39)	-1.58	1.17	3-Pane	-3.38	4.48	.0005(.37)	-2.00	3.22	3-Pane	-3.51	8.98
.0003(.25)	-2.64	.47	R-10	-3.98	1.11	.0003(.22)	-3.99	1.93	R-10	-4.61	3.02
Slope/.001ELF	.389		Slope(DD)	435.78		Slope/.001ELF	6.398		Slope(DD)	1304.47	
Curve/.001ELF	3.896		Curve(DDS)	15.992		Curve/.001ELF	.081		Curve(DDS)	-9.291	
Base Load = 36.44 MBtu			Base Load = 89.69 MBtu			Base Load = 89.69 MBtu			Base Load = 89.69 MBtu		
Typical Load = 9.75 MBtu			Typical Load = 43.25 MBtu			Typical Load = 43.25 MBtu			Typical Load = 43.25 MBtu		
Residual Load = 1.61 MBtu			Residual Load = 6.73 MBtu			Residual Load = 6.73 MBtu			Residual Load = 6.73 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.59	R-0	.00	6.43	R-0	.00	21.21	R-0	.00	12.71
R-7	-3.73	3.37	R-7	-1.85	2.55	R-7	-7.68	8.40	R-7	-3.00	8.41
R-11	-4.33	2.38	R-11	-2.11	2.00	R-11	-8.91	6.36	R-11	-3.43	5.51
R-19	-4.86	1.49	R-13	-2.36	1.48	R-19	-10.01	4.52	R-13	-3.98	4.36
R-22	-5.01	1.24	R-19	-2.48	1.22	R-22	-10.43	3.83	R-19	-4.25	3.79
R-30	-5.20	.92	R-27	-2.65	.87	R-30	-10.98	2.90	R-27	-4.75	2.74
R-38	-5.32	.72	R-34	-2.75	.66	R-38	-11.32	2.34	R-34	-5.06	2.09
R-49	-5.41	.58				R-49	-11.62	1.84			
R-60	-5.46	.49				R-60	-11.81	1.52			
Slope(DD)	1276.87		Slope(DD)	763.06		Slope(DD)	4211.30		Slope(DD)	2754.69	
Curve(DDS)	57.367		Curve(DDS)	80.288		Curve(DDS)	-106.994		Curve(DDS)	-72.780	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-2.59	4.97	R-0	-1.88	22.72	R-0	-4.99	9.31	R-0	-2.29	76.81
R-5 2ft	-2.76	.72	R-5 4ft	-2.31	11.97	R-5 2ft	-5.08	7.56	R-5 4ft	-2.84	63.06
R-5 4ft	-2.77	.47	R-5 8ft	-2.37	10.47	R-5 4ft	-5.09	6.81	R-5 8ft	-2.92	61.06
R-10 2ft	-2.78	.22	R-10 4ft	-2.39	9.97	R-10 2ft	-5.11	6.31	R-10 4ft	-2.97	59.81
R-10 4ft	-2.80	-.28	R-10 8ft	-2.45	8.47	R-10 4ft	-5.16	5.06	R-10 8ft	-3.10	56.58
Intercept	.000		Intercept	4.928		Intercept	.000		Intercept	47.611	
Slope(DD)	-431.78		Slope(DD)	312.00		Slope(DD)	2134.28		Slope(DD)	967.60	
Curve(DDS)	123.999		Curve(DDS)	4.755		Curve(DDS)	-121.898		Curve(DDS)	-4.647	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.88	1.51	R-0	.00	4.65	R-0	-2.29	5.12	R-0	.00	8.94
R-11 flr	-2.36	.71	R-11 flr	-1.92	1.45	R-11 flr	-2.36	5.00	R-11 flr	-1.36	6.67
R-19 flr	-2.49	.50	R-19 flr	-2.18	1.01	R-19 flr	-2.49	4.78	R-19 flr	-1.80	5.94
R-30 flr	-2.57	.36	R-30 flr	-2.32	.78	R-30 flr	-2.58	4.64	R-30 flr	-2.12	5.41
			R-38 flr	-2.35	.73				R-38 flr	-2.19	5.29
			R-49 flr	-2.44	.58				R-49 flr	-2.40	4.94
Intercept	-.000		Intercept	.238		Intercept	4.192		Intercept	4.048	
Slope(DD)	494.68		Slope(DD)	657.01		Slope(DD)	635.72		Slope(DD)	1876.30	
Curve(DDS)	-38.849		Curve(DDS)	39.596		Curve(DDS)	-88.657		Curve(DDS)	-179.981	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	19.40	ELF Ach			1-Pane	.00	27.03
.0007(.55)	.00	1.88	2-Pane	-1.84	6.62	.0007(.51)	.00	4.02	2-Pane	-1.96	13.42
.0005(.41)	-1.02	1.03	3-Pane	-2.21	4.07	.0005(.37)	-1.44	2.82	3-Pane	-2.66	8.56
.0003(.25)	-1.74	.43	R-10	-2.64	1.06	.0003(.22)	-2.83	1.66	R-10	-3.48	2.86
Slope/.001ELF	.500		Slope(DD)	424.87		Slope/.001ELF	5.375		Slope(DD)	1234.80	
Curve/.001ELF	3.125		Curve(DDS)	11.738		Curve/.001ELF	.521		Curve(DDS)	-7.995	
Base Load = 15.72 MBtu			Base Load = 54.20 MBtu			Base Load = 54.20 MBtu			Base Load = 54.20 MBtu		
Typical Load = 4.97 MBtu			Typical Load = 4.97 MBtu			Typical Load = 34.26 MBtu			Typical Load = 34.26 MBtu		
Residual Load = 1.75 MBtu			Residual Load = 1.75 MBtu			Residual Load = 11.69 MBtu			Residual Load = 11.69 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	9.97	R-0	.00	8.04
R-7	-3.90	3.47	R-7	-1.21	2.23
R-11	-4.52	2.43	R-11	-1.38	1.68
R-19	-6.08	1.50	R-13	-1.53	1.21
R-22	-5.23	1.28	R-19	-1.60	.97
R-30	-5.42	.93	R-27	-1.69	.69
R-38	-5.54	.73	R-34	-1.75	.52
R-49	-5.63	.58			
R-60	-5.69	.48			
Slope(DD) 1279.69			Slope(DD) 561.96		
Curve(DDS) 67.698			Curve(DDS) 104.252		
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.67	4.62	R-0	-2.22	19.78
R-5 2ft	-2.78	.78	R-5 4ft	-2.57	7.95
R-5 4ft	-2.80	.28	R-5 8ft	-2.60	6.95
R-10 2ft	-2.80	.28	R-10 4ft	-2.61	6.78
R-10 4ft	-2.81	.22	R-10 8ft	-2.65	5.28
Intercept	.000		Intercept	3.690	
Slope(DD)	-392.71		Slope(DD)	76.13	
Curve(DDS)	114.232		Curve(DDS)	9.920	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.22	.99	R-0	.00	4.68
R-11 flr	-2.58	.39	R-11 flr	-2.06	1.25
R-19 flr	-2.65	.27	R-19 flr	-2.30	.86
R-30 flr	-2.70	.19	R-30 flr	-2.40	.67
			R-38 flr	-2.43	.63
			R-49 flr	-2.50	.51
Intercept	-.007		Intercept	.256	
Slope(DD)	259.41		Slope(DD)	459.53	
Curve(DDS)	-12.702		Curve(DDS)	78.671	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	17.80
.0007(.57)	.00	1.47	2-Pane	-1.70	6.03
.0005(.41)	-.98	.66	3-Pane	-2.03	3.70
.0003(.25)	-1.58	.18	R-10	-2.43	.96
Slope/.001ELF	-.667		Slope(DD)	383.24	
Curve/.001ELF	3.959		Curve(DDS)	11.027	
Base Load = 14.53 MBtu			Base Load = 50.59 MBtu		
Typical Load = 4.31 MBtu			Typical Load = 31.80 MBtu		
Residual Load = 2.18 MBtu			Residual Load = 9.81 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	22.36	R-0	.00	13.03
R-7	-8.12	8.83	R-7	-2.06	6.54
R-11	-9.42	6.66	R-11	-2.35	5.62
R-19	-10.58	4.72	R-13	-2.73	4.41
R-22	-11.02	4.00	R-19	-2.92	3.82
R-30	-11.60	3.04	R-27	-3.25	2.77
R-38	-11.94	2.46	R-34	-3.46	2.13
R-49	-12.26	1.92			
R-60	-12.47	1.58			
Slope(DD) 4392.25			Slope(DD) 2783.15		
Curve(DDS) -104.590			Curve(DDS) -67.079		
Slab (/ft)			Heated Basement (/ft)		
R-0	-4.34	9.19	R-0	-2.37	74.86
R-5 2ft	-4.39	7.52	R-5 4ft	-2.83	59.36
R-5 4ft	-4.41	6.89	R-5 8ft	-2.90	57.02
R-10 2ft	-4.43	6.19	R-10 4ft	-2.96	55.19
R-10 4ft	-4.46	5.02	R-10 8ft	-3.05	52.02
Intercept	.000		Intercept	41.926	
Slope(DD)	2107.37		Slope(DD)	1074.32	
Curve(DDS)	-120.365		Curve(DDS)	-4.772	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.37	3.74	R-0	.00	7.68
R-11 flr	-2.27	3.91	R-11 flr	-1.24	5.61
R-19 flr	-2.37	3.74	R-19 flr	-1.65	4.93
R-30 flr	-2.44	3.63	R-30 flr	-1.96	4.42
			R-38 flr	-2.02	4.31
			R-49 flr	-2.22	3.98
Intercept	3.260		Intercept	3.142	
Slope(DD)	533.04		Slope(DD)	1772.09	
Curve(DDS)	-85.576		Curve(DDS)	-172.836	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	29.24
.0007(.51)	.00	3.96	2-Pane	-2.14	14.42
.0005(.37)	-1.47	2.74	3-Pane	-2.89	9.20
.0003(.22)	-2.85	1.59	R-10	-3.77	3.06
Slope/.001ELF	5.042		Slope(DD)	1320.79	
Curve/.001ELF	.886		Curve(DDS)	-8.073	
Base Load = 50.59 MBtu			Base Load = 50.59 MBtu		
Typical Load = 31.80 MBtu			Typical Load = 31.80 MBtu		
Residual Load = 9.81 MBtu			Residual Load = 9.81 MBtu		

Pittsburgh PA WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.62	R-0	.00	32.67	R-0	.00	4.29	R-0	.00	2.23
R-7	-31.83	13.85	R-7	-18.69	18.04	R-7	-3.89	1.78	R-7	-1.17	1.19
R-11	-36.91	10.55	R-11	-21.35	13.67	R-11	-4.51	1.36	R-11	-1.34	1.04
R-19	-41.47	7.59	R-13	-24.61	10.78	R-19	-6.07	1.00	R-13	-1.59	.81
R-22	-43.25	6.43	R-19	-26.22	9.34	R-22	-5.31	.84	R-19	-1.72	.70
R-30	-46.64	4.88	R-27	-29.18	6.73	R-30	-5.63	.63	R-27	-1.92	.52
R-38	-47.08	3.94	R-34	-30.98	5.12	R-38	-5.83	.50	R-34	-2.05	.40
R-49	-48.37	3.10				R-49	-5.98	.41			
R-60	-49.21	2.58				R-60	-6.07	.35			
Slope(DD) 7108.66			Slope(DD) 6693.97			Slope(DD) 938.34			Slope(DD) 529.95		
Curve(DDS) -218.717			Curve(DDS) -115.187			Curve(DDS) -36.242			Curve(DDS) -21.461		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-20.25	56.96	R-0	-11.90	107.26	R-0	-3.45	-5.17	R-0	-2.24	2.12
R-5 2ft	-25.68	24.25	R-5 4ft	-17.59	72.98	R-5 2ft	-3.28	-4.14	R-5 4ft	-2.52	.43
R-5 4ft	-27.28	14.61	R-5 8ft	-19.69	60.33	R-5 4ft	-3.19	-3.60	R-5 8ft	-2.50	.55
R-10 2ft	-26.68	18.22	R-10 4ft	-19.14	63.65	R-10 2ft	-3.25	-3.98	R-10 4ft	-2.60	-.05
R-10 4ft	-28.92	4.73	R-10 8ft	-22.38	44.13	R-10 4ft	-3.10	-3.06	R-10 8ft	-2.58	.07
Intercept	-23.428		Intercept	.000		Intercept	-1.028		Intercept	.000	
Slope(DD)	8774.71		Slope(DD)	4647.95		Slope(DD)	-697.81		Slope(DD)	-9.36	
Curve(DDS)	-148.890		Curve(DDS)	-49.181		Curve(DDS)	29.343		Curve(DDS)	1.556	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-11.90	11.58	R-0	.00	19.29	R-0	-2.24	.23	R-0	.00	1.68
R-11 flr	-27.51	1.43	R-11 flr	-28.23	.98	R-11 flr	-.51	1.35	R-11 flr	.88	2.25
R-19 flr	-31.88	-1.41	R-19 flr	-33.10	-2.20	R-19 flr	-.02	1.67	R-19 flr	1.00	2.33
R-30 flr	-34.69	-3.24	R-30 flr	-36.19	-4.21	R-30 flr	.30	1.88	R-30 flr	1.07	2.37
			R-38 flr	-38.89	-4.67				R-38 flr	1.08	2.38
			R-49 flr	-38.92	-5.99				R-49 flr	1.12	2.41
Intercept	-8.146		Intercept	-9.016		Intercept	2.434		Intercept	2.474	
Slope(DD)	6674.42		Slope(DD)	6212.77		Slope(DD)	-756.26		Slope(DD)	-120.40	
Curve(DDS)	-552.094		Curve(DDS)	-135.112		Curve(DDS)	63.625		Curve(DDS)	-6.612	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	153.47	ELF Ach			1-Pane	.00	.77
.0007(.78)	.00	18.98	2-Pane	-14.65	74.19	.0007(.50)	.00	.43	2-Pane	-.05	.50
.0005(.58)	-8.50	13.46	3-Pane	-19.63	47.26	.0005(.36)	-.19	.31	3-Pane	-.08	.32
.0003(.35)	-16.88	8.02	R-10	-25.48	15.59	.0003(.22)	-.38	.19	R-10	-.12	.12
Slope/.001ELF	26.428		Slope(DD)	6708.98		Slope/.001ELF	.617		Slope(DD)	53.04	
Curve/.001ELF	.974		Curve(DDS)	-33.858		Curve/.001ELF	-.000		Curve(DDS)	-.906	
Base Load = 171.44 MBtu			Base Load = 13.98 MBtu			Base Load = 13.98 MBtu			Base Load = 13.98 MBtu		
Typical Load = 57.40 MBtu			Typical Load = 3.67 MBtu			Typical Load = 3.67 MBtu			Typical Load = 3.67 MBtu		
Residual Load = 5.55 MBtu			Residual Load = -2.75 MBtu			Residual Load = -2.75 MBtu			Residual Load = -2.75 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 36.01	R-0	.00 31.92
R-7	-13.22 13.98	R-7	-7.99 15.15
R-11	-15.32 10.46	R-11	-9.13 12.76
R-19	-17.22 7.31	R-13	-10.47 9.95
R-22	-17.90 6.17	R-19	-11.13 8.56
R-30	-18.81 4.65	R-27	-12.27 6.17
R-38	-19.36 3.74	R-34	-12.97 4.70
R-49	-19.83 2.98		
R-60	-20.13 2.46		
Slope(DD)	6728.25	Slope(DD)	6050.60
Curve(DDS)	-110.195	Curve(DDS)	-21.580
Slab	(/ft)	Heated Basement	(/ft)
R-0	-9.96 57.09	R-0	-7.13 127.84
R-5 2ft	-11.29 23.84	R-5 4ft	-9.13 77.84
R-5 4ft	-11.66 14.59	R-5 8ft	-9.71 63.34
R-10 2ft	-11.52 18.09	R-10 4ft	-9.60 66.09
R-10 4ft	-12.01 5.84	R-10 8ft	-10.43 45.34
Intercept	-18.541	Intercept	.000
Slope(DD)	7347.53	Slope(DD)	4602.86
Curve(DDS)	-59.983	Curve(DDS)	-35.206
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-7.13 8.52	R-0	.00 20.41
R-11 flr	-10.87 2.29	R-11 flr	-10.44 3.01
R-19 flr	-12.11 .22	R-19 flr	-12.19 .09
R-30 flr	-12.91 -1.11	R-30 flr	-13.27 -1.72
		R-38 flr	-13.52 -2.13
		R-49 flr	-14.23 -3.32
Intercept	-4.792	Intercept	-6.054
Slope(DD)	5058.04	Slope(DD)	5568.98
Curve(DDS)	-479.643	Curve(DDS)	-79.355
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 138.62
.0007(.81)	.00 17.31	2-Pane	-11.06 61.82
.0005(.58)	-8.46 11.93	3-Pane	-14.33 39.09
.0003(.36)	-12.50 6.89	R-10	-18.18 12.37
Slope/.001ELF	21.666	Slope(DD)	5261.05
Curve/.001ELF	4.376	Curve(DDS)	-.387
Base Load =	82.20 MBtu		
Typical Load =	25.08 MBtu		
Residual Load =	1.52 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 4.32	R-0	.00 2.19
R-7	-1.53 1.77	R-7	-.52 1.11
R-11	-1.78 1.36	R-11	-.59 .95
R-19	-2.00 .99	R-13	-.70 .73
R-22	-2.09 .85	R-19	-.75 .62
R-30	-2.20 .68	R-27	-.82 .46
R-38	-2.27 .54	R-34	-.87 .36
R-49	-2.35 .41		
R-60	-2.40 .32		
Slope(DD)	942.14	Slope(DD)	464.39
Curve(DDS)	-35.887	Curve(DDS)	-10.590
Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.31 -11.47	R-0	-.79 1.53
R-5 2ft	-1.24 -9.72	R-5 4ft	-.84 .28
R-5 4ft	-1.20 -8.72	R-5 8ft	-.84 .28
R-10 2ft	-1.23 -9.47	R-10 4ft	-.85 .03
R-10 4ft	-1.17 -7.97	R-10 8ft	-.85 .03
Intercept	-4.722	Intercept	.000
Slope(DD)	-1102.62	Slope(DD)	-9.95
Curve(DDS)	44.735	Curve(DDS)	1.201
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.79 .10	R-0	.00 1.42
R-11 flr	-.18 1.12	R-11 flr	.37 2.04
R-19 flr	.00 1.42	R-19 flr	.44 2.15
R-30 flr	.12 1.62	R-30 flr	.58 2.36
		R-38 flr	.59 2.40
		R-49 flr	.67 2.54
Intercept	2.151	Intercept	2.705
Slope(DD)	-727.25	Slope(DD)	-499.35
Curve(DDS)	63.887	Curve(DDS)	48.468
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 -1.91
.0007(.50)	.00 .14	2-Pane	.09 -1.29
.0005(.36)	-.06 .09	3-Pane	.15 -.84
.0003(.22)	-.11 .05	R-10	.23 -.31
Slope/.001ELF	.125	Slope(DD)	-138.93
Curve/.001ELF	.104	Curve(DDS)	2.522
Base Load =	9.53 MBtu		
Typical Load =	5.70 MBtu		
Residual Load =	2.05 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	35.05	R-0	.00	32.00
R-7	-12.95	13.48	R-7	-5.41	14.92
R-11	-15.01	10.03	R-11	-6.18	12.49
R-19	-16.87	8.94	R-13	-7.06	9.73
R-22	-17.52	5.86	R-19	-7.49	8.36
R-30	-18.39	4.41	R-27	-8.24	6.00
R-38	-18.92	3.53	R-34	-8.70	4.55
R-49	-19.35	2.80			
R-60	-19.64	2.33			
Slope(DD)	8351.56		Slope(DD)	5836.51	
Curve(DDS)	-74.038		Curve(DDS)	20.978	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-10.91	72.45	R-0	-8.61	149.11
R-5 2ft	-11.98	37.28	R-5 4ft	-10.42	88.95
R-5 4ft	-12.28	27.28	R-5 8ft	-10.92	72.28
R-10 2ft	-12.15	31.11	R-10 4ft	-10.83	75.28
R-10 4ft	-12.58	17.28	R-10 8ft	-11.54	51.45
Intercept	-10.815		Intercept	.000	
Slope(DD)	8637.40		Slope(DD)	5188.02	
Curve(DDS)	-114.440		Curve(DDS)	-36.553	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-8.61	7.46	R-0	.00	21.81
R-11 flr	-11.61	2.46	R-11 flr	-10.66	4.04
R-19 flr	-12.70	.63	R-19 flr	-12.43	1.09
R-30 flr	-13.41	-.54	R-30 flr	-13.53	-.74
			R-38 flr	-13.77	-1.15
			R-49 flr	-14.50	-2.35
Intercept	-3.817		Intercept	-5.110	
Slope(DD)	4527.69		Slope(DD)	5804.31	
Curve(DDS)	-454.252		Curve(DDS)	-69.294	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	137.32
.0007(.81)	.00	17.17	2-Pane	-11.15	59.88
.0005(.58)	-8.43	11.82	3-Pane	-14.34	37.78
.0003(.38)	-12.42	8.82	R-10	-18.07	11.80
Slope/.001ELF	21.395		Slope(DD)	5000.35	
Curve/.001ELF	4.480		Curve(DDS)	7.625	
Base Load =	77.22 MBtu				
Typical Load =	22.82 MBtu				
Residual Load =	1.69 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	4.27	R-0	.00	1.82
R-7	-1.48	1.80	R-7	-.32	.81
R-11	-1.72	1.41	R-11	-.37	.67
R-19	-1.93	1.06	R-13	-.42	.49
R-22	-2.03	.88	R-19	-.45	.40
R-30	-2.17	.65	R-27	-.48	.30
R-38	-2.25	.52	R-34	-.50	.24
R-49	-2.30	.43			
R-60	-2.33	.38			
Slope(DD)	999.08		Slope(DD)	284.17	
Curve(DDS)	-46.931		Curve(DDS)	9.987	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.95	-8.52	R-0	-.66	.81
R-5 2ft	-.89	-8.69	R-5 4ft	-.70	-.52
R-5 4ft	-.86	-5.52	R-5 8ft	-.70	-.36
R-10 2ft	-.88	-6.36	R-10 4ft	-.71	-.86
R-10 4ft	-.84	-4.86	R-10 8ft	-.70	-.52
Intercept	-1.512		Intercept	.000	
Slope(DD)	-1118.38		Slope(DD)	-74.92	
Curve(DDS)	44.077		Curve(DDS)	2.378	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.66	.04	R-0	.00	1.15
R-11 flr	-.16	.88	R-11 flr	.40	1.82
R-19 flr	.02	1.19	R-19 flr	.47	1.94
R-30 flr	.14	1.38	R-30 flr	.62	2.18
			R-38 flr	.66	2.24
			R-49 flr	.75	2.40
Intercept	1.930		Intercept	2.593	
Slope(DD)	-755.75		Slope(DD)	-586.79	
Curve(DDS)	75.521		Curve(DDS)	59.542	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-3.51
.0007(.50)	.00	-.19	2-Pane	.09	-2.85
.0005(.36)	-.09	-.26	3-Pane	.24	-1.88
.0003(.22)	-.05	-.23	R-10	.40	-.74
Slope/.001ELF	-1.146		Slope(DD)	-330.80	
Curve/.001ELF	1.250		Curve(DDS)	7.488	
Base Load =	8.28 MBtu				
Typical Load =	4.88 MBtu				
Residual Load =	2.08 MBtu				

Portland ME WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	41.73	R-0	.00	39.43	R-0	.00	2.45	R-0	.00	1.18
R-7	-38.49	18.74	R-7	-22.44	19.46	R-7	-2.25	.99	R-7	-.62	.60
R-11	-44.63	12.75	R-11	-25.64	16.61	R-11	-2.61	.76	R-11	-.71	.52
R-19	-50.15	9.18	R-13	-29.57	13.11	R-19	-2.93	.55	R-13	-.85	.40
R-22	-52.30	7.77	R-19	-31.52	11.38	R-22	-3.05	.47	R-19	-.92	.34
R-30	-55.18	5.90	R-27	-35.10	8.19	R-30	-3.22	.36	R-27	-1.01	.26
R-38	-56.92	4.77	R-34	-37.30	6.24	R-38	-3.32	.30	R-34	-1.07	.20
R-49	-58.49	3.75				R-49	-3.43	.23			
R-60	-59.50	3.09				R-60	-3.50	.18			
Slope(DD) 8581.06			Slope(DD) 8171.02			Slope(DD) 521.58			Slope(DD) 260.40		
Curve(DDS) -260.244			Curve(DDS) -156.213			Curve(DDS) -18.164			Curve(DDS) -8.417		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-21.87	84.82	R-0	-12.19	123.14	R-0	-2.17	-2.47	R-0	-1.55	1.26
R-5 2ft	-28.52	24.78	R-5 4ft	-18.68	84.04	R-5 2ft	-2.02	-1.57	R-5 4ft	-1.71	.30
R-5 4ft	-30.52	12.71	R-5 8ft	-21.09	69.52	R-5 4ft	-1.93	-1.03	R-5 8ft	-1.72	.24
R-10 2ft	-29.78	17.17	R-10 4ft	-20.42	73.56	R-10 2ft	-1.99	-1.39	R-10 4ft	-1.78	-.00
R-10 4ft	-32.59	.24	R-10 8ft	-24.18	50.91	R-10 4ft	-1.88	-.72	R-10 8ft	-1.75	.06
Intercept	-35.291		Intercept	.000		Intercept	.757		Intercept	.000	
Slope(DD)	10502.82		Slope(DD)	5147.78		Slope(DD)	-462.33		Slope(DD)	-6.27	
Curve(DDS)	-178.732		Curve(DDS)	-52.374		Curve(DDS)	16.075		Curve(DDS)	.901	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-12.19	13.27	R-0	.00	21.19	R-0	-1.55	.14	R-0	.00	1.14
R-11 flr	-32.26	.24	R-11 flr	-33.99	-.88	R-11 flr	-.25	.98	R-11 flr	.65	1.56
R-19 flr	-37.80	-3.36	R-19 flr	-39.88	-4.71	R-19 flr	.13	1.23	R-19 flr	.74	1.62
R-30 flr	-41.36	-5.67	R-30 flr	-43.66	-7.16	R-30 flr	.38	1.39	R-30 flr	.86	1.70
			R-38 flr	-44.52	-7.72				R-38 flr	.89	1.72
			R-49 flr	-47.01	-9.34				R-49 flr	.97	1.77
Intercept	-11.875		Intercept	-13.023		Intercept	1.824		Intercept	1.839	
Slope(DD)	8429.10		Slope(DD)	7589.09		Slope(DD)	-593.01		Slope(DD)	-187.09	
Curve(DDS)	-687.412		Curve(DDS)	-178.930		Curve(DDS)	51.452		Curve(DDS)	10.003	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	189.13	ELF Ach			1-Pane	.00	.20
.0007(.75)	.00	22.45	2-Pane	-18.05	91.46	.0007(.47)	.00	.24	2-Pane	-.01	.14
.0005(.54)	-10.03	15.94	3-Pane	-24.18	58.26	.0005(.34)	-.08	.19	3-Pane	-.02	.09
.0003(.33)	-19.94	9.51	R-10	-31.40	19.22	.0003(.20)	-.18	.12	R-10	-.03	.04
Slope/.001ELF	31.398		Slope(DD)	8269.54		Slope/.001ELF	.455		Slope(DD)	16.09	
Curve/.001ELF	.974		Curve(DDS)	-41.873		Curve/.001ELF	-.162		Curve(DDS)	-.325	
Base Load = 207.17 MBtu			Base Load = 7.61 MBtu			Base Load = 7.61 MBtu			Base Load = 7.61 MBtu		
Typical Load = 71.97 MBtu			Typical Load = 1.57 MBtu			Typical Load = 1.57 MBtu			Typical Load = 1.57 MBtu		
Residual Load = 10.68 MBtu			Residual Load = -1.78 MBtu			Residual Load = -1.78 MBtu			Residual Load = -1.78 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	43.68	R-0	.00	38.84	R-0	.00	2.58	R-0	.00	1.12
R-7	-16.00	17.01	R-7	-9.62	18.45	R-7	-.90	1.09	R-7	-.27	.55
R-11	-18.56	12.75	R-11	-10.99	16.57	R-11	-1.04	.85	R-11	-.31	.47
R-19	-20.85	8.93	R-13	-12.60	12.19	R-19	-1.17	.63	R-13	-.36	.36
R-22	-21.68	7.55	R-19	-13.40	10.52	R-22	-1.23	.54	R-19	-.39	.30
R-30	-22.78	5.71	R-27	-14.81	7.57	R-30	-1.30	.41	R-27	-.43	.23
R-38	-23.45	4.59	R-34	-15.67	5.75	R-38	-1.35	.33	R-34	-.45	.18
R-49	-24.03	3.62				R-49	-1.39	.28			
R-60	-24.41	2.99				R-60	-1.42	.22			
Slope(DD)	8238.49		Slope(DD)	7439.82		Slope(DD)	604.26		Slope(DD)	226.35	
Curve(DDS)	-146.711		Curve(DDS)	-47.623		Curve(DDS)	-28.442		Curve(DDS)	-3.244	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-11.12	68.24	R-0	-7.74	152.74	R-0	-.92	-7.24	R-0	-.67	-.99
R-5 2ft	-12.77	26.99	R-5 4ft	-10.06	94.74	R-5 2ft	-.85	-5.49	R-5 4ft	-.70	-1.74
R-5 4ft	-13.23	15.49	R-5 8ft	-10.78	77.24	R-5 4ft	-.81	-4.49	R-5 8ft	-.68	-1.24
R-10 2ft	-13.08	19.74	R-10 4ft	-10.62	80.74	R-10 2ft	-.83	-4.99	R-10 4ft	-.70	-1.74
R-10 4ft	-13.70	3.74	R-10 8ft	-11.63	55.49	R-10 4ft	-.77	-3.49	R-10 8ft	-.68	-1.24
Intercept	-28.392		Intercept	.000		Intercept	.187		Intercept	.000	
Slope(DD)	9288.11		Slope(DD)	5428.75		Slope(DD)	-1189.82		Slope(DD)	-138.95	
Curve(DDS)	-101.384		Curve(DDS)	-41.643		Curve(DDS)	47.527		Curve(DDS)	2.789	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-7.74	10.18	R-0	.00	23.08	R-0	-.67	-.07	R-0	.00	1.05
R-11 flr	-12.56	2.15	R-11 flr	-12.43	2.37	R-11 flr	-.09	.90	R-11 flr	.43	1.77
R-19 flr	-14.19	-.57	R-19 flr	-14.56	-1.18	R-19 flr	.08	1.18	R-19 flr	.47	1.83
R-30 flr	-15.24	-2.32	R-30 flr	-15.90	-3.41	R-30 flr	.19	1.37	R-30 flr	.53	1.93
			R-38 flr	-16.20	-3.92				R-38 flr	.54	1.95
			R-49 flr	-17.08	-5.38				R-49 flr	.58	2.01
Intercept	-7.167		Intercept	-8.765		Intercept	1.863		Intercept	2.071	
Slope(DD)	6687.52		Slope(DD)	6904.81		Slope(DD)	-675.87		Slope(DD)	-186.31	
Curve(DDS)	-640.451		Curve(DDS)	-135.363		Curve(DDS)	58.447		Curve(DDS)	-2.485	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	171.46	ELF Ach			1-Pane	.00	-2.13
.0007(.78)	.00	20.60	2-Pane	-13.57	77.22	.0007(.47)	.00	-.06	2-Pane	.14	-1.16
.0005(.56)	-7.60	14.27	3-Pane	-17.65	48.88	.0005(.34)	-.03	-.08	3-Pane	.20	-.75
.0003(.34)	-14.77	8.29	R-10	-22.45	15.55	.0003(.20)	-.02	-.08	R-10	.27	-.28
Slope/.001ELF	26.291		Slope(DD)	6623.85		Slope/.001ELF	-.375		Slope(DD)	-113.30	
Curve/.001ELF	4.479		Curve(DDS)	-4.899		Curve/.001ELF	.417		Curve(DDS)	1.229	
Base Load =	99.28 MBtu		Base Load =	5.65 MBtu		Base Load =	5.65 MBtu		Base Load =	5.65 MBtu	
Typical Load =	31.20 MBtu		Typical Load =	3.32 MBtu		Typical Load =	3.32 MBtu		Typical Load =	3.32 MBtu	
Residual Load =	2.86 MBtu		Residual Load =	1.81 MBtu		Residual Load =	1.81 MBtu		Residual Load =	1.81 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	42.46	R-0	.00	38.86	R-0	.00	2.53	R-0	.00	1.16
R-7	-15.63	16.40	R-7	-6.54	18.23	R-7	-.88	1.06	R-7	-.15	.69
R-11	-18.13	12.24	R-11	-7.47	15.30	R-11	-1.02	.82	R-11	-.17	.62
R-19	-20.37	8.51	R-13	-8.53	11.94	R-19	-1.15	.61	R-13	-.23	.44
R-22	-21.16	7.18	R-19	-9.06	10.28	R-22	-1.21	.52	R-19	-.25	.35
R-30	-22.23	5.41	R-27	-9.98	7.38	R-30	-1.28	.39	R-27	-.27	.30
R-38	-22.87	4.34	R-34	-10.55	5.60	R-38	-1.33	.31	R-34	-.28	.26
R-49	-23.41	3.44				R-49	-1.37	.25			
R-60	-23.76	2.86				R-60	-1.39	.21			
Slope(DD)	7811.62		Slope(DD)	7197.82		Slope(DD)	582.61		Slope(DD)	316.15	
Curve(DDS)	-109.681		Curve(DDS)	5.056		Curve(DDS)	-26.280		Curve(DDS)	-18.667	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-12.29	86.01	R-0	-9.53	178.18	R-0	-.59	-4.06	R-0	-.48	-.56
R-5 2ft	-13.60	42.51	R-5 4ft	-11.65	107.34	R-5 2ft	-.55	-2.72	R-5 4ft	-.50	-1.22
R-5 4ft	-13.99	29.51	R-5 8ft	-12.27	86.84	R-5 4ft	-.51	-1.56	R-5 8ft	-.49	-.89
R-10 2ft	-13.84	34.51	R-10 4ft	-12.15	90.84	R-10 2ft	-.52	-1.89	R-10 4ft	-.50	-1.22
R-10 4ft	-14.37	16.88	R-10 8ft	-13.01	62.18	R-10 4ft	-.49	-.72	R-10 8ft	-.49	-.89
Intercept	-20.126		Intercept	.000		Intercept	2.903		Intercept	.000	
Slope(DD)	10770.26		Slope(DD)	6007.42		Slope(DD)	-1156.62		Slope(DD)	-100.72	
Curve(DDS)	-159.019		Curve(DDS)	-40.720		Curve(DDS)	47.982		Curve(DDS)	2.119	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-9.53	8.91	R-0	.00	24.78	R-0	-.48	-.03	R-0	.00	.77
R-11 flr	-13.45	2.38	R-11 flr	-12.73	3.57	R-11 flr	-.07	.66	R-11 flr	.33	1.33
R-19 flr	-14.86	.02	R-19 flr	-14.88	-.02	R-19 flr	.06	.87	R-19 flr	.41	1.46
R-30 flr	-15.77	-1.49	R-30 flr	-16.27	-2.34	R-30 flr	.13	1.00	R-30 flr	.46	1.53
			R-49 flr	-16.59	-2.87				R-38 flr	.46	1.55
			R-49 flr	-17.50	-4.39				R-49 flr	.49	1.59
Intercept	-5.726		Intercept	-7.816		Intercept	1.351		Intercept	1.730	
Slope(DD)	5840.46		Slope(DD)	7071.35		Slope(DD)	-482.57		Slope(DD)	-261.50	
Curve(DDS)	-582.407		Curve(DDS)	-139.250		Curve(DDS)	41.668		Curve(DDS)	14.551	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach						ELF Ach					
.0007(.76)	.00	20.61	1-Pane	.00	170.02	.0007(.47)	.00	.00	1-Pane	.00	-2.34
.0005(.56)	-7.57	14.30	2-Pane	-13.75	74.50	.0005(.34)	-.02	-.01	2-Pane	.11	-1.61
.0003(.34)	-14.73	8.33	3-Pane	-17.71	47.04	.0003(.20)	-.03	-.02	3-Pane	.19	-1.05
			R-10	-22.36	14.74				R-10	.28	-.40
Slope/.001ELF	26.520		Slope(DD)	6250.25		Slope/.001ELF	-.104		Slope(DD)	-175.75	
Curve/.001ELF	4.187		Curve(DDS)	7.191		Curve/.001ELF	.156		Curve(DDS)	3.300	
Base Load = 93.42 MBtu			Base Load = 4.71 MBtu			Base Load = 2.71 MBtu			Base Load = 1.19 MBtu		
Typical Load = 28.62 MBtu			Typical Load = 2.71 MBtu			Typical Load = 2.71 MBtu			Typical Load = 2.71 MBtu		
Residual Load = 3.00 MBtu			Residual Load = 3.00 MBtu			Residual Load = 1.19 MBtu			Residual Load = 1.19 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	27.53	R-0	.00	24.98	R-0	.00	3.34	R-0	.00	1.82
R-7	-25.47	10.99	R-7	-14.43	12.14	R-7	-2.97	1.41	R-7	-.95	.97
R-11	-29.54	8.35	R-11	-16.49	10.31	R-11	-3.44	1.10	R-11	-1.09	.85
R-19	-33.19	5.97	R-13	-19.03	8.05	R-19	-3.87	.83	R-13	-1.30	.68
R-22	-34.61	5.05	R-19	-20.29	6.93	R-22	-4.06	.70	R-19	-1.40	.57
R-30	-36.50	3.82	R-27	-22.43	5.02	R-30	-4.32	.54	R-27	-1.57	.42
R-38	-37.65	3.08	R-34	-23.75	3.85	R-38	-4.47	.44	R-34	-1.67	.33
R-49	-38.63	2.44				R-49	-4.62	.34			
R-60	-39.27	2.03				R-60	-4.71	.28			
Slope(DD) 5574.50			Slope(DD) 4974.69			Slope(DD) 791.95			Slope(DD) 433.78		
Curve(DDS) -157.161			Curve(DDS) -61.254			Curve(DDS) -38.553			Curve(DDS) -17.818		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-10.40	146.49	R-0	-6.08	172.63	R-0	-2.14	-18.59	R-0	-1.41	-12.19
R-5 2ft	-15.16	117.82	R-5 4ft	-9.84	149.86	R-5 2ft	-1.98	-15.51	R-5 4ft	-1.50	-12.73
R-5 4ft	-16.77	108.12	R-5 8ft	-11.63	139.08	R-5 4ft	-1.89	-15.08	R-5 8ft	-1.46	-12.49
R-10 2ft	-15.97	112.94	R-10 4ft	-10.88	143.60	R-10 2ft	-1.93	-15.32	R-10 4ft	-1.52	-12.85
R-10 4ft	-18.13	99.92	R-10 8ft	-13.59	127.27	R-10 4ft	-1.80	-14.54	R-10 8ft	-1.48	-12.61
Intercept	74.229		Intercept	92.364		Intercept	-12.889		Intercept	-12.143	
Slope(DD)	7444.40		Slope(DD)	3513.81		Slope(DD)	-521.13		Slope(DD)	-53.37	
Curve(DDS)	-128.954		Curve(DDS)	-38.182		Curve(DDS)	17.948		Curve(DDS)	1.238	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.06	19.61	R-0	.00	22.54	R-0	-1.41	-1.31	R-0	.00	-.40
R-11 flr	-20.34	9.34	R-11 flr	-22.86	7.70	R-11 flr	-.42	-.67	R-11 flr	.56	-.03
R-19 flr	-24.24	8.80	R-19 flr	-26.69	5.21	R-19 flr	-.18	-.52	R-19 flr	.58	-.02
R-30 flr	-26.75	5.17	R-30 flr	-29.04	3.68	R-30 flr	-.03	-.42	R-30 flr	.60	-.01
			R-38 flr	-29.58	3.34				R-38 flr	.61	-.00
			R-49 flr	-31.13	2.33				R-49 flr	.63	.01
Intercept	.810		Intercept	.000		Intercept	-.159		Intercept	.000	
Slope(DD)	5922.28		Slope(DD)	4723.67		Slope(DD)	-347.51		Slope(DD)	3.53	
Curve(DDS)	-478.039		Curve(DDS)	-63.833		Curve(DDS)	23.855		Curve(DDS)	-15.845	
Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)			Infiltration (/sf flr) Window U-value (/sf)		
ELF Ach			1-Pane	.00	106.13	ELF Ach			1-Pane	.00	-.25
.0007(.68)	.00	12.26	2-Pane	-10.95	46.88	.0007(.60)	.00	.10	2-Pane	-.01	-.30
.0005(.50)	-6.12	8.29	3-Pane	-14.14	29.62	.0005(.43)	-.12	.02	3-Pane	.01	-.20
.0003(.30)	-11.68	4.69	R-10	-17.89	9.32	.0003(.26)	-.18	-.01	R-10	.03	-.08
Slope/.001ELF	14.220		Slope(DD)	3959.09		Slope/.001ELF	-.195		Slope(DD)	-38.68	
Curve/.001ELF	4.708		Curve(DDS)	2.313		Curve/.001ELF	.487		Curve(DDS)	1.110	
Base Load = 130.27 MBtu			Base Load = 9.91 MBtu			Base Load = 9.91 MBtu			Base Load = 9.91 MBtu		
Typical Load = 51.61 MBtu			Typical Load = 5.39 MBtu			Typical Load = 5.39 MBtu			Typical Load = 5.39 MBtu		
Residual Load = -2.47 MBtu			Residual Load = .21 MBtu			Residual Load = .21 MBtu			Residual Load = .21 MBtu		

Heating Load

Cooling Load

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	28.78
R-7	-10.64	11.05
R-11	-12.33	8.22
R-19	-13.86	5.68
R-22	-14.39	4.79
R-30	-15.11	3.60
R-38	-15.54	2.88
R-49	-15.89	2.29
R-60	-16.12	1.91

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	24.59
R-7	-8.31	11.34
R-11	-7.21	9.46
R-13	-8.24	7.30
R-19	-8.75	6.23
R-27	-9.57	4.50
R-34	-10.08	3.44

Delta Component		
(MBtu)	(KBtu)	
Ceiling	(/sf)	
R-0	.00	3.33
R-7	-1.18	1.36
R-11	-1.37	1.04
R-19	-1.54	.76
R-22	-1.61	.64
R-30	-1.70	.49
R-38	-1.76	.39
R-49	-1.81	.31
R-60	-1.84	.26

Delta Component		
(MBtu)	(KBtu)	
Wall	(/sf)	
R-0	.00	1.83
R-7	-.39	1.03
R-11	-.44	.91
R-13	-.54	.70
R-19	-.59	.60
R-27	-.66	.46
R-34	-.70	.36

Slope(DD)	5190.69
Curve(DDS)	-56.826

Slope(DD)	4351.71
Curve(DDS)	40.950

Slope(DD)	715.13
Curve(DDS)	-25.998

Slope(DD)	472.58
Curve(DDS)	-24.443

Slab		(/ft)
R-0	-6.04	159.22
R-5 2ft	-7.19	130.47
R-5 4ft	-7.55	121.47
R-10 2ft	-7.37	125.97
R-10 4ft	-7.84	114.22
Intercept	92.158	
Slope(DD)	6212.07	
Curve(DDS)	-63.231	

Heated Basement		(/ft)
R-0	-4.35	201.47
R-5 4ft	-5.75	166.47
R-5 8ft	-6.26	153.72
R-10 4ft	-6.08	158.22
R-10 8ft	-6.78	140.72
Intercept	104.690	
Slope(DD)	3491.21	
Curve(DDS)	-28.335	

Slab		(/ft)
R-0	-.80	-25.60
R-5 2ft	-.74	-24.10
R-5 4ft	-.72	-23.60
R-10 2ft	-.73	-23.85
R-10 4ft	-.69	-22.85
Intercept	-20.786	
Slope(DD)	-855.04	
Curve(DDS)	21.400	

Heated Basement		(/ft)
R-0	-.48	-17.60
R-5 4ft	-.49	-17.85
R-5 8ft	-.47	-17.35
R-10 4ft	-.49	-17.85
R-10 8ft	-.47	-17.35
Intercept	-16.271	
Slope(DD)	-112.97	
Curve(DDS)	1.933	

Unheated Basement		(/sf)
R-0	-4.35	13.43
R-11 flr	-7.86	7.58
R-19 flr	-8.99	5.69
R-30 flr	-9.72	4.48
Intercept	1.140	
Slope(DD)	4582.73	
Curve(DDS)	-426.235	

Crawl		(/sf)
R-0	.00	20.68
R-11 flr	-8.32	6.81
R-19 flr	-9.68	4.55
R-30 flr	-10.47	3.23
R-38 flr	-10.65	2.93
R-49 flr	-11.17	2.06
Intercept	.000	
Slope(DD)	4099.59	
Curve(DDS)	-12.932	

Unheated Basement		(/sf)
R-0	-.48	-1.17
R-11 flr	-.08	-.51
R-19 flr	.01	-.36
R-30 flr	.06	-.27
Intercept	-.041	
Slope(DD)	-308.08	
Curve(DDS)	17.036	

Crawl		(/sf)
R-0	.00	-.37
R-11 flr	.22	-.01
R-19 flr	.23	.01
R-30 flr	.23	.01
R-38 flr	.23	.01
R-49 flr	.23	.01
Intercept	.000	
Slope(DD)	30.11	
Curve(DDS)	-20.058	

Infiltration		(/sf flr)
ELF Ach		
.0007(.70)	.00	11.00
.0005(.51)	-4.62	7.15
.0003(.32)	-8.56	3.86

Window U-value		(/sf)
1-Pane	.00	93.36
2-Pane	-8.26	35.99
3-Pane	-10.21	22.43
R-10	-12.51	6.48

Infiltration		(/sf flr)
ELF Ach		
.0007(.60)	.00	-.00
.0005(.43)	-.05	-.04
.0003(.26)	-.06	-.05

Window U-value		(/sf)
1-Pane	.00	-1.40
2-Pane	.07	-.91
3-Pane	.12	-.60
R-10	.17	-.22

Slope/.001ELF	10.750
Curve/.001ELF	7.084

Slope(DD)	2678.81
Curve(DDS)	32.476

Slope/.001ELF	-.292
Curve/.001ELF	.417

Slope(DD)	-97.65
Curve(DDS)	1.689

Base Load = 60.51 MBtu
 Typical Load = 26.50 MBtu
 Residual Load = 1.49 MBtu

Base Load = 6.67 MBtu
 Typical Load = 4.86 MBtu
 Residual Load = 2.09 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	28.53	R-0	.00	24.51	R-0	.00	3.27	R-0	.00	1.82
R-7	-10.63	10.82	R-7	-4.26	11.08	R-7	-1.18	1.33	R-7	-.25	1.03
R-11	-12.33	7.99	R-11	-4.87	9.16	R-11	-1.35	1.02	R-11	-.29	.92
R-19	-13.85	5.45	R-13	-5.54	7.03	R-19	-1.51	.75	R-13	-.35	.72
R-22	-14.37	4.58	R-19	-5.88	5.98	R-22	-1.58	.63	R-19	-.38	.62
R-30	-15.06	3.42	R-27	-6.40	4.31	R-30	-1.67	.48	R-27	-.43	.47
R-38	-15.48	2.72	R-34	-6.73	3.28	R-38	-1.73	.39	R-34	-.46	.37
R-49	-15.81	2.18				R-49	-1.78	.31			
R-60	-16.01	1.84				R-60	-1.81	.25			
Slope(DD)	4936.64		Slope(DD)	4119.19		Slope(DD)	702.21		Slope(DD)	488.64	
Curve(DDS)	-20.992		Curve(DDS)	81.420		Curve(DDS)	-25.403		Curve(DDS)	-27.866	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-6.95	188.34	R-0	-5.63	232.51	R-0	-.54	-22.64	R-0	-.40	-18.14
R-5 2ft	-7.88	157.51	R-5 4ft	-6.93	189.01	R-5 2ft	-.49	-21.14	R-5 4ft	-.41	-18.47
R-5 4ft	-8.19	147.17	R-5 8ft	-7.38	174.17	R-5 4ft	-.48	-20.80	R-5 8ft	-.41	-18.30
R-10 2ft	-8.04	152.34	R-10 4ft	-7.23	179.01	R-10 2ft	-.49	-20.97	R-10 4ft	-.42	-18.64
R-10 4ft	-8.44	139.01	R-10 8ft	-7.85	158.34	R-10 4ft	-.46	-19.97	R-10 8ft	-.41	-18.30
Intercept	113.042		Intercept	116.118		Intercept	-18.035		Intercept	-17.783	
Slope(DD)	7418.76		Slope(DD)	4073.19		Slope(DD)	-620.68		Slope(DD)	-59.94	
Curve(DDS)	-106.752		Curve(DDS)	-31.104		Curve(DDS)	20.144		Curve(DDS)	1.225	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-5.63	11.63	R-0	.00	21.01	R-0	-.40	-.91	R-0	.00	-.24
R-11 flr	-8.49	6.85	R-11 flr	-8.51	6.82	R-11 flr	-.15	-.49	R-11 flr	.14	.00
R-19 flr	-9.50	5.18	R-19 flr	-9.87	4.58	R-19 flr	-.08	-.37	R-19 flr	.15	.01
R-30 flr	-10.14	4.11	R-30 flr	-10.67	3.22	R-30 flr	-.03	-.29	R-30 flr	.15	.01
			R-38 flr	-10.85	2.92				R-38 flr	.15	.01
			R-49 flr	-11.38	2.04				R-49 flr	.15	.01
Intercept	1.118		Intercept	.000		Intercept	-.078		Intercept	.000	
Slope(DD)	4118.02		Slope(DD)	4077.34		Slope(DD)	-289.27		Slope(DD)	24.04	
Curve(DDS)	-403.488		Curve(DDS)	3.839		Curve(DDS)	24.890		Curve(DDS)	-13.818	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	91.80	ELF Ach			1-Pane	.00	-.86
.0007(.70)	.00	10.77	2-Pane	-.28	34.27	.0007(.60)	.00	.04	2-Pane	.00	-.86
.0005(.53)	-4.58	6.95	3-Pane	-10.16	21.28	.0005(.43)	-.04	.00	3-Pane	.04	-.57
.0003(.32)	-8.45	3.72	R-10	-12.35	6.00	.0003(.26)	-.06	-.01	R-10	.09	-.23
Slope/.001ELF	10.166		Slope(DD)	2461.00		Slope/.001ELF	-.125		Slope(DD)	-105.42	
Curve/.001ELF	7.449		Curve(DDS)	38.495		Curve/.001ELF	.260		Curve(DDS)	2.763	
Base Load =	56.57 MBtu		Base Load =	5.50 MBtu					Base Load =	5.50 MBtu	
Typical Load =	24.75 MBtu		Typical Load =	3.80 MBtu					Typical Load =	3.80 MBtu	
Residual Load =	1.94 MBtu		Residual Load =	1.05 MBtu					Residual Load =	1.05 MBtu	

Reno NV TMY One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	34.07	R-0	.00	29.51	R-0	.00	8.91	R-0	.00	3.63
R-7	-31.47	13.63	R-7	-16.93	14.44	R-7	-8.26	3.55	R-7	-1.93	1.91
R-11	-36.50	10.37	R-11	-19.34	12.30	R-11	-9.58	2.69	R-11	-2.20	1.67
R-19	-41.01	7.44	R-13	-22.38	9.60	R-19	-10.76	1.93	R-13	-2.67	1.25
R-22	-42.76	6.30	R-19	-23.88	8.26	R-22	-11.21	1.63	R-19	-2.90	1.05
R-30	-45.11	4.77	R-27	-26.42	6.00	R-30	-11.82	1.24	R-27	-3.17	.81
R-38	-46.53	3.86	R-34	-27.98	4.61	R-38	-12.18	1.00	R-34	-3.34	.66
R-49	-47.78	3.04				R-49	-12.51	.79			
R-60	-48.59	2.51				R-60	-12.73	.65			
Slope(DD)	6952.34		Slope(DD)	5963.95		Slope(DD)	1799.17		Slope(DD)	825.98	
Curve(DDS)	-203.490		Curve(DDS)	-88.683		Curve(DDS)	-49.899		Curve(DDS)	-28.059	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-18.21	37.54	R-0	-8.75	94.52	R-0	-3.52	-6.64	R-0	-2.56	-.86
R-5 2ft	-22.51	11.63	R-5 4ft	-14.98	58.99	R-5 2ft	-3.25	-5.02	R-5 4ft	-2.59	-1.04
R-5 4ft	-23.36	6.51	R-5 8ft	-16.42	48.32	R-5 4ft	-3.18	-4.59	R-5 8ft	-2.55	-.80
R-10 2ft	-23.39	6.33	R-10 4ft	-18.61	47.17	R-10 2ft	-3.20	-4.72	R-10 4ft	-2.61	-1.16
R-10 4ft	-24.58	-.72	R-10 8ft	-18.78	34.10	R-10 4ft	-3.08	-3.99	R-10 8ft	-2.53	-.68
Intercept	-17.857		Intercept	.000		Intercept	-2.355		Intercept	.000	
Slope(DD)	6645.65		Slope(DD)	4031.12		Slope(DD)	-691.89		Slope(DD)	-97.17	
Curve(DDS)	-68.277		Curve(DDS)	-39.067		Curve(DDS)	24.498		Curve(DDS)	2.037	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.75	10.19	R-0	.00	15.87	R-0	-2.56	-.09	R-0	.00	1.57
R-11 flr	-21.43	1.96	R-11 flr	-22.26	1.42	R-11 flr	-1.10	.86	R-11 flr	.49	1.89
R-19 flr	-24.92	-.31	R-19 flr	-26.10	-1.08	R-19 flr	-.71	1.11	R-19 flr	.48	1.88
R-30 flr	-27.17	-1.77	R-30 flr	-28.33	-2.53	R-30 flr	-.46	1.27	R-30 flr	.49	1.89
			R-38 flr	-28.84	-2.86				R-38 flr	.49	1.89
			R-49 flr	-30.31	-3.81				R-49 flr	.50	1.89
Intercept	-5.686		Intercept	-8.147		Intercept	1.705		Intercept	1.860	
Slope(DD)	5314.57		Slope(DD)	4634.31		Slope(DD)	-587.69		Slope(DD)	48.63	
Curve(DDS)	-432.702		Curve(DDS)	-68.377		Curve(DDS)	46.253		Curve(DDS)	-20.519	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	122.04	ELF Ach			1-Pane	.00	4.17
.0007(.67)	.00	12.26	2-Pane	-12.01	57.05	.0007(.51)	.00	.33	2-Pane	-.33	2.38
.0005(.48)	-5.83	8.47	3-Pane	-15.86	36.23	.0005(.37)	-.17	.22	3-Pane	-.49	1.54
.0003(.29)	-11.31	4.91	R-10	-20.38	11.75	.0003(.22)	-.32	.12	R-10	-.67	.54
Slope/.001ELF	15.519		Slope(DD)	5034.34		Slope/.001ELF	.357		Slope(DD)	238.74	
Curve/.001ELF	2.841		Curve(DDS)	-15.597		Curve/.001ELF	.182		Curve(DDS)	-3.060	
Base Load = 139.75 MBtu			Base Load = 22.76 MBtu			Base Load = 22.76 MBtu			Base Load = 22.76 MBtu		
Typical Load = 36.52 MBtu			Typical Load = 4.59 MBtu			Typical Load = 4.59 MBtu			Typical Load = 4.59 MBtu		
Residual Load = 4.98 MBtu			Residual Load = 4.98 MBtu			Residual Load = -4.02 MBtu			Residual Load = -4.02 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)			
Ceiling (/sf)				Wall (/sf)				Ceiling (/sf)				Wall (/sf)			
R-0	.00	34.76		R-0	.00	27.25		R-0	.00	9.29		R-0	.00	4.32	
R-7	-12.91	13.26		R-7	-7.12	12.32		R-7	-3.32	3.76		R-7	-.93	2.37	
R-11	-14.97	9.81		R-11	-8.13	10.19		R-11	-3.84	2.88		R-11	-1.06	2.09	
R-19	-16.82	6.73		R-13	-9.29	7.76		R-19	-4.32	2.09		R-13	-1.29	1.60	
R-22	-17.46	5.67		R-19	-9.86	6.66		R-22	-4.50	1.78		R-19	-1.41	1.38	
R-30	-18.31	4.25		R-27	-10.71	4.77		R-30	-4.75	1.37		R-27	-1.56	1.03	
R-38	-18.82	3.40		R-34	-11.24	3.67		R-38	-4.90	1.12		R-34	-1.66	.83	
R-49	-19.23	2.71						R-49	-5.08	.88					
R-60	-19.50	2.26						R-60	-5.18	.69					
Slope(DD) 6124.71				Slope(DD) 4564.94				Slope(DD) 1976.33				Slope(DD) 1071.49			
Curve(DDS) -44.099				Curve(DDS) 93.491				Curve(DDS) -69.043				Curve(DDS) -49.944			
Slab (/ft)				Heated Basement (/ft)				Slab (/ft)				Heated Basement (/ft)			
R-0	-8.20	22.09		R-0	-5.34	93.59		R-0	-1.35	-18.63		R-0	-.83	-5.63	
R-5 2ft	-9.14	-1.41		R-5 4ft	-7.21	46.84		R-5 2ft	-1.25	-16.13		R-5 4ft	-.80	-4.88	
R-5 4ft	-9.30	-5.41		R-5 8ft	-7.55	38.34		R-5 4ft	-1.23	-15.63		R-5 8ft	-.77	-4.13	
R-10 2ft	-9.31	-5.66		R-10 4ft	-7.60	37.09		R-10 2ft	-1.23	-15.63		R-10 4ft	-.79	-4.63	
R-10 4ft	-9.51	-10.66		R-10 8ft	-8.03	26.34		R-10 4ft	-1.19	-14.63		R-10 8ft	-.73	-3.13	
Intercept	-21.771			Intercept	.000			Intercept	-12.210			Intercept	.000		
Slope(DD)	3938.98			Slope(DD)	2890.28			Slope(DD)	-1020.25			Slope(DD)	-412.73		
Curve(DDS)	91.794			Curve(DDS)	-8.106			Curve(DDS)	34.953			Curve(DDS)	7.122		
Unheated Basement (/sf)				Crawl (/sf)				Unheated Basement (/sf)				Crawl (/sf)			
R-0	-5.34	6.24		R-0	.00	15.14		R-0	-.83	-.38		R-0	.00	1.01	
R-11 flr	-8.12	1.61		R-11 flr	-7.71	2.29		R-11 flr	-.34	.44		R-11 flr	.24	1.41	
R-19 flr	-9.00	.15		R-19 flr	-8.96	.21		R-19 flr	-.22	.64		R-19 flr	.24	1.41	
R-30 flr	-9.56	-.79		R-30 flr	-9.64	-.92		R-30 flr	-.14	.77		R-30 flr	.25	1.42	
				R-38 flr	-9.79	-1.18						R-38 flr	.25	1.42	
				R-49 flr	-10.24	-1.92						R-49 flr	.26	1.43	
Intercept	-3.372			Intercept	-3.774			Intercept	1.118			Intercept	1.407		
Slope(DD)	3530.93			Slope(DD)	3583.71			Slope(DD)	-462.22			Slope(DD)	34.29		
Curve(DDS)	-323.054			Curve(DDS)	20.451			Curve(DDS)	33.359			Curve(DDS)	-21.838		
Infiltration (/sf flr) Window U-value (/sf)				Infiltration (/sf flr) Window U-value (/sf)				Infiltration (/sf flr) Window U-value (/sf)				Infiltration (/sf flr) Window U-value (/sf)			
ELF Ach				ELF Ach				ELF Ach				ELF Ach			
.0007(.67)	.00	9.19		1-Pane	.00	91.67		.0007(.51)	.00	.18		1-Pane	.00	2.20	
.0005(.49)	-4.19	5.70		2-Pane	-8.19	34.79		.0005(.37)	-.10	.10		2-Pane	-.18	.95	
.0003(.30)	-7.55	2.90		3-Pane	-10.08	21.65		.0003(.22)	-.17	.04		3-Pane	-.23	.60	
				R-10	-12.31	6.18						R-10	-.29	.19	
Slope/.001ELF	7.083			Slope(DD)	2546.03			Slope/.001ELF	.042			Slope(DD)	78.74		
Curve/.001ELF	8.646			Curve(DDS)	35.088			Curve/.001ELF	.313			Curve(DDS)	.174		
Base Load = 62.26 MBtu				Base Load = 14.04 MBtu				Base Load = 14.04 MBtu				Base Load = 14.04 MBtu			
Typical Load = 13.99 MBtu				Typical Load = 6.65 MBtu				Typical Load = 6.65 MBtu				Typical Load = 6.65 MBtu			
Residual Load = 8.81 MBtu				Residual Load = 1.40 MBtu				Residual Load = 1.40 MBtu				Residual Load = 1.40 MBtu			

Reno NV

TMY

MApartment Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	33.51	R-0	.00	27.07	R-0	.00	9.25	R-0	.00	3.81
R-7	-12.61	12.49	R-7	-4.81	11.89	R-7	-3.30	3.76	R-7	-.57	2.00
R-11	-14.63	9.14	R-11	-5.60	9.73	R-11	-3.82	2.88	R-11	-.65	1.74
R-19	-16.44	8.12	R-13	-6.24	7.38	R-19	-4.30	2.09	R-13	-.80	1.30
R-22	-17.02	5.14	R-19	-6.61	6.21	R-22	-4.48	1.78	R-19	-.86	1.08
R-30	-17.81	3.83	R-27	-7.16	4.49	R-30	-4.73	1.36	R-27	-.94	.83
R-38	-18.28	3.04	R-34	-7.49	3.44	R-38	-4.89	1.11	R-34	-.99	.68
R-49	-18.84	2.44				R-49	-5.03	.86			
R-60	-18.88	2.06				R-60	-5.13	.70			
Slope(DD)	5491.18		Slope(DD)	4234.49		Slope(DD)	1973.92		Slope(DD)	852.55	
Curve(DDS)	27.255		Curve(DDS)	148.374		Curve(DDS)	-69.800		Curve(DDS)	-26.872	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-9.04	42.34	R-0	-6.79	117.18	R-0	-.84	-8.16	R-0	-.68	-2.83
R-5 2ft	-9.83	15.84	R-5 4ft	-8.58	58.34	R-5 2ft	-.78	-8.16	R-5 4ft	-.68	-2.16
R-5 4ft	-9.97	11.18	R-5 8ft	-8.86	48.34	R-5 4ft	-.76	-5.33	R-5 8ft	-.65	-1.66
R-10 2ft	-9.97	11.18	R-10 4ft	-8.91	46.51	R-10 2ft	-.78	-5.49	R-10 4ft	-.66	-1.99
R-10 4ft	-10.16	5.01	R-10 8ft	-9.32	32.84	R-10 4ft	-.74	-4.68	R-10 8ft	-.64	-1.33
Intercept	-8.439		Intercept	.000		Intercept	-2.284		Intercept	.000	
Slope(DD)	4899.81		Slope(DD)	3618.22		Slope(DD)	-990.48		Slope(DD)	-168.03	
Curve(DDS)	69.229		Curve(DDS)	-10.146		Curve(DDS)	37.868		Curve(DDS)	2.487	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-6.79	5.86	R-0	.00	17.18	R-0	-.68	-.14	R-0	.00	1.00
R-11 flr	-9.09	2.03	R-11 flr	-8.24	3.44	R-11 flr	-.31	.48	R-11 flr	.19	1.33
R-19 flr	-9.90	.69	R-19 flr	-9.58	1.21	R-19 flr	-.20	.67	R-19 flr	.19	1.33
R-30 flr	-10.41	-.17	R-30 flr	-10.31	.01	R-30 flr	-.12	.80	R-30 flr	.20	1.33
			R-38 flr	-10.47	-.27				R-38 flr	.20	1.33
			R-49 flr	-10.94	-1.06				R-49 flr	.20	1.34
Intercept	-2.574		Intercept	-3.048		Intercept	1.150		Intercept	1.314	
Slope(DD)	3304.03		Slope(DD)	3833.87		Slope(DD)	-479.90		Slope(DD)	36.40	
Curve(DDS)	-323.638		Curve(DDS)	21.722		Curve(DDS)	44.463		Curve(DDS)	-19.039	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach						ELF Ach					
.0007(.67)	.00	9.07	1-Pane	.00	90.23	.0007(.51)	.00	.28	1-Pane	.00	3.19
.0005(.49)	-4.20	5.57	2-Pane	-8.38	32.07	.0005(.37)	-.12	.18	2-Pane	-.24	1.49
.0003(.30)	-7.53	2.80	3-Pane	-10.14	19.80	.0003(.22)	-.22	.09	3-Pane	-.32	.94
			R-10	-12.22	5.37				R-10	-.41	.31
Slope/.001ELF	6.583		Slope(DD)	2172.42		Slope/.001ELF	.250		Slope(DD)	130.92	
Curve/.001ELF	9.115		Curve(DDS)	47.178		Curve/.001ELF	.208		Curve(DDS)	-.385	
Base Load =	58.14 MBtu		Base Load =	11.85 MBtu		Base Load =	11.85 MBtu		Base Load =	5.07 MBtu	
Typical Load =	12.10 MBtu		Typical Load =	5.07 MBtu		Typical Load =	5.07 MBtu		Typical Load =	-.16 MBtu	
Residual Load =	8.97 MBtu		Residual Load =	-.16 MBtu		Residual Load =	-.16 MBtu		Residual Load =		

Salt Lake City U WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	31.85	R-0	.00	30.33
R-7	-29.20	12.89	R-7	-17.45	14.80
R-11	-33.88	9.87	R-11	-19.94	12.59
R-19	-38.05	8.95	R-13	-22.98	9.89
R-22	-39.69	5.88	R-19	-24.48	8.55
R-30	-41.88	4.48	R-27	-27.16	6.17
R-38	-43.20	3.60	R-34	-28.80	4.70
R-49	-44.37	2.84			
R-60	-45.13	2.35			
Slope(DD) 8501.41			Slope(DD) 6119.81		
Curve(DDS) -198.052			Curve(DDS) -89.324		
Slab (/ft)			Heated Basement (/ft)		
R-0	-17.74	54.72	R-0	-10.13	100.57
R-5 2ft	-22.89	23.70	R-5 4ft	-15.74	68.77
R-5 4ft	-24.35	14.90	R-5 8ft	-17.66	55.20
R-10 2ft	-23.84	17.98	R-10 4ft	-17.22	57.86
R-10 4ft	-25.88	5.69	R-10 8ft	-20.18	40.02
Intercept	-19.737		Intercept	.000	
Slope(DD)	7398.48		Slope(DD)	3995.10	
Curve(DDS)	-100.445		Curve(DDS)	-37.899	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-10.13	10.84	R-0	.00	17.42
R-11 flr	-24.80	1.44	R-11 flr	-25.27	1.01
R-19 flr	-28.54	-1.11	R-19 flr	-29.63	-1.82
R-30 flr	-31.07	-2.76	R-30 flr	-32.32	-3.57
			R-38 flr	-32.93	-3.96
			R-49 flr	-34.70	-5.11
Intercept	-7.158		Intercept	-7.808	
Slope(DD)	5971.77		Slope(DD)	5463.41	
Curve(DDS)	-480.084		Curve(DDS)	-106.074	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	140.24
.0007(.78)	.00	15.05	2-Pane	-13.59	86.70
.0005(.58)	-8.91	10.56	3-Pane	-18.08	42.43
.0003(.34)	-13.59	6.23	R-10	-23.35	13.88
Slope/.001ELF	20.195		Slope(DD)	5960.31	
Curve/.001ELF	1.867		Curve(DDS)	-24.559	

Base Load = 149.99 MBtu
 Typical Load = 46.07 MBtu
 Residual Load = 8.31 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	8.41	R-0	.00	3.91
R-7	-7.74	3.38	R-7	-2.19	1.96
R-11	-8.98	2.58	R-11	-2.50	1.68
R-19	-10.09	1.86	R-13	-2.95	1.29
R-22	-10.52	1.58	R-19	-3.17	1.09
R-30	-11.09	1.21	R-27	-3.48	.81
R-38	-11.44	.98	R-34	-3.67	.64
R-49	-11.78	.76			
R-60	-12.00	.62			
Slope(DD) 1749.57			Slope(DD) 816.86		
Curve(DDS) -55.782			Curve(DDS) -16.698		
Slab (/ft)			Heated Basement (/ft)		
R-0	-5.31	-6.54	R-0	-3.21	6.11
R-5 2ft	-5.28	-6.24	R-5 4ft	-3.74	2.92
R-5 4ft	-5.19	-5.82	R-5 8ft	-3.77	2.73
R-10 2ft	-5.25	-6.18	R-10 4ft	-3.87	2.13
R-10 4ft	-5.14	-5.52	R-10 8ft	-3.97	1.53
Intercept	-3.957		Intercept	.000	
Slope(DD)	-521.72		Slope(DD)	137.37	
Curve(DDS)	25.501		Curve(DDS)	.267	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.21	.66	R-0	.00	2.74
R-11 flr	-1.68	1.65	R-11 flr	.25	2.91
R-19 flr	-1.27	1.92	R-19 flr	.17	2.85
R-30 flr	-1.01	2.09	R-30 flr	.10	2.81
			R-38 flr	.09	2.80
			R-49 flr	.05	2.77
Intercept	2.541		Intercept	2.682	
Slope(DD)	-615.08		Slope(DD)	192.32	
Curve(DDS)	48.354		Curve(DDS)	-35.193	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	6.43
.0007(.52)	.00	.54	2-Pane	-.58	3.40
.0005(.37)	-.30	.34	3-Pane	-.79	2.18
.0003(.22)	-.55	.18	R-10	-1.05	.75
Slope/.001ELF	.487		Slope(DD)	325.76	
Curve/.001ELF	.408		Curve(DDS)	-3.112	

Base Load = 26.60 MBtu
 Typical Load = 7.39 MBtu
 Residual Load = -3.26 MBtu

Salt Lake City U WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	33.00	R-0	.00	28.82
R-7	-12.18	12.74	R-7	-7.35	13.39
R-11	-14.10	9.61	R-11	-8.40	11.19
R-19	-15.84	8.60	R-13	-9.60	8.67
R-22	-16.46	6.57	R-19	-10.20	7.42
R-30	-17.28	4.20	R-27	-11.19	5.35
R-38	-17.78	3.37	R-34	-11.79	4.08
R-49	-18.20	2.67			
R-60	-18.47	2.22			
Slope(DD) 6057.26			Slope(DD) 5193.93		
Curve(DDS) -82.847			Curve(DDS) 30.672		
Slab (/ft)			Heated Basement (/ft)		
R-0	-8.63	47.12	R-0	-6.03	112.12
R-5 2ft	-9.86	16.37	R-5 4ft	-7.91	65.12
R-5 4ft	-10.16	8.87	R-5 8ft	-8.42	52.37
R-10 2ft	-10.06	11.37	R-10 4ft	-8.33	54.62
R-10 4ft	-10.47	1.12	R-10 8ft	-9.03	37.12
Intercept	-18.236		Intercept	.000	
Slope(DD)	5333.59		Slope(DD)	3516.87	
Curve(DDS)	8.264		Curve(DDS)	-19.243	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-8.03	7.47	R-0	.00	17.52
R-11 flr	-9.43	1.81	R-11 flr	-9.09	2.37
R-19 flr	-10.53	-.03	R-19 flr	-10.60	-.14
R-30 flr	-11.24	-1.21	R-30 flr	-11.49	-1.62
			R-38 flr	-11.69	-1.96
			R-49 flr	-12.27	-2.93
Intercept	-4.463		Intercept	-5.252	
Slope(DD)	4463.84		Slope(DD)	4825.22	
Curve(DDS)	-416.520		Curve(DDS)	-35.743	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	117.19
.0007(.78)	.00	12.81	2-Pane	-9.87	48.65
.0005(.57)	-5.13	8.54	3-Pane	-12.48	30.55
.0003(.34)	-9.67	4.75	R-10	-15.54	9.27
Slope/.001ELF 13.999			Slope(DD) 3893.91		
Curve/.001ELF 6.146			Curve(DDS) 20.647		
Base Load = 69.57 MBtu					
Typical Load = 18.68 MBtu					
Residual Load = 5.54 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	8.42	R-0	.00	4.23
R-7	-3.03	3.37	R-7	-.98	2.21
R-11	-3.52	2.56	R-11	-1.10	1.92
R-19	-3.95	1.84	R-13	-1.31	1.47
R-22	-4.11	1.57	R-19	-1.42	1.26
R-30	-4.33	1.20	R-27	-1.57	.94
R-38	-4.46	.99	R-34	-1.66	.75
R-49	-4.60	.75			
R-60	-4.69	.60			
Slope(DD) 1726.82			Slope(DD) 959.92		
Curve(DDS) -51.728			Curve(DDS) -32.114		
Slab (/ft)			Heated Basement (/ft)		
R-0	-2.13	-18.86	R-0	-1.19	4.64
R-5 2ft	-2.11	-18.36	R-5 4ft	-1.34	.89
R-5 4ft	-2.09	-17.86	R-5 8ft	-1.33	1.14
R-10 2ft	-2.10	-18.11	R-10 4ft	-1.36	.39
R-10 4ft	-2.05	-16.86	R-10 8ft	-1.37	.14
Intercept	-13.604		Intercept	.000	
Slope(DD)	-1117.87		Slope(DD)	-13.05	
Curve(DDS)	56.647		Curve(DDS)	3.053	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.19	.31	R-0	.00	2.29
R-11 flr	-.63	1.24	R-11 flr	.11	2.48
R-19 flr	-.48	1.49	R-19 flr	.09	2.44
R-30 flr	-.39	1.64	R-30 flr	.07	2.40
			R-38 flr	.06	2.39
			R-49 flr	.04	2.37
Intercept	2.058		Intercept	2.295	
Slope(DD)	-582.26		Slope(DD)	162.92	
Curve(DDS)	43.133		Curve(DDS)	-31.872	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	4.62
.0007(.52)	.00	.39	2-Pane	-.35	2.19
.0005(.37)	-.17	.24	3-Pane	-.46	1.39
.0003(.22)	-.31	.13	R-10	-.60	.46
Slope/.001ELF .333			Slope(DD) 195.40		
Curve/.001ELF .313			Curve(DDS) -.770		
Base Load = 16.66 MBtu					
Typical Load = 8.92 MBtu					
Residual Load = 2.39 MBtu					

Salt Lake City U WYEC M Apartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	32.12	R-0	.00	28.97
R-7	-11.94	12.23	R-7	-4.99	13.22
R-11	-13.84	9.05	R-11	-5.71	10.98
R-19	-15.56	8.20	R-13	-6.50	8.48
R-22	-16.14	5.22	R-19	-6.89	7.24
R-30	-16.92	3.92	R-27	-7.53	5.21
R-38	-17.40	3.13	R-34	-7.93	3.96
R-49	-17.78	2.49			
R-60	-18.03	2.08			
Slope(DD) 5637.50			Slope(DD) 5009.67		
Curve(DDS) -37.038			Curve(DDS) 70.160		
Slab (/ft)			Heated Basement (/ft)		
R-0	-9.60	67.86	R-0	-7.51	137.53
R-5 2ft	-10.60	34.53	R-5 4ft	-9.26	79.53
R-5 4ft	-10.88	25.36	R-5 8ft	-9.74	63.53
R-10 2ft	-10.78	28.70	R-10 4ft	-9.65	66.36
R-10 4ft	-11.14	16.53	R-10 8ft	-10.29	45.20
Intercept	-7.683		Intercept	.000	
Slope(DD)	6855.95		Slope(DD)	4260.38	
Curve(DDS)	-47.808		Curve(DDS)	-22.297	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-7.51	6.88	R-0	.00	19.40
R-11 flr	-10.34	2.18	R-11 flr	-9.50	3.57
R-19 flr	-11.32	.53	R-19 flr	-11.07	.94
R-30 flr	-11.96	-.53	R-30 flr	-12.01	-.61
			R-38 flr	-12.22	-.97
			R-49 flr	-12.83	-1.99
Intercept	-3.487		Intercept	-4.410	
Slope(DD)	4070.57		Slope(DD)	4841.61	
Curve(DDS)	-399.686		Curve(DDS)	-38.610	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	116.04
.0007(.78)	.00	12.61	2-Pane	-10.01	46.52
.0005(.57)	-5.13	8.33	3-Pane	-12.52	29.11
.0003(.34)	-9.62	4.59	R-10	-15.46	8.64
Slope/.001ELF	13.270		Slope(DD)	3603.12	
Curve/.001ELF	6.771		Curve(DDS)	30.008	
Base Load = 65.45 MBtu					
Typical Load = 16.76 MBtu					
Residual Load = 5.78 MBtu					

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)		
R-0	.00	8.58	R-0	.00	3.84
R-7	-3.08	3.44	R-7	-.59	1.99
R-11	-3.57	2.62	R-11	-.67	1.73
R-19	-4.02	1.88	R-13	-.80	1.32
R-22	-4.19	1.60	R-19	-.87	1.11
R-30	-4.42	1.21	R-27	-.95	.84
R-38	-4.56	.98	R-34	-1.01	.67
R-49	-4.68	.77			
R-60	-4.77	.63			
Slope(DD) 1765.28			Slope(DD) 853.79		
Curve(DDS) -53.788			Curve(DDS) -25.914		
Slab (/ft)			Heated Basement (/ft)		
R-0	-1.53	-10.05	R-0	-1.01	7.29
R-5 2ft	-1.51	-9.38	R-5 4ft	-1.12	3.62
R-5 4ft	-1.49	-8.71	R-5 8ft	-1.13	3.45
R-10 2ft	-1.51	-9.21	R-10 4ft	-1.15	2.79
R-10 4ft	-1.48	-8.38	R-10 8ft	-1.17	1.95
Intercept	-6.402		Intercept	.000	
Slope(DD)	-638.83		Slope(DD)	182.27	
Curve(DDS)	27.891		Curve(DDS)	-.131	
Unheated Basement (/sf)			Crawl (/sf)		
R-0	-1.01	.36	R-0	.00	2.05
R-11 flr	-.58	1.08	R-11 flr	.14	2.27
R-19 flr	-.45	1.30	R-19 flr	.12	2.24
R-30 flr	-.37	1.44	R-30 flr	.09	2.20
			R-38 flr	.09	2.19
			R-49 flr	.07	2.16
Intercept	1.822		Intercept	2.089	
Slope(DD)	-523.14		Slope(DD)	169.33	
Curve(DDS)	48.580		Curve(DDS)	-34.578	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	5.58
.0007(.52)	.00	.45	2-Pane	-.41	2.73
.0005(.37)	-.21	.27	3-Pane	-.55	1.74
.0003(.22)	-.38	.14	R-10	-.72	.58
Slope/.001ELF	.312		Slope(DD)	248.98	
Curve/.001ELF	.469		Curve(DDS)	-1.428	
Base Load = 14.57 MBtu					
Typical Load = 7.40 MBtu					
Residual Load = .93 MBtu					

San Antonio TX WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	10.43	R-0	.00	8.60	R-0	.00	10.24	R-0	.00	5.49
R-7	-9.86	4.03	R-7	-5.36	3.83	R-7	-9.86	3.96	R-7	-3.16	2.88
R-11	-11.44	3.01	R-11	-8.12	3.15	R-11	-11.20	2.96	R-11	-3.61	2.28
R-19	-12.85	2.09	R-13	-8.98	2.39	R-19	-12.59	2.08	R-13	-4.10	1.84
R-22	-13.35	1.78	R-19	-7.40	2.01	R-22	-13.09	1.74	R-19	-4.35	1.82
R-30	-14.03	1.32	R-27	-8.02	1.46	R-30	-13.76	1.30	R-27	-4.89	1.14
R-38	-14.44	1.06	R-34	-8.40	1.13	R-38	-14.16	1.04	R-34	-5.22	.86
R-49	-14.77	.84				R-49	-14.48	.83			
R-60	-14.98	.71				R-60	-14.69	.70			
Slope(DD)	1915.69		Slope(DD)	1390.55		Slope(DD)	1892.20		Slope(DD)	1130.28	
Curve(DDS)	-26.286		Curve(DDS)	38.791		Curve(DDS)	-27.914		Curve(DDS)	-20.404	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-7.98	13.34	R-0	-5.72	26.96	R-0	-7.55	2.71	R-0	-2.62	32.40
R-5 2ft	-9.28	5.51	R-5 4ft	-7.90	13.82	R-5 2ft	-7.94	.36	R-5 4ft	-3.19	28.97
R-5 4ft	-9.53	4.00	R-5 8ft	-8.36	11.05	R-5 4ft	-7.99	.06	R-5 8ft	-3.33	28.13
R-10 2ft	-9.47	4.37	R-10 4ft	-8.35	11.11	R-10 2ft	-8.04	-.25	R-10 4ft	-3.36	27.95
R-10 4ft	-9.76	2.82	R-10 8ft	-8.90	7.80	R-10 4ft	-8.03	-.19	R-10 8ft	-3.55	26.80
Intercept	.000		Intercept	.973		Intercept	.000		Intercept	23.873	
Slope(DD)	605.72		Slope(DD)	632.29		Slope(DD)	-196.61		Slope(DD)	298.88	
Curve(DDS)	53.422		Curve(DDS)	.740		Curve(DDS)	39.699		Curve(DDS)	-2.029	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-5.72	2.91	R-0	.00	6.62	R-0	-2.62	3.49	R-0	.00	5.19
R-11 flr	-8.56	1.06	R-11 flr	-7.51	1.74	R-11 flr	-2.28	3.71	R-11 flr	-.69	4.76
R-19 flr	-9.24	.62	R-19 flr	-8.82	1.02	R-19 flr	-2.40	3.63	R-19 flr	-1.15	4.45
R-30 flr	-9.68	.33	R-30 flr	-9.20	.65	R-30 flr	-2.48	3.58	R-30 flr	-1.60	4.22
			R-38 flr	-9.33	.56				R-38 flr	-1.58	4.17
			R-49 flr	-9.71	.31				R-49 flr	-1.81	4.02
Intercept	-.409		Intercept	-.287		Intercept	3.403		Intercept	3.612	
Slope(DD)	998.31		Slope(DD)	1144.73		Slope(DD)	267.86		Slope(DD)	861.15	
Curve(DDS)	-68.638		Curve(DDS)	39.433		Curve(DDS)	-48.827		Curve(DDS)	-107.771	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	32.39	ELF Ach			1-Pane	.00	6.71
.0007(.68)	.00	3.82	2-Pane	-3.80	11.82	.0007(.58)	.00	5.25	2-Pane	-.72	2.81
.0005(.48)	-2.17	2.41	3-Pane	-4.63	7.32	.0005(.41)	-2.11	3.88	3-Pane	-.91	1.77
.0003(.29)	-3.95	1.26	R-10	-5.61	2.03	.0003(.25)	-4.38	2.41	R-10	-1.14	.54
Slope/.001ELF	3.247		Slope(DD)	827.77		Slope/.001ELF	8.409		Slope(DD)	227.17	
Curve/.001ELF	3.166		Curve(DDS)	15.115		Curve/.001ELF	-1.299		Curve(DDS)	1.021	
Base Load =	44.47 MBtu		Base Load =	57.62 MBtu		Base Load =	57.62 MBtu		Base Load =	57.62 MBtu	
Typical Load =	14.05 MBtu		Typical Load =	31.37 MBtu		Typical Load =	31.37 MBtu		Typical Load =	31.37 MBtu	
Residual Load =	.64 MBtu		Residual Load =	6.83 MBtu		Residual Load =	6.83 MBtu		Residual Load =	6.83 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.60	R-0	.00	7.93	R-0	.00	10.18	R-0	.00	5.23
R-7	-4.05	3.84	R-7	-2.21	3.30	R-7	-3.80	3.84	R-7	-1.34	2.42
R-11	-4.70	2.77	R-11	-2.52	2.64	R-11	-4.41	2.83	R-11	-1.53	2.02
R-19	-5.28	1.80	R-13	-2.84	1.97	R-19	-4.95	1.93	R-13	-1.76	1.53
R-22	-5.45	1.51	R-19	-3.00	1.64	R-22	-5.12	1.63	R-19	-1.88	1.28
R-30	-5.69	1.12	R-27	-3.22	1.18	R-30	-5.36	1.24	R-27	-2.04	.95
R-38	-5.83	.88	R-34	-3.35	.90	R-38	-5.50	1.01	R-34	-2.14	.74
R-49	-5.93	.71				R-49	-5.64	.78			
R-60	-6.00	.60				R-60	-5.73	.63			
Slope(DD) 1582.78			Slope(DD) 1073.79			Slope(DD) 1754.91			Slope(DD) 915.81		
Curve(DDS) 34.543			Curve(DDS) 74.554			Curve(DDS) -6.526			Curve(DDS) 10.507		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-3.27	11.36	R-0	-2.58	28.61	R-0	-2.96	.30	R-0	-1.03	48.55
R-5 2ft	-3.53	4.88	R-5 4ft	-3.16	14.11	R-5 2ft	-3.08	-2.20	R-5 4ft	-1.17	45.05
R-5 4ft	-3.59	3.38	R-5 8ft	-3.26	11.61	R-5 4ft	-3.07	-2.45	R-5 8ft	-1.19	44.55
R-10 2ft	-3.57	3.86	R-10 4ft	-3.28	11.61	R-10 2ft	-3.07	-2.45	R-10 4ft	-1.20	44.30
R-10 4ft	-3.63	2.36	R-10 8ft	-3.38	8.61	R-10 4ft	-3.05	-1.95	R-10 8ft	-1.23	43.55
Intercept	.000		Intercept	3.263		Intercept	.000		Intercept	41.911	
Slope(DD)	553.25		Slope(DD)	451.89		Slope(DD)	-880.27		Slope(DD)	150.74	
Curve(DDS)	42.184		Curve(DDS)	4.919		Curve(DDS)	81.621		Curve(DDS)	.461	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-2.58	1.91	R-0	.00	6.21	R-0	-1.03	3.24	R-0	.00	4.95
R-11 flr	-3.20	.87	R-11 flr	-2.59	1.89	R-11 flr	-.72	3.75	R-11 flr	-.11	4.77
R-19 flr	-3.37	.59	R-19 flr	-2.95	1.29	R-19 flr	-.71	3.77	R-19 flr	-.25	4.54
R-30 flr	-3.48	.41	R-30 flr	-3.14	.98	R-30 flr	-.70	3.79	R-30 flr	-.23	4.56
			R-38 flr	-3.18	.91				R-38 flr	-.23	4.57
			R-49 flr	-3.30	.70				R-49 flr	-.22	4.59
Intercept	-.082		Intercept	.223		Intercept	3.783		Intercept	4.340	
Slope(DD)	665.00		Slope(DD)	912.54		Slope(DD)	24.62		Slope(DD)	286.21	
Curve(DDS)	-54.013		Curve(DDS)	49.649		Curve(DDS)	-25.582		Curve(DDS)	-32.451	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	27.22	ELF Ach			1-Pane	.00	-4.18
.0007(.68)	.00	2.95	2-Pane	-2.63	8.95	.0007(.57)	.00	4.64	2-Pane	-.27	-8.06
.0005(.48)	-1.51	1.69	3-Pane	-3.13	5.47	.0005(.41)	-1.38	3.49	3-Pane	.01	-4.08
.0003(.29)	-2.62	.76	R-10	-3.72	1.38	.0003(.25)	-2.93	2.20	R-10	.35	-1.75
Slope/.001ELF	1.291		Slope(DD)	544.64		Slope/.001ELF	7.875		Slope(DD)	-801.36	
Curve/.001ELF	4.167		Curve(DDS)	18.420		Curve/.001ELF	-1.771		Curve(DDS)	24.356	
Base Load = 19.89 MBtu			Base Load = 37.96 MBtu			Base Load = 37.96 MBtu			Base Load = 37.96 MBtu		
Typical Load = 7.05 MBtu			Typical Load = 27.04 MBtu			Typical Load = 27.04 MBtu			Typical Load = 27.04 MBtu		
Residual Load = 1.86 MBtu			Residual Load = 12.42 MBtu			Residual Load = 12.42 MBtu			Residual Load = 12.42 MBtu		

San Antonio TX WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	10.84	R-0	.00	7.65
R-7	-4.18	3.88	R-7	-1.48	2.97
R-11	-4.85	2.77	R-11	-1.70	2.30
R-19	-5.45	1.77	R-13	-1.89	1.69
R-22	-5.62	1.48	R-19	-1.99	1.39
R-30	-5.85	1.09	R-27	-2.11	.99
R-38	-5.99	.86	R-34	-2.19	.74
R-49	-6.09	.69			
R-60	-6.16	.59			
Slope(DD)	1540.20		Slope(DD)	847.67	
Curve(DDS)	48.715		Curve(DDS)	106.839	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-3.45	10.33	R-0	-2.99	25.66
R-5 2ft	-3.65	3.66	R-5 4ft	-3.48	9.50
R-5 4ft	-3.89	2.50	R-5 8ft	-3.54	7.33
R-10 2ft	-3.88	2.66	R-10 4ft	-3.54	7.33
R-10 4ft	-3.72	1.50	R-10 8ft	-3.61	5.00
Intercept	.000		Intercept	2.190	
Slope(DD)	236.06		Slope(DD)	142.08	
Curve(DDS)	62.312		Curve(DDS)	11.585	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-2.99	1.28	R-0	.00	6.27
R-11 flr	-3.47	.48	R-11 flr	-2.76	1.68
R-19 flr	-3.59	.30	R-19 flr	-3.11	1.09
R-30 flr	-3.66	.17	R-30 flr	-3.28	.81
			R-38 flr	-3.32	.74
			R-49 flr	-3.43	.55
Intercept	-.139		Intercept	.118	
Slope(DD)	420.27		Slope(DD)	802.39	
Curve(DDS)	-27.890		Curve(DDS)	77.684	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	25.78
.0007(.68)	.00	2.63	2-Pane	-2.57	7.94
.0005(.49)	-1.46	1.41	3-Pane	-3.02	4.81
.0003(.29)	-2.48	.57	R-10	-3.55	1.13
Slope/.001ELF	.479		Slope(DD)	432.50	
Curve/.001ELF	4.688		Curve(DDS)	20.613	

Base Load = 18.57 MBtu
Typical Load = 6.31 MBtu
Residual Load = 2.29 MBtu

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	10.51	R-0	.00	5.06
R-7	-3.99	3.87	R-7	-.88	2.28
R-11	-4.62	2.81	R-11	-1.01	1.89
R-19	-5.19	1.85	R-13	-1.13	1.49
R-22	-5.37	1.57	R-19	-1.19	1.29
R-30	-5.60	1.18	R-27	-1.32	.91
R-38	-5.74	.95	R-34	-1.39	.67
R-49	-5.86	.74			
R-60	-5.94	.60			
Slope(DD)	1857.77		Slope(DD)	866.42	
Curve(DDS)	19.462		Curve(DDS)	13.678	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.40	-1.56	R-0	-.85	50.11
R-5 2ft	-2.45	-3.39	R-5 4ft	-.98	45.61
R-5 4ft	-2.46	-3.56	R-5 8ft	-1.02	44.27
R-10 2ft	-2.46	-3.73	R-10 4ft	-1.02	44.44
R-10 4ft	-2.43	-2.73	R-10 8ft	-1.05	43.27
Intercept	.000		Intercept	40.518	
Slope(DD)	-1159.65		Slope(DD)	255.00	
Curve(DDS)	91.768		Curve(DDS)	-.273	
Unheated Basement (/sf)			Crawl	(/sf)	
R-0	-.85	2.51	R-0	.00	3.91
R-11 flr	-.55	3.00	R-11 flr	.09	4.06
R-19 flr	-.52	3.04	R-19 flr	-.04	3.86
R-30 flr	-.51	3.07	R-30 flr	-.08	3.79
			R-38 flr	-.09	3.77
			R-49 flr	-.11	3.73
Intercept	3.122		Intercept	3.443	
Slope(DD)	-63.85		Slope(DD)	489.24	
Curve(DDS)	-12.984		Curve(DDS)	-77.491	
Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	-1.94
.0007(.68)	.00	4.83	2-Pane	-.39	-4.64
.0005(.41)	-1.41	3.66	3-Pane	-.18	-3.16
.0003(.25)	-3.01	2.32	R-10	.07	-1.41
Slope/.001ELF	8.354		Slope(DD)	-653.22	
Curve/.001ELF	-2.083		Curve(DDS)	21.966	

Base Load = 35.85 MBtu
Typical Load = 25.79 MBtu
Residual Load = 11.08 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	10.16	R-0	.00	7.16	R-0	.00	3.52	R-0	.00	1.34
R-7	-9.83	3.77	R-7	-4.92	2.78	R-7	-3.26	1.40	R-7	-.57	.83
R-11	-11.40	2.75	R-11	-5.62	2.16	R-11	-3.78	1.07	R-11	-.66	.76
R-19	-12.81	1.84	R-13	-8.29	1.66	R-19	-4.25	.76	R-13	-.84	.69
R-22	-13.27	1.54	R-19	-6.62	1.27	R-22	-4.44	.64	R-19	-.94	.60
R-30	-13.89	1.14	R-27	-7.02	.91	R-30	-4.70	.47	R-27	-1.07	.39
R-38	-14.26	.90	R-34	-7.26	.70	R-38	-4.85	.37	R-34	-1.15	.32
R-49	-14.52	.73				R-49	-4.95	.31			
R-60	-14.68	.62				R-60	-5.01	.27			
Slope(DD) 1640.61			Slope(DD) 784.20			Slope(DD) 704.73			Slope(DD) 417.48		
Curve(DDS) 12.217			Curve(DDS) 101.668			Curve(DDS) -18.678			Curve(DDS) -31.242		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-4.43	11.04	R-0	-3.26	18.08	R-0	-1.23	-7.60	R-0	-.79	-4.95
R-5 2ft	-5.70	3.39	R-5 4ft	-4.89	8.27	R-5 2ft	-1.04	-8.48	R-5 4ft	-.75	-4.71
R-5 4ft	-5.89	2.24	R-5 8ft	-5.20	6.40	R-5 4ft	-.87	-5.43	R-5 8ft	-.72	-4.63
R-10 2ft	-5.84	2.54	R-10 4ft	-5.15	6.70	R-10 2ft	-1.00	-6.22	R-10 4ft	-.74	-4.65
R-10 4ft	-6.05	1.28	R-10 8ft	-5.49	4.65	R-10 4ft	-.88	-4.29	R-10 8ft	-.64	-4.06
Intercept	.000		Intercept	1.209		Intercept	.000		Intercept	-2.813	
Slope(DD)	175.72		Slope(DD)	291.82		Slope(DD)	-1646.80		Slope(DD)	-146.41	
Curve(DDS)	73.662		Curve(DDS)	3.320		Curve(DDS)	86.671		Curve(DDS)	2.330	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-3.26	1.95	R-0	.00	4.07	R-0	-.79	-.53	R-0	.00	-.02
R-11 flr	-8.08	.13	R-11 flr	-8.63	-.24	R-11 flr	.31	.19	R-11 flr	.90	.50
R-19 flr	-8.58	-.20	R-19 flr	-7.24	-.84	R-19 flr	.69	.43	R-19 flr	.84	.52
R-30 flr	-8.91	-.42	R-30 flr	-7.53	-.83	R-30 flr	.93	.58	R-30 flr	.99	.62
			R-38 flr	-7.60	-.87				R-38 flr	1.02	.64
			R-49 flr	-7.79	-.99				R-49 flr	1.12	.70
Intercept	-.948		Intercept	-1.186		Intercept	1.021		Intercept	.731	
Slope(DD)	689.48		Slope(DD)	346.65		Slope(DD)	-602.56		Slope(DD)	-152.67	
Curve(DDS)	-24.265		Curve(DDS)	132.124		Curve(DDS)	58.377		Curve(DDS)	1.197	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	21.98	ELF Ach			1-Pane	.00	-4.52
.0007(.58)	.00	1.51	2-Pane	-2.89	6.35	.0007(.50)	.00	-.55	2-Pane	.40	-2.35
.0005(.41)	-1.59	.48	3-Pane	-3.36	3.81	.0005(.35)	.13	-.47	3-Pane	.56	-1.51
.0003(.25)	-2.44	-.07	R-10	-3.91	.83	.0003(.21)	.35	-.32	R-10	.74	-.51
Slope/.001ELF	-2.046		Slope(DD)	304.11		Slope/.001ELF	-1.299		Slope(DD)	-223.56	
Curve/.001ELF	6.007		Curve(DDS)	20.023		Curve/.001ELF	.731		Curve(DDS)	1.984	
Base Load = 35.58 MBtu			Base Load = 8.46 MBtu			Base Load = 8.46 MBtu			Base Load = 8.46 MBtu		
Typical Load = 9.86 MBtu			Typical Load = 2.65 MBtu			Typical Load = 2.65 MBtu			Typical Load = 2.65 MBtu		
Residual Load = 4.96 MBtu			Residual Load = .56 MBtu			Residual Load = .56 MBtu			Residual Load = .56 MBtu		

San Diego CA TMY Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)		Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	9.42	R-0	.00	5.64	R-0	.00	4.17	R-0	.00	.75
R-7	-3.75	3.18	R-7	-1.70	2.08	R-7	-1.37	1.89	R-7	-.25	.21
R-11	-4.34	2.19	R-11	-1.94	1.57	R-11	-1.58	1.53	R-11	-.29	.14
R-19	-4.88	1.29	R-13	-2.14	1.15	R-19	-1.78	1.20	R-13	-.34	.04
R-22	-5.01	1.08	R-19	-2.24	.94	R-22	-1.89	1.01	R-19	-.36	-.01
R-30	-5.18	.79	R-27	-2.38	.85	R-30	-2.05	.76	R-27	-.35	.02
R-38	-5.28	.62	R-34	-2.46	.48	R-38	-2.14	.60	R-34	-.34	.03
R-49	-5.36	.49				R-49	-2.20	.50			
R-60	-5.41	.41				R-60	-2.24	.44			
Slope(DD)	1088.25		Slope(DD)	532.41		Slope(DD)	1167.12		Slope(DD)	-7.37	
Curve(DDS)	87.907		Curve(DDS)	98.018		Curve(DDS)	-78.218		Curve(DDS)	27.254	
Slab	(/ft)		Heated Basement	(/ft)		Slab	(/ft)		Heated Basement	(/ft)	
R-0	-1.78	8.47	R-0	-1.31	20.22	R-0	-.38	-22.33	R-0	-.16	-16.83
R-5 2ft	-1.98	3.47	R-5 4ft	-1.68	11.47	R-5 2ft	-.30	-20.33	R-5 4ft	-.09	-15.08
R-5 4ft	-2.01	2.72	R-5 8ft	-1.72	9.97	R-5 4ft	-.30	-20.33	R-5 8ft	-.07	-14.58
R-10 2ft	-2.00	2.97	R-10 4ft	-1.71	10.22	R-10 2ft	-.28	-19.83	R-10 4ft	-.07	-14.58
R-10 4ft	-2.05	1.72	R-10 8ft	-1.80	7.97	R-10 4ft	-.04	-13.83	R-10 8ft	-.03	-13.58
Intercept	.000		Intercept	4.246		Intercept	.000		Intercept	-11.293	
Slope(DD)	482.92		Slope(DD)	347.18		Slope(DD)	-5666.74		Slope(DD)	-251.81	
Curve(DDS)	25.123		Curve(DDS)	1.353		Curve(DDS)	329.714		Curve(DDS)	2.831	
Unheated Basement	(/sf)		Crawl	(/sf)		Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.31	1.35	R-0	.00	3.53	R-0	-.16	-1.12	R-0	.00	-.86
R-11 flr	-1.88	.40	R-11 flr	-1.83	.48	R-11 flr	.27	-.41	R-11 flr	.37	-.24
R-19 flr	-2.02	.16	R-19 flr	-2.03	.15	R-19 flr	.34	-.29	R-19 flr	.34	-.29
R-30 flr	-2.11	.01	R-30 flr	-2.14	-.03	R-30 flr	.38	-.22	R-30 flr	.71	.34
			R-38 flr	-2.16	-.07				R-38 flr	.80	.48
			R-49 flr	-2.23	-.19				R-49 flr	1.05	.89
Intercept	-.379		Intercept	-.399		Intercept	-.057		Intercept	1.034	
Slope(DD)	529.79		Slope(DD)	412.65		Slope(DD)	-210.88		Slope(DD)	-1082.82	
Curve(DDS)	-37.644		Curve(DDS)	69.005		Curve(DDS)	.565		Curve(DDS)	139.408	
Infiltration	(/sf flr)		Window U-value	(/sf)		Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	15.32	ELF Ach			1-Pane	.00	-17.60
.0007(.58)	.00	1.22	2-Pane	-1.50	4.90	.0007(.50)	.00	-1.94	2-Pane	.68	-12.88
.0005(.41)	-.77	.58	3-Pane	-1.78	2.98	.0005(.35)	.24	-1.74	3-Pane	1.32	-8.44
.0003(.25)	-1.26	.17	R-10	-2.10	.73	.0003(.21)	.82	-1.26	R-10	2.07	-3.22
Slope/.001ELF	-.292		Slope(DD)	285.25		Slope/.001ELF	-5.250		Slope(DD)	-1438.83	
Curve/.001ELF	2.917		Curve(DDS)	11.171		Curve/.001ELF	3.542		Curve(DDS)	29.252	

Base Load = 13.42 MBtu
Typical Load = 3.85 MBtu
Residual Load = 4.11 MBtu

Base Load = 6.23 MBtu
Typical Load = 4.10 MBtu
Residual Load = 6.86 MBtu

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	9.35	R-0	.00	5.04
R-7	-3.77	3.06	R-7	-1.09	1.60
R-11	-4.37	2.06	R-11	-1.24	1.11
R-19	-4.91	1.16	R-13	-1.34	.80
R-22	-5.03	.98	R-19	-1.39	.65
R-30	-5.19	.70	R-27	-1.46	.42
R-38	-5.28	.55	R-34	-1.51	.27
R-49	-5.35	.43			
R-60	-5.39	.38			
Slope(DD)	922.80		Slope(DD)	263.08	
Curve(DDS)	110.308		Curve(DDS)	125.111	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.09	6.28	R-0	-1.85	14.44
R-5 2ft	-2.20	2.78	R-5 4ft	-2.08	6.61
R-5 4ft	-2.22	2.11	R-5 8ft	-2.13	5.11
R-10 2ft	-2.21	2.44	R-10 4ft	-2.12	5.44
R-10 4ft	-2.24	1.44	R-10 8ft	-2.17	3.61
Intercept	.000		Intercept	.006	
Slope(DD)	427.00		Slope(DD)	266.31	
Curve(DDS)	12.433		Curve(DDS)	2.042	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.85	.72	R-0	.00	3.80
R-11 flr	-2.22	.11	R-11 flr	-2.03	.42
R-19 flr	-2.30	-.04	R-19 flr	-2.18	.17
R-30 flr	-2.36	-.13	R-30 flr	-2.26	.02
			R-38 flr	-2.29	-.01
			R-49 flr	-2.34	-.11
Intercept	-.364		Intercept	-.189	
Slope(DD)	316.21		Slope(DD)	176.15	
Curve(DDS)	-20.358		Curve(DDS)	117.216	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	13.08
.0007(.58)	.00	.87	2-Pane	-1.29	4.16
.0005(.42)	-.75	.25	3-Pane	-1.52	2.53
.0003(.25)	-1.14	-.08	R-10	-1.80	.62
Slope/.001ELF	-1.375		Slope(DD)	239.68	
Curve/.001ELF	3.750		Curve(DDS)	9.692	
Base Load =	12.17 MBtu				
Typical Load =	3.07 MBtu				
Residual Load =	4.58 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	3.88	R-0	.00	.78
R-7	-1.29	1.72	R-7	-.19	.17
R-11	-1.49	1.38	R-11	-.22	.08
R-19	-1.67	1.07	R-13	-.25	-.01
R-22	-1.78	.89	R-19	-.27	-.06
R-30	-1.93	.65	R-27	-.25	-.02
R-38	-2.01	.50	R-34	-.25	.00
R-49	-2.05	.44			
R-60	-2.07	.40			
Slope(DD)	1021.83		Slope(DD)	-56.11	
Curve(DDS)	-62.508		Curve(DDS)	37.311	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.16	-23.95	R-0	-.16	-23.79
R-5 2ft	-.05	-20.12	R-5 4ft	-.09	-21.45
R-5 4ft	-.01	-18.62	R-5 8ft	-.09	-21.45
R-10 2ft	-.04	-19.79	R-10 4ft	-.09	-21.62
R-10 4ft	.15	-13.45	R-10 8ft	-.04	-19.95
Intercept	.000		Intercept	-17.570	
Slope(DD)	-5330.08		Slope(DD)	-283.15	
Curve(DDS)	286.100		Curve(DDS)	3.203	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.16	-1.19	R-0	.00	-.92
R-11 flr	.28	-.46	R-11 flr	.42	-.21
R-19 flr	.41	-.23	R-19 flr	.47	-.14
R-30 flr	.51	-.08	R-30 flr	.54	-.03
			R-38 flr	.55	-.01
			R-49 flr	.59	.07
Intercept	.332		Intercept	.140	
Slope(DD)	-566.42		Slope(DD)	-228.09	
Curve(DDS)	52.600		Curve(DDS)	4.084	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-13.42
.0007(.58)	.00	-.81	2-Pane	.40	-10.65
.0005(.42)	.19	-.65	3-Pane	.92	-7.01
.0003(.21)	.45	-.43	R-10	1.54	-2.73
Slope/.001ELF	-1.667		Slope(DD)	-1223.94	
Curve/.001ELF	.729		Curve(DDS)	27.102	
Base Load =	4.68 MBtu				
Typical Load =	2.92 MBtu				
Residual Load =	3.69 MBtu				

San Francisco CA TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 20.25	R-0	.00 18.45
R-7	-18.58 8.18	R-7	-10.87 8.78
R-11	-21.55 6.25	R-11	-12.42 7.40
R-19	-24.21 4.52	R-13	-14.33 5.71
R-22	-25.28 3.83	R-19	-15.27 4.87
R-30	-26.72 2.89	R-27	-16.75 3.55
R-38	-27.59 2.33	R-34	-17.66 2.74
R-49	-28.33 1.85		
R-60	-28.80 1.54		
Slope(DD)	4242.92	Slope(DD)	3484.77
Curve(DDS)	-139.693	Curve(DDS)	-9.887
Slab	(/ft)	Heated Basement	(/ft)
R-0	-9.92 45.99	R-0	-7.20 62.37
R-5 2ft	-13.69 23.88	R-5 4ft	-10.60 41.89
R-5 4ft	-14.53 18.22	R-5 8ft	-11.81 34.60
R-10 2ft	-14.22 20.08	R-10 4ft	-11.47 36.65
R-10 4ft	-15.37 13.16	R-10 8ft	-13.13 26.65
Intercept	.000	Intercept	5.162
Slope(DD)	5032.69	Slope(DD)	2514.90
Curve(DDS)	-40.624	Curve(DDS)	-26.646
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-7.20 6.72	R-0	.00 11.40
R-11 flr	-16.87 .44	R-11 flr	-19.17 -1.05
R-19 flr	-19.25 -1.10	R-19 flr	-21.72 -2.71
R-30 flr	-20.78 -2.09	R-30 flr	-22.78 -3.39
		R-38 flr	-23.02 -3.55
		R-49 flr	-23.72 -4.00
Intercept	-4.703	Intercept	-5.210
Slope(DD)	3511.05	Slope(DD)	2085.61
Curve(DDS)	-250.182	Curve(DDS)	224.961
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 79.18
.0007(.73)	.00 9.72	2-Pane	-8.97 30.64
.0005(.51)	-5.49 8.16	3-Pane	-11.10 19.10
.0003(.31)	-10.01 3.22	R-10	-13.61 5.53
Slope/.001ELF	8.376	Slope(DD)	2289.33
Curve/.001ELF	7.874	Curve(DDS)	26.891
Base Load =	91.77 MBtu		
Typical Load =	36.06 MBtu		
Residual Load =	9.18 MBtu		

Cooling Load

Delta Component (MBtu) (KBtu)		Delta Component (MBtu) (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00 .74	R-0	.00 .31
R-7	-.72 .28	R-7	-.16 .17
R-11	-.84 .20	R-11	-.18 .15
R-19	-.94 .13	R-13	-.22 .11
R-22	-.97 .11	R-19	-.24 .09
R-30	-1.01 .09	R-27	-.26 .07
R-38	-1.04 .07	R-34	-.28 .06
R-49	-1.06 .05		
R-60	-1.08 .04		
Slope(DD)	121.18	Slope(DD)	74.86
Curve(DDS)	.753	Curve(DDS)	-3.270
Slab	(/ft)	Heated Basement	(/ft)
R-0	-.38 -1.00	R-0	-.31 -.58
R-5 2ft	-.30 -.52	R-5 4ft	-.28 -.40
R-5 4ft	-.27 -.34	R-5 8ft	-.26 -.28
R-10 2ft	-.28 -.40	R-10 4ft	-.27 -.34
R-10 4ft	-.26 -.28	R-10 8ft	-.25 -.22
Intercept	.000	Intercept	.044
Slope(DD)	-98.23	Slope(DD)	-30.75
Curve(DDS)	-.281	Curve(DDS)	.376
Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.31 -.06	R-0	.00 .14
R-11 flr	-.10 .07	R-11 flr	.15 .24
R-19 flr	-.05 .11	R-19 flr	.15 .24
R-30 flr	-.02 .13	R-30 flr	.16 .24
		R-38 flr	.16 .24
		R-49 flr	.17 .25
Intercept	.178	Intercept	.240
Slope(DD)	-70.55	Slope(DD)	4.36
Curve(DDS)	4.594	Curve(DDS)	-4.712
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00 .32
.0007(.93)	.00 .05	2-Pane	.01 .38
.0005(.67)	-.01 .04	3-Pane	-.01 .25
.0003(.40)	-.03 .03	R-10	-.04 .10
Slope/.001ELF	.130	Slope(DD)	47.80
Curve/.001ELF	-.081	Curve(DDS)	-1.350
Base Load =	1.95 MBtu		
Typical Load =	.52 MBtu		
Residual Load =	-.38 MBtu		

San Francisco CA TMY Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	21.73	R-0	.00	16.25
R-7	-8.30	7.89	R-7	-4.63	6.54
R-11	-9.63	5.68	R-11	-5.29	5.15
R-19	-10.82	3.70	R-13	-5.93	3.80
R-22	-11.18	3.10	R-19	-6.25	3.14
R-30	-11.66	2.30	R-27	-6.67	2.25
R-38	-11.95	1.81	R-34	-6.93	1.71
R-49	-12.16	1.46			
R-60	-12.30	1.23			
Slope(DD)	3256.26		Slope(DD)	1995.57	
Curve(DDS)	68.970		Curve(DDS)	190.880	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-5.12	30.00	R-0	-3.99	58.25
R-5 2ft	-5.83	12.25	R-5 4ft	-5.02	32.50
R-5 4ft	-5.97	8.75	R-5 8ft	-5.25	26.75
R-10 2ft	-5.92	10.00	R-10 4ft	-5.20	28.00
R-10 4ft	-6.08	6.00	R-10 8ft	-5.47	21.25
Intercept	.000		Intercept	8.548	
Slope(DD)	1963.08		Slope(DD)	1340.77	
Curve(DDS)	106.363		Curve(DDS)	-1.082	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-3.99	3.88	R-0	.00	10.53
R-11 flr	-5.99	.55	R-11 flr	-6.16	.27
R-19 flr	-6.54	-.37	R-19 flr	-6.90	-.97
R-30 flr	-6.90	-.97	R-30 flr	-7.26	-1.56
			R-38 flr	-7.34	-1.70
			R-49 flr	-7.58	-2.09
Intercept	-2.560		Intercept	-2.946	
Slope(DD)	2165.32		Slope(DD)	1571.64	
Curve(DDS)	-177.203		Curve(DDS)	206.189	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	55.36
.0007(.72)	.00	5.26	2-Pane	-5.42	17.72
.0005(.50)	-3.34	2.47	3-Pane	-6.42	10.80
.0003(.31)	-5.45	.72	R-10	-7.59	2.65
Slope/.001ELF	-1.459		Slope(DD)	1033.03	
Curve/.001ELF	12.813		Curve(DDS)	40.302	
Base Load =	39.82 MBtu				
Typical Load =	14.54 MBtu				
Residual Load =	12.13 MBtu				

Cooling Load

Delta Component (MBtu) (Kbtu)			Delta Component (MBtu) (Kbtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	1.01	R-0	.00	.38
R-7	-.34	.45	R-7	-.09	.20
R-11	-.39	.36	R-11	-.10	.17
R-19	-.44	.28	R-13	-.13	.12
R-22	-.47	.24	R-19	-.14	.09
R-30	-.50	.18	R-27	-.15	.08
R-38	-.52	.15	R-34	-.15	.07
R-49	-.54	.12			
R-60	-.55	.10			
Slope(DD)	273.47		Slope(DD)	79.94	
Curve(DDS)	-17.258		Curve(DDS)	-1.546	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.15	-1.76	R-0	-.12	-1.01
R-5 2ft	-.13	-1.26	R-5 4ft	-.11	-.76
R-5 4ft	-.12	-1.01	R-5 8ft	-.10	-.51
R-10 2ft	-.12	-1.01	R-10 4ft	-.10	-.51
R-10 4ft	-.11	-.76	R-10 8ft	-.09	-.26
Intercept	.000		Intercept	.551	
Slope(DD)	-318.17		Slope(DD)	-97.21	
Curve(DDS)	14.179		Curve(DDS)	1.474	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.12	-.07	R-0	.00	.13
R-11 flr	-.03	.08	R-11 flr	.06	.22
R-19 flr	.01	.14	R-19 flr	.06	.23
R-30 flr	.03	.18	R-30 flr	.07	.25
			R-38 flr	.07	.25
			R-49 flr	.08	.26
Intercept	.294		Intercept	.277	
Slope(DD)	-154.14		Slope(DD)	-40.85	
Curve(DDS)	16.323		Curve(DDS)	2.494	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-.10
.0007(.93)	.00	.04	2-Pane	.00	-.10
.0005(.67)	.01	.05	3-Pane	.00	-.08
.0003(.40)	.00	.04	R-10	.01	-.03
Slope/.001ELF	.208		Slope(DD)	-11.71	
Curve/.001ELF	-.208		Curve(DDS)	.307	
Base Load =	1.53 MBtu				
Typical Load =	.87 MBtu				
Residual Load =	.29 MBtu				

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	21.53	R-0	.00	18.00	R-0	.00	1.00	R-0	.00	.31
R-7	-8.49	7.39	R-7	-3.14	6.09	R-7	-.37	.39	R-7	-.05	.15
R-11	-9.84	5.13	R-11	-3.59	4.88	R-11	-.43	.29	R-11	-.06	.13
R-19	-11.06	3.10	R-13	-3.98	3.44	R-19	-.48	.20	R-13	-.07	.09
R-22	-11.37	2.59	R-19	-4.17	2.83	R-22	-.50	.17	R-19	-.08	.08
R-30	-11.78	1.90	R-27	-4.44	1.99	R-30	-.52	.13	R-27	-.08	.06
R-38	-12.03	1.48	R-34	-4.60	1.47	R-38	-.54	.10	R-34	-.09	.05
R-49	-12.21	1.19				R-49	-.55	.08			
R-60	-12.32	1.00				R-60	-.56	.07			
Slope(DD) 2803.87			Slope(DD) 1677.64			Slope(DD) 185.11			Slope(DD) 57.56		
Curve(DDS) 173.453			Curve(DDS) 241.215			Curve(DDS) -2.723			Curve(DDS) .184		
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-6.03	39.39	R-0	-5.37	61.55	R-0	-.06	-.85	R-0	-.06	-.85
R-5 2ft	-6.67	18.22	R-5 4ft	-6.36	28.39	R-5 2ft	-.04	-.35	R-5 4ft	-.05	-.52
R-5 4ft	-6.81	13.55	R-5 8ft	-6.58	21.05	R-5 4ft	-.04	-.35	R-5 8ft	-.04	-.35
R-10 2ft	-6.76	15.22	R-10 4ft	-6.54	22.55	R-10 2ft	-.04	-.35	R-10 4ft	-.04	-.35
R-10 4ft	-6.93	9.55	R-10 8ft	-6.83	12.72	R-10 4ft	-.04	-.19	R-10 8ft	-.04	-.19
Intercept	.000		Intercept	-5.960		Intercept	.000		Intercept	.306	
Slope(DD)	3442.99		Slope(DD)	2041.56		Slope(DD)	-77.80		Slope(DD)	-57.46	
Curve(DDS)	52.461		Curve(DDS)	-7.240		Curve(DDS)	-.802		Curve(DDS)	.709	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-5.37	3.08	R-0	.00	12.03	R-0	-.06	-.04	R-0	.00	.06
R-11 flr	-7.08	.23	R-11 flr	-6.86	.59	R-11 flr	-.01	.03	R-11 flr	.06	.15
R-19 flr	-7.59	-.62	R-19 flr	-7.67	-.78	R-19 flr	-.00	.05	R-19 flr	.05	.14
R-30 flr	-7.92	-1.17	R-30 flr	-7.95	-1.22	R-30 flr	.01	.07	R-30 flr	.05	.14
			R-38 flr	-8.01	-1.33				R-38 flr	.05	.14
			R-49 flr	-8.20	-1.64				R-49 flr	.05	.14
Intercept	-2.683		Intercept	-2.482		Intercept	.100		Intercept	.123	
Slope(DD)	2035.67		Slope(DD)	1316.96		Slope(DD)	-47.31		Slope(DD)	27.30	
Curve(DDS)	-178.651		Curve(DDS)	295.023		Curve(DDS)	3.779		Curve(DDS)	-7.835	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	52.53	ELF Ach			1-Pane	.00	.11
.0007(.72)	.00	4.77	2-Pane	-6.40	15.07	.0007(.93)	.00	.08	2-Pane	-.01	.04
.0005(.50)	-3.40	1.93	3-Pane	-8.26	9.04	.0005(.67)	-.02	.06	3-Pane	-.01	.03
.0003(.31)	-5.39	.28	R-10	-7.29	1.94	.0003(.40)	-.04	.04	R-10	-.02	.01
Slope/.001ELF	-3.500		Slope(DD)	712.03		Slope/.001ELF	.146		Slope(DD)	3.07	
Curve/.001ELF	14.740		Curve(DDS)	48.403		Curve/.001ELF	-.052		Curve(DDS)	.044	
Base Load = 37.64 MBtu			Base Load = 1.19 MBtu			Base Load = 1.19 MBtu			Base Load = 1.19 MBtu		
Typical Load = 12.92 MBtu			Typical Load = .59 MBtu			Typical Load = .59 MBtu			Typical Load = .59 MBtu		
Residual Load = 12.83 MBtu			Residual Load = .02 MBtu			Residual Load = .02 MBtu			Residual Load = .02 MBtu		

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	31.22	R-0	.00	30.18
R-7	-28.79	12.53	R-7	-17.18	14.87
R-11	-33.39	9.54	R-11	-19.63	12.89
R-19	-37.52	6.86	R-13	-22.65	10.01
R-22	-39.13	5.82	R-19	-24.15	8.67
R-30	-41.29	4.41	R-27	-26.87	6.25
R-38	-42.59	3.57	R-34	-28.54	4.77
R-49	-43.76	2.81			
R-60	-44.52	2.32			
Slope(DD)	8426.76		Slope(DD)	6232.69	
Curve(DDS)	-195.521		Curve(DDS)	-118.143	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-12.36	66.50	R-0	-8.14	91.92
R-5 2ft	-18.00	32.52	R-5 4ft	-12.34	66.62
R-5 4ft	-19.95	20.78	R-5 8ft	-14.40	54.21
R-10 2ft	-18.98	26.62	R-10 4ft	-13.60	59.63
R-10 4ft	-21.61	10.78	R-10 8ft	-16.64	40.72
Intercept	-21.102		Intercept	.000	
Slope(DD)	8877.46		Slope(DD)	4020.65	
Curve(DDS)	-159.825		Curve(DDS)	-43.749	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-8.14	9.91	R-0	.00	15.19
R-11 flr	-25.02	-1.05	R-11 flr	-27.71	-2.80
R-19 flr	-29.46	-3.94	R-19 flr	-32.20	-5.71
R-30 flr	-32.32	-5.79	R-30 flr	-34.97	-7.51
			R-38 flr	-35.60	-7.92
			R-49 flr	-37.42	-9.11
Intercept	-10.727		Intercept	-11.792	
Slope(DD)	6679.29		Slope(DD)	5459.26	
Curve(DDS)	-517.786		Curve(DDS)	-38.340	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	142.35
.0007(.75)	.00	17.02	2-Pane	-13.94	68.92
.0005(.54)	-7.69	12.03	3-Pane	-18.45	42.52
.0003(.33)	-15.22	7.14	R-10	-23.75	13.83
Slope/.001ELF	23.408		Slope(DD)	5930.02	
Curve/.001ELF	1.300		Curve(DDS)	-20.375	

Base Load = 153.65 MBtu
Typical Load = 52.94 MBtu
Residual Load = 9.21 MBtu

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	1.54	R-0	.00	.58
R-7	-1.44	.61	R-7	-.28	.33
R-11	-1.66	.46	R-11	-.32	.30
R-19	-1.87	.33	R-13	-.40	.23
R-22	-1.94	.28	R-19	-.44	.19
R-30	-2.04	.22	R-27	-.49	.16
R-38	-2.10	.18	R-34	-.52	.12
R-49	-2.17	.13			
R-60	-2.21	.11			
Slope(DD)	305.91		Slope(DD)	156.33	
Curve(DDS)	-7.766		Curve(DDS)	-8.859	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.98	-2.02	R-0	-.66	-.09
R-5 2ft	-.90	-1.54	R-5 4ft	-.69	-.27
R-5 4ft	-.88	-1.30	R-5 8ft	-.68	-.21
R-10 2ft	-.88	-1.42	R-10 4ft	-.70	-.33
R-10 4ft	-.83	-1.12	R-10 8ft	-.68	-.21
Intercept	-.420		Intercept	.000	
Slope(DD)	-202.42		Slope(DD)	-24.47	
Curve(DDS)	8.051		Curve(DDS)	.522	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.66	-.01	R-0	.00	.42
R-11 flr	-.21	.26	R-11 flr	.22	.58
R-19 flr	-.08	.37	R-19 flr	.21	.55
R-30 flr	-.00	.42	R-30 flr	.21	.55
			R-38 flr	.21	.55
			R-49 flr	.21	.55
Intercept	.563		Intercept	.538	
Slope(DD)	-195.91		Slope(DD)	32.27	
Curve(DDS)	18.431		Curve(DDS)	-10.746	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	.20
.0007(.57)	.00	.07	2-Pane	-.01	.14
.0005(.41)	-.03	.05	3-Pane	-.02	.09
.0003(.24)	-.06	.03	R-10	-.03	.04
Slope/.001ELF	.097		Slope(DD)	16.09	
Curve/.001ELF	.000		Curve(DDS)	-.325	

Base Load = 4.18 MBtu
Typical Load = .91 MBtu
Residual Load = -.90 MBtu

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)				Delta Component (MBtu) (KBtu)			
Ceiling (/sf)				Wall (/sf)				Ceiling (/sf)				Wall (/sf)			
R-0	.00	32.73		R-0	.00	28.99		R-0	.00	1.88		R-0	.00	.84	
R-7	-12.05	12.85		R-7	-7.38	13.54		R-7	-.81	.85		R-7	-.18	.51	
R-11	-13.97	9.44		R-11	-8.41	11.34		R-11	-.70	.69		R-11	-.18	.47	
R-19	-15.70	8.58		R-13	-9.81	8.82		R-19	-.79	.55		R-13	-.23	.35	
R-22	-16.31	5.55		R-19	-10.21	7.56		R-22	-.84	.46		R-19	-.26	.30	
R-30	-17.13	4.19		R-27	-11.22	5.44		R-30	-.91	.35		R-27	-.29	.23	
R-38	-17.62	3.38		R-34	-11.84	4.14		R-38	-.95	.28		R-34	-.31	.19	
R-49	-18.05	2.68						R-49	-.98	.23					
R-60	-18.32	2.20						R-60	-1.00	.20					
Slope(DD)	6032.82			Slope(DD)	5299.37			Slope(DD)	531.89			Slope(DD)	249.64		
Curve(DDS)	-88.388			Curve(DDS)	18.848			Curve(DDS)	-38.727			Curve(DDS)	-17.218		
Slab (/ft)				Heated Basement (/ft)				Slab (/ft)				Heated Basement (/ft)			
R-0	-7.21	67.87		R-0	-5.49	110.87		R-0	-.43	-5.43		R-0	-.28	-1.68	
R-5 2ft	-8.58	33.82		R-5 4ft	-7.07	71.37		R-5 2ft	-.40	-4.68		R-5 4ft	-.27	-1.43	
R-5 4ft	-9.01	22.87		R-5 8ft	-7.84	57.12		R-5 4ft	-.39	-4.43		R-5 8ft	-.26	-1.18	
R-10 2ft	-8.80	28.12		R-10 4ft	-7.44	62.12		R-10 2ft	-.40	-4.68		R-10 4ft	-.27	-1.43	
R-10 4ft	-9.38	14.12		R-10 8ft	-8.25	41.87		R-10 4ft	-.37	-3.93		R-10 8ft	-.25	-.93	
Intercept	-12.554			Intercept	.000			Intercept	-2.478			Intercept	.000		
Slope(DD)	7179.54			Slope(DD)	3985.93			Slope(DD)	-457.05			Slope(DD)	-97.08		
Curve(DDS)	-71.131			Curve(DDS)	-32.547			Curve(DDS)	17.709			Curve(DDS)	1.352		
Unheated Basement (/sf)				Crawl (/sf)				Unheated Basement (/sf)				Crawl (/sf)			
R-0	-5.49	7.39		R-0	.00	16.54		R-0	-.28	-.11		R-0	.00	.35	
R-11 flr	-9.55	.62		R-11 flr	-9.97	-.08		R-11 flr	-.02	.32		R-11 flr	.16	.62	
R-19 flr	-10.86	-1.56		R-19 flr	-11.55	-2.71		R-19 flr	.05	.43		R-19 flr	.18	.65	
R-30 flr	-11.70	-2.98		R-30 flr	-12.48	-4.26		R-30 flr	.09	.50		R-30 flr	.18	.65	
				R-38 flr	-12.69	-4.61						R-38 flr	.18	.65	
				R-49 flr	-13.30	-5.63						R-49 flr	.18	.65	
Intercept	-6.821			Intercept	-7.992			Intercept	.695			Intercept	.672		
Slope(DD)	5296.50			Slope(DD)	4720.38			Slope(DD)	-256.80			Slope(DD)	-11.65		
Curve(DDS)	-492.388			Curve(DDS)	12.487			Curve(DDS)	19.400			Curve(DDS)	-9.801		
Infiltration (/sf flr)				Window U-value (/sf)				Infiltration (/sf flr)				Window U-value (/sf)			
ELF Ach								ELF Ach							
.0007(.76)	.00	14.66		1-Pane	.00	122.82		.0007(.57)	.00	-.07		1-Pane	.00	-.54	
.0005(.56)	-5.69	9.92		2-Pane	-10.11	52.61		.0005(.41)	.00	-.07		2-Pane	.07	-.08	
.0003(.33)	-10.85	5.62		3-Pane	-12.91	33.15		.0003(.24)	.02	-.06		3-Pane	.07	-.03	
				R-10	-16.21	10.25						R-10	.08	.01	
Slope/.001ELF	17.083			Slope(DD)	4330.76			Slope/.001ELF	-.250			Slope(DD)	7.77		
Curve/.001ELF	5.521			Curve(DDS)	12.183			Curve/.001ELF	.208			Curve(DDS)	-1.074		
Base Load = 71.54 MBtu				Base Load = 3.06 MBtu				Base Load = 1.65 MBtu				Base Load = .61 MBtu			
Typical Load = 20.84 MBtu				Typical Load = 1.65 MBtu				Typical Load = 1.65 MBtu				Typical Load = 1.65 MBtu			
Residual Load = 3.88 MBtu				Residual Load = 3.88 MBtu				Residual Load = .61 MBtu				Residual Load = .61 MBtu			

Heating Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	31.55	R-0	.00	28.80
R-7	-11.75	11.97	R-7	-4.98	13.10
R-11	-13.62	8.85	R-11	-5.68	10.87
R-19	-15.31	8.04	R-13	-6.47	8.38
R-22	-15.87	5.09	R-19	-6.86	7.15
R-30	-16.64	3.82	R-27	-7.50	5.14
R-38	-17.10	3.05	R-34	-7.89	3.91
R-49	-17.47	2.43			
R-60	-17.72	2.03			
Slope(DD)	5488.24		Slope(DD)	4942.54	
Curve(DDS)	-28.114		Curve(DDS)	78.759	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-8.37	86.69	R-0	-7.05	130.89
R-5 2ft	-9.48	49.52	R-5 4ft	-8.55	80.69
R-5 4ft	-9.85	37.35	R-5 8ft	-9.08	63.52
R-10 2ft	-9.67	43.35	R-10 4ft	-8.89	69.19
R-10 4ft	-10.14	27.69	R-10 8ft	-9.57	46.52
Intercept	-2.738		Intercept	.000	
Slope(DD)	8249.54		Slope(DD)	4342.38	
Curve(DDS)	-99.812		Curve(DDS)	-30.019	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-7.05	6.53	R-0	.00	18.28
R-11 flr	-10.37	1.00	R-11 flr	-10.45	.87
R-19 flr	-11.50	-.90	R-19 flr	-12.05	-1.81
R-30 flr	-12.24	-2.12	R-30 flr	-13.00	-3.39
			R-38 flr	-13.22	-3.75
			R-49 flr	-13.84	-4.79
Intercept	-5.508		Intercept	-7.153	
Slope(DD)	4684.08		Slope(DD)	4732.77	
Curve(DDS)	-451.672		Curve(DDS)	44.127	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	120.18
.0007(.78)	.00	14.23	2-Pane	-10.28	48.96
.0005(.56)	-5.66	9.51	3-Pane	-12.89	30.69
.0003(.33)	-10.69	5.32	R-10	-15.98	9.20
Slope/.001ELF	15.770		Slope(DD)	3851.17	
Curve/.001ELF	6.511		Curve(DDS)	26.553	

Base Load = 66.98 MBtu
 Typical Load = 18.54 MBtu
 Residual Load = 4.56 MBtu

Cooling Load

Delta Component			Delta Component		
(MBtu)		(KBtu)	(MBtu)		(KBtu)
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	1.90	R-0	.00	.75
R-7	-.68	.80	R-7	-.10	.45
R-11	-.77	.63	R-11	-.11	.40
R-19	-.86	.47	R-13	-.14	.30
R-22	-.90	.40	R-19	-.16	.25
R-30	-.95	.32	R-27	-.18	.20
R-38	-.98	.28	R-34	-.18	.17
R-49	-1.02	.20			
R-60	-1.05	.15			
Slope(DD)	453.70		Slope(DD)	210.32	
Curve(DDS)	-22.374		Curve(DDS)	-13.122	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-.23	-2.46	R-0	-.18	-.62
R-5 2ft	-.22	-1.96	R-5 4ft	-.17	-.46
R-5 4ft	-.20	-1.62	R-5 8ft	-.17	-.46
R-10 2ft	-.21	-1.79	R-10 4ft	-.17	-.46
R-10 4ft	-.19	-1.29	R-10 8ft	-.17	-.29
Intercept	-.050		Intercept	.000	
Slope(DD)	-378.83		Slope(DD)	-31.27	
Curve(DDS)	14.912		Curve(DDS)	.393	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-.18	-.03	R-0	.00	.26
R-11 flr	-.05	.18	R-11 flr	.08	.39
R-19 flr	-.01	.24	R-19 flr	.07	.39
R-30 flr	.01	.28	R-30 flr	.07	.39
			R-38 flr	.07	.39
			R-49 flr	.07	.39
Intercept	.383		Intercept	.365	
Slope(DD)	-144.64		Slope(DD)	33.72	
Curve(DDS)	12.445		Curve(DDS)	-10.542	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-.05
.0007(.57)	.00	.04	2-Pane	.00	-.05
.0005(.41)	.00	.04	3-Pane	.00	-.03
.0003(.24)	-.01	.03	R-10	.00	-.01
Slope/.001ELF	.125		Slope(DD)	-5.86	
Curve/.001ELF	-.104		Curve(DDS)	.153	

Base Load = 2.53 MBtu
 Typical Load = 1.22 MBtu
 Residual Load = .07 MBtu

Washington DC WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	25.63	R-0	.00	23.61	R-0	.00	7.04	R-0	.00	3.53
R-7	-23.74	10.21	R-7	-13.51	11.59	R-7	-6.38	2.89	R-7	-1.90	1.83
R-11	-27.53	7.75	R-11	-15.43	9.87	R-11	-7.40	2.23	R-11	-2.17	1.59
R-19	-30.93	5.54	R-13	-17.78	7.78	R-19	-8.32	1.63	R-13	-2.55	1.26
R-22	-32.24	4.69	R-19	-18.95	6.74	R-22	-8.70	1.39	R-19	-2.74	1.09
R-30	-33.99	3.55	R-27	-21.07	4.86	R-30	-9.21	1.05	R-27	-3.07	.79
R-38	-35.05	2.87	R-34	-22.37	3.70	R-38	-9.52	.85	R-34	-3.27	.62
R-49	-35.98	2.26				R-49	-9.80	.87			
R-60	-36.58	1.87				R-60	-9.98	.55			
Slope(DD)	5170.37		Slope(DD)	4831.60		Slope(DD)	1544.34		Slope(DD)	809.06	
Curve(DDS)	-143.062		Curve(DDS)	-82.380		Curve(DDS)	-60.337		Curve(DDS)	-28.552	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-16.17	42.63	R-0	-9.99	79.86	R-0	-5.92	-7.51	R-0	-3.30	8.28
R-5 2ft	-20.11	18.89	R-5 4ft	-14.53	52.51	R-5 2ft	-5.90	-7.39	R-5 4ft	-4.05	3.76
R-5 4ft	-21.23	12.15	R-5 8ft	-16.04	43.41	R-5 4ft	-5.82	-6.90	R-5 8ft	-4.11	3.40
R-10 2ft	-20.84	14.50	R-10 4ft	-15.69	45.52	R-10 2ft	-5.89	-7.33	R-10 4ft	-4.25	2.55
R-10 4ft	-22.40	5.10	R-10 8ft	-18.04	31.36	R-10 4ft	-5.77	-6.60	R-10 8ft	-4.36	1.89
Intercept	-14.360		Intercept	.000		Intercept	-4.822		Intercept	.000	
Slope(DD)	5745.95		Slope(DD)	3146.97		Slope(DD)	-610.01		Slope(DD)	160.33	
Curve(DDS)	-80.642		Curve(DDS)	-29.185		Curve(DDS)	32.284		Curve(DDS)	1.035	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-9.99	8.61	R-0	.00	15.10	R-0	-3.30	.89	R-0	.00	3.04
R-11 flr	-21.18	1.34	R-11 flr	-21.19	1.34	R-11 flr	-.78	2.53	R-11 flr	1.07	3.73
R-19 flr	-24.25	-.65	R-19 flr	-24.77	-.99	R-19 flr	-.10	2.97	R-19 flr	1.22	3.83
R-30 flr	-26.22	-1.93	R-30 flr	-26.98	-2.41	R-30 flr	.33	3.25	R-30 flr	1.33	3.90
			R-38 flr	-27.46	-2.74				R-38 flr	1.35	3.91
			R-49 flr	-28.90	-3.67				R-49 flr	1.42	3.96
Intercept	-5.364		Intercept	-5.857		Intercept	4.002		Intercept	4.043	
Slope(DD)	4660.51		Slope(DD)	4421.03		Slope(DD)	-1020.58		Slope(DD)	-185.43	
Curve(DDS)	-377.503		Curve(DDS)	-65.332		Curve(DDS)	80.745		Curve(DDS)	-2.153	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	112.34	ELF Ach			1-Pane	.00	2.09
.0007(.79)	.00	14.43	2-Pane	-10.93	53.20	.0007(.48)	.00	1.70	2-Pane	-.21	.95
.0005(.56)	-6.50	10.21	3-Pane	-14.51	33.83	.0005(.34)	-.75	1.22	3-Pane	-.27	.60
.0003(.36)	-12.88	6.07	R-10	-18.72	11.05	.0003(.20)	-1.50	.73	R-10	-.35	.19
Slope/.001ELF	19.935		Slope(DD)	4739.24		Slope/.001ELF	2.435		Slope(DD)	82.23	
Curve/.001ELF	.974		Curve(DDS)	-18.325		Curve/.001ELF	.000		Curve(DDS)	-.121	
Base Load = 124.39 MBtu			Base Load = 27.97 MBtu			Base Load = 27.97 MBtu			Base Load = 27.97 MBtu		
Typical Load = 38.43 MBtu			Typical Load = 10.70 MBtu			Typical Load = 10.70 MBtu			Typical Load = 10.70 MBtu		
Residual Load = 1.98 MBtu			Residual Load = -2.06 MBtu			Residual Load = -2.06 MBtu			Residual Load = -2.06 MBtu		

Heating Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	28.71	R-0	.00	22.90
R-7	-9.85	10.29	R-7	-5.81	10.70
R-11	-11.43	7.67	R-11	-6.64	8.96
R-19	-12.84	5.31	R-13	-7.59	6.97
R-22	-13.34	4.49	R-19	-8.06	5.98
R-30	-14.00	3.38	R-27	-8.86	4.30
R-38	-14.40	2.71	R-34	-9.35	3.27
R-49	-14.74	2.15			
R-60	-14.96	1.78			
Slope(DD)	4873.24		Slope(DD)	4189.69	
Curve(DDS)	-61.963		Curve(DDS)	12.479	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-7.84	42.29	R-0	-5.64	92.29
R-5 2ft	-8.59	18.54	R-5 4ft	-7.15	54.54
R-5 4ft	-8.83	12.54	R-5 8ft	-7.57	44.04
R-10 2ft	-8.75	14.54	R-10 4ft	-7.49	46.04
R-10 4ft	-9.08	8.29	R-10 8ft	-8.08	31.29
Intercept	-9.712		Intercept	.000	
Slope(DD)	4548.03		Slope(DD)	3010.59	
Curve(DDS)	-15.253		Curve(DDS)	-18.390	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-5.64	6.15	R-0	.00	15.55
R-11 flr	-8.30	1.72	R-11 flr	-7.80	2.55
R-19 flr	-9.16	.28	R-19 flr	-9.06	.45
R-30 flr	-9.72	-.65	R-30 flr	-9.80	-.78
			R-38 flr	-9.97	-1.06
			R-49 flr	-10.46	-1.88
Intercept	-3.202		Intercept	-3.784	
Slope(DD)	3503.99		Slope(DD)	3805.52	
Curve(DDS)	-327.586		Curve(DDS)	-6.740	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	96.94
.0007(.83)	.00	12.80	2-Pane	-8.18	40.14
.0005(.58)	-4.95	8.67	3-Pane	-10.33	25.20
.0003(.36)	-9.45	4.92	R-10	-12.86	7.64
Slope/.001ELF	15.000		Slope(DD)	3204.74	
Curve/.001ELF	4.687		Curve(DDS)	17.899	
Base Load =	58.80 MBtu				
Typical Load =	16.06 MBtu				
Residual Load =	1.11 MBtu				

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling	(/sf)		Wall	(/sf)	
R-0	.00	6.75	R-0	.00	2.78
R-7	-2.52	2.56	R-7	-.69	1.30
R-11	-2.92	1.89	R-11	-.79	1.10
R-19	-3.28	1.29	R-13	-.91	.85
R-22	-3.40	1.09	R-19	-.97	.72
R-30	-3.55	.83	R-27	-1.06	.52
R-38	-3.65	.67	R-34	-1.12	.41
R-49	-3.74	.52			
R-60	-3.80	.42			
Slope(DD)	1174.17		Slope(DD)	514.26	
Curve(DDS)	-5.901		Curve(DDS)	-.350	
Slab	(/ft)		Heated Basement	(/ft)	
R-0	-2.16	-16.60	R-0	-1.18	7.90
R-5 2ft	-2.12	-15.60	R-5 4ft	-1.36	3.40
R-5 4ft	-2.09	-14.85	R-5 8ft	-1.37	3.15
R-10 2ft	-2.12	-15.60	R-10 4ft	-1.41	2.15
R-10 4ft	-2.06	-14.10	R-10 8ft	-1.43	1.65
Intercept	-10.939		Intercept	.000	
Slope(DD)	-1071.16		Slope(DD)	134.18	
Curve(DDS)	50.073		Curve(DDS)	1.450	
Unheated Basement	(/sf)		Crawl	(/sf)	
R-0	-1.18	.53	R-0	.00	2.49
R-11 flr	-.18	2.19	R-11 flr	.67	3.61
R-19 flr	.11	2.67	R-19 flr	.76	3.78
R-30 flr	.29	2.98	R-30 flr	.83	3.88
			R-38 flr	.85	3.91
			R-49 flr	.90	3.99
Intercept	3.805		Intercept	4.125	
Slope(DD)	-1127.32		Slope(DD)	-311.15	
Curve(DDS)	95.178		Curve(DDS)	-1.370	
Infiltration	(/sf flr)		Window U-value	(/sf)	
ELF Ach			1-Pane	.00	-4.64
.0007(.48)	.00	1.35	2-Pane	.07	-4.15
.0005(.34)	-.50	.93	3-Pane	.27	-2.75
.0003(.20)	-.97	.54	R-10	.51	-1.10
Slope/.001ELF	1.708		Slope(DD)	-495.89	
Curve/.001ELF	.312		Curve(DDS)	12.125	
Base Load =	18.67 MBtu				
Typical Load =	12.26 MBtu				
Residual Load =	5.05 MBtu				

Heating Load

Cooling Load

Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
Ceiling (/sf)			Wall (/sf)			Ceiling (/sf)			Wall (/sf)		
R-0	.00	26.00	R-0	.00	23.11	R-0	.00	6.24	R-0	.00	2.46
R-7	-9.65	9.92	R-7	-3.96	10.63	R-7	-2.39	2.26	R-7	-.46	.99
R-11	-11.19	7.35	R-11	-4.52	8.85	R-11	-2.77	1.82	R-11	-.53	.78
R-19	-12.57	5.04	R-13	-5.15	6.86	R-19	-3.11	1.05	R-13	-.60	.56
R-22	-13.05	4.25	R-19	-5.47	5.87	R-22	-3.22	.87	R-19	-.64	.45
R-30	-13.69	3.19	R-27	-5.99	4.22	R-30	-3.36	.64	R-27	-.67	.34
R-38	-14.07	2.55	R-34	-6.31	3.21	R-38	-3.44	.49	R-34	-.69	.26
R-49	-14.38	2.03				R-49	-3.49	.41			
R-60	-14.58	1.69				R-60	-3.53	.36			
Slope(DD)	4593.79		Slope(DD)	4076.50		Slope(DD)	918.63		Slope(DD)	297.48	
Curve(DDS)	-35.121		Curve(DDS)	40.985		Curve(DDS)	22.452		Curve(DDS)	29.602	
Slab (/ft)			Heated Basement (/ft)			Slab (/ft)			Heated Basement (/ft)		
R-0	-8.39	54.52	R-0	-6.73	109.69	R-0	-1.77	-16.00	R-0	-1.04	8.17
R-5 2ft	-9.13	29.52	R-5 4ft	-8.10	64.02	R-5 2ft	-1.74	-15.17	R-5 4ft	-1.18	3.50
R-5 4ft	-9.33	22.85	R-5 8ft	-8.47	51.52	R-5 4ft	-1.71	-14.00	R-5 8ft	-1.19	3.17
R-10 2ft	-9.26	25.19	R-10 4ft	-8.41	53.69	R-10 2ft	-1.73	-14.67	R-10 4ft	-1.23	2.00
R-10 4ft	-9.54	16.02	R-10 8ft	-8.92	36.52	R-10 4ft	-1.69	-13.33	R-10 8ft	-1.24	1.67
Intercept	-2.191		Intercept	.000		Intercept	-9.664		Intercept	.000	
Slope(DD)	5257.64		Slope(DD)	3490.64		Slope(DD)	-1212.12		Slope(DD)	128.66	
Curve(DDS)	-41.616		Curve(DDS)	-19.712		Curve(DDS)	57.039		Curve(DDS)	1.746	
Unheated Basement (/sf)			Crawl (/sf)			Unheated Basement (/sf)			Crawl (/sf)		
R-0	-6.73	5.48	R-0	.00	16.70	R-0	-1.04	.41	R-0	.00	2.14
R-11 flr	-8.90	1.87	R-11 flr	-8.04	3.30	R-11 flr	-.19	1.83	R-11 flr	.63	3.20
R-19 flr	-9.66	.59	R-19 flr	-9.33	1.14	R-19 flr	.06	2.23	R-19 flr	.74	3.37
R-30 flr	-10.15	-.22	R-30 flr	-10.10	-.13	R-30 flr	.21	2.49	R-30 flr	.82	3.50
			R-38 flr	-10.27	-.42				R-38 flr	.84	3.53
			R-49 flr	-10.78	-1.26				R-49 flr	.89	3.62
Intercept	-2.508		Intercept	-3.223		Intercept	3.185		Intercept	3.790	
Slope(DD)	3145.91		Slope(DD)	3918.12		Slope(DD)	-943.48		Slope(DD)	-373.34	
Curve(DDS)	-309.562		Curve(DDS)	-6.356		Curve(DDS)	78.376		Curve(DDS)	10.134	
Infiltration (/sf flr)			Window U-value (/sf)			Infiltration (/sf flr)			Window U-value (/sf)		
ELF Ach			1-Pane	.00	96.07	ELF Ach			1-Pane	.00	-3.89
.0007(.83)	.00	12.69	2-Pane	-8.31	38.40	.0007(.48)	.00	1.44	2-Pane	.05	-3.55
.0005(.58)	-4.92	8.60	3-Pane	-10.38	24.02	.0005(.34)	-.47	1.05	3-Pane	.22	-2.35
.0003(.35)	-9.38	4.88	R-10	-12.81	7.11	.0003(.20)	-.96	.64	R-10	.42	-.94
Slope/.001ELF	14.854		Slope(DD)	2964.96		Slope/.001ELF	2.208		Slope(DD)	-425.32	
Curve/.001ELF	4.688		Curve(DDS)	25.537		Curve/.001ELF	-.208		Curve(DDS)	10.524	
Base Load = 55.40 MBtu			Base Load = 16.97 MBtu			Base Load = 16.97 MBtu			Base Load = 16.97 MBtu		
Typical Load = 14.55 MBtu			Typical Load = 11.29 MBtu			Typical Load = 11.29 MBtu			Typical Load = 11.29 MBtu		
Residual Load = 1.28 MBtu			Residual Load = 4.18 MBtu			Residual Load = 4.18 MBtu			Residual Load = 4.18 MBtu		

TABLES FOR MASS WALLS AND WINDOW SOLAR GAIN MEASURES

Section 3.B contain tables of insulation measures in mass walls and window solar gain measures for the one-story prototype building in 45 base locations. For each mass wall measure, the tables show the Δ load in MBtu, and the component load in KBtu normalized by ft^2 relative to the R-0 wood frame wall. Following the Δ and component loads, the tables give quadratic regression coefficients for the mass walls, with the linear coefficient listed as "Slope", the quadratic coefficient as "Curve", and the intercept relative to the wood-frame wall as "Intercept".

For window solar gain, the tables give first the Δ loads for 184.8 ft^2 of double and triple-pane windows of average orientation relative to single-pane due to changes in shading coefficients. These Δ loads should be added to the Δ loads for window U-values in Section 3.A to derive the net changes in building loads. Component loads are not shown since they will vary depending on the total amount of solar gain, as explained in Section 2.E. Following the Δ loads, the tables give the coefficients for each cardinal orientation (Alpha), and a fifth coefficient for solar usability (Beta) based on Equation 11. The units for the Alphas are KBtu/ft^2 , the Betas are dimensionless. The intercepts from the regressions are not used.

Washington DC One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 5.95 26.30
R-5 -11.18 11.06
R-10 -17.31 5.60
R-15 -19.94 3.26
R-30 -23.16 .40
Intercept -.215
Slope(DD) 4419.77
Curve(DDS) -44.458

120 lb Mass Wall
R-0 5.67 26.05
R-5 -11.31 10.94
R-10 -17.39 5.53
R-15 -20.03 3.18
R-30 -23.24 .33
Intercept -.280
Slope(DD) 4416.39
Curve(DDS) -47.657

Log Mass Wall
4in -6.39 15.32
6in -12.55 9.84
8in -15.77 6.97
10in -17.75 5.21
12in -19.10 4.01
Intercept .417
Slope(DD) 3974.20
Curve(DDS) 68.002

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.19 2.08
R-5 -3.42 .09
R-10 -4.10 -.51
R-15 -4.39 -.77
R-30 -4.76 -1.10
Intercept -1.031
Slope(DD) 450.20
Curve(DDS) 6.021

120 lb Mass Wall
R-0 -1.58 1.73
R-5 -3.62 -.08
R-10 -4.28 -.67
R-15 -4.55 -.91
R-30 -4.89 -1.21
Intercept -1.143
Slope(DD) 435.47
Curve(DDS) 3.435

Log Mass Wall
4in -1.40 1.89
6in -2.78 .66
8in -3.32 .18
10in -3.55 -.02
12in -3.64 -.10
Intercept .185
Slope(DD) -207.12
Curve(DDS) 174.249

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.77	2-Pane	-.72
3-Pane	1.44	3-Pane	-1.32

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-34.732	-56.477	-97.795	-54.820	.011459	.013901
Cooling	26.241	40.473	39.431	47.690	.008840	-.037545

Seattle WA

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 7.41 33.44
 R-5 -14.56 13.89
 R-10 -22.37 6.94
 R-15 -25.72 3.95
 R-30 -29.79 .33
 Intercept -.416
 Slope(DD) 5591.63
 Curve(DDS) -49.490

120 lb Mass Wall
 R-0 6.96 33.04
 R-5 -14.77 13.70
 R-10 -22.52 6.80
 R-15 -25.86 3.83
 R-30 -29.91 .23
 Intercept -.509
 Slope(DD) 5576.08
 Curve(DDS) -53.410

Log Mass Wall
 4in -8.08 19.65
 6in -16.09 12.52
 8in -20.24 8.83
 10in -22.73 6.62
 12in -24.39 5.14
 Intercept .886
 Slope(DD) 4749.60
 Curve(DDS) 150.610

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -.62 -.03
 R-5 -.92 -.30
 R-10 -.97 -.34
 R-15 -.99 -.36
 R-30 -1.02 -.39
 Intercept -.332
 Slope(DD) 14.73
 Curve(DDS) 5.155

120 lb Mass Wall
 R-0 -.79 -.18
 R-5 -1.00 -.37
 R-10 -1.04 -.41
 R-15 -1.05 -.41
 R-30 -1.08 -.44
 Intercept -.384
 Slope(DD) 15.22
 Curve(DDS) 3.123

Log Mass Wall
 4in -.33 .23
 6in -.64 -.05
 8in -.72 -.12
 10in -.75 -.15
 12in -.73 -.13
 Intercept .114
 Slope(DD) -218.74
 Curve(DDS) 63.649

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.98	2-Pane	-.16
3-Pane	1.84	3-Pane	-.29

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-60.738	-86.417	-121.839	-86.124	.010924	-.200868
Cooling	1.811	3.350	4.133	5.809	1.163168	-.036479

San Francisco CA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.58 19.61
R-5 -10.27 7.28
R-10 -15.06 3.02
R-15 -17.11 1.20
R-30 -19.36 -.81
Intercept -1.198
Slope(DD) 3233.18
Curve(DDS) -1.795

120 lb Mass Wall
R-0 3.05 19.14
R-5 -10.50 7.08
R-10 -15.22 2.88
R-15 -17.24 1.08
R-30 -19.48 -.91
Intercept -1.283
Slope(DD) 3212.62
Curve(DDS) -6.596

Log Mass Wall
4in -5.45 11.57
6in -10.85 6.77
8in -13.51 4.40
10in -14.98 3.09
12in -15.91 2.26
Intercept .352
Slope(DD) 2208.35
Curve(DDS) 246.595

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.38 -.06
R-5 -.44 -.12
R-10 -.45 -.13
R-15 -.46 -.14
R-30 -.47 -.14
Intercept -.116
Slope(DD) 9.41
Curve(DDS) .366

120 lb Mass Wall
R-0 -.43 -.11
R-5 -.47 -.14
R-10 -.47 -.14
R-15 -.47 -.14
R-30 -.48 -.15
Intercept -.116
Slope(DD) .11
Curve(DDS) .799

Log Mass Wall
4in -.22 .08
6in -.37 -.06
8in -.39 -.07
10in -.38 -.06
12in -.37 -.06
Intercept .163
Slope(DD) -183.45
Curve(DDS) 41.565

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.09	2-Pane	-.07
3-Pane	2.07	3-Pane	-.12

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-65.635	-107.513	-165.029	-125.357	.010747	-.197964
Cooling	.524	1.226	1.478	1.066	7.235912	-.021202

San Diego CA

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.54 5.89
R-5 -6.32 .75
R-10 -8.07 -.81
R-15 -8.79 -1.45
R-30 -9.26 -1.87
Intercept -1.835
Slope(DD) 859.35
Curve(DDS) 48.196

120 lb Mass Wall
R-0 -1.18 5.32
R-5 -6.56 .53
R-10 -8.31 -1.03
R-15 -8.94 -1.59
R-30 -9.41 -2.00
Intercept -1.964
Slope(DD) 852.56
Curve(DDS) 40.430

Log Mass Wall
4in -3.13 3.58
6in -5.95 1.07
8in -7.09 .06
10in -7.56 -.36
12in -7.85 -.62
Intercept -.296
Slope(DD) -180.10
Curve(DDS) 319.782

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.28 .05
R-5 -1.82 -.43
R-10 -1.93 -.52
R-15 -2.02 -.60
R-30 -2.08 -.66
Intercept -.566
Slope(DD) 77.87
Curve(DDS) 4.253

120 lb Mass Wall
R-0 -1.60 -.23
R-5 -1.97 -.56
R-10 -2.12 -.69
R-15 -2.15 -.72
R-30 -2.17 -.74
Intercept -.649
Slope(DD) 57.52
Curve(DDS) 3.178

Log Mass Wall
4in -.65 .61
6in -1.25 .08
8in -1.42 -.07
10in -1.45 -.10
12in -1.49 -.13
Intercept .264
Slope(DD) -320.68
Curve(DDS) 107.334

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.34	2-Pane	-.35
3-Pane	.65	3-Pane	-.62

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-31.951	-41.345	-55.026	-42.541	.034901	-.359778
Cooling	4.927	8.470	8.347	10.197	.557238	-.062756

San Antonio TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .64 8.22
R-5 -5.89 2.41
R-10 -7.99 .54
R-15 -8.88 -.25
R-30 -9.73 -1.01
Intercept -1.051
Slope(DD) 1269.39
Curve(DDS) 24.274

120 lb Mass Wall
R-0 .15 7.79
R-5 -6.11 2.22
R-10 -8.16 .39
R-15 -9.02 -.37
R-30 -9.85 -1.11
Intercept -1.142
Slope(DD) 1249.19
Curve(DDS) 20.267

Log Mass Wall
4in -3.04 4.95
6in -5.88 2.42
8in -7.16 1.28
10in -7.81 .70
12in -8.21 .35
Intercept -.082
Slope(DD) 576.91
Curve(DDS) 213.053

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .37 5.22
R-5 -3.66 1.63
R-10 -5.07 .37
R-15 -5.69 -.18
R-30 -6.43 -.84
Intercept -.968
Slope(DD) 1014.17
Curve(DDS) -8.080

120 lb Mass Wall
R-0 .15 5.02
R-5 -3.84 1.47
R-10 -5.25 .21
R-15 -5.85 -.32
R-30 -6.60 -.99
Intercept -1.114
Slope(DD) 1011.53
Curve(DDS) -8.695

Log Mass Wall
4in -1.66 3.41
6in -3.23 2.01
8in -4.07 1.26
10in -4.59 .80
12in -4.87 .55
Intercept -.370
Slope(DD) 946.90
Curve(DDS) 28.979

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.27	2-Pane	-1.04
3-Pane	.51	3-Pane	-1.92

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-18.517	-29.415	-36.192	-26.230	.043338	-.124841
Cooling	42.401	67.528	62.273	78.952	-.000548	-.034356

Salt Lake City U One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 6.58 32.85
R-5 -15.22 13.45
R-10 -22.98 6.54
R-15 -26.33 3.56
R-30 -30.31 .02
Intercept -.692
Slope(DD) 5538.40
Curve(DDS) -47.810

120 lb Mass Wall
R-0 6.05 32.38
R-5 -15.46 13.23
R-10 -23.16 6.38
R-15 -26.48 3.43
R-30 -30.44 -.10
Intercept -.789
Slope(DD) 5515.90
Curve(DDS) -52.087

Log Mass Wall
4in -8.51 19.42
6in -16.70 12.13
8in -20.89 8.40
10in -23.35 6.21
12in -24.99 4.75
Intercept .783
Slope(DD) 4490.50
Curve(DDS) 207.098

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -2.14 1.57
R-5 -4.52 -.54
R-10 -5.09 -1.05
R-15 -5.30 -1.24
R-30 -5.61 -1.51
Intercept -1.279
Slope(DD) 282.69
Curve(DDS) 25.363

120 lb Mass Wall
R-0 -2.84 .95
R-5 -4.84 -.83
R-10 -5.33 -1.26
R-15 -5.54 -1.45
R-30 -5.80 -1.68
Intercept -1.440
Slope(DD) 266.31
Curve(DDS) 18.512

Log Mass Wall
4in -1.94 1.75
6in -3.57 .30
8in -4.09 -.16
10in -4.16 -.22
12in -4.20 -.26
Intercept .925
Slope(DD) -965.28
Curve(DDS) 309.166

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.66
3-Pane	2.09	3-Pane	-1.20

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-48.785	-93.332	-163.448	-86.551	.009277	-.126593
Cooling	15.283	33.198	26.211	37.441	.040661	-.030251

Reno NV

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.34 30.12
R-5 -16.35 11.71
R-10 -23.62 5.24
R-15 -26.75 2.46
R-30 -30.44 -.83
Intercept -1.336
Slope(DD) 5123.41
Curve(DDS) -32.456

120 lb Mass Wall
R-0 3.31 29.21
R-5 -16.78 11.33
R-10 -23.93 4.97
R-15 -27.02 2.22
R-30 -30.67 -1.03
Intercept -1.515
Slope(DD) 5095.09
Curve(DDS) -43.112

Log Mass Wall
4in -8.72 18.50
6in -17.30 10.87
8in -21.45 7.17
10in -23.71 5.16
12in -25.14 3.89
Intercept 1.291
Slope(DD) 3159.61
Curve(DDS) 441.299

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -3.19 .39
R-5 -5.00 -1.22
R-10 -5.35 -1.53
R-15 -5.49 -1.66
R-30 -5.62 -1.77
Intercept -1.454
Slope(DD) 98.05
Curve(DDS) 30.753

120 lb Mass Wall
R-0 -4.03 -.36
R-5 -5.38 -1.56
R-10 -5.65 -1.80
R-15 -5.74 -1.88
R-30 -5.83 -1.96
Intercept -1.616
Slope(DD) 63.69
Curve(DDS) 23.985

Log Mass Wall
4in -1.99 1.46
6in -3.80 -.15
8in -4.31 -.61
10in -4.30 -.60
12in -4.20 -.51
Intercept 1.355
Slope(DD) -1624.27
Curve(DDS) 424.946

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane 1.19
3-Pane 2.23

1-Pane .00
2-Pane -.60
3-Pane -1.08

Alphas (KBtu/sf)

	North	East	South	West
Heating	-49.219	-111.056	-196.146	-92.120
Cooling	11.224	23.471	20.030	28.667

Beta

Intercept

.009334	-.098980
.096144	-.048575

Portland OR

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.19 25.96
R-5 -14.10 9.69
R-10 -20.50 3.99
R-15 -23.25 1.54
R-30 -26.43 -1.29
Intercept -1.825
Slope(DD) 4456.82
Curve(DDS) -21.342

120 lb Mass Wall
R-0 3.38 25.24
R-5 -14.48 9.35
R-10 -20.78 3.74
R-15 -23.49 1.33
R-30 -26.63 -1.46
Intercept -1.970
Slope(DD) 4414.97
Curve(DDS) -26.884

Log Mass Wall
4in -7.48 15.58
6in -14.77 9.09
8in -18.36 5.89
10in -20.38 4.10
12in -21.68 2.94
Intercept .181
Slope(DD) 3147.35
Curve(DDS) 307.422

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.56 .23
R-5 -2.71 -.79
R-10 -2.93 -.99
R-15 -3.02 -1.07
R-30 -3.12 -1.16
Intercept -1.012
Slope(DD) 71.73
Curve(DDS) 18.508

120 lb Mass Wall
R-0 -2.10 -.25
R-5 -2.98 -1.03
R-10 -3.15 -1.19
R-15 -3.22 -1.25
R-30 -3.29 -1.31
Intercept -1.152
Slope(DD) 52.81
Curve(DDS) 14.409

Log Mass Wall
4in -.94 .78
6in -1.95 -.12
8in -2.33 -.46
10in -2.37 -.49
12in -2.34 -.47
Intercept .228
Slope(DD) -647.27
Curve(DDS) 202.218

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .76
3-Pane 1.44

1-Pane .00
2-Pane -.38
3-Pane -.68

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-52.468	-93.714	-98.498	-52.942	.014879	-.401812
Cooling	6.267	18.129	9.157	4.310	.414196	.028915

Portland ME

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 10.16 44.13
 R-5 -18.44 18.68
 R-10 -28.72 9.53
 R-15 -33.14 5.60
 R-30 -38.54 .79
 Intercept -.268
 Slope(DD) 7436.37
 Curve(DDS) -79.697

120 lb Mass Wall
 R-0 9.71 43.73
 R-5 -18.65 18.49
 R-10 -28.87 9.40
 R-15 -33.27 5.48
 R-30 -38.66 .69
 Intercept -.357
 Slope(DD) 7419.54
 Curve(DDS) -83.523

Log Mass Wall
 4in -10.47 25.77
 6in -20.72 16.65
 8in -26.15 11.82
 10in -29.47 8.86
 12in -31.71 6.87
 Intercept .741
 Slope(DD) 6738.45
 Curve(DDS) 97.630

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.19 -.03
 R-5 -1.81 -.58
 R-10 -1.94 -.70
 R-15 -1.98 -.73
 R-30 -2.05 -.80
 Intercept -.700
 Slope(DD) 47.76
 Curve(DDS) 9.100

120 lb Mass Wall
 R-0 -1.50 -.31
 R-5 -1.99 -.74
 R-10 -2.08 -.82
 R-15 -2.10 -.84
 R-30 -2.15 -.88
 Intercept -.768
 Slope(DD) 20.06
 Curve(DDS) 8.886

Log Mass Wall
 4in -.69 .42
 6in -1.29 -.12
 8in -1.50 -.31
 10in -1.52 -.32
 12in -1.49 -.30
 Intercept .182
 Slope(DD) -433.80
 Curve(DDS) 126.985

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane 1.12
 3-Pane 2.08

1-Pane .00
 2-Pane -.28
 3-Pane -.49

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-51.808	-83.089	-136.151	-82.981	.007923	-.161722
Cooling	4.299	7.052	6.804	7.270	.703054	-.081469

Pittsburgh PA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 8.02 36.21
R-5 -15.53 15.26
R-10 -23.98 7.74
R-15 -27.61 4.51
R-30 -32.06 .55
Intercept -.292
Slope(DD) 6111.04
Curve(DDS) -64.523

120 lb Mass Wall
R-0 7.60 35.84
R-5 -15.74 15.07
R-10 -24.13 7.60
R-15 -27.75 4.38
R-30 -32.18 .44
Intercept -.382
Slope(DD) 6091.30
Curve(DDS) -67.388

Log Mass Wall
4in -8.79 21.25
6in -17.33 13.65
8in -21.82 9.66
10in -24.56 7.22
12in -26.39 5.59
Intercept .660
Slope(DD) 5447.54
Curve(DDS) 105.273

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.85 .34
R-5 -3.07 -.75
R-10 -3.32 -.97
R-15 -3.43 -1.07
R-30 -3.55 -1.18
Intercept -1.004
Slope(DD) 102.70
Curve(DDS) 17.044

120 lb Mass Wall
R-0 -2.36 -.12
R-5 -3.30 -.95
R-10 -3.52 -1.15
R-15 -3.62 -1.24
R-30 -3.73 -1.34
Intercept -1.172
Slope(DD) 113.83
Curve(DDS) 9.801

Log Mass Wall
4in -1.20 .92
6in -2.26 -.03
8in -2.60 -.33
10in -2.64 -.37
12in -2.62 -.35
Intercept .489
Slope(DD) -726.45
Curve(DDS) 216.549

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane .87
3-Pane 1.62

1-Pane .00
2-Pane -.48
3-Pane -.86

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-47.337	-62.301	-99.780	-75.105	.010820	-.093961
Cooling	12.013	13.750	16.530	24.913	.115445	-.085631

Phoenix AZ

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -.98 5.29
 R-5 -6.05 .77
 R-10 -7.56 -.57
 R-15 -8.17 -1.11
 R-30 -8.67 -1.56
 Intercept -1.441
 Slope(DD) 775.96
 Curve(DDS) 39.528

120 lb Mass Wall
 R-0 -1.63 4.71
 R-5 -6.32 .53
 R-10 -7.74 -.73
 R-15 -8.33 -1.26
 R-30 -8.80 -1.67
 Intercept -1.535
 Slope(DD) 751.91
 Curve(DDS) 33.296

Log Mass Wall
 4in -3.04 3.45
 6in -5.73 1.06
 8in -6.76 .14
 10in -7.14 -.20
 12in -7.36 -.39
 Intercept .312
 Slope(DD) -500.55
 Curve(DDS) 352.432

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 .95 11.50
 R-5 -7.21 4.24
 R-10 -10.14 1.63
 R-15 -11.37 .54
 R-30 -12.93 -.85
 Intercept -1.059
 Slope(DD) 2109.48
 Curve(DDS) -21.602

120 lb Mass Wall
 R-0 .44 11.05
 R-5 -7.63 3.86
 R-10 -10.41 1.39
 R-15 -11.62 .31
 R-30 -13.16 -1.06
 Intercept -1.180
 Slope(DD) 2019.72
 Curve(DDS) -15.621

Log Mass Wall
 4in -3.56 7.49
 6in -7.02 4.41
 8in -8.75 2.87
 10in -9.67 2.05
 12in -10.23 1.55
 Intercept .433
 Slope(DD) 1323.93
 Curve(DDS) 173.227

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.21	2-Pane	-1.16
3-Pane	.40	3-Pane	-2.12

Alphas (KBtu/sf)

Beta Intercept

	North	East	South	West		
Heating	-15.022	-24.606	-31.009	-20.284	.055144	-.200102
Cooling	34.200	77.679	67.536	83.439	.002107	-.044129

Philadelphia PA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.03 30.37
R-5 -12.83 12.70
R-10 -19.89 6.42
R-15 -22.92 3.72
R-30 -26.59 .45
Intercept -.242
Slope(DD) 5050.64
Curve(DDS) -44.304

120 lb Mass Wall
R-0 6.68 30.06
R-5 -12.98 12.56
R-10 -20.00 6.32
R-15 -23.02 3.63
R-30 -26.68 .37
Intercept -.316
Slope(DD) 5045.46
Curve(DDS) -48.296

Log Mass Wall
4in -7.22 17.69
6in -14.35 11.35
8in -18.11 8.00
10in -20.37 5.99
12in -21.90 4.63
Intercept .545
Slope(DD) 4500.81
Curve(DDS) 95.405

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.34 1.33
R-5 -3.07 -.21
R-10 -3.56 -.64
R-15 -3.75 -.81
R-30 -4.01 -1.04
Intercept -.938
Slope(DD) 290.16
Curve(DDS) 10.408

120 lb Mass Wall
R-0 -1.77 .95
R-5 -3.34 -.45
R-10 -3.77 -.83
R-15 -3.95 -.99
R-30 -4.20 -1.21
Intercept -1.086
Slope(DD) 269.09
Curve(DDS) 8.696

Log Mass Wall
4in -1.19 1.47
6in -2.35 .43
8in -2.82 .02
10in -3.01 -.15
12in -3.05 -.19
Intercept .092
Slope(DD) -232.30
Curve(DDS) 156.381

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.87	2-Pane	-.56
3-Pane	1.62	3-Pane	-1.02

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-36.379	-61.961	-113.110	-57.881	.009707	-.103012
Cooling	19.086	31.325	29.623	35.812	.013840	-.031879

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 8.37 36.14
 R-5 -15.06 15.29
 R-10 -23.50 7.78
 R-15 -27.12 4.56
 R-30 -31.50 .66
 Intercept -.220
 Slope(DD) 6075.80
 Curve(DDS) -63.345

120 lb Mass Wall
 R-0 8.05 35.86
 R-5 -15.23 15.14
 R-10 -23.63 7.66
 R-15 -27.23 4.46
 R-30 -31.60 .57
 Intercept -.292
 Slope(DD) 6056.62
 Curve(DDS) -64.871

Log Mass Wall
 4in -8.65 20.99
 6in -16.98 13.58
 8in -21.40 9.65
 10in -24.12 7.23
 12in -25.96 5.59
 Intercept .520
 Slope(DD) 5572.23
 Curve(DDS) 65.034

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.23 2.10
 R-5 -3.51 .07
 R-10 -4.17 -.52
 R-15 -4.43 -.75
 R-30 -4.79 -1.07
 Intercept -.960
 Slope(DD) 406.29
 Curve(DDS) 11.368

120 lb Mass Wall
 R-0 -1.65 1.73
 R-5 -3.76 -.15
 R-10 -4.38 -.70
 R-15 -4.63 -.93
 R-30 -5.00 -1.25
 Intercept -1.140
 Slope(DD) 408.30
 Curve(DDS) 7.214

Log Mass Wall
 4in -1.45 1.90
 6in -2.82 .69
 8in -3.40 .17
 10in -3.59 -.00
 12in -3.70 -.10
 Intercept .197
 Slope(DD) -206.17
 Curve(DDS) 174.640

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.02	2-Pane	-.69
3-Pane	1.89	3-Pane	-1.27

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-39.856	-73.986	-134.997	-68.479	.008432	-.149947
Cooling	21.760	40.569	34.311	45.488	.012970	-.088089

Oklahoma City OK One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 4.86 21.83
R-5 -9.64 8.93
R-10 -14.73 4.40
R-15 -16.89 2.47
R-30 -19.51 .14
Intercept -.308
Slope(DD) 3583.99
Curve(DDS) -22.243

120 lb Mass Wall
R-0 4.55 21.55
R-5 -9.84 8.75
R-10 -14.86 4.28
R-15 -17.01 2.37
R-30 -19.62 .04
Intercept -.374
Slope(DD) 3550.79
Curve(DDS) -21.759

Log Mass Wall
4in -5.35 12.74
6in -10.60 8.07
8in -13.37 5.61
10in -15.02 4.14
12in -16.11 3.17
Intercept .240
Slope(DD) 3213.17
Curve(DDS) 85.906

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.62 3.24
R-5 -3.55 .63
R-10 -4.54 -.25
R-15 -4.95 -.62
R-30 -5.52 -1.13
Intercept -1.155
Slope(DD) 709.13
Curve(DDS) -3.435

120 lb Mass Wall
R-0 -1.00 2.90
R-5 -3.76 .44
R-10 -4.76 -.45
R-15 -5.17 -.81
R-30 -5.67 -1.26
Intercept -1.304
Slope(DD) 698.12
Curve(DDS) -5.586

Log Mass Wall
4in -1.56 2.40
6in -2.94 1.17
8in -3.62 .57
10in -3.95 .27
12in -4.22 .03
Intercept -.444
Slope(DD) 521.34
Curve(DDS) 68.943

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.72	2-Pane	-.82
3-Pane	1.35	3-Pane	-1.51

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-31.634	-58.815	-96.792	-54.799	.013497	.029556
Cooling	31.949	56.506	45.783	62.788	-.000527	-.063606

New York NY

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 7.74 31.46
 R-5 -12.85 13.14
 R-10 -20.13 6.66
 R-15 -23.25 3.88
 R-30 -27.01 .54
 Intercept -.201
 Slope(DD) 5175.48
 Curve(DDS) -39.976

120 lb Mass Wall
 R-0 7.46 31.21
 R-5 -13.00 13.00
 R-10 -20.25 6.55
 R-15 -23.35 3.79
 R-30 -27.10 .45
 Intercept -.268
 Slope(DD) 5158.64
 Curve(DDS) -41.234

Log Mass Wall
 4in -7.27 18.10
 6in -14.46 11.70
 8in -18.29 8.30
 10in -20.66 6.19
 12in -22.27 4.75
 Intercept .226
 Slope(DD) 4918.52
 Curve(DDS) 40.226

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.00 1.17
 R-5 -2.53 -.19
 R-10 -2.97 -.58
 R-15 -3.14 -.73
 R-30 -3.37 -.94
 Intercept -.870
 Slope(DD) 261.43
 Curve(DDS) 8.775

120 lb Mass Wall
 R-0 -1.35 .86
 R-5 -2.75 -.39
 R-10 -3.17 -.76
 R-15 -3.33 -.90
 R-30 -3.58 -1.12
 Intercept -1.058
 Slope(DD) 273.81
 Curve(DDS) 4.549

Log Mass Wall
 4in -.89 1.27
 6in -1.85 .41
 8in -2.29 .02
 10in -2.47 -.14
 12in -2.55 -.21
 Intercept -.212
 Slope(DD) 5.91
 Curve(DDS) 101.362

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.82	2-Pane	-.50
3-Pane	1.52	3-Pane	-.91

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-38.631	-60.106	-97.645	-58.638	.010480	-.159122
Cooling	16.519	25.781	24.953	27.258	.031140	-.081255

Nashville TN

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 4.33 20.47
 R-5 -9.16 8.47
 R-10 -13.96 4.19
 R-15 -16.02 2.36
 R-30 -18.49 .16
 Intercept -.281
 Slope(DD) 3421.23
 Curve(DDS) -29.026

120 lb Mass Wall
 R-0 4.00 20.18
 R-5 -9.36 8.29
 R-10 -14.10 4.07
 R-15 -16.14 2.25
 R-30 -18.60 .07
 Intercept -.349
 Slope(DD) 3388.98
 Curve(DDS) -28.979

Log Mass Wall
 4in -5.05 12.12
 6in -10.01 7.71
 8in -12.66 5.35
 10in -14.24 3.95
 12in -15.27 3.03
 Intercept .161
 Slope(DD) 3121.00
 Curve(DDS) 69.861

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.03 2.79
 R-5 -3.80 .33
 R-10 -4.66 -.44
 R-15 -5.01 -.75
 R-30 -5.53 -1.21
 Intercept -1.163
 Slope(DD) 594.42
 Curve(DDS) 3.847

120 lb Mass Wall
 R-0 -1.47 2.40
 R-5 -4.09 .07
 R-10 -4.91 -.66
 R-15 -5.26 -.97
 R-30 -5.74 -1.40
 Intercept -1.340
 Slope(DD) 572.07
 Curve(DDS) 2.744

Log Mass Wall
 4in -1.58 2.30
 6in -3.12 .93
 8in -3.87 .26
 10in -4.15 .01
 12in -4.26 -.08
 Intercept -.047
 Slope(DD) 2.74
 Curve(DDS) 165.785

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.58	2-Pane	-.73
3-Pane	1.08	3-Pane	-1.33

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-27.511	-44.348	-74.397	-42.917	.016194	-.030420
Cooling	29.151	48.712	40.690	47.631	.002913	-.032631

Minneapolis MN One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 9.35 45.37
R-5 -18.92 20.22
R-10 -29.78 10.55
R-15 -34.49 6.36
R-30 -40.28 1.21
Intercept -.159
Slope(DD) 8205.13
Curve(DDS) -160.688

120 lb Mass Wall
R-0 9.08 45.13
R-5 -19.07 20.08
R-10 -29.90 10.44
R-15 -34.60 6.26
R-30 -40.40 1.10
Intercept -.258
Slope(DD) 8205.25
Curve(DDS) -163.512

Log Mass Wall
4in -11.20 27.09
6in -21.53 17.89
8in -27.16 12.88
10in -30.69 9.74
12in -33.09 7.61
Intercept .605
Slope(DD) 7660.85
Curve(DDS) -26.648

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.58 .65
R-5 -3.00 -.61
R-10 -3.33 -.90
R-15 -3.46 -1.02
R-30 -3.68 -1.22
Intercept -1.079
Slope(DD) 186.76
Curve(DDS) 13.104

120 lb Mass Wall
R-0 -2.06 .23
R-5 -3.25 -.83
R-10 -3.56 -1.11
R-15 -3.64 -1.18
R-30 -3.77 -1.30
Intercept -1.137
Slope(DD) 122.47
Curve(DDS) 14.873

Log Mass Wall
4in -1.07 1.11
6in -2.13 .16
8in -2.55 -.21
10in -2.65 -.30
12in -2.68 -.33
Intercept .133
Slope(DD) -404.78
Curve(DDS) 171.282

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.47
3-Pane	2.09	3-Pane	-.86

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-43.733	-81.060	-138.954	-77.440	.007192	-.144884
Cooling	10.580	18.440	17.401	21.050	.113085	-.094345

Miami FL

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.24 .91
R-5 -1.21 .05
R-10 -1.46 -.18
R-15 -1.56 -.27
R-30 -1.63 -.33
Intercept -.279
Slope(DD) 102.20
Curve(DDS) 11.992

120 lb Mass Wall
R-0 -.41 .76
R-5 -1.29 -.03
R-10 -1.52 -.23
R-15 -1.62 -.32
R-30 -1.68 -.37
Intercept -.322
Slope(DD) 98.83
Curve(DDS) 10.303

Log Mass Wall
4in -.61 .58
6in -1.13 .12
8in -1.34 -.07
10in -1.44 -.16
12in -1.50 -.21
Intercept -.209
Slope(DD) 9.74
Curve(DDS) 52.456

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .62 4.81
R-5 -3.69 .97
R-10 -5.34 -.49
R-15 -6.00 -1.08
R-30 -6.74 -1.74
Intercept -2.070
Slope(DD) 1126.05
Curve(DDS) -11.468

120 lb Mass Wall
R-0 .31 4.53
R-5 -4.09 .62
R-10 -5.54 -.67
R-15 -6.18 -1.24
R-30 -6.85 -1.84
Intercept -2.032
Slope(DD) 956.91
Curve(DDS) 6.072

Log Mass Wall
4in -1.59 2.84
6in -3.12 1.48
8in -4.15 .56
10in -4.73 .05
12in -5.14 -.32
Intercept -2.072
Slope(DD) 1585.94
Curve(DDS) -63.607

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.03	2-Pane	-1.54
3-Pane	.05	3-Pane	-2.85

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-1.403	-2.048	-2.577	-1.895	.317152	-.007584
Cooling	70.903	116.346	113.599	106.614	-.002752	-.021583

Memphis TN

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.86 17.91
R-5 -8.04 7.32
R-10 -12.25 3.57
R-15 -14.05 1.97
R-30 -16.20 .06
Intercept -.331
Slope(DD) 2977.06
Curve(DDS) -21.581

120 lb Mass Wall
R-0 3.57 17.65
R-5 -8.22 7.16
R-10 -12.37 3.47
R-15 -14.16 1.87
R-30 -16.29 -.02
Intercept -.383
Slope(DD) 2943.29
Curve(DDS) -20.923

Log Mass Wall
4in -4.44 10.52
6in -8.80 6.64
8in -11.11 4.59
10in -12.51 3.34
12in -13.42 2.53
Intercept -.015
Slope(DD) 2756.54
Curve(DDS) 58.555

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.09 4.08
R-5 -3.23 1.28
R-10 -4.34 .30
R-15 -4.85 -.16
R-30 -5.45 -.69
Intercept -.774
Slope(DD) 828.20
Curve(DDS) -10.110

120 lb Mass Wall
R-0 -.28 3.91
R-5 -3.41 1.12
R-10 -4.53 .13
R-15 -5.00 -.29
R-30 -5.66 -.88
Intercept -.953
Slope(DD) 841.06
Curve(DDS) -11.748

Log Mass Wall
4in -1.56 2.77
6in -2.94 1.54
8in -3.60 .95
10in -4.02 .58
12in -4.26 .37
Intercept -.224
Slope(DD) 649.22
Curve(DDS) 49.485

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.59	2-Pane	-.79
3-Pane	1.10	3-Pane	-1.45

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-25.182	-46.235	-82.958	-42.984	.016487	-.010883
Cooling	31.946	56.223	44.416	59.557	-.001367	-.033671

Medford OR

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.78 26.02
R-5 -14.60 9.66
R-10 -21.12 3.86
R-15 -23.94 1.35
R-30 -27.16 -1.51
Intercept -2.097
Slope(DD) 4577.44
Curve(DDS) -30.744

120 lb Mass Wall
R-0 2.82 25.17
R-5 -15.00 9.31
R-10 -21.40 3.61
R-15 -24.18 1.14
R-30 -27.38 -1.71
Intercept -2.265
Slope(DD) 4554.99
Curve(DDS) -41.217

Log Mass Wall
4in -7.69 15.81
6in -15.37 8.98
8in -19.13 5.63
10in -21.16 3.83
12in -22.46 2.67
Intercept .109
Slope(DD) 2932.32
Curve(DDS) 381.131

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -3.19 .38
R-5 -5.12 -1.33
R-10 -5.53 -1.70
R-15 -5.68 -1.83
R-30 -5.84 -1.97
Intercept -1.684
Slope(DD) 136.13
Curve(DDS) 29.838

120 lb Mass Wall
R-0 -3.99 -.33
R-5 -5.52 -1.69
R-10 -5.82 -1.96
R-15 -5.93 -2.05
R-30 -6.06 -2.17
Intercept -1.839
Slope(DD) 90.66
Curve(DDS) 25.174

Log Mass Wall
4in -2.15 1.31
6in -3.92 -.26
8in -4.47 -.75
10in -4.49 -.77
12in -4.43 -.72
Intercept .877
Slope(DD) -1391.16
Curve(DDS) 387.788

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.66	2-Pane	-.55
3-Pane	1.23	3-Pane	-.99

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-38.150	-52.110	-80.784	-53.708	.015144	-.042401
Cooling	9.583	15.884	17.137	21.225	.188206	.962447

Los Angeles CA One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.04 8.74
R-5 -7.71 1.92
R-10 -10.13 -.24
R-15 -11.15 -1.14
R-30 -12.04 -1.93
Intercept -1.964
Slope(DD) 1387.52
Curve(DDS) 38.930

120 lb Mass Wall
R-0 -.79 8.08
R-5 -8.02 1.64
R-10 -10.36 -.44
R-15 -11.34 -1.31
R-30 -12.19 -2.07
Intercept -2.076
Slope(DD) 1357.35
Curve(DDS) 32.164

Log Mass Wall
4in -3.79 5.41
6in -7.37 2.22
8in -8.91 .85
10in -9.62 .22
12in -10.05 -.16
Intercept -.251
Slope(DD) 252.68
Curve(DDS) 337.267

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.68 .10
R-5 -1.02 -.20
R-10 -1.07 -.25
R-15 -1.13 -.30
R-30 -1.16 -.33
Intercept -.266
Slope(DD) 37.03
Curve(DDS) 3.756

120 lb Mass Wall
R-0 -.78 .01
R-5 -1.08 -.26
R-10 -1.16 -.33
R-15 -1.18 -.35
R-30 -1.22 -.38
Intercept -.319
Slope(DD) 35.83
Curve(DDS) 3.240

Log Mass Wall
4in -.39 .36
6in -.75 .04
8in -.82 -.02
10in -.86 -.06
12in -.88 -.08
Intercept .154
Slope(DD) -184.55
Curve(DDS) 61.916

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.54	2-Pane	-.30
3-Pane	1.03	3-Pane	-.53

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-44.153	-65.332	-85.665	-69.967	.022196	-.284815
Cooling	.235	.516	.489	.541247	.921203	-.091191

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 1.36 12.08
 R-5 -7.69 4.03
 R-10 -10.68 1.37
 R-15 -11.94 .25
 R-30 -13.37 -1.03
 Intercept -1.144
 Slope(DD) 1962.41
 Curve(DDS) 12.948

120 lb Mass Wall
 R-0 .83 11.61
 R-5 -7.92 3.82
 R-10 -10.85 1.22
 R-15 -12.08 .12
 R-30 -13.48 -1.12
 Intercept -1.223
 Slope(DD) 1935.58
 Curve(DDS) 8.931

Log Mass Wall
 4in -4.07 7.25
 6in -7.87 3.87
 8in -9.63 2.30
 10in -10.52 1.51
 12in -11.08 1.01
 Intercept .338
 Slope(DD) 917.86
 Curve(DDS) 264.980

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -.21 8.01
 R-5 -6.13 2.74
 R-10 -8.26 .85
 R-15 -9.18 .03
 R-30 -10.29 -.96
 Intercept -1.067
 Slope(DD) 1539.48
 Curve(DDS) -16.472

120 lb Mass Wall
 R-0 -.74 7.54
 R-5 -6.49 2.42
 R-10 -8.51 .62
 R-15 -9.41 -.18
 R-30 -10.49 -1.14
 Intercept -1.190
 Slope(DD) 1475.76
 Curve(DDS) -14.440

Log Mass Wall
 4in -3.09 5.45
 6in -5.78 3.05
 8in -7.06 1.91
 10in -7.77 1.28
 12in -8.13 .96
 Intercept .343
 Slope(DD) 801.75
 Curve(DDS) 166.944

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.53	2-Pane	-.98
3-Pane	1.00	3-Pane	-1.79

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-24.608	-50.486	-89.326	-44.692	.021445	-.101239
Cooling	27.688	64.272	51.513	68.666	.005241	.025594

Lake Charles LA One Story Prototype Mass and Window runs

Heating Load			Cooling Load		
Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	1.25	8.88	R-0	.28	4.58
R-5	-5.21	3.13	R-5	-3.22	1.46
R-10	-7.40	1.18	R-10	-4.53	.30
R-15	-8.34	.35	R-15	-5.08	-.19
R-30	-9.36	-.56	R-30	-5.78	-.82
Intercept		-.694	Intercept		-.980
Slope(DD)	1457.26		Slope(DD)	965.40	
Curve(DDS)	4.017		Curve(DDS)	-15.040	
120 lb Mass Wall			120 lb Mass Wall		
R-0	.93	8.60	R-0	.16	4.47
R-5	-5.37	2.99	R-5	-3.45	1.26
R-10	-7.51	1.09	R-10	-4.71	.14
R-15	-8.43	.27	R-15	-5.26	-.35
R-30	-9.46	-.65	R-30	-5.97	-.99
Intercept		-.764	Intercept		-1.111
Slope(DD)	1445.77		Slope(DD)	930.05	
Curve(DDS)	1.351		Curve(DDS)	-9.602	
Log Mass Wall			Log Mass Wall		
4in	-2.78	5.30	4in	-1.54	2.96
6in	-5.41	2.96	6in	-2.89	1.76
8in	-6.68	1.83	8in	-3.63	1.10
10in	-7.39	1.19	10in	-4.13	.65
12in	-7.84	.79	12in	-4.41	.40
Intercept		-.106	Intercept		-.625
Slope(DD)	1028.28		Slope(DD)	1030.45	
Curve(DDS)	126.092		Curve(DDS)	-7.148	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.30	2-Pane	-1.04
3-Pane	.57	3-Pane	-1.90

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-18.513	-29.136	-43.239	-26.885	.037026	-.021703
Cooling	44.134	76.260	64.049	70.718	-.001502	-.028693

Kansas City M0 One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 6.60 28.92
R-5 -12.26 12.13
R-10 -19.02 6.12
R-15 -21.93 3.53
R-30 -25.46 .38
Intercept -.311
Slope(DD) 4873.12
Curve(DDS) -49.509

120 lb Mass Wall
R-0 6.30 28.65
R-5 -12.40 12.01
R-10 -19.14 6.01
R-15 -22.04 3.43
R-30 -25.56 .30
Intercept -.400
Slope(DD) 4872.57
Curve(DDS) -52.958

Log Mass Wall
4in -6.96 16.85
6in -13.72 10.83
8in -17.29 7.66
10in -19.47 5.72
12in -20.96 4.39
Intercept .353
Slope(DD) 4434.05
Curve(DDS) 65.212

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.31 3.87
R-5 -3.35 1.17
R-10 -4.40 .23
R-15 -4.84 -.16
R-30 -5.52 -.76
Intercept -.799
Slope(DD) 808.21
Curve(DDS) -10.986

120 lb Mass Wall
R-0 -.61 3.61
R-5 -3.55 .99
R-10 -4.55 .10
R-15 -4.98 -.28
R-30 -5.60 -.84
Intercept -.842
Slope(DD) 755.35
Curve(DDS) -7.972

Log Mass Wall
4in -1.52 2.80
6in -2.97 1.50
8in -3.69 .86
10in -4.05 .54
12in -4.27 .35
Intercept -.053
Slope(DD) 462.51
Curve(DDS) 86.361

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.90	2-Pane	-.80
3-Pane	1.68	3-Pane	-1.48

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-40.535	-83.004	-124.884	-54.365	.010969	-.043467
Cooling	30.364	67.811	43.036	44.061	.002044	-.042547

Juneau AK

One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 14.23 55.48
 R-5 -20.63 24.46
 R-10 -33.41 13.08
 R-15 -38.95 8.15
 R-30 -45.80 2.06
 Intercept .524
 Slope(DD) 9451.70
 Curve(DDS) -135.068

95 lb Mass Wall
 R-0 -.02 -.02
 R-5 -.02 -.02
 R-10 -.02 -.02
 R-15 -.02 -.02
 R-30 -.02 -.02
 Intercept -.018
 Slope(DD) .00
 Curve(DDS) -.000

120 lb Mass Wall
 R-0 14.11 55.37
 R-5 -20.70 24.39
 R-10 -33.47 13.03
 R-15 -39.00 8.11
 R-30 -45.85 2.01
 Intercept .485
 Slope(DD) 9446.60
 Curve(DDS) -135.689

120 lb Mass Wall
 R-0 -.02 -.02
 R-5 -.02 -.02
 R-10 -.02 -.02
 R-15 -.02 -.02
 R-30 -.02 -.02
 Intercept -.018
 Slope(DD) .00
 Curve(DDS) -.000

Log Mass Wall
 4in -12.09 32.06
 6in -24.05 21.41
 8in -30.59 15.59
 10in -34.73 11.91
 12in -37.57 9.38
 Intercept .966
 Slope(DD) 9132.54
 Curve(DDS) -70.033

Log Mass Wall
 4in -.01 -.01
 6in -.02 -.02
 8in -.02 -.02
 10in -.02 -.02
 12in -.02 -.02
 Intercept -.007
 Slope(DD) -10.88
 Curve(DDS) 2.503

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane 1.07
 3-Pane 1.99

1-Pane .00
 2-Pane -.01
 3-Pane -.01

Alphas (KBtu/sf)

Beta

Intercept

	North	East	South	West	Beta	Intercept
Heating	-58.949	-82.496	-114.489	-80.517	.008198	.043927
Cooling	.007	.023	.047	.057805	.213500	-.013247

Jacksonville FL One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .89 7.56
R-5 -4.86 2.45
R-10 -6.79 .73
R-15 -7.60 .01
R-30 -8.45 -.75
Intercept -.854
Slope(DD) 1235.54
Curve(DDS) 9.819

120 lb Mass Wall
R-0 .54 7.25
R-5 -5.03 2.30
R-10 -6.92 .61
R-15 -7.71 -.09
R-30 -8.54 -.83
Intercept -.919
Slope(DD) 1214.85
Curve(DDS) 7.845

Log Mass Wall
4in -2.56 4.49
6in -4.96 2.36
8in -6.12 1.33
10in -6.75 .76
12in -7.14 .42
Intercept -.353
Slope(DD) 858.67
Curve(DDS) 127.305

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.68 2.90
R-5 -3.64 .27
R-10 -4.60 -.59
R-15 -5.06 -1.00
R-30 -5.58 -1.46
Intercept -1.526
Slope(DD) 695.88
Curve(DDS) -1.535

120 lb Mass Wall
R-0 -1.04 2.58
R-5 -3.83 .10
R-10 -4.84 -.80
R-15 -5.24 -1.16
R-30 -5.75 -1.61
Intercept -1.690
Slope(DD) 697.78
Curve(DDS) -4.874

Log Mass Wall
4in -1.65 2.04
6in -3.01 .83
8in -3.62 .28
10in -3.95 -.01
12in -4.19 -.22
Intercept -.590
Slope(DD) 408.85
Curve(DDS) 81.398

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.30	2-Pane	-1.12
3-Pane	.57	3-Pane	-2.06

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-15.843	-28.554	-45.874	-24.591	.037142	-.036945
Cooling	44.973	83.173	71.588	68.217	-.000246	-.020907

Honolulu HI

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.07 .01
R-5 -.11 -.03
R-10 -.11 -.03
R-15 -.11 -.03
R-30 -.11 -.03
Intercept -.013
Slope(DD) -5.60
Curve(DDS) 1.408

120 lb Mass Wall
R-0 -.09 -.01
R-5 -.11 -.03
R-10 -.11 -.03
R-15 -.11 -.03
R-30 -.11 -.03
Intercept -.015
Slope(DD) -2.80
Curve(DDS) .704

Log Mass Wall
4in -.06 .02
6in -.10 -.02
8in -.11 -.03
10in -.11 -.03
12in -.11 -.03
Intercept .012
Slope(DD) -32.55
Curve(DDS) 8.804

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.71 1.11
R-5 -2.96 -.89
R-10 -3.78 -1.62
R-15 -4.18 -1.98
R-30 -4.34 -2.12
Intercept -2.334
Slope(DD) 476.17
Curve(DDS) 5.721

120 lb Mass Wall
R-0 -.98 .87
R-5 -3.27 -1.17
R-10 -4.17 -1.97
R-15 -4.43 -2.20
R-30 -4.52 -2.28
Intercept -2.450
Slope(DD) 374.01
Curve(DDS) 17.747

Log Mass Wall
4in -1.21 .66
6in -2.21 -.23
8in -2.81 -.76
10in -3.18 -1.09
12in -3.32 -1.21
Intercept -2.103
Slope(DD) 690.35
Curve(DDS) 8.839

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.00	2-Pane	-1.74
3-Pane	.00	3-Pane	-3.21

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-.046	-.071	-.090	-.071	-13.709700	-.000957
Cooling	76.444	155.997	125.618	107.318	-.002716	.086398

Great Falls MT One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.85 44.01
R-5 -19.95 19.27
R-10 -30.58 9.81
R-15 -35.19 5.71
R-30 -40.88 .64
Intercept -.591
Slope(DD) 8026.11
Curve(DDS) -154.120

120 lb Mass Wall
R-0 7.38 43.59
R-5 -20.20 19.04
R-10 -30.78 9.63
R-15 -35.37 5.54
R-30 -41.04 .50
Intercept -.717
Slope(DD) 8005.86
Curve(DDS) -157.062

Log Mass Wall
4in -11.63 26.67
6in -22.18 17.28
8in -27.81 12.27
10in -31.26 9.20
12in -33.57 7.15
Intercept .786
Slope(DD) 7064.56
Curve(DDS) 82.984

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.49 -.04
R-5 -2.24 -.71
R-10 -2.38 -.83
R-15 -2.43 -.87
R-30 -2.48 -.92
Intercept -.786
Slope(DD) 30.25
Curve(DDS) 13.760

120 lb Mass Wall
R-0 -1.85 -.36
R-5 -2.42 -.87
R-10 -2.52 -.95
R-15 -2.56 -.99
R-30 -2.60 -1.03
Intercept -.884
Slope(DD) 22.24
Curve(DDS) 10.474

Log Mass Wall
4in -.89 .50
6in -1.65 -.18
8in -1.88 -.39
10in -1.89 -.39
12in -1.87 -.38
Intercept .291
Slope(DD) -589.79
Curve(DDS) 165.030

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
2-Pane 1.27
3-Pane 2.36

1-Pane .00
2-Pane -.32
3-Pane -.57

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-55.712	-104.291	-172.592	-92.364	.007778	-.203081
Cooling	3.161	6.517	7.467	8.081	.908638	-.023047

Fresno CA

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 1.32 13.92
 R-5 -8.79 4.93
 R-10 -12.22 1.88
 R-15 -13.69 .57
 R-30 -15.32 -.88
 Intercept -1.025
 Slope(DD) 2300.44
 Curve(DDS) 4.195

120 lb Mass Wall
 R-0 .66 13.34
 R-5 -9.07 4.68
 R-10 -12.42 1.70
 R-15 -13.85 .42
 R-30 -15.47 -1.02
 Intercept -1.134
 Slope(DD) 2278.97
 Curve(DDS) -2.286

Log Mass Wall
 4in -4.62 8.64
 6in -9.04 4.71
 8in -11.07 2.90
 10in -12.12 1.96
 12in -12.77 1.39
 Intercept .603
 Slope(DD) 1080.35
 Curve(DDS) 305.596

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -2.35 3.74
 R-5 -6.13 .38
 R-10 -7.31 -.67
 R-15 -7.76 -1.07
 R-30 -8.35 -1.60
 Intercept -1.407
 Slope(DD) 726.94
 Curve(DDS) 14.203

120 lb Mass Wall
 R-0 -3.15 3.03
 R-5 -6.60 -.04
 R-10 -7.62 -.95
 R-15 -8.04 -1.32
 R-30 -8.59 -1.81
 Intercept -1.550
 Slope(DD) 647.27
 Curve(DDS) 14.088

Log Mass Wall
 4in -2.70 3.43
 6in -5.15 1.25
 8in -6.09 .41
 10in -6.36 .17
 12in -6.44 .10
 Intercept 1.215
 Slope(DD) -859.40
 Curve(DDS) 383.050

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.50	2-Pane	-.87
3-Pane	.95	3-Pane	-1.60

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-26.710	-43.924	-73.966	-42.690	.021732	-.089236
Cooling	25.952	52.789	45.688	63.406	.006371	-.032326

Fort Worth TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 2.57 13.76
R-5 -7.15 5.11
R-10 -10.50 2.13
R-15 -11.91 .88
R-30 -13.49 -.53
Intercept -.789
Slope(DD) 2243.59
Curve(DDS) 1.204

120 lb Mass Wall
R-0 2.19 13.43
R-5 -7.35 4.94
R-10 -10.63 2.02
R-15 -12.03 .77
R-30 -13.60 -.63
Intercept -.863
Slope(DD) 2220.20
Curve(DDS) -.778

Log Mass Wall
4in -3.86 8.04
6in -7.59 4.72
8in -9.46 3.06
10in -10.53 2.11
12in -11.22 1.49
Intercept -.109
Slope(DD) 1778.18
Curve(DDS) 133.331

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .51 4.96
R-5 -3.28 1.58
R-10 -4.63 .38
R-15 -5.21 -.13
R-30 -5.90 -.75
Intercept -.895
Slope(DD) 960.55
Curve(DDS) -8.064

120 lb Mass Wall
R-0 .27 4.74
R-5 -3.49 1.40
R-10 -4.84 .19
R-15 -5.40 -.30
R-30 -6.12 -.94
Intercept -1.087
Slope(DD) 967.92
Curve(DDS) -9.546

Log Mass Wall
4in -1.53 3.14
6in -2.96 1.87
8in -3.80 1.12
10in -4.28 .69
12in -4.58 .43
Intercept -.627
Slope(DD) 1045.43
Curve(DDS) 1.657

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.46	2-Pane	-.88
3-Pane	.86	3-Pane	-1.62

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-23.915	-40.238	-66.500	-37.520	.023757	-.039180
Cooling	34.790	60.086	48.659	66.413	-.000001	-.006814

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 1.61 12.17
 R-5 -7.62 3.95
 R-10 -10.75 1.17
 R-15 -12.08 -.02
 R-30 -13.39 -1.18
 Intercept -1.397
 Slope(DD) 1989.41
 Curve(DDS) 15.602

120 lb Mass Wall
 R-0 1.13 11.74
 R-5 -7.82 3.77
 R-10 -10.90 1.03
 R-15 -12.21 -.13
 R-30 -13.52 -1.30
 Intercept -1.505
 Slope(DD) 1989.01
 Curve(DDS) 9.322

Log Mass Wall
 4in -4.09 7.09
 6in -7.93 3.68
 8in -9.70 2.10
 10in -10.64 1.26
 12in -11.24 .73
 Intercept -.148
 Slope(DD) 1077.01
 Curve(DDS) 244.600

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -.51 4.29
 R-5 -4.19 1.02
 R-10 -5.42 -.08
 R-15 -5.95 -.55
 R-30 -6.60 -1.13
 Intercept -1.158
 Slope(DD) 856.65
 Curve(DDS) -.769

120 lb Mass Wall
 R-0 -.91 3.94
 R-5 -4.45 .79
 R-10 -5.64 -.27
 R-15 -6.14 -.72
 R-30 -6.77 -1.28
 Intercept -1.284
 Slope(DD) 823.39
 Curve(DDS) -.633

Log Mass Wall
 4in -1.97 2.99
 6in -3.70 1.45
 8in -4.44 .80
 10in -4.84 .44
 12in -5.01 .29
 Intercept .231
 Slope(DD) 176.14
 Curve(DDS) 155.328

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.51	2-Pane	-.90
3-Pane	.97	3-Pane	-1.66

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-26.763	-56.073	-86.146	-46.612	.022735	-.141425
Cooling	29.775	62.588	44.411	65.974	.003441	-.017241

Denver CO

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 6.45 34.08
R-5 -16.30 13.84
R-10 -29.33 2.24
R-15 -27.81 3.60
R-30 -31.97 -.11
Intercept -.807
Slope(DD) 4815.36
Curve(DDS) 87.283

120 lb Mass Wall
R-0 5.75 33.46
R-5 -16.60 13.57
R-10 -24.56 6.49
R-15 -28.00 3.43
R-30 -32.12 -.24
Intercept -.896
Slope(DD) 5706.74
Curve(DDS) -52.001

Log Mass Wall
4in -8.98 20.35
6in -17.70 12.59
8in -22.10 8.68
10in -24.65 6.41
12in -26.33 4.91
Intercept 1.051
Slope(DD) 4427.88
Curve(DDS) 271.532

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -2.73 .21
R-5 -4.18 -1.09
R-10 -.83 1.90
R-15 -4.57 -1.43
R-30 -4.68 -1.53
Intercept -1.251
Slope(DD) 749.57
Curve(DDS) -72.467

120 lb Mass Wall
R-0 -3.40 -.39
R-5 -4.49 -1.36
R-10 -4.70 -1.55
R-15 -4.79 -1.63
R-30 -4.90 -1.73
Intercept -1.455
Slope(DD) 80.72
Curve(DDS) 16.219

Log Mass Wall
4in -1.74 1.09
6in -3.16 -.18
8in -3.54 -.52
10in -3.55 -.52
12in -3.49 -.47
Intercept .949
Slope(DD) -1219.97
Curve(DDS) 324.141

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.29	2-Pane	-.51
3-Pane	2.42	3-Pane	-.92

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-50.000	-112.636	-195.523	-98.823	.008103	-.104505
Cooling	10.611	21.240	17.380	23.263	.106055	-.108635

Cincinnati OH One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 7.20 31.19
R-5 -13.13 13.10
R-10 -20.43 6.60
R-15 -23.56 3.82
R-30 -27.34 .45
Intercept -.305
Slope(DD) 5240.57
Curve(DDS) -51.925

120 lb Mass Wall
R-0 6.91 30.93
R-5 -13.27 12.97
R-10 -20.53 6.51
R-15 -23.65 3.74
R-30 -27.42 .38
Intercept -.365
Slope(DD) 5228.36
Curve(DDS) -54.154

Log Mass Wall
4in -7.51 18.10
6in -14.77 11.64
8in -18.60 8.23
10in -20.96 6.13
12in -22.55 4.71
Intercept .358
Slope(DD) 4781.17
Curve(DDS) 67.164

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.65 1.14
R-5 -3.43 -.44
R-10 -3.88 -.84
R-15 -4.07 -1.01
R-30 -4.34 -1.25
Intercept -1.109
Slope(DD) 268.34
Curve(DDS) 13.299

120 lb Mass Wall
R-0 -2.18 .67
R-5 -3.71 -.69
R-10 -4.12 -1.06
R-15 -4.29 -1.21
R-30 -4.52 -1.41
Intercept -1.260
Slope(DD) 246.03
Curve(DDS) 10.080

Log Mass Wall
4in -1.31 1.45
6in -2.60 .30
8in -3.09 -.14
10in -3.20 -.24
12in -3.23 -.26
Intercept .386
Slope(DD) -555.20
Curve(DDS) 216.966

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.78	2-Pane	-.59
3-Pane	1.45	3-Pane	-1.08

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-37.151	-58.246	-99.364	-54.128	.011555	-.075737
Cooling	20.686	35.141	30.700	36.795	.012903	-.062128

Chicago IL

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 8.72 36.99
 R-5 -15.37 15.55
 R-10 -23.98 7.89
 R-15 -27.67 4.61
 R-30 -32.17 .60
 Intercept -.282
 Slope(DD) 6187.95
 Curve(DDS) -59.731

120 lb Mass Wall
 R-0 8.39 36.70
 R-5 -15.56 15.38
 R-10 -24.12 7.77
 R-15 -27.80 4.49
 R-30 -32.29 .50
 Intercept -.370
 Slope(DD) 6169.21
 Curve(DDS) -61.173

Log Mass Wall
 4in -8.76 21.44
 6in -17.28 13.85
 8in -21.83 9.80
 10in -24.64 7.30
 12in -26.54 5.61
 Intercept .254
 Slope(DD) 5830.35
 Curve(DDS) 47.968

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.47 1.02
 R-5 -3.19 -.51
 R-10 -3.63 -.90
 R-15 -3.80 -1.05
 R-30 -4.03 -1.26
 Intercept -1.139
 Slope(DD) 234.83
 Curve(DDS) 15.464

120 lb Mass Wall
 R-0 -1.96 .58
 R-5 -3.48 -.77
 R-10 -3.87 -1.12
 R-15 -4.03 -1.26
 R-30 -4.24 -1.45
 Intercept -1.313
 Slope(DD) 218.78
 Curve(DDS) 12.519

Log Mass Wall
 4in -1.22 1.24
 6in -2.39 .20
 8in -2.86 -.22
 10in -3.02 -.36
 12in -3.08 -.41
 Intercept -.101
 Slope(DD) -274.04
 Curve(DDS) 163.176

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.04	2-Pane	-.57
3-Pane	1.94	3-Pane	-1.04

Alphas (KBtu/sf)

Beta Intercept

	North	East	South	West	Beta	Intercept
Heating	-37.613	-74.980	-139.005	-69.295	.008024	-.072823
Cooling	17.544	31.802	28.050	34.602	.021287	-.090338

Cheyenne WY

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 9.28 43.79
R-5 -19.46 18.22
R-10 -29.71 9.09
R-15 -34.11 5.18
R-30 -39.47 .41
Intercept -.550
Slope(DD) 7364.60
Curve(DDS) -69.619

120 lb Mass Wall
R-0 8.70 43.28
R-5 -19.72 17.98
R-10 -29.92 8.91
R-15 -34.29 5.02
R-30 -39.61 .28
Intercept -.662
Slope(DD) 7339.98
Curve(DDS) -74.163

Log Mass Wall
4in -11.00 25.74
6in -21.53 16.37
8in -27.00 11.51
10in -30.28 8.59
12in -32.47 6.64
Intercept 1.024
Slope(DD) 6289.74
Curve(DDS) 191.654

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.55 -.23
R-5 -2.13 -.74
R-10 -2.21 -.82
R-15 -2.24 -.84
R-30 -2.26 -.86
Intercept -.716
Slope(DD) -7.81
Curve(DDS) 13.617

120 lb Mass Wall
R-0 -1.88 -.52
R-5 -2.27 -.87
R-10 -2.33 -.92
R-15 -2.35 -.94
R-30 -2.35 -.94
Intercept -.799
Slope(DD) -9.86
Curve(DDS) 9.718

Log Mass Wall
4in -.87 .38
6in -1.59 -.26
8in -1.75 -.41
10in -1.74 -.40
12in -1.70 -.36
Intercept .446
Slope(DD) -707.48
Curve(DDS) 176.345

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.56	2-Pane	-.30
3-Pane	2.91	3-Pane	-.53

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-57.741	-124.361	-215.669	-116.245	.006116	-.089002
Cooling	2.464	4.976	4.187	5.280	2.138813	-.053984

Charleston SC One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 1.63 12.35
R-5 -7.56 4.17
R-10 -10.75 1.34
R-15 -12.12 .12
R-30 -13.59 -1.19
Intercept -1.461
Slope(DD) 2145.01
Curve(DDS) -.982

120 lb Mass Wall
R-0 1.16 11.93
R-5 -7.79 3.97
R-10 -10.93 1.18
R-15 -12.27 -.02
R-30 -13.72 -1.31
Intercept -1.558
Slope(DD) 2120.61
Curve(DDS) -3.930

Log Mass Wall
4in -4.02 7.32
6in -7.83 3.93
8in -9.67 2.30
10in -10.67 1.41
12in -11.32 .83
Intercept -.435
Slope(DD) 1420.43
Curve(DDS) 193.019

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.98 2.60
R-5 -4.30 -.36
R-10 -5.40 -1.33
R-15 -5.86 -1.74
R-30 -6.22 -2.06
Intercept -2.152
Slope(DD) 626.03
Curve(DDS) 14.810

120 lb Mass Wall
R-0 -1.48 2.15
R-5 -4.59 -.61
R-10 -5.69 -1.59
R-15 -6.11 -1.97
R-30 -6.45 -2.27
Intercept -2.356
Slope(DD) 616.13
Curve(DDS) 11.442

Log Mass Wall
4in -1.86 1.82
6in -3.49 .37
8in -4.27 -.33
10in -4.64 -.66
12in -4.85 -.84
Intercept -1.228
Slope(DD) 336.34
Curve(DDS) 123.753

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.40	2-Pane	-1.08
3-Pane	.75	3-Pane	-1.99

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-23.186	-39.311	-63.359	-34.691	.028733	-.048477
Cooling	46.223	76.092	68.165	70.553	-.000637	-.012741

Burlington VT

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 10.53 45.34
 R-5 -18.58 19.44
 R-10 -29.16 10.02
 R-15 -33.73 5.96
 R-30 -39.31 .99
 Intercept -.169
 Slope(DD) 7726.31
 Curve(DDS) -96.298

120 lb Mass Wall
 R-0 10.17 45.02
 R-5 -18.77 19.27
 R-10 -29.31 9.89
 R-15 -33.85 5.85
 R-30 -39.42 .89
 Intercept -.247
 Slope(DD) 7702.96
 Curve(DDS) -97.826

Log Mass Wall
 4in -10.63 26.51
 6in -21.01 17.27
 8in -26.56 12.34
 10in -29.99 9.28
 12in -32.30 7.23
 Intercept .725
 Slope(DD) 7115.79
 Curve(DDS) 56.936

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.14 .22
 R-5 -1.87 -.43
 R-10 -2.06 -.59
 R-15 -2.13 -.66
 R-30 -2.25 -.76
 Intercept -.684
 Slope(DD) 112.61
 Curve(DDS) 5.208

120 lb Mass Wall
 R-0 -1.43 -.03
 R-5 -2.03 -.57
 R-10 -2.19 -.71
 R-15 -2.26 -.77
 R-30 -2.31 -.82
 Intercept -.728
 Slope(DD) 75.47
 Curve(DDS) 6.204

Log Mass Wall
 4in -.71 .61
 6in -1.37 .02
 8in -1.62 -.20
 10in -1.66 -.24
 12in -1.68 -.26
 Intercept .101
 Slope(DD) -313.41
 Curve(DDS) 115.280

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.13	2-Pane	-.29
3-Pane	2.10	3-Pane	-.51

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-49.588	-83.416	-139.473	-78.363	.007492	-.184208
Cooling	4.186	7.359	6.876	8.804	.629224	-.083819

Buffalo NY

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 9.67 41.19
 R-5 -16.84 17.60
 R-10 -26.43 9.07
 R-15 -30.55 5.40
 R-30 -35.60 .91
 Intercept -.121
 Slope(DD) 6965.89
 Curve(DDS) -80.873

120 lb Mass Wall
 R-0 9.37 40.93
 R-5 -17.01 17.45
 R-10 -26.55 8.96
 R-15 -30.66 5.30
 R-30 -35.69 .83
 Intercept -.180
 Slope(DD) 6940.05
 Curve(DDS) -81.352

Log Mass Wall
 4in -9.70 23.95
 6in -19.10 15.59
 8in -24.11 11.13
 10in -27.21 8.37
 12in -29.31 6.50
 Intercept .642
 Slope(DD) 6427.48
 Curve(DDS) 53.210

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -.98 .22
 R-5 -1.74 -.45
 R-10 -1.92 -.61
 R-15 -1.99 -.68
 R-30 -2.08 -.76
 Intercept -.683
 Slope(DD) 86.16
 Curve(DDS) 8.529

120 lb Mass Wall
 R-0 -1.25 -.02
 R-5 -1.90 -.60
 R-10 -2.05 -.73
 R-15 -2.11 -.78
 R-30 -2.18 -.85
 Intercept -.760
 Slope(DD) 67.77
 Curve(DDS) 7.882

Log Mass Wall
 4in -.59 .57
 6in -1.24 -.01
 8in -1.47 -.21
 10in -1.52 -.26
 12in -1.54 -.28
 Intercept .056
 Slope(DD) -301.46
 Curve(DDS) 111.759

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane .89
 3-Pane 1.65

1-Pane .00
 2-Pane -.32
 3-Pane -.57

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-46.267	-69.270	-99.603	-65.537	.009967	-.109060
Cooling	5.990	9.563	8.931	10.775	.368728	-.077150

Brownsville TX One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.12 3.17
R-5 -3.00 .61
R-10 -3.85 -.15
R-15 -4.21 -.47
R-30 -4.52 -.74
Intercept -.710
Slope(DD) 461.04
Curve(DDS) 20.259

120 lb Mass Wall
R-0 -.44 2.89
R-5 -3.14 .48
R-10 -3.96 -.25
R-15 -4.30 -.55
R-30 -4.60 -.81
Intercept -.773
Slope(DD) 451.18
Curve(DDS) 17.241

Log Mass Wall
4in -1.51 1.93
6in -2.87 .72
8in -3.47 .19
10in -3.76 -.07
12in -3.95 -.24
Intercept -.408
Slope(DD) 210.06
Curve(DDS) 111.361

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 .55 5.55
R-5 -3.94 1.55
R-10 -5.59 .08
R-15 -6.24 -.50
R-30 -7.01 -1.18
Intercept -1.391
Slope(DD) 1110.99
Curve(DDS) -6.258

120 lb Mass Wall
R-0 .36 5.38
R-5 -4.17 1.35
R-10 -5.78 -.09
R-15 -6.47 -.70
R-30 -7.26 -1.40
Intercept -1.611
Slope(DD) 1124.18
Curve(DDS) -7.138

Log Mass Wall
4in -1.87 3.39
6in -3.47 1.97
8in -4.47 1.08
10in -5.06 .55
12in -5.45 .21
Intercept -1.315
Slope(DD) 1461.57
Curve(DDS) -39.888

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.09	2-Pane	-1.42
3-Pane	.17	3-Pane	-2.60

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-5.990	-8.407	-9.858	-7.927	.116016	-.034475
Cooling	60.084	105.905	87.728	101.020	-.001616	-.033090

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 8.65 36.22
 R-5 -14.79 15.36
 R-10 -23.16 7.91
 R-15 -26.77 4.70
 R-30 -31.17 .78
 Intercept -.078
 Slope(DD) 6042.90
 Curve(DDS) -60.464

120 lb Mass Wall
 R-0 8.37 35.97
 R-5 -14.94 15.23
 R-10 -23.29 7.79
 R-15 -26.87 4.61
 R-30 -31.26 .70
 Intercept -.144
 Slope(DD) 6024.20
 Curve(DDS) -61.453

Log Mass Wall
 4in -8.50 20.96
 6in -16.70 13.66
 8in -21.08 9.76
 10in -23.81 7.33
 12in -25.66 5.69
 Intercept .462
 Slope(DD) 5711.69
 Curve(DDS) 30.934

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.13 .47
 R-5 -2.23 -.51
 R-10 -2.51 -.76
 R-15 -2.61 -.85
 R-30 -2.75 -.97
 Intercept -.892
 Slope(DD) 139.33
 Curve(DDS) 10.996

120 lb Mass Wall
 R-0 -1.52 .12
 R-5 -2.45 -.71
 R-10 -2.69 -.92
 R-15 -2.78 -1.00
 R-30 -2.90 -1.11
 Intercept -1.015
 Slope(DD) 124.22
 Curve(DDS) 8.671

Log Mass Wall
 4in -.78 .78
 6in -1.55 .09
 8in -1.91 -.23
 10in -2.01 -.32
 12in -2.05 -.35
 Intercept -.216
 Slope(DD) -135.91
 Curve(DDS) 102.936

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.98	2-Pane	-.44
3-Pane	1.82	3-Pane	-.80

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
Heating	-43.297	-72.903	-121.598	-69.021	.008890	-.098387
Cooling	13.035	21.663	20.109	22.291	.051927	-.084028

Boise ID

One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 7.03 33.76
 R-5 -15.29 13.90
 R-10 -23.25 6.81
 R-15 -26.68 3.76
 R-30 -30.82 .08
 Intercept -.684
 Slope(DD) 5715.33
 Curve(DDS) -53.571

120 lb Mass Wall
 R-0 6.51 33.30
 R-5 -15.52 13.69
 R-10 -23.43 6.65
 R-15 -26.83 3.63
 R-30 -30.94 -.03
 Intercept -.776
 Slope(DD) 5692.28
 Curve(DDS) -57.676

Log Mass Wall
 4in -8.54 19.90
 6in -16.87 12.49
 8in -21.12 8.71
 10in -23.66 6.45
 12in -25.35 4.94
 Intercept .781
 Slope(DD) 4683.76
 Curve(DDS) 192.445

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.95 1.08
 R-5 -3.82 -.58
 R-10 -4.32 -1.03
 R-15 -4.50 -1.19
 R-30 -4.70 -1.36
 Intercept -1.200
 Slope(DD) 234.48
 Curve(DDS) 19.264

120 lb Mass Wall
 R-0 -2.54 .56
 R-5 -4.18 -.90
 R-10 -4.58 -1.26
 R-15 -4.75 -1.41
 R-30 -4.93 -1.57
 Intercept -1.368
 Slope(DD) 196.97
 Curve(DDS) 17.437

Log Mass Wall
 4in -1.54 1.45
 6in -2.95 .19
 8in -3.45 -.25
 10in -3.56 -.35
 12in -3.56 -.35
 Intercept .503
 Slope(DD) -732.26
 Curve(DDS) 254.814

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane 1.08
 3-Pane 2.02

1-Pane .00
 2-Pane -.54
 3-Pane -.97

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-50.481	-89.441	-152.201	-83.052	.009550	-.159518
Cooling	12.197	24.945	23.671	32.459	.044875	-.034589

Bismarck ND

One Story Prototype Mass and Window runs

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 7.60 48.57
 R-5 -22.35 21.92
 R-10 -34.23 11.35
 R-15 -39.40 6.75
 R-30 -45.87 .99
 Intercept -.479
 Slope(DD) 9202.32
 Curve(DDS) -219.660

95 lb Mass Wall
 R-0 -1.76 .36
 R-5 -3.00 -.75
 R-10 -3.25 -.97
 R-15 -3.34 -1.05
 R-30 -3.44 -1.14
 Intercept -.961
 Slope(DD) 74.53
 Curve(DDS) 20.372

120 lb Mass Wall
 R-0 7.20 48.22
 R-5 -22.56 21.73
 R-10 -34.38 11.21
 R-15 -39.54 6.62
 R-30 -45.98 .89
 Intercept -.557
 Slope(DD) 9174.09
 Curve(DDS) -221.212

120 lb Mass Wall
 R-0 -2.28 -.11
 R-5 -3.26 -.98
 R-10 -3.44 -1.14
 R-15 -3.51 -1.20
 R-30 -3.64 -1.32
 Intercept -1.123
 Slope(DD) 78.17
 Curve(DDS) 13.836

Log Mass Wall
 4in -13.60 29.71
 6in -25.06 19.51
 8in -31.28 13.97
 10in -35.10 10.57
 12in -37.70 8.26
 Intercept 1.008
 Slope(DD) 8129.08
 Curve(DDS) 25.402

Log Mass Wall
 4in -1.19 .86
 6in -2.25 -.08
 8in -2.58 -.37
 10in -2.62 -.41
 12in -2.60 -.39
 Intercept .452
 Slope(DD) -737.40
 Curve(DDS) 217.752

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane 1.28
 3-Pane 2.37

1-Pane .00
 2-Pane -.42
 3-Pane -.76

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-49.936	-95.548	-162.236	-85.817	.006586	-.252503
Cooling	7.328	14.581	14.520	16.528	.194447	-.062182

Birmingham AL One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 2.55 14.86
R-5 -7.49 5.93
R-10 -11.04 2.77
R-15 -12.56 1.41
R-30 -14.39 -.21
Intercept -.496
Slope(DD) 2520.83
Curve(DDS) -19.197

120 lb Mass Wall
R-0 2.18 14.53
R-5 -7.66 5.78
R-10 -11.16 2.66
R-15 -12.66 1.33
R-30 -14.48 -.29
Intercept -.559
Slope(DD) 2503.51
Curve(DDS) -22.049

Log Mass Wall
4in -4.09 8.95
6in -8.04 5.44
8in -10.01 3.68
10in -11.14 2.68
12in -11.87 2.03
Intercept .415
Slope(DD) 1863.08
Curve(DDS) 143.745

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -.70 3.41
R-5 -3.78 .67
R-10 -4.79 -.23
R-15 -5.19 -.59
R-30 -5.74 -1.08
Intercept -1.064
Slope(DD) 680.00
Curve(DDS) 2.898

120 lb Mass Wall
R-0 -1.07 3.08
R-5 -4.02 .45
R-10 -4.99 -.41
R-15 -5.42 -.79
R-30 -5.98 -1.29
Intercept -1.288
Slope(DD) 704.31
Curve(DDS) -2.655

Log Mass Wall
4in -1.58 2.62
6in -3.18 1.20
8in -3.90 .56
10in -4.22 .28
12in -4.37 .14
Intercept .142
Slope(DD) 73.13
Curve(DDS) 158.678

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.55	2-Pane	-.86
3-Pane	1.04	3-Pane	-1.57

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-30.264	-57.613	-74.012	-39.414	.019566	-.010262
Cooling	37.149	73.280	48.872	45.048	-.000148	-.051870

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -1.25 14.13
 R-5 -12.72 3.93
 R-10 -16.72 .37
 R-15 -18.44 -1.16
 R-30 -20.47 -2.97
 Intercept -3.141
 Slope(DD) 2805.20
 Curve(DDS) -14.653

120 lb Mass Wall
 R-0 -1.62 13.80
 R-5 -12.91 3.76
 R-10 -16.86 .24
 R-15 -18.56 -1.27
 R-30 -20.57 -3.06
 Intercept -3.210
 Slope(DD) 2779.39
 Curve(DDS) -16.193

Log Mass Wall
 4in -8.96 7.27
 6in -13.31 3.40
 8in -15.53 1.43
 10in -16.81 .29
 12in -17.65 -.46
 Intercept -2.315
 Slope(DD) 2258.23
 Curve(DDS) 129.145

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
 R-0 -4.35 -.65
 R-5 -6.56 -2.62
 R-10 -7.25 -3.23
 R-15 -7.52 -3.47
 R-30 -7.89 -3.80
 Intercept -3.719
 Slope(DD) 444.17
 Curve(DDS) 6.287

120 lb Mass Wall
 R-0 -4.79 -1.04
 R-5 -6.86 -2.88
 R-10 -7.46 -3.42
 R-15 -7.71 -3.64
 R-30 -8.07 -3.96
 Intercept -3.834
 Slope(DD) 397.94
 Curve(DDS) 7.285

Log Mass Wall
 4in -4.54 -.82
 6in -5.90 -2.03
 8in -6.52 -2.58
 10in -6.75 -2.79
 12in -6.85 -2.87
 Intercept -2.741
 Slope(DD) -78.25
 Curve(DDS) 156.564

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane .00
 2-Pane .57
 3-Pane 1.08

1-Pane .00
 2-Pane -.73
 3-Pane -1.33

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-30.880	-50.604	-77.435	-46.923	.018499	-.073908
Cooling	30.841	49.814	42.056	53.453	-.001343	-.023132

Albuquerque NM One Story Prototype Mass and Window runs

Heating Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 3.57 20.81
R-5 -10.95 7.88
R-10 -15.97 3.42
R-15 -18.11 1.51
R-30 -20.50 -.61
Intercept -.973
Slope(DD) 3400.08
Curve(DDS) -3.063

120 lb Mass Wall
R-0 2.98 20.28
R-5 -11.22 7.64
R-10 -16.15 3.26
R-15 -18.27 1.37
R-30 -20.64 -.74
Intercept -1.071
Slope(DD) 3373.34
Curve(DDS) -7.793

Log Mass Wall
4in -5.92 12.36
6in -11.65 7.26
8in -14.48 4.74
10in -16.05 3.35
12in -17.06 2.45
Intercept .357
Slope(DD) 2419.12
Curve(DDS) 250.334

Cooling Load

Delta Component
(MBtu) (KBtu)

95 lb Mass Wall
R-0 -1.98 1.95
R-5 -4.44 -.23
R-10 -5.13 -.85
R-15 -5.40 -1.09
R-30 -5.75 -1.40
Intercept -1.229
Slope(DD) 397.76
Curve(DDS) 16.309

120 lb Mass Wall
R-0 -2.59 1.41
R-5 -4.70 -.47
R-10 -5.36 -1.05
R-15 -5.61 -1.28
R-30 -5.93 -1.56
Intercept -1.397
Slope(DD) 400.30
Curve(DDS) 8.523

Log Mass Wall
4in -1.81 2.11
6in -3.59 .52
8in -4.19 -.01
10in -4.33 -.14
12in -4.36 -.16
Intercept .918
Slope(DD) -898.60
Curve(DDS) 316.032

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.83	2-Pane	-.67
3-Pane	1.55	3-Pane	-1.22

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
Heating	-33.562	-74.079	-127.970	-64.114	.013047	-.058493
Cooling	19.923	41.398	30.058	46.376	.013036	-.058951

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APPENDIX A. MASTER DOE-2.1C INPUT FILE

Because of the need to make and catalogue the large number of DOE-2 simulations, an automated input/output procedure has been developed. A single master input file was created and used for the entire data base. The input file is processed by a utility program and reduced to a DOE-2 readable input file with the selected parametric inputs and necessary foundation flux data.

POST-PROCESSOR PARTIAL ...

[illegible]

\$ Internal loads as in PNL data base runs (January 1987)

```

      INPUT  LOADS  ..
*Dummy  TITLE  LINE-1 *PROTOTYPE  FOUNDATION  OPTION  AND  CODE  *
*Dummy  LINE-2  *LOCATION  WEATHER  TAPE  WALL  EQUIPMENT  *
*Dummy  LINE-3  *
*Dummy  LINE-4  *
*Dummy  LINE-5  *

```

PARAMETER

```

$ $ IWallArea = area of interior walls $ $
$ $
* ---- prototype parameters -----
$One Story $ FLOORAREA=1540 PERIM=166 IWallArea=1088
$One Story $ BSMTAREA=1540
$One Story $ ROOFZ=8.0 ROOFHT=14.757 ROOFWD=27.5
$One Story $ WALLWD=41.5 WALLHT=8.0 WINDOWWD=11.55
$One Story $ WALLX=61.5 SHADEX=81.5
$One Story $ INTLOAD=56857 LATLOAD=.2138
*
$Two Story $ FLOORAREA=2240 PERIM=136 IWallArea=1560
$Two Story $ BSMTAREA=1120
$Two Story $ ROOFZ=16.0 ROOFHT=14.757 ROOFWD=20.0
$Two Story $ WALLWD=34.0 WALLHT=16.0 WINDOWWD=8.4
$Two Story $ WALLX=54.0 SHADEX=74.0
$Two Story $ INTLOAD=62724 LATLOAD=.1938
*
$Split Level $ FLOORAREA=1904 PERIM=84 IWallArea=1328
$Split Level $ UPERIM=68 UPFNDAREA=560
$Split Level $ BSMTAREA=784
$Split Level $ ROOFZ=8.0 ROOFHT=14.0 ROOFWD=14.757
$Split Level $ WALLWD=21.0 WALLHT=8.0 WINDOWWD=5.712
$Split Level $ WALLX=59.17 SHADEX=79.17
$Split Level $ INTLOAD=59900 LATLOAD=.2029
*
$Townhouse $ FLOORAREA=1200 IWallArea=976 BSMTAREA=600
$Townhouse $ ROOFZ=16.0 ROOFHT=15.811 ROOFWD=10.0
$Townhouse $ WALLHT=16.0 WINDOWWD=4.5
$Townhouse $ WALLX=45.0 SHADEX=65.0
$Townhouse $ INTLOAD=53972 LATLOAD=.2252
$Mid Town $ PERIM=40 WALLWD=10.0
$End Town $ PERIM=70 WALLWD=17.5
*
$Apartment $ FLOORAREA=1200 IWallArea=976 BSMTAREA=1200

```

\$Apartment \$ ROOFZ=16.0 ROOFHT=21.082 ROOFWD=15.0
 \$Apartment \$ WALLHT=8.0 WINDOWWD=9.0
 \$Apartment \$ WALLX=45.0 SHADEX=65.0
 \$Apartment \$ INTLOAD=53972 LATLOAD=.2252
 \$MApartment \$ PERIM=60 WALLWD=15.0
 \$EApartment \$ PERIM=100 WALLWD=25.0

*

* ----- Location parameters -----

*Dummy Fdn Layers dependent on soil type for location

*

* ----- Conservation parameters -----

\$High Infiltration \$ INFILT = .0007
 \$Medium Infiltration \$ INFILT = .0005
 \$Low Infiltration \$ INFILT = .0003

*

\$1-pane Windows \$ UWINDOW = 1.35
 \$2-pane Windows \$ UWINDOW = .535
 \$3-pane Windows \$ UWINDOW = .327
 \$M-pane Windows \$ UWINDOW = .1
 \$1. Shading Coefficient \$ GLSCOE=1.0
 \$.7 Shading Coefficient \$ GLSCOE=0.7
 \$.4 Shading Coefficient \$ GLSCOE=0.4

*

\$R00 Ceiling \$ ROOFL = r0roof
 \$R11 Ceiling \$ ROOFL = r11roof
 \$R19 Ceiling \$ ROOFL = r19roof
 \$R22 Ceiling \$ ROOFL = r22roof
 \$R30 Ceiling \$ ROOFL = r30roof
 \$R38 Ceiling \$ ROOFL = r38roof
 \$R49 Ceiling \$ ROOFL = r49roof
 \$R60 Ceiling \$ ROOFL = r60roof
 \$R00 Reg siding wall \$ WALLL = r0rwall
 \$R11 Reg siding wall \$ WALLL = r11rwall
 \$R19 Reg siding wall \$ WALLL = r19rwall
 \$R27 Reg siding wall \$ WALLL = r27rwall
 \$R34 Reg siding wall \$ WALLL = r34rwall
 \$R00 Stucco wall \$ WALLL = r0swall
 \$R11 Stucco wall \$ WALLL = r11swall
 \$R19 Stucco wall \$ WALLL = r19swall
 \$R27 Stucco wall \$ WALLL = r27swall
 \$R34 Stucco wall \$ WALLL = r34swall

*

*Dummy Main Fdn U-effective from file proto.fdn

*Dummy Upper UFD U-effective from file proto.fdn

*

\$FM0 Bsmt \$ FLRL=r0flr B1WALLHT=8 B2WALLHT=0.00001
 \$FM1 Bsmt \$ FLRL=r0flr B1WALLHT=4 B2WALLHT=4
 \$FM2 Bsmt \$ FLRL=r0flr B1WALLHT=4 B2WALLHT=4
 \$FM3 Bsmt \$ FLRL=r0flr B1WALLHT=0.00001 B2WALLHT=8
 \$FM4 Bsmt \$ FLRL=r0flr B1WALLHT=0.00001 B2WALLHT=8
 \$FM5 Bsmt \$ FLRL=r11flr B1WALLHT=8 B2WALLHT=0.00001
 \$FM6 Bsmt \$ FLRL=r30flr B1WALLHT=8 B2WALLHT=0.00001
 \$FM0 Crawl \$ FLRL=r0flr
 \$FM1 Crawl \$ FLRL=r11flr
 \$FM2 Crawl \$ FLRL=r19flr
 \$FM3 Crawl \$ FLRL=r30flr

```

$FM4 Crawl          $ FLRL=r38flr
$FM5 Crawl          $ FLRL=-999
$ --- end of parameters -----

      RUN-PERIOD      JAN 1 1986 THRU DEC 31 1986 ..
      DIAGNOSTIC      CAUTIONS,WIDE,ECHO,SINGLE-SPACED ..
*Dummy BUILDING-LOCATION LAT=L1, LON=L2,T-Z=L3, ALT=L4,
*Dummy WS-HEIGHT-LIST=(12 MONTH TOWER HEIGHTS)
      AZIMUTH=0 SHIELDING-COEF=0.19
      TERRAIN-PAR1=.85 TERRAIN-PAR2=.20
      WS-TERRAIN-PAR1=.85 WS-TERRAIN-PAR2=.20
      FUNCTION =(*SHADING*,*NONE*)

      ABORT      WARNINGS ..
      LOADS-REPORT SUMMARY=(LS-E) ..

$-----
$----- Loads Schedules -----
$-----

DAYINTSCH DAY-SCHEDULE      $CEC internal loads profile
      (1) (.024) (2) (.022) (3,5) (.021)
      (6) (.026) (7) (.038) (8) (.059)
      (9) (.056) (10) (.060) (11) (.059)
      (12) (.046) (13) (.045) (14) (.030)
      (15) (.028) (16) (.031) (17) (.057)
      (18,19) (.064) (20) (.052) (21) (.050)
      (22) (.055) (23) (.044) (24) (.027) ..

INTLDSCH SCHEDULE THRU DEC 31 (ALL) DAYINTSCH ..
$-----
$ The following shading schedule is modified by function SHADING
$ to give .63 during the cooling season defined as periods with
$ more than 5 cooling degree days for the four previous days.
$-----

SHADCO SCHEDULE THRU DEC 31 (ALL) (1,24) (0.80) ..
$-----
$----- Constructions -----
$-----

WINDOWGT GLASS-TYPE      $ Windows
      SHADING-COEF=GLSCOE
      GLASS-CONDUCTANCE=UWINDOW ..
WALLCON CONSTRUCTION      $ Wall section
      LAYERS=WALLL ..
ROOFCON CONSTRUCTION      $ Roof section, with joist
      LAYERS=ROOFL ..
IWALLCON CONSTRUCTION      $ Interior walls
      LAYERS=iwalll ..
DOORCON CONSTRUCTION      $ Solid door
      U-VALUE=.7181 ..
FSLABCON CONSTRUCTION      $ Floor slab in contact with soil
*
$Slab concrete floor$ LAYERS=FSLABL ..
$Bsmr concrete floor$ LAYERS=BSLABL ..
$Crawl dirt floor $ LAYERS=CGNDL ..
* Split level upper foundation slab -----
$Split $ SLABCON CONSTRUCTION $ Upperfloor slab in contact with soil
$Split $ LAYERS=FSLABL ..
*

```

```

$Two St$ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Two St$ LAYERS=iflrl ..
$Split $ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Split $ LAYERS=iflrl ..
$Townho$ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Townho$ LAYERS=iflrl ..
$Apart $ IFLRCON CONSTRUCTION $ Floor over conditioned space
$Apart $ LAYERS=iflrl ..
$Bsmt constructions -----
$Bsmt $ FLRCON CONSTRUCTION $ Floor over unconditioned space
$Bsmt $ LAYERS=FLRL ..
$Bsmt $ BWALL1CON CONSTRUCTION $ Uninsulated Basement wall
$Bsmt $ LAYERS=ROBWALL ..
$Bsmt $ BWALL2CON CONSTRUCTION $ Insulated Basement wall
$Bsmt $ LAYERS=ROBWALL ..
$FM0 Bsmt $ LAYERS=R5BWALL ..
$FM1 Bsmt $ LAYERS=R10BWALL ..
$FM2 Bsmt $ LAYERS=R5BWALL ..
$FM3 Bsmt $ LAYERS=R10BWALL ..
$FM4 Bsmt $ LAYERS=ROBWALL ..
$FM5 Bsmt $ LAYERS=ROBWALL ..
$FM6 Bsmt $ LAYERS=ROBWALL ..
$Crawl space constructions -----
$Crawl $ FLRCON CONSTRUCTION $ Floor over unconditioned space
$Crawl $ LAYERS=FLRL ..
$Regcrawl $ CWALLCON CONSTRUCTION $ Uninsul. siding crawlspace walls
$Regcrawl $ LAYERS=r0rcwall ..
$Stucrawl $ CWALLCON CONSTRUCTION $ Uninsul. stucco crawlspace walls
$Stucrawl $ LAYERS=r0scwall ..
$SpltSlab $ BWALL2CON CONSTRUCTION $ Interior fdnwall in Split-level
$SpltSlab $ LAYERS=r0fcwall ..
$SpltBsmt $ UWALLCON CONSTRUCTION $ Wall bet Room & Bsmt in Splitlevel
$SpltBsmt $ LAYERS=uwall1 ..
$SpltCrawl$ UWALLCON CONSTRUCTION $Wall bet Room & Crawl in Splitlevel
$SpltCrawl$ LAYERS=uwall1 ..
$-----
$----- Shades -----
$-----
SURROUNDN BUILDING-SHADE $ Effect of neighboring houses north
HEIGHT=10 WIDTH=SHADEX
X=0 Y=SHADEX AZIMUTH=180
TRANSMITTANCE=0.50 TILT=90 ..
SURROUND S BUILDING-SHADE $ Effect of neighboring houses south
LIKE SURROUNDN
X=SHADEX Y=0 AZIMUTH=0 ..
SURROUNDE BUILDING-SHADE $ Effect of neighboring houses east
LIKE SURROUNDN
X=SHADEX Y=SHADEX AZIMUTH=270 ..
SURROUNDW BUILDING-SHADE $ Effect of neighboring houses west
LIKE SURROUNDN
X=0 Y=0 AZIMUTH=90 ..
$Apartment $ LANDINGN BUILDING-SHADE $ 4ft 2nd story landing north
$Apartment $ HEIGHT=4 WIDTH=WALLX
$Apartment $ X=20 Y=WALLX Z=8.0 AZIMUTH=180
$Apartment $ TILT=0 ..
$Apartment $ LANDINGS BUILDING-SHADE $ 4ft 2nd story landing south
$Apartment $ LIKE LANDINGN X=WALLX Y=20 AZIMUTH=0 ..

```

```

$Apartment $ LANDINGE BUILDING-SHADE $ 4ft 2nd story landing east
$Apartment $ LIKE LANDINGN X=WALLX Y=WALLX AZIMUTH=270 ..
$Apartment $ LANDINGW BUILDING-SHADE $ 4ft 2nd story landing west
$Apartment $ LIKE SURROUNDN X=20 Y=20 AZIMUTH=90 ..
$-----
$----- Space -----
$-----
$ Sensible internal loads are assumed at 4692kWh/year plus
$ 0.9kWh/sqft for lighting. Latent loads assumed 1300kWh/year
$
ROOMCOND SPACE-CONDITIONS
      TEMPERATURE = (74)
      SOURCE-TYPE=PROCESS
      SOURCE-SCHEDULE=INTLDSCH
      SOURCE-BTU/HR=INTLOAD
      SOURCE-SENSIBLE=1.
      SOURCE-LATENT=LATLOAD
      INF-METHOD=S-G
      FRAC-LEAK-AREA = INFILT
      FLOOR-WEIGHT=0
      FURNITURE-TYPE=LIGHT
      FURN-FRACTION=0.29
      FURN-WEIGHT=3.30
$Ach report$ FUNCTION=(*NONE*,*INFILTRATION*)
      ..
THEROOM SPACE
      SPACE-CONDITIONS=ROOMCOND
      AREA=FLOORAREA
      VOLUME=FLOORAREA TIMES 8. ..
* Walls -----
INTWALL INTERIOR-WALL
      INT-WALL-TYPE=INTERNAL
      AREA=IWALLAREA CONSTRUCTION=IWALLCON ..
NWALL EXTERIOR-WALL
      WIDTH=WALLWD CONSTRUCTION=WALLCON
      X=WALLX Y=WALLX HEIGHT=WALLHT ..
NDOOR DOOR HEIGHT=6.5 WIDTH=.75 CONSTRUCTION=DOORCON X=3.0 ..
NWIND1 WINDOW GLASS-TYPE=WINDOWGT X=5.0 Y=3
      HEIGHT=4.0 WIDTH=WINDOWWD SHADING-SCHEDULE=SHADCO
$Split $ OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
$One St$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
      ..
$Two St$ NWIND2 WINDOW LIKE NWIND1 Y=11.0
$Two St$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0 ..
$Townho$ NWIND2 WINDOW LIKE NWIND1 Y=11.0
$Mid To$ OH-A=15.0 OH-B=1.0 OH-W=WALLWD TIMES 3 OH-D=2.0 ..
$End To$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD TIMES 2 OH-D=2.0 ..
SWALL EXTERIOR-WALL LIKE NWALL X=20 Y=20 AZIMUTH=180 ..
SDOOR DOOR LIKE NDOOR ..
SWIND1 WINDOW LIKE NWIND1 ..
$Two St$ SWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
$Townho$ SWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
EWALL EXTERIOR-WALL LIKE NWALL X=WALLX Y=20 AZIMUTH=90 ..
EDOOR DOOR LIKE NDOOR ..
EWIND1 WINDOW LIKE NWIND1 ..
$Two St$ EWIND2 WINDOW LIKE NWIND2 Y=11.0 ..

```

```

$Townho$ EWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
WWALL EXTERIOR-WALL LIKE NWALL X=20 Y=WALLX AZIMUTH=270 ..
WDOOR DOOR LIKE NDOOR ..
WWIND1 WINDOW LIKE NWIND1 ..
$Two St$ WWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
$Townho$ WWIND2 WINDOW LIKE NWIND2 Y=11.0 ..
* Floors -----
$Slab $ FOUNDATION UNDERGROUND-FLOOR $ Slab floor
$Slab $ HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Slab $ TILT=180 CONSTRUCTION=FSLABCON
$Slab $ U-EFFECTIVE=FDNUEFF
$Slab $ FUNCTION =(*NONE*,*FNDQ*) ..
$Bsm $ INTERFLR INTERIOR-WALL $ Floor bet Theroom and Basement
$Bsm $ TILT=180 CONSTRUCTION=FLRCON
$Bsm $ AREA=BSMTAREA NEXT-TO=BASEMENT ..
$Crawl $ INTERFLR INTERIOR-WALL $ Floor bet Theroom and Crawlspace
$Crawl $ TILT=180 CONSTRUCTION=FLRCON
$Crawl $ AREA=BSMTAREA NEXT-TO=CRAWLSPACE ..
*
$Two St$ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Two St$ AREA=BSMTAREA CONSTRUCTION=IFLRCON TILT=180 ..
$Split $ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Split $ AREA=UPFNDAREA CONSTRUCTION=IFLRCON TILT=180 ..
$Townho$ INTFLOOR INTERIOR-WALL INT-WALL-TYPE=INTERNAL
$Townho$ AREA=BSMTAREA CONSTRUCTION=IFLRCON TILT=180 ..
*
* Split level walls and floors -----
$Split $ NWALL2 EXTERIOR-WALL LIKE NWALL X=38.17 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ NWIND2 WINDOW GLASS-TYPE=WINDOWGT X=5.0 Y=3.0
$Split $ SHADING-SCHEDULE=SHADCO HEIGHT=4 WIDTH=4.284 ..
$Split $ NWIND3 WINDOW LIKE NWIND1 Y=11 WIDTH=4.284 OH-W=18.17 ..
$Split $ SWALL2 EXTERIOR-WALL LIKE SWALL X=41 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ SWIND2 WINDOW LIKE NWIND2 ..
$Split $ SWIND3 WINDOW LIKE NWIND3 ..
$Split $ EWALL2 EXTERIOR-WALL LIKE EWALL Y=41 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ EWIND2 WINDOW LIKE NWIND2 ..
$Split $ EWIND3 WINDOW LIKE NWIND3 ..
$Split $ WWALL2 EXTERIOR-WALL LIKE WWALL Y=38.17 WIDTH=18.17
$Split $ Z=-3 HEIGHT=16 ..
$Split $ WWIND2 WINDOW LIKE NWIND2 ..
$Split $ WWIND3 WINDOW LIKE NWIND3 ..
$Split $ UPPERFND UNDERGROUND-FLOOR $ Upper foundation slab
$Split $ HEIGHT=10 WIDTH=UPFNDAREA TIMES .1
$Split $ TILT=180 CONSTRUCTION=SLABCON
$Split $ U-EFFECTIVE=UPFUEFF
$Split $ FUNCTION =(*NONE*,*UPFNDQ*) ..
$Split $ MIDFND UNDERGROUND-WALL $ Vertical concrete wall
$Split $ HEIGHT=3.0 WIDTH=28
$Split $ U-EFFECTIVE=FDNUEFF
$Split $ CONSTRUCTION=BWALL2CON ..
$Split $ MIDFND INTERIOR-WALL $ Vertical wall next to basement
$Split $ HEIGHT=3.0 WIDTH=28 NEXT-TO=BASEMENT
$Split $ CONSTRUCTION=UWALLCON ..

```

```

$SplitCrawl$ MIDFND INTERIOR-WALL $ Vertical wall next to crawl
$SplitCrawl$ HEIGHT=3.0 WIDTH=28 NEXT-TO-CRAWLSPACE
$SplitCrawl$ CONSTRUCTION=UWALLCON ..
*
* Apartment upper unit space -----
$Apartment $ UPROOM SPACE LIKE THEROOM
$Apartment $ FUNCTION=(*NONE*,*NONE*) ..
$Apartment $ APTFLR INTERIOR-WALL $Floor bet Theroom and Uproom
$Apartment $ CONSTRUCTION=IFLRCON AREA=BSMTAREA
$Apartment $ NEXT-TO-THEROOM TILT=180 ..
$Apartment $ UPINTWALL INTERIOR-WALL LIKE INTWALL ..
$Apartment $ UPNWALL EXTERIOR-WALL LIKE NWALL Z=8.0 ..
$Apartment $ UPNDOOR DOOR LIKE NDOOR ..
$Apartment $ UPNWIND WINDOW LIKE NWIND1
$MApartment$ OH-A=15.0 OH-B=1.0 OH-W=WALLWD TIMES 3 OH-D=2.0 .
$EApartment$ OH-A=5.0 OH-B=1.0 OH-W=WALLWD TIMES 2 OH-D=2.0 ..
$Apartment $ UPSWALL EXTERIOR-WALL LIKE SWALL Z=8.0 ..
$Apartment $ UPSDOOR DOOR LIKE NDOOR ..
$Apartment $ UPSWIND WINDOW LIKE UPNWIND ..
$Apartment $ UPEWALL EXTERIOR-WALL LIKE EWALL Z=8.0 ..
$Apartment $ UPEDOOR DOOR LIKE NDOOR ..
$Apartment $ UPEWIND WINDOW LIKE UPNWIND ..
$Apartment $ UPWWALL EXTERIOR-WALL LIKE WWALL Z=8.0 ..
$Apartment $ UPWDOOR DOOR LIKE NDOOR ..
$Apartment $ UPWWIND WINDOW LIKE UPNWIND ..
* Roofs -----
NROOF ROOF X=WALLX Y=WALLX Z=ROOFZ HEIGHT=ROOFHT WIDTH=ROOFWD
CONSTRUCTION=ROOFCON TILT=18.435 ..
SROOF ROOF LIKE NROOF AZIMUTH=180 X=20 Y=20 ..
EROOF ROOF LIKE NROOF AZIMUTH=90 X=WALLX Y=20 ..
WROOF ROOF LIKE NROOF AZIMUTH=270 X=20 Y=WALLX ..
* Split level roof -----
$Split $ NROOF2 ROOF LIKE NROOF HEIGHT=14 WIDTH=10.54 Z=13 X=45.17 ..
$Split $ SROOF2 ROOF LIKE SROOF HEIGHT=14 WIDTH=10.54 Z=13 X=34 ..
$Split $ EROOF2 ROOF LIKE EROOF HEIGHT=14 WIDTH=10.54 Z=13 Y=34 ..
$Split $ WROOF2 ROOF LIKE WROOF HEIGHT=14 WIDTH=10.54 Z=13 Y=45.17 ..
* Basement -----
$Bsmt $ BASEMENT SPACE
$Bsmt $ AREA=BSMTAREA VOLUME=BSMTAREA TIMES 8.
$Bsmt $ FURNITURE-TYPE=LIGHT
$Bsmt $ FURN-FRACTION=0.29
$Bsmt $ FURN-WEIGHT=3.30
$Bsmt $ FLOOR-WEIGHT=0
$Bsmt $ ZONE-TYPE=UNCONDITIONED T=(70) ..
$Bsmt $ FND1WALL UNDERGROUND-WALL $ Basement wall w/o insulation
$Bsmt $ HEIGHT=B1WALLHT WIDTH=PERIM
$Bsmt $ CONSTRUCTION=BWALL1CON TILT=90
$Bsmt $ U-EFFECTIVE= FDNUEFF
$Bsmt $ FUNCTION =(*NONE*,*FNDQ*) ..
$Bsmt $ FND2WALL UNDERGROUND-WALL $ Basement wall with insulation
$Bsmt $ HEIGHT=B2WALLHT WIDTH=PERIM
$Bsmt $ U-EFFECTIVE=FDNUEFF
$Bsmt $ CONSTRUCTION=BWALL2CON TILT=90 ..
$Bsmt $ FOUNDATION UNDERGROUND-FLOOR $ basement concrete floor
$Bsmt $ HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Bsmt $ U-EFFECTIVE=FDNUEFF

```



```

$Bsmt $          CONSTRUCTION=FSLABCON TILT=180 ..
*
$Crawl $ CRAWLSPACE SPACE
$Crawl $          AREA=BSMTAREA VOLUME=BSMTAREA TIMES 3.00
$Crawl $          INF-METHOD=S-G
$Crawl $          assume 1 ft2 of vents per 150 ft2 of crawl space area,
$Crawl $          effective-leakage-area = 75% of vent area
$Crawl $          FRAC-LEAK-AREA= .005
$Crawl $          FLOOR-WEIGHT=0
$Crawl $          ZONE-TYPE=UNCONDITIONED T=(60)
$Cach report$    FUNCTION=( *NONE*, *CRAWLINFILT*)
$Crawl $          ..
$Crawl $ NCWALL   EXTERIOR-WALL   LIKE NWALL
$Crawl $          CONSTRUCTION=CWALLCON HEIGHT=1.50 Z=-3.00 ..
$Crawl $ SCWALL   EXTERIOR-WALL   LIKE SWALL
$Crawl $          CONSTRUCTION=CWALLCON HEIGHT=1.50 Z=-3.00 ..
$Crawl $ ECWALL   EXTERIOR-WALL   LIKE EWALL
$Crawl $          CONSTRUCTION=CWALLCON HEIGHT=1.50 Z=-3.00 ..
$Crawl $ WCWALL   EXTERIOR-WALL   LIKE WWALL
$Crawl $          CONSTRUCTION=CWALLCON HEIGHT=1.50 Z=-3.00 ..
$Crawl $ FOUNDATION UNDERGROUND-FLOOR $ Crawlspace dirt floor
$Crawl $          HEIGHT=10 WIDTH=BSMTAREA TIMES .1
$Crawl $          TILT=180 CONSTRUCTION=FSLABCON
$Crawl $          U-EFFECTIVE=FDNUEFF
$Crawl $          FUNCTION=( *NONE*, *FNDQ*) ..
          END ..
FUNCTION NAME=SHADING
          LEVEL=BUILDING ..
ASSIGN Y=SCHEDULE-NAME(SHADCO) ..
ASSIGN IHR=IHR IDAY=IDAY IMO=IMO DBT=DBT ..
ASSIGN IPRDFL=IPRDFL ISUNUP=ISUNUP ..
CALCULATE ..
          IF (IPRDFL .LE. 0) GO TO 2
          SC=Y
          GO TO 70
2 IF (IHR .NE. 1) GO TO 5
          CDH=0
          HDH=0
          IDAYH=0
5 CONTINUE
          IF (ISUNUP .EQ. 0) GO TO 25
          DELTA=DBT-65.0
          IF (DELTA .GT. 0.00) GO TO 10
          HDH=HDH+ABS(DELTA)
          GO TO 20
10 CDH=CDH+DELTA
20 CONTINUE
          IDAYH=IDAYH+1
25 IF (IHR .NE. 24) GO TO 70
          CDDD=CDH/IDAYH
          HDDD=HDH/IDAYH
          IF (CDDD .LT. 5.00) GO TO 29
          IF (SC .NE. 0.80) GO TO 27
          ICOUNT=ICOUNT+1
          IF (ICOUNT .LE. 4) GO TO 40
27 IHCOUNT=0

```

```

SC=0.60
GO TO 70
29 IF (SC .NE. 0.60) GO TO 30
   IHCOUNT=IHCOUNT+1
   IF (IHCOUNT .GE. 4) GO TO 30
   SC=0.60
   GO TO 70
30 ICOUNT=0.0
40 SC=0.80
70 CONTINUE
Y=SC
C PRINT 80,Y,IMO,IDAY,IHR,CDDD,CDH,ICOUNT,IHCOUNT
80 FORMAT( ' SHADING : ADD=' ,8F10.2)
END
END-FUNCTION ..
$FndQ function
$FndQ function FUNCTION NAME = FNDQ
$FndQ function LEVEL = UNDERGROUND-WALL ..
$FndQ function ASSIGN DOY=IDOY UGFQ=QUGF UGWQ=QUGW ..
$FndQ function ASSIGN QTABL = TABLE
$FndQ flux table for main foundation from Minnesota model data file
$FndQ function CALCULATE ..
$FndQ function WEEK = DOY / 3.0
$FndQ function UGWQ = 0.0
$FndQ function UGFQ = PWL(QTABL, WEEK)
$FndQ function C PRINT 10, DOY, WEEK, UGWQ, UGFQ
$FndQ function 10 FORMAT('FNDQ',4F10.2)
$FndQ function END-FUNCTION ..
$UFdQ function
$UFdQ function FUNCTION NAME = UPFNDQ
$UFdQ function LEVEL = UNDERGROUND-WALL ..
$UFdQ function ASSIGN DOY=IDOY UPUGFQ=QUGF UPUGWQ=QUGW ..
$UFdQ function ASSIGN UPQTABL = TABLE
$UFdQ flux table for upper foundation from Minnesota model data file
$UFdQ function CALCULATE ..
$UFdQ function WEEK = DOY / 3.0
$UFdQ function UPUGWQ = 0.0
$UFdQ function UPUGFQ = PWL(UPQTABL, WEEK)
$UFdQ function C PRINT 10, DOY, WEEK, UPUGWQ, UPUGFQ
$UFdQ function 10 FORMAT('UPFNDQ',4F10.2)
$UFdQ function END-FUNCTION ..
$Ach function
$Ach function FUNCTION NAME=INFILTRATION
$Ach function LEVEL=BUILDING ..
$Ach function ASSIGN IDOY=IDOY IMO=IMO HR=IHR FLOORAREA=FLOORAREA ..
$Ach function ASSIGN IPRDFL=IPRDFL FNTYPE=FNTYPE INFILL=CFMINE ..
$Ach function CALCULATE ..
$Ach function IF (FNTYPE .NE. 2) GO TO 8
$Ach function IF (IPRDFL .LE. 0) GO TO 2
$Ach function IMTH=1
$Ach function DL=0
$Ach function TOTAL=0
$Ach function 2 IF ((IDOY .EQ. 365) .AND. (HR .EQ. 24)) GO TO 3
$Ach function IF (IMTH .EQ. IMO) GO TO 5
$Ach function 3 AVG=TOTAL/(DS*24)
$Ach function INF=AVG*60/(FLOORAREA*8)

```



```

PARAMETER
$-----
HEATSET=70      SETBACK=70      $ no night setback
COOLSET=78      SETUP=78       $ no day setup
VTYPE=-1       $ enthalpic venting
$Furn $         FHIR=1.4286    $ 77% efficiency + 10% duct losses
$Furn $         MAXTEMP=120
$HP $          MAXTEMP=100
CBF=.098        CEIR=.3703    $ 2.7 COP air conditioner
*
$One Story     $ HCAPF=-50000.  HPHCAP=-36000  HPBKUP=-17000
$One Story     $ ACCFM=1050    CTCAP=36000    CSCAP=28800.
*
$Two Story     $ HCAPF=-100000. HPHCAP=-48000  HPBKUP=-17000
$Two Story     $ ACCFM=2100    CTCAP=48000    CSCAP=38400.
*
$Split Level   $ HCAPF=-100000. HPHCAP=-36000  HPBKUP=-17000
$Split Level   $ ACCFM=2100    CTCAP=36000    CSCAP=28800.
*
$Townhouse     $ HCAPF=-50000.  HPHCAP=-33000  HPBKUP=-17000
$Townhouse     $ ACCFM=1050    CTCAP=33000    CSCAP=26400.
*
$Apartment     $ HCAPF=-50000.  HPHCAP=-33000  HPBKUP=-17000
$Apartment     $ ACCFM=1050    CTCAP=33000    CSCAP=26400.
..
$-----
$----- Systems Schedules -----
$-----
HTSCH          SCHEDULE $ heat temperature schedule, 7 hour night setback
THRU DEC 31 (ALL) (1,6) (SETBACK)
(7,23) (HEATSET)
(24) (SETBACK) ..
CTSCH          SCHEDULE $ cool temperature schedule, 7 hour day setup
THRU DEC 31 (ALL) (1,9) (COOLSET)
(10,16) (SETUP)
(17,24) (COOLSET) ..
VTSCH          SCHEDULE $Vent schedule based on previous 4 days load
THRU MAY 14 (ALL) (1,24) (-4)
THRU SEP 30 (ALL) (1,24) (-4)
THRU DEC 31 (ALL) (1,24) (-4) ..
VOPSCH         SCHEDULE $Vent operation schedule
THRU DEC 31 (ALL) (1,24) (VTYPE) ..
WINDOPER       SCHEDULE $No window operation between 11 p.m. and 6 a.m.
THRU DEC 31 (ALL) (1,6) (0.0)
(7,23) (1.0)
(24) (0.0) ..
$-----
$----- Zones -----
$-----
ZC1            ZONE-CONTROL
DESIGN-HEAT-T=70.
DESIGN-COOL-T=78.
COOL-TEMP-SCH=CTSCH
HEAT-TEMP-SCH=HTSCH
THERMOSTAT-TYPE=TWO-POSITION ..
THEROOM        ZONE      ZONE-CONTROL=ZC1

```

```

ZONE-TYPE=CONDITIONED ..
$Apartment$ UPROOM ZONE ZONE-CONTROL=ZC1
$Apartment$ ZONE-TYPE=CONDITIONED ..
$Bsmt $ BASEMENT ZONE ZONE-TYPE=UNCONDITIONED ..
$Crawl $ CRAWLSPACE ZONE ZONE-TYPE=UNCONDITIONED ..
$-----
$----- Systems -----
$-----
SYSCTRL SYSTEM-CONTROL
MAX-SUPPLY-T=MAXTEMP
MIN-SUPPLY-T=50

..
SYSAIR SYSTEM-AIR
SUPPLY-CFM=ACCFM
NATURAL-VENT-SCH=VOPSCH
VENT-TEMP-SCH=VTSCH
OPEN-VENT-SCH=WINDOPER
HOR-VENT-FRAC=0.0
$ assume 1/4 of total window area opened for venting,
$ and discharge coefficient of 0.6
FRAC-VENT-AREA=0.018
VENT-METHOD=S-G
MAX-VENT-RATE=20

..
SYSEQP SYSTEM-EQUIPMENT
COOLING-CAPACITY=CTCAP
COOL-SH-CAP=CSCAP
COIL-BF=CBF
COMPRESSOR-TYPE=SINGLE-SPEED
$HP Heatpump specifications -----
$HP $ HEATING-CAPACITY=HPHCAP
$HP $ HEATING-EIR=.37
$HP $ HP-SUPP-HT-CAP=HPBKUP
$HP $ MAX-HP-SUPP-T=40.
$Furn Furnace specifications $
$Furn $ HEATING-CAPACITY=HCAPF
$Furn $ FURNACE-AUX=0.
$Furn $ FURNACE-HIR=FHIR $ duct losses in FHIR already

..
RESIDEN SYSTEM SYSTEM-TYPE=RESYS
$Slab $ ZONE-NAMES=(THEROOM)
$Bsmt $ ZONE-NAMES=(THEROOM,BASEMENT)
$Crawl $ ZONE-NAMES=(THEROOM,CRAWLSPACE)
SYSTEM-CONTROL=SYSCTRL
SYSTEM-AIR=SYSAIR
SYSTEM-EQUIPMENT=SYSEQP
$Furn $ HEAT-SOURCE=GAS-FURNACE
$HP $ HEAT-SOURCE=HEAT-PUMP

..
$Apartment$ UPRESIDEN SYSTEM SYSTEM-TYPE=RESYS
$Apartment$ ZONE-NAMES=(UPROOM)
$Apartment$ SYSTEM-CONTROL=SYSCTRL
$Apartment$ SYSTEM-AIR=SYSAIR
$Apartment$ SYSTEM-EQUIPMENT=SYSEQP
$AptFurn $ HEAT-SOURCE=GAS-FURNACE
$AptHP $ HEAT-SOURCE=HEAT-PUMP

```

```
$Apartment$      ..  
    END ..  
    COMPUTE SYSTEMS ..  
    STOP ..
```

APPENDIX B. SAMPLE PROCESSED DOE-2.1C INPUT FILE

Appendix B contains a sample processed file for a medium insulated house with a slab foundation in Albuquerque NM.

LDL PROCESSOR INPUT DATA

08-Sep-87 18:20:07 LDL RUN 1

```

* 14 * TITLE LINE-1 *One Story Slab F02 (19-11-FM1-M-2/1.) *
* 15 * LINE-2 *Albuquerque NM WYEC Siding Furn/AC *
* 16 * LINE-3 * *
* 17 * LINE-4 * *
* 18 * LINE-5 * *
* 19 * ..
* 20 * $-----
* 21 * PARAMETER
* 22 * $-----
* 23 * $
* 24 * $ IWALLAREA = area of interior walls $
* 25 * $
* 26 * $One Story $ FLOORAREA=1540 PERIM=166 IWALLAREA=1088
* 27 * $One Story $ BSMTAREA=1540
* 28 * $One Story $ ROOFZ=8.0 ROOFHT=14.757 ROOFWD=27.5
* 29 * $One Story $ WALLWD=41.5 WALLHT=8.0 WINDOWWD=11.55
* 30 * $One Story $ WALLX=61.5 SHADEX=81.5
* 31 * $One Story $ INTLOAD=56857 LATLOAD=.2138
* 32 * $Albuquerque $ FSLABL=fslabldy BSLABL=bslabldy CGNDL=cgndldy
* 33 * $Albuquerque $ R5BWALL=r5bwldy R10BWALL=r10bwldy ROBWALL=r0bwldy
* 34 * $Medium Infiltration $ INFILT = .0005
* 35 * $2-pane Windows $ UWINDOW = .535
* 36 * $1. Shading Coefficient $ GLSCOE=1.0
* 37 * $R19 Ceiling $ ROOFL = r19roof
* 38 * $R11 Reg siding wall $ WALLL = r11rwall
* 39 * $Albuqu One Slab FM1 $ FDNUEFF = .0217 $ GndU=.0000 GndT=62
* 40 * $ --- end of parameters -----
* 41 * ..
* 42 * RUN-PERIOD JAN 1 1986 THRU DEC 31 1986 ..
* 43 * DIAGNOSTIC CAUTIONS,WIDE,ECHO,SINGLE-SPACED ..
* 44 * BUILDING-LOCATION LAT=35.05 LON=106.62 T-Z=7 ALT=5310
* 45 * WS-HEIGHT-LIST=
* 46 * (48,23,48,23,48,23,23,23,48,23,23,23)
* 47 * AZIMUTH=0 SHIELDING-COE=0.19
* 48 * TERRAIN-PAR1=.85 TERRAIN-PAR2=.20
* 49 * WS-TERRAIN-PAR1=.85 WS-TERRAIN-PAR2=.20
* 50 * FUNCTION =(*SHADING*,*NONE*)
* 51 * ..
* 52 * ABORT WARNINGS ..
* 53 * LOADS-REPORT SUMMARY=(LS-E) ..
* 54 * $-----
* 55 * $----- Loads Schedules -----
* 56 * $-----
* 57 * DAYINTSCH DAY-SCHEDULE $CEC internal loads profile
* 58 * (1) (.024) (2) (.022) (3,5) (.021)
* 59 * (6) (.026) (7) (.038) (8) (.059)
* 60 * (9) (.056) (10) (.060) (11) (.059)
* 61 * (12) (.046) (13) (.045) (14) (.030)
* 62 * (15) (.028) (16) (.031) (17) (.057)
* 63 * (18,19) (.064) (20) (.052) (21) (.050)
* 64 * (22) (.055) (23) (.044) (24) (.027) ..
* 65 * INTLDSCH SCHEDULE THRU DEC 31 (ALL) DAYINTSCH ..

```



```

* 66 * $-----
* 67 * $ The following shading schedule is modified by function SHADING
* 68 * $ to give 63 during the cooling season defined as periods with
* 69 * $ more than 5 cooling degree days for the four previous days.
* 70 * $-----
* 71 * SHADCO SCHEDULE THRU DEC 31 (ALL) (1,24) (0.80) ..
* 72 * $-----
* 73 * $----- Constructions -----
* 74 * $-----
* 75 * WINDOWGT GLASS-TYPE $ Windows
* 76 * SHADING-COEF=GLSCOEF
* 77 * GLASS-CONDUCTANCE=UWINDOW ..
* 78 * WALLCON CONSTRUCTION $ Wall section
* 79 * LAYERS=WALL ..
* 80 * ROOFCON CONSTRUCTION $ Roof section, with joist
* 81 * LAYERS=ROOFL ..
* 82 * IWALLCON CONSTRUCTION $ Interior walls
* 83 * LAYERS=iwall ..
* 84 * DOORCON CONSTRUCTION $ Solid door
* 85 * U-VALUE=.7181 ..
* 86 * FSLABCON CONSTRUCTION $ Floor slab in contact with soil
* 87 * $Slab concrete floor$ LAYERS=FSLABL ..
* 88 * $-----
* 89 * $----- Shades -----
* 90 * $-----
* 91 * SURROUNDN BUILDING-SHADE $ Effect of neighboring houses north
* 92 * HEIGHT=10 WIDTH=SHADEX
* 93 * X=0 Y=SHADEX AZIMUTH=180
* 94 * TRANSMITTANCE=0.50 TILT=90 ..
* 95 * SURROUND S BUILDING-SHADE $ Effect of neighboring houses south
* 96 * LIKE SURROUNDN
* 97 * X=SHADEX Y=0 AZIMUTH=0 ..
* 98 * SURROUNDE BUILDING-SHADE $ Effect of neighboring houses east
* 99 * LIKE SURROUNDN
* 100 * X=SHADEX Y=SHADEX AZIMUTH=270 ..
* 101 * SURROUNDW BUILDING-SHADE $ Effect of neighboring houses west
* 102 * LIKE SURROUNDN
* 103 * X=0 Y=0 AZIMUTH=90 ..
* 104 * $-----
* 105 * $----- Space -----
* 106 * $-----
* 107 * $ Sensible internal loads are assumed at 4692kWh/year plus
* 108 * $ 0.9kWh/sqft for lighting. Latent loads assumed 1300kWh/year
* 109 * $
* 110 * ROOMCOND SPACE-CONDITIONS
* 111 * TEMPERATURE = (74)
* 112 * SOURCE-TYPE=PROCESS
* 113 * SOURCE-SCHEDULE=INTLDSCH
* 114 * SOURCE-BTU/HR=INTLOAD
* 115 * SOURCE-SENSIBLE=1.
* 116 * SOURCE-LATENT=LATLOAD
* 117 * INF-METHOD=S-G
* 118 * FRAC-LEAK-AREA = INFILT
* 119 * FLOOR-WEIGHT=0
* 120 * FURNITURE-TYPE=LIGHT
* 121 * FURN-FRACTION=0.29
* 122 * FURN-WEIGHT=3.30
* 123 * ..
* 124 * THEROOM SPACE
* 125 * SPACE-CONDITIONS=ROOMCOND

```

```

* 126 *          AREA=FLOORAREA
* 127 *          VOLUME=FLOORAREA TIMES 8. ..
* 128 * INTWALL  INTERIOR-WALL
* 129 *          INT-WALL-TYPE=INTERNAL
* 130 *          AREA=IWALLAREA CONSTRUCTION=IWALLCON ..
* 131 * NWALL    EXTERIOR-WALL
* 132 *          WIDTH=WALLWD CONSTRUCTION=WALLCON
* 133 *          X=WALLX Y=WALLX HEIGHT=WALLHT ..
* 134 * NDOOR    DOOR    HEIGHT=6.5 WIDTH=.75 CONSTRUCTION=DOORCON X=3.0 ..
* 135 * NWIND1   WINDOW  GLASS-TYPE=WINDOWGT X=5.0 Y=3
* 136 *          HEIGHT=4.0 WIDTH=WINDOWWD SHADING-SCHEDULE=SHADCO
* 137 * $One St$  OH-A=5.0 OH-B=1.0 OH-W=WALLWD OH-D=2.0
* 138 *          ..
* 139 * SWALL    EXTERIOR-WALL    LIKE NWALL X=20 Y=20 AZIMUTH=180 ..
* 140 * SDOOR    DOOR    LIKE NDOOR ..
* 141 * SWIND1   WINDOW  LIKE NWIND1 ..
* 142 * EWALL    EXTERIOR-WALL    LIKE NWALL X=WALLX Y=20 AZIMUTH=90 ..
* 143 * EDOOR    DOOR    LIKE NDOOR ..
* 144 * EWIND1   WINDOW  LIKE NWIND1 ..
* 145 * WWALL    EXTERIOR-WALL    LIKE NWALL X=20 Y=WALLX AZIMUTH=270 ..
* 146 * WDOOR    DOOR    LIKE NDOOR ..
* 147 * WWIND1   WINDOW  LIKE NWIND1 ..
* 148 * $Slab $  FOUNDATION UNDERGROUND-FLOOR $ Slab floor
* 149 * $Slab $  HEIGHT=10 WIDTH=BSMTAREA TIMES .1
* 150 * $Slab $  TILT=180 CONSTRUCTION=FSLABCON
* 151 * $Slab $  U-EFFECTIVE=FDNUEFF
* 152 * $Slab $  FUNCTION =(*NONE*,*FNDQ*) ..
* 153 * NROOF    ROOF    X=WALLX Y=WALLX Z=ROOFZ HEIGHT=ROOFHT WIDTH=ROOFWD
* 154 *          CONSTRUCTION=ROOFCON TILT=18.435 ..
* 155 * SROOF    ROOF    LIKE NROOF AZIMUTH=180 X=20 Y=20 ..
* 156 * EROOF    ROOF    LIKE NROOF AZIMUTH=90 X=WALLX Y=20 ..
* 157 * WROOF    ROOF    LIKE NROOF AZIMUTH=270 X=20 Y=WALLX ..
* 158 *          END ..

```

-CAUTION-

```

ALL DIAGNOSTICS FOR THE WEIGHTING-FACTOR
CALCULATION SECTION ARE GIVEN IN ENGLISH UNITS
* 159 * FUNCTION NAME=SHADING
* 160 *          LEVEL=BUILDING
* 161 * ASSIGN   Y=SCHEDULE-NAME(SHADCO) ..
* 162 * ASSIGN   IHR=IHR IDAY=IDAY IMO=IMO DBT=DBT ..
* 163 * ASSIGN   IPRDFL=IPRDFL ISUNUP=ISUNUP ..
* 164 * CALCULATE ..
* 165 *          IF (IPRDFL .LE. 0) GO TO 2
* 166 *          SC=Y
* 167 *          GO TO 70
* 168 *          2 IF (IHR .NE. 1) GO TO 5
* 169 *          CDH=0
* 170 *          HDH=0
* 171 *          IDAYH=0
* 172 *          5 CONTINUE
* 173 *          IF (ISUNUP .EQ. 0) GO TO 25
* 174 *          DELTA=DBT-65.0
* 175 *          IF (DELTA .GT. 0.00) GO TO 10
* 176 *          HDH=HDH+ABS(DELTA)
* 177 *          GO TO 20
* 178 *          10 CDH=CDH+DELTA
* 179 *          20 CONTINUE
* 180 *          IDAYH=IDAYH+1
* 181 *          25 IF (IHR .NE. 24) GO TO 70
* 182 *          CDDD=CDH/IDAYH

```

```

* 183 *      HDDD=HDH/IDAYH
* 184 *      IF (CDDD .LT. 5.00) GO TO 29
* 185 *      IF (SC .NE. 0.80) GO TO 27
* 186 *      ICOUNT=ICOUNT+1
* 187 *      IF (ICOUNT .LE. 4) GO TO 40
* 188 *      27 IHCOUNT=0
* 189 *      SC=0.60
* 190 *      GO TO 70
* 191 *      29 IF (SC .NE. 0.60) GO TO 30
* 192 *      IHCOUNT=IHCOUNT+1
* 193 *      IF (IHCOUNT .GE. 4) GO TO 30
* 194 *      SC=0.60
* 195 *      GO TO 70
* 196 *      30 ICOUNT=0.0
* 197 *      40 SC=0.80
* 198 *      70 CONTINUE
* 199 *      Y=SC
* 200 * C      PRINT 80,Y,IMO,IDAY,IHR,CDDD,CDH,ICOUNT,IHCOUNT
* 201 *      80 FORMAT( ' SHADING : ADD=' ,8F10.2)
* 202 *      END

```

----- S Y M B O L T A B L E -----

CDDD	**LOCAL*	CDH	**LOCAL*	DBT	(GLOBAL)	DELTA	**LOCAL*
HDH	**LOCAL*	ICOUNT	**LOCAL*	IDAYH	**LOCAL*	IHCOUNT	**LOCAL*
IPRDFL	(GLOBAL)	ISUNUP	(GLOBAL)	SC	**LOCAL*	Y	(SCH-NM)

```

* 203 * END-FUNCTION ..
* 204 *
* 205 * FUNCTION NAME = FNDQ
* 206 *      LEVEL = UNDERGROUND-WALL ..
* 207 * ASSIGN DOY=IDQY UGFQ=QUGF UGWQ=QUGW ..
* 208 * ASSIGN QTABL = TABLE
* 209 * ( 0, -2848.0) ( 1, -2890.9) ( 2, -2923.0) ( 3, -2940.5) ( 4, -2951.1)
* 210 * ( 5, -2965.2) ( 6, -2969.1) ( 7, -2989.7) ( 8, -3056.8) ( 9, -3079.3)
* 211 * (10, -3078.6) (11, -3047.5) (12, -2992.4) (13, -2924.8) (14, -2888.9)
* 212 * (15, -2965.7) (16, -3055.0) (17, -3086.0) (18, -3095.1) (19, -3080.7)
* 213 * (20, -3044.5) (21, -3005.8) (22, -3026.0) (23, -3023.6) (24, -3005.5)
* 214 * (25, -2990.5) (26, -2971.8) (27, -2949.1) (28, -2909.0) (29, -2891.7)
* 215 * (30, -2857.4) (31, -2839.2) (32, -2816.4) (33, -2748.9) (34, -2701.0)
* 216 * (35, -2678.6) (36, -2622.4) (37, -2558.6) (38, -2498.7) (39, -2430.0)
* 217 * (40, -2388.9) (41, -2327.6) (42, -2296.8) (43, -2282.9) (44, -2244.7)
* 218 * (45, -2183.0) (46, -2126.5) (47, -2084.6) (48, -2065.4) (49, -2049.5)
* 219 * (50, -2005.4) (51, -1959.2) (52, -1919.2) (53, -1877.8) (54, -1848.3)
* 220 * (55, -1798.8) (56, -1743.0) (57, -1689.2) (58, -1637.7) (59, -1573.3)
* 221 * (60, -1493.8) (61, -1418.4) (62, -1366.4) (63, -1360.2) (64, -1367.1)
* 222 * (65, -1349.9) (66, -1328.9) (67, -1304.8) (68, -1270.3) (69, -1227.4)
* 223 * (70, -1172.8) (71, -1137.0) (72, -1123.4) (73, -1101.7) (74, -1077.6)
* 224 * (75, -1064.5) (76, -1076.9) (77, -1069.8) (78, -1063.8) (79, -1065.1)
* 225 * (80, -1065.8) (81, -1071.6) (82, -1087.8) (83, -1096.9) (84, -1097.7)
* 226 * (85, -1094.9) (86, -1099.1) (87, -1109.7) (88, -1120.6) (89, -1156.5)
* 227 * (90, -1193.6) (91, -1209.2) (92, -1240.8) (93, -1269.8) (94, -1309.8)
* 228 * (95, -1343.8) (96, -1375.3) (97, -1411.7) (98, -1466.7) (99, -1522.6)
* 229 * (100, -1571.5) (101, -1622.6) (102, -1671.8) (103, -1710.1) (104, -1757.4)
* 230 * (105, -1791.8) (106, -1822.5) (107, -1874.3) (108, -1934.4) (109, -2034.2)
* 231 * (110, -2134.7) (111, -2260.7) (112, -2342.2) (113, -2382.9) (114, -2418.0)
* 232 * (115, -2450.5) (116, -2502.9) (117, -2548.4) (118, -2577.7) (119, -2610.2)
* 233 * (120, -2659.0) (121, -2751.0) (122, -2814.3) ..

```

```

* 234 *      CALCULATE ..
* 235 *      WEEK = DOY / 3.0
* 236 *      UGWQ = 0.0
* 237 *      UGFQ = PWL(QTABL, WEEK)
* 238 *      C      PRINT 10, DOY, WEEK, UGWQ, UGFQ
* 239 *      10      FORMAT('FNDQ',4F10.2)
* 240 *      END-FUNCTION ..

```

----- S Y M B O L T A B L E -----

DOY (GLOBAL) QTABL (TABLE) UGFQ (GLOBAL) UGWQ (GLOBAL)

[illegible]

SDL PROCESSOR INPUT DATA

08-Sep-87 18:20:07 SDL RUN 1

```

* 251 * TITLE LINE-1 *One Story Slab F02 (19-11-FM1-M-2/1.) *
* 252 * LINE-2 *Albuquerque NM WYEC Siding Furn/AC *
* 253 * LINE-3 * *
* 254 * LINE-4 *
* 255 * LINE-5 *
* 256 *
* 257 * DIAGNOSTIC CAUTIONS ECHO ..
* 258 * SYSTEMS-REPORT
* 259 * SUMMARY=(SS-A,SS-B,SS-C,SS-F,SS-H,SS-I) ..
* 260 * $-----
* 261 * PARAMETER
* 262 * $-----
* 263 * HEATSET=70 SETBACK=70 $ no night setback
* 264 * COOLSET=78 SETUP=78 $ no day setup
* 265 * VTYPE=-1 $ enthalpic venting
* 266 * $Furn $ FHIR=1.4286 $ 77% efficiency + 10% duct losses
* 267 * $Furn $ MAXTEMP=120
* 268 * CBF=.098 CEIR=.3703 $ 2.7 COP air conditioner
* 269 * $One Story $ HCAPF=-50000. HPHCAP=-36000 HPBKUP=-17000
* 270 * $One Story $ ACCFM=1050 CTCAP=36000 CSCAP=28800.
* 271 * ..
* 272 * $-----
* 273 * $----- Systems Schedules -----
* 274 * $-----
* 275 * HTSCH SCHEDULE $ heat temperature schedule, 7 hour night setback
* 276 * THRU DEC 31 (ALL) (1,6) (SETBACK)
* 277 * (7,23) (HEATSET)
* 278 * (24) (SETBACK) ..
* 279 * CTSCH SCHEDULE $ cool temperature schedule, 7 hour day setup
* 280 * THRU DEC 31 (ALL) (1,9) (COOLSET)
* 281 * (10,16) (SETUP)
* 282 * (17,24) (COOLSET) ..
* 283 * VTSCH SCHEDULE $Vent schedule based on previous 4 days load
* 284 * THRU MAY 14 (ALL) (1,24) (-4)
* 285 * THRU SEP 30 (ALL) (1,24) (-4)
* 286 * THRU DEC 31 (ALL) (1,24) (-4) ..
* 287 * VOPSCH SCHEDULE $Vent operation schedule
* 288 * THRU DEC 31 (ALL) (1,24) (VTYPE) ..
* 289 * WINDOPER SCHEDULE $No window operation between 11 p.m. and 6 a.m.
* 290 * THRU DEC 31 (ALL) (1,6) (0.0)
* 291 * (7,23) (1.0)
* 292 * (24) (0.0) ..
* 293 * $-----
* 294 * $----- Zones -----
* 295 * $-----
* 296 * ZC1 ZONE-CONTROL
* 297 * DESIGN-HEAT-T=70.
* 298 * DESIGN-COOL-T=78.
* 299 * COOL-TEMP-SCH=CTSCH
* 300 * HEAT-TEMP-SCH=HTSCH
* 301 * THERMOSTAT-TYPE=TWO-POSITION ..
* 302 * THEROOM ZONE ZONE-CONTROL=ZC1

```

```

* 303 *                                ZONE-TYPE=CONDITIONED ..
* 304 * $-----
* 305 * $----- Systems -----
* 306 * $-----
* 307 * SYSCTRL SYSTEM-CONTROL
* 308 *             MAX-SUPPLY-T=MAXTEMP
* 309 *             MIN-SUPPLY-T=50
* 310 * ..
* 311 * SYSAIR  SYSTEM-AIR
* 312 *             SUPPLY-CFM=ACCFM
* 313 *             NATURAL-VENT-SCH=VOPSCH
* 314 *             VENT-TEMP-SCH=VTSCH
* 315 *             OPEN-VENT-SCH=WINDOPER
* 316 *             HOR-VENT-FRAC=0.0
* 317 * $ assume 1/4 of total window area opened for venting,
* 318 * $ and discharge coefficient of 0.6
* 319 *             FRAC-VENT-AREA=0.018
* 320 *             VENT-METHOD=S-G
* 321 *             MAX-VENT-RATE=20
* 322 * ..
* 323 * SYSEQP  SYSTEM-EQUIPMENT
* 324 *             COOLING-CAPACITY=CTCAP
* 325 *             COOL-SH-CAP=CSCAP
* 326 *             COIL-BF=CBF
* 327 *             COMPRESSOR-TYPE=SINGLE-SPEED
* 328 * $Furn  Furnace specifications $
* 329 * $Furn $ HEATING-CAPACITY=HCAPF
* 330 * $Furn $ FURNACE-AUX=0.
* 331 * $Furn $ FURNACE-HIR=FHIR $ duct losses in FHIR already
* 332 * ..
* 333 * RESIDEN SYSTEM SYSTEM-TYPE=RESYS
* 334 * $Slab $ ZONE-NAMES=(THEROOM)
* 335 *             SYSTEM-CONTROL=SYSCTRL
* 336 *             SYSTEM-AIR=SYSAIR
* 337 *             SYSTEM-EQUIPMENT=SYSEQP
* 338 * $Furn $ HEAT-SOURCE=GAS-FURNACE
* 339 * ..
* 340 * END ..
* 341 * COMPUTE SYSTEMS ..
* 342 * STOP ..

```