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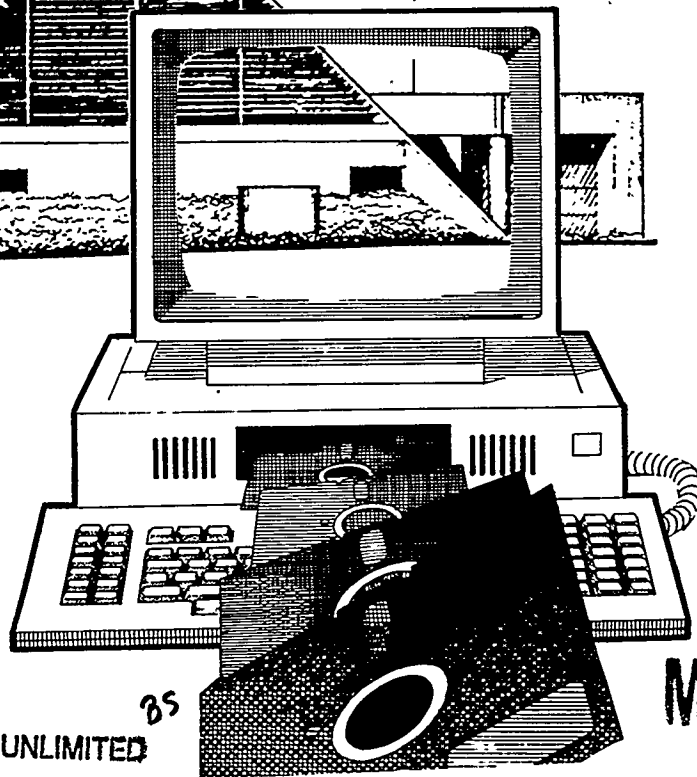
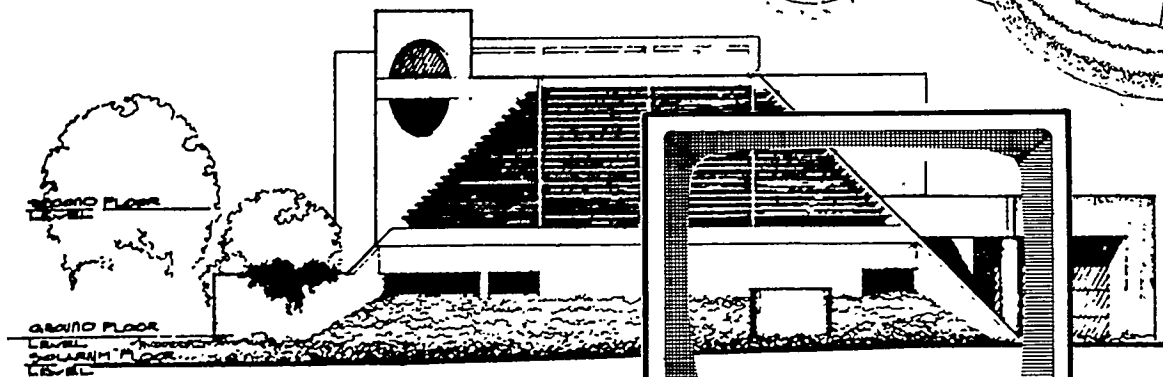
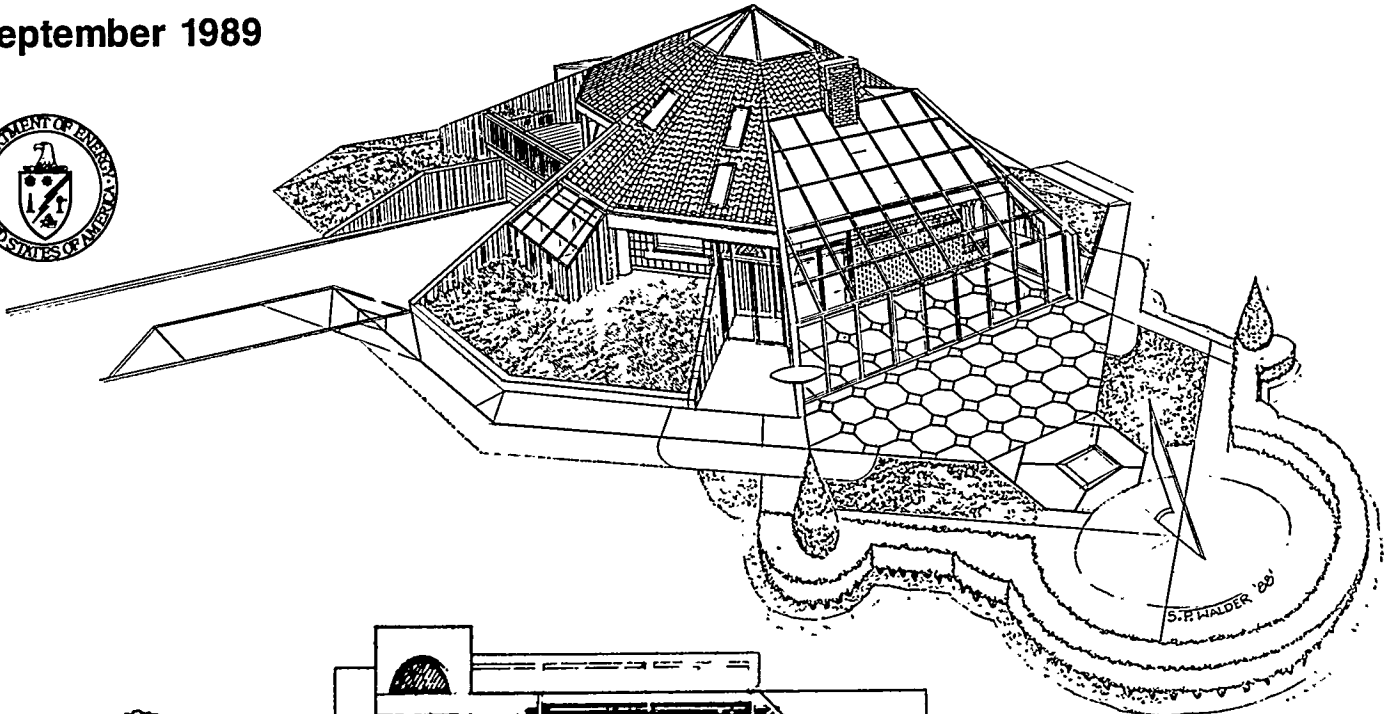
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U.S. Department of Energy
Assistant Secretary
Conservation and Renewable Energy
Office of Buildings and Community Systems
Buildings Systems Division
Washington, DC 20585

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.

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 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

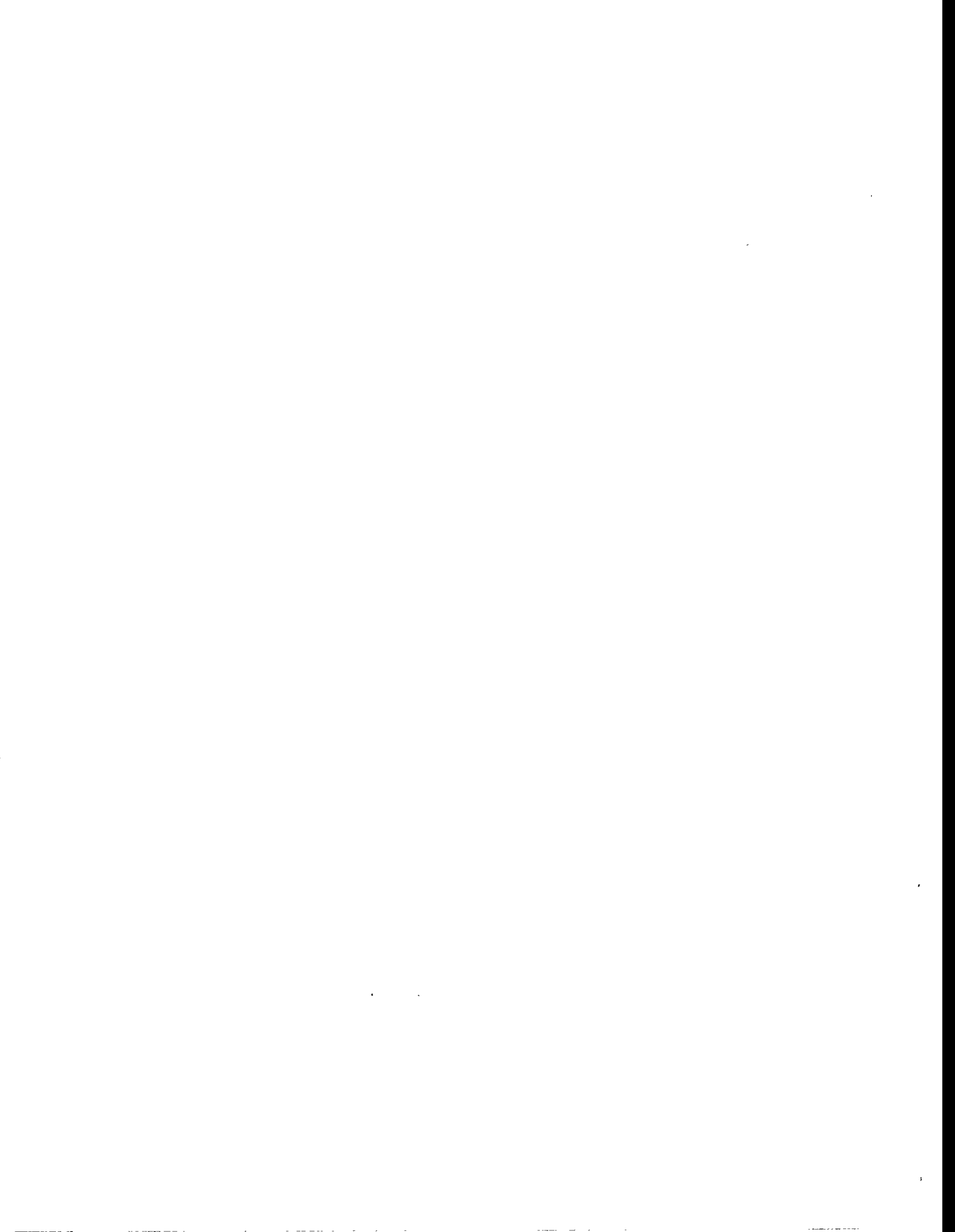
A number of organizations and individuals contributed to the preparation of this document. Funding for the project was provided by the Department of Energy (DOE), Office of Buildings and Community Systems under the direction of John Millhone. Program management and contract monitoring at DOE were provided 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
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Robert D. Busch, R.D. Busch & Associates, Albuquerque
Charles F. Gilbo, Charles F. Gilbo Consultant, Lancaster
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Glen A. Raymond, Carrier Corporation, Syracuse
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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

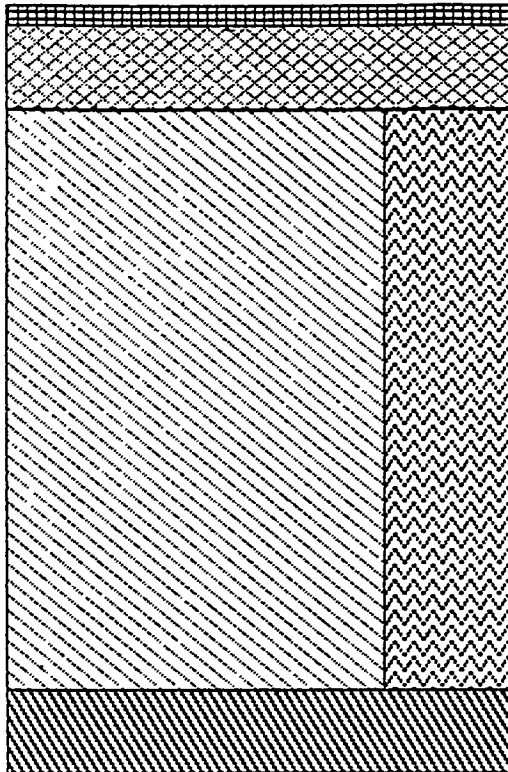
WALFERF is a finite-element program developed at LBL to calculate wall response factors for two-dimensional heat conduction. The program is based on a DOE-2 subroutine originally written to model earth contact surfaces (Bull et al. 1981) and uses a technique developed by Ceylan and Myers (Ceylan et al. 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
0.0263	0.20	1.15	4.	insulation
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. she
 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






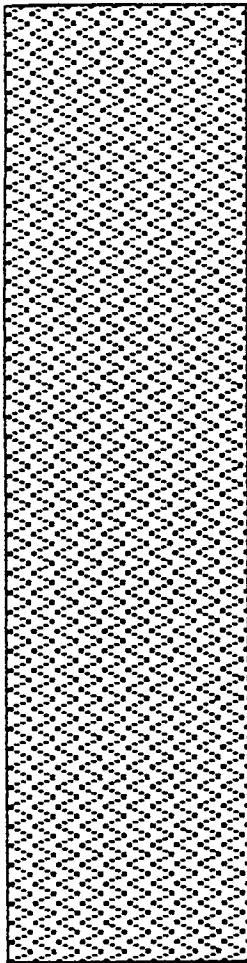
	wood			
		0.0669	0.290	34.00
	insulation			
		0.0263	0.200	1.15
	aluminum siding			
		0.0168	0.290	1.00
	drywall			
		0.0925	0.260	50.00
	int. dens. sheathing			
		0.0342	0.310	22.00

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	(conductance, specific heat,
.5	.22	140.0	2.	mason2	and density of materials)
.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


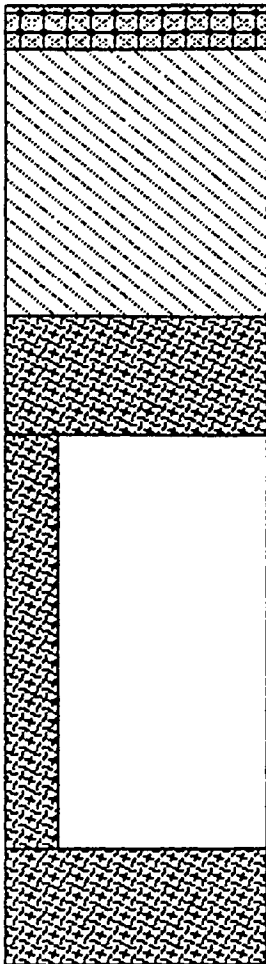
	wood			
	0.0669	0.290	34.00	

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

r10cb95 0 0 1				(file name)
12				(number of material descriptions)
.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





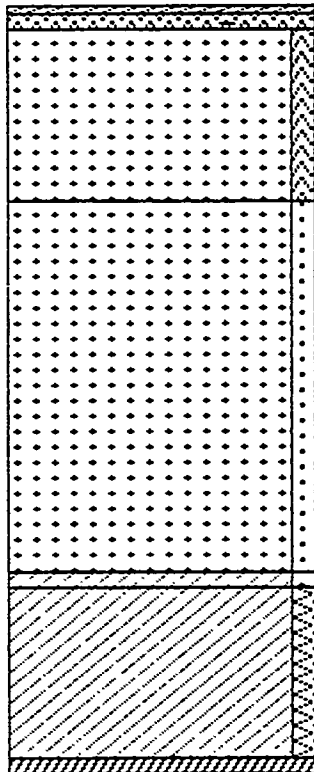
	stucco		
	0.4167	0.220	116.00
	4.88" block gap		
	0.4026	0.240	0.07
	insulation		
	0.0263	0.200	1.15
	concblock3		
	0.5000	0.220	95.00

Figure 1.4 WALFERF 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, and density of materials)
.0472	.30	1.0	8.	shingle	
.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	

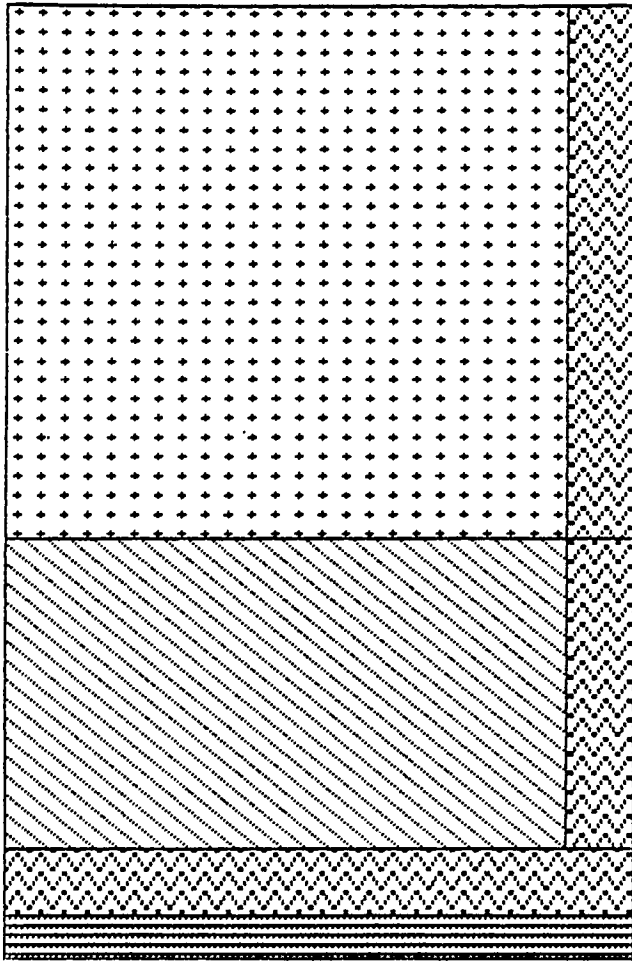
7	9.75	No. of layers	(no. of layers and total width)
1	.25	L-1	(no. of blocks and thickness for L-1)
8	9.75		(material and width)
1	.50	L-2	(no. of blocks and thickness for L-2)
2	9.75		(material and width)
2	5.50	L-3	(no. of blocks and thickness for L-3)
18	9.00		(material and width)
2	.75		(material 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
Blk 2 R	6.8510	wood					
Layer 4	12.00"						
Blk 1 R	0.9977	roofgap		roofgap	1.0023	0.240	0.07
Blk 2 R	1.4550	attic					
Layer 5	0.50"						
Blk 1 R	1.6734	insuls		shingle	0.0472	0.300	1.00
Blk 2 R	0.0416	roofgap					
Layer 6	5.50"						
Blk 1 R	18.4070	insuls		insuls	0.0249	0.190	1.15
Blk 2 R	7.2407	woods					
Layer 7	0.50"						
Blk 1 R	0.4748	drywalls		woods	0.0633	0.275	27.00
I F R =	0.7650						

Figure 1.5 WALFERF Input for R-11 Floor Assembly

r11flr 001				(file name)
18				(number of material descriptions)
				(conductance, specific heat, and density of materials)
.0669	.29	34.0	2.	wood
.0263	.20	1.15	4.	insulation
5.	.24	.075	16.	airlayh 6.00"
.02	.34	2.0	18.	rugnpad
4	7.00	No. of layers		(no. of layers and total width)
2	6.00	L-1		(no. of blocks and thickness for L-1)
16	6.25			(material and width)
2	.75			(material and width)
2	3.50	L-2		(no. of blocks and thickness for L-2)
4	6.25			(material and width)
2	.75			(material and width)
1	.75	L-3		(no. of blocks and thickness for L-3)
2	7.00			(material and width)
1	.50	L-4		(no. of blocks and thickness for L-4)
18	7.00			(material and width)
	.760			(inside film resistance)



Layer 1 6.00"
 Blk 1 R 0.1000 airlayh 6.00"
 Blk 2 R 7.4738 wood
 Layer 2 3.50"
 Blk 1 R11.0900 insulation
 Blk 2 R 4.3597 wood
 Layer 3 0.75"
 Blk 1 R 0.9342 wood
 Layer 4 0.50"
 Blk 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"	5.0000	0.240	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

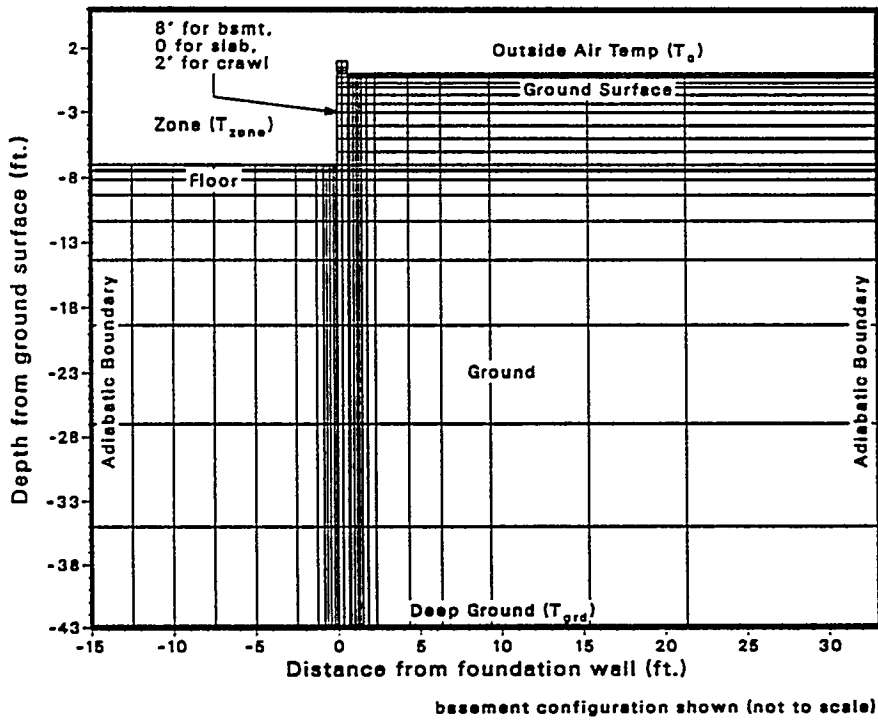
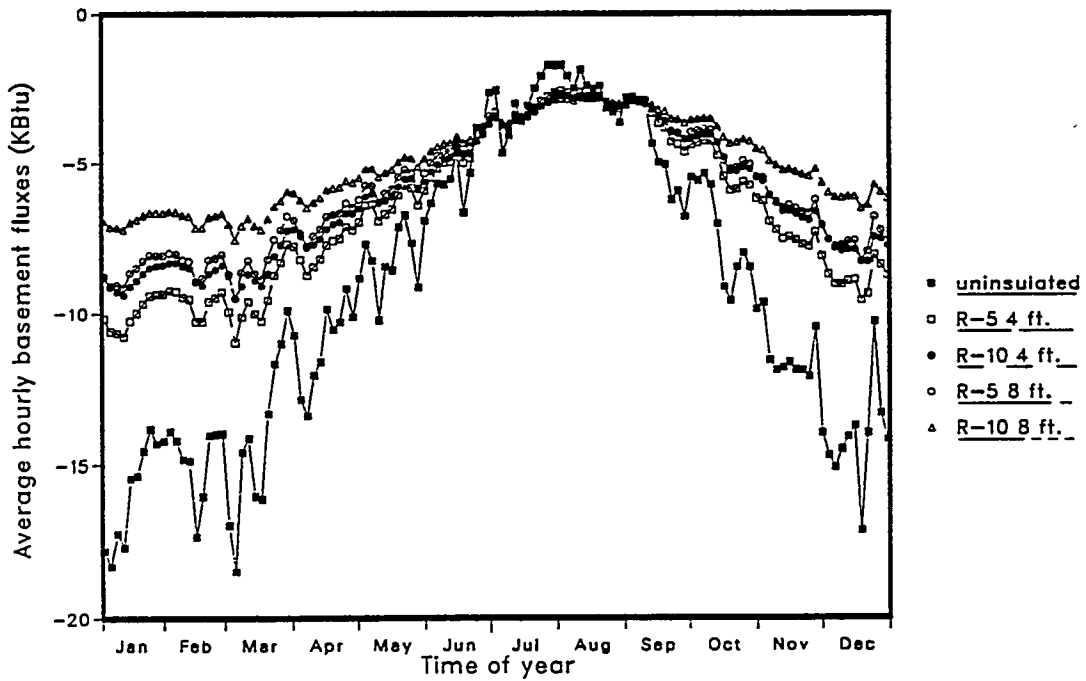


Figure 1.7 Average Hourly Fluxes for Basement Foundations in Denver CO Calculated by the USCUG Program



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. *

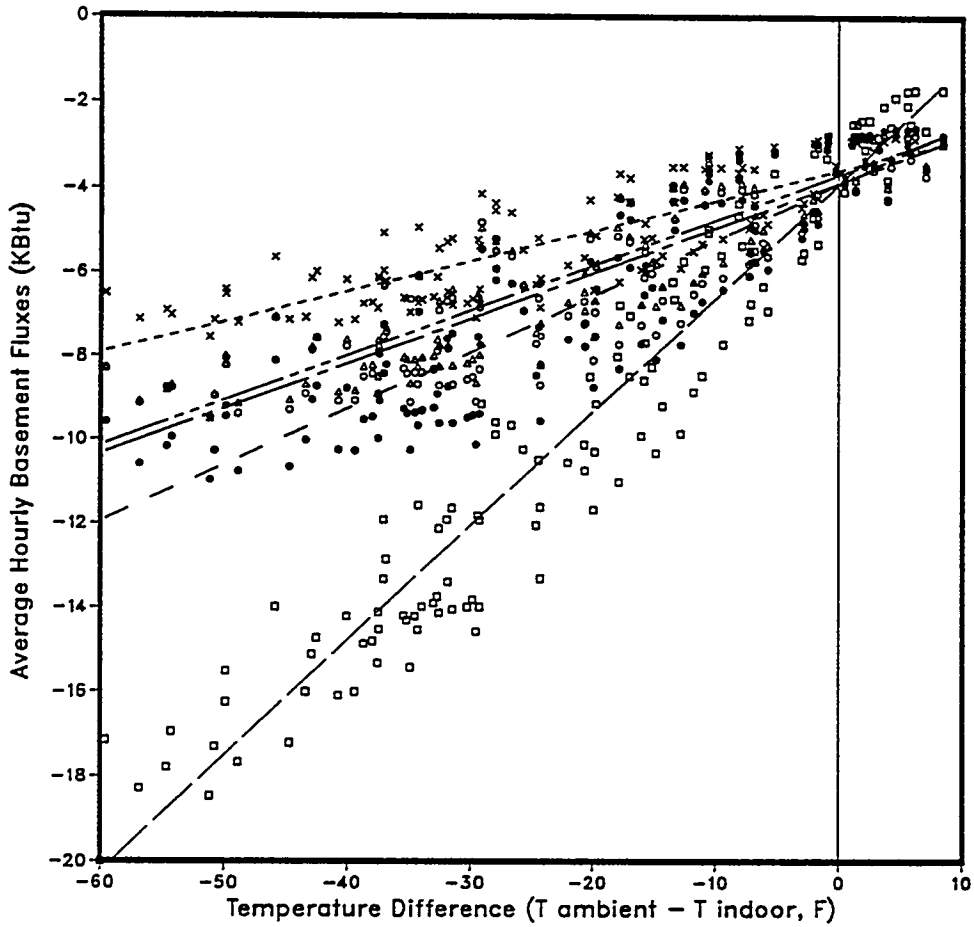
BUILDING PROTOTYPES

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 (Turiel 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 WALTERF 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 Panes	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

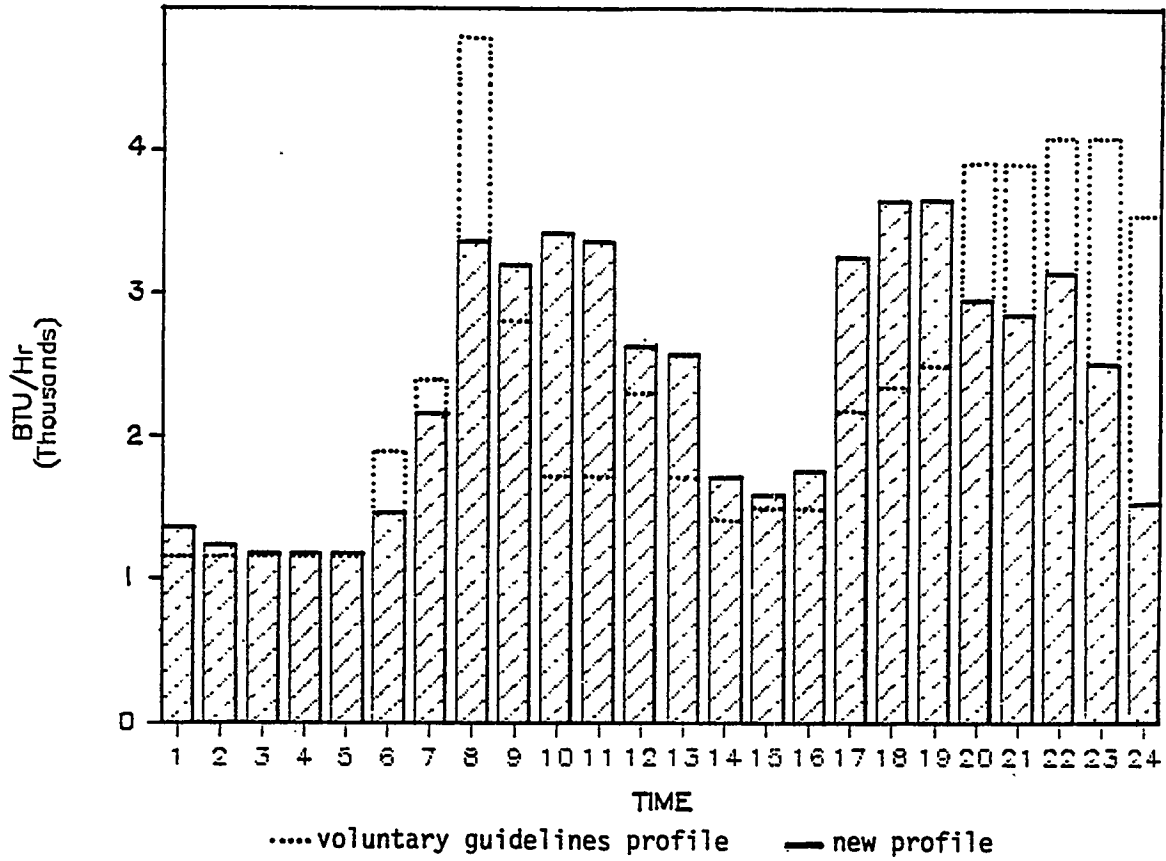


Table 1.6 Internal Loads Schedule

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^o 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 :

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

+(Component Load_{window} * UA_{window})
 +(Component Load_{solar gain} * Window solar aperture)
 +(Component Load_{foundation} * UA_{foundation})
 +(Component Load_{infiltr} * Effect.-leakage-area)
 +Residual Load

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 ligXt-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 ft², 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 (degree-day)²-ft²/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 (degree-day)²-ft²/Btu. Since the U-value of a R-0 ceiling is .24703, the component heating load for an uninsulated ceiling in a 1540 ft² house would be :

$$1540 * (.24703 * 4468.29 * 24 - .06102 * 111.14 * 576) \text{ Btu} \quad [7]$$

or $40.797 - 6.016 \text{ MBtu} = 34.781 \text{ MBtu}$

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

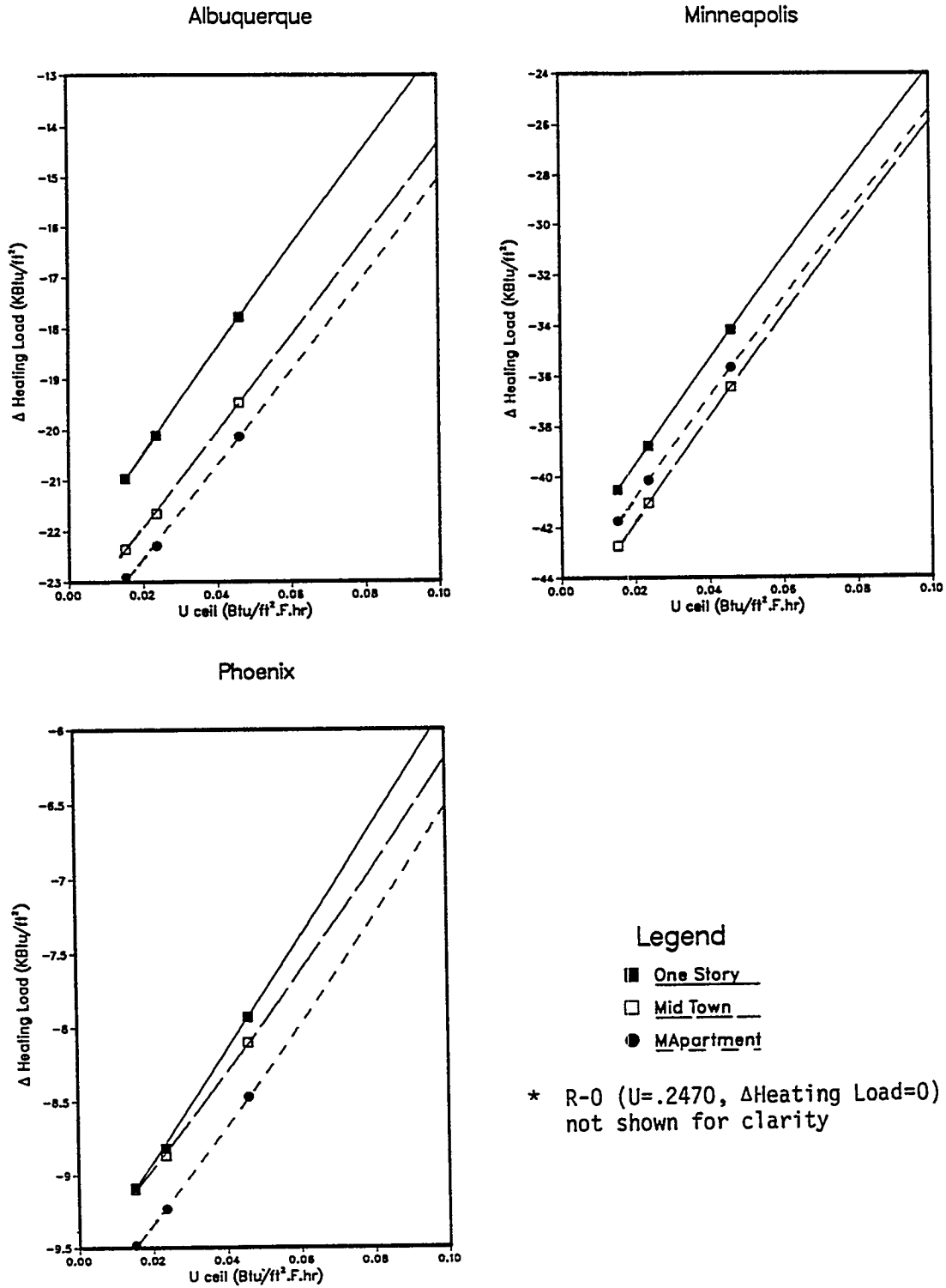


Figure 2.2 Correlations of Δ Ceiling Cooling Loads to U-values

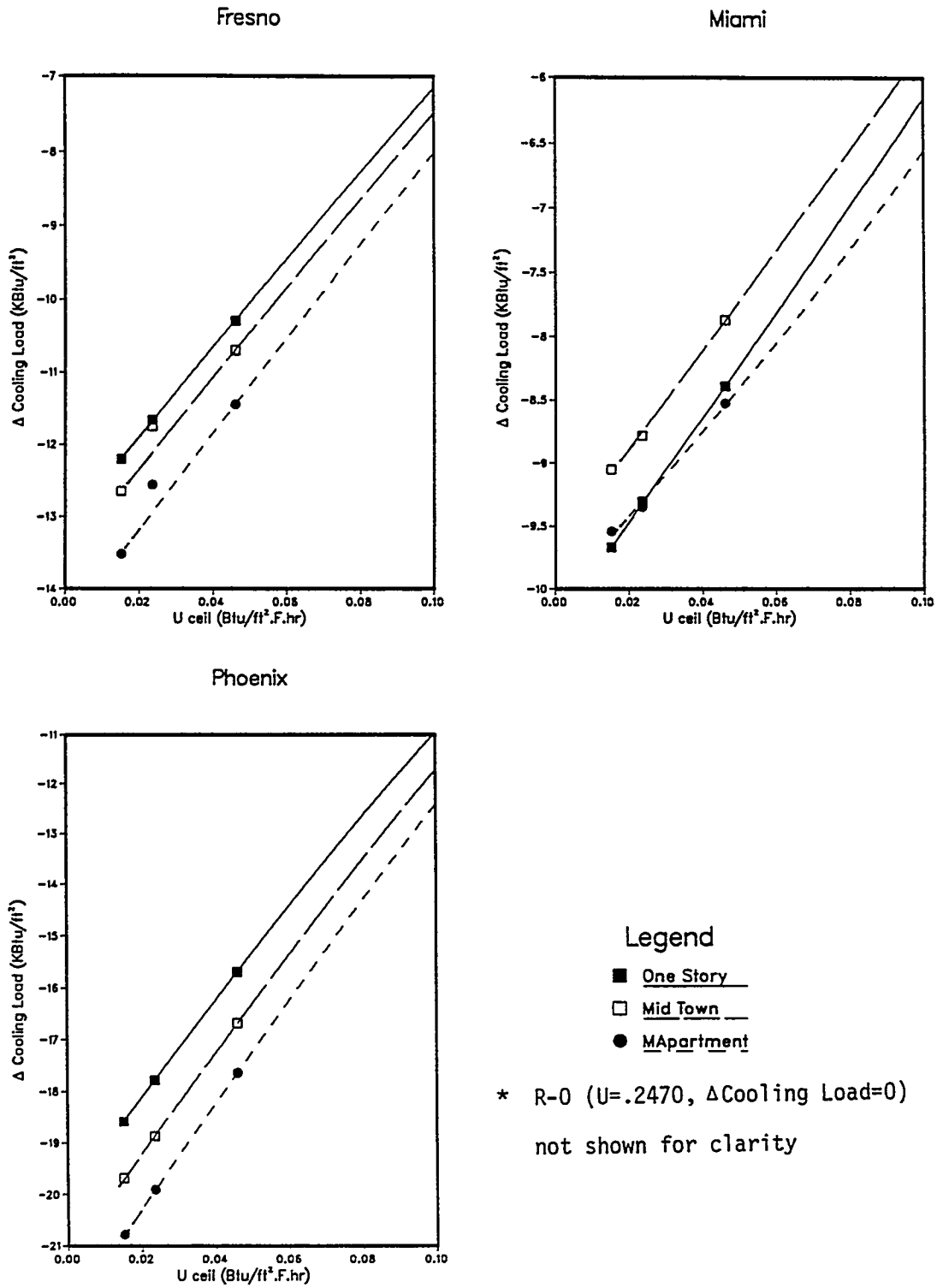


Figure 2.3 Correlations of Δ Wall Heating Loads to U-values

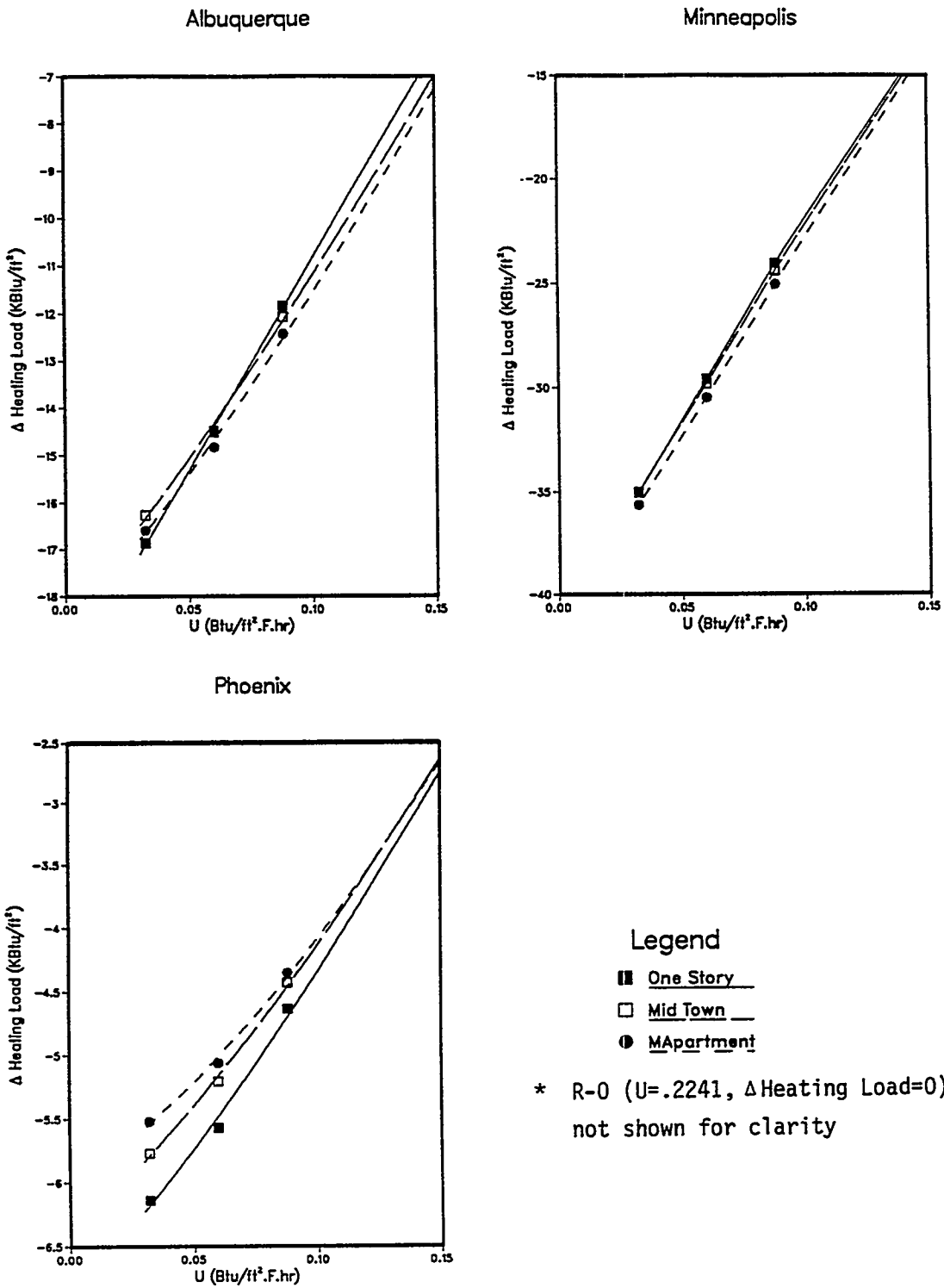
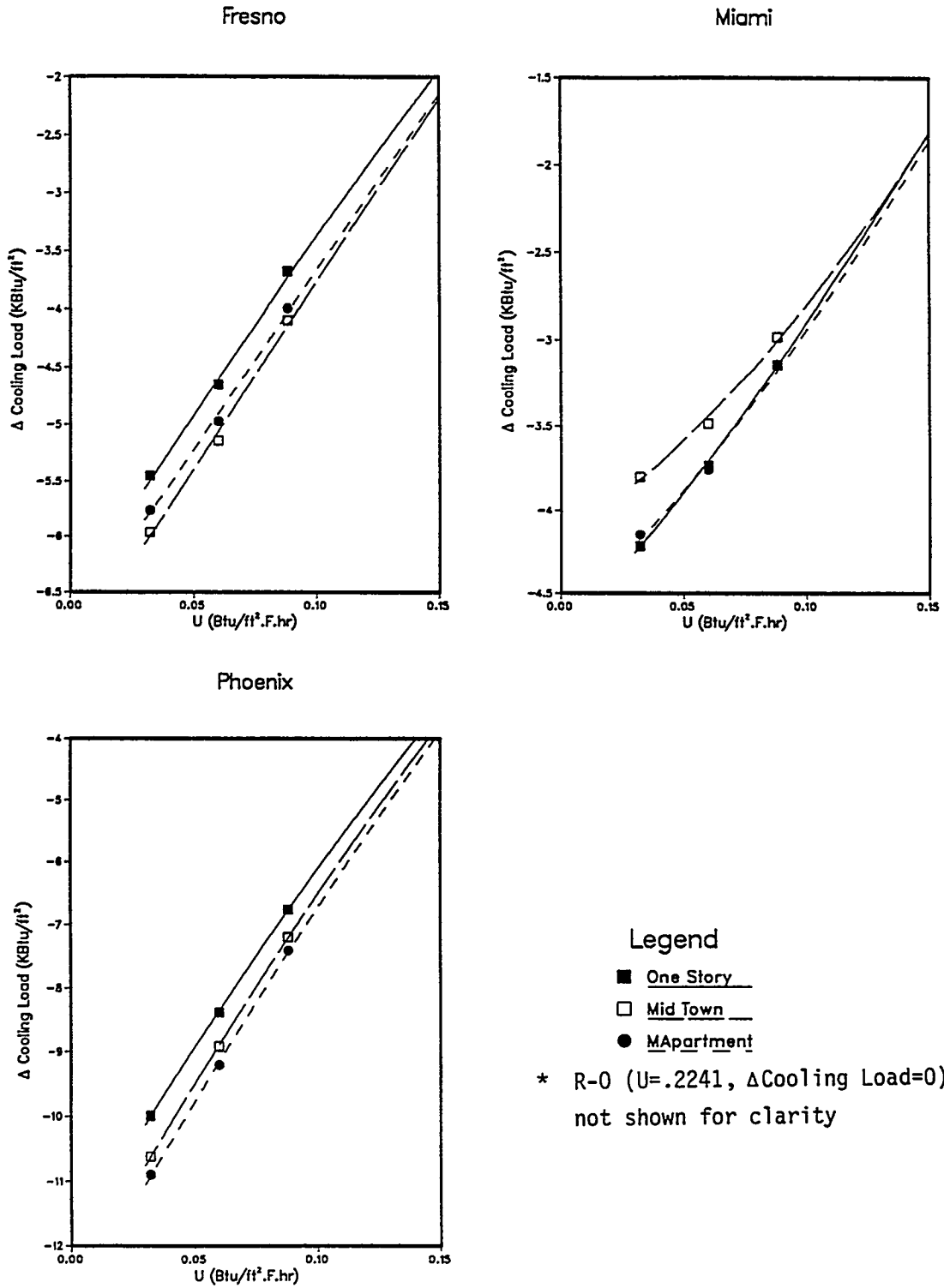


Figure 2.4 Correlations of Δ Wall Cooling Loads to U-values



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 :

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

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

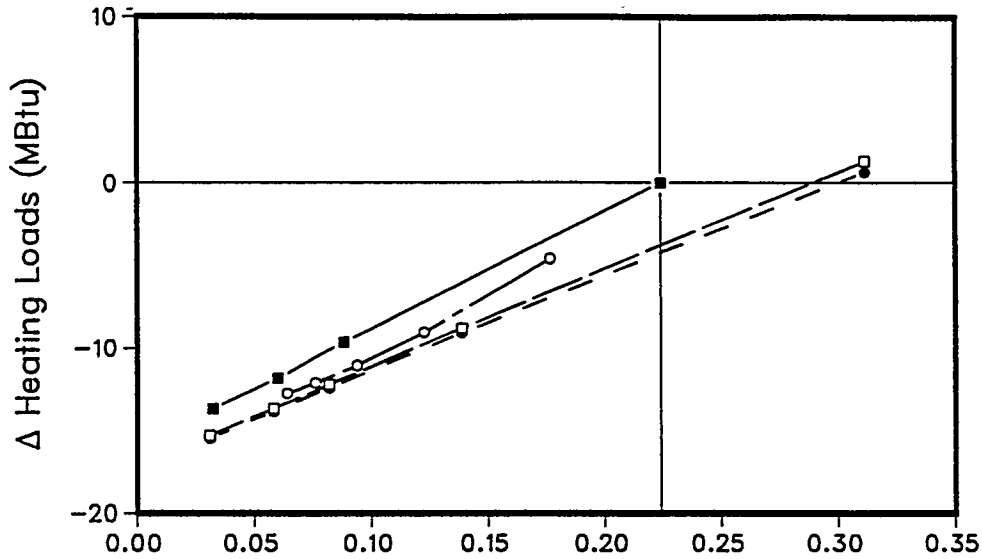
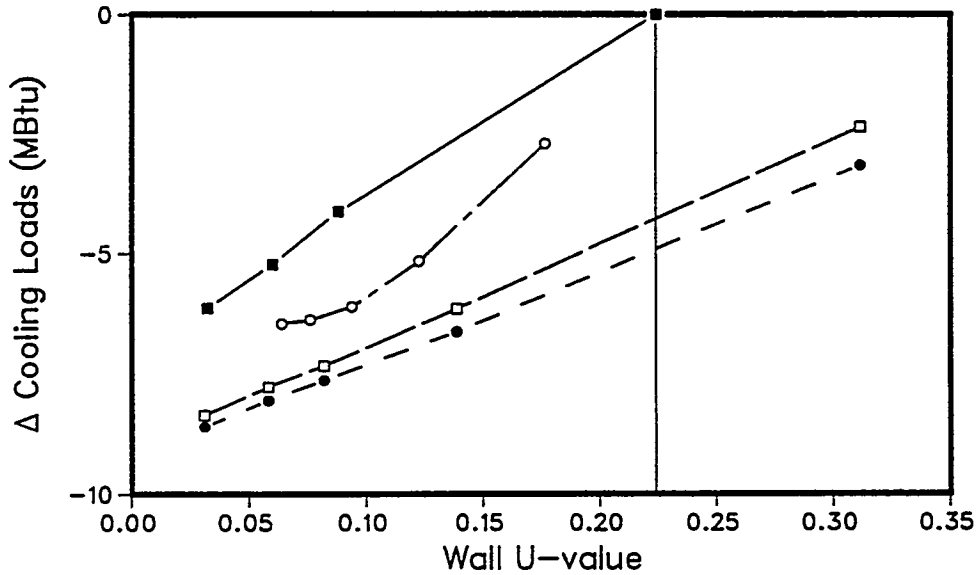


Figure 2.6 Correlation of Δ Cooling Loads to U-values for Mass Walls for Fresno CA



- 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

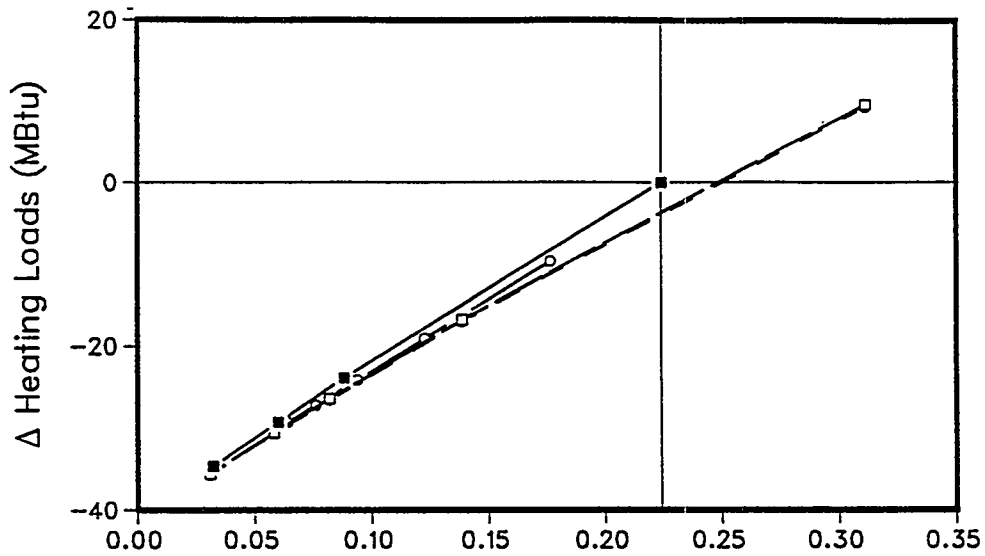
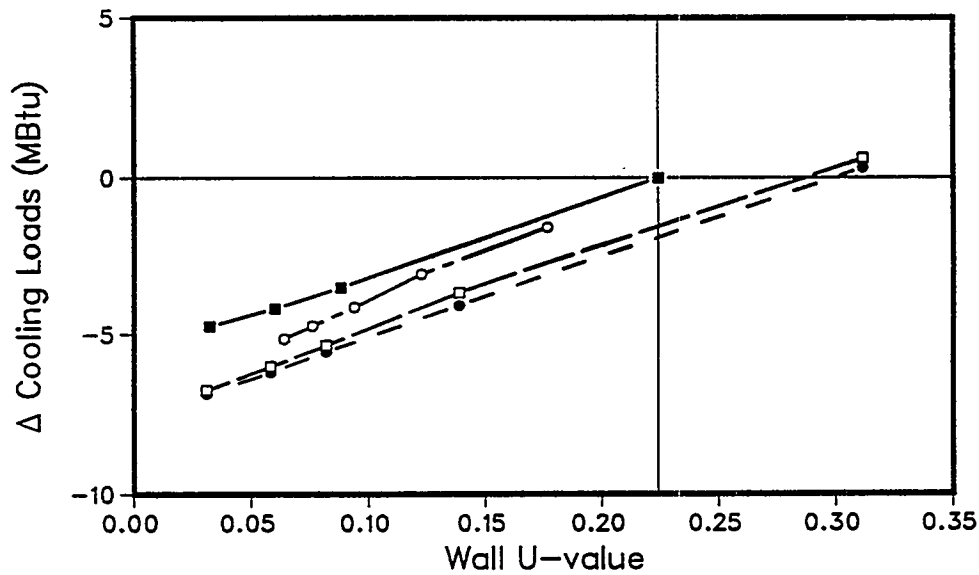


Figure 2.8 Correlation of Δ Cooling Loads to U-values for Mass Walls for Miami FL



- 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

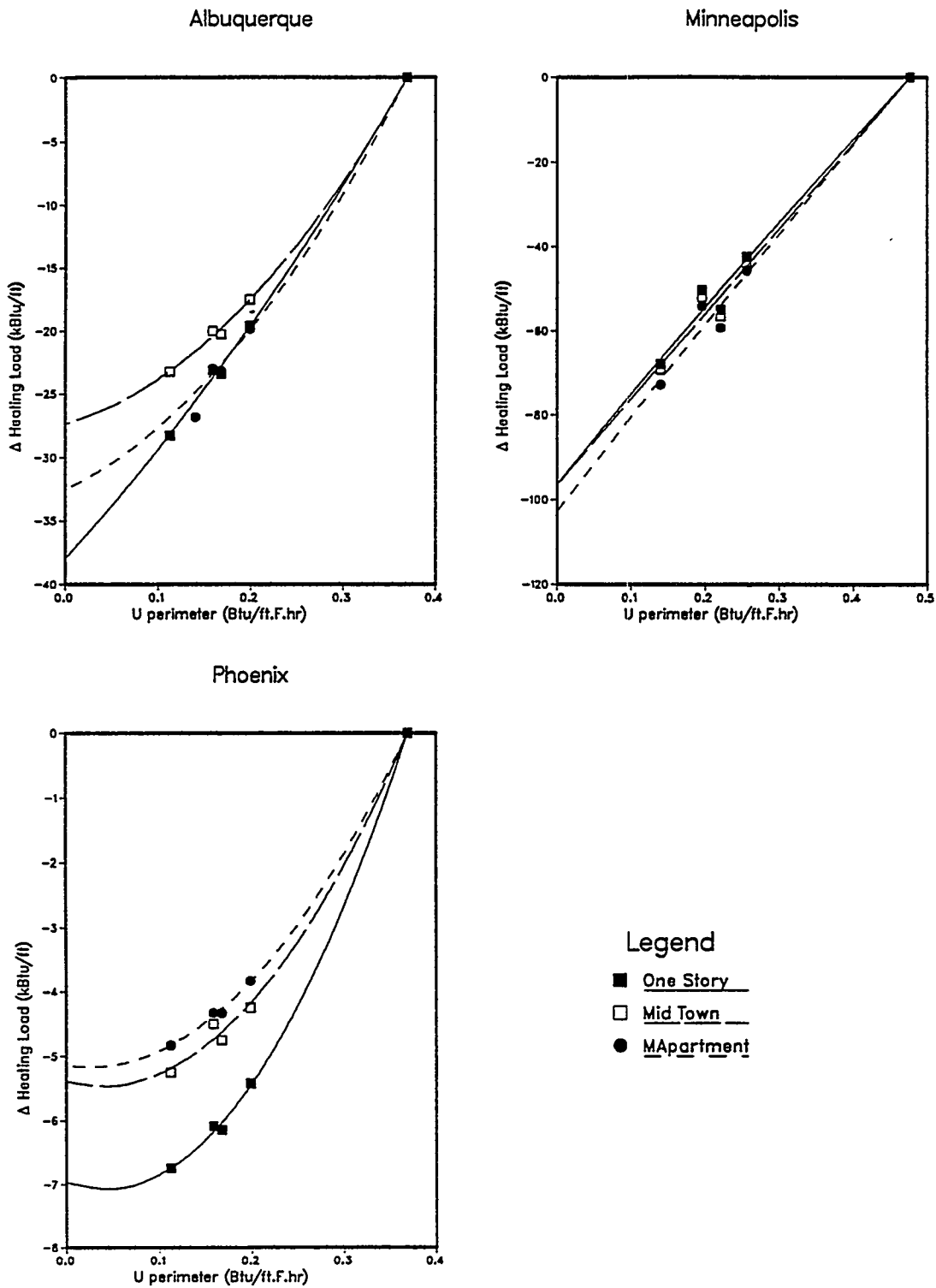


Figure 2.10 Correlation of Δ Slab Foundation Cooling Loads to Effective U-values

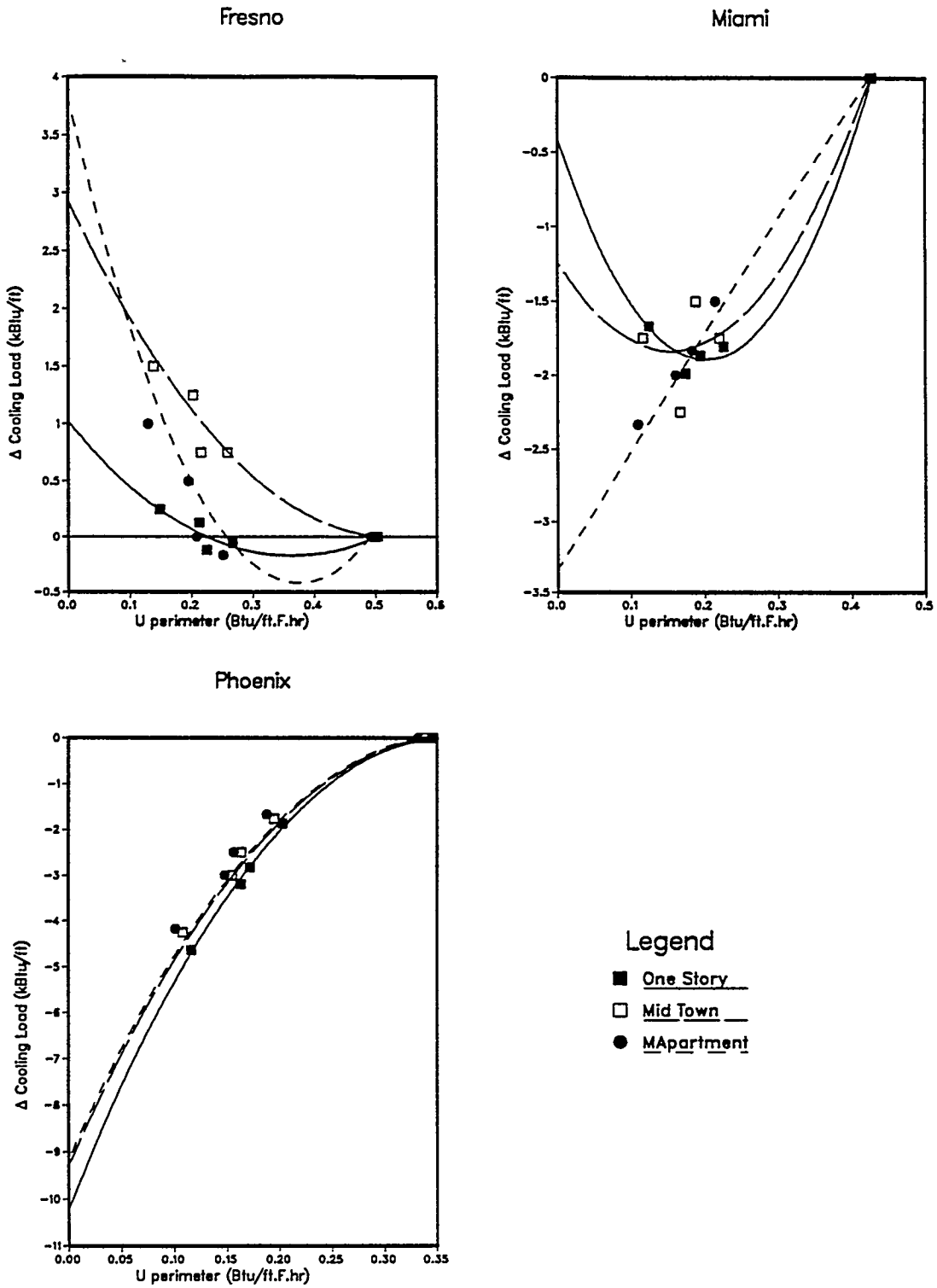


Figure 2.11 Correlation of Δ Heated Basement Heating Loads to Effective U-values

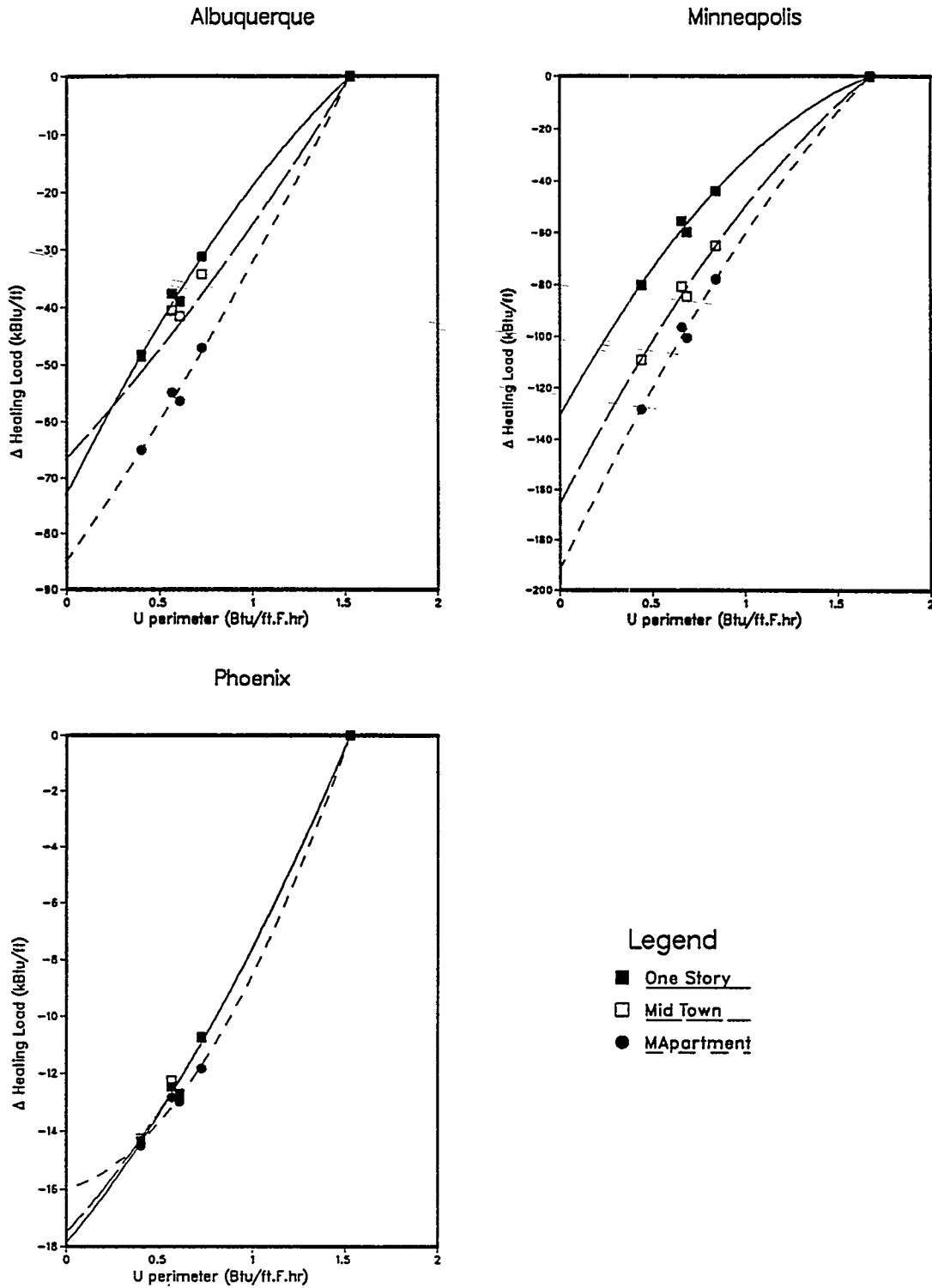


Figure 2.12 Correlation of Δ Heated Basement Cooling Loads to Effective U-values

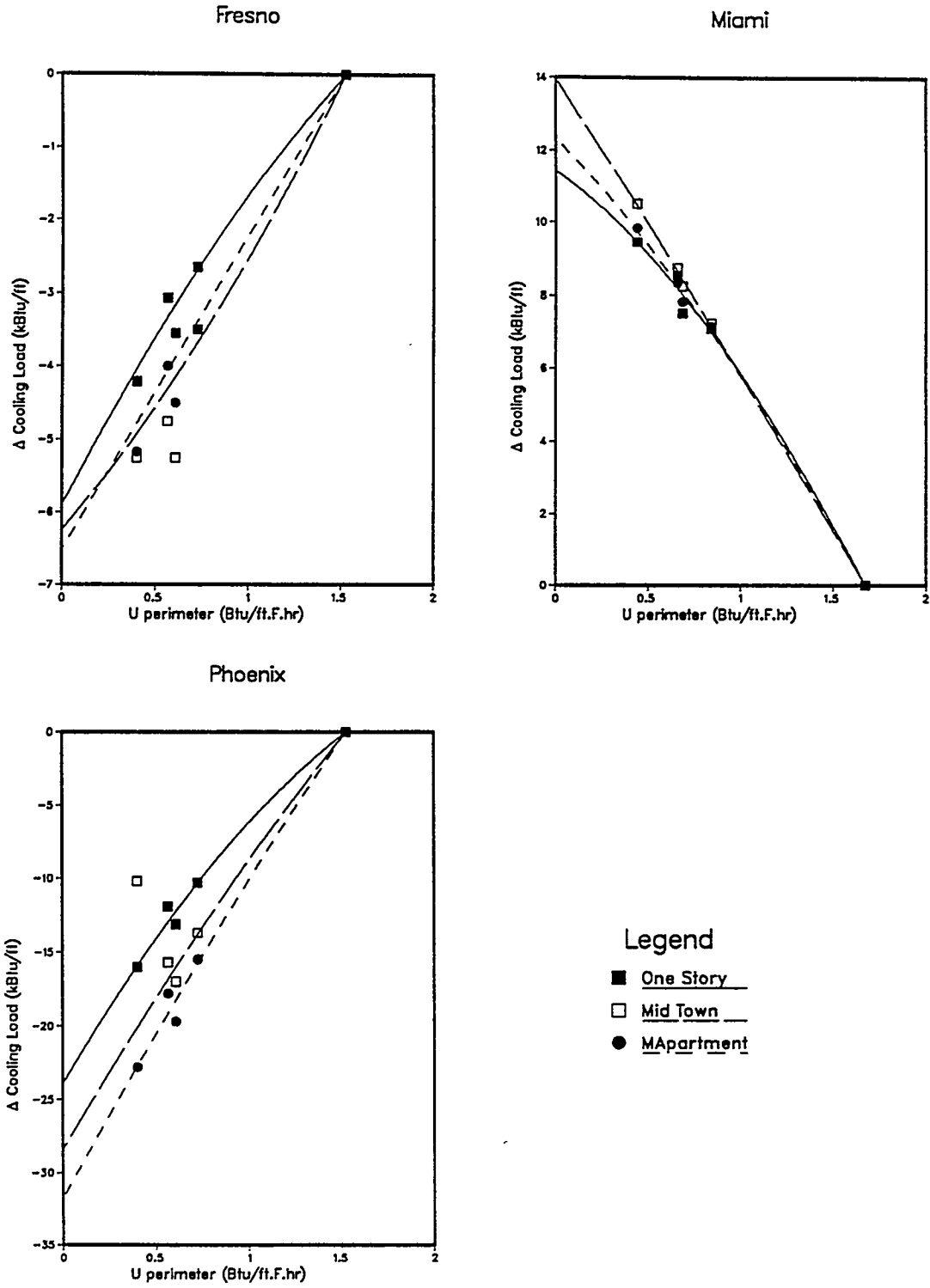


Figure 2.13 Correlation of Δ Unheated Basement Heating Loads to Effective U-values

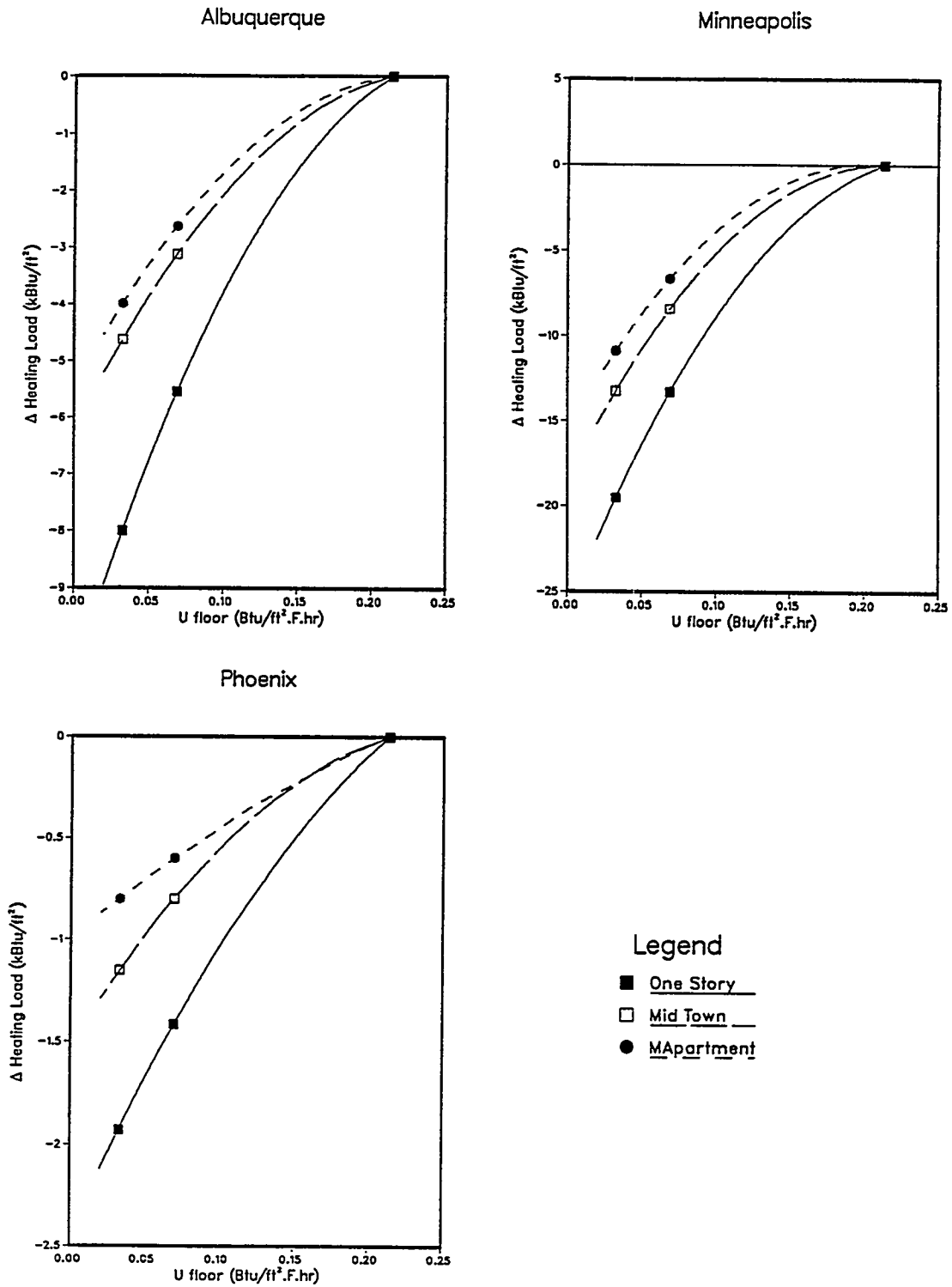


Figure 2.14 Correlation of Δ Unheated Basement Cooling Loads to Effective U-values

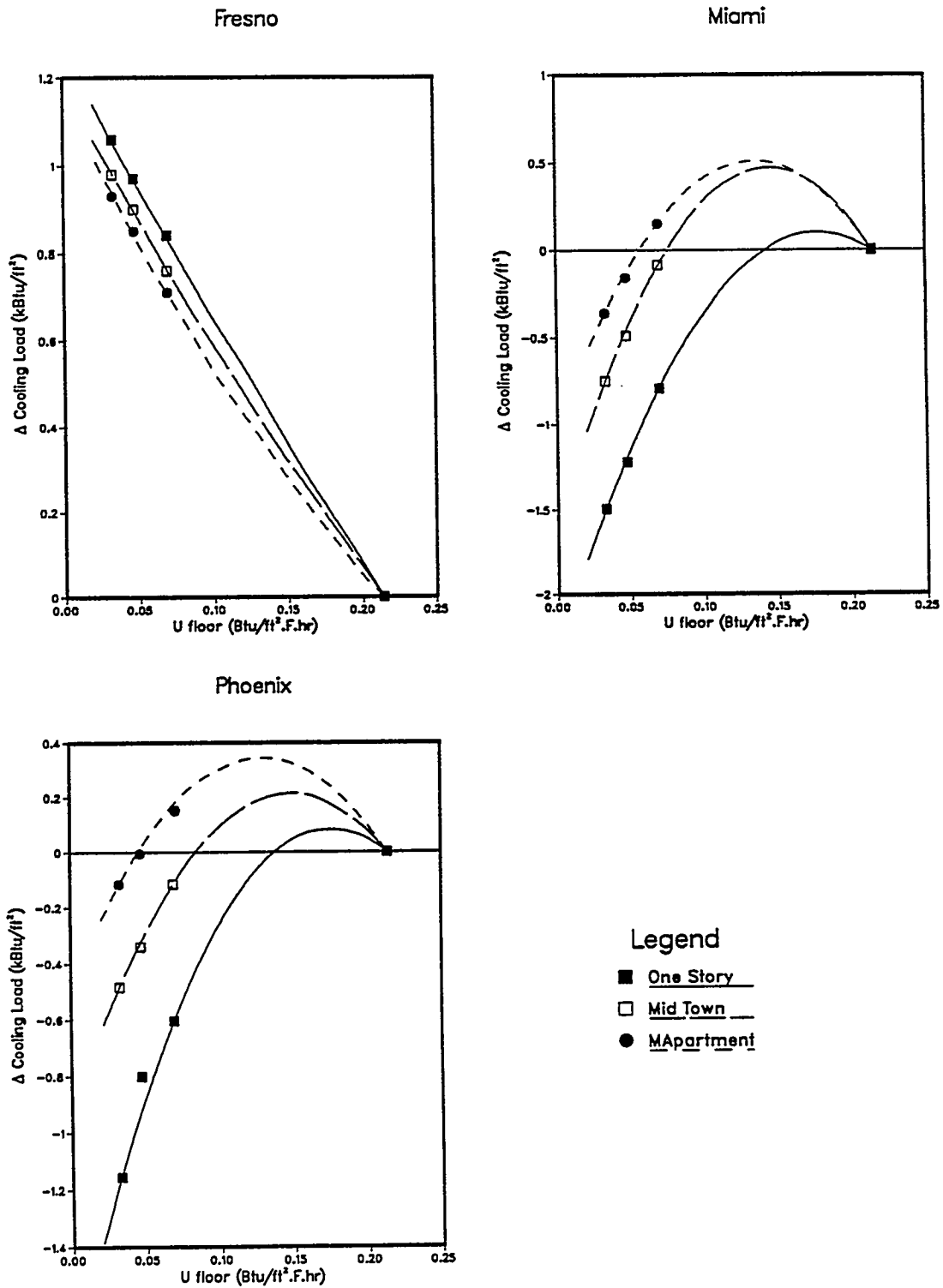


Figure 2.15 Correlation of Δ Crawl Foundation Heating Loads to Floor U-values

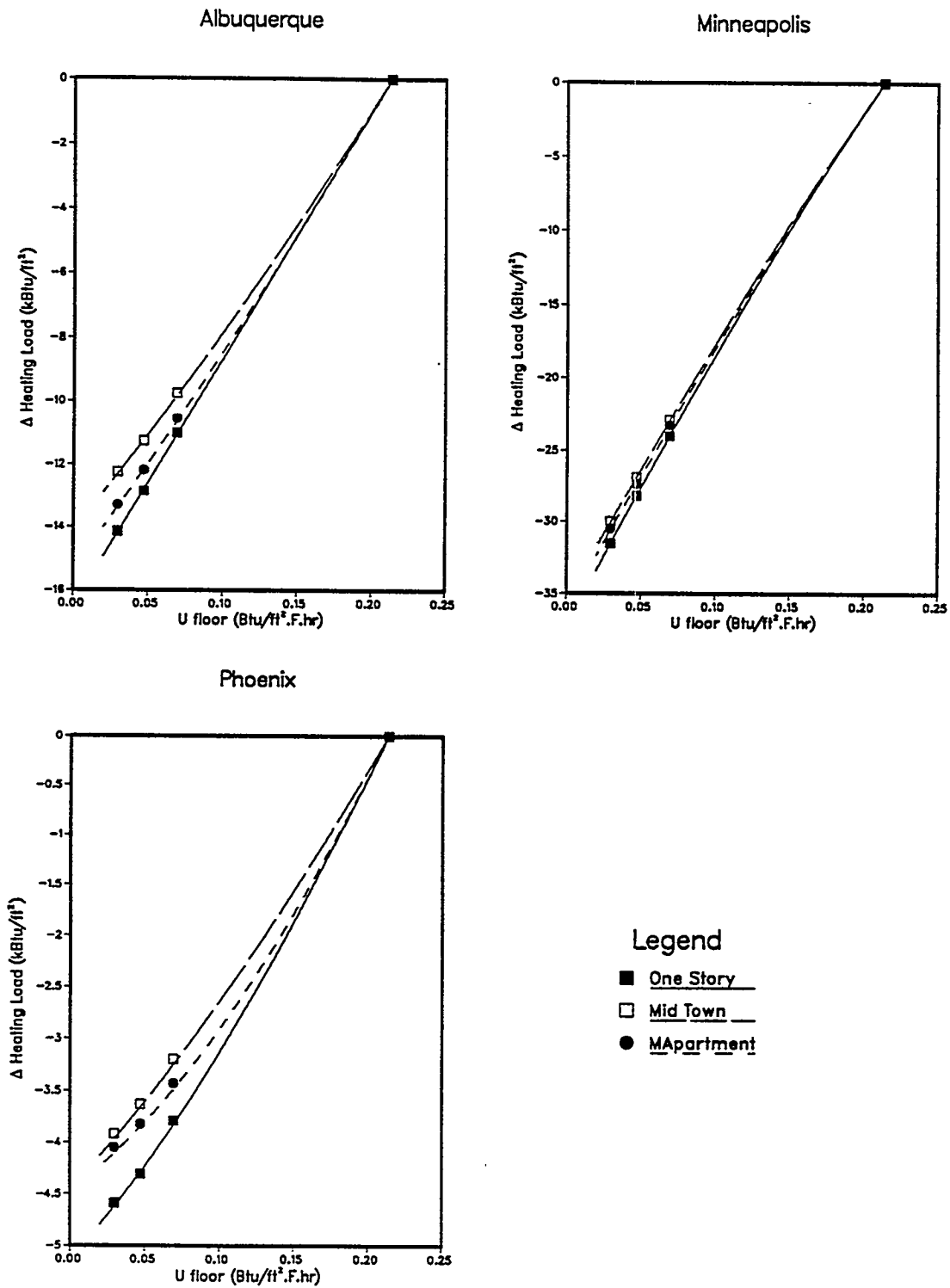
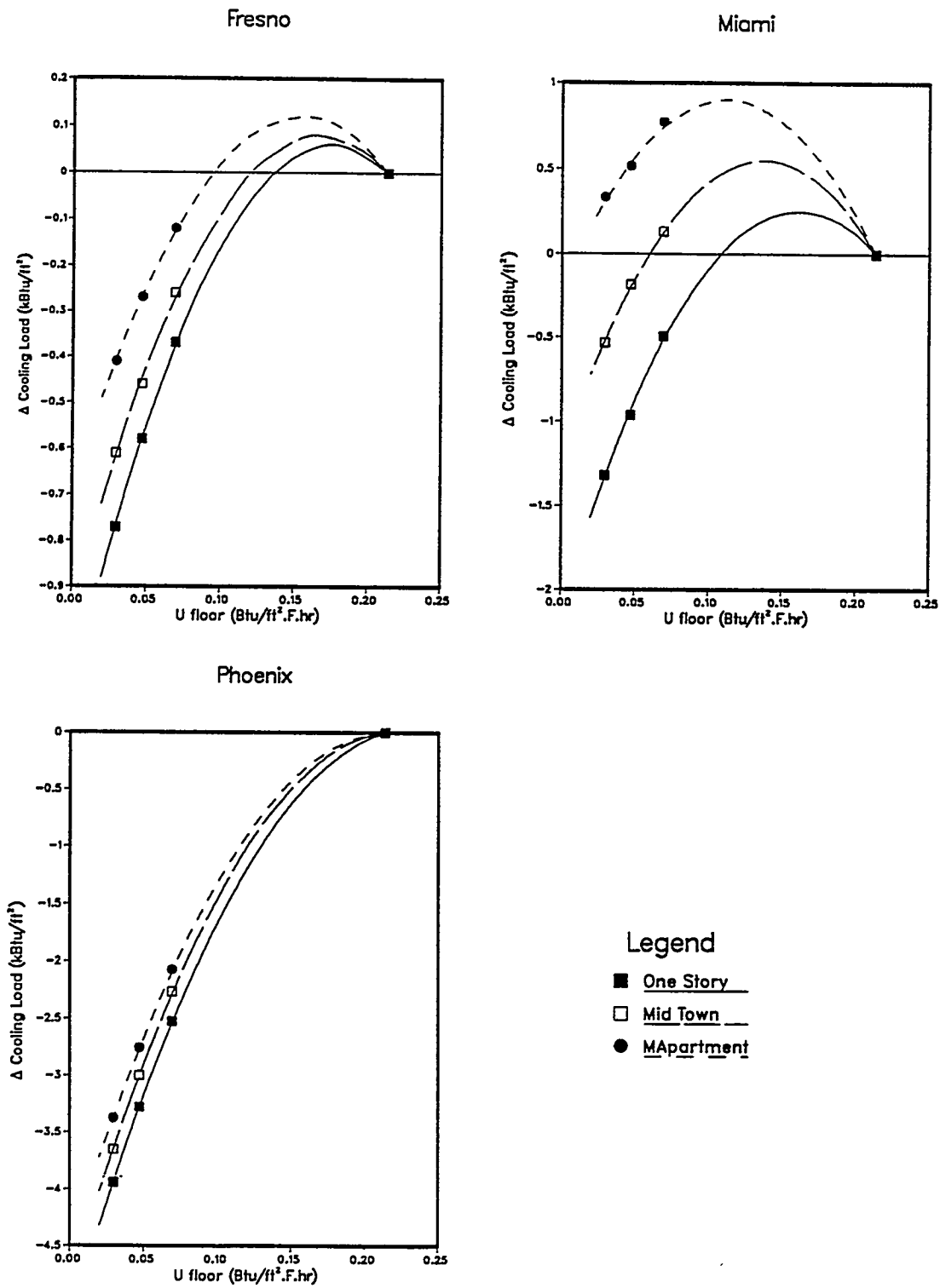


Figure 2.16 Correlation of Δ Crawl Foundation Cooling Loads to Floor U-values



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

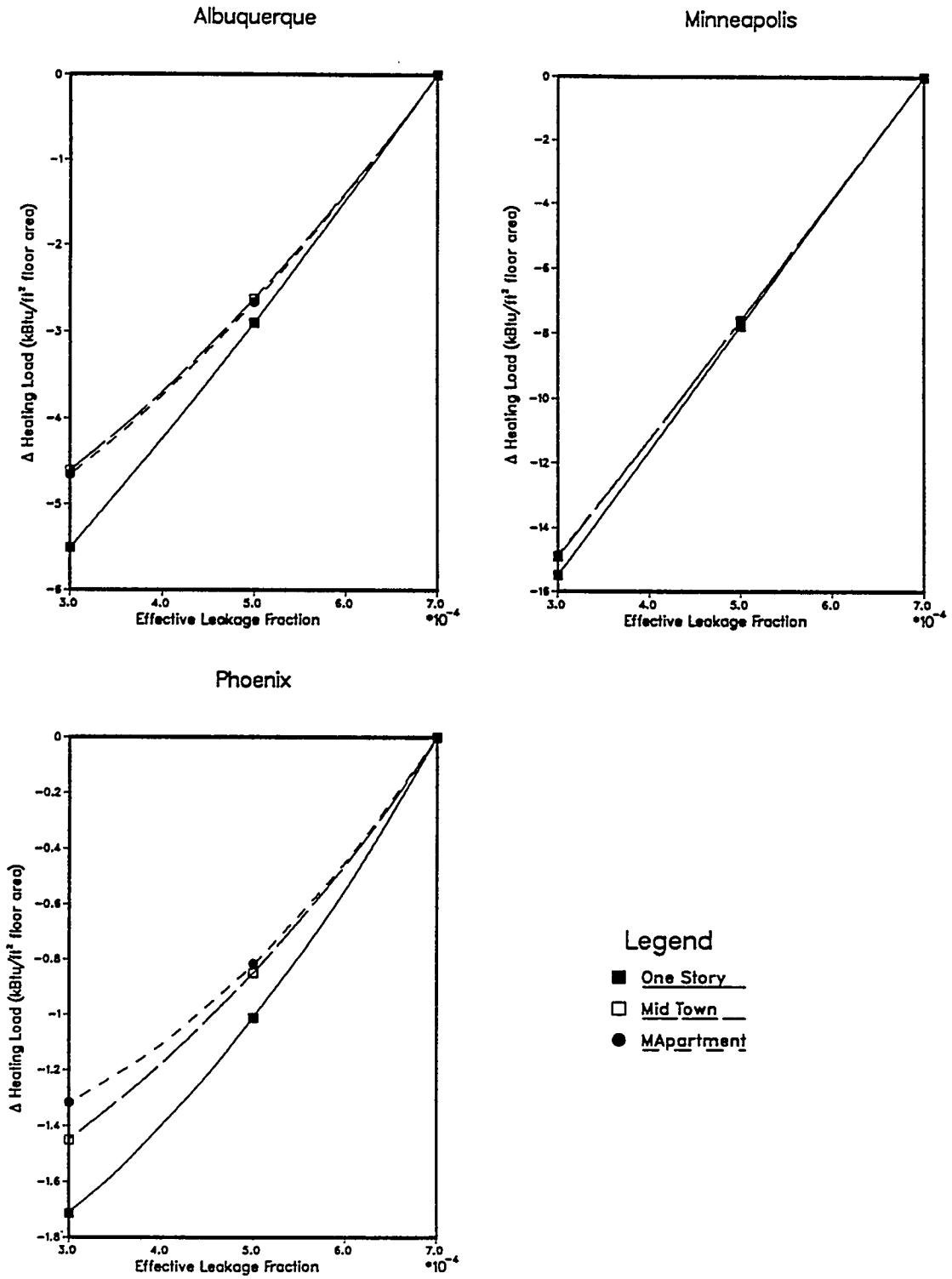


Figure 2.18 Correlation of Δ Infiltration Cooling Loads to Effective-leakage-fractions

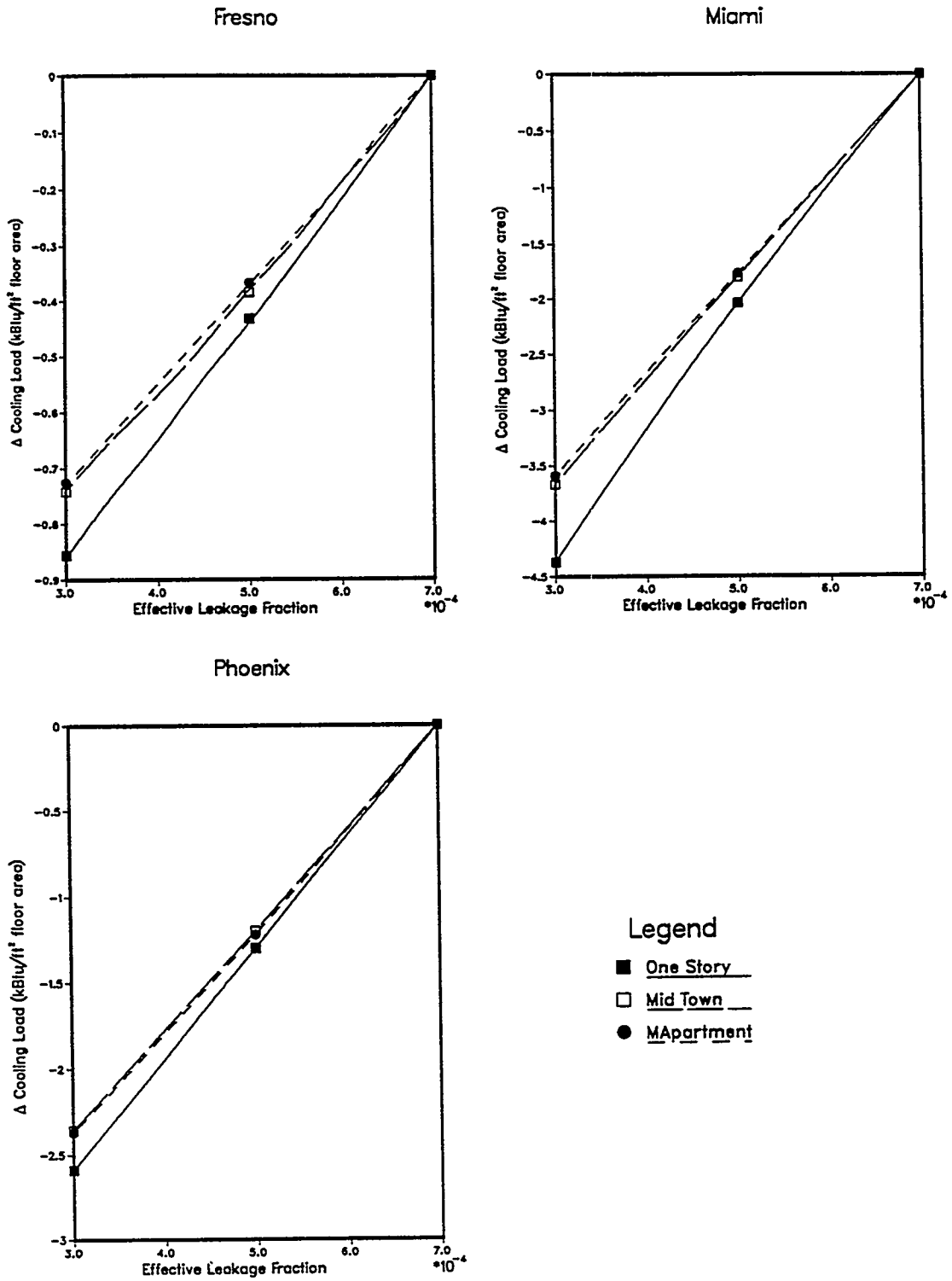
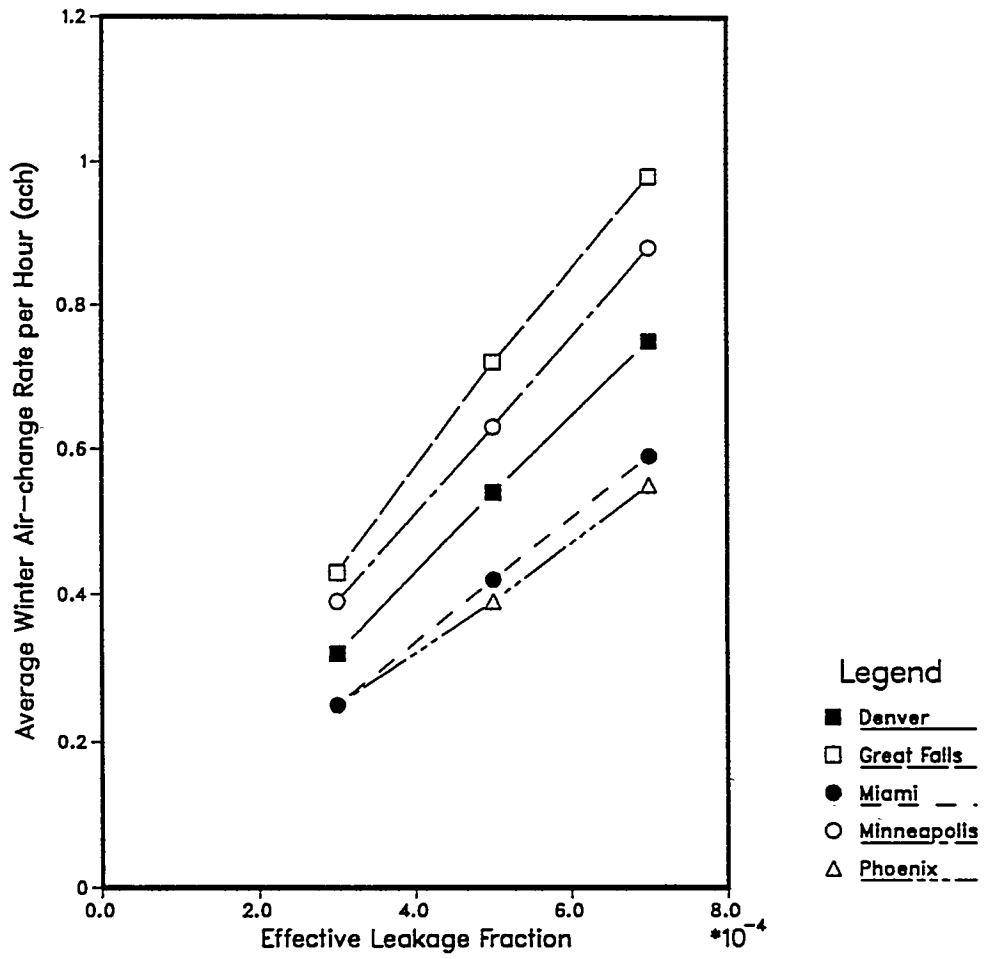


Figure 2.19 Correlation of Average Winter Air-change Rates to Effective Leakage-Fractions



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

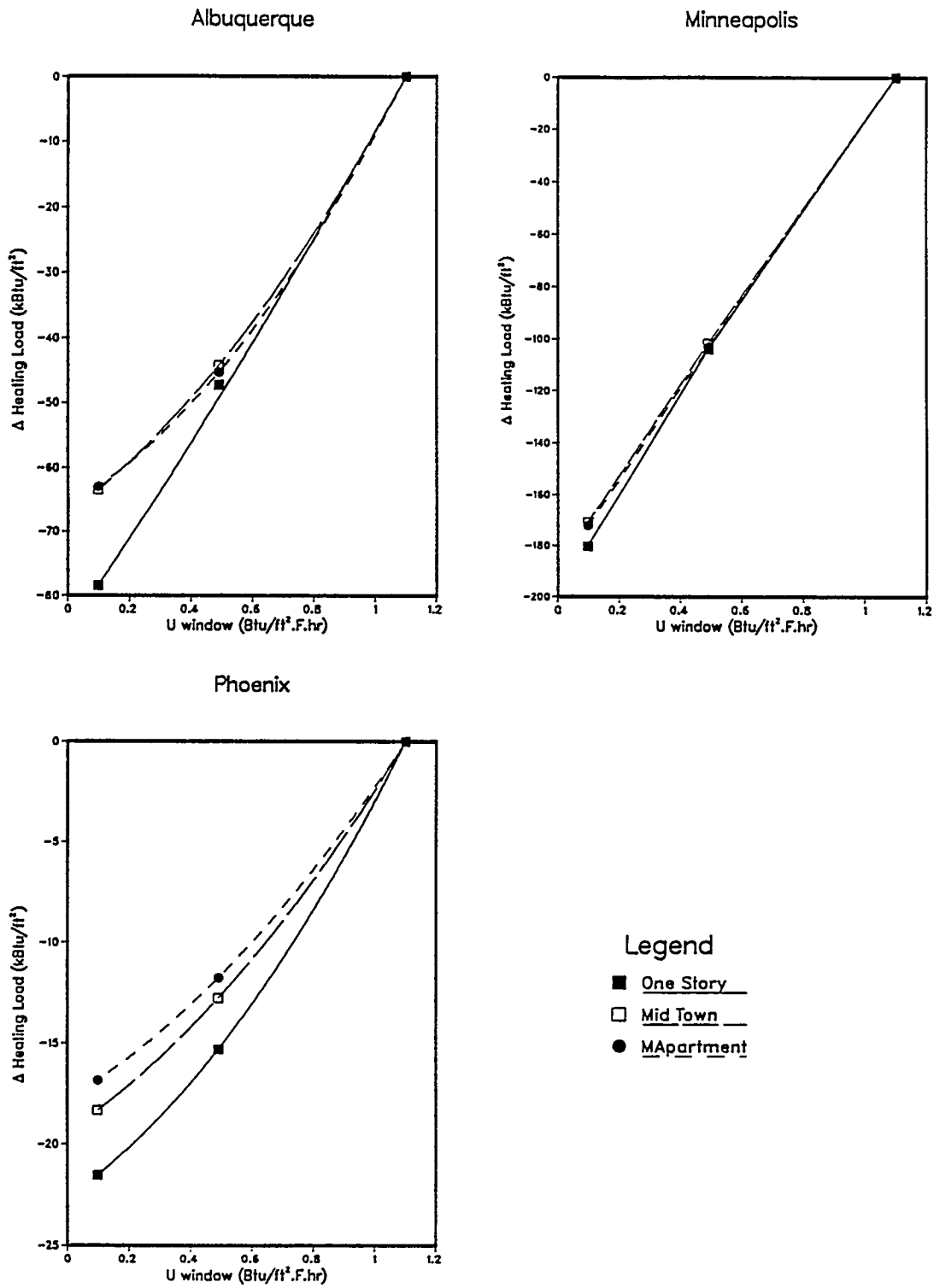


Figure 2.21 Correlation of Δ Window Conduction Cooling Loads to Window U-values

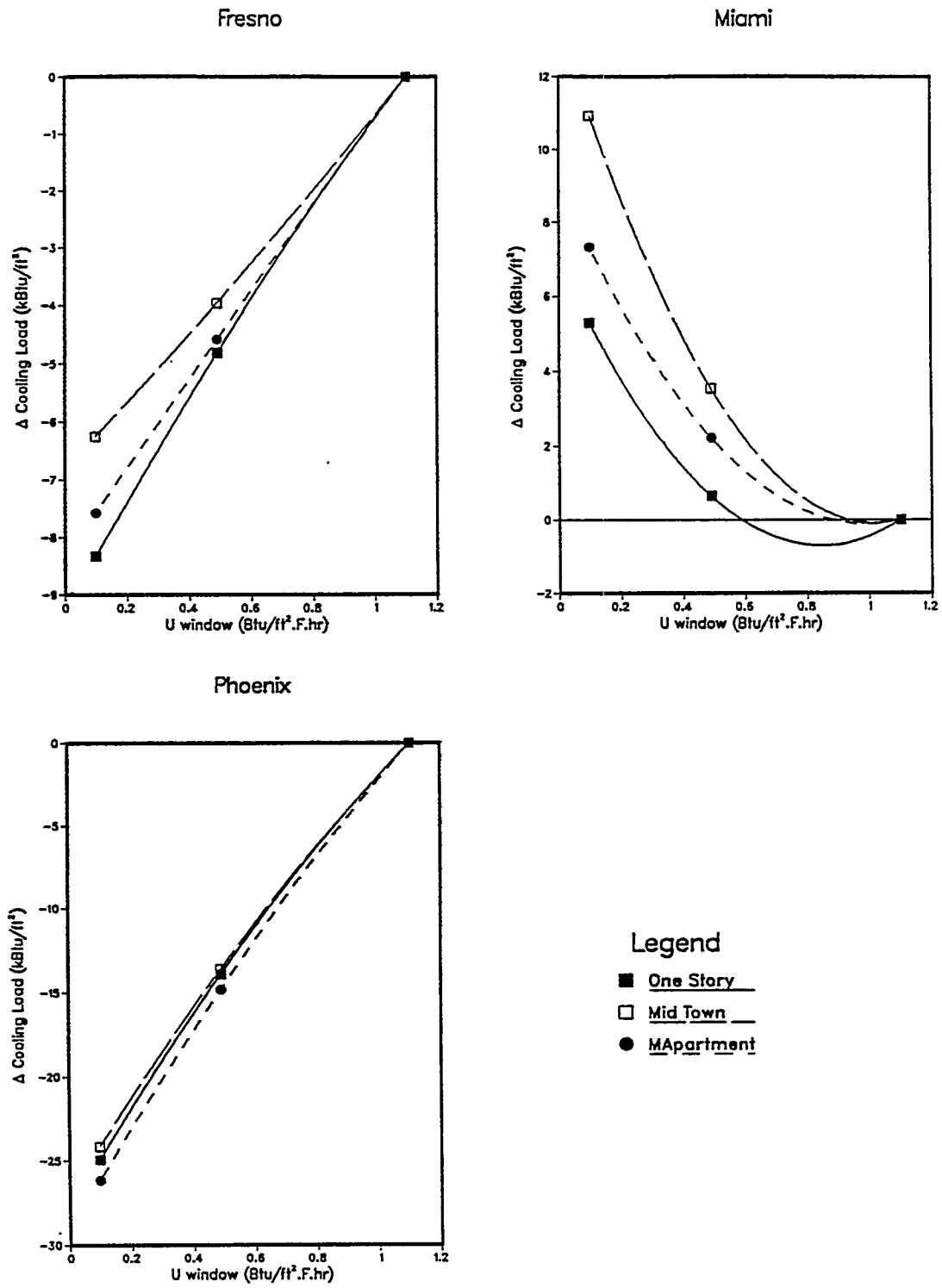


Table 2.2 Parametric Analysis of Window Solar Gain Conditions
 (* = short parametric set done for 34 cities)

Run code	Shad. Coef.	North	South	East	West	Total
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.

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

$$\text{Load}_{\text{window solar}} = A * (\text{Beta} * A + 1) + \text{Load}_0 \text{ solar aperture}$$

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 Coef	Heating Window area (sq.ft.)				Del Load Predicted	
		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
8.00%	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
8.00%	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
8.00%	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= 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)
1.00%	1.000	37.3	37.8	37.8	37.8	8.253	8.190
12.00%	1.000	46.2	46.2	46.2	46.2	10.048	12.418
20.00%	1.000	77.0	77.0	77.0	77.0	20.752	21.139
30.00%	.666	37.8	37.8	37.8	37.8	5.327	5.489
17.00%	.666	46.2	46.2	46.2	46.2	8.121	8.181
20.00%	.666	77.0	77.0	77.0	77.0	13.425	13.618
6.00%	.333	37.8	37.8	37.8	37.8	2.663	2.667
12.00%	.333	46.2	46.2	46.2	46.2	3.920	4.034
20.00%	.333	77.0	77.0	77.0	77.0	6.513	6.791
30.00%	.000	37.8	37.8	37.8	37.8	.003	-.044
17.00%	.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	9.532
8.00%	1.000	61.6	20.5	20.5	20.5	7.063	6.855
2.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
10.00%	1.000	.0	61.6	61.6	61.6	14.138	14.459
12.00%	1.000	92.4	37.8	37.8	37.8	12.670	10.378
17.00%	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	138.6	15.4	17.053	17.117
20.00%	1.000	215.6	37.8	37.8	37.8	15.363	14.810
6.00%	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
6.00%	1.000	61.6	.0	61.6	.0	6.113	6.305
10.00%	1.000	61.6	61.6	.0	61.6	12.710	12.292
10.00%	1.000	37.8	37.8	92.4	37.8	12.070	12.528
10.00%	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	20.696
20.00%	1.000	56.5	56.5	138.6	56.5	22.873	21.221
20.00%	1.000	138.6	15.4	138.6	15.4	17.053	17.117
20.00%	1.000	37.8	37.8	215.6	37.8	23.033	21.424
8.00%	1.000	41.1	41.1	41.1	.0	7.443	7.438
2.00%	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
10.00%	1.000	61.6	61.6	61.6	.0	11.190	11.265
12.00%	1.000	37.8	37.8	37.8	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	37.8	37.8	37.8	215.6	25.283	24.636
8.00%	1.000	41.1	.0	41.1	41.1	7.623	7.682
8.00%	1.000	20.5	61.6	20.5	20.5	8.873	8.698
8.00%	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	37.8	92.4	37.8	37.8	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	19.823	19.994
20.00%	1.000	56.5	138.6	56.5	56.5	21.773	22.127
20.00%	1.000	15.4	138.6	15.4	138.6	24.703	25.057
20.00%	1.000	37.8	215.6	37.8	37.8	24.113	23.469

Alph. 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) = .351683

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

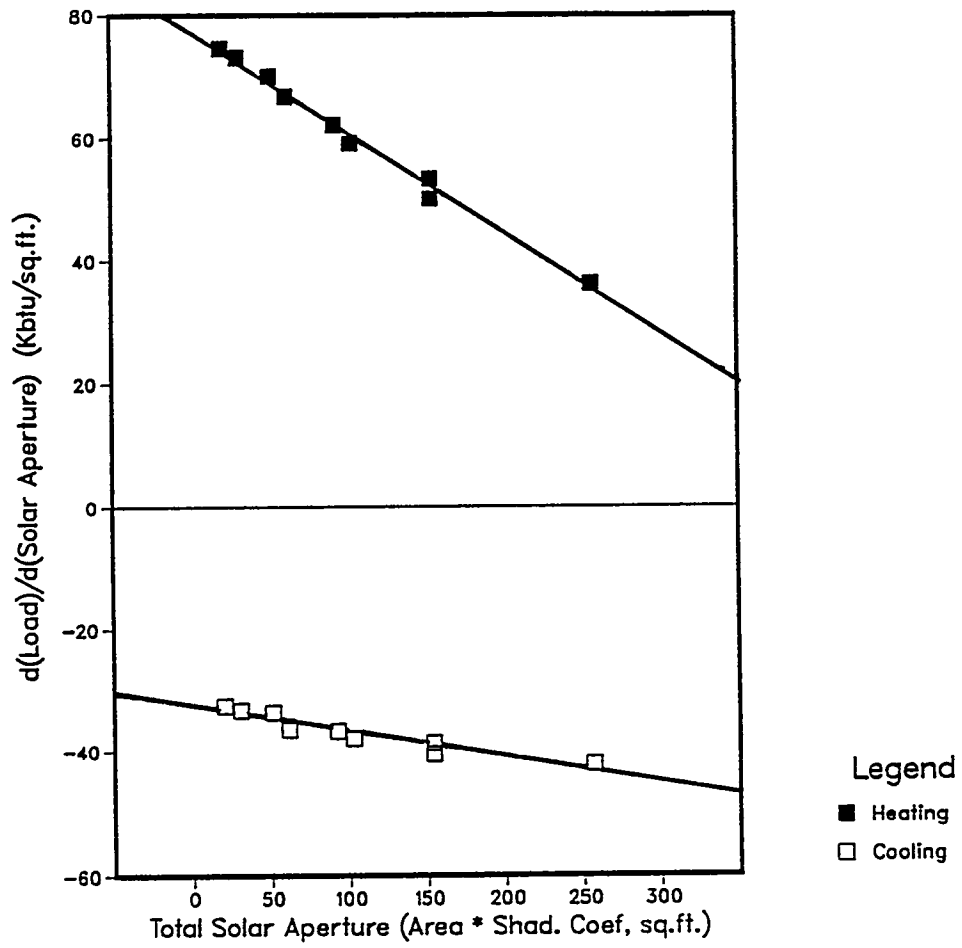


Figure 2.23 Multi-linear Correlation of Δ Cooling Loads to Solar Aperture in Phoenix

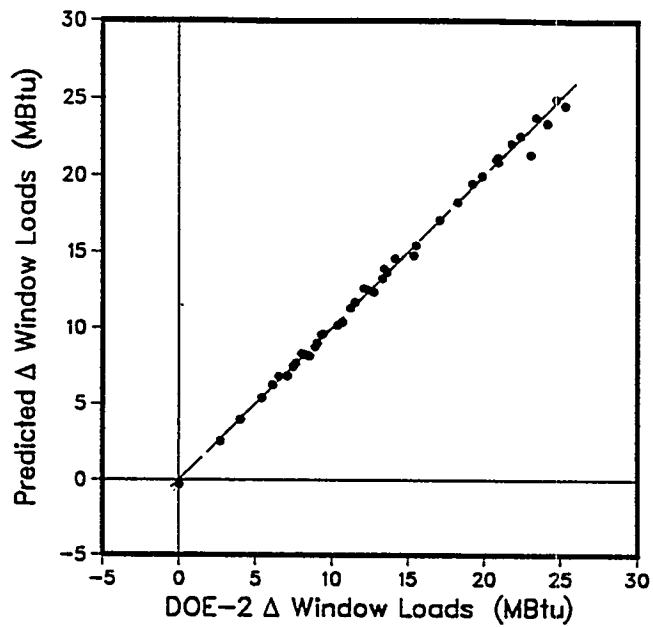
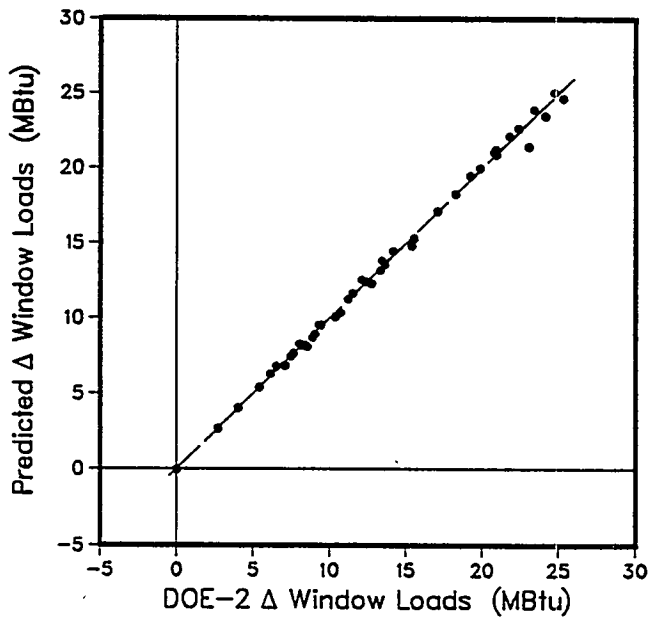


Figure 2.24 Correlation of Δ Heating Loads to Solar Aperture * Solar Usability in Phoenix



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 3.8 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

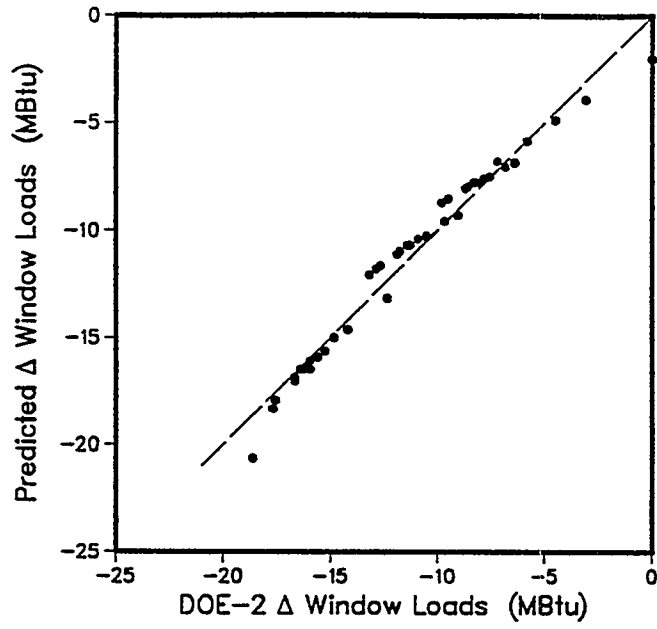
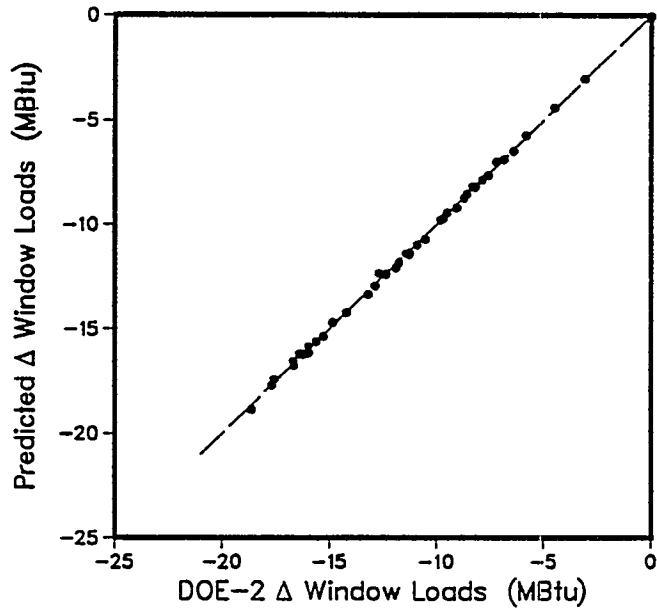


Figure 2.26 Correlation of Δ Heating Loads to Solar Aperture * Solar Usability in Albuquerque



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)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
Ceiling	.00	.00	19.81	Ceiling	.00	10.22	10.22
R-0	-21.01	-11.65	9.44	R-0	-9.44	4.09	4.09
R-7	-24.37	-13.31	7.96	R-7	-10.95	3.11	3.11
R-11	-27.38	-15.32	6.18	R-11	-12.30	2.23	2.23
R-19	-28.52	-16.31	5.29	R-19	-12.82	1.89	1.89
R-22	-30.05	-17.95	3.84	R-22	-13.63	1.44	1.44
R-30	-30.97	-18.95	2.96	R-30	-13.95	1.16	1.16
R-38	-31.77			R-38	-14.33	.91	.91
R-49	-32.28			R-49	-14.68	.75	.75
R-60				R-60			
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		Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-0	-16.12	R-0	-8.95	R-0	-4.66	R-0	-2.63
R-5 2ft	-19.37	R-5 4ft	-14.13	R-5 2ft	-4.63	R-5 4ft	-2.91
R-5 4ft	-19.96	R-5 8ft	-15.20	R-5 4ft	-4.46	R-5 8ft	-2.93
R-10 2ft	-20.01	R-10 4ft	-15.42	R-10 2ft	-4.51	R-10 4ft	-3.01
R-10 4ft	-20.81	R-10 8ft	-17.02	R-10 4ft	-4.42	R-10 8ft	-3.06
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		Unheated Basement (/sf)		Crawl	
R-0	-8.95	R-0	14.76	R-0	-2.63	R-0	.00
R-11 fir	-17.49	R-11 fir	-16.95	R-11 fir	-1.14	R-11 fir	.35
R-19 fir	-19.79	R-19 fir	-19.79	R-19 fir	-.81	R-19 fir	.25
R-30 fir	-21.27	R-30 fir	-21.41	R-30 fir	-.59	R-30 fir	.20
		R-38 fir	-21.78	R-38 fir		R-38 fir	.19
		R-49 fir	-22.85	R-49 fir		R-49 fir	.16
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 fir)		Window U-value		Infiltration (/sf fir)		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.71)	.00	.0007(.53)	.00	.0007(.53)	.00	.0007(.53)	.00
.0005(.50)	-4.46	.0005(.38)	-9.11	.0005(.38)	-.24	.0005(.38)	-.41
.0003(.30)	-8.48	.0003(.23)	-11.59	.0003(.23)	-.46	.0003(.23)	-.49
		R-10	-14.50			R-10	-.58
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

Albuquerque NM WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-8.96	R-7	-5.03	R-7	-3.88	R-7	-1.10
R-11	-10.39	R-11	6.48	R-11	4.19	R-11	2.41
R-19	-11.68	R-13	4.34	R-19	-5.75	R-13	1.26
R-22	-12.10	R-19	-6.52	R-19	-6.06	R-13	-1.49
R-30	-12.65	R-27	4.03	R-22	-5.26	R-19	-1.61
R-38	-12.99	R-27	2.72	R-30	-6.54	R-27	-1.77
R-49	-13.26	R-34	2.25	R-38	-6.70	R-34	-1.87
R-60	-13.41	R-34	-7.75	R-49	-5.85	R-34	.80
				R-60	-5.95		
Slope(DD)	3889.57	Slope(DD)	2715.90	Slope(DD)	2086.42	Slope(DD)	1020.93
Curve(DDS)	21.183	Curve(DDS)	134.966	Curve(DDS)	-45.295	Curve(DDS)	-26.401
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-6.89	R-0	-4.74	R-0	-1.81	R-0	-0.89
R-5 2ft	-7.59	R-5 4ft	82.75	R-5 2ft	-1.77	R-5 4ft	19.22
R-5 4ft	-7.69	R-5 8ft	-6.23	R-5 4ft	-1.75	R-5 8ft	-0.94
R-10 2ft	-7.70	R-10 4ft	-6.48	R-10 2ft	-1.76	R-10 4ft	-0.93
R-10 4ft	-7.82	R-10 8ft	-6.52	R-10 4ft	-1.73	R-10 8ft	-0.95
Intercept	.000	Intercept	15.486	Intercept	.000	Intercept	18.199
Slope(DD)	1880.64	Slope(DD)	1673.11	Slope(DD)	-751.14	Slope(DD)	-44.78
Curve(DDS)	140.817	Curve(DDS)	7.027	Curve(DDS)	37.261	Curve(DDS)	1.977
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.74	R-0	.00	R-0	-0.89	R-0	.00
R-11 flr	-6.61	R-11 flr	-5.85	R-11 flr	-0.40	R-11 flr	.22
R-19 flr	-7.16	R-19 flr	-6.75	R-19 flr	-0.29	R-19 flr	.19
R-30 flr	-7.51	R-30 flr	1.37	R-30 flr	-0.22	R-30 flr	.19
		R-38 flr	1.18	R-38 flr	2.40	R-38 flr	.19
		R-49 flr	.66	R-49 flr	2.700	R-49 flr	.19
		Intercept	-635	Intercept	-402.69	Intercept	2.993
		Slope(DD)	2482.80	Slope(DD)	24.593	Slope(DD)	135.56
		Curve(DDS)	50.227	Curve(DDS)	24.593	Curve(DDS)	-35.102
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		Window U-value	
.0007(.69)	.00	1-Pane	.00	.0007(.69)	.00	1-Pane	.00
.0005(.50)	-3.15	2-Pane	-6.37	.0005(.38)	-0.14	2-Pane	-0.14
.0003(.29)	-5.53	3-Pane	-7.64	.0003(.23)	-0.22	3-Pane	-0.12
		R-10	-9.13			R-10	-0.09
Slope/.001ELF	3.500	Slope(DD)	1459.66	Slope/.001ELF	-0.167	Slope(DD)	-97.54
Curve/.001ELF	8.021	Curve(DDS)	40.931	Curve/.001ELF	.625	Curve(DDS)	4.296

Base Load = 20.12 MBtu
 Typical Load = 11.89 MBtu
 Residual Load = 4.25 MBtu

Base Load = 45.68 MBtu
 Typical Load = 17.51 MBtu
 Residual Load = 6.49 MBtu

Albuquerque NM WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	18.72	R-0	.00	R-0	.00
R-7	-9.27	R-7	-3.45	R-7	-4.08	R-7	-0.67
R-11	-10.75	R-11	-3.94	R-11	-4.73	R-11	-0.76
R-19	-12.08	R-13	-4.45	R-19	-5.32	R-13	-0.89
R-22	-12.49	R-19	-4.70	R-22	-5.54	R-19	-0.95
R-30	-13.04	R-27	-5.04	R-30	-5.84	R-27	-1.04
R-38	-13.37	R-34	-5.26	R-38	-6.02	R-34	-1.09
R-49	-13.60			R-49	-6.16		
R-60	-13.75			R-60	-6.26		
Slope(DD)	3696.75	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	R-0	-5.89	R-0	-1.26	R-0	-0.75
R-5 2ft	-8.19	R-5 4ft	-7.30	R-5 2ft	-1.24	R-5 4ft	-0.80
R-5 4ft	-8.28	R-5 8ft	-7.53	R-5 4ft	-1.22	R-5 8ft	-0.79
R-10 2ft	-8.29	R-10 4ft	-7.58	R-10 2ft	-1.23	R-10 4ft	-0.81
R-10 4ft	-8.40	R-10 8ft	-7.84	R-10 4ft	-1.20	R-10 8ft	-0.82
Intercept	.000	Intercept	5.186	Intercept	.000	Intercept	9.502
Slope(DD)	2328.29	Slope(DD)	2083.38	Slope(DD)	-996.23	Slope(DD)	116.84
Curve(DDS)	131.368	Curve(DDS)	7.005	Curve(DDS)	57.554	Curve(DDS)	-0.884
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.89	R-0	.00	R-0	-0.75	R-0	.00
R-11 flr	-7.46	R-11 flr	-6.33	R-11 flr	-0.31	R-11 flr	.24
R-19 flr	-7.96	R-19 flr	-7.31	R-19 flr	-0.21	R-19 flr	.23
R-30 flr	-8.28	R-30 flr	-7.85	R-30 flr	-0.14	R-30 flr	.22
		R-38 flr	-7.97	R-38 flr		R-38 flr	.21
		R-49 flr	-8.33	R-49 flr		R-49 flr	.20
Intercept	-0.884	Intercept	-0.934	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		ELF Ach		ELF Ach		ELF Ach	
.0007(.69)	.00	1-Pane	.00	.0007(.53)	.00	1-Pane	.00
.0005(.50)	-3.19	2-Pane	-6.52	.0005(.38)	-0.15	2-Pane	-0.21
.0003(.29)	-5.59	3-Pane	-7.69	.0003(.23)	-0.25	3-Pane	-0.24
		R-10	-9.06			R-10	-0.28
Slope/.001ELF	3.416	Slope(DD)	1152.98	Slope/.001ELF	-0.104	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	Base Load =	17.96 MBtu	Base Load =	17.96 MBtu
Typical Load =	16.25 MBtu	Typical Load =	10.49 MBtu	Typical Load =	10.49 MBtu	Typical Load =	10.49 MBtu
Residual Load =	6.57 MBtu	Residual Load =	6.57 MBtu	Residual Load =	2.94 MBtu	Residual Load =	2.94 MBtu

Atlanta GA WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)
Roof	19.18	17.13	8.24	Roof	8.24	Roof	3.62
R-7	7.58	8.20	3.28	R-7	3.28	R-7	1.87
R-11	5.73	6.92	2.49	R-11	2.49	R-11	1.62
R-19	4.06	5.40	1.78	R-19	1.78	R-19	1.28
R-22	3.44	4.84	1.51	R-22	1.51	R-19	1.11
R-30	2.60	3.35	1.16	R-30	1.16	R-27	.81
R-38	2.10	2.56	.93	R-38	.93	R-34	.62
R-49	1.66		.73	R-49	.73		
R-60	1.37		.60	R-60	.60		
Slope(DD)	3776.18	3300.40	1664.39	Slope(DD)	1664.39	Slope(DD)	819.03
Curve(DDS)	-91.553	-21.403	-46.398	Curve(DDS)	-46.398	Curve(DDS)	-27.136
Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)
Roof	39.94	7.18	60.36	Roof	60.36	Roof	3.27
R-5	21.50	10.70	31.15	R-5	31.15	R-5	1.22
R-10	16.84	11.96	31.58	R-10	31.58	R-5	1.16
R-10	18.55	11.59	33.79	R-10	33.79	R-10	.68
R-10	11.26	13.38	23.01	R-10	23.01	R-10	.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
Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)
Roof	6.51	11.17	11.17	Roof	11.17	Roof	1.92
R-11	1.69	14.44	1.79	R-11	1.79	R-11	2.70
R-19	.48	16.72	.31	R-19	.31	R-19	2.83
R-30	-.31	18.02	-.53	R-30	-.53	R-30	3.00
R-38		18.32	-.73	R-38	-.73	R-38	3.04
R-49		19.18	-1.28	R-49	-1.28	R-49	3.16
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)	30.367
Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)
Roof	8.30	76.60	76.60	Roof	76.60	Roof	2.60
R-11	5.70	8.02	33.20	R-11	33.20	R-11	2.28
R-30	3.28	10.29	20.94	R-30	20.94	R-30	1.51
R-10		12.95	6.52	R-10	6.52	R-10	-.60
Slope/.001ELF	10.260	Slope(DD)	2760.08	Slope/.001ELF	3.312	Slope(DD)	-269.92
Curve/.001ELF	2.273	Curve(DDS)	5.363	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

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Heating Load				Cooling Load				
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	
Roof	19.31	15.75	Roof	7.50	Wall	0.00	Roof	1.93
R-7	7.24	4.18	R-7	2.93	R-0	-0.78	R-7	1.34
R-11	8.40	4.78	R-11	3.40	R-11	-0.87	R-11	1.11
R-19	9.44	5.42	R-19	3.82	R-13	-0.90	R-13	0.04
R-22	9.78	5.74	R-22	3.95	R-19	-0.92	R-19	0.00
R-30	10.24	6.24	R-30	4.12	R-27	-0.94	R-27	0.04
R-38	10.51	6.54	R-38	4.23	R-34	-0.95	R-34	0.06
R-49	10.73	6.73	R-49	4.24				
R-60	10.87	6.87	R-60	4.25				
Slope(DD)	3226.31	2522.10	Slope(DD)	939.79	Slope(DD)	-142.35	Slope(DD)	-142.35
Curve(DDS)	5.259	75.598	Curve(DDS)	54.904	Curve(DDS)	93.285	Curve(DDS)	93.285
Slab	(/ft)	Heated Basement (/ft)	Slab	(/ft)	Heated Basement (/ft)			
R-0	-5.03	-3.91	R-0	-1.98	R-0	-0.75	R-0	-2.14
R-5 2ft	-5.70	-4.97	R-5 2ft	-1.93	R-5 4ft	-0.81	R-5 4ft	-3.64
R-5 4ft	-5.87	-5.26	R-5 4ft	-1.88	R-5 8ft	-0.79	R-5 8ft	-3.14
R-10 2ft	-6.79	-6.18	R-10 2ft	-1.91	R-10 4ft	-0.81	R-10 4ft	-3.64
R-10 4ft	-6.00	-5.54	R-10 4ft	-1.85	R-10 8ft	-0.77	R-10 8ft	-2.64
Intercept	-2.679	Intercept	Intercept	-25.694	Intercept	-0.00	Intercept	0.00
Slope(DD)	1960.11	Slope(DD)	Slope(DD)	-1214.10	Slope(DD)	-299.05	Slope(DD)	-299.05
Curve(DDS)	54.873	Curve(DDS)	Curve(DDS)	51.066	Curve(DDS)	5.947	Curve(DDS)	5.947
Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		
R-0	-3.91	0.00	R-0	-0.75	R-0	0.00	R-0	1.11
R-11 flr	-5.52	-5.04	R-11 flr	0.36	R-11 flr	0.68	R-11 flr	2.24
R-19 flr	-6.01	-5.81	R-19 flr	0.63	R-19 flr	0.82	R-19 flr	2.47
R-30 flr	-6.32	-6.23	R-30 flr	0.80	R-30 flr	0.94	R-30 flr	2.68
		R-38 flr	-6.33	R-38 flr	0.97	R-38 flr	2.72	
		R-49 flr	-6.61	R-49 flr	1.05	R-49 flr	2.88	
Intercept	-1.584	Intercept	-1.751	Intercept	3.191	Intercept	3.122	
Slope(DD)	1943.81	Slope(DD)	2156.78	Slope(DD)	-1008.19	Slope(DD)	-604.31	
Curve(DDS)	-172.207	Curve(DDS)	40.449	Curve(DDS)	69.844	Curve(DDS)	41.232	
Infiltration (/sf flr)		Infiltration (/sf flr)		Infiltration (/sf flr)		Infiltration (/sf flr)		
ELF Ach		ELF Ach		ELF Ach		ELF Ach		
0.0007(.75)	0.00	0.0007(.49)	0.00	0.0007(.49)	0.00	0.0007(.49)	0.00	
0.0005(.55)	-2.89	0.0005(.35)	-4.81	0.0005(.35)	-4.48	0.0005(.35)	-11.81	
0.0003(.34)	-5.32	0.0003(.21)	-9.83	0.0003(.21)	-9.98	0.0003(.21)	-7.79	
		R-10	-8.27	R-10	1.62	R-10	-3.08	
Slope/.001ELF	6.292	Slope(DD)	1568.58	Slope/.001ELF	2.000	Slope(DD)	-1375.63	
Curve/.001ELF	4.792	Curve(DDS)	28.505	Curve/.001ELF	0.000	Curve(DDS)	31.574	
Base Load =	38.46 MBtu	Base Load =	20.78 MBtu	Base Load =	20.78 MBtu	Base Load =	20.78 MBtu	
Typical Load =	8.75 MBtu	Typical Load =	14.70 MBtu	Typical Load =	14.70 MBtu	Typical Load =	14.70 MBtu	
Residual Load =	2.61 MBtu	Residual Load =	8.79 MBtu	Residual Load =	8.79 MBtu	Residual Load =	8.79 MBtu	

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)
R-0	.00	R-0	15.44	R-0	.00
R-7	-7.07	R-7	6.59	R-7	-2.80
R-11	-8.20	R-11	5.33	R-11	-3.25
R-19	-9.22	R-13	4.03	R-19	-3.65
R-22	-9.53	R-19	3.38	R-22	-3.70
R-30	-9.98	R-27	2.43	R-30	-3.76
R-38	-10.22	R-34	1.85	R-38	-3.80
R-49	-10.41			R-49	-3.83
R-60	-10.53			R-60	-3.85

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)
2927.88	36.747	2249.34	115.689	220.60	147.911

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)
R-0	-5.62	R-0	4.77	R-0	-1.49
R-5 2ft	-6.18	R-5 4ft	32.69	R-5 2ft	-1.45
R-5 4ft	-6.31	R-5 8ft	24.85	R-5 4ft	-1.41
R-10 2ft	-6.25	R-10 4ft	26.52	R-10 2ft	-1.45
R-10 4ft	-6.42	R-10 8ft	17.02	R-10 4ft	-1.39
Intercept	2.721	Intercept	.000	Intercept	-19.625
Slope(DD)	1891.96	Slope(DD)	1447.29	Slope(DD)	-1444.60
Curve(DDS)	76.556	Curve(DDS)	3.330	Curve(DDS)	63.345

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)
R-0	-4.77	R-0	11.24	R-0	-1.49
R-11 flr	-6.10	R-11 flr	2.34	R-11 flr	.45
R-19 flr	-6.48	R-19 flr	1.06	R-19 flr	.78
R-30 flr	-6.73	R-30 flr	.34	R-30 flr	1.00
Intercept	-1.085	R-38 flr	.18	Intercept	3.752
Slope(DD)	1512.54	R-49 flr	-0.30	Slope(DD)	-1362.68
Curve(DDS)	-128.177	Intercept	-1.371	Curve(DDS)	129.129

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window	U-value	Infiltration	(/sf flr)
ELF Ach	.007	1-Pane	59.12	ELF Ach	.007
.0007(.75)	.00	2-Pane	20.30	.0007(.49)	.00
.0005(.55)	-2.88	3-Pane	12.48	.0005(.36)	-.47
.0003(.34)	-5.23	R-10	3.28	.0003(.21)	-.88

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slope/.001ELF	Curve/.001ELF	Slope(DD)	Curve(DDS)	Slope/.001ELF	Curve/.001ELF
5.375	5.521	1313.67	36.081	1.250	.573

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Heated Basement	(/ft)	Window	U-value	Window	U-value
R-0	-5.62	1-Pane	15.64	1-Pane	.00
R-5 4ft	-6.31	2-Pane	13.35	2-Pane	.33
R-10 4ft	-6.42	3-Pane	8.82	3-Pane	.98
Intercept	2.721	R-10	-3.49	R-10	1.75
Slope(DD)	1891.96	Intercept	-1671.39	Slope(DD)	-1671.39
Curve(DDS)	76.556	Slope(DD)	37.077	Curve(DDS)	37.077

Base Load = 18.91 MBtu
 Typical Load = 13.73 MBtu
 Residual Load = 8.19 MBtu

Birmingham AL WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Roof	16.00	14.15	8.13	8.13	8.13
R-7	6.37	6.92	3.24	3.24	3.24
R-11	4.83	5.89	2.46	2.46	2.46
R-19	3.45	4.60	1.76	1.76	1.76
R-22	2.92	3.96	1.49	1.49	1.49
R-30	2.21	2.87	1.13	1.13	1.13
R-38	1.78	2.21	.92	.92	.92
R-49	1.41	2.21	.72	.72	.72
R-60	1.17	2.21	.59	.59	.59
Slope(DD)	3220.21	2856.59	1645.37	1645.37	1645.37
Curve(DDS)	-88.017	-41.958	-46.202	-46.202	-46.202

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Roof	16.00	14.15	8.13	8.13	8.13
R-7	6.37	6.92	3.24	3.24	3.24
R-11	4.83	5.89	2.46	2.46	2.46
R-19	3.45	4.60	1.76	1.76	1.76
R-22	2.92	3.96	1.49	1.49	1.49
R-30	2.21	2.87	1.13	1.13	1.13
R-38	1.78	2.21	.92	.92	.92
R-49	1.41	2.21	.72	.72	.72
R-60	1.17	2.21	.59	.59	.59
Slope(DD)	3220.21	2856.59	1645.37	1645.37	1645.37
Curve(DDS)	-88.017	-41.958	-46.202	-46.202	-46.202

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Roof	16.00	14.15	8.13	8.13	8.13
R-7	6.37	6.92	3.24	3.24	3.24
R-11	4.83	5.89	2.46	2.46	2.46
R-19	3.45	4.60	1.76	1.76	1.76
R-22	2.92	3.96	1.49	1.49	1.49
R-30	2.21	2.87	1.13	1.13	1.13
R-38	1.78	2.21	.92	.92	.92
R-49	1.41	2.21	.72	.72	.72
R-60	1.17	2.21	.59	.59	.59
Slope(DD)	3220.21	2856.59	1645.37	1645.37	1645.37
Curve(DDS)	-88.017	-41.958	-46.202	-46.202	-46.202

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Roof	16.00	14.15	8.13	8.13	8.13
R-7	6.37	6.92	3.24	3.24	3.24
R-11	4.83	5.89	2.46	2.46	2.46
R-19	3.45	4.60	1.76	1.76	1.76
R-22	2.92	3.96	1.49	1.49	1.49
R-30	2.21	2.87	1.13	1.13	1.13
R-38	1.78	2.21	.92	.92	.92
R-49	1.41	2.21	.72	.72	.72
R-60	1.17	2.21	.59	.59	.59
Slope(DD)	3220.21	2856.59	1645.37	1645.37	1645.37
Curve(DDS)	-88.017	-41.958	-46.202	-46.202	-46.202

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	16.99	Roof	13.33	Roof	7.77
R-7	6.36	R-7	5.80	R-7	5.80
R-11	4.67	R-11	4.72	R-11	2.19
R-19	3.14	R-13	3.58	R-19	1.50
R-22	2.64	R-19	4.93	R-13	1.33
R-30	1.97	R-27	5.32	R-22	1.27
R-38	1.56	R-34	5.56	R-30	0.96
R-49	1.25			R-38	0.77
R-60	1.06			R-49	0.60
				R-60	0.50
Slope(DD)	2825.01	Slope(DD)	2024.77	Slope(DD)	1368.30
Curve(DDS)	6.912	Curve(DDS)	84.304	Curve(DDS)	-9.528

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Slab	25.70	Slab	49.45	Slab	5.99
R-0	4.46	R-0	3.51	R-0	2.79
R-5	5.06	R-5	4.47	R-5	2.80
R-10	7.20	R-5	4.70	R-5	2.77
R-10	8.70	R-10	4.65	R-10	2.80
R-10	4.95	R-10	4.92	R-10	2.73
Intercept	0.00	Intercept	2.070	Intercept	0.00
Slope(DD)	918.22	Slope(DD)	1025.00	Slope(DD)	-1485.10
Curve(DDS)	91.674	Curve(DDS)	2.868	Curve(DDS)	80.605

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement	3.30	Unheated Basement	9.15	Unheated Basement	2.22
R-11	4.93	R-11	1.61	R-11	0.40
R-19	5.34	R-19	5.16	R-19	3.91
R-30	5.60	R-30	5.46	R-30	4.12
Intercept	-1.368	Intercept	-1.243	Intercept	4.661
Slope(DD)	1608.53	Slope(DD)	1537.74	Slope(DD)	-729.77
Curve(DDS)	-136.293	Curve(DDS)	95.247	Curve(DDS)	49.386

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration	5.65	Infiltration	45.46	Infiltration	2.03
Roof	3.40	Roof	15.46	Roof	1.43
R-7	1.66	R-7	9.50	R-7	0.84
Intercept	3.625	Intercept	987.83	Intercept	2.750
Slope(DD)	6.354	Slope(DD)	27.813	Slope(DD)	0.208
Curve(DDS)		Curve(DDS)		Curve(DDS)	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	4.04	Roof	4.04	Roof	0.00
R-7	1.89	R-7	1.89	R-7	-1.02
R-11	1.59	R-11	1.59	R-11	-1.17
R-13	1.26	R-13	1.26	R-13	-1.33
R-19	1.08	R-19	1.08	R-19	-1.41
R-27	0.77	R-27	0.77	R-27	-1.56
R-34	0.58	R-34	0.58	R-34	-1.65
Slope(DD)	749.57	Slope(DD)	749.57	Slope(DD)	749.57
Curve(DDS)	0.293	Curve(DDS)	0.293	Curve(DDS)	0.293

Base Load = 26.40 MBtu
 Typical Load = 17.95 MBtu
 Residual Load = 8.39 MBtu

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	17.20	13.18	
R-7	6.23	5.50	
R-11	4.48	4.41	
R-19	2.90	3.28	
R-22	2.42	2.72	
R-30	1.78	1.97	
R-38	1.40	1.51	
R-49	1.14		
R-60	.98		
Slope(DD)	2544.62	1794.88	
Curve(DDS)	60.234	121.914	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	3.80	7.78	
R-7	1.65	2.91	
R-11	1.34	2.13	
R-13	.99	1.43	
R-19	.82	1.20	
R-27	.60	.90	
R-34	.47	.71	
Wall			
R-0	.00	.00	
R-7	-.68	-2.92	
R-11	-.78	-3.39	
R-13	-.89	-3.81	
R-19	-.94	-3.94	
R-27	-1.01	-4.13	
R-34	-1.05	-4.24	
Slab			
R-0	.00	.00	
R-11	2.13	-3.39	
R-19	1.43	-3.81	
R-22	1.20	-3.94	
R-30	.90	-4.13	
R-38	.71	-4.24	
R-49	.57	-4.32	
R-60	.48	-4.38	
Slope(DD)	1287.99		
Curve(DDS)	-3.968		

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	30.12	54.12	
R-5	13.46	23.96	
R-10	9.62	16.98	
R-11	11.29	18.12	
R-18	8.62	10.46	
Intercept	.000	-3.355	
Slope(DD)	1415.64	1128.12	
Curve(DDS)	80.199	6.288	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	9.81	1.68	
R-11	1.77	2.88	
R-19	.64	3.20	
R-30	.09	3.41	
R-38	-.04		
R-49	-.40		
Intercept	-1.298	3.955	
Slope(DD)	1661.81	-742.03	
Curve(DDS)	98.167	58.274	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	17.20	13.18	
R-7	6.23	5.50	
R-11	4.48	4.41	
R-19	2.90	3.28	
R-22	2.42	2.72	
R-30	1.78	1.97	
R-38	1.40	1.51	
R-49	1.14		
R-60	.98		
Slope(DD)	2544.62	1794.88	
Curve(DDS)	60.234	121.914	

Bismarck ND WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load				
Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)		
Roof	.00	49.78	.00	46.98	48.98	.00	4.35	
R-7	-45.95	19.94	-26.65	23.28	-4.01	1.75	1.75	
R-11	-53.29	15.17	-30.45	19.88	-4.65	1.33	1.33	
R-19	-59.88	10.89	-35.15	15.70	-5.23	.98	.98	
R-22	-62.44	9.23	-37.48	13.63	-5.45	.81	.81	
R-30	-65.86	7.01	-41.78	9.82	-5.75	.62	.62	
R-38	-67.93	5.67	-44.39	7.48	-5.93	.50	.50	
R-49	-69.80	4.45			-6.10	.39	.39	
R-60	-71.00	3.67			-6.21	.32	.32	
Slope(DD)	10196.38		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
Heated Basement (/ft)				Heated Basement (/ft)				
R-0	-30.45	69.56	-16.90	151.19	-4.13	-3.40	-3.00	3.41
R-5	-38.03	23.90	-25.13	101.61	-3.97	-2.43	-3.39	1.06
R-5	-40.32	10.10	-28.05	84.02	-3.88	-1.89	-3.40	1.00
R-10	-39.47	15.22	-27.27	88.72	-3.94	-2.25	-3.49	.46
R-10	-42.71	-4.30	-31.82	61.31	-3.80	-1.41	-3.50	.40
Intercept	-45.887		Intercept	.000	Intercept	.514	Intercept	.000
Slope(DD)	13282.32		Slope(DD)	6573.48	Slope(DD)	-869.17	Slope(DD)	19.500
Curve(DDS)	-257.153		Curve(DDS)	-69.160	Curve(DDS)	28.515	Curve(DDS)	1.742
Unheated Basement (/sf)				Unheated Basement (/sf)				
R-0	-16.90	16.30	.00	27.27	-3.00	.37	.00	2.32
R-11	-40.22	1.15	-41.93	.04	-1.28	1.48	.57	2.69
R-19	-46.89	-3.18	-49.20	-4.68	-.79	1.54	.63	2.72
R-30	-51.18	-5.96	-53.90	-7.73	-.38	2.07	.70	2.77
Intercept	-13.486		Intercept	-10.43	Intercept	2.698	Intercept	2.849
Slope(DD)	10241.98		Slope(DD)	-14.994	Slope(DD)	-861.68	Slope(DD)	-100.41
Curve(DDS)	-864.685		Curve(DDS)	-228.785	Curve(DDS)	79.423	Curve(DDS)	-7.712
Infiltration (/sf fir) Window U-value (/sf)				Infiltration (/sf fir) Window U-value (/sf)				
ELF Ach	.00	31.80	.00	226.21	.00	.43	.00	2.31
.0007(.89)	.00	22.63	.00	109.65	.00	.26	.00	1.17
.0005(.64)	-14.13	13.52	-21.54	69.87	-.25	.13	-.21	1.75
.0003(.38)	-28.15	13.52	-28.89	69.87	-.45	.13	-.29	.75
			R-10	-37.54			R-10	-.38
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				
Typical Load = 94.28 MBtu				Typical Load = 2.98 MBtu				
Residual Load = 14.27 MBtu				Residual Load = -2.91 MBtu				

Bismarck ND WYEC Mid Town Prototype Siding Series Two

Heating Load			Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	
Coiling		Coiling			Wall	
R-0	.00	R-0	.00	4.37	R-0	.00
R-7	-19.04	R-7	-11.48	1.75	R-7	-50
R-11	-22.08	R-11	-13.12	1.33	R-11	-57
R-19	-24.81	R-13	-15.08	.96	R-13	-69
R-22	-25.81	R-19	-16.05	.81	R-19	-75
R-30	-27.15	R-27	-17.77	.62	R-27	-84
R-38	-27.96	R-34	-18.83	.50	R-34	-90
R-49	-28.67			.39		
R-60	-29.12			.32		
Slope(DD)	10013.88	Slope(DD)	9194.23	890.41	Slope(DD)	599.93
Curve(DDS)	-204.826	Curve(DDS)	-98.660	-25.945	Curve(DDS)	-30.424
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement
R-0	-14.87	R-0	-10.31	188.13	R-0	-1.59
R-5 2ft	-16.77	R-5 4ft	-13.16	116.88	R-5 2ft	-1.51
R-5 4ft	-17.32	R-5 8ft	-14.02	95.38	R-5 4ft	-1.47
R-10 2ft	-17.12	R-10 4ft	-13.84	99.88	R-10 2ft	-1.49
R-10 4ft	-17.87	R-10 8ft	-15.09	68.63	R-10 4ft	-1.43
Intercept	-39.816	Intercept	.000		Intercept	-3.572
Slope(DD)	12186.66	Slope(DD)	7159.45		Slope(DD)	-1243.39
Curve(DDS)	-170.286	Curve(DDS)	-59.881		Curve(DDS)	50.216
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl
R-0	-10.31	R-0	.00	29.73	R-0	-1.07
R-11 flr	-15.95	R-11 flr	-15.54	3.83	R-11 flr	.44
R-19 flr	-17.93	R-19 flr	-18.24	-.67	R-19 flr	-.25
R-30 flr	-19.20	R-30 flr	-19.94	-3.51	R-30 flr	-1.12
Intercept	-8.185	R-38 flr	-20.33	-4.16	R-38 flr	1.70
Slope(DD)	8141.35	R-49 flr	-21.45	-6.03	R-49 flr	.41
Curve(DDS)	-799.405	Intercept	-10.348		Intercept	2.276
Infiltration	(/sf flr)	Slope(DD)	8838.60		Slope(DD)	-781.34
ELF Ach		Curve(DDS)	-199.638		Curve(DDS)	70.437
.0007(.89)	.00	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value
.0005(.65)	-10.78	1-Pane	.00	213.11	ELF Ach	
.0003(.40)	-21.18	2-Pane	-16.58	97.97	.0007(.89)	.00
		3-Pane	-21.74	62.13	.0005(.65)	-.15
		R-10	-27.81	19.99	.0003(.29)	-.32
Slope/.001ELF	40.167	Slope(DD)	8538.58		Slope/.001ELF	.875
Curve/.001ELF	3.958	Curve(DDS)	-17.660		Curve/.001ELF	-.208
Base Load =	128.76 MBtu	Base Load =	9.87 MBtu		Base Load =	9.87 MBtu
Typical Load =	44.23 MBtu	Typical Load =	6.42 MBtu		Typical Load =	6.42 MBtu
Residual Load =	3.51 MBtu	Residual Load =	1.68 MBtu		Residual Load =	1.68 MBtu

Heating Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (/sf)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -18.63	R-7 -7.83	R-7 -18.63	R-7 -7.83	R-7 -1.67	R-7 -1.13
R-11 -21.60	R-11 -8.95	R-11 -21.60	R-11 -8.95	R-11 -1.82	R-11 -1.37
R-19 -24.28	R-13 -10.25	R-13 -10.25	R-13 -10.25	R-19 -2.05	R-13 -1.44
R-22 -25.24	R-19 -10.89	R-19 -10.89	R-19 -10.89	R-22 -2.13	R-19 -1.47
R-30 -26.54	R-27 -12.01	R-27 -12.01	R-27 -12.01	R-30 -2.24	R-27 -1.52
R-38 -27.32	R-34 -12.70	R-34 -12.70	R-34 -12.70	R-38 -2.31	R-27 -1.52
R-49 -27.99				R-49 -2.37	R-34 -1.55
R-60 -28.42				R-60 -2.42	R-34 -1.55
Slope(DD) 9590.92	Slope(DD) 8891.27	Slope(DD) 8891.27	Slope(DD) 8891.27	Slope(DD) 863.84	Slope(DD) 493.41
Curve(DDS) -170.816	Curve(DDS) -29.383	Curve(DDS) -29.383	Curve(DDS) -29.383	Curve(DDS) -22.395	Curve(DDS) -17.864

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (/sf)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -1.67	R-7 1.72	R-7 -1.67	R-7 1.72	R-7 -1.67	R-7 1.13
R-11 -1.82	R-11 1.30	R-11 -1.82	R-11 1.30	R-11 -1.82	R-11 0.98
R-19 -2.05	R-19 .93	R-19 -2.05	R-19 .93	R-19 -2.05	R-13 .75
R-22 -2.13	R-22 .79	R-22 -2.13	R-22 .79	R-22 -2.13	R-19 .64
R-30 -2.24	R-30 .60	R-30 -2.24	R-30 .60	R-30 -2.24	R-27 .48
R-38 -2.31	R-38 .48	R-38 -2.31	R-38 .48	R-38 -2.31	R-34 .39
R-49 -2.37	R-49 .38	R-49 -2.37	R-49 .38	R-49 -2.37	
R-60 -2.42	R-60 .31	R-60 -2.42	R-60 .31	R-60 -2.42	
Slope(DD) 863.84	Slope(DD) 493.41	Slope(DD) 863.84	Slope(DD) 493.41	Slope(DD) 863.84	Slope(DD) 493.41
Curve(DDS) -22.395	Curve(DDS) -17.864	Curve(DDS) -22.395	Curve(DDS) -17.864	Curve(DDS) -22.395	Curve(DDS) -17.864

Heated Basement (/ft)

Slab	Heated Basement (/ft)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (/sf)
R-0	R-0	-16.10	96.21	-1.14
R-5 2ft	R-5 4ft	-17.61	45.87	-1.09
R-5 4ft	R-5 8ft	-18.06	31.04	-1.08
R-10 2ft	R-10 4ft	-17.89	36.71	-1.08
R-10 4ft	R-10 8ft	-18.51	16.04	-1.04
Intercept	Intercept	-27.017	.000	.196
Slope(DD) 13593.62	Slope(DD) 8071.34	Slope(DD) 13593.62	Slope(DD) 8071.34	Slope(DD) -1129.15
Curve(DDS) -221.731	Curve(DDS) -62.728	Curve(DDS) -221.731	Curve(DDS) -62.728	Curve(DDS) 48.225

Unheated Basement (/sf)

Unheated Basement (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (/sf)
R-0	-12.41	10.97	.04
R-11 flr	-16.91	3.47	-.45
R-19 flr	-18.64	.57	-.30
R-30 flr	-19.76	-1.29	-2.20
Intercept	-6.548		1.723
Slope(DD) 7275.23	Slope(DD) 8961.55	Slope(DD) 7275.23	Slope(DD) -647.56
Curve(DDS) -752.608	Curve(DDS) -199.908	Curve(DDS) -752.608	Curve(DDS) 82.424

Window U-value (/sf)

Window U-value (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (/sf)
1-Pane	.00	214.12	.44
2-Pane	-10.78	97.32	-.16
3-Pane	-21.09	61.65	-.32
R-10	-27.99	19.71	-.32
Slope/.001ELF	39.041	8407.35	.562
Curve/.001ELF	4.898	-11.238	.104

Base Load = 121.82 MBtu
 Typical Load = 41.03 MBtu
 Residual Load = 3.77 MBtu

Base Load = 8.43 MBtu
 Typical Load = 4.42 MBtu
 Residual Load = 1.05 MBtu

Boise ID WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Boise ID	WYEC	One Story Prototype Siding	Series Two	Boise ID	WYEC	One Story Prototype Siding	Series Two
Delta Component (MBtu)				Delta Component (MBtu)			
Ceiling (/sf)				Ceiling (/sf)			
R-0	.00	32.86		R-0	.00	6.65	
R-7	-30.37	13.13		R-7	-6.12	2.67	
R-11	-36.22	9.98		R-11	-7.10	2.04	
R-19	-39.58	7.15		R-19	-7.98	1.47	
R-22	-41.28	6.08		R-22	-8.32	1.25	
R-30	-43.52	4.60		R-30	-8.78	.95	
R-38	-44.88	3.71		R-38	-9.08	.77	
R-49	-46.10	2.92		R-49	-9.32	.60	
R-60	-46.88	2.41		R-60	-9.48	.49	
Slope(DD) 6687.88				Slope(DD) 1377.36			
Curve(DDS) -193.322				Curve(DDS) -43.127			
Delta Component (KBtu)				Delta Component (KBtu)			
Wall (/sf)				Wall (/sf)			
R-0	.00	30.91		R-0	.00	3.17	
R-7	-17.69	15.16		R-7	-1.68	1.67	
R-11	-20.21	12.92		R-11	-1.92	1.46	
R-13	-23.31	10.16		R-13	-2.29	1.13	
R-19	-24.85	8.79		R-19	-2.47	.97	
R-27	-27.60	6.34		R-27	-2.75	.72	
R-34	-29.29	4.84		R-34	-2.92	.57	
Slope(DD) 6311.30				Slope(DD) 739.23			
Curve(DDS) -105.096				Curve(DDS) -27.742			
Delta Component (KBtu)				Delta Component (KBtu)			
Slab (/ft)				Slab (/ft)			
Heated Basement (/ft)				Heated Basement (/ft)			
R-0	-18.18	54.75		R-0	-4.33	-5.42	
R-5 2ft	-23.39	23.36		R-5 2ft	-4.17	-4.45	
R-5 4ft	-24.90	14.27		R-5 4ft	-4.08	-3.91	
R-10 2ft	-24.36	17.52		R-10 2ft	-4.14	-4.27	
R-10 4ft	-26.43	5.05		R-10 4ft	-4.02	-3.55	
Intercept	-20.883	.000		Intercept	-1.975	.000	
Slope(DD)	8533.45	4463.26		Slope(DD)	-554.83	38.16	
Curve(DDS)	-155.085	-45.670		Curve(DDS)	22.038	1.389	
Delta Component (KBtu)				Delta Component (KBtu)			
Unheated Basement (/sf)				Unheated Basement (/sf)			
Crawl (/sf)				Crawl (/sf)			
R-0	-10.22	11.07		R-0	-2.82	.40	
R-11 flr	-25.20	1.34		R-11 flr	-1.33	1.38	
R-19 flr	-29.33	-1.34		R-19 flr	-.89	1.65	
R-30 flr	-31.99	-3.07		R-30 flr	-.60	1.64	
Intercept	-7.697	-8.522		Intercept	2.343	2.43	
Slope(DD)	6288.91	5599.02		Slope(DD)	-688.86	77.84	
Curve(DDS)	-512.712	-94.387		Curve(DDS)	60.322	-21.348	
Delta Component (KBtu)				Delta Component (KBtu)			
Infiltration (/sf flr)				Infiltration (/sf flr)			
Window U-value (/sf)				Window U-value (/sf)			
ELF Ach				ELF Ach			
.0007(.77)	.00	16.21		.0007(.58)	.00	.48	
.0005(.55)	-7.32	11.46		.0005(.40)	-.20	.35	
.0003(.33)	-14.49	6.80		.0003(.24)	-.41	.22	
Slope(.001ELF) 22.304				Slope(.001ELF) .747			
Curve(.001ELF) 1.218				Curve(.001ELF) -.081			
Delta Component (KBtu)				Delta Component (KBtu)			
Window U-value (/sf)				Window U-value (/sf)			
1-Pane				1-Pane			
2-Pane				2-Pane			
3-Pane				3-Pane			
R-10				R-10			
Slope(DD) 6013.87				Slope(DD) 234.85			
Curve(DDS) -23.056				Curve(DDS) -2.377			
Delta Component (KBtu)				Delta Component (KBtu)			
Base Load = 156.15 MBtu				Base Load = 20.80 MBtu			
Typical Load = 49.29 MBtu				Typical Load = 5.46 MBtu			
Residual Load = 6.68 MBtu				Residual Load = -3.16 MBtu			

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Ceiling	
R-0	.00	R-0	.00
R-7	-12.59	R-7	-2.40
R-11	-14.60	R-11	-2.79
R-19	-16.41	R-19	-3.13
R-22	-17.05	R-22	-3.27
R-30	-17.90	R-30	-3.46
R-38	-18.41	R-38	-3.67
R-49	-18.84	R-49	-3.67
R-60	-19.12	R-60	-3.74
Slope(DD)	6233.86	Slope(DD)	1449.07
Curve(DDS)	-79.941	Curve(DDS)	-62.284

Cooling Load

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Wall		Wall	
R-0	.00	R-0	.00
R-7	-7.63	R-7	-0.78
R-11	-8.60	R-11	-0.89
R-19	-9.84	R-19	-1.07
R-22	-10.46	R-22	-1.16
R-30	-11.48	R-30	-1.28
R-38	-12.10	R-38	-1.36
R-49	-12.10	R-49	-1.36
R-60	-12.10	R-60	-1.36
Slope(DD)	5389.99	Slope(DD)	817.95
Curve(DDS)	21.901	Curve(DDS)	-31.359

Heating Load

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Slab		Slab	
R-0	-8.85	R-0	-1.64
R-5 2ft	-10.10	R-5 2ft	-1.58
R-5 4ft	-10.42	R-5 4ft	-1.55
R-10 2ft	-10.31	R-10 2ft	-1.57
R-10 4ft	-10.74	R-10 4ft	-1.52
Intercept	-17.474	Intercept	-8.145
Slope(DD)	6846.82	Slope(DD)	-975.75
Curve(DDS)	-46.318	Curve(DDS)	41.617

Cooling Load

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Heated Basement		Heated Basement	
R-0	-8.85	R-0	-1.64
R-5 4ft	-10.10	R-5 4ft	-1.58
R-5 8ft	-11.50	R-5 8ft	-1.09
R-10 4ft	-8.53	R-10 4ft	-1.11
R-10 8ft	-9.28	R-10 8ft	-1.10
Intercept	-17.474	Intercept	-8.145
Slope(DD)	4145.31	Slope(DD)	-975.75
Curve(DDS)	-29.830	Curve(DDS)	41.617

Unheated Basement

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Unheated Basement		Unheated Basement	
R-0	-6.19	R-0	-1.00
R-11 fir	-9.71	R-11 fir	-0.48
R-19 fir	-10.88	R-19 fir	-0.28
R-30 fir	-11.64	R-30 fir	-0.17
Intercept	-4.762	Intercept	2.049
Slope(DD)	4788.31	Slope(DD)	-716.49
Curve(DDS)	-455.800	Curve(DDS)	67.261

Infiltration

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Infiltration		Infiltration	
ELF Ach	.0007	ELF Ach	.0007
1-Pane	-0.13	1-Pane	-0.14
2-Pane	-0.13	2-Pane	-0.14
3-Pane	-0.13	3-Pane	-0.14
R-10	-16.24	R-10	-0.25
Slope/.001ELF	15.624	Slope/.001ELF	.208
Curve/.001ELF	6.042	Curve/.001ELF	.313

Window U-value

Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Window U-value		Window U-value	
1-Pane	123.05	1-Pane	.00
2-Pane	52.70	2-Pane	-0.19
3-Pane	33.20	3-Pane	-0.25
R-10	10.27	R-10	-0.32
Slope(DD)	4336.90	Slope(DD)	.208
Curve(DDS)	12.270	Curve(DDS)	.313

Base Load

Base Load =	13.28 MBtu
Typical Load =	7.13 MBtu
Residual Load =	1.90 MBtu

Boise ID WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Boise ID	WYEC	MApartment Prototype Siding	Series Two	Boise ID	WYEC	MApartment Prototype Siding	Series Two
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)		Ceiling (/sf)		Ceiling (/sf)		Ceiling (/sf)	
R-0	.00	33.12	.00	R-0	.00	6.77	.00
R-7	-12.31	12.60	-5.12	R-7	-2.41	2.76	-.48
R-11	-14.27	9.33	-5.85	R-11	-2.79	2.12	-.55
R-19	-16.04	6.38	-6.66	R-19	-3.14	1.54	-.65
R-22	-16.64	5.38	-7.06	R-22	-3.28	1.31	-.70
R-30	-17.46	4.02	-7.72	R-30	-3.47	.99	-.79
R-38	-17.95	3.21	-8.13	R-38	-3.59	.80	-.85
R-49	-18.33	2.57		R-49	-3.69	.83	
R-60	-18.58	2.15		R-60	-3.75	.52	
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
Curve(DDS)	5802.16	Curve(DDS)	5154.17	Curve(DDS)	1451.64	Curve(DDS)	786.42
	-36.494		68.930		-52.111		-33.407
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)		Heated Basement (/ft)	
R-0	-9.85	70.86	R-0	-1.22	-8.44	R-0	-.91
R-5 2ft	-10.87	37.03	R-5 4ft	-1.18	-7.11	R-5 4ft	-.95
R-5 4ft	-11.14	28.03	R-5 8ft	-1.16	-6.28	R-5 8ft	-.95
R-10 2ft	-11.05	31.20	R-10 4ft	-1.17	-6.78	R-10 4ft	-.97
R-10 4ft	-11.41	18.86	R-10 8ft	-1.14	-5.61	R-10 8ft	-.96
Intercept	-5.720	.000	Intercept	-2.895		Intercept	.000
Slope(DD)	7922.12	4847.16	Slope(DD)	-973.60		Slope(DD)	-10.65
Curve(DDS)	-92.347	-32.365	Curve(DDS)	42.676		Curve(DDS)	1.586
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-7.75	7.05	R-0	-.91	.10	R-0	.00
R-11 fir	-10.61	2.28	R-11 fir	-.47	.83	R-11 fir	.19
R-19 fir	-11.66	.54	R-19 fir	-.33	1.07	R-19 fir	.18
R-30 fir	-12.32	-.57	R-30 fir	-.23	1.22	R-30 fir	.16
			R-38 fir			R-38 fir	.15
			R-49 fir			R-49 fir	.14
Intercept	-3.698	-4.823	Intercept	1.643		Intercept	1.788
Slope(DD)	4311.44	5034.51	Slope(DD)	-581.30		Slope(DD)	143.43
Curve(DDS)	-431.970	-38.951	Curve(DDS)	54.791		Curve(DDS)	-34.699
Infiltration (/sf fir) Window U-value		ELF Ach		Infiltration (/sf fir) Window U-value		ELF Ach	
.0007(.77)	.00	13.60	.0007(.56)	.00	.40	1-Pane	.00
.0005(.58)	-5.50	9.02	.0005(.40)	-.16	.27	2-Pane	-.23
.0003(.35)	-10.33	4.99	.0003(.24)	-.30	.15	3-Pane	-.32
						R-10	-.41
Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)	
Curve/.001ELF	14.542	Curve(DDS)	4057.82	Curve/.001ELF	.458	Curve(DDS)	139.56
	6.979		21.324		.156		-.736
Base Load =		Base Load =		Base Load =		Base Load =	
Typical Load =		Typical Load =		Typical Load =		Typical Load =	
Residual Load =		Residual Load =		Residual Load =		Residual Load =	
	68.43 MBtu		18.14 MBtu		11.51 MBtu		5.88 MBtu
	18.14 MBtu		5.04 MBtu		5.88 MBtu		.65 MBtu
	5.04 MBtu						

Heating Load

Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling (/sf)	Wall (/sf)	(/sf)	(Kbtu)
R-0	.00	.00	32.05
R-7	-30.95	-18.38	15.69
R-11	-35.89	-21.00	13.36
R-19	-40.33	-24.17	10.54
R-22	-42.04	-25.74	9.14
R-30	-44.32	-28.63	6.57
R-38	-45.70	-30.40	5.00
R-49	-46.94		
R-60	-47.74		

Slope(DD) 6780.42
 Curve(DDS) -192.163

Slope(DD) 6532.83
 Curve(DDS) -106.827

Delta Component (/ft)		Delta Component (/ft)	
Slab	Heated Basement	Slab	Heated Basement
R-0	-21.09	-13.23	100.04
R-5 2ft	-26.30	4ft	-18.45
R-5 4ft	-27.86	8ft	-20.44
R-10 2ft	-27.28	4ft	-19.87
R-10 4ft	-29.46	8ft	-22.94
Intercept	-25.216	Intercept	.000
Slope(DD)	8397.27	Slope(DD)	4292.73
Curve(DDS)	-148.008	Curve(DDS)	-45.071

Unheated Basement (/sf)
 R-0 -13.23 10.78
 R-11 flr -29.16 .44
 R-19 flr -33.62 -2.45
 R-30 flr -36.48 -4.31

Intercept -9.319
 Slope(DD) 6802.93
 Curve(DDS) -562.190

Delta Component (/sf)		Delta Component (/sf)	
Infiltration	Window U-value	Window U-value	Window U-value
ELF Ach	1-Pane	2-Pane	3-Pane
.0007(.91)	.00	22.31	
.0005(.67)	-8.93	15.86	
.0003(.40)	-19.77	9.47	

Slope/.001ELF 31.363
 Curve/.001ELF .731

Base Load = 175.80 MBtu
 Typical Load = 60.30 MBtu
 Residual Load = 7.14 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling (/sf)	Wall (/sf)	(/sf)	(Kbtu)
R-0	.00	.00	1.66
R-7	-2.77	-1.36	.90
R-11	-3.21	-1.07	.79
R-19	-3.61	.81	.63
R-22	-3.80	.69	.54
R-30	-4.06	.53	.40
R-38	-4.21	.43	.31
R-49	-4.34		
R-60	-4.43		

Slope(DD) 783.17
 Curve(DDS) -42.224

Slope(DD) 412.87
 Curve(DDS) -19.532

Delta Component (/ft)		Delta Component (/ft)		
Slab	Heated Basement	Slab	Heated Basement	
R-0	-3.62	-2.63	-2.49	
R-5 2ft	-3.47	-1.73	4ft	-2.85
R-5 4ft	-3.38	-1.19	8ft	-2.89
R-10 2ft	-3.44	-1.55	4ft	-2.96
R-10 4ft	-3.31	-1.77	8ft	-3.01
Intercept	1.005	Intercept	.000	
Slope(DD)	-587.52	Slope(DD)	91.26	
Curve(DDS)	23.623	Curve(DDS)	.280	

Unheated Basement (/sf)
 R-0 -2.49 .45
 R-11 flr -1.65 1.97
 R-19 flr -.15 1.97
 R-30 flr .16 2.17

Intercept 2.711
 Slope(DD) -731.97
 Curve(DDS) 56.737

Delta Component (/sf)		Delta Component (/sf)	
Infiltration	Window U-value	Window U-value	Window U-value
ELF Ach	1-Pane	2-Pane	3-Pane
.0007(.73)	.00	.70	1.44
.0005(.52)	-.31	.50	.84
.0003(.31)	-.62	.30	.55

Slope/.001ELF 1.006
 Curve/.001ELF .000

Base Load = 12.82 MBtu
 Typical Load = 4.09 MBtu
 Residual Load = -2.66 MBtu

Boston MA WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	34.92	31.27	
R-7	12.82	7.85	14.79
R-11	14.86	8.97	12.44
R-19	16.70	10.26	9.73
R-22	17.36	10.90	8.39
R-30	18.25	12.03	6.02
R-38	18.78	12.72	4.57
R-49	19.23		
R-60	19.52		
Slope(DD)	6521.44	Slope(DD)	5898.01
Curve(DDS)	-106.568	Curve(DDS)	-15.849

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	54.33	122.33	
R-5 2ft	11.56	9.43	75.08
R-5 4ft	11.92	9.98	61.33
R-10 2ft	11.79	9.87	64.08
R-10 4ft	12.29	10.68	43.83
Intercept	-21.615	Intercept	.000
Slope(DD)	7543.72	Slope(DD)	4374.96
Curve(DDS)	-89.299	Curve(DDS)	-33.606

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	8.16	20.72	
R-11 flr	11.42	11.12	2.19
R-19 flr	12.72	12.94	-.84
R-30 flr	13.58	14.05	-2.69
R-38 flr		14.30	-3.11
R-49 flr		15.03	-4.33
Intercept	-5.746	Intercept	-7.126
Slope(DD)	5315.57	Slope(DD)	5659.00
Curve(DDS)	-507.945	Curve(DDS)	-44.511

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	20.41	145.04	
1-Pane			145.04
2-Pane	7.56	11.84	62.82
3-Pane	14.11	15.18	39.62
R-10		19.11	12.33
Slope(DD)	25.875	Slope(DD)	6219.61
Curve(DDS)	4.688	Curve(DDS)	10.395

Base Load = 85.28 MBtu
 Typical Load = 26.77 MBtu
 Residual Load = 1.58 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	.00	3.02	
R-7	-1.08	1.22	.68
R-11	-1.25	.93	.58
R-19	-1.41	.67	.42
R-22	-1.47	.57	.35
R-30	-1.55	.44	.27
R-38	-1.60	.38	.22
R-49	-1.65	.28	
R-60	-1.68	.22	
Slope(DD)	635.74	Slope(DD)	271.65
Curve(DDS)	-21.177	Curve(DDS)	-3.607

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	.00	3.02	
R-5 2ft	-1.36	-8.45	2.55
R-5 4ft	-1.31	-7.20	.80
R-10 2ft	-1.27	-6.20	.80
R-10 4ft	-1.30	-6.96	
R-10 8ft	-1.24	-5.45	.30
Intercept	-2.009	Intercept	.000
Slope(DD)	-1165.13	Slope(DD)	14.35
Curve(DDS)	52.518	Curve(DDS)	1.189

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	-.92	.17	
R-11 flr	-.18	1.40	.38
R-19 flr	.02	1.74	.50
R-30 flr	.15	1.95	.55
R-38 flr			.58
R-49 flr			.59
Intercept	2.529	Intercept	2.906
Slope(DD)	-781.24	Slope(DD)	-382.72
Curve(DDS)	62.631	Curve(DDS)	28.870

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Roof	.00	.00	
1-Pane			.00
2-Pane	.01	.01	-1.61
3-Pane	.09	.09	-1.07
R-10	.18	.18	-.43
Slope(DD)	.708	Slope(DD)	-196.34
Curve(DDS)	.000	Curve(DDS)	5.021

Base Load = 9.12 MBtu
 Typical Load = 5.89 MBtu
 Residual Load = 2.11 MBtu

Boston MA WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	34.11	.00
R-7	-12.60	13.10	-5.34
R-11	-14.82	9.75	-6.10
R-19	-16.42	6.73	-6.96
R-22	-17.06	5.68	-7.38
R-30	-17.90	4.28	-8.12
R-38	-18.41	3.43	-8.56
R-49	-18.84	2.72	-8.56
R-60	-19.11	2.26	-8.56
Slope(DD)	6163.12	5697.56	460.65
Curve(DDS)	-69.124	28.509	2.590

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	2.82	.00
R-7	-1.06	1.06	-1.06
R-11	-1.23	.77	-1.23
R-19	-1.39	.51	-1.39
R-22	-1.43	.43	-1.43
R-30	-1.50	.32	-1.50
R-38	-1.54	.26	-1.54
R-49	-1.57	.20	-1.57
R-60	-1.59	.17	-1.59
Slope(DD)	460.65	382.81	460.65
Curve(DDS)	2.590	-22.322	2.590

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-11.31	71.13	-9.07
R-5 2ft	-12.33	36.96	-10.80
R-5 4ft	-12.63	27.30	-11.31
R-10 2ft	-12.51	30.96	-11.20
R-10 4ft	-12.91	17.63	-11.91
Intercept	-9.237	.000	-1.927
Slope(DD)	8056.15	5061.53	-662.68
Curve(DDS)	-100.775	-36.393	20.822

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-1.04	-6.72	-1.04
R-5 2ft	-1.04	-6.72	-1.04
R-5 4ft	-1.04	-6.72	-1.04
R-10 2ft	-1.04	-6.72	-1.04
R-10 4ft	-1.04	-6.72	-1.04
Intercept	-1.927	.000	-1.927
Slope(DD)	-662.68	-102.27	-662.68
Curve(DDS)	20.822	2.981	20.822

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-9.07	7.28	.00
R-11 fir	-12.22	2.04	-11.43
R-19 fir	-13.38	.11	-13.28
R-30 fir	-14.12	-1.13	-14.41
R-38 fir	-14.66	-2.04	-14.66
R-49 fir	-16.41	-3.27	-16.41
Intercept	-4.604	-6.092	-6.092
Slope(DD)	4600.78	5712.39	-670.49
Curve(DDS)	-484.196	-30.183	60.133
Infiltration			
ELF Ach	.0007(.93)	20.24	.0007(.73)
1-Pane	.0005(.68)	13.93	.0005(.52)
2-Pane	.0003(.42)	8.04	.0003(.31)
3-Pane			
R-10			
Slope/.001ELF	25.229	4864.67	.500
Curve/.001ELF	5.261	21.685	.104

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-.82	.04	.00
R-11 fir	-.27	.96	.35
R-19 fir	-.10	1.23	.39
R-30 fir	.00	1.41	.43
R-38 fir	.00	1.41	.43
R-49 fir	.00	1.41	.43
Intercept	1.896	2.208	.46
Slope(DD)	-670.49	-124.08	-124.08
Curve(DDS)	60.133	-6.612	-6.612
Infiltration			
ELF Ach	.0007(.73)	.00	.00
1-Pane	.0005(.52)	.15	.01
2-Pane	.0003(.31)	.29	.11
3-Pane			
R-10			
Slope/.001ELF	.500	-326.28	.26
Curve/.001ELF	.104	8.737	.28

Base Load = 8.07 MBtu
 Typical Load = 5.20 MBtu
 Residual Load = 1.79 MBtu

Base Load = 80.84 MBtu
 Typical Load = 24.68 MBtu
 Residual Load = 1.96 MBtu

Brownsville TX WYEC One Story Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-4.87	R-7	R-7	-9.39	R-7
R-11	-5.64	R-11	R-11	-10.88	R-11
R-19	-6.34	R-13	R-19	-12.23	R-13
R-22	-6.55	R-19	R-22	-12.70	R-19
R-30	-6.84	R-27	R-30	-13.32	R-27
R-38	-7.01	R-34	R-38	-13.70	R-34
R-49	-7.14		R-49	-14.05	
R-60	-7.22		R-60	-14.27	
Slope(DD)	757.24	Slope(DD)	Slope(DD)	1823.09	Slope(DD)
Curve(DDS)	13.772	Curve(DDS)	Curve(DDS)	-25.187	Curve(DDS)
Slab		Heated Basement (/ft)	Slab		Heated Basement (/ft)
R-0	-3.85	R-0	R-0	-10.29	R-0
R-5 2ft	-4.18	R-5 4ft	R-5 2ft	-10.88	R-5 4ft
R-5 4ft	-4.23	R-5 8ft	R-5 4ft	-11.01	R-5 8ft
R-10 2ft	-4.22	R-10 4ft	R-10 2ft	-11.01	R-10 4ft
R-10 4ft	-4.26	R-10 8ft	R-10 4ft	-11.09	R-10 8ft
Intercept	.000	Intercept	Intercept	.000	Intercept
Slope(DD)	-58.37	Slope(DD)	Slope(DD)	173.02	Slope(DD)
Curve(DDS)	31.250	Curve(DDS)	Curve(DDS)	39.432	Curve(DDS)
Unheated Basement (/sf)		Crawl	Unheated Basement (/sf)		Crawl
R-0	-3.15	R-0	R-0	-4.37	R-0
R-11 flr	-3.98	R-11 flr	R-11 flr	-3.60	R-11 flr
R-19 flr	-4.13	R-19 flr	R-19 flr	-3.67	R-19 flr
R-30 flr	-4.23	R-30 flr	R-30 flr	-3.72	R-30 flr
Intercept	-.123	Intercept	Intercept	4.744	Intercept
Slope(DD)	202.10	Slope(DD)	Slope(DD)	220.56	Slope(DD)
Curve(DDS)	-6.857	Curve(DDS)	Curve(DDS)	-53.728	Curve(DDS)
Infiltration (/sf flr)		Window U-value	Infiltration (/sf flr)		Window U-value
ELF Ach		1-Pane	ELF Ach		1-Pane
.0007(.73)	.00	2-Pane	.0007(.68)	.00	2-Pane
.0005(.52)	-.97	3-Pane	.0005(.48)	-4.01	3-Pane
.0003(.31)	-1.68	R-10	.0003(.30)	-8.27	R-10
Slope/.001ELF	.617	Slope(DD)	Slope/.001ELF	15.455	Slope(DD)
Curve/.001ELF	2.110	Curve(DDS)	Curve/.001ELF	-2.029	Curve(DDS)
Base Load =	19.74 MBtu	Base Load =	76.72 MBtu		
Typical Load =	5.45 MBtu	Typical Load =	45.57 MBtu		
Residual Load =	.19 MBtu	Residual Load =	11.31 MBtu		

Brownsville TX WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-1.90	R-7	-1.96	R-7	-3.48	R-7	-1.33
R-11	-2.20	R-11	-1.10	R-11	-4.03	R-11	-1.52
R-19	-2.47	R-13	-1.23	R-19	-4.53	R-13	-1.73
R-22	-2.54	R-19	-1.29	R-22	-4.67	R-19	-1.83
R-30	-2.64	R-27	-1.38	R-30	-4.87	R-27	-2.00
R-38	-2.70	R-34	-1.43	R-38	-4.97	R-34	-2.11
R-49	-2.74			R-49	-5.09		
R-60	-2.77			R-60	-5.17		
Slope(DD)	634.68	Slope(DD)	389.11	Slope(DD)	1387.94	Slope(DD)	882.80
Curve(DDS)	31.181	Curve(DDS)	42.970	Curve(DDS)	24.923	Curve(DDS)	12.967
Slab		Heated Basement		Slab		Heated Basement	
R-0	-1.43	R-0	-1.25	R-0	-3.91	R-0	-1.59
R-5 2ft	-1.48	R-5 4ft	-1.43	R-5 2ft	-4.03	R-5 4ft	-1.77
R-5 4ft	-1.49	R-5 8ft	-1.45	R-5 4ft	-4.03	R-5 8ft	-1.80
R-10 2ft	-1.49	R-10 4ft	-1.45	R-10 2ft	-4.05	R-10 4ft	-1.82
R-10 4ft	-1.50	R-10 8ft	-1.48	R-10 4ft	-4.04	R-10 8ft	-1.84
Intercept	.000	Intercept	.062	Intercept	.000	Intercept	52.238
Slope(DD)	131.62	Slope(DD)	86.00	Slope(DD)	-582.45	Slope(DD)	149.11
Curve(DDS)	8.872	Curve(DDS)	2.908	Curve(DDS)	79.563	Curve(DDS)	1.629
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-1.25	R-0	.00	R-0	-1.59	R-0	.00
R-11 fir	-1.41	R-11 fir	-1.07	R-11 fir	-1.08	R-11 fir	-1.18
R-19 fir	-1.45	R-19 fir	-1.20	R-19 fir	-1.07	R-19 fir	-1.40
R-30 fir	-1.47	R-30 fir	-1.27	R-30 fir	-1.06	R-30 fir	-1.50
Intercept	-0.19	R-38 fir	-1.28	R-38 fir	-1.06	R-38 fir	-1.52
Slope(DD)	135.12	R-49 fir	-1.32	R-49 fir	-1.06	R-49 fir	-1.58
Curve(DDS)	-8.565	Intercept	.174	Intercept	4.864	Intercept	5.218
Infiltration		Slope(DD)	286.61	Slope(DD)	78.90	Slope(DD)	861.61
ELF Ach		Curve(DDS)	33.781	Curve(DDS)	-47.740	Curve(DDS)	-113.015
.0007(.73)	.00	Window U-value		Infiltration		Window U-value	
.0005(.52)	1.13	1-Pane	.00	ELF Ach		1-Pane	.00
.0003(.31)	-1.09	2-Pane	-1.11	.0007(.68)	.00	2-Pane	-.38
Slope/.001ELF	.083	3-Pane	-1.29	.0005(.49)	-2.94	3-Pane	-.01
Curve/.001ELF	2.188	R-10	-1.51	.0003(.30)	-6.16	R-10	.46
			.43	Slope/.001ELF	15.625	Slope(DD)	-1089.67
				Curve/.001ELF	-2.812	Curve(DDS)	33.279
		Base Load =	8.49 MBtu				
		Typical Load =	2.79 MBtu				
		Residual Load =	.54 MBtu				
		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)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Heated Basement (/ft)	Slope(DD) 308.68	Ceiling (/sf)	Wall (/sf)	Heated Basement (/ft)	Slope(DD) 1004.92
R-0 .00	R-0 .00	R-0 1.67	Curve(DDS) 38.024	R-0 .00	R-0 .00	R-0 5.39	Curve(DDS) 18.393
R-7 -1.95	R-7 -.62	R-5 4ft .50		R-7 -3.61	R-7 3.51	R-5 2ft 1.22	
R-11 -2.26	R-11 -.71	R-5 8ft .34		R-11 -4.19	R-11 2.55	R-5 4ft 1.22	
R-19 -2.55	R-19 -.73	R-10 4ft .34		R-19 -4.71	R-19 1.89	R-10 2ft .72	
R-22 -2.62	R-22 -.83	R-10 8ft .17		R-22 -4.87	R-22 1.41	R-10 4ft -3.31	
R-30 -2.71	R-27 -.87	Intercept .000		R-30 -5.09	R-30 1.04	Intercept .000	
R-38 -2.77	R-34 -.91	Slope(DD) 12.31		R-38 -5.22	R-38 .82	Slope(DD) -113.88	
R-49 -2.81	R-49 -.28	Curve(DDS) 15.251		R-49 -5.32	R-49 .67	Curve(DDS) 64.419	
R-60 -2.84	R-60 .23			R-60 -5.38	R-60 .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)	Unheated Basement (/sf)		Slab (/ft)	Heated Basement (/ft)	Unheated Basement (/sf)	
R-0 -1.48	R-0 -1.38	R-0 .25		R-0 -3.16	R-0 5.39	R-0 3.17	
R-5 2ft -1.51	R-5 4ft -1.52	R-11 fir .07		R-5 2ft -3.28	R-5 2ft 1.22	R-11 fir -.61	
R-5 4ft -1.52	R-5 8ft -1.54	R-19 fir .02		R-5 4ft -3.30	R-5 4ft .72	R-19 fir -.79	
R-10 2ft -1.52	R-10 4ft -1.54	R-30 fir -.01		R-10 2ft -3.30	R-10 2ft .72	R-30 fir -.77	
R-10 4ft -1.52	R-10 8ft -1.56	Intercept -.085		R-10 4ft -3.31	R-10 4ft .22	Intercept 4.228	
Intercept .000	Intercept .097	Slope(DD) 104.06		Intercept .000	Intercept .000	Slope(DD) 61.39	
Slope(DD) 12.31	Slope(DD) 82.83	Curve(DDS) -7.533		Slope(DD) -113.88	Slope(DD) -113.88	Curve(DDS) -52.245	
Curve(DDS) 15.251	Curve(DDS) 3.197			Curve(DDS) 64.419	Curve(DDS) 64.419		
Unheated Basement (/sf)	Crawl (/sf)	Infiltration (/sf fir)		Unheated Basement (/sf)	Crawl (/sf)	Infiltration (/sf fir)	
R-0 -1.38	R-0 .25	ELF Ach .0007(-.73)		R-0 -1.42	R-0 3.17	Window U-value .00	
R-11 fir -1.49	R-11 fir .07	.0005(-.52)		R-11 fir -.61	R-11 fir 4.19	1-Pane .00	
R-19 fir -1.51	R-19 fir .02	.0003(-.31)		R-19 fir -.79	R-19 fir 4.22	2-Pane -.47	
R-30 fir -1.53	R-30 fir -.01			R-30 fir -.77	R-30 fir 4.24	3-Pane -.17	
Intercept -.085	Intercept .097	Slope/.001ELF 2.188		Intercept 4.228	Intercept 4.228	R-10 .17	
Slope(DD) 104.06	Slope(DD) 255.93	Curve/.001ELF 2.188		Slope(DD) 61.39	Slope(DD) 61.39	Slope(DD) -879.07	
Curve(DDS) -7.533	Curve(DDS) 43.048			Curve(DDS) -52.245	Curve(DDS) -52.245	Curve(DDS) 28.817	
Infiltration (/sf fir)	Window U-value (/sf)	Base Load = 7.90 MBtu		Infiltration (/sf fir)	Window U-value (/sf)	Typical Load = 37.69 MBtu	
ELF Ach .0007(-.73)	.00	.64 MBtu		ELF Ach .0007(-.68)	.00	Residual Load = 15.31 MBtu	
.0005(-.52)	1.07			.0005(-.49)	9.54		
.0003(-.31)	.55			.0003(-.30)	7.16		
	.20				4.50		
Slope/.001ELF -.000	Slope(DD) 146.96			Slope/.001ELF 16.042	Slope(DD) 1085.37		
Curve/.001ELF 2.188	Curve(DDS) 9.201			Curve/.001ELF -3.438	Curve(DDS) -163.147		

Buffalo NY	TMY	One Story Prototype Siding		Series Two		
		Heating Load		Cooling Load		
	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (KBtu)	
	Ceiling (/sf)		Ceiling (/sf)		Wall (/sf)	
R-0	.00	.00	R-0	.00	R-0	.00
R-7	-35.36	-20.90	R-7	-2.45	R-7	-61
R-11	-41.01	-23.87	R-11	-2.84	R-11	-70
R-19	-46.06	-27.51	R-19	-3.19	R-13	-85
R-22	-48.04	-29.31	R-22	-3.33	R-19	-93
R-30	-50.66	-32.63	R-30	-3.61	R-27	-104
R-38	-52.24	-34.67	R-38	-3.75	R-34	-111
R-49	-53.66		R-49	-3.75		
R-60	-54.58		R-60	-3.83		
Slope(DD)	7784.54	Slope(DD)	7549.53	Slope(DD)	587.12	
Curve(DDS)	-224.877	Curve(DDS)	-137.921	Curve(DDS)	-22.544	
Slab (/ft)		Heated Basement (/ft)		Slab (/ft)	Heated Basement (/ft)	
R-0	-24.55	R-0	-14.70	R-0	-2.91	
R-5 2ft	-30.49	R-5 4ft	-20.76	R-5 2ft	-2.27	
R-5 4ft	-32.27	R-5 8ft	-23.05	R-5 4ft	-2.76	
R-10 2ft	-31.59	R-10 4ft	-22.39	R-10 2ft	-2.66	
R-10 4ft	-34.11	R-10 8ft	-25.98	R-10 4ft	-2.72	
Intercept	-32.778	Intercept	.000	Intercept	1.764	
Slope(DD)	10224.06	Slope(DD)	6152.42	Slope(DD)	-706.77	
Curve(DDS)	-200.767	Curve(DDS)	-58.054	Curve(DDS)	30.918	
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)	Crawl (/sf)	
R-0	-14.70	R-0	.00	R-0	-2.04	
R-11 fir	-32.98	R-11 fir	-34.04	R-11 fir	-1.35	
R-19 fir	-38.07	R-19 fir	-39.75	R-19 fir	.03	
R-30 fir	-41.36	R-30 fir	-43.36	R-30 fir	.34	
Intercept	-10.512	R-38 fir	-44.18	R-38 fir	1.87	
Slope(DD)	7808.84	R-49 fir	-46.58	R-49 fir	1.48	
Curve(DDS)	-646.020	Intercept	-11.643	Intercept	2.421	
Infiltration (/sf fir)		Slope(DD)	7175.68	Slope(DD)	-760.52	
ELF Ach		Curve(DDS)	-116.516	Curve(DDS)	68.392	
.0007(.96)	.00	Window U-value (/sf)		Infiltration (/sf fir)	Window U-value (/sf)	
.0005(.69)	-11.64	1-Pane	.00	.0007(.70)	.24	
.0003(.43)	-23.17	2-Pane	-17.58	.0005(.50)	.15	
		3-Pane	-23.35	.0003(.30)	.08	
		R-10	-30.14			
Slope/.001ELF	36.721	Slope(DD)	7550.43	Slope/.001ELF	.227	
Curve/.001ELF	.893	Curve(DDS)	-30.202	Curve/.001ELF	.162	
Base Load =	205.37 MBtu	Base Load =	9.23 MBtu	Base Load =	9.23 MBtu	
Typical Load =	73.84 MBtu	Typical Load =	2.14 MBtu	Typical Load =	2.14 MBtu	
Residual Load =	8.90 MBtu	Residual Load =	-1.92 MBtu	Residual Load =	-1.92 MBtu	

Buffalo NY TMY Mid Town Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Roof	40.17	36.20	Roof	2.52	1.05
R-7	-14.72	15.63	R-7	-.92	-.22
R-11	-17.07	11.72	R-11	-1.07	-.53
R-19	-19.18	8.20	R-13	-1.20	-.39
R-22	-19.94	6.93	R-19	-1.25	-.35
R-30	-20.96	5.24	R-22	-1.31	-.26
R-38	-21.57	4.22	R-30	-1.35	-.38
R-49	-22.10	3.32	R-38	-1.39	-.40
R-60	-22.45	2.75	R-49	-1.41	-.22
Slope(DD)	7564.10	6960.26	Slope(DD)	486.30	268.16
Curve(DDS)	-133.141	-42.685	Curve(DDS)	-10.217	-13.359
Slab	(/ft)	(/ft)	Slab	(/ft)	(/ft)
R-0	-11.96	62.17	R-0	-1.13	-.78
R-5 2ft	-13.45	24.92	R-5 2ft	-1.07	-.84
R-5 4ft	-13.87	14.42	R-5 4ft	-1.05	-.79
R-10 2ft	-13.71	18.42	R-10 2ft	-1.03	-.85
R-10 4ft	-14.30	3.67	R-10 4ft	-1.03	-.82
Intercept	-26.623	.000	Intercept	-4.469	.000
Slope(DD)	9453.89	5591.85	Slope(DD)	-373.61	-89.09
Curve(DDS)	-140.507	-48.673	Curve(DDS)	-2.732	-2.489
Unheated Basement (/sf)	(/sf)	(/sf)	Unheated Basement (/sf)	(/sf)	(/sf)
R-0	-8.62	9.71	R-0	-.78	.00
R-11 flr	-13.04	2.34	R-11 flr	-.15	.47
R-19 flr	-14.55	-.17	R-19 flr	.15	.66
R-30 flr	-15.52	-1.79	R-30 flr	.31	.66
Intercept	-6.282	-7.997	Intercept	2.595	.68
Slope(DD)	6180.86	6736.84	Slope(DD)	-1035.61	-444.45
Curve(DDS)	-597.118	-93.956	Curve(DDS)	104.338	32.724
Infiltration (/sf flr)	(/sf flr)	(/sf flr)	Infiltration (/sf flr)	(/sf flr)	(/sf flr)
ELF Ach	.00	.00	ELF Ach	.00	.00
.0007(***)	-8.89	17.21	.0007(.70)	-.07	.08
.0005(.72)	-17.42	10.10	.0005(.50)	-.14	.15
.0003(.43)	-17.42	10.10	.0003(.30)	-.14	.15
Slope(/.001ELF)	32.541	6574.70	Slope(/.001ELF)	.292	-165.14
Curve(/.001ELF)	3.750	-5.600	Curve(/.001ELF)	.000	3.333

Base Load = 101.66 MBtu
 Typical Load = 34.46 MBtu
 Residual Load = .98 MBtu

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

Buffalo NY TMY MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (KBtu)	Delta Component (/sf)	Wall	Delta Component (KBtu)	Delta Component (/sf)
R-0	.00	R-0	.00	2.34	R-0	.00	.00
R-7	-14.43	R-7	-6.12	17.22	R-7	-.87	-.15
R-11	-16.73	R-11	-6.99	14.47	R-11	-1.01	-.17
R-19	-18.80	R-13	-7.99	11.32	R-13	-1.14	-.20
R-22	-19.53	R-19	-8.49	9.75	R-19	-1.17	-.22
R-30	-20.52	R-27	-9.36	7.00	R-27	-1.23	-.23
R-38	-21.11	R-34	-9.90	5.31	R-34	-1.26	-.25
R-49	-21.62				R-49	-1.30	-.18
R-60	-21.94				R-60	-1.32	-.14
Slope(DD)	7249.66	Slope(DD)	6840.95	416.08	Slope(DD)	178.54	
Curve(DDS)	-107.013	Curve(DDS)	-8.977	-3.494	Curve(DDS)	-1.502	
Heated Basement (/ft)				Heated Basement (/ft)			
R-0	-13.03	R-0	-10.29	168.80	R-0	-.79	-4.40
R-5	-14.20	R-5	-12.25	103.30	R-5	-.74	-2.90
R-10	-14.41	R-10	-12.71	88.14	R-10	-.74	-2.57
R-10	-14.89	R-10	-13.54	60.47	R-10	-.69	-1.07
Intercept	-17.417	Intercept	.000		Intercept	2.477	.000
Slope(DD)	10370.65	Slope(DD)	6183.67		Slope(DD)	-1246.66	-82.18
Curve(DDS)	-175.171	Curve(DDS)	-48.985		Curve(DDS)	56.469	2.843
Unheated Basement (/sf)				Unheated Basement (/sf)			
R-0	-10.29	R-0	.00	25.59	R-0	-.63	.05
R-11	-13.84	R-11	-12.91	4.07	R-11	-.17	.80
R-19	-15.16	R-19	-15.03	.54	R-19	-.01	1.08
R-30	-16.00	R-30	-16.37	-1.69	R-30	.10	1.26
Intercept	-5.041	R-38	-16.87	-2.19	R-38		
Slope(DD)	5463.17	R-49	-17.55	-3.66	R-49		
Curve(DDS)	-552.698	Intercept	-6.956		Intercept	1.767	2.112
		Slope(DD)	6755.34		Slope(DD)	-694.92	-317.10
		Curve(DDS)	-79.649		Curve(DDS)	70.105	23.231
Infiltration (/sf flr) Window U-value (/sf)				Infiltration (/sf flr) Window U-value (/sf)			
ELF Ach		ELF Ach			ELF Ach		
.0007(***)	.00	1-Pane	.00	169.02	1-Pane	.00	-2.77
.0005(.72)	-8.88	2-Pane	-13.54	75.00	2-Pane	.07	-2.25
.0003(.43)	-17.40	3-Pane	-17.51	47.41	3-Pane	.19	-1.48
		R-10	-22.19	14.96	R-10	.32	-.58
Slope/.001ELF	32.437	Slope(DD)	6356.96		Slope(DD)	-260.24	
Curve/.001ELF	3.802	Curve(DDS)	1.722		Curve(DDS)	5.887	
Base Load =	96.20 MBtu	Base Load =	5.82 MBtu		Typical Load =	3.70 MBtu	
Typical Load =	31.93 MBtu	Typical Load =	1.00 MBtu		Residual Load =	1.98 MBtu	
Residual Load =	1.00 MBtu	Residual Load =	1.00 MBtu				

Burlington VT TMY One Story Prototype Siding Series Two

Heating Load Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	.00	R-0	.00	.00
R-7	-38.85	16.94	R-7	-2.98	1.33
R-11	-45.06	12.91	R-11	-3.44	1.02
R-19	-50.63	9.29	R-19	-3.88	.75
R-22	-52.81	7.88	R-22	-4.04	.63
R-30	-56.73	5.98	R-30	-4.28	.47
R-38	-57.49	4.84	R-38	-4.43	.38
R-49	-59.08	3.80	R-49	-4.54	.31
R-60	-60.11	3.14	R-60	-4.61	.26
Slope(DD)	8707.19	8401.19	Slope(DD)	701.65	352.00
Curve(DDS)	-269.002	-164.760	Curve(DDS)	-25.782	-17.304
Slab			Slab		
Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0	-24.45	67.28	R-0	-2.56	-2.97
R-5	-31.36	25.65	R-5	-2.38	-1.89
R-5	-33.42	13.24	R-5	-2.28	-1.28
R-10	-32.65	17.88	R-10	-2.34	-1.65
R-10	-35.54	.47	R-10	-2.23	-.98
Intercept	-35.793	.000	Intercept	.512	.000
Slope(DD)	11229.48	5641.92	Slope(DD)	-477.19	-22.60
Curve(DDS)	-197.484	-58.748	Curve(DDS)	15.144	1.574
Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0	-13.68	14.25	R-0	-1.79	.18
R-11	-34.15	.95	R-11	-.21	1.21
R-19	-39.90	-2.78	R-19	.23	1.49
R-30	-43.60	-5.18	R-30	.51	1.67
Intercept	-11.649	-12.822	Intercept	2.165	2.268
Slope(DD)	8792.64	8031.50	Slope(DD)	-667.76	-199.55
Curve(DDS)	-729.907	-199.070	Curve(DDS)	54.732	3.782
Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)
Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.81)	.00	24.90	.0007(.56)	.00	.19
.0005(.58)	-11.13	17.67	.0005(.40)	-.07	.14
.0003(.35)	-22.12	10.53	.0003(.24)	-.16	.09
Slope/.001ELF	34.773	8585.09	Slope/.001ELF	.325	38.23
Curve/.001ELF	1.136	-48.552	Curve/.001ELF	-.081	-1.486

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

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

Burlington VT TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-16.18	R-7	-9.86	R-7	-1.11	R-7	-.27
R-11	-18.76	R-11	-11.26	R-11	-1.28	R-11	-.31
R-19	-21.08	R-13	-12.92	R-19	-1.44	R-13	-.38
R-22	-21.93	R-19	-13.75	R-22	-1.51	R-19	-.41
R-30	-23.08	R-27	-15.21	R-30	-1.60	R-27	-.47
R-38	-23.75	R-34	-16.11	R-38	-1.66	R-34	-.50
R-49	-24.35			R-49	-1.66		
R-60	-24.73			R-60	-1.67		
Slope(DD)	8475.64	Slope(DD)	7763.74	Slope(DD)	552.88	Slope(DD)	354.11
Curve(DDS)	-169.359	Curve(DDS)	-67.729	Curve(DDS)	-7.467	Curve(DDS)	-20.345
Slab		Heated Basement		Slab		Heated Basement	
R-0	-12.17	R-0	-8.49	R-0	-1.01	R-0	-.70
R-5 2ft	-13.89	R-5 4ft	-10.98	R-5 2ft	-.93	R-5 4ft	-.73
R-5 4ft	-14.37	R-5 8ft	-11.73	R-5 4ft	-.91	R-5 8ft	-.71
R-10 2ft	-14.20	R-10 4ft	-11.58	R-10 2ft	-.93	R-10 4ft	-.73
R-10 4ft	-14.85	R-10 8ft	-12.66	R-10 4ft	-.87	R-10 8ft	-.71
Intercept	-28.240	Intercept	.000	Intercept	-2.508	Intercept	.000
Slope(DD)	9904.23	Slope(DD)	5954.78	Slope(DD)	-932.79	Slope(DD)	-139.88
Curve(DDS)	-106.941	Curve(DDS)	-47.318	Curve(DDS)	34.214	Curve(DDS)	2.858
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-8.49	R-0	.00	R-0	-.70	R-0	.00
R-11 flr	-13.45	R-11 flr	-13.14	R-11 flr	.00	R-11 flr	.38
R-19 flr	-15.14	R-19 flr	-15.41	R-19 flr	.19	R-19 flr	.41
R-30 flr	-16.23	R-30 flr	-16.84	R-30 flr	.31	R-30 flr	.46
Intercept	-7.032	R-38 flr	-17.17	R-38 flr		R-38 flr	.47
Slope(DD)	6927.09	R-49 flr	-18.11	R-49 flr		R-49 flr	.50
Curve(DDS)	-668.759	Intercept	-8.781	Intercept	2.159	Intercept	1.979
		Slope(DD)	7419.60	Slope(DD)	-732.58	Slope(DD)	-145.48
		Curve(DDS)	-160.929	Curve(DDS)	58.298	Curve(DDS)	-4.979
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.83)	.00	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
.0005(.59)	-8.45	2-Pane	-13.77	.0005(.40)	-.04	2-Pane	.13
.0003(.36)	-16.50	3-Pane	-18.06	.0003(.24)	-.08	3-Pane	.24
		R-10	-23.10			R-10	.36
Slope/.001ELF	30.208	Slope(DD)	7095.28	Slope/.001ELF	.167	Slope(DD)	-233.21
Curve/.001ELF	4.167	Curve(DDS)	-14.767	Curve/.001ELF	.000	Curve(DDS)	4.495

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

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

Burlington VT TMY MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu) (Kbtu) Delta Component (MBtu) (Kbtu)

Ceiling (/sf) Wall (/sf) Ceiling (/sf) Wall (/sf)

R-0 .00 43.13 R-0 .00 40.14
 R-7 -15.81 16.77 R-7 -6.72 18.94
 R-11 -18.34 12.57 R-11 -7.68 16.93
 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 3.56
 R-60 -24.10 2.98

Slope(DD) 8092.48 Slope(DD) 7527.35
 Curve(DDS) -138.017 Curve(DDS) -12.101

Slab (/ft) Heated Basement (/ft) 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 -15.63 19.31 R-10 8ft -14.08 87.64
 Intercept -18.629 Intercept .000
 Slope(DD) 11686.81 Slope(DD) 6748.76
 Curve(DDS) -184.889 Curve(DDS) -49.912

Unheated Basement (/sf) Crawl (/sf) 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 -16.89 .68
 R-30 flr -16.77 -1.11 R-30 flr -17.15 -1.75
 R-38 flr -17.48 -2.30 R-38 flr -17.48 -2.30
 R-49 flr -18.44 -3.90 R-49 flr -18.44 -3.90
 Intercept -5.574 Intercept -7.557
 Slope(DD) 6167.77 Slope(DD) 7500.72
 Curve(DDS) -626.709 Curve(DDS) -154.621

Infiltration (/sf flr) Window U-value (/sf) Infiltration (/sf flr) Window U-value (/sf)

ELF Ach ELF Ach
 .0007(.81) .00 22.99 1-Pane .00 177.02
 .0005(.59) -8.45 15.95 2-Pane -13.97 80.00
 .0003(.36) -16.44 9.28 3-Pane -18.20 50.66
 R-10 -23.18 16.15 R-10 -23.18 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) Ceiling (/sf) Wall (/sf)

R-0 .00 3.20 R-0 .00 1.03
 R-7 -1.13 1.31 R-7 -0.15 .56
 R-11 -1.31 1.01 R-11 -0.17 .50
 R-19 -1.47 .74 R-13 -0.21 .38
 R-22 -1.54 .63 R-19 -0.22 .32
 R-30 -1.64 .47 R-27 -0.25 .25
 R-38 -1.69 .37 R-34 -0.26 .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) Slab (/ft) Heated Basement (/ft)

R-0 -0.66 -3.70 R-0 -0.54 .63
 R-5 2ft -0.62 -2.03 R-5 4ft -0.57 .38
 R-5 4ft -0.57 -0.53 R-5 8ft -0.56 .20
 R-10 2ft -0.60 -1.53 R-10 4ft -0.57 .63
 R-10 4ft -0.53 .80 R-10 8ft -0.56 .37
 Intercept 6.486 Intercept .000
 Slope(DD) -1972.88 Slope(DD) -49.75
 Curve(DDS) 94.518 Curve(DDS) 1.614

Unheated Basement (/sf) Crawl (/sf) Unheated Basement (/sf) Crawl (/sf)

R-0 -0.54 .03 R-0 .00 .92
 R-11 flr -0.10 .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-38 flr .60 1.92
 R-49 flr .68 2.08 R-49 flr .68 2.08
 Intercept 1.654 Intercept 2.226
 Slope(DD) -639.46 Slope(DD) -496.78
 Curve(DDS) 63.002 Curve(DDS) 47.388

Infiltration (/sf flr) Window U-value (/sf) Infiltration (/sf flr) Window U-value (/sf)

ELF Ach ELF Ach
 .0007(.58) .00 -.09 1-Pane .00 -3.61
 .0005(.40) -.06 -.13 2-Pane .14 -2.84
 .0003(.24) -.04 -.12 3-Pane .27 -1.73
 R-10 .42 -.68 R-10 .42 -.68

Slope/.001ELF -604 Slope(DD) -294.85
 Curve/.001ELF .677 Curve(DDS) 5.988

Base Load = 5.39 MBtu
 Typical Load = 2.99 MBtu
 Residual Load = 1.63 MBtu

Charleston SC WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	14.45	.00
R-7	-13.49	5.69	-7.35
R-11	-15.65	4.29	-8.40
R-19	-17.58	3.04	-9.67
R-22	-18.31	2.56	-10.30
R-30	-19.30	1.92	-11.23
R-38	-19.89	1.54	-11.60
R-49	-20.36	1.23	-11.80
R-60	-20.66	1.04	-11.80
Slope(DD)	2809.71	2195.23	
Curve(DDS)	-62.746	15.391	

Delta Component (KBtu)	(/sf)
Wall	
R-0	12.25
R-7	5.71
R-11	4.78
R-13	3.64
R-19	3.08
R-27	2.28
R-34	1.75
Slope(DD)	2195.23
Curve(DDS)	15.391

Delta Component (KBtu)	(/sf)
Heated Basement	
R-0	52.82
R-5 4ft	-7.08
R-5 8ft	-10.00
R-10 4ft	-10.81
R-10 8ft	-10.70
Intercept	-11.73
Slope(DD)	10.943
Curve(DDS)	1414.18
Unheated Basement	
R-0	-8.795
Slope(DD)	1776.59
Curve(DDS)	-129.158

Delta Component (KBtu)	(/sf)
Crawl	
R-0	10.29
R-11 fir	-11.08
R-19 fir	-12.77
R-30 fir	1.43
R-38 fir	1.30
R-49 fir	-14.41
Intercept	.000
Slope(DD)	1766.58
Curve(DDS)	46.877
Window U-value	
1-Pane	.00
2-Pane	-5.53
3-Pane	-6.67
R-10	-8.00
Slope(DD)	1054.92
Curve(DDS)	25.920

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

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	8.49	.00
R-7	-8.37	3.05	-2.71
R-11	-9.71	2.18	-3.10
R-19	-10.91	1.40	-3.51
R-22	-11.27	1.17	-3.71
R-30	-11.75	.86	-3.87
R-38	-12.04	.67	-3.97
R-49	-12.22	.55	-3.97
R-60	-12.34	.47	-3.97
Slope(DD)	1219.54	381.44	
Curve(DDS)	35.707	63.990	

Delta Component (KBtu)	(/sf)
Wall	
R-0	3.90
R-7	1.49
R-11	1.14
R-13	.78
R-19	.60
R-27	.46
R-34	.37
Slope(DD)	381.44
Curve(DDS)	63.990

Delta Component (KBtu)	(/sf)
Heated Basement	
R-0	-2.70
R-5 4ft	-2.89
R-5 8ft	-2.85
R-10 4ft	-2.94
R-10 8ft	-2.90
Intercept	-22.612
Slope(DD)	-44.29
Curve(DDS)	1.730
Unheated Basement	
R-0	-2.70
R-11 fir	-1.09
R-19 fir	-1.09
R-30 fir	-0.80
R-38 fir	-0.61
R-49 fir	.04
Intercept	-.131
Slope(DD)	-642.35
Curve(DDS)	41.332

Delta Component (KBtu)	(/sf)
Window U-value	
1-Pane	.00
2-Pane	.15
3-Pane	.55
R-10	1.03
Slope(DD)	-770.65
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 Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-5.67	R-7	-3.18	R-7	-3.09	R-7	-1.06
R-11	-6.58	R-11	-3.63	R-11	-3.59	R-11	-1.17
R-19	-7.39	R-13	-4.10	R-19	-4.03	R-13	-1.17
R-10 2ft	-4.84	R-22	-4.33	R-22	-4.15	R-19	-1.22
R-30	-7.99	R-19	-4.65	R-30	-4.25	R-27	-1.29
R-38	-8.20	R-34	-4.84	R-38	-4.33	R-34	-1.33
R-49	-8.35			R-49	-4.43		
R-60	-8.44			R-60	-4.49		
Slope(DD)	2342.91	Slope(DD)	1582.34	Slope(DD)	913.36	Slope(DD)	254.05
Curve(DDS)	30.303	Curve(DDS)	102.731	Curve(DDS)	67.726	Curve(DDS)	57.458

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-4.38	R-0	-3.49	R-0	-2.22	R-0	-0.78
R-5 2ft	-4.79	R-5 4ft	-4.30	R-5 2ft	-2.19	R-5 4ft	-0.79
R-5 4ft	-4.87	R-5 8ft	-4.46	R-5 4ft	-2.13	R-5 8ft	-0.78
R-10 2ft	-4.84	R-10 4ft	-4.45	R-10 2ft	-2.18	R-10 4ft	-0.81
R-10 4ft	-4.93	R-10 8ft	-4.62	R-10 4ft	-2.12	R-10 8ft	-0.76
Intercept	6.010	Intercept	8.485	Intercept	-69.110	Intercept	-36.999
Slope(DD)	608.02	Slope(DD)	715.65	Slope(DD)	-1304.48	Slope(DD)	-224.43
Curve(DDS)	85.990	Curve(DDS)	5.485	Curve(DDS)	67.958	Curve(DDS)	4.268

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-3.49	R-0	.00	R-0	-0.78	R-0	.00
R-11 flr	-4.49	R-11 flr	-3.83	R-11 flr	-0.02	R-11 flr	.62
R-19 flr	-4.75	R-19 flr	-4.36	R-19 flr	.21	R-19 flr	.67
R-30 flr	-4.92	R-30 flr	-4.63	R-30 flr	.35	R-30 flr	.72
Intercept	-0.135	R-38 flr	-4.69	Intercept	-0.078	R-38 flr	.73
Slope(DD)	1008.29	R-49 flr	-4.87	Slope(DD)	-894.86	R-49 flr	.78
Curve(DDS)	-77.650	Intercept	.000	Curve(DDS)	77.946	Intercept	.000
		Slope(DD)	1315.64	Slope(DD)	-136.58	Slope(DD)	-136.58
		Curve(DDS)	78.491	Curve(DDS)	-23.441	Curve(DDS)	-23.441

Delta Component (/sf flr)		Delta Component (/sf flr)		Delta Component (/sf flr)		Delta Component (/sf flr)	
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach	.0007(.74)	1-Pane	.00	ELF Ach	.0007(.63)	1-Pane	.00
.0005(.53)	-2.39	2-Pane	-3.83	.0005(.39)	-1.02	2-Pane	.36
.0003(.32)	-4.06	3-Pane	-4.57	.0003(.24)	-2.03	3-Pane	.94
		R-10	-5.44			R-10	1.63
Slope/.001ELF	.958	Slope(DD)	819.69	Slope/.001ELF	4.125	Slope(DD)	-1387.35
Curve/.001ELF	7.500	Curve(DDS)	26.128	Curve/.001ELF	.104	Curve(DDS)	31.881

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

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

Charleston SC WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	14.70	.00
R-7	-5.66	5.27	-2.13
R-11	-6.56	3.76	-2.43
R-19	-7.38	2.41	-2.73
R-22	-7.61	2.01	-2.88
R-30	-7.93	1.49	-3.07
R-38	-8.12	1.17	-3.19
R-49	-8.26	.94	
R-60	-8.34	.80	
Slope(DD)	2098.79	1399.24	
Curve(DDS)	64.225	129.276	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-4.81	24.07	-4.16
R-5 2ft	-5.15	12.74	-4.89
R-5 4ft	-5.20	10.91	-5.00
R-10 2ft	-5.18	11.57	-4.99
R-10 4ft	-5.25	9.41	-5.14
Intercept	7.347	4.949	
Slope(DD)	253.31	670.13	
Curve(DDS)	119.272	9.492	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-4.16	2.29	.00
R-11 flr	-4.94	.97	-4.13
R-19 flr	-5.15	.62	-4.68
R-30 flr	-5.29	.40	-4.91
R-38 flr			-4.97
R-49 flr			-5.12
Intercept	-.204	.000	
Slope(DD)	812.27	1162.65	
Curve(DDS)	-63.658	119.695	

Delta Component (KBtu)	(/sf flr)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach	.0007(.74)	4.19	.00
.0005(.53)	-2.38	2.21	-3.88
.0003(.32)	-4.00	.85	-4.56
Slope/.001ELF	.479	678.32	
Curve/.001ELF	7.865	30.392	

Base Load = 26.98 MBtu
 Typical Load = 10.66 MBtu
 Residual Load = 3.22 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	7.10	.00
R-7	-2.79	2.45	-2.13
R-11	-3.23	1.71	-2.43
R-19	-3.84	1.04	-2.73
R-22	-3.74	.87	-2.88
R-30	-3.87	.65	-3.07
R-38	-3.95	.51	-3.19
R-49	-4.02	.40	
R-60	-4.06	.33	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-1.61	-80.04	-4.16
R-5 2ft	-1.58	-79.04	-4.89
R-5 4ft	-1.58	-78.88	-5.00
R-10 2ft	-1.60	-79.71	-4.99
R-10 4ft	-1.55	-78.04	-5.14
Intercept	-75.592	-48.593	
Slope(DD)	-970.47	41.13	
Curve(DDS)	51.629	-1.014	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-.60	-2.33	.00
R-11 flr	.13	-1.11	.76
R-19 flr	.28	-.85	.79
R-30 flr	.38	-.69	.80
R-38 flr			.80
R-49 flr			.81
Intercept	-.263	.000	
Slope(DD)	-560.76	75.03	
Curve(DDS)	30.871	-64.782	

Delta Component (KBtu)	(/sf flr)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach	.0007(.53)	2.72	.00
.0005(.39)	-1.01	1.88	.35
.0003(.23)	-1.97	1.09	.91
Slope/.001ELF	3.417	-1331.57	
Curve/.001ELF	.677	30.544	

Base Load = 26.65 MBtu
 Typical Load = 21.08 MBtu
 Residual Load = 10.78 MBtu

Cheyenne WY WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
Ceiling	.00	41.67	.00	Ceiling	.00	3.43	.00
R-0	-38.46	16.69	-22.90	R-0	-3.28	1.31	-0.74
R-7	-44.60	12.70	-26.16	R-7	-3.78	.97	-.84
R-11	-50.12	9.12	-30.14	R-11	-4.25	.67	-.99
R-19	-52.26	7.73	-32.11	R-19	-4.41	.56	-1.07
R-22	-55.13	6.87	-35.68	R-22	-4.63	.42	-1.16
R-30	-56.86	4.74	-37.87	R-30	-4.76	.34	-1.22
R-38	-58.42	3.73		R-38	-4.86	.27	
R-49	-59.43	3.08		R-49	-4.93	.22	
R-60				R-60			
Slope(DD)	8537.23		8129.91	Slope(DD)	606.82		258.34
Curve(DDS)	-254.593		-131.322	Curve(DDS)	-4.882		-3.303
Slab		(/ft)	Heated Basement (/ft)	Slab		(/ft)	Heated Basement (/ft)
R-0	-23.31	67.11	R-0	-2.35	-3.29	R-0	-1.75
R-5 2ft	-29.78	28.14	R-5 4ft	-2.18	-2.26	R-5 4ft	-1.88
R-5 4ft	-31.72	16.46	R-5 8ft	-2.11	-1.84	R-5 8ft	-1.88
R-10 2ft	-31.00	20.79	R-10 4ft	-2.15	-2.08	R-10 4ft	-1.91
R-10 4ft	-33.68	4.64	R-10 8ft	-2.05	-1.48	R-10 8ft	-1.87
Intercept	-29.669	.000	Intercept	-1.76		Intercept	.000
Slope(DD)	11734.06		Slope(DD)	-466.50		Slope(DD)	-57.04
Curve(DDS)	-242.249		Curve(DDS)	16.268		Curve(DDS)	1.702
Unheated Basement (/sf)			Unheated Basement (/sf)			Unheated Basement (/sf)	
R-0	-13.57	13.56	R-0	-1.75	.04	R-0	.00
R-11 fir	-32.98	.96	R-11 fir	-0.72	.70	R-11 fir	.42
R-19 fir	-38.47	-2.61	R-19 fir	-0.42	.90	R-19 fir	.45
R-30 fir	-42.00	-4.90	R-30 fir	-0.23	1.02	R-30 fir	.47
Intercept	-11.081		Intercept			R-38 fir	.47
Slope(DD)	8406.20		Slope(DD)	1.359		R-49 fir	.48
Curve(DDS)	-702.252		Curve(DDS)	-459.24		Intercept	1.489
Infiltration (/sf fir) Window U-value			Infiltration (/sf fir) Window U-value			Slope(DD)	-10.10
ELF Ach			ELF Ach			Curve(DDS)	-10.090
.0007(.96)	.00	23.07	.0007(.59)	.00	.15	1-Pane	.00
.0005(.70)	-10.29	16.39	.0005(.42)	-0.08	.10	2-Pane	.11
.0003(.43)	-20.47	9.78	.0003(.25)	-0.15	.06	3-Pane	.16
			R-10	-32.98	18.52	R-10	.22
Slope/.001ELF	32.338		Slope(DD)	7915.54		Slope(DD)	76.54
Curve/.001ELF	.893		Curve(DDS)	-17.196		Curve(DDS)	-.940

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

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

Cheyenne WY WYEC Mid Town Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (MBtu)	Delta Component (/sf)	Wall
R-0	.00	R-0	.00	3.73	R-0
R-7	-15.99	R-7	-1.34	1.51	R-7
R-11	-18.55	R-11	-1.56	1.16	R-11
R-13	-20.84	R-13	-1.74	.83	R-13
R-19	-21.85	R-19	-1.82	.70	R-19
R-22	-22.74	R-22	-1.92	.63	R-22
R-30	-23.40	R-30	-1.98	.43	R-30
R-38	-23.96	R-38	-2.03	.34	R-38
R-49	-24.32	R-49	-2.07	.28	R-49
R-60	-24.32	R-60	-2.07	.28	R-60
Slope(DD)	8021.12	Slope(DD)	780.91		Slope(DD)
Curve(DDS)	-116.428	Curve(DDS)	-25.646		Curve(DDS)
Slab	(/ft)	Slab	(/ft)		Heated Basement
R-0	-11.57	R-0	-9.95	-9.15	R-0
R-5	-13.12	R-5 4ft	-10.60	-7.40	R-5 4ft
R-5	-13.63	R-5 8ft	-11.28	-6.40	R-5 8ft
R-10	-13.38	R-10 4ft	-11.12	-6.90	R-10 4ft
R-10	-13.91	R-10 8ft	-12.03	-6.40	R-10 8ft
Intercept	-23.512	Intercept	-1.714		Intercept
Slope(DD)	8410.09	Slope(DD)	-1377.10		Slope(DD)
Curve(DDS)	-37.671	Curve(DDS)	63.689		Curve(DDS)
Unheated Basement	(/sf)	Unheated Basement	(/sf)		Crawl
R-0	-8.32	R-0	-6.3	-6.3	R-0
R-11	-12.85	R-11 fir	-12.71	-12.71	R-11 fir
R-19	-14.38	R-19 fir	-14.80	-14.80	R-19 fir
R-30	-15.37	R-30 fir	-16.01	-16.01	R-30 fir
R-38	-16.29	R-38 fir	-16.29	-16.29	R-38 fir
R-49	-17.09	R-49 fir	-17.09	-17.09	R-49 fir
Intercept	-6.829	Intercept	-8.317		Intercept
Slope(DD)	6270.04	Slope(DD)	6317.77		Slope(DD)
Curve(DDS)	-602.460	Curve(DDS)	-27.814		Curve(DDS)
Infiltration	(/sf fir)	Infiltration	(/sf fir)		Window U-value
ELF Ach		ELF Ach			1-Pane
.0007(***)	.00	.0007(.59)	.00	.12	2-Pane
.0005(.71)	-7.78	.0005(.42)	-.04	.08	3-Pane
.0003(.44)	-14.84	.0003(.25)	-.08	.05	R-10
Slope/.001ELF	23.416	Slope/.001ELF	.167		Slope(DD)
Curve/.001ELF	7.501	Curve/.001ELF	.000		Curve(DDS)

Base Load = 97.55 MBtu
 Typical Load = 27.85 MBtu
 Residual Load = 7.27 MBtu

Base Load = 6.38 MBtu
 Typical Load = 3.21 MBtu
 Residual Load = 1.26 MBtu

Cheyenne WY WYEC M Apartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		
R-0	.00	42.00
R-7	-15.61	15.98
R-11	-18.10	11.83
R-19	-20.34	8.10
R-22	-21.11	6.82
R-30	-22.13	5.11
R-38	-22.75	4.08
R-49	-23.25	3.25
R-60	-23.57	2.72
Slope(DD)	7363.18	
Curve(DDS)	-47.151	
Wall		
R-0	.00	38.33
R-7	-6.59	17.55
R-11	-7.53	14.59
R-13	-8.57	11.29
R-19	-9.09	9.86
R-27	-9.95	6.94
R-34	-10.48	5.27
Ceiling		
R-0	.00	3.82
R-7	-1.38	1.58
R-11	-1.58	1.19
R-19	-1.77	.87
R-22	-1.85	.74
R-30	-1.95	.57
R-38	-2.01	.47
R-49	-2.08	.36
R-60	-2.12	.29
Slope(DD)	825.13	
Curve(DDS)	-30.492	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Slab		
R-0	-12.80	88.83
R-5 2ft	-14.06	46.67
R-5 4ft	-14.43	34.50
R-10 2ft	-14.28	39.17
R-10 4ft	-14.78	22.83
Intercept	-10.766	.000
Slope(DD)	11278.88	
Curve(DDS)	-173.714	
Heated Basement		
R-0	-10.19	175.67
R-5 4ft	-12.30	105.33
R-5 8ft	-12.91	86.17
R-10 4ft	-12.79	89.17
R-10 8ft	-13.63	61.17
Intercept	.000	
Slope(DD)	6558.96	
Curve(DDS)	-51.893	
Unheated Basement		
R-0	-10.19	25.77
R-11 flr	-13.19	3.78
R-19 flr	-16.35	.18
R-30 flr	-16.62	-1.94
R-38 flr	-16.92	-2.42
R-49 flr	-17.75	-3.82
Intercept	-7.120	
Slope(DD)	6584.08	
Curve(DDS)	-33.283	
Window U-value		
1-Pane	.00	169.49
2-Pane	-14.70	67.41
3-Pane	-18.34	42.15
R-10	-22.61	12.44
Slope(DD)	5179.01	
Curve(DDS)	47.010	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Slab		
R-0	-5.57	-5.36
R-5 2ft	-5.3	-4.02
R-5 4ft	-5.1	-3.19
R-10 2ft	-5.2	-3.69
R-10 4ft	-4.9	-2.69
Intercept	-.322	.000
Slope(DD)	-859.03	
Curve(DDS)	36.148	
Heated Basement		
R-0	-45	-45
R-5 4ft	-46	-46
R-5 8ft	-46	-46
R-10 4ft	-46	-46
R-10 8ft	-44	-44
Intercept	.000	
Slope(DD)	-124.75	
Curve(DDS)	2.324	
Unheated Basement		
R-0	-45	-45
R-11 flr	-18	.38
R-19 flr	-.09	.53
R-30 flr	-.04	.63
Intercept	.904	
Slope(DD)	-373.12	
Curve(DDS)	35.821	
Window U-value		
1-Pane	.00	.78
2-Pane	-.05	.40
3-Pane	-.08	.26
R-10	-.10	.09
Slope(DD)	.313	
Curve(DDS)	-.104	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	.78
2-Pane	-.05	.40
3-Pane	-.08	.26
R-10	-.10	.09
Slope(DD)	37.40	
Curve(DDS)	-.296	

Base Load = 5.31 MBtu
 Typical Load = 2.44 MBtu
 Residual Load = .46 MBtu

Base Load = 92.10 MBtu
 Typical Load = 25.49 MBtu
 Residual Load = 7.54 MBtu

Chicago IL WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)	
Ceiling				Ceiling			
R-0	.00	34.40	.00	R-0	.00	5.42	.00
R-7	-31.83	13.73	-18.92	R-7	-5.00	2.17	-1.45
R-11	-36.91	10.43	-21.61	R-11	-5.80	1.65	-1.66
R-19	-41.47	7.47	-24.87	R-19	-6.52	1.18	-1.95
R-22	-43.23	6.33	-26.48	R-22	-6.79	1.01	-2.09
R-30	-45.59	4.80	-29.40	R-30	-7.15	.77	-2.31
R-38	-47.01	3.87	-31.20	R-38	-7.37	.63	-2.31
R-49	-48.27	3.05	-31.20	R-49	-7.59	.49	-2.45
R-60	-49.09	2.52	-31.20	R-60	-7.74	.39	-2.45
Slope(DD) 6977.53				Slope(DD) 1111.40			
Curve(DDS) -198.305				Curve(DDS) -33.358			
Slab				Slab			
Heated Basement (/ft)				Heated Basement (/ft)			
R-0	-24.97	65.02	-16.35	R-0	-4.58	-7.72	-2.89
R-5 2ft	-30.52	31.58	-23.03	R-5 2ft	-4.37	-6.46	-3.17
R-5 4ft	-32.11	22.01	-25.20	R-5 4ft	-4.21	-5.49	-3.16
R-10 2ft	-31.55	25.38	-24.79	R-10 2ft	-4.31	-6.10	-3.26
R-10 4ft	-33.76	12.07	-28.14	R-10 4ft	-4.11	-4.89	-3.25
Intercept	-15.715	.000	Intercept	-1.928	.000	Intercept	.000
Slope(DD)	8407.39	4723.43	Slope(DD)	-984.39	14.13	Slope(DD)	14.13
Curve(DDS)	-121.212	-45.205	Curve(DDS)	41.750	1.163	Curve(DDS)	1.163
Unheated Basement (/sf)				Unheated Basement (/sf)			
Crawl				Crawl			
R-0	-16.35	12.61	.00	R-0	-2.89	.26	.00
R-11 flr	-30.76	3.26	-29.71	R-11 flr	-.85	1.59	.88
R-19 flr	-34.83	.60	-34.79	R-19 flr	-.31	1.94	.94
R-30 flr	-37.45	-1.10	-38.01	R-30 flr	.03	2.16	1.02
Intercept	-5.678	-8.456	Intercept	2.756	2.872	Intercept	2.872
Slope(DD)	6233.26	6450.79	Slope(DD)	-804.63	-80.06	Slope(DD)	-80.06
Curve(DDS)	-520.246	-129.310	Curve(DDS)	62.194	-12.173	Curve(DDS)	-12.173
Infiltration (/sf flr) Window U-value (/sf)				Infiltration (/sf flr) Window U-value (/sf)			
ELF Ach				ELF Ach			
.0007(.89)	.00	21.74	.00	.0007(.58)	.00	.98	.00
.0005(.64)	-9.79	15.38	-15.65	.0005(.42)	-.47	.68	-.25
.0003(.39)	-19.40	9.14	-20.61	.0003(.25)	-.91	.39	-.32
			-26.44				-.41
Slope/.001ELF 30.032				Slope/.001ELF 1.234			
Curve/.001ELF 1.461				Curve/.001ELF .244			
Base Load = 178.08 MBtu				Base Load = 20.33 MBtu			
Typical Load = 56.12 MBtu				Typical Load = 6.98 MBtu			
Residual Load = 2.79 MBtu				Residual Load = -1.98 MBtu			

Chicago IL WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-13.22	R-7	-8.07	R-7	-1.93	R-7	-.57
R-11	-15.33	R-11	-9.22	R-11	-2.23	R-11	-.86
R-19	-17.23	R-13	-10.55	R-19	-2.61	R-13	-.78
R-22	-17.90	R-19	-11.21	R-22	-2.61	R-19	-.85
R-30	-18.81	R-27	-12.36	R-30	-2.78	R-27	-.94
R-38	-19.35	R-34	-13.07	R-38	-2.84	R-34	-.99
R-49	-19.82			R-49	-2.92		
R-60	-20.12			R-60	-2.97		
Slope(DD)	6664.27	Slope(DD)	6047.31	Slope(DD)	1077.39	Slope(DD)	587.23
Curve(DDS)	-100.948	Curve(DDS)	-13.993	Curve(DDS)	-29.918	Curve(DDS)	-21.401
Slab		Heated Basement		Slab		Heated Basement	
R-0	-11.57	R-0	-8.76	R-0	-1.75	R-0	-1.00
R-5 2ft	-12.95	R-5 4ft	-11.00	R-5 2ft	-1.65	R-5 4ft	-1.03
R-5 4ft	-13.33	R-5 8ft	-11.62	R-5 8ft	-1.57	R-5 8ft	-1.02
R-10 2ft	-13.20	R-10 4ft	-11.52	R-10 2ft	-1.62	R-10 4ft	-1.04
R-10 4ft	-13.71	R-10 8ft	-12.40	R-10 4ft	-1.53	R-10 8ft	-1.03
Intercept	-10.539	Intercept	.000	Intercept	-7.202	Intercept	.000
Slope(DD)	7693.53	Slope(DD)	4788.34	Slope(DD)	-1832.85	Slope(DD)	-38.58
Curve(DDS)	-68.750	Curve(DDS)	-33.120	Curve(DDS)	-75.485	Curve(DDS)	-1.242
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-8.76	R-0	.00	R-0	-1.00	R-0	.00
R-11 flr	-12.28	R-11 flr	-11.10	R-11 flr	-.24	R-11 flr	.39
R-19 flr	-13.43	R-19 flr	-12.95	R-19 flr	.02	R-19 flr	.44
R-30 flr	-14.19	R-30 flr	-14.08	R-30 flr	.19	R-30 flr	.48
Intercept	-3.260	R-38 flr	-14.34	R-38 flr	.19	R-38 flr	.49
Slope(DD)	4793.73	R-49 flr	-15.09	R-49 flr	.52	R-49 flr	.52
Curve(DDS)	-458.014	Intercept	-4.141	Intercept	2.794	Intercept	2.631
		Slope(DD)	5825.21	Slope(DD)	-1073.42	Slope(DD)	-168.30
		Curve(DDS)	-70.405	Curve(DDS)	104.240	Curve(DDS)	-2.688
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		Window U-value	
.0007(.90)	.00	1-Pane	.00	.0007(.58)	.86	1-Pane	.00
.0005(.66)	-7.46	2-Pane	-11.81	.0005(.42)	-.27	2-Pane	-.01
.0003(.40)	-14.38	3-Pane	-15.07	.0003(.25)	-.56	3-Pane	.13
		R-10	-18.91			R-10	.29
Slope/.001ELF	24.333	Slope(DD)	5028.87	Slope/.001ELF	1.375	Slope(DD)	-354.17
Curve/.001ELF	5.625	Curve(DDS)	15.020	Curve/.001ELF	-.208	Curve(DDS)	9.408
Base Load =	86.28 MBtu	Base Load =	13.70 MBtu	Typical Load =	8.70 MBtu	Residual Load =	3.26 MBtu
Typical Load =	25.45 MBtu	Residual Load =	1.18 MBtu				

Chicago IL WYEC MApartment Prototype Siding Series Two

Heating Load Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Roof	35.26	32.45	Roof	4.98	2.24
R-7	13.62	15.10	R-7	1.85	1.12
R-11	15.06	10.16	R-11	-2.14	-1.40
R-19	16.92	7.06	R-19	-2.41	-1.46
R-22	17.58	5.98	R-22	-2.50	-1.49
R-30	18.47	4.48	R-30	-2.62	-1.56
R-38	19.00	3.59	R-38	-2.70	-1.59
R-49	19.44	2.85	R-49	-2.75	-1.59
R-60	19.73	2.38	R-60	-2.79	-1.59
Slope(DD)	6477.18	5891.16	Slope(DD)	855.31	486.69
Curve(DDS)	-89.410	26.534	Curve(DDS)	-3.111	-13.186
Slab			Slab		
Heated Basement			Heated Basement		
R-0	-12.63	85.83	R-0	-1.26	-13.22
R-5 2ft	-13.71	49.66	R-5 2ft	-1.20	-11.39
R-5 4ft	-14.02	39.33	R-5 4ft	-1.15	-9.55
R-10 2ft	-13.91	43.00	R-10 2ft	-1.18	-10.55
R-10 4ft	-14.33	29.16	R-10 4ft	-1.12	-8.72
Intercept	.803	.000	Intercept	-3.700	.000
Slope(DD)	8534.83	5337.97	Slope(DD)	-1852.06	-50.24
Curve(DDS)	-98.337	-32.913	Curve(DDS)	-71.550	1.724
Unheated Basement			Unheated Basement		
R-0	-10.35	8.08	R-0	-0.84	1.43
R-11 flr	-13.10	3.50	R-11 flr	-0.25	1.02
R-19 flr	-14.12	1.81	R-19 flr	-0.04	1.36
R-30 flr	-14.77	.72	R-30 flr	.08	1.57
Intercept	-2.342	-3.487	Intercept	2.170	2.53
Slope(DD)	4223.62	6046.94	Slope(DD)	-821.95	-317.14
Curve(DDS)	-427.184	-82.879	Curve(DDS)	79.250	15.854
Infiltration			Infiltration		
Window U-value			Window U-value		
1-Pane	.0007(.89)	19.78	1-Pane	.00	-1.65
2-Pane	.0005(.66)	13.55	2-Pane	-.28	-1.93
3-Pane	.0003(.40)	7.78	3-Pane	-.05	-1.29
R-10		11.73	R-10	.16	-1.54
Slope/.001ELF	24.207	4938.34	Slope/.001ELF	.708	-245.39
Curve/.001ELF	5.782	20.127	Curve/.001ELF	.365	6.928

Base Load = 81.94 MBtu
 Typical Load = 23.45 MBtu
 Residual Load = 1.25 MBtu

Base Load = 12.06 MBtu
 Typical Load = 7.68 MBtu
 Residual Load = 2.56 MBtu

Cincinnati OH TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Coiling	.00	29.84	27.86
R-0	-27.64	11.90	13.62
R-7	-32.05	9.03	-18.26
R-11	-36.01	6.46	-21.03
R-19	-37.53	5.47	-22.40
R-22	-39.57	4.15	-24.89
R-30	-40.80	3.35	-26.42
R-49	-41.89	2.64	
R-60	-42.80	2.18	
Slope(DD)	6028.74		5661.34
Curve(DDS)	-167.920		-89.979

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Coiling	.00	5.86	5.86
R-0	-5.36	2.38	2.38
R-7	-6.21	1.83	1.83
R-11	-6.98	1.33	1.33
R-19	-7.29	1.13	1.13
R-22	-7.70	.86	.86
R-30	-7.95	.70	.70
R-49	-8.19	.55	.55
R-60	-8.34	.45	.45
Slope(DD)	1255.66		687.52
Curve(DDS)	-44.991		-26.364

Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
Heated Basement			
R-0	-18.35	52.52	-10.83
R-5	-22.98	24.82	-16.40
R-5 4ft	-24.31	16.61	-18.26
R-10 2ft	-23.84	19.44	-17.86
R-10 4ft	-26.69	8.30	-20.68
Intercept	-14.907		.000
Slope(DD)	7086.38		3967.12
Curve(DDS)	-101.690		-38.115

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-10.83	10.54	.00
R-11 flr	-23.36	2.41	-23.31
R-19 flr	-28.79	.18	-27.35
R-30 flr	-29.00	-1.25	-29.91
R-38 flr			-30.50
R-49 flr			-32.19
Intercept	-5.096		-5.847
Slope(DD)	5214.56		5171.13
Curve(DDS)	-422.115		-117.633

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-4.30	-7.32	-7.32
R-5 2ft	-4.18	-6.60	-6.60
R-5 4ft	-4.06	-5.88	-5.88
R-10 2ft	-4.15	-6.42	-6.42
R-10 4ft	-3.98	-5.39	-5.39
Intercept	-2.926		-2.926
Slope(DD)	-849.74		-849.74
Curve(DDS)	40.712		40.712

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-2.45	.41	.41
R-11 flr	-.53	1.66	1.66
R-19 flr	-.00	2.00	2.00
R-30 flr	.34	2.22	2.22
Intercept	2.917		2.917
Slope(DD)	-805.73		-805.73
Curve(DDS)	65.667		65.667

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach			
.0007(.54)	.00	.76	.76
.0005(.39)	-.36	.53	.53
.0003(.23)	-.70	.31	.31
Slope/.001ELF	.974	.974	.974
Curve/.001ELF	.162	.162	.162

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Window U-value			
1-Pane	.00	.00	.00
2-Pane	-12.85	61.96	61.96
3-Pane	-17.02	39.38	39.38
R-10	-21.93	12.83	12.83
Slope(DD)	5500.18		5500.18
Curve(DDS)	-19.668		-19.668

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

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

Cincinnati OH

TMY

Mid Town

Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-11.41	R-7	-6.82	R-7	-2.03	R-7	-0.62
R-11	-13.23	R-11	-7.79	R-11	-2.35	R-11	-0.71
R-19	-14.87	R-13	-8.91	R-19	-2.64	R-13	-0.82
R-22	-16.44	R-19	-9.46	R-22	-2.74	R-19	-0.87
R-30	-16.21	R-27	-10.42	R-30	-2.89	R-27	-0.97
R-38	-16.67	R-34	-11.01	R-38	-2.97	R-34	-1.03
R-49	-17.07			R-49	-3.05		
R-60	-17.33			R-60	-3.10		

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)
5650.38	-72.804	5024.58	-4.409	1085.15	-21.795	526.97	-9.373

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-8.71	R-0	-6.25	R-0	-1.60	R-0	-0.84
R-5 2ft	-9.83	R-5 4ft	-8.09	R-5 2ft	-1.54	R-5 4ft	-0.92
R-5 4ft	-10.12	R-5 8ft	-8.59	R-5 4ft	-1.47	R-5 8ft	-0.94
R-10 2ft	-10.02	R-10 4ft	-8.51	R-10 2ft	-1.52	R-10 4ft	-0.97
R-10 4ft	-10.43	R-10 8ft	-9.22	R-10 4ft	-1.43	R-10 8ft	-0.97
Intercept	-11.917	Intercept	.000	Intercept	-4.385	Intercept	.000
Slope(DD)	6028.90	Slope(DD)	3830.70	Slope(DD)	-1931.61	Slope(DD)	129.76
Curve(DDS)	-41.168	Curve(DDS)	-25.395	Curve(DDS)	93.378	Curve(DDS)	-2.287

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-6.25	R-0	.00	R-0	-0.84	R-0	.00
R-11 flr	-9.22	R-11 flr	-8.55	R-11 flr	-0.14	R-11 flr	.38
R-19 flr	-10.19	R-19 flr	-10.00	R-19 flr	.12	R-19 flr	.43
R-30 flr	-10.81	R-30 flr	-10.89	R-30 flr	.28	R-30 flr	.48
		R-38 flr	-11.09	R-38 flr		R-38 flr	.49
		R-49 flr	-11.67	R-49 flr		R-49 flr	.52
		Intercept	-3.796	Intercept	2.950	Intercept	2.665
		Slope(DD)	4805.66	Slope(DD)	-1059.94	Slope(DD)	-198.18
		Curve(DDS)	-71.642	Curve(DDS)	108.505	Curve(DDS)	2.543

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.81)	.00	2-Pane	-9.65	.0007(.54)	.00	2-Pane	.02
.0005(.60)	-5.05	3-Pane	-12.40	.0005(.36)	-0.22	3-Pane	.21
.0003(.35)	-9.73	R-10	-15.63	.0003(.22)	-0.43	R-10	.44

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slope/.001ELF	Curve/.001ELF	Slope(DD)	Curve(DDS)	Slope/.001ELF	Curve/.001ELF	Slope(DD)	Curve(DDS)
16.417	3.854	4318.25	6.792	.792	.104	-486.38	12.497

Base Load = 67.79 MBtu
 Typical Load = 18.87 MBtu
 Residual Load = .47 MBtu

Base Load = 13.65 MBtu
 Typical Load = 8.69 MBtu
 Residual Load = 3.24 MBtu

Cincinnati OH TMY MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall	Delta Component (KBtu)	Ceiling	(/sf)	Delta Component (MBtu)	Wall	Delta Component (KBtu)
R-0	.00	30.18	R-0	.00	27.22	R-0	.00	R-0	.00
R-7	-11.18	11.54	R-7	-4.63	12.61	R-7	-2.00	R-7	-2.00
R-11	-12.97	8.57	R-11	-5.29	10.53	R-11	-2.31	R-11	-2.31
R-19	-14.57	5.90	R-13	-6.03	8.20	R-19	-2.60	R-13	-2.60
R-22	-15.12	4.97	R-19	-6.39	7.04	R-22	-2.69	R-19	-2.69
R-30	-15.87	3.74	R-27	-7.03	5.05	R-30	-2.81	R-27	-2.81
R-38	-16.31	2.99	R-34	-7.41	3.82	R-38	-2.88	R-34	-2.88
R-49	-16.68	2.38				R-49	-2.93	R-49	-2.93
R-60	-16.92	1.98				R-60	-2.98	R-60	-2.98
Slope(DD)	5381.19		Slope(DD)	4895.17		Slope(DD)	810.41	Slope(DD)	216.04
Curve(DDS)	-49.044		Curve(DDS)	30.633		Curve(DDS)	12.618	Curve(DDS)	32.979

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Heated Basement	Delta Component (KBtu)	Slab	(/ft)	Delta Component (MBtu)	Heated Basement	Delta Component (KBtu)
R-0	-9.50	64.59	R-0	-7.53	130.26	R-0	-1.19	R-0	-1.19
R-5	-10.37	35.43	R-5	-9.16	75.76	R-5	-1.14	R-5	-1.14
R-10	-10.61	27.43	R-5	-9.59	61.43	R-5	-1.11	R-5	-1.11
R-10	-10.52	30.43	R-10	-9.53	63.59	R-10	-1.13	R-10	-1.13
R-10	-10.85	19.59	R-10	-10.13	43.43	R-10	-1.09	R-10	-1.09
Intercept	-1.912		Intercept	.000		Intercept	-4.958	Intercept	.000
Slope(DD)	6404.84		Slope(DD)	4283.57		Slope(DD)	-1009.43	Slope(DD)	171.99
Curve(DDS)	-48.830		Curve(DDS)	-25.843		Curve(DDS)	39.431	Curve(DDS)	-1.493

Unheated Basement

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Unheated Basement	Delta Component (KBtu)	Crawl	(/sf)	Delta Component (MBtu)	Unheated Basement	Delta Component (KBtu)
R-0	-7.53	6.51	R-0	.00	19.05	R-0	-72	R-0	.00
R-11	-9.86	2.63	R-11	-8.72	4.53	R-11	-.07	R-11	.48
R-19	-10.69	1.24	R-19	-10.18	2.09	R-19	.17	R-19	.57
R-30	-11.22	.35	R-30	-11.10	.55	R-30	.32	R-30	.64
R-38	-11.22	.35	R-38	-11.32	.20	R-38	1.95	R-38	.68
Intercept	-2.133		R-49	-11.92	-.82	R-49	2.675	R-49	.71
Slope(DD)	3429.78		Intercept	-3.125		Slope(DD)	-1001.83	Intercept	2.750
Curve(DDS)	-340.028		Slope(DD)	4725.73		Curve(DDS)	102.197	Slope(DD)	-344.98
Curve(DDS)	-340.028		Curve(DDS)	-78.071				Curve(DDS)	16.586

Infiltration

Delta Component (MBtu)	(/sf f1r)	Delta Component (KBtu)	Window U-value	Delta Component (KBtu)	Window U-value	(/sf)	Delta Component (MBtu)	Window U-value	Delta Component (KBtu)
ELF Ach	.0007(.81)	.00	1-Pane	.00	117.58	ELF Ach	.0007(.54)	1-Pane	.00
.0005(.60)	-5.03	9.10	2-Pane	-9.72	50.11	.0005(.39)	-.19	2-Pane	.01
.0003(.35)	-9.69	5.22	3-Pane	-12.39	31.56	.0003(.23)	-.35	3-Pane	.12
			R-10	-15.63	9.73			R-10	.25
Slope/.001ELF	16.228		Slope(DD)	4108.88		Slope/.001ELF	.375	Slope(DD)	-285.58
Curve/.001ELF	3.969		Curve(DDS)	13.139		Curve/.001ELF	.365	Curve(DDS)	7.422

Base Load = 63.71 MBtu
 Typical Load = 17.09 MBtu
 Residual Load = .68 MBtu

Base Load = 12.10 MBtu
 Typical Load = 7.70 MBtu
 Residual Load = 2.55 MBtu

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Coiling	.00	34.17	.00
R-0	-31.53	13.70	-18.26
R-7	-36.57	10.43	-20.86
R-11	-41.09	7.49	-24.07
R-13	-42.85	6.35	-25.66
R-19	-48.21	4.81	-28.47
R-22	-48.64	3.89	-30.20
R-30	-47.91	3.06	-30.20
R-34	-48.73	2.53	-30.20
R-49			
R-60			
Slope(DD)	7012.62	6475.21	
Curve(DDS)	-210.575	-102.898	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	6.91	.00
R-0	-6.48	2.70	-7.52
R-7	-7.52	2.02	-8.45
R-11	-8.45	1.42	-8.78
R-13	-8.78	1.20	-9.23
R-19	-9.23	.91	-9.50
R-22	-9.50	.74	-9.75
R-30	-9.75	.58	-9.91
R-34			
R-49			
R-60			
Slope(DD)	1315.30	619.25	
Curve(DDS)	-25.323	-12.749	

Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0	-16.79	54.88	-9.02
R-5	-22.04	23.25	-14.40
R-7	-23.58	14.09	-16.43
R-10	-23.01	17.41	-15.88
R-10 4ft	-25.10	4.82	-18.94
Intercept	-21.627	.000	
Slope(DD)	8533.28	4511.61	
Curve(DDS)	-142.963	-49.062	

Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0	-9.02	10.96	-2.70
R-11 flr	-24.49	.92	-1.21
R-19 flr	-28.71	-1.83	-.80
R-30 flr	-31.43	-3.59	-.53
Intercept	-8.315		
Slope(DD)	6411.00	2.184	
Curve(DDS)	-517.169	-630.89	

Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
R-0	15.22	148.09	.00
1-Pane	10.69	70.22	.0007(.62)
2-Pane	6.31	44.86	.0005(.45)
3-Pane			.0003(.27)
R-10			
Slope(DD)	20.487	6261.38	
Curve(DDS)	1.786	-24.700	

Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
R-0	16.82	101.68	.00
R-11 flr	-26.19	-1.19	-1.21
R-19 flr	-30.67	-3.10	-.80
R-30 flr	-33.44	-4.90	-.53
R-38 flr	-34.07	-5.31	-.53
R-49 flr	-35.89	-6.49	-.53
Intercept	-9.248		
Slope(DD)	5601.06	4511.61	
Curve(DDS)	-101.000	-49.062	

Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
R-0	16.82	101.68	.00
R-11 flr	-26.19	-1.19	-1.21
R-19 flr	-30.67	-3.10	-.80
R-30 flr	-33.44	-4.90	-.53
R-38 flr	-34.07	-5.31	-.53
R-49 flr	-35.89	-6.49	-.53
Intercept	-9.248		
Slope(DD)	5601.06	4511.61	
Curve(DDS)	-101.000	-49.062	

Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
R-0	16.82	101.68	.00
R-11 flr	-26.19	-1.19	-1.21
R-19 flr	-30.67	-3.10	-.80
R-30 flr	-33.44	-4.90	-.53
R-38 flr	-34.07	-5.31	-.53
R-49 flr	-35.89	-6.49	-.53
Intercept	-9.248		
Slope(DD)	5601.06	4511.61	
Curve(DDS)	-101.000	-49.062	

Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
R-0	16.82	101.68	.00
R-11 flr	-26.19	-1.19	-1.21
R-19 flr	-30.67	-3.10	-.80
R-30 flr	-33.44	-4.90	-.53
R-38 flr	-34.07	-5.31	-.53
R-49 flr	-35.89	-6.49	-.53
Intercept	-9.248		
Slope(DD)	5601.06	4511.61	
Curve(DDS)	-101.000	-49.062	

Base Load = 155.85 MBtu
 Typical Load = 47.79 MBtu
 Residual Load = 8.23 MBtu

Denver CO WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	35.41	.00
R-7	-13.05	13.87	-7.68
R-11	-15.13	10.19	-8.77
R-19	-17.00	7.08	-10.03
R-22	-17.66	5.98	-10.66
R-30	-18.55	4.50	-11.68
R-38	-19.08	3.61	-12.31
R-49	-19.53	2.86	-12.31
R-60	-19.82	2.38	-12.31
Slope(DD)	6493.21	5419.80	
Curve(DDS)	-87.831	32.778	
Wall			
R-0	.00	30.10	.00
R-7	-7.68	13.99	-8.77
R-11	-8.77	11.69	-10.03
R-13	-10.03	9.04	-10.66
R-19	-10.66	7.73	-11.68
R-27	-11.68	5.58	-12.31
R-34	-12.31	4.28	-12.31
Heated Basement	(/ft)	(/ft)	
R-0	-8.48	40.79	-5.84
R-5	-9.89	10.54	-7.67
R-5	4ft	61.04	-8.16
R-5	8ft	48.79	-8.07
R-10	2ft	5.54	-8.72
R-10	4ft	-3.98	-8.72
R-10	8ft	-8.72	-8.72
Intercept	-22.065	.000	
Slope(DD)	5417.96	3517.06	
Curve(DDS)	27.498	-20.629	
Unheated Basement	(/sf)	(/sf)	
R-0	-5.84	7.12	.00
R-11	f1r	-9.37	-9.28
R-19	f1r	-10.53	-10.83
R-30	f1r	-11.27	-11.68
R-38	f1r	-11.88	-11.88
R-49	f1r	-12.44	-12.44
Intercept	-5.353	-6.236	
Slope(DD)	4696.30	4572.62	
Curve(DDS)	-441.542	-13.628	
Infiltration	(/sf f1r)	Window U-value	(/sf)
ELF Ach			
.0007(.75)	.00	12.61	.00
.0005(.55)	-5.11	8.35	-10.26
.0003(.33)	-9.59	4.62	-12.82
			-15.82
Slope/.001ELF	13.416	3656.51	
Curve/.001ELF	6.563	31.716	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	7.13	.00
R-7	-2.58	2.87	-2.58
R-11	-2.96	2.19	-3.33
R-19	-3.33	1.58	-3.47
R-22	-3.47	1.34	-3.66
R-30	-3.66	1.02	-3.78
R-38	-3.78	.83	-3.89
R-49	-3.89	.65	-3.96
R-60	-3.96	.53	-3.96
Slope(DD)	1484.31	826.29	
Curve(DDS)	-47.517	-33.669	
Wall			
R-0	.00	7.13	.00
R-7	-2.58	2.87	-2.58
R-11	-2.96	2.19	-3.33
R-13	-3.33	1.58	-3.47
R-19	-3.47	1.34	-3.66
R-27	-3.66	1.02	-3.78
R-34	-3.78	.83	-3.89
R-49	-3.89	.65	-3.96
R-60	-3.96	.53	-3.96
Heated Basement	(/ft)	(/ft)	
R-0	-1.53	-12.83	-1.98
R-5	2ft	-1.47	-11.33
R-5	4ft	-1.44	-10.58
R-10	2ft	-1.46	-11.08
R-10	4ft	-1.41	-9.83
Intercept	-7.045		
Slope(DD)	-988.76		
Curve(DDS)	42.120		
Unheated Basement	(/sf)	(/sf)	
R-0	-1.98	.06	.00
R-11	f1r	-1.42	.99
R-19	f1r	-1.27	1.25
R-30	f1r	-1.17	1.41
R-38	f1r	-1.17	1.41
R-49	f1r	-1.17	1.41
Intercept	1.848		
Slope(DD)	-592.02		
Curve(DDS)	47.515		
Infiltration	(/sf f1r)	Window U-value	(/sf)
ELF Ach			
.0007(.62)	.00	.20	.00
.0005(.45)	-1.13	.09	-1.15
.0003(.27)	-2.21	.02	-1.19
			-2.23
Slope/.001ELF	-1.003		
Curve/.001ELF	.521		

Base Load = 71.51 MBtu
 Typical Load = 18.73 MBtu
 Residual Load = 7.86 MBtu

Base Load = 12.23 MBtu
 Typical Load = 5.99 MBtu
 Residual Load = 1.47 MBtu

Denver CO	WYEC	M Apartment Prototype Siding	Series Two	Heating Load	Cooling Load
				Delta Component (MBtu)	Delta Component (MBtu)
				Ceiling (/sf)	Wall (/sf)
				R-0 .00 34.08	R-0 7.36 3.10
				R-7 -12.72 12.86	R-7 2.97 1.61
				R-11 -14.76 9.48	R-11 2.27 1.39
				R-19 -16.57 6.44	R-13 -3.43 1.08
				R-22 -17.19 5.42	R-19 -3.58 1.89
				R-30 -18.01 4.04	R-27 -3.78 1.08
				R-38 -18.51 3.21	R-34 -3.89 1.67
				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) 1544.24
				Curve(DDS) -13.371	Curve(DDS) -51.153
				Slab (/ft)	Heated Basement (/ft)
				R-0 -9.45 64.52	R-0 -1.04 -7.58
				R-5 2ft -10.46 30.86	R-5 4ft -1.00 -6.24
				R-5 4ft -10.73 21.86	R-5 8ft -.97 -5.41
				R-10 2ft -10.63 25.02	R-10 4ft -.99 -5.91
				R-10 4ft -10.98 13.52	R-10 8ft -.95 -4.74
				Intercept -9.325	Intercept -1.955
				Slope(DD) 7042.21	Slope(DD) -987.03
				Curve(DDS) -29.227	Curve(DDS) 43.241
				Unheated Basement (/sf)	Crawl (/sf)
				R-0 -7.34 6.74	R-0 -.78 .05
				R-11 flr -10.30 1.81	R-11 flr -.38 .72
				R-19 flr -11.34 .07	R-19 flr -.25 .93
				R-30 flr -12.01 -1.04	R-30 flr -.16 1.07
				Intercept -4.152	Intercept 1.447
				Slope(DD) 4285.65	Slope(DD) -515.04
				Curve(DDS) -421.444	Curve(DDS) 47.159
				Infiltration (/sf flr) Window U-value (/sf)	Window U-value (/sf)
				ELF Ach	ELF Ach
				.0007(.75) .00 12.28	.0007(.62) .00 .30
				.0005(.55) -5.12 8.01	.0005(.45) -.12 .20
				.0003(.33) -9.51 4.35	.0003(.27) -.22 .11
				Slope/.001ELF 12.250	Slope(DD) 109.70
				Curve/.001ELF 7.552	Curve(DDS) -25.095
					1-Pane .00 2.58
					2-Pane -.20 1.23
					3-Pane -.26 .78
					R-10 -.34 .28
				Base Load = 67.06 MBtu	Base Load = 10.43 MBtu
				Typical Load = 16.76 MBtu	Typical Load = 4.70 MBtu
				Residual Load = 8.15 MBtu	Residual Load = .17 MBtu

EI Paso TX	WYEC	One Story Prototype Siding		Series Two		Cooling Load	
		Heating Load					
Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Ceiling		Ceiling		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-14.04	R-7	-7.54	R-7	-11.43	R-7	-3.14
R-11	-16.29	R-11	-8.61	R-11	-13.26	R-11	-3.69
R-19	-18.30	R-13	-9.84	R-19	-14.90	R-13	-4.10
R-22	-19.03	R-19	-10.45	R-22	-15.50	R-19	-4.35
R-30	-20.01	R-27	-11.28	R-30	-16.31	R-27	-4.82
R-38	-20.60	R-34	-11.79	R-38	-16.80	R-34	-5.11
R-49	-21.06			R-49	-17.24		
R-60	-21.36			R-60	-17.52		
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		Heated Basement		Slab		Heated Basement	
R-0	-10.98	R-0	-6.58	R-0	-6.48	R-0	-2.92
R-5 2ft	-12.77	R-5 4ft	-9.88	R-5 2ft	-6.66	R-5 4ft	-3.55
R-5 4ft	-13.05	R-5 8ft	-10.48	R-5 4ft	-6.64	R-5 8ft	-3.63
R-10 2ft	-13.08	R-10 4ft	-10.60	R-10 2ft	-6.72	R-10 4ft	-3.76
R-10 4ft	-13.35	R-10 8ft	-11.21	R-10 4ft	-6.73	R-10 8ft	-3.93
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		Crawl		Unheated Basement		Crawl	
R-0	-6.58	R-0	.00	R-0	-2.92	R-0	.00
R-11 flr	-11.24	R-11 flr	-10.57	R-11 flr	-1.93	R-11 flr	-.28
R-19 flr	-12.31	R-19 flr	-12.09	R-19 flr	-1.75	R-19 flr	-.52
R-30 flr	-13.00	R-30 flr	-12.90	R-30 flr	-1.64	R-30 flr	-.76
		R-38 flr	-13.08			R-38 flr	-.80
		R-49 flr	-13.61			R-49 flr	-.95
Intercept	-.582	Intercept	-.634	Intercept	3.555	Intercept	3.597
Slope(DD)	1547.91	Slope(DD)	1557.86	Slope(DD)	-231.57	Slope(DD)	516.53
Curve(DDS)	-99.347	Curve(DDS)	63.195	Curve(DDS)	6.782	Curve(DDS)	-68.594
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.73)	.00	1-Pane	.00	.0007(.55)	.00	1-Pane	.00
.0005(.52)	-2.82	2-Pane	-5.60	.0005(.39)	-.61	2-Pane	-.67
.0003(.31)	-5.01	3-Pane	-6.72	.0003(.23)	-1.08	3-Pane	-.78
		R-10	-8.03			R-10	-.92
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 =	19.70 MBtu	Base Load =	47.82 MBtu	Base Load =	22.06 MBtu
Typical Load =	19.70 MBtu	Typical Load =	3.92 MBtu	Typical Load =	22.06 MBtu	Typical Load =	3.99 MBtu
Residual Load =	3.92 MBtu	Residual Load =	3.92 MBtu	Residual Load =	3.99 MBtu	Residual Load =	3.99 MBtu

El Paso TX WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-6.86	R-7	3.11	R-7	-4.54	R-7	-1.39
R-11	-6.79	R-11	3.90	R-11	-5.28	R-11	-1.59
R-19	-7.83	R-13	2.58	R-19	-5.91	R-13	-1.84
R-22	-7.87	R-19	-4.20	R-22	-6.14	R-19	-1.97
R-30	-8.19	R-27	1.53	R-30	-6.44	R-27	-2.16
R-38	-8.39	R-34	-4.66	R-38	-8.62	R-34	-2.27
R-49	-8.54			R-49	-6.77		
R-60	-8.64			R-60	-6.87		
Slope(DD)	2191.14	Slope(DD)	1362.39	Slope(DD)	2200.23	Slope(DD)	1070.42
Curve(DDS)	63.464	Curve(DDS)	125.058	Curve(DDS)	-22.402	Curve(DDS)	-5.044
Slab		Heated Basement		Slab		Heated Basement	
R-0	-4.34	R-0	3.09	R-0	-2.51	R-0	-1.08
R-5 2ft	-4.67	R-5 4ft	-3.90	R-5 2ft	-2.55	R-5 4ft	-1.24
R-5 4ft	-4.71	R-5 8ft	-4.02	R-5 4ft	-2.53	R-5 8ft	-1.26
R-10 2ft	-4.72	R-10 4ft	-4.04	R-10 2ft	-2.55	R-10 4ft	-1.30
R-10 4ft	-4.77	R-10 8ft	-4.18	R-10 4ft	-2.54	R-10 8ft	-1.31
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)	39.486	Curve(DDS)	-5.659
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-3.09	R-0	8.10	R-0	-1.08	R-0	.00
R-11 flr	-4.05	R-11 flr	-3.42	R-11 flr	-.68	R-11 flr	.00
R-19 flr	-4.31	R-19 flr	3.90	R-19 flr	-.58	R-19 flr	-.09
R-30 flr	-4.48	R-30 flr	-4.15	R-30 flr	-.50	R-30 flr	-.17
		R-38 flr	-4.21	R-38 flr		R-38 flr	-.19
		R-49 flr	-4.38	R-49 flr		R-49 flr	-.24
Intercept	-.120	Intercept	.169	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		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.73)	.00	1-Pane	.00	.0007(.54)	.00	1-Pane	.00
.0005(.52)	-1.85	2-Pane	-3.54	.0005(.38)	-.39	2-Pane	-.30
.0003(.31)	-3.13	3-Pane	-4.27	.0003(.23)	-.70	3-Pane	-.35
		R-10	-5.12			R-10	-.40
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 =	19.72 MBtu	Base Load =	8.71 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 =	5.14 MBtu	Residual Load =	8.71 MBtu	Residual Load =	8.71 MBtu

El Paso TX WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-6.03	R-7	-2.12	R-7	-4.79	R-7	-.91
R-11	-6.99	R-11	-2.42	R-11	-5.58	R-11	-1.04
R-19	-7.86	R-13	-2.68	R-19	-6.24	R-13	-1.20
R-22	-8.10	R-19	-2.82	R-22	-6.48	R-19	-1.28
R-30	-8.42	R-27	-2.99	R-30	-6.81	R-27	-1.37
R-38	-8.62	R-34	-3.09	R-38	-7.00	R-34	-1.43
R-49	-8.76		.97	R-49	-7.17		.88
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	R-0	-3.91	R-0	-1.90	R-0	-.91
R-5 2ft	-5.15	R-5 4ft	-4.70	R-5 2ft	-1.90	R-5 4ft	-1.06
R-5 4ft	-5.17	R-5 8ft	-4.77	R-5 4ft	-1.94	R-5 8ft	-1.07
R-10 2ft	-5.18	R-10 4ft	-4.79	R-10 2ft	-1.95	R-10 4ft	-1.09
R-10 4ft	-5.21	R-10 8ft	-4.89	R-10 4ft	-1.94	R-10 8ft	-1.12
Intercept	.000	Intercept	6.913	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	R-0	.00	R-0	-.91	R-0	.00
R-11 flr	-4.73	R-11 flr	-3.92	R-11 flr	-.42	R-11 flr	.16
R-19 flr	-4.88	R-19 flr	-4.37	R-19 flr	-.33	R-19 flr	.08
R-30 flr	-4.99	R-30 flr	-4.62	R-30 flr	-.27	R-30 flr	.02
Intercept	-.001	R-38 flr	-4.68	R-38 flr		R-38 flr	.00
Slope(DD)	552.55	R-49 flr	-4.85	R-49 flr		R-49 flr	-.05
Curve(DDS)	-23.643	Intercept	.134	Intercept	2.971	Intercept	2.900
Infiltration	(/sf flr)	Slope(DD)	1027.45	Slope(DD)	-298.53	Slope(DD)	471.00
ELF Ach		Curve(DDS)	128.429	Curve(DDS)	9.255	Curve(DDS)	-80.777
.0007(.73)	.00	Window U-value	(/sf)	Window U-value		Window U-value	
.0005(.52)	-1.88	1-Pane	.00	1-Pane	.78	1-Pane	.00
.0003(.31)	-3.09	2-Pane	-3.57	2-Pane	-.38	2-Pane	-.43
		3-Pane	-4.20	3-Pane	-.66	3-Pane	-.88
		R-10	-4.94	R-10	.23	R-10	-.52
		Slope(DD)	609.56	Slope(DD)	.500	Slope(DD)	100.31
		Curve(DDS)	28.465	Curve(DDS)	.885	Curve(DDS)	1.784

Base Load = 26.04 MBtu
 Typical Load = 8.74 MBtu
 Residual Load = 5.66 MBtu

Base Load = 27.72 MBtu
 Typical Load = 18.11 MBtu
 Residual Load = 7.38 MBtu

Fort Worth TX WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	13.46	R-7	7.88	R-7	8.30	R-7	2.91
R-11	16.61	R-11	8.75	R-11	9.63	R-11	3.32
R-19	17.54	R-13	10.05	R-19	10.82	R-13	3.83
R-22	18.27	R-19	10.89	R-22	11.26	R-19	4.08
R-30	19.24	R-27	11.74	R-30	11.85	R-27	4.53
R-38	19.83	R-34	12.38	R-38	12.21	R-27	4.53
R-49	20.32			R-49	12.50	R-34	4.80
R-60	20.64			R-60	12.69		
Slope(DD)	2824.03	Slope(DD)	2398.43	Slope(DD)	1697.12	Slope(DD)	1023.75
Curve(DDS)	-85.673	Curve(DDS)	.245	Curve(DDS)	-34.094	Curve(DDS)	-15.484
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-11.49	R-0	-8.04	R-0	-7.71	R-0	-3.19
R-5	13.74	R-5	4ft	R-5	2ft	R-5	4ft
R-5	14.27	R-5	10.24	R-5	4ft	R-5	8ft
R-10	14.11	R-10	4ft	R-10	2ft	R-10	4ft
R-10	14.77	R-10	8ft	R-10	4ft	R-10	8ft
Intercept	.000	Intercept	1.182	Intercept	.000	Intercept	17.017
Slope(DD)	1985.32	Slope(DD)	1646.79	Slope(DD)	64.48	Slope(DD)	549.90
Curve(DDS)	31.749	Curve(DDS)	-9.541	Curve(DDS)	27.894	Curve(DDS)	-4.600
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-8.04	R-0	.00	R-0	-3.19	R-0	.00
R-11	13.15	R-11	flr	R-11	flr	R-11	flr
R-19	14.44	R-19	flr	R-19	flr	R-19	flr
R-30	15.27	R-30	flr	R-30	flr	R-30	flr
R-38	16.16	R-38	flr	R-38	flr	R-38	flr
R-49	16.86	R-49	flr	R-49	flr	R-49	flr
Intercept	-.967	Intercept	-.993	Intercept	4.213	Intercept	4.122
Slope(DD)	1917.75	Slope(DD)	2093.27	Slope(DD)	-112.48	Slope(DD)	695.95
Curve(DDS)	-141.391	Curve(DDS)	23.912	Curve(DDS)	-8.549	Curve(DDS)	-83.996
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.71)	.00	.0007(.63)	.00	.0007(.63)	.00	.0007(.63)	.00
.0005(.53)	3.50	.0005(.45)	2.87	.0005(.45)	2.06	.0005(.45)	1.12
.0003(.32)	2.66	.0003(.27)	14.31	.0003(.27)	2.29	.0003(.27)	1.38
			4.25				2.34
Slope/.001ELF	8.052	Slope(DD)	1773.22	Slope/.001ELF	7.954	Slope(DD)	277.31
Curve/.001ELF	2.760	Curve(DDS)	14.554	Curve/.001ELF	-1.055	Curve(DDS)	3.581
Base Load =	67.92 MBtu	Base Load =	51.72 MBtu	Base Load =	51.72 MBtu	Base Load =	51.72 MBtu
Typical Load =	24.39 MBtu	Typical Load =	27.33 MBtu	Typical Load =	27.33 MBtu	Typical Load =	27.33 MBtu
Residual Load =	.28 MBtu	Residual Load =	4.65 MBtu	Residual Load =	4.65 MBtu	Residual Load =	4.65 MBtu

Fort Worth TX WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	15.19	.00
R-7	-6.75	5.61	-3.33
R-11	-6.67	4.08	-3.80
R-19	-7.49	2.70	-4.29
R-22	-7.75	2.27	-4.54
R-30	-8.10	1.69	-4.89
R-38	-8.31	1.34	-5.10
R-49	-8.47	1.07	-5.10
R-60	-8.57	.90	-5.10
Slope(DD)	2411.07	1744.31	
Curve(DDS)	25.415	95.568	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
Heated Basement			
R-0	-4.92	20.50	-3.87
R-5	-5.39	8.75	-4.79
R-5	-5.49	6.25	-4.98
R-10	-5.46	7.00	-4.96
R-10	-5.57	4.25	-5.19
Intercept	.000	2.817	
Slope(DD)	984.03	969.51	
Curve(DDS)	69.823	3.203	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-3.87	3.12	.00
R-11	-4.99	1.25	-4.21
R-19	-5.31	.72	-4.84
R-30	-5.51	.38	-5.16
R-38		.85	-5.23
R-49		.50	-5.44
Intercept	-.531	-.374	
Slope(DD)	1243.53	1845.63	
Curve(DDS)	-103.791	57.145	
Infiltration			
ELF Ach			
.0007(.74)	.00	46.58	.00
.0005(.52)	-2.50	15.26	-4.51
.0003(.31)	-4.46	9.33	-5.36
	1.61	2.35	-6.37
Slope/.001ELF	3.666	923.23	
Curve/.001ELF	5.625	31.888	

Base Load = 31.33 MBtu
 Typical Load = 12.15 MBtu
 Residual Load = 2.78 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	8.66	.00
R-7	-3.19	3.34	-1.19
R-11	-3.70	2.49	-1.36
R-19	-4.16	1.72	-1.60
R-22	-4.32	1.46	-1.57
R-30	-4.53	1.10	-1.72
R-38	-4.66	.89	-1.72
R-49	-4.78	.70	-1.81
R-60	-4.85	.57	-1.81
Slope(DD)	1582.42	606.92	
Curve(DDS)	-20.652	34.832	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
Heated Basement			
R-0	-3.06	1.63	-1.30
R-5	-3.19	-1.62	-1.54
R-5	-3.18	-1.37	-1.58
R-10	-3.20	-1.87	-1.60
R-10	-3.19	-1.62	-1.66
Intercept	.000	33.006	
Slope(DD)	-705.14	343.28	
Curve(DDS)	73.738	-6.698	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-1.30	3.04	.00
R-11	-.74	3.98	-.05
R-19	-.65	4.13	-.18
R-30	-.59	4.23	-.29
R-38			-.31
R-49			-.38
Intercept	4.455	4.257	
Slope(DD)	-294.41	685.03	
Curve(DDS)	3.691	-97.388	
Infiltration			
ELF Ach			
.0007(.63)	.00	4.67	.00
.0005(.45)	-1.44	3.47	-.58
.0003(.27)	-3.01	2.17	-.63
Slope/.001ELF	7.625	-32.60	
Curve/.001ELF	-1.354	8.064	

Base Load = 34.23 MBtu
 Typical Load = 24.08 MBtu
 Residual Load = 10.02 MBtu

Fort Worth TX WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-5.36	R-0	-4.57	R-0	-2.60	R-0	-1.19
R-5 2ft	-5.75	R-5 4ft	-5.40	R-5 2ft	-2.68	R-5 4ft	-1.44
R-5 4ft	-5.83	R-5 8ft	-5.56	R-5 4ft	-2.67	R-5 8ft	-1.50
R-10 2ft	-5.80	R-10 4ft	-5.54	R-10 2ft	-2.70	R-10 4ft	-1.52
R-10 4ft	-5.89	R-10 8ft	-5.73	R-10 4ft	-2.66	R-10 8ft	-1.57
Intercept	.000	Intercept	-1.895	Intercept	.000	Intercept	27.735
Slope(DD)	1029.58	Slope(DD)	986.53	Slope(DD)	-1289.36	Slope(DD)	492.54
Curve(DDS)	78.501	Curve(DDS)	6.687	Curve(DDS)	102.082	Curve(DDS)	-1.008
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-4.57	R-0	.00	R-0	-1.19	R-0	.00
R-11 fir	-5.48	R-11 fir	-4.47	R-11 fir	-.67	R-11 fir	.07
R-19 fir	-5.73	R-19 fir	-5.11	R-19 fir	-.54	R-19 fir	-.06
R-30 fir	-5.90	R-30 fir	-5.45	R-30 fir	-.47	R-30 fir	-.18
Intercept	-.540	R-38 fir	-5.53	R-38 fir	-.47	R-38 fir	-.18
Slope(DD)	1019.15	R-49 fir	-5.76	R-49 fir	-.25	R-49 fir	-.25
Curve(DDS)	-85.977	Intercept	-.426	Intercept	3.837	Intercept	3.540
Infiltration (/sf fir)		Slope(DD)	1687.19	Slope(DD)	-452.73	Slope(DD)	688.99
ELF Ach		Curve(DDS)	69.095	Curve(DDS)	29.483	Curve(DDS)	-108.426
R-0	.0007(.74)	Window U-value (/sf)		Infiltration (/sf fir)		Window U-value (/sf)	
R-11	.0005(.52)	1-Pane	.00	ELF Ach		1-Pane	.00
R-19	.0003(.32)	2-Pane	-4.53	.0007(.63)	.00	2-Pane	-.63
Intercept	-4.40	3-Pane	-5.32	.0005(.45)	-1.47	3-Pane	-.48
Slope(DD)	2.875	R-10	-6.25	.0003(.27)	-3.03	R-10	-.76
Curve(DDS)	6.302	Slope(DD)	753.69	Slope/.001ELF	7.354	Slope(DD)	-24.49
Base Load =	29.74 MBtu	Curve(DDS)	36.559	Curve/.001ELF	-1.042	Curve(DDS)	8.535
Typical Load =	11.20 MBtu	Base Load =	32.41 MBtu	Typical Load =	22.98 MBtu	Residual Load =	9.25 MBtu
Residual Load =	3.10 MBtu	Residual Load =	9.25 MBtu				

Fresno CA

TMY

One Story Prototype Siding Series Two

Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-16.08	R-7	-8.44	R-7	-12.16	R-7	-3.61
R-11	-18.64	R-11	-9.64	R-11	-14.10	R-11	-4.12
R-19	-20.95	R-13	-11.11	R-19	-15.84	R-13	-4.86
R-22	-21.81	R-19	-11.84	R-22	-16.51	R-19	-5.22
R-30	-22.96	R-27	-13.00	R-30	-17.42	R-27	-5.78
R-38	-23.65	R-34	-13.71	R-38	-17.98	R-34	-6.12
R-49	-24.24			R-49	-18.46		
R-60	-24.62			R-60	-18.79		
Slope(DD)	333.49	Slope(DD)	2710.38	Slope(DD)	2702.40	Slope(DD)	1430.21
Curve(DDS)	-72.860	Curve(DDS)	-8.619	Curve(DDS)	-81.128	Curve(DDS)	-39.252

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-10.22	R-0	-6.55	R-0	-7.08	R-0	-3.69
R-5 2ft	-12.79	R-5 4ft	-9.93	R-5 2ft	-7.09	R-5 4ft	-4.13
R-5 4ft	-13.42	R-5 8ft	-10.88	R-5 4ft	-7.06	R-5 8ft	-4.20
R-10 2ft	-13.22	R-10 4ft	-10.73	R-10 2ft	-7.10	R-10 4ft	-4.28
R-10 4ft	-14.08	R-10 8ft	-12.11	R-10 4ft	-7.04	R-10 8ft	-4.39
Intercept	.000	Intercept	3.298	Intercept	.000	Intercept	13.169
Slope(DD)	2665.37	Slope(DD)	1762.24	Slope(DD)	-273.47	Slope(DD)	191.43
Curve(DDS)	3.752	Curve(DDS)	-12.045	Curve(DDS)	15.688	Curve(DDS)	-9.958

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-6.55	R-0	.00	R-0	-3.69	R-0	.00
R-11 flr	-12.77	R-11 flr	-12.46	R-11 flr	-2.40	R-11 flr	-.56
R-19 flr	-14.36	R-19 flr	-14.42	R-19 flr	-2.19	R-19 flr	-.89
R-30 flr	-15.39	R-30 flr	-15.52	R-30 flr	-2.06	R-30 flr	-1.13
Intercept	-1.590	R-38 flr	-15.77	R-38 flr	-1.19	R-38 flr	-1.19
Slope(DD)	2380.12	R-49 flr	-16.49	R-49 flr	-1.36	R-49 flr	-1.36
Curve(DDS)	-178.847	Intercept	-1.669	Intercept	3.351	Intercept	3.324
		Slope(DD)	2203.92	Slope(DD)	-257.81	Slope(DD)	602.26
		Curve(DDS)	20.288	Curve(DDS)	-2.367	Curve(DDS)	-73.202

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.58)	.00	1-Pane	.00	.0007(.45)	.00	1-Pane	.00
.0005(.42)	-3.33	2-Pane	-6.08	.0005(.32)	-.67	2-Pane	-.89
.0003(.26)	-6.24	3-Pane	-7.78	.0003(.19)	-1.32	3-Pane	-1.19
		R-10	-9.79			R-10	-1.54
Slope/.001ELF	6.721	Slope(DD)	2067.37	Slope/.001ELF	1.981	Slope(DD)	400.21
Curve/.001ELF	3.409	Curve(DDS)	4.715	Curve/.001ELF	.162	Curve(DDS)	-1.867

Base Load = 72.63 MBtu
 Typical Load = 25.92 MBtu
 Residual Load = .90 MBtu

Base Load = 47.03 MBtu
 Typical Load = 19.31 MBtu
 Residual Load = -.66 MBtu

Fresno CA TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-6.78	R-7	-3.67	R-7	-4.93	R-7	-1.71
R-11	-7.87	R-11	-4.19	R-11	-6.71	R-11	-1.96
R-19	-8.64	R-13	-4.75	R-19	-6.42	R-13	-2.28
R-22	-9.15	R-19	-5.03	R-22	-6.69	R-19	-2.45
R-30	-9.67	R-27	-5.43	R-30	-7.05	R-27	-2.69
R-38	-9.82	R-34	-5.67	R-38	-7.27	R-34	-2.84
R-49	-10.01			R-49	-7.46		
R-60	-10.14			R-60	-7.59		
Slope(DD)	2913.86	Slope(DD)	2639.96	Slope(DD)	2744.43	Slope(DD)	1450.82
Curve(DDS)	20.244	Curve(DDS)	89.953	Curve(DDS)	-74.812	Curve(DDS)	-24.262
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-4.56	R-0	-3.34	R-0	-2.80	R-0	-1.33
R-5 2ft	-5.11	R-5 4ft	-4.34	R-5 2ft	-2.77	R-5 4ft	-1.47
R-5 4ft	-5.22	R-5 8ft	-4.58	R-5 4ft	-2.75	R-5 8ft	-1.52
R-10 2ft	-5.19	R-10 4ft	-4.55	R-10 2ft	-2.77	R-10 4ft	-1.54
R-10 4ft	-5.33	R-10 8ft	-4.82	R-10 4ft	-2.74	R-10 8ft	-1.54
Intercept	.000	Intercept	4.699	Intercept	.000	Intercept	26.937
Slope(DD)	1375.51	Slope(DD)	1201.77	Slope(DD)	-461.42	Slope(DD)	109.09
Curve(DDS)	56.810	Curve(DDS)	.906	Curve(DDS)	18.109	Curve(DDS)	1.458
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-3.34	R-0	.00	R-0	-1.33	R-0	.00
R-11 flr	-4.76	R-11 flr	-4.30	R-11 flr	-.87	R-11 flr	-.16
R-19 flr	-5.18	R-19 flr	-4.95	R-19 flr	-.79	R-19 flr	-.28
R-30 flr	-5.45	R-30 flr	-5.28	R-30 flr	-.74	R-30 flr	-.35
Intercept	-1.046	R-38 flr	-5.36	R-38 flr	-.37	R-38 flr	-.37
Slope(DD)	1668.03	R-49 flr	-5.58	R-49 flr	-.42	R-49 flr	-.42
Curve(DDS)	-145.055	Intercept	-.953	Intercept	3.440	Intercept	3.612
Infiltration	(/sf flr)	Slope(DD)	1729.85	Slope(DD)	-262.03	Slope(DD)	521.15
ELF Ach		Curve(DDS)	51.079	Curve(DDS)	6.006	Curve(DDS)	-65.130
.0007(.56)	.00	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
.0005(.44)	-2.32	1-Pane	.00	ELF Ach		1-Pane	.00
.0003(.27)	-4.11	2-Pane	-4.29	.0007(.49)	.00	2-Pane	-.57
Slope/.001ELF	3.041	3-Pane	-5.16	.0005(.35)	-.46	3-Pane	-1.78
Curve/.001ELF	5.521	R-10	-6.19	.0003(.21)	-.89	R-10	-.90
		Slope(DD)	1031.32	Slope/.001ELF	1.542	Slope(DD)	227.87
		Curve(DDS)	26.301	Curve/.001ELF	.313	Curve(DDS)	1.114

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

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

Fresno CA TMY MApartment Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Heating Load		Cooling Load		Heating Load		Cooling Load	
Component	(/sf)	Component	(/sf)	Component	(/sf)	Component	(/sf)
Ceiling	.00	18.37	.00	13.30	.00	14.57	.00
R-0	-7.03	6.66	-2.47	5.50	-5.27	5.79	-1.11
R-7	-8.15	4.79	-2.83	4.39	-6.11	4.39	-1.28
R-11	-9.16	3.11	-3.18	3.28	-6.87	3.13	-1.47
R-19	-9.46	2.60	-3.36	2.71	-7.15	2.65	-1.57
R-30	-9.87	1.92	-3.60	1.95	-7.54	2.01	-1.73
R-38	-10.12	1.51	-3.75	1.49	-7.77	1.62	-1.82
R-49	-10.29	1.22			-7.98	1.28	
R-60	-10.40	1.04			-8.11	1.05	
Slope(DD)	2728.53		1768.52		2917.57		1353.02
Curve(DDS)	62.511		131.163		-77.585		-15.786

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Heating Load		Cooling Load		Heating Load		Cooling Load	
Component	(/sf)	Component	(/sf)	Component	(/sf)	Component	(/sf)
Wall	.00	13.30	.00	13.30	.00	14.57	.00
R-0	-5.05	28.45	-4.16	57.78	-2.15	-3.73	-1.24
R-5	-5.61	12.96	-5.08	27.46	-2.16	-3.89	-1.34
R-5 4ft	-5.61	9.61	-5.27	20.95	-2.14	-3.23	-1.36
R-10 2ft	-5.58	10.61	-5.25	21.61	-2.15	-3.73	-1.37
R-10 4ft	-5.70	6.61	-5.49	13.61	-2.13	-2.73	-1.39
Intercept	.000		-1.797		.000		Intercept
Slope(DD)	1617.42		1342.36		-941.30		Slope(DD)
Curve(DDS)	61.106		2.759		52.377		Curve(DDS)

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Heating Load		Cooling Load		Heating Load		Cooling Load	
Component	(/sf)	Component	(/sf)	Component	(/sf)	Component	(/sf)
Unheated Basement	(/sf)	Unheated Basement	(/sf)	Unheated Basement	(/sf)	Unheated Basement	(/sf)
R-0	-4.16	2.89	.00	9.83	-1.24	1.34	.00
R-11 fir	-5.31	.98	-4.60	2.16	-.81	2.05	-.07
R-19 fir	-5.65	.41	-5.25	1.07	-.73	2.18	-.16
R-30 fir	-5.87	.05	-5.58	.52	-.68	2.27	-.23
R-38 fir			-5.66	.40			-.24
R-49 fir			-5.88	.04			-.29
Intercept	-.946		-.834		Intercept	2.490	2.708
Slope(DD)	1355.80		1637.93		Slope(DD)	-286.41	Slope(DD)
Curve(DDS)	-118.553		88.169		Curve(DDS)	12.075	Curve(DDS)

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Heating Load		Cooling Load		Heating Load		Cooling Load	
Component	(/sf)	Component	(/sf)	Component	(/sf)	Component	(/sf)
Infiltration	(/sf fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
ELF Ach	.0007(.58)	1-Pane	.00	ELF Ach	.0007(.45)	1-Pane	.00
.0005(.44)	-2.31	2-Pane	-4.28	.0005(.32)	-.44	2-Pane	-.86
.0003(.27)	-4.01	3-Pane	-5.05	.0003(.19)	-.87	3-Pane	-.86
		R-10	-5.97			R-10	-1.09
Slope/.001ELF	2.000	Slope(DD)	815.74	Slope/.001ELF	1.604	Slope(DD)	319.95
Curve/.001ELF	6.354	Curve(DDS)	31.639	Curve/.001ELF	.208	Curve(DDS)	-.180

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

Base Load = 26.44 MBtu
 Typical Load = 16.71 MBtu
 Residual Load = 3.78 MBtu

Great Falls MT WYEC One Story Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling					
R-0	.00	43.23	R-0	.00	3.70
R-7	-39.89	17.33	R-7	-3.45	1.45
R-11	-46.26	13.19	R-11	-4.00	1.10
R-19	-51.98	9.48	R-19	-4.50	.77
R-22	-54.21	8.03	R-22	-4.68	.65
R-30	-57.19	6.10	R-30	-4.93	.49
R-38	-58.99	4.93	R-38	-5.08	.40
R-49	-60.61	3.88	R-49	-5.21	.31
R-60	-61.85	3.20	R-60	-5.29	.26
Wall					
R-0	.00	41.60	R-0	.00	3.70
R-7	-23.66	20.54	R-7	-3.45	1.45
R-11	-27.03	17.55	R-11	-4.00	1.10
R-13	-31.20	13.84	R-13	-4.50	.77
R-19	-33.26	12.00	R-19	-4.68	.65
R-27	-37.03	8.65	R-27	-4.93	.49
R-34	-39.34	6.59	R-34	-5.08	.40
Slope(DD)					
Slope(DD)	8872.89	8628.80	Slope(DD)	717.58	310.67
Curve(DDS)	-266.684	-186.309	Curve(DDS)	-15.878	-7.708
Slab					
Heated Basement (/ft)					
R-0	-24.94	60.41	R-0	-2.50	-2.75
R-5 2ft	-31.48	21.01	R-5 2ft	-2.36	-1.91
R-5 4ft	-33.48	8.96	R-5 4ft	-2.29	-1.49
R-10 2ft	-32.71	13.80	R-10 2ft	-2.33	-1.73
R-10 4ft	-35.52	-3.33	R-10 4ft	-2.23	-1.12
Intercept	-40.277	.000	Intercept	.242	.000
Slope(DD)	16142.20	7255.03	Slope(DD)	-626.66	-62.33
Curve(DDS)	-548.839	-97.914	Curve(DDS)	32.652	2.480
Unheated Basement (/sf)					
R-0	-12.69	14.47	R-0	-1.89	.10
R-11 flr	-33.50	.95	R-11 flr	-.81	.80
R-19 flr	-39.57	-2.99	R-19 flr	-5.00	1.00
R-30 flr	-43.47	-5.52	R-30 flr	-.30	1.13
Intercept	-12.387	-13.960	Intercept	1.482	1.662
Slope(DD)	9359.54	7822.59	Slope(DD)	-477.14	5.55
Curve(DDS)	-804.004	-131.083	Curve(DDS)	40.459	-13.815
Infiltration (/sf flr) Window U-value (/sf)					
ELF Ach	.007(.98)	27.12	ELF Ach	.007(.58)	.18
.0005(.72)	-12.12	19.25	.0005(.41)	-.08	.13
.0003(.43)	-24.09	11.48	.0003(.25)	-.16	.08
Slope/.001ELF	37.890	8502.72	Slope/.001ELF	.260	90.00
Curve/.001ELF	1.218	-31.905	Curve/.001ELF	.000	-1.487
Window U-value (/sf)					
1-Pane	.00	202.24	1-Pane	.00	1.34
2-Pane	-19.71	95.58	2-Pane	-.09	.85
3-Pane	-26.14	60.77	3-Pane	-.16	.55
R-10	-33.71	19.82	R-10	-.21	.20

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

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)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	45.31	.00
R-7	-16.59	17.66	-10.17
R-11	-19.24	13.24	-11.62
R-19	-21.62	9.28	-13.31
R-22	-22.48	7.85	-14.15
R-30	-23.63	5.93	-15.62
R-38	-24.32	4.78	-16.53
R-49	-24.93	3.76	-16.53
R-60	-25.32	3.11	-16.53
Slope(DD)	8563.47	7769.70	7769.70
Curve(DDS)	-155.390	-37.520	-37.520

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
Heated Basement			
R-0	-12.39	59.48	-8.41
R-5 2ft	-13.98	19.73	-10.81
R-5 4ft	-14.43	8.48	-11.55
R-10 2ft	-14.26	12.73	-11.37
R-10 4ft	-14.88	-2.77	-12.45
Intercept	-35.643	.000	-12.45
Slope(DD)	14116.76	7245.78	7245.78
Curve(DDS)	-392.290	-78.097	-78.097

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
Crawl			
R-0	-8.41	10.60	.00
R-11 flr	-13.26	2.52	-13.51
R-19 flr	-16.01	-.41	-16.78
R-30 flr	-16.14	-2.28	-17.20
R-38 flr	-17.52	-4.58	-17.52
R-49 flr	-18.45	-6.14	-18.45
Intercept	-7.544	-9.704	-9.704
Slope(DD)	7254.65	7269.95	7269.95
Curve(DDS)	-724.787	-112.569	-112.569

Delta Component (KBtu)	(/sf flr)	Delta Component (KBtu)	(/sf)
Infiltration			
Window U-value			
ELF Ach			
.0007(***)	.00	24.67	.00
.0005(.74)	-9.12	17.07	-14.67
.0003(.44)	-17.71	9.91	-19.05
R-10	-24.20	16.63	-24.20

Slope/.001ELF	31.374	Slope(DD)	7079.01
Curve/.001ELF	6.521	Curve(DDS)	-3.154

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

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	4.05	.00
R-7	-1.45	1.63	-1.45
R-11	-1.68	1.24	-1.68
R-19	-1.89	.90	-1.89
R-22	-1.97	.76	-1.97
R-30	-2.08	.59	-2.08
R-38	-2.14	.48	-2.14
R-49	-2.21	.37	-2.21
R-60	-2.25	.30	-2.25
Slope(DD)	844.38	422.36	422.36
Curve(DDS)	-27.311	-17.790	-17.790

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
Heated Basement			
R-0	-1.01	-8.33	-1.01
R-5 2ft	-.95	-6.83	-.95
R-5 4ft	-.92	-6.08	-.92
R-10 2ft	-.94	-6.58	-.94
R-10 4ft	-.91	-5.83	-.91
Intercept	-4.271	.000	-4.271
Slope(DD)	-664.20	-158.62	-664.20
Curve(DDS)	23.581	3.802	23.581

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
Crawl			
R-0	-.71	-.06	-.06
R-11 flr	-.30	.63	-.30
R-19 flr	-.19	.81	-.19
R-30 flr	-.12	.93	-.12
R-38 flr	-.26	1.56	-.26
R-49 flr	-.26	1.56	-.26
Intercept	1.241	1.589	1.241
Slope(DD)	-424.40	-20.05	-424.40
Curve(DDS)	33.457	-13.619	33.457

Delta Component (KBtu)	(/sf flr)	Delta Component (KBtu)	(/sf)
Infiltration			
Window U-value			
ELF Ach			
.0007(.58)	.00	.07	.00
.0005(.41)	-.06	.02	-.06
.0003(.25)	-.09	-.01	-.09
1-Pane		.67	
2-Pane		.25	
3-Pane		.16	
R-10		-.09	

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 Cooling Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling		Ceiling	
R-0	.00	R-0	.00
R-7	-16.20	R-7	-1.46
R-11	-18.79	R-11	-1.69
R-13	-21.11	R-13	-1.90
R-19	-21.93	R-19	-1.99
R-22	-23.02	R-22	-2.11
R-30	-23.69	R-30	-2.18
R-38	-24.24	R-38	-2.24
R-49	-24.60	R-49	-2.28
R-60		R-60	
Slope(DD)	8029.77	Slope(DD)	923.28
Curve(DDS)	-104.329	Curve(DDS)	-37.920
Wall		Wall	
R-0	.00	R-0	.00
R-7	-6.92	R-7	-1.71
R-11	-7.90	R-11	-1.97
R-13	-9.02	R-13	-2.28
R-19	-9.58	R-19	-2.37
R-27	-10.54	R-27	-2.41
R-34	-11.13	R-34	-2.44

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Slab		Slab	
R-0	-13.55	R-0	-62
R-5 2ft	-14.84	R-5 2ft	-57
R-5 4ft	-15.22	R-5 4ft	-56
R-10 2ft	-15.07	R-10 2ft	-54
R-10 4ft	-15.59	R-10 4ft	-54
Intercept	-21.027	Intercept	-312
Slope(DD)	15780.18	Slope(DD)	-917.53
Curve(DDS)	-461.812	Curve(DDS)	-46.476
Heated Basement		Heated Basement	
R-0	-10.39	R-0	-4.80
R-5 4ft	-12.80	R-5 4ft	-3.47
R-5 8ft	-13.26	R-5 8ft	-2.97
R-10 4ft	-13.11	R-10 4ft	-3.14
R-10 8ft	-14.04	R-10 8ft	-2.30
Intercept	.000	Intercept	.000
Slope(DD)	8319.41	Slope(DD)	-177.72
Curve(DDS)	-84.751	Curve(DDS)	-3.829
Unheated Basement		Unheated Basement	
R-0	-10.39	R-0	-4.80
R-11 fir	-13.94	R-11 fir	-3.39
R-19 fir	-16.23	R-19 fir	-1.14
R-30 fir	-17.87	R-30 fir	-1.12
R-38 fir	-18.00	R-38 fir	-1.12
R-49 fir	-18.95	R-49 fir	-1.12
Intercept	-8.386	Intercept	1.101
Slope(DD)	7284.79	Slope(DD)	36.87
Curve(DDS)	-86.178	Curve(DDS)	-19.232
Window U-value		Window U-value	
1-Pane	.00	1-Pane	.00
2-Pane	-14.89	2-Pane	-.06
3-Pane	-19.16	3-Pane	-.09
R-10	-24.17	R-10	-.12

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Intercept	-5.910	Intercept	.913
Slope(DD)	6423.47	Slope(DD)	-370.41
Curve(DDS)	-668.967	Curve(DDS)	34.714
Infiltration		Infiltration	
ELF Ach		ELF Ach	
.0007(***)	.00	.0007(.58)	.18
.0005(.74)	-9.12	.0005(.41)	.13
.0003(.44)	-17.63	.0003(.25)	.08
Slope/.001ELF	30.437	Slope/.001ELF	.292
Curve/.001ELF	6.303	Curve/.001ELF	-.052
Window U-value		Window U-value	
1-Pane	.00	1-Pane	.00
2-Pane	-14.89	2-Pane	-.06
3-Pane	-19.16	3-Pane	-.09
R-10	-24.17	R-10	-.12

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Intercept	-5.910	Intercept	.913
Slope(DD)	6423.47	Slope(DD)	-370.41
Curve(DDS)	-668.967	Curve(DDS)	34.714
Infiltration		Infiltration	
ELF Ach		ELF Ach	
.0007(***)	.00	.0007(.58)	.18
.0005(.74)	-9.12	.0005(.41)	.13
.0003(.44)	-17.63	.0003(.25)	.08
Slope/.001ELF	30.437	Slope/.001ELF	.292
Curve/.001ELF	6.303	Curve/.001ELF	-.052
Window U-value		Window U-value	
1-Pane	.00	1-Pane	.00
2-Pane	-14.89	2-Pane	-.06
3-Pane	-19.16	3-Pane	-.09
R-10	-24.17	R-10	-.12

Base Load = 103.21 MBtu
 Typical Load = 33.35 MBtu
 Residual Load = 5.56 MBtu

Base Load = 5.81 MBtu
 Typical Load = 2.62 MBtu
 Residual Load = .31 MBtu

Honolulu HI TMY One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (MBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-.42	R-7	-.07	R-7	-8.30	R-7	-1.96
R-11	-.49	R-11	-.08	R-11	-9.62	R-11	-2.24
R-19	-.55	R-13	-.09	R-19	-10.81	R-13	-2.40
R-22	-.55	R-19	-.09	R-22	-11.12	R-19	-2.48
R-30	-.55	R-27	-.09	R-30	-11.53	R-27	-2.39
R-38	-.55	R-34	-.09	R-38	-11.78	R-34	-2.34
R-49	-.55			R-49	-11.91		
R-60	-.55			R-60	-12.00		
Slope(DD)	-20.15	Slope(DD)	-3.50	Slope(DD)	959.56	Slope(DD)	-299.19
Curve(DDS)	13.383	Curve(DDS)	3.427	Curve(DDS)	70.790	Curve(DDS)	123.337
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-.09	R-0	-.09	R-0	-6.12	R-0	-.63
R-5 2ft	-.08	R-5 4ft	-.10	R-5 2ft	-6.13	R-5 4ft	-.63
R-5 4ft	-.08	R-5 8ft	-.10	R-5 4ft	-6.14	R-5 8ft	.26
R-10 2ft	-.08	R-10 4ft	-.10	R-10 2ft	-6.15	R-10 4ft	.41
R-10 4ft	-.08	R-10 8ft	-.10	R-10 4ft	-6.13	R-10 8ft	.48
Intercept	.000	Intercept	-.076	Intercept	.000	Intercept	.77
Slope(DD)	13.87	Slope(DD)	-2.99	Slope(DD)	-64.53	Slope(DD)	-479.10
Curve(DDS)	-1.816	Curve(DDS)	.113	Curve(DDS)	6.203	Curve(DDS)	3.683
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.09	R-0	.05	R-0	-.63	R-0	.00
R-11 fir	-.10	R-11 fir	-.06	R-11 fir	.21	R-11 fir	1.28
R-19 fir	-.10	R-19 fir	-.06	R-19 fir	.11	R-19 fir	1.03
R-30 fir	-.10	R-30 fir	-.06	R-30 fir	.04	R-30 fir	.92
		R-38 fir	-.06	R-38 fir	.04	R-38 fir	.90
		R-49 fir	-.06	R-49 fir	.02	R-49 fir	.83
Intercept	-.010	Intercept	.019	Intercept	3.810	Intercept	4.222
Slope(DD)	-1.06	Slope(DD)	-6.00	Slope(DD)	285.94	Slope(DD)	523.16
Curve(DDS)	.432	Curve(DDS)	2.531	Curve(DDS)	-66.288	Curve(DDS)	-111.630
Infiltration	(/sf fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.52)	.00	1-Pane	.00	.0007(.68)	.00	1-Pane	.00
.0005(.37)	-.02	2-Pane	-.04	.0005(.48)	-1.09	2-Pane	1.28
.0003(.22)	-.02	3-Pane	-.04	.0003(.29)	-3.60	3-Pane	2.34
		R-10	-.04			R-10	3.59
Slope/.001ELF	-.130	Slope(DD)	-.8.68	Slope/.001ELF	7.630	Slope(DD)	-1830.71
Curve/.001ELF	.162	Curve(DDS)	.615	Curve/.001ELF	-1.788	Curve(DDS)	35.576
Base Load =	.78 MBtu	Base Load =	.78 MBtu	Base Load =	63.62 MBtu	Base Load =	63.62 MBtu
Typical Load =	.05 MBtu	Typical Load =	.05 MBtu	Typical Load =	42.76 MBtu	Typical Load =	42.76 MBtu
Residual Load =	.06 MBtu	Residual Load =	.06 MBtu	Residual Load =	19.94 MBtu	Residual Load =	19.94 MBtu

Honolulu HI	TMY	Mid Town	Prototype	Siding	Series Two	Cooling Load	
						Heating Load	
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.06	R-0	.00	R-0	.00
R-7	-.10	R-7	-.03	R-7	-2.71	R-7	-.55
R-11	-.12	R-11	-.02	R-11	-3.14	R-11	-.63
R-19	-.13	R-13	-.03	R-19	-3.53	R-13	-.85
R-22	-.13	R-19	-.03	R-22	-3.54	R-19	-.84
R-30	-.13	R-27	-.03	R-30	-3.56	R-27	-.54
R-38	-.13	R-34	-.03	R-38	-3.57	R-34	-.46
R-49	-.13			R-49	-3.59		
R-60	-.13			R-60	-3.60		
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)	163.501
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-.03	R-0	-.03	R-0	-2.41	R-0	.00
R-5	-.03	R-5	-.03	R-5	-2.42	R-5	.26
R-10	-.03	R-10	-.03	R-10	-2.42	R-10	.30
R-10	-.03	R-10	-.03	R-10	-2.36	R-10	.39
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	R-0	.05	R-0	.00	R-0	-.42
R-11	-.03	R-11	-.02	R-11	.45	R-11	.69
R-19	-.03	R-19	-.02	R-19	.49	R-19	.66
R-30	-.03	R-30	-.02	R-30	.52	R-30	.66
Intercept	-.000	Intercept	-.02	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)
ELF Ach	.00	1-Pane	.06	ELF Ach	.00	1-Pane	.00
.0007(.52)	-.01	2-Pane	-.01	.0007(.68)	3.22	2-Pane	1.44
.0005(.37)	-.02	3-Pane	-.01	.0005(.48)	2.43	3-Pane	2.33
.0003(.22)	-.02	R-10	-.01	.0003(.28)	1.54	R-10	3.37
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 =	.21 MBtu	Base Load =	45.93 MBtu	Base Load =	45.93 MBtu
Typical Load =	.01 MBtu	Typical Load =	.01 MBtu	Typical Load =	38.41 MBtu	Typical Load =	38.41 MBtu
Residual Load =	.04 MBtu	Residual Load =	.04 MBtu	Residual Load =	24.01 MBtu	Residual Load =	24.01 MBtu

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.04	R-0	.00	R-0	.00
R-7	-.15	R-7	-.01	R-7	-3.02	R-7	-.33
R-11	-.18	R-11	-.01	R-11	-3.51	R-11	-.38
R-19	-.20	R-13	-.01	R-19	-3.94	R-13	-.52
R-22	-.20	R-19	-.01	R-22	-4.00	R-19	-.26
R-30	-.20	R-27	-.01	R-30	-4.08	R-27	-.21
R-38	-.20	R-34	-.01	R-38	-4.13	R-34	-.17
R-49	-.20			R-49	-4.05	R-27	-.87
R-60	-.20			R-60	-4.00	R-34	-.14
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	R-0	-.01	R-0	-1.71	R-0	.00
R-5 2ft	-.01	R-5 4ft	-.01	R-5 2ft	-1.75	R-5 4ft	.26
R-5 4ft	-.01	R-5 8ft	-.01	R-5 4ft	-1.75	R-5 8ft	.35
R-10 2ft	-.01	R-10 4ft	-.01	R-10 2ft	-1.75	R-10 4ft	.35
R-10 4ft	-.01	R-10 8ft	-.01	R-10 4ft	-1.72	R-10 8ft	.41
Intercept	.000	Intercept	.000	Intercept	.000	Intercept	74.498
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	R-0	.02	R-0	.00	R-0	-.86
R-11 fir	-.01	R-11 fir	-.01	R-11 fir	.80	R-11 fir	.74
R-19 fir	-.01	R-19 fir	-.01	R-19 fir	.84	R-19 fir	.86
R-30 fir	-.01	R-30 fir	-.01	R-30 fir	.87	R-30 fir	.93
		R-38 fir	-.01			R-38 fir	.95
		R-49 fir	-.01			R-49 fir	1.00
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)	-60.162	Curve(DDS)	-96.429
Infiltration	(/sf fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.52)	.00	1-Pane	.10	.0007(.68)	.00	1-Pane	.00
.0005(.37)	-.01	2-Pane	-.01	.0005(.47)	-.77	2-Pane	1.50
.0003(.22)	-.01	3-Pane	-.01	.0003(.28)	-1.78	3-Pane	2.36
		R-10	-.01			R-10	3.38
Slope/.001ELF	-.042	Slope(DD)	-4.18	Slope/.001ELF	6.271	Slope(DD)	-1785.91
Curve/.001ELF	.052	Curve(DDS)	.298	Curve/.001ELF	-2.562	Curve(DDS)	28.217
Base Load =	.25 MBtu	Base Load =	43.43 MBtu	Base Load =	43.43 MBtu	Base Load =	43.43 MBtu
Typical Load =	.02 MBtu	Typical Load =	.02 MBtu	Typical Load =	36.60 MBtu	Typical Load =	36.60 MBtu
Residual Load =	.02 MBtu	Residual Load =	.02 MBtu	Residual Load =	22.04 MBtu	Residual Load =	22.04 MBtu

Jacksonville FL TMY One Story Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	R-0 .00	9.41	7.61	Wall	R-0 .00	8.53	3.94
R-7	-8.93	3.61	3.43	R-7	-8.17	3.22	1.73
R-11	-10.35	2.89	2.83	R-11	-9.48	2.38	1.42
R-19	-11.63	1.85	2.16	R-19	-10.65	1.61	1.06
R-22	-12.08	1.56	1.83	R-22	-11.04	1.36	0.89
R-30	-12.69	1.17	1.32	R-30	-11.57	1.02	0.65
R-38	-13.05	.93	1.02	R-38	-11.89	.81	0.50
R-49	-13.34	.75	.65	R-49	-12.14	.65	
R-60	-13.62	.63	.54	R-60	-12.30	.54	
Slope(DD)	1693.93	1264.52		Slope(DD)	1460.70		613.32
Curve(DDS)	-18.093	27.966		Curve(DDS)	-3.716		22.176

Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab	R-0	-6.18	13.75	Heated Basement	R-0	-6.80	-2.43
R-5	2ft	-7.38	6.52	R-5	4ft	-1.50	25.73
R-5	4ft	-7.73	4.41	R-5	8ft	-6.96	-2.44
R-10	2ft	-7.73	4.41	R-10	4ft	-7.00	-2.43
R-10	4ft	-8.10	2.18	R-10	8ft	-7.00	-2.42
Intercept	.000		5.55	R-10	8ft	-9.8	25.37
Slope(DD)	676.79	-1.000		Intercept		.000	24.704
Curve(DDS)	35.529	595.79		Slope(DD)		-449.29	81.07
		-531		Curve(DDS)		32.544	-1.374

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement	R-0	-4.74	2.42	Unheated Basement	R-0	-2.43	2.77
R-11	f1r	-7.39	.70	R-11	f1r	-.66	3.79
R-19	f1r	-7.99	.31	R-19	f1r	-.62	3.95
R-30	f1r	-8.37	.06	R-30	f1r	-.46	4.05
Intercept		-.581		Intercept		4.287	4.386
Slope(DD)	856.10	815.59		Slope(DD)		-297.79	385.13
Curve(DDS)	-52.939	66.291		Curve(DDS)		.527	-76.378

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration	ELF Ach	.0007(.68)	26.88	Infiltration	ELF Ach	.0007(.58)	3.99
R-11	f1r	-1.95	2.26	R-11	f1r	-.58	2.96
R-19	f1r	-3.58	1.20	R-19	f1r	-3.30	1.85
Intercept			1.12	Intercept			1.85
Slope(DD)	3.214	424.74		Slope(DD)		6.494	-519.79
Curve(DDS)	2.598	22.480		Curve(DDS)		-1.136	14.009

Base Load = 38.79 MBtu Typical Load = 12.46 MBtu Residual Load = 1.16 MBtu

Base Load = 48.97 MBtu Typical Load = 26.96 MBtu Residual Load = 6.95 MBtu

Jacksonville FL TMY Mid Town Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	9.39	R-0	.00	7.85
R-7	-3.65	3.31	R-7	-2.97	2.90
R-11	-4.24	2.33	R-11	-3.44	2.11
R-19	-4.76	1.46	R-19	-3.87	1.40
R-22	-4.90	1.22	R-22	-4.00	1.18
R-30	-5.09	.90	R-30	-4.18	.88
R-38	-5.21	.71	R-38	-4.29	.70
R-49	-5.30	.57	R-49	-4.38	.56
R-60	-5.35	.48	R-60	-4.43	.46
Slope(DD)	1255.72	665.57	Slope(DD)	1247.82	301.93
Curve(DDS)	55.438	102.919	Curve(DDS)	12.794	47.875
Slab			Slab		
Heated Basement (/ft)			Heated Basement (/ft)		
R-0	-2.59	7.79	R-0	-2.53	-6.25
R-5 2ft	-2.81	2.29	R-5 2ft	-2.56	-8.00
R-5 4ft	-2.85	1.29	R-5 4ft	-2.51	-4.75
R-10 2ft	-2.85	1.29	R-10 2ft	-2.53	-5.25
R-10 4ft	-2.89	.29	R-10 4ft	-2.45	-3.25
Intercept	.000	.037	Intercept	.000	.000
Slope(DD)	-39.88	85.31	Slope(DD)	-1376.81	41.607
Curve(DDS)	54.376	8.571	Curve(DDS)	77.020	-24.77
Unheated Basement (/sf)			Unheated Basement (/sf)		
R-0	-2.19	1.19	R-0	-.66	2.77
R-11 flr	-2.73	.29	R-11 flr	.01	3.88
R-19 flr	-2.85	.09	R-19 flr	.11	4.05
R-30 flr	-2.92	-.03	R-30 flr	.17	4.15
Intercept	-.346	-.017	Intercept	4.384	4.339
Slope(DD)	418.89	550.11	Slope(DD)	-294.32	567.02
Curve(DDS)	-23.437	77.306	Curve(DDS)	-4.113	-128.557
Infiltration (/sf flr)			Infiltration (/sf flr)		
Window U-value			Window U-value		
1-Pane	.00	22.18	1-Pane	.00	-12.00
2-Pane	-1.33	.87	2-Pane	-1.13	.46
3-Pane	-2.14	.20	3-Pane	-2.27	.90
R-10	-.20	-.06	R-10	1.44	-5.77
Slope/.001ELF	-.959	351.44	Slope/.001ELF	4.833	-984.69
Curve/.001ELF	5.417	18.510	Curve/.001ELF	-.104	20.086

Base Load =	16.85 MBtu	Base Load =	33.62 MBtu
Typical Load =	5.73 MBtu	Typical Load =	25.03 MBtu
Residual Load =	3.11 MBtu	Residual Load =	13.27 MBtu

Jacksonville FL TMY MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall
R-0	.00	.00	R-0	.00	7.87	.00	R-0
R-7	-3.77	3.25	R-7	-1.30	2.21	-3.10	R-7
R-11	-4.37	2.24	R-11	-1.48	1.62	-3.60	R-11
R-19	-4.91	1.34	R-13	-1.63	1.14	-4.04	R-13
R-22	-6.04	1.12	R-19	-1.71	.90	-4.14	R-19
R-30	-5.22	.83	R-27	-1.79	.63	-4.29	R-27
R-38	-5.32	.65	R-34	-1.85	.47	-4.37	R-34
R-49	-5.41	.51				-4.46	R-49
R-60	-5.48	.43				-4.51	R-60
Slope(DD)	1123.01	479.55	Slope(DD)	968.76		968.76	Slope(DD)
Curve(DDS)	81.603	128.363	Curve(DDS)	60.525		60.525	Curve(DDS)
Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall
R-0	-2.84	8.76	R-0	-1.83	4.98	-1.83	R-0
R-5 2ft	-3.03	2.60	R-5 4ft	-2.57	17.76	-1.85	R-5 4ft
R-5 4ft	-3.07	1.10	R-5 8ft	-2.99	3.76	-1.85	R-5 8ft
R-10 2ft	-3.07	1.10	R-10 4ft	-3.06	1.43	-1.84	R-10 4ft
R-10 4ft	-3.10	.26	R-10 8ft	-3.10	.26	-1.85	R-10 8ft
Intercept	.000		Intercept	-.780		-1.91	Intercept
Slope(DD)	-115.81		Slope(DD)	-56.79		989.74	Slope(DD)
Curve(DDS)	67.062		Curve(DDS)	12.537		-47.893	Curve(DDS)
Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall
R-0	-2.57	.89	R-0	-1.40	2.62	-1.40	R-0
R-11 flr	-3.01	.15	R-11 flr	-2.41	1.16	.22	R-11 flr
R-19 flr	-3.11	.00	R-19 flr	-2.71	.66	.34	R-19 flr
R-30 flr	-3.16	-.10	R-30 flr	-2.83	.47	.42	R-30 flr
Intercept	-.342		R-38 flr	-2.85	.42		R-38 flr
Slope(DD)	326.97		R-49 flr	-2.93	.29		R-49 flr
Curve(DDS)	-16.984		Intercept	-.047		4.314	Intercept
Unheated Basement (/sf)			Slope(DD)	568.38		-425.57	Slope(DD)
			Curve(DDS)	87.970		18.402	Curve(DDS)
Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Wall
R-0	.00	0.00	R-0	.00	3.45	.00	R-0
1-Pane	.00	21.24	1-Pane	.00	3.45	.00	1-Pane
2-Pane	-2.21	5.89	2-Pane	-1.09	2.54	.97	2-Pane
3-Pane	-2.55	3.52	3-Pane	-2.25	1.57	.83	3-Pane
R-10	-2.95	.72	R-10	1.38	-2.41	1.38	R-10
Slope/.001ELF	-1.313	257.45	Slope/.001ELF	5.479	-1080.02		Slope(DD)
Curve/.001ELF	5.677	20.725	Curve/.001ELF	-.781	23.703		Curve(DDS)

Base Load = 15.94 MBtu
 Typical Load = 5.20 MBtu
 Residual Load = 3.33 MBtu

Base Load = 31.35 MBtu
 Typical Load = 23.68 MBtu
 Residual Load = 11.85 MBtu

Juneau AK

TMY

One Story Prototype Siding

Series Two

Heating Load

Delta Component (MBtu)		Delta Component (/sf)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	49.32	48.11	.00	.00	.05	.00
R-7 -45.32	R-7 -27.15	19.89	23.95	-.05	-.02	.05	.00
R-11 -52.56	R-11 -31.02	16.19	20.51	-.06	.01	.01	.00
R-19 -59.06	R-13 -35.81	10.97	16.24	-.07	.01	.01	.00
R-22 -61.63	R-19 -38.19	9.30	14.13	-.07	.01	.01	.00
R-30 -65.06	R-27 -42.64	7.07	10.16	-.07	.01	.01	.00
R-38 -67.14	R-34 -45.38	5.72	7.73	-.07	.01	.01	.00
R-49 -69.03		4.49		-.08	.00	.00	.00
R-60 -70.25		3.70		-.08	.00	.00	.00
Slope(DD) 10298.72	Slope(DD) 10168.58			Slope(DD) 6.60	Slope(DD) .00	Slope(DD) .00	Slope(DD) .00
Curve(DDS) -334.001	Curve(DDS) -227.541			Curve(DDS) .375	Curve(DDS) .000	Curve(DDS) .000	Curve(DDS) .000

Delta Component (MBtu)		Delta Component (/sf)		Delta Component (KBtu)		Delta Component (KBtu)	
Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
R-0 -23.37	R-0 -14.50	122.39	176.83	-.03	-.31	-.01	-.19
R-5 2ft -33.15	R-5 4ft -23.04	63.48	124.38	-.02	-.25	-.01	-.19
R-5 4ft -36.61	R-5 8ft -26.81	42.64	101.67	-.02	-.25	-.01	-.19
R-10 2ft -34.90	R-10 4ft -26.39	52.94	110.23	-.02	-.25	-.01	-.19
R-10 4ft -39.60	R-10 8ft -31.15	24.62	76.53	-.01	-.19	-.00	-.13
Intercept -33.664	Intercept .000			Intercept -.070	Intercept .000	Intercept .000	Intercept .000
Slope(DD) 16956.09	Slope(DD) 7627.98			Slope(DD) -39.84	Slope(DD) -14.46	Slope(DD) -14.46	Slope(DD) -14.46
Curve(DDS) -338.654	Curve(DDS) -81.964			Curve(DDS) 1.684	Curve(DDS) .239	Curve(DDS) .239	Curve(DDS) .239

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
R-0 -14.50	R-0 .00	18.95	28.37	-.01	-.02	.00	.01
R-11 flr -40.28	R-11 flr -42.28	2.21	.91	.00	-.01	.01	-.01
R-19 flr -47.37	R-19 flr -49.68	-2.39	-3.89	.00	-.01	.00	-.01
R-30 flr -51.92	R-30 flr -54.40	-5.35	-6.96	.00	-.01	.00	-.01
Intercept -13.278	R-38 flr -55.48		-7.66	.00	-.01	.00	-.01
Slope(DD) 10770.33	R-49 flr -58.59		-9.88	Intercept -.014	Intercept .00	Intercept .00	Intercept .00
Curve(DDS) -874.605	Intercept -14.325			Slope(DD) 1.08	Slope(DD) 11.27	Slope(DD) 11.27	Slope(DD) 11.27
	Curve(DDS) -237.908			Curve(DDS) -.432	Curve(DDS) -1.687	Curve(DDS) -1.687	Curve(DDS) -1.687

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
ELF Ach .0007(.77)	1-Pane .00	226.57	226.57	.00	.00	.00	.00
.0005(.56)	2-Pane -21.18	111.96	111.96	.00	.00	.00	.00
.0003(.33)	3-Pane -28.67	71.45	71.45	.00	.00	.00	.00
Slope/.001ELF 40.064	R-10 -37.47	23.81	23.81	Slope/.001ELF .000	Slope(DD) .000	Slope(DD) .000	Slope(DD) .000
Curve/.001ELF .325	Curve(DDS) -64.083			Curve/.001ELF .000	Curve(DDS) .000	Curve(DDS) .000	Curve(DDS) .000

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

Juneau AK TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-19.12	R-7	-11.81	R-7	-.03	R-7	.00
R-11	-22.17	R-11	-13.49	R-11	-.04	R-11	.00
R-19	-24.91	R-13	-15.48	R-19	-.04	R-13	.00
R-22	-25.92	R-19	-16.47	R-22	-.04	R-19	.00
R-30	-27.27	R-27	-18.20	R-30	-.04	R-27	.00
R-38	-28.09	R-34	-19.27	R-38	-.04	R-34	.00
R-49	-28.80			R-49	-.05		
R-60	-29.25			R-60	-.05		
Slope(DD)	10096.13	Slope(DD)	9219.22	Slope(DD)	19.76	Slope(DD)	.00
Curve(DDS)	-211.526	Curve(DDS)	-69.836	Curve(DDS)	-.912	Curve(DDS)	.000
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-12.62	R-0	-9.55	R-0	.00	R-0	.00
R-5 2ft	-15.09	R-5 4ft	-12.61	R-5 2ft	.00	R-5 4ft	.00
R-5 4ft	-15.91	R-5 8ft	-13.68	R-5 4ft	.01	R-5 8ft	.00
R-10 2ft	-16.51	R-10 4ft	-13.35	R-10 2ft	.00	R-10 4ft	.00
R-10 4ft	-16.58	R-10 8ft	-14.87	R-10 4ft	.01	R-10 8ft	.00
Intercept	-15.369	Intercept	.000	Intercept	.890	Intercept	.000
Slope(DD)	15024.47	Slope(DD)	7872.97	Slope(DD)	-203.99	Slope(DD)	.00
Curve(DDS)	-207.030	Curve(DDS)	-66.519	Curve(DDS)	10.738	Curve(DDS)	.000
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-9.55	R-0	.00	R-0	.00	R-0	.00
R-11 flr	-15.73	R-11 flr	-15.53	R-11 flr	.00	R-11 flr	.00
R-19 flr	-17.77	R-19 flr	-18.18	R-19 flr	.00	R-19 flr	.02
R-30 flr	-19.08	R-30 flr	-19.86	R-30 flr	.00	R-30 flr	.02
		R-38 flr	-20.24	R-38 flr	.00	R-38 flr	.02
		R-49 flr	-21.34	R-49 flr	.000	R-49 flr	.02
Intercept	-7.696	Intercept	-9.640	Intercept	.000	Intercept	.031
Slope(DD)	8292.19	Slope(DD)	8627.40	Slope(DD)	.00	Slope(DD)	5.13
Curve(DDS)	-783.368	Curve(DDS)	-169.476	Curve(DDS)	.000	Curve(DDS)	-2.165
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.78)	.00	2-Pane	.00	.0007(.58)	.00	2-Pane	.00
.0005(.57)	-9.53	3-Pane	.00	.0005(.42)	.00	3-Pane	.00
.0003(.36)	-18.54	R-10	-26.94	.0003(.25)	.00	R-10	.00
Slope/.001ELF	33.208	Slope(DD)	8244.36	Slope/.001ELF	.000	Slope(DD)	-11.71
Curve/.001ELF	5.417	Curve(DDS)	-16.165	Curve/.001ELF	.000	Curve(DDS)	.307
Base Load =	123.53 MBtu	Base Load =	.08 MBtu	Base Load =	.08 MBtu	Base Load =	.08 MBtu
Typical Load =	40.75 MBtu	Typical Load =	1.44 MBtu	Typical Load =	.04 MBtu	Typical Load =	.04 MBtu
Residual Load =	1.44 MBtu	Residual Load =		Residual Load =	.02 MBtu	Residual Load =	.02 MBtu

Juneau AK TMY MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Coiling		Coiling		Coiling		Coiling	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-18.80	R-7	-8.06	R-7	-.03	R-7	-.03
R-11	-21.80	R-11	-9.21	R-11	-.04	R-11	-.04
R-19	-24.49	R-13	-10.52	R-19	-.04	R-13	-.04
R-22	-25.46	R-19	-11.18	R-22	-.04	R-19	-.04
R-30	-26.76	R-27	-12.32	R-30	-.04	R-27	-.04
R-38	-27.53	R-34	-13.02	R-38	-.05	R-34	-.05
R-49	-28.19			R-49	-.05		
R-60	-28.62			R-60	-.05		
Slope(DD)	9631.35	Slope(DD)	8968.45	Slope(DD)	11.51	Slope(DD)	20.54
Curve(DDS)	-151.495	Curve(DDS)	-6.980	Curve(DDS)	.341	Curve(DDS)	-2.854
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-14.29	R-0	-11.93	R-0	-.01	R-0	-.01
R-5 2ft	-16.28	R-5 4ft	-14.76	R-5 2ft	.00	R-5 4ft	.00
R-5 4ft	-16.98	R-5 8ft	-15.69	R-5 4ft	.00	R-5 8ft	.00
R-10 2ft	-16.63	R-10 4ft	-15.42	R-10 2ft	.00	R-10 4ft	.00
R-10 4ft	-17.56	R-10 8ft	-16.71	R-10 4ft	.00	R-10 8ft	.00
Intercept	-1.880	Intercept	.000	Intercept	-.081	Intercept	.000
Slope(DD)	18297.85	Slope(DD)	8705.21	Slope(DD)	33.82	Slope(DD)	.00
Curve(DDS)	-339.012	Curve(DDS)	-66.109	Curve(DDS)	-3.358	Curve(DDS)	.000
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-11.93	R-0	.00	R-0	.00	R-0	.00
R-11 fir	-16.92	R-11 fir	-15.97	R-11 fir	.01	R-11 fir	.00
R-19 fir	-18.67	R-19 fir	-18.63	R-19 fir	.00	R-19 fir	.00
R-30 fir	-19.81	R-30 fir	-20.31	R-30 fir	.00	R-30 fir	.00
Intercept	-5.930	Intercept	-8.174	Intercept	-.011	Intercept	-.008
Slope(DD)	7247.64	Slope(DD)	8553.98	Slope(DD)	16.24	Slope(DD)	14.94
Curve(DDS)	-714.192	Curve(DDS)	-127.477	Curve(DDS)	-2.745	Curve(DDS)	-2.615
Infiltration	(/sf fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.78)	.00	1-Pane	.00	.0007(.68)	.00	1-Pane	.00
.0005(.57)	-9.50	2-Pane	-16.37	.0005(.42)	.00	2-Pane	-.00
.0003(.36)	-18.44	3-Pane	-21.29	.0003(.25)	.01	3-Pane	-.01
		R-10	-27.07			R-10	-.01
Slope/.001ELF	32.583	Slope(DD)	7976.22	Slope/.001ELF	-.063	Slope(DD)	10.32
Curve/.001ELF	5.834	Curve(DDS)	-5.533	Curve/.001ELF	.052	Curve(DDS)	-2.208
Base Load =	116.30 MBtu	Base Load =	.08 MBtu	Base Load =	.08 MBtu	Base Load =	.08 MBtu
Typical Load =	36.97 MBtu	Typical Load =	.02 MBtu	Typical Load =	.02 MBtu	Typical Load =	.02 MBtu
Residual Load =	1.31 MBtu	Residual Load =	-.00 MBtu	Residual Load =	-.00 MBtu	Residual Load =	-.00 MBtu

Kansas City MO WYEC One Story Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -25.66	R-7 -14.80	R-7 -14.80	R-7 -14.80	R-7 -7.53	R-7 -2.52	R-7 -7.53	R-7 -2.52
R-11 -29.76	R-11 -16.91	R-11 -16.91	R-11 -16.91	R-11 -8.73	R-11 -2.88	R-11 -8.73	R-11 -2.88
R-19 -33.44	R-13 -19.49	R-13 -19.49	R-13 -19.49	R-19 -9.81	R-13 -3.37	R-19 -9.81	R-13 -3.37
R-22 -34.86	R-19 -20.77	R-19 -20.77	R-19 -20.77	R-22 -10.24	R-19 -3.62	R-22 -10.24	R-19 -3.62
R-30 -38.76	R-27 -23.10	R-27 -23.10	R-27 -23.10	R-30 -10.81	R-27 -4.06	R-30 -10.81	R-27 -4.06
R-38 -37.91	R-34 -24.53	R-34 -24.53	R-34 -24.53	R-38 -11.16	R-34 -4.33	R-38 -11.16	R-34 -4.33
R-49 -38.93				R-49 -11.48		R-49 -11.48	
R-60 -39.59				R-60 -11.69		R-60 -11.69	
Slope(DD) 5632.19	Slope(DD) 5311.20	Slope(DD) 5311.20	Slope(DD) 5311.20	Slope(DD) 1732.35	Slope(DD) 1065.41	Slope(DD) 1732.35	Slope(DD) 1065.41
Curve(DDS) -160.727	Curve(DDS) -92.473	Curve(DDS) -92.473	Curve(DDS) -92.473	Curve(DDS) -68.591	Curve(DDS) -38.959	Curve(DDS) -68.591	Curve(DDS) -38.959
Slab	Heated Basement	Heated Basement	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
R-0 -15.06	R-0 -7.75	R-0 -7.75	R-0 -7.75	R-0 -8.07	R-0 -4.86	R-0 -8.07	R-0 -4.86
R-5 2ft -19.21	R-5 4ft -12.20	R-5 4ft -12.20	R-5 4ft -12.20	R-5 2ft -8.28	R-5 4ft -6.24	R-5 2ft -8.28	R-5 4ft -6.24
R-5 4ft -20.41	R-5 8ft -13.82	R-5 8ft -13.82	R-5 8ft -13.82	R-5 4ft -8.26	R-5 8ft -6.44	R-5 4ft -8.26	R-5 8ft -6.44
R-10 2ft -19.97	R-10 2ft -13.36	R-10 2ft -13.36	R-10 2ft -13.36	R-10 2ft -8.33	R-10 4ft -6.64	R-10 2ft -8.33	R-10 4ft -6.64
R-10 4ft -21.64	R-10 8ft -15.88	R-10 8ft -15.88	R-10 8ft -15.88	R-10 4ft -8.27	R-10 8ft -6.94	R-10 4ft -8.27	R-10 8ft -6.94
Intercept -21.898	Intercept .000	Intercept .000	Intercept .000	Intercept -1.950	Intercept .000	Intercept -1.950	Intercept .000
Slope(DD) 6812.03	Slope(DD) 3568.31	Slope(DD) 3568.31	Slope(DD) 3568.31	Slope(DD) -394.88	Slope(DD) 493.43	Slope(DD) -394.88	Slope(DD) 493.43
Curve(DDS) -108.571	Curve(DDS) -37.170	Curve(DDS) -37.170	Curve(DDS) -37.170	Curve(DDS) 37.454	Curve(DDS) -1.278	Curve(DDS) 37.454	Curve(DDS) -1.278
Unheated Basement (/sf)	Crawl	Crawl	Crawl	Unheated Basement (/sf)	Crawl	Unheated Basement (/sf)	Crawl
R-0 -7.75	R-0 8.92	R-0 8.92	R-0 8.92	R-0 -4.86	R-0 1.91	R-0 -4.86	R-0 1.91
R-11 flr -20.71	R-11 flr .51	R-11 flr .51	R-11 flr .51	R-11 flr -1.80	R-11 flr .96	R-11 flr -1.80	R-11 flr .96
R-19 flr -24.28	R-19 flr -1.81	R-19 flr -1.81	R-19 flr -1.81	R-19 flr -.93	R-19 flr 4.46	R-19 flr -.93	R-19 flr 4.46
R-30 flr -26.58	R-30 flr -3.30	R-30 flr -3.30	R-30 flr -3.30	R-30 flr -.37	R-30 flr 4.82	R-30 flr -.37	R-30 flr 4.82
Intercept -7.307	Intercept -7.307	Intercept -7.307	Intercept -7.307	Intercept 5.802	Intercept 5.772	Intercept 5.802	Intercept 5.772
Slope(DD) 5435.76	Slope(DD) 5435.76	Slope(DD) 5435.76	Slope(DD) 5435.76	Slope(DD) -1334.50	Slope(DD) -33.09	Slope(DD) -1334.50	Slope(DD) -33.09
Curve(DDS) -442.821	Curve(DDS) -442.821	Curve(DDS) -442.821	Curve(DDS) -442.821	Curve(DDS) 112.073	Curve(DDS) -20.536	Curve(DDS) 112.073	Curve(DDS) -20.536
Infiltration (/sf flr)	Window U-value	Window U-value	Window U-value	Infiltration (/sf flr)	Window U-value	Infiltration (/sf flr)	Window U-value
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.76)	.00 13.74	.00 13.74	.00 13.74	.0007(.60)	.00 2.40	.0007(.60)	.00 2.40
.0005(.54)	-8.17 9.73	-8.17 9.73	-8.17 9.73	.0005(.43)	-1.08 1.70	.0005(.43)	-1.08 1.70
.0003(.33)	-12.24 5.79	-12.24 5.79	-12.24 5.79	.0003(.26)	-2.14 1.01	.0003(.26)	-2.14 1.01
Slope/.001ELF 19.058	Slope(DD) 5388.58	Slope(DD) 5388.58	Slope(DD) 5388.58	Slope/.001ELF 3.312	Slope(DD) 352.33	Slope/.001ELF 3.312	Slope(DD) 352.33
Curve/.001ELF .812	Curve(DDS) -24.398	Curve(DDS) -24.398	Curve(DDS) -24.398	Curve/.001ELF .162	Curve(DDS) -2.649	Curve/.001ELF .162	Curve(DDS) -2.649
Base Load = 132.09 MBtu	Base Load = 132.09 MBtu	Base Load = 132.09 MBtu	Base Load = 132.09 MBtu	Typical Load = 13.04 MBtu	Typical Load = 13.04 MBtu	Typical Load = 13.04 MBtu	Typical Load = 13.04 MBtu
Residual Load = 6.32 MBtu	Residual Load = 6.32 MBtu	Residual Load = 6.32 MBtu	Residual Load = 6.32 MBtu	Residual Load = -3.64 MBtu	Residual Load = -3.64 MBtu	Residual Load = -3.64 MBtu	Residual Load = -3.64 MBtu

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Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-10.61	R-7	-6.33	R-7	-2.91	R-7	-1.02
R-11	-12.31	R-11	-7.23	R-11	-3.37	R-11	-1.17
R-19	-13.83	R-19	-8.27	R-19	-3.79	R-19	-1.35
R-22	-14.37	R-19	-8.78	R-22	-3.94	R-19	-1.44
R-30	-15.09	R-27	-9.65	R-30	-4.13	R-27	-1.57
R-38	-15.52	R-34	-10.18	R-38	-4.25	R-34	-1.65
R-49	-15.88			R-49	-4.35		
R-60	-16.12			R-60	-4.42		
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	R-0	-4.96	R-0	-3.21	R-0	-2.01
R-5	-8.37	R-5	-6.48	R-5	-3.24	R-5	-2.37
R-10	-8.53	R-5	-6.91	R-10	-3.20	R-5	-2.40
R-10	-8.85	R-10	-6.82	R-10	-3.23	R-10	-2.48
Intercept	-18.790	R-10	-7.42	R-10	-3.21	R-10	-2.59
Slope(DD)	4457.71	Intercept	.000	Intercept	-5.918	Intercept	.000
Curve(DDS)	13.717	Slope(DD)	3223.85	Slope(DD)	-672.17	Slope(DD)	795.14
		Curve(DDS)	-22.081	Curve(DDS)	44.630	Curve(DDS)	-6.027
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.96	R-0	.00	R-0	-2.01	R-0	.00
R-11	-7.97	R-11	-7.88	R-11	-0.71	R-11	.52
R-19	-8.96	R-19	-9.20	R-19	-0.31	R-19	.59
R-30	-9.60	R-30	-10.00	R-30	-0.05	R-30	.65
Intercept	-4.432	R-38	-10.18	R-38	.70	R-38	.66
Slope(DD)	4033.98	R-49	-10.71	R-49	5.923	R-49	5.99
Curve(DDS)	-380.842	Intercept	-5.388	Intercept	-1611.36	Intercept	6.098
Infiltration	(/sf flr)	Slope(DD)	4134.41	Slope(DD)	146.208	Slope(DD)	-242.29
ELF Ach		Curve(DDS)	-49.674	Curve(DDS)	145.208	Curve(DDS)	-9.948
.0007(.78)	.00	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
.0005(.54)	-4.64	1-Pane	.00	ELF Ach		1-Pane	.00
.0003(.32)	-8.85	2-Pane	-8.93	.0007(.60)	.00	2-Pane	-.38
		3-Pane	-11.35	.0003(.25)	-1.51	3-Pane	-.39
		R-10	-14.20			R-10	-.40
Slope/.001ELF	13.958	Slope(DD)	3687.04	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 =	14.56 MBtu	Typical Load =	4.62 MBtu
Typical Load =	17.57 MBtu	Residual Load =	3.84 MBtu	Residual Load =	14.56 MBtu	Residual Load =	4.62 MBtu

Heating Load Cooling Load

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	27.86	R-0	.00	7.46
R-7	-10.37	10.58	R-7	-2.79	2.81
R-11	-12.02	7.82	R-11	-3.23	2.07
R-19	-13.51	5.34	R-19	-3.64	1.40
R-22	-14.01	4.50	R-22	-3.77	1.18
R-30	-14.69	3.37	R-30	-3.95	.87
R-38	-15.10	2.69	R-38	-4.07	.69
R-49	-15.43	2.15	R-49	-4.14	.56
R-60	-15.64	1.79	R-60	-4.19	.48
Slope(DD)	4854.69		Slope(DD)	1265.20	
Curve(DDS)	-26.220		Curve(DDS)	-1.085	
Slab			Slab		
Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0	-8.14	47.23	R-0	-2.64	-9.17
R-5 2ft	-8.93	21.06	R-5 2ft	-2.68	-10.34
R-5 4ft	-9.14	14.06	R-5 4ft	-2.65	-9.51
R-10 2ft	-9.06	16.73	R-10 2ft	-2.67	-10.17
R-10 4ft	-9.34	7.06	R-10 4ft	-2.65	-9.51
Intercept	-12.030		Intercept	-7.131	
Slope(DD)	5858.81		Slope(DD)	-884.87	
Curve(DDS)	-52.566		Curve(DDS)	62.430	
Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0	-6.11	5.74	R-0	-1.81	.93
R-11 flr	-8.61	1.58	R-11 flr	-7.2	2.75
R-19 flr	-9.51	.07	R-19 flr	-3.30	3.30
R-30 flr	-10.10	-.90	R-30 flr	-1.17	3.66
Intercept	-3.609		Intercept	4.628	
Slope(DD)	3740.86		Slope(DD)	-1326.10	
Curve(DDS)	-373.799		Curve(DDS)	118.076	
Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)
Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
1-Pane	.00	11.78	1-Pane	.00	1.97
2-Pane	-4.63	7.92	2-Pane	-0.75	1.34
3-Pane	-8.78	4.46	3-Pane	-1.44	.77
R-10	-14.22	8.54	R-10	-1.44	.77
Slope(/.001ELF)	13.395		Slope(/.001ELF)	2.375	
Curve(/.001ELF)	4.897		Curve(/.001ELF)	.625	

Base Load = 58.17 MBtu
 Typical Load = 15.99 MBtu
 Residual Load = 3.97 MBtu

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

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-9.66	R-7	-5.27
R-11	-11.20	R-11	-6.02
R-19	-12.59	R-13	-6.90
R-22	-13.10	R-19	-7.33
R-30	-13.78	R-27	-8.01
R-38	-14.19	R-34	-8.43
R-49	-14.52		
R-60	-14.74		

Slope(DD)	1946.25	Slope(DD)	1552.06
Curve(DDS)	-36.618	Curve(DDS)	13.261

Slab	(/ft)	Heated Basement	(/ft)
R-0	-7.48	R-0	-5.67
R-5 2ft	-8.94	R-5 4ft	-7.77
R-5 4ft	-9.28	R-5 8ft	-8.30
R-10 2ft	-9.13	R-10 4ft	-8.24
R-10 4ft	-9.56	R-10 8ft	-8.91
Intercept	.000	Intercept	-4.97
Slope(DD)	924.73	Slope(DD)	768.34
Curve(DDS)	39.256	Curve(DDS)	-2.090

Unheated Basement (/sf)	Crawl	(/sf)
R-0	R-0	6.62
R-11 flr	R-11 flr	1.33
R-19 flr	R-19 flr	.68
R-30 flr	R-30 flr	.17
R-38 flr	R-38 flr	.08
R-49 flr	R-49 flr	-.18
Intercept	Intercept	-.803
Slope(DD)	Slope(DD)	1184.54
Curve(DDS)	Curve(DDS)	51.327

Infiltration (/sf flr)	Window U-value	(/sf)
ELF Ach		
.0007(.76)	1-Pane	34.85
.0005(.51)	2-Pane	12.99
.0003(.31)	3-Pane	6.06
	R-10	2.27
Slope/.001ELF	Slope(DD)	930.87
Curve/.001ELF	Curve(DDS)	14.738

Base Load = 45.64 MBtu
 Typical Load = 15.63 MBtu
 Residual Load = .49 MBtu

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00
R-7	-8.71	R-7	-2.84
R-11	-10.10	R-11	-3.24
R-19	-11.36	R-13	-3.71
R-22	-11.78	R-19	-3.95
R-30	-12.36	R-27	-4.38
R-38	-12.71	R-34	-4.64
R-49	-13.01		
R-60	-13.21		

Slope(DD)	1660.30	Slope(DD)	953.67
Curve(DDS)	-18.809	Curve(DDS)	-9.237

Slab	(/ft)	Heated Basement	(/ft)
R-0	-7.94	R-0	-3.01
R-5 2ft	-8.23	R-5 4ft	-3.47
R-5 4ft	-8.17	R-5 8ft	-3.55
R-10 2ft	-8.27	R-10 4ft	-3.61
R-10 4ft	-8.14	R-10 8ft	-3.74
Intercept	.000	Intercept	22.070
Slope(DD)	-920.30	Slope(DD)	191.14
Curve(DDS)	69.043	Curve(DDS)	-8.842

Unheated Basement (/sf)	Crawl	(/sf)
R-0	R-0	5.02
R-11 flr	R-11 flr	.22
R-19 flr	R-19 flr	-.04
R-30 flr	R-30 flr	-.22
R-38 flr	R-38 flr	-.26
R-49 flr	R-49 flr	-.38
Intercept	Intercept	4.619
Slope(DD)	Slope(DD)	523.22
Curve(DDS)	Curve(DDS)	-82.922

Infiltration (/sf flr)	Window U-value	(/sf)
ELF Ach		
.0007(.48)	1-Pane	1.52
.0005(.34)	2-Pane	.28
.0003(.22)	3-Pane	-.04
	R-10	-.29
Slope/.001ELF	Slope(DD)	-29.01
Curve/.001ELF	Curve(DDS)	3.279

Base Load = 53.31 MBtu
 Typical Load = 28.46 MBtu
 Residual Load = 6.26 MBtu

Lake Charles LA WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		
R-0	.00	10.58
R-7	-4.04	3.84
R-11	-4.69	2.77
R-19	-5.27	1.80
R-22	-5.44	1.51
R-30	-5.68	1.12
R-38	-5.82	.88
R-49	-5.92	.71
R-60	-5.99	.60
Slope(DD)	1583.70	
Curve(DDS)	33.922	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Wall		
R-0	.00	7.95
R-7	-2.23	3.27
R-11	-2.55	2.60
R-13	-2.87	1.92
R-19	-3.03	1.59
R-27	-3.24	1.15
R-34	-3.37	.88
Slope(DD)	1034.78	
Curve(DDS)	82.453	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Slab		
R-0	-3.19	11.31
R-5 2ft	-3.47	4.31
R-5 4ft	-3.53	2.81
R-10 2ft	-3.51	3.31
R-10 4ft	-3.57	1.81
Intercept	.000	
Slope(DD)	291.60	
Curve(DDS)	56.640	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Unheated Basement		
R-0	-2.66	1.64
R-11 flr	-3.33	.52
R-19 flr	-3.50	.24
R-30 flr	-3.61	.05
Intercept	-.429	
Slope(DD)	651.41	
Curve(DDS)	-48.470	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	3.11
2-Pane	-2.74	9.37
3-Pane	-3.26	5.73
R-10	-3.88	1.45
Slope(DD)	572.59	
Curve(DDS)	19.055	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	28.40
2-Pane	-2.74	9.37
3-Pane	-3.26	5.73
R-10	-3.88	1.45
Slope(DD)	572.59	
Curve(DDS)	19.055	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	4.13
2-Pane	-1.48	2.90
3-Pane	-2.91	1.71
Slope(DD)	5.542	
Curve(DDS)	.521	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling		
R-0	.00	8.42
R-7	-3.20	3.08
R-11	-3.71	2.23
R-19	-4.17	1.47
R-22	-4.31	1.23
R-30	-4.50	.92
R-38	-4.61	.73
R-49	-4.70	.58
R-60	-4.76	.48
Slope(DD)	1304.21	
Curve(DDS)	19.491	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Wall		
R-0	.00	4.12
R-7	-1.02	1.97
R-11	-1.17	1.67
R-13	-1.35	1.29
R-19	-1.44	1.10
R-27	-1.58	.80
R-34	-1.67	.62
Slope(DD)	790.90	
Curve(DDS)	-4.474	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Slab		
R-0	-3.00	-5.07
R-5 2ft	-3.05	-6.32
R-5 4ft	-3.02	-5.57
R-10 2ft	-3.07	-6.82
R-10 4ft	-2.99	-4.82
Intercept	.000	
Slope(DD)	-1737.62	
Curve(DDS)	110.972	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Unheated Basement		
R-0	-1.03	2.95
R-11 flr	-.45	3.91
R-19 flr	-.33	4.10
R-30 flr	-.26	4.23
Intercept	4.538	
Slope(DD)	-408.03	
Curve(DDS)	19.005	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	4.13
2-Pane	-1.48	2.90
3-Pane	-2.91	1.71
Slope(DD)	5.542	
Curve(DDS)	.521	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Window U-value		
1-Pane	.00	6.45
2-Pane	.13	5.55
3-Pane	.40	3.67
R-10	.72	-1.45
Slope(DD)	-654.88	
Curve(DDS)	16.546	

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

Base Load = 35.72 MBtu
 Typical Load = 26.85 MBtu
 Residual Load = 12.82 MBtu

Lake Charles LA WYEC MApartment Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 7.65	R-0 .00	R-0 8.57	R-0 .00	R-0 4.04
R-7 -4.15	R-7 3.81	R-7 -3.23	R-7 3.18	R-7 -.69	R-7 1.87
R-11 -4.81	R-11 2.71	R-11 -3.75	R-11 2.32	R-11 -.78	R-11 1.57
R-19 -5.40	R-13 1.72	R-19 -4.21	R-13 1.55	R-19 -.90	R-13 1.20
R-22 -5.57	R-19 1.44	R-22 -4.36	R-19 1.30	R-22 -.96	R-19 1.01
R-30 -5.80	R-27 1.08	R-30 -4.56	R-27 .97	R-30 -1.05	R-27 .74
R-38 -5.93	R-38 .83	R-38 -4.67	R-38 .77	R-38 -1.10	R-34 .57
R-49 -6.03	R-49 .67	R-49 -4.77	R-49 .62		
R-60 -6.09	R-60 .57	R-60 -4.83	R-60 .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		

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)
R-0 -3.50	R-0 10.99	R-0 -2.33	R-0 .94	R-0 -.78	R-0 52.77
R-5 2ft -3.72	R-5 4ft 3.49	R-5 2ft -2.36	R-5 4ft -.06	R-5 4ft -.89	R-5 4ft 49.10
R-5 4ft -3.77	R-5 8ft 1.99	R-5 4ft -2.37	R-5 8ft -.23	R-5 8ft -.91	R-5 8ft 48.27
R-10 2ft -3.75	R-10 2ft 2.49	R-10 2ft -2.37	R-10 2ft -.23	R-10 4ft -.93	R-10 4ft 47.77
R-10 4ft -3.80	R-10 4ft 1.16	R-10 4ft -2.37	R-10 4ft -.23	R-10 8ft -.92	R-10 8ft 47.94
Intercept .000	Intercept .227	Intercept .000	Intercept .000	Intercept	Intercept 47.509
Slope(DD) 38.30	Slope(DD) 2.02	Slope(DD) -133.00	Slope(DD)	Slope(DD)	Slope(DD) -12.87
Curve(DDS) 75.868	Curve(DDS) 13.868	Curve(DDS) 18.044	Curve(DDS)	Curve(DDS)	Curve(DDS) 3.516

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -3.14	R-0 1.16	R-0 -.78	R-0 2.64	R-0 .00	R-0 3.93
R-11 flr -3.68	R-11 flr .25	R-11 flr -.20	R-11 flr 3.60	R-11 flr .56	R-11 flr 4.86
R-19 flr -3.80	R-19 flr .04	R-19 flr -.11	R-19 flr 3.74	R-19 flr .49	R-19 flr 4.75
R-30 flr -3.88	R-30 flr -.09	R-30 flr -.08	R-30 flr 3.84	R-30 flr .42	R-30 flr 4.62
Intercept -.437	Intercept	Intercept	Intercept	Intercept	Intercept 4.52
Slope(DD) 462.14	Slope(DD) 834.64	Slope(DD) -275.47	Slope(DD)	Slope(DD)	Slope(DD) 574.16
Curve(DDS) -29.451	Curve(DDS) 89.811	Curve(DDS) -.161	Curve(DDS)	Curve(DDS)	Curve(DDS) -124.279

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)	Window U-value (/sf)
ELF Ach .0007(.71)	ELF Ach .0007(.48)	ELF Ach .00	ELF Ach .00	1-Pane .00	1-Pane .00
2-Pane -1.69	2-Pane -2.76	2-Pane -1.49	2-Pane 3.12	2-Pane -.02	2-Pane -3.68
3-Pane -2.83	3-Pane -3.23	3-Pane -2.99	3-Pane 1.88	3-Pane .16	3-Pane -2.45
R-10 -2.83	R-10 -3.78	R-10 -2.99	R-10 1.88	R-10 .36	R-10 -1.01

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)
Slope(DD) .166	Curve(DDS) 5.729	Slope(DD) 6.271	Curve(DDS) -.052	Slope(DD) -456.52	Curve(DDS) 12.212

Base Load = 19.38 MBtu
 Typical Load = 6.86 MBtu
 Residual Load = 2.82 MBtu

Base Load = 33.65 MBtu
 Typical Load = 24.81 MBtu
 Residual Load = 11.08 MBtu

Las Vegas NV WYEC One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling			
R-0	.00	14.55	.00
R-7	-13.61	5.71	-7.39
R-11	-15.79	4.30	-8.44
R-19	-17.74	3.04	-9.70
R-22	-18.47	2.58	-10.32
R-30	-19.44	1.93	-11.24
R-38	-20.03	1.55	-11.80
R-49	-20.52	1.23	
R-60	-20.83	1.03	
Slope(DD)	2807.54	2146.02	
Curve(DDS)	-59.478	23.353	
Slab			
Heated Basement			
R-0	-12.05	18.76	-7.51
R-5 2ft	-13.89	7.68	-10.69
R-5 4ft	-14.19	5.87	-11.34
R-10 2ft	-14.23	5.63	-11.46
R-10 4ft	-14.55	3.70	-12.22
Intercept	.000	6.420	
Slope(DD)	1001.40	1331.67	
Curve(DDS)	121.241	-5.812	
Unheated Basement			
R-0	-7.51	4.97	.00
R-11 flr	-12.58	1.68	-11.74
R-19 flr	-13.88	.84	-13.55
R-30 flr	-14.69	.31	-14.43
R-38 flr			-14.63
R-49 flr			-15.21
Intercept	-1.107	-1.019	
Slope(DD)	1910.40	1834.49	
Curve(DDS)	-141.412	55.515	
Infiltration			
ELF Ach			
.0007(.71)	.00	6.30	.00
.0005(.55)	-3.42	4.07	-5.75
.0003(.31)	-6.32	2.19	-6.97
Slope/.001ELF	6.039	1171.48	
Curve/.001ELF	4.221	24.998	
Window U-value			
1-Pane	.00	48.35	.00
2-Pane	-3.42	17.23	-5.75
3-Pane	-6.32	10.64	-6.97
R-10	-8.40	2.89	-8.40

Cooling Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling			
R-0	.00	15.59	.00
R-7	-14.47	6.19	-14.47
R-11	-16.78	4.69	-16.78
R-19	-18.86	3.34	-18.86
R-22	-19.64	2.83	-19.64
R-30	-20.70	2.15	-20.70
R-38	-21.33	1.74	-21.33
R-49	-21.91	1.36	-21.91
R-60	-22.28	1.12	-22.28
Slope(DD)	3118.09	3118.09	
Curve(DDS)	-82.404	-82.404	
Slab			
Heated Basement			
R-0	-11.13	8.26	-11.13
R-5 2ft	-11.59	5.49	-11.59
R-5 4ft	-11.66	5.07	-11.66
R-10 2ft	-11.74	4.59	-11.74
R-10 4ft	-11.92	3.50	-11.92
Intercept	.000	.000	
Slope(DD)	1443.33	1443.33	
Curve(DDS)	-58.323	-58.323	
Unheated Basement			
R-0	-5.75	4.38	-5.75
R-11 flr	-5.51	4.54	-5.51
R-19 flr	-5.64	4.46	-5.64
R-30 flr	-5.72	4.40	-5.72
R-38 flr			-4.59
R-49 flr			-4.98
Intercept	4.220	4.220	
Slope(DD)	268.87	268.87	
Curve(DDS)	-46.215	-46.215	
Infiltration			
ELF Ach			
.0007(.69)	.00	3.57	.00
.0005(.49)	-1.61	2.53	-1.61
.0003(.29)	-3.19	1.50	-3.19
Slope/.001ELF	4.935	1012.24	
Curve/.001ELF	.244	-5.701	
Window U-value			
1-Pane	.00	22.75	.00
2-Pane	-2.16	11.12	-2.16
3-Pane	-2.89	7.09	-2.89
R-10	-3.77	2.35	-3.77

Base Load = 69.53 MBtu
 Typical Load = 31.52 MBtu
 Residual Load = 2.66 MBtu

Base Load = 64.86 MBtu
 Typical Load = 21.37 MBtu
 Residual Load = 2.58 MBtu

Las Vegas NV WYEC Mid Town Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 15.16	R-0 .00	R-0 11.27	R-0 .00	R-0 16.41	R-0 .00	R-0 9.83
R-7 -5.77	R-7 5.54	R-7 -3.17	R-7 4.62	R-7 -6.96	R-7 6.49	R-7 -2.34	R-7 4.93
R-11 -6.69	R-11 4.00	R-11 -3.62	R-11 3.68	R-11 -6.91	R-11 4.90	R-11 -2.67	R-11 4.23
R-19 -7.52	R-19 2.63	R-19 -4.08	R-19 2.71	R-19 -7.76	R-19 3.48	R-19 -3.11	R-19 3.30
R-22 -7.77	R-22 2.20	R-22 -4.31	R-22 2.23	R-22 -8.08	R-22 2.95	R-22 -3.33	R-22 2.84
R-30 -8.11	R-30 1.63	R-30 -4.60	R-30 1.62	R-30 -8.50	R-30 2.24	R-30 -3.70	R-30 2.08
R-38 -8.32	R-38 1.29	R-38 -4.78	R-38 1.24	R-38 -8.78	R-38 1.81	R-38 -3.92	R-38 1.60
R-49 -8.47	R-49 1.04			R-49 -9.00	R-49 1.42		
R-60 -8.57	R-60 .88			R-60 -9.15	R-60 1.16		
Slope(DD) 2323.66	Slope(DD) 1454.01	Slope(DD) 3241.08	Slope(DD) 2083.23	Slope(DD) 3241.08	Slope(DD) 2083.23	Slope(DD) 3241.08	Slope(DD) 2083.23
Curve(DDS) 39.327	Curve(DDS) 119.411	Curve(DDS) -79.696	Curve(DDS) -47.461	Curve(DDS) -79.696	Curve(DDS) -47.461	Curve(DDS) -79.696	Curve(DDS) -47.461

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)
R-0 -4.89	R-0 12.97	R-0 -4.46	R-0 5.45	R-0 -4.46	R-0 5.45	R-0 -2.36	R-0 57.95
R-5 2ft -5.25	R-5 3.97	R-5 2ft -4.39	R-5 25.47	R-5 4ft -4.56	R-5 3.20	R-5 4ft -2.86	R-5 45.70
R-5 4ft -5.29	R-5 2.97	R-5 4ft -4.52	R-5 22.22	R-5 8ft -4.58	R-5 2.95	R-5 8ft -2.92	R-5 43.95
R-10 2ft -5.30	R-10 2.72	R-10 2ft -4.54	R-10 21.72	R-10 4ft -4.58	R-10 2.45	R-10 4ft -2.98	R-10 42.45
R-10 4ft -5.35	R-10 1.47	R-10 4ft -4.67	R-10 18.47	R-10 8ft -4.60	R-10 1.95	R-10 8ft -3.08	R-10 39.95
Intercept .000	Intercept 11.333	Intercept .000	Intercept 11.333	Intercept .000	Intercept .000	Intercept .000	Intercept 31.944
Slope(DD) 147.57	Slope(DD) 650.40	Slope(DD) 747.97	Slope(DD) 868.86	Slope(DD) 747.97	Slope(DD) 868.86	Slope(DD) 747.97	Slope(DD) 868.86
Curve(DDS) 144.451	Curve(DDS) 8.925	Curve(DDS) -15.669	Curve(DDS) -4.205	Curve(DDS) -15.669	Curve(DDS) -4.205	Curve(DDS) -15.669	Curve(DDS) -4.205

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -3.54	R-0 3.11	R-0 -2.36	R-0 3.86	R-0 -2.36	R-0 3.86	R-0 -1.03	R-0 7.80
R-11 flr -4.63	R-11 flr 1.30	R-11 flr -2.14	R-11 flr 4.23	R-11 flr -2.14	R-11 flr 4.23	R-11 flr -1.33	R-11 flr 5.58
R-19 flr -4.93	R-19 flr .80	R-19 flr -2.13	R-19 flr 4.24	R-19 flr -2.13	R-19 flr 4.24	R-19 flr -1.56	R-19 flr 5.21
R-30 flr -5.12	R-30 flr .48	R-30 flr -2.13	R-30 flr 4.25	R-30 flr -2.13	R-30 flr 4.25	R-30 flr -1.60	R-30 flr 5.13
Intercept -.375	Intercept -.128	Intercept 4.236	Intercept 4.236	Intercept 4.236	Intercept 4.236	Intercept 4.236	Intercept 4.236
Slope(DD) 1162.43	Slope(DD) 1324.71	Slope(DD) 29.97	Slope(DD) 1264.10	Slope(DD) 29.97	Slope(DD) 1264.10	Slope(DD) 29.97	Slope(DD) 1264.10
Curve(DDS) -93.974	Curve(DDS) 89.377	Curve(DDS) -19.995	Curve(DDS) -113.275	Curve(DDS) -19.995	Curve(DDS) -113.275	Curve(DDS) -19.995	Curve(DDS) -113.275

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
ELF Ach (/sf flr)	Window U-value (/sf)	ELF Ach (/sf flr)	Window U-value (/sf)	ELF Ach (/sf flr)	Window U-value (/sf)	ELF Ach (/sf flr)	Window U-value (/sf)
.0007(.77)	.00	.0007(.69)	.00	.0007(.69)	.00	.0007(.69)	.00
.0005(.52)	-2.36	.0005(.49)	-1.23	.0005(.49)	-1.23	.0005(.49)	-1.61
.0003(.33)	-3.97	.0003(.29)	-2.39	.0003(.29)	-2.39	.0003(.29)	-2.78
Slope/.001ELF .458	Slope(DD) 720.57	Slope/.001ELF .729	Slope(DD) 922.27	Slope/.001ELF .729	Slope(DD) 922.27	Slope/.001ELF .729	Slope(DD) 922.27
Curve/.001ELF 7.813	Curve(DDS) 29.066	Curve/.001ELF	Curve(DDS) -4.155	Curve/.001ELF	Curve(DDS) -4.155	Curve/.001ELF	Curve(DDS) -4.155

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

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

Las Vegas NV WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-5.97	R-7	-2.14	R-7	-6.30	R-7	-1.56
R-11	-6.92	R-11	-2.45	R-11	-7.30	R-11	-1.78
R-19	-7.77	R-13	-2.75	R-19	-8.20	R-13	-2.06
R-22	-8.02	R-19	-2.89	R-22	-8.55	R-19	-2.20
R-30	-8.34	R-27	-3.07	R-30	-9.02	R-27	-2.44
R-38	-8.54	R-34	-3.17	R-38	-9.30	R-34	-2.59
R-49	-8.88			R-49	-9.55		
R-60	-8.77			R-60	-9.72		
Slope(DD)	2145.73	Slope(DD)	1226.55	Slope(DD)	3548.13	Slope(DD)	2005.10
Curve(DDS)	77.174	Curve(DDS)	155.510	Curve(DDS)	-101.408	Curve(DDS)	-37.074
Slab		Heated Basement		Slab		Heated Basement	
R-0	-5.34	R-0	-4.30	R-0	-3.80	R-0	-2.33
R-5 2ft	-5.65	R-5 4ft	-5.11	R-5 2ft	-3.90	R-5 4ft	-2.74
R-5 4ft	-5.70	R-5 8ft	-5.23	R-5 4ft	-3.92	R-5 8ft	-2.81
R-10 2ft	-5.70	R-10 4ft	-5.25	R-10 2ft	-3.93	R-10 4ft	-2.86
R-10 4ft	-5.74	R-10 8ft	-5.35	R-10 4ft	-3.95	R-10 8ft	-2.95
Intercept	.000	Intercept	6.994	Intercept	.000	Intercept	25.462
Slope(DD)	-23.47	Slope(DD)	679.42	Slope(DD)	635.96	Slope(DD)	1047.02
Curve(DDS)	182.597	Curve(DDS)	16.030	Curve(DDS)	12.683	Curve(DDS)	-5.880
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-4.30	R-0	.00	R-0	-2.33	R-0	.00
R-11 fir	-5.22	R-11 fir	-4.40	R-11 fir	-2.08	R-11 fir	-0.98
R-19 fir	-5.44	R-19 fir	-5.01	R-19 fir	-2.07	R-19 fir	-1.26
R-30 fir	-5.59	R-30 fir	-5.27	R-30 fir	-2.06	R-30 fir	-1.48
Intercept	-.335	R-38 fir	-5.33	R-38 fir	-2.06	R-38 fir	-1.53
Slope(DD)	867.69	R-49 fir	-5.50	Intercept	3.242	R-49 fir	-1.67
Curve(DDS)	-62.967	Intercept	-.324	Slope(DD)	8.34	Intercept	3.305
Infiltration		Slope(DD)	1367.83	Curve(DDS)	-18.935	Slope(DD)	1238.68
ELF Ach		Curve(DDS)	111.653	Infiltration		Curve(DDS)	-113.590
.0007(.77)	.00	Window U-value		ELF Ach		Window U-value	
.0005(.52)	-2.37	1-Pane	.00	.0007(.69)	.00	1-Pane	.00
.0003(.33)	-3.90	2-Pane	-3.96	.0005(.49)	-1.24	2-Pane	-1.70
Slope/.001ELF	-625	3-Pane	-4.58	.0003(.29)	-2.40	3-Pane	-2.28
Curve/.001ELF	8.750	R-10	-5.31	Slope/.001ELF	4.229	R-10	-2.95
		Slope(DD)	473.11	Curve/.001ELF	.781	Slope(DD)	983.67
		Curve(DDS)	36.827			Curve(DDS)	-4.584

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

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)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.35	R-7	-6.38	R-7	-2.61	R-7	-.42
R-11	-14.32	R-11	-7.29	R-11	-3.03	R-11	-.48
R-19	-16.09	R-13	-8.28	R-19	-3.40	R-13	-.57
R-22	-16.73	R-19	-8.28	R-22	-3.48	R-19	-.62
R-30	-17.69	R-27	-9.39	R-30	-3.59	R-27	-.69
R-38	-18.11	R-34	-9.77	R-38	-3.65	R-34	-.73
R-49	-18.50			R-49	-3.66		
R-60	-18.75			R-60	-3.66		
Slope(DD)	240.17	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	R-0	-4.13	R-0	-1.19	R-0	-.98
R-5 2ft	-7.48	R-5 4ft	-6.18	R-5 2ft	-1.04	R-5 4ft	-.96
R-5 4ft	-7.80	R-5 8ft	-6.56	R-5 4ft	-.98	R-5 8ft	-.94
R-10 2ft	-7.71	R-10 4ft	-6.55	R-10 2ft	-1.01	R-10 4ft	-.96
R-10 4ft	-8.03	R-10 8ft	-7.02	R-10 4ft	-.92	R-10 8ft	-.93
Intercept	.000	Intercept	3.167	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)	.652
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.13	R-0	5.50	R-0	-.98	R-0	.00
R-11 flr	-8.38	R-11 flr	-9.72	R-11 flr	-.28	R-11 flr	.68
R-19 flr	-9.22	R-19 flr	-10.69	R-19 flr	-.08	R-19 flr	.77
R-30 flr	-9.76	R-30 flr	-11.11	R-30 flr	.05	R-30 flr	.79
		R-38 flr	-11.21			R-38 flr	.80
		R-49 flr	-11.49			R-49 flr	.82
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		ELF Ach		ELF Ach		ELF Ach	
.0007(.63)	.00	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
.0005(.44)	-2.54	2-Pane	-4.43	.0005(.40)	.03	2-Pane	.05
.0003(.28)	-4.12	3-Pane	-5.12	.0003(.24)	.04	3-Pane	.05
		R-10	-5.94			R-10	.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
 Typical Load = 15.49 MBtu
 Residual Load = 7.29 MBtu

Base Load = 6.60 MBtu
 Typical Load = 1.71 MBtu
 Residual Load = -.52 MBtu

Heating Load

Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (KBtu)	Delta Component (/sf)
Coiling				
R-0	.00	R-0	.00	7.95
R-7	-5.00	R-7	-2.40	2.92
R-11	-6.79	R-11	-2.74	2.20
R-19	-6.51	R-13	-3.02	1.61
R-22	-6.69	R-19	-3.16	1.32
R-30	-6.93	R-27	-3.35	.92
R-38	-7.07	R-34	-3.47	.67
R-49	-7.18			
R-60	-7.25			
Slope(DD)	1521.14	Slope(DD)	741.48	
Curve(DDS)	103.639	Curve(DDS)	136.948	

Delta Component (MBtu)	Delta Component (/sf)	Heated Basement (/ft)	
Slab			
R-0	-2.54	R-0	-1.90
R-5 2ft	-2.81	R-5 4ft	-2.36
R-5 4ft	-2.86	R-5 8ft	-2.45
R-10 2ft	-2.85	R-10 4ft	-2.43
R-10 4ft	-2.91	R-10 8ft	-2.53
Intercept	.000	Intercept	7.686
Slope(DD)	834.51	Slope(DD)	429.18
Curve(DDS)	38.524	Curve(DDS)	2.680

Delta Component (MBtu)	Delta Component (/sf)	Crawl	Delta Component (KBtu)	Delta Component (/sf)
Unheated Basement				
R-0	-1.90	R-0	.00	5.02
R-11 flr	-2.74	R-11 flr	-2.76	.42
R-19 flr	-2.95	R-19 flr	-3.06	-.08
R-30 flr	-3.09	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	

Delta Component (MBtu)	Delta Component (/sf)	Window U-value	Delta Component (KBtu)	Delta Component (/sf)
Infiltration				
ELF Ach				
.0007(.66)	.00	1-Pane	.00	23.51
.0005(.45)	-1.32	2-Pane	-2.26	7.82
.0003(.26)	-2.08	3-Pane	-2.70	4.79
		R-10	-3.21	1.22
Slope/.001ELF	-1.500	Slope(DD)	483.65	
Curve/.001ELF	6.834	Curve(DDS)	16.419	

Base Load = 19.37 MBtu
 Typical Load = 5.99 MBtu
 Residual Load = 6.94 MBtu

Cooling Load

Delta Component (MBtu)	Delta Component (/sf)	Wall	Delta Component (KBtu)	Delta Component (/sf)
Coiling				
R-0	.00	R-0	.00	3.80
R-7	-1.25	R-7	-1.25	1.71
R-11	-1.45	R-11	-1.45	1.38
R-19	-1.63	R-13	-1.63	1.08
R-22	-1.73	R-19	-1.73	.92
R-30	-1.88	R-27	-1.88	.70
R-38	-1.94	R-34	-1.94	.56
R-49	-2.01			.45
R-60	-2.05			.38
Slope(DD)	1052.05	Slope(DD)	250.92	
Curve(DDS)	-69.429	Curve(DDS)	-10.200	

Delta Component (MBtu)	Delta Component (/sf)	Heated Basement (/ft)	
Slab			
R-0	-.36	R-0	-.30
R-5 2ft	-.30	R-5 4ft	-.27
R-5 4ft	-.28	R-5 8ft	-.27
R-10 2ft	-.29	R-10 4ft	-.26
R-10 4ft	-.25	R-10 8ft	-.24
Intercept	.000	Intercept	-159.02
Slope(DD)	-901.80	Slope(DD)	-159.02
Curve(DDS)	41.362	Curve(DDS)	2.278

Delta Component (MBtu)	Delta Component (/sf)	Crawl	Delta Component (KBtu)	Delta Component (/sf)
Unheated Basement				
R-0	-.30	R-0	.00	.28
R-11 flr	.15	R-11 flr	.45	1.03
R-19 flr	.22	R-19 flr	.50	1.11
R-30 flr	.26	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	

Delta Component (MBtu)	Delta Component (/sf)	Window U-value	Delta Component (KBtu)	Delta Component (/sf)
Infiltration				
ELF Ach				
.0007(.58)	.00	1-Pane	.00	-6.81
.0005(.40)	.38	2-Pane	.35	-4.38
.0003(.24)	1.07	3-Pane	.57	-2.85
		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

Los Angeles CA WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-5.02	R-7	-1.56	R-7	-1.27	R-7	-1.15
R-11	-5.82	R-11	-1.78	R-11	-1.47	R-11	-1.17
R-19	-6.54	R-13	-1.94	R-19	-1.65	R-13	-1.22
R-22	-6.69	R-19	-2.02	R-22	-1.72	R-19	-1.24
R-30	-6.90	R-27	-2.12	R-30	-1.81	R-27	-1.25
R-38	-7.02	R-34	-2.18	R-38	-1.88	R-34	-1.25
R-49	-7.11			R-49	-1.94		
R-60	-7.16			R-60	-1.98		
Slope(DD)	1191.69	Slope(DD)	441.06	Slope(DD)	783.58	Slope(DD)	182.39
Curve(DDS)	151.959	Curve(DDS)	171.445	Curve(DDS)	-30.612	Curve(DDS)	-8.815
Slab		Heated Basement		Slab		Heated Basement	
R-0	-2.97	R-0	-2.66	R-0	-2.22	R-0	-1.17
R-5 2ft	-3.23	R-5 4ft	-3.12	R-5 2ft	-1.18	R-5 4ft	-1.19
R-5 4ft	-3.26	R-5 8ft	-3.18	R-5 4ft	-1.15	R-5 8ft	-1.18
R-10 2ft	-3.25	R-10 4ft	-3.16	R-10 2ft	-1.19	R-10 4ft	-1.19
R-10 4ft	-3.29	R-10 8ft	-3.24	R-10 4ft	-1.14	R-10 8ft	-1.18
Intercept	.000	Intercept	-2.22	Intercept	.000	Intercept	-3.674
Slope(DD)	66.16	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		Crawl		Unheated Basement		Crawl	
R-0	-2.66	R-0	.00	R-0	-1.17	R-0	.00
R-11 flr	-3.32	R-11 flr	-3.20	R-11 flr	-.07	R-11 flr	.15
R-19 flr	-3.45	R-19 flr	-3.42	R-19 flr	-.00	R-19 flr	.22
R-30 flr	-3.53	R-30 flr	-3.55	R-30 flr	.04	R-30 flr	.25
		R-38 flr	-3.57			R-38 flr	.26
		R-49 flr	-3.66			R-49 flr	.28
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		Window U-value		Infiltration		Window U-value	
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.66)	.00	2-Pane	-2.11	.0007(.66)	.00	2-Pane	.21
.0005(.45)	-1.24	3-Pane	-2.48	.0005(.40)	.17	3-Pane	.33
.0003(.26)	-1.86	R-10	-2.91	.0003(.24)	.44	R-10	.46
Slope/.001ELF	-2.688	Slope(DD)	349.71	Slope/.001ELF	-1.854	Slope(DD)	-227.12
Curve/.001ELF	6.563	Curve(DDS)	17.064	Curve/.001ELF	.938	Curve(DDS)	-3.279
Base Load =	17.76 MBtu	Base Load =	3.83 MBtu	Typical Load =	1.99 MBtu	Residual Load =	1.80 MBtu
Typical Load =	4.97 MBtu	Residual Load =	7.55 MBtu				

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -26.80	R-7 -14.68	R-7 -16.77	R-7 -10.53	R-7 -7.34	R-7 3.16	R-7 -2.00	R-7 1.85
R-11 -29.92	R-11 -16.77	R-11 -19.40	R-11 8.20	R-11 -8.51	R-11 2.40	R-11 -2.28	R-11 1.59
R-19 -33.62	R-19 -19.40	R-19 8.20	R-19 8.20	R-19 -9.56	R-19 1.72	R-19 -2.71	R-19 1.21
R-22 -35.10	R-22 -20.70	R-22 7.04	R-22 7.04	R-22 -9.98	R-22 1.46	R-22 -2.93	R-22 1.01
R-30 -37.08	R-30 -22.86	R-30 5.12	R-30 5.12	R-30 -10.50	R-30 1.11	R-30 -3.21	R-30 .77
R-38 -38.27	R-38 -24.18	R-38 3.94	R-38 3.94	R-38 -10.82	R-38 .90	R-38 -3.38	R-38 .61
R-49 -39.29	R-49 -24.18	R-49 3.94	R-49 3.94	R-49 -11.12	R-49 .70	R-49 -3.38	R-49 .61
R-60 -39.94	R-60 -24.18	R-60 3.94	R-60 3.94	R-60 -11.32	R-60 .58	R-60 -3.38	R-60 .61
Slope(DD) 5830.59	Slope(DD) 5077.75	Slope(DD) 5077.75	Slope(DD) 5077.75	Slope(DD) 1806.92	Slope(DD) 1806.92	Slope(DD) 775.83	Slope(DD) 775.83
Curve(DDS) -185.269	Curve(DDS) -63.974	Curve(DDS) -63.974	Curve(DDS) -63.974	Curve(DDS) -45.560	Curve(DDS) -45.560	Curve(DDS) -18.978	Curve(DDS) -18.978
Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)	
R-0 -10.14	R-0 -5.49	R-0 -5.49	R-0 102.64	R-0 -4.11	R-0 -26.32	R-0 -2.70	R-0 -17.82
R-5 2ft -15.19	R-5 4ft -10.12	R-5 4ft -10.12	R-5 134.75	R-5 2ft -3.80	R-5 -24.45	R-5 4ft -2.84	R-5 -18.67
R-6 4ft -16.87	R-6 8ft -12.07	R-6 8ft -12.07	R-6 123.00	R-6 4ft -3.66	R-6 -23.61	R-6 8ft -2.81	R-6 -18.48
R-10 2ft -16.05	R-10 4ft -11.35	R-10 4ft -11.35	R-10 127.34	R-10 2ft -3.74	R-10 -24.09	R-10 4ft -2.88	R-10 -18.91
R-10 4ft -18.31	R-10 8ft -14.29	R-10 8ft -14.29	R-10 109.63	R-10 4ft -3.56	R-10 -23.00	R-10 8ft -2.84	R-10 -18.67
Intercept 58.895	Intercept 71.868	Intercept 71.868	Intercept 71.868	Intercept -20.700	Intercept -20.700	Intercept -18.265	Intercept -18.265
Slope(DD) 7296.29	Slope(DD) 3672.53	Slope(DD) 3672.53	Slope(DD) 3672.53	Slope(DD) -658.27	Slope(DD) -658.27	Slope(DD) -50.26	Slope(DD) -50.26
Curve(DDS) -108.274	Curve(DDS) -36.189	Curve(DDS) -36.189	Curve(DDS) -36.189	Curve(DDS) 17.164	Curve(DDS) 17.164	Curve(DDS) -1.418	Curve(DDS) -1.418
Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)	
R-0 -5.49	R-0 17.53	R-0 .00	R-0 21.10	R-0 -2.70	R-0 -1.92	R-0 .00	R-0 -.17
R-11 fir -19.24	R-11 fir 8.60	R-11 fir -21.10	R-11 fir 7.40	R-11 fir -1.21	R-11 fir -.96	R-11 fir .41	R-11 fir .10
R-19 fir -22.93	R-19 fir 6.20	R-19 fir -24.76	R-19 fir 5.02	R-19 fir -.84	R-19 fir -.72	R-19 fir .39	R-19 fir .09
R-30 fir -25.31	R-30 fir 4.66	R-30 fir -27.01	R-30 fir 3.56	R-30 fir -.61	R-30 fir -.56	R-30 fir .36	R-30 fir .06
Intercept .542	Intercept 58.895	Intercept .000	Intercept 2.27	Intercept	Intercept -.164	Intercept	Intercept .000
Slope(DD) 5584.08	Slope(DD) 442.862	Slope(DD) 4568.68	Slope(DD) 4568.68	Slope(DD) -538.14	Slope(DD) -538.14	Slope(DD) 104.12	Slope(DD) 104.12
Curve(DDS) -442.862	Curve(DDS) -92.157	Curve(DDS) -92.157	Curve(DDS) -92.157	Curve(DDS) 38.128	Curve(DDS) 38.128	Curve(DDS) -26.688	Curve(DDS) -26.688
Infiltration (/sf fir) Window U-value		Infiltration (/sf fir) Window U-value		Infiltration (/sf fir) Window U-value		Infiltration (/sf fir) Window U-value	
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.58)	.00 10.37	.00 98.22	.00 98.22	.0007(.43)	.00 .50	.00 2.71	.00 2.71
.0005(.42)	-5.30 6.93	2-Pane -9.75	2-Pane 45.46	.0005(.30)	-.22 .36	2-Pane -.29	2-Pane 1.14
.0003(.26)	-10.01 3.87	3-Pane -12.82	3-Pane 28.85	.0003(.18)	-.44 .21	3-Pane -.37	3-Pane .72
		R-10 -16.43	R-10 9.31			R-10 -.46	R-10 .22
Slope/.001ELF 11.461	Slope(DD) 3982.07	Slope(DD) 3982.07	Slope(DD) 3982.07	Slope/.001ELF .714	Slope(DD) .714	Slope(DD) 92.26	Slope(DD) 92.26
Curve/.001ELF 4.789	Curve(DDS) -9.913	Curve(DDS) -9.913	Curve(DDS) -9.913	Curve/.001ELF .000	Curve(DDS) .000	Curve(DDS) .391	Curve(DDS) .391

Base Load = 125.13 MBtu
 Typical Load = 48.34 MBtu
 Residual Load = -4.54 MBtu

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

Medford OR WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-10.83	R-7	-6.43	R-7	-2.82	R-7	-1.88
R-11	-12.56	R-11	-7.34	R-11	-3.27	R-11	-1.00
R-13	-14.11	R-13	-8.40	R-13	-3.68	R-13	-1.21
R-19	-14.67	R-19	-8.92	R-19	-3.86	R-19	-1.31
R-22	-15.41	R-22	-9.74	R-22	-4.08	R-22	-1.42
R-30	-15.86	R-30	-10.25	R-30	-4.22	R-30	-1.49
R-38	-16.23	R-38	-10.25	R-38	-4.35	R-38	-1.49
R-49	-16.47	R-49	-10.25	R-49	-4.44	R-49	-1.49
R-60	-16.47	R-60	-10.25	R-60	-4.44	R-60	-1.49
Slope(DD)	5451.54	Slope(DD)	4392.60	Slope(DD)	1820.31	Slope(DD)	812.01
Curve(DDS)	-81.643	Curve(DDS)	47.308	Curve(DDS)	-78.121	Curve(DDS)	-20.147
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-5.77	R-0	-4.05	R-0	-1.59	R-0	-1.00
R-5	138.92	R-5	181.92	R-5	-45.21	R-5	-30.46
R-7	108.92	R-7	142.42	R-7	-42.71	R-7	-30.71
R-11	99.92	R-11	129.17	R-11	-41.46	R-11	-30.21
R-10	104.17	R-10	133.42	R-10	-42.21	R-10	-30.71
R-10	92.42	R-10	115.17	R-10	-40.46	R-10	-29.98
Intercept	70.850	Intercept	78.157	Intercept	-36.836	Intercept	-28.338
Slope(DD)	5716.81	Slope(DD)	3457.80	Slope(DD)	-1123.92	Slope(DD)	-171.25
Curve(DDS)	-31.728	Curve(DDS)	-23.980	Curve(DDS)	35.502	Curve(DDS)	2.851
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.05	R-0	18.88	R-0	-1.00	R-0	-0.36
R-11	-7.28	R-11	6.74	R-11	-0.48	R-11	-0.08
R-19	-8.33	R-19	4.31	R-19	-0.34	R-19	-0.05
R-30	-9.00	R-30	3.08	R-30	-0.25	R-30	-0.03
R-38	-9.00	R-38	2.78	R-38	-0.25	R-38	-0.03
R-49	-9.00	R-49	1.96	R-49	-0.25	R-49	-0.02
Intercept	.785	Intercept	.000	Intercept	-0.380	Intercept	.000
Slope(DD)	4242.08	Slope(DD)	3914.97	Slope(DD)	-543.36	Slope(DD)	-36.41
Curve(DDS)	-395.904	Curve(DDS)	-45.532	Curve(DDS)	43.183	Curve(DDS)	-6.737
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.58)	.00	.0007(.43)	.00	.0007(.43)	.00	.0007(.43)	.00
.0005(.43)	-3.97	.0005(.30)	-7.21	.0005(.30)	-0.15	.0005(.30)	-0.16
.0003(.25)	-7.26	.0003(.10)	-9.02	.0003(.10)	-0.28	.0003(.10)	-0.19
			6.23				.29
Slope/.001ELF	8.041	Slope(DD)	2596.27	Slope/.001ELF	.375	Slope(DD)	25.74
Curve/.001ELF	7.084	Curve(DDS)	21.587	Curve/.001ELF	.208	Curve(DDS)	1.314
Base Load =	56.90 MBtu	Base Load =	13.28 MBtu	Base Load =	8.62 MBtu	Base Load =	2.91 MBtu
Typical Load =	24.00 MBtu	Typical Load =	8.62 MBtu	Typical Load =	8.62 MBtu	Typical Load =	8.62 MBtu
Residual Load =	.14 MBtu	Residual Load =	.14 MBtu	Residual Load =	2.91 MBtu	Residual Load =	2.91 MBtu

Medford OR WYEC MApartment Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	24.86	R-0	.00	7.96
R-7	-10.82	11.11	R-7	-2.81	3.28
R-11	-12.65	8.23	R-11	-3.28	2.53
R-19	-14.10	5.64	R-19	-3.68	1.88
R-22	-14.84	4.75	R-22	-3.83	1.58
R-30	-15.35	3.56	R-30	-4.08	1.20
R-38	-15.78	2.84	R-38	-4.20	.97
R-49	-16.13	2.27	R-49	-4.32	.77
R-60	-16.35	1.90	R-60	-4.39	.63
Slope(DD)	5132.42	4164.15	Slope(DD)	1759.90	761.05
Curve(DDS)	-36.417	85.086	Curve(DDS)	-70.394	-18.107
Slab			Slab		
Heated Basement (/ft)			Heated Basement (/ft)		
R-0	-6.63	166.22	R-0	-1.07	-40.16
R-5 2ft	-7.61	133.55	R-5 2ft	-1.00	-37.66
R-5 4ft	-7.93	123.06	R-5 4ft	-.97	-36.86
R-10 2ft	-7.77	128.22	R-10 2ft	-.99	-37.33
R-10 4ft	-8.18	114.55	R-10 4ft	-.94	-35.83
Intercept	88.696	85.750	Intercept	-32.871	-30.427
Slope(DD)	6971.56	3926.05	Slope(DD)	-852.86	-68.81
Curve(DDS)	-72.046	-23.651	Curve(DDS)	22.170	1.307
Unheated Basement (/sf)			Unheated Basement (/sf)		
Crawl			Crawl		
R-0	-5.31	10.50	R-0	-.80	-1.55
R-11 flr	-7.99	6.04	R-11 flr	-.42	-.92
R-19 flr	-8.90	4.52	R-19 flr	-.30	-.71
R-30 flr	-9.49	3.54	R-30 flr	-.21	-.57
Intercept	.838	1.95	Intercept	-.205	.04
Slope(DD)	3721.73	3882.69	Slope(DD)	-508.95	68.72
Curve(DDS)	-358.234	-20.866	Curve(DDS)	47.737	-21.626
Infiltration (/sf flr)			Infiltration (/sf flr)		
Window U-value			Window U-value		
ELF Ach			ELF Ach		
.0007(.58)	.00	82.30	.0007(.43)	.00	2.41
.0005(.43)	-3.94	31.82	.0005(.30)	-.17	1.09
.0003(.25)	-7.15	2.88	.0003(.18)	-.32	.69
1-Pane		5.74	1-Pane		.22
2-Pane		6.74	2-Pane		.22
3-Pane		6.74	3-Pane		.22
R-10		6.74	R-10		.22
Slope/.001ELF	7.333	2374.59	Slope/.001ELF	.398	93.52
Curve/.001ELF	7.552	28.142	Curve/.001ELF	.260	-.089

Base Load = 52.96 MBtu
 Typical Load = 22.22 MBtu
 Residual Load = .62 MBtu

Base Load = 11.26 MBtu
 Typical Load = 6.96 MBtu
 Residual Load = 1.36 MBtu

Memphis TN TMY One Story Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	17.73	
R-7	-16.40	7.08	
R-11	-19.02	5.38	
R-19	-21.37	3.85	
R-22	-22.28	3.26	
R-30	-23.50	2.47	
R-38	-24.23	2.00	
R-49	-24.88	1.57	
R-60	-25.30	1.30	
Slope(DD)	3600.04		
Curve(DDS)	-102.808		
Wall			
R-0	.00	16.26	
R-7	-9.34	7.95	
R-11	-10.67	6.77	
R-13	-12.31	6.31	
R-19	-13.13	4.58	
R-27	-14.55	3.31	
R-34	-15.43	2.53	
Slope(DD)	3290.95		
Curve(DDS)	-49.627		

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	8.26	
R-7	-7.62	3.31	
R-11	-8.84	2.52	
R-19	-9.93	1.81	
R-22	-10.36	1.54	
R-30	-10.93	1.17	
R-38	-11.27	.94	
R-49	-11.58	.74	
R-60	-11.78	.61	
Slope(DD)	1697.71		
Curve(DDS)	-51.330		
Wall			
R-0	.00	4.67	
R-7	-2.61	2.35	
R-11	-2.98	2.02	
R-13	-3.45	1.60	
R-19	-3.69	1.39	
R-27	-4.12	1.00	
R-34	-4.39	.77	
Slope(DD)	1008.18		
Curve(DDS)	-25.919		

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Stab			
R-0	-11.41	43.90	
R-5	-14.52	26.17	
R-5	-15.49	19.33	
R-10	-15.03	22.10	
R-10	-18.30	14.45	
Intercept	.000		
Slope(DD)	3824.72		
Curve(DDS)	-27.226		
Heated Basement			
R-0	-7.69	66.31	
R-5	-11.24	44.93	
R-5	-12.56	36.98	
R-10	-12.14	39.51	
R-10	-14.07	27.88	
Intercept	3.198		
Slope(DD)	2373.59		
Curve(DDS)	-20.744		

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-7.69	12.14	
R-11	-16.43	2.39	
R-19	-17.43	.78	
R-30	-18.95	-1.16	
R-38	-19.28	-1.38	
R-49	-20.24	-1.00	
Intercept	-2.481		
Slope(DD)	2951.38		
Curve(DDS)	-19.439		
Window U-value			
1-Pane	.00	75.62	
2-Pane	-7.67	34.31	
3-Pane	-10.00	21.73	
R-10	-12.73	6.93	
Slope(DD)	2954.65		
Curve(DDS)	-3.136		

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-3.62	2.53	
R-11	-1.21	4.10	
R-19	-.66	4.46	
R-30	-.30	4.69	
Intercept	5.285		
Slope(DD)	-800.30		
Curve(DDS)	51.345		
Window U-value			
1-Pane	.00	2.89	
2-Pane	-1.22	2.09	
3-Pane	-2.48	1.28	
Slope(DD)	4.351		
Curve(DDS)	-.325		

Base Load = 40.70 MBtu
 Typical Load = 18.70 MBtu
 Residual Load = 1.25 MBtu

Base Load = 85.92 MBtu
 Typical Load = 34.98 MBtu
 Residual Load = .88 MBtu

Memphis TN TMY Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-7.12	R-7	15.87	R-7	-2.85	R-7	-1.00
R-11	-8.26	R-11	4.74	R-11	-3.30	R-11	-1.14
R-19	-9.28	R-19	5.92	R-19	-3.71	R-19	-1.29
R-22	-9.63	R-13	4.55	R-22	-3.97	R-13	-1.05
R-30	-10.09	R-19	3.87	R-30	-3.96	R-19	-1.36
R-38	-10.37	R-27	2.79	R-38	-4.05	R-27	-1.48
R-49	-10.60	R-34	2.12	R-49	-4.13	R-34	-1.56
R-60	-10.75			R-60	-4.18		
Slope(DD)	3349.48	Slope(DD)	2665.44	Slope(DD)	995.06	Slope(DD)	606.17
Curve(DDS)	-20.183	Curve(DDS)	53.025	Curve(DDS)	40.716	Curve(DDS)	17.090
Slab		Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-0	-5.41	R-0	4.21	R-0	-2.96	R-0	-1.35
R-5	-6.12	R-5	37.34	R-5	-2.98	R-5	-1.59
R-5	-6.31	R-5	5.33	R-5	-2.94	R-5	-1.63
R-10	-6.22	R-5	29.59	R-10	-2.98	R-10	-1.65
R-10	-6.45	R-10	31.59	R-10	-2.92	R-10	-1.69
Intercept	.000	Intercept	21.59	Intercept	.000	Intercept	24.528
Slope(DD)	2215.95	Slope(DD)	2.340	Slope(DD)	-1298.19	Slope(DD)	163.29
Curve(DDS)	46.496	Curve(DDS)	1719.35	Curve(DDS)	71.253	Curve(DDS)	2.168
Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)	
R-0	-4.21	R-0	.00	R-0	-1.35	R-0	.00
R-11	-6.94	R-11	11.37	R-11	-1.35	R-11	.52
R-19	-6.46	R-19	2.37	R-19	-0.09	R-19	.52
R-30	-6.79	R-30	.97	R-30	.07	R-30	.53
Intercept	-1.453	R-38	.20	Intercept	5.439	R-38	.53
Slope(DD)	2060.08	R-49	.02	Slope(DD)	-978.62	R-49	.54
Curve(DDS)	-180.830	Intercept	-1.711	Curve(DDS)	73.268	Intercept	5.425
Infiltration (/sf flr)		Slope(DD)	2385.52	Slope(DD)	-978.62	Slope(DD)	106.16
ELF Ach		Curve(DDS)	32.362	Curve(DDS)	73.268	Curve(DDS)	-52.153
.0007(.79)	.00	Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
-3.23	7.63	1-Pane	.00	ELF Ach		1-Pane	.00
-5.97	4.84	2-Pane	63.41	.0007(.47)	.00	2-Pane	-0.13
	2.66	3-Pane	23.97	.0005(.35)	-0.87	3-Pane	-0.07
		R-10	14.90	.0003(.21)	-1.76	R-10	.31
			4.24				
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	-2.08	Curve(DDS)	16.070
Base Load =	40.28 MBtu	Base Load =	27.23 MBtu	Typical Load =	18.53 MBtu	Residual Load =	8.78 MBtu
Typical Load =	16.91 MBtu	Typical Load =	16.91 MBtu	Residual Load =	8.78 MBtu		
Residual Load =	2.39 MBtu	Residual Load =	2.39 MBtu				

Memphis TN	TMY	M Apartment Prototype Siding			Series Two		
		Heating Load			Cooling Load		
	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Ceiling	Delta Component (KBtu)	Wall	Delta Component (KBtu)
R-0	.00	19.51	.00	R-0	.00	R-0	.00
R-7	-7.36	7.24	-2.84	R-7	-2.91	R-7	-0.64
R-11	-8.54	5.28	-3.25	R-11	-3.37	R-11	-0.74
R-19	-9.60	3.52	-3.68	R-19	-3.79	R-13	-0.82
R-22	-9.93	2.96	-3.89	R-22	-3.91	R-19	-0.86
R-30	-10.39	2.20	-4.22	R-30	-4.08	R-27	-0.92
R-38	-10.66	1.75	-4.42	R-38	-4.18	R-34	-0.96
R-49	-10.87	1.40		R-49	-4.24		
R-60	-11.00	1.18		R-60	-4.28		
Slope(DD)	3149.35		Slope(DD)	2496.79	Slope(DD)	1069.69	Slope(DD)
Curve(DDS)	23.928		Curve(DDS)	87.496	Curve(DDS)	34.374	Curve(DDS)
Slab		(/ft)	Heated Basement		Slab		Heated Basement
R-0	-6.02	40.52	R-0	-5.04	R-0	-2.46	R-0
R-5 2ft	-6.59	21.35	R-5 4ft	-6.07	R-5 2ft	-2.46	R-5 4ft
R-5 4ft	-6.76	15.85	R-5 8ft	-6.36	R-5 4ft	-2.46	R-5 8ft
R-10 2ft	-6.68	18.35	R-10 4ft	-6.28	R-10 2ft	-2.46	R-10 4ft
R-10 4ft	-6.88	11.69	R-10 8ft	-6.65	R-10 4ft	-2.44	R-10 8ft
Intercept	.000		Intercept	-3.799	Intercept	.000	Intercept
Slope(DD)	2901.78		Slope(DD)	2076.94	Slope(DD)	-529.98	Slope(DD)
Curve(DDS)	24.704		Curve(DDS)	-5.922	Curve(DDS)	27.188	Curve(DDS)
Unheated Basement		(/sf)	Crawl		Unheated Basement		Crawl
R-0	-5.04	3.65	R-0	.00	R-0	-1.20	R-0
R-11 flr	-6.44	1.32	R-11 flr	-5.63	R-11 flr	-0.28	R-11 flr
R-19 flr	-6.90	.57	R-19 flr	-6.50	R-19 flr	-0.07	R-19 flr
R-30 flr	-7.18	.08	R-30 flr	-7.00	R-30 flr	.08	R-30 flr
			R-38 flr	-7.11	R-38 flr	.68	R-38 flr
			R-49 flr	-7.44	R-49 flr	.70	R-49 flr
Intercept	-1.245		Intercept	-1.625	Intercept	4.660	Intercept
Slope(DD)	1922.26		Slope(DD)	2528.47	Slope(DD)	-760.80	Slope(DD)
Curve(DDS)	-169.182		Curve(DDS)	27.327	Curve(DDS)	46.517	Curve(DDS)
Infiltration		(/sf flr)	Window U-value		Infiltration		Window U-value
ELF Ach			1-Pane	.00	ELF Ach		1-Pane
.0007(.79)	.00	7.60	2-Pane	-5.80	.0007(.47)	.00	2-Pane
.0005(.56)	-3.23	4.91	3-Pane	-7.07	.0005(.34)	-.89	3-Pane
.0003(.34)	-5.96	2.63	R-10	-8.56	.0003(.20)	-1.71	R-10
Slope/.001ELF	7.208		Slope(DD)	1631.43	Slope/.001ELF	2.729	Slope(DD)
Curve/.001ELF	5.209		Curve(DDS)	29.282	Curve/.001ELF	.833	Curve(DDS)
Base Load =	38.51 MBtu		Base Load =	25.45 MBtu	Base Load =	25.45 MBtu	Base Load =
Typical Load =	15.85 MBtu		Typical Load =	17.57 MBtu	Typical Load =	17.57 MBtu	Typical Load =
Residual Load =	2.52 MBtu		Residual Load =	8.18 MBtu	Residual Load =	8.18 MBtu	Residual Load =

Miami FL WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	1.26	R-0	.00	R-0	.00
R-7	-2.10	R-7	-.88	R-7	-9.92	R-7	3.85
R-11	-2.44	R-11	.46	R-11	-11.50	R-11	2.82
R-19	-2.74	R-13	.27	R-19	-12.92	R-13	1.90
R-10 2ft	-1.63	R-19	-1.12	R-22	-13.37	R-19	-4.19
R-10 4ft	-1.63	R-27	.22	R-30	-19.97	R-27	-4.53
R-10 8ft	-1.63	R-34	-1.29	R-38	-14.33	R-34	-4.74
Intercept	.000		.11	R-49	-14.87		.98
Slope(DD)	-66.72			R-60	-14.89		.76
Curve(DDS)	8.113						.82
Unheated Basement (/sf)		Slope(DD)	125.69	Slope(DD)	1717.25	Slope(DD)	695.02
R-0	-1.58	Curve(DDS)	20.256	Curve(DDS)	3.017	Curve(DDS)	36.169
R-5 2ft	-1.63	Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-5 4ft	-1.63	R-0	-1.53	R-0	-6.06	R-0	.41
R-10 2ft	-1.63	R-5 4ft	-1.79	R-5 2ft	-6.36	R-5 4ft	1.18
R-10 4ft	-1.63	R-5 8ft	-1.81	R-5 4ft	-6.39	R-5 8ft	1.25
R-10 8ft	-1.63	R-10 4ft	-1.82	R-10 2ft	-6.37	R-10 4ft	1.42
Intercept	.000	R-10 8ft	-1.84	R-10 4ft	-6.33	R-10 8ft	1.57
Slope(DD)	-66.72	Intercept	-1.425	Intercept	.000	Intercept	1.57
Curve(DDS)	8.113	Slope(DD)	-12.51	Slope(DD)	-615.40	Slope(DD)	48.287
Unheated Basement (/sf)		Curve(DDS)	1.614	Curve(DDS)	63.848	Curve(DDS)	-167.26
R-0	-1.53	Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)	
R-11 flr	-1.65	R-0	.05	R-0	.00	R-0	-0.18
R-19 flr	-1.65	R-11 flr	-1.05	R-11 flr	-1.22	R-11 flr	-0.94
R-30 flr	-1.65	R-19 flr	-1.17	R-19 flr	-1.88	R-19 flr	-1.66
Intercept	-.020	R-30 flr	-1.24	R-30 flr	-2.30	R-30 flr	-2.11
Slope(DD)	-12.69	R-38 flr	-1.25	R-38 flr	-2.30	R-38 flr	-2.21
Curve(DDS)	5.180	R-49 flr	-1.29	R-49 flr	-2.50	R-49 flr	-2.50
Unheated Basement (/sf)		Intercept	.152	Intercept	1.683	Intercept	1.726
R-0	-1.53	Slope(DD)	103.40	Slope(DD)	1123.24	Slope(DD)	1248.92
R-11 flr	-1.65	Curve(DDS)	13.783	Curve(DDS)	-131.739	Curve(DDS)	-162.303
R-19 flr	-1.65	Infiltration (/sf flr). Window U-value		Infiltration (/sf flr)		Infiltration (/sf flr)	
R-30 flr	-1.65	ELF Ach		ELF Ach		ELF Ach	
Intercept	.000	1-Pane	.00	.0007(.56)	.00	1-Pane	.00
Slope(DD)	-12.69	2-Pane	-.52	.0005(.40)	-3.14	2-Pane	.12
Curve(DDS)	5.180	3-Pane	-.67	.0003(.25)	-6.73	3-Pane	.52
Unheated Basement (/sf)		R-10	-.70		4.04	R-10	.98
R-0	-1.53	Slope(DD)	51.50	Slope(DD)	14.578	Slope(DD)	-758.90
R-11 flr	-1.65	Curve(DDS)	3.687	Curve(DDS)	-3.653	Curve(DDS)	18.725
R-19 flr	-1.65	Base Load =	7.24 MBtu	Base Load =	76.25 MBtu	Base Load =	76.25 MBtu
R-30 flr	-1.65	Typical Load =	1.55 MBtu	Typical Load =	50.30 MBtu	Typical Load =	50.30 MBtu
Intercept	.000	Residual Load =	.06 MBtu	Residual Load =	19.39 MBtu	Residual Load =	19.39 MBtu
Slope(DD)	-12.69						
Curve(DDS)	5.180						

Miami FL WVEC Mid Town Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	.00	R-0	.00	.00
R-7	-.76	-.34	R-7	-3.62	-1.24
R-11	-.88	-.39	R-11	-4.72	-1.42
R-19	-.99	-.43	R-19	-4.89	-1.58
R-22	-1.02	-.45	R-22	-5.13	-1.68
R-30	-1.06	-.47	R-30	-5.27	-1.75
R-38	-1.07	-.49	R-38	-5.37	-1.81
R-49	-1.08	-.09	R-49	-5.43	-.72
R-60	-1.09	.08	R-60	-5.43	.61
Slope(DD)	198.23	94.77	Slope(DD)	1611.92	406.28
Curve(DDS)	20.501	20.998	Curve(DDS)	2.980	68.642
Slab			Slab		
R-0	-.54	.14	R-0	-2.54	1.27
R-5 2ft	-.55	-.11	R-5 2ft	-2.61	-.48
R-5 4ft	-.55	-.11	R-5 4ft	-2.63	-.98
R-10 2ft	-.55	-.11	R-10 2ft	-2.60	-.23
R-10 4ft	-.55	-.11	R-10 4ft	-2.61	-.48
Intercept	.000	-2.018	Intercept	.000	78.852
Slope(DD)	-55.40	32.99	Slope(DD)	-320.60	-368.11
Curve(DDS)	6.736	.777	Curve(DDS)	43.329	.034
Unheated Basement (/sf)			Unheated Basement (/sf)		
R-0	-.53	.03	R-0	.00	4.32
R-11 flr	-.55	-.01	R-11 flr	-.05	4.23
R-19 flr	-.55	-.01	R-19 flr	-.29	3.83
R-30 flr	-.55	-.01	R-30 flr	-.45	3.57
Intercept	-.004	.151	Intercept	2.747	
Slope(DD)	-5.43	100.13	Slope(DD)	1176.85	
Curve(DDS)	2.216	9.328	Curve(DDS)	-169.758	
Infiltration (/sf flr)			Infiltration (/sf flr)		
ELF Ach			ELF Ach		
.0007(.59)	.35	3.54	.0007(.56)	.00	6.59
.0005(.42)	-.22	1.04	.0005(.40)	-2.16	4.79
.0003(.25)	-.36	.63	.0003(.25)	-4.40	2.92
Slope/.001ELF	-.083	52.06	Slope/.001ELF	10.000	
Curve/.001ELF	.833	3.111	Curve/.001ELF	-.833	
Base Load =		3.02 MBtu	Base Load =		52.26 MBtu
Typical Load =		.87 MBtu	Typical Load =		41.35 MBtu
Residual Load =		.13 MBtu	Residual Load =		21.84 MBtu

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	.00	R-0	.00	.00
R-7	-.76	-.34	R-7	-3.62	-1.24
R-11	-.88	-.39	R-11	-4.72	-1.42
R-19	-.99	-.43	R-19	-4.89	-1.58
R-22	-1.02	-.45	R-22	-5.13	-1.68
R-30	-1.06	-.47	R-30	-5.27	-1.75
R-38	-1.07	-.49	R-38	-5.37	-1.81
R-49	-1.08	-.09	R-49	-5.43	-.72
R-60	-1.09	.08	R-60	-5.43	.61
Slope(DD)	198.23	94.77	Slope(DD)	1611.92	406.28
Curve(DDS)	20.501	20.998	Curve(DDS)	2.980	68.642
Slab			Slab		
R-0	-.54	.14	R-0	-2.54	1.27
R-5 2ft	-.55	-.11	R-5 2ft	-2.61	-.48
R-5 4ft	-.55	-.11	R-5 4ft	-2.63	-.98
R-10 2ft	-.55	-.11	R-10 2ft	-2.60	-.23
R-10 4ft	-.55	-.11	R-10 4ft	-2.61	-.48
Intercept	.000	-2.018	Intercept	.000	78.852
Slope(DD)	-55.40	32.99	Slope(DD)	-320.60	-368.11
Curve(DDS)	6.736	.777	Curve(DDS)	43.329	.034
Unheated Basement (/sf)			Unheated Basement (/sf)		
R-0	-.53	.03	R-0	.00	4.32
R-11 flr	-.55	-.01	R-11 flr	-.05	4.23
R-19 flr	-.55	-.01	R-19 flr	-.29	3.83
R-30 flr	-.55	-.01	R-30 flr	-.45	3.57
Intercept	-.004	.151	Intercept	2.747	
Slope(DD)	-5.43	100.13	Slope(DD)	1176.85	
Curve(DDS)	2.216	9.328	Curve(DDS)	-169.758	
Infiltration (/sf flr)			Infiltration (/sf flr)		
ELF Ach			ELF Ach		
.0007(.59)	.35	3.54	.0007(.56)	.00	6.59
.0005(.42)	-.22	1.04	.0005(.40)	-2.16	4.79
.0003(.25)	-.36	.63	.0003(.25)	-4.40	2.92
Slope/.001ELF	-.083	52.06	Slope/.001ELF	10.000	
Curve/.001ELF	.833	3.111	Curve/.001ELF	-.833	
Base Load =		3.02 MBtu	Base Load =		52.26 MBtu
Typical Load =		.87 MBtu	Typical Load =		41.35 MBtu
Residual Load =		.13 MBtu	Residual Load =		21.84 MBtu

Miami FL WYEC M Apartment Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 1.11	R-0 .00	R-0 10.06
R-7 -.82	R-7 .42	R-7 -3.93	R-7 3.52
R-11 -.96	R-11 .32	R-11 -4.55	R-11 2.47
R-19 -1.08	R-13 .24	R-19 -5.11	R-13 1.53
R-22 -1.10	R-19 .20	R-22 -5.27	R-19 1.12
R-30 -1.14	R-27 .14	R-30 -5.48	R-27 1.27
R-38 -1.16	R-34 .10	R-38 -5.61	R-34 1.92
R-49 -1.18		R-49 -5.68	R-49 .71
R-60 -1.19		R-60 -5.72	R-60 .59
Slope(DD) 217.28	Slope(DD) 114.52	Slope(DD) 1300.97	Slope(DD) 601.95
Curve(DDS) 21.949	Curve(DDS) 17.083	Curve(DDS) 68.722	Curve(DDS) 49.429

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Slab	Heated Basement	Slab	Heated Basement
R-0	R-0	R-0	R-0
R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft
R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft
R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft
R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft
Intercept	Intercept	Intercept	Intercept
Slope(DD) -38.89	Slope(DD) -12.51	Slope(DD) 345.13	Slope(DD) -253.81
Curve(DDS) 4.487	Curve(DDS) 1.203	Curve(DDS) -1.584	Curve(DDS) -1.816

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Unheated Basement	Crawl	Unheated Basement	Crawl
R-0	R-0	R-0	R-0
R-11 flr	R-11 flr	R-11 flr	R-11 flr
R-19 flr	R-19 flr	R-19 flr	R-19 flr
R-30 flr	R-30 flr	R-30 flr	R-30 flr
R-38 flr	R-38 flr	R-38 flr	R-38 flr
R-49 flr	R-49 flr	R-49 flr	R-49 flr
Intercept	Intercept	Intercept	Intercept
Slope(DD) -17.59	Slope(DD) 97.58	Slope(DD) 932.12	Slope(DD) 828.50
Curve(DDS) 3.299	Curve(DDS) 10.410	Curve(DDS) -143.636	Curve(DDS) -154.256

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Infiltration	Window U-value	Infiltration	Window U-value
ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.59)	.0007(.56)	.0007(.56)	.0007(.56)
.0005(.42)	.0005(.40)	.0005(.40)	.0005(.40)
.0003(.25)	.0003(.25)	.0003(.25)	.0003(.25)
Slope/.001ELF	Slope/.001ELF	Slope/.001ELF	Slope/.001ELF
Curve/.001ELF .833	Curve/.001ELF 3.067	Curve/.001ELF -.677	Curve/.001ELF 16.249

Base Load = 2.88 MBtu
 Typical Load = .82 MBtu
 Residual Load = .16 MBtu

Base Load = 50.09 MBtu
 Typical Load = 39.80 MBtu
 Residual Load = 19.98 MBtu

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -40.37	R-7 -23.67	R-7 -3.96	R-7 -1.81	R-7 -1.17	R-7 -1.17
R-11 -46.82	R-11 -27.04	R-11 -4.59	R-11 -1.40	R-11 -1.34	R-11 -1.34
R-19 -52.61	R-13 -31.19	R-19 -5.16	R-13 -1.03	R-13 -1.62	R-13 -1.62
R-22 -54.86	R-19 -33.24	R-22 -5.40	R-19 -1.88	R-19 -1.76	R-19 -1.76
R-30 -57.88	R-27 -37.04	R-30 -6.16	R-27 -1.74	R-27 -1.97	R-27 -1.97
R-38 -59.70	R-34 -39.37	R-38 -6.91	R-34 -1.54	R-34 -2.10	R-34 -2.10
R-49 -61.34	R-38 -39.37	R-49 -6.09	R-38 -1.42		
R-60 -62.39	R-60 -62.39	R-60 -6.21	R-60 -1.35		

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)	Slope(DD)	Curve(DDS)
8972.33	-268.763	978.14	-40.348	580.36	-27.913

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement
R-0 -26.96	R-0 -15.41	R-0 -4.80	R-0 -3.71	R-0 -4.80	R-0 -3.71
2ft -34.00	4ft -22.70	2ft -4.86	4ft -2.87	4ft -4.86	8ft -3.92
4ft -38.07	8ft -25.32	4ft -4.56	8ft -2.26	8ft -4.56	8ft -2.26
2ft -35.31	4ft -24.84	2ft -4.63	4ft -2.69	2ft -4.63	4ft -2.69
4ft -38.23	8ft -28.74	4ft -4.48	8ft -1.78	4ft -4.48	8ft -1.78
Intercept -38.713	Intercept .000	Intercept .318	Intercept .318	Intercept .318	Intercept .318
Slope(DD) 11487.25	Slope(DD) 5800.95	Slope(DD) -718.93	Slope(DD) -718.93	Slope(DD) -718.93	Slope(DD) -718.93
Curve(DDS) -203.604	Curve(DDS) -60.331	Curve(DDS) 32.049	Curve(DDS) 32.049	Curve(DDS) 32.049	Curve(DDS) 32.049

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
R-0 -15.41	R-0 .00	R-0 -3.34	R-0 .55	R-0 -3.34	R-0 .55
11 flr -35.88	11 flr -36.96	11 flr -1.00	11 flr 2.07	11 flr 1.00	11 flr 2.07
19 flr -41.72	19 flr -43.43	19 flr -.37	19 flr 2.47	19 flr 1.18	19 flr 3.48
30 flr -45.48	30 flr -47.62	30 flr .03	30 flr 2.74	30 flr 1.31	30 flr 3.57
Intercept -11.483	Intercept -12.783	Intercept 3.435	Intercept 3.435	Intercept 3.435	Intercept 3.435
Slope(DD) 8986.55	Slope(DD) 8430.60	Slope(DD) -946.84	Slope(DD) -946.84	Slope(DD) -946.84	Slope(DD) -946.84
Curve(DDS) -755.517	Curve(DDS) -221.029	Curve(DDS) 74.868	Curve(DDS) 74.868	Curve(DDS) 74.868	Curve(DDS) 74.868

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Infiltration	Window U-value	Infiltration	Window U-value	Infiltration	Window U-value
ELF Ach .0007(.88)	1-Pane .00	ELF Ach .0007(.61)	1-Pane .00	ELF Ach .0007(.61)	1-Pane .00
.0005(.63)	2-Pane -19.17	.0005(.44)	2-Pane -19.17	.0005(.44)	2-Pane -19.17
.0003(.39)	3-Pane -25.68	.0003(.26)	3-Pane -25.68	.0003(.26)	3-Pane -25.68
	R-10 -33.33		R-10 -33.33		R-10 -33.33

Delta Component (/sf)		Delta Component (/sf)		Delta Component (/sf)	
Slope(.001ELF)	Curve(.001ELF)	Slope(.001ELF)	Curve(.001ELF)	Slope(.001ELF)	Curve(.001ELF)
38.020	.730	8765.87	-44.031	812	.325

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

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

Minneapolis MN WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	45.92	.00
R-7	-16.78	17.96	-10.18
R-11	-19.45	13.49	-11.63
R-19	-21.86	9.48	-13.35
R-22	-22.74	8.02	-14.20
R-30	-23.91	6.07	-15.73
R-38	-24.62	4.88	-16.67
R-49	-25.24	3.85	
R-60	-25.64	3.18	
Slope(DD)	8771.15	8103.33	
Curve(DDS)	-173.100	-81.751	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Wall			
R-0	41.22	171.32	
R-7	19.86	106.32	
R-11	18.81	86.82	
R-13	13.21	90.57	
R-19	11.42	62.32	
R-27	8.21		
R-34	6.24		
Slope(DD)	8103.33		
Curve(DDS)	-81.751		

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Slab			
R-0	-13.16	71.82	
R-5 2ft	-14.92	27.81	
R-5 4ft	-15.42	15.31	
R-10 2ft	-15.24	19.81	
R-10 4ft	-15.93	2.57	
Intercept	-33.041		
Slope(DD)	10890.37	8330.01	
Curve(DDS)	-153.419	-51.470	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-9.18	26.72	
R-11 flr	-14.24	3.94	
R-19 flr	-16.00	-1.16	
R-30 flr	-17.13	-2.70	
R-38 flr	-18.00	-3.28	
R-49 flr	-19.00	-4.95	
Intercept	-7.078	-8.811	
Slope(DD)	7227.34	7911.40	
Curve(DDS)	-705.891	-191.561	

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach			
.0007(.90)	.00	188.72	
.0005(.64)	-9.13	87.12	
.0003(.38)	-17.90	56.27	
Slope/.001ELF	33.542	7617.25	
Curve/.001ELF	3.750	-17.756	

Base Load = 111.71 MBtu
 Typical Load = 37.35 MBtu
 Residual Load = 2.13 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	4.19	
R-7	-1.49	1.71	
R-11	-1.73	1.31	
R-19	-1.94	.95	
R-22	-2.03	.81	
R-30	-2.14	.82	
R-38	-2.21	.50	
R-49	-2.28	.39	
R-60	-2.32	.32	
Slope(DD)	900.75	544.73	
Curve(DDS)	-32.816	-23.255	

Delta Component (KBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Wall			
R-0	4.19	171.32	
R-7	1.71	106.32	
R-11	1.31	86.82	
R-13	.95	90.57	
R-19	.81	62.32	
R-27	.82		
R-34	.50		
Slope(DD)	544.73		
Curve(DDS)	-23.255		

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Slab			
R-0	-1.91	-11.49	
R-5 2ft	-1.82	-9.24	
R-5 4ft	-1.77	-7.99	
R-10 2ft	-1.81	-8.99	
R-10 4ft	-1.74	-7.24	
Intercept	-3.642		
Slope(DD)	-1191.04		
Curve(DDS)	44.184		

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-1.30	.25	
R-11 flr	-.44	1.68	
R-19 flr	-.16	2.15	
R-30 flr	.02	2.45	
Intercept	3.278		
Slope(DD)	-1135.55		
Curve(DDS)	106.307		

Delta Component (KBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach			
.0007(.61)	.00	.64	
.0005(.44)	-.17	.50	
.0003(.26)	-.38	.32	
Slope/.001ELF	1.208	106.00	
Curve/.001ELF	-.417	2.280	

Base Load = 11.11 MBtu
 Typical Load = 6.58 MBtu
 Residual Load = 2.38 MBtu

Minneapolis MN WYEC MApartment Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	44.84	41.79
R-7	17.46	19.86
R-11	13.09	16.73
R-19	9.17	13.11
R-22	7.75	11.32
R-30	5.84	8.12
R-38	4.69	6.16
R-49	3.72	
R-60	3.09	
Slope(DD)	8455.97	7966.00
Curve(DDS)	-150.713	-36.695

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	41.79	41.79
R-7	19.86	19.86
R-11	16.73	16.73
R-19	13.11	13.11
R-22	11.32	11.32
R-30	8.12	8.12
R-38	6.16	6.16
Slope(DD)	7966.00	7966.00
Curve(DDS)	-36.695	-36.695

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	41.79	41.79
R-7	19.86	19.86
R-11	16.73	16.73
R-19	13.11	13.11
R-22	11.32	11.32
R-30	8.12	8.12
R-38	6.16	6.16
Slope(DD)	7966.00	7966.00
Curve(DDS)	-36.695	-36.695

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	41.79	41.79
R-7	19.86	19.86
R-11	16.73	16.73
R-19	13.11	13.11
R-22	11.32	11.32
R-30	8.12	8.12
R-38	6.16	6.16
Slope(DD)	7966.00	7966.00
Curve(DDS)	-36.695	-36.695

Base Load = 105.72 MBtu
 Typical Load = 34.63 MBtu
 Residual Load = 2.22 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	3.99	3.99
R-7	1.64	1.64
R-11	1.26	1.26
R-19	0.93	0.93
R-22	0.77	0.77
R-30	0.57	0.57
R-38	0.44	0.44
R-49	0.38	0.38
R-60	0.34	0.34
Slope(DD)	865.40	865.40
Curve(DDS)	-32.341	-32.341

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	3.99	3.99
R-7	1.64	1.64
R-11	1.26	1.26
R-19	0.93	0.93
R-22	0.77	0.77
R-30	0.57	0.57
R-38	0.44	0.44
R-49	0.38	0.38
R-60	0.34	0.34
Slope(DD)	865.40	865.40
Curve(DDS)	-32.341	-32.341

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	3.99	3.99
R-7	1.64	1.64
R-11	1.26	1.26
R-19	0.93	0.93
R-22	0.77	0.77
R-30	0.57	0.57
R-38	0.44	0.44
R-49	0.38	0.38
R-60	0.34	0.34
Slope(DD)	865.40	865.40
Curve(DDS)	-32.341	-32.341

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	3.99	3.99
R-7	1.64	1.64
R-11	1.26	1.26
R-19	0.93	0.93
R-22	0.77	0.77
R-30	0.57	0.57
R-38	0.44	0.44
R-49	0.38	0.38
R-60	0.34	0.34
Slope(DD)	865.40	865.40
Curve(DDS)	-32.341	-32.341

Base Load = 9.61 MBtu
 Typical Load = 5.68 MBtu
 Residual Load = 2.12 MBtu

Nashville TN WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-18.48	R-7	-10.63	R-7	-7.60	R-7	-2.30
R-11	-21.43	R-11	-12.14	R-11	-8.81	R-11	-2.63
R-19	-24.08	R-13	7.87	R-19	-9.90	R-13	-3.06
R-22	-25.12	R-19	-14.03	R-22	-10.33	R-19	-3.27
R-30	-26.51	R-13	6.19	R-30	-10.90	R-27	-3.66
R-38	-27.35	R-27	-14.98	R-38	-11.24	R-34	-3.90
R-49	-28.10	R-30	5.36	R-49	-11.58		
R-60	-28.58	R-27	-16.63	R-60	-11.76		
		R-34	-17.68				
			2.98				
Slope(DD)	4135.22	Slope(DD)	3861.13	Slope(DD)	1707.97	Slope(DD)	916.92
Curve(DDS)	-127.039	Curve(DDS)	-72.401	Curve(DDS)	-53.389	Curve(DDS)	-26.462
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-12.54	R-0	-8.27	R-0	-6.89	R-0	-5.71
R-5	2ft	R-5	4ft	R-5	2ft	R-5	4ft
R-5	4ft	R-5	8ft	R-5	4ft	R-5	8ft
R-10	2ft	R-10	4ft	R-10	2ft	R-10	4ft
R-10	4ft	R-10	8ft	R-10	4ft	R-10	8ft
Intercept	.000	Intercept	7.685	Intercept	.000	Intercept	6.201
Slope(DD)	4953.52	Slope(DD)	2772.52	Slope(DD)	-1202.22	Slope(DD)	216.65
Curve(DDS)	-58.774	Curve(DDS)	-25.374	Curve(DDS)	58.852	Curve(DDS)	-4.70
Unheated Basement (/sf)		Crawl		Unheated Basement (/sf)		Crawl	
R-0	-8.27	R-0	13.97	R-0	-3.52	R-0	1.57
R-11	f1r	R-11	f1r	R-11	f1r	R-11	f1r
R-19	f1r	R-19	f1r	R-19	f1r	R-19	f1r
R-30	f1r	R-30	f1r	R-30	f1r	R-30	f1r
R-38	f1r	R-38	f1r	R-38	f1r	R-38	f1r
R-49	f1r	R-49	f1r	R-49	f1r	R-49	f1r
Intercept	-3.042	Intercept	-1.63	Intercept	4.755	Intercept	4.861
Slope(DD)	3812.59	Slope(DD)	-3.429	Slope(DD)	-979.40	Slope(DD)	-123.07
Curve(DDS)	-300.656	Curve(DDS)	3636.99	Curve(DDS)	69.992	Curve(DDS)	-14.120
Infiltration (/sf f1r)		Window U-value (/sf)		Infiltration (/sf f1r)		Window U-value (/sf)	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.75)	.00	.0007(.41)	.00	.0007(.41)	.00	.0007(.41)	.00
.0005(.56)	-5.27	.0005(.29)	-8.60	.0005(.29)	-8.60	.0005(.29)	-8.60
.0003(.33)	-10.40	.0003(.18)	-11.44	.0003(.18)	-11.44	.0003(.18)	-11.44
	4.83		26.87		.84		.84
			8.79				
Slope/.001ELF	15.747	Slope(DD)	3775.14	Slope/.001ELF	2.792	Slope(DD)	76.17
Curve/.001ELF	1.136	Curve(DDS)	-16.629	Curve/.001ELF	-.000	Curve(DDS)	.716

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

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

Nashville TN	WYEC	Mid Town	Prototype Siding	Series Two	Heating Load			Cooling Load		
					Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
					Ceiling	Wall	Heated Basement	Ceiling	Wall	Heated Basement
					R-0	R-0	R-0	R-0	R-0	R-0
					R-7	R-7	R-5	R-7	R-7	R-5
					R-11	R-11	R-5	R-11	R-11	R-5
					R-19	R-13	R-10	R-19	R-13	R-10
					R-22	R-19	R-10	R-22	R-19	R-10
					R-30	R-27	R-10	R-30	R-27	R-10
					R-38	R-34	R-10	R-38	R-34	R-10
					R-49			R-49		
					R-60			R-60		
					Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
					Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
					Slab	Slab	Slab	Slab	Slab	Slab
					R-0	R-0	R-0	R-0	R-0	R-0
					R-5	R-5	R-5	R-5	R-5	R-5
					R-10	R-10	R-10	R-10	R-10	R-10
					Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
					Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
					Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
					Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
					R-0	R-0	R-0	R-0	R-0	R-0
					R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr	R-11 flr
					R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr	R-19 flr
					R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr	R-30 flr
					Intercept	Intercept	Intercept	Intercept	Intercept	Intercept
					Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)
					Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)
					Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)
					ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
					Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
					1-Pane	1-Pane	1-Pane	1-Pane	1-Pane	1-Pane
					2-Pane	2-Pane	2-Pane	2-Pane	2-Pane	2-Pane
					3-Pane	3-Pane	3-Pane	3-Pane	3-Pane	3-Pane
					R-10	R-10	R-10	R-10	R-10	R-10
					Slope/.001ELF	Slope/.001ELF	Slope/.001ELF	Slope/.001ELF	Slope/.001ELF	Slope/.001ELF
					Curve/.001ELF	Curve/.001ELF	Curve/.001ELF	Curve/.001ELF	Curve/.001ELF	Curve/.001ELF
					Base Load =	Base Load =	Base Load =	Base Load =	Base Load =	Base Load =
					Typical Load =	Typical Load =	Typical Load =	Typical Load =	Typical Load =	Typical Load =
					Residual Load =	Residual Load =	Residual Load =	Residual Load =	Residual Load =	Residual Load =

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-8.38	R-7	-3.28	R-7	-2.90	R-7	-.57
R-11	-9.72	R-11	-3.75	R-11	-3.36	R-11	-.65
R-13	-10.92	R-13	-4.26	R-13	-3.78	R-13	-.78
R-19	-11.33	R-19	-4.52	R-19	-3.90	R-19	-.80
R-30	-11.88	R-19	-4.64	R-30	-4.06	R-19	-.80
R-38	-12.21	R-27	-4.93	R-38	-4.16	R-27	-.86
R-49	-12.46	R-34	-5.18	R-49	-4.20	R-34	-.89
R-60	-12.62			R-60	-4.23		
Slope(DD)	3876.50	Slope(DD)	3205.89	Slope(DD)	969.53	Slope(DD)	481.82
Curve(DDS)	-14.253	Curve(DDS)	57.401	Curve(DDS)	48.295	Curve(DDS)	21.707
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-6.85	R-0	-5.68	R-0	-2.01	R-0	-1.04
R-5 2ft	-7.53	R-5 4ft	-6.84	R-5 2ft	-1.98	R-5 4ft	-1.16
R-5 4ft	-7.74	R-5 8ft	-7.20	R-5 4ft	-1.96	R-5 8ft	-1.16
R-10 2ft	-7.64	R-10 4ft	-7.10	R-10 2ft	-1.98	R-10 4ft	-1.18
R-10 4ft	-7.91	R-10 8ft	-7.57	R-10 4ft	-1.92	R-10 8ft	-1.20
Intercept	.000	Intercept	-3.565	Intercept	.000	Intercept	18.109
Slope(DD)	4143.37	Slope(DD)	2805.61	Slope(DD)	-1414.73	Slope(DD)	107.21
Curve(DDS)	-10.063	Curve(DDS)	-13.972	Curve(DDS)	65.077	Curve(DDS)	1.120
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.68	R-0	.00	R-0	-1.04	R-0	.00
R-11 flr	-7.48	R-11 flr	-6.71	R-11 flr	-.13	R-11 flr	.75
R-19 flr	-8.09	R-19 flr	-7.77	R-19 flr	.16	R-19 flr	.84
R-30 flr	-8.48	R-30 flr	-8.38	R-30 flr	.32	R-30 flr	.87
Intercept	-1.947	Intercept	-2.468	Intercept	4.292	Intercept	.88
Slope(DD)	2486.16	Slope(DD)	3134.60	Slope(DD)	-1075.99	Slope(DD)	-.88
Curve(DDS)	-238.260	Curve(DDS)	14.743	Curve(DDS)	93.640	Curve(DDS)	-.90
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.78)	.00	1-Pane	.00	.0007(.41)	.00	1-Pane	.00
.0005(.56)	-3.94	2-Pane	-6.73	.0005(.29)	-.59	2-Pane	.03
.0003(.35)	-7.40	3-Pane	-8.41	.0003(.18)	-1.13	3-Pane	.26
		R-10	-10.38		.60	R-10	.52
Slope/.001ELF	10.312	Slope(DD)	2401.92	Slope/.001ELF	1.833	Slope(DD)	-565.59
Curve/.001ELF	5.104	Curve(DDS)	20.714	Curve/.001ELF	.521	Curve(DDS)	14.449
Base Load =	46.08 MBtu	Base Load =	19.94 MBtu	Base Load =	20.94 MBtu	Base Load =	13.93 MBtu
Typical Load =	1.39 MBtu	Typical Load =	1.39 MBtu	Typical Load =	6.43 MBtu	Typical Load =	6.43 MBtu
Residual Load =		Residual Load =		Residual Load =		Residual Load =	

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -27.39	R-7 -15.87	R-7 -3.85	R-7 -3.85	R-7 4.28	R-7 4.28	R-7 -1.18	R-7 1.26
R-11 -31.76	R-11 -18.13	R-11 -4.47	R-11 -4.47	R-11 1.78	R-11 1.78	R-11 -1.35	R-11 1.11
R-19 -35.69	R-19 -20.86	R-19 -5.02	R-19 -5.02	R-19 1.38	R-19 1.38	R-19 -1.60	R-19 .89
R-22 -37.19	R-22 -22.21	R-22 -5.26	R-22 -5.26	R-22 1.02	R-22 1.02	R-22 -1.73	R-22 .78
R-30 -39.19	R-30 -24.69	R-30 -5.58	R-30 -5.58	R-30 .87	R-30 .87	R-30 -1.97	R-30 .57
R-38 -40.40	R-38 -26.21	R-38 -5.77	R-38 -5.77	R-38 .66	R-38 .66	R-38 -2.11	R-38 .44
R-49 -41.48	R-49 -26.21	R-49 -5.95	R-49 -5.95	R-49 .54	R-49 .54		
R-60 -42.17	R-60 -26.21	R-60 -6.06	R-60 -6.06	R-60 .35	R-60 .35		
Slope(DD) 5917.73	Slope(DD) 5601.43	Slope(DD) 974.08	Slope(DD) 974.08	Slope(DD) 588.24	Slope(DD) 588.24		
Curve(DDS) -158.266	Curve(DDS) -87.037	Curve(DDS) -42.421	Curve(DDS) -42.421	Curve(DDS) -28.932	Curve(DDS) -28.932		

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab	Heated Basement	Slab
R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
R-5 2ft 46.80	R-5 2ft -4.25	R-5 2ft -4.16	R-5 2ft -4.16	R-5 4ft -3.37	R-5 4ft -3.37	R-5 4ft -2.74	R-5 4ft 5.72
R-5 4ft 19.63	R-5 4ft -4.25	R-5 4ft -4.01	R-5 4ft -4.01	R-5 8ft -2.83	R-5 8ft -2.83	R-5 8ft -3.27	R-5 8ft 2.77
R-10 2ft 11.86	R-10 2ft -4.12	R-10 2ft -4.12	R-10 2ft -4.12	R-10 4ft -1.93	R-10 4ft -1.93	R-10 4ft -3.37	R-10 4ft 2.53
R-10 4ft 14.57	R-10 4ft -3.98	R-10 4ft -3.98	R-10 4ft -3.98	R-10 8ft -1.62	R-10 8ft -1.62	R-10 8ft -3.45	R-10 8ft 1.93
R-10 8ft 3.72	Intercept -18.707	Intercept -18.707	Intercept -18.707	Intercept .863	Intercept .863	Intercept .000	Intercept 1.45
Intercept -18.707	Slope(DD) 3571.11	Slope(DD) 3571.11	Slope(DD) 3571.11	Slope(DD) -793.08	Slope(DD) -793.08	Slope(DD) 126.98	Slope(DD) 126.98
Slope(DD) 6446.43	Curve(DDS) -84.030	Curve(DDS) -34.332	Curve(DDS) -34.332	Curve(DDS) 36.670	Curve(DDS) 36.670	Curve(DDS) .299	Curve(DDS) .299

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl	Unheated Basement	Crawl
R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
R-11 fir -12.19	R-11 fir -25.39	R-11 fir -.55	R-11 fir -.55	R-11 fir .62	R-11 fir .62	R-11 fir 1.05	R-11 fir 3.08
R-19 fir -25.22	R-19 fir -29.62	R-19 fir -.01	R-19 fir -.01	R-19 fir 2.04	R-19 fir 2.04	R-19 fir 1.18	R-19 fir 3.16
R-30 fir -28.82	R-30 fir -32.35	R-30 fir .34	R-30 fir .34	R-30 fir 2.39	R-30 fir 2.39	R-30 fir 1.35	R-30 fir 3.27
R-30 fir -31.14	R-30 fir -32.97			R-38 fir 2.62	R-38 fir 2.62	R-38 fir 1.39	R-38 fir 3.30
Intercept -6.774	Intercept -34.77	Intercept 3.211	Intercept 3.211	R-49 fir 3.211	R-49 fir 3.211	R-49 fir 1.50	R-49 fir 3.37
Slope(DD) 5486.27	Slope(DD) 5371.10	Slope(DD) -800.37	Slope(DD) -800.37	Slope(DD) 3.461	Slope(DD) 3.461	Slope(DD) -252.04	Slope(DD) -252.04
Curve(DDS) -448.327	Curve(DDS) -90.041	Curve(DDS) 57.427	Curve(DDS) 57.427	Curve(DDS) 8.685	Curve(DDS) 8.685		

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
R-0	R-0	R-0	R-0	R-0	R-0	R-0	R-0
R-11 fir 18.12	R-11 fir 18.12	R-11 fir .86	R-11 fir .86	R-11 fir .86	R-11 fir .86	R-11 fir 1.24	R-11 fir 1.24
R-19 fir 12.83	R-19 fir 12.83	R-19 fir -.38	R-19 fir -.38	R-19 fir .62	R-19 fir .62	R-19 fir -.13	R-19 fir .54
R-30 fir 7.63	R-30 fir 7.63	R-30 fir -.76	R-30 fir -.76	R-30 fir .37	R-30 fir .37	R-30 fir -.17	R-30 fir .34
Slope/.001ELF 25.097	Slope/.001ELF 25.097	Slope/.001ELF 1.234	Slope/.001ELF 1.234	Slope/.001ELF .000	Slope/.001ELF .000	Slope(DD) 44.82	Slope(DD) 44.82
Curve/.001ELF 1.137	Curve/.001ELF 1.137	Curve/.001ELF -11.730	Curve/.001ELF -11.730			Curve(DDS) .085	Curve(DDS) .085

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

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

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	27.20	R-0	.00	R-0	.00
R-7	-11.27	R-7	-6.82	R-7	-1.37	R-7	-1.37
R-11	-13.07	R-11	-7.79	R-11	-1.59	R-11	-1.59
R-19	-14.69	R-13	-8.91	R-19	-1.79	R-13	-1.79
R-22	-15.26	R-19	-9.47	R-22	-1.88	R-19	-1.88
R-30	-16.04	R-27	-10.46	R-30	-1.95	R-27	-1.95
R-38	-16.50	R-34	-11.08	R-38	-2.00	R-34	-2.00
R-49	-16.90			R-49	-2.05		
R-60	-17.16			R-60	-2.09		
Slope(DD)	5897.80	Slope(DD)	5156.81	Slope(DD)	684.59	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	R-0	-6.77	R-0	-1.02	R-0	-1.02
R-5	-10.29	R-5	-8.47	R-5	-1.58	R-5	-1.58
R-6	-10.59	R-5	-8.96	R-6	-1.50	R-5	-1.50
R-10	-10.49	R-10	-8.87	R-10	-1.54	R-10	-1.54
R-10	-10.90	R-10	-9.58	R-10	-1.48	R-10	-1.48
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	R-0	.00	R-0	-1.00	R-0	.00
R-11	-10.00	R-11	-9.43	R-11	-.16	R-11	1.68
R-19	-11.08	R-19	-10.99	R-19	.15	R-19	2.18
R-30	-11.78	R-30	-11.92	R-30	.35	R-30	2.51
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 fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.89)	.00	1-Pane	.00	.0007(.70)	.00	1-Pane	.00
.0005(.66)	-6.19	2-Pane	-10.51	.0005(.50)	-.26	2-Pane	.04
.0003(.39)	-12.10	3-Pane	-13.38	.0003(.30)	-.58	3-Pane	.14
		R-10	-16.75		.44	R-10	.25
Slope/.001ELF	22.292	Slope(DD)	4383.39	Slope/.001ELF	1.583	Slope(DD)	-234.84
Curve/.001ELF	2.917	Curve(DDS)	16.776	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 =	.07 MBtu	Typical Load =	7.76 MBtu	Typical Load =	7.76 MBtu
Residual Load =		Residual Load =		Residual Load =	2.92 MBtu	Residual Load =	2.92 MBtu

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-11.05	R-7	-4.62	R-7	-1.35	R-7	-0.27
R-11	-12.81	R-11	-5.28	R-11	-1.57	R-11	-0.30
R-19	-14.40	R-13	-6.02	R-19	-1.76	R-13	-0.36
R-22	-14.95	R-19	-6.39	R-22	-1.84	R-19	-0.38
R-30	-15.70	R-27	-7.02	R-30	-1.94	R-27	-0.43
R-38	-16.16	R-34	-7.41	R-38	-2.00	R-34	-0.45
R-49	-16.52			R-49	-2.02		
R-60	-16.76			R-60	-2.04		
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

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Heated Basement	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-10.05	R-0	-8.08	R-0	-1.28	R-0	-0.90
R-5 2ft	-10.93	R-5 4ft	-9.63	R-5 2ft	-1.24	R-5 4ft	-1.00
R-5 4ft	-11.18	R-5 8ft	-10.08	R-5 4ft	-1.21	R-5 8ft	-1.01
R-10 2ft	-11.09	R-10 4ft	-9.98	R-10 2ft	-1.23	R-10 4ft	-1.03
R-10 4ft	-11.42	R-10 8ft	-10.59	R-10 4ft	-1.19	R-10 8ft	-1.03
Intercept	-8.908	Intercept	.000	Intercept	-1.348	Intercept	.000
Slope(DD)	6402.25	Slope(DD)	4165.66	Slope(DD)	-1046.39	Slope(DD)	22.88
Curve(DDS)	-59.884	Curve(DDS)	-26.224	Curve(DDS)	42.745	Curve(DDS)	2.356

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Unheated Basement	(/sf)	Unheated Basement	(/sf)	Unheated Basement	(/sf)
R-0	-8.08	R-0	.00	R-0	-0.90	R-0	1.75
R-11 flr	-10.65	R-11 flr	-9.68	R-11 flr	-0.21	R-11 flr	.48
R-19 flr	-11.59	R-19 flr	-11.27	R-19 flr	.03	R-19 flr	.56
R-30 flr	-12.20	R-30 flr	-12.25	R-30 flr	.17	R-30 flr	.70
Intercept	-3.332	Intercept	-4.516	Intercept	2.723	Intercept	.84
Slope(DD)	3901.64	Slope(DD)	5013.76	Slope(DD)	-942.26	Slope(DD)	-562.75
Curve(DDS)	-392.871	Curve(DDS)	-52.251	Curve(DDS)	89.529	Curve(DDS)	48.844

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach	.00	1-Pane	.00	ELF Ach	.00	1-Pane	.00
.0007(.89)	16.71	2-Pane	-10.63	.0007(.70)	.84	2-Pane	.06
.0005(.66)	11.55	3-Pane	-13.47	.0005(.50)	-.28	3-Pane	.24
.0003(.39)	6.70	R-10	-16.60	.0003(.30)	-.56	R-10	.47
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)	11.762

Base Load = 68.96 MBtu
 Typical Load = 19.97 MBtu
 Residual Load = .46 MBtu

Base Load = 10.60 MBtu
 Typical Load = 7.01 MBtu
 Residual Load = 2.67 MBtu

Oklahoma City OK WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Ceiling		Ceiling		Ceiling	
R-0	.00	R-0	19.67	R-0	.00	R-0	7.54
R-7	-19.51	R-7	9.62	R-7	-6.93	R-7	3.04
R-11	-22.62	R-11	8.19	R-11	-8.04	R-11	2.32
R-19	-25.42	R-13	6.43	R-19	-9.03	R-13	1.68
R-22	-26.50	R-19	5.56	R-22	-9.43	R-19	1.42
R-30	-27.94	R-27	4.01	R-30	-9.97	R-27	1.07
R-38	-28.81	R-34	3.06	R-38	-10.29	R-34	.86
R-49	-29.58			R-49	-10.56		
R-60	-30.08			R-60	-10.73		
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		Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-0	-16.69	R-0	81.22	R-0	-7.61	R-0	-1.61
R-5 2ft	-20.13	R-5 4ft	54.41	R-5 2ft	-7.77	R-5 4ft	-2.57
R-5 4ft	-21.07	R-5 8ft	46.04	R-5 4ft	-7.70	R-5 8ft	-2.15
R-10 2ft	-20.76	R-10 4ft	47.49	R-10 2ft	-7.79	R-10 4ft	-2.69
R-10 4ft	-22.03	R-10 8ft	34.90	R-10 4ft	-7.67	R-10 8ft	-1.97
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		Unheated Basement (/sf)		Crawl	
R-0	-11.17	R-0	16.01	R-0	-4.03	R-0	.00
R-11 flr	-20.01	R-11 flr	3.70	R-11 flr	-1.58	R-11 flr	.26
R-19 flr	-22.42	R-19 flr	1.66	R-19 flr	-1.01	R-19 flr	.27
R-30 flr	-23.97	R-30 flr	.45	R-30 flr	-.66	R-30 flr	.34
		R-38 flr	.17			R-38 flr	.36
		R-49 flr	-.63			R-49 flr	.41
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	95.40	ELF Ach		1-Pane	.00
.0007(.87)	.00	2-Pane	42.31	.0007(.64)	.00	2-Pane	-.71
.0005(.62)	-5.97	3-Pane	26.75	.0005(.45)	-1.45	3-Pane	-.83
.0003(.36)	-11.73	R-10	8.44	.0003(.29)	-2.94	R-10	-.98
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	Typical Load =	18.64 MBtu	Residual Load =	.74 MBtu
Typical Load =	43.37 MBtu	Residual Load =	.47 MBtu				

Oklahoma City OK WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	22.80	19.31	Ceiling	.00	6.67	6.67
R-0	-8.47	8.68	8.71	R-0	-2.58	2.37	2.37
R-7	-9.82	6.42	7.20	R-7	-2.59	1.69	1.69
R-11	-11.04	4.40	5.50	R-11	-3.36	1.07	1.07
R-19	-11.46	3.70	4.66	R-19	-3.45	.92	.92
R-22	-12.01	2.77	3.37	R-22	-3.68	.71	.71
R-30	-12.35	2.21	2.58	R-30	-3.65	.59	.59
R-38	-12.62	1.77		R-38	-3.75	.42	.42
R-49	-12.79	1.48		R-49	-3.81	.32	.32
R-60				R-60			
Slope(DD)	3996.89	3228.02		Slope(DD)	945.85		
Curve(DDS)	-25.622	67.412		Curve(DDS)	30.194		
Slab	(/ft)	Heated Basement' (/ft)		Slab	(/ft)	Heated Basement (/ft)	
R-0	-7.54	38.86	-5.80	R-0	-2.96	-1.03	-1.03
R-5	-8.34	18.86	-7.21	R-5	-2.97	-1.28	-1.28
R-5	-8.52	14.36	-7.56	R-5	-2.95	-1.78	-1.78
R-10	-8.46	16.88	-7.51	R-10	-2.99	-1.84	-1.84
R-10	-8.69	10.11	-7.93	R-10	-2.96	-1.03	-1.03
Intercept	.000		Intercept	.000		Intercept	
Slope(DD)	2798.30	7.098	Slope(DD)	-382.39	20.790	Slope(DD)	20.790
Curve(DDS)	57.634	2083.05	Curve(DDS)	25.820	403.48	Curve(DDS)	403.48
Unheated Basement (/sf)		Crawl		Unheated Basement (/sf)		Crawl	
R-0	-5.80	5.49	15.16	R-0	-1.58	2.26	2.26
R-11	-7.83	2.11	3.61	R-11	-.83	3.81	3.81
R-19	-8.46	1.06	1.81	R-19	-.39	4.22	4.22
R-30	-8.86	.39	.84	R-30	-.23	4.48	4.48
R-38			.62	R-38			.24
R-49			-.01	R-49			5.26
Intercept	-1.447		-1.573	Intercept	5.175		5.258
Slope(DD)	2514.33	3007.95	Slope(DD)	-938.00	33.63	Slope(DD)	33.63
Curve(DDS)	-226.473	49.895	Curve(DDS)	72.257	-21.527	Curve(DDS)	-21.527
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach				ELF Ach			
.0007(.87)	.00	10.57	.0007(.67)	.00	2.93	1-Pane	.00
.0005(.60)	-4.45	6.86	.0005(.48)	-1.08	2.03	2-Pane	-.29
.0003(.37)	-8.24	3.71	.0003(.29)	-2.10	1.18	3-Pane	-.09
						R-10	.15
Slope/.001ELF	10.291	2180.28	Slope/.001ELF	3.750	-596.10	Slope(DD)	-596.10
Curve/.001ELF	6.875	34.850	Curve/.001ELF	.625	19.226	Curve(DDS)	19.226

Base Load = 51.77 MBtu
 Typical Load = 22.17 MBtu
 Residual Load = 3.01 MBtu

Base Load = 26.86 MBtu
 Typical Load = 18.36 MBtu
 Residual Load = 8.33 MBtu

Oklahoma City OK WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-8.76	R-7	-3.47	R-7	-2.64	R-7	-.63
R-11	-10.16	R-11	6.41	R-11	-3.07	R-11	-.72
R-19	-11.42	R-13	-4.49	R-19	-3.44	R-13	-.78
R-22	-11.83	R-19	-4.76	R-22	-3.56	R-19	-.82
R-30	-12.39	R-27	-5.17	R-30	-3.71	R-27	-.84
R-38	-12.73	R-34	-5.41	R-38	-3.80	R-34	-.86
R-49	-12.97			R-49	-3.88		
R-60	-13.13			R-60	-3.90		
Slope(DD)	3879.24	Slope(DD)	3125.00	Slope(DD)	995.24	Slope(DD)	110.37
Curve(DDS)	9.744	Curve(DDS)	96.557	Curve(DDS)	27.926	Curve(DDS)	78.324
Slab		Heated Basement		Slab		Heated Basement	
R-0	-8.19	R-0	-6.81	R-0	-2.44	R-0	-1.36
R-5 2ft	-8.84	R-5 4ft	-8.08	R-5 2ft	-2.43	R-5 4ft	-1.57
R-5 4ft	-9.01	R-5 8ft	-8.39	R-5 8ft	-2.42	R-5 8ft	-1.61
R-10 2ft	-8.95	R-10 4ft	-8.36	R-10 2ft	-2.44	R-10 4ft	-1.65
R-10 4ft	-9.15	R-10 8ft	-8.73	R-10 8ft	-2.42	R-10 8ft	-1.67
Intercept	.000	Intercept	.12	Intercept	.000	Intercept	19.778
Slope(DD)	3609.25	Slope(DD)	2515.44	Slope(DD)	-595.21	Slope(DD)	298.81
Curve(DDS)	30.142	Curve(DDS)	-6.160	Curve(DDS)	33.328	Curve(DDS)	1.142
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-6.81	R-0	.00	R-0	-1.36	R-0	.00
R-11 fir	-8.46	R-11 fir	-7.23	R-11 fir	-.50	R-11 fir	.39
R-19 fir	-9.03	R-19 fir	-8.38	R-19 fir	-.26	R-19 fir	.39
R-30 fir	-9.39	R-30 fir	-8.99	R-30 fir	-.10	R-30 fir	.38
		R-38 fir	-9.13			R-38 fir	.38
		R-49 fir	-9.53			R-49 fir	.38
Intercept	-1.452	Intercept	-1.074	Intercept	4.480	Intercept	4.517
Slope(DD)	2318.52	Slope(DD)	3210.30	Slope(DD)	-957.00	Slope(DD)	112.49
Curve(DDS)	-224.199	Curve(DDS)	41.684	Curve(DDS)	80.013	Curve(DDS)	-43.758
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.87)	.00	2-Pane	-7.60	.0007(.64)	.00	2-Pane	-.31
.0005(.62)	-4.45	3-Pane	-9.20	.0005(-.48)	-1.01	3-Pane	-.14
.0003(.37)	-8.20	R-10	-11.08	.0003(-.29)	-1.99	R-10	-.08
Slope/.001ELF	9.854	Slope(DD)	1960.62	Slope/.001ELF	3.896	Slope(DD)	-513.82
Curve/.001ELF	7.240	Curve(DDS)	43.093	Curve/.001ELF	.260	Curve(DDS)	17.318

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

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

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -31.75	R-7 -18.54	R-7 -5.98	R-7 -6.56	R-7 -5.98	R-7 -6.56	R-7 -1.93	R-7 -3.59
R-11 -36.82	R-11 -21.18	R-11 -8.91	R-11 -10.39	R-11 -8.91	R-11 -10.39	R-11 -2.21	R-11 -1.62
R-19 -41.37	R-19 -24.37	R-19 -7.45	R-19 -10.56	R-19 -7.45	R-19 -10.56	R-19 -2.60	R-19 -1.28
R-22 -43.12	R-22 -25.95	R-22 6.31	R-22 9.15	R-22 -8.12	R-22 1.29	R-22 -2.79	R-22 1.11
R-30 -45.47	R-27 -28.84	R-30 -8.60	R-30 6.58	R-30 -8.60	R-30 .98	R-27 -3.12	R-27 .81
R-38 -48.89	R-34 -30.61	R-38 -8.89	R-34 5.00	R-38 -8.89	R-34 .79	R-34 -3.33	R-34 .63
R-49 -48.15		R-49 -9.14		R-49 -9.14			
R-60 -48.97		R-60 -9.30		R-60 -9.30			
Slope(DD) 6957.45	Slope(DD) 6532.25	Slope(DD) 1435.75	Slope(DD) 823.75	Slope(DD) 1435.75	Slope(DD) 823.75	Slope(DD) 1435.75	Slope(DD) 823.75
Curve(DDS) -197.385	Curve(DDS) -100.028	Curve(DDS) -55.556	Curve(DDS) -29.054	Curve(DDS) -55.556	Curve(DDS) -29.054	Curve(DDS) -55.556	Curve(DDS) -29.054
Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)
R-0 -21.55	R-0 -12.93	R-0 -6.23	R-0 -5.75	R-0 -6.23	R-0 -5.75	R-0 -3.83	R-0 8.71
R-5 2ft -26.96	R-5 4ft -18.90	R-5 2ft -6.19	R-5 4ft -5.51	R-5 2ft -6.19	R-5 4ft -5.51	R-5 4ft -4.55	R-5 4ft 4.37
R-5 4ft -28.52	R-5 8ft -20.97	R-5 4ft -6.08	R-5 8ft -4.85	R-5 4ft -6.08	R-5 8ft -4.85	R-5 8ft -4.63	R-5 8ft 3.89
R-10 2ft -27.97	R-10 4ft -20.48	R-10 2ft -6.17	R-10 4ft 63.22	R-10 2ft -6.17	R-10 4ft -5.39	R-10 4ft -4.78	R-10 4ft 2.98
R-10 4ft -30.16	R-10 8ft -23.71	R-10 4ft -6.02	R-10 8ft 43.76	R-10 4ft -6.02	R-10 8ft -4.49	R-10 8ft -4.89	R-10 8ft 2.32
Intercept -22.786	Intercept .000	Intercept -2.222	Intercept .000	Intercept -2.222	Intercept .000	Intercept -4.89	Intercept .000
Slope(DD) 8396.37	Slope(DD) 4463.37	Slope(DD) -782.48	Slope(DD) 207.86	Slope(DD) -782.48	Slope(DD) 207.86	Slope(DD) -4.89	Slope(DD) .000
Curve(DDS) -135.822	Curve(DDS) -44.083	Curve(DDS) 41.095	Curve(DDS) .142	Curve(DDS) 41.095	Curve(DDS) .142	Curve(DDS) -4.89	Curve(DDS) .142
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -12.93	R-0 .00	R-0 -3.83	R-0 .94	R-0 -3.83	R-0 .94	R-0 .00	R-0 3.43
R-11 flr -27.96	R-11 flr -28.04	R-11 flr -1.11	R-11 flr 2.70	R-11 flr -1.11	R-11 flr 2.70	R-11 flr .96	R-11 flr 4.05
R-19 flr -32.18	R-19 flr -32.92	R-19 flr -.37	R-19 flr 3.19	R-19 flr -.37	R-19 flr 3.19	R-19 flr 1.08	R-19 flr 4.13
R-30 flr -34.90	R-30 flr -36.06	R-30 flr .11	R-30 flr 3.50	R-30 flr .11	R-30 flr 3.50	R-30 flr 1.17	R-30 flr 4.18
Intercept -7.298	R-38 flr -36.78	Intercept 4.327	R-38 flr -3.77	Intercept 4.327	R-38 flr 1.19	R-38 flr 1.19	R-38 flr 4.20
Slope(DD) 6457.53	R-49 flr -38.85	Slope(DD) -1126.95	Intercept -8.178	Slope(DD) -1126.95	Intercept 4.301	Intercept 4.301	Intercept 4.301
Curve(DDS) -538.162	Intercept -8.178	Curve(DDS) 90.893	Slope(DD) 6318.58	Curve(DDS) 90.893	Slope(DD) -144.33	Slope(DD) -144.33	Slope(DD) -144.33
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	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.85)	.00 19.90	.0007(.58)	.00 154.62	.0007(.58)	.00 1.72	.0007(.58)	.00 4.05
.0005(.59)	-8.93 14.10	.0005(.42)	-14.94 73.77	.0005(.42)	-1.72 1.25	.0005(.42)	-1.38 1.99
.0003(.35)	-17.72 8.39	.0003(.25)	-19.90 46.94	.0003(.25)	-1.47 .77	.0003(.25)	-1.51 1.27
Slope/.001ELF 27.630	Slope(DD) 6807.56	Slope/.001ELF 2.630	Slope(DD) 6807.56	Slope/.001ELF 2.630	Slope(DD) 6807.56	Slope/.001ELF 2.630	Slope(DD) 6807.56
Curve/.001ELF 1.137	Curve(DDS) -28.444	Curve/.001ELF -.243	Curve(DDS) -28.444	Curve/.001ELF -.243	Curve(DDS) -28.444	Curve/.001ELF -.243	Curve(DDS) -28.444
Base Load = 172.10 MBtu	Base Load = 26.80 MBtu	Base Load = 9.47 MBtu	Base Load = 26.80 MBtu	Base Load = 9.47 MBtu	Base Load = 26.80 MBtu	Base Load = 9.47 MBtu	Base Load = 26.80 MBtu
Typical Load = 56.49 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu	Typical Load = 9.47 MBtu
Residual Load = 5.69 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu	Residual Load = -3.14 MBtu

Omaha NB WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling R-0 R-7 R-11 R-19 R-22 R-30 R-38 R-49 R-60 Slope(DD) Curve(DDS)	.00 36.66 -13.07 13.87 -15.16 10.40 -17.03 7.27 -10.33 9.89 -10.99 8.61 -12.12 6.14 -12.62 4.67 6706.65 -116.857	Wall R-0 R-7 R-11 R-19 R-27 R-34	(.00) 31.58 -7.89 15.03 -9.01 12.67 -10.33 9.89 -10.99 8.61 -12.12 6.14 -12.62 4.67	Ceiling R-0 R-7 R-11 R-19 R-22 R-30 R-38 R-49 R-60 Slope(DD) Curve(DDS)	.00 6.15 -2.25 2.40 -2.61 1.81 -2.93 1.27 -3.04 1.08 -3.20 .82 -3.29 .67 -3.38 .52 -3.44 .42 1176.53 -23.445	Wall R-0 R-7 R-11 R-19 R-27 R-34	(.00) 2.80 -.71 1.31 -.81 1.10 -.83 .94 -.70 -1.00 .52 -1.09 .52 -1.14 .40
Slab R-0 R-5 R-10 R-15 R-20 R-25 R-30 R-35 R-40 R-45 R-50 R-55 R-60 Slope(DD) Curve(DDS)	(/ft) -10.33 56.92 -11.66 23.67 -12.02 14.67 -11.90 17.67 -12.38 5.67 -18.662 7154.36 -58.578	Heated Basement R-0 R-5 R-10 R-15 R-20 R-25 R-30 R-35 R-40 R-45 R-50 R-55 R-60 Slope(DD) Curve(DDS)	(/ft) -7.40 130.17 -9.47 78.42 -10.06 63.67 -9.96 66.17 -10.79 46.42 .000 4454.47 -30.928	Slab R-0 R-5 R-10 R-15 R-20 R-25 R-30 R-35 R-40 R-45 R-50 R-55 R-60 Slope(DD) Curve(DDS)	(/ft) -2.36 -16.85 -2.33 -16.10 -2.28 -14.85 -2.32 -15.85 -2.27 -14.60 -11.546 -1010.68 47.545	Heated Basement R-0 R-5 R-10 R-15 R-20 R-25 R-30 R-35 R-40 R-45 R-50 R-55 R-60 Slope(DD) Curve(DDS)	(/ft) -1.39 7.40 -1.58 2.65 -1.58 2.65 -1.63 1.40 -1.64 1.15 .000 79.44 2.501
Unheated Basement R-0 R-11 R-19 R-30 R-38 R-49 Slope(DD) Curve(DDS)	(/sf) -7.40 8.68 -11.09 2.53 -12.33 .47 -13.12 -.86 -4.523 5039.74 -480.784	Unheated Basement R-0 R-11 R-19 R-30 R-38 R-49 Slope(DD) Curve(DDS)	(/sf) .00 21.01 -10.40 3.68 -12.18 .71 -1.08 -1.49 -2.67 -5.485 5629.07 -90.830	Unheated Basement R-0 R-11 R-19 R-30 R-38 R-49 Slope(DD) Curve(DDS)	(/sf) -1.39 .49 -2.16 2.64 -2.94 .08 2.94 3.771 -1127.32 95.179	Crawl R-0 R-11 R-19 R-30 R-38 R-49 Slope(DD) Curve(DDS)	(/sf) .00 2.81 .43 3.53 .46 3.58 .50 3.64 .51 3.66 .54 3.70 3.732 -105.30 -14.539
Infiltration ELF Ach .0007(.82) .0005(.61) .0003(.37) Slope/.001ELF Curve/.001ELF	(/sf f/r) Window U-value 18.46 -6.78 12.81 -13.20 7.46 23.750 3.750	Infiltration ELF Ach .0007(.54) .0005(.38) .0003(.23) Slope/.001ELF Curve/.001ELF	(/sf f/r) Window U-value 1.68 1.23 .76 2.625 -.312	Window U-value R-0 R-11 R-19 R-30 R-38 R-49 Slope(DD) Curve(DDS)	(/sf) -1.36 -2.06 -1.39 -.60 .11 -273.81 -8.418	Base Load = 17.96 MBtu Typical Load = 11.46 MBtu Residual Load = 3.97 MBtu	

Omaha NB	WYEC	M Apartment Prototype Siding Series Two				Cooling Load	
		Heating Load		Cooling Load			
		Delta Component (MBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
		Ceiling	Wall	Ceiling	Wall		
		R-0	R-0	R-0	R-0		
		R-7	R-7	R-7	R-7		
		R-11	R-11	R-11	R-11		
		R-19	R-13	R-19	R-13		
		R-22	R-19	R-22	R-19		
		R-30	R-27	R-30	R-27		
		R-38	R-34	R-38	R-34		
		R-49		R-49			
		R-60		R-60			
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)		
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)		
		Slab	Heated Basement	Slab	Heated Basement		
		R-0	R-0	R-0	R-0		
		R-5 2ft	R-5 4ft	R-5 2ft	R-5 4ft		
		R-5 4ft	R-5 8ft	R-5 4ft	R-5 8ft		
		R-10 2ft	R-10 4ft	R-10 2ft	R-10 4ft		
		R-10 4ft	R-10 8ft	R-10 4ft	R-10 8ft		
		Intercept	Intercept	Intercept	Intercept		
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)		
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)		
		Unheated Basement	Crawl	Unheated Basement	Crawl		
		R-0	R-0	R-0	R-0		
		R-11 flr	R-11 flr	R-11 flr	R-11 flr		
		R-19 flr	R-19 flr	R-19 flr	R-19 flr		
		R-30 flr	R-30 flr	R-30 flr	R-30 flr		
		R-38 flr	R-38 flr	R-38 flr	R-38 flr		
		R-49 flr	R-49 flr	R-49 flr	R-49 flr		
		Intercept	Intercept	Intercept	Intercept		
		Slope(DD)	Slope(DD)	Slope(DD)	Slope(DD)		
		Curve(DDS)	Curve(DDS)	Curve(DDS)	Curve(DDS)		
		Infiltration	Window U-value	Infiltration	Window U-value		
		ELF Ach	ELF Ach	ELF Ach	ELF Ach		
		.0007(.82)	1-Pane	.0007(.58)	1-Pane		
		.0005(.61)	2-Pane	.0005(.42)	2-Pane		
		.0003(.36)	3-Pane	.0003(.25)	3-Pane		
			R-10		R-10		
		Slope/.001ELF	Slope(DD)	Slope/.001ELF	Slope(DD)		
		Curve/.001ELF	Curve(DDS)	Curve/.001ELF	Curve(DDS)		
		Base Load =	78.27 MBtu	Base Load =	16.08 MBtu		
		Typical Load =	23.03 MBtu	Typical Load =	10.29 MBtu		
		Residual Load =	2.00 MBtu	Residual Load =	3.38 MBtu		

Philadelphia PA TMY One Story Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling					
R-0	.00	29.25	R-0	.00	5.42
R-7	-27.15	11.62	R-7	-4.94	2.21
R-11	-31.49	8.81	R-11	-5.73	1.70
R-19	-35.38	6.28	R-19	-6.44	1.24
R-22	-38.86	5.32	R-22	-6.73	1.05
R-30	-38.84	4.03	R-30	-7.12	.80
R-38	-40.04	3.25	R-38	-7.38	.64
R-49	-41.10	2.56	R-49	-7.57	.51
R-60	-41.79	2.12	R-60	-7.70	.42
Wall					
R-0	.00	27.10	R-0	.00	5.42
R-7	-15.52	13.29	R-7	-4.94	2.21
R-11	-17.73	11.32	R-11	-5.73	1.70
R-13	-20.42	8.92	R-13	-6.44	1.24
R-19	-21.76	7.73	R-19	-6.73	1.05
R-27	-24.19	6.57	R-27	-7.12	.80
R-34	-25.69	4.24	R-34	-7.38	.64
Slope(DD)					
Slope(DD)	5851.26	5537.79	Slope(DD)	1170.14	681.32
Curve(DDS)	-154.747	-92.893	Curve(DDS)	-43.084	-28.580
Slab					
Heated Basement (/ft)					
R-0	-18.66	50.26	R-0	-4.70	-5.65
R-5 2ft	-23.21	22.85	R-5 4ft	-4.57	-4.86
R-5 4ft	-24.52	14.96	R-5 8ft	-4.47	-4.26
R-10 2ft	-24.04	17.85	R-10 4ft	-4.56	-4.74
R-10 4ft	-25.87	6.83	R-10 8ft	-4.40	-3.84
Intercept	-15.917	.000	Intercept	-1.810	.000
Slope(DD)	6736.14	3766.49	Slope(DD)	-870.90	72.76
Curve(DDS)	-95.899	-37.037	Curve(DDS)	29.299	1.081
Unheated Basement (/sf)					
R-0	-11.79	9.88	R-0	-2.87	.51
R-11 fir	-24.56	1.59	R-11 fir	-.80	1.92
R-19 fir	-28.08	-.70	R-19 fir	-.23	2.30
R-30 fir	-30.35	-2.17	R-30 fir	.14	2.53
Intercept	-6.122	-4.26	Intercept	3.170	3.291
Slope(DD)	5363.04	5160.17	Slope(DD)	-860.46	-187.00
Curve(DDS)	-437.355	-81.467	Curve(DDS)	66.828	4.228
Infiltration (/sf fir) Window U-value (/sf)					
ELF Ach	.00	17.44	ELF Ach	.00	1.17
.0007(.81)	-7.85	12.35	.0007(.55)	-.64	.82
.0005(.57)	-15.56	7.34	.0005(.39)	-1.06	.48
.0003(.34)			.0003(.24)		
Slope/.001ELF					
Slope/.001ELF	24.123	5560.54	Slope/.001ELF	1.558	107.44
Curve/.001ELF	1.136	-22.316	Curve/.001ELF	.162	-.685

Base Load = 20.84 MBtu
 Typical Load = 7.09 MBtu
 Residual Load = -2.45 MBtu

Base Load = 145.77 MBtu
 Typical Load = 46.59 MBtu
 Residual Load = 3.09 MBtu

Philadelphia PA TMY Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-11.17	R-7	-6.88	R-7	-1.83	R-7	-1.59
R-11	-12.96	R-11	-7.63	R-11	-2.12	R-11	-1.67
R-19	-14.56	R-13	-8.73	R-19	-2.38	R-13	-1.78
R-22	-15.13	R-19	-9.27	R-22	-2.48	R-19	-1.83
R-30	-15.90	R-27	-10.22	R-30	-2.62	R-27	-1.90
R-38	-16.36	R-34	-10.80	R-38	-2.70	R-34	-1.94
R-49	-16.78			R-49	-2.79	R-49	-2.47
R-60	-17.01			R-60	-2.84	R-60	-2.38
Slope(DD)	5656.04	Slope(DD)	4963.57	Slope(DD)	1082.61	Slope(DD)	405.91
Curve(DDS)	-88.758	Curve(DDS)	-6.124	Curve(DDS)	-37.133	Curve(DDS)	4.144

Heating Load

Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab		Heated Basement		Slab		Heated Basement	
R-0	-8.91	R-0	-6.59	R-0	-1.82	R-0	-1.13
R-5 2ft	-10.02	R-5 4ft	-8.31	R-5 2ft	-1.76	R-5 4ft	-1.24
R-5 4ft	-10.31	R-6 8ft	-8.60	R-5 4ft	-1.72	R-6 8ft	-1.24
R-10 2ft	-10.21	R-10 4ft	-8.71	R-10 2ft	-1.75	R-10 4ft	-1.27
R-10 4ft	-10.61	R-10 8ft	-9.40	R-10 4ft	-1.69	R-10 8ft	-1.27
Intercept	-12.491	Intercept	.000	Intercept	-6.754	Intercept	.000
Slope(DD)	5651.70	Slope(DD)	3638.79	Slope(DD)	-1105.10	Slope(DD)	12.21
Curve(DDS)	-32.933	Curve(DDS)	-24.533	Curve(DDS)	46.132	Curve(DDS)	2.028

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-6.59	R-0	.00	R-0	-1.13	R-0	.00
R-11 flr	-9.67	R-11 flr	-9.09	R-11 flr	-.26	R-11 flr	.41
R-19 flr	-10.69	R-19 flr	-10.59	R-19 flr	-.02	R-19 flr	.53
R-30 flr	-11.35	R-30 flr	-11.49	R-30 flr	.14	R-30 flr	.57
		R-38 flr	-11.69	R-38 flr		R-38 flr	.58
		R-49 flr	-12.28	R-49 flr		R-49 flr	.61
Intercept	-3.786	Intercept	-4.610	Intercept	3.077	Intercept	3.300
Slope(DD)	4163.75	Slope(DD)	4626.17	Slope(DD)	-954.28	Slope(DD)	-347.70
Curve(DDS)	-394.993	Curve(DDS)	-36.128	Curve(DDS)	78.905	Curve(DDS)	21.475

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		1-Pane		ELF Ach		1-Pane	
.0007(.80)	.00	2-Pane	.00	.0007(.65)	.00	2-Pane	.00
.0005(.60)	-5.95	3-Pane	-9.59	.0005(.39)	-.39	3-Pane	.01
.0003(.36)	-11.49	R-10	-12.26	.0003(.23)	-.77	R-10	.12
	6.28		31.66		.46		-.64
			9.81				
Slope/.001ELF	19.666	Slope(DD)	4147.54	Slope/.001ELF	1.500	Slope(DD)	-290.04
Curve/.001ELF	4.272	Curve(DDS)	10.520	Curve/.001ELF	.104	Curve(DDS)	7.476

Base Load = 69.76 MBtu
 Typical Load = 20.28 MBtu
 Residual Load = .91 MBtu

Base Load = 14.06 MBtu
 Typical Load = 8.91 MBtu
 Residual Load = 3.23 MBtu

Philadelphia PA TMY M Apartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Ceiling (MBtu)	(/sf)	Wall (MBtu)	(/sf)
R-0	.00	29.69	.00	R-0	.00	R-0	.00
R-7	-10.97	11.41	-4.52	R-7	-1.77	R-7	-0.39
R-11	-12.72	8.49	-5.16	R-11	-2.08	R-11	-0.44
R-19	-14.30	5.87	-5.89	R-19	-2.31	R-13	-0.51
R-22	-14.86	4.95	-6.25	R-22	-2.41	R-19	-0.55
R-30	-15.58	3.72	-6.86	R-30	-2.55	R-27	-0.60
R-38	-16.03	2.97	-7.24	R-38	-2.63	R-34	-0.63
R-49	-16.39	2.37		R-49	-2.69		
R-60	-16.63	1.97		R-60	-2.72		
Slope(DD)	5384.80	4796.42		Slope(DD)	986.86	Slope(DD)	452.86
Curve(DDS)	-60.207	27.481		Curve(DDS)	-26.608	Curve(DDS)	-3.161
Slab	(/ft)	Heated Basement (/ft)		Slab	(/ft)	Heated Basement (/ft)	
R-0	-9.77	62.21	-7.86	R-0	-1.40	R-0	-0.95
R-5	-10.64	33.04	-9.42	R-5	-1.36	R-5	-1.05
R-6	-10.88	26.21	-9.85	R-5	-1.34	R-5	-1.05
R-10	-10.80	28.04	-9.77	R-10	-1.35	R-10	-1.08
R-10	-11.12	17.21	-10.36	R-10	-1.32	R-10	-1.08
Intercept	-4.258	.000		Intercept	-5.190	Intercept	.000
Slope(DD)	6215.31	4080.98		Slope(DD)	-789.11	Slope(DD)	8.16
Curve(DDS)	-49.834	-24.446		Curve(DDS)	29.122	Curve(DDS)	2.429
Unheated Basement (/sf)		Crawl (/sf)		Unheated Basement (/sf)		Crawl (/sf)	
R-0	-7.86	6.29	.00	R-0	-0.95	R-0	.00
R-11	-10.34	2.16	-9.33	R-11	-0.26	R-11	.48
R-19	-11.23	.67	-10.87	R-19	-0.03	R-19	.58
R-30	-11.80	-.28	-11.81	R-30	.12	R-30	.68
Intercept	-2.955	-4.036		Intercept	2.686	Intercept	.73
Slope(DD)	3686.83	4792.16		Slope(DD)	-926.02	Slope(DD)	-427.59
Curve(DDS)	-367.260	-43.500		Curve(DDS)	86.784	Curve(DDS)	29.336
Infiltration (/sf flr)		Window U-value (/sf)		Infiltration (/sf flr)		Window U-value (/sf)	
ELF Ach				ELF Ach			
.0007(.80)	.00	15.64	.00	.0007(.65)	.00	1-Pane	.00
.0005(.60)	-5.93	10.90	-9.72	.0005(.39)	-.36	2-Pane	.03
.0003(.36)	-11.46	6.29	-12.36	.0003(.24)	-.65	3-Pane	.16
			-16.47			R-10	.30
Slope/.001ELF	19.708	4029.36		Slope/.001ELF	.625	Slope(DD)	-300.65
Curve/.001ELF	4.167	15.233		Curve/.001ELF	.729	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

Phoenix AZ WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.37	R-7	-4.56	R-7	-18.55	R-7	-6.65
R-11	-10.87	R-11	2.86	R-11	-21.51	R-11	-7.80
R-19	-12.21	R-13	2.28	R-19	-24.17	R-13	-8.82
R-22	-12.64	R-19	1.75	R-22	-25.19	R-19	-9.42
R-30	-13.23	R-27	1.08	R-30	-26.56	R-27	-10.54
R-38	-13.58	R-34	1.00	R-38	-27.39	R-34	-11.23
R-49	-13.83		.78	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)	4072.36	Slope(DD)	2608.90
Curve(DDS)	12.393	Curve(DDS)	71.850	Curve(DDS)	-116.435	Curve(DDS)	-71.211
Slab		Heated Basement		Slab		Heated Basement	
R-0	-6.81	R-0	-4.40	R-0	-12.36	R-0	-5.23
R-5 2ft	-7.71	R-5 4ft	20.73	R-5 2ft	-12.67	R-5 4ft	-6.94
R-5 4ft	-7.82	R-5 8ft	10.01	R-5 4ft	-12.83	R-5 8ft	-7.21
R-10 2ft	-7.83	R-10 4ft	8.26	R-10 2ft	-12.89	R-10 4ft	-7.42
R-10 4ft	-7.93	R-10 8ft	8.02	R-10 4ft	-13.13	R-10 8ft	-7.90
Intercept	.000	Intercept	2.731	Intercept	.000	Intercept	28.406
Slope(DD)	-660.83	Slope(DD)	325.97	Slope(DD)	2345.73	Slope(DD)	970.48
Curve(DDS)	169.737	Curve(DDS)	4.531	Curve(DDS)	-134.458	Curve(DDS)	-8.048
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-4.40	R-0	.00	R-0	-5.23	R-0	.00
R-11 flr	-6.58	R-11 flr	5.09	R-11 flr	-6.18	R-11 flr	-3.89
R-19 flr	-7.06	R-19 flr	1.30	R-19 flr	-6.68	R-19 flr	-5.05
R-30 flr	-7.37	R-30 flr	.79	R-30 flr	-7.01	R-30 flr	-6.07
Intercept	-.208	R-38 flr	.55	Intercept	3.940	R-38 flr	5.18
Slope(DD)	686.46	R-49 flr	.50	Slope(DD)	887.23	R-49 flr	-6.62
Curve(DDS)	-40.782	Intercept	.36	Curve(DDS)	-104.988	Intercept	3.932
Infiltration		Slope(DD)	-0.40	Infiltration		Slope(DD)	1888.09
ELF Ach		Curve(DDS)	695.69	ELF Ach		Curve(DDS)	-170.681
.0007(.55)	.00	Window U-value	59.500	.0007(.51)	.00	Window U-value	.00
.0005(.39)	-1.56	1-Pane	22.65	.0005(.37)	-2.00	1-Pane	-2.57
.0003(.25)	-2.64	2-Pane	7.34	.0003(.22)	-3.99	2-Pane	-3.51
Slope/.001ELF	.389	3-Pane	4.48	Slope/.001ELF	6.398	3-Pane	-4.61
Curve/.001ELF	3.896	R-10	1.11	Curve/.001ELF	.081	R-10	3.02
		Slope(DD)	435.78			Slope(DD)	1304.47
		Curve(DDS)	16.992			Curve(DDS)	-9.291

Base Load = 36.44 MBtu
 Typical Load = 9.75 MBtu
 Residual Load = 1.61 MBtu

Base Load = 89.69 MBtu
 Typical Load = 43.25 MBtu
 Residual Load = 6.73 MBtu

Phoenix AZ WYEC Mid Town Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -3.73	R-7 -1.85	R-7 -7.68	R-7 8.40	R-7 -7.68	R-7 8.40	R-7 -3.00	R-7 8.41
R-11 -4.33	R-11 -2.11	R-11 -8.91	R-11 2.00	R-11 -8.91	R-11 6.36	R-11 -3.43	R-11 5.51
R-19 -4.86	R-13 -2.36	R-19 -10.01	R-13 1.48	R-19 -10.01	R-13 4.52	R-13 -3.98	R-13 4.36
R-22 -5.01	R-19 -2.48	R-22 -10.43	R-19 1.22	R-22 -10.43	R-19 3.83	R-19 -4.25	R-19 3.79
R-30 -5.20	R-27 -2.65	R-30 -10.98	R-27 .87	R-30 -10.98	R-27 2.90	R-27 -4.75	R-27 2.74
R-38 -5.32	R-34 -2.75	R-38 -11.32	R-34 .66	R-38 -11.32	R-34 2.34	R-34 -5.06	R-34 2.09
R-49 -5.41	R-49 -5.88	R-49 -11.62	R-49 1.84	R-49 -11.62	R-49 1.84		
R-60 -5.46	R-60 -5.49	R-60 -11.81	R-60 1.52	R-60 -11.81	R-60 1.52		
Slope(DD) 1276.87	Slope(DD) 763.06	Slope(DD) 4211.30	Slope(DD) 2754.69	Slope(DD) 1276.87	Slope(DD) 763.06	Slope(DD) 2754.69	Slope(DD) 2754.69
Curve(DDS) 57.367	Curve(DDS) 80.288	Curve(DDS) -106.994	Curve(DDS) -72.780	Curve(DDS) 57.367	Curve(DDS) 80.288	Curve(DDS) -72.780	Curve(DDS) -72.780

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)
R-0 -2.59	R-0 -1.88	R-0 -4.99	R-0 9.31	R-0 -4.99	R-0 9.31	R-0 -2.29	R-0 76.81
R-5 2ft -2.78	R-5 4ft -2.31	R-5 2ft -5.06	R-5 7.56	R-5 2ft -5.06	R-5 7.56	R-5 4ft -2.84	R-5 63.06
R-5 4ft -2.77	R-5 8ft -2.37	R-5 4ft -5.09	R-5 8.81	R-5 4ft -5.09	R-5 8.81	R-5 8ft -2.92	R-5 61.06
R-10 2ft -2.78	R-10 4ft -2.39	R-10 2ft -5.11	R-10 6.31	R-10 2ft -5.11	R-10 6.31	R-10 4ft -2.97	R-10 59.81
R-10 4ft -2.80	R-10 8ft -2.45	R-10 4ft -5.16	R-10 5.06	R-10 4ft -5.16	R-10 5.06	R-10 8ft -3.10	R-10 56.56
Intercept .000	Intercept 4.928	Intercept .000	Intercept 47.611	Intercept .000	Intercept 47.611	Intercept 4.048	Intercept 47.611
Slope(DD) -431.78	Slope(DD) 312.00	Slope(DD) 2134.28	Slope(DD) 967.60	Slope(DD) -431.78	Slope(DD) 312.00	Slope(DD) 2134.28	Slope(DD) 967.60
Curve(DDS) 123.999	Curve(DDS) 4.765	Curve(DDS) -121.698	Curve(DDS) -4.647	Curve(DDS) 123.999	Curve(DDS) 4.765	Curve(DDS) -121.698	Curve(DDS) -4.647

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -1.86	R-0 1.51	R-0 -2.29	R-0 5.12	R-0 -2.29	R-0 5.12	R-0 .00	R-0 6.94
R-11 flr -2.36	R-11 flr .71	R-11 flr -2.36	R-11 flr 5.00	R-11 flr -2.36	R-11 flr 5.00	R-11 flr -1.36	R-11 flr 6.67
R-19 flr -2.49	R-19 flr .50	R-19 flr -2.49	R-19 flr 4.78	R-19 flr -2.49	R-19 flr 4.78	R-19 flr -1.80	R-19 flr 5.94
R-30 flr -2.57	R-30 flr .36	R-30 flr -2.58	R-30 flr 4.64	R-30 flr -2.58	R-30 flr 4.64	R-30 flr -2.12	R-30 flr 5.41
Intercept -.000	Intercept .238	Intercept 4.192	Intercept 4.048	Intercept -.000	Intercept .238	Intercept -2.19	Intercept 5.29
Slope(DD) 494.68	Slope(DD) 657.01	Slope(DD) 635.72	Slope(DD) 1876.30	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) -179.961	Curve(DDS) -38.849	Curve(DDS) 39.596	Curve(DDS) -88.657	Curve(DDS) -179.961

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
ELF Ach	Window U-value (/sf)	ELF Ach	Window U-value (/sf)	ELF Ach	Window U-value (/sf)	ELF Ach	Window U-value (/sf)
.0007(.55)	.00 1.88	.0007(.51)	.00 4.02	.0007(.51)	.00 4.02	1-Pane .00	27.03
.0005(.41)	-1.02 1.03	.0005(.37)	-1.44 2.82	.0005(.37)	-1.44 2.82	2-Pane -1.96	13.42
.0003(.25)	-1.74 .43	.0003(.22)	-2.83 1.68	.0003(.22)	-2.83 1.68	3-Pane -2.66	8.56
Slope/.001ELF .500	Slope(DD) 424.87	Slope/.001ELF 5.375	Slope(DD) 1234.80	Slope/.001ELF .521	Slope(DD) 1234.80	R-10 -3.48	2.66
Curve/.001ELF 3.125	Curve(DDS) 11.738	Curve/.001ELF .621	Curve(DDS) -7.995	Curve/.001ELF .621	Curve(DDS) -7.995		

Base Load = 15.72 MBtu
 Typical Load = 4.97 MBtu
 Residual Load = 1.75 MBtu

Base Load = 54.20 MBtu
 Typical Load = 34.26 MBtu
 Residual Load = 11.69 MBtu

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	9.97	6.04
R-7	-3.90	3.47	2.23
R-11	-4.52	2.43	1.68
R-19	-5.08	1.50	1.21
R-22	-5.23	1.26	.97
R-30	-5.42	.93	.69
R-38	-5.54	.73	.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	R-0	-2.22
R-5 2ft	-2.78	R-5 4ft	-2.57
R-5 4ft	-2.80	R-5 8ft	-2.60
R-10 2ft	-2.80	R-10 4ft	-2.61
R-10 4ft	-2.81	R-10 8ft	-2.65
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	R-0	4.68
R-11 flr	-2.58	R-11 flr	-2.06
R-19 flr	-2.65	R-19 flr	-2.30
R-30 flr	-2.70	R-30 flr	-2.40
		R-38 flr	-2.43
		R-49 flr	-2.50
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)
ELF Ach			
.0007(.57)	.00	1-Pane	17.80
.0005(.41)	-.98	2-Pane	6.03
.0003(.25)	-1.58	3-Pane	3.70
		R-10	-2.43

Slope/.001ELF	-.667	Slope(DD)	383.24
Curve/.001ELF	3.959	Curve(DDS)	11.027

Base Load = 14.53 MBtu
 Typical Load = 4.31 MBtu
 Residual Load = 2.18 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	22.36	13.03
R-7	-8.12	8.83	6.54
R-11	-9.42	6.86	5.62
R-19	-10.58	4.72	4.41
R-22	-11.02	4.00	3.82
R-30	-11.60	3.04	2.77
R-38	-11.94	2.46	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	R-0	-2.37
R-5 2ft	-4.39	R-5 4ft	-2.83
R-5 4ft	-4.41	R-5 8ft	-2.90
R-10 2ft	-4.43	R-10 4ft	-2.96
R-10 4ft	-4.46	R-10 8ft	-3.06
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	R-0	7.68
R-11 flr	-2.27	R-11 flr	-1.24
R-19 flr	-2.37	R-19 flr	-1.65
R-30 flr	-2.44	R-30 flr	-1.96
		R-38 flr	-2.02
		R-49 flr	-2.22
Intercept	3.260	Intercept	3.142
Slope(DD)	533.04	Slope(DD)	1772.09
Curve(DDS)	-85.578	Curve(DDS)	-172.836

Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach			
.0007(.51)	.00	1-Pane	29.24
.0005(.37)	-1.47	2-Pane	14.42
.0003(.22)	-2.85	3-Pane	9.20
		R-10	-3.77

Slope/.001ELF	6.042	Slope(DD)	1320.79
Curve/.001ELF	.886	Curve(DDS)	-8.073

Base Load = 50.59 MBtu
 Typical Load = 31.80 MBtu
 Residual Load = 9.81 MBtu

Pittsburgh PA WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load						
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)			
Coiling	.00	.00	32.67	Coiling	.00	4.29	Wall	R-0	.00	2.23
R-0	34.62	R-0	18.69	R-7	-3.89	R-7	1.76	R-7	-1.17	1.19
R-7	-31.83	R-7	-21.35	R-11	-4.51	R-11	1.36	R-11	-1.34	1.04
R-11	-36.91	R-11	-41.47	R-13	-5.07	R-13	1.00	R-13	-1.59	.81
R-13	-41.47	R-13	-24.61	R-19	-6.31	R-19	.84	R-19	-1.72	.70
R-19	-41.47	R-19	-26.22	R-22	-6.43	R-22	.63	R-22	-1.92	.62
R-22	-43.25	R-22	-29.16	R-30	-5.63	R-30	.60	R-27	-1.92	.62
R-27	-46.64	R-27	-30.98	R-34	-5.83	R-34	.41	R-34	-2.05	.40
R-30	-46.64	R-30	6.73	R-49	-5.98	R-49	.35			
R-34	-47.08	R-34	5.12	R-60	-6.07	R-60	.35			
R-49	-48.37									
R-60	-49.21									
Slope(DD)	7106.68	Slope(DD)	6693.97	Slope(DD)	938.34	Slope(DD)	529.95	Slope(DD)	529.95	
Curve(DDS)	-218.717	Curve(DDS)	-115.167	Curve(DDS)	-38.242	Curve(DDS)	-21.461	Curve(DDS)	-21.461	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)			
R-0	-20.25	R-0	-11.90	R-0	-3.45	R-0	-5.17	R-0	-2.24	2.12
R-5	2ft	R-5	4ft	R-5	2ft	R-5	4ft	R-5	4ft	2.43
R-5	-25.68	R-5	-17.59	R-5	-3.28	R-5	-4.14	R-5	-2.52	.55
R-10	2ft	R-10	4ft	R-10	2ft	R-10	4ft	R-10	4ft	-.07
R-10	-26.68	R-10	-19.14	R-10	-3.25	R-10	-3.96	R-10	-2.60	.07
R-10	-28.92	R-10	-22.38	R-10	-3.10	R-10	-3.08	R-10	-2.58	.000
Intercept	-23.426	Intercept	.000	Intercept	-1.028	Intercept	-1.028	Intercept	-1.028	.000
Slope(DD)	8774.71	Slope(DD)	4847.95	Slope(DD)	-697.81	Slope(DD)	-697.81	Slope(DD)	-697.81	-9.36
Curve(DDS)	-148.890	Curve(DDS)	-49.181	Curve(DDS)	29.343	Curve(DDS)	29.343	Curve(DDS)	29.343	1.558
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)			
R-0	-11.90	R-0	.00	R-0	-2.24	R-0	.23	R-0	.00	1.88
R-11	11.58	R-11	-28.23	R-11	-2.24	R-11	.23	R-11	.00	1.88
R-11	-27.61	R-11	-33.10	R-11	-0.51	R-11	1.35	R-11	.88	2.25
R-19	1.43	R-19	-36.19	R-19	-0.02	R-19	1.67	R-19	1.00	2.33
R-19	-31.88	R-19	-4.21	R-30	.30	R-30	1.88	R-30	1.07	2.37
R-30	-34.69	R-30	-38.89	R-30	.30	R-30	1.88	R-30	1.08	2.38
R-30	-34.69	R-30	-4.67	R-38		R-38		R-38	1.08	2.38
Intercept	-8.146	Intercept	-5.99	Intercept	2.434	Intercept	2.434	R-49	1.12	2.41
Slope(DD)	6674.42	Slope(DD)	-9.016	Slope(DD)	-756.26	Slope(DD)	-756.26	Slope(DD)	-120.40	
Curve(DDS)	-552.094	Curve(DDS)	-135.112	Curve(DDS)	63.625	Curve(DDS)	63.625	Curve(DDS)	-6.612	
Infiltration	(/sf fir)	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)			
ELF Ach		ELF Ach		ELF Ach		ELF Ach				
.0007(.78)	.00	.0007(.50)	.00	.0007(.50)	.00	.0007(.50)	.00	1-Pane	.00	.77
.0005(.55)	-8.50	.0005(.36)	-19	.0005(.36)	-19	.0005(.36)	-19	2-Pane	-.05	.50
.0003(.35)	-16.88	.0003(.22)	-.38	.0003(.22)	-.38	.0003(.22)	-.38	3-Pane	-.08	.32
		R-10	-26.48	R-10	-26.48	R-10	-26.48	R-10	-.12	.12
Slope/.001ELF	26.428	Slope(DD)	6708.98	Slope/.001ELF	.617	Slope(DD)	53.04	Slope(DD)	53.04	
Curve/.001ELF	.974	Curve(DDS)	-33.858	Curve/.001ELF	-.000	Curve(DDS)	-.908	Curve(DDS)	-.908	
Base Load =	171.44	Base Load =	171.44	Base Load =	13.98	Base Load =	13.98	Base Load =	13.98	MBtu
Typical Load =	57.40	Typical Load =	57.40	Typical Load =	3.67	Typical Load =	3.67	Typical Load =	3.67	MBtu
Residual Load =	5.55	Residual Load =	5.55	Residual Load =	-2.75	Residual Load =	-2.75	Residual Load =	-2.75	MBtu

Pittsburgh PA WYEC Mid Town Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)	Ceiling (/sf)	Wall (/sf)
R-0 .00 36.01	R-0 .00 31.92	R-0 .00 31.92	R-0 .00 31.92	R-0 .00 4.32	R-0 .00 4.32	R-0 .00 4.32	R-0 .00 4.32
R-7 -13.22 13.98	R-7 -7.99 16.15	R-7 -7.99 16.15	R-7 -7.99 16.15	R-7 -1.53 1.77	R-7 -1.53 1.77	R-7 -1.53 1.77	R-7 -1.53 1.77
R-11 -15.32 10.46	R-11 -9.13 12.76	R-11 -9.13 12.76	R-11 -9.13 12.76	R-11 -1.78 1.36	R-11 -1.78 1.36	R-11 -1.78 1.36	R-11 -1.78 1.36
R-19 -17.22 7.31	R-13 -10.47 9.95	R-13 -10.47 9.95	R-13 -10.47 9.95	R-19 -2.00 .99	R-19 -2.00 .99	R-19 -2.00 .99	R-19 -2.00 .99
R-22 -17.90 6.17	R-19 -11.13 8.56	R-19 -11.13 8.56	R-19 -11.13 8.56	R-22 -2.09 .85	R-22 -2.09 .85	R-22 -2.09 .85	R-22 -2.09 .85
R-30 -18.81 4.65	R-27 -12.27 6.17	R-27 -12.27 6.17	R-27 -12.27 6.17	R-30 -2.20 .66	R-30 -2.20 .66	R-30 -2.20 .66	R-30 -2.20 .66
R-38 -19.36 3.74	R-34 -12.97 4.70	R-34 -12.97 4.70	R-34 -12.97 4.70	R-38 -2.27 .54	R-38 -2.27 .54	R-38 -2.27 .54	R-38 -2.27 .54
R-49 -19.83 2.96				R-49 -2.35 .41	R-49 -2.35 .41	R-49 -2.35 .41	R-49 -2.35 .41
R-60 -20.13 2.46				R-60 -2.40 .32	R-60 -2.40 .32	R-60 -2.40 .32	R-60 -2.40 .32
Slope(DD) 6726.25	Slope(DD) 6050.60	Slope(DD) 6050.60	Slope(DD) 6050.60	Slope(DD) 942.14	Slope(DD) 942.14	Slope(DD) 942.14	Slope(DD) 942.14
Curve(DDS) -110.195	Curve(DDS) -21.560	Curve(DDS) -21.560	Curve(DDS) -21.560	Curve(DDS) -36.887	Curve(DDS) -36.887	Curve(DDS) -36.887	Curve(DDS) -36.887
Slab (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Slab (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0 -9.96 57.09	R-0 -7.13 127.84	R-0 -7.13 127.84	R-0 -7.13 127.84	R-0 -1.31 -11.47	R-0 -1.31 -11.47	R-0 -1.31 -11.47	R-0 -1.31 -11.47
R-5 2ft -11.29 23.84	R-5 4ft -9.13 77.84	R-5 4ft -9.13 77.84	R-5 4ft -9.13 77.84	R-5 2ft -1.24 -9.72	R-5 4ft -1.24 -9.72	R-5 4ft -1.24 -9.72	R-5 4ft -1.24 -9.72
R-5 4ft -11.66 14.59	R-5 8ft -9.71 63.34	R-5 8ft -9.71 63.34	R-5 8ft -9.71 63.34	R-5 4ft -1.20 -8.72	R-5 8ft -1.20 -8.72	R-5 8ft -1.20 -8.72	R-5 8ft -1.20 -8.72
R-10 2ft -11.52 18.09	R-10 4ft -9.60 66.09	R-10 4ft -9.60 66.09	R-10 4ft -9.60 66.09	R-10 2ft -1.23 -9.47	R-10 4ft -1.23 -9.47	R-10 4ft -1.23 -9.47	R-10 4ft -1.23 -9.47
R-10 4ft -12.01 5.84	R-10 8ft -10.43 45.34	R-10 8ft -10.43 45.34	R-10 8ft -10.43 45.34	R-10 4ft -1.17 -7.97	R-10 8ft -1.17 -7.97	R-10 8ft -1.17 -7.97	R-10 8ft -1.17 -7.97
Intercept -18.541	Intercept .000	Intercept .000	Intercept .000	Intercept -4.722	Intercept -4.722	Intercept -4.722	Intercept -4.722
Slope(DD) 7347.53	Slope(DD) 4602.88	Slope(DD) 4602.88	Slope(DD) 4602.88	Slope(DD) -1102.62	Slope(DD) -1102.62	Slope(DD) -1102.62	Slope(DD) -1102.62
Curve(DDS) -59.963	Curve(DDS) -35.206	Curve(DDS) -35.206	Curve(DDS) -35.206	Curve(DDS) 44.735	Curve(DDS) 44.735	Curve(DDS) 44.735	Curve(DDS) 44.735
Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)	Unheated Basement (/sf)	Crawl (/sf)
R-0 -7.13 8.52	R-0 .00 20.41	R-0 .00 20.41	R-0 .00 20.41	R-0 -7.79 .10	R-0 .10	R-0 .10	R-0 .10
R-11 flr -10.87 2.29	R-11 flr -10.44 3.01	R-11 flr -10.44 3.01	R-11 flr -10.44 3.01	R-11 flr -1.18 1.12	R-11 flr 1.12	R-11 flr 1.12	R-11 flr 1.12
R-19 flr -12.11 .22	R-19 flr -12.19 .09	R-19 flr -12.19 .09	R-19 flr -12.19 .09	R-19 flr .00 1.42	R-19 flr 1.42	R-19 flr 1.42	R-19 flr 1.42
R-30 flr -12.91 -1.11	R-30 flr -13.27 -1.72	R-30 flr -13.27 -1.72	R-30 flr -13.27 -1.72	R-30 flr .12 1.62	R-30 flr 1.62	R-30 flr 1.62	R-30 flr 1.62
Intercept -4.792	Intercept -6.054	Intercept -6.054	Intercept -6.054	Intercept 2.151	Intercept 2.151	Intercept 2.151	Intercept 2.151
Slope(DD) 5058.04	Slope(DD) 5668.98	Slope(DD) 5668.98	Slope(DD) 5668.98	Slope(DD) -727.25	Slope(DD) -727.25	Slope(DD) -727.25	Slope(DD) -727.25
Curve(DDS) -479.643	Curve(DDS) -79.355	Curve(DDS) -79.355	Curve(DDS) -79.355	Curve(DDS) 63.887	Curve(DDS) 63.887	Curve(DDS) 63.887	Curve(DDS) 63.887
Infiltration (/sf flr) Window U-value (/sf)	ELF Ach	Infiltration (/sf flr) Window U-value (/sf)	ELF Ach	Infiltration (/sf flr) Window U-value (/sf)	ELF Ach	Infiltration (/sf flr) Window U-value (/sf)	ELF Ach
.0007(.81) .00 17.31	1-Pane .00 138.62	.0007(.50) .00 .14	1-Pane .00 138.62	.0007(.50) .00 .14	1-Pane .00 .00	.0007(.50) .00 .14	1-Pane .00 .00
.0005(.58) -6.46 11.93	2-Pane -11.06 61.82	.0005(.36) -.08 .09	2-Pane -11.06 61.82	.0005(.36) -.08 .09	2-Pane .09 -1.29	.0005(.36) -.08 .09	2-Pane .09 -1.29
.0003(.38) -12.50 6.89	3-Pane -14.33 39.09	.0003(.22) -.11 .05	3-Pane -14.33 39.09	.0003(.22) -.11 .05	3-Pane .15 -.84	.0003(.22) -.11 .05	3-Pane .15 -.84
	R-10 -18.18 12.37		R-10 -18.18 12.37		R-10 .23 -.31		R-10 .23 -.31
Slope/.001ELF 21.666	Slope(DD) 5261.05	Slope/.001ELF 21.666	Slope(DD) 5261.05	Slope/.001ELF .125	Slope(DD) -138.93	Slope/.001ELF .125	Slope(DD) -138.93
Curve/.001ELF 4.376	Curve(DDS) -.387	Curve/.001ELF 4.376	Curve(DDS) -.387	Curve/.001ELF .104	Curve(DDS) 2.522	Curve/.001ELF .104	Curve(DDS) 2.522
Base Load = 82.20 MBtu	Typical Load = 25.08 MBtu	Base Load = 9.53 MBtu	Typical Load = 6.70 MBtu	Residual Load = 1.52 MBtu	Residual Load = 2.05 MBtu	Base Load = 9.53 MBtu	Typical Load = 6.70 MBtu
Typical Load = 25.08 MBtu	Residual Load = 1.52 MBtu	Residual Load = 2.05 MBtu				Residual Load = 2.05 MBtu	

Pittsburgh PA WYEC Martment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.95	R-7	-5.41	R-7	-1.48	R-7	-0.32
R-11	-15.01	R-11	-6.18	R-11	-1.72	R-11	-0.37
R-19	-16.87	R-13	-7.06	R-19	-1.93	R-13	-0.42
R-22	-17.52	R-19	-7.49	R-22	-2.03	R-19	-0.45
R-30	-18.39	R-27	-8.24	R-30	-2.17	R-27	-0.48
R-38	-18.92	R-34	-8.70	R-38	-2.25	R-34	-0.50
R-49	-19.36			R-49	-2.30		
R-60	-19.64			R-60	-2.33		
Slope(DD)	6351.56	Slope(DD)	5836.51	Slope(DD)	995.08	Slope(DD)	284.17
Curve(DDS)	-74.038	Curve(DDS)	20.978	Curve(DDS)	-46.931	Curve(DDS)	9.987
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-10.91	R-0	-8.61	R-0	-.95	R-0	-.66
R-5 2ft	-11.98	R-5 4ft	-10.42	R-5 2ft	-.89	R-5 4ft	-.70
R-5 4ft	-12.28	R-5 8ft	-10.92	R-5 4ft	-.86	R-5 8ft	-.70
R-10 2ft	-12.16	R-10 4ft	-10.83	R-10 2ft	-.88	R-10 4ft	-.71
R-10 4ft	-12.58	R-10 8ft	-11.54	R-10 4ft	-.84	R-10 8ft	-.52
Intercept	-10.815	Intercept	.000	Intercept	-1.612	Intercept	.000
Slope(DD)	8637.40	Slope(DD)	5188.02	Slope(DD)	-118.38	Slope(DD)	-74.92
Curve(DDS)	-114.440	Curve(DDS)	-36.553	Curve(DDS)	44.077	Curve(DDS)	2.378
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-8.61	R-0	.00	R-0	-.66	R-0	.00
R-11 fir	-11.61	R-11 fir	-10.66	R-11 fir	-.16	R-11 fir	.40
R-19 fir	-12.70	R-19 fir	-12.43	R-19 fir	.02	R-19 fir	.47
R-30 fir	-13.41	R-30 fir	-13.53	R-30 fir	.14	R-30 fir	.62
Intercept	-3.817	R-38 fir	-13.77	R-38 fir		R-38 fir	.66
Slope(DD)	4527.69	R-49 fir	-14.50	R-49 fir		R-49 fir	.76
Curve(DDS)	-454.252	Intercept	-5.110	Intercept	1.930	Intercept	2.593
Infiltration	(/sf fir)	Slope(DD)	5604.31	Slope(DD)	-756.75	Slope(DD)	-586.79
ELF Ach		Curve(DDS)	-69.294	Curve(DDS)	75.521	Curve(DDS)	59.542
.0007(.81)	.00	Window U-value	(/sf)	Infiltration	(/sf fir)	Window U-value	(/sf)
.0005(.58)	-6.43	1-Pane	.00	ELF Ach		1-Pane	.00
.0003(.36)	-12.42	2-Pane	-11.15	.0007(.50)	.00	2-Pane	.09
Slope/.001ELF	21.395	3-Pane	-14.34	.0005(.36)	-.09	3-Pane	.24
Curve/.001ELF	4.480	R-10	-18.07	.0003(.22)	-.05	R-10	.40
		Slope(DD)	5000.35	Slope/.001ELF	-1.146	Slope(DD)	-330.80
		Curve(DDS)	7.625	Curve/.001ELF	1.250	Curve(DDS)	7.488

Base Load = 77.22 MBtu
 Typical Load = 22.82 MBtu
 Residual Load = 1.69 MBtu

Base Load = 8.28 MBtu
 Typical Load = 4.88 MBtu
 Residual Load = 2.08 MBtu

Portland ME		WYEC		One Story Prototype Siding		Series Two	
				Cooling Load			
Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall
(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)	(/sf)
R-0 .00	41.73	.00	39.43	R-0 .00	2.45	R-0 .00	1.16
R-7 -38.49	16.74	-22.44	19.46	R-7 -2.25	.99	R-7 -.62	.60
R-11 -44.63	12.75	-26.84	16.61	R-11 -2.61	.76	R-11 -.71	.52
R-19 -50.15	9.16	-29.57	13.11	R-19 -2.93	.55	R-19 -.85	.40
R-22 -52.30	7.77	-31.52	11.38	R-22 -3.05	.47	R-22 -.92	.34
R-30 -55.18	5.90	-35.10	8.19	R-30 -3.22	.36	R-30 -1.01	.26
R-38 -56.92	4.77	-37.30	6.24	R-38 -3.32	.30	R-38 -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		Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-0	-21.87	64.82	R-0	-2.17	-2.47	R-0	-1.55
R-5 2ft	-28.52	24.78	R-5 4ft	-18.68	84.04	R-5 4ft	-1.71
R-5 4ft	-30.52	12.71	R-5 8ft	-21.09	69.52	R-5 8ft	-1.72
R-10 2ft	-29.78	17.17	R-10 4ft	-20.42	73.56	R-10 4ft	-1.76
R-10 4ft	-32.59	.24	R-10 8ft	-24.18	50.91	R-10 8ft	-1.75
Intercept	-35.291	.000	Intercept	-24.18	50.91	Intercept	.000
Slope(DD)	10502.82	5147.78	Slope(DD)	5147.78		Slope(DD)	-6.27
Curve(DDS)	-178.732	-52.374	Curve(DDS)	-52.374		Curve(DDS)	.901
Unheated Basement (/sf)		Crawl		Unheated Basement (/sf)		Crawl	
R-0	-12.19	13.27	R-0	-1.55	.14	R-0	.00
R-11 flr	-32.26	.24	R-11 flr	-33.99	-.88	R-11 flr	.65
R-19 flr	-37.80	-3.36	R-19 flr	-39.88	-4.71	R-19 flr	.74
R-30 flr	-41.36	-5.67	R-30 flr	-43.66	-7.16	R-30 flr	.86
			R-38 flr	-44.52	-7.72	R-38 flr	.89
			R-49 flr	-47.01	-9.34	R-49 flr	.97
Intercept	-11.875	-13.023	Intercept	-13.023		Intercept	1.839
Slope(DD)	8429.10	7589.09	Slope(DD)	7589.09		Slope(DD)	-187.09
Curve(DDS)	-687.412	-178.930	Curve(DDS)	-178.930		Curve(DDS)	10.003
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.75)	.00	.00	189.13	.0007(.47)	.00	.24	1-Pane .00
.0005(.54)	-10.03	15.94	2-Pane -18.05	.0005(.34)	-.08	.19	2-Pane -.01
.0003(.33)	-19.94	9.51	3-Pane -24.18	.0003(.20)	-.18	.12	3-Pane -.02
			R-10 -31.40				R-10 -.03
Slope/.001ELF	31.396	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 = 71.97 MBtu		Base Load = 7.61 MBtu		Base Load = 1.57 MBtu	
Typical Load = 71.97 MBtu		Typical Load = 10.68 MBtu		Typical Load = 1.57 MBtu		Typical Load = 1.57 MBtu	
Residual Load = 10.68 MBtu		Residual Load = 10.68 MBtu		Residual Load = 1.57 MBtu		Residual Load = 1.57 MBtu	

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
MBtu	(/sf)	MBtu	(/sf)	MBtu	(/sf)	MBtu	(/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-16.00	R-7	-9.62	R-7	-1.90	R-7	-.27
R-11	-18.56	R-11	-10.99	R-11	-1.04	R-11	-.31
R-19	-20.85	R-13	-12.60	R-19	-1.17	R-13	-.36
R-22	-21.88	R-19	-13.40	R-22	-1.23	R-19	-.39
R-30	-22.78	R-27	-14.81	R-30	-1.30	R-27	-.43
R-38	-23.45	R-34	-15.67	R-38	-1.35	R-34	-.45
R-49	-24.03			R-49	-1.39		
R-60	-24.41			R-60	-1.42		
Slope(DD)		Slope(DD)		Slope(DD)		Slope(DD)	
Curve(DDS)		Curve(DDS)		Curve(DDS)		Curve(DDS)	
8236.49		7439.82		604.26		226.35	
-146.711		-47.623		-28.442		-3.244	
Slab		Heated Basement		Slab		Heated Basement	
(/ft)		(/ft)		(/ft)		(/ft)	
R-0	-11.12	R-0	-7.74	R-0	-.92	R-0	-.67
R-5	-12.77	R-5	-10.06	R-5	-.85	R-5	-.70
R-5	-13.23	R-5	-10.78	R-5	-.81	R-5	-.68
R-10	-13.06	R-10	-10.62	R-10	-.83	R-10	-.70
R-10	-13.70	R-10	-11.63	R-10	-.77	R-10	-.68
Intercept	-28.392	Intercept	.000	Intercept	.187	Intercept	.000
Slope(DD)	9286.11	Slope(DD)	5426.75	Slope(DD)	-1189.82	Slope(DD)	-136.95
Curve(DDS)	-101.384	Curve(DDS)	-41.643	Curve(DDS)	47.627	Curve(DDS)	2.789
Unheated Basement		Crawl		Unheated Basement		Crawl	
(/sf)		(/sf)		(/sf)		(/sf)	
R-0	-7.74	R-0	.00	R-0	-.67	R-0	.00
R-11	-12.56	R-11	-12.43	R-11	-.09	R-11	.43
R-19	-14.19	R-19	-14.56	R-19	.08	R-19	.47
R-30	-15.24	R-30	-15.90	R-30	.19	R-30	.53
Intercept	-7.167	R-38	-18.20	R-38	1.37	R-38	.54
Slope(DD)	6667.52	R-49	-17.08	Intercept	1.863	Intercept	2.071
Curve(DDS)	-840.451	Intercept	-8.765	Slope(DD)	-676.87	Slope(DD)	-186.31
Curve(DDS)	-840.451	Slope(DD)	6904.81	Curve(DDS)	58.447	Curve(DDS)	-2.485
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
(/sf flr)		(/sf)		(/sf flr)		(/sf)	
.0007(.76)	.00	1-Pane	.00	.0007(.47)	.00	1-Pane	.00
.0005(.56)	-7.60	2-Pane	-13.57	.0005(.34)	-.03	2-Pane	.14
.0003(.34)	-14.77	3-Pane	-17.65	.0003(.20)	-.02	3-Pane	.20
	8.29	R-10	-22.45		-.08	R-10	.27
			16.55				-.26
Slope/.001ELF		Slope(DD)		Slope/.001ELF		Slope(DD)	
Curve/.001ELF		Curve(DDS)		Curve/.001ELF		Curve(DDS)	
26.291		6623.85		-.375		-113.30	
4.479		-4.899		.417		1.229	
Base Load =		99.28 MBtu		Base Load =		5.65 MBtu	
Typical Load =		31.20 MBtu		Typical Load =		3.32 MBtu	
Residual Load =		2.86 MBtu		Residual Load =		1.81 MBtu	

Portland ME WYEC MApartment Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling	Wall	Wall	Ceiling	Wall	Wall
R-0 .00 42.46	R-0 .00 38.86	R-0 .00 38.86	R-0 .00 2.53	R-0 .00 1.16	R-0 .00 1.16
R-7 -15.63 16.40	R-7 -6.54 18.23	R-7 -6.54 18.23	R-7 -.88 1.06	R-7 -.15 .69	R-7 -.15 .69
R-11 -18.13 12.24	R-11 -7.47 15.30	R-11 -7.47 15.30	R-11 -1.02 .82	R-11 -.17 .62	R-11 -.17 .62
R-19 -20.37 8.51	R-13 -8.53 11.94	R-13 -8.53 11.94	R-19 -1.15 .61	R-13 -.23 .44	R-13 -.23 .44
R-22 -21.16 7.18	R-19 -9.08 10.28	R-19 -9.08 10.28	R-22 -1.21 .52	R-19 -.25 .35	R-19 -.25 .35
R-30 -22.23 5.41	R-27 -9.98 7.38	R-27 -9.98 7.38	R-30 -1.28 .39	R-27 -.27 .30	R-27 -.27 .30
R-38 -22.87 4.34	R-34 -10.55 5.60	R-34 -10.55 5.60	R-38 -1.33 .31	R-34 -.28 .28	R-34 -.28 .28
R-49 -23.41 3.44			R-49 -1.37 .26		
R-60 -23.76 2.86			R-60 -1.39 .21		
Slope(DD) 7811.62	Slope(DD) 7197.82	Slope(DD) 7197.82	Slope(DD) 562.61	Slope(DD) 316.15	Slope(DD) 316.15
Curve(DDS) -109.681	Curve(DDS) 5.056	Curve(DDS) 5.056	Curve(DDS) -26.280	Curve(DDS) -18.667	Curve(DDS) -18.667
Slab	Heated Basement	Heated Basement	Slab	Heated Basement	Heated Basement
R-0 -12.29 86.01	R-0 -9.53 178.18	R-0 -9.53 178.18	R-0 -.59 -4.06	R-0 -.48 -1.56	R-0 -.48 -1.56
R-5 2ft -13.60 42.51	R-5 4ft -11.65 107.34	R-5 4ft -11.65 107.34	R-5 2ft -.55 -2.72	R-5 4ft -.50 -1.22	R-5 4ft -.50 -1.22
R-5 4ft -13.99 29.51	R-5 8ft -12.27 86.84	R-5 8ft -12.27 86.84	R-5 4ft -.51 -1.56	R-5 8ft -.49 -.89	R-5 8ft -.49 -.89
R-10 2ft -13.84 34.51	R-10 4ft -12.15 90.84	R-10 4ft -12.15 90.84	R-10 2ft -.52 -1.89	R-10 4ft -.50 -1.22	R-10 4ft -.50 -1.22
R-10 4ft -14.37 16.68	R-10 8ft -13.01 62.18	R-10 8ft -13.01 62.18	R-10 4ft -.49 -.72	R-10 8ft -.49 -.89	R-10 8ft -.49 -.89
Intercept -20.126	Intercept .000	Intercept .000	Intercept 2.903	Intercept .000	Intercept .000
Slope(DD) 10770.26	Slope(DD) 6007.42	Slope(DD) 6007.42	Slope(DD) -1156.62	Slope(DD) -100.72	Slope(DD) -100.72
Curve(DDS) -159.019	Curve(DDS) -40.720	Curve(DDS) -40.720	Curve(DDS) 47.982	Curve(DDS) 2.119	Curve(DDS) 2.119
Unheated Basement	Crawl	Crawl	Unheated Basement	Crawl	Crawl
R-0 -9.53 8.91	R-0 .00 24.78	R-0 .00 24.78	R-0 -.48 -.03	R-0 .00 .77	R-0 .00 .77
R-11 fir -13.45 2.38	R-11 fir -12.73 3.57	R-11 fir -12.73 3.57	R-11 fir -.07 .66	R-11 fir .33 1.33	R-11 fir .33 1.33
R-19 fir -14.86 .02	R-19 fir -14.88 -.02	R-19 fir -14.88 -.02	R-19 fir .06 .87	R-19 fir .41 1.46	R-19 fir .41 1.46
R-30 fir -15.77 -1.49	R-30 fir -16.27 -2.34	R-30 fir -16.27 -2.34	R-30 fir .13 1.00	R-30 fir .46 1.53	R-30 fir .46 1.53
	R-38 fir -16.59 -2.87	R-38 fir -16.59 -2.87		R-38 fir .46 1.55	R-38 fir .46 1.55
	R-49 fir -17.50 -4.39	R-49 fir -17.50 -4.39		R-49 fir .49 1.59	R-49 fir .49 1.59
Intercept -5.726	Intercept -7.816	Intercept -7.816	Intercept 1.351	Intercept 1.730	Intercept 1.730
Slope(DD) 5840.46	Slope(DD) 7071.35	Slope(DD) 7071.35	Slope(DD) -482.57	Slope(DD) -261.50	Slope(DD) -261.50
Curve(DDS) -582.407	Curve(DDS) -139.250	Curve(DDS) -139.250	Curve(DDS) 41.668	Curve(DDS) 14.561	Curve(DDS) 14.561
Infiltration	Window U-value	Window U-value	Infiltration	Window U-value	Window U-value
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.76) .00 20.61	.0007(.47) .00 170.02	.0007(.47) .00 170.02	.0007(.47) .00 .00	.0007(.47) .00 .00	.0007(.47) .00 .00
.0005(.56) -7.57 14.30	2-Pane -13.75 74.50	2-Pane -13.75 74.50	.0005(.34) -.02 -.01	2-Pane .11 -1.61	2-Pane .11 -1.61
.0003(.34) -14.73 8.33	3-Pane -17.71 47.04	3-Pane -17.71 47.04	.0003(.20) -.03 -.02	3-Pane .19 -1.05	3-Pane .19 -1.05
	R-10 -22.36 14.74	R-10 -22.36 14.74		R-10 .28 -.40	R-10 .28 -.40
Slope/.001ELF 26.520	Slope(DD) 6250.25	Slope(DD) 6250.25	Slope/.001ELF -.104	Slope(DD) -175.75	Slope(DD) -175.75
Curve/.001ELF 4.167	Curve(DDS) 7.191	Curve(DDS) 7.191	Curve/.001ELF .156	Curve(DDS) 3.300	Curve(DDS) 3.300

Base Load = 93.42 MBtu
 Typical Load = 28.52 MBtu
 Residual Load = 3.00 MBtu

Base Load = 4.71 MBtu
 Typical Load = 2.71 MBtu
 Residual Load = 1.19 MBtu

Portland OR WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-26.47	R-7	-14.43	R-7	-2.97	R-7	-.95
R-11	-29.54	R-11	-16.49	R-11	-3.44	R-11	-1.09
R-19	-33.19	R-13	-19.03	R-19	-3.87	R-13	-1.30
R-22	-34.61	R-19	-20.29	R-22	-4.06	R-19	-1.40
R-30	-36.50	R-27	-22.43	R-30	-4.32	R-27	-1.57
R-38	-37.65	R-34	-23.75	R-38	-4.47	R-34	-1.67
R-49	-38.63			R-49	-4.62		
R-60	-39.27			R-60	-4.71		
Slope(DD)	5674.50	Slope(DD)	4974.69	Slope(DD)	791.95	Slope(DD)	433.76
Curve(DDS)	-157.161	Curve(DDS)	-61.254	Curve(DDS)	-38.553	Curve(DDS)	-17.818
Slab		Heated Basement (/ft)		Slab		Heated Basement (/ft)	
R-0	-10.40	R-0	-6.06	R-0	-2.14	R-0	-1.41
R-5	-15.16	R-5	-9.84	R-5	-1.96	R-5	-1.50
R-5	-16.77	R-5	-11.63	R-5	-1.89	R-5	-1.46
R-10	-16.97	R-10	-10.88	R-10	-1.93	R-10	-1.52
R-10	-18.13	R-10	-13.59	R-10	-1.80	R-10	-1.48
Intercept	74.229	Intercept	92.384	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		Unheated Basement (/sf)		Crawl	
R-0	-6.06	R-0	.00	R-0	-1.41	R-0	.00
R-11	-20.34	R-11	-22.86	R-11	-.42	R-11	.58
R-19	-24.24	R-19	-28.69	R-19	-.18	R-19	.58
R-30	-26.75	R-30	-29.04	R-30	-.03	R-30	.61
R-38		R-38	-29.58	R-38		R-38	.61
R-49		R-49	-31.13	R-49		R-49	.63
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)	23.856	Curve(DDS)	-15.846
Infiltration (/sf flr)		Window U-value		Infiltration (/sf flr)		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.68)	.00	1-Pane	.00	.0007(.68)	.00	1-Pane	.00
.0005(.50)	-6.12	2-Pane	-10.96	.0005(.43)	-.12	2-Pane	-.01
.0003(.30)	-11.66	3-Pane	-14.14	.0003(.26)	-.18	3-Pane	.01
		R-10	-17.89			R-10	.03
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
 Typical Load = 51.61 MBtu
 Residual Load = -2.47 MBtu

Base Load = 9.91 MBtu
 Typical Load = 5.39 MBtu
 Residual Load = .21 MBtu

Portland OR		WYEC		Mid Town		Prototype Siding		Series Two			
				Heating Load				Cooling Load			
Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)		Delta Component (MBtu)		Delta Component (Kbtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-10.64	R-7	11.05	R-7	-6.31	R-7	11.34	R-7	-1.18	R-7	3.33
R-11	-12.33	R-11	8.22	R-11	-7.21	R-11	9.46	R-11	-1.37	R-11	1.36
R-19	-13.86	R-19	5.68	R-13	-8.24	R-13	7.30	R-19	-1.61	R-13	.91
R-22	-14.39	R-22	4.79	R-19	-8.75	R-19	6.23	R-22	-1.61	R-19	.76
R-30	-15.11	R-30	3.60	R-27	-9.57	R-27	4.50	R-30	-1.70	R-27	.64
R-38	-15.54	R-38	2.88	R-34	-10.08	R-34	3.44	R-38	-1.76	R-27	.66
R-49	-15.89	R-49	2.29					R-49	-1.81	R-34	.45
R-60	-16.12	R-60	1.91					R-60	-1.84	R-34	.36
Slope(DD)	5190.69	Slope(DD)	4351.71	Slope(DD)	4351.71	Slope(DD)	4351.71	Slope(DD)	715.13	Slope(DD)	472.58
Curve(DDS)	-56.826	Curve(DDS)	40.950	Curve(DDS)	40.950	Curve(DDS)	40.950	Curve(DDS)	-25.998	Curve(DDS)	-24.443
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-6.04	R-0	159.22	R-0	-4.35	R-0	201.47	R-0	-8.00	R-0	-25.60
R-5	-7.19	R-5	130.47	R-5	4ft	R-5	166.47	R-5	-7.40	R-5	4ft
R-5	-7.65	R-5	121.47	R-5	8ft	R-5	153.72	R-5	-7.20	R-5	8ft
R-10	-7.37	R-10	125.97	R-10	4ft	R-10	158.22	R-10	-7.30	R-10	4ft
R-10	-7.84	R-10	114.22	R-10	8ft	R-10	140.72	R-10	-6.90	R-10	8ft
Intercept	92.158	Intercept	104.690	Intercept	104.690	Intercept	104.690	Intercept	-20.768	Intercept	-16.271
Slope(DD)	6212.07	Slope(DD)	3491.21	Slope(DD)	3491.21	Slope(DD)	3491.21	Slope(DD)	-856.04	Slope(DD)	-112.97
Curve(DDS)	-63.231	Curve(DDS)	-28.335	Curve(DDS)	-28.335	Curve(DDS)	-28.335	Curve(DDS)	21.400	Curve(DDS)	1.933
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-4.35	R-0	13.43	R-0	.00	R-0	20.68	R-0	-4.48	R-0	-1.17
R-11	-7.86	R-11	7.58	R-11	flr	R-11	6.81	R-11	-0.08	R-11	flr
R-19	-8.99	R-19	5.69	R-19	flr	R-19	4.55	R-19	.01	R-19	flr
R-30	-9.72	R-30	4.48	R-30	flr	R-30	3.23	R-30	.06	R-30	flr
Intercept	1.140	Intercept	2.93	Intercept	2.93	Intercept	2.93	Intercept	-0.27	Intercept	-0.27
Slope(DD)	4582.73	Slope(DD)	4999.59	Slope(DD)	4999.59	Slope(DD)	4999.59	Slope(DD)	-308.08	Slope(DD)	30.11
Curve(DDS)	-426.235	Curve(DDS)	-12.932	Curve(DDS)	-12.932	Curve(DDS)	-12.932	Curve(DDS)	17.038	Curve(DDS)	-20.058
Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)	Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach	.00	1-Pane	93.36	ELF Ach	.00	1-Pane	93.36	ELF Ach	.00	1-Pane	.00
.0007(.70)	.00	2-Pane	35.99	.0007(.60)	.00	2-Pane	35.99	.0007(.60)	.00	2-Pane	.07
.0005(.51)	-4.62	3-Pane	22.43	.0005(.43)	-0.05	3-Pane	22.43	.0005(.43)	-0.05	3-Pane	.12
.0003(.32)	-8.56	R-10	6.48	.0003(.26)	-0.06	R-10	6.48	.0003(.26)	-0.06	R-10	.17
Slope/.001ELF	10.750	Slope(DD)	2678.81	Slope/.001ELF	-0.292	Slope(DD)	2678.81	Slope/.001ELF	-0.292	Slope(DD)	-97.65
Curve/.001ELF	7.084	Curve(DDS)	32.476	Curve/.001ELF	.417	Curve(DDS)	32.476	Curve/.001ELF	.417	Curve(DDS)	1.689
Base Load =	60.51 MBtu	Base Load =	60.51 MBtu	Base Load =	60.51 MBtu	Base Load =	60.51 MBtu	Base Load =	60.51 MBtu	Base Load =	60.51 MBtu
Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu	Typical Load =	26.50 MBtu
Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu	Residual Load =	1.49 MBtu

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	28.53	24.51
R-7	-10.63	10.82	11.08
R-11	-12.33	7.99	9.15
R-19	-13.86	6.45	7.03
R-22	-14.37	4.58	5.98
R-30	-15.06	3.42	4.31
R-38	-15.48	2.72	3.28
R-49	-15.81	2.18	
R-60	-16.01	1.84	
Slope(DD)	4936.64	4119.19	
Curve(DDS)	-20.992	81.420	
Slab			
Heated Basement	(/ft)	(/ft)	
R-0	-6.95	188.34	-5.63
R-5	-7.88	157.51	-6.93
R-6	-8.19	147.17	-7.38
R-10	-8.04	152.34	-7.23
R-10 4ft	-8.44	139.01	-7.85
Intercept	113.042	116.116	
Slope(DD)	7416.76	4073.19	
Curve(DDS)	-106.752	-31.104	
Unheated Basement	(/sf)	(/sf)	
R-0	-5.63	11.63	21.01
R-11 flr	-8.49	6.86	6.82
R-19 flr	-9.50	5.18	4.56
R-30 flr	-10.14	4.11	3.22
R-38 flr			2.92
R-49 flr			2.04
Intercept	1.118	.000	
Slope(DD)	4118.02	4077.34	
Curve(DDS)	-403.488	3.839	
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach			
.0007(.70)	.00	10.77	91.80
.0005(.63)	-4.68	6.95	34.27
.0003(.32)	-8.45	3.72	21.28
			16.00
Slope/.001ELF	10.166	Slope(DD)	2461.00
Curve/.001ELF	7.449	Curve(DDS)	38.495
Base Load =	56.57 MBtu		
Typical Load =	24.75 MBtu		
Residual Load =	1.94 MBtu		

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	3.27	3.27
R-7	-1.18	1.33	1.33
R-11	-1.35	1.02	1.02
R-19	-1.51	.75	.75
R-22	-1.58	.63	.63
R-30	-1.67	.48	.48
R-38	-1.73	.39	.39
R-49	-1.78	.31	.31
R-60	-1.81	.25	.25
Slope(DD)	702.21	488.64	
Curve(DDS)	-25.403	-27.866	
Slab			
Heated Basement	(/ft)	(/ft)	
R-0	-54	-22.64	-40
R-5	-49	-21.14	-41
R-6	-48	-20.80	-41
R-10	-49	-20.97	-42
R-10 8ft	-46	-19.97	-41
Intercept	-18.035	-17.783	
Slope(DD)	-620.68	-59.94	
Curve(DDS)	20.144	1.225	
Unheated Basement	(/sf)	(/sf)	
R-0	-40	-.91	.00
R-11 flr	-15	-.49	.14
R-19 flr	-.08	-.37	.16
R-30 flr	-.03	-.29	.15
R-38 flr			.15
R-49 flr			.15
Intercept	-.078	.000	
Slope(DD)	-289.27	24.04	
Curve(DDS)	24.890	-13.818	
Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach			
.0007(.60)	.00	.04	.00
.0005(.43)	-.04	.00	.00
.0003(.26)	-.06	-.01	.04
			.09
Slope/.001ELF	-.125	Slope(DD)	-105.42
Curve/.001ELF	.260	Curve(DDS)	-2.763
Base Load =	5.50 MBtu		
Typical Load =	3.80 MBtu		
Residual Load =	1.05 MBtu		

Reno NV TMY One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Ceiling		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-31.47	R-7	-16.93	R-7	-8.26	R-7	-1.93
R-11	-36.50	R-11	-19.34	R-11	-9.58	R-11	-2.20
R-19	-41.01	R-13	-22.38	R-19	-10.76	R-13	-2.67
R-22	-42.76	R-19	-23.88	R-22	-11.21	R-19	-2.90
R-30	-45.11	R-27	-26.42	R-30	-11.82	R-27	-3.17
R-38	-46.53	R-34	-27.98	R-38	-12.18	R-34	-3.34
R-49	-47.78			R-49	-12.51		
R-60	-48.59			R-60	-12.73		
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		Heated Basement		Slab		Heated Basement	
R-0	-18.21	R-0	-8.75	R-0	-3.52	R-0	-2.56
R-5 2ft	-22.51	R-5 4ft	-14.98	R-5 2ft	-3.26	R-5 4ft	-2.59
R-5 4ft	-23.36	R-5 8ft	-16.42	R-5 4ft	-3.18	R-5 8ft	-2.55
R-10 2ft	-23.39	R-10 4ft	-18.61	R-10 2ft	-3.20	R-10 4ft	-2.61
R-10 4ft	-24.58	R-10 8ft	-18.78	R-10 4ft	-3.08	R-10 8ft	-2.68
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)	-66.277	Curve(DDS)	-39.067	Curve(DDS)	24.498	Curve(DDS)	2.037
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-8.75	R-0	.00	R-0	-2.56	R-0	.00
R-11 flr	-21.43	R-11 flr	-22.26	R-11 flr	-1.10	R-11 flr	.49
R-19 flr	-24.92	R-19 flr	-26.10	R-19 flr	-1.11	R-19 flr	.48
R-30 flr	-27.17	R-30 flr	-28.33	R-30 flr	-1.27	R-30 flr	.49
		R-38 flr	-28.84	R-38 flr		R-38 flr	.49
		R-49 flr	-30.31	R-49 flr		R-49 flr	.50
Intercept	-5.688	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		Window U-value		Infiltration		Window U-value	
ELF Ach		1-Pane	.00	ELF Ach		1-Pane	.00
.0007(.87)	.00	2-Pane	-12.01	.0007(.51)	.00	2-Pane	.00
.0005(.48)	-5.83	3-Pane	-15.86	.0005(.37)	-1.17	3-Pane	-.33
.0003(.29)	-11.31	R-10	-20.38	.0003(.22)	-.32	R-10	-.49
			11.75				.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	.162	Curve(DDS)	-3.060

Base Load = 139.75 MBtu
 Typical Load = 36.52 MBtu
 Residual Load = 4.98 MBtu

Base Load = 22.76 MBtu
 Typical Load = 4.59 MBtu
 Residual Load = -4.02 MBtu

Reno NV

TMY

MApartment Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.61	R-7	-4.81	R-7	-3.30	R-7	-57
R-11	-14.63	R-11	-5.60	R-11	-3.82	R-11	-65
R-19	-16.44	R-13	-8.24	R-19	-4.30	R-13	-65
R-22	-17.02	R-19	-6.61	R-22	-4.48	R-19	-86
R-30	-17.81	R-27	-7.16	R-30	-4.73	R-27	-94
R-38	-18.28	R-34	-7.49	R-38	-4.89	R-34	-99
R-49	-18.84			R-49	-5.03		
R-60	-18.88			R-60	-5.13		

Slope(DD)	5491.16	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)	-28.872

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-9.04	R-0	-6.79	R-0	-84	R-0	-68
R-5 2ft	-9.83	R-5 4ft	-8.56	R-5 2ft	-78	R-5 4ft	-68
R-5 4ft	-9.97	R-5 8ft	-8.86	R-5 4ft	-76	R-5 8ft	-65
R-10 2ft	-9.97	R-10 4ft	-8.91	R-10 2ft	-76	R-10 4ft	-66
R-10 4ft	-10.16	R-10 8ft	-9.32	R-10 4ft	-74	R-10 8ft	-64
Intercept	-8.439	Intercept	.000	Intercept	-2.264	Intercept	.000
Slope(DD)	4899.81	Slope(DD)	3618.22	Slope(DD)	-990.48	Slope(DD)	-168.03
Curve(DDS)	69.229	Curve(DDS)	-10.148	Curve(DDS)	37.868	Curve(DDS)	-2.487

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-6.79	R-0	.00	R-0	-68	R-0	.00
R-11 flr	-9.09	R-11 flr	-8.24	R-11 flr	-31	R-11 flr	.19
R-19 flr	-9.90	R-19 flr	-9.58	R-19 flr	-20	R-19 flr	.19
R-30 flr	-10.41	R-30 flr	-10.31	R-30 flr	-12	R-30 flr	.20
		R-38 flr	-10.47			R-38 flr	.20
		R-49 flr	-10.94			R-49 flr	.20
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

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (MBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window	U-value	Infiltration	(/sf flr)	Window	U-value
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.67)	.00	.0007(.51)	.00	.0007(.51)	.00	.0007(.51)	.00
.0005(.49)	-4.20	.0005(.37)	-12	.0005(.37)	-12	.0005(.37)	-12
.0003(.30)	-7.53	.0003(.22)	-22	.0003(.22)	-22	.0003(.22)	-22
Slope/.001ELF	6.583	Slope/.001ELF	2172.42	Slope/.001ELF	.250	Slope/.001ELF	130.92
Curve/.001ELF	9.115	Curve(DDS)	47.178	Curve/.001ELF	.208	Curve(DDS)	-385

Base Load = 58.14 MBtu
 Typical Load = 12.10 MBtu
 Residual Load = 8.97 MBtu

Base Load = 11.85 MBtu
 Typical Load = 5.07 MBtu
 Residual Load = -1.16 MBtu

Salt Lake City U WYEC One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-29.20	R-7	-17.45	R-7	-7.74	R-7	-2.19
R-11	-33.88	R-11	-19.94	R-11	-8.98	R-11	-2.50
R-19	-38.06	R-13	9.67	R-19	-10.09	R-13	-2.95
R-22	-39.69	R-19	-24.48	R-22	-10.62	R-19	-3.17
R-30	-41.88	R-27	-27.16	R-30	-11.09	R-27	-3.48
R-38	-43.20	R-34	-28.80	R-38	-11.44	R-34	-3.67
R-49	-44.37			R-49	-11.78		
R-60	-45.13			R-60	-12.00		
Slope(DD)	6501.41	Slope(DD)	6119.81	Slope(DD)	1749.57	Slope(DD)	816.86
Curve(DDS)	-196.052	Curve(DDS)	-89.324	Curve(DDS)	-55.762	Curve(DDS)	-16.698
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-17.74	R-0	-10.13	R-0	-5.31	R-0	-3.21
R-5	-22.89	R-5	4ft	R-5	2ft	R-5	4ft
R-10	-23.84	R-5	8ft	R-5	4ft	R-5	8ft
R-10	4ft	R-10	4ft	R-10	2ft	R-10	4ft
Intercept	-25.88	R-10	8ft	R-10	4ft	R-10	8ft
Slope(DD)	-19.737	Intercept	-20.18	Intercept	-5.14	Intercept	-3.97
Curve(DDS)	-100.445	Slope(DD)	3995.10	Slope(DD)	-521.72	Slope(DD)	137.37
Unheated Basement	(/sf)	Curve(DDS)	-37.699	Curve(DDS)	25.501	Curve(DDS)	.267
Crawl		Unheated Basement	(/sf)	Crawl		Unheated Basement	(/sf)
R-0	-10.13	R-0	17.42	R-0	-3.21	R-0	.00
R-11	10.84	R-11	fir	R-11	fir	R-11	fir
R-19	-24.60	R-19	fir	R-19	fir	R-19	fir
R-30	-31.07	R-30	fir	R-30	fir	R-30	fir
Intercept	-7.158	R-38	fir	R-38	fir	R-38	fir
Slope(DD)	5971.77	R-49	fir	R-49	fir	R-49	fir
Curve(DDS)	-480.084	Intercept	-7.808	Intercept	2.541	Intercept	2.77
Infiltration	(/sf fir)	Slope(DD)	5463.41	Slope(DD)	-615.08	Slope(DD)	192.32
Window U-value	(/sf)	Curve(DDS)	-106.074	Curve(DDS)	48.354	Curve(DDS)	-35.193
1-Pane	.00	Window U-value	(/sf)	Window U-value	(/sf)	Window U-value	(/sf)
2-Pane	13.59	1-Pane	.00	1-Pane	.00	1-Pane	.00
3-Pane	18.08	2-Pane	13.59	2-Pane	.34	2-Pane	-.56
R-10	-23.35	3-Pane	18.08	3-Pane	.18	3-Pane	-.79
Slope/.001ELF	20.195	R-10	-23.35	R-10	-1.05	R-10	-1.05
Curve/.001ELF	1.867	Slope(DD)	5960.31	Slope(DD)	.487	Slope(DD)	325.76
Curve(DDS)	-196.052	Curve(DDS)	-24.559	Curve(DDS)	.408	Curve(DDS)	-3.112
Base Load =	149.99 MBtu	Base Load =	26.60 MBtu	Base Load =	7.39 MBtu	Base Load =	26.60 MBtu
Typical Load =	46.07 MBtu	Typical Load =	7.39 MBtu	Typical Load =	7.39 MBtu	Typical Load =	7.39 MBtu
Residual Load =	6.31 MBtu	Residual Load =	6.31 MBtu	Residual Load =	-3.26 MBtu	Residual Load =	-3.26 MBtu

Salt Lake City U WYEC Mid Town Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling			Ceiling		
R-0	.00	33.00	R-0	.00	8.42
R-7	-12.16	12.74	R-7	-3.03	3.37
R-11	-14.10	9.51	R-11	-3.52	2.56
R-19	-15.84	6.60	R-19	-3.95	1.84
R-22	-16.46	5.57	R-22	-4.11	1.57
R-30	-17.28	4.20	R-30	-4.33	1.20
R-38	-17.78	3.37	R-38	-4.46	.99
R-49	-18.20	2.67	R-49	-4.60	.75
R-60	-18.47	2.22	R-60	-4.69	.60
Slope(DD)	6057.26		Slope(DD)	1726.82	
Curve(DDS)	-82.847		Curve(DDS)	-51.728	
Slab			Slab		
Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0	-8.63	47.12	R-0	-2.13	-18.86
R-5 2ft	-9.86	16.37	R-5 2ft	-2.11	-18.36
R-5 4ft	-10.16	8.87	R-5 4ft	-2.09	-17.86
R-10 2ft	-10.06	11.37	R-10 2ft	-2.10	-18.11
R-10 4ft	-10.47	1.12	R-10 4ft	-2.05	-18.86
Intercept	-18.236		Intercept	-13.604	
Slope(DD)	5333.59		Slope(DD)	-117.87	
Curve(DDS)	8.284		Curve(DDS)	56.647	
Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0	-6.03	7.47	R-0	-1.19	.31
R-11 flr	-9.43	1.81	R-11 flr	-.63	1.24
R-19 flr	-10.53	-.03	R-19 flr	-.48	1.49
R-30 flr	-11.24	-1.21	R-30 flr	-.39	1.64
Intercept	-4.463		Intercept	2.058	
Slope(DD)	4463.84		Slope(DD)	-562.28	
Curve(DDS)	-416.520		Curve(DDS)	43.133	
Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)	Infiltration (/sf flr)
Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach	ELF Ach
.0007(.78)	.00	12.81	.0007(.52)	.00	.39
.0005(.57)	-5.13	8.54	.0005(.37)	-.17	.24
.0003(.34)	-9.67	4.75	.0003(.22)	-.31	.13
Slope(.001ELF)	13.999		Slope(.001ELF)	.333	
Curve(.001ELF)	6.148		Curve(.001ELF)	.313	

Base Load = 69.57 MBtu
 Typical Load = 18.68 MBtu
 Residual Load = 5.54 MBtu

Base Load = 16.66 MBtu
 Typical Load = 8.92 MBtu
 Residual Load = 2.39 MBtu

Salt Lake City U WYEC MApartment Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Ceiling	Wall	Wall	Ceiling	Wall	Wall
R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00	R-0 .00
R-7 -11.94	R-7 -4.99	R-7 -4.99	R-7 -3.08	R-7 3.44	R-7 -.59
R-11 -13.84	R-11 -5.71	R-11 -5.71	R-11 -3.57	R-11 2.62	R-11 -1.73
R-19 -16.56	R-13 -6.50	R-13 -6.50	R-19 -4.02	R-13 1.88	R-13 -.80
R-22 -16.14	R-19 -6.89	R-19 -6.89	R-22 -4.19	R-19 1.80	R-19 -.87
R-30 -16.92	R-27 -7.53	R-27 -7.53	R-30 -4.42	R-27 1.21	R-27 -.95
R-38 -17.40	R-34 -7.93	R-34 -7.93	R-38 -4.68	R-34 .98	R-34 -1.01
R-49 -17.78			R-49 -4.68		
R-60 -18.03			R-60 -4.77		
Slope(DD) 5637.50	Slope(DD) 5009.67	Slope(DD) 5009.67	Slope(DD) 1765.28	Slope(DD) 853.79	Slope(DD) 853.79
Curve(DDS) -37.038	Curve(DDS) 70.160	Curve(DDS) 70.160	Curve(DDS) -53.788	Curve(DDS) -25.914	Curve(DDS) -25.914
Slab	Heated Basement	Heated Basement	Slab	Heated Basement	Heated Basement
R-0 -9.60	R-0 -7.51	R-0 -7.51	R-0 -1.53	R-0 -10.05	R-0 -1.01
R-5 2ft -10.60	R-5 4ft -9.26	R-5 4ft -9.26	R-5 2ft -1.51	R-5 -9.38	R-5 4ft -1.12
R-5 4ft -10.88	R-5 8ft -9.74	R-5 8ft -9.74	R-5 4ft -1.49	R-5 -8.71	R-5 8ft -1.13
R-10 2ft -10.78	R-10 4ft -9.65	R-10 4ft -9.65	R-10 2ft -1.51	R-10 -9.21	R-10 4ft -1.15
R-10 4ft -11.14	R-10 8ft -10.29	R-10 8ft -10.29	R-10 4ft -1.48	R-10 -8.38	R-10 8ft -1.17
Intercept -7.683	Intercept .000	Intercept .000	Intercept -6.402	Intercept	Intercept .000
Slope(DD) 6856.96	Slope(DD) 4260.38	Slope(DD) 4260.38	Slope(DD) -638.83	Slope(DD)	Slope(DD) 182.27
Curve(DDS) -47.808	Curve(DDS) -22.297	Curve(DDS) -22.297	Curve(DDS) 27.891	Curve(DDS)	Curve(DDS) -1.131
Unheated Basement	Crawl	Crawl	Unheated Basement	Crawl	Crawl
R-0 -7.51	R-0 .00	R-0 .00	R-0 -1.01	R-0 .36	R-0 .00
R-11 flr -10.34	R-11 flr -9.50	R-11 flr -9.50	R-11 flr -.58	R-11 flr 1.08	R-11 flr .14
R-19 flr -11.32	R-19 flr -11.07	R-19 flr -11.07	R-19 flr -.45	R-19 flr 1.30	R-19 flr .12
R-30 flr -11.96	R-30 flr -12.01	R-30 flr -12.01	R-30 flr -.37	R-30 flr 1.44	R-30 flr .09
Intercept -3.487	R-38 flr -12.22	R-38 flr -12.22	Intercept	R-38 flr .09	R-38 flr .09
Slope(DD) 4070.57	R-49 flr -12.83	R-49 flr -12.83	Slope(DD) -523.14	R-49 flr .07	R-49 flr .07
Curve(DDS) -399.688	Intercept -4.410	Intercept -4.410	Curve(DDS) 46.580	Intercept	Intercept 2.089
Infiltration	Slope(DD) 4841.61	Slope(DD) 4841.61	Slope(DD)	Slope(DD)	Slope(DD) 169.33
ELF Ach	Curve(DDS) -38.610	Curve(DDS) -38.610	Curve(DDS)	Curve(DDS)	Curve(DDS) -34.578
.0007(.78)	Window U-value	Window U-value	Infiltration	Window U-value	Window U-value
.0005(.57)	1-Pane .00	1-Pane .00	ELF Ach	1-Pane .45	1-Pane .00
.0003(.34)	2-Pane -10.01	2-Pane -10.01	.0007(.52)	2-Pane .27	2-Pane -.41
	3-Pane -12.52	3-Pane -12.52	.0005(.37)	3-Pane .14	3-Pane -1.74
	R-10 -15.46	R-10 -15.46	.0003(.22)	R-10 -.72	R-10 -.58
Slope/.001ELF 13.270	Slope(DD) 3603.12	Slope(DD) 3603.12	Slope/.001ELF .312	Slope(DD) 248.98	Slope(DD) 248.98
Curve/.001ELF 6.771	Curve(DDS) 30.008	Curve(DDS) 30.008	Curve/.001ELF .469	Curve(DDS) -1.428	Curve(DDS) -1.428
Base Load = 65.45 MBtu	Base Load = 14.57 MBtu	Base Load = 14.57 MBtu	Typical Load = 7.40 MBtu	Typical Load = 7.40 MBtu	Typical Load = 7.40 MBtu
Typical Load = 16.76 MBtu	Residual Load = 5.78 MBtu	Residual Load = 5.78 MBtu	Residual Load = .93 MBtu	Residual Load = .93 MBtu	Residual Load = .93 MBtu

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Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	.00	.00	Ceiling	.00	.00	.00
R-0	10.43	8.60	8.60	R-0	10.24	10.24	10.24
R-7	-9.86	4.03	-5.36	R-7	-9.68	3.96	-3.16
R-11	-11.44	3.01	-6.12	R-11	-11.20	2.96	-3.61
R-19	-12.85	2.09	-6.98	R-19	-12.59	2.06	-4.10
R-22	-13.35	1.76	-7.40	R-22	-13.09	1.74	-4.35
R-30	-14.03	1.32	-8.02	R-30	-13.78	1.30	-4.89
R-38	-14.44	1.06	-8.40	R-38	-14.18	1.04	-5.22
R-49	-14.77	.84		R-49	-14.48	.83	
R-60	-14.98	.71		R-60	-14.69	.70	
Slope(DD)	1915.69	1390.55		Slope(DD)	1892.20	1130.28	
Curve(DDS)	-26.286	38.791		Curve(DDS)	-27.914	-20.404	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-7.98	13.34	-5.72	R-0	-7.55	2.71	-2.62
R-5	-9.28	6.51	-7.90	R-5	2ft	.36	4ft
R-10	-9.47	4.37	-8.36	R-5	4ft	.06	8ft
R-10	-9.76	2.62	-8.90	R-10	2ft	-.26	4ft
Intercept	.000	.973		R-10	4ft	-.03	8ft
Slope(DD)	605.72	632.29		Intercept	.000		
Curve(DDS)	53.422	.740		Slope(DD)	-196.61	23.873	
Unheated Basement	(/sf)	Crawl	(/sf)	Curve(DDS)	39.599	296.88	
R-0	-5.72	2.91		Unheated Basement	(/sf)	Curve(DDS)	-2.029
R-11	-8.56	1.06	.00	R-0	-2.62	3.49	.00
R-19	-9.24	.62	-7.51	R-11	f1r	3.71	-.69
R-30	-9.68	.33	-8.62	R-19	f1r	3.63	-1.15
Intercept	-409		-9.20	R-30	f1r	3.58	-1.60
Slope(DD)	998.31		-9.33	R-38	f1r		-1.58
Curve(DDS)	-88.638		-9.71	R-49	f1r		-1.81
Infiltration	(/sf f1r)	Window U-value	(/sf)	Intercept	3.403	3.612	
ELF Ach				Slope(DD)	267.86	861.15	
.0007(.68)	.00	3.82	1144.73	Curve(DDS)	-48.827	-107.771	
.0005(.48)	-2.17	2.41	39.433	Infiltration	(/sf f1r)	Window U-value	(/sf)
.0003(.29)	-3.95	1.26		ELF Ach			
Slope/.001ELF	3.247			.0007(.58)	.00	5.25	1-Pane
Curve/.001ELF	3.166			.0005(.41)	-2.11	3.88	2-Pane
				.0003(.25)	-4.38	2.41	3-Pane
				Slope/.001ELF	8.409		R-10
				Curve/.001ELF	-1.299		
				Slope(DD)	227.17		
				Curve(DDS)	1.021		
				Base Load =	57.62 MBtu		
				Typical Load =	31.37 MBtu		
				Residual Load =	6.83 MBtu		

San Antonio TX WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	10.60	7.93
R-7	-4.05	3.84	3.30
R-11	-4.70	2.77	2.62
R-19	-5.28	1.80	1.97
R-22	-5.45	1.51	1.64
R-30	-5.69	1.12	1.18
R-38	-5.83	.88	.90
R-49	-5.93	.71	.78
R-60	-6.00	.60	.63
Slope(DD)	1582.78	1073.79	
Curve(DDS)	34.543	74.554	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling			
R-0	.00	10.18	7.93
R-7	-3.80	3.84	3.30
R-11	-4.41	2.83	2.62
R-19	-4.95	1.93	1.97
R-22	-5.12	1.63	1.64
R-30	-5.36	1.24	1.18
R-38	-5.50	1.01	.90
R-49	-5.64	.78	.78
R-60	-5.73	.63	.63
Slope(DD)	1754.91	1073.79	
Curve(DDS)	-6.526	74.554	

Heating Load

Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-3.27	11.36	28.61
R-5 2ft	-3.53	4.86	14.11
R-5 4ft	-3.59	3.36	11.61
R-10 2ft	-3.57	3.86	11.61
R-10 4ft	-3.63	2.36	8.61
Intercept	.000	3.263	
Slope(DD)	553.25	451.89	
Curve(DDS)	42.184	4.919	

Cooling Load

Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab			
R-0	-2.96	.30	
R-5 2ft	-3.06	-2.20	
R-5 4ft	-3.07	-2.45	
R-10 2ft	-3.07	-2.45	
R-10 4ft	-3.05	-1.95	
Intercept	.000		
Slope(DD)	-880.27	150.74	
Curve(DDS)	81.621	.461	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-2.58	1.91	6.21
R-11 flr	-3.20	.87	1.89
R-19 flr	-3.37	.59	1.29
R-30 flr	-3.48	.41	.98
R-38 flr			.91
R-49 flr			.70
Intercept	-.082	.223	
Slope(DD)	665.00	912.54	
Curve(DDS)	-54.013	49.649	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement			
R-0	-1.03	3.24	
R-11 flr	-.72	3.75	
R-19 flr	-1.71	3.77	
R-30 flr	-.70	3.79	
Intercept		3.783	
Slope(DD)		24.62	
Curve(DDS)		-25.582	

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration			
ELF Ach			
.0007(.57)	.00	4.64	
.0005(.41)	-1.38	3.49	
.0003(.25)	-2.93	2.20	
Slope/.001ELF	7.875		
Curve/.001ELF	-1.771		

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration			
Window U-value			
1-Pane	.00	4.18	
2-Pane	-.27	-0.06	
3-Pane	.01	-4.08	
R-10	.35	-1.75	
Slope(DD)	-801.36		
Curve(DDS)	24.356		

Base Load = 37.96 MBtu
 Typical Load = 27.04 MBtu
 Residual Load = 12.42 MBtu

Base Load = 19.89 MBtu
 Typical Load = 7.05 MBtu
 Residual Load = 1.86 MBtu

San Antonio TX WYEC MApartment Prototype Siding Series Two

Heating Load

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	10.84	.00	Ceiling	.00	10.51	.00
R-0	-4.18	3.88	-1.48	R-0	-3.99	3.87	-1.01
R-7	-4.85	2.77	-1.70	R-7	-4.62	2.81	-1.13
R-11	-5.45	1.77	-1.89	R-11	-5.19	1.57	-1.19
R-19	-5.62	1.48	-1.99	R-13	-5.60	1.18	-1.32
R-22	-5.86	1.09	-2.11	R-22	-5.74	.96	-1.39
R-30	-5.99	.86	-2.19	R-30	-5.86	.74	
R-38	-6.09	.69		R-38	-5.94	.60	
R-49	-6.16	.69		R-49	-5.94	.60	
R-60				R-60			
Slope(DD)	1540.20		847.67	Slope(DD)	1657.77		866.42
Curve(DDS)	48.716		106.839	Curve(DDS)	19.462		13.678

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/ft)	Delta Component (MBtu)	(/ft)	Delta Component (KBtu)	(/ft)
Slab				Slab			
R-0	-3.45	10.33	-2.99	R-0	-2.40	-1.56	-1.56
R-5	-3.65	3.66	-3.48	R-5	-2.45	-3.39	-3.39
R-5	-3.69	2.50	-3.54	R-5	-2.46	-3.56	-3.56
R-10	-3.68	2.66	-3.54	R-10	-2.46	-3.73	-3.73
R-10	-3.72	1.50	-3.61	R-10	-2.43	-2.73	-2.73
Intercept	.000		Intercept	.000		Intercept	.000
Slope(DD)	236.06		2.190	Slope(DD)	-1159.65		255.00
Curve(DDS)	62.312		142.08	Curve(DDS)	91.768		-273

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Unheated Basement				Unheated Basement			
R-0	-2.99	1.28	.00	R-0	-2.99	1.28	.00
R-11	-3.47	.48	-2.76	R-11	-3.47	.48	-2.76
R-19	-3.59	.30	-3.11	R-19	-3.59	.30	-3.11
R-30	-3.66	.17	-3.28	R-30	-3.66	.17	-3.28
Intercept	-.139		Intercept	-.139		Intercept	-.139
Slope(DD)	420.27		822.39	Slope(DD)	-53.85		489.24
Curve(DDS)	-27.890		77.684	Curve(DDS)	-12.984		-77.491

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Infiltration				Infiltration			
ELF Ach	.0007(.68)	2.63	.00	ELF Ach	.0007(.68)	2.63	.00
.0005(.49)	-1.46	1.41	-2.67	.0005(.41)	-1.41	3.66	-4.64
.0003(.29)	-2.48	.57	-3.02	.0003(.26)	-3.01	2.32	-3.16
Slope/.001ELF	.479		432.50	Slope/.001ELF	8.354		-653.22
Curve/.001ELF	4.688		20.613	Curve/.001ELF	-2.083		21.966

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

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

San Diego CA TMY One Story Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)	Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling		Ceiling		Ceiling		Ceiling	
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-9.83	R-7	-4.92	R-7	-3.26	R-7	-1.34
R-11	-11.40	R-11	-5.62	R-11	-3.78	R-11	-1.33
R-19	-12.81	R-13	-6.29	R-19	-4.26	R-13	-1.66
R-22	-13.27	R-19	-6.62	R-22	-4.44	R-19	-1.84
R-30	-13.89	R-27	-7.02	R-30	-4.70	R-27	-1.84
R-38	-14.28	R-34	-7.26	R-38	-4.85	R-34	-1.87
R-49	-14.52			R-49	-4.95	R-49	-1.87
R-60	-14.68			R-60	-5.01	R-60	-1.87
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	R-0	-3.26	R-0	-1.23	R-0	-0.79
R-5	-5.70	R-5	-4.89	R-5	-1.04	R-5	-0.75
R-10	-5.84	R-10	-5.15	R-10	-1.00	R-10	-0.74
R-10	-5.84	R-10	-5.15	R-10	-1.00	R-10	-0.74
R-10	-5.84	R-10	-5.15	R-10	-1.00	R-10	-0.74
R-10	-5.84	R-10	-5.15	R-10	-1.00	R-10	-0.74
Intercept	.000	Intercept	1.209	Intercept	.000	Intercept	-0.64
Slope(DD)	175.72	Slope(DD)	291.82	Slope(DD)	-1646.80	Slope(DD)	-148.41
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	R-0	.00	R-0	-0.79	R-0	.00
R-11	-6.06	R-11	-6.53	R-11	.31	R-11	.80
R-19	-6.58	R-19	-7.24	R-19	.69	R-19	.84
R-30	-6.91	R-30	-7.63	R-30	.93	R-30	.99
Intercept	-.948	Intercept	-1.186	Intercept	1.021	Intercept	1.12
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		ELF Ach		ELF Ach		ELF Ach	
.0007(.56)	.00	1-Pane	.00	.0007(.50)	.00	1-Pane	.00
.0005(.41)	-1.59	2-Pane	-2.89	.0005(.35)	.13	2-Pane	.40
.0003(.25)	-2.44	3-Pane	-3.36	.0003(.21)	.35	3-Pane	.68
		R-10	-3.91			R-10	.74
Slope/.001ELF	-2.046	Slope(DD)	304.11	Slope/.001ELF	-1.299	Slope(DD)	-223.58
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 =	9.86 MBtu	Typical Load =	2.65 MBtu	Typical Load =	2.65 MBtu
Residual Load =	4.96 MBtu	Residual Load =	4.96 MBtu	Residual Load =	.56 MBtu	Residual Load =	.56 MBtu

Heating Load				Cooling Load				
Delta Component (MBtu)		Delta Component (/sf)		Delta Component (MBtu)		Delta Component (/sf)		
Roof	9.42	5.64	Roof	4.17	Roof	0.00	Roof	0.75
R-7	3.18	2.08	R-7	1.89	R-7	-0.25	R-7	0.21
R-11	2.19	1.57	R-11	1.53	R-11	-0.29	R-11	0.14
R-19	1.29	1.15	R-19	1.20	R-13	-0.34	R-13	0.04
R-22	1.08	0.94	R-22	1.01	R-19	-0.36	R-19	0.01
R-30	0.79	0.65	R-30	0.76	R-27	-0.35	R-27	0.02
R-38	0.62	0.48	R-38	0.60	R-34	-0.34	R-34	0.03
R-49	0.49		R-49	0.50				
R-60	0.41		R-60	0.44				
Slope(DD)	1058.25	532.41	Slope(DD)	1167.12	Slope(DD)	-7.37	Slope(DD)	-7.37
Curve(DDS)	87.907	96.018	Curve(DDS)	-78.218	Curve(DDS)	27.254	Curve(DDS)	27.254
Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)		
R-0	8.47	20.22	R-0	22.33	R-0	-1.16	R-0	-16.83
R-5 2ft	3.47	11.47	R-5 2ft	20.33	R-5 4ft	-0.09	R-5 4ft	-15.08
R-5 4ft	2.72	9.97	R-5 4ft	20.33	R-5 8ft	-0.07	R-5 8ft	-14.58
R-10 2ft	2.97	10.22	R-10 2ft	19.83	R-10 4ft	-0.07	R-10 4ft	-14.58
R-10 4ft	1.72	7.97	R-10 4ft	13.83	R-10 8ft	-0.03	R-10 8ft	-13.58
Intercept	0.00	4.248	Intercept	0.00	Intercept	-11.293	Intercept	-11.293
Slope(DD)	482.92	347.18	Slope(DD)	-5686.74	Slope(DD)	-251.81	Slope(DD)	-251.81
Curve(DDS)	26.123	1.353	Curve(DDS)	329.714	Curve(DDS)	2.831	Curve(DDS)	2.831
Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		
R-0	1.35	3.53	R-0	1.12	R-0	0.00	R-0	-0.86
R-11 flr	0.40	0.48	R-11 flr	0.41	R-11 flr	0.37	R-11 flr	-0.24
R-19 flr	0.16	0.15	R-19 flr	0.29	R-19 flr	0.34	R-19 flr	-0.29
R-30 flr	0.01	0.03	R-30 flr	0.38	R-30 flr	0.71	R-30 flr	0.34
R-38 flr		0.07	R-38 flr		R-38 flr	0.80	R-38 flr	0.48
R-49 flr		0.19	R-49 flr		R-49 flr	1.05	R-49 flr	0.89
Intercept	-0.379	-0.399	Intercept	-0.057	Intercept	1.034	Intercept	1.034
Slope(DD)	529.79	412.65	Slope(DD)	-210.88	Slope(DD)	-1082.62	Slope(DD)	-1082.62
Curve(DDS)	-37.644	89.005	Curve(DDS)	0.585	Curve(DDS)	139.468	Curve(DDS)	139.468
Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		Infiltration (/sf flr) Window U-value		
ELF Ach	1.22	15.32	ELF Ach	1.94	1-Pane	0.00	1-Pane	0.00
0.007(.58)	0.58	4.90	0.007(.50)	0.24	2-Pane	0.68	2-Pane	-12.88
0.005(.41)	0.17	2.98	0.005(.35)	0.82	3-Pane	1.32	3-Pane	-8.44
0.003(.25)	-1.26	0.73	0.003(.21)	-1.26	R-10	2.07	R-10	-3.22
Slope/.001ELF	-2.92	285.25	Slope/.001ELF	-5.250	Slope(DD)	-1438.83	Slope(DD)	-1438.83
Curve/.001ELF	2.917	11.171	Curve/.001ELF	3.542	Curve(DDS)	29.252	Curve(DDS)	29.252

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

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	9.36	.00
R-0	-3.77	3.06	-1.09
R-7	-4.37	2.06	-1.24
R-11	-4.91	1.16	-1.34
R-19	-5.03	.96	-1.39
R-22	-5.19	.70	-1.46
R-30	-5.28	.55	-1.51
R-38	-5.35	.43	
R-49	-5.39	.38	

Slope(DD)	922.80	Slope(DD)	263.06
Curve(DDS)	110.306	Curve(DDS)	125.111

Slab	(/ft)	Heated Basement	(/ft)
R-0	-2.09	R-0	-1.85
R-5 2ft	-2.20	R-5 4ft	-2.08
R-5 4ft	-2.22	R-5 8ft	-2.13
R-10 2ft	-2.21	R-10 4ft	-2.12
R-10 4ft	-2.24	R-10 8ft	-2.17
Intercept	.000	Intercept	.606
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	R-0	.00
R-11 flr	-2.22	R-11 flr	-2.03
R-19 flr	-2.30	R-19 flr	-2.18
R-30 flr	-2.36	R-30 flr	-2.26
		R-38 flr	-2.29
		R-49 flr	-2.34
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	.00	1-Pane	.00
.0007(.58)	.87	2-Pane	-1.29
.0005(.42)	.25	3-Pane	-1.52
.0003(.25)	-.08	R-10	-1.80

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)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	3.86	.00
R-0	-1.29	1.72	-0.19
R-7	-1.49	1.38	-0.22
R-11	-1.67	1.07	-0.25
R-19	-1.78	.89	-0.27
R-22	-1.93	.65	-0.25
R-30	-2.01	.50	-0.25
R-38	-2.05	.44	
R-49	-2.07	.40	

Slope(DD)	1021.83	Slope(DD)	-56.11
Curve(DDS)	-62.568	Curve(DDS)	37.311

Slab	(/ft)	Heated Basement	(/ft)
R-0	-1.16	R-0	-1.16
R-5 2ft	-0.95	R-5 4ft	-0.95
R-5 4ft	-0.91	R-5 8ft	-0.99
R-10 2ft	-0.94	R-10 4ft	-0.99
R-10 4ft	.15	R-10 8ft	-.04
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	-1.16	R-0	.00
R-11 flr	.28	R-11 flr	.42
R-19 flr	.41	R-19 flr	.47
R-30 flr	.61	R-30 flr	.54
		R-38 flr	.55
		R-49 flr	.59
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	.00	1-Pane	.00
.0007(.50)	.81	2-Pane	.40
.0005(.35)	.19	3-Pane	.92
.0003(.21)	.45	R-10	1.54

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

Heating Load

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling			
R-0	.00	.00	18.45
R-7	-18.58	-10.87	8.78
R-11	-21.55	-12.42	7.40
R-19	-24.21	-14.33	5.71
R-22	-25.28	-15.27	4.87
R-30	-26.72	-16.75	3.55
R-38	-27.59	-17.66	2.74
R-49	-28.33		
R-60	-28.80		
Slope(DD)	4242.92	Slope(DD)	3484.77
Curve(DDS)	-139.693	Curve(DDS)	-9.887

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Wall			
R-0			
R-7			
R-11			
R-13			
R-19			
R-27			
R-34			
Slope(DD)	4242.92	Slope(DD)	3484.77
Curve(DDS)	-139.693	Curve(DDS)	-9.887

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Slab			
Heated Basement			
R-0			
R-5			
R-5 4ft			
R-5 8ft			
R-10 4ft			
R-10 8ft			
Intercept			
Slope(DD)			
Curve(DDS)			
Unheated Basement			
R-0			
R-11 flr			
R-19 flr			
R-30 flr			
R-38 flr			
R-49 flr			
Intercept			
Slope(DD)			
Curve(DDS)			

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Window U-value			
1-Pane			
2-Pane			
3-Pane			
R-10			
Slope(DD)	8.376	Slope(DD)	2289.33
Curve(DDS)	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)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling			
R-0	.00	.00	.74
R-7	-7.72	-7.72	.28
R-11	-8.84	-8.84	.20
R-19	-9.94	-9.94	.13
R-22	-9.97	-9.97	.11
R-30	-1.01	-1.01	.09
R-38	-1.04	-1.04	.07
R-49	-1.06	-1.06	.05
R-60	-1.08	-1.08	.04
Slope(DD)	121.18	Slope(DD)	74.86
Curve(DDS)	.753	Curve(DDS)	-3.270

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Wall			
R-0			
R-7			
R-11			
R-13			
R-19			
R-27			
R-34			
Slope(DD)	121.18	Slope(DD)	74.86
Curve(DDS)	.753	Curve(DDS)	-3.270

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Slab			
Heated Basement			
R-0			
R-5			
R-5 4ft			
R-5 8ft			
R-10 4ft			
R-10 8ft			
Intercept			
Slope(DD)			
Curve(DDS)			
Unheated Basement			
R-0			
R-11 flr			
R-19 flr			
R-30 flr			
R-38 flr			
R-49 flr			
Intercept			
Slope(DD)			
Curve(DDS)			

Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Window U-value			
1-Pane			
2-Pane			
3-Pane			
R-10			
Slope(DD)	.130	Slope(DD)	47.80
Curve(DDS)	-.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			Cooling Load		
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)
Heating Load					
Ceiling		Wall	Ceiling		Wall
R-0	.00	R-0	R-0	.00	R-0
R-7	-8.30	R-7	R-7	-.34	R-7
R-11	-9.63	R-11	R-11	-.39	R-11
R-19	-10.82	R-13	R-19	-.44	R-13
R-10	-11.18	R-19	R-22	-.47	R-19
R-30	-11.66	R-27	R-30	-.50	R-27
R-38	-11.95	R-34	R-38	-.52	R-34
R-49	-12.16		R-49	-.54	
R-60	-12.30		R-60	-.55	
Slope(DD)	3258.26	Slope(DD)	Slope(DD)	273.47	Slope(DD)
Curve(DDS)	68.970	Curve(DDS)	Curve(DDS)	-17.258	Curve(DDS)
Cooling Load					
Slab		Heated Basement	Slab		Heated Basement
R-0	-5.12	R-0	R-0	-.15	R-0
R-5	-5.83	R-5	R-5	-.13	R-5
R-5	-5.97	R-5	R-5	-.12	R-5
R-10	-5.92	R-10	R-10	-.12	R-10
R-10	-6.08	R-10	R-10	-.11	R-10
Intercept	.000	Intercept	Intercept	.000	Intercept
Slope(DD)	1963.08	Slope(DD)	Slope(DD)	-318.17	Slope(DD)
Curve(DDS)	106.363	Curve(DDS)	Curve(DDS)	14.179	Curve(DDS)
Unheated Basement					
Unheated Basement		Crawl	Unheated Basement		Crawl
R-0	-3.99	R-0	R-0	-.12	R-0
R-11	-5.99	R-11	R-11	-.07	R-11
R-19	-6.54	R-19	R-19	-.03	R-19
R-30	-6.90	R-30	R-30	.01	R-30
Intercept	-2.560	Intercept	R-30	.03	R-30
Slope(DD)	2165.32	Slope(DD)	R-38	.18	R-38
Curve(DDS)	-177.293	Curve(DDS)	R-49	.18	R-49
Infiltration					
Infiltration		Window U-value	Infiltration		Window U-value
ELF Ach		ELF Ach	ELF Ach		ELF Ach
.0007(.72)	.00	.0007(.93)	.0007(.93)	.00	.00
.0005(.50)	-3.34	.0005(.67)	.0005(.67)	.01	.05
.0003(.31)	-6.45	.0003(.40)	.0003(.40)	.00	.04
Slope/.001ELF	-1.459	Slope/.001ELF	Slope/.001ELF	.294	Slope(DD)
Curve/.001ELF	12.813	Curve/.001ELF	Curve/.001ELF	-154.14	Curve(DD)
Window U-value					
Window U-value		Window U-value	Window U-value		Window U-value
1-Pane	.00	1-Pane	1-Pane	.04	1-Pane
2-Pane	-5.42	2-Pane	2-Pane	.01	2-Pane
3-Pane	-6.42	3-Pane	3-Pane	.00	3-Pane
R-10	-7.59	R-10	R-10	.04	R-10
Slope(DD)	1033.03	Slope(DD)	Slope(DD)	.208	Slope(DD)
Curve(DDS)	40.302	Curve(DDS)	Curve(DDS)	-.208	Curve(DDS)
Base Load					
Base Load	39.82 MBtu	Base Load	1.53 MBtu		
Typical Load	14.54 MBtu	Typical Load	.87 MBtu		
Residual Load	12.13 MBtu	Residual Load	.29 MBtu		

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	21.53	.00
R-0	-8.49	7.39	-3.14
R-7	-9.84	5.13	-3.59
R-11	-11.06	3.10	-4.43
R-19	-11.37	2.59	-4.48
R-22	-11.78	1.90	-5.60
R-30	-12.03	1.48	-5.62
R-38	-12.21	1.19	-5.84
R-49	-12.32	1.00	-5.55
R-60			-5.56

Slope(DD)	2603.87	Slope(DD)	1677.64
Curve(DDS)	173.453	Curve(DDS)	241.215

Slab	(/ft)	Heated Basement	(/ft)
R-0	-6.03	39.39	-5.37
R-5 2ft	-6.67	18.22	-6.36
R-5 4ft	-6.81	13.55	-6.54
R-10 2ft	-6.78	15.22	-6.54
R-10 4ft	-6.93	9.55	-6.83
Intercept	.000		-6.980
Slope(DD)	3442.99	Slope(DD)	2041.56
Curve(DDS)	52.461	Curve(DDS)	-7.240

Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.37	3.08	12.03
R-11 flr	-7.08	.23	-6.88
R-19 flr	-7.59	-.62	-7.67
R-30 flr	-7.92	-1.17	-7.95
R-38 flr			-8.01
R-49 flr			-8.20
Intercept	-2.663	Intercept	-2.482
Slope(DD)	2035.67	Slope(DD)	1316.96
Curve(DDS)	-178.651	Curve(DDS)	295.023

Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach	.007(.72)	4.77	.00
.0005(.50)	-3.40	1.93	-6.40
.0003(.31)	-5.39	.28	-6.26
			-7.29
			1.94

Slope/.001ELF	-3.500	Slope(DD)	712.03
Curve/.001ELF	14.740	Curve(DDS)	48.403

Base Load = 37.64 MBtu
 Typical Load = 12.92 MBtu
 Residual Load = 12.83 MBtu

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	(/sf)
Ceiling	.00	1.00	.00
R-0	-3.37	.39	-0.05
R-7	-4.43	.29	-0.06
R-11	-4.48	.20	-0.07
R-19	-5.60	.17	-0.08
R-22	-5.62	.13	-0.08
R-30	-5.84	.10	-0.08
R-38	-5.55	.08	-0.09
R-49	-5.56	.07	
R-60			

Slope(DD)	185.11	Slope(DD)	57.56
Curve(DDS)	-2.723	Curve(DDS)	.184

Slab	(/ft)	Heated Basement	(/ft)
R-0	-.06	-.85	-.06
R-5 2ft	-.04	-.35	-.05
R-5 4ft	-.04	-.35	-.04
R-10 2ft	-.04	-.35	-.04
R-10 4ft	-.04	-.19	-.04
Intercept	.000	Intercept	.306
Slope(DD)	-77.80	Slope(DD)	-57.46
Curve(DDS)	-8.02	Curve(DDS)	.709

Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-.06	-.04	.00
R-11 flr	-.01	.03	.06
R-19 flr	-.00	.05	.14
R-30 flr	.01	.07	.14
R-38 flr		.05	.14
R-49 flr		.05	.14
Intercept	.100	Intercept	.123
Slope(DD)	-47.31	Slope(DD)	27.30
Curve(DDS)	3.779	Curve(DDS)	-7.635

Infiltration	(/sf flr)	Window U-value	(/sf)
ELF Ach	.007(.93)	.00	.00
.0005(.67)	-.02	.06	.11
.0003(.40)	-.04	.04	.04
			-.01
			-.01
			-.02

Slope/.001ELF	.146	Slope(DD)	3.07
Curve/.001ELF	-.052	Curve(DDS)	.044

Base Load = 1.19 MBtu
 Typical Load = .59 MBtu
 Residual Load = .02 MBtu

Seattle WA WYEC One Story Prototype Siding Series Two

Heating Load			Cooling Load		
Delta Component (MBtu)	(/sf)	(KBtu)	Delta Component (MBtu)	(/sf)	(KBtu)
Ceiling			Ceiling		
R-0	.00	31.22	R-0	.00	1.54
R-7	-28.79	12.53	R-7	-1.44	.61
R-11	-33.39	9.54	R-11	-1.66	.46
R-19	-37.52	6.86	R-19	-1.87	.33
R-22	-39.13	5.82	R-22	-1.94	.28
R-30	-41.29	4.41	R-30	-2.04	.22
R-38	-42.59	3.57	R-38	-2.10	.18
R-49	-43.76	2.81	R-49	-2.17	.13
R-60	-44.52	2.32	R-60	-2.21	.11
Slope(DD)	6425.75		Slope(DD)	305.91	
Curve(DDS)	-195.521		Curve(DDS)	-7.766	
Wall			Wall		
R-0	.00	30.16	R-0	.00	.58
R-7	-17.18	14.87	R-7	-1.44	.33
R-11	-19.63	12.69	R-11	-1.66	.30
R-13	-22.66	10.01	R-13	-1.87	.23
R-19	-24.15	8.67	R-19	-1.94	.19
R-27	-26.87	6.25	R-27	-2.04	.15
R-34	-28.54	4.77	R-34	-2.10	.12
Slope(DD)	6232.69		Slope(DD)	156.33	
Curve(DDS)	-116.143		Curve(DDS)	-8.859	
Slab			Slab		
Heated Basement (/ft)			Heated Basement (/ft)		
R-0	-12.36	66.50	R-0	-2.02	.66
R-5	-18.00	32.52	R-5	-1.54	.27
R-5	-19.95	20.78	R-5	-1.30	.68
R-10	-18.98	26.62	R-10	-1.42	.33
R-10	-21.61	10.78	R-10	-1.12	.21
Intercept	-21.102	.000	Intercept	-4.20	.000
Slope(DD)	8877.46		Slope(DD)	-202.42	
Curve(DDS)	-159.825		Curve(DDS)	6.051	
Unheated Basement (/sf)			Unheated Basement (/sf)		
R-0	-8.14	9.91	R-0	-0.66	.42
R-11	-25.02	-1.05	R-11	-0.21	.26
R-19	-29.46	-3.94	R-19	-0.08	.37
R-30	-32.32	-5.79	R-30	-0.00	.42
Intercept	-10.727		Intercept	.563	
Slope(DD)	6679.29		Slope(DD)	-195.91	
Curve(DDS)	-517.786		Curve(DDS)	16.431	
Window U-value (/sf)			Window U-value (/sf)		
1-Pane	.00	142.35	1-Pane	.07	.20
2-Pane	-7.69	12.03	2-Pane	-0.03	.14
3-Pane	-16.22	7.14	3-Pane	-0.06	.09
R-10	-23.75	13.83	R-10	-0.03	.04
Slope(DD)	23.408		Slope(DD)	.097	
Curve(DDS)	1.300		Curve(DDS)	.000	

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

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

Seattle WA

WYEC

Mid Town

Prototype Siding

Series Two

Heating Load

Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Ceiling	(/sf)	Wall	(/sf)	Ceiling	(/sf)	Wall	(/sf)
R-0	.00	R-0	.00	R-0	.00	R-0	.00
R-7	-12.05	R-7	-7.36	R-7	-.61	R-7	-.16
R-11	-13.97	R-11	-8.41	R-11	-.70	R-11	-.18
R-19	-16.70	R-13	8.58	R-19	-.79	R-13	-.23
R-22	-16.31	R-19	-10.21	R-22	-.84	R-19	-.26
R-30	-17.13	R-27	-11.22	R-30	-.91	R-27	-.29
R-38	-17.62	R-34	-11.84	R-38	-.95	R-34	-.31
R-49	-18.05			R-49	-.98		
R-60	-18.32			R-60	-1.00		
Slope(DD)	6032.82	Slope(DD)	5299.37	Slope(DD)	531.89	Slope(DD)	249.64
Curve(DDS)	-86.386	Curve(DDS)	16.848	Curve(DDS)	-36.727	Curve(DDS)	-17.218

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Slab	(/ft)	Heated Basement	(/ft)	Slab	(/ft)	Heated Basement	(/ft)
R-0	-7.21	R-0	-5.49	R-0	-.43	R-0	-.28
R-5 2ft	-8.58	R-5 4ft	-7.07	R-5 2ft	-.40	R-5 4ft	-.27
R-5 4ft	-9.01	R-5 8ft	-7.64	R-5 4ft	-.39	R-5 8ft	-.26
R-10 2ft	-8.80	R-10 4ft	-7.44	R-10 2ft	-.40	R-10 4ft	-.27
R-10 4ft	-9.36	R-10 8ft	-8.25	R-10 4ft	-.37	R-10 8ft	-.25
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

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Unheated Basement	(/sf)	Crawl	(/sf)	Unheated Basement	(/sf)	Crawl	(/sf)
R-0	-5.49	R-0	16.54	R-0	-.28	R-0	.00
R-11 flr	-9.56	R-11 flr	-9.97	R-11 flr	-.02	R-11 flr	.16
R-19 flr	-10.88	R-19 flr	-11.55	R-19 flr	.05	R-19 flr	.18
R-30 flr	-11.70	R-30 flr	-12.48	R-30 flr	.09	R-30 flr	.18
Intercept	-6.821	R-38 flr	-12.69	R-38 flr	.18	R-38 flr	.18
Slope(DD)	5296.50	R-49 flr	-13.30	R-49 flr	.18	R-49 flr	.18
Curve(DDS)	-492.388	Intercept	-7.992	Intercept	.695	Intercept	.672
		Slope(DD)	4720.38	Slope(DD)	-256.80	Slope(DD)	-11.65
		Curve(DDS)	12.487	Curve(DDS)	19.400	Curve(DDS)	-9.801

Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
Infiltration	(/sf flr)	Window	U-value	Infiltration	(/sf flr)	Window	U-value
ELF Ach		ELF Ach		ELF Ach		Window	U-value
.0007(.76)	.00	1-Pane	.00	.0007(.57)	.00	1-Pane	.00
.0005(.56)	-5.69	2-Pane	-10.11	.0005(.41)	.00	2-Pane	.07
.0003(.33)	-10.86	3-Pane	-12.91	.0003(.24)	.02	3-Pane	.07
		R-10	-16.21			R-10	.08
Slope/.001ELF	17.083	Slope(DD)	4330.76	Slope/.001ELF	-250	Slope(DD)	7.77
Curve/.001ELF	6.521	Curve(DDS)	12.183	Curve/.001ELF	.208	Curve(DDS)	-1.074

Base Load = 71.54 MBtu
 Typical Load = 20.84 MBtu
 Residual Load = 3.88 MBtu

Base Load = 3.06 MBtu
 Typical Load = 1.65 MBtu
 Residual Load = .61 MBtu

Seattle WA WYEC MApartment Prototype Siding Series Two

Heating Load Cooling Load

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)	
MBtu	(/sf)	KBtu	(/sf)	KBtu	(/sf)	KBtu	(/sf)
R-0	.00	31.55	.00	28.80	.00	1.90	.00
R-7	-11.75	11.97	-4.98	13.10	-.66	1.90	-.10
R-11	-13.62	8.85	-6.68	10.87	-.77	.63	-.11
R-19	-15.31	8.04	-6.47	8.38	-.86	.47	-.14
R-22	-15.67	5.09	-6.86	7.15	-.90	.40	-.16
R-30	-16.64	3.82	-7.50	5.14	-.95	.32	-.18
R-38	-17.10	3.05	-7.89	3.91	-.98	.26	-.18
R-49	-17.47	2.43			-1.02	.20	
R-60	-17.72	2.03			-1.05	.15	

Delta Component (MBtu)		Delta Component (KBtu)		Delta Component (KBtu)		Delta Component (KBtu)		
MBtu	(/sf)	KBtu	(/sf)	KBtu	(/sf)	KBtu	(/sf)	
Slope(DD)	5488.24	4942.54	Slope(DD)	453.70	Slope(DD)	210.32	Slope(DD)	210.32
Curve(DDS)	-28.114	76.759	Curve(DDS)	-22.374	Curve(DDS)	-13.122	Curve(DDS)	-13.122

Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)		Heated Basement (/ft)	
Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)	Heated Basement (/ft)
R-0	-8.37	86.69	R-0	-.23	-2.46	R-0	-.18
R-5	-9.48	49.52	R-5	2ft	-1.96	R-5	4ft
R-5	-9.86	37.35	R-5	4ft	-1.62	R-5	8ft
R-10	-9.67	43.35	R-10	2ft	-1.79	R-10	4ft
R-10	-10.14	27.69	R-10	4ft	-1.29	R-10	8ft
Intercept	-2.738	.000	Intercept	-.060	Intercept	-.060	
Slope(DD)	8249.54	4342.38	Slope(DD)	-378.83	Slope(DD)	-31.27	
Curve(DDS)	-99.812	-30.019	Curve(DDS)	14.912	Curve(DDS)	.393	

Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)		Unheated Basement (/sf)	
Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)	Unheated Basement (/sf)
R-0	-7.05	6.53	R-0	-.18	-.03	R-0	.00
R-11	-10.37	1.00	R-11	f1r	.18	R-11	f1r
R-19	-11.50	-.90	R-19	f1r	.24	R-19	f1r
R-30	-12.24	-2.12	R-30	f1r	.28	R-30	f1r
R-38	-13.22	-3.75	R-38	f1r	.28	R-38	f1r
R-49	-13.84	-4.79	R-49	f1r	.28	R-49	f1r
Intercept	-5.506	-7.153	Intercept	.383	Intercept	.365	
Slope(DD)	4684.08	4732.77	Slope(DD)	-144.64	Slope(DD)	33.72	
Curve(DDS)	-451.672	44.127	Curve(DDS)	12.446	Curve(DDS)	-10.542	

Infiltration (/sf f1r)		Infiltration (/sf f1r)		Infiltration (/sf f1r)		Infiltration (/sf f1r)	
Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value	Window U-value
1-Pane	.00	120.18	1-Pane	.04	.04	1-Pane	.00
2-Pane	-10.26	48.96	2-Pane	.04	.04	2-Pane	.00
3-Pane	-12.89	30.69	3-Pane	.03	.03	3-Pane	.00
R-10	-16.98	9.20	R-10	.03	.03	R-10	.00
Slope(/.001ELF)	15.770	3851.17	Slope(/.001ELF)	.125	Slope(DD)	-5.86	
Curve(/.001ELF)	6.511	26.553	Curve(/.001ELF)	-.104	Curve(DDS)	.153	

Base Load = 66.96 MBtu
 Typical Load = 18.54 MBtu
 Residual Load = 4.56 MBtu

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

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Ceiling			
R-0	.00	25.63	
R-7	-23.74	10.21	
R-11	-27.53	7.75	
R-19	-30.93	5.54	
R-22	-32.24	4.69	
R-30	-33.99	3.55	
R-38	-35.05	2.87	
R-49	-35.98	2.26	
R-60	-36.58	1.87	
Slope(DD)	5170.37		
Curve(DDS)	-143.062		
Wall			
R-0	.00	23.61	
R-7	-13.51	11.59	
R-11	-15.43	9.87	
R-13	-17.78	7.78	
R-19	-18.95	6.74	
R-27	-21.07	4.86	
R-34	-22.37	3.70	
Slope(DD)	4831.60		
Curve(DDS)	-82.360		
Heated Basement			
R-0	-9.99	79.86	
R-5 4ft	-14.53	52.51	
R-5 8ft	-16.04	43.41	
R-10 4ft	-15.69	45.52	
R-10 8ft	-18.04	31.36	
Intercept			
Slope(DD)	14.360	.000	
Curve(DDS)	5745.96	3146.97	
Curve(DDS)	-80.642	-29.185	
Unheated Basement			
R-0	-9.99	8.61	
R-11 flr	-21.18	1.34	
R-19 flr	-24.25	-.65	
R-30 flr	-26.22	-1.93	
Intercept			
Slope(DD)	-5.364		
Curve(DDS)	4660.51		
Curve(DDS)	-377.503		
Infiltration			
ELF Ach			
.0007(.79)	.00	14.43	
.0005(.56)	-6.50	10.21	
.0003(.36)	-12.88	6.07	
Slope/.001ELF	19.936		
Curve/.001ELF	.974		
Slope(DD)	4739.24		
Curve(DDS)	-18.325		
Window U-value			
1-Pane	.00	112.34	
2-Pane	-10.93	53.20	
3-Pane	-14.51	33.83	
R-10	-18.72	11.05	

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)	Delta Component (KBtu)
Ceiling			
R-0	.00	7.04	
R-7	-6.38	2.89	
R-11	-7.40	2.23	
R-19	-8.32	1.63	
R-22	-8.70	1.39	
R-30	-9.21	1.05	
R-38	-9.52	.85	
R-49	-9.80	.67	
R-60	-9.98	.55	
Slope(DD)	1544.34		
Curve(DDS)	-60.337		
Wall			
R-0	.00	3.53	
R-7	-1.90	1.83	
R-11	-2.17	1.59	
R-13	-2.55	1.26	
R-19	-2.74	1.09	
R-27	-3.07	.79	
R-34	-3.27	.62	
Slope(DD)	809.06		
Curve(DDS)	-28.552		
Heated Basement			
R-0	-5.92	-7.51	
R-5 2ft	-5.90	-7.39	
R-5 4ft	-5.82	-6.90	
R-10 2ft	-5.89	-7.33	
R-10 4ft	-5.77	-6.60	
Intercept			
Slope(DD)	-4.822		
Curve(DDS)	-610.01		
Curve(DDS)	32.284		
Unheated Basement			
R-0	-3.30	.89	
R-11 flr	-.78	2.53	
R-19 flr	-.10	2.97	
R-30 flr	.33	3.25	
Intercept			
Slope(DD)	4.002		
Curve(DDS)	-1020.56		
Curve(DDS)	80.746		
Infiltration			
ELF Ach			
.0007(.48)	.00	1.70	
.0005(.34)	-.75	1.22	
.0003(.20)	-1.50	.73	
Slope/.001ELF	2.435		
Curve/.001ELF	.000		
Slope(DD)	82.23		
Curve(DDS)	-.121		
Window U-value			
1-Pane	.00	2.09	
2-Pane	-.21	.95	
3-Pane	-.27	.60	
R-10	-.35	.19	

Base Load = 27.97 MBtu
 Typical Load = 10.70 MBtu
 Residual Load = -2.06 MBtu

Base Load = 124.39 MBtu
 Typical Load = 38.43 MBtu
 Residual Load = 1.98 MBtu

Washington DC WYEC Mid Town Prototype Siding Series Two

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	26.71	22.90
R-7	-9.85	10.70
R-11	-11.43	8.96
R-19	-12.84	6.31
R-22	-13.34	4.49
R-30	-14.00	3.38
R-38	-14.40	2.71
R-49	-14.74	2.15
R-60	-14.98	1.78
Slope(DD)	4873.24	4189.69
Curve(DDS)	-61.963	12.479

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	2.78	0.00
R-7	-1.30	-0.69
R-11	1.10	-0.79
R-13	0.85	-0.91
R-19	0.72	-0.97
R-27	0.52	-1.08
R-34	0.41	-1.12
Slope(DD)	514.26	1174.17
Curve(DDS)	-0.350	-6.901

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	92.29	5.64
R-5 4ft	7.15	-7.15
R-5 8ft	14.54	-7.57
R-10 4ft	48.04	-7.49
R-10 8ft	31.29	-8.08
Intercept	0.00	0.00
Slope(DD)	3010.59	3010.59
Curve(DDS)	-18.390	-18.390

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	15.55	-1.18
R-11 flr	2.55	-0.18
R-19 flr	0.45	0.11
R-30 flr	-0.78	0.29
R-38 flr	-1.08	0.29
R-49 flr	-1.88	0.29
Intercept	-3.784	3.805
Slope(DD)	3505.52	-1127.32
Curve(DDS)	-8.740	95.178

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	96.94	0.00
1-Pane	40.14	0.00
2-Pane	25.20	-0.50
3-Pane	7.64	-0.97
R-10	0.00	0.00
Slope(DD)	3204.74	1.708
Curve(DDS)	17.699	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Cooling Load

Delta Component (MBtu)	(/sf)	Delta Component (KBtu)
Roof	18.67	0.00
1-Pane	12.26	0.00
2-Pane	5.05	0.00
3-Pane	0.00	0.00
R-10	0.00	0.00
Slope(DD)	-495.99	1.708
Curve(DDS)	12.125	0.312

Heating Load

Washington DC WYEC MApartment Prototype Siding Series Two

Heating Load				Cooling Load			
Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)	Delta Component (MBtu)	Delta Component (/sf)	Delta Component (KBtu)	Delta Component (/sf)
Ceiling		Wall		Ceiling		Wall	
R-0	.00	R-0	23.11	R-0	.00	R-0	.00
R-7	-9.65	R-7	-3.96	R-7	-2.39	R-7	-2.39
R-11	-11.19	R-11	7.36	R-11	-2.77	R-11	-2.77
R-19	-12.67	R-13	8.85	R-19	-3.11	R-13	-5.3
R-22	-13.05	R-19	6.86	R-22	-3.22	R-19	-6.0
R-30	-13.69	R-27	5.87	R-30	-3.36	R-27	-6.4
R-38	-14.07	R-34	4.22	R-38	-3.44	R-34	-6.7
R-49	-14.38	R-34	3.21	R-49	-3.49	R-34	-6.9
R-60	-14.58			R-60	-3.53		
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		Heated Basement		Slab		Heated Basement	
R-0	-8.39	R-0	64.52	R-0	-1.77	R-0	-1.04
R-5	-9.13	R-5	29.52	R-5	-1.74	R-5	4ft -1.18
R-5	-9.33	R-5	22.85	R-5	-1.71	R-5	8ft -1.19
R-10	-9.28	R-10	26.19	R-10	-1.73	R-10	4ft -1.23
R-10	-9.54	R-10	16.02	R-10	-1.69	R-10	8ft -1.24
Intercept	-2.191	Intercept	.000	Intercept	-9.684	Intercept	.000
Slope(DD)	5257.64	Slope(DD)	3490.84	Slope(DD)	-1212.12	Slope(DD)	128.66
Curve(DDS)	-41.616	Curve(DDS)	-19.712	Curve(DDS)	57.039	Curve(DDS)	1.748
Unheated Basement		Crawl		Unheated Basement		Crawl	
R-0	-6.73	R-0	16.70	R-0	-1.04	R-0	.00
R-11	-8.90	R-11	3.30	R-11	-1.19	R-11	fir .63
R-19	-9.66	R-19	1.14	R-19	.08	R-19	fir .74
R-30	-10.16	R-30	-1.13	R-30	.21	R-30	fir .82
		R-38	-1.42			R-38	fir .84
		R-49	-1.28			R-49	fir .89
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)	78.378	Curve(DDS)	10.134
Infiltration		Window U-value		Infiltration		Window U-value	
ELF Ach		ELF Ach		ELF Ach		ELF Ach	
.0007(.83)	.00	1-Pane	96.07	.0007(.48)	.00	1-Pane	.00
.0005(.58)	-4.92	2-Pane	38.40	.0005(.34)	-.47	2-Pane	.06
.0003(.35)	-9.38	3-Pane	24.02	.0003(.20)	-.96	3-Pane	.22
		R-10	7.11			R-10	.42
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
 Typical Load = 14.55 MBtu
 Residual Load = 1.28 MBtu

Base Load = 16.97 MBtu
 Typical Load = 11.29 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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 -1.18 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

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 -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

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			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	.64	8.22	R-0	.37	5.22
R-5	-5.89	2.41	R-5	-3.66	1.63
R-10	-7.99	.54	R-10	-5.07	.37
R-15	-8.88	-.25	R-15	-5.69	-.18
R-30	-9.73	-1.01	R-30	-6.43	-.84
Intercept	-1.051		Intercept	-.968	
Slope(DD)	1269.39		Slope(DD)	1014.17	
Curve(DDS)	24.274		Curve(DDS)	-8.080	
120 lb Mass Wall			120 lb Mass Wall		
R-0	.15	7.79	R-0	.15	5.02
R-5	-6.11	2.22	R-5	-3.84	1.47
R-10	-8.16	.39	R-10	-5.25	.21
R-15	-9.02	-.37	R-15	-5.85	-.32
R-30	-9.85	-1.11	R-30	-6.60	-.99
Intercept	-1.142		Intercept	-1.114	
Slope(DD)	1249.19		Slope(DD)	1011.53	
Curve(DDS)	20.267		Curve(DDS)	-8.695	
Log Mass Wall			Log Mass Wall		
4in	-3.04	4.95	4in	-1.66	3.41
6in	-5.88	2.42	6in	-3.23	2.01
8in	-7.16	1.28	8in	-4.07	1.26
10in	-7.81	.70	10in	-4.59	.80
12in	-8.21	.35	12in	-4.87	.55
Intercept	-.082		Intercept	-.370	
Slope(DD)	576.91		Slope(DD)	946.90	
Curve(DDS)	213.053		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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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	1-Pane	.00
2-Pane	1.19	2-Pane	-.60
3-Pane	2.23	3-Pane	-1.08

Alphas (KBtu/sf)

Beta Intercept

	North	East	South	West		
Heating	-49.219	-111.056	-196.146	-92.120	.009334	-.098980
Cooling	11.224	23.471	20.030	28.667	.096144	-.048575

Portland OR 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 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

95 lb Mass Wall
R-0 -1.56 .23
R-5 -2.71 -0.79
R-10 -2.93 -0.99
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 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

120 lb Mass Wall
R-0 -2.10 -0.25
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 -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

Log Mass Wall
4in -.94 .78
6in -1.95 -0.12
8in -2.33 -0.46
10in -2.37 -0.49
12in -2.34 -0.47
Intercept .228
Slope(DD) -647.27
Curve(DDS) 202.218

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	.76	2-Pane	-.38
3-Pane	1.44	3-Pane	-.68

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
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			Cooling Load		
Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	10.16	44.13	R-0	-1.19	-.03
R-5	-18.44	18.68	R-5	-1.81	-.58
R-10	-28.72	9.53	R-10	-1.94	-.70
R-15	-33.14	5.60	R-15	-1.98	-.73
R-30	-38.54	.79	R-30	-2.05	-.80
Intercept		-.268	Intercept		-.700
Slope(DD)	7436.37		Slope(DD)	47.76	
Curve(DDS)	-79.697		Curve(DDS)	9.100	
120 lb Mass Wall			120 lb Mass Wall		
R-0	9.71	43.73	R-0	-1.50	-.31
R-5	-18.65	18.49	R-5	-1.99	-.74
R-10	-28.87	9.40	R-10	-2.08	-.82
R-15	-33.27	5.48	R-15	-2.10	-.84
R-30	-38.66	.69	R-30	-2.15	-.88
Intercept		-.357	Intercept		-.768
Slope(DD)	7419.54		Slope(DD)	20.06	
Curve(DDS)	-83.523		Curve(DDS)	8.886	
Log Mass Wall			Log Mass Wall		
4in	-10.47	25.77	4in	-.69	.42
6in	-20.72	16.65	6in	-1.29	-.12
8in	-26.15	11.82	8in	-1.50	-.31
10in	-29.47	8.86	10in	-1.52	-.32
12in	-31.71	6.87	12in	-1.49	-.30
Intercept		.741	Intercept		.182
Slope(DD)	6738.45		Slope(DD)	-433.80	
Curve(DDS)	97.630		Curve(DDS)	126.985	

Window Solar Gain

Deltas for Average Window Orientations (MBtu)

1-Pane	.00	1-Pane	.00
2-Pane	1.12	2-Pane	-.28
3-Pane	2.08	3-Pane	-.49

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Heating Load			Cooling Load		
Delta Component (MBtu) (KBtu)			Delta Component (MBtu) (KBtu)		
95 lb Mass Wall			95 lb Mass Wall		
R-0	-.98	5.29	R-0	.95	11.50
R-5	-6.05	.77	R-5	-7.21	4.24
R-10	-7.56	-.57	R-10	-10.14	1.63
R-15	-8.17	-1.11	R-15	-11.37	.54
R-30	-8.67	-1.56	R-30	-12.93	-.85
Intercept	-1.441		Intercept	-1.059	
Slope(DD)	775.96		Slope(DD)	2109.48	
Curve(DDS)	39.528		Curve(DDS)	-21.602	
120 lb Mass Wall			120 lb Mass Wall		
R-0	-1.63	4.71	R-0	.44	11.05
R-5	-6.32	.53	R-5	-7.63	3.86
R-10	-7.74	-.73	R-10	-10.41	1.39
R-15	-8.33	-1.26	R-15	-11.62	.31
R-30	-8.80	-1.67	R-30	-13.16	-1.06
Intercept	-1.535		Intercept	-1.180	
Slope(DD)	751.91		Slope(DD)	2019.72	
Curve(DDS)	33.296		Curve(DDS)	-15.621	
Log Mass Wall			Log Mass Wall		
4in	-3.04	3.45	4in	-3.56	7.49
6in	-5.73	1.06	6in	-7.02	4.41
8in	-6.76	.14	8in	-8.75	2.87
10in	-7.14	-.20	10in	-9.67	2.05
12in	-7.36	-.39	12in	-10.23	1.55
Intercept	.312		Intercept	.433	
Slope(DD)	-500.55		Slope(DD)	1323.93	
Curve(DDS)	352.432		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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Omaha NB

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 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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	9.35	45.37	R-0	-1.58	.65
R-5	-18.92	20.22	R-5	-3.00	-.61
R-10	-29.78	10.55	R-10	-3.33	-.90
R-15	-34.49	6.36	R-15	-3.46	-1.02
R-30	-40.28	1.21	R-30	-3.68	-1.22
Intercept		-.159	Intercept		-1.079
Slope(DD)	8205.13		Slope(DD)	186.76	
Curve(DDS)	-160.688		Curve(DDS)	13.104	
120 lb Mass Wall			120 lb Mass Wall		
R-0	9.08	45.13	R-0	-2.06	.23
R-5	-19.07	20.08	R-5	-3.25	-.83
R-10	-29.90	10.44	R-10	-3.56	-1.11
R-15	-34.60	6.26	R-15	-3.64	-1.18
R-30	-40.40	1.10	R-30	-3.77	-1.30
Intercept		-.258	Intercept		-1.137
Slope(DD)	8205.25		Slope(DD)	122.47	
Curve(DDS)	-163.512		Curve(DDS)	14.873	
Log Mass Wall			Log Mass Wall		
4in	-11.20	27.09	4in	-1.07	1.11
6in	-21.53	17.89	6in	-2.13	.16
8in	-27.16	12.88	8in	-2.55	-.21
10in	-30.69	9.74	10in	-2.65	-.30
12in	-33.09	7.61	12in	-2.68	-.33
Intercept		.605	Intercept		.133
Slope(DD)	7660.85		Slope(DD)	-404.78	
Curve(DDS)	-26.648		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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 -.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

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 -.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

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

Heating Load			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	3.86	17.91	R-0	-.09	4.08
R-5	-8.04	7.32	R-5	-3.23	1.28
R-10	-12.25	3.57	R-10	-4.34	.30
R-15	-14.05	1.97	R-15	-4.85	-.16
R-30	-16.20	.06	R-30	-5.45	-.69
Intercept		-.331	Intercept		-.774
Slope(DD)	2977.06		Slope(DD)	828.20	
Curve(DDS)	-21.581		Curve(DDS)	-10.110	
120 lb Mass Wall			120 lb Mass Wall		
R-0	3.57	17.65	R-0	-.28	3.91
R-5	-8.22	7.16	R-5	-3.41	1.12
R-10	-12.37	3.47	R-10	-4.53	.13
R-15	-14.16	1.87	R-15	-5.00	-.29
R-30	-16.29	-.02	R-30	-5.66	-.88
Intercept		-.383	Intercept		-.953
Slope(DD)	2943.29		Slope(DD)	841.06	
Curve(DDS)	-20.923		Curve(DDS)	-11.748	
Log Mass Wall			Log Mass Wall		
4in	-4.44	10.52	4in	-1.56	2.77
6in	-8.80	6.64	6in	-2.94	1.54
8in	-11.11	4.59	8in	-3.60	.95
10in	-12.51	3.34	10in	-4.02	.58
12in	-13.42	2.53	12in	-4.26	.37
Intercept		-.015	Intercept		-.224
Slope(DD)	2756.54		Slope(DD)	649.22	
Curve(DDS)	58.555		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

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)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

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 .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

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 -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

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)				Beta	Intercept
	North	East	South	West		
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 MO 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 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

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 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

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 -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

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

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	1-Pane	.00
2-Pane	1.07	2-Pane	-.01
3-Pane	1.99	3-Pane	-.01

	Alphas (KBtu/sf)				Beta	Intercept
	North	East	South	West		
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

Heating Load

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 -.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

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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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	1-Pane	.00
2-Pane	1.27	2-Pane	-.32
3-Pane	2.36	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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 .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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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		
Heating	-37.613	-74.980	-139.005	-69.295	.008024	-.072823
Cooling	17.544	31.802	28.050	34.602	.021287	-.090338

Heating Load			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	9.28	43.79	R-0	-1.55	-.23
R-5	-19.46	18.22	R-5	-2.13	-.74
R-10	-29.71	9.09	R-10	-2.21	-.82
R-15	-34.11	5.18	R-15	-2.24	-.84
R-30	-39.47	.41	R-30	-2.26	-.86
Intercept		-.550	Intercept		-.716
Slope(DD)	7364.60		Slope(DD)		-7.81
Curve(DDS)	-69.619		Curve(DDS)		13.617
120 lb Mass Wall			120 lb Mass Wall		
R-0	8.70	43.28	R-0	-1.88	-.52
R-5	-19.72	17.98	R-5	-2.27	-.87
R-10	-29.92	8.91	R-10	-2.33	-.92
R-15	-34.29	5.02	R-15	-2.35	-.94
R-30	-39.61	.28	R-30	-2.35	-.94
Intercept		-.662	Intercept		-.799
Slope(DD)	7339.98		Slope(DD)		-9.86
Curve(DDS)	-74.163		Curve(DDS)		9.718
Log Mass Wall			Log Mass Wall		
4in	-11.00	25.74	4in	-.87	.38
6in	-21.53	16.37	6in	-1.59	-.26
8in	-27.00	11.51	8in	-1.75	-.41
10in	-30.28	8.59	10in	-1.74	-.40
12in	-32.47	6.64	12in	-1.70	-.36
Intercept		1.024	Intercept		.446
Slope(DD)	6289.74		Slope(DD)		-707.48
Curve(DDS)	191.654		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			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	10.53	45.34	R-0	-1.14	.22
R-5	-18.58	19.44	R-5	-1.87	-.43
R-10	-29.16	10.02	R-10	-2.06	-.59
R-15	-33.73	5.96	R-15	-2.13	-.66
R-30	-39.31	.99	R-30	-2.25	-.76
Intercept		-.169	Intercept		-.684
Slope(DD)	7726.31		Slope(DD)	112.61	
Curve(DDS)	-96.298		Curve(DDS)	5.208	
120 lb Mass Wall			120 lb Mass Wall		
R-0	10.17	45.02	R-0	-1.43	-.03
R-5	-18.77	19.27	R-5	-2.03	-.57
R-10	-29.31	9.89	R-10	-2.19	-.71
R-15	-33.85	5.85	R-15	-2.26	-.77
R-30	-39.42	.89	R-30	-2.31	-.82
Intercept		-.247	Intercept		-.728
Slope(DD)	7702.96		Slope(DD)	75.47	
Curve(DDS)	-97.826		Curve(DDS)	6.204	
Log Mass Wall			Log Mass Wall		
4in	-10.63	26.51	4in	-.71	.61
6in	-21.01	17.27	6in	-1.37	.02
8in	-26.56	12.34	8in	-1.62	-.20
10in	-29.99	9.28	10in	-1.66	-.24
12in	-32.30	7.23	12in	-1.68	-.26
Intercept		.725	Intercept		.101
Slope(DD)	7115.79		Slope(DD)	-313.41	
Curve(DDS)	56.936		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

Cooling Load

Delta Component
(MBtu) (KBtu)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

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 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

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 -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

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	1-Pane	.00
2-Pane	.89	2-Pane	-.32
3-Pane	1.65	3-Pane	-.57

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
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			Cooling Load		
Delta Component			Delta Component		
	(MBtu)	(KBtu)		(MBtu)	(KBtu)
95 lb Mass Wall			95 lb Mass Wall		
R-0	-.12	3.17	R-0	.55	5.55
R-5	-3.00	.61	R-5	-3.94	1.55
R-10	-3.85	-.15	R-10	-5.59	.08
R-15	-4.21	-.47	R-15	-6.24	-.50
R-30	-4.52	-.74	R-30	-7.01	-1.18
Intercept		-.710	Intercept		-1.391
Slope(DD)		461.04	Slope(DD)		1110.99
Curve(DDS)		20.259	Curve(DDS)		-6.258

120 lb Mass Wall			120 lb Mass Wall		
R-0	-.44	2.89	R-0	.36	5.38
R-5	-3.14	.48	R-5	-4.17	1.35
R-10	-3.96	-.25	R-10	-5.78	-.09
R-15	-4.30	-.55	R-15	-6.47	-.70
R-30	-4.60	-.81	R-30	-7.26	-1.40
Intercept		-.773	Intercept		-1.611
Slope(DD)		451.18	Slope(DD)		1124.18
Curve(DDS)		17.241	Curve(DDS)		-7.138

Log Mass Wall			Log Mass Wall		
4in	-1.51	1.93	4in	-1.87	3.39
6in	-2.87	.72	6in	-3.47	1.97
8in	-3.47	.19	8in	-4.47	1.08
10in	-3.76	-.07	10in	-5.06	.55
12in	-3.95	-.24	12in	-5.45	.21
Intercept		-.408	Intercept		-1.315
Slope(DD)		210.06	Slope(DD)		1461.57
Curve(DDS)		111.361	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

Cooling Load

Delta Component
(MBtu) (KBtu)

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	

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	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	

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	-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	

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)

Beta Intercept

	North	East	South	West		
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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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	1-Pane	.00
2-Pane	1.08	2-Pane	-.54
3-Pane	2.02	3-Pane	-.97

Alphas (KBtu/sf)

	North	East	South	West	Beta	Intercept
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	1-Pane	.00
2-Pane	1.28	2-Pane	-.42
3-Pane	2.37	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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 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

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 -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

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

Atlanta GA

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 -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

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 -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

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 -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

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	1-Pane	.00
2-Pane	.57	2-Pane	-.73
3-Pane	1.08	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

Cooling Load

Delta Component
(MBtu) (KBtu)

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

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 2.98 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

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 -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

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 an utility program and reduced to a DOE-2 readable input file with the selected parametric inputs and necessary foundation flux data.

\$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 \$ GLSCOEFF=1.0
 \$.7 Shading Coefficient \$ GLSCOEFF=0.7
 \$.4 Shading Coefficient \$ GLSCOEFF=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=GLSCOEF
                  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 ..
$Bsmnt concrete floor$ 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
$FM0 Bsmt $ LAYERS=ROBWALL ..
$FM1 Bsmt $ LAYERS=R5BWALL ..
$FM2 Bsmt $ LAYERS=R10BWALL ..
$FM3 Bsmt $ LAYERS=R5BWALL ..
$FM4 Bsmt $ LAYERS=R10BWALL ..
$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 ..
SURROUNDS 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*) ..
$Bsmnt $ INTERFLR INTERIOR-WALL $ Floor bet Theroom and Basement
$Bsmnt $ TILT=180 CONSTRUCTION=FLRCON
$Bsmnt $ 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*) ..
$SpltSlab $ MIDFND UNDERGROUND-WALL $ Vertical concrete wall
$SpltSlab $ HEIGHT=3.0 WIDTH=28
$SpltSlab $ U-EFFECTIVE=FDNUEFF
$SpltSlab $ CONSTRUCTION=BWALL2CON ..
$SpltBsmnt $ MIDFND INTERIOR-WALL $ Vertical wall next to basement
$SpltBsmnt $ HEIGHT=3.0 WIDTH=28 NEXT-TO=BASEMENT
$SpltBsmnt $ 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

```

$Bsmnt $          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*, *CRAWLINFIL*)
$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 INFIL1=CFMINF ..
$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 ..
$Bsmnt $ 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=HCAFP
$Furn $ FURNACE-AUX=0.
$Furn $ FURNACE-HIR=FHIR $ duct losses in FHIR already
..
RESIDEN SYSTEM SYSTEM-TYPE=RESYS
$Slab $ ZONE-NAMES=( THEROOM)
$Bsmnt $ 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 $ GLSCOEFF=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-COEF=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=WALLL ..
* 80 * ROOFCON CONSTRUCTION $ Roof section, with joist
* 81 * LAYERS=ROOFL ..
* 82 * IWALLCON CONSTRUCTION $ Interior walls
* 83 * LAYERS=iwalll ..
* 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 * $0ne St$   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=IDOY 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) ..

```


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 * $$lab $  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 ..

```