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Systems Level Plan for Solar Heating and Cooling
Commercial Buildings
National Solar Demonstration Program

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APPENDIX A

MATRIX SCREENING PROGRAM

DOCUMENTATION

SITE SELECTION ALGORITHMS
FOR
SOLAR HEATING & COOLING PROJECT

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TABLE OF CONTENTS, APPENDIX A.a

MATRIX SCREENING PROGRAM

a. DOCUMENTATION

CONTENTS

I. Program Function	1
II. Program Structure	1
III. Specifications for Input Data	3
IV. Description of Calculations Performed	5
V. Output Formats and Lists	7
VI. Brief Program Outline	10

APPENDICES

Appendix 1	Storage Map	13
Appendix 2	Source Program Outline and Source Program Listings	19

FIGURES

Figure 1	Functional Structure of Matrix Screening Program	2
Figure 2	Sample Input List	4
Figure 3	Sample Printout in Matrix Format	8
Figure 4	Sample Printout in List Format	9
Figure 5	Storage Locations Shared by Main Program and Subroutines	14

TABLES

Table 1	Other Arrays Used, Their Dimensions and Usage	15
Table 2	First Subscript of Data Array ARRAY	16
Table 3	Second Subscript of Data Array ARRAY	17
Table 4	Third Subscript of Data Array ARRAY	18

I. PROGRAM FUNCTION

The Matrix ranking program provides and exercises a site selection algorithm for Task I and II in the solar energy project. This program performs a series of calculations including the economic savings and fuel savings for a matrix of building types and climate regions. The results are presented both as a series of matrices and as sorted lists.

II. PROGRAM STRUCTURE

This program consists of a main program and three levels of subroutines as illustrated in Figure 1. The following is a brief description of the subroutine functions.

RDINPT:	read input data and store in data array ARRAY.
LOOKUP:	part of the read routine.
ELMINP:	read in a single number and store it for each of the 144 Region/Building locations in ARRAY.
REGINP:	read in 12 numbers that are region dependent and store them in ARRAY building-wise.
BLDINP:	read in 12 numbers that are building dependent and store them in ARRAY region-wise.
MTXINP:	read in 144 numbers and store them in ARRAY.
CALC* :	perform the calculations that relate only to a single Region/Building location and store the results in ARRAY.
SORT:	build a sorted index array for a region, a building, or an entire matrix.
KSORT1:	sort a given array in descending order using an index array.
SPLIT1:	part of the sort routine.
MPRNT_n(n=1,2,...,9,A,B,C):	print a matrix chart including required headings and labels.
BPRINT:	print the matrix portion of a matrix chart.
LPRNT1:	print a list of sorted items.

* Calculations which are not performed in CALC(such as, sum by region, sum by building type, etc.) are done in main program.

Fig. 1 Functional Structure of Matrix Screening Program

III. SPECIFICATION OF INPUT DATA

All input data items are read in by subroutine RDINPT. A sample input list is given in Figure 2. In addition, the following list gives a brief explanation of the organization and usage of the data sets.

Card No.	Items*	Format
1	'CONT'	A4
1	'END'	A4
1	'MESS'	A4
2,3	Messages	10A4
1	'PRNT'	A4
2	Integer Numbers	20I4
1	'LIST'	A4
2	Integer Numbers	3I4
1	INPTNM, FLAG	A4, A1
2	Single data item	F8.2
2,3	12 Data Items	10F8.2/2F8.2
2-26	144 Data Items	12 (10F8.2/2F8.2)

- * 'CONT' - Stop reading, perform calculations and print results for the data that has been read in. Then continue reading. Only those items which change need be read in before the next continue card.
- 'END' - Indicates the end of the data file.
- 'MESS' - Indicates the next two cards contain messages for header.
- 'PRNT' - Indicates which matrix chart(s) should be printed. Enter only the code numbers for the reports desired. See section V for code numbers.
- 'LIST' - Indicates how many items to be printed in each list. See Section V.
- INPTNM - A name to identify the following data set. The names used are: 'ISWT', 'KH', 'CVCO', 'AB', 'CLCO', 'PCTL', 'FLAR', 'NOFL', 'DC', 'KC', 'H', 'F1', 'F2', 'W', 'HTLD', 'PCTC', 'CLLD', 'COP', 'ELCO'.
- FLAG - A flag to indicate that the data set consists of: (1) a single element, 'E'; (2) 12 elements which are building dependent, 'B'; (3) 12 elements which are region dependent, 'R'; (4) 144 elements, 'M'.

ISATE	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
UM	5634.	4211.	2621.	3944.	7863.	6218.	8851.	2819.	2040.	5145.
214.	2033.									
KH	18.00	20.00	18.00	18.00	75.00	15.00	30.00	13.00	29.00	12.00
15.00	15.00									
CVCOR	16.75	13.41	9.23	10.37	12.99	10.12	8.74	12.22	20.72	6.19
13.17	10.96									
ELCOR	16.75	13.41	9.23	10.37	12.99	10.12	8.74	12.22	20.72	6.19
13.17	10.96									
CUP	3.00									
CLCOR	1.									
FLARM	1230.2	571.2	219.8	329.1	446.5	199.6	233.1	433.5	22.5	66.0
24.5	374.0									
90.7	58.3	15.6	23.3	31.6	14.2	16.5	30.7	5.8	4.7	

CONT	1.	2.	3.	6.	7.	9.	11.	12.
MESS								
HEATING & COOLING/ GAS AS CONV. FUEL								
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD								
CVCOR	2.63	2.57	1.59	1.87	2.22	1.63	2.14	1.92
2.58	1.96							
CLCOR	1.							
PRNT								
CONT								
MESS								
HEATING & COOLING/ GAS AS CONV. FUEL								
SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD								
CLCOR	2.							
PRNT								
CONT								
MESS								

FIGURE 2 SAMPLE INPUT LIST

Although the data sets may be organized in any order, the elements within each data set must be arranged according to the preset Region/Building order shown below.

<u>Order</u>	<u>Region</u>	<u>Building</u>
1	Boston, Mass.	Office Building
2	Wash.DC/ New York NY	Retail Supermarket
3	Ft. Worth, Texas	Medical Institution
4	Nashville, Tenn.	Educational
5	Madison, Wis.	Restaurant
6	Omaha, Nebr.	Shopping Center
7	Bismarck, N.D.	Single Store & Serv. Stat.
8	L.A., Calif.	Library/Museum
9	Phoenix, Arizona	Religious/Recreational
10	Seattle, Wash.	Hotel
11	Miami, Florida	Motel/Nursing home
12	Charleston, S.C.	Warehouse

For matrix inputs, the elements must be on 12 pairs of cards. Each pair contains the data for the 12 regions in the above order. Each pair represents a single building type and the pairs must follow the above order.

IV. DESCRIPTION OF CALCULATIONS PERFORMED

1. Formulae Used for Calculating Cost Savings:

$$(1) \quad \text{CSTDIF} = \text{CVEGCS} - \text{SLEGCS}$$

where

CSTDIF - Cost savings (\$/Ft²)

CVEGCS - Conventional energy cost factor (\$/Ft² of bldg.)

SLEGCS - Solar energy cost factor (\$/Ft² of bldg.)

$$(1a) \quad \text{CVEGCS} = \text{HTLOAD} \times \text{CVCOST} + (\text{ELCOST}/\text{COP}) \times \text{CLLOAD}$$

where

HTLOAD - Heating load (MBTU/Ft²)

CVCOST - Conventional energy cost (\$/MBTU)

ELCOST - Electrical energy cost (\$/MBTU)

COP - Coefficient of performance for conventional cooling system.

CLLOAD - Cooling load (MBTU/Ft²)

$$(1b) \quad SLEGCS = SLCOST \times HTLOAD \times PCTLOD + CVCOST \times HTLOAD \times (1.0 - PCTLOD + SLCOST) \times CLLOAD \times PCTC + (ELCOST/COP) \times CLLOAD \times (1.0 - PCTC)$$

where

SLEGCS - solar energy cost factor (\$/Ft²)

PCTLOD - fraction of building heat load supplied by solar

SLCOST - solar energy cost (\$/MBTU)

PCTC - fraction of building cooling load supplied by solar

$$(1bb) \quad SLCOST = CLCOST/AB$$

where

CLCOST - annualized system installed cost (\$/Ft² of collector)

AB - usable solar MBTU available/Ft² of collector

2. Formula Used for Calculating Total Energy Savings:

$$(2) \quad TENGSV = (HTLOAD \times PCTLOD + CLLOAD \times PCTC) \times FLAREA$$

where

TENGSV - total energy savings (million MBTU)

FLAREA - regional building inventory (Ft²/building type)

3. Formula Used for Calculating Collector Area/Roof Area

$$(3) \quad CAVSRA = (HTLOAD \times PCTLOD + CLLOAD \times PCTC) \times NOFLRS/AB$$

where

CAVSRA - collector area/roof area

NOFLRS - number of floors on building

4. Other Calculations:

$$(4a) \quad NCSTSV = CSTDIF \times FLAREA$$

where

NCSTSV - national cost savings (million \$)

$$(4b) \quad BARS AV = AB \times 10^{-3} \times 15/1.9$$

where

BARS AV - barrels of oil saved/Ft² of coll./15 years

$$(4c) \quad SLVSCV = SLCOST/CVCOST$$

where

SLVSCV - cost ratio of solar vs conventional

V. OUTPUT FORMAT

1. Format of Matrix Printout:

An example of the matrix printout is shown in Figure 3. Note that data appearing above, below or to the left of the matrix portion is optional.

The order in which the regions or building types appear in the printout can be rearranged simply by changing the index arrays IREG1 & IBLD1 in the BLOCK DATA section.

The user may select which reports are printed by including a 'PRNT' card followed by a list of the code numbers for the desired reports. If no 'PRNT' card is read, all reports will print. The sequence of the matrix printouts cannot be changed.

2. Format of Sorted List:

An example of a portion of the sorted list is shown in Figure 4. The number of elements to be printed out for each of the three lists is specified following a 'LIST' card. The first number is for ranking by cost savings; the second for ranking by collector area. The third for ranking by total energy savings. If the number is specified as 0, the entire list will be omitted. If no 'LIST' card is read, all lists will be omitted.

3. Output List:

Code # Matrix printout ---

1	o	building load
2	o	conventional energy cost factor
3	o	solar energy cost factor
4	o	solar cost (for heating and cooling)
5	o	energy required
6	o	cost ratio of solar vs. conventional (for heating and cooling)
7	o	cost difference of conventional from solar
8	o	quantized value from cost comparison
9	o	national cost savings
10	o	barrels of oil saved/ft ² /15 yrs. (for heating and cooling)
11	o	collector area/roof area
12	o	total energy savings

List # Sorted lists ---

1	o	ranking by cost savings
2	o	ranking by collector areas
3	o	ranking by total energy savings

		REGION													
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTM TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.		
SUM (BY BLDG)															
BUILDING TYPE	HOTEL	52.15	0.92	0.85	2.41	3.94	3.50	3.89	2.67	6.79	3.73	6.50	16.51	0.43	
	LIBRARIES - MUSEUM	31.61	0.59	0.49	1.48	2.51	2.04	2.40	1.55	4.15	2.19	3.80	10.05	0.39	
	SHOPPING- CENTER	95.40	1.98	1.51	4.55	7.55	5.81	7.55	4.74	13.12	6.55	11.52	29.43	1.08	
	HOTEL & HOUSING HOME	342.95	6.79	5.78	16.64	26.72	25.50	25.45	17.53	44.99	23.49	41.30	104.34	4.41	
	WAREHOUSES	355.51	28.70	5.74	15.57	5.25	19.60	26.53	19.11	47.53	27.86	47.61	107.77	4.04	
	OFFICE - BUILDING	585.50	11.67	10.38	27.94	44.22	38.56	43.82	30.49	77.73	42.15	73.22	178.27	7.06	
	MEDICAL- INSTITUTION	202.60	3.34	3.00	9.35	15.98	14.47	15.19	9.82	26.11	13.62	24.18	65.76	2.71	
	EDUCATIONAL	679.42	11.24	10.32	29.97	48.01	42.04	50.30	35.44	88.66	51.20	88.73	215.05	8.47	
	RELIGIOUS & RECREATIONAL	327.42	4.59	4.13	18.40	23.82	18.78	23.52	16.08	40.33	24.16	41.25	108.19	4.08	
	RETAIL- SUPERMARKET	50.11	0.93	0.74	2.24	3.60	3.07	3.63	2.43	9.17	3.34	5.84	14.50	0.57	
SINGLE STORE & SERV. STAT.	997.00	18.46	16.89	45.37	72.00	64.35	69.55	40.28	148.99	68.13	118.35	311.44	14.19		
RESTAURANT	244.35	3.85	3.41	10.85	18.37	14.71	17.95	12.21	30.82	16.31	31.36	81.45	3.06		
SUM (BY REG) =		93.96	62.27	184.60	271.97	252.43	289.76	201.35	538.40	282.78	493.85	1242.76	50.49		
TOTAL =		3965.02													

ENERGY REQUIRED (MILLION MBTU)

HEATING & COOLING/ELEC AS CONV. FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

FIGURE 3

SAMPLE PRINTOUT IN MATRIX FORMAT

RANKING BY COST SAVINGS
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

1	PHOENIX : SINGLE STORES SERV.STAT. :	0.484
2	PHOENIX : MEDICAL- INSTITUTION :	0.346
3	PHOENIX : RETAIL- SUPERMARKET :	0.336
4	PHOENIX : MOTEL & NURSING HOME :	0.332
5	PHOENIX : OFFICE - BUILDING :	0.309
6	PHOENIX : SHOPPING- CENTER :	0.239
7	FT.WRTH : MOTEL & NURSING HOME :	0.227
8	FT.WRTH : RETAIL- SUPERMARKET :	0.206
9	FT.WRTH : MEDICAL- INSTITUTION :	0.203
10	CHAPL. : SHOPPING- CENTER :	0.199
11	PHOENIX : EDUCATIONAL :	0.197
12	PHOENIX : LIBRARIES - MUSEUM :	0.195
13	FT.WRTH : OFFICE - BUILDING :	0.180
14	FT.WRTH : RELIGIOUS & RECREATIONAL :	0.180
15	PHOENIX : RELIGIOUS & RECREATIONAL :	0.177
16	PHOENIX : HOTEL :	0.174
17	FT.WRTH : SHOPPING- CENTER :	0.171
18	FT.WRTH : MOTEL :	0.162
19	FT.WRTH : LIBRARIES - MUSEUM :	0.162
20	PHOENIX : WAREHOUSES :	0.161
21	FT.WRTH : EDUCATIONAL :	0.154
22	FT.WRTH : WAREHOUSES :	0.147
23	CHAPL. : RETAIL- SUPERMARKET :	0.125
24	CHAPL. : MOTEL & NURSING HOME :	0.124
25	CHAPL. : RELIGIOUS & RECREATIONAL :	0.106

FIGURE 4 SAMPLE PRINTOUT IN LIST FORMAT

VI. BRIEF PROGRAM OUTLINE

1. Main Program:

- o Perform the following until an 'END' card is read, then terminate.
- o Call RDINPT to read input data and store them in data array ARRAY.
- o Call CALC to perform calculations for each cell and store the results in data array ARRAY.
- o Perform other calculations:
 - calculate sum of energy required by region
 - calculate sum of energy required by building
 - calculate total energy required
 - calculate quantized values from cost comparison.
- o Call SORT to sort the results, such as cost savings, total energy savings, etc., in descending order.
- o Call MPRNTn, where $n=1,2,3,\dots,9,A,B,C$, to print the results in matrix format.
- o Call LPRNT1 to print lists of sorted elements.

2. Subroutines RDINPT & LOOKUP

- o Read in the first card of the data set, containing a name and a flag.
- o Call subroutine LOOKUP to identify the name read and take proper action.
- o If the name is for a data set, identify the storage location in data array ARRAY for the data set and the manner in which the data should be stored.
- o Call one of the four subroutines (ELMINP, REGINP, BLDINP and MTXINP) to read in the data set and store it in data array ARRAY.

3. Subroutine ELMINP:

- o Read in a single number and echo print the number.
- o Store it for each of the 144 Region/Building locations in ARRAY.

4. Subroutine REGINP:

- o Read in 12 numbers that are region dependent and echo print the 12 numbers.
- o Store them in ARRAY building-wise.

5. Subroutine BLDINP:

- o Read in 12 numbers that are building dependent and also print the 12 numbers.
- o Store them in ARRAY region-wise.

6. Subroutine MTXINP:
 - o Read in 144 numbers directly into ARRAY.
 - o Echo print the 144 numbers.
7. Subroutine CALC:
 - o Calculate building load (MBTU/ft²).
 - o Calculate conventional energy cost factor (\$/ft² of building).
 - o Calculate solar cost (\$/MBTU).
 - o Calculate solar energy cost factor (\$/ft² of building).
 - o Calculate energy required (Million MBTU).
 - o Calculate cost ratio of solar vs. conventional.
 - o Calculate cost difference of conventional from solar.
 - o Calculate national cost savings (million \$).
 - o Calculate collector area/roof area.
 - o Calculate barrels of oil saved/ft²/15 yrs.
 - o Calculate total energy savings.
8. Subroutine SORT:
 - o Build an index array
 - o Call KSORT1 to sort the data
 - o Obtain a sorted index array.
9. Subroutine KSORT1, SPLIT1:
 - o Split the array
 - o Sort upper half
 - o Sort bottom half.
10. Subroutine MPRNTn, n=1,2,3,...,9,A,B,C:
 - o Print names of states and cities in two top rows.
 - o Print optional array(s) of data and label(s) above the matrix portion.
 - o Call BPRINT to print the matrix portion.
 - o Print optional array(s) of data and label(s) below the matrix portion.
 - o Print header and MESSAG
11. Subroutine BPRINT:
 - o Print the matrix portion of the matrix chart. This portion includes: the side header "BUILDING TYPE", names of building types, one additional array which is building dependent (optional), and the 12 by 12 matrix.

12.

Subroutine LPRINT1:

- o Print the header and MESSAG
- o Print a list of sorted elements. Each row on the list contains the rank number, the city name, the building type and the numerical value associated with this element.

Most input and output data are stored in ARRAY (36,12,12).

The ARRAY in main memory can be pictured as follows:

The detailed data organization in ARRAY is given in TABLE 2, 3, and 4. Other arrays, their dimensions and usage are listed in TABLE 1.

The storage locations shared by main program and subroutines are shown in Figure 5.

PROGRAM MODULE ARRAY	MAIN	ELMINP	MTXINP	BLDINP	REGINP	SORT	CALC	MPRNTn	BPRINT	LPRNT1	BLOCK DATA	RDINPT
ARRAY	X	X	X	X	X			X	X	X		
SUMREG	X							X				
SUMBLD	X							X				
IREG 1	X							X	X		X	
IBLD 1	X							X	X		X	
ILIST 1	X					X						
ILIST 2	X					X						
ILIST 3	X					X						
MESSAG	X							X		X		X
IHEAD		X	X	X	X						X	
ICITY								X		X	X	
ISTATE								X		X	X	
IBLDTP									X	X	X	
ILABLE								X		X	X	
INAME									X	X	X	
INDEX	X											X
NOUT	X											X

Fig. 5 Storage Locations Shared by
Main Program and Subroutines

TABLE 1 OTHER ARRAYS

<u>NAME & DIMENSION</u>	<u>USAGE</u>
IREG1 (12)	index array of climate regions for matrix printing
IBLD1 (12)	index array of building types for matrix printing
ILIST1 (144)	index array for sorted list
ILIST2 (144)	index array for sorted list
ILIST3 (144)	index array for sorted list
SUMREG (12)	sum of energy required by regions
SUMBLD (12)	sum of energy required by building types
MESSAG (20)	input messages for header
IHEAD (6,20)	labels for echo printout
DATA (12)	read input data of 12 numbers
IDUMMY (2,100)	work array needed by sort routine
ICITY (24)	names of cities
ISTATE (24)	names of states
ILABLE (9,12)	labels for data above or below matrix portion
IBLDTP (3,24)	names of building types
INAME (10,3)	header for sorted lists
ITITLE (40)	contains "BUILDING TYPE"
INDEX (20)	a flag passed on to subroutine MPRNT _n , indicating to print or not to print a particular matrix
	contains input flags to be stored in INDEX
IDATA (20)	contains names of input data sets
ITEXT (20)	contains names other than that of the data sets
IPOINT (5)	contains flags indicating regional and/or building dependence
IFLAGS (4)	
NOUT (3)	contains the number of elements to be printed on each of the sorted lists.

TABLE 2 First Subscript of Data Array ARRAY (Data, Bldg, Region)

<u>INDEX</u>	<u>ITEM</u>	<u>EXPLANATION</u>	<u>UNITS</u>	<u>DEPENDENCE</u>
1	SWITCH	heating vs heating & cooling flag		
2	D _H	heating degree-days	DD/yr	R
3	K _H	unit energy factor for heating only	BTU/ft ² /DD	B
4	CVCOST	conventional fuel cost	\$/MBTU	R
5	AB	usable BTU for PCDLOD heating load	10 ³ BTU/ft ² of coll.	R
6	CLCOST	annualized system cost	\$/ft ² of coll.	
7	PCTLOD	% load (heating)		
8	FLAREA	floor space	Ft ²	R & B
9	NOFLRS	number of floors		B
10	D _C	cooling degree-days	DD/yr	R
11	K _C	unit energy factor for cooling only	BTU/ft ² /DD	B
12	H	building elevation	Ft	R
13	F ₁	heat from outdoor in cooling season	10 ³ BTU/ft ²	B
14	F ₂	heat due to internal load in cooling season	BTU/ft ²	B
15	W	change in humidity ratio		R
16	HTLOAD	building load for heating only		R & B
17	PCTC	% load (cooling)		R & B
18	CLLOAD	building load for cooling only		R & B
19	COP	coef. of performance (cooling system)		
20	ELCOST	cost of electrical energy	\$/MBTU	R
21	SLCOST	solar cost	\$/MBTU	R for heating only; Otherwise, R&B
22	SLVSCV	ratio of solar cost to conv. cost		R for heating only; Otherwise, R&B
23	BARSAY	barrels of oil saved	Barrels/ft ² /15 yr	R for heating only; Otherwise, R&B
24	BGLOAD	building load	MBTU/ft ²	R & B
25	CVEGCS	conventional energy cost factor	\$/ft ² of bldg	R & B

TABLE 2 (Con't)

<u>INDEX</u>	<u>ITEM</u>	<u>EXPLANATION</u>	<u>UNITS</u>	<u>DEPENDENCE</u>
26	SLEGCS	solar energy cost factor	\$/ft ² of bldg	R & B
27	EGREQD	energy required	Million MBTU	R & B
28	CSTDIF	cost difference	\$/Ft ²	R & B
29	QUNDIF	quantized cost difference		R & B
30	NCSTSV	national cost savings	Million \$	R & B
31	CAVSRA	collector area/roof area		R & B
32	TENGSV	total energy savings	Million MBTU	R & B
33	SUMBLD	SUM of energy required by building type	Million MBTU	R & B
34		not used		
35		not used		
36		not used		

TABLE 3 Second Subscript of Data Array ARRAY (Data, Bldg, Region)

<u>INDEX</u>	<u>BUILDING</u>
1	Office building
2	retail supermarket
3	medical institution
4	educational institution
5	restaurant
6	shopping center
7	single store and service station
8	library - museum
9	religious - recreational
10	hotel
11	motel & nursing home
12	warehouse

TABLE 4

Third Subscript of Data Array ARRAY (Data, Bldg, Region)

<u>INDEX</u>	<u>REGIONS</u>
1	Boston/Mass.
2	Wash.D.C./NYC NY
3	Ft. Worth/Texas
4	Nashville/Tenn.
5	Madison/Wisc.
6	Omaha/Nebr.
7	Bismarck/N.D.
8	L.A./Calif.
9	Phoenix/Arizona
10	Seattle/Wash.
11	Miami/Florida
12	Charleston/S.C.

Main Program

```

COMMON/DATA/ARRAY,NITEM,NREG,NELEM,SUMREG,SUMBLD,TOTSUM
COMMON/INDX1/IREG1,IBLD1
COMMON/TEXT4/MESSAG
DIMENSION ARRAY(36,12,12),SUMREG(12),SUMBLD(12),MESSAG(20)
DIMENSION IREG1(12),IBLD1(12),ILIST1(144),ILIST2(144),ILIST3(144)
DIMENSION INDEX(20), NOUT (3)
DATA INDEX/20*1/, NOUT/3*0/
DATA SWITCH,EGREQD,CSTDIF,QUNDIF,CAVSRA,TENGSV,SUMBGD/1,27,28,
29,31,32,33/

```

C Read input data

```
CALL RDINPT(IEOF,INDEX,NOUT)
```

C IEOF - a flag indicating the end of an input file.
 C INDEX - a flag indicating an output file of the matrix format should be printed or not.
 C NOUT - a flag indicating an output file of the list format should be printed or not.

```
IHVSHC = ARRAY (SWITCH,1,1)
```

C IHVSHC - heating vs heating/cooling switch flag.

C Perform calculations for each cell

For each region

For each building type

```
CALL CALC(ARRAY (SWITCH,bldg,reg),IHVSHC)
```

C Perform other calculations

C SUM by region

```
TOTSUM=0.
```

For each region

```
SUM=0.
```

For each building type

```
SUM=SUM+ARRAY(EGREQD,bldg,reg)
```

```
SUMREG(reg)=SUM
```

```
TOTSUM=TOTSUM+SUM
```



```

C SUM by bldg. type
  For each bldg. type
    SUM=0.
    For each region
      SUM=SUM+ARRAY(EGREQD,bldg,reg.)
    SUMBLD(bldg)=SUM

C Store SUMBLD in ARRAY(SUMBGD) for later use
  For each region
    For each bldg type
      ARRAY(SUMBGD,bldg,reg)=SUMBLD(bldg)

C Find quantized values of cost comparison
  SMALL = ARRAY(CSTDIF,1,1)
  BIG   = ARRAY(CSTDIF,1,1)
  For each region
    For each bldg type
      IF ARRAY(CSTDIF,bldg,reg) > BIG,BIG=ARRAY(CSTDIF,bldg,reg)
      IF ARRAY(CSTDIF,bldg,reg) < SMALL,SMALL=ARRAY(CSTDIF,bldg,reg)

  For each region
    For each bldg type
      IQUNTZ= [(ARRAY(CSTDIF,bldg,reg)-SMALL)/(BIG-SMALL)] x 10
      ARRAY(QUNDIF,bldg,reg)=IQUNTZ

C Now do sorting.  ILIST1,2,3 are index arrays
  IELEM = NITEM

C Sorting by cost savings
  CALL SORT (ARRAY(CSTDIF,1,1),NELEM,IELEM,ILIST1)

C Sorting by collector areas
  CALL SORT (ARRAY(CAVSRA,1,1),NELEM,IELEM,ILIST2)

C Sorting by total energy savings
  CALL SORT (ARRAY(TENGSV,1,1),NELEM,IELEM,ILIST3)

C Now start printing
C Printing bldg load
  CALL MPRNT1(IHVSHC, INDEX (1))

C Printing conventional energy factor
  CALL MPRNT2(IHVSHC, INDEX (2))

C Printing solar energy cost factor
  CALL MPRNT3(IHVSHC, INDEX (3))

C For heating and cooling, printing solar cost
  IF IHVSHC=1, CALL MPRNT4(IHVSHC, INDEX (4))

C Printing energy required
  CALL MPRNT5(IHVSHC, INDEX (5))

```

```

C   For heating and cooling only, printing cost ratio
      IF IHVSHC=1 CALL MPRNT6(IHVSHC, INDEX (6))
C   Printing cost difference
      CALL MPRNT7(IHVSHC, INDEX (7))
C   Printing quantized values of cost differences
      CALL MPRNT8(IHVSHC, INDEX (8))
C   Printing national cost savings
      CALL MPRNT9(IHVSHC, INDEX (9))
C   For heating and cooling, printing barrels of oil saved in matrix
      IF IHVSHC=1 CALL MPRNTA(IHVSHC, INDEX (10))
C   Printing collector area/roof area
      CALL MPRNTB (IHVSHC, INDEX (11))
C   Printing total energy savings
      CALL MPRNTC(IHVSHC, INDEX (12))

C   Printing a list sorted by cost savings
      CALL LPRNT1 (CSTDIF, NOUT(1), ILIST1, IHVSHC)
C   Printing a list sorted by collector area
      CALL LPRNT1 (CAVSRA, NOUT(2), ILIST2, IHVSHC)
C   Printing a list sorted by total energy savings
      CALL LPRNT1 (TENGSV, NOUT(3), ILIST3, IHVSHC)

      CALL RDINPT (IEOF, INDEX, NOUT)
      Repeat the previous calculations and printings until
      the end of input file

```

```

STOP
END

```

SUBROUTINE RDINPT (IEOF, INDEX, NOUT)

C To read input data and store them in data array ARRAY. The data card deck consists of cards that contain input item names and/or flags and cards contain numerical data.

C Input item names and flags

```
DATA ITEXT/'ISWT', 'OH', 'KH', 'CVCO', 'AB', 'CLCO', 'PCTL', 'FLAR',
      'NOFL', 'DC', 'KC', 'H', 'F1', 'F2', 'W', 'HTLD', 'PCTC', 'CLLD',
      'COP', 'ELCO'/
```

```
DATA IPOINT/'END', 'CONT', 'MESS', 'PRNT', 'LIST'/
```

```
DATA IFLAGS/'E', 'R', 'B', 'M'/
```

a IF IEOF $\neq$ 1 RETURN

```
READ INPTNM, FLAG
```

```
CALL LOOKUP(INPINM, INDEX, IPOINT, NPOINT)
```

```
IF INDEX = 0, Go to b
```

```
IF INDEX=1 IEOF=-1 and RETURN
```

```
IF INDEX=2 IEOF= 0 and RETURN
```

```
IF INDEX=3 READ MESSAG and Go to a
```

```
IF INDEX=4 READ IDATA and
```

```
For I= 1, NDATA
```

```
INDEX(I)=0
```

```
For I=1, NDATA
```

```
IF IDATA(I)  $\neq$  0, INDEX(IDATA(I))=1
```

```
Go to a
```

```
IF INDEX=5 READ NOUT and Go to a
```

b

```
CALL LOOKUP (INPTNM, M, ITEXT, NTEXT)
```

```
CALL LOOKUP (FLAG, IFNUM, IFLAGS, NFLAGS)
```

```
IF IFNUM=1 CALL ELMINP(M)
```

```
IF IFNUM=2 CALL REGINP(M)
```

```
IF IFNUM=3 CALL BLDGINP(M)
```

```
IF IFNUM=4 CALL MTXINP(M)
```

```
Go to a
```

```
RETURN
```

```
END
```

SUBROUTINE LOOKUP (IVALUE, INDEX, IDICT, NDICT)

C To scan the dictionary IDICT for IVALUE and to return the location if found,
else INDEX=0.

DIMENSION IDICT(1)

INDEX=0

For I=1, NDICT

IF IVALUE= IDICT(I), INDEX=I

RETURN

END

SUBROUTINE ELMINP (M)

COMMON/DATA/ARRAY

COMMON/TEXT 3/IHEAD

DIMENSION ARRAY (36, 12, 12), IHEAD (6, 20)

READ & ECHO DATA

For each region

For each bldg type

ARRAY (M, bldg, reg) = DATA

RETURN

END

SUBROUTINE REGINP (M)

COMMON/DATA/ARRAY

COMMON/TEXT 3/IHEAD

DIMENSION ARRAY (36,12,12), IHEAD (6,20), DATA (12)

For each region

READ & ECHO DATA (region)

For each region

For each bldg type

ARRAY (M, bldg, reg) = DATA (reg)

RETURN

END

SUBROUTINE BLDINP (M)

COMMON/DATA/ARRAY

COMMON/TEXT 3/IHEAD

DIMENSION ARRAY (36, 12, 12), IHEAD (6, 20), DATA (12)

For each building type

READ & ECHO DATA (bldg)

For each region

For each bldg type

ARRAY (M, bldg, reg) = DATA (bldg)

RETURN

END

SUBROUTINE MTXINP (M)

COMMON/DATA/ARRAY

COMMON/TEXT 3/IHEAD

DIMENSION ARRAY (36,12,12), IHEAD (6,20)

For each building type.

For each region

READ & ECHO ARRAY (M, bldg, reg)

RETURN

END

SUBROUTINE CALC (A,ISWTCH)

- C This program performs all the necessary calculations and stores them in arrays.
A is ARRAY in one dimension version; ISWTCH is the heating vs heating/cooling flag.

DIMENSION A(36)

- C Assign mnemonic names to the subscript of array A

INPUT DATA

A(ISWTCH)=A(1)
A(DH) =A(2)
A(KH) =A(3)
A(CVCOST)=A(4)
A(AB) =A(5)
A(CLCOST)=A(6)
A(PCTLOD)=A(7)
A(FLAREA) =A(8)
A(NOFLRS)=A(9)
A(DC) =A(10)
A(KC) =A(11)
A(H) =A(12)
A(F1) =A(13)
A(F2) =A(14)
A(W) =A(15)
A(HTLOAD)=A(16)
A(PCTC)= A(17)
A(CLLOAD)= A(18)
A(COP)= A(19)
A(ELCOST)= A(20)

OUTPUT DATA

A(SLCOST)=A(21)
A(SLVSCV)=A(22)
A(BARSAV)=A(23)
A(BGLOAD)=A(24)
A(CVEGCS)=A(25)
A(SLEGCS) =A(26)
A(EGREQD)=A(27)
A(CSTDIF) =A(28)
A(QUNDIF)=A(29)
A(NCSTSV) =A(30)
A(CAVSRA)=A(31)
A(TENGSV)=A(32)
A(SUMBGD)=A(33)

- C Calculate building load
IF ISWTCH=0 (heating only)
A(BGLOAD)=A(HTLOAD)

ELSE
A(BGLOAD)= A(HTLOAD) + A(CLLOAD)

- C Calculate conventional energy cost factor
A(CVEGCS)= A(HTLOAD)×A(CVCOST)+(A(ELCOST)/A(COP))×A(CLLOAD)

- C Calculate \$\$ (solar cost) in unit \$/MBTU
 IF A(AB) = 0.0
 A(SLCOST) = 10000000.
 ELSE
 A(SLCOST) = A(CLCOST)/A(AB) x .001
- C Calculate solar energy cost factor in unit \$/Ft² of bldg.
 A(SLEGCS) = A(SLCOST) x A(HTLOAD) x A(PCTLOD) x .01 + A(CVCOST)
 x A(HTLOAD) x (1.0 - A(PCTLOD) x .01) + A(SLCOST) x A(CLLOAD) x
 A(PCTC) x .01 + A(ELCOST)/A(COP) x A(CLLOAD) x (1.0 - A(PCTC) x .01)
- C Energy required (Million MBTU)
 A(EGREQD) = A(BGLOAD) x A(FLAREA)
- C Cost ratio of solar vs conventional
 A(SLVSCV) = A(SLEGCS)/A(CVEGCS)
- C Cost difference of conventional from solar
 A(CSTDIF) = A(CVEGCS) - A(SLEGCS)
- C Calculate national cost savings (Million \$)
 A(NCSTSV) = A(CSTDIF) x A(FLAREA)
- C Calculate collector area/roof area
 A(CAVSRA) = (A(HTLOAD) x A(PCTLOD) x .01 + A(CLLOAD) x A(PCTC)
 x .01) x A(NOFLRS)/(A(AB) x .001)
- C Barrels of oil saved/Ft²/15 yrs.
 A(BARSAV) = A(AB) x .001 x 15/1.9
- C Total energy savings
 A(TENGSV) = (A(HTLOAD) x A(PCTLOD) x .01 + A(CLLOAD) x A(PCTC)
 x .01) x A(FLAREA)

RETURN
 END

SUBROUTINE SORT (ARRAY, NITEM, NSKIP, IND)

- C This routine builds an index array pointing at the NITEM, starting at the first and skipping NSKIP each time. Items are sorted and index array is returned.

DIMENSION ARRAY (1), IND (1), IDUMMY (2,100)

- C build index array

JINDEX = 1

For I = 1, NITEM

IND (I) = JINDEX

JINDEX = JINDEX + NSKIP

- C sort data

CALL KSORTI (ARRAY, NITEM, IND, IDUMMY)

- C clean up indeces

For I = 1, NITEM

IND (I) = ((IND(I) - 1) / NSKIP) + 1

RETURN

END

SUBROUTINE KSORT1 (AI, N, IND, IEXT)
SUBROUTINE SPLIT1 (AI, M, N, K, IND)

SORT
 SPLIT array
 SORT upper half
 SORT bottom half

MPRNTn (ISWTCH, INDTR)

- C These subroutines print charts in matrix form. Each print routine differs slightly, depending on particular requirements for each chart.
COMMON ARRAY, NITEM, NREG, NELEM, IREG1, IBLD1, ICITY, ISTATE,
ILABLE, MESSAG
IF INDTR=0 RETURN
- C Print the names of states and cities in two top rows
WRITE (ICITY (2xIREG1 (1)-1), ICITY (2xIREG1 (1)), 1=1,12),
(ISTATE (2xIREG1 (J)-1), ISTATE (2xIREG1 (J)), J=1,12)
- C Options for printing linear array (s) above matrix. ISWTCH=0 indicates heating only; ISWTCH=1 heating/cooling. Case (1): no arrays are to be printed above matrix; Case (2): one or two arrays to be printed; Case (3): array to be printed for heating only; Case (4): array(s) to be printed for heating/cooling.
- C Case (1)
WRITE blanks
- C Case (2) n = chart no.; M = 1st subscript; I = 1, 2, 7
WRITE ILABLE (I,n), ILABLE (I+1,n), ILABLE (I+2,n),
(ARRAY (M, 1, IREG1 (k)), k=1,12)
- C Case (3)
If ISWTCH=0 WRITE ILABLE (I,n), ILABLE (I+1,n), ILABLE (I+2,n),
(ARRAY (M, 1, IREG (k)), k=1, 12)
- C Case (4)
If ISWTCH=1 WRITE ILABLE (I,n), ILABLE (I+1,n), ILABLE (I+2,n),
(ARRAY (M, 1, IREG (k)), K=1, 12)
- C PRINT MATRIX
- C Case (1) M1 & M2 are first subscripts of ARRAY, L indicating format number
If ISWTCH=0 CALL BPRINT (M1, M2, L)
If ISWTCH=1 CALL BPRINT (M1, 0, L)
- C Case (2) print matrix without left column data for heating only & heating/cooling
CALL BPRINT (M, 0, L)

C Case (3) print matrix with left column data for heating only & heating/cooling
CALL BPRINT (M1, M2, L)

C print header
WRITE MESSAG (1), I = 1, 20

RETURN
END

SUBROUTINE BPRINT (NITEM1,NITEM2,IFORMT)

COMMON ARRAY, IREG1, IBLD1, ITITLE, IBLDTP

KK=0

For J=1,12

KK=KK+1

IF IFORMT=L₁, WRITE (L₁) ITITLE(KK), (IBLDTP(1,2×IBLD1(J)-1),
I=1,3), ARRAY (NITEM2,IBLD1(J), 1),
(ARRAY(NITEM1,IBLD1(J), IREG1(K)),K=1,12)

IF IFORMT=L₂, WRITE(L₂) ITITLE(KK), (IBLDTP(1,(2×IBLD1(J)-1),
I=1,3), (ARRAY(NITEM1,IBLD1(J), IREG1(K)),K=1,12)

IF IFORMT=L₃, Same write statements as the case L₂, but using format L₃

IF IFORMT=L₄, Same write statements as the case L₁, but using format L₄

KK=KK+1

WRITE ITITLE(KK), (IBLDTP(1,2 × IBLD1(J),I=1,3)

KK=KK+1

WRITE ITITLE(KK)

RETURN

END

SUBROUTINE LPRNT1 (M,N,IRANK,ILIST,ISWTCH)

C This routine prints a list of sorted items

C M=the first subscript of ARRAY

N= number of items to be printed out

IRANK = sorted index array

ILIST = indicating header to be used for the list

ISWTCH = heating only vs heating/cooling flag

COMMON ARRAY, ICITY, ISTATE, IBLDTP, ILABLE, INAME, MESSAG

IF N = 0 Go to a

WRITE (INAME(I,ILIST),I=1,10), (MESSAG(I), I=1, 20)

For L = 1,N

J = MOD((IRANK (L)-1),12) + 1

K = (IRANK(L)-1)/12+1

WRITE L, ICITY(2K-1), ICITY(2K), IBLDTP(1,2J-1), IBLDTP(2,2J-1),
IBLDTP(3,2J-1), IBLDTP(1,2J), IBLDTP(2,2J), IBLDTP(3,2J),
ARRAY(M,J,K)

a RETURN

END

C THIS PROGRAM IS TO CALCULATE PRINTED ECONOMIC SAVINGS AND FUEL
C SAVINGS FOR A MATRIX OF BUILDING TYPES AND GEOGRAPHIC REGIONS.
C THE RESULTS ARE PRESENTED BOTH AS A SERIES OF MATRICES AND AS
C SORTED LISTS.

C PIN CHIN HO & CLIVE KNOWLES
C SINGER CORPORATE R&D LAB
C 751103

0001 COMMON/DATA/ARRAY,NITEM,NREG,NLELE,SUMREG,SUMBLD,TOTSUM
0002 COMMON/INDEX1/IREG1,IBLD1
0003 COMMON/TEXT4/MESSAG
0004 DIMENSION ARRAY(36,12,12),SUMREG(12),SUMBLD(12)
0005 DIMENSION IREG1(12),IBLD1(12),ILIST1(144)
0006 DIMENSION ILIST2(144),ILIST3(144),MESSAG(20)
0007 DIMENSION INDEX(20),NOUT(3)
0008 INTEGER SWITCH,EGREDD,CSTDIF,QUNDIF,CAVSRA,TENGSV,SUMBGD
0009 DATA SWITCH,EGREDD,CSTDIF,QUNDIF,CAVSRA,TENGSV,SUMBGD/1,27,28,
+ 29,31,32,33/

0010 DATA INDEX/20*1/,NOUT/3*0/

C
C READ INPUT DATA

0011 CALL RDINPT (IEOF,INDEX,NOUT)

C
C WHILE IEOF NOT EQUAL TO -1
5 IF (IEOF.EQ.-1) GO TO 200
C IHVSHC=ARRAY(SWITCH,1,1)

0014 PERFORM CALCULATIONS FOR EACH CELL
0015 DO 20 K=1,12
0016 DO 10 J=1,12
0017 CALL CALC (ARRAY (SWITCH,J,K),IHVSHC)
0018 CONTINUE
10 CONTINUE
20

C
C PERFORM OTHER CALCULATIONS

0019 SUM BY REGION
0020 TOTSUM = 0.
0021 DO 40 K=1,12
0022 SUM=0.
0023 DO 30 J=1,12
0024 SUM=SUM+ARRAY(EGREDD,J,K)
0025 CONTINUE
0026 SUMREG(K)=SUM
0027 TOTSUM = TOTSUM+SUM
40 CONTINUE
30

C
C SUM BY BUILDING TYPE
0028 DO 60 J=1,12
0029 SUM=0.
0030 DO 50 K=1,12
0031 SUM=SUM+ARRAY(EGREDD,J,K)
0032 CONTINUE
0033 SUMBLD(J)=SUM
0034 CONTINUE
50
60

36

```

0035      C      DO 65 K=1,12
0036      DO 65 J=1,12
0037      ARRAY(SUMHGD,J,K)=SUMBLD(J)
0038      CONTINUE
        65
      C
      C      FIND QUANTIZED VALUES OF COST COMPARISON
0039      SMALL=ARRAY(CSTDIF,1,1)
0040      BIG=ARRAY(CSTDIF,1,1)
0041      DO 80 K=1,12
0042      DO 70 J=1,12
0043      IF (ARRAY(CSTDIF,J,K).GT.BIG) BIG=
        +      ARRAY(CSTDIF,J,K)
0044      IF (ARRAY(CSTDIF,J,K).LT.SMALL) SMALL=
        +      ARRAY(CSTDIF,J,K)
0045      CONTINUE
        70
0046      CONTINUE
        80
      C
0047      DO 100 K=1,12
0048      DO 90 J=1,12
0049      IQUNTZ=((ARRAY(CSTDIF,J,K)-SMALL)/(BIG-SMALL))*10
0050      ARRAY(CSTDIF,J,K) = IQUNTZ
0051      CONTINUE
        90
0052      CONTINUE
        100

      C
      C      NOW DO SORTING BY ELEMENTS
0053      IELEM=NITEM
      C
      C      SORTING BY COST SAVINGS
0054      CALL SORT (ARRAY(CSTDIF,1,1),NELEM,IELEM,ILIST1)
      C
      C      SORTING BY COLLECTOR AREAS
0055      CALL SORT (ARRAY(GAVSRA,1,1),NELEM,IELEM,ILIST2)
      C
      C      SORTING BY TOTAL ENERGY SAVINGS
0056      CALL SORT (ARRAY(TEMGSV,1,1),NELEM,IELEM,ILIST3)
      C
      C      NOW START PRINTING
      C
      C      PRINTING BUILDING LOAD
0057      CALL MPRNT1 (IHVSHC,INDEX(1))
      C
      C      PRINT CONVENTIONAL ENERGY FACTOR
0058      CALL MPRNT2 (IHVSHC,INDEX(2))
      C
      C      PRINT SOLAR ENERGY COST FACTOR
0059      CALL MPRNT3 (IHVSHC,INDEX(3))
      C
      C      FOR HEATING AND COOLING,PRINTING SOLAR COST

```

```

0060      C      IF (IHVSHC.EQ.1) CALL MPRNT4(IHVSHC,INDEX(4))
      C      PRINT ENERGY REQUIRED
      C
0061      C      CALL MPRNT5 (IHVSHC,INDEX(5))
      C      FOR HEATING AND COOLING, PRINT COST RATIO
      C
0062      C      IF (IHVSHC.EQ.1) CALL MPRNT6(IHVSHC,INDEX(6))
      C      PRINT COST DIFFERENCE
      C
0063      C      CALL MPRNT7 (IHVSHC,INDEX(7))
      C      PRINT QUANTIZED VALUE OF COST DIFFERENCE
      C
0064      C      CALL MPRNT8 (IHVSHC,INDEX(8))
      C      PRINT NATIONAL COST SAVINGS
      C
0065      C      CALL MPRNT9 (IHVSHC,INDEX(9))
      C      FOR HEATING AND COOLING, PRINT BARRELS OF OIL SAVED
      C
0066      C      IF (IHVSHC.EQ.1) CALL MPRNTA(IHVSHC,INDEX(10))
      C      PRINT COLLECTOR AREA/ROOF AREA
      C
0067      C      CALL MPRNTb (IHVSHC,INDEX(11))
      C      PRINT TOTAL ENERGY SAVINGS
      C
0068      C      CALL MPRNTC (IHVSHC,INDEX(12))
      C      PRINT A LIST RANKED BY COST SAVINGS
      C
0069      C      CALL LPRNT1 (CSTDIF,NOUT(1),TLIST1,1,IHVSHC)
      C      PRINT A SORTED LIST BY COLLECTOR AREA
      C
0070      C      CALL LPRNT1 (CAVSRA,NOUT(2),TLIST1,2,IHVSHC)
      C      PRINT A SORTED LIST BY TOTAL ENERGY SAVINGS
      C
0071      C      CALL LPRNT1 (TENGSV,NOUT(3),TLIST1,3,IHVSHC)
      C
0072      C      CALL RDINPT (IEOF,INDEX,NOUT)
0073      C      GO TO 5
0074      C      200 CONTINUE
      C
0075      C      STOP
      C
0076      1000 FORMAT (4I6)
0077      1060 FORMAT (9(F8.2,3X))
0078      END

```

```

0001      SUBROUTINE RDINPT (IEOF,INDEX,NOUT)
C
C      THIS PROGRAM IS TO READ INPUT DATA AND STORE THEM IN ARRAY.
C      ALL INPUT DATA FOR EACH CELL ARE STORED IN SEQUENCE FROM 1 TO N
C      OF THE FIRST SUBSCRIPT, WHERE N IS THE NUMBER OF INPUT ITEMS.
C
0002      COMMON/TEXT4/MESSAG
0003      DIMENSION ITEXT(20),IDATA(20),INDEX(20),MESSAG(20)
0004      DIMENSION IFLAGS(4),IPOINT(5),NOUT(3)
C
0005      DATA IFLAGS/'E' , 'R' , 'B' , 'M' /
C
0006      DATA IPOINT/'END' , 'CONT' , 'MESS' , 'PRNT' , 'LIST' /
C
0007      DATA ITEXT/'ISWT' , 'DH' , 'KH' , 'CVC' , 'AB' , 'CLCO' , 'PCTL' ,
+          'FLAR' , 'NOFL' , 'DC' , 'KC' , 'H' , 'F1' , 'F2' ,
+          'W' , 'HTLD' , 'PCTC' , 'CLLD' , 'COP' , 'ELCO' /
C
0008      DATA NDATA/20/,NTEXT/20/,NFLAGS/4/,NPOINT/5/
C
0009      IEOF = 1
C
C      WHILE IEOF = 1
100 IF (IEOF.NE.1) GO TO 400
      READ (5,900,END=150) INPTNM,FLAG
      WRITE (8,910) INPTNM,FLAG
      CALL LOOKUP (INPTNM,INDEX,IPOINT,NPOINT)
      IF (INDEX.EQ.0) GO TO 300
      GO TO (200,210,220,230,240),INDEX
C
C      FAKE IT FOR END OF FILE
150      CONTINUE
C
C      END
200      IEOF = -1
      GO TO 270
C
C      CONTINUE
210      IEOF = 0
      GO TO 270
C
C      MESSAGE
220      READ (5,920) MESSAG
      WRITE (8,930) MESSAG
      GO TO 270
C
C      PRINT
230      READ (5,940) IDATA
      WRITE (8,950) IDATA
      DO 240 I=1,NDATA
          INDEX(I) = 0
          CONTINUE
240      DO 250 I=1,NDATA
          IF (IDATA(I).NE.0) INDEX(IDATA(I)) = 1
          CONTINUE
250      GO TO 270
C
C      LIST

```

```

0033      260      READ (5,940) NOUT
0034      WRITE (8,950) NOUT
0035      270      CONTINUE
0036      GO TO 380
0037      300      CALL LOOKUP (INPTNM,M,ITEXT,NTEXT)
0038      IF (M.EQ.0) GO TO 370
0039      CALL LOOKUP (FLAG,IFNUM,IFLAGS,NFLAGS)
0040      IF (IFNUM.EQ.0) GO TO 360
0041      GO TO (310,320,330,340),IFNUM

      C
      C      310      ELEMENT
      C      CALL ELMINP(M)
      C      GO TO 350

      C
      C      320      REGION
      C      CALL REGINP(M)
      C      GO TO 350

      C
      C      330      BUILDING
      C      CALL BLDINP(M)
      C      GO TO 350

      C
      C      340      MATRIX
      C      CALL MTXINP(M)
      C      350      CONTINUE
      C      360      CONTINUE
      C      370      CONTINUE
      C      380      CONTINUE
      C      GO TO 100
      C      400      CONTINUE
      C      RETURN

      C
      900 FORMAT (A4,A1)
      910 FORMAT (2X,A4,3X,A1)
      920 FORMAT (10A4)
      930 FORMAT (1X,10A4)
      940 FORMAT (20I4)
      950 FORMAT (1X,20I4)
      END

```

FORTRAN IV G LEVEL 21

LOOKUP

DATE = 75328

12/23/20

0001

C
C
C

SUBROUTINE LOOKUP (IVALUE,INDEX,INDICT,NDICT)

THIS ROUTINE SCANS THE DICTIONARY IDICT FOR IVALUE. IF FOUND,
INDEX RETURNS THE LOCATION, ELSE INDEX = 0.

0002

DIMENSION IDICT(1)

0003

INDEX = 0

0004

DO 10 I=1,NDICT

0005

IF (IVALUE.EQ.IDICT(I)) INDEX = I

0006

10

CONTINUE

0007

RETURN

0008

END

```
0001      SUBROUTINE ELMINP(M)
0002      C
0003      COMMON/DATA/ARRAY
0004      COMMON/TEXT3/IHEAD
0005      C
0006      DIMENSION ARRAY(36,12,12),IHEAD(6,20)
0007      READ (5,300) DATA
0008      WRITE (8,500) (IHEAD(I,M),I=1,6),DATA
0009      DO 20 K=1,12
0010          DO 10 J=1,12
0011              ARRAY(M,J,K)=DATA
0012          CONTINUE
0013      CONTINUE
0014      RETURN
0015      300 FORMAT (F8.2)
0016      500 FORMAT (1H,6A4,F8.2,/)
0017      END
```

FORTRAN IV G LEVEL 21

REGINP

DATE = 75325

16/29/11

```

0001      SUBROUTINE REGINP(M)
0002      C
0003      COMMON/DATA/ARRAY
0004      COMMON/TEXT3/IHEAD
0005      DIMENSION ARRAY(36,12,12),IHEAD(6,20),DATA(12)
0006      C
0007      READ (5,400) (DATA(K),K=1,12)
0008      WRITE (8,600) (IHEAD(I,M),I=1,6),(DATA(K),K=1,12)
0009      DO 20 K=1,12
0010          DO 10 J=1,12
0011              ARRAY(M,J,K)=DATA(K)
0012          CONTINUE
0013      CONTINUE
0014      RETURN
0015      400  FORMAT (10F8.2/2F8.2)
0016      600  FORMAT (1H ,6A4,6(F8.2,2X),/,25X,6(F8.2,2X),/)
0017      END

```



```
0001      SUBROUTINE BLDINP(M)
0002      C
0003      COMMON/DATA/ARRAY
0004      COMMON/TEXT3/IHEAD
0005      DIMENSION ARRAY(36,12,12),IHEAD(6,20),DATA(12)
0006      C
0007      READ (5,400) (DATA(K),K=1,12)
0008      WRITE (8,600) (IHEAD(I,M),I=1,6),(DATA(K),K=1,12)
0009      DO 20 K=1,12
0010          DO 10 J=1,12
0011              ARRAY(M,J,K)=DATA(J)
0012          CONTINUE
0013      CONTINUE
0014      RETURN
0015      400  FORMAT (10F8.2/2F8.2)
0016      600  FORMAT (1H ,6A4,6(F8.2,2X),/,25X,6(F8.2,2X),/)
```

```

0001      BLOCKDATA
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM,SUMREG,SUMBLD,TOTSUM
0003      DIMENSION ARRAY(36,12,12),SUMREG(12),SUMBLD(12)
0004      COMMON/INDX1/IREG1,IBLD1
0005      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0006      COMMON/TEXT2/IBLDTP
0007      COMMON/TEXT3/IHEAD
0008      COMMON/TEXT5/INAME
0009      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),IHEAD(6,20)
0010      DIMENSION INAME(10,3),IBLDTP(3,24),IREG1(12),IBLD1(12)
0011      DATA NITEM/36/,NREG/12/,NELEM/144/
0012      DATA IREG1/11,9,3,12,8,4,6,2,7,5,1,10/
0013      DATA IBLD1/10,8,6,11,12,1,3,4,9,2,7,5/

0014      C      DATA ICITY / 'BOST',ON,'WASH',DC,'FT.W',RTH,'NASH',
1      'VIL',MADI,'SON','OMAH',A,'BISM',RK,
2      'L.A.',PHOE,'NIX','SEAT',TLE,'MIAM',
3      'I','CHAR',L, /

0015      C      DATA ISTATE / 'MASS',,'NYC','NY','TEXA',S,'TENN',
1      'WIS',,'NEBR',,'N.D',,
2      'CALI',F,'ARIZ',ONA,'WASH',,'FLOR',
3      'IDA',S.C.,, /

0016      C      DATA ILABLE / 'DEG-',DAY,4*,',','BTU/','SQFT',*DD,
1      'C$($,','/MBT',U)=,6*,',','S($,','SQFT',
2      ')=','S$($,','/MBT',U)=,1000',BTU/,
3      'SQFT',9*,',','SUM(,','BY B',LDG)',SUM(,
4      'BY R',EG)=,TOTS',UM=,10*,',','S$/C',
5      '$=,34*,',','BALS',OIL',SAV',/SQF',
6      'T/15',YRS=,,'F',LOOR',S',9*,' /

0017      C      DATA IHEAD / 'HEAT',VS,'HEAT',&COO',L FL',AG=,
1      'DH(D,EG D,AY)=,3*,',','KH(B, TU/S',
2      'QFT/','DH)=,2*,',','CONV',COS',T($/,
3      'MBTU',)=,,'A*B(,1000',BTU/,
4      'SQFT',)=,,'COLL',ECTO',R CO',
5      'ST($,','/SQF',T)=,,'%LOA',D=,4*,',',
6      'FLOO',R SP',ACE(,SQFT',)
7      'NUMB',ER O',F FL',DOORS',=,
8      'DC(D,EG D,AY)=,3*,',','KC(B, TU/S',
9      'QFT/','DH)=,2*,',','H(BL',DG E',LEVA',
10     'TION',)=,
11     'F1(H,HEAT',FROM',OUT',DOOR',)=,
12     'F2(H,HEAT',FROM',IND',OOR',LD)=,
13     'W-CH',ANGE',HUM',IDIT',Y RA',TIO=,
14     'HEAT',LOA',D(MB, TU/S',QFT)
15     '% OF',COO',LING',LOA',D
16     'COOL',ING',LOAD',
17     'COOL',ING',COP',
18     'ELEC',COS',T FO',R CO',OLIN',G /

0018      C      DATA INAME / 'RANK',ING',BY C',OST',SAVI',NGS,4*,',',
1      'RANK',ING',BY C',OLLE',CTOR',ARE',AS,
2      3*,
3      'RANK',ING',BY T',OTAL',ENE',RGY',SAVI',
4      'NGS',2*,' /

```

FORTRAN IV G LEVEL 21

BLK DATA

DATE = 75325

16/29/15

0019

DATA IBLDTP /
1 OFFI CE - BUIL DING
2 RETA IL - SUPE RMAR KET
3 MEDI CAL - INST ITUT ION
4 EDUC ATIO NAL 3# REST AURA NT
5 3# SHOP PING - CENT ER
6 SING LE S TORE & SE RV S TAT LIBR
7 ARIE S - MUSE UM RELI GIOU
8 S & RECR EATI ONAL HOTE L
9 4# MOTE L & NURS ING
HOME WARE HOUS ES 3# /

0020

C

END

```

0001      SUBROUTINE CALC(A,ISWCH)
      C
      C      THIS PROGRAM PERFORMS ALL THE CALCULATIONS AND STORES THE
      C      RESULTS IN ARRAY.
      C
0002      INTEGER SWITCH,DH,KH,CVCOST,AB,CLCOST,PCTL0D,FLAREA,NOFLRS,DC,KC
0003      INTEGER H,F1,F2,W,HTLOAD,CLLOAD,COP,ELCOST,PCTC
0004      INTEGER SLCOST,SLVSCV,BARSAV,BGLOAD,CVEGCS,SLEGCS,EGREQD,CSTDIF
0005      INTEGER QUNDIF,NCSTSV,CAVSRA,TENGSV,SUMBLD
      C
0006      DIMENSION A(36)
      C
0007      DATA SWITCH,DH,KH,CVCOST,AB,CLCOST,PCTL0D,FLAREA,NOFLRS,DC,KC,
      +      H,F1,F2,W,HTLOAD,PCTC,CLLOAD,COP,ELCOST/1,2,3,4,5,6,7,8,
      +      9,10,11,12,13,14,15,16,17,18,19,20/
      C
0008      DATA SLCOST,SLVSCV,BARSAV,BGLOAD,CVEGCS,SLEGCS,EGREQD,CSTDIF,
      +      QUNDIF,NCSTSV,CAVSRA,TENGSV,SUMBLD/21,22,23,24,25,26,27,
      +      28,29,30,31,32,33/
      C
      C      CALCULATING BUILDING LOAD
      C
0009      IF (ISWCH.EQ.0) A(BGLOAD) = A(HTLOAD)
0010      IF (ISWCH.EQ.1) A(BGLOAD) = A(HTLOAD) + A(CLL0AD)
      C
      C      CALCULATE CONVENTIONAL ENERGY COST FACTOR
      C
0011      A(CVEGCS)=A(HTLOAD)*A(CVCOST)+A(ELCOST)/A(COP)*A(CLL0AD)
      C
      C      CALCULATE $$ (SOLAR COST) IN UNIT $/MBTU
      C
0012      IF (A(AB).EQ.0.) GO TO 10
0013      A(SLCOST)=A(CLCOST)/(A(AB)*.001)
0014      GO TO 20
0015      A(SLCOST)=10000000.
0016      CONTINUE
      C
      C      CALCULATE SOLAR ENERGY COST FACTOR IN UNIT $/SQFT OF BLDG
      C
0017      A(SLEGCS)=A(SLCOST)*A(HTLOAD)*A(PCTL0D)*.01+A(CVCOST)*A(HTLOAD)*
      +      (1.0-A(PCTL0D)*.01)+A(SLCOST)*A(CLL0AD)*A(PCTC)*.01+
      +      A(ELCOST)/A(COP)*A(CLL0AD)*(1.0-A(PCTC)*.01)
      C
      C      ENERGY REQUIRED (MILLION MBTU)
      C
0018      A(EGREQD)=A(BGLOAD)*A(FLAREA)
      C
      C      COST RATIO OF SOLAR VS CONVENTIOAL
      C
0019      IF (A(CVEGCS).EQ.0.) GO TO 30
0020      A(SLVSCV)=A(SLEGCS)/A(CVEGCS)
0021      GO TO 40
0022      A(SLVSCV)=10000000.
0023      CONTINUE
      C

```

```

C
C
0025 C      CALCULATE NATIONAL COST SAVINGS (MILLION $)
      A(NCSTSV)=A(CSTDIF)*A(FLAREA)
C
C
0026 C      CALCULATE COLLECTOR AREA/ROOF AREA
0027 C
      IF (A(AB).EQ.0.) GO TO 50
      A(CAVSRA)=(A(HTLOAD)*A(PCTLOD)*.01+A(ELLOAD)*A(PCTC)*.01)*
+      A(NOFLRS)/(A(AB)*.001)
0028 C      GO TO 60
0029 C      A(CAVSRA)=10000000.
0030 C      CONTINUE
      50
      60
C
C
0031 C      BARRELS OF OIL SAVED PER SQFT. PER 15 YRS
      A(BARSAV)=A(AB)*.001*15/1.9
C
C
0032 C      TOTAL ENERGY SAVINGS
      A(TENGSV)=(A(HTLOAD)*A(PCTLOD)*.01+A(CLLOAD)*A(PCTC)*.01)*
+      A(FLAREA)
0033 C      RETURN
0034 C      END

```

```

0001      SUBROUTINE SORT (ARRAY,NITEM,NSKIP,IND)
          C
          C      THIS ROUTINE BUILDS AN INDEX ARRAY POINTING AT THE NITEM STARTING
          C      AT THE FIRST AND SKIPPING NSKIP EACH TIME. ITEMS ARE SORTED AND
          C      INDEX ARRAY IS RETURNED.
0002      DIMENSION ARRAY(1),IND(1),IDUMMY(2,100)
          C
          C      BUILD INDEX ARRAY
          C
0003      JINDX=1
0004      DO 10 I=1,NITEM
0005          IND(I)=JINDX
0006          JINDX=JINDX+NSKIP
0007      10 CONTINUE
          C
          C      SORT DATA
          C
0008      CALL KSORT1 (ARRAY,NITEM,IND,IDUMMY)
          C
          C      CLEAN UP INDECES
          C
0009      DO 20 I=1,NITEM
0010          IND(I)=((IND(I)-1)/NSKIP)+1
0011      20 CONTINUE
          C
0012      RETURN
0013      END

```

```

0001      SUBROUTINE KSORT1 ( A1,N,IND,IEXT)
          C
          C      MEMBER CKSORT1
          C
          C      THIS ROUTINE SORTS THE ARRAY A1 IN DESCENDING
          C      ORDER. THERE ARE N ELEMENTS IN THE ARRAYS AND THEY
          C      ARE INDEXED BY IND. IEXT IS USED AS A STACK FOR THE
          C      RECURSIVE CALLS.
          C
0002      DIMENSION A1(1),IND(1),IEXT(2,1)
0003      I = 1
          C
          C      STACK LOWER LIMIT POINTER
0004      IEXT(1,1) = 1
          C
          C      STACK UPPER LIMIT POINTER
0005      IEXT(2,1) = N
          C
          C      WHILE L < U
0006      10 IF (IEXT(1,I).GE.IEXT(2,I)) GO TO 20
          C
          C      SPLIT ARRAY
          C      CALL SPLIT1 ( A1,IEXT(1,I),IEXT(2,I),K,IND)
          C
          C      SORT LOWER PORTION
          C      I = I+1
0008      IEXT(1,I) = IEXT(1,I-1)
0009      IEXT(2,I) = K-1
0010      GO TO 10
0011      20 CONTINUE
          C
          C      WHILE I > 1
0012      30 IF (I.EQ.1) GO TO 60
          C
          C      SORT UPPER PORTION
          C      I = I-1
0014      IEXT(1,I) = IEXT(2,I+1)+2
0015
          C
          C      WHILE L < U
0016      40 IF (IEXT(1,I).GE.IEXT(2,I)) GO TO 50
          C
          C      SPLIT ARRAY
          C      CALL SPLIT1 ( A1,IEXT(1,I),IEXT(2,I),K,IND)
          C
          C      SORT LOWER PORTION
          C      I = I+1
0018      IEXT(1,I) = IEXT(1,I-1)
0019      IEXT(2,I) = K-1
0020      GO TO 40
0021      50 CONTINUE
0022      GO TO 30
0023      60 CONTINUE
0024
          C
          C      DONE

```

FORTAN IV G LEVEL 21

KSORT1

DATE = 75324

12/02/00

0025
0026

RETURN
END

0001

SUBROUTINE SPLIT1 (A1,M,N,K,IND)

THIS ROUTINE SPLITS THE ARRAY BOUNDED BY M AND N AT ELEMENT
K. ALL ELEMENTS BETWEEN M AND K ARE GREATER THAN OR EQUAL
TO ELEMENT K AND ALL THOSE BETWEEN K AND N ARE LESS
THAN OR EQUAL TO ELEMENT K. IND IS AN INDEX ARRAY.

0002

DIMENSION A1(1),IND(1)

0003

SELECT PIVOT ELEMENT

K = (M+N)/2

0004

SAVE PIVOT INDEX

L = IND(K)

0005

SAVE PIVOT VALUE

B = A1(L)

0006

I = M

0007

J = N

0008

IRIGHT = 1

0009

WHILE I <= J

0010

10 IF (I.GT.J) GO TO 80

IF (IRIGHT.EQ.0) GO TO 40

52

SCANNING FROM LEFT TO RIGHT

0011

WHILE I' TH ELEMENT < PIVOT

0012

INDI = IND(I)

0013

20

IF (A1(INDI).LE.B) GO TO 30

0014

I = I+1

0015

INDI = IND(I)

0016

30

GO TO 20

CONTINUE

0017

SWAP I' TH ELEMENT AND PIVOT

0018

IND(K) = INDI

0019

IND(I) = L

0020

K = I

0021

I = I+1

0022

IRIGHT = 0

GO TO 70

SCANNING FROM RIGHT TO LEFT

0023

WHILE J' TH ELEMENT > PIVOT

0024

INDJ = IND(J)

0025

40

IF (A1(INDJ).GE.B) GO TO 60

0026

J = J-1

0027

INDJ = IND(J)

0028

60

GO TO 50

CONTINUE

SWAP J' TH ELEMENT AND PIVOT

FORTTRAN IV G LEVEL 21

SRLIT1

DATE = 75324

12/02/00

```
0029      IND(K) = INDJ
0030      IND(J) = L
0031      K = J
0032      J = J-1
0033      IRIGHT = 1
0034      CONTINUE
0035      GO TO 10
0036      CONTINUE
0037      RETURN
0038      END
```

70

80

```

0001      SUBROUTINE MPRNT1 (ISWCH,INDTR)
          C
          C      PRINT BUILDING LOAD
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000)((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
          + ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
          C
          C      IF HEATING ONLY, PRINT HEATING DEG-DAYS
          C
0010      IF (ISWCH.EQ.0) WRITE(6,1010) ILABLE(1,1),ILABLE(2,1),
          + ILABLE(3,1), (ARRAY(2,1,(IREG1(K))),K=1,12)
0011      WRITE (6,1100)
0012      IF (ISWCH.EQ.0) WRITE (6,1020) ILABLE(7,1),ILABLE(8,1),
          + ILABLE(9,1)
0013      WRITE (6,1100)
          C
          C      PRINT MATRIX, IF HEAT ONLY, PRINT BTU/SQFT/DD TOO
          C
0014      IF (ISWCH.EQ.0) CALL BPRINT (24, 3,1300)
          C
          C      IF HEATING & COOLING, PRINT MATRIX WITHOUT BTU/SQFT/DD
          C
0015      IF (ISWCH.EQ.1) CALL BPRINT (24, 0,1310)
          C
          C      PRINT HEADER
          C
0016      WRITE (6,1110) (MESSAG(I),I=1,20)
          C
0017      99 RETURN
0018      1000 FORMAT (1H1,31X,!!!,44X,'REGION',2(/,32X,!!!),24A4,
          + /,32X,!!!,24A4,/,32X,!!!,12(-----),/,32X,!!!)
0019      1010 FORMAT (1H ,19X,3A4,!!!,12(F7.2,1X),/,32X,!!!)
0020      1020 FORMAT (1H ,19X,3A4,!!!)
0021      1100 FORMAT ( ,32X,!!!)
0022      1110 FORMAT (1H //56X,'BUILDING LOAD (MBTU/SQFT)      ',2(/,56X,10A4))
0023      END

```

```

0001      SURROUTINE MPRNT2 (ISWTCH,INDTR)
          C
          C PRINT CONVENTIONAL ENERGY COST FACTOR
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000)((ICITY(2*IREG1(I))-1,ICITY(2*IREG1(I))),I=1,12,
          +              ((ISTATE(2*IREG1(J))-1),ISTATE(2*IREG1(J))),J=1,12)
          C
          C PRINT CONVENTIONAL FUEL COST
          C
0010      WRITE (6,1010) ILABLE(1,2),ILABLE(2,2),ILABLE(3,2),
          +              (ARRAY(4,1,(IREG1(K))),K=1,12)
0011      WRITE (6,1100)
          C
          C PRINT MATRIX
          C
          C
0012      CALL RPRINT (25, 0,1320)
          C
          C PRINT HEADER
          C
0013      WRITE (6,1120) (MESSAG(I),I=1,20)
0014      99 RETURN
0015      1000 FORMAT (1H1,31X,!!!,44X,'REGION',3(/,32X,!!!),24A4,
          +          /,32X,!!!,24A4,/,32X,!!!,12(1-----1),/,32X,!!!)
0016      1010 FORMAT (1H ,19X,3A4,!!!,12(F7.2,1X),/,32X,!!!)
0017      1100 FORMAT ( ,32X,!!!)
0018      1120 FORMAT (1H //52X,'CONVENTIONAL ENERGY COST FACTOR ($/SQFT OF BLDG
          +          ),',2(/52X,10A4))
0019      END

```

```

0001      SURROUTINE MPRNT3 (ISWCH,INDTR)
          C
          C      PRINT SOLAR ENERGY COST FACTOR
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000)((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
+      ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
          C
          C      PRINT COLLECTOR COST
          C
          C      IF HEATING ONLY, PRINT % HEAT LOAD. A*B,$$
          C
0010      WRITE (6,1030) ILABLE(1,3),ILABLE(2,3),ILABLE(3,3),
+      ARRAY(6,1,1)
0011      IF (ISWCH.EQ.0) WRITE(6,1010) ILABLE(4,3),ILABLE(5,3),
+      ILABLE(6,3), (ARRAY(21,1,(IREG1(K))),K=1,12)
0012      IF (ISWCH.EQ.0) WRITE(6,1010) ILABLE(7,3),ILABLE(8,3),
+      ILABLE(9,3), (ARRAY( 5,1,(IREG1(K))),K=1,12)
          C
          C      PRINT MATRIX
          C
0013      CALL RPRINT (26, 0,1320)
          C
          C      PRINT HEADER
          C
0014      WRITE (6,1130) (MESSAG(I),I=1,20)
0015      99 RETURN
0016      1000 FORMAT (1H,31X,'!!!,44X,'REGION',3(/,32X,'!!'),24A4,
+      /,32X,'!!!,24A4,/,32X,'!!!,12('-----'),/,32X,'!!!)
0017      1010 FORMAT (1H ,19X,3A4,'!!!,12(F7.2,1X),/,32X,'!!!)
0018      1020 FORMAT (1H ,19X,3A4,'!!!)
0019      1030 FORMAT (1H ,3A4,F7.2,12X,'!!!,/,32X,'!!!)
0020      1130 FORMAT (1H //52X,'SOLAR ENERGY COST FACTOR($/SQFT OF BLDG)'
+      ,2(/,52X,10A4))
0021      END

```

FORTRAN IV G LEVEL 21

MPRNT4

DATE = .75328

12/23/34

```

0001      SUBROUTINE MPRNT4 (ISWTCH,INDTR)
      C
      C
      C      PRINT SOLAR COST
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
      C
0008      IF (INDTR.EQ.0) GO TO 99
      C
      C      PRINT CITIES AND STATES IN TWO TOP ROWS
0009      WRITE (6,1000) ((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
      + ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
0011      WRITE (6,1100)
      C
      C
      C      PRINT MATRIX
0012      CALL RPRINT (21, 0,1320)
      C
      C
      C      PRINT HEADER
0013      WRITE (6,1140) (MESSAG(I),I=1,20)
0014      RETURN
0015      1000  FORMAT (1H1,31X,!!!,44X,'REGION',3(/,32X,!!!),24A4,
      + /,32X,!!!,24A4,/,32X,!!!,12('-----'),/,32X,!!!)
0016      1100  FORMAT (1H 32X,!!!)
0017      1140  FORMAT (1H //56X,'SOLAR COST ($/MBTU/YR)--$$',2(/,52X,10A4))
0018      END

```

```

0001      SUBROUTINE MPRNT5 (ISWTC,INDTR)
          C
          C
          C      PRINT ENERGY REQUIRED
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM,SUMREG,SUMBLD,TOTSUM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12),SUMREG(12)
0007      DIMENSION SUMBLD(12)
0008      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0009      IF (INDTR.EQ.0) GO TO 99
          C
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
0010      WRITE (6,1000) ((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
          + ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
          C
          C
          C      PRINT SUM BY BLDG
0011      WRITE (6,1100)
0012      WRITE (6,1020) ILABLE(1,5),ILABLE(2,5),ILABLE(3,5)
          C
          C
          C      PRINT MATRIX
0013      CALL BPRINT (27,33,1330)
          C
          C
          C      PRINT SUM BY REGION AND TOTAL
0014      WRITE (6,1040)
0015      WRITE (6,1010) ILABLE(4,5),ILABLE(5,5),ILABLE(6,5),
          + (SUMREG(IREG1(K)),K=1,12)
0016      WRITE (6,1030) ILABLE(7,5),ILABLE(8,5),ILABLE(9,5),TOTSUM
          C
          C
          C      PRINT HEADER
0017      WRITE (6,1150) (MESSAG(I),I=1,20)
0018      99 RETURN
0019      1000 FORMAT (1H1,31X,!!!,44X,'REGION',3(/,32X,!!!),24A4,
          + /,32X,!!!,24A4,/,32X,!!!,12(!-------),/,32X,!!!)
0020      1010 FORMAT (1H ,7X,3A4,13X, 12(F7.2,1X))
0021      1020 FORMAT (1H ,19X,3A4,!!!)
0022      1030 FORMAT(1H ,/,8X,3A4,4X,F7.2)
0023      1100 FORMAT ( ,32X,!!!)
0024      1040 FORMAT (1H ,31(!--),!+,95(!--))
0025      1150 FORMAT (1H //56X,'ENERGY REQUIRED (MILLION MBTU)',
          + 2(//56X,10A4))
0026      END

```

FORTRAN IV G LEVEL 21

MPRNT6

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```

0001      SUBROUTINE MPRNT6 (ISWTC,INDTR)
          C
          C
          C      IF HEATING AND COOLING, PRINT COST RATIO
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)

          C
0008      IF (INDTR.EQ.0) GO TO 99
          C
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
0009      WRITE (6,1000) ((ICITY(2*IREG1(I))-1,ICITY(2*IREG1(I))),I=1,12),
          + ((ISTATE(2*IREG1(J))-1,ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
0011      WRITE (6,1100)

          C
          C
          C      PRINT MATRIX
0012      CALL RPRINT (22, 0,1320)

          C
          C
          C      PRINT HEADER
0013      WRITE (6,1160) (MESSAG(I),I=1,20)
0014      RETURN
0015      1000  FORMAT (1H1,31X,'!',44X,'REGION',3(/,32X,'!'),24A4,
          + /,32X,'!',24A4,/,32X,'!',12('-----'),/,32X,'!')
0016      1100  FORMAT (1H1,32X,'!')
0017      1160  FORMAT (1H1,756X,'COST RATIO OF SOLAR VS CONV. ( $$/CS )',
          + 2(/,56X,10A4))
0018      END

```



```

0001 SUBROUTINE MPRNT7 (ISWCH,INDTR)
      C
      C PRINT COST DIFFERENCE
      C
0002 COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003 COMMON/INDX1/IREG1,IBLD1
0004 COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005 COMMON/TEXT4/MESSAG
0006 DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007 DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
      C
0008 IF (INDTR.EQ.0) GO TO 99
      C PRINT CITIES AND STATES IN TWO TOP ROWS
      C
0009 WRITE (6,1000)((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
+ ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
      C
      C IF HEATING ONLY,PRINT COST RATIO
      C
0010 IF (ISWCH.EQ.0) WRITE(6,1010) ILABLE(1,7),ILABLE(2,7),
+ ILABLE(3,7), (ARRAY(22,1,(IREG1(K))),K=1,12)
0011 WRITE (6,1100)
      C
      C PRINT MATRIX
      C
0012 CALL BPRINT (28, 0,1320)
      C
0013 PRINT HEADER
0014 WRITE (6,1170) (MESSAG(I),I=1,20)
0015 99 RETURN
1000 FORMAT (1H1,31X,'!',44X,'REGION',3(/,32X,'!'),24A4,
+ /,32X,'!',24A4,/,32X,'!',12('-----'),/,32X,'!')
0016 1010 FORMAT (1H,19X,3A4,'!',12(F7.2,1X),/,32X,'!')
0017 1100 FORMAT (,32X,'!')
0018 1170 FORMAT (1H //52X,'COST DIFFERENCE OF CONV. FROM SOLAR($/SQFT)',
+ 2(/52X,10A4))
0019 END

```

```

0001      SURROUTINE MPRNT8 (ISWICH,INDTR)
          C
          C PRINT QUANTIZED VALUE OF COST DIFFERENCE
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)

          C
0008      IF (INDTR.EQ.0) GO TO 99
          C PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000) ((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
+ ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
0011      WRITE (6,1100)

          C
          C PRINT MATRIX
          C
0012      CALL BPRINT (29,0,1340)

          C
          C PRINT HEADER
          C
0013      WRITE (6,1180) (MESSAG(I),I=1,20)
0014      99 RETURN
0015      1000 FORMAT (1H1,31X,!!!,44X,'REGION',3(/,32X,!!!),24A4,
+ /,32X,!!!,24A4,/,32X,!!!,12('-----'),/,32X,!!!)
0016      1100 FORMAT (1H,32X,!!!)
0017      1180 FORMAT (1H //52X,'QUANTIZED VALUE FROM COST COMPARISON',
+ 2(//52X,10A4))
0018      END

```

22

```

0001      SUBROUTINE MPRNT9 (ISWTCH,INDTR)
          C
          C      PRINT NATIONAL COST SAVINGS
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000) ((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
          + ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
0011      WRITE (6,1100)
          C
          C      PRINT MATRIX
          C
0012      CALL BPRINT (30, 0,1340)
          C
          C      PRINT HEADER
          C
0013      WRITE (6,1190) (MESSAG(I),I=1,20)
0014      99      RETURN
0015      1000    FORMAT (1H1,31X,11,44X,'REGION',31,/,32X,11),24A4,
          + 1,32X,11,24A4,/,32X,11,12(1-----),/,32X,11)
0016      1100    FORMAT (1, 32X,11)
0017      1190    FORMAT (1H //52X,'NATIONAL COST SAVINGS (MILLION $)',
          + 2(//52X,10A4))
0018      END

```

```

0001      SUBROUTINE MPRNTA (ISWICH,INDTR)
          C
          C      IF HEATING ONLY, PRINT BARRELS OF OIL SAVED/15 YRS
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000) (((ICITY(2*IREG1(I))-1,ICITY(2*IREG1(I))),I=1,12),
+      ((ISTATE(2*IREG1(J))-1,ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
0011      WRITE (6,1100)
          C
          C      PRINT MATRIX
          C
0012      CALL BPRINT (23, 0,1320)
          C
          C      PRINT HEADER
          C
0013      WRITE (6,1200) (MESSAG(I),I=1,20)
0014      RETURN
0015      1000  FORMAT (1H1,31X,'!',44X,'REGION',3(/,32X,'!'),24A4,
+      /,32X,'!',24A4,/,32X,'!',12('-----'),/,32X,'!')
0016      1100  FORMAT (1H 32X,'!')
0017      1200  FORMAT (1H //52X,'BARRELS OF OIL SAVED/SQFT/15YR',2(/,52X,10A4))
0018      END

```

```

0001      SUBROUTINE MPRNTB (ISWTCH,INDTR)
          C
          C      PRINT COLLECTOR AREA/ROOF AREA
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INOX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000)((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12).
          +      ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
          C
          C      IF HEATING ONLY,PRINT BARRELS OF OIL SAVED/15 YRS
          C
0010      IF (ISWTCH.EQ.0) WRITE(6,1010) ILABLE(1,11),ILABLE(2,11),
          +      ILABLE(3,11), (APRAY(23,1,(IREG1(K))),K=1,12)
0011      IF (ISWTCH.EQ.0) WRITE(6,1020) ILABLE(4,11),ILABLE(5,11),
          +      ILABLE(6,11)
0012      IF (ISWTCH.EQ.1) WRITE (6,1100)
0013      IF (ISWTCH.EQ.1) WRITE (6,1100)
0014      WRITE (6,1100)
0015      WRITE (6,1020) ILABLE(7,11),ILABLE(8,11),ILABLE(9,11)
          C
          C      PRINT MATRIX
          C
0016      CALL RPRINT (31, 9,1330)
          C
          C      PRINT HEADER
          C
0017      WRITE (6,1210) (MESSAG(I),I=1,20)
0018      99 RETURN
0019      1000 FORMAT (1H1,31X,!!!,44X,'REGION',3(/,32X,!!!),24A4,
          +      /,32X,!!!,24A4,/,32X,!!!,12(!-------),/,32X,!!!)
0020      1010 FORMAT (1H ,19X,3A4,!!!,12(F7.2,1X))
0021      1020 FORMAT (1H ,19X,3A4,!!!)
0022      1100 FORMAT ( ,32X,!!!)
0023      1210 FORMAT (1H //52X'COLLECTOR AREA / ROOF AREA',
          +      2(/,52X,10A4))
0024      END

```

```

0001      SUBROUTINE MPRNTC (ISWTCH,INDTR)
          C
          C      PRINT TOTAL ENERGY SAVINGS
          C
0002      COMMON/DATA/ARRAY,NITEM,NREG,NELEM
0003      COMMON/INDX1/IREG1,IBLD1
0004      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0005      COMMON/TEXT4/MESSAG
0006      DIMENSION ARRAY(36,12,12),IREG1(12),IBLD1(12)
0007      DIMENSION ICITY(24),ISTATE(24),ILABLE(9,12),MESSAG(20)
          C
0008      IF (INDTR.EQ.0) GO TO 99
          C      PRINT CITIES AND STATES IN TWO TOP ROWS
          C
0009      WRITE (6,1000) ((ICITY(2*IREG1(I)-1),ICITY(2*IREG1(I))),I=1,12),
+      ((ISTATE(2*IREG1(J)-1),ISTATE(2*IREG1(J))),J=1,12)
0010      WRITE (6,1100)
          C
          C      PRINT MATRIX
          C
0011      CALL RPRINT (32, 0,1350)
          C
          C      PRINT HEADER
          C
0012      WRITE (6,1220) (MESSAG(I),I=1,20)
0013      99 RETURN
0014      1000 FORMAT (1H1,31X,!!!,44X,'REGION',2(/,32X,!!!),24A4,
+      /,32X,!!!,24A4,/,32X,!!!,12('----- '),/,32X,!!!)
0015      1020 FORMAT (1H ,19X,3A4,!!!)
0016      1100 FORMAT ( ,32X,!!!)
0017      1220 FORMAT (1H ///52X,'TOTAL ENERGY SAVINGS (MILLION MBTU)',
+      2(/,52X,10A4))
0018      END

```

```

0001 SUBROUTINE BPRINT (NITEM1,NITEM2,IFORMT)
0002
0003 THIS PROGRAM PRINTS OUT THE MATRIX PART OF THE FIGURE. IT INCLUDES
0004 THE 'BUILDING TYPE', NAMES OF BUILDING TYPES, LEFT COLUMN DATA(
0005 IF ANY), AND THE 12 BY 12 DATA ARRAY.
0006
0007 INTEGER*2 ITITLE(40)
0008 COMMON/DATA/ARRAY
0009 COMMON/INDX1/IREG1,IBLD1
0010 COMMON/TEXT2/IBLDT
0011 DIMENSION ARRAY(36,12,12), IBLDTP(3,24)
0012 DIMENSION IREG1(12),IBLD1(12)
0013
0014 DATA ITITLE / 12*' ', 'B ', 'U ', 'I ', 'L ', 'D ', 'I ', 'N ', 'G ',
0015 1 ' ', 'T ', 'Y ', 'P ', 'E ', 14*' ' /
0016
0017 WRITE (6,1060)
0018 KK=0
0019 DO 10 J=1,12
0020 KK=KK+1
0021 IF (IFORMT.EQ.1300) WRITE(6,1300) ITITLE(KK), (IBLDT(I,
0022 (2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM2,IBLD1(J),1)),
0023 (ARRAY(NITEM1,IBLD1(J),IREG1(K)),K=1,12)
0024 IF (IFORMT.EQ.1310) WRITE(6,1310) ITITLE(KK),
0025 (IBLDT(I,(2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM1,IBLD1(J),
0026 IREG1(K)),K=1,12)
0027 IF (IFORMT.EQ.1320) WRITE(6,1320) ITITLE(KK),
0028 (IBLDT(I,(2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM1,IBLD1(J),
0029 IREG1(K)),K=1,12)
0030 IF (IFORMT.EQ.1330) WRITE(6,1330) ITITLE(KK), (IBLDT(I,
0031 (2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM2,IBLD1(J),1)),
0032 (ARRAY(NITEM1,IBLD1(J),IREG1(K)),K=1,12)
0033 IF (IFORMT.EQ.1340) WRITE(6,1340) ITITLE(KK),
0034 (IBLDT(I,(2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM1,IBLD1(J),
0035 IREG1(K)),K=1,12)
0036 IF (IFORMT.EQ.1350) WRITE(6,1350) ITITLE(KK),
0037 (IBLDT(I,(2*IBLD1(J)-1)),I=1,3), (ARRAY(NITEM1,IBLD1(J),
0038 IREG1(K)),K=1,12)
0039 KK=KK+1
0040 WRITE (6,1320) ITITLE(KK), (IBLDT(I, 2*IBLD1(J)),I=1,3)
0041 KK=KK+1
0042 WRITE (6,1070) ITITLE(KK)
0043 CONTINUE
0044 10
0045
0046 RETURN
0047 1060 FORMAT (1H, 31(' '), '+', 95(' '), '/', 21X, '!', 10X, '!!')
0048 1070 FORMAT (1H, 2X, A2, 16X, '!', 10X, '!!')
0049 1300 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, F8.2, '!', 12(F7.4, 1X))
0050 1310 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, 8X, '!', 12(F7.4, 1X))
0051 1320 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, 10X, '!', 12(F7.3, 1X))
0052 1330 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, F8.2, '!', 12(F7.2, 1X))
0053 1340 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, 10X, '!', 12(F7.0, 1X))
0054 1350 FORMAT (1H, 2X, A2, 3X, 3A4, '!', 1X, 10X, '!', 12(F7.2, 1X))
0055 END

```

```

0001      SUBROUTINE LPRNT1(M,N,IRANK,ILIST,ISWTC)
      C
      C      THIS PROGRAM PRINTS A LIST OF SORTED ITEMS.
      C
0002      COMMON/DATA/ARRAY
0003      COMMON/TEXT1/ICITY,ISTATE,ILABLE
0004      COMMON/TEXT2/IBLDT
0005      COMMON/TEXT4/MESSAG
0006      COMMON/TEXT5/INAME
      C
0007      DIMENSION ARRAY(36,12,12),MESSAG(20),IRANK(144),INAME(10,3)
0008      DIMENSION ICITY(24),IBLDT(3,24),ISTATE(24),ILABLE(9,12)
      C
      C      M= THE VALUE OF THE FIRST SUBSCRIPT OF ARRAY
      C      N= THE NUMBER OF ITEMS IN THE LIST TO BE PRINTED OUT.
      C      IRANK= SORTED INDEX ARRAY
      C      ILIST= INDICATING WHICH TITLE OF THE LIST TO BE PRINTED OUT
      C      ISWTC= INDICATING HEATING ONLY OR HEATING OR COOLING
      C
0009      IF (N.EQ.0) GO TO 20
      C
0010      WRITE (6,1000) (INAME(I,ILIST),I=1,10),(MESSAG(I), I=1,20)
0011      DO 10 L=1,N
0012      J=MOD((IRANK(L)-1),12)+1
0013      K = (IRANK(L)-1)/12+1
0014      WRITE (6,1010) L,ICITY(2*K-1),ICITY(2*K),IBLDT(1,(2*J-1)),
      +      IBLDT(2,(2*J-1)),IBLDT(3,(2*J-1)),IBLDT(1,2*J),
      +      IBLDT(2,2*J),IBLDT(3,2*J),ARRAY(M,J,K)
0015      10 CONTINUE
      C
0016      20 RETURN
      C
0017      1000 FORMAT (1H1,/,40X,10A4,/,40X,10A4,/,40X,10A4,/)
0018      1010 FORMAT (1H,/,12X,I3,6X,2A4,'; ',6A4,'; ',2X,F7.3)
0019      END

```


TABLE OF CONTENTS, APPENDIX A.b

MATRIX SCREENING PROGRAM

b. INPUTS

CONTENTS

Discussion

Page

69

TABLES

Table 1	Building Seasonal Cooling Loads	70
Table 2	Building Seasonal Heating Loads	71
Table 3	Cost of Conventional Energy	72
Table 4	Typical Climatic and Usable Btu Data	73
Table 5	Usable and Deliverable Energy	74
Table 6	1975 Non-Residential Building Inventory	75

MATRIX SCREENING PROGRAM

b. INPUTS

The data which follows are the inputs used to produce the computer screening outputs presented in the following subsection. The data may also be deduced or calculated from the information presented in Appendices B and C.

Two primary points should be emphasized. First, the solar performance data has been calculated for one city characteristic of the climate in that region. These performance characteristics for flat plate water/absorption systems are assumed to be applicable to all buildings estimated to be in that region, and should thus be viewed as an overall average for that region. Second, the "average" size for each building type has been employed as a reference when comparing cost savings and energy savings numbers. "Typical" construction configurations and estimates of internal energy loads likely to be associated with that building type have been employed to calculate net building heating and cooling loads. These loads (on a per square foot basis) have been assumed to represent the average loads for all buildings in a given region. Third, average costs of oil, gas, and electricity for a given region have been employed in the cost analysis calculations. It is important to note that these costs will fluxuate on a local level, resulting in either a better or worse economic status of solar in that local area.

TABLE 1

Building Seasonal Cooling Loads With Penalty
For Internal and Moisture Loads
(1000 Btu/ft²)

OL	Region Number	Representative City														
			School	Office	Store	Shopping Center	Hospital	Church	Restaurant	Motel	Warehouse	Supermarket	Nursing Home	Social	Library	Hotel
	1.	Boston	38	42	69	49	75	43	181	49	23	56	49	43	42	33
	2.	Washington, D.C.	54	67	111	69	101	47	211	78	36	84	78	47	57	49
	3.	Madison	22	27	44	29	47	14	64	36	13	37	36	14	24	21
	4.	Los Angeles	35	46	76	46	66	23	101	57	24	58	57	23	36	33
	5.	Charleston	79	96	158	100	144	80	350	109	54	120	109	80	84	70
	6.	Bismarck	18	23	38	24	35	13	61	28	12	29	28	13	19	17
	7.	Nashville	57	69	112	73	108	55	240	81	38	88	81	55	61	51
	8.	Fort Worth	75	95	156	94	132	69	308	108	53	116	108	69	78	67
	9.	Omaha	37	47	79	48	69	26	124	60	26	61	60	26	38	35
	10.	Seattle	13	16	25	18	30	8	37	22	8	22	22	8	14	29
	11.	Phoenix	71	98	162	85	112	49	239	111	55	112	111	49	68	64
	12.	Miami	128	165	276	161	226	109	498	191	92	201	191	109	131	115

TABLE 2
 Building Seasonal Heating Loads With
 Credit For Internally Generated Heat
 (1000 Btu/ft²)

Region Number	Representative City	School	Office	Store	Shopping Center	Hospital	Church	Restaurant	Motel	Warehouse	Supermarket	Nursing Home	Social	Library	Hotel
1.	Boston	80	80	153	46	91	101	406	74	57	76	74	101	57	57
2.	Washington, D.C.	64	64	117	42	70	77	306	57	48	64	57	77	46	44
3.	Madison	120	120	220	80	131	144	573	107	91	121	107	144	86	83
4.	Los Angeles	31	31	70	8	41	49	197	33	18	24	33	49	22	23
5.	Charleston	22	22	50	5	29	35	134	23	12	16	23	35	16	17
6.	Bismarck	135	135	247	90	147	162	646	121	103	137	121	162	97	94
7.	Nashville	59	59	109	38	65	72	286	53	44	59	53	72	42	41
8.	Fort Worth	33	33	68	14	40	46	178	32	21	28	32	46	23	24
9.	Omaha	93	93	172	59	102	113	452	84	69	92	84	113	66	65
10.	Seattle	68	68	136	35	81	92	368	65	47	63	65	92	49	20
11.	Phoenix	28	28	60	10	35	41	167	28	18	23	28	41	20	21
12.	Miami	1	1	6	0	3	3	14	2	0	0	2	3	1	1

TABLE 3
 COST OF CONVENTIONAL ENERGY BY FUEL
 TYPE BY CLIMATIC REGION
 (\$/10⁶ USABLE BTU)
 (1974)

<u>Region</u>	<u>Gas</u>	<u>Oil</u>	<u>Electricity</u>
Seattle	1.90	3.74	4.1
Boston	1.74	3.91	11.09
Charleston	1.30	3.92	7.26
Nashville	1.24	3.82	6.87
Ft. Worth	1.05	3.92	6.11
Phoenix	1.25	3.58	7.10
Los Angeles	1.27	3.55	8.09
Washington, D. C.	1.70	3.95	8.88
Madison	1.47	3.80	8.60
Omaha	1.08	3.55	6.70
Miami	1.71	3.92	8.72
Bismarck	1.41	3.58	5.79

Assumptions: 65% efficiency for oil heat, 75% efficiency for gas heat,
 100% efficiency for electric heat.

Source: American Gas Association, Edison Electric Institute, Federal
 Energy Administration.

TABLE 4

TYPICAL CLIMATIC AND USABLE BTU DATA
FOR CLIMATIC REGIONS

<u>Region</u>	Seasonal Langleys(10^3)		Usable BTU/Langley-ft ² Coll. (heating season)
	<u>Heat</u>	<u>Cool</u>	
Seattle	86.3	32.9	.67
Boston	68.6	49.9	.89
Charleston	49.4	105.4	2.25
Nashville	63.3	76.12	1.44
Ft. Worth	67.0	104.55	1.98
Phoenix	75.2	113.9	2.09
Los Angeles	69.4	91.0	1.49
Washington, D. C.	62.1	73.2	1.44
Madison	78.5	40.2	0.99
Omaha	81.5	66.6	1.39
Miami	25.0	137.8	2.79(Gainesville, Fla.)
Bismarck	95.2	40.9	1.22

TABLE 5

Usable and Deliverable 10^3 BTU/ft²-Collector for a System Providing 70% of Heating

Load with Cooling Load Replacement Based on Collector Size for 70% Heating

	Region	Seattle	L.A.	Bismarck	Phoenix	Omaha	Ft. Worth	Nashville	Madison	Boston	Wash., D.C.	Charleston	Miami
<u>Building Type</u>													
Office		38	182	132	310	159	226	115	99	96	136	190	107
Supermarket		41	187	136	308	161	226	131	103	101	129	207	107
Hospital, Medical		45	191	144	318	158	223	100	112	95	118	175	107
Educational		37	169	127	311	148	224	115	94	95	136	195	106
Restaurants		35	146	124	171	101	128	74	90	62	80	71	105
Shopping Center		42	182	138	348	161	219	133	105	100	137	196	107
Stores & Service Stations		38	186	145	299	146	231	117	98	80	108	134	107
Libraries & Museums		40	174	136	302	159	222	134	103	100	135	197	106
Religious & Social		35	145	122	282	133	226	131	87	97	133	196	107
Hotels		40	167	135	304	160	221	132	102	98	135	207	107
Motels & Nursing Homes		44	184	144	364	163	223	134	112	100	134	204	107
Warehouses		35	163	124	296	141	220	129	90	87	129	180	108

TABLE 6
1975 NON-RESIDENTIAL BUILDING INVENTORY

	<u>10⁶ ft²</u>	<u>1000 Bldgs.</u>	<u>Average Size 1000 ft²</u>
OFFICES			
Federal Owned	289	9	30.6
State and Local	929	82	11.4
Private Office and Bank	3164	275	11.5
RETAIL			
Supermarkets	312	25	12.5
Restaurants			
Franchised	148	45	3.3
Non-Franchised	300	273	1.1
Service Stations and			
Service Garages	617	343	1.8
Shopping Centers	847	13	63.2
Stores	2815	563	5.0
Other Commercial (Primarily parking garages)	608	13	47.0
EDUCATIONAL			
Schools	4333	177	24.5
Colleges, Vocational	820	25	33.3
Laboratories	410	23	17.6
Libraries, Museums	293	18	16.7
HEALTH			
Hospitals	1085	8	136
Clinics, Nursing Homes, and Mental Institutions	702	40	17.5
WAREHOUSES	3224	248	13.0
RELIGIOUS			
Churches	796	128	6.2
Sunday School and Other Religious	531	75	7.1
AMUSEMENT, SOCIAL, AND RECREATIONAL	1110	100	11.1
HOTELS, MOTELS			
> 3 stories	531	13	40
≤ 3 stories	619	30	20.5
DORMITORIES, FRATERNITY HOUSES, CONVENTS, AND OTHER	1061	39	27.2
PASSENGER TERMINALS, FREIGHT TERMINALS, EQUIPMENT STORAGE, AND OTHER MISC.	973	130	7.5
TOTAL	26517	2695	9.8

MATRIX SCREENING PROGRAM

c. COMPUTER OUTPUTS

TABLE OF CONTENTS, APPENDIX A.c

MATRIX SCREENING PROGRAM

c. Computer Outputs

CONTENTS

	<u>Page</u>
(1) Matrix Screen Results - Heating Only 70% Heating Load	77-144
(2) Matrix Screen Results - Heating Only 35% Heating Load	145-210
(3) Matrix Screen Results - Heating and Cooling	211-280

(1) MATRIX SCREEN RESULTS - HEATING ONLY

70% HEATING LOAD

CONTENTS

<u>Conventional Fuel</u>	<u>Solar Cost</u>	<u>Pages</u>
Electricity	\$ 1	79-95
	2	96-111
Oil	\$ 1	112-127
	2	128-144

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH. DC NY: NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
BUILDING TYPE	HOTEL	0.013	0.225	0.222	0.186	0.281	0.425	0.658	0.590	0.822	1.078	0.955	0.124
	LIBRARIES - MUSEUM	0.013	0.214	0.212	0.175	0.269	0.436	0.668	0.617	0.848	1.117	0.955	0.303
	SHOPPING- CENTER	0.001	0.107	0.120	0.055	0.098	0.394	0.597	0.563	0.787	1.039	0.770	0.217
	MOTEL & NURSING HOME	0.026	0.300	0.290	0.252	0.403	0.550	0.850	0.764	1.058	1.390	1.239	0.402
	WAREHOUSES	0.003	0.193	0.194	0.132	0.220	0.456	0.698	0.644	0.900	1.182	0.955	0.291
	OFFICE - BUILDING	0.020	0.301	0.302	0.242	0.384	0.611	0.936	0.854	1.181	1.555	1.333	0.423
	MEDICAL- INSTITUTION	0.040	0.375	0.360	0.318	0.501	0.674	1.032	0.939	1.285	1.702	1.524	0.501
	EDUCATIONAL	0.020	0.301	0.302	0.242	0.384	0.611	0.937	0.854	1.181	1.559	1.333	0.423
	RELIGIOUS & RECREATIONAL	0.040	0.440	0.420	0.384	0.599	0.747	1.144	1.033	1.416	1.871	1.692	0.569
	RETAIL- SUPERMARKET	0.004	0.247	0.258	0.175	0.293	0.612	0.931	0.858	1.197	1.572	1.273	0.390
	SINGLE STORE & SERV. STAT.	0.079	0.643	0.620	0.550	0.858	1.130	1.741	1.569	2.159	2.858	2.563	0.842
	RESTAURANT	0.184	1.790	1.643	1.469	2.407	2.966	4.574	4.103	5.646	7.443	6.800	2.278

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)=	1.00												
	S\$(\$/MBTU)=	8.74	5.24	6.94	8.25	9.93	12.47	9.19	11.70	8.04	11.83	14.80	33.75
	1000BTU/SQFT	114.44	190.69	143.34	121.15	100.68	80.17	108.82	85.44	124.13	84.55	67.55	29.63
BUILDING TYPE	HOTEL	0.010	0.145	0.184	0.154	0.244	0.486	0.615	0.537	0.777	1.011	0.877	0.510
	LIBRARIES - MUSEUM	0.010	0.138	0.174	0.145	0.234	0.497	0.625	0.562	0.801	1.047	0.877	1.249
	SHOPPING- CENTER	0.001	0.069	0.107	0.045	0.085	0.450	0.559	0.513	0.744	0.974	0.708	0.892
	MOTEL & NURSING HOME	0.020	0.193	0.244	0.209	0.350	0.628	0.795	0.696	1.000	1.303	1.139	1.656
	WAREHOUSES	0.002	0.124	0.161	0.109	0.191	0.521	0.653	0.586	0.851	1.108	0.877	1.198
	OFFICE - BUILDING	0.015	0.194	0.250	0.200	0.333	0.698	0.876	0.778	1.114	1.457	1.225	1.743
	MEDICAL- INSTITUTION	0.030	0.241	0.304	0.263	0.435	0.770	0.966	0.855	1.214	1.595	1.400	2.064
	EDUCATIONAL	0.015	0.194	0.250	0.200	0.333	0.698	0.877	0.778	1.114	1.461	1.225	1.743
	RELIGIOUS & RECREATIONAL	0.030	0.282	0.352	0.317	0.520	0.853	1.070	0.941	1.338	1.753	1.554	2.344
	RETAIL- SUPERMARKET	0.003	0.158	0.214	0.145	0.255	0.699	0.871	0.782	1.132	1.473	1.169	1.605
	SINGLE STORE & SERV.STAT.	0.060	0.413	0.520	0.455	0.745	1.291	1.629	1.429	2.041	2.679	2.354	3.466
	RESTAURANT	0.141	1.150	1.362	1.215	2.092	3.387	4.280	3.738	5.337	6.977	6.247	9.377

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)
HEATING ONLY/ELFC AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM(RY BLDG)														
B U I L D I N G T Y P E	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.50	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
SINGLE STORE & SERV.STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01	
RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47	
SUM(RY REG)=		1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81	
TOTSUM=		2117.21												

ENERGY REQUIRED(MILLION BTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTN TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY.	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S\$/C\$=		0.76	0.64	0.83	0.83	0.87	1.14	0.94	0.91	0.95	0.94	0.92	4.12
BUILDING TYPE	HOTEL	0.003	0.080	0.030	0.032	0.037	-0.060	0.042	0.053	0.045	0.068	0.078	-0.386
	LIBRARIES - MUSEUM	0.003	0.077	0.032	0.030	0.035	-0.062	0.043	0.055	0.044	0.070	0.078	-0.945
	SHOPPING- CENTER	0.000	0.038	0.022	0.009	0.013	-0.056	0.038	0.050	0.043	0.065	0.063	-0.675
	MOTEL & NURSING HOME	0.006	0.107	0.050	0.044	0.053	-0.078	0.055	0.068	0.058	0.087	0.101	-1.254
	WAREHOUSES	0.001	0.069	0.033	0.023	0.029	-0.065	0.045	0.057	0.049	0.074	0.078	-0.907
	OFFICE - BUILDING	0.005	0.108	0.052	0.042	0.050	-0.087	0.060	0.076	0.060	0.097	0.108	-1.320
	MEDICAL- INSTITUTION	0.009	0.134	0.063	0.055	0.066	-0.096	0.066	0.084	0.070	0.107	0.124	-1.563
	EDUCATIONAL	0.005	0.108	0.052	0.042	0.050	-0.087	0.060	0.076	0.060	0.098	0.108	-1.320
	RELIGIOUS & RECREATIONAL	0.009	0.157	0.073	0.066	0.078	-0.106	0.074	0.092	0.078	0.117	0.138	-1.775
	RETAIL- SUPERMARKET	0.001	0.088	0.044	0.030	0.038	-0.087	0.060	0.076	0.060	0.098	0.104	-1.215
	SINGLE STORE & SERV. STAT.	0.019	0.230	0.107	0.095	0.112	-0.160	0.112	0.140	0.118	0.179	0.208	-2.624
	RESTAURANT	0.043	0.640	0.285	0.254	0.315	-0.421	0.294	0.365	0.309	0.466	0.553	-7.099

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)
HEATING ONLY/ELFC AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 70% HEATING LOAD

BUILDING TYPE	FLOORS	REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTN TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
		0.90	1.51	1.13	0.96	0.79	0.63	0.86	0.67	0.98	0.67	0.53	0.23
	RAIS OIL SAV /SQFT/15YRS=												
HOTEL	5.00	0.03	0.39	0.59	0.49	0.80	1.79	2.09	1.80	2.65	3.44	2.95	2.36
LIBRARIES - MUSEUM	3.00	0.02	0.22	0.34	0.28	0.46	1.10	1.27	1.13	1.64	2.14	1.77	3.47
SHOPPING- CENTER	1.00	0.00	0.04	0.07	0.03	0.06	0.33	0.38	0.34	0.51	0.66	0.48	0.83
MOTEL & NURSING HOME	2.00	0.02	0.21	0.31	0.27	0.46	0.93	1.08	0.93	1.36	1.77	1.53	3.07
WAREHOUSES	1.00	0.00	0.07	0.10	0.07	0.13	0.38	0.44	0.39	0.58	0.75	0.59	1.11
OFFICE - BUILDING	4.00	0.04	0.41	0.64	0.51	0.87	2.06	2.38	2.09	3.05	3.96	3.30	6.46
MEDICAL- INSTITUTION	6.00	0.11	0.77	1.17	1.01	1.71	3.41	3.94	3.44	4.97	6.51	5.66	11.48
EDUCATIONAL	1.00	0.01	0.10	0.16	0.13	0.22	0.51	0.60	0.52	0.76	0.99	0.82	1.62
RELIGIOUS & RECREATIONAL	2.00	0.04	0.30	0.45	0.40	0.68	1.26	1.45	1.26	1.83	2.38	2.09	4.35
RETAIL- SUPERMARKET	1.00	0.00	0.08	0.14	0.09	0.17	0.52	0.59	0.52	0.77	1.00	0.79	1.49
SINGLE STORE & SERV. STAT.	1.00	0.04	0.22	0.33	0.29	0.49	0.95	1.11	0.96	1.39	1.82	1.59	3.21
RESTAURANT	1.00	0.09	0.61	0.87	0.77	1.37	2.50	2.91	2.51	3.64	4.74	4.21	8.69

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTN TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISM RK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
B U I L D I N G T Y P E	HOTEL	0.01	0.15	0.45	0.54	0.85	1.15	1.10	2.13	1.86	3.14	6.19	0.11
	LIBRARIES - MUSEUM	0.00	0.08	0.24	0.28	0.45	0.65	0.61	1.23	1.06	1.79	3.41	0.15
	SHOPPING- CENTER	0.00	0.11	0.42	0.25	0.47	1.69	1.59	3.25	2.84	4.83	7.97	0.31
	MOTEL & NURSING HOME	0.06	0.81	2.67	3.27	5.45	6.64	6.38	12.39	10.74	18.19	36.06	1.63
	WAREHOUSES	0.05	1.00	3.10	0.67	5.24	9.72	9.24	18.40	16.11	27.26	48.98	2.08
	OFFICE - BUILDING	0.09	1.62	5.03	5.79	9.53	13.57	12.92	25.47	22.04	37.41	71.33	3.16
	MEDICAL- INSTITUTION	0.04	0.50	1.52	1.88	3.08	3.71	3.53	6.93	5.94	10.13	20.19	0.92
	EDUCATIONAL	0.11	2.06	6.39	7.35	12.10	17.23	16.43	32.33	27.98	47.61	90.57	4.00
	RELIGIOUS & RECREATIONAL	0.10	1.31	5.21	5.08	8.26	9.20	8.77	17.09	14.67	24.99	50.24	2.36
	RETAIL- SUPERMARKET	0.00	0.09	0.31	0.30	0.52	0.96	0.91	2.61	1.58	2.68	4.83	0.21
SINGLE STORE & SERV. STAT.	0.33	3.20	9.67	12.14	19.69	23.20	22.20	52.26	37.23	63.52	135.17	7.01	
RESTAURANT	0.08	0.98	2.79	3.56	6.08	6.71	6.42	12.45	9.72	18.61	37.03	1.73	

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR. 70% HEATING LOAD

RANKING BY COST SAVINGS.

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR. 70% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.640
2	BOSTON ; RESTAURANT	:	0.553
3	MADISON ; RESTAURANT	:	0.466
4	WASH DC ; RESTAURANT	:	0.365
5	L.A. ; RESTAURANT	:	0.315
6	BISMARCK ; RESTAURANT	:	0.309
7	OMAHA ; RESTAURANT	:	0.294
8	FT. WORTH ; RESTAURANT	:	0.281
9	CHARL. ; RESTAURANT	:	0.254
10	PHOENIX ; SINGLE STORE& SERV.STAT.	:	0.230
11	BOSTON ; SINGLE STORE& SERV.STAT.	:	0.208
12	MADISON ; SINGLE STORE& SERV.STAT.	:	0.179
13	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.157
14	WASH DC ; SINGLE STORE& SERV.STAT.	:	0.140
15	BOSTON ; RELIGIOUS & RECREATIONAL	:	0.138
16	PHOENIX ; MEDICAL- INSTITUTION	:	0.134
17	BOSTON ; MEDICAL- INSTITUTION	:	0.124
18	BISMARCK ; SINGLE STORE& SERV.STAT.	:	0.118
19	MADISON ; RELIGIOUS & RECREATIONAL	:	0.117
20	L.A. ; SINGLE STORE& SERV.STAT.	:	0.112
21	OMAHA ; SINGLE STORE& SERV.STAT.	:	0.112
22	BOSTON ; EDUCATIONAL	:	0.108
23	BOSTON ; OFFICE - BUILDING	:	0.108
24	PHOENIX ; OFFICE - BUILDING	:	0.108
25	PHOENIX ; EDUCATIONAL	:	0.108

26	PHOENIX ; MOTEL &	NURSING HOME :	0.107
27	FT.WRTH ; SINGLE STORE&	SERV.STAT. :	0.107
28	MADISON ; MEDICAL-	INSTITUTION :	0.107
29	BOSTON ; RETAIL-	SUPERMARKET :	0.104
30	BOSTON ; MOTEL &	NURSING HOME :	0.101
31	MADISON ; RETAIL-	SUPERMARKET :	0.098
32	MADISON ; EDUCATIONAL	:	0.098
33	MADISON ; OFFICE -	BUILDING :	0.097
34	CHARL. ; SINGLE STORE&	SERV.STAT. :	0.095
35	WASH DC ; RELIGIOUS &	RECREATIONAL :	0.092
36	PHOENIX ; RETAIL-	SUPERMARKET :	0.088
37	MADISON ; MOTEL &	NURSING HOME :	0.087
38	WASH DC ; MEDICAL-	INSTITUTION :	0.084
39	PHOENIX ; HOTEL	:	0.080
40	L.A. ; RELIGIOUS &	RECREATIONAL :	0.078
41	BOSTON ; WAREHOUSES	:	0.078
42	BOSTON ; LIBRARIES -	MUSEUM :	0.078
43	BOSTON ; HOTEL	:	0.078
44	BISMARCK ; RELIGIOUS &	RECREATIONAL :	0.078
45	PHOENIX ; LIBRARIES -	MUSEUM :	0.077
46	WASH DC ; RETAIL-	SUPERMARKET :	0.076
47	WASH DC ; OFFICE -	BUILDING :	0.076
48	WASH DC ; EDUCATIONAL	:	0.076
49	MADISON ; WAREHOUSES	:	0.074
50	OMAHA ; RELIGIOUS &	RECREATIONAL :	0.074
51	FT.WRTH ; RELIGIOUS &	RECREATIONAL :	0.073
52	BISMARCK ; MEDICAL-	INSTITUTION :	0.070
53	MADISON ; LIBRARIES -	MUSEUM :	0.070
54	PHOENIX ; WAREHOUSES	:	0.069
55	WASH DC ; MOTEL &	NURSING HOME :	0.068

56	MADISON ; HOTEL	:	0.068
57	OMAHA ; MEDICAL- INSTITUTION	:	0.066
58	CHARL. ; RELIGIOUS & RECREATIONAL	:	0.066
59	L.A. ; MEDICAL- INSTITUTION	:	0.066
60	RISMRK. ; RETAIL- SUPERMARKET	:	0.066
61	MADISON ; SHOPPING- CENTER	:	0.065
62	RISMRK. ; EDUCATIONAL	:	0.065
63	RISMRK. ; OFFICE - BUILDING	:	0.065
64	FT.WRTH ; MEDICAL- INSTITUTION	:	0.063
65	BOSTON ; SHOPPING- CENTER	:	0.063
66	OMAHA ; EDUCATIONAL	:	0.060
67	OMAHA ; OFFICE - BUILDING	:	0.060
68	OMAHA ; RETAIL- SUPERMARKET	:	0.060
69	RISMRK. ; MOTEL & NURSING HOME	:	0.058
70	WASH DC ; WAREHOUSES	:	0.057
71	WASH DC ; LIBRARIES - MUSEUM	:	0.055
72	CHARL. ; MEDICAL- INSTITUTION	:	0.055
73	OMAHA ; MOTEL & NURSING HOME	:	0.055
74	L.A. ; MOTEL & NURSING HOME	:	0.053
75	WASH DC ; HOTEL	:	0.053
76	FT.WRTH ; EDUCATIONAL	:	0.052
77	FT.WRTH ; OFFICE - BUILDING	:	0.052
78	FT.WRTH ; MOTEL & NURSING HOME	:	0.050
79	L.A. ; EDUCATIONAL	:	0.050
80	L.A. ; OFFICE - BUILDING	:	0.050
81	WASH DC ; SHOPPING- CENTER	:	0.050
82	RISMRK. ; WAREHOUSES	:	0.049
83	RISMRK. ; LIBRARIES - MUSEUM	:	0.046
84	RISMRK. ; HOTEL	:	0.045
85	OMAHA ; WAREHOUSES	:	0.045

86	FT.WRTH	:	RETAIL-	SUPERMARKET	:	0.044
87	CHARL.	:	MOTEL &	NURSING HOME	:	0.044
88	MIAMI	:	RESTAURANT		:	0.043
89	RISMRK.	:	SHOPPING-	CENTER	:	0.043
90	OMAHA	:	LIBRARIES -	MUSEUM	:	0.043
91	OMAHA	:	HOTEL		:	0.042
92	CHARL.	:	EDUCATIONAL		:	0.042
93	CHARL.	:	OFFICE -	BUILDING	:	0.042
94	L.A.	:	RETAIL-	SUPERMARKET	:	0.038
95	OMAHA	:	SHOPPING-	CENTER	:	0.038
96	PHOENIX	:	SHOPPING-	CENTER	:	0.038
97	FT.WRTH	:	HOTEL		:	0.038
98	L.A.	:	HOTEL		:	0.037
99	FT.WRTH	:	LIBRARIES -	MUSEUM	:	0.036
100	L.A.	:	LIBRARIES -	MUSEUM	:	0.035
101	FT.WRTH	:	WAREHOUSES		:	0.033
102	CHARL.	:	HOTEL		:	0.032
103	CHARL.	:	RETAIL-	SUPERMARKET	:	0.030
104	CHARL.	:	LIBRARIES -	MUSEUM	:	0.030
105	L.A.	:	WAREHOUSES		:	0.029
106	CHARL.	:	WAREHOUSES		:	0.023
107	FT.WRTH	:	SHOPPING-	CENTER	:	0.022
108	MIAMI	:	SINGLE STORE&	SERV.STAT.	:	0.019
109	L.A.	:	SHOPPING-	CENTER	:	0.013
110	CHARL.	:	SHOPPING-	CENTER	:	0.009
111	MIAMI	:	RELIGIOUS &	RECREATIONAL	:	0.009
112	MIAMI	:	MEDICAL-	INSTITUTION	:	0.009
113	MIAMI	:	MOTEL &	NURSING HOME	:	0.006
114	MIAMI	:	OFFICE -	BUILDING	:	0.005
115	MIAMI	:	EDUCATIONAL		:	0.005

116	MIAMI ; HOTEL	:	0.003
117	MIAMI ; LIBRARIES - MUSEUM	:	0.003
118	MIAMI ; RETAIL- SUPERMARKET	:	0.001
119	MIAMI ; WAREHOUSES	:	0.001
120	MIAMI ; SHOPPING- CENTER	:	0.000
121	NASHVIL.; SHOPPING- CENTER	:	-0.056
122	NASHVIL.; HOTEL	:	-0.060
123	NASHVIL.; LIBRARIES - MUSEUM	:	-0.062
124	NASHVIL.; WAREHOUSES	:	-0.065
125	NASHVIL.; MOTEL & NURSING HOME	:	-0.078
126	NASHVIL.; OFFICE - BUILDING	:	-0.087
127	NASHVIL.; EDUCATIONAL	:	-0.087
128	NASHVIL.; RETAIL- SUPERMARKET	:	-0.087
129	NASHVIL.; MEDICAL- INSTITUTION	:	-0.096
130	NASHVIL.; RELIGIOUS & RECREATIONAL	:	-0.106
131	NASHVIL.; SINGLE STORE& SERV.STAT.	:	-0.160
132	SEATTLE ; HOTEL	:	-0.386
133	NASHVIL.; RESTAURANT	:	-0.421
134	SEATTLE ; SHOPPING- CENTER	:	-0.675
135	SEATTLE ; WAREHOUSES	:	-0.907
136	SEATTLE ; LIBRARIES - MUSEUM	:	-0.945
137	SEATTLE ; RETAIL- SUPERMARKET	:	-1.215
138	SEATTLE ; MOTEL & NURSING HOME	:	-1.254
139	SEATTLE ; EDUCATIONAL	:	-1.320
140	SEATTLE ; OFFICE - BUILDING	:	-1.320
141	SEATTLE ; MEDICAL- INSTITUTION	:	-1.563
142	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-1.775
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	-2.624
144	SEATTLE ; RESTAURANT	:	-7.099

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ELFC AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

1	PHOENIX ; RESTAURANT	0.982
2	BOSTON ; RESTAURANT	37.031
3	MADISON ; RESTAURANT	18.611
4	WASH DC ; RESTAURANT	12.445
5	L.A. ; RESTAURANT	6.081
6	RISMCK. ; RESTAURANT	9.722
7	OMAHA ; RESTAURANT	6.423
8	FT.WRTH ; RESTAURANT	2.791
9	CHARL. ; RESTAURANT	3.564
10	PHOENIX ; SINGLE STORE& SERV.STAT.	3.200
11	BOSTON ; SINGLE STORE& SERV.STAT.	135.171
12	MADISON ; SINGLE STORE& SERV.STAT.	63.525
13	PHOENIX ; RELIGIOUS & RECREATIONAL	1.314
14	WASH DC ; SINGLE STORE& SERV.STAT.	52.260
15	BOSTON ; RELIGIOUS & RECREATIONAL	50.239
16	PHOENIX ; MEDICAL- INSTITUTION	0.500
17	BOSTON ; MEDICAL- INSTITUTION	20.186
18	RISMCK. ; SINGLE STORE& SERV.STAT.	37.225
19	MADISON ; RELIGIOUS & RECREATIONAL	24.988
20	L.A. ; SINGLE STORE& SERV.STAT.	19.685
21	OMAHA ; SINGLE STORE& SERV.STAT.	22.202
22	BOSTON ; EDUCATIONAL	90.567
23	BOSTON ; OFFICE - BUILDING	71.333
24	PHOENIX ; OFFICE - BUILDING	1.623
25	PHOENIX ; EDUCATIONAL	2.057

26	PHOENIX ; MOTEL &	NURSING HOME :	0.811
27	FT.WRTH ; SINGLE STORE&	SERV.STAT. :	9.668
28	MADISON ; MEDICAL-	INSTITUTION :	10.133
29	BOSTON ; RETAIL-	SUPERMARKET :	4.825
30	ROSTON ; MOTEL &	NURSING HOME :	36.063
31	MADISON ; RETAIL-	SUPERMARKET :	2.677
32	MADISON ; EDUCATIONAL	:	47.611
33	MADISON ; OFFICE -	BUILDING :	37.412
34	CHAPL. ; SINGLE STORE&	SERV.STAT. :	12.137
35	WASH DC ; RELIGIOUS &	RECREATIONAL :	17.092
36	PHOENIX ; RETAIL-	SUPERMARKET :	0.093
37	MADISON ; MOTEL &	NURSING HOME :	18.186
38	WASH DC ; MEDICAL-	INSTITUTION :	6.929
39	PHOENIX ; HOTEL	:	0.147
40	L.A. ; RELIGIOUS &	RECREATIONAL :	8.256
41	BOSTON ; WAREHOUSES	:	48.977
42	BOSTON ; LIBRARIES -	MUSEUM :	3.411
43	BOSTON ; HOTEL	:	6.188
44	BISMRK. ; RELIGIOUS &	RECREATIONAL :	14.674
45	PHOENIX ; LIBRARIES -	MUSEUM :	0.077
46	WASH DC ; RETAIL-	SUPERMARKET :	2.612
47	WASH DC ; OFFICE -	BUILDING :	25.470
48	WASH DC ; EDUCATIONAL	:	32.332
49	MADISON ; WAREHOUSES	:	27.264
50	OMAHA ; RELIGIOUS &	RECREATIONAL :	8.772
51	FT.WRTH ; RELIGIOUS &	RECREATIONAL :	5.210
52	BISMRK. ; MEDICAL-	INSTITUTION :	5.937
53	MADISON ; LIBRARIES -	MUSEUM :	1.794
54	PHOENIX ; WAREHOUSES	:	0.995
55	WASH DC ; MOTEL &	NURSING HOME :	12.393

56	MADISON	:	HOTEL	:	3.143
57	OMAHA	:	MEDICAL- INSTITUTION	:	3.527
58	CHARL.	:	RELIGIOUS & RECREATIONAL	:	5.084
59	L.A.	:	MEDICAL- INSTITUTION	:	3.080
60	BISMRK.	:	RETAIL- SUPERMARKET	:	1.582
61	MADISON	:	SHOPPING- CENTER	:	4.833
62	BISMRK.	:	EDUCATIONAL	:	27.983
63	BISMRK.	:	OFFICE - BUILDING	:	22.044
64	FT.WRTH	:	MEDICAL- INSTITUTION	:	1.523
65	BOSTON	:	SHOPPING- CENTER	:	7.969
66	OMAHA	:	EDUCATIONAL	:	16.432
67	OMAHA	:	OFFICE - BUILDING	:	12.924
68	OMAHA	:	RETAIL- SUPERMARKET	:	0.914
69	BISMRK.	:	MOTEL & NURSING HOME	:	10.740
70	WASH DC	:	WAREHOUSES	:	18.399
71	WASH DC	:	LIBRARIES - MUSEUM	:	1.227
72	CHARL.	:	MEDICAL- INSTITUTION	:	1.880
73	OMAHA	:	MOTEL & NURSING HOME	:	6.380
74	L.A.	:	MOTEL & NURSING HOME	:	5.447
75	WASH DC	:	HOTEL	:	2.131
76	FT.WRTH	:	EDUCATIONAL	:	6.386
77	FT.WRTH	:	OFFICE - BUILDING	:	5.031
78	FT.WRTH	:	MOTEL & NURSING HOME	:	2.675
79	L.A.	:	EDUCATIONAL	:	12.098
80	L.A.	:	OFFICE - BUILDING	:	9.528
81	WASH DC	:	SHOPPING- CENTER	:	3.246
82	BISMRK.	:	WAREHOUSES	:	16.114
83	BISMRK.	:	LIBRARIES - MUSEUM	:	1.059
84	BISMRK.	:	HOTEL	:	1.856
85	OMAHA	:	WAREHOUSES	:	9.240

86	FT.WRTH	:	RETAIL-	SUPERMARKET	:	0.306
87	CHARL.	:	MOTEL &	NURSING HOME	:	3.273
88	MIAMI	:	RESTAURANT		:	0.084
89	BISMCK.	:	SHOPPING-	CENTER	:	2.841
90	OMAHA	:	LIBRARIES -	MUSEUM	:	0.614
91	OMAHA	:	HOTEL		:	1.101
92	CHARL.	:	EDUCATIONAL		:	7.345
93	CHAPL.	:	OFFICE -	BUILDING	:	5.786
94	L.A.	:	RETAIL-	SUPERMARKET	:	0.516
95	OMAHA	:	SHOPPING-	CENTER	:	1.594
96	PHOENIX	:	SHOPPING-	CENTER	:	0.111
97	FT.WRTH	:	HOTEL		:	0.447
98	L.A.	:	HOTEL		:	0.845
99	FT.WRTH	:	LIBRARIES -	MUSEUM	:	0.237
100	L.A.	:	LIBRARIES -	MUSEUM	:	0.447
101	FT.WRTH	:	WAREHOUSES		:	3.097
102	CHARL.	:	HOTEL		:	0.539
103	CHARL.	:	RETAIL-	SUPERMARKET	:	0.297
104	CHARL.	:	LIBRARIES -	MUSEUM	:	0.280
105	L.A.	:	WAREHOUSES		:	5.238
106	CHARL.	:	WAREHOUSES		:	0.666
107	FT.WRTH	:	SHOPPING-	CENTER	:	0.416
108	MIAMI	:	SINGLE STORE&	SERV.STAT.	:	0.328
109	L.A.	:	SHOPPING-	CENTER	:	0.469
110	CHARL.	:	SHOPPING-	CENTER	:	0.253
111	MIAMI	:	RELIGIOUS &	RECREATIONAL	:	0.098
112	MIAMI	:	MEDICAL-	INSTITUTION	:	0.044
113	MIAMI	:	MOTEL &	NURSING HOME	:	0.064
114	MIAMI	:	OFFICE -	BUILDING	:	0.089
115	MIAMI	:	EDUCATIONAL		:	0.113

116	MIAMI ; HOTEL	0.007
117	MIAMI ; LIBRARIES - MUSEUM	0.004
118	MIAMI ; RETAIL- SUPERMARKET	0.001
119	MIAMI ; WAREHOUSES	0.050
120	MIAMI ; SHOPPING- CENTER	0.001
121	NASHVIL.; SHOPPING- CENTER	1.692
122	NASHVIL.; HOTEL	1.145
123	NASHVIL.; LIBRARIES - MUSEUM	0.647
124	NASHVIL.; WAREHOUSES	9.720
125	NASHVIL.; MOTEL & NURSING HOME	6.637
126	NASHVIL.; OFFICE - BUILDING	13.569
127	NASHVIL.; EDUCATIONAL	17.230
128	NASHVIL.; RETAIL- SUPERMARKET	0.962
129	NASHVIL.; MEDICAL- INSTITUTION	3.708
130	NASHVIL.; RELIGIOUS & RECREATIONAL	9.203
131	NASHVIL.; SINGLE STORE& SERV.STAT.	23.203
132	SEATTLE ; HOTEL	0.112
133	NASHVIL.; RESTAURANT	6.707
134	SEATTLE ; SHOPPING- CENTER	0.311
135	SEATTLE ; WAREHOUSES	2.076
136	SEATTLE ; LIBRARIES - MUSEUM	0.151
137	SEATTLE ; RETAIL- SUPERMARKET	0.207
138	SEATTLE ; MOTEL & NURSING HOME	1.633
139	SEATTLE ; EDUCATIONAL	4.003
140	SEATTLE ; OFFICE - BUILDING	3.160
141	SEATTLE ; MEDICAL- INSTITUTION	0.924
142	SEATTLE ; RELIGIOUS & RECREATIONAL	2.357
143	SEATTLE ; SINGLE STORE& SERV.STAT.	7.007
144	SEATTLE ; RESTAURANT	1.726

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
HOTEL		0.013	0.225	0.222	0.186	0.281	0.425	0.658	0.590	0.822	1.078	0.955	0.124
LIBRARIES - MUSEUM		0.013	0.214	0.212	0.175	0.269	0.436	0.668	0.617	0.848	1.117	0.955	0.303
SHOPPING- CENTER		0.001	0.107	0.120	0.055	0.098	0.394	0.597	0.563	0.787	1.039	0.770	0.217
MOTEL & NURSING HOME		0.026	0.300	0.295	0.252	0.403	0.550	0.850	0.764	1.058	1.390	1.239	0.402
WAREHOUSES		0.003	0.193	0.194	0.132	0.220	0.456	0.698	0.644	0.900	1.182	0.955	0.291
OFFICE - BUILDING		0.020	0.301	0.302	0.242	0.384	0.611	0.936	0.854	1.181	1.555	1.333	0.423
MEDICAL- INSTITUTION		0.040	0.375	0.360	0.318	0.501	0.674	1.032	0.939	1.285	1.702	1.524	0.501
EDUCATIONAL		0.020	0.301	0.302	0.242	0.384	0.611	0.937	0.854	1.181	1.559	1.333	0.423
RELIGIOUS & RECREATIONAL		0.040	0.440	0.425	0.384	0.599	0.747	1.144	1.033	1.416	1.871	1.692	0.569
RETAIL- SUPERMARKET		0.004	0.247	0.258	0.175	0.293	0.612	0.931	0.858	1.197	1.572	1.273	0.390
SINGLE STORE & SERV. STAT.		0.079	0.643	0.628	0.550	0.858	1.130	1.741	1.569	2.159	2.858	2.563	0.842
RESTAURANT		0.184	1.790	1.643	1.469	2.407	2.966	4.574	4.103	5.646	7.443	6.800	2.278

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)
 HEATING ONLY/ELEC AS CONVENTIONAL FUEL
 SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

REGION

S(\$/SQFT)= 2.00

SS(\$/MBTU)=

1000BTU/SQFT

MIAMI FLORIDA PHOENIX ARIZONA FT. WORTH TEXAS CHARL. S.C. L.A. CALIF. NASHVIL. TENN. OMAHA NEBR. WASH. DC NYC NY BISMARCK N.D. MADISON WIS. BOSTON MASS. SEATTLE WASH.

17.48 10.49 13.95 16.51 19.86 24.95 18.38 23.41 16.11 23.65 29.61 67.50
114.44 190.69 143.34 121.15 100.68 80.17 108.82 85.44 124.13 84.55 67.55 29.63

HOTEL

0.016 0.222 0.301 0.252 0.404 0.844 1.034 0.898 1.307 1.698 1.468 0.982

LIBRARIES - MUSEUM

0.016 0.211 0.288 0.238 0.387 0.864 1.049 0.939 1.348 1.759 1.468 2.406

SHOPPING-CENTER

0.002 0.106 0.172 0.074 0.141 0.782 0.938 0.857 1.251 1.636 1.185 1.719

MOTEL & NURSING HOME

0.032 0.296 0.401 0.341 0.580 1.090 1.336 1.163 1.682 2.189 1.906 3.192

WAREHOUSES

0.003 0.190 0.263 0.178 0.316 0.905 1.097 0.980 1.432 1.861 1.468 2.308

OFFICE - BUILDING

0.024 0.297 0.410 0.328 0.552 1.212 1.471 1.300 1.878 2.448 2.050 3.359

MEDICAL - INSTITUTION

0.049 0.370 0.501 0.430 0.720 1.337 1.622 1.429 2.043 2.680 2.343 3.978

EDUCATIONAL

0.024 0.297 0.410 0.328 0.552 1.212 1.472 1.300 1.878 2.455 2.050 3.359

RELIGIOUS & RECREATIONAL

0.049 0.433 0.577 0.520 0.861 1.481 1.797 1.571 2.252 2.946 2.601 4.518

RETAIL - SUPERMARKET

0.005 0.243 0.351 0.238 0.422 1.214 1.463 1.306 1.904 2.475 1.957 3.094

SINGLE STORE & SERV. STAT.

0.097 0.633 0.852 0.745 1.234 2.243 2.735 2.388 3.433 4.500 3.940 6.678

RESTAURANT

0.227 1.763 2.231 1.989 3.462 5.884 7.187 6.245 8.980 11.721 10.455 18.071

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

			REGION											
			MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMRK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
SUM(RY BLDG)														
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.59	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
	SINGLE STORE & SERV. STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01
	RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47
SUM(BY REG)=			1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81
TOTSUM=			2117.21											

ENERGY REQUIRED (MILLION MBTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	RISMKK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S\$/C\$=		1.23	0.98	1.36	1.35	1.44	1.98	1.57	1.52	1.59	1.57	1.54	7.93
BUILDING TYPE	HOTEL	-0.003	0.003	-0.070	-0.066	-0.123	-0.418	-0.376	-0.308	-0.485	-0.620	-0.513	-0.858
	LIBRARIES - MUSEUM	-0.003	0.003	-0.074	-0.062	-0.118	-0.429	-0.382	-0.322	-0.501	-0.642	-0.513	-2.103
	SHOPPING- CENTER	-0.000	0.002	-0.044	-0.019	-0.043	-0.388	-0.341	-0.294	-0.464	-0.597	-0.414	-1.502
	MOTEL & NURSING HOME	-0.006	0.005	-0.104	-0.089	-0.177	-0.541	-0.486	-0.399	-0.624	-0.799	-0.666	-2.790
	WAREHOUSES	-0.001	0.003	-0.060	-0.047	-0.096	-0.449	-0.399	-0.336	-0.532	-0.679	-0.513	-2.017
	OFFICE - BUILDING	-0.005	0.005	-0.108	-0.086	-0.168	-0.601	-0.535	-0.446	-0.697	-0.894	-0.716	-2.935
	MEDICAL- INSTITUTION	-0.009	0.006	-0.132	-0.113	-0.219	-0.663	-0.590	-0.490	-0.759	-0.978	-0.819	-3.476
	EDUCATIONAL	-0.005	0.005	-0.108	-0.086	-0.168	-0.601	-0.535	-0.446	-0.697	-0.896	-0.716	-2.935
	RELIGIOUS & RECREATIONAL	-0.009	0.007	-0.152	-0.136	-0.262	-0.735	-0.653	-0.539	-0.834	-1.075	-0.909	-3.948
	RETAIL- SUPERMARKET	-0.001	0.004	-0.093	-0.062	-0.128	-0.602	-0.532	-0.448	-0.707	-0.903	-0.684	-2.704
	SINGLE STORE & SERV.STAT.	-0.018	0.010	-0.225	-0.195	-0.376	-1.112	-0.994	-0.819	-1.275	-1.642	-1.377	-5.837
	RESTAURANT	-0.042	0.027	-0.588	-0.520	-1.054	-2.918	-2.613	-2.142	-3.334	-4.278	-3.654	-15.793

COST DIFFERENCE OF CONV. FROM SOLAR(\$/SQFT)

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTN TEXAS	CHAPL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
RAIS OIL SAV /SQFT/15YRS=		0.90	1.51	1.13	0.96	0.79	0.63	0.86	0.67	0.98	0.67	0.53	0.23
FLOORS													
BUILDING TYPE	HOTEL	5.00	0.03	0.39	0.59	0.49	0.80	1.79	2.09	1.80	2.65	3.44	2.36
	LIBRARIES - MUSEUM	3.00	0.02	0.22	0.34	0.28	0.46	1.10	1.27	1.13	1.64	2.14	3.47
	SHOPPING- CENTER	1.00	0.00	0.04	0.07	0.03	0.06	0.33	0.38	0.34	0.51	0.66	0.83
	MOTEL & NURSING HOME	2.00	0.02	0.21	0.31	0.27	0.46	0.93	1.08	0.93	1.36	1.77	3.07
	WAREHOUSES	1.00	0.00	0.07	0.10	0.07	0.13	0.38	0.44	0.39	0.58	0.75	1.11
	OFFICE - BUILDING	4.00	0.04	0.41	0.64	0.51	0.87	2.06	2.38	2.09	3.05	3.96	6.46
	MEDICAL- INSTITUTION	6.00	0.11	0.77	1.17	1.01	1.71	3.41	3.94	3.44	4.97	6.51	11.48
	EDUCATIONAL	1.00	0.01	0.10	0.14	0.13	0.22	0.51	0.60	0.52	0.76	0.99	1.62
	RELIGIOUS & RECREATIONAL	2.00	0.04	0.30	0.45	0.40	0.68	1.26	1.45	1.26	1.83	2.38	4.35
	RETAIL- SUPERMARKET	1.00	0.00	0.08	0.14	0.09	0.17	0.52	0.59	0.52	0.77	1.00	1.49
	SINGLE STORE & SERV.STAT.	1.00	0.04	0.22	0.33	0.29	0.49	0.95	1.11	0.96	1.39	1.82	3.21
	RESTAURANT	1.00	0.09	0.61	0.87	0.77	1.37	2.50	2.91	2.51	3.64	4.74	8.69

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

HOTEL
LIBRARIES -
MUSEUM
SHOPPING-
CENTER
MOTEL &
NURSING HOME
WAREHOUSES
OFFICE -
BUILDING
MEDICAL-
INSTITUTION
EDUCATIONAL
RELIGIOUS &
RECREATIONAL
RETAIL-
SUPERMARKET
SINGLE STORE
& SERV.STAT.
RESTAURANT

REGION												
MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
0.01	0.15	0.45	0.54	0.85	1.15	1.10	2.13	1.86	3.14	6.19	0.11	
0.00	0.08	0.24	0.28	0.45	0.65	0.61	1.23	1.06	1.79	3.41	0.15	
0.00	0.11	0.42	0.25	0.47	1.69	1.59	3.25	2.84	4.83	7.97	0.31	
0.06	0.81	2.67	3.27	5.45	6.64	6.38	12.39	10.74	18.19	36.06	1.63	
0.05	1.00	3.10	0.67	5.24	9.72	9.24	18.40	16.11	27.26	48.98	2.08	
0.09	1.62	5.03	5.79	9.53	13.57	12.92	25.47	22.04	37.41	71.33	3.16	
0.04	0.50	1.52	1.88	3.08	3.71	3.53	6.93	5.94	10.13	20.19	0.92	
0.11	2.06	6.39	7.35	12.10	17.23	16.43	32.33	27.98	47.61	90.57	4.00	
0.10	1.31	5.21	5.08	8.26	9.20	8.77	17.09	14.67	24.99	50.24	2.36	
0.00	0.09	0.31	0.30	0.52	0.96	0.91	2.61	1.58	2.68	4.83	0.21	
0.33	3.20	9.67	12.14	19.69	23.20	22.20	52.26	37.23	63.52	135.17	7.01	
0.08	0.98	2.79	3.56	6.08	6.71	6.42	12.45	9.72	18.61	37.03	1.73	

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

RANKING BY COST SAVINGS

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.027
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	0.010
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.007
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.006
5	PHOENIX ; EDUCATIONAL	:	0.005
6	PHOENIX ; OFFICE - BUILDING	:	0.005
7	PHOENIX ; MOTEL & NURSING-HOME	:	0.005
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.004
9	PHOENIX ; HOTEL	:	0.003
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.003
11	PHOENIX ; WAREHOUSES	:	0.003
12	PHOENIX ; SHOPPING- CENTER	:	0.002
13	MIAMI ; SHOPPING- CENTER	:	-0.000
14	MIAMI ; WAREHOUSES	:	-0.001
15	MIAMI ; RETAIL- SUPERMARKET	:	-0.001
16	MIAMI ; HOTEL	:	-0.003
17	MIAMI ; LIBRARIES - MUSEUM	:	-0.003
18	MIAMI ; OFFICE - BUILDING	:	-0.005
19	MIAMI ; EDUCATIONAL	:	-0.005
20	MIAMI ; MOTEL & NURSING HOME	:	-0.006
21	MIAMI ; MEDICAL- INSTITUTION	:	-0.009
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	-0.009
23	MIAMI ; SINGLE STORE& SERV.STAT.	:	-0.018
24	CHARL. ; SHOPPING- CENTER	:	-0.019
25	MIAMI ; RESTAURANT	:	-0.042

26	L.A.	;	SHOPPING-	CENTER	;	-0.043
27	FT.WRTH	;	SHOPPING-	CENTER	;	-0.046
28	CHARL.	;	WAREHOUSES		;	-0.047
29	CHARL.	;	LIBRARIES -	MUSEUM	;	-0.062
30	CHARL.	;	RETAIL-	SUPERMARKET	;	-0.062
31	CHARL.	;	HOTEL		;	-0.066
32	FT.WRTH	;	WAREHOUSES		;	-0.069
33	FT.WRTH	;	LIBRARIES -	MUSEUM	;	-0.076
34	FT.WRTH	;	HOTEL		;	-0.079
35	CHARL.	;	OFFICE -	BUILDING	;	-0.086
36	CHARL.	;	EDUCATIONAL		;	-0.086
37	CHARL.	;	MOTEL &	NURSING HOME	;	-0.089
38	FT.WRTH	;	RETAIL-	SUPERMARKET	;	-0.093
39	L.A.	;	WAREHOUSES		;	-0.096
40	FT.WRTH	;	MOTEL &	NURSING HOME	;	-0.106
41	FT.WRTH	;	EDUCATIONAL		;	-0.108
42	FT.WRTH	;	OFFICE -	BUILDING	;	-0.108
43	CHARL.	;	MEDICAL-	INSTITUTION	;	-0.113
44	L.A.	;	LIBRARIES -	MUSEUM	;	-0.118
45	L.A.	;	HOTEL		;	-0.123
46	L.A.	;	RETAIL-	SUPERMARKET	;	-0.128
47	FT.WRTH	;	MEDICAL-	INSTITUTION	;	-0.132
48	CHARL.	;	RELIGIOUS &	RECREATIONAL	;	-0.136
49	FT.WRTH	;	RELIGIOUS &	RECREATIONAL	;	-0.152
50	L.A.	;	EDUCATIONAL		;	-0.168
51	L.A.	;	OFFICE -	BUILDING	;	-0.168
52	L.A.	;	MOTEL &	NURSING HOME	;	-0.177
53	CHARL.	;	SINGLE STORE&	SERV.STAT.	;	-0.195
54	L.A.	;	MEDICAL-	INSTITUTION	;	-0.219
55	FT.WRTH	;	SINGLE STORE&	SERV.STAT.	;	-0.225

56	L.A.	;	RELIGIOUS & RECREATIONAL	:	-0.262
57	WASH DC	;	SHOPPING- CENTER	:	-0.294
58	WASH DC	;	HOTEL	:	-0.308
59	WASH DC	;	LIBRARIES - MUSEUM	:	-0.322
60	WASH DC	;	WAREHOUSES	:	-0.336
61	OMAHA	;	SHOPPING- CENTER	:	-0.341
62	L.A.	;	SINGLE STORE& SERV.STAT.	:	-0.376
63	OMAHA	;	HOTEL	:	-0.376
64	OMAHA	;	LIBRARIES - MUSEUM	:	-0.382
65	NASHVIL.	;	SHOPPING- CENTER	:	-0.388
66	OMAHA	;	WAREHOUSES	:	-0.399
67	WASH DC	;	MOTEL & NURSING HOME	:	-0.399
68	BOSTON	;	SHOPPING- CENTER	:	-0.414
69	NASHVIL.	;	HOTEL	:	-0.418
70	NASHVIL.	;	LIBRARIES - MUSEUM	:	-0.429
71	WASH DC	;	OFFICE - BUILDING	:	-0.446
72	WASH DC	;	EDUCATIONAL	:	-0.446
73	WASH DC	;	RETAIL- SUPERMARKET	:	-0.448
74	NASHVIL.	;	WAREHOUSES	:	-0.449
75	BISMRK.	;	SHOPPING- CENTER	:	-0.464
76	BISMRK.	;	HOTEL	:	-0.485
77	OMAHA	;	MOTEL & NURSING HOME	:	-0.486
78	WASH DC	;	MEDICAL- INSTITUTION	:	-0.490
79	BISMRK.	;	LIBRARIES - MUSEUM	:	-0.501
80	BOSTON	;	LIBRARIES - MUSEUM	:	-0.513
81	BOSTON	;	HOTEL	:	-0.513
82	BOSTON	;	WAREHOUSES	:	-0.513
83	CHARL.	;	RESTAURANT	:	-0.520
84	BISMRK.	;	WAREHOUSES	:	-0.532
85	OMAHA	;	RETAIL- SUPERMARKET	:	-0.532

86	OMAHA ; OFFICE - BUILDING :	-0.535
87	OMAHA ; EDUCATIONAL :	-0.535
88	WASH DC ; RELIGIOUS & RECREATIONAL :	-0.539
89	NASHVIL. ; MOTEL & NURSING HOME :	-0.541
90	FT. WRTH ; RESTAURANT :	-0.588
91	OMAHA ; MEDICAL- INSTITUTION :	-0.590
92	MADISON ; SHOPPING- CENTER :	-0.597
93	NASHVIL. ; OFFICE - BUILDING :	-0.601
94	NASHVIL. ; EDUCATIONAL :	-0.601
95	NASHVIL. ; RETAIL- SUPERMARKET :	-0.602
96	MADISON ; HOTEL :	-0.620
97	BISMRK. ; MOTEL & NURSING HOME :	-0.624
98	MADISON ; LIARRARIES - MUSEUM :	-0.642
99	OMAHA ; RELIGIOUS & RECREATIONAL :	-0.653
100	NASHVIL. ; MEDICAL- INSTITUTION :	-0.663
101	BOSTON ; MOTEL & NURSING HOME :	-0.666
102	MADISON ; WAREHOUSES :	-0.679
103	BOSTON ; RETAIL- SUPERMARKET :	-0.684
104	BISMRK. ; EDUCATIONAL :	-0.697
105	BISMRK. ; OFFICE - BUILDING :	-0.697
106	BISMRK. ; RETAIL- SUPERMARKET :	-0.707
107	BOSTON ; OFFICE - BUILDING :	-0.716
108	BOSTON ; EDUCATIONAL :	-0.716
109	NASHVIL. ; RELIGIOUS & RECREATIONAL :	-0.735
110	BISMRK. ; MEDICAL- INSTITUTION :	-0.759
111	MADISON ; MOTEL & NURSING HOME :	-0.799
112	WASH DC ; SINGLE STORE& SERV. STAT. :	-0.819
113	BOSTON ; MEDICAL- INSTITUTION :	-0.819
114	BISMRK. ; RELIGIOUS & RECREATIONAL :	-0.836
115	SEATTLE ; HOTEL :	-0.858

116	MADISON ; OFFICE - BUILDING	:	-0.894
117	MADISON ; EDUCATIONAL	:	-0.896
118	MADISON ; RETAIL- SUPERMARKET	:	-0.903
119	BOSTON ; RELIGIOUS & RECREATIONAL	:	-0.909
120	MADISON ; MEDICAL- INSTITUTION	:	-0.978
121	OMAHA ; SINGLE STORE& SERV.STAT.	:	-0.994
122	L.A. ; RESTAURANT	:	-1.054
123	MADISON ; RELIGIOUS & RECREATIONAL	:	-1.075
124	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	-1.112
125	BISMCK. ; SINGLE STORE& SERV.STAT.	:	-1.275
126	BOSTON ; SINGLE STORE& SERV.STAT.	:	-1.377
127	SEATTLE ; SHOPPING- CENTER	:	-1.502
128	MADISON ; SINGLE STORE& SERV.STAT.	:	-1.642
129	SEATTLE ; WAREHOUSES	:	-2.017
130	SEATTLE ; LIBRARIES - MUSEUM	:	-2.103
131	WASH DC ; RESTAURANT	:	-2.142
132	OMAHA ; RESTAURANT	:	-2.613
133	SEATTLE ; RETAIL- SUPERMARKET	:	-2.704
134	SEATTLE ; MOTEL & NURSING HOME	:	-2.790
135	NASHVIL. ; RESTAURANT	:	-2.918
136	SEATTLE ; EDUCATIONAL	:	-2.935
137	SEATTLE ; OFFICE - BUILDING	:	-2.935
138	BISMCK. ; RESTAURANT	:	-3.334
139	SEATTLE ; MEDICAL- INSTITUTION	:	-3.476
140	BOSTON ; RESTAURANT	:	-3.654
141	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-3.948
142	MADISON ; RESTAURANT	:	-4.278
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	-5.837
144	SEATTLE ; RESTAURANT	:	-15.793

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ELEC AS CONVENTIONAL FUEL
SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.982
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	3.200
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	1.314
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.500
5	PHOENIX ; EDUCATIONAL	:	2.057
6	PHOENIX ; OFFICE - BUILDING	:	1.623
7	PHOENIX ; MOTEL & NURSING HOME	:	0.811
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.093
9	PHOENIX ; HOTEL	:	0.147
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.077
11	PHOENIX ; WAREHOUSES	:	0.995
12	PHOENIX ; SHOPPING- CENTER	:	0.111
13	MIAMI ; SHOPPING- CENTER	:	0.001
14	MIAMI ; WAREHOUSES	:	0.050
15	MIAMI ; RETAIL- SUPERMARKET	:	0.001
16	MIAMI ; HOTEL	:	0.007
17	MIAMI ; LIBRARIES - MUSEUM	:	0.004
18	MIAMI ; OFFICE - BUILDING	:	0.089
19	MIAMI ; EDUCATIONAL	:	0.113
20	MIAMI ; MOTEL & NURSING HOME	:	0.064
21	MIAMI ; MEDICAL- INSTITUTION	:	0.044
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.098
23	MIAMI ; SINGLE STORE& SERV.STAT.	:	0.328
24	CHARL. ; SHOPPING- CENTER	:	0.253
25	MIAMI ; RESTAURANT	:	0.084

26	L.A.	;	SHOPPING-	CENTER	:	0.469
27	FT.WRTH	;	SHOPPING-	CENTER	:	0.416
28	CHARL.	;	WAREHOUSES		:	0.666
29	CHARL.	;	LIBRARIES -	MUSEUM	:	0.280
30	CHARL.	;	RETAIL-	SUPERMARKET	:	0.297
31	CHARL.	;	HOTEL		:	0.539
32	FT.WRTH	;	WAREHOUSES		:	3.097
33	FT.WRTH	;	LIBRARIES -	MUSEUM	:	0.237
34	FT.WRTH	;	HOTEL		:	0.447
35	CHARL.	;	OFFICE -	BUILDING	:	5.786
36	CHARL.	;	EDUCATIONAL		:	7.345
37	CHARL.	;	MOTEL &	NURSING HOME	:	3.273
38	FT.WRTH	;	RETAIL-	SUPERMARKET	:	0.306
39	L.A.	;	WAREHOUSES		:	5.238
40	FT.WRTH	;	MOTEL &	NURSING HOME	:	2.675
41	FT.WRTH	;	EDUCATIONAL		:	6.386
42	FT.WRTH	;	OFFICE -	BUILDING	:	5.031
43	CHARL.	;	MEDICAL-	INSTITUTION	:	1.880
44	L.A.	;	LIBRARIES -	MUSEUM	:	0.447
45	L.A.	;	HOTEL		:	0.845
46	L.A.	;	RETAIL-	SUPERMARKET	:	0.516
47	FT.WRTH	;	MEDICAL-	INSTITUTION	:	1.523
48	CHARL.	;	RELIGIOUS &	RECREATIONAL	:	5.084
49	FT.WRTH	;	RELIGIOUS &	RECREATIONAL	:	5.210
50	L.A.	;	EDUCATIONAL		:	12.098
51	L.A.	;	OFFICE -	BUILDING	:	9.528
52	L.A.	;	MOTEL &	NURSING HOME	:	5.447
53	CHARL.	;	SINGLE STORE&	SERV.STAT.	:	12.137
54	L.A.	;	MEDICAL-	INSTITUTION	:	3.080
55	FT.WRTH	;	SINGLE STORE&	SERV.STAT.	:	9.668

56	L.A.	: RELIGIOUS & RECREATIONAL :	8.256
57	WASH DC	: SHOPPING- CENTER :	3.246
58	WASH DC	: HOTEL :	2.131
59	WASH DC	: LIBRARIES - MUSEUM :	1.227
60	WASH DC	: WAREHOUSES :	18.399
61	OMAHA	: SHOPPING- CENTER :	1.594
62	L.A.	: SINGLE STORE& SERV.STAT. :	19.685
63	OMAHA	: HOTEL :	1.101
64	OMAHA	: LIBRARIES - MUSEUM :	0.614
65	NASHVIL.	: SHOPPING- CENTER :	1.692
66	OMAHA	: WAREHOUSES :	9.240
67	WASH DC	: MOTEL & NURSING HOME :	12.393
68	BOSTON	: SHOPPING- CENTER :	7.969
69	NASHVIL.	: HOTEL :	1.145
70	NASHVIL.	: LIBRARIES - MUSEUM :	0.647
71	WASH DC	: OFFICE - BUILDING :	25.470
72	WASH DC	: EDUCATIONAL :	32.332
73	WASH DC	: RETAIL- SUPERMARKET :	2.612
74	NASHVIL.	: WAREHOUSES :	9.720
75	BISMRK.	: SHOPPING- CENTER :	2.841
76	BISMRK.	: HOTEL :	1.856
77	OMAHA	: MOTEL & NURSING HOME :	6.380
78	WASH DC	: MEDICAL- INSTITUTION :	6.929
79	BISMRK.	: LIBRARIES - MUSEUM :	1.059
80	BOSTON	: LIBRARIES - MUSEUM :	3.411
81	BOSTON	: HOTEL :	6.188
82	BOSTON	: WAREHOUSES :	48.977
83	CHARL.	: RESTAURANT :	3.564
84	BISMRK.	: WAREHOUSES :	16.114
85	OMAHA	: RETAIL- SUPERMARKET :	0.914

86	OMAHA ; OFFICE - BUILDING	:	12.924
87	OMAHA ; EDUCATIONAL	:	16.432
88	WASH DC ; RELIGIOUS & RECREATIONAL	:	17.092
89	NASHVIL. ; MOTEL & NURSING HOME	:	6.637
90	FT. WRTH ; RESTAURANT	:	2.791
91	OMAHA ; MEDICAL- INSTITUTION	:	3.527
92	MADISON ; SHOPPING- CENTER	:	4.833
93	NASHVIL. ; OFFICE - BUILDING	:	13.569
94	NASHVIL. ; EDUCATIONAL	:	17.230
95	NASHVIL. ; RETAIL- SUPERMARKET	:	0.962
96	MADISON ; HOTEL	:	3.143
97	BISMARCK. ; MOTEL & NURSING HOME	:	10.740
98	MADISON ; LIBRARIES - MUSEUM	:	1.794
99	OMAHA ; RELIGIOUS & RECREATIONAL	:	8.772
100	NASHVIL. ; MEDICAL- INSTITUTION	:	3.708
101	BOSTON ; MOTEL & NURSING HOME	:	36.063
102	MADISON ; WAREHOUSES	:	27.264
103	BOSTON ; RETAIL- SUPERMARKET	:	4.825
104	BISMARCK. ; EDUCATIONAL	:	27.983
105	BISMARCK. ; OFFICE - BUILDING	:	22.044
106	BISMARCK. ; RETAIL- SUPERMARKET	:	1.582
107	BOSTON ; OFFICE - BUILDING	:	71.333
108	BOSTON ; EDUCATIONAL	:	90.567
109	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	9.203
110	BISMARCK. ; MEDICAL- INSTITUTION	:	5.937
111	MADISON ; MOTEL & NURSING HOME	:	18.186
112	WASH DC ; SINGLE STORE& SERV. STAT.	:	52.260
113	BOSTON ; MEDICAL- INSTITUTION	:	20.186
114	BISMARCK. ; RELIGIOUS & RECREATIONAL	:	14.674
115	SEATTLE ; HOTEL	:	0.112

116	MADISON ; OFFICE - BUILDING	:	37.412
117	MADISON ; EDUCATIONAL	:	47.611
118	MADISON ; RETAIL- SUPERMARKET	:	2.677
119	BOSTON ; RELIGIOUS & RECREATIONAL	:	50.239
120	MADISON ; MEDICAL- INSTITUTION	:	10.133
121	OMAHA ; SINGLE STORE& SERV.STAT.	:	22.202
122	L.A. ; RESTAURANT	:	6.081
123	MADISON ; RELIGIOUS & RECREATIONAL	:	24.988
124	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	23.203
125	BISMRK. ; SINGLE STORE& SERV.STAT.	:	37.225
126	BOSTON ; SINGLE STORE& SERV.STAT.	:	135.171
127	SEATTLE ; SHOPPING- CENTER	:	0.311
128	MADISON ; SINGLE STORE& SERV.STAT.	:	63.525
129	SEATTLE ; WAREHOUSES	:	2.076
130	SEATTLE ; LIBRARIES - MUSEUM	:	0.151
131	WASH DC ; RESTAURANT	:	12.445
132	OMAHA ; RESTAURANT	:	6.423
133	SEATTLE ; RETAIL- SUPERMARKET	:	0.207
134	SEATTLE ; MOTEL & NURSING HOME	:	1.633
135	NASHVIL. ; RESTAURANT	:	6.707
136	SEATTLE ; EDUCATIONAL	:	4.003
137	SEATTLE ; OFFICE - BUILDING	:	3.160
138	BISMRK. ; RESTAURANT	:	9.722
139	SEATTLE ; MEDICAL- INSTITUTION	:	0.924
140	BOSTON ; RESTAURANT	:	37.031
141	SEATTLE ; RELIGIOUS & RECREATIONAL	:	2.357
142	MADISON ; RESTAURANT	:	18.611
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	7.007
144	SEATTLE ; RESTAURANT	:	1.726

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
BUILDING TYPE	HOTEL	0.006	0.114	0.142	0.101	0.123	0.237	0.348	0.262	0.509	0.476	0.336	0.113
	LIBRARIES - MUSEUM	0.006	0.108	0.134	0.095	0.118	0.242	0.354	0.274	0.525	0.494	0.336	0.277
	SHOPPING- CENTER	0.001	0.054	0.083	0.030	0.043	0.219	0.316	0.250	0.487	0.459	0.271	0.198
	MOTEL & NURSING HOME	0.012	0.151	0.189	0.136	0.177	0.306	0.450	0.340	0.655	0.614	0.437	0.367
	WAREHOUSES	0.001	0.097	0.124	0.071	0.096	0.254	0.370	0.286	0.557	0.522	0.336	0.266
	OFFICE - BUILDING	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.687	0.470	0.386
	MEDICAL- INSTITUTION	0.018	0.189	0.237	0.172	0.220	0.375	0.547	0.417	0.795	0.752	0.537	0.458
	EDUCATIONAL	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.689	0.470	0.386
	RELIGIOUS & RECREATIONAL	0.018	0.222	0.272	0.207	0.263	0.415	0.606	0.459	0.876	0.827	0.596	0.520
	RETAIL- SUPERMARKET	0.002	0.124	0.164	0.095	0.129	0.340	0.493	0.381	0.741	0.695	0.448	0.356
	SINGLE STORE & SERV. STAT.	0.036	0.325	0.403	0.297	0.376	0.629	0.922	0.697	1.336	1.263	0.903	0.768
	RESTAURANT	0.083	0.903	1.054	0.793	1.056	1.650	2.423	1.824	3.495	3.289	2.395	2.079

CONVENTIONAL ENRGY COST FACTOR (\$/SQFT OF BLDG)
 HEATING ONLY/ UTIL AS CONVENTIONAL FUEL
 SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)=	1.00												
SS(\$/MBTU)=		8.74	5.24	6.94	8.25	9.93	12.47	9.19	11.70	8.06	11.83	14.80	33.75
1000BTU/SQFT		114.44	190.69	143.34	121.15	100.68	80.17	108.82	85.44	124.13	84.55	67.55	29.63
BUILDING TYPE	HOTEL	0.008	0.111	0.160	0.128	0.197	0.429	0.523	0.439	0.683	0.830	0.692	0.506
	LIBRARIES - MUSEUM	0.008	0.106	0.153	0.121	0.188	0.439	0.531	0.459	0.704	0.860	0.692	1.241
	SHOPPING- CENTER	0.001	0.053	0.093	0.038	0.068	0.398	0.474	0.419	0.654	0.800	0.558	0.886
	MOTEL & NURSING HOME	0.016	0.148	0.213	0.174	0.283	0.555	0.675	0.569	0.879	1.070	0.898	1.646
	WAREHOUSES	0.002	0.095	0.140	0.091	0.154	0.460	0.555	0.479	0.748	0.910	0.692	1.190
	OFFICE - BUILDING	0.012	0.149	0.214	0.167	0.269	0.616	0.744	0.636	0.981	1.197	0.966	1.732
	MEDICAL- INSTITUTION	0.024	0.185	0.262	0.219	0.351	0.680	0.820	0.699	1.068	1.310	1.104	2.051
	EDUCATIONAL	0.012	0.149	0.214	0.167	0.269	0.616	0.745	0.636	0.981	1.200	0.966	1.732
	RELIGIOUS & RECREATIONAL	0.024	0.217	0.306	0.264	0.419	0.753	0.909	0.769	1.176	1.440	1.225	2.329
	RETAIL- SUPERMARKET	0.002	0.122	0.184	0.121	0.205	0.617	0.740	0.639	0.995	1.210	0.922	1.595
	SINGLE STORE & SERV.STAT.	0.047	0.318	0.453	0.379	0.601	1.140	1.383	1.168	1.794	2.200	1.856	3.443
	RESTAURANT	0.110	0.884	1.185	1.012	1.686	2.992	3.634	3.054	4.691	5.731	4.926	9.318

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 70% HEATING LOAD

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM (RY BLDG)														
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.59	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
SINGLE STORE & SERV. STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01	
RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47	
SUM (RY REG) =		1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81	
TOTSUM=		2117.21												

ENERGY REQUIRED (MILLION MBTU)

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S\$/C\$=		1.33	0.98	1.12	1.28	1.60	1.81	1.50	1.67	1.34	1.74	2.06	4.48
HOTEL		-0.002	0.002	-0.018	-0.028	-0.074	-0.192	-0.174	-0.177	-0.174	-0.354	-0.355	-0.393
LIBRARIES - MUSEUM		-0.002	0.002	-0.017	-0.026	-0.070	-0.197	-0.177	-0.185	-0.180	-0.366	-0.355	-0.964
SHOPPING- CENTER		-0.000	0.001	-0.010	-0.008	-0.026	-0.178	-0.158	-0.169	-0.167	-0.341	-0.287	-0.688
MOTEL & NURSING HOME		-0.004	0.003	-0.024	-0.038	-0.106	-0.249	-0.225	-0.229	-0.224	-0.456	-0.461	-1.279
WAREHOUSES		-0.000	0.002	-0.012	-0.020	-0.058	-0.206	-0.185	-0.193	-0.191	-0.388	-0.355	-0.924
OFFICE - BUILDING		-0.003	0.003	-0.024	-0.036	-0.101	-0.276	-0.248	-0.256	-0.250	-0.510	-0.496	-1.345
MEDICAL- INSTITUTION		-0.006	0.004	-0.030	-0.047	-0.131	-0.305	-0.273	-0.281	-0.272	-0.558	-0.567	-1.593
EDUCATIONAL		-0.003	0.003	-0.024	-0.036	-0.101	-0.276	-0.248	-0.256	-0.250	-0.511	-0.496	-1.345
RELIGIOUS & RECREATIONAL		-0.006	0.005	-0.032	-0.057	-0.157	-0.338	-0.303	-0.310	-0.300	-0.614	-0.630	-1.810
RETAIL- SUPERMARKET		-0.001	0.003	-0.021	-0.026	-0.077	-0.277	-0.247	-0.257	-0.254	-0.516	-0.474	-1.239
SINGLE STORE & SERV. STAT.		-0.012	0.007	-0.050	-0.082	-0.225	-0.511	-0.461	-0.470	-0.458	-0.937	-0.954	-2.675
RESTAURANT		-0.028	0.019	-0.132	-0.219	-0.631	-1.342	-1.212	-1.230	-1.197	-2.442	-2.530	-7.238

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

			REGION											
			MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BALD OIL SAV /SQFT/15YRS=			0.90	1.51	1.13	0.96	0.79	0.63	0.86	0.67	0.98	0.67	0.53	0.23
FLOORS														
BUILDING TYPE	HOTEL	5.00	0.03	0.39	0.59	0.49	0.80	1.79	2.09	1.80	2.65	3.44	2.95	2.36
	LIBRARIES - MUSEUM	3.00	0.02	0.22	0.34	0.28	0.46	1.10	1.27	1.13	1.64	2.14	1.77	3.47
	SHOPPING- CENTER	1.00	0.00	0.04	0.07	0.03	0.06	0.33	0.38	0.34	0.51	0.66	0.48	0.83
	MOTEL & NURSING HOME	2.00	0.02	0.21	0.31	0.27	0.46	0.93	1.08	0.93	1.36	1.77	1.53	3.07
	WAREHOUSES	1.00	0.00	0.07	0.10	0.07	0.13	0.38	0.44	0.39	0.58	0.75	0.59	1.11
	OFFICE - BUILDING	4.00	0.04	0.41	0.64	0.51	0.87	2.06	2.38	2.09	3.05	3.96	3.30	6.46
	MEDICAL- INSTITUTION	6.00	0.11	0.77	1.17	1.01	1.71	3.41	3.94	3.44	4.97	6.51	5.66	11.48
	EDUCATIONAL	1.00	0.01	0.10	0.14	0.13	0.22	0.51	0.60	0.52	0.76	0.99	0.82	1.62
	RELIGIOUS & RECREATIONAL	2.00	0.04	0.30	0.45	0.40	0.68	1.26	1.45	1.26	1.83	2.38	2.09	4.35
	RETAIL- SUPERMARKET	1.00	0.00	0.08	0.14	0.09	0.17	0.52	0.59	0.52	0.77	1.00	0.79	1.49
	SINGLE STORE & SERV.STAT.	1.00	0.04	0.22	0.33	0.29	0.49	0.95	1.11	0.96	1.39	1.82	1.59	3.21
	RESTAURANT	1.00	0.09	0.61	0.87	0.77	1.37	2.50	2.91	2.51	3.64	4.74	4.21	8.69

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

	BUILDING TYPE	REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
	HOTEL	0.01	0.15	0.45	0.54	0.85	1.15	1.10	2.13	1.86	3.14	6.19	0.11
	LIBRARIES - MUSEUM	0.00	0.08	0.24	0.28	0.45	0.65	0.61	1.23	1.06	1.79	3.41	0.15
	SHOPPING- CENTER	0.00	0.11	0.42	0.25	0.47	1.69	1.59	3.25	2.84	4.83	7.97	0.31
	MOTEL & NURSING HOME	0.06	0.81	2.67	3.27	5.45	6.64	6.38	12.39	10.74	18.19	36.06	1.63
	WAREHOUSES	0.05	1.00	3.10	0.67	5.24	9.72	9.24	18.40	16.11	27.26	48.98	2.08
	OFFICE - BUILDING	0.09	1.62	5.03	5.79	9.53	13.57	12.92	25.47	22.04	37.41	71.33	3.16
	MEDICAL- INSTITUTION	0.04	0.50	1.52	1.88	3.08	3.71	3.53	6.93	5.94	10.13	20.19	0.92
	EDUCATIONAL	0.11	2.06	6.39	7.35	12.10	17.23	16.43	32.33	27.94	47.61	90.57	4.00
	RELIGIOUS & RECREATIONAL	0.10	1.31	5.21	5.08	8.26	9.20	8.77	17.09	14.67	24.99	50.24	2.36
	RETAIL- SUPERMARKET	0.00	0.09	0.31	0.30	0.52	0.96	0.91	2.61	1.58	2.68	4.83	0.21
	SINGLE STORE & SERV. STAT.	0.33	3.20	9.67	12.14	19.69	23.20	22.20	52.26	37.23	63.52	135.17	7.01
	RESTAURANT	0.08	0.98	2.70	3.56	6.08	6.71	6.42	12.45	9.72	18.61	37.03	1.73

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR. 70% HEATING LOAD

RANKING BY COST SAVINGS
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

1.	PHOENIX ; RESTAURANT	: 0.019
2	PHOENIX ; SINGLE STORE& SERV.STAT.	: 0.007
3	PHOENIX ; RELIGIOUS & RECREATIONAL	: 0.005
4	PHOENIX ; MEDICAL- INSTITUTION	: 0.004
5	PHOENIX ; OFFICE - BUILDING	: 0.003
6	PHOENIX ; EDUCATIONAL	: 0.003
7	PHOENIX ; MOTEL & NURSING HOME	: 0.003
8	PHOENIX ; RETAIL- SUPERMARKET	: 0.003
9	PHOENIX ; HOTEL	: 0.002
10	PHOENIX ; LIBRARIES - MUSEUM	: 0.002
11	PHOENIX ; WAREHOUSES	: 0.002
12	PHOENIX ; SHOPPING- CENTER	: 0.001
13	MIAMI ; SHOPPING- CENTER	: -0.000
14	MIAMI ; WAREHOUSES	: -0.000
15	MIAMI ; RETAIL- SUPERMARKET	: -0.001
16	MIAMI ; HOTEL	: -0.002
17	MIAMI ; LIBRARIES - MUSEUM	: -0.002
18	MIAMI ; OFFICE - BUILDING	: -0.003
19	MIAMI ; EDUCATIONAL	: -0.003
20	MIAMI ; MOTEL & NURSING HOME	: -0.004
21	MIAMI ; RELIGIOUS & RECREATIONAL	: -0.006
22	MIAMI ; MEDICAL- INSTITUTION	: -0.006
23	CHARL. ; SHOPPING- CENTER	: -0.008
24	FT.WRTH ; SHOPPING- CENTER	: -0.010
25	MIAMI ; SINGLE STORE& SERV.STAT.	: -0.012

26	FT.WRTH ; WAREHOUSES	:	-0.016
27	FT.WRTH ; LIBRARIES - MUSEUM	:	-0.017
28	FT.WRTH ; HOTEL	:	-0.018
29	CHARL. ; WAREHOUSES	:	-0.020
30	FT.WRTH ; RETAIL- SUPERMARKET	:	-0.021
31	FT.WRTH ; MOTEL & NURSING HOME	:	-0.024
32	FT.WRTH ; OFFICE - BUILDING	:	-0.024
33	FT.WRTH ; EDUCATIONAL	:	-0.024
34	L.A. ; SHOPPING- CENTER	:	-0.026
35	CHARL. ; RETAIL- SUPERMARKET	:	-0.026
36	CHARL. ; LIBRARIES - MUSEUM	:	-0.026
37	MIAMI ; RESTAURANT	:	-0.028
38	CHARL. ; HOTEL	:	-0.028
39	FT.WRTH ; MEDICAL- INSTITUTION	:	-0.030
40	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	-0.034
41	CHARL. ; OFFICE - BUILDING	:	-0.036
42	CHARL. ; EDUCATIONAL	:	-0.036
43	CHARL. ; MOTEL & NURSING HOME	:	-0.038
44	CHARL. ; MEDICAL- INSTITUTION	:	-0.047
45	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	-0.050
46	CHARL. ; RELIGIOUS & RECREATIONAL	:	-0.057
47	L.A. ; WAREHOUSES	:	-0.058
48	L.A. ; LIBRARIES - MUSEUM	:	-0.070
49	L.A. ; HOTEL	:	-0.074
50	L.A. ; RETAIL- SUPERMARKET	:	-0.077
51	CHARL. ; SINGLE STORE& SERV.STAT.	:	-0.082
52	L.A. ; OFFICE - BUILDING	:	-0.101
53	L.A. ; EDUCATIONAL	:	-0.101
54	L.A. ; MOTEL & NURSING HOME	:	-0.106
55	L.A. ; MEDICAL- INSTITUTION	:	-0.131

56	FT.WRTH ; RESTAURANT	:	-0.132
57	L.A. ; RELIGIOUS & RECREATIONAL	:	-0.157
58	OMAHA ; SHOPPING- CENTER	:	-0.158
59	BISMRK. ; SHOPPING- CENTER	:	-0.167
60	WASH DC ; SHOPPING- CENTER	:	-0.169
61	BISMRK. ; HOTEL	:	-0.174
62	OMAHA ; HOTEL	:	-0.174
63	WASH DC ; HOTEL	:	-0.177
64	OMAHA ; LIBRARIES - MUSEUM	:	-0.177
65	NASHVIL. ; SHOPPING- CENTER	:	-0.178
66	BISMRK. ; LIBRARIES - MUSEUM	:	-0.180
67	WASH DC ; LIBRARIES - MUSEUM	:	-0.185
68	OMAHA ; WAREHOUSES	:	-0.185
69	BISMRK. ; WAREHOUSES	:	-0.191
70	NASHVIL. ; HOTEL	:	-0.192
71	WASH DC ; WAREHOUSES	:	-0.193
72	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.197
73	NASHVIL. ; WAREHOUSES	:	-0.206
74	CHARL. ; RESTAURANT	:	-0.219
75	BISMRK. ; MOTEL & NURSING HOME	:	-0.224
76	L.A. ; SINGLE STORE& SERV.STAT.	:	-0.225
77	OMAHA ; MOTEL & NURSING HOME	:	-0.225
78	WASH DC ; MOTEL & NURSING HOME	:	-0.229
79	OMAHA ; RETAIL- SUPERMARKET	:	-0.247
80	OMAHA ; OFFICE - BUILDING	:	-0.248
81	OMAHA ; EDUCATIONAL	:	-0.248
82	NASHVIL. ; MOTEL & NURSING HOME	:	-0.249
83	BISMRK. ; EDUCATIONAL	:	-0.250
84	BISMRK. ; OFFICE - BUILDING	:	-0.250
85	BISMRK. ; RETAIL- SUPERMARKET	:	-0.254

86	WASH DC ; OFFICE - BUILDING	:	-0.256
87	WASH DC ; EDUCATIONAL	:	-0.256
88	WASH DC ; RETAIL- SUPERMARKET	:	-0.257
89	BISMARCK ; MEDICAL- INSTITUTION	:	-0.272
90	OMAHA ; MEDICAL- INSTITUTION	:	-0.273
91	NASHVIL. ; OFFICE - BUILDING	:	-0.276
92	NASHVIL. ; EDUCATIONAL	:	-0.276
93	NASHVIL. ; RETAIL- SUPERMARKET	:	-0.277
94	WASH DC ; MEDICAL- INSTITUTION	:	-0.281
95	BOSTON ; SHOPPING- CENTER	:	-0.287
96	BISMARCK ; RELIGIOUS & RECREATIONAL	:	-0.300
97	OMAHA ; RELIGIOUS & RECREATIONAL	:	-0.303
98	NASHVIL. ; MEDICAL- INSTITUTION	:	-0.305
99	WASH DC ; RELIGIOUS & RECREATIONAL	:	-0.310
100	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	-0.338
101	MADISON ; SHOPPING- CENTER	:	-0.341
102	MADISON ; HOTEL	:	-0.354
103	BOSTON ; HOTEL	:	-0.355
104	BOSTON ; LIBRARIES - MUSEUM	:	-0.355
105	BOSTON ; WAREHOUSES	:	-0.355
106	MADISON ; LIBRARIES - MUSEUM	:	-0.366
107	MADISON ; WAREHOUSES	:	-0.388
108	SEATTLE ; HOTEL	:	-0.393
109	MADISON ; MOTEL & NURSING HOME	:	-0.456
110	BISMARCK ; SINGLE STORE& SERV.STAT.	:	-0.458
111	OMAHA ; SINGLE STORE& SERV.STAT.	:	-0.461
112	BOSTON ; MOTEL & NURSING HOME	:	-0.461
113	WASH DC ; SINGLE STORE& SERV.STAT.	:	-0.470
114	BOSTON ; RETAIL- SUPERMARKET	:	-0.474
115	BOSTON ; OFFICE - BUILDING	:	-0.496

116	BOSTON ; EDUCATIONAL	:	-0.496
117	MADISON ; OFFICE - BUILDING	:	-0.510
118	MADISON ; EDUCATIONAL	:	-0.511
119	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	-0.511
120	MADISON ; RETAIL- SUPERMARKET	:	-0.516
121	MADISON ; MEDICAL- INSTITUTION	:	-0.558
122	BOSTON ; MEDICAL- INSTITUTION	:	-0.567
123	MADISON ; RELIGIOUS & RECREATIONAL	:	-0.614
124	BOSTON ; RELIGIOUS & RECREATIONAL	:	-0.630
125	L.A. ; RESTAURANT	:	-0.631
126	SEATTLE ; SHOPPING- CENTER	:	-0.688
127	SEATTLE ; WAREHOUSES	:	-0.924
128	MADISON ; SINGLE STORE& SERV.STAT.	:	-0.937
129	BOSTON ; SINGLE STORE& SERV.STAT.	:	-0.954
130	SEATTLE ; LIBRARIES - MUSEUM	:	-0.964
131	BISMCK. ; RESTAURANT	:	-1.197
132	OMAHA ; RESTAURANT	:	-1.212
133	WASH DC ; RESTAURANT	:	-1.230
134	SEATTLE ; RETAIL- SUPERMARKET	:	-1.239
135	SEATTLE ; MOTEL & NURSING HOME	:	-1.279
136	NASHVIL. ; RESTAURANT	:	-1.342
137	SEATTLE ; OFFICE - BUILDING	:	-1.345
138	SEATTLE ; EDUCATIONAL	:	-1.345
139	SEATTLE ; MEDICAL- INSTITUTION	:	-1.593
140	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-1.810
141	MADISON ; RESTAURANT	:	-2.442
142	BOSTON ; RESTAURANT	:	-2.530
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	-2.675
144	SEATTLE ; RESTAURANT	:	-7.238

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 70% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.982
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	3.200
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	1.314
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.500
5	PHOENIX ; OFFICE - BUILDING	:	1.623
6	PHOENIX ; EDUCATIONAL	:	2.057
7	PHOENIX ; MOTEL & NURSING HOME	:	0.811
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.093
9	PHOENIX ; HOTEL	:	0.147
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.077
11	PHOENIX ; WAREHOUSES	:	0.995
12	PHOENIX ; SHOPPING- CENTER	:	0.111
13	MIAMI ; SHOPPING- CENTER	:	0.001
14	MIAMI ; WAREHOUSES	:	0.050
15	MIAMI ; RETAIL- SUPERMARKET	:	0.001
16	MIAMI ; HOTEL	:	0.007
17	MIAMI ; LIBRARIES - MUSEUM	:	0.004
18	MIAMI ; OFFICE - BUILDING	:	0.089
19	MIAMI ; EDUCATIONAL	:	0.113
20	MIAMI ; MOTEL & NURSING HOME	:	0.064
21	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.098
22	MIAMI ; MEDICAL- INSTITUTION	:	0.044
23	CHARL. ; SHOPPING- CENTER	:	0.253
24	FT.WRTH ; SHOPPING- CENTER	:	0.416
25	MIAMI ; SINGLE STORE& SERV.STAT.	:	0.328

26	FT.WRTH ; WAREHOUSES	:	3.097
27	FT.WRTH ; LIBRARIES - MUSEUM	:	0.237
28	FT.WRTH ; HOTEL	:	0.447
29	CHARL. ; WAREHOUSES	:	0.666
30	FT.WRTH ; RETAIL- SUPERMARKET	:	0.306
31	FT.WRTH ; MOTEL & NURSING HOME	:	2.675
32	FT.WRTH ; OFFICE - BUILDING	:	5.031
33	FT.WRTH ; EDUCATIONAL	:	6.386
34	L.A. ; SHOPPING- CENTER	:	0.469
35	CHARL. ; RETAIL- SUPERMARKET	:	0.297
36	CHARL. ; LIBRARIES - MUSEUM	:	0.280
37	MIAMI ; RESTAURANT	:	0.084
38	CHARL. ; HOTEL	:	0.539
39	FT.WRTH ; MEDICAL- INSTITUTION	:	1.523
40	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	5.210
41	CHARL. ; OFFICE - BUILDING	:	5.786
42	CHARL. ; EDUCATIONAL	:	7.345
43	CHARL. ; MOTEL & NURSING HOME	:	3.273
44	CHARL. ; MEDICAL- INSTITUTION	:	1.880
45	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	9.668
46	CHAPL. ; RELIGIOUS & RECREATIONAL	:	5.084
47	L.A. ; WAREHOUSES	:	5.238
48	L.A. ; LIBRARIES - MUSEUM	:	0.447
49	L.A. ; HOTEL	:	0.845
50	L.A. ; RETAIL- SUPERMARKET	:	0.516
51	CHARL. ; SINGLE STORE& SERV.STAT.	:	12.137
52	L.A. ; OFFICE - BUILDING	:	9.528
53	L.A. ; EDUCATIONAL	:	12.098
54	L.A. ; MOTEL & NURSING HOME	:	5.447
55	L.A. ; MEDICAL- INSTITUTION	:	3.080

56	FT. WORTH ; RESTAURANT	:	2.791
57	L.A. ; RELIGIOUS & RECREATIONAL	:	8.256
58	OMAHA ; SHOPPING- CENTER	:	1.594
59	BISMARCK. ; SHOPPING- CENTER	:	2.841
60	WASH DC ; SHOPPING- CENTER	:	3.246
61	BISMARCK. ; HOTEL	:	1.856
62	OMAHA ; HOTEL	:	1.101
63	WASH DC ; HOTEL	:	2.131
64	OMAHA ; LIBRARIES - MUSEUM	:	0.614
65	NASHVIL. ; SHOPPING- CENTER	:	1.692
66	BISMARCK. ; LIBRARIES - MUSEUM	:	1.059
67	WASH DC ; LIBRARIES - MUSEUM	:	1.227
68	OMAHA ; WAREHOUSES	:	9.240
69	BISMARCK. ; WAREHOUSES	:	16.114
70	NASHVIL. ; HOTEL	:	1.145
71	WASH DC ; WAREHOUSES	:	18.399
72	NASHVIL. ; LIBRARIES - MUSEUM	:	0.647
73	NASHVIL. ; WAREHOUSES	:	9.720
74	CHARL. ; RESTAURANT	:	3.564
75	BISMARCK. ; MOTEL & NURSING HOME	:	10.740
76	L.A. ; SINGLE STORE & SERV. STAT.	:	19.685
77	OMAHA ; MOTEL & NURSING HOME	:	6.380
78	WASH DC ; MOTEL & NURSING HOME	:	12.393
79	OMAHA ; RETAIL- SUPERMARKET	:	0.914
80	OMAHA ; OFFICE - BUILDING	:	12.924
81	OMAHA ; EDUCATIONAL	:	16.432
82	NASHVIL. ; MOTEL & NURSING HOME	:	6.637
83	BISMARCK. ; EDUCATIONAL	:	27.983
84	BISMARCK. ; OFFICE - BUILDING	:	22.044
85	BISMARCK. ; RETAIL- SUPERMARKET	:	1.582

86	WASH DC ; OFFICE - BUILDING	:	25.470
87	WASH DC ; EDUCATIONAL	:	32.332
88	WASH DC ; RETAIL- SUPERMARKET	:	2.612
89	RISMRK. ; MEDICAL- INSTITUTION	:	5.937
90	OMAHA ; MEDICAL- INSTITUTION	:	3.527
91	NASHVIL. ; OFFICE - BUILDING	:	13.569
92	NASHVIL. ; EDUCATIONAL	:	17.230
93	NASHVIL. ; RETAIL- SUPERMARKET	:	0.962
94	WASH DC ; MEDICAL- INSTITUTION	:	6.929
95	BOSTON ; SHOPPING- CENTER	:	7.969
96	RISMRK. ; RELIGIOUS & RECREATIONAL	:	14.674
97	OMAHA ; RELIGIOUS & RECREATIONAL	:	8.772
98	NASHVIL. ; MEDICAL- INSTITUTION	:	3.708
99	WASH DC ; RELIGIOUS & RECREATIONAL	:	17.092
100	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	9.203
101	MADISON ; SHOPPING- CENTER	:	4.833
102	MADISON ; HOTEL	:	3.143
103	BOSTON ; HOTEL	:	6.188
104	BOSTON ; LIBRARIES - MUSEUM	:	3.411
105	BOSTON ; WAREHOUSES	:	48.977
106	MADISON ; LIBRARIES - MUSEUM	:	1.794
107	MADISON ; WAREHOUSES	:	27.264
108	SEATTLE ; HOTEL	:	0.112
109	MADISON ; MOTEL & NURSING HOME	:	18.186
110	RISMRK. ; SINGLE STORE& SERV.STAT.	:	37.225
111	OMAHA ; SINGLE STORE& SERV.STAT.	:	22.202
112	BOSTON ; MOTEL & NURSING HOME	:	36.063
113	WASH DC ; SINGLE STORE& SERV.STAT.	:	52.260
114	BOSTON ; RETAIL- SUPERMARKET	:	4.825
115	BOSTON ; OFFICE - BUILDING	:	71.333

116	BOSTON ; EDUCATIONAL	:	90.567
117	MADISON ; OFFICE - BUILDING	:	37.412
118	MADISON ; EDUCATIONAL	:	47.611
119	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	23.203
120	MADISON ; RETAIL- SUPERMARKET	:	2.677
121	MADISON ; MEDICAL- INSTITUTION	:	10.133
122	BOSTON ; MEDICAL- INSTITUTION	:	20.186
123	MADISON ; RELIGIOUS & RECREATIONAL	:	24.988
124	BOSTON ; RELIGIOUS & RECREATIONAL	:	50.239
125	L.A. ; RESTAURANT	:	6.081
126	SEATTLE ; SHOPPING- CENTER	:	0.311
127	SEATTLE ; WAREHOUSES	:	2.076
128	MADISON ; SINGLE STORE& SERV.STAT.	:	63.525
129	BOSTON ; SINGLE STORE& SERV.STAT.	:	135.171
130	SEATTLE ; LIBRARIES - MUSEUM	:	0.151
131	RISMRK. ; RESTAURANT	:	9.722
132	OMAHA ; RESTAURANT	:	6.423
133	WASH DC ; RESTAURANT	:	12.445
134	SEATTLE ; RETAIL- SUPERMARKET	:	0.207
135	SEATTLE ; MOTEL & NURSING HOME	:	1.633
136	NASHVIL. ; RESTAURANT	:	6.707
137	SEATTLE ; OFFICE - BUILDING	:	3.160
138	SEATTLE ; EDUCATIONAL	:	4.003
139	SEATTLE ; MEDICAL- INSTITUTION	:	0.924
140	SEATTLE ; RELIGIOUS & RECREATIONAL	:	2.357
141	MADISON ; RESTAURANT	:	18.611
142	BOSTON ; RESTAURANT	:	37.031
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	7.007
144	SEATTLE ; RESTAURANT	:	1.726

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
BUILDING TYPE	HOTEL	0.006	0.114	0.142	0.101	0.123	0.237	0.348	0.262	0.509	0.476	0.336	0.113
	LIBRARIES - MUSEUM	0.006	0.108	0.134	0.095	0.118	0.242	0.354	0.274	0.525	0.494	0.336	0.277
	SHOPPING- CENTER	0.001	0.054	0.083	0.030	0.043	0.219	0.316	0.250	0.487	0.459	0.271	0.198
	MOTEL & NURSING HOME	0.012	0.151	0.189	0.136	0.177	0.306	0.450	0.340	0.655	0.614	0.437	0.367
	WAREHOUSES	0.001	0.097	0.124	0.071	0.096	0.254	0.370	0.286	0.557	0.522	0.336	0.266
	OFFICE - BUILDING	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.687	0.470	0.386
	MEDICAL - INSTITUTION	0.018	0.189	0.237	0.172	0.220	0.375	0.547	0.417	0.795	0.752	0.537	0.458
	EDUCATIONAL	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.689	0.470	0.386
	RELIGIOUS & RECREATIONAL	0.018	0.222	0.272	0.207	0.263	0.415	0.606	0.459	0.874	0.827	0.596	0.520
	RETAIL - SUPERMARKET	0.002	0.124	0.164	0.095	0.129	0.340	0.493	0.381	0.741	0.695	0.448	0.356
	SINGLE STORE & SERV.STAT.	0.036	0.325	0.403	0.297	0.376	0.629	0.922	0.697	1.336	1.263	0.903	0.768
	RESTAURANT	0.083	0.903	1.054	0.793	1.056	1.650	2.423	1.824	3.495	3.289	2.395	2.079

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 2.00													
S(\$/MBTU)=		17.48	10.49	13.95	16.51	19.86	24.95	18.38	23.41	16.11	23.65	29.61	67.50
1000 BTU/SQFT		114.44	190.69	143.34	121.15	100.68	80.17	108.82	85.44	124.13	84.55	67.55	29.63
BUILDING TYPE	HOTEL	0.014	0.188	0.277	0.227	0.357	0.787	0.941	0.800	1.213	1.517	1.282	0.979
	LIBRARIES - MUSEUM	0.014	0.179	0.265	0.213	0.341	0.806	0.955	0.836	1.251	1.572	1.282	2.398
	SHOPPING- CENTER	0.001	0.090	0.162	0.067	0.124	0.729	0.854	0.763	1.161	1.462	1.035	1.713
	MOTEL & NURSING HOME	0.028	0.251	0.360	0.307	0.512	1.017	1.216	1.036	1.561	1.956	1.665	3.181
	WAREHOUSES	0.003	0.161	0.242	0.160	0.279	0.845	0.999	0.872	1.329	1.664	1.282	2.300
	OFFICE - BUILDING	0.021	0.252	0.377	0.295	0.487	1.131	1.339	1.158	1.743	2.188	1.791	3.348
	MEDICAL- INSTITUTION	0.042	0.314	0.462	0.387	0.636	1.248	1.476	1.272	1.897	2.395	2.047	3.964
	EDUCATIONAL	0.021	0.252	0.377	0.295	0.487	1.131	1.340	1.158	1.743	2.194	1.791	3.348
	RELIGIOUS & RECREATIONAL	0.042	0.368	0.531	0.467	0.760	1.382	1.635	1.399	2.090	2.632	2.272	4.503
	RETAIL- SUPERMARKET	0.004	0.206	0.323	0.213	0.372	1.132	1.332	1.163	1.768	2.212	1.710	3.083
	SINGLE STORE & SERV. STAT.	0.084	0.538	0.785	0.669	1.089	2.092	2.489	2.126	3.187	4.022	3.442	6.656
	RESTAURANT	0.196	1.497	2.055	1.786	3.056	5.489	6.542	5.561	8.334	10.475	9.133	18.012

SOLAR ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

REGION

130

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM(BY BLDG)														
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	37.91	0.00	0.16	0.59	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.85	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.15	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
	SINGLE STORE & SERV.STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01
	RESTAURANT	151.67	0.12	1.40	3.90	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47
SUM(BY REG)=			1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81
TOTSUM=		2117.21												

ENERGY REQUIRED (MILLION MBTU)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S\$/C\$=		2.37	1.66	1.95	2.25	2.89	3.33	2.70	3.05	2.38	3.18	3.81	8.66
BUILDING TYPE	HOTEL	-0.008	-0.075	-0.135	-0.126	-0.234	-0.550	-0.592	-0.537	-0.704	-1.041	-0.946	-0.866
	LIBRARIES - MUSEUM	-0.008	-0.071	-0.120	-0.119	-0.223	-0.564	-0.601	-0.562	-0.727	-1.078	-0.946	-2.121
	SHOPPING- CENTER	-0.001	-0.036	-0.070	-0.037	-0.081	-0.510	-0.538	-0.513	-0.674	-1.003	-0.763	-1.515
	MOTEL & NURSING HOME	-0.016	-0.100	-0.180	-0.170	-0.335	-0.711	-0.766	-0.696	-0.906	-1.342	-1.228	-2.814
	WAREHOUSES	-0.002	-0.064	-0.118	-0.089	-0.183	-0.591	-0.629	-0.586	-0.772	-1.141	-0.946	-2.035
	OFFICE - BUILDING	-0.012	-0.100	-0.184	-0.164	-0.319	-0.791	-0.843	-0.778	-1.012	-1.501	-1.321	-2.961
	MEDICAL- INSTITUTION	-0.024	-0.124	-0.225	-0.215	-0.416	-0.873	-0.930	-0.855	-1.101	-1.643	-1.510	-3.507
	EDUCATIONAL	-0.012	-0.100	-0.184	-0.164	-0.319	-0.791	-0.844	-0.778	-1.012	-1.505	-1.321	-2.961
	RELIGIOUS & RECREATIONAL	-0.024	-0.146	-0.259	-0.259	-0.498	-0.967	-1.030	-0.940	-1.214	-1.806	-1.676	-3.983
	RETAIL- SUPERMARKET	-0.002	-0.082	-0.157	-0.119	-0.244	-0.792	-0.838	-0.782	-1.026	-1.517	-1.261	-2.728
	SINGLE STORE & SERV.STAT.	-0.049	-0.213	-0.382	-0.372	-0.713	-1.463	-1.567	-1.429	-1.850	-2.759	-2.539	-5.888
	RESTAURANT	-0.113	-0.594	-1.001	-0.993	-2.000	-3.839	-4.119	-3.737	-4.840	-7.186	-6.738	-15.932

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 70% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
RAIS OIL SAV /SQFT/15YRS=		0.90	1.51	1.13	0.96	0.79	0.63	0.86	0.67	0.98	0.67	0.53	0.23
FLOORS													
HOTEL	5.00	0.03	0.39	0.59	0.49	0.80	1.79	2.09	1.80	2.65	3.44	2.95	2.36
LIBRARIES - MUSEUM	3.00	0.02	0.22	0.34	0.28	0.46	1.10	1.27	1.13	1.64	2.14	1.77	3.47
SHOPPING- CENTER	1.00	0.00	0.04	0.07	0.03	0.06	0.33	0.38	0.34	0.51	0.66	0.48	0.83
MOTEL & NURSING HOME	2.00	0.02	0.21	0.31	0.27	0.46	0.93	1.08	0.93	1.36	1.77	1.53	3.07
WAREHOUSES	1.00	0.00	0.07	0.10	0.07	0.13	0.38	0.44	0.39	0.58	0.75	0.59	1.11
OFFICE - BUILDING	4.00	0.04	0.41	0.64	0.51	0.87	2.06	2.38	2.09	3.05	3.96	3.30	6.46
MEDICAL- INSTITUTION	6.00	0.11	0.77	1.17	1.01	1.71	3.41	3.94	3.44	4.97	6.51	5.66	11.48
EDUCATIONAL	1.00	0.01	0.10	0.14	0.13	0.22	0.51	0.60	0.52	0.76	0.99	0.82	1.62
RELIGIOUS & RECREATIONAL	2.00	0.04	0.30	0.45	0.40	0.68	1.26	1.45	1.26	1.83	2.38	2.09	4.35
RETAIL- SUPERMARKET	1.00	0.00	0.08	0.14	0.09	0.17	0.52	0.59	0.52	0.77	1.00	0.79	1.49
SINGLE STORE & SERV. STAT.	1.00	0.04	0.22	0.33	0.29	0.49	0.95	1.11	0.96	1.39	1.82	1.59	3.21
RESTAURANT	1.00	0.09	0.61	0.87	0.77	1.37	2.50	2.91	2.51	3.64	4.74	4.21	8.69

COLLECTOR AREA / ROOF AREA

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

BUILDING TYPE	REGION:											
	MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
HOTEL	0.01	0.15	0.45	0.54	0.85	1.15	1.10	2.13	1.86	3.14	6.19	0.11
LIBRARIES - MUSEUM	0.00	0.08	0.24	0.28	0.45	0.65	0.61	1.23	1.06	1.79	3.41	0.15
SHOPPING- CENTER	0.00	0.11	0.42	0.25	0.47	1.69	1.59	3.25	2.84	4.83	7.97	0.31
MOTEL & NURSING HOME	0.06	0.81	2.67	3.27	5.45	6.64	6.38	12.39	10.74	18.19	36.06	1.63
WAREHOUSES	0.05	1.00	3.10	0.67	5.24	9.72	9.24	18.40	16.11	27.26	48.98	2.08
OFFICE - BUILDING	0.09	1.62	5.03	5.79	9.53	13.57	12.92	25.47	22.04	37.41	71.33	3.16
MEDICAL- INSTITUTION	0.04	0.50	1.52	1.88	3.08	3.71	3.53	6.93	5.94	10.13	20.19	0.92
EDUCATIONAL	0.11	2.06	6.39	7.35	12.10	17.23	16.43	32.33	27.98	47.61	90.57	4.00
RELIGIOUS & RECREATIONAL	0.10	1.31	5.21	5.08	8.26	9.20	8.77	17.09	14.67	24.99	50.24	2.36
RETAIL- SUPERMARKET	0.00	0.09	0.31	0.30	0.52	0.96	0.91	2.61	1.58	2.68	4.83	0.21
SINGLE STORE & SERV. STAT.	0.33	3.20	9.67	12.14	19.69	23.20	22.20	52.26	37.23	63.52	135.17	7.01
RESTAURANT	0.08	0.98	2.79	3.56	6.08	6.71	6.42	12.45	9.72	18.61	37.03	1.73

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

RANKING BY COST SAVINGS
HEATING ONLY/OIL AS CONVENTIONAL FUEL
SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

1	MIAMI	;	SHOPPING-	CENTER	:	-0.001
2	MIAMI	;	WAREHOUSES		:	-0.002
3	MIAMI	;	RETAIL-	SUPERMARKET	:	-0.002
4	MIAMI	;	HOTEL		:	-0.008
5	MIAMI	;	LIBRARIES -	MUSEUM	:	-0.008
6	MIAMI	;	EDUCATIONAL		:	-0.012
7	MIAMI	;	OFFICE -	BUILDING	:	-0.012
8	MIAMI	;	MOTEL &	NURSING HOME	:	-0.016
9	MIAMI	;	MEDICAL-	INSTITUTION	:	-0.024
10	MIAMI	;	RELIGIOUS &	RECREATIONAL	:	-0.024
11	PHOENIX	;	SHOPPING-	CENTER	:	-0.036
12	CHARL.	;	SHOPPING-	CENTER	:	-0.037
13	MIAMI	;	SINGLE STORE&	SERV.STAT.	:	-0.049
14	PHOENIX	;	WAREHOUSES		:	-0.064
15	PHOENIX	;	LIBRARIES -	MUSEUM	:	-0.071
16	PHOENIX	;	HOTEL		:	-0.075
17	FT.WRTH	;	SHOPPING-	CENTER	:	-0.079
18	L.A.	;	SHOPPING-	CENTER	:	-0.081
19	PHOENIX	;	RETAIL-	SUPERMARKET	:	-0.082
20	CHARL.	;	WAREHOUSES		:	-0.089
21	PHOENIX	;	MOTEL &	NURSING HOME	:	-0.100
22	PHOENIX	;	EDUCATIONAL		:	-0.100
23	PHOENIX	;	OFFICE -	BUILDING	:	-0.100
24	MIAMI	;	RESTAURANT		:	-0.113
25	FT.WRTH	;	WAREHOUSES		:	-0.118

26	CHARL.	;	LIBRARIES - MUSEUM	:	-0.119
27	CHARL.	;	RETAIL- SUPERMARKET	:	-0.119
28	PHOENIX	;	MEDICAL- INSTITUTION	:	-0.124
29	CHARL.	;	HOTEL	:	-0.126
30	FT.WRTH	;	LIBRARIES - MUSEUM	:	-0.129
31	FT.WRTH	;	HOTEL	:	-0.135
32	PHOENIX	;	RELIGIOUS & RECREATIONAL	:	-0.146
33	FT.WRTH	;	RETAIL- SUPERMARKET	:	-0.157
34	CHARL.	;	EDUCATIONAL	:	-0.164
35	CHARL.	;	OFFICE - BUILDING	:	-0.164
36	CHARL.	;	MOTEL & NURSING HOME	:	-0.170
37	FT.WRTH	;	MOTEL & NURSING HOME	:	-0.180
38	L.A.	;	WAREHOUSES	:	-0.183
39	FT.WRTH	;	OFFICE - BUILDING	:	-0.184
40	FT.WRTH	;	EDUCATIONAL	:	-0.184
41	PHOENIX	;	SINGLE STORE& SERV.STAT.	:	-0.213
42	CHARL.	;	MEDICAL- INSTITUTION	:	-0.215
43	L.A.	;	LIBRARIES - MUSEUM	:	-0.223
44	FT.WRTH	;	MEDICAL- INSTITUTION	:	-0.225
45	L.A.	;	HOTEL	:	-0.234
46	L.A.	;	RETAIL- SUPERMARKET	:	-0.244
47	FT.WRTH	;	RELIGIOUS & RECREATIONAL	:	-0.259
48	CHARL.	;	RELIGIOUS & RECREATIONAL	:	-0.259
49	L.A.	;	OFFICE - BUILDING	:	-0.319
50	L.A.	;	EDUCATIONAL	:	-0.319
51	L.A.	;	MOTEL & NURSING HOME	:	-0.335
52	CHARL.	;	SINGLE STORE& SERV.STAT.	:	-0.372
53	FT.WRTH	;	SINGLE STORE& SERV.STAT.	:	-0.382
54	L.A.	;	MEDICAL- INSTITUTION	:	-0.416
55	L.A.	;	RELIGIOUS & RECREATIONAL	:	-0.498

56	NASHVIL. ; SHOPPING- CENTER	:	-0.510
57	WASH DC ; SHOPPING- CENTER	:	-0.513
58	WASH DC ; HOTEL	:	-0.537
59	OMAHA ; SHOPPING- CENTER	:	-0.538
60	NASHVIL. ; HOTEL	:	-0.550
61	WASH DC ; LIBRARIES - MUSEUM	:	-0.562
62	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.564
63	WASH DC ; WAREHOUSES	:	-0.586
64	NASHVIL. ; WAREHOUSES	:	-0.591
65	OMAHA ; HOTEL	:	-0.592
66	PHOENIX ; RESTAURANT	:	-0.594
67	OMAHA ; LIBRARIES - MUSEUM	:	-0.601
68	OMAHA ; WAREHOUSES	:	-0.629
69	RISMRK. ; SHOPPING- CENTER	:	-0.674
70	WASH DC ; MOTEL & NURSING HOME	:	-0.696
71	RISMRK. ; HOTEL	:	-0.704
72	NASHVIL. ; MOTEL & NURSING HOME	:	-0.711
73	L.A. ; SINGLE STORE& SERV.STAT.	:	-0.713
74	RISMRK. ; LIBRARIES - MUSEUM	:	-0.727
75	ROSTON ; SHOPPING- CENTER	:	-0.763
76	OMAHA ; MOTEL & NURSING HOME	:	-0.766
77	RISMRK. ; WAREHOUSES	:	-0.772
78	WASH DC ; EDUCATIONAL	:	-0.778
79	WASH DC ; OFFICE - BUILDING	:	-0.778
80	WASH DC ; RETAIL- SUPERMARKET	:	-0.782
81	NASHVIL. ; OFFICE - BUILDING	:	-0.791
82	NASHVIL. ; EDUCATIONAL	:	-0.791
83	NASHVIL. ; RETAIL- SUPERMARKET	:	-0.792
84	OMAHA ; RETAIL- SUPERMARKET	:	-0.838
85	OMAHA ; OFFICE - BUILDING	:	-0.843

86	OMAHA ; EDUCATIONAL	:	-0.844
87	WASH DC ; MEDICAL- INSTITUTION	:	-0.855
88	SEATTLE ; HOTEL	:	-0.866
89	NASHVIL. ; MEDICAL- INSTITUTION	:	-0.873
90	RISMRK. ; MOTEL & NURSING HOME	:	-0.906
91	OMAHA ; MEDICAL- INSTITUTION	:	-0.930
92	WASH DC ; RELIGIOUS & RECREATIONAL	:	-0.940
93	BOSTON ; WAREHOUSES	:	-0.946
94	BOSTON ; HOTEL	:	-0.946
95	BOSTON ; LIBRARIES - MUSEUM	:	-0.946
96	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	-0.967
97	CHARL. ; RESTAURANT	:	-0.993
98	FT. WORTH ; RESTAURANT	:	-1.001
99	MADISON ; SHOPPING- CENTER	:	-1.003
100	RISMRK. ; OFFICE - BUILDING	:	-1.012
101	RISMRK. ; EDUCATIONAL	:	-1.012
102	RISMRK. ; RETAIL- SUPERMARKET	:	-1.026
103	OMAHA ; RELIGIOUS & RECREATIONAL	:	-1.030
104	MADISON ; HOTEL	:	-1.041
105	MADISON ; LIBRARIES - MUSEUM	:	-1.078
106	RISMRK. ; MEDICAL- INSTITUTION	:	-1.101
107	MADISON ; WAREHOUSES	:	-1.141
108	RISMRK. ; RELIGIOUS & RECREATIONAL	:	-1.214
109	BOSTON ; MOTEL & NURSING HOME	:	-1.228
110	BOSTON ; RETAIL- SUPERMARKET	:	-1.261
111	BOSTON ; EDUCATIONAL	:	-1.321
112	BOSTON ; OFFICE - BUILDING	:	-1.321
113	MADISON ; MOTEL & NURSING HOME	:	-1.342
114	WASH DC ; SINGLE STORE& SERV.STAT.	:	-1.429
115	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	-1.463

116	MADISON ; OFFICE - BUILDING	:	-1.501
117	MADISON ; EDUCATIONAL	:	-1.505
118	BOSTON ; MEDICAL- INSTITUTION	:	-1.510
119	SEATTLE ; SHOPPING- CENTER	:	-1.515
120	MADISON ; RETAIL- SUPERMARKET	:	-1.517
121	OMAHA ; SINGLE STORE& SERV.STAT.	:	-1.567
122	MADISON ; MEDICAL- INSTITUTION	:	-1.643
123	BOSTON ; RELIGIOUS & RECREATIONAL	:	-1.676
124	MADISON ; RELIGIOUS & RECREATIONAL	:	-1.806
125	RISMRK. ; SINGLE STORE& SERV.STAT.	:	-1.850
126	L.A. ; RESTAURANT	:	-2.000
127	SEATTLE ; WAREHOUSES	:	-2.035
128	SEATTLE ; LIBRARIES - MUSEUM	:	-2.121
129	BOSTON ; SINGLE STORE& SERV.STAT.	:	-2.539
130	SEATTLE ; RETAIL- SUPERMARKET	:	-2.728
131	MADISON ; SINGLE STORE& SERV.STAT.	:	-2.759
132	SEATTLE ; MOTEL & NURSING HOME	:	-2.814
133	SEATTLE ; EDUCATIONAL	:	-2.961
134	SEATTLE ; OFFICE - BUILDING	:	-2.961
135	SEATTLE ; MEDICAL- INSTITUTION	:	-3.507
136	WASH DC ; RESTAURANT	:	-3.737
137	NASHVIL. ; RESTAURANT	:	-3.839
138	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-3.983
139	OMAHA ; RESTAURANT	:	-4.119
140	RISMRK. ; RESTAURANT	:	-4.840
141	SEATTLE ; SINGLE STORE& SERV.STAT.	:	-5.888
142	BOSTON ; RESTAURANT	:	-6.738
143	MADISON ; RESTAURANT	:	-7.186
144	SEATTLE ; RESTAURANT	:	-15.932

RANKING BY TOTAL ENERGY SAVINGS

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 70% HEATING LOAD

1	MIAMI	;	SHOPPING-	CENTER	:	0.001
2	MIAMI	;	WAREHOUSES		:	0.050
3	MIAMI	;	RETAIL-	SUPERMARKET	:	0.001
4	MIAMI	;	HOTEL		:	0.007
5	MIAMI	;	LIBRARIES -	MUSEUM	:	0.004
6	MIAMI	;	EDUCATIONAL		:	0.113
7	MIAMI	;	OFFICE -	BUILDING	:	0.089
8	MIAMI	;	MOTEL &	NURSING HOME	:	0.064
9	MIAMI	;	MEDICAL-	INSTITUTION	:	0.044
10	MIAMI	;	RELIGIOUS &	RECREATIONAL	:	0.098
11	PHOENIX	;	SHOPPING-	CENTER	:	0.111
12	CHARL.	;	SHOPPING-	CENTER	:	0.253
13	MIAMI	;	SINGLE STORE&	SERV.STAT.	:	0.328
14	PHOENIX	;	WAREHOUSES		:	0.995
15	PHOENIX	;	LIBRARIES -	MUSEUM	:	0.077
16	PHOENIX	;	HOTEL		:	0.147
17	FT.WRTH	;	SHOPPING-	CENTER	:	0.416
18	L.A.	;	SHOPPING-	CENTER	:	0.469
19	PHOENIX	;	RETAIL-	SUPERMARKET	:	0.093
20	CHARL.	;	WAREHOUSES		:	0.666
21	PHOENIX	;	MOTEL &	NURSING HOME	:	0.811
22	PHOENIX	;	EDUCATIONAL		:	2.057
23	PHOENIX	;	OFFICE -	BUILDING	:	1.623
24	MIAMI	;	RESTAURANT		:	0.084
25	FT.WRTH	;	WAREHOUSES		:	3.097

26	CHAPL. ; LIBRARIES - MUSEUM	:	0.280
27	CHAPL. ; RETAIL- SUPERMARKET	:	0.297
28	PHOENIX ; MEDICAL- INSTITUTION	:	0.500
29	CHAPL. ; HOTEL	:	0.539
30	FT.WRTH ; LIBRARIES - MUSEUM	:	0.237
31	FT.WRTH ; HOTEL	:	0.447
32	PHOENIX ; RELIGIOUS & RECREATIONAL	:	1.314
33	FT.WRTH ; RETAIL- SUPERMARKET	:	0.306
34	CHAPL. ; EDUCATIONAL	:	7.345
35	CHAPL. ; OFFICE - BUILDING	:	5.786
36	CHAPL. ; MOTEL & NURSING HOME	:	3.273
37	FT.WRTH ; MOTEL & NURSING HOME	:	2.675
38	L.A. ; WAREHOUSES	:	5.238
39	FT.WRTH ; OFFICE - BUILDING	:	5.031
40	FT.WRTH ; EDUCATIONAL	:	6.386
41	PHOENIX ; SINGLE STORE& SERV.STAT.	:	3.200
42	CHAPL. ; MEDICAL- INSTITUTION	:	1.880
43	L.A. ; LIBRARIES - MUSEUM	:	0.447
44	FT.WRTH ; MEDICAL- INSTITUTION	:	1.523
45	L.A. ; HOTEL	:	0.845
46	L.A. ; RETAIL- SUPERMARKET	:	0.516
47	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	5.210
48	CHAPL. ; RELIGIOUS & RECREATIONAL	:	5.084
49	L.A. ; OFFICE - BUILDING	:	9.528
50	L.A. ; EDUCATIONAL	:	12.098
51	L.A. ; MOTEL & NURSING HOME	:	5.447
52	CHAPL. ; SINGLE STORE& SERV.STAT.	:	12.137
53	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	9.668
54	L.A. ; MEDICAL- INSTITUTION	:	3.080
55	L.A. ; RELIGIOUS & RECREATIONAL	:	8.256

56	NASHVIL. ; SHOPPING- CENTER	:	1.692
57	WASH DC ; SHOPPING- CENTER	:	3.246
58	WASH DC ; HOTEL	:	2.131
59	OMAHA ; SHOPPING- CENTER	:	1.594
60	NASHVIL. ; HOTEL	:	1.145
61	WASH DC ; LIBRARIES - MUSEUM	:	1.227
62	NASHVIL. ; LIBRARIES - MUSEUM	:	0.647
63	WASH DC ; WAREHOUSES	:	18.399
64	NASHVIL. ; WAREHOUSES	:	9.720
65	OMAHA ; HOTEL	:	1.101
66	PHOENIX ; RESTAURANT	:	0.982
67	OMAHA ; LIBRARIES - MUSEUM	:	0.614
68	OMAHA ; WAREHOUSES	:	9.240
69	BISMARCK. ; SHOPPING- CENTER	:	2.841
70	WASH DC ; MOTEL & NURSING HOME	:	12.393
71	BISMARCK. ; HOTEL	:	1.856
72	NASHVIL. ; MOTEL & NURSING HOME	:	6.637
73	L.A. ; SINGLE STORE & SERV. STAT.	:	19.685
74	BISMARCK. ; LIBRARIES - MUSEUM	:	1.059
75	BOSTON ; SHOPPING- CENTER	:	7.969
76	OMAHA ; MOTEL & NURSING HOME	:	6.380
77	BISMARCK. ; WAREHOUSES	:	16.114
78	WASH DC ; EDUCATIONAL	:	32.332
79	WASH DC ; OFFICE - BUILDING	:	25.470
80	WASH DC ; RETAIL- SUPERMARKET	:	2.612
81	NASHVIL. ; OFFICE - BUILDING	:	13.569
82	NASHVIL. ; EDUCATIONAL	:	17.230
83	NASHVIL. ; RETAIL- SUPERMARKET	:	0.962
84	OMAHA ; RETAIL- SUPERMARKET	:	0.914
85	OMAHA ; OFFICE - BUILDING	:	12.924

86	OMAHA ; EDUCATIONAL	:	16.432
87	WASH DC ; MEDICAL- INSTITUTION	:	6.929
88	SEATTLE ; HOTEL	:	0.112
89	NASHVIL. ; MEDICAL- INSTITUTION	:	3.708
90	RISMRK. ; MOTEL & NURSING HOME	:	10.740
91	OMAHA ; MEDICAL- INSTITUTION	:	3.527
92	WASH DC ; RELIGIOUS & RECREATIONAL	:	17.092
93	BOSTON ; WAREHOUSES	:	48.977
94	BOSTON ; HOTEL	:	6.188
95	BOSTON ; LIBRARIES - MUSEUM	:	3.411
96	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	9.203
97	CHARL. ; RESTAURANT	:	3.564
98	FT.WRTH ; RESTAURANT	:	2.791
99	MADISON ; SHOPPING- CENTER	:	4.833
100	RISMRK. ; OFFICE - BUILDING	:	22.044
101	RISMRK. ; EDUCATIONAL	:	27.983
102	RISMRK. ; RETAIL- SUPERMARKET	:	1.582
103	OMAHA ; RELIGIOUS & RECREATIONAL	:	8.772
104	MADISON ; HOTEL	:	3.143
105	MADISON ; LIBRARIES - MUSEUM	:	1.794
106	RISMRK. ; MEDICAL- INSTITUTION	:	5.937
107	MADISON ; WAREHOUSES	:	27.264
108	RISMRK. ; RELIGIOUS & RECREATIONAL	:	14.674
109	BOSTON ; MOTEL & NURSING HOME	:	36.063
110	BOSTON ; RETAIL- SUPERMARKET	:	4.825
111	BOSTON ; EDUCATIONAL	:	90.567
112	BOSTON ; OFFICE - BUILDING	:	71.333
113	MADISON ; MOTEL & NURSING HOME	:	18.186
114	WASH DC ; SINGLE STORE& SERV.STAT.	:	52.260
115	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	23.203

116	MADISON ; OFFICE - BUILDING	: 37.412
117	MADISON ; EDUCATIONAL	: 47.611
118	BOSTON ; MEDICAL- INSTITUTION	: 20.186
119	SEATTLE ; SHOPPING- CENTER	: 0.311
120	MADISON ; RETAIL- SUPERMARKET	: 2.677
121	OMAHA ; SINGLE STORE& SERV.STAT.	: 22.202
122	MADISON ; MEDICAL- INSTITUTION	: 10.133
123	BOSTON ; RELIGIOUS & RECREATIONAL	: 50.239
124	MADISON ; RELIGIOUS & RECREATIONAL	: 24.988
125	BISMARCK ; SINGLE STORE& SERV.STAT.	: 37.225
126	L.A. ; RESTAURANT	: 6.081
127	SEATTLE ; WAREHOUSES	: 2.076
128	SEATTLE ; LIBRARIES - MUSEUM	: 0.151
129	BOSTON ; SINGLE STORE& SERV.STAT.	: 135.171
130	SEATTLE ; RETAIL- SUPERMARKET	: 0.207
131	MADISON ; SINGLE STORE& SERV.STAT.	: 63.525
132	SEATTLE ; MOTEL & NURSING HOME	: 1.633
133	SEATTLE ; EDUCATIONAL	: 4.003
134	SEATTLE ; OFFICE - BUILDING	: 3.160
135	SEATTLE ; MEDICAL- INSTITUTION	: 0.924
136	WASH DC ; RESTAURANT	: 12.445
137	NASHVIL. ; RESTAURANT	: 6.707
138	SEATTLE ; RELIGIOUS & RECREATIONAL	: 2.357
139	OMAHA ; RESTAURANT	: 6.423
140	BISMARCK ; RESTAURANT	: 9.722
141	SEATTLE ; SINGLE STORE& SERV.STAT.	: 7.007
142	BOSTON ; RESTAURANT	: 37.031
143	MADISON ; RESTAURANT	: 18.611
144	SEATTLE ; RESTAURANT	: 1.726

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(2) MATRIX SCREEN RESULTS - HEATING ONLY

35% HEATING LOAD

CONTENTS

<u>Conventional Fuel</u>	<u>Solar Cost</u>	<u>Pages</u>
Electricity	\$ 1	145-161
—	2	162-177
Oil	\$ 1	178-193
	2	194-210

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
BUILDING TYPE	HOTEL	0.013	0.225	0.222	0.186	0.281	0.425	0.658	0.590	0.822	1.078	0.955	0.124
	LIBRARIES - MUSEUM	0.013	0.214	0.212	0.175	0.269	0.436	0.668	0.617	0.848	1.117	0.955	0.303
	SHOPPING- CENTER	0.001	0.107	0.120	0.055	0.098	0.394	0.597	0.563	0.787	1.039	0.770	0.217
	MOTEL & NURSING HOME	0.026	0.300	0.295	0.252	0.403	0.550	0.850	0.764	1.058	1.390	1.239	0.402
	WAREHOUSES	0.003	0.193	0.194	0.132	0.220	0.456	0.698	0.644	0.900	1.182	0.955	0.291
	OFFICE - BUILDING	0.020	0.301	0.302	0.242	0.384	0.611	0.936	0.854	1.181	1.555	1.333	0.423
	MEDICAL- INSTITUTION	0.040	0.375	0.369	0.318	0.501	0.674	1.032	0.939	1.285	1.702	1.524	0.501
	EDUCATIONAL	0.020	0.301	0.302	0.242	0.384	0.611	0.937	0.854	1.181	1.559	1.333	0.423
	RELIGIOUS & RECREATIONAL	0.040	0.440	0.425	0.384	0.599	0.747	1.144	1.033	1.416	1.871	1.692	0.569
	RETAIL- SUPERMARKET	0.004	0.247	0.258	0.175	0.293	0.612	0.931	0.858	1.197	1.572	1.273	0.390
	SINGLE STORE & SERV.STAT.	0.079	0.643	0.620	0.550	0.858	1.130	1.741	1.569	2.159	2.858	2.563	0.842
	RESTAURANT	0.184	1.790	1.643	1.469	2.407	2.966	4.574	4.103	5.646	7.443	6.800	2.278

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 1.00													
SS(\$/MBTU)=		6.76	4.35	6.10	7.27	7.12	9.22	7.07	8.93	6.10	8.39	10.83	12.60
1000BTU/SQFT		148.00	230.00	163.96	137.63	140.50	108.42	141.41	112.01	163.84	119.17	92.36	79.34
BUILDING TYPE	HOTEL	0.011	0.178	0.195	0.164	0.240	0.409	0.588	0.521	0.735	0.945	0.837	0.169
	LIBRARIES - MUSEUM	0.011	0.170	0.187	0.155	0.230	0.419	0.598	0.545	0.758	0.979	0.837	0.413
	SHOPPING- CENTER	0.001	0.085	0.114	0.048	0.083	0.379	0.534	0.497	0.704	0.910	0.675	0.295
	MOTEL & NURSING HOME	0.022	0.238	0.260	0.222	0.344	0.528	0.760	0.675	0.946	1.218	1.086	0.548
	WAREHOUSES	0.002	0.153	0.171	0.116	0.188	0.439	0.625	0.568	0.805	1.036	0.837	0.396
	OFFICE - BUILDING	0.016	0.239	0.266	0.214	0.328	0.587	0.837	0.754	1.056	1.362	1.168	0.577
	MEDICAL- INSTITUTION	0.033	0.297	0.325	0.280	0.428	0.648	0.923	0.829	1.149	1.491	1.336	0.683
	EDUCATIONAL	0.016	0.239	0.266	0.214	0.328	0.587	0.838	0.754	1.056	1.366	1.168	0.577
	RELIGIOUS & RECREATIONAL	0.033	0.348	0.374	0.338	0.511	0.718	1.023	0.912	1.266	1.639	1.482	0.776
	RETAIL- SUPERMARKET	0.003	0.195	0.228	0.155	0.250	0.588	0.833	0.758	1.071	1.377	1.115	0.531
	SINGLE STORE & SERV. STAT.	0.066	0.509	0.553	0.485	0.732	1.087	1.557	1.385	1.931	2.504	2.246	1.147
	RESTAURANT	0.153	1.418	1.448	1.295	2.056	2.851	4.092	3.623	5.050	6.521	5.959	3.104

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
SUM (BY BLDG)													
HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
SHOPPING- CENTER	33.91	0.00	0.16	0.50	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
SINGLE STORE & SERV. STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01
RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47
SUM (BY REG) =		1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81
TOTSUM =	2117.21												

ENERGY REQUIRED (MILLION BTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

001 002

REGION

	MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
SS/CS=	0.83	0.79	0.88	0.88	0.85	0.96	0.89	0.88	0.89	0.88	0.88	1.36
BUILDING TYPE												
HOTEL	0.002	0.047	0.026	0.022	0.041	0.016	0.069	0.069	0.087	0.134	0.118	-0.045
LIBRARIES - MUSEUM	0.002	0.045	0.025	0.021	0.039	0.017	0.070	0.072	0.090	0.138	0.118	-0.110
SHOPPING- CENTER	0.000	0.022	0.015	0.006	0.014	0.015	0.063	0.066	0.083	0.129	0.095	-0.079
MOTEL & NURSING HOME	0.004	0.062	0.035	0.030	0.059	0.021	0.090	0.089	0.112	0.172	0.153	-0.140
WAREHOUSES	0.000	0.040	0.023	0.016	0.032	0.018	0.074	0.075	0.095	0.146	0.118	-0.106
OFFICE - BUILDING	0.003	0.063	0.036	0.029	0.056	0.024	0.099	0.100	0.125	0.193	0.165	-0.154
MEDICAL- INSTITUTION	0.007	0.078	0.044	0.037	0.073	0.026	0.109	0.110	0.136	0.211	0.189	-0.182
EDUCATIONAL	0.003	0.063	0.036	0.029	0.056	0.024	0.099	0.100	0.125	0.193	0.165	-0.154
RELIGIOUS & RECREATIONAL	0.007	0.091	0.050	0.045	0.088	0.029	0.121	0.121	0.149	0.232	0.209	-0.207
RETAIL- SUPERMARKET	0.001	0.051	0.031	0.021	0.043	0.024	0.098	0.100	0.126	0.195	0.158	-0.141
SINGLE STORE & SERV. STAT.	0.013	0.134	0.075	0.065	0.125	0.044	0.184	0.184	0.228	0.354	0.317	-0.305
RESTAURANT	0.031	0.372	0.195	0.173	0.352	0.115	0.482	0.480	0.596	0.922	0.842	-0.826

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SOFT)
HEATING ONLY/ELFC AS CONVENTIONAL FUEL
SOLAR COST \$1/SOFT/YR, 35% HEATING LOAD

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
RAIS OIL SAV /SQFT/15YRS=		1.17	1.82	1.29	1.09	1.11	0.86	1.12	0.88	1.29	0.94	0.73	0.63	
FLOORS														
B U I L D I N G T Y P E	HOTEL	5.00	0.01	0.16	0.26	0.22	0.29	0.66	0.80	0.69	1.00	1.22	1.08	0.44
	LIBRARIES - MUSEUM	3.00	0.01	0.09	0.15	0.12	0.16	0.41	0.49	0.43	0.62	0.76	0.65	0.65
	SHOPPING- CENTER	1.00	0.00	0.02	0.03	0.01	0.02	0.12	0.15	0.13	0.19	0.23	0.17	0.15
	MOTEL & NURSING HOME	2.00	0.01	0.09	0.14	0.12	0.16	0.34	0.42	0.36	0.52	0.63	0.56	0.57
	WAREHOUSES	1.00	0.00	0.03	0.04	0.03	0.04	0.14	0.17	0.15	0.22	0.27	0.22	0.21
	OFFICE - BUILDING	4.00	0.01	0.17	0.28	0.22	0.31	0.76	0.92	0.80	1.15	1.41	1.21	1.21
	MEDICAL- INSTITUTION	6.00	0.04	0.32	0.51	0.44	0.61	1.26	1.51	1.31	1.88	2.31	2.07	2.14
	EDUCATIONAL	1.00	0.00	0.04	0.07	0.06	0.08	0.19	0.23	0.20	0.29	0.35	0.30	0.30
	RELIGIOUS & RECREATIONAL	2.00	0.01	0.12	0.20	0.18	0.24	0.46	0.56	0.48	0.69	0.85	0.77	0.81
	RETAIL- SUPERMARKET	1.00	0.00	0.03	0.06	0.04	0.06	0.19	0.23	0.20	0.29	0.36	0.29	0.28
	SINGLE STORE & SERV.STAT.	1.00	0.01	0.09	0.15	0.13	0.17	0.35	0.43	0.37	0.53	0.65	0.58	0.60
	RESTAURANT	1.00	0.03	0.25	0.38	0.34	0.49	0.92	1.12	0.96	1.38	1.68	1.54	1.62

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.00	0.07	0.22	0.27	0.42	0.57	0.55	1.07	0.93	1.57	3.09	0.06
	LIBRARIES - MUSEUM	0.00	0.04	0.12	0.14	0.22	0.32	0.31	0.61	0.53	0.90	1.71	0.08
	SHOPPING- CENTER	0.00	0.06	0.21	0.13	0.23	0.85	0.80	1.62	1.42	2.42	3.98	0.16
	MOTEL & NURSING HOME	0.03	0.41	1.34	1.64	2.72	3.32	3.19	6.20	5.37	9.09	18.03	0.82
	WAREHOUSES	0.03	0.50	1.55	0.33	2.62	4.86	4.62	9.20	8.06	13.63	24.49	1.04
	OFFICE - BUILDING	0.04	0.81	2.52	2.89	4.76	6.78	6.46	12.73	11.02	18.71	35.67	1.58
	MEDICAL- INSTITUTION	0.02	0.25	0.76	0.94	1.54	1.85	1.76	3.46	2.97	5.07	10.09	0.46
	EDUCATIONAL	0.06	1.03	3.19	3.67	6.05	8.62	8.22	16.17	13.99	23.81	45.28	2.00
	RELIGIOUS & RECREATIONAL	0.05	0.66	2.60	2.54	4.13	4.60	4.39	8.55	7.34	12.49	25.12	1.18
	RETAIL- SUPERMARKET	0.00	0.05	0.15	0.15	0.26	0.48	0.46	1.31	0.79	1.34	2.41	0.10
	SINGLE STORE & SERV.STAT.	0.16	1.60	4.83	6.07	9.84	11.60	11.10	26.13	18.61	31.76	67.59	3.50
	RESTAURANT	0.04	0.49	1.40	1.78	3.04	3.35	3.21	6.22	4.86	9.31	18.52	0.86

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$1/50FT/YR, 35% HEATING LOAD

RANKING BY COST SAVINGS
HEATING ONLY/ELEC AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

1	MADISON ; RESTAURANT	:	0.922
2	BOSTON ; RESTAURANT	:	0.842
3	BISMARCK. ; RESTAURANT	:	0.596
4	OMAHA ; RESTAURANT	:	0.482
5	WASH DC ; RESTAURANT	:	0.480
6	PHOENIX ; RESTAURANT	:	0.372
7	MADISON ; SINGLE STORE& SERV.STAT.	:	0.354
8	L.A. ; RESTAURANT	:	0.352
9	BOSTON ; SINGLE STORE& SERV.STAT.	:	0.317
10	MADISON ; RELIGIOUS & RECREATIONAL	:	0.232
11	BISMARCK. ; SINGLE STORE& SERV.STAT.	:	0.228
12	MADISON ; MEDICAL- INSTITUTION	:	0.211
13	BOSTON ; RELIGIOUS & RECREATIONAL	:	0.209
14	FT.WRTH ; RESTAURANT	:	0.195
15	MADISON ; RETAIL- SUPERMARKET	:	0.195
16	MADISON ; EDUCATIONAL	:	0.193
17	MADISON ; OFFICE - BUILDING	:	0.193
18	BOSTON ; MEDICAL- INSTITUTION	:	0.189
19	WASH DC ; SINGLE STORE& SERV.STAT.	:	0.184
20	OMAHA ; SINGLE STORE& SERV.STAT.	:	0.184
21	CHARL. ; RESTAURANT	:	0.173
22	MADISON ; MOTEL & NURSING HOME	:	0.172
23	BOSTON ; OFFICE - BUILDING	:	0.165
24	BOSTON ; EDUCATIONAL	:	0.165
25	BOSTON ; RETAIL- SUPERMARKET	:	0.158

26	BOSTON	:	MOTEL &	NURSING HOME	:	0.153
27	BISMARCK	:	RELIGIOUS &	RECREATIONAL	:	0.149
28	MADISON	:	WAREHOUSES		:	0.146
29	MADISON	:	LIBRARIES -	MUSEUM	:	0.138
30	BISMARCK	:	MEDICAL-	INSTITUTION	:	0.136
31	PHOENIX	:	SINGLE STORES	SERV.STAT.	:	0.134
32	MADISON	:	HOTEL		:	0.134
33	MADISON	:	SHOPPING-	CENTER	:	0.129
34	BISMARCK	:	RETAIL-	SUPERMARKET	:	0.126
35	L.A.	:	SINGLE STORES	SERV.STAT.	:	0.125
36	BISMARCK	:	OFFICE -	BUILDING	:	0.125
37	BISMARCK	:	EDUCATIONAL		:	0.125
38	WASH DC	:	RELIGIOUS &	RECREATIONAL	:	0.121
39	OMAHA	:	RELIGIOUS &	RECREATIONAL	:	0.121
40	BOSTON	:	LIBRARIES -	MUSEUM	:	0.118
41	BOSTON	:	HOTEL		:	0.118
42	BOSTON	:	WAREHOUSES		:	0.118
43	NASHVIL.	:	RESTAURANT		:	0.115
44	BISMARCK	:	MOTEL &	NURSING HOME	:	0.112
45	WASH DC	:	MEDICAL-	INSTITUTION	:	0.110
46	OMAHA	:	MEDICAL-	INSTITUTION	:	0.109
47	WASH DC	:	RETAIL-	SUPERMARKET	:	0.100
48	WASH DC	:	EDUCATIONAL		:	0.100
49	WASH DC	:	OFFICE -	BUILDING	:	0.100
50	OMAHA	:	EDUCATIONAL		:	0.099
51	OMAHA	:	OFFICE -	BUILDING	:	0.099
52	OMAHA	:	RETAIL-	SUPERMARKET	:	0.098
53	BOSTON	:	SHOPPING-	CENTER	:	0.095
54	BISMARCK	:	WAREHOUSES		:	0.095
55	PHOENIX	:	RELIGIOUS &	RECREATIONAL	:	0.091

56	OMAHA	:	MOTEL &	NURSING HOME	:	0.090
57	RISMRK.	:	LIBRARIES -	MUSEUM	:	0.090
58	WASH DC	:	MOTEL &	NURSING HOME	:	0.089
59	L.A.	:	RELIGIOUS &	RECREATIONAL	:	0.088
60	RISMRK.	:	HOTEL		:	0.087
61	RISMRK.	:	SHOPPING-	CENTER	:	0.083
62	PHOENIX	:	MEDICAL-	INSTITUTION	:	0.078
63	WASH DC	:	WAREHOUSES		:	0.075
64	FT.WRTH	:	SINGLE STORE&	SERV.STAT.	:	0.075
65	OMAHA	:	WAREHOUSES		:	0.074
66	L.A.	:	MEDICAL-	INSTITUTION	:	0.073
67	WASH DC	:	LIBRARIES -	MUSEUM	:	0.072
68	OMAHA	:	LIBRARIES -	MUSEUM	:	0.070
69	OMAHA	:	HOTEL		:	0.069
70	WASH DC	:	HOTEL		:	0.069
71	WASH DC	:	SHOPPING-	CENTER	:	0.066
72	CHARL.	:	SINGLE STORE&	SERV.STAT.	:	0.065
73	OMAHA	:	SHOPPING-	CENTER	:	0.063
74	PHOENIX	:	OFFICE -	BUILDING	:	0.063
75	PHOENIX	:	EDUCATIONAL		:	0.063
76	PHOENIX	:	MOTEL &	NURSING HOME	:	0.062
77	L.A.	:	MOTEL &	NURSING HOME	:	0.059
78	L.A.	:	OFFICE -	BUILDING	:	0.056
79	L.A.	:	EDUCATIONAL		:	0.056
80	PHOENIX	:	RETAIL-	SUPERMARKET	:	0.051
81	FT.WRTH	:	RELIGIOUS &	RECREATIONAL	:	0.050
82	PHOENIX	:	HOTEL		:	0.047
83	CHARL.	:	RELIGIOUS &	RECREATIONAL	:	0.045
84	PHOENIX	:	LIBRARIES -	MUSEUM	:	0.045
85	FT.WRTH	:	MEDICAL-	INSTITUTION	:	0.044

86	NASHVIL.; SINGLE STORE& SERV.STAT. :	0.044
87	L.A. : RETAIL- SUPERMARKET :	0.043
88	L.A. : HOTEL :	0.041
89	PHOENIX : WAREHOUSES :	0.040
90	L.A. : LIBRARIES - MUSEUM :	0.039
91	CHARL. : MEDICAL- INSTITUTION :	0.037
92	FT.WRTH : EDUCATIONAL :	0.036
93	FT.WRTH : OFFICE - BUILDING :	0.036
94	FT.WRTH : MOTEL & NURSING HOME :	0.035
95	L.A. : WAREHOUSES :	0.032
96	MIAMI : RESTAURANT :	0.031
97	FT.WRTH : RETAIL- SUPERMARKET :	0.031
98	CHARL. : MOTEL & NURSING HOME :	0.030
99	NASHVIL.; RELIGIOUS & RECREATIONAL :	0.029
100	CHARL. : OFFICE - BUILDING :	0.029
101	CHARL. : EDUCATIONAL :	0.029
102	FT.WRTH : HOTEL :	0.026
103	NASHVIL.; MEDICAL- INSTITUTION :	0.026
104	FT.WRTH : LIBRARIES - MUSEUM :	0.025
105	NASHVIL.; RETAIL- SUPERMARKET :	0.024
106	NASHVIL.; OFFICE - BUILDING :	0.024
107	NASHVIL.; EDUCATIONAL :	0.024
108	FT.WRTH : WAREHOUSES :	0.023
109	PHOENIX : SHOPPING- CENTER :	0.022
110	CHARL. : HOTEL :	0.022
111	NASHVIL.; MOTEL & NURSING HOME :	0.021
112	CHARL. : RETAIL- SUPERMARKET :	0.021
113	CHARL. : LIBRARIES - MUSEUM :	0.021
114	NASHVIL.; WAREHOUSES :	0.018
115	NASHVIL.; LIBRARIES - MUSEUM :	0.017

116	NASHVIL. ; HOTEL	:	0.016
117	CHARL. ; WAREHOUSES	:	0.016
118	FT.WRTH ; SHOPPING- CENTER	:	0.015
119	NASHVIL. ; SHOPPING- CENTER	:	0.015
120	L.A. ; SHOPPING- CENTER	:	0.014
121	MIAMI ; SINGLE STORES SERV.STAT.	:	0.013
122	MIAMI ; MEDICAL- INSTITUTION	:	0.007
123	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.007
124	CHARL. ; SHOPPING- CENTER	:	0.006
125	MIAMI ; MOTEL & NURSING HOME	:	0.004
126	MIAMI. ; OFFICE - BUILDING	:	0.003
127	MIAMI ; EDUCATIONAL	:	0.003
128	MIAMI ; HOTEL	:	0.002
129	MIAMI ; LIBRARIES - MUSEUM	:	0.002
130	MIAMI ; RETAIL- SUPERMARKET	:	0.001
131	MIAMI ; WAREHOUSES	:	0.000
132	MIAMI ; SHOPPING- CENTER	:	0.000
133	SEATTLE ; HOTEL	:	-0.045
134	SEATTLE ; SHOPPING- CENTER	:	-0.079
135	SEATTLE ; WAREHOUSES	:	-0.106
136	SEATTLE ; LIBRARIES - MUSEUM	:	-0.110
137	SEATTLE ; RETAIL- SUPERMARKET	:	-0.141
138	SEATTLE ; MOTEL & NURSING HOME	:	-0.146
139	SEATTLE ; OFFICE - BUILDING	:	-0.154
140	SEATTLE ; EDUCATIONAL	:	-0.154
141	SEATTLE ; MEDICAL- INSTITUTION	:	-0.182
142	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-0.207
143	SEATTLE ; SINGLE STORES SERV.STAT.	:	-0.305
144	SEATTLE ; RESTAURANT	:	-0.826

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ELFC AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD.

1	MADISON ; RESTAURANT	9.306
2	BOSTON ; RESTAURANT	18.516
3	RISMRK. ; RESTAURANT	4.861
4	OMAHA ; RESTAURANT	3.211
5	WASH DC ; RESTAURANT	6.223
6	PHOENIX ; RESTAURANT	0.491
7	MADISON ; SINGLE STORE& SERV.STAT.	31.762
8	L.A. ; RESTAURANT	3.041
9	BOSTON ; SINGLE STORE& SERV.STAT.	67.585
10	MADISON ; RELIGIOUS & RECREATIONAL	12.494
11	RISMRK. ; SINGLE STORE& SERV.STAT.	18.613
12	MADISON ; MEDICAL- INSTITUTION	5.066
13	BOSTON ; RELIGIOUS & RECREATIONAL	25.120
14	FT.WRTH ; RESTAURANT	1.396
15	MADISON ; RETAIL- SUPERMARKET	1.338
16	MADISON ; EDUCATIONAL	23.806
17	MADISON ; OFFICE - BUILDING	18.706
18	BOSTON ; MEDICAL- INSTITUTION	10.093
19	WASH DC ; SINGLE STORE& SERV.STAT.	26.130
20	OMAHA ; SINGLE STORE& SERV.STAT.	11.101
21	CHARL. ; RESTAURANT	1.762
22	MADISON ; MOTEL & NURSING HOME	9.093
23	BOSTON ; OFFICE - BUILDING	35.666
24	BOSTON ; EDUCATIONAL	45.284
25	BOSTON ; RETAIL- SUPERMARKET	2.413

26	BOSTON	:	MOTEL &	NURSING HOME	:	18.032
27	BISMARCK	:	RELIGIOUS &	RECREATIONAL	:	7.337
28	MADISON	:	WAREHOUSES		:	13.632
29	MADISON	:	LIBRARIES -	MUSEUM	:	0.897
30	BISMARCK	:	MEDICAL-	INSTITUTION	:	2.969
31	PHOENIX	:	SINGLE STORES	SERV.STAT.	:	1.600
32	MADISON	:	HOTEL		:	1.572
33	MADISON	:	SHOPPING-	CENTER	:	2.416
34	BISMARCK	:	RETAIL-	SUPERMARKET	:	0.791
35	L.A.	:	SINGLE STORES	SERV.STAT.	:	9.843
36	BISMARCK	:	OFFICE -	BUILDING	:	11.022
37	BISMARCK	:	EDUCATIONAL		:	13.992
38	WASH DC	:	RELIGIOUS &	RECREATIONAL	:	8.546
39	OMAHA	:	RELIGIOUS &	RECREATIONAL	:	4.386
40	BOSTON	:	LIBRARIES -	MUSEUM	:	1.706
41	BOSTON	:	HOTEL		:	3.094
42	BOSTON	:	WAREHOUSES		:	24.489
43	NASHVIL.	:	RESTAURANT		:	3.353
44	BISMARCK	:	MOTEL &	NURSING HOME	:	5.370
45	WASH DC	:	MEDICAL-	INSTITUTION	:	3.464
46	OMAHA	:	MEDICAL-	INSTITUTION	:	1.764
47	WASH DC	:	RETAIL-	SUPERMARKET	:	1.306
48	WASH DC	:	EDUCATIONAL		:	16.166
49	WASH DC	:	OFFICE -	BUILDING	:	12.735
50	OMAHA	:	EDUCATIONAL		:	8.216
51	OMAHA	:	OFFICE -	BUILDING	:	6.462
52	OMAHA	:	RETAIL-	SUPERMARKET	:	0.457
53	BOSTON	:	SHOPPING-	CENTER	:	3.985
54	BISMARCK	:	WAREHOUSES		:	8.057
55	PHOENIX	:	RELIGIOUS &	RECREATIONAL	:	0.657

56	OMAHA	:	MOTEL &	NURSING HOME	:	3.190
57	BISMARCK	:	LIBRARIES -	MUSEUM	:	0.530
58	WASH DC	:	MOTEL &	NURSING HOME	:	6.196
59	L.A.	:	RELIGIOUS &	RECREATIONAL	:	4.128
60	BISMARCK	:	HOTEL		:	0.928
61	BISMARCK	:	SHOPPING-	CENTER	:	1.421
62	PHOENIX	:	MEDICAL-	INSTITUTION	:	0.250
63	WASH DC	:	WAREHOUSES		:	9.200
64	FT.WRTH	:	SINGLE STORE&	SERV.STAT.	:	4.834
65	OMAHA	:	WAREHOUSES		:	4.620
66	L.A.	:	MEDICAL-	INSTITUTION	:	1.540
67	WASH DC	:	LIBRARIES -	MUSEUM	:	0.613
68	OMAHA	:	LIBRARIES -	MUSEUM	:	0.307
69	OMAHA	:	HOTEL		:	0.551
70	WASH DC	:	HOTEL		:	1.066
71	WASH DC	:	SHOPPING-	CENTER	:	1.623
72	CHARL.	:	SINGLE STORE&	SERV.STAT.	:	6.069
73	OMAHA	:	SHOPPING-	CENTER	:	0.797
74	PHOENIX	:	OFFICE -	BUILDING	:	0.811
75	PHOENIX	:	EDUCATIONAL		:	1.029
76	PHOENIX	:	MOTEL &	NURSING HOME	:	0.406
77	L.A.	:	MOTEL &	NURSING HOME	:	2.723
78	L.A.	:	OFFICE -	BUILDING	:	4.764
79	L.A.	:	EDUCATIONAL		:	6.049
80	PHOENIX	:	RETAIL-	SUPERMARKET	:	0.047
81	FT.WRTH	:	RELIGIOUS &	RECREATIONAL	:	2.605
82	PHOENIX	:	HOTEL		:	0.073
83	CHARL.	:	RELIGIOUS &	RECREATIONAL	:	2.542
84	PHOENIX	:	LIBRARIES -	MUSEUM	:	0.038
85	FT.WRTH	:	MEDICAL-	INSTITUTION	:	0.762

86	NASHVIL. ; SINGLE STORE & SERV. STAT. :	11.601
87	L.A. ; RETAIL- SUPERMARKET :	0.258
88	L.A. ; HOTEL :	0.423
89	PHOENIX ; WAREHOUSES :	0.498
90	L.A. ; LIBRARIES - MUSEUM :	0.223
91	CHARL. ; MEDICAL- INSTITUTION :	0.940
92	FT. WORTH ; EDUCATIONAL :	3.193
93	FT. WORTH ; OFFICE - BUILDING :	2.516
94	FT. WORTH ; MOTEL & NURSING HOME :	1.337
95	L.A. ; WAREHOUSES :	2.619
96	MIAMI ; RESTAURANT :	0.042
97	FT. WORTH ; RETAIL- SUPERMARKET :	0.153
98	CHARL. ; MOTEL & NURSING HOME :	1.637
99	NASHVIL. ; RELIGIOUS & RECREATIONAL :	4.602
100	CHARL. ; OFFICE - BUILDING :	2.893
101	CHARL. ; EDUCATIONAL :	3.673
102	FT. WORTH ; HOTEL :	0.223
103	NASHVIL. ; MEDICAL- INSTITUTION :	1.854
104	FT. WORTH ; LIBRARIES - MUSEUM :	0.118
105	NASHVIL. ; RETAIL- SUPERMARKET :	0.481
106	NASHVIL. ; OFFICE - BUILDING :	6.784
107	NASHVIL. ; EDUCATIONAL :	8.615
108	FT. WORTH ; WAREHOUSES :	1.549
109	PHOENIX ; SHOPPING- CENTER :	0.056
110	CHARL. ; HOTEL :	0.270
111	NASHVIL. ; MOTEL & NURSING HOME :	3.319
112	CHARL. ; RETAIL- SUPERMARKET :	0.148
113	CHARL. ; LIBRARIES - MUSEUM :	0.140
114	NASHVIL. ; WAREHOUSES :	4.860
115	NASHVIL. ; LIBRARIES - MUSEUM :	0.323

116	NASHVIL. ; HOTEL	:	0.573
117	CHARL. ; WAREHOUSES	:	0.333
118	FT.WRTH ; SHOPPING- CENTER	:	0.208
119	NASHVIL. ; SHOPPING- CENTER	:	0.846
120	L.A. ; SHOPPING- CENTER	:	0.235
121	MIAMI ; SINGLE STORE& SERV.STAT.	:	0.164
122	MIAMI ; MEDICAL- INSTITUTION	:	0.022
123	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.049
124	CHARL. ; SHOPPING- CENTER	:	0.127
125	MIAMI ; MOTEL & NURSING HOME	:	0.032
126	MIAMI ; OFFICE - BUILDING	:	0.044
127	MIAMI ; EDUCATIONAL	:	0.056
128	MIAMI ; HOTEL	:	0.004
129	MIAMI ; LIBRARIES - MUSEUM	:	0.002
130	MIAMI ; RETAIL- SUPERMARKET	:	0.001
131	MIAMI ; WAREHOUSES	:	0.025
132	MIAMI ; SHOPPING- CENTER	:	0.001
133	SEATTLE ; HOTEL	:	0.056
134	SEATTLE ; SHOPPING- CENTER	:	0.156
135	SEATTLE ; WAREHOUSES	:	1.038
136	SEATTLE ; LIBRARIES - MUSEUM	:	0.075
137	SEATTLE ; RETAIL- SUPERMARKET	:	0.104
138	SEATTLE ; MOTEL & NURSING HOME	:	0.817
139	SEATTLE ; OFFICE - BUILDING	:	1.580
140	SEATTLE ; EDUCATIONAL	:	2.001
141	SEATTLE ; MEDICAL- INSTITUTION	:	0.462
142	SEATTLE ; RELIGIOUS & RECREATIONAL	:	1.179
143	SEATTLE ; SINGLE STORE& SERV.STAT.	:	3.503
144	SEATTLE ; RESTAURANT	:	0.863

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
CS (\$/MBTU) =		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
BUILDING TYPE	HOTEL	0.013	0.225	0.222	0.186	0.281	0.425	0.658	0.590	0.822	1.078	0.955	0.124
	LIBRARIES - MUSEUM	0.013	0.214	0.212	0.175	0.269	0.436	0.668	0.617	0.848	1.117	0.955	0.303
	SHOPPING- CENTER	0.001	0.107	0.129	0.055	0.098	0.394	0.597	0.563	0.787	1.039	0.770	0.217
	MOTEL & NURSING HOME	0.026	0.300	0.295	0.252	0.403	0.550	0.850	0.764	1.058	1.390	1.239	0.402
	WAREHOUSES	0.003	0.193	0.194	0.132	0.220	0.456	0.698	0.644	0.900	1.182	0.955	0.291
	OFFICE - BUILDING	0.020	0.301	0.302	0.242	0.384	0.611	0.936	0.854	1.181	1.555	1.333	0.423
	MEDICAL- INSTITUTION	0.040	0.375	0.369	0.318	0.501	0.674	1.032	0.939	1.285	1.702	1.524	0.501
	EDUCATIONAL	0.020	0.301	0.302	0.242	0.384	0.611	0.937	0.854	1.181	1.559	1.333	0.423
	RELIGIOUS & RECREATIONAL	0.040	0.440	0.425	0.384	0.599	0.747	1.144	1.033	1.416	1.871	1.692	0.569
	RETAIL- SUPERMARKET	0.004	0.247	0.258	0.175	0.293	0.612	0.931	0.858	1.197	1.572	1.273	0.390
	SINGLE STORE & SERV. STAT.	0.079	0.643	0.628	0.550	0.858	1.130	1.741	1.569	2.159	2.858	2.563	0.842
	RESTAURANT	0.184	1.790	1.643	1.469	2.407	2.966	4.574	4.103	5.646	7.443	6.800	2.278

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)
 HEATING ONLY/ELFC AS CONVENTIONAL FUEL
 SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 2.00													
S\$(¢/MBTU)=		13.51	8.70	12.20	14.53	14.23	18.45	14.14	17.86	12.21	16.78	21.65	25.21
1000BTU/SQFT		148.00	230.00	163.96	137.63	140.50	108.42	141.41	112.01	163.84	119.17	92.36	79.34
BUILDING TYPE	HOTEL	0.013	0.210	0.246	0.208	0.297	0.541	0.749	0.659	0.936	1.188	1.053	0.257
	LIBRARIES - MUSEUM	0.013	0.200	0.234	0.195	0.284	0.554	0.761	0.688	0.965	1.231	1.053	0.629
	SHOPPING- CENTER	0.001	0.100	0.144	0.061	0.103	0.501	0.680	0.629	0.894	1.145	0.849	0.450
	MOTEL & NURSING HOME	0.027	0.280	0.329	0.281	0.427	0.699	0.968	0.853	1.204	1.532	1.367	0.835
	WAREHOUSES	0.003	0.180	0.214	0.147	0.233	0.581	0.795	0.718	1.025	1.303	1.053	0.604
	OFFICE - BUILDING	0.020	0.281	0.336	0.270	0.406	0.777	1.066	0.953	1.345	1.714	1.470	0.879
	MEDICAL- INSTITUTION	0.040	0.350	0.411	0.354	0.530	0.858	1.176	1.048	1.463	1.876	1.680	1.041
	EDUCATIONAL	0.020	0.281	0.336	0.270	0.406	0.777	1.068	0.953	1.345	1.718	1.470	0.879
	RELIGIOUS & RECREATIONAL	0.040	0.410	0.472	0.427	0.633	0.950	1.303	1.152	1.612	2.062	1.865	1.182
	RETAIL- SUPERMARKET	0.004	0.230	0.280	0.195	0.310	0.779	1.061	0.958	1.364	1.732	1.403	0.809
	SINGLE STORE & SERV.STAT.	0.080	0.601	0.699	0.613	0.907	1.438	1.983	1.751	2.459	3.150	2.825	1.747
	RESTAURANT	0.186	1.672	1.828	1.636	2.546	3.774	5.211	4.580	6.430	8.204	7.497	4.727

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	RISMRK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM (BY BLDG)														
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.59	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
	SINGLE STORE & SERV. STAT.	550.97	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01
RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47	
SUM (BY REG) =		1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81	
TOTSUM=		2117.21												

ENERGY REQUIRED (MILLION BTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

S\$/CS=

REGION

	MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
	1.01	0.93	1.11	1.11	1.06	1.27	1.14	1.12	1.14	1.10	1.10	2.08
HOTEL	-0.000	0.015	-0.025	-0.021	-0.016	-0.116	-0.092	-0.068	-0.114	-0.110	-0.098	-0.133
LIBRARIES - MUSEUM	-0.000	0.014	-0.024	-0.020	-0.016	-0.119	-0.093	-0.072	-0.118	-0.114	-0.098	-0.326
SHOPPING- CENTER	-0.000	0.007	-0.015	-0.006	-0.006	-0.107	-0.083	-0.065	-0.109	-0.106	-0.079	-0.233
MOTEL & NURSING HOME	-0.000	0.020	-0.033	-0.029	-0.023	-0.150	-0.118	-0.089	-0.147	-0.142	-0.127	-0.433
WAREHOUSES	-0.000	0.013	-0.022	-0.015	-0.013	-0.124	-0.097	-0.075	-0.125	-0.121	-0.098	-0.313
OFFICE - BUILDING	-0.000	0.020	-0.034	-0.028	-0.022	-0.167	-0.130	-0.099	-0.164	-0.159	-0.137	-0.455
MEDICAL- INSTITUTION	-0.000	0.025	-0.042	-0.036	-0.029	-0.184	-0.144	-0.109	-0.178	-0.174	-0.156	-0.539
EDUCATIONAL	-0.000	0.020	-0.034	-0.028	-0.022	-0.167	-0.130	-0.099	-0.164	-0.159	-0.137	-0.455
RELIGIOUS & RECREATIONAL	-0.000	0.029	-0.048	-0.044	-0.035	-0.204	-0.159	-0.120	-0.197	-0.191	-0.173	-0.612
RETAIL- SUPERMARKET	-0.000	0.016	-0.020	-0.020	-0.017	-0.167	-0.130	-0.100	-0.164	-0.161	-0.130	-0.419
SINGLE STORE & SERV. STAT.	-0.001	0.043	-0.071	-0.063	-0.050	-0.308	-0.242	-0.182	-0.300	-0.292	-0.263	-0.905
RESTAURANT	-0.002	0.118	-0.185	-0.168	-0.139	-0.808	-0.636	-0.476	-0.784	-0.761	-0.697	-2.450

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

			REGION											
			MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
HALS OIL SAV /SQFT/15YRS=			1.17	1.82	1.29	1.09	1.11	0.86	1.12	0.88	1.29	0.94	0.73	0.63
FLOORS														
BUILDING TYPE	HOTEL	5.00	0.01	0.16	0.26	0.22	0.29	0.66	0.80	0.69	1.00	1.22	1.08	0.44
	LIBRARIES - MUSEUM	3.00	0.01	0.09	0.15	0.12	0.16	0.41	0.49	0.43	0.62	0.76	0.65	0.65
	SHOPPING- CENTER	1.00	0.00	0.02	0.03	0.01	0.02	0.12	0.15	0.13	0.19	0.23	0.17	0.15
	MOTEL & NURSING HOME	2.00	0.01	0.09	0.14	0.12	0.16	0.34	0.42	0.36	0.52	0.63	0.56	0.57
	WAREHOUSES	1.00	0.00	0.03	0.04	0.03	0.04	0.14	0.17	0.15	0.22	0.27	0.22	0.21
	OFFICE - BUILDING	4.00	0.01	0.17	0.28	0.22	0.31	0.76	0.92	0.80	1.15	1.41	1.21	1.21
	MEDICAL- INSTITUTION	6.00	0.04	0.32	0.51	0.44	0.61	1.26	1.51	1.31	1.88	2.31	2.07	2.14
	EDUCATIONAL	1.00	0.00	0.04	0.07	0.06	0.08	0.19	0.23	0.20	0.29	0.35	0.30	0.30
	RELIGIOUS & RECREATIONAL	2.00	0.01	0.12	0.20	0.18	0.24	0.46	0.56	0.48	0.69	0.85	0.77	0.81
	RETAIL- SUPERMARKET	1.00	0.00	0.03	0.06	0.04	0.06	0.19	0.23	0.20	0.29	0.36	0.29	0.28
	SINGLE STORE & SERV.STAT.	1.00	0.01	0.09	0.15	0.13	0.17	0.35	0.43	0.37	0.53	0.65	0.58	0.60
RESTAURANT	1.00	0.03	0.25	0.38	0.34	0.49	0.92	1.12	0.96	1.38	1.68	1.54	1.62	

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ELFC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEAR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.00	0.07	0.22	0.27	0.42	0.57	0.55	1.07	0.93	1.57	3.09	0.06
	LIBRARIES - MUSEUM	0.00	0.04	0.12	0.14	0.22	0.32	0.31	0.61	0.53	0.90	1.71	0.08
	SHOPPING- CENTER	0.00	0.06	0.21	0.13	0.23	0.85	0.80	1.62	1.42	2.42	3.98	0.16
	MOTEL & NURSING HOME	0.03	0.41	1.34	1.64	2.72	3.32	3.19	6.20	5.37	9.09	18.03	0.82
	WAREHOUSES	0.03	0.50	1.55	0.33	2.62	4.86	4.62	9.20	8.06	13.63	24.49	1.04
	OFFICE - BUILDING	0.04	0.81	2.52	2.89	4.76	6.78	6.46	12.73	11.02	18.71	35.67	1.58
	MEDICAL- INSTITUTION	0.02	0.25	0.76	0.94	1.54	1.85	1.76	3.46	2.97	5.07	10.09	0.46
	EDUCATIONAL	0.06	1.03	3.19	3.67	6.05	8.62	8.22	16.17	13.99	23.81	45.28	2.00
	RELIGIOUS & RECREATIONAL	0.05	0.66	2.60	2.54	4.13	4.60	4.39	8.55	7.34	12.49	25.12	1.18
	RETAIL- SUPERMARKET	0.00	0.05	0.15	0.15	0.26	0.48	0.46	1.31	0.79	1.34	2.41	0.10
	SINGLE STORE & SERV. STAT.	0.16	1.60	4.83	6.07	9.84	11.60	11.10	26.13	18.61	31.76	67.59	3.50
	RESTAURANT	0.04	0.49	1.40	1.78	3.04	3.35	3.21	6.22	4.86	9.31	18.52	0.86

TOTAL ENERGY SAVINGS (MILLION BTU)

HEATING ONLY/ELEC AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

RANKING BY COST SAVINGS
 HEATING ONLY/ELFC AS CONVENTIONAL FUEL
 SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.118
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	0.043
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.029
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.025
5	PHOENIX ; EDUCATIONAL	:	0.020
6	PHOENIX ; OFFICE - BUILDING	:	0.020
7	PHOENIX ; MOTEL & NURSING HOME	:	0.020
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.016
9	PHOENIX ; HOTEL	:	0.015
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.014
11	PHOENIX ; WAREHOUSES	:	0.013
12	PHOENIX ; SHOPPING- CENTER	:	0.007
13	MIAMI ; SHOPPING- CENTER	:	-0.000
14	MIAMI ; WAREHOUSES	:	-0.000
15	MIAMI ; RETAIL- SUPERMARKET	:	-0.000
16	MIAMI ; LIBRARIES - MUSEUM	:	-0.000
17	MIAMI ; HOTEL	:	-0.000
18	MIAMI ; OFFICE - BUILDING	:	-0.000
19	MIAMI ; EDUCATIONAL	:	-0.000
20	MIAMI ; MOTEL & NURSING HOME	:	-0.000
21	MIAMI ; MEDICAL- INSTITUTION	:	-0.000
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	-0.000
23	MIAMI ; SINGLE STORE& SERV.STAT.	:	-0.001
24	MIAMI ; RESTAURANT	:	-0.002
25	L.A. ; SHOPPING- CENTER	:	-0.006

26	CHARL.	:	SHOPPING-	CENTER	:	-0.006
27	L.A.	:	WAREHOUSES		:	-0.013
28	FT.WRTH	:	SHOPPING-	CENTER	:	-0.015
29	CHARL.	:	WAREHOUSES		:	-0.015
30	L.A.	:	LIBRARIES -	MUSEUM	:	-0.016
31	L.A.	:	HOTEL		:	-0.016
32	L.A.	:	RETAIL-	SUPERMARKET	:	-0.017
33	CHARL.	:	LIBRARIES -	MUSEUM	:	-0.020
34	CHARL.	:	RETAIL-	SUPERMARKET	:	-0.020
35	CHARL.	:	HOTEL		:	-0.021
36	FT.WRTH.	:	WAREHOUSES		:	-0.022
37	L.A.	:	OFFICE -	BUILDING	:	-0.022
38	L.A.	:	EDUCATIONAL		:	-0.022
39	L.A.	:	MOTEL &	NURSING HOME	:	-0.023
40	FT.WRTH	:	LIBRARIES -	MUSEUM	:	-0.024
41	FT.WRTH	:	HOTEL		:	-0.025
42	CHARL.	:	EDUCATIONAL		:	-0.028
43	CHARL.	:	OFFICE -	BUILDING	:	-0.028
44	CHARL.	:	MOTEL &	NURSING HOME	:	-0.029
45	L.A.	:	MEDICAL-	INSTITUTION	:	-0.029
46	FT.WRTH	:	RETAIL-	SUPERMARKET	:	-0.029
47	FT.WRTH	:	MOTEL &	NURSING HOME	:	-0.033
48	FT.WRTH	:	OFFICE -	BUILDING	:	-0.034
49	FT.WRTH	:	EDUCATIONAL		:	-0.034
50	L.A.	:	RELIGIOUS &	RECREATIONAL	:	-0.035
51	CHARL.	:	MEDICAL-	INSTITUTION	:	-0.036
52	FT.WRTH	:	MEDICAL-	INSTITUTION	:	-0.042
53	CHARL.	:	RELIGIOUS &	RECREATIONAL	:	-0.044
54	FT.WRTH	:	RELIGIOUS &	RECREATIONAL	:	-0.048
55	L.A.	:	SINGLE STORE&	SERV.STAT.	:	-0.050

56	CHARL. : SINGLE STORE& SERV.STAT. :	-0.063
57	WASH DC : SHOPPING- CENTER :	-0.065
58	WASH DC : HOTEL :	-0.068
59	FT.WRTH : SINGLE STORE& SERV.STAT. :	-0.071
60	WASH DC : LIBRARIES - MUSEUM :	-0.072
61	WASH DC : WAREHOUSES :	-0.075
62	BOSTON : SHOPPING- CENTER :	-0.079
63	OMAHA : SHOPPING- CENTER :	-0.083
64	WASH DC : MOTEL & NURSING HOME :	-0.089
65	OMAHA : HOTEL :	-0.092
66	OMAHA : LIBRARIES - MUSEUM :	-0.093
67	OMAHA : WAREHOUSES :	-0.097
68	BOSTON : WAREHOUSES :	-0.098
69	BOSTON : HOTEL :	-0.098
70	BOSTON : LIBRARIES - MUSEUM :	-0.098
71	WASH DC : OFFICE - BUILDING :	-0.099
72	WASH DC : EDUCATIONAL :	-0.099
73	WASH DC : RETAIL- SUPERMARKET :	-0.100
74	MADISON : SHOPPING- CENTER :	-0.106
75	NASHVIL. : SHOPPING- CENTER :	-0.107
76	WASH DC : MEDICAL- INSTITUTION :	-0.109
77	BISMRK. : SHOPPING- CENTER :	-0.109
78	MADISON : HOTEL :	-0.110
79	BISMRK. : HOTEL :	-0.114
80	MADISON : LIBRARIES - MUSEUM :	-0.114
81	NASHVIL. : HOTEL :	-0.116
82	BISMRK. : LIBRARIES - MUSEUM :	-0.118
83	OMAHA : MOTEL & NURSING HOME :	-0.118
84	NASHVIL. : LIBRARIES - MUSEUM :	-0.119
85	WASH DC : RELIGIOUS & RECREATIONAL :	-0.120

86	MADISON	: WAREHOUSES	:	-0.121
87	NASHVIL.	: WAREHOUSES	:	-0.124
88	RISMRK.	: WAREHOUSES	:	-0.125
89	BOSTON	: MOTEL & NURSING HOME	:	-0.127
90	OMAHA	: RETAIL- SUPERMARKET	:	-0.130
91	OMAHA	: OFFICE - BUILDING	:	-0.130
92	OMAHA	: EDUCATIONAL	:	-0.130
93	BOSTON	: RETAIL- SUPERMARKET	:	-0.130
94	SEATTLE	: HOTEL	:	-0.133
95	BOSTON	: OFFICE - BUILDING	:	-0.137
96	BOSTON	: EDUCATIONAL	:	-0.137
97	L.A.	: RESTAURANT	:	-0.139
98	MADISON	: MOTEL & NURSING HOME	:	-0.142
99	OMAHA	: MEDICAL- INSTITUTION	:	-0.144
100	RISMRK.	: MOTEL & NURSING HOME	:	-0.147
101	NASHVIL.	: MOTEL & NURSING HOME	:	-0.150
102	BOSTON	: MEDICAL- INSTITUTION	:	-0.156
103	MADISON	: OFFICE - BUILDING	:	-0.159
104	OMAHA	: RELIGIOUS & RECREATIONAL	:	-0.159
105	MADISON	: EDUCATIONAL	:	-0.159
106	MADISON	: RETAIL- SUPERMARKET	:	-0.161
107	RISMRK.	: EDUCATIONAL	:	-0.164
108	RISMRK.	: OFFICE - BUILDING	:	-0.164
109	RISMRK.	: RETAIL- SUPERMARKET	:	-0.166
110	NASHVIL.	: EDUCATIONAL	:	-0.167
111	NASHVIL.	: OFFICE - BUILDING	:	-0.167
112	NASHVIL.	: RETAIL- SUPERMARKET	:	-0.167
113	CHARL.	: RESTAURANT	:	-0.168
114	BOSTON	: RELIGIOUS & RECREATIONAL	:	-0.173
115	MADISON	: MEDICAL- INSTITUTION	:	-0.174

116	BISMARCK ; MEDICAL- INSTITUTION :	-0.178
117	WASH DC ; SINGLE STORE& SERV.STAT. :	-0.182
118	NASHVIL. ; MEDICAL- INSTITUTION :	-0.184
119	FT.WRTH ; RESTAURANT :	-0.185
120	MADISON ; RELIGIOUS & RECREATIONAL :	-0.191
121	BISMARCK ; RELIGIOUS & RECREATIONAL :	-0.197
122	NASHVIL. ; RELIGIOUS & RECREATIONAL :	-0.204
123	SEATTLE ; SHOPPING- CENTER :	-0.233
124	OMAHA ; SINGLE STORE& SERV.STAT. :	-0.242
125	BOSTON ; SINGLE STORE& SERV.STAT. :	-0.263
126	MADISON ; SINGLE STORE& SERV.STAT. :	-0.292
127	BISMARCK ; SINGLE STORE& SERV.STAT. :	-0.300
128	NASHVIL. ; SINGLE STORE& SERV.STAT. :	-0.308
129	SEATTLE ; WAREHOUSES :	-0.313
130	SEATTLE ; LIBRARIES - MUSEUM :	-0.326
131	SEATTLE ; RETAIL- SUPERMARKET :	-0.419
132	SEATTLE ; MOTEL & NURSING HOME :	-0.433
133	SEATTLE ; OFFICE - BUILDING :	-0.455
134	SEATTLE ; EDUCATIONAL :	-0.455
135	WASH DC ; RESTAURANT :	-0.476
136	SEATTLE ; MEDICAL- INSTITUTION :	-0.539
137	SEATTLE ; RELIGIOUS & RECREATIONAL :	-0.612
138	OMAHA ; RESTAURANT :	-0.636
139	BOSTON ; RESTAURANT :	-0.697
140	MADISON ; RESTAURANT :	-0.761
141	BISMARCK ; RESTAURANT :	-0.784
142	NASHVIL. ; RESTAURANT :	-0.808
143	SEATTLE ; SINGLE-STORE& SERV.STAT. :	-0.905
144	SEATTLE ; RESTAURANT :	-2.450

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ELEC AS CONVENTIONAL FUEL
SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.491
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	1.600
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.657
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.250
5	PHOENIX ; EDUCATIONAL	:	1.029
6	PHOENIX ; OFFICE - BUILDING	:	0.811
7	PHOENIX ; MOTEL & NURSING HOME	:	0.406
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.047
9	PHOENIX ; HOTEL	:	0.073
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.038
11	PHOENIX ; WAREHOUSES	:	0.498
12	PHOENIX ; SHOPPING- CENTER	:	0.056
13	MIAMI ; SHOPPING- CENTER	:	0.001
14	MIAMI ; WAREHOUSES	:	0.025
15	MIAMI ; RETAIL- SUPERMARKET	:	0.001
16	MIAMI ; LIBRARIES - MUSEUM	:	0.002
17	MIAMI ; HOTEL	:	0.004
18	MIAMI ; OFFICE - BUILDING	:	0.044
19	MIAMI ; EDUCATIONAL	:	0.056
20	MIAMI ; MOTEL & NURSING HOME	:	0.032
21	MIAMI ; MEDICAL- INSTITUTION	:	0.022
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.049
23	MIAMI ; SINGLE STORE& SERV.STAT.	:	0.164
24	MIAMI ; RESTAURANT	:	0.042
25	L.A. ; SHOPPING- CENTER	:	0.235

26	CHARL.	:	SHOPPING- CENTER	:	0.127
27	L.A.	:	WAREHOUSES	:	2.619
28	FT.WRTH	:	SHOPPING- CENTER	:	0.208
29	CHARL.	:	WAREHOUSES	:	0.333
30	L.A.	:	LIBRARIES - MUSEUM	:	0.223
31	L.A.	:	HOTEL	:	0.423
32	L.A.	:	RETAIL- SUPERMARKET	:	0.258
33	CHARL.	:	LIBRARIES - MUSEUM	:	0.140
34	CHARL.	:	RETAIL- SUPERMARKET	:	0.148
35	CHARL.	:	HOTEL	:	0.270
36	FT.WRTH	:	WAREHOUSES	:	1.549
37	L.A.	:	OFFICE - BUILDING	:	4.764
38	L.A.	:	EDUCATIONAL	:	6.049
39	L.A.	:	MOTEL & NURSING HOME	:	2.723
40	FT.WRTH	:	LIBRARIES - MUSEUM	:	0.118
41	FT.WRTH	:	HOTEL	:	0.223
42	CHARL.	:	EDUCATIONAL	:	3.673
43	CHARL.	:	OFFICE - BUILDING	:	2.893
44	CHARL.	:	MOTEL & NURSING HOME	:	1.637
45	L.A.	:	MEDICAL- INSTITUTION	:	1.540
46	FT.WRTH	:	RETAIL- SUPERMARKET	:	0.153
47	FT.WRTH	:	MOTEL & NURSING HOME	:	1.337
48	FT.WRTH	:	OFFICE - BUILDING	:	2.516
49	FT.WRTH	:	EDUCATIONAL	:	3.193
50	L.A.	:	RELIGIOUS & RECREATIONAL	:	4.128
51	CHARL.	:	MEDICAL- INSTITUTION	:	0.940
52	FT.WRTH	:	MEDICAL- INSTITUTION	:	0.762
53	CHARL.	:	RELIGIOUS & RECREATIONAL	:	2.542
54	FT.WRTH	:	RELIGIOUS & RECREATIONAL	:	2.605
55	L.A.	:	SINGLE STORE & SERV.STAT.	:	9.843

56	CHAPL. ; SINGLE STORE& SERV.STAT. :	6.069
57	WASH DC ; SHOPPING- CENTER :	1.623
58	WASH DC ; HOTEL :	1.066
59	FT.WRTH ; SINGLE STORE& SERV.STAT. :	4.834
60	WASH DC ; LIBRARIES - MUSEUM :	0.613
61	WASH DC ; WAREHOUSES :	9.200
62	BOSTON ; SHOPPING- CENTER :	3.985
63	OMAHA ; SHOPPING- CENTER :	0.797
64	WASH DC ; MOTEL & NURSING HOME :	6.196
65	OMAHA ; HOTEL :	0.551
66	OMAHA ; LIBRARIES - MUSEUM :	0.307
67	OMAHA ; WAREHOUSES :	4.620
68	BOSTON ; WAREHOUSES :	24.489
69	BOSTON ; HOTEL :	3.094
70	BOSTON ; LIBRARIES - MUSEUM :	1.706
71	WASH DC ; OFFICE - BUILDING :	12.735
72	WASH DC ; EDUCATIONAL :	16.166
73	WASH DC ; RETAIL- SUPERMARKET :	1.306
74	MADISON ; SHOPPING- CENTER :	2.416
75	NASHVIL. ; SHOPPING- CENTER :	0.846
76	WASH DC ; MEDICAL- INSTITUTION :	3.464
77	BISMRK. ; SHOPPING- CENTER :	1.421
78	MADISON ; HOTEL :	1.572
79	BISMRK. ; HOTEL :	0.928
80	MADISON ; LIBRARIES - MUSEUM :	0.897
81	NASHVIL. ; HOTEL :	0.573
82	BISMRK. ; LIBRARIES - MUSEUM :	0.530
83	OMAHA ; MOTEL & NURSING HOME :	3.190
84	NASHVIL. ; LIBRARIES - MUSEUM :	0.323
85	WASH DC ; RELIGIOUS & RECREATIONAL :	8.546

86	MADISON ; WAREHOUSES	:	13.632
87	NASHVIL. ; WAREHOUSES	:	4.860
88	BISMARCK. ; WAREHOUSES	:	8.057
89	BOSTON ; MOTEL & NURSING HOME	:	18.032
90	OMAHA ; RETAIL- SUPERMARKET	:	0.457
91	OMAHA ; OFFICE - BUILDING	:	6.462
92	OMAHA ; EDUCATIONAL	:	8.216
93	BOSTON ; RETAIL- SUPERMARKET	:	2.413
94	SEATTLE ; HOTEL	:	0.056
95	BOSTON ; OFFICE - BUILDING	:	35.666
96	BOSTON ; EDUCATIONAL	:	45.284
97	L.A. ; RESTAURANT	:	3.041
98	MADISON ; MOTEL & NURSING HOME	:	9.093
99	OMAHA ; MEDICAL- INSTITUTION	:	1.764
100	BISMARCK. ; MOTEL & NURSING HOME	:	5.370
101	NASHVIL. ; MOTEL & NURSING HOME	:	3.319
102	BOSTON ; MEDICAL- INSTITUTION	:	10.093
103	MADISON ; OFFICE - BUILDING	:	18.706
104	OMAHA ; RELIGIOUS & RECREATIONAL	:	4.386
105	MADISON ; EDUCATIONAL	:	23.806
106	MADISON ; RETAIL- SUPERMARKET	:	1.338
107	BISMARCK. ; EDUCATIONAL	:	13.992
108	BISMARCK. ; OFFICE - BUILDING	:	11.022
109	BISMARCK. ; RETAIL- SUPERMARKET	:	0.791
110	NASHVIL. ; EDUCATIONAL	:	8.615
111	NASHVIL. ; OFFICE - BUILDING	:	6.784
112	NASHVIL. ; RETAIL- SUPERMARKET	:	0.481
113	CHARL. ; RESTAURANT	:	1.782
114	BOSTON ; RELIGIOUS & RECREATIONAL	:	25.120
115	MADISON ; MEDICAL- INSTITUTION	:	5.066

116	BISMRK. ; MEDICAL- INSTITUTION :	2.969
117	WASH DC ; SINGLE STORE& SERV.STAT. :	26.130
118	NASHVIL. ; MEDICAL- INSTITUTION :	1.854
119	FT.WRTH ; RESTAURANT :	1.396
120	MADISON ; RELIGIOUS & RECREATIONAL :	12.494
121	BISMRK. ; RELIGIOUS & RECREATIONAL :	7.337
122	NASHVIL. ; RELIGIOUS & RECREATIONAL :	4.602
123	SEATTLE ; SHOPPING- CENTER :	0.156
124	OMAHA ; SINGLE STORE& SERV.STAT. :	11.101
125	BOSTON ; SINGLE STORE& SERV.STAT. :	67.585
126	MADISON ; SINGLE STORE& SERV.STAT. :	31.762
127	BISMRK. ; SINGLE STORE& SERV.STAT. :	18.613
128	NASHVIL. ; SINGLE STORE& SERV.STAT. :	11.601
129	SEATTLE ; WAREHOUSES :	1.038
130	SEATTLE ; LIBRARIES - MUSEUM :	0.075
131	SEATTLE ; RETAIL- SUPERMARKET :	0.104
132	SEATTLE ; MOTEL & NURSING HOME :	0.817
133	SEATTLE ; OFFICE - BUILDING :	1.580
134	SEATTLE ; EDUCATIONAL :	2.001
135	WASH DC ; RESTAURANT :	6.223
136	SEATTLE ; MEDICAL- INSTITUTION :	0.462
137	SEATTLE ; RELIGIOUS & RECREATIONAL :	1.179
138	OMAHA ; RESTAURANT :	3.211
139	BOSTON ; RESTAURANT :	18.516
140	MADISON ; RESTAURANT :	9.306
141	BISMRK. ; RESTAURANT :	4.861
142	NASHVIL. ; RESTAURANT :	3.353
143	SEATTLE ; SINGLE STORE& SERV.STAT. :	3.503
144	SEATTLE ; RESTAURANT :	0.863

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
BUILDING TYPE	HOTEL	0.006	0.114	0.142	0.101	0.123	0.237	0.348	0.262	0.509	0.476	0.336	0.113
	LIBRARIES - MUSEUM	0.006	0.108	0.136	0.095	0.118	0.242	0.354	0.274	0.525	0.494	0.336	0.277
	SHOPPING- CENTER	0.001	0.054	0.083	0.030	0.043	0.219	0.316	0.250	0.487	0.459	0.271	0.198
	MOTEL & NURSING HOME	0.012	0.151	0.189	0.136	0.177	0.306	0.450	0.340	0.655	0.614	0.437	0.367
	WAREHOUSES	0.001	0.097	0.124	0.071	0.096	0.254	0.370	0.286	0.557	0.522	0.336	0.266
	OFFICE - BUILDING	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.687	0.470	0.386
	MEDICAL- INSTITUTION	0.018	0.189	0.237	0.172	0.220	0.375	0.547	0.417	0.795	0.752	0.537	0.458
	EDUCATIONAL	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.689	0.470	0.386
	RELIGIOUS & RECREATIONAL	0.018	0.222	0.272	0.207	0.263	0.415	0.606	0.459	0.876	0.827	0.596	0.520
	RETAIL- SUPERMARKET	0.002	0.124	0.162	0.095	0.129	0.340	0.493	0.381	0.741	0.695	0.448	0.356
SINGLE STORE & SERV.STAT.		0.036	0.325	0.403	0.297	0.376	0.629	0.922	0.697	1.335	1.263	0.903	0.768
RESTAURANT		0.083	0.903	1.054	0.793	1.056	1.650	2.423	1.824	3.495	3.289	2.395	2.079

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	RISMAR. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 1.00													
SS(\$/MRTU)=		6.76	4.35	6.10	7.27	7.12	9.22	7.07	8.93	6.10	8.39	10.83	12.60
1000MRTU/SQFT		148.00	230.00	163.96	137.63	140.50	108.42	141.41	112.01	163.84	119.17	92.36	79.34
BUILDING TYPE	HOTEL	0.006	0.106	0.144	0.109	0.137	0.286	0.387	0.308	0.531	0.553	0.435	0.162
	LIBRARIES - MUSEUM	0.006	0.101	0.138	0.102	0.131	0.293	0.393	0.322	0.548	0.573	0.435	0.396
	SHOPPING- CENTER	0.001	0.050	0.084	0.032	0.048	0.265	0.352	0.294	0.509	0.533	0.351	0.283
	MOTEL & NURSING HOME	0.012	0.141	0.191	0.147	0.197	0.370	0.501	0.399	0.684	0.713	0.564	0.525
	WAREHOUSES	0.001	0.091	0.124	0.077	0.108	0.307	0.411	0.336	0.582	0.607	0.435	0.380
	OFFICE - BUILDING	0.009	0.142	0.194	0.141	0.188	0.411	0.551	0.446	0.764	0.798	0.607	0.553
	MEDICAL- INSTITUTION	0.019	0.176	0.239	0.185	0.245	0.454	0.608	0.490	0.831	0.874	0.694	0.655
	EDUCATIONAL	0.009	0.142	0.194	0.141	0.188	0.411	0.552	0.446	0.764	0.800	0.607	0.553
	RELIGIOUS & RECREATIONAL	0.019	0.207	0.275	0.224	0.293	0.502	0.673	0.539	0.915	0.960	0.770	0.744
	RETAIL- SUPERMARKET	0.002	0.116	0.168	0.102	0.143	0.412	0.548	0.448	0.774	0.807	0.579	0.509
SINGLE STORE & SERV.STAT.		0.037	0.302	0.407	0.321	0.419	0.761	1.025	0.819	1.396	1.467	1.167	1.099
RESTAURANT		0.087	0.841	1.065	0.856	1.177	1.996	2.693	2.142	3.652	3.821	3.096	2.975

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
SUM (BY BLDG)													
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.59	0.36	0.67	2.42	2.28	4.64	4.06	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	6.89	0.30
	SINGLE STORE & SERV. STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	193.10	10.01
	RESTAURANT	151.67	0.12	1.40	3.99	5.09	8.69	9.58	9.18	17.78	13.89	52.90	2.47
SUM (BY REG) =			1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	731.37	33.81
TOTSUM =		2117.21											

ENERGY REQUIRED (MILLION BTU)

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

		REGION											
		MIAMI- FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC. NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S\$/C\$=		1.05	0.93	1.01	1.08	1.11	1.21	1.11	1.17	1.04	1.16	1.29	1.43
BUILDING TYPE	HOTEL	-0.000	0.008	-0.002	-0.008	-0.014	-0.050	-0.039	-0.046	-0.023	-0.077	-0.098	-0.049
	LIBRARIES - MUSEUM	-0.000	0.007	-0.001	-0.008	-0.014	-0.051	-0.040	-0.048	-0.024	-0.080	-0.098	-0.119
	SHOPPING- CENTER	-0.000	0.004	-0.001	-0.002	-0.005	-0.046	-0.035	-0.044	-0.022	-0.074	-0.079	-0.085
	MOTEL & NURSING HOME	-0.001	0.010	-0.002	-0.011	-0.020	-0.064	-0.050	-0.059	-0.029	-0.099	-0.128	-0.158
	WAREHOUSES	-0.000	0.007	-0.001	-0.006	-0.011	-0.053	-0.041	-0.050	-0.025	-0.084	-0.098	-0.114
	OFFICE - BUILDING	-0.000	0.010	-0.002	-0.010	-0.019	-0.071	-0.055	-0.066	-0.033	-0.111	-0.137	-0.166
	MEDICAL - INSTITUTION	-0.001	0.013	-0.003	-0.014	-0.025	-0.079	-0.061	-0.073	-0.036	-0.122	-0.157	-0.197
	EDUCATIONAL	-0.000	0.010	-0.002	-0.010	-0.019	-0.071	-0.055	-0.066	-0.033	-0.111	-0.137	-0.166
	RELIGIOUS & RECREATIONAL	-0.001	0.015	-0.003	-0.016	-0.030	-0.087	-0.068	-0.080	-0.039	-0.134	-0.174	-0.224
	RETAIL - SUPERMARKET	-0.000	0.009	-0.002	-0.008	-0.015	-0.071	-0.055	-0.066	-0.033	-0.112	-0.131	-0.153
	SINGLE STORE & SERV. STAT.	-0.002	0.022	-0.004	-0.024	-0.043	-0.132	-0.103	-0.122	-0.060	-0.204	-0.264	-0.331
	RESTAURANT	-0.004	0.062	-0.011	-0.063	-0.121	-0.346	-0.271	-0.318	-0.157	-0.532	-0.700	-0.896

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
HALS OIL SAV /SQFT/15YRS=		1.17	1.82	1.29	1.09	1.11	0.86	1.12	0.88	1.29	0.94	0.73	0.63	
FLOORS														
BUILDING TYPE	HOTEL	5.00	0.01	0.16	0.26	0.22	0.29	0.66	0.80	0.69	1.00	1.22	1.08	0.44
	LIBRARIES - MUSEUM	3.00	0.01	0.09	0.15	0.12	0.16	0.41	0.49	0.43	0.62	0.76	0.65	0.65
	SHOPPING- CENTER	1.00	0.00	0.02	0.03	0.01	0.02	0.12	0.15	0.13	0.19	0.23	0.17	0.15
	MOTEL & NURSING HOME	2.00	0.01	0.09	0.14	0.12	0.16	0.34	0.42	0.36	0.52	0.63	0.56	0.57
	WAREHOUSES	1.00	0.00	0.03	0.04	0.03	0.04	0.14	0.17	0.15	0.22	0.27	0.22	0.21
	OFFICE - BUILDING	4.00	0.01	0.17	0.28	0.22	0.31	0.76	0.92	0.80	1.15	1.41	1.21	1.21
	MEDICAL- INSTITUTION	6.00	0.04	0.32	0.51	0.44	0.61	1.26	1.51	1.31	1.88	2.31	2.07	2.14
	EDUCATIONAL	1.00	0.00	0.04	0.07	0.06	0.08	0.19	0.23	0.20	0.29	0.35	0.30	0.30
	RELIGIOUS & RECREATIONAL	2.00	0.01	0.12	0.20	0.18	0.24	0.46	0.56	0.48	0.69	0.85	0.77	0.81
	RETAIL- SUPERMARKET	1.00	0.00	0.03	0.06	0.04	0.06	0.19	0.23	0.20	0.29	0.36	0.29	0.28
	SINGLE STORE & SERV.STAT.	1.00	0.01	0.09	0.15	0.13	0.17	0.35	0.43	0.37	0.53	0.65	0.58	0.60
RESTAURANT	1.00	0.03	0.25	0.38	0.34	0.49	0.92	1.12	0.96	1.38	1.68	1.54	1.62	

COLLECTOR AREA / ROOF AREA

HEATING ONLY/ OIL AS CONVENTIONAL FUEL

SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.00	0.07	0.22	0.27	0.42	0.57	0.55	1.07	0.93	1.57	3.09	0.06
	LIBRARIES - MUSEUM	0.00	0.04	0.12	0.14	0.22	0.32	0.31	0.61	0.53	0.90	1.71	0.08
	SHOPPING- CENTER	0.00	0.06	0.21	0.13	0.23	0.85	0.80	1.62	1.42	2.42	3.98	0.16
	MOTEL & NURSING HOME	0.03	0.41	1.34	1.64	2.72	3.32	3.19	6.20	5.37	9.09	18.03	0.82
	WAREHOUSES	0.03	0.50	1.55	0.33	2.62	4.86	4.62	9.20	8.06	13.63	24.49	1.04
	OFFICE - BUILDING	0.04	0.81	2.52	2.89	4.76	6.78	6.46	12.73	11.02	18.71	35.67	1.58
	MEDICAL- INSTITUTION	0.02	0.25	0.76	0.94	1.54	1.85	1.76	3.46	2.97	5.07	10.09	0.46
	EDUCATIONAL	0.06	1.03	3.19	3.67	6.05	8.62	8.22	16.17	13.99	23.81	45.28	2.00
	RELIGIOUS & RECREATIONAL	0.05	0.66	2.60	2.54	4.13	4.60	4.39	8.55	7.34	12.49	25.12	1.18
	RETAIL- SUPERMARKET	0.00	0.05	0.15	0.15	0.26	0.48	0.46	1.31	0.79	1.34	2.41	0.10
	SINGLE STORE & SERV. STAT.	0.16	1.60	4.83	6.07	9.84	11.60	11.10	26.13	18.61	31.76	67.59	3.50
	RESTAURANT	0.04	0.49	1.40	1.78	3.04	3.35	3.21	6.22	4.86	9.31	18.52	0.86

TOTAL ENERGY SAVINGS (MILLION BTU)
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

RANKING BY COST SAVINGS
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR, 35% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.002
2	PHOENIX ; SINGLE STORE& SERV.STAT.	:	0.022
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.015
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.013
5	PHOENIX ; OFFICE - BUILDING	:	0.010
6	PHOENIX ; EDUCATIONAL	:	0.010
7	PHOENIX ; MOTEL & NURSING HOME	:	0.010
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.009
9	PHOENIX ; HOTEL	:	0.008
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.007
11	PHOENIX ; WAREHOUSES	:	0.007
12	PHOENIX ; SHOPPING- CENTER	:	0.004
13	MIAMI ; SHOPPING- CENTER	:	-0.000
14	MIAMI ; WAREHOUSES	:	-0.000
15	MIAMI ; RETAIL- SUPERMARKET	:	-0.000
16	MIAMI ; HOTEL	:	-0.000
17	MIAMI ; LIBRARIES - MUSEUM	:	-0.000
18	MIAMI ; EDUCATIONAL	:	-0.000
19	MIAMI ; OFFICE - BUILDING	:	-0.000
20	MIAMI ; MOTEL & NURSING HOME	:	-0.001
21	FT.WRTH ; SHOPPING- CENTER	:	-0.001
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	-0.001
23	MIAMI ; MEDICAL- INSTITUTION	:	-0.001
24	FT.WRTH ; WAREHOUSES	:	-0.001
25	FT.WRTH ; LIBRARIES - MUSEUM	:	-0.001

26	FT.WRTH ; HOTEL	:	-0.002
27	FT.WRTH ; RETAIL- SUPERMARKET	:	-0.002
28	MIAMI ; SINGLE STORE& SERV.STAT.	:	-0.002
29	FT.WRTH ; MOTEL & NURSING HOME	:	-0.002
30	FT.WRTH ; EDUCATIONAL	:	-0.002
31	FT.WRTH ; OFFICE - BUILDING	:	-0.002
32	CHAPL. ; SHOPPING- CENTER	:	-0.002
33	FT.WRTH ; MEDICAL- INSTITUTION	:	-0.003
34	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	-0.003
35	MIAMI ; RESTAURANT	:	-0.004
36	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	-0.004
37	L.A. ; SHOPPING- CENTER	:	-0.005
38	CHARL. ; WAREHOUSES	:	-0.006
39	CHARL. ; LIBRARIES - MUSEUM	:	-0.008
40	CHARL. ; RETAIL- SUPERMARKET	:	-0.008
41	CHARL. ; HOTEL	:	-0.008
42	CHARL. ; EDUCATIONAL	:	-0.010
43	CHARL. ; OFFICE - BUILDING	:	-0.010
44	CHARL. ; MOTEL & NURSING HOME	:	-0.011
45	L.A. ; WAREHOUSES	:	-0.011
46	FT.WRTH ; RESTAURANT	:	-0.011
47	L.A. ; LIBRARIES - MUSEUM	:	-0.014
48	CHARL. ; MEDICAL- INSTITUTION	:	-0.014
49	L.A. ; HOTEL	:	-0.014
50	L.A. ; RETAIL- SUPERMARKET	:	-0.015
51	CHARL. ; RELIGIOUS & RECREATIONAL	:	-0.016
52	L.A. ; OFFICE - BUILDING	:	-0.019
53	L.A. ; EDUCATIONAL	:	-0.019
54	L.A. ; MOTEL & NURSING HOME	:	-0.020
55	BISMRK. ; SHOPPING- CENTER	:	-0.022

56	BISMRK. ; HOTEL	:	-0.023
57	BISMRK. ; LIBRARIES - MUSEUM	:	-0.024
58	CHAF. ; SINGLE STORE& SERV.STAT.	:	-0.024
59	BISMRK. ; WAREHOUSES	:	-0.025
60	L.A. ; MEDICAL- INSTITUTION	:	-0.025
61	BISMRK. ; MOTEL & NURSING HOME	:	-0.029
62	L.A. ; RELIGIOUS & RECREATIONAL	:	-0.030
63	BISMRK. ; OFFICE - BUILDING	:	-0.033
64	BISMRK. ; EDUCATIONAL	:	-0.033
65	BISMRK. ; RETAIL- SUPERMARKET	:	-0.033
66	OMAHA ; SHOPPING- CENTER	:	-0.035
67	BISMRK. ; MEDICAL- INSTITUTION	:	-0.036
68	OMAHA ; HOTEL	:	-0.039
69	BISMRK. ; RELIGIOUS & RECREATIONAL	:	-0.039
70	OMAHA ; LIBRARIES - MUSEUM	:	-0.040
71	OMAHA ; WAREHOUSES	:	-0.041
72	L.A. ; SINGLE STORE& SERV.STAT.	:	-0.043
73	WASH DC ; SHOPPING- CENTER	:	-0.044
74	WASH DC ; HOTEL	:	-0.046
75	NASHVIL. ; SHOPPING- CENTER	:	-0.046
76	WASH DC ; LIBRARIES - MUSEUM	:	-0.048
77	SEATTLE ; HOTEL	:	-0.049
78	NASHVIL. ; HOTEL	:	-0.050
79	WASH DC ; WAREHOUSES	:	-0.050
80	OMAHA ; MOTEL & NURSING HOME	:	-0.050
81	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.051
82	NASHVIL. ; WAREHOUSES	:	-0.053
83	OMAHA ; RETAIL- SUPERMARKET	:	-0.055
84	OMAHA ; OFFICE - BUILDING	:	-0.055
85	OMAHA ; EDUCATIONAL	:	-0.055

6

96	WASH DC ; MOTEL & NURSING HOME :	-0.059
97	BISMARCK ; SINGLE STORE& SERV.STAT. :	-0.060
98	OMAHA ; MEDICAL- INSTITUTION :	-0.061
99	CHARL. ; RESTAURANT :	-0.063
90	NASHVIL. ; MOTEL & NURSING HOME :	-0.064
91	WASH DC ; OFFICE - BUILDING :	-0.066
92	WASH DC ; EDUCATIONAL :	-0.066
93	WASH DC ; RETAIL- SUPERMARKET :	-0.066
94	OMAHA ; RELIGIOUS & RECREATIONAL :	-0.068
95	NASHVIL. ; EDUCATIONAL :	-0.071
96	NASHVIL. ; OFFICE - BUILDING :	-0.071
97	NASHVIL. ; RETAIL- SUPERMARKET :	-0.071
98	WASH DC ; MEDICAL- INSTITUTION :	-0.073
99	MADISON ; SHOPPING- CENTER :	-0.074
100	MADISON ; HOTEL :	-0.077
101	NASHVIL. ; MEDICAL- INSTITUTION :	-0.079
102	BOSTON ; SHOPPING- CENTER :	-0.079
103	MADISON ; LIBRARIES - MUSEUM :	-0.080
104	WASH DC ; RELIGIOUS & RECREATIONAL :	-0.080
105	MADISON ; WAREHOUSES :	-0.084
106	SEATTLE ; SHOPPING- CENTER :	-0.085
107	NASHVIL. ; RELIGIOUS & RECREATIONAL :	-0.087
108	BOSTON ; WAREHOUSES :	-0.098
109	BOSTON ; HOTEL :	-0.098
110	BOSTON ; LIBRARIES - MUSEUM :	-0.098
111	MADISON ; MOTEL & NURSING HOME :	-0.099
112	OMAHA ; SINGLE STORE& SERV.STAT. :	-0.103
113	MADISON ; OFFICE - BUILDING :	-0.111
114	MADISON ; EDUCATIONAL :	-0.111
115	MADISON ; RETAIL- SUPERMARKET :	-0.112

116	SEATTLE ; WAREHOUSES	:	-0.114
117	SEATTLE ; LIBRARIES - MUSEUM	:	-0.119
118	L.A. ; RESTAURANT	:	-0.121
119	WASH DC ; SINGLE STORE& SERV.STAT.	:	-0.122
120	MADISON ; MEDICAL- INSTITUTION	:	-0.122
121	BOSTON ; MOTEL & NURSING HOME	:	-0.128
122	BOSTON ; RETAIL- SUPERMARKET	:	-0.131
123	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	-0.132
124	MADISON ; RELIGIOUS & RECREATIONAL	:	-0.134
125	BOSTON ; EDUCATIONAL	:	-0.137
126	BOSTON ; OFFICE - BUILDING	:	-0.137
127	SEATTLE ; RETAIL- SUPERMARKET	:	-0.153
128	RISMRK. ; RESTAURANT	:	-0.157
129	BOSTON ; MEDICAL- INSTITUTION	:	-0.157
130	SEATTLE ; MOTEL & NURSING HOME	:	-0.158
131	SEATTLE ; OFFICE - BUILDING	:	-0.166
132	SEATTLE ; EDUCATIONAL	:	-0.166
133	BOSTON ; RELIGIOUS & RECREATIONAL	:	-0.174
134	SEATTLE ; MEDICAL- INSTITUTION	:	-0.197
135	MADISON ; SINGLE STORE& SERV.STAT.	:	-0.204
136	SEATTLE ; RELIGIOUS & RECREATIONAL	:	-0.224
137	BOSTON ; SINGLE STORE& SERV.STAT.	:	-0.264
138	OMAHA ; RESTAURANT	:	-0.271
139	WASH DC ; RESTAURANT	:	-0.318
140	SEATTLE ; SINGLE STORE& SERV.STAT.	:	-0.331
141	NASHVIL. ; RESTAURANT	:	-0.346
142	MADISON ; RESTAURANT	:	-0.532
143	BOSTON ; RESTAURANT	:	-0.700
144	SEATTLE ; RESTAURANT	:	-0.896

RANKING BY TOTAL ENERGY SAVINGS
HEATING ONLY/ OIL AS CONVENTIONAL FUEL
SOLAR COST \$1/SQFT/YR. 35% HEATING LOAD

1	PHOENIX ; RESTAURANT	:	0.491
2	PHOENIX ; SINGLE STORE & SERV. STAT.	:	1.600
3	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.657
4	PHOENIX ; MEDICAL- INSTITUTION	:	0.250
5	PHOENIX ; OFFICE - BUILDING	:	0.811
6	PHOENIX ; EDUCATIONAL	:	1.029
7	PHOENIX ; MOTEL & NURSING HOME	:	0.406
8	PHOENIX ; RETAIL- SUPERMARKET	:	0.047
9	PHOENIX ; HOTEL	:	0.073
10	PHOENIX ; LIBRARIES - MUSEUM	:	0.038
11	PHOENIX ; WAREHOUSES	:	0.498
12	PHOENIX ; SHOPPING- CENTER	:	0.056
13	MIAMI ; SHOPPING- CENTER	:	0.001
14	MIAMI ; WAREHOUSES	:	0.025
15	MIAMI ; RETAIL- SUPERMARKET	:	0.001
16	MIAMI ; HOTEL	:	0.004
17	MIAMI ; LIBRARIES - MUSEUM	:	0.002
18	MIAMI ; EDUCATIONAL	:	0.056
19	MIAMI ; OFFICE - BUILDING	:	0.044
20	MIAMI ; MOTEL & NURSING HOME	:	0.032
21	FT. WORTH ; SHOPPING- CENTER	:	0.208
22	MIAMI ; RELIGIOUS & RECREATIONAL	:	0.049
23	MIAMI ; MEDICAL- INSTITUTION	:	0.022
24	FT. WORTH ; WAREHOUSES	:	1.549
25	FT. WORTH ; LIBRARIES - MUSEUM	:	0.118

26	FT.WRTH ; HOTEL	:	0.223
27	FT.WRTH ; RETAIL- SUPERMARKET	:	0.153
28	MIAMI ; SINGLE STORE& SERV.STAT.	:	0.164
29	FT.WRTH ; MOTEL & NURSING HOME	:	1.337
30	FT.WRTH ; EDUCATIONAL	:	3.193
31	FT.WRTH ; OFFICE - BUILDING	:	2.516
32	CHARL. ; SHOPPING- CENTER	:	0.127
33	FT.WRTH ; MEDICAL- INSTITUTION	:	0.762
34	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	2.605
35	MIAMI ; RESTAURANT	:	0.042
36	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	4.834
37	L.A. ; SHOPPING- CENTER	:	0.235
38	CHARL. ; WAREHOUSES	:	0.333
39	CHARL. ; LIBRARIES - MUSEUM	:	0.140
40	CHARL. ; RETAIL- SUPERMARKET	:	0.148
41	CHARL. ; HOTEL	:	0.270
42	CHARL. ; EDUCATIONAL	:	3.673
43	CHARL. ; OFFICE - BUILDING	:	2.893
44	CHARL. ; MOTEL & NURSING HOME	:	1.637
45	L.A. ; WAREHOUSES	:	2.619
46	FT.WRTH ; RESTAURANT	:	1.396
47	L.A. ; LIBRARIES - MUSEUM	:	0.223
48	CHARL. ; MEDICAL- INSTITUTION	:	0.940
49	L.A. ; HOTEL	:	0.423
50	L.A. ; RETAIL- SUPERMARKET	:	0.258
51	CHARL. ; RELIGIOUS & RECREATIONAL	:	2.542
52	L.A. ; OFFICE - BUILDING	:	4.764
53	L.A. ; EDUCATIONAL	:	6.049
54	L.A. ; MOTEL & NURSING HOME	:	2.723
55	BISMRK. ; SHOPPING- CENTER	:	1.421

56	RISMRK.	:	HOTEL	:	0.928
57	RISMRK.	:	LIBRARIES - MUSEUM	:	0.530
58	CHARL.	:	SINGLE STORE& SERV.STAT.	:	6.069
59	RISMRK.	:	WAREHOUSES	:	8.057
60	L.A.	:	MEDICAL- INSTITUTION	:	1.540
61	RISMRK.	:	MOTEL & NURSING HOME	:	5.370
62	L.A.	:	RELIGIOUS & RECREATIONAL	:	4.128
63	RISMRK.	:	OFFICE - BUILDING	:	11.022
64	RISMRK.	:	EDUCATIONAL	:	13.992
65	RISMRK.	:	RETAIL- SUPERMARKET	:	0.791
66	OMAHA	:	SHOPPING- CENTER	:	0.797
67	RISMRK.	:	MEDICAL- INSTITUTION	:	2.969
68	OMAHA	:	HOTEL	:	0.551
69	RISMRK.	:	RELIGIOUS & RECREATIONAL	:	7.337
70	OMAHA	:	LIBRARIES - MUSEUM	:	0.307
71	OMAHA	:	WAREHOUSES	:	4.620
72	L.A.	:	SINGLE STORE& SERV.STAT.	:	9.843
73	WASH DC	:	SHOPPING- CENTER	:	1.623
74	WASH DC	:	HOTEL	:	1.066
75	NASHVIL.	:	SHOPPING- CENTER	:	0.846
76	WASH DC	:	LIBRARIES - MUSEUM	:	0.613
77	SEATTLE	:	HOTEL	:	0.056
78	NASHVIL.	:	HOTEL	:	0.573
79	WASH DC	:	WAREHOUSES	:	9.200
80	OMAHA	:	MOTEL & NURSING HOME	:	3.190
81	NASHVIL.	:	LIBRARIES - MUSEUM	:	0.323
82	NASHVIL.	:	WAREHOUSES	:	4.860
83	OMAHA	:	RETAIL- SUPERMARKET	:	0.457
84	OMAHA	:	OFFICE - BUILDING	:	6.462
85	OMAHA	:	EDUCATIONAL	:	8.216

86	WASH DC ; MOTEL & NURSING HOME :	6.196
87	BISMARCK. ; SINGLE STORE& SERV.STAT. :	18.613
88	OMAHA ; MEDICAL- INSTITUTION :	1.764
89	CHARL. ; RESTAURANT :	1.782
90	NASHVIL. ; MOTEL & NURSING HOME :	3.319
91	WASH DC ; OFFICE - BUILDING :	12.735
92	WASH DC ; EDUCATIONAL :	16.166
93	WASH DC ; RETAIL- SUPERMARKET :	1.306
94	OMAHA ; RELIGIOUS & RECREATIONAL :	4.386
95	NASHVIL. ; EDUCATIONAL :	8.615
96	NASHVIL. ; OFFICE - BUILDING :	6.784
97	NASHVIL. ; RETAIL- SUPERMARKET :	0.481
98	WASH DC ; MEDICAL- INSTITUTION :	3.464
99	MADISON ; SHOPPING- CENTER :	2.416
100	MADISON ; HOTEL :	1.572
101	NASHVIL. ; MEDICAL- INSTITUTION :	1.854
102	BOSTON ; SHOPPING- CENTER :	3.985
103	MADISON ; LIBRARIES - MUSEUM :	0.897
104	WASH DC ; RELIGIOUS & RECREATIONAL :	8.546
105	MADISON ; WAREHOUSES :	13.632
106	SEATTLE ; SHOPPING- CENTER :	0.156
107	NASHVIL. ; RELIGIOUS & RECREATIONAL :	4.602
108	BOSTON ; WAREHOUSES :	24.489
109	BOSTON ; HOTEL :	3.094
110	BOSTON ; LIBRARIES - MUSEUM :	1.706
111	MADISON ; MOTEL & NURSING HOME :	9.093
112	OMAHA ; SINGLE STORE& SERV.STAT. :	11.101
113	MADISON ; OFFICE - BUILDING :	18.706
114	MADISON ; EDUCATIONAL :	23.806
115	MADISON ; RETAIL- SUPERMARKET :	1.338

116	SEATTLE ; WAREHOUSES	:	1.038
117	SEATTLE ; LIBRARIES - MUSEUM	:	0.075
118	L.A. ; RESTAURANT	:	3.041
119	WASH DC ; SINGLE STORE& SERV.STAT.	:	26.130
120	MADISON ; MEDICAL- INSTITUTION	:	5.066
121	BOSTON ; MOTEL & NURSING HOME	:	18.032
122	BOSTON ; RETAIL- SUPERMARKET	:	2.413
123	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	11.601
124	MADISON ; RELIGIOUS & RECREATIONAL	:	12.494
125	BOSTON ; EDUCATIONAL	:	45.284
126	BOSTON ; OFFICE - BUILDING	:	35.666
127	SEATTLE ; RETAIL- SUPERMARKET	:	0.104
128	BISMARCK. ; RESTAURANT	:	4.861
129	BOSTON ; MEDICAL- INSTITUTION	:	10.093
130	SEATTLE ; MOTEL & NURSING HOME	:	0.817
131	SEATTLE ; OFFICE - BUILDING	:	1.580
132	SEATTLE ; EDUCATIONAL	:	2.001
133	BOSTON ; RELIGIOUS & RECREATIONAL	:	25.120
134	SEATTLE ; MEDICAL- INSTITUTION	:	0.462
135	MADISON ; SINGLE STORE& SERV.STAT.	:	31.762
136	SEATTLE ; RELIGIOUS & RECREATIONAL	:	1.179
137	BOSTON ; SINGLE STORE& SERV.STAT.	:	67.585
138	OMAHA ; RESTAURANT	:	3.211
139	WASH DC ; RESTAURANT	:	6.223
140	SEATTLE ; SINGLE STORE& SERV.STAT.	:	3.503
141	NASHVIL. ; RESTAURANT	:	3.353
142	MADISON ; RESTAURANT	:	9.306
143	BOSTON ; RESTAURANT	:	18.516
144	SEATTLE ; RESTAURANT	:	0.863

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	ROSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
BUILDING TYPE	HOTEL	0.006	0.114	0.142	0.101	0.123	0.237	0.348	0.262	0.509	0.476	0.336	0.113
	LIBRARIES - MUSEUM	0.006	0.108	0.134	0.095	0.118	0.242	0.354	0.274	0.525	0.494	0.336	0.277
	SHOPPING- CENTER	0.001	0.054	0.083	0.030	0.043	0.219	0.316	0.250	0.487	0.459	0.271	0.198
	MOTEL & NURSING HOME	0.012	0.151	0.189	0.136	0.177	0.306	0.450	0.340	0.655	0.614	0.437	0.367
	WAREHOUSES	0.001	0.097	0.124	0.071	0.096	0.254	0.370	0.286	0.557	0.522	0.336	0.266
	OFFICE - BUILDING	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.687	0.470	0.386
	MEDICAL- INSTITUTION	0.016	0.189	0.237	0.172	0.220	0.375	0.547	0.417	0.795	0.752	0.537	0.458
	EDUCATIONAL	0.009	0.152	0.194	0.131	0.168	0.340	0.496	0.380	0.731	0.689	0.470	0.386
	RELIGIOUS & RECREATIONAL	0.018	0.222	0.272	0.207	0.263	0.415	0.606	0.459	0.874	0.827	0.596	0.520
	RETAIL- SUPERMARKET	0.002	0.124	0.164	0.095	0.129	0.340	0.493	0.381	0.741	0.695	0.448	0.356
	SINGLE STORE & SERV.STAT.	0.036	0.325	0.403	0.297	0.376	0.629	0.922	0.697	1.336	1.263	0.903	0.768
	RESTAURANT	0.083	0.903	1.054	0.793	1.056	1.650	2.423	1.824	3.495	3.289	2.395	2.079

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 2.00													
S(\$/MBTU)=		13.51	8.70	12.20	14.53	14.23	18.45	14.14	17.86	12.21	16.78	21.65	25.21
1000 BTU/SQFT		148.00	230.00	163.96	137.63	140.50	108.42	141.41	112.01	163.84	119.17	92.36	79.34
BUILDING TYPE	HOTEL	0.009	0.136	0.195	0.152	0.195	0.418	0.548	0.445	0.732	0.797	0.651	0.250
	LIBRARIES - MUSEUM	0.009	0.131	0.187	0.143	0.186	0.429	0.557	0.466	0.756	0.826	0.651	0.612
	SHOPPING- CENTER	0.001	0.066	0.114	0.045	0.068	0.388	0.498	0.425	0.701	0.768	0.525	0.437
	MOTEL & NURSING HOME	0.017	0.184	0.260	0.205	0.279	0.541	0.708	0.577	0.942	1.028	0.845	0.812
	WAREHOUSES	0.002	0.118	0.170	0.107	0.152	0.449	0.582	0.486	0.802	0.874	0.651	0.587
	OFFICE - BUILDING	0.013	0.184	0.265	0.197	0.266	0.601	0.780	0.645	1.052	1.150	0.909	0.855
	MEDICAL- INSTITUTION	0.026	0.230	0.325	0.259	0.347	0.663	0.860	0.709	1.145	1.258	1.039	1.012
	EDUCATIONAL	0.013	0.184	0.265	0.197	0.266	0.601	0.781	0.645	1.052	1.153	0.909	0.855
	RELIGIOUS & RECREATIONAL	0.026	0.269	0.373	0.313	0.415	0.735	0.953	0.780	1.262	1.383	1.153	1.150
	RETAIL- SUPERMARKET	0.003	0.151	0.227	0.143	0.203	0.602	0.776	0.648	1.067	1.162	0.867	0.787
	SINGLE STORE & SERV. STAT.	0.051	0.394	0.552	0.448	0.594	1.113	1.451	1.184	1.924	2.113	1.746	1.699
	RESTAURANT	0.120	1.096	1.445	1.197	1.668	2.919	3.812	3.098	5.032	5.504	4.634	4.598

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

			REGION											
			MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
SUM (BY BLDG)														
BUILDING TYPE	HOTEL	25.23	0.01	0.21	0.64	0.77	1.21	1.64	1.57	3.04	2.65	4.49	8.84	0.16
	LIBRARIES - MUSEUM	14.21	0.01	0.11	0.34	0.40	0.64	0.92	0.88	1.75	1.51	2.56	4.87	0.22
	SHOPPING- CENTER	33.91	0.00	0.16	0.50	0.36	0.67	2.42	2.28	4.64	4.06	6.90	11.38	0.44
	MOTEL & NURSING HOME	149.00	0.09	1.16	3.82	4.68	7.78	9.48	9.11	17.70	15.34	25.98	51.52	2.33
	WAREHOUSES	202.63	0.07	1.42	4.42	0.95	7.48	13.89	13.20	26.28	23.02	38.95	69.97	2.97
	OFFICE - BUILDING	297.10	0.13	2.32	7.19	8.27	13.61	19.38	18.46	36.39	31.49	53.45	101.90	4.51
	MEDICAL- INSTITUTION	83.39	0.06	0.71	2.18	2.69	4.40	5.30	5.04	9.90	8.48	14.48	28.84	1.32
	EDUCATIONAL	377.37	0.16	2.94	9.12	10.49	17.28	24.61	23.47	46.19	39.98	68.02	129.38	5.72
	RELIGIOUS & RECREATIONAL	210.41	0.14	1.88	7.44	7.26	11.79	13.15	12.53	24.42	20.96	35.70	71.77	3.37
	RETAIL- SUPERMARKET	21.42	0.00	0.13	0.44	0.42	0.74	1.37	1.31	3.73	2.26	3.82	6.89	0.30
	SINGLE STORE & SERV. STAT.	550.87	0.47	4.57	13.81	17.34	28.12	33.15	31.72	74.66	53.18	90.75	193.10	10.01
	RESTAURANT	151.67	0.12	1.40	3.90	5.09	8.69	9.58	9.18	17.78	13.89	26.59	52.90	2.47
SUM (BY REG) =			1.26	17.02	53.98	58.72	102.41	134.89	128.75	266.48	216.83	371.68	731.37	33.81
TOTSUM =			2117.21											

ENERGY REQUIRED (MILLION BTU)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD.

BUILDING TYPE

\$/SQFT=

REGION												
	MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTM TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
	1.45	1.21	1.37	1.51	1.58	1.77	1.57	1.70	1.44	1.67	1.93	2.21
HOTEL	-0.003	-0.024	-0.053	-0.051	-0.071	-0.182	-0.200	-0.183	-0.224	-0.321	-0.314	-0.137
LIBRARIES - MUSEUM	-0.003	-0.023	-0.051	-0.048	-0.068	-0.186	-0.203	-0.192	-0.231	-0.332	-0.314	-0.335
SHOPPING- CENTER	-0.000	-0.011	-0.031	-0.015	-0.025	-0.169	-0.181	-0.175	-0.214	-0.309	-0.254	-0.240
MOTEL & NURSING HOME	-0.005	-0.032	-0.070	-0.069	-0.103	-0.235	-0.258	-0.237	-0.288	-0.414	-0.408	-0.445
WAREHOUSES	-0.001	-0.021	-0.042	-0.036	-0.056	-0.195	-0.212	-0.200	-0.245	-0.352	-0.314	-0.322
OFFICE - BUILDING	-0.004	-0.032	-0.072	-0.067	-0.098	-0.261	-0.284	-0.265	-0.321	-0.463	-0.439	-0.468
MEDICAL- INSTITUTION	-0.008	-0.040	-0.086	-0.087	-0.127	-0.288	-0.314	-0.291	-0.350	-0.506	-0.502	-0.554
EDUCATIONAL	-0.004	-0.032	-0.072	-0.067	-0.098	-0.261	-0.285	-0.265	-0.321	-0.464	-0.439	-0.468
RELIGIOUS & RECREATIONAL	-0.008	-0.047	-0.101	-0.105	-0.152	-0.319	-0.347	-0.321	-0.385	-0.557	-0.557	-0.630
RETAIL- SUPERMARKET	-0.001	-0.026	-0.062	-0.048	-0.075	-0.262	-0.283	-0.266	-0.326	-0.468	-0.419	-0.431
SINGLE STORE & SERV. STAT.	-0.016	-0.069	-0.149	-0.151	-0.218	-0.484	-0.529	-0.487	-0.588	-0.850	-0.844	-0.931
RESTAURANT	-0.037	-0.192	-0.391	-0.404	-0.612	-1.269	-1.390	-1.274	-1.537	-2.215	-2.239	-2.519

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD.

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BALS OIL SAV /SQFT/15YRS=		1.17	1.82	1.29	1.09	1.11	0.86	1.12	0.88	1.29	0.94	0.73	0.63
FLOORS													
HOTEL	5.00	0.01	0.16	0.26	0.22	0.29	0.66	0.80	0.69	1.00	1.22	1.08	0.44
LIBRARIES - MUSEUM	3.00	0.01	0.09	0.15	0.12	0.16	0.41	0.49	0.43	0.62	0.76	0.65	0.65
SHOPPING- CENTER	1.00	0.00	0.02	0.03	0.01	0.02	0.12	0.15	0.13	0.19	0.23	0.17	0.15
MOTEL & NURSING HOME	2.00	0.01	0.09	0.14	0.12	0.16	0.34	0.42	0.36	0.52	0.63	0.56	0.57
WAREHOUSES	1.00	0.00	0.03	0.04	0.03	0.04	0.14	0.17	0.15	0.22	0.27	0.22	0.21
OFFICE - BUILDING	4.00	0.01	0.17	0.29	0.22	0.31	0.76	0.92	0.80	1.15	1.41	1.21	1.21
MEDICAL- INSTITUTION	6.00	0.04	0.32	0.51	0.44	0.61	1.26	1.51	1.31	1.88	2.31	2.07	2.14
EDUCATIONAL	1.00	0.00	0.04	0.07	0.06	0.08	0.19	0.23	0.20	0.29	0.35	0.30	0.30
RELIGIOUS & RECREATIONAL	2.00	0.01	0.12	0.20	0.18	0.24	0.46	0.56	0.48	0.69	0.85	0.77	0.81
RETAIL- SUPERMARKET	1.00	0.00	0.03	0.06	0.04	0.06	0.19	0.23	0.20	0.29	0.36	0.29	0.28
SINGLE STORE & SERV.STAT.	1.00	0.01	0.09	0.15	0.13	0.17	0.35	0.43	0.37	0.53	0.65	0.58	0.60
RESTAURANT	1.00	0.03	0.25	0.38	0.34	0.49	0.92	1.12	0.96	1.38	1.68	1.54	1.62

COLLECTOR AREA / ROOF AREA

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/SQFT/YR. 35% HEATING LOAD

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTN TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
HOTEL		0.00	0.07	0.22	0.27	0.42	0.57	0.55	1.07	0.93	1.57	3.09	0.06
LIBRARIES - MUSEUM		0.00	0.04	0.12	0.14	0.22	0.32	0.31	0.61	0.53	0.90	1.71	0.08
SHOPPING- CENTER		0.00	0.06	0.21	0.13	0.23	0.85	0.80	1.62	1.42	2.42	3.98	0.16
MOTEL & NURSING HOME		0.03	0.41	1.34	1.64	2.72	3.32	3.19	6.20	5.37	9.09	18.03	0.82
WAREHOUSES		0.03	0.50	1.55	0.33	2.62	4.86	4.62	9.20	8.06	13.63	24.49	1.04
OFFICE - BUILDING		0.04	0.81	2.52	2.89	4.76	6.78	6.46	12.73	11.02	18.71	35.67	1.58
MEDICAL- INSTITUTION		0.02	0.25	0.76	0.94	1.54	1.85	1.76	3.46	2.97	5.07	10.09	0.46
EDUCATIONAL		0.06	1.03	3.19	3.67	6.05	8.62	8.22	16.17	13.99	23.81	45.28	2.00
RELIGIOUS & RECREATIONAL		0.05	0.66	2.60	2.54	4.13	4.60	4.39	8.55	7.34	12.49	25.12	1.18
RETAIL- SUPERMARKET		0.00	0.05	0.15	0.15	0.26	0.48	0.46	1.31	0.79	1.34	2.41	0.10
SINGLE STORE & SERV. STAT.		0.16	1.60	4.83	6.07	9.84	11.60	11.10	26.13	18.61	31.76	67.59	3.50
RESTAURANT		0.04	0.49	1.40	1.78	3.04	3.35	3.21	6.22	4.86	9.31	18.52	0.86

TOTAL ENERGY SAVINGS (MILLION MBTU)

HEATING ONLY/OIL AS CONVENTIONAL FUEL

SOLAR COST \$2/50FT/YR. 35% HEATING LOAD

RANKING BY COST SAVINGS
 HEATING ONLY/OIL AS CONVENTIONAL FUEL
 SOLAR COST \$2/SQFT/YR, 35% HEATING LOAD

1	MIAMI	:	SHOPPING-	CENTER	:	-0.000
2	MIAMI	:	WAREHOUSES		:	-0.001
3	MIAMI	:	RETAIL-	SUPERMARKET	:	-0.001
4	MIAMI	:	HOTEL		:	-0.003
5	MIAMI	:	LIBRARIES -	MUSEUM	:	-0.003
6	MIAMI	:	OFFICE -	BUILDING	:	-0.004
7	MIAMI	:	EDUCATIONAL		:	-0.004
8	MIAMI	:	MOTEL &	NURSING HOME	:	-0.005
9	MIAMI	:	MEDICAL-	INSTITUTION	:	-0.008
10	MIAMI	:	RELIGIOUS &	RECREATIONAL	:	-0.008
11	PHOENIX	:	SHOPPING-	CENTER	:	-0.011
12	CHARL.	:	SHOPPING-	CENTER	:	-0.015
13	MIAMI	:	SINGLE STORE&	SERV.STAT.	:	-0.016
14	PHOENIX	:	WAREHOUSES		:	-0.021
15	PHOENIX	:	LIBRARIES -	MUSEUM	:	-0.023
16	PHOENIX	:	HOTEL		:	-0.024
17	L.A.	:	SHOPPING-	CENTER	:	-0.025
18	PHOENIX	:	RETAIL-	SUPERMARKET	:	-0.026
19	FT.WRTH	:	SHOPPING-	CENTER	:	-0.031
20	PHOENIX	:	MOTEL &	NURSING HOME	:	-0.032
21	PHOENIX	:	OFFICE -	BUILDING	:	-0.032
22	PHOENIX	:	EDUCATIONAL		:	-0.032
23	CHARL.	:	WAREHOUSES		:	-0.036
24	MIAMI	:	RESTAURANT		:	-0.037
25	PHOENIX	:	MEDICAL-	INSTITUTION	:	-0.040

26	FT.WRTH	:	WAREHOUSES	:	-0.046
27	PHOENIX	:	RELIGIOUS & RECREATIONAL	:	-0.047
28	CHARL.	:	LIBRARIES - MUSEUM	:	-0.048
29	CHAPL.	:	RETAIL- SUPERMARKET	:	-0.048
30	FT.WRTH	:	LIBRARIES - MUSEUM	:	-0.051
31	CHAPL.	:	HOTEL	:	-0.051
32	FT.WRTH	:	HOTEL	:	-0.053
33	L.A.	:	WAREHOUSES	:	-0.058
34	FT.WRTH	:	RETAIL- SUPERMARKET	:	-0.062
35	CHARL.	:	OFFICE - BUILDING	:	-0.067
36	CHARL.	:	EDUCATIONAL	:	-0.067
37	L.A.	:	LIBRARIES - MUSEUM	:	-0.068
38	PHOENIX	:	SINGLE STORE& SERV.STAT.	:	-0.069
39	CHARL.	:	MOTEL & NURSING HOME	:	-0.069
40	FT.WRTH	:	MOTEL & NURSING HOME	:	-0.070
41	L.A.	:	HOTEL	:	-0.071
42	FT.WRTH	:	EDUCATIONAL	:	-0.072
43	FT.WRTH	:	OFFICE - BUILDING	:	-0.072
44	L.A.	:	RETAIL- SUPERMARKET	:	-0.075
45	CHARL.	:	MEDICAL- INSTITUTION	:	-0.087
46	FT.WRTH	:	MEDICAL- INSTITUTION	:	-0.088
47	L.A.	:	EDUCATIONAL	:	-0.098
48	L.A.	:	OFFICE - BUILDING	:	-0.098
49	FT.WRTH	:	RELIGIOUS & RECREATIONAL	:	-0.101
50	L.A.	:	MOTEL & NURSING HOME	:	-0.103
51	CHAPL.	:	RELIGIOUS & RECREATIONAL	:	-0.105
52	L.A.	:	MEDICAL- INSTITUTION	:	-0.127
53	SEATTLE	:	HOTEL	:	-0.137
54	FT.WRTH	:	SINGLE STORE& SERV.STAT.	:	-0.149
55	CHARL.	:	SINGLE STORE& SERV.STAT.	:	-0.151

56	L.A.	: RELIGIOUS & RECREATIONAL :	-0.152
57	NASHVIL.	: SHOPPING- CENTER :	-0.169
58	WASH DC	: SHOPPING- CENTER :	-0.175
59	OMAHA	: SHOPPING- CENTER :	-0.181
60	NASHVIL.	: HOTEL :	-0.182
61	WASH DC	: HOTEL :	-0.183
62	NASHVIL.	: LIBRARIES - MUSEUM :	-0.186
63	WASH DC	: LIBRARIES - MUSEUM :	-0.192
64	PHOENIX	: RESTAURANT :	-0.192
65	NASHVIL.	: WAREHOUSES :	-0.195
66	OMAHA	: HOTEL :	-0.200
67	WASH DC	: WAREHOUSES :	-0.200
68	OMAHA	: LIBRARIES - MUSEUM :	-0.203
69	OMAHA	: WAREHOUSES :	-0.212
70	RISMRK.	: SHOPPING- CENTER :	-0.214
71	L.A.	: SINGLE STORE & SERV. STAT. :	-0.218
72	RISMRK.	: HOTEL :	-0.224
73	RISMRK.	: LIBRARIES - MUSEUM :	-0.231
74	NASHVIL.	: MOTEL & NURSING HOME :	-0.235
75	WASH DC	: MOTEL & NURSING HOME :	-0.237
76	SEATTLE	: SHOPPING- CENTER :	-0.240
77	RISMRK.	: WAREHOUSES :	-0.245
78	BOSTON	: SHOPPING- CENTER :	-0.254
79	OMAHA	: MOTEL & NURSING HOME :	-0.258
80	NASHVIL.	: EDUCATIONAL :	-0.261
81	NASHVIL.	: OFFICE - BUILDING :	-0.261
82	NASHVIL.	: RETAIL- SUPERMARKET :	-0.262
83	WASH DC	: EDUCATIONAL :	-0.265
84	WASH DC	: OFFICE - BUILDING :	-0.265
85	WASH DC	: RETAIL- SUPERMARKET :	-0.266

86	OMAHA	:	RETAIL-	SUPERMARKET	:	-0.283
87	OMAHA	:	OFFICE -	BUILDING	:	-0.284
88	OMAHA	:	EDUCATIONAL		:	-0.285
89	RISMRK.	:	MOTEL &	NURSING HOME	:	-0.288
90	NASHVIL.	:	MEDICAL-	INSTITUTION	:	-0.288
91	WASH DC	:	MEDICAL-	INSTITUTION	:	-0.291
92	MADISON	:	SHOPPING-	CENTER	:	-0.309
93	OMAHA	:	MEDICAL-	INSTITUTION	:	-0.314
94	BOSTON	:	WAREHOUSES		:	-0.314
95	BOSTON	:	HOTEL		:	-0.314
96	BOSTON	:	LIBRARIES -	MUSEUM	:	-0.314
97	NASHVIL.	:	RELIGIOUS &	RECREATIONAL	:	-0.319
98	WASH DC	:	RELIGIOUS &	RECREATIONAL	:	-0.321
99	MADISON	:	HOTEL		:	-0.321
100	RISMRK.	:	EDUCATIONAL		:	-0.321
101	RISMRK.	:	OFFICE -	BUILDING	:	-0.321
102	SEATTLE	:	WAREHOUSES		:	-0.322
103	RISMRK.	:	RETAIL-	SUPERMARKET	:	-0.326
104	MADISON	:	LIBRARIES -	MUSEUM	:	-0.332
105	SEATTLE	:	LIBRARIES -	MUSEUM	:	-0.335
106	OMAHA	:	RELIGIOUS &	RECREATIONAL	:	-0.347
107	RISMRK.	:	MEDICAL-	INSTITUTION	:	-0.350
108	MADISON	:	WAREHOUSES		:	-0.352
109	RISMRK.	:	RELIGIOUS &	RECREATIONAL	:	-0.385
110	FT. WORTH	:	RESTAURANT		:	-0.391
111	CHARL.	:	RESTAURANT		:	-0.404
112	BOSTON	:	MOTEL &	NURSING HOME	:	-0.408
113	MADISON	:	MOTEL &	NURSING HOME	:	-0.414
114	BOSTON	:	RETAIL-	SUPERMARKET	:	-0.419
115	SEATTLE	:	RETAIL-	SUPERMARKET	:	-0.431

116	BOSTON	: OFFICE - BUILDING	:	-0.439
117	BOSTON	: EDUCATIONAL	:	-0.439
118	SEATTLE	: MOTEL & NURSING HOME	:	-0.445
119	MADISON	: OFFICE - BUILDING	:	-0.463
120	MADISON	: EDUCATIONAL	:	-0.464
121	MADISON	: RETAIL- SUPERMARKET	:	-0.468
122	SEATTLE	: OFFICE - BUILDING	:	-0.468
123	SEATTLE	: EDUCATIONAL	:	-0.468
124	NASHVIL.	: SINGLE STORE& SERV.STAT.	:	-0.484
125	WASH DC	: SINGLE STORE& SERV.STAT.	:	-0.487
126	BOSTON	: MEDICAL- INSTITUTION	:	-0.502
127	MADISON	: MEDICAL- INSTITUTION	:	-0.506
128	OMAHA	: SINGLE STORE& SERV.STAT.	:	-0.529
129	SEATTLE	: MEDICAL- INSTITUTION	:	-0.554
130	MADISON	: RELIGIOUS & RECREATIONAL	:	-0.557
131	BOSTON	: RELIGIOUS & RECREATIONAL	:	-0.557
132	RISMRK.	: SINGLE STORE& SERV.STAT.	:	-0.568
133	L.A.	: RESTAURANT	:	-0.612
134	SEATTLE	: RELIGIOUS & RECREATIONAL	:	-0.630
135	BOSTON	: SINGLE STORE& SERV.STAT.	:	-0.844
136	MADISON	: SINGLE STORE& SERV.STAT.	:	-0.850
137	SEATTLE	: SINGLE STORE& SERV.STAT.	:	-0.931
138	NASHVIL.	: RESTAURANT	:	-1.269
139	WASH DC	: RESTAURANT	:	-1.274
140	OMAHA	: RESTAURANT	:	-1.390
141	RISMRK.	: RESTAURANT	:	-1.537
142	MADISON	: RESTAURANT	:	-2.215
143	BOSTON	: RESTAURANT	:	-2.239
144	SEATTLE	: RESTAURANT	:	-2.519

RANKING BY TOTAL ENERGY SAVINGS
 HEATING ONLY/OIL AS CONVENTIONAL FUEL
 SOLAR COST \$2/SQFT/YR; 35% HEATING LOAD

1	MIAMI	;	SHOPPING-	CENTER	:	0.001
2	MIAMI	;	WAREHOUSES		:	0.025
3	MIAMI	;	RETAIL-	SUPERMARKET	:	0.001
4	MIAMI	;	HOTEL		:	0.004
5	MIAMI	;	LIBRARIES -	MUSEUM	:	0.002
6	MIAMI	;	OFFICE -	BUILDING	:	0.044
7	MIAMI	;	EDUCATIONAL		:	0.056
8	MIAMI	;	MOTEL &	NURSING HOME	:	0.032
9	MIAMI	;	MEDICAL-	INSTITUTION	:	0.022
10	MIAMI	;	RELIGIOUS &	RECREATIONAL	:	0.049
11	PHOENIX	;	SHOPPING-	CENTER	:	0.056
12	CHARL.	;	SHOPPING-	CENTER	:	0.127
13	MIAMI	;	SINGLE STORE&	SERV.STAT.	:	0.164
14	PHOENIX	;	WAREHOUSES		:	0.498
15	PHOENIX	;	LIBRARIES -	MUSEUM	:	0.036
16	PHOENIX	;	HOTEL		:	0.073
17	L.A.	;	SHOPPING-	CENTER	:	0.235
18	PHOENIX	;	RETAIL-	SUPERMARKET	:	0.047
19	FT.WRTH	;	SHOPPING-	CENTER	:	0.206
20	PHOENIX	;	MOTEL &	NURSING HOME	:	0.406
21	PHOENIX	;	OFFICE -	BUILDING	:	0.811
22	PHOENIX	;	EDUCATIONAL		:	1.029
23	CHARL.	;	WAREHOUSES		:	0.333
24	MIAMI	;	RESTAURANT		:	0.042
25	PHOENIX	;	MEDICAL-	INSTITUTION	:	0.250

26	FT.WRTH ; WAREHOUSES	:	1.549
27	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.657
28	CHAPL. ; LIBRARIES - MUSEUM	:	0.140
29	CHARL. ; RETAIL- SUPERMARKET	:	0.148
30	FT.WRTH ; LIBRARIES - MUSEUM	:	0.118
31	CHARL. ; HOTEL	:	0.270
32	FT.WRTH ; HOTEL	:	0.223
33	L.A. ; WAREHOUSES	:	2.619
34	FT.WRTH ; RETAIL- SUPERMARKET	:	0.153
35	CHARL. ; OFFICE - BUILDING	:	2.893
36	CHAPL. ; EDUCATIONAL	:	3.673
37	L.A. ; LIBRARIES - MUSEUM	:	0.223
38	PHOENIX ; SINGLE STORE& SERV.STAT.	:	1.600
39	CHARL. ; MOTEL & NURSING HOME	:	1.637
40	FT.WRTH ; MOTEL & NURSING HOME	:	1.337
41	L.A. ; HOTEL	:	0.423
42	FT.WRTH ; EDUCATIONAL	:	3.193
43	FT.WRTH ; OFFICE - BUILDING	:	2.516
44	L.A. ; RETAIL- SUPERMARKET	:	0.258
45	CHARL. ; MEDICAL- INSTITUTION	:	0.940
46	FT.WRTH ; MEDICAL- INSTITUTION	:	0.762
47	L.A. ; EDUCATIONAL	:	6.049
48	L.A. ; OFFICE - BUILDING	:	4.764
49	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	2.605
50	L.A. ; MOTEL & NURSING HOME	:	2.723
51	CHARL. ; RELIGIOUS & RECREATIONAL	:	2.542
52	L.A. ; MEDICAL- INSTITUTION	:	1.540
53	SEATTLE ; HOTEL	:	0.056
54	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	4.834
55	CHARL. ; SINGLE STORE& SERV.STAT.	:	6.069

56	L.A.	: RELIGIOUS & RECREATIONAL :	4.128
57	NASHVIL.:	SHOPPING- CENTER :	0.846
58	WASH DC :	SHOPPING- CENTER :	1.623
59	OMAHA :	SHOPPING- CENTER :	0.797
60	NASHVIL.:	HOTEL :	0.573
61	WASH DC :	HOTEL :	1.066
62	NASHVIL.:	LIBRARIES - MUSEUM :	0.323
63	WASH DC :	LIBRARIES - MUSEUM :	0.613
64	PHOENIX :	RESTAURANT :	0.491
65	NASHVIL.:	WAREHOUSES :	4.860
66	OMAHA :	HOTEL :	0.551
67	WASH DC :	WAREHOUSES :	9.200
68	OMAHA :	LIBRARIES - MUSEUM :	0.307
69	OMAHA :	WAREHOUSES :	4.620
70	RISMRK. :	SHOPPING- CENTER :	1.421
71	L.A. :	SINGLE STORES SERV.STAT. :	9.843
72	RISMRK. :	HOTEL :	0.928
73	RISMRK. :	LIBRARIES - MUSEUM :	0.530
74	NASHVIL.:	MOTEL & NURSING HOME :	3.319
75	WASH DC :	MOTEL & NURSING HOME :	6.196
76	SEATTLE :	SHOPPING- CENTER :	0.156
77	RISMRK. :	WAREHOUSES :	8.057
78	BOSTON :	SHOPPING- CENTER :	3.985
79	OMAHA :	MOTEL & NURSING HOME :	3.190
80	NASHVIL.:	EDUCATIONAL :	8.615
81	NASHVIL.:	OFFICE - BUILDING :	6.784
82	NASHVIL.:	RETAIL- SUPERMARKET :	0.481
83	WASH DC :	EDUCATIONAL :	16.166
84	WASH DC :	OFFICE - BUILDING :	12.735
85	WASH DC :	RETAIL- SUPERMARKET :	1.306

86	OMAHA	:	RETAIL-	SUPERMARKET	:	0.457
87	OMAHA	:	OFFICE -	BUILDING	:	6.462
88	OMAHA	:	EDUCATIONAL		:	8.216
89	BISMARCK	:	MOTEL &	NURSING HOME	:	5.370
90	NASHVILLE	:	MEDICAL-	INSTITUTION	:	1.854
91	WASH DC	:	MEDICAL-	INSTITUTION	:	3.464
92	MADISON	:	SHOPPING-	CENTER	:	2.416
93	OMAHA	:	MEDICAL-	INSTITUTION	:	1.764
94	BOSTON	:	WAREHOUSES		:	24.489
95	BOSTON	:	HOTEL		:	3.094
96	BOSTON	:	LIBRARIES -	MUSEUM	:	1.706
97	NASHVILLE	:	RELIGIOUS &	RECREATIONAL	:	4.602
98	WASH DC	:	RELIGIOUS &	RECREATIONAL	:	8.546
99	MADISON	:	HOTEL		:	1.572
100	BISMARCK	:	EDUCATIONAL		:	13.992
101	BISMARCK	:	OFFICE -	BUILDING	:	11.022
102	SEATTLE	:	WAREHOUSES		:	1.038
103	BISMARCK	:	RETAIL-	SUPERMARKET	:	0.791
104	MADISON	:	LIBRARIES -	MUSEUM	:	0.897
105	SEATTLE	:	LIBRARIES -	MUSEUM	:	0.075
106	OMAHA	:	RELIGIOUS &	RECREATIONAL	:	4.386
107	BISMARCK	:	MEDICAL-	INSTITUTION	:	2.969
108	MADISON	:	WAREHOUSES		:	13.632
109	BISMARCK	:	RELIGIOUS &	RECREATIONAL	:	7.337
110	FT. WORTH	:	RESTAURANT		:	1.396
111	CHARLOTTE	:	RESTAURANT		:	1.782
112	BOSTON	:	MOTEL &	NURSING HOME	:	18.032
113	MADISON	:	MOTEL &	NURSING HOME	:	9.093
114	BOSTON	:	RETAIL-	SUPERMARKET	:	2.413
115	SEATTLE	:	RETAIL-	SUPERMARKET	:	0.104

116	BOSTON ; OFFICE - BUILDING :	35.666
117	BOSTON ; EDUCATIONAL :	45.284
118	SEATTLE ; MOTEL & NURSING HOME :	0.817
119	MADISON ; OFFICE - BUILDING :	18.706
120	MADISON ; EDUCATIONAL :	23.806
121	MADISON ; RETAIL- SUPERMARKET :	1.338
122	SEATTLE ; OFFICE - BUILDING :	1.580
123	SEATTLE ; EDUCATIONAL :	2.001
124	NASHVIL. ; SINGLE STORE& SERV.STAT. :	11.601
125	WASH DC ; SINGLE STORE& SERV.STAT. :	26.130
126	BOSTON ; MEDICAL- INSTITUTION :	10.093
127	MADISON ; MEDICAL- INSTITUTION :	5.066
128	OMAHA ; SINGLE STORE& SERV.STAT. :	11.101
129	SEATTLE ; MEDICAL- INSTITUTION :	0.462
130	MADISON ; RELIGIOUS & RECREATIONAL :	12.494
131	BOSTON ; RELIGIOUS & RECREATIONAL :	25.120
132	BISMARCK. ; SINGLE STORE& SERV.STAT. :	18.613
133	L.A. ; RESTAURANT :	3.041
134	SEATTLE ; RELIGIOUS & RECREATIONAL :	1.179
135	BOSTON ; SINGLE STORE& SERV.STAT. :	67.585
136	MADISON ; SINGLE STORE& SERV.STAT. :	31.762
137	SEATTLE ; SINGLE STORE& SERV.STAT. :	3.503
138	NASHVIL. ; RESTAURANT :	3.353
139	WASH DC ; RESTAURANT :	6.223
140	OMAHA ; RESTAURANT :	3.211
141	BISMARCK. ; RESTAURANT :	4.861
142	MADISON ; RESTAURANT :	9.306
143	BOSTON ; RESTAURANT :	18.516
144	SEATTLE ; RESTAURANT :	0.863

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(3) MATRIX SCREEN RESULTS - HEATING & COOLING

CONTENTS

<u>Conventional Fuel</u>	<u>Solar Cost</u>	<u>Pages</u>
Electricity	\$ 1	212-229
	2	230-246
Oil	\$ 1	247-263
	2	264-280

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
CS (\$/MBTU) =		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
BUILDING TYPE	HOTEL	0.518	0.454	0.428	0.442	0.415	0.601	0.776	0.809	0.871	1.169	1.139	0.184
	LIBRARIES - MUSEUM	0.588	0.457	0.452	0.482	0.415	0.646	0.796	0.872	0.903	1.221	1.189	0.332
	SHOPPING- CENTER	0.708	0.411	0.418	0.420	0.285	0.646	0.759	0.872	0.857	1.165	1.044	0.254
	MOTEL & NURSING HOME	0.865	0.697	0.628	0.650	0.635	0.830	1.052	1.113	1.139	1.546	1.513	0.448
	WAREHOUSES	0.407	0.389	0.357	0.329	0.318	0.588	0.786	0.805	0.935	1.238	1.083	0.307
	OFFICE - BUILDING	0.744	0.651	0.594	0.593	0.571	0.849	1.095	1.154	1.248	1.672	1.568	0.456
	MEDICAL- INSTITUTION	1.032	0.775	0.775	0.844	0.770	1.047	1.265	1.390	1.387	1.905	1.943	0.563
	EDUCATIONAL	0.582	0.555	0.533	0.531	0.526	0.808	1.062	1.096	1.233	1.654	1.545	0.450
	RELIGIOUS & RECREATIONAL	0.518	0.615	0.637	0.676	0.692	0.937	1.231	1.243	1.454	1.931	1.932	0.586
	RETAIL- SUPERMARKET	0.886	0.647	0.615	0.614	0.530	0.916	1.137	1.234	1.282	1.732	1.586	0.435
	SINGLE STORE & SERV. STAT.	1.291	1.222	1.108	1.127	1.167	1.517	2.007	2.065	2.269	3.048	2.948	0.893
	RESTAURANT	2.371	2.644	2.591	2.747	2.819	3.795	4.993	5.047	5.824	7.720	7.811	2.354

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING & COOLING/ELEC AS CONV. FUEL

SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 1.00													
BUILDING TYPE	HOTEL	0.854	0.343	0.354	0.386	0.343	0.613	0.678	0.689	0.838	1.085	0.975	0.764
	LIBRARIES - MUSEUM	0.979	0.348	0.387	0.432	0.342	0.654	0.697	0.735	0.864	1.121	1.021	1.214
	SHOPPING- CENTER	1.228	0.352	0.380	0.397	0.251	0.648	0.665	0.756	0.801	1.054	0.909	0.858
	MOTEL & NURSING HOME	1.411	0.537	0.534	0.573	0.559	0.841	0.928	0.949	1.074	1.382	1.298	1.621
	WAREHOUSES	0.678	0.291	0.290	0.293	0.266	0.599	0.694	0.671	0.917	1.171	0.940	1.193
	OFFICE - BUILDING	1.209	0.488	0.510	0.542	0.452	0.872	0.951	0.968	1.194	1.542	1.336	1.685
	MEDICAL- INSTITUTION	1.724	0.577	0.680	0.770	0.605	1.106	1.112	1.200	1.317	1.704	1.837	1.995
	EDUCATIONAL	0.947	0.409	0.448	0.462	0.416	0.829	0.937	0.917	1.194	1.549	1.321	1.688
	RELIGIOUS & RECREATIONAL	0.816	0.403	0.512	0.559	0.560	0.977	1.133	1.032	1.444	1.851	1.654	2.300
	RETAIL- SUPERMARKET	1.502	0.512	0.542	0.562	0.433	0.924	0.989	1.052	1.320	1.568	1.374	1.554
	SINGLE STORE & SERV. STAT.	2.037	0.896	0.992	0.991	0.900	1.595	1.806	1.804	2.210	2.857	2.749	3.335
	RESTAURANT	3.952	2.030	2.352	2.480	2.288	4.364	4.910	4.195	5.799	7.379	7.582	9.101

SOLAR ENERGY COST FACTOR (\$/SQFT OF BLDG)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	RISMRK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	8.621	3.356	4.132	5.076	6.061	7.519	6.249	7.407	7.143	9.804	10.000	17.857
	LIBRARIES - MUSEUM	8.696	3.205	4.310	5.155	5.848	7.519	6.289	7.194	7.042	9.524	9.901	23.256
	SHOPPING- CENTER	9.009	2.899	4.329	4.016	5.000	7.407	6.135	7.407	6.494	9.091	10.000	19.231
	MOTEL & NURSING HOME	8.547	3.030	4.292	4.975	7.353	7.407	6.250	7.299	6.711	8.772	9.901	22.222
	WAREHOUSES	8.621	3.195	3.937	5.376	6.410	7.576	6.579	7.407	7.692	10.638	10.638	27.027
	OFFICE - BUILDING	8.475	2.950	4.505	6.211	5.435	7.634	6.211	7.194	7.143	9.709	10.000	24.390
	MEDICAL- INSTITUTION	8.850	3.058	4.739	5.988	5.236	8.929	6.289	7.519	6.757	8.696	14.085	21.277
	EDUCATIONAL	8.547	3.413	4.484	5.181	5.714	7.576	6.494	7.353	7.463	10.204	10.101	25.641
	RELIGIOUS & RECREATIONAL	8.475	3.448	4.348	5.000	6.667	7.752	7.519	7.463	8.065	11.236	10.204	29.412
	RETAIL- SUPERMARKET	8.772	2.933	4.484	5.000	5.263	7.299	6.098	7.353	7.692	9.009	10.101	21.739
	SINGLE STORE & SERV. STAT.	8.403	3.226	5.882	5.747	5.405	8.547	6.849	8.197	7.407	10.101	12.987	25.641
	RESTAURANT	9.091	5.291	6.849	6.897	6.849	12.658	9.615	7.407	8.000	11.111	15.625	28.571

SOLAR COST (\$/MRTU/YR)--\$5
 HEATING & COOLING/ELEC AS CONV. FUEL
 SOLAR COST \$1/SQFT/YR

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM(RY BLDG)														
BUILDING TYPE	HOTEL	46.97	1.18	0.85	2.42	3.94	2.94	3.67	2.42	6.44	3.13	5.63	13.96	0.39
	LIBRARIES - MUSEUM	28.31	0.75	0.48	1.48	2.50	1.68	2.27	1.38	3.92	1.81	3.28	8.46	0.28
	SHOPPING- CENTER	87.03	2.64	1.51	4.58	7.59	4.53	7.06	4.13	12.25	5.14	9.41	23.51	0.67
	MOTEL & NURSING HOME	303.30	8.88	5.75	16.72	26.84	21.22	23.97	15.62	41.93	18.89	34.72	85.63	3.12
	WAREHOUSES	339.04	33.05	5.77	15.59	5.23	17.46	25.88	18.17	46.00	25.70	44.51	98.20	3.47
	OFFICE - BUILDING	538.45	14.07	10.40	28.07	44.17	33.55	42.09	27.84	74.66	36.85	65.50	155.67	5.57
	MEDICAL- INSTITUTION	175.95	4.79	3.00	9.36	16.02	11.48	14.10	8.45	24.18	10.50	19.67	52.61	1.81
	EDUCATIONAL	629.23	13.90	10.37	30.05	48.00	36.55	48.43	32.85	85.34	45.30	80.49	191.15	6.81
	RELIGIOUS & RECREATIONAL	314.90	5.25	4.12	18.61	23.86	17.33	23.19	15.42	39.32	22.64	39.17	102.33	3.66
	RETAIL- SUPERMARKET	44.69	1.21	0.78	2.25	3.60	2.52	3.43	2.17	8.63	2.74	4.99	11.97	0.40
SINGLE STORE & SERV.STAT.	936.21	22.05	16.92	45.49	71.91	58.57	67.21	46.28	145.49	61.36	108.90	280.19	11.85	
RESTAURANT	237.54	4.40	3.41	10.89	18.39	13.14	17.62	11.69	30.04	15.20	29.56	76.49	2.71	
SUM(RY REG)=		112.18	63.37	185.50	272.06	220.97	278.92	186.44	518.20	249.28	445.82	1100.16	40.74	
TOTSUM=		3673.62												

ENERGY REQUIRED (MILLION MBTU)

HEATING & COOLING/ELEC AS CONV. FUEL

SOLAR COST \$1/SQFT/YR

REGION

MIAMI PHOENIX FT.WRTH CHARL. L.A. NASHVIL.OMAHA WASH DC BISMARCK. MADISON BOSTON SEATTLE
FLORIDA ARIZONA TEXAS S.C. CALIF. TENN NEBR. NYC NY N.D. WIS. MASS. WASH.

BUILDING TYPE

HOTEL	-0.336	0.111	0.070	0.056	0.072	-0.011	0.098	0.120	0.033	0.084	0.164	-0.580
LIBRARIES - MUSEUM	-0.390	0.109	0.062	0.050	0.074	-0.008	0.099	0.136	0.037	0.100	0.168	-0.882
SHOPPING- CENTER	-0.520	0.059	0.030	0.023	0.034	-0.002	0.094	0.116	0.054	0.111	0.135	-0.604
MOTEL & NURSING HOME	-0.547	0.160	0.090	0.078	0.077	-0.012	0.124	0.164	0.065	0.164	0.215	-1.173
WAREHOUSES	-0.272	0.098	0.064	0.036	0.052	-0.011	0.092	0.134	0.018	0.068	0.143	-0.885
OFFICE - BUILDING	-0.465	0.164	0.084	0.051	0.119	-0.023	0.144	0.186	0.054	0.130	0.231	-1.229
MEDICAL- INSTITUTION	-0.693	0.199	0.095	0.074	0.165	-0.059	0.153	0.190	0.070	0.201	0.106	-1.432
EDUCATIONAL	-0.366	0.146	0.084	0.069	0.110	-0.021	0.125	0.178	0.039	0.105	0.225	-1.238
RELIGIOUS & RECREATIONAL	-0.298	0.211	0.125	0.117	0.132	-0.041	0.098	0.211	0.010	0.080	0.278	-1.714
RETAIL- SUPERMARKET	-0.615	0.135	0.073	0.052	0.096	-0.008	0.148	0.182	-0.038	0.164	0.212	-1.119
SINGLE STORE & SERV.STAT.	-0.747	0.326	0.116	0.137	0.267	-0.078	0.202	0.262	0.060	0.191	0.199	-2.441
RESTAURANT	-1.582	0.614	0.239	0.268	0.530	-0.569	0.082	0.852	0.024	0.341	0.229	-6.746

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
FLOORS														
BUILDING TYPE	HOTEL	5.00	3.51	0.45	0.65	0.55	0.90	1.94	2.26	1.96	2.96	3.75	3.18	3.61
	LIBRARIES - MUSEUM	3.00	2.42	0.24	0.36	0.33	0.51	1.17	1.37	1.20	1.84	2.32	1.91	3.37
	SHOPPING- CENTER	1.00	1.02	0.04	0.07	0.03	0.06	0.35	0.41	0.37	0.56	0.71	0.51	0.79
	MOTEL & NURSING HOME	2.00	2.32	0.22	0.34	0.30	0.50	1.01	1.18	0.99	1.51	1.91	1.67	3.00
	WAREHOUSES	1.00	0.56	0.07	0.11	0.08	0.14	0.41	0.48	0.42	0.65	0.82	0.64	1.11
	OFFICE - BUILDING	4.00	3.97	0.44	0.72	0.60	0.96	2.25	2.57	2.25	3.36	4.30	3.54	6.23
	MEDICAL- INSTITUTION	6.00	8.56	0.84	1.32	1.14	1.86	3.65	4.26	3.67	5.59	7.09	6.02	11.07
	EDUCATIONAL	1.00	0.78	0.12	0.18	0.15	0.24	0.56	0.65	0.56	0.84	1.08	0.89	1.56
	RELIGIOUS & RECREATIONAL	2.00	1.34	0.34	0.50	0.46	0.76	1.40	1.58	1.35	2.04	2.58	2.26	4.26
	RETAIL- SUPERMARKET	1.00	1.24	0.09	0.15	0.11	0.18	0.56	0.64	0.56	0.96	1.10	0.85	1.44
	SINGLE STORE & SERV.STAT.	1.00	1.67	0.24	0.37	0.33	0.54	1.02	1.20	1.04	1.56	2.00	1.75	3.08
RESTAURANT	1.00	3.30	0.68	0.96	0.89	1.46	2.69	3.16	2.68	4.11	5.13	4.58	8.42	

COLLECTOR AREA / ROOF AREA
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.83	0.27	0.84	0.98	1.56	2.06	1.74	3.66	2.33	4.14	9.87	0.32
	LIBRARIES - MUSEUM	0.53	0.14	0.41	0.53	0.84	1.14	0.97	2.12	1.36	2.42	5.49	0.21
	SHOPPING- CENTER	1.85	0.22	0.73	0.54	1.01	2.99	2.58	5.53	3.92	6.78	12.58	0.52
	MOTEL & NURSING HOME	6.24	1.50	4.74	6.15	8.00	12.14	10.29	21.11	14.29	26.49	58.58	2.42
	WAREHOUSES	23.16	1.73	5.89	1.18	9.03	17.16	13.96	31.02	18.80	32.83	73.54	2.58
	OFFICE - BUILDING	9.89	3.08	8.79	9.02	19.10	24.24	20.62	44.60	27.41	49.47	113.27	4.22
	MEDICAL- INSTITUTION	3.37	0.93	2.53	2.95	6.34	5.56	5.57	11.50	7.96	15.01	22.56	1.41
	EDUCATIONAL	9.78	3.69	11.20	13.72	23.08	31.05	25.34	55.43	33.31	60.08	143.07	5.09
	RELIGIOUS & RECREATIONAL	3.72	2.26	9.34	9.57	13.68	16.53	11.66	28.72	16.36	28.46	78.66	2.65
	RETAIL- SUPERMARKET	0.85	0.18	0.52	0.58	1.05	1.78	1.49	4.42	2.06	3.85	7.67	0.31
	SINGLE STORE & SERV.STAT.	15.58	5.67	12.84	19.78	40.08	36.15	32.40	80.59	45.41	81.67	170.00	8.85
	RESTAURANT	3.12	1.08	3.14	4.89	9.42	7.11	6.67	21.03	11.03	21.43	38.21	1.97

TOTAL ENERGY SAVINGS (MILLION MBTU)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

RANKING BY COST SAVINGS
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

1	WASH DC ; RESTAURANT	:	0.852
2	PHOENIX ; RESTAURANT	:	0.614
3	L.A. ; RESTAURANT	:	0.530
4	MADISON ; RESTAURANT	:	0.341
5	PHOENIX ; SINGLE STORE& SERV.STAT.	:	0.326
6	BOSTON ; RELIGIOUS & RECREATIONAL	:	0.278
7	CHAPL. ; RESTAURANT	:	0.268
8	L.A. ; SINGLE STORE& SERV.STAT.	:	0.267
9	WASH DC ; SINGLE STORE& SERV.STAT.	:	0.262
10	FT.WRTH ; RESTAURANT	:	0.239
11	BOSTON ; OFFICE - BUILDING	:	0.231
12	BOSTON ; RESTAURANT	:	0.229
13	BOSTON ; EDUCATIONAL	:	0.225
14	BOSTON ; MOTEL & NURSING HOME	:	0.215
15	BOSTON ; RETAIL- SUPERMARKET	:	0.212
16	PHOENIX ; RELIGIOUS & RECREATIONAL	:	0.211
17	WASH DC ; RELIGIOUS & RECREATIONAL	:	0.211
18	OMAHA ; SINGLE STORE& SERV.STAT.	:	0.202
19	MADISON ; MEDICAL- INSTITUTION	:	0.201
20	PHOENIX ; MEDICAL- INSTITUTION	:	0.199
21	BOSTON ; SINGLE STORE& SERV.STAT.	:	0.199
22	MADISON ; SINGLE STORE& SERV.STAT.	:	0.191
23	WASH DC ; MEDICAL- INSTITUTION	:	0.190
24	WASH DC ; OFFICE - BUILDING	:	0.186
25	WASH DC ; RETAIL- SUPERMARKET	:	0.182

26	WASH DC ; EDUCATIONAL	:	0.178
27	BOSTON ; LIBRARIES - MUSEUM	:	0.168
28	L.A. ; MEDICAL- INSTITUTION	:	0.165
29	BOSTON ; HOTEL	:	0.164
30	WASH DC ; MOTEL & NURSING HOME	:	0.164
31	MADISON ; RETAIL- SUPERMARKET	:	0.164
32	MADISON ; MOTEL & NURSING HOME	:	0.164
33	PHOENIX ; OFFICE - BUILDING	:	0.164
34	PHOENIX ; MOTEL & NURSING HOME	:	0.160
35	OMAHA ; MEDICAL- INSTITUTION	:	0.153
36	OMAHA ; RETAIL- SUPERMARKET	:	0.148
37	PHOENIX ; EDUCATIONAL	:	0.146
38	OMAHA ; OFFICE - BUILDING	:	0.144
39	BOSTON ; WAREHOUSES	:	0.143
40	CHARL. ; SINGLE STORE& SERV.STAT.	:	0.137
41	WASH DC ; LIBRARIES - MUSEUM	:	0.136
42	BOSTON ; SHOPPING- CENTER	:	0.135
43	PHOENIX ; RETAIL- SUPERMARKET	:	0.135
44	WASH DC ; WAREHOUSES	:	0.134
45	L.A. ; RELIGIOUS & RECREATIONAL	:	0.132
46	MADISON ; OFFICE - BUILDING	:	0.130
47	OMAHA ; EDUCATIONAL	:	0.125
48	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	0.125
49	OMAHA ; MOTEL & NURSING HOME	:	0.124
50	WASH DC ; HOTEL	:	0.120
51	L.A. ; OFFICE - BUILDING	:	0.119
52	CHARL. ; RELIGIOUS & RECREATIONAL	:	0.117
53	WASH DC ; SHOPPING- CENTER	:	0.116
54	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	0.116
55	PHOENIX ; HOTEL	:	0.111

56	MADISON ; SHOPPING- CENTER	:	0.111
57	L.A. ; EDUCATIONAL	:	0.110
58	PHOENIX ; LIBRARIES - MUSEUM	:	0.109
59	BOSTON ; MEDICAL- INSTITUTION	:	0.106
60	MADISON ; EDUCATIONAL	:	0.105
61	MADISON ; LIBRARIES - MUSEUM	:	0.100
62	OMAHA ; LIBRARIES - MUSEUM	:	0.099
63	PHOENIX ; WAREHOUSES	:	0.098
64	OMAHA ; RELIGIOUS & RECREATIONAL	:	0.098
65	OMAHA ; HOTEL	:	0.098
66	L.A. ; RETAIL- SUPERMARKET	:	0.096
67	FT.WRTH ; MEDICAL- INSTITUTION	:	0.095
68	OMAHA ; SHOPPING- CENTER	:	0.094
69	OMAHA ; WAREHOUSES	:	0.092
70	FT.WRTH ; MOTEL & NURSING HOME	:	0.090
71	FT.WRTH ; EDUCATIONAL	:	0.084
72	MADISON ; HOTEL	:	0.084
73	FT.WRTH ; OFFICE - BUILDING	:	0.084
74	OMAHA ; RESTAURANT	:	0.082
75	MADISON ; RELIGIOUS & RECREATIONAL	:	0.080
76	CHARL. ; MOTEL & NURSING HOME	:	0.078
77	L.A. ; MOTEL & NURSING HOME	:	0.077
78	CHARL. ; MEDICAL- INSTITUTION	:	0.074
79	L.A. ; LIBRARIES - MUSEUM	:	0.074
80	FT.WRTH ; RETAIL- SUPERMARKET	:	0.073
81	L.A. ; HOTEL	:	0.072
82	FT.WRTH ; HOTEL	:	0.070
83	BISMARCK ; MEDICAL- INSTITUTION	:	0.070
84	CHARL. ; EDUCATIONAL	:	0.069
85	MADISON ; WAREHOUSES	:	0.068

56	MADISON	:	SHOPPING- CENTER	:	0.111
57	L.A.	:	EDUCATIONAL	:	0.110
58	PHOENIX	:	LIBRARIES - MUSEUM	:	0.109
59	BOSTON	:	MEDICAL- INSTITUTION	:	0.106
60	MADISON	:	EDUCATIONAL	:	0.105
61	MADISON	:	LIBRARIES - MUSEUM	:	0.100
62	OMAHA	:	LIBRARIES - MUSEUM	:	0.099
63	PHOENIX	:	WAREHOUSES	:	0.098
64	OMAHA	:	RELIGIOUS & RECREATIONAL	:	0.098
65	OMAHA	:	HOTEL	:	0.098
66	L.A.	:	RETAIL- SUPERMARKET	:	0.096
67	FT.WRTH	:	MEDICAL- INSTITUTION	:	0.095
68	OMAHA	:	SHOPPING- CENTER	:	0.094
69	OMAHA	:	WAREHOUSES	:	0.092
70	FT.WRTH	:	MOTEL & NURSING HOME	:	0.090
71	FT.WRTH	:	EDUCATIONAL	:	0.084
72	MADISON	:	HOTEL	:	0.084
73	FT.WRTH	:	OFFICE - BUILDING	:	0.084
74	OMAHA	:	RESTAURANT	:	0.082
75	MADISON	:	RELIGIOUS & RECREATIONAL	:	0.080
76	CHARL.	:	MOTEL & NURSING HOME	:	0.078
77	L.A.	:	MOTEL & NURSING HOME	:	0.077
78	CHARL.	:	MEDICAL- INSTITUTION	:	0.074
79	L.A.	:	LIBRARIES - MUSEUM	:	0.074
80	FT.WRTH	:	RETAIL- SUPERMARKET	:	0.073
81	L.A.	:	HOTEL	:	0.072
82	FT.WRTH	:	HOTEL	:	0.070
83	BISMARCK	:	MEDICAL- INSTITUTION	:	0.070
84	CHARL.	:	EDUCATIONAL	:	0.069
85	MADISON	:	WAREHOUSES	:	0.068

86	FT.WRTH ; WAREHOUSES	:	0.066
87	BISMRK. ; MOTEL & NURSING HOME	:	0.065
88	FT.WRTH ; LIBRARIES - MUSEUM	:	0.065
89	BISMRK. ; SINGLE STORE& SERV.STAT.	:	0.060
90	PHOENIX ; SHOPPING- CENTER	:	0.059
91	CHARL. ; HOTEL	:	0.056
92	BISMRK. ; SHOPPING- CENTER	:	0.056
93	BISMRK. ; OFFICE - BUILDING	:	0.054
94	CHARL. ; RETAIL- SUPERMARKET	:	0.052
95	L.A. ; WAREHOUSES	:	0.052
96	CHARL. ; OFFICE - BUILDING	:	0.051
97	CHARL. ; LIBRARIES - MUSEUM	:	0.050
98	BISMRK. ; EDUCATIONAL	:	0.039
99	FT.WRTH ; SHOPPING- CENTER	:	0.039
100	BISMRK. ; LIBRARIES - MUSEUM	:	0.037
101	CHARL. ; WAREHOUSES	:	0.036
102	L.A. ; SHOPPING- CENTER	:	0.034
103	BISMRK. ; HOTEL	:	0.033
104	BISMRK. ; RESTAURANT	:	0.024
105	CHARL. ; SHOPPING- CENTER	:	0.023
106	BISMRK. ; WAREHOUSES	:	0.018
107	BISMRK. ; RELIGIOUS & RECREATIONAL	:	0.010
108	NASHVIL. ; SHOPPING- CENTER	:	-0.002
109	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.008
110	NASHVIL. ; RETAIL- SUPERMARKET	:	-0.006
111	NASHVIL. ; WAREHOUSES	:	-0.011
112	NASHVIL. ; HOTEL	:	-0.011
113	NASHVIL. ; MOTEL & NURSING HOME	:	-0.012
114	NASHVIL. ; EDUCATIONAL	:	-0.021
115	NASHVIL. ; OFFICE - BUILDING	:	-0.023

116	BISMARCK ; RETAIL- SUPERMARKET :	-0.038
117	NASHVIL. ; RELIGIOUS & RECREATIONAL :	-0.041
118	NASHVIL. ; MEDICAL- INSTITUTION :	-0.059
119	NASHVIL. ; SINGLE STORE& SERV.STAT. :	-0.078
120	MIAMI ; WAREHOUSES :	-0.272
121	MIAMI ; RELIGIOUS & RECREATIONAL :	-0.298
122	MIAMI ; HOTEL :	-0.336
123	MIAMI ; EDUCATIONAL :	-0.366
124	MIAMI ; LIBRARIES - MUSEUM :	-0.390
125	MIAMI ; OFFICE - BUILDING :	-0.465
126	MIAMI ; SHOPPING- CENTER :	-0.520
127	MIAMI ; MOTEL & NURSING HOME :	-0.547
128	NASHVIL. ; RESTAURANT :	-0.569
129	SEATTLE ; HOTEL :	-0.580
130	SEATTLE ; SHOPPING- CENTER :	-0.604
131	MIAMI ; RETAIL- SUPERMARKET :	-0.615
132	MIAMI ; MEDICAL- INSTITUTION :	-0.693
133	MIAMI ; SINGLE STORE& SERV.STAT. :	-0.747
134	SEATTLE ; LIBRARIES - MUSEUM :	-0.882
135	SEATTLE ; WAREHOUSES :	-0.885
136	SEATTLE ; RETAIL- SUPERMARKET :	-1.119
137	SEATTLE ; MOTEL & NURSING HOME :	-1.173
138	SEATTLE ; OFFICE - BUILDING :	-1.229
139	SEATTLE ; EDUCATIONAL :	-1.238
140	SEATTLE ; MEDICAL- INSTITUTION :	-1.432
141	MIAMI ; RESTAURANT :	-1.582
142	SEATTLE ; RELIGIOUS & RECREATIONAL :	-1.714
143	SEATTLE ; SINGLE STORE& SERV.STAT. :	-2.441
144	SEATTLE ; RESTAURANT :	-6.746

RANKING BY TOTAL ENERGY SAVINGS
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

1	WASH DC ; RESTAURANT	:	21.026
2	PHOENIX ; RESTAURANT	:	1.082
3	L.A. ; RESTAURANT	:	9.422
4	MADISON ; RESTAURANT	:	21.432
5	PHOENIX ; SINGLE STORE& SERV.STAT.	:	5.669
6	BOSTON ; RELIGIOUS & RECREATIONAL	:	78.656
7	CHARL. ; RESTAURANT	:	4.894
8	L.A. ; SINGLE STORE& SERV.STAT.	:	40.084
9	WASH DC ; SINGLE STORE& SERV.STAT.	:	80.592
10	FT.WRTH ; RESTAURANT	:	3.136
11	BOSTON ; OFFICE - BUILDING	:	113.272
12	BOSTON ; RESTAURANT	:	38.210
13	BOSTON ; EDUCATIONAL	:	143.068
14	BOSTON ; MOTEL & NURSING HOME	:	58.576
15	BOSTON ; RETAIL- SUPERMARKET	:	7.670
16	PHOENIX ; RELIGIOUS & RECREATIONAL	:	2.257
17	WASH DC ; RELIGIOUS & RECREATIONAL	:	28.717
18	OMAHA ; SINGLE STORE& SERV.STAT.	:	32.399
19	MADISON ; MEDICAL- INSTITUTION	:	15.015
20	PHOENIX ; MEDICAL- INSTITUTION	:	0.934
21	BOSTON ; SINGLE STORE& SERV.STAT.	:	170.005
22	MADISON ; SINGLE STORE& SERV.STAT.	:	81.675
23	WASH DC ; MEDICAL- INSTITUTION	:	11.499
24	WASH DC ; OFFICE - BUILDING	:	44.605
25	WASH DC ; RETAIL- SUPERMARKET	:	4.424

26	WASH DC ; EDUCATIONAL	:	55.434
27	BOSTON ; LIBRARIES - MUSEUM	:	5.494
28	L.A. ; MEDICAL- INSTITUTION	:	6.337
29	BOSTON ; HOTEL	:	9.874
30	WASH DC ; MOTEL & NURSING HOME	:	21.115
31	MADISON ; RETAIL- SUPERMARKET	:	3.846
32	MADISON ; MOTEL & NURSING HOME	:	26.489
33	PHOENIX ; OFFICE - BUILDING	:	3.078
34	PHOENIX ; MOTEL & NURSING HOME	:	1.501
35	OMAHA ; MEDICAL- INSTITUTION	:	5.572
36	OMAHA ; RETAIL- SUPERMARKET	:	1.495
37	PHOENIX ; EDUCATIONAL	:	3.691
38	OMAHA ; OFFICE - BUILDING	:	20.617
39	BOSTON ; WAREHOUSES	:	73.539
40	CHAPL. ; SINGLE STORE& SERV.STAT.	:	19.778
41	WASH DC ; LIBRARIES - MUSEUM	:	2.117
42	BOSTON ; SHOPPING- CENTER	:	12.578
43	PHOENIX ; RETAIL- SUPERMARKET	:	0.178
44	WASH DC ; WAREHOUSES	:	31.016
45	L.A. ; RELIGIOUS & RECREATIONAL	:	13.681
46	MADISON ; OFFICE - BUILDING	:	49.466
47	OMAHA ; EDUCATIONAL	:	25.342
48	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	9.341
49	OMAHA ; MOTEL & NURSING HOME	:	10.286
50	WASH DC ; HOTEL	:	3.657
51	L.A. ; OFFICE - BUILDING	:	19.100
52	CHARL. ; RELIGIOUS & RECREATIONAL	:	9.566
53	WASH DC ; SHOPPING- CENTER	:	5.531
54	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	12.836
55	PHOENIX ; HOTEL	:	0.269

56	MADISON ; SHOPPING- CENTER	:	6.785
57	L.A. ; EDUCATIONAL	:	23.078
58	PHOENIX ; LIBRARIES - MUSEUM	:	0.137
59	BOSTON ; MEDICAL- INSTITUTION	:	22.563
60	MADISON ; EDUCATIONAL	:	60.081
61	MADISON ; LIBRARIES - MUSEUM	:	2.416
62	OMAHA ; LIBRARIES - MUSEUM	:	0.968
63	PHOENIX ; WAREHOUSES	:	1.734
64	OMAHA ; RELIGIOUS & RECREATIONAL	:	11.656
65	OMAHA ; HOTEL	:	1.736
66	L.A. ; RETAIL- SUPERMARKET	:	1.050
67	FT.WRTH ; MEDICAL- INSTITUTION	:	2.529
68	OMAHA ; SHOPPING- CENTER	:	2.576
69	OMAHA ; WAREHOUSES	:	13.965
70	FT.WRTH ; MOTEL & NURSING HOME	:	4.738
71	FT.WRTH ; EDUCATIONAL	:	11.199
72	MADISON ; HOTEL	:	4.143
73	FT.WRTH ; OFFICE - BUILDING	:	8.790
74	OMAHA ; RESTAURANT	:	6.675
75	MADISON ; RELIGIOUS & RECREATIONAL	:	28.459
76	CHARL. ; MOTEL & NURSING HOME	:	6.154
77	L.A. ; MOTEL & NURSING HOME	:	8.001
78	CHARL. ; MEDICAL- INSTITUTION	:	2.947
79	L.A. ; LIBRARIES - MUSEUM	:	0.843
80	FT.WRTH ; RETAIL- SUPERMARKET	:	0.523
81	L.A. ; HOTEL	:	1.556
82	FT.WRTH ; HOTEL	:	0.839
83	RISMRK. ; MEDICAL- INSTITUTION	:	7.957
84	CHARL. ; EDUCATIONAL	:	13.722
85	MADISON ; WAREHOUSES	:	32.828

86	FT.WRTH ; WAREHOUSES	:	5.889
87	BISMRK. ; MOTEL & NURSING HOME	:	14.290
88	FT.WRTH ; LIBRARIES - MUSEUM	:	0.409
89	BISMRK. ; SINGLE STORE& SERV.STAT.	:	45.407
90	PHOENIX ; SHOPPING- CENTER	:	0.219
91	CHAPL. ; HOTEL	:	0.983
92	BISMRK. ; SHOPPING- CENTER	:	3.924
93	BISMRK. ; OFFICE - BUILDING	:	27.406
94	CHARL. ; RETAIL- SUPERMARKET	:	0.583
95	L.A. ; WAREHOUSES	:	9.029
96	CHARL. ; OFFICE - BUILDING	:	9.017
97	CHARL. ; LIBRARIES - MUSEUM	:	0.532
98	BISMRK. ; EDUCATIONAL	:	33.309
99	FT.WRTH ; SHOPPING- CENTER	:	0.734
100	BISMRK. ; LIBRARIES - MUSEUM	:	1.356
101	CHARL. ; WAREHOUSES	:	1.180
102	L.A. ; SHOPPING- CENTER	:	1.009
103	BISMRK. ; HOTEL	:	2.335
104	BISMRK. ; RESTAURANT	:	11.034
105	CHARL. ; SHOPPING- CENTER	:	0.542
106	BISMRK. ; WAREHOUSES	:	18.796
107	BISMRK. ; RELIGIOUS & RECREATIONAL	:	16.356
108	NASHVIL. ; SHOPPING- CENTER	:	2.992
109	NASHVIL. ; LIBRARIES - MUSEUM	:	1.143
110	NASHVIL. ; RETAIL- SUPERMARKET	:	1.782
111	NASHVIL. ; WAREHOUSES	:	17.156
112	NASHVIL. ; HOTEL	:	2.061
113	NASHVIL. ; MOTEL & NURSING HOME	:	12.144
114	NASHVIL. ; EDUCATIONAL	:	31.046
115	NASHVIL. ; OFFICE - BUILDING	:	24.241

116	BISMARCK ; RETAIL- SUPERMARKET :	2.061
117	NASHVIL. ; RELIGIOUS & RECREATIONAL :	16.534
118	NASHVIL. ; MEDICAL- INSTITUTION :	5.557
119	NASHVIL. ; SINGLE STORE& SERV.STAT. :	36.145
120	MIAMI ; WAREHOUSES :	23.159
121	MIAMI ; RELIGIOUS & RECREATIONAL :	3.719
122	MIAMI ; HOTEL :	0.831
123	MIAMI ; EDUCATIONAL :	9.775
124	MIAMI ; LIBRARIES - MUSEUM :	0.528
125	MIAMI ; OFFICE - BUILDING :	9.886
126	MIAMI ; SHOPPING- CENTER :	1.850
127	MIAMI ; MOTEL & NURSING HOME :	6.242
128	NASHVIL. ; RESTAURANT :	7.109
129	SEATTLE ; HOTEL :	0.323
130	SEATTLE ; SHOPPING- CENTER :	0.521
131	MIAMI ; RETAIL- SUPERMARKET :	0.846
132	MIAMI ; MEDICAL- INSTITUTION :	3.369
133	MIAMI ; SINGLE STORE& SERV.STAT. :	15.577
134	SEATTLE ; LIBRARIES - MUSEUM :	0.213
135	SEATTLE ; WAREHOUSES :	2.581
136	SEATTLE ; RETAIL- SUPERMARKET :	0.311
137	SEATTLE ; MOTEL & NURSING HOME :	2.423
138	SEATTLE ; OFFICE - BUILDING :	4.216
139	SEATTLE ; EDUCATIONAL :	5.090
140	SEATTLE ; MEDICAL- INSTITUTION :	1.413
141	MIAMI ; RESTAURANT :	3.118
142	SEATTLE ; RELIGIOUS & RECREATIONAL :	2.650
143	SEATTLE ; SINGLE STORE& SERV.STAT. :	8.847
144	SEATTLE ; RESTAURANT :	1.974

	CS (\$/MBTU)=	REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
		13.17	10.72	9.23	10.96	12.22	10.37	10.12	13.41	8.74	12.99	16.75	6.19
HOTEL		0.518	0.454	0.429	0.442	0.415	0.601	0.776	0.809	0.871	1.169	1.139	0.184
LIBRARIES - MUSEUM		0.588	0.457	0.452	0.482	0.415	0.646	0.796	0.872	0.903	1.221	1.189	0.332
SHOPPING- CENTER		0.708	0.411	0.419	0.420	0.285	0.646	0.759	0.872	0.857	1.165	1.044	0.254
MOTEL & NURSING HOME		0.865	0.697	0.628	0.650	0.635	0.830	1.052	1.113	1.139	1.546	1.513	0.448
WAREHOUSES		0.407	0.389	0.357	0.329	0.318	0.588	0.786	0.805	0.935	1.238	1.083	0.307
OFFICE - BUILDING		0.744	0.651	0.594	0.593	0.571	0.849	1.095	1.154	1.248	1.672	1.568	0.456
MEDICAL - INSTITUTION		1.032	0.775	0.775	0.844	0.770	1.047	1.265	1.390	1.387	1.905	1.943	0.563
EDUCATIONAL		0.582	0.555	0.533	0.531	0.526	0.808	1.062	1.096	1.233	1.654	1.545	0.450
RELIGIOUS & RECREATIONAL		0.518	0.615	0.637	0.676	0.692	0.937	1.231	1.243	1.454	1.931	1.932	0.586
RETAIL - SUPERMARKET		0.886	0.647	0.615	0.614	0.530	0.916	1.137	1.234	1.282	1.732	1.586	0.435
SINGLE STORE & SERV. STAT.		1.291	1.222	1.100	1.127	1.167	1.517	2.007	2.065	2.269	3.048	2.948	0.893
RESTAURANT		2.371	2.644	2.591	2.747	2.819	3.795	4.993	5.047	5.824	7.720	7.811	2.354

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

REGION

		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT- TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 2.00													
BUILDING TYPE	HOTEL	1.557	0.433	0.482	0.496	0.523	1.001	1.129	1.080	1.429	1.836	1.611	1.485
	LIBRARIES - MUSEUM	1.785	0.428	0.507	0.542	0.512	1.045	1.155	1.135	1.478	1.893	1.657	2.338
	SHOPPING- CENTER	2.244	0.392	0.455	0.427	0.311	0.997	1.074	1.127	1.366	1.769	1.417	1.647
	MOTEL & NURSING HOME	2.571	0.647	0.702	0.723	0.808	1.344	1.521	1.445	1.830	2.339	2.131	3.121
	WAREHOUSES	1.235	0.361	0.401	0.373	0.405	1.010	1.174	1.090	1.564	1.987	1.578	2.298
	OFFICE - BUILDING	2.200	0.598	0.690	0.691	0.691	1.434	1.592	1.530	2.034	2.618	2.221	3.243
	MEDICAL- INSTITUTION	3.151	0.717	0.901	0.960	0.914	1.715	1.822	1.811	2.249	2.886	2.840	3.840
	EDUCATIONAL	1.726	0.529	0.628	0.612	0.656	1.392	1.586	1.479	2.034	2.631	2.210	3.249
	RELIGIOUS & RECREATIONAL	1.488	0.573	0.763	0.789	0.939	1.679	1.924	1.708	2.463	3.141	2.783	4.430
	RETAIL- SUPERMARKET	2.738	0.602	0.692	0.672	0.613	1.483	1.631	1.610	2.281	2.664	2.228	2.991
	SINGLE STORE & SERV. STAT.	3.711	1.136	1.364	1.320	1.441	2.611	3.009	2.839	3.772	4.857	4.499	6.417
	RESTAURANT	7.249	2.712	3.311	3.368	3.752	7.050	8.072	6.875	9.905	12.511	12.164	17.518

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

REGION

232

BUILDING
TYPE

	MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
HOTEL	17.241	6.711	8.264	10.152	12.121	15.038	12.579	14.815	14.286	19.608	20.000	35.714
LIBRARIES - MUSEUM	17.391	6.410	8.621	10.309	11.696	15.038	12.579	14.388	14.085	19.048	19.802	46.512
SHOPPING- CENTER	18.018	5.797	8.658	8.032	10.000	14.815	12.270	14.815	12.987	18.182	20.000	38.462
MOTEL & NURSING HOME	17.094	6.061	8.584	9.950	14.706	14.815	12.500	14.599	13.423	17.544	19.802	44.444
WAREHOUSES	17.241	6.390	7.874	10.753	12.821	15.152	13.158	14.815	15.385	21.277	21.277	54.054
OFFICE - BUILDING	16.949	5.900	9.009	12.422	10.870	15.267	12.422	14.388	14.286	19.417	20.000	48.780
MEDICAL- INSTITUTION	17.699	6.116	9.479	11.976	10.471	17.857	12.579	15.038	13.514	17.391	28.169	42.553
EDUCATIONAL	17.094	6.826	8.969	10.363	11.429	15.152	12.987	14.706	14.925	20.408	20.202	51.282
RELIGIOUS & RECREATIONAL	16.949	6.897	8.696	10.000	13.333	15.504	15.038	14.925	16.129	22.472	20.408	58.824
RETAIL- SUPERMARKET	17.544	5.865	8.960	10.000	10.526	14.599	12.195	14.706	15.385	18.018	20.202	43.478
SINGLE STORE & SERV. STAT.	16.807	6.452	11.765	11.494	10.811	17.094	13.699	16.393	14.815	20.202	25.974	51.282
RESTAURANT	18.182	10.582	13.699	13.793	13.699	25.316	19.231	14.815	16.000	22.222	31.250	57.143

SOLAR COST (\$/MBTU/YR)--S\$
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

		REGION													
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.		
SUM (BY BLDG)															
BUILDING TYPE	HOTEL	44.97	1.18	0.85	2.42	3.94	2.94	3.67	2.42	6.44	3.13	5.63	13.96	0.39	
	LIBRARIES - MUSEUM	28.31	0.75	0.48	1.48	2.50	1.68	2.27	1.38	3.92	1.81	3.28	8.46	0.28	
	SHOPPING- CENTER	83.03	2.64	1.51	4.58	7.59	4.53	7.06	4.13	12.25	5.14	9.41	23.51	0.67	
	MOTEL & NURSING HOME	303.30	8.88	5.75	16.72	26.84	21.22	23.97	15.62	41.93	18.89	34.72	85.63	3.12	
	WAREHOUSES	339.04	33.05	5.77	15.59	5.23	17.46	25.88	18.17	46.00	25.70	44.51	98.20	3.47	
	OFFICE - BUILDING	539.45	14.07	10.40	28.07	44.17	33.55	42.09	27.34	74.66	36.85	65.50	155.67	5.57	
	MEDICAL- INSTITUTION	175.95	4.79	3.00	9.34	16.02	11.48	14.10	8.45	24.18	10.50	19.67	52.61	1.81	
	EDUCATIONAL	629.23	13.90	10.37	30.05	48.00	36.55	48.43	32.85	85.34	45.30	80.49	191.15	6.81	
	RELIGIOUS & RECREATIONAL	314.90	5.25	4.12	18.61	23.86	17.33	23.19	15.42	39.32	22.64	39.17	102.33	3.66	
	RETAIL- SUPERMARKET	44.69	1.21	0.78	2.25	3.60	2.52	3.43	2.17	8.63	2.74	4.99	11.97	0.40	
SINGLE STORE & SERV. STAT.	936.21	22.05	16.92	45.49	71.91	58.57	67.21	46.28	145.49	61.36	108.90	280.19	11.85		
RESTAURANT	233.54	4.40	3.41	10.89	18.39	13.14	17.62	11.69	30.04	15.20	29.56	76.49	2.71		
SUM (BY REG) =		112.18	63.37	185.50	272.06	220.97	278.92	186.44	518.20	249.28	445.82	1100.16	40.74		
TOTSUM=		3673.62													

ENERGY REQUIRED (MILLION BTU)

HEATING & COOLING/ELEC AS CONV. FUEL

SOLAR COST \$2/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	-1.039	0.021	-0.060	-0.054	-0.107	-0.400	-0.354	-0.271	-0.552	-0.667	-0.472	-1.301
	LIBRARIES - MUSEUM	-1.196	0.029	-0.055	-0.060	-0.096	-0.399	-0.358	-0.263	-0.575	-0.672	-0.468	-2.005
	SHOPPING- CENTER	-1.536	0.019	-0.032	-0.007	-0.026	-0.350	-0.315	-0.255	-0.509	-0.604	-0.373	-1.393
	MOTEL & NURSING HOME	-1.706	0.050	-0.081	-0.073	-0.173	-0.515	-0.469	-0.332	-0.691	-0.793	-0.618	-2.673
	WAREHOUSES	-0.828	0.028	-0.044	-0.044	-0.087	-0.423	-0.338	-0.286	-0.629	-0.748	-0.495	-1.991
	OFFICE - BUILDING	-1.456	0.054	-0.092	-0.098	-0.120	-0.585	-0.498	-0.376	-0.782	-0.946	-0.653	-2.787
	MEDICAL- INSTITUTION	-2.119	0.059	-0.125	-0.117	-0.144	-0.667	-0.557	-0.421	-0.862	-0.981	-0.897	-3.276
	EDUCATIONAL	-1.144	0.026	-0.092	-0.081	-0.129	-0.584	-0.524	-0.384	-0.801	-0.977	-0.665	-2.799
	RELIGIOUS & RECREATIONAL	-0.970	0.041	-0.122	-0.114	-0.247	-0.742	-0.692	-0.465	-1.010	-1.210	-0.851	-3.844
	RETAIL- SUPERMARKET	-1.852	0.045	-0.077	-0.058	-0.084	-0.567	-0.494	-0.376	-0.999	-0.932	-0.642	-2.556
	SINGLE STORE & SERV.STAT.	-2.421	0.086	-0.252	-0.192	-0.274	-1.093	-1.002	-0.774	-1.503	-1.809	-1.551	-5.523
	RESTAURANT	-4.878	-0.068	-0.720	-0.621	-0.933	-3.255	-3.079	-1.829	-4.081	-4.791	-4.353	-15.163

COST DIFFERENCE OF CONV. FROM SOLAR(\$/SQFT)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

BUILDING TYPE	FLOORS	REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	ROSTON MASS.	SEATTLE WASH.
HOTEL	5.00	3.51	0.45	0.65	0.55	0.90	1.94	2.26	1.96	2.96	3.75	3.18	3.61
LIBRARIES - MUSEUM	3.00	2.42	0.24	0.36	0.33	0.51	1.17	1.37	1.20	1.84	2.32	1.91	3.37
SHOPPING- CENTER	1.00	1.02	0.04	0.07	0.03	0.06	0.35	0.41	0.37	0.56	0.71	0.51	0.79
MOTEL & NURSING HOME	2.00	2.32	0.22	0.34	0.30	0.50	1.01	1.18	0.99	1.51	1.91	1.67	3.00
WAREHOUSES	1.00	0.56	0.07	0.11	0.08	0.14	0.41	0.48	0.42	0.65	0.82	0.64	1.11
OFFICE - BUILDING	4.00	3.97	0.44	0.72	0.60	0.96	2.25	2.57	2.25	3.36	4.30	3.54	6.23
MEDICAL - INSTITUTION	6.00	8.56	0.84	1.32	1.14	1.86	3.65	4.26	3.67	5.59	7.09	6.02	11.07
EDUCATIONAL	1.00	0.78	0.12	0.18	0.15	0.24	0.56	0.65	0.56	0.84	1.08	0.89	1.56
RELIGIOUS & RECREATIONAL	2.00	1.34	0.34	0.50	0.46	0.76	1.40	1.58	1.35	2.04	2.58	2.26	4.26
RETAIL - SUPERMARKET	1.00	1.24	0.09	0.15	0.11	0.18	0.56	0.64	0.56	0.96	1.10	0.85	1.44
SINGLE STORE & SERV.STAT.	1.00	1.67	0.24	0.37	0.33	0.54	1.02	1.20	1.04	1.56	2.00	1.75	3.08
RESTAURANT	1.00	3.30	0.68	0.96	0.89	1.46	2.69	3.16	2.68	4.11	5.13	4.58	8.42

COLLECTOR AREA / ROOF AREA

HEATING & COOLING/ELEC AS CONV. FUEL

SOLAR COST \$2/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.83	0.27	0.84	0.98	1.56	2.06	1.74	3.66	2.33	4.14	9.87	0.32
	LIBRARIES - MUSEUM	0.53	0.14	0.41	0.53	0.84	1.14	0.97	2.12	1.36	2.42	5.49	0.21
	SHOPPING- CENTER	1.85	0.22	0.73	0.54	1.01	2.99	2.58	5.53	3.92	6.78	12.58	0.52
	MOTEL & NURSING HOME	6.24	1.50	4.74	6.15	8.00	12.14	10.29	21.11	14.29	26.49	58.58	2.42
	WAREHOUSES	23.16	1.73	5.89	1.18	9.03	17.16	13.96	31.02	18.80	32.83	73.54	2.58
	OFFICE - BUILDING	9.89	3.08	8.79	9.02	19.10	24.24	20.62	44.60	27.41	49.47	113.27	4.22
	MEDICAL- INSTITUTION	3.37	0.93	2.53	2.95	6.34	5.56	5.57	11.50	7.96	15.01	22.56	1.41
	EDUCATIONAL	9.78	3.69	11.20	13.72	23.08	31.05	25.34	55.43	33.31	60.08	143.07	5.09
	RELIGIOUS & RECREATIONAL	3.72	2.26	9.34	9.57	13.68	16.53	11.66	28.72	16.36	28.46	78.66	2.65
	RETAIL- SUPERMARKET	0.85	0.18	0.52	0.58	1.05	1.78	1.49	4.42	2.06	3.85	7.67	0.31
	SINGLE STORE & SERV. STAT.	15.58	5.67	12.84	19.78	40.08	36.15	32.40	80.59	45.41	81.67	170.00	8.85
	RESTAURANT	3.12	1.08	3.14	4.89	9.42	7.11	6.67	21.03	11.03	21.43	38.21	1.97

TOTAL ENERGY SAVINGS (MILLION MBTU)
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

RANKING BY COST SAVINGS
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

1	PHOENIX ; SINGLE STORE& SERV.STAT. :	0.086
2	PHOENIX ; MEDICAL- INSTITUTION :	0.059
3	PHOENIX ; OFFICE - BUILDING :	0.054
4	PHOENIX ; MOTEL & NURSING HOME :	0.050
5	PHOENIX ; RETAIL- SUPERMARKET :	0.045
6	PHOENIX ; RELIGIOUS & RECREATIONAL :	0.041
7	PHOENIX ; LIBRARIES - MUSEUM :	0.029
8	PHOENIX ; WAREHOUSES :	-0.028
9	PHOENIX ; EDUCATIONAL :	-0.026
10	PHOENIX ; HOTEL :	-0.021
11	PHOENIX ; SHOPPING- CENTER :	-0.019
12	CHARL. ; SHOPPING- CENTER :	-0.007
13	L.A. ; SHOPPING- CENTER :	-0.026
14	FT.WRTH ; SHOPPING- CENTER :	-0.036
15	FT.WRTH ; WAREHOUSES :	-0.044
16	CHARL. ; WAREHOUSES :	-0.044
17	CHARL. ; HOTEL :	-0.054
18	FT.WRTH ; LIBRARIES - MUSEUM :	-0.055
19	CHARL. ; RETAIL- SUPERMARKET :	-0.058
20	CHARL. ; LIBRARIES - MUSEUM :	-0.060
21	FT.WRTH ; HOTEL :	-0.060
22	PHOENIX ; RESTAURANT :	-0.068
23	CHARL. ; MOTEL & NURSING HOME :	-0.073
24	FT.WRTH ; RETAIL- SUPERMARKET :	-0.077
25	FT.WRTH ; MOTEL & NURSING HOME :	-0.081

26	CHARL.	:	EDUCATIONAL	:	-0.081
27	L.A.	:	RETAIL- SUPERMARKET	:	-0.064
28	L.A.	:	WAREHOUSES	:	-0.087
29	FT.WRTH	:	EDUCATIONAL	:	-0.096
30	L.A.	:	LIBRARIES - MUSEUM	:	-0.096
31	FT.WRTH	:	OFFICE - BUILDING	:	-0.096
32	CHARL.	:	OFFICE - BUILDING	:	-0.098
33	L.A.	:	HOTEL	:	-0.107
34	CHARL.	:	RELIGIOUS & RECREATIONAL	:	-0.114
35	CHARL.	:	MEDICAL- INSTITUTION	:	-0.117
36	L.A.	:	OFFICE - BUILDING	:	-0.120
37	FT.WRTH	:	MEDICAL- INSTITUTION	:	-0.125
38	FT.WRTH	:	RELIGIOUS & RECREATIONAL	:	-0.126
39	L.A.	:	EDUCATIONAL	:	-0.129
40	L.A.	:	MEDICAL- INSTITUTION	:	-0.144
41	L.A.	:	MOTEL & NURSING HOME	:	-0.173
42	CHARL.	:	SINGLE STORE& SERV.STAT.	:	-0.192
43	L.A.	:	RELIGIOUS & RECREATIONAL	:	-0.247
44	WASH DC	:	SHOPPING- CENTER	:	-0.255
45	FT.WRTH	:	SINGLE STORE& SERV.STAT.	:	-0.256
46	WASH DC	:	LIBRARIES - MUSEUM	:	-0.263
47	WASH DC	:	HOTEL	:	-0.271
48	L.A.	:	SINGLE STORE& SERV.STAT.	:	-0.274
49	WASH DC	:	WAREHOUSES	:	-0.286
50	OMAHA	:	SHOPPING- CENTER	:	-0.315
51	WASH DC	:	MOTEL & NURSING HOME	:	-0.332
52	NASHVIL.	:	SHOPPING- CENTER	:	-0.350
53	OMAHA	:	HOTEL	:	-0.354
54	OMAHA	:	LIBRARIES - MUSEUM	:	-0.358
55	BOSTON	:	SHOPPING- CENTER	:	-0.373

56	WASH DC ; OFFICE - BUILDING	:	-0.376
57	WASH DC ; RETAIL- SUPERMARKET	:	-0.376
58	WASH DC ; EDUCATIONAL	:	-0.384
59	OMAHA ; WAREHOUSES	:	-0.388
60	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.399
61	NASHVIL. ; HOTEL	:	-0.400
62	WASH DC ; MEDICAL- INSTITUTION	:	-0.421
63	NASHVIL. ; WAREHOUSES	:	-0.423
64	WASH DC ; RELIGIOUS & RECREATIONAL	:	-0.465
65	BOSTON ; LIBRARIES - MUSEUM	:	-0.468
66	OMAHA ; MOTEL & NURSING HOME	:	-0.469
67	BOSTON ; HOTEL	:	-0.472
68	OMAHA ; RETAIL- SUPERMARKET	:	-0.494
69	BOSTON ; WAREHOUSES	:	-0.495
70	OMAHA ; OFFICE - BUILDING	:	-0.498
71	RISMRK. ; SHOPPING- CENTER	:	-0.509
72	NASHVIL. ; MOTEL & NURSING HOME	:	-0.515
73	OMAHA ; EDUCATIONAL	:	-0.524
74	OMAHA ; MEDICAL- INSTITUTION	:	-0.557
75	RISMRK. ; HOTEL	:	-0.558
76	NASHVIL. ; RETAIL- SUPERMARKET	:	-0.567
77	RISMRK. ; LIBRARIES - MUSEUM	:	-0.575
78	NASHVIL. ; EDUCATIONAL	:	-0.584
79	NASHVIL. ; OFFICE - BUILDING	:	-0.585
80	MADISON ; SHOPPING- CENTER	:	-0.604
81	BOSTON ; MOTEL & NURSING HOME	:	-0.618
82	CHARL. ; RESTAURANT	:	-0.621
83	RISMRK. ; WAREHOUSES	:	-0.629
84	BOSTON ; RETAIL- SUPERMARKET	:	-0.642
85	BOSTON ; OFFICE - BUILDING	:	-0.653

86	BOSTON ; EDUCATIONAL	:	-0.665
87	MADISON ; HOTEL	:	-0.667
88	NASHVIL. ; MEDICAL- INSTITUTION	:	-0.667
89	MADISON ; LIBRARIES - MUSEUM	:	-0.672
90	BISMARCK. ; MOTEL & NURSING HOME	:	-0.671
91	OMAHA ; RELIGIOUS & RECREATIONAL	:	-0.692
92	FT. WORTH ; RESTAURANT	:	-0.720
93	NASHVIL. ; RELIGIOUS & RECREATIONAL	:	-0.742
94	MADISON ; WAREHOUSES	:	-0.748
95	WASH DC ; SINGLE STORE& SERV. STAT.	:	-0.774
96	BISMARCK. ; OFFICE - BUILDING	:	-0.786
97	MADISON ; MOTEL & NURSING HOME	:	-0.793
98	BISMARCK. ; EDUCATIONAL	:	-0.801
99	MIAMI ; WAREHOUSES	:	-0.828
100	BOSTON ; RELIGIOUS & RECREATIONAL	:	-0.851
101	BISMARCK. ; MEDICAL- INSTITUTION	:	-0.862
102	BOSTON ; MEDICAL- INSTITUTION	:	-0.897
103	MADISON ; RETAIL- SUPERMARKET	:	-0.932
104	L.A. ; RESTAURANT	:	-0.933
105	MADISON ; OFFICE - BUILDING	:	-0.946
106	MIAMI ; RELIGIOUS & RECREATIONAL	:	-0.970
107	MADISON ; EDUCATIONAL	:	-0.977
108	MADISON ; MEDICAL- INSTITUTION	:	-0.981
109	BISMARCK. ; RETAIL- SUPERMARKET	:	-0.999
110	OMAHA ; SINGLE STORE& SERV. STAT.	:	-1.002
111	BISMARCK. ; RELIGIOUS & RECREATIONAL	:	-1.010
112	MIAMI ; HOTEL	:	-1.039
113	NASHVIL. ; SINGLE STORE& SERV. STAT.	:	-1.093
114	MIAMI ; EDUCATIONAL	:	-1.144
115	MIAMI ; LIBRARIES - MUSEUM	:	-1.196

116	MADISON ; RELIGIOUS & RECREATIONAL :	-1.210
117	SEATTLE ; HOTEL :	-1.301
118	SEATTLE ; SHOPPING- CENTER :	-1.393
119	MIAMI ; OFFICE - BUILDING :	-1.456
120	RISMRK. ; SINGLE STORE& SERV.STAT. :	-1.503
121	MIAMI ; SHOPPING- CENTER :	-1.536
122	BOSTON ; SINGLE STORE& SERV.STAT. :	-1.551
123	MIAMI ; MOTEL & NURSING HOME :	-1.706
124	MADISON ; SINGLE STORE& SERV.STAT. :	-1.809
125	WASH DC ; RESTAURANT :	-1.829
126	MIAMI ; RETAIL- SUPERMARKET :	-1.852
127	SEATTLE ; WAREHOUSES :	-1.991
128	SEATTLE ; LIBRARIES - MUSEUM :	-2.005
129	MIAMI ; MEDICAL- INSTITUTION :	-2.119
130	MIAMI ; SINGLE STORE& SERV.STAT. :	-2.421
131	SEATTLE ; RETAIL- SUPERMARKET :	-2.556
132	SEATTLE ; MOTEL & NURSING HOME :	-2.673
133	SEATTLE ; OFFICE - BUILDING :	-2.767
134	SEATTLE ; EDUCATIONAL :	-2.799
135	OMAHA ; RESTAURANT :	-3.079
136	NASHVIL. ; RESTAURANT :	-3.255
137	SEATTLE ; MEDICAL- INSTITUTION :	-3.276
138	SEATTLE ; RELIGIOUS & RECREATIONAL :	-3.844
139	RISMRK. ; RESTAURANT :	-4.081
140	BOSTON ; RESTAURANT :	-4.353
141	MADISON ; RESTAURANT :	-4.791
142	MIAMI ; RESTAURANT :	-4.876
143	SEATTLE ; SINGLE STORE& SERV.STAT. :	-5.523
144	SEATTLE ; RESTAURANT :	-15.163

RANKING BY TOTAL ENERGY SAVINGS
HEATING & COOLING/ELEC AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

1	PHOENIX ; SINGLE STORE& SERV.STAT. :	5.669
2	PHOENIX ; MEDICAL- INSTITUTION :	0.934
3	PHOENIX ; OFFICE - BUILDING :	3.078
4	PHOENIX ; MOTEL & NURSING HOME :	1.501
5	PHOENIX ; RETAIL- SUPERMARKET :	0.178
6	PHOENIX ; RELIGIOUS & RECREATIONAL :	2.257
7	PHOENIX ; LIBRARIES - MUSEUM :	0.137
8	PHOENIX ; WAREHOUSES :	1.734
9	PHOENIX ; EDUCATIONAL :	3.691
10	PHOENIX ; HOTEL :	0.269
11	PHOENIX ; SHOPPING- CENTER :	0.219
12	CHARL. ; SHOPPING- CENTER :	0.542
13	L.A. ; SHOPPING- CENTER :	1.009
14	FT.WRTH ; SHOPPING- CENTER :	0.734
15	FT.WRTH ; WAREHOUSES :	5.889
16	CHARL. ; WAREHOUSES :	1.180
17	CHARL. ; HOTEL :	0.983
18	FT.WRTH ; LIBRARIES - MUSEUM :	0.409
19	CHARL. ; RETAIL- SUPERMARKET :	0.583
20	CHARL. ; LIBRARIES - MUSEUM :	0.532
21	FT.WRTH ; HOTEL :	0.839
22	PHOENIX ; RESTAURANT :	1.082
23	CHARL. ; MOTEL & NURSING HOME :	6.154
24	FT.WRTH ; RETAIL- SUPERMARKET :	0.523
25	FT.WRTH ; MOTEL & NURSING HOME :	4.738

26	CHARL.	:	EDUCATIONAL	:	13.722
27	L.A.	:	RETAIL- SUPERMARKET	:	1.050
28	L.A.	:	WAREHOUSES	:	9.029
29	FT.WRTH	:	EDUCATIONAL	:	11.199
30	L.A.	:	LIBRARIES - MUSEUM	:	0.843
31	FT.WRTH	:	OFFICE - BUILDING	:	8.790
32	CHARL.	:	OFFICE - BUILDING	:	9.017
33	L.A.	:	HOTEL	:	1.556
34	CHARL.	:	RELIGIOUS & RECREATIONAL	:	9.566
35	CHARL.	:	MEDICAL- INSTITUTION	:	2.947
36	L.A.	:	OFFICE - BUILDING	:	19.100
37	FT.WRTH	:	MEDICAL- INSTITUTION	:	2.529
38	FT.WRTH	:	RELIGIOUS & RECREATIONAL	:	9.341
39	L.A.	:	EDUCATIONAL	:	23.078
40	L.A.	:	MEDICAL- INSTITUTION	:	6.337
41	L.A.	:	MOTEL & NURSING HOME	:	8.001
42	CHARL.	:	SINGLE STORES SERV.STAT.	:	19.778
43	L.A.	:	RELIGIOUS & RECREATIONAL	:	13.681
44	WASH DC	:	SHOPPING- CENTER	:	5.531
45	FT.WRTH	:	SINGLE STORES SERV.STAT.	:	12.836
46	WASH DC	:	LIBRARIES - MUSEUM	:	2.117
47	WASH DC	:	HOTEL	:	3.657
48	L.A.	:	SINGLE STORES SERV.STAT.	:	40.084
49	WASH DC	:	WAREHOUSES	:	31.016
50	OMAHA	:	SHOPPING- CENTER	:	2.576
51	WASH DC	:	MOTEL & NURSING HOME	:	21.115
52	NASHVIL.	:	SHOPPING- CENTER	:	2.992
53	OMAHA	:	HOTEL	:	1.736
54	OMAHA	:	LIBRARIES - MUSEUM	:	0.968
55	BOSTON	:	SHOPPING- CENTER	:	12.578

56	WASH DC ; OFFICE - BUILDING	:	44.605
57	WASH DC ; RETAIL- SUPERMARKET	:	4.424
58	WASH DC ; EDUCATIONAL	:	55.434
59	OMAHA ; WAREHOUSES	:	13.965
60	NASHVIL. ; LIBRARIES - MUSEUM	:	1.143
61	NASHVIL. ; HOTEL	:	2.061
62	WASH DC ; MEDICAL- INSTITUTION	:	11.499
63	NASHVIL. ; WAREHOUSES	:	17.156
64	WASH DC ; RELIGIOUS & RECREATIONAL	:	28.717
65	BOSTON ; LIBRARIES - MUSEUM	:	5.494
66	OMAHA ; MOTEL & NURSING HOME	:	10.286
67	BOSTON ; HOTEL	:	9.874
68	OMAHA ; RETAIL- SUPERMARKET	:	1.495
69	BOSTON ; WAREHOUSES	:	73.539
70	OMAHA ; OFFICE - BUILDING	:	20.617
71	BISMARCK ; SHOPPING- CENTER	:	3.924
72	NASHVIL. ; MOTEL & NURSING HOME	:	12.144
73	OMAHA ; EDUCATIONAL	:	25.342
74	OMAHA ; MEDICAL- INSTITUTION	:	5.572
75	BISMARCK ; HOTEL	:	2.335
76	NASHVIL. ; RETAIL- SUPERMARKET	:	1.782
77	BISMARCK ; LIBRARIES - MUSEUM	:	1.356
78	NASHVIL. ; EDUCATIONAL	:	31.046
79	NASHVIL. ; OFFICE - BUILDING	:	24.241
80	MADISON ; SHOPPING- CENTER	:	6.785
81	BOSTON ; MOTEL & NURSING HOME	:	58.578
82	CHARL. ; RESTAURANT	:	4.894
83	BISMARCK ; WAREHOUSES	:	18.796
84	BOSTON ; RETAIL- SUPERMARKET	:	7.670
85	BOSTON ; OFFICE - BUILDING	:	113.272

86	BOSTON	:	EDUCATIONAL	:	143.068
87	MADISON	:	HOTEL	:	4.143
88	NASHVIL.	:	MEDICAL- INSTITUTION	:	5.557
89	MADISON	:	LIBRARIES - MUSEUM	:	2.416
90	RISMRK.	:	MOTEL & NURSING HOME	:	14.290
91	OMAHA	:	RELIGIOUS & RECREATIONAL	:	11.656
92	FT. WORTH	:	RESTAURANT	:	3.136
93	NASHVIL.	:	RELIGIOUS & RECREATIONAL	:	16.534
94	MADISON	:	WAREHOUSES	:	32.828
95	WASH DC	:	SINGLE STORES SERV. STAT.	:	80.592
96	RISMRK.	:	OFFICE - BUILDING	:	27.406
97	MADISON	:	MOTEL & NURSING HOME	:	26.489
98	RISMRK.	:	EDUCATIONAL	:	33.309
99	MIAMI	:	WAREHOUSES	:	23.159
100	BOSTON	:	RELIGIOUS & RECREATIONAL	:	78.656
101	RISMRK.	:	MEDICAL- INSTITUTION	:	7.957
102	BOSTON	:	MEDICAL- INSTITUTION	:	22.563
103	MADISON	:	RETAIL- SUPERMARKET	:	3.846
104	L.A.	:	RESTAURANT	:	9.422
105	MADISON	:	OFFICE - BUILDING	:	49.468
106	MIAMI	:	RELIGIOUS & RECREATIONAL	:	3.719
107	MADISON	:	EDUCATIONAL	:	60.081
108	MADISON	:	MEDICAL- INSTITUTION	:	15.015
109	RISMRK.	:	RETAIL- SUPERMARKET	:	2.061
110	OMAHA	:	SINGLE STORES SERV. STAT.	:	32.399
111	RISMRK.	:	RELIGIOUS & RECREATIONAL	:	16.356
112	MIAMI	:	HOTEL	:	0.831
113	NASHVIL.	:	SINGLE STORES SERV. STAT.	:	36.145
114	MIAMI	:	EDUCATIONAL	:	9.775
115	MIAMI	:	LIBRARIES - MUSEUM	:	0.528

116	MADISON ; RELIGIOUS & RECREATIONAL :	28.459
117	SEATTLE ; HOTEL :	0.323
118	SEATTLE ; SHOPPING- CENTER :	0.521
119	MIAMI ; OFFICE - BUILDING :	9.886
120	BISMARCK ; SINGLE STORE& SERV.STAT. :	45.407
121	MIAMI ; SHOPPING- CENTER :	1.850
122	BOSTON ; SINGLE STORE& SERV.STAT. :	170.005
123	MIAMI ; MOTEL & NURSING HOME :	6.242
124	MADISON ; SINGLE STORE& SERV.STAT. :	81.675
125	WASH DC ; RESTAURANT :	21.026
126	MIAMI ; RETAIL- SUPERMARKET :	0.846
127	SEATTLE ; WAREHOUSES :	2.581
128	SEATTLE ; LIBRARIES - MUSEUM :	0.213
129	MIAMI ; MEDICAL- INSTITUTION :	3.369
130	MIAMI ; SINGLE STORE& SERV.STAT. :	15.577
131	SEATTLE ; RETAIL- SUPERMARKET :	0.311
132	SEATTLE ; MOTEL & NURSING HOME :	2.423
133	SEATTLE ; OFFICE - BUILDING :	4.216
134	SEATTLE ; EDUCATIONAL :	5.090
135	OMAHA ; RESTAURANT :	6.675
136	NASHVIL. ; RESTAURANT :	7.109
137	SEATTLE ; MEDICAL- INSTITUTION :	1.413
138	SEATTLE ; RELIGIOUS & RECREATIONAL :	2.650
139	BISMARCK ; RESTAURANT :	11.034
140	BOSTON ; RESTAURANT :	38.210
141	MADISON ; RESTAURANT :	21.432
142	MIAMI ; RESTAURANT :	3.118
143	SEATTLE ; SINGLE STORE& SERV.STAT. :	8.847
144	SEATTLE ; RESTAURANT :	1.974

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$ (\$/MBTU) =		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
BUILDING TYPE	HOTEL	0.511	0.342	0.342	0.356	0.258	0.413	0.466	0.481	0.558	0.567	0.521	0.173
	LIBRARIES - MUSEUM	0.581	0.351	0.376	0.402	0.265	0.453	0.482	0.529	0.580	0.598	0.571	0.306
	SHOPPING- CENTER	0.707	0.358	0.372	0.395	0.230	0.472	0.478	0.559	0.557	0.585	0.545	0.235
	MOTEL & NURSING HOME	0.850	0.548	0.522	0.534	0.409	0.586	0.653	0.688	0.736	0.770	0.710	0.413
	WAREHOUSES	0.405	0.294	0.287	0.268	0.194	0.385	0.458	0.447	0.592	0.579	0.465	0.282
	OFFICE - BUILDING	0.733	0.502	0.486	0.482	0.356	0.578	0.654	0.679	0.798	0.804	0.704	0.419
	MEDICAL- INSTITUTION	1.010	0.590	0.643	0.698	0.489	0.748	0.779	0.869	0.897	0.955	0.956	0.520
	EDUCATIONAL	0.571	0.406	0.424	0.419	0.311	0.537	0.621	0.621	0.783	0.784	0.682	0.413
	RELIGIOUS & RECREATIONAL	0.496	0.397	0.486	0.499	0.356	0.606	0.693	0.669	0.914	0.887	0.836	0.536
	RETAIL- SUPERMARKET	0.884	0.525	0.523	0.533	0.365	0.645	0.699	0.757	0.826	0.855	0.761	0.401
	SINGLE STORE & SERV. STAT.	1.247	0.903	0.883	0.874	0.686	1.016	1.188	1.193	1.447	1.453	1.288	0.820
	RESTAURANT	2.269	1.757	2.001	2.072	1.467	2.480	2.841	2.767	3.673	3.566	3.406	2.156

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)
 HEATING & COOLING/ OIL AS CONV. FUEL
 SOLAR COST \$1/SQFT/YR

REGION

S(\$/SQFT)= 1.00

BUILDING
TYPE

MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
0.854	0.309	0.334	0.360	0.296	0.556	0.585	0.591	0.744	0.905	0.789	0.761
0.979	0.316	0.365	0.408	0.296	0.596	0.602	0.632	0.769	0.934	0.836	1.206
1.228	0.336	0.364	0.390	0.234	0.596	0.580	0.662	0.711	0.880	0.759	0.852
1.411	0.492	0.504	0.538	0.491	0.768	0.809	0.821	0.953	1.149	1.057	1.610
0.678	0.262	0.270	0.275	0.229	0.538	0.596	0.563	0.814	0.973	0.755	1.185
1.209	0.443	0.472	0.508	0.387	0.791	0.819	0.825	1.059	1.282	1.077	1.674
1.724	0.521	0.641	0.726	0.520	1.016	0.967	1.044	1.170	1.419	1.541	1.982
0.947	0.364	0.414	0.429	0.351	0.748	0.804	0.775	1.059	1.288	1.062	1.677
0.816	0.338	0.464	0.506	0.460	0.878	0.972	0.860	1.282	1.538	1.325	2.285
1.502	0.475	0.514	0.537	0.384	0.843	0.858	0.909	1.183	1.305	1.126	1.544
2.037	0.800	0.924	0.915	0.756	1.445	1.560	1.542	1.963	2.379	2.251	3.313
3.952	1.764	2.175	2.277	1.883	3.969	4.265	3.511	5.154	6.133	6.261	9.041

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG)
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

REGION

MIAMI PHOENIX FT. WRT. CHARL. L.A. NASHVIL. OMAHA WASH DC BISMCK. MADISON BOSTON SEATTLE
FLORIDA ARIZONA TEXAS S.C. CALIF. TENN. NEBR. NYC NY N.D. WIS. MASS. WASH.

BUILDING TYPE	HOTEL	8.621	3.356	4.132	5.076	6.061	7.519	6.239	7.407	7.143	9.804	10.000	17.857
	LIBRARIES - MUSEUM	8.696	3.205	4.310	5.155	5.848	7.519	6.249	7.194	7.042	9.524	9.901	23.256
	SHOPPING-CENTER	9.009	2.899	4.320	4.016	5.000	7.407	6.135	7.407	6.494	9.091	10.000	19.231
	MOTEL & NURSING HOME	8.547	3.030	4.292	4.975	7.353	7.407	6.250	7.299	6.711	8.772	9.901	22.222
	WAREHOUSES	8.621	3.195	3.937	5.376	6.410	7.576	6.579	7.407	7.692	10.638	10.638	27.027
	OFFICE - BUILDING	8.475	2.950	4.505	6.211	5.435	7.634	6.211	7.194	7.143	9.709	10.000	24.390
	MEDICAL-INSTITUTION	8.850	3.058	4.730	5.988	5.236	8.929	6.289	7.519	6.757	8.696	14.085	21.277
	EDUCATIONAL	8.547	3.413	4.484	5.181	5.714	7.576	6.494	7.353	7.463	10.204	10.101	25.641
	RELIGIOUS & RECREATIONAL	8.475	3.448	4.348	5.000	6.667	7.752	7.519	7.463	8.065	11.236	10.204	29.412
	RETAIL-SUPERMARKET	8.772	2.933	4.484	5.000	5.263	7.299	6.098	7.353	7.692	9.009	10.101	21.739
	SINGLE STORE & SERV. STAT.	8.403	3.226	5.882	5.747	5.405	8.547	6.849	8.197	7.407	10.101	12.987	25.641
	RESTAURANT	9.091	5.291	6.840	6.897	6.849	12.658	9.615	7.407	8.000	11.111	15.625	28.571

SOLAR COST (\$/MRTU/YR)--\$5
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRT- TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM (BY BLDG)														
BUILDING TYPE	HOTEL	46.97	1.18	0.85	2.42	3.94	2.94	3.67	2.42	6.44	3.13	5.63	13.96	0.39
	LIBRARIES - MUSEUM	28.31	0.75	0.48	1.48	2.50	1.68	2.27	1.38	3.92	1.81	3.28	8.46	0.28
	SHOPPING- CENTER	83.03	2.64	1.51	4.58	7.59	4.53	7.06	4.13	12.25	5.14	9.41	23.51	0.67
	MOTEL & NURSING HOME	303.30	8.88	5.75	16.72	26.84	21.22	23.97	15.62	41.93	18.80	34.72	85.63	3.12
	WAREHOUSES	339.04	33.05	5.77	15.59	5.23	17.46	25.88	18.17	46.00	25.70	44.51	98.20	3.47
	OFFICE - BUILDING	538.45	14.07	10.40	28.07	44.17	33.55	42.09	27.84	74.66	36.85	65.50	155.67	5.57
	MEDICAL- INSTITUTION	175.95	4.79	3.00	9.36	16.02	11.48	14.10	8.45	24.18	10.50	19.67	52.61	1.81
	EDUCATIONAL	629.23	13.90	10.37	30.05	48.00	36.55	48.43	32.85	85.34	45.30	80.49	191.15	6.81
	RELIGIOUS & RECREATIONAL	314.90	5.25	4.12	16.61	23.86	17.33	23.19	15.42	39.32	22.64	39.17	102.33	3.66
	RETAIL- SUPERMARKET	44.69	1.21	0.78	2.25	3.60	2.52	3.43	2.17	8.63	2.74	4.99	11.97	0.40
SINGLE STORE & SERV.STAT.	936.21	22.05	16.92	45.49	71.91	58.57	67.21	46.28	145.49	61.36	108.90	280.19	11.85	
RESTAURANT	233.54	4.40	3.41	10.89	18.39	13.14	17.62	11.69	30.04	15.20	29.56	76.49	2.71	
SUM (BY REG) =		112.18	63.37	185.50	272.06	220.97	278.92	186.44	518.20	249.28	445.82	1100.16	40.74	
TOTSUM=		3673.62												

ENERGY REQUIRED (MILLION BTU)

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	-0.343	0.033	0.014	-0.004	-0.038	-0.143	-0.119	-0.109	-0.186	-0.337	-0.269	-0.588
	LIBRARIES - MUSEUM	-0.398	0.035	0.011	-0.007	-0.032	-0.143	-0.120	-0.103	-0.189	-0.336	-0.265	-0.901
	SHOPPING- CENTER	-0.521	0.022	0.004	0.005	-0.004	-0.124	-0.102	-0.103	-0.154	-0.295	-0.214	-0.617
	MOTEL & NURSING HOME	-0.561	0.056	0.015	-0.004	-0.082	-0.182	-0.156	-0.133	-0.217	-0.379	-0.347	-1.198
	WAREHOUSES	-0.273	0.031	0.010	-0.007	-0.035	-0.153	-0.138	-0.116	-0.222	-0.394	-0.290	-0.903
	OFFICE - BUILDING	-0.476	0.059	0.008	-0.027	-0.032	-0.212	-0.154	-0.146	-0.261	-0.478	-0.373	-1.255
	MEDICAL- INSTITUTION	-0.714	0.069	0.002	-0.028	-0.032	-0.268	-0.187	-0.175	-0.273	-0.464	-0.585	-1.462
	EDUCATIONAL	-0.376	0.042	0.009	-0.009	-0.041	-0.211	-0.183	-0.154	-0.274	-0.504	-0.380	-1.264
	RELIGIOUS & RECREATIONAL	-0.319	0.059	0.010	-0.007	-0.103	-0.272	-0.279	-0.191	-0.368	-0.651	-0.489	-1.749
	RETAIL- SUPERMARKET	-0.617	0.049	0.009	-0.004	-0.019	-0.198	-0.159	-0.152	-0.357	-0.450	-0.365	-1.142
	SINGLE STORE & SERV. STAT.	-0.790	0.103	-0.042	-0.040	-0.070	-0.429	-0.372	-0.349	-0.516	-0.926	-0.963	-2.493
	RESTAURANT	-1.683	-0.007	-0.174	-0.205	-0.416	-1.489	-1.424	-0.744	-1.481	-2.567	-2.855	-6.885

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
FLOORS													
BUILDING TYPE	HOTEL	5.00	3.51	0.45	0.65	0.55	0.90	1.94	2.26	1.96	2.96	3.75	3.61
	LIBRARIES - MUSEUM	3.00	2.42	0.24	0.34	0.33	0.51	1.17	1.37	1.20	1.84	2.32	3.37
	SHOPPING- CENTER	1.00	1.02	0.04	0.07	0.03	0.06	0.35	0.41	0.37	0.56	0.71	0.79
	MOTEL & NURSING HOME	2.00	2.32	0.22	0.34	0.30	0.50	1.01	1.18	0.99	1.51	1.91	3.00
	WAREHOUSES	1.00	0.56	0.07	0.11	0.08	0.14	0.41	0.48	0.42	0.65	0.82	1.11
	OFFICE - BUILDING	4.00	3.97	0.44	0.72	0.60	0.96	2.25	2.57	2.25	3.36	4.30	6.23
	MEDICAL- INSTITUTION	6.00	8.56	0.84	1.32	1.14	1.86	3.65	4.26	3.67	5.59	7.09	11.07
	EDUCATIONAL	1.00	0.78	0.12	0.19	0.15	0.24	0.56	0.65	0.56	0.84	1.08	1.56
	RELIGIOUS & RECREATIONAL	2.00	1.34	0.34	0.50	0.46	0.76	1.40	1.58	1.35	2.04	2.58	4.26
	RETAIL- SUPERMARKET	1.00	1.24	0.09	0.15	0.11	0.18	0.56	0.64	0.56	0.96	1.10	1.44
	SINGLE STORE & SERV. STAT.	1.00	1.67	0.24	0.37	0.33	0.54	1.02	1.20	1.04	1.56	2.00	3.08
	RESTAURANT	1.00	3.30	0.68	0.96	0.89	1.46	2.69	3.16	2.68	4.11	5.13	8.42

COLLECTOR AREA / ROOF AREA

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$1/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRTM TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH. DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
BUILDING TYPE	HOTEL	0.83	0.27	0.84	0.98	1.56	2.06	1.74	3.66	2.33	4.14	9.87	0.32
	LIBRARIES - MUSEUM	0.53	0.14	0.41	0.53	0.84	1.14	0.97	2.12	1.36	2.42	5.49	0.21
	SHOPPING- CENTER	1.85	0.22	0.73	0.54	1.01	2.99	2.58	5.53	3.92	6.78	12.58	0.52
	MOTEL & NURSING HOME	6.24	1.50	4.74	6.15	8.00	12.14	10.29	21.11	14.29	26.49	58.58	2.42
	WAREHOUSES	23.16	1.73	5.89	1.18	9.03	17.16	13.96	31.02	18.80	32.83	73.54	2.58
	OFFICE - BUILDING	9.89	3.08	8.79	9.02	19.10	24.24	20.62	44.60	27.41	49.47	113.27	4.22
	MEDICAL- INSTITUTION	3.37	0.93	2.53	2.95	6.34	5.56	5.57	11.50	7.96	15.01	22.56	1.41
	EDUCATIONAL	9.78	3.69	11.20	13.72	23.08	31.05	25.34	55.43	33.31	60.08	143.07	5.09
	RELIGIOUS & RECREATIONAL	3.72	2.26	9.34	9.57	13.68	16.53	11.66	28.72	16.36	28.46	78.66	2.65
	RETAIL- SUPERMARKET	0.85	0.18	0.52	0.58	1.05	1.78	1.49	4.42	2.06	3.85	7.67	0.31
	SINGLE STORE & SERV. STAT.	15.58	5.67	12.84	19.78	40.08	36.15	32.40	80.59	45.41	81.67	170.00	8.85
	RESTAURANT	3.12	1.08	3.14	4.89	9.42	7.11	6.67	21.03	11.03	21.43	38.21	1.97

TOTAL ENERGY SAVINGS (MILLION MBTU)
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/50FT/YR

RANKING BY COST SAVINGS
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

1	PHOENIX ; SINGLE STORE& SERV.STAT. :	0.103
2	PHOENIX ; MEDICAL- INSTITUTION :	0.069
3	PHOENIX ; OFFICE - BUILDING :	0.059
4	PHOENIX ; RELIGIOUS & RECREATIONAL :	0.059
5	PHOENIX ; MOTEL & NURSING HOME :	0.056
6	PHOENIX ; RETAIL- SUPERMARKET :	0.049
7	PHOENIX ; EDUCATIONAL :	0.042
8	PHOENIX ; LIBRARIES - MUSEUM :	0.035
9	PHOENIX ; HOTEL :	0.033
10	PHOENIX ; WAREHOUSES :	0.031
11	PHOENIX ; SHOPPING- CENTER :	0.022
12	FT.WRTH ; RELIGIOUS & RECREATIONAL :	0.018
13	FT.WRTH ; WAREHOUSES :	0.018
14	FT.WRTH ; MOTEL & NURSING HOME :	0.015
15	FT.WRTH ; HOTEL :	0.014
16	FT.WRTH ; LIBRARIES - MUSEUM :	0.011
17	FT.WRTH ; EDUCATIONAL :	0.009
18	FT.WRTH ; RETAIL- SUPERMARKET :	0.009
19	FT.WRTH ; OFFICE - BUILDING :	0.008
20	FT.WRTH ; SHOPPING- CENTER :	0.006
21	CHARL. ; SHOPPING- CENTER :	0.005
22	FT.WRTH ; MEDICAL- INSTITUTION :	0.002
23	CHARL. ; MOTEL & NURSING HOME :	-0.004
24	CHARL. ; HOTEL :	-0.004
25	L.A. ; SHOPPING- CENTER :	-0.004

26	CHARL.	:	RETAIL-	SUPERMARKET	:	-0.004
27	CHARL.	:	RELIGIOUS &	RECREATIONAL	:	-0.007
28	CHAPL.	:	LIBRARIES -	MUSEUM	:	-0.007
29	CHARL.	:	WAREHOUSES		:	-0.007
30	PHOENIX	:	RESTAURANT		:	-0.007
31	CHAPL.	:	EDUCATIONAL		:	-0.009
32	L.A.	:	RETAIL-	SUPERMARKET	:	-0.019
33	CHARL.	:	OFFICE -	BUILDING	:	-0.027
34	CHAPL.	:	MEDICAL-	INSTITUTION	:	-0.028
35	L.A.	:	OFFICE -	BUILDING	:	-0.032
36	L.A.	:	MEDICAL-	INSTITUTION	:	-0.032
37	L.A.	:	LIBRARIES -	MUSEUM	:	-0.032
38	L.A.	:	WAREHOUSES		:	-0.035
39	L.A.	:	HOTEL		:	-0.038
40	CHARL.	:	SINGLE STORE&	SERV.STAT.	:	-0.040
41	L.A.	:	EDUCATIONAL		:	-0.041
42	FT.WRTH	:	SINGLE STORE&	SERV.STAT.	:	-0.042
43	L.A.	:	SINGLE STORE&	SERV.STAT.	:	-0.070
44	L.A.	:	MOTEL &	NURSING HOME	:	-0.082
45	OMAHA	:	SHOPPING-	CENTER	:	-0.102
46	L.A.	:	RELIGIOUS &	RECREATIONAL	:	-0.103
47	WASH DC	:	SHOPPING-	CENTER	:	-0.103
48	WASH DC	:	LIBRARIES -	MUSEUM	:	-0.103
49	WASH DC	:	HOTEL		:	-0.109
50	WASH DC	:	WAREHOUSES		:	-0.116
51	OMAHA	:	HOTEL		:	-0.119
52	OMAHA	:	LIBRARIES -	MUSEUM	:	-0.120
53	NASHVIL.	:	SHOPPING-	CENTER	:	-0.124
54	WASH DC	:	MOTEL &	NURSING HOME	:	-0.133
55	OMAHA	:	WAREHOUSES		:	-0.138

56	NASHVIL.:	LIBRARIES - MUSEUM	:	-0.143
57	NASHVIL.:	HOTEL	:	-0.143
58	WASH DC :	OFFICE - BUILDING	:	-0.146
59	WASH DC :	RETAIL- SUPERMARKET	:	-0.152
60	NASHVIL.:	WAREHOUSES	:	-0.153
61	WASH DC :	EDUCATIONAL	:	-0.154
62	RISMRK. :	SHOPPING- CENTER	:	-0.154
63	OMAHA :	MOTEL & NURSING HOME	:	-0.156
64	OMAHA :	RETAIL- SUPERMARKET	:	-0.159
65	OMAHA :	OFFICE - BUILDING	:	-0.164
66	FT. WORTH :	RESTAURANT	:	-0.174
67	WASH DC :	MEDICAL- INSTITUTION	:	-0.175
68	NASHVIL.:	MOTEL & NURSING HOME	:	-0.182
69	OMAHA :	EDUCATIONAL	:	-0.183
70	RISMRK. :	HOTEL	:	-0.186
71	OMAHA :	MEDICAL- INSTITUTION	:	-0.187
72	RISMRK. :	LIBRARIES - MUSEUM	:	-0.189
73	WASH DC :	RELIGIOUS & RECREATIONAL	:	-0.191
74	NASHVIL.:	RETAIL- SUPERMARKET	:	-0.198
75	CHAPL. :	RESTAURANT	:	-0.205
76	NASHVIL.:	EDUCATIONAL	:	-0.211
77	NASHVIL.:	OFFICE - BUILDING	:	-0.212
78	BOSTON :	SHOPPING- CENTER	:	-0.214
79	RISMRK. :	MOTEL & NURSING HOME	:	-0.217
80	RISMRK. :	WAREHOUSES	:	-0.222
81	RISMRK. :	OFFICE - BUILDING	:	-0.261
82	BOSTON :	LIBRARIES - MUSEUM	:	-0.265
83	NASHVIL.:	MEDICAL- INSTITUTION	:	-0.268
84	BOSTON :	HOTEL	:	-0.269
85	NASHVIL.:	RELIGIOUS & RECREATIONAL	:	-0.272

86	MIAMI	WAREHOUSES	:	-0.273
87	RISMRK.	MEDICAL- INSTITUTION	:	-0.273
88	RISMRK.	EDUCATIONAL	:	-0.276
89	OMAHA	RELIGIOUS & RECREATIONAL	:	-0.279
90	BOSTON	WAREHOUSES	:	-0.290
91	MADISON	SHOPPING- CENTER	:	-0.295
92	MIAMI	RELIGIOUS & RECREATIONAL	:	-0.319
93	MADISON	LIBRARIES - MUSEUM	:	-0.336
94	MADISON	HOTEL	:	-0.337
95	MIAMI	HOTEL	:	-0.343
96	BOSTON	MOTEL & NURSING HOME	:	-0.347
97	WASH DC	SINGLE STORE& SERV.STAT.	:	-0.349
98	RISMRK.	RETAIL- SUPERMARKET	:	-0.357
99	BOSTON	RETAIL- SUPERMARKET	:	-0.365
100	RISMRK.	RELIGIOUS & RECREATIONAL	:	-0.368
101	OMAHA	SINGLE STORE& SERV.STAT.	:	-0.372
102	BOSTON	OFFICE - BUILDING	:	-0.373
103	MIAMI	EDUCATIONAL	:	-0.376
104	MADISON	MOTEL & NURSING HOME	:	-0.379
105	BOSTON	EDUCATIONAL	:	-0.380
106	MADISON	WAREHOUSES	:	-0.394
107	MIAMI	LIBRARIES - MUSEUM	:	-0.398
108	L.A.	RESTAURANT	:	-0.416
109	NASHVIL.	SINGLE STORE& SERV.STAT.	:	-0.429
110	MADISON	RETAIL- SUPERMARKET	:	-0.450
111	MADISON	MEDICAL- INSTITUTION	:	-0.464
112	MIAMI	OFFICE - BUILDING	:	-0.476
113	MADISON	OFFICE - BUILDING	:	-0.478
114	BOSTON	RELIGIOUS & RECREATIONAL	:	-0.489
115	MADISON	EDUCATIONAL	:	-0.504

116	BISMARCK ; SINGLE STORE& SERV.STAT. :	-0.516
117	MIAMI ; SHOPPING- CENTER :	-0.521
118	MIAMI ; MOTEL & NURSING HOME :	-0.561
119	BOSTON ; MEDICAL- INSTITUTION :	-0.585
120	SEATTLE ; HOTEL :	-0.588
121	SEATTLE ; SHOPPING- CENTER :	-0.617
122	MIAMI ; RETAIL- SUPERMARKET :	-0.617
123	MADISON ; RELIGIOUS & RECREATIONAL :	-0.651
124	MIAMI ; MEDICAL- INSTITUTION :	-0.714
125	WASH DC ; RESTAURANT :	-0.744
126	MIAMI ; SINGLE STORE& SERV.STAT. :	-0.790
127	SEATTLE ; LIBRARIES - MUSEUM :	-0.901
128	SEATTLE ; WAREHOUSES :	-0.903
129	MADISON ; SINGLE STORE& SERV.STAT. :	-0.926
130	BOSTON ; SINGLE STORE& SERV.STAT. :	-0.963
131	SEATTLE ; RETAIL- SUPERMARKET :	-1.142
132	SEATTLE ; MOTEL & NURSING HOME :	-1.198
133	SEATTLE ; OFFICE - BUILDING :	-1.255
134	SEATTLE ; EDUCATIONAL :	-1.264
135	OMAHA ; RESTAURANT :	-1.424
136	SEATTLE ; MEDICAL- INSTITUTION :	-1.462
137	BISMARCK ; RESTAURANT :	-1.481
138	NASHVIL. ; RESTAURANT :	-1.489
139	MIAMI ; RESTAURANT :	-1.603
140	SEATTLE ; RELIGIOUS & RECREATIONAL :	-1.749
141	SEATTLE ; SINGLE STORE& SERV.STAT. :	-2.493
142	MADISON ; RESTAURANT :	-2.567
143	BOSTON ; RESTAURANT :	-2.855
144	SEATTLE ; RESTAURANT :	-6.865

RANKING BY TOTAL ENERGY SAVINGS
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$1/SQFT/YR

1	PHOENIX : SINGLE STORES SERV. STAT. :	5.669
2	PHOENIX : MEDICAL- INSTITUTION :	0.934
3	PHOENIX : OFFICE - BUILDING :	3.078
4	PHOENIX : RELIGIOUS & RECREATIONAL :	2.257
5	PHOENIX : MOTEL & NURSING HOME :	1.501
6	PHOENIX : RETAIL- SUPERMARKET :	0.178
7	PHOENIX : EDUCATIONAL :	3.691
8	PHOENIX : LIBRARIES - MUSEUM :	0.137
9	PHOENIX : HOTEL :	0.259
10	PHOENIX : WAREHOUSES :	1.734
11	PHOENIX : SHOPPING- CENTER :	0.219
12	FT. WORTH : RELIGIOUS & RECREATIONAL :	9.341
13	FT. WORTH : WAREHOUSES :	5.889
14	FT. WORTH : MOTEL & NURSING HOME :	4.738
15	FT. WORTH : HOTEL :	0.839
16	FT. WORTH : LIBRARIES - MUSEUM :	0.409
17	FT. WORTH : EDUCATIONAL :	11.199
18	FT. WORTH : RETAIL- SUPERMARKET :	0.523
19	FT. WORTH : OFFICE - BUILDING :	8.790
20	FT. WORTH : SHOPPING- CENTER :	0.734
21	CHAPL. : SHOPPING- CENTER :	0.542
22	FT. WORTH : MEDICAL- INSTITUTION :	2.529
23	CHAPL. : MOTEL & NURSING HOME :	6.154
24	CHAPL. : HOTEL :	0.983
25	L.A. : SHOPPING- CENTER :	1.009

26	CHARL.	: RETAIL- SUPERMARKET	:	0.503
27	CHARL.	: RELIGIOUS & RECREATIONAL	:	9.566
28	CHARL.	: LIBRARIES - MUSEUM	:	0.532
29	CHARL.	: WAREHOUSES	:	1.100
30	PHOENIX	: RESTAURANT	:	1.082
31	CHARL.	: EDUCATIONAL	:	13.722
32	L.A.	: RETAIL- SUPERMARKET	:	1.050
33	CHARL.	: OFFICE - BUILDING	:	9.017
34	CHARL.	: MEDICAL- INSTITUTION	:	2.947
35	L.A.	: OFFICE - BUILDING	:	19.100
36	L.A.	: MEDICAL- INSTITUTION	:	6.337
37	L.A.	: LIBRARIES - MUSEUM	:	0.843
38	L.A.	: WAREHOUSES	:	9.029
39	L.A.	: HOTEL	:	1.556
40	CHARL.	: SINGLE STORE& SERV.STAT.	:	19.778
41	L.A.	: EDUCATIONAL	:	23.078
42	FT.WRTH	: SINGLE STORE& SERV.STAT.	:	12.836
43	L.A.	: SINGLE STORE& SERV.STAT.	:	40.084
44	L.A.	: MOTEL & NURSING HOME	:	8.001
45	OMAHA	: SHOPPING- CENTER	:	2.576
46	L.A.	: RELIGIOUS & RECREATIONAL	:	13.681
47	WASH DC	: SHOPPING- CENTER	:	5.531
48	WASH DC	: LIBRARIES - MUSEUM	:	2.117
49	WASH DC	: HOTEL	:	3.657
50	WASH DC	: WAREHOUSES	:	31.016
51	OMAHA	: HOTEL	:	1.736
52	OMAHA	: LIBRARIES - MUSEUM	:	0.968
53	NASHVIL	: SHOPPING- CENTER	:	2.992
54	WASH DC	: MOTEL & NURSING HOME	:	21.115
55	OMAHA	: WAREHOUSES	:	13.965

56	NASHVIL.; LIBRARIES - MUSEUM	:	1.143
57	NASHVIL.; HOTEL	:	2.061
58	WASH DC : OFFICE - BUILDING	:	44.605
59	WASH DC : RETAIL- SUPERMARKET	:	4.424
60	NASHVIL.; WAREHOUSES	:	17.156
61	WASH DC : EDUCATIONAL	:	55.434
62	RISMRK. ; SHOPPING- CENTER	:	3.924
63	OMAHA ; MOTEL & NURSING HOME	:	10.286
64	OMAHA ; RETAIL- SUPERMARKET	:	1.495
65	OMAHA ; OFFICE - BUILDING	:	20.617
66	FT. WORTH ; RESTAURANT	:	3.136
67	WASH DC : MEDICAL- INSTITUTION	:	11.499
68	NASHVIL.; MOTEL & NURSING HOME	:	12.144
69	OMAHA ; EDUCATIONAL	:	25.342
70	RISMRK. ; HOTEL	:	2.335
71	OMAHA ; MEDICAL- INSTITUTION	:	5.572
72	RISMRK. ; LIBRARIES - MUSEUM	:	1.356
73	WASH DC : RELIGIOUS & RECREATIONAL	:	28.717
74	NASHVIL.; RETAIL- SUPERMARKET	:	1.762
75	CHARL. ; RESTAURANT	:	4.894
76	NASHVIL.; EDUCATIONAL	:	31.046
77	NASHVIL.; OFFICE - BUILDING	:	24.241
78	BOSTON ; SHOPPING- CENTER	:	12.578
79	RISMRK. ; MOTEL & NURSING HOME	:	14.290
80	RISMRK. ; WAREHOUSES	:	18.796
81	RISMRK. ; OFFICE - BUILDING	:	27.406
82	BOSTON ; LIBRARIES - MUSEUM	:	5.494
83	NASHVIL.; MEDICAL- INSTITUTION	:	5.557
84	BOSTON ; HOTEL	:	9.874
85	NASHVIL.; RELIGIOUS & RECREATIONAL	:	16.534

86	MIAMI	:	WAREHOUSES	:	23.159
87	RISMRK.	:	MEDICAL- INSTITUTION	:	7.957
88	RISMRK.	:	EDUCATIONAL	:	33.309
89	OMAHA	:	RELIGIOUS & RECREATIONAL	:	11.656
90	BOSTON	:	WAREHOUSES	:	73.539
91	MADISON	:	SHOPPING- CENTER	:	6.785
92	MIAMI	:	RELIGIOUS & RECREATIONAL	:	3.719
93	MADISON	:	LIBRARIES - MUSEUM	:	2.416
94	MADISON	:	HOTEL	:	4.143
95	MIAMI	:	HOTEL	:	0.831
96	BOSTON	:	MOTEL & NURSING HOME	:	58.578
97	WASH DC	:	SINGLE STORE& SERV.STAT.	:	80.592
98	RISMRK.	:	RETAIL- SUPERMARKET	:	2.061
99	BOSTON	:	RETAIL- SUPERMARKET	:	7.670
100	RISMRK.	:	RELIGIOUS & RECREATIONAL	:	16.356
101	OMAHA	:	SINGLE STORE& SERV.STAT.	:	32.399
102	BOSTON	:	OFFICE - BUILDING	:	113.272
103	MIAMI	:	EDUCATIONAL	:	9.775
104	MADISON	:	MOTEL & NURSING HOME	:	26.489
105	BOSTON	:	EDUCATIONAL	:	143.068
106	MADISON	:	WAREHOUSES	:	32.828
107	MIAMI	:	LIBRARIES - MUSEUM	:	0.528
108	L.A.	:	RESTAURANT	:	9.422
109	NASHVIL.	:	SINGLE STORE& SERV.STAT.	:	36.145
110	MADISON	:	RETAIL- SUPERMARKET	:	3.846
111	MADISON	:	MEDICAL- INSTITUTION	:	15.015
112	MIAMI	:	OFFICE - BUILDING	:	9.886
113	MADISON	:	OFFICE - BUILDING	:	49.468
114	BOSTON	:	RELIGIOUS & RECREATIONAL	:	78.656
115	MADISON	:	EDUCATIONAL	:	60.081

116	RISMRK. ; SINGLE STORE& SERV.STAT. :	45.407
117	MIAMI ; SHOPPING- CENTER :	1.850
118	MIAMI ; MOTEL & NURSING HOME :	6.242
119	BOSTON ; MEDICAL- INSTITUTION :	22.563
120	SEATTLE ; HOTEL :	0.323
121	SEATTLE ; SHOPPING- CENTER :	0.521
122	MIAMI ; RETAIL- SUPERMARKET :	0.846
123	MADISON ; RELIGIOUS & RECREATIONAL :	28.459
124	MIAMI ; MEDICAL- INSTITUTION :	3.369
125	WASH DC ; RESTAURANT :	21.026
126	MIAMI ; SINGLE STORE& SERV.STAT. :	15.577
127	SEATTLE ; LIRRARIES - MUSEUM :	0.213
128	SEATTLE ; WAREHOUSES :	2.581
129	MADISON ; SINGLE STORE& SERV.STAT. :	81.675
130	BOSTON ; SINGLE STORE& SERV.STAT. :	170.005
131	SEATTLE ; RETAIL- SUPERMARKET :	0.311
132	SEATTLE ; MOTEL & NURSING HOME :	2.423
133	SEATTLE ; OFFICE - BUILDING :	4.216
134	SEATTLE ; EDUCATIONAL :	5.090
135	OMAHA ; RESTAURANT :	6.675
136	SEATTLE ; MEDICAL- INSTITUTION :	1.413
137	RISMRK. ; RESTAURANT :	11.034
138	NASHVIL. ; RESTAURANT :	7.109
139	MIAMI ; RESTAURANT :	3.118
140	SEATTLE ; RELIGIOUS & RECREATIONAL :	2.650
141	SEATTLE ; SINGLE STORE& SERV.STAT. :	8.847
142	MADISON ; RESTAURANT :	21.432
143	BOSTON ; RESTAURANT :	38.210
144	SEATTLE ; RESTAURANT :	1.974

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WRT TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN.	OMAHA NEBR.	WASH. DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
C\$(\$/MBTU)=		5.92	5.41	5.92	5.92	5.36	5.77	5.36	5.96	5.41	5.74	5.90	5.65
HOTEL		0.511	0.342	0.342	0.356	0.258	0.413	0.466	0.481	0.558	0.567	0.521	0.173
LIBRARIES - MUSEUM		0.581	0.351	0.374	0.402	0.265	0.453	0.482	0.529	0.580	0.598	0.571	0.306
SHOPPING- CENTER		0.707	0.358	0.372	0.395	0.230	0.472	0.478	0.559	0.557	0.585	0.545	0.235
MOTEL & NURSING HOME		0.850	0.548	0.522	0.534	0.409	0.586	0.653	0.688	0.734	0.770	0.710	0.413
WAREHOUSES		0.405	0.294	0.287	0.268	0.194	0.385	0.458	0.447	0.592	0.579	0.465	0.282
OFFICE - BUILDING		0.733	0.502	0.484	0.482	0.356	0.578	0.654	0.679	0.798	0.804	0.704	0.419
MEDICAL- INSTITUTION		1.010	0.590	0.643	0.698	0.489	0.748	0.779	0.869	0.897	0.955	0.956	0.520
EDUCATIONAL		0.571	0.406	0.424	0.419	0.311	0.537	0.621	0.621	0.783	0.784	0.682	0.413
RELIGIOUS & RECREATIONAL		0.496	0.397	0.485	0.499	0.356	0.606	0.693	0.669	0.914	0.887	0.836	0.536
RETAIL- SUPERMARKET		0.884	0.525	0.523	0.533	0.365	0.645	0.699	0.757	0.824	0.855	0.761	0.401
SINGLE STORE & SERV. STAT.		1.247	0.903	0.883	0.874	0.686	1.016	1.188	1.193	1.447	1.453	1.288	0.820
RESTAURANT		2.269	1.757	2.001	2.072	1.467	2.480	2.841	2.767	3.673	3.566	3.406	2.156

CONVENTIONAL ENERGY COST FACTOR (\$/SQFT OF BLDG)

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$2/SQFT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
S(\$/SQFT)= 2.00													
BUILDING TYPE	HOTEL	1.557	0.400	0.464	0.470	0.475	0.945	1.037	0.982	1.335	1.655	1.426	1.482
	LIBRARIES - MUSEUM	1.785	0.396	0.484	0.518	0.466	0.987	1.060	1.032	1.381	1.706	1.472	2.330
	SHOPPING- CENTER	2.244	0.376	0.441	0.420	0.294	0.944	0.990	1.033	1.276	1.595	1.267	1.642
	MOTEL & NURSING HOME	2.571	0.602	0.677	0.688	0.740	1.271	1.401	1.317	1.709	2.106	1.890	3.110
	WAREHOUSES	1.235	0.333	0.380	0.355	0.368	0.950	1.076	0.983	1.461	1.789	1.392	2.290
	OFFICE - BUILDING	2.200	0.553	0.658	0.658	0.627	1.353	1.460	1.387	1.899	2.357	1.962	3.232
	MEDICAL- INSTITUTION	3.151	0.661	0.861	0.917	0.830	1.625	1.676	1.655	2.102	2.601	2.544	3.827
	EDUCATIONAL	1.726	0.484	0.594	0.578	0.591	1.310	1.453	1.337	1.899	2.370	1.951	3.238
	RELIGIOUS & RECREATIONAL	1.488	0.508	0.717	0.737	0.839	1.580	1.762	1.536	2.302	2.828	2.455	4.415
	RETAIL- SUPERMARKET	2.738	0.565	0.664	0.647	0.564	1.401	1.500	1.467	2.144	2.401	1.980	2.981
	SINGLE STORE & SERV. STAT.	3.711	1.040	1.296	1.244	1.297	2.461	2.763	2.577	3.525	4.379	4.001	6.395
	RESTAURANT	7.249	2.446	3.134	3.165	3.346	6.655	7.426	6.192	9.260	11.265	10.843	17.458

SOLAR ENERGY COST FACTOR(\$/SQFT OF BLDG,
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

REGION												
MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	RISMHK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
HOTEL	17.241	6.711	8.264	10.152	12.121	15.038	12.579	14.815	14.286	19.608	20.000	35.714
LIBRARIES - MUSEUM	17.391	6.410	8.621	10.309	11.696	15.038	12.579	14.388	14.085	19.048	19.802	46.512
SHOPPING- CENTER	18.018	5.797	8.658	8.032	10.000	14.815	12.270	14.815	12.987	18.182	20.000	38.462
MOTEL & NURSING HOME	17.094	6.061	8.584	9.950	14.706	14.815	12.500	14.599	13.423	17.544	19.802	44.444
WAREHOUSES	17.241	6.390	7.874	10.753	12.821	15.152	13.158	14.815	15.385	21.277	21.277	54.054
OFFICE - BUILDING	16.949	5.900	9.009	12.422	10.870	15.267	12.422	14.388	14.286	19.417	20.000	48.780
MEDICAL- INSTITUTION	17.699	6.116	9.479	11.976	10.471	17.857	12.579	15.038	13.514	17.391	28.169	42.553
EDUCATIONAL	17.094	6.826	8.969	10.363	11.429	15.152	12.987	14.706	14.925	20.408	20.202	51.282
RELIGIOUS & RECREATIONAL	16.949	6.897	8.696	10.000	13.333	15.504	15.038	14.925	16.129	22.472	20.408	58.824
RETAIL- SUPERMARKET	17.544	5.865	8.969	10.000	10.526	14.599	12.195	14.706	15.385	18.018	20.202	43.478
SINGLE STORE & SERV.STAT.	16.807	6.452	11.765	11.494	10.811	17.094	13.699	16.393	14.815	20.202	25.974	51.282
RESTAURANT	18.182	10.582	13.699	13.793	13.699	25.316	19.231	14.815	16.000	22.222	31.250	57.143

SOLAR COST (\$/MBTU/YR)--S\$
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMCK. N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
SUM (BY BLDG)														
BUILDING TYPE	HOTEL	44.97	1.18	0.85	2.42	3.94	2.94	3.67	2.42	6.44	3.13	5.63	13.96	0.39
	LIBRARIES - MUSEUM	29.31	0.75	0.48	1.48	2.50	1.68	2.27	1.38	3.92	1.81	3.28	8.46	0.28
	SHOPPING- CENTER	83.03	2.64	1.51	4.58	7.59	4.53	7.06	4.13	12.25	5.14	9.41	23.51	0.67
	MOTEL & NURSING HOME	303.30	8.88	5.75	16.72	26.84	21.22	23.97	15.62	41.93	18.89	34.72	85.63	3.12
	WAREHOUSES	339.04	33.05	5.77	15.59	5.23	17.46	25.88	18.17	46.00	25.70	44.51	98.20	3.47
	OFFICE - BUILDING	538.45	14.07	10.40	28.07	44.17	33.55	42.09	27.84	74.66	36.85	65.50	155.67	5.57
	MEDICAL- INSTITUTION	175.95	4.79	3.00	9.34	16.02	11.48	14.10	8.45	24.18	10.50	19.67	52.61	1.81
	EDUCATIONAL	629.23	13.90	10.37	30.05	48.00	36.55	48.43	32.85	85.34	45.30	80.49	191.15	6.81
	RELIGIOUS & RECREATIONAL	314.90	5.25	4.12	18.61	23.86	17.33	23.19	15.42	39.32	22.64	39.17	102.33	3.66
	RETAIL- SUPERMARKET	44.69	1.21	0.78	2.25	3.60	2.52	3.43	2.17	8.63	2.74	4.99	11.97	0.40
	SINGLE STORE & SERV.STAT.	936.21	22.05	16.92	45.49	71.91	58.57	67.21	46.28	145.49	61.36	108.90	280.19	11.85
	RESTAURANT	233.54	4.40	3.41	10.80	18.39	13.14	17.62	11.69	30.04	15.20	29.56	76.49	2.71
SUM (BY REG) =		112.18	63.37	185.50	272.06	220.97	278.92	186.44	518.20	249.28	445.82	1100.16	40.74	
TOTSUM=		3673.62												

ENERGY REQUIRED (MILLION BTU)

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$2/SQFT/YR

HOTEL

LIBRARIES -
MUSEUMSHOPPING-
CENTERMOTEL &
NURSING HOME

WAREHOUSES

OFFICE -
BUILDINGMEDICAL-
INSTITUTION

EDUCATIONAL

RELIGIOUS &
RECREATIONALRETAIL-
SUPERMARKETSINGLE STORE
& SERV. STAT.

RESTAURANT

REGION

MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
-1.046	-0.057	-0.112	-0.114	-0.218	-0.532	-0.570	-0.501	-0.777	-1.088	-0.905	-1.309
-1.204	-0.045	-0.100	-0.116	-0.202	-0.534	-0.578	-0.503	-0.801	-1.108	-0.901	-2.024
-1.537	-0.018	-0.069	-0.025	-0.064	-0.473	-0.512	-0.474	-0.719	-1.010	-0.722	-1.407
-1.721	-0.054	-0.155	-0.154	-0.331	-0.685	-0.748	-0.629	-0.973	-1.336	-1.180	-2.698
-0.830	-0.039	-0.092	-0.087	-0.174	-0.564	-0.618	-0.536	-0.869	-1.210	-0.928	-2.008
-1.467	-0.051	-0.172	-0.176	-0.271	-0.775	-0.806	-0.708	-1.101	-1.553	-1.258	-2.813
-2.141	-0.071	-0.212	-0.219	-0.341	-0.877	-0.897	-0.786	-1.205	-1.645	-1.588	-3.307
-1.155	-0.079	-0.171	-0.159	-0.280	-0.773	-0.832	-0.716	-1.116	-1.586	-1.269	-2.825
-0.991	-0.111	-0.233	-0.237	-0.482	-0.974	-1.069	-0.867	-1.387	-1.941	-1.619	-3.878
-1.854	-0.041	-0.142	-0.114	-0.199	-0.757	-0.801	-0.710	-1.318	-1.546	-1.219	-2.579
-2.464	-0.137	-0.414	-0.369	-0.611	-1.444	-1.575	-1.384	-2.078	-2.926	-2.713	-5.575
-4.979	-0.688	-1.133	-1.093	-1.879	-4.176	-4.585	-3.425	-5.587	-7.699	-7.437	-15.302

COST DIFFERENCE OF CONV. FROM SOLAR (\$/SQFT)

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$2/SQFT/YR

		REGION												
		MIAMI FLORIDA	PHOENIX ARIZONA	FT.WRTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.	
FLOORS														
BUILDING TYPE	HOTEL	5.00	3.51	0.45	0.65	0.55	0.90	1.94	2.26	1.96	2.96	3.75	3.18	3.61
	LIBRARIES - MUSEUM	3.00	2.42	0.24	0.36	0.33	0.51	1.17	1.37	1.20	1.84	2.32	1.91	3.37
	SHOPPING- CENTER	1.00	1.02	0.04	0.07	0.03	0.06	0.35	0.41	0.37	0.56	0.71	0.51	0.79
	MOTEL & NURSING HOME	2.00	2.32	0.22	0.34	0.30	0.50	1.01	1.18	0.99	1.51	1.91	1.67	3.00
	WAREHOUSES	1.00	0.56	0.07	0.11	0.08	0.14	0.41	0.48	0.42	0.65	0.82	0.64	1.11
	OFFICE - BUILDING	4.00	3.97	0.44	0.72	0.60	0.96	2.25	2.57	2.25	3.36	4.30	3.54	6.23
	MEDICAL- INSTITUTION	6.00	8.56	0.84	1.32	1.14	1.86	3.65	4.26	3.67	5.59	7.09	6.02	11.07
	EDUCATIONAL	1.00	0.78	0.12	0.18	0.15	0.24	0.56	0.65	0.56	0.84	1.08	0.89	1.56
	RELIGIOUS & RECREATIONAL	2.00	1.34	0.34	0.50	0.46	0.76	1.40	1.58	1.35	2.04	2.58	2.26	4.26
	RETAIL- SUPERMARKET	1.00	1.24	0.09	0.15	0.11	0.18	0.56	0.64	0.56	0.96	1.10	0.85	1.44
SINGLE STORE & SERV.STAT.	1.00	1.67	0.24	0.37	0.33	0.54	1.02	1.20	1.04	1.56	2.00	1.75	3.08	
RESTAURANT	1.00	3.30	0.68	0.96	0.89	1.46	2.69	3.16	2.68	4.11	5.13	4.58	8.42	

COLLECTOR AREA / ROOF AREA

HEATING & COOLING/ OIL AS CONV. FUEL

SOLAR COST \$2/50FT/YR

		REGION											
		MIAMI FLORIDA	PHOENIX ARIZONA	FT. WORTH TEXAS	CHARL. S.C.	L.A. CALIF.	NASHVIL. TENN	OMAHA NEBR.	WASH DC NYC NY	BISMARCK N.D.	MADISON WIS.	BOSTON MASS.	SEATTLE WASH.
HOTEL		0.83	0.27	0.84	0.98	1.56	2.06	1.74	3.66	2.33	4.14	9.87	0.32
LIBRARIES - MUSEUM		0.53	0.14	0.41	0.53	0.84	1.14	0.97	2.12	1.36	2.42	5.49	0.21
SHOPPING- CENTER		1.85	0.22	0.73	0.54	1.01	2.99	2.58	5.53	3.92	6.78	12.58	0.52
MOTEL & NURSING HOME		6.24	1.50	4.74	6.15	8.00	12.14	10.29	21.11	14.29	26.49	58.58	2.42
WAREHOUSES		23.16	1.73	5.80	1.18	9.03	17.16	13.96	31.02	18.80	32.83	73.54	2.58
OFFICE - BUILDING		9.89	3.08	8.79	9.02	19.10	24.24	20.62	44.60	27.41	49.47	113.27	4.22
MEDICAL- INSTITUTION		3.37	0.93	2.53	2.95	6.34	5.56	5.57	11.50	7.96	15.01	22.56	1.41
EDUCATIONAL		9.78	3.69	11.20	13.72	23.08	31.05	25.34	55.43	33.31	60.08	143.07	5.09
RELIGIOUS & RECREATIONAL		3.72	2.26	9.34	9.57	13.68	16.53	11.66	28.72	16.36	28.46	78.66	2.65
RETAIL- SUPERMARKET		0.85	0.18	0.52	0.58	1.05	1.78	1.49	4.42	2.06	3.85	7.67	0.31
SINGLE STORE & SERV. STAT.		15.58	5.67	12.84	19.78	40.08	36.15	32.40	80.59	45.41	81.67	170.00	8.85
RESTAURANT		3.12	1.08	3.14	4.89	9.42	7.11	6.67	21.03	11.03	21.43	38.21	1.97

TOTAL ENERGY SAVINGS (MILLION MBTU)
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

RANKING BY COST SAVINGS
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

1	PHOENIX ; SHOPPING- CENTER	:	-0.018
2	CHARL. ; SHOPPING- CENTER	:	-0.025
3	PHOENIX ; WAREHOUSES	:	-0.039
4	PHOENIX ; RETAIL- SUPERMARKET	:	-0.041
5	PHOENIX ; LIBRARIES - MUSEUM	:	-0.045
6	PHOENIX ; OFFICE - BUILDING	:	-0.051
7	PHOENIX ; MOTEL & NURSING HOME	:	-0.054
8	PHOENIX ; HOTEL	:	-0.057
9	L.A. ; SHOPPING- CENTER	:	-0.064
10	FT.WRTH ; SHOPPING- CENTER	:	-0.069
11	PHOENIX ; MEDICAL- INSTITUTION	:	-0.071
12	PHOENIX ; EDUCATIONAL	:	-0.079
13	CHARL. ; WAREHOUSES	:	-0.087
14	FT.WRTH ; WAREHOUSES	:	-0.092
15	FT.WRTH ; LIBRARIES - MUSEUM	:	-0.108
16	PHOENIX ; RELIGIOUS & RECREATIONAL	:	-0.111
17	CHARL. ; HOTEL	:	-0.114
18	CHARL. ; RETAIL- SUPERMARKET	:	-0.114
19	FT.WRTH ; HOTEL	:	-0.116
20	CHARL. ; LIBRARIES - MUSEUM	:	-0.116
21	PHOENIX ; SINGLE STORE& SERV.STAT.	:	-0.137
22	FT.WRTH ; RETAIL- SUPERMARKET	:	-0.142
23	CHARL. ; MOTEL & NURSING HOME	:	-0.154
24	FT.WRTH ; MOTEL & NURSING HOME	:	-0.155
25	CHARL. ; EDUCATIONAL	:	-0.159

26	FT.WRTH ; EDUCATIONAL	:	-0.171
27	FT.WRTH ; OFFICE - BUILDING	:	-0.172
28	L.A. ; WAREHOUSES	:	-0.174
29	CHARL. ; OFFICE - BUILDING	:	-0.176
30	L.A. ; RETAIL- SUPERMARKET	:	-0.199
31	L.A. ; LIBRARIES - MUSEUM	:	-0.202
32	L.A. ; HOTEL	:	-0.218
33	FT.WRTH ; MEDICAL- INSTITUTION	:	-0.218
34	CHARL. ; MEDICAL- INSTITUTION	:	-0.219
35	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	-0.233
36	CHARL. ; RELIGIOUS & RECREATIONAL	:	-0.237
37	L.A. ; OFFICE - BUILDING	:	-0.271
38	L.A. ; EDUCATIONAL	:	-0.280
39	L.A. ; MOTEL & NURSING HOME	:	-0.331
40	L.A. ; MEDICAL- INSTITUTION	:	-0.341
41	CHARL. ; SINGLE STORE& SERV.STAT.	:	-0.369
42	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	-0.414
43	NASHVIL. ; SHOPPING- CENTER	:	-0.473
44	WASH DC ; SHOPPING- CENTER	:	-0.474
45	L.A. ; RELIGIOUS & RECREATIONAL	:	-0.482
46	WASH DC ; HOTEL	:	-0.501
47	WASH DC ; LIBRARIES - MUSEUM	:	-0.503
48	OMAHA ; SHOPPING- CENTER	:	-0.512
49	NASHVIL. ; HOTEL	:	-0.532
50	NASHVIL. ; LIBRARIES - MUSEUM	:	-0.534
51	WASH DC ; WAREHOUSES	:	-0.536
52	NASHVIL. ; WAREHOUSES	:	-0.564
53	OMAHA ; HOTEL	:	-0.570
54	OMAHA ; LIBRARIES - MUSEUM	:	-0.578
55	L.A. ; SINGLE STORE& SERV.STAT.	:	-0.611

56	OMAHA	:	WAREHOUSES	:	-0.618
57	WASH DC	:	MOTEL & NURSING HOME	:	-0.629
58	NASHVIL.	:	MOTEL & NURSING HOME	:	-0.685
59	PHOENIX	:	RESTAURANT	:	-0.688
60	WASH DC	:	OFFICE - BUILDING	:	-0.708
61	WASH DC	:	RETAIL- SUPERMARKET	:	-0.710
62	WASH DC	:	EDUCATIONAL	:	-0.716
63	BISMARCK.	:	SHOPPING- CENTER	:	-0.719
64	BOSTON	:	SHOPPING- CENTER	:	-0.722
65	OMAHA	:	MOTEL & NURSING HOME	:	-0.748
66	NASHVIL.	:	RETAIL- SUPERMARKET	:	-0.757
67	NASHVIL.	:	EDUCATIONAL	:	-0.773
68	NASHVIL.	:	OFFICE - BUILDING	:	-0.775
69	BISMARCK.	:	HOTEL	:	-0.777
70	WASH DC	:	MEDICAL- INSTITUTION	:	-0.786
71	OMAHA	:	RETAIL- SUPERMARKET	:	-0.801
72	BISMARCK.	:	LIBRARIES - MUSEUM	:	-0.801
73	OMAHA	:	OFFICE - BUILDING	:	-0.806
74	MIAMI	:	WAREHOUSES	:	-0.830
75	OMAHA	:	EDUCATIONAL	:	-0.832
76	WASH DC	:	RELIGIOUS & RECREATIONAL	:	-0.867
77	BISMARCK.	:	WAREHOUSES	:	-0.869
78	NASHVIL.	:	MEDICAL- INSTITUTION	:	-0.877
79	OMAHA	:	MEDICAL- INSTITUTION	:	-0.897
80	BOSTON	:	LIBRARIES - MUSEUM	:	-0.901
81	BOSTON	:	HOTEL	:	-0.905
82	BOSTON	:	WAREHOUSES	:	-0.928
83	BISMARCK.	:	MOTEL & NURSING HOME	:	-0.973
84	NASHVIL.	:	RELIGIOUS & RECREATIONAL	:	-0.974
85	MIAMI	:	RELIGIOUS & RECREATIONAL	:	-0.991

86	MADISON ; SHOPPING- CENTER	:	-1.010
87	MIAMI ; HOTEL	:	-1.046
88	OMAHA ; RELIGIOUS & RECREATIONAL	:	-1.069
89	MADISON ; HOTEL	:	-1.088
90	CHARL. ; RESTAURANT	:	-1.093
91	RISMRK. ; OFFICE - BUILDING	:	-1.101
92	MADISON ; LIBRARIES - MUSEUM	:	-1.108
93	RISMRK. ; EDUCATIONAL	:	-1.116
94	FT. WORTH ; RESTAURANT	:	-1.133
95	MIAMI ; EDUCATIONAL	:	-1.155
96	BOSTON ; MOTEL & NURSING HOME	:	-1.180
97	MIAMI ; LIBRARIES - MUSEUM	:	-1.204
98	RISMRK. ; MEDICAL- INSTITUTION	:	-1.205
99	MADISON ; WAREHOUSES	:	-1.210
100	BOSTON ; RETAIL- SUPERMARKET	:	-1.219
101	BOSTON ; OFFICE - BUILDING	:	-1.258
102	BOSTON ; EDUCATIONAL	:	-1.269
103	SEATTLE ; HOTEL	:	-1.309
104	RISMRK. ; RETAIL- SUPERMARKET	:	-1.318
105	MADISON ; MOTEL & NURSING HOME	:	-1.336
106	WASH DC ; SINGLE STORE& SERV. STAT.	:	-1.384
107	RISMRK. ; RELIGIOUS & RECREATIONAL	:	-1.387
108	SEATTLE ; SHOPPING- CENTER	:	-1.407
109	NASHVIL. ; SINGLE STORE& SERV. STAT.	:	-1.444
110	MIAMI ; OFFICE - BUILDING	:	-1.467
111	MIAMI ; SHOPPING- CENTER	:	-1.537
112	MADISON ; RETAIL- SUPERMARKET	:	-1.546
113	MADISON ; OFFICE - BUILDING	:	-1.553
114	OMAHA ; SINGLE STORE& SERV. STAT.	:	-1.575
115	MADISON ; EDUCATIONAL	:	-1.586

116	BOSTON ; MEDICAL- INSTITUTION :	-1.588
117	BOSTON ; RELIGIOUS & RECREATIONAL :	-1.619
118	MADISON ; MEDICAL- INSTITUTION :	-1.645
119	MIAMI ; MOTEL & NURSING HOME :	-1.721
120	MIAMI ; RETAIL- SUPERMARKET :	-1.854
121	L.A. ; RESTAURANT :	-1.879
122	MADISON ; RELIGIOUS & RECREATIONAL :	-1.941
123	SEATTLE ; WAREHOUSES :	-2.008
124	SEATTLE ; LIBRARIES - MUSEUM :	-2.024
125	RISMRK. ; SINGLE STORE& SERV.STAT. :	-2.078
126	MIAMI ; MEDICAL- INSTITUTION :	-2.141
127	MIAMI ; SINGLE STORE& SERV.STAT. :	-2.464
128	SEATTLE ; RETAIL- SUPERMARKET :	-2.579
129	SEATTLE ; MOTEL & NURSING HOME :	-2.698
130	BOSTON ; SINGLE STORE& SERV.STAT. :	-2.713
131	SEATTLE ; OFFICE - BUILDING :	-2.813
132	SEATTLE ; EDUCATIONAL :	-2.825
133	MADISON ; SINGLE STORE& SERV.STAT. :	-2.926
134	SEATTLE ; MEDICAL- INSTITUTION :	-3.307
135	WASH DC ; RESTAURANT :	-3.425
136	SEATTLE ; RELIGIOUS & RECREATIONAL :	-3.878
137	NASHVIL. ; RESTAURANT :	-4.170
138	OMAHA ; RESTAURANT :	-4.585
139	MIAMI ; RESTAURANT :	-4.979
140	SEATTLE ; SINGLE STORE& SERV.STAT. :	-5.575
141	RISMRK. ; RESTAURANT :	-5.587
142	BOSTON ; RESTAURANT :	-7.437
143	MADISON ; RESTAURANT :	-7.699
144	SEATTLE ; RESTAURANT :	-15.302

RANKING BY TOTAL ENERGY SAVINGS
HEATING & COOLING/ OIL AS CONV. FUEL
SOLAR COST \$2/SQFT/YR

1	PHOENIX ; SHOPPING- CENTER	:	0.219
2	CHARL. ; SHOPPING- CENTER	:	0.542
3	PHOENIX ; WAREHOUSES	:	1.734
4	PHOENIX ; RETAIL- SUPERMARKET	:	0.178
5	PHOENIX ; LIBRARIES - MUSEUM	:	0.137
6	PHOENIX ; OFFICE - BUILDING	:	3.078
7	PHOENIX ; MOTEL & NURSING HOME	:	1.501
8	PHOENIX ; HOTEL	:	0.269
9	L.A. ; SHOPPING- CENTER	:	1.009
10	FT.WRTH ; SHOPPING- CENTER	:	0.734
11	PHOENIX ; MEDICAL- INSTITUTION	:	0.934
12	PHOENIX ; EDUCATIONAL	:	3.691
13	CHARL. ; WAREHOUSES	:	1.180
14	FT.WRTH ; WAREHOUSES	:	5.889
15	FT.WRTH ; LIBRARIES - MUSEUM	:	0.409
16	PHOENIX ; RELIGIOUS & RECREATIONAL	:	2.257
17	CHARL. ; HOTEL	:	0.963
18	CHARL. ; RETAIL- SUPERMARKET	:	0.583
19	FT.WRTH ; HOTEL	:	0.839
20	CHARL. ; LIBRARIES - MUSEUM	:	0.532
21	PHOENIX ; SINGLE STORE& SERV.STAT.	:	5.669
22	FT.WRTH ; RETAIL- SUPERMARKET	:	0.523
23	CHARL. ; MOTEL & NURSING HOME	:	6.154
24	FT.WRTH ; MOTEL & NURSING HOME	:	4.738
25	CHARL. ; EDUCATIONAL	:	13.722

26	FT.WRTH ; EDUCATIONAL	:	11.199
27	FT.WRTH ; OFFICE - BUILDING	:	8.790
28	L.A. ; WAREHOUSES	:	9.029
29	CHARL. ; OFFICE - BUILDING	:	9.017
30	L.A. ; RETAIL- SUPERMARKET	:	1.050
31	L.A. ; LIRRARIES - MUSEUM	:	0.843
32	L.A. ; HOTEL	:	1.556
33	FT.WRTH ; MEDICAL- INSTITUTION	:	2.529
34	CHARL. ; MEDICAL- INSTITUTION	:	2.947
35	FT.WRTH ; RELIGIOUS & RECREATIONAL	:	9.341
36	CHARL. ; RELIGIOUS & RECREATIONAL	:	9.566
37	L.A. ; OFFICE - BUILDING	:	19.100
38	L.A. ; EDUCATIONAL	:	23.078
39	L.A. ; MOTEL & NURSING HOME	:	8.001
40	L.A. ; MEDICAL- INSTITUTION	:	6.337
41	CHAPL. ; SINGLE STORE& SERV.STAT.	:	19.778
42	FT.WRTH ; SINGLE STORE& SERV.STAT.	:	12.836
43	NASHVIL. ; SHOPPING- CENTER	:	2.992
44	WASH DC ; SHOPPING- CENTER	:	5.531
45	L.A. ; RELIGIOUS & RECREATIONAL	:	13.681
46	WASH DC ; HOTEL	:	3.657
47	WASH DC ; LIRRARIES - MUSEUM	:	2.117
48	OMAHA ; SHOPPING- CENTER	:	2.576
49	NASHVIL. ; HOTEL	:	2.061
50	NASHVIL. ; LIRRARIES - MUSEUM	:	1.143
51	WASH DC ; WAREHOUSES	:	31.016
52	NASHVIL. ; WAREHOUSES	:	17.156
53	OMAHA ; HOTEL	:	1.736
54	OMAHA ; LIRRARIES - MUSEUM	:	0.968
55	L.A. ; SINGLE STORE& SERV.STAT.	:	40.084

56	OMAHA	:	WAREHOUSES	:	13.965
57	WASH DC	:	MOTEL & NURSING HOME	:	21.115
58	NASHVIL.	:	MOTEL & NURSING HOME	:	12.144
59	PHOENIX	:	RESTAURANT	:	1.082
60	WASH DC	:	OFFICE - BUILDING	:	44.605
61	WASH DC	:	RETAIL- SUPERMARKET	:	4.424
62	WASH DC	:	EDUCATIONAL	:	55.434
63	BISMARCK	:	SHOPPING- CENTER	:	3.924
64	BOSTON	:	SHOPPING- CENTER	:	12.578
65	OMAHA	:	MOTEL & NURSING HOME	:	10.286
66	NASHVIL.	:	RETAIL- SUPERMARKET	:	1.782
67	NASHVIL.	:	EDUCATIONAL	:	31.046
68	NASHVIL.	:	OFFICE - BUILDING	:	24.241
69	BISMARCK	:	HOTEL	:	2.335
70	WASH DC	:	MEDICAL- INSTITUTION	:	11.499
71	OMAHA	:	RETAIL- SUPERMARKET	:	1.495
72	BISMARCK	:	LIBRARIES - MUSEUM	:	1.356
73	OMAHA	:	OFFICE - BUILDING	:	20.617
74	MIAMI	:	WAREHOUSES	:	23.159
75	OMAHA	:	EDUCATIONAL	:	25.342
76	WASH DC	:	RELIGIOUS & RECREATIONAL	:	28.717
77	BISMARCK	:	WAREHOUSES	:	18.796
78	NASHVIL.	:	MEDICAL- INSTITUTION	:	5.557
79	OMAHA	:	MEDICAL- INSTITUTION	:	5.572
80	BOSTON	:	LIBRARIES - MUSEUM	:	5.494
81	BOSTON	:	HOTEL	:	9.874
82	BOSTON	:	WAREHOUSES	:	73.539
83	BISMARCK	:	MOTEL & NURSING HOME	:	14.290
84	NASHVIL.	:	RELIGIOUS & RECREATIONAL	:	16.534
85	MIAMI	:	RELIGIOUS & RECREATIONAL	:	3.719

86	MADISON ; SHOPPING- CENTER	:	6.785
87	MIAMI ; HOTEL	:	0.831
88	OMAHA ; RELIGIOUS & RECREATIONAL	:	11.656
89	MADISON ; HOTEL	:	4.143
90	CHARL. ; RESTAURANT	:	4.894
91	RISMRK. ; OFFICE - BUILDING	:	27.406
92	MADISON ; LIBRARIES - MUSEUM	:	2.416
93	RISMRK. ; EDUCATIONAL	:	33.309
94	FT. WORTH ; RESTAURANT	:	3.136
95	MIAMI ; EDUCATIONAL	:	9.775
96	BOSTON ; MOTEL & NURSING HOME	:	58.578
97	MIAMI ; LIBRARIES - MUSEUM	:	0.528
98	RISMRK. ; MEDICAL- INSTITUTION	:	7.957
99	MADISON ; WAREHOUSES	:	32.828
100	BOSTON ; RETAIL- SUPERMARKET	:	7.670
101	BOSTON ; OFFICE - BUILDING	:	113.272
102	BOSTON ; EDUCATIONAL	:	143.068
103	SEATTLE ; HOTEL	:	0.323
104	RISMRK. ; RETAIL- SUPERMARKET	:	2.061
105	MADISON ; MOTEL & NURSING HOME	:	26.489
106	WASH DC ; SINGLE STORE& SERV.STAT.	:	80.592
107	RISMRK. ; RELIGIOUS & RECREATIONAL	:	16.356
108	SEATTLE ; SHOPPING- CENTER	:	0.521
109	NASHVIL. ; SINGLE STORE& SERV.STAT.	:	36.145
110	MIAMI ; OFFICE - BUILDING	:	9.886
111	MIAMI ; SHOPPING- CENTER	:	1.850
112	MADISON ; RETAIL- SUPERMARKET	:	3.846
113	MADISON ; OFFICE - BUILDING	:	49.468
114	OMAHA ; SINGLE STORE& SERV.STAT.	:	32.399
115	MADISON ; EDUCATIONAL	:	60.081

116	BOSTON ; MEDICAL- INSTITUTION :	22.563
117	BOSTON ; RELIGIOUS & RECREATIONAL :	78.656
118	MADISON ; MEDICAL- INSTITUTION :	15.015
119	MIAMI ; MOTEL & NURSING HOME :	6.242
120	MIAMI ; RETAIL- SUPERMARKET :	0.846
121	L.A. ; RESTAURANT :	9.422
122	MADISON ; RELIGIOUS & RECREATIONAL :	28.459
123	SEATTLE ; WAREHOUSES :	2.581
124	SEATTLE ; LIBRARIES - MUSEUM :	0.213
125	RISMRK. ; SINGLE STORE& SERV.STAT. :	45.407
126	MIAMI ; MEDICAL- INSTITUTION :	3.369
127	MIAMI ; SINGLE STORE& SERV.STAT. :	15.577
128	SEATTLE ; RETAIL- SUPERMARKET :	0.311
129	SEATTLE ; MOTEL & NURSING HOME :	2.423
130	BOSTON ; SINGLE STORE& SERV.STAT. :	170.005
131	SEATTLE ; OFFICE - BUILDING :	4.216
132	SEATTLE ; EDUCATIONAL :	5.090
133	MADISON ; SINGLE STORE& SERV.STAT. :	81.675
134	SEATTLE ; MEDICAL- INSTITUTION :	1.413
135	WASH DC ; RESTAURANT :	21.026
136	SEATTLE ; RELIGIOUS & RECREATIONAL :	2.650
137	NASHVIL. ; RESTAURANT :	7.109
138	OMAHA ; RESTAURANT :	6.675
139	MIAMI ; RESTAURANT :	3.118
140	SEATTLE ; SINGLE STORE& SERV.STAT. :	8.847
141	RISMRK. ; RESTAURANT :	11.034
142	BOSTON ; RESTAURANT :	38.210
143	MADISON ; RESTAURANT :	21.432
144	SEATTLE ; RESTAURANT :	1.974