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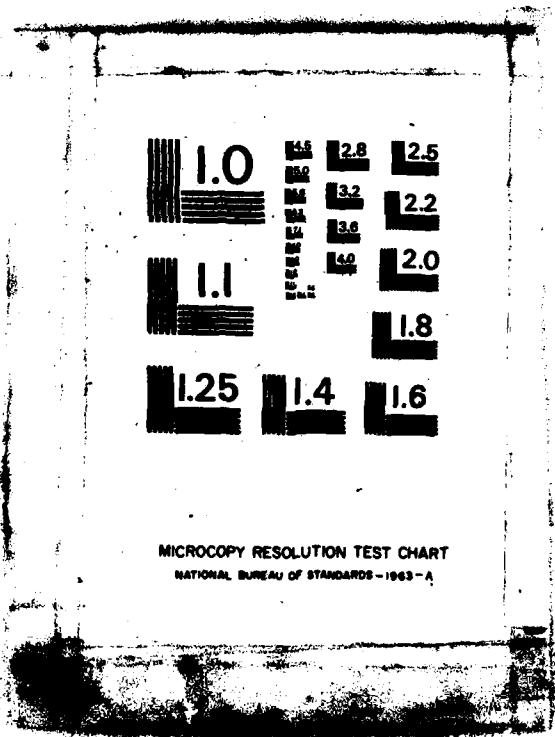
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Peter J. Baldetti, Captain, USAF
Mark A. Lockard, Captain, USAF

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Section 2688(a) to Title 10 of the U.S. Code requires consideration of solar energy applications in new military construction. This thesis examines application of direct and indirect gain techniques for a typical range of facility sizes and types, performing the economic analysis for each Air Force Base in the Continental United States. Fuel prices are generated identifying the price at which economic justification occurs. Combining these figures with known local fuel prices, economic feasibility can be established. Results of this study should be provided to all Base Civil Engineering squadrons addressed for preliminary evaluation of passive solar heating in new construction.

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**SIMPLIFIED PRELIMINARY ECONOMIC ANALYSIS
FOR PASSIVE SOLAR HEATING**

A Thesis

**Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology**

Air University

**In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Engineering Management**

By

**Peter J. Baldetti, BS
Captain, USAF**

**Mark A. Lockard, BS
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September 1983

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has been accepted by the undersigned on behalf of the
faculty of the School of Systems and Logistics in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT

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CHAPTER I

INTRODUCTION

→ This report establishes economic feasibility criteria for considering the use of passive solar design. In light of the growing cost of supplying the energy demands of the Air Force, a method is needed to simplify the adaptation of passive solar heating and cooling in future building construction. ←

This section presents an overview of the current energy availability situation faced by the United States. Several viewpoints projecting the availability of fossil fuels for the next century are presented.

The use of energy is an essential aspect of man's survival and in the development of society in general. The prosperity and social wealth of the United States has steadily increased, dramatically since World War II, and along with this increase in domestic well-being there has been a steep rise in energy consumption. This can be attested to by the fact that the United States, although comprising only 6 percent of the world's population, currently consumes 33 percent of the world's total energy output (Bradley & Carlson, 1975). Of the energy consumed, 48 percent is oil, 26 percent is natural gas, 19 percent

is coal, 4 percent is nuclear, and the remaining 3 percent falls into the "other" category (DOE, 1979). Although it has been known for some time fossil fuels are available in finite supplies, in practice the world has behaved as if they were inexhaustible (Carr, 1981).

The sobering reality of dwindling energy sources has only recently become evident to the consumer. Information released by the Exxon Corporation in their report, World Energy Outlook, suggests the near horizon doesn't indicate any relief for the consumer. In fact, they reveal the consumer of the future will be paying a good deal more for energy. This will primarily be due to fewer oil discoveries, which will have to be drilled at greater depths, in more physically hostile locations, more remote from the marketplace (Exxon, 1979). Nevertheless, world energy demand, expressed as equivalent barrels of oil, is expected to grow from the current daily demand of about 100 million barrels to 130 million by 1990, and 160 million by the year 2000 (Exxon, 1979). In contrast to a growing demand, it is predicted production will not be able to continue growing; in fact, quite the opposite is expected to happen. Production is anticipated to level off and eventually deplete the world's reserves by the year 2025 (Department of the Navy, 1979).

Many of the predicted scenarios for a world in such a situation are rather dire. For example, the following

scenario projected by George Marienthal, the Deputy Assistant Secretary of Defense for Energy, Environment and Safety:

The end of oil will not, of course, come with a bang. It will be more like Chinese water torture than the guillotine. With every passing year there will be less oil available for the consumer. Prices will rise inexorably. Everything which is tied to energy will increase in cost as the cost of energy climbs. In a modern industrial society it is hard to imagine any goods or services which are not inextricably linked to energy. The poor will be the first affected. Poor nations, with low foreign exchange reserves, but a desperate need for capital, will be forced to a pre-industrial society. Poor people in the developed nations will find it impossible to afford to drive a car, heat their homes comfortably in the winter, or cool them in the summer. As the situation worsens, small businesses will fail, large industries with high energy needs will be hard pressed to stay solvent, suburbs that are not served by mass transit will wither, cities will become much more crowded and recreation which is energy intensive will disappear for all but the super rich. (DOD, 1979, p. 3)

Because of the rapidly increasing price of oil, there is a need to find a petroleum substitute that is cheap and plentiful. Coal fills both requirements according to a recent World Coal Study directed by Carroll L. Wilson of the Massachusetts Institute of Technology. It is estimated that the world's technically and economically recoverable coal reserves would last about 250 years at the 1977 rate of production--2.5 billion tons. Since the United States possesses more than one quarter of the world's assets, it could supply itself for more than 100 years, even with stepped-up production. The study concluded that coal will

have to supply between one-half to two-thirds of the world's energy needs by the turn of the century (Carr, 1981).

However, for any known source of energy, there is a drawback. As noted earlier, petroleum supplies are limited and the cost is greatly increasing. Nuclear energy is enormously expensive and is constantly plagued by environmentalist opposition, particularly in light of the Three Mile Island episode and other related incidents. Although coal is abundant and available, burning certain types of coal is thought by many scientists to produce a "greenhouse" effect which may ultimately elevate the overall earth temperatures in the atmosphere (Carr, 1981). These considerations greatly accentuate the need to develop renewable energy sources. However, despite this need, advances in the alternate energy field have been slow and often disappointing. The situation can be summed up in the words of George Marienthal as follows:

Solar (active) energy is not yet cost effective in most areas, except for hot water heating and a handful of experimental projects sponsored by the United States Government and large utility companies. Further retro-fit projects on existing buildings require substantial capital outlay. . . . Fusion, which has great promise for nonpolluting, renewable source, is several decades away from commercial use, in the judgement of the most knowledgeable people. In addition to technical development issues, the fusion process also demands prodigious amounts of capital. Hydro-electric power can still be developed in some areas of the country but for each river dammed, we lose some irreplaceable scenic area, and environmentalists are strongly opposed to further dam building. Wind power

has advocates in certain areas where the wind blows steadily, but cannot be widely used, since in most areas, wind is too sporadic to justify the investment. (DOD, 1979, p. 4)

Perhaps the alternate energy source greatly overlooked is passive solar energy. Although passive systems are simple in concept and use, "have few moving parts and require little or no maintenance," they have been greatly overlooked by architects and builders. This is primarily due to the feeling that to adequately design using passive features is too technical, time-consuming and cumbersome in application (Mazria, 1979, p. 1). However, research over the past five years has simplified the design of passive solar systems. With this in mind, and in light of the rising cost of fossil fuels, passive solar design must now be considered.

Defining Passive Solar Energy

A passive solar system is defined by the National Bureau of Standards as:

An assembly of collectors, thermal storage device(s) and transfer media which converts solar energy into thermal energy and in which no energy in addition to solar is used to accomplish the transfer of thermal energy. (Allan & Transmeier, 1980, p. 4)

Other definitions are less restrictive on the dependency of external energy sources or mechanical equipment. For example, the Energy Research and Development Administration (ERDA) specifies that when the external energy needed to run a passive solar system is less than one fifth of the

energy produced for heating or cooling, it can qualify as a true passive system (1977). Such incorporation of mechanical energy to transfer heat through a passively designed structure is referred to as a "hybrid system" (Lumsdaine & Lumsdaine, 1982).

In more general terms, a passive system heats or cools a structure through the natural heat transfer mechanisms of convection, radiation, conduction and evaporation with minimal use of mechanical systems such as fans or dampers.

Problem Statement

The Air Force has encouraged the use of passive solar application in future construction; however, no proven method exists for determining in a simple, straightforward approach when and where it should be used. Research into the specific criteria involved in the effective evaluation of passive systems is needed.

Research Question

How can designers of Air Force structures, both new construction and retrofit projects, quickly and reliably calculate whether passive solar application is cost effective given the designer's local conditions? This evaluation method would be useful to both the operating locations submitting designs as well as the parent Major Command charged with design evaluation and approval.

Scope and Limitations

This research report is focused on passive solar heating applications to the design of single-story structures. New construction will be principally addressed; however, renovation and retrofit designs may be adaptable to the analysis tool. There will be no discussion of active solar interfacing. In addition, the economic evaluations will be restricted to the use of life-cycle costing. The derivation of the analysis method is targeted specifically towards the base design engineer, although its use will also be applicable to the Major Commands.

Procedure

Brief investigation of the applicable passive solar techniques will be conducted followed by a review of the geologic and climatic conditions effecting their performance. Relevant Air Force directives and guidance will also be examined. Current design and sizing procedures will be reviewed emphasizing those beneficial to the preliminary planning phase of Air Force facility construction. A cross-section of users will be surveyed to determine existing expertise in the passive solar design area. Finally, an appropriate graphical tool will be developed to assist the designer in evaluating the economic feasibility of passive solar design.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the pertinent literature in the field of passive solar design was conducted with emphasis on the work published since 1977. The specific items relevant to this report are briefly discussed in this chapter. These topics include: comfort, passive solar techniques, employment of passive solar concepts, and Air Force application of passive solar design.

Comfort

There are a combination of factors in the environment which contribute to our sense of comfort. McQuiston and Parker (1977) in their book Heating, Ventilating, and Air Conditioning give three criterion for determining comfort conditions. They are, in order of importance, temperature, humidity, and air motion. An average adult male loses approximately 400 British Thermal Units (BTUs) per hour of heat energy to his surroundings (Maxria, 1979). This heat is dissipated through radiation, convection, and evaporation. When the body is unable to get rid of this heat due to ambient temperature, humidity, or air motion, or if more heat than this is needed to regulate internal body

temperature, discomfort is experienced (McQuiston & Parker, 1977).

Methods of measuring perceived comfort relative to temperature, humidity, and air motion vary widely; however, several indices directly evaluating the effect of surroundings on human sensation have been developed (McQuiston & Parker, 1977). The dry bulb temperature is the more commonly used and is most effective in colder climates with the relative humidity varying from 40 to 60 percent. In warm climates, or when the relative humidity is higher than 60 percent, the wet bulb temperature is a good single measure of expected comfort.

The mean radiant temperature (MRT) is another often used direct index. This is a measure of the average surface temperatures of all surrounding surfaces in an enclosed space (Balcomb, Barley, McFarland, Perry, Wray, & Noll, 1980). According to Mazria (1979), a 1° F change in MRT has a 40 percent greater effect on body heat loss than 1° F change in air temperature.

Research presented in the American Society of Heating, Refrigeration, and Air Conditioning Engineer's (ASHRAE) Handbook of Fundamentals (1972) indicates that the most desirable design conditions exist when the dry bulb temperature and the mean radiant temperature are both approximately 76° F, with the relative humidity between 25 and 60 percent, and less than 50 feet per minute air velocity.

Comfort and Passive Solar Designs

Passive structures attempt to create a comfortable contained environment in a manner which differs from conventional structures that use fossil fuel heating and air conditioning systems. One major difference is the minimum use, or total lack, of forced air circulation. Since natural convection is used in passive techniques, the air motion is significantly reduced (Balcomb et al., 1980). A well-designed passive house, for example, has 0.3 to 0.6 air changes per hour (ACH) typically depending upon insulation and construction quality (Lumsdaine & Lumsdaine, 1982). On the other hand, well-insulated conventional homes usually have from 1.0 to 1.5 ACH. Passive solar structures, because of limited air movement, can seem comfortable at an air temperature of only 65° F. (Lumsdaine & Lumsdaine, 1982).

Another important aspect of passively designed structures is, unlike conventional buildings, the floor temperature is usually higher than the air temperature (Mazria, 1979). This can also allow for lower room temperatures than similar conventional systems without degrading comfort.

Passive Solar Techniques

The primary techniques for passive control of building comfort described in the literature can be categorized as: direct gain, indirect gain, and isolated gain (Balcomb et al., 1980). The majority of authors recognize these

major groupings, although some disagreement exists in the placing of specific systems into the groups. All three systems use heat absorption, storage, and distribution, but applications can differ (Mazria, 1979).

Direct Gain

Direct gain is the simplest technique in principle (Lumsdaine & Lumsdaine, 1982). The basic requirements for this passive system are an expanse of south oriented glazing and a large surface area of thermal storage mass as shown in Figure 2.1 (AIA, 1978). This arrangement of passive elements is called direct gain because the living space acts as the energy storage system, receiving radiant heat "directly" (AIA, 1978).

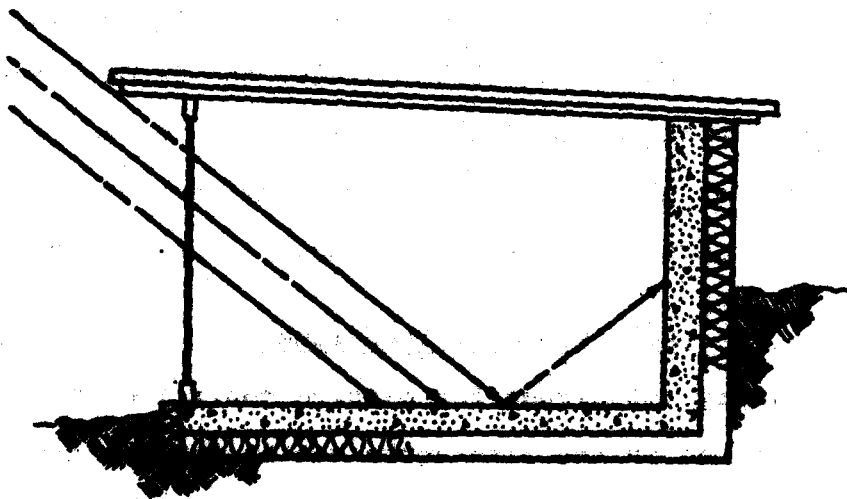


Figure 2.1. Direct gain

Two panes of transparent material, typically glass or plastic, are recommended for the glazing (Balcomb et al., 1980). The second layer will increase the radiant heat retention by approximately 50 percent, while only reducing total heat gain by between 10 to 20 percent.

The thermal mass may be incorporated into the walls or the floor of the passive structure (Lumsdaine & Lumsdaine, 1982). Adobe, brick, sand-filled concrete block, poured concrete, stone, rock, and tile are common materials and can be used separately or in combination.

Water may also be used in thermal mass design, usually in a thermal wall (Mazria, 1979). While water has a higher heat storage capacity per unit volume than the above masonry materials, it also releases its energy more rapidly. This may limit its use if long heating durations are required (Lumsdaine & Lumsdaine, 1982).

There are a few fundamental weaknesses associated with the use of direct gain. First, if wall storage is used, the maximum practical room depth for this design method is about 2½ times the glazing height since the sun's rays must be able to strike all the storage mass surface area (Lumsdaine & Lumsdaine, 1982). Secondly, shading is required in the summer to avoid excess heating (AIA, 1978). Also, movable insulation is needed to reduce night heat loss through the glazing. Finally, the design of shades

and glazing should attempt to cut down daylighting glare which often occurs in direct gain structures.

Indirect Gain

Indirect gain techniques, as the name implies, operate by absorbing and storing energy adjacent to the living space instead of using the space as the collector. This offers the advantage of reducing the large temperature swings possible with direct gain (Mazria, 1979). Four variations of this passive option are predominant in the literature. These are the mass thermal storage wall, the vented mass thermal storage wall, the water thermal storage wall, and the roof pond.

Mass thermal storage wall. The most common application of indirect gain passive heating involves the use of a masonry storage wall (Joncich, 1982). In this design, the masonry wall is directly behind the double, south-facing glazing. The outer face of the wall is painted black and absorbs the heat energy, distributing it to the interior living space by conduction (Mazria, 1979)

The wall is heated during the day, and gradually releases its heat after the living space cools to a MRT lower than that of the wall. Some natural convection takes place near the wall's surface (Mazria, 1979). The depth of the space to be heated is operationally restricted to 15 to

20 feet according to Mazria since conduction is the basic means of temperature transfer.

Vented mass thermal storage wall. The efficiency of the system and controllability of temperature is significantly increased when vents to the air space between the wall and the glazing are added as depicted in Figure 2.2 (AIA, 1978). The best known example of this technique is the Trombe house in Odeillo, France built in 1967. In fact, much of the literature refers to this design principle as the "Mass Trombe Wall," after its inventor Felix Trombe.

Natural convective heating is induced during daytime and early evening by opening vents located at both upper

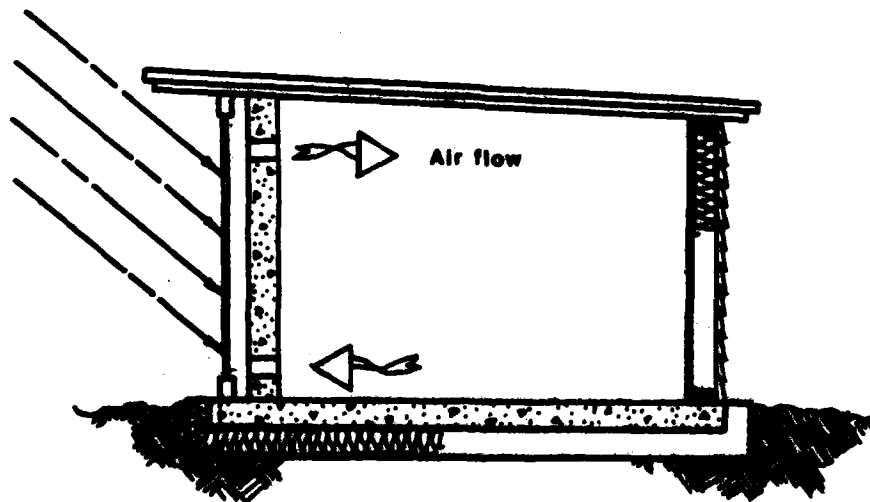


Figure 2.2. Vented mass thermal storage wall

and lower ends of the wall (Mazria, 1979). Then, the vents are closed at night allowing the space to be heated through conductive means as before. Mazria points out that this design has proven to have comparable efficiency with well-constructed active solar heating systems (1979).

Water thermal storage wall. A yet further refinement of the mass storage wall concept is the replacement of water for masonry in the design (AIA, 1978), which is shown in Figure 2.3. Designs for containing the water include the use of cans, plastic bottles, tubes, bins, barrels, 55 gallon drums, and bags.

The water thermal storage wall, unlike the masonry wall which transfers heat internally through conduction, uses

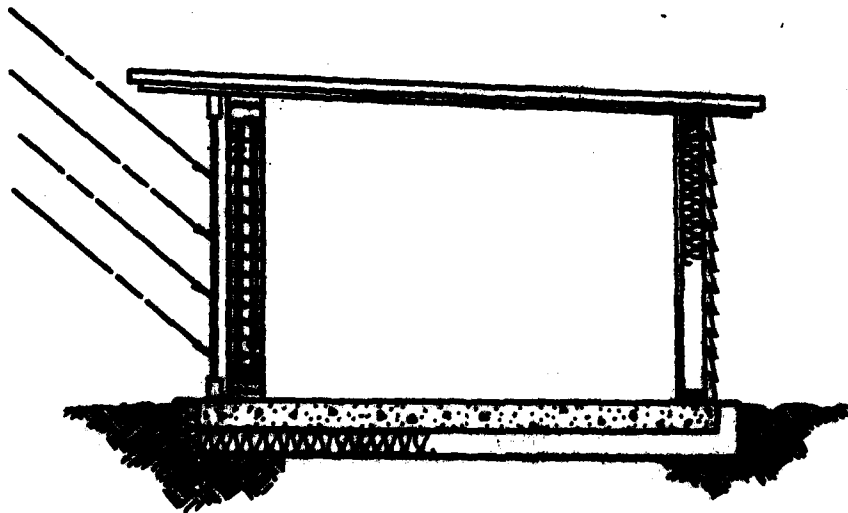


Figure 2.3. Water thermal storage wall

convection to store heat energy (Mazria, 1979). This heat is then distributed to the living space by radiation at night. Vents may be added; however, the majority of water wall designs are considered to be solid structures. This design may need to be supplemented with masonry wall design since the radiant heat is lost more quickly by the water.

Roof pond. The last indirect gain technique to be discussed is the roof pond. This method of passive solar building temperature regulation may be used for heating and cooling (AIA, 1978). The design involves placing the water thermal storage containment on the roof of the structure. The water is usually contained in trays or plastic bags, supported by a metal deck (AIA, 1978), and covered by removable insulation.

The ponds are usually between 6 and 12 inches deep which increases the roof dead load significantly (Mazria, 1979). Also, since radiation is the principle thermal transfer mechanism, the height of ceilings is restricted. Similarly, this method is only appropriate for top stories of structures.

In winter, the pond is exposed during the day allowing the buildup of heat storage. Again, as in the water wall, the pond is thoroughly heated by natural convection. At night, insulation is placed over the pond and heat is radiated to the living space (AIA, 1978).

In summer, the procedure is reversed (AIA, 1978). Insulation shades the pond during the daylight hours while the water absorbs heat from the living space providing cooling as shown in Figure 2.4. Then the insulation is removed at night to dissipate heat buildup.

Isolated Gain

Isolated gain implies that the collection of solar energy is physically separated from the living space to be heated (AIA, 1978). Variations include the use of an attached sunspace or greenhouse as it is sometimes called, and the use of a natural convection loop, which is commonly referred to as a thermosiphon (AIA, 1978).

Attached sunspace. The attached sunspace itself is usually constructed of double glazing with a dark colored mass thermal wall (Mazria, 1979). The sunspace is positioned on the southern exposure of a building and acts as a direct gain system as shown in Figure 2.5.

The energy stored in the mass wall, which may be masonry, water, or both, is transferred to the desired living space by radiation through a common wall, or by convection when vents are used (AIA, 1978). Since the "greenhouse" is a direct gain system, sun screens and movable insulation are recommended to improve efficiency.

It should be noted that unless insulated, the common wall will release its heat to both the living space as well

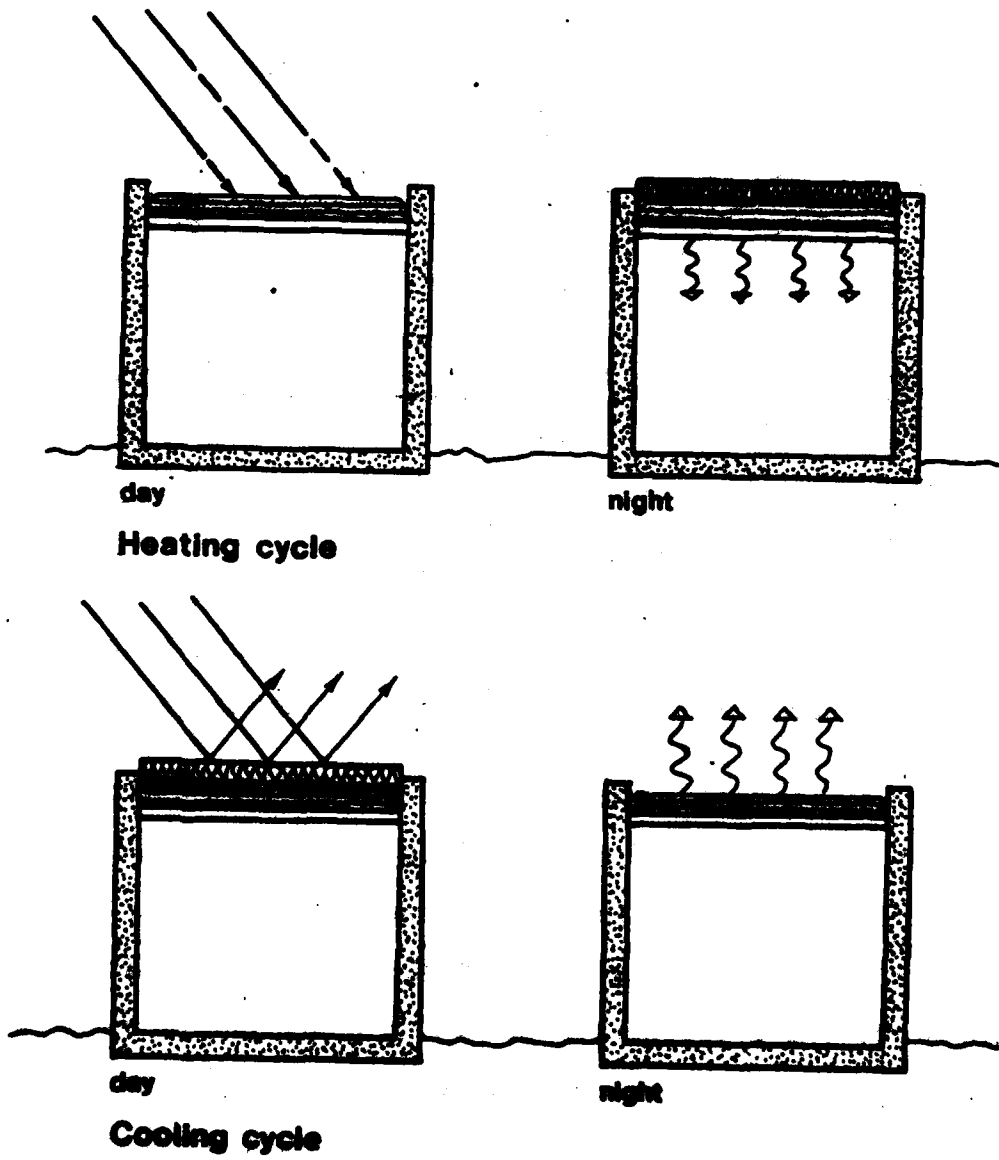


Figure 2.4. Roof pond.

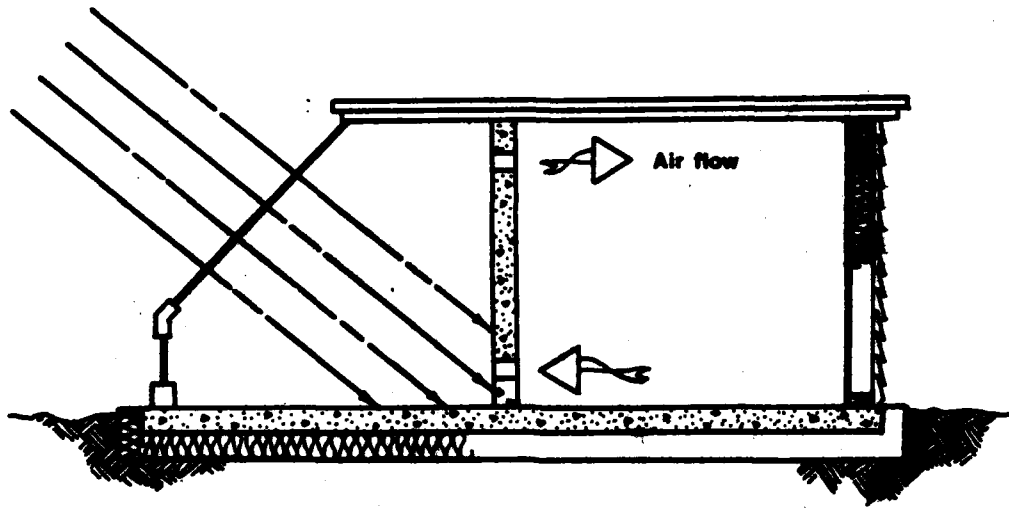


Figure 2.5. Attached sunspace

as the greenhouse. Also, the depth of the living space serviced by the greenhouse is limited by the design.

Convective loop. The second method employing the isolated gain concept works on the basis of natural convection. The thermosiphon, as it is called, can use either air or a contained liquid, usually water (AIA, 1978). The main components include a collection device, a distribution network, and a storage device, as diagrammed in Figure 2.6 (Mazria, 1979). Dampers and vents can be added to more effectively control air movement (Lumsdaine & Lumsdaine, 1982).

This technique involves the collection of solar energy which induces convection in the medium used (Mazria, 1979).

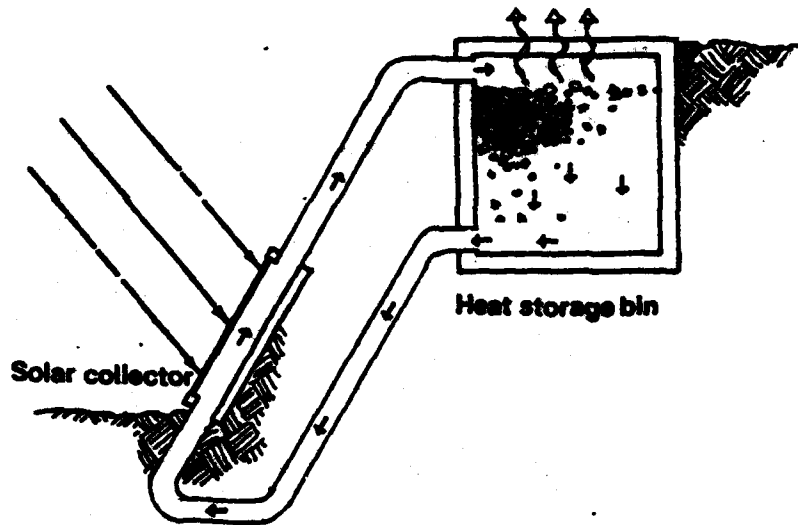


Figure 2.6. Convective loop

The energy is held in a storage device for release into the living space at the desired time. If the medium is air, rock storage is used, while only a holding tank is required for a liquid medium (Mazria, 1979).

Through the use of removable insulation and small fans, this system can also be used to cool the living space in the summer (Balcomb et al., 1980). This is basically achieved by reversing the process described earlier.

An extension of the thermosiphon concept is used in the double shell design. In this application, a convective loop is established around the building by adding a false roof, and a north and south wall as shown in Figure 2.7 (Carr, 1981). Typically, the south wall is a greenhouse or a Trombe wall.

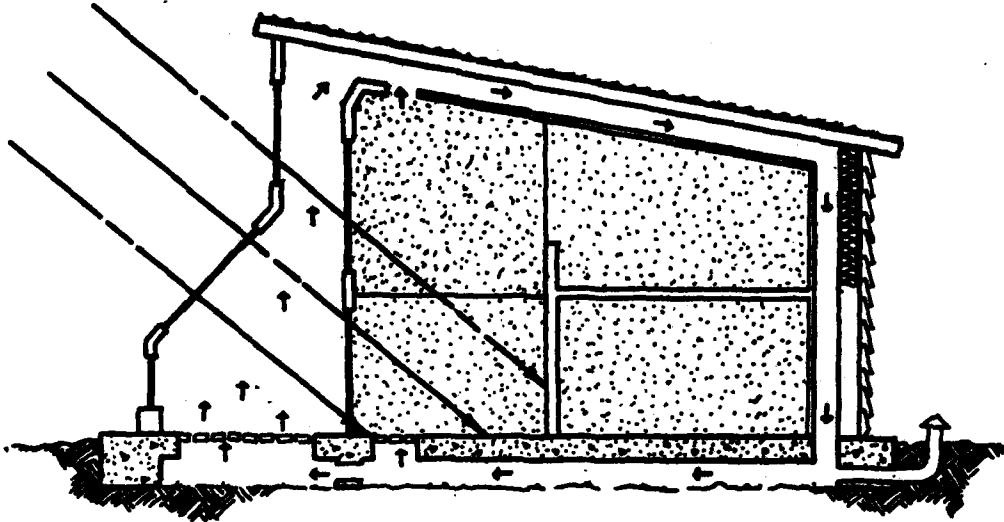


Figure 2.7. Thermosiphon

There is a fine distinction between these groupings of passive solar climate control techniques. For example, authors such as Mazria include attached greenhouses as an indirect gain rather than an isolated gain technique. Another difficulty involved in classification often encountered is that these systems may be combined in a given structure. This makes distinctions complicated and sometimes impractical. The evaluation of capital system performance is very complex in this situation.

Employing Passive Solar Concepts

Consideration

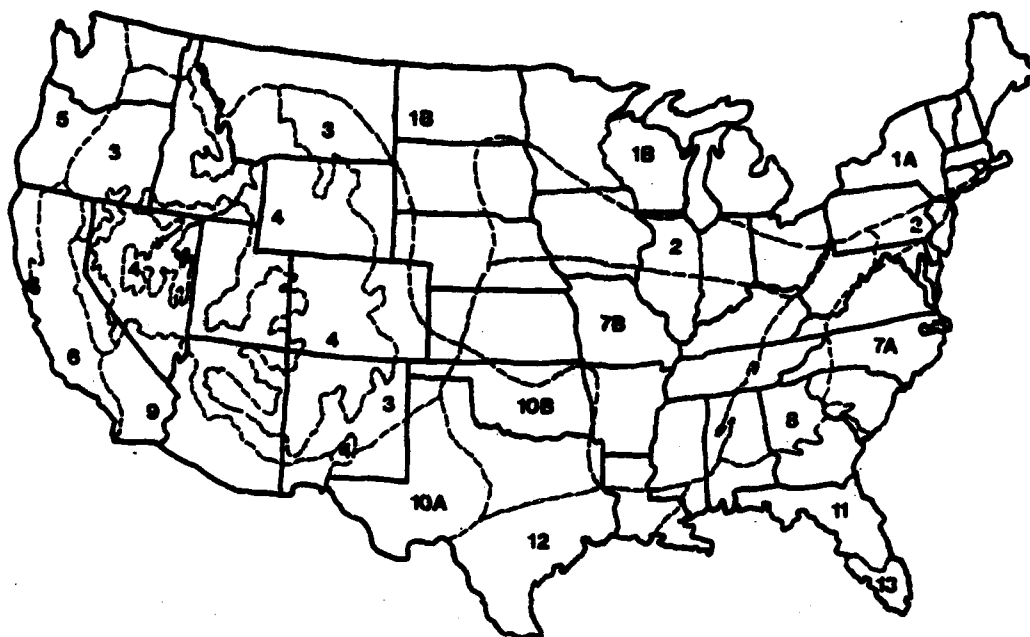
There are many factors involved in the consideration of solar energy applications. In fact, the complexity of

this analysis has perhaps been the primary reason passive solar energy techniques have been largely overlooked by builders and architects (Mazria, 1979). One factor of particular importance is climate. The treatment of climate can be divided into two areas: macro and micro (AIA, 1978).

Macro climate conditions. Macro climatic conditions, as the name implies, pertains to climatic conditions that apply to broad regions. Consequently, most areas which may be of interest can be classified in a generalized region. There are several means of classifying these regions for use in passive solar design found in the literature. The three predominantly used methods will be presented.

1. AIA regional guidelines for building passive energy homes. In this particular approach, the AIA subdivided the continental United States into 13 distinct climatic regions (Scofield, 1980), as shown in Figure 2.8. The divisions seemed to be based on somewhat of a subjective basis. However, a primary strength in their methodology was the naming of particular regions according to the architectural feature most advantageous in that area. For instance, if a region is biased toward a certain passive technique, it is so stated.

2. Traditional climatic regions. The most widely accepted regional climatic subdivision of the United States is presented in the Department of Energy's publication,



Reference cities:

- 1A Hartford, Conn.
- 1B Madison, Wis.
- 2 Indianapolis, Ind.
- 3 Salt Lake City, Utah
- 4 Ely, Nev.
- 5 Medford, Ore.
- 6 Fresno, Calif.
- 7A Charleston, S.C.

- 7B Little Rock, Ark.
- 8 Knoxville, Tenn.
- 9 Phoenix, Ariz.
- 10 Midland, Tex.
- 10 Fort Worth, Tex.
- 11 New Orleans, La.
- 12 Houston, Tex.
- 13 Miami, Fla.

Figure 2.8. AIA climatic regions

Options for Passive Energy Conservation in Site Design

(DOE, 1978), as shown in Figure 2.9. The country is broken down into four climatic regions: cool, temperate, hot-humid, and hot-arid. The four major subdivisions are important because they take into consideration the humidity of the region as well as its average temperature and solar radiation characteristics. A slight variation of this subdivision is presented by Lumsdaine and Lumsdaine (1981) where they further break down the temperate zone into Pacific Coast and East Coast.

3. Degree-day climatic regions. The division of the climate into five different regions is based on the average

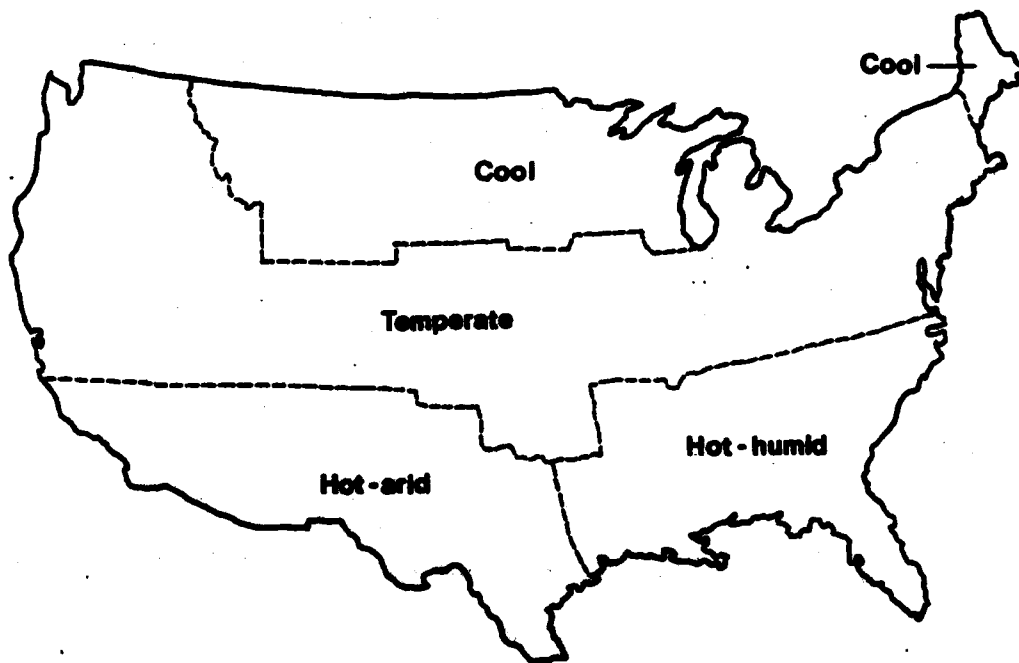


Figure 2.9. Traditional climatic regions

number of heating degree days per month (Carr, 1981), as shown in Figure 2.10. The degree day is based on the fact that the heating requirements of a space kept at approximately 70° F is directly proportional to the number of degrees the average daily outside temperature falls below 65° F (Mazria, 1979). The actual division of these regions is somewhat arbitrary since it is based on 1000 degree-day increments and does not take any other variables into consideration.

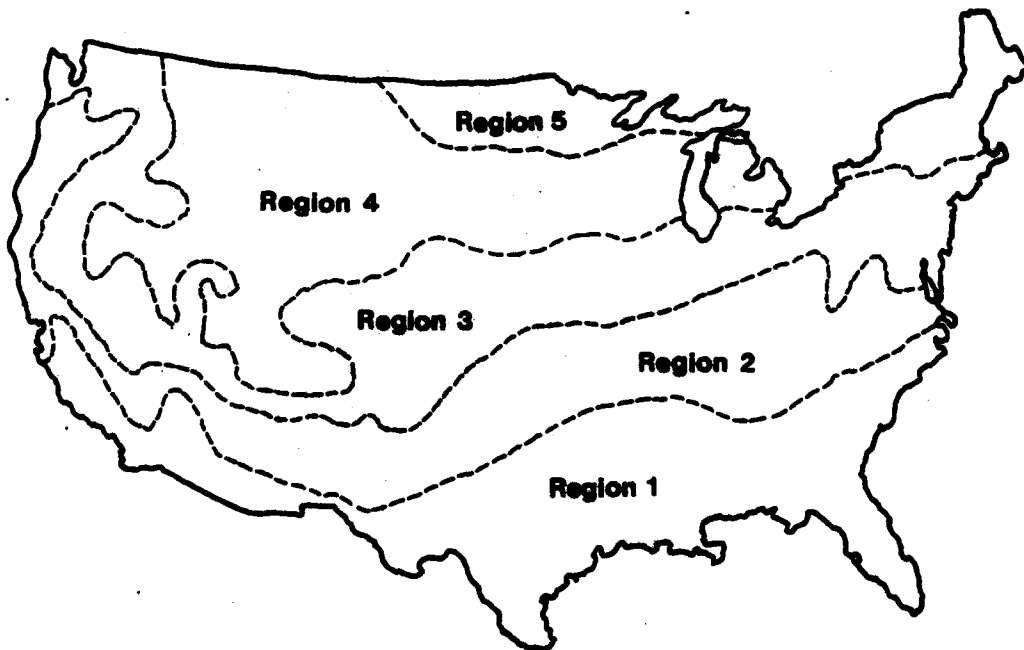


Figure 2.10. Degree-day climatic regions

In addition to the generalized climatic conditions discussed above, the identification of prevailing winter winds is critical in passive solar design (DOE, 1978). As a

general rule, the predominate orientation of the prevailing winter winds in the United States is from the North-Northwest (Mazria, 1979).

Micro climate conditions. Local micro climates can vary considerably from official data published by weather services (Lumsdaine & Lumsdaine, 1982). Since much of their data is used to formulate the macro climatic regions, it is necessary to carefully consider local conditions. Specific items of interest are deviations from the generalized climate zone due to topography, vegetation, water bodies, and peculiar site limitations (DOE, 1978).

1. Topography. During the solar day, the period between 0900 and 1500, the topography has a substantial effect on the climate (DOE, 1978). This is because the sun delivers different quantities of radiant energy to sloping ground and flat ground. These effects can be summarized by the following:

- a. Southeast slope: most desirable;
- b. South slope: preferred, warm winter, early spring, and late fall;
- c. East slope: acceptable, warm winter mornings, and cool summer evenings;
- d. West slope: undesirable, hottest summer slope;
- e. North slope: least desirable, coldest in winter (Olgyay, 1963, pp. 49-50).

These effects are substantially increased with the increasing of the degree of steepness (Olgay, 1963).

2. Vegetation. The use of vegetation in conjunction with facility design impacts the amount of radiation absorbed by the structure. If properly oriented, this vegetation can block direct solar radiation and reduce the heating load on building surfaces (DOE, 1978). Careful consideration of the type of vegetation used will enable the designer to complement the passive solar design. Some general characteristics of vegetation are:

a. Evergreens: reduces light penetration to 8 percent (Hastings & Crenshaw, 1977).

b. Deciduous: reduces light penetration from 51 percent to 4 percent. Also careful use in the temperate and cool climates will take advantage of the summer shading effect along with the reduced winter shade (Hastings & Crenshaw, 1977).

c. Shrubs and ground cover: reduces temperature due to absorption and evaporation. Grass surfaces have been measured to be 10 to 14 degrees cooler than exposed soil (Olgay, 1963, p. 51).

Aside from blocking the sun's radiation, vegetation can provide effective wind screens and reduce the severity of the prevailing winter winds (DOE, 1978).

3. Water bodies.

Water bodies store more insulated solar energy and radiate less energy than surrounding land masses. Proximity to water bodies has been found to moderate temperature extremes of adjacent land forms by raising winter temperature and lowering summer temperature. (Olgay, 1963, p. 51)

4. Peculiar site limitations. There are many factors peculiar to a particular site, such as access roads and neighboring structures, which must be taken into account when using passive solar design (Lumsdaine & Lumsdaine, 1982). Ultimately there is no escape from carefully determining all constraints of a particular building site.

Building Shape and Orientation

When using passive solar design techniques the building shape and orientation have a great impact on the efficiency of the system (Olgay, 1963).

Building shape. When passive solar energy is used the optimum shape of the building is one which minimizes heat loss (Mazria, 1979; Olgay, 1963). The literature seems to be in agreement, with one notable exception, that the following conclusions are true of building shape in any climate.

1. The square house is not the optimum form in any location.

2. All shapes elongated on the north-south axis work both in winter and summer with less efficiency than the square one.

3. The optimum shape lies in every case in a form elongated somewhere along the east-west axis (Mazria, 1979, pp. 80,82).

The one notable exception is in the book Energy Conservation in Building Design by the AIA Research Corporation. This book states that the ideal building shape is the spherical or round building since it has the least surface; therefore, the least heat gain and heat loss. The authors further state, that since a square building has less surface area than a rectangular building, with the same floor area, it is more efficient (AIA, 1974). It is apparent that for this to be true that all surfaces of the building must have equal heat loss/gain characteristics, which is virtually never true and can be modified to exploit the natural radiation pattern of the sun (Mazria, 1979).

Orientation. In the Northern hemisphere, the north and west elevations are exposed to the most wind. Consequently, the entrances and other openings should be positioned away from the prevailing wind direction (AIA, 1974). The southern exposures receive the most sunlight, followed by the east, west and north respectively. Even if the principle exposure of the building is as much as 25° away from the south it will intercept over 90 percent of the radiation had it been located due south (Mazria, 1979).

Air Force Application of
Passive Solar Design

Federal Legislation

Section 804 of the Military Construction Act of 1979 (P.L. 95-356, September 8, 1978) required solar energy application to be considered for cost economy in all new military family housing during the design phase. In November of 1979, Section 2688(a) to Title 10 of the United States Code further generalized this requirement to cover all new military construction. This section specifically stipulated that "construction contracts must require that solar systems be installed where cost effective" (GAO, 1982).

The term "cost effective" was then elaborated in Section 2688(b). This section directed the use of life-cycle costing for the purpose of establishing the cost-effectiveness of a given solar system.

An August 1982 report by the General Accounting Office (GAO) investigating the Department of Defense's adherence to the Military Construction Act concluded that more emphasis should be placed on the use of passive solar designs in new military construction. According to the report, only 232 housing units out of the 4,500 slated for construction in fiscal years 1981 and 1982 were planned to incorporate passive solar features.

The report went on to point out that the Air Force in particular had set a policy "precluding the consideration of the more sophisticated passive solar designs" (GAO, 1982, p. 7). The reasoning behind the Air Force guidance was purportedly that these designs had not yet been proven economically prudent despite evidence to the contrary supplied by the Department of Energy (DOE) prior to the establishment of the Air Force policy.

According to DOE (GAO, 1982), these features in question had been shown to offset 30 to 80 percent of conventional energy requirements. These studies, however, did not use life-cycle costing in their evaluation which may have been a contributing factor to the Air Force's position.

Recent Air Force Guidance

Engineering Technical Letter (ETL) 82-5 entitled "Solar Applications," dated 10 November 1982 has been distributed to the Air Force Major Commands by Headquarters Air Force (see Appendix A). This document outlines the Air Force's current initiatives towards implementing passive solar technology.

The letter specifies that the life-cost analysis procedure outlined in the National Bureau of Standards (NBS) Handbook 135 Life Cycle Cost Manual for Federal Energy Management Program will be used in economic analysis. A period of 25 years or the expected life of the building,

whichever is less, is to be the base for the cost analysis. Rate of growth tables provided by DOE are to be used to calculate future fossil fuels cost for comparison. A 7 percent per year discount rate was established and, lastly, a 10 percent overall cost reduction for the solar system was allowed as an investment cost credit.

Normal versus unique. Passive solar applications are separated into two categories by the Air Force--"normal" and "unique." Normal applications, according to the ETL, are considered to be such general design considerations as building location, shape, and orientation. It also includes lighting, recessed entry ways, window location, shades, insulation and overhangs. No special cost justification is required under normal circumstances to implement these specifications. In fact, they are stated as being part of any good design.

On the other hand, using unique passive solar designs does require justification through life-cycle cost analysis. Unique systems in this context refer to any passive solar application designed to heat, cool, or light a structure. Specific examples would include the direct, indirect, and isolated approaches discussed earlier in this chapter.

Two subsequent Engineering Technical Letters distributed by Headquarters Air Force further delimited the interpretation of normal and unique applications. The 82-7

letter entitled "Unique Passive Solar Applications," dated 30 November 1982, briefly described the current passive techniques and discussed their advantages and disadvantages (see Appendix B). Normal passive solar applications were outlined in the 82-6 ETL dated 30 December 1982 (see Appendix C).

Procedure for economic evaluation. The Major Commands are required to perform the preliminary cost analysis on any proposed employment of unique passive designs as outlined in ETL 82-5. Approved designs are then forwarded to Air Force Engineering and Services Center for their coordination. Upon acceptance of the design, the applied passive system or systems will be engineered to the 35 percent stage by the design Architect/Engineer (AE) for further scrutiny. Finally, if the passive design still displays an economic advantage over conventional designs it will be approved for implementation.

All unique passive design applications must provide at least 25 percent of the required space heating or cooling, or at least 25 percent of necessary lighting in order to be considered according to ETL 82-5.

Further Discussion

There have been several methods recently developed which are commercially available for evaluating the economic potential of the specific passive techniques.

The following chapter will explore four levels of analysis methods concentrating on those applicable to Air Force requirements.

CHAPTER III

PASSIVE SYSTEM DESIGN AND SIZING METHODS

Since designers and builders have become aware of the advantages of using passive means of supplying energy to facilities, there have been numerous efforts to develop quantitative design tools. As a result of these efforts there are a number of methods, of varying complexity, presently available to the design engineer. The purpose of this section is to briefly outline these methods and to focus on those which are beneficial to the preliminary planning stages of Air Force facility construction.

The various methods available for passive system design and sizing can be discussed by dividing them into four levels, as in the Solar Design Workbook (SDW), dated June 1981, No. SERI/SP-62-308. The levels are based on the degree of complexity of the different methods with Level 1 being the most complex and Level 4 the least complex, as shown in Table 3.1.

Design Tool Levels

Level 1: Detailed Hourly Simulation

This level is the most complex; however, it is also the most flexible. These methods use detailed hourly computer

Table 3.1

Design and Analysis Categories

Level I: DETAILED HOURLY SIMULATIONS

DEROB (Univ. of Texas, Austin)
BLAST (LBL, CERL)
DOE 2.1 (LASL, LBL)
TRNSYS (Univ. of Wisconsin)
UWENSOL (Univ. of Washington)
UWLIGHT (Univ. of Washington)

Level II: SIMPLIFIED SIMULATIONS AND CORRELATIONS

SUNCAT (NCAT)
SOLAR V (UCLA)
Parts of DEROB (Univ. of Texas)
SLR

Level III: AUTOMATED HAND METHODS

TEA-NET (Total Environment Action)
PEG-FIX, PEG-FLOAT (Princeton Energy Group)
SEEC VI (Solar Environmental Engineering Corp.)
SOLARCON (Solarcon)

Level IV: MANUAL METHODS

Solar Load Ratio Method (LASL)
Load Collector Ratio Method (LASL)
Rules of Thumb (LASL)
Thermal Inertia Method (Univ. of Texas, Austin)

simulation programs. Also, these design packages require the use of large computer main frames and fairly large amounts of computer time, on the order of 1/50 the amount of the time being simulated (SERI, 1981). However, these programs can be used on a wide variety of design techniques. This great degree of flexibility can be extremely helpful when assessing innovative and combined passive solar techniques. During analysis, various parameters can be varied so that sensitivity analyses can be performed. These methods are the most valuable when nearly all the design information is available and in detailed form. This is due to the precise inputs that must be provided for the programs to generate the desired output. Some applications to these programs are listed below:

1. Generate design indicators, guidelines, and rules of thumb for the early stages of design;
2. Generate simplified methods which do not require large computers;
3. Verify independently developed simplified methods;
4. Design and analyze innovative designs, repetitive building units, or large buildings;
5. Generate Building Energy Performance Standards (BEPS);
6. Generate guidelines for the equitable administration of credits and incentives;

7. Plan long-term government policy;
8. Prove compliance with BEPS (SERI, 1981, p. 9-3).

Level 2: Microcomputer Methods

In light of the tremendous advances in the small computer field, efforts are under way to develop simulation packages that can be adopted to these smaller computers. The National Center for Appropriate Technology (NCAT) has begun work to adopt the computer program, SUNCAT, to the microcomputer level (SERI, 1981). Other efforts have been undertaken to put the Solar Load Ratio (SLR) method into a software package for the microcomputer as well. It probably can be expected that in time even the most sophisticated simulation package will be available for the microcomputer.

Level 3: Programmable Calculator

The step down from computer simulation represents a significant restriction on the design capabilities of the following two levels. Since the programmable calculator methods largely represent automated manual methods, they also require the same limiting assumptions. Many complex and innovative designs cannot be evaluated using the programmable calculator methods, as they will fall outside of the assumptions. Often even simple designs when using combined passive solar techniques are beyond the flexibility of these simplified methods. However, for those designs

within the necessary assumptions the automated versions are faster and easier to use.

Level 4: Manual Methods

Manual methods are most useful for rules of thumb, design indicators, and guidelines which can be summarized in a few pages of graphs, charts, or monograms. (SERI, 1981, p. 9-4)

The important factor regarding these methods is that they must retain their goal of simplicity because as soon as they become lengthy or repetitive, they lose their utility by discouraging the analysis of many design alternatives. These manual methods are very good when relatively little is known about the final design. Hence, these strengths are in their applicability to the early stages of design and programming (SERI, 1981). These methods include three in particular: (1) Solar Load Ratio method, (2) Load Collector Ratio method, and (3) Rules of Thumb method.

Solar Load Ratio method (SLR). The Solar Load Ratio method for passive solar design analysis is at the upper end of the complexity for a manual method. However, the SLR method retains much flexibility and generality where even simpler manual methods require many more limiting assumptions. Since the SLR method of analysis is reasonably accurate and requires fairly detailed building design parameters, it is recommended to be used during the construction documents phase of facility design. In

comparison to the simpler manual methods which provide single annual estimates of the net reference load, the solar savings, and the auxiliary heat required, the SLR method provides monthly evaluations. These monthly calculations provide a means of accounting for the following:

1. Any effect which modifies the monthly profile of the solar input (such as shading);
2. The effect of thermostat setting;
3. The effect of internal heat generation (Balcomb et al., 1980, p. 133).

Load Collector Ratio method (LCR). A great deal of simplification in design analysis is achieved when the Load Collector Ratio method assumptions can be met. The LCR method offers a means of calculating the annual auxiliary heating requirement. By assuming that the solar aperture is facing directly south and using the reference solar systems, for which data has been tabulated, the auxiliary heat requirement can be calculated straightforwardly. The simple three-step process is listed in Volume 3 of the Passive Solar Design Handbook as follows:

1. Obtain building information
 - a. Building Load Coefficient, (BLC)
 - b. Projected area of solar aperture, (A_p)
 - c. Load Collector Ratio, $LCR = \frac{BLC}{A_p}$

2. Use tables from Passive Solar Design Handbook

- a. Refer to desired city
- b. Refer to desired reference design
- c. Determine the annual SSF by interpolation
- d. Note the annual heating degree days, DD

3. Calculate the annual auxiliary heat,

$Q = (1.0 - \text{SSF}) \times \text{BLC} \times \text{DD}$ (Jones, Balcomb, Kosiewicz, Lazarus, McFarland, & Wray, 1983, p. 8).

Sensitivity of the SLR and LCR methods. The monthly and annual performance calculations, the SLR and LCR methods, are based on empirical data from computer simulation using specific reference designs (Jones et al., 1983). The SLR method allows some flexibility in the choice of some design parameters; however, not enough to cover all design options that may be encountered. The LCR method does not allow departure at all from the reference designs (Jones et al., 1983). If alternative designs are to be considered, careful use of the sensitivity data presented in Volumes 2 and 3 of the Passive Solar Design Handbook should be used.

There are two major applications of the sensitivity analysis. The first is quantitative and is used in the final design stage. In this case, an analysis is performed selecting the reference design that most nearly resembles the actual design (Jones et al., 1983). The second

application is qualitative in which the data serves as a guide in varying certain design parameters.

Rules of Thumb method. In the initial planning stages very little can be known about the details of a facility design. Because of the lack of definitive design details the SLR and LCR methods are inappropriate at this phase. So a number of "Rules of Thumb" have been derived to assist in the schematic, or planning stage, of facility design. Two necessary passive design parameters are initially sized using these rules of thumb. These parameters are the area of the vertical projection of the solar aperture and the amount of thermal mass required for heat storage.

The first rule is:

A solar collector area of (R1) percent to (R2) percent of the floor area can be expected to reduce the annual heating load of a building in (location) by (S1) percent to (S2) percent, or if R9 night insulation is used, by (S3) percent to (S4) percent. Where the values for R1, R2, S1, S2, S3, and S4 for different United States and Canadian cities are tabulated in Appendix D. (Balcomb et al., 1980, p. 20)

The second rule is:

A thermal storage mass of 0.6 x SSF pounds of water or 3.0 x SSF pounds of masonry is recommended for each square foot of south glazing, where SSF is the desired solar savings fraction (in percent). This will be adequate storage providing the following assumptions are met:

1. The mass is within the direct gain space or encloses the direct gain space;
2. The mass is not insulated from the space;
3. The mass has an exposed surface area equal to at least three times the glazed area;

4. If the mass required is located completely out of the sun, then it should be increased by a factor of four (e.g., additional interior mass required for a Trombe wall system). (Balcomb et al., 1980, p. 25)

Air Force Evaluation method. The method used for analysis of passive solar heating in Air Force facilities is outlined in ETL 82-5. This procedure is intended for use in the preliminary or schematic design stages. It is a combination of the "Rules of Thumb" and the LCR methods.

Simply stated, the building parameters required to perform the LCR analysis are estimated using the "Rules of Thumb," then they are used to directly compute the annual solar contribution of the passive system. This is done in the following four steps:

1. Compute the amount of glazing required using the appropriate rule of thumb;
2. Compute the amount of thermal storage mass required using the appropriate rule of thumb;
3. Compute the annual heating consumption (AHC) using the equation:

$$(AHC) = (SF) (SFBLC) (DD)$$

where: SF = building square feet floor area,

SFBLC = building loss coefficient per square foot floor area, and

DD = annual heating degree days.

4. Compute the annual solar contribution (ASC) using the equation:

$$(ASC) = (SSF) (AS) (SFBLC) (SF) (DD)$$

where: SSF = desired solar savings fraction, and

AS = percent of floor area served by the solar system.

The last equation is a rearrangement of the LCR equation used to compute the annual auxiliary heating requirement. Given the results from the above computations, the designer/planner can begin a life cycle cost (LCC) comparison. The results of the LCC analysis can be used to judge whether the passive solar heating is cost effective.

CHAPTER IV

METHODOLOGY

The methodology employed in this report consists of two phases. This phase will informally assess the current Air Force building designer's knowledge and understanding of passive solar techniques and related Air Force policy. The second phase will be the development of a design tool to simplify application of Air Force policy on the use of passive solar energy in future construction.

Assessment

Despite the existence of detailed guidance, very little passive solar design is being implemented in new Air Force-owned construction at present. Numerous possible explanations for this exist, and to facilitate the implementation process, more information was necessary as to which factors were predominantly responsible. A phone survey was chosen as the assessment tool for the following reasons: (1) a quick response time was desired, (2) the complexity of the questions required direct contact with the respondent, (3) the organizational position of the individual contacted varied with the base selected (making a mailed survey difficult), and (4) responses were desired from several Major Commands and climate regions.

The questions to be presented in the survey (shown in Figure 4.1) were grouped into five basic areas, and a decision flowchart was developed as a logic aid to simplify the interview process. Before beginning an actual interview, it was first necessary to identify and locate the appropriate base design representative who would be involved in construction design.

The first set of questions established whether the respondent worked primarily with new construction, renovation of existing structures, or both. If the individual contacted did not affirm one of these categories, another respondent was solicited.

The second group of questions was aimed at finding out the respondent's degree of awareness regarding passive solar energy design techniques. One important step here included determining the respondent's own perceived distinction between active and passive solar principles.

The next questionnaire section dealt with the familiarity with Air Force guidance in the area of passive solar design. Information was requested on their knowledge of normal versus unique passive systems as well as the use of life-cycle costing in economic analysis.

The degree the respondent has been involved in solar energy application justification in the past is asked in the fourth series of questions. This includes both active and passive designs since the justification process in

1. Area of construction design:
 - a. New construction
 - b. Renovation
 - c. Both

2. Knowledge and understanding of passive solar systems:
 - a. Very familiar
 - b. Familiar
 - c. Unfamiliar

3. Knowledge and understanding of Air Force solar design guidance:
 - a. Familiar
 - b. Unfamiliar

4. Prior involvement with solar application justification:
 - a. Active only
 - b. Passive only
 - c. Both
 - d. None

5. Cost effectiveness assessment for local area:
 - a. Cost effective
 - b. Not cost effective
 - c. Uncertain

Figure 4.1. Survey questions

these two instances is similar. Finally, the success rate of any attempted justifications is determined.

The last group of questions deals with the interviewee's attitudes and opinions on passive solar application, both in their particular area and the Air Force as a whole. Topical areas include: cost effectiveness; best techniques; likelihood and degree of difficulty of justifying a passive solar design application.

The questions were not necessarily to be asked in total each time, depending on previous responses. This strategy is laid out in the flowchart shown in Figure 4.2.

A cross-sectional response sample was preferred, so an objective criterion-based method was needed for selection of target installations. A sample size of 14 was chosen to promote statistical significance. Also, only bases located in the Continental United States were considered.

To avoid data domination from a particular Major Command, the 14 bases were to be selected from the following six: (1) Air Training Command (ATC), (2) Strategic Air Command (SAC), (3) Military Airlift Command (MAC), (4) Tactical Air Command (TAC), (5) Air Force Logistics Command (AFLC), and (6) Air Force Systems Command (AFSC).

Another criteria was at least two installations were to be selected from each of the four climatic zones

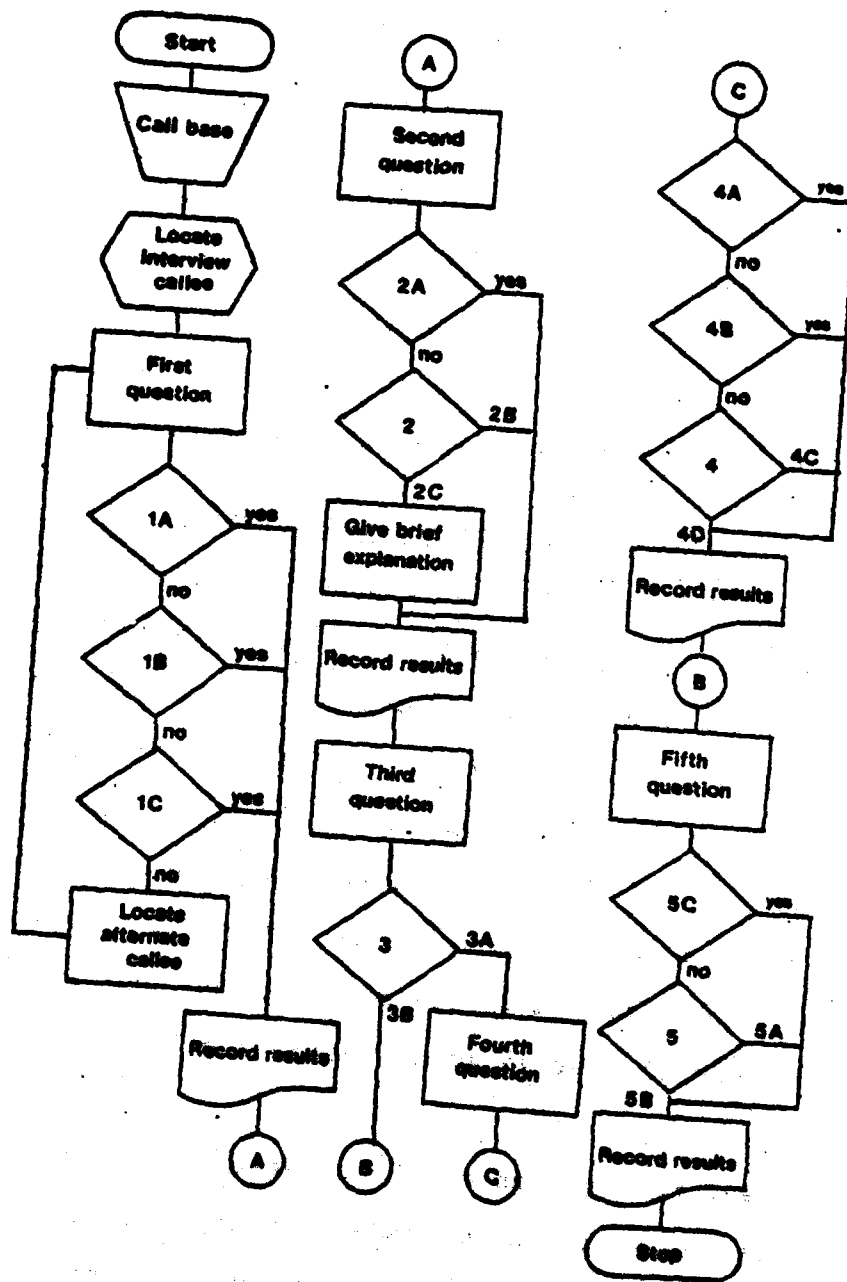


Figure 4.2. Flowchart of question sequence

specified in Chapter II. This would help to ensure against biasing the sample for or against a particular solar application.

The last criteria to be used in the installation selection process was not more than half the bases could be Major Command Headquarters. A relatively even mix in this respect was desired to contrast results between bases hosting a Headquarters and those which do not. The final distribution of selected bases is shown in Figure 4.3.

Design Simplification Development

The simplified manual method specified in ETL 82-5 and discussed in the previous chapter establishes a procedure for justifying the incorporation of passive solar design in Air Force construction. For preliminary design work, all the information required to properly analyze passive options may not be practically available. Also, although still a Level 4 method, the presented analysis is lengthy, time-consuming, and requires the user to have a good background in passive solar design and life-cycle costing.

For these reasons, an easily understandable graphical tool with as few steps as possible is needed for the designer in the early phases of construction planning. With such a graphical technique, the probability and applicability

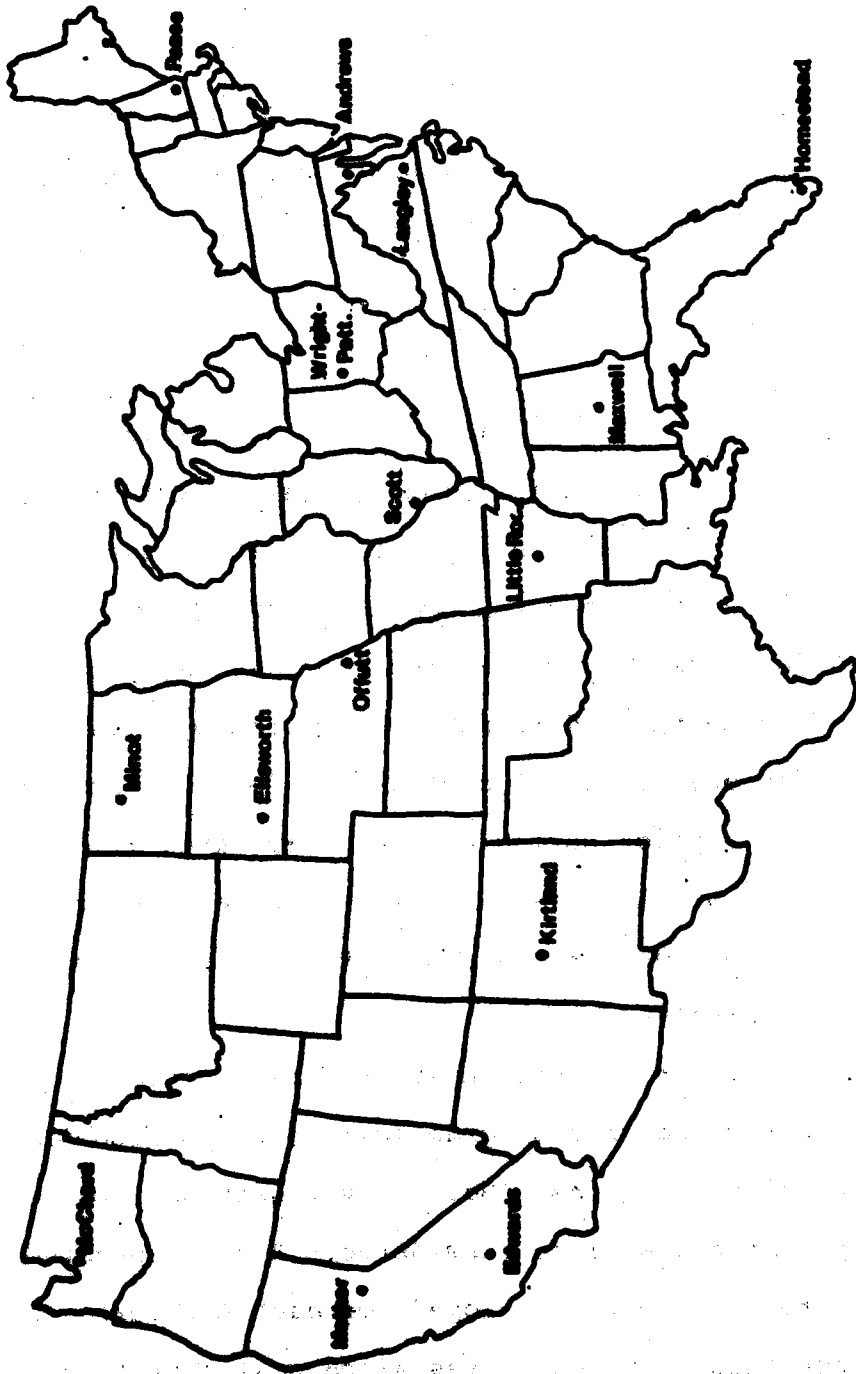


Figure 4.3. Locations of surveyed bases

of justifying the use of passive systems in the proposed project can be determined prior to full facility design.

The graphical analysis tool will be based directly on the procedures established in the Passive Solar Design Handbook, Volume 2, while following the general outline of ETL 82-5.

Approach

The process of evaluating whether a passive solar application for a given building is cost effective can be generalized into three distinct steps. The first required operation is determining the amount of energy which is expected to be saved by employing the passive system. Finding the incremental additional cost of the passive system over conventional building cost is the second step. Finally, the payback period must be calculated given the type and cost of fuel used. If the computed payback period is less than or equal to 25 years, the building can be constructed passively.

The remainder of this paper will be devoted to the generation and analysis of graphical tools to accomplish these three computations. Both direct gain and Trombe wall applications will be considered. Also, separate decision tools will be developed for each Air Force base in the contiguous United States since design criteria vary by location.

Energy saved. The key initial step set up in ETL 82-5 for analysis of passive designs is to establish the square feet of floor area of the building under consideration and estimate the percentage of the area served by the solar system. This last term refers to the percentage of floor area available for thermal storage or receiving solar radiation.

A table with these two indices could be developed listing the energy savings from the given solar heating systems for each configuration. Following the format of the Passive Solar Design Handbook, energy units will be in million BTUs per year (MBTU/yr).

Several variables are involved in calculating the energy savings for each combination of building square feet and percent building served. These include: the range of building sizes in square feet, the heating degree days for the target location, the percent of glazing area used, the available solar savings fraction for the target location, and the properties of the thermal storage materials used.

Square foot ranges for several eligible building types extracted from AFR 86-2 are shown in Table 4.1. From these area distributions the analysis range of 2,000 square feet to 30,000 square feet was selected. The range was broken down into 2,000 square foot increments for analysis purposes. In addition, a maximum length to width ratio of

Table 4.1
Facility Floor Area Ranges

Facility	Floor Area Range
Arts and Crafts	1,600 - 31,900
Auto Hobby Shop	1,500 - 30,000
Airman's Club	6,750 - 61,900
NCO Club	4,400 - 113,100
Officer's Club	4,400 - 64,500
Exchange	500 - 50,000
Credit Union	800 - 13,800
Bank	1,500 - 13,000
Chapel	6,500 - 13,300
Religious Education	3,855 - 28,215
Education Center	4,125 - 40,500
Dining Hall	3,479 - 14,493
Squadron Operations	4,800 - 12,900

1:6 was set to limit the percent of building served values to practical levels. The percentage of building served ranged from 10 to 100 in 10 percent increments.

Rules of thumb for determining the percent of south glazing are presented in Volume 2 of the Passive Solar Design Handbook for various cities in the United States. An upper and lower percent glazing figure is listed for each case. Both the upper and lower limits have corresponding solar savings fractions for each reference location with and without the use of night insulation. These figures were transposed to a list of 87 Air Force bases

and operating locations in the Continental United States using the closest reference city. This is presented in Appendix E.

Values for annual heating degree days relating to the closest reference city to each of the 87 bases were also extracted from Table D-1 of Volume 2 of the Passive Solar Design Handbook and are included in Appendix D of this thesis. The amount of energy per year supplied by the solar system can then be calculated for each configuration and base using equations presented in the Handbook as follows:

1. Calculate the building's annual heating consumption.

$$(AHC) = (SF) (SFBLC) (DD)$$

where: AHC = annual heating consumption,

SF = building square feet,

SFBLC = square foot building loss coefficient, and

DD = annual heating degree days.

2. Calculate the annual solar savings.

$$(ASC) = (AHC) (AREASERVED) (SSF)$$

where: ASC = annual solar savings, and

SSF = solar savings fraction.

The square foot building load coefficient (SFBLC) used in equation 1 has the units of BTU/HDD-FT². Differing values for the "building budget" as it is called appear in ETL 82-5 and range from 6 to 12. For the purposes of

this project, an assumed value of nine, the arithmetic mean, was chosen as a representative figure.

System cost differential. The next major operation is to determine the difference in cost between the proposed building constructed conventionally and with passive solar features for each combination of square footage and percent service. To do this, reference designs had to be established for building materials.

1. Conventional systems. Systems were chosen for exterior walls, interior wall partitions and floors corresponding to typical Air Force construction practices. Three exterior wall systems of differing materials and cost were selected to avoid favoring any single system. The first of these was comprised of four-inch brick veneer supported by 3-5/8-inch metal studs. The stud portion is insulated with 3-1/2-inch fiberglass to accommodate the ETL 82-5 guidance specifying R-11 walls for conventional construction. Gypsum board was used for interior finish as shown in Figure 4.4.

The second exterior wall system was a split face concrete block, four-inch thick exterior, with R-11 wall insulation and gypsum board interior finish. This system is diagrammed in Figure 4.5.

A framed metal siding wall was chosen as the last conventional wall system to be considered in this analysis.

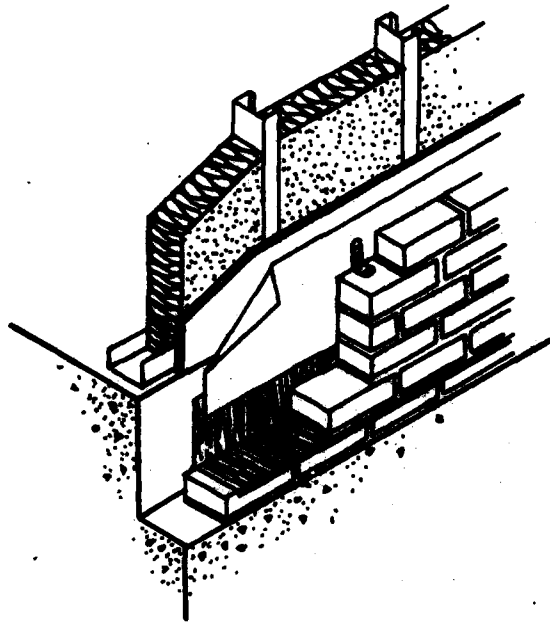


Figure 4.4. Brick veneer/metal stud backup

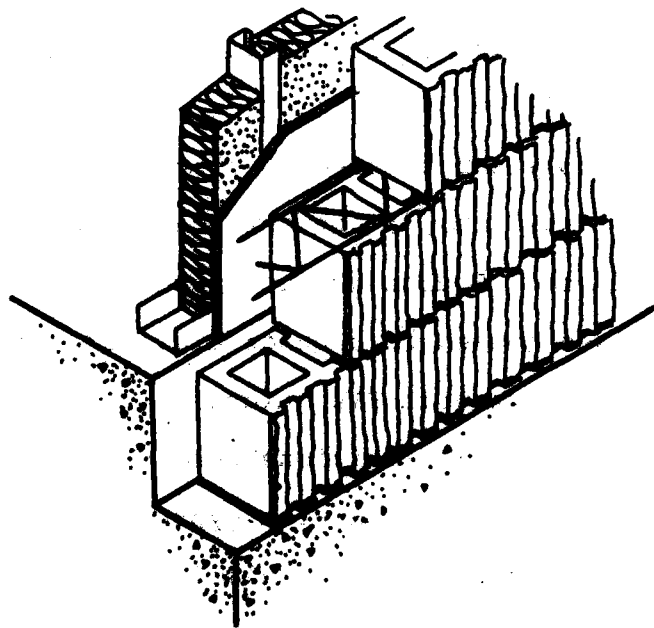


Figure 4.5. Split face block

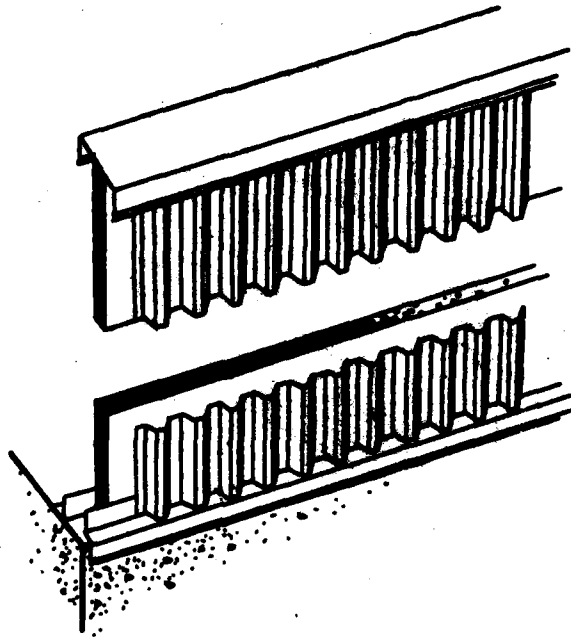


Figure 4.6. Framed metal siding wall

This system is shown in Figure 4.6, and incorporates R-5 board insulation which is a deviation from the R-11 value specified in ETL 82-5.

Since windows are assumed to comprise 10 percent of south wall surface area, a conventional window system had to be established. Double glazed insulated glass of 1/8-inch-thick glass housed in tubular aluminum framing was chosen in accordance with ETL guidance.

The interior wall partitions were chosen to be 3-5/8-inch metal stud construction with gypsum board exterior facing on both surfaces. No insulation was used in this case.

A four-inch thick reinforced light industrial concrete slab on grade was selected as the conventional floor system. This is consistent with typical construction and simplifies the expanding of the analysis to multiple levels if required.

2. Passive systems materials. Separate assumed material systems were required for direct gain and Trombe wall analysis. The constituents of the direct gain system include glazing panels, thermal floor storage and thermal wall storage.

A reference glazing system presented in the Means Systems Cost Handbook was used. This panel arrangement has a set glazing height of six feet, eight inches, and uses double glazing with 1/4-inch thick panes.

Four-inch thick reinforced solid concrete block was picked for the reference thermal storage wall in this case. The four-inch thickness was judged to be sufficient due to the minimal gain in efficiency with thicker walls compared to their added expense.

No change in floor systems over the conventional case was initially used for the passive applications. Floor storage was expected to be the principle portion of collection media in the direct gain case. For design convenience over the wide range of building sizes, an intermediate Trombe wall thickness of 12 inches was chosen. The wall was to be a solid reinforced concrete block type as shown in Figure 4.7.

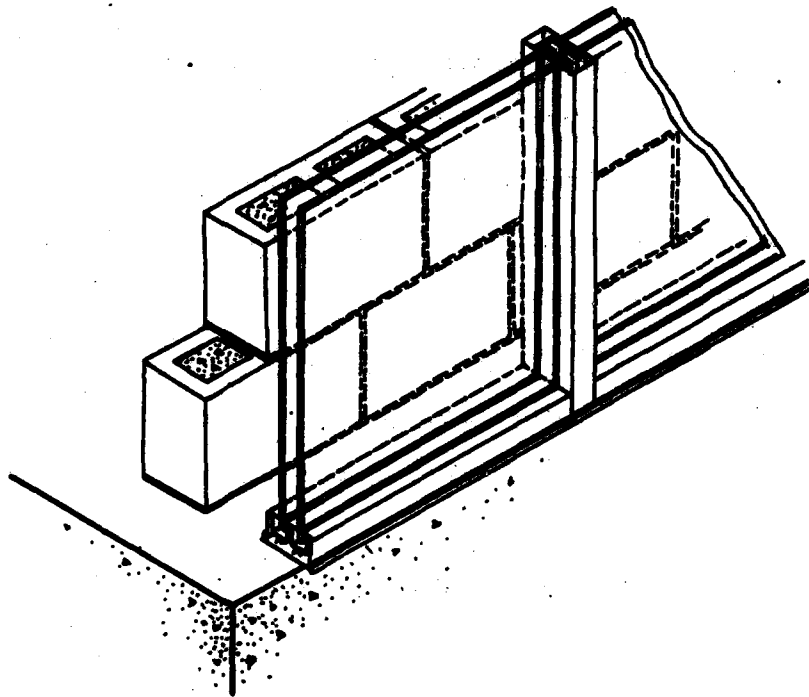


Figure 4.7. Passive solar indirect gain wall

Cost analysis. Cost data per square foot of surface area for all the above reference systems was derived from the 1983 edition of the Means Systems Cost Handbook. Individual systems costs per square foot for both conventional and passive solar systems are shown in Table 4.2. Note that the price for exterior walls has been adjusted to include the cost of windows in 15 percent of the replaced wall area. Additionally, adjustments for price changes as a function of location are also supplied by Means, as shown in Appendix F.

The cost differentials for the particular passive system as compared to the conventional building are then

Table 4.2
Materials Cost

System	Element	Cost per Square Foot
Conventional	Brick wall	\$ 11.17
	Block wall	8.59
	Metal wall	7.82
	Floor	2.69
	Partition	2.02
Direct Gain	Glazing window	\$ 19.16
	Thermal wall	3.39
	Thermal floor	2.69
Indirect Gain	Trombe wall	
	12 inch	\$ 25.72
	8 inch	23.78
	Thermal wall	3.39
	Thermal floor	2.69

computed for each square foot size and increment of percent area served. As in the first chart generation, a maximum length to width ratio of 1:6 was set to restrain the analysis to reasonable design values.

To accomplish this price differential calculation, the quantity of conventional material replaced as well as the quantity of glazing and thermal storage used must be estimated. Again following the Passive Solar Design Handbook method, the first step is to calculate the required glazing area using the tabulated rule of thumb figure. The equation is as follows:

$$(\text{glazing area}) = \frac{(\text{building floor area})(\text{percent served})}{(\text{glazing rule of thumb})}$$

This expression will yield the required glazing surface area in square feet which is also the area of conventional wall to be replaced. The next necessary step is to calculate the total mass of thermal storage as below:

$$(MASS) = (GLAZE) (SSF) (3.0) - (10) (SF)$$

where: MASS = mass of storage material in pounds,

GLAZE = glazing aperture area,

SSF = solar savings fraction, and

SF = building square feet.

Note the 10 pounds thermal mass reduction per square foot of building floor area allowed for furnishing's thermal storage is incorporated in this computation. Next, the total required thermal storage area in square feet is computed by dividing the thermal storage mass by the pounds per square foot of the storage material for a given thickness.

$$(TMASS) = \frac{(MASS)}{(RHO)}$$

where: TMASS = total thermal storage area in square feet, and

RHO = density of material per unit thickness in pounds per square foot.

As a final check, this figure is compared with the scalar quantity of three times the glazing area. The larger of these two numbers will be used.

Now that the total areas for aperture and thermal storage are known along with the prices of materials per square foot, the price of the given passive system and conventional system replaced can be computed for each configuration. The actual cost differentials were obtained by subtracting the cost of the conventional systems replaced from the assumed more expensive passive system. This quantity is the extra cost which must be justified by life-cycle costing.

Life Cycle Costing Analysis

The ETL 82-5 establishes a maximum allowable payback period of 25 years. If the fuel savings can pay for the differential cost computed in the last step in less than 25 years, using the NBS life-cycle costing procedures, it is justifiable. This is obviously very dependent on local fuel prices and on the expected future change in those prices over the next 25 years.

The approach taken in this analysis will be to set the payback period at 25 years, and for the given assumptions, configurations, passive application and location, solve for the required minimum price of fuel. This price will limit how cheap fuel prices must be before the passive design is rejected. Separate analyses will be necessary for each type of fuel due to the different escalated uniform present worth (UPWE) values required in the life-cycle costing equations.

For this calculation phase, additional data elements are needed. First, the estimated conventional heating plant efficiency for the type of fuel under consideration must be specified. ASHRE provides the ranges of efficiency for common fuels as shown in Table 4.3. For the purposes of this paper, the means of these efficiency ranges were used.

Table 4.3
Fuel Efficiencies

Fuel	Efficiency Range	Mean
Electricity	1.0 - 0.9	0.95
Distillate Oil	0.7 - 0.8	0.75
Residual Oil	0.7 - 0.8	0.75
Natural Gas	0.7 - 0.8	0.75
Coal	0.65 - 0.75	0.7

The UPWE conversions based on DOE established escalation rate need also be determined. The Federal Register provides these figures for each of the 10 DOE regions of the country as a function of payback period.

The general form of the NBS life-cycle cost equation is:

$$TLCC = I - S + M + R + E$$

where: TLCC = total life-cycle cost,

I = investment cost,

S = salvage cost,
 M = operations and maintenance cost,
 R = replacement cost, and
 E = energy cost.

In this analysis, the salvage values for both systems are assumed to be zero at the end of 25 years. Also, replacement and operations and maintenance costs will not be considered due to the lack of precise data required for each configuration. The omission of these last two variables will favor the conventional design slightly since less replacement and practically no maintenance is required with the passive designs, while these costs are encountered in conventional systems.

Setting the life-cycle costs of the passive application and the conventional system equal, the following expression is derived:

$$(ACH) (UPWE) (X) / (E) = ((ACH) (1-(SSF)) (AREA SERVED) (UPWE) (X) + (0.9) (SAC)) / (E)$$

where: E = heating plant efficiency in percent,
 SAC = solar add-on cost in dollars, and
 S = 25-year discounted payback break even fuel cost in dollars.

Solving for X:

$$X = \frac{(E) (0.9) (SAC)}{(UPWE) (SSF) (AREASERVED) (ACH)}$$

This computation will show the current price of fuel, per MTBU, that will enable a given passive application to be justified in a given area for a given fuel type. If the current fuel type is cheaper than this figure, the passive design should not be incorporated. The 0.9 figure in the numerator of the above expression represents the allowable 10 percent reduction in capital investment in the form of an incentive cost credit. It should be emphasized here that all costs are evaluated in terms of 1983 dollars.

Computerized Routine

The large number of calculations along with the repetitive nature of the mathematical operations made the use of a computer routine appealing. A generalized, structured program was developed using the FORTRAN 77 language. Three data files were also compiled containing all required input information.

The first data file held information specific to the location of the trial building undergoing analysis. This data included: the name of the installation, the DOE energy region, the annual heating degree days of the nearest reference city, the rule of thumb figures for percent and solar savings fraction, and the appropriate cost correction factors. In addition, the number of floors in the structure was also placed in this file.

The second data file contained information on building construction and material properties. These items included: the square foot building loss coefficient, the storage mass density per unit thickness, and the individual prices of the various possible building systems.

Uniform present worth figures discounted for the 25-year life were listed, by DOE region, in the last data file. The three files, along with the program itself, appear in Appendix G.

Output. The program produces two sets of four matrices. One set records the results when night insulation is not used, and the other one when night insulation is used. The first of the four matrices prints, in tabular form, the annual solar savings, in MBTUs, for each combination of building floor area and percent floor area served. Building floor area, in thousands of square feet, is shown on the vertical axis in 2,000 square foot increments. Percent floor area served figures are listed along the horizontal axis in 10 percent increments.

The second table lists the cost differential for direct gain as compared to the reference conventional system. It is presented in the same format as the preceding table.

The third table displays the cost differential for the Trombe mass application. Again, the identical format is used.

The final table shows the 25-year discounted payback break even fuel cost for each fuel type, per MBTUs delivered. Figures for both the direct gain and the Trombe wall case are listed in this table.

CHAPTER V

ANALYSIS

Assessment

A total of 14 CE organizations at various locations across the Continental United States were contacted. In addition, representatives from each of four Major Commands were also contacted. The results of the surveys are shown in Table 5.1.

Base Level Results

In every case, respondents from the 14 bases signified they were involved with both new construction and renovation projects. The majority of the designers contacted possessed some working knowledge of passive solar energy techniques. Specifically, four were very familiar, seven were familiar and only three claimed no adequate awareness. Two factors were used to separate the very familiar and familiar categories. The first was whether the respondent could distinguish the characteristics of a passive system from that of an active system. The other factor concerned the distinction between normal and unique passive solar applications. Many of the designers were only acquainted with the use of normal passive techniques such as shading and southern orientation.

Table 5.1
Survey Results

Questions	Base Level	Major Command
1A	0	1
1B	0	1
1C	14	2
2A	4	2
2B	7	2
2C	3	0
3A	1	2
3B	13	2
4A	7	1
4B	0	0
4C	1	1
4D	6	2
5A	8	3
5B	2	0
5C	4	1

There was an overwhelming lack of awareness at base level CE organizations regarding Air Force guidance on solar design methodology in general. Thirteen of the fourteen respondents either were not familiar with the recently distributed policy letters, or their bases had not yet received them.

This unfamiliarity with established justification procedures probably related to the limited reported experience of respondents in the unique passive application justification process. In response to the fourth set of questions, one interviewee claimed to have attempted justifying both passive and active solar designs, seven stated attempting to justify strictly active systems, and six claimed they had no experience in the process.

Due to the degree of subjectivity in the fifth set of questions, only results from the section dealing with cost effectiveness assessment were tabulated. The majority of the respondents felt that some passive solar heating or cooling applications had the potential to be cost effective in their area.

Conclusions. Although the before-mentioned survey was not statistically rigorous and was restricted to a relatively small sample size, some reasonably valid observations and conclusions can be drawn. First of all, design engineers need to be made aware of the Air Force ETLs on

passive solar application. A simple nonparametric binomial test was performed on the survey results regarding base level personnel's familiarity with recent Air Force guidance on solar applications in construction. Three major assumptions must be satisfied for this test to be valid: (1) the samples must be chosen randomly, (2) the samples must be independent from each other, and (3) the response data must be nominal (Conover, 1980).

No direct attempt was made to insure the random nature of the selected samples; however, the random assumption in this case is reasonably justified due to the wide cross-section of bases chosen. Each respondent was completely uninfluenced by other interviewees, which upholds the independence assertion. Finally, only responses of familiar or unfamiliar were recorded, so the data can be considered nominal.

In the binomial test, a null hypothesis must first be established. For this situation, the null hypothesis stated that the probability of a respondent being unfamiliar with Air Force solar application guidance is equal to 0.5; or in other words, either response is equally likely.

$$H_0: P(\text{unfamiliar}) = 0.5$$

Accordingly, the alternate hypothesis of interest is the probability of a respondent being unfamiliar with Air Force guidance on the subject is significantly greater than 0.5.

$$H_a : P(\text{unfamiliar}) > 0.5$$

Using Conover's Binomial Distribution Table (1980, p. 437) referring to a sample size of 14, the actual 13 unfamiliar responses correspond to a p value of 0.0001 for a probability of 0.5. With a selected alpha value of 0.01, the null hypothesis is rejected ($0.0001 \ll 0.01$). Therefore, it is concluded that base level designers in the Air Force are generally unfamiliar with the ETLs on solar applications to construction.

Another point which can be gathered from the results is that some method of establishing which technique has possible application for a given design area is needed. Base engineers require more than simply a personal opinion to make a design judgement of this nature.

Major Command Results

Representatives from four randomly selected Major Commands were given the same survey as the 14 sample bases. The individuals contacted were responsible for energy conservation in facility construction, which includes passive design, under the Director for Engineering (DE) in the Major Command. Their input was desired since these individuals would eventually have the responsibility of recommending approval for the integration of passive solar techniques in construction projects.

Unlike the base respondents, only two of the four representatives were involved in both new construction and renovations. One was primarily responsible for new construction projects while the last representative dealt solely with renovation projects.

All the individuals were reasonably knowledgeable about passive solar systems and their design. Only two of the four, however, were ranked very familiar due to their experience.

The most surprising results of this portion of the survey work was only two of the four were familiar with the ETLs on solar applications. This may account for the delay in the ETL's distribution to individual bases.

Two of the respondents had actual prior experience with the justification and approval process for solar applications. One of these had accomplished both active and passive justifications while the other had only dealt with active systems.

Finally, three of the respondents felt there was a definite probability of successful application at their respective bases. Clearly, more attention must be given to passing on and expanding information on passive solar systems design to base activities.

Design Simplification Analysis

The computer program mentioned in Chapter IV was used to generate the annual solar contribution tables, differential costs tables, and the 25-year discounted payback break even fuel price information for each of the 87 Air Force bases in the Continental United States. Both the direct gain and the Trombe wall configurations were analyzed with and without the use of night insulation. A R-9 insulation value was chosen for the night insulation in accordance with Volume 2 Passive Solar Design Handbook guidance. Thermal Technology's insulating curtain wall treatment with an R value range of 9 to 12 was selected for the reference design at a cost of \$10.50 per square foot installed.

For this specific analysis, the low rule of thumb figures for percent glazing and target solar savings fractions were used. This is a conservative approach in that greater feasibility ranges will be possible for combinations of building floor area and percent floor area served by the solar system. Also, the split block conventional wall system was chosen for the evaluation of all 87 bases since it was the system of intermediate cost per square foot.

Thicknesses of 8 and 12 inches for the masonry portion of the Trombe wall system were evaluated, checking the results for adequacy. The eight-inch wall thickness was found to be sufficient to provide the necessary heat storage

without requiring any additional floor storage. Since the cost per square foot was less for the thinner wall, this thickness was chosen as the reference design for the following analysis.

The following is a list of the tables that were printed for each base through a modification of the basic program: (1) annual solar contribution without night insulation, (2) direct gain differential cost with no night insulation, (3) Trombe wall differential cost with no night insulation, (4) annual solar contribution with night insulation, (5) direct gain differential cost with night insulation, (6) Trombe wall differential cost with night insulation. These tables are listed in Appendix H. It should be noted here that the values for annual solar contribution using night insulation are the same for both the direct gain and Trombe wall designs only when R-9 insulation is used. For example, when the insulation is changed to R-4, the direct gain values are reduced by a factor of 0.85 and the Trombe wall values are reduced by a factor of 0.7.

Break even prices for each fuel as a function of location are tabulated in Appendix I. Comparing these fuel prices, in 1983 dollars, to current actual fuel prices at each of the listed 47 bases will show which operating locations can justify the incorporation of direct gain or Trombe

operating areas and projected and current solar insolation data for each

wall solar systems assuming a split face block building architecture is used and the other assumptions listed in Figure 5.1 are met.

A separate listing is made for each of the five fuel types: electricity, residual oil, distillate oil, natural gas, and coal. Also, different fuel prices are given for both direct gain with and without night insulation, and Trombe wall with and without night insulation. The missing numbers in the "no night insulation" columns correspond to locations where passive applications were only recommended when night insulation is used.

Out of 87 bases, for each of the fuel types, 13 actually had cheaper 25-year discounted payback break even fuel prices when night insulation was used for both the direct gain and Trombe wall designs. Similarly, 12 of the 87 bases had cheaper fuel prices for all fuels when night insulation was used only for the Trombe wall application. In these instances, the prices of the fuels were very close for direct gain. For all other bases, it was more costly to add night insulation.

As an example, Table 5.2 is the annual solar contribution for Lowry Air Force Base for the no night insulation case, extracted from Appendix H. Note that these values are applicable to both direct gain as well as Trombe wall designs. The asterisks indicate infeasible combinations of building floor area and percent area served by the solar

1. Passive Solar Design Handbook, Volume 2, methodology.
2. Building square foot range of 2,000 to 30,000 square feet.
3. Building Budget of 9 BTU/HDD/square foot/year.
4. Reference building designs are representative.
5. Floor storage system is the same for both conventional as well as passive solar building systems (4 inches).
6. Eight-inch thick thermal storage wall used in Trombe wall system design.
7. Conventional wall systems include 15 percent window area.
8. Exclusion of operations and maintenance, salvage and replacement costs in life-cycle analysis.
9. Use of 1983 Federal Register UPWE figures for the life-cycle analysis.
10. Use of closest reference city figures for establishing solar data for the 87 bases.
11. Limiting the building length to width ratios of 1:6.
12. Use of forced air to avoid overheating where the percent area served is not achieved in actual configuration.
13. Use of low rule of thumb figures for the glazing area and the corresponding solar savings fractions.

Figure 5.1. Assumptions used in the economic analysis

Table 5.2
Annual Solar Contribution (Lowry AFB)

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.9	5.8	8.8	11.7	14.6	17.5	20.5	23.4	26.3	29.2
4	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.8	52.6	58.5
6	8.8	17.5	26.3	35.1	43.9	52.6	61.4	70.2	78.9	87.7
8	11.7	23.4	35.1	46.8	58.5	70.2	81.9	93.6	105.3	117.0
10	14.6	29.2	43.9	58.5	73.1	87.7	102.3	117.0	131.6	146.2
12	17.5	35.1	52.6	70.2	87.7	105.3	122.8	140.3	157.9	175.4
14	20.5	40.9	61.4	81.9	102.3	122.8	143.3	163.7	184.2	204.7
16	23.4	46.8	70.2	93.6	117.0	140.3	163.7	187.1	210.5	233.9
18	26.3	52.6	78.9	106.3	131.6	157.9	184.2	210.5	236.8	263.1
20	29.2	58.5	87.7	117.0	146.2	175.4	204.7	233.9	263.1	*****
22	32.2	64.3	96.5	128.6	160.8	193.0	225.1	257.3	289.5	*****
24	35.1	70.2	106.3	140.3	175.4	210.5	245.6	280.7	*****	*****
26	38.0	76.0	114.0	152.0	190.0	228.1	266.1	304.1	*****	*****
28	40.9	81.8	122.8	163.7	204.7	245.6	286.5	327.5	*****	*****
30	43.9	87.7	131.6	175.4	219.3	263.1	307.0	*****	*****	*****

system. This occurs when insufficient glazing area is available with the constrained building length to width ratio. Table 5.3 is the differential cost of the direct gain system over the split-face block conventional system for Lowry Air Force Base.

Sensitivity Analysis

The results presented in Appendices H and I are specifically for justifying solar applications when split face block construction is used and where only low solar savings fractions are considered. When these two variables are altered, the accompanying annual solar contributions, differential costs, and 25-year discounted payback break even fuel prices may change substantially.

To demonstrate these price changes, Lowry Air Force Base data was used. This location was chosen because in the previous analysis solar application was justified. Specifically, the break even fuel price for the cheapest available fuel in the area, natural gas, was less per MTBU than the actual price for that fuel.

First, the same rule of thumb values for glazing and solar savings fraction were used while the type of conventional wall materials were varied. Both brick veneer, the most expensive per square foot, and metal siding, the least expensive per square foot, material systems were

Table 5.3

Direct Gain Differential Cost (Lowry AFB)

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	256.	512.	768.	1024.	1280.	1536.	1792.	2048.	2304.	2560.
4	512.	1024.	1536.	2048.	2560.	3072.	3584.	4096.	4608.	5120.
6	768.	1536.	2304.	3072.	3840.	4608.	5376.	6144.	6911.	7679.
8	1024.	2048.	3072.	4096.	5120.	6144.	7167.	8191.	9215.	10239.
10	1280.	2560.	3840.	5120.	6399.	7679.	8959.	10239.	11519.	12799.
12	1536.	3072.	4608.	6144.	7679.	9215.	10751.	12287.	13823.	15359.
14	1792.	3584.	5376.	7167.	8959.	10751.	12543.	14335.	16127.	17919.
16	2048.	4096.	6144.	8191.	10239.	12287.	14335.	16383.	18431.	20478.
18	2304.	4608.	6911.	9215.	11519.	13823.	16127.	18431.	20734.	23038.
20	2560.	5120.	7679.	10239.	12799.	15359.	17919.	20478.	23038.	*****
22	2816.	5632.	8447.	11263.	14079.	16895.	19710.	22526.	25342.	*****
24	3072.	6144.	9215.	12287.	15359.	18431.	21502.	24574.	*****	*****
26	3328.	6656.	9983.	13311.	16539.	19965.	23294.	26822.	*****	*****
28	3584.	7167.	10751.	14335.	17919.	21502.	25084.	28670.	*****	*****
30	3840.	7679.	11519.	15359.	19198.	23038.	26678.	*****	*****	*****

examined. Then, the high values for the rule of thumb figures were used for each of the three building types.

1. Low rule of thumb figures:
 - a. Metal siding
 - b. Concrete block
 - c. Brick veneer
2. High rule of thumb figures:
 - a. Metal siding
 - b. Concrete block
 - c. Brick veneer

Fuel oil, electricity, and natural gas were the three locally available fuels in the Lowry area, and the 1982 prices were \$12.10, \$13.77, and \$4.74 per MBTU respectively. Using the low rule of thumb figures and metal siding construction, all applications were economically justified except the Trombe wall system with night insulation when natural gas was used. This, however, was only 24 cents above the cutoff.

Where low rule of thumb figures and concrete block construction was employed, the same results as above were found. However, all corresponding costs were slightly reduced. For example, the cutoff was only missed by 10 cents for the Trombe wall with night insulation.

All applications were justifiable when low rule of thumb figures and brick veneer construction were combined.

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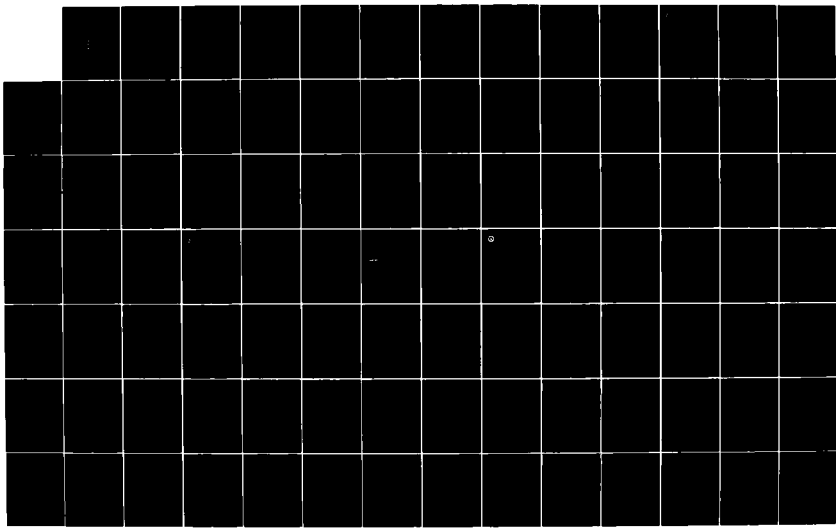
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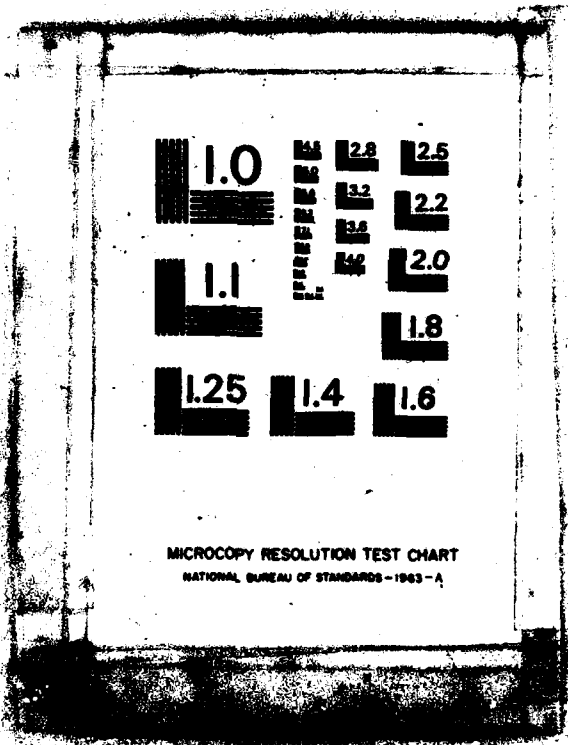
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

The Trombe wall with night insulation system was 37 cents cheaper than supplying all the heat with natural gas.

Next, the same procedure was followed using high rule of thumb figures for glazing area and solar savings fraction. In the metal siding arrangement, electricity and fuel oil were justifiable for all applications. Only direct gain with no night insulation was acceptable when natural gas was used.

Again, when high rule of thumb values and concrete block construction were used, it was determined to be economically feasible to use passive design when electricity or fuel oil was providing heat in the comparison design. The direct gain with no night insulation design was still the only justifiable application for natural gas used, although the break even fuel prices were all significantly reduced from the last analysis.

Finally, with high rule of thumb figures and brick veneer construction, the break even fuel prices were even cheaper. Electricity and fuel oil were still below actual local fuel costs for all applications. Both direct gain systems with and without night insulation were justifiable while neither of the Trombe wall cases were cheap enough for natural gas use.

Each fuel was more expensive when night insulation was used for the direct gain case, but less with night insulation for the Trombe wall system. For the low rule of thumb

values, night insulation was always more expensive. Also of interest is the higher rule of thumb oriented designs are more difficult to life-cycle justify for all fuel types. This suggests that there may be optimal percent glazing and solar savings fractions values which should be designed for to provide the lowest 25-year discounted payback break even fuel costs. In the case of the Trombe wall application, a 12-inch wall may be necessary to provide sufficient thermal storage when high solar savings fractions are used.

CHAPTER VI

CONCLUSIONS AND FURTHER RECOMMENDATIONS

Conclusions

Numerous conclusions may be drawn from the previous analysis. First, designers and planners in the field need to be made aware of current Air Force policy and guidance concerning the use of passive solar applications in construction, including detailed information on life-cycle costing economic analysis. Engineers must be knowledgeable, at least to a limited extent, of passive solar concepts to include them in design proposals.

There are so many interactive variables involved in determining the feasibility of passive applications in a given area that generalizations are difficult to accurately make. For this reason, a design tool such as the procedure presented here is essential for sound decision making. Current fuel pricing data obtained on the 14 ATC bases in the Continental United States showed that three bases were justified to use at least one passive solar application. This indicates that many locations are more than likely able to have passive designs approved using the design methodology specified in the previous chapters. Furthermore, other bases which are close to justifying passive

systems could probably improve their eligibility significantly with a detailed, tailored design.

Night insulation adds considerable expense to the solar design, and generally increases the 25-year discounted payback break even fuel prices. This has the effect of making the solar application less feasible. For example, for natural gas, the average price per MBTU for direct gain without night insulation was \$5.33 for the 87 bases, and increased to \$7.23 when night insulation was incorporated into the analysis. In 24 of the 87 bases, however, the price per MBTU for the Trombe wall system actually was reduced. Therefore, careful study is required to determine if night insulation is more economical.

Another important finding is the type of construction materials being replaced by the solar system did indeed make a small but significant impact on life-cycle justification. The more expensive the building materials being substituted by the passive system, the more economical it is to use passive solar heating.

Finally, the analysis also pointed out that, in general, using the lower solar savings fraction targets produced cheaper 25-year discounted payback break even fuel prices making the passive systems easier to justify. This is reasonable since less of the building is being heated by the passive system, and less solar aperture is required.

One reason the analysis procedure is so sensitive to the price of conventional materials, the amount of material displaced, and especially the differential excess cost of the passive system, is the way in which the life-cycle cost analysis is computed. In the procuring of government facilities, all costs are paid initially, and not amortized over the life of the structure as in many civilian construction projects. This "up-front" cost has a great impact on the life-cycle computation, stretching the payback point further out in time. Another problem is the passive solar system's materials are still considered "specialized construction materials," and are subsequently more expensive. When this type of construction becomes more acceptable industry-wide, the cost should go down substantially.

Further Recommendations

Information presented in this thesis, especially Appendices H and I, should be provided to engineering design personnel at each of the 87 bases. These tables should be used as a decision aid in determining how much effort should be expended in incorporating direct gain and Trombe wall systems in new construction. Once again, this procedure is only appropriate for the initial design phase and, further, more elaborate techniques are required past the 35 percent design stage.

The next recommendation is fuel prices for each available fuel type should be obtained by USAF for each of the 87 bases. This information would readily identify which locations should be placing emphasis on passive solar design. Also, it would demonstrate the relative applicability of passive solar techniques in the Air Force in general.

It is further recommended that the design constraint of single-story structures be eliminated. For the program to be expanded to handle multiple stories, several new factors would enter into the analysis. First, a differential cost for foundation enlargement to support the additional storage mass would have to be appraised. Next, concrete flooring on all levels would have to be assumed in both conventional and passive structures being compared. Finally, all masonry walls used for thermal storage would probably be considered load bearing which may change the cost figures.

The possibility of including water storage and isolated gain techniques in the design analysis procedure should also be explored. Sunspace designs may have particular promise in future Air Force retrofit or renovation projects.

As a final recommendation, the design analysis program listed in Appendix F, along with all input data files, should be transferred to Headquarters USAF. Once transferred, all practical revisions and periodically required

updates could be accomplished, and modified listings supplied to the Major Commands for implementation at base level. With information provided by this program, the Major Commands could continually assess their respective bases' compliance with DOD and Air Force directives regarding the use of passive solar heating.

APPENDICES



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APPENDIX A

**ENGINEERING TECHNICAL LETTER 82-5:
SOLAR APPLICATIONS**

Main body of text, containing technical details and analysis. The text is significantly faded and difficult to read, but appears to be a detailed report or technical letter.



DEPARTMENT OF THE AIR FORCE
 IN ALIGNMENT WITH UNITED STATES AIR FORCE
 WASHINGTON, D.C.

10 NOV 1982

LEHEU

Engineering Technical Letter - 82-5: Solar Applications

HQ AAC/DEE	HQ AFSC/DEE	HQ MAC/DEE	HQ AFCC/DEO
HQ ATC/DEE	HQ TRC/DEE	HQ AFLC/DEE	HQ SAC/DEE/DEER
HQ PACAF/DEE	HQ AFHHS/DEE	HQ ESC/DEE	HQ USAFA/DEE/DEER
HQ USAFA/DEE	HQ AFCONB/DEE	AFIT/DEE	AFMPC/WPCBXC
SPACECOM/DEE	NSB/DEE	AFCE/CR	AFCE/ER
AFCE/WR	AFCE/TK		

1. Purpose: This letter implements the statutes of the Military Construction Codification Act and is mandatory. This guidance is effective immediately and supersedes Changes 8, 9, and 10 to the General Design Instruction No.1.

2. General.

A XIGW49A

a. The Military Construction Codification Act of Public Law 97-214, Paragraph 2037, requires that the design of all new facilities (including medical facilities) shall include consideration of solar energy systems in those cases in which use of solar energy has the potential for significant savings of fossil-fuel-derived energy.

b. Contracts for construction resulting from such designs shall include a requirement that solar energy systems be installed if such systems can be shown to be cost effective.

c. Economic Analysis

(1) A solar energy system for a facility shall be considered cost effective if the difference between the original investment cost of the energy system for the facility with a solar energy system and the original investment cost of the energy system for the facility without a solar energy system can be recovered over the expected life of the facility.

(2) The determination of whether a solar energy system can be recovered over the expected life of a facility shall be made using the life cycle savings method. The life cycle savings method is defined as the difference between the present value of the energy savings over the life of the facility and the present value of the investment cost of the solar energy system. The present value of the energy savings is calculated by discounting the energy savings at the applicable discount rate. The present value of the investment cost is calculated by discounting the investment cost at the applicable discount rate.

(a) The use of all capital expenses and all operating and maintenance expenses (3% of system cost) associated with the energy system with and without a solar energy system over the expected life of the facility or during a period of 25 years, whichever is shorter.

(b) The use of actual fossil fuel costs at the facility with a rate of growth IAW DOE tables published in the 18 November 1981, Federal Register and included in attachment No. 1. Overseas locations shall use values derived from the tables given for the United States average.

(c) The use of a discount rate of 7 percent per year for all expenses of the energy system.

(d) Full credit for conversion from fossil fuels or electric power to solar less the calculated average yearly standby requirement.

3. The original investment cost of the solar energy system shall be reduced by 10 percent to reflect an allowance for an investment cost credit.

d. In order to equip a military construction project with solar heating equipment, solar cooling equipment, or both solar heating and solar cooling equipment, or with a passive solar energy system, an increase may be authorized by LEEE over any limitation with respect to the number of square feet or the cost per square foot of the project by such amount as may be necessary for such purpose. Any such increase under this subsection shall be in addition to any other administrative increase in cost per square foot or variation in floor area authorized by law.

3. Active Solar

a. Implementation of this requirement will be as follows:

(1) MAJCOMS will analyze the following systems: space heating and domestic water heating, space heating only and water heating only. Because of today's state of technology, solar cooling systems should not be considered for facilities with a total air conditioning load of less than 40 tons unless prior approval is obtained for LEEE.

(2) System Performance Parameters. In making the required analysis, solar systems are to provide not less than 25 percent of the required space heating or cooling and 35 percent of the domestic water heating (year-round basis). A minimum of

four collector areas will be used to determine the optimum collector area. Optimum area will be based on the highest net life cycle benefit to cost ratio (B/C), Reference Para 3a(6).

(3) Weather Data. Site specific average monthly and annual daily solar radiation on a horizontal surface will be used in the required analysis. Reference publication entitled "Insolation Data Manual" No. SERI/SP-755-789, Oct 1980. This data is in Langleys per day. To convert to BTU per SF per day, multiply times 3.69. To convert horizontal radiation to different collector tilts, use Atch 2. Reference report AFCEC-TR-77-12 (or NGSIR-77-1238) "Technical Guidelines for Energy Conservation" of the Air Force Energy Conservation Handbook dated July 1977, for average seasonal makeup water temperatures. Ambient air temperature data can be provided by the local air weather service.

(4) Architectural Compatibility. Whether ground mounted or building mounted, systems shall be designed to be architecturally compatible with the total environment.

(5) Consideration will be extended to MCP addition and alteration projects for active solar applications in the same fashion as new facility projects. Applications must provide the minimum annual performance percentage per paragraph 3a(2) and will only be applied to new heating or cooling equipment that is installed in conjunction with the basic addition/alteration project.

(6) MAJCOMS will determine the potential of applying active solar at each base by completion of Tables 1 and 2 of attachment 3. The results will be reported to HQ AFESC/DEB, with copy to HQ USAF/LEEE. If the results indicate a B/C of 1 or greater for a particular fuel, then proceed on to the next paragraph (7) and perform a detailed analysis for each MCP facility at that base which intends to employ that primary fuel source. Note: For medical facilities, a B/C greater than 1 will require the A-E to evaluate active and/or unique passive solar applications (daylighting and mass heat storage).

(7) Projects for which design instructions have been issued, "BLAST," "F-Chart" or similar solar analysis will be used by the MAJCOM as the determining factor for considering solar. To expedite determination of the "solar fraction", the MAJCOM should consider utilizing the nomographs and procedure explained in Final Report, Simplified Solar Fraction Estimation for Space and Water Heating at DOD Installations, No. USAFA TR-82-6, with appendices B and C. The solar application's construction contingency and SIOC costs are to be included in the economic analysis of the preceding paragraph 2c(2).

(8) If the economic analysis is negative or not cost-effective, a statement to that effect will be provided by the command in the DEACONS system (SOL-MAJ-COMM element).

(9) If the economic analysis is positive or cost effective, the command will notify DEB with info copies to LEEE and the appropriate AFRCE using format of Atch 5. DEB will validate the solar aspects of the project and will notify LEEE via DEACONS element AFESC-COMM. Command evaluation submittals and DEB notification to LEEE must be accomplished within two weeks after issuance of a DI. Based on DEB's recommendation and available design funds, LEEE will issue a revised DI to increase the project PA for solar application.

(10) If validated, solar will then be designed to the 35 percent stage where the solar application will be reevaluated by the design AE, using "BLAST", "F-Chart" or similar solar analysis and the economic analysis in accordance with (IAW) para 2c(2). Only those applications validated by DEB and authorized by LEEE will be considered by the AE.

(11) At the 35% design stage, if the solar application is not cost effective, the DEACONS system (elements SOL-COMM and AS-PB-DES) will be updated to include this information. If the solar application is cost-effective, the DEACONS system (elements BFT-DES-SOL, AS-DES-CE, AS-PB-DES, AC-AS-DES, AC-WOAS-DES, CWE-ASOL, and TYPE-AS-CAL) will be updated by the AFRCE. Active solar design will then continue to 100 percent, unless the basic project has a design level limit, in which case the solar design will also be held at this limit.

(12) At the 100% design stage, the A-E will revalidate the solar application for cost effectiveness. If solar is not cost effective, the AFRCE will provide this information the same as at the 35% stage. If solar is cost effective, the AFRCE will provide the information the same as at 35%. Follow normal procedures for project award approval.

b. Solar application will be reflected on the DD Form 1391 Block 9, Supporting Facilities, and included as a part of the project PA. Therefore, it is imperative that a determination of whether a solar application meets criteria and a reliable cost estimate be available prior to Congressional submittal. Solar application information must be available NLT 1 Aug.

c. All projects with solar application will be designed to be architecturally acceptable if solar is not constructed as part of the awarded construction contract.

d. Commands make the initial determination to evaluate a project for solar application and perform the evaluation. Therefore, MAJCOMs must maintain appropriate records of these evaluations. AFRCs will maintain appropriate records on solar application concerning design and costs.

4. Passive Solar

a. Normal Applications.

(1) General. These applications are part of any good design and do not fall under the Military Construction Codification Law.

(2) Normal passive solar applications are considered to be building location, shape, and orientation, location of interior spaces (zoning) according to need of heating and lighting, daylighting, skylighting, protected entrances, window location and treatment, shading devices, insulation, overhangs, and any other applications presently described in AFM 88-15. These applications should be considered in any design. Movable night insulation should be considered for all windows to control heat gain or loss.

b. Unique Applications.

(1) General. Any application which is intended to provide solar heating, solar cooling, or daylighting (glazing more than 15% of area served) through passive means is to be considered a unique passive solar application. These type applications require additional analysis, structure and funds, and must be proven cost effective IAW Congressional guidelines. Reference the following manuals for details of solar energy fundamentals, technology, systems, and components: DOE Facilities Solar Design Handbook dated January 1978, no. DOE/AD-0006/1; Passive Solar Design Handbook, Vol. One and Volume Two, dated January 1980, nos. DOE/CS-0127/1&2; and Solar Design Workbook, dated June 1981, no. SERI/SP-62-308 (manuals are available through National Technical Information Service (NTIS), U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, Virginia 22161). One source for daylighting quantification is in booklet "How to Predict Interior Daylight Illumination" from Libbey-Owens-Ford Co., 811 Madison Ave. Toledo, Ohio 43695. Any other publications supported by other government agencies or professional societies are acceptable for USAF use. The applications consist of: attached greenhouses (sunspaces), atriums, roof ponds, breathing walls, earth tubes, rock/earth beds, mass trombe walls, water trombe walls, convective loops, solar envelopes, solar chimneys, induced

stack effect (King ventilation), and other structure applications which are not part of normal design and are presently not listed in AFM 88-15.

(2) The MAJCOM is to perform a preliminary analysis to determine if:

(a) Unique passive solar heating is cost effective IAW the procedure outlined in DOE's Passive Solar Design Handbook (DOE/CS-0127/2) and NBS Handbook 135 economic analysis. Reference attachment 4 for a summary of the unique passive procedure.

(b) Unique passive solar daylighting (glass areas greater than 15% of the areas served) is cost effective IAW booklet "How to predict Interior Daylight Illumination," Copyright 1976, Libby-Owens-Ford-Company, 811 Madison Avenue, Toledo Ohio 43695 and NBS Handbook 135 economic analysis. Sun angles can be obtained from ASHRAE Book of Fundamentals, Chapter 26. The maximum room depth for daylight savings will be 20 feet.

(3) If the economic analysis is positive or cost-effective, the command will notify DEB with info copies to LEEB and the appropriate AFRCE using format of Atch 4. DEB will validate the solar aspects of the project and will notify LEEB in the DEACONS system element AFESC-SOL. Command evaluation submittal and DEB notification to LEEB must be accomplished within two weeks after issuance of a DI. Based on DEB's recommendation and available design funds, LEEB will issue a revised DI to increase the project PA for the solar application.

(4) If validated, passive solar will then be designed to the 35 percent stage where the solar application will be re-evaluated by the design AE. If not cost-effective, the AFRCE will provide a statement in DEACONS element SOL-COMM.

(5) If the unique passive solar application is cost effective, the AFRCE is to provide this information in the DEACONS system elements: UP-D-DES, UPS-CAL, CWE-UPSOL, B/C-PASSIVE, and TYPE-UP-CAL, BFT-DES-SOL, UP-DES-CE, UPS-PB-DES, AC-UPS-DES, and AC-WOUPS-DES. Solar design will then proceed to 100% unless the basic project has a design level limit, in which case the solar design will also be held at this limit. At completion, if not cost effective, comment in element SOL-COMM. If cost effective, update information as explained at the 35% stage.

(6) Weather Data. Use data described in preceding paragraph 3a(3).

(7) Architectural Compatibility. Whether interior or exterior, application shall be designed to be architecturally compatible with the total environment.

(8) System Performance Parameters. In making the required analysis, unique passive solar systems are to provide not less than 25 percent of the required space heating or cooling and/or 25 percent of the lighting required for the facility. Insolation at the base must exceed 300 Langleys before unique passive solar application can be considered.

FOR THE CHIEF OF STAFF

Harold Z. Kuntz
G. HAMMOND MYERS, III *for*
Chief, Utilities Branch
Engineering Construction Division
Directorate of Engineering & Services

5 Attachments

1. UPW Discount Factors
Adjusted for Energy Price Escalation
2. Tilt Radiation
3. Simplified Active Solar
Preliminary Analysis
4. Solar Project Summary
5. Simplified Unique Passive
Solar Thermal Storage Heating

cc: AFESC/CA
DAEN-MPC-E
NAVFAC/Code 052

TABLES 1 THROUGH 11

UPW Discount Factors Adjusted for Energy Price Escalation

The following "modified" uniform present worth discount (UPW) factors are based on a 7% discount rate and include the DOE projected escalation rates in energy prices developed from the mid-term energy forecasting system (MEFS), for the periods mid 1981 to mid 1985, mid 1985 to mid 1990, and mid 1990 to mid 1995 and beyond.

TABLE 1-REGION 1: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island.

TABLE 2-REGION 2: New York, New Jersey, Puerto Rico, Virgin Islands.

TABLE 3-REGION 3: Pennsylvania, Maryland, West Virginia, Virginia, District of Columbia, Delaware.

TABLE 4-REGION 4: Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, Canal Zone.

TABLE 5-REGION 5: Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio.

TABLE 6-REGION 6: Texas, New Mexico, Oklahoma, Arkansas, Louisiana.

TABLE 7-REGION 7: Kansas, Missouri, Iowa, Nebraska.

TABLE 8-REGION 8: Montana, North Dakota, South Dakota, Wyoming, Utah, Colorado.

TABLE 9-REGION 9: California, Nevada, Arizona, Hawaii, Trust Territory of the Pacific Islands, American Samoa, Guam.

TABLE 10-REGION 10: Washington, Oregon, Idaho, Alaska.

TABLE 11-REGION 11: United States Average.

UPW FACTORS	TABLE 1				REGION 1
ECONOMIC LIFE-YEARS	ELCC	DISC	RESID	NAT-GAS	COAL
1	0.90	0.90	1.00	1.00	1.00
2	1.00	1.00	2.00	2.00	2.00
3	2.00	2.70	3.11	3.10	3.01
4	3.00	3.60	4.19	4.18	4.09
5	4.70	4.41	5.22	5.19	5.06
6	6.00	5.10	6.21	6.15	6.02
7	6.20	5.92	7.16	7.00	7.00
8	6.07	6.64	8.07	7.92	8.76
9	7.47	7.33	8.90	8.74	8.54
10	8.02	8.00	9.81	9.53	10.00
11	8.50	8.69	10.67	10.30	11.00
12	8.90	9.30	11.52	11.00	11.67
13	9.33	10.03	12.30	11.69	12.30
14	9.60	10.70	13.00	12.30	13.00
15	10.00	11.30	14.00	13.00	13.63
16	10.70	12.00	14.87	13.61	13.90
17	10.53	12.64	15.62	14.19	14.44
18	10.70	13.33	16.41	14.76	14.90
19	10.90	14.00	17.00	15.30	15.33
20	11.14	14.60	17.67	15.81	15.74
21	11.30	15.20	18.24	16.30	16.10
22	11.40	15.80	18.79	16.79	16.40
23	11.50	16.40	19.33	17.25	16.80
24	11.70	17.10	19.80	17.60	17.14
25	11.80	17.10	21.74	18.11	17.44

UPW FACTORS	TABLE 2				REGION 2
ECONOMIC LIFE-YEARS	ELCC	DISC	RESID	NAT-GAS	COAL
1	0.90	0.90	1.00	1.00	1.00
2	1.00	1.00	2.00	2.00	2.00
3	2.00	2.70	3.11	3.11	3.01
4	3.00	3.60	4.19	4.18	4.09
5	4.70	4.41	5.22	5.19	5.06
6	6.00	5.10	6.21	6.16	7.00
7	6.19	5.93	7.16	7.07	8.10
8	6.04	6.64	8.07	7.90	9.25
9	7.43	7.33	8.90	8.77	10.20
10	7.90	8.00	9.81	9.54	11.21
11	8.50	8.60	10.66	10.32	12.10
12	8.90	9.30	11.50	11.00	12.90
13	9.40	10.03	12.33	11.75	13.76
14	9.60	10.69	13.00	12.40	14.49
15	10.00	11.30	13.97	13.06	15.19
16	10.50	12.00	14.77	13.60	15.80
17	10.53	12.64	15.56	14.27	16.40
18	10.70	13.33	16.34	14.84	17.00
19	10.90	14.00	17.11	15.39	17.60
20	11.00	14.60	17.67	15.91	18.14
21	11.30	15.20	18.62	16.41	18.63
22	11.40	15.80	19.37	16.90	19.10
23	11.50	16.40	20.10	17.36	19.53
24	11.70	17.10	20.83	17.80	19.90
25	11.80	17.10	21.55	18.23	20.33

UPW FACTORS	TABLE 3				REGION 3
ECONOMIC LIFE-YEARS	ELCC	DISC	RESID	NAT-GAS	COAL
1	0.90	0.90	1.00	1.00	1.00
2	1.00	1.00	2.00	2.00	2.00
3	2.00	2.70	3.11	3.11	3.01
4	3.00	3.60	4.19	4.18	4.09
5	4.70	4.41	5.22	5.19	5.06
6	6.00	5.10	6.21	6.21	7.10
7	6.34	5.92	7.16	7.16	8.23
8	7.00	6.64	8.07	8.10	9.30
9	7.70	7.33	8.90	9.00	10.30
10	8.44	8.00	9.80	9.80	11.30
11	9.00	8.67	10.60	10.50	12.22
12	9.67	9.34	11.40	11.40	13.00
13	10.16	10.00	12.20	12.20	13.80
14	10.60	10.60	13.00	13.00	14.60
15	11.13	11.30	13.80	13.70	15.30
16	11.57	12.00	14.72	14.40	16.07
17	11.90	12.62	15.50	15.00	16.72
18	12.30	13.27	16.20	15.70	17.33
19	12.70	13.80	17.00	16.30	17.90
20	13.07	14.34	17.70	16.90	18.44
21	13.30	14.90	18.34	17.47	18.95
22	13.60	15.40	19.27	18.00	19.43
23	13.90	16.00	20.00	18.50	19.80
24	14.20	16.60	20.75	19.00	20.20
25	14.40	17.10	21.42	19.50	20.70

UFW FACTORS	TABLE 4				REGION 4	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.00	1.00	2.04	2.04	2.00	
3	2.71	2.76	3.11	3.11	3.00	
4	3.84	3.80	4.17	4.10	4.00	
5	4.73	4.61	5.22	5.23	5.00	
6	5.50	5.10	6.20	6.20	7.00	
7	6.20	6.00	7.10	7.20	8.00	
8	7.10	6.80	8.00	8.20	9.00	
9	7.90	7.30	8.90	9.10	10.00	
10	8.50	8.00	9.80	10.00	11.00	
11	9.20	8.90	10.60	10.90	12.00	
12	9.90	9.30	11.30	11.60	13.00	
13	10.40	10.00	12.20	12.60	14.00	
14	10.90	10.60	13.20	13.50	15.00	
15	11.40	11.30	14.20	14.50	16.00	
16	11.90	11.90	15.20	15.50	17.00	
17	12.40	12.50	16.20	16.50	18.00	
18	12.90	13.20	17.20	17.50	19.00	
19	13.40	13.90	18.20	18.50	20.00	
20	13.90	14.60	19.20	19.50	21.00	
21	14.40	15.30	20.20	20.50	22.00	
22	14.90	16.00	21.20	21.50	23.00	
23	15.40	16.70	22.20	22.50	24.00	
24	15.90	17.40	23.20	23.50	25.00	
25	16.40	18.10	24.20	24.50	26.00	
26	16.90	18.80	25.20	25.50	27.00	
27	17.40	19.50	26.20	26.50	28.00	
28	17.90	20.20	27.20	27.50	29.00	
29	18.40	20.90	28.20	28.50	30.00	
30	18.90	21.60	29.20	29.50	31.00	

UFW FACTORS	TABLE 5				REGION 5	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.00	1.00	2.04	2.04	2.00	
3	2.94	2.76	3.11	3.11	3.00	
4	3.84	3.80	4.17	4.10	4.00	
5	4.73	4.61	5.22	5.20	5.00	
6	5.57	5.10	6.22	6.20	7.00	
7	6.37	6.00	7.17	7.20	8.00	
8	7.12	6.80	8.00	8.20	9.00	
9	7.86	7.50	8.90	9.00	10.00	
10	8.50	8.00	9.73	9.60	11.00	
11	9.17	8.70	10.50	10.42	12.00	
12	9.80	9.30	11.30	11.10	13.00	
13	10.42	10.00	12.10	11.90	14.00	
14	11.07	10.70	12.90	12.80	15.00	
15	11.70	11.40	13.70	13.60	16.00	
16	12.30	12.10	14.50	14.40	17.00	
17	12.90	12.70	15.30	15.20	18.00	
18	13.50	13.40	16.10	16.00	19.00	
19	14.10	14.10	16.90	16.80	20.00	
20	14.70	14.80	17.70	17.60	21.00	
21	15.30	15.50	18.50	18.40	22.00	
22	15.90	16.20	19.30	19.20	23.00	
23	16.50	16.90	20.10	20.00	24.00	
24	17.10	17.60	20.90	20.80	25.00	
25	17.70	18.30	21.70	21.60	26.00	
26	18.30	19.00	22.50	22.40	27.00	
27	18.90	19.70	23.30	23.20	28.00	
28	19.50	20.40	24.10	24.00	29.00	
29	20.10	21.10	24.90	24.80	30.00	
30	20.70	21.80	25.70	25.60	31.00	

UFW FACTORS	TABLE 6				REGION 6	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.23	1.00	2.04	2.04	2.00	
3	2.53	2.76	3.11	3.11	3.00	
4	3.64	3.80	4.17	4.10	4.00	
5	4.50	4.61	5.22	5.20	5.00	
6	5.50	5.10	6.22	6.20	7.00	
7	6.30	6.00	7.17	7.20	8.00	
8	7.00	6.80	8.00	8.20	9.00	
9	7.70	7.50	8.90	9.00	10.00	
10	8.30	8.00	9.60	9.60	11.00	
11	8.90	8.70	10.40	10.40	12.00	
12	9.50	9.30	11.20	11.20	13.00	
13	10.00	10.00	12.00	12.00	14.00	
14	10.60	10.70	12.80	12.80	15.00	
15	11.20	11.40	13.60	13.60	16.00	
16	11.80	12.10	14.40	14.40	17.00	
17	12.40	12.70	15.20	15.20	18.00	
18	13.00	13.40	16.00	16.00	19.00	
19	13.60	14.10	16.80	16.80	20.00	
20	14.20	14.80	17.60	17.60	21.00	
21	14.80	15.50	18.40	18.40	22.00	
22	15.40	16.20	19.20	19.20	23.00	
23	16.00	16.90	20.00	20.00	24.00	
24	16.60	17.60	20.80	20.80	25.00	
25	17.20	18.30	21.60	21.60	26.00	
26	17.80	19.00	22.40	22.40	27.00	
27	18.40	19.70	23.20	23.20	28.00	
28	19.00	20.40	24.00	24.00	29.00	
29	19.60	21.10	24.80	24.80	30.00	
30	20.20	21.80	25.60	25.60	31.00	

UFW FACTORS	TABLE 7				REGION 7	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.00	1.00	2.04	2.04	2.00	
3	2.90	2.76	3.11	3.11	3.00	
4	3.84	3.80	4.17	4.10	4.00	
5	4.70	4.61	5.22	5.20	5.00	
6	5.40	5.10	6.20	6.20	7.00	
7	6.20	6.00	7.10	7.17	8.00	
8	6.80	6.80	8.00	8.00	9.00	
9	7.47	7.34	8.90	8.90	10.00	
10	8.00	8.00	9.73	9.60	11.00	
11	8.50	8.70	10.50	10.50	12.00	
12	9.10	9.30	11.30	11.30	13.00	
13	9.70	10.00	12.10	12.10	14.00	
14	10.30	10.70	12.90	12.90	15.00	
15	10.90	11.40	13.70	13.70	16.00	
16	11.50	12.10	14.50	14.50	17.00	
17	12.10	12.70	15.30	15.30	18.00	
18	12.70	13.40	16.10	16.10	19.00	
19	13.30	14.10	16.90	16.90	20.00	
20	13.90	14.80	17.70	17.70	21.00	
21	14.50	15.50	18.50	18.50	22.00	
22	15.10	16.20	19.30	19.30	23.00	
23	15.70	16.90	20.10	20.10	24.00	
24	16.30	17.60	20.90	20.90	25.00	
25	16.90	18.30	21.70	21.70	26.00	
26	17.50	19.00	22.50	22.50	27.00	
27	18.10	19.70	23.30	23.30	28.00	
28	18.70	20.40	24.10	24.10	29.00	
29	19.30	21.10	24.90	24.90	30.00	
30	19.90	21.80	25.70	25.70	31.00	

UFW FACTORS	TABLE 8				REGION 8	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.00	1.00	2.04	2.04	2.00	
3	2.70	2.76	3.11	3.11	3.00	
4	3.64	3.80	4.17	4.10	4.00	
5	4.57	4.61	5.22	5.20	5.00	
6	5.30	5.10	6.22	6.12	7.00	
7	6.00	6.00	7.17	7.17	8.00	
8	6.50	6.80	8.00	7.81	9.00	
9	7.00	7.50	8.90	8.50	10.00	
10	7.50	8.00	9.60	9.37	11.00	
11	8.00	8.70	10.40	10.17	12.00	
12	8.50	9.30	11.20	10.80	13.00	
13	9.00	10.00	12.00	11.40	14.00	
14	9.50	10.70	12.80	12.00	15.00	
15	10.00	11.40	13.60	12.60	16.00	
16	10.50	12.10	14.40	13.20	17.00	
17	11.00	12.70	15.20	13.80	18.00	
18	11.50	13.40	16.00	14.40	19.00	
19	12.00	14.10	16.80	15.00	20.00	
20	12.50	14.80	17.60	15.60	21.00	
21	13.00	15.50	18.40	16.20	22.00	
22	13.50	16.20	19.20	16.80	23.00	
23	14.00	16.90	20.00	17.40	24.00	
24	14.50	17.60	20.80	18.00	25.00	
25	15.00	18.30	21.60	18.60	26.00	
26	15.50	19.00	22.40	19.20	27.00	
27	16.00	19.70	23.20	19.80	28.00	
28	16.50	20.40	24.00	20.40	29.00	
29	17.00	21.10	24.80	21.00	30.00	
30	17.50	21.80	25.60	21.60	31.00	

UFW FACTORS	TABLE 9				REGION 9	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL	
1	0.00	0.00	1.02	1.02	1.00	
2	1.00	1.00	2.04	2.04	2.00	
3	2.00	2.76	3.11	3.11	3.00	
4	3.00	3.80	4.17	4.10	4.00	
5	4.00	4.61	5.22	5.17	5.00	
6	5.00	5.10	6.20	6.00	7.00	
7	6.00	6.00	7.17	6.50	8.00	
8	6.90	6.80	8.00	7.40	9.00	
9	7.80	7.50	8.90	8.30	10.00	
10	8.70	8.00	9.60	9.10	11.00	
11	9.50	8.70	10.40	9.90	12.00	
12	10.40	9.30	11.20	10.70	13.00	
13	11.30	10.00	12.00	11.50	14.00	
14	12.20	10.70	12.80	12.30	15.00	
15	13.10	11.40	13.60	13.10	16.00	
16	14.00	12.10	14.40	13.90	17.00	
17	14.90	12.70	15.20	14.70	18.00	
18	15.80	13.40	16.00	15.50	19.00	
19	16.70	14.10	16.80	16.30	20.00	
20	17.60	14.80	17.60	17.10	21.00	
21	18.50	15.50	18.40	17.90	22.00	
22	19.40	16.20	19.20	18.70	23.00	
23	20.30	16.90	20.00	19.50	24.00	
24	21.20	17.60	20.80	20.30	25.00	
25	22.10	18.30	21.60	21.10	26.00	
26	23.00	19.00	22.40	21.90	27.00	
27	23.90	19.70	23.20	22.70	28.00	
28	24.80	20.40	24.00	23.50	29.00	
29	25.70	21.10	24.80	24.30	30.00	

UPM FACTORS	TABLE 10				
	1	2	3	4	5
1	0.90	0.80	1.00	1.00	1.00
2	1.00	1.00	2.00	2.00	2.70
3	2.70	2.70	3.71	3.71	5.00
4	3.71	3.62	4.73	4.73	6.07
5	4.73	4.46	5.22	5.73	6.96
6	5.73	5.19	5.92	6.30	7.36
7	6.30	5.60	7.17	7.29	8.20
8	7.29	6.40	8.00	7.42	8.80
9	8.20	7.20	8.87	8.00	11.50
10	9.20	8.00	9.80	8.50	12.50
11	10.17	8.70	10.70	9.30	13.50
12	11.00	9.40	11.60	9.90	14.50
13	11.80	10.00	12.40	10.60	15.50
14	12.50	10.70	13.20	10.60	16.50
15	13.20	11.40	14.00	10.50	17.00
16	13.80	12.10	14.80	11.20	18.00
17	14.40	12.80	15.60	11.50	19.00
18	15.00	13.50	16.40	11.80	20.00
19	15.60	14.20	17.20	12.20	21.00
20	16.20	14.90	18.00	12.50	22.00
21	16.80	15.60	18.80	12.80	23.00
22	17.40	16.30	19.60	13.10	24.00
23	18.00	17.00	20.40	13.40	25.00
24	18.60	17.70	21.20	13.70	26.00
25	19.20	18.40	22.00	14.00	27.00

UPM FACTORS	TABLE 11				
	1	2	3	4	5
1	0.90	0.80	1.00	1.00	1.00
2	1.00	1.00	2.00	2.00	2.70
3	2.70	2.70	3.71	3.71	5.00
4	3.71	3.62	4.73	4.73	6.07
5	4.73	4.46	5.22	5.73	6.96
6	5.73	5.19	5.92	6.30	7.36
7	6.30	5.60	7.17	7.29	8.20
8	7.29	6.40	8.00	7.42	8.80
9	8.20	7.20	8.87	8.00	11.50
10	9.20	8.00	9.80	8.50	12.50
11	10.17	8.70	10.70	9.30	13.50
12	11.00	9.40	11.60	9.90	14.50
13	11.80	10.00	12.40	10.60	15.50
14	12.50	10.70	13.20	10.60	16.50
15	13.20	11.40	14.00	10.50	17.00
16	13.80	12.10	14.80	11.20	18.00
17	14.40	12.80	15.60	11.50	19.00
18	15.00	13.50	16.40	11.80	20.00
19	15.60	14.20	17.20	12.20	21.00
20	16.20	14.90	18.00	12.50	22.00
21	16.80	15.60	18.80	12.80	23.00
22	17.40	16.30	19.60	13.10	24.00
23	18.00	17.00	20.40	13.40	25.00
24	18.60	17.70	21.20	13.70	26.00
25	19.20	18.40	22.00	14.00	27.00

TABLES A and B

DISCOUNT FACTORS FOR NON-ENERGY COSTS/SAVINGS

The following UPM factors (table A) for annual recurring and SPN factors (table B) for non-recurring costs/savings, are based on a 7% discount rate.

TABLE A

STUDY PERIOD YEARS	UPM FACTOR
1	0.90
2	1.00
3	2.00
4	3.70
5	4.70
6	5.70
7	6.30
8	7.20
9	8.20
10	9.20
11	10.17
12	11.00
13	11.80
14	12.50
15	13.20
16	13.80
17	14.40
18	15.00
19	15.60
20	16.20
21	16.80
22	17.40
23	18.00
24	18.60
25	19.20

TABLE B

STUDY PERIOD YEARS	SPN FACTOR
1	0.90
2	0.87
3	0.80
4	0.70
5	0.71
6	0.67
7	0.62
8	0.58
9	0.54
10	0.51
11	0.48
12	0.46
13	0.44
14	0.42
15	0.40
16	0.38
17	0.36
18	0.35
19	0.34
20	0.33
21	0.32
22	0.31
23	0.30
24	0.29
25	0.28

TILT RADIATION
Lat.

H_T / \bar{H}

	1	2	3	4	5	6	7	8	9	10	11	12
24°	1.54	1.20	1.08	0.97	0.87	0.87	0.85	0.96	1.08	1.20	1.33	1.40
32°	1.56	1.33	1.15	0.99	0.88	0.85	0.88	0.98	1.15	1.33	1.55	1.66
40°	1.91	1.53	1.26	1.02	0.87	0.84	0.82	1.01	1.25	1.53	1.89	2.09
48°	2.48	1.83	1.41	1.08	0.90	0.84	0.89	1.05	1.39	1.82	2.43	2.80
56	3.58	2.32	1.64	1.16	0.92	0.85	0.91	1.12	1.61	2.31	3.12	4.32
64	6.44	3.22	2.01	1.27	0.95	0.85	0.93	0.61	1.95	3.17	6.22	11
(Lat. -10)	1	2	3	4	5	6	7	8	9	10	11	12
24	1.22	1.14	1.07	1.00	0.96	0.94	0.95	1.00	1.11	1.24	1.22	1.26
32	1.43	1.27	1.14	1.02	0.95	0.92	0.95	1.02	1.14	1.27	1.42	1.50
40	1.75	1.46	1.25	1.06	0.96	0.92	0.95	1.05	1.24	1.46	1.74	1.89
48	2.28	1.74	1.40	1.12	0.97	0.92	0.96	1.10	1.38	1.74	2.24	2.55
56	3.31	2.22	1.63	1.21	1.00	0.93	0.99	1.18	1.60	2.20	3.23	3.95
64	5.99	3.08	1.99	1.69	1.03	0.94	1.01	1.28	1.93	3.04	5.78	10

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GENERAL PURPOSE 10-1-57

H_T / \bar{H} = RATIO OF TOTAL SOLAR RADIATION
ON A TILTED SURFACE TO THE HORIZONTAL

1/ ASHRAE Applications Handbook, 1978

Fict

H_T/H

	1	2	3	4	5	6	7	8	9	10	11	12
(LMT.+30°)												
24	1.42	1.22	1.06	0.91	0.81	0.77	0.81	0.90	1.06	1.23	1.41	1.50
32	1.64	1.36	1.13	0.92	0.80	0.76	0.79	0.91	1.12	1.36	1.63	1.77
40	2.01	1.56	1.23	0.95	0.80	0.75	0.79	0.94	1.22	1.56	1.99	2.23
48	2.60	1.87	1.38	1.00	0.81	0.74	0.80	0.98	1.36	1.85	2.55	2.97
56	3.75	2.42	1.61	1.08	0.83	0.75	0.81	1.04	1.57	2.34	3.43	4.56
64	6.71	3.26	1.96	1.18	0.85	0.75	0.83	1.13	1.90	3.22	6.48	12

GENERAL PURPOSE (M-17)

F 2074 3100

SIMPLIFIED ACTIVE SOLAR PRELIMINARY ANALYSIS

TABLE 1

BASE FUEL COST DATA

MAJCON: _____

<u>BASE</u>	<u>Fuel Oil</u>	<u>\$ per MBTU^{1/}(C_p)</u> <u>Electricity</u>	<u>Nat Gas/LPG</u>	<u>Other</u>
-------------	-----------------	--	--------------------	--------------

^{1/} FY82 dollars at the site including conversion and distribution losses.

TABLE 2

Active Solar Feasibility Assessment
FY85 MCP

HAJCOM: _____

Benefit to Cost Ratio Equation: 1/

$$B/C = [((A \cdot C_p \cdot UPWF) / 2) - 22.4] / 64$$

A = (MBTU/Ft² - yr) Use Figure 1 for CONUS, Alaska & Hawaii.
Use Figures 2 and 3 for Western Europe. For locations
not included, use best available insolation data.

C_p = (\$ per MBTU) See Table 1

UPWF = Uniform Present Worth Factor. See Table 3

<u>Base</u>	<u>Fuel Oil</u>	<u>Electricity</u>	<u>Mat Gas/LPG</u>	<u>Other</u>
-------------	-----------------	--------------------	--------------------	--------------

B/C^{2/}

1/ Assumptions:

- a. 50% solar heating fraction
- b. 3% of investment allocated as annual O&M expense
- c. 10% investment tax credit
- d. 9% differential inflation rate for O&M (UPNF for 25 yrs = 11.65).
- e. 7% discount rate
- f. 25 year system lifetime
- g. System costs equal to \$71.00 per collector square footage in FY82 dollars
- h. Regional fuel differential inflation rates extracted from 18 Nov 81 Fed. Register, Vol. 46, No. 222

2/ Calculate the B/C for each primary fuel source on 1982 base using the B/C equation. Must be equal to or greater than 1 to be cost effective.

TABLE 3*

UPW Discount Factors Adjusted for Energy Price Escalation

The following 25 year "modified" uniform present worth discount (UPW) factors are based on a 7% discount rate and include the DOE projected escalation rates in energy prices developed from the mid-term energy forecasting system (MEFS), for the periods mid 1981 to mid 1985, mid 1985 to mid 1990, and mid 1990 to mid 1995 and beyond. Overseas activities should use values given for the United States average.

- TABLE 1-REGION 1: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island.
- TABLE 2-REGION 2: New York, New Jersey, Puerto Rico, Virgin Islands.
- TABLE 3-REGION 3: Pennsylvania, Maryland, West Virginia, Virginia, District of Columbia, Delaware.
- TABLE 4-REGION 4: Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, Canal Zone.
- TABLE 5-REGION 5: Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio.
- TABLE 6-REGION 6: Texas, New Mexico, Oklahoma, Arkansas, Louisiana.
- TABLE 7-REGION 7: Kansas, Missouri, Iowa, Nebraska.
- TABLE 8-REGION 8: Montana, North Dakota, South Dakota, Wyoming, Utah, Colorado.
- TABLE 9-REGION 9: California, Nevada, Arizona, Hawaii, Trust Territory of the Pacific Islands, American Samoa, Guam.
- TABLE 10-REGION 10: Washington, Oregon, Idaho, Alaska.
- TABLE 11-REGION 11: United States Average.

<u>REGION</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
Elec.	11.81	12.94	14.46	15.23	14.33	14.40	13.82	10.38	13.40	16.10	14.19
Distillate Oil	17.79	17.76	17.64	17.68	17.93	17.87	18.00	17.94	18.10	18.10	17.79
Residual Oil	21.74	21.55	21.42	22.19	14.07	22.27	14.12	22.50	22.56	22.60	18.09
Nat. & LP Gas	18.11	18.23	19.55	21.20	18.92	17.45	19.62	16.88	15.93	13.46	17.84
Coal	17.44	20.33	20.71	20.42	19.92	20.53	20.23	18.95	19.40	24.58	20.76

*Extracted from 18 Nov 1981 Federal Register, Vol. 46, No. 222

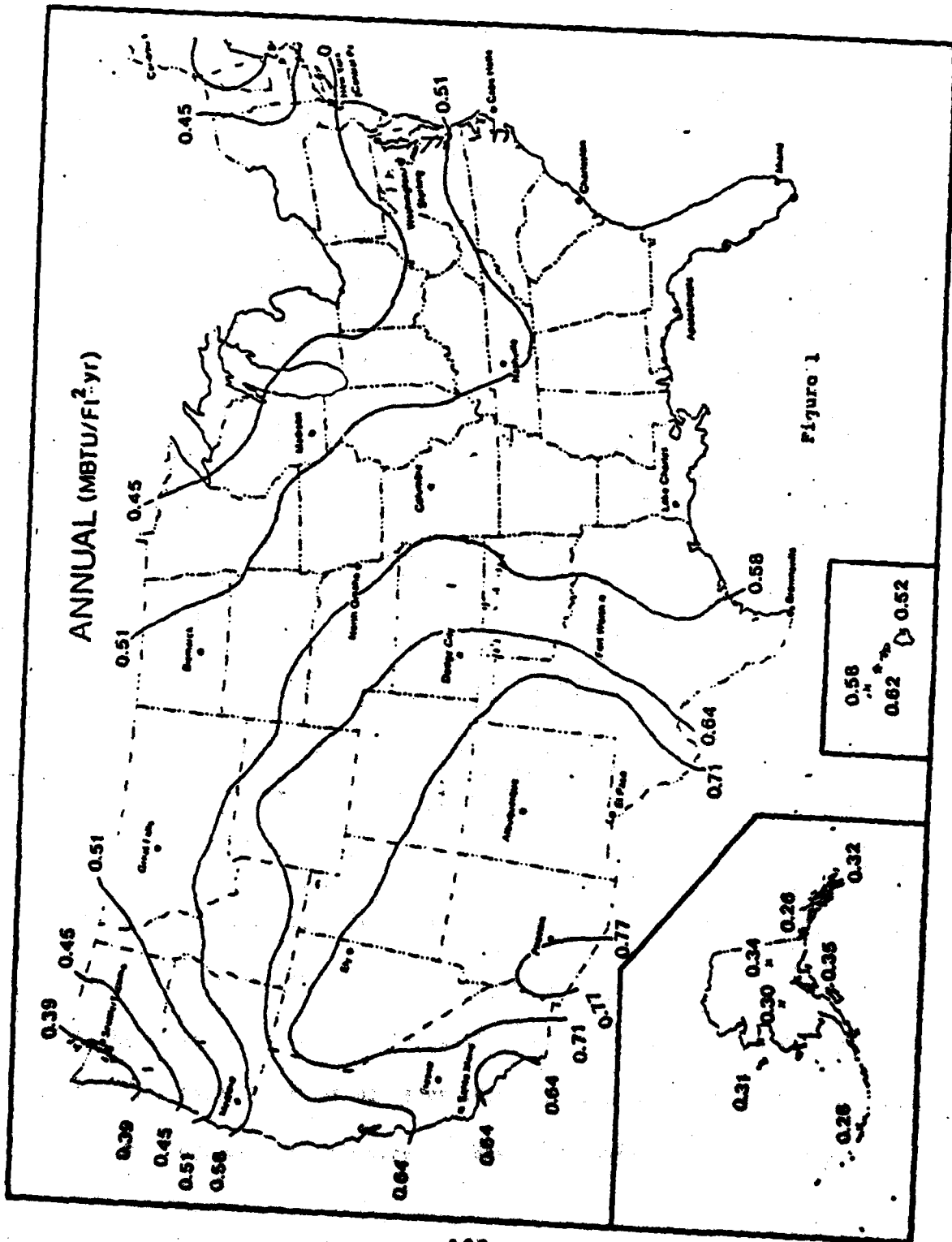


Figure 1





SIMPLIFIED
UNIQUE PASSIVE SOLAR THERMAL STORAGE HEATING
PRELIMINARY ANALYSIS
NOVEMBER 1982

PASSIVE SOLAR ANALYSIS WORKSHEET

I. Collection Area (Glazing)

Col. $\begin{matrix} A \\ (SF) \end{matrix} \times \begin{matrix} B \\ (Ratio) \end{matrix} \times \begin{matrix} C \\ (\%/100) \end{matrix} = \begin{matrix} D \\ (Gross SF) \end{matrix} - \begin{matrix} E \\ (Normal SF) \end{matrix} = \begin{matrix} F \\ (Net SF) \end{matrix}$

_____ x _____ x _____ = _____ - _____ = _____

II. Thermal Storage

Col. $\begin{matrix} A \\ (\%) \end{matrix} \times \begin{matrix} B \\ (lbs/SSF) \\ 0.6 (water) \\ 3.0 (masonry) \end{matrix} = \begin{matrix} C \\ (Gross lbs) \end{matrix} - \begin{matrix} D \\ (Normal lbs) \end{matrix} = \begin{matrix} E \\ (Net lbs) \end{matrix}$

_____ x _____ = _____ - _____ = _____

III. Annual Heating Consumption

Col. $\begin{matrix} A \\ (SF) \end{matrix} \times \begin{matrix} B \\ (BTU/HDD-SF-YR) \end{matrix} \times \begin{matrix} C \\ (HDD) \end{matrix} = \begin{matrix} D \\ (BTU/YR) \end{matrix}$

_____ x _____ x _____ = _____

IV. Annual Solar Savings

Col. $\begin{matrix} A \\ (BTU/YR) \end{matrix} \times \begin{matrix} B \\ (Ratio) \end{matrix} \times \begin{matrix} C \\ (\%/100) \end{matrix} = \begin{matrix} D \\ (BTU/YR) \end{matrix}$

_____ x _____ x _____ = _____

INSTRUCTIONS FOR COMPLETING
PASSIVE SOLAR ANALYSIS AND COST WORKSHEETS

I. COLLECTION AREA (GLAZING)

Column

- A. Insert building square feet from program document.
- B. Assume building area directly radiated as a fraction of total building square feet. Consider only areas within or adjacent to the collection/storage medium unless the HVAC system and controls will be specifically designed to accommodate distribution to other non-irradiated areas.
- C. Insert value from Table 1 (SG).
- D. Gross square feet of south glazing.
- E. Calculate and insert south glazing area for a non-passive building by the following formula:
[Col A]^{1/2} x 1.2 x No. of stories = normal south glazing area (ft²)

The above formula assumes a elongated east-west axis and 10 percent of wall area for glazing.

- F. Net square feet of additional glazing equals Col. D - Col. E.

II. THERMAL STORAGE

Column

- A. Insert value from Table 1 (SG).
- B. Circle appropriate factor.
- C. Gross thermal storage (lbs).
- D. Subtract weight of normal displaced wall or floor if material is appropriate.
- E. Net lbs which will have to be added.

iii. ANNUAL HEATING CONSUMPTION

Column

- A. Transfer square feet from Column I A.
- B. Insert value from Table 2 corresponding to facility type.
- C. Insert heating degree days for location.
- D. BTU/yr required by conventional facility.

iv. ANNUAL SOLAR SAVINGS

Column

- A. Transfer BTU/yr from Column III D.
- B. Transfer No. from Column I B.
- C. Insert percent savings value from Table 1:
- D. BTU/yr saved by passive solar construction.

v. CONSTRUCTION COST ESTIMATING

- 1. Complete Form A for each functional element. Functional elements are:

<u>Collection</u>	<u>Storage</u>	<u>Distribution</u>	<u>Controls</u>
Glazing	Containment	Ducting	Movable Insulation
Framing	Material	Piping	Glare Control
Reflectors	Support	Vents & Dampers	Mech/Elect.
		Blowers, Pumps &	Thermostats
		Fans	Timers
			Wiring

- 2. Deduct construction costs for items commonly replaced by passive design elements.

PASSIVE SOLAR DISPLACEMENT CHECKLIST

<u>Functional Element</u>	<u>Passive Solar Feature</u>	<u>Storage Wall</u>	<u>Direct Gain</u>	<u>Attached Sunspace</u>
Collection	Glazing & Framing	Normal Wood Frame, Concrete or Masonry Wall with Insulation	Normal Wood Frame, Concrete or Masonry Wall with Insulation	None
Storage	Containment Material	Non-mass walls	Conventional slab on grade if augmented. Interior walls replaced with mass.	Adjoining exterior wall if made massive to provide storage.
	Support	Normal Foundation	Normal Foundation	
Distribution		None	None	None
Controls	Movable Insulation	Drapes, etc.	Drapes, etc.	None
	Reflectors	None	None	None
	Mech/Elec	None	None	None

(FORM A)

PASSIVE SOLAR SYSTEM COSTS

Major Functional Components

Bare Costs (\$) ^{1/}

A. Collection

B. Storage

C. Distribution

D. Controls

Subtotal = \$

25% Gen OH & P = \$

Subtotal = \$

5% Contingency = \$

5% SICR = \$

Total Project Costs = \$ _____

^{1/} Material and Labor

TABLE 1

PASSIVE SOLAR SYSTEM AVERAGE PERFORMANCE^{1/}
Direct/Indirect Gain

AF Base	Reference Location	Percent of South Glazing to Building ^{2/} Floor Area (ZG)	Percent Savings ^{3/} In Conventional Fuel	
			v/o N.I	v/N.I

Reference Table D-1 of DOE's Passive Solar Design Handbook, Vol II, January 1980. Apply values from locations closest to the AF base.

Notes:

- 1/ Passive Solar Design Handbook, Vol. II, Passive Solar Design Analysis, Chapter D.
- 2/ Average of columns R1 and R2, Table D-1 (Rounded up). Based on a fairly well insulated structure; R19 walls, double glazing, R25 roof, R12 perimeter insulation, 0.75 air change rate per hour and 7.5 percent E, W, & N walls double glazed. Percentage of heat loss by component is:

Walls - 15%
Non-south Glazing - 12%
Perimeter - 13%
Roof - 19%
Infiltration - 41%

To adjust for different insulation values or air change rates (ACR), use the following formulas:

$$s = \sum \left[\frac{\text{Insulation}}{\left(\frac{R_o \times Z \text{ Load}}{R_n} / n \right) + 1} \right] - S \qquad s = \sum \left[\frac{\text{Air Change Rate}}{\left(\frac{ACR_n}{ACR_o} \times Z \text{ Load} / n \right) + 1} \right] - S$$

$S \times ZG = \text{Adjusted } ZG$

$\frac{R_o}{R_n}$ = Ratio of reference insulation R value to new value

$\frac{ACR_n}{ACR_o}$ = Ratio of new Air Change Rate to reference value

Z Load = Percentage of total load affected by that element

n = Number of element changes

S = Adjustment factor

SG = Percent of South Glazing to Bldg Floor Area

2/ N.I. - Night Insulation. Reference value used is R9; for other R values, adjust percent savings by following formula:

Percent Savings (R9) x Y = Percent Savings (R₁)
For values of Y, see Figure A.

TABLE 2

HEATING ENERGY BUDGET - BTU/HDD-SP-YR^{1/2/}
 (Input energy expected to be consumed)

<u>Facility</u>	<u>Budget</u>
Oper Tng, C-E Tng, Sqdn Ops, Avionics, Sec Pol, Admin	7.0
Dispensary	8.0
Dining Hall	9.0
Dormitory	9.0
Warehouse	6.0
Off & NCO Club	8.0
Commissary	10.0
Shops & Supply	9.0
Fire Sta., Auto Maint.	10.0
Mnt Dock, Hangar Gen Purpose	14.0

1/ Air National Guard Plan 18-1, Mar 1981, App. A-2-1.

2/ For facilities not in the Air National Guard Plan, Reference the Interim DOD Design Energy Budgets. Obtain the Heating Energy Budgets as follows

<u>HDD</u>	<u>For X Heating</u>
> -7001	60
6001-7000	50
5501-6000	40
4001-5500	30
3001-4000	25
2001-3000	20
1001-2000	15
501-1000	10
0-500	0

PASSIVE SOLAR ECONOMIC ANALYSIS SUMMARY

Location: _____ FY _____
 Project: _____

Economic Life: _____ Yrs. Date Prepared _____ Prepared by _____

COSTS

1. Non-recurring Initial Capital Costs: \$ _____
 a. CWE \$ _____
 b. Design \$ _____
 c. _____ \$ _____
 d. Total \$ _____

BENEFITS

2. Recurring Benefit/Cost Differential Other Than Energy:
 a. Annual Labor Decrease (+)/Increase (-) \$ _____ /Yr.
 b. Annual Material Decrease (+)/Increase (-) \$ _____ /Yr.
 c. Other Annual Decrease (+)/Increase (-) \$ _____ /Yr.
 d. Total Costs \$ _____ /Yr.
 e. % Discount Factor \$ _____
 f. Discounted Recurring Cost (d x e) \$ _____

3. Recurring Energy Benefit/Costs:

- a. Type of Fuel: _____
 (1) Annual Energy Decrease (+)/Increase (-) _____ MBTU
 (2) Cost per MBTU \$ _____ /MBTU
 (3) Annual Dollar Decrease/Increase (1) x (2) \$ _____ /Yr.
 (4) Differential Escalation Rate (____%) Factor \$ _____
 (5) Discounted Dollar Decrease/Increase (3) x (4) \$ _____
 b. Type of Fuel: _____
 (1) Annual Energy Decrease (+)/Increase (-) _____ MBTU
 (2) Cost per MBTU \$ _____ /MBTU
 (3) Annual Dollar Decrease/Increase (1) x (2) \$ _____ /Yr.
 (4) Differential Escalation Rate (____%) Factor \$ _____
 (5) Discounted Dollar Decrease/Increase (3) x (4) \$ _____
 c. Type of Fuel: _____
 (1) Annual Energy Decrease (+)/Increase (-) _____ MBTU
 (2) Cost per MBTU \$ _____ /MBTU
 (3) Annual Dollar Decrease/Increase (1) x (2) \$ _____ /Yr.
 (4) Differential Escalation Rate (____%) Factor \$ _____
 (5) Discounted Dollar Decrease/Increase (3) x (4) \$ _____
 d. Type of Fuel: _____
 (1) Annual Energy Decrease (+)/Increase (-) _____ MBTU
 (2) Cost per MBTU \$ _____ /MBTU
 (3) Annual Dollar Decrease/Increase (1) x (2) \$ _____ /Yr.
 (4) Differential Escalation Rate (____%) Factor \$ _____
 (5) Discounted Dollar Decrease/Increase (3) x (4) \$ _____
 e. Discounted Energy Benefits (3a(5)+3b(5)+3c(5)+3d(5)) \$ _____

4. Total Benefits (Sum 2f+3e) \$ _____

NOTE: MBTU=1,000,000BTU

5. Discounted Benefit/Cost Ratio (Line 4+Line 1d) _____

6. Total Annual Energy Savings (3a(1)+3b(1)+3c(1)+3d(1)) _____

7. E/C Ratio (Line 6 x Line 1a/1000) _____

8. Annual \$ Savings (2d+3a(3)+3b(3)+3c(3)+3d(3)) \$ _____

9. Pay-back Period (Line 1a - Salvage)+Line B) _____

AS OF DATE:

SOLAR PROJECT SUMMARY

FY:

LOCATION:

PROJECT TITLE:

STATUS:

PROJECT PA: _____ CWE: _____

DESCRIPTION OF SOLAR SYSTEM: (Application, collector square footage, location, heat transfer media, storage, et

BASIC FUEL TYPE/COST (\$ PER MBTU):

ENERGY ANALYSIS:

Heating
Domestic Hot Water (DHW)
Process
Cooling
(Combination)

ANNUAL CONSUMPTION					
CONVENTIONAL SYSTEM				SAVINGS	
WITHOUT SOLAR		WITH SOLAR			
MBTU	\$	MBTU	\$	MBTU	\$

COST ANALYSIS:

Heating
DHW
Process
Cooling
(Combinations)
*Life Cycle Cost

Initial Cost	1st Year Savings	PAYBACK (YEARS)	
		Simple	LCC *

Solar Project Summary Instructions

MANAGEMENT INFORMATION: Indicate date and status of data (1391, 351, bid opening, contract award or other).

DESCRIPTION: Give description for the recommended system(s) reported on page 2.

BASIC FUEL TYPE/COST (\$ per MBTU): Use fuel type selected for the conventional system.

ENERGY ANALYSIS: Give energy summary (for conventional system, for solar-assisted system, and for the difference in the solar-assisted system as compared to the conventional system) for the most economically feasible system of each type studied (domestic water system, space heating system, domestic water and space heating system, and domestic water and space heating and space cooling system). Report energy consumption at the facility's boundary in fossil-source units (10^6 BTU) and costs in mid-point of construction (MCD) evaluated dollars.

COST ANALYSIS: Give cost analysis for each system reported above. Report initial (construction cost differentials) and first year savings (energy cost differentials) as MCD evaluated dollars. Note: initial costs must be escalated to MCD while energy cost savings must be escalated to beneficial occupancy date (BOD), then discounted to MCD. The simple payback (PB) reported is then the ratio of column one to column two, whereas the LCC PB indicated must be both the escalated and discounted PB. Note: solar analyses use the escalated PB \leq 25 years to determine economic feasibility.

PAGE TWO: Select recommended system(s) from information on first page. Indicate solar analysis techniques used for the recommended solar system; e.g., BLAST, F-CHART, SOLCOST, DOE-1, etc.

Simple Payback for Recommended Solar System in Years: _____

LCC Payback for Recommended Solar System: _____

Solar Calculation Procedure Used for Recommended Solar System: _____

A-E Fee for Solar Design Analysis: _____

A-E Fee for Solar Design: _____

Total A-E Fee for Solar: _____

RECOMMENDATIONS:

At completion of analysis:

(Indicate all or part of system for which AFRCE recommends continuation of design. If data shows system is not cost effective at this stage, AFRCE may recommend continuation of design if there is a chance that b may meet criteria. Provide justification to support recommendation.)

At bid stage: (Indicate action recommended. If recommendation is to award, provide reasons.)

NOTES:

1. Summary Sheet required.
 - a. When preliminary design analysis has been reviewed and approved by design agency and AFRCE.
 - b. When bid additives have been received.
 - c. Whenever the CWE of basic facility, plus solar, exceeds statutory limits.
2. Send summary sheet in each case to HQ AFESC/DEB with copy to HQ USAF/LEEE.

APPENDIX B

**ENGINEERING TECHNICAL LETTER 82-7:
UNIQUE PASSIVE SOLAR**



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20332

30 NOV 1982

LEEEU

Engineering Technical Letter 82-7: Unique Passive Solar Applications

HQ AAC/DEE	HQ AFSC/DEE	HQ MAC/DEE	HQ AFCC/DEO
HQ ATC/DEE	HQ TAC/DEE	HQ AFLC/DEE	HQ SAC/DEE/DEER
HQ PACAF/DEE	HQ AFRES/DEE	HQ ESC/DEE	HQ USAFE/DEE/DEER
HQ USAFA/DEE	HQ AFCOMS/DEE	AFIT/DEE	AFMPC/MPCSXC
SPACECOM/DEE	NGB/DEE	AFRCE/CR	AFRCE/ER
AFRCE/WR	AFRCE/M-X		

1. Purpose: This letter provides a detailed description of unique passive solar applications. The guidance to incorporate these applications in the design process was provided in ETL 82-5.

2. Description: Any application which is intended to provide solar heating, solar cooling, or daylighting through passive means is to be considered a unique passive solar application. These type applications require additional analysis, structure and funds, and must be proven cost effective IAW Congressional guidelines. Reference the following manuals for details of solar energy fundamentals, technology, systems, and components: DOE Facilities Solar Design Handbook dated January 1978, no. DOE/AD-0006/1; Passive Solar Design Handbook, Volume One and Volume Two, dated January 1980, nos. DOE/CS-0127/1&2; and Solar Design Workbook, dated June 1981, no. SERI/SP-62-308 (manuals are available through National Technical Information Service (NTIS), U. S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, Virginia 22161). These applications consist of:

a. Direct Gain. This approach includes the direct heating of working areas by solar energy. These areas contain a mass for absorbing and storing daytime heat. Usually, there is an expanse of south facing glass which is exposed to the maximum amount of solar energy in winter and minimum in summer. This approach lends itself best for heating hallways and sunspaces where the storage mass is within twelve feet of the glass area.

b. Indirect Gain. This approach is best suited for heating office or living areas because direct sunlight and glare can be avoided. Sunlight is absorbed and stored by a mass between the glazing and the conditioned space. Examples of the indirect

approach are the thermal storage wall, thermal storage roof, and the room adjacent to an attached sunspace.

c. Isolated. This is an indirect system except that there is a distinct thermal separation (either by insulation or physical) between the thermal storage and the heated space. The convective loop, solar chimney, or induced stacks fall in this category. The thermal storage wall, thermal storage roof, and attached sunspace approaches can also be made into isolated systems by insulating between thermal storage and the heated space.

d. Masonry Thermal Storage. Materials used for this type storage include concrete, concrete block, brick, stone, and adobe, either individually or in various combinations. To minimize indoor temperature fluctuations, construct interior thermal storage walls and floors with a minimum of 6 inch thickness. Walls or floors which are to be used for heat storage must have a dark colored finish. Do not use carpeting on masonry floors which are to be used for storage. Usually one-half to two-thirds of the total surface of the controlled space is constructed of 6 to 8 inches of masonry.

e. Water Thermal Storage. Water is usually contained in only one wall of a space. This wall is exposed to direct sunlight most of the day. Materials commonly used to construct the wall are plastic or metal containers.

f. Phase-Change Storage. This type storage has the ability to store a large amount of heat in a small space. Calcium chloride hexahydrate is a widely used material which changes state from solid to liquid when its temperature reaches approximately 80°F. It has approximately four times the heat storage capacity of water and eight times that of rock or masonry. Metal containers must be treated to resist corrosion reaction. Plastic or fiberglass containers do not risk corrosion but are less thermally conductive than metals.

g. Attached Sunspaces (Greenhouses). This system combines both direct gain and thermal storage wall or floor. The back wall or floor of the sunspace converts sunlight into heat. This heat is then transferred by radiation, conduction, and convection to within the sunspace and into the rest of the building with proper design. Fans may be used to improve heat transfer to adjoining spaces. For best results, the storage wall must be within 12 feet from the glazed wall.

h. Solar Chimney. Plenum, flue or chimney stack is painted black or a dark color and is exposed to direct sunlight. As the dark area temperature rises, the self-induced air movement within the chimney increases. This action provides ventilation by thermosiphoning. Hot or warm air is removed from the building. This

is not an efficient system because heat removal from mass by air is not very effective. The efficiency of the system is limited to small structures where ventilation inlets and outlets are in close proximity.

i. King Ventilation System. Air flow is the reverse of the solar chimney and is intended for winter use. Cold air is exhausted at floor level while warmer air is let in at the top of the room or stack. This is not an efficient system. Additional energy must be used to heat makeup air. This application is limited to environments that can tolerate wide temperature swings.

j. Earth Tubes. Cool air in summer and warm air in winter is drawn into a building from a pipe buried five to ten feet below ground level taking advantage of the long time delay differences between above and below ground temperatures. This method is subject to noise transmission, moisture and fungus buildup.

k. Atrium. This is a central court, a hall or an entrance court to provide pedestrian traffic flow between offices or departments, a leisure greenhouse environment, daylighting for inner perimeter office space, or a natural draft ventilation as warm air rises.

l. Roof Ponds. The thermal mass is located on the roof of the building. Water is enclosed in thin plastic bags and supported by a roof deck with additional structure. In winter, the ponds are exposed to sunlight during the day and then covered with insulating panels at night. In summer, the panel positions are reversed, covering the ponds during the day to protect them from the sun and heat, while removing them at night to allow the ponds to be cooled by natural convection and by evaporation to the cool night sky. Problems still remain with the closing and opening of the roof insulation.

m. Convective Loop. The major components of this system include a flat plate collector and heat storage tank. Two types of heat transfer and storage medium are used: a liquid or air with rock storage. As the liquid or air in a collector is heated by sunlight, it rises and enters the top of the storage tank, while simultaneously pulling cooler liquid or air from the bottom of the tank into the collector. This natural convection current continues as long as the sun shines. When air with rock storage is used, the system is subject to moisture, fungus, and mildew growth, unless it is a closed system.

n. Breathing Wall. Hollow masonry tiles are used on large eastern and western walls. The "Wall" will act as a solar shading device and reduce heat transmission from the outer wall

element to the interior wall element. The hollow ventilating tiles serve as a flue through which air circulates vertically between open joints and is intended to reduce heat transmission from the outer wall to the inner wall. This application can present a fire safety problem.

o. Daylighting. Any window area greater than 15% of the area being served will require an economic analysis to prove its cost effectiveness. The maximum depth of the area being served will be 20 feet measured from the exterior wall.

p. Hybrid Systems. Combinations of active and passive applications are referred to as "hybrid" systems. A common example is the use of a passive collector such as a greenhouse in conjunction with a fan-forced rock bed thermal storage.

FOR THE CHIEF OF STAFF

Handwritten signature
Chief, Engineering Division
Directorate of Engineering & Services

cc: HQ AFESC/CA
COE/DAEM-MPC-F
NAVFAC/Code 052

APPENDIX C
ENGINEERING TECHNICAL LETTER 82-6:
NORMAL PASSIVE SOLAR



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20332

REPLY TO
ATTN: LEREU

30 DEC 1982

SUBJECT: Engineering Technical Letter 82-6: Normal Passive Solar Applications

HQ AAC/DEE	HQ AFSC/DEE	HQ MAC/DEE	HQ AFCC/DEO
HQ ATC/DEE	HQ TAC/DEE	HQ AFLC/DEE	HQ SAC/DEE/DEER
HQ PACAF/DEE	HQ AFRES/DEE	HQ ESC/DEE	SPACECOM/DEE
HQ USAFA/DEE	HQ AFCE/DEE	AFIT/DEE	AFMPC/MPCSXC
NGB/DEE	AFRC/CR	AFRC/ER	AFRC/WR
AFRC/MX	HQ USAFE/DEE/DEER		

1. This letter:

- a. Provides detailed descriptions of normal passive solar applications which must be considered in any design.
- b. Establishes design development and building design requirements for the A-E, the MAJCOM and/or the Base engineering staff.
- c. Establishes information that the A-E must provide at the concept and 35% design stages.
- d. Is effective immediately.

2. Intent. Energy efficient design, whether of a new facility or retrofit of an existing facility, must satisfy the requirements for human comfort and safety, building protection and aesthetics, and equipment operating environment within a limited funding budget and stringent DOD and Congressional energy constraints. An energy efficient design must include consideration of normal passive solar applications described in this letter, except as noted. Normal passive solar applications do not require a special economic analysis for justification and should be part of the programmed amount.

3. Design Development Considerations. These guidelines are to be utilized by:

- a. The Base and/or MAJCOM during master planning and project booklet development.
- b. The A-E during the concept design stage.

4. Normal Passive Solar Applications. Following is a description of normal passive solar applications.

(3) Orientation of Nonair-Conditioned-Buildings. The preceding orientation criteria also apply to buildings not initially air-conditioned that are likely to be air-conditioned sometime within their useful life.

c. Building Shape.

(1) General. To take advantage of the sun in climates where solar heating, cooling, and/or lighting can be used, the HDD must exceed 3000 for heating, or cooling degree days (CDD) must exceed 2000 for cooling and insolation must exceed an annual average 300 Langleys per day. Maximum solar energy will be available between 0900 and 1500 hours (winter or summer). An elongated building along the east-west axis, in most climates where the insolation exceeds an annual average 300 Langleys per day will minimize heating, cooling and electric lighting requirements.

(2) Building Configurations. Building envelope heat loss or heat gain can be minimized by minimizing the ratio of building wall and roof area to building floor area. This ratio essentially is a function of length to width (aspect ratio) and the height or the number of stories of the building. This ratio can be minimized by constructing the building partially or totally below grade. Reference Navy Document, Interim Design Criteria, January 1975, Section 1, for building geometry considerations.

(3) Zoning Energy Analysis.

(a) The floor plan of every multi-function (minimum of 3) or multistory facility must include consideration for energy consumption of each function to determine which are best located along the south and north walls. At locations where the HDD exceed 3000 and insolation exceeds an annual average 300 Langleys per day, location of functions requiring the most heating should be located along the south wall. Functions requiring the most lighting should be located along the south wall in the northern hemisphere and north wall in the southern hemisphere. A computer analysis may be required to optimize locations of the different functions.

(b) Location of interior spaces (zoning) according to need of heating and lighting. Interior spaces can be supplied with much of their heating and lighting requirements by placing them along the south face of the building, thus taking advantage of the sun's energy during the day. Consider placing rooms to

a. **Siting.** Siting is to be accomplished in accordance with (IAW) AFM 86-6. It is important to determine in advance whether evergreen trees and shrubs or neighboring structures shade the southern side of the facility during winter months between 0900 and 1500 hours because during these hours, solar energy is at its maximum for solar heating and/or daylighting. This applies especially to those areas where heating degree days (HDD) exceed 3000 and insolation is greater than an annual average 300 Langleys per day (3.69 Langleys = 1 TU per SF). Reference "Insolation Data Manual" No. SERI/SP-755-789, Oct 1980, for insolation values of different sites.

b. **Orientation.**

(1) **General.** Building orientation is to be done IAW guidelines in AFM 86-6. The orientation for maximum solar gain is with the long walls of the facility facing north and south. South walls may vary up to 30 degrees from true south and still receive more than 90 percent of the sun's available energy. At 45 degrees variation, the south wall will receive approximately 75 percent of available solar energy.

(2) **Orientation of Air-Conditioned Buildings.** In order to reduce the initial costs and lifetime operating costs of air-conditioning equipment, all new buildings which are eligible for air-conditioning either wholly or in part shall be sited so that the long axis of the building is along an east-west axis within 45 degrees. Deviations are authorized only if:

(a) Detailed solar studies prove that an alternate orientation is less energy intensive over the entire year.

(b) The site's topography prevents the proper orientation and there is no alternate site. The term "topography" does not cover siting constraints created solely by existing utility lines, roads, parking areas, and nearby buildings.

(c) A building is to be heated by solar energy and an alternate orientation is required for maximum solar efficiency, such as, placing the smallest wall area against a winter, prevailing wind of 7 MPH or more.

(d) Mission requirements dictate an alternate orientation.

(e) The new building is an integral part of a complex of existing facilities such as a community center.

any day of the year.

(6) In vacant land which will be developed, solar envelopes should be developed for each proposed building to ensure adequate sun accessibility for each. A solar envelope is defined as an imaginary container derived from the sun's relative daily and seasonal movement. Within this container, a building can be constructed with the assurance that it will not cast shadows on designated portions of adjoining buildings. Reference Solar Design Workbook, June 1981. No. SERI/SP-62-308 Chapter 4, and ASHRAE Book of Fundamentals, Chapter 26 for solar altitude and azimuth angles for various latitudes and dates throughout the year.

e. Daylighting or Clerestories.

(1) General. Locate major window openings to the southeast, south and southwest according to the sunlight requirements of each space. When possible, recess windows to better control heat gain or loss. In regions where the HDD exceed 3,000 and annual average solar energy exceeds 300 Langleys per day, glass areas along the east, west, and especially the north side of the building will not exceed 10% of the floor area served, except 5% if the area consists of hallways, toilet or storage. The floor area served is to be limited to a depth of twenty feet measured from the exterior wall. The glass along the south wall can be up to 15% of the floor area served. Where the HDD is less than 3000 and the CDD less than 2000, glass areas along north and south walls can be up to 15% of the floor area served. If the annual average solar energy is less than 300 Langleys per day and the HDD exceeds 5000, limit all glass areas to 7% of floor area served. Consider double pane glass up to 5000 HDD and triple pane for greater than 5000 HDD.

(2) Storm Sash and Doors or Insulating Glass. Use of these items in all windows (includes fixed and skylights) and in all glazed sections of all exterior doors, is mandatory in buildings heated to 65°F in those areas where the HDD is 3000 or more. Studies shall be made in other climatic zones to determine whether insulating glass, double or triple glazing or storm sash is cost effective in any new facility on a life cycle cost basis in accordance with the National Bureau of Standards Handbook 135. Where economically feasible insulating glass, double or triple glazing or storm sash shall be used.

(3) Daylighting and Ventilation:

the southeast, south and southwest, according to their requirement for solar energy. Those spaces having minimal heating and lighting requirements such as corridors, closets, mechanical rooms, and toilets, when placed along the north face of the building, will serve as a buffer between the heated spaces and the colder north face. This requirement applies mainly to areas where the HDD exceed 3000.

(4) In applying the above "long axis" criteria to the design of buildings with wings, such as "L" or "E" shaped buildings, make a careful analysis of solar loading to determine whether the sum of the loads on the wings is greater than the load on the main area. In such cases, the wings shall be oriented in the east-west plane.

d. Spacing of Facilities. Solar irradiation to adjacent proposed or existing buildings must be guaranteed to encourage solar applications in these buildings with future retrofit projects. The following rules are recommended to support solar considerations. They were derived from Solar Envelope Concepts, Final Report, April 1980, SERI/SP-98155-1.

(1) Solar irradiation should be available for any building at least 6 hours per day in order to provide energy that is sufficient for active or passive solar applications. These hours are to be between 0900 and 1500 hours at all times of the year.

(2) To protect solar collector plates that might be installed in the future on any nearby roof, the shadow of a new or proposed facility or addition cannot extend above the roof parapet of any existing facility during the above specified hours of the day.

(3) Land with temporary facilities may be considered as vacant land. Temporary facilities are those described in AFM 88-15, Chapter 19.

(4) Fire walls or walls without windows, which will not be considered as heat storage mass in future projects, may be totally shaded by new facilities.

(5) Walls of nearby buildings that function as window walls or that have window openings that exceed 25% of the wall area may be partially shaded by a new facility provided that no more than 33% of the wall is shaded during the specified hours of

color. Shading devices or translucent panels may be used to eliminate glare, particularly in work areas.

(g) Shading Devices.

(1) **General.** Proper solar screening reduces solar heat gain during summer months, regulates solar daylighting and allows direct solar energy for solar heating or storage during winter months. Proper design of solar screening includes consideration of latitude, elevation, orientation, percent of glass, heating and cooling loads, obstruction and inconveniences to such activities as window washing. Consider roof overhangs, horizontal and vertical building projections, louvers, or reflective glass coating, internal shades, venetian blinds, movable insulation, insulating curtains or draperies, eyebrow reveals, or vertical/horizontal fins.

(2) Solar Shading in Air Conditioned Buildings:

(a) For any building eligible for air conditioning, all windows and other glazed areas exposed to the sun (includes all glass in the orientation 45° from an east-west axis shall be completely shaded on the exterior no less than 80 percent of the time between 0800 and 1600 (solar time) daily during the period from June 1 through September 30. Partial shading all the time is an acceptable alternative provided the total solar gain does not exceed that achieved by compliance with criteria noted above, based on actual solar studies.

(b) Shading may be achieved by building projections (either horizontal or vertical), deep reveals, or any combination of these measures. Also, solar shading may be achieved through the use of external solar screens, either fiberglass or metal, which completely shade the glass area and have a solar heat rejection of no less than 70 percent.

(c) The use of fully reflective glass as manufactured in the factory is also acceptable for solar shading. The use of "heat-absorbing tinted glass" and partial exterior shading is acceptable provided the total heat gain, based on specific studies, does not exceed that permitted under the criteria noted above. Films and coatings added to glass after manufacture are not acceptable.

h. Protected Entrances. In climates where HDD exceed 3000 or

(a) The following criteria establishes minimum sizes for glass areas in relation to floor areas and is to be followed to the extent that they do not conflict with the design criteria in other paragraphs.

(1) Whenever feasible, all habitable rooms will contain windows in exterior walls. Window areas equal to or exceeding 5 percent of the floor area will be operable for ventilating and cleaning, except the minimum will be 7 percent for offices and administrative areas of maintenance facilities. In shops and other maintenance facilities the glass area of windows in work spaces will comply with ANSI Standard A 11.1 and the design of the ventilation system shall conform to the recommendations of AFM 88-15 Chapter 6 or the Guide of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).

(2) For all facilities such as administrative, dormitories, classrooms, and patient bedrooms in hospitals, located where the HDD exceeds 5000 or where the summer CDD exceeds 2000 the glass area shall not exceed 7 percent of the floor area. For other facilities, fenestration shall be planned to take optimum advantage of natural light and ventilation with full consideration of the impact on the heating and air-conditioning load. In regions where other provisions are not made for cooling and ventilation, natural ventilation shall be used to a maximum degree consistent with local engineering practice and consideration of heating costs.

(b) Provide operable windows in exterior walls of dormitories, bachelor officer quarters, and bedrooms in hospitals. The sash, when fully opened, will allow for emergency egress. Fixed fenestration may be used in fully air-conditioned building areas, except in the above noted facilities, provided appropriate means for emergency egress are provided.

(c) Windows may be eliminated where there is a justifiable requirement for a fallout shelter or when advantageous to the functional use or special needs.

(d) Facilities which are located to meet quantity safety distances from explosives will have a minimum number of windows facing the explosive area.

f. Skylighting. Skylighting refers to illumination provided from sunlight through windows in a horizontal roof plane. Limit skylighting to 5% of the roof area. Ceilings are to be a light

CDD exceed 2000, make the main pedestrian entrance to the building an enclosed space (vestibule or foyer) that provides a double entry or air lock between the building and the exterior. Where functionally possible, orient the entrance away from the prevailing winter or summer winds or provide a windbreak to reduce infiltration. The inside and outside doors may be offset from each other or at right angles to each other for maximum effectiveness. If vestibules cannot be installed, consider using revolving doors in conjunction with emergency exit fire doors.

i. Landscaping. Consider trees or tall hedges to provide shading for east and west facing glass to block the low early morning and late afternoon sunlight. Deciduous trees or tall hedges along a south wall could also be used for shading during the summer months. These can allow solar energy for heating during winter months. Also consider tall hedges or trees between asphalt parking areas and buildings to reduce heat gain during summer months. In regions where HDD exceeds 5000, and the annual wind speed averages more than 7MPH consider evergreens along winter prevailing wind side of the building for windbreaks.

j. Insulation is to be done IAW, Change 10 to General D.I. No.1 and AFM 85-18 design criteria.

k. Berming. Consider constructing facilities partially below grade. For buildings in climates of 5000 HDD or more where the average winter wind speed exceeds 7mph, consider berming the entire winter prevailing wind wall side of single story buildings or the entire first floor of multi-story buildings. Berming will enable sunlight availability at the north side of a one story building during winter months and will reduce heat loss through the wall. In summer, it will reduce heat gain. Ground temperatures are higher in winter and lower in summer than ambient. In climates where HDD exceeds 8,000 consider earth sheltered buildings. Reference the Navy's NAVFAC DMI series design manual for earth sheltered facilities.

5. A-E Submittals: The following information will be required from the A-E for all new building designs:

(a) At 20% Concept Stage:

(1) An analysis of energy efficiency due to proposed building siting and orientation.

(2) Three building configurations to reduce or elimi-

nate solar shading of adjacent facilities IAW para 2c, when applicable.

(3) A discussion regarding the ratio of building wall and roof areas to building floor area with regard to energy efficiency, IAW Para 2d.

(b) At 35% Concept Stage:

(1) Results of active solar application study when applicable.

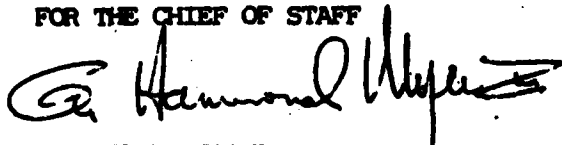
(2) Results of unique passive solar application study, when applicable.

(3) Summary of zoning energy analysis showing heating, cooling, and/or lighting energy consumed by each department or function and discussion of location of each along north or south walls according to this analysis. Reference Para 4c(3).

(4) A breakdown of the calculated energy budget figure (EBF) into heating, cooling, ventilation, lighting and water heating budgets. The A-E must also provide the number of operating hours that the total EBF was based upon.

(5) Recommendations on how to reduce further the particular calculated energy budget when it is 35% or more of the total energy budget.

FOR THE CHIEF OF STAFF



G. HAMMOND MYERS, III
Chief, Utilities Branch
Engineering Construction Division
Directorate of Engineering & Services

cc: HQ AFESC/CV
COE/DAEN-MPC-F
NAVFAC/Code 052

APPENDIX D

PASSIVE SOLAR RULES OF THUMB
(Balcomb et al., 1979, pp. 24,25)

TABLE D-1. Values to be used in the solar glazing rule of thumb.

CITY	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	B25
ALABAMA	.09	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28	.30	.32	.34	.36	.38	.40	.42	.44	.46	.48	.50	.52	.54	.56
ALASKA	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36
ARIZONA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
ARKANSAS	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
CALIFORNIA	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36
CANADA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
COLORADO	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
CONNECTICUT	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
DELAWARE	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
FLORIDA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
GEORGIA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
IDAHO	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
ILLINOIS	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
INDIANA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
IOWA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
KANSAS	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
KENTUCKY	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
LOUISIANA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MAINE	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MARYLAND	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MASSACHUSETTS	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MICHIGAN	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MINNESOTA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MISSISSIPPI	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MISSOURI	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
MONTANA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
NEBRASKA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
NEVADA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
NEW HAMPSHIRE	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
NEW JERSEY	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
NEW MEXICO	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
NEW YORK	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
NORTH CAROLINA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
NORTH DAKOTA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
OHIO	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
OKLAHOMA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
OREGON	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
PENNSYLVANIA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
RHODE ISLAND	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
SOUTH CAROLINA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
SOUTH DAKOTA	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
TENNESSEE	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
TEXAS	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
UTAH	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
VIRGINIA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
WASHINGTON	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39
WEST VIRGINIA	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
WISCONSIN	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34
WYOMING	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.36	.37	.38	.39

-1R- means Not Recommended

APPENDIX E
AIR FORCE INSTALLATION SOLAR ANALYSIS DATA

AIR FORCE INSTALLATION SOLAR ANALYSIS DATA									
Installation	Closest City	DD	ROT		SSF				DOE
			LO	HI	NNI		WNI		Region
Altus AFB	Wichita Falls TX	2904	10	20	27	45	41	67	6
Andrews AFB	Washington DC	5010	12	23	18	28	37	61	3
Arnold AFS	Chattanooga TN	3505	9	19	19	32	33	66	4
Barksdale AFB	Shreveport LA	2187	8	15	28	43	36	61	6
Beale AFB	Sacramento CA	2843	9	18	29	47	41	66	9
Bergstrom AFB	Austin TX	1737	6	13	27	46	37	63	6
Blytheville AFB	Memphis TN	3227	9	19	22	36	36	60	6
Bolling AFB	Washington DC	5010	12	23	18	28	37	61	3
Brooks AFB	San Antonio TX	1570	6	12	28	48	38	64	6
Cannon AFB	Tucumcari NM	4047	10	20	30	48	45	73	6
Carswell AFB	Fort Worth TX	2382	9	17	28	44	38	64	6
Castle AFB	Fresno CA	2850	9	17	29	46	41	66	9
Chanute AFB	Springfield IL	5558	15	30	19	28	42	67	5
Charleston AFB	Charleston SC	2148	7	14	25	41	34	59	4
Columbus AFB	Birmingham AL	2844	9	18	22	37	34	58	4
Davis-Monthan AFB	Tucson AZ	1752	6	12	35	57	45	73	9
Dover AFB	Wilmington DE	4940	15	29	19	30	39	63	3
Dyess AFB	Abilene TX	2610	9	18	29	47	41	66	6
Edwards AFB	Daggett CA	2203	7	15	35	56	46	73	9
Eglin AFB	Mobile AL	1684	6	12	28	44	34	60	4
Ellsworth AFB	Rapid City SD	7324	15	30	23	32	51	76	8
England AFB	Baton Rouge LA	1670	6	12	26	43	34	59	6
Fairchild AFB	Spokane WA	6835	20	39	20	24	48	68	10
Francis E Warren AFB	Cheyenne WY	7256	11	21	25	39	47	74	8
George AFB	Daggett CA	2203	7	15	35	56	46	73	9
Goodfellow AFB	San Angelo TX	2240	8	15	29	48	40	67	6
Grand Forks AFB	Minot ND	9407	25	50	NR	NR	52	72	8
Griffiss AFB	Syracuse NY	6678	19	38	NR	NR	37	59	2
Grierson AFB	Fort Wayne IN	6209	16	33	13	17	37	60	5
Gunter AFB	Montgomery AL	2259	7	15	24	41	34	59	4
Hancock Field	Syracuse NY	6678	19	38	NR	NR	37	59	2
Hanscom AFB	Boston MA	5621	15	29	17	25	40	64	1
Hill AFB	Salt Lake City UT	5963	13	26	27	39	48	72	6
Holloman AFB	Truth or Conseq NM	3392	9	17	32	51	46	73	6
Homestead AFB	Miami FL	208	1	2	27	48	31	54	4
Hurlburt Field	Mobile AL	1684	6	12	28	44	34	60	4
Indian Springs Aux	Las Vegas NV	2601	9	18	35	56	48	75	9
Keesler AFB	Mobile AL	1684	6	12	28	44	34	60	4
Kelly AFB	San Antonio TX	1570	6	12	28	48	38	64	6
Kirtland AFB	Albuquerque NM	4292	11	22	29	47	45	73	6
K. I. Sawyer AFB	Duluth MN	9756	25	50	NR	NR	50	70	5
Lackland AFB	San Antonio TX	1570	6	12	28	48	38	64	6
Langley AFB	Norfolk VA	3488	9	19	23	38	37	62	3
Laughlin AFB	Del Rio TX	1523	6	12	30	50	39	66	6

NR = Not Recommended

AIR FORCE INSTALLATION SOLAR ANALYSIS DATA									
Installation	Closest City	DD	ROT		SSF				DOE Region
			LO	HI	LO	HI	LO	HI	
Little Rock AFB	Little Rock AR	3354	10	19	23	38	37	62	6
Loring AFB	Caribou ME	9662	25	50	NR	NR	53	74	1
Los Angeles AFS	Los Angeles CA	1819	5	9	36	58	44	72	9
Lowry AFB	Denver CO	6018	12	23	27	43	47	74	8
Luke AFB	Phoenix AZ	1552	6	12	37	60	48	75	9
MacDill AFB	Tampa FL	718	3	6	30	52	36	63	4
Malmstrom AFB	Great Falls MT	7652	18	37	23	28	56	77	8
March AFB	Los Angeles CA	1819	5	9	36	58	44	72	9
Mather AFB	Sacramento CA	2843	9	18	29	47	41	66	9
Maxwell AFB	Montgomery AL	2269	7	15	24	41	34	59	4
McCord AFB	Seattle WA	5185	11	22	21	30	39	59	10
McClellan AFB	Sacramento CA	2843	9	18	29	47	41	66	9
McConnell AFB	Wichita KS	4667	14	28	28	41	45	72	7
McGuire AFB	Philadelphia PA	4865	15	29	19	29	38	62	3
Minot AFB	Minot ND	9407	25	50	NR	NR	52	72	6
Moody AFB	Tallahassee FL	1563	5	11	26	45	35	60	4
Mountain Home	Boise ID	5833	14	28	27	38	48	71	10
Myrtle Beach AFB	Columbia SC	2598	8	17	25	41	38	61	4
Nellis AFB	Las Vegas NV	2901	9	18	35	56	48	75	9
Norton AFB	Los Angeles CA	1819	5	9	36	58	44	72	9
Offutt AFB	Omaha NE	6901	20	40	21	29	51	76	7
Pattuck AFB	Orlando FL	733	3	6	30	52	37	63	4
Pease AFB	Concord NH	7360	17	34	13	15	45	68	1
Peterson AFB	Colorado Springs CO	6473	12	24	27	42	47	74	5
Plattsburgh AFB	Burlington VT	7676	22	43	NR	NR	46	68	2
Pope AFB	Raleigh NC	3514	9	19	22	37	38	61	4
Randolph AFB	San Antonio TX	1570	6	12	28	48	38	64	6
Reese AFB	Lubbock TX	3645	9	19	30	49	44	72	6
Robins AFB	Mecon GA	2240	7	15	25	41	35	69	4
Scott AFB	St Louis MO	4750	15	29	21	33	41	65	5
Seymour-Johnson	Raleigh NC	3514	9	19	22	37	38	61	4
Shaw AFB	Columbia SC	2598	8	17	25	41	38	61	4
Sheppard AFB	Wichita Falls TX	2904	10	20	27	45	41	67	6
Tinker AFB	Oklahoma City OK	3695	11	22	25	41	41	67	6
Travis AFB	Oakland CA	2909	7	15	35	55	48	72	9
Tyndall AFB	Apalachicola FL	1361	5	10	28	47	38	61	4
USAF Academy	Colorado Springs CO	6473	12	24	27	42	47	74	5
Vance AFB	Oklahoma City OK	3695	11	22	25	41	41	67	6
Vandenberg AFB	Santa Maria CA	3068	5	11	31	53	42	69	9
Whiteman AFB	Columbia MO	6063	13	26	20	30	41	66	7
Williams AFB	Phoenix AZ	1552	6	12	37	60	48	75	9
Wright-Patterson	Dayton OH	5941	14	28	14	20	38	59	5
Wurtsmith AFB	Alpena MI	6516	21	42	NR	NR	47	69	5

NR = Not Recommended

APPENDIX F
AIR FORCE INSTALLATION COST FACTOR ADJUSTMENTS
(MEANS, 1982)

AIR FORCE INSTALLATION COST FACTOR ADJUSTMENTS						
Installation	Closest City	Trade Section Adjustments				
		2	4	6	11	WA
Altus AFB	Lawton OK	0.939	0.882	0.859	0.955	0.904
Andrews AFB	Washington DC	0.935	0.973	0.992	0.983	0.959
Arnold AFS	Chattanooga TN	0.909	0.848	0.887	0.949	0.889
Barksdale AFB	Shreveport LA	0.882	0.848	0.878	0.955	0.887
Beale AFB	Sacramento CA	1.165	1.125	1.181	1.078	1.138
Bergstrom AFB	Austin TX	0.896	0.878	0.864	0.956	0.897
Blytheville AFB	Memphis TN	0.887	0.905	0.909	0.960	0.916
Bolling AFB	Washington DC	0.935	0.973	0.992	0.983	0.959
Brooks AFB	San Antonio TX	0.936	0.871	0.868	0.954	0.917
Cannon AFB	Albuquerque NM	0.959	0.812	0.889	0.956	0.913
Carwell AFB	Dallas TX	0.962	0.959	0.922	0.973	0.949
Castle AFB	Fresno CA	1.100	1.066	1.150	1.054	1.108
Chanute AFB	Decatur IL	0.999	0.974	1.032	0.990	0.965
Charleston AFB	Charleston SC	0.855	0.780	0.858	0.925	0.835
Columbus AFB	Tuscaloosa AL	0.871	0.818	0.833	0.943	0.889
Davis-Monthan AFB	Tucson AZ	1.013	0.953	0.963	0.988	0.982
Dover AFB	Wilmington DE	1.064	0.949	1.0	0.990	0.991
Dyess AFB	Abilene TX	0.902	0.861	0.882	0.946	0.888
Edwards AFB	Bakersfield CA	1.119	1.109	1.137	1.039	1.089
Eglin AFB	Mobile AL	0.897	0.834	0.901	0.960	0.898
Ellsworth AFB	Rapid City SD	0.908	0.885	0.920	0.948	0.897
England AFB	Baton Rouge LA	0.944	0.924	0.915	0.988	0.940
Fairchild AFB	Spokane WA	1.059	1.049	1.053	1.019	1.064
Francis E Warren AFB	Cheyenne WY	0.980	0.984	0.986	0.982	0.985
George AFB	Los Angeles CA	1.074	1.147	1.118	1.057	1.104
Goodfellow AFB	Abilene TX	0.902	0.861	0.882	0.946	0.888
Grand Forks AFB	Fargo ND	0.952	0.906	0.920	0.957	0.929
Griffiss AFB	Syracuse NY	0.927	0.948	0.966	0.981	0.962
Grierson AFB	Fort Wayne IN	0.964	0.967	0.971	0.984	0.971
Gunter AFB	Montgomery AL	0.898	0.807	0.861	0.943	0.888
Hancock Field	Syracuse NY	0.927	0.948	0.956	0.981	0.962
Hanscom AFB	Boston MA	1.032	1.009	1.063	1.0	1.023
HBI AFB	Salt Lake City UT	0.968	0.923	0.939	0.966	0.937
Holloman AFB	Albuquerque NM	0.959	0.812	0.889	0.956	0.913
Honnestead AFB	Miami FL	0.940	0.855	0.896	0.963	0.916
Hurlbert Field	Mobile AL	0.887	0.834	0.901	0.960	0.898
Indian Springs Aux	Las Vegas NV	1.064	1.066	1.066	1.037	1.061
Keester AFB	Biloxi MS	0.857	0.841	0.846	0.949	0.872
Kelly AFB	San Antonio TX	0.936	0.871	0.868	0.954	0.917
Kirtland AFB	Albuquerque NM	0.959	0.812	0.889	0.956	0.913
K. I. Sawyer AFB*	No Adjustment	1.0	1.0	1.0	1.0	1.0
Lackland AFB	San Antonio TX	0.936	0.871	0.868	0.954	0.917
Langley AFB	Norfolk VA	0.924	0.788	0.818	0.938	0.889
Laughlin AFB	San Antonio TX	0.936	0.871	0.868	0.954	0.917

*Closest reference city in excess of 100 miles.

AIR FORCE INSTALLATION COST FACTOR ADJUSTMENTS						
Installation	Closest City	Trade Section Adjustments				
		2	4	6	11	WA
Little Rock AFB	Little Rock AR	0.934	0.825	0.837	0.948	0.891
Loring AFB*	No Adjustment	1.0	1.0	1.0	1.0	1.0
Los Angeles AFS	Los Angeles CA	1.074	1.140	1.137	1.057	1.104
Lowry AFB	Denver CO	0.990	0.971	0.972	0.992	0.988
Luke AFB	Phoenix AZ	0.980	0.931	0.957	0.994	0.976
MacDill AFB	Tampa FL	0.982	0.864	0.876	0.952	0.910
Malmstrom AFB	Great Falls MT	0.973	0.939	0.956	0.970	0.948
March AFB	Los Angeles CA	1.074	1.140	1.137	1.057	1.104
Mather AFB	Sacramento CA	1.166	1.125	1.181	1.078	1.138
Maxwell AFB	Montgomery AL	0.898	0.807	0.861	0.943	0.868
McChord AFB	Seattle WA	1.084	1.129	1.062	1.036	1.100
McClellan AFB	Sacramento CA	1.166	1.125	1.181	1.078	1.138
McConnell AFB	Wichita KS	0.908	0.856	0.892	0.958	0.909
McGuire AFB	Trenton NJ	0.994	0.992	1.061	1.002	1.004
Minot AFB*	No Adjustment	1.0	1.0	1.0	1.0	1.0
Moody AFB	Albany GA	0.931	0.774	0.799	0.927	0.866
Mountain Home	Boise ID	0.979	0.964	0.964	0.983	0.967
Myrtle Beach AFB	Charleston SC	0.855	0.780	0.858	0.925	0.835
Nellis AFB	Las Vegas NV	1.084	1.096	1.098	1.037	1.081
Norton AFB	Los Angeles CA	1.074	1.140	1.137	1.057	1.104
Offutt AFB	Omaha NE	0.977	0.942	0.950	0.976	0.968
Patrick AFB	Orlando FL	0.884	0.808	0.871	0.943	0.865
Pease AFB	Manchester NH	0.904	0.867	0.924	0.959	0.915
Peterson AFB	Colorado Springs CO	0.976	0.955	0.954	0.981	0.961
Plattsburgh AFB	Burlington VT	0.951	0.803	0.891	0.943	0.889
Pope AFB	Raleigh NC	0.889	0.734	0.812	0.919	0.826
Randolph AFB	San Antonio TX	0.936	0.871	0.868	0.954	0.917
Reese AFB	Lubbock TX	0.922	0.870	0.827	0.952	0.895
Robins AFB	Macon GA	0.873	0.718	0.812	0.931	0.842
Scott AFB	St Louis MO	0.922	1.001	0.931	0.994	0.966
Seymour-Johnson	Raleigh NC	0.889	0.734	0.812	0.919	0.826
Shaw AFB	Columbia SC	0.810	0.765	0.765	0.925	0.831
Sheppard AFB	Wichita Falls TX	0.911	0.891	0.860	0.957	0.901
Tinker AFB	Oklahoma City OK	0.950	0.938	0.943	0.963	0.939
Travis AFB	San Francisco CA	1.166	1.237	1.237	1.094	1.226
Tyndall AFB*	No Adjustment	1.0	1.0	1.0	1.0	1.0
USAF Academy	Colorado Springs CO	0.976	0.955	0.954	0.981	0.961
Vance AFB	Oklahoma City OK	0.950	0.936	0.943	0.963	0.939
Vandenberg AFB	Bakersfield CA	1.119	1.109	1.137	1.039	1.069
Whiteman AFB	Kansas City MO	0.870	0.883	0.972	0.983	0.869
Williams AFB	Phoenix AZ	0.980	0.931	0.957	0.994	0.976
Wright-Patterson	Dayton OH	0.966	0.960	0.997	0.966	0.976
Wurtsmith AFB	Flint MI	0.994	1.017	0.998	1.005	0.990

*Closest reference city in excess of 100 miles.

Computer Program

```
program psolar

integer j,k,l,m,z,floors,doe

real glaze,rot,asc(2:30,10:100,1:2),
*   ahc(2:30),sac(2:30,10:100,1:2),
*   hdd,ssf(2),cwc,acost,cf2,cf4,cf6,cf11,
*   tmass,tmc,rho(2),gmax,sif,siw,cif,ciw,
*   inflor,inwall,amass,mass,sfamas,
*   ninsul,cinsul(2),apc(2),sfblc,
*   e(5),upwe(5,11),
*   fc(2:30,10:100,1:2,1:5)

character base*25,night(2)*30,fuel(5)*15

open(10,file='location')
rewind 10

read(10,*) base
read(10,*) floors
read(10,*) rot
read(10,*) ssf(1)
read(10,*) ssf(2)
read(10,*) hdd
read(10,*) cf2
read(10,*) cf4
read(10,*) cf6
read(10,*) cf11
read(10,*) doe

open(15,file='datafile')
rewind 15

read(15,*) sfblc
read(15,*) rho(1)
read(15,*) rho(2)
read(15,*) apc(1)
read(15,*) apc(2)
read(15,*) cwc
read(15,*) sif
read(15,*) siw
read(15,*) cif
read(15,*) ciw
read(15,*) cinsul(1)
read(15,*) cinsul(2)
```



```

open(5,file = 'upwe')
rewind 5

do 4 j = 1,5
  read(5,*) (upwe(j,k),k = 1,11)
  continue
4

e(1) = 0.975
e(2) = 0.75
e(3) = 0.75
e(4) = 0.75
e(5) = 0.7

night(1) = 'No Night Insulation'
night(2) = 'With Night Insulation'

fuel(1) = 'Electricity'
fuel(2) = 'Distillate Oil'
fuel(3) = 'Residual Oil'
fuel(4) = 'Natural Gas'
fuel(5) = 'Coal'

do 1 j=2,30,2
  ahc(j) = 0.0
  do 2 k=10,100,10
    do 3 l=1,2
      sac(j,k,l) = 0.0
      sac(j,k,l) = 0.0
      do 5 z = 1,5
        fc(j,k,l,z) = 0.0
        continue
5
      continue
3
    continue
2
  continue
1

print 110,base
110 format(45x,a25,/)

do 15 m=1,2

do 20 j=2,30,2
  shc(j) = (j*1000.0*sfblc*hdd)/1000000.0
  do 30 k=10,100,10
    glaze = j*1000.0*(k/100.0)*ret*floors
    gmax = ((sqrt(j*1000.0/6.0))*6.0)*6.67*floors

    if(glaze.gt.gmax)then
      glaze = 1000000.0
    endif

    mass = sf(1)*j*glaze - 10.0*j*1000.0

```

```

tmass = mass/rho(1)
tmass = max(3*glaze,tmass)
inflor = (k/100.0)*j*1000.0*floors
inwall = tmass - inflor

```

```

if(inwall.gt.0.0)then
  tmc = (inflor*sif*cf2+inwall*siw*cf6)
        -(inflor*cif*cf2+inwall*ciw*cf6)
else
  tmc = tmass*sif*cf2-tmass*cif*cf2
endif

```

```

acost = glaze*apc(1)*cf11 - glaze*cwc*cf4
ninsul = glaze*cinsul(m)*cf11
sac(j,k,1) = tmc + acost + ninsul

```

```

do 35 z = 1,5
  fc(j,k,1,z) = (e(z)*0.9*sac(j,k,1))/
                (upwe(z,doe)*(ssf(m)/100.0)*(k/100.0)*ahc(j))
continue

```

35

```

tmass = mass/rho(2)
amass = tmass - glaze
if(amass.gt.0.0)then
  sfamas = 4.0*amass*rho(2)/rho(1)
  inflor = (k/100.0)*j*1000.0*floors
  inwall = sfamas - inflor
  if(inwall.gt.0.0)then
    tmc = (inflor*sif*cf2+inwall*siw*cf6)
          -(inflor*cif*cf2+inwall*ciw*cf6)
  else
    tmc = sfamas*sif*cf2 - sfamas*cif*cf2
  endif
endif

```

```

tmc = 0.0
endif
acost = glaze*apc(2)*cf11 - glaze*cwc*cf4
ninsul = glaze*cinsul(m)*cf11
sac(j,k,2) = tmc + acost + ninsul

```

```

do 36 z = 1,5
  fc(j,k,2,z) = (e(z)*0.9*sac(j,k,2))/
                (upwe(z,doe)*(ssf(m)/100.0)*(k/100.0)*ahc(j))
continue

```

36

```

if(sac(j,k,1).gt.1000000.0)then
  sac(j,k,m) = 1000000.0
else
  sac(j,k,m) = ahc(j)*(k/100.0)*(ssf(m)/100.0)
endif

```

```

30         continue
20        continue

        print 25,night(m)
25        format(/,/,44x,a30)
        print 37
37        format(/,/,40x,'Annual Solar Savings (MBtu"s)')
        print 40
40        format(/,'square feet',/,2x,'(x 1000)',/)

        do 50 j=2,30,2
            print 60,j,(asc(j,k,m),k=10,100,10)
60            format(5x,i5,5x,f7.2,2x,f7.2,2x,f7.2,2x,f7.2,
*              2x,f7.2,2x,f7.2,2x,f7.2,2x,f7.2,2x,f7.2,2x,
*              f7.2)
50        continue
        print 65
65        format(/,17x,'10',7x,'20',7x,'30',7x,
* '40',7x,'50',7x,'60',7x,'70',7x,'80',7x,'90',7x,'100',/,
* /,35x,'Per Cent Floor Area Served By Solar Add-on')

        print 85
85        format(/,/,40x,'Direct Gain Differential Cost ($''s)')
        print 40
        do 80 j=2,30,2
            print 90,j,(sac(j,k,1),k=10,100,10)
90            format(5x,i5,5x,f7.0,2x,f7.0,2x,f7.0,2x,f7.0,
*              2x,f7.0,2x,f7.0,2x,f7.0,2x,f7.0,2x,f7.0,2x,
*              f7.0)
80        continue
        print 65

        print 95
95        format(/,/,40x,'Trombe Wall Differential Cost ($''s)')
        print 40
        do 100 j=2,30,2
            print 90,j,(sac(j,k,2),k=10,100,10)
100       continue
        print 65

        do 130 z=1,5
            print 105,fuel(z)
105       format(/,/,45x,a15)
            print 120
120       format(/,30x,
* '25 Year Discounted Payback Break Even Fuel Cost',/)
            do 125 i=2,30,2
                print 60,j,(fc(j,k,1,z),k=10,100,10)
                print 60,j,(tc(i,k,2,z),k=10,100,10)
            enddo
        enddo

```

```
1  
125     continue  
        print 65  
130     continue  
        print 120  
  
15      continue  
  
        print 45  
45      format(/,35x,'square feet',6x,'Annual Heating Consumption',/,  
* 37x,'(x 1000)',/)  
        do 70 j=2,30,2  
            print 75,j,ahc(j)  
            format(40x,15,13x,f7.2)  
75      continue  
70      continue  
  
        end
```

Sample Data File

9.0
50
100
19.16
23.78
8.59
2.69
3.39
2.69
2.02
0.0
10.50

Sample Location File

'Altus AFB'

1

0.10

27

41

2904

0.939

0.882

0.859

0.955

6

DOE Escalated Uniform Present Worth Factors

11.81	12.94	14.46	15.23	14.33	14.40	13.82	10.38	13.40	16.10	14.19
17.79	17.76	17.64	17.68	17.93	17.87	18.00	17.94	18.10	18.10	17.79
21.74	21.55	21.42	22.19	14.07	22.27	14.12	22.50	22.56	22.60	18.09
18.11	18.23	19.55	21.20	18.92	17.45	19.62	16.88	15.93	13.46	17.84
17.44	20.33	20.71	20.42	19.92	20.53	20.25	18.95	19.40	24.58	20.76

APPENDIX H
ANNUAL SOLAR CONTRIBUTION AND DIFFERENTIAL
COST TABLES

Altus AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.1	8.5	9.9	11.3	12.7	14.1
4	2.8	5.6	8.5	11.3	14.1	16.9	19.8	22.6	25.4	28.2
6	4.2	8.5	12.7	16.9	21.2	25.4	29.6	33.9	38.1	42.3
8	5.6	11.3	16.9	22.6	28.2	33.9	39.5	45.2	50.8	56.5
10	7.1	14.1	21.2	28.2	35.3	42.3	49.4	56.5	63.5	70.6
12	8.5	16.9	25.4	33.9	42.3	50.8	58.8	67.7	76.2	84.7
14	9.9	19.8	29.6	39.5	48.4	58.3	68.2	78.0	87.9	97.8
16	11.3	22.6	33.9	45.2	56.5	67.7	78.0	90.3	101.6	112.9
18	12.7	25.4	38.1	50.8	63.5	76.2	88.9	101.6	114.3	127.0
20	14.1	28.2	42.3	56.5	70.6	84.7	98.8	112.9	127.0	141.1
22	15.5	31.0	46.6	62.1	77.6	93.1	108.7	124.2	139.7	155.2
24	16.9	33.9	50.8	67.7	84.7	101.6	118.6	135.5	152.4	169.4
26	18.3	36.7	55.0	73.4	91.7	110.1	128.4	148.8	165.1	183.5
28	19.8	39.5	59.3	79.0	98.8	118.6	138.3	158.1	177.8	*****
30	21.2	42.3	63.5	84.7	105.9	127.0	148.2	169.4	190.5	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	214	428	643	858	1072	1287	1501	1715	1930	2144
4	428	858	1287	1715	2144	2573	3002	3431	3860	4289
6	643	1287	1930	2573	3216	3860	4503	5146	5790	6433
8	858	1715	2573	3431	4289	5146	6004	6862	7719	8577
10	1072	2144	3216	4289	5361	6433	7505	8577	9649	10721
12	1287	2573	3860	5146	6433	7719	9006	10293	11579	12866
14	1501	3002	4503	6004	7505	9006	10507	12008	13509	15010
16	1715	3431	5146	6862	8577	10293	12008	13723	15438	17154
18	1930	3860	5790	7719	9649	11579	13509	15438	17368	19298
20	2144	4289	6433	8577	10721	12865	15010	17154	19298	21443
22	2358	4717	7076	9435	11794	14152	16511	18870	21228	23587
24	2573	5146	7719	10293	12866	15439	18012	20385	22731	25131
26	2788	5575	8363	11100	13888	16785	19513	22361	25088	27676
28	3002	6004	9006	12008	15010	18012	21014	24016	27018	*****
30	3216	6433	9649	12866	16002	19009	22015	25031	28048	*****

THERMAL FALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303	606	909	1211	1513	1816	2118	2421	2724	3027
4	606	1211	1816	2421	3027	3632	4237	4843	5448	6053
6	909	1816	2724	3632	4540	5448	6356	7264	8172	9080
8	1211	2421	3632	4843	6053	7264	8475	9686	10896	12107
10	1513	3027	4540	6053	7567	9080	10593	12107	13620	15134
12	1816	3632	5448	7264	9080	10896	12712	14528	16344	18160
14	2118	4237	6356	8475	10593	12712	14881	16999	19117	21167
16	2421	4843	7264	9686	12107	14528	16999	19371	21782	24214
18	2724	5448	8172	10896	13230	15844	18088	21782	24616	27249
20	3027	6053	9080	12107	15134	18180	21167	24214	27249	30287
22	3330	6658	9988	13317	16447	19776	23006	26335	29454	32584
24	3632	7264	10896	14528	18009	21782	25424	29088	32088	35380
26	3935	7869	11804	15709	19776	23935	27843	31478	34812	38147
28	4237	8475	12712	16888	21487	25486	29888	33988	37588	*****
30	4540	9080	13620	18102	23202	27840	31781	36381	40351	*****

Altus AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.1	19.3	21.4
4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
6	6.4	12.9	19.3	25.7	32.1	38.6	45.0	51.4	57.9	64.3
8	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.2	85.7
10	10.7	21.4	32.1	42.9	53.6	64.3	75.0	85.7	96.4	107.2
12	12.9	25.7	38.6	51.4	64.3	77.2	90.0	102.9	115.7	128.6
14	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
16	17.1	34.3	51.4	68.6	85.7	102.9	120.0	137.2	154.3	171.5
18	19.3	38.6	57.9	77.2	96.4	115.7	135.0	154.3	173.6	192.9
20	21.4	42.9	64.3	85.7	107.2	128.6	150.0	171.5	192.9	214.3
22	23.6	47.1	70.7	94.3	117.9	141.4	165.0	188.6	212.2	235.7
24	25.7	51.4	77.2	102.9	128.6	154.3	180.0	205.7	231.5	257.2
26	27.9	55.7	83.6	111.4	139.3	167.2	195.0	222.9	250.7	278.6
28	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	*****
30	32.1	64.3	96.4	128.6	160.7	192.9	225.0	257.2	289.3	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	415.	830.	1245.	1660.	2075.	2490.	2905.	3320.	3735.	4150.
4	830.	1660.	2490.	3320.	4150.	4980.	5810.	6640.	7470.	8300.
6	1245.	2490.	3735.	4980.	6225.	7470.	8715.	9959.	11204.	12449.
8	1660.	3320.	4980.	6640.	8300.	9959.	11619.	13279.	14939.	16599.
10	2075.	4150.	6225.	8300.	10374.	12449.	14524.	16599.	18674.	20749.
12	2490.	4980.	7470.	9959.	12449.	14939.	17429.	19919.	22409.	24899.
14	2905.	5810.	8715.	11619.	14524.	17429.	20334.	23239.	26144.	29048.
16	3320.	6640.	9959.	13279.	16599.	19919.	23239.	26559.	29878.	33198.
18	3735.	7470.	11204.	14939.	18674.	22409.	26144.	29878.	33613.	37348.
20	4150.	8300.	12449.	16599.	20749.	24899.	29049.	33199.	37348.	41498.
22	4565.	9130.	13694.	18259.	22824.	27399.	31653.	36518.	41083.	45648.
24	4980.	9959.	14939.	19919.	24899.	29878.	34558.	39838.	44818.	49797.
26	5395.	10789.	16184.	21579.	26974.	32358.	37763.	43158.	48552.	53947.
28	5810.	11619.	17429.	23239.	29048.	34858.	40668.	46478.	52287.	*****
30	6225.	12449.	18674.	24899.	31123.	37348.	43173.	49797.	56022.	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	503.	1006.	1510.	2013.	2516.	3019.	3523.	4026.	4529.	5032.
4	1006.	2012.	3019.	4026.	5032.	6039.	7045.	8052.	9058.	10064.
6	1510.	3019.	4529.	6039.	7548.	9058.	10568.	12077.	13587.	15097.
8	2013.	4026.	6039.	8052.	10064.	12077.	14090.	16103.	18116.	20129.
10	2516.	5032.	7548.	10064.	12581.	15097.	17613.	20129.	22645.	25161.
12	3019.	6039.	9058.	12077.	15097.	18116.	21135.	24155.	27174.	30193.
14	3523.	7045.	10568.	14090.	17613.	21135.	24658.	28180.	31703.	35225.
16	4026.	8052.	12077.	16103.	20129.	24155.	28180.	32206.	36232.	40258.
18	4529.	9058.	13587.	18116.	22645.	27174.	31703.	36232.	40761.	45290.
20	5032.	10064.	15097.	20129.	25161.	30193.	35225.	40258.	45290.	50322.
22	5535.	11071.	16599.	22142.	27677.	33213.	38748.	44283.	49319.	55354.
24	6038.	12077.	18116.	24155.	30193.	36232.	42271.	48308.	54348.	60386.
26	6542.	13084.	19628.	26167.	32708.	38751.	45793.	52336.	59377.	65419.
28	7045.	14090.	21135.	28180.	35225.	42271.	49316.	56361.	63406.	*****
30	7548.	15097.	22645.	30193.	37742.	45290.	52336.	60386.	67435.	*****

Andrews AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.2	4.8	6.5	8.1	9.7	11.4	13.0	14.6	16.2
4	3.2	6.5	9.7	13.0	16.2	19.5	22.7	26.0	29.2	32.5
6	4.8	9.7	14.6	19.5	24.3	29.2	34.1	39.0	43.8	48.7
8	6.5	13.0	19.5	26.0	32.5	39.0	45.5	51.9	58.4	64.9
10	8.1	16.2	24.3	32.5	40.6	48.7	56.8	64.9	73.0	81.2
12	9.7	19.5	29.2	39.0	48.7	58.4	68.2	77.9	87.7	97.4
14	11.4	22.7	34.1	45.5	56.8	68.2	79.5	90.9	102.3	113.6
16	13.0	26.0	39.0	51.9	64.9	77.9	90.9	103.9	116.9	129.9
18	14.6	29.2	43.8	58.4	73.0	87.7	102.3	116.9	131.5	146.1
20	16.2	32.5	48.7	64.9	81.2	97.4	113.6	129.9	146.1	*****
22	17.9	36.7	53.4	71.4	89.3	107.1	123.0	142.8	160.7	*****
24	19.5	39.0	58.4	77.9	97.4	118.9	136.4	155.8	*****	*****
26	21.1	42.2	63.3	84.4	106.5	128.5	147.7	168.8	*****	*****
28	22.7	45.5	68.2	90.9	115.8	138.4	159.1	181.8	*****	*****
30	24.3	48.7	73.0	97.4	121.7	146.1	170.4	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	201.	503.	754.	1006.	1257.	1508.	1760.	2011.	2263.	2514.
4	503.	1006.	1509.	2011.	2514.	3017.	3520.	4023.	4526.	5029.
6	754.	1509.	2263.	3017.	3771.	4526.	5280.	6034.	6789.	7543.
8	1006.	2011.	3017.	4023.	5029.	6034.	7040.	8046.	9051.	10057.
10	1257.	2514.	3771.	5029.	6286.	7543.	8800.	10057.	11314.	12571.
12	1509.	3017.	4526.	6034.	7543.	9051.	10560.	12069.	13577.	15086.
14	1760.	3520.	5280.	7040.	8800.	10600.	12320.	14080.	15840.	17600.
16	2011.	4023.	6034.	8046.	10057.	12069.	14080.	16091.	18103.	20114.
18	2263.	4526.	6789.	9051.	11314.	13577.	15840.	18103.	20366.	22629.
20	2514.	5029.	7543.	10057.	12571.	15086.	17600.	20114.	22629.	*****
22	2766.	5531.	8297.	11063.	13629.	16204.	18800.	22126.	24891.	*****
24	3017.	6034.	9051.	12069.	15086.	18103.	21120.	24137.	*****	*****
26	3269.	6537.	9806.	13074.	16343.	19611.	22550.	25149.	*****	*****
28	3520.	7040.	10600.	14080.	17600.	21120.	24440.	26160.	*****	*****
30	3771.	7543.	11314.	15086.	18857.	22629.	26400.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	390.	781.	1081.	1442.	1803.	2164.	2525.	2886.	3247.	3608.
4	781.	1442.	2163.	2884.	3605.	4326.	5047.	5768.	6489.	7210.
6	1081.	2163.	3244.	4325.	5406.	6487.	7568.	8649.	9730.	10811.
8	1442.	2885.	4326.	5767.	7208.	8649.	10090.	11531.	12972.	14413.
10	1803.	3606.	5407.	7208.	9009.	10810.	12611.	14412.	16213.	18014.
12	2164.	4327.	6488.	8649.	10810.	12971.	15132.	17303.	19464.	21625.
14	2525.	5048.	7569.	10090.	12611.	15132.	17903.	20184.	22705.	25236.
16	2886.	5769.	8650.	11531.	14412.	17303.	20184.	23057.	25851.	28847.
18	3247.	6490.	9731.	12972.	16213.	19464.	22707.	25851.	29104.	32458.
20	3608.	7211.	10812.	14413.	18014.	21625.	25236.	28847.	32458.	*****
22	3969.	7932.	11993.	15854.	19925.	23787.	27757.	31717.	35868.	*****
24	4330.	8653.	12974.	17305.	21636.	25851.	30278.	34401.	*****	*****
26	4691.	9374.	14055.	18746.	23437.	28112.	32799.	37484.	*****	*****
28	5052.	10095.	15137.	20187.	25238.	30279.	35320.	40367.	*****	*****
30	5413.	10816.	16219.	21628.	27039.	32460.	37841.	*****	*****	*****

Andrews AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.3	6.7	10.0	13.3	16.7	20.0	23.4	26.7	30.0	33.4
4	6.7	13.3	20.0	26.7	33.4	40.0	46.7	53.4	60.1	66.7
6	10.0	20.0	30.0	40.0	50.0	60.1	70.1	80.1	90.1	100.1
8	13.3	26.7	40.0	53.4	66.7	80.1	93.4	106.8	120.1	133.5
10	16.7	33.4	50.0	66.7	83.4	100.1	116.8	133.5	150.1	166.8
12	20.0	40.0	60.1	80.1	100.1	120.1	140.1	160.2	180.2	200.2
14	23.4	46.7	70.1	93.4	116.8	140.1	163.5	186.9	210.2	233.6
16	26.7	53.4	80.1	106.8	133.5	160.2	186.9	213.5	240.2	266.9
18	30.0	60.1	90.1	120.1	150.1	180.2	210.2	240.2	270.3	300.3
20	33.4	66.7	100.1	133.5	166.8	200.2	233.6	266.9	300.3	*****
22	36.7	73.4	110.1	146.8	183.5	220.2	256.9	293.6	330.3	*****
24	40.0	80.1	120.1	160.2	200.2	240.2	280.3	320.3	*****	*****
26	43.4	86.8	130.1	173.5	216.9	260.3	303.6	347.0	*****	*****
28	46.7	93.4	140.1	186.9	233.6	280.3	327.0	373.7	*****	*****
30	50.0	100.1	150.1	200.2	250.2	300.3	350.3	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	499.	998.	1497.	1997.	2496.	2995.	3494.	3993.	4492.	4991.
4	998.	1997.	2996.	3995.	4994.	5993.	6992.	7991.	8990.	9989.
6	1497.	2996.	4495.	5994.	7493.	8992.	10491.	11990.	13489.	14988.
8	1997.	3996.	5995.	7994.	9993.	11992.	13991.	15990.	17989.	19988.
10	2496.	4995.	7494.	9993.	12492.	14991.	17490.	19989.	22488.	24987.
12	2995.	5994.	8993.	11992.	14991.	17990.	20989.	23988.	26987.	29986.
14	3494.	6993.	10492.	13991.	17490.	20989.	24488.	27987.	31486.	34985.
16	3993.	7992.	11991.	15990.	19989.	23988.	27987.	31986.	35985.	39984.
18	4492.	8991.	13490.	17989.	22488.	26987.	31486.	35985.	40484.	44983.
20	4991.	9990.	14989.	19988.	24987.	29986.	34985.	39984.	44983.	*****
22	5490.	10989.	16488.	21987.	27486.	32985.	38484.	43983.	49482.	*****
24	5990.	11988.	17987.	23986.	29985.	35984.	41983.	47982.	53981.	*****
26	6490.	12987.	19486.	25985.	32484.	38983.	45482.	51981.	*****	*****
28	6990.	13986.	20985.	27984.	34983.	41982.	48981.	55980.	*****	*****
30	7490.	14985.	22484.	29983.	37482.	44981.	52480.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	608.	1216.	1824.	2432.	3040.	3648.	4257.	4865.	5473.	6081.
4	1216.	2432.	3648.	4865.	6081.	7298.	8514.	9730.	10947.	12163.
6	1824.	3648.	5473.	7298.	9122.	10947.	12771.	14596.	16420.	18244.
8	2432.	4865.	7298.	9730.	12163.	14596.	17029.	19462.	21895.	24328.
10	3040.	6081.	9122.	12163.	15204.	18244.	21285.	24326.	27367.	30407.
12	3648.	7298.	10947.	14596.	18244.	21895.	25546.	29197.	32848.	36488.
14	4257.	8514.	12771.	17029.	21285.	25546.	29797.	34098.	38313.	42570.
16	4865.	9730.	14596.	19462.	24328.	29191.	34098.	38921.	43766.	48651.
18	5473.	10947.	16420.	21895.	27369.	32848.	38313.	43766.	49220.	54733.
20	6081.	12163.	18244.	24328.	30407.	36486.	42570.	48651.	54733.	*****
22	6690.	13379.	20089.	26771.	33446.	40137.	46227.	52316.	58308.	*****
24	7298.	14596.	21903.	29191.	36486.	43766.	51084.	58321.	*****	*****
26	7906.	15812.	23717.	31823.	39528.	47430.	55341.	63247.	*****	*****
28	8514.	17029.	25542.	34686.	42570.	51084.	59598.	68112.	*****	*****
30	9122.	18244.	27398.	37650.	45611.	54733.	63855.	*****	*****	*****

Arnold AFS

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ-FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
4	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0
6	3.6	7.2	10.8	14.4	18.0	21.6	25.2	28.8	32.4	36.0
8	4.8	9.6	14.4	19.2	24.0	28.8	33.6	38.4	43.2	47.9
10	6.0	12.0	18.0	24.0	30.0	36.0	42.0	47.9	53.9	59.9
12	7.2	14.4	21.6	28.8	36.0	43.2	50.3	57.5	64.7	71.9
14	8.4	16.8	25.2	33.6	42.0	50.3	58.7	67.1	75.5	83.9
16	9.6	19.2	28.8	38.4	47.9	57.5	67.1	76.7	85.3	93.9
18	10.8	21.6	32.4	43.2	53.9	64.7	75.5	86.3	97.1	107.9
20	12.0	24.0	36.0	47.9	59.9	71.9	83.9	95.9	107.9	119.9
22	13.2	26.4	39.6	52.7	65.9	79.1	92.3	105.5	118.7	131.9
24	14.4	28.8	43.2	57.5	71.9	86.3	100.7	115.1	129.5	143.8
26	15.6	31.2	46.7	62.3	77.9	93.5	109.1	124.7	140.2	155.8
28	16.8	33.6	50.3	67.1	83.9	100.7	117.5	134.3	151.0	167.8
30	18.0	36.0	53.9	71.9	89.9	107.9	125.9	143.8	161.8	179.8

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	195.	390.	585.	780.	975.	1171.	1366.	1561.	1756.	1951.
4	390.	780.	1171.	1561.	1951.	2341.	2731.	3122.	3512.	3902.
6	585.	1171.	1756.	2341.	2927.	3512.	4097.	4682.	5268.	5853.
8	780.	1561.	2341.	3122.	3902.	4682.	5463.	6243.	7024.	7804.
10	975.	1951.	2927.	3902.	4878.	5853.	6829.	7804.	8780.	9755.
12	1171.	2341.	3512.	4682.	5853.	7024.	8194.	9365.	10536.	11706.
14	1366.	2731.	4097.	5463.	6829.	8194.	9560.	10926.	12291.	13657.
16	1561.	3122.	4682.	6243.	7804.	9365.	10926.	12487.	14047.	15608.
18	1756.	3512.	5268.	7024.	8780.	10536.	12291.	14047.	15803.	17559.
20	1951.	3902.	5853.	7804.	9755.	11706.	13657.	15608.	17559.	19510.
22	2146.	4292.	6438.	8439.	10390.	12341.	14292.	16243.	18194.	20145.
24	2341.	4682.	7024.	9025.	11076.	13027.	14978.	16929.	18880.	20831.
26	2536.	5073.	7609.	10145.	12092.	14047.	15998.	17949.	19900.	21717.
28	2731.	5463.	8194.	10926.	12867.	14822.	16773.	18724.	20601.	22603.
30	2927.	5853.	8780.	11706.	13653.	15608.	17559.	19410.	21492.	23489.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	274.	547.	821.	1095.	1368.	1642.	1916.	2190.	2463.	2737.
4	547.	1095.	1642.	2190.	2737.	3284.	3832.	4379.	4926.	5474.
6	821.	1642.	2463.	3284.	4105.	4926.	5747.	6568.	7389.	8211.
8	1095.	2190.	3284.	4379.	5474.	6568.	7663.	8758.	9853.	10948.
10	1368.	2737.	4105.	5474.	6842.	8211.	9579.	10948.	12316.	13684.
12	1642.	3284.	4926.	6568.	8211.	9853.	11495.	13137.	14779.	16421.
14	1916.	3832.	5747.	7663.	9579.	11495.	13411.	15227.	17042.	18858.
16	2190.	4379.	6568.	8758.	10948.	13137.	15227.	17516.	19705.	21666.
18	2463.	4926.	7389.	9853.	12316.	14779.	17242.	19705.	22108.	24532.
20	2737.	5474.	8211.	10948.	13684.	16421.	19158.	21666.	24662.	27398.
22	3011.	6021.	9032.	12042.	14633.	17663.	20774.	24066.	27068.	30108.
24	3284.	6568.	9853.	13137.	16421.	19705.	22990.	26274.	29668.	32943.
26	3558.	7115.	10674.	14232.	17790.	21348.	24906.	28484.	32568.	35800.
28	3832.	7663.	11495.	15327.	19108.	22990.	26822.	30693.	34469.	38617.
30	4105.	8211.	12316.	16421.	20637.	24632.	28737.	32643.	36348.	41483.

Arnold AFS

ANNUAL SOLAR CONTRIBUTION—FNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.2	6.2	8.3	10.4	12.5	14.6	16.7	18.7	20.8
4	4.2	8.3	12.5	16.7	20.8	25.0	29.1	33.3	37.5	41.6
6	6.2	12.5	18.7	25.0	31.2	37.5	43.7	50.0	56.2	62.5
8	8.3	16.7	25.0	33.3	41.6	50.0	58.3	66.6	75.0	83.3
10	10.4	20.8	31.2	41.6	52.0	62.5	72.9	83.3	93.7	104.1
12	12.5	25.0	37.5	50.0	62.5	75.0	87.4	99.9	112.4	124.9
14	14.6	29.1	43.7	58.3	72.9	87.4	102.0	116.6	131.2	145.7
16	16.7	33.3	50.0	66.6	83.3	99.9	116.6	133.2	149.9	166.6
18	18.7	37.5	56.2	75.0	93.7	112.4	131.2	149.9	168.8	187.4
20	20.8	41.6	62.5	83.3	104.1	124.9	145.7	166.6	187.4	208.2
22	22.9	45.8	68.7	91.6	114.5	137.4	160.3	183.2	206.1	229.0
24	25.0	50.0	75.0	99.9	124.9	149.9	174.9	199.9	224.9	249.9
26	27.1	54.1	81.2	108.3	135.3	162.4	189.5	216.5	243.6	270.7
28	29.1	58.3	87.4	116.6	145.7	174.9	204.0	233.2	262.3	291.5
30	31.2	62.5	93.7	124.9	156.1	187.4	218.6	249.9	281.1	312.3

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	374.	747.	1121.	1495.	1869.	2242.	2616.	2990.	3363.	3737.
4	747.	1495.	2242.	2990.	3737.	4484.	5232.	5979.	6727.	7474.
6	1121.	2242.	3363.	4484.	5606.	6727.	7848.	8969.	10090.	11211.
8	1495.	2990.	4484.	5979.	7474.	8969.	10464.	11959.	13453.	14948.
10	1869.	3737.	5606.	7474.	9343.	11211.	13080.	14948.	16817.	18685.
12	2242.	4484.	6727.	8969.	11211.	13453.	15696.	17938.	20180.	22422.
14	2616.	5232.	7848.	10464.	13080.	15696.	18312.	20928.	23544.	26160.
16	2990.	5979.	8969.	11959.	14948.	17938.	20928.	23917.	26907.	29897.
18	3363.	6727.	10090.	13453.	16817.	20180.	23544.	26907.	30270.	33634.
20	3737.	7474.	11211.	14948.	18685.	22422.	26160.	29897.	33634.	37371.
22	4111.	8222.	12332.	16443.	20554.	24665.	28776.	32886.	36997.	41108.
24	4484.	8969.	13453.	17938.	22422.	26907.	31391.	35876.	40360.	44845.
26	4858.	9716.	14575.	19433.	24291.	29149.	34007.	38666.	43724.	48582.
28	5232.	10464.	15696.	20928.	26160.	31391.	36623.	41855.	47087.	52319.
30	5606.	11211.	16817.	22422.	28028.	33634.	39239.	44845.	50451.	56056.

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	452.	905.	1357.	1809.	2261.	2714.	3166.	3618.	4071.	4523.
4	905.	1809.	2714.	3618.	4523.	5428.	6332.	7237.	8141.	9046.
6	1357.	2714.	4071.	5428.	6784.	8141.	9498.	10855.	12212.	13569.
8	1809.	3618.	5428.	7237.	9046.	10855.	12664.	14473.	16283.	18092.
10	2261.	4523.	6784.	9046.	11307.	13569.	15830.	18092.	20353.	22615.
12	2714.	5428.	8141.	10855.	13569.	16283.	18996.	21710.	24424.	27138.
14	3166.	6332.	9498.	12664.	15830.	18996.	22162.	25328.	28495.	31661.
16	3618.	7237.	10855.	14473.	18092.	21710.	25328.	28947.	32665.	36184.
18	4071.	8141.	12212.	16283.	20353.	24424.	28495.	32665.	36636.	40708.
20	4523.	9046.	13569.	18092.	22162.	27138.	31661.	36184.	40708.	45229.
22	4975.	9950.	14928.	19901.	24076.	29051.	34627.	39802.	44777.	49752.
24	5428.	10855.	16817.	21710.	26160.	31391.	37963.	43420.	48948.	54275.
26	5880.	11760.	18739.	23519.	28369.	33879.	41159.	47059.	52918.	58798.
28	6332.	12664.	19998.	25328.	30638.	36623.	44325.	50657.	56989.	63321.
30	6784.	13569.	22162.	27138.	32922.	39239.	47491.	54875.	61999.	67844.

Barksdale AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.1
4	2.0	4.1	6.1	8.1	10.1	12.2	14.2	16.2	18.3	20.3
6	3.0	6.1	9.1	12.2	15.2	18.3	21.3	24.3	27.4	30.4
8	4.1	8.1	12.2	16.2	20.3	24.3	28.4	32.5	36.5	40.6
10	5.1	10.1	15.2	20.3	25.4	30.4	35.5	40.6	45.6	50.7
12	6.1	12.2	18.3	24.3	30.4	36.5	42.6	48.7	54.8	60.8
14	7.1	14.2	21.3	28.4	35.5	42.6	49.7	56.8	63.9	71.0
16	8.1	16.2	24.3	32.5	40.6	48.7	56.8	64.9	73.0	81.1
18	9.1	18.3	27.4	36.5	45.6	54.8	63.9	73.0	82.1	91.3
20	10.1	20.3	30.4	40.6	50.7	60.8	71.0	81.1	91.3	101.4
22	11.2	22.3	33.5	44.6	55.8	66.9	78.1	89.2	100.4	111.6
24	12.2	24.3	36.5	48.7	60.8	73.0	85.2	97.4	109.5	121.7
26	13.2	26.4	39.6	52.7	65.9	79.1	92.3	105.5	118.7	131.8
28	14.2	28.4	42.6	56.8	71.0	85.2	99.4	113.6	127.8	142.0
30	15.2	30.4	45.6	60.8	76.1	91.3	106.5	121.7	136.9	152.1

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	178.	352.	529.	705.	881.	1057.	1234.	1410.	1586.	1762.
4	352.	705.	1057.	1410.	1762.	2115.	2467.	2819.	3172.	3524.
6	529.	1057.	1586.	2115.	2643.	3172.	3701.	4229.	4758.	5286.
8	705.	1410.	2115.	2819.	3524.	4229.	4934.	5639.	6344.	7049.
10	881.	1762.	2643.	3524.	4405.	5286.	6168.	7049.	7930.	8811.
12	1057.	2115.	3172.	4229.	5286.	6344.	7401.	8458.	9516.	10573.
14	1234.	2467.	3701.	4934.	6168.	7401.	8635.	9868.	11102.	12335.
16	1410.	2819.	4229.	5639.	7049.	8458.	9868.	11278.	12688.	14097.
18	1586.	3172.	4758.	6344.	7930.	9516.	11102.	12688.	14273.	15859.
20	1762.	3524.	5286.	7049.	8811.	10573.	12335.	14097.	15859.	17622.
22	1938.	3877.	5815.	7753.	9692.	11630.	13569.	15507.	17445.	19384.
24	2115.	4229.	6344.	8458.	10573.	12688.	14802.	16917.	19031.	21146.
26	2291.	4582.	6872.	9163.	11454.	13745.	16036.	18326.	20617.	22908.
28	2467.	4934.	7401.	9868.	12335.	14802.	17269.	19738.	22203.	24670.
30	2643.	5286.	7930.	10573.	13216.	15859.	18503.	21146.	23789.	26432.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	247.	494.	740.	987.	1234.	1481.	1728.	1974.	2221.	2468.
4	494.	987.	1481.	1974.	2468.	2962.	3455.	3949.	4443.	4936.
6	740.	1481.	2221.	2962.	3702.	4443.	5183.	5923.	6664.	7404.
8	987.	1974.	2962.	3949.	4936.	5923.	6911.	7898.	8885.	9872.
10	1234.	2468.	3702.	4936.	6170.	7404.	8638.	9872.	11106.	12340.
12	1481.	2962.	4443.	5923.	7404.	8885.	10366.	11847.	13328.	14809.
14	1728.	3455.	5183.	6911.	8638.	10366.	12094.	13821.	15549.	17277.
16	1974.	3949.	5923.	7898.	9872.	11847.	13821.	15796.	17770.	19745.
18	2221.	4443.	6664.	8885.	11106.	13328.	15549.	17770.	19992.	22213.
20	2468.	4936.	7404.	9872.	12340.	14809.	17277.	19745.	22213.	24681.
22	2715.	5430.	8145.	10890.	13575.	16269.	19004.	21719.	24434.	27149.
24	2962.	5923.	8885.	11847.	14809.	17770.	20732.	23694.	26656.	29617.
26	3209.	6417.	9626.	12804.	16043.	19251.	22460.	25666.	28677.	32085.
28	3456.	6911.	10368.	13821.	17277.	20732.	24187.	27643.	31098.	34553.
30	3702.	7404.	11106.	14809.	18511.	22213.	25915.	29617.	33319.	37021.

Barksdale AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6	14.0
4	2.8	5.6	8.4	11.2	14.0	16.9	19.7	22.5	25.3	28.1
6	4.2	8.4	12.6	16.9	21.1	25.3	29.5	33.7	37.9	42.1
8	5.6	11.2	16.9	22.5	28.1	33.7	39.3	44.9	50.6	56.2
10	7.0	14.0	21.1	28.1	35.1	42.1	49.1	56.2	63.2	70.2
12	8.4	16.9	25.3	33.7	42.1	50.6	59.0	67.4	75.8	84.3
14	9.8	19.7	29.5	39.3	49.1	59.0	68.8	78.6	88.5	98.3
16	11.2	22.5	33.7	44.9	56.2	67.4	78.6	89.9	101.1	112.3
18	12.6	25.3	37.9	50.6	63.2	75.8	88.5	101.1	113.7	126.4
20	14.0	28.1	42.1	56.2	70.2	84.3	98.3	112.3	126.4	140.4
22	15.4	30.9	46.3	61.8	77.2	92.7	108.1	123.6	139.0	154.5
24	16.9	33.7	50.6	67.4	84.3	101.1	118.0	134.8	151.7	168.5
26	18.3	36.5	54.8	73.0	91.3	109.5	127.8	146.0	164.3	182.5
28	19.7	39.3	59.0	78.6	98.3	118.0	137.6	157.3	176.9	196.6
30	21.1	42.1	63.2	84.3	105.3	128.4	147.4	168.5	189.8	210.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	337.	673.	1010.	1347.	1683.	2020.	2357.	2693.	3030.	3367.
4	673.	1347.	2020.	2693.	3367.	4040.	4713.	5386.	6060.	6733.
6	1010.	2020.	3030.	4040.	5050.	6060.	7070.	8080.	9090.	10100.
8	1347.	2693.	4040.	5386.	6733.	8080.	9426.	10773.	12120.	13466.
10	1683.	3367.	5050.	6733.	8416.	10100.	11783.	13466.	15150.	16833.
12	2020.	4040.	6060.	8080.	10100.	12120.	14140.	16159.	18179.	20199.
14	2357.	4713.	7070.	9426.	11783.	14140.	16496.	18853.	21209.	23566.
16	2693.	5386.	8080.	10773.	13466.	16159.	18853.	21546.	24239.	26932.
18	3030.	6060.	9090.	12120.	15150.	18179.	21209.	24239.	27269.	30299.
20	3367.	6733.	10100.	13466.	16833.	20199.	23566.	26932.	30299.	33666.
22	3703.	7406.	11110.	14813.	18516.	22219.	25922.	29626.	33329.	37032.
24	4040.	8080.	12120.	16159.	20199.	24239.	28279.	32319.	36359.	40399.
26	4377.	8753.	13130.	17506.	21883.	26259.	30636.	35012.	39399.	43766.
28	4713.	9426.	14140.	18853.	23566.	28279.	32992.	37705.	42419.	47132.
30	5050.	10100.	15150.	20199.	25249.	30299.	35349.	40399.	45449.	50499.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	407.	814.	1222.	1629.	2036.	2443.	2851.	3258.	3665.	4072.
4	814.	1629.	2443.	3258.	4072.	4887.	5701.	6516.	7330.	8145.
6	1222.	2443.	3665.	4887.	6109.	7330.	8552.	9774.	10996.	12217.
8	1629.	3258.	4887.	6516.	8145.	9774.	11403.	13032.	14661.	16290.
10	2036.	4072.	6109.	8145.	10181.	12217.	14254.	16290.	18326.	20362.
12	2443.	4887.	7330.	9774.	12217.	14661.	17104.	19548.	21991.	24435.
14	2851.	5701.	8552.	11403.	14254.	17104.	19955.	22806.	25657.	28507.
16	3258.	6516.	9774.	13032.	16290.	19548.	22806.	25657.	28322.	32580.
18	3665.	7330.	10996.	14661.	18326.	21991.	25657.	29322.	32987.	36652.
20	4072.	8145.	12217.	16290.	20362.	24435.	28507.	32580.	36652.	40725.
22	4480.	8959.	13439.	17919.	22399.	26678.	31358.	35836.	40318.	44797.
24	4887.	9774.	14661.	19548.	24435.	29322.	34209.	39096.	43883.	48870.
26	5294.	10588.	15883.	21177.	26471.	31765.	37060.	42354.	47648.	52942.
28	5701.	11403.	17104.	22806.	28507.	34809.	39910.	45612.	51313.	57015.
30	6109.	12217.	18326.	24435.	30544.	36852.	42761.	48870.	54979.	61087.

Beale AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.5	3.0	4.5	5.9	7.4	8.9	10.4	11.9	13.4	14.8
4	3.0	5.9	8.9	11.9	14.8	17.8	20.8	23.7	26.7	29.7
6	4.5	8.9	13.4	17.8	22.3	26.7	31.2	35.6	40.1	44.5
8	5.9	11.9	17.8	23.7	29.7	35.6	41.6	47.5	53.4	59.4
10	7.4	14.8	22.3	29.7	37.1	44.5	51.9	59.4	66.8	74.2
12	8.9	17.8	26.7	35.6	44.5	53.4	62.3	71.2	80.1	89.0
14	10.4	20.8	31.2	41.6	51.9	62.3	72.7	83.1	93.5	103.9
16	11.9	23.7	35.6	47.5	59.4	71.2	83.1	95.0	106.9	118.7
18	13.4	26.7	40.1	53.4	66.8	80.1	93.5	106.9	120.2	133.6
20	14.8	29.7	44.5	59.4	74.2	89.0	103.9	118.7	133.6	148.4
22	16.3	32.6	49.0	65.3	81.6	97.9	114.3	130.6	146.9	163.2
24	17.8	35.6	53.4	71.2	89.0	106.9	124.7	142.5	160.3	178.1
26	19.3	38.6	57.9	77.2	96.5	115.8	135.0	154.3	173.6	192.9
28	20.8	41.6	62.3	83.1	103.9	124.7	145.4	165.2	187.0	207.8
30	22.3	44.5	66.8	89.0	111.3	133.6	155.8	178.1	200.3	222.6

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	198.	396.	593.	791.	989.	1187.	1385.	1583.	1780.	1978.
4	396.	791.	1187.	1583.	1978.	2374.	2770.	3165.	3561.	3957.
6	593.	1187.	1780.	2374.	2967.	3561.	4154.	4748.	5341.	5935.
8	791.	1583.	2374.	3165.	3957.	4748.	5539.	6331.	7122.	7913.
10	989.	1978.	2967.	3957.	4945.	5935.	6924.	7913.	8902.	9892.
12	1187.	2374.	3561.	4748.	5935.	7122.	8309.	9496.	10683.	11870.
14	1385.	2770.	4154.	5341.	6528.	7715.	8902.	10089.	11276.	12463.
16	1583.	3165.	4748.	6331.	7913.	9496.	11079.	12661.	14244.	15827.
18	1780.	3561.	5341.	7122.	8902.	10683.	12463.	14244.	16024.	17805.
20	1978.	3957.	5935.	7913.	9892.	11870.	13848.	15827.	17805.	19783.
22	2176.	4352.	6331.	8309.	10287.	12265.	14244.	16222.	18200.	20178.
24	2374.	4748.	7122.	9496.	11570.	13548.	15527.	17505.	19483.	21463.
26	2572.	5144.	7913.	10683.	12859.	15031.	17009.	19087.	21065.	23148.
28	2770.	5539.	8704.	11870.	14154.	16524.	18502.	20575.	22657.	24733.
30	2967.	5935.	9892.	13057.	15467.	18005.	20072.	22157.	24247.	26318.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	287.	575.	862.	1150.	1437.	1725.	2012.	2300.	2587.	2875.
4	575.	1150.	1725.	2300.	2875.	3450.	4025.	4600.	5175.	5750.
6	862.	1725.	2587.	3450.	4312.	5175.	6037.	6900.	7762.	8624.
8	1150.	2300.	3450.	4600.	5750.	6900.	8049.	9199.	10348.	11498.
10	1437.	2875.	4312.	5750.	7187.	8624.	10062.	11499.	12937.	14374.
12	1725.	3450.	5175.	6900.	8624.	10349.	12074.	13799.	15524.	17249.
14	2012.	4025.	6037.	8049.	10062.	12074.	14087.	16099.	18111.	20123.
16	2300.	4600.	6900.	9199.	11498.	13799.	16099.	18300.	20500.	22800.
18	2587.	5175.	7762.	10348.	12857.	15364.	18111.	20800.	23200.	25700.
20	2875.	5750.	8624.	11498.	14374.	17249.	20124.	22900.	25700.	28600.
22	3162.	6325.	9487.	12649.	15811.	18774.	22135.	25200.	28100.	31000.
24	3450.	6900.	10349.	13799.	17248.	20300.	24148.	27300.	31100.	33400.
26	3737.	7475.	11512.	14948.	18773.	22123.	25161.	28400.	32200.	35700.
28	4025.	8050.	12674.	16098.	20300.	24148.	28173.	31500.	35300.	38100.
30	4312.	8624.	13837.	17248.	21821.	25673.	30185.	34400.	38400.	41500.

Beale AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0
4	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0
6	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.6	62.9
8	8.4	16.8	25.2	33.6	42.0	50.4	58.7	67.1	75.5	83.9
10	10.5	21.0	31.5	42.0	52.5	62.9	73.4	83.9	94.4	104.9
12	12.6	25.2	37.8	50.4	62.9	75.5	88.1	100.7	113.3	125.9
14	14.7	29.4	44.1	58.7	73.4	88.1	102.8	117.5	132.2	146.9
16	16.8	33.6	50.4	67.1	83.9	100.7	117.5	134.3	151.1	167.9
18	18.9	37.8	56.6	75.5	94.4	113.3	132.2	151.1	169.9	188.8
20	21.0	42.0	62.9	83.9	104.9	125.9	146.9	167.9	188.8	209.8
22	23.1	46.2	69.3	92.3	115.4	138.5	161.6	184.6	207.7	230.8
24	25.2	50.4	75.5	100.7	125.9	151.1	178.2	201.4	228.6	251.8
26	27.3	54.6	81.8	109.1	136.4	163.7	190.9	218.2	245.5	272.8
28	29.4	58.7	88.1	117.5	146.9	178.2	205.6	235.0	264.4	293.7
30	31.5	62.9	94.4	125.9	157.4	188.8	220.3	251.8	283.2	314.7

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	402.	803.	1205.	1606.	2008.	2409.	2811.	3213.	3614.	4016.
4	803.	1606.	2409.	3213.	4016.	4819.	5622.	6425.	7228.	8032.
6	1205.	2409.	3614.	4819.	6024.	7228.	8433.	9638.	10843.	12047.
8	1606.	3213.	4819.	6425.	8032.	9638.	11244.	12850.	14457.	16063.
10	2008.	4016.	6024.	8032.	10039.	12047.	14055.	16063.	18071.	20079.
12	2409.	4819.	7228.	9638.	12047.	14457.	16866.	19276.	21685.	24095.
14	2811.	5622.	8433.	11244.	14055.	16866.	19677.	22488.	25299.	28110.
16	3213.	6425.	9638.	12850.	16063.	19276.	22488.	25701.	28913.	32128.
18	3614.	7228.	10843.	14457.	18071.	21685.	25299.	28913.	32528.	36142.
20	4016.	8032.	12047.	16063.	20079.	24095.	28110.	32128.	36142.	40158.
22	4417.	8835.	13252.	17889.	22087.	26504.	30921.	35330.	39736.	44173.
24	4819.	9638.	14457.	19276.	24095.	28913.	33732.	38551.	43370.	48189.
26	5220.	10441.	15661.	20682.	26102.	31323.	36543.	41784.	46984.	52205.
28	5622.	11244.	16866.	22488.	28110.	33732.	39354.	44978.	50598.	56221.
30	6024.	12047.	18071.	24095.	30118.	36142.	42165.	48189.	54213.	60236.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	491.	982.	1474.	1965.	2456.	2947.	3430.	3920.	4421.	4912.
4	982.	1965.	2947.	3930.	4912.	5895.	6877.	7860.	8842.	9824.
6	1474.	2947.	4421.	5895.	7368.	8842.	10316.	11789.	13263.	14737.
8	1965.	3930.	5895.	7860.	9824.	11789.	13754.	15719.	17684.	19649.
10	2456.	4912.	7368.	9824.	12281.	14737.	17193.	19649.	22105.	24561.
12	2947.	5895.	8842.	11789.	14737.	17684.	20631.	23579.	26526.	29473.
14	3430.	6877.	10316.	13754.	17193.	20631.	24070.	27508.	30947.	34389.
16	3920.	7860.	11789.	15719.	19649.	23579.	27508.	31438.	35388.	38898.
18	4421.	8842.	13263.	17684.	22105.	26526.	30947.	35288.	39789.	44210.
20	4912.	9824.	14737.	19649.	24561.	29473.	34389.	39288.	44210.	49122.
22	5403.	10807.	16210.	21614.	27017.	32421.	37824.	43228.	48831.	54034.
24	5895.	11789.	17684.	23579.	29473.	35388.	41283.	47157.	53082.	58947.
26	6386.	12772.	19158.	25544.	31933.	38315.	44791.	51087.	57473.	63859.
28	6877.	13754.	20631.	27508.	34389.	41283.	48140.	54917.	61864.	68771.
30	7368.	14737.	22105.	29473.	36842.	44210.	51578.	58847.	66218.	73683.

Bergstrom AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.7	2.5	3.4	4.2	5.1	5.9	6.8	7.6	8.4
4	1.7	3.4	5.1	6.8	8.4	10.1	11.8	13.5	15.2	16.9
6	2.5	5.1	7.6	10.1	12.7	15.2	17.7	20.3	22.8	25.3
8	3.4	6.8	10.1	13.5	16.9	20.3	23.6	27.0	30.4	33.8
10	4.2	8.4	12.7	16.9	21.1	25.3	29.5	33.8	38.0	42.2
12	5.1	10.1	15.2	20.3	25.3	30.4	35.5	40.5	45.6	50.7
14	5.9	11.8	17.7	23.6	29.5	35.5	41.4	47.3	53.2	59.1
16	6.8	13.5	20.3	27.0	33.8	40.5	47.3	54.0	60.8	67.5
18	7.6	15.2	22.8	30.4	38.0	45.6	53.2	60.8	68.4	76.0
20	8.4	16.9	25.3	33.8	42.2	50.7	59.1	67.5	76.0	84.4
22	9.3	18.6	27.9	37.1	46.4	55.7	65.0	74.3	83.6	92.9
24	10.1	20.3	30.4	40.5	50.7	60.8	70.9	81.0	91.2	101.3
26	11.0	21.9	32.9	43.9	54.9	65.8	76.8	87.8	98.8	109.7
28	11.8	23.6	35.5	47.3	59.1	70.9	82.7	94.5	106.4	118.2
30	12.7	25.3	38.0	50.7	63.3	76.0	88.6	101.3	114.0	126.6

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	129.	259.	388.	517.	646.	775.	905.	1034.	1164.	1293.
4	259.	517.	776.	1034.	1293.	1552.	1810.	2069.	2327.	2586.
6	388.	776.	1164.	1552.	1939.	2327.	2715.	3103.	3491.	3879.
8	517.	1034.	1552.	2069.	2586.	3103.	3620.	4138.	4655.	5172.
10	646.	1293.	1939.	2586.	3222.	3879.	4525.	5172.	5818.	6465.
12	775.	1552.	2327.	3103.	3879.	4655.	5431.	6206.	6982.	7758.
14	905.	1810.	2715.	3620.	4525.	5431.	6336.	7241.	8146.	9051.
16	1034.	2069.	3103.	4138.	5172.	6206.	7241.	8275.	9310.	10344.
18	1164.	2327.	3491.	4655.	5818.	6982.	8146.	9310.	10473.	11637.
20	1293.	2586.	3879.	5172.	6465.	7758.	9051.	10344.	11637.	12930.
22	1422.	2845.	4267.	5689.	7111.	8534.	9956.	11378.	12801.	14223.
24	1552.	3103.	4655.	6098.	7758.	9310.	10861.	12413.	13964.	15516.
26	1681.	3362.	5043.	6724.	8404.	10085.	11766.	13447.	15139.	16809.
28	1810.	3620.	5431.	7241.	9051.	10861.	12671.	14482.	16362.	18102.
30	1939.	3879.	5818.	7758.	9697.	11637.	13575.	15518.	17455.	19395.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	182.	365.	547.	729.	911.	1094.	1276.	1458.	1641.	1823.
4	365.	729.	1094.	1458.	1823.	2188.	2552.	2917.	3281.	3646.
6	547.	1094.	1641.	2188.	2734.	3281.	3828.	4375.	4922.	5469.
8	729.	1458.	2188.	2917.	3646.	4375.	5104.	5833.	6562.	7291.
10	911.	1823.	2734.	3646.	4557.	5469.	6380.	7292.	8203.	9115.
12	1094.	2188.	3281.	4375.	5469.	6562.	7657.	8750.	9844.	10938.
14	1276.	2552.	3828.	5104.	6380.	7657.	8933.	10209.	11485.	12761.
16	1458.	2917.	4375.	5834.	7111.	8388.	9664.	10939.	12215.	13491.
18	1641.	3281.	4922.	6562.	7939.	9316.	10693.	12069.	13445.	14817.
20	1823.	3646.	5469.	7291.	8758.	10225.	11702.	13179.	14654.	16193.
22	2005.	4011.	6016.	8021.	9697.	11374.	13051.	14726.	16330.	17869.
24	2188.	4375.	6562.	8758.	10599.	12351.	14128.	15803.	17407.	19145.
26	2370.	4740.	7110.	9487.	11449.	13249.	15149.	16880.	18484.	20421.
28	2552.	5104.	7757.	10225.	12351.	14373.	16323.	18054.	19760.	21697.
30	2734.	5469.	8404.	11067.	13277.	15507.	17447.	19228.	21036.	22973.

Bergstrom AFB

ANNUAL SOLAR CONTRIBUTION—WNI(HBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.3	3.5	4.6	5.8	6.9	8.1	9.3	10.4	11.6
4	2.3	4.6	6.9	9.3	11.6	13.9	16.2	18.5	20.8	23.1
6	3.5	6.9	10.4	13.9	17.4	20.8	24.3	27.8	31.2	34.7
8	4.6	9.3	13.9	18.5	23.1	27.8	32.4	37.0	41.6	46.3
10	5.8	11.6	17.4	23.1	28.9	34.7	40.5	46.3	52.1	57.8
12	6.9	13.9	20.8	27.8	34.7	41.6	48.6	55.5	62.5	69.4
14	8.1	16.2	24.3	32.4	40.5	48.6	56.7	64.8	72.9	81.0
16	9.3	18.5	27.8	37.0	46.3	55.5	64.8	74.0	83.3	92.5
18	10.4	20.8	31.2	41.6	52.1	62.5	72.9	83.3	93.7	104.1
20	11.6	23.1	34.7	46.3	57.8	69.4	81.0	92.5	104.1	115.7
22	12.7	25.5	38.2	50.9	63.6	76.4	90.1	101.8	114.5	127.3
24	13.9	27.8	41.6	55.5	69.4	83.3	97.2	111.1	124.9	138.8
26	15.0	30.1	45.1	60.2	75.2	90.2	105.3	120.3	135.4	150.4
28	16.2	32.4	48.6	64.8	81.0	97.2	113.4	129.6	145.8	162.0
30	17.4	34.7	52.1	69.4	86.8	104.1	121.5	138.8	156.2	173.5

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	250.	500.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
4	500.	999.	1499.	1999.	2499.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4495.	5245.	5994.	6743.	7493.
8	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8991.	9990.
10	1249.	2498.	3746.	4995.	6244.	7493.	8741.	9990.	11239.	12488.
12	1499.	2997.	4496.	5994.	7493.	8991.	10490.	11988.	13487.	14985.
14	1748.	3497.	5245.	6993.	8741.	10490.	12238.	13986.	15735.	17483.
16	1998.	3996.	5994.	7992.	9990.	11988.	13986.	15984.	17982.	19980.
18	2248.	4496.	6743.	8991.	11239.	13487.	15735.	17982.	20230.	22478.
20	2498.	4995.	7493.	9990.	12488.	14985.	17483.	19980.	22478.	24976.
22	2747.	5495.	8242.	10989.	13737.	16484.	19231.	21978.	24726.	27473.
24	2997.	5994.	8991.	11988.	14985.	17982.	20979.	23977.	26974.	29971.
26	3247.	6494.	9740.	12987.	16234.	19481.	22728.	25975.	29221.	32468.
28	3497.	6993.	10490.	13986.	17483.	20979.	24476.	27973.	31469.	34966.
30	3746.	7493.	11239.	14985.	18732.	22478.	26224.	29971.	33717.	37463.

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	908.	908.	908.	1811.	1811.	1811.	2719.	2719.	2719.	3626.
4	908.	1811.	1811.	2719.	2719.	2719.	4239.	4239.	4239.	6055.
6	908.	1811.	2719.	3626.	3626.	3626.	5358.	5358.	5358.	8083.
8	1811.	2719.	3626.	4534.	4534.	4534.	6477.	6477.	6477.	10110.
10	1811.	3626.	4534.	5441.	5441.	5441.	7596.	7596.	7596.	12136.
12	1811.	3626.	5441.	6349.	6349.	6349.	8715.	8715.	8715.	14163.
14	2719.	4534.	6349.	7256.	7256.	7256.	9834.	9834.	9834.	16189.
16	2719.	4534.	7256.	8164.	8164.	8164.	10953.	10953.	10953.	18216.
18	2719.	4534.	8164.	9071.	9071.	9071.	12072.	12072.	12072.	20242.
20	3626.	5441.	9071.	9979.	9979.	9979.	13191.	13191.	13191.	22269.
22	3626.	5441.	9979.	10886.	10886.	10886.	14310.	14310.	14310.	24295.
24	3626.	5441.	10886.	11794.	11794.	11794.	15429.	15429.	15429.	26322.
26	4534.	6349.	11794.	12701.	12701.	12701.	16548.	16548.	16548.	28348.
28	4534.	6349.	12701.	13609.	13609.	13609.	17667.	17667.	17667.	30375.
30	4534.	6349.	13609.	14516.	14516.	14516.	18786.	18786.	18786.	32401.

Blytheville AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.3	2.6	3.8	5.1	6.4	7.7	8.9	10.2	11.5	12.8
4	2.6	5.1	7.7	10.2	12.8	15.3	17.9	20.4	23.0	25.6
6	3.8	7.7	11.5	15.3	19.2	23.0	26.8	30.7	34.5	38.3
8	5.1	10.2	15.3	20.4	25.6	30.7	35.8	40.9	46.0	51.1
10	6.4	12.8	19.2	25.6	31.9	38.3	44.7	51.1	57.5	63.9
12	7.7	15.3	23.0	30.7	38.3	46.0	53.7	61.3	69.0	76.7
14	8.9	17.9	26.8	35.8	44.7	53.7	62.6	71.6	80.5	89.5
16	10.2	20.4	30.7	40.9	51.1	61.3	71.6	81.6	92.0	102.2
18	11.5	23.0	34.5	46.0	57.5	69.0	80.5	92.0	103.5	115.0
20	12.8	25.6	38.3	51.1	63.9	76.7	89.5	102.2	115.0	127.8
22	14.1	28.1	42.2	56.2	70.3	84.3	98.4	112.5	126.5	140.6
24	15.3	30.7	46.0	61.3	76.7	92.0	107.3	122.7	136.0	153.3
26	16.6	33.2	49.8	66.5	83.1	99.7	116.3	132.9	149.5	166.1
28	17.9	35.8	53.7	71.6	89.5	107.3	125.2	143.1	161.0	178.9
30	19.2	38.3	57.5	76.7	95.6	115.0	134.2	153.3	172.5	191.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	191.	382.	573.	765.	956.	1147.	1338.	1529.	1720.	1912.
4	382.	765.	1147.	1529.	1912.	2294.	2676.	3058.	3441.	3823.
6	573.	1147.	1720.	2294.	2867.	3441.	4014.	4588.	5161.	5735.
8	765.	1529.	2294.	3058.	3823.	4588.	5352.	6117.	6882.	7646.
10	956.	1912.	2867.	3823.	4779.	5735.	6690.	7646.	8602.	9558.
12	1147.	2294.	3441.	4588.	5735.	6882.	8028.	9175.	10322.	11469.
14	1338.	2676.	4014.	5352.	6690.	8028.	9367.	10705.	12043.	13381.
16	1529.	3058.	4588.	6117.	7646.	9175.	10705.	12234.	13763.	15292.
18	1720.	3441.	5161.	6882.	8602.	10322.	12043.	13763.	15483.	17204.
20	1912.	3823.	5735.	7646.	9558.	11469.	13381.	15292.	17204.	19115.
22	2103.	4205.	6308.	8411.	10513.	12616.	14719.	16822.	18924.	21027.
24	2294.	4588.	6882.	9175.	11469.	13763.	16057.	18351.	20646.	22938.
26	2485.	4970.	7455.	9940.	12425.	14910.	17305.	19650.	22005.	24850.
28	2676.	5352.	8028.	10705.	13281.	16057.	18733.	21408.	24006.	26762.
30	2867.	5735.	8602.	11469.	14137.	17204.	20071.	22236.	25006.	28673.

THERM WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	271.	542.	813.	1084.	1355.	1626.	1897.	2168.	2439.	2710.
4	542.	1084.	1626.	2168.	2710.	3252.	3794.	4336.	4878.	5420.
6	813.	1626.	2439.	3252.	4065.	4878.	5691.	6504.	7317.	8130.
8	1084.	2168.	3252.	4336.	5420.	6504.	7588.	8672.	9756.	10839.
10	1355.	2710.	4065.	5420.	6775.	8130.	9485.	10839.	12194.	13549.
12	1626.	3252.	4878.	6504.	8130.	9756.	11381.	13007.	14632.	16258.
14	1897.	3794.	5691.	7588.	9485.	11381.	13077.	14717.	16372.	18008.
16	2168.	4336.	6504.	8472.	10322.	12207.	14175.	16043.	17911.	19758.
18	2439.	4878.	7317.	9367.	11163.	13077.	15072.	17011.	18924.	21669.
20	2710.	5420.	8130.	10252.	12013.	14007.	16005.	18004.	20003.	21669.
22	2981.	5962.	8943.	11147.	12904.	15004.	17003.	19002.	21001.	23320.
24	3252.	6504.	9756.	12042.	13804.	16003.	18002.	20001.	22000.	25071.
26	3523.	7046.	10569.	12937.	14704.	17002.	19001.	21000.	23000.	26822.
28	3794.	7588.	11381.	13832.	15604.	18001.	20000.	22000.	24000.	28573.
30	4065.	8130.	12194.	14727.	16504.	19000.	21000.	23000.	25000.	30324.

Biytheville AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.2	6.3	8.4	10.5	12.5	14.6	16.7	18.8	20.9
4	4.2	8.4	12.5	16.7	20.9	25.1	29.3	33.5	37.6	41.8
6	6.3	12.5	18.8	25.1	31.4	37.6	43.9	50.2	56.5	62.7
8	8.4	16.7	25.1	33.5	41.8	50.2	58.6	66.9	75.3	83.6
10	10.5	20.9	31.4	41.8	52.3	62.7	73.2	83.6	94.1	104.6
12	12.5	25.1	37.6	50.2	62.7	75.3	87.8	100.4	112.9	125.5
14	14.6	29.3	43.9	58.6	73.2	87.8	102.5	117.1	131.7	146.4
16	16.7	33.5	50.2	66.9	83.6	100.4	117.1	133.6	150.6	167.3
18	18.8	37.6	56.5	75.3	94.1	112.9	131.7	150.6	169.4	188.2
20	20.9	41.8	62.7	83.6	104.6	125.5	146.4	167.3	188.2	209.1
22	23.0	46.0	69.0	92.0	115.0	138.0	161.9	184.9	207.0	230.0
24	25.1	50.2	75.3	100.4	125.5	150.6	175.7	200.7	225.8	250.9
26	27.2	54.4	81.6	108.7	135.9	163.1	190.3	217.5	244.7	271.8
28	29.3	58.6	87.8	117.1	146.4	175.7	204.9	234.2	263.5	292.8
30	31.4	62.7	94.1	125.5	156.8	188.2	219.8	250.9	283.3	313.7

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	373.	745.	1118.	1490.	1862.	2234.	2606.	2978.	3350.	3722.
4	745.	1490.	2234.	2978.	3722.	4471.	5215.	5959.	6707.	7452.
6	1118.	2234.	3353.	4471.	5589.	6707.	7824.	8942.	10060.	11178.
8	1490.	2981.	4471.	5961.	7452.	8942.	10433.	11923.	13413.	14904.
10	1862.	3725.	5589.	7452.	9315.	11178.	13041.	14904.	16767.	18630.
12	2234.	4471.	6707.	8942.	11178.	13413.	15649.	17884.	20120.	22356.
14	2606.	5215.	7824.	10433.	13041.	15649.	18257.	20865.	23473.	26082.
16	2978.	5959.	8942.	11923.	14904.	17884.	20865.	23816.	26827.	29807.
18	3350.	6707.	10060.	13413.	16767.	20120.	23473.	26827.	30180.	33533.
20	3722.	7452.	11178.	14904.	18630.	22356.	26082.	29807.	33533.	37259.
22	4094.	8197.	12296.	16304.	20493.	24501.	28600.	32788.	36857.	40985.
24	4471.	8942.	13413.	17884.	22356.	26827.	31298.	35769.	40410.	44711.
26	4844.	9687.	14531.	19376.	24219.	29062.	33906.	38750.	43883.	48437.
28	5216.	10433.	15649.	20865.	26082.	31298.	36514.	41731.	46947.	52163.
30	5589.	11178.	16767.	22356.	27945.	33533.	39122.	44711.	50300.	55889.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	482.	964.	1446.	1928.	2410.	2892.	3374.	3856.	4338.	4820.
4	964.	1928.	2892.	3856.	4820.	5784.	6748.	7712.	8676.	9640.
6	1446.	2892.	4338.	5784.	7230.	8676.	10122.	11568.	13014.	14460.
8	1928.	3856.	5784.	7712.	9640.	11568.	13506.	15444.	17382.	19320.
10	2410.	4820.	7230.	9640.	12050.	14460.	16870.	19280.	21690.	24100.
12	2892.	5784.	8676.	11568.	14460.	17382.	20294.	23208.	26122.	29036.
14	3374.	6748.	10122.	13034.	16306.	19578.	22850.	26122.	29394.	32676.
16	3856.	7712.	11568.	14904.	18630.	22356.	26082.	29807.	33533.	37259.
18	4338.	8676.	13034.	16767.	20493.	24501.	28600.	32788.	36857.	40985.
20	4820.	9640.	14531.	18630.	22356.	26082.	29807.	33533.	37259.	40985.
22	5302.	10604.	15987.	20493.	24219.	28062.	31906.	35769.	39410.	43161.
24	5784.	11568.	17382.	22356.	26082.	29062.	33906.	38750.	43883.	47987.
26	6266.	12532.	18838.	24219.	28062.	31298.	36514.	41731.	46947.	50300.
28	6748.	13496.	20294.	26082.	29807.	33533.	39122.	44711.	50300.	52613.
30	7230.	14460.	21750.	28062.	31298.	33533.	39122.	44711.	50300.	52613.

Bolling AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.2	4.9	6.5	8.1	9.7	11.4	13.0	14.6	16.2
4	3.2	6.5	9.7	13.0	16.2	19.5	22.7	26.0	29.2	32.5
6	4.9	9.7	14.6	19.5	24.3	29.2	34.1	39.0	43.8	48.7
8	6.5	13.0	19.5	26.0	32.5	39.0	45.5	51.9	58.4	64.9
10	8.1	16.2	24.3	32.5	40.6	48.7	56.8	64.9	73.0	81.2
12	9.7	19.5	29.2	39.0	48.7	58.4	68.2	77.9	87.7	97.4
14	11.4	22.7	34.1	45.5	56.8	68.2	79.5	90.9	102.3	113.6
16	13.0	26.0	39.0	51.9	64.9	77.9	90.9	103.9	116.9	129.9
18	14.6	29.2	43.8	58.4	73.0	87.7	102.3	116.9	131.5	146.1
20	16.2	32.5	48.7	64.9	81.2	97.4	113.6	129.9	146.1	*****
22	17.9	35.7	53.6	71.4	89.3	107.1	125.0	142.8	160.7	*****
24	19.5	39.0	58.4	77.9	97.4	116.9	136.4	155.8	*****	*****
26	21.1	42.2	63.3	84.4	105.5	126.6	147.7	168.8	*****	*****
28	22.7	45.5	68.2	90.9	113.6	136.4	159.1	181.8	*****	*****
30	24.3	48.7	73.0	97.4	121.7	146.1	170.4	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	251.	503.	754.	1006.	1257.	1508.	1760.	2011.	2263.	2514.
4	503.	1006.	1509.	2011.	2514.	3017.	3520.	4023.	4526.	5029.
6	754.	1509.	2263.	3017.	3771.	4526.	5280.	6034.	6789.	7543.
8	1006.	2011.	3017.	4023.	5029.	6034.	7040.	8046.	9051.	10057.
10	1257.	2514.	3771.	5029.	6286.	7543.	8800.	10057.	11314.	12571.
12	1508.	3017.	4526.	6034.	7543.	9051.	10560.	12069.	13577.	15086.
14	1760.	3520.	5280.	7040.	8800.	10560.	12320.	14080.	15840.	17600.
16	2011.	4023.	6034.	8046.	10057.	12069.	14080.	16091.	18103.	20114.
18	2263.	4526.	6789.	9051.	11314.	13577.	15840.	18103.	20366.	22629.
20	2514.	5029.	7543.	10057.	12571.	15086.	17600.	20114.	22629.	*****
22	2766.	5531.	8297.	11063.	13222.	15594.	18100.	20126.	22631.	*****
24	3017.	6034.	9051.	12069.	14228.	16604.	19103.	21120.	24137.	*****
26	3269.	6537.	9805.	13074.	15233.	17611.	20111.	22120.	24139.	*****
28	3520.	7040.	10560.	14080.	16238.	18618.	21120.	24140.	26140.	*****
30	3771.	7543.	11314.	15086.	17243.	19625.	22120.	26140.	*****	*****

THERM WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	390.	781.	1171.	1562.	1952.	2343.	2733.	3123.	3514.	3904.
4	781.	1562.	2343.	3123.	3904.	4685.	5466.	6247.	7028.	7809.
6	1171.	2343.	3514.	4685.	5856.	7027.	8198.	9369.	10540.	11711.
8	1562.	3123.	4685.	6247.	7809.	9371.	10933.	12495.	14057.	15619.
10	1952.	3904.	5856.	7809.	9761.	11713.	13665.	15617.	17569.	19521.
12	2343.	4685.	7027.	9371.	11715.	14059.	16453.	18847.	21241.	23635.
14	2733.	5466.	8198.	10933.	13279.	15643.	18027.	20411.	22795.	25189.
16	3123.	6247.	9369.	12495.	15263.	17827.	20211.	22605.	24999.	27343.
18	3514.	7028.	10540.	14057.	17283.	19911.	22605.	25099.	27343.	*****
20	3904.	7809.	11314.	15086.	18297.	21325.	24099.	26593.	28837.	*****
22	4295.	8590.	12069.	16091.	19311.	22339.	25093.	27787.	30331.	*****
24	4685.	9371.	12822.	17096.	20325.	23353.	26087.	28781.	31825.	*****
26	5076.	10152.	13577.	18101.	21339.	24367.	27081.	29775.	33319.	*****
28	5466.	10933.	14332.	19106.	22353.	25381.	28075.	30769.	34813.	*****
30	5856.	11714.	15087.	20111.	23367.	26395.	29069.	31763.	36307.	*****

Belling AFB

ANNUAL SOLAR CONTRIBUTION - THERMIST

SQ. FT. (x 1000)	Percent Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.3	6.7	10.0	15.0	20.7	28.9	39.4	52.7	68.0	83.4
4	6.7	13.5	20.0	28.7	39.4	52.7	68.0	83.4	90.1	96.7
6	10.0	20.0	30.0	40.0	50.0	60.1	70.1	80.1	90.1	100.1
8	13.5	26.7	40.0	53.4	66.7	80.1	93.4	100.0	100.1	133.5
10	16.7	33.4	50.0	66.7	83.4	100.1	116.8	133.5	150.1	166.8
12	20.0	40.0	60.1	80.1	100.1	121.1	140.1	159.2	180.2	200.2
14	23.4	46.7	70.1	93.4	116.8	140.1	163.5	186.8	210.2	233.6
16	26.7	53.4	80.1	106.8	133.5	163.5	186.8	213.5	240.2	266.8
20	33.4	66.7	100.1	133.5	166.8	200.2	233.6	266.8	300.3	.....
24	40.0	80.1	110.1	146.8	186.8	220.2	266.8	300.3	333.5	.....
28	46.7	93.4	120.1	160.2	200.2	240.2	286.8	320.2	366.8	.....
32	53.4	106.8	130.1	173.5	213.5	260.2	300.3	347.8	.....	.....
36	60.0	120.1	140.1	186.8	226.8	286.8	320.2	370.2	.....	.....
40	66.7	133.5	150.1	200.2	240.2	300.3	347.8	.....	.....	.....

ANNUAL SOLAR CONTRIBUTION - THERMIST

SQ. FT. (x 1000)	Percent Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.3	6.7	10.0	15.0	20.7	28.9	39.4	52.7	68.0	83.4
4	6.7	13.5	20.0	28.7	39.4	52.7	68.0	83.4	90.1	96.7
6	10.0	20.0	30.0	40.0	50.0	60.1	70.1	80.1	90.1	100.1
8	13.5	26.7	40.0	53.4	66.7	80.1	93.4	100.0	100.1	133.5
10	16.7	33.4	50.0	66.7	83.4	100.1	116.8	133.5	150.1	166.8
12	20.0	40.0	60.1	80.1	100.1	121.1	140.1	159.2	180.2	200.2
14	23.4	46.7	70.1	93.4	116.8	140.1	163.5	186.8	210.2	233.6
16	26.7	53.4	80.1	106.8	133.5	163.5	186.8	213.5	240.2	266.8
20	33.4	66.7	100.1	133.5	166.8	200.2	233.6	266.8	300.3	.....
24	40.0	80.1	110.1	146.8	186.8	220.2	266.8	300.3	333.5	.....
28	46.7	93.4	120.1	160.2	200.2	240.2	286.8	320.2	366.8	.....
32	53.4	106.8	130.1	173.5	213.5	260.2	300.3	347.8	.....	.....
36	60.0	120.1	140.1	186.8	226.8	286.8	320.2	370.2	.....	.....
40	66.7	133.5	150.1	200.2	240.2	300.3	347.8	.....	.....	.....

ANNUAL SOLAR CONTRIBUTION - THERMIST

SQ. FT. (x 1000)	Percent Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.3	6.7	10.0	15.0	20.7	28.9	39.4	52.7	68.0	83.4
4	6.7	13.5	20.0	28.7	39.4	52.7	68.0	83.4	90.1	96.7
6	10.0	20.0	30.0	40.0	50.0	60.1	70.1	80.1	90.1	100.1
8	13.5	26.7	40.0	53.4	66.7	80.1	93.4	100.0	100.1	133.5
10	16.7	33.4	50.0	66.7	83.4	100.1	116.8	133.5	150.1	166.8
12	20.0	40.0	60.1	80.1	100.1	121.1	140.1	159.2	180.2	200.2
14	23.4	46.7	70.1	93.4	116.8	140.1	163.5	186.8	210.2	233.6
16	26.7	53.4	80.1	106.8	133.5	163.5	186.8	213.5	240.2	266.8
20	33.4	66.7	100.1	133.5	166.8	200.2	233.6	266.8	300.3	.....
24	40.0	80.1	110.1	146.8	186.8	220.2	266.8	300.3	333.5	.....
28	46.7	93.4	120.1	160.2	200.2	240.2	286.8	320.2	366.8	.....
32	53.4	106.8	130.1	173.5	213.5	260.2	300.3	347.8	.....	.....
36	60.0	120.1	140.1	186.8	226.8	286.8	320.2	370.2	.....	.....
40	66.7	133.5	150.1	200.2	240.2	300.3	347.8	.....	.....	.....

Brooks AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	4.0	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7	14.2	15.8
6	2.4	4.7	7.1	9.5	11.9	14.2	16.6	19.0	21.4	23.7
8	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
10	4.0	7.9	11.9	15.8	19.8	23.7	27.7	31.7	35.6	39.6
12	4.7	9.5	14.2	19.0	23.7	28.5	33.2	38.0	42.7	47.5
14	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
16	6.3	12.7	19.0	25.3	31.7	38.0	44.3	50.6	57.0	63.3
18	7.1	14.2	21.4	28.5	35.6	42.7	49.9	57.0	64.1	71.2
20	7.9	15.8	23.7	31.7	39.6	47.5	55.4	63.3	71.2	79.1
22	8.7	17.4	26.1	34.8	43.5	52.2	60.9	69.6	78.3	87.0
24	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
26	10.3	20.6	30.9	41.1	51.4	61.7	72.0	82.3	92.6	102.9
28	11.1	22.2	33.2	44.3	55.4	66.5	77.5	88.6	99.7	110.8
30	11.9	23.7	35.6	47.5	59.3	71.2	83.1	95.0	106.8	118.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	130.	259.	389.	518.	648.	777.	907.	1036.	1166.	1296.
4	259.	518.	777.	1036.	1296.	1555.	1814.	2073.	2332.	2591.
6	389.	777.	1166.	1555.	1943.	2332.	2721.	3109.	3498.	3887.
8	518.	1036.	1555.	2073.	2591.	3109.	3628.	4146.	4664.	5182.
10	648.	1296.	1943.	2591.	3239.	3887.	4535.	5182.	5830.	6478.
12	777.	1555.	2332.	3109.	3887.	4664.	5442.	6219.	6996.	7774.
14	907.	1814.	2721.	3628.	4535.	5442.	6348.	7255.	8162.	9069.
16	1036.	2073.	3109.	4146.	5182.	6219.	7255.	8292.	9328.	10365.
18	1166.	2332.	3498.	4664.	5830.	6996.	8162.	9328.	10494.	11660.
20	1296.	2591.	3887.	5182.	6478.	7774.	9069.	10365.	11660.	12956.
22	1426.	2850.	4276.	5701.	7126.	8551.	9976.	11401.	12827.	14252.
24	1556.	3109.	4664.	6219.	7774.	9328.	10883.	12438.	13993.	15547.
26	1684.	3369.	5053.	6737.	8421.	10106.	11790.	13474.	15159.	16843.
28	1814.	3628.	5442.	7255.	9069.	10883.	12697.	14511.	16325.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13224.	15247.	17491.	19434.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	132.	265.	397.	530.	662.	795.	927.	1060.	1192.	1325.
4	265.	530.	795.	1060.	1325.	1590.	1855.	2120.	2385.	2650.
6	397.	795.	1192.	1590.	1987.	2385.	2782.	3179.	3576.	3973.
8	530.	1060.	1590.	1987.	2385.	2782.	3179.	3576.	3973.	4370.
10	662.	1325.	1987.	2385.	2782.	3179.	3576.	3973.	4370.	4767.
12	795.	1590.	2385.	2782.	3179.	3576.	3973.	4370.	4767.	5164.
14	927.	1855.	2782.	3179.	3576.	3973.	4370.	4767.	5164.	5561.
16	1060.	2120.	3179.	3576.	3973.	4370.	4767.	5164.	5561.	5958.
18	1192.	2385.	3576.	3973.	4370.	4767.	5164.	5561.	5958.	6355.
20	1325.	2650.	3973.	4370.	4767.	5164.	5561.	5958.	6355.	6752.
22	1457.	2915.	4370.	4767.	5164.	5561.	5958.	6355.	6752.	7149.
24	1590.	3180.	4767.	5164.	5561.	5958.	6355.	6752.	7149.	7546.
26	1722.	3445.	5164.	5561.	5958.	6355.	6752.	7149.	7546.	7943.
28	1855.	3710.	5561.	5958.	6355.	6752.	7149.	7546.	7943.	8340.
30	1987.	3975.	5958.	6355.	6752.	7149.	7546.	7943.	8340.	8737.

Brooks AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.7	10.7
4	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.2	19.3	21.5
6	3.2	6.4	9.7	12.9	16.1	19.3	22.6	25.8	29.0	32.2
8	4.3	8.6	12.9	17.2	21.5	25.8	30.1	34.4	38.7	43.0
10	5.4	10.7	16.1	21.5	26.8	32.2	37.6	43.0	48.3	53.7
12	6.4	12.9	19.3	25.8	32.2	38.7	45.1	51.5	58.0	64.4
14	7.5	15.0	22.6	30.1	37.6	45.1	52.6	60.1	67.7	75.2
16	8.6	17.2	25.8	34.4	43.0	51.5	60.1	68.7	77.3	85.9
18	9.7	19.3	29.0	38.7	48.3	58.0	67.7	77.3	87.0	96.6
20	10.7	21.5	32.2	43.0	53.7	64.4	75.2	85.9	96.6	107.4
22	11.8	23.6	35.4	47.3	59.1	70.9	82.7	94.5	106.3	118.1
24	12.9	25.8	38.7	51.5	64.4	77.3	90.2	103.1	116.0	129.9
26	14.0	27.9	41.9	55.8	69.8	83.8	97.7	111.7	125.6	139.6
28	15.0	30.1	45.1	60.1	75.2	90.2	105.2	120.3	135.3	150.3
30	16.1	32.2	48.3	64.4	80.5	96.6	112.8	128.9	145.0	161.1

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	250.	500.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
4	500.	999.	1499.	1998.	2498.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4496.	5245.	5994.	6744.	7493.
8	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8992.	9991.
10	1249.	2498.	3746.	4995.	6244.	7493.	8742.	9991.	11239.	12488.
12	1499.	2997.	4496.	5994.	7493.	8992.	10490.	11989.	13487.	14986.
14	1748.	3497.	5245.	6993.	8742.	10490.	12238.	13987.	15735.	17484.
16	1998.	3996.	5994.	7992.	9991.	11989.	13987.	15985.	17983.	19981.
18	2248.	4496.	6744.	8992.	11239.	13487.	15735.	17983.	20231.	22479.
20	2498.	4995.	7493.	9991.	12488.	14986.	17484.	19981.	22479.	24977.
22	2747.	5495.	8242.	10990.	13737.	16484.	19232.	21979.	24727.	27474.
24	2997.	5994.	8992.	11989.	14986.	17983.	20980.	23977.	26975.	29972.
26	3247.	6494.	9741.	12988.	16235.	19482.	22729.	25976.	29223.	32469.
28	3497.	6993.	10490.	13987.	17484.	20980.	24477.	27974.	31470.	34967.
30	3746.	7493.	11239.	14986.	18732.	22479.	26225.	29972.	33718.	37465.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303.	606.	908.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	606.	1211.	1816.	2421.	3027.	3632.	4237.	4842.	5448.	6053.
6	908.	1816.	2724.	3632.	4540.	5448.	6356.	7264.	8172.	9080.
8	1211.	2421.	3632.	4842.	6053.	7264.	8474.	9685.	10896.	12108.
10	1513.	3027.	4540.	6053.	7566.	9080.	10593.	12106.	13619.	15133.
12	1816.	3632.	5448.	7264.	9080.	10896.	12712.	14527.	16343.	18159.
14	2119.	4237.	6356.	8474.	10593.	12712.	14830.	16949.	19067.	21186.
16	2421.	4842.	7264.	9685.	12106.	14527.	16949.	19370.	21791.	24212.
18	2724.	5448.	8172.	10896.	13619.	16343.	19067.	21791.	24515.	27239.
20	3027.	6053.	9080.	12106.	15133.	18159.	21186.	24212.	27239.	30265.
22	3329.	6658.	9988.	13317.	16646.	19975.	23304.	26634.	29963.	33292.
24	3632.	7264.	10896.	14527.	18159.	21791.	25423.	29065.	32887.	36319.
26	3935.	7869.	11804.	15738.	19673.	23607.	27542.	31478.	35411.	39345.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33697.	38135.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36319.	40858.	45398.

Cannon AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.4	6.6	8.7	10.9	13.1	15.3	17.5	19.7	21.9
4	4.4	8.7	13.1	17.5	21.9	26.2	30.6	35.0	39.3	43.7
6	6.6	13.1	19.7	26.2	32.8	39.3	45.9	52.4	59.0	65.6
8	8.7	17.5	26.2	35.0	43.7	52.4	61.2	69.9	78.7	87.4
10	10.9	21.9	32.8	43.7	54.6	65.6	76.5	87.4	98.3	109.3
12	13.1	26.2	39.3	52.4	65.6	78.7	91.8	104.9	118.0	131.1
14	15.3	30.6	45.9	61.2	76.5	91.8	107.1	122.4	137.7	153.0
16	17.5	35.0	52.4	69.9	87.4	104.9	122.4	139.9	157.3	174.8
18	19.7	39.3	59.0	78.7	98.3	118.0	137.7	157.3	177.0	196.7
20	21.9	43.7	65.6	87.4	109.3	131.1	153.0	174.8	196.7	218.5
22	24.0	48.1	72.1	96.2	120.2	144.2	168.3	192.3	216.4	240.4
24	26.2	52.4	78.7	104.9	131.1	157.3	183.6	209.8	236.0	262.2
26	28.4	56.8	85.2	113.8	142.0	170.5	198.9	227.3	255.7	284.1
28	30.6	61.2	91.8	122.4	153.0	183.6	214.2	244.8	275.4	*****
30	32.8	65.6	98.3	131.1	163.9	196.7	229.5	262.2	295.0	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	227.	454.	681.	907.	1134.	1361.	1588.	1815.	2042.	2268.
4	454.	907.	1361.	1815.	2268.	2722.	3176.	3629.	4083.	4537.
6	681.	1361.	2042.	2722.	3403.	4083.	4764.	5444.	6125.	6805.
8	907.	1815.	2722.	3629.	4537.	5444.	6351.	7259.	8166.	9074.
10	1134.	2268.	3403.	4537.	5671.	6805.	7939.	9074.	10208.	11342.
12	1361.	2722.	4083.	5444.	6805.	8166.	9527.	10888.	12249.	13610.
14	1588.	3176.	4764.	6351.	7939.	9527.	11115.	12703.	14291.	15879.
16	1815.	3629.	5444.	7259.	9074.	10888.	12703.	14518.	16332.	18147.
18	2042.	4083.	6125.	8166.	10208.	12249.	14291.	16332.	18374.	20415.
20	2268.	4537.	6805.	9074.	11342.	13610.	15879.	18147.	20415.	22684.
22	2495.	4990.	7486.	9981.	12476.	14971.	17486.	19992.	22497.	24992.
24	2722.	5444.	8166.	10888.	13610.	16332.	19054.	21776.	24488.	27221.
26	2949.	5898.	8847.	11796.	14744.	17693.	20642.	23591.	26540.	29489.
28	3176.	6351.	9527.	12703.	15679.	19054.	22230.	25408.	28682.	*****
30	3403.	6805.	10208.	13610.	17013.	20415.	23818.	27221.	30883.	*****

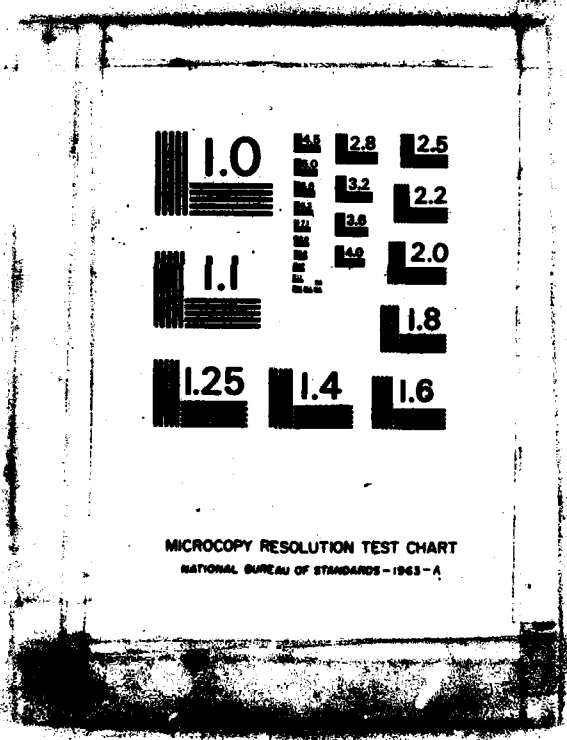
TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	315.	630.	946.	1261.	1576.	1891.	2206.	2521.	2837.	3152.
4	630.	1261.	1891.	2521.	3152.	3782.	4412.	5043.	5673.	6303.
6	946.	1891.	2837.	3782.	4728.	5673.	6619.	7564.	8510.	9455.
8	1261.	2521.	3782.	5043.	6303.	7564.	8825.	10086.	11346.	12607.
10	1576.	3152.	4728.	6303.	7879.	9455.	11031.	12607.	14183.	15759.
12	1891.	3782.	5673.	7564.	9455.	11346.	13237.	15128.	17019.	18910.
14	2206.	4412.	6619.	8825.	11031.	13237.	15443.	17650.	19856.	22062.
16	2521.	5043.	7564.	10086.	12607.	15128.	17650.	20171.	22692.	25214.
18	2837.	5673.	8510.	11346.	14183.	17019.	19856.	22692.	25699.	28366.
20	3152.	6303.	9455.	12607.	15759.	18910.	22062.	25214.	28366.	31517.
22	3467.	6934.	10401.	13868.	17334.	20801.	24288.	27735.	31182.	34668.
24	3782.	7564.	11346.	15128.	18910.	22692.	26474.	30257.	34039.	37821.
26	4097.	8194.	12292.	16349.	20466.	24583.	28661.	32779.	36879.	40972.
28	4412.	8825.	13237.	17570.	22062.	26474.	30867.	35299.	39712.	*****
30	4728.	9455.	14183.	18910.	23868.	28366.	33063.	37821.	42548.	*****

Cannon AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.3	6.6	9.8	13.1	16.4	19.7	22.9	26.2	29.5	32.8
4	6.6	13.1	19.7	26.2	32.8	39.3	45.9	52.4	59.0	65.6
6	9.8	19.7	29.5	39.3	49.2	59.0	68.8	78.7	88.5	98.3
8	13.1	26.2	39.3	52.4	65.6	78.7	91.8	104.9	118.0	131.1
10	16.4	32.8	49.2	65.6	82.0	98.3	114.7	131.1	147.5	163.9
12	19.7	39.3	59.0	78.7	98.3	118.0	137.7	157.3	177.0	196.7
14	22.9	45.9	68.8	91.8	114.7	137.7	160.6	183.6	206.5	229.5
16	26.2	52.4	78.7	104.9	131.1	157.3	183.6	209.8	236.0	262.2
18	29.5	59.0	88.5	118.0	147.5	177.0	206.5	236.0	265.5	295.0
20	32.8	65.6	98.3	131.1	163.9	196.7	229.5	262.2	295.0	327.8
22	36.1	72.1	108.2	144.2	180.3	216.4	252.4	288.5	324.5	360.6
24	39.3	78.7	118.0	157.3	196.7	236.0	275.4	314.7	354.0	393.4
26	42.6	85.2	127.8	170.5	213.1	255.7	298.3	340.9	383.5	426.1
28	45.9	91.8	137.7	183.6	229.5	275.4	321.3	367.1	413.0	*****
30	49.2	98.3	147.5	196.7	245.9	295.0	344.2	393.4	442.5	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	428.	855.	1283.	1710.	2138.	2566.	2993.	3421.	3848.	4276.
4	855.	1710.	2566.	3421.	4276.	5131.	5986.	6842.	7697.	8552.
6	1283.	2566.	3848.	5131.	6414.	7697.	8980.	10262.	11545.	12828.
8	1710.	3421.	5131.	6842.	8552.	10262.	11973.	13683.	15394.	17104.
10	2138.	4276.	6414.	8552.	10690.	12828.	14966.	17104.	19242.	21380.
12	2566.	5131.	7697.	10262.	12828.	15394.	17959.	20525.	23090.	25658.
14	2993.	5986.	8980.	11973.	14966.	17959.	20952.	23945.	26939.	29932.
16	3421.	6842.	10262.	13683.	17104.	20525.	23945.	27366.	30787.	34208.
18	3848.	7697.	11545.	15394.	19242.	23090.	26939.	30787.	34635.	38484.
20	4276.	8552.	12828.	17104.	21380.	25656.	29932.	34208.	38484.	42790.
22	4704.	9407.	14111.	18814.	23518.	28221.	32925.	37629.	42332.	47036.
24	5131.	10262.	15394.	20525.	25656.	30787.	35918.	41049.	46181.	51312.
26	5559.	11118.	16676.	22235.	27794.	33353.	38911.	44470.	50029.	55588.
28	5986.	11973.	17959.	23945.	29932.	35918.	41905.	47891.	53877.	*****
30	6414.	12828.	19242.	25656.	32070.	38484.	44896.	51312.	57726.	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	516.	1032.	1548.	2064.	2580.	3096.	3612.	4127.	4643.	5159.
4	1032.	2064.	3096.	4127.	5159.	6191.	7223.	8255.	9287.	10319.
6	1548.	3096.	4643.	6191.	7739.	9287.	10835.	12382.	13930.	15478.
8	2064.	4127.	6191.	8255.	10319.	12382.	14446.	16510.	18574.	20637.
10	2580.	5159.	7739.	10319.	12898.	15478.	18058.	20637.	23217.	25797.
12	3096.	6191.	9287.	12382.	15478.	18574.	21660.	24795.	27880.	30958.
14	3612.	7223.	10835.	14446.	18058.	21669.	25281.	28892.	32504.	36115.
16	4127.	8255.	12382.	16510.	20637.	24765.	28892.	33020.	37147.	41275.
18	4643.	9287.	13930.	18574.	23217.	27860.	32504.	37147.	41790.	46434.
20	5159.	10319.	15478.	20637.	25797.	30956.	36115.	41275.	46434.	51583.
22	5675.	11361.	17088.	22701.	28376.	34052.	39727.	45402.	51077.	56753.
24	6191.	12382.	18674.	24765.	30956.	37147.	43374.	49629.	55721.	61912.
26	6707.	13414.	20121.	26828.	33536.	40243.	46950.	53657.	60304.	67071.
28	7223.	14446.	21669.	28892.	36115.	43338.	50061.	57784.	65007.	*****
30	7739.	15478.	23217.	30956.	38695.	46434.	54173.	61912.	69851.	*****



1.0 2.8 2.5
1.1 3.2 2.2
1.25 3.6 2.0
1.4 4.0 1.8
1.6

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Carswell AFB

ANNUAL SOLAR CONTRIBUTION--NNI(NBTU's)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	1.1	2.2	3.3	4.5	5.6	6.7	7.8	8.9	10.0	11.1	
4	2.2	4.5	6.7	8.9	11.1	13.4	15.6	17.8	20.1	22.3	
6	3.3	6.7	10.0	13.4	16.7	20.1	23.4	26.8	30.1	33.4	
8	4.5	8.9	13.4	17.8	22.3	26.8	31.2	35.7	40.1	44.6	
10	5.6	11.1	16.7	22.3	27.9	33.4	39.0	44.6	50.2	55.7	
12	6.7	13.4	20.1	26.8	33.4	40.1	46.8	53.5	60.2	66.9	
14	7.8	15.6	23.4	31.2	39.0	46.8	54.6	62.4	70.2	78.0	
16	8.9	17.8	26.8	35.7	44.6	53.5	62.4	71.3	80.3	89.2	
18	10.0	20.1	30.1	40.1	50.2	60.2	70.2	80.3	90.3	100.3	
20	11.1	22.3	33.4	44.6	55.7	66.9	78.0	89.2	100.3	111.5	
22	12.3	24.5	36.8	49.1	61.3	73.6	85.8	98.1	110.4	122.6	
24	13.4	26.8	40.1	53.5	66.9	80.3	93.6	107.0	120.4	133.8	
26	14.5	29.0	43.5	58.0	72.5	87.0	101.4	115.9	130.4	144.9	
28	15.6	31.2	46.8	62.4	78.0	93.6	109.2	124.9	140.5	156.1	
30	16.7	33.4	50.2	66.9	83.6	100.3	117.1	133.8	150.5	167.2	

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	187.	375.	562.	749.	936.	1124.	1311.	1498.	1686.	1873.	
4	375.	749.	1124.	1498.	1873.	2247.	2622.	2997.	3371.	3746.	
6	562.	1124.	1686.	2247.	2809.	3371.	3933.	4495.	5057.	5619.	
8	749.	1498.	2247.	2907.	3566.	4225.	4884.	5543.	6202.	6861.	
10	936.	1873.	2809.	3746.	4682.	5619.	6555.	7492.	8428.	9364.	
12	1124.	2247.	3371.	4495.	5619.	6742.	7866.	8990.	10114.	11237.	
14	1311.	2622.	3933.	5244.	6555.	7866.	9177.	10488.	11799.	13110.	
16	1498.	2997.	4495.	5993.	7492.	8990.	10488.	11986.	13485.	14983.	
18	1686.	3371.	5057.	6742.	8428.	10114.	11799.	13485.	15170.	16856.	
20	1873.	3746.	5619.	7492.	9364.	11237.	13110.	14983.	16856.	18729.	
22	2060.	4120.	6180.	8241.	10301.	12361.	14421.	16481.	18541.	20602.	
24	2247.	4495.	6742.	8990.	11237.	13485.	15732.	17980.	20227.	22475.	
26	2435.	4869.	7304.	9759.	12174.	14608.	17043.	19478.	21913.	24347.	
28	2622.	5244.	7866.	10488.	13110.	15732.	18354.	20876.	23598.	26220.	
30	2809.	5619.	8428.	11237.	13947.	16555.	19555.	22475.	25254.	28093.	

TROUGH WALL DIFFERENTIAL COST--NNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	596.	1192.	1788.	2384.	2980.	3576.	4172.	4768.	5364.	5960.	
4	1192.	2384.	3576.	4768.	5960.	7152.	8344.	9536.	10728.	11920.	
6	1788.	3576.	5364.	7152.	8940.	10728.	12516.	14304.	16092.	17880.	
8	2384.	4768.	7152.	9536.	11920.	14304.	16688.	19072.	21456.	23840.	
10	2980.	5960.	8940.	11920.	14880.	17860.	20840.	23820.	26800.	29780.	
12	3576.	7152.	10728.	14304.	17880.	21456.	25032.	28608.	32184.	35760.	
14	4172.	8344.	12516.	16688.	20840.	25032.	29224.	33416.	37628.	41720.	
16	4768.	9536.	14304.	19072.	23840.	28608.	33416.	38224.	43136.	47680.	
18	5364.	10728.	16092.	21456.	26800.	32184.	37628.	43136.	48640.	53640.	
20	5960.	11920.	17880.	23840.	29780.	35760.	41720.	47680.	53640.	59600.	
22	6556.	13112.	19672.	26232.	32760.	39760.	45760.	51760.	57760.	63760.	
24	7152.	14304.	21456.	28688.	35760.	42760.	48760.	54760.	60760.	66760.	
26	7748.	15496.	23248.	31144.	38760.	45760.	51760.	57760.	63760.	69760.	
28	8344.	16688.	25032.	33600.	41760.	48760.	54760.	60760.	66760.	71760.	
30	8940.	17880.	26816.	36056.	44760.	51760.	57760.	63760.	69760.	73760.	

Carwell AFB

ANNUAL SOLAR CONTRIBUTION—WHI(BTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.3	4.9	6.5	8.1	9.8	11.4	13.0	14.7	16.3
4	3.3	6.5	9.8	13.0	16.3	19.6	22.8	26.1	29.3	32.6
6	4.9	9.8	14.7	19.6	24.4	29.3	34.2	39.1	44.0	48.9
8	6.5	13.0	19.6	26.1	32.6	39.1	45.6	52.1	58.7	65.2
10	8.1	16.3	24.4	32.6	40.7	48.9	57.0	65.2	73.3	81.5
12	9.8	19.6	29.3	38.1	45.9	54.7	63.4	72.2	81.0	89.8
14	11.4	22.8	34.2	45.6	57.0	68.4	79.8	91.2	102.6	114.1
16	13.0	26.1	39.1	52.1	65.2	78.2	91.2	104.3	117.3	130.3
18	14.7	29.3	44.0	58.7	73.3	88.0	102.6	117.3	132.0	146.6
20	16.3	32.6	48.9	65.2	81.5	97.5	114.1	130.3	148.6	162.9
22	17.9	35.8	53.8	71.7	89.6	107.5	125.5	143.4	161.3	179.2
24	19.6	39.1	58.7	78.2	97.8	117.3	136.9	156.4	176.0	195.5
26	21.2	42.4	63.5	84.7	105.9	127.1	148.3	169.4	190.6	211.8
28	22.8	45.6	68.4	91.2	114.1	138.9	159.7	182.5	205.3	228.1
30	24.4	48.9	73.3	97.5	122.2	148.6	171.1	195.5	220.0	244.4

DIRECT GAIN DIFFERENTIAL COST—WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	371.	742.	1114.	1485.	1856.	2227.	2598.	2969.	3341.	3712.
4	742.	1485.	2227.	2969.	3712.	4454.	5197.	5939.	6681.	7424.
6	1114.	2227.	3341.	4454.	5568.	6681.	7795.	8908.	10022.	11136.
8	1485.	2969.	4454.	5939.	7424.	8908.	10393.	11878.	13363.	14847.
10	1856.	3712.	5568.	7424.	9290.	11136.	12991.	14847.	16703.	18559.
12	2227.	4454.	6681.	8908.	11136.	13363.	15590.	17817.	20044.	22271.
14	2598.	5197.	7795.	10393.	12991.	15590.	18188.	20786.	23385.	25983.
16	2969.	5939.	8908.	11878.	14847.	17817.	20786.	23756.	26725.	29695.
18	3341.	6681.	10022.	13363.	16703.	20044.	23385.	26725.	30066.	33407.
20	3712.	7424.	11136.	14847.	18559.	22271.	25983.	29695.	33407.	37118.
22	4083.	8166.	12249.	16332.	20415.	24498.	28681.	32684.	36747.	40630.
24	4454.	8908.	13363.	17817.	22271.	26725.	31180.	35634.	40688.	44542.
26	4825.	9651.	14478.	19302.	24127.	28682.	33778.	38603.	43439.	48254.
28	5197.	10393.	15590.	20786.	25983.	31180.	36376.	41573.	46798.	51966.
30	5568.	11136.	16703.	22271.	27939.	33407.	38774.	44542.	50110.	55678.

TROMBE WALL DIFFERENTIAL COST—WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	432.	864.	1296.	1728.	2160.	2592.	3024.	3456.	3888.	4321.
4	864.	1728.	2592.	3456.	4320.	5184.	6048.	6912.	7776.	8640.
6	1296.	2592.	3888.	5184.	6480.	7776.	9072.	10368.	11664.	12960.
8	1728.	3456.	5184.	6912.	8640.	10368.	12096.	13824.	15552.	17280.
10	2160.	4320.	6480.	8640.	10800.	12960.	15120.	17280.	19440.	21600.
12	2592.	5184.	7776.	10368.	12960.	15552.	18144.	21072.	23904.	26736.
14	3024.	6048.	9072.	12096.	14880.	17280.	20160.	23040.	25920.	28800.
16	3456.	6912.	10368.	13824.	16320.	19440.	22704.	25920.	28800.	31680.
18	3888.	7776.	11664.	15552.	18144.	21600.	24480.	28800.	31680.	34560.
20	4320.	8640.	12960.	17280.	20160.	23904.	27360.	31680.	34560.	37440.
22	4752.	9504.	14256.	19008.	22320.	26160.	29760.	34560.	37440.	40320.
24	5184.	10368.	15552.	20784.	24480.	28608.	32640.	37440.	40320.	43200.
26	5616.	11232.	16848.	22608.	26640.	30720.	34560.	40320.	43200.	46080.
28	6048.	12096.	18144.	24480.	28800.	32640.	37440.	43200.	46080.	48960.
30	6480.	12960.	19440.	26400.	30960.	34560.	40320.	46080.	48960.	51840.

Castle AFB

ANNUAL SOLAR CONTRIBUTION - NNH(MBTU's)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.1	5.5	6.9	8.3	9.7	11.1	12.4	13.8
4	2.8	5.5	8.3	11.1	13.8	16.6	19.4	22.1	24.9	27.7
6	4.1	8.3	12.4	16.6	20.7	24.9	29.0	33.2	37.3	41.5
8	5.5	11.1	16.6	22.1	27.7	33.2	38.7	44.3	49.8	55.3
10	6.9	13.8	20.7	27.7	34.6	41.5	48.4	55.3	62.2	69.2
12	8.3	16.6	24.9	33.2	41.5	49.8	58.1	66.4	74.7	83.0
14	9.7	19.4	29.0	38.7	48.4	58.1	67.8	77.5	87.1	96.8
16	11.1	22.1	33.2	44.3	55.3	66.4	77.5	88.5	99.6	110.7
18	12.4	24.9	37.3	49.8	62.2	74.7	87.1	99.6	112.0	124.5
20	13.8	27.7	41.5	55.3	69.2	83.0	96.8	110.7	124.5	138.3
22	15.2	30.4	45.6	60.9	76.1	91.3	106.5	121.7	136.9	152.2
24	16.6	33.2	49.8	66.4	80.0	96.8	116.2	132.8	149.4	166.0
26	18.0	36.0	53.9	71.9	89.9	107.9	125.9	143.9	161.8	179.8
28	19.4	38.7	58.1	77.5	96.8	116.2	136.6	154.9	174.3	193.7
30	20.7	41.5	62.2	83.0	103.7	124.5	145.2	166.0	187.7	207.5

DIRECT GAIN DIFFERENTIAL COST - NNH(\$'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	196.	391.	587.	782.	978.	1174.	1369.	1565.	1760.	1956.
4	391.	782.	1174.	1565.	1956.	2347.	2738.	3129.	3521.	3912.
6	587.	1174.	1760.	2347.	2934.	3521.	4107.	4694.	5281.	5868.
8	782.	1565.	2347.	3129.	3912.	4694.	5476.	6259.	7041.	7823.
10	978.	1956.	2934.	3912.	4890.	5868.	6846.	7823.	8801.	9779.
12	1174.	2347.	3521.	4694.	5868.	7041.	8215.	9388.	10562.	11735.
14	1369.	2738.	4107.	5476.	6846.	8215.	9584.	10953.	12322.	13691.
16	1565.	3129.	4984.	6353.	7723.	9093.	10463.	11832.	13202.	14571.
18	1760.	3521.	5361.	7041.	8411.	9781.	11151.	12521.	13891.	15261.
20	1956.	3912.	5738.	7623.	8993.	10363.	11733.	13103.	14473.	15850.
22	2151.	4303.	6115.	8203.	9573.	10943.	12313.	13683.	15053.	16440.
24	2347.	4694.	7041.	8984.	10353.	11723.	13093.	14463.	15833.	17030.
26	2543.	5085.	7968.	10170.	11713.	13083.	14453.	15823.	17023.	18420.
28	2738.	5476.	8815.	10953.	12601.	14443.	16167.	17606.	18644.	19762.
30	2934.	5868.	9701.	11735.	13489.	15331.	17057.	18479.	19404.	20556.

TRUSS WALL DIFFERENTIAL COST - NNH(\$'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	202.	404.	606.	808.	1010.	1212.	1414.	1616.	1818.	2020.
4	404.	808.	1212.	1616.	2020.	2424.	2828.	3232.	3636.	4040.
6	606.	1212.	1818.	2424.	3030.	3636.	4242.	4848.	5454.	6060.
8	808.	1616.	2424.	3232.	4040.	4848.	5656.	6464.	7272.	8080.
10	1010.	2020.	3030.	4040.	5050.	6060.	7070.	8080.	9090.	10100.
12	1212.	2424.	3636.	4848.	6060.	7272.	8484.	9696.	10908.	12120.
14	1414.	2828.	4242.	5656.	7070.	8484.	9898.	11310.	12722.	14134.
16	1616.	3232.	4848.	6464.	8080.	9696.	11310.	12922.	14534.	15546.
18	1818.	3636.	5454.	7272.	9090.	10908.	12922.	14534.	16146.	17058.
20	2020.	4040.	6060.	8080.	10100.	12120.	14134.	16146.	17758.	18570.
22	2222.	4444.	6666.	8989.	11310.	13330.	15148.	17162.	19370.	20082.
24	2424.	4848.	7272.	10170.	12601.	14444.	16162.	18176.	20982.	21594.
26	2626.	5252.	7968.	11713.	14044.	16444.	18176.	20982.	22594.	23106.
28	2828.	5656.	8664.	13489.	15644.	18444.	20190.	22594.	24206.	24618.
30	3030.	6060.	9360.	15331.	17344.	20444.	22204.	24206.	25818.	26130.

Castle AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.0	3.9	5.9	7.8	9.8	11.7	13.7	15.6	17.6	19.6
4	3.9	7.8	11.7	15.6	19.6	23.5	27.4	31.3	35.2	39.1
6	5.9	11.7	17.6	23.5	29.3	35.2	41.1	46.9	52.8	58.7
8	7.8	15.6	23.5	31.3	39.1	46.9	54.8	62.6	70.4	78.2
10	9.8	19.6	29.3	39.1	48.9	58.7	68.4	78.2	88.0	97.8
12	11.7	23.5	35.2	46.9	58.7	70.4	82.1	93.9	105.6	117.3
14	13.7	27.4	41.1	54.8	68.4	82.1	95.8	109.5	123.2	136.9
16	15.6	31.3	46.9	62.6	78.2	93.9	109.5	125.2	140.8	156.5
18	17.6	35.2	52.8	70.4	88.0	105.6	123.2	140.8	158.4	176.0
20	19.6	39.1	58.7	78.2	97.8	117.3	136.9	156.5	176.0	195.6
22	21.5	43.0	64.5	86.1	107.6	129.1	150.6	172.1	193.6	215.1
24	23.5	46.9	70.4	93.9	117.3	140.8	164.3	187.7	211.2	234.7
26	25.4	50.8	76.3	101.7	127.1	152.5	176.0	203.4	228.8	254.2
28	27.4	54.8	82.1	109.5	136.9	164.3	191.7	219.0	246.4	273.8
30	29.3	58.7	88.0	117.3	146.7	176.0	205.3	234.7	264.0	293.4

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	386.	790.	1184.	1578.	1974.	2369.	2764.	3160.	3553.	3948.
4	790.	1578.	2369.	3160.	3948.	4738.	5527.	6317.	7108.	7898.
6	1184.	2369.	3553.	4738.	5922.	7106.	8291.	9475.	10659.	11844.
8	1578.	3160.	4738.	6317.	7896.	9475.	11054.	12633.	14213.	15792.
10	1974.	3948.	5922.	7896.	9870.	11844.	13818.	15792.	17766.	19740.
12	2369.	4738.	7106.	9475.	11844.	14213.	16581.	18950.	21319.	23688.
14	2764.	5527.	8291.	11054.	13818.	16681.	19345.	22106.	24872.	27635.
16	3160.	6317.	9475.	12633.	15792.	18950.	22106.	25267.	28425.	31583.
18	3553.	7108.	10659.	14213.	17766.	21319.	24872.	28425.	31978.	35631.
20	3948.	7898.	11844.	15792.	19740.	23688.	27636.	31583.	36531.	39479.
22	4343.	8688.	13028.	17371.	21714.	25656.	30399.	34742.	39084.	43427.
24	4738.	9478.	14213.	18950.	23688.	28425.	33163.	37900.	42636.	47375.
26	5132.	10268.	15397.	20529.	25661.	30934.	35528.	41008.	46191.	51323.
28	5527.	11054.	16581.	22108.	27635.	33163.	38690.	44217.	49744.	55271.
30	5922.	11844.	17766.	23688.	29699.	35531.	41453.	47375.	53297.	59219.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	488.	980.	1447.	1900.	2342.	2786.	3237.	3689.	4142.	4594.
4	980.	1900.	2786.	3689.	4594.	5498.	6404.	7311.	8218.	9124.
6	1447.	2786.	4142.	5498.	6854.	8211.	9568.	10925.	12282.	13639.
8	1900.	3689.	5498.	7311.	9124.	10937.	12750.	14563.	16376.	18189.
10	2342.	4594.	6854.	9124.	11394.	13764.	16134.	18504.	20874.	23244.
12	2786.	5498.	8211.	10937.	13764.	16633.	19503.	22373.	25243.	28113.
14	3237.	6404.	9568.	12750.	15633.	18503.	21373.	24243.	27113.	30013.
16	3689.	7311.	10925.	14563.	17503.	20373.	23243.	26113.	29013.	31913.
18	4142.	8218.	12282.	16376.	19373.	22243.	25113.	28013.	30913.	33813.
20	4594.	9124.	13639.	18189.	21243.	24113.	27013.	30013.	32913.	35813.
22	5047.	10030.	15028.	19957.	23113.	26013.	29013.	32013.	35013.	38013.
24	5498.	10937.	16376.	21243.	24113.	27013.	30013.	33013.	36013.	39013.
26	5949.	11844.	17766.	22569.	25113.	28013.	31013.	34013.	37013.	40013.
28	6400.	12750.	19155.	23917.	26113.	29013.	32013.	35013.	38013.	41013.
30	6851.	13656.	20544.	25265.	27113.	30013.	33013.	36013.	39013.	42013.

Chanute AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.9	3.8	5.7	7.6	9.5	11.4	13.3	15.2	17.1	19.0
4	3.8	7.6	11.4	15.2	19.0	22.8	26.6	30.4	34.2	38.0
6	5.7	11.4	17.1	22.8	28.5	34.2	39.9	45.6	51.3	57.0
8	7.6	15.2	22.8	30.4	38.0	45.6	53.2	60.8	68.4	76.0
10	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
12	11.4	22.8	34.2	45.6	57.0	68.4	79.8	91.2	102.6	*****
14	13.3	26.6	39.9	53.2	66.5	79.8	93.1	106.4	119.8	*****
16	15.2	30.4	45.6	61.8	76.0	91.2	106.4	121.7	*****	*****
18	17.1	34.2	51.3	68.4	85.5	102.6	119.8	136.9	*****	*****
20	19.0	38.0	57.0	76.0	95.0	114.1	133.1	*****	*****	*****
22	20.9	41.8	62.7	83.6	104.5	125.5	146.4	*****	*****	*****
24	22.8	45.6	68.4	91.2	114.1	138.9	160.7	*****	*****	*****
26	24.7	49.4	74.1	98.8	123.6	149.3	*****	*****	*****	*****
28	26.6	53.2	79.8	106.4	133.1	160.7	*****	*****	*****	*****
30	28.5	57.0	85.5	114.1	142.6	171.1	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	318.	636.	954.	1272.	1590.	1908.	2226.	2544.	2862.	3181.
4	636.	1272.	1908.	2544.	3181.	3817.	4453.	5089.	5725.	6361.
6	954.	1908.	2862.	3817.	4771.	5725.	6679.	7633.	8587.	9542.
8	1272.	2544.	3817.	5089.	6361.	7633.	8905.	10178.	11450.	12722.
10	1590.	3181.	4771.	6361.	7951.	9542.	11132.	12722.	14312.	15903.
12	1908.	3817.	5725.	7633.	9542.	11450.	13338.	15254.	17170.	*****
14	2226.	4453.	6679.	8905.	11132.	13359.	15585.	17811.	20037.	*****
16	2544.	5089.	7633.	10178.	12405.	14632.	16877.	19123.	*****	*****
18	2862.	5725.	8587.	11450.	13672.	15917.	18170.	20416.	*****	*****
20	3181.	6361.	9542.	12722.	14943.	17202.	19464.	*****	*****	*****
22	3499.	6997.	10496.	13997.	16168.	18491.	21754.	*****	*****	*****
24	3817.	7633.	11450.	14947.	17419.	19744.	23047.	*****	*****	*****
26	4135.	8269.	12404.	15899.	18673.	20997.	24340.	*****	*****	*****
28	4453.	8905.	13358.	16851.	19927.	22250.	25633.	*****	*****	*****
30	4771.	9542.	14312.	17803.	21181.	23503.	26926.	*****	*****	*****

TOTAL VAIL. DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	658.	911.	1164.	1417.	1670.	1923.	2176.	2429.	2682.	2935.
4	911.	1417.	1923.	2429.	2935.	3441.	3947.	4453.	4959.	5465.
6	1164.	1923.	2682.	3441.	4199.	4958.	5717.	6475.	7234.	7992.
8	1417.	2429.	3441.	4453.	5465.	6477.	7489.	8501.	9513.	10525.
10	1670.	2935.	4199.	5465.	6731.	7997.	9263.	10529.	11795.	13061.
12	1923.	3441.	4958.	6477.	7996.	9515.	11034.	12553.	14072.	*****
14	2176.	3947.	5717.	7489.	9262.	11035.	12808.	14563.	16248.	*****
16	2429.	4453.	6475.	8501.	10277.	12052.	13827.	15602.	17377.	*****
18	2682.	4959.	7234.	9513.	11523.	13308.	15083.	16858.	18633.	*****
20	2935.	5465.	7992.	10525.	12779.	14593.	16368.	18113.	19888.	*****
22	3188.	5971.	8741.	11537.	13830.	15803.	17643.	19368.	21143.	*****
24	3441.	6477.	9515.	12549.	14837.	16808.	18818.	20618.	22398.	*****
26	3694.	6983.	10296.	13561.	15845.	17813.	19773.	21873.	23653.	*****
28	3947.	7489.	11077.	14573.	16853.	18818.	20728.	23128.	24908.	*****
30	4200.	7995.	11858.	15585.	17861.	19773.	21683.	24383.	26163.	*****

Chanute AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0
4	8.4	16.8	25.2	33.6	42.0	50.4	58.8	67.2	75.6	84.0
6	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8	113.4	126.0
8	16.8	33.6	50.4	67.2	84.0	100.8	117.7	134.5	151.3	168.1
10	21.0	42.0	63.0	84.0	105.0	126.1	147.1	168.1	189.1	210.1
12	25.2	50.4	75.6	100.8	126.1	151.3	176.5	201.7	226.9	*****
14	29.4	58.8	88.2	117.7	147.1	176.5	206.9	235.3	264.7	*****
16	33.6	67.2	100.8	134.5	168.1	201.7	235.3	268.9	*****	*****
18	37.8	75.6	113.4	151.3	189.1	226.9	264.7	302.5	*****	*****
20	42.0	84.0	126.1	168.1	210.1	252.1	294.1	*****	*****	*****
22	46.2	92.4	138.7	184.9	231.1	277.3	323.5	*****	*****	*****
24	50.4	100.8	151.3	201.7	252.1	302.5	353.0	*****	*****	*****
26	54.6	109.2	163.9	218.5	273.1	327.7	*****	*****	*****	*****
28	58.8	117.7	176.5	235.3	294.1	353.0	*****	*****	*****	*****
30	63.0	126.1	189.1	252.1	315.1	378.2	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	630.	1260.	1890.	2520.	3150.	3779.	4409.	5039.	5669.	6299.
4	1260.	2520.	3779.	5039.	6299.	7559.	8819.	10079.	11339.	12599.
6	1890.	3779.	5039.	6299.	7559.	8819.	10079.	11339.	12599.	13859.
8	2520.	5039.	6299.	7559.	8819.	10079.	11339.	12599.	13859.	15119.
10	3150.	6299.	7559.	8819.	10079.	11339.	12599.	13859.	15119.	16379.
12	3779.	7559.	8819.	10079.	11339.	12599.	13859.	15119.	16379.	17639.
14	4409.	8819.	10079.	11339.	12599.	13859.	15119.	16379.	17639.	18899.
16	5039.	10079.	11339.	12599.	13859.	15119.	16379.	17639.	18899.	20159.
18	5669.	11339.	12599.	13859.	15119.	16379.	17639.	18899.	20159.	21419.
20	6299.	12599.	13859.	15119.	16379.	17639.	18899.	20159.	21419.	22679.
22	6929.	13859.	15119.	16379.	17639.	18899.	20159.	21419.	22679.	23939.
24	7559.	15119.	16379.	17639.	18899.	20159.	21419.	22679.	23939.	25199.
26	8189.	16379.	17639.	18899.	20159.	21419.	22679.	23939.	25199.	26459.
28	8819.	17639.	18899.	20159.	21419.	22679.	23939.	25199.	26459.	27719.
30	9449.	18899.	20159.	21419.	22679.	23939.	25199.	26459.	27719.	28979.

TROUBLE WALL DIFFERENTIAL COST--WNI(\$'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	767.	1534.	2301.	3068.	3835.	4602.	5370.	6137.	6904.	7671.
4	1534.	3068.	4602.	6137.	7671.	9206.	10740.	12274.	13808.	15342.
6	2301.	4602.	6904.	9206.	11508.	13810.	16112.	18414.	20716.	23018.
8	3068.	6137.	9206.	12274.	15342.	18410.	21478.	24546.	27614.	30682.
10	3835.	7671.	11508.	15342.	19274.	23110.	26948.	30786.	34624.	38462.
12	4602.	9206.	13810.	18410.	23062.	27900.	32738.	37576.	42414.	47252.
14	5370.	10740.	16112.	21414.	27250.	32538.	37376.	42214.	47052.	51890.
16	6137.	12274.	18414.	24546.	30538.	36376.	41214.	46052.	50890.	55728.
18	6904.	13808.	20716.	27614.	33638.	39514.	44052.	48890.	53728.	58566.
20	7671.	15342.	23018.	30682.	36738.	42752.	47890.	52628.	57466.	63404.
22	8438.	16876.	25320.	33750.	40038.	46090.	51028.	55466.	59304.	68242.
24	9206.	18410.	27622.	36862.	43338.	49330.	54166.	58604.	62142.	73080.
26	9973.	19944.	30024.	39974.	46638.	52570.	57304.	61442.	65280.	77918.
28	10740.	21478.	32326.	43086.	49938.	55810.	60442.	64580.	68418.	82756.
30	11508.	23012.	34628.	46198.	53238.	59110.	63580.	67618.	71556.	87594.

Charleston AFB

ANNUAL SOLAR CONTRIBUTION - BTU's										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	1.9	2.9	3.9	4.8	5.8	6.8	7.7	8.7	9.7
4	1.9	3.9	5.8	7.7	9.7	11.6	13.5	15.5	17.4	19.3
6	2.9	5.8	8.7	11.6	14.5	17.4	20.3	23.2	26.1	29.0
8	3.9	7.7	11.6	15.5	19.3	23.2	27.0	30.9	34.8	38.6
10	4.8	9.7	14.5	19.3	24.1	29.0	33.8	38.6	43.5	48.3
12	5.8	11.6	17.4	23.2	29.0	34.8	40.6	46.4	52.1	57.9
14	6.8	13.5	20.3	27.0	33.8	40.6	47.3	54.1	60.8	67.6
16	7.7	15.5	23.2	30.9	38.6	46.4	54.1	61.8	69.5	77.3
18	8.7	17.4	26.1	34.8	43.5	52.1	60.8	69.5	78.2	86.9
20	9.7	19.3	29.0	38.6	48.3	57.9	67.6	77.3	86.9	96.6
22	10.6	21.2	31.9	42.6	53.1	63.7	74.4	85.0	95.8	105.2
24	11.6	23.2	34.8	46.4	57.9	69.5	81.1	92.7	104.3	115.9
26	12.6	25.1	37.7	50.2	62.8	75.3	87.9	100.4	113.0	125.5
28	13.5	27.0	40.6	54.1	67.6	81.1	94.6	108.2	121.7	135.2
30	14.5	29.0	43.5	57.9	72.4	85.9	101.4	115.9	130.4	144.9

DIRECT GAIN DIFFERENTIAL COST - \$/SQ FT										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	164	308	453	617	772	928	1080	1235	1392	1543
4	308	617	928	1235	1543	1852	2160	2468	2776	3086
6	453	928	1392	1852	2315	2778	3241	3704	4167	4630
8	617	1235	1852	2468	3086	3704	4321	4938	5556	6173
10	772	1543	2315	3086	3904	4721	5538	6356	7173	7990
12	928	1852	2778	3704	4630	5556	6481	7407	8333	9259
14	1080	2160	3241	4321	5401	6481	7562	8642	9722	10802
16	1235	2468	3704	4938	6173	7407	8642	9876	11111	12345
18	1392	2776	4167	5556	6944	8333	9722	11111	12500	13889
20	1543	3086	4630	6173	7712	9251	10790	12329	13868	15407
22	1698	3394	5093	6735	8384	9937	11476	13009	14548	16076
24	1852	3704	5556	7407	9059	11111	12650	14189	15689	16745
26	2006	4012	6019	8080	10191	12222	14289	16329	17830	18414
28	2160	4321	6582	8753	10864	12833	15123	17294	18944	19528
30	2315	4630	7145	9426	11537	13444	15957	18308	20058	20642

INDIRECT GAIN DIFFERENTIAL COST - \$/SQ FT										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	214	428	642	857	1071	1285	1500	1713	1927	2141
4	428	857	1285	1713	2141	2570	2998	3426	3854	4282
6	642	1285	1927	2570	3212	3854	4497	5139	5782	6424
8	857	1713	2570	3426	4282	5139	5995	6852	7709	8566
10	1071	2141	3212	4282	5401	6521	7640	8759	9878	10997
12	1285	2570	3854	5139	6426	7712	9000	10287	11574	12861
14	1500	3000	4500	6000	7500	9000	10500	12000	13500	15000
16	1713	3426	5139	6852	8565	10278	12000	13713	15426	17139
18	1927	3854	5782	7709	9636	11563	13490	15417	17344	19271
20	2141	4282	6424	8566	10708	12850	14991	17072	19153	21234
22	2355	4710	7145	9426	11537	13668	15822	17903	19984	22055
24	2570	5138	7709	10191	12222	14399	16653	18734	20815	22876
26	2784	5566	8272	10954	13084	15270	17484	19565	21646	23697
28	3000	6000	8835	11717	13901	16141	18334	20396	22477	24518
30	3215	6426	9398	12480	14722	17012	19184	21227	23308	25339

Charleston AFB

ANNUAL SOLAR CONTRIBUTION - WHI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.3	2.6	3.9	5.3	6.6	7.9	9.2	10.5	11.8	13.1
4	2.6	5.3	7.9	10.5	13.1	15.8	18.4	21.0	23.6	26.3
6	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.5	39.4
8	5.3	10.5	15.8	21.0	26.3	31.5	36.8	42.0	47.3	52.5
10	6.6	13.1	19.7	26.3	32.8	39.4	46.0	52.5	59.1	65.7
12	7.9	15.8	23.6	31.5	39.4	47.3	55.2	63.0	70.9	78.8
14	9.2	18.4	27.6	36.8	46.0	55.2	64.4	73.5	82.7	91.9
16	10.5	21.0	31.5	42.0	52.5	63.0	73.5	84.1	94.6	105.1
18	11.8	23.6	35.5	47.3	59.1	70.9	82.7	94.6	106.4	118.2
20	13.1	26.3	39.4	52.5	65.7	78.8	91.9	105.1	118.2	131.3
22	14.4	28.9	43.3	57.8	72.2	86.7	101.1	115.6	130.0	144.5
24	15.8	31.5	47.3	63.0	78.8	94.6	110.5	126.1	141.8	157.6
26	17.1	34.1	51.2	68.3	85.4	102.4	119.5	138.6	153.7	170.7
28	18.4	36.8	55.2	73.5	91.9	110.5	128.7	147.1	166.5	183.9
30	19.7	39.4	59.1	78.8	96.5	118.2	137.9	157.6	177.3	197.0

DIRECT GAIN DIFFERENTIAL COST - WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	599.	661.	671.	1191.	1491.	1742.	2082.	2322.	2513.	2603.
4	661.	1161.	1742.	2322.	2903.	3484.	4064.	4645.	5225.	5806.
6	671.	1742.	2613.	3484.	4354.	5225.	6096.	6967.	7838.	8709.
8	1161.	2322.	3484.	4645.	5806.	6967.	8128.	9289.	10451.	11612.
10	1451.	2903.	4354.	5806.	7257.	8709.	10160.	11612.	13063.	14515.
12	1742.	3484.	5225.	6967.	8709.	10451.	12192.	13934.	15676.	17418.
14	2032.	4064.	6096.	8128.	10160.	12192.	14224.	16256.	18288.	20321.
16	2322.	4645.	6967.	9099.	11121.	13034.	15055.	17076.	19097.	21124.
18	2613.	5225.	7838.	10051.	12083.	14076.	16097.	18118.	20139.	22125.
20	2903.	5806.	8709.	11012.	13045.	15018.	17039.	19060.	21081.	23029.
22	3193.	6387.	9580.	11973.	14006.	16000.	18020.	20041.	22062.	24032.
24	3484.	6967.	10451.	12934.	14968.	16911.	18001.	20062.	22083.	24035.
26	3774.	7548.	11321.	13895.	15930.	17873.	19043.	21083.	23064.	25038.
28	4064.	8128.	12192.	14856.	16891.	18835.	20049.	22065.	24067.	26041.
30	4354.	8709.	13063.	15817.	17852.	19817.	21051.	23066.	25068.	27044.

THERMAL WALL DIFFERENTIAL COST - WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	700.	700.	1000.	1400.	1701.	2101.	2401.	2801.	3101.	3001.
4	700.	1400.	2101.	2801.	3501.	4201.	4902.	5602.	6302.	7002.
6	1000.	2101.	3101.	4101.	5102.	6102.	7103.	8103.	9103.	10004.
8	1400.	2801.	4101.	5402.	6702.	8002.	9303.	10603.	11904.	14005.
10	1701.	3501.	5102.	6702.	8303.	9904.	11504.	13104.	14705.	17506.
12	2101.	4201.	6102.	8002.	9903.	11804.	13704.	15604.	17505.	21007.
14	2401.	4902.	7003.	9003.	10904.	12804.	14704.	16604.	18505.	24508.
16	2801.	5602.	8103.	10104.	12004.	13904.	15804.	17704.	19604.	28010.
18	3101.	6302.	9103.	11204.	13104.	15004.	16904.	18804.	20704.	31511.
20	3401.	7002.	10104.	12304.	14204.	16104.	18004.	19904.	21804.	35012.
22	3701.	7702.	11104.	13404.	15304.	17004.	18904.	20804.	22704.	38513.
24	4001.	8402.	12104.	14504.	16404.	17904.	19804.	21704.	23604.	42014.
26	4301.	9102.	13104.	15604.	17504.	18804.	20704.	22604.	24504.	45515.
28	4601.	9802.	14104.	16704.	18604.	19704.	21604.	23504.	25404.	49016.
30	4901.	10502.	15104.	17804.	19704.	20604.	22504.	24404.	26304.	52517.

Columbus AFB

ANNUAL SOLAR CONTRIBUTION - BTU'S										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.3	3.4	4.5	5.6	6.8	7.9	9.0	10.1	11.3
4	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0	20.3	22.5
6	3.4	6.8	10.1	13.5	16.9	20.3	23.7	27.0	30.4	33.8
8	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	45.0
10	5.6	11.3	16.9	22.5	28.2	33.8	39.4	45.0	50.7	56.3
12	6.8	13.5	20.3	27.0	33.8	40.5	47.3	54.1	60.8	67.6
14	7.9	15.8	23.7	31.5	39.4	47.3	55.2	63.1	71.0	78.8
16	9.0	18.0	27.0	36.0	45.0	54.1	63.1	72.1	81.1	90.1
18	10.1	20.3	30.4	40.5	50.7	60.8	71.0	81.1	91.2	101.4
20	11.3	22.5	33.8	45.0	56.3	67.6	78.8	90.1	101.4	112.6
22	12.4	24.8	37.2	49.6	61.9	74.3	86.7	99.1	111.5	123.9
24	13.5	27.0	40.5	54.1	67.6	81.1	94.5	108.1	121.5	135.1
26	14.6	29.3	43.9	58.6	73.2	87.8	102.5	117.1	131.5	146.4
28	15.8	31.5	47.3	63.1	78.8	94.6	110.4	126.1	141.9	157.7
30	16.9	33.8	50.7	67.6	84.6	101.4	118.9	135.1	152.0	169.0

DIRECT GAIN DIFFERENTIAL COEF - BTU'S										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	199	397	595	793	991	1189	1387	1585	1783	1981
4	397	793	1189	1585	1981	2377	2773	3169	3565	3961
6	595	1189	1783	2377	2973	3569	4165	4761	5357	5953
8	793	1585	2377	3169	3961	4753	5545	6337	7129	7921
10	991	1981	2973	3961	4953	5945	6937	7929	8921	9913
12	1189	2377	3569	4753	5945	7137	8329	9521	10713	11905
14	1387	2773	4165	5357	6549	7741	8933	10125	11317	12509
16	1585	3169	4761	5953	7145	8337	9529	10721	11913	13105
18	1783	3565	5357	6549	7741	8933	10125	11317	12509	13701
20	1981	3961	5945	7137	8329	9521	10713	11905	13097	14289
22	2179	4357	6537	7729	8921	10113	11305	12497	13689	14881
24	2377	4753	7129	8321	9513	10705	11897	13089	14281	15473
26	2575	5149	7721	8913	10105	11297	12489	13681	14873	16065
28	2773	5545	8313	9505	10697	11889	13081	14273	15465	16657
30	2971	5941	8905	10097	11289	12481	13673	14865	16057	17249

TOTAL SOLAR CONTRIBUTION - BTU'S										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	277	554	831	1108	1385	1662	1939	2217	2494	2772
4	554	1108	1662	2217	2771	3325	3879	4433	4987	5541
6	831	1662	2494	3325	4156	4987	5818	6649	7480	8311
8	1108	2217	3325	4156	4987	5818	6649	7480	8311	9142
10	1385	2771	4156	4987	5818	6649	7480	8311	9142	9973
12	1662	3325	4987	5818	6649	7480	8311	9142	9973	10804
14	1939	3879	5818	6649	7480	8311	9142	9973	10804	11635
16	2217	4433	6649	7480	8311	9142	9973	10804	11635	12466
18	2494	4987	7480	8311	9142	9973	10804	11635	12466	13297
20	2771	5541	8311	9142	9973	10804	11635	12466	13297	14128
22	3048	6095	9142	9973	10804	11635	12466	13297	14128	14959
24	3325	6649	9973	10804	11635	12466	13297	14128	14959	15790
26	3602	7203	10804	11635	12466	13297	14128	14959	15790	16621
28	3879	7757	11635	12466	13297	14128	14959	15790	16621	17452
30	4156	8311	12466	13297	14128	14959	15790	16621	17452	18283

Davis-Monthan AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0
4	2.2	4.4	6.6	8.8	11.0	13.2	15.4	17.7	19.9	22.1
6	3.3	6.6	9.9	13.2	16.6	19.9	23.2	26.5	29.8	33.1
8	4.4	8.8	13.2	17.7	22.1	26.5	30.9	35.3	39.7	44.2
10	5.5	11.0	16.6	22.1	27.6	33.1	38.6	44.2	49.7	55.2
12	6.6	13.2	19.9	26.5	33.1	39.7	46.4	53.0	59.6	66.2
14	7.7	15.5	23.2	30.9	38.6	46.4	54.1	61.8	69.5	77.3
16	8.8	17.7	26.5	35.3	44.2	53.0	61.8	70.6	79.5	88.3
18	9.9	19.9	29.8	38.7	49.7	59.6	69.5	79.5	89.4	99.3
20	11.0	22.1	33.1	44.2	55.2	66.2	77.3	88.3	99.3	110.4
22	12.1	24.3	36.4	48.6	60.7	73.8	86.0	97.1	109.3	121.4
24	13.2	26.5	39.7	53.0	65.2	79.5	92.7	106.0	119.2	132.5
26	14.3	28.7	43.0	57.4	71.7	86.1	100.4	114.8	129.1	143.5
28	15.5	30.9	46.4	61.8	77.3	92.7	108.2	123.6	139.1	154.5
30	16.6	33.1	49.7	66.2	82.8	99.3	115.9	132.5	149.0	165.6

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	129.	258.	387.	516.	645.	774.	902.	1031.	1160.	1289.
4	258.	516.	774.	1031.	1289.	1547.	1805.	2063.	2321.	2579.
6	387.	774.	1160.	1547.	1934.	2321.	2707.	3094.	3481.	3868.
8	516.	1031.	1547.	2063.	2579.	3094.	3610.	4126.	4641.	5157.
10	645.	1289.	1934.	2579.	3223.	3868.	4512.	5157.	5802.	6446.
12	774.	1547.	2321.	3094.	3868.	4641.	5415.	6188.	6962.	7735.
14	902.	1805.	2707.	3610.	4512.	5415.	6317.	7220.	8122.	9025.
16	1031.	2063.	3094.	4126.	5157.	6188.	7220.	8251.	9283.	10314.
18	1160.	2321.	3481.	4641.	5672.	6702.	7732.	8763.	9793.	10823.
20	1289.	2579.	3868.	5157.	6446.	7735.	9024.	10313.	11602.	12891.
22	1418.	2836.	4285.	5672.	7061.	8450.	9839.	11228.	12617.	14006.
24	1547.	3094.	4641.	6188.	7735.	9282.	10829.	12376.	13923.	15471.
26	1676.	3352.	5000.	6702.	8374.	9921.	11468.	12915.	14462.	16700.
28	1805.	3610.	5415.	7220.	8966.	10506.	12036.	13446.	14905.	18000.
30	1934.	3868.	5830.	7735.	9559.	11053.	12557.	14471.	15705.	19300.

THERMAL WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	184.	367.	551.	735.	919.	1102.	1286.	1470.	1653.	1837.
4	367.	735.	1102.	1470.	1837.	2204.	2572.	2939.	3307.	3674.
6	551.	1102.	1653.	2204.	2755.	3307.	3858.	4409.	4960.	5511.
8	735.	1470.	2204.	2939.	3674.	4409.	5144.	5879.	6614.	7348.
10	919.	1837.	2755.	3674.	4593.	5511.	6430.	7349.	8268.	9187.
12	1102.	2204.	3307.	4409.	5511.	6614.	7717.	8820.	9923.	11026.
14	1286.	2572.	3858.	5144.	6430.	7717.	9004.	10291.	11578.	12865.
16	1470.	2939.	4409.	5879.	7348.	8817.	10287.	11757.	13226.	14696.
18	1653.	3307.	4960.	6430.	7999.	9568.	11137.	12706.	14275.	15843.
20	1837.	3674.	5511.	7061.	8730.	10399.	12068.	13737.	15406.	17070.
22	2021.	4041.	6122.	7735.	9504.	11273.	13042.	14811.	16580.	18297.
24	2204.	4409.	6702.	8450.	10282.	12151.	14030.	15900.	17769.	19504.
26	2388.	4776.	7283.	9165.	11071.	13140.	15219.	17209.	19058.	20711.
28	2572.	5144.	7864.	9880.	11960.	14349.	16518.	18508.	20367.	21918.
30	2755.	5511.	8465.	10695.	12949.	15648.	17817.	19807.	21676.	23125.

Davis-Monthan AFB

ANNUAL SOLAR CONTRIBUTION--WN(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.4	12.8	14.2
4	2.8	5.7	8.5	11.4	14.2	17.0	19.9	22.7	25.5	28.4
6	4.3	8.5	12.8	17.0	21.3	25.5	29.8	34.1	38.3	42.6
8	5.7	11.4	17.0	22.7	28.4	34.1	39.7	45.4	51.1	56.8
10	7.1	14.2	21.3	28.4	35.5	42.6	49.7	56.8	63.9	71.0
12	8.5	17.0	25.5	34.1	42.6	51.1	59.6	68.1	76.6	85.1
14	9.9	19.9	29.8	39.7	49.7	59.6	69.5	79.5	89.4	99.3
16	11.4	22.7	34.1	45.4	56.8	68.1	79.5	90.8	102.2	113.5
18	12.8	25.5	38.3	51.1	63.9	76.6	89.4	102.2	114.9	127.7
20	14.2	28.4	42.6	56.8	71.0	85.1	99.3	113.5	127.7	141.9
22	15.6	31.2	46.8	62.4	76.1	91.7	106.3	124.9	140.5	156.1
24	17.0	34.1	51.1	68.1	85.1	102.2	119.2	136.2	153.3	170.3
26	18.4	36.9	55.3	73.8	92.2	110.7	129.1	147.6	166.0	184.5
28	19.9	39.7	59.6	79.5	99.3	119.2	139.1	158.9	178.8	196.7
30	21.3	42.6	63.9	85.1	106.4	127.7	149.0	170.3	191.6	212.9

DIRECT GAIN DIFFERENTIAL COST--WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	253.	507.	760.	1014.	1267.	1520.	1774.	2027.	2281.	2534.
4	507.	1014.	1520.	2027.	2534.	3041.	3548.	4055.	4561.	5068.
6	760.	1520.	2281.	3041.	3801.	4561.	5322.	6082.	6842.	7602.
8	1014.	2027.	3041.	4055.	5068.	6082.	7096.	8109.	9123.	10137.
10	1267.	2534.	3801.	5068.	6335.	7602.	8869.	10137.	11404.	12671.
12	1520.	3041.	4561.	6082.	7602.	9123.	10643.	12164.	13684.	15205.
14	1774.	3548.	5322.	7096.	8869.	10643.	12417.	14191.	15965.	17739.
16	2027.	4055.	6082.	8109.	10137.	12164.	14191.	16218.	18246.	20273.
18	2281.	4561.	6842.	9123.	11404.	13684.	15965.	18246.	20527.	22807.
20	2534.	5068.	7602.	10137.	12671.	15205.	17739.	20273.	22807.	25341.
22	2788.	5575.	8363.	11150.	13638.	16285.	19513.	22300.	25088.	27876.
24	3041.	6082.	9123.	12164.	15205.	18246.	21287.	24328.	27389.	30410.
26	3294.	6589.	9883.	13178.	16472.	19788.	23061.	26355.	29649.	32944.
28	3548.	7096.	10643.	14191.	17739.	21287.	24835.	28382.	31930.	35478.
30	3801.	7602.	11404.	15205.	18996.	22807.	26608.	30410.	34211.	38012.

TROMBE WALL DIFFERENTIAL COST--WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	308.	616.	925.	1233.	1541.	1849.	2157.	2465.	2774.	3082.
4	616.	1233.	1849.	2465.	3082.	3698.	4315.	4931.	5547.	6164.
6	925.	1849.	2774.	3698.	4623.	5547.	6472.	7397.	8321.	9246.
8	1233.	2465.	3698.	4931.	6164.	7397.	8629.	9862.	11095.	12328.
10	1541.	3082.	4623.	6164.	7705.	9246.	10787.	12328.	13869.	15409.
12	1849.	3698.	5547.	7397.	9123.	10843.	12564.	14284.	16004.	17724.
14	2157.	4315.	6472.	8629.	10787.	12944.	15101.	17258.	19416.	21573.
16	2465.	4931.	7397.	9862.	12164.	14783.	17559.	19716.	21873.	24029.
18	2774.	5547.	8321.	11095.	13385.	16442.	19416.	22199.	24653.	27737.
20	3082.	6164.	9246.	12328.	15008.	18491.	21573.	24655.	27737.	30819.
22	3390.	6780.	10170.	13650.	16650.	20340.	23731.	27131.	30611.	33901.
24	3698.	7397.	11095.	14783.	18491.	22199.	25855.	29558.	33284.	36983.
26	4006.	8013.	12019.	15916.	20032.	24078.	28043.	32082.	36088.	40064.
28	4315.	8629.	12944.	17049.	21573.	25855.	30008.	34517.	38632.	43146.
30	4623.	9246.	13869.	18181.	23114.	27737.	32063.	36653.	41295.	46228.

Dover AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.1	6.8	8.4	10.1	11.8	13.5	15.2	16.9
4	3.4	6.8	10.1	13.5	16.9	20.3	23.7	27.0	30.4	33.8
6	5.1	10.1	15.2	20.3	25.3	30.4	35.5	40.5	45.6	50.7
8	6.8	13.5	20.3	27.0	33.8	40.5	47.3	54.1	60.8	67.6
10	8.4	16.9	25.3	33.8	42.2	50.7	59.1	67.6	76.0	84.5
12	10.1	20.3	30.4	40.5	50.7	60.8	71.0	81.1	91.2	*****
14	11.8	23.7	35.5	47.3	59.1	71.0	82.8	94.6	106.4	*****
16	13.5	27.0	40.5	54.1	67.6	81.1	94.6	108.1	*****	*****
18	15.2	30.4	45.6	60.8	76.0	91.2	108.4	121.6	*****	*****
20	16.9	33.8	50.7	67.6	84.5	101.4	118.3	*****	*****	*****
22	18.6	37.2	55.8	74.3	92.9	111.5	130.1	*****	*****	*****
24	20.3	40.5	60.8	81.1	101.4	121.6	141.9	*****	*****	*****
26	22.0	43.9	65.9	87.9	109.6	131.8	*****	*****	*****	*****
28	23.7	47.3	71.0	94.6	118.3	141.9	*****	*****	*****	*****
30	25.3	50.7	76.0	101.4	126.7	152.1	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	324.	648.	973.	1298.	1622.	1947.	2271.	2596.	2920.	3245.
4	648.	1298.	1947.	2596.	3245.	3894.	4543.	5192.	5841.	6490.
6	973.	1947.	2920.	3894.	4867.	5841.	6814.	7788.	8761.	9735.
8	1298.	2596.	3894.	5192.	6490.	7788.	9086.	10384.	11682.	12980.
10	1622.	3245.	4867.	6490.	8112.	9735.	11357.	12980.	14602.	16225.
12	1947.	3894.	5841.	7788.	9735.	11682.	13629.	15576.	17523.	*****
14	2271.	4543.	6814.	9086.	11357.	13629.	15900.	18172.	20443.	*****
16	2596.	5192.	7788.	10384.	12980.	15576.	18172.	20768.	*****	*****
18	2920.	5841.	8761.	11682.	14602.	17523.	20443.	23364.	*****	*****
20	3245.	6490.	9735.	12980.	16225.	19470.	22715.	*****	*****	*****
22	3569.	7139.	10708.	14276.	17847.	21417.	24966.	*****	*****	*****
24	3894.	7788.	11682.	15576.	19470.	23364.	27258.	*****	*****	*****
26	4218.	8437.	12656.	16874.	21092.	25311.	*****	*****	*****	*****
28	4543.	9086.	13629.	18172.	22715.	27258.	*****	*****	*****	*****
30	4867.	9735.	14602.	19470.	24337.	29205.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	482.	963.	1445.	1927.	2408.	2890.	3372.	3854.	4335.	4817.
4	963.	1927.	2890.	3854.	4817.	5780.	6743.	7706.	8669.	9632.
6	1445.	2890.	4335.	5780.	7225.	8670.	10115.	11560.	13005.	14450.
8	1927.	3854.	5780.	7706.	9632.	11558.	13484.	15410.	17336.	19262.
10	2408.	4817.	7225.	9632.	12039.	14456.	16873.	19290.	21707.	24124.
12	2890.	5780.	8670.	11091.	13552.	16013.	18474.	20935.	23396.	*****
14	3372.	6743.	9632.	12553.	15014.	17475.	19936.	22397.	24858.	*****
16	3854.	7706.	11091.	14014.	16475.	18936.	21397.	23858.	26319.	*****
18	4335.	8669.	12553.	15515.	17936.	20397.	22858.	25319.	27780.	*****
20	4817.	9632.	13511.	16976.	18897.	21858.	23819.	26280.	28741.	*****
22	5298.	10595.	14972.	18437.	19858.	22819.	24780.	27241.	29702.	*****
24	5780.	11558.	15933.	19898.	20819.	23780.	25741.	28202.	30663.	*****
26	6262.	12521.	16894.	21359.	21780.	24741.	26702.	29163.	31624.	*****
28	6743.	13484.	17855.	22820.	22741.	25702.	27663.	30124.	32585.	*****
30	7225.	14447.	18816.	24281.	23702.	26663.	28624.	31085.	33546.	*****

Dover AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.5	6.9	10.4	13.9	17.3	20.8	24.3	27.7	31.2	34.7
4	6.9	13.9	20.8	27.7	34.7	41.6	48.6	55.5	62.4	69.4
6	10.4	20.8	31.2	41.6	52.0	62.4	72.8	83.2	93.6	104.0
8	13.9	27.7	41.6	55.5	69.4	83.2	97.1	111.0	124.8	138.7
10	17.3	34.7	52.0	69.4	86.7	104.0	121.4	138.7	156.1	173.4
12	20.8	41.6	62.4	83.2	104.0	124.8	145.7	166.5	187.3	*****
14	24.3	48.6	72.8	97.1	121.4	145.7	169.9	194.2	218.5	*****
16	27.7	55.5	83.2	111.0	138.7	166.5	194.2	221.9	*****	*****
18	31.2	62.4	93.6	124.8	156.1	187.3	218.5	249.7	*****	*****
20	34.7	69.4	104.0	138.7	173.4	208.1	242.8	*****	*****	*****
22	38.1	76.3	114.4	152.6	190.7	225.9	267.0	*****	*****	*****
24	41.6	83.2	124.8	166.5	208.1	249.7	291.3	*****	*****	*****
26	45.1	90.2	135.2	180.3	225.4	270.5	*****	*****	*****	*****
28	48.6	97.1	145.7	194.2	242.8	291.3	*****	*****	*****	*****
30	52.0	104.0	156.1	208.1	260.1	312.1	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	636.	1273.	1909.	2545.	3182.	3818.	4454.	5091.	5727.	6363.
4	1273.	2545.	3818.	5091.	6363.	7636.	8909.	10182.	11454.	12727.
6	1909.	3818.	5727.	7636.	9545.	11454.	13363.	15272.	17181.	19090.
8	2545.	5091.	7636.	10182.	12727.	15272.	17818.	20363.	22908.	25454.
10	3182.	6363.	9545.	12727.	15909.	19090.	22272.	25454.	28636.	31817.
12	3818.	7636.	11454.	15272.	19090.	22908.	26728.	30545.	34363.	*****
14	4454.	8909.	13363.	17818.	22272.	26728.	31161.	35435.	40090.	*****
16	5091.	10182.	15272.	20363.	25454.	30545.	35835.	40728.	*****	*****
18	5727.	11454.	17181.	22908.	28636.	34363.	40090.	45817.	*****	*****
20	6363.	12727.	19090.	25454.	31817.	38181.	44544.	*****	*****	*****
22	7000.	14000.	20990.	27990.	34990.	41990.	48990.	*****	*****	*****
24	7636.	15272.	22908.	30545.	38181.	45817.	53453.	*****	*****	*****
26	8272.	16545.	24817.	33090.	41382.	49635.	*****	*****	*****	*****
28	8909.	17818.	26728.	35635.	44544.	53453.	*****	*****	*****	*****
30	9545.	19090.	28636.	38181.	47228.	57271.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	774.	1547.	2321.	3094.	3868.	4641.	5415.	6188.	6962.	7736.
4	1547.	3094.	4641.	6188.	7736.	9283.	10830.	12377.	13924.	15471.
6	2321.	4641.	6962.	9283.	11603.	13924.	16245.	18565.	20886.	23207.
8	3094.	6188.	9283.	12377.	15471.	18565.	21660.	24754.	27848.	30942.
10	3868.	7736.	11603.	15471.	19539.	23907.	27075.	30942.	34810.	38678.
12	4641.	9283.	13924.	18565.	23907.	27848.	32489.	37131.	41772.	*****
14	5415.	10830.	16245.	21660.	27075.	32489.	37904.	43319.	48734.	*****
16	6188.	12377.	18565.	24754.	30942.	37131.	43319.	49505.	*****	*****
18	6962.	13924.	20886.	27848.	34810.	41772.	48734.	55985.	*****	*****
20	7736.	15471.	23207.	30942.	38678.	46414.	54149.	*****	*****	*****
22	8509.	17018.	25627.	34037.	42448.	51058.	59894.	*****	*****	*****
24	9283.	18565.	27848.	37131.	46414.	55985.	64879.	*****	*****	*****
26	10056.	20112.	30189.	40224.	50331.	60338.	*****	*****	*****	*****
28	10830.	21660.	32489.	45119.	54149.	64879.	*****	*****	*****	*****
30	11603.	23207.	34810.	48414.	58017.	69890.	*****	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION--NHE(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.7	4.1	5.4	6.8	8.2	9.5	10.9	12.3	13.6
4	2.7	5.4	8.2	10.9	13.6	16.3	19.1	21.8	24.5	27.2
6	4.1	8.2	12.3	16.3	20.4	24.5	28.6	32.7	36.8	40.9
8	5.4	10.9	16.3	21.8	27.2	32.7	38.1	43.6	49.0	54.5
10	6.8	13.6	20.4	27.2	34.1	40.9	47.7	54.5	61.3	68.1
12	8.2	16.3	24.5	32.7	40.9	49.0	57.2	65.4	73.6	81.7
14	9.5	19.1	28.6	38.1	47.7	57.2	66.8	76.3	85.8	95.4
16	10.9	21.8	32.7	43.6	54.5	65.4	76.3	87.2	98.1	109.0
18	12.3	24.5	36.8	49.0	61.3	73.6	85.8	98.1	110.4	122.6
20	13.6	27.2	40.9	54.5	68.1	81.7	95.4	109.0	122.6	136.2
22	15.0	30.0	45.0	59.9	74.9	89.9	104.9	119.9	134.9	149.9
24	16.3	32.7	49.0	65.4	81.7	98.1	114.4	130.8	147.1	163.5
26	17.7	35.4	53.1	70.8	88.6	106.3	124.0	141.7	160.4	177.1
28	19.1	38.1	57.2	76.3	95.4	114.4	133.5	152.6	171.7	190.7
30	20.4	40.9	61.3	81.7	103.2	122.6	143.1	163.5	183.9	204.4

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	183.	366.	549.	733.	916.	1100.	1282.	1465.	1648.	1831.
4	366.	733.	1100.	1465.	1831.	2197.	2562.	2928.	3294.	3660.
6	549.	1100.	1648.	2197.	2867.	3476.	4085.	4695.	5304.	5914.
8	733.	1465.	2197.	2990.	3863.	4635.	5408.	6180.	6953.	7725.
10	916.	1831.	2747.	3663.	4588.	5494.	6380.	7255.	8131.	9006.
12	1100.	2197.	3294.	4355.	5494.	6633.	7772.	8911.	10050.	11189.
14	1282.	2562.	4085.	5408.	6790.	8111.	9453.	10815.	12167.	13519.
16	1465.	2928.	4695.	6180.	7725.	9270.	10815.	12360.	13905.	15450.
18	1648.	3294.	5304.	6953.	8691.	10429.	12167.	13905.	15643.	17382.
20	1831.	3660.	5914.	7725.	9556.	11388.	13210.	15030.	16852.	18673.
22	2014.	4026.	6373.	8498.	10322.	12246.	14171.	16095.	18020.	19944.
24	2197.	4395.	6953.	9270.	11188.	13095.	15023.	16948.	18873.	20815.
26	2380.	4761.	7532.	10043.	12053.	14004.	15976.	17908.	19838.	22686.
28	2562.	5128.	8111.	10815.	12919.	14923.	16927.	18850.	20793.	24557.
30	2747.	5494.	8691.	11588.	13795.	15852.	17878.	19815.	22748.	26428.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	272.	544.	815.	1087.	1359.	1631.	1903.	2174.	2446.	2718.
4	544.	1087.	1631.	2174.	2718.	3262.	3805.	4349.	4892.	5436.
6	815.	1631.	2446.	3262.	4077.	4892.	5708.	6523.	7338.	8154.
8	1087.	2174.	3262.	4349.	5436.	6523.	7610.	8698.	9785.	10872.
10	1359.	2718.	4077.	5436.	6795.	8154.	9513.	10872.	12231.	13590.
12	1631.	3262.	4892.	6523.	8154.	9785.	11416.	13047.	14678.	16309.
14	1903.	3805.	5708.	7610.	9513.	11416.	13318.	15231.	17122.	19012.
16	2174.	4349.	6523.	8698.	10772.	12946.	15221.	17355.	19489.	21744.
18	2446.	4892.	7338.	9785.	12231.	14577.	17122.	19489.	22116.	24452.
20	2718.	5436.	8154.	10772.	13590.	16000.	19000.	21944.	24682.	27180.
22	2990.	6000.	9000.	11888.	14949.	17888.	20888.	23818.	26748.	29678.
24	3262.	6523.	9785.	12915.	16000.	19000.	22001.	25000.	28004.	32016.
26	3534.	7047.	10560.	14122.	17007.	20000.	23004.	26007.	29000.	35004.
28	3805.	7610.	11318.	15221.	18000.	22001.	25000.	28041.	31007.	38002.
30	4077.	8154.	12031.	16305.	19000.	23000.	26000.	29016.	32000.	40772.

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.9	3.9	5.8	7.7	9.6	11.6	13.5	15.4	17.3	19.3
4	3.9	7.7	11.6	15.4	19.3	23.1	27.0	30.8	34.7	38.5
6	5.8	11.6	17.3	23.1	28.9	34.7	40.4	46.2	52.0	57.8
8	7.7	15.4	23.1	30.8	38.5	46.2	53.9	61.6	69.3	77.0
10	9.6	19.3	28.9	38.5	48.2	57.8	67.4	77.0	86.7	96.3
12	11.6	23.1	34.7	46.2	57.8	69.3	80.9	92.5	104.0	115.6
14	13.5	27.0	40.4	53.9	67.4	80.9	94.4	107.9	121.3	134.8
16	15.4	30.8	46.2	61.6	77.0	92.5	107.9	123.3	138.7	154.1
18	17.3	34.7	52.0	69.3	86.7	104.0	121.3	138.7	156.0	173.4
20	19.3	38.5	57.8	77.0	96.3	115.6	134.8	154.1	173.4	192.6
22	21.2	42.4	63.6	84.8	105.9	127.1	145.3	166.5	190.7	211.9
24	23.1	46.2	69.3	92.5	115.6	138.7	161.6	184.9	208.0	231.1
26	25.0	50.1	75.1	100.2	125.2	150.2	175.3	200.3	225.4	250.4
28	27.0	53.9	80.9	107.9	134.8	161.6	188.8	215.7	242.7	269.7
30	28.9	57.8	86.7	115.6	144.5	173.4	202.2	231.1	260.0	289.0

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	372.	744.	1116.	1488.	1860.	2232.	2603.	2975.	3347.	3719.
4	744.	1488.	2232.	2975.	3719.	4463.	5207.	5951.	6695.	7438.
6	1116.	2232.	3347.	4463.	5579.	6695.	7810.	8925.	10042.	11158.
8	1488.	2975.	4463.	5951.	7438.	8925.	10414.	11902.	13389.	14877.
10	1860.	3719.	5579.	7438.	9296.	11155.	13017.	14877.	16737.	18596.
12	2232.	4463.	6695.	8925.	11155.	13389.	15621.	17482.	19343.	21204.
14	2603.	5207.	7810.	10414.	13017.	15621.	18224.	20828.	23431.	26035.
16	2975.	5951.	8925.	11902.	14877.	17652.	20228.	23003.	25778.	28554.
18	3347.	6695.	10042.	13389.	16737.	20084.	23431.	26778.	30128.	33473.
20	3719.	7438.	11158.	14877.	18596.	22315.	26035.	29754.	33473.	37192.
22	4091.	8182.	12273.	16365.	20466.	24547.	28638.	32729.	36820.	40911.
24	4463.	8925.	13389.	17652.	22315.	26778.	31242.	35705.	40165.	44631.
26	4835.	9670.	14505.	18940.	24178.	29010.	33845.	38880.	43515.	48350.
28	5207.	10414.	15621.	20228.	26035.	31242.	36448.	41655.	46862.	52069.
30	5579.	11158.	16737.	22115.	27924.	33473.	39052.	44431.	50219.	55788.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	451.	901.	1352.	1802.	2253.	2704.	3154.	3605.	4056.	4506.
4	901.	1802.	2704.	3605.	4506.	5407.	6308.	7209.	8111.	9012.
6	1352.	2704.	4056.	5407.	6759.	8111.	9462.	10814.	12166.	13518.
8	1802.	3605.	5407.	7209.	9012.	10814.	12617.	14419.	16221.	18024.
10	2253.	4506.	6759.	9012.	11265.	13518.	15771.	18024.	20277.	22530.
12	2704.	5407.	8111.	10814.	13068.	15321.	17575.	19828.	22081.	24335.
14	3154.	6308.	9462.	12617.	14921.	17175.	19428.	21681.	23934.	26141.
16	3605.	7209.	10814.	14419.	16824.	19078.	21281.	23434.	25687.	27947.
18	4056.	8111.	12273.	16365.	18777.	21032.	22937.	24643.	26440.	29753.
20	4506.	9012.	13733.	18318.	20730.	22785.	24391.	26197.	28194.	30559.
22	4957.	9913.	14793.	19781.	22183.	24238.	25945.	27752.	29750.	31365.
24	5407.	10814.	15853.	21234.	23636.	25891.	27499.	29307.	31306.	32171.
26	5858.	11715.	16913.	22687.	25089.	27444.	29052.	30862.	32862.	32977.
28	6308.	12617.	17973.	24140.	26542.	28997.	30605.	32417.	34418.	33783.
30	6759.	13518.	19033.	25593.	28000.	30550.	32158.	33972.	35974.	34589.

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ANNUAL SOLAR CONTRIBUTION - NNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.4	22.2	25.0	27.8
6	4.2	8.3	12.5	16.7	20.8	25.0	29.1	33.3	37.5	41.6
8	5.6	11.1	16.7	22.2	27.8	33.3	38.9	44.4	50.0	55.6
10	6.9	13.9	20.8	27.8	34.7	41.6	48.6	55.6	62.5	69.4
12	8.3	16.7	25.0	33.3	41.6	50.0	58.3	66.6	74.9	83.3
14	9.7	19.4	29.1	38.9	48.6	58.3	68.0	77.7	87.4	97.2
16	11.1	22.2	33.3	44.4	55.6	66.6	77.7	88.8	99.9	111.0
18	12.5	25.0	37.5	50.0	62.5	74.9	87.4	99.9	112.4	124.9
20	13.9	27.8	41.6	55.6	69.4	83.3	97.2	111.0	124.9	138.8
22	15.3	30.5	45.8	61.1	76.3	91.6	105.9	122.1	137.4	152.7
24	16.7	33.3	50.0	66.6	83.3	99.9	116.6	133.2	149.9	166.6
26	18.0	36.1	54.1	72.2	90.2	106.3	126.3	144.3	162.4	180.4
28	19.4	38.9	58.3	77.7	97.2	116.6	136.0	155.4	174.9	194.3
30	20.8	41.6	62.5	83.3	104.1	124.9	145.7	165.5	187.4	208.2

DIRECT GAIN DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	145.	291.	436.	581.	727.	872.	1017.	1163.	1308.	1453.
4	291.	581.	872.	1163.	1453.	1744.	2035.	2325.	2616.	2907.
6	436.	872.	1308.	1744.	2180.	2616.	3052.	3488.	3924.	4360.
8	581.	1163.	1744.	2325.	2907.	3488.	4069.	4651.	5232.	5813.
10	727.	1453.	2180.	2907.	3633.	4360.	5087.	5813.	6540.	7267.
12	872.	1744.	2616.	3488.	4360.	5232.	6104.	6976.	7848.	8720.
14	1017.	2035.	3052.	4069.	5087.	6104.	7121.	8139.	9156.	10173.
16	1163.	2325.	3488.	4651.	5813.	6976.	8139.	9301.	10464.	11627.
18	1308.	2616.	3924.	5232.	6540.	7848.	9156.	10464.	11772.	13080.
20	1453.	2907.	4360.	5813.	7267.	8720.	10173.	11627.	13080.	14533.
22	1599.	3197.	4796.	6295.	7963.	9502.	11191.	12789.	14388.	15987.
24	1744.	3488.	5232.	6726.	8420.	10044.	12206.	13862.	15496.	17440.
26	1889.	3779.	5668.	7157.	8947.	11336.	13225.	15115.	17004.	18893.
28	2035.	4069.	6104.	7589.	9477.	12006.	14443.	16277.	18312.	20347.
30	2180.	4360.	6540.	8020.	10000.	13000.	15200.	17440.	19600.	21800.

THERMAL WALL DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	213.	426.	639.	852.	1065.	1278.	1491.	1704.	1917.	2130.
4	426.	852.	1278.	1704.	2130.	2556.	2982.	3408.	3834.	4260.
6	639.	1278.	1917.	2556.	3195.	3834.	4473.	5112.	5751.	6390.
8	852.	1704.	2556.	3408.	4260.	5112.	5964.	6816.	7668.	8520.
10	1065.	2130.	3195.	4260.	5112.	5964.	6816.	7668.	8520.	9372.
12	1278.	2556.	3834.	5112.	5964.	6816.	7668.	8520.	9372.	10224.
14	1491.	2982.	4473.	5964.	7156.	8348.	9540.	10732.	11924.	13116.
16	1704.	3408.	5112.	6816.	8108.	9500.	10892.	12284.	13676.	15068.
18	1917.	3834.	5751.	7668.	9000.	10592.	12184.	13786.	15388.	16920.
20	2130.	4260.	6390.	8520.	10000.	11784.	13686.	15488.	17290.	18772.
22	2343.	4686.	7029.	9372.	11196.	13086.	15188.	17390.	19192.	20624.
24	2556.	5112.	7668.	10244.	12408.	14588.	16890.	19292.	21094.	22476.
26	2769.	5538.	8307.	11116.	13810.	16090.	18392.	20794.	22996.	24328.
28	2982.	5964.	8946.	12000.	15212.	17592.	20194.	22296.	24898.	26180.
30	3195.	6390.	9585.	12900.	16614.	19094.	22196.	24198.	26790.	28032.

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ANNUAL SOLAR CONTRIBUTION-WNI(MDTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.8	3.6	5.5	7.3	9.1	10.9	12.8	14.6	16.4	18.2
4	3.6	7.3	10.9	14.6	18.2	21.9	25.5	29.2	32.8	36.5
6	5.5	10.9	16.4	21.9	27.4	32.8	38.3	43.8	49.3	54.7
8	7.3	14.6	21.9	29.2	36.5	43.8	51.1	58.4	65.7	73.0
10	9.1	18.2	27.4	36.5	45.6	54.7	63.8	73.0	82.1	91.2
12	10.9	21.9	32.8	43.8	54.7	65.7	76.6	87.6	98.5	109.4
14	12.8	25.5	38.3	51.1	63.8	76.6	89.4	102.1	114.9	127.7
16	14.6	29.2	43.8	58.4	73.0	87.6	102.1	116.7	131.3	145.9
18	16.4	32.8	49.3	65.7	82.1	98.5	114.9	131.3	147.8	164.2
20	18.2	36.5	54.7	73.0	91.2	109.4	127.7	145.9	164.2	182.4
22	20.1	40.1	60.2	80.3	100.3	120.4	140.5	160.6	180.8	200.6
24	21.9	43.8	66.7	87.6	109.4	131.3	153.2	175.1	197.0	218.9
26	23.7	47.4	71.1	94.9	118.6	142.3	166.0	189.7	213.4	237.1
28	25.5	51.1	76.6	102.1	127.7	153.2	178.8	204.3	229.8	255.4
30	27.4	54.7	82.1	109.4	136.6	164.2	191.5	218.9	246.3	273.6

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	296.	596.	894.	1192.	1490.	1788.	2086.	2385.	2683.	2981.
4	596.	1192.	1788.	2385.	2981.	3577.	4173.	4769.	5365.	5961.
6	894.	1788.	2683.	3577.	4471.	5365.	6259.	7154.	8048.	8942.
8	1192.	2385.	3577.	4769.	5961.	7154.	8346.	9538.	10730.	11923.
10	1490.	2981.	4471.	5961.	7452.	8942.	10432.	11923.	13413.	14903.
12	1788.	3577.	5365.	7154.	8942.	10730.	12519.	14307.	16096.	17884.
14	2086.	4173.	6259.	8346.	10432.	12519.	14605.	16692.	18778.	20865.
16	2385.	4769.	7154.	9538.	11923.	14307.	16692.	19078.	21461.	23845.
18	2683.	5365.	8048.	10730.	13413.	16096.	18778.	21461.	24143.	26826.
20	2981.	5961.	8942.	11923.	14903.	17884.	20865.	23845.	26826.	29807.
22	3279.	6557.	9836.	13115.	16304.	19872.	22951.	26230.	29509.	32767.
24	3577.	7154.	10730.	14307.	17884.	21461.	25036.	28614.	32191.	35768.
26	3875.	7750.	11635.	15499.	19374.	23249.	27124.	30999.	34874.	38749.
28	4173.	8346.	12519.	16692.	20865.	25036.	29210.	33383.	37556.	41729.
30	4471.	8942.	13413.	17884.	22356.	26926.	31297.	35768.	40239.	44710.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	366.	731.	1096.	1461.	1826.	2192.	2557.	2922.	3287.	3653.
4	731.	1461.	2192.	2922.	3653.	4383.	5114.	5844.	6575.	7306.
6	1096.	2192.	3287.	4383.	5479.	6575.	7671.	8766.	9862.	10958.
8	1461.	2922.	4383.	5844.	7306.	8768.	10228.	11689.	13150.	14611.
10	1826.	3653.	5479.	7306.	9132.	10958.	12784.	14611.	16437.	18263.
12	2192.	4383.	6575.	8768.	10958.	13150.	15341.	17533.	19725.	21916.
14	2557.	5114.	7671.	10228.	12784.	15341.	17898.	20465.	23012.	25569.
16	2922.	5844.	8768.	11689.	14611.	17533.	20465.	23377.	26399.	29221.
18	3287.	6575.	9862.	13150.	16437.	19725.	23012.	26399.	29587.	32874.
20	3653.	7306.	10958.	14611.	18263.	21916.	25569.	29221.	32974.	36527.
22	4018.	8036.	12054.	16072.	20000.	24108.	28126.	32144.	36162.	40180.
24	4383.	8766.	13150.	17883.	21916.	26299.	30653.	35096.	39448.	43832.
26	4748.	9497.	14245.	19894.	23742.	28491.	33239.	37988.	42734.	47485.
28	5114.	10228.	15341.	21906.	25589.	30653.	35796.	40910.	46024.	51138.
30	5479.	10958.	16437.	23918.	27437.	32874.	38363.	43832.	49311.	54790.

Eglin AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	3.9	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.0	12.6	14.2	15.8
6	2.4	4.7	7.1	9.5	11.8	14.2	16.6	18.9	21.3	23.6
8	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5
10	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.5	39.4
12	4.7	9.5	14.2	18.9	23.6	28.4	33.1	37.8	42.6	47.3
14	5.5	11.0	16.6	22.1	27.6	33.1	38.6	44.1	49.7	55.2
16	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.7	63.0
18	7.1	14.2	21.3	28.4	35.5	42.6	49.7	56.7	63.8	70.9
20	7.9	15.8	23.6	31.5	39.4	47.3	55.2	63.0	70.9	78.8
22	8.7	17.3	25.0	34.7	43.3	52.0	60.7	69.4	78.0	86.7
24	9.5	18.9	28.4	37.8	47.3	56.7	65.2	75.7	85.1	94.6
26	10.2	20.5	30.7	41.0	51.2	61.5	71.7	82.0	92.2	102.5
28	11.0	22.1	33.1	44.1	55.2	66.2	77.2	88.3	99.3	110.3
30	11.8	23.6	35.5	47.3	59.1	70.9	82.6	94.6	106.4	118.2

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	135.	270.	404.	539.	674.	809.	943.	1078.	1213.	1348.
4	270.	539.	809.	1078.	1348.	1617.	1887.	2156.	2426.	2695.
6	404.	809.	1213.	1617.	2021.	2426.	2830.	3234.	3638.	4043.
8	539.	1078.	1617.	2156.	2695.	3234.	3773.	4312.	4851.	5390.
10	674.	1348.	2021.	2695.	3369.	4043.	4716.	5390.	6064.	6738.
12	809.	1617.	2426.	3234.	4043.	4851.	5660.	6468.	7277.	8085.
14	943.	1887.	2830.	3773.	4716.	5660.	6603.	7546.	8490.	9433.
16	1078.	2156.	3234.	4312.	5390.	6468.	7546.	8624.	9702.	10780.
18	1213.	2426.	3638.	4851.	6064.	7277.	8490.	9702.	10915.	12128.
20	1348.	2695.	4043.	5390.	6738.	8085.	9433.	10780.	12128.	13475.
22	1482.	2965.	4447.	5889.	7411.	8944.	10376.	11808.	13241.	14673.
24	1617.	3234.	4851.	6468.	8085.	9702.	11319.	12936.	14563.	16171.
26	1752.	3504.	5255.	7067.	8789.	10511.	12263.	14014.	15766.	17518.
28	1887.	3773.	5660.	7666.	9493.	11319.	13206.	15093.	16979.	18865.
30	2021.	4043.	6064.	8265.	10107.	12128.	14149.	16171.	18162.	20213.

TROUGH WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	168.	376.	584.	792.	940.	1128.	1316.	1504.	1692.	1880.
4	376.	792.	1128.	1504.	1880.	2256.	2632.	3008.	3384.	3760.
6	584.	1128.	1692.	2256.	2830.	3394.	3948.	4511.	5075.	5639.
8	792.	1504.	2256.	3008.	3760.	4511.	5263.	6015.	6767.	7519.
10	940.	1880.	2830.	3760.	4690.	5660.	6630.	7599.	8568.	9538.
12	1128.	2256.	3394.	4511.	5630.	6767.	7904.	9041.	10178.	11315.
14	1316.	2632.	3948.	5263.	6630.	8085.	9540.	11005.	12470.	13935.
16	1504.	3008.	4511.	6015.	7519.	9083.	10647.	12211.	13775.	15339.
18	1692.	3384.	5075.	6767.	8490.	10181.	11843.	13504.	15165.	16818.
20	1880.	3760.	5639.	7519.	9390.	11279.	13128.	15009.	16919.	18798.
22	2068.	4136.	6203.	8271.	10290.	12408.	14474.	16449.	18419.	20377.
24	2256.	4511.	6767.	9083.	11279.	13594.	15790.	18049.	20302.	22357.
26	2444.	4887.	7331.	9775.	12314.	14982.	17106.	19809.	22303.	24437.
28	2632.	5263.	7995.	10587.	13406.	16270.	18482.	21003.	23603.	26517.
30	2820.	5639.	8659.	11499.	14558.	17726.	19728.	22307.	25077.	28597.

Eglin AFB

ANNUAL SOLAR CONTRIBUTION—WNHBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.2	9.3	10.3
4	2.1	4.1	6.2	8.2	10.3	12.4	14.4	16.5	18.6	20.6
6	3.1	6.2	9.3	12.4	15.5	18.6	21.6	24.7	27.8	30.9
8	4.1	8.2	12.4	16.5	20.6	24.7	28.9	33.0	37.1	41.2
10	5.2	10.3	15.5	20.6	25.8	30.9	36.1	41.2	46.4	51.5
12	6.2	12.4	18.6	24.7	30.9	37.1	43.3	49.5	55.7	61.8
14	7.2	14.4	21.6	28.9	36.1	43.3	50.5	57.7	64.9	72.1
16	8.2	16.5	24.7	33.0	41.2	49.5	57.7	66.0	74.2	82.4
18	9.3	18.6	27.8	37.1	46.4	55.7	64.9	74.2	83.5	92.8
20	10.3	20.6	30.9	41.2	51.5	61.8	72.1	82.4	92.8	103.1
22	11.3	22.7	34.0	45.3	56.7	68.0	79.4	90.7	102.0	113.4
24	12.4	24.7	37.1	49.5	61.8	74.2	86.6	98.9	111.3	123.7
26	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.6	134.0
28	14.4	28.9	43.3	57.7	72.1	86.6	101.0	115.4	129.9	144.3
30	15.5	30.9	46.4	61.8	77.3	92.8	108.2	123.7	139.1	154.6

DIRECT GAIN DIFFERENTIAL COST—WNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	266.	511.	767.	1023.	1279.	1534.	1790.	2046.	2301.	2557.
4	511.	1023.	1534.	2046.	2557.	3069.	3580.	4091.	4603.	5114.
6	767.	1534.	2301.	3069.	3836.	4603.	5370.	6137.	6904.	7671.
8	1023.	2046.	3069.	4091.	5114.	6137.	7160.	8183.	9206.	10229.
10	1279.	2557.	3836.	5114.	6393.	7671.	8950.	10229.	11507.	12786.
12	1534.	3069.	4603.	6137.	7671.	9206.	10740.	12274.	13809.	15343.
14	1790.	3580.	5370.	7160.	8950.	10740.	12530.	14320.	16110.	17900.
16	2046.	4091.	6137.	8183.	10229.	12274.	14320.	16366.	18411.	20457.
18	2301.	4603.	6904.	9206.	11507.	13809.	16110.	18411.	20713.	23014.
20	2557.	5114.	7671.	10229.	12786.	15343.	17900.	20457.	23014.	25571.
22	2813.	5626.	8439.	11251.	14094.	16577.	19090.	22003.	24516.	28129.
24	3069.	6137.	9206.	12274.	15343.	18411.	21400.	24549.	27617.	30686.
26	3324.	6649.	9973.	13297.	16621.	19946.	23270.	26594.	29919.	33243.
28	3580.	7160.	10740.	14320.	17900.	21480.	25000.	28640.	32220.	35800.
30	3836.	7671.	11507.	15343.	19179.	23014.	26500.	30686.	34521.	38357.

TROMBE WALL DIFFERENTIAL COST—WNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	309.	618.	927.	1236.	1545.	1854.	2163.	2471.	2780.	3089.
4	618.	1236.	1854.	2471.	3089.	3707.	4325.	4943.	5561.	6179.
6	927.	1854.	2780.	3707.	4634.	5561.	6488.	7414.	8341.	9268.
8	1236.	2471.	3707.	4943.	6179.	7414.	8650.	9886.	11122.	12357.
10	1545.	3089.	4634.	6179.	7723.	9268.	10813.	12357.	13902.	15447.
12	1854.	3707.	5561.	7414.	9268.	11122.	12976.	14839.	16683.	18538.
14	2163.	4325.	6488.	8650.	10813.	12976.	15136.	17300.	19463.	21438.
16	2471.	4943.	7414.	9886.	12357.	14839.	17300.	19776.	22343.	24716.
18	2780.	5561.	8341.	11122.	13809.	16623.	19463.	22343.	25394.	27804.
20	3089.	6179.	9268.	12357.	15447.	18536.	21625.	24715.	27804.	30894.
22	3398.	6797.	10195.	13809.	16621.	20390.	23708.	27108.	30686.	33983.
24	3707.	7414.	11122.	14839.	18000.	22313.	25651.	29605.	33986.	37072.
26	4016.	8032.	12049.	15862.	19481.	24097.	28113.	32125.	36148.	40162.
28	4325.	8649.	12976.	17300.	21005.	25651.	30275.	34801.	38666.	43251.
30	4634.	9267.	13902.	18536.	22579.	27301.	32437.	37375.	41700.	46341.

Ellsworth AFB

ANNUAL SOLAR CONTRIBUTION - NNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.0	6.1	9.1	12.1	15.2	18.2	21.2	24.3	27.3	30.3
4	6.1	12.1	18.2	24.3	30.3	36.4	42.4	48.5	54.6	60.6
6	9.1	18.2	27.3	36.4	45.5	54.6	63.7	72.8	81.9	91.0
8	12.1	24.3	36.4	48.5	60.6	72.8	84.9	97.0	109.2	121.3
10	15.2	30.3	45.5	60.6	75.8	91.0	106.1	121.3	136.4	151.6
12	18.2	36.4	54.6	72.8	91.0	109.2	127.3	145.5	163.7	*****
14	21.2	42.4	63.7	84.9	106.1	127.3	148.6	169.8	191.0	*****
16	24.3	48.5	72.8	97.0	121.3	145.5	169.8	194.1	*****	*****
18	27.3	54.6	81.9	109.2	136.4	163.7	191.0	218.3	*****	*****
20	30.3	60.6	91.0	121.3	151.6	181.9	212.2	*****	*****	*****
22	33.4	66.7	100.1	133.4	166.8	200.1	233.5	*****	*****	*****
24	36.4	72.8	109.2	145.5	181.9	218.3	254.7	*****	*****	*****
26	39.4	78.8	118.3	157.7	197.1	236.5	*****	*****	*****	*****
28	42.4	84.9	127.3	169.8	212.2	254.7	*****	*****	*****	*****
30	45.5	91.0	136.4	181.9	227.4	272.9	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	317.	634.	951.	1267.	1584.	1901.	2218.	2535.	2852.	3168.
4	634.	1267.	1901.	2535.	3168.	3802.	4436.	5070.	5703.	6337.
6	951.	1901.	2852.	3802.	4753.	5703.	6654.	7604.	8555.	9505.
8	1267.	2535.	3802.	5070.	6337.	7604.	8872.	10139.	11406.	12674.
10	1584.	3168.	4753.	6337.	7921.	9505.	11090.	12674.	14258.	15842.
12	1901.	3802.	5703.	7604.	9505.	11406.	13308.	15209.	17110.	*****
14	2218.	4436.	6654.	8872.	11090.	13308.	15525.	17743.	19961.	*****
16	2535.	5070.	7604.	10139.	12674.	15209.	17743.	20278.	*****	*****
18	2852.	5703.	8555.	11406.	14258.	17110.	19961.	22813.	*****	*****
20	3168.	6337.	9505.	12674.	15842.	19011.	22179.	*****	*****	*****
22	3485.	6971.	10456.	13941.	17427.	20812.	24397.	*****	*****	*****
24	3802.	7604.	11406.	15209.	19011.	22813.	26615.	*****	*****	*****
26	4119.	8238.	12367.	16476.	20695.	24714.	*****	*****	*****	*****
28	4436.	8872.	13308.	17743.	22179.	26615.	*****	*****	*****	*****
30	4753.	9505.	14258.	19011.	23763.	28516.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	448.	896.	1345.	1793.	2241.	2689.	3138.	3586.	4034.	4482.
4	896.	1793.	2689.	3586.	4482.	5379.	6275.	7172.	8068.	8965.
6	1345.	2689.	4034.	5379.	6724.	8068.	9413.	10758.	12102.	13447.
8	1793.	3586.	5379.	7172.	8965.	10758.	12551.	14344.	16137.	17930.
10	2241.	4482.	6724.	8965.	11206.	13447.	15688.	17930.	20171.	22412.
12	2689.	5379.	8068.	10758.	13447.	16137.	18828.	21518.	24205.	*****
14	3138.	6275.	9413.	12551.	15242.	18352.	21044.	23701.	26388.	*****
16	3586.	7172.	10758.	14344.	17453.	20815.	23701.	26687.	*****	*****
18	4034.	8068.	12102.	16137.	19711.	23701.	26687.	29673.	*****	*****
20	4482.	8965.	13447.	17930.	21612.	25647.	28577.	*****	*****	*****
22	4931.	9861.	14785.	19722.	23542.	27554.	30514.	*****	*****	*****
24	5379.	10758.	16137.	21518.	25494.	29472.	32492.	*****	*****	*****
26	5827.	11654.	17481.	23319.	27452.	31430.	*****	*****	*****	*****
28	6275.	12551.	18828.	25181.	29427.	33388.	*****	*****	*****	*****
30	6724.	13447.	20171.	27085.	31411.	35411.	*****	*****	*****	*****

Blaworth AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.7	13.4	20.2	26.9	33.6	40.3	47.1	53.8	60.5	67.2
4	13.4	26.9	40.3	53.8	67.2	80.7	94.1	107.6	121.0	134.5
6	20.2	40.3	60.5	80.7	100.9	121.0	141.2	161.4	181.5	201.7
8	26.9	53.8	80.7	107.6	134.5	161.4	188.3	215.1	242.0	268.9
10	33.6	67.2	100.9	134.5	168.1	201.7	235.3	268.9	302.6	336.2
12	40.3	80.7	121.0	161.4	181.4	201.7	242.0	282.4	322.7	363.1
14	47.1	94.1	141.2	188.3	235.3	282.4	329.4	376.5	423.6	470.7
16	53.8	107.6	161.4	215.1	268.9	322.7	376.5	430.3	484.1	537.0
18	60.5	121.0	181.5	242.0	302.6	363.1	423.6	484.1	544.1	604.1
20	67.2	134.5	201.7	268.9	336.2	403.4	470.6	544.1	617.7	691.3
22	74.0	147.9	221.9	295.8	369.8	443.7	517.7	594.8	671.8	750.0
24	80.7	161.4	242.0	322.7	403.4	484.1	564.8	641.9	720.0	800.0
26	87.4	174.8	262.2	349.6	437.0	524.4	604.8	681.9	760.0	840.0
28	94.1	188.3	282.4	376.5	470.6	564.8	641.9	720.0	800.0	880.0
30	100.9	201.7	302.6	403.4	504.3	605.1	681.9	760.0	840.0	920.0

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	615.	1231.	1846.	2462.	3077.	3693.	4308.	4924.	5539.	6155.
4	1231.	2462.	3693.	4924.	6155.	7386.	8617.	9847.	11078.	12309.
6	1846.	3693.	5539.	7386.	9232.	11078.	12925.	14771.	16618.	18464.
8	2462.	4924.	7386.	9847.	12309.	14771.	17233.	19695.	22157.	24619.
10	3077.	6155.	9232.	12309.	15387.	18464.	21541.	24619.	27696.	30773.
12	3693.	7386.	11078.	14771.	18464.	22157.	25850.	29542.	33235.	36928.
14	4308.	8617.	12925.	17233.	21541.	25850.	30158.	34466.	38774.	43111.
16	4924.	9847.	14771.	18980.	24619.	29542.	34466.	39390.	44314.	49000.
18	5539.	11078.	16618.	22157.	27696.	33235.	38774.	44314.	50000.	55000.
20	6155.	12309.	18464.	24619.	30773.	36928.	43083.	49242.	55390.	61540.
22	6770.	13540.	20310.	27081.	33951.	40621.	47301.	54000.	60770.	67500.
24	7386.	14771.	22157.	28542.	36928.	44314.	51699.	58660.	65500.	72500.
26	8001.	16002.	24003.	30004.	40006.	48008.	56009.	64010.	72011.	80012.
28	8617.	17233.	26005.	34466.	43083.	51699.	60000.	68001.	76002.	84003.
30	9232.	18464.	27006.	36928.	46150.	55390.	64011.	72012.	80013.	88014.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	747.	1494.	2241.	2987.	3734.	4481.	5228.	5975.	6722.	7469.
4	1494.	2987.	4481.	5975.	7469.	8963.	10456.	11950.	13443.	14937.
6	2241.	4481.	6722.	8963.	11203.	13443.	15684.	17925.	20165.	22406.
8	2987.	5975.	8963.	11900.	14937.	17925.	20912.	23899.	26887.	29874.
10	3734.	7469.	11203.	14937.	18971.	22406.	26140.	29874.	33609.	37343.
12	4481.	8963.	13443.	17925.	22406.	26887.	31368.	36446.	41524.	46602.
14	5228.	10456.	15684.	20912.	26140.	31368.	36446.	41524.	47062.	52140.
16	5975.	11950.	17925.	23899.	29874.	36446.	41524.	47062.	52140.	57218.
18	6722.	13443.	20165.	26887.	33951.	40330.	47062.	53774.	60486.	67218.
20	7469.	14937.	22406.	30074.	37343.	44812.	52280.	60486.	68190.	75000.
22	8216.	16431.	24646.	33082.	41077.	49293.	57505.	65509.	73513.	81517.
24	8963.	17925.	26887.	35949.	44812.	53774.	62738.	71513.	80013.	88517.
26	9710.	19419.	29127.	38857.	48546.	58006.	67509.	76513.	85013.	93517.
28	10456.	20912.	31368.	41812.	52280.	62738.	72513.	81513.	90013.	98517.
30	11203.	22406.	33609.	44812.	56014.	67217.	77513.	86513.	95013.	103517.

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ANNUAL SOLAR CONTRIBUTION - (WHITTE'S)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.3	3.1	3.9	4.7	5.5	6.3	7.0	7.8
4	1.6	3.1	4.7	6.3	7.8	9.4	10.9	12.6	14.1	15.6
6	2.3	4.7	7.0	9.4	11.7	14.1	16.4	18.8	21.1	23.4
8	3.1	6.3	9.4	12.6	15.6	18.8	21.9	25.0	28.1	31.3
10	3.9	7.8	11.7	15.6	19.5	23.4	27.4	31.3	35.2	39.1
12	4.7	9.4	14.1	18.8	23.4	28.1	32.8	37.6	42.2	46.9
14	5.5	10.9	16.4	21.9	27.4	32.8	38.3	43.8	49.2	54.7
16	6.3	12.6	18.8	25.0	31.3	37.6	43.8	50.0	56.3	62.6
18	7.0	14.1	21.1	28.1	35.2	42.2	49.2	56.3	63.3	70.3
20	7.8	15.6	23.4	31.3	39.1	46.9	54.7	62.6	70.3	78.2
22	8.6	17.2	25.6	34.4	43.0	51.8	60.2	68.8	77.4	86.0
24	9.4	18.8	28.1	37.6	46.9	56.3	65.7	75.0	84.4	93.6
26	10.2	20.3	30.6	40.6	50.8	61.0	71.1	81.3	91.4	101.6
28	10.9	21.9	32.8	43.8	54.7	65.7	76.3	87.6	98.5	109.4
30	11.7	23.4	35.2	46.9	58.6	70.3	82.1	93.8	105.6	117.2

DIRECT GAIN DIFFERENTIAL COST - (WHITTE'S)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	127	256	386	506	637	764	891	1019	1148	1273
4	256	506	764	1019	1273	1528	1782	2037	2292	2546
6	386	764	1148	1528	1910	2292	2674	3056	3438	3819
8	506	1019	1528	2037	2546	3056	3565	4074	4583	5093
10	637	1273	1910	2546	3183	3819	4456	5093	5730	6366
12	764	1528	2292	3056	3819	4583	5347	6111	6875	7639
14	891	1782	2674	3565	4456	5347	6239	7130	8021	8912
16	1019	2037	3056	4074	5093	6111	7130	8148	9167	10185
18	1148	2292	3438	4583	5730	6875	8021	9167	10313	11458
20	1273	2546	3819	5093	6366	7639	8912	10185	11458	12732
22	1400	2801	4201	5592	7092	8403	9803	11204	12604	14005
24	1528	3056	4583	6111	7639	9167	10665	12262	13860	15456
26	1656	3310	4965	6630	8278	9911	11585	13281	14983	16631
28	1782	3565	5347	7130	8912	10605	12477	14288	16042	17824
30	1910	3819	5730	7639	9549	11458	13365	15375	17185	19027

THROUGH WALL DIFFERENTIAL COST - (WHITTE'S)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	281	386	491	596	701	806	911	1016	1121	1226
4	386	701	1016	1331	1646	1961	2276	2591	2906	3221
6	491	1016	1331	1646	1961	2276	2591	2906	3221	3536
8	596	1331	1646	1961	2276	2591	2906	3221	3536	3851
10	701	1646	1961	2276	2591	2906	3221	3536	3851	4166
12	806	1961	2276	2591	2906	3221	3536	3851	4166	4481
14	911	2276	2591	2906	3221	3536	3851	4166	4481	4796
16	1016	2591	2906	3221	3536	3851	4166	4481	4796	5111
18	1121	2906	3221	3536	3851	4166	4481	4796	5111	5426
20	1226	3221	3536	3851	4166	4481	4796	5111	5426	5741
22	1331	3536	3851	4166	4481	4796	5111	5426	5741	6056
24	1436	3851	4166	4481	4796	5111	5426	5741	6056	6371
26	1541	4166	4481	4796	5111	5426	5741	6056	6371	6686
28	1646	4481	4796	5111	5426	5741	6056	6371	6686	7001
30	1751	4796	5111	5426	5741	6056	6371	6686	7001	7316

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.2
4	2.0	4.1	6.1	8.2	10.2	12.3	14.3	16.4	18.4	20.4
6	3.1	6.1	9.2	12.3	15.3	18.4	21.5	24.5	27.5	30.7
8	4.1	8.2	12.3	16.4	20.4	24.5	28.6	32.7	36.8	40.9
10	5.1	10.2	15.3	20.4	25.6	30.7	35.8	40.9	46.0	51.1
12	6.1	12.3	18.4	24.5	30.7	36.8	42.9	49.1	55.2	61.3
14	7.2	14.3	21.5	28.6	35.8	42.9	50.1	57.2	64.4	71.5
16	8.2	16.4	24.5	32.7	40.9	49.1	57.2	65.4	73.6	81.8
18	9.2	18.4	27.5	35.8	46.0	55.2	64.4	73.6	82.8	92.0
20	10.2	20.4	30.7	40.9	51.1	61.3	71.5	81.8	92.0	102.2
22	11.2	22.5	33.7	45.0	56.2	67.5	78.7	89.9	101.2	112.4
24	12.3	24.5	36.8	49.1	61.3	73.6	85.9	98.1	110.4	122.6
26	13.3	26.6	39.9	53.1	66.4	78.7	93.0	106.3	119.6	132.9
28	14.3	28.6	42.9	57.2	71.5	85.9	100.2	114.5	126.6	143.1
30	15.3	30.7	46.0	61.3	76.7	92.0	107.3	122.6	136.0	153.3

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	249.	499.	748.	997.	1246.	1496.	1745.	1994.	2244.	2493.
4	499.	997.	1496.	1994.	2493.	2991.	3490.	3989.	4487.	4986.
6	748.	1496.	2244.	2991.	3739.	4487.	5235.	5983.	6731.	7479.
8	997.	1994.	2991.	3989.	4986.	5983.	6980.	7977.	8974.	9971.
10	1246.	2493.	3739.	4986.	6232.	7479.	8725.	9971.	11218.	12464.
12	1496.	2991.	4487.	5983.	7479.	8974.	10470.	11966.	13461.	14957.
14	1745.	3490.	5235.	6980.	8725.	10470.	12215.	13960.	15705.	17450.
16	1994.	3989.	5983.	7977.	9971.	11966.	13960.	15954.	17948.	19943.
18	2244.	4487.	6731.	8974.	11218.	13461.	15705.	17948.	20192.	22436.
20	2493.	4986.	7479.	9971.	12464.	14957.	17450.	19943.	22436.	24929.
22	2742.	5484.	8226.	10969.	13711.	16453.	19195.	21937.	24679.	27421.
24	2991.	5983.	8974.	11966.	14957.	17948.	20940.	23931.	26923.	29914.
26	3241.	6481.	9722.	12963.	16204.	19444.	22985.	25925.	29166.	32407.
28	3490.	6980.	10470.	13960.	17450.	20946.	24430.	27920.	31410.	34900.
30	3739.	7479.	11218.	14957.	18696.	22436.	26175.	29914.	33853.	37393.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303.	606.	909.	1212.	1515.	1818.	2121.	2424.	2727.	3030.
4	606.	1212.	1818.	2424.	3030.	3636.	4241.	4847.	5453.	6059.
6	909.	1818.	2727.	3636.	4544.	5453.	6362.	7271.	8180.	9089.
8	1212.	2424.	3636.	4847.	6059.	7271.	8483.	9695.	10908.	12119.
10	1515.	3030.	4544.	6059.	7574.	9089.	10603.	12118.	13633.	15148.
12	1818.	3636.	5453.	7271.	9089.	10908.	12724.	14540.	16356.	18177.
14	2121.	4241.	6362.	8483.	10603.	12724.	14849.	16955.	18968.	21207.
16	2424.	4847.	7271.	9694.	12118.	14542.	16955.	19369.	21812.	24236.
18	2727.	5453.	8180.	10908.	13633.	16356.	19068.	21812.	24635.	27265.
20	3030.	6059.	9089.	12119.	15148.	18177.	21207.	24236.	27265.	30294.
22	3333.	6666.	9997.	13330.	16356.	19692.	23027.	26049.	29071.	33323.
24	3636.	7271.	10908.	14542.	18177.	21812.	25444.	29071.	33712.	36354.
26	3939.	7877.	11819.	15753.	19692.	23633.	27969.	31927.	35448.	39384.
28	4241.	8483.	12724.	16964.	21207.	25444.	29985.	33931.	38175.	42413.
30	4544.	9089.	13633.	18177.	22721.	27595.	31810.	36241.	40902.	45443.

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ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.5	4.9	7.4	9.8	12.3	14.8	17.2	19.7	22.1	24.6
4	4.9	9.8	14.8	19.7	24.6	29.5	34.4	39.4	44.3	49.2
6	7.4	14.8	22.1	29.5	36.9	44.3	51.7	59.1	66.4	73.8
8	9.8	19.7	29.5	39.4	49.2	59.1	68.9	78.7	88.6	.....
10	12.3	24.6	36.9	49.2	61.5	73.8	86.1	98.4	.....	.....
12	14.8	29.5	44.3	59.1	73.8	88.6	103.3	.....	.....	.....
14	17.2	34.4	51.7	68.9	86.1	103.3	.....	.....	.....	.....
16	19.7	39.4	59.1	78.7	98.4	118.1	.....	.....	.....	.....
18	22.1	44.3	66.4	86.6	110.7	132.9	.....	.....	.....	.....
20	24.6	49.2	73.8	98.4	123.0	.....	.....	.....	.....	.....
22	27.1	54.1	81.2	106.3	135.3	.....	.....	.....	.....	.....
24	29.5	59.1	88.6	116.1	147.6	.....	.....	.....	.....	.....
26	32.0	64.0	96.0	126.0	159.9	.....	.....	.....	.....	.....
28	34.4	68.9	103.3	137.6	.....	.....	.....	.....	.....	.....
30	36.9	73.8	110.7	147.6	.....	.....	.....	.....	.....	.....

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	421.	841.	1262.	1682.	2103.	2523.	2944.	3364.	3785.	4205.
4	841.	1682.	2523.	3364.	4205.	5046.	5887.	6728.	7569.	8411.
6	1262.	2523.	3785.	5046.	6308.	7569.	8831.	10093.	11354.	12616.
8	1682.	3364.	5046.	6728.	8411.	10093.	11775.	13457.	15139.	.....
10	2103.	4205.	6308.	8411.	10513.	12616.	14718.	16821.	.....	.....
12	2523.	5046.	7569.	10093.	12616.	15139.	17662.	.....	.....	.....
14	2944.	5887.	8831.	11775.	14718.	17662.	.....	.....	.....	.....
16	3364.	6728.	10093.	13457.	16821.	20185.	.....	.....	.....	.....
18	3785.	7569.	11354.	15139.	18924.	22708.	.....	.....	.....	.....
20	4205.	8411.	12616.	16821.	21026.	.....	.....	.....	.....	.....
22	4626.	9252.	13877.	18503.	23129.	.....	.....	.....	.....	.....
24	5046.	10093.	15139.	20185.	25232.	.....	.....	.....	.....	.....
26	5467.	10934.	16400.	21867.	27334.	.....	.....	.....	.....	.....
28	5887.	11775.	17662.	23549.	.....	.....	.....	.....	.....	.....
30	6308.	12616.	18924.	25232.	.....	.....	.....	.....	.....	.....

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	609.	1218.	1827.	2435.	3044.	3653.	4262.	4871.	5480.	6089.
4	1218.	2435.	3653.	4871.	6089.	7308.	8526.	9744.	10962.	12177.
6	1827.	3653.	5480.	7308.	9135.	10962.	12789.	14616.	16443.	18265.
8	2435.	4871.	7308.	9744.	12177.	14610.	17042.	19474.	21906.	.....
10	3044.	6089.	9135.	12177.	15221.	18264.	21307.	24350.	27393.	.....
12	3653.	7308.	10962.	14612.	18005.	21848.	25691.	.....	.....	.....
14	4262.	8526.	12789.	17047.	21309.	25691.	.....	.....	.....	.....
16	4871.	9744.	14612.	19482.	24352.	29234.	.....	.....	.....	.....
18	5480.	10962.	16439.	21915.	27395.	32277.	.....	.....	.....	.....
20	6089.	12177.	18264.	24352.	29938.	.....	.....	.....	.....	.....
22	6698.	13394.	20189.	26795.	32481.	.....	.....	.....	.....	.....
24	7308.	14612.	22132.	29234.	35024.	.....	.....	.....	.....	.....
26	7917.	15830.	24075.	31677.	37567.
28	8526.	17047.	26018.	34220.
30	9135.	18264.	27961.	36763.

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ANNUAL SOLAR CONTRIBUTION - WNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.2	53.1	59.1
4	11.8	23.6	35.4	47.2	59.1	70.9	82.7	94.5	106.3	118.1
6	17.7	35.4	53.1	70.9	88.6	106.3	124.0	141.7	159.4	177.2
8	23.6	47.2	70.9	94.5	118.1	141.7	165.4	189.0	212.6	*****
10	29.5	59.1	88.6	118.1	147.6	177.2	206.7	236.2	*****	*****
12	35.4	70.9	106.3	141.7	177.2	212.6	248.0	*****	*****	*****
14	41.3	82.7	124.0	165.4	206.7	248.0	*****	*****	*****	*****
16	47.2	94.5	141.7	189.0	236.2	283.5	*****	*****	*****	*****
18	53.1	106.3	159.4	212.6	265.7	318.9	*****	*****	*****	*****
20	59.1	118.1	177.2	236.2	296.3	*****	*****	*****	*****	*****
22	65.0	129.9	194.9	259.8	324.8	*****	*****	*****	*****	*****
24	70.9	141.7	212.6	283.5	354.3	*****	*****	*****	*****	*****
26	76.8	153.5	230.3	307.1	383.9	*****	*****	*****	*****	*****
28	82.7	165.4	248.0	330.7	*****	*****	*****	*****	*****	*****
30	88.6	177.2	265.7	354.3	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	849.	1697.	2546.	3394.	4243.	5091.	5940.	6788.	7637.	8485.
4	1697.	3394.	5091.	6788.	8485.	10182.	11879.	13576.	15273.	16970.
6	2546.	5091.	7637.	10182.	12728.	15273.	17819.	20364.	22910.	25455.
8	3394.	6788.	10182.	13576.	16970.	20364.	23758.	27152.	30546.	*****
10	4243.	8485.	12728.	16970.	21213.	25455.	29698.	33940.	*****	*****
12	5091.	10182.	15273.	20364.	25455.	30546.	35637.	*****	*****	*****
14	5940.	11879.	17819.	23758.	29698.	35637.	*****	*****	*****	*****
16	6788.	13576.	20364.	27152.	33940.	40728.	*****	*****	*****	*****
18	7637.	15273.	22910.	30546.	38183.	45819.	*****	*****	*****	*****
20	8485.	16970.	25455.	33940.	42425.	*****	*****	*****	*****	*****
22	9334.	18667.	28001.	37334.	46668.	*****	*****	*****	*****	*****
24	10182.	20364.	30546.	40728.	50910.	*****	*****	*****	*****	*****
26	11031.	22061.	33092.	44122.	55153.	*****	*****	*****	*****	*****
28	11879.	23758.	35637.	47516.	*****	*****	*****	*****	*****	*****
30	12728.	25455.	38183.	50910.	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1037.	2074.	3110.	4147.	5184.	6221.	7258.	8295.	9331.	10368.
4	2074.	4147.	6221.	8295.	10368.	12442.	14515.	16588.	18662.	20735.
6	3110.	6221.	9331.	12442.	15552.	18663.	21773.	24884.	27994.	31104.
8	4147.	8295.	12442.	16588.	20736.	24884.	29031.	33178.	37325.	*****
10	5184.	10368.	15552.	20736.	26880.	31104.	35250.	41473.	*****	*****
12	6221.	12442.	18663.	24884.	31104.	37325.	43546.	*****	*****	*****
14	7258.	14515.	21773.	29031.	35250.	41473.	47567.	*****	*****	*****
16	8295.	16588.	24884.	33178.	41473.	49767.	*****	*****	*****	*****
18	9331.	18663.	27994.	37325.	45667.	53868.	*****	*****	*****	*****
20	10368.	20736.	31104.	41473.	51841.	*****	*****	*****	*****	*****
22	11405.	22810.	34218.	45668.	57922.	*****	*****	*****	*****	*****
24	12442.	24884.	37325.	49767.	63922.	*****	*****	*****	*****	*****
26	13479.	26957.	40438.	53814.	69823.	*****	*****	*****	*****	*****
28	14516.	29031.	43546.	57922.	*****	*****	*****	*****	*****	*****
30	15552.	31104.	46657.	62022.	*****	*****	*****	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.3	6.5	8.8	13.1	16.3	19.6	22.9	26.1	29.4	32.6
4	6.5	13.1	19.6	26.1	32.6	39.2	45.7	52.2	58.8	65.3
6	9.8	19.6	29.4	39.2	49.0	58.8	68.6	78.4	88.1	97.9
8	13.1	26.1	39.2	52.2	65.3	78.4	91.4	104.5	117.5	130.6
10	16.3	32.6	49.0	65.3	81.6	97.9	114.3	130.6	146.9	163.2
13	19.6	39.2	58.8	78.4	97.9	117.5	137.1	156.7	176.3	195.9
14	22.9	45.7	68.6	91.4	114.3	137.1	160.0	182.8	205.7	228.5
16	26.1	52.2	78.4	104.5	130.6	166.7	182.8	208.9	235.1	261.2
18	29.4	58.8	88.1	117.5	146.9	176.3	205.7	235.1	264.4	293.8
20	32.6	65.3	97.9	130.6	163.2	195.9	228.5	261.2	293.8	326.5
22	35.9	71.8	107.7	143.6	179.6	215.5	251.4	287.3	323.2	359.1
24	39.2	78.4	117.5	156.7	195.9	235.1	274.2	313.4	352.6	*****
26	42.4	84.9	127.3	169.8	212.2	254.7	297.1	339.5	382.0	*****
28	45.7	91.4	137.1	182.8	228.5	274.2	319.9	365.7	*****	*****
30	49.0	97.9	146.9	195.9	244.9	293.8	342.8	391.8	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	232.	464.	697.	929.	1161.	1393.	1625.	1858.	2090.	2322.
4	464.	929.	1393.	1858.	2322.	2786.	3251.	3715.	4179.	4644.
6	697.	1393.	2090.	2786.	3483.	4179.	4876.	5573.	6269.	6966.
8	929.	1858.	2786.	3715.	4644.	5573.	6501.	7430.	8359.	9288.
10	1161.	2322.	3483.	4644.	5805.	6966.	8127.	9288.	10449.	11610.
12	1393.	2786.	4179.	5573.	6966.	8359.	9752.	11145.	12538.	13931.
14	1625.	3251.	4876.	6501.	8127.	9752.	11377.	13003.	14628.	16253.
16	1858.	3715.	5573.	7430.	9288.	11145.	13003.	14890.	16718.	18576.
18	2090.	4179.	6269.	8359.	10449.	12538.	14628.	16718.	18808.	20897.
20	2322.	4644.	6966.	9288.	11610.	13931.	16253.	18575.	20897.	23219.
22	2554.	5108.	7662.	10216.	12771.	15325.	17879.	20433.	22987.	25541.
24	2786.	5573.	8359.	11145.	13931.	16718.	19504.	22290.	25077.	*****
26	3018.	6037.	9055.	12074.	15092.	18111.	21129.	24148.	27168.	*****
28	3251.	6501.	9752.	13003.	16253.	19504.	22755.	26005.	*****	*****
30	3483.	6966.	10449.	13931.	17414.	20897.	24380.	27863.	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	333.	666.	999.	1332.	1665.	1998.	2331.	2664.	2997.	3330.
4	666.	1332.	1998.	2664.	3330.	3996.	4662.	5328.	5994.	6660.
6	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8991.	9990.
8	1332.	2664.	3996.	5328.	6660.	7992.	9325.	10657.	11990.	13321.
10	1665.	3330.	4995.	6660.	8325.	9991.	11656.	13321.	14986.	16651.
12	1998.	3996.	5994.	7992.	9991.	11989.	13987.	15985.	17983.	19981.
14	2331.	4662.	6993.	9325.	11656.	13987.	16318.	18649.	20980.	23311.
16	2664.	5328.	7992.	10657.	13321.	15985.	18649.	21313.	23977.	26641.
18	2997.	5994.	8991.	11989.	14986.	17983.	20980.	23977.	26974.	29972.
20	3330.	6660.	9991.	13321.	16651.	19981.	23311.	26641.	29972.	33302.
22	3663.	7326.	10990.	14653.	18316.	21979.	25442.	28905.	32368.	36632.
24	3996.	7992.	11989.	15985.	19981.	23977.	27974.	31970.	35986.	*****
26	4329.	8658.	12988.	17317.	21646.	25975.	30306.	34634.	38963.	*****
28	4662.	9324.	13987.	18649.	23311.	27974.	32636.	37298.	*****	*****
30	4995.	9990.	14986.	19981.	24975.	29972.	34987.	39982.	*****	*****

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.1	12.3	18.4	24.6	30.7	36.8	43.0	49.1	55.2	61.4
4	12.3	24.6	36.8	49.1	61.4	73.7	85.9	98.2	110.5	122.8
6	18.4	36.8	55.2	73.7	92.1	110.5	128.9	147.3	165.7	184.1
8	24.6	49.1	73.7	98.2	122.8	147.3	171.9	196.4	221.0	245.5
10	30.7	61.4	92.1	122.8	153.4	184.1	214.8	245.5	276.2	306.9
12	36.8	73.7	110.5	147.3	184.1	221.0	257.8	294.6	331.4	368.3
14	43.0	85.9	128.9	171.9	214.8	257.8	300.7	343.7	386.7	429.6
16	49.1	98.2	147.3	196.4	245.5	294.6	343.7	392.8	441.9	491.0
18	55.2	110.5	165.7	221.0	276.2	331.4	386.7	441.9	497.2	552.4
20	61.4	122.8	184.1	245.5	306.9	368.3	429.6	491.0	552.4	613.8
22	67.5	136.0	202.5	270.1	337.6	405.1	472.6	540.1	607.8	675.2
24	73.7	147.3	221.0	294.6	368.3	441.9	515.6	589.2	662.9	*****
26	79.8	159.6	239.4	319.2	399.0	478.7	555.5	636.3	718.1	*****
28	85.9	171.9	257.8	343.7	429.6	515.6	601.5	687.4	*****	*****
30	92.1	184.1	276.2	368.3	460.3	552.4	644.5	736.5	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	461.	923.	1384.	1845.	2307.	2768.	3229.	3691.	4152.	4613.
4	923.	1845.	2768.	3691.	4613.	5536.	6459.	7381.	8304.	9227.
6	1384.	2768.	4152.	5536.	6920.	8304.	9688.	11072.	12456.	13840.
8	1845.	3691.	5536.	7381.	9227.	11072.	12918.	14763.	16608.	18454.
10	2307.	4613.	6920.	9227.	11534.	13840.	16147.	18454.	20760.	23067.
12	2768.	5536.	8304.	11072.	13840.	16608.	19376.	22144.	24913.	27681.
14	3229.	6459.	9688.	12918.	16147.	19376.	22606.	25635.	29065.	32294.
16	3691.	7381.	11072.	14763.	18454.	22144.	25835.	29528.	33217.	36907.
18	4152.	8304.	12456.	16608.	20760.	24913.	29065.	33217.	37369.	41521.
20	4613.	9227.	13840.	18454.	23067.	27681.	32294.	36907.	41521.	46134.
22	5075.	10150.	15224.	20299.	25374.	30449.	35523.	40598.	45673.	50748.
24	5536.	11072.	16608.	22144.	27681.	33217.	38753.	44289.	49825.	*****
26	5997.	11995.	17992.	23990.	29987.	35985.	41982.	47980.	53977.	*****
28	6459.	12918.	19376.	25835.	32294.	38753.	45212.	51670.	*****	*****
30	6920.	13840.	20760.	27681.	34601.	41521.	48441.	55361.	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	562.	1124.	1687.	2249.	2811.	3373.	3936.	4497.	5060.	5622.
4	1124.	2249.	3373.	4497.	5622.	6746.	7870.	8995.	10119.	11243.
6	1687.	3373.	5060.	6746.	8433.	10119.	11806.	13492.	15179.	16865.
8	2249.	4497.	6746.	8995.	11243.	13492.	15741.	17990.	20238.	22487.
10	2811.	5622.	8433.	11243.	14054.	16865.	19676.	22487.	25298.	28109.
12	3373.	6746.	10119.	13492.	16865.	20238.	23811.	26994.	30367.	33730.
14	3936.	7870.	11806.	15741.	19676.	23811.	27646.	31482.	35417.	39362.
16	4497.	8995.	13492.	17990.	22487.	26994.	30864.	34482.	38976.	42974.
18	5060.	10119.	15179.	20238.	25298.	30367.	35417.	40476.	45636.	50686.
20	5622.	11243.	16865.	22487.	28109.	33730.	39362.	44974.	50685.	56217.
22	6184.	12366.	18652.	24735.	30919.	37103.	43887.	49471.	55886.	61839.
24	6746.	13489.	20238.	26994.	33730.	40476.	47222.	53988.	60714.	*****
26	7308.	14612.	21925.	29253.	36541.	43849.	51158.	58466.	66774.	*****
28	7870.	15735.	23811.	31482.	38982.	47222.	55093.	62883.	*****	*****
30	8433.	16858.	25699.	33730.	41521.	50000.	58000.	67480.	*****	*****

George AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.4	22.2	25.0	27.8
6	4.2	8.3	12.5	16.7	20.8	25.0	29.1	33.3	37.5	41.6
8	5.6	11.1	16.7	22.2	27.8	33.3	38.9	44.4	50.0	55.5
10	6.9	13.9	20.8	27.8	34.7	41.6	48.6	55.5	62.5	69.4
12	8.3	16.7	25.0	33.3	41.6	50.0	58.3	66.6	74.9	83.3
14	9.7	19.4	29.1	38.9	48.6	58.3	68.0	77.7	87.4	97.2
16	11.1	22.2	33.3	44.4	55.5	66.6	77.7	88.8	99.9	111.0
18	12.5	25.0	37.5	50.0	62.5	74.9	87.4	99.9	112.4	124.9
20	13.9	27.8	41.6	55.5	69.4	83.3	97.2	111.0	124.9	138.8
22	15.3	30.5	45.8	61.1	76.3	91.6	106.9	122.1	137.4	152.7
24	16.7	33.3	50.0	66.6	83.3	99.9	116.6	133.2	149.9	166.5
26	18.0	36.1	54.1	72.2	90.2	108.3	126.3	144.3	162.4	180.4
28	19.4	38.9	58.3	77.7	97.2	116.6	136.0	156.4	174.9	194.3
30	20.8	41.6	62.5	83.3	104.1	124.9	145.7	166.5	187.4	208.2

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	148.	291.	437.	582.	728.	874.	1019.	1165.	1310.	1456.
4	291.	582.	874.	1165.	1456.	1747.	2038.	2329.	2621.	2912.
6	437.	874.	1310.	1747.	2184.	2621.	3057.	3494.	3931.	4368.
8	582.	1165.	1747.	2329.	2912.	3494.	4077.	4659.	5241.	5824.
10	728.	1456.	2184.	2912.	3640.	4368.	5096.	5824.	6552.	7280.
12	874.	1747.	2621.	3494.	4368.	5241.	6115.	6988.	7862.	8735.
14	1019.	2038.	3057.	4077.	5096.	6115.	7134.	8153.	9172.	10191.
16	1165.	2329.	3494.	4659.	5824.	6988.	8153.	9318.	10483.	11647.
18	1310.	2621.	3931.	5241.	6552.	7862.	9172.	10483.	11793.	13103.
20	1456.	2912.	4368.	5824.	7280.	8735.	10191.	11647.	13103.	14559.
22	1602.	3203.	4805.	6406.	8006.	9606.	11211.	12812.	14414.	16018.
24	1747.	3494.	5241.	6988.	8735.	10483.	12230.	13977.	15724.	17471.
26	1893.	3785.	5678.	7571.	9463.	11356.	13249.	15142.	17034.	18927.
28	2038.	4077.	6115.	8153.	10191.	12230.	14266.	16306.	18345.	20383.
30	2184.	4368.	6552.	8735.	10918.	13103.	15287.	17471.	19655.	21839.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	214.	428.	642.	856.	1070.	1284.	1498.	1712.	1926.	2140.
4	428.	856.	1284.	1712.	2140.	2567.	2995.	3423.	3851.	4279.
6	642.	1284.	1926.	2567.	3209.	3851.	4493.	5135.	5777.	6419.
8	856.	1712.	2567.	3423.	4279.	5135.	5991.	6847.	7702.	8558.
10	1070.	2140.	3209.	4279.	5349.	6419.	7489.	8558.	9628.	10698.
12	1284.	2567.	3851.	5135.	6419.	7702.	8986.	10270.	11554.	12837.
14	1498.	2995.	4493.	5991.	7489.	8986.	10484.	11982.	13479.	14977.
16	1712.	3423.	5135.	6847.	8558.	10270.	11982.	13693.	15405.	17117.
18	1926.	3851.	5777.	7702.	9463.	11356.	13479.	15405.	17351.	19258.
20	2140.	4279.	6419.	8368.	10349.	12537.	14977.	17117.	19254.	21398.
22	2354.	4707.	7061.	9114.	11356.	14121.	16475.	18982.	21392.	23538.
24	2567.	5135.	7702.	10070.	12537.	15405.	17972.	20340.	23537.	25678.
26	2781.	5563.	8344.	11135.	13907.	16888.	19470.	22282.	25683.	27818.
28	2995.	5991.	8986.	12292.	14977.	17972.	20968.	23983.	27828.	29958.
30	3209.	6419.	9628.	13427.	16047.	19254.	22466.	25678.	29964.	32098.

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.8	3.6	5.5	7.3	9.1	10.9	12.8	14.6	16.4	18.2
4	3.6	7.3	10.9	14.6	18.2	21.9	25.5	29.2	32.8	36.5
6	5.5	10.9	16.4	21.9	27.4	32.8	38.3	43.8	49.3	54.7
8	7.3	14.6	21.9	29.2	36.5	43.8	51.1	58.4	65.7	73.0
10	9.1	18.2	27.4	36.5	45.6	54.7	63.8	73.0	82.1	91.2
12	10.9	21.9	32.8	43.8	54.7	65.7	76.6	87.6	98.5	109.4
14	12.8	25.5	38.3	51.1	63.8	76.6	89.4	102.1	114.9	127.7
16	14.6	29.2	43.8	58.4	73.0	87.6	102.1	116.7	131.3	145.9
18	16.4	32.8	49.3	65.7	82.1	98.5	114.9	131.3	147.8	164.2
20	18.2	36.5	54.7	73.0	91.2	109.4	127.7	145.9	164.2	182.4
22	20.1	40.1	60.2	80.3	100.3	120.4	140.5	160.6	180.6	200.6
24	21.9	43.8	65.7	87.6	109.4	131.3	153.2	175.1	197.0	218.9
26	23.7	47.4	71.1	94.9	118.6	142.3	166.0	189.7	213.4	237.1
28	25.5	51.1	76.6	102.1	127.7	153.2	178.8	204.3	229.8	255.4
30	27.4	54.7	82.1	109.4	136.8	164.2	191.5	218.9	246.3	273.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	301.	602.	903.	1204.	1505.	1806.	2107.	2408.	2709.	3010.
4	602.	1204.	1806.	2408.	3010.	3612.	4214.	4816.	5417.	6019.
6	903.	1806.	2709.	3612.	4515.	5417.	6320.	7223.	8126.	9029.
8	1204.	2408.	3612.	4816.	6019.	7223.	8427.	9631.	10835.	12039.
10	1505.	3010.	4515.	6019.	7524.	9029.	10534.	12039.	13544.	15049.
12	1806.	3612.	5417.	7223.	9029.	10835.	12641.	14447.	16252.	18058.
14	2107.	4214.	6320.	8427.	10534.	12641.	14748.	16854.	18961.	21068.
16	2408.	4816.	7223.	9631.	12039.	14447.	16854.	19262.	21670.	24078.
18	2709.	5417.	8126.	10835.	13544.	16052.	18561.	21070.	23579.	26087.
20	3010.	6019.	9029.	12039.	15049.	18058.	21068.	24078.	27087.	30097.
22	3311.	6631.	9932.	13343.	16553.	19564.	23175.	26185.	29196.	33107.
24	3612.	7252.	10835.	14447.	18058.	21670.	25282.	28693.	32505.	36116.
26	3913.	7863.	11738.	15550.	19563.	23476.	27388.	31501.	35214.	39126.
28	4214.	8474.	12641.	16654.	21068.	25282.	29495.	33709.	37922.	42136.
30	4515.	9085.	13544.	18058.	22573.	27087.	31602.	36116.	40631.	45146.

ROOF WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	301.	739.	1178.	1477.	1817.	2216.	2556.	2905.	3294.	3693.
4	739.	1477.	2216.	2955.	3693.	4432.	5171.	5908.	6648.	7387.
6	1178.	2216.	3394.	4432.	5610.	6648.	7786.	8894.	9972.	11080.
8	1477.	2955.	4432.	5908.	7387.	8894.	10341.	11819.	13298.	14773.
10	1817.	3693.	5610.	7387.	9223.	11080.	12937.	14773.	16630.	18467.
12	2216.	4432.	6648.	8894.	11080.	13298.	15512.	17728.	19944.	22160.
14	2556.	5171.	7786.	10341.	12937.	15512.	18098.	20883.	23358.	25864.
16	2905.	5908.	8894.	11819.	14773.	17728.	20663.	23568.	26562.	29447.
18	3294.	6648.	9972.	13298.	16080.	19444.	22388.	25308.	28116.	32440.
20	3693.	7387.	11080.	14773.	18467.	22160.	25284.	28547.	32340.	36034.
22	4093.	8126.	12188.	16251.	20314.	24376.	28438.	32508.	36864.	40627.
24	4492.	8864.	13296.	17728.	22180.	26582.	31024.	35498.	39888.	44320.
26	4891.	9603.	14404.	19203.	24097.	28808.	33610.	38418.	43118.	48014.
28	5171.	10341.	15512.	20883.	26284.	31094.	36196.	41398.	46338.	51707.
30	5450.	11080.	16620.	22573.	27720.	33340.	38790.	44380.	49631.	55401.

Goodfellow AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.4	10.5	11.7
4	2.3	4.7	7.0	9.4	11.7	14.0	16.4	18.7	21.0	23.4
6	3.5	7.0	10.5	14.0	17.5	21.0	24.6	28.1	31.6	35.1
8	4.7	9.4	14.0	18.7	23.4	28.1	32.7	37.4	42.1	46.8
10	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.8	52.6	58.5
12	7.0	14.0	21.0	28.1	35.1	42.1	49.1	56.1	63.1	70.2
14	8.2	16.4	24.6	32.7	40.9	49.1	57.3	65.5	73.7	81.8
16	9.4	18.7	28.1	37.4	46.8	56.1	65.5	74.8	84.2	93.5
18	10.5	21.0	31.6	42.1	52.6	63.1	73.7	84.2	94.7	105.2
20	11.7	23.4	35.1	46.8	58.5	70.2	81.8	93.5	105.2	116.9
22	12.9	25.7	38.6	51.4	64.3	77.2	90.0	102.9	115.8	128.6
24	14.0	28.1	42.1	56.1	70.2	84.2	98.2	112.3	126.3	140.3
26	15.2	30.4	45.6	60.8	76.0	91.2	106.4	121.6	136.8	152.0
28	16.4	32.7	49.1	65.5	81.8	96.2	114.6	131.0	147.3	163.7
30	17.5	35.1	52.6	70.2	87.7	106.2	122.6	140.3	157.9	175.4

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	172.	343.	515.	687.	858.	1030.	1202.	1373.	1545.	1717.
4	343.	687.	1030.	1373.	1717.	2060.	2403.	2747.	3090.	3433.
6	515.	1030.	1545.	2060.	2575.	3090.	3605.	4120.	4635.	5150.
8	687.	1373.	2060.	2747.	3433.	4120.	4807.	5493.	6180.	6867.
10	858.	1717.	2575.	3433.	4292.	5150.	6008.	6867.	7725.	8583.
12	1030.	2060.	3090.	4120.	5150.	6180.	7210.	8240.	9270.	10300.
14	1202.	2403.	3605.	4807.	6008.	7210.	8412.	9614.	10815.	12017.
16	1373.	2747.	4120.	5493.	6867.	8240.	9614.	10987.	12360.	13734.
18	1545.	3090.	4635.	6180.	7725.	9270.	10815.	12360.	13905.	15450.
20	1717.	3433.	5150.	6867.	8583.	10300.	12017.	13734.	15450.	17167.
22	1888.	3777.	5665.	7563.	9442.	11330.	13219.	15107.	16995.	18884.
24	2060.	4120.	6180.	8240.	10300.	12360.	14420.	16480.	18540.	20600.
26	2232.	4463.	6695.	8927.	11159.	13390.	15622.	17854.	20085.	22317.
28	2403.	4807.	7210.	9614.	12017.	14420.	16824.	19227.	21630.	24034.
30	2575.	5150.	7725.	10300.	12875.	15450.	18025.	20800.	23175.	25750.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	242.	483.	725.	966.	1208.	1450.	1691.	1933.	2174.	2416.
4	483.	966.	1450.	1933.	2416.	2899.	3382.	3865.	4348.	4832.
6	725.	1450.	2174.	2899.	3624.	4349.	5074.	5798.	6523.	7248.
8	966.	1933.	2899.	3865.	4832.	5798.	6765.	7731.	8698.	9664.
10	1208.	2416.	3624.	4832.	6040.	7248.	8456.	9664.	10872.	12080.
12	1450.	2899.	4349.	5798.	7248.	8698.	10147.	11597.	13046.	14496.
14	1691.	3382.	5074.	6765.	8456.	10147.	11838.	13530.	15221.	16912.
16	1933.	3865.	5798.	7731.	9664.	11597.	13530.	15462.	17396.	19328.
18	2174.	4349.	6523.	8698.	10872.	13046.	15221.	17396.	19569.	21744.
20	2416.	4832.	7248.	9664.	12080.	14496.	16912.	19328.	21744.	24160.
22	2658.	5315.	7973.	10300.	13265.	15946.	18603.	21261.	23918.	26578.
24	2899.	5798.	8698.	11597.	14496.	17396.	20294.	23193.	26063.	28992.
26	3141.	6282.	9422.	12863.	15704.	18845.	21965.	25126.	28267.	31408.
28	3382.	6765.	10147.	13639.	16912.	20294.	23677.	27099.	30441.	33824.
30	3624.	7248.	10872.	14496.	18120.	21744.	25368.	29262.	32616.	36240.

Goodfellow AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.2	4.8	6.5	8.1	9.7	11.3	12.9	14.5	16.1
4	3.2	6.5	9.7	12.9	16.1	19.4	22.6	25.8	29.0	32.3
6	4.8	9.7	14.5	19.4	24.2	29.0	33.9	38.7	43.5	48.4
8	6.5	12.9	19.4	25.8	32.3	38.7	45.2	51.6	58.1	64.5
10	8.1	16.1	24.2	32.3	40.3	48.4	56.4	64.5	72.6	80.6
12	9.7	19.4	29.0	38.7	48.4	58.1	67.7	77.4	87.1	96.8
14	11.3	22.6	33.9	45.2	56.4	67.7	79.0	90.3	101.6	112.9
16	12.9	25.8	38.7	51.6	64.5	77.4	90.3	103.2	116.1	129.0
18	14.5	29.0	43.5	58.1	72.6	87.1	101.6	116.1	130.6	145.2
20	16.1	32.3	48.4	64.5	80.6	96.8	112.9	129.0	145.2	161.3
22	17.7	35.5	53.2	71.0	88.7	106.4	124.2	141.9	159.7	177.4
24	19.4	38.7	58.1	77.4	96.8	116.1	135.5	154.8	174.2	193.5
26	21.0	41.9	62.9	83.9	104.8	125.8	148.8	167.7	188.7	209.7
28	22.6	45.2	67.7	90.3	112.9	135.5	158.1	180.6	203.2	225.6
30	24.2	48.4	72.6	96.8	121.0	145.2	169.3	193.5	217.7	241.9

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	331.	661.	992.	1322.	1653.	1984.	2314.	2645.	2975.	3306.
4	661.	1322.	1984.	2645.	3306.	3967.	4628.	5290.	5951.	6612.
6	992.	1984.	2975.	3967.	4959.	5951.	6943.	7934.	8926.	9918.
8	1322.	2645.	3967.	5290.	6612.	7934.	9257.	10579.	11902.	13224.
10	1653.	3306.	4959.	6612.	8265.	9918.	11571.	13224.	14877.	16530.
12	1984.	3967.	5951.	7934.	9918.	11902.	13885.	15869.	17852.	19836.
14	2314.	4628.	6943.	9257.	11571.	13885.	16199.	18513.	20828.	23142.
16	2645.	5290.	7934.	10579.	13224.	15869.	18513.	21168.	23803.	26448.
18	2975.	5951.	8926.	11902.	14877.	17852.	20828.	23803.	26778.	29754.
20	3306.	6612.	9918.	13224.	16530.	19836.	23142.	26448.	29754.	33060.
22	3637.	7273.	10910.	14546.	18183.	21619.	25456.	29093.	32729.	36386.
24	3967.	7934.	11902.	16889.	19836.	23803.	27770.	31737.	35705.	39672.
26	4298.	8595.	12893.	17191.	21499.	25787.	30084.	34382.	38680.	42978.
28	4628.	9257.	13885.	18513.	23142.	27770.	32399.	37027.	41655.	46284.
30	4959.	9918.	14877.	19836.	24785.	29754.	34713.	39672.	44631.	49590.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	401.	801.	1202.	1602.	2003.	2403.	2804.	3204.	3605.	4006.
4	801.	1602.	2403.	3204.	4005.	4806.	5607.	6408.	7209.	8011.
6	1202.	2403.	3605.	4806.	6008.	7209.	8411.	9613.	10814.	12016.
8	1602.	3204.	4806.	6408.	8011.	9613.	11215.	12817.	14419.	16021.
10	2003.	4005.	6008.	8011.	10013.	12016.	14018.	16021.	18024.	20026.
12	2403.	4806.	7209.	9613.	12016.	14419.	16822.	19225.	21628.	24032.
14	2804.	5607.	8411.	11215.	14018.	16822.	19626.	22429.	25233.	28037.
16	3204.	6408.	9613.	12817.	16021.	19225.	22429.	25234.	28038.	30842.
18	3605.	7209.	10814.	14419.	18024.	21628.	25233.	28838.	32443.	36047.
20	4006.	8011.	12016.	16021.	20026.	24032.	28037.	32042.	36047.	40053.
22	4408.	8812.	13217.	17623.	22029.	26438.	30841.	34845.	38848.	44058.
24	4809.	9613.	14419.	19225.	24032.	28838.	33644.	38649.	43651.	48063.
26	5207.	10414.	16021.	20827.	26034.	31241.	36448.	41655.	46458.	52068.
28	5607.	11215.	16822.	22429.	28037.	33644.	38852.	44859.	50465.	56074.
30	6008.	12016.	18024.	24032.	30039.	36047.	42055.	48063.	54071.	60079.

Grand Forks AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	8.8	17.6	26.4	35.2	44.0	52.8	61.6	70.4	79.2	88.0
4	17.6	35.2	52.8	70.4	88.0	105.7	123.3	140.9	158.5	176.1
6	26.4	52.8	79.2	105.7	132.1	158.5	184.9	211.3	*****	*****
8	35.2	70.4	105.7	140.9	176.1	211.3	246.5	*****	*****	*****
10	44.0	88.0	132.1	176.1	220.1	264.1	*****	*****	*****	*****
12	52.8	105.7	158.5	211.3	264.1	*****	*****	*****	*****	*****
14	61.6	123.3	184.9	246.5	308.2	*****	*****	*****	*****	*****
16	70.4	140.9	211.3	281.8	352.2	*****	*****	*****	*****	*****
18	79.2	158.5	237.7	317.0	*****	*****	*****	*****	*****	*****
20	88.0	176.1	264.1	352.2	*****	*****	*****	*****	*****	*****
22	96.9	193.7	290.6	387.4	*****	*****	*****	*****	*****	*****
24	105.7	211.3	317.0	422.6	*****	*****	*****	*****	*****	*****
26	114.5	228.9	343.4	457.9	*****	*****	*****	*****	*****	*****
28	123.3	246.5	369.8	*****	*****	*****	*****	*****	*****	*****
30	132.1	264.1	395.2	*****	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1030.	2060.	3090.	4120.	5151.	6181.	7211.	8241.	9271.	10301.
4	2060.	4120.	6181.	8241.	10301.	12361.	14421.	16482.	18542.	20602.
6	3090.	6181.	9271.	12361.	15452.	18542.	21632.	24722.	*****	*****
8	4120.	8241.	12361.	16482.	20602.	24722.	28843.	*****	*****	*****
10	5151.	10301.	15452.	20602.	25753.	30903.	*****	*****	*****	*****
12	6181.	12361.	18542.	24722.	30903.	*****	*****	*****	*****	*****
14	7211.	14421.	21632.	28843.	36054.	*****	*****	*****	*****	*****
16	8241.	16482.	24722.	32963.	41204.	*****	*****	*****	*****	*****
18	9271.	18542.	27813.	37354.	*****	*****	*****	*****	*****	*****
20	10301.	20602.	30903.	41204.	*****	*****	*****	*****	*****	*****
22	11331.	22662.	33963.	45355.	*****	*****	*****	*****	*****	*****
24	12361.	24722.	37064.	49445.	*****	*****	*****	*****	*****	*****
26	13391.	26783.	40174.	53555.	*****	*****	*****	*****	*****	*****
28	14421.	28843.	43264.	*****	*****	*****	*****	*****	*****	*****
30	15452.	30903.	46355.	*****	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1561.	3122.	4683.	6244.	7805.	9366.	10927.	12488.	14049.	15610.
4	3122.	6244.	9366.	12488.	15610.	18732.	21854.	24976.	28098.	31220.
6	4683.	9366.	14049.	18732.	23415.	28098.	32781.	37464.	42147.	46830.
8	6244.	12488.	18732.	23415.	28098.	32781.	37464.	42147.	46830.	51513.
10	7805.	15610.	23415.	28098.	32781.	37464.	42147.	46830.	51513.	56196.
12	9366.	18732.	28098.	32781.	37464.	42147.	46830.	51513.	56196.	60879.
14	10927.	21854.	32781.	37464.	42147.	46830.	51513.	56196.	60879.	65562.
16	12488.	24976.	37464.	42147.	46830.	51513.	56196.	60879.	65562.	70245.
18	14049.	28098.	42147.	46830.	51513.	56196.	60879.	65562.	70245.	74928.
20	15610.	31220.	46830.	51513.	56196.	60879.	65562.	70245.	74928.	79611.
22	17171.	34342.	51513.	56196.	60879.	65562.	70245.	74928.	79611.	84294.
24	18732.	37464.	56196.	60879.	65562.	70245.	74928.	79611.	84294.	88977.
26	20293.	40586.	60879.	65562.	70245.	74928.	79611.	84294.	88977.	93660.
28	21854.	43708.	65562.	70245.	74928.	79611.	84294.	88977.	93660.	98343.
30	23415.	46830.	70245.	74928.	79611.	84294.	88977.	93660.	98343.	103026.

Griffis APB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	4.4	8.9	13.3	17.8	22.2	26.7	31.1	35.6	40.0	44.5
4	8.9	17.8	26.7	35.6	44.5	53.4	62.3	71.2	80.1	89.0
6	13.3	26.7	40.0	53.4	66.7	80.1	93.4	106.7	120.1	133.4
8	17.8	35.6	53.4	71.2	89.0	106.7	124.5	142.3	160.1	*****
10	22.2	44.5	66.7	89.0	111.2	133.4	155.7	177.9	*****	*****
12	26.7	53.4	80.1	106.7	133.4	160.1	186.8	*****	*****	*****
14	31.1	62.3	93.4	124.5	155.7	186.8	217.9	*****	*****	*****
16	35.6	71.2	106.7	142.3	177.9	213.5	*****	*****	*****	*****
18	40.0	80.1	120.1	160.1	200.1	240.2	*****	*****	*****	*****
20	44.5	89.0	133.4	177.9	222.4	266.9	*****	*****	*****	*****
22	48.9	97.8	146.8	195.7	244.6	*****	*****	*****	*****	*****
24	53.4	106.7	160.1	213.5	266.9	*****	*****	*****	*****	*****
26	57.8	115.6	173.5	231.3	289.1	*****	*****	*****	*****	*****
28	62.3	124.5	186.8	249.1	311.3	*****	*****	*****	*****	*****
30	66.7	133.4	200.1	266.9	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	798.	1592.	2389.	3185.	3981.	4777.	5574.	6370.	7166.	7962.
4	1592.	3185.	4777.	6370.	7962.	9555.	11147.	12740.	14332.	15924.
6	2389.	4777.	7166.	9555.	11943.	14332.	16721.	19109.	21498.	23887.
8	3185.	6370.	9555.	12740.	15924.	19109.	22294.	25479.	28664.	*****
10	3981.	7962.	11943.	15924.	19905.	23887.	27868.	31849.	*****	*****
12	4777.	9555.	14332.	19109.	23887.	28664.	33441.	*****	*****	*****
14	5574.	11147.	16721.	22294.	27868.	33441.	39015.	*****	*****	*****
16	6370.	12740.	19109.	25479.	31849.	38219.	*****	*****	*****	*****
18	7166.	14332.	21498.	28664.	35830.	42996.	*****	*****	*****	*****
20	7962.	15924.	23887.	31849.	39811.	47773.	*****	*****	*****	*****
22	8758.	17517.	26275.	35034.	43792.	*****	*****	*****	*****	*****
24	9555.	19109.	28664.	38219.	47773.	*****	*****	*****	*****	*****
26	10351.	20702.	31053.	41403.	51754.	*****	*****	*****	*****	*****
28	11147.	22294.	33441.	44588.	55735.	*****	*****	*****	*****	*****
30	11943.	23887.	35830.	47773.	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	988.	1977.	2966.	3954.	4942.	5931.	6919.	7908.	8896.	9884.
4	1977.	3954.	5931.	7908.	9884.	11861.	13838.	15815.	17792.	19769.
6	2966.	5931.	8908.	11884.	14861.	17838.	20815.	23792.	26769.	29746.
8	3954.	7908.	11861.	15815.	19769.	23723.	27677.	31631.	35585.	*****
10	4942.	9884.	14837.	19790.	24743.	29696.	34649.	39602.	44555.	*****
12	5931.	11861.	17832.	23783.	29723.	35673.	41696.	47749.	*****	*****
14	6919.	13838.	20837.	27716.	35696.	43723.	51754.	*****	*****	*****
16	7908.	15815.	23843.	31759.	39738.	48785.	*****	*****	*****	*****
18	8896.	17792.	26848.	34804.	43800.	52806.	*****	*****	*****	*****
20	9884.	19769.	29853.	38849.	48862.	56867.	*****	*****	*****	*****
22	10873.	21746.	31858.	42894.	52924.	*****	*****	*****	*****	*****
24	11861.	23723.	34894.	46939.	56987.	*****	*****	*****	*****	*****
26	12850.	25700.	37939.	50984.	61049.	*****	*****	*****	*****	*****
28	13838.	27677.	40984.	55033.	65111.	*****	*****	*****	*****	*****
30	14827.	29654.	43029.	59077.	69173.	*****	*****	*****	*****	*****

Grissom AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.5	2.9	4.4	5.8	7.3	8.7	10.2	11.6	13.1	14.5
4	2.9	5.8	8.7	11.6	14.5	17.4	20.3	23.2	26.2	29.1
6	4.4	8.7	13.1	17.4	21.8	26.2	30.5	34.9	39.2	43.6
8	5.8	11.6	17.4	23.2	29.1	34.9	40.7	46.5	52.3	58.1
10	7.3	14.5	21.8	29.1	36.3	43.6	50.9	58.1	65.4	72.6
12	8.7	17.4	26.2	34.9	43.6	52.3	61.0	69.7	78.5	*****
14	10.2	20.3	30.5	40.7	50.9	61.0	71.2	81.4	*****	*****
16	11.6	23.2	34.9	46.5	58.1	69.7	81.4	93.0	*****	*****
18	13.1	26.2	39.2	52.3	65.4	78.5	91.5	*****	*****	*****
20	14.5	29.1	43.6	58.1	72.6	87.2	101.7	*****	*****	*****
22	16.0	32.0	47.9	63.9	79.9	95.9	*****	*****	*****	*****
24	17.4	34.9	52.3	69.7	87.2	104.6	*****	*****	*****	*****
26	18.9	37.8	56.7	75.6	94.4	113.3	*****	*****	*****	*****
28	20.3	40.7	61.0	81.4	101.7	122.0	*****	*****	*****	*****
30	21.8	43.6	65.4	87.2	109.0	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	336	675	1013	1350	1688	2025	2363	2700	3038	3375
4	675	1350	2025	2700	3375	4050	4725	5400	6075	6750
6	1013	2025	3038	4050	5063	6075	7088	8100	9113	10125
8	1350	2700	4050	5400	6750	8100	9450	10800	12150	13500
10	1688	3375	5063	6750	8438	10125	11813	13500	15188	16875
12	2025	4050	6075	8100	10125	12150	14175	16200	18225	*****
14	2363	4725	7088	9450	11813	14175	16538	18900	*****	*****
16	2700	5400	8100	10800	13500	16200	18900	21600	*****	*****
18	3038	6075	9113	12150	15188	18225	21263	*****	*****	*****
20	3375	6750	10125	13500	16875	20250	23625	*****	*****	*****
22	3713	7425	11138	14850	18563	22275	*****	*****	*****	*****
24	4050	8100	12150	16200	20250	24300	*****	*****	*****	*****
26	4388	8775	13163	17550	21938	26325	*****	*****	*****	*****
28	4725	9450	14175	18900	23625	28350	*****	*****	*****	*****
30	5063	10125	15188	20250	25313	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	483	966	1449	1932	2415	2898	3381	3864	4347	4830
4	966	1932	2898	3864	4830	5796	6762	7728	8694	9660
6	1449	2898	4347	5796	7245	8694	10142	11591	13040	14489
8	1932	3864	5796	7728	9660	11591	13523	15455	17387	19319
10	2415	4830	7245	9660	12074	14489	16904	19319	21734	24149
12	2898	5796	8694	11591	14489	17387	20269	23183	26097	*****
14	3381	6762	10142	13523	16904	20269	23696	27047	*****	*****
16	3864	7728	11591	15455	19319	23183	27047	30910	*****	*****
18	4347	8694	13040	17387	21734	26097	30487	*****	*****	*****
20	4830	9660	14489	19319	24149	28976	33206	*****	*****	*****
22	5313	10635	15938	21251	26564	31876	*****	*****	*****	*****
24	5796	11591	17387	23183	28976	34774	*****	*****	*****	*****
26	6279	12547	18936	25115	31383	37672	*****	*****	*****	*****
28	6762	13503	20481	27047	33806	40570	*****	*****	*****	*****
30	7245	14459	21734	28976	36225	*****	*****	*****	*****	*****

Grissom AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	4.1	8.3	12.4	16.5	20.7	24.8	28.9	33.1	37.2	41.4
4	8.3	16.5	24.8	33.1	41.4	49.6	57.9	66.2	74.4	82.7
6	12.4	24.8	37.2	49.6	62.0	74.4	86.8	99.2	111.7	124.1
8	16.5	33.1	49.6	66.2	82.7	99.2	115.8	132.3	148.9	165.4
10	20.7	41.4	62.0	82.7	103.4	124.1	144.7	165.4	186.1	206.8
12	24.8	49.6	74.4	99.2	124.1	148.9	173.7	198.5	223.3	*****
14	28.9	57.9	86.8	115.8	144.7	173.7	202.6	231.6	*****	*****
16	33.1	66.2	99.2	132.3	165.4	198.5	231.6	264.7	*****	*****
18	37.2	74.4	111.7	148.9	186.1	223.3	260.5	*****	*****	*****
20	41.4	82.7	124.1	165.4	206.8	248.1	289.5	*****	*****	*****
22	45.5	91.0	136.5	181.9	227.4	272.9	*****	*****	*****	*****
24	49.6	99.2	148.9	198.5	248.1	297.7	*****	*****	*****	*****
26	53.8	107.5	161.3	215.0	268.6	322.5	*****	*****	*****	*****
28	57.9	115.8	173.7	231.6	289.5	347.4	*****	*****	*****	*****
30	62.0	124.1	186.1	248.1	310.1	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	668.	1336.	2004.	2673.	3341.	4009.	4677.	5345.	6013.	6681.
4	1336.	2673.	4009.	5345.	6681.	8018.	9354.	10690.	12026.	13363.
6	2004.	4009.	6013.	8018.	10022.	12026.	14031.	16035.	18039.	20044.
8	2673.	5345.	8018.	10690.	13363.	16035.	18708.	21380.	24053.	26725.
10	3341.	6681.	10022.	13363.	16703.	20044.	23384.	26725.	30066.	33408.
12	4009.	8018.	12026.	16035.	20044.	24053.	28061.	32070.	36079.	*****
14	4677.	9354.	14031.	18708.	23384.	28061.	32738.	37415.	*****	*****
16	5345.	10690.	16035.	21380.	26725.	32070.	37415.	42760.	*****	*****
18	6013.	12026.	18039.	24053.	30066.	36079.	42092.	*****	*****	*****
20	6681.	13363.	20044.	26725.	33408.	40068.	46769.	*****	*****	*****
22	7349.	14699.	22048.	29398.	36747.	44096.	*****	*****	*****	*****
24	8018.	16035.	24063.	32070.	40068.	48105.	*****	*****	*****	*****
26	8686.	17371.	26067.	34743.	43428.	52114.	*****	*****	*****	*****
28	9354.	18708.	28061.	37415.	46769.	56123.	*****	*****	*****	*****
30	10022.	20044.	30066.	40068.	50109.	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	614.	1227.	1841.	2454.	3068.	3682.	4295.	4909.	5522.	6136.
4	1227.	2454.	3682.	4909.	6136.	7363.	8590.	9818.	11045.	12272.
6	1841.	3682.	5522.	7363.	9204.	11045.	12886.	14727.	16568.	18408.
8	2454.	4909.	7363.	9818.	12272.	14727.	17181.	19635.	22089.	24544.
10	3068.	6136.	9204.	12272.	15336.	18404.	21472.	24540.	27608.	30676.
12	3682.	7363.	10445.	13682.	17181.	20250.	23318.	26386.	29454.	32520.
14	4295.	8544.	11886.	15336.	18404.	21472.	24540.	27608.	30676.	33764.
16	4909.	9818.	13327.	17181.	20250.	23318.	26386.	29454.	32520.	35008.
18	5522.	11045.	14768.	19039.	22199.	25267.	28335.	31403.	34471.	36252.
20	6136.	12272.	16209.	21048.	24208.	27276.	30344.	33412.	36420.	37496.
22	6750.	13499.	17650.	23057.	26217.	29226.	32352.	35360.	38368.	38740.
24	7363.	14726.	19091.	25066.	28226.	31235.	34360.	37308.	40316.	39984.
26	7977.	15953.	21032.	27075.	30235.	33144.	36268.	39256.	42264.	41228.
28	8590.	17180.	22973.	29084.	32244.	35052.	38176.	41204.	44212.	42472.
30	9204.	18407.	24914.	31093.	34253.	37060.	40084.	43152.	46160.	43716.

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	2.9	3.9	4.9	5.9	6.9	7.8	8.8	9.8
4	2.0	3.9	5.9	7.8	9.8	11.8	13.7	15.7	17.6	19.6
6	2.9	5.9	8.8	11.8	14.7	17.6	20.6	23.5	26.5	29.4
8	3.9	7.8	11.8	15.7	19.6	23.5	27.4	31.4	35.3	39.2
10	4.9	9.8	14.7	19.6	24.5	29.4	34.3	39.2	44.1	49.0
12	5.9	11.8	17.6	23.5	29.4	35.3	41.2	47.0	52.9	58.8
14	6.9	13.7	20.6	27.4	34.3	41.2	48.0	54.9	61.8	68.6
16	7.8	15.7	23.5	31.4	39.2	47.0	54.9	62.7	70.6	78.4
18	8.8	17.6	26.5	35.3	44.1	52.9	61.8	70.6	79.4	88.2
20	9.8	19.6	29.4	39.2	49.0	58.8	68.6	78.4	88.2	98.0
22	10.8	21.6	32.3	43.1	53.9	64.7	75.5	86.3	97.0	107.8
24	11.8	23.5	36.3	47.0	58.8	70.6	82.3	94.1	105.9	117.6
26	12.7	25.5	38.3	51.0	63.7	76.5	89.2	101.9	114.7	127.4
28	13.7	27.4	41.2	54.9	68.6	82.3	96.1	109.8	123.5	137.2
30	14.7	29.4	44.1	58.8	73.5	88.2	102.9	117.6	132.3	147.0

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	156.	312.	468.	624.	780.	936.	1091.	1247.	1403.	1559.
4	312.	624.	936.	1247.	1559.	1871.	2183.	2494.	2806.	3118.
6	468.	936.	1403.	1871.	2339.	2806.	3274.	3742.	4209.	4677.
8	624.	1247.	1871.	2494.	3118.	3742.	4365.	4989.	5612.	6236.
10	780.	1559.	2339.	3118.	3898.	4677.	5457.	6236.	7016.	7795.
12	936.	1871.	2806.	3742.	4677.	5612.	6548.	7483.	8419.	9354.
14	1091.	2183.	3274.	4306.	5457.	6548.	7639.	8730.	9822.	10913.
16	1247.	2494.	3742.	4989.	6236.	7483.	8730.	9978.	11225.	12472.
18	1403.	2806.	4209.	5612.	7016.	8419.	9822.	11225.	12628.	14031.
20	1559.	3118.	4677.	6236.	7795.	9354.	10913.	12472.	14031.	15590.
22	1715.	3430.	5146.	6890.	8575.	10269.	12004.	13719.	15434.	17149.
24	1871.	3742.	5612.	7483.	9354.	11225.	13096.	14966.	16837.	18708.
26	2027.	4053.	6080.	8107.	10154.	12160.	14187.	16214.	18240.	20267.
28	2183.	4365.	6548.	8730.	10913.	13096.	15278.	17461.	19643.	21826.
30	2339.	4677.	7016.	9354.	11693.	14031.	16370.	18706.	21047.	23385.

THERM WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	217.	434.	651.	868.	1084.	1301.	1518.	1735.	1952.	2169.
4	434.	868.	1301.	1735.	2169.	2603.	3037.	3470.	3904.	4338.
6	651.	1301.	1952.	2603.	3254.	3904.	4555.	5206.	5856.	6507.
8	868.	1735.	2603.	3470.	4338.	5206.	6073.	6941.	7808.	8676.
10	1084.	2169.	3254.	4338.	5422.	6507.	7591.	8676.	9760.	10845.
12	1301.	2603.	3904.	5206.	6507.	7808.	9110.	10411.	11712.	13014.
14	1518.	3037.	4555.	6073.	7591.	9110.	10628.	12146.	13664.	15183.
16	1735.	3470.	5206.	6941.	8808.	10628.	12146.	13664.	15183.	16702.
18	1952.	3904.	5856.	7808.	9760.	11712.	13260.	14878.	16496.	18020.
20	2169.	4338.	6507.	8673.	10628.	12534.	14152.	15770.	17388.	19000.
22	2386.	4772.	7157.	9585.	11540.	13456.	15074.	16692.	18310.	19980.
24	2603.	5206.	7908.	10411.	12414.	14360.	16000.	17618.	19226.	20960.
26	2820.	5640.	8659.	11282.	13278.	15264.	16906.	18524.	19942.	21940.
28	3037.	6073.	9410.	12146.	14142.	16168.	17812.	19430.	20858.	22920.
30	3254.	6507.	10161.	13014.	15006.	17072.	18718.	19946.	21774.	23900.

Gunter AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.4	22.2	25.0	27.8
6	4.2	8.3	12.5	16.7	20.8	25.0	29.2	33.3	37.5	41.7
8	5.6	11.1	16.7	22.2	27.8	33.3	38.9	44.4	50.0	55.5
10	6.9	13.9	20.8	27.8	34.7	41.7	48.6	55.5	62.5	69.4
12	8.3	16.7	25.0	33.3	41.7	50.0	58.3	66.7	75.0	83.3
14	9.7	19.4	29.2	38.9	48.6	58.3	68.0	77.8	87.5	97.2
16	11.1	22.2	33.3	44.4	55.5	66.7	77.8	88.9	100.0	111.1
18	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
20	13.9	27.8	41.7	55.5	69.4	83.3	97.2	111.1	125.0	138.9
22	15.3	30.5	45.8	61.1	75.4	91.6	106.9	122.2	137.5	152.7
24	16.7	33.3	50.0	66.7	83.3	100.0	116.6	133.3	150.0	166.6
26	18.1	36.1	54.2	72.2	90.3	108.3	126.4	144.4	162.5	180.5
28	19.4	38.9	58.3	77.8	97.2	116.6	136.1	155.5	175.0	194.4
30	20.8	41.7	62.5	83.3	104.1	125.0	145.8	164.6	187.5	208.3

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	266.	532.	798.	1177.	1473.	1767.	2062.	2356.	2651.	2945.
4	532.	1177.	1767.	2356.	2945.	3534.	4123.	4712.	5301.	5890.
6	798.	1767.	2651.	3534.	4418.	5301.	6185.	7069.	7952.	8836.
8	1177.	2356.	3534.	4712.	5890.	7069.	8247.	9425.	10603.	11781.
10	1473.	2945.	4418.	5890.	7363.	8836.	10308.	11781.	13253.	14726.
12	1767.	3534.	5301.	7069.	8836.	10603.	12370.	14137.	15904.	17671.
14	2062.	4123.	6185.	8247.	10308.	12370.	14432.	16493.	18555.	20617.
16	2356.	4712.	7069.	9425.	11781.	14137.	16493.	18849.	21208.	23562.
18	2651.	5301.	7952.	10603.	13253.	15904.	18555.	21208.	23866.	26507.
20	2945.	5890.	8836.	11781.	14726.	17671.	20617.	23562.	26507.	29452.
22	3240.	6479.	9719.	12908.	16199.	19438.	22678.	25918.	29168.	32397.
24	3534.	7069.	10603.	14137.	17671.	21308.	24740.	28274.	31808.	35343.
26	3829.	7658.	11486.	15315.	19144.	22973.	26801.	30630.	34459.	38288.
28	4123.	8247.	12370.	16493.	20617.	24740.	28653.	32986.	37110.	41233.
30	4418.	8836.	13253.	17671.	22088.	26607.	30605.	35343.	39760.	44178.

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	366.	711.	1067.	1422.	1778.	2133.	2489.	2844.	3200.	3555.
4	711.	1422.	2133.	2844.	3555.	4266.	4977.	5688.	6399.	7110.
6	1067.	2133.	3200.	4266.	5333.	6399.	7466.	8532.	9599.	10665.
8	1422.	2844.	4266.	5688.	7110.	8532.	9954.	11376.	12798.	14221.
10	1778.	3555.	5333.	7110.	8888.	10665.	12443.	14221.	15999.	17776.
12	2133.	4266.	6399.	8532.	10665.	12798.	14932.	17065.	19198.	21331.
14	2489.	4977.	7466.	9954.	12443.	14932.	17420.	19908.	22397.	24888.
16	2844.	5688.	8532.	11376.	14221.	17065.	19908.	22783.	25597.	28441.
18	3200.	6399.	9599.	12798.	15999.	19198.	22697.	25697.	28797.	31998.
20	3555.	7110.	10665.	14221.	17776.	21331.	24886.	28441.	31996.	35551.
22	3911.	7821.	11732.	15643.	19663.	23484.	27375.	31285.	35198.	39107.
24	4266.	8532.	12798.	17065.	21331.	25097.	29663.	34129.	38398.	42662.
26	4622.	9243.	13869.	18487.	23088.	27789.	32552.	36974.	41598.	46217.
28	4977.	9954.	14932.	19908.	24886.	29663.	34540.	39818.	44798.	49772.
30	5333.	10665.	15999.	21331.	26664.	31665.	37329.	42662.	47994.	53327.

Hancock Field

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	4.4	8.9	13.3	17.8	22.2	26.7	31.1	35.6	40.0	44.5
4	8.9	17.8	26.7	35.6	44.5	53.4	62.3	71.2	80.1	89.0
6	13.3	26.7	40.0	53.4	66.7	80.1	93.4	106.7	120.1	133.4
8	17.8	35.6	53.4	71.2	89.0	106.7	124.5	142.3	160.1	*****
10	22.2	44.5	66.7	89.0	111.2	133.4	155.7	177.9	*****	*****
12	26.7	53.4	80.1	106.7	133.4	160.1	186.8	*****	*****	*****
14	31.1	62.3	93.4	124.5	155.7	186.8	217.9	*****	*****	*****
16	35.6	71.2	106.7	142.3	177.9	213.5	*****	*****	*****	*****
18	40.0	80.1	120.1	160.1	200.1	240.2	*****	*****	*****	*****
20	44.5	89.0	133.4	177.9	222.4	266.9	*****	*****	*****	*****
22	48.9	97.8	146.8	195.7	244.6	*****	*****	*****	*****	*****
24	53.4	106.7	160.1	213.5	266.9	*****	*****	*****	*****	*****
26	57.8	115.6	173.5	231.3	289.1	*****	*****	*****	*****	*****
28	62.3	124.5	186.8	249.1	311.3	*****	*****	*****	*****	*****
30	66.7	133.4	200.1	266.9	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	798.	1596.	2394.	3192.	3989.	4787.	5574.	6370.	7166.	7962.
4	1596.	3192.	4787.	6370.	7962.	9555.	11147.	12740.	14332.	15924.
6	2394.	4787.	7166.	9555.	11943.	14332.	16721.	19109.	21498.	23887.
8	3192.	6370.	9555.	12740.	15924.	19109.	22294.	25479.	28664.	*****
10	3989.	7962.	11943.	15924.	19905.	23887.	27868.	31849.	*****	*****
12	4787.	9555.	14332.	19109.	23887.	28664.	33441.	*****	*****	*****
14	5574.	11147.	16721.	22294.	27868.	33441.	39015.	*****	*****	*****
16	6370.	12740.	19109.	25479.	31849.	38219.	*****	*****	*****	*****
18	7166.	14332.	21498.	28664.	35630.	42996.	*****	*****	*****	*****
20	7962.	15924.	23887.	31849.	39811.	47773.	*****	*****	*****	*****
22	8758.	17517.	26276.	35034.	43792.	*****	*****	*****	*****	*****
24	9555.	19109.	28664.	38219.	47773.	*****	*****	*****	*****	*****
26	10351.	20702.	31053.	41403.	51754.	*****	*****	*****	*****	*****
28	11147.	22294.	33441.	44588.	55736.	*****	*****	*****	*****	*****
30	11943.	23887.	35830.	47773.	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	988.	1977.	2966.	3954.	4942.	5931.	6919.	7908.	8896.	9884.
4	1977.	3954.	5931.	7908.	9884.	11861.	13838.	15815.	17792.	19769.
6	2966.	5931.	8896.	11861.	14827.	17792.	20757.	23722.	26687.	29652.
8	3954.	7908.	11861.	15815.	19769.	23722.	27675.	31628.	35581.	*****
10	4942.	9884.	14827.	19769.	24711.	29653.	34596.	39538.	*****	*****
12	5931.	11861.	17792.	23722.	29653.	34596.	40575.	46517.	*****	*****
14	6919.	13838.	20757.	27675.	34596.	40575.	47454.	*****	*****	*****
16	7908.	15815.	23722.	31628.	39538.	48461.	*****	*****	*****	*****
18	8896.	17792.	26687.	34596.	43460.	52396.	*****	*****	*****	*****
20	9884.	19769.	29652.	37338.	46461.	56107.	*****	*****	*****	*****
22	10872.	21746.	31628.	40575.	51384.	*****	*****	*****	*****	*****
24	11861.	23722.	34596.	44588.	56107.	*****	*****	*****	*****	*****
26	12850.	25700.	37792.	48599.	60828.	*****	*****	*****	*****	*****
28	13838.	27675.	40675.	52603.	67793.	*****	*****	*****	*****	*****
30	14827.	29653.	43792.	56107.	*****	*****	*****	*****	*****	*****

Hanscom AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.2	6.9	8.6	10.3	12.0	13.8	15.5	17.2
4	3.4	6.9	10.3	13.8	17.2	20.6	24.1	27.5	31.0	34.4
6	5.2	10.3	15.5	20.6	25.8	31.0	36.1	41.3	46.4	51.6
8	6.9	13.8	20.6	27.5	34.4	41.3	48.2	55.0	61.9	68.8
10	8.6	17.2	25.8	34.4	43.0	51.6	60.2	68.8	77.4	86.0
12	10.3	20.6	31.0	41.3	51.6	61.9	72.2	82.6	92.9	*****
14	12.0	24.1	36.1	48.2	60.2	72.2	84.3	96.3	108.4	*****
16	13.8	27.5	41.3	55.0	68.8	82.6	96.3	110.1	*****	*****
18	15.5	31.0	46.4	61.9	77.4	92.9	108.4	123.8	*****	*****
20	17.2	34.4	51.6	68.8	86.0	103.2	120.4	*****	*****	*****
22	18.9	37.8	56.8	75.7	94.6	113.5	132.4	*****	*****	*****
24	20.6	41.3	61.9	82.6	103.2	123.8	144.5	*****	*****	*****
26	22.4	44.7	67.1	89.4	111.8	134.2	*****	*****	*****	*****
28	24.1	48.2	72.2	96.3	120.4	144.5	*****	*****	*****	*****
30	25.8	51.6	77.4	103.2	129.0	154.8	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	315.	630.	944.	1259.	1574.	1889.	2203.	2518.	2833.	3148.
4	630.	1259.	1889.	2518.	3148.	3777.	4407.	5036.	5666.	6296.
6	944.	1889.	2833.	3777.	4722.	5666.	6610.	7555.	8499.	9443.
8	1259.	2518.	3777.	5036.	6296.	7555.	8814.	10073.	11332.	12591.
10	1574.	3148.	4722.	6296.	7870.	9443.	11017.	12591.	14165.	15739.
12	1889.	3777.	5666.	7555.	9443.	11332.	13221.	15109.	16998.	*****
14	2203.	4407.	6610.	8814.	11017.	13221.	15424.	17628.	19831.	*****
16	2518.	5036.	7555.	10073.	12591.	15109.	17628.	20146.	*****	*****
18	2833.	5666.	8499.	11332.	14165.	16998.	19831.	22664.	*****	*****
20	3148.	6296.	9443.	12591.	15739.	18887.	22035.	*****	*****	*****
22	3463.	6925.	10366.	13850.	17313.	20776.	24238.	*****	*****	*****
24	3777.	7555.	11332.	15109.	18887.	22664.	26442.	*****	*****	*****
26	4092.	8184.	12276.	16369.	20461.	24553.	*****	*****	*****	*****
28	4407.	8814.	13221.	17628.	22035.	26442.	*****	*****	*****	*****
30	4722.	9443.	14165.	18887.	23609.	28330.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	453.	907.	1360.	1814.	2267.	2720.	3174.	3627.	4080.	4534.
4	907.	1814.	2720.	3627.	4534.	5441.	6347.	7254.	8161.	9068.
6	1360.	2720.	4080.	5441.	6801.	8161.	9521.	10881.	12241.	13601.
8	1814.	3627.	5441.	7254.	9068.	10881.	12695.	14508.	16322.	18135.
10	2267.	4534.	6801.	9068.	11335.	13601.	15868.	18135.	20402.	22669.
12	2720.	5441.	8161.	10881.	13601.	16322.	19042.	21762.	24483.	*****
14	3174.	6347.	9521.	12695.	15868.	19042.	22216.	25369.	28563.	*****
16	3627.	7254.	10881.	14508.	18135.	21762.	25369.	29016.	*****	*****
18	4080.	8161.	12241.	16322.	20402.	24483.	28563.	32643.	*****	*****
20	4534.	9068.	13601.	18135.	22669.	27203.	31737.	*****	*****	*****
22	4987.	9974.	14982.	19949.	24935.	29923.	34910.	*****	*****	*****
24	5441.	10881.	16322.	21762.	27203.	32643.	38084.	*****	*****	*****
26	5894.	11788.	17662.	23676.	29476.	35364.	*****	*****	*****	*****
28	6347.	12695.	19042.	25589.	31737.	38084.	*****	*****	*****	*****
30	6801.	13601.	20402.	27203.	34004.	40804.	*****	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	4.0	8.1	12.1	16.2	20.2	24.3	28.3	32.4	36.4	40.5
4	8.1	16.2	24.3	32.4	40.5	48.6	56.7	64.8	72.8	80.9
6	12.1	24.3	36.4	48.6	60.7	72.8	85.0	97.1	109.3	121.4
8	16.2	32.4	48.6	64.8	80.9	97.1	113.3	129.5	145.7	161.9
10	20.2	40.5	60.7	80.9	101.2	121.4	141.6	161.9	182.1	202.4
12	24.3	48.6	72.8	97.1	121.4	145.7	170.0	194.3	218.5	*****
14	28.3	56.7	85.0	113.3	141.6	170.0	198.3	226.6	255.0	*****
16	32.4	64.8	97.1	129.5	161.9	194.3	226.6	259.0	*****	*****
18	36.4	72.8	109.3	145.7	182.1	218.5	255.0	291.4	*****	*****
20	40.5	80.9	121.4	161.9	202.4	242.8	283.3	*****	*****	*****
22	44.5	89.0	133.6	178.1	222.6	267.1	311.6	*****	*****	*****
24	48.6	97.1	145.7	194.3	242.8	291.4	340.0	*****	*****	*****
26	52.6	105.2	157.8	210.5	263.1	315.7	*****	*****	*****	*****
28	56.7	113.3	170.0	226.6	283.3	340.0	*****	*****	*****	*****
30	60.7	121.4	182.1	242.8	303.5	364.2	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	630.	1260.	1890.	2519.	3149.	3779.	4408.	5038.	5668.	6298.
4	1260.	2519.	3779.	5038.	6298.	7557.	8817.	10076.	11336.	12596.
6	1890.	3779.	5668.	7557.	9447.	11336.	13225.	15115.	17004.	18893.
8	2519.	5038.	7557.	10076.	12596.	15115.	17634.	20153.	22672.	25191.
10	3149.	6298.	9447.	12596.	15745.	18893.	22042.	25191.	28340.	31489.
12	3779.	7557.	11336.	15115.	18893.	22672.	26451.	30229.	34008.	*****
14	4408.	8817.	13225.	17634.	22042.	26451.	30859.	35268.	39676.	*****
16	5038.	10076.	15115.	20153.	25191.	30229.	35268.	40306.	*****	*****
18	5668.	11336.	17004.	22672.	28340.	34008.	39676.	45344.	*****	*****
20	6298.	12596.	18893.	25191.	31489.	37787.	44085.	*****	*****	*****
22	6928.	13855.	20783.	27710.	34638.	41666.	48493.	*****	*****	*****
24	7557.	15115.	22672.	30229.	37787.	45344.	52902.	*****	*****	*****
26	8187.	16374.	24561.	32749.	40836.	49123.	*****	*****	*****	*****
28	8817.	17634.	26451.	35268.	44085.	52902.	*****	*****	*****	*****
30	9447.	18893.	28340.	37787.	47234.	56680.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	788.	1537.	2306.	3074.	3842.	4610.	5379.	6147.	6915.	7684.
4	1537.	3074.	4610.	6147.	7684.	9221.	10757.	12294.	13831.	15368.
6	2306.	4610.	6915.	9221.	11526.	13831.	16136.	18441.	20746.	23051.
8	3074.	6147.	9221.	12294.	15368.	18441.	21515.	24588.	27662.	30736.
10	3842.	7684.	11526.	15368.	19210.	23051.	26893.	30736.	34577.	38419.
12	4610.	9221.	13831.	18441.	23051.	27662.	32272.	36862.	41493.	*****
14	5379.	10757.	16136.	21515.	26893.	32272.	37651.	43029.	48408.	*****
16	6147.	12294.	18441.	24588.	30736.	36862.	43029.	49176.	*****	*****
18	6915.	13831.	20746.	27662.	34577.	41493.	48408.	55323.	*****	*****
20	7684.	15368.	23051.	30736.	38419.	46103.	53787.	*****	*****	*****
22	8452.	16904.	25357.	33809.	42261.	50713.	59165.	*****	*****	*****
24	9221.	18441.	27662.	36862.	46103.	55323.	64544.	*****	*****	*****
26	9989.	19978.	29967.	39956.	49945.	59934.	*****	*****	*****	*****
28	10757.	21515.	32272.	43029.	53787.	64544.	*****	*****	*****	*****
30	11526.	23051.	34577.	46103.	57629.	69164.	*****	*****	*****	*****

HII APB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.2	10.3	15.5	20.7	25.8	31.0	36.2	41.4	46.5	51.7
4	10.3	20.7	31.0	41.4	51.7	62.0	72.4	82.7	93.0	103.4
6	15.5	31.0	46.5	62.0	77.5	93.0	108.6	124.1	139.6	155.1
8	20.7	41.4	62.0	82.7	103.4	124.1	144.7	165.4	186.1	206.8
10	25.8	51.7	77.5	103.4	129.2	155.1	180.9	206.8	232.6	258.5
12	31.0	62.0	93.0	124.1	155.1	186.1	217.1	248.1	279.1	310.2
14	36.2	72.4	108.6	144.7	180.9	217.1	253.3	289.5	325.7	361.9
16	41.4	82.7	124.1	165.4	206.8	248.1	289.5	330.8	372.2	*****
18	46.5	93.0	139.6	186.1	232.6	279.1	325.7	372.2	418.7	*****
20	51.7	103.4	155.1	206.8	258.5	310.2	361.9	413.5	*****	*****
22	56.9	113.7	170.6	227.4	284.3	341.2	398.0	454.9	*****	*****
24	62.0	124.1	186.1	248.1	310.2	372.2	434.2	496.3	*****	*****
26	67.2	134.4	201.6	268.8	336.0	403.2	470.4	*****	*****	*****
28	72.4	144.7	217.1	289.5	361.9	434.2	506.8	*****	*****	*****
30	77.5	155.1	232.6	310.2	387.7	465.2	542.6	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	553.	1107.	1660.	2214.	2767.	3321.	3874.	4428.	4981.	5534.
4	1107.	2214.	3321.	4428.	5534.	6641.	7748.	8855.	9962.	11069.
6	1660.	3321.	4981.	6641.	8302.	9962.	11622.	13283.	14943.	16603.
8	2214.	4428.	6641.	8855.	11069.	13283.	15497.	17710.	19924.	22138.
10	2767.	5534.	8302.	11069.	13836.	16603.	19371.	22138.	24905.	27672.
12	3321.	6641.	9962.	13283.	16603.	19924.	23245.	26566.	29886.	33207.
14	3874.	7748.	11622.	15497.	19371.	23245.	27119.	30993.	34867.	38741.
16	4428.	8855.	13283.	17710.	22138.	26566.	30993.	35421.	39848.	*****
18	4981.	9962.	14943.	19924.	24905.	29886.	34867.	39848.	44829.	*****
20	5534.	11069.	16603.	22138.	27672.	33207.	38741.	44276.	*****	*****
22	6088.	12176.	18284.	24352.	30440.	36528.	42616.	48704.	*****	*****
24	6641.	13283.	19924.	26566.	33207.	39848.	46490.	53131.	*****	*****
26	7195.	14390.	21585.	28779.	35974.	43169.	50364.	*****	*****	*****
28	7748.	15497.	23245.	30993.	38741.	46490.	54238.	*****	*****	*****
30	8302.	16603.	24905.	33207.	41509.	49810.	58112.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	672.	1344.	2016.	2687.	3359.	4031.	4702.	5374.	6046.	6718.
4	1344.	2687.	4031.	5374.	6718.	8061.	9405.	10748.	12092.	13435.
6	2016.	4031.	6046.	8061.	10077.	12092.	14107.	16122.	18138.	20153.
8	2687.	5374.	8061.	10748.	13435.	16122.	18810.	21497.	24184.	26871.
10	3359.	6718.	10077.	13435.	16794.	20163.	23512.	26871.	30230.	33588.
12	4031.	8061.	12092.	16122.	20153.	24184.	28214.	32245.	36275.	40306.
14	4702.	9405.	14107.	18810.	23512.	28214.	32917.	37619.	42321.	47024.
16	5374.	10748.	16122.	21497.	26871.	32245.	37619.	42993.	48367.	*****
18	6046.	12092.	18138.	24184.	30230.	36275.	42321.	48367.	54413.	*****
20	6718.	13435.	20153.	26871.	33588.	40306.	47024.	53741.	*****	*****
22	7390.	14779.	22168.	29348.	36947.	44337.	51726.	59116.	*****	*****
24	8061.	16122.	24184.	32245.	40306.	48367.	56429.	64490.	*****	*****
26	8733.	17466.	26199.	34932.	43066.	52398.	61131.	*****	*****	*****
28	9405.	18810.	28214.	37619.	47024.	56429.	65653.	*****	*****	*****
30	10077.	20153.	30230.	40306.	50363.	60459.	70538.	*****	*****	*****

Hill AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.9	5.8	8.7	11.6	14.5	17.4	20.4	23.3	26.2	29.1
4	5.8	11.6	17.4	23.3	29.1	34.9	40.7	46.5	52.3	58.2
6	8.7	17.4	26.2	34.9	43.6	52.3	61.1	69.8	78.5	87.2
8	11.6	23.3	34.9	46.5	58.2	69.8	81.4	93.0	104.7	116.3
10	14.5	29.1	43.6	58.2	72.7	87.2	101.6	116.3	130.8	145.4
12	17.4	34.9	52.3	69.8	87.2	104.7	122.1	139.6	157.0	174.5
14	20.4	40.7	61.1	81.4	101.6	122.1	142.5	162.8	183.2	203.5
16	23.3	46.5	69.8	93.0	116.3	139.6	162.8	186.1	209.4	*****
18	26.2	52.3	78.5	104.7	130.8	157.0	183.2	209.4	236.5	*****
20	29.1	58.2	87.2	116.3	145.4	174.5	203.5	232.6	*****	*****
22	32.0	64.0	96.0	127.9	159.9	191.9	223.9	255.9	*****	*****
24	34.9	69.8	104.7	139.6	174.5	209.4	244.3	279.1	*****	*****
26	37.8	75.6	113.4	151.2	189.0	226.8	264.6	*****	*****	*****
28	40.7	81.4	122.1	162.8	203.5	244.3	285.0	*****	*****	*****
30	43.6	87.2	130.8	174.5	218.1	261.7	305.3	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	265.	569.	854.	1138.	1423.	1707.	1992.	2276.	2561.	2845.
4	569.	1138.	1707.	2276.	2845.	3415.	3984.	4553.	5122.	5691.
6	854.	1707.	2561.	3415.	4268.	5122.	5975.	6829.	7683.	8536.
8	1138.	2276.	3415.	4553.	5691.	6829.	7967.	9105.	10244.	11382.
10	1423.	2845.	4268.	5691.	7114.	8536.	9959.	11382.	12806.	14227.
12	1707.	3415.	5122.	6829.	8536.	10244.	11951.	13658.	15365.	17073.
14	1992.	3984.	5975.	7967.	9959.	11951.	13943.	15935.	17926.	19918.
16	2276.	4553.	6829.	9105.	11382.	13658.	15935.	18211.	20487.	*****
18	2561.	5122.	7683.	10244.	12806.	15365.	17926.	20487.	23048.	*****
20	2845.	5691.	8536.	11382.	14227.	17073.	19918.	22764.	*****	*****
22	3130.	6260.	9390.	12520.	15650.	18780.	21910.	25040.	*****	*****
24	3415.	6829.	10244.	13658.	17073.	20487.	23902.	27316.	*****	*****
26	3699.	7398.	11097.	14796.	18495.	22194.	25894.	*****	*****	*****
28	3984.	7967.	11951.	15935.	19918.	23902.	27885.	*****	*****	*****
30	4268.	8536.	12806.	17073.	21341.	25609.	29677.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	408.	808.	1208.	1611.	2014.	2417.	2820.	3223.	3626.	4029.
4	808.	1611.	2417.	3223.	4029.	4834.	5640.	6446.	7252.	8057.
6	1208.	2417.	3626.	4834.	6043.	7252.	8460.	9669.	10877.	12086.
8	1611.	3223.	4834.	6445.	8057.	9669.	11280.	12892.	14503.	16115.
10	2014.	4029.	6043.	8057.	10072.	12086.	14100.	16115.	18129.	20143.
12	2417.	4834.	7252.	9669.	12086.	14503.	16920.	19337.	21756.	24172.
14	2820.	5640.	8460.	11280.	14100.	16920.	19740.	22550.	25360.	28200.
16	3223.	6446.	9669.	12892.	16115.	19337.	22550.	25763.	29006.	*****
18	3626.	7252.	10877.	14503.	18129.	21756.	25360.	29006.	32652.	*****
20	4029.	8057.	12086.	16115.	20143.	24172.	28200.	32652.	*****	*****
22	4431.	8863.	13294.	17726.	22167.	26589.	31020.	35452.	*****	*****
24	4834.	9669.	14503.	19337.	24172.	29006.	33840.	38675.	*****	*****
26	5237.	10474.	15712.	20949.	26186.	31423.	36661.	*****	*****	*****
28	5640.	11280.	16920.	22560.	28200.	33840.	39481.	*****	*****	*****
30	6043.	12086.	18129.	24172.	30214.	36264.	42301.	*****	*****	*****

Holloman AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.0	3.9	5.9	7.8	9.8	11.7	13.7	15.6	17.6	19.5
4	3.9	7.8	11.7	15.6	19.5	23.4	27.4	31.3	35.2	39.1
6	5.9	11.7	17.6	23.4	29.3	35.2	41.0	46.9	52.8	58.6
8	7.8	15.6	23.4	31.3	39.1	46.9	54.7	62.5	70.3	78.2
10	9.8	19.5	29.3	39.1	48.8	58.6	68.4	78.2	87.9	97.7
12	11.7	23.4	35.2	46.9	58.6	70.3	82.1	93.8	105.5	117.2
14	13.7	27.4	41.0	54.7	68.4	82.1	95.7	109.4	123.1	136.8
16	15.6	31.3	46.9	62.5	78.2	93.8	109.4	125.0	140.7	156.3
18	17.6	35.2	52.8	70.3	87.9	105.5	123.1	140.7	158.3	175.8
20	19.5	39.1	58.6	78.2	97.7	117.2	136.8	156.3	175.8	195.4
22	21.5	45.0	64.5	86.0	107.5	129.0	150.4	171.9	193.4	214.9
24	23.4	46.9	70.3	93.8	117.2	140.7	164.1	187.6	211.0	234.5
26	25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6	254.0
28	27.4	54.7	82.1	109.4	136.8	164.1	191.5	218.8	246.2	273.5
30	29.3	58.6	87.9	117.2	146.5	175.8	206.1	234.5	263.9	293.1

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	204.	406.	612.	817.	1021.	1225.	1429.	1633.	1837.	2042.
4	406.	817.	1225.	1633.	2042.	2450.	2858.	3266.	3676.	4083.
6	612.	1225.	1837.	2450.	3062.	3675.	4287.	4900.	5512.	6125.
8	817.	1633.	2450.	3266.	4083.	4900.	5716.	6533.	7350.	8168.
10	1021.	2042.	3062.	4083.	5104.	6125.	7145.	8166.	9187.	10208.
12	1225.	2450.	3675.	4900.	6125.	7350.	8574.	9799.	11024.	12249.
14	1429.	2858.	4287.	5716.	7145.	8574.	10004.	11433.	12862.	14291.
16	1633.	3266.	4900.	6533.	8166.	9799.	11433.	13066.	14699.	16332.
18	1837.	3675.	5512.	7350.	9187.	11024.	12862.	14699.	16536.	18374.
20	2042.	4083.	6125.	8166.	10208.	12249.	14291.	16332.	18374.	20415.
22	2246.	4491.	6737.	8863.	11228.	13474.	15720.	17966.	20211.	22457.
24	2450.	4900.	7350.	9799.	12249.	14699.	17149.	19599.	22049.	24498.
26	2654.	5308.	7962.	10616.	13270.	15924.	18578.	21232.	23686.	26540.
28	2858.	5716.	8574.	11433.	14291.	17149.	20007.	22866.	25723.	28582.
30	3062.	6125.	9187.	12249.	15312.	18374.	21436.	24498.	27561.	30623.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	284.	567.	851.	1135.	1418.	1702.	1986.	2269.	2553.	2837.
4	567.	1135.	1702.	2269.	2837.	3404.	3971.	4538.	5105.	5673.
6	851.	1702.	2563.	3404.	4265.	5106.	5967.	6808.	7669.	8510.
8	1135.	2269.	3404.	4538.	5673.	6808.	7942.	9077.	10212.	11346.
10	1418.	2837.	4265.	5673.	7091.	8510.	9928.	11346.	12764.	14183.
12	1702.	3404.	5106.	6808.	8510.	10212.	11914.	13616.	15317.	17019.
14	1986.	3971.	5967.	7942.	9928.	11914.	13899.	15885.	17870.	19856.
16	2269.	4538.	6808.	9077.	11346.	13616.	15666.	18154.	20423.	22692.
18	2553.	5105.	7669.	10212.	12764.	15317.	17670.	20423.	22976.	25528.
20	2837.	5673.	8510.	11346.	14183.	17019.	19856.	22976.	25989.	28365.
22	3120.	6240.	9361.	12481.	15901.	18721.	21841.	24966.	28082.	31302.
24	3404.	6808.	10212.	13616.	17019.	20423.	23827.	27231.	30435.	34039.
26	3688.	7375.	11063.	14750.	18428.	22125.	25613.	29000.	33188.	36876.
28	3971.	7942.	11914.	15885.	19856.	23827.	27788.	31788.	35741.	39712.
30	4255.	8510.	12764.	17019.	21274.	25629.	29784.	34629.	38583.	42548.

Holloman AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.8	5.6	8.4	11.2	14.0	16.9	19.7	22.5	25.3	28.1
4	5.6	11.2	16.9	22.5	28.1	33.7	39.3	44.9	50.6	56.2
6	8.4	16.9	25.3	33.7	42.1	50.6	59.0	67.4	75.8	84.3
8	11.2	22.5	33.7	44.9	56.2	67.4	78.6	89.9	101.1	112.3
10	14.0	28.1	42.1	56.2	70.2	84.3	98.3	112.3	126.4	140.4
12	16.9	33.7	50.6	67.4	84.3	101.1	118.0	134.8	151.7	168.5
14	19.7	39.3	59.0	78.6	98.3	118.0	137.8	157.3	176.9	196.6
16	22.5	44.9	67.4	89.9	112.3	134.8	157.3	179.7	202.2	224.7
18	25.3	50.6	75.8	101.1	126.4	151.7	176.9	202.2	227.5	252.8
20	28.1	56.2	84.3	112.3	140.4	168.5	196.6	224.7	252.8	280.9
22	30.9	61.8	92.7	123.6	154.5	185.4	216.3	247.2	278.0	306.9
24	33.7	67.4	101.1	134.8	168.5	202.2	235.9	269.6	303.3	337.0
26	36.5	73.0	109.5	146.0	182.6	219.1	255.6	292.1	328.6	365.1
28	39.3	78.6	118.0	157.3	196.6	235.9	275.2	314.6	353.9	393.2
30	42.1	84.3	126.4	168.5	210.6	252.8	294.9	337.0	379.2	421.3

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	385.	770.	1155.	1539.	1924.	2309.	2694.	3079.	3464.	3848.
4	770.	1539.	2309.	3079.	3848.	4618.	5388.	6157.	6927.	7697.
6	1155.	2309.	3464.	4618.	5773.	6927.	8082.	9236.	10391.	11545.
8	1539.	3079.	4618.	6157.	7697.	9236.	10775.	12315.	13854.	15394.
10	1924.	3848.	5773.	7697.	9621.	11545.	13469.	15394.	17318.	19242.
12	2309.	4618.	6927.	9236.	11545.	13854.	16163.	18472.	20781.	23090.
14	2694.	5388.	8082.	10775.	13469.	16163.	18857.	21551.	24245.	26939.
16	3079.	6157.	9236.	12315.	15394.	18472.	21551.	24630.	27708.	30787.
18	3464.	6927.	10391.	13854.	17318.	20781.	24245.	27708.	31172.	34635.
20	3848.	7697.	11545.	15394.	19242.	23090.	26939.	30787.	34635.	38484.
22	4233.	8466.	12700.	16933.	21166.	25399.	29633.	33886.	38099.	42332.
24	4618.	9236.	13854.	18472.	23090.	27708.	32326.	36944.	41582.	46181.
26	5003.	10006.	15009.	20012.	25014.	30017.	35020.	40023.	45026.	50029.
28	5388.	10775.	16163.	21551.	26939.	32326.	37714.	43102.	48490.	53877.
30	5773.	11545.	17318.	23090.	28963.	34635.	40406.	46181.	51863.	57726.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	484.	968.	1452.	1936.	2420.	2904.	3388.	3715.	4179.	4643.
4	968.	1936.	2904.	3715.	4643.	5572.	6501.	7429.	8358.	9287.
6	1452.	2904.	4179.	5572.	6965.	8358.	9751.	11144.	12537.	13930.
8	1936.	3715.	5572.	7429.	9287.	11144.	13001.	14859.	16716.	18574.
10	2420.	4643.	6965.	9287.	11609.	13930.	16252.	18574.	20916.	23217.
12	2904.	5572.	8358.	11144.	13930.	16716.	19502.	22288.	25074.	27860.
14	3388.	6501.	9751.	13091.	15552.	18502.	21753.	25003.	28253.	31504.
16	3715.	7429.	11144.	14889.	18074.	21888.	25003.	28718.	33432.	37147.
18	4179.	8358.	12537.	16716.	20995.	25074.	29253.	33432.	37611.	41790.
20	4643.	9287.	13930.	18574.	23217.	27860.	32504.	37147.	41790.	46434.
22	5107.	10216.	15323.	20431.	25339.	30446.	35754.	40982.	46970.	51077.
24	5572.	11144.	16716.	22288.	27860.	33432.	39004.	44577.	50149.	55721.
26	6036.	12073.	18109.	24146.	30182.	36218.	42256.	48291.	54388.	60364.
28	6501.	13002.	19502.	26003.	32604.	39604.	45506.	52006.	59007.	65007.
30	6965.	13930.	20905.	27860.	35006.	41790.	47756.	54721.	62258.	69651.

Homestead AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
4	.2	.4	.6	.8	1.0	1.2	1.4	1.6	1.8	2.0
6	.3	.6	.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
8	.4	.8	1.2	1.6	2.0	2.4	2.8	3.2	3.6	4.0
10	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
12	.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0
14	.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7.0
16	.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0
18	.9	1.8	2.7	3.6	4.5	5.4	6.3	7.2	8.1	9.0
20	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
22	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0
24	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
26	1.3	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7	13.0
28	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6	14.0
30	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	22.	44.	67.	89.	111.	133.	155.	178.	200.	222.
4	44.	89.	133.	178.	222.	267.	311.	355.	400.	444.
6	67.	133.	200.	267.	333.	400.	466.	533.	600.	666.
8	89.	178.	267.	355.	444.	533.	622.	711.	800.	889.
10	111.	222.	333.	444.	555.	666.	777.	889.	1000.	1111.
12	133.	267.	400.	533.	666.	800.	933.	1066.	1200.	1333.
14	155.	311.	466.	622.	777.	933.	1088.	1244.	1399.	1555.
16	178.	355.	533.	711.	889.	1066.	1244.	1422.	1599.	1777.
18	200.	400.	600.	800.	1000.	1200.	1399.	1599.	1799.	1999.
20	222.	444.	666.	889.	1111.	1333.	1555.	1777.	1999.	2221.
22	244.	489.	733.	977.	1222.	1466.	1710.	1958.	2199.	2443.
24	267.	533.	800.	1066.	1333.	1599.	1866.	2132.	2399.	2666.
26	289.	578.	866.	1155.	1444.	1733.	2021.	2310.	2599.	2888.
28	311.	622.	933.	1244.	1555.	1866.	2177.	2466.	2799.	3110.
30	333.	666.	1000.	1333.	1666.	1999.	2333.	2666.	2999.	3332.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	51.	62.	93.	124.	166.	187.	218.	249.	280.	311.
4	62.	124.	187.	249.	311.	373.	435.	498.	560.	622.
6	93.	187.	280.	373.	467.	560.	653.	747.	840.	933.
8	124.	249.	373.	498.	622.	747.	871.	995.	1120.	1244.
10	155.	311.	467.	622.	778.	933.	1088.	1244.	1400.	1555.
12	187.	373.	560.	747.	933.	1120.	1307.	1494.	1680.	1867.
14	218.	435.	653.	871.	1066.	1307.	1554.	1742.	1930.	2178.
16	249.	498.	747.	995.	1244.	1493.	1742.	1991.	2240.	2489.
18	280.	560.	840.	1120.	1400.	1690.	1980.	2240.	2490.	2700.
20	311.	622.	933.	1244.	1555.	1867.	2178.	2489.	2799.	3111.
22	342.	684.	1027.	1369.	1711.	2022.	2333.	2644.	2955.	3262.
24	373.	747.	1120.	1493.	1867.	2240.	2613.	2927.	3239.	3575.
26	404.	809.	1213.	1618.	2022.	2457.	2831.	3145.	3459.	3888.
28	435.	871.	1307.	1742.	2178.	2613.	3049.	3404.	3773.	4200.
30	467.	933.	1400.	1867.	2333.	2833.	3267.	3618.	4087.	4511.

Homestead AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.1	.2	.3	.5	.6	.7	.8	.9	1.0	1.1
4	.2	.5	.7	.9	1.1	1.4	1.6	1.8	2.1	2.3
6	.3	.7	1.0	1.4	1.7	2.1	2.4	2.6	3.1	3.4
8	.5	.9	1.4	1.8	2.3	2.8	3.2	3.7	4.1	4.6
10	.6	1.1	1.7	2.3	2.9	3.4	4.0	4.6	5.2	5.7
12	.7	1.4	2.1	2.8	3.4	4.1	4.8	5.5	6.2	6.9
14	.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0
16	.9	1.8	2.6	3.7	4.6	5.5	6.4	7.4	8.3	9.2
18	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.3	9.3	10.3
20	1.1	2.3	3.4	4.6	5.7	6.9	8.0	9.2	10.3	11.5
22	1.3	2.5	3.6	5.1	6.3	7.6	8.9	10.1	11.4	12.6
24	1.4	2.8	4.1	5.5	6.9	8.3	9.7	11.0	12.4	13.8
26	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.4	14.9
28	1.6	3.2	4.8	6.4	8.0	9.7	11.3	12.9	14.5	16.1
30	1.7	3.4	5.2	6.9	8.6	10.3	12.1	13.8	15.5	17.2

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	42.	85.	127.	170.	212.	255.	297.	339.	382.	424.
4	85.	170.	255.	339.	424.	509.	594.	679.	764.	849.
6	127.	255.	382.	509.	637.	764.	891.	1018.	1146.	1273.
8	170.	339.	509.	679.	849.	1018.	1188.	1358.	1528.	1697.
10	212.	424.	637.	849.	1061.	1273.	1485.	1697.	1910.	2122.
12	255.	509.	764.	1018.	1273.	1528.	1782.	2037.	2292.	2546.
14	297.	594.	891.	1188.	1485.	1782.	2079.	2376.	2673.	2971.
16	339.	679.	1018.	1358.	1697.	2037.	2376.	2716.	3055.	3395.
18	382.	764.	1146.	1528.	1910.	2292.	2673.	3055.	3437.	3819.
20	424.	849.	1273.	1697.	2122.	2546.	2971.	3395.	3819.	4244.
22	467.	934.	1400.	1867.	2334.	2861.	3285.	3734.	4201.	4668.
24	509.	1018.	1528.	2037.	2546.	3055.	3555.	4074.	4553.	5092.
26	552.	1103.	1655.	2207.	2758.	3310.	3862.	4413.	4965.	5517.
28	594.	1188.	1782.	2376.	2971.	3565.	4159.	4753.	5347.	5941.
30	637.	1273.	1910.	2546.	3183.	3818.	4456.	5082.	5729.	6365.

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	61.	103.	164.	205.	257.	308.	359.	411.	462.	513.
4	103.	205.	308.	411.	513.	615.	718.	821.	924.	1027.
6	164.	308.	462.	615.	770.	924.	1078.	1232.	1386.	1540.
8	205.	411.	615.	821.	1027.	1232.	1437.	1643.	1848.	2053.
10	257.	513.	770.	1027.	1293.	1540.	1797.	2053.	2310.	2567.
12	308.	615.	924.	1232.	1540.	1848.	2156.	2464.	2772.	3080.
14	359.	718.	1078.	1437.	1797.	2156.	2515.	2874.	3234.	3593.
16	411.	821.	1232.	1643.	2053.	2464.	2875.	3285.	3695.	4107.
18	462.	924.	1386.	1848.	2310.	2772.	3234.	3695.	4156.	4620.
20	513.	1027.	1540.	2053.	2567.	3080.	3693.	4107.	4620.	5133.
22	565.	1130.	1694.	2268.	2823.	3395.	3908.	4517.	5029.	5547.
24	616.	1232.	1848.	2474.	3080.	3695.	4312.	4925.	5544.	6160.
26	667.	1335.	2002.	2680.	3337.	4094.	4871.	5539.	6208.	6873.
28	719.	1437.	2156.	2885.	3593.	4312.	5031.	5749.	6425.	7187.
30	770.	1540.	2310.	3090.	3850.	4529.	5288.	6007.	6725.	7700.

Hurlburt AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	3.9	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.0	12.6	14.2	15.8
6	2.4	4.7	7.1	9.5	11.8	14.2	16.6	18.9	21.3	23.6
8	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5
10	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.5	39.4
12	4.7	9.5	14.2	18.9	23.6	28.4	33.1	37.8	42.6	47.3
14	5.5	11.0	16.6	22.1	27.6	33.1	38.6	44.1	49.7	55.2
16	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.7	63.0
18	7.1	14.2	21.3	28.4	35.5	42.6	49.7	56.7	63.8	70.9
20	7.9	15.8	23.6	31.5	39.4	47.3	55.2	63.0	70.9	78.8
22	8.7	17.3	26.0	34.7	43.3	52.0	60.7	69.4	78.0	86.7
24	9.5	18.9	28.4	37.8	47.3	56.7	66.2	75.7	85.1	94.6
26	10.2	20.5	30.7	41.0	51.2	61.5	71.7	82.0	92.2	102.5
28	11.0	22.1	33.1	44.1	55.2	66.2	77.2	88.3	99.3	110.3
30	11.8	23.6	35.5	47.3	59.1	70.9	83.8	94.6	106.4	118.2

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	135.	270.	404.	539.	674.	809.	943.	1078.	1213.	1348.
4	270.	539.	809.	1078.	1348.	1617.	1887.	2156.	2426.	2695.
6	404.	809.	1213.	1617.	2021.	2426.	2830.	3234.	3638.	4043.
8	539.	1078.	1617.	2156.	2695.	3234.	3773.	4312.	4851.	5390.
10	674.	1348.	2021.	2695.	3369.	4043.	4716.	5390.	6064.	6738.
12	809.	1617.	2426.	3234.	4043.	4851.	5660.	6468.	7277.	8085.
14	943.	1887.	2830.	3773.	4716.	5660.	6603.	7546.	8490.	9433.
16	1078.	2156.	3234.	4312.	5390.	6468.	7546.	8624.	9702.	10780.
18	1213.	2426.	3638.	4851.	6064.	7277.	8490.	9702.	10915.	12128.
20	1348.	2695.	4043.	5390.	6738.	8085.	9433.	10780.	12128.	13475.
22	1482.	2965.	4447.	5929.	7411.	8894.	10376.	11858.	13341.	14823.
24	1617.	3234.	4851.	6468.	8085.	9702.	11319.	12936.	14553.	16171.
26	1752.	3504.	5255.	7007.	8789.	10511.	12263.	14014.	15765.	17518.
28	1887.	3773.	5660.	7546.	9433.	11319.	13206.	15093.	16979.	18865.
30	2021.	4043.	6064.	8085.	10107.	12128.	14149.	16171.	18192.	20213.

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	188.	376.	564.	752.	940.	1128.	1316.	1504.	1692.	1880.
4	376.	752.	1128.	1504.	1880.	2256.	2632.	3008.	3384.	3760.
6	564.	1128.	1692.	2256.	2830.	3384.	3948.	4511.	5075.	5639.
8	752.	1504.	2256.	3008.	3760.	4511.	5263.	6015.	6767.	7519.
10	940.	1880.	2830.	3760.	4690.	5630.	6570.	7510.	8450.	9390.
12	1128.	2256.	3384.	4511.	5630.	6767.	7905.	9043.	10181.	11319.
14	1316.	2632.	3948.	5263.	6570.	7905.	9241.	10577.	11913.	13249.
16	1504.	3008.	4511.	6015.	7510.	9015.	10520.	12025.	13530.	15035.
18	1692.	3384.	5075.	6767.	8490.	10151.	11843.	13534.	15228.	16918.
20	1880.	3760.	5639.	7519.	9390.	11279.	13155.	15031.	16911.	18791.
22	2068.	4136.	6203.	8271.	10330.	12409.	14474.	16442.	18410.	20377.
24	2256.	4511.	6767.	9023.	11279.	13534.	15799.	17949.	20002.	22057.
26	2444.	4887.	7331.	9775.	12218.	14692.	17166.	19490.	21993.	24037.
28	2632.	5263.	7905.	10520.	13155.	15700.	18432.	21023.	23925.	25917.
30	2820.	5639.	8479.	11279.	14093.	16716.	19577.	22057.	24977.	27803.

Hurlburt AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.2	9.3	10.3
4	2.1	4.1	6.2	8.2	10.3	12.4	14.4	16.5	18.6	20.6
6	3.1	6.2	9.3	12.4	15.5	18.6	21.6	24.7	27.8	30.9
8	4.1	8.2	12.4	16.5	20.6	24.7	28.9	33.0	37.1	41.2
10	5.2	10.3	15.5	20.6	25.8	30.9	36.1	41.2	46.4	51.5
12	6.2	12.4	18.6	24.7	30.9	37.1	43.3	49.5	55.7	61.8
14	7.2	14.4	21.6	28.9	36.1	43.3	50.5	57.7	64.9	72.1
16	8.2	16.5	24.7	33.0	41.2	49.5	57.7	66.0	74.2	82.4
18	9.3	18.6	27.8	37.1	46.4	55.7	64.9	74.2	83.5	92.8
20	10.3	20.6	30.9	41.2	51.5	61.8	72.1	82.4	92.8	103.1
22	11.3	22.7	34.0	45.3	56.7	68.0	79.4	90.7	102.0	113.4
24	12.4	24.7	37.1	49.5	61.8	74.2	86.6	98.9	111.3	123.7
26	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.6	134.0
28	14.4	28.9	43.3	57.7	72.1	86.6	101.0	115.4	129.9	144.3
30	15.5	30.9	46.4	61.8	77.3	92.8	108.2	123.7	139.1	154.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	356.	611.	767.	1023.	1279.	1534.	1790.	2046.	2301.	2557.
4	511.	1023.	1534.	2046.	2557.	3069.	3580.	4091.	4603.	5114.
6	767.	1534.	2301.	3069.	3836.	4603.	5370.	6137.	6904.	7671.
8	1023.	2046.	3069.	4091.	5114.	6137.	7160.	8183.	9206.	10229.
10	1279.	2557.	3836.	5114.	6393.	7671.	8950.	10229.	11507.	12786.
12	1534.	3069.	4603.	6137.	7671.	9206.	10740.	12274.	13809.	15343.
14	1790.	3560.	5370.	7160.	8950.	10740.	12530.	14320.	16110.	17900.
16	2046.	4091.	6137.	8183.	10229.	12274.	14320.	16366.	18411.	20457.
18	2301.	4603.	6904.	9206.	11507.	13809.	16110.	18411.	20713.	23014.
20	2557.	5114.	7671.	10229.	12786.	15343.	17900.	20457.	23014.	25571.
22	2813.	5626.	8439.	11251.	14064.	16877.	19690.	22503.	25316.	28129.
24	3069.	6137.	9206.	12274.	15343.	18411.	21480.	24549.	27817.	30686.
26	3324.	6649.	9973.	13297.	16621.	19946.	23270.	26594.	29919.	33243.
28	3580.	7160.	10740.	14320.	17900.	21480.	25060.	28640.	32220.	35800.
30	3836.	7671.	11507.	15343.	19179.	23014.	26850.	30686.	34521.	38357.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	309.	618.	927.	1236.	1545.	1854.	2163.	2471.	2780.	3089.
4	618.	1236.	1854.	2471.	3089.	3707.	4325.	4943.	5561.	6179.
6	927.	1854.	2780.	3707.	4634.	5561.	6488.	7414.	8341.	9268.
8	1236.	2471.	3707.	4943.	6179.	7414.	8650.	9886.	11122.	12357.
10	1545.	3089.	4634.	6179.	7723.	9268.	10813.	12357.	13902.	15447.
12	1854.	3707.	5561.	7414.	9268.	11122.	12975.	14829.	16685.	18536.
14	2163.	4325.	6488.	8650.	10813.	12975.	15138.	17309.	19463.	21626.
16	2471.	4943.	7414.	9886.	12357.	14829.	17309.	19778.	22243.	24716.
18	2780.	5561.	8341.	11122.	13802.	16663.	19463.	22243.	25024.	27804.
20	3089.	6179.	9268.	12357.	15447.	18536.	21626.	24716.	27804.	30894.
22	3398.	6797.	10195.	13802.	16663.	20390.	23789.	27168.	30685.	33983.
24	3707.	7414.	11122.	14829.	18536.	22243.	25951.	29668.	33365.	37072.
26	4016.	8032.	12049.	15855.	20061.	24097.	28113.	32129.	36146.	40162.
28	4325.	8650.	12975.	17000.	21626.	26051.	30278.	34801.	38828.	43251.
30	4634.	9268.	13902.	18029.	23179.	27904.	32438.	37472.	41709.	46341.

Indian Springs Aux Field

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.3	4.9	6.6	8.2	9.8	11.5	13.1	14.7	16.4
4	3.3	6.6	9.8	13.1	16.4	19.7	22.9	26.2	29.5	32.8
6	4.9	9.8	14.7	19.7	24.6	29.5	34.4	39.3	44.2	49.2
8	6.6	13.1	19.7	26.2	32.8	39.3	45.9	52.4	59.0	65.5
10	8.2	16.4	24.6	32.8	41.0	49.2	57.4	65.5	73.7	81.9
12	9.8	19.7	29.5	39.3	49.2	59.0	68.8	78.7	88.5	98.3
14	11.5	22.9	34.4	45.9	57.4	68.8	80.3	91.8	103.2	114.7
16	13.1	26.2	39.3	52.4	65.5	78.7	91.8	104.9	118.0	131.1
18	14.7	29.5	44.2	59.0	73.7	88.5	103.2	118.0	132.7	147.5
20	16.4	32.8	49.2	65.5	81.9	98.3	114.7	131.1	147.5	163.9
22	18.0	36.0	54.1	72.1	90.1	108.1	126.2	144.2	162.2	180.2
24	19.7	39.3	59.0	78.7	98.3	118.0	137.6	157.3	177.0	196.6
26	21.3	42.6	63.9	85.2	106.5	127.8	149.1	170.4	191.7	213.0
28	22.9	45.9	68.8	91.8	114.7	137.6	160.6	183.5	206.5	229.4
30	24.6	49.2	73.7	98.3	122.9	147.5	172.1	195.6	221.2	245.8

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	186.	376.	565.	753.	941.	1129.	1317.	1506.	1694.	1882.
4	376.	753.	1129.	1506.	1882.	2258.	2634.	3011.	3387.	3764.
6	565.	1129.	1694.	2258.	2823.	3387.	3952.	4516.	5081.	5645.
8	753.	1506.	2258.	3011.	3764.	4516.	5269.	6022.	6774.	7527.
10	941.	1882.	2823.	3764.	4704.	5645.	6586.	7527.	8468.	9409.
12	1129.	2258.	3387.	4516.	5645.	6774.	7903.	9032.	10162.	11291.
14	1317.	2634.	3952.	5269.	6586.	7903.	9221.	10538.	11855.	13172.
16	1506.	3011.	4516.	6022.	7527.	9032.	10538.	12043.	13549.	15054.
18	1694.	3387.	5081.	6774.	8488.	10162.	11855.	13549.	15242.	16936.
20	1882.	3764.	5645.	7527.	9409.	11291.	13172.	15054.	16936.	18818.
22	2070.	4140.	6210.	8280.	10360.	12440.	14490.	16580.	18630.	20699.
24	2258.	4516.	6774.	9032.	11291.	13549.	15807.	18065.	20323.	22581.
26	2446.	4893.	7339.	9786.	12232.	14678.	17124.	19570.	22017.	24463.
28	2634.	5269.	7903.	10538.	13172.	15807.	18441.	21076.	23710.	26345.
30	2823.	5645.	8468.	11291.	14112.	16936.	19739.	22581.	25404.	28227.

TROUGH WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	274.	548.	823.	1098.	1372.	1646.	1921.	2196.	2470.	2744.
4	548.	1098.	1646.	2196.	2744.	3292.	3842.	4391.	4939.	5488.
6	823.	1646.	2470.	3292.	4116.	4939.	5763.	6586.	7409.	8232.
8	1098.	2196.	3292.	4391.	5488.	6586.	7684.	8781.	9878.	10977.
10	1372.	2744.	4116.	5488.	6860.	8232.	9604.	10977.	12349.	13721.
12	1646.	3292.	4939.	6586.	8232.	9878.	11555.	13172.	14818.	16465.
14	1921.	3842.	5763.	7684.	9604.	11555.	13446.	15357.	17338.	19339.
16	2196.	4391.	6586.	8781.	10977.	13172.	15357.	17662.	19768.	21963.
18	2470.	4939.	7409.	9878.	12349.	14818.	17338.	19768.	22339.	24707.
20	2744.	5488.	8232.	10977.	13721.	16465.	19339.	21963.	24707.	27441.
22	3018.	6037.	9095.	12349.	15357.	18111.	21135.	24148.	27367.	30185.
24	3292.	6586.	9878.	13721.	16465.	19768.	22911.	26344.	29897.	32929.
26	3567.	7135.	10661.	15093.	17797.	21394.	24772.	28539.	32369.	35673.
28	3842.	7684.	11444.	16465.	19339.	22911.	26344.	30734.	34878.	38418.
30	4116.	8232.	12227.	17837.	20881.	24428.	27915.	32889.	37387.	41163.

Indian Springs Aux Field

SQ FT (x 1000)	ANNUAL SOLAR CONTRIBUTION--WNH(MBTU's)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.5	6.7	9.0	11.2	13.5	15.7	18.0	20.2	22.5
4	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	44.9
6	6.7	13.5	20.2	27.0	33.7	40.5	47.2	53.9	60.7	67.4
8	9.0	18.0	27.0	36.0	44.9	53.9	62.9	71.9	80.9	89.9
10	11.2	22.5	33.7	44.9	56.2	67.4	78.7	89.9	101.1	112.4
12	13.5	27.0	40.5	53.9	67.4	80.9	94.4	107.9	121.4	134.8
14	15.7	31.5	47.2	62.9	78.7	94.4	110.1	125.8	141.6	157.3
16	18.0	36.0	53.9	71.9	89.9	107.9	125.8	143.8	161.8	179.8
18	20.2	40.5	60.7	80.9	101.1	121.4	141.6	161.8	182.0	202.3
20	22.5	44.9	67.4	89.9	112.4	134.8	157.3	179.8	202.3	224.7
22	24.7	49.4	74.2	98.9	125.8	148.3	173.0	197.8	222.5	247.2
24	27.0	53.9	80.9	107.9	134.8	161.8	188.8	215.7	242.7	269.7
26	29.2	58.4	87.6	116.9	146.1	175.3	204.5	233.7	262.9	292.1
28	31.5	62.9	94.4	125.8	157.3	188.8	220.2	251.7	283.2	314.6
30	33.7	67.4	101.1	134.8	168.6	202.3	236.0	269.7	303.4	337.1

SQ FT (x 1000)	DIRECT GAIN DIFFERENTIAL COST--WNH(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	394.	788.	1183.	1577.	1971.	2365.	2759.	3073.	3458.	3842.
4	788.	1577.	2365.	3073.	3842.	4610.	5378.	6147.	6915.	7683.
6	1183.	2365.	3458.	4610.	5763.	6915.	8068.	9220.	10373.	11525.
8	1577.	3073.	4610.	6147.	7683.	9220.	10757.	12293.	13830.	15367.
10	1971.	3842.	5763.	7683.	9604.	11525.	13446.	15367.	17288.	19209.
12	2365.	4610.	6915.	9220.	11525.	13830.	16135.	18440.	20745.	23050.
14	2759.	5378.	8068.	10757.	13446.	16135.	18824.	21514.	24203.	26892.
16	3073.	6147.	9220.	12293.	15367.	18440.	21514.	24667.	27660.	30734.
18	3458.	6915.	10373.	13830.	17288.	20745.	24203.	27660.	31118.	34575.
20	3842.	7683.	11525.	15367.	19209.	23050.	26892.	30734.	34575.	38417.
22	4226.	8452.	12678.	16903.	21129.	25355.	29581.	33807.	38033.	42259.
24	4610.	9220.	13830.	18440.	23050.	27660.	32270.	36660.	41490.	46100.
26	4994.	9989.	14983.	19977.	24971.	29985.	34959.	39954.	44948.	49942.
28	5378.	10757.	16135.	21514.	26892.	32270.	37649.	43027.	48408.	53784.
30	5763.	11525.	17288.	23050.	28813.	34875.	40338.	46100.	51863.	57626.

SQ FT (x 1000)	TROMBE WALL DIFFERENTIAL COST--WNH(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	470.	941.	1411.	1882.	2352.	2822.	3293.	3763.	4234.	4704.
4	941.	1882.	2822.	3763.	4704.	5645.	6586.	7527.	8467.	9408.
6	1411.	2822.	4234.	5645.	7056.	8467.	9879.	11290.	12701.	14112.
8	1882.	3763.	5645.	7527.	9408.	11290.	13171.	15053.	16935.	18816.
10	2352.	4704.	7056.	9408.	11760.	14112.	16464.	18816.	21168.	23520.
12	2822.	5645.	8467.	11290.	14112.	16935.	19757.	22660.	25408.	28294.
14	3293.	6586.	9879.	13171.	16464.	19757.	23060.	26343.	29338.	32288.
16	3763.	7527.	11290.	15053.	18816.	22660.	26343.	30106.	33666.	37333.
18	4234.	8467.	12701.	16935.	21168.	25408.	29338.	33666.	38163.	42337.
20	4704.	9408.	14112.	18816.	23520.	28224.	33666.	37633.	42337.	47041.
22	5174.	10349.	15523.	20698.	25972.	31047.	36221.	41386.	46570.	51745.
24	5645.	11290.	16935.	22890.	28224.	33666.	39514.	45108.	50004.	56449.
26	6115.	12231.	18346.	24461.	30976.	36988.	42907.	48832.	53438.	61153.
28	6586.	13171.	19757.	26032.	33228.	39514.	46100.	52008.	56871.	65857.
30	7056.	14112.	21168.	27603.	35470.	42272.	49440.	55440.	60305.	70561.

Keesler AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	3.9	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.0	12.6	14.2	15.8
6	2.4	4.7	7.1	9.5	11.8	14.2	16.6	18.9	21.3	23.6
8	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5
10	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.5	39.4
12	4.7	9.5	14.2	18.9	23.6	28.4	33.1	37.8	42.6	47.3
14	5.5	11.0	16.6	22.1	27.6	33.1	38.6	44.1	49.7	55.2
16	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.7	63.0
18	7.1	14.2	21.3	28.4	35.5	42.6	49.7	56.7	63.8	70.9
20	7.9	15.8	23.6	31.5	39.4	47.3	55.2	63.0	70.9	78.8
22	8.7	17.3	26.0	34.7	43.3	52.0	60.7	69.4	78.0	86.7
24	9.5	18.9	28.4	37.8	47.3	56.7	66.2	75.7	85.1	94.6
26	10.2	20.5	30.7	41.0	51.2	61.5	71.7	82.0	92.2	102.5
28	11.0	22.1	33.1	44.1	55.2	66.2	77.2	88.3	99.3	110.3
30	11.8	23.6	35.5	47.3	59.1	70.9	82.8	94.6	106.4	118.2

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	132	263	395	528	660	792	921	1052	1184	1315
4	263	528	792	1052	1315	1578	1841	2104	2367	2630
6	395	792	1184	1578	1973	2367	2762	3156	3551	3945
8	528	1052	1578	2104	2630	3156	3682	4208	4734	5260
10	660	1315	1973	2630	3256	3945	4603	5260	5918	6575
12	792	1578	2367	3156	3945	4734	5523	6312	7101	7890
14	921	1841	2762	3652	4603	5523	6444	7364	8285	9205
16	1052	2104	3156	4208	5260	6312	7364	8416	9468	10520
18	1184	2367	3551	4734	5918	7101	8285	9468	10652	11835
20	1315	2630	3945	5260	6575	7890	9205	10520	11835	13150
22	1447	2893	4340	5786	7233	8679	10126	11572	13019	14465
24	1578	3156	4734	6312	7890	9468	11046	12624	14202	15780
26	1710	3419	5129	6838	8548	10337	11987	13678	15386	17095
28	1841	3682	5523	7364	9205	11046	12867	14728	16569	18411
30	1973	3945	5918	7890	9829	11835	13808	15760	17753	19726

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	184	368	552	736	921	1106	1290	1473	1657	1841
4	368	736	1106	1473	1841	2209	2578	2946	3314	3682
6	552	1106	1657	2209	2762	3314	3866	4419	4971	5523
8	736	1473	2209	2946	3682	4419	5156	5892	6628	7365
10	921	1841	2762	3682	4603	5523	6444	7364	8285	9205
12	1106	2209	3314	4419	5523	6628	7733	8838	9942	11047
14	1290	2578	3866	5156	6444	7733	9022	10311	11600	12889
16	1473	2946	4419	5892	7364	8838	10311	11783	13256	14729
18	1657	3314	4971	6628	8205	9679	11152	12624	14097	15570
20	1841	3682	5523	7364	9205	11047	12867	14728	16569	18411
22	2025	4051	6079	8101	10126	12152	14177	16202	18227	20253
24	2209	4419	6628	8838	11047	13256	15406	17578	19650	21704
26	2393	4787	7181	9574	11968	14351	16729	19148	21842	23335
28	2578	5156	7733	10311	12889	15499	18043	20681	23169	24776
30	2762	5523	8285	11047	13808	16673	19373	22204	24696	26217

Keesler AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.2	9.3	10.3
4	2.1	4.1	6.2	8.2	10.3	12.4	14.4	16.5	18.6	20.6
6	3.1	6.2	9.3	12.4	15.5	18.6	21.6	24.7	27.8	30.9
8	4.1	8.2	12.4	16.5	20.6	24.7	28.9	33.0	37.1	41.2
10	5.2	10.3	15.5	20.6	25.8	30.9	36.1	41.2	46.4	51.5
12	6.2	12.4	18.6	24.7	30.9	37.1	43.3	49.5	55.7	61.8
14	7.2	14.4	21.6	28.9	36.1	43.3	50.5	57.7	64.9	72.1
16	8.2	16.5	24.7	33.0	41.2	49.5	57.7	66.0	74.2	82.4
18	9.3	18.6	27.8	37.1	46.4	55.7	64.9	74.2	83.5	92.8
20	10.3	20.6	30.9	41.2	51.5	61.8	72.1	82.4	92.8	103.1
22	11.3	22.7	34.0	45.3	56.7	68.0	79.4	90.7	102.0	113.4
24	12.4	24.7	37.1	49.5	61.8	74.2	86.6	98.9	111.3	123.7
26	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.6	134.0
28	14.4	28.9	43.3	57.7	72.1	86.6	101.0	115.4	129.9	144.3
30	15.5	30.9	46.4	61.8	77.3	92.8	108.2	123.7	139.1	154.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	261.	502.	763.	1004.	1265.	1506.	1758.	2009.	2260.	2511.
4	602.	1004.	1506.	2009.	2611.	3013.	3515.	4017.	4519.	5022.
6	763.	1506.	2260.	3013.	3766.	4519.	5273.	6026.	6779.	7532.
8	1004.	2009.	3013.	4017.	5022.	6026.	7030.	8034.	9039.	10043.
10	1265.	2511.	3766.	5022.	6277.	7532.	8788.	10043.	11299.	12554.
12	1506.	3013.	4519.	6026.	7532.	9039.	10545.	12052.	13558.	15065.
14	1758.	3515.	5273.	7030.	8788.	10545.	12303.	14060.	15818.	17575.
16	2009.	4017.	6026.	8034.	10043.	12052.	14060.	16069.	18077.	20086.
18	2260.	4519.	6779.	9039.	11299.	13558.	15818.	18076.	20337.	22597.
20	2511.	5022.	7532.	10043.	12554.	15065.	17575.	20086.	22597.	25108.
22	2762.	5524.	8286.	11047.	13609.	16571.	19333.	22095.	24857.	27619.
24	3013.	6026.	9039.	12052.	15065.	18078.	21091.	24103.	27116.	30129.
26	3264.	6528.	9792.	13056.	16380.	19584.	22848.	26112.	29376.	32640.
28	3515.	7030.	10545.	14060.	17575.	21091.	24606.	28121.	31636.	35151.
30	3766.	7532.	11299.	15065.	18531.	22597.	26363.	30129.	33896.	37662.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	304.	607.	911.	1216.	1518.	1822.	2126.	2430.	2733.	3037.
4	607.	1215.	1822.	2430.	3037.	3644.	4252.	4859.	5466.	6074.
6	911.	1822.	2733.	3644.	4555.	5466.	6377.	7289.	8200.	9111.
8	1215.	2430.	3644.	4859.	6074.	7289.	8503.	9718.	10933.	12148.
10	1518.	3037.	4555.	6074.	7592.	9111.	10629.	12148.	13666.	15185.
12	1822.	3644.	5466.	7289.	9111.	10933.	12755.	14577.	16399.	18221.
14	2126.	4252.	6377.	8503.	10629.	12755.	14881.	17007.	19132.	21256.
16	2430.	4859.	7289.	9718.	12148.	14577.	17007.	19436.	21665.	24295.
18	2733.	5466.	8200.	10933.	13666.	16399.	19132.	21866.	24699.	27332.
20	3037.	6074.	9111.	12148.	15185.	18221.	21255.	24295.	27332.	30369.
22	3341.	6681.	10022.	13362.	16703.	20044.	23384.	26725.	30065.	33406.
24	3644.	7289.	10933.	14577.	18221.	21866.	25610.	29164.	32799.	36443.
26	3948.	7896.	11844.	15792.	19749.	23688.	27636.	31664.	35332.	39480.
28	4252.	8503.	12755.	17007.	21267.	25610.	29762.	34013.	38265.	42517.
30	4555.	9111.	13666.	18221.	22777.	27332.	31667.	36443.	40899.	45554.

Kelly AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.5	1.6	2.4	3.2	4.0	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7	14.2	15.8
6	2.4	4.7	7.1	9.5	11.9	14.2	16.6	19.0	21.4	23.7
8	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
10	4.0	7.9	11.9	15.8	19.8	23.7	27.7	31.7	35.6	39.6
12	4.7	9.5	14.2	19.0	23.7	28.5	33.2	38.0	42.7	47.5
14	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
16	6.3	12.7	19.0	25.3	31.7	38.0	44.3	50.6	57.0	63.3
18	7.1	14.2	21.4	28.5	35.6	42.7	49.9	57.0	64.1	71.2
20	7.9	15.8	23.7	31.7	39.6	47.5	55.4	63.3	71.2	79.1
22	8.7	17.4	26.1	34.8	43.5	52.2	60.9	69.6	78.3	87.0
24	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
26	10.3	20.6	30.9	41.1	51.4	61.7	72.0	82.3	92.6	102.9
28	11.1	22.2	33.2	44.3	55.4	66.5	77.5	88.6	99.7	110.8
30	11.9	23.7	35.6	47.5	59.3	71.2	83.1	95.0	106.8	118.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	130.	259.	389.	518.	648.	777.	907.	1036.	1166.	1296.
4	259.	518.	777.	1036.	1296.	1555.	1814.	2073.	2332.	2591.
6	389.	777.	1166.	1555.	1943.	2332.	2721.	3109.	3498.	3887.
8	518.	1036.	1555.	2073.	2591.	3109.	3628.	4146.	4664.	5182.
10	648.	1296.	1943.	2591.	3239.	3887.	4535.	5182.	5830.	6478.
12	777.	1555.	2332.	3109.	3887.	4664.	5442.	6219.	6996.	7774.
14	907.	1814.	2721.	3628.	4535.	5442.	6348.	7255.	8162.	9069.
16	1036.	2073.	3109.	4146.	5182.	6219.	7255.	8292.	9328.	10365.
18	1166.	2332.	3498.	4664.	5830.	6996.	8162.	9328.	10494.	11660.
20	1296.	2591.	3887.	5182.	6478.	7774.	9069.	10365.	11660.	12956.
22	1425.	2850.	4278.	5701.	7125.	8551.	9976.	11401.	12827.	14252.
24	1555.	3109.	4664.	6219.	7774.	9328.	10883.	12438.	13993.	15547.
26	1684.	3369.	5053.	6737.	8421.	10106.	11790.	13474.	15159.	16843.
28	1814.	3628.	5442.	7255.	9069.	10863.	12667.	14511.	16325.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13504.	15547.	17491.	19434.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	162.	365.	547.	730.	912.	1095.	1277.	1460.	1643.	1826.
4	365.	730.	1095.	1460.	1825.	2189.	2554.	2919.	3284.	3649.
6	547.	1095.	1642.	2189.	2737.	3284.	3831.	4378.	4925.	5474.
8	730.	1460.	2189.	2919.	3649.	4379.	5109.	5838.	6568.	7298.
10	912.	1825.	2737.	3649.	4561.	5474.	6386.	7298.	8210.	9123.
12	1095.	2189.	3284.	4379.	5474.	6568.	7663.	8758.	9852.	10947.
14	1277.	2554.	3831.	5109.	6386.	7663.	8940.	10217.	11494.	12772.
16	1460.	2919.	4379.	5838.	7298.	8758.	10217.	11677.	13136.	14596.
18	1643.	3284.	4925.	6568.	8210.	9862.	11494.	13136.	14779.	16421.
20	1826.	3649.	5474.	7298.	9123.	10947.	12772.	14596.	16421.	18245.
22	2007.	4014.	6021.	8028.	10035.	12042.	14049.	16056.	18063.	20070.
24	2189.	4379.	6568.	8758.	10947.	13136.	15325.	17515.	19705.	21864.
26	2372.	4744.	7118.	9487.	11856.	14231.	16803.	18973.	21347.	23719.
28	2554.	5109.	7663.	10217.	12772.	15325.	17889.	20434.	23000.	25543.
30	2737.	5474.	8210.	10947.	13584.	16421.	19167.	21994.	24651.	27367.

Kelly AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.7	10.7
4	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.2	19.3	21.5
6	3.2	6.4	9.7	12.9	16.1	19.3	22.6	25.8	29.0	32.2
8	4.3	8.6	12.9	17.2	21.5	25.8	30.1	34.4	38.7	43.0
10	5.4	10.7	16.1	21.5	26.8	32.2	37.6	43.0	48.3	53.7
12	6.4	12.9	19.3	25.8	32.2	38.7	45.1	51.5	58.0	64.4
14	7.5	15.0	22.6	30.1	37.6	45.1	52.6	60.1	67.7	75.2
16	8.6	17.2	25.8	34.4	43.0	51.5	60.1	68.7	77.3	85.9
18	9.7	19.3	29.0	38.7	48.3	58.0	67.7	77.3	87.0	96.6
20	10.7	21.5	32.2	43.0	53.7	64.4	75.2	85.9	96.6	107.4
22	11.8	23.6	35.4	47.3	59.1	70.9	82.7	94.5	106.3	118.1
24	12.9	25.8	38.7	51.5	64.4	77.3	90.2	103.1	116.0	128.9
26	14.0	27.9	41.9	55.8	69.8	83.8	97.7	111.7	125.6	139.6
28	15.0	30.1	45.1	60.1	75.2	90.2	105.2	120.3	135.3	150.3
30	16.1	32.2	48.3	64.4	80.5	95.6	112.8	128.9	145.0	161.1

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	250.	500.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
4	500.	999.	1499.	1998.	2498.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4496.	5245.	5994.	6744.	7493.
8	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8991.	9991.
10	1249.	2498.	3746.	4995.	6244.	7493.	8742.	9991.	11239.	12488.
12	1499.	2997.	4496.	5994.	7493.	8992.	10490.	11989.	13487.	14986.
14	1748.	3497.	5245.	6993.	8742.	10490.	12238.	13987.	15735.	17484.
16	1998.	3996.	5994.	7992.	9991.	11989.	13987.	15985.	17983.	19981.
18	2248.	4496.	6744.	8992.	11239.	13487.	15735.	17983.	20231.	22479.
20	2498.	4995.	7493.	9991.	12488.	14986.	17484.	19981.	22479.	24977.
22	2747.	5495.	8242.	10990.	13737.	16484.	19232.	21979.	24727.	27474.
24	2997.	5994.	8992.	11989.	14986.	17983.	20980.	23977.	26975.	29972.
26	3247.	6494.	9741.	12988.	16235.	19482.	22729.	25976.	29223.	32469.
28	3497.	6993.	10490.	13987.	17484.	20980.	24477.	27974.	31470.	34967.
30	3746.	7493.	11239.	14986.	18732.	22478.	26225.	29972.	33718.	37465.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303.	606.	909.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	606.	1211.	1816.	2421.	3027.	3632.	4237.	4842.	5448.	6053.
6	909.	1816.	2724.	3632.	4540.	5448.	6356.	7264.	8172.	9080.
8	1211.	2421.	3632.	4842.	6053.	7264.	8474.	9685.	10896.	12106.
10	1513.	3027.	4540.	6053.	7566.	9080.	10593.	12106.	13619.	15133.
12	1816.	3632.	5448.	7264.	9080.	10896.	12712.	14527.	16343.	18159.
14	2119.	4237.	6356.	8474.	10593.	12712.	14530.	16949.	19067.	21186.
16	2421.	4842.	7264.	9685.	12106.	14527.	16949.	19370.	21791.	24212.
18	2724.	5448.	8172.	10896.	13619.	16343.	19067.	21791.	24515.	27239.
20	3027.	6053.	9080.	12106.	15133.	18159.	21186.	24212.	27239.	30265.
22	3329.	6658.	9988.	13317.	16646.	19673.	23304.	26834.	29953.	33292.
24	3632.	7264.	10896.	14527.	18159.	21791.	25423.	29055.	32887.	36318.
26	3935.	7869.	11804.	15738.	19673.	23607.	27542.	31478.	35411.	38345.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33997.	38135.	42372.
30	4540.	9080.	13619.	18159.	22699.	27542.	31779.	36519.	40659.	45398.

Kirtland AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.5	6.7	9.0	11.2	13.4	15.7	17.9	20.2	22.4
4	4.5	9.0	13.4	17.9	22.4	26.9	31.4	35.8	40.3	44.8
6	6.7	13.4	20.2	26.9	33.6	40.3	47.0	53.8	60.5	67.2
8	9.0	17.9	26.9	35.8	44.8	53.8	62.7	71.7	80.7	89.6
10	11.2	22.4	33.6	44.8	56.0	67.2	78.4	89.6	100.8	112.0
12	13.4	26.9	40.3	53.8	67.2	80.7	94.1	107.5	121.0	134.4
14	15.7	31.4	47.0	62.7	78.4	94.1	109.8	125.5	141.1	156.8
16	17.9	35.8	53.8	71.7	89.6	107.5	125.5	143.4	161.3	179.2
18	20.2	40.3	60.5	80.7	100.8	121.0	141.1	161.3	181.5	201.6
20	22.4	44.8	67.2	89.6	112.0	134.4	156.8	179.2	201.6	224.0
22	24.6	49.3	73.9	98.6	123.2	147.9	172.5	197.2	221.6	246.4
24	26.9	53.8	80.7	107.5	134.4	161.3	188.2	215.1	242.0	*****
26	29.1	58.3	87.4	116.5	145.6	174.8	203.9	233.0	262.1	*****
28	31.4	62.7	94.1	125.5	156.8	188.2	219.6	250.9	*****	*****
30	33.6	67.2	100.8	134.4	168.0	201.6	235.2	268.9	*****	*****

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	250.	499.	749.	998.	1248.	1497.	1747.	1996.	2246.	2495.
4	499.	998.	1497.	1996.	2495.	2994.	3493.	3992.	4491.	4990.
6	749.	1497.	2246.	2994.	3743.	4491.	5240.	5989.	6737.	7486.
8	998.	1996.	2994.	3992.	4990.	5989.	6987.	7985.	8983.	9981.
10	1248.	2495.	3743.	4990.	6238.	7486.	8733.	9981.	11228.	12476.
12	1497.	2994.	4491.	5989.	7486.	8983.	10480.	11977.	13474.	14971.
14	1747.	3493.	5240.	6987.	8733.	10480.	12227.	13973.	15720.	17466.
16	1996.	3992.	5989.	7985.	9981.	11977.	13973.	15969.	17966.	19962.
18	2246.	4491.	6737.	8983.	11228.	13474.	15720.	17966.	20211.	22457.
20	2495.	4990.	7486.	9981.	12476.	14971.	17466.	19962.	22457.	24952.
22	2745.	5489.	8234.	10979.	15724.	18468.	19813.	21358.	24703.	27447.
24	2994.	5988.	8983.	11977.	14971.	17966.	20960.	23954.	26948.	*****
26	3244.	6488.	9731.	12975.	16219.	19463.	22706.	25950.	29194.	*****
28	3493.	6987.	10480.	13973.	17466.	20960.	24453.	27946.	*****	*****
30	3743.	7486.	11228.	14971.	18714.	22457.	26200.	29243.	*****	*****

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	347.	693.	1040.	1387.	1733.	2080.	2427.	2774.	3120.	3467.
4	693.	1387.	2080.	2774.	3467.	4160.	4854.	5547.	6240.	6934.
6	1040.	2080.	3120.	4160.	5200.	6240.	7280.	8321.	9361.	10401.
8	1387.	2774.	4160.	5547.	6934.	8321.	9707.	11094.	12481.	13868.
10	1733.	3467.	5200.	6934.	8667.	10401.	12134.	13868.	15601.	17334.
12	2080.	4160.	6240.	8321.	10401.	12481.	14561.	16641.	18721.	20801.
14	2427.	4854.	7280.	9707.	11974.	14461.	16961.	19461.	21961.	24461.
16	2774.	5547.	8321.	11094.	13698.	16641.	19415.	22168.	24968.	27736.
18	3120.	6240.	9361.	12481.	15501.	18721.	21441.	24468.	27488.	31202.
20	3467.	6934.	10401.	13868.	17334.	20901.	24668.	27968.	31488.	34668.
22	3814.	7627.	11441.	15554.	19248.	23061.	27068.	30368.	34268.	38136.
24	4160.	8321.	12481.	16443.	20601.	24668.	29168.	33068.	37448.	*****
26	4507.	9014.	13661.	17968.	22336.	27042.	31648.	35068.	39268.	*****
28	4854.	9707.	14861.	19415.	24468.	29468.	33768.	37668.	42068.	*****
30	5200.	10401.	16261.	20961.	26668.	31868.	36068.	41068.	*****	*****

Kirtland AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.6	7.1	10.7	14.2	17.8	21.3	24.9	28.4	32.0	35.5
4	7.1	14.2	21.3	28.4	35.5	42.6	49.8	56.9	64.0	71.1
6	10.7	21.3	32.0	42.6	53.3	64.0	74.6	85.3	96.0	106.6
8	14.2	28.4	42.6	56.9	71.1	85.3	99.5	113.7	127.9	142.2
10	17.8	35.5	53.3	71.1	88.8	106.6	124.4	142.2	159.9	177.7
12	21.3	42.6	64.0	85.3	106.6	127.9	149.3	170.6	191.9	213.2
14	24.9	49.8	74.6	99.5	124.4	149.3	174.1	199.0	223.9	248.8
16	28.4	56.9	85.3	113.7	142.2	170.6	199.0	227.4	256.9	284.3
18	32.0	64.0	96.0	127.9	159.9	191.9	223.9	256.9	287.9	319.8
20	35.5	71.1	106.6	142.2	177.7	213.2	248.8	284.3	319.8	356.4
22	39.1	78.2	117.3	156.4	195.5	234.5	273.6	312.7	351.8	390.9
24	42.6	85.3	127.9	170.6	213.2	255.9	298.5	341.2	383.8	*****
26	46.2	92.4	138.6	184.8	231.0	277.2	323.4	369.6	415.8	*****
28	49.8	99.5	149.3	199.0	248.8	296.5	348.3	398.0	*****	*****
30	53.3	106.6	159.9	213.2	266.5	319.8	373.1	426.5	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	470.	941.	1411.	1881.	2352.	2822.	3293.	3763.	4233.	4704.
4	941.	1881.	2822.	3763.	4704.	5644.	6585.	7526.	8466.	9407.
6	1411.	2822.	4233.	5644.	7055.	8466.	9878.	11289.	12700.	14111.
8	1881.	3763.	5644.	7526.	9407.	11289.	13170.	15051.	16933.	18814.
10	2352.	4704.	7055.	9407.	11759.	14111.	16463.	18814.	21166.	23518.
12	2822.	5644.	8466.	11289.	14111.	16933.	19755.	22577.	25399.	28221.
14	3293.	6585.	9878.	13170.	16463.	19755.	23048.	26340.	29633.	32925.
16	3763.	7526.	11289.	15051.	18814.	22577.	26340.	30103.	33866.	37629.
18	4233.	8466.	12700.	16933.	21166.	25399.	29633.	33866.	38099.	42332.
20	4704.	9407.	14111.	18814.	23518.	28221.	32925.	37629.	42332.	47036.
22	5174.	10348.	15522.	20666.	25870.	31044.	36218.	41391.	46565.	51739.
24	5644.	11289.	16933.	22577.	28221.	33866.	39610.	45154.	50799.	*****
26	6115.	12229.	18344.	24459.	30573.	36668.	42803.	48917.	55032.	*****
28	6585.	13170.	19755.	26340.	32923.	39510.	46095.	52880.	*****	*****
30	7055.	14111.	21166.	28221.	35277.	42332.	49388.	55443.	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	608.	1136.	1703.	2270.	2838.	3405.	3973.	4540.	5108.	5675.
4	1136.	2270.	3405.	4540.	5675.	6810.	7945.	9080.	10215.	11361.
6	1703.	3405.	5108.	6810.	8513.	10215.	11918.	13621.	15323.	17026.
8	2270.	4540.	6810.	9080.	11361.	13641.	15921.	18201.	20481.	22761.
10	2838.	5675.	8513.	11361.	14188.	17036.	19884.	22732.	25580.	28428.
12	3405.	6810.	10215.	13641.	17036.	20431.	23826.	27221.	30616.	34011.
14	3973.	7945.	11918.	15921.	19884.	23826.	27621.	31416.	35211.	39006.
16	4540.	9080.	13621.	18201.	22732.	27221.	31416.	35211.	39006.	42801.
18	5108.	10215.	15323.	20431.	25580.	30616.	35211.	39006.	42801.	46596.
20	5675.	11361.	17026.	22761.	28428.	34011.	39006.	42801.	46596.	50391.
22	6243.	12506.	18728.	24971.	31211.	37457.	42801.	46596.	50391.	54186.
24	6810.	13641.	20431.	27241.	34052.	40802.	47572.	51482.	55282.	*****
26	7378.	14786.	22133.	29511.	36803.	44303.	51482.	55282.	59077.	*****
28	7945.	15931.	23836.	31761.	39622.	47572.	55282.	59077.	62872.	*****
30	8513.	17076.	25538.	33821.	42441.	51482.	59077.	62872.	66667.	*****

K. L. Sawyer AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	8.8	17.6	26.3	35.1	43.9	52.7	61.5	70.2	79.0	87.8
4	17.6	35.1	52.7	70.2	87.8	105.4	122.9	140.5	158.0	175.6
6	26.3	52.7	79.0	105.4	131.7	158.0	184.4	210.7	*****	*****
8	35.1	70.2	105.4	140.5	175.6	210.7	245.9	*****	*****	*****
10	43.9	87.8	131.7	175.6	219.5	263.4	*****	*****	*****	*****
12	52.7	105.4	158.0	210.7	263.4	*****	*****	*****	*****	*****
14	61.5	122.9	184.4	245.9	307.3	*****	*****	*****	*****	*****
16	70.2	140.5	210.7	281.0	351.2	*****	*****	*****	*****	*****
18	79.0	158.0	237.1	316.1	*****	*****	*****	*****	*****	*****
20	87.8	175.6	263.4	351.2	*****	*****	*****	*****	*****	*****
22	96.6	193.2	289.8	386.3	*****	*****	*****	*****	*****	*****
24	105.4	210.7	316.1	421.5	*****	*****	*****	*****	*****	*****
26	114.1	228.3	342.4	456.6	*****	*****	*****	*****	*****	*****
28	122.9	245.9	368.8	*****	*****	*****	*****	*****	*****	*****
30	131.7	263.4	395.1	*****	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1064.	2107.	3161.	4214.	5268.	6321.	7375.	8428.	9482.	10535.
4	2107.	4214.	6321.	8428.	10535.	12642.	14749.	16856.	18963.	21070.
6	3161.	6321.	9482.	12642.	15803.	18963.	22124.	25284.	*****	*****
8	4214.	8428.	12642.	16856.	21070.	25284.	29498.	*****	*****	*****
10	5268.	10535.	15803.	21070.	26338.	31605.	*****	*****	*****	*****
12	6321.	12642.	18963.	25284.	31605.	*****	*****	*****	*****	*****
14	7375.	14749.	22124.	29498.	36873.	*****	*****	*****	*****	*****
16	8428.	16856.	25284.	33712.	42140.	*****	*****	*****	*****	*****
18	9482.	18963.	28445.	37926.	*****	*****	*****	*****	*****	*****
20	10535.	21070.	31605.	42140.	*****	*****	*****	*****	*****	*****
22	11589.	23177.	34766.	46354.	*****	*****	*****	*****	*****	*****
24	12642.	25284.	37926.	50568.	*****	*****	*****	*****	*****	*****
26	13696.	27391.	41087.	54782.	*****	*****	*****	*****	*****	*****
28	14749.	29498.	44247.	*****	*****	*****	*****	*****	*****	*****
30	15803.	31605.	47408.	*****	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1365.	2730.	4095.	5460.	6825.	8190.	9555.	10920.	12285.	13650.
4	2730.	5460.	8190.	10920.	13650.	16380.	19110.	21840.	24570.	27300.
6	4095.	8190.	12285.	16380.	20475.	24570.	28665.	32760.	*****	*****
8	5460.	10920.	16380.	20475.	24570.	28665.	32760.	36855.	*****	*****
10	6825.	13650.	20475.	24570.	28665.	32760.	*****	*****	*****	*****
12	8190.	16380.	24570.	28665.	32760.	*****	*****	*****	*****	*****
14	9555.	19110.	28665.	32760.	36855.	40950.	*****	*****	*****	*****
16	10920.	21840.	32760.	36855.	40950.	*****	*****	*****	*****	*****
18	12285.	24570.	36855.	40950.	*****	*****	*****	*****	*****	*****
20	13650.	27300.	40950.	45045.	*****	*****	*****	*****	*****	*****
22	15015.	30030.	45045.	49140.	*****	*****	*****	*****	*****	*****
24	16380.	32760.	49140.	53235.	*****	*****	*****	*****	*****	*****
26	17745.	35490.	53235.	57330.	*****	*****	*****	*****	*****	*****
28	19110.	38220.	57330.	61425.	*****	*****	*****	*****	*****	*****
30	20475.	40950.	61425.	65520.	*****	*****	*****	*****	*****	*****

Lackland AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	4.0	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7	14.2	15.8
6	2.4	4.7	7.1	9.5	11.9	14.2	16.6	19.0	21.4	23.7
8	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
10	4.0	7.9	11.9	15.8	19.8	23.7	27.7	31.7	35.6	39.6
12	4.7	9.5	14.2	19.0	23.7	28.5	33.2	38.0	42.7	47.6
14	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
16	6.3	12.7	19.0	25.3	31.7	38.0	44.3	50.6	57.0	63.3
18	7.1	14.2	21.4	28.5	35.6	42.7	49.9	57.0	64.1	71.2
20	7.9	15.8	23.7	31.7	39.6	47.5	55.4	63.3	71.2	78.1
22	8.7	17.4	26.1	34.8	43.5	52.2	60.9	69.6	78.3	87.0
24	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
26	10.3	20.6	30.9	41.1	51.4	61.7	72.0	82.3	92.6	102.9
28	11.1	22.2	33.2	44.3	55.4	66.5	77.5	88.6	98.7	110.8
30	11.9	23.7	35.6	47.5	59.3	71.2	83.1	95.0	106.6	118.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	130.	259.	389.	518.	648.	777.	907.	1036.	1166.	1296.
4	259.	518.	777.	1036.	1296.	1555.	1814.	2073.	2332.	2591.
6	389.	777.	1166.	1555.	1943.	2332.	2721.	3109.	3498.	3887.
8	518.	1036.	1555.	2073.	2591.	3109.	3628.	4146.	4664.	5182.
10	648.	1296.	1943.	2591.	3239.	3857.	4475.	5093.	5711.	6329.
12	777.	1555.	2332.	3109.	3857.	4664.	5442.	6219.	6996.	7774.
14	907.	1814.	2721.	3628.	4535.	5442.	6348.	7255.	8162.	9069.
16	1036.	2073.	3109.	4146.	5162.	6219.	7255.	8292.	9328.	10365.
18	1166.	2332.	3498.	4664.	5800.	6996.	8162.	9328.	10494.	11660.
20	1296.	2591.	3887.	5182.	6475.	7774.	9069.	10365.	11660.	12956.
22	1425.	2850.	4275.	5701.	7125.	8551.	9976.	11401.	12827.	14252.
24	1555.	3109.	4664.	6219.	7774.	9328.	10853.	12438.	13963.	15547.
26	1684.	3368.	5053.	6737.	8421.	10104.	11790.	13474.	15109.	16843.
28	1814.	3628.	5442.	7255.	9069.	10853.	12597.	14511.	16325.	18139.
30	1943.	3887.	5831.	7774.	9717.	11500.	13204.	15547.	17491.	19434.

TROUGH WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	162.	323.	484.	645.	806.	967.	1127.	1288.	1449.	1610.
4	323.	645.	967.	1288.	1610.	1931.	2252.	2573.	2894.	3215.
6	484.	967.	1449.	2170.	2891.	3612.	4333.	5054.	5775.	6496.
8	645.	1288.	1931.	2891.	3851.	4811.	5771.	6731.	7691.	8651.
10	806.	1610.	2453.	3612.	4811.	6010.	7209.	8408.	9607.	10806.
12	967.	1931.	2891.	4333.	5771.	7209.	8647.	10085.	11523.	12961.
14	1127.	2252.	3451.	5054.	6492.	7930.	9368.	10806.	12244.	13682.
16	1288.	2573.	3851.	5771.	7209.	8647.	10085.	11523.	12961.	14399.
18	1449.	2894.	4275.	6492.	8030.	9568.	11106.	12644.	14182.	15720.
20	1610.	3215.	4696.	7209.	8847.	10485.	12123.	13761.	15399.	17037.
22	1771.	3536.	5117.	8030.	9766.	11504.	13141.	14779.	16417.	18055.
24	1931.	3857.	5538.	8847.	10685.	12523.	14159.	15807.	17435.	19073.
26	2092.	4178.	5959.	9664.	11564.	13501.	15177.	16825.	18453.	20091.
28	2252.	4500.	6380.	10485.	12443.	14483.	16195.	17943.	19471.	21109.
30	2413.	4821.	6801.	11306.	13322.	15364.	17113.	18961.	20489.	22127.

Lackland AFB

ANNUAL SOLAR CONTRIBUTION--WN(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.7	10.7
4	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.2	19.3	21.5
6	3.2	6.4	9.7	12.9	16.1	19.3	22.6	25.8	29.0	32.2
8	4.3	8.6	12.9	17.2	21.5	25.8	30.1	34.4	38.7	43.0
10	5.4	10.7	16.1	21.5	26.8	32.2	37.6	43.0	48.3	53.7
12	6.4	12.9	19.3	25.8	32.2	38.7	45.1	51.5	58.0	64.4
14	7.5	15.0	22.6	30.1	37.6	45.1	52.6	60.1	67.7	75.2
16	8.6	17.2	25.8	34.4	43.0	51.5	60.1	68.7	77.3	85.9
18	9.7	19.3	29.0	38.7	48.3	58.0	67.7	77.3	87.0	96.6
20	10.7	21.5	32.2	43.0	53.7	64.4	75.2	85.9	96.6	107.4
22	11.8	23.6	35.4	47.3	59.1	70.9	82.7	94.5	106.3	118.1
24	12.9	25.8	38.7	51.5	64.4	77.3	90.2	103.1	116.0	128.9
26	14.0	27.9	41.9	55.8	69.8	83.8	97.7	111.7	125.6	139.6
28	15.0	30.1	45.1	60.1	75.2	90.2	106.3	120.3	135.3	150.3
30	16.1	32.2	48.3	64.4	80.5	96.6	112.8	128.9	145.0	161.1

DIRECT GAIN DIFF. (BTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	280.	500.	749.	976.	1249.	1499.	1748.	1998.	2248.	2498.
4	500.	900.	1400.	1900.	2400.	2900.	3400.	3900.	4400.	4900.
6	749.	1400.	2348.	3297.	4246.	4995.	5744.	6493.	7242.	7991.
8	999.	1900.	2900.	3800.	4700.	5600.	6500.	7400.	8300.	9200.
10	1249.	2400.	3748.	4997.	6246.	7495.	8744.	9993.	11242.	12491.
12	1499.	2900.	4400.	5600.	6800.	8000.	9200.	10400.	11600.	12800.
14	1748.	3400.	5146.	6395.	7644.	8893.	10142.	11391.	12640.	13889.
16	1998.	3900.	5894.	7143.	8392.	9641.	10890.	12139.	13388.	14637.
18	2248.	4400.	6744.	8093.	9342.	10591.	11840.	13089.	14338.	15586.
20	2498.	4900.	7693.	9042.	10291.	11540.	12789.	14038.	15287.	16535.
22	2747.	5400.	8642.	10091.	11340.	12589.	13838.	15087.	16236.	17484.
24	2997.	5900.	9591.	11040.	12289.	13538.	14787.	15936.	17185.	18433.
26	3247.	6400.	10540.	12089.	13238.	14487.	15736.	16885.	18134.	19382.
28	3497.	6900.	11489.	13038.	14187.	15236.	16485.	17634.	18883.	20331.
30	3746.	7400.	12438.	14087.	15136.	16185.	17234.	18383.	19632.	21280.

TROUGH WALL DIFFERENTIAL COST--WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	80.	160.	240.	320.	400.	480.	560.	640.	720.	800.
4	160.	320.	480.	640.	800.	960.	1120.	1280.	1440.	1600.
6	240.	480.	720.	960.	1200.	1440.	1680.	1920.	2160.	2400.
8	320.	640.	960.	1280.	1600.	1920.	2240.	2560.	2880.	3200.
10	400.	800.	1200.	1600.	2000.	2400.	2800.	3200.	3600.	4000.
12	480.	960.	1440.	1920.	2400.	2880.	3360.	3840.	4320.	4800.
14	560.	1120.	1680.	2240.	2720.	3200.	3680.	4160.	4640.	5120.
16	640.	1280.	1920.	2560.	3040.	3520.	4000.	4480.	4960.	5440.
18	720.	1440.	2160.	2880.	3360.	3840.	4320.	4800.	5280.	5760.
20	800.	1600.	2400.	3200.	3680.	4160.	4640.	5120.	5600.	6080.
22	880.	1760.	2640.	3520.	4000.	4480.	4960.	5440.	5920.	6400.
24	960.	1920.	2880.	3840.	4320.	4800.	5280.	5760.	6240.	6800.
26	1040.	2080.	3120.	4160.	4640.	5120.	5600.	6080.	6560.	7200.
28	1120.	2240.	3360.	4480.	4960.	5440.	5920.	6400.	6880.	7600.
30	1200.	2400.	3600.	4800.	5280.	5760.	6240.	6720.	7200.	8000.

Langley AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.9	4.3	5.8	7.2	8.7	10.1	11.6	13.0	14.4
4	2.9	5.8	8.7	11.6	14.4	17.3	20.2	23.1	26.0	28.9
6	4.3	8.7	13.0	17.3	21.7	26.0	30.3	34.7	39.0	43.3
8	5.8	11.6	17.3	23.1	28.9	34.7	40.4	46.2	52.0	57.8
10	7.2	14.4	21.7	28.9	36.1	43.3	50.5	57.8	65.0	72.2
12	8.7	17.3	26.0	34.7	43.3	52.0	60.6	69.3	78.0	86.6
14	10.1	20.2	30.3	40.4	50.5	60.6	70.8	80.9	91.0	101.1
16	11.6	23.1	34.7	46.2	57.8	69.3	80.9	92.4	104.0	115.5
18	13.0	26.0	39.0	52.0	65.0	78.0	91.0	104.0	117.0	130.0
20	14.4	28.9	43.3	57.8	72.2	86.6	101.1	115.5	130.0	144.4
22	15.9	31.8	47.7	63.5	78.4	95.3	111.2	127.1	143.0	158.6
24	17.3	34.7	52.0	69.3	86.6	104.0	121.3	138.6	156.0	173.3
26	18.8	37.5	56.3	75.1	93.9	112.6	131.4	150.2	168.0	187.7
28	20.2	40.4	60.6	80.9	101.1	121.3	141.5	161.7	181.9	202.2
30	21.7	43.3	65.0	86.6	106.3	130.0	151.6	173.3	194.9	216.6

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	203.	405.	608.	811.	1013.	1216.	1419.	1622.	1824.	2027.
4	405.	811.	1216.	1622.	2027.	2432.	2838.	3243.	3648.	4054.
6	608.	1216.	1824.	2432.	3040.	3648.	4257.	4865.	5473.	6081.
8	811.	1622.	2432.	3243.	4054.	4865.	5675.	6486.	7297.	8108.
10	1013.	2027.	3040.	4054.	5067.	6081.	7094.	8108.	9121.	10135.
12	1216.	2432.	3648.	4865.	6081.	7297.	8513.	9729.	10945.	12162.
14	1419.	2838.	4257.	5675.	7094.	8513.	9932.	11351.	12770.	14188.
16	1622.	3243.	4865.	6486.	8108.	9729.	11351.	12972.	14594.	16215.
18	1824.	3648.	5473.	7297.	9121.	10945.	12770.	14594.	16418.	18242.
20	2027.	4054.	6081.	8108.	10135.	12162.	14188.	16215.	18242.	20269.
22	2230.	4459.	6689.	8918.	11148.	13378.	15607.	17837.	20067.	22298.
24	2432.	4865.	7297.	9729.	12162.	14594.	17026.	19458.	21891.	24323.
26	2635.	5270.	7905.	10540.	13175.	15810.	18445.	21080.	23715.	26350.
28	2838.	5675.	8513.	11351.	14188.	17026.	19664.	22702.	25539.	28377.
30	3040.	6081.	9121.	12162.	15202.	18242.	21283.	24323.	27363.	30404.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	800.	600.	400.	1110.	1300.	1490.	1680.	2300.	2610.	2700.
4	800.	1110.	1670.	2230.	2790.	3350.	3910.	4470.	5030.	5590.
6	840.	1670.	2510.	3390.	4190.	5090.	5877.	6717.	7555.	8393.
8	1110.	2230.	3390.	4470.	5590.	6717.	7834.	8950.	10075.	11193.
10	1300.	2790.	4190.	5590.	6977.	8393.	9794.	11194.	12594.	13993.
12	1670.	3350.	5090.	6717.	8393.	10075.	11754.	13432.	15112.	16792.
14	1860.	3910.	5877.	7834.	9794.	11754.	13712.	15472.	17331.	19091.
16	2230.	4470.	6717.	8950.	11000.	13000.	15000.	17000.	19000.	21000.
18	2610.	5030.	7834.	10075.	12000.	14000.	16000.	18000.	20000.	22000.
20	2790.	5590.	8950.	11000.	13000.	15000.	17000.	19000.	21000.	23000.
22	3070.	6107.	9932.	12144.	14000.	16000.	18000.	20000.	22000.	24000.
24	3200.	6717.	10945.	13320.	15000.	17000.	19000.	21000.	23000.	25000.
26	3350.	7297.	11945.	14400.	16000.	18000.	20000.	22000.	24000.	26000.
28	3500.	7877.	12945.	15400.	17000.	19000.	21000.	23000.	25000.	27000.
30	3650.	8457.	13945.	16400.	18000.	20000.	22000.	24000.	26000.	28000.

Langley AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.3	4.6	7.0	9.3	11.6	13.9	16.3	18.6	20.9	23.2
4	4.6	9.3	13.9	18.6	23.2	27.9	32.5	37.2	41.8	46.5
6	7.0	13.9	20.9	27.9	34.8	41.8	48.8	55.8	62.7	69.7
8	9.3	18.6	27.9	37.2	46.5	55.8	65.0	74.3	83.6	92.9
10	11.6	23.2	34.8	46.5	58.1	69.7	81.3	92.9	104.5	116.2
12	13.9	27.9	41.8	55.8	69.7	83.6	97.6	111.5	125.4	139.4
14	16.3	32.5	48.8	65.0	81.3	97.6	113.8	130.1	146.3	162.6
16	18.6	37.2	55.8	74.3	92.9	111.5	130.1	148.7	167.3	185.8
18	20.9	41.8	62.7	83.6	104.5	125.4	146.3	167.3	188.2	209.1
20	23.2	46.5	69.7	92.9	116.2	139.4	162.6	185.8	209.1	232.3
22	25.6	51.1	76.7	102.2	127.8	153.3	178.9	204.4	230.0	255.5
24	27.9	55.8	83.6	111.5	139.4	167.3	195.1	223.0	250.9	278.8
26	30.2	60.4	90.6	120.8	151.0	181.2	211.4	241.8	271.8	302.0
28	32.5	65.0	97.6	130.1	162.6	195.1	227.7	260.2	292.7	325.2
30	34.8	69.7	104.5	139.4	174.2	209.1	243.9	278.8	313.8	348.5

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	378.	756.	1134.	1512.	1890.	2269.	2647.	3025.	3403.	3781.
4	756.	1512.	2269.	3025.	3781.	4537.	5293.	6049.	6805.	7562.
6	1134.	2269.	3403.	4537.	5671.	6806.	7940.	9074.	10208.	11343.
8	1512.	3025.	4537.	6049.	7562.	9074.	10586.	12099.	13611.	15123.
10	1890.	3781.	5671.	7562.	9452.	11343.	13233.	15123.	17014.	18904.
12	2269.	4537.	6805.	9074.	11343.	13611.	15880.	18148.	20417.	22685.
14	2647.	5293.	7940.	10586.	13233.	15880.	18526.	21173.	23619.	26466.
16	3025.	6049.	9074.	12099.	15123.	18148.	21173.	24197.	27222.	30247.
18	3403.	6805.	10208.	13611.	17014.	20417.	23619.	27222.	30625.	34028.
20	3781.	7562.	11343.	15123.	18904.	22685.	26466.	30247.	34028.	37808.
22	4159.	8318.	12477.	16638.	20795.	24954.	29112.	33271.	37430.	41609.
24	4537.	9074.	13611.	18148.	22685.	27222.	31758.	36296.	40833.	45370.
26	4915.	9830.	14745.	19890.	24575.	29491.	34403.	39321.	44235.	49151.
28	5293.	10586.	15880.	21173.	26466.	31758.	37052.	42345.	47838.	52932.
30	5671.	11343.	17014.	22685.	28355.	34028.	39698.	45378.	51041.	56713.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	485.	971.	1456.	1942.	2427.	2912.	3397.	3882.	4367.	4853.
4	971.	1942.	2912.	3882.	4853.	5823.	6793.	7763.	8733.	9703.
6	1456.	2912.	4367.	5823.	7279.	8735.	10191.	11647.	13103.	14559.
8	1942.	3882.	5823.	7763.	9703.	11643.	13583.	15523.	17463.	19403.
10	2427.	4853.	7279.	9703.	12127.	14551.	16975.	19399.	21823.	24247.
12	2912.	5823.	8735.	11643.	14551.	17463.	20377.	22801.	25225.	27649.
14	3397.	6793.	10191.	13583.	16475.	19387.	22299.	24723.	27147.	29571.
16	3882.	7763.	11643.	15487.	18387.	21299.	24221.	26645.	29069.	31495.
18	4367.	8733.	13103.	17391.	20299.	23211.	26143.	28567.	30991.	33419.
20	4853.	9703.	14559.	19295.	22211.	25123.	28065.	30489.	32913.	35343.
22	5338.	10673.	16015.	21199.	24123.	27035.	29987.	32411.	34835.	37267.
24	5823.	11643.	17463.	23103.	26035.	28947.	31909.	34333.	36757.	39191.
26	6308.	12613.	18911.	25007.	27947.	30859.	33831.	36255.	38679.	41115.
28	6793.	13583.	20359.	26911.	29859.	32771.	35753.	38177.	40601.	43039.
30	7279.	14551.	21807.	28815.	31771.	34683.	37675.	40099.	42523.	44963.

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.5	3.3	4.1	4.9	5.8	6.6	7.4	8.2
4	1.6	3.3	4.9	6.6	8.2	9.9	11.5	13.2	14.8	16.4
6	2.5	4.9	7.4	9.9	12.3	14.8	17.3	19.7	22.2	24.7
8	3.3	6.6	9.9	13.2	16.4	19.7	23.0	26.3	29.6	32.9
10	4.1	8.2	12.3	16.4	20.6	24.7	28.8	32.9	37.0	41.1
12	4.9	9.9	14.8	19.7	24.7	29.6	34.5	39.5	44.4	49.3
14	5.8	11.5	17.3	23.0	28.8	34.5	40.3	46.1	51.8	57.6
16	6.6	13.2	19.7	26.3	32.9	39.5	46.1	52.6	59.2	65.8
18	7.4	14.8	22.2	29.6	37.0	44.4	51.8	59.2	66.6	74.0
20	8.2	16.4	24.7	32.9	41.1	49.3	57.6	66.6	74.0	82.2
22	9.0	18.1	27.1	36.2	45.2	54.3	63.3	72.4	81.4	90.5
24	9.9	19.7	29.6	39.5	49.3	59.2	69.1	79.0	88.8	98.7
26	10.7	21.4	32.1	42.8	53.5	64.1	74.8	85.5	96.2	106.9
28	11.5	23.0	34.5	46.1	57.6	69.1	80.6	92.1	103.6	115.1
30	12.3	24.7	37.0	49.3	61.7	74.0	85.4	96.7	111.0	123.4

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	190.	380.	570.	760.	948.	1137.	1325.	1514.	1702.	1890.
4	380.	760.	1140.	1520.	1896.	2272.	2648.	3024.	3400.	3776.
6	570.	1140.	1710.	2280.	2856.	3432.	4008.	4584.	5160.	5736.
8	760.	1520.	2280.	3040.	3808.	4576.	5344.	6112.	6880.	7648.
10	948.	1896.	2856.	3808.	4760.	5712.	6664.	7616.	8568.	9520.
12	1137.	2272.	3408.	4544.	5680.	6816.	7952.	9088.	10224.	11360.
14	1325.	2648.	3972.	5296.	6544.	7792.	9040.	10288.	11536.	12784.
16	1514.	3024.	4544.	6112.	7360.	8608.	9856.	11104.	12352.	13600.
18	1702.	3400.	5160.	6880.	8320.	9760.	11200.	12640.	14080.	15520.
20	1890.	3776.	5736.	7648.	9296.	10944.	12592.	14240.	15888.	17536.
22	2078.	4152.	6272.	8320.	10080.	11824.	13568.	15344.	17104.	18816.
24	2266.	4528.	6800.	9040.	10912.	12752.	14544.	16400.	18272.	20000.
26	2454.	4904.	7328.	9760.	11744.	13632.	15536.	17456.	19328.	21184.
28	2642.	5280.	7856.	10480.	12576.	14520.	16528.	18512.	20400.	22368.
30	2830.	5656.	8384.	11200.	13408.	15408.	17520.	19568.	21472.	23552.

THERM WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	182.	364.	547.	729.	912.	1095.	1277.	1460.	1642.	1825.
4	364.	729.	1095.	1460.	1825.	2190.	2554.	2918.	3284.	3648.
6	547.	1095.	1642.	2190.	2737.	3284.	3831.	4378.	4924.	5471.
8	729.	1460.	2190.	2918.	3645.	4372.	5100.	5828.	6556.	7284.
10	912.	1825.	2737.	3645.	4552.	5459.	6366.	7273.	8180.	9087.
12	1095.	2190.	3284.	4372.	5459.	6546.	7633.	8720.	9807.	10894.
14	1277.	2554.	3831.	5100.	6366.	7633.	8900.	10167.	11434.	12701.
16	1460.	2918.	4372.	5828.	7094.	8360.	9626.	10892.	12158.	13424.
18	1642.	3284.	4924.	6556.	7912.	9178.	10444.	11710.	12976.	14240.
20	1825.	3648.	5471.	7284.	8840.	10306.	11772.	13238.	14704.	16170.
22	2007.	4014.	6000.	8040.	9712.	11178.	12644.	14110.	15576.	17040.
24	2190.	4380.	6552.	8760.	10544.	12044.	13510.	14976.	16442.	17910.
26	2372.	4746.	7104.	9480.	11316.	12910.	14376.	15842.	17308.	18780.
28	2554.	5112.	7656.	10200.	12088.	13804.	15242.	16708.	18174.	19650.
30	2737.	5478.	8208.	10920.	12860.	14698.	16108.	17574.	19040.	20520.

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ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.1	3.2	4.3	5.3	6.4	7.5	8.6	9.6	10.7
4	2.1	4.3	6.4	8.6	10.7	12.8	15.0	17.1	19.2	21.4
6	3.2	6.4	9.6	12.8	16.0	19.2	22.5	25.7	28.9	32.1
8	4.3	8.6	12.8	17.1	21.4	25.7	29.9	34.2	38.5	42.8
10	5.3	10.7	16.0	21.4	26.7	32.1	37.4	42.8	48.1	53.5
12	6.4	12.8	19.2	25.7	32.1	38.5	44.9	51.3	57.7	64.1
14	7.5	15.0	22.5	29.9	37.4	44.9	52.4	59.9	67.4	74.8
16	8.6	17.1	25.7	34.2	42.8	51.3	59.9	68.4	77.0	85.5
18	9.6	19.2	28.9	38.5	48.1	57.7	67.4	77.0	86.6	96.2
20	10.7	21.4	32.1	42.8	53.5	64.1	74.8	85.5	96.2	106.9
22	11.8	23.6	35.3	47.0	58.8	70.6	82.3	94.1	106.8	117.6
24	12.8	25.7	38.5	51.3	64.1	77.0	89.8	102.6	115.5	128.3
26	13.9	27.8	41.7	55.6	69.5	83.4	97.3	111.2	125.1	139.0
28	15.0	29.9	44.9	59.9	74.8	89.8	104.8	119.7	134.7	149.7
30	16.0	32.1	48.1	64.1	80.2	95.2	112.3	128.3	144.3	160.4

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	250.	500.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
4	500.	999.	1499.	1998.	2498.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4495.	5245.	5994.	6744.	7493.
8	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8991.	9991.
10	1249.	2498.	3746.	4995.	6244.	7493.	8742.	9991.	11239.	12488.
12	1499.	2997.	4496.	5994.	7493.	8992.	10490.	11989.	13487.	14986.
14	1748.	3497.	5245.	6993.	8742.	10490.	12238.	13987.	15735.	17484.
16	1998.	3996.	5994.	7992.	9991.	11989.	13987.	15985.	17983.	19981.
18	2248.	4496.	6744.	8992.	11239.	13487.	15735.	17983.	20231.	22479.
20	2498.	4995.	7493.	9991.	12488.	14986.	17484.	19981.	22479.	24977.
22	2747.	5495.	8242.	10990.	13737.	16484.	19232.	21979.	24727.	27474.
24	2997.	5994.	8991.	11989.	14986.	17983.	20980.	23977.	26975.	29972.
26	3247.	6494.	9741.	12988.	16235.	19482.	22729.	25976.	29231.	32469.
28	3497.	6993.	10490.	13987.	17484.	20980.	24477.	27974.	31470.	34967.
30	3746.	7493.	11239.	14986.	18732.	22479.	26225.	29972.	33718.	37465.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	300.	600.	900.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	600.	1211.	1816.	2421.	3027.	3632.	4237.	4842.	5448.	6053.
6	900.	1816.	2724.	3632.	4540.	5448.	6356.	7264.	8172.	9080.
8	1211.	2421.	3632.	4842.	6053.	7264.	8474.	9685.	10896.	12106.
10	1513.	3027.	4540.	6053.	7566.	9080.	10593.	12106.	13619.	15133.
12	1816.	3632.	5448.	7264.	9080.	10896.	12712.	14527.	16343.	18159.
14	2119.	4237.	6356.	8474.	10593.	12712.	14830.	16940.	19057.	21185.
16	2421.	4842.	7264.	9685.	11906.	14227.	16940.	19370.	21791.	24212.
18	2724.	5448.	8172.	10896.	13418.	16343.	19057.	21791.	24515.	27239.
20	2997.	5994.	8991.	11989.	14931.	17983.	21169.	24212.	27239.	30066.
22	3247.	6494.	9741.	13082.	16444.	19486.	22729.	26034.	29063.	32893.
24	3497.	6993.	10490.	14175.	17957.	21000.	24291.	28065.	30887.	35720.
26	3746.	7493.	11239.	15268.	19470.	22513.	26042.	29696.	32711.	38547.
28	3997.	7993.	12000.	16361.	20983.	24026.	27793.	31527.	34542.	41374.
30	4246.	8493.	12739.	17454.	22496.	25539.	29544.	33358.	36373.	44201.

Little Rock AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.4	22.2	25.0	27.8
6	4.2	8.3	12.5	16.7	20.8	25.0	29.2	33.3	37.5	41.7
8	5.6	11.1	16.7	22.2	27.8	33.3	38.9	44.4	50.0	55.5
10	6.9	13.9	20.8	27.8	34.7	41.7	48.6	55.5	62.5	69.4
12	8.3	16.7	25.0	33.3	41.7	50.0	58.3	66.7	75.0	83.3
14	9.7	19.4	29.2	38.9	48.6	58.3	68.0	77.8	87.5	97.2
16	11.1	22.2	33.3	44.4	55.5	66.7	77.8	88.9	100.0	111.1
18	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0
20	13.9	27.8	41.7	55.5	69.4	83.3	97.2	111.1	125.0	138.9
22	15.3	30.5	45.8	61.1	76.4	91.6	106.9	122.2	137.5	152.7
24	16.7	33.3	50.0	66.7	83.3	100.0	116.6	133.3	150.0	166.6
26	18.1	36.1	54.2	72.2	90.3	108.3	126.4	144.4	162.5	180.5
28	19.4	38.9	58.3	77.8	97.2	116.6	136.1	155.5	175.0	*****
30	20.8	41.7	62.5	83.3	104.1	125.0	145.6	166.6	187.5	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	222	443	665	886	1108	1329	1551	1772	1994	2215
4	443	886	1329	1772	2215	2658	3102	3545	3988	4431
6	665	1329	1994	2658	3323	3988	4652	5317	5982	6646
8	886	1772	2658	3545	4431	5317	6203	7089	7975	8862
10	1108	2215	3323	4431	5538	6646	7754	8862	9969	11077
12	1329	2658	3988	5317	6646	7975	9305	10634	11963	13292
14	1551	3102	4652	6203	7754	9305	10856	12406	13957	15508
16	1772	3545	5317	7089	8638	10189	11740	13291	14842	16393
18	1994	3988	5982	7975	9969	11963	13957	15951	17946	19938
20	2215	4431	6646	8862	11077	13292	15508	17723	19938	22154
22	2437	4874	7311	9748	12165	14382	16568	18793	21018	23269
24	2658	5317	7975	10634	13032	15261	17509	19734	21963	23585
26	2880	5760	8640	11500	14000	16280	18580	20880	22920	24900
28	3102	6203	9305	12406	15008	17389	19771	22112	24314	*****
30	3323	6646	9969	13292	16115	18538	20938	23285	25908	*****

TROUGH VALLE DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	208	416	624	832	1040	1248	1456	1664	1872	2080
4	416	832	1248	1664	2080	2496	2912	3328	3744	4160
6	624	1248	1872	2496	3136	3776	4416	5056	5696	6336
8	832	1664	2496	3328	4160	4992	5824	6656	7488	8320
10	1040	2080	3136	4160	5184	6208	7232	8256	9280	10304
12	1248	2496	3776	4992	6208	7424	8640	9856	11072	12288
14	1456	2912	4416	5824	7232	8640	10048	11456	12864	14272
16	1664	3328	4992	6656	8256	9856	11456	13056	14656	16256
18	1872	3744	5696	7488	9280	11072	12864	14656	16448	18048
20	2080	4160	6336	8320	10304	12288	14272	16256	18048	19840
22	2288	4576	6976	9152	13504	15696	17744	19712	21472	23296
24	2496	4992	7808	10080	14912	17312	19456	21472	23296	25056
26	2704	5408	8640	11008	16320	19024	21312	23296	25056	26816
28	2912	5824	9472	11936	17728	20736	23296	25056	26816	28576
30	3120	6240	10304	12864	19136	22352	25056	26816	28576	30336

Little Rock AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.5	6.7	8.9	11.2	13.4	15.6	17.9	20.1	22.3
4	4.5	8.9	13.4	17.9	22.3	26.8	31.3	35.7	40.2	44.7
6	6.7	13.4	20.1	26.8	33.5	40.2	46.9	53.6	60.3	67.0
8	8.9	17.9	26.8	35.7	44.7	53.6	62.5	71.5	80.4	89.4
10	11.2	22.3	33.5	44.7	56.8	67.0	78.2	89.4	100.6	111.7
12	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.6	134.0
14	15.6	31.3	46.9	62.5	78.2	93.8	109.5	125.1	140.7	156.4
16	17.9	35.7	53.6	71.5	89.4	107.2	125.1	143.0	160.6	178.7
18	20.1	40.2	60.3	80.4	100.5	120.6	140.7	160.8	180.9	201.0
20	22.3	44.7	67.0	89.4	111.7	134.0	156.4	178.7	201.0	223.4
22	24.6	49.1	73.7	98.3	122.9	147.4	172.0	196.6	221.1	245.7
24	26.8	53.6	80.4	107.2	134.0	160.8	187.6	214.4	241.2	266.1
26	29.0	58.1	87.1	116.2	145.2	174.2	203.3	232.3	261.4	290.4
28	31.3	62.5	93.8	125.1	156.4	187.6	218.9	250.2	281.5	*****
30	33.5	67.0	100.5	134.0	167.5	201.0	234.5	266.1	301.6	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	421.	841.	1262.	1682.	2103.	2524.	2944.	3365.	3786.	4206.
4	841.	1682.	2524.	3365.	4206.	5047.	5889.	6730.	7571.	8412.
6	1262.	2524.	3786.	5047.	6309.	7571.	8833.	10095.	11357.	12619.
8	1682.	3365.	5047.	6730.	8412.	10095.	11777.	13460.	15142.	16825.
10	2103.	4206.	6309.	8412.	10515.	12619.	14722.	16825.	18928.	21031.
12	2524.	5047.	7571.	10095.	12619.	15142.	17666.	20190.	22713.	25237.
14	2944.	5889.	8833.	11777.	14722.	17666.	20610.	23556.	26499.	29443.
16	3365.	6730.	10095.	13460.	16625.	20190.	23555.	26920.	30285.	33649.
18	3786.	7571.	11357.	15142.	18228.	22713.	26499.	30285.	34070.	37856.
20	4206.	8412.	12619.	16825.	21031.	25237.	29443.	33649.	37856.	42062.
22	4627.	9254.	13880.	18507.	23154.	27761.	32386.	37014.	41641.	46268.
24	5047.	10095.	15142.	20190.	25237.	30285.	35332.	40379.	45427.	50474.
26	5468.	10936.	16404.	21872.	27340.	32608.	38276.	43744.	49212.	54680.
28	5889.	11777.	17666.	23556.	29443.	35332.	41221.	47109.	52998.	*****
30	6309.	12619.	18928.	25237.	31546.	37856.	44165.	50474.	56784.	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	908.	1816.	2724.	3632.	4540.	5448.	6357.	7265.	8174.	9082.
4	1816.	3632.	5448.	7265.	9082.	10899.	12715.	14531.	16348.	18164.
6	2724.	5448.	8174.	10899.	13624.	16349.	19074.	21799.	24524.	27249.
8	3632.	7265.	10899.	14531.	18164.	21797.	24522.	27247.	30880.	33605.
10	4540.	9082.	13624.	18164.	22704.	27244.	31784.	36324.	40864.	45404.
12	5448.	10899.	16349.	21797.	27244.	32284.	36824.	41364.	45904.	50444.
14	6357.	12715.	19074.	25282.	31729.	37269.	41809.	46349.	50889.	55429.
16	7265.	14531.	21799.	29316.	35764.	41304.	45844.	50384.	54924.	59464.
18	8174.	16348.	24524.	33344.	40302.	45842.	50382.	54922.	59462.	64002.
20	9082.	18164.	27249.	36872.	44340.	49880.	54420.	58960.	63500.	68040.
22	9990.	19980.	29974.	39912.	48378.	53418.	57958.	62498.	67038.	71578.
24	10898.	21796.	32799.	42946.	52416.	57956.	62496.	67036.	71576.	76116.
26	11806.	23612.	35624.	46574.	56454.	62494.	67034.	71574.	76114.	80654.
28	12714.	25428.	38449.	50202.	60492.	67032.	71572.	76112.	80652.	*****
30	13622.	27244.	41274.	53830.	64530.	71570.	76110.	80650.	85190.	*****

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	9.2	18.4	27.7	36.9	46.1	55.3	64.5	73.7	83.0	92.2
4	18.4	36.9	55.3	73.7	92.2	110.6	129.0	147.5	165.9	184.4
6	27.7	55.3	83.0	110.6	138.3	165.9	193.6	221.2	*****	*****
8	36.9	73.7	110.6	147.5	184.4	221.2	258.1	*****	*****	*****
10	46.1	92.2	138.3	184.4	230.4	276.5	*****	*****	*****	*****
12	55.3	110.6	165.9	221.2	276.5	*****	*****	*****	*****	*****
14	64.5	129.0	193.6	258.1	322.6	*****	*****	*****	*****	*****
16	73.7	147.5	221.2	295.0	368.7	*****	*****	*****	*****	*****
18	83.0	165.9	248.9	331.8	*****	*****	*****	*****	*****	*****
20	92.2	184.4	276.5	368.7	*****	*****	*****	*****	*****	*****
22	101.4	202.8	304.2	405.6	*****	*****	*****	*****	*****	*****
24	110.6	221.2	331.8	442.4	*****	*****	*****	*****	*****	*****
26	119.8	239.7	359.5	479.3	*****	*****	*****	*****	*****	*****
28	129.0	258.1	387.1	*****	*****	*****	*****	*****	*****	*****
30	138.3	276.5	414.8	*****	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1054.	2107.	3161.	4214.	5268.	6321.	7375.	8428.	9482.	10535.
4	2107.	4214.	6321.	8428.	10535.	12642.	14749.	16856.	18963.	21070.
6	3161.	6321.	9482.	12642.	15803.	18963.	22124.	25284.	*****	*****
8	4214.	8428.	12642.	16856.	21070.	25284.	29498.	*****	*****	*****
10	5268.	10535.	15803.	21070.	26338.	31605.	*****	*****	*****	*****
12	6321.	12642.	18963.	25284.	31605.	*****	*****	*****	*****	*****
14	7375.	14749.	22124.	29498.	36873.	*****	*****	*****	*****	*****
16	8428.	16856.	25284.	33712.	42140.	*****	*****	*****	*****	*****
18	9482.	18963.	28445.	37388.	*****	*****	*****	*****	*****	*****
20	10535.	21070.	31595.	42140.	*****	*****	*****	*****	*****	*****
22	11589.	23177.	34788.	46354.	*****	*****	*****	*****	*****	*****
24	12642.	25284.	37988.	50568.	*****	*****	*****	*****	*****	*****
26	13696.	27391.	41187.	54782.	*****	*****	*****	*****	*****	*****
28	14749.	29498.	44347.	*****	*****	*****	*****	*****	*****	*****
30	15803.	31605.	47498.	*****	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1385.	2770.	4155.	5540.	6925.	8310.	9695.	11080.	12465.	13850.
4	2770.	5540.	8310.	11080.	13850.	16620.	19390.	22160.	24930.	27700.
6	4155.	8310.	12465.	16620.	19390.	22160.	24930.	27700.	*****	*****
8	5540.	11080.	16620.	19390.	22160.	24930.	27700.	*****	*****	*****
10	6925.	13850.	19390.	22160.	24930.	27700.	*****	*****	*****	*****
12	8310.	16620.	22160.	24930.	27700.	*****	*****	*****	*****	*****
14	9695.	19390.	24930.	27700.	*****	*****	*****	*****	*****	*****
16	11080.	22160.	27700.	*****	*****	*****	*****	*****	*****	*****
18	12465.	24930.	27700.	*****	*****	*****	*****	*****	*****	*****
20	13850.	27700.	27700.	*****	*****	*****	*****	*****	*****	*****
22	15235.	30470.	27700.	*****	*****	*****	*****	*****	*****	*****
24	16620.	33240.	27700.	*****	*****	*****	*****	*****	*****	*****
26	18005.	36010.	27700.	*****	*****	*****	*****	*****	*****	*****
28	19390.	38780.	27700.	*****	*****	*****	*****	*****	*****	*****
30	20775.	41550.	27700.	*****	*****	*****	*****	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.4	3.5	4.7	5.9	7.1	8.3	9.4	10.6	11.8
4	2.4	4.7	7.1	9.4	11.8	14.1	16.5	18.9	21.2	23.6
6	3.5	7.1	10.6	14.1	17.7	21.2	24.6	28.3	31.8	35.4
8	4.7	9.4	14.1	18.9	23.6	28.3	33.0	37.7	42.4	47.1
10	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.1	53.0	58.9
12	7.1	14.1	21.2	28.3	35.4	42.4	49.5	56.6	63.7	70.7
14	8.3	16.5	24.6	33.0	41.3	49.5	57.6	66.0	74.3	82.5
16	9.4	18.9	28.3	37.7	47.1	56.6	66.0	75.4	84.9	94.3
18	10.6	21.2	31.8	42.4	53.0	63.7	74.3	84.9	96.5	106.1
20	11.8	23.6	35.4	47.1	58.9	70.7	82.5	94.3	106.1	117.9
22	13.0	25.9	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
24	14.1	28.3	42.4	56.6	70.7	84.9	99.0	113.2	127.3	141.4
26	15.3	30.6	46.0	61.3	76.6	91.9	107.3	122.6	137.9	153.2
28	16.5	33.0	49.5	66.0	82.5	99.0	115.5	132.0	148.5	165.0
30	17.7	35.4	63.0	70.7	86.4	106.1	123.6	141.4	159.1	176.8

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	105.	209.	314.	418.	523.	628.	732.	837.	941.	1046.
4	309.	418.	628.	837.	1046.	1255.	1464.	1674.	1883.	2092.
6	314.	628.	941.	1255.	1569.	1883.	2196.	2510.	2824.	3138.
8	418.	837.	1255.	1674.	2092.	2510.	2929.	3347.	3765.	4184.
10	523.	1046.	1569.	2092.	2615.	3138.	3661.	4184.	4707.	5230.
12	628.	1255.	1883.	2510.	3138.	3765.	4393.	5021.	5648.	6276.
14	732.	1464.	2196.	2929.	3661.	4393.	5125.	5857.	6589.	7322.
16	837.	1674.	2510.	3347.	4184.	5021.	5857.	6694.	7531.	8368.
18	941.	1883.	2824.	3765.	4707.	5648.	6589.	7531.	8472.	9414.
20	1046.	2092.	3138.	4184.	5230.	6276.	7322.	8368.	9414.	10460.
22	1151.	2301.	3452.	4602.	5753.	6903.	8054.	9204.	10356.	11506.
24	1255.	2510.	3765.	5021.	6276.	7531.	8786.	10041.	11296.	12551.
26	1360.	2719.	4079.	5439.	6799.	8158.	9516.	10876.	12236.	13597.
28	1464.	2929.	4393.	5857.	7322.	8786.	10250.	11715.	13179.	14643.
30	1569.	3138.	4707.	6276.	7845.	9414.	10992.	12591.	14180.	15689.

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	158.	307.	450.	614.	767.	921.	1074.	1227.	1381.	1534.
4	307.	614.	921.	1227.	1534.	1841.	2148.	2455.	2762.	3069.
6	450.	921.	1381.	1841.	2301.	2762.	3222.	3682.	4143.	4603.
8	614.	1227.	1841.	2455.	3069.	3682.	4296.	4910.	5523.	6137.
10	767.	1534.	2301.	3069.	3838.	4603.	5370.	6137.	6904.	7671.
12	921.	1841.	2762.	3682.	4603.	5523.	6444.	7365.	8285.	9206.
14	1074.	2148.	3222.	4296.	5370.	6444.	7518.	8592.	9666.	10740.
16	1227.	2455.	3682.	4970.	6137.	7365.	8592.	9819.	11047.	12274.
18	1381.	2762.	4143.	5523.	6904.	8285.	9666.	11047.	12482.	13809.
20	1534.	3069.	4603.	6137.	7671.	9206.	10740.	12274.	13809.	15343.
22	1688.	3376.	5093.	6791.	8439.	10000.	11614.	13228.	14842.	16477.
24	1841.	3682.	5583.	7395.	9206.	10992.	12647.	14499.	16270.	17411.
26	1994.	3989.	6073.	7999.	9979.	11987.	13662.	15527.	17451.	18445.
28	2148.	4296.	6563.	8603.	10792.	12982.	14677.	16554.	18482.	19479.
30	2301.	4603.	7053.	9207.	11597.	13987.	15682.	17581.	19513.	20513.

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ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.9	4.3	5.8	7.2	8.6	10.1	11.5	13.0	14.4
4	2.9	5.8	8.6	11.5	14.4	17.3	20.2	23.1	25.9	28.8
6	4.3	8.6	13.0	17.3	21.6	25.9	30.3	34.6	38.9	43.2
8	5.8	11.5	17.3	23.1	28.8	34.6	40.3	46.1	51.9	57.6
10	7.2	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.0
12	8.6	17.3	25.9	34.6	43.2	51.9	60.5	69.2	77.8	86.4
14	10.1	20.2	30.3	40.3	50.4	60.5	70.6	80.7	90.8	100.8
16	11.5	23.1	34.6	46.1	57.6	69.2	80.7	92.2	103.7	115.3
18	13.0	25.9	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
20	14.4	28.8	43.2	57.6	72.0	86.4	100.8	115.3	129.7	144.1
22	15.8	31.7	47.5	63.4	79.2	95.1	110.9	126.8	142.6	158.5
24	17.3	34.6	51.9	69.2	86.4	103.7	121.0	138.3	155.6	172.9
26	18.7	37.5	56.2	74.9	93.6	112.4	131.1	149.8	168.6	187.3
28	20.2	40.3	60.5	80.7	100.8	121.0	141.2	161.4	181.5	201.7
30	21.6	43.2	64.8	86.4	108.0	129.7	151.3	172.9	194.5	216.1

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	216.	431.	647.	862.	1078.	1293.	1509.	1725.	1940.	2156.
4	431.	862.	1293.	1725.	2156.	2587.	3018.	3449.	3880.	4312.
6	647.	1293.	1940.	2587.	3234.	3880.	4527.	5174.	5821.	6467.
8	862.	1725.	2587.	3449.	4312.	5174.	6036.	6899.	7761.	8623.
10	1078.	2156.	3234.	4312.	5390.	6467.	7545.	8623.	9701.	10779.
12	1293.	2587.	3880.	5174.	6467.	7761.	9054.	10348.	11641.	12935.
14	1509.	3018.	4527.	6036.	7545.	9054.	10563.	12072.	13582.	15091.
16	1725.	3449.	5174.	6899.	8623.	10348.	12072.	13797.	15522.	17246.
18	1940.	3880.	5821.	7761.	9701.	11641.	13582.	15522.	17462.	19402.
20	2156.	4312.	6467.	8623.	10779.	12935.	15091.	17246.	19402.	21558.
22	2371.	4743.	7114.	9488.	11857.	14228.	16600.	18971.	21342.	23714.
24	2587.	5174.	7761.	10348.	12935.	15522.	18109.	20696.	23283.	25870.
26	2803.	5606.	8408.	11210.	14013.	16815.	19818.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21127.	24145.	27163.	30181.
30	3234.	6467.	9701.	12935.	16168.	19402.	22338.	25870.	29103.	32337.

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	264.	528.	793.	1058.	1322.	1586.	1851.	2115.	2380.	2644.
4	528.	1058.	1586.	2115.	2644.	3173.	3702.	4231.	4760.	5288.
6	793.	1586.	2380.	3173.	3966.	4759.	5553.	6346.	7139.	7932.
8	1058.	2115.	3173.	4231.	5288.	6346.	7404.	8461.	9519.	10577.
10	1322.	2644.	3966.	5288.	6610.	7932.	9254.	10577.	11900.	13221.
12	1586.	3173.	4759.	6346.	7932.	9519.	11105.	12692.	14278.	15865.
14	1851.	3702.	5553.	7404.	9254.	11105.	12966.	14807.	16658.	18508.
16	2115.	4231.	6346.	8461.	10577.	12692.	14807.	16922.	19038.	21153.
18	2380.	4760.	7139.	9519.	11899.	14278.	16866.	19038.	21418.	23797.
20	2644.	5288.	7932.	10677.	13221.	15865.	18509.	21153.	23797.	26441.
22	2908.	5817.	8726.	11534.	14543.	17461.	20390.	23266.	26177.	29086.
24	3173.	6346.	9519.	12692.	15865.	19038.	22211.	25394.	28657.	31730.
26	3437.	6875.	10312.	13790.	17197.	20624.	24032.	27499.	30938.	34374.
28	3702.	7404.	11105.	14897.	18508.	22211.	25913.	29614.	33318.	37018.
30	3966.	7932.	11899.	15995.	19831.	23797.	27793.	31739.	35898.	39662.

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.9	5.8	8.8	11.7	14.6	17.5	20.5	23.4	26.3	29.2
4	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.8	52.6	58.5
6	8.8	17.5	26.3	35.1	43.9	52.6	61.4	70.2	78.9	87.7
8	11.7	23.4	35.1	46.8	58.5	70.2	81.9	93.6	105.3	117.0
10	14.6	29.2	43.9	58.5	73.1	87.7	102.3	117.0	131.6	146.2
12	17.5	35.1	52.6	70.2	87.7	105.3	122.8	140.3	167.9	175.4
14	20.5	40.9	61.4	81.9	102.3	122.8	143.5	163.7	184.2	204.7
16	23.4	46.8	70.2	93.6	117.0	140.3	163.7	187.1	210.5	233.9
18	26.3	52.6	78.9	105.3	131.6	157.9	184.2	210.5	236.8	263.1
20	29.2	58.5	87.7	117.0	146.2	175.4	204.7	233.9	263.1	*****
22	32.2	64.3	96.5	128.6	160.8	193.0	225.1	257.3	289.5	*****
24	35.1	70.2	105.3	140.3	175.4	210.5	245.6	280.7	*****	*****
26	38.0	76.0	114.0	152.0	190.0	228.1	266.1	304.1	*****	*****
28	40.9	81.9	122.8	163.7	204.7	245.6	286.5	327.5	*****	*****
30	43.9	87.7	131.6	175.4	219.3	263.1	307.0	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	258.	512.	768.	1024.	1280.	1536.	1792.	2048.	2304.	2560.
4	512.	1024.	1536.	2048.	2560.	3072.	3584.	4096.	4608.	5120.
6	768.	1536.	2304.	3072.	3840.	4608.	5376.	6144.	6911.	7679.
8	1024.	2048.	3072.	4096.	5120.	6144.	7167.	8191.	9215.	10239.
10	1280.	2560.	3840.	5120.	6399.	7679.	8959.	10239.	11519.	12799.
12	1536.	3072.	4608.	6144.	7679.	9215.	10751.	12287.	13823.	15359.
14	1792.	3584.	5376.	7167.	8959.	10751.	12543.	14335.	16127.	17919.
16	2048.	4096.	6144.	8191.	10239.	12287.	14335.	16383.	18431.	20478.
18	2304.	4608.	6911.	9215.	11519.	13823.	16127.	18431.	20734.	23036.
20	2560.	5120.	7679.	10239.	12799.	15359.	17919.	20478.	23036.	*****
22	2816.	5632.	8447.	11263.	14079.	16895.	19710.	22526.	25342.	*****
24	3072.	6144.	9215.	12287.	15399.	18431.	21502.	24574.	*****	*****
26	3328.	6656.	9983.	13311.	16539.	19966.	23294.	26622.	*****	*****
28	3584.	7167.	10751.	14335.	17919.	21502.	25086.	28670.	*****	*****
30	3840.	7679.	11519.	15359.	19199.	23036.	26676.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	368.	732.	1096.	1464.	1830.	2198.	2562.	2928.	3294.	3660.
4	732.	1464.	2196.	2928.	3660.	4392.	5124.	5856.	6588.	7319.
6	1096.	2196.	3294.	4392.	5490.	6588.	7686.	8783.	9881.	10979.
8	1464.	2928.	4392.	5856.	7319.	8783.	10247.	11711.	13175.	14639.
10	1830.	3660.	5490.	7319.	9149.	10979.	12809.	14639.	16489.	18339.
12	2198.	4392.	6588.	8783.	10979.	13175.	15371.	17567.	19763.	21959.
14	2562.	5124.	7686.	10247.	12809.	15371.	17933.	20494.	23055.	25616.
16	2928.	5856.	8783.	11711.	14639.	17567.	20494.	23422.	26350.	28978.
18	3294.	6588.	9881.	13175.	16489.	19763.	23068.	26350.	29444.	32339.
20	3660.	7319.	10979.	14639.	18339.	21958.	25616.	29276.	32558.	*****
22	4026.	8051.	12077.	16103.	20189.	24184.	28189.	32306.	36381.	*****
24	4392.	8783.	13175.	17567.	21988.	26390.	30742.	35133.	*****	*****
26	4758.	9515.	14273.	19031.	23788.	28546.	33304.	38061.	*****	*****
28	5124.	10247.	15371.	20494.	25616.	30742.	36066.	40989.	*****	*****
30	5490.	10979.	16489.	21958.	27446.	32988.	38427.	*****	*****	*****

Lowry AFB

ANNUAL SOLAR CONTRIBUTION - kWh (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.1	10.2	15.3	20.4	25.4	30.5	35.6	40.7	45.8	50.9
4	10.2	20.4	30.5	40.7	50.9	61.1	71.3	81.4	91.6	101.8
6	15.3	30.5	45.8	61.1	76.3	91.6	106.9	122.1	137.4	152.7
8	20.4	40.7	61.1	81.4	101.8	122.1	142.5	162.9	183.2	203.6
10	25.4	50.9	76.3	101.8	127.2	152.7	178.1	203.6	229.0	254.5
12	30.5	61.1	91.6	122.1	152.7	183.2	213.8	244.3	274.8	305.4
14	35.6	71.3	106.9	142.5	178.1	213.8	249.4	285.0	320.6	356.3
16	40.7	81.4	122.1	162.9	203.6	244.3	285.0	325.7	366.4	407.2
18	45.8	91.6	137.4	183.2	229.0	274.8	320.6	366.4	412.3	458.1
20	50.9	101.8	152.7	203.6	254.5	305.4	356.3	407.2	458.1	*****
22	56.0	112.0	168.0	223.9	279.9	335.9	391.9	447.8	503.8	*****
24	61.1	122.1	183.2	244.3	305.4	366.4	427.5	488.5	*****	*****
26	66.2	132.3	198.5	264.7	330.8	397.0	463.1	529.3	*****	*****
28	71.3	142.5	213.8	285.0	356.3	427.5	488.5	570.0	*****	*****
30	76.3	152.7	229.0	305.4	381.7	458.1	534.4	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - kWh (¢'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	506.	1012.	1518.	2024.	2530.	3036.	3542.	4048.	4554.	5060.
4	1012.	2024.	3036.	4048.	5060.	6072.	7083.	8095.	9107.	10119.
6	1518.	3036.	4554.	6072.	7589.	9107.	10625.	12143.	13661.	15179.
8	2024.	4048.	6072.	8095.	10119.	12143.	14167.	16191.	18215.	20239.
10	2530.	5060.	7589.	10119.	12649.	15179.	17709.	20239.	22769.	25299.
12	3036.	6072.	9107.	12143.	15179.	18215.	21250.	24286.	27322.	30358.
14	3542.	7083.	10625.	14167.	17709.	21250.	24792.	28334.	31876.	35417.
16	4048.	8095.	12143.	16191.	20239.	24286.	28334.	32382.	36429.	40477.
18	4554.	9107.	13661.	18215.	22769.	27322.	31876.	36429.	40983.	45537.
20	5060.	10119.	15179.	20239.	25299.	30358.	35417.	40477.	45537.	*****
22	5666.	11131.	16897.	22292.	27322.	33394.	39466.	44538.	50000.	*****
24	6072.	12143.	18215.	24286.	30358.	36429.	42501.	48573.	*****	*****
26	6678.	13155.	19733.	26310.	33394.	39466.	46543.	52625.	*****	*****
28	7083.	14167.	21250.	28334.	35417.	42501.	49584.	56688.	*****	*****
30	7589.	15179.	22769.	30358.	37447.	45537.	53128.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST - kWh (¢'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	616.	1232.	1848.	2464.	3080.	3696.	4312.	4928.	5544.	6160.
4	1232.	2464.	3696.	4928.	6160.	7391.	8623.	9855.	11087.	12319.
6	1848.	3696.	5544.	7391.	9238.	11087.	12935.	14783.	16631.	18479.
8	2464.	4928.	7391.	9855.	12319.	14783.	17247.	19711.	22174.	24638.
10	3080.	6160.	9238.	12319.	15399.	18479.	21558.	24638.	27718.	30798.
12	3696.	7391.	11087.	14783.	18479.	22174.	25870.	29088.	32322.	35557.
14	4312.	8623.	12935.	17247.	21558.	25870.	30182.	34494.	38806.	43117.
16	4928.	9855.	14783.	19711.	24638.	29088.	34494.	39421.	44348.	49277.
18	5544.	11087.	16631.	22174.	27718.	32322.	38806.	44348.	49883.	55438.
20	6160.	12319.	18479.	24638.	30798.	35997.	43117.	49277.	55438.	*****
22	6776.	13551.	20327.	27192.	33878.	40663.	47489.	54804.	60880.	*****
24	7391.	14783.	22174.	29696.	36897.	44348.	51748.	59138.	*****	*****
26	8007.	16015.	24082.	32030.	40087.	48048.	56052.	64000.	*****	*****
28	8623.	17247.	25870.	34494.	43117.	51748.	60354.	69287.	*****	*****
30	9238.	18479.	27718.	36917.	46187.	55438.	64656.	74674.	*****	*****

Luke AFB

ANNUAL SOLAR CONTRIBUTION--BIRMINGHAM										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.3	9.3	10.3
4	2.1	4.1	6.2	8.3	10.3	12.4	14.5	16.5	18.6	20.7
6	3.1	6.2	9.3	12.4	15.5	18.6	21.7	24.8	27.9	31.0
8	4.1	8.3	12.4	16.5	20.7	24.8	28.9	33.1	37.2	41.3
10	5.2	10.3	15.5	20.7	25.8	31.0	36.2	41.3	46.5	51.7
12	6.2	12.4	18.6	24.8	31.0	37.2	43.4	49.6	55.8	62.0
14	7.2	14.5	21.7	28.9	36.2	43.4	50.6	57.9	65.1	72.4
16	8.3	16.5	24.8	33.1	41.3	49.6	57.9	66.2	74.4	82.7
18	9.3	18.6	27.9	37.2	46.5	55.8	65.1	74.4	83.7	93.0
20	10.3	20.7	31.0	41.3	51.7	62.0	72.4	82.7	93.0	103.4
22	11.4	22.7	34.1	45.5	56.8	68.2	79.6	91.0	102.3	113.7
24	12.4	24.8	37.2	49.6	62.0	74.4	86.8	99.2	111.6	124.0
26	13.4	26.9	40.3	53.7	67.2	80.6	94.1	107.5	120.9	134.4
28	14.5	28.9	43.4	57.9	72.4	86.8	101.5	115.8	130.2	144.7
30	15.5	31.0	46.5	62.0	77.5	93.0	106.8	124.0	139.5	155.0

ROOF SOLAR DIFFERENTIAL COST--BIRMINGHAM										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	153	285	398	501	604	707	810	913	1016	1119
4	285	530	785	1041	1296	1551	1806	2061	2316	2571
6	398	785	1183	1581	1979	2376	2774	3172	3570	3967
8	530	1061	1581	2121	2661	3181	3721	4261	4771	5301
10	604	1326	1989	2651	3314	3977	4640	5303	5966	6629
12	707	1591	2388	3182	3977	4773	5568	6364	7159	7954
14	810	1856	2784	3712	4640	5568	6496	7424	8352	9280
16	913	2121	3182	4242	5303	6364	7424	8485	9545	10606
18	1016	2386	3578	4773	5966	7159	8352	9545	10738	11932
20	1119	2651	3977	5303	6529	7864	9200	10535	11870	13205
22	1222	2917	4375	5933	7302	8700	10100	11500	12900	14300
24	1325	3182	4773	6364	7864	9545	11136	12727	14316	15906
26	1428	3447	5170	6894	8617	10441	12264	14088	15911	17734
28	1531	3712	5568	7424	9280	11136	12982	14848	16704	18560
30	1634	3977	5966	7954	9843	11832	13880	15732	17527	19426

TROMBE WALL DIFFERENTIAL COST--BIRMINGHAM										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	182	375	568	761	954	1147	1340	1533	1726	1919
4	375	761	1147	1533	1919	2305	2691	3077	3463	3849
6	568	1147	1726	2305	2884	3463	4042	4621	5200	5779
8	761	1533	2305	3077	3849	4621	5393	6165	6937	7709
10	954	1919	2884	3849	4814	5779	6744	7709	8674	9639
12	1147	2305	3463	4621	5779	6937	8095	9253	10411	11569
14	1340	2691	3977	5303	6629	7954	9280	10606	11932	13258
16	1533	3077	4375	5933	7302	8700	10100	11500	12900	14300
18	1726	3463	4961	6529	8027	9545	11063	12581	14099	15617
20	1919	3849	5393	7159	8700	10218	11736	13254	14772	16289
22	2112	4235	5825	7709	9302	10925	12538	14151	15764	17372
24	2305	4621	6257	8208	9902	11631	13244	14857	16470	18055
26	2498	5007	6689	8707	10401	12143	13756	15369	17083	18738
28	2691	5393	7119	9196	10890	12652	14269	15880	17696	19421
30	2884	5779	7547	9685	11379	13159	14778	16391	18209	19904

Luke AFB

ANNUAL SOLAR CONTRIBUTION - WNI (BTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.3	2.7	4.0	5.4	6.7	8.0	9.4	10.7	12.1	13.4
4	2.7	5.4	8.0	10.7	13.4	16.1	18.8	21.5	24.1	26.8
6	4.0	8.0	12.1	16.1	20.1	24.1	28.2	32.2	36.2	40.2
8	5.4	10.7	16.1	21.5	26.8	32.2	37.5	42.9	48.3	53.6
10	6.7	13.4	20.1	26.8	33.5	40.2	46.9	53.6	60.3	67.0
12	8.0	16.1	24.1	32.2	40.2	48.3	56.3	64.4	72.4	80.5
14	9.4	18.8	28.2	37.5	46.9	56.3	65.7	75.1	84.5	93.9
16	10.7	21.5	32.2	42.9	53.6	64.4	75.1	85.8	96.5	107.3
18	12.1	24.1	36.2	46.3	60.3	72.4	84.5	96.5	108.8	120.7
20	13.4	26.8	40.2	53.6	67.0	80.5	93.9	107.3	120.7	134.1
22	14.8	29.5	44.3	59.0	73.8	88.5	103.3	118.0	132.5	147.5
24	16.1	32.2	48.3	64.4	80.5	96.5	112.6	128.7	144.8	160.9
26	17.4	34.9	52.3	69.7	87.2	104.6	122.0	139.5	156.9	174.3
28	18.8	37.5	56.3	75.1	93.9	112.6	131.4	150.2	169.0	187.7
30	20.1	40.2	60.3	80.5	100.6	120.7	140.8	160.9	181.0	201.1

DIRECT GAIN DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	258.	516.	773.	1031.	1289.	1547.	1805.	2063.	2320.	2578.
4	516.	1031.	1547.	2063.	2578.	3094.	3609.	4125.	4641.	5156.
6	773.	1547.	2320.	3094.	3867.	4641.	5414.	6188.	6961.	7735.
8	1031.	2063.	3094.	4125.	5156.	6188.	7219.	8250.	9281.	10313.
10	1289.	2578.	3867.	5156.	6445.	7735.	9024.	10313.	11602.	12891.
12	1547.	3094.	4641.	6188.	7735.	9281.	10828.	12375.	13922.	15469.
14	1805.	3609.	5414.	7219.	9024.	10828.	12633.	14438.	16242.	18047.
16	2063.	4125.	6188.	8250.	10313.	12375.	14438.	16500.	18563.	20625.
18	2320.	4641.	6961.	9281.	11602.	13922.	16242.	18563.	20863.	23204.
20	2578.	5156.	7735.	10313.	12891.	15469.	18047.	20625.	23204.	25782.
22	2835.	5672.	8506.	11344.	14180.	17016.	19582.	22158.	24694.	28360.
24	3094.	6188.	9281.	12375.	15469.	18563.	21657.	24700.	27444.	30938.
26	3352.	6703.	10055.	13406.	16758.	20110.	23481.	26513.	30165.	33516.
28	3609.	7219.	10828.	14438.	18047.	21657.	25205.	28576.	32485.	36094.
30	3867.	7735.	11602.	15469.	19336.	23204.	27371.	30638.	34805.	38673.

THERM WALL DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	313.	626.	939.	1252.	1565.	1878.	2190.	2503.	2816.	3129.
4	626.	1252.	1878.	2503.	3129.	3755.	4381.	5007.	5633.	6258.
6	939.	1878.	2816.	3755.	4694.	5633.	6571.	7510.	8449.	9388.
8	1252.	2503.	3755.	5007.	6258.	7510.	8762.	10014.	11266.	12517.
10	1565.	3129.	4694.	6258.	7823.	9388.	10952.	12517.	14082.	15646.
12	1878.	3755.	5633.	7510.	9388.	11266.	13143.	14930.	16718.	18505.
14	2190.	4381.	6571.	8762.	10828.	13143.	15333.	17634.	19714.	21900.
16	2503.	5007.	7510.	10313.	12891.	15469.	17924.	20327.	23021.	25314.
18	2816.	5633.	8449.	11344.	14180.	17016.	19714.	22531.	25347.	28163.
20	3129.	6258.	9281.	12375.	15469.	18563.	21657.	24534.	28169.	31292.
22	3442.	6884.	10055.	13406.	16758.	19811.	23481.	26537.	30000.	34421.
24	3755.	7510.	11087.	14438.	18047.	21657.	25205.	28541.	31938.	37550.
26	4068.	8136.	12059.	15469.	19336.	23204.	26976.	30544.	33882.	40679.
28	4381.	8762.	13030.	16500.	20625.	25000.	28807.	32548.	35826.	43808.
30	4694.	9388.	14001.	17531.	21914.	26571.	30637.	34551.	37770.	46937.

MacDill AFB

ANNUAL SOLAR CONTRIBUTION - (WH/FT ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.4	.8	1.2	1.6	1.9	2.3	2.7	3.1	3.5	3.9
4	.8	1.6	2.3	3.1	3.9	4.7	5.4	6.2	7.0	7.8
6	1.2	2.3	3.5	4.7	5.8	7.0	8.1	9.3	10.5	11.6
8	1.6	3.1	4.7	6.2	7.8	9.3	10.9	12.4	14.0	15.5
10	1.9	3.9	5.8	7.8	9.7	11.6	13.6	15.5	17.4	19.4
12	2.3	4.7	7.0	9.3	11.6	14.0	16.3	18.6	20.9	23.3
14	2.7	5.4	8.1	10.9	13.6	16.3	19.0	21.7	24.4	27.1
16	3.1	6.2	9.3	12.4	15.5	18.6	21.7	24.8	27.9	31.0
18	3.5	7.0	10.5	14.0	17.4	20.9	24.4	27.9	31.4	34.9
20	3.9	7.8	11.6	15.5	19.4	23.3	27.1	31.0	34.9	38.8
22	4.3	8.6	12.8	17.1	21.3	25.8	29.9	34.1	38.4	42.6
24	4.7	9.3	14.0	18.6	23.3	27.9	32.6	37.2	41.9	46.5
26	5.0	10.1	15.1	20.2	25.2	30.2	35.3	40.3	45.4	50.4
28	5.4	10.9	16.3	21.7	27.1	32.6	38.0	43.4	48.9	54.3
30	5.8	11.6	17.4	23.3	29.1	34.9	40.7	46.5	52.3	58.2

DIRECT GAIN DIFFERENTIAL COST - (WH/FT ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	66.	130.	196.	266.	338.	409.	484.	559.	634.	699.
4	130.	260.	390.	519.	649.	779.	909.	1039.	1169.	1299.
6	195.	390.	584.	779.	974.	1169.	1363.	1558.	1753.	1947.
8	260.	519.	779.	1039.	1299.	1559.	1819.	2077.	2337.	2596.
10	325.	649.	974.	1299.	1623.	1947.	2272.	2596.	2921.	3246.
12	389.	779.	1169.	1458.	1847.	2237.	2626.	3016.	3405.	3795.
14	454.	909.	1363.	1618.	2072.	2462.	2851.	3241.	3630.	4020.
16	519.	1039.	1558.	1877.	2396.	2886.	3375.	3865.	4354.	4844.
18	584.	1169.	1753.	2137.	2661.	3151.	3640.	4130.	4620.	5110.
20	649.	1299.	1947.	2396.	2926.	3416.	3905.	4395.	4885.	5375.
22	714.	1429.	2142.	2656.	3170.	3660.	4150.	4640.	5130.	5620.
24	779.	1559.	2337.	2916.	3435.	3925.	4415.	4905.	5395.	5885.
26	844.	1689.	2532.	3175.	3700.	4190.	4680.	5170.	5660.	6150.
28	909.	1819.	2726.	3435.	3965.	4445.	4935.	5425.	5915.	6405.
30	974.	1947.	2921.	3695.	4230.	4715.	5205.	5695.	6185.	6675.

THERM WALL DIFFERENTIAL COST - (WH/FT ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	91.	182.	274.	365.	457.	548.	639.	730.	822.	913.
4	182.	365.	548.	730.	913.	1096.	1279.	1461.	1643.	1826.
6	274.	548.	822.	1096.	1370.	1643.	1917.	2191.	2465.	2739.
8	365.	730.	1096.	1461.	1826.	2191.	2556.	2922.	3287.	3652.
10	457.	913.	1370.	1826.	2291.	2739.	3196.	3652.	4109.	4565.
12	548.	1096.	1643.	2191.	2739.	3287.	3835.	4382.	4929.	5476.
14	639.	1279.	1917.	2556.	3196.	3835.	4474.	5112.	5750.	6389.
16	730.	1461.	2191.	2922.	3652.	4382.	5022.	5712.	6402.	7092.
18	822.	1643.	2465.	3287.	4022.	4835.	5574.	6312.	7050.	7789.
20	913.	1826.	2739.	3652.	4474.	5387.	6174.	7012.	7850.	8689.
22	1004.	2009.	3012.	3917.	4830.	5743.	6574.	7452.	8330.	9209.
24	1096.	2191.	3287.	4282.	5175.	6144.	7052.	7974.	8902.	9830.
26	1187.	2374.	3561.	4647.	5520.	6539.	7492.	8434.	9386.	10338.
28	1279.	2556.	3835.	4915.	5875.	6934.	7912.	8874.	9856.	10826.
30	1370.	2739.	4109.	5180.	6230.	7319.	8312.	9294.	10296.	11298.

Wadding AFB

ANNUAL SOLAR CONTRIBUTION - WADING AFB										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.5	.9	1.4	1.9	2.3	2.8	3.3	3.7	4.2	4.7
4	.9	1.9	2.8	3.7	4.7	5.6	6.5	7.4	8.4	9.3
6	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6	14.0
8	1.9	3.7	5.6	7.4	9.3	11.2	13.0	14.9	16.7	18.6
10	2.3	4.7	7.0	9.3	11.6	14.0	16.3	18.6	20.9	23.3
12	2.8	5.6	8.4	11.2	14.0	16.7	19.5	22.3	25.1	27.9
14	3.3	6.5	9.8	13.0	16.3	19.5	22.8	26.1	29.3	32.6
16	3.7	7.4	11.2	14.9	18.6	22.3	26.1	29.8	33.5	37.2
18	4.2	8.4	12.6	16.7	20.9	25.1	29.3	33.5	37.7	41.9
20	4.7	9.3	14.0	18.6	23.3	27.9	32.6	37.2	41.9	46.5
22	5.1	10.2	15.4	20.9	25.6	30.7	35.8	40.9	46.1	51.2
24	5.6	11.2	16.7	22.3	27.9	33.5	38.1	44.7	50.2	55.8
26	6.0	12.1	18.1	24.2	30.2	36.3	42.3	48.4	54.4	60.5
28	6.5	13.0	19.5	26.1	32.6	39.1	45.6	52.1	58.6	65.1
30	7.0	14.0	20.9	27.9	34.9	41.9	48.9	55.6	62.6	69.6

DIRECT GAIN DIFFERENTIAL COST - WADING AFB										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	126.	230.	376.	500.	624.	748.	874.	999.	1124.	1249.
4	230.	500.	748.	999.	1249.	1499.	1748.	1999.	2248.	2499.
6	376.	748.	1124.	1499.	1873.	2248.	2623.	2997.	3372.	3747.
8	500.	999.	1499.	1999.	2499.	2997.	3497.	3996.	4496.	4995.
10	624.	1249.	1873.	2499.	3122.	3747.	4371.	4995.	5620.	6244.
12	748.	1499.	2248.	2997.	3747.	4496.	5245.	5995.	6744.	7493.
14	874.	1748.	2623.	3497.	4371.	5245.	6119.	6994.	7868.	8742.
16	999.	1999.	2997.	3996.	4995.	5994.	6994.	7993.	8992.	9991.
18	1124.	2248.	3372.	4496.	5620.	6744.	7868.	8992.	10116.	11240.
20	1249.	2499.	3747.	4995.	6241.	7483.	8742.	9991.	11240.	12489.
22	1374.	2748.	4121.	5496.	6749.	8013.	9216.	10490.	11764.	13038.
24	1499.	2997.	4496.	5995.	7483.	8742.	10001.	11299.	12598.	13896.
26	1624.	3247.	4871.	6494.	8128.	9481.	10805.	12199.	13592.	14935.
28	1748.	3497.	5245.	6994.	8742.	10001.	11399.	12897.	14296.	15484.
30	1873.	3747.	5620.	7483.	9377.	11249.	12713.	14596.	15990.	16733.

TROUGH GAIN DIFFERENTIAL COST - WADING AFB										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	151.	302.	454.	605.	756.	908.	1059.	1210.	1361.	1513.
4	302.	605.	908.	1210.	1513.	1815.	2116.	2420.	2723.	3026.
6	454.	908.	1361.	1815.	2269.	2723.	3177.	3631.	4084.	4538.
8	605.	1210.	1815.	2420.	3026.	3631.	4236.	4841.	5446.	6051.
10	756.	1513.	2269.	3026.	3631.	4236.	4841.	5446.	6051.	6656.
12	908.	1815.	2723.	3631.	4236.	4841.	5446.	6051.	6656.	7261.
14	1059.	2116.	3177.	4236.	4841.	5446.	6051.	6656.	7261.	7866.
16	1210.	2420.	3631.	4841.	5446.	6051.	6656.	7261.	7866.	8471.
18	1361.	2723.	4236.	5446.	6051.	6656.	7261.	7866.	8471.	9076.
20	1513.	3026.	4841.	6051.	6656.	7261.	7866.	8471.	9076.	9681.
22	1664.	3330.	5446.	6656.	7261.	7866.	8471.	9076.	9681.	10286.
24	1815.	3634.	6051.	7261.	7866.	8471.	9076.	9681.	10286.	10891.
26	1967.	3938.	6656.	7866.	8471.	9076.	9681.	10286.	10891.	11496.
28	2118.	4242.	7261.	8471.	9076.	9681.	10286.	10891.	11496.	12101.
30	2269.	4546.	7866.	9076.	9681.	10286.	10891.	11496.	12101.	12706.

Malmstrom AFB

ANNUAL SOLAR CONTRIBUTION - (MINUTE ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.2	6.5	9.8	12.7	15.6	18.0	22.2	25.3	28.5	31.7
4	6.5	12.7	18.0	25.3	31.7	38.0	44.4	50.7	57.0	63.4
6	9.8	18.0	25.3	38.0	47.5	57.0	65.5	75.0	85.5	95.0
8	12.7	25.3	38.0	50.7	63.4	75.0	88.7	101.4	114.0	126.7
10	15.6	31.7	47.5	63.4	79.2	95.0	110.9	126.7	142.6	*****
12	18.0	38.0	57.0	75.0	95.0	114.0	133.1	152.1	*****	*****
14	22.2	44.4	68.5	88.7	110.9	133.1	155.2	*****	*****	*****
16	25.3	50.7	75.0	101.4	126.7	152.1	177.4	*****	*****	*****
18	28.5	57.0	85.5	114.0	142.6	171.1	*****	*****	*****	*****
20	31.7	63.4	95.0	126.7	155.4	190.1	*****	*****	*****	*****
22	34.8	69.7	104.5	139.4	174.2	209.1	*****	*****	*****	*****
24	38.0	76.0	114.0	152.1	190.1	*****	*****	*****	*****	*****
26	41.2	82.4	123.5	164.7	205.9	*****	*****	*****	*****	*****
28	44.4	88.7	133.1	177.4	221.8	*****	*****	*****	*****	*****
30	47.5	95.0	142.6	190.1	237.8	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - (MINUTE ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	379.	757.	1136.	1515.	1893.	2272.	2651.	3030.	3408.	3787.
4	757.	1515.	2272.	3030.	3787.	4544.	5302.	6059.	6816.	7574.
6	1136.	2272.	3408.	4544.	5680.	6816.	7953.	9089.	10225.	11361.
8	1515.	3030.	4544.	6059.	7574.	9089.	10603.	12116.	13633.	15148.
10	1893.	3787.	5680.	7574.	9467.	11361.	13254.	15148.	17041.	*****
12	2272.	4544.	6816.	9089.	11361.	13633.	15906.	18177.	*****	*****
14	2651.	5302.	7953.	10603.	13254.	15905.	18558.	*****	*****	*****
16	3030.	6059.	9089.	12116.	15148.	18177.	21207.	*****	*****	*****
18	3408.	6816.	10225.	13633.	17041.	20449.	*****	*****	*****	*****
20	3787.	7574.	11361.	15148.	19335.	22721.	*****	*****	*****	*****
22	4166.	8321.	12497.	16662.	20835.	24994.	*****	*****	*****	*****
24	4544.	9079.	13633.	18177.	22121.	*****	*****	*****	*****	*****
26	4923.	9826.	14769.	19692.	23415.	*****	*****	*****	*****	*****
28	5302.	10573.	15905.	21207.	24708.	*****	*****	*****	*****	*****
30	5680.	11321.	17041.	22721.	26002.	*****	*****	*****	*****	*****

TROUGH WALL DIFFERENTIAL COST - (MINUTE ²)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	240.	480.	720.	960.	1200.	1440.	1680.	1920.	2160.	2400.
4	480.	960.	1440.	1920.	2400.	2880.	3360.	3840.	4320.	4800.
6	720.	1440.	2160.	2880.	3600.	4320.	5040.	5760.	6480.	7200.
8	960.	1920.	2880.	3840.	4800.	5760.	6720.	7680.	8640.	9600.
10	1200.	2400.	3600.	4800.	6000.	7200.	8400.	9600.	10800.	12000.
12	1440.	2880.	4320.	5760.	7200.	8640.	10080.	11520.	13000.	*****
14	1680.	3360.	5040.	6720.	8400.	10080.	11760.	13440.	*****	*****
16	1920.	3840.	5760.	7680.	9600.	11520.	13440.	15120.	*****	*****
18	2160.	4320.	6480.	8640.	10800.	12960.	15120.	16800.	*****	*****
20	2400.	4800.	7200.	9600.	12000.	14400.	16800.	18480.	*****	*****
22	2640.	5280.	7920.	10560.	13200.	15840.	18480.	*****	*****	*****
24	2880.	5760.	8640.	11520.	14400.	17280.	19920.	*****	*****	*****
26	3120.	6240.	9360.	12480.	15600.	18720.	*****	*****	*****	*****
28	3360.	6720.	10080.	13440.	16800.	20160.	*****	*****	*****	*****
30	3600.	7200.	10800.	14400.	18000.	21600.	*****	*****	*****	*****

Malmstrom AFB

ANNUAL SOLAR CONTRIBUTION - WNI(WTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	7.7	15.4	23.1	30.9	38.6	46.3	54.0	61.7	69.4	77.1
4	15.4	30.9	46.3	61.7	77.1	92.6	108.0	123.4	138.8	154.3
6	23.1	46.3	69.4	92.6	115.7	138.8	162.0	185.1	208.3	231.4
8	30.9	61.7	92.6	123.4	154.3	185.1	216.0	246.8	277.7	308.5
10	38.6	77.1	115.7	154.3	192.6	231.4	270.0	308.5	347.1	*****
12	46.3	92.6	138.8	185.1	231.4	277.7	324.0	370.2	*****	*****
14	54.0	108.0	162.0	216.0	270.0	324.0	377.8	*****	*****	*****
16	61.7	123.4	185.1	246.8	308.5	370.2	431.9	*****	*****	*****
18	69.4	138.8	208.3	277.7	347.1	416.5	*****	*****	*****	*****
20	77.1	154.3	231.4	308.5	386.7	462.8	*****	*****	*****	*****
22	84.8	169.7	254.5	339.4	424.2	509.1	*****	*****	*****	*****
24	92.6	185.1	277.7	370.2	492.8	*****	*****	*****	*****	*****
26	100.3	200.5	300.8	401.1	501.4	*****	*****	*****	*****	*****
28	108.0	216.0	324.0	431.9	539.9	*****	*****	*****	*****	*****
30	115.7	231.4	347.1	462.8	578.5	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	745.	1491.	2236.	2981.	3727.	4472.	5217.	5963.	6708.	7454.
4	1491.	2981.	4472.	5963.	7454.	8944.	10435.	11926.	13416.	14907.
6	2236.	4472.	6708.	8944.	11180.	13416.	15652.	17888.	20124.	22361.
8	2981.	5963.	8944.	11926.	14907.	17888.	20870.	23851.	26833.	29814.
10	3727.	7454.	11180.	14907.	18634.	22361.	26087.	29814.	33541.	*****
12	4472.	8944.	13416.	17888.	22361.	26833.	31305.	35777.	*****	*****
14	5217.	10435.	15652.	20870.	26087.	31305.	36522.	*****	*****	*****
16	5963.	11926.	17888.	23851.	29814.	35777.	41740.	*****	*****	*****
18	6708.	13416.	20124.	26833.	33541.	40249.	*****	*****	*****	*****
20	7454.	14907.	22361.	29814.	37299.	44721.	*****	*****	*****	*****
22	8199.	16398.	24597.	32799.	40804.	49193.	*****	*****	*****	*****
24	8944.	17888.	26833.	35777.	44721.	*****	*****	*****	*****	*****
26	9689.	19379.	29069.	38752.	48638.	*****	*****	*****	*****	*****
28	10435.	20870.	31305.	41740.	52175.	*****	*****	*****	*****	*****
30	11180.	22361.	33541.	44721.	55711.	*****	*****	*****	*****	*****

TROUGH WALL DIFFERENTIAL COST - WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	807.	1613.	2420.	3227.	4033.	4840.	5647.	6453.	7260.	8067.
4	1613.	3227.	4840.	6453.	8067.	9680.	11294.	12907.	14520.	16134.
6	2420.	4840.	7260.	9680.	12100.	14520.	16940.	19360.	21780.	24200.
8	3227.	6453.	9680.	12907.	16134.	19360.	22587.	25814.	29041.	32267.
10	4033.	8067.	12100.	16134.	20167.	24200.	28233.	31460.	34687.	*****
12	4840.	9680.	14520.	19360.	24200.	28233.	32267.	35511.	38738.	*****
14	5647.	11294.	16940.	22587.	28233.	32267.	35511.	38738.	*****	*****
16	6453.	12907.	19360.	24200.	29069.	32267.	35511.	38738.	*****	*****
18	7260.	14520.	21780.	28233.	32267.	35511.	38738.	*****	*****	*****
20	8067.	16134.	24200.	32267.	35511.	38738.	*****	*****	*****	*****
22	8873.	17747.	26617.	35511.	38738.	*****	*****	*****	*****	*****
24	9680.	19360.	29034.	38738.	*****	*****	*****	*****	*****	*****
26	10487.	20973.	31451.	41740.	*****	*****	*****	*****	*****	*****
28	11294.	22586.	33868.	44721.	*****	*****	*****	*****	*****	*****
30	12100.	24200.	36285.	47702.	*****	*****	*****	*****	*****	*****

March AFB

SQ FT (x 1000)	ANNUAL SOLAR CONTRIBUTION - MM(BTU's)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.4	3.5	4.7	5.9	7.1	8.3	9.4	10.6	11.8
4	2.4	4.7	7.1	9.4	11.8	14.1	16.5	18.9	21.2	23.6
6	3.5	7.1	10.6	14.1	17.7	21.2	24.8	28.3	31.8	35.4
8	4.7	9.4	14.1	18.9	23.6	28.3	33.0	37.7	42.4	47.1
10	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.1	53.0	58.9
12	7.1	14.1	21.2	28.3	35.4	42.4	49.5	56.6	63.7	70.7
14	8.3	16.5	24.8	33.0	41.3	48.6	57.8	66.0	74.3	82.6
16	9.4	18.9	28.3	37.7	47.1	56.6	66.0	75.4	84.9	94.3
18	10.6	21.2	31.8	42.4	53.0	63.7	74.3	84.9	95.5	106.1
20	11.8	23.6	35.4	47.1	58.9	70.7	82.6	94.3	106.1	117.9
22	13.0	25.9	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
24	14.1	28.3	42.4	56.6	70.7	84.9	98.0	113.2	127.3	141.4
26	15.3	30.6	46.0	61.3	76.6	91.9	107.3	123.6	137.9	153.2
28	16.5	33.0	49.5	66.0	82.6	99.0	115.5	132.9	148.5	165.0
30	17.7	35.4	53.0	70.7	88.4	106.1	123.6	141.4	159.1	176.8

SQ FT (x 1000)	DIRECT GAIN DIFFERENTIAL COST - MM(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	106	209	314	418	523	628	732	837	941	1046
4	209	418	628	837	1046	1255	1464	1674	1883	2092
6	314	628	941	1255	1569	1883	2196	2510	2824	3138
8	418	837	1255	1674	2092	2510	2928	3347	3765	4184
10	523	1046	1569	2092	2616	3138	3661	4184	4707	5230
12	628	1255	1883	2510	3138	3765	4393	5021	5648	6276
14	732	1464	2196	2928	3661	4393	5125	5857	6589	7322
16	837	1674	2510	3347	4184	5021	5857	6684	7511	8338
18	941	1883	2824	3765	4707	5548	6380	7211	8042	8874
20	1046	2092	3138	4184	5230	6072	7022	7863	8704	9545
22	1151	2301	3462	4602	5753	6603	7554	8404	9255	10105
24	1255	2510	3785	5021	6276	7131	8082	8933	9784	10635
26	1360	2719	4079	5439	6799	7654	8605	9456	10307	11157
28	1464	2928	4393	5857	7322	8177	9128	10079	10930	11779
30	1569	3138	4707	6276	7845	8700	9651	10502	11353	12299

SQ FT (x 1000)	THERM WALL DIFFERENTIAL COST - MM(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	102	207	312	417	522	627	732	837	941	1046
4	207	414	621	827	1034	1241	1448	1655	1862	2069
6	312	621	931	1241	1551	1861	2171	2481	2791	3101
8	417	827	1241	1655	2069	2483	2897	3311	3725	4139
10	522	1034	1551	2069	2683	3297	3911	4525	5139	5753
12	627	1241	1861	2483	3097	3711	4325	4939	5553	6167
14	732	1448	2171	2897	3511	4125	4739	5353	5967	6581
16	837	1655	2483	3297	4025	4639	5253	5867	6481	7095
18	941	1862	2791	3602	4339	4953	5567	6181	6795	7409
20	1046	2069	3097	3911	4653	5267	5881	6495	7109	7723
22	1151	2276	3311	4125	4867	5481	6095	6709	7323	7937
24	1255	2483	3439	4339	5081	5695	6309	6923	7537	8151
26	1360	2690	3567	4553	5295	5909	6523	7137	7751	8365
28	1464	2897	3695	4767	5509	6123	6737	7351	7965	8579
30	1569	3104	3823	4981	5723	6337	6951	7565	8179	8793

March APB

AIRIAL SOLAR CONTRIBUTION - WNU(\$)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.9	4.3	5.8	7.2	8.6	10.1	11.5	13.0	14.4
4	2.9	5.8	8.6	11.5	14.4	17.3	20.2	23.1	26.0	28.9
6	4.3	8.6	13.0	17.3	21.6	25.9	30.3	34.6	38.9	43.2
8	5.8	11.5	17.3	23.1	28.8	34.6	40.3	46.1	51.9	57.6
10	7.2	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.0
12	8.6	17.3	25.9	34.6	43.2	51.9	60.5	69.2	77.8	86.4
14	10.1	20.2	30.3	40.3	50.4	60.5	70.6	80.7	90.8	100.8
16	11.5	23.1	34.6	46.1	57.6	69.2	80.7	92.2	103.7	115.3
18	13.0	26.0	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
20	14.4	28.8	43.2	57.6	72.0	86.4	100.8	115.3	129.7	144.1
22	15.8	31.7	47.5	63.4	79.2	95.1	110.9	126.8	142.6	156.5
24	17.3	34.6	51.9	69.2	86.4	103.7	121.0	138.3	155.6	172.9
26	18.7	37.5	56.2	74.9	93.6	112.4	131.1	149.8	168.6	187.3
28	20.2	40.3	60.5	80.7	100.8	121.0	141.2	161.4	181.5	201.7
30	21.6	43.2	64.8	86.4	108.0	129.7	151.3	172.9	194.5	216.1

DIRECT GAIN DIFFERENTIAL COST - WNU(\$)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	316.	431.	547.	662.	778.	893.	1009.	1125.	1240.	2166.
4	431.	862.	1293.	1725.	2156.	2587.	3018.	3449.	3880.	4312.
6	647.	1293.	1940.	2587.	3234.	3880.	4527.	5174.	5821.	6467.
8	862.	1725.	2587.	3449.	4312.	5174.	6036.	6899.	7761.	8623.
10	1078.	2156.	3234.	4312.	5390.	6467.	7545.	8623.	9701.	10779.
12	1293.	2587.	3880.	5174.	6467.	7761.	9054.	10348.	11641.	12935.
14	1509.	3018.	4527.	6036.	7545.	9054.	10563.	12072.	13582.	15091.
16	1725.	3449.	5174.	6899.	8623.	10348.	12072.	13797.	15522.	17248.
18	1940.	3880.	5821.	7761.	9701.	11641.	13582.	15522.	17462.	19402.
20	2156.	4312.	6467.	8623.	10779.	12935.	15091.	17248.	19402.	21558.
22	2371.	4743.	7114.	9585.	11957.	14326.	16600.	18971.	21342.	23714.
24	2587.	5174.	7761.	10348.	12935.	15522.	18109.	20606.	23283.	25870.
26	2803.	5605.	8408.	11210.	14013.	16615.	19616.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21277.	24145.	27165.	30181.
30	3234.	6467.	9701.	12935.	16169.	19602.	22538.	25670.	28108.	32337.

TROUGH WALL DIFFERENTIAL COST - WNU(\$)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	264.	528.	792.	1056.	1320.	1584.	1848.	2112.	2376.	3044.
4	528.	1056.	1584.	2112.	2640.	3173.	3706.	4239.	4772.	5888.
6	792.	1584.	2376.	3173.	3960.	4752.	5544.	6336.	7128.	7932.
8	1056.	2112.	3173.	4239.	5304.	6369.	7434.	8499.	9564.	10577.
10	1320.	2640.	3960.	5304.	6608.	7912.	9216.	10520.	11824.	13221.
12	1584.	3173.	4752.	6369.	7986.	9603.	11220.	12837.	14454.	15965.
14	1848.	3706.	5544.	7434.	9051.	10668.	12285.	13902.	15519.	17088.
16	2112.	4239.	6336.	8499.	10197.	11814.	13431.	15048.	16665.	18153.
18	2376.	4772.	7128.	9585.	11210.	12826.	14438.	16055.	17672.	20797.
20	2640.	5304.	7920.	10668.	12324.	13939.	15445.	17052.	18659.	22441.
22	2904.	5837.	8712.	11721.	13838.	15447.	16952.	18559.	20166.	24085.
24	3168.	6370.	9504.	12774.	14841.	16950.	17957.	19566.	21173.	25729.
26	3432.	6903.	10296.	13827.	15844.	17953.	18964.	20573.	22180.	27373.
28	3696.	7436.	11088.	14830.	16847.	18956.	19971.	21580.	23187.	29017.
30	3960.	7969.	11880.	15833.	17850.	19959.	20978.	22587.	24194.	30661.

Mather AFB

ANNUAL SOLAR CONTRIBUTION - (MMBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.5	3.0	4.5	5.9	7.4	8.9	10.4	11.9	13.4	14.8
4	3.0	5.9	8.9	11.9	14.8	17.8	20.8	23.7	26.7	29.7
6	4.5	8.9	13.4	17.8	22.3	26.7	31.2	35.6	40.1	44.5
8	5.9	11.9	17.8	23.7	29.7	35.6	41.6	47.5	53.4	59.4
10	7.4	14.8	22.3	29.7	37.1	44.5	51.9	59.4	66.8	74.2
12	8.9	17.8	26.7	35.6	44.5	53.4	62.3	71.2	80.1	89.0
14	10.4	20.8	31.2	41.6	51.9	62.3	72.7	83.1	93.5	103.9
16	11.9	23.7	35.6	47.5	59.4	71.2	83.1	95.0	106.9	118.7
18	13.4	26.7	40.1	53.4	66.8	80.1	93.5	106.9	120.2	133.6
20	14.8	29.7	44.5	59.4	74.2	89.0	103.9	118.7	133.6	148.4
22	16.3	32.6	49.0	65.3	81.6	97.9	114.3	130.6	146.9	163.2
24	17.8	35.6	53.4	71.2	89.0	106.9	124.7	142.5	160.3	178.1
26	19.3	38.6	57.9	77.2	95.5	115.8	135.0	154.3	173.6	192.9
28	20.8	41.6	62.3	83.1	103.9	124.7	145.4	166.2	187.0	207.8
30	22.3	44.5	66.8	89.0	111.3	133.6	155.8	178.1	200.3	222.6

DIRECT GAIN DIFFERENTIAL COST - (MM(\$'s))										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	198	396	593	791	989	1187	1385	1583	1780	1978
4	396	791	1187	1583	1978	2374	2770	3165	3561	3957
6	593	1187	1780	2374	2967	3561	4154	4748	5341	5936
8	791	1583	2374	3165	3957	4748	5539	6331	7122	7913
10	989	1978	2967	3957	4946	5935	6924	7913	8902	9892
12	1187	2374	3561	4748	5935	7122	8309	9496	10683	11870
14	1385	2770	4154	5539	6924	8309	9694	11079	12463	13848
16	1583	3165	4748	6331	7913	9496	11079	12661	14244	15827
18	1780	3561	5341	7122	8902	10683	12463	14244	16024	17806
20	1978	3957	5935	7913	9892	11870	13848	15827	17806	19783
22	2176	4352	6528	8705	10881	13067	15233	17408	19583	21762
24	2374	4748	7122	9496	11670	14244	16616	18992	21368	23740
26	2572	5144	7715	10287	12463	15451	18003	20973	23148	25718
28	2770	5539	8309	10979	13248	16215	19224	22157	24927	27697
30	2967	5935	8902	11670	14027	17025	20472	23345	26707	29675

THERMAL WALL DIFFERENTIAL COST - (MM(\$'s))										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	575	1150	1725	2300	2875	3450	4025	4600	5175	5750
4	1150	2300	3450	4600	5750	6900	8050	9200	10350	11500
6	1725	3450	5175	6900	8625	10350	12075	13800	15525	17250
8	2300	4600	6900	9200	11500	13800	16100	18400	20700	23000
10	2875	5750	8625	11500	14375	17250	20125	23000	25875	28750
12	3450	6900	10350	13800	17250	20700	24150	27600	31050	34500
14	4025	8050	12075	16100	19625	23550	27500	31450	35400	39350
16	4600	9200	13800	18400	22500	26900	31350	35800	40300	44250
18	5175	10350	15525	20700	25375	30300	35250	40150	45050	49150
20	5750	11500	17250	23000	28250	33700	39200	44100	49000	53050
22	6325	12650	18975	25300	31125	37100	43150	48050	53000	57000
24	6900	13800	20700	27600	34000	41000	47100	52000	57000	61000
26	7475	14950	22425	29900	36875	44900	51050	56000	61000	65000
28	8050	16100	24150	32200	39750	48800	55000	60000	65000	69000
30	8625	17250	25875	34500	42625	52700	58950	64000	69000	73000

Mather AFB

ANNUAL SOLAR CONTRIBUTION - BHN(BTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0
4	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0
6	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.6	62.9
8	8.4	16.8	25.2	33.6	42.0	50.4	58.7	67.1	75.5	83.9
10	10.5	21.0	31.5	42.0	52.5	62.9	73.4	83.9	94.4	104.9
12	12.6	25.2	37.8	50.4	62.9	75.5	88.1	100.7	113.3	125.9
14	14.7	29.4	44.1	58.7	73.4	88.1	102.8	117.5	132.2	146.9
16	16.8	33.6	50.4	67.1	83.9	100.7	117.5	134.3	151.1	167.9
18	18.9	37.8	56.6	75.5	94.4	113.3	132.2	151.1	169.9	188.8
20	21.0	42.0	62.9	83.9	104.9	125.9	146.9	167.9	188.8	209.8
22	23.1	46.2	69.2	92.3	115.4	138.5	161.6	184.6	207.7	230.8
24	25.2	50.4	75.5	100.7	125.9	151.1	175.2	201.4	226.6	251.8
26	27.3	54.6	81.8	109.1	136.4	163.7	190.9	216.2	245.5	272.8
28	29.4	58.7	88.1	117.5	146.9	175.2	205.6	235.0	264.4	293.7
30	31.5	62.9	94.4	125.9	157.4	188.8	220.3	251.8	283.2	314.7

DIRECT GAIN DIFFERENTIAL COST - WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	402.	803.	1205.	1606.	2008.	2409.	2811.	3213.	3614.	4016.
4	803.	1606.	2409.	3213.	4016.	4819.	5622.	6425.	7228.	8032.
6	1205.	2409.	3614.	4819.	6024.	7228.	8433.	9636.	10843.	12047.
8	1606.	3213.	4819.	6425.	8032.	9638.	11244.	12850.	14457.	16063.
10	2008.	4016.	6024.	8032.	10039.	12047.	14055.	16063.	18071.	20079.
12	2409.	4819.	7228.	9638.	12047.	14457.	16866.	19276.	21685.	24095.
14	2811.	5622.	8433.	11244.	14055.	16866.	19677.	22488.	25299.	28110.
16	3213.	6425.	9636.	12850.	16063.	19276.	22488.	25701.	28913.	32126.
18	3614.	7228.	10843.	14457.	18071.	21685.	25299.	28913.	32528.	36142.
20	4016.	8032.	12047.	16063.	20079.	24095.	28110.	32126.	36142.	40158.
22	4417.	8835.	13252.	17669.	22097.	26104.	30121.	34136.	38152.	44173.
24	4819.	9638.	14457.	19276.	24095.	28110.	32132.	36143.	40158.	48189.
26	5220.	10441.	16661.	20882.	26102.	31123.	35143.	41754.	46864.	52205.
28	5622.	11244.	18866.	22488.	28110.	33132.	38354.	44976.	50088.	56221.
30	6024.	12047.	20071.	24095.	30118.	35142.	42165.	48189.	54213.	60237.

TROUGH WALL DIFFERENTIAL COST - WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	491.	982.	1474.	1965.	2456.	2947.	3439.	3930.	4421.	4912.
4	982.	1965.	2947.	3930.	4912.	5895.	6877.	7860.	8842.	9824.
6	1474.	2947.	4421.	5895.	7368.	8842.	10316.	11790.	13263.	14737.
8	1965.	3930.	5895.	7860.	9824.	11789.	13754.	15719.	17684.	19649.
10	2456.	4912.	7368.	9824.	12281.	14737.	17193.	19649.	22105.	24561.
12	2947.	5895.	8842.	11789.	14737.	17694.	20631.	23579.	26528.	29473.
14	3439.	6877.	10316.	13754.	17193.	20631.	24070.	27508.	30947.	34388.
16	3930.	7860.	11789.	15719.	19649.	23579.	27508.	31438.	35388.	38388.
18	4421.	8842.	13263.	17684.	22105.	26528.	30947.	35388.	39789.	44218.
20	4912.	9824.	14737.	19649.	24561.	29473.	34886.	39789.	44210.	49122.
22	5403.	10807.	16210.	21604.	27017.	32421.	37824.	43228.	48631.	54034.
24	5895.	11790.	17684.	23579.	29473.	35355.	41263.	47187.	53058.	58947.
26	6386.	12773.	19158.	25544.	31928.	37888.	44701.	51087.	57473.	63860.
28	6877.	13756.	20631.	27499.	34383.	40423.	48140.	55017.	61894.	68771.
30	7368.	14739.	22105.	29454.	36838.	42968.	51578.	58947.	66318.	73683.

Maxwell AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	2.9	3.9	4.9	5.9	6.9	7.8	8.8	9.8
4	2.0	3.9	5.9	7.8	9.8	11.8	13.7	15.7	17.6	19.6
6	2.9	5.9	8.8	11.8	14.7	17.6	20.6	23.5	26.5	29.4
8	3.9	7.8	11.8	15.7	19.6	23.5	27.4	31.4	35.3	39.2
10	4.9	9.8	14.7	19.6	24.5	29.4	34.3	39.2	44.1	49.0
12	5.9	11.8	17.6	23.5	29.4	35.3	41.2	47.0	52.9	58.8
14	6.9	13.7	20.6	27.4	34.3	41.2	48.0	54.9	61.8	68.6
16	7.8	15.7	23.5	31.4	39.2	47.0	54.9	62.7	70.6	78.4
18	8.8	17.6	26.5	35.3	44.1	52.9	61.8	70.6	79.4	88.2
20	9.8	19.6	29.4	39.2	49.0	58.8	68.6	78.4	88.2	98.0
22	10.8	21.6	32.3	43.1	53.9	64.7	75.5	86.3	97.0	107.8
24	11.8	23.5	35.3	47.0	58.8	70.6	82.3	94.1	105.9	117.6
26	12.7	25.5	38.2	51.0	63.7	76.5	89.2	101.9	114.7	127.4
28	13.7	27.4	41.2	54.9	68.6	82.3	96.1	109.8	123.5	137.2
30	14.7	29.4	44.1	58.8	73.5	89.2	102.9	117.6	132.3	147.0

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	158.	312.	466.	624.	780.	935.	1091.	1247.	1403.	1559.
4	312.	624.	935.	1247.	1559.	1871.	2183.	2494.	2806.	3118.
6	466.	935.	1403.	1871.	2339.	2806.	3274.	3742.	4209.	4677.
8	624.	1247.	1871.	2494.	3118.	3742.	4365.	4989.	5612.	6236.
10	780.	1559.	2339.	3118.	3898.	4677.	5457.	6236.	7016.	7795.
12	935.	1871.	2806.	3742.	4677.	5612.	6548.	7483.	8419.	9354.
14	1091.	2183.	3274.	4365.	5457.	6548.	7639.	8730.	9822.	10913.
16	1247.	2494.	3742.	4989.	6236.	7483.	8730.	9978.	11225.	12472.
18	1403.	2806.	4209.	5612.	7016.	8419.	9822.	11225.	12628.	14031.
20	1559.	3118.	4677.	6236.	7795.	9354.	10913.	12472.	14031.	15590.
22	1715.	3430.	5145.	6890.	8575.	10289.	12004.	13719.	15434.	17149.
24	1871.	3742.	5612.	7483.	9364.	11225.	13096.	14986.	16837.	18708.
26	2027.	4053.	6089.	8107.	10134.	12160.	14187.	16214.	18240.	20267.
28	2183.	4365.	6548.	8730.	10813.	13096.	15278.	17461.	19443.	21826.
30	2339.	4677.	7016.	9354.	11698.	14031.	16370.	18708.	21047.	23385.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	817.	494.	991.	698.	1094.	1391.	1618.	1735.	1852.	2169.
4	494.	991.	1501.	1735.	2169.	2603.	3037.	3470.	3904.	4338.
6	698.	1391.	1982.	2603.	3233.	3864.	4555.	5205.	5856.	6507.
8	991.	1982.	2983.	3470.	4338.	5205.	6073.	6941.	7808.	8676.
10	1284.	2568.	3852.	4555.	5422.	6289.	7157.	8024.	8892.	9759.
12	1501.	3003.	4504.	5205.	6073.	6941.	7808.	8676.	9544.	10412.
14	1618.	3233.	4855.	5737.	6604.	7472.	8340.	9208.	10076.	10944.
16	1735.	3470.	5145.	6016.	6941.	7866.	8791.	9716.	10641.	11566.
18	1852.	3707.	5436.	6289.	7264.	8189.	9114.	10039.	10964.	11891.
20	1969.	3944.	5727.	6562.	7557.	8482.	9407.	10332.	11257.	12186.
22	2086.	4181.	6013.	6840.	7840.	8765.	9690.	10615.	11540.	12481.
24	2203.	4418.	6304.	7113.	8113.	9038.	9963.	10888.	11813.	12776.
26	2320.	4655.	6595.	7386.	8386.	9311.	10236.	11161.	12088.	13071.
28	2437.	4892.	6886.	7659.	8659.	9586.	10513.	11438.	12383.	13366.
30	2554.	5129.	7177.	7932.	8932.	9863.	10740.	11665.	12678.	13661.

Maxwell AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9	
4	2.8	5.6	8.3	11.1	13.9	16.7	19.4	22.2	25.0	27.8	
6	4.2	8.3	12.5	16.7	20.8	25.0	29.2	33.3	37.5	41.7	
8	5.6	11.1	16.7	22.2	27.8	33.3	38.9	44.4	50.0	55.5	
10	6.9	13.9	20.8	27.8	34.7	41.7	48.6	55.5	62.5	69.4	
12	8.3	16.7	25.0	33.3	41.7	50.0	58.3	66.7	75.0	83.3	
14	9.7	19.4	29.2	38.9	48.6	58.3	68.0	77.8	87.5	97.2	
16	11.1	22.2	33.3	44.4	55.5	66.7	77.8	88.9	100.0	111.1	
18	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	
20	13.9	27.8	41.7	55.5	69.4	83.3	97.2	111.1	125.0	138.9	
22	15.3	30.5	45.8	61.1	76.1	91.6	106.9	122.2	137.5	152.7	
24	16.7	33.3	50.0	66.7	83.3	100.0	116.6	133.3	150.0	166.6	
26	18.1	36.1	54.2	72.2	90.3	108.3	126.4	144.4	162.5	180.5	
28	19.4	38.9	58.3	77.8	97.2	116.6	136.1	155.5	175.0	194.4	
30	20.8	41.7	62.5	83.3	104.1	125.0	145.8	166.6	187.5	208.3	

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	295.	589.	884.	1178.	1473.	1767.	2062.	2356.	2651.	2946.	
4	589.	1178.	1767.	2356.	2945.	3534.	4123.	4712.	5301.	5890.	
6	884.	1767.	2651.	3534.	4418.	5301.	6185.	7069.	7952.	8836.	
8	1178.	2356.	3534.	4712.	5890.	7069.	8247.	9425.	10603.	11781.	
10	1473.	2945.	4418.	5800.	7363.	8836.	10308.	11781.	13253.	14726.	
12	1767.	3534.	5301.	7069.	8836.	10603.	12370.	14137.	15904.	17671.	
14	2062.	4123.	6185.	8247.	10308.	12370.	14432.	16493.	18555.	20617.	
16	2356.	4712.	7069.	9425.	11781.	14137.	16493.	18849.	21206.	23562.	
18	2651.	5301.	7952.	10603.	13253.	15904.	18555.	21206.	23856.	26507.	
20	2945.	5890.	8836.	11781.	14726.	17671.	20617.	23662.	26507.	29452.	
22	3240.	6479.	9719.	12959.	16199.	19436.	22676.	25918.	29158.	32397.	
24	3534.	7069.	10603.	14137.	17671.	21206.	24740.	28274.	31808.	35343.	
26	3829.	7658.	11486.	15315.	19144.	22973.	26801.	30930.	34459.	38288.	
28	4123.	8247.	12370.	16493.	20617.	24740.	28863.	32986.	37110.	41233.	
30	4418.	8836.	13253.	17671.	22089.	26507.	30925.	35343.	39760.	44178.	

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	356.	711.	1067.	1422.	1778.	2133.	2489.	2844.	3200.	3556.	
4	711.	1422.	2133.	2844.	3555.	4266.	4977.	5688.	6399.	7110.	
6	1067.	2133.	3200.	4266.	5333.	6399.	7466.	8532.	9599.	10665.	
8	1422.	2844.	4266.	5688.	7110.	8532.	9954.	11376.	12799.	14221.	
10	1778.	3555.	5333.	7110.	8888.	10665.	12443.	14221.	15999.	17776.	
12	2133.	4266.	6399.	8532.	10665.	12799.	14932.	17065.	19198.	21331.	
14	2489.	4977.	7466.	9954.	12443.	14932.	17420.	19909.	22397.	24886.	
16	2844.	5688.	8532.	11376.	14221.	17065.	19909.	22753.	25697.	28441.	
18	3200.	6399.	9599.	12799.	15999.	19198.	22397.	25507.	28797.	31996.	
20	3555.	7110.	10665.	14221.	17776.	21331.	24886.	28441.	31996.	35551.	
22	3911.	7821.	11732.	15643.	19333.	23484.	27375.	31265.	35196.	39107.	
24	4266.	8532.	12799.	17065.	21331.	25597.	29863.	34129.	38396.	42662.	
26	4622.	9243.	13865.	18487.	23108.	27730.	32352.	36974.	41596.	46217.	
28	4977.	9954.	14932.	19909.	24886.	29863.	34510.	39618.	44796.	49772.	
30	5333.	10665.	16065.	21331.	26664.	31996.	37329.	42898.	47991.	53327.	

McChord AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.0	3.9	5.9	7.8	9.8	11.8	13.7	15.7	17.6	19.6
4	3.9	7.8	11.8	15.7	19.6	23.5	27.4	31.4	35.3	39.2
6	5.9	11.8	17.6	23.5	29.4	35.3	41.2	47.0	52.9	58.8
8	7.8	15.7	23.5	31.4	39.2	47.0	54.9	62.7	70.6	78.4
10	9.8	19.6	29.4	39.2	49.0	58.8	68.6	78.4	88.2	98.0
12	11.8	23.5	35.3	47.0	58.8	70.6	82.3	94.1	105.8	117.6
14	13.7	27.4	41.2	54.9	68.6	82.3	96.0	109.8	123.5	137.2
16	15.7	31.4	47.0	62.7	78.4	94.1	109.8	125.4	141.1	156.8
18	17.6	35.3	52.9	70.6	88.2	105.8	123.5	141.1	158.8	176.4
20	19.6	39.2	58.8	78.4	98.0	117.6	137.2	156.8	176.4	196.0
22	21.6	43.1	64.7	86.2	107.8	129.4	150.9	172.5	194.0	215.6
24	23.5	47.0	70.6	94.1	117.6	141.1	164.6	188.2	211.7	*****
26	25.5	51.0	78.4	101.9	127.4	152.9	178.4	203.8	229.3	*****
28	27.4	54.9	82.3	109.8	137.2	164.6	192.1	219.5	*****	*****
30	29.4	58.8	88.2	117.6	147.0	176.4	205.8	235.2	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	223.	447.	670.	893.	1117.	1340.	1563.	1787.	2010.	2233.
4	447.	893.	1340.	1787.	2233.	2680.	3127.	3573.	4020.	4467.
6	670.	1340.	2010.	2680.	3350.	4020.	4690.	5360.	6030.	6700.
8	893.	1787.	2680.	3573.	4467.	5360.	6253.	7147.	8040.	8933.
10	1117.	2233.	3350.	4467.	5583.	6700.	7817.	8933.	10050.	11167.
12	1340.	2680.	4020.	5360.	6700.	8040.	9380.	10720.	12060.	13400.
14	1563.	3127.	4690.	6253.	7817.	9380.	10943.	12507.	14070.	15634.
16	1787.	3573.	5360.	7147.	8933.	10720.	12507.	14284.	16080.	17867.
18	2010.	4020.	6030.	8040.	10050.	12060.	14070.	16080.	18090.	20100.
20	2233.	4467.	6700.	8933.	11167.	13400.	15634.	17867.	20100.	22334.
22	2457.	4913.	7370.	9827.	12283.	14740.	17197.	19654.	22110.	24567.
24	2680.	5360.	8040.	10720.	13400.	16080.	18760.	21440.	24120.	*****
26	2903.	5807.	8710.	11613.	14517.	17420.	20324.	23227.	26130.	*****
28	3127.	6253.	9380.	12507.	15634.	18760.	21887.	25014.	*****	*****
30	3350.	6700.	10050.	13400.	16760.	20100.	23450.	26800.	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	329.	657.	986.	1315.	1643.	1972.	2300.	2629.	2958.	3286.
4	657.	1315.	1972.	2629.	3286.	3944.	4601.	5258.	5915.	6573.
6	986.	1972.	2958.	3944.	4930.	5915.	6901.	7887.	8873.	9859.
8	1315.	2629.	3944.	5258.	6573.	7887.	9202.	10516.	11831.	13145.
10	1643.	3286.	4930.	6573.	8216.	9859.	11502.	13145.	14789.	16432.
12	1972.	3944.	5915.	7887.	9859.	11831.	13803.	15774.	17745.	19716.
14	2300.	4601.	6901.	9202.	11502.	13803.	16103.	18404.	20704.	23004.
16	2629.	5258.	7887.	10516.	13145.	15774.	18404.	21033.	23362.	25691.
18	2958.	5915.	8873.	11831.	14789.	17745.	20704.	23682.	26619.	28577.
20	3286.	6573.	9859.	13145.	16432.	19716.	23004.	26291.	29577.	32864.
22	3615.	7230.	10845.	14460.	18075.	21690.	25393.	29090.	33033.	36150.
24	3944.	7887.	11831.	15774.	19716.	23682.	27905.	31649.	35493.	*****
26	4272.	8545.	12817.	17089.	21361.	25834.	29906.	34178.	38050.	*****
28	4601.	9202.	13803.	18404.	23004.	27905.	32006.	36807.	*****	*****
30	4930.	9859.	14789.	19716.	24645.	29777.	34207.	39438.	*****	*****

McChord AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.6	7.3	10.9	14.6	18.2	21.8	25.5	29.1	32.8	36.4
4	7.3	14.6	21.8	29.1	36.4	43.7	51.0	58.2	65.5	72.8
6	10.9	21.8	32.8	43.7	54.6	65.5	76.4	87.4	98.3	109.2
8	14.6	29.1	43.7	58.2	72.8	87.4	101.9	116.5	131.0	145.6
10	18.2	36.4	54.6	72.8	91.0	109.2	127.4	145.6	163.8	182.0
12	21.8	43.7	65.5	87.4	109.2	131.0	152.9	174.7	196.6	218.4
14	25.5	51.0	76.4	101.9	127.4	152.9	178.4	203.8	229.3	254.8
16	29.1	58.2	87.4	116.5	145.6	174.7	203.8	233.0	262.1	291.2
18	32.8	65.5	98.3	131.0	163.8	196.6	229.3	262.1	294.8	327.6
20	36.4	72.8	109.2	145.6	182.0	218.4	254.8	291.2	327.6	364.0
22	40.0	80.1	120.1	160.2	200.2	240.2	280.3	320.3	360.3	400.4
24	43.7	87.4	131.0	174.7	218.4	262.1	305.7	349.4	393.1	*****
26	47.3	94.6	142.0	189.3	236.6	283.9	331.2	376.5	425.9	*****
28	51.0	101.9	152.9	203.8	254.8	305.7	356.7	407.7	*****	*****
30	54.6	109.2	163.8	218.4	273.0	327.6	382.2	436.8	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	463.	925.	1388.	1851.	2313.	2776.	3239.	3701.	4164.	4627.
4	925.	1851.	2776.	3701.	4627.	5552.	6477.	7402.	8328.	9253.
6	1388.	2776.	4164.	5552.	6940.	8328.	9716.	11104.	12492.	13880.
8	1851.	3701.	5552.	7402.	9253.	11104.	12954.	14805.	16656.	18506.
10	2313.	4627.	6940.	9253.	11566.	13880.	16193.	18506.	20819.	23133.
12	2776.	5552.	8328.	11104.	13990.	16655.	19431.	22207.	24983.	27759.
14	3239.	6477.	9716.	12954.	16193.	19431.	22670.	25909.	29147.	32386.
16	3701.	7402.	11104.	14805.	18506.	22207.	25909.	29610.	33311.	37012.
18	4164.	8328.	12492.	16656.	20819.	24983.	29147.	33311.	37475.	41639.
20	4627.	9253.	13880.	18506.	23133.	27759.	32386.	37012.	41639.	46286.
22	5090.	10178.	15288.	20357.	25446.	30635.	36624.	40713.	46803.	50892.
24	5552.	11104.	16665.	22207.	27759.	33311.	38803.	44415.	49996.	*****
26	6014.	12029.	18043.	24058.	30072.	36087.	42101.	48116.	54130.	*****
28	6477.	12954.	19431.	25909.	32386.	38803.	45340.	51817.	*****	*****
30	6940.	13880.	20819.	27759.	34699.	41639.	48578.	55616.	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	668.	1136.	1704.	2272.	2840.	3408.	3976.	4544.	5112.	5680.
4	1136.	2272.	3408.	4544.	5680.	6815.	7951.	9087.	10223.	11359.
6	1704.	3408.	5112.	6815.	8519.	10223.	11927.	13631.	15335.	17039.
8	2272.	4544.	6815.	9087.	11359.	13631.	15903.	18174.	20446.	22716.
10	2840.	5680.	8519.	11359.	14199.	17039.	19878.	22716.	25556.	28396.
12	3408.	6815.	10223.	13631.	17039.	20446.	23884.	27282.	30689.	34077.
14	3976.	7951.	11927.	15903.	19878.	23884.	27830.	31805.	35781.	39757.
16	4544.	9087.	13631.	18174.	22716.	27832.	31805.	36349.	40888.	45436.
18	5112.	10223.	15335.	20446.	25656.	30689.	35781.	40888.	46004.	51116.
20	5680.	11359.	17039.	22716.	28396.	34077.	39757.	45436.	51116.	56795.
22	6247.	12495.	19431.	24983.	30635.	36624.	42732.	49980.	56827.	62475.
24	6815.	13631.	21846.	27832.	34077.	40883.	47708.	54923.	61339.	*****
26	7383.	14767.	24258.	30683.	36617.	44300.	51684.	59057.	66459.	*****
28	7951.	15903.	26664.	33533.	39757.	47708.	56559.	63811.	*****	*****
30	8519.	17039.	29080.	36577.	42855.	51116.	59833.	68154.	*****	*****

McClellan AFB

ANNUAL SOLAR CONTRIBUTION - NNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.5	3.0	4.5	5.9	7.4	8.9	10.4	11.9	13.4	14.8
4	3.0	5.9	8.9	11.9	14.8	17.8	20.8	23.7	26.7	29.7
6	4.5	8.9	13.4	17.8	22.3	26.7	31.2	35.6	40.1	44.5
8	5.9	11.9	17.8	23.7	29.7	35.6	41.6	47.5	53.4	59.4
10	7.4	14.8	22.3	29.7	37.1	44.5	51.9	59.4	66.8	74.2
12	8.9	17.8	26.7	35.6	44.5	53.4	62.3	71.2	80.1	89.0
14	10.4	20.8	31.2	41.6	51.9	62.3	72.7	83.1	93.5	103.9
16	11.9	23.7	35.6	47.5	59.4	71.2	83.1	95.0	106.9	118.7
18	13.4	26.7	40.1	53.4	65.3	77.2	89.0	100.9	112.8	124.7
20	14.8	29.7	44.5	59.4	74.2	89.0	103.9	118.7	133.6	148.4
22	16.3	32.6	49.0	65.3	81.6	97.9	114.3	130.6	146.9	163.2
24	17.8	35.6	53.4	71.2	89.0	106.9	124.7	142.5	160.3	178.1
26	19.3	38.6	57.8	77.2	96.5	115.8	136.0	154.3	173.6	192.9
28	20.8	41.6	62.3	83.1	103.9	124.7	145.4	166.2	187.0	207.8
30	22.3	44.5	66.8	89.0	111.3	133.6	155.8	178.1	200.3	222.6

DIRECT GAIN DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	198	396	593	791	989	1187	1385	1583	1780	1978
4	396	791	1187	1583	1978	2374	2770	3165	3561	3957
6	593	1187	1780	2374	2967	3561	4154	4748	5341	5935
8	791	1583	2374	3165	3957	4748	5539	6331	7122	7913
10	989	1978	2967	3957	4946	5935	6924	7913	8902	9892
12	1187	2374	3561	4748	5935	7122	8309	9496	10683	11870
14	1385	2770	4154	5539	6924	8309	9694	11079	12463	13848
16	1583	3165	4748	6331	7913	9496	11079	12661	14244	15827
18	1780	3561	5341	7122	8902	10683	12463	14244	16024	17805
20	1978	3957	5935	7913	9892	11870	13848	15827	17805	19783
22	2176	4352	6528	8705	10881	13067	15283	17499	19665	21762
24	2374	4748	7122	9496	11870	14244	16516	18692	20866	23740
26	2572	5144	7715	10287	12669	15431	18003	20075	22146	25718
28	2770	5539	8309	11079	13848	16618	19386	22157	24267	27697
30	2967	5935	8902	11870	14537	17906	20772	23740	26707	29676

TROMBE WALL DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	287	575	862	1150	1437	1725	2012	2300	2587	2875
4	575	1150	1725	2300	2875	3450	4025	4600	5175	5750
6	862	1725	2587	3450	4312	5175	6037	6900	7762	8625
8	1150	2300	3450	4600	5750	6900	8049	9199	10349	11499
10	1437	2875	4312	5750	7187	8624	10062	11499	12937	14374
12	1725	3450	5175	6900	8624	10349	12074	13799	15524	17249
14	2012	4025	6037	8049	10062	12074	14087	16099	18111	20124
16	2300	4600	6900	9199	11499	13799	16099	18299	20299	22300
18	2587	5175	7762	10349	12669	15431	18111	20499	22899	24874
20	2875	5750	8624	11499	14374	17249	20124	22999	25874	27749
22	3162	6325	9487	12669	15431	18974	22136	25099	28099	30623
24	3450	6900	10349	13799	17249	20899	24145	27399	30445	33498
26	3737	7474	11212	14949	18999	22423	26191	29599	32823	35372
28	4025	8049	12074	16099	20124	24145	28173	32199	35299	38247
30	4312	8624	12937	17249	21274	25275	30165	34299	37810	41122

McClellan AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0
4	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0
6	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.6	62.9
8	8.4	16.8	25.2	33.6	42.0	50.4	58.7	67.1	75.5	83.9
10	10.5	21.0	31.5	42.0	52.5	62.9	73.4	83.9	94.4	104.9
12	12.6	25.2	37.8	50.4	62.9	75.5	88.1	100.7	113.3	125.9
14	14.7	29.4	44.1	58.7	73.4	88.1	102.8	117.5	132.2	146.9
16	16.8	33.6	50.4	67.1	83.9	100.7	117.5	134.3	151.1	167.9
18	18.9	37.8	56.6	75.5	94.4	113.3	132.2	151.1	169.9	188.8
20	21.0	42.0	62.9	83.9	104.9	125.9	146.9	167.9	188.8	209.8
22	23.1	46.2	69.2	92.3	116.4	138.5	161.6	184.6	207.7	230.8
24	25.2	50.4	75.5	100.7	128.9	151.1	176.2	201.4	226.6	251.8
26	27.3	54.6	81.8	109.1	136.4	163.7	190.9	218.2	245.5	272.8
28	29.4	58.7	88.1	117.5	144.9	176.2	205.6	235.0	264.4	293.7
30	31.5	62.9	94.4	125.9	157.4	188.8	220.3	251.8	283.2	314.7

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	402.	803.	1206.	1608.	2008.	2408.	2811.	3213.	3614.	4016.
4	803.	1606.	2408.	3213.	4016.	4818.	5622.	6425.	7228.	8032.
6	1206.	2408.	3614.	4818.	6024.	7228.	8433.	9636.	10843.	12047.
8	1608.	3213.	4818.	6425.	8032.	9636.	11244.	12850.	14457.	16063.
10	2008.	4016.	6024.	8032.	10039.	12047.	14055.	16063.	18071.	20079.
12	2408.	4818.	7228.	9636.	12047.	14457.	16866.	19276.	21686.	24095.
14	2811.	5622.	8433.	11244.	14055.	16866.	19677.	22486.	25296.	28110.
16	3213.	6425.	9636.	12850.	16063.	19276.	22486.	25701.	28913.	32126.
18	3614.	7228.	10843.	14457.	18071.	21686.	25296.	28913.	32528.	36142.
20	4016.	8032.	12047.	16063.	20079.	24095.	28110.	32126.	36142.	40158.
22	4417.	8835.	13252.	17680.	22087.	26504.	30921.	35339.	39758.	44173.
24	4819.	9638.	14457.	19276.	24095.	28913.	33732.	38551.	43370.	48189.
26	5220.	10441.	16063.	20882.	26102.	31523.	36543.	41764.	46984.	52205.
28	5622.	11244.	18068.	22486.	28110.	33732.	39354.	44976.	50598.	56221.
30	6024.	12047.	19271.	24095.	30118.	36142.	42165.	48189.	54213.	60236.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	491.	982.	1474.	1965.	2456.	2947.	3438.	3930.	4421.	4912.
4	982.	1965.	2947.	3930.	4912.	5895.	6877.	7860.	8842.	9824.
6	1474.	2947.	4421.	5895.	7368.	8842.	10316.	11789.	13263.	14737.
8	1965.	3930.	5895.	7860.	9824.	11789.	13754.	15719.	17684.	19649.
10	2456.	4912.	7368.	9824.	12281.	14737.	17193.	19649.	22105.	24561.
12	2947.	5895.	8842.	11789.	14737.	17684.	20631.	23578.	26524.	29473.
14	3438.	6877.	10316.	13754.	17193.	20631.	23578.	27005.	30947.	34388.
16	3930.	7860.	11789.	15719.	19649.	23578.	27005.	31438.	35399.	39303.
18	4421.	8842.	13263.	17684.	21686.	26504.	30921.	35385.	39769.	44210.
20	4912.	9824.	14737.	19649.	24095.	28913.	33847.	39305.	44219.	49122.
22	5403.	10807.	16210.	21686.	26504.	30921.	35824.	42268.	48683.	54034.
24	5895.	11790.	17684.	23678.	29473.	33847.	38801.	45231.	50647.	58947.
26	6386.	12772.	19158.	25670.	31465.	36770.	41771.	48195.	52611.	63860.
28	6877.	13754.	20631.	27662.	33478.	39704.	44716.	51159.	54575.	68771.
30	7368.	14737.	22105.	29654.	35491.	42637.	47661.	54123.	56539.	73683.

McConnell AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.4	6.6	8.8	11.0	13.2	15.4	17.5	19.7	21.9
4	4.4	8.8	13.2	17.5	21.9	26.3	30.7	35.1	39.5	43.9
6	6.6	13.2	19.7	26.3	32.9	39.5	46.1	52.6	59.2	65.8
8	8.8	17.5	26.3	35.1	43.9	52.6	61.4	70.2	79.0	87.7
10	11.0	21.9	32.9	43.9	54.8	65.8	76.8	87.7	98.7	109.7
12	13.2	26.3	39.5	52.6	65.8	79.0	92.1	105.3	118.4	131.6
14	15.4	30.7	46.1	61.4	76.8	92.1	107.5	122.8	138.2	*****
16	17.5	35.1	52.6	70.2	87.7	105.3	122.8	140.4	157.9	*****
18	19.7	39.5	59.2	79.0	98.7	118.4	138.2	157.9	*****	*****
20	21.9	43.9	65.8	87.7	109.7	131.6	153.5	175.5	*****	*****
22	24.1	48.3	72.4	96.5	120.6	144.8	169.9	*****	*****	*****
24	26.3	52.6	79.0	105.3	131.6	157.9	184.3	*****	*****	*****
26	28.5	57.0	85.5	114.1	142.6	171.1	199.6	*****	*****	*****
28	30.7	61.4	92.1	122.8	153.5	184.3	*****	*****	*****	*****
30	32.9	65.8	98.7	131.6	164.5	197.4	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303.	616.	924.	1232.	1540.	1848.	2156.	2465.	2773.	3081.
4	616.	1232.	1848.	2465.	3081.	3697.	4313.	4929.	5545.	6161.
6	924.	1848.	2773.	3697.	4621.	5545.	6469.	7394.	8318.	9242.
8	1232.	2465.	3697.	4929.	6161.	7394.	8626.	9858.	11090.	12323.
10	1540.	3081.	4621.	6161.	7702.	9242.	10782.	12323.	13863.	15403.
12	1848.	3697.	5545.	7394.	9242.	11090.	12939.	14787.	16635.	18484.
14	2156.	4313.	6469.	8626.	10782.	12939.	15095.	17252.	19408.	*****
16	2465.	4929.	7394.	9858.	12323.	14787.	17252.	19716.	22181.	*****
18	2773.	5545.	8318.	11090.	13863.	16336.	19408.	22181.	*****	*****
20	3081.	6161.	9242.	12323.	15403.	18484.	21564.	24445.	*****	*****
22	3389.	6777.	10166.	13555.	16943.	20332.	23721.	*****	*****	*****
24	3697.	7394.	11090.	14787.	18484.	22181.	25877.	*****	*****	*****
26	4005.	8010.	12014.	16019.	20024.	24082.	28034.	*****	*****	*****
28	4313.	8626.	12939.	17252.	21564.	25877.	*****	*****	*****	*****
30	4621.	9242.	13863.	18484.	23105.	27730.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	424.	848.	1272.	1728.	2100.	2492.	2904.	3336.	3792.	4260.
4	848.	1728.	2592.	3456.	4320.	5184.	6048.	6912.	7776.	8640.
6	1272.	2592.	3936.	5184.	6432.	7680.	8928.	10176.	11424.	12672.
8	1728.	3456.	5184.	6912.	8640.	10368.	12096.	13824.	15552.	17280.
10	2100.	4320.	6432.	8640.	10920.	13200.	15480.	17760.	20040.	22320.
12	2492.	5184.	7776.	10368.	12960.	15600.	18144.	20608.	23072.	25536.
14	2904.	6048.	9072.	12096.	14784.	17616.	20144.	22608.	25056.	*****
16	3336.	6912.	10368.	13824.	16800.	19800.	22720.	25152.	27504.	*****
18	3792.	7776.	11664.	15552.	18720.	21840.	24576.	27120.	29856.	*****
20	4260.	8640.	12960.	17280.	20880.	23880.	26328.	28896.	31200.	*****
22	4728.	9504.	14256.	19008.	22128.	25128.	28224.	30864.	32640.	*****
24	5184.	10368.	15552.	20736.	23376.	26472.	29736.	32448.	34080.	*****
26	5640.	11232.	16848.	22464.	24624.	27816.	31248.	33936.	35520.	*****
28	6096.	12096.	18144.	24192.	25872.	29160.	32784.	35424.	36960.	*****
30	6552.	12960.	19440.	25920.	27120.	30504.	33264.	36912.	38400.	*****

McCormell AFB

ANNUAL SOLAR CONTRIBUTION - WHI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.8	7.6	11.4	15.2	19.0	22.8	26.6	30.4	34.2	38.0
4	7.6	15.2	22.8	30.4	38.0	45.6	53.2	60.7	68.3	75.9
6	11.4	22.8	34.2	45.6	56.9	68.3	79.7	91.1	102.5	113.9
8	15.2	30.4	45.6	60.7	75.9	91.1	106.3	121.5	136.7	151.9
10	19.0	38.0	56.9	75.9	94.9	113.9	132.9	151.9	170.8	189.8
12	22.8	45.6	68.3	91.1	113.9	136.7	159.5	182.2	205.0	227.8
14	26.6	53.2	79.7	106.3	132.9	159.5	186.0	212.6	239.2	*****
16	30.4	60.7	91.1	121.5	151.9	182.2	212.6	243.0	273.3	*****
18	34.2	68.3	102.5	136.7	170.8	205.0	239.2	273.3	*****	*****
20	38.0	75.9	113.9	151.9	189.8	227.8	265.8	303.7	*****	*****
22	41.8	83.5	125.3	167.0	208.8	250.6	292.3	*****	*****	*****
24	45.6	91.1	136.7	182.2	227.8	273.3	318.9	*****	*****	*****
26	49.4	98.7	148.1	197.4	246.8	296.1	345.5	*****	*****	*****
28	53.2	106.3	159.5	212.6	265.8	318.9	*****	*****	*****	*****
30	56.9	113.9	170.8	227.8	284.7	341.7	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - WHI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	900.	1179.	1769.	2359.	2949.	3538.	4128.	4718.	5307.	5897.
4	1179.	2359.	3538.	4718.	5897.	7077.	8256.	9435.	10615.	11794.
6	1769.	3538.	5307.	7077.	8846.	10615.	12384.	14153.	15922.	17691.
8	2359.	4718.	7077.	9435.	11794.	14153.	16512.	18871.	21230.	23589.
10	2949.	5897.	8846.	11794.	14743.	17691.	20640.	23589.	26537.	29486.
12	3538.	7077.	10615.	14153.	17691.	21230.	24768.	28306.	31845.	35383.
14	4128.	8256.	12384.	16512.	20640.	24768.	28896.	33024.	37152.	*****
16	4718.	9435.	14153.	18871.	23589.	28306.	33024.	37742.	42459.	*****
18	5307.	10615.	16022.	21230.	26537.	31845.	37152.	42459.	*****	*****
20	5897.	11794.	17691.	23589.	29486.	35383.	41280.	47177.	*****	*****
22	6487.	12974.	19481.	25647.	32434.	38821.	45408.	*****	*****	*****
24	7077.	14153.	21230.	28306.	35383.	42459.	49536.	*****	*****	*****
26	7666.	15333.	22979.	30868.	38331.	45988.	53664.	*****	*****	*****
28	8256.	16512.	24768.	33024.	41280.	49536.	*****	*****	*****	*****
30	8846.	17691.	26537.	35383.	44228.	53074.	*****	*****	*****	*****

TROUGH WALL DIFFERENTIAL COST - WHI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	714.	1427.	2141.	2854.	3568.	4282.	4995.	5709.	6423.	7136.
4	1427.	2854.	4282.	5709.	7136.	8564.	9991.	11418.	12845.	14273.
6	2141.	4282.	6423.	8564.	10705.	12846.	14987.	17127.	19268.	21409.
8	2854.	5709.	8564.	11418.	14131.	16844.	19557.	22269.	25031.	27794.
10	3568.	7136.	10705.	14131.	17844.	21409.	24974.	28539.	32104.	35669.
12	4282.	8564.	12846.	16844.	20657.	24222.	27787.	31352.	34917.	38484.
14	4995.	9991.	14987.	19557.	23870.	28083.	31648.	35213.	38778.	*****
16	5709.	11418.	17127.	22687.	27084.	31248.	34813.	38378.	41943.	*****
18	6423.	12845.	19268.	25031.	29691.	34353.	37918.	41533.	*****	*****
20	7136.	14273.	21409.	28084.	32294.	36958.	40473.	44118.	*****	*****
22	7850.	15700.	23531.	30637.	34897.	39603.	43018.	46703.	*****	*****
24	8564.	17127.	25674.	33180.	37440.	42148.	45063.	48288.	*****	*****
26	9278.	18554.	27817.	35723.	39983.	44693.	47108.	50373.	*****	*****
28	9991.	19981.	29960.	38266.	42526.	47238.	49153.	52458.	*****	*****
30	10705.	21409.	32003.	40809.	45069.	49783.	51198.	54543.	*****	*****

McGuire AFB

SQ FT (x 1000)	ANNUAL SOLAR CONTRIBUTION - BTU/(HRTU ²)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.3	5.0	6.7	8.3	10.0	11.6	13.3	15.0	16.6
4	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
6	5.0	10.0	15.0	20.0	25.0	29.9	34.9	39.9	44.9	49.9
8	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.3	59.9	66.6
10	8.3	16.6	25.0	33.3	41.6	49.9	58.2	66.6	74.9	83.2
12	10.0	20.0	29.9	39.9	49.9	59.9	69.9	79.9	89.9	*****
14	11.6	23.3	34.9	46.6	58.2	69.9	81.5	93.2	104.8	*****
16	13.3	26.6	39.9	53.2	66.6	79.9	93.2	106.5	*****	*****
18	15.0	29.9	44.9	59.9	74.9	89.9	104.8	119.8	*****	*****
20	16.6	33.3	49.9	66.6	83.2	99.8	116.5	*****	*****	*****
22	18.3	36.6	54.9	73.2	91.5	109.8	128.1	*****	*****	*****
24	20.0	39.9	59.9	79.9	99.8	119.8	139.8	*****	*****	*****
26	21.6	43.2	64.9	86.6	108.1	129.8	*****	*****	*****	*****
28	23.3	46.6	69.9	93.2	116.5	139.8	*****	*****	*****	*****
30	25.0	49.9	74.9	99.8	124.8	149.7	*****	*****	*****	*****

SQ FT (x 1000)	DIRECT COST DIFFERENTIAL COST - (HRTU ²)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	380.	641.	901.	1161.	1422.	1682.	1942.	2202.	2462.	2722.
4	641.	1281.	1922.	2562.	3202.	3844.	4484.	5125.	5765.	6406.
6	901.	1802.	2703.	3604.	4505.	5406.	6307.	7208.	8109.	9010.
8	1161.	2322.	3483.	4644.	5805.	6966.	8127.	9288.	10449.	11610.
10	1422.	2843.	4264.	5685.	7106.	8527.	9948.	11369.	12790.	14211.
12	1682.	3364.	5045.	6726.	8407.	10088.	11769.	13450.	15131.	16812.
14	1942.	3885.	5826.	7507.	9288.	10969.	12650.	14331.	16012.	17693.
16	2202.	4406.	6607.	8388.	10169.	11850.	13531.	15212.	16893.	18574.
18	2462.	4927.	7388.	9269.	11050.	12731.	14412.	16093.	17774.	19455.
20	2722.	5448.	8169.	10140.	11931.	13612.	15293.	16974.	18655.	20336.
22	2982.	5969.	8950.	11021.	12812.	14593.	16174.	17855.	19536.	21217.
24	3242.	6490.	9731.	11902.	13693.	15474.	17055.	18736.	20417.	22098.
26	3502.	7011.	10512.	12783.	14574.	16355.	17936.	19617.	21298.	22979.
28	3762.	7532.	11293.	13664.	15455.	17236.	18817.	20498.	22179.	23860.
30	4022.	8053.	12074.	14545.	16336.	18117.	19698.	21379.	23060.	24741.

SQ FT (x 1000)	ANNUAL SOLAR CONTRIBUTION - BTU/(HRTU ²)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.3	5.0	6.7	8.3	10.0	11.6	13.3	15.0	16.6
4	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
6	5.0	10.0	15.0	20.0	25.0	29.9	34.9	39.9	44.9	49.9
8	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.3	59.9	66.6
10	8.3	16.6	25.0	33.3	41.6	49.9	58.2	66.6	74.9	83.2
12	10.0	20.0	29.9	39.9	49.9	59.9	69.9	79.9	89.9	*****
14	11.6	23.3	34.9	46.6	58.2	69.9	81.5	93.2	104.8	*****
16	13.3	26.6	39.9	53.2	66.6	79.9	93.2	106.5	*****	*****
18	15.0	29.9	44.9	59.9	74.9	89.9	104.8	119.8	*****	*****
20	16.6	33.3	49.9	66.6	83.2	99.8	116.5	*****	*****	*****
22	18.3	36.6	54.9	73.2	91.5	109.8	128.1	*****	*****	*****
24	20.0	39.9	59.9	79.9	99.8	119.8	139.8	*****	*****	*****
26	21.6	43.2	64.9	86.6	108.1	129.8	*****	*****	*****	*****
28	23.3	46.6	69.9	93.2	116.5	139.8	*****	*****	*****	*****
30	25.0	49.9	74.9	99.8	124.8	149.7	*****	*****	*****	*****

McGuire AFB

ANNUAL SOLAR CONTRIBUTION--WHI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
4	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.2	59.9	66.6
6	10.0	20.0	30.0	39.9	49.8	59.7	69.6	79.5	89.4	99.3
8	13.3	26.6	39.9	53.2	66.6	79.9	93.2	106.5	119.8	133.1
10	16.6	33.3	49.9	66.6	83.2	99.8	116.5	133.1	149.7	166.4
12	20.0	39.9	59.9	79.9	99.8	119.8	139.8	159.7	179.7	199.7
14	23.3	46.6	69.9	93.2	116.5	139.8	163.1	186.5	209.8	233.1
16	26.6	53.2	79.9	106.5	133.1	159.7	186.5	213.0	239.8	266.4
18	29.9	59.9	89.8	119.8	149.7	179.7	209.8	239.8	266.4	299.7
20	33.3	66.6	99.8	133.1	166.4	199.7	232.9	266.4	299.7	333.0
22	36.6	73.2	109.8	146.4	183.0	219.6	256.2	299.7	333.0	366.3
24	39.9	79.9	119.8	160.7	199.7	239.8	279.5	333.0	366.3	399.6
26	43.3	86.5	129.8	172.0	216.3	259.6	303.4	366.3	399.6	432.9
28	46.6	93.2	139.8	186.3	232.9	279.5	327.3	399.6	432.9	466.2
30	49.9	99.9	149.7	199.7	249.6	299.5	351.2	432.9	466.2	500.0

DIRECT GAIN DIFFERENTIAL COST--WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	636	1272	1908	2544	3180	3816	4452	5088	5723	6358
4	1272	2544	3816	5088	6359	7631	8903	10175	11447	12719
6	1908	3816	5723	7631	9539	11447	13355	15263	17170	19078
8	2544	5088	7631	10175	12719	15263	17806	20350	22894	25438
10	3180	6359	9539	12719	15263	17806	20350	22894	25438	27982
12	3816	7631	11447	14663	17207	19750	22294	24838	27381	30000
14	4452	8903	13355	16563	19106	21650	24194	26738	29281	31800
16	5088	10175	15263	18463	20956	23506	26048	28581	31438	33600
18	5723	11447	17170	20363	22806	25361	27901	30438	33281	35400
20	6359	12719	19078	22263	24656	27211	29750	32281	35138	37200
22	6994	13991	20986	24163	26506	29061	31594	34138	37000	39000
24	7631	15263	22894	26063	28356	30911	33448	35981	38850	40800
26	8267	16534	24802	27963	30206	32761	35301	37838	40700	42600
28	8903	17806	26710	29863	32056	34611	37150	39681	42550	44400
30	9539	19078	28617	31763	33906	36461	39001	41538	44400	46200

TROUGH WALL DIFFERENTIAL COST--WHI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	170	340	510	680	850	1020	1190	1360	1530	1700
4	340	680	1020	1360	1700	2040	2380	2720	3060	3400
6	510	1020	1530	2040	2550	3060	3570	4080	4590	5100
8	680	1360	2040	2720	3400	4080	4760	5440	6120	6800
10	850	1700	2550	3400	4250	5100	5950	6800	7650	8500
12	1020	2040	3060	4080	5100	6120	7140	8160	9180	10200
14	1190	2380	3570	4760	5950	7140	8330	9520	10710	11900
16	1360	2720	4080	5440	6800	8160	9520	10880	12240	13600
18	1530	3060	4590	6120	7650	9180	10710	12240	13700	15000
20	1700	3400	5100	6800	8500	10200	11900	13700	15400	16400
22	1870	3740	5610	7500	9350	11150	12950	14800	16700	17800
24	2040	4080	6120	8200	10200	12400	14300	16300	18200	19200
26	2210	4420	6630	8900	11050	13300	15200	17200	19700	20600
28	2380	4760	7140	9600	11900	14200	16100	18100	20200	22000
30	2550	5100	7650	10300	12750	15100	17000	19000	21700	23400

Moody AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.7	1.5	2.2	2.9	3.7	4.4	5.1	5.9	6.6	7.3
4	1.5	2.9	4.4	5.9	7.3	8.8	10.2	11.7	13.2	14.6
6	2.2	4.4	6.6	8.8	11.0	13.2	15.4	17.6	19.8	21.9
8	2.9	5.9	8.8	11.7	14.6	17.6	20.5	23.4	26.3	29.3
10	3.7	7.3	11.0	14.6	18.3	21.9	25.6	29.3	32.9	36.6
12	4.4	8.8	13.2	17.6	21.9	26.3	30.7	35.1	39.5	43.9
14	5.1	10.2	15.4	20.5	25.6	30.7	35.8	41.0	46.1	51.2
16	5.9	11.7	17.6	23.4	29.3	35.1	41.0	46.8	52.7	58.5
18	6.6	13.2	19.8	26.3	32.9	39.5	46.1	52.7	59.3	65.8
20	7.3	14.6	21.9	29.3	36.6	43.9	51.2	58.5	65.8	73.1
22	8.0	16.1	24.1	32.2	40.2	48.3	56.3	64.4	72.4	80.5
24	8.8	17.6	26.3	35.1	43.9	52.7	61.4	70.2	79.0	87.8
26	9.5	19.0	28.5	38.0	47.5	57.1	66.4	76.1	85.6	95.1
28	10.2	20.5	30.7	41.0	51.2	61.4	71.7	81.9	92.2	102.4
30	11.0	21.9	32.9	43.9	54.9	65.8	76.8	87.8	98.5	109.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	111.	222.	333.	445.	556.	667.	778.	889.	1000.	1111.
4	222.	445.	667.	889.	1111.	1334.	1556.	1778.	2000.	2223.
6	333.	667.	1000.	1334.	1667.	2000.	2334.	2667.	3000.	3334.
8	445.	889.	1334.	1778.	2223.	2667.	3112.	3556.	4001.	4445.
10	556.	1111.	1667.	2223.	2778.	3334.	3889.	4445.	5001.	5556.
12	667.	1334.	2000.	2667.	3334.	4001.	4667.	5334.	6001.	6668.
14	778.	1556.	2334.	3112.	3889.	4667.	5445.	6223.	7001.	7779.
16	889.	1778.	2667.	3556.	4445.	5334.	6223.	7112.	8001.	8890.
18	1000.	2000.	3000.	4001.	5001.	6001.	7001.	8001.	9001.	10001.
20	1111.	2223.	3334.	4445.	5556.	6667.	7778.	8889.	10001.	11113.
22	1222.	2445.	3667.	4889.	6112.	7334.	8556.	9778.	11002.	12224.
24	1334.	2667.	4001.	5223.	6445.	7667.	8889.	10002.	11223.	13335.
26	1445.	2889.	4334.	5778.	7001.	8223.	9445.	10667.	11889.	14446.
28	1556.	3112.	4667.	6223.	7778.	9001.	10223.	11445.	12667.	15558.
30	1667.	3334.	5001.	6668.	8334.	10001.	11223.	12445.	13889.	16669.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	154.	308.	462.	616.	770.	924.	1078.	1232.	1386.	1540.
4	308.	616.	924.	1232.	1540.	1848.	2156.	2464.	2772.	3079.
6	462.	924.	1386.	1848.	2310.	2772.	3234.	3696.	4158.	4619.
8	616.	1232.	1848.	2310.	2772.	3234.	3696.	4158.	4619.	5080.
10	770.	1540.	2310.	2772.	3234.	3696.	4158.	4619.	5080.	5541.
12	924.	1848.	2772.	3234.	3696.	4158.	4619.	5080.	5541.	6002.
14	1078.	2156.	3234.	3696.	4158.	4619.	5080.	5541.	6002.	6463.
16	1232.	2464.	3696.	4158.	4619.	5080.	5541.	6002.	6463.	6924.
18	1386.	2772.	4158.	4619.	5080.	5541.	6002.	6463.	6924.	7385.
20	1540.	3080.	4619.	5080.	5541.	6002.	6463.	6924.	7385.	7846.
22	1694.	3388.	5080.	5541.	6002.	6463.	6924.	7385.	7846.	8307.
24	1848.	3696.	5541.	6002.	6463.	6924.	7385.	7846.	8307.	8768.
26	2002.	4004.	6002.	6463.	6924.	7385.	7846.	8307.	8768.	9229.
28	2156.	4312.	6463.	6924.	7385.	7846.	8307.	8768.	9229.	9690.
30	2310.	4620.	6924.	7385.	7846.	8307.	8768.	9229.	9690.	10151.

Moody AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MDTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	3.0	3.9	4.9	5.9	6.9	7.9	8.9	9.8
4	2.0	3.9	5.9	7.9	9.8	11.8	13.8	15.8	17.7	19.7
6	3.0	5.9	8.9	11.8	14.8	17.7	20.7	23.6	26.6	29.5
8	3.9	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.4	39.4
10	4.9	9.8	14.8	19.7	24.6	29.5	34.5	39.4	44.3	49.2
12	5.9	11.8	17.7	23.6	29.5	35.4	41.4	47.3	53.2	59.1
14	6.9	13.8	20.7	27.6	34.5	41.4	48.2	55.1	62.0	68.9
16	7.9	15.8	23.6	31.5	39.4	47.3	55.1	63.0	70.9	78.8
18	8.9	17.7	26.6	35.4	44.3	53.2	62.0	70.9	79.8	88.6
20	9.8	19.7	29.5	39.4	49.2	59.1	68.9	78.8	88.6	98.5
22	10.8	21.7	32.5	43.3	54.2	65.0	75.8	86.7	97.5	108.3
24	11.8	23.6	35.4	47.3	59.1	70.9	82.7	94.5	106.3	118.2
26	12.8	25.6	38.4	51.2	64.0	76.8	89.6	102.4	115.2	128.0
28	13.8	27.6	41.4	55.1	68.9	82.7	96.5	110.3	124.1	137.9
30	14.8	29.5	44.3	59.1	73.9	88.6	103.4	118.2	132.9	147.7

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	399.	417.	435.	454.	472.	491.	510.	528.	547.	565.
4	417.	834.	1251.	1668.	2085.	2502.	2918.	3335.	3752.	4169.
6	625.	1251.	1876.	2502.	3127.	3752.	4378.	5003.	5628.	6254.
8	834.	1668.	2502.	3335.	4169.	5003.	5837.	6671.	7505.	8338.
10	1042.	2085.	3127.	4169.	5212.	6254.	7296.	8338.	9381.	10423.
12	1251.	2502.	3752.	5003.	6254.	7505.	8755.	10006.	11257.	12508.
14	1459.	2918.	4378.	5837.	7296.	8755.	10215.	11674.	13133.	14592.
16	1668.	3335.	5003.	6671.	8338.	10006.	11674.	13342.	15009.	16677.
18	1876.	3752.	5628.	7505.	9381.	11257.	13133.	15009.	16885.	18762.
20	2085.	4169.	6254.	8338.	10423.	12508.	14592.	16677.	18762.	20846.
22	2293.	4586.	6879.	9172.	11485.	13758.	16032.	18305.	20578.	22851.
24	2502.	5003.	7505.	10006.	12508.	15009.	17511.	20012.	22514.	25015.
26	2710.	5420.	8130.	10840.	13650.	16280.	18970.	21660.	24350.	27100.
28	2918.	5837.	8755.	11674.	14592.	17511.	20429.	23348.	26266.	29185.
30	3127.	6254.	9381.	12508.	15535.	18792.	21899.	24915.	28142.	31269.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	251.	503.	754.	1005.	1256.	1508.	1759.	2010.	2262.	2513.
4	503.	1005.	1508.	2010.	2513.	3015.	3518.	4021.	4523.	5026.
6	754.	1508.	2262.	3015.	3769.	4523.	5277.	6031.	6785.	7539.
8	1005.	2010.	3015.	4021.	5026.	6031.	7036.	8041.	9046.	10052.
10	1256.	2513.	3769.	5026.	6282.	7539.	8795.	10052.	11308.	12564.
12	1508.	3015.	4523.	6031.	7539.	9046.	10554.	12062.	13570.	15077.
14	1759.	3518.	5277.	7036.	8795.	10554.	12313.	14072.	15831.	17590.
16	2010.	4021.	6031.	8041.	10052.	12062.	14072.	16082.	18092.	20103.
18	2262.	4523.	6785.	9046.	11308.	13570.	15831.	18092.	20354.	22616.
20	2513.	5026.	7539.	10052.	12294.	14557.	16817.	19078.	21339.	23619.
22	2765.	5528.	8291.	11063.	13315.	15577.	17837.	20098.	22359.	24622.
24	3017.	6031.	9046.	12074.	14276.	16538.	18797.	21108.	23119.	25625.
26	3269.	6534.	9801.	13085.	15235.	17299.	19557.	22119.	24129.	26628.
28	3521.	7037.	10556.	14096.	16194.	18000.	20317.	23129.	25139.	27631.
30	3773.	7540.	11311.	15107.	17153.	18761.	21077.	24139.	26149.	28634.

Mountain Home AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.8	5.7	8.5	11.3	14.2	17.0	19.8	22.7	25.5	28.3
4	5.7	11.3	17.0	22.7	28.3	34.0	39.7	45.4	51.0	56.7
6	8.5	17.0	25.5	34.0	42.5	51.0	59.5	68.0	76.5	85.0
8	11.3	22.7	34.0	45.4	56.7	68.0	79.4	90.7	102.1	113.4
10	14.2	28.3	42.5	56.7	70.9	85.0	99.2	113.4	127.6	141.7
12	17.0	34.0	51.0	68.0	85.0	102.1	119.1	136.1	153.1	170.1
14	19.8	39.7	59.5	79.4	99.2	119.1	138.9	158.8	178.6	*****
16	22.7	45.4	68.0	90.7	113.4	136.1	158.8	181.4	204.1	*****
18	25.5	51.0	76.5	102.1	127.6	153.1	178.6	204.1	*****	*****
20	28.3	56.7	85.0	113.4	141.7	170.1	198.4	226.8	*****	*****
22	31.2	62.4	93.5	124.7	156.9	187.1	218.3	*****	*****	*****
24	34.0	68.0	102.1	136.1	170.1	204.1	238.1	*****	*****	*****
26	36.9	73.7	110.6	147.4	184.3	221.1	258.0	*****	*****	*****
28	39.7	79.4	119.1	158.8	198.4	238.1	*****	*****	*****	*****
30	42.5	85.0	127.6	170.1	212.8	256.1	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	295.	591.	886.	1182.	1477.	1773.	2068.	2364.	2660.	2955.
4	591.	1182.	1773.	2364.	2955.	3546.	4137.	4728.	5319.	5910.
6	886.	1773.	2660.	3546.	4432.	5319.	6205.	7092.	7978.	8865.
8	1182.	2364.	3546.	4728.	5910.	7092.	8274.	9456.	10638.	11820.
10	1477.	2955.	4432.	5910.	7387.	8865.	10342.	11820.	13297.	14775.
12	1773.	3546.	5319.	7092.	8865.	10638.	12411.	14184.	15957.	17730.
14	2068.	4137.	6205.	8274.	10342.	12411.	14479.	16548.	18616.	*****
16	2364.	4728.	7092.	9456.	11820.	14184.	16648.	18912.	21276.	*****
18	2660.	5319.	7978.	10638.	13297.	15957.	18616.	21276.	*****	*****
20	2955.	5910.	8865.	11820.	14775.	17730.	20685.	23640.	*****	*****
22	3250.	6501.	9751.	13002.	16052.	19003.	22763.	*****	*****	*****
24	3546.	7092.	10638.	14184.	17339.	21276.	24822.	*****	*****	*****
26	3841.	7683.	11524.	15366.	18627.	23049.	26880.	*****	*****	*****
28	4137.	8274.	12411.	16548.	20005.	24822.	*****	*****	*****	*****
30	4432.	8865.	13297.	17730.	22162.	26695.	*****	*****	*****	*****

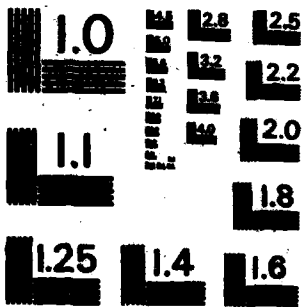
TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	423.	845.	1268.	1691.	2113.	2536.	2960.	3381.	3804.	4227.
4	845.	1691.	2536.	3381.	4227.	5072.	5917.	6763.	7608.	8453.
6	1268.	2536.	3804.	5072.	6340.	7608.	8876.	10144.	11412.	12680.
8	1691.	3381.	5072.	6763.	8453.	10144.	11834.	13525.	15216.	16906.
10	2113.	4227.	6340.	8453.	10566.	12680.	14793.	16906.	19020.	21133.
12	2536.	5072.	7608.	10144.	12680.	15216.	17732.	20268.	22804.	25360.
14	2960.	5917.	8876.	11834.	14793.	17732.	20710.	23688.	26688.	*****
16	3381.	6763.	10144.	13525.	16052.	18627.	21276.	24088.	26431.	*****
18	3804.	7608.	11412.	15216.	18003.	20880.	23049.	25431.	*****	*****
20	4227.	8453.	12680.	16548.	20005.	22880.	25049.	27613.	*****	*****
22	4650.	9297.	13948.	18007.	22044.	24822.	27449.	*****	*****	*****
24	5072.	10144.	15314.	20005.	24049.	26431.	29088.	*****	*****	*****
26	5495.	10991.	16621.	22003.	26056.	28080.	30727.	*****	*****	*****
28	5917.	11834.	17928.	24001.	28063.	29726.	32366.	*****	*****	*****
30	6340.	12680.	19235.	26000.	30070.	31365.	34005.	*****	*****	*****

Mountain Home AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.0	10.1	15.1	20.2	25.2	30.2	35.3	40.3	45.4	50.4
4	10.1	20.2	30.2	40.3	50.4	60.5	70.6	80.6	90.7	100.8
6	15.1	30.2	45.4	60.5	75.6	90.7	105.8	121.0	136.1	151.2
8	20.2	40.3	60.5	80.6	100.8	121.0	141.1	161.3	181.4	201.6
10	25.2	50.4	75.6	100.8	126.0	151.2	176.4	201.6	226.8	252.0
12	30.2	60.5	90.7	121.0	151.2	181.4	211.7	241.9	272.1	302.4
14	35.3	70.6	105.8	141.1	176.4	211.7	246.9	282.2	317.5	*****
16	40.3	80.6	121.0	161.3	201.6	241.9	282.2	322.5	362.9	*****
18	45.4	90.7	136.1	181.4	226.8	272.1	317.5	362.9	*****	*****
20	50.4	100.8	151.2	201.6	252.0	302.4	362.9	403.2	*****	*****
22	55.4	110.9	166.3	221.7	272.2	332.6	388.1	*****	*****	*****
24	60.5	121.0	181.4	241.9	302.4	362.9	423.3	*****	*****	*****
26	65.5	131.0	191.5	262.1	327.6	393.1	458.6	*****	*****	*****
28	70.6	141.1	211.7	282.2	352.8	423.3	*****	*****	*****	*****
30	75.6	151.2	226.8	302.4	378.0	453.6	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	585.	1169.	1754.	2338.	2923.	3507.	4092.	4676.	5261.	5845.
4	1169.	2338.	3507.	4676.	5845.	7014.	8183.	9352.	10521.	11690.
6	1754.	3507.	5261.	7014.	8768.	10521.	12275.	14028.	15782.	17535.
8	2338.	4676.	7014.	9352.	11690.	14028.	16366.	18704.	21042.	23380.
10	2923.	5845.	8768.	11690.	14613.	17535.	20458.	23380.	26303.	29225.
12	3507.	7014.	10521.	14028.	17535.	21042.	24549.	28056.	31563.	35070.
14	4092.	8183.	12275.	16366.	20458.	24549.	28641.	32732.	36824.	*****
16	4676.	9352.	14028.	18704.	23380.	28056.	32732.	37408.	42084.	*****
18	5261.	10521.	15782.	21042.	26303.	31563.	36824.	42084.	*****	*****
20	5845.	11690.	17535.	23380.	29225.	35070.	40915.	46760.	*****	*****
22	6430.	12859.	19289.	25718.	32148.	38577.	45007.	*****	*****	*****
24	7014.	14028.	21042.	28056.	35070.	42084.	49098.	*****	*****	*****
26	7599.	15197.	22795.	30394.	37993.	45591.	53190.	*****	*****	*****
28	8183.	16366.	24549.	32732.	40915.	49098.	*****	*****	*****	*****
30	8768.	17535.	26303.	35070.	43838.	52605.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	712.	1423.	2134.	2847.	3558.	4270.	4982.	5693.	6405.	7117.
4	1423.	2847.	4270.	5693.	7117.	8540.	9963.	11387.	12810.	14233.
6	2134.	4270.	6405.	8540.	10675.	12810.	14945.	17080.	19215.	21350.
8	2847.	5693.	8540.	11387.	14233.	17080.	19927.	22773.	25620.	28466.
10	3558.	7117.	10675.	14233.	17782.	21350.	24918.	28486.	32054.	35622.
12	4270.	8540.	12810.	17080.	21350.	25620.	29890.	34160.	38430.	42700.
14	4982.	9963.	14945.	19927.	24918.	29890.	34871.	39853.	44835.	*****
16	5693.	11387.	17080.	22773.	28466.	34160.	39853.	44835.	*****	*****
18	6405.	12810.	19215.	25620.	32054.	38430.	44835.	*****	*****	*****
20	7117.	14233.	21350.	28466.	35053.	42700.	49816.	56933.	*****	*****
22	7829.	15657.	23494.	31318.	38161.	45770.	54795.	*****	*****	*****
24	8540.	17080.	25620.	34160.	40915.	49098.	59760.	*****	*****	*****
26	9252.	18503.	27746.	36994.	43838.	52610.	64731.	*****	*****	*****
28	9963.	19927.	29872.	39868.	46752.	55725.	*****	*****	*****	*****
30	10675.	21350.	31998.	42726.	49866.	*****	*****	*****	*****	*****



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Myrtle Beach AFB

ANNUAL SOLAR CONTRIBUTION—KWH(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.4	10.5	11.7
4	2.3	4.7	7.0	9.4	11.7	14.0	16.4	18.7	21.0	23.4
6	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.1	31.6	35.1
8	4.7	9.4	14.0	18.7	23.4	28.1	32.7	37.4	42.1	46.8
10	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.8	52.6	58.5
12	7.0	14.0	21.0	28.1	35.1	42.1	49.1	56.1	63.1	70.1
14	8.2	16.4	24.5	32.7	40.9	49.1	57.3	65.5	73.7	81.8
16	9.4	18.7	28.1	37.4	46.8	56.1	65.5	74.8	84.2	93.5
18	10.5	21.0	31.6	42.1	52.6	63.1	73.7	84.2	94.7	105.2
20	11.7	23.4	35.1	46.8	58.5	70.1	81.8	93.5	105.2	116.9
22	12.9	25.7	38.6	51.4	64.3	77.2	90.0	102.9	115.7	128.6
24	14.0	28.1	42.1	56.1	70.1	84.2	98.2	112.2	128.3	140.3
26	15.2	30.4	45.6	60.8	76.0	91.2	106.4	121.6	136.8	152.0
28	16.4	32.7	49.1	65.5	81.8	96.2	114.8	130.9	147.3	163.7
30	17.5	35.1	52.6	70.1	87.7	105.2	123.5	140.3	157.8	175.4

DIRECT GAIN DIFFERENTIAL COST—KWH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	176.	353.	529.	705.	882.	1058.	1235.	1411.	1587.	1764.
4	353.	705.	1058.	1411.	1764.	2116.	2469.	2822.	3175.	3527.
6	529.	1058.	1587.	2116.	2645.	3175.	3704.	4233.	4762.	5291.
8	705.	1411.	2116.	2822.	3527.	4233.	4938.	5644.	6349.	7055.
10	882.	1764.	2645.	3527.	4409.	5291.	6173.	7055.	7937.	8819.
12	1058.	2116.	3175.	4233.	5291.	6349.	7407.	8466.	9524.	10582.
14	1235.	2469.	3704.	4938.	6173.	7407.	8642.	9876.	11111.	12346.
16	1411.	2822.	4233.	5644.	7055.	8466.	9876.	11287.	12698.	14109.
18	1587.	3175.	4762.	6349.	7938.	9524.	11111.	12698.	14285.	15873.
20	1764.	3527.	5291.	7055.	8822.	10582.	12346.	14109.	15873.	17636.
22	1940.	3880.	5820.	7700.	9700.	11640.	13580.	15520.	17460.	19400.
24	2116.	4233.	6349.	8466.	10392.	12346.	14316.	16261.	18207.	20154.
26	2293.	4585.	6878.	9171.	11194.	13205.	15248.	17192.	19135.	21907.
28	2469.	4938.	7407.	9876.	12046.	14110.	16204.	18242.	20282.	23661.
30	2645.	5291.	7935.	10582.	12907.	15073.	17178.	19304.	21438.	25415.

ROOFTOP WALL DIFFERENTIAL COST—KWH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	344.	688.	1032.	1376.	1720.	2064.	2408.	2752.	3096.	3440.
4	688.	1376.	2064.	2752.	3440.	4128.	4816.	5504.	6192.	6880.
6	1032.	2064.	3136.	4208.	5280.	6352.	7424.	8496.	9568.	10640.
8	1376.	2752.	4128.	5504.	6880.	8256.	9632.	11008.	12384.	13760.
10	1720.	3440.	5136.	6848.	8560.	10272.	11984.	13696.	15408.	17120.
12	2064.	4128.	6144.	8160.	10176.	12192.	14208.	16224.	18240.	20256.
14	2408.	4816.	7248.	9568.	11584.	13592.	15600.	17608.	19616.	21664.
16	2752.	5504.	8256.	10976.	13184.	15184.	17192.	19184.	21176.	23072.
18	3096.	6192.	9264.	12384.	14776.	16776.	18768.	20752.	22736.	24480.
20	3440.	6880.	10320.	13792.	16368.	18368.	20368.	22368.	24368.	25888.
22	3784.	7568.	11376.	15192.	17960.	19960.	21960.	23960.	25960.	27296.
24	4128.	8256.	12384.	16592.	19552.	21552.	23552.	25552.	27552.	28704.
26	4472.	8944.	13392.	18000.	21144.	23144.	25144.	27144.	29144.	30112.
28	4816.	9632.	14400.	19408.	22736.	24736.	26736.	28736.	30736.	31520.
30	5160.	10320.	15408.	20816.	24328.	26328.	28328.	30328.	32136.	32928.

Myrtle Beach AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.1	6.7	8.4	10.1	11.8	13.5	15.2	16.8
4	3.4	6.7	10.1	13.5	16.8	20.2	23.6	26.9	30.3	33.7
6	5.1	10.1	15.2	20.2	25.3	30.3	35.4	40.4	45.5	50.5
8	6.7	13.5	20.2	26.9	33.7	40.4	47.1	53.9	60.6	67.3
10	8.4	16.8	25.3	33.7	42.1	50.5	58.9	67.3	75.8	84.2
12	10.1	20.2	30.3	40.4	50.5	60.6	70.7	80.8	90.9	101.0
14	11.8	23.6	35.4	47.1	58.9	70.7	82.5	94.3	106.1	117.8
16	13.5	26.9	40.4	53.9	67.3	80.8	94.3	107.7	121.2	134.7
18	15.2	30.3	45.5	60.6	75.8	90.9	106.1	121.2	136.4	151.5
20	16.8	33.7	50.5	67.3	84.2	101.0	117.8	134.7	151.5	168.4
22	18.5	37.0	55.6	74.1	92.6	111.1	129.6	148.1	166.7	185.2
24	20.2	40.4	60.6	80.8	101.0	121.2	141.4	161.6	181.8	202.0
26	21.9	43.8	65.7	87.5	109.4	131.3	153.2	175.1	197.0	218.9
28	23.6	47.1	70.7	94.3	117.8	141.4	165.0	188.6	212.1	235.7
30	25.3	50.5	75.8	101.0	126.3	151.5	176.6	202.0	227.3	252.5

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	332.	664.	995.	1327.	1659.	1991.	2322.	2654.	2986.	3318.
4	664.	1327.	1991.	2654.	3318.	3981.	4645.	5308.	5972.	6635.
6	995.	1991.	2986.	3981.	4976.	5972.	6967.	7962.	8958.	9953.
8	1327.	2654.	3981.	5308.	6635.	7962.	9289.	10616.	11944.	13271.
10	1659.	3318.	4976.	6635.	8294.	9953.	11612.	13271.	14929.	16588.
12	1991.	3981.	5972.	7962.	9953.	11944.	13934.	15925.	17915.	19906.
14	2322.	4645.	6967.	9289.	11612.	13934.	16256.	18579.	20901.	23224.
16	2654.	5308.	7962.	10616.	13271.	15925.	18579.	21233.	23887.	26541.
18	2986.	5972.	8958.	11944.	14929.	17915.	20901.	23887.	26873.	29859.
20	3318.	6635.	9953.	13271.	16588.	19906.	23224.	26541.	29859.	33176.
22	3649.	7299.	10944.	14929.	18579.	21998.	25546.	29195.	32845.	36494.
24	3981.	7962.	11944.	16588.	19906.	23887.	27668.	31849.	35831.	39812.
26	4313.	8626.	12944.	18292.	21998.	25779.	30191.	34504.	38816.	43129.
28	4645.	9289.	13934.	19979.	23884.	27668.	32513.	37158.	41802.	46447.
30	4976.	9953.	14929.	21666.	25779.	29558.	34835.	39812.	44788.	49765.

TROMB WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	400.	800.	1200.	1600.	2000.	2400.	2800.	3200.	3600.	4000.
4	800.	1600.	2400.	3200.	4000.	4800.	5600.	6400.	7200.	8000.
6	1200.	2400.	3600.	4800.	6000.	7200.	8400.	9600.	10800.	12000.
8	1600.	3200.	4800.	6400.	8000.	9600.	11200.	12800.	14400.	16000.
10	2000.	4000.	6000.	8000.	10000.	12000.	14000.	16000.	18000.	20000.
12	2400.	4800.	7200.	9600.	12000.	14400.	16800.	19200.	21600.	24000.
14	2800.	5600.	8400.	11200.	14000.	16800.	19600.	22400.	25200.	28000.
16	3200.	6400.	9600.	12800.	16000.	19200.	22400.	25600.	28800.	32000.
18	3600.	7200.	10800.	14400.	18000.	21600.	25200.	28800.	32400.	36000.
20	4000.	8000.	12000.	16000.	20000.	24000.	28000.	32000.	36000.	40000.
22	4400.	8800.	13200.	17600.	22000.	26400.	30400.	34800.	39200.	44000.
24	4800.	9600.	14400.	19200.	24000.	28800.	32800.	37200.	41600.	48000.
26	5200.	10400.	15600.	20800.	26000.	31200.	35200.	40000.	46000.	52000.
28	5600.	11200.	16800.	22400.	28000.	33600.	37600.	42400.	48400.	56000.
30	6000.	12000.	18000.	24000.	30000.	36000.	40000.	44800.	50800.	60000.

Netlis AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.6	3.3	4.9	6.6	8.2	9.8	11.5	13.1	14.7	16.4
4	3.3	6.6	9.8	13.1	16.4	19.7	22.9	26.2	29.5	32.8
6	4.9	9.8	14.7	19.7	24.6	29.5	34.4	39.3	44.2	49.2
8	6.6	13.1	19.7	26.2	32.8	39.3	45.9	52.4	58.9	65.5
10	8.2	16.4	24.6	32.8	41.0	49.2	57.4	65.5	73.7	81.9
12	9.8	19.7	29.5	39.3	49.2	59.0	68.8	78.7	88.5	98.3
14	11.5	22.9	34.4	45.9	57.4	68.8	80.3	91.8	103.2	114.7
16	13.1	26.2	39.3	52.4	65.5	78.7	91.8	104.9	118.0	131.1
18	14.7	29.5	44.2	59.0	73.7	88.5	103.2	118.0	132.7	147.5
20	16.4	32.8	49.2	65.5	81.9	98.3	114.7	131.1	147.5	163.9
22	18.0	36.0	54.1	72.1	90.1	108.1	126.2	144.2	162.2	180.2
24	19.7	39.3	59.0	78.7	98.3	118.0	137.6	157.3	177.0	196.6
26	21.3	42.6	63.9	85.2	106.5	127.6	149.1	170.4	191.7	213.0
28	22.9	45.9	68.8	91.8	114.7	137.6	160.6	183.5	206.5	229.4
30	24.6	49.2	73.7	98.3	122.9	147.5	172.1	196.6	221.2	245.8

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	188.	376.	565.	753.	941.	1129.	1317.	1506.	1694.	1882.
4	376.	753.	1129.	1506.	1882.	2258.	2634.	3011.	3387.	3764.
6	565.	1129.	1694.	2258.	2823.	3387.	3952.	4516.	5081.	5645.
8	753.	1506.	2258.	3011.	3764.	4516.	5269.	6022.	6774.	7527.
10	941.	1882.	2823.	3764.	4704.	5645.	6586.	7527.	8468.	9409.
12	1129.	2258.	3387.	4516.	5645.	6774.	7903.	9032.	10162.	11291.
14	1317.	2634.	3952.	5269.	6586.	7903.	9221.	10538.	11856.	13172.
16	1506.	3011.	4516.	6022.	7527.	9032.	10538.	12043.	13548.	15054.
18	1694.	3387.	5081.	6774.	8468.	10162.	11856.	13548.	15242.	16936.
20	1882.	3764.	5645.	7527.	9409.	11291.	13172.	15054.	16936.	18818.
22	2070.	4140.	6210.	8200.	10080.	11960.	13840.	15720.	17600.	20000.
24	2258.	4516.	6774.	8832.	10711.	12549.	14407.	16268.	18123.	20081.
26	2446.	4893.	7339.	9465.	11352.	13278.	15174.	17070.	18917.	21463.
28	2634.	5269.	7903.	10098.	12003.	14007.	16041.	18076.	20710.	22845.
30	2823.	5645.	8468.	10731.	12633.	14736.	16770.	18811.	21404.	24227.

TROUGH WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	274.	548.	823.	1098.	1372.	1646.	1921.	2195.	2470.	2744.
4	548.	1098.	1646.	2195.	2744.	3293.	3842.	4391.	4939.	5488.
6	823.	1646.	2470.	3293.	4116.	4939.	5762.	6585.	7408.	8232.
8	1098.	2195.	3293.	4391.	5488.	6585.	7682.	8779.	9876.	10973.
10	1372.	2744.	4116.	5488.	6860.	8232.	9604.	10977.	12349.	13721.
12	1646.	3293.	4939.	6585.	8232.	9879.	11525.	13172.	14818.	16465.
14	1921.	3842.	5762.	7684.	9604.	11525.	13445.	15367.	17223.	19079.
16	2195.	4391.	6585.	8781.	10777.	12712.	14637.	16562.	18488.	20403.
18	2470.	4939.	7408.	9878.	11949.	13815.	15723.	17728.	19643.	22007.
20	2744.	5488.	8232.	10777.	12721.	14405.	16008.	18003.	20007.	22441.
22	3018.	6037.	9056.	11704.	13603.	15111.	17130.	19145.	21167.	23005.
24	3293.	6585.	9879.	12633.	14485.	16001.	18001.	20001.	22001.	23600.
26	3567.	7134.	10702.	13562.	15367.	16894.	18894.	21000.	23000.	24200.
28	3842.	7682.	11525.	14491.	16249.	17787.	19787.	22000.	24000.	24800.
30	4116.	8232.	12349.	15420.	17131.	18680.	20680.	23000.	25000.	25400.

Nellis AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.2	4.5	6.7	9.0	11.2	13.5	15.7	18.0	20.2	22.5
4	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	44.9
6	6.7	13.5	20.2	27.0	33.7	40.5	47.2	53.9	60.7	67.4
8	9.0	18.0	27.0	36.0	44.9	53.9	62.9	71.9	80.9	89.9
10	11.2	22.5	33.7	44.9	56.2	67.4	78.7	89.9	101.1	112.4
12	13.5	27.0	40.5	53.9	67.4	80.9	94.4	107.9	121.4	134.8
14	15.7	31.5	47.2	62.9	78.7	94.4	110.1	125.8	141.6	157.3
16	18.0	36.0	53.9	71.9	89.9	107.9	125.8	143.8	161.8	179.8
18	20.2	40.5	60.7	80.9	101.1	121.4	141.6	161.8	182.0	202.3
20	22.5	44.9	67.4	89.9	112.4	134.8	157.3	179.8	202.3	224.7
22	24.7	49.4	74.2	99.9	123.6	148.3	173.0	197.6	222.5	247.2
24	27.0	53.9	80.9	107.9	134.8	161.8	188.8	215.7	242.7	269.7
26	29.2	58.4	87.6	116.9	146.1	175.3	204.5	233.7	262.9	292.1
28	31.5	62.9	94.4	125.8	157.3	188.8	220.2	251.7	283.2	314.6
30	33.7	67.4	101.1	134.8	168.5	202.3	236.0	268.7	303.4	337.1

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	384.	768.	1153.	1537.	1921.	2305.	2689.	3073.	3458.	3842.
4	768.	1537.	2305.	3073.	3842.	4610.	5378.	6147.	6915.	7683.
6	1153.	2305.	3458.	4610.	5763.	6915.	8068.	9220.	10373.	11525.
8	1537.	3073.	4610.	6147.	7683.	9220.	10757.	12293.	13830.	15367.
10	1921.	3842.	5763.	7683.	9604.	11525.	13446.	15367.	17288.	19209.
12	2305.	4610.	6915.	9220.	11525.	13830.	16135.	18440.	20745.	23050.
14	2689.	5378.	8068.	10767.	13446.	16135.	18924.	21514.	24203.	26882.
16	3073.	6147.	9220.	12293.	15367.	18440.	21514.	24587.	27660.	30734.
18	3458.	6915.	10373.	13830.	17288.	20745.	24203.	27660.	31118.	34575.
20	3842.	7683.	11525.	15367.	19209.	23050.	26882.	30734.	34575.	38417.
22	4226.	8452.	12678.	16903.	21129.	25355.	29581.	33807.	38033.	42260.
24	4610.	9220.	13830.	18440.	23050.	27680.	32270.	36880.	41490.	46100.
26	4994.	9988.	14983.	19977.	24971.	29965.	34958.	39934.	44948.	49942.
28	5378.	10757.	16135.	21514.	26882.	32270.	37649.	43027.	48406.	53784.
30	5763.	11525.	17288.	23050.	28813.	34975.	40336.	46100.	51863.	57626.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	470.	941.	1411.	1882.	2353.	2823.	3293.	3763.	4234.	4704.
4	941.	1882.	2823.	3763.	4704.	5645.	6585.	7527.	8467.	9408.
6	1411.	2823.	4234.	5645.	7056.	8467.	9879.	11290.	12701.	14112.
8	1882.	3763.	5645.	7527.	9389.	11250.	13111.	14973.	16834.	18695.
10	2353.	4704.	7056.	9408.	11760.	14112.	16464.	18816.	21168.	23520.
12	2823.	5645.	8467.	11250.	14112.	16935.	19757.	22580.	25402.	28224.
14	3293.	6585.	9879.	13171.	16464.	19757.	23060.	26343.	29636.	32938.
16	3763.	7527.	11290.	15093.	18416.	22080.	26343.	30108.	33889.	37633.
18	4234.	8467.	12701.	16903.	21168.	25482.	29636.	33889.	38033.	42337.
20	4704.	9408.	14112.	18616.	23880.	28224.	32936.	37633.	42337.	47041.
22	5174.	10349.	15523.	20428.	26572.	31017.	36221.	41398.	46570.	51745.
24	5645.	11290.	16935.	22240.	29264.	33889.	39514.	45158.	50804.	56449.
26	6115.	12231.	18346.	24051.	32076.	36882.	42807.	48922.	55038.	61153.
28	6585.	13171.	19757.	25863.	34888.	39514.	46100.	52686.	59271.	65857.
30	7056.	14112.	21168.	27674.	37699.	42337.	49393.	56448.	63505.	70561.

Norton AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.4	3.5	4.7	5.9	7.1	8.3	9.4	10.6	11.8
4	2.4	4.7	7.1	9.4	11.8	14.1	16.5	18.9	21.2	23.6
6	3.5	7.1	10.6	14.1	17.7	21.2	24.6	28.3	31.8	35.4
8	4.7	9.4	14.1	18.9	23.6	28.3	33.0	37.7	42.4	47.1
10	5.9	11.8	17.7	23.6	29.5	35.4	41.3	47.1	53.0	58.9
12	7.1	14.1	21.2	28.3	35.4	42.4	49.5	56.6	63.7	70.7
14	8.3	16.5	24.6	33.0	41.3	49.5	57.8	66.0	74.3	82.5
16	9.4	18.9	28.3	37.7	47.1	56.6	66.0	75.4	84.9	94.3
18	10.6	21.2	31.8	42.4	53.0	63.7	74.3	84.9	95.5	106.1
20	11.8	23.6	35.4	47.1	58.9	70.7	82.5	94.3	106.1	117.9
22	13.0	25.9	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
24	14.1	28.3	42.4	56.6	70.7	84.9	99.0	113.2	127.3	141.4
26	15.3	30.6	46.0	61.3	75.6	91.9	107.3	122.6	137.9	153.2
28	16.5	33.0	49.5	66.0	82.5	99.0	116.5	132.0	148.5	165.0
30	17.7	35.4	53.0	70.7	88.4	106.1	123.6	141.4	159.1	176.8

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	108.	209.	314.	418.	523.	628.	732.	837.	941.	1046.
4	209.	418.	628.	837.	1046.	1255.	1464.	1674.	1883.	2092.
6	314.	628.	941.	1255.	1569.	1883.	2196.	2510.	2824.	3138.
8	418.	837.	1255.	1674.	2092.	2510.	2929.	3347.	3765.	4184.
10	523.	1046.	1569.	2092.	2615.	3138.	3661.	4184.	4707.	5230.
12	628.	1255.	1883.	2510.	3138.	3765.	4392.	5020.	5648.	6276.
14	732.	1464.	2196.	2929.	3551.	4184.	4817.	5450.	6083.	6716.
16	837.	1674.	2510.	3347.	4184.	5021.	5857.	6694.	7531.	8368.
18	941.	1883.	2824.	3765.	4707.	5648.	6589.	7531.	8472.	9414.
20	1046.	2092.	3138.	4184.	5230.	6276.	7322.	8368.	9414.	10460.
22	1151.	2301.	3452.	4602.	5753.	6800.	7846.	8892.	9938.	10985.
24	1255.	2510.	3765.	5021.	6276.	7531.	8786.	10041.	11296.	12551.
26	1360.	2719.	4079.	5439.	6792.	8158.	9518.	10778.	12038.	13307.
28	1464.	2929.	4392.	5857.	7322.	8793.	10250.	11715.	13179.	14543.
30	1569.	3138.	4707.	6276.	7846.	9414.	10952.	12551.	14130.	15789.

THERM BALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	153.	307.	460.	614.	767.	921.	1074.	1227.	1381.	1534.
4	307.	614.	921.	1227.	1534.	1841.	2148.	2455.	2762.	3069.
6	460.	921.	1381.	1841.	2301.	2762.	3222.	3683.	4143.	4603.
8	614.	1227.	1841.	2301.	2762.	3222.	3683.	4143.	4603.	5063.
10	767.	1534.	2301.	3069.	3826.	4583.	5340.	6097.	6854.	7611.
12	921.	1841.	2762.	3683.	4603.	5523.	6444.	7364.	8285.	9205.
14	1074.	2148.	3222.	4143.	5063.	5983.	6904.	7824.	8745.	9665.
16	1227.	2455.	3683.	4603.	5523.	6444.	7364.	8285.	9205.	10125.
18	1381.	2762.	4143.	5063.	5983.	6904.	7824.	8745.	9665.	10585.
20	1534.	3069.	4603.	5523.	6444.	7364.	8285.	9205.	10125.	11045.
22	1687.	3376.	5063.	6097.	7017.	7937.	8858.	9778.	10698.	11618.
24	1841.	3683.	5523.	6557.	7531.	8451.	9371.	10291.	11211.	12131.
26	1994.	3990.	6023.	7017.	8001.	8921.	9841.	10761.	11681.	12601.
28	2148.	4297.	6483.	7531.	8523.	9443.	10363.	11283.	12203.	13063.
30	2301.	4603.	6943.	8045.	9067.	10007.	10927.	11847.	12767.	13627.

Norton AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.9	4.3	5.8	7.2	8.6	10.1	11.5	13.0	14.4
4	2.9	5.8	8.6	11.5	14.4	17.3	20.2	23.1	25.9	28.8
6	4.3	8.6	13.0	17.3	21.6	25.9	30.3	34.6	38.9	43.2
8	5.8	11.5	17.3	23.1	28.8	34.6	40.3	46.1	51.9	57.6
10	7.2	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.0
12	8.6	17.3	25.9	34.6	43.2	51.9	60.5	69.2	77.8	86.4
14	10.1	20.2	30.3	40.3	50.4	60.5	70.6	80.7	90.8	100.8
16	11.5	23.1	34.6	46.1	57.6	69.2	80.7	92.2	103.7	115.3
18	13.0	25.9	38.9	51.9	64.8	77.8	90.8	103.7	116.7	129.7
20	14.4	28.8	43.2	57.6	72.0	86.4	100.8	115.3	129.7	144.1
22	15.8	31.7	47.5	63.4	79.2	95.1	110.9	126.8	142.6	158.5
24	17.3	34.6	51.9	69.2	86.4	103.7	121.0	138.3	155.6	172.9
26	18.7	37.5	56.2	74.9	93.6	112.4	131.1	149.8	168.6	187.3
28	20.2	40.3	60.5	80.7	100.8	121.0	141.2	161.4	181.5	201.7
30	21.6	43.2	64.8	86.4	108.0	129.7	151.3	172.9	194.9	216.1

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	216.	431.	647.	862.	1078.	1293.	1509.	1725.	1940.	2156.
4	431.	862.	1293.	1725.	2156.	2587.	3018.	3449.	3880.	4312.
6	647.	1293.	1940.	2587.	3234.	3880.	4527.	5174.	5821.	6467.
8	862.	1725.	2587.	3449.	4312.	5174.	6036.	6898.	7761.	8623.
10	1078.	2156.	3234.	4312.	5390.	6467.	7545.	8623.	9701.	10779.
12	1293.	2587.	3880.	5174.	6467.	7761.	9054.	10348.	11641.	12935.
14	1509.	3018.	4527.	6036.	7545.	9054.	10563.	12072.	13581.	15091.
16	1725.	3449.	5174.	6898.	8623.	10348.	12072.	13797.	15522.	17248.
18	1940.	3880.	5821.	7761.	9701.	11641.	13682.	15522.	17462.	19402.
20	2156.	4312.	6467.	8623.	10779.	12935.	15091.	17248.	19402.	21556.
22	2371.	4743.	7114.	9468.	11697.	14298.	16690.	18971.	21348.	23714.
24	2587.	5174.	7761.	10348.	12806.	15522.	18109.	20906.	23253.	25870.
26	2803.	5605.	8408.	11210.	14013.	16815.	19618.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21127.	24146.	27163.	30181.
30	3234.	6467.	9701.	12935.	16169.	19692.	22634.	25670.	29103.	32337.

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	264.	528.	792.	1056.	1320.	1584.	1848.	2112.	2376.	2640.
4	528.	1056.	1584.	2112.	2640.	3168.	3702.	4236.	4770.	5304.
6	792.	1584.	2376.	3168.	3960.	4752.	5544.	6336.	7128.	7920.
8	1056.	2112.	3168.	4236.	5304.	6372.	7440.	8508.	9576.	10644.
10	1320.	2640.	3960.	5304.	6608.	7912.	9216.	10520.	11824.	13128.
12	1584.	3168.	4752.	6372.	7992.	9612.	11232.	12852.	14472.	16092.
14	1848.	3702.	5544.	7440.	9060.	10680.	12300.	13920.	15540.	17160.
16	2112.	4236.	6336.	8508.	10176.	11784.	13392.	15000.	16608.	18216.
18	2376.	4770.	7128.	9576.	11280.	12888.	14496.	16104.	17712.	19320.
20	2640.	5304.	7920.	10644.	12384.	13992.	15600.	17208.	18816.	20424.
22	2904.	5838.	8712.	11712.	13488.	15096.	16704.	18312.	19920.	21528.
24	3168.	6372.	9504.	12780.	14592.	16192.	17808.	19416.	21024.	22632.
26	3432.	6906.	10296.	13848.	15696.	17280.	18912.	20520.	22128.	23736.
28	3696.	7440.	11088.	14916.	16800.	18372.	20016.	21624.	23232.	24840.
30	3960.	7974.	11880.	15984.	17904.	19464.	21120.	22728.	24336.	25944.

Odutt AFB

ANNUAL SOLAR CONTRIBUTION - NNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
4	5.0	10.0	15.0	20.0	25.0	29.9	34.9	39.9	44.9	49.9
6	7.5	15.0	22.5	29.9	37.4	44.9	52.4	59.9	67.4	74.9
8	10.0	20.0	29.9	39.9	49.9	59.9	69.9	79.9	89.9	*****
10	12.5	25.0	37.4	49.9	62.4	74.9	87.3	99.8	*****	*****
12	15.0	29.9	44.9	59.9	74.9	89.8	104.8	*****	*****	*****
14	17.5	34.9	52.4	69.9	87.3	104.8	*****	*****	*****	*****
16	20.0	39.9	59.9	79.8	99.8	119.8	*****	*****	*****	*****
18	22.5	44.9	67.4	89.8	112.3	134.7	*****	*****	*****	*****
20	25.0	49.9	74.9	99.8	124.8	*****	*****	*****	*****	*****
22	27.4	54.9	82.3	109.8	137.2	*****	*****	*****	*****	*****
24	29.9	59.9	89.8	119.8	149.7	*****	*****	*****	*****	*****
26	32.4	64.9	97.3	129.7	162.2	*****	*****	*****	*****	*****
28	34.9	69.9	104.8	139.7	*****	*****	*****	*****	*****	*****
30	37.4	74.9	112.3	149.7	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	424.	848.	1273.	1697.	2122.	2546.	2970.	3395.	3819.	4243.
4	848.	1697.	2546.	3395.	4243.	5092.	5941.	6790.	7639.	8487.
6	1273.	2546.	3819.	5092.	6365.	7639.	8911.	10184.	11457.	12730.
8	1697.	3395.	5092.	6789.	8487.	10184.	11881.	13578.	15275.	*****
10	2122.	4243.	6365.	8487.	10609.	12730.	14852.	16973.	*****	*****
12	2546.	5092.	7639.	10184.	12730.	15276.	17822.	*****	*****	*****
14	2970.	5941.	8911.	11821.	14852.	17822.	*****	*****	*****	*****
16	3395.	6790.	10184.	13578.	16973.	20092.	*****	*****	*****	*****
18	3819.	7639.	11457.	15276.	19095.	22914.	*****	*****	*****	*****
20	4243.	8487.	12730.	16973.	21217.	*****	*****	*****	*****	*****
22	4668.	9336.	14023.	18271.	23338.	*****	*****	*****	*****	*****
24	5092.	10184.	15276.	20395.	25460.	*****	*****	*****	*****	*****
26	5516.	11033.	16429.	22095.	27582.	*****	*****	*****	*****	*****
28	5941.	11881.	17622.	23793.	*****	*****	*****	*****	*****	*****
30	6365.	12730.	19092.	25490.	*****	*****	*****	*****	*****	*****

SHADE WALL DIFFERENTIAL COST - NNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	505.	1010.	1514.	2019.	2524.	3029.	3533.	4038.	4543.	5047.
4	1010.	2019.	3029.	4039.	5047.	6056.	7065.	8074.	9083.	10092.
6	1514.	3029.	4543.	6056.	7570.	9084.	10598.	12112.	13626.	15141.
8	2019.	4039.	6056.	8074.	10092.	12110.	14128.	16146.	18164.	*****
10	2524.	5047.	7570.	10092.	12110.	14128.	16146.	18164.	20182.	*****
12	3029.	6056.	9084.	12110.	14128.	16146.	18164.	20182.	*****	*****
14	3533.	7065.	10092.	13138.	15156.	17174.	19192.	*****	*****	*****
16	4038.	8074.	11099.	14156.	16174.	18192.	20210.	*****	*****	*****
18	4543.	9083.	12107.	15174.	17192.	19210.	21228.	*****	*****	*****
20	5047.	10092.	13138.	16192.	18210.	20228.	*****	*****	*****	*****
22	5552.	11101.	14169.	17210.	19228.	21246.	*****	*****	*****	*****
24	6056.	12110.	15199.	18228.	20264.	22264.	*****	*****	*****	*****
26	6561.	13119.	16227.	19246.	21282.	23282.	*****	*****	*****	*****
28	7065.	14128.	17256.	20264.	22300.	24300.	*****	*****	*****	*****
30	7570.	15137.	18275.	21282.	23318.	25318.	*****	*****	*****	*****

Onutt AFB

ANNUAL SOLAR CONTRIBUTION—WN(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.1	12.1	18.2	24.2	30.3	36.4	42.4	48.5	54.5	60.6
4	12.1	24.2	36.4	48.5	60.6	72.7	84.8	97.0	109.1	121.2
6	18.2	36.4	54.5	72.7	90.9	109.1	127.3	145.4	163.6	181.8
8	24.2	48.5	72.7	97.0	121.2	145.4	169.7	193.9	218.1	*****
10	30.3	60.6	90.9	121.2	151.5	181.8	212.1	242.4	*****	*****
12	36.4	72.7	109.1	145.4	181.8	218.1	254.5	*****	*****	*****
14	42.4	84.8	127.3	169.7	212.1	254.5	*****	*****	*****	*****
16	48.5	97.0	145.4	189.9	242.4	290.9	*****	*****	*****	*****
18	54.5	109.1	163.6	218.1	272.7	327.2	*****	*****	*****	*****
20	60.6	121.2	181.8	242.4	303.0	*****	*****	*****	*****	*****
22	66.7	133.3	200.0	266.6	333.3	*****	*****	*****	*****	*****
24	72.7	145.4	218.1	290.9	363.6	*****	*****	*****	*****	*****
26	78.8	157.4	236.3	315.1	393.9	*****	*****	*****	*****	*****
28	84.8	169.7	254.5	339.3	*****	*****	*****	*****	*****	*****
30	90.9	181.8	272.7	363.6	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	834.	1668.	2503.	3337.	4171.	5006.	5840.	6674.	7508.	8343.
4	1668.	3337.	5006.	6674.	8343.	10011.	11680.	13348.	15017.	16686.
6	2503.	5006.	7508.	10011.	12514.	15017.	17519.	20022.	22525.	25028.
8	3337.	6674.	10011.	13348.	16686.	20022.	23358.	26696.	30033.	*****
10	4171.	8343.	12514.	16686.	20022.	23358.	26696.	30033.	*****	*****
12	5006.	10011.	15017.	20022.	25028.	30033.	35039.	*****	*****	*****
14	5840.	11680.	17519.	23358.	29199.	35039.	*****	*****	*****	*****
16	6674.	13348.	20022.	26696.	33370.	40044.	*****	*****	*****	*****
18	7508.	15017.	22525.	30033.	37541.	45050.	*****	*****	*****	*****
20	8343.	16686.	25028.	33370.	41713.	*****	*****	*****	*****	*****
22	9177.	18354.	27557.	36797.	45284.	*****	*****	*****	*****	*****
24	10011.	20022.	30033.	40044.	*****	*****	*****	*****	*****	*****
26	10846.	21691.	32536.	43561.	*****	*****	*****	*****	*****	*****
28	11680.	23358.	35039.	47118.	*****	*****	*****	*****	*****	*****
30	12514.	25028.	37541.	50686.	*****	*****	*****	*****	*****	*****

TROUSER WALL DIFFERENTIAL COST—WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1018.	2036.	3054.	4072.	5090.	6108.	7126.	8144.	9162.	10180.
4	2036.	4072.	6108.	8144.	10180.	12216.	14252.	16288.	18324.	20360.
6	3054.	6108.	9162.	12216.	15270.	18324.	21378.	24432.	27486.	30540.
8	4072.	8144.	12216.	16288.	20360.	24432.	28504.	32576.	36648.	*****
10	5090.	10180.	15270.	20360.	25450.	30540.	35630.	40720.	*****	*****
12	6108.	12216.	18324.	24432.	30540.	36648.	42756.	48864.	*****	*****
14	7126.	14252.	21378.	28504.	35630.	42756.	*****	*****	*****	*****
16	8144.	16288.	24432.	32576.	40720.	48864.	*****	*****	*****	*****
18	9162.	18324.	27486.	36648.	45894.	54988.	*****	*****	*****	*****
20	10180.	20360.	30540.	40720.	50910.	*****	*****	*****	*****	*****
22	11198.	22396.	33630.	44832.	55924.	*****	*****	*****	*****	*****
24	12216.	24432.	36720.	48944.	60938.	*****	*****	*****	*****	*****
26	13234.	26468.	39810.	53056.	65952.	*****	*****	*****	*****	*****
28	14252.	28504.	42900.	57168.	70966.	*****	*****	*****	*****	*****
30	15270.	30540.	46000.	61280.	75980.	*****	*****	*****	*****	*****

Patriot AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.4	.8	1.3	1.6	2.0	2.4	2.8	3.2	3.6	4.0
4	.8	1.6	2.4	3.2	4.0	4.7	5.5	6.3	7.1	7.9
6	1.2	2.4	3.6	4.7	5.9	7.1	8.3	9.5	10.7	11.9
8	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7	14.2	15.8
10	2.0	4.0	5.9	7.9	9.9	11.9	13.9	15.8	17.8	19.8
12	2.4	4.7	7.1	9.5	11.9	14.2	16.6	19.0	21.4	23.7
14	2.8	5.5	8.3	11.1	13.9	16.6	19.4	22.2	24.9	27.7
16	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
18	3.6	7.1	10.7	14.2	17.8	21.4	24.9	28.5	32.1	35.6
20	4.0	7.9	11.9	15.8	19.8	23.7	27.7	31.7	35.6	39.6
22	4.4	8.7	13.1	17.4	21.8	26.1	30.5	34.8	39.2	43.5
24	4.7	9.5	14.2	19.0	23.7	28.5	33.2	38.0	42.7	47.5
26	5.1	10.3	15.4	20.6	25.7	30.9	36.0	41.2	46.3	51.6
28	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
30	5.9	11.9	17.8	23.7	29.7	35.6	41.6	47.5	53.4	59.4

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	67.	134.	200.	267.	334.	401.	467.	534.	601.	668.
4	134.	267.	401.	534.	668.	801.	935.	1068.	1202.	1336.
6	200.	401.	601.	801.	1001.	1202.	1402.	1602.	1803.	2003.
8	267.	534.	801.	1068.	1336.	1602.	1869.	2136.	2403.	2671.
10	334.	668.	1001.	1336.	1669.	2003.	2337.	2671.	3004.	3338.
12	401.	801.	1202.	1602.	2003.	2403.	2804.	3205.	3605.	4006.
14	467.	935.	1402.	1869.	2337.	2804.	3271.	3738.	4206.	4673.
16	534.	1068.	1602.	2136.	2671.	3205.	3738.	4273.	4807.	5341.
18	601.	1202.	1803.	2403.	3004.	3605.	4205.	4807.	5408.	6008.
20	668.	1336.	2003.	2671.	3338.	4006.	4673.	5341.	6008.	6676.
22	734.	1469.	2203.	2938.	3672.	4408.	5141.	5875.	6610.	7344.
24	801.	1602.	2403.	3205.	4006.	4807.	5608.	6409.	7210.	8012.
26	868.	1736.	2604.	3472.	4349.	5208.	6073.	6948.	7811.	8679.
28	935.	1869.	2804.	3738.	4673.	5608.	6543.	7477.	8412.	9347.
30	1001.	2003.	3004.	4006.	5007.	6008.	7010.	8012.	9013.	10014.

THERMAL WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	93.	186.	279.	372.	465.	557.	650.	743.	836.	929.
4	186.	372.	557.	743.	929.	1115.	1301.	1486.	1672.	1858.
6	279.	557.	836.	1115.	1394.	1672.	1951.	2230.	2508.	2787.
8	372.	743.	1115.	1486.	1869.	2252.	2635.	2918.	3301.	3684.
10	465.	929.	1394.	1869.	2343.	2817.	3292.	3767.	4241.	4716.
12	557.	1115.	1672.	2230.	2817.	3404.	3991.	4578.	5165.	5752.
14	650.	1301.	1951.	2635.	3292.	3902.	4509.	5116.	5723.	6330.
16	743.	1486.	2230.	2918.	3719.	4408.	5102.	5796.	6490.	7184.
18	836.	1672.	2508.	3205.	4181.	4917.	5653.	6389.	7125.	7861.
20	929.	1858.	2787.	3472.	4349.	5141.	5933.	6725.	7517.	8309.
22	1022.	2044.	3066.	4006.	5149.	6138.	7127.	8116.	9105.	10094.
24	1115.	2230.	3345.	4408.	5674.	6802.	7931.	9060.	10189.	11278.
26	1208.	2416.	3624.	4807.	6008.	7249.	8480.	9711.	10942.	12167.
28	1301.	2602.	3904.	5205.	6507.	7854.	9185.	10516.	11847.	13056.
30	1394.	2787.	4181.	5674.	7002.	8451.	9882.	11313.	12744.	13945.

Patrick AFB

ANNUAL SOLAR CONTRIBUTION - MONTHS 1

SQ FT (x 1000)	Percent Glass Area - Percent Diffuse										
	10	20	30	40	50	60	70	80	90	100	110
2	.8	1.8	2.8	3.8	4.8	5.8	6.8	7.8	8.8	9.8	10.8
4	1.6	3.6	5.6	7.6	9.6	11.6	13.6	15.6	17.6	19.6	21.6
6	2.4	5.4	8.4	11.4	14.4	17.4	20.4	23.4	26.4	29.4	32.4
8	3.2	7.2	11.2	15.2	19.2	23.2	27.2	31.2	35.2	39.2	43.2
10	4.0	9.0	14.0	19.0	24.0	29.0	34.0	39.0	44.0	49.0	54.0
12	4.8	10.8	16.8	22.8	28.8	34.8	40.8	46.8	52.8	58.8	64.8
14	5.6	12.6	19.6	26.6	33.6	40.6	47.6	54.6	61.6	68.6	75.6
16	6.4	14.4	22.4	30.4	38.4	46.4	54.4	62.4	70.4	78.4	86.4
18	7.2	16.2	25.2	34.2	42.2	50.2	58.2	66.2	74.2	82.2	90.2
20	8.0	18.0	28.0	38.0	46.0	54.0	62.0	70.0	78.0	86.0	94.0
22	8.8	19.8	30.8	40.8	48.8	56.8	64.8	72.8	80.8	88.8	96.8
24	9.6	21.6	33.6	43.6	51.6	59.6	67.6	75.6	83.6	91.6	99.6
26	10.4	23.4	36.4	46.4	54.4	62.4	70.4	78.4	86.4	94.4	102.4
28	11.2	25.2	39.2	49.2	57.2	65.2	73.2	81.2	89.2	97.2	105.2
30	12.0	27.0	42.0	52.0	60.0	68.0	76.0	84.0	92.0	100.0	108.0

DIRECT GAIN DIFFERENTIAL COST - MONTHS 1

SQ FT (x 1000)	Percent Glass Area - Percent Diffuse										
	10	20	30	40	50	60	70	80	90	100	110
2	125	250	375	500	625	750	875	1000	1125	1250	1375
4	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750
6	375	750	1125	1500	1875	2250	2625	3000	3375	3750	4125
8	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
10	625	1250	1875	2500	3125	3750	4375	5000	5625	6250	6875
12	750	1500	2250	3000	3750	4500	5250	6000	6750	7500	8250
14	875	1750	2625	3500	4375	5250	6125	7000	7875	8750	9625
16	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
18	1125	2250	3375	4500	5625	6750	7875	9000	10125	11250	12375
20	1250	2500	3750	5000	6250	7500	8750	10000	11250	12500	13750
22	1375	2750	4125	5500	6875	8250	9625	11000	12375	13750	15125
24	1500	3000	4500	6000	7500	9000	10500	12000	13500	15000	16500
26	1625	3250	4875	6500	8125	9750	11375	13000	14625	16250	17875
28	1750	3500	5250	7000	8750	10500	12250	14000	15750	17500	19500
30	1875	3750	5625	7500	9375	11250	13000	15000	16750	18500	20250

INDIRECT GAIN DIFFERENTIAL COST - MONTHS 1

SQ FT (x 1000)	Percent Glass Area - Percent Diffuse										
	10	20	30	40	50	60	70	80	90	100	110
2	10	20	30	40	50	60	70	80	90	100	110
4	20	40	60	80	100	120	140	160	180	200	220
6	30	60	90	120	150	180	210	240	270	300	330
8	40	80	120	160	200	240	280	320	360	400	440
10	50	100	150	200	250	300	350	400	450	500	550
12	60	120	180	240	300	360	420	480	540	600	660
14	70	140	210	280	350	420	490	560	630	700	770
16	80	160	240	320	400	480	560	640	720	800	880
18	90	180	270	360	450	540	630	720	810	900	990
20	100	200	300	400	500	600	700	800	900	1000	1100
22	110	220	330	440	550	660	770	880	990	1100	1210
24	120	240	360	480	600	720	840	960	1080	1200	1320
26	130	260	390	520	640	760	880	1000	1120	1240	1360
28	140	280	420	560	680	800	920	1040	1160	1280	1400
30	150	300	450	600	720	840	960	1080	1200	1320	1440

Pease AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.2	6.9	8.6	10.3	12.1	13.8	15.5	17.2
4	3.4	6.9	10.3	13.8	17.2	20.7	24.1	27.6	31.0	34.4
6	5.2	10.3	15.5	20.7	25.8	31.0	36.2	41.3	46.5	51.7
8	6.9	13.8	20.7	27.6	34.4	41.3	48.2	55.1	62.0	68.9
10	8.6	17.2	25.8	34.4	43.1	51.7	60.3	68.9	77.5	*****
12	10.3	20.7	31.0	41.3	51.7	62.0	72.3	82.7	*****	*****
14	12.1	24.1	36.2	48.2	60.3	72.3	84.4	96.4	*****	*****
16	13.8	27.6	41.3	55.1	68.9	82.7	96.4	*****	*****	*****
18	15.5	31.0	46.5	62.0	77.5	93.0	108.5	*****	*****	*****
20	17.2	34.4	51.7	68.9	86.1	103.3	*****	*****	*****	*****
22	18.9	37.9	56.8	75.8	94.7	113.7	*****	*****	*****	*****
24	20.7	41.3	62.0	82.7	103.3	124.0	*****	*****	*****	*****
26	22.4	44.8	67.2	89.6	111.9	*****	*****	*****	*****	*****
28	24.1	48.2	72.3	96.4	120.6	*****	*****	*****	*****	*****
30	25.8	51.7	77.5	103.3	129.2	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	368.	731.	1097.	1463.	1828.	2194.	2560.	2925.	3291.	3657.
4	731.	1463.	2194.	2925.	3657.	4388.	5119.	5851.	6582.	7313.
6	1097.	2194.	3291.	4388.	5485.	6582.	7679.	8776.	9873.	10970.
8	1463.	2925.	4388.	5851.	7313.	8776.	10239.	11702.	13164.	14627.
10	1828.	3657.	5485.	7313.	9142.	10970.	12798.	14627.	16455.	*****
12	2194.	4388.	6582.	8776.	10970.	13164.	15358.	17552.	*****	*****
14	2560.	5119.	7679.	10239.	12798.	15358.	17918.	20478.	*****	*****
16	2925.	5851.	8776.	11702.	14627.	17552.	20478.	*****	*****	*****
18	3291.	6582.	9873.	13164.	16455.	19746.	23057.	*****	*****	*****
20	3657.	7313.	10970.	14627.	18284.	21940.	*****	*****	*****	*****
22	4022.	8045.	12097.	16090.	20112.	24134.	*****	*****	*****	*****
24	4388.	8776.	13164.	17552.	21940.	26329.	*****	*****	*****	*****
26	4754.	9508.	14231.	19015.	23799.	*****	*****	*****	*****	*****
28	5119.	10239.	15308.	20478.	25697.	*****	*****	*****	*****	*****
30	5485.	10970.	16455.	21940.	27499.	*****	*****	*****	*****	*****

THERMAL WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	516.	1033.	1549.	2065.	2582.	3098.	3614.	4131.	4647.	5163.
4	1033.	2065.	3098.	4131.	5163.	6196.	7228.	8261.	9294.	10328.
6	1549.	3098.	4647.	6196.	7745.	9294.	10843.	12392.	13940.	15489.
8	2065.	4131.	6196.	8261.	10328.	12392.	14457.	16522.	18587.	20653.
10	2582.	5163.	7745.	10328.	12908.	15489.	18071.	20653.	23234.	*****
12	3098.	6196.	9294.	12392.	15489.	18587.	21685.	24783.	*****	*****
14	3614.	7228.	10843.	14457.	18071.	21685.	25299.	28914.	*****	*****
16	4131.	8261.	12392.	16522.	20653.	24783.	28914.	*****	*****	*****
18	4647.	9294.	13940.	18587.	23234.	27891.	32428.	*****	*****	*****
20	5163.	10328.	15489.	20653.	25824.	30979.	*****	*****	*****	*****
22	5679.	11399.	17099.	22718.	28997.	34077.	*****	*****	*****	*****
24	6196.	12469.	18697.	24793.	32175.	*****	*****	*****	*****	*****
26	6712.	13539.	20193.	26788.	35273.	*****	*****	*****	*****	*****
28	7228.	14609.	21689.	28783.	38371.	*****	*****	*****	*****	*****
30	7745.	15679.	23185.	30778.	41469.	*****	*****	*****	*****	*****

Pease AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.0	11.9	17.9	23.8	29.8	35.8	41.7	47.7	53.7	59.6
4	11.9	23.8	35.8	47.7	59.6	71.5	83.5	95.4	107.3	119.2
6	17.9	35.8	53.7	71.5	89.4	107.3	125.2	143.1	161.0	178.8
8	23.8	47.7	71.5	95.4	119.2	143.1	166.9	190.8	214.6	238.5
10	29.8	59.6	89.4	119.2	149.0	178.8	208.7	238.5	268.3	*****
12	35.8	71.5	107.3	143.1	178.8	214.6	250.4	286.2	*****	*****
14	41.7	83.5	125.2	166.9	208.7	250.4	292.1	333.8	*****	*****
16	47.7	95.4	143.1	190.8	238.5	286.2	333.8	*****	*****	*****
18	53.7	107.3	161.0	214.6	268.3	321.9	375.8	*****	*****	*****
20	59.6	119.2	178.8	238.5	298.1	357.7	*****	*****	*****	*****
22	65.6	131.2	196.7	262.3	327.9	393.5	*****	*****	*****	*****
24	71.5	143.1	214.6	286.2	357.7	429.2	*****	*****	*****	*****
26	77.5	155.0	232.5	310.0	387.5	*****	*****	*****	*****	*****
28	83.5	166.9	250.4	333.8	417.3	*****	*****	*****	*****	*****
30	89.4	178.8	268.3	357.7	447.1	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	708.	1416.	2124.	2832.	3540.	4248.	4956.	5664.	6372.	7080.
4	1416.	2832.	4248.	5664.	7080.	8496.	9913.	11329.	12745.	14161.
6	2124.	4248.	6372.	8496.	10621.	12745.	14869.	16993.	19117.	21241.
8	2832.	5664.	8496.	11329.	14161.	16993.	19825.	22657.	25489.	28321.
10	3540.	7080.	10621.	14161.	17701.	21241.	24781.	28321.	31862.	*****
12	4248.	8496.	12745.	16993.	21241.	25489.	29738.	33986.	*****	*****
14	4956.	9913.	14869.	19825.	24781.	29738.	34694.	39650.	*****	*****
16	5664.	11329.	16993.	22657.	28321.	33986.	39650.	*****	*****	*****
18	6372.	12745.	19117.	25489.	31862.	38234.	44606.	*****	*****	*****
20	7080.	14161.	21241.	28321.	35402.	42482.	*****	*****	*****	*****
22	7788.	15577.	23366.	31154.	38942.	46730.	*****	*****	*****	*****
24	8496.	16993.	25489.	33986.	42482.	50979.	*****	*****	*****	*****
26	9204.	18409.	27613.	36818.	46022.	*****	*****	*****	*****	*****
28	9913.	19825.	29738.	39650.	49663.	*****	*****	*****	*****	*****
30	10621.	21241.	31862.	42482.	53103.	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	809.	1717.	2576.	3435.	4293.	5152.	6011.	6869.	7728.	8587.
4	1717.	3435.	5152.	6869.	8587.	10304.	12021.	13739.	15456.	17174.
6	2576.	5152.	7728.	10304.	12880.	15456.	18032.	20608.	23184.	25760.
8	3435.	6869.	10304.	13739.	17174.	20608.	24043.	27478.	30912.	34347.
10	4293.	8587.	12880.	17174.	21467.	25760.	30054.	34347.	38640.	*****
12	5152.	10304.	15456.	20608.	25760.	30912.	36064.	41216.	*****	*****
14	6011.	12021.	18032.	24043.	30054.	36064.	42075.	48086.	*****	*****
16	6869.	13739.	20608.	27478.	34347.	41216.	48086.	*****	*****	*****
18	7728.	15456.	23184.	30912.	38640.	46389.	54597.	*****	*****	*****
20	8587.	17174.	25760.	34347.	42934.	51521.	*****	*****	*****	*****
22	9446.	18891.	28336.	37762.	47227.	56673.	*****	*****	*****	*****
24	10304.	20608.	30912.	41216.	51521.	61885.	*****	*****	*****	*****
26	11163.	22324.	33488.	44911.	56514.	*****	*****	*****	*****	*****
28	12021.	24043.	36064.	48999.	61107.	*****	*****	*****	*****	*****
30	12880.	25760.	38640.	51521.	64491.	*****	*****	*****	*****	*****

Peterson AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.1	6.3	9.4	12.6	15.7	18.9	22.0	25.2	28.3	31.5
4	6.3	12.6	18.9	25.2	31.5	37.8	44.0	50.3	56.6	62.9
6	9.4	18.9	28.3	37.8	47.2	56.6	66.1	75.5	84.9	94.4
8	12.6	25.2	37.8	50.3	62.9	75.5	88.1	100.7	113.3	125.8
10	15.7	31.5	47.2	62.9	78.6	94.4	110.1	125.8	141.6	157.3
12	18.9	37.8	56.6	75.5	94.4	113.3	132.1	151.0	169.9	188.8
14	22.0	44.0	66.1	88.1	110.1	132.1	154.1	176.2	198.2	220.2
16	25.2	50.3	75.5	100.7	125.8	151.0	176.2	201.3	226.5	251.7
18	28.3	56.6	84.9	113.3	141.6	169.9	198.2	226.5	254.8	283.1
20	31.5	62.9	94.4	125.8	157.3	188.8	220.2	251.7	283.1	*****
22	34.6	69.2	103.8	138.4	173.0	207.6	242.2	276.8	311.4	*****
24	37.8	75.5	113.3	151.0	188.8	226.5	264.3	302.0	*****	*****
26	40.9	81.8	122.7	163.6	204.5	245.4	286.3	327.2	*****	*****
28	44.0	88.1	132.1	176.2	220.2	264.3	308.3	352.3	*****	*****
30	47.2	94.4	141.6	188.8	236.9	283.1	330.3	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	254.	508.	763.	1017.	1271.	1525.	1780.	2034.	2288.	2542.
4	508.	1017.	1525.	2034.	2542.	3051.	3559.	4068.	4576.	5084.
6	763.	1525.	2288.	3051.	3813.	4576.	5339.	6101.	6864.	7627.
8	1017.	2034.	3051.	4068.	5084.	6101.	7118.	8135.	9152.	10169.
10	1271.	2542.	3813.	5084.	6356.	7627.	8898.	10169.	11440.	12711.
12	1525.	3051.	4576.	6101.	7627.	9152.	10677.	12203.	13728.	15253.
14	1780.	3559.	5339.	7118.	8898.	10677.	12457.	14236.	16016.	17795.
16	2034.	4068.	6101.	8135.	10169.	12203.	14236.	16270.	18304.	20338.
18	2288.	4576.	6864.	9152.	11440.	13728.	16016.	18304.	20592.	22680.
20	2542.	5084.	7627.	10169.	12711.	15253.	17795.	20338.	22880.	*****
22	2796.	5593.	8390.	11186.	13982.	16779.	19575.	22371.	25166.	*****
24	3051.	6101.	9152.	12203.	15253.	18304.	21354.	24405.	*****	*****
26	3305.	6610.	9915.	13219.	16524.	19829.	23134.	26439.	*****	*****
28	3559.	7118.	10677.	14236.	17795.	21354.	24914.	28473.	*****	*****
30	3813.	7627.	11440.	15253.	19097.	22880.	26993.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	363.	726.	1089.	1452.	1815.	2178.	2541.	2904.	3267.	3630.
4	726.	1452.	2178.	2904.	3630.	4356.	5082.	5808.	6534.	7260.
6	1089.	2178.	3267.	4356.	5445.	6534.	7623.	8712.	9801.	10890.
8	1452.	2904.	4356.	5808.	7260.	8712.	10164.	11616.	13068.	14520.
10	1815.	3630.	5445.	7260.	9076.	10980.	12705.	14520.	16335.	18150.
12	2178.	4356.	6534.	8712.	10980.	13068.	15246.	17424.	19602.	21780.
14	2541.	5082.	7623.	10164.	12705.	15246.	17767.	20328.	22869.	25410.
16	2904.	5808.	8712.	11616.	14520.	17424.	20328.	23232.	26136.	29039.
18	3267.	6534.	9801.	13068.	16335.	19802.	22896.	26136.	29402.	32669.
20	3630.	7260.	10980.	14520.	18150.	21780.	25410.	29039.	32669.	*****
22	3993.	7986.	11979.	15972.	19965.	23895.	27951.	31943.	35835.	*****
24	4356.	8712.	13068.	17424.	21780.	26136.	30491.	34847.	*****	*****
26	4719.	9438.	14157.	18876.	23595.	28313.	33032.	37751.	*****	*****
28	5082.	10164.	15246.	20328.	25410.	30491.	35573.	40655.	*****	*****
30	5445.	10890.	16335.	21780.	27225.	32669.	38114.	*****	*****	*****

Peterson AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.5	11.0	16.4	21.9	27.4	32.9	38.3	43.8	49.3	54.8
4	11.0	21.9	32.9	43.8	54.8	65.7	76.7	87.6	98.6	109.6
6	16.4	32.9	49.3	65.7	82.1	98.6	115.0	131.4	147.9	164.3
8	21.9	43.8	65.7	87.6	109.5	131.4	153.3	175.2	197.1	219.0
10	27.4	54.8	82.1	109.5	136.9	164.3	191.7	219.0	246.4	273.8
12	32.9	65.7	98.6	131.4	164.3	197.1	230.0	262.9	295.7	328.6
14	38.3	76.7	115.0	153.3	191.7	230.0	268.3	306.7	345.0	383.3
16	43.8	87.6	131.4	175.2	219.0	262.9	306.7	350.5	394.3	438.1
18	49.3	98.6	147.9	197.1	246.4	295.7	345.0	394.3	443.6	492.9
20	54.8	109.5	164.3	219.0	273.8	328.6	383.3	438.1	492.9	*****
22	60.2	120.5	180.7	241.0	301.2	361.4	421.7	481.9	542.1	*****
24	65.7	131.4	197.1	262.9	328.6	394.3	460.0	525.7	*****	*****
26	71.2	142.4	213.6	284.8	356.0	427.1	498.3	569.5	*****	*****
28	76.7	153.3	230.0	306.7	383.3	460.0	536.7	613.3	*****	*****
30	82.1	164.3	246.4	328.6	410.7	492.9	575.0	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	501.	1003.	1504.	2006.	2507.	3009.	3510.	4011.	4513.	5014.
4	1003.	2006.	3009.	4011.	5014.	6017.	7020.	8023.	9026.	10029.
6	1504.	3009.	4513.	6017.	7521.	9026.	10530.	12034.	13539.	15043.
8	2006.	4011.	6017.	8023.	10029.	12034.	14040.	16046.	18052.	20057.
10	2507.	5014.	7521.	10029.	12536.	15043.	17550.	20057.	22564.	25072.
12	3009.	6017.	9026.	12034.	15043.	18052.	21060.	24069.	27077.	30086.
14	3510.	7020.	10530.	14040.	17550.	21060.	24570.	28080.	31590.	35100.
16	4011.	8023.	12034.	16046.	20057.	24069.	28080.	32092.	36103.	40115.
18	4513.	9026.	13539.	18052.	22564.	27077.	31590.	36103.	40616.	45129.
20	5014.	10029.	15043.	20057.	25072.	30086.	35100.	40115.	45129.	*****
22	5516.	11032.	16547.	22063.	27579.	33096.	38610.	44126.	49642.	*****
24	6017.	12034.	18052.	24069.	30086.	36103.	42120.	48137.	*****	*****
26	6519.	13037.	19556.	26074.	32593.	39112.	45630.	52149.	*****	*****
28	7020.	14040.	21060.	28080.	35100.	42120.	49140.	56160.	*****	*****
30	7521.	15043.	22564.	30086.	37697.	45129.	52650.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	610.	1220.	1831.	2441.	3051.	3661.	4271.	4882.	5492.	6102.
4	1220.	2441.	3661.	4882.	6102.	7322.	8543.	9763.	10984.	12204.
6	1831.	3661.	5492.	7322.	9153.	10984.	12814.	14645.	16476.	18306.
8	2441.	4882.	7322.	9763.	12204.	14645.	17086.	19527.	21967.	24408.
10	3051.	6102.	9153.	12204.	15255.	18306.	21357.	24408.	27459.	30510.
12	3661.	7322.	10984.	14645.	18306.	21967.	25629.	29290.	32951.	36612.
14	4271.	8543.	12814.	17086.	21357.	25290.	29900.	34172.	38443.	42714.
16	4882.	9763.	14645.	19527.	24408.	29290.	34172.	39353.	43835.	48116.
18	5492.	10984.	16476.	21967.	27459.	32951.	38443.	43835.	48427.	54118.
20	6102.	12204.	18306.	24408.	30510.	36612.	42714.	48816.	54919.	*****
22	6712.	13425.	20137.	26849.	33661.	40774.	46866.	52918.	59410.	*****
24	7322.	14646.	21967.	29290.	36812.	43926.	50027.	56120.	*****	*****
26	7932.	15867.	23798.	31731.	39363.	47088.	53139.	59461.	*****	*****
28	8543.	17088.	25629.	34172.	41914.	49249.	56250.	62343.	*****	*****
30	9153.	18309.	27459.	36615.	44075.	51310.	58361.	*****	*****	*****

Plattsburgh AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.5	13.0	19.6	26.1	32.6	39.1	45.6	52.2	58.7	65.2
4	13.0	26.1	39.1	52.2	65.2	78.3	91.3	104.3	117.4	130.4
6	19.6	39.1	58.7	78.3	97.8	117.4	136.9	156.5	176.1	*****
8	26.1	52.2	78.3	104.3	130.4	156.5	182.6	208.7	*****	*****
10	32.6	65.2	97.8	130.4	163.0	195.6	228.2	*****	*****	*****
12	39.1	78.3	117.4	156.5	195.6	234.8	*****	*****	*****	*****
14	45.6	91.3	136.9	182.6	228.2	273.9	*****	*****	*****	*****
16	52.2	104.3	156.5	208.7	260.9	*****	*****	*****	*****	*****
18	58.7	117.4	176.1	234.8	293.5	*****	*****	*****	*****	*****
20	65.2	130.4	195.6	260.9	328.1	*****	*****	*****	*****	*****
22	71.7	143.5	215.2	286.9	358.7	*****	*****	*****	*****	*****
24	78.3	156.5	234.8	313.0	*****	*****	*****	*****	*****	*****
26	84.8	169.6	254.3	339.1	*****	*****	*****	*****	*****	*****
28	91.3	182.6	273.9	365.2	*****	*****	*****	*****	*****	*****
30	97.8	195.6	293.5	391.3	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	927.	1854.	2781.	3708.	4636.	5563.	6490.	7417.	8344.	9272.
4	1854.	3708.	5563.	7417.	9272.	11126.	12980.	14834.	16689.	18543.
6	2781.	5563.	8344.	11126.	13907.	16689.	19470.	22252.	25033.	*****
8	3708.	7417.	11126.	14834.	18543.	22252.	25960.	29669.	*****	*****
10	4636.	9272.	13907.	18543.	23179.	27815.	32450.	*****	*****	*****
12	5563.	11126.	16689.	22252.	27815.	33377.	*****	*****	*****	*****
14	6490.	12980.	19470.	25960.	32450.	38940.	*****	*****	*****	*****
16	7417.	14834.	22252.	29669.	37086.	*****	*****	*****	*****	*****
18	8344.	16689.	25033.	33377.	41722.	*****	*****	*****	*****	*****
20	9272.	18543.	27815.	37086.	46366.	*****	*****	*****	*****	*****
22	10199.	20397.	30596.	40796.	50993.	*****	*****	*****	*****	*****
24	11126.	22252.	33377.	44503.	*****	*****	*****	*****	*****	*****
26	12053.	24106.	36159.	48212.	*****	*****	*****	*****	*****	*****
28	12980.	25960.	38940.	51920.	*****	*****	*****	*****	*****	*****
30	13907.	27815.	41722.	55628.	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1119.	2238.	3357.	4475.	5594.	6713.	7832.	8951.	10070.	11188.
4	2238.	4475.	6713.	8951.	11188.	13426.	15664.	17902.	20139.	22377.
6	3357.	6713.	10070.	13426.	16783.	20139.	23496.	26852.	30209.	*****
8	4475.	8951.	13426.	17892.	22377.	26852.	31328.	35803.	*****	*****
10	5594.	11188.	16783.	22377.	27971.	33865.	39160.	*****	*****	*****
12	6713.	13426.	20139.	26852.	33865.	40278.	*****	*****	*****	*****
14	7832.	15664.	23496.	31328.	39160.	46991.	*****	*****	*****	*****
16	8951.	17902.	26852.	35803.	44754.	*****	*****	*****	*****	*****
18	10070.	20139.	30309.	40278.	50348.	*****	*****	*****	*****	*****
20	11188.	22377.	33865.	44754.	55942.	*****	*****	*****	*****	*****
22	12307.	24615.	38322.	49229.	61536.	*****	*****	*****	*****	*****
24	13426.	26852.	43786.	53793.	*****	*****	*****	*****	*****	*****
26	14545.	29090.	49350.	58357.	*****	*****	*****	*****	*****	*****
28	15664.	31328.	54914.	62921.	*****	*****	*****	*****	*****	*****
30	16783.	33566.	60478.	67485.	*****	*****	*****	*****	*****	*****

Pope AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.0	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.5	22.3	25.0	27.8
6	4.2	8.3	12.5	16.7	20.9	25.0	29.2	33.4	37.6	41.7
8	5.6	11.1	16.7	22.3	27.8	33.4	39.0	44.5	50.1	55.7
10	7.0	13.9	20.9	27.8	34.6	41.7	48.7	55.7	62.6	69.6
12	8.3	16.7	25.0	33.4	41.7	50.1	58.4	66.8	75.1	83.5
14	9.7	19.5	29.2	39.0	48.7	58.4	68.2	77.9	87.7	97.4
16	11.1	22.3	33.4	44.5	55.7	66.8	77.9	89.1	100.2	111.3
18	12.5	25.0	37.6	50.1	62.6	75.1	87.7	100.2	112.7	125.2
20	13.9	27.8	41.7	55.7	69.6	83.5	97.4	111.3	125.2	139.2
22	15.3	30.6	45.9	61.2	76.5	91.8	107.1	122.5	137.8	153.1
24	16.7	33.4	50.1	66.8	83.5	100.2	116.9	133.6	150.3	167.0
26	18.1	36.2	54.3	72.4	90.5	108.5	126.6	144.7	162.8	180.9
28	19.5	39.0	58.4	77.9	97.4	116.9	136.4	155.9	175.3	194.8
30	20.9	41.7	62.6	83.5	104.4	125.2	146.1	167.0	187.9	208.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	203.	407.	610.	814.	1017.	1221.	1424.	1628.	1831.	2035.
4	407.	814.	1221.	1628.	2035.	2441.	2848.	3255.	3662.	4069.
6	610.	1221.	1831.	2441.	3052.	3662.	4273.	4883.	5493.	6104.
8	814.	1628.	2441.	3255.	4069.	4883.	5697.	6511.	7324.	8138.
10	1017.	2035.	3052.	4069.	5086.	6104.	7121.	8138.	9155.	10173.
12	1221.	2441.	3662.	4883.	6104.	7324.	8545.	9766.	10986.	12207.
14	1424.	2848.	4273.	5697.	7121.	8545.	9969.	11393.	12818.	14242.
16	1628.	3255.	4883.	6511.	8138.	9766.	11393.	13021.	14649.	16276.
18	1831.	3662.	5493.	7324.	9155.	10986.	12818.	14649.	16480.	18311.
20	2035.	4069.	6104.	8138.	10173.	12207.	14242.	16276.	18311.	20345.
22	2238.	4476.	6714.	8652.	11180.	13228.	15266.	17304.	19342.	22380.
24	2441.	4883.	7324.	9766.	12207.	14242.	16276.	18311.	20345.	24414.
26	2645.	5290.	7935.	10680.	13224.	15266.	17304.	19342.	21380.	26449.
28	2848.	5697.	8545.	11393.	14242.	17090.	19338.	22767.	25435.	28484.
30	3052.	6104.	9155.	12207.	15266.	18311.	21363.	24414.	27480.	30518.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	590.	590.	640.	1130.	1300.	1670.	1990.	2350.	2610.	2790.
4	660.	1130.	1670.	2230.	2790.	3350.	3910.	4470.	5030.	5600.
6	840.	1670.	2510.	3300.	4190.	5030.	5877.	6717.	7557.	8398.
8	1130.	2350.	3350.	4470.	5690.	6717.	7897.	8986.	10076.	11166.
10	1390.	2790.	4190.	5690.	6907.	8398.	9798.	11198.	12598.	13998.
12	1670.	3350.	5030.	6717.	8398.	10076.	11756.	13434.	15113.	16793.
14	1950.	3910.	5877.	7837.	9798.	11756.	13714.	15673.	17632.	19591.
16	2230.	4470.	6717.	8906.	11198.	13434.	15673.	17912.	20161.	22390.
18	2510.	5030.	7897.	10076.	12594.	15113.	17632.	20161.	22970.	25189.
20	2790.	5690.	8906.	11198.	13994.	16793.	19391.	22390.	25189.	27988.
22	3070.	6197.	9936.	12518.	15393.	18472.	21391.	24499.	27798.	30787.
24	3350.	6717.	10976.	13434.	16793.	20161.	23510.	26999.	29997.	33586.
26	3630.	7277.	11916.	14834.	18193.	21830.	25499.	29197.	32796.	36385.
28	3910.	7837.	11796.	15753.	19591.	23510.	27499.	31396.	35595.	39184.
30	4190.	8398.	12894.	16793.	20991.	25189.	29397.	33595.	37794.	41983.

Pope AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MDTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.3	4.8	8.8	9.1	11.4	13.7	15.9	18.2	20.5	22.8
4	4.6	9.1	13.7	18.2	22.8	27.3	31.9	36.4	41.0	45.5
6	6.8	13.7	20.5	27.3	34.2	41.0	47.8	54.6	61.5	68.3
8	9.1	18.2	27.3	36.4	45.5	54.6	63.8	72.9	82.0	91.1
10	11.4	22.8	34.2	45.5	56.9	68.3	79.7	91.1	102.5	113.9
12	13.7	27.3	41.0	54.6	68.3	82.0	95.6	109.3	123.0	136.6
14	15.9	31.9	47.8	63.8	79.7	95.6	111.6	127.5	143.5	159.4
16	18.2	36.4	54.6	72.9	91.1	108.3	127.5	145.7	163.9	182.2
18	20.5	41.0	61.5	82.0	102.5	123.0	143.5	163.9	184.4	204.9
20	22.8	45.5	68.3	91.1	113.9	136.6	168.4	192.2	204.9	227.7
22	25.0	50.1	75.1	100.2	125.2	150.3	175.3	200.4	225.4	250.5
24	27.3	54.6	82.0	109.3	136.6	163.9	191.3	216.8	245.9	273.2
26	29.6	59.2	88.8	118.4	148.0	177.6	207.2	236.8	266.4	296.0
28	31.9	63.8	95.6	127.5	159.4	191.3	223.2	255.0	286.9	318.8
30	34.2	68.3	102.5	136.6	170.8	204.9	239.1	273.2	307.4	341.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	377.	754.	1131.	1509.	1886.	2263.	2640.	3017.	3394.	3771.
4	754.	1509.	2263.	3017.	3771.	4526.	5280.	6034.	6789.	7543.
6	1131.	2263.	3394.	4526.	5657.	6789.	7920.	9051.	10183.	11314.
8	1509.	3017.	4526.	6034.	7543.	9051.	10560.	12069.	13577.	15086.
10	1886.	3771.	5657.	7543.	9429.	11314.	13200.	15086.	16972.	18857.
12	2263.	4526.	6789.	9051.	11314.	13577.	15640.	18103.	20366.	22629.
14	2640.	5280.	7920.	10560.	13200.	15840.	18480.	21120.	23760.	26400.
16	3017.	6034.	9051.	12069.	15086.	18103.	21120.	24137.	27154.	30172.
18	3394.	6789.	10183.	13577.	16872.	20366.	23760.	27154.	30549.	33943.
20	3771.	7543.	11314.	15086.	18957.	22629.	26400.	30172.	33943.	37714.
22	4149.	8297.	12446.	16584.	20743.	24892.	29040.	33189.	37337.	41486.
24	4526.	9051.	13577.	18103.	22929.	27154.	31680.	36206.	40732.	45257.
26	4903.	9805.	14709.	19612.	24514.	29417.	34320.	39223.	44128.	49029.
28	5280.	10560.	15840.	21120.	26400.	31680.	36960.	42240.	47520.	52800.
30	5657.	11314.	16972.	22629.	28286.	33943.	39600.	45257.	50915.	56572.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	454.	907.	1361.	1814.	2268.	2721.	3175.	3629.	4082.	4536.
4	907.	1814.	2721.	3629.	4536.	5443.	6350.	7257.	8164.	9071.
6	1361.	2721.	4082.	5443.	6804.	8164.	9525.	10886.	12246.	13607.
8	1814.	3629.	5443.	7257.	9071.	10886.	12700.	14514.	16328.	18143.
10	2268.	4536.	6804.	9071.	11239.	13607.	15975.	18343.	20711.	23079.
12	2721.	5443.	8164.	10886.	13607.	16328.	19000.	21771.	24483.	27214.
14	3175.	6350.	9525.	12700.	15975.	19000.	22225.	25400.	28575.	31750.
16	3629.	7257.	10886.	14514.	18143.	21771.	25400.	29028.	32657.	36285.
18	4082.	8164.	12246.	16328.	20411.	24483.	28575.	32657.	36739.	40821.
20	4536.	9071.	13607.	18143.	22678.	27214.	31750.	36285.	40821.	45367.
22	4990.	9978.	14969.	19957.	24946.	29926.	34925.	39914.	44903.	49993.
24	5443.	10886.	16328.	21771.	27214.	32657.	38100.	43643.	49885.	54428.
26	5897.	11793.	17687.	23586.	29486.	35378.	41375.	47171.	53068.	58964.
28	6350.	12700.	19046.	25400.	31750.	38100.	44499.	50900.	57189.	63500.
30	6804.	13607.	20411.	27214.	34014.	40821.	47520.	54428.	61232.	68036.

Randolph AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.8	1.6	2.4	3.2	4.0	4.7	5.5	6.3	7.1	7.9
4	1.6	3.2	4.7	6.3	7.9	9.5	11.1	12.7	14.2	15.8
6	2.4	4.7	7.1	9.5	11.9	14.2	16.6	19.0	21.4	23.7
8	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
10	4.0	7.9	11.9	15.8	19.8	23.7	27.7	31.7	35.6	39.6
12	4.7	9.5	14.2	19.0	23.7	28.5	33.2	38.0	42.7	47.5
14	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
16	6.3	12.7	19.0	25.3	31.7	38.0	44.3	50.6	57.0	63.3
18	7.1	14.2	21.4	28.5	35.6	42.7	49.9	57.0	64.1	71.2
20	7.9	15.8	23.7	31.7	39.6	47.5	55.4	63.3	71.2	79.1
22	8.7	17.4	26.1	34.8	43.5	52.2	60.9	69.6	78.3	87.0
24	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
26	10.3	20.6	30.9	41.1	51.4	61.7	72.0	82.3	92.6	102.9
28	11.1	22.2	33.2	44.3	55.4	66.5	77.5	88.6	99.7	110.8
30	11.9	23.7	35.6	47.5	59.3	71.2	83.1	95.0	106.6	118.7

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	130.	259.	389.	518.	648.	777.	907.	1036.	1166.	1296.
4	259.	518.	777.	1036.	1296.	1555.	1814.	2073.	2332.	2591.
6	389.	777.	1166.	1555.	1943.	2332.	2721.	3109.	3498.	3887.
8	518.	1036.	1555.	2073.	2591.	3109.	3628.	4146.	4664.	5182.
10	648.	1296.	1943.	2591.	3230.	3867.	4505.	5142.	5780.	6418.
12	777.	1555.	2332.	3109.	3887.	4664.	5442.	6219.	6996.	7774.
14	907.	1814.	2721.	3598.	4505.	5442.	6348.	7255.	8162.	9069.
16	1036.	2073.	3109.	4146.	5182.	6219.	7255.	8292.	9329.	10365.
18	1166.	2332.	3498.	4664.	5830.	6996.	8162.	9328.	10494.	11660.
20	1296.	2591.	3887.	5182.	6478.	7774.	9069.	10365.	11660.	12956.
22	1426.	2850.	4276.	5701.	7128.	8561.	9976.	11401.	12827.	14252.
24	1555.	3109.	4664.	6219.	7774.	9328.	10883.	12438.	13993.	15547.
26	1684.	3368.	5053.	6737.	8421.	10108.	11790.	13474.	15159.	16843.
28	1814.	3628.	5442.	7255.	9069.	10883.	12697.	14511.	16385.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13504.	15547.	17491.	19434.

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	152.	305.	457.	610.	762.	915.	1067.	1220.	1372.	1525.
4	305.	610.	915.	1220.	1525.	1830.	2134.	2439.	2744.	3049.
6	457.	915.	1372.	1830.	2287.	2744.	3201.	3658.	4115.	4572.
8	610.	1220.	1830.	2439.	3049.	3658.	4267.	4876.	5485.	6094.
10	762.	1525.	2287.	3049.	3860.	4671.	5482.	6293.	7104.	7915.
12	915.	1830.	2744.	3658.	4572.	5486.	6399.	7312.	8225.	9138.
14	1067.	2134.	3201.	4267.	5281.	6295.	7308.	8321.	9334.	10347.
16	1220.	2439.	3658.	4876.	5990.	7004.	8017.	9030.	10043.	11056.
18	1372.	2744.	4115.	5485.	6699.	7713.	8726.	9739.	10752.	11765.
20	1525.	3049.	4572.	6094.	7308.	8422.	9536.	10649.	11763.	12876.
22	1677.	3354.	5059.	6605.	7917.	9131.	10345.	11559.	12773.	13987.
24	1830.	3658.	5446.	7128.	8441.	9655.	10869.	12083.	13297.	15198.
26	1982.	3963.	5833.	7639.	8952.	10176.	11390.	12604.	13818.	16409.
28	2134.	4267.	6220.	8150.	9463.	10687.	11901.	13117.	14329.	17620.
30	2287.	4572.	6607.	8661.	9974.	11198.	12412.	13628.	14840.	18831.

Randolph AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU _r)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.7	10.7
4	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.2	19.3	21.5
6	3.2	6.4	9.7	12.9	16.1	19.3	22.6	25.8	29.0	32.2
8	4.3	8.6	12.9	17.2	21.5	25.8	30.1	34.4	38.7	43.0
10	5.4	10.7	16.1	21.5	26.8	32.2	37.6	43.0	48.3	53.7
12	6.4	12.9	19.3	25.8	32.2	38.7	45.1	51.5	58.0	64.4
14	7.5	15.0	22.6	30.1	37.6	45.1	52.6	60.1	67.7	75.2
16	8.6	17.2	25.8	34.4	43.0	51.5	60.1	68.7	77.3	85.9
18	9.7	19.3	29.0	38.7	48.3	58.0	67.7	77.3	87.0	96.6
20	10.7	21.5	32.2	43.0	53.7	64.4	75.2	85.9	96.6	107.4
22	11.8	23.6	35.4	47.3	58.1	70.9	82.7	94.5	106.3	118.1
24	12.9	25.8	38.7	51.5	64.4	77.3	90.2	103.1	116.0	129.9
26	14.0	27.9	41.9	55.8	69.8	83.6	97.7	111.7	125.6	139.6
28	15.0	30.1	45.1	60.1	75.2	90.2	105.2	120.3	135.3	150.3
30	16.1	32.2	48.3	64.4	80.6	95.6	112.8	128.9	145.0	161.1

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	300.	600.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
4	600.	999.	1499.	1999.	2499.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4495.	5245.	5994.	6744.	7493.
8	999.	1998.	2997.	3996.	4995.	5994.	6993.	7992.	8991.	9991.
10	1249.	2498.	3746.	4995.	6244.	7493.	8742.	9991.	11239.	12488.
12	1499.	2997.	4496.	5994.	7493.	8992.	10490.	11989.	13487.	14986.
14	1748.	3497.	5245.	6993.	8742.	10490.	12238.	13987.	15735.	17484.
16	1998.	3996.	5994.	7992.	9991.	11989.	13987.	15985.	17983.	19981.
18	2248.	4495.	6744.	8992.	11239.	13487.	15735.	17983.	20231.	22479.
20	2498.	4995.	7493.	9991.	12488.	14986.	17484.	19981.	22479.	24977.
22	2747.	5495.	8242.	10990.	13737.	16484.	19232.	21979.	24727.	27474.
24	2997.	5994.	8992.	11989.	14986.	17983.	20980.	23977.	26975.	29972.
26	3247.	6494.	9741.	12988.	16235.	19482.	22729.	25976.	29223.	32469.
28	3497.	6993.	10490.	13987.	17484.	20980.	24477.	27974.	31470.	34967.
30	3746.	7493.	11239.	14986.	18732.	22479.	26225.	29972.	33718.	37465.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	303.	606.	909.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	606.	1211.	1816.	2421.	3027.	3632.	4237.	4842.	5448.	6053.
6	909.	1816.	2724.	3632.	4540.	5448.	6356.	7264.	8172.	9080.
8	1211.	2421.	3632.	4842.	6053.	7264.	8474.	9685.	10896.	12106.
10	1513.	3027.	4540.	6053.	7566.	9080.	10593.	12106.	13619.	15133.
12	1816.	3632.	5448.	7264.	9080.	10896.	12712.	14527.	16343.	18159.
14	2119.	4237.	6356.	8474.	10593.	12712.	14830.	16949.	19067.	21186.
16	2421.	4842.	7264.	9685.	12106.	14527.	16949.	19370.	21791.	24212.
18	2724.	5448.	8172.	10896.	13619.	16343.	19067.	21791.	24518.	27239.
20	3027.	6053.	9080.	12106.	15133.	18159.	21186.	24212.	27339.	30266.
22	3329.	6658.	9988.	13317.	16646.	19775.	23204.	26224.	29233.	33292.
24	3632.	7264.	10896.	14527.	18159.	21791.	25423.	29049.	32057.	36318.
26	3935.	7869.	11804.	15738.	19673.	23807.	27842.	31478.	34411.	38845.
28	4237.	8474.	12712.	16949.	21186.	25423.	29680.	33897.	38136.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36318.	40896.	45400.

Reese AFB

ANNUAL SOLAR CONTRIBUTION--NNH(NBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.9	3.8	5.7	7.7	9.6	11.5	13.4	15.3	17.2	19.1
4	3.8	7.7	11.5	15.3	19.1	23.0	26.8	30.6	34.5	38.3
6	5.7	11.5	17.2	23.0	28.7	34.5	40.2	45.9	51.7	57.4
8	7.7	15.3	23.0	30.6	38.3	45.9	53.6	61.3	68.9	76.6
10	9.6	19.1	28.7	38.3	47.9	57.4	67.0	76.6	86.1	95.7
12	11.5	23.0	34.5	45.9	57.4	68.9	80.4	91.9	103.4	114.9
14	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.6	134.0
16	15.3	30.6	45.9	61.3	76.6	91.9	107.2	122.5	137.8	153.1
18	17.2	34.5	51.7	68.9	86.1	103.4	120.6	137.8	155.1	172.3
20	19.1	38.3	57.4	76.6	95.7	114.9	134.0	153.1	172.3	191.4
22	21.1	42.1	63.2	84.2	105.3	126.3	147.4	166.5	189.5	210.6
24	23.0	45.9	68.9	91.9	114.9	137.8	160.6	183.8	208.7	229.7
26	24.9	49.8	74.7	99.5	124.4	149.3	174.2	199.1	224.0	248.9
28	26.8	53.6	80.4	107.2	134.0	160.6	187.6	214.4	241.2	268.0
30	28.7	57.4	86.1	114.9	143.6	172.3	201.0	229.7	258.4	287.1

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	194.	388.	581.	775.	969.	1163.	1357.	1550.	1744.	1938.
4	388.	775.	1163.	1550.	1938.	2326.	2713.	3101.	3489.	3876.
6	581.	1163.	1744.	2326.	2907.	3489.	4070.	4651.	5233.	5814.
8	775.	1550.	2326.	3101.	3876.	4651.	5427.	6202.	6977.	7752.
10	969.	1938.	2907.	3876.	4845.	5814.	6783.	7752.	8721.	9690.
12	1163.	2326.	3489.	4651.	5814.	6977.	8140.	9303.	10466.	11628.
14	1357.	2713.	4070.	5427.	6783.	8140.	9497.	10853.	12210.	13566.
16	1550.	3101.	4651.	6202.	7752.	9303.	10853.	12404.	13954.	15505.
18	1744.	3489.	5233.	6977.	8721.	10466.	12210.	13954.	15698.	17443.
20	1938.	3876.	5814.	7752.	9690.	11628.	13566.	15505.	17443.	19381.
22	2132.	4264.	6396.	8527.	10569.	12701.	14823.	17055.	19187.	21319.
24	2326.	4651.	6977.	9303.	11628.	13954.	16280.	18606.	20931.	23257.
26	2519.	5039.	7558.	10078.	12597.	15117.	17636.	20156.	22675.	25195.
28	2713.	5427.	8140.	10853.	13566.	16280.	18993.	21706.	24430.	27133.
30	2907.	5814.	8721.	11628.	14535.	17443.	20300.	23257.	26184.	29071.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	273.	546.	819.	1092.	1365.	1638.	1911.	2184.	2457.	2730.
4	546.	1092.	1638.	2184.	2730.	3276.	3822.	4368.	4914.	5460.
6	819.	1638.	2457.	3276.	4095.	4914.	5732.	6551.	7370.	8189.
8	1092.	2184.	3276.	4368.	5460.	6551.	7643.	8735.	9827.	10919.
10	1365.	2730.	4095.	5460.	6824.	8199.	9574.	10949.	12324.	13699.
12	1638.	3276.	4914.	6551.	8199.	9827.	11455.	13103.	14741.	16378.
14	1911.	3822.	5732.	7643.	9554.	11465.	13376.	15287.	17197.	19108.
16	2184.	4368.	6551.	8735.	10919.	13103.	15287.	17470.	19654.	21638.
18	2457.	4914.	7370.	9827.	12324.	14741.	17197.	19654.	22111.	24568.
20	2730.	5460.	8199.	10919.	13648.	16376.	19108.	21838.	24698.	27297.
22	3003.	6006.	9009.	12011.	15014.	18016.	21019.	24022.	27024.	30027.
24	3276.	6551.	9827.	13003.	16006.	19008.	22010.	25012.	28014.	32017.
26	3549.	7097.	10646.	14005.	17007.	20008.	24011.	28013.	32015.	35018.
28	3822.	7643.	11465.	15007.	18009.	21010.	25012.	30014.	34016.	38019.
30	4095.	8189.	12324.	16009.	19011.	22012.	26014.	31016.	35018.	40020.

Reese APB

ANNUAL SOLAR CONTRIBUTION - WNI (BTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.8	5.5	8.4	11.2	14.0	16.8	19.7	22.5	25.3	28.1
4	5.6	11.2	16.8	22.5	28.1	33.7	39.3	44.9	50.5	56.2
6	8.4	16.8	25.3	33.7	42.1	50.5	58.0	67.4	75.8	84.2
8	11.2	22.5	33.7	44.9	56.2	67.4	78.6	89.8	101.1	112.3
10	14.0	28.1	42.1	56.2	70.2	84.2	98.3	112.3	126.3	140.4
12	16.8	33.7	50.5	67.4	84.2	101.1	117.9	134.8	151.6	168.5
14	19.7	39.3	58.0	78.6	98.3	117.9	137.6	157.2	176.9	196.5
16	22.5	44.9	67.4	89.8	112.3	134.8	157.2	178.7	202.2	224.6
18	25.3	50.5	75.8	101.1	126.3	151.6	178.9	202.2	227.4	252.7
20	28.1	56.2	84.2	112.3	140.4	168.5	196.5	224.6	252.7	280.8
22	30.9	61.8	92.7	123.5	154.4	185.3	216.2	247.1	278.0	306.6
24	33.7	67.4	101.1	134.8	166.5	202.2	236.6	269.5	303.2	336.0
26	36.5	73.0	109.5	146.0	182.5	219.0	255.5	292.0	328.5	365.0
28	39.3	78.6	117.9	157.2	196.5	236.6	276.1	314.5	353.8	393.1
30	42.1	84.2	126.3	168.5	210.9	252.7	294.5	336.9	379.0	421.1

DIRECT GAIN DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	374.	747.	1121.	1495.	1869.	2242.	2616.	2990.	3364.	3737.
4	747.	1495.	2242.	2990.	3737.	4485.	5232.	5980.	6727.	7475.
6	1121.	2242.	3364.	4485.	5606.	6727.	7848.	8970.	10091.	11212.
8	1495.	2990.	4485.	5980.	7475.	8970.	10465.	11960.	13454.	14949.
10	1869.	3737.	5606.	7475.	9343.	11212.	13081.	14949.	16818.	18687.
12	2242.	4485.	6727.	8970.	11212.	13454.	15897.	17939.	20182.	22424.
14	2616.	5232.	7848.	10465.	13081.	15897.	18313.	20929.	23545.	26161.
16	2990.	5980.	8970.	11960.	14949.	17939.	20929.	23919.	26909.	29899.
18	3364.	6727.	10091.	13454.	16818.	20182.	23545.	26909.	30272.	33636.
20	3737.	7475.	11212.	14949.	18687.	22424.	26161.	29909.	33636.	37373.
22	4111.	8222.	12333.	16444.	20655.	24686.	28778.	32889.	37000.	41111.
24	4485.	8970.	13454.	17939.	22424.	26908.	31394.	35879.	40363.	44848.
26	4859.	9717.	14575.	19434.	24293.	29151.	34010.	38868.	43787.	48585.
28	5232.	10465.	15697.	20929.	26161.	31394.	36828.	41858.	47091.	52323.
30	5606.	11212.	16818.	22424.	28230.	33636.	39242.	44848.	50454.	56060.

TROMBE WALL DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	409.	809.	1209.	1612.	2009.	2417.	2810.	3203.	4076.	4539.
4	809.	1612.	2417.	3203.	4009.	4816.	5611.	6406.	8162.	9068.
6	1209.	2417.	3624.	4816.	6009.	7204.	8401.	9598.	12389.	13687.
8	1612.	3203.	4816.	6406.	8009.	9604.	11201.	12800.	16416.	18245.
10	2009.	4009.	6009.	8009.	10009.	12004.	14002.	16000.	20637.	23174.
12	2417.	4816.	7204.	9604.	12004.	14401.	16800.	19200.	24874.	27711.
14	2810.	5611.	8401.	10801.	13201.	15600.	18000.	20400.	26574.	31703.
16	3203.	6406.	9604.	12404.	14804.	17201.	19600.	22000.	28274.	33232.
18	3596.	7204.	10801.	14004.	16804.	19601.	22000.	24400.	30074.	34761.
20	3989.	8009.	12004.	15204.	18404.	21601.	24400.	26800.	31874.	36290.
22	4382.	8804.	13204.	16404.	19604.	23201.	26800.	29200.	33674.	37819.
24	4775.	9604.	14404.	17604.	20804.	24801.	29200.	31600.	35474.	39348.
26	5168.	10409.	15604.	18804.	22004.	26401.	31600.	34000.	37274.	40877.
28	5561.	11204.	16804.	20004.	23204.	28001.	34000.	36400.	39074.	42406.
30	5954.	12009.	18004.	21204.	24404.	29601.	36400.	38800.	40874.	43935.

Robins AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.0	3.0	4.0	5.0	6.0	7.1	8.1	9.1	10.1
4	2.0	4.0	6.0	8.1	10.1	12.1	14.1	16.1	18.1	20.2
6	3.0	6.0	9.1	12.1	15.1	18.1	21.2	24.2	27.2	30.2
8	4.0	8.1	12.1	16.1	20.2	24.2	28.2	32.3	36.3	40.3
10	5.0	10.1	15.1	20.2	25.2	30.2	35.3	40.3	45.4	50.4
12	6.0	12.1	18.1	24.2	30.2	36.3	42.3	48.4	54.4	60.5
14	7.1	14.1	21.2	28.2	35.3	42.3	49.4	56.4	63.5	70.6
16	8.1	16.1	24.2	32.3	40.3	48.4	56.4	64.5	72.6	80.6
18	9.1	18.1	27.2	36.3	45.4	54.4	63.5	72.6	81.6	90.7
20	10.1	20.2	30.2	40.3	50.4	60.5	70.6	80.6	90.7	100.8
22	11.1	22.2	33.3	44.4	55.4	66.5	77.6	88.7	98.8	110.9
24	12.1	24.2	36.3	48.4	60.5	72.6	84.7	96.8	108.9	121.0
26	13.1	26.2	39.3	52.4	65.5	78.6	91.7	104.8	117.9	131.0
28	14.1	28.2	42.3	56.4	70.6	84.7	98.8	112.9	127.0	141.1
30	15.1	30.2	45.4	60.5	75.6	90.7	105.8	121.0	136.1	151.2

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	163.	327.	490.	654.	817.	980.	1144.	1307.	1470.	1634.
4	327.	654.	980.	1307.	1634.	1961.	2287.	2614.	2941.	3268.
6	490.	980.	1470.	1961.	2451.	2941.	3431.	3921.	4411.	4902.
8	654.	1307.	1961.	2614.	3268.	3921.	4575.	5228.	5882.	6535.
10	817.	1634.	2451.	3268.	4085.	4902.	5718.	6535.	7352.	8169.
12	980.	1961.	2941.	3921.	4902.	5882.	6862.	7842.	8823.	9803.
14	1144.	2287.	3431.	4575.	5718.	6862.	8006.	9150.	10293.	11437.
16	1307.	2614.	3921.	5228.	6535.	7842.	9150.	10457.	11764.	13071.
18	1470.	2941.	4411.	5882.	7302.	8623.	10293.	11764.	13234.	14705.
20	1634.	3268.	4902.	6535.	8169.	9803.	11437.	13071.	14705.	16338.
22	1797.	3594.	5382.	7189.	8868.	10783.	12581.	14378.	16175.	17972.
24	1961.	3921.	5882.	7842.	9803.	11764.	13724.	15685.	17646.	19506.
26	2124.	4248.	6372.	8495.	10620.	12744.	14868.	16992.	19116.	21240.
28	2287.	4575.	6862.	9160.	11437.	13724.	16012.	18299.	20688.	22874.
30	2451.	4902.	7352.	9803.	12254.	14705.	17155.	19506.	22267.	24508.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	224.	447.	671.	894.	1118.	1342.	1565.	1789.	2012.	2236.
4	447.	894.	1342.	1789.	2236.	2683.	3130.	3578.	4025.	4472.
6	671.	1342.	2012.	2683.	3354.	4025.	4696.	5368.	6037.	6708.
8	894.	1789.	2683.	3578.	4472.	5368.	6261.	7155.	8050.	8944.
10	1118.	2236.	3354.	4472.	5589.	6708.	7826.	8944.	10062.	11180.
12	1342.	2683.	4025.	5368.	6708.	8050.	9391.	10733.	12074.	13416.
14	1565.	3130.	4696.	6037.	7378.	8721.	10062.	11402.	12743.	14082.
16	1789.	3578.	5368.	6708.	8050.	9391.	10733.	12074.	13416.	14758.
18	2012.	4025.	6037.	7378.	8721.	10062.	11402.	12743.	14082.	15434.
20	2236.	4472.	6708.	8050.	9391.	10733.	12074.	13416.	14758.	16110.
22	2459.	4919.	7378.	8721.	10062.	11402.	12743.	14082.	15434.	16786.
24	2683.	5368.	8050.	9391.	10733.	12074.	13416.	14758.	15434.	16786.
26	2907.	5814.	8721.	10062.	11402.	12743.	14082.	15434.	16786.	17462.
28	3130.	6261.	9391.	10733.	12074.	13416.	14758.	15434.	16786.	17462.
30	3354.	6708.	10062.	11402.	12743.	14082.	15434.	16786.	17462.	17462.

Robin AFB

ANNUAL SOLAR CONTRIBUTION-WN(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.1	8.5	9.9	11.3	12.7	14.1
4	2.8	5.6	8.5	11.3	14.1	16.9	19.8	22.6	25.4	28.2
6	4.2	8.5	12.7	16.9	21.2	25.4	29.6	33.9	38.1	42.3
8	5.6	11.3	16.9	22.6	28.2	33.9	39.5	45.2	50.8	56.4
10	7.1	14.1	21.2	28.2	35.3	42.3	49.4	56.4	63.5	70.6
12	8.5	16.9	25.4	33.9	42.3	50.8	59.3	67.7	76.2	84.7
14	9.9	19.8	29.6	39.5	49.4	59.3	69.1	79.0	88.9	98.8
16	11.3	22.6	33.9	45.2	56.4	67.7	79.0	90.3	101.6	112.9
18	12.7	25.4	38.1	50.8	63.5	76.2	88.9	101.6	114.3	127.0
20	14.1	28.2	42.3	56.4	70.6	84.7	98.8	112.9	127.0	141.1
22	15.5	31.0	46.6	62.1	77.6	93.1	108.7	124.2	139.7	155.2
24	16.9	33.9	50.8	67.7	84.7	101.6	118.5	136.5	152.4	169.3
26	18.3	36.7	55.0	73.4	91.7	110.1	128.4	146.8	165.1	183.5
28	19.8	39.5	59.3	79.0	98.8	118.5	138.3	158.1	177.8	197.6
30	21.2	42.3	63.5	84.7	106.8	127.0	148.2	169.3	190.8	211.7

DIRECT GAIN DIFFERENTIAL COST-WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	300.	600.	901.	1201.	1501.	1801.	2102.	2402.	2702.	3002.
4	600.	1201.	1801.	2402.	3002.	3603.	4203.	4804.	5404.	6005.
6	901.	1801.	2702.	3603.	4504.	5404.	6305.	7206.	8107.	9007.
8	1201.	2402.	3603.	4804.	6005.	7206.	8407.	9608.	10809.	12010.
10	1501.	3002.	4504.	6005.	7506.	9007.	10508.	12010.	13511.	15012.
12	1801.	3603.	5404.	7206.	9007.	10809.	12610.	14412.	16213.	18015.
14	2102.	4203.	6305.	8407.	10508.	12610.	14712.	16814.	18915.	21017.
16	2402.	4804.	7206.	9608.	12010.	14412.	16814.	19215.	21617.	24019.
18	2702.	5404.	8107.	10809.	13511.	16213.	18915.	21617.	24320.	27022.
20	3002.	6005.	9007.	12010.	15012.	18015.	21017.	24019.	27022.	30024.
22	3303.	6605.	9908.	13211.	16513.	19616.	23119.	26221.	29284.	33027.
24	3603.	7206.	10809.	14412.	18015.	21617.	25220.	28323.	31326.	34029.
26	3903.	7806.	11709.	15613.	19516.	23419.	27322.	31325.	35128.	38031.
28	4203.	8407.	12610.	16814.	21017.	25220.	29424.	33327.	37630.	42034.
30	4504.	9007.	13511.	18015.	22518.	27322.	31525.	35329.	40533.	46036.

TERRACE WALL DIFFERENTIAL COST-WN(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	300.	721.	1061.	1442.	1802.	2163.	2523.	2884.	3244.	3605.
4	721.	1442.	2163.	2884.	3605.	4326.	5046.	5767.	6488.	7209.
6	1061.	2163.	3244.	4326.	5407.	6488.	7570.	8651.	9732.	10814.
8	1442.	2884.	4326.	5767.	7209.	8651.	10093.	11535.	12977.	14418.
10	1802.	3605.	5407.	7209.	9011.	10814.	12616.	14418.	16221.	18023.
12	2163.	4326.	6488.	8651.	10814.	12977.	15139.	17302.	19465.	21628.
14	2523.	5146.	7570.	10093.	12616.	15139.	17862.	20185.	22708.	25232.
16	2884.	5967.	8911.	11535.	14418.	17302.	20185.	23008.	25931.	28337.
18	3244.	6788.	9732.	12977.	15861.	19245.	22708.	25831.	28757.	31141.
20	3605.	7609.	10553.	14418.	17302.	20185.	24332.	28337.	31581.	33944.
22	3965.	8430.	11374.	15861.	19245.	22708.	26863.	31760.	34405.	36748.
24	4326.	9251.	12195.	17302.	21188.	24651.	29394.	34634.	37266.	39552.
26	4687.	10072.	13016.	18745.	23131.	26594.	31925.	37505.	40127.	42356.
28	5048.	10893.	13837.	20188.	25074.	28537.	34456.	40376.	42988.	45160.
30	5409.	11714.	14658.	21631.	27017.	30480.	37087.	43237.	45849.	47964.

Scott AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0
4	3.6	7.2	10.8	14.4	18.0	21.5	25.1	28.7	32.3	35.9
6	5.4	10.8	16.2	21.5	28.9	32.3	37.7	43.1	48.5	53.9
8	7.2	14.4	21.5	28.7	35.9	43.1	50.3	57.5	64.6	71.8
10	9.0	18.0	28.9	36.9	44.9	53.9	62.8	71.8	80.8	89.8
12	10.8	21.5	32.3	43.1	53.9	64.6	75.4	86.2	97.0	*****
14	12.6	25.1	37.7	50.3	62.8	75.4	88.0	100.5	113.1	*****
16	14.4	28.7	43.1	57.5	71.8	86.2	100.5	114.9	*****	*****
18	16.2	32.3	48.5	64.6	80.8	97.0	113.1	129.3	*****	*****
20	18.0	36.9	53.9	71.8	89.8	107.7	125.7	*****	*****	*****
22	19.8	39.5	59.3	79.0	96.8	116.5	138.3	*****	*****	*****
24	21.5	43.1	64.6	86.2	107.7	129.3	150.8	*****	*****	*****
26	23.3	46.7	70.0	93.4	116.7	140.0	*****	*****	*****	*****
28	25.1	50.3	75.4	100.5	125.7	150.8	*****	*****	*****	*****
30	26.9	53.9	80.8	107.7	134.7	161.6	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	313.	627.	940.	1254.	1567.	1880.	2194.	2507.	2821.	3134.
4	627.	1254.	1880.	2507.	3134.	3761.	4388.	5014.	5641.	6268.
6	940.	1880.	2821.	3761.	4701.	5641.	6581.	7521.	8462.	9402.
8	1254.	2507.	3761.	5014.	6268.	7521.	8775.	10029.	11282.	12536.
10	1567.	3134.	4701.	6268.	7835.	9402.	10969.	12536.	14103.	15670.
12	1880.	3761.	5641.	7521.	9402.	11282.	13163.	15043.	16923.	*****
14	2194.	4388.	6581.	8775.	10969.	13163.	15356.	17550.	19744.	*****
16	2507.	5014.	7521.	10029.	12536.	15043.	17550.	20057.	*****	*****
18	2821.	5641.	8462.	11282.	14103.	16923.	19744.	22564.	*****	*****
20	3134.	6268.	9402.	12536.	15670.	18804.	21938.	*****	*****	*****
22	3447.	6895.	10342.	13789.	17237.	20084.	24131.	*****	*****	*****
24	3761.	7521.	11282.	15043.	18804.	22364.	26325.	*****	*****	*****
26	4074.	8148.	12222.	16296.	20371.	24445.	*****	*****	*****	*****
28	4388.	8775.	13163.	17550.	21938.	26325.	*****	*****	*****	*****
30	4701.	9402.	14103.	18804.	23505.	28205.	*****	*****	*****	*****

TROUBLE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	451.	902.	1353.	1805.	2256.	2707.	3158.	3609.	4060.	4512.
4	902.	1805.	2707.	3609.	4512.	5414.	6316.	7219.	8121.	9023.
6	1353.	2707.	4060.	5414.	6767.	8121.	9474.	10828.	12181.	13535.
8	1805.	3609.	5414.	7219.	9023.	10828.	12633.	14437.	16242.	18046.
10	2256.	4512.	6767.	9023.	11279.	13535.	15791.	18046.	20302.	22558.
12	2707.	5414.	8121.	10383.	12639.	14894.	17149.	19404.	21659.	*****
14	3158.	6316.	9474.	12639.	14894.	17149.	19404.	21659.	23914.	*****
16	3609.	7219.	10828.	14437.	17149.	19404.	21659.	23914.	*****	*****
18	4060.	8121.	12181.	16242.	19404.	21659.	23914.	26169.	*****	*****
20	4512.	9023.	13535.	18046.	21659.	23914.	26169.	28424.	*****	*****
22	4963.	9925.	14889.	19851.	23524.	25777.	28732.	*****	*****	*****
24	5414.	10828.	16296.	21659.	25531.	27579.	30484.	*****	*****	*****
26	5865.	11730.	17660.	23466.	27386.	29381.	*****	*****	*****	*****
28	6316.	12633.	18949.	25291.	29188.	31183.	*****	*****	*****	*****
30	6767.	13535.	20302.	27070.	30987.	32985.	*****	*****	*****	*****

Scott AFB

ANNUAL SOLAR CONTRIBUTION-WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0	31.5	35.1
4	7.0	14.0	21.0	28.0	35.1	42.1	49.1	56.1	63.1	70.1
6	10.5	21.0	31.5	42.1	52.6	63.1	73.6	84.1	94.6	105.2
8	14.0	28.0	42.1	56.1	70.1	84.1	98.2	112.2	126.2	140.2
10	17.5	35.1	52.6	70.1	87.6	105.2	122.7	140.2	157.7	175.3
12	21.0	42.1	63.1	84.1	105.2	126.2	147.2	168.3	189.3	*****
14	24.5	49.1	73.6	98.2	122.7	147.2	171.8	196.3	220.8	*****
16	28.0	56.1	84.1	112.2	140.2	168.3	196.3	224.4	*****	*****
18	31.5	63.1	94.6	126.2	157.7	189.3	220.8	252.4	*****	*****
20	35.1	70.1	105.2	140.2	175.3	210.3	245.4	*****	*****	*****
22	38.6	77.1	115.7	154.2	192.8	231.4	269.9	*****	*****	*****
24	42.1	84.1	126.2	168.3	210.3	252.4	294.5	*****	*****	*****
26	45.6	91.1	136.7	182.3	227.9	273.4	*****	*****	*****	*****
28	49.1	98.2	147.2	196.3	245.4	294.5	*****	*****	*****	*****
30	52.6	105.2	167.7	210.3	262.9	315.5	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	627.	1253.	1880.	2506.	3133.	3759.	4386.	5012.	5638.	6265.
4	1253.	2506.	3759.	5012.	6265.	7518.	8771.	10024.	11277.	12530.
6	1880.	3759.	5638.	7518.	9398.	11277.	13157.	15036.	16916.	18795.
8	2506.	5012.	7518.	10024.	12530.	15036.	17542.	20048.	22554.	25060.
10	3133.	6265.	9398.	12530.	15663.	18795.	21928.	25060.	28193.	31325.
12	3759.	7518.	11277.	15036.	18795.	22554.	26313.	30072.	33831.	*****
14	4386.	8771.	13157.	17542.	21928.	26313.	30899.	35084.	39470.	*****
16	5012.	10024.	15036.	20048.	25060.	30072.	35084.	40096.	*****	*****
18	5638.	11277.	16916.	22554.	28193.	33831.	39470.	45108.	*****	*****
20	6265.	12530.	18795.	25060.	31325.	37590.	43865.	*****	*****	*****
22	6892.	13783.	20675.	27566.	34456.	41349.	48241.	*****	*****	*****
24	7518.	15036.	22554.	30072.	37590.	45108.	52626.	*****	*****	*****
26	8145.	16289.	24434.	32578.	40723.	48867.	*****	*****	*****	*****
28	8771.	17542.	26313.	35064.	43655.	52626.	*****	*****	*****	*****
30	9398.	18795.	28193.	37590.	46543.	56385.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST-WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	784.	1568.	2352.	3007.	3821.	4586.	5350.	6114.	6878.	7643.
4	1568.	3007.	4586.	6114.	7643.	9171.	10700.	12228.	13757.	15286.
6	2352.	4586.	6878.	9171.	11464.	13757.	16050.	18343.	20636.	22928.
8	3007.	6114.	9171.	12228.	15385.	18543.	21400.	24457.	27514.	30571.
10	3821.	7643.	11464.	15385.	19107.	22928.	26750.	30571.	34393.	38214.
12	4586.	9171.	13757.	18343.	22928.	27514.	32000.	36665.	41271.	*****
14	5350.	10700.	16050.	21400.	26750.	32000.	37449.	42799.	48149.	*****
16	6114.	12228.	18343.	24457.	30571.	36665.	42799.	48149.	*****	*****
18	6878.	13757.	20636.	27514.	34393.	41271.	48149.	53088.	*****	*****
20	7643.	15286.	22928.	30571.	38214.	45865.	53499.	*****	*****	*****
22	8407.	16815.	24851.	32928.	40723.	48867.	56449.	*****	*****	*****
24	9171.	18343.	27514.	35064.	43655.	52626.	61499.	*****	*****	*****
26	9935.	19871.	30072.	37590.	46543.	56385.	*****	*****	*****	*****
28	10700.	21400.	32578.	40723.	49431.	60143.	*****	*****	*****	*****
30	11464.	22928.	35064.	43655.	52626.	63897.	*****	*****	*****	*****

Seymour-Johnson AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.0	8.3	9.7	11.1	12.5	13.9
4	2.8	5.6	8.3	11.1	13.9	16.7	19.5	22.3	25.0	27.8
6	4.2	8.3	12.5	16.7	20.9	25.0	29.2	33.4	37.6	41.7
8	5.6	11.1	16.7	22.3	27.8	33.4	39.0	44.5	50.1	55.7
10	7.0	13.9	20.9	27.8	34.8	41.7	48.7	55.7	62.6	69.6
12	8.3	16.7	25.0	33.4	41.7	50.1	58.4	66.8	75.1	83.5
14	9.7	19.5	29.2	39.0	48.7	58.4	68.2	77.9	87.7	97.4
16	11.1	22.3	33.4	44.5	56.7	66.8	77.9	89.1	100.2	111.3
18	12.5	25.0	37.6	50.1	62.6	75.1	87.7	100.2	112.7	125.2
20	13.9	27.8	41.7	55.7	69.6	83.5	97.4	111.3	125.2	139.2
22	15.3	30.6	45.9	61.2	76.5	91.8	107.1	122.5	137.8	153.1
24	16.7	33.4	50.1	66.8	83.5	100.2	116.9	133.6	150.3	167.0
26	18.1	36.2	54.3	72.4	90.5	108.5	126.6	144.7	162.8	180.9
28	19.5	39.0	58.4	77.9	97.4	116.9	136.4	156.9	175.3	194.8
30	20.9	41.7	62.6	83.5	104.4	125.2	146.1	167.0	187.9	208.7

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	203.	407.	610.	814.	1017.	1221.	1424.	1628.	1831.	2035.
4	407.	814.	1221.	1628.	2035.	2441.	2848.	3255.	3662.	4069.
6	610.	1221.	1831.	2441.	3052.	3662.	4273.	4883.	5493.	6104.
8	814.	1628.	2441.	3255.	4069.	4883.	5697.	6511.	7324.	8138.
10	1017.	2035.	3052.	4069.	5086.	6104.	7121.	8138.	9155.	10173.
12	1221.	2441.	3662.	4883.	6104.	7324.	8545.	9766.	10986.	12207.
14	1424.	2848.	4273.	5697.	7121.	8545.	9969.	11393.	12818.	14242.
16	1628.	3255.	4883.	6511.	8138.	9766.	11393.	13021.	14649.	16276.
18	1831.	3662.	5493.	7324.	9155.	10986.	12818.	14649.	16480.	18311.
20	2035.	4069.	6104.	8138.	10173.	12207.	14242.	16276.	18311.	20345.
22	2238.	4476.	6714.	8952.	11190.	13428.	15666.	17904.	20142.	22380.
24	2441.	4883.	7324.	9766.	12207.	14649.	17090.	19332.	21973.	24414.
26	2645.	5290.	7935.	10580.	13224.	15890.	18514.	21159.	23804.	26448.
28	2848.	5697.	8545.	11393.	14242.	17090.	19938.	22787.	25635.	28482.
30	3052.	6104.	9155.	12207.	15259.	18311.	21363.	24414.	27466.	30516.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	200.	400.	600.	800.	1000.	1200.	1400.	1600.	1800.	2000.
4	400.	800.	1200.	1600.	2000.	2400.	2800.	3200.	3600.	4000.
6	600.	1200.	1800.	2400.	3000.	3600.	4200.	4800.	5400.	6000.
8	800.	1600.	2400.	3200.	4000.	4800.	5600.	6400.	7200.	8000.
10	1000.	2000.	3000.	4000.	5000.	6000.	7000.	8000.	9000.	10000.
12	1200.	2400.	3600.	4800.	6000.	7200.	8400.	9600.	10800.	12000.
14	1400.	2800.	4200.	5600.	7000.	8400.	9800.	11200.	12600.	14000.
16	1600.	3200.	4800.	6400.	8000.	9600.	11200.	12800.	14400.	16000.
18	1800.	3600.	5400.	7200.	9000.	10800.	12600.	14400.	16200.	18000.
20	2000.	4000.	6000.	8000.	10000.	12000.	14000.	16000.	18000.	20000.
22	2200.	4400.	6600.	8800.	11000.	13200.	15400.	17600.	19800.	22000.
24	2400.	4800.	7200.	9600.	12000.	14400.	16800.	19200.	21600.	24000.
26	2600.	5200.	7800.	10400.	12800.	15200.	17600.	20000.	22400.	26000.
28	2800.	5600.	8400.	11200.	13600.	16000.	18400.	21400.	23800.	28000.
30	3000.	6000.	9000.	12000.	14400.	16800.	19200.	22200.	24600.	30000.

Seymour-Johnson AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.3	4.6	6.8	9.1	11.4	13.7	15.9	18.2	20.5	22.8
4	4.6	9.1	13.7	18.2	22.8	27.3	31.8	36.4	41.0	45.5
6	6.8	13.7	20.5	27.3	34.2	41.0	47.8	54.6	61.5	68.3
8	9.1	18.2	27.3	36.4	45.5	54.6	63.8	72.9	82.0	91.1
10	11.4	22.8	34.2	45.5	56.9	68.3	79.7	91.1	102.5	113.9
12	13.7	27.3	41.0	54.6	68.3	82.0	95.6	109.3	123.0	136.6
14	15.9	31.9	47.8	63.8	79.7	95.6	111.6	127.5	143.5	159.4
16	18.2	36.4	54.6	72.9	91.1	109.3	127.5	145.7	163.9	182.2
18	20.5	41.0	61.5	82.0	102.5	123.0	143.5	163.9	184.4	204.9
20	22.8	45.5	68.3	91.1	113.9	136.6	159.4	182.2	204.9	227.7
22	25.0	50.1	75.1	100.2	125.2	150.3	175.3	200.4	225.4	250.5
24	27.3	54.6	82.0	109.3	136.6	163.9	191.3	216.6	245.9	273.2
26	29.6	59.2	88.8	118.4	148.0	177.6	207.2	236.6	266.4	296.0
28	31.9	63.8	95.6	127.5	159.4	191.3	223.2	255.0	286.9	318.8
30	34.2	68.3	102.5	136.6	170.8	204.9	239.1	273.2	307.4	341.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	377.	754.	1131.	1509.	1886.	2263.	2640.	3017.	3394.	3771.
4	754.	1509.	2263.	3017.	3771.	4526.	5280.	6034.	6789.	7543.
6	1131.	2263.	3394.	4526.	5657.	6789.	7920.	9051.	10183.	11314.
8	1509.	3017.	4526.	6034.	7543.	9051.	10560.	12069.	13577.	15086.
10	1886.	3771.	5657.	7543.	9429.	11314.	13200.	15086.	16972.	18857.
12	2263.	4526.	6789.	9051.	11314.	13577.	15840.	18103.	20366.	22629.
14	2640.	5280.	7920.	10560.	13200.	15840.	18480.	21120.	23760.	26400.
16	3017.	6034.	9051.	12069.	15086.	18103.	21120.	24137.	27154.	30172.
18	3394.	6789.	10183.	13577.	16972.	20366.	23760.	27154.	30549.	33943.
20	3771.	7543.	11314.	15086.	18857.	22629.	26400.	30172.	33943.	37714.
22	4149.	8297.	12446.	16594.	20743.	24892.	29040.	33189.	37337.	41486.
24	4526.	9051.	13577.	18103.	22629.	27154.	31880.	36206.	40732.	45257.
26	4903.	9806.	14709.	19612.	24514.	29417.	34320.	39223.	44126.	49029.
28	5280.	10560.	15840.	21120.	26400.	31880.	36960.	42240.	47620.	52800.
30	5657.	11314.	16972.	22629.	28266.	33943.	39600.	45257.	50915.	56572.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	454.	907.	1361.	1814.	2268.	2721.	3175.	3629.	4082.	4536.
4	907.	1814.	2721.	3629.	4536.	5443.	6350.	7257.	8164.	9071.
6	1361.	2721.	4082.	5443.	6804.	8164.	9525.	10886.	12246.	13607.
8	1814.	3629.	5443.	7257.	9071.	10886.	12700.	14514.	16328.	18143.
10	2268.	4536.	6804.	9071.	11339.	13607.	15875.	18143.	20411.	22678.
12	2721.	5443.	8164.	10886.	13607.	16328.	19050.	21771.	24493.	27214.
14	3175.	6350.	9525.	12700.	15875.	19650.	22225.	25400.	28575.	31750.
16	3629.	7257.	10886.	14514.	18143.	21771.	25400.	29028.	32657.	36285.
18	4082.	8164.	12246.	16328.	20411.	24493.	28575.	32657.	36739.	40821.
20	4536.	9071.	13607.	18143.	22678.	27214.	31750.	36285.	40821.	45357.
22	4989.	9979.	14966.	19657.	24946.	29936.	34925.	39914.	44903.	49883.
24	5443.	10886.	16328.	21771.	27214.	32657.	38100.	43443.	48985.	54425.
26	5896.	11793.	17689.	23886.	29482.	35378.	41275.	47171.	53068.	58964.
28	6350.	12700.	19050.	26400.	31750.	38100.	44450.	50800.	57150.	63500.
30	6804.	13607.	20411.	28214.	34015.	40821.	47925.	54425.	61232.	68035.

Shaw AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.4	10.5	11.7
4	2.3	4.7	7.0	9.4	11.7	14.0	16.4	18.7	21.0	23.4
6	3.5	7.0	10.5	14.0	17.5	21.0	24.6	28.1	31.6	35.1
8	4.7	9.4	14.0	18.7	23.4	28.1	32.7	37.4	42.1	46.8
10	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.8	52.6	58.5
12	7.0	14.0	21.0	28.1	35.1	42.1	49.1	56.1	63.1	70.1
14	8.2	16.4	24.6	32.7	40.9	49.1	57.3	65.5	73.7	81.8
16	9.4	18.7	28.1	37.4	46.8	56.1	65.5	74.8	84.2	93.5
18	10.5	21.0	31.6	42.1	52.6	63.1	73.7	84.2	94.7	105.2
20	11.7	23.4	35.1	46.8	58.5	70.1	81.8	93.5	105.2	116.9
22	12.9	25.7	38.8	51.4	64.3	77.2	90.0	102.9	115.7	128.6
24	14.0	28.1	42.1	56.1	70.1	84.2	98.2	112.2	126.3	140.3
26	15.2	30.4	45.8	60.8	76.0	91.2	106.4	121.6	136.8	152.0
28	16.4	32.7	49.1	65.5	81.8	98.2	114.8	130.9	147.3	163.7
30	17.5	35.1	52.6	70.1	87.7	105.2	122.6	140.3	157.6	175.4

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	178.	357.	535.	714.	892.	1071.	1249.	1427.	1606.	1784.
4	357.	714.	1071.	1427.	1784.	2141.	2498.	2855.	3212.	3569.
6	535.	1071.	1606.	2141.	2676.	3212.	3747.	4282.	4818.	5353.
8	714.	1427.	2141.	2855.	3569.	4282.	4996.	5710.	6423.	7137.
10	892.	1784.	2676.	3569.	4461.	5353.	6245.	7137.	8029.	8921.
12	1071.	2141.	3212.	4282.	5353.	6423.	7494.	8564.	9635.	10706.
14	1249.	2498.	3747.	4996.	6245.	7494.	8743.	9992.	11241.	12490.
16	1427.	2855.	4282.	5710.	7137.	8564.	9992.	11419.	12847.	14274.
18	1606.	3212.	4818.	6423.	8029.	9635.	11241.	12847.	14453.	16058.
20	1784.	3569.	5353.	7137.	8921.	10706.	12490.	14274.	16058.	17843.
22	1963.	3925.	5888.	7851.	9813.	11776.	13739.	15702.	17664.	19627.
24	2141.	4282.	6423.	8564.	10706.	12847.	14988.	17129.	19270.	21411.
26	2320.	4639.	6958.	9278.	11598.	13917.	16237.	18556.	20676.	23195.
28	2498.	4996.	7494.	9992.	12490.	14988.	17486.	19984.	22482.	24980.
30	2676.	5353.	8029.	10706.	13382.	16066.	18735.	21411.	24088.	26764.

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	947.	484.	740.	987.	1234.	1481.	1728.	1974.	2221.	2468.
4	484.	987.	1481.	1974.	2468.	2962.	3455.	3949.	4442.	4936.
6	740.	1481.	2221.	2962.	3702.	4442.	5183.	5923.	6664.	7404.
8	987.	1974.	2962.	3949.	4936.	5923.	6910.	7898.	8885.	9872.
10	1234.	2468.	3702.	4936.	6170.	7404.	8638.	9872.	11106.	12340.
12	1481.	2962.	4442.	5923.	7404.	8885.	10366.	11847.	13327.	14808.
14	1728.	3455.	5183.	6910.	8638.	10366.	12093.	13821.	15549.	17278.
16	1974.	3949.	5923.	7898.	9872.	11847.	13821.	15795.	17770.	19744.
18	2221.	4442.	6664.	8885.	11106.	13327.	15549.	17770.	19991.	22212.
20	2468.	4936.	7404.	9872.	12340.	14808.	17278.	19744.	22212.	24680.
22	2715.	5430.	8144.	10869.	13574.	16299.	19004.	21719.	24433.	27148.
24	2962.	5923.	8885.	11847.	14608.	17770.	20731.	23663.	26555.	29616.
26	3209.	6417.	9625.	12824.	15642.	18891.	22459.	25667.	28678.	32084.
28	3456.	6910.	10366.	13801.	16676.	20011.	24187.	27642.	31097.	34552.
30	3702.	7404.	11106.	14808.	17610.	21112.	25914.	29616.	33318.	37020.

Shaw AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MDTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.1	6.7	8.4	10.1	11.8	13.5	15.2	16.8
4	3.4	6.7	10.1	13.5	16.8	20.2	23.6	26.9	30.3	33.7
6	5.1	10.1	15.2	20.2	25.3	30.3	35.4	40.4	45.5	50.5
8	6.7	13.5	20.2	26.9	33.7	40.4	47.1	53.9	60.6	67.3
10	8.4	16.8	25.3	33.7	42.1	50.5	58.9	67.3	75.8	84.2
12	10.1	20.2	30.3	40.4	50.5	60.6	70.7	80.8	90.9	101.0
14	11.8	23.6	35.4	47.1	58.9	70.7	82.5	94.3	106.1	117.8
16	13.5	26.9	40.4	53.9	67.3	80.8	94.3	107.7	121.2	134.7
18	15.2	30.3	45.5	60.6	75.8	90.9	106.1	121.2	136.4	151.5
20	16.8	33.7	50.5	67.3	84.2	101.0	117.8	134.7	151.5	168.4
22	18.5	37.0	55.6	74.1	92.8	111.1	129.6	148.1	166.7	185.2
24	20.2	40.4	60.6	80.8	101.0	121.2	141.4	161.6	181.6	202.0
26	21.9	43.8	65.7	87.5	109.4	131.3	153.2	175.1	197.0	218.9
28	23.6	47.1	70.7	94.3	117.8	141.4	165.0	188.6	212.1	235.7
30	25.3	50.5	75.8	101.0	126.3	151.5	176.8	202.0	227.3	252.5

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	334.	668.	1001.	1335.	1669.	2003.	2337.	2671.	3004.	3338.
4	668.	1335.	2003.	2671.	3338.	4006.	4674.	5341.	6009.	6677.
6	1001.	2003.	3004.	4006.	5007.	6009.	7010.	8012.	9013.	10015.
8	1335.	2671.	4006.	5341.	6677.	8012.	9347.	10682.	12018.	13353.
10	1669.	3338.	5007.	6677.	8346.	10015.	11684.	13353.	15022.	16691.
12	2003.	4006.	6009.	8012.	10015.	12018.	14021.	16024.	18027.	20030.
14	2337.	4674.	7010.	9347.	11684.	14021.	16357.	18694.	21031.	23368.
16	2671.	5341.	8012.	10682.	13353.	16024.	18694.	21365.	24036.	26706.
18	3004.	6009.	9013.	12018.	15022.	18027.	21031.	24036.	27040.	30044.
20	3338.	6677.	10015.	13353.	16691.	20030.	23368.	26706.	30044.	33383.
22	3672.	7344.	11016.	14686.	18360.	22033.	25705.	29377.	33049.	36721.
24	4006.	8012.	12018.	16024.	20030.	24036.	28041.	32047.	36053.	40059.
26	4340.	8679.	13019.	17359.	21699.	26038.	30378.	34718.	39058.	43397.
28	4674.	9347.	14021.	18694.	23368.	28041.	32715.	37399.	42092.	46736.
30	5007.	10015.	15022.	20030.	25037.	30044.	35052.	40059.	45067.	50074.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	402.	804.	1207.	1609.	2011.	2413.	2816.	3218.	3620.	4022.
4	804.	1609.	2413.	3218.	4022.	4826.	5631.	6435.	7240.	8044.
6	1207.	2413.	3620.	4826.	6033.	7240.	8446.	9653.	10859.	12066.
8	1609.	3218.	4826.	6435.	8044.	9653.	11262.	12870.	14479.	16088.
10	2011.	4022.	6033.	8044.	10055.	12066.	14077.	16088.	18099.	20110.
12	2413.	4826.	7240.	9653.	12066.	14479.	16893.	19306.	21719.	24132.
14	2815.	5631.	8446.	11262.	14077.	16893.	19706.	22523.	25339.	28154.
16	3218.	6435.	9653.	12870.	16088.	19306.	22523.	25741.	28559.	32176.
18	3620.	7240.	10859.	14479.	18099.	21719.	25339.	28959.	32578.	36188.
20	4022.	8044.	12066.	16088.	20110.	24132.	28154.	32176.	36198.	40200.
22	4424.	8848.	13273.	17697.	22121.	26545.	30970.	35394.	39616.	44222.
24	4826.	9653.	14479.	19306.	24132.	28959.	33785.	38611.	43438.	48244.
26	5229.	10457.	15686.	20915.	26143.	31572.	36600.	41639.	47056.	52266.
28	5631.	11262.	16893.	22523.	28154.	33785.	39416.	45047.	50678.	56288.
30	6033.	12066.	18099.	24132.	30165.	36198.	42231.	48064.	54297.	60310.

Sheppard AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.2	5.6	7.1	8.5	9.9	11.3	12.7	14.1
4	2.8	5.6	8.5	11.3	14.1	16.9	19.8	22.6	25.4	28.2
6	4.2	8.5	12.7	16.9	21.2	25.4	29.6	33.9	38.1	42.3
8	5.6	11.3	16.9	22.6	28.2	33.9	39.5	45.2	50.8	56.5
10	7.1	14.1	21.2	28.2	35.3	42.3	49.4	56.5	63.5	70.6
12	8.5	16.9	25.4	33.9	42.3	50.8	59.3	67.7	76.2	84.7
14	9.9	19.8	29.6	39.5	49.4	59.3	69.2	79.0	88.9	98.8
16	11.3	22.6	33.9	45.2	56.5	67.7	79.0	90.3	101.6	112.9
18	12.7	25.4	38.1	50.8	63.5	76.2	88.9	101.6	114.3	127.0
20	14.1	28.2	42.3	56.5	70.6	84.7	98.8	112.9	127.0	141.1
22	15.5	31.0	46.6	62.1	77.5	93.1	108.7	124.2	139.7	155.2
24	16.9	33.9	50.8	67.7	84.7	101.6	118.6	135.5	152.4	169.4
26	18.3	36.7	55.0	73.4	91.7	110.1	128.4	146.6	165.1	183.5
28	19.8	39.5	59.3	79.0	98.8	118.6	138.3	158.1	177.8	*****
30	21.2	42.3	63.5	84.7	105.9	127.0	148.2	169.4	190.5	*****

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	214.	427.	641.	855.	1068.	1282.	1496.	1709.	1923.	2136.
4	427.	855.	1282.	1709.	2136.	2564.	2991.	3418.	3846.	4273.
6	641.	1282.	1923.	2564.	3205.	3846.	4487.	5128.	5769.	6409.
8	855.	1709.	2564.	3418.	4273.	5128.	5982.	6837.	7691.	8546.
10	1068.	2136.	3205.	4273.	5341.	6409.	7478.	8546.	9614.	10682.
12	1282.	2564.	3846.	5128.	6409.	7691.	8973.	10255.	11537.	12819.
14	1496.	2991.	4487.	5982.	7478.	8973.	10469.	11964.	13460.	14955.
16	1709.	3418.	5128.	6837.	8546.	10255.	11964.	13674.	15383.	17092.
18	1923.	3846.	5769.	7691.	9614.	11537.	13460.	15383.	17306.	19228.
20	2136.	4273.	6409.	8546.	10682.	12819.	14955.	17092.	19228.	21365.
22	2350.	4700.	7090.	9401.	11761.	14101.	16451.	18801.	21151.	23501.
24	2564.	5128.	7691.	10255.	12819.	15363.	17946.	20510.	23074.	25638.
26	2777.	5555.	8332.	11110.	13887.	16665.	19442.	22219.	24997.	27774.
28	2991.	5982.	8973.	11964.	14955.	17946.	20938.	23929.	26920.	*****
30	3205.	6409.	9614.	12819.	16024.	19228.	22433.	25638.	28843.	*****

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	302.	604.	906.	1208.	1510.	1812.	2115.	2417.	2719.	3021.
4	604.	1208.	1812.	2417.	3021.	3625.	4229.	4833.	5437.	6042.
6	906.	1812.	2719.	3625.	4531.	5437.	6344.	7250.	8156.	9062.
8	1208.	2417.	3625.	4833.	6042.	7250.	8458.	9666.	10874.	12082.
10	1510.	3021.	4531.	6042.	7552.	9062.	10573.	12083.	13593.	15104.
12	1812.	3625.	5437.	7250.	9062.	10875.	12687.	14500.	16312.	18125.
14	2115.	4229.	6344.	8458.	10573.	12687.	14802.	16916.	19031.	21145.
16	2417.	4833.	7250.	9666.	12083.	14500.	16916.	19333.	21748.	24168.
18	2719.	5437.	8156.	10875.	13886.	16312.	19031.	21749.	24468.	27187.
20	3021.	6042.	9062.	12083.	15104.	18125.	21145.	24168.	27187.	30208.
22	3323.	6646.	9968.	13291.	16314.	19337.	22260.	25283.	28298.	33228.
24	3625.	7250.	10875.	14500.	17525.	21448.	23374.	26398.	29894.	36248.
26	3927.	7854.	11781.	15708.	18735.	22662.	25489.	28416.	32443.	39270.
28	4229.	8458.	12687.	16916.	20145.	23874.	26603.	29632.	33082.	*****
30	4531.	9062.	13593.	18125.	21355.	25087.	27717.	30849.	33720.	*****

Sheppard AFB

SQ FT (x 1000)	ANNUAL SOLAR CONTRIBUTION - WH(MBTU's)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.1	4.3	6.4	8.6	10.7	12.9	15.0	17.1	19.3	21.4
4	4.3	8.6	12.9	17.1	21.4	25.7	30.0	34.3	38.6	42.9
6	6.4	12.9	19.3	25.7	32.1	38.6	45.0	51.4	57.8	64.3
8	8.6	17.1	25.7	34.3	42.9	51.4	60.0	68.6	77.2	85.7
10	10.7	21.4	32.1	42.9	53.6	64.3	75.0	85.7	96.4	107.2
12	12.9	25.7	38.6	51.4	64.3	77.2	90.0	102.9	115.7	128.6
14	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0
16	17.1	34.3	51.4	68.6	85.7	102.9	120.0	137.2	154.3	171.5
18	19.3	38.6	57.8	77.2	96.4	115.7	135.0	154.3	173.6	192.9
20	21.4	42.9	64.3	85.7	107.2	128.6	150.0	171.5	192.9	214.3
22	23.6	47.1	70.7	94.3	117.9	141.4	165.0	188.6	212.2	236.7
24	25.7	51.4	77.2	102.9	128.6	154.3	180.0	205.7	231.5	257.2
26	27.9	55.7	83.6	111.4	138.3	167.2	195.0	222.9	250.7	278.6
28	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	*****
30	32.1	64.3	96.4	128.6	160.7	192.9	225.0	257.2	292.3	*****

SQ FT (x 1000)	DIRECT GAIN DIFFERENTIAL COST - WH(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	415.	829.	1244.	1658.	2073.	2488.	2902.	3317.	3732.	4146.
4	829.	1658.	2488.	3317.	4146.	4975.	5805.	6634.	7463.	8292.
6	1244.	2488.	3732.	4975.	6219.	7463.	8707.	9951.	11195.	12439.
8	1658.	3317.	4975.	6634.	8292.	9951.	11609.	13268.	14926.	16585.
10	2073.	4146.	6219.	8292.	10365.	12439.	14512.	16585.	18658.	20731.
12	2488.	4975.	7463.	9951.	12439.	14926.	17414.	19902.	22390.	24877.
14	2902.	5805.	8707.	11609.	14512.	17414.	20316.	23219.	26121.	29023.
16	3317.	6634.	9951.	13268.	16585.	19902.	23219.	26536.	29853.	33169.
18	3732.	7463.	11195.	14926.	18658.	22389.	26121.	29853.	33584.	37316.
20	4146.	8292.	12439.	16585.	20731.	24877.	29023.	33169.	37316.	41462.
22	4561.	9122.	13682.	18243.	22904.	27365.	31926.	36406.	41047.	45608.
24	4975.	9951.	14926.	19902.	24877.	29853.	34828.	39803.	44779.	49754.
26	5390.	10780.	16170.	21580.	26950.	32340.	37730.	43120.	48510.	53900.
28	5805.	11609.	17414.	23219.	29023.	34828.	40633.	46437.	52342.	*****
30	6219.	12439.	18658.	24877.	31096.	37316.	43235.	49754.	55774.	*****

SQ FT (x 1000)	TROMBE WALL DIFFERENTIAL COST - WH(\$'s)									
	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	503.	1006.	1509.	2012.	2515.	3018.	3521.	4024.	4527.	5030.
4	1006.	2012.	3018.	4024.	5030.	6037.	7043.	8049.	9055.	10061.
6	1509.	3018.	4527.	6037.	7546.	9055.	10564.	12073.	13582.	15091.
8	2012.	4024.	6037.	8049.	10061.	12073.	14085.	16097.	18110.	20122.
10	2515.	5030.	7546.	10061.	12576.	15091.	17607.	20122.	22637.	25152.
12	3018.	6037.	9055.	12073.	15091.	18110.	21128.	24145.	27164.	30183.
14	3521.	7043.	10564.	14085.	17607.	21128.	24648.	28171.	31692.	35213.
16	4024.	8049.	12073.	16097.	20122.	24145.	28171.	32195.	36219.	40244.
18	4527.	9055.	13582.	18110.	22637.	27164.	31692.	36219.	40747.	45274.
20	5030.	10061.	15091.	20122.	25152.	30183.	35213.	40244.	45274.	50305.
22	5534.	11067.	16601.	22134.	27668.	33201.	38734.	44256.	49282.	55335.
24	6037.	12073.	18110.	24146.	30183.	36219.	42256.	48282.	54299.	60365.
26	6540.	13079.	19619.	26158.	32698.	38238.	45777.	52317.	58336.	65395.
28	7043.	14085.	21128.	28171.	35213.	42256.	49282.	56341.	63354.	*****
30	7546.	15091.	22637.	30183.	37735.	45274.	52317.	59359.	67371.	*****

Tinker AFB

ANNUAL SOLAR CONTRIBUTION--NNH(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.3	5.0	6.7	8.3	10.0	11.6	13.3	15.0	16.6
4	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
6	5.0	10.0	15.0	20.0	24.9	29.9	34.9	39.9	44.9	49.9
8	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.2	59.9	66.5
10	8.3	16.6	24.9	33.3	41.6	49.9	58.2	66.5	74.8	83.1
12	10.0	20.0	29.9	39.9	49.9	59.9	69.8	79.8	89.8	99.8
14	11.6	23.3	34.9	46.6	58.2	69.8	81.5	93.1	104.8	116.4
16	13.3	26.6	39.9	53.2	66.5	79.8	93.1	106.4	119.7	133.0
18	15.0	29.9	44.9	59.9	74.8	89.8	104.8	119.7	134.7	149.5
20	16.6	33.3	49.9	66.5	83.1	99.8	116.4	133.0	149.5	165.3
22	18.3	36.6	54.9	73.2	91.6	109.7	128.0	146.3	164.6	182.9
24	20.0	39.9	59.9	79.8	98.8	119.7	139.7	159.6	179.6	*****
26	21.6	43.2	64.8	86.5	106.1	129.7	151.3	172.9	194.5	*****
28	23.3	46.6	69.8	93.1	116.4	139.7	162.9	186.2	*****	*****
30	24.9	49.9	74.8	99.8	124.7	149.5	174.6	199.5	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	289.	498.	687.	916.	1145.	1374.	1603.	1832.	2061.	2290.
4	458.	916.	1374.	1832.	2290.	2748.	3207.	3665.	4123.	4581.
6	687.	1374.	2061.	2748.	3436.	4123.	4810.	5497.	6184.	6871.
8	916.	1832.	2748.	3665.	4581.	5497.	6413.	7329.	8245.	9162.
10	1145.	2290.	3436.	4581.	5726.	6871.	8016.	9162.	10307.	11452.
12	1374.	2748.	4123.	5497.	6871.	8245.	9620.	10994.	12368.	13742.
14	1603.	3207.	4810.	6413.	8016.	9590.	11223.	12856.	14489.	16133.
16	1832.	3665.	5497.	7329.	9162.	10994.	12826.	14658.	16491.	18323.
18	2061.	4123.	6184.	8245.	10307.	12368.	14439.	16491.	18552.	20613.
20	2290.	4581.	6871.	9162.	11452.	13742.	16033.	18323.	20613.	22904.
22	2519.	5039.	7558.	10076.	12897.	15117.	17636.	20155.	22875.	25194.
24	2748.	5497.	8245.	10994.	13742.	16491.	18239.	21088.	24736.	*****
26	2978.	5955.	8933.	11910.	14898.	17895.	20843.	23880.	26798.	*****
28	3207.	6413.	9620.	12826.	16033.	18839.	22448.	25652.	*****	*****
30	3436.	6871.	10307.	13742.	17178.	20613.	24049.	27485.	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	387.	654.	881.	1108.	1335.	1562.	2388.	2615.	2842.	3069.
4	654.	1308.	1962.	2616.	3269.	3923.	4577.	5231.	5885.	6538.
6	881.	1962.	2942.	3923.	4904.	5885.	6866.	7846.	8827.	9808.
8	1108.	2616.	3923.	5231.	6538.	7846.	9154.	10461.	11769.	13077.
10	1335.	3269.	4904.	6538.	8173.	9808.	11442.	13077.	14711.	16346.
12	1562.	3923.	5885.	7846.	9808.	11769.	13731.	15692.	17654.	19615.
14	1789.	4577.	6866.	9154.	11442.	13731.	16019.	18307.	20595.	22884.
16	2016.	5231.	7846.	10461.	13077.	15692.	18307.	20823.	23338.	25153.
18	2243.	5885.	8827.	11769.	14711.	17654.	20595.	23338.	25840.	28422.
20	2470.	6538.	9808.	13077.	16346.	19615.	22884.	26163.	28423.	30692.
22	2697.	7192.	10769.	14354.	17898.	21577.	25173.	28799.	32398.	32961.
24	2924.	7846.	11769.	15692.	19615.	23338.	27451.	31384.	35397.	*****
26	3151.	8500.	12769.	17000.	21396.	25199.	29790.	33980.	38398.	*****
28	3378.	9154.	13731.	18307.	23334.	27451.	32388.	36615.	*****	*****
30	3605.	9808.	14711.	19615.	24848.	29623.	34388.	39230.	*****	*****

Tinker AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
4	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
6	8.2	16.4	24.5	32.7	40.9	49.1	57.3	65.4	73.6	81.8
8	10.9	21.8	32.7	43.6	54.5	65.4	76.4	87.3	98.2	109.1
10	13.6	27.3	40.9	54.5	68.2	81.8	95.4	109.1	122.7	136.3
12	16.4	32.7	49.1	65.4	81.8	98.2	114.5	130.9	147.3	163.6
14	19.1	38.2	57.3	76.4	95.4	114.5	136.3	152.7	171.8	190.9
16	21.8	43.6	65.4	87.3	109.1	130.9	152.7	174.5	196.3	218.2
18	24.5	49.1	73.6	98.2	122.7	147.3	171.8	196.3	220.9	245.4
20	27.3	54.5	81.8	109.1	136.3	163.6	190.9	218.2	245.4	272.7
22	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
24	32.7	65.4	98.2	130.9	163.6	196.3	229.1	261.8	294.5	*****
26	35.4	70.9	106.3	141.8	177.2	212.7	248.1	283.6	319.0	*****
28	38.2	76.4	114.5	152.7	190.9	229.1	267.2	305.4	*****	*****
30	40.9	81.8	122.7	163.6	204.5	245.4	289.3	327.2	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	451.	903.	1354.	1806.	2257.	2709.	3160.	3612.	4063.	4515.
4	903.	1806.	2709.	3612.	4515.	5418.	6321.	7224.	8127.	9030.
6	1354.	2709.	4063.	5418.	6772.	8127.	9481.	10836.	12190.	13545.
8	1806.	3612.	5418.	7224.	9030.	10836.	12642.	14448.	16254.	18060.
10	2257.	4515.	6772.	9030.	11287.	13545.	15802.	18060.	20317.	22575.
12	2709.	5418.	8127.	10836.	13545.	16254.	18963.	21672.	24381.	27089.
14	3160.	6321.	9481.	12642.	15802.	18963.	22123.	25284.	28444.	31604.
16	3612.	7224.	10836.	14448.	18060.	21672.	25284.	28986.	32507.	36119.
18	4063.	8127.	12190.	16254.	20317.	24381.	28444.	32507.	36571.	40634.
20	4515.	9030.	13545.	18060.	22575.	27089.	31604.	36119.	40634.	45149.
22	4966.	9933.	14899.	19866.	24832.	29708.	34765.	39731.	44898.	49864.
24	5418.	10836.	16254.	21672.	27089.	32507.	37925.	43343.	48761.	*****
26	5869.	11739.	17608.	23478.	29347.	35216.	41086.	46955.	52825.	*****
28	6321.	12642.	18963.	25284.	31604.	37925.	44246.	50567.	*****	*****
30	6772.	13545.	20317.	27089.	33862.	40634.	47407.	54179.	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	949.	1898.	2848.	3797.	4747.	5696.	6646.	7595.	8544.	9494.
4	1898.	3797.	5696.	7595.	9494.	11393.	13292.	15191.	17090.	18989.
6	2848.	5696.	8544.	11393.	14242.	17091.	20940.	24789.	28638.	32487.
8	3797.	7595.	11393.	15191.	19040.	22889.	26738.	30587.	34436.	38285.
10	4747.	9494.	14242.	19040.	23689.	28538.	33387.	38236.	43085.	47934.
12	5696.	11393.	17091.	22889.	27438.	32187.	36936.	41785.	46634.	51483.
14	6646.	13292.	19940.	26738.	31287.	35936.	40685.	45534.	50183.	54932.
16	7595.	15191.	22889.	30587.	34136.	38736.	43534.	48383.	53632.	58381.
18	8544.	17090.	25738.	34436.	37085.	41585.	46383.	51182.	56031.	60830.
20	9494.	18989.	28587.	38285.	40934.	44435.	49182.	53931.	58830.	63279.
22	10443.	20888.	31436.	42134.	44783.	48285.	52931.	57680.	62579.	67728.
24	11393.	22787.	34285.	45283.	48634.	52135.	56931.	61429.	66278.	71177.
26	12342.	24686.	37134.	48432.	52483.	55985.	60780.	65178.	69877.	74626.
28	13292.	26585.	40083.	51581.	56332.	59836.	64629.	69927.	74626.	79075.
30	14242.	28484.	43032.	54730.	59681.	63687.	68478.	74676.	80375.	83524.

Travis AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.8	3.7	5.5	7.3	9.2	11.0	12.8	14.7	16.5	18.3
4	3.7	7.3	11.0	14.7	18.3	22.0	25.7	29.3	33.0	36.7
6	5.5	11.0	16.5	22.0	27.5	33.0	38.5	44.0	49.5	55.0
8	7.3	14.7	22.0	29.3	36.7	44.0	51.3	58.6	66.0	73.3
10	9.2	18.3	27.5	36.7	45.8	55.0	64.1	73.3	82.5	91.6
12	11.0	22.0	33.0	44.0	55.0	66.0	77.0	88.0	99.0	110.0
14	12.8	25.7	38.5	51.3	64.1	77.0	89.8	102.6	115.5	128.3
16	14.7	29.3	44.0	58.6	73.3	88.0	102.6	117.3	132.0	146.6
18	16.5	33.0	49.5	66.0	82.5	99.0	115.5	132.0	148.4	164.9
20	18.3	36.7	55.0	73.3	91.6	110.0	128.3	146.6	164.9	183.3
22	20.2	40.3	60.5	80.6	100.8	121.0	141.1	161.3	181.4	201.6
24	22.0	44.0	66.0	88.0	110.0	132.0	153.9	175.9	197.9	219.9
26	23.8	47.6	71.5	95.3	119.1	142.9	166.8	190.6	214.4	236.2
28	25.7	51.3	77.0	102.6	128.3	153.9	179.6	205.3	230.9	252.6
30	27.5	55.0	82.5	110.0	137.5	164.9	192.4	219.9	247.4	274.9

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	145.	289.	434.	579.	723.	868.	1013.	1158.	1302.	1447.
4	289.	579.	868.	1158.	1447.	1736.	2026.	2315.	2604.	2894.
6	434.	868.	1302.	1736.	2170.	2604.	3039.	3473.	3907.	4341.
8	579.	1158.	1736.	2315.	2894.	3473.	4051.	4630.	5209.	5788.
10	723.	1447.	2170.	2894.	3617.	4341.	5064.	5788.	6511.	7235.
12	868.	1736.	2604.	3473.	4341.	5209.	6077.	6945.	7813.	8682.
14	1013.	2026.	3039.	4051.	5064.	6077.	7090.	8103.	9116.	10129.
16	1158.	2315.	3473.	4630.	5788.	6945.	8103.	9260.	10418.	11575.
18	1302.	2604.	3907.	5209.	6511.	7813.	9116.	10418.	11720.	13022.
20	1447.	2894.	4341.	5788.	7235.	8682.	10129.	11575.	13022.	14469.
22	1592.	3183.	4775.	6366.	7968.	9550.	11141.	12732.	14323.	15916.
24	1736.	3473.	5209.	6945.	8582.	10164.	11754.	13361.	14967.	16563.
26	1881.	3762.	5643.	7524.	9405.	11286.	13167.	14845.	16620.	18210.
28	2026.	4051.	6077.	8103.	10129.	12154.	14180.	16206.	18351.	20057.
30	2170.	4341.	6511.	8682.	10852.	13022.	15193.	17353.	19524.	21704.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	215.	431.	646.	862.	1077.	1293.	1508.	1724.	1939.	2155.
4	431.	862.	1293.	1724.	2155.	2586.	3016.	3447.	3878.	4309.
6	646.	1293.	1939.	2586.	3232.	3878.	4525.	5171.	5817.	6464.
8	862.	1724.	2586.	3447.	4309.	5171.	6033.	6894.	7756.	8618.
10	1077.	2155.	3232.	4309.	5386.	6464.	7541.	8618.	9695.	10773.
12	1293.	2586.	3878.	5171.	6464.	7756.	9048.	10342.	11634.	12927.
14	1508.	3016.	4525.	6033.	7541.	9048.	10557.	12065.	13574.	15082.
16	1724.	3447.	5171.	6894.	8618.	10342.	12065.	13782.	15513.	17236.
18	1939.	3878.	5817.	7756.	9695.	11634.	13574.	15513.	17452.	19391.
20	2155.	4309.	6464.	8618.	10773.	12927.	15082.	17236.	19391.	21545.
22	2370.	4740.	7110.	9480.	11580.	14380.	16580.	18880.	21180.	23700.
24	2586.	5171.	7756.	10342.	12927.	15513.	18065.	20362.	22659.	24954.
26	2801.	5602.	8405.	11204.	14004.	16805.	19606.	22407.	24908.	26608.
28	3016.	6033.	9048.	12065.	15082.	18082.	21114.	24151.	27147.	28163.
30	3232.	6464.	9691.	12927.	16160.	19201.	22223.	25221.	28222.	29718.

Travis AFB

ANNUAL SOLAR CONTRIBUTION - WNI (MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.4	4.8	7.2	9.6	12.0	14.5	16.9	19.3	21.7	24.1
4	4.8	9.6	14.5	19.3	24.1	28.9	33.7	38.5	43.4	48.2
6	7.2	14.5	21.7	28.9	36.1	43.4	50.6	57.8	65.0	72.3
8	9.6	19.3	28.9	38.5	48.2	57.8	67.4	77.1	86.7	96.3
10	12.0	24.1	36.1	48.2	60.2	72.3	84.3	96.3	108.4	120.4
12	14.5	28.9	43.4	57.8	72.3	86.7	101.2	115.6	130.1	144.5
14	16.9	33.7	50.6	67.4	84.3	101.2	118.0	134.9	151.7	168.6
16	19.3	38.5	57.8	77.1	96.3	115.6	134.9	154.2	173.4	192.7
18	21.7	43.4	65.0	86.7	108.4	130.1	151.7	173.4	195.1	216.8
20	24.1	48.2	72.3	96.3	120.4	144.5	168.6	192.7	216.8	240.9
22	26.5	53.0	78.5	106.0	138.5	160.0	185.5	212.0	238.5	265.0
24	28.9	57.8	86.7	115.6	144.5	173.4	202.3	231.2	260.1	289.0
26	31.3	62.6	93.9	125.6	156.6	187.9	219.2	250.5	281.6	313.1
28	33.7	67.4	101.2	134.9	168.6	202.3	236.0	269.8	303.5	337.2
30	36.1	72.3	108.4	144.5	180.6	216.8	252.9	289.0	325.2	361.3

DIRECT GAIN DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	306.	611.	917.	1222.	1528.	1833.	2139.	2444.	2750.	3056.
4	611.	1222.	1833.	2444.	3056.	3668.	4277.	4888.	5499.	6110.
6	917.	1833.	2750.	3668.	4583.	5499.	6416.	7332.	8249.	9166.
8	1222.	2444.	3668.	4888.	6110.	7332.	8554.	9776.	10998.	12220.
10	1528.	3056.	4583.	6110.	7638.	9165.	10693.	12220.	13748.	15276.
12	1833.	3668.	5499.	7332.	9165.	10998.	12831.	14665.	16498.	18331.
14	2139.	4277.	6416.	8554.	10693.	12831.	14970.	17109.	19247.	21386.
16	2444.	4888.	7332.	9776.	12220.	14665.	17109.	19553.	21997.	24441.
18	2750.	5499.	8249.	10998.	13742.	16498.	19247.	21997.	24746.	27496.
20	3056.	6110.	9166.	12220.	15276.	18331.	21386.	24441.	27496.	30551.
22	3361.	6721.	10082.	13442.	16883.	20184.	23684.	26985.	30286.	33586.
24	3668.	7332.	10998.	14665.	18331.	21997.	25663.	29320.	32966.	36661.
26	3972.	7943.	11915.	15887.	19888.	23830.	27801.	31773.	35745.	39716.
28	4277.	8554.	12831.	17109.	21386.	25663.	29940.	34217.	38494.	42772.
30	4583.	9165.	13748.	18331.	22913.	27496.	32079.	36661.	41244.	45827.

TROMBE WALL DIFFERENTIAL COST - WNI (\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	378.	753.	1129.	1505.	1881.	2258.	2634.	3010.	3386.	3763.
4	753.	1505.	2258.	3010.	3763.	4515.	5268.	6020.	6773.	7525.
6	1129.	2258.	3386.	4515.	5644.	6773.	7902.	9031.	10159.	11288.
8	1505.	3010.	4515.	6020.	7525.	9031.	10536.	12041.	13546.	15051.
10	1881.	3763.	5644.	7525.	9407.	11288.	13169.	15051.	16932.	18814.
12	2258.	4515.	6773.	9031.	11288.	13846.	16603.	19661.	22319.	24978.
14	2634.	5268.	7902.	10536.	13169.	16003.	19437.	21971.	24706.	27339.
16	3010.	6020.	9031.	12041.	15051.	18061.	21071.	24081.	27092.	30102.
18	3386.	6773.	10159.	13546.	16602.	20319.	23706.	27092.	30478.	33864.
20	3763.	7525.	11288.	15051.	18814.	22576.	26336.	30102.	33864.	37627.
22	4139.	8278.	12417.	16602.	20559.	24824.	29073.	33112.	37251.	41390.
24	4515.	9031.	13546.	18061.	22576.	27692.	31907.	35122.	40437.	45153.
26	4891.	9783.	14675.	19565.	24495.	29619.	34241.	37132.	44034.	48916.
28	5268.	10536.	15804.	21071.	26336.	31907.	36975.	42742.	47410.	52678.
30	5644.	11288.	16932.	22576.	28259.	34241.	39909.	46153.	50797.	56441.

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.7	1.4	2.1	2.7	3.4	4.1	4.8	5.5	6.2	6.9
4	1.4	2.7	4.1	5.5	6.9	8.2	9.6	11.0	12.3	13.7
6	2.1	4.1	6.2	8.2	10.3	12.3	14.4	16.5	18.5	20.6
8	2.7	5.5	8.2	11.0	13.7	16.5	19.2	22.0	24.7	27.4
10	3.4	6.9	10.3	13.7	17.1	20.6	24.0	27.4	30.9	34.3
12	4.1	8.2	12.3	16.5	20.6	24.7	28.8	32.9	37.0	41.2
14	4.8	9.6	14.4	19.2	24.0	28.8	33.6	38.4	43.2	48.0
16	5.5	11.0	16.5	22.0	27.4	32.9	38.4	43.9	49.4	54.9
18	6.2	12.3	18.5	24.7	30.9	37.0	43.2	49.4	55.6	61.7
20	6.9	13.7	20.6	27.4	34.3	41.2	48.0	54.9	61.7	68.6
22	7.5	15.1	22.8	30.2	37.7	45.3	52.8	60.4	67.9	75.5
24	8.2	16.5	24.7	32.9	41.2	49.4	57.6	65.9	74.1	82.3
26	8.9	17.8	26.8	35.7	44.6	53.5	62.4	71.3	80.3	89.2
28	9.6	19.2	28.8	38.4	48.0	57.6	67.2	76.5	86.4	96.0
30	10.3	20.6	30.9	41.2	51.4	61.7	72.0	82.3	92.6	102.9

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	106.	211.	317.	423.	529.	634.	740.	846.	951.	1057.
4	211.	423.	634.	846.	1057.	1268.	1480.	1691.	1903.	2114.
6	317.	634.	951.	1268.	1586.	1903.	2220.	2537.	2854.	3171.
8	423.	846.	1268.	1691.	2114.	2537.	2960.	3382.	3805.	4228.
10	529.	1057.	1586.	2114.	2643.	3171.	3700.	4228.	4757.	5286.
12	634.	1268.	1903.	2537.	3171.	3806.	4439.	5074.	5708.	6342.
14	740.	1480.	2220.	2960.	3700.	4439.	5179.	5919.	6659.	7399.
16	846.	1691.	2537.	3382.	4228.	5074.	5919.	6765.	7610.	8456.
18	951.	1903.	2854.	3805.	4757.	5708.	6659.	7610.	8562.	9513.
20	1057.	2114.	3171.	4228.	5286.	6342.	7399.	8456.	9513.	10570.
22	1163.	2325.	3488.	4641.	5814.	6975.	8136.	9298.	10461.	11622.
24	1268.	2537.	3806.	5074.	6342.	7610.	8879.	10147.	11416.	12684.
26	1374.	2748.	4122.	5488.	6871.	8245.	9619.	10993.	12367.	13741.
28	1480.	2960.	4439.	5919.	7399.	8879.	10369.	11838.	13316.	14798.
30	1586.	3171.	4757.	6342.	7955.	9513.	11029.	12584.	14279.	15855.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	162.	304.	455.	608.	760.	911.	1063.	1215.	1367.	1519.
4	304.	608.	911.	1215.	1519.	1823.	2127.	2430.	2734.	3038.
6	455.	911.	1367.	1823.	2279.	2734.	3190.	3646.	4101.	4557.
8	608.	1215.	1823.	2430.	3038.	3646.	4253.	4861.	5469.	6076.
10	760.	1519.	2279.	3038.	3798.	4557.	5317.	6076.	6836.	7596.
12	911.	1823.	2734.	3646.	4557.	5469.	6380.	7291.	8203.	9114.
14	1063.	2127.	3190.	4253.	5317.	6380.	7443.	8506.	9570.	10633.
16	1215.	2430.	3646.	4861.	5975.	7091.	8206.	9322.	10437.	11552.
18	1367.	2734.	4101.	5469.	6686.	7903.	9119.	10337.	11554.	12771.
20	1519.	3038.	4557.	6076.	7395.	8714.	10033.	11352.	12671.	13990.
22	1671.	3342.	4965.	6684.	8095.	9414.	10733.	12052.	13371.	14690.
24	1823.	3646.	5469.	7291.	8714.	10033.	11352.	12671.	14000.	15390.
26	1975.	3949.	5974.	7899.	9374.	10733.	12052.	13371.	14690.	16090.
28	2127.	4253.	6380.	8506.	10033.	11352.	12671.	14000.	15390.	16790.
30	2279.	4557.	6786.	9114.	10733.	12052.	13371.	14690.	16090.	17490.

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	.9	1.6	2.6	3.5	4.4	5.3	6.2	7.1	7.9	8.8	
4	1.8	3.5	5.3	7.1	8.8	10.6	12.3	14.1	15.9	17.6	
6	2.6	5.3	7.9	10.6	13.2	15.9	18.5	21.2	23.8	26.5	
8	3.5	7.1	10.6	14.1	17.6	21.2	24.7	28.2	31.7	35.3	
10	4.4	8.8	13.2	17.6	22.0	26.5	30.9	35.3	39.7	44.1	
12	5.3	10.6	15.9	21.2	26.5	31.7	37.0	42.3	47.8	52.9	
14	6.2	12.3	18.5	24.7	30.9	37.0	43.2	49.4	55.6	61.7	
16	7.1	14.1	21.2	28.2	35.3	42.3	49.4	56.4	63.5	70.6	
18	7.9	15.9	23.8	31.7	39.7	47.8	55.6	63.5	71.4	79.4	
20	8.8	17.6	26.5	35.3	44.1	52.9	61.7	70.6	79.4	88.2	
22	9.7	19.4	29.1	38.8	48.5	58.2	67.9	77.6	87.3	97.0	
24	10.6	21.2	31.7	42.3	52.9	63.5	74.1	84.7	95.2	105.8	
26	11.5	22.9	34.4	45.9	57.3	68.8	80.3	91.7	103.2	114.7	
28	12.3	24.7	37.0	49.4	61.7	74.1	86.4	98.8	111.1	123.5	
30	13.2	26.5	39.7	52.9	66.1	79.4	92.6	105.8	119.1	132.3	

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	211.	421.	632.	843.	1054.	1264.	1475.	1686.	1896.	2107.	
4	421.	843.	1264.	1686.	2107.	2528.	2950.	3371.	3793.	4214.	
6	632.	1264.	1896.	2528.	3161.	3793.	4425.	5057.	5689.	6321.	
8	843.	1686.	2528.	3371.	4214.	5057.	5900.	6742.	7585.	8428.	
10	1054.	2107.	3161.	4214.	5268.	6321.	7375.	8428.	9482.	10535.	
12	1264.	2528.	3793.	5057.	6321.	7585.	8849.	10114.	11378.	12642.	
14	1475.	2950.	4425.	5900.	7375.	8849.	10324.	11799.	13274.	14749.	
16	1686.	3371.	5057.	6742.	8428.	10114.	11799.	13485.	15170.	16855.	
18	1896.	3793.	5689.	7585.	9482.	11378.	13274.	15170.	17067.	18963.	
20	2107.	4214.	6321.	8428.	10355.	12642.	14749.	16855.	18963.	21070.	
22	2318.	4636.	6953.	9371.	11389.	13906.	16224.	18542.	20859.	23177.	
24	2528.	5057.	7585.	10114.	12642.	15170.	17699.	20227.	22758.	25284.	
26	2739.	5478.	8217.	10956.	13598.	16435.	19174.	21913.	24652.	27391.	
28	2950.	5900.	8849.	11799.	14749.	17699.	20849.	23598.	26548.	29498.	
30	3161.	6321.	9482.	12642.	15903.	19093.	22124.	25294.	28445.	31605.	

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)											
SQ FT (x 1000)	Percent Floor Area Served By Solar										
	10	20	30	40	50	60	70	80	90	100	
2	267.	514.	771.	1028.	1285.	1541.	1798.	2055.	2312.	2569.	
4	514.	1028.	1541.	2055.	2569.	3083.	3597.	4110.	4624.	5138.	
6	771.	1541.	2312.	3083.	3854.	4624.	5395.	6166.	6936.	7707.	
8	1028.	2055.	3083.	4110.	5138.	6166.	7193.	8221.	9248.	10276.	
10	1285.	2569.	3854.	5138.	6423.	7707.	8992.	10276.	11561.	12845.	
12	1541.	3083.	4624.	6166.	7707.	9248.	10790.	12331.	13873.	15414.	
14	1798.	3597.	5395.	7193.	8992.	10790.	12588.	14386.	16185.	17983.	
16	2055.	4110.	6166.	8221.	10276.	12331.	14386.	16442.	18497.	20552.	
18	2312.	4624.	6936.	9248.	11381.	13873.	16185.	18497.	20809.	23121.	
20	2569.	5138.	7707.	10276.	12645.	15414.	17985.	20602.	23121.	25690.	
22	2826.	5652.	8478.	11304.	14130.	16905.	19781.	22607.	25433.	28259.	
24	3083.	6166.	9248.	12331.	15414.	18497.	21580.	24608.	27745.	30828.	
26	3340.	6679.	10019.	13359.	16889.	20335.	23578.	26718.	30057.	33397.	
28	3597.	7193.	10790.	14386.	17985.	21980.	25176.	28773.	32369.	35966.	
30	3854.	7707.	11561.	15414.	19093.	23121.	26970.	30825.	34622.	38535.	

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.1	6.3	9.4	12.6	15.7	18.9	22.0	25.2	28.3	31.5
4	6.3	12.6	18.9	25.2	31.5	37.8	44.0	50.3	56.6	62.9
6	9.4	18.9	28.3	37.8	47.2	56.6	66.1	75.5	84.9	94.4
8	12.6	25.2	37.8	50.3	62.9	75.5	88.1	100.7	113.3	125.8
10	15.7	31.5	47.2	62.9	78.6	94.4	110.1	125.8	141.6	157.3
12	18.9	37.8	56.6	75.5	94.4	113.3	132.1	151.0	169.9	188.8
14	22.0	44.0	66.1	88.1	110.1	132.1	154.1	176.2	198.2	220.2
16	25.2	50.3	75.5	100.7	125.8	151.0	176.2	201.3	226.5	251.7
18	28.3	56.6	84.9	113.3	141.6	169.9	198.2	226.5	254.8	283.1
20	31.5	62.9	94.4	125.8	157.3	188.8	220.2	251.7	283.1	*****
22	34.6	69.2	103.8	138.4	173.0	207.6	242.2	276.8	311.4	*****
24	37.8	75.5	113.3	151.0	188.8	226.5	264.3	302.0	*****	*****
26	40.9	81.8	122.7	163.6	204.5	245.4	286.3	327.2	*****	*****
28	44.0	88.1	132.1	176.2	220.2	264.3	308.3	352.3	*****	*****
30	47.2	94.4	141.6	188.8	236.9	283.1	330.3	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	254.	508.	763.	1017.	1271.	1525.	1780.	2034.	2288.	2542.
4	508.	1017.	1525.	2034.	2542.	3051.	3559.	4068.	4576.	5084.
6	763.	1525.	2288.	3051.	3813.	4576.	5339.	6101.	6864.	7627.
8	1017.	2034.	3051.	4068.	5084.	6101.	7118.	8135.	9152.	10169.
10	1271.	2542.	3813.	5084.	6356.	7627.	8898.	10169.	11440.	12711.
12	1525.	3051.	4576.	6101.	7627.	9152.	10677.	12203.	13728.	15253.
14	1780.	3559.	5339.	7118.	8898.	10677.	12457.	14236.	16016.	17795.
16	2034.	4068.	6101.	8135.	10169.	12203.	14236.	16270.	18304.	20338.
18	2288.	4576.	6864.	9152.	11440.	13728.	16016.	18304.	20562.	22880.
20	2542.	5084.	7627.	10169.	12711.	15253.	17795.	20338.	22880.	*****
22	2796.	5593.	8390.	11186.	13662.	16779.	19575.	22371.	25168.	*****
24	3051.	6101.	9152.	12203.	14853.	18004.	21354.	24405.	*****	*****
26	3306.	6610.	9915.	13219.	16224.	19529.	23134.	26439.	*****	*****
28	3559.	7118.	10677.	14236.	17795.	21354.	24914.	28473.	*****	*****
30	3813.	7627.	11440.	15253.	19067.	22880.	26893.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	363.	726.	1089.	1452.	1815.	2178.	2541.	2904.	3267.	3630.
4	726.	1452.	2178.	2904.	3630.	4356.	5082.	5808.	6534.	7260.
6	1089.	2178.	3267.	4356.	5445.	6534.	7623.	8712.	9801.	10890.
8	1452.	2904.	4356.	5808.	7260.	8712.	10164.	11616.	13068.	14520.
10	1815.	3630.	5445.	7260.	9075.	10890.	12705.	14520.	16335.	18150.
12	2178.	4356.	6534.	8712.	10890.	13068.	15246.	17432.	19618.	21780.
14	2541.	5082.	7623.	10164.	12705.	15246.	17787.	20338.	22938.	25410.
16	2904.	5808.	8712.	11616.	14520.	17432.	20328.	23232.	26136.	29038.
18	3267.	6534.	9801.	13068.	16335.	19508.	22668.	26136.	29402.	32668.
20	3630.	7260.	10890.	14520.	18150.	21780.	25410.	29038.	32668.	*****
22	3993.	7986.	11979.	15972.	19965.	23955.	27951.	31943.	36036.	*****
24	4356.	8712.	13068.	17432.	21780.	26136.	30491.	34847.	*****	*****
26	4719.	9438.	14157.	18876.	23595.	28313.	33032.	37751.	*****	*****
28	5082.	10164.	15246.	20328.	25410.	30491.	35573.	40655.	*****	*****
30	5445.	10890.	16335.	21780.	27225.	32668.	38114.	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	5.5	11.0	16.4	21.9	27.4	32.9	38.3	43.8	49.3	54.8
4	11.0	21.9	32.9	43.8	54.8	65.7	76.7	87.6	98.6	109.5
6	16.4	32.9	49.3	65.7	82.1	98.6	115.0	131.4	147.9	164.3
8	21.9	43.8	65.7	87.6	109.5	131.4	153.3	175.2	197.1	219.0
10	27.4	54.8	82.1	109.5	136.9	164.3	191.7	219.0	246.4	273.8
12	32.9	65.7	98.6	131.4	164.3	197.1	230.0	262.9	295.7	328.6
14	38.3	76.7	115.0	153.3	191.7	230.0	268.3	306.7	345.0	383.3
16	43.8	87.6	131.4	175.2	219.0	262.9	306.7	350.5	394.3	438.1
18	49.3	98.6	147.9	197.1	246.4	295.7	345.0	394.3	443.6	492.9
20	54.8	109.5	164.3	219.0	273.8	328.6	383.3	438.1	492.9	*****
22	60.2	120.5	180.7	241.0	301.2	361.4	421.7	481.9	542.1	*****
24	65.7	131.4	197.1	262.9	328.6	394.3	460.0	525.7	*****	*****
26	71.2	142.4	213.6	284.8	356.0	427.1	498.3	569.5	*****	*****
28	76.7	153.3	230.0	306.7	383.3	460.0	536.7	613.3	*****	*****
30	82.1	164.3	246.4	328.6	410.7	492.9	575.0	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	501.	1003.	1504.	2005.	2507.	3009.	3510.	4011.	4513.	5014.
4	1003.	2006.	3009.	4011.	5014.	6017.	7020.	8023.	9026.	10029.
6	1504.	3009.	4513.	6017.	7521.	9026.	10530.	12034.	13539.	15043.
8	2006.	4011.	6017.	8023.	10029.	12034.	14040.	16046.	18052.	20057.
10	2507.	5014.	7521.	10029.	12536.	15043.	17550.	20057.	22564.	25072.
12	3009.	6017.	9026.	12034.	15043.	18052.	21060.	24069.	27077.	30086.
14	3510.	7020.	10530.	14040.	17550.	21060.	24570.	28080.	31590.	35100.
16	4011.	8023.	12034.	16046.	20057.	24069.	28080.	32092.	36103.	40115.
18	4513.	9026.	13539.	18052.	22564.	27077.	31590.	36103.	40616.	45129.
20	5014.	10029.	15043.	20057.	25072.	30086.	35100.	40115.	45129.	*****
22	5516.	11032.	16547.	22083.	27579.	33086.	38610.	44126.	49642.	*****
24	6017.	12034.	18052.	24089.	30086.	36103.	42120.	48137.	*****	*****
26	6519.	13037.	19556.	26074.	32596.	39112.	45630.	52149.	*****	*****
28	7020.	14040.	21060.	28080.	35100.	42120.	49140.	56160.	*****	*****
30	7521.	15043.	22564.	30086.	37607.	45129.	52200.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	610.	1220.	1831.	2441.	3051.	3661.	4271.	4882.	5492.	6102.
4	1220.	2441.	3661.	4882.	6102.	7322.	8543.	9763.	10984.	12204.
6	1831.	3661.	5492.	7322.	9153.	10984.	12814.	14645.	16476.	18306.
8	2441.	4882.	7322.	9763.	12204.	14645.	17086.	19527.	21967.	24408.
10	3051.	6102.	9153.	12204.	15255.	18306.	21357.	24408.	27459.	30510.
12	3661.	7322.	10984.	14045.	18306.	21967.	25528.	29089.	32650.	36212.
14	4271.	8543.	12814.	17086.	21357.	25528.	29699.	34172.	38443.	42714.
16	4882.	9763.	14645.	19527.	24408.	29390.	34172.	39053.	43935.	48816.
18	5492.	10984.	16476.	21967.	27459.	33551.	38443.	43935.	49427.	54919.
20	6102.	12204.	18306.	24408.	30510.	36612.	42714.	48816.	54919.	*****
22	6712.	13425.	20137.	26949.	33663.	40274.	46986.	53658.	60410.	*****
24	7322.	14646.	21967.	29390.	36815.	43836.	51237.	58090.	*****	*****
26	7933.	15867.	23798.	31731.	39968.	47897.	55698.	63461.	*****	*****
28	8543.	17088.	25629.	34172.	42714.	51237.	59800.	68343.	*****	*****
30	9153.	18309.	27459.	36613.	45075.	54578.	64072.	*****	*****	*****

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ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.3	5.0	6.7	8.3	10.0	11.6	13.3	15.0	16.6
4	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
6	5.0	10.0	15.0	20.0	24.9	29.9	34.9	39.9	44.9	49.9
8	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.2	59.9	66.5
10	8.3	16.6	24.9	33.3	41.6	49.9	58.2	66.5	74.8	83.1
12	10.0	20.0	29.9	39.9	49.9	59.9	69.8	79.8	89.8	99.8
14	11.6	23.3	34.9	46.6	56.2	66.5	81.5	93.1	104.8	116.4
16	13.3	26.6	39.9	53.2	66.5	79.8	93.1	106.4	119.7	133.0
18	15.0	29.9	44.9	59.9	74.8	89.8	104.8	119.7	134.7	149.6
20	16.6	33.3	49.9	66.5	83.1	99.8	116.4	133.0	149.6	166.3
22	18.3	36.6	54.9	73.2	91.5	109.7	128.0	146.3	164.6	182.9
24	20.0	39.9	59.9	79.8	99.8	119.7	139.7	159.6	179.6	*****
26	21.6	43.2	64.8	86.5	108.1	129.7	151.3	172.9	194.5	*****
28	23.3	46.6	69.8	93.1	116.4	139.7	162.9	186.2	*****	*****
30	24.9	49.9	74.8	99.8	124.7	149.6	174.6	199.5	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	228.	456.	687.	916.	1145.	1374.	1603.	1832.	2061.	2290.
4	456.	916.	1374.	1832.	2290.	2748.	3207.	3665.	4123.	4581.
6	687.	1374.	2061.	2748.	3436.	4123.	4810.	5497.	6184.	6871.
8	916.	1832.	2748.	3665.	4581.	5497.	6413.	7329.	8245.	9162.
10	1145.	2290.	3436.	4581.	5726.	6871.	8016.	9162.	10307.	11452.
12	1374.	2748.	4123.	5497.	6871.	8245.	9620.	10994.	12368.	13742.
14	1603.	3207.	4810.	6413.	8016.	9620.	11223.	12826.	14429.	16033.
16	1832.	3665.	5497.	7329.	9162.	10994.	12826.	14658.	16491.	18323.
18	2061.	4123.	6184.	8245.	10307.	12368.	14429.	16491.	18552.	20613.
20	2290.	4581.	6871.	9162.	11452.	13742.	16033.	18323.	20613.	22904.
22	2519.	5039.	7558.	10078.	12597.	15117.	17636.	20155.	22675.	25194.
24	2748.	5497.	8245.	10994.	13742.	16491.	19239.	21968.	24736.	*****
26	2978.	5955.	8933.	11910.	14658.	17865.	20843.	23820.	26798.	*****
28	3207.	6413.	9620.	12826.	16033.	19239.	22446.	25652.	*****	*****
30	3436.	6871.	10307.	13742.	17178.	20613.	24049.	27455.	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	327.	654.	981.	1308.	1635.	1962.	2289.	2616.	2942.	3269.
4	654.	1308.	1962.	2616.	3269.	3923.	4577.	5231.	5885.	6538.
6	981.	1962.	2942.	3923.	4904.	5885.	6865.	7846.	8827.	9808.
8	1308.	2616.	3923.	5231.	6538.	7846.	9154.	10461.	11769.	13077.
10	1635.	3269.	4904.	6538.	8173.	9808.	11442.	13077.	14711.	16346.
12	1962.	3923.	5885.	7846.	9808.	11769.	13731.	15692.	17654.	19616.
14	2289.	4577.	6865.	9154.	11442.	13731.	16019.	18307.	20596.	22884.
16	2616.	5231.	7846.	10461.	13077.	15692.	18307.	20923.	23636.	26153.
18	2942.	5885.	8927.	11769.	14711.	17654.	20596.	23338.	26480.	29423.
20	3269.	6538.	9908.	13077.	16346.	19615.	23338.	26153.	29423.	32692.
22	3596.	7192.	10788.	14364.	17960.	21577.	25173.	28708.	32365.	35961.
24	3923.	7846.	11769.	15692.	19815.	23538.	27481.	31384.	35307.	*****
26	4250.	8500.	12750.	17000.	21300.	25500.	29700.	33889.	38348.	*****
28	4577.	9154.	13731.	18307.	22884.	27481.	32038.	36618.	*****	*****
30	4904.	9808.	14711.	19615.	24519.	29423.	34321.	39430.	*****	*****

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ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.7	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
4	5.5	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
6	8.2	16.4	24.5	32.7	40.9	49.1	57.3	65.4	73.6	81.8
8	10.9	21.8	32.7	43.6	54.5	65.4	76.4	87.3	98.2	109.1
10	13.6	27.3	40.9	54.5	68.2	81.8	95.4	109.1	122.7	136.3
12	16.4	32.7	49.1	65.4	81.8	98.2	114.5	130.9	147.3	163.6
14	19.1	38.2	57.3	76.4	95.4	114.5	133.8	152.7	171.8	190.9
16	21.8	43.6	65.4	87.3	109.1	130.9	152.7	174.5	196.3	218.2
18	24.5	49.1	73.6	98.2	122.7	147.3	171.8	196.3	220.9	245.4
20	27.3	54.5	81.8	109.1	136.3	163.6	190.9	218.2	245.4	272.7
22	30.0	60.0	90.0	120.0	150.0	180.0	210.0	240.0	270.0	300.0
24	32.7	65.4	98.2	130.9	163.6	196.3	229.1	261.8	294.5	*****
26	35.4	70.9	106.3	141.8	177.2	212.7	248.1	283.6	319.0	*****
28	38.2	76.4	114.5	152.7	190.9	229.1	267.2	305.4	*****	*****
30	40.9	81.8	122.7	163.6	204.5	245.4	286.3	327.2	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	451.	903.	1354.	1806.	2257.	2709.	3160.	3612.	4063.	4515.
4	903.	1806.	2709.	3612.	4515.	5418.	6321.	7224.	8127.	9030.
6	1354.	2709.	4063.	5418.	6772.	8127.	9481.	10836.	12190.	13545.
8	1806.	3612.	5418.	7224.	9030.	10836.	12642.	14448.	16254.	18060.
10	2257.	4515.	6772.	9030.	11287.	13545.	15802.	18060.	20317.	22575.
12	2709.	5418.	8127.	10836.	13545.	16254.	18963.	21672.	24381.	27089.
14	3160.	6321.	9481.	12842.	15802.	18963.	22123.	25284.	28444.	31604.
16	3612.	7224.	10836.	14448.	18060.	21672.	25284.	28895.	32507.	36119.
18	4063.	8127.	12190.	16254.	20317.	24381.	28444.	32507.	36571.	40634.
20	4515.	9030.	13545.	18060.	22575.	27089.	31604.	36119.	40634.	45149.
22	4966.	9933.	14899.	19866.	24832.	29796.	34765.	39731.	44696.	49664.
24	5418.	10836.	16254.	21672.	27089.	32507.	37925.	43343.	48761.	*****
26	5869.	11739.	17608.	23478.	29347.	35216.	41086.	46955.	52825.	*****
28	6321.	12842.	18963.	25284.	31604.	37925.	44248.	50567.	*****	*****
30	6772.	13545.	20317.	27089.	33862.	40634.	47407.	54179.	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	549.	1099.	1648.	2197.	2747.	3296.	3846.	4395.	4944.	5494.
4	1099.	2197.	3296.	4395.	5494.	6592.	7691.	8790.	9889.	10987.
6	1648.	3296.	4944.	6592.	8241.	9889.	11537.	13185.	14833.	16481.
8	2197.	4395.	6592.	8790.	10987.	13185.	15382.	17580.	19777.	21975.
10	2747.	5494.	8241.	10987.	13734.	16481.	19228.	21975.	24722.	27469.
12	3296.	6592.	9889.	13185.	16481.	19777.	23074.	26370.	29666.	32962.
14	3846.	7691.	11537.	15382.	19228.	23074.	26919.	30765.	34610.	38456.
16	4395.	8790.	13185.	17680.	21975.	26370.	30765.	35160.	39555.	43950.
18	4944.	9889.	14833.	19777.	24722.	29666.	34610.	39555.	44499.	49443.
20	5494.	10987.	16481.	21975.	27469.	32962.	38456.	43950.	49443.	54937.
22	6043.	12086.	18129.	24172.	30215.	36256.	42702.	48745.	54386.	60431.
24	6592.	13185.	19777.	26370.	32962.	39555.	46147.	52740.	59332.	*****
26	7142.	14284.	21425.	28567.	35709.	42851.	49093.	57135.	64276.	*****
28	7691.	15382.	23074.	30765.	38456.	46147.	53838.	61530.	*****	*****
30	8241.	16481.	24722.	32962.	41303.	49443.	57664.	65935.	*****	*****

Vandenberg AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.7	3.4	5.1	6.8	8.5	10.2	11.9	13.7	15.4	17.1
4	3.4	6.8	10.2	13.7	17.1	20.5	23.9	27.3	30.7	34.1
6	5.1	10.2	15.4	20.5	25.6	30.7	35.8	41.0	46.1	51.2
8	6.8	13.7	20.5	27.3	34.1	41.0	47.8	54.6	61.4	68.3
10	8.5	17.1	25.6	34.1	42.7	51.2	59.7	68.3	76.8	85.3
12	10.2	20.5	30.7	41.0	51.2	61.4	71.7	81.9	92.1	102.4
14	11.9	23.9	35.8	47.8	59.7	71.7	83.6	95.6	107.5	119.4
16	13.7	27.3	41.0	54.6	68.3	81.9	95.6	109.2	122.9	136.5
18	15.4	30.7	46.1	61.4	76.8	92.1	107.5	122.9	138.2	153.6
20	17.1	34.1	51.2	68.3	85.3	102.4	119.4	136.5	153.6	170.6
22	18.8	37.5	56.3	75.1	93.9	112.6	131.4	150.2	168.9	187.7
24	20.5	41.0	61.4	81.9	102.4	122.9	143.3	163.8	184.3	204.8
26	22.2	44.4	66.5	88.7	110.9	133.1	155.3	177.5	199.6	221.8
28	23.9	47.8	71.7	95.6	119.4	143.3	167.2	191.1	215.0	238.9
30	25.6	51.2	76.8	102.4	128.0	153.6	179.2	204.8	230.4	256.0

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	104.	208.	311.	415.	519.	623.	727.	830.	934.	1038.
4	208.	415.	623.	830.	1038.	1246.	1453.	1661.	1869.	2076.
6	311.	623.	934.	1246.	1557.	1869.	2180.	2491.	2803.	3114.
8	415.	830.	1246.	1661.	2076.	2491.	2907.	3322.	3737.	4152.
10	519.	1038.	1557.	2076.	2595.	3114.	3633.	4152.	4671.	5190.
12	623.	1246.	1869.	2491.	3114.	3737.	4360.	4983.	5606.	6229.
14	727.	1453.	2180.	2907.	3633.	4360.	5087.	5813.	6540.	7267.
16	830.	1661.	2491.	3322.	4152.	4983.	5813.	6644.	7474.	8305.
18	934.	1869.	2803.	3737.	4671.	5606.	6540.	7474.	8409.	9343.
20	1038.	2076.	3114.	4152.	5190.	6229.	7267.	8305.	9343.	10381.
22	1142.	2284.	3426.	4668.	5710.	6851.	7993.	9135.	10277.	11419.
24	1246.	2491.	3737.	4883.	6229.	7474.	8720.	9966.	11211.	12457.
26	1350.	2699.	4049.	5398.	6748.	8097.	9447.	10796.	12146.	13495.
28	1453.	2907.	4360.	5813.	7267.	8720.	10173.	11627.	13080.	14533.
30	1557.	3114.	4671.	6229.	7785.	9343.	10900.	12457.	14014.	15571.

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	182.	304.	455.	607.	759.	911.	1063.	1214.	1366.	1518.
4	304.	607.	911.	1214.	1518.	1822.	2125.	2429.	2733.	3036.
6	455.	911.	1366.	1822.	2277.	2733.	3188.	3643.	4099.	4554.
8	607.	1214.	1822.	2429.	3036.	3643.	4251.	4858.	5465.	6072.
10	759.	1518.	2277.	3036.	3785.	4554.	5313.	6072.	6832.	7591.
12	911.	1822.	2733.	3643.	4554.	5465.	6376.	7287.	8198.	9109.
14	1063.	2125.	3188.	4291.	5313.	6376.	7439.	8501.	9564.	10627.
16	1214.	2429.	3643.	4858.	6072.	7287.	8501.	9716.	10930.	12145.
18	1366.	2733.	4099.	5465.	6832.	8198.	9564.	10930.	12297.	13663.
20	1518.	3036.	4554.	6072.	7591.	9109.	10627.	12145.	13663.	15181.
22	1670.	3340.	5010.	6580.	8190.	9880.	11569.	13259.	14949.	16670.
24	1822.	3643.	5465.	7267.	9109.	10880.	12752.	14574.	16356.	18217.
26	1974.	3947.	5921.	7994.	9985.	11841.	13815.	15768.	17762.	19735.
28	2126.	4251.	6376.	8801.	10887.	12882.	14877.	17003.	19188.	21254.
30	2277.	4554.	6832.	9199.	11395.	13393.	15440.	18217.	20425.	22772.

Vandenberg AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	2.3	4.6	6.9	9.2	11.6	13.9	16.2	18.5	20.8	23.1
4	4.6	9.2	13.9	18.5	23.1	27.7	32.4	37.0	41.6	46.2
6	6.9	13.9	20.8	27.7	34.7	41.6	48.5	55.5	62.4	69.4
8	9.2	18.5	27.7	37.0	46.2	55.5	64.7	74.0	83.2	92.5
10	11.6	23.1	34.7	46.2	57.8	69.4	80.9	92.5	104.0	115.6
12	13.9	27.7	41.6	55.5	69.4	83.2	97.1	111.0	124.8	138.7
14	16.2	32.4	48.5	64.7	80.9	97.1	113.3	129.5	145.6	161.8
16	18.5	37.0	55.5	74.0	92.5	111.0	129.5	148.0	168.5	184.9
18	20.8	41.6	62.4	83.2	104.0	124.8	145.6	166.5	187.3	208.1
20	23.1	46.2	69.4	92.5	115.6	138.7	161.8	184.9	208.1	231.2
22	25.4	50.9	76.3	101.7	127.2	152.6	178.0	203.4	228.9	254.3
24	27.7	55.5	83.2	111.0	138.7	166.5	194.2	221.9	249.7	277.4
26	30.1	60.1	90.2	120.2	150.3	180.3	210.4	240.4	270.5	300.5
28	32.4	64.7	97.1	129.5	161.8	194.2	226.6	258.9	291.3	323.7
30	34.7	69.4	104.0	138.7	173.4	208.1	242.7	277.4	312.1	346.6

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	213.	426.	639.	852.	1065.	1277.	1490.	1703.	1916.	2129.
4	426.	852.	1277.	1703.	2129.	2555.	2981.	3406.	3832.	4258.
6	639.	1277.	1916.	2555.	3194.	3832.	4471.	5110.	5748.	6387.
8	852.	1703.	2555.	3406.	4258.	5110.	5961.	6813.	7665.	8516.
10	1065.	2129.	3194.	4258.	5323.	6387.	7452.	8516.	9581.	10645.
12	1277.	2555.	3832.	5110.	6387.	7665.	8942.	10219.	11497.	12774.
14	1490.	2981.	4471.	5961.	7452.	8942.	10432.	11923.	13413.	14903.
16	1703.	3406.	5110.	6813.	8516.	10219.	11923.	13626.	15329.	17032.
18	1916.	3832.	5748.	7665.	9581.	11497.	13413.	15329.	17245.	19161.
20	2129.	4258.	6387.	8516.	10645.	12774.	14903.	17032.	19161.	21290.
22	2342.	4684.	7038.	9581.	11710.	14052.	16304.	18736.	21078.	23419.
24	2555.	5110.	7665.	10219.	12774.	15329.	17884.	20439.	22994.	25549.
26	2768.	5536.	8303.	11071.	13839.	16607.	19374.	22142.	24910.	27678.
28	2981.	5961.	8942.	11923.	14903.	17884.	20865.	23845.	26826.	29807.
30	3194.	6387.	9581.	12774.	15968.	19161.	22356.	25549.	28742.	31936.

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	261.	522.	783.	1044.	1305.	1566.	1827.	2087.	2348.	2609.
4	522.	1044.	1566.	2087.	2609.	3131.	3653.	4174.	4696.	5218.
6	783.	1566.	2348.	3131.	3914.	4696.	5479.	6262.	7044.	7827.
8	1044.	2087.	3131.	4174.	5218.	6262.	7306.	8349.	9393.	10436.
10	1305.	2609.	3914.	5218.	6523.	7827.	9132.	10436.	11741.	13045.
12	1566.	3131.	4696.	6262.	7827.	9372.	10917.	12462.	14007.	15552.
14	1827.	3653.	5479.	7306.	9132.	10957.	12794.	14631.	16467.	18283.
16	2087.	4174.	6262.	8119.	10000.	11923.	13846.	15760.	17683.	19606.
18	2348.	4696.	7044.	8913.	11141.	13062.	15067.	16980.	18903.	21529.
20	2609.	5218.	7827.	9968.	12462.	14484.	16583.	18702.	20626.	23452.
22	2870.	5740.	8610.	11003.	13883.	16000.	18200.	20600.	22500.	25375.
24	3131.	6262.	9393.	12123.	15304.	17718.	19916.	22047.	24176.	27300.
26	3392.	6784.	10175.	13243.	16725.	19231.	21742.	23754.	25888.	29225.
28	3653.	7306.	10957.	14363.	18146.	21148.	23669.	25661.	27794.	31150.
30	3914.	7827.	11741.	15483.	19567.	22665.	25584.	27568.	29652.	33075.

Whiteman AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.8	3.7	5.5	7.3	9.1	11.0	12.8	14.6	16.5	18.3
4	3.7	7.3	11.0	14.6	18.3	22.0	25.6	29.3	32.9	36.6
6	5.5	11.0	16.5	22.0	27.4	32.9	38.4	43.9	49.4	54.9
8	7.3	14.6	22.0	29.3	36.6	43.9	51.2	58.6	65.9	73.2
10	9.1	18.3	27.4	36.6	45.7	54.9	64.0	73.2	82.3	91.5
12	11.0	22.0	32.9	43.9	54.9	65.9	76.9	87.8	98.8	109.8
14	12.8	25.6	38.4	51.2	64.0	76.9	89.7	102.5	115.3	128.1
16	14.6	29.3	43.9	58.6	73.2	87.8	102.5	117.1	131.8	*****
18	16.5	32.9	49.4	65.9	82.3	98.8	115.3	131.8	146.2	*****
20	18.3	36.6	54.9	73.2	91.5	109.8	128.1	146.4	*****	*****
22	20.1	40.3	60.4	80.5	100.6	120.8	140.9	161.0	*****	*****
24	22.0	43.9	65.9	87.8	109.8	131.8	153.7	175.7	*****	*****
26	23.8	47.6	71.4	95.2	118.9	142.7	166.5	*****	*****	*****
28	25.6	51.2	76.9	102.5	128.1	153.7	179.3	*****	*****	*****
30	27.4	54.9	82.3	109.8	137.2	164.7	192.1	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	275.	550.	825.	1101.	1376.	1651.	1926.	2201.	2476.	2751.
4	550.	1101.	1651.	2201.	2751.	3302.	3852.	4402.	4952.	5503.
6	825.	1651.	2476.	3302.	4127.	4952.	5778.	6603.	7429.	8254.
8	1101.	2201.	3302.	4402.	5503.	6603.	7704.	8804.	9905.	11005.
10	1376.	2751.	4127.	5503.	6878.	8254.	9630.	11005.	12381.	13756.
12	1651.	3302.	4952.	6603.	8254.	9905.	11555.	13206.	14857.	16508.
14	1926.	3852.	5778.	7704.	9630.	11555.	13481.	15407.	17333.	19259.
16	2201.	4402.	6603.	8804.	11005.	13206.	15407.	17608.	19809.	*****
18	2476.	4952.	7429.	9905.	12381.	14857.	17333.	19809.	22286.	*****
20	2751.	5503.	8254.	11005.	13756.	16508.	19259.	22010.	*****	*****
22	3026.	6053.	9079.	12105.	15132.	18159.	21185.	24211.	*****	*****
24	3302.	6603.	9905.	13206.	16508.	19809.	23111.	26412.	*****	*****
26	3577.	7153.	10730.	14307.	17883.	21480.	25037.	*****	*****	*****
28	3852.	7704.	11555.	15407.	19259.	23111.	26963.	*****	*****	*****
30	4127.	8254.	12381.	16508.	20635.	24782.	28889.	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	394.	788.	1183.	1578.	1972.	2366.	2761.	3155.	3550.	3944.
4	788.	1578.	2366.	3155.	3944.	4733.	5522.	6311.	7099.	7888.
6	1183.	2366.	3550.	4733.	5916.	7099.	8283.	9466.	10649.	11832.
8	1578.	3155.	4733.	6311.	7888.	9466.	11043.	12621.	14199.	15776.
10	1972.	3944.	5916.	7888.	9860.	11832.	13804.	15776.	17748.	19720.
12	2366.	4733.	7099.	9466.	11832.	14199.	16555.	18932.	21309.	23685.
14	2761.	5522.	8283.	11043.	13804.	16555.	19333.	22257.	24648.	27050.
16	3155.	6311.	9466.	12621.	15776.	18932.	22067.	24642.	26997.	*****
18	3550.	7099.	10649.	14199.	17748.	21298.	24648.	26997.	31947.	*****
20	3944.	7888.	11832.	15776.	19720.	23685.	27609.	31653.	*****	*****
22	4338.	8677.	12915.	17294.	21695.	26051.	30369.	34708.	*****	*****
24	4733.	9466.	14199.	18932.	23685.	28397.	33130.	37663.	*****	*****
26	5127.	10255.	15483.	20570.	25637.	30764.	35991.	*****	*****	*****
28	5522.	11043.	16865.	22207.	27905.	33130.	38852.	*****	*****	*****
30	5916.	11832.	17748.	23845.	29541.	35497.	41713.	*****	*****	*****

Whiteman AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5
4	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0
6	11.3	22.5	33.8	45.0	56.3	67.5	78.8	90.0	101.3	112.5
8	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.1
10	18.8	37.5	56.3	75.0	93.8	112.5	131.3	150.1	168.8	187.6
12	22.5	45.0	67.5	90.0	112.5	135.0	157.6	180.1	202.6	225.1
14	26.3	52.5	78.8	105.0	131.3	157.6	183.8	210.1	236.3	262.6
16	30.0	60.0	90.0	120.0	150.1	180.1	210.1	240.1	270.1	.....
18	33.8	67.5	101.3	135.0	168.8	202.6	236.3	270.1	303.9	.....
20	37.5	75.0	112.5	150.1	187.6	225.1	262.6	300.1	.....	.....
22	41.3	82.5	123.8	165.1	206.3	247.6	288.8	330.1	.....	.....
24	45.0	90.0	135.0	180.1	225.1	270.1	315.1	360.1	.....	.....
26	48.8	97.5	146.3	195.1	243.8	292.6	341.4	.....	.....	.....
28	52.5	105.0	157.6	210.1	262.6	315.1	367.6	.....	.....	.....
30	56.3	112.5	168.8	225.1	281.3	337.6	393.9	.....	.....	.....

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	846.	1092.	1639.	2185.	2731.	3277.	3824.	4370.	4916.	5462.
4	1092.	2185.	3277.	4370.	5462.	6555.	7647.	8739.	9832.	10924.
6	1639.	3277.	4916.	6555.	8193.	9832.	11471.	13109.	14748.	16387.
8	2185.	4370.	6555.	8739.	10924.	13109.	15294.	17479.	19664.	21849.
10	2731.	5462.	8193.	10924.	13655.	16387.	19118.	21849.	24580.	27311.
12	3277.	6555.	9832.	13109.	16387.	19664.	22941.	26218.	29496.	32773.
14	3824.	7647.	11471.	15294.	19118.	22941.	26785.	30568.	34412.	38235.
16	4370.	8739.	13109.	17479.	21849.	26218.	30568.	34958.	39328.	.....
18	4916.	9832.	14748.	19664.	24580.	29496.	34412.	39328.	44244.	.....
20	5462.	10924.	16387.	21849.	27311.	32773.	38235.	43697.	.....	.....
22	6008.	12017.	18028.	24034.	30642.	36090.	42059.	48067.	.....	.....
24	6555.	13109.	19664.	26218.	32773.	38235.	45882.	52437.	.....	.....
26	7101.	14202.	21303.	28403.	35004.	42005.	49706.	.....	.....	.....
28	7647.	15294.	22941.	30588.	38235.	45882.	57629.	.....	.....	.....
30	8193.	16387.	24580.	32773.	42005.	49160.	57363.	.....	.....	.....

TROUGH WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	666.	1331.	1996.	2661.	3327.	3992.	4658.	5324.	5989.	6655.
4	1331.	2661.	3992.	5324.	6655.	7987.	9317.	10648.	11979.	13310.
6	1996.	3992.	5987.	7987.	9987.	11987.	13987.	15987.	17987.	19987.
8	2661.	5324.	7987.	10648.	13310.	15972.	18634.	21296.	23958.	26620.
10	3327.	6655.	9987.	13310.	16634.	19958.	23282.	26606.	29930.	33254.
12	3992.	7987.	11987.	15310.	18634.	21958.	25282.	28606.	31930.	35254.
14	4658.	9317.	13979.	17634.	21296.	24958.	28620.	32282.	35944.	39606.
16	5324.	10648.	15972.	20296.	23958.	27620.	31282.	34944.	38606.	42268.
18	5989.	11979.	17987.	22958.	26620.	30282.	33944.	37606.	41270.	44930.
20	6655.	13310.	19987.	25000.	29979.	34958.	39937.	44916.	49895.	.....
22	7321.	14641.	21992.	27000.	32979.	37937.	42916.	47895.	.....	.....
24	7987.	15972.	23992.	29000.	34979.	39937.	44916.	49895.	.....	.....
26	8653.	17303.	25992.	31000.	36979.	41937.	46895.	51874.	.....	.....
28	9319.	18634.	27992.	33000.	38979.	43937.	48895.	53874.	.....	.....
30	9985.	19965.	29992.	35000.	40979.	45937.	50895.	55874.	.....	.....

Williams AFB

ANNUAL SOLAR CONTRIBUTION—NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.3	9.3	10.3
4	2.1	4.1	6.2	8.3	10.3	12.4	14.5	16.5	18.6	20.7
6	3.1	6.2	9.3	12.4	15.5	18.6	21.7	24.8	27.9	31.0
8	4.1	8.3	12.4	16.5	20.7	24.8	28.9	33.1	37.2	41.3
10	5.2	10.3	15.5	20.7	25.8	31.0	36.2	41.3	46.5	51.7
12	6.2	12.4	18.6	24.8	31.0	37.2	43.4	49.6	55.8	62.0
14	7.2	14.5	21.7	28.9	36.2	43.4	50.6	57.9	65.1	72.4
16	8.3	16.5	24.8	33.1	41.3	49.6	57.9	66.2	74.4	82.7
18	9.3	18.6	27.9	37.2	46.5	55.8	65.1	74.4	83.7	93.0
20	10.3	20.7	31.0	41.3	51.7	62.0	72.4	82.7	93.0	103.4
22	11.4	22.7	34.1	45.5	56.8	68.2	79.6	91.0	102.3	113.7
24	12.4	24.8	37.2	49.6	62.0	74.4	86.8	99.2	111.6	124.0
26	13.4	26.9	40.3	53.7	67.2	80.6	94.1	107.5	120.9	134.4
28	14.5	28.9	43.4	57.9	72.4	86.8	101.3	115.6	130.2	144.7
30	15.5	31.0	46.5	62.0	77.5	93.0	106.5	124.0	139.5	155.0

DIRECT GAIN DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	153.	265.	366.	530.	663.	785.	925.	1061.	1193.	1326.
4	265.	530.	795.	1061.	1326.	1591.	1856.	2121.	2386.	2651.
6	366.	795.	1193.	1591.	1989.	2386.	2784.	3182.	3579.	3977.
8	530.	1061.	1591.	2121.	2661.	3182.	3712.	4242.	4773.	5303.
10	663.	1326.	1989.	2661.	3314.	3977.	4640.	5303.	5966.	6629.
12	785.	1591.	2386.	3182.	3977.	4773.	5568.	6364.	7159.	7954.
14	925.	1856.	2784.	3712.	4640.	5568.	6496.	7424.	8352.	9280.
16	1061.	2121.	3182.	4242.	5303.	6364.	7424.	8485.	9545.	10606.
18	1193.	2386.	3579.	4773.	5966.	7159.	8352.	9545.	10738.	11932.
20	1326.	2651.	3977.	5303.	6629.	7954.	9280.	10606.	11932.	13257.
22	1458.	2917.	4375.	5833.	7292.	8750.	10208.	11666.	13125.	14583.
24	1591.	3182.	4773.	6364.	7954.	9545.	11136.	12727.	14318.	15909.
26	1723.	3447.	5170.	6894.	8617.	10341.	12064.	13788.	15511.	17234.
28	1856.	3712.	5568.	7424.	9280.	11136.	12992.	14845.	16704.	18560.
30	1989.	3977.	5966.	7954.	9949.	11932.	13920.	15992.	17997.	19886.

TROMBE WALL DIFFERENTIAL COST—NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	166.	375.	563.	751.	938.	1125.	1314.	1501.	1689.	1877.
4	375.	751.	1125.	1501.	1877.	2252.	2628.	3003.	3378.	3754.
6	563.	1125.	1689.	2252.	2815.	3378.	3941.	4504.	5067.	5630.
8	751.	1501.	2252.	3003.	3754.	4504.	5255.	6006.	6757.	7507.
10	938.	1877.	2815.	3754.	4693.	5632.	6571.	7510.	8449.	9388.
12	1125.	2252.	3378.	4504.	5632.	6759.	7885.	9012.	10139.	11266.
14	1314.	2628.	3941.	5255.	6571.	7885.	9199.	10512.	11825.	13138.
16	1501.	3003.	4504.	6006.	7507.	9008.	10510.	12012.	13513.	15014.
18	1689.	3378.	5067.	6759.	8449.	10139.	11829.	13519.	15209.	16891.
20	1877.	3754.	5632.	7507.	9280.	11052.	12825.	14598.	16371.	18143.
22	2064.	4129.	6193.	8006.	9882.	11757.	13632.	15507.	17379.	19255.
24	2252.	4504.	6759.	8693.	10661.	12642.	14517.	16392.	18254.	20167.
26	2440.	4879.	7424.	9380.	11450.	13557.	15442.	17317.	19129.	21079.
28	2628.	5255.	8006.	10169.	12239.	14452.	16317.	18192.	20004.	21991.
30	2815.	5632.	8693.	10958.	13028.	15352.	17192.	19067.	20879.	22903.

Williams AFB

ANNUAL SOLAR CONTRIBUTION—WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.3	2.7	4.0	5.4	6.7	8.0	9.4	10.7	12.1	13.4
4	2.7	5.4	8.0	10.7	13.4	16.1	18.8	21.5	24.1	26.8
6	4.0	8.0	12.1	16.1	20.1	24.1	28.2	32.2	36.2	40.2
8	5.4	10.7	16.1	21.5	26.8	32.2	37.5	42.9	48.3	53.6
10	6.7	13.4	20.1	26.8	33.5	40.2	46.9	53.6	60.3	67.0
12	8.0	16.1	24.1	32.2	40.2	48.3	56.3	64.4	72.4	80.5
14	9.4	18.8	28.2	37.5	46.9	56.3	65.7	75.1	84.5	93.9
16	10.7	21.5	32.2	42.9	53.6	64.4	75.1	85.8	96.5	107.3
18	12.1	24.1	36.2	48.3	60.3	72.4	84.5	96.5	108.6	120.7
20	13.4	26.8	40.2	53.6	67.0	80.5	93.9	107.3	120.7	134.1
22	14.8	29.5	44.3	59.0	73.6	88.5	103.3	118.0	132.8	147.5
24	16.1	32.2	48.3	64.4	80.5	96.5	112.6	128.7	144.8	160.9
26	17.4	34.9	52.3	69.7	87.2	104.8	122.0	139.5	156.9	174.3
28	18.8	37.5	56.3	75.1	93.9	112.6	131.4	150.2	169.0	187.7
30	20.1	40.2	60.3	80.5	100.6	120.7	140.6	160.9	181.0	201.1

DIRECT GAIN DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	288.	516.	773.	1031.	1289.	1547.	1805.	2063.	2320.	2578.
4	516.	1031.	1547.	2063.	2578.	3094.	3609.	4125.	4641.	5156.
6	773.	1547.	2320.	3094.	3867.	4641.	5414.	6188.	6961.	7735.
8	1031.	2063.	3094.	4125.	5156.	6188.	7219.	8250.	9281.	10313.
10	1289.	2578.	3867.	5156.	6445.	7735.	9024.	10313.	11602.	12891.
12	1547.	3094.	4641.	6188.	7735.	9281.	10828.	12375.	13922.	15469.
14	1805.	3609.	5414.	7219.	9024.	10828.	12633.	14438.	16242.	18047.
16	2063.	4125.	6188.	8000.	10313.	12375.	14438.	16500.	18563.	20625.
18	2320.	4641.	6961.	9281.	11602.	13922.	16242.	18563.	20883.	23204.
20	2578.	5156.	7735.	10313.	12891.	15469.	18047.	20625.	23204.	25782.
22	2836.	5672.	8508.	11344.	14180.	17016.	19832.	22688.	25624.	28360.
24	3094.	6188.	9281.	12375.	15469.	18663.	21657.	24759.	27844.	30938.
26	3352.	6703.	10053.	13406.	16788.	20110.	23481.	26813.	30189.	33516.
28	3609.	7219.	10828.	14438.	18047.	21657.	25266.	28676.	32485.	36094.
30	3867.	7735.	11602.	15469.	19336.	23204.	27071.	30538.	34305.	38673.

THERM WALL DIFFERENTIAL COST—WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	913.	999.	999.	1262.	1699.	1878.	2199.	2503.	2816.	3129.
4	999.	1262.	1699.	2032.	2129.	2785.	4381.	5007.	5633.	6259.
6	999.	1678.	2816.	3758.	4699.	5633.	6571.	7510.	8449.	9388.
8	1262.	2032.	3758.	5077.	6259.	7510.	8762.	10014.	11266.	12517.
10	1678.	3129.	4699.	6259.	7510.	9388.	10640.	12517.	14082.	15648.
12	1878.	3758.	5633.	7510.	9388.	11266.	13143.	15020.	16898.	18776.
14	2199.	4381.	6571.	8762.	10640.	13143.	15333.	17524.	19714.	21905.
16	2503.	5007.	7510.	10014.	12517.	15020.	17834.	20327.	23031.	25034.
18	2816.	5633.	8449.	11266.	14082.	16998.	19714.	23031.	26347.	28163.
20	3129.	6259.	9388.	12517.	15469.	18775.	21655.	25034.	28163.	31292.
22	3442.	6884.	10327.	13769.	17211.	20988.	24085.	27537.	30680.	34421.
24	3755.	7510.	11266.	15020.	18775.	22631.	26288.	30041.	33788.	37551.
26	4068.	8135.	12204.	16272.	20343.	24408.	28475.	32644.	36312.	40680.
28	4381.	8762.	13143.	17524.	21905.	26288.	30667.	35048.	38438.	43809.
30	4694.	9388.	14082.	18775.	23467.	28163.	32527.	37561.	42245.	46938.

Wright-Patterson AFB

ANNUAL SOLAR CONTRIBUTION--NNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.4	2.8	4.3	5.7	7.1	8.5	10.0	11.4	12.8	14.2
4	2.8	5.7	8.5	11.4	14.2	17.1	19.9	22.7	25.5	28.4
6	4.3	8.5	12.8	17.1	21.3	25.5	29.9	34.1	38.4	42.6
8	5.7	11.4	17.1	22.7	28.4	34.1	39.8	45.5	51.2	56.9
10	7.1	14.2	21.3	28.4	35.5	42.6	49.8	56.9	64.0	71.1
12	8.5	17.1	25.5	34.1	42.6	51.2	59.7	68.2	76.8	85.3
14	10.0	19.9	29.9	39.8	49.8	59.7	69.7	79.6	89.6	*****
16	11.4	22.7	34.1	45.5	56.9	68.2	79.6	91.0	102.4	*****
18	12.8	25.5	38.4	51.2	64.0	76.8	89.6	102.4	*****	*****
20	14.2	28.4	42.6	56.9	71.1	85.3	99.5	113.7	*****	*****
22	15.6	31.3	46.9	62.5	78.2	93.8	109.5	*****	*****	*****
24	17.1	34.1	51.2	68.2	85.3	102.4	119.4	*****	*****	*****
26	18.5	37.0	55.4	73.9	92.4	110.9	129.4	*****	*****	*****
28	19.9	39.8	59.7	79.6	99.5	119.4	*****	*****	*****	*****
30	21.3	42.6	64.0	85.3	106.6	127.9	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	298.	596.	894.	1192.	1490.	1788.	2086.	2385.	2683.	2981.
4	596.	1192.	1788.	2385.	2981.	3577.	4173.	4769.	5365.	5961.
6	894.	1788.	2683.	3577.	4471.	5365.	6259.	7154.	8048.	8942.
8	1192.	2385.	3577.	4769.	5961.	7154.	8346.	9538.	10731.	11923.
10	1490.	2981.	4471.	5961.	7452.	8942.	10432.	11923.	13413.	14904.
12	1788.	3577.	5365.	7154.	8942.	10731.	12519.	14307.	16096.	17884.
14	2086.	4173.	6259.	8346.	10432.	12519.	14605.	16692.	18778.	*****
16	2385.	4769.	7154.	9538.	11923.	14307.	16692.	19078.	21461.	*****
18	2683.	5365.	8048.	10731.	13413.	16096.	18778.	21461.	*****	*****
20	2981.	5961.	8942.	11923.	14904.	17884.	20865.	23846.	*****	*****
22	3279.	6558.	9836.	13115.	16304.	19673.	22951.	*****	*****	*****
24	3577.	7154.	10731.	14307.	17684.	21461.	25038.	*****	*****	*****
26	3875.	7750.	11625.	15500.	19375.	23248.	27124.	*****	*****	*****
28	4173.	8346.	12519.	16692.	20995.	25038.	*****	*****	*****	*****
30	4471.	8942.	13413.	17884.	22605.	26835.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--NNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	488.	976.	1464.	1952.	2440.	2928.	3416.	3904.	4392.	4880.
4	976.	1952.	2928.	3904.	4880.	5856.	6832.	7808.	8784.	9760.
6	1464.	2928.	4392.	5856.	7320.	8784.	10248.	11712.	13176.	14640.
8	1952.	3904.	5856.	7808.	9760.	11712.	13664.	15616.	17568.	19520.
10	2440.	4880.	7320.	9760.	12200.	14640.	17080.	19520.	21960.	24400.
12	2928.	5856.	8784.	11712.	14640.	17568.	20512.	23448.	26384.	29320.
14	3416.	6832.	10248.	13176.	16112.	19056.	22000.	24944.	27888.	30840.
16	3904.	7808.	11712.	15136.	18080.	21040.	24000.	27000.	30000.	33000.
18	4392.	8784.	13176.	17104.	20000.	23000.	26000.	29000.	32000.	35000.
20	4880.	9760.	14640.	19072.	22000.	25000.	28000.	31000.	34000.	37000.
22	5368.	10736.	16112.	21040.	24000.	27000.	30000.	33000.	36000.	39000.
24	5856.	11712.	17568.	23000.	26000.	29000.	32000.	35000.	38000.	41000.
26	6344.	12688.	19056.	25000.	28000.	31000.	34000.	37000.	40000.	43000.
28	6832.	13664.	20512.	27000.	30000.	33000.	36000.	39000.	42000.	45000.
30	7320.	14640.	22000.	29000.	32000.	35000.	38000.	41000.	44000.	47000.

Wright-Patterson AFB

ANNUAL SOLAR CONTRIBUTION--WNH(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.7	7.3	11.0	14.6	18.3	21.9	25.6	29.2	32.9	36.6
4	7.3	14.6	21.9	29.2	36.6	43.9	51.2	58.5	65.8	73.1
6	11.0	21.9	32.9	43.9	54.8	65.8	76.8	87.7	98.7	109.7
8	14.6	29.2	43.9	58.5	73.1	87.7	102.4	117.0	131.6	146.2
10	18.3	36.6	54.8	73.1	91.4	109.7	127.9	146.2	164.5	182.8
12	21.9	43.9	65.8	87.7	109.7	131.6	153.5	175.5	197.4	219.3
14	25.6	51.2	76.8	102.4	127.9	153.5	179.1	204.7	230.3	*****
16	29.2	58.5	87.7	117.0	146.2	175.5	204.7	233.9	263.2	*****
18	32.9	65.8	98.7	131.6	164.5	197.4	230.3	263.2	*****	*****
20	36.6	73.1	109.7	146.2	182.8	219.3	255.9	292.4	*****	*****
22	40.2	80.4	120.6	160.8	201.0	241.3	281.5	*****	*****	*****
24	43.9	87.7	131.6	175.5	219.3	263.2	307.1	*****	*****	*****
26	47.5	95.0	142.6	190.1	237.8	285.1	332.6	*****	*****	*****
28	51.2	102.4	153.5	204.7	255.9	307.1	*****	*****	*****	*****
30	54.8	109.7	164.5	219.3	274.2	329.0	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	588.	1176.	1764.	2352.	2940.	3528.	4116.	4704.	5292.	5880.
4	1176.	2352.	3528.	4704.	5880.	7056.	8231.	9407.	10583.	11759.
6	1764.	3528.	5292.	7056.	8819.	10583.	12347.	14111.	15875.	17639.
8	2352.	4704.	7056.	9407.	11759.	14111.	16463.	18815.	21168.	23518.
10	2940.	5880.	8819.	11759.	14699.	17639.	20578.	23518.	26458.	29398.
12	3528.	7056.	10583.	14111.	17639.	21168.	24694.	28222.	31750.	35277.
14	4116.	8231.	12347.	16463.	20578.	24694.	28810.	32925.	37041.	*****
16	4704.	9407.	14111.	18815.	23518.	28222.	32925.	37629.	42333.	*****
18	5292.	10583.	15875.	21168.	26458.	31750.	37041.	42333.	*****	*****
20	5880.	11759.	17639.	23518.	29398.	35277.	41157.	47036.	*****	*****
22	6467.	12935.	19402.	25970.	32337.	38905.	45272.	*****	*****	*****
24	7055.	14111.	21168.	28222.	35277.	42333.	49365.	*****	*****	*****
26	7643.	15287.	22930.	30574.	38217.	45980.	53904.	*****	*****	*****
28	8231.	16463.	24694.	32925.	41157.	49365.	*****	*****	*****	*****
30	8819.	17639.	26458.	35277.	44097.	52916.	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNH(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	716.	1431.	2147.	2862.	3578.	4293.	5009.	5724.	6440.	7156.
4	1431.	2862.	4293.	5724.	7156.	8588.	10017.	11448.	12879.	14310.
6	2147.	4293.	6440.	8588.	10733.	12879.	15025.	17172.	19319.	21465.
8	2862.	5724.	8588.	11448.	14310.	17172.	20034.	22896.	25758.	28620.
10	3578.	7156.	10733.	14310.	17898.	21465.	25043.	28620.	32198.	35775.
12	4293.	8588.	12879.	17172.	21465.	25758.	30051.	34344.	38637.	42930.
14	5009.	10017.	15025.	20034.	25043.	30051.	35060.	40068.	45077.	*****
16	5724.	11448.	17172.	22896.	29398.	34344.	40068.	45792.	51516.	*****
18	6440.	12879.	19319.	25758.	32198.	38637.	45077.	51516.	*****	*****
20	7156.	14310.	21465.	28620.	35775.	42930.	50065.	57240.	*****	*****
22	7871.	15741.	23612.	31482.	38953.	47283.	55094.	*****	*****	*****
24	8588.	17172.	25758.	34344.	42930.	51516.	60102.	*****	*****	*****
26	9302.	18603.	27905.	37206.	46808.	56606.	65111.	*****	*****	*****
28	10017.	20034.	30051.	40068.	50065.	60102.	*****	*****	*****	*****
30	10733.	21465.	32198.	42930.	52916.	64390.	*****	*****	*****	*****

Wurtsmith AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	7.8	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.1
4	14.4	28.8	43.2	57.6	72.1	86.5	100.9	115.3	129.7	144.1
6	21.6	43.2	64.8	86.5	108.1	129.7	151.3	172.9	194.6	216.2
8	28.8	57.6	86.5	115.3	144.1	172.9	201.8	230.6	*****	*****
10	36.0	72.1	108.1	144.1	180.2	216.2	252.2	*****	*****	*****
12	43.2	86.5	129.7	172.9	216.2	259.4	302.7	*****	*****	*****
14	50.4	100.9	151.3	201.8	252.2	302.7	*****	*****	*****	*****
16	57.6	115.3	172.9	230.6	288.2	345.9	*****	*****	*****	*****
18	64.8	129.7	194.6	259.4	324.3	*****	*****	*****	*****	*****
20	72.1	144.1	216.2	288.2	360.3	*****	*****	*****	*****	*****
22	79.3	158.5	237.8	317.1	396.3	*****	*****	*****	*****	*****
24	86.5	172.9	259.4	345.9	432.4	*****	*****	*****	*****	*****
26	93.7	187.4	281.0	374.7	*****	*****	*****	*****	*****	*****
28	100.9	201.8	302.7	403.6	*****	*****	*****	*****	*****	*****
30	108.1	216.2	324.3	432.4	*****	*****	*****	*****	*****	*****

DIRECT GAIN DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	885.	1770.	2655.	3540.	4425.	5310.	6195.	7080.	7965.	8850.
4	1770.	3540.	5310.	7080.	8850.	10620.	12390.	14161.	15931.	17701.
6	2655.	5310.	7965.	10620.	13276.	15931.	18586.	21241.	23896.	26551.
8	3540.	7080.	10620.	14161.	17701.	21241.	24781.	28321.	*****	*****
10	4425.	8850.	13276.	17701.	22126.	26551.	30976.	*****	*****	*****
12	5310.	10620.	15931.	21241.	26551.	31861.	37171.	*****	*****	*****
14	6195.	12390.	18586.	24781.	30976.	37171.	*****	*****	*****	*****
16	7080.	14161.	21241.	28321.	35401.	42482.	*****	*****	*****	*****
18	7965.	15931.	23896.	31861.	39827.	*****	*****	*****	*****	*****
20	8850.	17701.	26551.	35401.	44252.	*****	*****	*****	*****	*****
22	9735.	19471.	29206.	38942.	48677.	*****	*****	*****	*****	*****
24	10620.	21241.	31861.	42482.	53102.	*****	*****	*****	*****	*****
26	11505.	23011.	34516.	46022.	*****	*****	*****	*****	*****	*****
28	12390.	24781.	37171.	49562.	*****	*****	*****	*****	*****	*****
30	13275.	26551.	39827.	53102.	*****	*****	*****	*****	*****	*****

TROMBE WALL DIFFERENTIAL COST--WNI(\$'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1080.	2160.	3240.	4320.	5400.	6480.	7560.	8640.	9720.	10800.
4	2160.	4320.	6480.	8640.	10800.	12960.	15120.	17280.	19440.	21600.
6	3240.	6480.	9720.	12960.	16200.	19440.	22680.	25920.	29160.	32400.
8	4320.	8640.	12960.	17280.	21600.	25920.	30240.	34560.	*****	*****
10	5400.	10800.	16200.	21600.	27000.	32400.	37800.	*****	*****	*****
12	6480.	12960.	19440.	25920.	32400.	38880.	45360.	*****	*****	*****
14	7560.	15120.	22680.	30240.	37800.	45360.	*****	*****	*****	*****
16	8640.	17280.	25920.	34560.	43200.	51840.	*****	*****	*****	*****
18	9720.	19440.	29160.	38940.	48000.	*****	*****	*****	*****	*****
20	10800.	21600.	32400.	43200.	52800.	*****	*****	*****	*****	*****
22	11880.	23760.	36420.	47820.	58400.	*****	*****	*****	*****	*****
24	12960.	25920.	39840.	51840.	64800.	*****	*****	*****	*****	*****
26	14040.	28080.	43200.	56160.	*****	*****	*****	*****	*****	*****
28	15120.	30240.	46320.	60480.	*****	*****	*****	*****	*****	*****
30	16200.	32400.	49500.	64800.	*****	*****	*****	*****	*****	*****

APPENDIX I

**25 YEAR DISCOUNTED PAYBACK BREAK EVEN
FUEL PRICE/MBTU TABLES**

ELECTRICITY
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/M BTU

Base	Passive Application			
	Direct NNI	Gain WNI	Trombe Wall NNI	WNI
Altus AFB	9.28	11.80	13.07	14.31
Andrews AFB	9.40	9.08	13.47	11.08
Arnold AFS	9.38	10.34	13.16	12.52
Barksdale AFB	10.59	14.61	14.83	17.67
Beale AFB	8.73	12.53	12.89	15.33
Bergstrom AFB	9.33	13.16	13.16	15.95
Blytheville AFB	9.12	10.88	12.92	13.18
Bolling AFB	9.40	9.08	13.47	11.08
Brooks AFB	9.98	14.17	14.05	17.17
Cannon AFB	6.33	7.95	8.79	9.59
Carwell AFB	10.24	13.88	14.68	16.91
Castle AFB	9.28	13.22	13.41	16.15
Chenute AFB	10.25	9.18	14.67	11.18
Charleston AFB	9.21	12.74	12.76	15.36
Columbus AFB	10.17	12.48	14.18	15.07
Davis-Monthan AFB	7.65	11.69	10.90	14.22
Dover AFB	11.66	11.14	16.58	13.54
Dyers AFB	8.84	11.77	12.18	14.28
Edwards AFB	6.88	10.70	10.03	13.11
Eglin AFB	9.85	14.30	13.74	17.27
Ellsworth AFB	8.83	7.74	12.50	9.39
England AFB	9.93	14.86	14.11	18.08
Fairchild AFB	9.31	7.83	13.49	9.57
Francis E Warren AFB	6.01	6.35	6.62	7.74
George AFB	6.87	10.80	10.10	13.28
Goodfellow AFB	8.95	12.49	12.59	15.13
Grand Forks AFB	NR	9.89	NR	12.01
Griffis AFB	NR	12.14	NR	14.77
Grisson AFB	14.22	9.89	20.38	12.05
Gunter AFB	9.16	12.22	12.75	14.75
Hancock Field	NR	12.14	NR	14.77
Hanscom AFB	13.60	11.56	19.59	14.11
HM AFB	8.27	9.05	11.71	10.99
Holloman AFB	6.37	8.95	8.85	10.07
Homestead AFB	12.78	21.27	17.90	25.73
Hurlburt Field	9.85	14.30	13.74	17.27
Indian Springs Aux	7.52	11.19	10.97	13.71
Keesler AFB	9.81	14.04	13.46	16.98
Kelly AFB	9.88	14.17	14.05	17.17
Kirtland AFB	8.79	8.07	9.43	9.73
K. I. Sawyer AFB	NR	7.35	NR	8.86
Lackland AFB	9.98	14.17	14.05	17.17
Langley AFB	8.82	9.88	11.76	11.89
Lewis AFB	9.60	14.34	13.82	17.35

NR = Not Recommended

ELECTRICITY
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Little Rock AFB	9.72	11.47	13.57	13.88
Loring AFB	NR	8.49	NR	10.35
Los Angeles AFS	5.81	9.80	8.52	12.02
Lowry AFB	7.40	8.40	10.58	10.23
Luke AFB	8.40	12.59	11.89	15.28
MacDill AFB	9.05	15.47	13.57	18.73
Malmstrom AFB	10.11	8.17	14.41	9.94
March AFB	5.81	9.80	8.52	12.02
Mather AFB	8.73	12.53	12.89	15.33
Maxwell AFB	9.80	12.22	12.75	14.75
McClellan AFB	8.21	8.93	9.14	8.50
McClellan AFB	8.73	12.53	12.89	15.33
McCormick AFB	8.92	9.88	12.50	11.94
McGuire AFB	11.88	11.80	16.75	14.13
Minot AFB	NR	10.11	NR	12.33
Moody AFB	8.75	12.20	12.13	14.70
Mountain Home	5.88	8.32	8.13	7.70
Myrtle Beach AFB	8.89	11.35	12.08	13.89
Nellis AFB	7.82	11.19	10.97	13.71
Norton AFB	5.81	9.80	8.52	12.02
Offutt AFB	10.80	8.74	15.39	10.83
Patrick AFB	9.72	14.89	13.52	17.98
Pease AFB	16.78	8.82	22.27	10.70
Peterson AFB	8.83	7.74	9.75	9.42
Pittsburgh AFB	NR	8.84	NR	11.83
Popo AFB	8.42	8.54	11.59	11.48
Randolph AFB	9.95	14.17	14.05	17.17
Reese AFB	8.17	8.11	8.69	9.83
Robins AFB	9.34	12.28	12.78	14.72
Scott AFB	10.89	10.94	15.39	13.35
Seymour Johnson	8.42	8.54	11.59	11.48
Shaw AFB	8.79	11.42	12.16	13.77
Sheppard AFB	9.22	11.79	13.04	14.30
Tinker AFB	8.39	10.09	11.98	12.88
Travis AFB	8.17	8.31	7.70	10.28
Tyndall AFB	8.88	13.77	12.78	16.78
USAF Academy	8.83	7.74	9.75	9.42
Vandenberg AFB	8.39	10.09	11.98	12.88
Vandenberg AFB	8.88	8.88	8.83	7.39
Whitman AFB	8.88	8.88	13.89	11.28
Whitman AFB	8.40	12.89	11.89	15.28
Wright-Patterson	12.84	8.88	12.33	11.89
Wright-Patterson	NR	7.88	NR	8.18

NR = Not Recommended

**DISTILLATE OIL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU .**

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Altus AFB	5.74	7.31	8.10	8.87
Andrews AFB	5.93	5.72	8.50	8.97
Arnold AFS	8.21	8.85	8.72	8.29
Barksdale AFB	6.56	9.08	9.19	10.85
Beale AFB	4.97	7.14	7.22	8.73
Bergstrom AFB	5.79	8.15	8.18	9.89
Blytheville AFB	5.65	8.73	8.01	8.17
Bolling AFB	5.93	5.72	8.50	8.97
Brooks AFB	8.18	8.79	8.71	10.65
Cannon AFB	3.92	4.93	4.45	5.95
Carroll AFB	8.35	8.61	9.09	10.48
Castle AFB	5.27	7.53	7.64	9.20
Chanute AFB	8.30	5.84	9.02	6.67
Charleston AFB	8.10	8.44	8.47	10.18
Columbus AFS	6.74	8.27	9.40	9.99
Davis-Monthan AFB	4.38	6.68	8.21	8.10
Dover AFB	7.35	7.02	10.48	8.54
Dyess AFB	5.35	7.29	7.54	8.84
Edwards AFB	3.91	6.09	5.71	7.47
Eglin AFB	6.53	9.47	9.11	11.44
Ellsworth AFB	3.93	3.44	5.56	4.18
England AFB	8.15	9.21	8.75	11.20
Fairchild AFB	6.37	5.38	9.23	6.55
Francis E. Warren AFB	2.68	2.83	3.84	3.45
George AFB	3.91	6.15	5.75	7.55
Goodfellow AFB	5.55	7.74	7.80	9.35
Grand Forks AFB	NR	4.40	NR	5.35
Griffis AFB	NR	6.80	NR	8.28
Grierson AFB	8.75	6.08	12.51	7.41
Gunter AFB	6.07	8.10	8.45	9.77
Hancock Field	NR	6.80	NR	8.28
Hanscom AFB	6.84	5.90	10.00	7.20
Hill AFB	3.68	4.03	5.21	4.89
Holloman AFB	3.85	5.18	5.48	6.24
Hornet AFB	8.47	14.09	11.86	17.05
Hurlburt Field	6.93	9.47	9.11	11.44
Indian Springs Aux	4.28	8.38	8.25	8.87
Keesler AFB	6.37	9.30	8.92	11.25
Kelly AFB	6.18	8.79	8.71	10.65
Kirtland AFB	4.21	5.00	5.85	6.03
K. I. Sawyer AFB	NR	4.52	NR	5.61
Lackland AFB	8.18	8.79	8.71	10.65
Langley AFB	6.37	8.23	7.42	7.89
Lambert AFB	6.95	6.82	8.38	10.89

NR = Not Recommended

**DISTILLATE OIL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU**

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Little Rock AFB	6.03	7.11	8.41	8.59
Loring AFB	NR	4.34	NR	5.29
Los Angeles AFS	3.31	5.58	4.85	6.84
Lowry AFB	3.29	3.74	4.71	4.55
Luke AFB	4.78	7.17	6.77	6.70
MacDill AFB	6.39	10.25	8.99	12.41
Malstrom AFB	4.50	3.64	6.41	4.42
March AFB	3.31	5.58	4.85	6.84
Mather AFB	4.97	7.14	7.22	6.73
Maxwell AFB	6.07	8.10	8.45	9.77
McChord AFB	4.25	4.74	6.25	5.82
McClellan AFB	4.97	7.14	7.22	6.73
McConnell AFB	5.27	5.82	7.39	7.05
McGuire AFB	7.37	7.31	10.56	6.91
Minot AFB	NR	4.50	NR	5.49
Moodys AFB	5.80	8.08	8.04	9.74
Mountain Home	3.89	4.33	5.58	5.25
Myrtle Beach AFB	5.78	7.52	7.99	9.07
Nellis AFB	4.52	6.38	6.25	7.81
Norton AFB	3.31	5.58	4.85	6.84
Offutt AFB	6.38	5.16	9.09	6.28
Patrick AFB	6.44	9.87	8.98	11.91
Pease AFB	6.08	4.51	11.37	5.47
Peterson AFB	3.04	3.45	4.34	4.19
Pittsburgh AFB	NR	5.40	NR	6.52
Pope AFB	5.58	6.32	7.68	7.60
Randolph AFB	6.18	8.79	8.71	10.65
Reese AFB	3.82	5.03	5.39	6.09
Robins AFB	6.19	8.12	8.47	9.75
Scott AFB	6.57	6.73	9.46	6.21
Seymour-Johnson	5.58	6.32	7.68	7.60
Shaw AFB	5.63	7.57	8.06	9.12
Sheppard AFB	5.72	7.31	8.08	6.87
Tinker AFB	5.20	6.25	7.43	7.61
Travis AFB	2.94	4.73	4.38	5.63
Tyndall AFB	5.68	9.12	8.45	11.12
USAF Academy	3.04	3.45	4.34	4.19
Vance AFB	5.20	6.25	7.43	7.61
Vandenberg AFB	2.27	3.43	3.32	4.21
Whiteman AFB	5.84	5.48	8.08	6.65
Williams AFB	4.78	7.17	6.77	6.70
Wright-Patterson	7.69	6.08	11.27	7.37
Wurtsmith AFB	NR	4.62	NR	5.64

NR = Not Recommended

**RISIDUAL OIL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU**

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Altus AFB	4.61	5.87	6.50	7.12
Andrews AFB	4.88	4.71	7.00	5.74
Arnold AFS	4.95	5.48	6.95	6.61
Beckdale AFB	5.27	7.27	7.38	8.79
Beale AFB	3.89	5.73	5.80	7.01
Bergstrom AFB	4.84	6.54	6.55	7.93
Elytheville AFB	4.53	5.40	6.01	6.56
Bolling AFB	4.88	4.71	7.00	5.74
Brooks AFB	4.98	7.05	6.99	8.54
Cannon AFB	3.15	3.95	4.37	4.77
Carwell AFB	5.09	6.91	7.29	8.41
Castle AFB	4.23	6.04	6.13	7.38
Chanute AFB	6.03	7.19	11.49	8.78
Charleston AFB	4.88	6.72	6.75	8.11
Columbus AFB	5.37	6.59	7.49	7.96
Davis-Monthan AFB	3.49	5.34	4.98	6.50
Dover AFB	6.05	5.78	8.61	7.03
Dyess AFB	4.30	5.85	6.05	7.09
Edwards AFB	3.13	4.89	4.58	5.99
Eglin AFB	5.20	7.55	7.26	9.12
Ellsworth AFB	3.13	2.75	4.43	3.33
England AFB	4.94	7.39	7.02	8.98
Fairchild AFB	5.10	4.29	7.39	5.24
Francis E Warren AFB	2.13	2.25	3.06	2.75
George AFB	3.14	4.94	4.61	6.66
Goodfellow AFB	4.45	6.21	6.28	7.53
Grand Forks AFB	NR	3.51	NR	4.88
Griffis AFB	NR	5.61	NR	6.82
Grissom AFB	11.14	7.75	15.95	9.44
Gunter AFB	4.84	6.45	6.73	7.79
Hancock Field	NR	5.61	NR	6.82
Hanscom AFB	5.68	4.83	6.16	5.89
Hill AFB	2.84	3.21	4.16	3.69
Holloman AFB	3.17	4.15	4.40	5.81
Hornet AFB	6.75	11.83	9.45	13.88
Hurlburt Field	5.80	7.85	7.28	9.12
Indian Springs Aux	3.44	5.11	5.01	6.88
Keesler AFB	6.08	7.41	7.11	8.88
Kelly AFB	4.88	7.05	6.99	8.54
Kirtland AFB	3.38	4.01	4.69	4.84
K. I. Sawyer AFB	NR	5.78	NR	7.03
Ladd AFB	4.88	7.05	6.99	8.54
Langley AFB	4.42	6.13	6.11	7.49
Langley AFB	4.71	7.05	6.75	8.11

NR = Not Recommended

**RESIDUAL OIL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU**

Base	Passive Application			
	Direct Gain		Through Well	
	NNI	WNI	NNI	WNI
Little Rock AFB	4.84	5.71	6.75	8.90
Loring AFB	NR	3.55	NR	4.33
Los Angeles AFS	2.66	4.48	3.89	5.49
Lowry AFB	2.63	2.98	3.78	3.83
Luke AFB	3.84	5.75	5.43	6.98
MacDill AFB	5.09	8.17	7.16	9.89
Maxwell AFB	3.59	2.90	5.11	3.53
March AFB	2.86	4.48	3.89	5.49
Mather AFB	3.99	5.73	5.80	7.01
Maxwell AFB	4.84	6.45	6.73	7.79
McChord AFB	3.40	3.80	5.01	4.85
McClellan AFB	3.99	5.73	5.80	7.01
McCormell AFB	6.71	7.43	9.41	8.89
McGuire AFB	6.07	6.02	8.70	7.34
Minot AFB	NR	3.59	NR	4.33
Moody AFB	4.82	6.44	6.40	7.76
Mountain Home	3.11	3.46	4.45	4.22
Myrtle Beach AFB	4.59	5.99	6.37	7.23
Nellis AFB	3.44	6.38	5.01	6.85
Norton AFB	2.66	4.48	3.89	5.49
Offutt AFB	8.13	6.58	11.59	8.00
Patrick AFB	5.13	7.88	7.14	9.49
Paseo AFB	6.59	3.89	9.31	4.47
Peterson AFB	2.42	2.75	3.46	3.34
Pittsburgh AFB	NR	4.45	NR	5.37
Pepe AFB	4.45	5.04	6.12	6.06
Randolph AFB	4.98	7.05	6.99	8.54
Reno AFB	3.07	4.03	4.32	4.89
Robins AFB	4.93	6.47	6.75	7.77
Scott AFB	8.37	8.57	12.05	10.48
Signour-Johnson	4.45	5.04	6.12	6.06
Shaw AFB	4.84	6.08	6.42	7.27
Sheppard AFB	4.59	5.85	6.49	7.11
Tidwell AFB	4.18	5.82	5.98	6.11
Tinker AFB	2.35	2.80	3.22	4.07
Tyndall AFB	4.89	7.27	6.74	8.88
USAF Academy	2.42	2.75	3.46	3.34
Vance AFB	4.18	5.82	5.98	6.11
Vandenberg AFB	1.82	2.75	2.86	3.38
Wallops AFB	7.19	8.88	10.30	8.88
Williams AFB	3.94	6.75	6.45	8.88
Wright-Patterson	12.05	7.75	14.38	8.88
Wurtsmith AFB	NR	5.88	NR	7.88

NR = Not Recommended

**NATURAL GAS
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU**

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Altus AFB	5.88	7.49	8.30	9.09
Andrews AFB	5.35	5.17	7.67	8.29
Arnold AFS	5.18	5.72	7.27	6.92
Barksdale AFB	8.72	9.27	9.41	11.22
Beale AFB	5.65	8.11	8.21	9.92
Bangstrom AFB	5.92	8.35	8.35	10.12
Blytheville AFB	5.79	8.89	8.20	8.37
Bolling AFB	5.35	5.17	7.67	8.29
Brooks AFB	6.33	9.00	8.92	10.90
Cannon AFB	4.02	5.05	5.58	6.09
Carroll AFB	6.50	8.81	9.31	10.73
Castle AFB	5.99	8.55	8.68	10.45
Charlotte AFB	5.97	5.35	8.54	6.51
Charleston AFB	5.09	7.04	7.08	8.49
Columbus AFB	5.62	6.90	7.84	8.33
Davis-Monthan AFB	4.95	7.57	7.05	9.20
Dover AFB	8.63	8.34	9.44	7.70
Dyess AFB	5.48	7.47	7.72	9.05
Edwards AFB	4.44	6.92	6.49	8.49
Eglin AFB	5.44	7.90	7.59	9.54
Ellsworth AFB	4.18	3.66	5.91	4.44
England AFB	6.30	9.43	8.98	11.47
Fairchild AFB	8.57	7.21	12.41	8.80
Francis E Warren AFB	2.84	5.01	4.08	3.65
George AFB	4.44	8.99	6.53	8.98
Goodfellow AFB	5.65	7.93	7.99	9.61
Grand Forks AFB	NR	4.65	NR	5.65
Griffis AFB	NR	6.63	NR	6.63
Griffis AFB	8.29	5.75	11.85	7.02
Gunter AFB	5.05	6.75	7.05	8.15
Hancock Field	NR	6.68	NR	8.08
Hanscom AFB	6.82	5.80	9.62	7.68
Hill AFB	3.91	4.28	6.64	6.89
Holloman AFB	4.04	5.30	5.62	6.49
Hornfield AFB	7.05	11.75	9.89	14.32
Hughes Field	5.44	7.99	7.99	9.84
Indian Springs Aux	4.67	7.24	7.29	6.87
Keesler AFB	5.31	7.79	7.44	8.88
Kelly AFB	6.38	9.09	8.88	10.39
Kirtland AFB	4.31	5.15	6.79	6.18
K. I. Sawyer AFB	NR	4.59	NR	5.92
Lackland AFB	8.38	8.09	8.88	10.29
Langley AFB	4.65	5.82	5.95	6.77
Landing AFB	5.02	8.04	8.88	10.15

NR = Not Recommended

**NATURAL GAS
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU**

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Little Rock AFB	6.17	7.28	8.61	8.80
Locking AFB	NR	4.26	NR	5.19
Los Angeles AFS	3.78	6.34	5.52	7.78
Lowry AFB	3.50	3.98	5.01	4.84
Lukes AFB	4.43	6.15	7.69	9.89
MacDill AFB	5.33	6.55	7.50	10.35
Malmstrom AFB	4.78	3.88	6.82	4.70
March AFB	3.78	6.34	5.52	7.78
Mather AFB	5.65	8.11	8.21	9.92
Maxwell AFB	5.06	6.75	7.05	8.15
McChord AFB	5.71	6.37	8.41	7.82
McClellan AFB	5.65	6.11	8.21	9.92
McCormell AFB	4.83	6.34	6.78	6.47
McGuire AFB	6.85	6.80	9.53	8.40
Minot AFB	NR	4.78	NR	5.83
Moody AFB	4.84	6.74	6.70	8.13
Mountain Home	5.23	5.82	7.48	7.08
Myrtle Beach AFB	4.80	6.27	6.67	7.57
Nellis AFB	4.87	7.24	7.10	8.87
Norton AFB	3.78	6.34	5.52	7.78
Offutt AFB	5.85	4.74	8.34	5.78
Patrick AFB	5.37	8.23	7.47	9.93
Pease AFB	7.91	4.43	11.17	5.37
Peterson AFB	3.23	3.88	4.61	4.48
Pittsburgh AFB	NR	5.28	NR	6.35
Pope AFB	4.68	5.17	6.40	6.34
Randolph AFB	6.33	9.00	8.92	10.90
Rouse AFB	3.92	5.15	5.82	6.24
Robins AFB	5.16	6.77	7.08	8.13
Scott AFB	6.23	6.88	8.98	7.78
Seymour-Johnson	4.68	5.27	6.40	6.34
Shaw AFB	4.88	6.31	6.72	7.61
Sheppard AFB	5.88	7.48	8.28	9.88
Thayer AFB	5.23	6.48	7.61	7.78
Trotter AFB	3.88	6.37	4.98	6.82
Tyndall AFB	4.91	7.91	7.98	9.27
USAF Academy	3.23	3.88	4.61	4.48
Vance AFB	4.83	6.40	7.61	7.78
Vandenberg AFB	6.28	6.80	3.77	4.78
Wallops AFB	5.17	6.91	7.48	8.10
Wallops AFB	5.43	6.15	7.69	8.89
Wright-Patterson	4.48	5.74	10.48	6.88
Wright AFB	5.2	4.88	NR	6.28

NR = Not Recommended

COAL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Alus AFB	4.88	5.94	6.58	7.21
Andrews AFB	4.71	4.55	6.75	5.54
Arnold AFB	5.02	5.54	7.04	6.70
Barksdale AFB	5.33	7.38	7.47	8.90
Beale AFB	4.33	6.22	6.29	7.60
Bergstrom AFB	4.70	6.63	6.63	8.03
Blytheville AFB	4.59	5.47	6.51	6.64
Bolling AFB	4.71	4.55	6.75	5.54
Brooks AFB	5.02	7.14	7.08	8.65
Cannon AFB	3.19	4.00	4.43	4.83
Cannwell AFB	5.18	6.99	7.38	6.52
Castle AFB	4.69	6.58	6.65	8.01
Charate AFB	5.29	4.74	7.57	5.77
Charleston AFB	4.93	6.82	6.64	8.22
Columbus AFB	5.44	6.68	7.59	8.07
Davis-Monthan AFB	3.79	5.89	5.40	7.05
Dover AFB	5.64	5.58	6.31	6.79
Dyess AFB	4.35	5.93	6.12	7.18
Edwards AFB	3.40	5.31	4.97	6.50
Eglin AFB	5.28	7.68	7.38	9.25
Ellsworth AFB	3.47	3.04	4.91	3.69
England AFB	5.00	7.48	7.11	9.10
Fairchild AFB	4.38	3.68	6.34	4.50
Francis E Warren AFB	2.36	2.50	3.39	3.06
George AFB	3.41	5.36	5.01	6.58
Goodfellow AFB	4.51	6.79	6.34	7.82
Grand Forks AFB	NR	3.89	NR	4.72
Griffis AFB	NR	6.55	NR	6.76
Grierson AFB	7.85	6.11	10.51	6.22
Gunter AFB	4.91	6.54	6.63	7.90
Hancock Field	NR	6.38	NR	6.76
Hanscom AFB	6.61	6.62	6.62	6.66
Hill AFB	6.85	3.38	4.61	4.32
Holloman AFB	6.21	4.39	4.46	6.07
Hornet AFB	6.85	12.39	9.59	13.76
Hurlbert Field	6.88	7.88	7.38	9.25
Indian Springs AFB	2.73	6.58	5.44	6.83
Keesler AFB	6.85	7.88	7.38	9.25
Kelly AFB	6.02	7.14	7.08	8.65
Kirtland AFB	6.42	6.38	4.76	4.86
K. I. Sawyer AFB	NR	3.78	NR	4.86
Lackland AFB	6.82	7.14	7.08	8.65
Lambert AFB	6.82	7.14	7.08	8.65
Lewis AFB	6.82	7.14	7.08	8.65

NR = Not Recommended

COAL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Little Rock AFB	4.90	5.78	6.83	6.98
Loring AFB	NR	4.13	NR	5.03
Los Angeles AFS	2.88	4.88	4.23	5.98
Lowry AFB	2.91	3.31	4.18	4.02
Luke AFB	4.17	6.24	5.90	7.58
MacDill AFB	5.17	8.28	7.27	10.03
Malmstrom AFB	3.97	3.21	5.67	3.91
March AFB	2.88	4.88	4.23	5.98
Mather AFB	4.33	8.22	6.29	7.60
Maxwell AFB	4.91	6.54	6.83	7.90
McChord AFB	2.92	3.28	4.30	4.00
McClellan AFB	4.33	6.22	6.29	7.60
McCormell AFB	4.37	4.83	6.13	5.85
McGuire AFB	5.88	5.81	6.40	7.08
Minot AFB	NR	3.98	NR	4.85
Moody AFB	4.89	6.53	6.49	7.87
Mourain Horns	2.87	2.97	3.82	3.82
Myrtle Beach AFB	4.85	6.08	6.48	7.33
Nellis AFB	3.73	5.55	5.44	6.80
Norton AFB	2.88	4.88	4.23	5.98
Offutt AFB	5.29	4.28	7.54	5.21
Patrick AFB	5.20	7.97	7.24	9.63
Pecos AFB	7.87	4.29	10.83	5.20
Peterson AFB	2.89	3.04	3.84	3.70
Pittsburgh AFB	NR	4.41	NR	5.32
Pope AFB	4.51	6.11	6.21	6.15
Randolph AFB	5.02	7.14	7.08	8.65
Reese AFB	3.11	4.08	4.38	4.95
Robins AFB	6.00	6.86	6.84	7.88
Scott AFB	6.82	6.85	7.95	6.90
Spangor-Johnson	4.61	5.11	6.21	6.15
Star AFB	4.71	6.12	6.51	7.37
Sheppard AFB	4.85	5.94	6.57	7.20
Tinker AFB	4.28	5.88	6.08	6.18
Tusig AFB	2.58	4.12	3.82	5.07
Tyndall AFB	4.75	7.37	6.88	6.89
USAF Academy	2.89	3.04	3.84	3.70
Vandenberg AFB	4.88	6.28	6.68	6.18
Vandenberg AFB	1.88	2.88	2.88	3.88
Wallops AFB	4.88	4.88	5.71	6.88
Wallops AFB	4.17	6.88	3.88	7.88
Wright-Patterson	6.88	6.88	3.47	6.88
Wright-Patterson	1.88	2.88	1.88	2.88

NR = Not Recommended

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