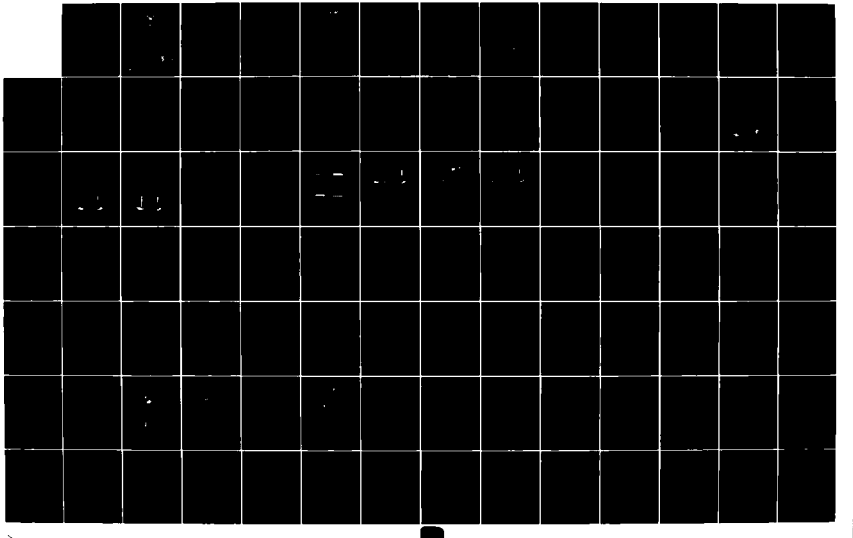
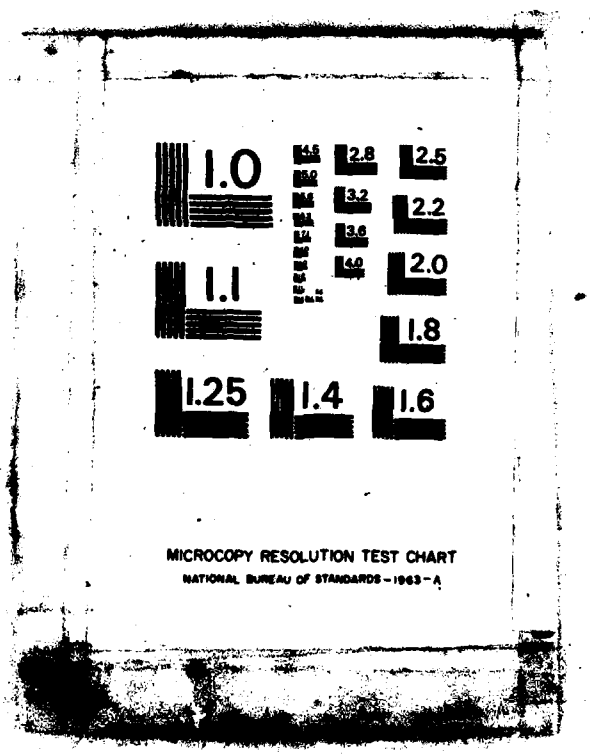
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SIMPLIFIED PRELIMINARY ECONOMIC ANALYSIS FOR PASSIVE SOLAR HEATING

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

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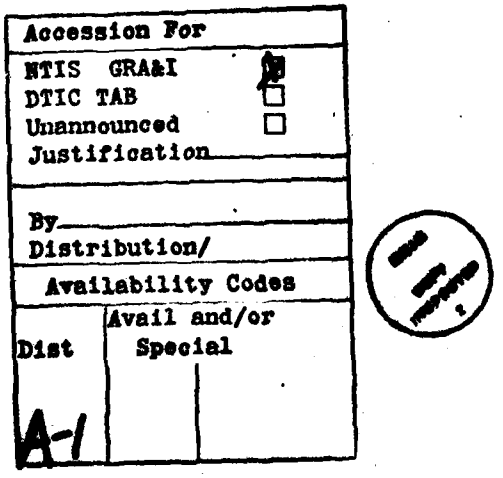
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Section 2688(a) to Title 10 of the U.S. Code requires consideration of solar energy applications in new military construction. This thesis examines application of direct and indirect gain techniques for a typical range of facility sizes and types, 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

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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

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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 guillontine. 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. (Allen & Tranmeier, 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 (Mazria, 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).

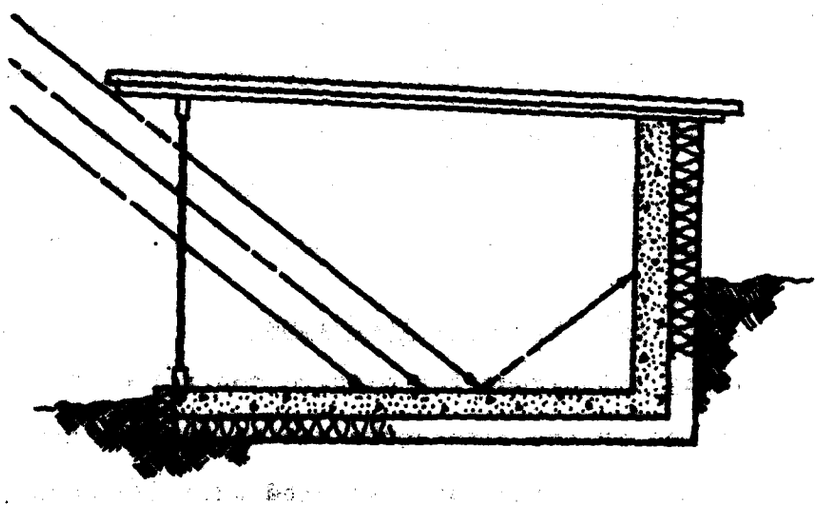


Figure 2.1. Direct gain

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

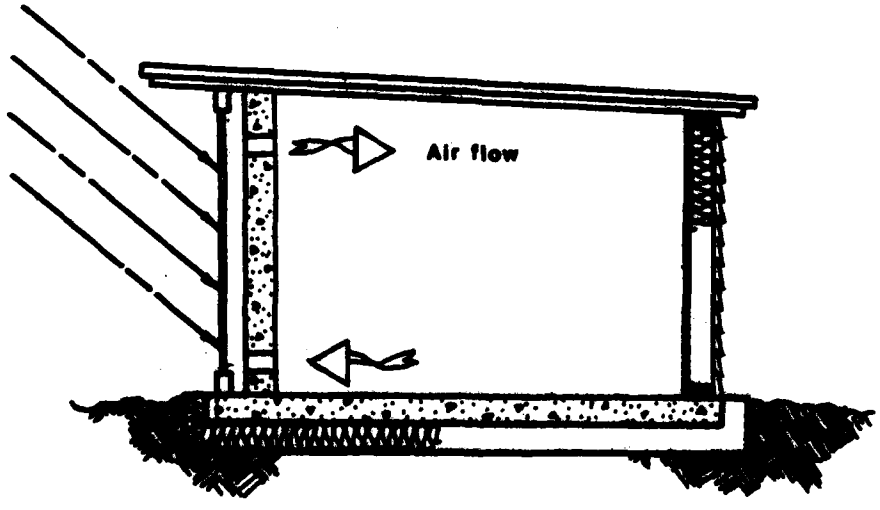


Figure 2.2. Vented mass thermal storage wall

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

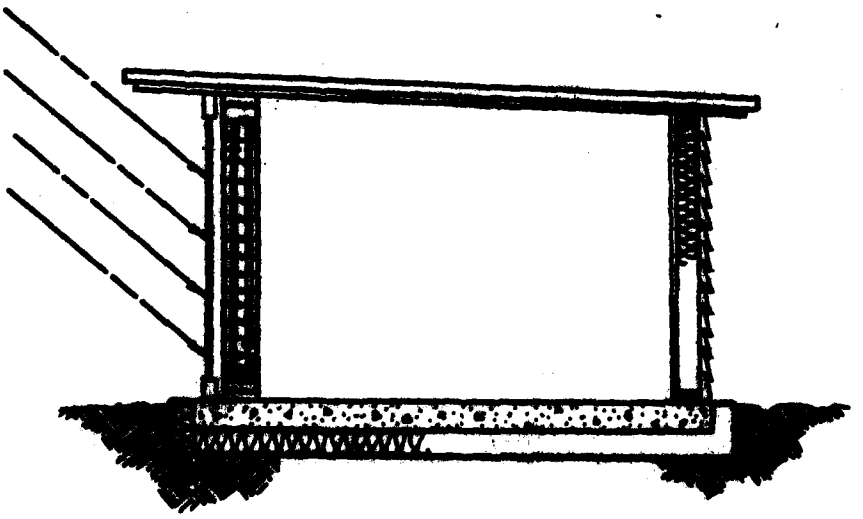


Figure 2.3. Water thermal storage wall

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

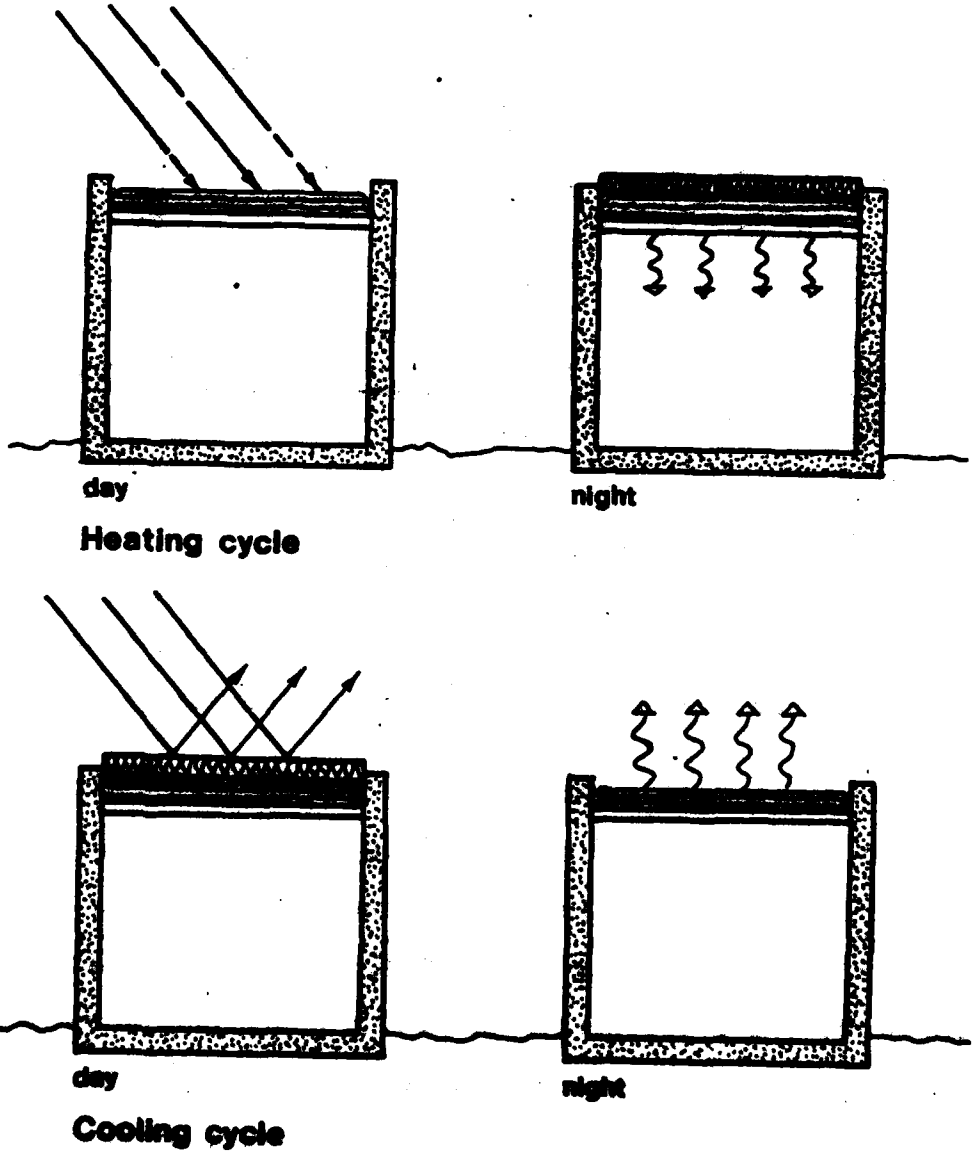


Figure 2.4. Roof pond.

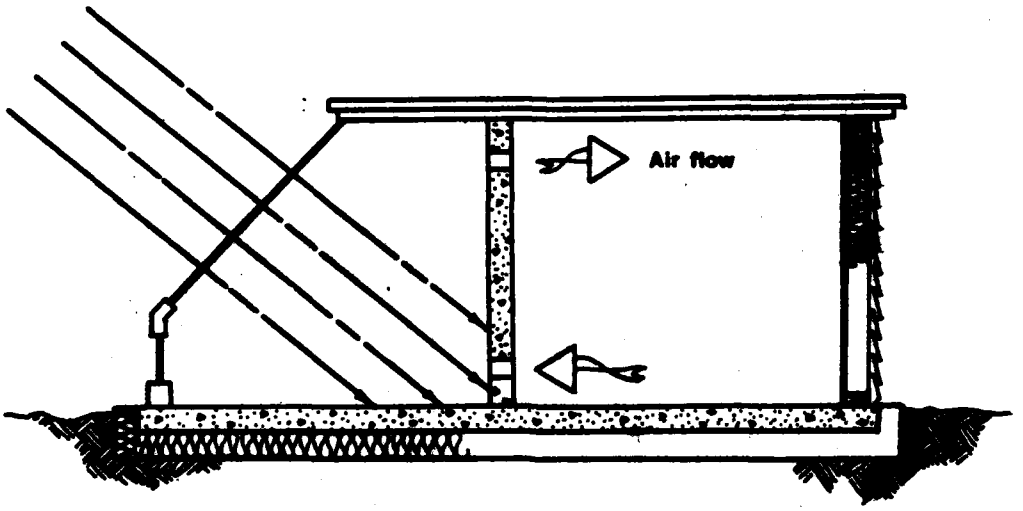


Figure 2.5. Attached sunspace

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).

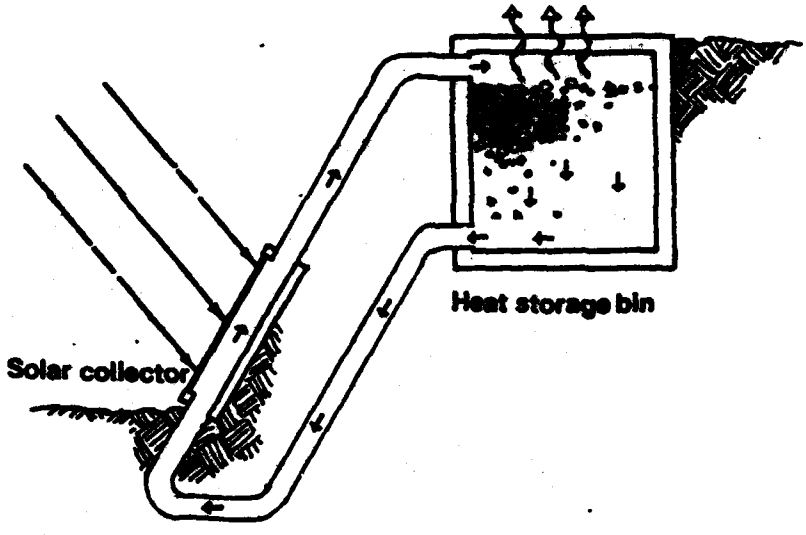


Figure 2.6. Convective loop

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.

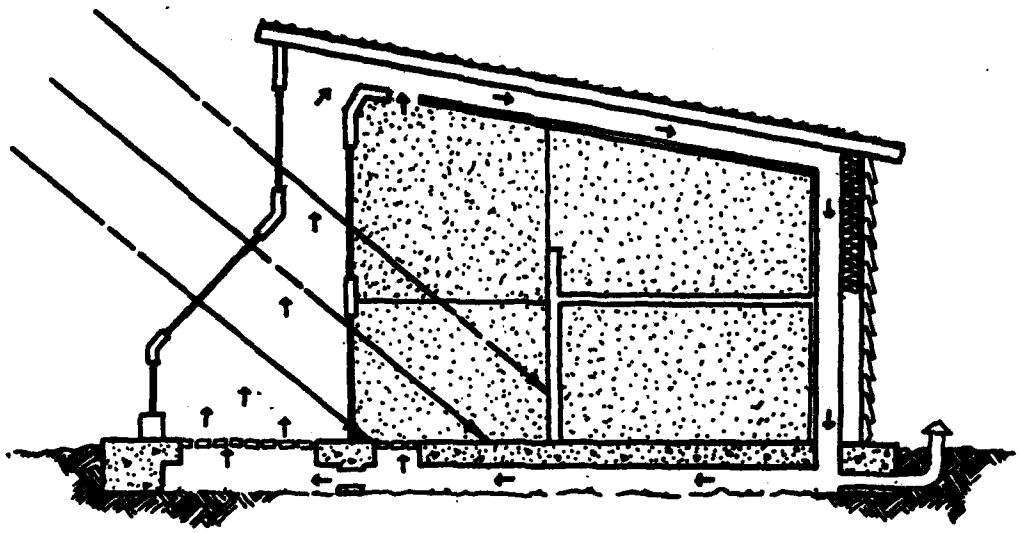


Figure 2.7. Thermosiphon

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

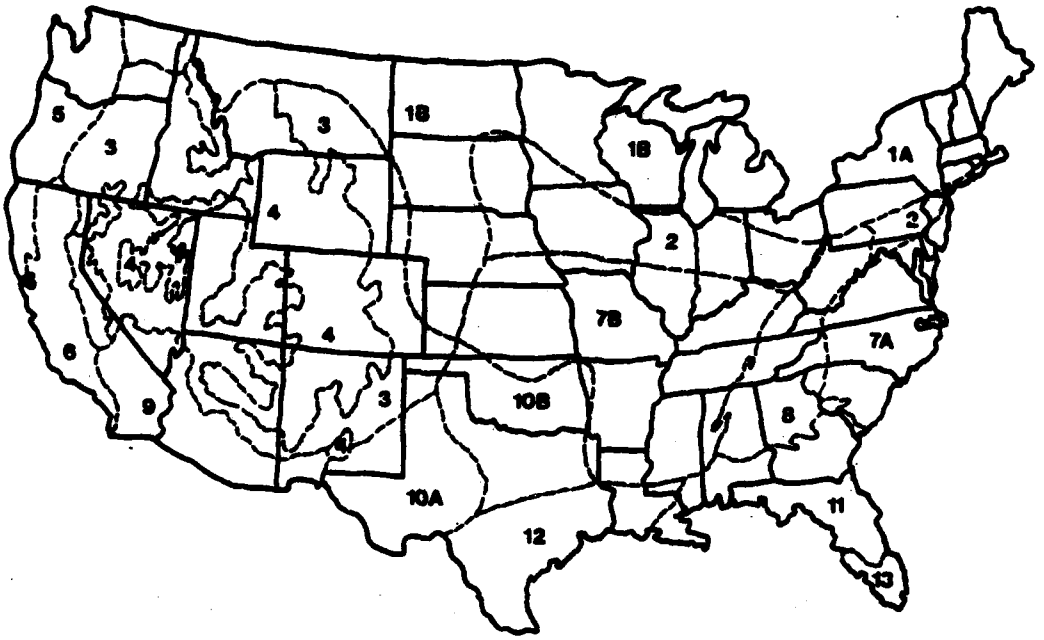
There are many factors involved in the consideration of solar energy applications. In fact, the complexity of

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

(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 subdivisioning 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

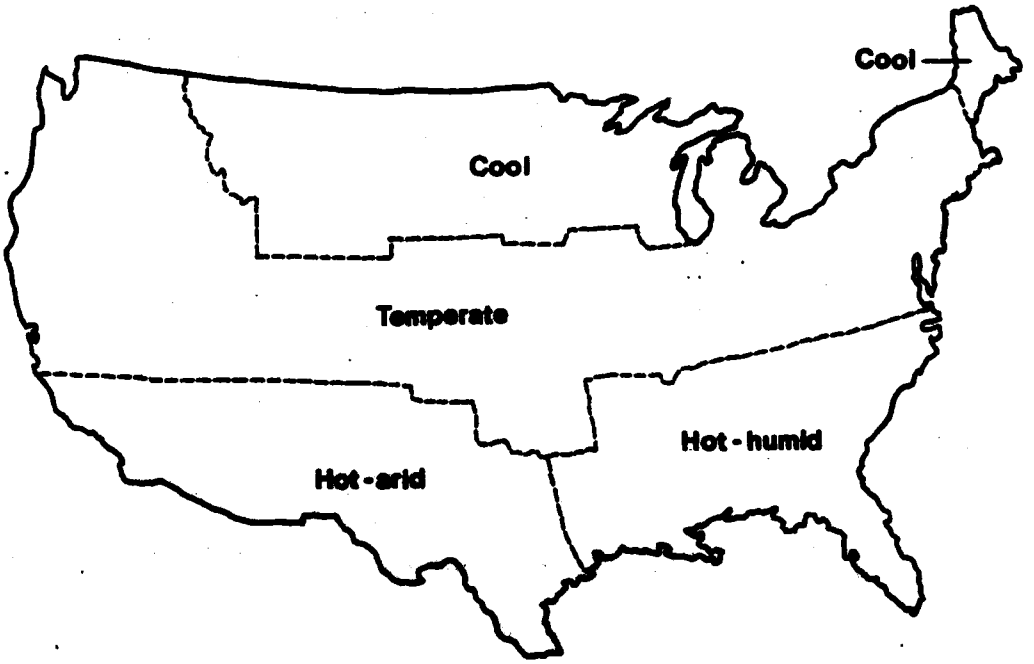


Figure 2.9. Traditional climatic regions

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.

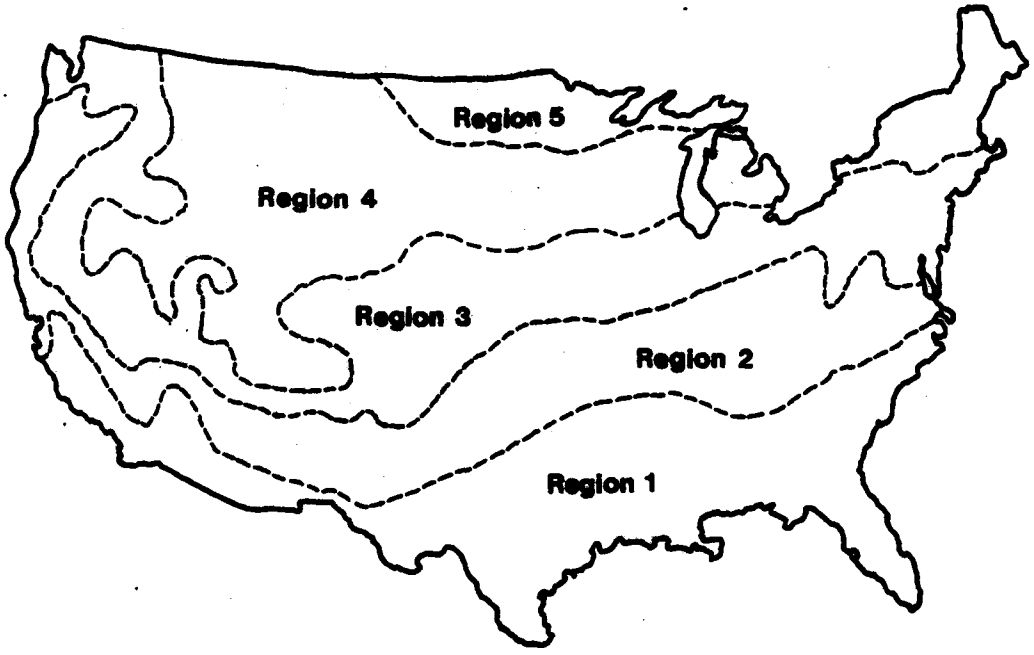


Figure 2.10. Degree-day climatic regions

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 (Olgyay, 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 (Olgyay, 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. (Olgyay, 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 (Olgyay, 1963).

Building shape. When passive solar energy is used the optimum shape of the building is one which minimizes heat loss (Mazria, 1979; Olgyay, 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 aperature 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 aperature, (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 - SSF) x BLC x 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 aperature 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

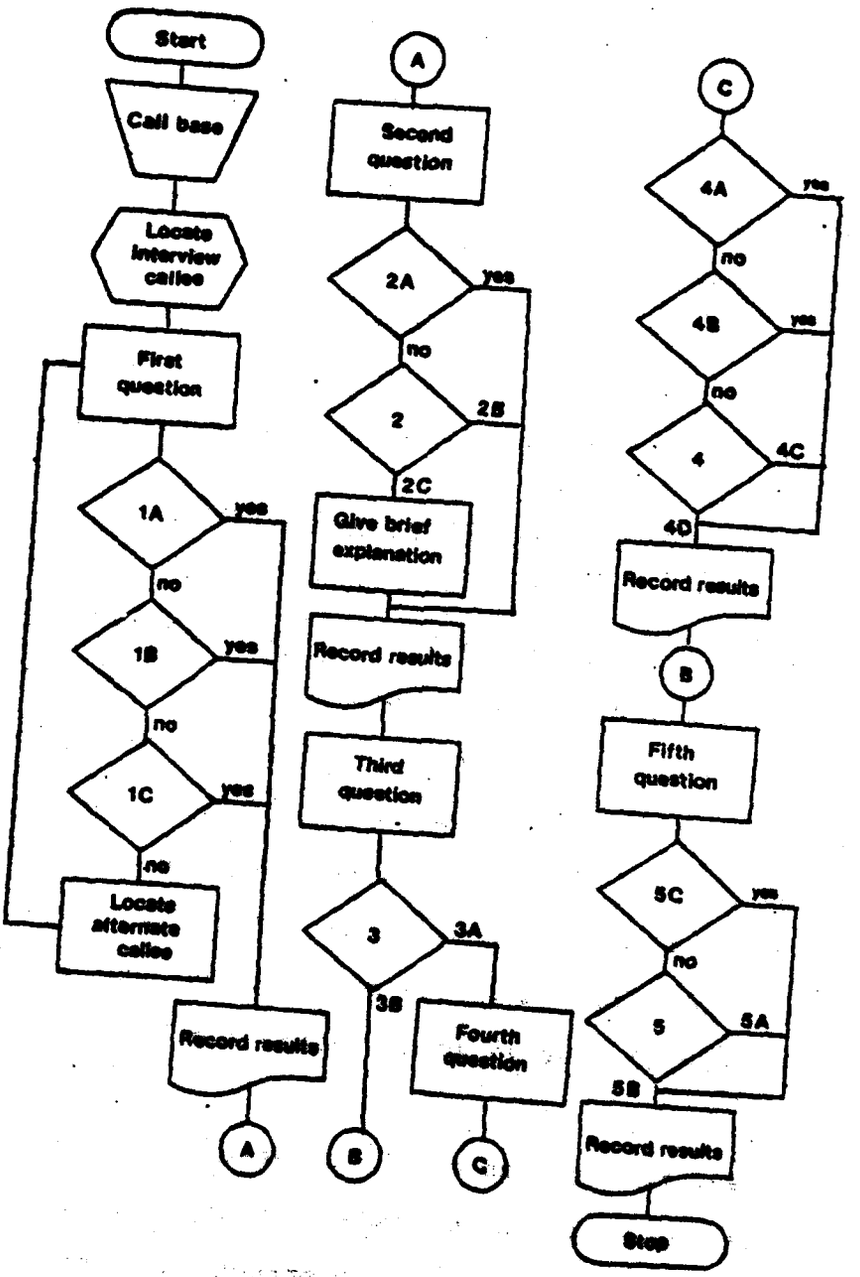


Figure 4.2. Flowchart of question sequence

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 section 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

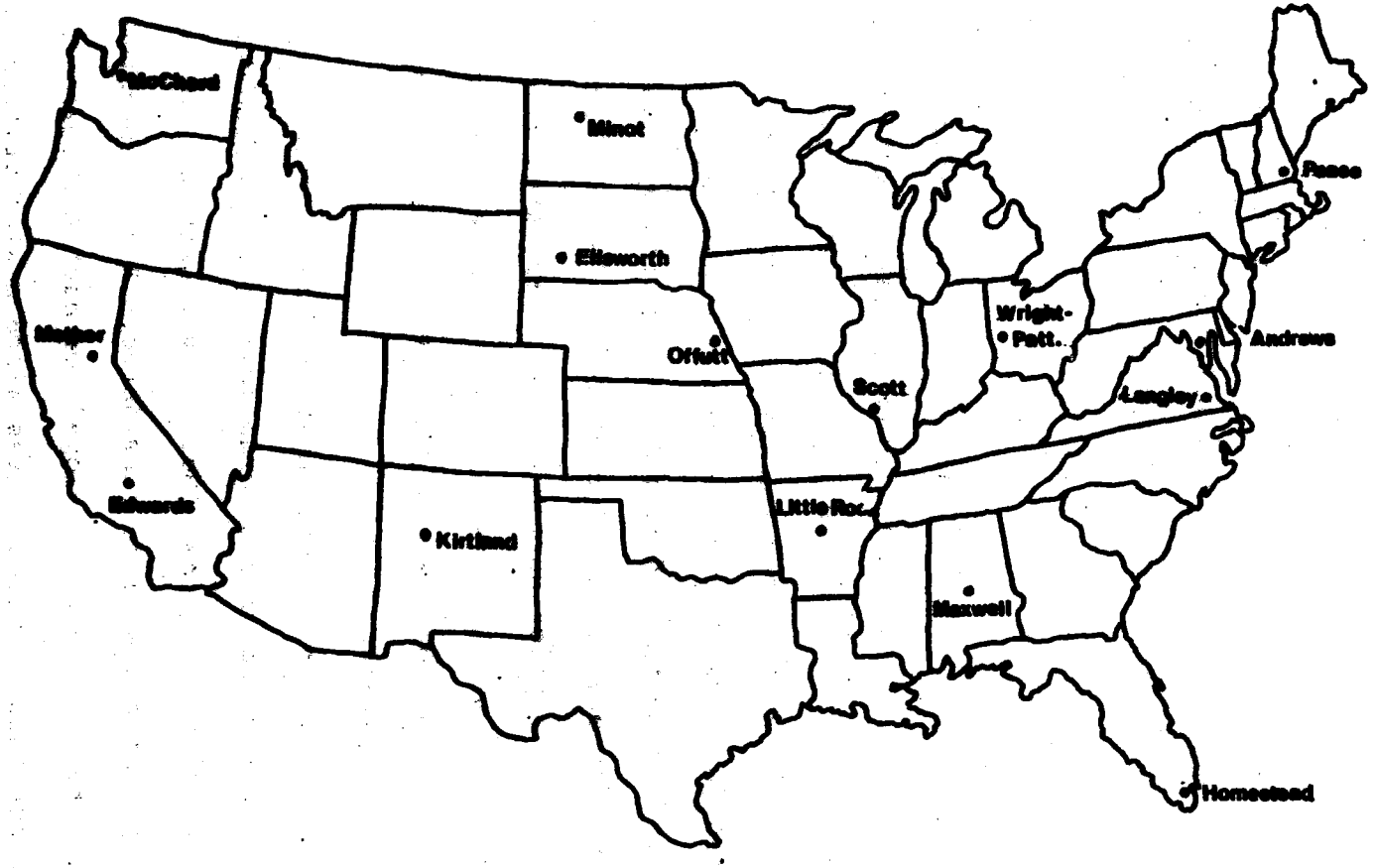


Figure 4.3. Locations of surveyed bases

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-FT^2. 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.

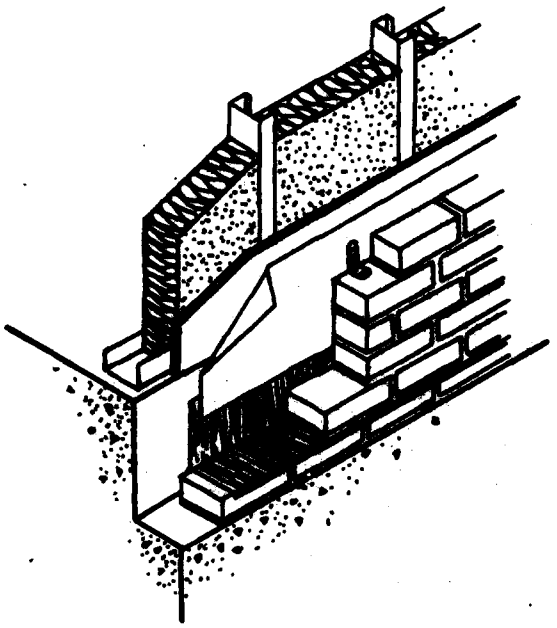


Figure 4.4. Brick veneer/metal stud backup

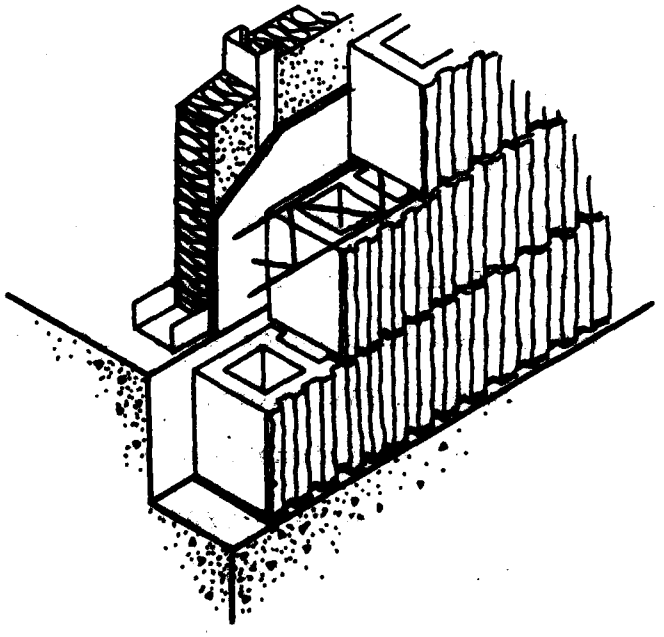


Figure 4.5. Split face block

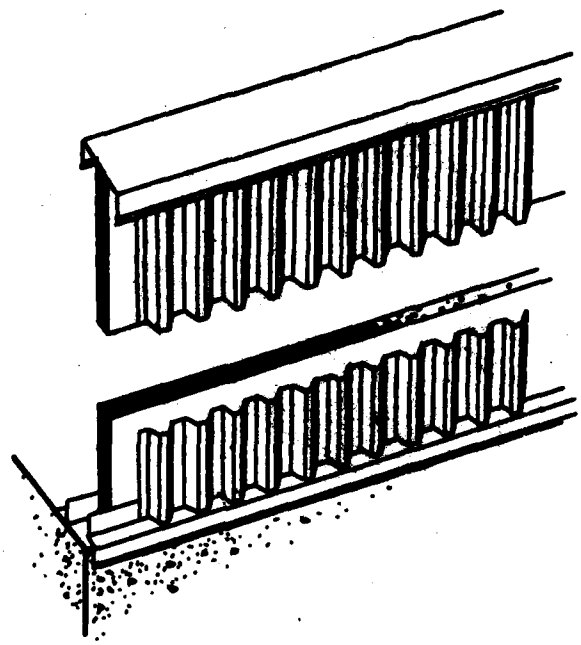


Figure 4.6. Framed metal siding wall

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.

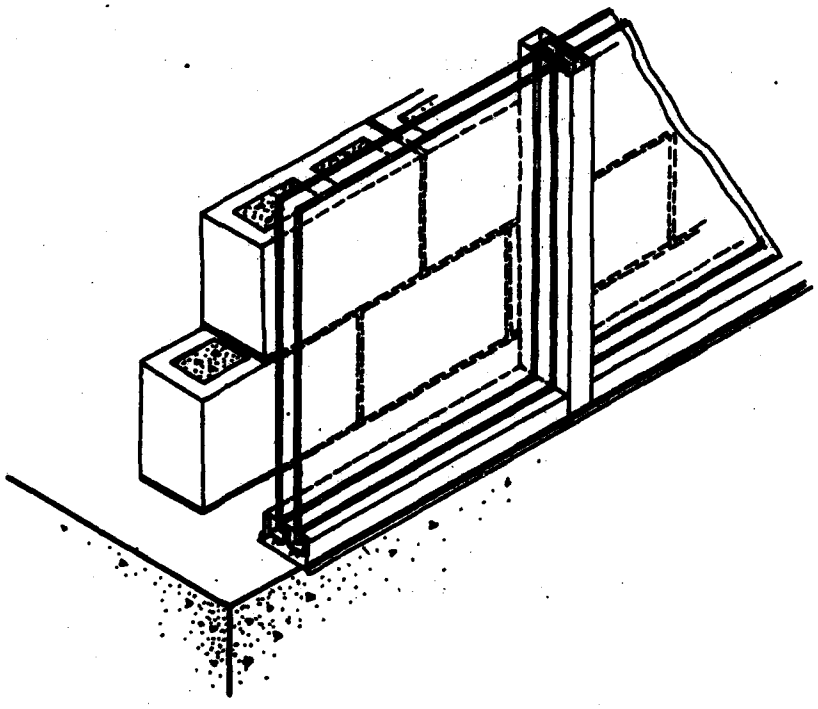


Figure 4.7. Passive solar indirect gain wall

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:

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

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:

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

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:

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

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.

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

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(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 << 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 67 bases will show which operating locations can justify the incorporation of direct gain or Trombe

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	Percent Floor Area Served By Solar									
(x 1000)	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	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	******	******	******

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	Percent Floor Area Served By Solar									
(x 1000)	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.	6655.	9983.	13311.	16639.	19966.	23294.	26622.	******	******
28	3584.	7167.	10751.	14335.	17919.	21502.	25086.	28670.	******	******
30	3840.	7679.	11519.	15359.	19198.	23038.	26878.	******	******	******

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

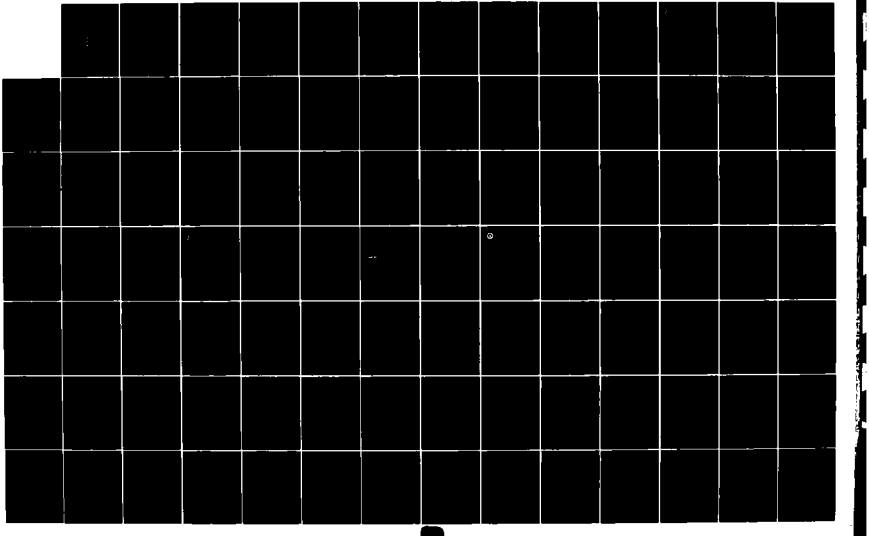
Fuel oil, electricity, and natural gas were the three locally available fuels in the Lowry area, and the 1982 prices were $12.10, $13.77, and $4.74 per MBTU respectively. Using the low rule of thumb figures and metal siding construction, all applications were economically justified except the Trombe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

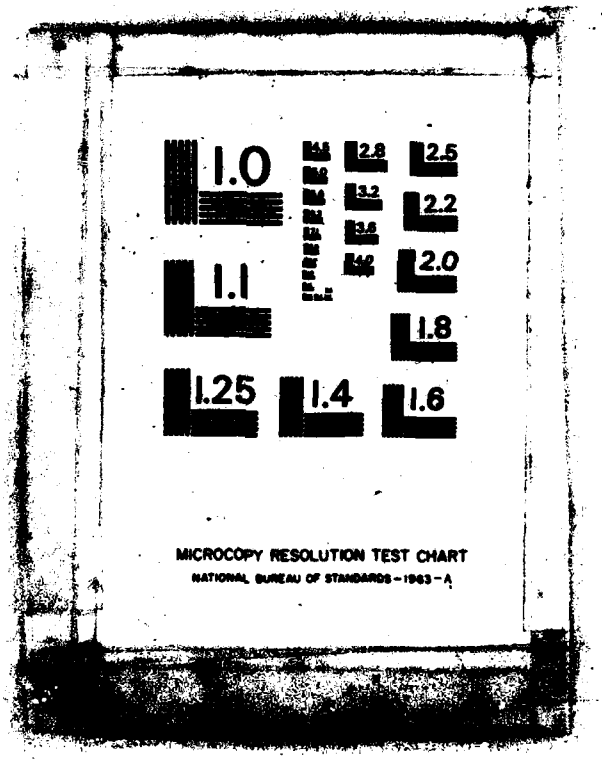
Where low rule of thumb figures and concrete block construction was employed, the same results as above were found. However, all corresponding costs were slightly reduced. For example, the cutoff was only missed by 10 cents for the Trombe wall with night insulation.

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

AD A135 539 SIMPLIFIED PRELIMINARY ECONOMIC ANALYSIS FOR PASSIVE SOLAR HEATING(U) AIR FORCE INST OF TECH WRIGHT PATTERSON AFB OH SCHOOL OF SYST.. 2/4

UNCLASSIFIED P J BALDETTI ET AL. SEP 83 AFIT-LSSR-115-83 F/G 13/1 NL




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

APPENDIX A

ENGINEERING TECHNICAL LETTER 82-5: SOLAR APPLICATIONS

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

10 NOV 1982

LEEENG

Engineering Technical Letter - 82-5: 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 AFSSS/DEE	HQ ESC/DEE	HQ USAFE/DEE/DEER
HQ USAFA/DEE	HQ AFCOMB/DEE	AFIT/DEE	AFMEC/MECSEC
SPACECOM/DEE	NGB/DEE	AFRCE/CR	AFRCR/ER
AFRCE/WR	AFRCR/WE		

1. Purpose: This letter implements the statues 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. The Military Construction Codification Act of Public Law 97-214, Paragraph 2807, [illegible] of all new facilities (including medical [illegible]) 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) [illegible]

(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 from 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 SIOH 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. AFRCEs 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 LEEE and the appropriate AFRCE using format of Atch 4. DEB will validate the solar aspects of the project and will notify LEEE in the DEACONS system element AFESC-SOL. Command evaluation submittal 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 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 preceeding 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 L Kornfeld

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, Flordia, 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	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.93	0.93	1.02	1.02	1.06
2	1.85	1.86	2.05	2.05	2.20
3	2.75	2.76	3.11	3.10	3.41
4	3.64	3.66	4.19	4.18	4.69
5	4.70	4.41	5.22	5.19	5.86
6	5.49	5.18	6.21	6.15	6.92
7	6.21	5.93	7.16	7.08	7.89
8	6.87	6.64	8.07	7.92	8.75
9	7.47	7.23	8.95	8.74	9.56
10	8.02	8.00	9.81	9.53	10.30
11	8.50	8.69	10.67	10.28	11.05
12	8.94	9.36	11.52	11.00	11.67
13	9.33	10.03	12.35	11.69	12.30
14	9.68	10.70	13.18	12.35	12.88
15	10.00	11.36	14.00	13.00	13.43
16	10.28	12.02	14.81	13.61	13.96
17	10.53	12.68	15.62	14.19	14.44
18	10.76	13.33	16.41	14.76	14.90
19	10.96	13.98	17.20	15.30	15.33
20	11.14	14.62	17.97	15.80	15.74
21	11.30	15.26	18.74	16.30	16.10
22	11.46	15.90	19.50	16.79	16.48
23	11.58	16.53	20.25	17.25	16.82
24	11.70	17.16	21.00	17.68	17.14
25	11.80	17.19	21.74	18.11	17.44

UPW FACTORS	TABLE 2			REGION 2	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.93	0.93	1.02	1.02	1.06
2	1.85	1.86	2.05	2.05	2.20
3	2.75	2.76	3.11	3.11	3.41
4	3.64	3.66	4.19	4.18	4.69
5	4.70	4.41	5.22	5.19	5.86
6	5.49	5.18	6.21	6.16	7.00
7	6.19	5.93	7.16	7.07	8.19
8	6.84	6.64	8.07	7.94	9.25
9	7.43	7.23	8.95	8.77	10.26
10	7.98	8.00	9.81	9.56	11.21
11	8.50	8.68	10.66	10.32	12.10
12	8.98	9.36	11.49	11.05	12.95
13	9.42	10.03	12.33	11.75	13.74
14	9.84	10.69	13.15	12.42	14.49
15	10.23	11.36	13.97	13.06	15.19
16	10.59	12.01	14.77	13.68	15.85
17	10.91	12.66	15.56	14.27	16.48
18	11.21	13.31	16.34	14.84	17.07
19	11.48	13.96	17.11	15.39	17.62
20	11.69	14.60	17.87	15.91	18.14
21	11.88	15.24	18.62	16.41	18.63
22	12.02	15.87	19.37	16.90	19.10
23	12.14	16.50	20.10	17.36	19.53
24	12.25	17.13	20.83	17.80	19.94
25	12.34	17.76	21.55	18.23	20.33

UPW FACTORS	TABLE 3			REGION 3	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.93	0.93	1.02	1.02	1.06
2	1.85	1.86	2.05	2.05	2.20
3	2.75	2.76	3.11	3.11	3.41
4	3.64	3.66	4.19	4.18	4.69
5	4.73	4.41	5.22	5.22	5.86
6	5.56	5.18	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	7.78	7.32	8.94	9.00	10.33
10	8.44	8.00	9.80	9.86	11.30
11	9.05	8.67	10.80	10.69	12.22
12	9.62	9.34	11.90	11.49	13.08
13	10.14	10.00	12.28	12.26	13.90
14	10.66	10.67	13.12	12.98	14.67
15	11.13	11.32	13.92	13.71	15.39
16	11.57	11.96	14.72	14.40	16.07
17	11.98	12.62	15.50	15.06	16.72
18	12.37	13.27	16.28	15.70	17.33
19	12.73	13.90	17.04	16.31	17.90
20	13.07	14.54	17.79	16.90	18.44
21	13.38	15.17	18.54	17.47	18.95
22	13.68	15.79	19.27	18.02	19.43
23	13.96	16.41	20.00	18.55	19.88
24	14.22	17.03	20.71	19.06	20.31
25	14.46	17.64	21.42	19.55	20.71

UPU FACTORS	TABLE 4			REGION 4	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.20
3	2.12	2.76	3.11	3.11	3.40
4	3.16	3.60	4.19	4.18	4.62
5	4.23	4.41	5.22	5.23	5.90
6	5.32	5.19	6.28	6.28	7.20
7	6.39	6.02	7.36	7.36	8.26
8	7.16	6.64	8.07	8.29	9.36
9	7.99	7.32	8.96	9.14	10.39
10	8.88	8.00	9.82	10.00	11.30
11	9.22	8.87	10.08	10.90	12.21
12	9.86	9.34	11.04	11.05	13.17
13	10.42	10.06	12.36	12.06	13.98
14	10.97	10.62	13.28	13.02	14.72
15	11.46	11.30	14.06	14.22	15.44
16	11.86	11.98	14.96	15.10	16.30
17	12.42	12.53	15.76	15.86	16.72
18	12.84	13.28	16.67	16.50	17.38
19	13.25	13.92	17.30	17.20	17.84
20	13.63	14.56	18.20	18.00	18.34
21	13.99	15.19	19.04	18.67	18.88
22	14.30	15.82	19.81	19.33	19.28
23	14.64	16.44	20.61	19.97	19.69
24	14.94	17.07	21.46	20.53	20.06
25	15.23	17.68	22.19	21.20	20.42

UPU FACTORS	TABLE 5			REGION 5	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.20
3	2.12	2.76	3.11	3.11	3.40
4	3.16	3.60	4.19	4.18	4.62
5	4.23	4.41	5.22	5.23	5.90
6	5.32	5.19	6.28	6.28	7.20
7	6.39	6.02	7.36	7.36	8.26
8	7.16	6.64	8.07	8.29	9.36
9	7.99	7.32	8.96	9.14	10.39
10	8.88	8.00	9.82	10.00	11.30
11	9.22	8.87	10.08	10.90	12.21
12	9.86	9.34	11.04	11.05	13.17
13	10.42	10.06	12.36	12.06	13.98
14	10.97	10.62	13.28	13.02	14.72
15	11.46	11.30	14.06	14.22	15.44
16	11.86	11.98	14.96	15.10	16.30
17	12.42	12.53	15.76	15.86	16.72
18	12.84	13.28	16.67	16.50	17.38
19	13.25	13.92	17.30	17.20	17.84
20	13.63	14.56	18.20	18.00	18.34
21	13.99	15.19	19.04	18.67	18.88
22	14.30	15.82	19.81	19.33	19.28
23	14.64	16.44	20.61	19.97	19.69
24	14.94	17.07	21.46	20.53	20.06
25	15.23	17.68	22.19	21.20	20.42

UPU FACTORS	TABLE 6			REGION 6	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.20
3	2.12	2.76	3.11	3.11	3.40
4	3.16	3.60	4.19	4.18	4.62
5	4.23	4.41	5.22	5.23	5.90
6	5.32	5.19	6.28	6.28	7.20
7	6.39	6.02	7.36	7.36	8.26
8	7.16	6.64	8.07	8.29	9.36
9	7.99	7.32	8.96	9.14	10.39
10	8.88	8.00	9.82	10.00	11.30
11	9.22	8.87	10.08	10.90	12.21
12	9.86	9.34	11.04	11.05	13.17
13	10.42	10.06	12.36	12.06	13.98
14	10.97	10.62	13.28	13.02	14.72
15	11.46	11.30	14.06	14.22	15.44
16	11.86	11.98	14.96	15.10	16.30
17	12.42	12.53	15.76	15.86	16.72
18	12.84	13.28	16.67	16.50	17.38
19	13.25	13.92	17.30	17.20	17.84
20	13.63	14.56	18.20	18.00	18.34
21	13.99	15.19	19.04	18.67	18.88
22	14.30	15.82	19.81	19.33	19.28
23	14.64	16.44	20.61	19.97	19.69
24	14.94	17.07	21.46	20.53	20.06
25	15.23	17.68	22.19	21.20	20.42

UPU FACTORS	TABLE 7			REGION 7	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.19
3	2.12	2.76	3.12	3.11	3.40
4	3.16	3.60	4.19	4.18	4.66
5	4.20	4.41	5.23	5.21	5.90
6	5.29	5.18	6.32	6.31	7.05
7	6.31	5.80	7.16	7.17	8.17
8	6.87	6.05	8.00	8.10	9.22
9	7.67	7.34	9.07	9.09	10.23
10	8.54	8.02	9.73	9.85	11.10
11	9.19	8.79	10.39	10.68	12.07
12	9.10	9.39	10.96	11.49	12.91
13	9.59	10.07	11.46	12.26	13.70
14	10.06	10.74	11.99	13.00	14.45
15	10.50	11.41	12.27	13.70	15.19
16	10.92	12.00	12.59	14.41	15.91
17	11.31	12.75	12.89	15.08	16.62
18	11.69	13.42	13.18	15.72	17.28
19	12.04	14.08	13.33	16.36	17.97
20	12.38	14.74	13.56	16.99	18.68
21	12.74	15.40	13.69	17.53	19.57
22	13.08	16.09	13.81	18.07	19.68
23	13.39	16.78	13.93	18.65	19.48
24	13.67	17.35	14.03	19.13	19.87
25	13.88	18.00	14.12	19.68	20.25

UPU FACTORS	TABLE 8			REGION 8	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.20
3	2.12	2.76	3.11	3.11	3.40
4	3.16	3.60	4.19	4.18	4.66
5	4.27	4.41	5.22	5.16	5.90
6	5.30	5.18	6.32	6.12	7.00
7	6.33	5.80	7.17	6.99	8.06
8	6.99	6.04	8.00	7.81	9.03
9	7.68	7.33	8.96	8.58	9.94
10	8.52	8.01	9.83	9.37	10.80
11	9.27	8.69	10.70	10.08	11.61
12	9.25	9.37	11.57	10.86	12.37
13	9.56	10.04	12.43	11.79	13.08
14	9.83	10.71	13.28	11.98	13.76
15	9.87	11.38	14.14	12.46	14.39
16	9.28	12.05	15.00	13.01	14.98
17	9.47	12.72	15.84	13.53	15.54
18	9.64	13.38	16.69	14.02	16.08
19	9.79	14.05	17.53	14.49	16.58
20	9.92	14.69	18.37	14.94	17.06
21	10.03	15.35	19.20	15.37	17.45
22	10.14	16.02	20.03	15.79	17.80
23	10.23	16.69	20.88	16.16	18.24
24	10.31	17.30	21.58	16.53	18.63
25	10.38	17.94	22.50	16.88	18.98

UPU FACTORS	TABLE 9			REGION 9	
ECONOMIC LIFE-YEARS	ELEC	DIST	RESID	NAT-GAS	COAL
1	0.00	0.00	1.02	1.02	1.06
2	1.05	1.02	2.06	2.06	2.20
3	2.08	2.76	3.11	3.11	3.41
4	3.04	3.60	4.19	4.18	4.69
5	4.71	4.40	5.23	5.17	5.94
6	5.52	5.19	6.27	6.09	7.05
7	6.25	5.84	7.17	6.85	8.15
8	6.98	6.05	8.09	7.74	9.18
9	7.83	7.30	8.97	8.48	10.16
10	8.72	8.04	9.85	9.17	11.08
11	8.79	8.72	10.72	9.88	11.93
12	9.36	9.41	11.59	10.64	12.73
13	9.79	10.09	12.46	11.48	13.47
14	10.23	10.77	13.32	11.56	14.17
15	10.64	11.46	14.19	12.10	14.82
16	11.02	12.10	15.04	12.69	15.48
17	11.37	12.80	15.89	13.05	16.08
18	11.70	13.47	16.73	13.48	16.68
19	12.00	14.14	17.58	13.98	17.22
20	12.28	14.80	18.42	14.29	17.80
21	12.54	15.47	19.25	14.84	17.80
22	12.78	16.13	20.08	15.28	18.28
23	13.00	16.79	20.91	15.72	18.72
24	13.21	17.45	21.74	16.13	19.07
25	13.40	18.10	22.56	16.58	19.48

UPW FACTORS	TABLE 10			REGION 10	
ECONOMIC LIFE-YEARS	GLASS	DAIRY	WOOD	ELECTRIC	GENERAL
1	0.93	0.95	1.02	1.02	1.05
2	1.85	1.88	2.04	2.04	2.10
3	2.77	2.76	3.11	3.11	3.19
4	3.71	3.68	4.13	4.18	4.32
5	4.38	4.64	5.22	5.13	5.36
6	5.32	5.19	6.02	6.09	7.30
7	6.08	5.88	7.12	6.75	8.54
8	7.58	6.68	8.08	7.42	9.88
9	8.53	7.38	8.97	8.02	11.16
10	9.38	8.04	9.86	8.58	12.38
11	10.17	8.72	10.72	9.10	13.56
12	10.88	9.48	11.48	9.58	14.68
13	11.54	10.09	12.18	10.03	15.75
14	12.14	10.77	12.83	10.46	16.78
15	12.69	11.46	14.19	10.84	17.84
16	13.18	12.12	15.48	11.20	18.82
17	13.63	12.88	15.78	11.53	19.75
18	14.05	13.47	16.78	11.84	20.14
19	14.42	14.14	17.68	12.12	20.88
20	14.77	14.88	18.44	12.39	21.58
21	15.09	15.47	19.28	12.64	22.26
22	15.37	16.13	20.11	12.87	22.89
23	15.64	16.73	20.96	13.08	23.49
24	15.88	17.48	21.78	13.28	24.08
25	16.10	18.18	22.68	13.46	24.68

UPW FACTORS	TABLE 11				US AVERAGE
ECONOMIC LIFE-YEARS	GLASS	DAIRY	WOOD	ELECTRIC	GENERAL
1	0.93	0.95	1.02	1.02	1.05
2	1.85	1.88	2.04	2.04	2.10
3	2.77	2.76	3.11	3.11	3.19
4	3.71	3.68	4.13	4.18	4.32
5	4.38	4.64	5.22	5.13	5.36
6	5.32	5.19	6.02	6.09	7.30
7	6.08	5.88	7.12	6.75	8.54
8	7.58	6.68	8.08	7.42	9.88
9	8.53	7.38	8.97	8.02	11.16
10	9.38	8.04	9.86	8.58	12.38
11	10.17	8.72	10.72	9.10	13.56
12	10.88	9.48	11.48	9.58	14.68
13	11.54	10.09	12.18	10.03	15.75
14	12.14	10.77	12.83	10.46	16.78
15	12.69	11.46	14.19	10.84	17.84
16	13.18	12.12	15.48	11.20	18.82
17	13.63	12.88	15.78	11.53	19.75
18	14.05	13.47	16.78	11.84	20.14
19	14.42	14.14	17.68	12.12	20.88
20	14.77	14.88	18.44	12.39	21.58
21	15.09	15.47	19.28	12.64	22.26
22	15.37	16.13	20.11	12.87	22.89
23	15.64	16.73	20.96	13.08	23.49
24	15.88	17.48	21.78	13.28	24.08
25	16.10	18.18	22.68	13.46	24.68

TABLES A and B

DISCOUNT FACTORS FOR NON-ENERGY COSTS/SAVINGS

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

TABLE A

STUDY PERIOD YEARS	UPW FACTOR
1	0.93
2	1.85
3	2.77
4	3.71
5	4.38
6	5.32
7	6.08
8	7.58
9	8.53
10	9.38
11	10.17
12	10.88
13	11.54
14	12.14
15	12.69
16	13.18
17	13.63
18	14.05
19	14.42
20	14.77
21	15.09
22	15.37
23	15.64
24	15.88
25	16.10

TABLE B

STUDY PERIOD YEARS	SPW FACTOR
1	0.93
2	0.87
3	0.82
4	0.76
5	0.71
6	0.67
7	0.62
8	0.58
9	0.54
10	0.50
11	0.47
12	0.44
13	0.42
14	0.39
15	0.36
16	0.34
17	0.32
18	0.30
19	0.28
20	0.26
21	0.25
22	0.23
23	0.22
24	0.21
25	0.20

TILT RADIATION

$H_T/\bar{H}$ [1]

Lat.	1	2	3	4	5	6	7	8	9	10	11	12
24°	1.34	1.20	1.08	0.97	0.89	0.87	0.89	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	1.55	1.26	1.02	0.89	0.84	0.88	1.01	1.25	1.53	1.99	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	3.42	4.32
64	6.44	3.22	2.01	1.27	0.95	0.85	0.93	0.61	1.95	3.12	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	1.14	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	3.22	3.95
64	5.9	3.08	1.99	1.69	1.03	0.94	1.01	1.28	1.93	3.04	5.78	10

AF FORM 3160 GENERAL PURPOSE (10"x 07)

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

1/ ASHRAE Applications Handbook, 1978

Tilt $H_T/\bar{H}$

LAT. +30°	1	2	3	4	5	6	7	8	9	10	11	12
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	3.63	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

FORM 3148
GENERAL PURPOSE (11" x 8½")

SIMPLIFIED ACTIVE SOLAR PRELIMINARY ANALYSIS

TABLE 1

BASE FUEL COST DATA

MAJCOM: _____

BASE	$ per MBTU[1/] (C_F)			
	Fuel Oil	Electricity	Nat Gas/LPG	Other

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

TABLE 2

Active Solar Feasibility Assessment
FY85 MCP

MAJCOM: _____

Benefit to Cost Ratio Equation:[1/]

$B/C = [((A.C_F.UPWF/2) - 22.4)/64]$

A = (MBTU/Ft^2 - 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_F = ($ per MBTU) See Table 1

UPWF = Uniform Present Worth Factor. See Table 3

Base	B/C[2/] Fuel Oil	Electricity	Nat Gas/LPG	Other

1/ Assumptions:

a. 50% solar heating fraction
b. 3% of investment allocated as annual O&M expense
c. 10% investment tax credit
d. 0% differential inflation rate for O&M (UPWF 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 S/C for each primary fuel source on each base using the S/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 enrgy 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.

REGION	1	2	3	4	5	6	7	8	9	10	11
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	20.25	18.95	19.40	24.58	20.76

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

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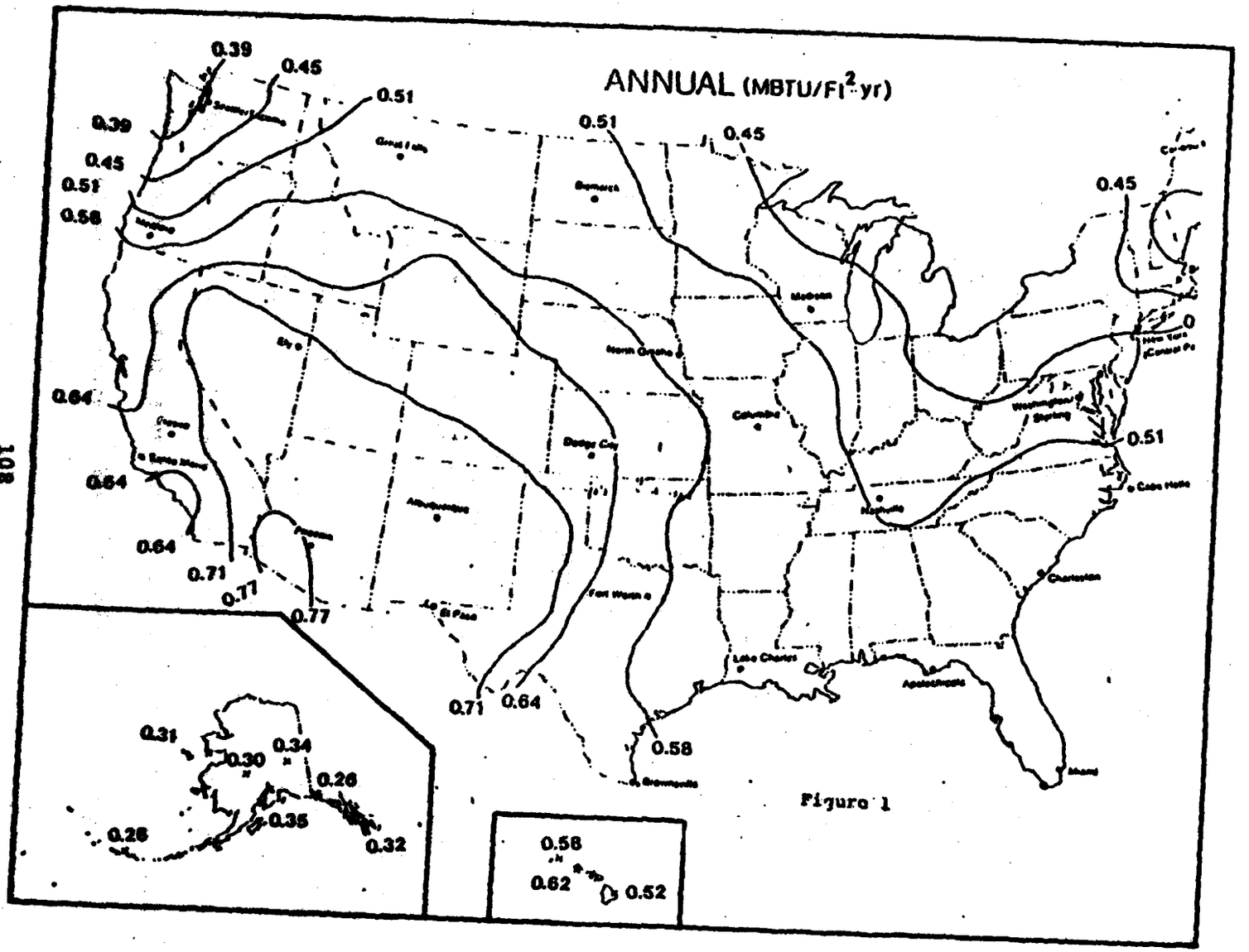

ANNUAL (MBTU/Ft² yr)
0.39
0.45
0.51
0.58
0.64
0.71
0.77
0.31
0.30
0.34
0.26
0.35
0.32
0.28
0.58
0.62
0.52

Figure 1



Figure 2

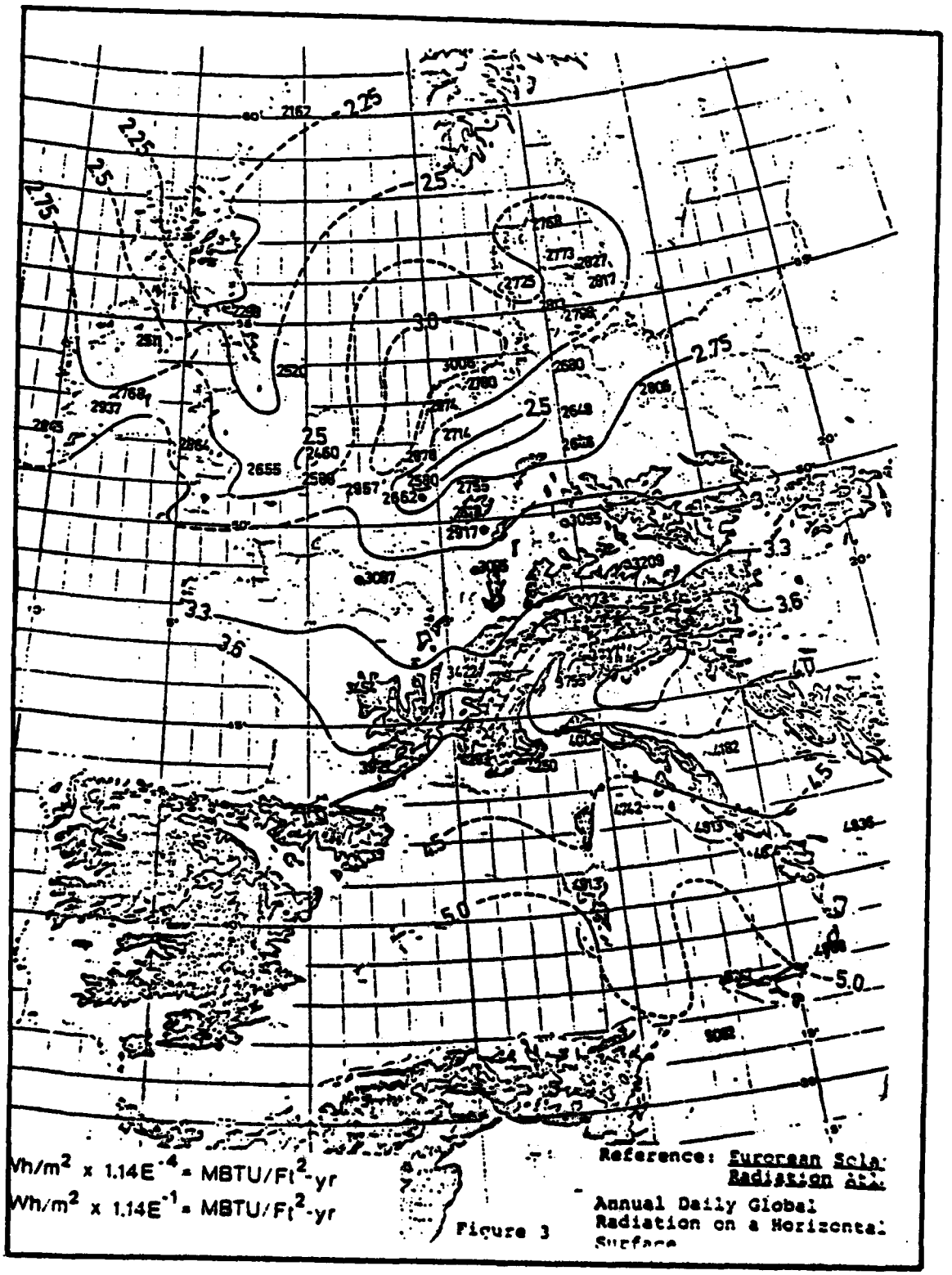


Figure 3

Reference: European Solar Radiation Atl.

Annual Daily Global Radiation on a Horizontal Surface

SIMPLIFIED

UNIQUE PASSIVE SOLAR THERMAL STORAGE HEATING

PRELIMINARY ANALYSIS

NOVEMBER 1982

PASSIVE SOLAR ANALYSIS WORKSHEET

I. Collection Area (Glazing)

Col.	A		B		C		D		E		F
	(SF)	x	(Ratio)	x	(%/100)	=	(Gross SF)	-	(Normal SF)	=	(Net SF)
	____	x	_____	x	_____	=	_____	-	_____	=	_____

II. Thermal Storage

Col.	A		B		C		D		E
	(%)	x	(lbs/SSF) 0.6 (water) 3.0 (masonry)	=	(Gross lbs)	-	(Normal lbs)	=	(Net lbs)
	___	x	_____	=	_____	-	_____	=	_____

III. Annual Heating Consumption

Col.	A		B		C		D
	(SF)	x	(BTU/HDD-SF-YR)	x	(HDD)	=	(BTU/YR)
	____	x	_____	x	_____	=	_____

IV. Annual Solar Savings

Col.	A		B		C		D
	(BTU/YR)	x	(Ratio)	x	(%/100)	=	(BTU/YR)
	_____	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 (%G).

D. Gross square feet of south glazing.

E. Calculate and insert south glazing area for a non-passive building by the following formula:

$[\text{Col A}]^{1/2} \times 1.2 \times \text{No. of stories} = \text{normal south glazing area } (ft^2)$

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 (%G).

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 corresonding 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:

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

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

PASSIVE SOLAR DISPLACEMENT CHECKLIST

Functional Element	Passive Solar Feature	Storage Wall	Direct Gain	Attached Sunspace
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% SIOH = $

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 (%G)	Percent Savings[3/] In Conventional Fuel w/o N.I	w/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:

Insulation

$$\sum_{1}^{n}\left[\left(\frac{Ro}{Rn} \times \%\ \text{Load} \quad /n\right) + 1\right] = S$$

Air Change Rate

$$\sum_{1}^{n}\left[\left(\frac{ACRn}{ACRo} \times \%\ \text{Load} \quad /n\right) + 1\right] = S$$

S x %G = Adjusted %G

$\frac{Ro}{Rn}$ = Ratio of reference insulation Rvalue to new value

$\frac{ACRn}{ACRo}$ = Ratio of new Air Change Rate to reference value

% 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

3/ 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 ($R_{_}$)
For values of Y, see Figure A.

TABLE 2

HEATING ENERGY BUDGET - BTU/HDD-SF-YR[1/] [2/]
(Input energy expected to be consumed)

Facility	Budget
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

HDD	For % Heating
> -7001	60
6001-7000	50
5501-6000	40
4001-5500	30
3001-4000	25
2001-3000	20
1001-2000	15
500-1000	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) Differntial Escalation Rate (_____%) Factor $_____
     - (5) Discounted Dolar 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:

	ANNUAL CONSUMPTION					
	CONVENTIONAL SYSTEM				SAVINGS	
	WITHOUT SOLAR		WITH SOLAR			
	MBTU	$	MBTU	$	MBTU	$
Heating						
Domestic Hot Water (DHW)						
Process						
Cooling						
(Combination)						

COST ANALYSIS:

	Initial Cost	1st Year Savings	PAYBACK (YEARS)	
			Simple	LCC *
Heating				
DHW				
Process				
Cooling				
(Combinations)				

*Life Cycle Cost

Solar Project Summary Instructions

MANAGEMENT INFORMATION: Indicate date and status of data (1391, 353, 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 continuatio 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 approvc 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 thermosyphoning. 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

[redacted]
Chief, Utilities Branch
Engineering Construction Division
Directorate of Engineering & Services

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

4

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 OF: LEEEU

30 DEC 1982

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

TO: 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 AFCOMS/DEE, AFIT/DEE, AFMPC/MPCSXC
NGB/DEE, AFRCE/CR, AFRCE/ER, AFRCE/WR
AFRCE/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	S1	S2	S3	S4
[illegible], ALABAMA	.09	.18	22	37	34	58
[illegible], ALABAMA	.06	.12	26	44	38	68
[illegible], ALABAMA	.07	.15	29	41	38	59
[illegible], ALABAMA	.06	.12	37	60	48	75
[illegible], ARIZONA	.10	.20	29	48	44	72
[illegible], ARIZONA	.06	.12	35	57	45	73
[illegible], ARIZONA	.12	.24	30	47	48	74
[illegible], ARIZONA	.04	.09	43	66	51	78
[illegible], ARKANSAS	.10	.20	24	39	38	64
[illegible], ARKANSAS	.10	.19	23	38	37	62
[illegible], CALIFORNIA	.08	.15	31	50	42	67
[illegible], CALIFORNIA	.07	.15	35	56	46	73
[illegible], CALIFORNIA	.05	.11	29	46	41	65
[illegible], CALIFORNIA	.05	.10	35	58	44	72
[illegible], CALIFORNIA	.05	.09	36	58	44	72
[illegible], CALIFORNIA	.11	.21	24	38	42	67
[illegible], CALIFORNIA	.06	.12	39	61	49	76
[illegible], CALIFORNIA	.07	.15	35	55	46	72
[illegible], CALIFORNIA	.09	.18	29	46	41	65
[illegible], CALIFORNIA	.09	.18	29	47	41	66
[illegible], CALIFORNIA	.04	.09	37	61	46	74
[illegible], CALIFORNIA	.06	.13	34	54	45	71
[illegible], CALIFORNIA	.05	.11	31	53	42	69
[illegible], COLORADO	.12	.24	27	42	47	74
[illegible], COLORADO	.12	.23	27	43	47	74
[illegible], COLORADO	.14	.29	25	35	53	77
[illegible], COLORADO	.13	.27	29	43	50	76
[illegible], COLORADO	.11	.23	29	45	48	75
[illegible], CONNECTICUT	.17	.35	14	19	40	64
[illegible], DELAWARE	.15	.29	19	30	39	63
[illegible], DC	.12	.23	18	28	37	61
[illegible], FLORIDA	.05	.10	28	47	36	61
[illegible], FLORIDA	.04	.08	30	51	36	63
[illegible], FLORIDA	.05	.09	27	47	35	62
[illegible], FLORIDA	.01	.02	27	48	31	54
[illegible], FLORIDA	.03	.06	30	52	37	63
[illegible], FLORIDA	.05	.11	26	45	35	60
[illegible], FLORIDA	.03	.06	30	52	36	63
[illegible], FLORIDA	.01	.03	30	51	34	59
[illegible], GEORGIA	.08	.17	22	36	34	58
[illegible], GEORGIA	.08	.16	24	40	35	60
[illegible], GEORGIA	.07	.15	25	41	35	59
[illegible], GEORGIA	.08	.13	25	43	35	60
[illegible], IDAHO	.14	.28	27	38	48	71
[illegible], IDAHO	.15	.29	22	39	44	65
[illegible], IDAHO	.13	.26	25	35	51	74
[illegible], ILLINOIS	.17	.35	17	23	43	67
[illegible], ILLINOIS	.20	.39	17	22	46	70
[illegible], ILLINOIS	.15	.30	19	28	42	67
[illegible], INDIANA	.14	.27	19	29	37	61
[illegible], INDIANA	.16	.33	13	17	37	60
[illegible], INDIANA	.14	.28	15	21	37	60
SOUTH BEND, INDIANA	.18	.35	12	15	39	61
BURLINGTON, IOWA	.18	.36	20	27	47	71
DES MOINES, IOWA	.21	.43	19	25	50	75
SIOUX CITY, IOWA	.22	.44	18	19	56	79

CITY	B1	B2	S1	S2	S3	S4
SIOUX CITY, IOWA	.23	.46	20	24	53	76
DODGE CITY, KANSAS	.12	.23	27	42	46	73
GOODLAND, KANSAS	.13	.27	26	39	47	74
TOPEKA, KANSAS	.14	.28	24	35	45	71
WICHITA, KANSAS	.14	.28	26	41	45	72
LEXINGTON, KENTUCKY	.13	.27	17	24	35	58
LOUISVILLE, KENTUCKY	.13	.27	18	27	35	59
BATON ROUGE, LOUISIANA	.06	.12	26	43	34	59
LAKE CHARLES, LOUISIANA	.06	.11	24	41	32	57
NEW ORLEANS, LOUISIANA	.05	.11	27	46	35	61
SHREVEPORT, LOUISIANA	.08	.15	26	43	36	61
CARIBOU, MAINE	.25	.50	- N R -		53	74
PORTLAND, MAINE	.17	.34	14	17	45	69
BALTIMORE, MARYLAND	.14	.27	19	30	38	62
BOSTON, MASSACHUSETTS	.15	.29	17	25	40	64
ALPENA, MICHIGAN	.21	.42	- N R -		47	69
DETROIT, MICHIGAN	.17	.34	13	17	39	61
FLINT, MICHIGAN	.15	.31	11	12	40	62
GRAND RAPIDS, MICHIGAN	.19	.38	12	13	39	61
SAULT STE. MARIE, MICHIGAN	.25	.50	- N R -		50	70
TRAVERSE CITY, MICHIGAN	.18	.36	- N R -		42	62
DULUTH, MINNESOTA	.25	.50	- N R -		50	70
INTERNATIONAL FALLS, MINNESOTA	.25	.50	- N R -		47	66
MINNEAPOLIS-ST. PAUL, MINNESOTA	.25	.50	- N R -		55	76
ROCHESTER, MINNESOTA	.24	.49	- N R -		54	74
JACKSON, MISSISSIPPI	.08	.15	24	40	34	59
MERIDIAN, MISSISSIPPI	.08	.15	23	39	34	58
COLUMBIA, MISSOURI	.13	.26	20	33	41	66
KANSAS CITY, MISSOURI	.14	.29	22	33	44	70
SAINT LOUIS, MISSOURI	.15	.29	21	33	41	65
SPRINGFIELD, MISSOURI	.13	.26	22	34	40	65
BILLINGS, MONTANA	.16	.32	24	38	53	79
CUT BANK, MONTANA	.24	.49	22	23	62	81
DILLON, MONTANA	.16	.32	24	32	54	77
GLASGOW, MONTANA	.25	.50	- N R -		55	75
GREAT FALLS, MONTANA	.18	.37	23	28	56	77
HELENA, MONTANA	.20	.39	21	25	55	77
LEWISTOWN, MONTANA	.19	.38	21	25	54	76
MILES CITY, MONTANA	.23	.47	21	23	60	80
MISSOULA, MONTANA	.18	.36	15	16	47	68
GRAND ISLAND, NEBRASKA	.18	.36	24	33	51	76
NORTH OMAHA, NEBRASKA	.20	.40	21	29	51	76
NORTH PLATTE, NEBRASKA	.17	.34	25	36	50	74
SCOTTSBLUFF, NEBRASKA	.16	.31	24	36	49	74
ELKO, NEVADA	.12	.25	27	39	52	76
ELY, NEVADA	.12	.23	27	41	50	77
LAS VEGAS, NEVADA	.09	.18	35	56	48	75
LOVELOCK, NEVADA	.13	.25	32	48	53	78
RENO, NEVADA	.11	.22	31	48	49	76
TONOPAH, NEVADA	.11	.23	31	48	51	77
WINNEMUCCA, NEVADA	.13	.26	24	42	49	75
CONCORD, NEW HAMPSHIRE	.17	.34	13	15	45	68
NEWARK, NEW JERSEY	.13	.25	19	29	39	64
ALBUQUERQUE, NEW MEXICO	.11	.22	29	47	46	73
CLAYTON, NEW MEXICO	.10	.20	28	45	44	73
FARMINGTON, NEW MEXICO	.12	.24	29	45	44	74

-NR- means Not Recommended

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

CITY	B1	B2	S1	S2	S3	S4
[illegible], NEW MEXICO	.11	.22	25	40	44	72
[illegible], NEW MEXICO	.10	.19	30	49	45	73
[illegible] CRUCES, NEW MEX	.09	.17	32	51	46	73
[illegible], NEW MEXICO	.10	.20	30	48	45	73
[illegible], NEW MEXICO	.11	.21	27	43	45	73
[illegible], NEW YORK	.21	.41	13	15	43	66
[illegible], NEW YORK	.15	.30	- N R -		35	56
[illegible], NEW YORK	.19	.37	- N R -		36	57
[illegible], NEW YORK	.25	.50	- N R -		50	71
[illegible] (CENTRAL PARK), NY	.15	.30	16	25	36	59
[illegible], NEW YORK	.18	.37	- N R -		37	58
[illegible], NEW YORK	.19	.38	- N R -		37	59
[illegible], SOUTH CAROLINA	.10	.20	21	35	36	61
[illegible], SOUTH CAROLINA	.09	.17	24	40	36	60
[illegible], SOUTH CAROLINA	.08	.17	23	38	36	60
[illegible], SOUTH CAROLINA	.10	.20	23	37	37	63
[illegible], SOUTH CAROLINA	.09	.19	22	37	36	61
[illegible], SOUTH DAKOTA	.25	.50	- N R -		56	77
[illegible], SOUTH DAKOTA	.25	.50	- N R -		51	72
[illegible], SOUTH DAKOTA	.25	.50	- N R -		52	72
[illegible], OHIO	.15	.31	12	16	35	57
[illegible], OHIO	.12	.24	15	23	35	57
[illegible], OHIO	.15	.31	11	14	34	55
[illegible], OHIO	.10	.20	13	18	35	57
[illegible], OHIO	.14	.28	14	20	36	59
[illegible], OHIO	.17	.34	13	17	38	61
[illegible], OHIO	.16	.32	- N R -		34	54
[illegible] CITY, OKLAHOMA	.11	.22	25	41	41	67
[illegible], OKLAHOMA	.11	.22	24	38	40	65
[illegible], OREGON	.09	.19	21	34	37	60
[illegible], OREGON	.13	.25	23	32	47	71
[illegible], OREGON	.12	.24	21	32	38	60
[illegible], OREGON	.09	.17	25	42	38	64
[illegible], OREGON	.14	.27	22	30	43	64
[illegible], OREGON	.13	.26	21	31	38	60
[illegible], OREGON	.13	.27	26	38	47	71
[illegible], OREGON	.12	.24	21	32	37	59
[illegible], PENNSYLVANIA	.15	.29	16	24	39	63
[illegible], PENNSYLVANIA	.17	.34	- N R -		35	55
[illegible], PENNSYLVANIA	.13	.26	17	26	38	62
[illegible], PENNSYLVANIA	.15	.29	19	29	38	62
[illegible], PENNSYLVANIA	.14	.28	12	16	33	55
[illegible]-BARRE-SCRANTON, PA	.16	.32	13	18	37	60
[illegible], RHODE ISLAND	.15	.30	17	24	40	64
[illegible], SOUTH CAROLINA	.07	.14	25	41	34	59
[illegible], SOUTH CAROLINA	.08	.17	25	41	36	61
[illegible]-GREENVILLE-SPARTANBURG, SC	.08	.17	23	38	36	60
[illegible], SOUTH DAKOTA	.25	.50	- N R -		58	79
[illegible], SOUTH DAKOTA	.22	.43	21	23	58	80
[illegible] CITY, SOUTH DAKOTA	.15	.30	23	32	51	76
[illegible] FALLS, SOUTH DAKOTA	.22	.45	18	19	57	79
[illegible], TENNESSEE	.09	.19	19	32	33	56
[illegible], TENNESSEE	.09	.18	20	33	33	56
[illegible], TENNESSEE	.09	.19	22	36	36	60
NASHVILLE, TENNESSEE	.10	.21	19	30	33	55
ABILENE, TEXAS	.09	.18	29	47	41	68

CITY	B1	B2	S1	S2	S3	S4
AMARILLO, TEXAS	.11	.22	29	46	45	72
AUSTIN, TEXAS	.06	.13	27	46	37	63
BROWNSVILLE, TEXAS	.03	.06	27	46	32	57
CORPUS CHRISTI, TEXAS	.05	.09	29	49	36	63
DALLAS, TEXAS	.08	.17	27	44	38	64
DEL RIO, TEXAS	.06	.12	30	50	39	66
EL PASO, TEXAS	.09	.17	32	53	45	72
FORT WORTH, TEXAS	.09	.17	26	44	38	64
HOUSTON, TEXAS	.06	.11	25	43	34	59
LAREDO, TEXAS	.05	.09	31	52	39	64
LUBBOCK, TEXAS	.09	.19	30	49	44	72
LUFKIN, TEXAS	.07	.14	26	43	35	61
MIDLAND-ODESSA, TEXAS	.09	.18	32	52	44	72
PORT ARTHUR, TEXAS	.06	.11	26	44	34	60
SAN ANGELO, TEXAS	.08	.15	29	48	40	67
SAN ANTONIO, TEXAS	.06	.12	28	48	38	64
SHERMAN, TEXAS	.10	.20	25	41	38	64
WACO, TEXAS	.08	.15	27	45	38	64
WICHITA FALLS, TEXAS	.10	.20	27	45	41	67
BRYCE CANYON, UTAH	.13	.25	26	39	52	78
CEDAR CITY, UTAH	.12	.24	28	43	48	75
SALT LAKE CITY, UTAH	.13	.26	27	39	48	72
BURLINGTON, VERMONT	.22	.43	- N R -		46	68
NORFOLK, VIRGINIA	.09	.19	23	38	37	62
RICHMOND, VIRGINIA	.11	.22	21	34	37	61
ROANOKE, VIRGINIA	.11	.23	21	34	37	61
OLYMPIA, WASHINGTON	.12	.23	20	29	38	59
SEATTLE-TACOMA, WASHINGTON	.11	.22	21	30	39	59
SPOKANE, WASHINGTON	.20	.39	20	24	48	68
YAKIMA, WASHINGTON	.18	.36	24	31	49	70
CHARLESTON, WEST VIRGINIA	.13	.25	16	24	32	54
HUNTINGTON, WEST VIRGINIA	.13	.25	17	27	34	57
EAU CLAIRE, WISCONSIN	.25	.50	- N R -		53	75
GREEN BAY, WISCONSIN	.23	.46	- N R -		53	75
LA CROSSE, WISCONSIN	.21	.43	- N R -		52	75
MADISON, WISCONSIN	.20	.40	15	17	51	74
MILWAUKEE, WISCONSIN	.18	.35	15	18	48	71
CASPER, WYOMING	.13	.26	27	39	53	78
CHEYENNE, WYOMING	.11	.21	25	39	47	74
ROCK SPRINGS, WYOMING	.14	.28	26	38	54	79
SHERIDAN, WYOMING	.16	.31	22	30	52	75
CANADA						
EDMONTON, ALBERTA	.25	.50	- N R -		54	72
SUFFIELD, ALBERTA	.25	.50	28	30	67	85
NANAIMO, BRITISH COLUMBIA	.13	.26	26	35	45	66
VANCOUVER, BRITISH COLUMBIA	.13	.26	20	28	40	60
WINNIPEG, MANITOBA	.25	.50	- N R -		54	74
DARTMOUTH, NOVA SCOTIA	.14	.28	17	24	45	70
WOODSTOCK, ONTARIO	.25	.50	- N R -		48	67
OTTAWA, ONTARIO	.25	.50	- N R -		59	80
TORONTO, ONTARIO	.18	.36	17	23	44	68
NORMANDIN, QUEBEC	.25	.50	- N R -		54	74

-NR- means Not Recommended

APPENDIX E

AIR FORCE INSTALLATION SOLAR ANALYSIS DATA

AIR FORCE INSTALLATION SOLAR ANALYSIS DATA									
Installation	Closest City	DD	ROT		SSF				DOE
					NNI		WNI		
			LO	HI	LO	HI	LO	HI	Region
Altus AFB	Wichita Falls TX	2904	10	20	27	45	41	67	6
Andrews AFB	Washington DC	5010	12	23	16	28	37	61	3
Arnold AFS	Chattanooga TN	3505	9	19	19	32	33	56	4
Barksdale AFB	Shreveport LA	2167	8	15	26	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	16	28	37	61	3
Brooks AFB	San Antonio TX	1570	6	12	28	48	36	64	6
Cannon AFB	Tucumcari NM	4047	10	20	30	48	45	73	6
Carswell AFB	Fort Worth TX	2382	9	17	26	44	38	64	6
Castle AFB	Fresno CA	2850	9	17	29	46	41	66	9
Chanute AFB	Springfield IL	5568	15	30	19	28	42	67	5
Charleston AFB	Charleston SC	2146	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	26	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	66	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	46	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
Grissom AFB	Fort Wayne IN	6209	16	33	13	17	37	60	5
Gunter AFB	Montgomery AL	2269	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	5983	13	26	27	39	48	72	8
Holloman AFB	Truth or Conseq NM	3392	9	17	32	51	46	73	6
Homestead AFB	Miami FL	206	1	2	27	48	31	54	4
Hurlburt Field	Mobile AL	1684	6	12	26	44	34	60	4
Indian Springs Aux	Las Vegas NV	2801	9	18	35	56	48	75	9
Keesler AFB	Mobile AL	1684	6	12	26	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	46	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
					NNI		WNI		
			LO	HI	LO	HI	LO	HI	Region
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	6016	12	23	27	43	47	74	8
Luke AFB	Phoenix AZ	1552	6	12	37	60	48	75	9
MacDill AFB	Tampa FL	716	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
McChord AFB	Seattle WA	5186	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	26	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	8
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	36	61	4
Nellis AFB	Las Vegas NV	2601	9	18	35	56	48	75	9
Norton AFB	Los Angeles CA	1819	5	9	36	58	44	72	9
Offutt AFB	Omaha NE	6601	20	40	21	29	51	76	7
Patrick AFB	Orlando FL	733	3	6	30	52	37	63	4
Pease AFB	Concord NH	7360	17	34	13	15	45	66	1
Peterson AFB	Colorado Springs CO	6473	12	24	27	42	47	74	8
Plattsburgh AFB	Burlington VT	7676	22	43	NR	NR	46	66	2
Pope AFB	Raleigh NC	3514	9	19	22	37	36	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	Macon GA	2240	7	15	25	41	35	59	4
Scott AFB	St Louis MO	4750	15	29	21	33	41	65	5
Seymour-Johnson	Raleigh NC	3514	9	19	22	37	36	61	4
Shaw AFB	Columbia SC	2598	8	17	25	41	36	61	4
Sheppard AFB	Wichita Falls TX	2904	10	20	27	45	41	67	8
Tinker AFB	Oklahoma City OK	3695	11	22	25	41	41	67	6
Travis AFB	Oakland CA	2909	7	15	35	56	46	72	9
Tyndall AFB	Apalachicola FL	1361	5	10	28	47	36	61	4
USAF Academy	Colorado Springs CO	6473	12	24	27	42	47	74	8
Vance AFB	Oklahoma City OK	3695	11	22	25	41	41	67	6
Vandenberg AFB	Santa Maria CA	3068	6	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	5541	14	28	14	20	36	59	5
Wurtsmith AFB	Alpena MI	8618	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	8	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	0.846	0.887	0.949	0.889
Barksdale AFB	Shreveport LA	0.882	0.848	0.878	0.955	0.887
Beale AFB	Sacromento 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
Carswell 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	1.106
Chanute AFB	Decatur IL	0.999	0.974	1.032	0.990	0.985
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	0.869
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	0.906	0.885	0.920	0.948	0.907
England AFB	Baton Rouge LA	0.944	0.924	0.915	0.966	0.940
Fairchild AFB	Spokane WA	1.059	1.049	1.053	1.019	1.064
Francis E Warren AFB	Cheyenne WY	0.990	0.984	0.986	0.992	0.985
George AFB	Los Angeles CA	1.074	1.147	1.116	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	0.967	0.939
Griffiss AFB	Syracuse NY	0.927	0.948	0.956	0.981	0.952
Grissom AFB	Fort Wayne IN	0.964	0.987	0.971	0.994	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	0.952
Hanscom AFB	Boston MA	1.032	1.009	1.053	1.0	1.023
Hill AFB	Salt Lake City UT	0.988	0.923	0.939	0.986	0.957
Holloman AFB	Albuquerque NM	0.959	0.812	0.889	0.956	0.913
Homestead AFB	Miami FL	0.940	0.855	0.895	0.963	0.915
Hurlbert Field	Mobile AL	0.897	0.834	0.901	0.960	0.898
Indian Springs Aux	Las Vegas NV	1.064	1.066	1.098	1.037	1.061
Keesler AFB	Biloxi MS	0.897	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	0.799	0.818	0.938	0.883
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	0.962	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	Sacromento CA	1.166	1.125	1.181	1.078	1.138
Maxwell AFB	Montgomery AL	0.896	0.807	0.861	0.943	0.868
McChord AFB	Seattle WA	1.084	1.129	1.062	1.036	1.100
McClellan AFB	Sacromento CA	1.166	1.125	1.181	1.078	1.138
McConnell AFB	Wichita KS	0.906	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	1.064	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	0.966
Patrick AFB	Orlando FL	0.884	0.808	0.871	0.943	0.865
Pease AFB	Manchester NH	0.904	0.887	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	0.869	0.734	0.812	0.919	0.828
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	0.869	0.734	0.812	0.919	0.828
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	1.186	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	0.938	0.943	0.963	0.939
Vandenberg AFB	Bakersfield CA	1.119	1.109	1.137	1.039	1.089
Whiteman AFB	Kansas City MO	0.970	0.983	0.972	0.993	0.989
Williams AFB	Phoenix AZ	0.980	0.931	0.957	0.994	0.976
Wright-Patterson	Dayton OH	0.968	0.980	0.997	0.986	0.976
Wurtsmith AFB	Flint MI	0.994	1.017	0.988	1.005	0.999

*Closest reference city in excess of 100 miles.

APPENDIX G

COMPUTER PROGRAM WITH SAMPLE FILES

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,sfnmas,
     *     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)
4     continue

      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
                     asc(j,k,l) = 0.0
                     sac(j,k,l) = 0.0
                     do 5 z = 1,5
                        fc(j,k,l,z) = 0.0
5                    continue
3               continue
2          continue
1     continue

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

      do 15 m=1,2

      do 20 j=2,30,2
           ahc(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 = ssf(l)*3.0*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))
35              continue

                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
                else
                   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))
36              continue

                if(sac(j,k,1).gt.1000000.0)then
                   asc(j,k,m) = 1000000.0
                else
                   asc(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 j=2,30,2
              print 60,j,(fc(j,k,1,z),k=10,100,10)
              print 60,j,(fc(j,k,2,z),k=10,100,10)
```

```
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)
75            format(40x,i5,13x,f7.2)
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	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	77.6	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	146.8	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.	429.	643.	858.	1072.	1287.	1501.	1716.	1930.	2144.
4	429.	858.	1287.	1716.	2144.	2573.	3002.	3431.	3860.	4289.
6	643.	1287.	1930.	2573.	3216.	3860.	4503.	5146.	5790.	6433.
8	858.	1716.	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	1716.	3431.	5146.	6862.	8577.	10293.	12008.	13723.	15439.	17154.
18	1930.	3860.	5790.	7719.	9649.	11579.	13509.	15439.	17369.	19298.
20	2144.	4289.	6433.	8577.	10721.	12866.	15010.	17154.	19298.	21443.
22	2359.	4717.	7076.	9435.	11794.	14152.	16511.	18870.	21228.	23587.
24	2573.	5146.	7719.	10293.	12866.	15439.	18012.	20586.	23158.	25731.
26	2788.	5575.	8363.	11150.	13938.	16725.	19513.	22301.	25088.	27876.
28	3002.	6004.	9006.	12008.	15010.	18013.	21014.	24018.	27018.	******
30	3216.	6433.	9649.	12866.	16082.	19298.	22515.	25731.	28948.	******

TRIPLE PANE 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.	605.	907.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	605.	1211.	1816.	2421.	3027.	3632.	4237.	4843.	5448.	6053.
6	907.	1816.	2724.	3632.	4540.	5448.	6356.	7264.	8172.	9080.
8	1211.	2421.	3632.	4843.	6053.	7264.	8475.	9685.	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	2119.	4237.	6356.	8475.	10593.	12712.	14831.	16950.	19068.	21187.
16	2421.	4843.	7264.	9685.	12107.	14528.	16950.	19371.	21792.	24214.
18	2724.	5448.	8172.	10896.	13620.	16344.	19068.	21792.	24516.	27240.
20	3027.	6053.	9080.	12107.	15134.	18160.	21187.	24214.	27240.	30267.
22	3329.	6658.	9988.	13317.	16647.	19976.	23306.	26635.	29964.	33294.
24	3632.	7264.	10896.	14528.	18160.	21792.	25424.	29056.	32688.	36320.
26	3934.	7869.	11804.	15738.	19674.	23609.	27543.	31478.	35412.	39347.
28	4237.	8475.	12712.	16950.	21187.	25424.	29662.	33900.	38136.	******
30	4540.	9080.	13620.	18160.	22700.	27240.	31780.	36320.	40861.	******

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.	29048.	33198.	37348.	41498.
22	4565.	9130.	13694.	18259.	22824.	27388.	31953.	36518.	41083.	45648.
24	4980.	9959.	14939.	19919.	24899.	29878.	34858.	39838.	44818.	49797.
26	5395.	10789.	16184.	21579.	26974.	32368.	37763.	43158.	48552.	53947.
28	5810.	11619.	17429.	23239.	29048.	34858.	40668.	46478.	52287.	******
30	6225.	12449.	18674.	24899.	31123.	37348.	43573.	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.	2013.	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.	21136.	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.	16606.	22142.	27677.	33213.	38748.	44283.	49819.	55354.
24	6039.	12077.	18116.	24155.	30193.	36232.	42271.	48309.	54348.	60386.
26	6542.	13084.	19626.	26167.	32709.	39251.	45793.	52334.	58877.	65419.
28	7045.	14090.	21135.	28180.	35225.	42271.	49316.	56361.	63406.	******
30	7548.	15097.	22645.	30193.	37742.	45290.	52838.	60386.	67935.	******

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	4.9	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	126.5	147.7	168.8	******	******
28	22.7	45.5	68.2	90.9	113.8	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.	1509.	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.	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.	13829.	16594.	19360.	22126.	24891.	******
24	3017.	6034.	9051.	12069.	15086.	18103.	21120.	24137.	******	******
26	3269.	6537.	9806.	13074.	16343.	19611.	22880.	26149.	******	******
28	3520.	7040.	10560.	14080.	17600.	21120.	24640.	28160.	******	******
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	360.	721.	1081.	1442.	1802.	2163.	2523.	2883.	3244.	3604.
4	721.	1442.	2163.	2883.	3604.	4325.	5046.	5767.	6488.	7208.
6	1081.	2163.	3244.	4325.	5406.	6488.	7569.	8650.	9731.	10813.
8	1442.	2883.	4325.	5767.	7208.	8650.	10092.	11534.	12975.	14417.
10	1802.	3604.	5406.	7208.	9011.	10813.	12615.	14417.	16219.	18021.
12	2163.	4325.	6488.	8650.	10813.	12975.	15138.	17300.	19463.	21625.
14	2523.	5046.	7569.	10092.	12615.	15138.	17661.	20184.	22707.	25230.
16	2883.	5767.	8650.	11534.	14417.	17300.	20184.	23067.	25951.	28834.
18	3244.	6488.	9731.	12975.	16219.	19463.	22707.	25951.	29194.	32438.
20	3604.	7208.	10813.	14417.	18021.	21625.	25230.	28834.	32438.	******
22	3965.	7929.	11894.	15859.	19823.	23788.	27753.	31717.	35682.	******
24	4325.	8650.	12975.	17300.	21625.	25951.	30276.	34601.	******	******
26	4686.	9371.	14057.	18742.	23428.	28113.	32798.	37484.	******	******
28	5046.	10092.	15138.	20184.	25230.	30276.	35321.	40367.	******	******
30	5407.	10813.	16219.	21625.	27033.	32438.	37843.	******	******	******

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.	2995.	3993.	4991.	5990.	6988.	7986.	8985.	9983.
6	1497.	2995.	4492.	5990.	7487.	8985.	10482.	11979.	13477.	14974.
8	1997.	3993.	5990.	7986.	9983.	11979.	13976.	15973.	17969.	19966.
10	2496.	4991.	7487.	9983.	12479.	14974.	17470.	19966.	22462.	24957.
12	2995.	5990.	8985.	11979.	14974.	17969.	20964.	23959.	26954.	29949.
14	3494.	6988.	10482.	13976.	17470.	20964.	24458.	27952.	31446.	34940.
16	3993.	7986.	11979.	15973.	19966.	23959.	27952.	31945.	35938.	39932.
18	4492.	8985.	13477.	17969.	22462.	26954.	31446.	35938.	40431.	44923.
20	4991.	9983.	14974.	19966.	24957.	29949.	34940.	39932.	44923.	••••••
22	5491.	10981.	16472.	21962.	27453.	32944.	38434.	43925.	49415.	••••••
24	5990.	11979.	17969.	23959.	29949.	35938.	41928.	47918.	••••••	••••••
26	6489.	12976.	19467.	25956.	32444.	38933.	45422.	51911.	••••••	••••••
28	6988.	13976.	20964.	27952.	34940.	41928.	48916.	55904.	••••••	••••••
30	7487.	14974.	22462.	29949.	37436.	44923.	52410.	••••••	••••••	••••••

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.	2433.	3041.	3649.	4257.	4865.	5473.	6081.
4	1216.	2433.	3649.	4865.	6081.	7298.	8514.	9730.	10947.	12163.
6	1824.	3649.	5473.	7298.	9122.	10947.	12771.	14595.	16420.	18244.
8	2433.	4865.	7298.	9730.	12163.	14595.	17028.	19460.	21893.	24326.
10	3041.	6081.	9122.	12163.	15204.	18244.	21285.	24326.	27366.	30407.
12	3649.	7298.	10947.	14595.	18244.	21893.	25542.	29191.	32840.	36488.
14	4257.	8514.	12771.	17028.	21285.	25542.	29799.	34056.	38313.	42570.
16	4865.	9730.	14595.	19460.	24326.	29191.	34056.	38921.	43786.	48651.
18	5473.	10947.	16420.	21893.	27366.	32840.	38313.	43786.	49259.	54733.
20	6081.	12163.	18244.	24326.	30407.	36488.	42570.	48651.	54733.	••••••
22	6690.	13379.	20068.	26758.	33448.	40137.	46827.	53516.	60206.	••••••
24	7298.	14595.	21893.	29191.	36488.	43786.	51084.	58381.	••••••	••••••
26	7906.	15812.	23717.	31625.	39528.	47435.	55341.	63247.	••••••	••••••
28	8514.	17028.	25542.	34056.	42570.	51084.	59598.	68112.	••••••	••••••
30	9122.	18244.	27366.	36488.	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	86.3	95.9
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.	976.	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	976.	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.	8585.	10731.	12877.	15023.	17169.	19315.	21461.
24	2341.	4682.	7024.	9365.	11706.	14047.	16389.	18730.	21071.	23412.
26	2536.	5073.	7609.	10146.	12682.	15218.	17754.	20291.	22827.	25363.
28	2731.	5463.	8194.	10926.	13657.	16389.	19120.	21852.	24583.	27314.
30	2927.	5853.	8780.	11706.	14633.	17559.	20486.	23412.	26339.	29265.

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.	6569.	7390.	8211.
8	1095.	2190.	3284.	4379.	5474.	6569.	7663.	8758.	9853.	10948.
10	1368.	2737.	4105.	5474.	6842.	8211.	9579.	10948.	12316.	13684.
12	1642.	3284.	4926.	6569.	8211.	9853.	11496.	13137.	14779.	16421.
14	1916.	3832.	5747.	7663.	9579.	11496.	13411.	15327.	17242.	19158.
16	2190.	4379.	6569.	8758.	10948.	13137.	15327.	17516.	19706.	21895.
18	2463.	4926.	7390.	9853.	12316.	14779.	17242.	19706.	22169.	24632.
20	2737.	5474.	8211.	10948.	13684.	16421.	19158.	21895.	24632.	27369.
22	3011.	6021.	9032.	12042.	15053.	18063.	21074.	24084.	27095.	30106.
24	3284.	6569.	9853.	13137.	16421.	19706.	22990.	26274.	29558.	32843.
26	3558.	7116.	10674.	14232.	17790.	21348.	24906.	28464.	32022.	35580.
28	3832.	7663.	11495.	15327.	19158.	22990.	26822.	30653.	34485.	38317.
30	4105.	8211.	12316.	16421.	20527.	24632.	28737.	32843.	36948.	41053.

Arnold AFS

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	6.2	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	168.6	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	249.8
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	249.8	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	4856.	9716.	14575.	19433.	24291.	29149.	34007.	38866.	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.	32565.	36184.
18	4071.	8141.	12212.	16283.	20353.	24424.	28495.	32565.	36636.	40706.
20	4523.	9046.	13569.	18092.	22615.	27138.	31661.	36184.	40706.	45229.
22	4975.	9950.	14926.	19901.	24876.	29851.	34827.	39802.	44777.	49752.
24	5428.	10855.	16283.	21710.	27138.	32565.	37993.	43420.	48848.	54275.
26	5880.	11760.	17639.	23519.	29399.	35279.	41159.	47039.	52918.	58798.
28	6332.	12664.	18996.	25328.	31661.	37993.	44325.	50657.	56989.	63321.
30	6784.	13569.	20353.	27138.	33922.	40706.	47491.	54275.	61060.	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	176.	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.	8456.	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.	19736.	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.	10860.	13575.	16289.	19004.	21719.	24434.	27149.
24	2962.	5923.	8885.	11847.	14809.	17770.	20732.	23694.	26655.	29617.
26	3209.	6417.	9626.	12834.	16043.	19251.	22460.	25668.	28877.	32086.
28	3455.	6911.	10366.	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	126.4	147.4	168.5	189.6	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.	39389.	43765.
28	4713.	9426.	14140.	18853.	23566.	28279.	32992.	37705.	42419.	47132.
30	5050.	10100.	15150.	20199.	25249.	30299.	35349.	40399.	45449.	50498.

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.	26064.	29322.	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.	26878.	31358.	35838.	40318.	44797.
24	4887.	9774.	14661.	19548.	24435.	29322.	34209.	39096.	43983.	48870.
26	5294.	10588.	15883.	21177.	26471.	31765.	37060.	42354.	47648.	52942.
28	5701.	11403.	17104.	22806.	28507.	34209.	39910.	45612.	51313.	57015.
30	6109.	12217.	18326.	24435.	30544.	36652.	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	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.	13057.	15233.	17409.	19585.	21762.
24	2374.	4748.	7122.	9496.	11870.	14244.	16618.	18992.	21366.	23740.
26	2572.	5144.	7715.	10287.	12859.	15431.	18003.	20575.	23146.	25718.
28	2770.	5539.	8309.	11079.	13848.	16618.	19388.	22157.	24927.	27697.
30	2967.	5935.	8902.	11870.	14837.	17805.	20772.	23740.	26707.	29675.

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.	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.	18399.	20699.	22998.
18	2587.	5175.	7762.	10349.	12937.	15524.	18111.	20699.	23286.	25873.
20	2875.	5750.	8624.	11499.	14374.	17249.	20124.	22998.	25873.	28748.
22	3162.	6325.	9487.	12649.	15811.	18974.	22136.	25298.	28460.	31623.
24	3450.	6900.	10349.	13799.	17249.	20699.	24148.	27598.	31048.	34498.
26	3737.	7474.	11212.	14949.	18686.	22423.	26161.	29898.	33635.	37372.
28	4025.	8049.	12074.	16099.	20124.	24148.	28173.	32198.	36223.	40247.
30	4312.	8624.	12937.	17249.	21561.	25873.	30185.	34498.	38810.	43122.

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	69.2	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	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	146.9	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.	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.	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.	22087.	26504.	30921.	35339.	39756.	44173.
24	4819.	9638.	14457.	19276.	24095.	28913.	33732.	38551.	43370.	48189.
26	5220.	10441.	15661.	20882.	26102.	31323.	36543.	41764.	46984.	52205.
28	5622.	11244.	16866.	22488.	28110.	33732.	39354.	44976.	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.	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.	23579.	26526.	29473.
14	3430.	6877.	10316.	13754.	17193.	20631.	24070.	27508.	30947.	34386.
16	3930.	7860.	11789.	15719.	19649.	23579.	27508.	31438.	35368.	39298.
18	4421.	8842.	13263.	17684.	22105.	26526.	30947.	35368.	39789.	44210.
20	4912.	9824.	14737.	19649.	24561.	29473.	34386.	39298.	44210.	49122.
22	5403.	10807.	16210.	21614.	27017.	32421.	37824.	43228.	48631.	54034.
24	5895.	11789.	17684.	23579.	29473.	35368.	41263.	47157.	53052.	58947.
26	6386.	12772.	19158.	25544.	31929.	38315.	44701.	51087.	57473.	63859.
28	6877.	13754.	20631.	27508.	34386.	41263.	48140.	55017.	61894.	68771.
30	7368.	14737.	22105.	29473.	36842.	44210.	51578.	58947.	66316.	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.	776.	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.	3232.	3879.	4525.	5172.	5818.	6465.
12	776.	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.	6206.	7758.	9310.	10861.	12413.	13964.	15516.
26	1681.	3362.	5043.	6724.	8404.	10085.	11766.	13447.	15128.	16809.
28	1810.	3620.	5431.	7241.	9051.	10861.	12671.	14482.	16292.	18102.
30	1939.	3879.	5818.	7758.	9697.	11637.	13575.	15516.	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.	5468.
8	729.	1458.	2188.	2917.	3646.	4375.	5104.	5834.	6563.	7292.
10	911.	1823.	2734.	3646.	4557.	5469.	6380.	7292.	8203.	9115.
12	1094.	2188.	3281.	4375.	5469.	6563.	7657.	8750.	9844.	10938.
14	1276.	2552.	3828.	5104.	6380.	7657.	8933.	10209.	11485.	12761.
16	1458.	2917.	4375.	5834.	7292.	8750.	10209.	11667.	13126.	14584.
18	1641.	3281.	4922.	6563.	8203.	9844.	11485.	13126.	14766.	16407.
20	1823.	3646.	5468.	7292.	9115.	10938.	12761.	14584.	16407.	18230.
22	2005.	4011.	6016.	8021.	10026.	12032.	14037.	16042.	18048.	20053.
24	2188.	4375.	6563.	8750.	10938.	13126.	15313.	17501.	19688.	21876.
26	2370.	4740.	7110.	9480.	11849.	14219.	16589.	18959.	21328.	23698.
28	2552.	5104.	7657.	10209.	12761.	15313.	17865.	20418.	22970.	25522.
30	2734.	5469.	8203.	10938.	13673.	16407.	19141.	21876.	24610.	27345.

Bergstrom 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	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	89.1	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.	1998.	2498.	2997.	3497.	3996.	4496.	4995.
6	749.	1499.	2248.	2997.	3746.	4496.	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	808.	806.	806.	1611.	1614.	1617.	2119.	2422.	2725.	3028.
4	806.	1611.	1617.	2422.	3028.	3633.	4239.	4844.	5450.	6055.
6	806.	1617.	2725.	3633.	4541.	5450.	6358.	7266.	8174.	9083.
8	1611.	2422.	3633.	4844.	6055.	7266.	8477.	9688.	10899.	12110.
10	1614.	3028.	4541.	6055.	7569.	9083.	10596.	12110.	13624.	15138.
12	1617.	3633.	5450.	7266.	9083.	10899.	12716.	14532.	16349.	18165.
14	2119.	4239.	6358.	8477.	10596.	12716.	14835.	16954.	19074.	21193.
16	2422.	4844.	7266.	9688.	12110.	14532.	16954.	19376.	21798.	24220.
18	2725.	5450.	8174.	10899.	13624.	16349.	19074.	21798.	24523.	27248.
20	3028.	6055.	9083.	12110.	15138.	18165.	21193.	24220.	27248.	30276.
22	3330.	6661.	9991.	13321.	16652.	19982.	23312.	26643.	29973.	33303.
24	3633.	7266.	10899.	14532.	18165.	21798.	25431.	29065.	32698.	36331.
26	3936.	7872.	11807.	15743.	19679.	23615.	27551.	31487.	35423.	39359.
28	4239.	8477.	12716.	16954.	21193.	25431.	29670.	33909.	38147.	42386.
30	4541.	9083.	13624.	18165.	22707.	27248.	31789.	36331.	40872.	45414.

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	81.8	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	138.0	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	95.8	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.	17395.	19880.	22366.	24850.
28	2676.	5352.	8028.	10705.	13381.	16057.	18733.	21409.	24086.	26762.
30	2867.	5735.	8602.	11469.	14337.	17204.	20071.	22938.	25806.	28673.

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	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.	14633.	16259.
14	1897.	3794.	5691.	7588.	9485.	11381.	13278.	15176.	17073.	18969.
16	2168.	4336.	6504.	8672.	10839.	13007.	15176.	17343.	19511.	21679.
18	2439.	4878.	7317.	9756.	12194.	14633.	17073.	19511.	21950.	24389.
20	2710.	5420.	8130.	10839.	13549.	16259.	18969.	21679.	24389.	27099.
22	2981.	5962.	8943.	11923.	14904.	17885.	20866.	23847.	26828.	29809.
24	3252.	6504.	9756.	13007.	16259.	19511.	22763.	26014.	29267.	32518.
26	3523.	7046.	10569.	14091.	17614.	21137.	24660.	28182.	31705.	35228.
28	3794.	7588.	11381.	15176.	18969.	22763.	26557.	30351.	34144.	37938.
30	4065.	8130.	12194.	16259.	20324.	24389.	28454.	32518.	36583.	40648.

Blytheville 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	133.8	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	161.0	184.0	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	219.6	250.9	282.3	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.	1863.	2236.	2608.	2981.	3353.	3726.
4	745.	1490.	2236.	2981.	3726.	4471.	5216.	5961.	6707.	7452.
6	1118.	2236.	3353.	4471.	5589.	6707.	7824.	8942.	10060.	11176.
8	1490.	2981.	4471.	5961.	7452.	8942.	10433.	11923.	13413.	14904.
10	1863.	3726.	5589.	7452.	9315.	11176.	13041.	14904.	16767.	18630.
12	2236.	4471.	6707.	8942.	11176.	13413.	15649.	17884.	20120.	22356.
14	2608.	5216.	7824.	10433.	13041.	15649.	18257.	20865.	23473.	26082.
16	2981.	5961.	8942.	11923.	14904.	17884.	20865.	23816.	26827.	29807.
18	3353.	6707.	10060.	13413.	16767.	20120.	23473.	26827.	30180.	33533.
20	3726.	7452.	11176.	14904.	18630.	22356.	26082.	29807.	33533.	37259.
22	4099.	8197.	12296.	16394.	20493.	24591.	28690.	32788.	36887.	40985.
24	4471.	8942.	13413.	17884.	22356.	26827.	31298.	35769.	40240.	44711.
26	4844.	9687.	14531.	19376.	24219.	29062.	33906.	38750.	43593.	48437.
28	5216.	10433.	15649.	20865.	26082.	31298.	36514.	41731.	46947.	52163.
30	5589.	11176.	16767.	22356.	27946.	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	452.	905.	1357.	1810.	2262.	2715.	3167.	3619.	4072.	4524.
4	905.	1810.	2715.	3619.	4524.	5429.	6334.	7239.	8144.	9049.
6	1357.	2715.	4072.	5429.	6786.	8144.	9501.	10858.	12216.	13573.
8	1810.	3619.	5429.	7239.	9049.	10858.	12668.	14478.	16287.	18097.
10	2262.	4524.	6786.	9049.	11311.	13573.	15835.	18097.	20359.	22621.
12	2715.	5429.	8144.	10858.	13573.	16287.	19002.	21717.	24431.	27146.
14	3167.	6334.	9501.	12668.	15835.	19002.	22169.	25336.	28503.	31670.
16	3619.	7239.	10858.	14478.	18097.	21717.	25336.	28956.	32576.	36194.
18	4072.	8144.	12216.	16287.	20359.	24431.	28503.	32576.	36647.	40718.
20	4524.	9049.	13573.	18097.	22621.	27146.	31670.	36194.	40718.	45243.
22	4977.	9953.	14930.	19907.	24883.	29860.	34837.	39814.	44790.	49767.
24	5429.	10858.	16287.	21717.	27146.	32576.	38004.	43433.	48862.	54291.
26	5881.	11763.	17644.	23526.	29408.	35290.	41171.	47052.	52933.	58815.
28	6334.	12668.	19002.	25336.	31670.	38004.	44338.	50672.	57005.	63340.
30	6786.	13573.	20359.	27146.	33932.	40718.	47505.	54291.	61077.	67864.

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.	1509.	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.	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.	13829.	16594.	19360.	22126.	24891.	******
24	3017.	6034.	9051.	12069.	15086.	18103.	21120.	24137.	******	******
26	3269.	6537.	9806.	13074.	16343.	19611.	22880.	26149.	******	******
28	3520.	7040.	10560.	14080.	17600.	21120.	24640.	28160.	******	******
30	3771.	7543.	11314.	15086.	18857.	22629.	26400.	******	******	******

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	360.	721.	1081.	1442.	1802.	2163.	2523.	2883.	3244.	3604.
4	721.	1442.	2163.	2883.	3604.	4325.	5046.	5767.	6488.	7208.
6	1081.	2163.	3244.	4325.	5406.	6488.	7569.	8650.	9731.	10813.
8	1442.	2883.	4325.	5767.	7208.	8650.	10092.	11534.	12975.	14417.
10	1802.	3604.	5406.	7208.	9011.	10813.	12615.	14417.	16219.	18021.
12	2163.	4325.	6488.	8650.	10813.	12975.	15138.	17300.	19463.	21625.
14	2523.	5046.	7569.	10092.	12615.	15138.	17661.	20184.	22707.	25230.
16	2883.	5767.	8650.	11534.	14417.	17300.	20184.	23067.	25951.	28834.
18	3244.	6488.	9731.	12975.	16219.	19463.	22707.	25951.	29194.	32438.
20	3604.	7208.	10813.	14417.	18021.	21625.	25230.	28834.	32438.	******
22	3965.	7929.	11894.	15859.	19823.	23788.	27752.	31717.	35682.	******
24	4325.	8650.	12975.	17300.	21625.	25951.	30276.	34601.	******	******
26	4686.	9371.	14057.	18742.	23428.	28113.	32799.	37484.	******	******
28	5046.	10092.	15138.	20184.	25230.	30276.	35322.	40367.	******	******
30	5407.	10813.	16219.	21625.	27032.	32438.	37845.	******	******	******

Boiling AFB

ANNUAL SOLAR CONTRIBUTION - THERMS*

SQ.FT. (x 1000)	Percent Heat Load Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	6.5	6.7	16.0	26.7	33.4	40.0	46.7	53.4	60.1	66.7
4	6.7	13.5	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	13.5	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	213.6	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	******	******	******

ANNUAL GAS DISPLACEMENT - THERMS*

SQ.FT. (x 1000)	Percent Heat Load Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

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	1425.	2850.	4276.	5701.	7126.	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.	10883.	12697.	14511.	16326.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13604.	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	182.	365.	547.	730.	912.	1095.	1277.	1460.	1642.	1825.
4	365.	730.	1095.	1460.	1825.	2189.	2554.	2919.	3284.	3649.
6	547.	1095.	1642.	2189.	2737.	3284.	3831.	4379.	4926.	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	1642.	3284.	4926.	6568.	8210.	9852.	11494.	13136.	14778.	16421.
20	1825.	3649.	5474.	7298.	9123.	10947.	12772.	14596.	16421.	18246.
22	2007.	4014.	6021.	8028.	10035.	12042.	14049.	16056.	18063.	20070.
24	2189.	4379.	6568.	8758.	10947.	13136.	15326.	17515.	19705.	21894.
26	2372.	4744.	7116.	9487.	11860.	14231.	16603.	18975.	21347.	23719.
28	2554.	5109.	7663.	10217.	12772.	15326.	17880.	20434.	22988.	25543.
30	2737.	5474.	8210.	10947.	13684.	16421.	19157.	21894.	24631.	27368.

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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	5.4	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	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.	29973.	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.	605.	908.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	605.	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.	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.	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.	29055.	32687.	36319.
26	3935.	7869.	11804.	15738.	19673.	23607.	27542.	31476.	35411.	39345.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33897.	38135.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36319.	40858.	45398.

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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	2.2	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	113.6	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.	17466.	19962.	22457.	24952.
24	2722.	5444.	8166.	10888.	13610.	16332.	19054.	21776.	24498.	27221.
26	2949.	5898.	8847.	11796.	14744.	17693.	20642.	23591.	26540.	29489.
28	3176.	6351.	9527.	12703.	15879.	19054.	22230.	25406.	28582.	••••••
30	3403.	6805.	10208.	13610.	17013.	20415.	23818.	27221.	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	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.	9456.
8	1261.	2521.	3782.	5043.	6303.	7564.	8825.	10086.	11346.	12607.
10	1576.	3152.	4728.	6303.	7879.	9456.	11031.	12607.	14183.	15759.
12	1891.	3782.	5673.	7564.	9456.	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.	25529.	28365.
20	3152.	6303.	9456.	12607.	15759.	18910.	22062.	25214.	28365.	31517.
22	3467.	6934.	10401.	13868.	17334.	20801.	24268.	27735.	31202.	34669.
24	3782.	7564.	11346.	15128.	18910.	22692.	26474.	30257.	34039.	37821.
26	4097.	8194.	12292.	16389.	20486.	24583.	28681.	32778.	36875.	40972.
28	4412.	8825.	13237.	17650.	22062.	26474.	30887.	35299.	39712.	••••••
30	4728.	9456.	14183.	18910.	23638.	28365.	33093.	37821.	42548.	••••••

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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	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)

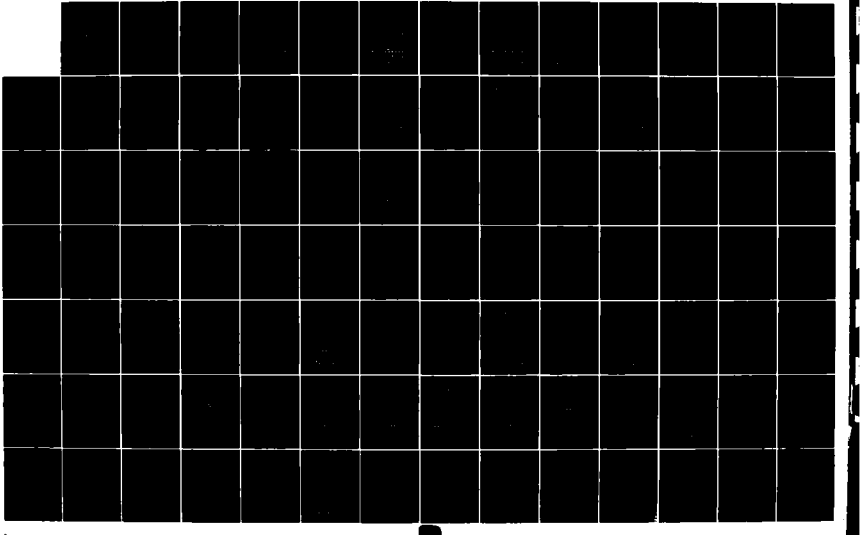
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	428.	855.	1283.	1710.	2138.	2566.	2993.	3421.	3848.	4276.
4	855.	1710.	2566.	3421.	4276.	5131.	5986.	6842.	7697.	8552.
6	1283.	2566.	3848.	5131.	6414.	7697.	8980.	10262.	11545.	12828.
8	1710.	3421.	5131.	6842.	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.	25656.
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.	42760.
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.	44898.	51312.	57726.	••••••

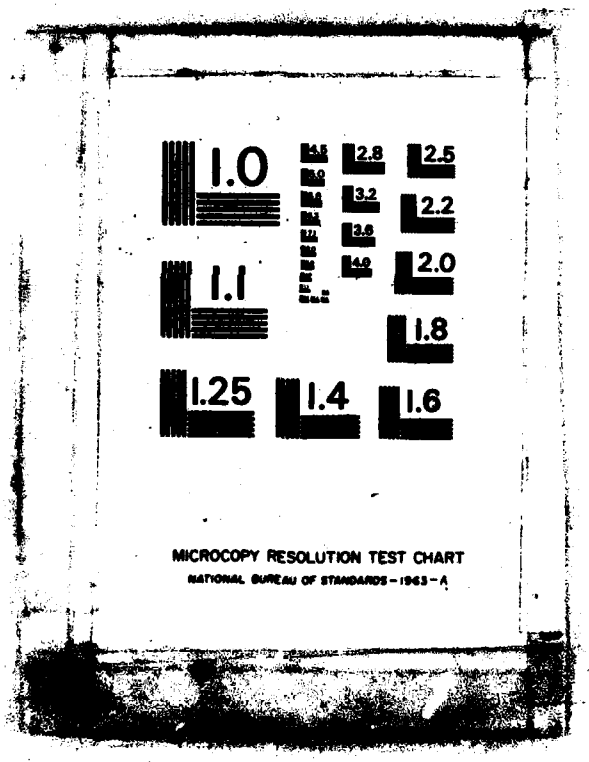
TROMBE WALL DIFFERENTIAL COST--WNI($'s)

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.	21669.	24765.	27860.	30956.
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.	51593.
22	5675.	11351.	17026.	22701.	28376.	34052.	39727.	45402.	51077.	56753.
24	6191.	12382.	18574.	24765.	30956.	37147.	43338.	49530.	55721.	61912.
26	6707.	13414.	20121.	26828.	33536.	40243.	46950.	53657.	60364.	67071.
28	7223.	14446.	21669.	28892.	36115.	43338.	50561.	57784.	65007.	••••••
30	7739.	15478.	23217.	30956.	38695.	46434.	54173.	61912.	69651.	••••••

AD A135 539 SIMPLIFIED PRELIMINARY ECONOMIC ANALYSIS FOR PASSIVE SOLAR HEATING(U) AIR FORCE INST OF TECH WRIGHT PATTERSON AFB OH SCHOOL OF SYST.. 3/4

UNCLASSIFIED P J BALDETTI ET AL. SEP 83 AFIT-LSSR-115-83 F/G 13/1 NL




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NATIONAL BUREAU OF STANDARDS - 1963 - A

Caraswell 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	4.5	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.	2997.	3746.	4495.	5244.	5993.	6742.	7492.
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.	9739.	12174.	14608.	17043.	19478.	21913.	24347.
28	2622.	5244.	7866.	10488.	13110.	15732.	18354.	20976.	23598.	26220.
30	2809.	5619.	8428.	11237.	14047.	16856.	19665.	22475.	25284.	28093.

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	536.	806.	806.	1073.	1341.	1609.	1877.	2146.	2414.	2682.
4	806.	1073.	1609.	2146.	2682.	3218.	3755.	4291.	4828.	5364.
6	806.	1609.	2414.	3218.	4023.	4828.	5632.	6437.	7241.	8046.
8	1073.	2146.	3218.	4291.	5364.	6437.	7510.	8582.	9655.	10728.
10	1341.	2682.	4023.	5364.	6705.	8046.	9387.	10728.	12069.	13410.
12	1609.	3218.	4828.	6437.	8046.	9655.	11264.	12874.	14483.	16092.
14	1877.	3755.	5632.	7510.	9387.	11264.	13142.	15019.	16897.	18774.
16	2146.	4291.	6437.	8582.	10728.	12874.	15019.	17165.	19311.	21456.
18	2414.	4828.	7241.	9655.	12069.	14483.	16897.	19311.	21724.	24138.
20	2682.	5364.	8046.	10728.	13410.	16092.	18774.	21456.	24138.	26820.
22	2950.	5900.	8851.	11801.	14751.	17701.	20652.	23602.	26552.	29502.
24	3218.	6437.	9655.	12874.	16092.	19311.	22529.	25747.	28966.	32184.
26	3487.	6973.	10460.	13947.	17433.	20920.	24406.	27893.	31380.	34866.
28	3755.	7510.	11264.	15019.	18774.	22529.	26284.	30038.	33794.	37548.
30	4023.	8046.	12069.	16092.	20115.	24138.	28161.	32184.	36207.	40230.

Carswell 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	3.3	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	39.1	48.9	58.7	68.4	78.2	88.0	97.8
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	97.8	114.1	130.3	146.6	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	136.9	159.7	182.5	205.3	228.1
30	24.4	48.9	73.3	97.8	122.2	146.6	171.1	195.5	220.0	244.4

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	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.	9280.	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.	28581.	32664.	36747.	40830.
24	4454.	8908.	13363.	17817.	22271.	26725.	31180.	35634.	40088.	44542.
26	4825.	9651.	14476.	19302.	24127.	28952.	33778.	38603.	43429.	48254.
28	5197.	10393.	15590.	20786.	25983.	31180.	36376.	41573.	46769.	51966.
30	5568.	11136.	16703.	22271.	27839.	33407.	38974.	44542.	50110.	55678.

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.	904.	1356.	1808.	2260.	2713.	3165.	3617.	4069.	4521.
4	904.	1808.	2713.	3617.	4521.	5425.	6329.	7234.	8138.	9042.
6	1356.	2713.	4069.	5425.	6781.	8138.	9494.	10850.	12207.	13563.
8	1808.	3617.	5425.	7234.	9042.	10850.	12659.	14467.	16276.	18084.
10	2260.	4521.	6781.	9042.	11302.	13563.	15823.	18084.	20344.	22605.
12	2713.	5425.	8138.	10850.	13563.	16276.	18988.	21701.	24413.	27126.
14	3165.	6329.	9494.	12659.	15823.	18988.	22153.	25318.	28482.	31647.
16	3617.	7234.	10850.	14467.	18084.	21701.	25318.	28934.	32551.	36168.
18	4069.	8138.	12207.	16276.	20344.	24413.	28482.	32551.	36620.	40689.
20	4521.	9042.	13563.	18084.	22605.	27126.	31647.	36168.	40689.	45210.
22	4973.	9946.	14919.	19893.	24866.	29839.	34812.	39785.	44758.	49731.
24	5426.	10850.	16276.	21701.	27126.	32551.	37976.	43402.	48827.	54252.
26	5877.	11755.	17632.	23509.	29386.	35264.	41141.	47018.	52895.	58773.
28	6329.	12659.	18988.	25318.	31647.	37976.	44306.	50635.	56964.	63294.
30	6781.	13563.	20344.	27126.	33907.	40689.	47470.	54252.	61033.	67815.

Castle AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	12.5	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	83.0	99.6	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	135.6	154.9	174.3	193.7
30	20.7	41.5	62.2	83.0	103.7	124.5	145.2	165.9	186.7	207.5

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	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.	4694.	6259.	7823.	9388.	10953.	12518.	14082.	15647.
18	1760.	3521.	5281.	7041.	8801.	10562.	12322.	14082.	15842.	17603.
20	1956.	3912.	5868.	7823.	9779.	11735.	13691.	15647.	17603.	19559.
22	2151.	4303.	6454.	8606.	10757.	12908.	15060.	17212.	19365.	21514.
24	2347.	4694.	7041.	9388.	11735.	14082.	16429.	18776.	21123.	23470.
26	2543.	5085.	7628.	10170.	12713.	15255.	17798.	20341.	22884.	25426.
28	2738.	5476.	8215.	10953.	13691.	16429.	19167.	21906.	24644.	27382.
30	2934.	5868.	8801.	11735.	14669.	17603.	20537.	23470.	26404.	29338.

TROMBE 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	283.	566.	850.	1133.	1416.	1699.	1983.	2266.	2549.	2832.
4	566.	1133.	1699.	2266.	2832.	3399.	3965.	4532.	5098.	5665.
6	850.	1699.	2549.	3399.	4249.	5098.	5948.	6798.	7647.	8497.
8	1133.	2266.	3399.	4532.	5665.	6798.	7931.	9064.	10197.	11330.
10	1416.	2832.	4249.	5665.	7081.	8497.	9913.	11330.	12746.	14162.
12	1699.	3399.	5098.	6798.	8497.	10197.	11896.	13595.	15295.	16994.
14	1983.	3965.	5948.	7931.	9913.	11896.	13878.	15861.	17844.	19827.
16	2266.	4532.	6798.	9064.	11330.	13595.	15861.	18127.	20393.	22659.
18	2549.	5098.	7647.	10197.	12746.	15295.	17844.	20393.	22943.	25491.
20	2832.	5665.	8497.	11330.	14162.	16994.	19827.	22659.	25491.	28324.
22	3116.	6231.	9347.	12463.	15578.	18694.	21810.	24926.	28041.	31156.
24	3399.	6798.	10197.	13595.	16994.	20393.	23792.	27191.	30589.	33988.
26	3682.	7364.	11046.	14728.	18410.	22093.	25775.	29457.	33139.	36821.
28	3965.	7931.	11896.	15861.	19827.	23792.	27757.	31723.	35688.	39653.
30	4249.	8497.	12746.	16994.	21243.	25491.	29740.	33988.	38237.	42485.

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	178.0	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	395.	790.	1184.	1579.	1974.	2369.	2764.	3158.	3553.	3948.
4	790.	1579.	2369.	3158.	3948.	4738.	5527.	6317.	7106.	7896.
6	1184.	2369.	3553.	4738.	5922.	7106.	8291.	9475.	10659.	11844.
8	1579.	3158.	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.	16581.	19345.	22108.	24872.	27635.
16	3158.	6317.	9475.	12633.	15792.	18950.	22108.	25267.	28425.	31583.
18	3553.	7106.	10659.	14213.	17766.	21319.	24872.	28425.	31978.	35531.
20	3948.	7896.	11844.	15792.	19740.	23688.	27635.	31583.	35531.	39479.
22	4343.	8685.	13028.	17371.	21714.	26056.	30399.	34742.	39084.	43427.
24	4738.	9475.	14213.	18950.	23688.	28425.	33163.	37900.	42638.	47375.
26	5132.	10265.	15397.	20529.	25661.	30794.	35926.	41059.	46191.	51323.
28	5527.	11054.	16581.	22108.	27635.	33163.	38690.	44217.	49744.	55271.
30	5922.	11844.	17766.	23688.	29609.	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	482.	965.	1447.	1930.	2412.	2895.	3377.	3860.	4342.	4824.
4	965.	1930.	2895.	3860.	4824.	5789.	6754.	7719.	8684.	9649.
6	1447.	2895.	4342.	5789.	7237.	8684.	10131.	11579.	13026.	14473.
8	1930.	3860.	5789.	7719.	9648.	11579.	13508.	15438.	17368.	19298.
10	2412.	4824.	7237.	9648.	12061.	14473.	16886.	19298.	21710.	24122.
12	2895.	5789.	8684.	11579.	14473.	17368.	20263.	23157.	26052.	28947.
14	3377.	6754.	10131.	13508.	16886.	20263.	23640.	27017.	30394.	33771.
16	3860.	7719.	11579.	15438.	19298.	23157.	27017.	30876.	34736.	38595.
18	4342.	8684.	13026.	17368.	21710.	26052.	30394.	34736.	39078.	43420.
20	4824.	9648.	14473.	19298.	24122.	28947.	33771.	38595.	43420.	48244.
22	5307.	10613.	15920.	21227.	26534.	31841.	37148.	42455.	47762.	53069.
24	5789.	11579.	17368.	23157.	28947.	34736.	40525.	46315.	52104.	57893.
26	6272.	12544.	18815.	25087.	31359.	37631.	43903.	50174.	56446.	62718.
28	6754.	13508.	20263.	27017.	33771.	40525.	47279.	54034.	60788.	67542.
30	7237.	14473.	21710.	28947.	36184.	43420.	50657.	57893.	65130.	72366.

Chanute AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	60.8	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	136.9	159.7	******	******	******
26	24.7	49.4	74.1	98.8	123.6	148.3	******	******	******	******
28	26.6	53.2	79.8	106.4	133.1	159.7	******	******	******	******
30	28.5	57.0	85.5	114.1	142.6	171.1	******	******	******	******

DIRECT GAS DIFFERENTIAL COST--M$(1'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.	8906.	10178.	11450.	12722.
10	1590.	3181.	4771.	6361.	7951.	9542.	11132.	12722.	14312.	15903.
12	1908.	3817.	5725.	7633.	9542.	11450.	13358.	15267.	17175.	******
14	2226.	4453.	6679.	8906.	11132.	13358.	15585.	17811.	20037.	******
16	2544.	5089.	7633.	10178.	12722.	15267.	17811.	20356.	******	******
18	2862.	5725.	8587.	11450.	14312.	17175.	20037.	22900.	******	******
20	3181.	6361.	9542.	12722.	15903.	19083.	22264.	******	******	******
22	3499.	6997.	10496.	13994.	17493.	20991.	24489.	******	******	******
24	3817.	7633.	11450.	15267.	19083.	22900.	26716.	******	******	******
26	4135.	8269.	12404.	16539.	20673.	24808.	******	******	******	******
28	4453.	8906.	13358.	17811.	22264.	26716.	******	******	******	******
30	4771.	9542.	14312.	19083.	23854.	******	******	******	******	******

[illegible]

SQ FT (x 1000)	[illegible]									
	10	20	30	40	50	60	70	80	90	100
2	456.	911.	1366.	1821.	2276.	2732.	3187.	3642.	4097.	4552.
4	911.	1821.	2732.	3642.	4552.	5463.	6374.	7284.	8195.	9105.
6	1366.	2732.	4097.	5463.	6829.	8195.	9561.	10927.	12293.	13658.
8	1821.	3642.	5463.	7284.	9105.	10927.	12748.	14569.	16390.	18211.
10	2276.	4552.	6829.	9105.	11381.	13658.	15934.	18211.	20487.	22763.
12	2732.	5463.	8195.	10927.	13658.	16390.	19121.	21853.	24584.	******
14	3187.	6374.	9561.	12748.	15934.	19121.	22308.	25495.	******	******
16	3642.	7284.	10927.	14569.	18211.	21853.	25495.	29137.	******	******
18	4097.	8195.	12293.	16390.	20487.	24584.	28682.	******	******	******
20	4552.	9105.	13658.	18211.	22763.	27316.	******	******	******	******
22	5008.	10016.	15024.	20032.	25039.	30047.	******	******	******	******
24	5463.	10927.	16390.	21853.	27316.	32779.	******	******	******	******
26	5918.	11837.	17756.	23674.	29593.	******	******	******	******	******
28	6374.	12748.	19121.	25495.	31869.	******	******	******	******	******
30	6829.	13658.	20487.	27316.	34145.	******	******	******	******	******

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	126.1
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	236.3	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.	10078.	11338.	12598.
6	1890.	3779.	5669.	7559.	9449.	11338.	13228.	15118.	17007.	18897.
8	2520.	5039.	7559.	10078.	12598.	15118.	17637.	20157.	22676.	25196.
10	3150.	6299.	9449.	12598.	15748.	18897.	22047.	25196.	28346.	31495.
12	3779.	7559.	11338.	15118.	18897.	22676.	26456.	30235.	34015.	******
14	4409.	8819.	13228.	17637.	22047.	26456.	30865.	35275.	39684.	******
16	5039.	10078.	15118.	20157.	25196.	30235.	35275.	40314.	******	******
18	5669.	11338.	17007.	22676.	28346.	34015.	39684.	45353.	******	******
20	6299.	12598.	18897.	25196.	31495.	37794.	44093.	******	******	******
22	6929.	13858.	20786.	27715.	34645.	41574.	48502.	******	******	******
24	7559.	15118.	22676.	30235.	37794.	45353.	52912.	******	******	******
26	8189.	16377.	24565.	32754.	40944.	49132.	******	******	******	******
28	8819.	17637.	26456.	35275.	44093.	52912.	******	******	******	******
30	9449.	18897.	28345.	37794.	47243.	56691.	******	******	******	******

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	767.	1534.	2301.	3068.	3835.	4603.	5370.	6137.	6904.	7671.
4	1534.	3068.	4603.	6137.	7671.	9206.	10740.	12274.	13808.	15342.
6	2301.	4603.	6904.	9206.	11507.	13808.	16109.	18411.	20712.	23013.
8	3068.	6137.	9206.	12274.	15342.	18411.	21479.	24548.	27616.	30685.
10	3835.	7671.	11507.	15342.	19178.	23013.	26849.	30685.	34520.	38356.
12	4603.	9206.	13808.	18411.	23013.	27616.	32219.	36822.	41424.	******
14	5370.	10740.	16109.	21479.	26849.	32219.	37589.	42958.	48328.	******
16	6137.	12274.	18411.	24548.	30685.	36822.	42958.	49095.	******	******
18	6904.	13808.	20712.	27616.	34520.	41424.	48328.	55232.	******	******
20	7671.	15342.	23013.	30685.	38356.	46027.	53699.	******	******	******
22	8438.	16876.	25314.	33753.	42191.	50629.	59067.	******	******	******
24	9206.	18411.	27616.	36822.	46027.	55232.	64438.	******	******	******
26	9973.	19945.	29917.	39890.	49863.	59835.	******	******	******	******
28	10740.	21479.	32219.	42958.	53699.	64438.	******	******	******	******
30	11507.	23013.	34520.	46027.	57534.	69041.	******	******	******	******

Charleston AFB

ANNUAL SOLAR CONTRIBUTION—MM(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	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	42.5	53.1	63.7	74.4	85.0	95.6	106.2
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	86.9	101.4	115.9	130.4	144.9

DIRECT GAS DIFFERENTIAL COST—$(K's)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	154.	308.	463.	617.	772.	926.	1080.	1235.	1389.	1543.
4	308.	617.	926.	1235.	1543.	1852.	2160.	2469.	2778.	3086.
6	463.	926.	1389.	1852.	2315.	2778.	3241.	3704.	4167.	4630.
8	617.	1235.	1852.	2469.	3086.	3704.	4321.	4938.	5555.	6173.
10	772.	1543.	2315.	3086.	3858.	4630.	5401.	6173.	6944.	7716.
12	926.	1852.	2778.	3704.	4630.	5555.	6481.	7407.	8333.	9259.
14	1080.	2160.	3241.	4321.	5401.	6481.	7562.	8642.	9722.	10802.
16	1235.	2469.	3704.	4938.	6173.	7407.	8642.	9876.	11111.	12346.
18	1389.	2778.	4167.	5555.	6944.	8333.	9722.	11111.	12500.	13889.
20	1543.	3086.	4630.	6173.	7716.	9259.	10802.	12346.	13889.	15432.
22	1698.	3395.	5093.	6790.	8488.	10185.	11883.	13580.	15278.	16975.
24	1852.	3704.	5555.	7407.	9259.	11111.	12963.	14815.	16666.	18518.
26	2006.	4012.	6018.	8025.	10031.	12037.	14043.	16049.	18055.	20061.
28	2160.	4321.	6481.	8642.	10802.	12963.	15123.	17284.	19444.	21605.
30	2315.	4630.	6944.	9259.	11574.	13889.	16204.	18518.	20833.	23148.

TRIPLE GAS DIFFERENTIAL COST—$(K'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.	857.	1071.	1285.	1499.	1713.	1927.	2141.
4	428.	857.	1285.	1713.	2141.	2570.	2998.	3426.	3854.	4283.
6	642.	1285.	1927.	2570.	3212.	3855.	4497.	5140.	5782.	6424.
8	857.	1713.	2570.	3426.	4283.	5140.	5996.	6853.	7709.	8566.
10	1071.	2141.	3212.	4283.	5354.	6424.	7495.	8566.	9637.	10707.
12	1285.	2570.	3855.	5140.	6424.	7709.	8994.	10279.	11564.	12848.
14	1499.	2998.	4497.	5996.	7495.	8994.	10493.	11992.	13491.	14989.
16	1713.	3426.	5140.	6853.	8566.	10279.	11992.	13706.	15419.	17132.
18	1927.	3854.	5782.	7709.	9637.	11564.	13491.	15419.	17346.	19273.
20	2141.	4283.	6424.	8566.	10707.	12848.	14989.	17132.	19273.	21415.
22	2356.	4711.	7067.	9422.	11778.	14133.	16488.	18844.	21200.	23556.
24	2570.	5140.	7709.	10279.	12848.	15419.	17989.	20558.	23128.	25697.
26	2784.	5568.	8351.	11135.	13919.	16703.	19487.	22271.	25055.	27839.
28	2998.	5996.	8994.	11992.	14989.	17989.	20986.	23984.	26981.	29980.
30	3212.	6424.	9637.	12848.	16060.	19273.	22484.	25697.	28910.	32121.

Charleston 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	2.6	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	110.3	126.1	141.8	157.6
26	17.1	34.1	51.2	68.3	85.4	102.4	119.5	136.6	153.7	170.7
28	18.4	36.8	55.2	73.5	91.9	110.3	128.7	147.1	166.5	183.9
30	19.7	39.4	59.1	78.8	98.5	118.2	137.9	157.6	177.3	197.0

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	290.	581.	871.	1161.	1451.	1742.	2032.	2322.	2613.	2903.
4	581.	1161.	1742.	2322.	2903.	3484.	4064.	4645.	5225.	5806.
6	871.	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.	18289.	20321.
16	2322.	4645.	6967.	9289.	11612.	13934.	16256.	18579.	20901.	23224.
18	2613.	5225.	7838.	10451.	13063.	15676.	18289.	20901.	23514.	26126.
20	2903.	5806.	8709.	11612.	14515.	17418.	20321.	23224.	26126.	29029.
22	3193.	6386.	9580.	12773.	15966.	19160.	22353.	25546.	28739.	31932.
24	3484.	6967.	10451.	13934.	17418.	20901.	24385.	27868.	31352.	34835.
26	3774.	7548.	11321.	15095.	18869.	22643.	26417.	30191.	33964.	37738.
28	4064.	8128.	12192.	16256.	20321.	24385.	28449.	32513.	36577.	40641.
30	4354.	8709.	13063.	17418.	21772.	26126.	30481.	34835.	39190.	43544.

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	350.	700.	1050.	1400.	1751.	2101.	2451.	2801.	3151.	3501.
4	700.	1400.	2101.	2801.	3501.	4201.	4902.	5602.	6302.	7002.
6	1050.	2101.	3151.	4201.	5252.	6302.	7353.	8403.	9453.	10504.
8	1400.	2801.	4201.	5602.	7002.	8403.	9803.	11204.	12604.	14005.
10	1751.	3501.	5252.	7002.	8753.	10504.	12254.	14005.	15755.	17505.
12	2101.	4201.	6302.	8403.	10504.	12604.	14706.	16807.	18907.	21007.
14	2451.	4902.	7353.	9803.	12254.	14706.	17156.	19607.	22058.	24508.
16	2801.	5602.	8403.	11204.	14005.	16807.	19607.	22408.	25209.	28010.
18	3151.	6302.	9453.	12604.	15755.	18907.	22058.	25209.	28360.	31511.
20	3501.	7002.	10504.	14005.	17505.	21007.	24508.	28010.	31511.	35012.
22	3851.	7703.	11554.	15405.	19256.	23107.	26959.	30811.	34662.	38514.
24	4201.	8403.	12604.	16807.	21007.	25209.	29410.	33612.	37813.	42015.
26	4552.	9103.	13655.	18207.	22758.	27310.	31861.	36413.	40964.	45516.
28	4902.	9803.	14706.	19607.	24508.	29410.	34312.	39214.	44116.	49017.
30	5252.	10504.	15755.	21007.	26259.	31511.	36763.	42015.	47267.	52518.

Columbus AFB

ANNUAL SOLAR CONTRIBUTION--MMBTU's

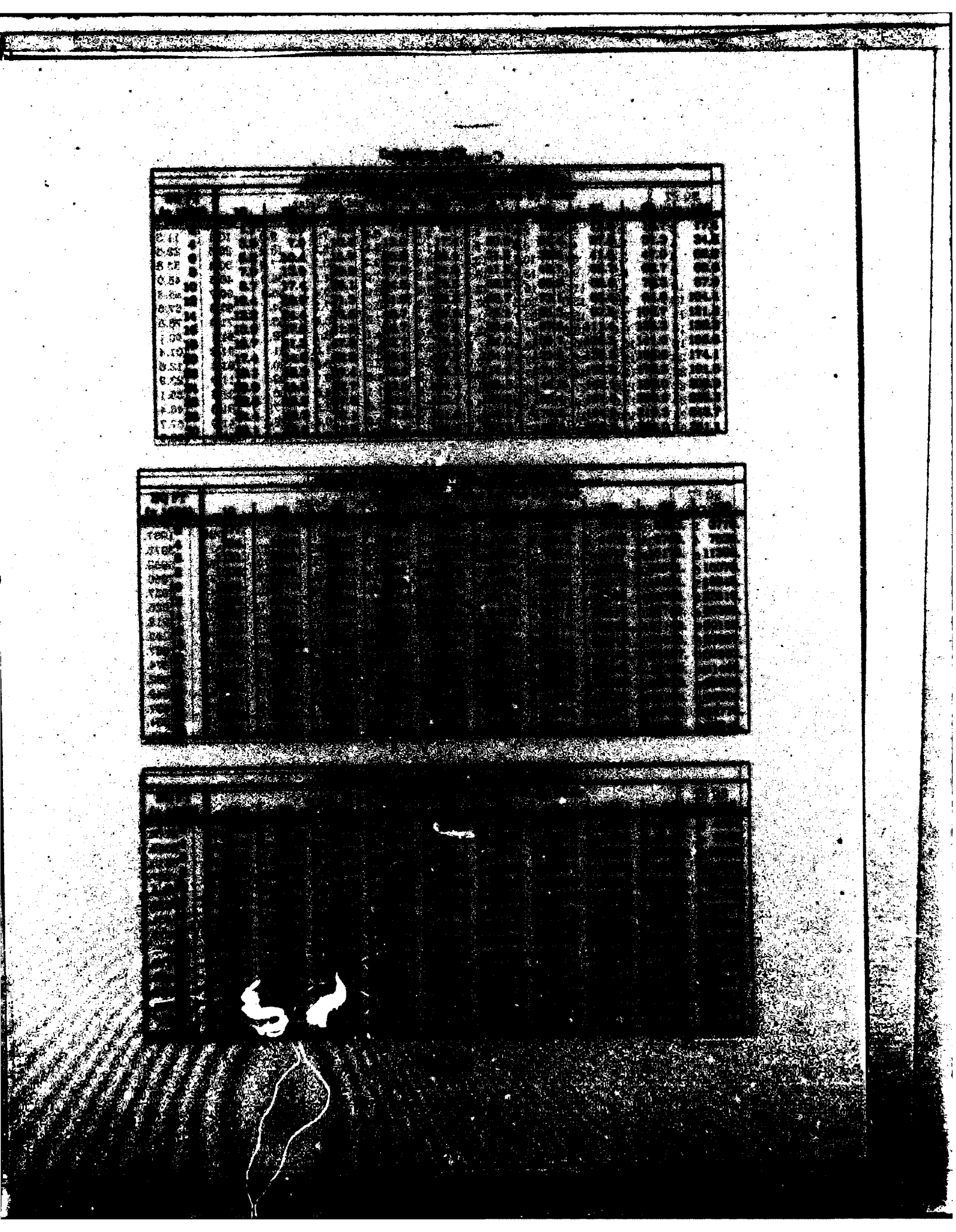
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1.1	2.3	3.4	4.5	5.6	6.8	7.9	9.0	10.1	11.3
4	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0	20.3	22.5
6	3.4	6.8	10.1	13.5	16.9	20.3	23.7	27.0	30.4	33.8
8	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	45.0
10	5.6	11.3	16.9	22.5	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	94.6	108.1	121.6	135.1
26	14.6	29.3	43.9	58.6	73.2	87.8	102.5	117.1	131.8	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	84.5	101.4	118.3	135.1	152.0	168.9

DIRECT GAIN DIFFERENTIAL COST--$(000)'s

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	199.	397.	596.	795.	994.	1192.	1391.	1590.	1789.	1987.
4	397.	795.	1192.	1590.	1987.	2385.	2782.	3180.	3577.	3975.
6	596.	1192.	1789.	2385.	2981.	3577.	4174.	4770.	5366.	5962.
8	795.	1590.	2385.	3180.	3975.	4770.	5565.	6360.	7155.	7950.
10	994.	1987.	2981.	3975.	4969.	5962.	6956.	7950.	8943.	9937.
12	1192.	2385.	3577.	4770.	5962.	7155.	8347.	9540.	10732.	11925.
14	1391.	2782.	4174.	5565.	6956.	8347.	9738.	11130.	12521.	13912.
16	1590.	3180.	4770.	6360.	7950.	9540.	11130.	12720.	14309.	15899.
18	1789.	3577.	5366.	7155.	8943.	10732.	12521.	14309.	16098.	17887.
20	1987.	3975.	5962.	7950.	9937.	11925.	13912.	15899.	17887.	19874.
22	2186.	4372.	6558.	8745.	10931.	13117.	15303.	17488.	19676.	21862.
24	2385.	4770.	7155.	9540.	11925.	14309.	16694.	19079.	21464.	23849.
26	2584.	5167.	7751.	10335.	12919.	15502.	18086.	20669.	23253.	25837.
28	2782.	5565.	8347.	11130.	13912.	16694.	19477.	22259.	25042.	27824.
30	2981.	5962.	8943.	11925.	14906.	17887.	20868.	23849.	26830.	29811.

[illegible]

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.	1940.	2217.	2494.	2772.
4	554.	1108.	1662.	2217.	2771.	3325.	3879.	4433.	4988.	5543.
6	831.	1662.	2494.	3325.	4157.	4988.	5819.	6651.	7482.	8315.
8	1108.	2217.	3325.	4433.	5543.	6651.	7761.	8870.	9979.	11087.
10	1385.	2771.	4157.	5543.	6929.	8315.	9701.	11087.	12472.	13858.
12	1662.	3325.	4988.	6651.	8315.	9979.	11641.	13304.	14967.	16630.
14	1940.	3879.	5819.	7761.	9701.	11641.	13581.	15521.	17461.	19401.
16	2217.	4433.	6651.	8870.	11087.	13304.	15521.	17738.	19956.	22173.
18	2494.	4988.	7482.	9979.	12472.	14967.	17461.	19956.	22451.	24945.
20	2771.	5543.	8315.	11087.	13858.	16630.	19401.	22173.	24945.	27716.
22	3048.	6097.	9147.	12196.	15244.	18293.	21342.	24390.	27439.	30488.
24	3325.	6651.	9979.	13304.	16630.	19956.	23282.	26608.	29934.	33260.
26	3602.	7206.	10810.	14413.	18016.	21619.	25223.	28825.	32428.	36032.
28	3879.	7761.	11641.	15521.	19401.	23282.	27163.	31043.	34923.	38804.
30	4157.	8315.	12472.	16630.	20787.	24945.	29104.	33260.	37417.	41576.



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	15.5	17.7	19.9	22.1
6	3.3	6.6	9.9	13.2	16.5	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	39.7	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	72.8	85.0	97.1	109.3	121.4
24	13.2	26.5	39.7	53.0	66.2	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.	7736.
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.	5802.	6962.	8122.	9283.	10443.	11603.
20	1289.	2579.	3868.	5157.	6446.	7736.	9025.	10314.	11603.	12893.
22	1418.	2836.	4255.	5675.	7091.	8509.	9927.	11345.	12764.	14182.
24	1547.	3094.	4641.	6188.	7736.	9283.	10830.	12377.	13924.	15471.
26	1676.	3352.	5028.	6701.	8380.	10056.	11732.	13408.	15084.	16760.
28	1805.	3610.	5415.	7220.	9025.	10830.	12634.	14440.	16245.	18050.
30	1934.	3868.	5802.	7736.	9669.	11603.	13537.	15471.	17405.	19339.

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.	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.	2756.	3307.	3858.	4409.	4960.	5511.
8	735.	1470.	2204.	2939.	3674.	4409.	5144.	5878.	6613.	7348.
10	919.	1837.	2756.	3674.	4593.	5511.	6430.	7348.	8267.	9186.
12	1102.	2204.	3307.	4409.	5511.	6613.	7715.	8818.	9920.	11022.
14	1286.	2572.	3858.	5144.	6430.	7715.	9001.	10287.	11573.	12859.
16	1470.	2939.	4409.	5878.	7348.	8818.	10287.	11757.	13226.	14696.
18	1653.	3307.	4960.	6613.	8267.	9920.	11573.	13226.	14880.	16533.
20	1837.	3674.	5511.	7348.	9186.	11022.	12859.	14696.	16533.	18370.
22	2021.	4041.	6062.	8082.	10103.	12124.	14145.	16165.	18186.	20207.
24	2204.	4409.	6613.	8818.	11022.	13226.	15431.	17635.	19840.	22044.
26	2388.	4776.	7164.	9553.	11941.	14327.	16717.	19106.	21494.	23881.
28	2572.	5144.	7715.	10287.	12859.	15431.	18002.	20574.	23146.	25718.
30	2756.	5511.	8267.	11022.	13778.	16533.	19288.	22044.	24800.	27555.

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	78.1	93.7	109.3	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	198.7
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'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.	13936.	16725.	19513.	22300.	25088.	27876.
24	3041.	6082.	9123.	12164.	15205.	18246.	21287.	24328.	27369.	30410.
26	3294.	6589.	9883.	13178.	16472.	19766.	23061.	26355.	29649.	32944.
28	3548.	7096.	10643.	14191.	17739.	21287.	24835.	28382.	31930.	35478.
30	3801.	7602.	11404.	15205.	19006.	22807.	26608.	30410.	34211.	38012.

TROMBE WALL DIFFERENTIAL COST--WN((S'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.	2466.	2774.	3082.
4	616.	1233.	1849.	2466.	3082.	3698.	4315.	4931.	5547.	6164.
6	925.	1849.	2774.	3698.	4623.	5547.	6472.	7397.	8321.	9246.
8	1233.	2466.	3698.	4931.	6164.	7397.	8629.	9862.	11095.	12328.
10	1541.	3082.	4623.	6164.	7705.	9246.	10787.	12328.	13868.	15409.
12	1849.	3698.	5547.	7397.	9246.	11095.	12944.	14793.	16642.	18491.
14	2157.	4315.	6472.	8629.	10787.	12944.	15101.	17259.	19416.	21573.
16	2466.	4931.	7397.	9862.	12328.	14793.	17259.	19724.	22190.	24655.
18	2774.	5547.	8321.	11095.	13868.	16642.	19416.	22190.	24963.	27737.
20	3082.	6164.	9246.	12328.	15409.	18491.	21573.	24655.	27737.	30819.
22	3390.	6780.	10170.	13560.	16950.	20340.	23731.	27121.	30511.	33901.
24	3698.	7397.	11095.	14793.	18491.	22190.	25888.	29586.	33284.	36983.
26	4006.	8013.	12019.	16026.	20032.	24039.	28045.	32052.	36058.	40064.
28	4315.	8629.	12944.	17259.	21573.	25888.	30202.	34517.	38832.	43146.
30	4623.	9246.	13868.	18491.	23114.	27737.	32359.	36983.	41606.	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	106.4	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	109.8	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.	649.	973.	1298.	1622.	1947.	2271.	2596.	2920.	3245.
4	649.	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.	14278.	17847.	21417.	24986.	••••••	••••••	••••••
24	3894.	7788.	11682.	15576.	19470.	23364.	27258.	••••••	••••••	••••••
26	4218.	8437.	12655.	16874.	21092.	25311.	••••••	••••••	••••••	••••••
28	4543.	9086.	13629.	18172.	22715.	27258.	••••••	••••••	••••••	••••••
30	4867.	9735.	14602.	19470.	24337.	29206.	••••••	••••••	••••••	••••••

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	462.	923.	1385.	1847.	2309.	2770.	3232.	3694.	4155.	4617.
4	923.	1847.	2770.	3694.	4617.	5541.	6464.	7387.	8311.	9234.
6	1385.	2770.	4155.	5541.	6926.	8311.	9696.	11081.	12466.	13851.
8	1847.	3694.	5541.	7387.	9234.	11081.	12928.	14775.	16622.	18468.
10	2309.	4617.	6926.	9234.	11543.	13851.	16160.	18468.	20777.	23085.
12	2770.	5541.	8311.	11081.	13851.	16622.	19392.	22162.	24932.	••••••
14	3232.	6464.	9696.	12928.	16160.	19392.	22624.	25856.	29088.	••••••
16	3694.	7387.	11081.	14775.	18468.	22162.	25856.	29549.	••••••	••••••
18	4155.	8311.	12466.	16622.	20777.	24932.	29088.	33243.	••••••	••••••
20	4617.	9234.	13851.	18468.	23085.	27703.	32320.	••••••	••••••	••••••
22	5078.	10158.	15236.	20315.	25394.	30473.	35552.	••••••	••••••	••••••
24	5541.	11081.	16622.	22162.	27703.	33243.	38784.	••••••	••••••	••••••
26	6002.	12004.	18007.	24009.	30011.	36013.	••••••	••••••	••••••	••••••
28	6464.	12928.	19392.	25856.	32320.	38784.	••••••	••••••	••••••	••••••
30	6926.	13851.	20777.	27703.	34629.	41554.	••••••	••••••	••••••	••••••

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	228.9	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.	26726.	30545.	34363.	******
14	4454.	8909.	13363.	17818.	22272.	26726.	31181.	35635.	40090.	******
16	5091.	10182.	15272.	20363.	25454.	30545.	35635.	40726.	******	******
18	5727.	11454.	17181.	22908.	28636.	34363.	40090.	45817.	******	******
20	6363.	12727.	19090.	25454.	31817.	38181.	44544.	******	******	******
22	7000.	14000.	20999.	27999.	34999.	41999.	48999.	******	******	******
24	7636.	15272.	22908.	30545.	38181.	45817.	53453.	******	******	******
26	8272.	16545.	24817.	33090.	41362.	49635.	******	******	******	******
28	8909.	17818.	26726.	35635.	44544.	53453.	******	******	******	******
30	9545.	19090.	28636.	38181.	47726.	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.	19338.	23207.	27075.	30942.	34810.	38678.
12	4641.	9283.	13924.	18565.	23207.	27848.	32489.	37131.	41772.	******
14	5415.	10830.	16245.	21660.	27075.	32489.	37904.	43319.	48734.	******
16	6188.	12377.	18565.	24754.	30942.	37131.	43319.	49508.	******	******
18	6962.	13924.	20886.	27848.	34810.	41772.	48734.	55696.	******	******
20	7736.	15471.	23207.	30942.	38678.	46414.	54149.	******	******	******
22	8509.	17018.	25527.	34037.	42545.	51055.	59564.	******	******	******
24	9283.	18565.	27848.	37131.	46414.	55696.	64979.	******	******	******
26	10056.	20113.	30169.	40225.	50282.	60338.	******	******	******	******
28	10830.	21660.	32489.	43319.	54149.	64979.	******	******	******	******
30	11603.	23207.	34810.	46414.	58017.	69620.	******	******	******	******

Dyess 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	2.7	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	159.4	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	102.2	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	193.	386.	579.	773.	966.	1159.	1352.	1545.	1738.	1931.
4	386.	773.	1159.	1545.	1931.	2318.	2704.	3090.	3476.	3863.
6	579.	1159.	1738.	2318.	2897.	3476.	4056.	4635.	5214.	5794.
8	773.	1545.	2318.	3090.	3863.	4635.	5408.	6180.	6953.	7725.
10	966.	1931.	2897.	3863.	4828.	5794.	6760.	7725.	8691.	9656.
12	1159.	2318.	3476.	4635.	5794.	6953.	8111.	9270.	10429.	11588.
14	1352.	2704.	4056.	5408.	6760.	8111.	9463.	10815.	12167.	13519.
16	1545.	3090.	4635.	6180.	7725.	9270.	10815.	12360.	13905.	15450.
18	1738.	3476.	5214.	6953.	8691.	10429.	12167.	13905.	15643.	17382.
20	1931.	3863.	5794.	7725.	9656.	11588.	13519.	15450.	17382.	19313.
22	2124.	4249.	6373.	8498.	10622.	12746.	14871.	16995.	19120.	21244.
24	2318.	4635.	6953.	9270.	11588.	13905.	16223.	18540.	20858.	23175.
26	2511.	5021.	7532.	10043.	12553.	15064.	17576.	20086.	22596.	25107.
28	2704.	5408.	8111.	10815.	13519.	16223.	18927.	21630.	24334.	27038.
30	2897.	5794.	8691.	11588.	14485.	17382.	20279.	23175.	26072.	28969.

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.	13046.	14677.	16308.
14	1903.	3805.	5708.	7610.	9513.	11416.	13318.	15221.	17123.	19026.
16	2174.	4349.	6523.	8698.	10872.	13046.	15221.	17395.	19569.	21744.
18	2446.	4892.	7338.	9785.	12231.	14677.	17123.	19569.	22016.	24462.
20	2718.	5436.	8154.	10872.	13590.	16308.	19026.	21744.	24462.	27180.
22	2990.	5980.	8969.	11959.	14949.	17938.	20928.	23918.	26908.	29898.
24	3262.	6523.	9785.	13046.	16308.	19569.	22831.	26093.	29354.	32616.
26	3533.	7067.	10600.	14133.	17667.	21200.	24733.	28267.	31800.	35334.
28	3805.	7610.	11416.	15221.	19026.	22831.	26636.	30441.	34247.	38052.
30	4077.	8154.	12231.	16308.	20385.	24462.	28539.	32616.	36693.	40770.

Dyess 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	1.9	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	106.0	127.1	148.3	169.5	190.7	211.9
24	23.1	46.2	69.3	92.5	115.6	138.7	161.8	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	161.8	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	288.9

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	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.	8926.	10042.	11158.
8	1488.	2975.	4463.	5951.	7438.	8926.	10414.	11902.	13389.	14877.
10	1860.	3719.	5579.	7438.	9298.	11158.	13017.	14877.	16737.	18596.
12	2232.	4463.	6695.	8926.	11158.	13389.	15621.	17852.	20084.	22315.
14	2603.	5207.	7810.	10414.	13017.	15621.	18224.	20828.	23431.	26035.
16	2975.	5951.	8926.	11902.	14877.	17852.	20828.	23803.	26778.	29754.
18	3347.	6695.	10042.	13389.	16737.	20084.	23431.	26778.	30126.	33473.
20	3719.	7438.	11158.	14877.	18596.	22315.	26035.	29754.	33473.	37192.
22	4091.	8182.	12273.	16365.	20456.	24547.	28638.	32729.	36820.	40911.
24	4463.	8926.	13389.	17852.	22315.	26778.	31242.	35705.	40168.	44631.
26	4835.	9670.	14505.	19340.	24175.	29010.	33845.	38680.	43515.	48350.
28	5207.	10414.	15621.	20828.	26035.	31242.	36448.	41655.	46862.	52069.
30	5579.	11158.	16737.	22315.	27894.	33473.	39052.	44631.	50210.	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.	4055.	4506.
4	901.	1802.	2704.	3605.	4506.	5407.	6308.	7209.	8111.	9012.
6	1352.	2704.	4055.	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.	13518.	16221.	18925.	21628.	24332.	27036.
14	3154.	6308.	9462.	12617.	15771.	18925.	22079.	25233.	28387.	31541.
16	3605.	7209.	10814.	14419.	18024.	21628.	25233.	28838.	32443.	36047.
18	4055.	8111.	12166.	16221.	20277.	24332.	28387.	32443.	36498.	40553.
20	4506.	9012.	13518.	18024.	22530.	27036.	31541.	36047.	40553.	45059.
22	4957.	9913.	14870.	19826.	24783.	29739.	34694.	39652.	44608.	49565.
24	5407.	10814.	16221.	21628.	27036.	32443.	37850.	43257.	48664.	54071.
26	5858.	11715.	17573.	23431.	29289.	35146.	41004.	46862.	52719.	58577.
28	6308.	12617.	18925.	25233.	31541.	37850.	44158.	50466.	56775.	63083.
30	6759.	13518.	20277.	27036.	33795.	40553.	47312.	54071.	60830.	67589.

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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	55.5
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	155.4	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	145.	291.	436.	581.	727.	872.	1017.	1163.	1308.	1453.
4	291.	581.	872.	1163.	1453.	1744.	2036.	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.	2036.	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.	6395.	7993.	9592.	11191.	12789.	14388.	15987.
24	1744.	3488.	5232.	6976.	8720.	10464.	12208.	13952.	15696.	17440.
26	1889.	3779.	5668.	7557.	9447.	11336.	13225.	15115.	17004.	18893.
28	2036.	4069.	6104.	8139.	10173.	12208.	14243.	16277.	18312.	20347.
30	2180.	4360.	6540.	8720.	10900.	13080.	15260.	17440.	19620.	21800.

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	213.	426.	638.	850.	1063.	1276.	1488.	1700.	1913.	2126.
4	426.	850.	1276.	1700.	2126.	2550.	2976.	3401.	3826.	4251.
6	638.	1276.	1913.	2550.	3188.	3826.	4463.	5101.	5738.	6376.
8	850.	1700.	2550.	3401.	4251.	5101.	5951.	6801.	7651.	8501.
10	1063.	2126.	3188.	4251.	5313.	6376.	7438.	8501.	9564.	10627.
12	1276.	2550.	3826.	5101.	6376.	7651.	8926.	10202.	11477.	12752.
14	1488.	2976.	4463.	5951.	7438.	8926.	10414.	11902.	13390.	14877.
16	1700.	3401.	5101.	6801.	8501.	10202.	11902.	13602.	15303.	17003.
18	1913.	3826.	5738.	7651.	9564.	11477.	13390.	15303.	17215.	19128.
20	2126.	4251.	6376.	8501.	10627.	12752.	14877.	17003.	19128.	21254.
22	2338.	4676.	7014.	9352.	11690.	14027.	16365.	18703.	21041.	23378.
24	2550.	5101.	7651.	10202.	12752.	15303.	17853.	20405.	22954.	25504.
26	2763.	5526.	8289.	11052.	13815.	16578.	19341.	22104.	24867.	27630.
28	2976.	5951.	8926.	11902.	14877.	17853.	20829.	23804.	26779.	29756.
30	3188.	6376.	9564.	12752.	15940.	19128.	22316.	25504.	28692.	31880.

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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	160.5	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	296.	593.	894.	1192.	1490.	1788.	2086.	2385.	2683.	2981.
4	593.	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.	19076.	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.	16394.	19672.	22951.	26230.	29509.	32787.
24	3577.	7154.	10730.	14307.	17884.	21461.	25038.	28614.	32191.	35768.
26	3875.	7750.	11625.	15499.	19374.	23249.	27124.	30999.	34874.	38749.
28	4173.	8346.	12519.	16692.	20865.	25038.	29210.	33383.	37556.	41729.
30	4471.	8942.	13413.	17884.	22355.	26826.	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.	7305.
6	1096.	2192.	3287.	4383.	5479.	6575.	7671.	8766.	9862.	10958.
8	1461.	2922.	4383.	5844.	7305.	8766.	10226.	11689.	13150.	14611.
10	1826.	3653.	5479.	7305.	9132.	10958.	12784.	14611.	16437.	18263.
12	2192.	4383.	6575.	8766.	10958.	13150.	15341.	17533.	19725.	21916.
14	2557.	5114.	7671.	10226.	12784.	15341.	17898.	20455.	23012.	25569.
16	2922.	5844.	8766.	11689.	14611.	17533.	20455.	23377.	26299.	29221.
18	3287.	6575.	9862.	13150.	16437.	19725.	23012.	26299.	29587.	32874.
20	3653.	7305.	10958.	14611.	18263.	21916.	25569.	29221.	32874.	36527.
22	4018.	8036.	12054.	16072.	20090.	24108.	28126.	32144.	36162.	40180.
24	4383.	8766.	13150.	17533.	21916.	26299.	30683.	35066.	39449.	43832.
26	4748.	9497.	14246.	18994.	23742.	28491.	33239.	37988.	42735.	47485.
28	5114.	10226.	15341.	20455.	25569.	30683.	35796.	40910.	46024.	51138.
30	5479.	10958.	16437.	21916.	27395.	32874.	38353.	43832.	49311.	54790.

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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	2.4	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	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.	8759.	10511.	12263.	14014.	15766.	17518.
28	1887.	3773.	5660.	7546.	9433.	11319.	13206.	15093.	16979.	18866.
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.	2820.	3384.	3948.	4511.	5075.	5639.
8	752.	1504.	2256.	3008.	3760.	4511.	5263.	6015.	6767.	7519.
10	940.	1880.	2820.	3760.	4699.	5639.	6579.	7519.	8459.	9399.
12	1128.	2256.	3384.	4511.	5639.	6767.	7895.	9023.	10151.	11279.
14	1316.	2632.	3948.	5263.	6579.	7895.	9211.	10527.	11843.	13159.
16	1504.	3008.	4511.	6015.	7519.	9023.	10527.	12031.	13534.	15038.
18	1692.	3384.	5075.	6767.	8459.	10151.	11843.	13534.	15226.	16918.
20	1880.	3760.	5639.	7519.	9399.	11279.	13159.	15038.	16918.	18798.
22	2068.	4135.	6203.	8271.	10338.	12406.	14474.	16542.	18610.	20677.
24	2256.	4511.	6767.	9023.	11279.	13534.	15790.	18046.	20302.	22557.
26	2444.	4887.	7331.	9775.	12218.	14662.	17106.	19550.	21993.	24437.
28	2632.	5263.	7895.	10527.	13159.	15790.	18422.	21054.	23685.	26317.
30	2820.	5639.	8459.	11279.	14098.	16918.	19738.	22557.	25377.	28197.

Eglin 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	256.	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.	14064.	16877.	19690.	22503.	25316.	28129.
24	3069.	6137.	9206.	12274.	15343.	18411.	21480.	24549.	27617.	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.	16683.	18536.
14	2163.	4325.	6488.	8650.	10813.	12975.	15138.	17300.	19463.	21626.
16	2471.	4943.	7414.	9886.	12357.	14829.	17300.	19772.	22243.	24715.
18	2780.	5561.	8341.	11122.	13902.	16683.	19463.	22243.	25024.	27804.
20	3089.	6179.	9268.	12357.	15447.	18536.	21626.	24715.	27804.	30894.
22	3398.	6797.	10195.	13592.	16992.	20390.	23788.	27185.	30583.	33983.
24	3707.	7414.	11122.	14829.	18536.	22243.	25951.	29658.	33365.	37072.
26	4016.	8032.	12049.	16065.	20081.	24097.	28113.	32130.	36146.	40162.
28	4325.	8650.	12975.	17300.	21626.	25951.	30276.	34601.	38926.	43251.
30	4634.	9268.	13902.	18536.	23170.	27804.	32439.	37072.	41706.	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.	20912.	24397.	******	******	******
24	3802.	7604.	11406.	15209.	19011.	22813.	26615.	******	******	******
26	4119.	8238.	12357.	16476.	20595.	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.	18826.	21515.	24205.	******
14	3138.	6275.	9413.	12551.	15688.	18826.	21964.	25101.	28239.	******
16	3586.	7172.	10758.	14344.	17930.	21515.	25101.	28687.	******	******
18	4034.	8068.	12102.	16137.	20171.	24205.	28239.	32273.	******	******
20	4482.	8965.	13447.	17930.	22412.	26894.	31377.	******	******	******
22	4931.	9861.	14792.	19723.	24653.	29584.	34514.	******	******	******
24	5379.	10758.	16137.	21515.	26894.	32273.	37652.	******	******	******
26	5827.	11654.	17481.	23308.	29136.	34963.	******	******	******	******
28	6275.	12551.	18826.	25101.	31377.	37652.	******	******	******	******
30	6724.	13447.	20171.	26894.	33618.	40341.	******	******	******	******

Ellsworth 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	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	******
16	53.8	107.6	161.4	215.1	268.9	322.7	376.5	430.3	******	******
18	60.5	121.0	181.5	242.0	302.6	363.1	423.6	484.1	******	******
20	67.2	134.5	201.7	268.9	336.2	403.4	470.6	******	******	******
22	74.0	147.9	221.9	295.8	369.8	443.7	517.7	******	******	******
24	80.7	161.4	242.0	322.7	403.4	484.1	564.8	******	******	******
26	87.4	174.8	262.2	349.6	437.0	524.4	******	******	******	******
28	94.1	188.3	282.4	376.5	470.6	564.8	******	******	******	******
30	100.9	201.7	302.6	403.4	504.3	605.1	******	******	******	******

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	616.	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.	******
14	4308.	8617.	12925.	17233.	21541.	25850.	30158.	34466.	38774.	******
16	4924.	9847.	14771.	19695.	24619.	29542.	34466.	39390.	******	******
18	5539.	11078.	16618.	22157.	27696.	33235.	38774.	44314.	******	******
20	6155.	12309.	18464.	24619.	30773.	36928.	43083.	******	******	******
22	6770.	13540.	20310.	27081.	33851.	40621.	47391.	******	******	******
24	7386.	14771.	22157.	29542.	36928.	44314.	51699.	******	******	******
26	8001.	16002.	24003.	32004.	40006.	48006.	******	******	******	******
28	8617.	17233.	25850.	34466.	43083.	51699.	******	******	******	******
30	9232.	18464.	27696.	36928.	46160.	55392.	******	******	******	******

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.	8962.	10456.	11950.	13443.	14937.
6	2241.	4481.	6722.	8962.	11203.	13443.	15684.	17925.	20165.	22406.
8	2987.	5975.	8962.	11950.	14937.	17925.	20912.	23899.	26887.	29874.
10	3734.	7469.	11203.	14937.	18671.	22406.	26140.	29874.	33609.	37343.
12	4481.	8962.	13443.	17925.	22406.	26887.	31368.	35849.	40330.	******
14	5228.	10456.	15684.	20912.	26140.	31368.	36596.	41824.	47052.	******
16	5975.	11950.	17925.	23899.	29874.	35849.	41824.	47799.	******	******
18	6722.	13443.	20165.	26887.	33609.	40330.	47052.	53774.	******	******
20	7469.	14937.	22406.	29874.	37343.	44812.	52280.	******	******	******
22	8215.	16431.	24646.	32862.	41077.	49293.	57508.	******	******	******
24	8962.	17925.	26887.	35849.	44812.	53774.	62736.	******	******	******
26	9709.	19418.	29127.	38837.	48546.	58255.	******	******	******	******
28	10456.	20912.	31368.	41824.	52280.	62736.	******	******	******	******
30	11203.	22406.	33609.	44812.	56014.	67217.	******	******	******	******

ANNUAL SOLAR CONTRIBUTION—MBTU(Z'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	12.5	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	12.5	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	37.5	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	12.5	18.8	25.0	31.3	37.5	43.8	50.0	56.3	62.5
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	62.5	70.3	78.2
22	8.6	17.2	25.8	34.4	43.0	51.6	60.2	68.8	77.4	86.0
24	9.4	18.8	28.1	37.5	46.9	56.3	65.7	75.0	84.4	93.8
26	10.2	20.3	30.5	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	76.6	87.5	98.5	109.4
30	11.7	23.4	35.2	46.9	58.6	70.3	82.1	93.8	105.5	117.2

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	127.	255.	382.	509.	637.	764.	891.	1019.	1146.	1273.
4	255.	509.	764.	1019.	1273.	1528.	1782.	2037.	2292.	2546.
6	382.	764.	1146.	1528.	1910.	2292.	2674.	3056.	3438.	3819.
8	509.	1019.	1528.	2037.	2546.	3056.	3565.	4074.	4583.	5093.
10	637.	1273.	1910.	2546.	3183.	3819.	4456.	5093.	5729.	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	1146.	2292.	3438.	4583.	5729.	6875.	8021.	9167.	10313.	11458.
20	1273.	2546.	3819.	5093.	6366.	7639.	8912.	10185.	11458.	12732.
22	1400.	2801.	4201.	5602.	7002.	8403.	9803.	11204.	12604.	14005.
24	1528.	3056.	4583.	6111.	7639.	9167.	10695.	12223.	13750.	15278.
26	1656.	3310.	4965.	6620.	8276.	9931.	11585.	13241.	14896.	16551.
28	1782.	3565.	5347.	7130.	8912.	10695.	12477.	14259.	16042.	17824.
30	1910.	3819.	5729.	7639.	9549.	11458.	13368.	15278.	17188.	19097.

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	161.	322.	483.	644.	805.	1066.	1287.	1448.	1608.	1810.
4	322.	644.	966.	1288.	1610.	2172.	2254.	2576.	2898.	3220.
6	483.	966.	1449.	1932.	2415.	2898.	3381.	3864.	4347.	4830.
8	644.	1288.	1932.	2576.	3220.	3864.	4508.	5152.	5796.	6440.
10	805.	1610.	2415.	3220.	4025.	4830.	5635.	6440.	7244.	8049.
12	966.	1932.	2898.	3864.	4830.	5796.	6762.	7728.	8694.	9660.
14	1127.	2254.	3381.	4508.	5635.	6762.	7889.	9016.	10142.	11269.
16	1288.	2576.	3864.	5152.	6440.	7728.	9016.	10304.	11592.	12880.
18	1449.	2898.	4347.	5796.	7244.	8694.	10142.	11592.	13041.	14490.
20	1610.	3220.	4830.	6440.	8049.	9660.	11269.	12880.	14490.	16099.
22	1771.	3542.	5313.	7084.	8855.	10626.	12397.	14168.	15939.	17710.
24	1932.	3864.	5796.	7728.	9660.	11592.	13524.	15456.	17388.	19320.
26	2093.	4186.	6279.	8372.	10465.	12558.	14652.	16744.	18837.	20930.
28	2254.	4508.	6762.	9016.	11269.	13524.	15779.	18032.	20286.	22540.
30	2415.	4830.	7244.	9660.	12075.	14490.	16906.	19320.	21735.	24150.

England 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	2.0	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	27.6	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	27.6	36.8	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	24.6	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	79.7	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	128.8	143.1
30	15.3	30.7	46.0	61.3	76.7	92.0	107.3	122.6	138.0	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.	3988.	4487.	4986.
6	748.	1496.	2244.	2991.	3739.	4487.	5235.	5983.	6731.	7479.
8	997.	1994.	2991.	3988.	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.	3988.	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.	24928.
22	2742.	5484.	8226.	10968.	13711.	16453.	19195.	21937.	24679.	27421.
24	2991.	5983.	8974.	11966.	14957.	17948.	20940.	23931.	26923.	29914.
26	3241.	6481.	9722.	12963.	16204.	19444.	22685.	25926.	29168.	32407.
28	3490.	6980.	10470.	13960.	17450.	20940.	24430.	27920.	31410.	34900.
30	3739.	7479.	11218.	14957.	18696.	22436.	26176.	29914.	33653.	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.	9694.	10906.	12118.
10	1515.	3030.	4544.	6059.	7574.	9089.	10603.	12118.	13633.	15148.
12	1818.	3636.	5453.	7271.	9089.	10906.	12724.	14542.	16360.	18177.
14	2121.	4241.	6362.	8483.	10603.	12724.	14846.	16965.	19086.	21207.
16	2424.	4847.	7271.	9694.	12118.	14542.	16966.	19389.	21812.	24236.
18	2727.	5453.	8180.	10906.	13633.	16360.	19086.	21812.	24539.	27266.
20	3030.	6059.	9089.	12118.	15148.	18177.	21207.	24236.	27266.	30295.
22	3333.	6665.	9997.	13330.	16662.	19995.	23327.	26660.	29992.	33325.
24	3636.	7271.	10906.	14542.	18177.	21812.	25448.	29083.	32719.	36354.
26	3939.	7877.	11815.	15753.	19692.	23630.	27569.	31507.	35446.	39384.
28	4241.	8483.	12724.	16965.	21207.	25448.	29689.	33930.	38172.	42413.
30	4544.	9089.	13633.	18177.	22721.	27266.	31810.	36354.	40899.	45443.

Fairchild 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	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	88.6	110.7	132.9	******	******	******	******
20	24.6	49.2	73.8	98.4	123.0	******	******	******	******	******
22	27.1	54.1	81.2	108.3	135.3	******	******	******	******	******
24	29.5	59.1	88.6	118.1	147.6	******	******	******	******	******
26	32.0	64.0	96.0	128.0	159.9	******	******	******	******	******
28	34.4	68.9	103.3	137.8	******	******	******	******	******	******
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	608.	1216.	1827.	2435.	3044.	3653.	4262.	4871.	5480.	6088.
4	1216.	2435.	3653.	4871.	6088.	7306.	8524.	9741.	10958.	12177.
6	1827.	3653.	5480.	7306.	9133.	10959.	12786.	14612.	16439.	18265.
8	2435.	4871.	7306.	9741.	12177.	14612.	17047.	19483.	21918.	******
10	3044.	6088.	9133.	12177.	15221.	18265.	21309.	24353.	******	******
12	3653.	7306.	10959.	14612.	18265.	21918.	25571.	******	******	******
14	4262.	8524.	12786.	17047.	21309.	25571.	******	******	******	******
16	4871.	9741.	14612.	19483.	24353.	29224.	******	******	******	******
18	5480.	10958.	16439.	21918.	27398.	32877.	******	******	******	******
20	6088.	12177.	18265.	24353.	30442.	******	******	******	******	******
22	6697.	13394.	20092.	26789.	33486.	******	******	******	******	******
24	7306.	14612.	21918.	29224.	36530.	******	******	******	******	******
26	7915.	15829.	23745.	31660.	39574.	******	******	******	******	******
28	8524.	17047.	25571.	34095.	******	******	******	******	******	******
30	9133.	18265.	27398.	36530.	******	******	******	******	******	******

Fairchild 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	5.9	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	295.3	******	******	******	******	******
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.	42426.	******	******	******	******	******
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.	16589.	18663.	20736.
6	3110.	6221.	9331.	12442.	15552.	18663.	21773.	24884.	27994.	31104.
8	4147.	8295.	12442.	16589.	20736.	24884.	29031.	33178.	37325.	******
10	5184.	10368.	15552.	20736.	25920.	31104.	36289.	41473.	******	******
12	6221.	12442.	18663.	24884.	31104.	37325.	43546.	******	******	******
14	7258.	14515.	21773.	29031.	36289.	43546.	******	******	******	******
16	8295.	16589.	24884.	33178.	41473.	49767.	******	******	******	******
18	9331.	18663.	27994.	37325.	46657.	55988.	******	******	******	******
20	10368.	20736.	31104.	41473.	51841.	******	******	******	******	******
22	11406.	22810.	34215.	45620.	57025.	******	******	******	******	******
24	12442.	24884.	37325.	49767.	62209.	******	******	******	******	******
26	13479.	26957.	40436.	53914.	67393.	******	******	******	******	******
28	14515.	29031.	43546.	58062.	******	******	******	******	******	******
30	15552.	31104.	46657.	62209.	******	******	******	******	******	******

Francis E. Warren 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	3.3	6.5	9.8	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
12	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	156.7	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.	14860.	16718.	18575.
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.	27166.	******
28	3251.	6501.	9752.	13003.	16253.	19504.	22755.	26006.	******	******
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.	9991.
8	1332.	2664.	3996.	5328.	6660.	7992.	9325.	10657.	11989.	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.	25642.	29306.	32969.	36632.
24	3996.	7992.	11989.	15985.	19981.	23977.	27974.	31970.	35966.	******
26	4329.	8658.	12988.	17317.	21646.	25976.	30305.	34634.	38963.	******
28	4662.	9325.	13987.	18649.	23311.	27974.	32636.	37298.	******	******
30	4995.	9991.	14986.	19981.	24976.	29972.	34967.	39962.	******	******

Francis E. Warren 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	6.1	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	135.0	202.5	270.1	337.6	405.1	472.6	540.1	607.6	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	558.5	638.3	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.	25835.	29065.	32294.
16	3691.	7381.	11072.	14763.	18454.	22144.	25835.	29526.	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.	17989.	20238.	22487.
10	2811.	5622.	8433.	11243.	14054.	16865.	19676.	22487.	25298.	28109.
12	3373.	6746.	10119.	13492.	16865.	20238.	23611.	26984.	30357.	33730.
14	3936.	7870.	11806.	15741.	19676.	23611.	27546.	31482.	35417.	39352.
16	4497.	8995.	13492.	17989.	22487.	26984.	31482.	35979.	40476.	44974.
18	5060.	10119.	15179.	20238.	25298.	30357.	35417.	40476.	45536.	50595.
20	5622.	11243.	16865.	22487.	28109.	33730.	39352.	44974.	50595.	56217.
22	6184.	12368.	18552.	24735.	30919.	37103.	43287.	49471.	55655.	61839.
24	6746.	13492.	20238.	26984.	33730.	40476.	47222.	53968.	60714.	******
26	7308.	14616.	21925.	29233.	36541.	43849.	51158.	58466.	65774.	******
28	7870.	15741.	23611.	31482.	39352.	47222.	55093.	62963.	******	******
30	8433.	16865.	25298.	33730.	42163.	50595.	59028.	67460.	******	******

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	155.4	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	146.	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.	8008.	9609.	11211.	12812.	14414.	16015.
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.	14268.	16306.	18345.	20383.
30	2184.	4368.	6552.	8735.	10919.	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.	7488.	8558.	9628.	10698.
12	1284.	2567.	3851.	5135.	6419.	7702.	8986.	10270.	11554.	12837.
14	1498.	2995.	4493.	5991.	7488.	8986.	10484.	11982.	13479.	14977.
16	1712.	3423.	5135.	6847.	8558.	10270.	11982.	13693.	15405.	17117.
18	1926.	3851.	5777.	7702.	9628.	11554.	13479.	15405.	17331.	19256.
20	2140.	4279.	6419.	8558.	10698.	12837.	14977.	17117.	19256.	21396.
22	2354.	4707.	7061.	9414.	11768.	14121.	16475.	18829.	21183.	23536.
24	2567.	5135.	7702.	10270.	12837.	15405.	17972.	20540.	23107.	25675.
26	2781.	5563.	8344.	11126.	13907.	16688.	19470.	22252.	25033.	27815.
28	2995.	5991.	8986.	11982.	14977.	17972.	20968.	23963.	26959.	29954.
30	3209.	6419.	9628.	12837.	16047.	19256.	22466.	25675.	28884.	32094.

George 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	1.8	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	160.5	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.	16252.	18961.	21670.	24379.	27087.
20	3010.	6019.	9029.	12039.	15049.	18058.	21068.	24078.	27087.	30097.
22	3311.	6621.	9932.	13243.	16553.	19864.	23175.	26485.	29796.	33107.
24	3612.	7223.	10835.	14447.	18058.	21670.	25282.	28893.	32505.	36116.
26	3913.	7825.	11738.	15650.	19563.	23476.	27388.	31301.	35214.	39126.
28	4214.	8427.	12641.	16854.	21068.	25282.	29495.	33709.	37922.	42136.
30	4515.	9029.	13544.	18058.	22573.	27087.	31602.	36116.	40631.	45145.

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	369.	738.	1108.	1477.	1847.	2216.	2585.	2955.	3324.	3693.
4	738.	1477.	2216.	2955.	3693.	4432.	5171.	5909.	6648.	7387.
6	1108.	2216.	3324.	4432.	5540.	6648.	7756.	8864.	9972.	11080.
8	1477.	2955.	4432.	5909.	7387.	8864.	10341.	11819.	13296.	14773.
10	1847.	3693.	5540.	7387.	9233.	11080.	12927.	14773.	16620.	18467.
12	2216.	4432.	6648.	8864.	11080.	13296.	15512.	17728.	19944.	22160.
14	2585.	5171.	7756.	10341.	12927.	15512.	18098.	20683.	23268.	25854.
16	2955.	5909.	8864.	11819.	14773.	17728.	20683.	23638.	26592.	29547.
18	3324.	6648.	9972.	13296.	16620.	19944.	23268.	26592.	29916.	33240.
20	3693.	7387.	11080.	14773.	18467.	22160.	25854.	29547.	33240.	36934.
22	4063.	8125.	12188.	16251.	20314.	24376.	28439.	32502.	36564.	40627.
24	4432.	8864.	13296.	17728.	22160.	26592.	31024.	35456.	39888.	44320.
26	4801.	9603.	14404.	19206.	24007.	28808.	33610.	38411.	43213.	48014.
28	5171.	10341.	15512.	20683.	25854.	31024.	36195.	41366.	46538.	51707.
30	5540.	11080.	16620.	22160.	27700.	33240.	38780.	44320.	49861.	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	98.2	114.6	131.0	147.3	163.7
30	17.5	35.1	52.6	70.2	87.7	105.2	122.8	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.	7553.	9442.	11330.	13219.	15107.	16996.	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.	20600.	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.	3866.	4349.	4832.
6	725.	1450.	2174.	2899.	3624.	4349.	5074.	5798.	6523.	7248.
8	966.	1933.	2899.	3866.	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.	3866.	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.	10630.	13288.	15945.	18603.	21261.	23918.	26576.
24	2899.	5798.	8698.	11597.	14496.	17395.	20294.	23193.	26093.	28992.
26	3141.	6282.	9422.	12563.	15704.	18845.	21986.	25126.	28267.	31408.
28	3382.	6765.	10147.	13530.	16912.	20294.	23677.	27059.	30441.	33824.
30	3624.	7248.	10872.	14496.	18120.	21744.	25368.	28992.	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	146.8	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	225.8
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.	21158.	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.	21819.	25456.	29093.	32739.	36366.
24	3967.	7934.	11902.	15869.	19836.	23803.	27770.	31737.	35705.	39672.
26	4298.	8596.	12893.	17191.	21489.	25787.	30084.	34382.	38680.	42978.
28	4628.	9257.	13885.	18513.	23142.	27770.	32399.	37027.	41655.	46284.
30	4959.	9918.	14877.	19836.	24795.	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.	4005.
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.	19226.	21628.	24032.
14	2804.	5607.	8411.	11215.	14018.	16822.	19626.	22429.	25233.	28037.
16	3204.	6408.	9613.	12817.	16021.	19226.	22429.	25634.	28838.	32042.
18	3605.	7209.	10814.	14419.	18024.	21628.	25233.	28838.	32443.	36047.
20	4005.	8011.	12016.	16021.	20026.	24032.	28037.	32042.	36047.	40053.
22	4406.	8812.	13217.	17623.	22029.	26438.	30841.	35246.	39652.	44058.
24	4806.	9613.	14419.	19226.	24032.	28838.	33644.	38451.	43257.	48063.
26	5207.	10414.	15621.	20827.	26034.	31241.	36448.	41655.	46862.	52068.
28	5607.	11215.	16822.	22429.	28037.	33644.	39252.	44859.	50466.	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	396.2	******	******	******	******	******	******	******

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.	37084.	******	******	******	******	******	******
20	10301.	20602.	30903.	41204.	******	******	******	******	******	******
22	11331.	22662.	33993.	45325.	******	******	******	******	******	******
24	12361.	24722.	37084.	49445.	******	******	******	******	******	******
26	13391.	26783.	40174.	53565.	******	******	******	******	******	******
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	1251.	2502.	3754.	5005.	6256.	7507.	8758.	10009.	11261.	12512.
4	2502.	5005.	7507.	10009.	12512.	15014.	17516.	20019.	22521.	25023.
6	3754.	7507.	11261.	15014.	18768.	22521.	26275.	30028.	******	******
8	5005.	10009.	15014.	20019.	25023.	30028.	35033.	******	******	******
10	6256.	12512.	18768.	25023.	31279.	37535.	******	******	******	******
12	7507.	15014.	22521.	30028.	37535.	******	******	******	******	******
14	8758.	17516.	26275.	35033.	43791.	******	******	******	******	******
16	10009.	20019.	30028.	40037.	50047.	******	******	******	******	******
18	11261.	22521.	33782.	45042.	******	******	******	******	******	******
20	12512.	25023.	37535.	50047.	******	******	******	******	******	******
22	13768.	27526.	41289.	55052.	******	******	******	******	******	******
24	15014.	30028.	45042.	60056.	******	******	******	******	******	******
26	16265.	32530.	48796.	65061.	******	******	******	******	******	******
28	17516.	35033.	52549.	******	******	******	******	******	******	******
30	18768.	37535.	56303.	******	******	******	******	******	******	******

Griffiss 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	4.4	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	796.	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	968.	1937.	2905.	3874.	4842.	5811.	6779.	7748.	8716.	9684.
4	1937.	3874.	5811.	7748.	9684.	11621.	13558.	15495.	17432.	19369.
6	2905.	5811.	8716.	11621.	14527.	17432.	20337.	23243.	26148.	29053.
8	3874.	7748.	11621.	15495.	19369.	23243.	27116.	30990.	34864.	******
10	4842.	9684.	14527.	19369.	24211.	29053.	33896.	38738.	******	******
12	5811.	11621.	17432.	23243.	29053.	34864.	40675.	******	******	******
14	6779.	13558.	20337.	27116.	33896.	40675.	47454.	******	******	******
16	7748.	15495.	23243.	30990.	38738.	46486.	******	******	******	******
18	8716.	17432.	26148.	34864.	43580.	52296.	******	******	******	******
20	9684.	19369.	29053.	38738.	48422.	58107.	******	******	******	******
22	10653.	21306.	31958.	42612.	53264.	******	******	******	******	******
24	11621.	23243.	34864.	46486.	58107.	******	******	******	******	******
26	12590.	25180.	37769.	50359.	62949.	******	******	******	******	******
28	13558.	27116.	40675.	54233.	67791.	******	******	******	******	******
30	14527.	29053.	43580.	58107.	******	******	******	******	******	******

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	338.	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.	1448.	1932.	2415.	2898.	3381.	3864.	4347.	4830.
4	966.	1932.	2898.	3864.	4830.	5796.	6762.	7728.	8694.	9660.
6	1448.	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.	20285.	23183.	26081.	******
14	3381.	6762.	10142.	13523.	16904.	20285.	23666.	27047.	******	******
16	3864.	7728.	11591.	15455.	19319.	23183.	27047.	30910.	******	******
18	4347.	8694.	13040.	17387.	21734.	26081.	30427.	******	******	******
20	4830.	9660.	14489.	19319.	24149.	28978.	33808.	******	******	******
22	5313.	10625.	15938.	21251.	26564.	31876.	******	******	******	******
24	5796.	11591.	17387.	23183.	28978.	34774.	******	******	******	******
26	6279.	12557.	18836.	25115.	31393.	37672.	******	******	******	******
28	6762.	13523.	20285.	27047.	33808.	40570.	******	******	******	******
30	7245.	14489.	21734.	28978.	36223.	******	******	******	******	******

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	115.6	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	53.6	107.5	161.3	215.0	268.8	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.	33406.
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.	33406.	40088.	46769.	******	******	******
22	7349.	14699.	22048.	29398.	36747.	44096.	******	******	******	******
24	8018.	16035.	24053.	32070.	40088.	48106.	******	******	******	******
26	8686.	17371.	26057.	34743.	43428.	52114.	******	******	******	******
28	9354.	18708.	28061.	37415.	46769.	56123.	******	******	******	******
30	10022.	20044.	30066.	40088.	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.	2441.	3254.	4068.	4882.	5695.	6509.	7322.	8136.
4	1227.	3254.	4882.	6509.	8136.	9763.	11390.	13018.	14645.	16272.
6	2441.	4882.	7322.	9763.	12204.	14645.	17086.	19526.	21967.	24408.
8	3254.	6509.	9763.	13018.	16272.	19526.	22781.	26035.	29290.	32544.
10	4068.	8136.	12204.	16272.	20340.	24408.	28476.	32544.	36612.	40680.
12	4882.	9763.	14645.	19526.	24408.	29290.	34171.	39053.	43934.	******
14	5695.	11390.	17086.	22781.	28476.	34171.	39866.	45562.	******	******
16	6509.	13018.	19526.	26035.	32544.	39053.	45562.	52070.	******	******
18	7322.	14645.	21967.	29290.	36612.	43934.	51257.	******	******	******
20	8136.	16272.	24408.	32544.	40680.	48816.	56952.	******	******	******
22	8950.	17899.	26849.	35798.	44748.	53698.	******	******	******	******
24	9763.	19526.	29290.	39053.	48816.	58579.	******	******	******	******
26	10577.	21154.	31730.	42307.	52884.	63461.	******	******	******	******
28	11390.	22781.	34171.	45562.	56952.	68342.	******	******	******	******
30	12204.	24408.	36612.	48816.	61020.	******	******	******	******	******

Gunter 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	36.3	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	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.	4366.	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.	4366.	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.	6860.	8575.	10289.	12004.	13719.	15434.	17149.
24	1871.	3742.	5612.	7483.	9354.	11225.	13096.	14966.	16837.	18708.
26	2027.	4053.	6080.	8107.	10134.	12160.	14187.	16214.	18240.	20267.
28	2183.	4366.	6548.	8730.	10913.	13096.	15278.	17461.	19643.	21826.
30	2339.	4677.	7016.	9354.	11693.	14031.	16370.	18708.	21047.	23385.

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	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.	3253.	3904.	4555.	5206.	5856.	6507.
8	868.	1735.	2603.	3470.	4338.	5206.	6073.	6941.	7808.	8676.
10	1084.	2169.	3253.	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.	8676.	10411.	12146.	13881.	15616.	17352.
18	1952.	3904.	5856.	7808.	9760.	11712.	13664.	15616.	17568.	19520.
20	2169.	4338.	6507.	8676.	10845.	13014.	15183.	17352.	19520.	21689.
22	2386.	4772.	7157.	9543.	11929.	14315.	16701.	19087.	21472.	23858.
24	2603.	5206.	7808.	10411.	13014.	15616.	18219.	20822.	23425.	26027.
26	2820.	5639.	8459.	11278.	14098.	16917.	19737.	22557.	25377.	28196.
28	3037.	6073.	9110.	12146.	15183.	18219.	21255.	24292.	27329.	30365.
30	3253.	6507.	9760.	13014.	16267.	19520.	22774.	26027.	29281.	32534.

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	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	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.	2945.
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.	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.	21206.	23562.
18	2651.	5301.	7952.	10603.	13253.	15904.	18555.	21206.	23856.	26507.
20	2945.	5890.	8836.	11781.	14726.	17671.	20617.	23562.	26507.	29452.
22	3240.	6479.	9719.	12958.	16199.	19438.	22678.	25918.	29158.	32397.
24	3534.	7069.	10603.	14137.	17671.	21206.	24740.	28274.	31808.	35343.
26	3829.	7658.	11486.	15315.	19144.	22973.	26801.	30630.	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.	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.	10666.	12443.	14221.	15998.	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.	25597.	28441.
18	3200.	6399.	9599.	12798.	15998.	19198.	22397.	25597.	28797.	31996.
20	3555.	7110.	10665.	14221.	17776.	21331.	24886.	28441.	31996.	35551.
22	3911.	7821.	11732.	15643.	19554.	23464.	27375.	31286.	35196.	39107.
24	4266.	8532.	12798.	17065.	21331.	25597.	29863.	34129.	38396.	42662.
26	4622.	9243.	13865.	18487.	23108.	27730.	32352.	36974.	41595.	46217.
28	4977.	9954.	14932.	19909.	24886.	29863.	34840.	39818.	44795.	49772.
30	5333.	10665.	15998.	21331.	26664.	31996.	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	796.	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	968.	1937.	2906.	3874.	4842.	5811.	6779.	7748.	8716.	9684.
4	1937.	3874.	5811.	7748.	9684.	11621.	13558.	15495.	17432.	19369.
6	2906.	5811.	8716.	11621.	14527.	17432.	20337.	23243.	26148.	29053.
8	3874.	7748.	11621.	15495.	19369.	23243.	27116.	30990.	34864.	******
10	4842.	9684.	14527.	19369.	24211.	29053.	33896.	38738.	******	******
12	5811.	11621.	17432.	23243.	29053.	34864.	40675.	******	******	******
14	6779.	13558.	20337.	27116.	33896.	40675.	47454.	******	******	******
16	7748.	15495.	23243.	30990.	38738.	46486.	******	******	******	******
18	8716.	17432.	26148.	34864.	43580.	52296.	******	******	******	******
20	9684.	19369.	29053.	38738.	48422.	58107.	******	******	******	******
22	10653.	21306.	31959.	42612.	53264.	******	******	******	******	******
24	11621.	23243.	34864.	46486.	58107.	******	******	******	******	******
26	12590.	25180.	37769.	50359.	62949.	******	******	******	******	******
28	13558.	27116.	40675.	54233.	67791.	******	******	******	******	******
30	14527.	29053.	43580.	58107.	******	******	******	******	******	******

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.	10388.	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.	25389.	28563.	******
16	3627.	7254.	10881.	14508.	18135.	21762.	25389.	29016.	******	******
18	4080.	8161.	12241.	16322.	20402.	24483.	28563.	32643.	******	******
20	4534.	9068.	13601.	18135.	22669.	27203.	31737.	******	******	******
22	4987.	9974.	14962.	19949.	24936.	29923.	34910.	******	******	******
24	5441.	10881.	16322.	21762.	27203.	32643.	38084.	******	******	******
26	5894.	11788.	17682.	23576.	29470.	35364.	******	******	******	******
28	6347.	12695.	19042.	25389.	31737.	38084.	******	******	******	******
30	6801.	13601.	20402.	27203.	34004.	40804.	******	******	******	******

Hanscom 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	4.0	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.	1889.	2519.	3149.	3779.	4408.	5038.	5668.	6298.
4	1260.	2519.	3779.	5038.	6298.	7557.	8817.	10076.	11336.	12596.
6	1889.	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.	41566.	48493.	******	******	******
24	7557.	15115.	22672.	30229.	37787.	45344.	52902.	******	******	******
26	8187.	16374.	24561.	32749.	40936.	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	768.	1537.	2305.	3074.	3842.	4610.	5379.	6147.	6915.	7684.
4	1537.	3074.	4610.	6147.	7684.	9221.	10757.	12294.	13831.	15368.
6	2305.	4610.	6915.	9221.	11526.	13831.	16136.	18441.	20746.	23051.
8	3074.	6147.	9221.	12294.	15368.	18441.	21515.	24588.	27662.	30735.
10	3842.	7684.	11526.	15368.	19210.	23051.	26893.	30735.	34577.	38419.
12	4610.	9221.	13831.	18441.	23051.	27662.	32272.	36882.	41493.	******
14	5379.	10757.	16136.	21515.	26893.	32272.	37651.	43029.	48408.	******
16	6147.	12294.	18441.	24588.	30735.	36882.	43029.	49176.	******	******
18	6915.	13831.	20746.	27662.	34577.	41493.	48408.	55323.	******	******
20	7684.	15368.	23051.	30735.	38419.	46103.	53787.	******	******	******
22	8452.	16904.	25357.	33809.	42261.	50713.	59165.	******	******	******
24	9221.	18441.	27662.	36882.	46103.	55323.	64544.	******	******	******
26	9989.	19978.	29967.	39956.	49945.	59934.	******	******	******	******
28	10757.	21515.	32272.	43029.	53787.	64544.	******	******	******	******
30	11526.	23051.	34577.	46103.	57629.	69154.	******	******	******	******

Hill 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	5.2	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	506.6	******	******	******
30	77.5	155.1	232.6	310.2	387.7	465.2	542.8	******	******	******

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	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.	18264.	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.	2015.	2687.	3359.	4031.	4702.	5374.	6046.	6718.
4	1344.	2687.	4031.	5374.	6718.	8061.	9405.	10748.	12092.	13435.
6	2015.	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.	20153.	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	7389.	14779.	22168.	29558.	36947.	44337.	51726.	59116.	******	******
24	8061.	16122.	24184.	32245.	40306.	48367.	56429.	64490.	******	******
26	8733.	17466.	26199.	34932.	43665.	52398.	61131.	******	******	******
28	9405.	18810.	28214.	37619.	47024.	56429.	65833.	******	******	******
30	10077.	20153.	30230.	40306.	50383.	60459.	70536.	******	******	******

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	101.8	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	101.8	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	235.5	******
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	285.	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.	12805.	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.	12805.	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.	12805.	17073.	21341.	25609.	29877.	******	******	******

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	403.	806.	1209.	1611.	2014.	2417.	2820.	3223.	3626.	4029.
4	806.	1611.	2417.	3223.	4029.	4834.	5640.	6446.	7252.	8057.
6	1209.	2417.	3626.	4834.	6043.	7252.	8460.	9669.	10877.	12086.
8	1611.	3223.	4834.	6446.	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.	21755.	24172.
14	2820.	5640.	8460.	11280.	14100.	16920.	19740.	22560.	25380.	28200.
16	3223.	6446.	9669.	12892.	16115.	19337.	22560.	25783.	29006.	******
18	3626.	7252.	10877.	14503.	18129.	21755.	25380.	29006.	32632.	******
20	4029.	8057.	12086.	16115.	20143.	24172.	28200.	32229.	******	******
22	4431.	8863.	13294.	17726.	22157.	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.	30215.	36258.	42301.	******	******	******

Holloman AFB

ANNUAL SOLAR CONTRIBUTION--NNN(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	43.0	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	205.1	234.5	263.8	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.	3675.	4083.
6	612.	1225.	1837.	2450.	3062.	3675.	4287.	4900.	5512.	6125.
8	817.	1633.	2450.	3266.	4083.	4900.	5716.	6533.	7350.	8166.
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.	8983.	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.	23886.	26540.
28	2858.	5716.	8574.	11433.	14291.	17149.	20007.	22865.	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.	5106.	5673.
6	851.	1702.	2553.	3404.	4255.	5106.	5957.	6808.	7659.	8510.
8	1135.	2269.	3404.	4538.	5673.	6808.	7942.	9077.	10212.	11346.
10	1418.	2837.	4255.	5673.	7091.	8510.	9928.	11346.	12764.	14183.
12	1702.	3404.	5106.	6808.	8510.	10212.	11914.	13616.	15317.	17019.
14	1986.	3971.	5957.	7942.	9928.	11914.	13899.	15885.	17870.	19856.
16	2269.	4538.	6808.	9077.	11346.	13615.	15885.	18154.	20423.	22692.
18	2553.	5106.	7659.	10212.	12764.	15317.	17870.	20423.	22976.	25529.
20	2837.	5673.	8510.	11346.	14183.	17019.	19856.	22692.	25529.	28365.
22	3120.	6240.	9361.	12481.	15601.	18721.	21841.	24961.	28082.	31202.
24	3404.	6808.	10212.	13615.	17019.	20423.	23827.	27231.	30638.	34039.
26	3688.	7375.	11063.	14750.	18438.	22125.	25813.	29500.	33188.	36876.
28	3971.	7942.	11914.	15885.	19856.	23827.	27798.	31769.	35741.	39712.
30	4255.	8510.	12764.	17019.	21274.	25529.	29784.	34039.	38293.	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	137.6	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	308.9
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.	33866.	38099.	42332.
24	4618.	9236.	13854.	18472.	23090.	27708.	32326.	36944.	41562.	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.	28863.	34635.	40408.	46181.	51953.	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	464.	929.	1393.	1857.	2322.	2786.	3250.	3715.	4179.	4643.
4	929.	1857.	2786.	3715.	4643.	5572.	6501.	7429.	8358.	9287.
6	1393.	2786.	4179.	5572.	6965.	8358.	9751.	11144.	12537.	13930.
8	1857.	3715.	5572.	7429.	9287.	11144.	13001.	14859.	16716.	18574.
10	2322.	4643.	6965.	9287.	11608.	13930.	16252.	18574.	20895.	23217.
12	2786.	5572.	8358.	11144.	13930.	16716.	19502.	22288.	25074.	27860.
14	3250.	6501.	9751.	13001.	16252.	19502.	22753.	26003.	29253.	32504.
16	3715.	7429.	11144.	14859.	18574.	22288.	26003.	29718.	33432.	37147.
18	4179.	8358.	12537.	16716.	20895.	25074.	29253.	33432.	37611.	41790.
20	4643.	9287.	13930.	18574.	23217.	27860.	32504.	37147.	41790.	46434.
22	5108.	10216.	15323.	20431.	25539.	30646.	35754.	40862.	45970.	51077.
24	5572.	11144.	16716.	22288.	27860.	33432.	39004.	44577.	50149.	55721.
26	6036.	12073.	18109.	24146.	30182.	36218.	42256.	48291.	54328.	60364.
28	6501.	13001.	19502.	26003.	32504.	39004.	45506.	52006.	58507.	65007.
30	6965.	13930.	20895.	27860.	34826.	41790.	48756.	55721.	62686.	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.	156.	178.	200.	222.
4	44.	89.	133.	178.	222.	267.	311.	356.	400.	444.
6	67.	133.	200.	267.	333.	400.	466.	533.	600.	666.
8	89.	178.	267.	356.	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	156.	311.	466.	622.	777.	933.	1088.	1244.	1399.	1555.
16	178.	356.	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.	1955.	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.	2488.	2799.	3110.
30	333.	666.	1000.	1333.	1666.	1999.	2333.	2666.	2999.	3333.

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	31.	62.	93.	124.	156.	187.	218.	249.	280.	311.
4	62.	124.	187.	249.	311.	373.	436.	498.	560.	622.
6	93.	187.	280.	373.	467.	560.	653.	747.	840.	933.
8	124.	249.	373.	498.	622.	747.	871.	996.	1120.	1244.
10	156.	311.	467.	622.	778.	933.	1089.	1244.	1400.	1556.
12	187.	373.	560.	747.	933.	1120.	1307.	1493.	1680.	1867.
14	218.	436.	653.	871.	1089.	1307.	1524.	1742.	1960.	2178.
16	249.	498.	747.	996.	1244.	1493.	1742.	1991.	2240.	2489.
18	280.	560.	840.	1120.	1400.	1680.	1960.	2240.	2520.	2800.
20	311.	622.	933.	1244.	1556.	1867.	2178.	2489.	2800.	3111.
22	342.	684.	1027.	1369.	1711.	2053.	2396.	2738.	3080.	3422.
24	373.	747.	1120.	1493.	1867.	2240.	2613.	2987.	3360.	3733.
26	404.	809.	1213.	1618.	2022.	2427.	2831.	3236.	3640.	4044.
28	436.	871.	1307.	1742.	2178.	2613.	3048.	3484.	3920.	4356.
30	467.	933.	1400.	1867.	2333.	2800.	3267.	3733.	4200.	4667.

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	2.8	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	2.8	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	3.8	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.	2801.	3268.	3734.	4201.	4668.
24	509.	1018.	1528.	2037.	2546.	3055.	3565.	4074.	4583.	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.	3819.	4456.	5092.	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	81.	103.	164.	205.	257.	308.	359.	411.	462.	513.
4	103.	205.	308.	411.	513.	616.	719.	821.	924.	1027.
6	164.	308.	462.	616.	770.	924.	1078.	1232.	1386.	1540.
8	205.	411.	616.	821.	1027.	1232.	1437.	1643.	1848.	2053.
10	257.	513.	770.	1027.	1283.	1540.	1797.	2053.	2310.	2567.
12	308.	616.	924.	1232.	1540.	1848.	2156.	2464.	2772.	3080.
14	359.	719.	1078.	1437.	1797.	2156.	2515.	2876.	3234.	3593.
16	411.	821.	1232.	1643.	2053.	2464.	2876.	3286.	3696.	4107.
18	462.	924.	1386.	1848.	2310.	2772.	3234.	3696.	4158.	4620.
20	513.	1027.	1540.	2053.	2567.	3080.	3593.	4107.	4620.	5133.
22	565.	1129.	1694.	2259.	2823.	3388.	3952.	4517.	5082.	5647.
24	616.	1232.	1848.	2464.	3080.	3696.	4312.	4928.	5544.	6160.
26	667.	1335.	2002.	2669.	3337.	4004.	4671.	5339.	6008.	6673.
28	719.	1437.	2156.	2875.	3593.	4312.	5031.	5749.	6468.	7187.
30	770.	1540.	2310.	3080.	3850.	4620.	5390.	6160.	6930.	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	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	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.	5256.	7007.	8759.	10511.	12263.	14014.	15766.	17518.
28	1887.	3773.	5660.	7546.	9433.	11319.	13206.	15093.	16979.	18866.
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.	2820.	3384.	3948.	4511.	5075.	5639.
8	752.	1504.	2256.	3008.	3760.	4511.	5263.	6015.	6767.	7519.
10	940.	1880.	2820.	3760.	4699.	5639.	6579.	7519.	8459.	9399.
12	1128.	2256.	3384.	4511.	5639.	6767.	7895.	9023.	10151.	11279.
14	1316.	2632.	3948.	5263.	6579.	7895.	9211.	10527.	11843.	13159.
16	1504.	3008.	4511.	6015.	7519.	9023.	10527.	12031.	13534.	15038.
18	1692.	3384.	5075.	6767.	8459.	10151.	11843.	13534.	15226.	16918.
20	1880.	3760.	5639.	7519.	9399.	11279.	13158.	15038.	16918.	18798.
22	2068.	4136.	6203.	8271.	10339.	12406.	14474.	16542.	18610.	20677.
24	2256.	4511.	6767.	9023.	11279.	13534.	15790.	18046.	20302.	22557.
26	2444.	4887.	7331.	9775.	12218.	14662.	17106.	19550.	21993.	24437.
28	2632.	5263.	7895.	10527.	13158.	15790.	18422.	21053.	23685.	26317.
30	2820.	5639.	8459.	11279.	14098.	16918.	19738.	22557.	25377.	28197.

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	8.3	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	256.	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.	14064.	16877.	19690.	22503.	25316.	28129.
24	3069.	6137.	9206.	12274.	15343.	18411.	21480.	24549.	27617.	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.	16683.	18536.
14	2163.	4325.	6488.	8650.	10813.	12975.	15138.	17300.	19463.	21626.
16	2471.	4943.	7414.	9886.	12357.	14829.	17300.	19772.	22243.	24715.
18	2780.	5561.	8341.	11122.	13902.	16683.	19463.	22243.	25024.	27804.
20	3089.	6179.	9268.	12357.	15447.	18536.	21626.	24715.	27804.	30894.
22	3398.	6797.	10195.	13593.	16992.	20390.	23788.	27186.	30585.	33983.
24	3707.	7414.	11122.	14829.	18536.	22243.	25951.	29658.	33365.	37072.
26	4016.	8032.	12049.	16065.	20081.	24097.	28113.	32129.	36146.	40162.
28	4325.	8650.	12975.	17300.	21626.	25951.	30276.	34601.	38926.	43251.
30	4634.	9268.	13902.	18536.	23170.	27804.	32438.	37073.	41708.	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	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.	11855.	13172.
16	1505.	3011.	4516.	6022.	7527.	9032.	10538.	12043.	13549.	15054.
18	1694.	3387.	5081.	6774.	8468.	10162.	11855.	13549.	15242.	16936.
20	1882.	3764.	5645.	7527.	9409.	11291.	13172.	15054.	16936.	18818.
22	2070.	4140.	6210.	8280.	10350.	12420.	14490.	16560.	18630.	20699.
24	2258.	4516.	6774.	9032.	11291.	13549.	15807.	18065.	20323.	22581.
26	2446.	4893.	7339.	9785.	12232.	14678.	17124.	19570.	22017.	24463.
28	2634.	5269.	7903.	10538.	13172.	15807.	18441.	21076.	23710.	26345.
30	2823.	5645.	8468.	11291.	14113.	16936.	19759.	22581.	25404.	28227.

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.	548.	823.	1098.	1372.	1646.	1921.	2196.	2470.	2744.
4	548.	1098.	1646.	2196.	2744.	3293.	3842.	4391.	4939.	5488.
6	823.	1646.	2470.	3293.	4116.	4939.	5763.	6586.	7409.	8232.
8	1098.	2196.	3293.	4391.	5488.	6586.	7684.	8781.	9879.	10977.
10	1372.	2744.	4116.	5488.	6860.	8232.	9604.	10977.	12349.	13721.
12	1646.	3293.	4939.	6586.	8232.	9879.	11585.	13172.	14818.	16465.
14	1921.	3842.	5763.	7684.	9604.	11526.	13446.	15367.	17288.	19209.
16	2196.	4391.	6586.	8781.	10977.	13172.	15367.	17562.	19758.	21953.
18	2470.	4939.	7409.	9879.	12349.	14818.	17288.	19758.	22228.	24697.
20	2744.	5488.	8232.	10977.	13721.	16465.	19209.	21953.	24697.	27441.
22	3018.	6037.	9055.	12074.	15093.	18111.	21130.	24148.	27167.	30186.
24	3293.	6586.	9879.	13172.	16465.	19758.	23051.	26344.	29637.	32930.
26	3567.	7135.	10702.	14269.	17837.	21404.	24972.	28539.	32106.	35674.
28	3842.	7684.	11526.	15367.	19209.	23051.	26893.	30734.	34576.	38418.
30	4116.	8232.	12349.	16465.	20581.	24697.	28814.	32930.	37046.	41162.

Indian Springs Aux 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	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	123.6	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	168.5	202.3	236.0	269.7	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.	10757.	13446.	16135.	18824.	21514.	24203.	26892.
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.	26892.	30734.	34575.	38417.
22	4226.	8452.	12678.	16903.	21129.	25355.	29581.	33807.	38033.	42259.
24	4610.	9220.	13830.	18440.	23050.	27660.	32270.	36880.	41490.	46100.
26	4994.	9988.	14983.	19977.	24971.	29965.	34959.	39954.	44948.	49942.
28	5378.	10757.	16135.	21514.	26892.	32270.	37649.	43027.	48406.	53784.
30	5763.	11525.	17288.	23050.	28813.	34575.	40338.	46100.	51863.	57625.

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.	2352.	2823.	3293.	3763.	4234.	4704.
4	941.	1882.	2823.	3763.	4704.	5645.	6586.	7527.	8467.	9408.
6	1411.	2823.	4234.	5645.	7056.	8467.	9879.	11290.	12701.	14112.
8	1882.	3763.	5645.	7527.	9408.	11290.	13171.	15053.	16933.	18816.
10	2352.	4704.	7056.	9408.	11760.	14112.	16464.	18816.	21168.	23520.
12	2823.	5645.	8467.	11290.	14112.	16935.	19757.	22580.	25402.	28224.
14	3293.	6586.	9879.	13171.	16464.	19757.	23050.	26343.	29636.	32928.
16	3763.	7527.	11290.	15053.	18816.	22580.	26343.	30106.	33869.	37633.
18	4234.	8467.	12701.	16933.	21168.	25402.	29636.	33869.	38103.	42337.
20	4704.	9408.	14112.	18816.	23520.	28224.	32928.	37633.	42337.	47041.
22	5174.	10349.	15523.	20698.	25872.	31047.	36221.	41396.	46570.	51745.
24	5645.	11290.	16935.	22580.	28224.	33869.	39514.	45159.	50804.	56449.
26	6115.	12231.	18346.	24461.	30576.	36692.	42807.	48922.	55038.	61153.
28	6586.	13171.	19757.	26343.	32928.	39514.	46100.	52686.	59271.	65857.
30	7056.	14112.	21168.	28224.	35281.	42337.	49393.	56449.	63505.	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.	526.	658.	789.	921.	1052.	1184.	1315.
4	263.	526.	789.	1052.	1315.	1578.	1841.	2104.	2367.	2630.
6	395.	789.	1184.	1578.	1973.	2367.	2762.	3156.	3551.	3945.
8	526.	1052.	1578.	2104.	2630.	3156.	3682.	4208.	4734.	5260.
10	658.	1315.	1973.	2630.	3286.	3945.	4603.	5260.	5918.	6575.
12	789.	1578.	2367.	3156.	3945.	4734.	5523.	6312.	7101.	7890.
14	921.	1841.	2762.	3682.	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.	5785.	7233.	8679.	10126.	11572.	13019.	14465.
24	1578.	3156.	4734.	6312.	7890.	9468.	11046.	12624.	14202.	15780.
26	1710.	3419.	5129.	6838.	8548.	10257.	11967.	13676.	15386.	17095.
28	1841.	3682.	5523.	7364.	9205.	11046.	12887.	14728.	16569.	18411.
30	1973.	3945.	5918.	7890.	9863.	11835.	13808.	15780.	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.	1105.	1289.	1473.	1657.	1841.
4	368.	736.	1105.	1473.	1841.	2209.	2578.	2946.	3314.	3682.
6	552.	1105.	1657.	2209.	2762.	3314.	3866.	4419.	4971.	5523.
8	736.	1473.	2209.	2946.	3682.	4419.	5155.	5892.	6628.	7365.
10	921.	1841.	2762.	3682.	4603.	5523.	6444.	7365.	8285.	9206.
12	1105.	2209.	3314.	4419.	5523.	6628.	7733.	8838.	9942.	11047.
14	1289.	2578.	3866.	5155.	6444.	7733.	9022.	10311.	11600.	12888.
16	1473.	2946.	4419.	5892.	7365.	8838.	10311.	11783.	13256.	14729.
18	1657.	3314.	4971.	6628.	8285.	9942.	11599.	13256.	14913.	16570.
20	1841.	3682.	5523.	7365.	9206.	11047.	12888.	14729.	16570.	18412.
22	2025.	4051.	6076.	8101.	10126.	12152.	14177.	16202.	18228.	20253.
24	2209.	4419.	6628.	8838.	11047.	13256.	15466.	17675.	19885.	22094.
26	2394.	4787.	7181.	9574.	11968.	14361.	16755.	19148.	21542.	23935.
28	2578.	5155.	7733.	10311.	12888.	15466.	18043.	20621.	23199.	25776.
30	2762.	5523.	8285.	11047.	13809.	16570.	19332.	22094.	24855.	27617.

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	154.5

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	251.	502.	753.	1004.	1255.	1506.	1758.	2009.	2260.	2511.
4	502.	1004.	1506.	2009.	2511.	3013.	3515.	4017.	4519.	5022.
6	753.	1506.	2260.	3013.	3766.	4519.	5273.	6026.	6779.	7532.
8	1004.	2009.	3013.	4017.	5022.	6026.	7030.	8034.	9039.	10043.
10	1255.	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.	18078.	20337.	22597.
20	2511.	5022.	7532.	10043.	12554.	15065.	17575.	20086.	22597.	25108.
22	2762.	5524.	8286.	11047.	13809.	16571.	19333.	22095.	24857.	27619.
24	3013.	6026.	9039.	12052.	15065.	18078.	21091.	24103.	27116.	30129.
26	3264.	6528.	9792.	13056.	16320.	19584.	22848.	26112.	29376.	32640.
28	3515.	7030.	10545.	14060.	17575.	21091.	24606.	28121.	31636.	35151.
30	3766.	7532.	11299.	15065.	18831.	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.	1215.	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.	21258.
16	2430.	4859.	7289.	9718.	12148.	14577.	17007.	19436.	21866.	24295.
18	2733.	5466.	8200.	10933.	13666.	16399.	19132.	21866.	24599.	27332.
20	3037.	6074.	9111.	12148.	15185.	18221.	21258.	24295.	27332.	30369.
22	3341.	6681.	10022.	13362.	16703.	20044.	23384.	26725.	30065.	33406.
24	3644.	7289.	10933.	14577.	18221.	21866.	25510.	29154.	32799.	36443.
26	3948.	7896.	11844.	15792.	19740.	23688.	27636.	31584.	35532.	39480.
28	4252.	8503.	12755.	17007.	21258.	25510.	29762.	34013.	38265.	42517.
30	4555.	9111.	13666.	18221.	22777.	27332.	31887.	36443.	40998.	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.	4276.	5701.	7126.	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.	10883.	12697.	14511.	16325.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13604.	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	182.	365.	547.	730.	912.	1095.	1277.	1460.	1642.	1825.
4	365.	730.	1095.	1460.	1825.	2189.	2554.	2919.	3284.	3649.
6	547.	1095.	1642.	2189.	2737.	3284.	3831.	4379.	4926.	5474.
8	730.	1460.	2189.	2919.	3649.	4379.	5109.	5838.	6568.	7298.
10	912.	1825.	2737.	3649.	4561.	5474.	6386.	7298.	8210.	9123.
12	10	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	1642.	3284.	4926.	6568.	8210.	9852.	11494.	13136.	14779.	16421.
20	1825.	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.	15326.	17515.	19705.	21894.
26	2372.	4744.	7116.	9487.	11859.	14231.	16603.	18975.	21347.	23719.
28	2554.	5109.	7663.	10217.	12772.	15326.	17880.	20434.	22988.	25543.
30	2737.	5474.	8210.	10947.	13684.	16421.	19157.	21894.	24631.	27368.

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	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.	605.	908.	1211.	1513.	1816.	2119.	2421.	2724.	3027.
4	605.	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.	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.	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.	29056.	32687.	36318.
26	3935.	7869.	11804.	15738.	19673.	23607.	27542.	31478.	35411.	39345.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33897.	38136.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36319.	40858.	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	221.8	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.	13724.	16468.	19213.	21958.	24703.	27447.
24	2994.	5989.	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.	29943.	••••••	••••••

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.	12134.	14561.	16988.	19416.	21841.	24268.
16	2774.	5547.	8321.	11094.	13868.	16641.	19416.	22188.	24962.	27735.
18	3120.	6240.	9361.	12481.	15601.	18721.	21841.	24962.	28082.	31202.
20	3467.	6934.	10401.	13868.	17334.	20801.	24268.	27735.	31202.	34669.
22	3814.	7627.	11441.	15254.	19068.	22881.	26695.	30508.	34322.	38136.
24	4160.	8321.	12481.	16641.	20801.	24962.	29122.	33282.	37442.	••••••
26	4507.	9014.	13521.	18028.	22535.	27042.	31549.	36056.	••••••	••••••
28	4854.	9707.	14561.	19414.	24268.	29122.	33976.	38829.	••••••	••••••
30	5200.	10401.	15601.	20801.	26002.	31202.	36402.	41603.	••••••	••••••

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	255.9	284.3
18	32.0	64.0	96.0	127.9	159.9	191.9	223.9	255.9	287.9	319.8
20	35.5	71.1	106.6	142.2	177.7	213.2	248.8	284.3	319.8	355.4
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	298.5	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.	20696.	25870.	31044.	36218.	41391.	46565.	51739.
24	5644.	11289.	16933.	22577.	28221.	33866.	39510.	45154.	50799.	******
26	6115.	12229.	18344.	24459.	30573.	36688.	42803.	48917.	55032.	******
28	6585.	13170.	19755.	26340.	32925.	39510.	46095.	52680.	******	******
30	7055.	14111.	21166.	28221.	35277.	42332.	49388.	56443.	******	******

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	568.	1135.	1703.	2270.	2838.	3406.	3973.	4540.	5108.	5675.
4	1135.	2270.	3406.	4540.	5675.	6810.	7945.	9080.	10215.	11351.
6	1703.	3406.	5108.	6810.	8513.	10215.	11918.	13621.	15323.	17026.
8	2270.	4540.	6810.	9080.	11351.	13621.	15891.	18161.	20431.	22701.
10	2838.	5675.	8513.	11351.	14188.	17026.	19863.	22701.	25539.	28376.
12	3406.	6810.	10215.	13621.	17026.	20431.	23836.	27241.	30646.	34052.
14	3973.	7945.	11918.	15891.	19863.	23836.	27809.	31781.	35754.	39727.
16	4540.	9080.	13621.	18161.	22701.	27241.	31781.	36322.	40862.	45402.
18	5108.	10215.	15323.	20431.	25539.	30646.	35754.	40862.	45970.	51077.
20	5675.	11351.	17026.	22701.	28376.	34052.	39727.	45402.	51077.	56753.
22	6243.	12486.	18728.	24971.	31214.	37457.	43699.	49943.	56185.	62428.
24	6810.	13621.	20431.	27241.	34052.	40862.	47672.	54483.	61293.	******
26	7378.	14756.	22133.	29511.	36889.	44267.	51645.	59023.	66400.	******
28	7945.	15891.	23836.	31781.	39727.	47672.	55617.	63563.	******	******
30	8513.	17026.	25539.	34052.	42564.	51077.	59590.	68104.	******	******

K. I. 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	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.	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	1285.	2569.	3854.	5138.	6423.	7707.	8992.	10276.	11561.	12845.
4	2569.	5138.	7707.	10276.	12845.	15414.	17983.	20552.	23121.	25690.
6	3854.	7707.	11561.	15414.	19268.	23121.	26975.	30829.	******	******
8	5138.	10276.	15414.	20552.	25690.	30829.	35968.	******	******	******
10	6423.	12845.	19268.	25690.	32113.	38535.	******	******	******	******
12	7707.	15414.	23121.	30829.	38535.	******	******	******	******	******
14	8992.	17983.	26975.	35968.	44956.	******	******	******	******	******
16	10276.	20552.	30829.	41104.	51380.	******	******	******	******	******
18	11561.	23121.	34682.	46242.	******	******	******	******	******	******
20	12845.	25690.	38535.	51380.	******	******	******	******	******	******
22	14130.	28259.	42389.	56518.	******	******	******	******	******	******
24	15414.	30829.	46242.	61656.	******	******	******	******	******	******
26	16699.	33397.	50096.	66794.	******	******	******	******	******	******
28	17983.	35968.	53949.	******	******	******	******	******	******	******
30	19268.	38535.	57803.	******	******	******	******	******	******	******

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	47.5
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.	4276.	5701.	7126.	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.	10883.	12697.	14511.	16325.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13604.	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	182.	365.	547.	730.	912.	1095.	1277.	1460.	1642.	1825.
4	365.	730.	1095.	1460.	1825.	2189.	2554.	2919.	3284.	3649.
6	547.	1095.	1642.	2189.	2737.	3284.	3831.	4379.	4926.	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	1642.	3284.	4926.	6568.	8210.	9852.	11494.	13136.	14778.	16421.
20	1825.	3649.	5474.	7298.	9123.	10947.	12772.	14596.	16421.	18245.
22	2007.	4013.	6021.	8027.	10035.	12042.	14049.	16056.	18063.	20070.
24	2189.	4379.	6568.	8758.	10947.	13136.	15326.	17515.	19704.	21894.
26	2372.	4744.	7115.	9487.	11859.	14231.	16603.	18975.	21347.	23718.
28	2554.	5109.	7663.	10217.	12772.	15326.	17881.	20435.	22990.	25543.
30	2737.	5474.	8210.	10947.	13684.	16421.	19158.	21894.	24631.	27367.

Lackland 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	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.	26976.	29972.
26	3247.	6494.	9741.	12988.	16236.	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	[illegible]	[illegible]	[illegible]	7811.	1613.	1616.	2119.	2421.	2724.	3027.
4	[illegible]	1211.	[illegible]	3421.	3027.	[illegible]	4237.	4842.	5448.	6053.
6	[illegible]	1818.	[illegible]	[illegible]	4640.	[illegible]	[illegible]	7264.	8172.	9080.
8	1211.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10896.	12106.
10	1513.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12106.	13619.	15133.
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16712.	14527.	16343.	18159.
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21186.
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21791.	24212.
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27238.
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	79.4	95.3	111.2	127.1	143.0	158.8
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	169.0	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	108.3	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.	22296.
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.	19864.	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	560.	839.	840.	1119.	1399.	1679.	1959.	2239.	2519.	2799.
4	560.	1119.	1679.	2239.	2799.	3359.	3919.	4479.	5039.	5597.
6	840.	1679.	2519.	3359.	4199.	5039.	5877.	6717.	7556.	8396.
8	1119.	2239.	3359.	4479.	5597.	6717.	7836.	8956.	10076.	11195.
10	1399.	2799.	4199.	5597.	6997.	8396.	9796.	11195.	12594.	13993.
12	1679.	3359.	5039.	6717.	8396.	10076.	11754.	13434.	15113.	16792.
14	1959.	3919.	5877.	7836.	9796.	11754.	13713.	15673.	17631.	19591.
16	2239.	4479.	6717.	8956.	11195.	13434.	15673.	17911.	20150.	22389.
18	2519.	5039.	7556.	10076.	12594.	15113.	17631.	20150.	22669.	25188.
20	2799.	5597.	8396.	11195.	13993.	16792.	19591.	22389.	25188.	27987.
22	3079.	6157.	9236.	12314.	15392.	18471.	21549.	24628.	27707.	30786.
24	3359.	6717.	10076.	13434.	16792.	20150.	23508.	26867.	30226.	33584.
26	3639.	7276.	10915.	14553.	18191.	21829.	25466.	29106.	32744.	36383.
28	3919.	7836.	11754.	15673.	19591.	23508.	27425.	31345.	35263.	39181.
30	4199.	8396.	12594.	16792.	20990.	25188.	29383.	33584.	37782.	41980.

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	256.5
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	241.6	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	313.6	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.	6806.	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.	6806.	9074.	11343.	13611.	15880.	18148.	20417.	22685.
14	2647.	5293.	7940.	10586.	13233.	15880.	18526.	21173.	23819.	26466.
16	3025.	6049.	9074.	12099.	15123.	18148.	21173.	24197.	27222.	30247.
18	3403.	6806.	10208.	13611.	17014.	20417.	23819.	27222.	30625.	34028.
20	3781.	7562.	11343.	15123.	18904.	22685.	26466.	30247.	34028.	37808.
22	4159.	8318.	12477.	16636.	20795.	24954.	29112.	33271.	37430.	41589.
24	4537.	9074.	13611.	18148.	22685.	27222.	31759.	36296.	40833.	45370.
26	4915.	9830.	14745.	19660.	24575.	29491.	34406.	39321.	44236.	49151.
28	5293.	10586.	15880.	21173.	26466.	31759.	37052.	42346.	47639.	52932.
30	5671.	11343.	17014.	22685.	28356.	34028.	39699.	45370.	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	455.	911.	1366.	1821.	2276.	2732.	3187.	3642.	4097.	4553.
4	911.	1821.	2732.	3642.	4553.	5463.	6374.	7284.	8195.	9105.
6	1366.	2732.	4097.	5463.	6829.	8195.	9560.	10926.	12292.	13658.
8	1821.	3642.	5463.	7284.	9105.	10926.	12747.	14568.	16389.	18210.
10	2276.	4553.	6829.	9105.	11381.	13658.	15934.	18210.	20487.	22763.
12	2732.	5463.	8195.	10926.	13658.	16389.	19121.	21852.	24584.	27315.
14	3187.	6374.	9560.	12747.	15934.	19121.	22308.	25494.	28681.	31868.
16	3642.	7284.	10926.	14568.	18210.	21852.	25494.	29136.	32778.	36421.
18	4097.	8195.	12292.	16389.	20487.	24584.	28681.	32778.	36876.	40973.
20	4553.	9105.	13658.	18210.	22763.	27315.	31868.	36421.	40973.	45526.
22	5008.	10016.	15023.	20031.	25039.	30047.	35055.	40063.	45070.	50078.
24	5463.	10926.	16389.	21852.	27315.	32778.	38241.	43704.	49168.	54631.
26	5918.	11837.	17755.	23673.	29591.	35510.	41428.	47347.	53265.	59183.
28	6374.	12747.	19121.	25494.	31868.	38241.	44615.	50988.	57362.	63736.
30	6829.	13658.	20487.	27315.	34144.	40973.	47802.	54631.	61460.	68288.

Laughlin AFB

ANNUAL SOLAR CONTRIBUTION--MNI(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	65.8	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	86.4	98.7	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	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.	3110.	3498.	3887.
8	518.	1036.	1555.	2073.	2591.	3110.	3628.	4146.	4664.	5182.
10	648.	1296.	1943.	2591.	3239.	3887.	4535.	5182.	5830.	6478.
12	777.	1555.	2332.	3110.	3887.	4664.	5442.	6219.	6996.	7774.
14	907.	1814.	2721.	3628.	4535.	5442.	6348.	7255.	8162.	9069.
16	1036.	2073.	3110.	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.	4276.	5701.	7126.	8551.	9976.	11401.	12827.	14252.
24	1555.	3110.	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.	16328.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13604.	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.	325.	487.	650.	812.	975.	1137.	1300.	1462.	1625.
4	325.	650.	975.	1300.	1625.	1950.	2274.	2599.	2924.	3249.
6	487.	975.	1462.	1950.	2437.	2924.	3411.	3899.	4386.	4874.
8	650.	1300.	1950.	2599.	3249.	3899.	4549.	5199.	5849.	6499.
10	812.	1625.	2437.	3249.	4062.	4874.	5686.	6499.	7311.	8123.
12	975.	1949.	2924.	3899.	4874.	5849.	6823.	7798.	8773.	9747.
14	1137.	2274.	3411.	4549.	5686.	6823.	7960.	9097.	10234.	11372.
16	1300.	2599.	3899.	5199.	6499.	7798.	9097.	10397.	11697.	12996.
18	1462.	2924.	4386.	5849.	7311.	8773.	10234.	11696.	13158.	14621.
20	1625.	3249.	4874.	6499.	8123.	9747.	11372.	12996.	14621.	16245.
22	1787.	3574.	5361.	7148.	8936.	10721.	12507.	14294.	16083.	17870.
24	1949.	3899.	5849.	7798.	9747.	11696.	13645.	15594.	17543.	19494.
26	2112.	4223.	6336.	8448.	10559.	12671.	14782.	16894.	19006.	21118.
28	2274.	4549.	6823.	9097.	11372.	13645.	15919.	18193.	20468.	22743.
30	2437.	4874.	7311.	9747.	12184.	14621.	17057.	19494.	21931.	24367.

Laughlin 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	5.3	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	23.5	35.3	47.0	58.8	70.6	82.3	94.1	105.8	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	96.2	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.	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.	12235.	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.	16236.	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.	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.	29055.	32687.	36318.
26	3934.	7869.	11804.	15738.	19672.	23607.	27542.	31476.	35411.	39345.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33897.	38135.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36318.	40858.	45398.

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	145.8	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.	8862.	10634.	12406.	14178.	15951.	17723.
18	1994.	3988.	5982.	7975.	9969.	11963.	13957.	15951.	17945.	19938.
20	2215.	4431.	6646.	8862.	11077.	13292.	15508.	17723.	19938.	22154.
22	2437.	4874.	7311.	9748.	12185.	14622.	17058.	19495.	21932.	24369.
24	2658.	5317.	7975.	10634.	13292.	15951.	18609.	21268.	23926.	26585.
26	2880.	5760.	8640.	11520.	14400.	17280.	20160.	23040.	25920.	28800.
28	3102.	6203.	9305.	12406.	15508.	18609.	21711.	24812.	27914.	******
30	3323.	6646.	9969.	13292.	16615.	19938.	23262.	26585.	29906.	******

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	369.	518.	887.	1257.	1646.	1956.	2194.	2473.	2782.	3091.
4	518.	1257.	1865.	2473.	3091.	3710.	4328.	4946.	5564.	6183.
6	887.	1865.	2782.	3710.	4637.	5564.	6492.	7419.	8347.	9274.
8	1257.	2473.	3710.	4946.	6183.	7419.	8656.	9892.	11129.	12365.
10	1646.	3091.	4637.	6183.	7729.	9274.	10820.	12366.	13911.	15457.
12	1956.	3710.	5564.	7419.	9274.	11129.	12984.	14838.	16693.	18548.
14	2194.	4328.	6492.	8656.	10820.	12984.	15148.	17311.	19475.	21639.
16	2473.	4946.	7419.	9892.	12366.	14838.	17311.	19784.	22257.	24731.
18	2782.	5564.	8347.	11129.	13911.	16693.	19475.	22257.	25039.	27822.
20	3091.	6183.	9274.	12365.	15457.	18548.	21639.	24731.	27822.	30913.
22	3400.	6801.	10202.	13602.	17003.	20403.	23804.	27204.	30604.	34005.
24	3709.	7420.	11129.	14838.	18548.	22257.	25967.	29677.	33386.	37096.
26	4018.	8038.	12057.	16075.	20094.	24112.	28131.	32150.	36168.	40187.
28	4328.	8656.	12984.	17311.	21639.	25967.	30295.	34623.	38951.	******
30	4637.	9274.	13911.	18548.	23184.	27822.	32459.	37096.	41728.	******

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	55.8	67.0	78.2	89.4	100.5	111.7
12	13.4	26.8	40.2	53.6	67.0	80.4	93.8	107.2	120.8	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	160.8	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	268.1
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	268.1	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.	23555.	26499.	29443.
16	3365.	6730.	10095.	13460.	16825.	20190.	23555.	26920.	30285.	33649.
18	3786.	7571.	11357.	15142.	18928.	22713.	26499.	30285.	34070.	37856.
20	4206.	8412.	12619.	16825.	21031.	25237.	29443.	33649.	37856.	42062.
22	4627.	9254.	13880.	18507.	23134.	27761.	32388.	37014.	41641.	46268.
24	5047.	10095.	15142.	20190.	25237.	30285.	35332.	40379.	45427.	50474.
26	5468.	10936.	16404.	21872.	27340.	32808.	38276.	43744.	49212.	54680.
28	5889.	11777.	17666.	23555.	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	1008.	1918.	2877.	3837.	4841.	5949.	6957.	7916.	8874.	9833.
4	1918.	3837.	5755.	7674.	9592.	11511.	13429.	15348.	17266.	19185.
6	2877.	5755.	8633.	11511.	14388.	17266.	20144.	23022.	25899.	28777.
8	3837.	7674.	11511.	15348.	19185.	23022.	26859.	30696.	34533.	38370.
10	4797.	9592.	14388.	19185.	23981.	28777.	33574.	38370.	43166.	47962.
12	5755.	11511.	17266.	23022.	28777.	34533.	40288.	46044.	51799.	57555.
14	6715.	13429.	20144.	26859.	33574.	40288.	47003.	53718.	60432.	67147.
16	7674.	15348.	23022.	30696.	38370.	46044.	53718.	61392.	69066.	76740.
18	8634.	17266.	25899.	34533.	43166.	51799.	60432.	69066.	77699.	86332.
20	9592.	19185.	28777.	38370.	47962.	57555.	67147.	76740.	86332.	95925.
22	10552.	21103.	31655.	42207.	52759.	63311.	73862.	84414.	94966.	105517.
24	11511.	23022.	34533.	46044.	57555.	69066.	80577.	92088.	103599.	115110.
26	12471.	24940.	37410.	49881.	62351.	74822.	87292.	99762.	112232.	124702.
28	13429.	26859.	40288.	53718.	67147.	80577.	94006.	107436.	120865.	134295.
30	14389.	28777.	43166.	57555.	71944.	86332.	100721.	115110.	129498.	143887.

Loring 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	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.	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	1385.	2769.	4154.	5538.	6923.	8307.	9692.	11076.	12461.	13845.
4	2769.	5538.	8307.	11076.	13845.	16614.	19383.	22152.	24921.	27690.
6	4154.	8307.	12461.	16614.	20768.	24921.	29075.	33228.	******	******
8	5538.	11076.	16614.	22152.	27690.	33228.	38766.	******	******	******
10	6923.	13845.	20768.	27690.	34613.	41535.	******	******	******	******
12	8307.	16614.	24921.	33228.	41535.	******	******	******	******	******
14	9692.	19383.	29075.	38766.	48458.	******	******	******	******	******
16	11076.	22152.	33228.	44304.	55380.	******	******	******	******	******
18	12461.	24921.	37382.	49842.	******	******	******	******	******	******
20	13845.	27690.	41535.	55380.	******	******	******	******	******	******
22	15230.	30458.	45689.	60918.	******	******	******	******	******	******
24	16614.	33228.	49842.	66456.	******	******	******	******	******	******
26	17999.	35997.	53996.	71994.	******	******	******	******	******	******
28	19383.	38766.	58149.	******	******	******	******	******	******	******
30	20768.	41535.	62303.	******	******	******	******	******	******	******

Los Angeles 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	3.5	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	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	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	53.0	70.7	88.4	106.1	123.8	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	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.	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.	10355.	11506.
24	1255.	2510.	3765.	5021.	6276.	7531.	8786.	10041.	11296.	12551.
26	1360.	2719.	4079.	5439.	6799.	8158.	9518.	10878.	12238.	13597.
28	1464.	2929.	4393.	5857.	7322.	8786.	10250.	11715.	13179.	14643.
30	1569.	3138.	4707.	6276.	7845.	9414.	10982.	12551.	14120.	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	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.	3682.	4143.	4603.
8	614.	1227.	1841.	2455.	3069.	3682.	4296.	4910.	5523.	6137.
10	767.	1534.	2301.	3069.	3836.	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.	4910.	6137.	7365.	8592.	9819.	11047.	12274.
18	1381.	2762.	4143.	5523.	6904.	8285.	9666.	11047.	12428.	13809.
20	1534.	3069.	4603.	6137.	7671.	9206.	10740.	12274.	13809.	15343.
22	1688.	3376.	5063.	6751.	8439.	10126.	11814.	13502.	15190.	16877.
24	1841.	3682.	5523.	7365.	9206.	11047.	12889.	14729.	16570.	18411.
26	1995.	3989.	5984.	7978.	9973.	11967.	13962.	15957.	17951.	19946.
28	2148.	4296.	6444.	8592.	10740.	12889.	15036.	17184.	19332.	21480.
30	2301.	4603.	6904.	9206.	11508.	13809.	16110.	18411.	20713.	23014.

Los Angeles AFS

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.	9486.	11857.	14228.	16600.	18971.	21342.	23714.
24	2587.	5174.	7761.	10348.	12936.	15522.	18109.	20696.	23283.	25870.
26	2803.	5605.	8408.	11210.	14013.	16815.	19618.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21127.	24145.	27163.	30181.
30	3234.	6467.	9701.	12935.	16168.	19402.	22636.	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.	529.	793.	1058.	1322.	1586.	1851.	2115.	2380.	2644.
4	529.	1058.	1586.	2115.	2644.	3173.	3702.	4231.	4759.	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.	11899.	13221.
12	1586.	3173.	4759.	6346.	7932.	9519.	11105.	12692.	14278.	15865.
14	1851.	3702.	5553.	7404.	9254.	11105.	12956.	14807.	16658.	18509.
16	2115.	4231.	6346.	8461.	10577.	12692.	14807.	16923.	19038.	21153.
18	2380.	4759.	7139.	9519.	11899.	14278.	16658.	19038.	21418.	23797.
20	2644.	5288.	7932.	10577.	13221.	15865.	18509.	21153.	23797.	26441.
22	2909.	5817.	8726.	11634.	14543.	17451.	20360.	23269.	26177.	29086.
24	3173.	6346.	9519.	12692.	15865.	19038.	22211.	25384.	28557.	31730.
26	3437.	6875.	10312.	13750.	17187.	20624.	24062.	27499.	30936.	34374.
28	3702.	7404.	11105.	14807.	18509.	22211.	25913.	29614.	33316.	37018.
30	3966.	7932.	11899.	15865.	19831.	23797.	27763.	31730.	35696.	39662.

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	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	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.	6655.	9983.	13311.	16639.	19966.	23294.	26622.	******	******
28	3584.	7167.	10751.	14335.	17919.	21502.	25086.	28670.	******	******
30	3840.	7679.	11519.	15359.	19198.	23038.	26878.	******	******	******

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	366.	732.	1098.	1464.	1830.	2196.	2562.	2928.	3294.	3660.
4	732.	1464.	2196.	2928.	3660.	4392.	5124.	5856.	6588.	7319.
6	1098.	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.	16469.	18299.
12	2196.	4392.	6588.	8783.	10979.	13176.	15371.	17567.	19763.	21958.
14	2562.	5124.	7686.	10247.	12809.	15371.	17933.	20494.	23056.	25618.
16	2928.	5856.	8783.	11711.	14639.	17567.	20494.	23422.	26350.	29278.
18	3294.	6588.	9881.	13175.	16469.	19763.	23056.	26350.	29644.	32938.
20	3660.	7319.	10979.	14639.	18299.	21958.	25618.	29278.	32938.	******
22	4026.	8051.	12077.	16103.	20129.	24154.	28180.	32206.	36231.	******
24	4392.	8783.	13176.	17567.	21958.	26350.	30743.	35133.	******	******
26	4758.	9515.	14273.	19031.	23788.	28546.	33304.	38061.	******	******
28	5124.	10247.	15371.	20494.	25618.	30743.	35865.	40989.	******	******
30	5490.	10979.	16469.	21958.	27448.	32938.	38427.	******	******	******

Lowry AFB

ANNUAL SOLAR CONTRIBUTION—WH(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	447.9	503.9	******
24	61.1	122.1	183.2	244.3	305.4	366.4	427.5	488.6	******	******
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	498.8	570.0	******	******
30	76.3	152.7	229.0	305.4	381.7	458.1	534.4	******	******	******

DIRECT GAIN DIFFERENTIAL COST—WH($'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.	22768.	25298.
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.	22768.	27322.	31876.	36429.	40983.	45537.
20	5060.	10119.	15179.	20239.	25298.	30358.	35417.	40477.	45537.	******
22	5566.	11131.	16697.	22262.	27828.	33394.	38960.	44526.	50090.	******
24	6072.	12143.	18215.	24286.	30358.	36429.	42501.	48573.	******	******
26	6578.	13155.	19733.	26310.	32888.	39465.	46043.	52620.	******	******
28	7083.	14167.	21250.	28334.	35417.	42501.	49584.	56668.	******	******
30	7589.	15179.	22768.	30358.	37947.	45537.	53126.	******	******	******

TROMBE WALL DIFFERENTIAL COST—WH($'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.	9239.	11087.	12935.	14783.	16631.	18479.
8	2464.	4928.	7391.	9855.	12319.	14783.	17247.	19711.	22174.	24638.
10	3080.	6160.	9239.	12319.	15399.	18479.	21558.	24638.	27718.	30798.
12	3696.	7391.	11087.	14783.	18479.	22174.	25870.	29566.	33262.	36957.
14	4312.	8623.	12935.	17247.	21558.	25870.	30182.	34494.	38806.	43117.
16	4928.	9855.	14783.	19711.	24638.	29566.	34494.	39421.	44349.	49277.
18	5544.	11087.	16631.	22174.	27718.	33262.	38806.	44349.	49893.	55436.
20	6160.	12319.	18479.	24638.	30798.	36957.	43117.	49277.	55436.	******
22	6776.	13551.	20327.	27101.	33878.	40653.	47429.	54204.	60980.	******
24	7391.	14783.	22174.	29565.	36957.	44349.	51740.	59132.	******	******
26	8007.	16015.	24022.	32030.	40037.	48045.	56052.	64059.	******	******
28	8623.	17247.	25870.	34494.	43117.	51740.	60364.	68987.	******	******
30	9239.	18479.	27718.	36957.	46197.	55436.	64675.	******	******	******

Luke AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	115.8	130.2	144.7
30	15.5	31.0	46.5	62.0	77.5	93.0	108.5	124.0	139.5	155.0

[illegible] DIFFERENTIAL COST--MM($'s)										
SQ FT (x 1000)	[illegible] Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	133.	265.	398.	530.	663.	795.	928.	1061.	1193.	1326.
4	265.	530.	795.	1061.	1326.	1591.	1856.	2121.	2386.	2651.
6	398.	796.	1193.	1591.	1989.	2386.	2784.	3182.	3579.	3977.
8	530.	1061.	1591.	2121.	2651.	3182.	3712.	4242.	4773.	5303.
10	663.	1326.	1989.	2651.	3314.	3977.	4640.	5303.	5966.	6629.
12	795.	1591.	2386.	3182.	3977.	4773.	5568.	6364.	7159.	7954.
14	928.	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.	14848.	16704.	18560.
30	1989.	3977.	5966.	7954.	9943.	11932.	13920.	15909.	17897.	19886.

TROMBE 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	188.	375.	563.	751.	938.	1126.	1314.	1501.	1689.	1877.
4	375.	751.	1126.	1501.	1877.	2252.	2628.	3003.	3378.	3754.
6	563.	1126.	1689.	2252.	2815.	3378.	3941.	4504.	5067.	5630.
8	751.	1501.	2252.	3003.	3754.	4504.	5255.	6006.	6758.	7507.
10	938.	1877.	2815.	3754.	4692.	5630.	6568.	7507.	8446.	9384.
12	1126.	2252.	3378.	4504.	5630.	6756.	7882.	9008.	10135.	11261.
14	1314.	2628.	3941.	5255.	6569.	7882.	9196.	10510.	11824.	13138.
16	1501.	3003.	4504.	6006.	7507.	9008.	10510.	12012.	13513.	15014.
18	1689.	3378.	5067.	6758.	8446.	10135.	11824.	13513.	15202.	16891.
20	1877.	3754.	5630.	7507.	9384.	11261.	13138.	15014.	16891.	18768.
22	2064.	4129.	6193.	8258.	10323.	12387.	14451.	16516.	18580.	20645.
24	2252.	4504.	6756.	9008.	11261.	13513.	15765.	18017.	20269.	22522.
26	2440.	4880.	7319.	9759.	12199.	14639.	17078.	19518.	21958.	24398.
28	2628.	5255.	7882.	10510.	13138.	15765.	18392.	21020.	23647.	26275.
30	2815.	5630.	8446.	11261.	14076.	16891.	19705.	22522.	25337.	28152.

Luke 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	73.8	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	104.6	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.	20883.	23204.
20	2578.	5156.	7735.	10313.	12891.	15469.	18047.	20625.	23204.	25782.
22	2836.	5672.	8508.	11344.	14180.	17016.	19852.	22688.	25524.	28360.
24	3094.	6188.	9281.	12375.	15469.	18563.	21657.	24750.	27844.	30938.
26	3352.	6703.	10056.	13406.	16758.	20110.	23461.	26813.	30166.	33516.
28	3609.	7219.	10828.	14438.	18047.	21657.	25266.	28876.	32485.	36094.
30	3867.	7735.	11602.	15469.	19336.	23204.	27071.	30938.	34805.	38673.

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	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.	15020.	16898.	18775.
14	2190.	4381.	6571.	8762.	10952.	13143.	15333.	17524.	19714.	21905.
16	2503.	5007.	7510.	10014.	12517.	15020.	17524.	20027.	22531.	25034.
18	2816.	5633.	8449.	11266.	14082.	16898.	19714.	22531.	25347.	28163.
20	3129.	6258.	9388.	12517.	15646.	18775.	21905.	25034.	28163.	31292.
22	3442.	6884.	10327.	13769.	17211.	20653.	24095.	27537.	30980.	34422.
24	3755.	7510.	11266.	15020.	18775.	22531.	26286.	30041.	33796.	37551.
26	4068.	8135.	12204.	16272.	20340.	24408.	28476.	32544.	36612.	40680.
28	4381.	8762.	13143.	17524.	21905.	26286.	30667.	35048.	39429.	43809.
30	4694.	9388.	14082.	18775.	23469.	28163.	32857.	37551.	42245.	46938.

MacDill AFB

ANNUAL SOLAR CONTRIBUTION—MM(BTU's)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	.4	.8	1.2	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	8.5	12.8	17.1	21.3	25.6	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—MM($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	65.	130.	195.	260.	325.	389.	454.	519.	584.	649.
4	130.	260.	389.	519.	649.	779.	909.	1039.	1168.	1298.
6	195.	389.	584.	779.	974.	1168.	1363.	1558.	1753.	1947.
8	260.	519.	779.	1039.	1298.	1558.	1818.	2077.	2337.	2596.
10	325.	649.	974.	1298.	1623.	1947.	2272.	2596.	2921.	3246.
12	389.	779.	1168.	1558.	1947.	2337.	2726.	3116.	3505.	3895.
14	454.	909.	1363.	1818.	2272.	2726.	3181.	3636.	4089.	4544.
16	519.	1039.	1558.	2077.	2596.	3116.	3635.	4154.	4674.	5193.
18	584.	1168.	1753.	2337.	2921.	3505.	4089.	4674.	5258.	5842.
20	649.	1298.	1947.	2596.	3246.	3895.	4544.	5193.	5842.	6491.
22	714.	1428.	2142.	2855.	3570.	4284.	4998.	5712.	6426.	7140.
24	779.	1558.	2337.	3116.	3895.	4674.	5453.	6231.	7010.	7789.
26	844.	1688.	2532.	3375.	4219.	5063.	5907.	6751.	7595.	8438.
28	908.	1818.	2726.	3635.	4544.	5453.	6361.	7270.	8179.	9088.
30	974.	1947.	2921.	3895.	4868.	5842.	6816.	7789.	8763.	9737.

TROMBE 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	91.	183.	274.	365.	457.	548.	639.	730.	822.	913.
4	183.	365.	548.	730.	913.	1096.	1278.	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.	2283.	2739.	3196.	3652.	4109.	4566.
12	548.	1096.	1643.	2191.	2739.	3287.	3835.	4383.	4930.	5478.
14	639.	1278.	1917.	2556.	3196.	3835.	4474.	5113.	5752.	6391.
16	730.	1461.	2191.	2922.	3652.	4383.	5113.	5843.	6574.	7304.
18	822.	1643.	2465.	3287.	4109.	4930.	5752.	6574.	7396.	8217.
20	913.	1826.	2739.	3652.	4566.	5478.	6391.	7304.	8217.	9130.
22	1004.	2009.	3013.	4017.	5022.	6026.	7030.	8035.	9039.	10043.
24	1096.	2191.	3287.	4383.	5478.	6574.	7669.	8765.	9861.	10956.
26	1187.	2374.	3561.	4748.	5935.	7121.	8308.	9495.	10682.	11869.
28	1278.	2556.	3835.	5113.	6391.	7669.	8947.	10226.	11504.	12782.
30	1370.	2739.	4109.	5478.	6848.	8217.	9586.	10956.	12326.	13695.

MacDill AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	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	20.5	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	39.1	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	55.8	62.8	69.8

DIRECT GAIN DIFFERENTIAL COST--$M($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	125.	250.	375.	500.	624.	749.	874.	999.	1124.	1249.
4	250.	500.	749.	999.	1249.	1499.	1748.	1998.	2248.	2498.
6	375.	749.	1124.	1499.	1873.	2248.	2623.	2997.	3372.	3747.
8	500.	999.	1499.	1998.	2498.	2997.	3497.	3996.	4496.	4995.
10	624.	1249.	1873.	2498.	3122.	3747.	4371.	4995.	5620.	6244.
12	749.	1499.	2248.	2997.	3747.	4496.	5245.	5995.	6744.	7493.
14	874.	1748.	2623.	3497.	4371.	5245.	6119.	6994.	7868.	8742.
16	999.	1998.	2997.	3996.	4995.	5995.	6994.	7993.	8992.	9991.
18	1124.	2248.	3372.	4496.	5620.	6744.	7868.	8992.	10116.	11240.
20	1249.	2498.	3747.	4995.	6244.	7493.	8742.	9991.	11240.	12489.
22	1374.	2748.	4121.	5495.	6869.	8243.	9616.	10990.	12364.	13738.
24	1499.	2997.	4496.	5995.	7493.	8992.	10491.	11989.	13488.	14986.
26	1624.	3247.	4871.	6494.	8118.	9741.	11365.	12988.	14612.	16235.
28	1748.	3497.	5245.	6994.	8742.	10491.	12239.	13987.	15736.	17484.
30	1873.	3747.	5620.	7493.	9367.	11240.	13113.	14986.	16860.	18733.

TROMBE WALL DIFFERENTIAL COST--$M($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	151.	303.	454.	606.	758.	909.	1060.	1210.	1361.	1513.
4	303.	606.	909.	1210.	1513.	1815.	2116.	2420.	2723.	3026.
6	454.	909.	1361.	1815.	2269.	2723.	3177.	3631.	4084.	4538.
8	606.	1210.	1815.	2420.	3026.	3631.	4236.	4841.	5446.	6051.
10	758.	1513.	2269.	3026.	3782.	4538.	5295.	6051.	6807.	7564.
12	909.	1815.	2723.	3631.	4538.	5446.	6354.	7261.	8169.	9077.
14	1060.	2116.	3177.	4236.	5295.	6354.	7413.	8473.	9532.	10589.
16	1210.	2420.	3631.	4841.	6051.	7261.	8473.	9681.	10892.	12102.
18	1361.	2723.	4084.	5446.	6807.	8169.	9530.	10892.	12253.	13615.
20	1513.	3026.	4538.	6051.	7564.	9077.	10589.	12102.	13615.	15128.
22	1664.	3329.	4992.	6656.	8320.	9984.	11648.	13312.	14976.	16640.
24	1815.	3631.	5446.	7261.	9077.	10892.	12707.	14523.	16338.	18153.
26	1967.	3932.	5899.	7866.	9833.	11799.	13765.	15732.	17699.	19666.
28	2118.	4236.	6354.	8473.	10589.	12707.	14825.	16943.	19061.	21178.
30	2269.	4538.	6807.	9077.	11346.	13615.	15884.	18153.	20422.	22691.

Malmstrom AFB

ANNUAL SOLAR CONTRIBUTION—MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.2	6.3	9.5	12.7	15.8	19.0	22.2	25.3	28.5	31.7
4	6.3	12.7	19.0	25.3	31.7	38.0	44.4	50.7	57.0	63.4
6	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0
8	12.7	25.3	38.0	50.7	63.4	76.0	88.7	101.4	114.0	126.7
10	15.8	31.7	47.5	63.4	79.2	95.0	110.9	126.7	142.5	******
12	19.0	38.0	57.0	76.0	95.0	114.0	133.1	152.1	******	******
14	22.2	44.4	66.5	88.7	110.9	133.1	155.2	******	******	******
16	25.3	50.7	76.0	101.4	126.7	152.1	177.4	******	******	******
18	28.5	57.0	85.5	114.0	142.5	171.1	******	******	******	******
20	31.7	63.4	95.0	126.7	158.4	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	206.0	******	******	******	******	******
28	44.4	88.7	133.1	177.4	221.8	******	******	******	******	******
30	47.5	95.0	142.5	190.1	237.6	******	******	******	******	******

DIRECT GAIN DIFFERENTIAL COST—$/MBTU's)										
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.	12118.	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.	15906.	18558.	******	******	******
16	3030.	6059.	9089.	12118.	15148.	18177.	21207.	******	******	******
18	3408.	6816.	10225.	13633.	17041.	20449.	******	******	******	******
20	3787.	7574.	11361.	15148.	18935.	22721.	******	******	******	******
22	4166.	8331.	12497.	16663.	20828.	24994.	******	******	******	******
24	4544.	9089.	13633.	18177.	22721.	******	******	******	******	******
26	4923.	9846.	14769.	19692.	24615.	******	******	******	******	******
28	5302.	10603.	15906.	21207.	26508.	******	******	******	******	******
30	5680.	11361.	17041.	22721.	28402.	******	******	******	******	******

TROMBE WALL DIFFERENTIAL COST—$/MBTU's)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	840.	1680.	2520.	3360.	4200.	5040.	5880.	6720.	7560.	8400.
4	1680.	3360.	5040.	6720.	8400.	10080.	11760.	13440.	15120.	16800.
6	2520.	5040.	7560.	10080.	12600.	15120.	17640.	20161.	22681.	25201.
8	3360.	6720.	10080.	13440.	16800.	20161.	23521.	26881.	30241.	33601.
10	4200.	8400.	12600.	16800.	21001.	25201.	29401.	33601.	37801.	42001.
12	5040.	10080.	15120.	20161.	25201.	30241.	35281.	40321.	******	******
14	5880.	11760.	17640.	23521.	29401.	35281.	41161.	******	******	******
16	6720.	13440.	20161.	26881.	33601.	40321.	******	******	******	******
18	7560.	15120.	22681.	30241.	37801.	******	******	******	******	******
20	8400.	16800.	25201.	33601.	42001.	******	******	******	******	******
22	9240.	18480.	27721.	36961.	46201.	******	******	******	******	******
24	10080.	20161.	30241.	40321.	******	******	******	******	******	******
26	10920.	21841.	32761.	43681.	******	******	******	******	******	******
28	11760.	23521.	35281.	47041.	******	******	******	******	******	******
30	12600.	25201.	37801.	50401.	******	******	******	******	******	******

Malmstrom 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	7.7	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	192.8	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	385.7	462.8	******	******	******	******
22	84.8	169.7	254.5	339.4	424.2	509.1	******	******	******	******
24	92.6	185.1	277.7	370.2	462.8	******	******	******	******	******
26	100.3	200.6	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.	37268.	44721.	******	******	******	******
22	8199.	16398.	24597.	32795.	40994.	49193.	******	******	******	******
24	8944.	17888.	26833.	35777.	44721.	******	******	******	******	******
26	9690.	19379.	29069.	38758.	48448.	******	******	******	******	******
28	10435.	20870.	31305.	41740.	52175.	******	******	******	******	******
30	11180.	22361.	33541.	44721.	55901.	******	******	******	******	******

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	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.	28234.	32267.	36301.	******
12	4840.	9680.	14520.	19360.	24200.	29041.	33881.	38721.	******	******
14	5647.	11294.	16940.	22587.	28234.	33881.	39527.	******	******	******
16	6453.	12907.	19360.	25814.	32267.	38721.	******	******	******	******
18	7260.	14520.	21780.	29041.	36301.	******	******	******	******	******
20	8067.	16134.	24200.	32267.	40334.	******	******	******	******	******
22	8873.	17747.	26621.	35494.	44368.	******	******	******	******	******
24	9680.	19360.	29041.	38721.	******	******	******	******	******	******
26	10487.	20974.	31461.	41948.	******	******	******	******	******	******
28	11294.	22587.	33881.	45174.	******	******	******	******	******	******
30	12100.	24200.	36301.	48401.	******	******	******	******	******	******

March AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	24.8	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	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	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	53.0	70.7	88.4	106.1	123.8	141.4	159.1	176.8

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	105.	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.	2616.	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.	10355.	11505.
24	1255.	2510.	3765.	5021.	6276.	7531.	8786.	10041.	11296.	12551.
26	1360.	2719.	4079.	5439.	6799.	8158.	9518.	10878.	12238.	13597.
28	1464.	2929.	4393.	5857.	7322.	8786.	10250.	11715.	13179.	14643.
30	1569.	3138.	4707.	6276.	7845.	9414.	10982.	12551.	14120.	15689.

TROMBE 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	183.	367.	550.	734.	917.	1101.	1974.	1287.	1361.	1834.
4	367.	734.	1101.	1467.	1834.	2201.	2568.	2935.	3302.	3669.
6	550.	1101.	1651.	2201.	2752.	3302.	3852.	4403.	4953.	5504.
8	734.	1467.	2201.	2935.	3669.	4403.	5137.	5870.	6604.	7338.
10	917.	1834.	2752.	3669.	4587.	5504.	6422.	7339.	8257.	9174.
12	1101.	2201.	3302.	4403.	5504.	6604.	7705.	8806.	9907.	11007.
14	1284.	2568.	3852.	5137.	6422.	7705.	8989.	10274.	11558.	12841.
16	1467.	2935.	4403.	5870.	7338.	8806.	10274.	11743.	13211.	14677.
18	1651.	3302.	4953.	6604.	8257.	9907.	11558.	13211.	14860.	16514.
20	1834.	3669.	5504.	7338.	9174.	11007.	12841.	14677.	16511.	18348.
22	2018.	4036.	6054.	8071.	10089.	12107.	14125.	16143.	18161.	20179.
24	2201.	4403.	6604.	8806.	11007.	13211.	15412.	17613.	19815.	22016.
26	2384.	4770.	7155.	9540.	11925.	14310.	16695.	19080.	21465.	23851.
28	2568.	5137.	7705.	10274.	12841.	15412.	17979.	20547.	23114.	25683.
30	2751.	5504.	8257.	11007.	13758.	16511.	19262.	22014.	24765.	27518.

March 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	1.4	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--$M(S'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.	9486.	11857.	14228.	16600.	18971.	21342.	23714.
24	2587.	5174.	7761.	10348.	12935.	15522.	18109.	20696.	23283.	25870.
26	2803.	5605.	8408.	11210.	14013.	16815.	19618.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21127.	24145.	27163.	30181.
30	3234.	6467.	9701.	12935.	16168.	19402.	22636.	25870.	29103.	32337.

TROMBE WALL DIFFERENTIAL COST--$M(S'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.	1057.	1321.	1586.	1851.	2115.	2380.	2644.
4	528.	1057.	1586.	2115.	2644.	3173.	3702.	4231.	4759.	5288.
6	793.	1586.	2380.	3173.	3966.	4759.	5553.	6346.	7139.	7932.
8	1057.	2115.	3173.	4231.	5288.	6346.	7404.	8461.	9519.	10577.
10	1321.	2644.	3966.	5288.	6610.	7932.	9254.	10577.	11899.	13221.
12	1586.	3173.	4759.	6346.	7932.	9519.	11105.	12692.	14278.	15865.
14	1851.	3702.	5553.	7404.	9254.	11105.	12956.	14807.	16658.	18509.
16	2115.	4231.	6346.	8461.	10577.	12692.	14807.	16923.	19038.	21153.
18	2380.	4759.	7139.	9519.	11899.	14278.	16658.	19038.	21418.	23797.
20	2644.	5288.	7932.	10577.	13221.	15865.	18509.	21153.	23797.	26441.
22	2909.	5817.	8725.	11634.	14543.	17451.	20360.	23268.	26177.	29085.
24	3173.	6346.	9519.	12692.	15865.	19038.	22211.	25384.	28557.	31729.
26	3437.	6875.	10312.	13749.	17187.	20624.	24062.	27499.	30936.	34374.
28	3702.	7404.	11105.	14807.	18509.	22211.	25913.	29614.	33316.	37018.
30	3966.	7932.	11899.	15865.	19831.	23797.	27764.	31729.	35695.	39662.

Mather AFB

ANNUAL SOLAR CONTRIBUTION—MM(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	166.2	187.0	207.8
30	22.3	44.5	66.8	89.0	111.3	133.6	155.8	178.1	200.5	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.	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.	13057.	15233.	17409.	19585.	21762.
24	2374.	4748.	7122.	9496.	11870.	14244.	16618.	18992.	21366.	23740.
26	2572.	5144.	7715.	10287.	12859.	15431.	18003.	20575.	23146.	25718.
28	2770.	5539.	8309.	11079.	13848.	16618.	19388.	22157.	24927.	27697.
30	2967.	5935.	8902.	11870.	14837.	17805.	20773.	23740.	26707.	29675.

THERM ANN. 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	387.	675.	962.	1168.	1437.	1725.	2012.	2300.	2587.	2875.
4	675.	1150.	1725.	2300.	2875.	3450.	4025.	4600.	5175.	5750.
6	962.	1725.	2587.	3450.	4312.	5175.	6037.	6900.	7762.	8624.
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.	18399.	20699.	22999.
18	2587.	5175.	7762.	10349.	12937.	15524.	18111.	20699.	23286.	25873.
20	2875.	5750.	8624.	11499.	14374.	17249.	20124.	22999.	25873.	28748.
22	3162.	6325.	9487.	12649.	15811.	18974.	22136.	25298.	28460.	31623.
24	3450.	6900.	10349.	13799.	17249.	20699.	24148.	27598.	31048.	34498.
26	3737.	7474.	11211.	14948.	18686.	22423.	26160.	29897.	33635.	37372.
28	4025.	8049.	12074.	16099.	20124.	24148.	28173.	32197.	36222.	40247.
30	4312.	8624.	12937.	17249.	21561.	25873.	30185.	34497.	38809.	43121.

Mather 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	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	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	146.9	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.	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.	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.	22087.	26504.	30921.	35339.	39756.	44173.
24	4819.	9638.	14457.	19276.	24095.	28913.	33732.	38551.	43370.	48189.
26	5220.	10441.	15661.	20882.	26102.	31323.	36543.	41764.	46984.	52206.
28	5622.	11244.	16866.	22488.	28110.	33732.	39354.	44976.	50598.	56221.
30	6024.	12047.	18071.	24095.	30118.	36142.	42165.	48189.	54213.	60236.

TRUNK TAIL 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.	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.	26526.	29473.
14	3439.	6877.	10316.	13754.	17193.	20631.	24070.	27508.	30947.	34386.
16	3930.	7860.	11789.	15719.	19649.	23578.	27508.	31438.	35368.	39298.
18	4421.	8842.	13263.	17684.	22105.	26526.	30947.	35368.	39789.	44210.
20	4912.	9824.	14737.	19649.	24561.	29473.	34386.	39298.	44210.	49122.
22	5403.	10807.	16210.	21614.	27017.	32421.	37824.	43228.	48631.	54034.
24	5895.	11789.	17684.	23578.	29473.	35368.	41263.	47157.	53052.	58947.
26	6386.	12771.	19158.	25543.	31929.	38315.	44701.	51087.	57473.	63860.
28	6877.	13754.	20631.	27508.	34386.	41263.	48140.	55017.	61894.	68771.
30	7368.	14737.	22105.	29473.	36842.	44210.	51578.	58947.	66315.	73684.

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	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.	935.	1091.	1247.	1403.	1559.
4	312.	624.	935.	1247.	1559.	1871.	2183.	2494.	2806.	3118.
6	468.	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.	5146.	6860.	8575.	10289.	12004.	13719.	15434.	17149.
24	1871.	3742.	5612.	7483.	9354.	11225.	13096.	14966.	16837.	18708.
26	2027.	4053.	6080.	8107.	10134.	12160.	14187.	16214.	18240.	20267.
28	2183.	4365.	6548.	8730.	10913.	13096.	15278.	17461.	19643.	21826.
30	2339.	4677.	7016.	9354.	11693.	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	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.	3253.	3904.	4555.	5206.	5856.	6507.
8	868.	1735.	2603.	3470.	4338.	5206.	6073.	6941.	7808.	8676.
10	1084.	2169.	3253.	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.	8676.	10411.	12146.	13881.	15616.	17352.
18	1952.	3904.	5856.	7808.	9760.	11712.	13664.	15616.	17568.	19520.
20	2169.	4338.	6507.	8676.	10845.	13014.	15183.	17352.	19520.	21689.
22	2386.	4772.	7157.	9543.	11929.	14315.	16701.	19087.	21472.	23858.
24	2603.	5206.	7808.	10411.	13014.	15616.	18219.	20822.	23425.	26027.
26	2820.	5639.	8459.	11278.	14098.	16918.	19737.	22557.	25377.	28196.
28	3037.	6073.	9110.	12146.	15183.	18219.	21256.	24292.	27329.	30365.
30	3253.	6507.	9760.	13014.	16267.	19520.	22774.	26027.	29281.	32534.

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	76.4	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	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.	2945.
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.	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.	21206.	23562.
18	2651.	5301.	7952.	10603.	13253.	15904.	18555.	21206.	23856.	26507.
20	2945.	5890.	8836.	11781.	14726.	17671.	20617.	23562.	26507.	29452.
22	3240.	6479.	9719.	12959.	16199.	19438.	22678.	25918.	29158.	32397.
24	3534.	7069.	10603.	14137.	17671.	21206.	24740.	28274.	31808.	35343.
26	3829.	7658.	11486.	15315.	19144.	22973.	26801.	30630.	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.	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.	12799.	14221.
10	1778.	3555.	5333.	7110.	8888.	10665.	12443.	14221.	15998.	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.	25597.	28441.
18	3200.	6399.	9599.	12799.	15998.	19198.	22397.	25597.	28797.	31996.
20	3555.	7110.	10665.	14221.	17776.	21331.	24886.	28441.	31996.	35551.
22	3911.	7821.	11732.	15643.	19553.	23464.	27375.	31285.	35196.	39107.
24	4266.	8532.	12799.	17065.	21331.	25597.	29863.	34129.	38396.	42662.
26	4622.	9243.	13865.	18487.	23108.	27730.	32352.	36974.	41595.	46217.
28	4977.	9954.	14932.	19909.	24886.	29863.	34840.	39818.	44795.	49772.
30	5333.	10665.	15998.	21331.	26664.	31996.	37329.	42662.	47994.	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	76.4	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.	14294.	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.	16750.	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.	17746.	19718.
14	2300.	4601.	6901.	9202.	11502.	13803.	16103.	18404.	20704.	23004.
16	2629.	5258.	7887.	10516.	13145.	15774.	18404.	21033.	23662.	26291.
18	2958.	5915.	8873.	11831.	14789.	17746.	20704.	23662.	26619.	29577.
20	3286.	6573.	9859.	13145.	16432.	19718.	23004.	26291.	29577.	32864.
22	3615.	7230.	10845.	14460.	18075.	21690.	25305.	28920.	32535.	36150.
24	3944.	7887.	11831.	15774.	19718.	23662.	27605.	31549.	35493.	******
26	4272.	8545.	12817.	17089.	21361.	25634.	29906.	34178.	38450.	******
28	4601.	9202.	13803.	18404.	23004.	27606.	32206.	36807.	******	******
30	4930.	9859.	14789.	19718.	24648.	29577.	34507.	39436.	******	******

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	378.5	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.	13880.	16656.	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.	46265.
22	5089.	10178.	15268.	20357.	25446.	30535.	35624.	40713.	45803.	50892.
24	5552.	11104.	16656.	22207.	27759.	33311.	38863.	44415.	49966.	******
26	6014.	12029.	18043.	24058.	30072.	36087.	42101.	48116.	54130.	******
28	6477.	12954.	19431.	25909.	32386.	38863.	45340.	51817.	******	******
30	6940.	13880.	20819.	27759.	34699.	41639.	48578.	55518.	******	******

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	568.	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.	22718.
10	2840.	5680.	8519.	11359.	14199.	17039.	19878.	22718.	25558.	28398.
12	3408.	6815.	10223.	13631.	17039.	20446.	23854.	27262.	30669.	34077.
14	3976.	7951.	11927.	15903.	19878.	23854.	27830.	31805.	35781.	39757.
16	4544.	9087.	13631.	18174.	22718.	27262.	31805.	36349.	40892.	45436.
18	5112.	10223.	15335.	20446.	25558.	30669.	35781.	40892.	46004.	51116.
20	5680.	11359.	17039.	22718.	28398.	34077.	39757.	45436.	51116.	56795.
22	6247.	12495.	18742.	24990.	31237.	37485.	43732.	49980.	56227.	62475.
24	6815.	13631.	20446.	27262.	34077.	40893.	47708.	54523.	61339.	******
26	7383.	14767.	22150.	29533.	36917.	44300.	51684.	59067.	66450.	******
28	7951.	15903.	23854.	31805.	39757.	47708.	55659.	63611.	******	******
30	8519.	17039.	25558.	34077.	42596.	51116.	59635.	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	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	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.	1585.	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.	13057.	15233.	17409.	19585.	21762.
24	2374.	4748.	7122.	9496.	11870.	14244.	16618.	18992.	21366.	23740.
26	2572.	5144.	7715.	10287.	12859.	15431.	18003.	20575.	23146.	25718.
28	2770.	5539.	8309.	11079.	13848.	16618.	19388.	22157.	24927.	27697.
30	2967.	5935.	8902.	11870.	14837.	17805.	20772.	23740.	26707.	29675.

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.	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.	18399.	20699.	22998.
18	2587.	5175.	7762.	10349.	12937.	15524.	18111.	20699.	23286.	25873.
20	2875.	5750.	8624.	11499.	14374.	17249.	20124.	22998.	25873.	28748.
22	3162.	6325.	9487.	12649.	15811.	18974.	22136.	25298.	28460.	31623.
24	3450.	6900.	10349.	13799.	17249.	20699.	24148.	27598.	31048.	34498.
26	3737.	7474.	11212.	14949.	18686.	22423.	26161.	29898.	33635.	37372.
28	4025.	8049.	12074.	16099.	20124.	24148.	28173.	32198.	36223.	40247.
30	4312.	8624.	12937.	17249.	21561.	25873.	30185.	34498.	38810.	43122.

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	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	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	146.9	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.	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.	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.	22087.	26504.	30921.	35339.	39756.	44173.
24	4819.	9638.	14457.	19276.	24095.	28913.	33732.	38551.	43370.	48189.
26	5220.	10441.	15661.	20882.	26102.	31323.	36543.	41764.	46984.	52205.
28	5622.	11244.	16866.	22488.	28110.	33732.	39354.	44976.	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.	3439.	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.	26526.	29473.
14	3439.	6877.	10316.	13754.	17193.	20631.	24070.	27508.	30947.	34385.
16	3930.	7860.	11789.	15719.	19649.	23578.	27508.	31438.	35368.	39298.
18	4421.	8842.	13263.	17684.	22105.	26526.	30947.	35368.	39789.	44210.
20	4912.	9824.	14737.	19649.	24561.	29473.	34385.	39298.	44210.	49122.
22	5403.	10807.	16210.	21614.	27017.	32421.	37824.	43228.	48631.	54034.
24	5895.	11789.	17684.	23578.	29473.	35368.	41262.	47157.	53052.	58947.
26	6386.	12772.	19157.	25543.	31929.	38315.	44701.	51087.	57473.	63859.
28	6877.	13754.	20631.	27508.	34385.	41262.	48140.	55017.	61894.	68771.
30	7368.	14737.	22105.	29473.	36842.	44210.	51578.	58947.	66315.	73684.

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	168.9	******	******	******
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	308.	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.	16635.	19408.	22181.	******	******
20	3081.	6161.	9242.	12323.	15403.	18484.	21564.	24645.	******	******
22	3389.	6777.	10166.	13555.	16943.	20332.	23721.	******	******	******
24	3697.	7394.	11090.	14787.	18484.	22181.	25877.	******	******	******
26	4005.	8010.	12014.	16019.	20024.	24029.	28034.	******	******	******
28	4313.	8626.	12939.	17252.	21564.	25877.	******	******	******	******
30	4621.	9242.	13863.	18484.	23105.	27726.	******	******	******	******

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	432.	864.	1296.	1728.	2160.	2592.	3024.	3456.	3888.	4320.
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.	20736.	23327.	25919.
14	3024.	6048.	9072.	12096.	15120.	18144.	21167.	24191.	27215.	******
16	3456.	6912.	10368.	13824.	17280.	20736.	24191.	27647.	31103.	******
18	3888.	7776.	11664.	15552.	19440.	23327.	27215.	31103.	******	******
20	4320.	8640.	12960.	17280.	21600.	25919.	30239.	******	******	******
22	4752.	9504.	14256.	19008.	23760.	28511.	33263.	******	******	******
24	5184.	10368.	15552.	20736.	25919.	31103.	36287.	******	******	******
26	5616.	11232.	16848.	22464.	28079.	33695.	******	******	******	******
28	6048.	12096.	18144.	24191.	30239.	36287.	******	******	******	******
30	6480.	12960.	19440.	25919.	32399.	38879.	******	******	******	******

McConnell 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	7.6	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--WNI($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	590.	1179.	1769.	2359.	2949.	3538.	4128.	4718.	5307.	5897.
4	1179.	2359.	3538.	4718.	5897.	7077.	8256.	9436.	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.	9436.	14153.	18871.	23589.	28306.	33024.	37742.	42459.	******
18	5307.	10615.	15922.	21230.	26537.	31845.	37152.	42459.	******	******
20	5897.	11794.	17691.	23589.	29486.	35383.	41280.	47177.	******	******
22	6487.	12974.	19461.	25947.	32434.	38921.	45408.	******	******	******
24	7077.	14153.	21230.	28306.	35383.	42459.	49536.	******	******	******
26	7666.	15333.	22999.	30665.	38331.	45998.	53664.	******	******	******
28	8256.	16512.	24768.	33024.	41280.	49536.	******	******	******	******
30	8846.	17691.	26537.	35383.	44229.	53074.	******	******	******	******

THERMAL MASS 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	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.	14988.	17127.	19269.	21409.
8	2854.	5709.	8564.	11418.	14273.	17127.	19982.	22837.	25691.	28546.
10	3568.	7136.	10705.	14273.	17841.	21409.	24977.	28546.	32114.	35682.
12	4282.	8564.	12846.	17127.	21409.	25691.	29973.	34255.	38537.	42818.
14	4995.	9991.	14988.	19982.	24977.	29973.	34968.	39964.	44959.	******
16	5709.	11418.	17127.	22837.	28546.	34255.	39964.	45673.	51382.	******
18	6423.	12845.	19269.	25691.	32114.	38537.	44959.	51382.	******	******
20	7136.	14273.	21409.	28546.	35682.	42818.	49955.	57091.	******	******
22	7850.	15700.	23551.	31400.	39250.	47100.	54951.	******	******	******
24	8564.	17127.	25691.	34255.	42818.	51382.	59946.	******	******	******
26	9277.	18554.	27832.	37109.	46386.	55664.	******	******	******	******
28	9991.	19982.	29973.	39964.	49955.	59946.	******	******	******	******
30	10705.	21409.	32114.	42818.	53523.	64228.	******	******	******	******

McGuire AFB

ANNUAL SOLAR CONTRIBUTION--MBTU(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	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	53.2	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	89.8	******
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	89.8	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	43.3	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	******	******	******	******

[illegible] ANNUAL SOLAR INCREMENTAL COST--MBTU($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	320.	641.	961.	1281.	1602.	1922.	2242.	2562.	2883.	3203.
4	641.	1281.	1922.	2562.	3203.	3844.	4484.	5125.	5766.	6406.
6	961.	1922.	2883.	3844.	4805.	5766.	6727.	7687.	8648.	9609.
8	1281.	2562.	3844.	5125.	6406.	7687.	8969.	10250.	11531.	12812.
10	1602.	3203.	4805.	6406.	8008.	9609.	11211.	12812.	14414.	16016.
12	1922.	3844.	5766.	7687.	9609.	11531.	13453.	15375.	17297.	******
14	2242.	4484.	6727.	8969.	11211.	13453.	15695.	17937.	20180.	******
16	2562.	5125.	7687.	10250.	12812.	15375.	17937.	20500.	******	******
18	2883.	5766.	8648.	11531.	14414.	17297.	20180.	23062.	******	******
20	3203.	6406.	9609.	12812.	16016.	19219.	22422.	******	******	******
22	3523.	7047.	10570.	14093.	17617.	21141.	24664.	******	******	******
24	3844.	7687.	11531.	15375.	19219.	23062.	26906.	******	******	******
26	4164.	8328.	12492.	16656.	20820.	24984.	******	******	******	******
28	4484.	8969.	13453.	17937.	22422.	26906.	******	******	******	******
30	4805.	9609.	14414.	19219.	24023.	28828.	******	******	******	******

[illegible] ANNUAL SOLAR [illegible] (MBTU's)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	[illegible]									
4										
6										
8										
10										
12										
14										
16										
18										
20										
22										
24										
26										
28										
30										

McGuire AFB

ANNUAL SOLAR CONTRIBUTION--WNI(MBTU's)

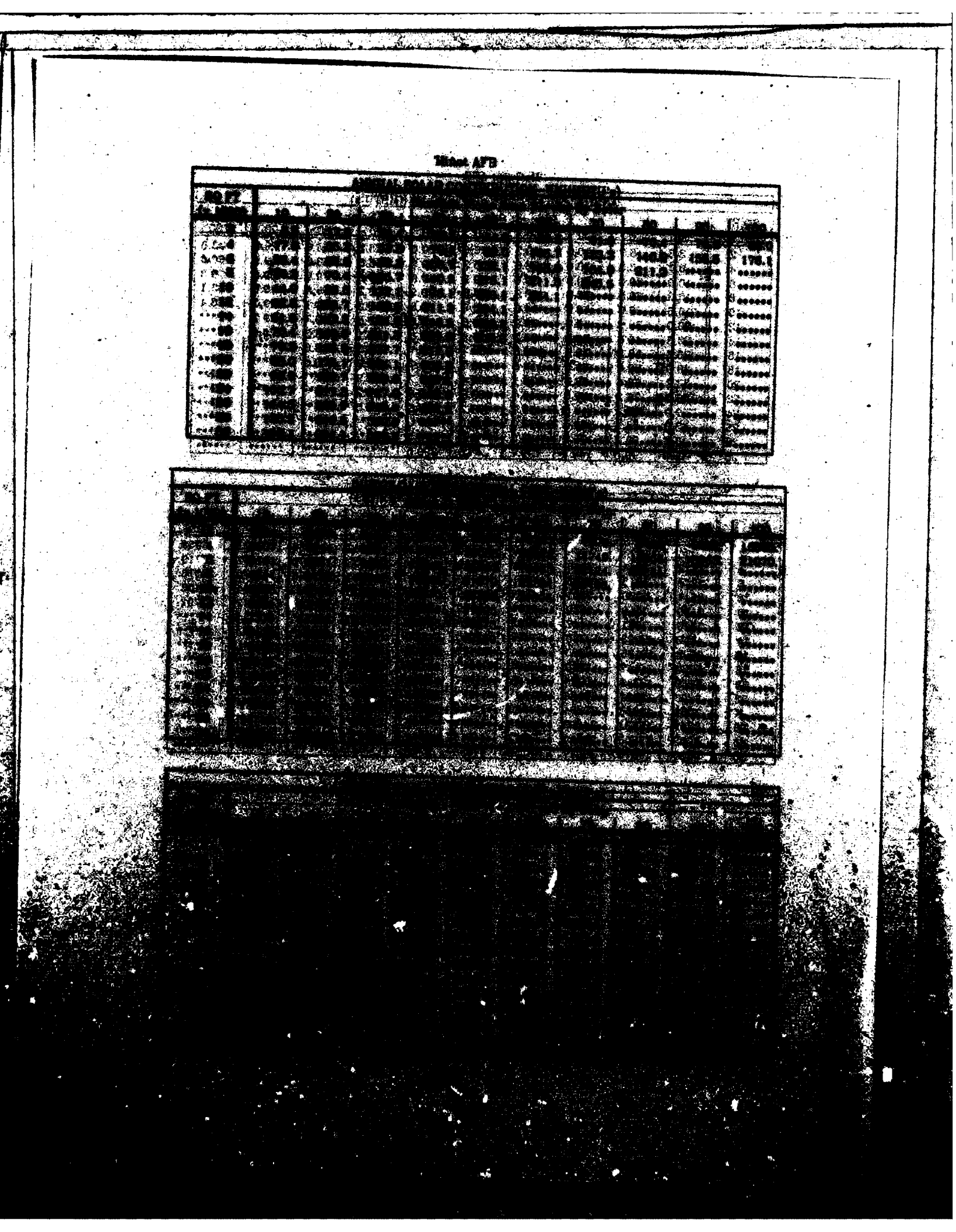
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	3.3	6.7	10.0	13.3	16.6	20.0	23.3	26.6	29.9	33.3
4	6.7	13.3	20.0	26.6	33.3	39.9	46.6	53.2	59.9	66.6
6	10.0	20.0	29.9	39.9	49.9	59.9	69.9	79.9	89.8	99.8
8	13.3	26.6	39.9	53.2	66.6	79.9	93.2	106.5	119.8	133.1
10	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	******
14	23.3	46.6	69.9	93.2	116.6	139.8	163.1	186.3	209.6	******
16	26.6	53.2	79.9	106.5	133.1	159.7	186.3	213.0	******	******
18	29.9	59.9	89.8	119.8	149.7	179.7	209.6	239.6	******	******
20	33.3	66.6	99.8	133.1	166.4	199.7	232.9	******	******	******
22	36.6	73.2	109.8	146.4	183.0	219.6	256.2	******	******	******
24	39.9	79.9	119.8	159.7	199.7	239.6	279.5	******	******	******
26	43.3	86.5	129.8	173.0	216.3	259.6	******	******	******	******
28	46.6	93.2	139.8	186.3	232.9	279.5	******	******	******	******
30	49.9	99.8	149.7	199.7	249.6	299.5	******	******	******	******

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	636.	1272.	1908.	2544.	3180.	3816.	4452.	5088.	5725.	6360.
4	1272.	2544.	3816.	5088.	6360.	7631.	8903.	10175.	11447.	12719.
6	1908.	3816.	5725.	7631.	9539.	11447.	13355.	15263.	17170.	19078.
8	2544.	5088.	7631.	10175.	12719.	15263.	17806.	20350.	22894.	25438.
10	3180.	6360.	9539.	12719.	15899.	19078.	22258.	25438.	28617.	31797.
12	3816.	7631.	11447.	15263.	19078.	22894.	26710.	30525.	34341.	******
14	4452.	8903.	13355.	17806.	22258.	26710.	31161.	35613.	40064.	******
16	5088.	10175.	15263.	20350.	25438.	30525.	35613.	40700.	******	******
18	5725.	11447.	17170.	22894.	28617.	34341.	40064.	45788.	******	******
20	6360.	12719.	19078.	25438.	31797.	38156.	44516.	******	******	******
22	6996.	13991.	20986.	27981.	34977.	41972.	48967.	******	******	******
24	7631.	15263.	22894.	30525.	38156.	45788.	53419.	******	******	******
26	8267.	16534.	24802.	33069.	41336.	49603.	******	******	******	******
28	8903.	17806.	26710.	35613.	44516.	53419.	******	******	******	******
30	9539.	19078.	28617.	38156.	47695.	57235.	******	******	******	******

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	370.	1000.	2004.	3004.	3974.	4948.	6484.	6180.	7973.	7748.
4	1000.	2004.	3004.	4948.	7748.	9896.	12397.	12397.	12397.	15496.
6	2004.	4948.	6973.	9896.	12397.	15496.	18671.	18671.	18671.	23244.
8	3004.	6180.	9896.	12397.	15496.	18671.	24794.	24794.	24794.	30992.
10	3974.	7973.	12397.	15496.	18671.	24794.	30992.	30992.	30992.	37741.
12	4948.	9896.	15496.	18671.	24794.	30992.	37741.	37741.	37741.	******
14	6484.	12397.	18671.	24794.	30992.	37741.	44489.	44489.	44489.	******
16	6180.	12397.	18671.	24794.	30992.	37741.	44489.	44489.	******	******
18	7973.	12397.	18671.	24794.	30992.	37741.	44489.	44489.	******	******
20	7748.	15496.	23244.	30992.	37741.	44489.	51237.	******	******	******
22	9896.	18671.	24794.	30992.	37741.	44489.	51237.	******	******	******
24	12397.	24794.	30992.	37741.	44489.	51237.	******	******	******	******
26	15496.	30992.	37741.	44489.	51237.	******	******	******	******	******
28	18671.	37741.	44489.	51237.	******	******	******	******	******	******
30	24794.	44489.	51237.	******	******	******	******	******	******	******



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	66.6	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	98.8	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.	6668.	7779.	8890.	10001.	11113.
22	1222.	2445.	3667.	4890.	6112.	7334.	8557.	9779.	11002.	12224.
24	1334.	2667.	4001.	5334.	6668.	8001.	9335.	10668.	12002.	13335.
26	1445.	2889.	4334.	5779.	7223.	8668.	10113.	11557.	13002.	14446.
28	1556.	3112.	4667.	6223.	7779.	9335.	10890.	12446.	14002.	15558.
30	1667.	3334.	5001.	6668.	8334.	10001.	11668.	13335.	15002.	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	184.	368.	552.	736.	920.	1104.	1288.	1472.	1656.	1840.
4	368.	736.	1104.	1472.	1840.	2207.	2575.	2943.	3311.	3679.
6	552.	1104.	1656.	2207.	2759.	3311.	3863.	4415.	4967.	5519.
8	736.	1472.	2207.	2943.	3679.	4415.	5151.	5887.	6623.	7358.
10	920.	1840.	2759.	3679.	4598.	5518.	6438.	7358.	8278.	9198.
12	1104.	2207.	3311.	4415.	5518.	6622.	7726.	8830.	9934.	11037.
14	1288.	2575.	3863.	5151.	6438.	7726.	9013.	10301.	11589.	12877.
16	1472.	2943.	4415.	5887.	7358.	8830.	10301.	11773.	13245.	14717.
18	1656.	3311.	4967.	6623.	8278.	9934.	11589.	13245.	14901.	16557.
20	1840.	3679.	5519.	7358.	9198.	11037.	12877.	14717.	16557.	18396.
22	2024.	4047.	6071.	8094.	10118.	12141.	14165.	16189.	18212.	20236.
24	2207.	4415.	6623.	8830.	11037.	13245.	15452.	17660.	19867.	22075.
26	2391.	4783.	7174.	9566.	11957.	14349.	16740.	19132.	21523.	23915.
28	2575.	5151.	7726.	10301.	12877.	15452.	18028.	20603.	23179.	25754.
30	2759.	5519.	8278.	11037.	13796.	16556.	19315.	22075.	24834.	27594.

Moody 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	2.0	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	208.	417.	625.	834.	1042.	1251.	1459.	1668.	1876.	2085.
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.	11466.	13758.	16052.	18345.	20638.	22931.
24	2502.	5003.	7505.	10006.	12508.	15009.	17511.	20012.	22514.	25015.
26	2710.	5420.	8130.	10840.	13550.	16260.	18970.	21680.	24390.	27100.
28	2918.	5837.	8755.	11674.	14592.	17511.	20429.	23348.	26266.	29185.
30	3127.	6254.	9381.	12508.	15635.	18762.	21888.	25015.	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.	18093.	20103.
18	2262.	4523.	6785.	9046.	11308.	13570.	15831.	18093.	20354.	22616.
20	2513.	5026.	7539.	10052.	12564.	15077.	17590.	20103.	22616.	25129.
22	2764.	5529.	8293.	11057.	13821.	16585.	19349.	22113.	24878.	27642.
24	3015.	6031.	9046.	12062.	15077.	18093.	21108.	24124.	27139.	30155.
26	3267.	6534.	9800.	13067.	16334.	19601.	22867.	26134.	29401.	32668.
28	3518.	7036.	10554.	14072.	17590.	21108.	24626.	28144.	31662.	35180.
30	3769.	7539.	11308.	15077.	18847.	22616.	26385.	30155.	33924.	37693.

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	212.6	255.1	******	******	******	******

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.	2659.	2955.
4	591.	1182.	1773.	2364.	2955.	3546.	4137.	4728.	5319.	5910.
6	886.	1773.	2659.	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.	16548.	18912.	21276.	******
18	2659.	5319.	7978.	10638.	13297.	15957.	18616.	21276.	******	******
20	2955.	5910.	8865.	11820.	14775.	17730.	20685.	23640.	******	******
22	3250.	6501.	9751.	13002.	16252.	19503.	22753.	******	******	******
24	3546.	7092.	10638.	14184.	17730.	21276.	24822.	******	******	******
26	3841.	7683.	11524.	15366.	19207.	23049.	26890.	******	******	******
28	4137.	8274.	12411.	16548.	20685.	24822.	******	******	******	******
30	4432.	8865.	13297.	17730.	22162.	26595.	******	******	******	******

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.	17752.	20288.	22824.	25360.
14	2960.	5917.	8876.	11834.	14793.	17752.	20710.	23669.	26628.	******
16	3381.	6763.	10144.	13525.	16906.	20288.	23669.	27050.	30431.	******
18	3804.	7608.	11412.	15216.	19020.	22824.	26628.	30431.	******	******
20	4227.	8453.	12680.	16906.	21133.	25360.	29586.	33813.	******	******
22	4649.	9299.	13948.	18597.	23246.	27896.	32545.	******	******	******
24	5072.	10144.	15216.	20288.	25360.	30431.	35503.	******	******	******
26	5496.	10989.	16484.	21978.	27473.	32967.	38462.	******	******	******
28	5917.	11834.	17752.	23669.	29586.	35503.	******	******	******	******
30	6340.	12680.	19020.	25360.	31699.	38039.	******	******	******	******

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	352.8	403.2	******	******
22	55.4	110.9	166.3	221.7	277.2	332.6	388.1	******	******	******
24	60.5	121.0	181.4	241.9	302.4	362.9	423.3	******	******	******
26	65.5	131.0	196.5	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)

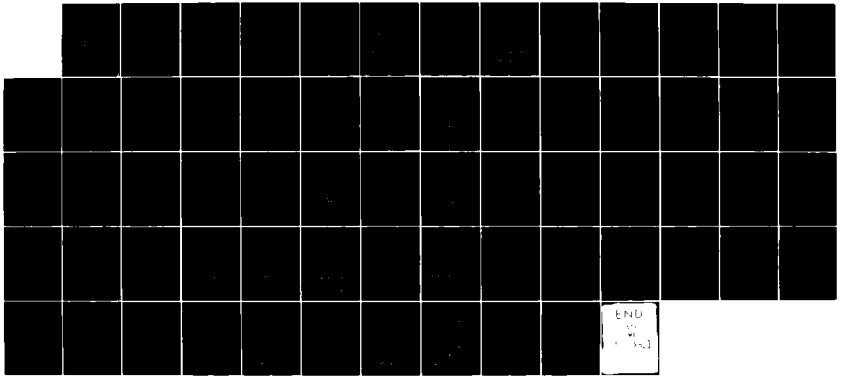
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	585.	1169.	1754.	2338.	2923.	3507.	4092.	4676.	5261.	5845.
4	1169.	2338.	3507.	4676.	5845.	7014.	8183.	9352.	10521.	11690.
6	1754.	3507.	5261.	7014.	8768.	10521.	12275.	14028.	15782.	17535.
8	2338.	4676.	7014.	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.	******	******	******	******

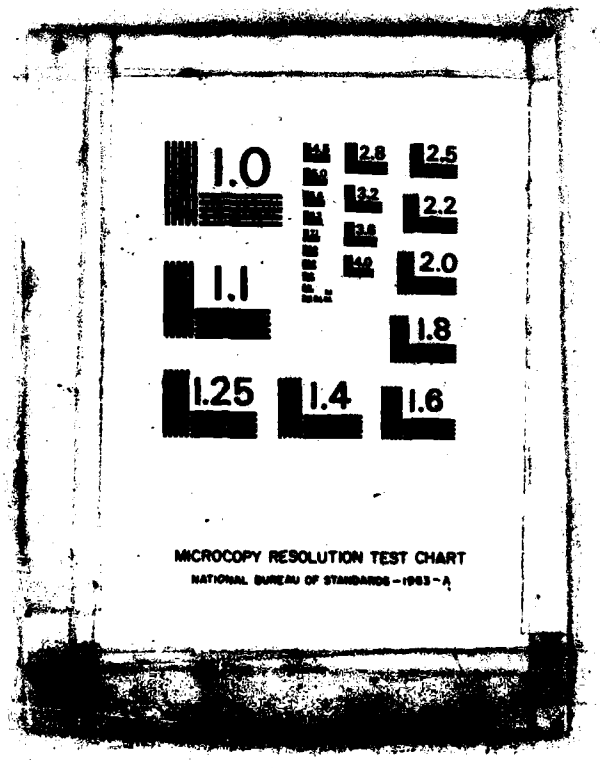
TROMBE WALL DIFFERENTIAL COST—WNI($'s)

SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	712.	1423.	2135.	2847.	3558.	4270.	4982.	5693.	6405.	7117.
4	1423.	2847.	4270.	5693.	7117.	8540.	9963.	11387.	12810.	14233.
6	2135.	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.	17792.	21350.	24908.	28466.	32025.	35583.
12	4270.	8540.	12810.	17080.	21350.	25620.	29890.	34160.	38430.	42700.
14	4982.	9963.	14945.	19927.	24908.	29890.	34871.	39853.	44835.	******
16	5693.	11387.	17080.	22773.	28466.	34160.	39853.	45546.	51240.	******
18	6405.	12810.	19215.	25620.	32025.	38430.	44835.	51240.	******	******
20	7117.	14233.	21350.	28466.	35583.	42700.	49816.	56933.	******	******
22	7828.	15657.	23485.	31313.	39141.	46970.	54798.	******	******	******
24	8540.	17080.	25620.	34160.	42700.	51240.	59780.	******	******	******
26	9252.	18503.	27755.	37006.	46258.	55510.	64763.	******	******	******
28	9963.	19927.	29890.	39853.	49816.	59780.	******	******	******	******
30	10675.	21350.	32025.	42700.	53375.	64050.	******	******	******	******

AD A135 539 SIMPLIFIED PRELIMINARY ECONOMIC ANALYSIS FOR PASSIVE SOLAR HEATING(U) AIR FORCE INST OF TECH WRIGHT PATTERSON AFB OH SCHOOL OF SYST.. 4/4

UNCLASSIFIED P J BALDETTI ET AL. SEP 83 AFIT-LSSR-115-83 F/G 13/1 NL




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

Myrtle Beach 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	38.6	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	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	98.2	114.6	130.9	147.3	163.7
30	17.5	35.1	52.6	70.1	87.7	105.2	122.8	140.3	157.8	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	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.	4408.	5291.	6173.	7055.	7936.	8818.
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.	7936.	9524.	11111.	12698.	14286.	15873.
20	1764.	3527.	5291.	7055.	8818.	10582.	12346.	14109.	15873.	17636.
22	1940.	3880.	5820.	7760.	9700.	11640.	13580.	15520.	17460.	19400.
24	2116.	4233.	6349.	8466.	10582.	12698.	14815.	16931.	19047.	21164.
26	2293.	4585.	6878.	9171.	11464.	13756.	16046.	18342.	20635.	22927.
28	2469.	4938.	7407.	9876.	12346.	14815.	17284.	19753.	22222.	24691.
30	2646.	5291.	7936.	10582.	13227.	15873.	18518.	21164.	23809.	26455.

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	365.	488.	731.	975.	1334.	1463.	1713.	1958.	2208.	2447.
4	488.	975.	1463.	1963.	2447.	2927.	3426.	3915.	4405.	4885.
6	731.	1463.	2208.	2927.	3671.	4405.	5140.	5878.	6603.	7342.
8	975.	1963.	2927.	3915.	4885.	5874.	6865.	7832.	8811.	9780.
10	1334.	2447.	3671.	4885.	6119.	7342.	8565.	9780.	11013.	12237.
12	1463.	2927.	4405.	5874.	7342.	8811.	10279.	11748.	13218.	14684.
14	1713.	3426.	5140.	6865.	8565.	10279.	11992.	13705.	15418.	17132.
16	1958.	3915.	5878.	7832.	9780.	11748.	13705.	15663.	17621.	19579.
18	2208.	4405.	6603.	8811.	11013.	13218.	15418.	17621.	19824.	22027.
20	2447.	4885.	7342.	9780.	12237.	14684.	17132.	19579.	22027.	24474.
22	2696.	5364.	8078.	10769.	13461.	16153.	18845.	21537.	24229.	26921.
24	2927.	5874.	8811.	11748.	14684.	17621.	20558.	23495.	26432.	29368.
26	3182.	6355.	9545.	12727.	15908.	19090.	22271.	25453.	28635.	31816.
28	3426.	6865.	10279.	13705.	17132.	20558.	23985.	27411.	30837.	34264.
30	3671.	7342.	11013.	14684.	18355.	22027.	25698.	29368.	33040.	36711.

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	176.8	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	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.	10948.	14598.	18247.	21896.	25546.	29195.	32845.	36494.
24	3981.	7962.	11944.	15925.	19906.	23887.	27868.	31849.	35831.	39812.
26	4313.	8626.	12939.	17252.	21565.	25878.	30191.	34504.	38816.	43129.
28	4645.	9289.	13934.	18579.	23224.	27868.	32513.	37158.	41802.	46447.
30	4976.	9953.	14929.	19906.	24882.	29859.	34835.	39812.	44788.	49765.

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	400.	800.	1200.	1601.	2001.	2401.	2801.	3201.	3601.	4001.
4	800.	1601.	2401.	3201.	4001.	4802.	5602.	6402.	7203.	8003.
6	1200.	2401.	3601.	4802.	6002.	7203.	8403.	9603.	10804.	12004.
8	1601.	3201.	4802.	6402.	8003.	9603.	11204.	12805.	14405.	16006.
10	2001.	4001.	6002.	8003.	10004.	12004.	14005.	16006.	18006.	20007.
12	2401.	4802.	7203.	9603.	12004.	14405.	16806.	19207.	21608.	24008.
14	2801.	5602.	8403.	11204.	14005.	16806.	19607.	22408.	25209.	28010.
16	3201.	6402.	9603.	12805.	16006.	19207.	22408.	25609.	28810.	32011.
18	3601.	7203.	10804.	14405.	18006.	21608.	25209.	28810.	32411.	36013.
20	4001.	8003.	12004.	16006.	20007.	24008.	28010.	32011.	36013.	40014.
22	4402.	8803.	13205.	17606.	22008.	26409.	30811.	35212.	39614.	44015.
24	4802.	9603.	14405.	19207.	24008.	28810.	33612.	38414.	43215.	48017.
26	5202.	10404.	15606.	20807.	26009.	31211.	36413.	41616.	46816.	52018.
28	5602.	11204.	16806.	22408.	28010.	33612.	39214.	44816.	50416.	56020.
30	6003.	12004.	18006.	24008.	30011.	36013.	42015.	48017.	54019.	60021.

Nellis 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	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	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.	11855.	13172.
16	1506.	3011.	4516.	6022.	7527.	9032.	10538.	12043.	13548.	15054.
18	1694.	3387.	5081.	6774.	8468.	10162.	11855.	13549.	15242.	16936.
20	1882.	3764.	5645.	7527.	9409.	11291.	13172.	15054.	16936.	18818.
22	2070.	4140.	6210.	8280.	10350.	12420.	14490.	16560.	18630.	20699.
24	2258.	4516.	6774.	9032.	11291.	13549.	15807.	18065.	20323.	22581.
26	2446.	4893.	7339.	9785.	12232.	14678.	17124.	19570.	22017.	24463.
28	2634.	5269.	7903.	10538.	13172.	15807.	18441.	21076.	23710.	26345.
30	2823.	5645.	8468.	11291.	14113.	16936.	19759.	22581.	25404.	28227.

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.	549.	823.	1098.	1372.	1646.	1921.	2195.	2470.	2744.
4	549.	1098.	1646.	2195.	2744.	3293.	3842.	4391.	4939.	5488.
6	823.	1646.	2470.	3293.	4116.	4939.	5763.	6586.	7409.	8232.
8	1098.	2195.	3293.	4391.	5488.	6586.	7684.	8781.	9879.	10977.
10	1372.	2744.	4116.	5488.	6860.	8232.	9604.	10977.	12349.	13721.
12	1646.	3293.	4939.	6586.	8232.	9879.	11525.	13172.	14818.	16465.
14	1921.	3842.	5763.	7684.	9604.	11525.	13446.	15367.	17288.	19209.
16	2195.	4391.	6586.	8781.	10977.	13172.	15367.	17563.	19758.	21953.
18	2470.	4939.	7409.	9879.	12349.	14818.	17288.	19758.	22228.	24697.
20	2744.	5488.	8232.	10977.	13721.	16465.	19209.	21953.	24697.	27441.
22	3018.	6037.	9055.	12074.	15093.	18111.	21130.	24148.	27167.	30186.
24	3293.	6586.	9879.	13172.	16465.	19758.	23051.	26344.	29637.	32930.
26	3567.	7135.	10702.	14269.	17837.	21404.	24972.	28539.	32107.	35674.
28	3842.	7684.	11525.	15367.	19209.	23051.	26893.	30734.	34578.	38418.
30	4116.	8232.	12349.	16465.	20581.	24697.	28813.	32930.	37048.	41162.

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	98.9	123.6	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	168.5	202.3	236.0	269.7	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.	10757.	13446.	16135.	18824.	21514.	24203.	26892.
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.	26892.	30734.	34575.	38417.
22	4226.	8452.	12678.	16903.	21129.	25355.	29581.	33807.	38033.	42259.
24	4610.	9220.	13830.	18440.	23050.	27660.	32270.	36880.	41490.	46100.
26	4994.	9988.	14983.	19977.	24971.	29965.	34959.	39954.	44948.	49942.
28	5378.	10757.	16135.	21514.	26892.	32270.	37649.	43027.	48405.	53784.
30	5763.	11525.	17288.	23050.	28813.	34575.	40338.	46100.	51863.	57625.

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.	2352.	2822.	3293.	3763.	4234.	4704.
4	941.	1882.	2822.	3763.	4704.	5645.	6586.	7527.	8467.	9408.
6	1411.	2822.	4234.	5645.	7056.	8467.	9878.	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.	22580.	25402.	28224.
14	3293.	6586.	9878.	13171.	16464.	19757.	23050.	26343.	29636.	32928.
16	3763.	7527.	11290.	15053.	18816.	22580.	26343.	30106.	33869.	37633.
18	4234.	8467.	12701.	16935.	21168.	25402.	29636.	33869.	38103.	42337.
20	4704.	9408.	14112.	18816.	23520.	28224.	32928.	37633.	42337.	47041.
22	5174.	10349.	15523.	20698.	25872.	31047.	36221.	41396.	46570.	51745.
24	5645.	11290.	16935.	22580.	28224.	33869.	39514.	45159.	50804.	56449.
26	6115.	12231.	18346.	24461.	30576.	36692.	42807.	48922.	55038.	61153.
28	6586.	13171.	19757.	26343.	32928.	39514.	46100.	52686.	59271.	65857.
30	7056.	14112.	21168.	28224.	35281.	42337.	49393.	56449.	63505.	70561.

Norton AFB

ANNUAL SOLAR CONTRIBUTION--MM(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	24.8	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	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	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	53.0	70.7	88.4	106.1	123.8	141.4	159.1	176.8

DIRECT GAIN DIFFERENTIAL COST--NN($'s)

SQ FT (x 1000)	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.	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.	10355.	11506.
24	1255.	2510.	3765.	5021.	6276.	7531.	8786.	10041.	11296.	12551.
26	1360.	2719.	4079.	5439.	6799.	8158.	9518.	10878.	12238.	13597.
28	1464.	2929.	4393.	5857.	7322.	8786.	10250.	11715.	13179.	14643.
30	1569.	3138.	4707.	6276.	7845.	9414.	10982.	12551.	14120.	15689.

TURBINE WALL DIFFERENTIAL COST--NN($'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.	3068.
6	460.	921.	1381.	1841.	2301.	2762.	3222.	3682.	4142.	4603.
8	614.	1227.	1841.	2455.	3068.	3682.	4296.	4910.	5523.	6137.
10	767.	1534.	2301.	3068.	3836.	4603.	5370.	6137.	6904.	7671.
12	921.	1841.	2762.	3682.	4603.	5523.	6444.	7364.	8285.	9205.
14	1074.	2148.	3222.	4296.	5370.	6444.	7518.	8592.	9666.	10740.
16	1227.	2455.	3682.	4910.	6137.	7365.	8592.	9819.	11047.	12274.
18	1381.	2762.	4142.	5523.	6904.	8285.	9666.	11047.	12428.	13808.
20	1534.	3068.	4603.	6137.	7671.	9205.	10740.	12274.	13808.	15342.
22	1688.	3375.	5063.	6751.	8438.	10126.	11814.	13502.	15189.	16877.
24	1841.	3682.	5523.	7365.	9205.	11047.	12889.	14729.	16570.	18411.
26	1994.	3989.	5984.	7978.	9973.	11967.	13962.	15957.	17951.	19946.
28	2148.	4296.	6444.	8592.	10740.	12889.	15037.	17185.	19333.	21480.
30	2301.	4603.	6904.	9205.	11507.	13808.	16111.	18413.	20714.	23014.

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	194.5	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.	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.	13582.	15091.
16	1725.	3449.	5174.	6898.	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.	9486.	11857.	14228.	16600.	18971.	21342.	23714.
24	2587.	5174.	7761.	10348.	12935.	15522.	18109.	20696.	23283.	25870.
26	2803.	5605.	8408.	11210.	14013.	16815.	19618.	22420.	25223.	28025.
28	3018.	6036.	9054.	12072.	15091.	18109.	21127.	24145.	27163.	30181.
30	3234.	6467.	9701.	12935.	16168.	19402.	22636.	25870.	29105.	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	394.	789.	783.	1969.	1362.	1956.	1951.	2346.	2560.	2944.
4	789.	1969.	1956.	2346.	2944.	3923.	3902.	4231.	4700.	5888.
6	783.	1956.	2560.	3923.	3936.	4700.	5863.	6846.	7139.	7832.
8	1969.	2346.	3923.	4231.	5888.	6846.	7804.	8461.	9519.	10577.
10	1362.	2944.	3936.	5888.	6810.	7832.	9804.	10577.	11869.	13221.
12	1956.	3923.	4700.	6846.	7832.	9810.	11765.	13888.	14278.	15866.
14	1951.	3902.	5863.	7804.	9804.	11765.	13888.	14807.	16888.	18809.
16	2346.	4231.	6846.	8461.	10577.	13888.	14807.	16888.	18838.	21153.
18	2560.	4700.	7139.	9519.	11869.	14278.	16888.	18838.	21418.	23797.
20	2944.	5888.	7832.	10577.	13221.	15866.	18809.	21153.	23797.	26441.
22	3888.	6877.	8728.	11884.	14843.	17481.	20780.	23888.	26177.	29088.
24	5178.	6846.	9519.	12888.	16888.	19838.	22811.	25884.	28807.	31730.
26	5407.	6878.	10838.	13719.	17187.	20884.	24582.	27488.	30838.	34374.
28	5702.	7804.	11765.	14807.	18809.	22811.	26814.	29818.	33018.	37018.
30	5888.	7832.	11869.	15866.	19838.	23888.	27838.	31730.	35888.	39682.

Offutt AFB

ANNUAL SOLAR CONTRIBUTION--MMI(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	79.8	89.8	******
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--MMI($'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	424.	849.	1273.	1697.	2122.	2546.	2970.	3395.	3819.	4243.
4	849.	1697.	2546.	3395.	4243.	5092.	5941.	6789.	7638.	8487.
6	1273.	2546.	3819.	5092.	6365.	7638.	8911.	10184.	11457.	12730.
8	1697.	3395.	5092.	6789.	8487.	10184.	11881.	13579.	15276.	******
10	2122.	4243.	6365.	8487.	10608.	12730.	14852.	16973.	******	******
12	2546.	5092.	7638.	10184.	12730.	15276.	17822.	******	******	******
14	2970.	5941.	8911.	11881.	14852.	17822.	******	******	******	******
16	3395.	6789.	10184.	13579.	16973.	20368.	******	******	******	******
18	3819.	7638.	11457.	15276.	19095.	22914.	******	******	******	******
20	4243.	8487.	12730.	16973.	21217.	******	******	******	******	******
22	4668.	9336.	14003.	18671.	23338.	******	******	******	******	******
24	5092.	10184.	15276.	20368.	25460.	******	******	******	******	******
26	5516.	11033.	16549.	22065.	27582.	******	******	******	******	******
28	5941.	11881.	17822.	23763.	******	******	******	******	******	******
30	6365.	12730.	19095.	25460.	******	******	******	******	******	******

[illegible] DIFFERENTIAL COST--MMI($'s)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	606.	1209.	1814.	2419.	3024.	3628.	4233.	4838.	5442.	6047.
4	1209.	2419.	3628.	4838.	6047.	7256.	8466.	9675.	10884.	12094.
6	1814.	3628.	5442.	7256.	9071.	10885.	12699.	14513.	16327.	18141.
8	2419.	4838.	7256.	9675.	12094.	14513.	16932.	19350.	21769.	******
10	3024.	6047.	9071.	12094.	15118.	18141.	21165.	24188.	******	******
12	3628.	7256.	10885.	14513.	18141.	21769.	25397.	******	******	******
14	4233.	8466.	12699.	16932.	21165.	25397.	******	******	******	******
16	4838.	9675.	14513.	19350.	24188.	******	******	******	******	******
18	5442.	10884.	16327.	21769.	27212.	******	******	******	******	******
20	6047.	12094.	18141.	24188.	******	******	******	******	******	******
22	6652.	13303.	19954.	26607.	******	******	******	******	******	******
24	7256.	14513.	21769.	******	******	******	******	******	******	******
26	7861.	15722.	23583.	31444.	******	******	******	******	******	******
28	8466.	16932.	25397.	33863.	******	******	******	******	******	******
30	9071.	18141.	27212.	36282.	******	******	******	******	******	******

Offutt AFB

ANNUAL SOLAR CONTRIBUTION—$/ft²(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	54.6	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	193.9	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	157.6	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—$/ft²(3'x)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	834.	1669.	2503.	3337.	4171.	5006.	5840.	6674.	7508.	8343.
4	1669.	3337.	5006.	6674.	8343.	10011.	11680.	13348.	15017.	16685.
6	2503.	5006.	7508.	10011.	12514.	15017.	17519.	20022.	22525.	25028.
8	3337.	6674.	10011.	13348.	16686.	20022.	23359.	26696.	30033.	******
10	4171.	8343.	12514.	16685.	20856.	25028.	29199.	33370.	******	******
12	5006.	10011.	15017.	20022.	25028.	30033.	35039.	******	******	******
14	5840.	11680.	17519.	23359.	29199.	35039.	******	******	******	******
16	6674.	13348.	20022.	26696.	33370.	40044.	******	******	******	******
18	7508.	15017.	22525.	30033.	37541.	45050.	******	******	******	******
20	8343.	16685.	25028.	33370.	41713.	******	******	******	******	******
22	9177.	18354.	27530.	36707.	45884.	******	******	******	******	******
24	10011.	20022.	30033.	40044.	50056.	******	******	******	******	******
26	10846.	21691.	32536.	43381.	54227.	******	******	******	******	******
28	11680.	23359.	35039.	46718.	******	******	******	******	******	******
30	12514.	25028.	37541.	50056.	******	******	******	******	******	******

TROMBE WALL DIFFERENTIAL COST—$/ft²(3'x)										
SQ FT (x 1000)	Percent Floor Area Served By Solar									
	10	20	30	40	50	60	70	80	90	100
2	1016.	2033.	3049.	4065.	5081.	6098.	7114.	8117.	9132.	10146.
4	2033.	4065.	6098.	8117.	10146.	12175.	14205.	16234.	18263.	20292.
6	3049.	6098.	9132.	12175.	15218.	18263.	21307.	24351.	27395.	30439.
8	4065.	8117.	12175.	16234.	20292.	24351.	28409.	32468.	36526.	******
10	5073.	10146.	15218.	20292.	25365.	30439.	35512.	40585.	******	******
12	6098.	12175.	18263.	24351.	30439.	36526.	42614.	******	******	******
14	7114.	14205.	21307.	28409.	35512.	42614.	******	******	******	******
16	8117.	16234.	24351.	32468.	40585.	48702.	******	******	******	******
18	9132.	18263.	27395.	36526.	45658.	54789.	******	******	******	******
20	10146.	20292.	30439.	40585.	50731.	******	******	******	******	******
22	11161.	22321.	33482.	44643.	55804.	******	******	******	******	******
24	12175.	24351.	36526.	48702.	60877.	******	******	******	******	******
26	13190.	26380.	39570.	52760.	65950.	******	******	******	******	******
28	14205.	28409.	42614.	56818.	******	******	******	******	******	******
30	15218.	30439.	45658.	60877.	******	******	******	******	******	******

Patrick 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	1.2	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	51.5
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.	936.	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.	936.	1402.	1869.	2337.	2804.	3271.	3739.	4206.	4673.
16	534.	1068.	1602.	2136.	2671.	3205.	3739.	4273.	4807.	5341.
18	601.	1202.	1803.	2403.	3004.	3605.	4206.	4807.	5408.	6008.
20	668.	1336.	2003.	2671.	3338.	4006.	4673.	5341.	6009.	6676.
22	734.	1469.	2203.	2938.	3672.	4406.	5141.	5875.	6610.	7344.
24	801.	1602.	2403.	3205.	4006.	4807.	5608.	6409.	7210.	8012.
26	868.	1736.	2604.	3473.	4340.	5208.	6075.	6943.	7811.	8679.
28	936.	1869.	2804.	3739.	4673.	5608.	6543.	7477.	8412.	9347.
30	1001.	2003.	3004.	4006.	5007.	6009.	7010.	8012.	9015.	10014.

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	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.	1858.	2230.	2601.	2973.	3345.	3716.
10	465.	929.	1394.	1858.	2323.	2787.	3252.	3716.	4181.	4646.
12	557.	1115.	1672.	2230.	2787.	3345.	3902.	4459.	5017.	5574.
14	650.	1301.	1951.	2601.	3252.	3902.	4553.	5203.	5853.	6503.
16	743.	1486.	2230.	2973.	3716.	4459.	5203.	5946.	6689.	7432.
18	836.	1672.	2508.	3345.	4181.	5017.	5853.	6689.	7525.	8361.
20	929.	1858.	2787.	3716.	4646.	5574.	6503.	7432.	8361.	9289.
22	1022.	2044.	3066.	4088.	5110.	6132.	7154.	8176.	9197.	10219.
24	1115.	2230.	3345.	4459.	5574.	6689.	7804.	8918.	10034.	11148.
26	1208.	2416.	3623.	4831.	6039.	7246.	8454.	9661.	10869.	12077.
28	1301.	2601.	3902.	5203.	6503.	7804.	9104.	10405.	11706.	13006.
30	1394.	2787.	4181.	5574.	6968.	8361.	9755.	11148.	12542.	13935.

Patrick AFB

ANNUAL SOLAR CONTRIBUTION - (MILLION BTU's)

SQ FT (x 1000)	Percent Glass Area									
	10	20	30	40	50	60	70	80	90	100
2	.5	1.0	1.5	2.0	2.4	2.9	3.4	3.9	4.4	4.9
4	1.0	2.0	2.9	3.9	4.9	5.9	6.8	7.8	8.8	9.8
6	1.5	2.9	4.4	5.9	7.3	8.8	10.3	11.7	13.2	14.6
8	2.0	3.9	5.9	7.8	9.8	11.7	13.7	15.6	17.6	19.5
10	2.4	4.9	7.3	9.8	12.2	14.6	17.1	19.5	22.0	24.4
12	2.9	5.9	8.8	11.7	14.6	17.6	20.5	23.4	26.4	29.3
14	3.4	6.8	10.3	13.7	17.1	20.5	23.9	27.3	30.8	34.2
16	3.9	7.8	11.7	15.6	19.5	23.4	27.3	31.2	35.1	39.1
18	4.4	8.8	13.2	17.6	22.0	26.4	30.8	35.1	39.5	43.9
20	4.9	9.8	14.6	19.5	24.4	29.3	34.2	39.1	43.9	48.8
22	5.4	10.7	16.1	21.5	26.8	32.2	37.6	43.0	48.3	53.7
24	5.9	11.7	17.6	23.4	29.3	35.1	41.0	46.9	52.7	58.6
26	6.3	12.7	19.0	25.4	31.7	38.1	44.4	50.8	57.1	63.5
28	6.8	13.7	20.5	27.3	34.2	41.0	47.8	54.7	61.5	68.3
30	7.3	14.6	22.0	29.3	36.6	43.9	51.2	58.6	65.9	73.2

DIRECT GAIN DIFFERENTIAL COST - ($/SQ FT)

SQ FT (x 1000)	Percent Glass Area									
	10	20	30	40	50	60	70	80	90	100
2	1200.	2400.	3600.	4800.	6000.	7200.	8400.	9600.	10800.	12000.
4	2400.	4800.	7200.	9600.	12000.	14400.	16800.	19200.	21600.	24000.
6	3600.	7200.	10800.	14400.	18000.	21600.	25200.	28800.	32400.	36000.
8	4800.	9600.	14400.	19200.	24000.	28800.	33600.	38400.	43200.	48000.
10	6000.	12000.	18000.	24000.	30000.	36000.	42000.	48000.	54000.	60000.
12	7200.	14400.	21600.	28800.	36000.	43200.	50400.	57600.	64800.	72000.
14	8400.	16800.	25200.	33600.	42000.	50400.	58800.	67200.	75600.	84000.
16	9600.	19200.	28800.	38400.	48000.	57600.	67200.	76800.	86400.	96000.
18	10800.	21600.	32400.	43200.	54000.	64800.	75600.	86400.	97200.	108000.
20	12000.	24000.	36000.	48000.	60000.	72000.	84000.	96000.	108000.	120000.
22	13200.	26400.	39600.	52800.	66000.	79200.	92400.	105600.	118800.	132000.
24	14400.	28800.	43200.	57600.	72000.	86400.	100800.	115200.	129600.	144000.
26	15600.	31200.	46800.	62400.	78000.	93600.	109200.	124800.	140400.	156000.
28	16800.	33600.	50400.	67200.	84000.	100800.	117600.	134400.	151200.	168000.
30	18000.	36000.	54000.	72000.	90000.	108000.	126000.	144000.	162000.	180000.

[illegible]

SQ FT	[illegible]
[illegible]	[illegible]

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	366.	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.	12799.	14627.	16455.	******
12	2194.	4388.	6582.	8776.	10970.	13164.	15358.	17552.	******	******
14	2560.	5119.	7679.	10239.	12799.	15358.	17918.	20478.	******	******
16	2925.	5851.	8776.	11702.	14627.	17552.	20478.	******	******	******
18	3291.	6582.	9873.	13164.	16455.	19746.	23037.	******	******	******
20	3657.	7313.	10970.	14627.	18284.	21940.	******	******	******	******
22	4022.	8045.	12067.	16090.	20112.	24134.	******	******	******	******
24	4388.	8776.	13164.	17552.	21940.	26329.	******	******	******	******
26	4754.	9508.	14261.	19015.	23769.	******	******	******	******	******
28	5119.	10239.	15358.	20478.	25597.	******	******	******	******	******
30	5485.	10970.	16455.	21940.	27426.	******	******	******	******	******

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	516.	1033.	1549.	2065.	2582.	3098.	3614.	4131.	4647.	5163.
4	1033.	2065.	3098.	4131.	5163.	6196.	7228.	8261.	9294.	10326.
6	1549.	3098.	4647.	6196.	7745.	9294.	10843.	12392.	13940.	15489.
8	2065.	4131.	6196.	8261.	10326.	12392.	14457.	16522.	18587.	20653.
10	2582.	5163.	7745.	10326.	12908.	15489.	18071.	20653.	23234.	******
12	3098.	6196.	9294.	12392.	15489.	18587.	21685.	24783.	******	******
14	3614.	7228.	10843.	14457.	18071.	21685.	25300.	28914.	******	******
16	4131.	8261.	12392.	16522.	20653.	24783.	28914.	******	******	******
18	4647.	9294.	13940.	18587.	23234.	27881.	32528.	******	******	******
20	5163.	10326.	15489.	20653.	25816.	30979.	******	******	******	******
22	5679.	11359.	17038.	22718.	28397.	34077.	******	******	******	******
24	6196.	12392.	18587.	24783.	30979.	37175.	******	******	******	******
26	6712.	13424.	20136.	26849.	33560.	******	******	******	******	******
28	7228.	14457.	21685.	28914.	36142.	******	******	******	******	******
30	7745.	15489.	23234.	30979.	38723.	******	******	******	******	******

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	5.0	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	375.6	******	******	******
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.	23365.	31154.	38942.	46730.	******	******	******	******
24	8496.	16993.	25489.	33986.	42482.	50979.	******	******	******	******
26	9204.	18409.	27613.	36818.	46022.	******	******	******	******	******
28	9913.	19825.	29738.	39650.	49563.	******	******	******	******	******
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	859.	1717.	2576.	3436.	4295.	5152.	6011.	6869.	7728.	8587.
4	1717.	3436.	5152.	6869.	8587.	10304.	12021.	13739.	15456.	17174.
6	2576.	5152.	7728.	10304.	12880.	15456.	18032.	20608.	23184.	25760.
8	3436.	6869.	10304.	13739.	17174.	20608.	24043.	27478.	30912.	34347.
10	4295.	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.	46368.	54097.	******	******	******
20	8587.	17174.	25760.	34347.	42934.	51521.	******	******	******	******
22	9446.	18891.	28336.	37782.	47227.	56673.	******	******	******	******
24	10304.	20608.	30912.	41216.	51521.	61825.	******	******	******	******
26	11163.	22326.	33488.	44651.	55814.	******	******	******	******	******
28	12021.	24043.	36064.	48086.	60107.	******	******	******	******	******
30	12880.	25760.	38640.	51521.	64401.	******	******	******	******	******

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.	22880.
20	2542.	5084.	7627.	10169.	12711.	15253.	17795.	20338.	22880.	******
22	2796.	5593.	8389.	11186.	13982.	16779.	19575.	22371.	25168.	******
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.	19067.	22880.	26693.	******	******	******

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.	17424.	19602.	21780.
14	2541.	5082.	7623.	10164.	12705.	15246.	17787.	20328.	22869.	25410.
16	2904.	5808.	8712.	11616.	14520.	17424.	20328.	23232.	26136.	29039.
18	3267.	6534.	9801.	13068.	16335.	19602.	22869.	26136.	29402.	32669.
20	3630.	7260.	10890.	14520.	18150.	21780.	25410.	29039.	32669.	******
22	3993.	7986.	11979.	15972.	19965.	23958.	27951.	31943.	35936.	******
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.	40656.	******	******
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	109.5
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.	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.	33095.	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.	37607.	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.	25629.	29900.	34172.	38443.	42714.
16	4882.	9763.	14645.	19527.	24408.	29290.	34172.	39053.	43935.	48816.
18	5492.	10984.	16476.	21967.	27459.	32951.	38443.	43935.	49427.	54919.
20	6102.	12204.	18306.	24408.	30510.	36612.	42714.	48816.	54919.	******
22	6712.	13425.	20137.	26849.	33561.	40274.	46986.	53698.	60410.	******
24	7322.	14645.	21967.	29290.	36612.	43935.	51257.	58580.	******	******
26	7933.	15865.	23798.	31731.	39663.	47596.	55529.	63461.	******	******
28	8543.	17086.	25629.	34172.	42714.	51257.	59800.	68343.	******	******
30	9153.	18306.	27459.	36612.	45765.	54919.	64072.	******	******	******

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	326.1	******	******	******	******	******
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.	3709.	4636.	5563.	6490.	7417.	8344.	9272.
4	1854.	3709.	5563.	7417.	9272.	11126.	12980.	14834.	16689.	18543.
6	2781.	5563.	8344.	11126.	13907.	16689.	19470.	22252.	25033.	******
8	3709.	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.	46358.	******	******	******	******	******
22	10199.	20397.	30596.	40795.	50993.	******	******	******	******	******
24	11126.	22252.	33377.	44503.	******	******	******	******	******	******
26	12053.	24106.	36159.	48212.	******	******	******	******	******	******
28	12980.	25960.	38940.	51920.	******	******	******	******	******	******
30	13907.	27815.	41722.	55629.	******	******	******	******	******	******

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.	2236.	3357.	4475.	5594.	6713.	7832.	8951.	10070.	11188.
4	2236.	4475.	6713.	8951.	11188.	13426.	15664.	17902.	20139.	22377.
6	3357.	6713.	10070.	13426.	16783.	20139.	23496.	26852.	30209.	******
8	4475.	8951.	13426.	17902.	22377.	26852.	31328.	35803.	******	******
10	5594.	11188.	16783.	22377.	27971.	33565.	39160.	******	******	******
12	6713.	13426.	20139.	26852.	33565.	40278.	******	******	******	******
14	7832.	15664.	23496.	31328.	39160.	46991.	******	******	******	******
16	8951.	17902.	26852.	35803.	44754.	******	******	******	******	******
18	10070.	20139.	30209.	40278.	50348.	******	******	******	******	******
20	11188.	22377.	33565.	44754.	55942.	******	******	******	******	******
22	12307.	24615.	36922.	49229.	61536.	******	******	******	******	******
24	13426.	26852.	40278.	53705.	******	******	******	******	******	******
26	14545.	29090.	43635.	58180.	******	******	******	******	******	******
28	15664.	31328.	46991.	62656.	******	******	******	******	******	******
30	16783.	33565.	50348.	67131.	******	******	******	******	******	******

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	34.8	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	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.	8952.	11190.	13428.	15666.	17904.	20142.	22380.
24	2441.	4883.	7324.	9766.	12207.	14649.	17090.	19532.	21973.	24414.
26	2645.	5290.	7935.	10580.	13224.	15869.	18514.	21159.	23804.	26449.
28	2848.	5697.	8545.	11393.	14242.	17090.	19938.	22787.	25635.	28484.
30	3052.	6104.	9155.	12207.	15259.	18311.	21363.	24414.	27466.	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	280.	560.	840.	1120.	1399.	1679.	1959.	2239.	2519.	2799.
4	560.	1120.	1679.	2239.	2799.	3359.	3918.	4478.	5038.	5598.
6	840.	1679.	2519.	3359.	4198.	5038.	5877.	6717.	7557.	8396.
8	1120.	2239.	3359.	4478.	5598.	6717.	7837.	8956.	10076.	11195.
10	1399.	2799.	4198.	5598.	6997.	8396.	9796.	11195.	12594.	13994.
12	1679.	3359.	5038.	6717.	8396.	10076.	11756.	13434.	15113.	16793.
14	1959.	3918.	5877.	7837.	9796.	11756.	13714.	15673.	17632.	19591.
16	2239.	4478.	6717.	8956.	11195.	13434.	15673.	17912.	20151.	22390.
18	2519.	5038.	7557.	10076.	12594.	15113.	17632.	20151.	22670.	25189.
20	2799.	5598.	8396.	11195.	13994.	16793.	19591.	22390.	25189.	27988.
22	3079.	6157.	9236.	12315.	15393.	18472.	21551.	24629.	27708.	30787.
24	3359.	6717.	10076.	13434.	16793.	20151.	23510.	26868.	30227.	33586.
26	3638.	7277.	10916.	14554.	18192.	21830.	25469.	29107.	32746.	36386.
28	3918.	7837.	11756.	15673.	19591.	23510.	27428.	31346.	35265.	39185.
30	4198.	8396.	12594.	16793.	20991.	25189.	29387.	33586.	37784.	41984.

Pope 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	31.9	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	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	218.6	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.	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.	31680.	36206.	40732.	45257.
26	4903.	9806.	14709.	19612.	24514.	29417.	34320.	39223.	44126.	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.	16329.	18143.
10	2268.	4536.	6804.	9071.	11339.	13607.	15875.	18143.	20411.	22678.
12	2721.	5443.	8164.	10886.	13607.	16329.	19050.	21771.	24493.	27214.
14	3175.	6350.	9525.	12700.	15875.	19050.	22225.	25400.	28575.	31750.
16	3629.	7257.	10886.	14514.	18143.	21771.	25400.	29028.	32657.	36286.
18	4082.	8164.	12246.	16329.	20411.	24493.	28575.	32657.	36739.	40821.
20	4536.	9071.	13607.	18143.	22678.	27214.	31750.	36285.	40821.	45357.
22	4989.	9978.	14968.	19957.	24946.	29936.	34925.	39914.	44903.	49893.
24	5443.	10886.	16329.	21771.	27214.	32657.	38100.	43543.	48985.	54428.
26	5896.	11793.	17689.	23586.	29482.	35378.	41275.	47171.	53068.	58964.
28	6350.	12700.	19050.	25400.	31750.	38100.	44450.	50800.	57150.	63500.
30	6804.	13607.	20411.	27214.	34018.	40821.	47625.	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	106.8	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	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.	10883.	12697.	14511.	16325.	18139.
30	1943.	3887.	5830.	7774.	9717.	11660.	13604.	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	182.	365.	547.	730.	912.	1095.	1277.	1460.	1642.	1825.
4	365.	730.	1095.	1460.	1825.	2189.	2554.	2919.	3284.	3649.
6	547.	1095.	1642.	2189.	2737.	3284.	3831.	4378.	4926.	5474.
8	730.	1460.	2189.	2919.	3649.	4378.	5109.	5838.	6568.	7298.
10	912.	1825.	2737.	3649.	4561.	5474.	6386.	7298.	8210.	9123.
12	1095.	2189.	3284.	4378.	5474.	6568.	7663.	8756.	9852.	10947.
14	1277.	2554.	3831.	5109.	6386.	7663.	8940.	10217.	11494.	12772.
16	1460.	2919.	4378.	5838.	7298.	8756.	10217.	11677.	13136.	14596.
18	1642.	3284.	4926.	6568.	8210.	9852.	11494.	13136.	14778.	16421.
20	1825.	3649.	5474.	7298.	9123.	10947.	12772.	14596.	16421.	18245.
22	2007.	4014.	6021.	8027.	10035.	12042.	14049.	16056.	18063.	20070.
24	2189.	4378.	6568.	8756.	10947.	13136.	15325.	17515.	19705.	21894.
26	2372.	4744.	7115.	9487.	11859.	14231.	16602.	18974.	21347.	23719.
28	2554.	5109.	7663.	10217.	12772.	15325.	17880.	20434.	22988.	25543.
30	2737.	5474.	8210.	10947.	13684.	16421.	19158.	21894.	24631.	27368.

Randolph 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	105.3	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 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.	26976.	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.	26226.	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.	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.	24515.	27239.
20	3027.	6053.	9080.	12106.	15133.	18159.	21186.	24212.	27239.	30265.
22	3330.	6658.	9988.	13317.	16646.	19975.	23304.	26634.	29963.	33292.
24	3632.	7264.	10896.	14527.	18159.	21791.	25423.	29046.	32687.	36319.
26	3935.	7869.	11804.	15738.	19673.	23607.	27542.	31478.	35411.	39346.
28	4237.	8474.	12712.	16949.	21186.	25423.	29660.	33897.	38135.	42372.
30	4540.	9080.	13619.	18159.	22699.	27239.	31779.	36319.	40859.	45398.

Reese 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	7.7	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	168.5	189.5	210.6
24	23.0	45.9	68.9	91.9	114.9	137.8	160.8	183.8	206.7	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	160.8	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.	10659.	12791.	14923.	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.	24420.	27133.
30	2907.	5814.	8721.	11628.	14535.	17443.	20350.	23257.	26164.	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.	5459.
6	819.	1638.	2457.	3276.	4095.	4914.	5732.	6551.	7370.	8189.
8	1092.	2184.	3276.	4368.	5459.	6551.	7643.	8735.	9827.	10919.
10	1365.	2730.	4095.	5459.	6824.	8189.	9554.	10919.	12284.	13649.
12	1638.	3276.	4914.	6551.	8189.	9827.	11465.	13103.	14741.	16378.
14	1911.	3822.	5732.	7643.	9554.	11465.	13376.	15287.	17197.	19108.
16	2184.	4368.	6551.	8735.	10919.	13103.	15287.	17470.	19654.	21838.
18	2457.	4914.	7370.	9827.	12284.	14741.	17197.	19654.	22111.	24568.
20	2730.	5459.	8189.	10919.	13649.	16378.	19108.	21838.	24568.	27297.
22	3003.	6005.	9008.	12011.	15014.	18016.	21019.	24022.	27026.	30027.
24	3276.	6551.	9827.	13103.	16378.	19654.	22930.	26206.	29481.	32757.
26	3549.	7097.	10646.	14195.	17743.	21292.	24841.	28389.	31938.	35487.
28	3822.	7643.	11465.	15287.	19108.	22930.	26752.	30573.	34395.	38216.
30	4095.	8189.	12284.	16378.	20473.	24568.	28663.	32757.	36852.	40946.

Reese 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	16.8	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	59.0	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	59.0	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	179.7	202.2	224.6
18	25.3	50.5	75.8	101.1	126.3	151.6	176.9	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	308.8
24	33.7	67.4	101.1	134.8	168.5	202.2	236.8	269.5	303.2	336.9
26	36.6	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	235.8	275.1	314.5	353.8	393.1
30	42.1	84.2	126.3	168.5	210.6	252.7	294.8	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.	15697.	17939.	20182.	22424.
14	2616.	5232.	7848.	10465.	13081.	15697.	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.	29899.	33636.	37373.
22	4111.	8222.	12333.	16444.	20555.	24666.	28778.	32889.	37000.	41111.
24	4485.	8970.	13454.	17939.	22424.	26909.	31394.	35879.	40363.	44848.
26	4859.	9717.	14576.	19434.	24293.	29151.	34010.	38868.	43727.	48585.
28	5232.	10465.	15697.	20929.	26161.	31394.	36626.	41858.	47091.	52323.
30	5606.	11212.	16818.	22424.	28030.	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	453.	906.	1360.	1813.	2266.	2717.	3170.	3623.	4076.	4529.
4	906.	1813.	2717.	3623.	4529.	5436.	6341.	7246.	8152.	9058.
6	1360.	2717.	4076.	5436.	6794.	8152.	9511.	10870.	12228.	13587.
8	1813.	3623.	5436.	7246.	9058.	10870.	12681.	14493.	16304.	18116.
10	2266.	4529.	6794.	9058.	11323.	13587.	15852.	18116.	20381.	22645.
12	2717.	5436.	8152.	10870.	13587.	16304.	18022.	21739.	24457.	27174.
14	3170.	6341.	9511.	12681.	15852.	19022.	22192.	25363.	28533.	31703.
16	3623.	7246.	10870.	14493.	18116.	21739.	25363.	28986.	32609.	36232.
18	4076.	8152.	12228.	16304.	20381.	24457.	28533.	32609.	36685.	40761.
20	4529.	9058.	13587.	18116.	22645.	27174.	31703.	36232.	40761.	45290.
22	4982.	9963.	14945.	19927.	24908.	29890.	34874.	39853.	44837.	49819.
24	5436.	10870.	16304.	21739.	27174.	32609.	38044.	43479.	48914.	54348.
26	5889.	11776.	17663.	23550.	29438.	35325.	41214.	47100.	52990.	58877.
28	6341.	12681.	19022.	25363.	31703.	38044.	44384.	50725.	57066.	63406.
30	6794.	13587.	20381.	27174.	33967.	40761.	47554.	54348.	61142.	67935.

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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	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.	7352.	8823.	10293.	11764.	13234.	14705.
20	1634.	3268.	4902.	6535.	8169.	9803.	11437.	13071.	14705.	16338.
22	1797.	3594.	5392.	7189.	8986.	10783.	12581.	14378.	16175.	17972.
24	1961.	3921.	5882.	7842.	9803.	11764.	13724.	15685.	17646.	19606.
26	2124.	4248.	6372.	8496.	10620.	12744.	14868.	16992.	19115.	21240.
28	2287.	4575.	6862.	9150.	11437.	13724.	16012.	18299.	20586.	22874.
30	2451.	4902.	7352.	9803.	12254.	14705.	17155.	19606.	22057.	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.	5366.	6037.	6708.
8	894.	1789.	2683.	3578.	4472.	5366.	6261.	7155.	8050.	8944.
10	1118.	2236.	3354.	4472.	5590.	6708.	7826.	8944.	10062.	11180.
12	1342.	2683.	4025.	5366.	6708.	8050.	9391.	10733.	12074.	13416.
14	1565.	3130.	4696.	6261.	7826.	9391.	10956.	12522.	14087.	15652.
16	1789.	3578.	5366.	7155.	8944.	10733.	12522.	14311.	16099.	17888.
18	2012.	4025.	6037.	8050.	10062.	12074.	14087.	16099.	18112.	20124.
20	2236.	4472.	6708.	8944.	11180.	13416.	15652.	17888.	20124.	22360.
22	2460.	4919.	7379.	9838.	12298.	14759.	17217.	19677.	22137.	24596.
24	2683.	5366.	8050.	10733.	13416.	16099.	18783.	21466.	24149.	26832.
26	2907.	5814.	8720.	11627.	14534.	17441.	20348.	23255.	26161.	29068.
28	3130.	6261.	9391.	12522.	15652.	18783.	21913.	25043.	28174.	31304.
30	3354.	6708.	10062.	13416.	16770.	20124.	23478.	26832.	30186.	33540.

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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	2.8	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	135.5	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	105.8	127.0	148.2	169.3	190.5	211.7

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	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.	6006.	7206.	8407.	9608.	10809.	12010.
10	1501.	3002.	4504.	6006.	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.	19816.	23119.	26421.	29724.	33027.
24	3603.	7206.	10809.	14412.	18015.	21617.	25220.	28823.	32426.	36029.
26	3903.	7806.	11709.	15613.	19516.	23419.	27322.	31226.	35128.	39031.
28	4203.	8407.	12610.	16814.	21017.	25220.	29424.	33627.	37830.	42034.
30	4504.	9007.	13511.	18015.	22518.	27022.	31525.	36029.	40533.	45036.

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	360.	721.	1081.	1442.	1802.	2163.	2523.	2884.	3244.	3605.
4	721.	1442.	2163.	2884.	3605.	4326.	5046.	5767.	6488.	7209.
6	1081.	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.	5046.	7570.	10093.	12616.	15139.	17662.	20186.	22709.	25232.
16	2884.	5767.	8651.	11535.	14418.	17302.	20186.	23069.	25953.	28837.
18	3244.	6488.	9732.	12977.	16221.	19465.	22709.	25953.	29197.	32441.
20	3605.	7209.	10814.	14418.	18023.	21628.	25232.	28837.	32441.	36046.
22	3965.	7929.	11895.	15860.	19825.	23790.	27755.	31720.	35685.	39650.
24	4326.	8651.	12977.	17302.	21628.	25953.	30279.	34604.	38930.	43255.
26	4686.	9372.	14058.	18744.	23430.	28116.	32802.	37488.	42174.	46860.
28	5046.	10093.	15139.	20186.	25232.	30279.	35325.	40371.	45418.	50464.
30	5407.	10814.	16221.	21628.	27035.	32441.	37848.	43255.	48662.	54069.

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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	1.8	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	26.9	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	26.9	35.9	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	35.9	53.9	71.8	89.8	107.7	125.7	••••••	••••••	••••••
22	19.8	39.5	59.3	79.0	98.8	118.5	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.	10343.	13789.	17237.	20684.	24131.	••••••	••••••	••••••
24	3761.	7521.	11282.	15043.	18804.	22564.	26325.	••••••	••••••	••••••
26	4074.	8148.	12222.	16296.	20371.	24445.	••••••	••••••	••••••	••••••
28	4388.	8775.	13163.	17550.	21938.	26325.	••••••	••••••	••••••	••••••
30	4701.	9402.	14103.	18804.	23505.	28205.	••••••	••••••	••••••	••••••

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	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.	10828.	13535.	16242.	18949.	21656.	24363.	••••••
14	3158.	6316.	9474.	12633.	15791.	18949.	22107.	25265.	28423.	••••••
16	3609.	7219.	10828.	14437.	18046.	21656.	25265.	28874.	••••••	••••••
18	4060.	8121.	12181.	16242.	20302.	24363.	28423.	32484.	••••••	••••••
20	4512.	9023.	13535.	18046.	22558.	27070.	31581.	••••••	••••••	••••••
22	4963.	9926.	14888.	19851.	24814.	29777.	34739.	••••••	••••••	••••••
24	5414.	10828.	16242.	21656.	27070.	32484.	37897.	••••••	••••••	••••••
26	5865.	11730.	17595.	23460.	29326.	35191.	••••••	••••••	••••••	••••••
28	6316.	12633.	18949.	25265.	31581.	37898.	••••••	••••••	••••••	••••••
30	6767.	13535.	20302.	27070.	33837.	40605.	••••••	••••••	••••••	••••••

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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	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	157.7	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.	5639.	6265.
4	1253.	2506.	3759.	5012.	6265.	7518.	8771.	10024.	11277.	12530.
6	1880.	3759.	5639.	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.	30699.	35084.	39470.	******
16	5012.	10024.	15036.	20048.	25060.	30072.	35084.	40096.	******	******
18	5639.	11277.	16916.	22554.	28193.	33831.	39470.	45108.	******	******
20	6265.	12530.	18795.	25060.	31325.	37590.	43855.	******	******	******
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.	35084.	43855.	52626.	******	******	******	******
30	9398.	18795.	28193.	37590.	46988.	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	764.	1529.	2293.	3057.	3821.	4586.	5350.	6114.	6878.	7643.
4	1529.	3057.	4586.	6114.	7643.	9171.	10700.	12228.	13757.	15286.
6	2293.	4586.	6878.	9171.	11464.	13757.	16050.	18343.	20636.	22928.
8	3057.	6114.	9171.	12228.	15286.	18343.	21400.	24457.	27514.	30571.
10	3821.	7643.	11464.	15286.	19107.	22928.	26750.	30571.	34392.	38214.
12	4586.	9171.	13757.	18343.	22928.	27514.	32099.	36685.	41271.	******
14	5350.	10700.	16050.	21400.	26750.	32099.	37449.	42799.	48148.	******
16	6114.	12228.	18343.	24457.	30571.	36685.	42799.	48913.	******	******
18	6878.	13757.	20636.	27514.	34392.	41271.	48149.	55028.	******	******
20	7643.	15286.	22928.	30571.	38214.	45856.	53499.	******	******	******
22	8407.	16814.	25221.	33628.	42035.	50442.	58848.	******	******	******
24	9171.	18343.	27514.	36685.	45856.	55028.	64198.	******	******	******
26	9935.	19871.	29807.	39742.	49678.	59613.	******	******	******	******
28	10700.	21400.	32099.	42799.	53499.	64198.	******	******	******	******
30	11464.	22928.	34392.	45856.	57320.	68784.	******	******	******	******

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	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.	8952.	11190.	13428.	15666.	17904.	20142.	22380.
24	2441.	4883.	7324.	9766.	12207.	14649.	17090.	19532.	21973.	24414.
26	2645.	5290.	7935.	10580.	13224.	15869.	18514.	21159.	23804.	26449.
28	2848.	5697.	8545.	11393.	14242.	17090.	19938.	22787.	25635.	28484.
30	3052.	6104.	9155.	12207.	15259.	18311.	21363.	24414.	27466.	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	280.	560.	840.	1120.	1399.	1679.	1959.	2239.	2519.	2799.
4	560.	1120.	1679.	2239.	2799.	3359.	3918.	4478.	5038.	5598.
6	840.	1679.	2519.	3359.	4198.	5038.	5877.	6717.	7557.	8396.
8	1120.	2239.	3359.	4478.	5598.	6717.	7837.	8956.	10076.	11195.
10	1399.	2799.	4198.	5598.	6997.	8396.	9796.	11195.	12594.	13994.
12	1679.	3359.	5038.	6717.	8396.	10076.	11755.	13434.	15113.	16793.
14	1959.	3918.	5877.	7837.	9796.	11755.	13714.	15673.	17632.	19591.
16	2239.	4478.	6717.	8956.	11195.	13434.	15673.	17912.	20151.	22390.
18	2519.	5038.	7557.	10076.	12594.	15113.	17632.	20151.	22670.	25189.
20	2799.	5598.	8396.	11195.	13994.	16793.	19591.	22390.	25189.	27988.
22	3079.	6157.	9236.	12315.	15393.	18472.	21551.	24629.	27708.	30787.
24	3359.	6717.	10076.	13434.	16793.	20151.	23510.	26868.	30227.	33586.
26	3638.	7277.	10915.	14554.	18192.	21830.	25469.	29107.	32746.	36384.
28	3918.	7837.	11755.	15673.	19591.	23510.	27428.	31346.	35266.	39183.
30	4198.	8396.	12594.	16793.	20991.	25189.	29387.	33586.	37785.	41982.

. 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	31.9	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	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	218.6	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.	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.	31680.	36206.	40732.	45257.
26	4903.	9806.	14709.	19612.	24514.	29417.	34320.	39223.	44126.	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.	11339.	13607.	15875.	18143.	20411.	22678.
12	2721.	5443.	8164.	10886.	13607.	16328.	19050.	21771.	24493.	27214.
14	3175.	6350.	9525.	12700.	15875.	19050.	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.	14968.	19957.	24946.	29936.	34925.	39914.	44903.	49893.
24	5443.	10886.	16328.	21771.	27214.	32657.	38100.	43543.	48986.	54428.
26	5896.	11793.	17689.	23586.	29482.	35378.	41275.	47171.	53068.	58964.
28	6350.	12700.	19050.	25400.	31750.	38100.	44450.	50800.	57150.	63500.
30	6804.	13607.	20411.	27214.	34018.	40821.	47625.	54428.	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	38.6	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	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	98.2	114.6	130.9	147.3	163.7
30	17.5	35.1	52.6	70.1	87.7	105.2	122.8	140.3	157.8	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.	9276.	11598.	13917.	16237.	18556.	20876.	23195.
28	2498.	4996.	7494.	9992.	12490.	14988.	17486.	19984.	22482.	24980.
30	2676.	5353.	8029.	10706.	13382.	16058.	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	247.	494.	740.	987.	1234.	1481.	1728.	1974.	2221.	2468.
4	494.	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.	17276.
16	1974.	3949.	5923.	7898.	9872.	11847.	13821.	15796.	17770.	19744.
18	2221.	4442.	6664.	8885.	11106.	13327.	15549.	17770.	19991.	22212.
20	2468.	4936.	7404.	9872.	12340.	14808.	17276.	19744.	22212.	24680.
22	2715.	5430.	8144.	10859.	13574.	16289.	19004.	21719.	24433.	27148.
24	2962.	5923.	8885.	11847.	14808.	17770.	20731.	23693.	26655.	29616.
26	3208.	6417.	9625.	12834.	16042.	19251.	22459.	25667.	28876.	32084.
28	3455.	6910.	10366.	13821.	17276.	20731.	24187.	27642.	31097.	34552.
30	3702.	7404.	11106.	14808.	18510.	22212.	25914.	29616.	33318.	37020.

Shaw 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	176.8	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.	37389.	42062.	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.	2815.	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.	19708.	22523.	25339.	28154.
16	3218.	6435.	9653.	12870.	16088.	19306.	22523.	25741.	28959.	32176.
18	3620.	7240.	10859.	14479.	18099.	21719.	25339.	28959.	32578.	36198.
20	4022.	8044.	12066.	16088.	20110.	24132.	28154.	32176.	36198.	40220.
22	4424.	8848.	13273.	17697.	22121.	26545.	30970.	35394.	39818.	44242.
24	4826.	9653.	14479.	19306.	24132.	28959.	33785.	38611.	43438.	48264.
26	5229.	10457.	15686.	20915.	26143.	31372.	36600.	41829.	47058.	52286.
28	5631.	11262.	16893.	22523.	28154.	33785.	39416.	45047.	50678.	56308.
30	6033.	12066.	18099.	24132.	30165.	36198.	42231.	48264.	54297.	60330.

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	77.6	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	146.8	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.	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.	7050.	9401.	11751.	14101.	16451.	18801.	21151.	23501.
24	2564.	5128.	7691.	10255.	12819.	15383.	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.	10875.	12083.
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.	21749.	24166.
18	2719.	5437.	8156.	10875.	13593.	16312.	19031.	21749.	24468.	27187.
20	3021.	6042.	9062.	12083.	15104.	18125.	21145.	24166.	27187.	30208.
22	3323.	6646.	9968.	13291.	16614.	19937.	23260.	26583.	29905.	33228.
24	3625.	7250.	10875.	14500.	18125.	21749.	25374.	29000.	32624.	36249.
26	3927.	7854.	11781.	15708.	19635.	23562.	27489.	31416.	35343.	39270.
28	4229.	8458.	12687.	16916.	21145.	25374.	29603.	33832.	38062.	••••••
30	4531.	9062.	13593.	18125.	22656.	27187.	31718.	36249.	40780.	••••••

Sheppard 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	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	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.	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.	22389.	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.	22804.	27365.	31926.	36486.	41047.	45608.
24	4975.	9951.	14926.	19902.	24877.	29853.	34828.	39803.	44779.	49754.
26	5390.	10780.	16170.	21560.	26950.	32340.	37730.	43120.	48510.	53900.
28	5805.	11609.	17414.	23219.	29023.	34828.	40633.	46437.	52242.	******
30	6219.	12439.	18658.	24877.	31096.	37316.	43535.	49754.	55974.	******

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.	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.	24146.	27164.	30183.
14	3521.	7043.	10564.	14085.	17607.	21128.	24649.	28171.	31692.	35213.
16	4024.	8049.	12073.	16097.	20122.	24146.	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.	44268.	49802.	55336.
24	6037.	12073.	18110.	24146.	30183.	36219.	42256.	48292.	54329.	60366.
26	6540.	13079.	19619.	26158.	32698.	39238.	45777.	52317.	58856.	65396.
28	7043.	14085.	21128.	28171.	35213.	42256.	49298.	56341.	63384.	******
30	7546.	15091.	22637.	30183.	37728.	45274.	52820.	60366.	67911.	******

Tinker 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	3.3	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	149.6
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	229.	458.	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.	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.	21988.	24736.	******
26	2978.	5956.	8933.	11910.	14888.	17865.	20843.	23820.	26798.	******
28	3207.	6413.	9620.	12826.	16033.	19239.	22446.	25652.	******	******
30	3436.	6871.	10307.	13742.	17178.	20613.	24049.	27485.	******	******

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.	2288.	2615.	2942.	3269.
4	654.	1308.	1962.	2615.	3269.	3923.	4577.	5231.	5885.	6538.
6	981.	1962.	2942.	3923.	4904.	5885.	6865.	7846.	8827.	9808.
8	1308.	2615.	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.	19615.
14	2288.	4577.	6865.	9154.	11442.	13731.	16019.	18307.	20596.	22884.
16	2615.	5231.	7846.	10461.	13077.	15692.	18307.	20923.	23538.	26153.
18	2942.	5885.	8827.	11769.	14711.	17654.	20596.	23538.	26480.	29423.
20	3269.	6538.	9808.	13077.	16346.	19615.	22884.	26153.	29423.	32692.
22	3596.	7192.	10788.	14384.	17980.	21577.	25173.	28769.	32365.	35961.
24	3923.	7846.	11769.	15692.	19615.	23538.	27461.	31384.	35307.	******
26	4250.	8500.	12750.	17000.	21250.	25500.	29750.	34000.	38249.	******
28	4577.	9154.	13731.	18307.	22884.	27461.	32038.	36615.	******	******
30	4904.	9808.	14711.	19615.	24519.	29423.	34326.	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	133.6	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.	12642.	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.	29798.	34765.	39731.	44698.	49664.
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	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.	17580.	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.	36258.	42302.	48345.	54388.	60431.
24	6592.	13185.	19777.	26370.	32962.	39555.	46147.	52740.	59332.	******
26	7142.	14284.	21426.	28567.	35709.	42851.	49993.	57136.	64278.	******
28	7691.	15382.	23074.	30765.	38456.	46147.	53839.	61530.	******	******
30	8241.	16481.	24722.	32962.	41203.	49443.	57684.	65925.	******	******

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	238.2
28	25.7	51.3	77.0	102.6	128.3	153.9	179.6	205.3	230.9	256.6
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.	7958.	9550.	11141.	12733.	14325.	15916.
24	1736.	3473.	5209.	6945.	8682.	10418.	12154.	13891.	15627.	17363.
26	1881.	3762.	5643.	7524.	9405.	11286.	13167.	15048.	16929.	18810.
28	2026.	4051.	6077.	8103.	10129.	12154.	14180.	16206.	18231.	20257.
30	2170.	4341.	6511.	8682.	10853.	13022.	15193.	17363.	19534.	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.	9049.	10342.	11634.	12927.
14	1508.	3016.	4525.	6033.	7541.	9049.	10557.	12066.	13574.	15082.
16	1724.	3447.	5171.	6894.	8618.	10342.	12065.	13789.	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.	11850.	14220.	16589.	18960.	21330.	23700.
24	2586.	5171.	7756.	10342.	12927.	15513.	18098.	20683.	23269.	25854.
26	2801.	5602.	8403.	11204.	14006.	16806.	19606.	22407.	25208.	28009.
28	3016.	6033.	9049.	12065.	15082.	18098.	21114.	24131.	27147.	30163.
30	3232.	6464.	9695.	12927.	16159.	19391.	22622.	25854.	29086.	32318.

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	79.5	106.0	132.5	159.0	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	125.2	156.6	187.9	219.2	250.5	281.8	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.	3055.
4	611.	1222.	1833.	2444.	3055.	3666.	4277.	4888.	5499.	6110.
6	917.	1833.	2750.	3666.	4583.	5499.	6416.	7332.	8249.	9165.
8	1222.	2444.	3666.	4888.	6110.	7332.	8554.	9776.	10998.	12220.
10	1528.	3055.	4583.	6110.	7638.	9165.	10693.	12220.	13748.	15276.
12	1833.	3666.	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.	13748.	16498.	19247.	21997.	24746.	27496.
20	3055.	6110.	9165.	12220.	15276.	18331.	21386.	24441.	27496.	30551.
22	3361.	6721.	10082.	13442.	16803.	20164.	23524.	26886.	30246.	33606.
24	3666.	7332.	10998.	14665.	18331.	21997.	25663.	29329.	32996.	36661.
26	3972.	7943.	11916.	15887.	19858.	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	376.	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.	13546.	15803.	18061.	20319.	22576.
14	2634.	5268.	7902.	10536.	13169.	15803.	18437.	21071.	23705.	26339.
16	3010.	6020.	9031.	12041.	15051.	18061.	21071.	24081.	27092.	30102.
18	3386.	6773.	10159.	13546.	16932.	20319.	23705.	27092.	30478.	33864.
20	3763.	7525.	11288.	15051.	18814.	22576.	26339.	30102.	33864.	37627.
22	4139.	8278.	12417.	16556.	20696.	24834.	28973.	33112.	37251.	41390.
24	4515.	9031.	13546.	18061.	22576.	27092.	31607.	36122.	40637.	45153.
26	4892.	9783.	14675.	19566.	24458.	29349.	34241.	39132.	44024.	48915.
28	5268.	10536.	15803.	21071.	26339.	31607.	36875.	42142.	47410.	52678.
30	5644.	11288.	16932.	22576.	28220.	33864.	39508.	45153.	50797.	56441.

Tyndall 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	1.4	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	22.6	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	76.8	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.	528.	634.	740.	846.	951.	1057.
4	211.	423.	634.	846.	1057.	1268.	1480.	1691.	1903.	2114.
6	317.	634.	951.	1268.	1585.	1903.	2220.	2537.	2854.	3171.
8	423.	846.	1268.	1691.	2114.	2537.	2960.	3382.	3805.	4228.
10	528.	1057.	1585.	2114.	2643.	3171.	3700.	4228.	4757.	5285.
12	634.	1268.	1903.	2537.	3171.	3805.	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.	5285.	6342.	7399.	8456.	9513.	10570.
22	1163.	2325.	3488.	4651.	5814.	6976.	8139.	9302.	10464.	11627.
24	1268.	2537.	3805.	5074.	6342.	7610.	8879.	10147.	11416.	12684.
26	1374.	2748.	4122.	5496.	6871.	8245.	9619.	10993.	12367.	13741.
28	1480.	2960.	4439.	5919.	7399.	8879.	10359.	11838.	13318.	14798.
30	1585.	3171.	4757.	6342.	7928.	9513.	11099.	12684.	14270.	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	152.	304.	456.	608.	760.	911.	1063.	1215.	1367.	1519.
4	304.	608.	911.	1215.	1519.	1823.	2127.	2430.	2734.	3038.
6	456.	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.	7595.
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.	6076.	7291.	8506.	9722.	10937.	12152.
18	1367.	2734.	4101.	5469.	6836.	8203.	9570.	10937.	12304.	13671.
20	1519.	3038.	4557.	6076.	7595.	9114.	10633.	12152.	13671.	15190.
22	1671.	3342.	5013.	6684.	8355.	10026.	11696.	13367.	15038.	16709.
24	1823.	3646.	5469.	7291.	9114.	10937.	12760.	14582.	16406.	18228.
26	1975.	3949.	5924.	7899.	9874.	11848.	13823.	15798.	17772.	19747.
28	2127.	4253.	6380.	8506.	10633.	12760.	14886.	17013.	19139.	21266.
30	2279.	4557.	6836.	9114.	11393.	13671.	15950.	18229.	20507.	22785.

Tyndall 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	.9	1.8	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	47.6	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	47.6	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.	16856.
18	1896.	3793.	5689.	7585.	9482.	11378.	13274.	15170.	17067.	18963.
20	2107.	4214.	6321.	8428.	10535.	12642.	14749.	16856.	18963.	21070.
22	2318.	4636.	6953.	9271.	11589.	13906.	16224.	18542.	20859.	23177.
24	2528.	5057.	7585.	10114.	12642.	15170.	17699.	20227.	22756.	25284.
26	2739.	5478.	8217.	10956.	13696.	16435.	19174.	21913.	24652.	27391.
28	2950.	5900.	8849.	11799.	14749.	17699.	20649.	23598.	26548.	29498.
30	3161.	6321.	9482.	12642.	15803.	18963.	22124.	25284.	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	257.	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.	6938.	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.	6938.	9248.	11561.	13873.	16185.	18497.	20809.	23121.
20	2569.	5138.	7707.	10276.	12845.	15414.	17983.	20552.	23121.	25690.
22	2826.	5652.	8479.	11304.	14130.	16956.	19781.	22607.	25433.	28259.
24	3083.	6166.	9248.	12331.	15414.	18497.	21580.	24663.	27745.	30828.
26	3340.	6679.	10019.	13359.	16699.	20038.	23378.	26718.	30057.	33397.
28	3597.	7193.	10790.	14386.	17983.	21580.	25176.	28773.	32369.	35966.
30	3854.	7707.	11561.	15414.	19268.	23121.	26975.	30828.	34682.	38535.

USAF Academy

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	235.9	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.	22880.
20	2542.	5084.	7627.	10169.	12711.	15253.	17795.	20338.	22880.	******
22	2796.	5593.	8389.	11186.	13982.	16779.	19575.	22371.	25168.	******
24	3051.	6101.	9152.	12203.	15253.	18304.	21354.	24405.	******	******
26	3306.	6610.	9915.	13219.	16524.	19829.	23134.	26439.	******	******
28	3559.	7118.	10677.	14236.	17795.	21354.	24914.	28473.	******	******
30	3813.	7627.	11440.	15253.	19067.	22880.	26693.	******	******	******

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.	10890.	12705.	14520.	16335.	18150.
12	2178.	4356.	6534.	8712.	10890.	13068.	15246.	17424.	19602.	21780.
14	2541.	5082.	7623.	10164.	12705.	15246.	17787.	20328.	22869.	25410.
16	2904.	5808.	8712.	11616.	14520.	17424.	20328.	23232.	26136.	29039.
18	3267.	6534.	9801.	13068.	16335.	19602.	22869.	26136.	29402.	32669.
20	3630.	7260.	10890.	14520.	18150.	21780.	25410.	29039.	32669.	******
22	3993.	7986.	11979.	15972.	19965.	23958.	27951.	31943.	35936.	******
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.	40656.	******	******
30	5445.	10890.	16335.	21780.	27225.	32669.	38114.	******	******	******

USAF Academy

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.	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.	33095.	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.	37607.	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.	25628.	29289.	32951.	36612.
14	4271.	8543.	12814.	17086.	21357.	25628.	29900.	34172.	38443.	42714.
16	4882.	9763.	14645.	19527.	24408.	29289.	34172.	39053.	43935.	48816.
18	5492.	10984.	16476.	21967.	27459.	32951.	38443.	43935.	49427.	54919.
20	6102.	12204.	18306.	24408.	30510.	36612.	42714.	48816.	54919.	******
22	6712.	13425.	20137.	26849.	33561.	40274.	46986.	53698.	60410.	******
24	7322.	14645.	21967.	29289.	36612.	43935.	51257.	58580.	******	******
26	7933.	15866.	23798.	31731.	39663.	47596.	55528.	63461.	******	******
28	8543.	17086.	25628.	34172.	42714.	51257.	59800.	68343.	******	******
30	9153.	18306.	27459.	36612.	45765.	54919.	64072.	******	******	******

Vance 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	3.3	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	149.6
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	229.	458.	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.	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.	21988.	24736.	******
26	2978.	5955.	8933.	11910.	14888.	17865.	20843.	23820.	26798.	******
28	3207.	6413.	9620.	12826.	16033.	19239.	22446.	25652.	******	******
30	3436.	6871.	10307.	13742.	17178.	20613.	24049.	27485.	******	******

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.	2288.	2615.	2942.	3269.
4	654.	1308.	1962.	2615.	3269.	3923.	4577.	5231.	5885.	6538.
6	981.	1962.	2942.	3923.	4904.	5885.	6865.	7846.	8827.	9808.
8	1308.	2615.	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.	19615.
14	2288.	4577.	6865.	9154.	11442.	13731.	16019.	18307.	20596.	22884.
16	2615.	5231.	7846.	10461.	13077.	15692.	18307.	20923.	23538.	26153.
18	2942.	5885.	8827.	11769.	14711.	17654.	20596.	23538.	26480.	29423.
20	3269.	6538.	9808.	13077.	16346.	19615.	22884.	26153.	29423.	32692.
22	3596.	7192.	10788.	14384.	17980.	21577.	25173.	28769.	32365.	35961.
24	3923.	7846.	11769.	15692.	19615.	23538.	27461.	31384.	35307.	******
26	4250.	8500.	12750.	17000.	21250.	25500.	29750.	33999.	38248.	******
28	4577.	9154.	13731.	18307.	22884.	27461.	32038.	36615.	******	******
30	4904.	9808.	14711.	19615.	24519.	29423.	34326.	39230.	******	******

Vance 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	133.6	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.	12642.	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.	29798.	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.	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	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.	17580.	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.	36258.	42302.	48345.	54388.	60431.
24	6592.	13185.	19777.	26370.	32962.	39555.	46147.	52740.	59332.	******
26	7142.	14284.	21425.	28567.	35709.	42851.	49993.	57135.	64276.	******
28	7691.	15382.	23074.	30765.	38456.	46147.	53838.	61530.	******	******
30	8241.	16481.	24722.	32962.	41203.	49443.	57684.	65926.	******	******

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.	2596.	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.	4568.	5710.	6851.	7993.	9135.	10277.	11419.
24	1246.	2491.	3737.	4983.	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.	7786.	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	152.	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.	3795.	4554.	5313.	6072.	6832.	7591.
12	911.	1822.	2733.	3643.	4554.	5466.	6376.	7287.	8198.	9109.
14	1063.	2125.	3188.	4251.	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.	6680.	8350.	10020.	11689.	13359.	15029.	16699.
24	1822.	3643.	5465.	7287.	9109.	10930.	12752.	14574.	16396.	18217.
26	1974.	3947.	5921.	7894.	9868.	11841.	13815.	15788.	17762.	19735.
28	2125.	4251.	6376.	8501.	10627.	12752.	14877.	17003.	19128.	21254.
30	2277.	4554.	6832.	9109.	11386.	13663.	15940.	18217.	20495.	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	166.5	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	346.8

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	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.	7026.	9368.	11710.	14052.	16394.	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.	22355.	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.	1828.	2087.	2348.	2609.
4	522.	1044.	1566.	2087.	2609.	3131.	3653.	4174.	4696.	5218.
6	783.	1566.	2348.	3131.	3914.	4696.	5478.	6262.	7044.	7827.
8	1044.	2087.	3131.	4174.	5218.	6262.	7305.	8349.	9393.	10436.
10	1305.	2609.	3914.	5218.	6523.	7827.	9132.	10436.	11741.	13045.
12	1566.	3131.	4696.	6262.	7827.	9393.	10958.	12523.	14089.	15654.
14	1828.	3653.	5478.	7305.	9132.	10958.	12784.	14611.	16437.	18263.
16	2087.	4174.	6262.	8349.	10436.	12523.	14611.	16698.	18785.	20872.
18	2348.	4696.	7044.	9393.	11741.	14089.	16437.	18785.	21133.	23482.
20	2609.	5218.	7827.	10436.	13045.	15654.	18263.	20872.	23480.	26091.
22	2870.	5740.	8610.	11480.	14350.	17220.	20090.	22960.	25830.	28700.
24	3131.	6262.	9393.	12523.	15654.	18785.	21916.	25047.	28178.	31309.
26	3392.	6784.	10175.	13567.	16958.	20351.	23742.	27134.	30526.	33918.
28	3653.	7305.	10958.	14611.	18263.	21916.	25568.	29221.	32874.	36527.
30	3914.	7827.	11741.	15654.	19567.	23482.	27395.	31308.	35222.	39136.

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	148.2	******
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.	12106.	15132.	18159.	21185.	24211.	******	******
24	3302.	6603.	9905.	13206.	16508.	19809.	23111.	26412.	******	******
26	3577.	7153.	10730.	14307.	17883.	21460.	25037.	******	******	******
28	3852.	7704.	11555.	15407.	19259.	23111.	26963.	******	******	******
30	4127.	8254.	12381.	16508.	20635.	24762.	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.	1576.	1972.	2366.	2761.	3156.	3550.	3944.
4	788.	1576.	2366.	3156.	3944.	4733.	5522.	6311.	7099.	7888.
6	1183.	2366.	3550.	4733.	5916.	7099.	8283.	9466.	10649.	11832.
8	1576.	3156.	4733.	6311.	7888.	9466.	11043.	12621.	14198.	15776.
10	1972.	3944.	5916.	7888.	9860.	11832.	13804.	15776.	17748.	19720.
12	2366.	4733.	7099.	9466.	11832.	14199.	16565.	18932.	21298.	23665.
14	2761.	5522.	8283.	11043.	13804.	16565.	19326.	22087.	24848.	27609.
16	3156.	6311.	9466.	12621.	15776.	18932.	22087.	25242.	28397.	******
18	3550.	7099.	10649.	14198.	17748.	21298.	24848.	28397.	31947.	******
20	3944.	7888.	11832.	15776.	19720.	23665.	27609.	31553.	******	******
22	4338.	8677.	13015.	17354.	21692.	26031.	30369.	34708.	******	******
24	4733.	9466.	14199.	18932.	23665.	28397.	33130.	37863.	******	******
26	5127.	10255.	15382.	20509.	25637.	30764.	35891.	******	******	******
28	5522.	11043.	16565.	22087.	27609.	33130.	38652.	******	******	******
30	5916.	11832.	17748.	23665.	29581.	35497.	41413.	******	******	******

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	546.	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.	26765.	30588.	34412.	38235.
16	4370.	8739.	13109.	17479.	21849.	26218.	30588.	34958.	39328.	******
18	4916.	9832.	14748.	19664.	24580.	29496.	34412.	39328.	44244.	******
20	5462.	10924.	16387.	21849.	27311.	32773.	38235.	43697.	******	******
22	6008.	12017.	18026.	24034.	30042.	36050.	42059.	48067.	******	******
24	6555.	13109.	19664.	26218.	32773.	39328.	45882.	52437.	******	******
26	7101.	14202.	21303.	28403.	35504.	42606.	49706.	******	******	******
28	7647.	15294.	22941.	30588.	38235.	45882.	53529.	******	******	******
30	8193.	16387.	24580.	32773.	40966.	49160.	57353.	******	******	******

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	[illegible]	1331.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	1331.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10648.	11979.	13310.
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	16.6	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	115.8	130.2	144.7
30	15.5	31.0	46.5	62.0	77.5	93.0	108.5	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	133.	265.	398.	530.	663.	795.	928.	1061.	1193.	1326.
4	265.	530.	795.	1061.	1326.	1591.	1856.	2121.	2386.	2651.
6	398.	795.	1193.	1591.	1989.	2386.	2784.	3182.	3579.	3977.
8	530.	1061.	1591.	2121.	2651.	3182.	3712.	4242.	4773.	5303.
10	663.	1326.	1989.	2651.	3314.	3977.	4640.	5303.	5966.	6629.
12	795.	1591.	2386.	3182.	3977.	4773.	5568.	6364.	7159.	7954.
14	928.	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	1456.	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.	14848.	16704.	18560.
30	1989.	3977.	5966.	7954.	9943.	11932.	13920.	15909.	17897.	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	188.	376.	563.	751.	938.	1126.	1314.	1501.	1689.	1877.
4	376.	751.	1126.	1501.	1877.	2252.	2628.	3003.	3378.	3754.
6	563.	1126.	1689.	2252.	2815.	3378.	3941.	4504.	5067.	5630.
8	751.	1501.	2252.	3003.	3754.	4504.	5255.	6006.	6756.	7507.
10	938.	1877.	2815.	3754.	4692.	5630.	6569.	7507.	8446.	9384.
12	1126.	2252.	3378.	4504.	5630.	6756.	7883.	9008.	10135.	11261.
14	1314.	2628.	3941.	5255.	6569.	7883.	9198.	10510.	11824.	13138.
16	1501.	3003.	4504.	6006.	7507.	9008.	10510.	12012.	13515.	15014.
18	1689.	3378.	5067.	6756.	8446.	10135.	11824.	13515.	15206.	16891.
20	1877.	3754.	5630.	7507.	9384.	11261.	13138.	15014.	16891.	18768.
22	2064.	4129.	6193.	8258.	10322.	12387.	14451.	16516.	18580.	20645.
24	2252.	4504.	6756.	9008.	11261.	13515.	15768.	18017.	20269.	22522.
26	2440.	4880.	7320.	9759.	12199.	14639.	17078.	19518.	21958.	24398.
28	2628.	5255.	7883.	10510.	13138.	15768.	18395.	21020.	23648.	26275.
30	2815.	5630.	8446.	11261.	14076.	16891.	19706.	22522.	25337.	28152.

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	73.8	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	104.6	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.	20883.	23204.
20	2578.	5156.	7735.	10313.	12891.	15469.	18047.	20625.	23204.	25782.
22	2836.	5672.	8508.	11344.	14180.	17016.	19852.	22688.	25524.	28360.
24	3094.	6188.	9281.	12375.	15469.	18563.	21657.	24750.	27844.	30938.
26	3352.	6703.	10055.	13406.	16758.	20110.	23461.	26813.	30165.	33516.
28	3609.	7219.	10828.	14438.	18047.	21657.	25266.	28876.	32485.	36094.
30	3867.	7735.	11602.	15469.	19336.	23204.	27071.	30938.	34805.	38673.

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	313.	626.	939.	1252.	1565.	1878.	2190.	2503.	2816.	3129.
4	626.	1252.	1878.	2503.	3129.	3756.	4381.	5007.	5633.	6259.
6	939.	1878.	2816.	3756.	4694.	5633.	6571.	7510.	8449.	9388.
8	1252.	2503.	3756.	5007.	6259.	7510.	8762.	10014.	11266.	12517.
10	1565.	3129.	4694.	6259.	7823.	9388.	10952.	12517.	14082.	15646.
12	1878.	3756.	5633.	7510.	9388.	11266.	13143.	15020.	16898.	18775.
14	2190.	4381.	6571.	8762.	10952.	13143.	15333.	17524.	19714.	21905.
16	2503.	5007.	7510.	10014.	12517.	15020.	17524.	20027.	22531.	25034.
18	2816.	5633.	8449.	11266.	14082.	16898.	19714.	22531.	25347.	28163.
20	3129.	6259.	9388.	12517.	15646.	18775.	21905.	25034.	28163.	31292.
22	3442.	6884.	10327.	13769.	17211.	20653.	24095.	27537.	30980.	34422.
24	3756.	7510.	11266.	15020.	18775.	22531.	26288.	30041.	33798.	37551.
26	4069.	8135.	12204.	16272.	20340.	24408.	28478.	32544.	36612.	40680.
28	4381.	8762.	13143.	17524.	21905.	26288.	30667.	35048.	39430.	43809.
30	4694.	9388.	14082.	18775.	23469.	28163.	32857.	37551.	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	25.6	28.4
6	4.3	8.5	12.8	17.1	21.3	25.6	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	25.6	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	25.6	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.	2386.	2683.	2981.
4	596.	1192.	1788.	2386.	2981.	3577.	4173.	4769.	5366.	5961.
6	894.	1788.	2683.	3577.	4471.	5366.	6259.	7154.	8048.	8942.
8	1192.	2386.	3577.	4769.	5961.	7154.	8346.	9538.	10731.	11923.
10	1490.	2981.	4471.	5961.	7452.	8942.	10432.	11923.	13413.	14904.
12	1788.	3577.	5366.	7154.	8942.	10731.	12519.	14307.	16096.	17884.
14	2086.	4173.	6259.	8346.	10432.	12519.	14605.	16692.	18778.	••••••
16	2386.	4769.	7154.	9538.	11923.	14307.	16692.	19076.	21461.	••••••
18	2683.	5366.	8048.	10731.	13413.	16096.	18778.	21461.	••••••	••••••
20	2981.	5961.	8942.	11923.	14904.	17884.	20865.	23846.	••••••	••••••
22	3279.	6558.	9838.	13115.	16394.	19673.	22951.	••••••	••••••	••••••
24	3577.	7154.	10731.	14307.	17884.	21461.	25038.	••••••	••••••	••••••
26	3875.	7750.	11625.	15500.	19376.	23248.	27124.	••••••	••••••	••••••
28	4173.	8346.	12519.	16692.	20865.	25038.	••••••	••••••	••••••	••••••
30	4471.	8942.	13413.	17884.	22355.	26826.	••••••	••••••	••••••	••••••

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	425.	851.	1277.	1702.	2128.	2554.	2979.	3405.	3831.	4256.
4	851.	1702.	2554.	3405.	4256.	5107.	5959.	6810.	7661.	8512.
6	1277.	2554.	3831.	5107.	6384.	7661.	8938.	10215.	11492.	12769.
8	1702.	3405.	5107.	6810.	8512.	10215.	11917.	13620.	15322.	17025.
10	2128.	4256.	6384.	8512.	10640.	12769.	14897.	17025.	19153.	21281.
12	2554.	5107.	7661.	10215.	12769.	15322.	17876.	20430.	22983.	25537.
14	2979.	5959.	8938.	11917.	14897.	17876.	20856.	23836.	26814.	••••••
16	3405.	6810.	10215.	13620.	17025.	20430.	23836.	27240.	30645.	••••••
18	3831.	7661.	11492.	15322.	19153.	22983.	26814.	30645.	••••••	••••••
20	4256.	8512.	12769.	17025.	21281.	25537.	29793.	34050.	••••••	••••••
22	4682.	9364.	14045.	18727.	23409.	28091.	32772.	••••••	••••••	••••••
24	5107.	10215.	15322.	20430.	25537.	30645.	35752.	••••••	••••••	••••••
26	5533.	11066.	16599.	22132.	27665.	33198.	38731.	••••••	••••••	••••••
28	5959.	11917.	17876.	23835.	29793.	35752.	••••••	••••••	••••••	••••••
30	6384.	12769.	19153.	25537.	31921.	38306.	••••••	••••••	••••••	••••••

Wright-Patterson 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	3.7	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	237.6	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--WNI($'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.	7055.	8231.	9407.	10583.	11759.
6	1764.	3528.	5292.	7055.	8819.	10583.	12347.	14111.	15875.	17639.
8	2352.	4704.	7055.	9407.	11759.	14111.	16463.	18815.	21166.	23518.
10	2940.	5880.	8819.	11759.	14699.	17639.	20578.	23518.	26458.	29398.
12	3528.	7055.	10583.	14111.	17639.	21166.	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.	21166.	26458.	31750.	37041.	42333.	******	******
20	5880.	11759.	17639.	23518.	29398.	35277.	41157.	47036.	******	******
22	6467.	12935.	19402.	25870.	32337.	38805.	45272.	******	******	******
24	7055.	14111.	21166.	28222.	35277.	42333.	49388.	******	******	******
26	7643.	15287.	22930.	30574.	38217.	45860.	53504.	******	******	******
28	8231.	16463.	24694.	32925.	41157.	49388.	******	******	******	******
30	8819.	17639.	26458.	35277.	44097.	52916.	******	******	******	******

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	716.	1431.	2147.	2862.	3578.	4293.	5009.	5724.	6440.	7155.
4	1431.	2862.	4293.	5724.	7155.	8586.	10017.	11448.	12879.	14310.
6	2147.	4293.	6440.	8586.	10733.	12879.	15026.	17172.	19319.	21465.
8	2862.	5724.	8586.	11448.	14310.	17172.	20034.	22896.	25758.	28620.
10	3578.	7155.	10733.	14310.	17888.	21465.	25043.	28620.	32198.	35775.
12	4293.	8586.	12879.	17172.	21465.	25758.	30051.	34344.	38637.	42930.
14	5009.	10017.	15026.	20034.	25043.	30051.	35060.	40068.	45077.	******
16	5724.	11448.	17172.	22896.	28620.	34344.	40068.	45792.	51516.	******
18	6440.	12879.	19319.	25758.	32198.	38637.	45077.	51516.	******	******
20	7155.	14310.	21465.	28620.	35775.	42930.	50085.	57240.	******	******
22	7871.	15741.	23612.	31482.	39353.	47223.	55094.	******	******	******
24	8586.	17172.	25758.	34344.	42930.	51516.	60102.	******	******	******
26	9302.	18603.	27905.	37206.	46508.	55809.	65111.	******	******	******
28	10017.	20034.	30051.	40068.	50085.	60102.	******	******	******	******
30	10733.	21465.	32198.	42930.	53663.	64396.	******	******	******	******

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	7.2	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.9	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	64.9	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	64.9	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	403.5	******	******	******	******	******	******
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.	30975.	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	13276.	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.	12961.	15121.	17281.	19441.	21601.
6	3240.	6480.	9720.	12961.	16201.	19441.	22681.	25921.	29161.	32401.
8	4320.	8640.	12961.	17281.	21601.	25921.	30241.	34561.	******	******
10	5400.	10800.	16201.	21601.	27001.	32401.	37802.	******	******	******
12	6480.	12961.	19441.	25921.	32401.	38882.	45362.	******	******	******
14	7560.	15121.	22681.	30241.	37802.	45362.	******	******	******	******
16	8640.	17281.	25921.	34561.	43202.	51842.	******	******	******	******
18	9720.	19441.	29161.	38882.	48602.	******	******	******	******	******
20	10800.	21601.	32401.	43202.	54002.	******	******	******	******	******
22	11881.	23761.	35642.	47522.	59403.	******	******	******	******	******
24	12961.	25921.	38882.	51842.	64803.	******	******	******	******	******
26	14041.	28081.	42122.	56162.	******	******	******	******	******	******
28	15121.	30241.	45362.	60483.	******	******	******	******	******	******
30	16201.	32401.	48602.	64803.	******	******	******	******	******	******

APPENDIX I

25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU TABLES

ELECTRICITY
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Altus AFB	9.26	11.80	13.07	14.31
Andrews AFB	9.40	9.08	13.47	11.06
Arnold AFS	9.36	10.34	13.16	12.52
Barksdale AFB	10.59	14.61	14.83	17.67
Beale AFB	8.73	12.53	12.69	15.33
Bergstrom AFB	9.33	13.16	13.16	15.95
Blytheville AFB	9.12	10.86	12.92	13.18
Bolling AFB	9.40	9.08	13.47	11.06
Brooks AFB	9.98	14.17	14.05	17.17
Cannon AFB	6.33	7.95	8.79	9.59
Carswell AFB	10.24	13.88	14.66	16.91
Castle AFB	9.26	13.22	13.41	16.15
Chanute AFB	10.25	9.18	14.67	11.18
Charleston AFB	9.21	12.74	12.76	15.36
Columbus AFB	10.17	12.46	14.18	15.07
Davis-Monthan AFB	7.65	11.69	10.90	14.22
Dover AFB	11.66	11.14	16.56	13.54
Dyess AFB	8.64	11.77	12.16	14.28
Edwards AFB	6.86	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	18.06
Fairchild AFB	9.31	7.83	13.49	9.57
Francis E Warren AFB	6.01	6.35	8.62	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
Griffiss AFB	NR	12.14	NR	14.77
Grissom AFB	14.22	9.89	20.36	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
Hill AFB	8.27	9.05	11.71	10.99
Holloman AFB	6.37	8.35	8.85	10.07
Homestead AFB	12.76	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	9.61	14.04	13.46	16.98
Kelly AFB	9.98	14.17	14.05	17.17
Kirtland AFB	6.79	8.07	9.43	9.73
K. I. Sawyer AFB	NR	7.35	NR	8.98
Lackland AFB	9.98	14.17	14.05	17.17
Langley AFB	8.82	9.68	11.76	11.89
Laughlin AFB	9.69	14.24	13.52	17.25

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	9.65	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	12.69	15.33
Maxwell AFB	9.80	12.22	12.75	14.75
McChord AFB	6.21	6.93	9.14	8.50
McClellan AFB	8.73	12.53	12.69	15.33
McConnell AFB	8.92	9.86	12.50	11.94
McGuire AFB	11.66	11.60	16.75	14.13
Minot AFB	NR	10.11	NR	12.33
Moody AFB	8.75	12.20	12.13	14.70
Mountain Home	5.66	6.32	8.13	7.70
Myrtle Beach AFB	8.69	11.35	12.06	13.69
Nellis AFB	7.52	11.19	10.97	13.71
Norton AFB	5.81	9.80	8.52	12.02
Offutt AFB	10.80	8.74	15.39	10.63
Patrick AFB	9.72	14.89	13.52	17.98
Pease AFB	16.76	8.82	22.27	10.70
Peterson AFB	6.83	7.74	9.75	9.42
Plattsburgh AFB	NR	9.64	NR	11.63
Pope AFB	8.42	9.54	11.59	11.48
Randolph AFB	9.96	14.17	14.05	17.17
Reese AFB	6.17	8.11	8.69	9.83
Robins AFB	9.34	12.26	12.76	14.72
Scott AFB	10.69	10.94	15.39	13.35
Seymour-Johnson	8.42	9.54	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	12.28
Travis AFB	5.17	8.31	7.70	10.23
Tyndall AFB	9.65	13.77	12.76	16.76
USAF Academy	6.83	7.74	9.75	9.42
Vance AFB	8.39	10.09	11.98	12.28
Vandenberg AFB	3.68	8.03	5.83	7.39
Whiteman AFB	9.85	9.86	13.69	11.28
Williams AFB	9.40	12.59	11.89	15.28
Wright-Patterson	12.84	9.86	18.33	11.99
Yeager AFB	NR	7.93	NR	9.18

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	6.97
Arnold AFS	6.21	6.85	8.72	8.29
Barksdale AFB	6.56	9.06	9.19	10.95
Beale AFB	4.97	7.14	7.22	8.73
Bergstrom AFB	5.79	8.15	8.16	9.89
Blytheville AFB	5.65	6.73	8.01	8.17
Bolling AFB	5.93	5.72	8.50	6.97
Brooks AFB	6.18	8.79	8.71	10.65
Cannon AFB	3.92	4.93	4.45	5.95
Carswell AFB	6.35	8.61	9.09	10.48
Castle AFB	5.27	7.53	7.64	9.20
Chanute AFB	6.30	5.64	9.02	6.87
Charleston AFB	6.10	8.44	8.47	10.18
Columbus AFB	6.74	8.27	9.40	9.99
Davis-Monthan AFB	4.36	6.66	6.21	8.10
Dover AFB	7.35	7.02	10.46	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	6.15	9.21	8.75	11.20
Fairchild AFB	6.37	5.36	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	9.38
Grand Forks AFB	NR	4.40	NR	5.35
Griffiss AFB	NR	6.80	NR	8.28
Grissom 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	6.94	5.90	10.00	7.20
Hill AFB	3.68	4.03	5.21	4.89
Holloman AFB	3.95	5.18	5.48	6.24
Homestead AFB	8.47	14.09	11.86	17.05
Hurlburt Field	6.53	9.47	9.11	11.44
Indian Springs Aux	4.28	6.38	6.25	8.67
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	5.51
Lackland AFB	6.18	8.79	8.71	10.65
Langley AFB	5.37	8.23	7.42	7.89
Laughlin AFB	5.95	8.62	8.38	10.69

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	8.70
MacDill AFB	6.39	10.25	8.99	12.41
Malmstrom 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	8.73
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	8.73
McConnell AFB	5.27	5.82	7.39	7.05
McGuire AFB	7.37	7.31	10.56	8.91
Minot AFB	NR	4.50	NR	5.49
Moody AFB	5.80	8.08	8.04	9.74
Mountain Home	3.69	4.33	5.56	5.25
Myrtle Beach AFB	5.76	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	6.36	5.16	9.09	6.28
Patrick AFB	6.44	9.87	8.96	11.91
Pease AFB	8.06	4.51	11.37	5.47
Peterson AFB	3.04	3.45	4.34	4.19
Plattsburgh AFB	NR	5.40	NR	6.52
Pope AFB	5.56	6.32	7.66	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	8.21
Seymour-Johnson	5.56	6.32	7.66	7.60
Shaw AFB	5.63	7.57	8.06	9.12
Sheppard AFB	5.72	7.31	8.06	8.87
Tinker AFB	5.20	6.25	7.43	7.61
Travis AFB	2.94	4.73	4.36	5.83
Tyndall AFB	5.66	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	5.64	5.46	8.06	6.65
Williams AFB	4.78	7.17	6.77	8.70
Wright-Patterson	7.69	8.06	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	5.46	6.95	6.61
Barksdale AFB	5.27	7.27	7.38	8.79
Beale AFB	3.99	5.73	5.60	7.01
Bergstrom AFB	4.64	6.54	6.55	7.93
Blytheville 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
Carswell AFB	6.09	6.91	7.29	8.41
Castle AFB	4.23	6.04	5.13	7.36
Chanute AFB	8.03	7.19	11.49	8.76
Charleston AFB	4.88	6.72	6.75	8.11
Columbus AFB	5.37	6.59	7.49	7.98
Davis-Monthan AFB	3.49	5.34	4.98	6.50
Dover AFB	6.05	5.76	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	7.28	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	3.08	2.75
George AFB	3.14	4.94	4.61	6.06
Goodfellow AFB	4.45	6.21	6.26	7.53
Grand Forks AFB	NR	3.51	NR	4.28
Griffiss 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	8.18	5.89
Hill AFB	2.84	3.21	4.16	3.89
Holloman AFB	3.17	4.15	4.40	5.01
Homestead AFB	8.75	11.93	9.45	13.58
Hurlburt Field	5.30	7.55	7.28	9.12
Indian Springs Aux	3.44	5.11	5.01	6.26
Keesler AFB	5.05	7.41	7.11	8.96
Kelly AFB	4.56	7.05	6.99	8.54
Kirtland AFB	3.38	4.01	4.99	4.84
K. I. Sawyer AFB	NR	5.76	NR	7.02
Lackland AFB	4.85	7.05	6.99	8.54
Langley AFB	4.42	6.13	6.11	8.10
Laughlin AFB	3.71	7.05	5.79	8.54

NR = Not Recommended

RESIDUAL OIL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Little Rock AFB	4.84	5.71	6.75	6.90
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	3.76	3.83
Luke AFB	3.84	5.75	5.43	6.98
MacDill AFB	5.09	6.17	7.16	8.89
Malmstrom AFB	3.59	2.90	5.11	3.53
March AFB	2.66	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	4.65
McClellan AFB	3.99	5.73	5.80	7.01
McConnell 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	4.39
Moody AFB	4.62	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	6.86
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
Pease AFB	6.59	3.89	9.31	4.47
Peterson AFB	2.42	2.75	3.46	3.34
Plattsburgh AFB	NR	4.45	NR	5.37
Pope AFB	4.45	5.04	6.12	6.08
Randolph AFB	4.96	7.05	6.99	8.54
Reese 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
Seymour-Johnson	4.45	5.04	6.12	6.08
Shaw AFB	4.64	6.03	6.42	7.27
Sheppard AFB	4.89	6.88	6.49	7.11
Tinker AFB	4.18	5.02	5.98	6.11
Travis AFB	2.38	2.80	3.88	4.07
Tyndall AFB	4.89	7.27	6.74	8.68
USAF Academy	2.42	2.75	3.46	3.34
Vance AFB	4.18	5.02	5.98	6.11
Vandenberg AFB	1.82	2.78	2.68	3.39
Whiteman AFB	7.19	5.88	10.30	6.46
Williams AFB	3.84	5.75	5.43	6.98
Wright-Patterson	10.69	7.72	14.38	8.89
Yuma MCAS	NR	5.88	NR	7.46

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	6.29
Arnold AFS	5.18	5.72	7.27	6.92
Barksdale AFB	6.72	9.27	9.41	11.22
Beale AFB	5.65	8.11	8.21	9.92
Bergstrom AFB	5.92	8.35	8.35	10.12
Blytheville AFB	5.79	6.89	8.20	8.37
Bolling AFB	5.35	5.17	7.67	6.29
Brooks AFB	6.33	9.00	8.92	10.90
Cannon AFB	4.02	5.05	5.56	6.09
Carswell AFB	6.50	8.81	9.31	10.73
Castle AFB	5.99	8.55	8.66	10.45
Chanute AFB	5.97	5.35	8.54	6.51
Charleston AFB	5.09	7.04	7.06	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	6.63	6.34	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	8.96	11.47
Fairchild AFB	8.57	7.21	12.41	8.80
Francis E Warren AFB	2.84	3.01	4.08	3.65
George AFB	4.44	6.99	6.53	8.38
Goodfellow AFB	5.65	7.93	7.99	9.61
Grand Forks AFB	NR	4.65	NR	5.65
Griffiss AFB	NR	6.63	NR	6.03
Grissom AFB	8.29	5.76	11.86	7.02
Gunter AFB	5.05	6.75	7.05	8.15
Hancock Field	NR	6.68	NR	8.08
Hanscom AFB	8.82	5.80	9.82	7.08
Hill AFB	3.91	4.28	5.54	5.29
Holloman AFB	4.04	5.30	5.62	6.40
Homestead AFB	7.08	11.75	9.59	14.22
Hurlburt Field	5.44	7.90	7.59	9.54
Indian Springs Aux	4.67	7.26	7.19	8.97
Keesler AFB	5.31	7.76	7.44	9.38
Kelly AFB	6.39	9.09	8.69	10.89
Kirtland AFB	4.31	5.12	5.99	6.18
K. I. Sawyer AFB	NR	4.49	NR	5.62
Laughlin AFB	6.39	9.09	8.69	10.89
Langley AFB	4.65	6.48	6.45	8.77
Lowry AFB	5.08	8.04	8.08	10.08

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	7.26	8.61	8.80
Loring AFB	NR	4.26	NR	5.19
Los Angeles AFS	3.76	6.34	5.52	7.76
Lowry AFB	3.50	3.96	5.01	4.84
Luke AFB	4.43	6.15	7.69	9.89
MacDill AFB	5.33	8.55	7.50	10.35
Malmstrom AFB	4.76	3.86	6.82	4.70
March AFB	3.76	6.34	5.52	7.76
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	8.11	8.21	9.92
McConnell AFB	4.83	5.34	6.78	6.47
McGuire AFB	6.65	6.60	9.53	8.40
Minot AFB	NR	4.76	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	4.60	6.57	6.57	7.57
Nellis AFB	4.57	7.24	7.10	8.67
Norton AFB	3.76	6.34	5.52	7.76
Offutt AFB	5.65	4.74	8.34	5.76
Patrick AFB	5.37	8.23	7.47	9.93
Pease AFB	7.91	4.43	11.17	5.37
Peterson AFB	3.23	3.66	4.61	4.46
Plattsburgh AFB	NR	5.26	NR	6.35
Pope AFB	4.66	5.17	6.40	6.34
Randolph AFB	6.33	9.00	8.92	10.90
Reese AFB	3.92	5.15	5.52	6.24
Robins AFB	5.16	6.77	7.06	8.13
Scott AFB	6.23	8.26	8.96	7.76
Seymour-Johnson	4.66	5.27	6.40	6.34
Shaw AFB	4.66	6.31	6.72	7.61
Sheppard AFB	5.66	7.46	8.26	9.06
Tinker AFB	5.23	6.40	7.61	7.76
Travis AFB	3.65	6.37	4.96	6.62
Tyndall AFB	4.91	7.61	7.05	9.27
USAF Academy	3.23	3.66	4.61	4.46
Vance AFB	5.23	6.40	7.61	7.76
Vandenberg AFB	3.59	3.59	3.77	4.76
Wilkinson AFB	6.17	6.61	7.48	8.40
Wilson AFB	5.43	6.15	7.69	8.89
Wright-Patterson	7.46	6.74	10.68	8.66
Yuma AFB	NR	6.74	NR	8.66

NR = Not Recommended

COAL
25 YEAR DISCOUNTED PAYBACK BREAK EVEN FUEL PRICE/MBTU

Base	Passive Application			
	Direct Gain		Trombe Wall	
	NNI	WNI	NNI	WNI
Altus AFB	4.86	5.94	6.58	7.21
Andrews AFB	4.71	4.55	6.75	5.54
Arnold AFS	5.02	5.54	7.04	6.70
Barksdale AFB	5.33	7.36	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
Carswell AFB	5.16	6.99	7.38	8.52
Castle AFB	4.59	6.58	6.65	8.01
Chanute AFB	5.29	4.74	7.57	5.77
Charleston AFB	4.93	6.82	6.84	8.22
Columbus AFB	5.44	6.68	7.59	8.07
Davis-Monthan AFB	3.79	5.80	5.40	7.05
Dover AFB	5.84	5.58	8.32	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	7.65	7.36	9.25
Ellsworth AFB	3.47	3.04	4.91	3.69
England AFB	5.00	7.46	7.11	9.10
Fairchild AFB	4.38	3.66	6.34	4.50
Francis E Warren AFB	2.36	2.50	3.39	3.05
George AFB	3.41	5.38	5.01	6.58
Goodfellow AFB	4.51	6.79	6.34	7.62
Grand Forks AFB	NR	3.89	NR	4.72
Griffiss AFB	NR	5.55	NR	6.75
Grissom AFB	7.35	8.11	10.51	9.22
Gunter AFB	4.91	6.54	6.83	7.90
Hancock Field	NR	5.35	NR	6.75
Hanscom AFB	6.61	5.62	9.62	6.85
Hill AFB	3.85	3.58	4.61	4.32
Holloman AFB	3.21	4.39	4.46	5.07
Homestead AFB	6.85	12.39	9.59	13.75
Hurlburt Field	5.69	7.85	7.35	9.25
Indian Springs Aux	3.73	5.35	5.44	6.50
Keesler AFB	5.85	7.85	7.31	9.09
Kelly AFB	5.02	7.14	7.08	8.65
Kirtland AFB	3.42	4.06	4.79	4.85
K. I. Sawyer AFB	NR	3.78	NR	4.69
Lackland AFB	5.02	7.14	7.08	8.65
Langley AFB	3.87	5.35	5.39	6.58
Laughlin AFB	5.01	6.72	7.06	8.36

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	5.76	6.63	6.98
Loring AFB	NR	4.13	NR	5.03
Los Angeles AFS	2.88	4.86	4.23	5.96
Lowry AFB	2.91	3.31	4.16	4.02
Luke AFB	4.17	6.24	5.90	7.56
MacDill AFB	5.17	6.28	7.27	10.03
Malmstrom AFB	3.97	3.21	5.67	3.91
March AFB	2.86	4.86	4.23	5.96
Mather AFB	4.33	6.22	6.29	7.60
Maxwell AFB	4.91	6.54	6.63	7.90
McChord AFB	2.92	3.26	4.30	4.00
McClellan AFB	4.33	6.22	6.29	7.60
McConnell AFB	4.37	4.83	6.13	5.85
McGuire AFB	5.86	5.61	8.40	7.08
Minot AFB	NR	3.98	NR	4.85
Moody AFB	4.69	6.53	6.49	7.87
Mountain Home	2.67	2.97	3.82	3.62
Myrtle Beach AFB	4.65	6.08	6.46	7.33
Nellis AFB	3.73	5.55	5.44	6.80
Norton AFB	2.86	4.86	4.23	5.96
Offutt AFB	5.29	4.28	7.54	5.21
Patrick AFB	5.20	7.97	7.24	9.63
Pease AFB	7.67	4.29	10.63	5.20
Peterson AFB	2.69	3.04	3.84	3.70
Plattsburgh AFB	NR	4.41	NR	5.32
Pope AFB	4.51	5.11	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	5.00	6.86	6.84	7.88
Scott AFB	5.52	5.85	7.95	6.90
Seymour-Johnson	4.51	5.11	6.21	6.15
Shaw AFB	4.71	6.12	6.51	7.37
Shepperd AFB	4.65	5.94	6.57	7.20
Tinker AFB	4.28	5.08	6.08	6.18
Travis AFB	2.58	4.12	3.62	5.07
Tyndall AFB	4.75	7.37	6.68	8.89
USAF Academy	2.89	3.04	3.84	3.70
Vance AFB	4.65	5.85	6.65	6.18
Vandenberg AFB	1.88	2.88	2.88	2.88
Whiteman AFB	4.88	4.85	6.71	5.85
Williams AFB	4.17	6.24	5.90	7.56
Wright-Patterson	5.85	6.28	6.97	8.18
Yuma MCAS	NR	6.28	NR	8.18

NR = Not Recommended

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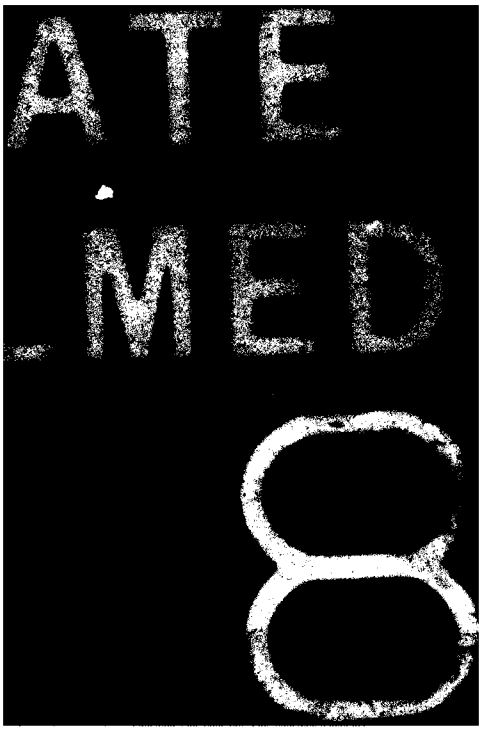
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