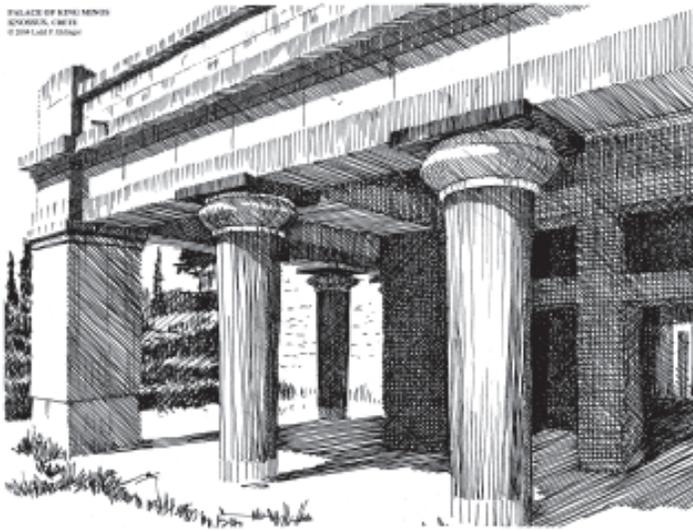




# ARCHITECTURE

EHLINGER & ASSOCIATES

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## PALACE OF KING MINOS

Knossus, Crete

The Palace of King Minos, Knossus, Crete is the subject of this issue's limited edition print of a sketch by Ladd P. Ehlinger. This palace was the center of what is known as the Aegean culture which flourished between 3000 and 1100 BC. This was an island architecture similar to Asian and Middle-Eastern, within which flat roofs dominated. This allowed the buildings to be contiguous with common or party walls, and for functions to take place on the roofs. The mainland architecture was dominated by pitched roofs, which was a response to the more rainy, northern climate.

The houses and palaces were the predominate type of buildings built in the Aegean culture, and incorporated mercantile and industrial functions within them. The temple form of building had not developed yet as the religion practice was vague, without personified images. Religious rituals usually took place within the courtyards.

King Minos' Palace was planned as a series of connected buildings in a footprint of about four acres about a large central courtyard. It had apartments, a throne room, an archives/ library with thousands of inscribed clay tablets, and granary warehouses and shops surrounding this courtyard. There were several levels, with

stone walls built up to the door or transom head level, with the upper portion consisting of heavy timber framing supporting masonry. The cylindrical columns were of cypress with a downward taper, and supported a round bulbous echinus and squared capital separated by finely excised rings. The shaft sat on a stone base. The broad capital projection presaged the early Doric columns of Paestum that had huge capitals, and were necessary to support the immense weight above.

The walls and columns were often painted bright colors to distinguish them and decorate them, and often frescoes were painted to adorn them, especially in the King's chambers. Gypsum was plentiful on Crete, and was used for the stucco, and as a fill for the roofs, and a paving for the floors.

This palace is where the worship of the bull as a symbol of masculine power took place. Rituals of dance and gymnastics took place with live bulls. The participants ran and vaulted over the bulls, not unlike the floor exercises in today's Olympic games, and danced about the bulls as do the matadors in the bullfights that have continued to this day in Spain. Ornamental symbolic bull's horns adorned various courtyards in the palace

access between levels within each apartment by means of elaborate colonnaded stairways that also functioned as lightwells and ventilation shafts. Other purely colonnaded lightwells were also used, as most apartments had no windows other than those on these private lightwells.

The construction of the palace consisted of both cut stone and plastered rubble

## Is Solar Worth It? ... Yet? ... Ever?

The promise of cheap solar electric power has been a promise evolving over decades, and always seems to be just around the corner, but never actually in sight.

Every 2 or 3 years I sit down and look at the latest photovoltaic (solar cell) products and do a cost evaluation. Right now, the costs of solar cells average out to about 25-50 cents/kwh over their guaranteed life-span, which, compared to a national average of 8 cents/kwh for grid power, doesn't make a lot of sense unless for some reason you can't have lines brought to your location.

In some states, residents are given a tax credit for installing Solar Cells that drop the cost to under 20 cents/kwh. So, in California for example, where peak rates can exceed 20 cents/kwh, it's an investment that makes sense. For the rest of us, well, we'll just have to wait.

With more people installing them there, hopefully the costs will come down even further as manufacturing capacity increases. When I first started seriously looking at solar prices 10 years ago, it was about \$1.00/kwh, so if this cost reduction trend holds true, the prices will be 15 cents/kwh in about 5 years, and 6 or 7 cents/kwh in another 10 years. So maybe it is time to start thinking about going solar? Or is it..?

## Things you need to know...

1. You will need a southern facing, unshaded roof. To get optimal performance from Solar Cells, they need to face south where they will get the most sunlight. Also, until recently, the power output from a panel of cells was limited by the cell putting out the least amount of power (usually because it is in shade). So, if your house's roof slope doesn't face south, or you have neighbors who won't let you cut down their trees; solar may not ever be for you. But, if you do have a minimum of 1,000 S.F.. of unshaded southern facing

roof, and \$5,000-\$10,000 to buy some solar panels (and another \$1-\$2 thousand to install them), you might want to think Solar. Might...

2. You will need an A/C inverter. Solar Cells produce electricity in DC. So, unless you want to totally rewire your house to DC products (and purchase only DC capable appliances), you'll need to convert the power produced into the standard AC, 120v 60 Hz format that is in use. This is a large material cost of installing. Home Inverters run from \$2,000 to \$5,000 dollars, with installation costs from \$500 to \$1,500.

3. You will need to replace your utility meter. Unless you plan on only running your appliances during sunny days, or have space and another \$5-10,000 to install a rack of batteries, you'll still want your house hooked into the local power grid. This way, when the sun sets, you'll still be able to cook, take a hot shower, and watch TV.

Also, you will need a utility meter that runs in both directions. There is a federal mandate that says utility companies must purchase any excess power that comes out of your solar power system. Most houses are unoccupied during the day, which is when your solar cells will be making the most power. This is also where most of the power savings from a solar power system are seen; in a reduction of your power bill. If you're an electricity miser, the util-

ity company might even end up sending **you** checks, if your system makes more power than you use.

4. You will still need a couple of more



things. With a utility meter that runs backwards, you will also need to install some safety systems. In the event of a local grid power outage during the day, your solar cells will still be pumping power back into the grid. This is dangerous, as utility workers will be expecting a line to be dead and safe to work on, and your system could kill them. So, you will need to install an automatic cut off switch from your inverter to your meter.

5. You will need to maintain your power source. Dust and dirt, pollen and mold will collect and grow on the slick surface of photovoltaic panels. This will reduce the power output of the panels, so

you will need to have a regular maintenance schedule to keep them clean if you wish to see the greatest return for your dollar. So, figure about \$25-\$50/month in cleaning maintenance. The electrical equipment, at the very least, requires little maintenance, but figure on about 3 visits over the 20 year guarantee of the system (maybe \$1500-\$2000).

## Still Want to Do Solar?

If you're still interested in investing in Solar Power, there are some new, relatively attractive products on the market now for residences. In-

stead of putting up big glass covered plates on stilts, there are products that mimic the look of shingled roofs, and products that blend with standing seam metal roofs.

I say "relatively" attractive, because these solar panels are no longer the bizarre eyesores seared into the public image of solar, but even the newer products will still turn a head or two, as they don't quite blend in visually with the roof systems they're designed to mimic. Still, better than not blending at all.

Personally, I recommend waiting another 5-10 years.

by R. Perrin Ehlinger.

