

Solar Down the Road

THE 8TH ANNUAL GHOST RANCH LIFE TECHNICS CONFERENCE SUNPAPER

Bulletin of the New Mexico Solar Energy
Association

October/November 1980

Panel Discussion Highlights

“The general purpose of this conference from the very first one organized by Steve Baer and myself about eight years ago was to attempt to focus on the whole complex of factors which enable a society to develop an ecologically viable economy as opposed to an exploitive industrial and commercial economy.”

Peter Van Dresser

Many new buildings in Albuquerque do not have skylights. They use electric lights all day every day how ever bright the sun. It is very hard to understand how we can think of ourselves as striving to use the sun when most of our new shopping centers are made up of such buildings. All the power created by the many grid connected photovoltaic



No Skylights



No Windows

modules can not match the power used by the light bulbs.

The old timers avoided this in many ways. Here are a number of clerestories that can be seen from 6th St. north of Bellamah which do not need their lights on during the day.

Daylighting is a very complex matter. Architects use many different ways for the sun to light their buildings.



Old Building



Old Building

Wal-Mart, one of the few chain stores to use daylighting puts about 1% of the roof in flat diffusing plastic domes and so during sunny weather can turn the lights off when the sun is high in the sky. I have seen the lights off in Wal-Mart. The north facing clerestories in my picture may extend lights off for more hours. Cloudy skies yield light, enough to light buildings with large enough glass areas.

I am not sure if we were to visit the old buildings that we would find the lights off. Many people leave their electric lights on regardless. In my own shop I have often seen the lights on when they could have been off. The people were just too busy to notice which in a business makes you happy. Lighting is a small expense compared to other expenses.

Wonderful daylighting involves indirect light admitted in the shade, a view of the sky without the sun. Libraries and artist studios treasure such North light. We have found that trackers have this delicious waste product, shade and made a prototype tracker/shaded sky light. It was a shock to me when I drove out to Mesa del Sol – along the huge empty blvd with the fake stone serpents – and saw that the Schott solar buildings had no windows. Were there skylights in the roof? According to a worker I asked none to speak of. Schott is a German glass company, how can they have given up on

windows? Albuquerque is sunny, not like cloudy Germany. The sight of their building and business set to work off of America's solar incentives made me wonder if there was not a long long



Schott Solar – No Windows

underground tunnel all the way back to headquarters in Germany.

I wonder if daylighting wouldn't be well worth it even if one were given free electricity and free light bulbs.

Following the work of Larry Kinney in Boulder, Colorado we have used heliostats to reflect the sun off white ceilings. A few square foot spot of sunlight reflecting off a white ceiling provides hundreds of square feet of pleasant daylight.

It seems to me that we have lost our way. How can we pretend to be interested in progress and solar energy yet forget one of our greatest inventions, glass?

A recent article by Ken Haggard, Larry Schlusser, and David Bainbridge in the May 2010 Solar Today discusses coatings and the tinting of glass. Letting the sun through has become the bane of glass's existence. It can cause overheating so in many places one can hardly obtain such windows. All available glass blocks almost all the sun as well as other heat transfer. Codes and subsidies support this insult to passive solar heating.

Their article contrasts this "reductionist thinking" to "Synergistic thinking" which is what they say man needs today.

The entire frame of mind of our new shopping centers seems peculiar, and wrong very familiar. A building flooded with fluorescent light, could be anywhere any time, the clerk has a headache from the fluorescent bulbs (ask them) but they are making money. Are we transforming ourselves from the organic, natural world to the electronic? It certainly seems so from the national and local solar policies which act as if our primary use of energy must be electric. We have laws that our utilities are to generate such and such a share of their electricity by using the sun or wind by a certain date. There is no provision for lighting, heating or cooling without electricity which is the easiest way to do it.

Our new leaders, the politicians, green people and other experts can destroy traditional ways of doing things and take over. They can create financial bubbles backing new technologies. Wall Street can create fortunes by backing new technologies. With government help it's easy. When the government runs the certification and the subsidies it's easy to see what happens. They subsidize what they certify. The new approved ways

will have the money – the old traditional ways will die out. One can spot the certified workers. They have safety straps and hard hats.

Look at what happened to the 10,000 square foot state office building in Taos. Bill Mingenbach and his firm The Architects Taos designed this building in the 1970's for the welfare department in Taos. Zomeworks built and installed Bill's solar shutters controlled pneumatically. Bill had south facing clerestories, a reflective roof to enhance the sun in chilly Taos and lots of mass in the building, concrete block walls, slab floor



10,000 Square Foot State Office Building



Closed down. Unused

and even 80- 55 gallon drums of water high up near the ceiling. Bill also had his Suck – a Blow heat exchangers, a pair of enormous pebble air filters which took turns going in and out and stored then returned the heat or cold to ventilation air.



There were problems. As in my own house the steel drums finally rusted and seeped and sang if they didn't drip. Today one would use polyethylene drums they don't leak, I have had 60 installed by Dave Harrison for some 20 years. People complained about the state office

building and unfamiliar untutored contractors corrected mistakes and made worse ones.

The clerestories are now mostly opaque, the other south glass is boarded over. The shutters gone, the Suck – a- Blows removed and the drums gone.

The state office building could come back to life. Most of the things that are needed are still there. Bill did much much more than this unfortunate building. Illustrious solar architects Mike Reynolds and Jay Davis both worked for him, perhaps they could bring the state office building back into use. Someone should own it who appreciated the savings the sun can give, not the state of New Mexico which does not care. Do we need new tax credits and codes that recognize the complexity of using the sun? I don't think so. We need to take away subsidies so the public is left on its own to guide itself by utility bills. Utility bills give a building owner a good idea of how well he has escaped using the utilities. Instead of passing out favors to certain pressure groups we need to prevent utilities from spoiling things. No smog! No haze! Minimal desecrating of the landscape. The business of handing out incentives is all wrong. Look where they are

leading us. Being in congress should be a tough job – one of imposing rules not passing out favors.

Look at what happens generating and using electrical energy. A photovoltaic module is good if it converts 15% of the sun to electricity great if 20%. A solar thermal power plant which concentrates the sun to run a steam turbine will be lucky to turn 30% of its heat to power then what do we do with the power? If we run a light bulb think how much more the solar reflector would have done had it reflected the sun directly into the space and the same for heat if one used the heat directly rather than wasting most of it making power then using the power rather than the sun directly. Even for cooling a square foot of radiator in most places can loose 50 watt hours of heat per night to the night sky at a convenient temperatures for cooling a building and is much much cheaper than a collector to make power.

Photovoltaics are such a wonderful invention. No smell, no noise, long lasting it is a real shame to see them used for tasks more gracefully done in other ways. A house can run on a few kw hours per day of electricity while most consume 20 or 30.



Corrales Library Adobe Trombe Wall

The picture of an adobe wall behind glass, show the Corrales Library, down the road from me. There used to be lots of such south walls built in Corrales in the 1970s and 1980s. Carefully done they provide most of the heat for a house for the winter.

Today there are, here and there still a few built but nothing like 30 years ago. The public is distracted by incentives for solar electricity or some doubtless have trouble finding plain glass where incentives have filled the supply lines with glass that is not clear.

A real puzzle for me who longed for ways to block heat gain and heat loss 30 years ago is to see in the dead of winter the excellent solar shades developed decades ago used to block the sun through south windows on January mornings. How can that be? I see it in Corrales when I go to work. The excellent accordion like shades are lowered on south windows to block the sun. Why?

Look how many homes have bushes and trees which have grown to shade the south glass.



Corrales House

The plants and trees don't need to grow there, their protectors who protest their pruning banish all plants from where they drive and park their cars regard south glass as less worthy than their automobile. There are many ways society

could encourage the sun that would not increase taxes ,demand high tech labs and venture capitalists. If only we had a national pruning day – all the talk and a festivity would back off some of these nature lovers and let the pruners admit the sun.

Can we not think clearly about energy? Will national policies and incentives always sway local opinion? Will jobs only be recognized as green and healthy when they are to

aide machinery? Will a man pumping ethanol, heavily subsidized, be thought of as having a green job, “Family based, career track” while those working in a café, preparing bio fuels for us bio machines be overlooked. Will farmers raising crops in the sun be

Fuel for Man



Fuel for a Machine

Bio Machines



overlooked by those counting solar jobs? How can that be, it seems impossible yet see for yourself.

Americans live under a spell that makes the obvious not obvious to them. Look at the shopping center built amidst the green craze that has

few windows and no skylights. In another regard which I will return to, look at the film of the world trade center buildings, particularly building number 7 never struck by an airplane the building is clearly brought down by explosives yet not according to our TV channels national press, or National Institute of Standards. How can we not believe what we see? By censorship. Our local Greenfire monthly helps the system in this regard for I had my mention of this collapse by explosives censored by Seth Roffman, its editor. I

was very surprised, waited for my letter of protest about censorship to be published, but not a word. Skip Whitson publisher and once friend will finally come straight I predict.

I have a strange reason for believing these lies will abate, we will get the truth.

It has to do with bread. Look at this selection of bread at the Coop. on Rio Grand Blvd.

Co-Op on Rio Grande



Real bread, with a crust and bread that grows stale. Decades ago one could not find such bread. Only Wonder bread, tasteless, machine made and which refused to become stale, each loaf a chemical miracle but inedible. We didn't like it even if

the machine did so we made better bread and this happened right here before our eyes.

The public buys real bread. There is a market for it.

Look at the thriving grower's markets. People want fresh fruits and vegetables there is a



Corrales Growers Market

market for them.

I don't remember 50 or 60 years ago there ever being good bread in America, bread such as available to all Germans in the 60's when I was stationed there but now there is, so that tells a lot about America. So

far as I know the good bread does not come from a national chain but all from local efforts.

There are still people building passive solar adobes, not many but they are there. There is still manufacturing in America that has not been off shored. We do a little of it ourselves.

Zomeworks Picnic



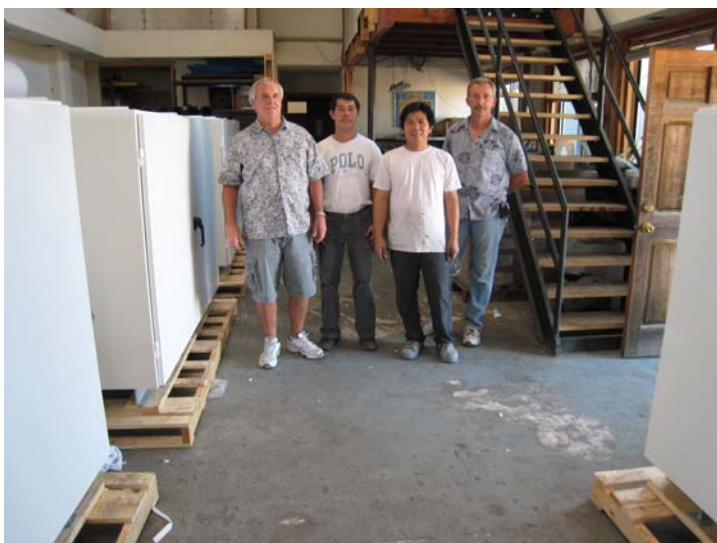
We shipped hundreds of Trackers, Dave Nevin ran three shifts. 24-7 as they say, paid for by Iraq (doubtless oil money) to Iraq to pump the villager's fresh filtered drinking

water. No US tax money that I know of. Our Cool Cells are built with no special certification or subsidies they sell all over the world and they are built right here in Albuquerque.



Zomeworks Band saws

Zomeworks Cool Cells



I predict the plywood will come of the windows Mingenbach's state office building. Schott, will make us glass and use it themselves if we can't afford their solar products.

There are all kinds of surprises. And we need some.

Who would have thought one could grow pistachios in Albuquerque but here are two trees in our yard on Sawmill Rd.

One's house, the light, hot water, heat and cooling are important.

So are many things but often what is important is farmed out great distances so we hardly know what is going on, as our



Zoneworks Backyard Pistachio Trees

armies in Iraq and Afghanistan, our Drones are killing people there and in other distant lands, we shrug our shoulders, beyond our control what can we do about it?

If giant tricks are being played on us far away, at home we might do something about it.

Tricks like 9-11. Can anyone believe our press and our government? Surely explosives brought down building #7 as well as others yet the national press says nothing.

The banking scandal is another trick. We the people transfer wealth to the last people who need it, the bankers.

Sadly our energy policy is also a trick. We have tax credits for creating solar electricity.

Why? We all use solar energy in countless ways and always have, how can we accept ignorant ones sorting through our energy use and deciding to subsidize what fits certain industries not we the consumers. As these chosen needs are satisfied by certified groups receiving subsidies the effects are enormous and dangerous, how can society survive being so unbalanced? What about the far more effective uses of the sun that are ignored.

Remember, the pictures of the boarded over glass or worse the favored industries that have forgotten how to use glass?

Solar energy has become solar electricity, but that is not true.

People are hurting from this contortion along with the other tricks. To get a job do you have to go along with a trick? Do you have to join the army and go to Iraq or Afghanistan? To heat and cool your house the tricksters would have you finance a solar power plant in the desert rather than use south glass and open the windows at night.

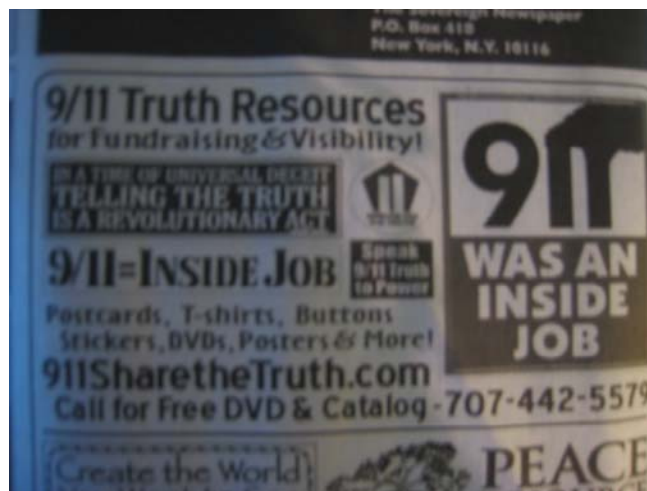
The trick may use one foot in Wall Street where the certified have favored one of their breakthroughs but the other foot is right here, in your own damn house right before your nose. Don't accept this. If you need light open the shades, put in a skylight. Don't just throw a switch and pay a subsidy for their "smart grid". Where the clothes emerge from the washing machine don't put them in a dryer, hang them out on the line. One can not trust the Government to protect the citizen's interests. Look at the National Institute of Standards, NISTI and their study of the collapse of world trade center building #7. They found no explosion, only eventually admitted an inexplicable interval of free fall to a patriotic high school physics teacher who would not be silenced.

Each scientist must have fulfilled his task as he equally failed to be a responsible citizen.

In the energy field we can not look to NREL anymore than we can look to NISTIE. Our

best minds have become parts of

scientific tumors.



When Do We Wake Up?