

# Santa Fe REAL ESTATE Guide

Artisan/craftsman/**builder**

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## On architecture and global warming

by Kurt Faust

Global warming and energy consumption and are closely connected because most of the energy consumed is fossil fuel. Because of the way statistics are gathered, the end users are usually statistically broken down into four categories - industry, transportation, residential, and commercial - each using, in that order, roughly from a little over one-third to a little under one-quarter of the energy pie.

Santa Fe architect Ed Mazria, who wrote the famous *Passive Solar Energy Book* in the late 1970s, recently took a fresh look at the energy-consumption pie chart and came up with a truly astounding conclusion, and a new suggestion about who holds the key to the "global thermostat."

Mazria redrew the chart with architecture as one of the categories. He included the portion of the industry sector that is the construction and operation of buildings, plants, and other facilities. This reveals a sector that uses a staggering near one half of the energy consumed in the U.S. each year. This sector is architecture: the buildings we live, work, and play. There are trillions of square feet of buildings in use and billions of square feet built every year. And they are on all the time. 24/7. Every day they are being heated and cooled and lit. Many of them needlessly consume massive quantities of energy.

NASA climate expert James E. Hansen recently told 11,000 earth-systems scientists attending an American Geophysical Union conference that mankind has at most 10 years to curb emissions or else global warming would take the Earth into climate patterns it has not experienced in the last 1,000,000 years. And there is a report in the national news this week - "Rapid melt shrinks Greenland's ice cap" - that presents data showing the ice cap has suddenly accelerated to melting at more than double its rate of a decade ago.

The massive energy consumption of our buildings is needless because of the many ways to use natural lighting and passive heating and cooling in the original design process, by using engineering processes to make the electrical and mechanical systems more efficient and by specifying products which improve building performance or embody less energy in their production.

There is no doubt that "rethinking" architecture could literally transform the energy equation. In fact, the American Institute of Architects (AIA) voted recently to adopt a policy to promote reducing the fossil-fuels consumption of buildings by 50 percent in the next four years, with additional reductions of 2 percent per year after that. Simply put, building design and construction could have the greatest and quickest impact on global warming of any industry sector.



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What is needed next is a change from our current paradigm of what architecture relates to the environment. Mazria has suggested a few things to help move things in that direction:

- Incorporate information about embodied energy in building materials;
- Require all new public building-construction projects to meet the 50 percent reduction in energy use for that type of building;
- Require that architect education includes design principles necessary to reduce building energy consumption; and
- Improve building-simulation software programs so they are user-friendly and integrate well with the CAD programs used by architects.

Those interested in learning more about this subject can visit [www.architecture2030.org](http://www.architecture2030.org).

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