Screened porches are one of the keys to 'natural air conditioning' design. . .

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Open breezeways and sliding glass doors assure adequate air circulation to beat the summer heat. . .

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Passive Solar Cooling; An Idea For the Eighties

By LINDA HALL
Staff Writer

SOUTH DADE — With warm humid winters, South Dade residents seldom worry about rising fuel bills and diminishing paychecks.

But, as the hot humid summer begins to peek around the seasonal corner, the carefree begin to crank up their air conditioners, fans and icemakers.

And, that is the end of fuel savings for most. For some residents who have incorporated passive cooling into their homes, summer can literally be a breeze.

Sounding like some non-violent anti-heat group, passive cooling is simply the use of housing design, landscaping and the good old sun to keep sweat off the brow.

A local architectural firm, Allan Bass Inc., specializes in building passive solar homes for South Dade residents who are tired of high electrical bills and 100 degrees in the shade.

"The meaning of passive is using the whole house to do it (air condition) instead of using a small black box that costs a lot of money," assistant architect Robert Barnes said. "Air-conditioning is really not needed."

By combining passive solar design with conventional construction techniques, cement block homes, initial costs are kept low, Barnes said.

Allan Bass also builds passive solar additions to present structures.

There are three types of heat to remove from any home, Barnes said. A house both absorbs and radiates heat. And there must be ventilation within the home for health.

When a passive solar home is being built the first thing to consider is the environment. In South Dade, the cool temperate winters and warm temperate summers alleviate any heating needs, saving energy and money.

So, besides a solar water heater, passive cooling is the main concern for area homes.

The area's Miccosukee Indians have been using passive cooling from day one in their chickee huts, which consist of a thatched roof supported by poles, Barnes said. The huts demonstrate passive solar cooling principles, they simply provide shade and a breeze.

Unfortunately, present day man's complex housing needs have complicated the matter.

First the home should face the east to take advantage of the summer southeastern winds and October's northeast winds. If the house site does not allow such an orientation, landscaping can be used to redirect the wind to ventilate the home, Barnes said.

"Wind ventilation is best when the house is raised off the ground," Barnes said.

Next the builder must decide what material to use. Different materials have different heat holding properties. For instance, concrete block walls will heat up to 150 degrees if it is 90 degrees outside because they absorb heat. Wood, on the other hand, is resistant to heat so it does not increase the wall temperature. Wood also can be placed on concrete block walls to provide shade and decrease temperatures.