

LIVING
WITH
THE
SUN

Your Passive Solar Home

Glass



INDUSTRIES

THE GLASS OPTIONS FOR YOUR PASSIVE SOLAR HOME



PPG recognizes that the solar heating concept and the component parts that make it work as "Passive Solar" are new to many people, and newness, like change, takes a while to get used to. But perhaps the most easily understandable benefit of heating with sunpower is that a Passive Solar home must be in part a "glass house." And millions of homeowners already know about the pleasures and economic good sense of living with glass.

Glass both shelters and "liberates" — bringing the beauty of the outdoors into the warm security of your home. Glass gives you natural light — and a feeling of well-being. It is a documented fact that we are better, happier people when we are fully aware of our surroundings. Glass protects and insulates you and your family from the noise and weather of the world outside. Glass, unless broken, is "forever," and its functional features make it perhaps the most important building material of the future. Glass is the secret to passive solar. However, it must be properly used. This means employing the right type of glass in the proper location in the right amount. Glass should not be over done in some climates and not under done in others.

You can select from several kinds of glass for your Passive Solar home depending on your plans and preferences. And while your architect or contractor will be your final authority, you'll feel more comfortable if you have some basic knowledge of the glass options available for your Passive Solar home . . . and why you would prefer one over the other.

Sun + Glass + Mass = Passive Solar Heating

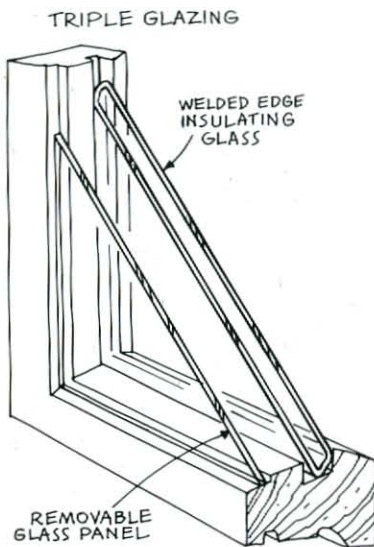
A single pane of clear glass admits nearly all the light rays that strike it directly — and about 85% of the solar energy. Some of the heat is reflected, some is absorbed, but most goes through. In the Passive Solar home this energy enters through south-facing glass, and is captured by the "thermal mass." Solar energy must enter through a transparent and durable material (usually clear glass), and most of it must be stored and reradiated. More than simply receiving heat, the system must keep it from escaping. To do this, architects and building contractors use expanses of glass. And to assure that solar energy gained through the glass is not lost, insulating glass is used — with double or even triple glazing.

In Passive Solar heating the south-facing glass surfaces are designed to receive the maximum amount of solar energy in cool weather and a minimum in warm weather. Heat gain (and loss) figures form the basis of the architect's and builder's plans for the effective working of the home's heating system. It is a fact that glass facing south in most climates lets in significantly more heat than it lets out. On eastern and western exposures this is less true. In cold weather these areas may show little net solar energy gain. On northern exposures, heat loss in cold winter climates create a drain on the heating system.

Insulating Glass

In the past, homeowners had to put up storm windows and doors every autumn — only to take them down and store them in the spring. Wind, snow, rain and cold had to be kept out and this was the way most of us did it.

Now we have insulating glass. Two panes of glass (or more) are installed in a sash in windows and sliding glass doors, clerestories, etc. Now glass through which



A cluster of modern homes in New Mexico tests and documents passive solar heating techniques and materials.



Brilliant sunshine, clear air and significant temperature variations are characteristics of the climate in Santa Fe, New Mexico. Perhaps because of these factors Passive Solar heating has found a philosophical home here in recent years. An active community of designers, developers, scientists, architects, teachers and builders are at work — and many methods once experimental are now fully functional.

“Solar adobe” may become an architectural style by its use in such homes as these. Here, an amalgam of pueblo design and functional glass provides for solar gain *and* exciting views of the outdoors.

Designers, Developers and Builders:
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