

## Homeowners can tap the sun's energy

Whether you are looking to supplement your existing home heating system, grow plants and vegetables year-round, or add some versatile, comfortable living space to your home, a sunspace may be the answer to your needs.

The beauty of sunspaces is that they can be whatever you want them to be. Properly designed and constructed, sunspaces can simply capture and transfer solar energy to your home, or they can provide a spot of summer warmth even in the depths of winter.

Several options are commonly available to the homeowner. Before seriously considering a sunspace, however, you should be aware that these structures need a south-facing location, free from shade during the winter when the sun is low on the horizon. If the layout of your home and property does not provide such a location, a sunspace will likely be ineffective.

### Sunrooms provide additional living space

One of the most popular types of sunspace, the attached sunroom, is designed to be lived in year-round. Built as an addition to the home, this area provides a warm and comfortable environment where your family can enjoy bright winter days and the beauty of thriving house plants.

On sunny days, sunrooms can contribute some heat to the rest of your home. At night or on heavily overcast days, however, auxiliary heating is required to maintain comfortable temperatures in the sunroom.

For optimum performance, sunrooms should be oriented within 30 degrees of south. A solid roof with an overhang will reduce overheating in the summer and heat loss in

the winter. Skylights can be added to allow light into the back of the sunroom.

Sunrooms typically have a large south-facing wall constructed of vertical sheets of double-glazed glass. Glass with a low-emissivity coating can be used to increase the insulating value of the windows. East and west walls are usually solid and should be well-insulated. To minimize temperature variations, walls and floors can be constructed using such energy-absorbing materials as tile, brick or masonry.

### Solar collection spaces: an energy option

Solar collection spaces gather energy from the sun during the day and transfer it to the parent building by fans and ducts. As such, their principal role is to provide supplementary heat to the home during cold weather.

Most solar collection spaces have no auxiliary heating and are separated from the parent building by a well-insulated wall. Temperatures can vary widely between day and night; at most, this sunspace would be comfortable for limited times each day and plants could not survive the freezing winter nights. Solar collection spaces can, however, reduce home heating costs by transferring energy from the sun to your home and by acting as a buffer between your living space and the cold outside world.

### Greenhouses make winter a growing season

Greenhouses are designed to provide the conditions necessary for growing plants over an extended season. They can be a rewarding

source of fresh vegetables in the heart of winter, not to mention beautiful flowers and house plants.

On overcast days, auxiliary heating is required to maintain adequate temperatures in greenhouses. As a result, greenhouses often consume more energy during the winter than

they collect from the sun. Nevertheless, for many homeowners the benefits of having a designated area for growing plants and fresh vegetables year-round can outweigh the energy costs.

Greenhouses often require a fair amount of overhead glazing to improve plant growth.

### Mixing of sunspaces

As a fourth option, you might consider a mixed sunspace home additions that encompass different aspects of the three sunspaces already discussed.

When considering a mixed sunspace, take care not to compromise the purpose and efficiency of the design. In general, these areas should be viewed as expanded living space in which to enjoy the sun or to grow plants, and not as a source of heat.

### Doing the work

Sunspace suppliers offer everything from custom-designed sunrooms to do-it-yourself kits. Homeowners can also build one of these additions using common building materials.

Before you begin work, check with local authorities for building regulations and permits. Once you have these in hand, hire an experienced contractor or do the work yourself, keeping in mind the following basic concepts:

- the south-facing wall should have vertical double-glazed, triple-glazed or low-emissivity-coated

- windows (triple-glazing and low-emissivity glass are a bit more expensive but offer added comfort).

- end walls should be well-insulated and have minimal window area.

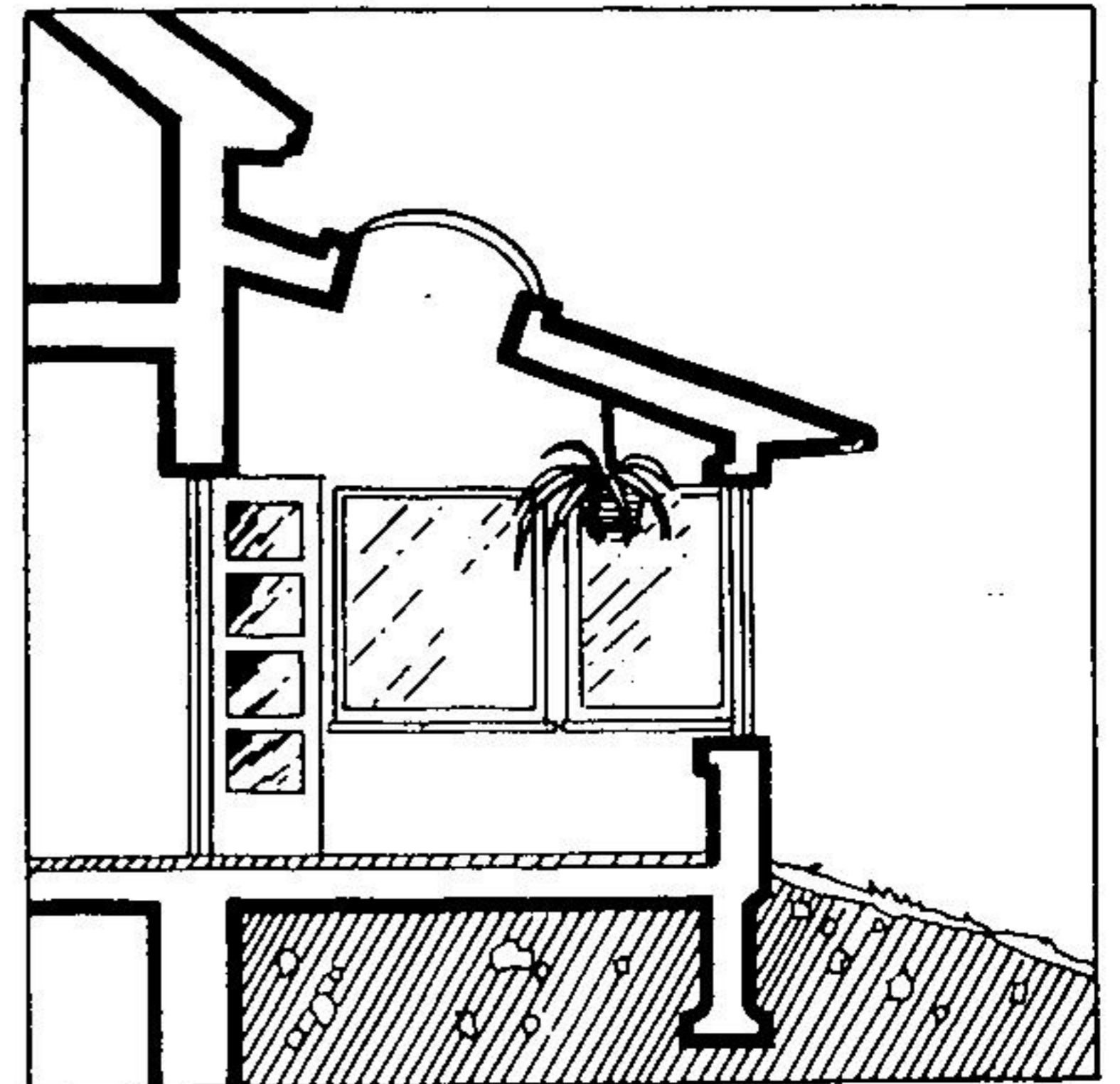
- the overall construction should be airtight.

- windows should open at the floor and ceiling level and/or at the two end walls to improve cross ventilation and reduce overheating in the summer.

- the sunspace's roof should be well-insulated and feature an overhang on the south edge to shade the glass during hot weather. Overhead glazing should be kept to a minimum.

- flooring materials can range from tiles on a concrete slab to interlocking stones, or basically any material that will store excess heat and release it when the sun goes down.

Finally, it is preferable to be able to seal the sunspace off from the main house to avoid temperature variations. A thermostatically-controlled fan can be used to enhance the transfer of warm air to the house.



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