

here's an awkwardness about the so-called sunroom additions typically stuck onto houses these days. These additions are usually factorymade greenhouses either with hipped or curved glazing that gives a house that certain fast-foodrestaurant look. Most sunrooms don't relate to the houses they're attached to and have little or no identity. So when my clients approached me with the idea of transforming an existing screened porch into a year-round sunroom, I wanted to design a space that looked as if it had always been part of the existing house.

## Columns allow for large windows-The

house sits on a small knoll that is approached from below with the house angled toward the street to provide access to a gable-end basement garage. The sunroom was to be built off the corner of the house just above the garage, making the sunroom a highly visible part of the house's most prominent facade. It was imperative that the sunroom's design complement the architectural qualities of the house.

I modeled my design on the sunrooms and greenhouses found in many grand period hous-

es with classical origins built in this country before World War II. The open spaces between the columns supporting the roofs of these structures naturally lend themselves to considerable window area. The roof glazing could be limited without losing the open feeling. My challenge was to design an aesthetically pleasing room with large areas of glass, but one that would be comfortable and energy-efficient year-round (photo above). A deck built into the corner formed by the house and the sunroom would extend the sunroom spaces to the outdoors during the warmest months.

Once I'd resolved to use the column or pilaster as an organizing element, I quickly sorted through my basic options as to how many columns there would be on each side, whether they would be equally spaced and so on. In the interest of budget, we decided early on to use standard-size windows and to design around those dimensions. We chose Pella windows (102 Main St., Pella, Iowa 50219; 800-547-3552), which had the proportions I wanted as well as a low-maintenance factory-painted aluminum exterior cladding. The aluminum-clad windows also have a thin exterior casing that worked well with my custom exterior trim.

Instead of the large expanses of roof glazing that most sunrooms sport, I opted for a wellinsulated roof with a few large skylights. These skylights allow for a visual connection to the trees and sky outside, and limiting the overhead glazing helps to keep the room from frying in the summer and freezing in the winter. The skylights have electronically controlled blinds and motorized openers that also help to control the room's climate.

Invisible timber connectors hold the trusses together—I had a couple of areas of concern regarding the structure of the sunroom. First, because of the large amount of wall area taken up by windows, I worried about the horizontal shear strength of the walls. To solve this problem, I made the plywood sheathing continuous from the area below each window to the small sections between the windows. The natural tendency in this case would have been to cover these areas with separates strips of plywood. To achieve the required shear strength,



## A Classic Sunroom

Carefully proportioned use of flat boards, stock moldings and standard windows helps to create a space for all seasons

by Steven Gerber

the nails had to be spaced more closely together at the edges of the plywood, especially on the gable-end wall, which doesn't benefit from being attached directly to the house for any sort of lateral strength.

Another even more challenging problem was creating a roof structure for the cathedral ceiling. Because the roof framing would be fully exposed inside the sunroom, I decided to support the roof with timber trusses. The problem was how to connect the members.

I looked at several connection options, including mortise-and-tenon joints, metal plates with through bolts and metal connectors. Even though the trusses were made of 6x6 Douglas fir, I worried that a mortise-and-tenon joint wouldn't leave enough meat on the end of the horizontal member to resist the outward thrust of the roof. Plates and through bolts are clunky

**Classic exterior, relaxed interior.** Built-up panels and moldings create a formal facade (photo above) while exposed trusses and a wood ceiling make the interior inviting (photo right).





and wouldn't be in character with the sunroom's interior, so I decided to use timber connectors to join the trusses.

I ended up having the roof trusses made by Green Mountain Precision Frames (P. O. Box 293, Windsor, Vt. 05089; 802-674-6145). They prefabricated the four roof trusses using their Timberlok Joinery System, a concealed, practically invisible steel-connection system.

An informal interior—I wanted the sunroom's interior to have a less formal feel than its classical exterior, so I began at the top with a natural-wood ceiling (bottom photo, p. 57). If we had sheathed the roof with standard plywood, the spacing of the roof trusses would have required additional purlins. So I used 2x6 tongue-and-groove Douglas fir instead. The 2x6 boards easily spanned the distance between the trusses, and they added beautiful color and texture to the ceiling at the same time.

To complete the roof, the Doug fir was covered with an air barrier, a 4-in. layer of foil-faced foam insulation, 2x2 furring strips (to create a ventilation cavity) and plywood sheathing. The plywood was topped with self-adhesive rubberized membrane and finally a layer of asphalt shingles. I decided to forgo the usual ridge vent for aesthetic reasons. Continuous soffit vents, a low slope (3-in-12) and good crosswinds have kept the roof dry through the extremes of the past two New England winters.

As a counterpoint to the natural wood above, I decided to go with a stone floor. I chose an Indian slate for its deep silvery-blue color and natural cleft finish. In addition, the slate feels cool in the summer and stores heat during sunny winter days. The  $\frac{1}{2}$ -in. thick pieces of slate were set into a  $\frac{1}{2}$ -in. mud bed on top of the  $\frac{3}{4}$ -in. plywood subfloor. The mud bed let me use larger pieces of stone and added to the thermal mass of the floor.

**Exterior panels made in layers**—The most enjoyable part of the project was detailing the exterior trim. For cost reasons I opted for moldings that could be made on site. I specified redwood for most of the exterior trim because redwood resists decay and holds a paint finish.

Mark Iverson of Jolin Construction in Dedham, Massachusetts, made the flat panels below each of the windows out of medium-density overlay board. He applied layers of trim on top of the board to create the recessed panel (photo bottom right, facing page). The pilasters between the windows were given a similar treatment. All critical joints in the trim were biscuit-joined to ensure that they would not open. All the trim on the outside corners of the sunroom was mitered and glued to provide a seamless, solid appearance, and I made sure that all the trim was back-primed before it was installed.

I had hoped to put copper gutters and downspouts on the sunroom, but I found that the cost was exorbitant. The standard aluminum gutters that I looked at were out of proportion with the room. So instead I chose a less expensive PVCgutter system made by Plastmo (8246 Sandy Court B, Jessup, Md. 20974; 800-899-0992) that was beautifully designed and just the right size (photo top right, facing page).

The small round window on the pediment was the only custom window in the sunroom. The 7-in. radius was not a size made by any of the major manufacturers, so I had it fabricated at a local shop. The round window adds a finishing touch to the facade and creates a special light feature in the interior as well.

Creative detailing means a longer-lasting

**deck**—I designed the adjoining deck to complement the sunroom and to extend its spaces outdoors. The deck is supported by 4x4 pressure-treated posts topped with a decorative cap and wrapped in painted redwood above the deck boards. The railing pickets are all mortised into the top and bottom rails, which are attached to the posts with concealed metal angles and screws.

A redwood lattice skirt wraps around the deck to create a more finished look and to keep leaves and debris from blowing underneath. One of the lattice panels is hinged for access to the crawlspace under the deck. Another crawlspace under the sunroom is also accessible through a removable louvered panel in the foundation wall of the sunroom.

Typically, when a deck is built, sheathing or siding on the adjoining side of the house is often trapped behind the framing of the deck. This wood can't be repainted or inspected for rot without removing part of the deck. I stepped the sunroom foundation so that there is only concrete behind the deck frame (drawing above left). The sunroom's floor joists rest on a shelf that is formed on the inside of the stepped wall. This detail puts all of the painted surfaces above the deck.

The deck framing doesn't actually touch the sunroom foundation wall. But along the existing wall of the house, where the deck joists are supported, I removed the painted clapboards that would have been concealed behind the rim joist and had aluminum flashing wrapped over the top of the joist. I also left a small <sup>1</sup>/<sub>8</sub>-in. gap between the stained surfaces and the painted surfaces. The gap makes it easier to paint and repaint without leaving a sloppy edge.

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## Details of classic attire



**Stock gutters complement classical lines.** Off-the-shelf, half-round plastic gutters blend perfectly with the formal look of the sunroom's exterior.



**Shadowlines make columns appear three-dimensional.** Shadows from the layers of wood and moldings give depth to the formal columns and cornices.



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**Layers of wood create a classic relief.** Painted redwood moldings layered on top of medium-density overlay board form recessed panels and columns.