

# Adding a Sunroom With Porch

Low-maintenance materials combine with traditional details in a light-filled addition

by Didier Ayel

I've seen too many old homes ruined by inappropriate additions. In some of those cases, it would have been better to tear down the house rather than graft an unsuitable addition to it. I'm not saying an addition has to be a slavish copy of the original. But it must fit. It must add to the original, not just be added to it.

So when I was asked to design a sunroom and porch addition for a classic Victorian in Montreal, the challenge was to make the addition appropriate to the house and useful to the clients. By the time I met Dennis and Suzanne, I was already familiar with their house, which is one of the few examples of late Victorian in the neighborhood. On the back of their house, which faces west and the couple's lovely garden, a small two-story shed addition had reached the end of its life span (inset photo, facing page). The shed was a light frame structure with single-pane windows and, of course, no insulation. The enclosed lower portion of the addition was used for storage. The upstairs balcony was accessible from the second floor.

Dennis and Suzanne wanted to replace the shed with a Victorian-style sunroom covered with a second-story porch. They wanted a powder room in the addition, a full-height basement beneath it and outside access to the basement, which already was accessible from the main basement. They also wanted the addition to be as maintenance-free as possible.

**The design had to suit the house**—I decided the sunroom should be designed like a porch, supported by classical columns yet enclosed with large windows and molded panels on three sides. In the center, French doors would open onto a stair leading to the garden.

To prevent obstructions to the view from the addition, we would put the powder room in the corner of the sunroom against the house. To respect the exterior design and the continuity of windows, columns and molded panels, the powder-room partition would intersect the exterior wall between two windows so that it remained invisible from outside.

To help relate the addition to the house, the overhang above the sunroom would be supported by wide brackets, similar to the brackets be-



**Lots of light for all seasons.** When cold weather settles into a long, dark winter, this sunroom is cozy and full of light.

neath the cornice returns on the main house. Victorian brackets and moldings also would enhance the design for windows, transoms and second-floor columns.

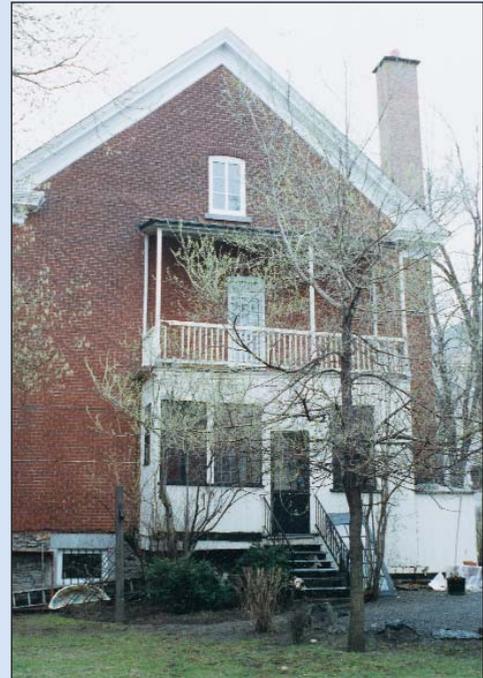
Finally, transoms above the windows and French doors—each topped by a molded panel—would create the illusion of height necessary to match the existing house and to keep all openings in proportion.

The most significant change over the old shed was the enlargement of the basic footprint. The previous 20-ft. by 12-ft. sunroom with four windows and a patio door on the facade became a 27-ft. by 14-ft. structure with six windows across the facade—three on each side of the French doors—and four windows on each side (photo facing page). Also, in-



**A fitting replacement for a tired addition.** An outdoor porch for warm weather opens to the upstairs hall of the main house while below it, the sunroom is a comfortable setting for all weather. The original addition, right, was flimsy, old and past its prime.

**Before**

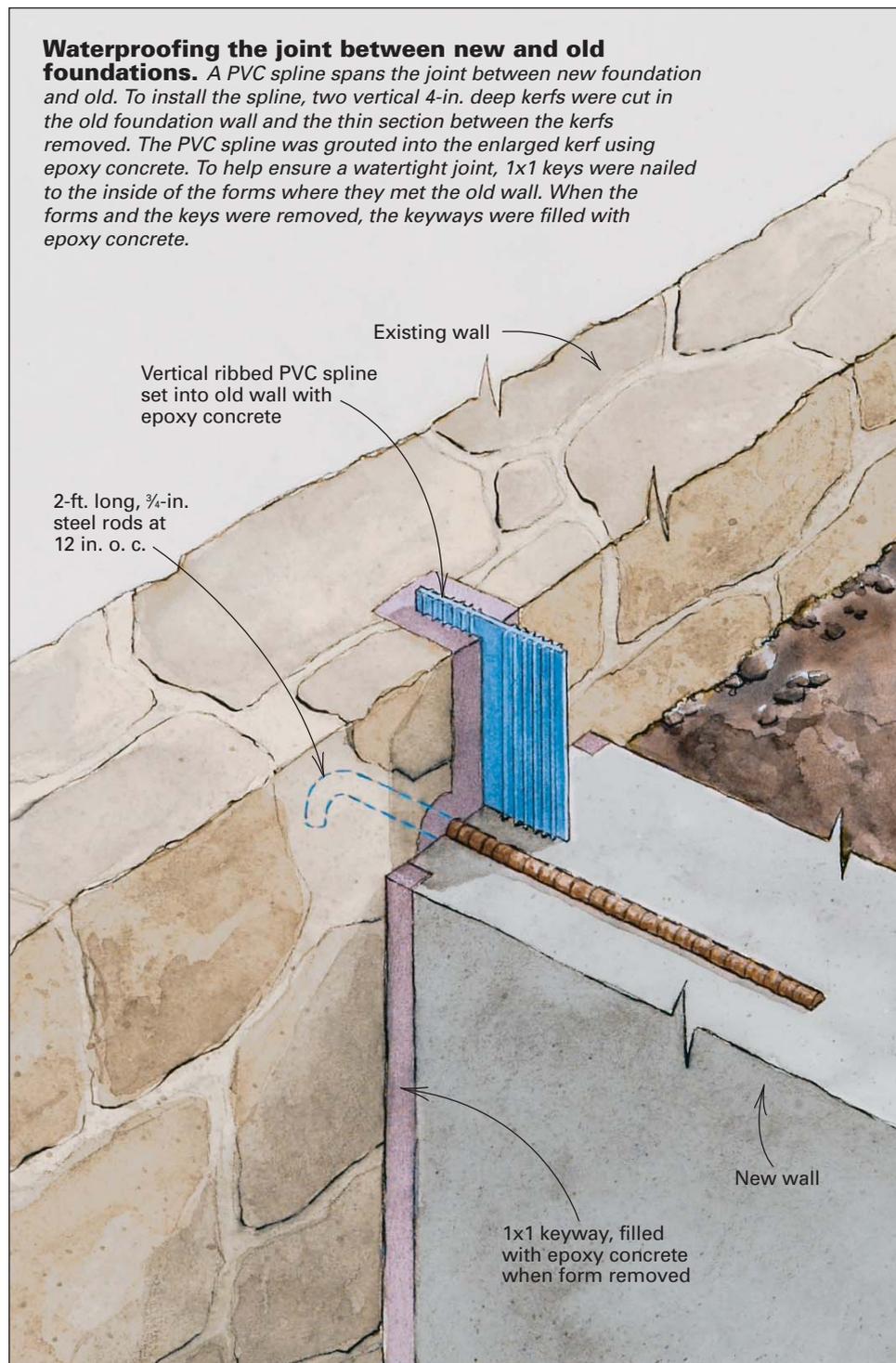


stead of a stair running perpendicular to the sunroom as in the old addition, we designed a small landing in front of the French doors with steps coming off each side leading to the garden. The result was only slightly more expensive but much more elegant.

**Ensuring a watertight foundation**—The new basement wall would be 10 in. thick and have an average height of 5 ft. above the finished grade. Because we needed 7 ft. of headroom in the basement, the concrete slab was placed 2 ft. below grade. To protect the footings from frost, they sit 2 ft. 6 in. below the level of the slab, or 4 ft. 6 in. below grade, which is the minimum depth in Montreal.

To provide a tight, dry connection between the new and old foundation walls, we cut a 4-in. deep vertical groove in the old stone wall, into which we installed a PVC spline (drawing below). The ribbed spline, called a Durajoint waterstop (Sternson, Box 130, Bantford, ON, Canada N3T 5N1; 519-759-6600), was grouted in place with epoxy concrete, which was allowed to harden before we poured the new foundation over it. With the 9-in. wide waterstop embedded halfway into both the old and new foundation walls, I thought the joint would be watertight.

We also installed hooked steel rods between the two walls—2-ft. lengths of  $\frac{3}{4}$ -in. rebar at 12 in. o. c.—which ran beside the flexible spline the height of the wall. We nailed 1x1 strips to the inside of both interior and exterior wall forms. After removing the forms, we filled the 1x1 spaces with epoxy concrete. This measure would provide even greater insurance against water intrusion.



**Waterproofing the joint between new and old foundations.** A PVC spline spans the joint between new foundation and old. To install the spline, two vertical 4-in. deep kerfs were cut in the old foundation wall and the thin section between the kerfs removed. The PVC spline was grouted into the enlarged kerf using epoxy concrete. To help ensure a watertight joint, 1x1 keys were nailed to the inside of the forms where they met the old wall. When the forms and the keys were removed, the keyways were filled with epoxy concrete.

### Protecting the sunroom from heat and moisture

The summer porch on the second floor was open to the weather, so we had to waterproof its deck carefully to protect the sunroom below (photo p. 84). The deck system consists of  $\frac{5}{8}$ -in. pressure-treated plywood sheathing nailed to the sunroom's ceiling joists, then covered with the built-up asphalt roofing.

Perpendicular to the house, wide strips of foam mudsill gasket material run over the roofing every 16 in. o. c.; over that, we set 2x4 sleepers, which are held in place by the weight of the decking. The foam would protect the membrane. We cut slots across the underside of each sleeper at 16 in. o. c. to help the water move in every direction. Finally, the 2x6 treated decking was nailed across the sleepers and spaced about  $\frac{3}{8}$  in. apart.

To secure a watertight joint between the deck and the house, we raked out the mortar joints between the bricks, then glued and nailed a piece of  $\frac{1}{2}$ -in. plywood to the house. After the asphalt membrane was installed up and over the plywood, we embedded horizontal aluminum flashing in the mortar joints to protect the edge of the membrane, which rides 6 in. up the masonry wall.

### A hip roof with skylights

The choice of a hip roof was evident from the beginning of the preliminary design. An attic window in the gable of the house overlooking the backyard prevented us from building the addition too high. Besides, given the size of the addition, a gable roof would have appeared too tall for the house.

Before construction on the addition began, the clients decided to reroof their house with blue metal standing-seam roofing, which we used to roof the addition. The new roofing makes a strong visual tie between the new and the old.

Originally, I planned to have a flat ceiling over the sun porch made of  $\frac{3}{4}$ -in. tongue-and-groove pine beadboard. However, we decid-



**Solitude on the porch.** Four skylights open the porch to sunlight; a deck over a waterproof membrane protects the sunroom below.

ed to take advantage of the hip-roof slopes and to fasten the porch ceiling directly to the rafters, adding four skylights, two in the center hip and one on each side. That change provides a much more interesting look inside the porch. Each skylight measures 2 ft. by 6 ft. and provides plenty of additional light on the deck (photo above).

**Man-made details save time and money**—The exterior finish was important to the project. For the large exposed foundation walls, natural-stone veneer was too expensive, and neither stucco nor brick was satisfying. The solution was cultured stone. This artificial stone is much lighter and cheaper than natural stone (Cultured Stone Products, P. O. Box 270, Napa, CA 94559-0270; 800-255-1727). Natural stone would have been about \$20 per sq. ft. The cultured stone cost about \$12 per sq. ft.

All molded panels and brackets were made by Fypon (Fypon Molded Millwork, 22 W. Pennsylvania Ave., Stewartstown, PA 17363; 717-993-2593). This company offers a wide selection of molded millwork made from high-density polymer that can be used like wood millwork, but it comes at a much lower price.

Dennis and Suzanne wanted the addition to be as maintenance-free as possible, so they asked for a balustrade that was made of PVC. I wasn't crazy about the idea, but the difference between wood and plastic is almost invisible. I usually prefer painted wood to PVC, but this balustrade really looks like a wooden one. For architectural unity, the handrail and the balusters along the stairs leading to the garden were made of the same material.

When Dennis and Suzanne replaced existing windows of the house, they chose vinyl windows (M. Q. Doors and Windows, 1855 Griffin Road, #A-274, Dania, FL 33004; 954-929-8500). Made in Canada with a German technology, the windows—unlike most vinyl products—have the beautiful proportions of wood windows, but they are almost maintenance-free. We decided to use the same type of doors and windows for the sunroom. We chose casement windows with double-insulated glass and real dividers. The French doors also have real divided lites. □

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