

Skylights in the Eaves

Creating private, light-filled spaces when houses are close together

by Anthony Simmonds



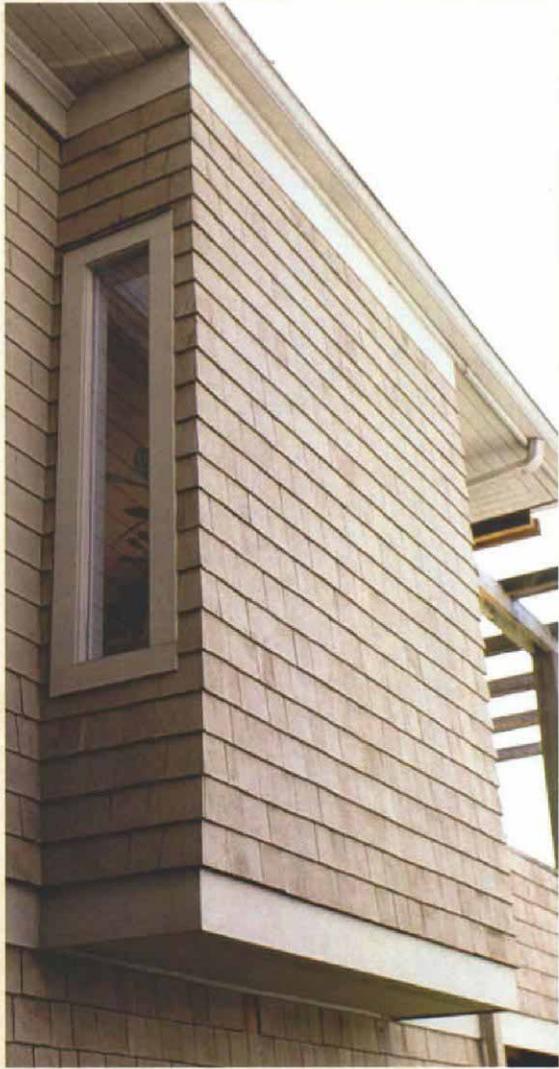
Daylight and privacy. An alcove illuminated by side windows and a skylight now occupies the portion of wall that used to contain a large window overlooking the neighbor's living room.

A row of 24-ft. wide houses on 33-ft. wide lots leaves little in the way of sideyards between the buildings. Yet many older houses on these narrow lots still have big windows—often quite grand windows—in their long sidewalls. Winter days in Vancouver tend to be short, damp and dark; we need all the light we can get. Sidewall windows, however, are usually less than satisfactory. They typically provide an unobstructed view of the sidewall of the next-door neighbor's house, a view that may include the corresponding window in his sidewall—in which case the problem of an unattractive vista is aggravated by a lack of privacy.

I get on well with my neighbors, and feel fortunate indeed to be living in a house flanked by families who like each other well enough to abolish two fences and share the one resulting oversize backyard. But I still wanted an alternative to the 5-ft. by 7-ft. window, stained-glass and all, that gaped at the dark brown sidewall of Peter and Susan's house 12 ft. away. Admittedly, the corresponding window in their sidewall did afford a means of mimed communication for the children. I, however, didn't feel communicated with—I felt perused.

The solution I came up with is a refinement of an idea mentioned to me by an architect friend soon after I bought the house. He had suggested taking advantage of the large opening already framed in the wall by pushing out a small "blind" bay that would have narrow windows in its ends rather than its face (photo left). In addition to giving us some privacy, the bay would make a space large enough for a couch, or even an upright piano, without crowding the big table that is the center of our large farmhouse-style kitchen.

When I began the project, it occurred to me that I could take advantage of another feature of the house: its generous roof overhang. On my house this overhang is 2 feet wide, quite enough to accommodate a conventionally framed 2x4 wall with its sheathing and siding, as well as a tall, narrow window with no trim. This would obviate the need to build an independent roof for the bay (drawing facing page). Best of all, the deep eave allowed me to let in a great deal more light simply by



Section through bay

New pony wall lines up with existing sheathing below

Laminated glass skylight

Existing rafter

Soffit lookout

1/2-in. drywall over existing sheathing

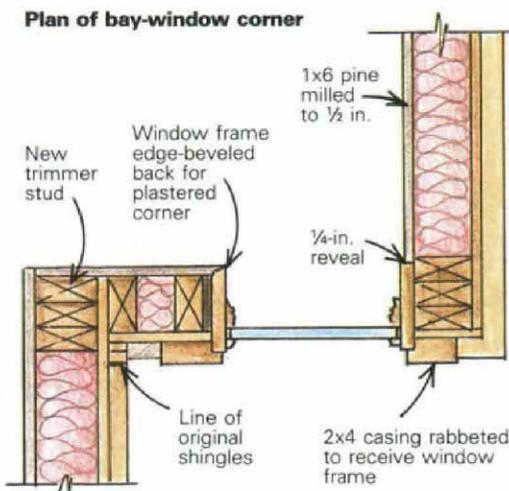
6x6 beam added

Original window opening

1/2-in. thick shiplap pine

New joist

Plan of bay-window corner



opening the soffit and a section of the roof above and replacing it with glass.

Extending the floor—In order to have a platform on which to work, I began by extending the main-floor joists. The basement ceiling was unfinished, so this presented no problem. In fact, it was made especially easy because the house is balloon-framed, with the studs running full length from foundation to top plate, and the first-floor joists supported by a 1x4 ribbon-board let into the studs. This meant I had no rim joist to cut through, and once the wall framing underneath the window was exposed it was a simple matter to determine which floor joists had to be extended. The joists closest to either end of the bay would have to be furred out to provide solid bearing under the end walls, but I left this until the exact size of the opening could be determined.

Working from the outside of the house, I used a circular saw to cut slots in the wall adjacent to each of the joists that had to be extended. These slots started out at an optimistic 1¾ in. by 7¾ in., but it's surprising how shy a slot like that is—it positively shrinks when you introduce a 2x8 to it. So after a good deal of fiddling and cursing on the first one, I enlarged the others somewhat.

The new 2x8 joists had to extend less than 2 ft. beyond the wall, but in order to provide a comfortable platform to work on while removing the big window, I let them run a foot longer. I used 14-ft. 2x8s, which were long enough to attach to the center girder of the house. The new joists, like their ancestors, were supported on the 1x4 ribbon, but with pianos in mind, I added trimmer studs that extended to the sill plate under each new joist.

Once the window was removed, along with the section of wall underneath it, I could size up the bay's dimensions. At the top, I left the section of wall over the window intact. The economy of using an existing opening in an exterior bearing wall obviously required leaving the header in place, but I also wanted the head of the bay to look quite low from inside the room—not above door height. Achieving this actually meant lowering the top of the opening, which I did by putting in a 6x6 beam right underneath the existing header. It bears on two new trimmer studs either side. The beam echoes another, deeper beam in the center of the kitchen, and fulfills code requirements for beefing up the old framing.

But those trimmer studs had another purpose. Installing them allowed just enough room at each side for 2x4 framing and ½-in. plywood sheathing to tuck in neatly behind the existing line of the shingles (drawing previous page). All I had to do was extend the vertical cut lines on either side of the window up to the soffit, and strip away the shingles in between. The last few inches of fascia board and crown molding, which my saw couldn't reach, yielded to hammer and chisel, jigsaw, pruning saw and general beavering. It would have been easier, of course, to get at this last bit by cutting through the soffit in the same line and

coming at it from above. The cut line in the soffit, however, needed to be 3 in. or so to the inside of the bay, thus providing a flange for screwing the soffit boards to the top plate of the new walls.

Enclosing the bay—With the soffit removed, the walls could be framed and the bay enclosed. It was time to contemplate the size of the windows in the end walls. I wanted to maximize the area of glass, yet ensure that the windows would be in keeping with the rest of the house. To do so, I decided that as far as the exterior was concerned, they must have at least a 4-in. wide casing, and that some shingles must show on either side of that. This presented no difficulty at the outside corner, where placing the window frame directly against the inside of the long wall of the bay would allow space for a rabbeted 2x4 casing and a woven shingled corner beyond it. If I made the same allowance at the inside corner, however, I would be left with a rough opening some 12 in. wide. I had originally visualized casements, but I must have been dreaming—even with minimal allowances, the glass would have been less than 6 in. wide.

The interior posed a different problem. The window was jammed against the outer wall of the bay, leaving no space for any casing at all, let alone a wide one. Clearly it was impossible to center the window in both inside and outside walls. A compromise, with space for a narrower casing at the juncture of window and outside wall, would sacrifice too much glass area for the sake of a less-than-ideal detail. I decided to leave the window pushed up against the outer wall and to have no side casings at all, just a lintel to define the top.

With this decision made, I framed the openings and ordered the double-glazed window units. The walls were quickly enclosed, and I now turned my attention to the roof.

Into the roof—I wanted to avoid structural alteration to the roof as much as possible and take advantage of the existing framing to support the skylight. I had used the "curbless skylight" detail devised by Rob Thallon (*FHB* #18, pp. 36-39) with good results on other jobs and planned to use it atop this bay. His method uses a system of flashings and sheet-metal flanges placed on the rafters to carry the skylight glass (for more on skylights, see "Building Doors, Windows and Skylights," *The Builder's Library*, The Taunton Press, 1989). I like the low profile of the curbless skylights, but one could install the more common curbed variety over a bay like this, though not without sacrificing some of the glazed area.

I knew from previous forays into the eaves that the rafters were in line with the second-floor joists. However, there was no reason to suppose that these would have any relationship to the old window opening because it had been centered in the wall rather than centered according to stud layout. So I considered myself lucky when, on removing the soffit, I found a rafter within 6 in. to 10 in. of

Plants in the eaves

Our stairwell presented a problem similar to one we had encountered downstairs. The well was lit by a single window in a dormer that directly faced a similar dormer in my neighbor's house. So I took out the old window, replaced it with siding and put in a big skylight that made the stairwell wonderfully bright. But in the course of stripping lath and plaster, I had opened up an interesting triangular space where the roof overhang carried on across the base of the dormer. I have always enjoyed searching out and putting to use dead spaces in the frame of a house. My wife Annie suggested making a plant shelf out of this one, with a skylight over it (photo facing page). Instead of being cut into the roof, the skylight glazing here replaces a whole section of it, from dormer wall to the eave. The only change this requires to Thallon's detail is that the head flashing becomes a typical sidewall flashing running up behind the shingles on the dormer wall.

Incidentally, though, with respect to the flashings, I have discovered since completing this work that I can eliminate what Thallon calls the "bottom trim" by ordering a metal edge on the corresponding edge of the sealed glazing unit. This exposes the clips, but has the advantage of reducing the capacity of the bottom trim to collect dirt and debris washed down off the roof. If you make this alteration, remember to adjust the inside dimension of the clip to allow for the added thickness.

I ordered the glazing as a single sealed unit that would span the three rafter spaces. Like the other skylight glazing downstairs, this unit was made with 6mm laminated glass for the inner layer and 5mm standard window glass for the outer layer.

Gaining access—The process of laying out and cutting through the roof is the same as for any opening. I usually drill a hole or drive a nail from inside at a specified distance from each corner, and as always, I think twice about how to finish the inside before cutting through to the outside. In this case, I wanted the drywall to wrap around the corner at the wall and butt into the rafter at the roof plane. The lookout rafters were in line with the wall studs, so this meant doubling up the lookouts at either end of the opening and adding blocking to the undersides of them (drawing facing page). Once having decided this, however, I waited until after I had cut the hole before actually doing the work. That way, I could punch my layout holes exactly where the cut was going to be (down the middle of the added rafter).

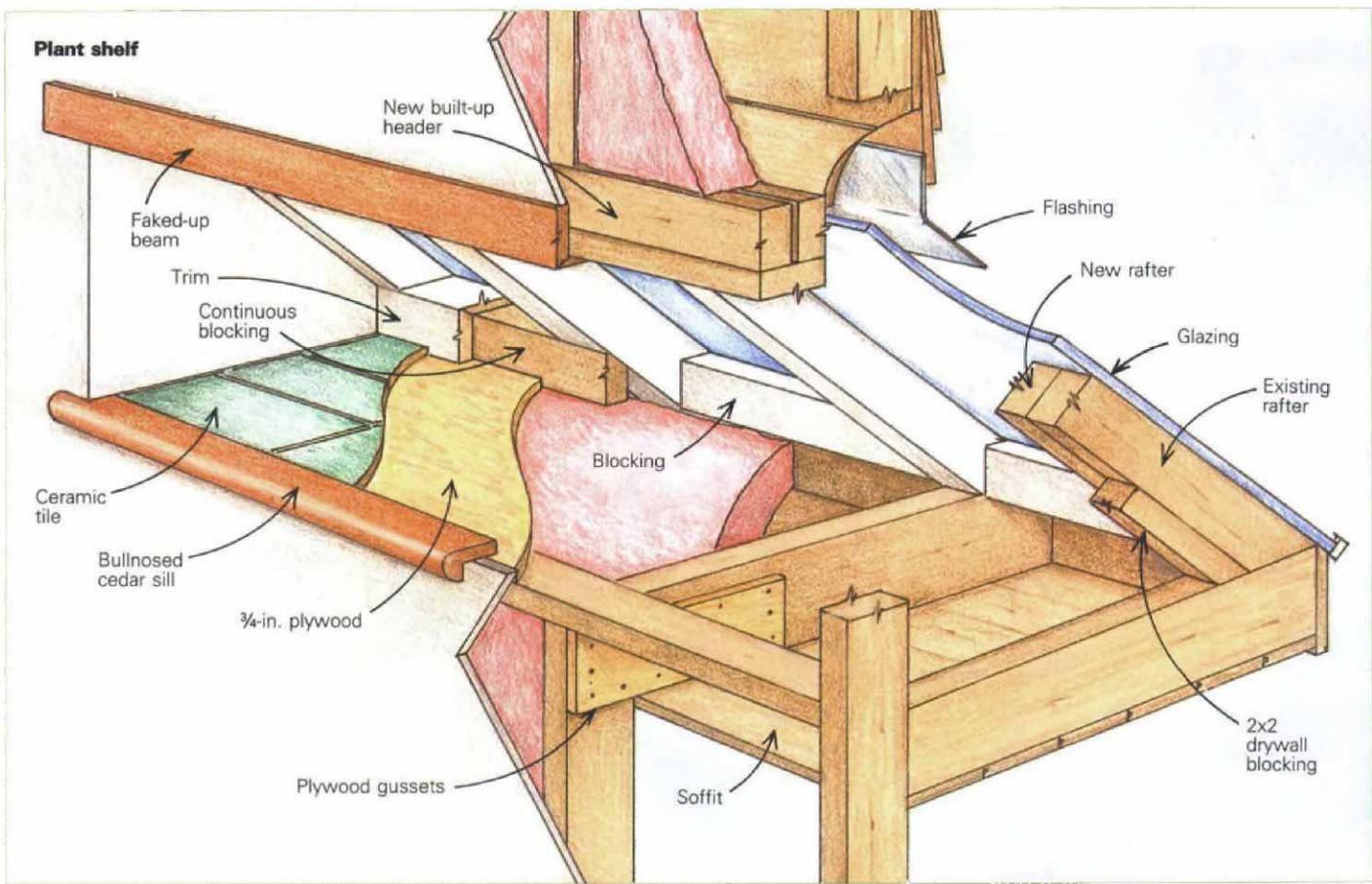
As with skylights elsewhere in the house, some of the finishing work was a great deal easier to do before the glass went in. As for the plant shelf itself, I reasoned that the first few inches immediately under the glass would not be particularly useful. Boxing in this area between the rafters also would make it much easier to finish the

shelf surface later. I used some resawn cedar for the box to get something like the same texture as the old rafters, and painted them white.

The solid-looking lintel is actually a carefully faked-up beam (drawing below). I wanted the look of a beam let into the wall at either end, but I didn't want to go to the trouble of cutting the extra stud and doing all that refraining. Besides, I had some perfect material for the 3-in. beam—Douglas fir, skip-planed so that it still had a slightly rough texture in spots. Perfect, except that it happened to be a 1x12. So I swallowed my purist notions of Truth In Materials and slapped in the conventional doubled-up 2x4s, ripped and carefully mitered the 1x12, and cut the drywall around it. When I filled the drywall, I flat-taped and plastered right up to the wood.

I installed the red cedar sill, machined with table saw and router, after the drywall was painted. And when I had oiled the sill and carefully masked all finished surfaces, I tiled the shelf with tiles left over from the kitchen floor, stubbornly saved for years with just such an unknown purpose in mind.

The shelf functions well. It gets good light all day, but it is at its best in the afternoon when the sun has left the skylight above it and falls directly on this south-facing pitch of the roof. Going upstairs, we get a view of branches and sky beyond our neighbor's roof, and going downstairs the eye is caught and refreshed by a bright and leafy alcove. —A. S.



either end wall. Not that a larger discrepancy from one end to the other would have mattered much; it would be visible only to someone looking up from directly beneath—someone lying on top of the piano, for example.

I am never able to quell entirely the pricking of apprehension at the moment I lower the blade of my circular saw into a perfectly good roof for the purpose of cutting a gaping hole in it. It seems such a perverse thing for a builder to do. But once I get going, goggles strapped on, earmuffs dulling the "chunk" of

an old blade ripping through the roofing nails, the excitement always gets me. A hole in the roof dramatically alters the quality of light entering a room.

The length of the opening was determined by the location of the rafters. I cut right down the middle of them, or as near to the middle as would give me a relatively square opening. The uphill cut was in vertical line with the outside face of the original wall. The fact that this cut virtually intersected the bottom corner of a dormer wall gave me pause for a moment, but

Indirect light. A trio of porcelain light fixtures, hidden from easy view, augments the natural light from above. The surfaces are painted with semi-gloss enamel to better reflect the light.



I removed some shingles and bent the old lead flashings out of the way, and then cut as close to the wall as I dared. The 1½-in. width of the outboard shoe on my saw seemed a good distance.

I had the skylight glass made up in two double-glazed units. This required a center flashing between them, which I considered a small price to pay for the ease of handling two smaller units. They were made with 6-mil laminated glass for the inside pane and 5-mil float glass for the outside pane. Manufacturers of sealed units recommend a maximum 1-mil difference in thickness between inside and outside panes.

Prefinishing the interior—I extended the line of the wall above the opening by installing 2x4s on both sides of each rafter. Then I placed, taped, finished and painted the drywall by reaching through the open roof. Working on the drywall from the scaffolding was distinctly easier than cramming myself into the constricted space between inside and outside walls of the bay with pieces of drywall, mudding trowel, pole sander and paint roller. I painted this important reflective surface, as well as the inside surface of the long wall of the bay, with a semi-gloss white latex paint. The degree of reflectivity could be increased even more by using aluminum foil to cover the portion of the wall above the header.

I also wired three simple ceiling-type light fixtures on the inside of the wall above the beam (photo left). I found that 60w "Fat Albert" bulbs provided a comfortable level of illumination, both as direct lighting for our hypothetical pianist and as indirect lighting for the rest of the room.

The inside of the long wall of the bay is paneled with 1x6 knotty shelving pine, milled down to ½ in. thick to tuck inside the corner of the window frame; the boards have a ship-lap edge to allow for contraction. All the imperfections in the boards were allowed to show, the approach being to treat it rather as though it were concrete formwork and not a slick, wood-finished interior wall.

The effect—With flashings and glass installed and everything painted white, the effect was much as I had imagined, though perhaps not quite as bright as I might have hoped. If anything, I would put the beam lower to emphasize still further the bay's alcovelike quality.

Instead of the threatened piano, we put a sofa there, and it is a pleasant place to sit, separate from the activities of the busy kitchen and yet just as easily connected.

During the summer months, the evening sun comes in the west window, and in late September you can sit there in the morning and momentarily catch the glow of the sun rising in the east window, as it clears the houses on the opposite side of the street. □

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