Elevating the Ranch

by Jim Walter and Bob Mager

Building a second-story addition on an average ranch requires good design skills and a fast-working crew

This small ranch (top), on a narrow lot in Glenview, Ill., was a good candidate for a second-story addition. Lakeview Construction completed the project in 77 days (left).

For several years our company has specialized in adding second stories to some of the average and often humdrum ranch homes that crowd the northwest suburbs of Chicago. Many of these homeowners, faced with a growing family or a desire for more space, cannot afford the larger homes in their neighborhoods. Yet they are not willing to give up their proximity to the city and their jobs for the lower prices they'd find farther out in the suburbs.

Building up, rather than out, can double the square footage of a house without taking up more of the yard. Most of the homes we work on average about 1,200 square feet, so adding onto the first floor makes the house sprawl. Also, since the ranches in a subdivision are often virtually identical, homeowners like the idea of changing the look of their house.

We've recently added second stories to several homes in Glenview, a community north of the city. Here, small subdivisions of ranches are wedged between streets lined with houses worth $750,000 and more. The ranches are the least expensive homes in the area and, because of their location, are considered a good investment.

Much of our work has been concentrated in a neighborhood of about 225 California-style ranches complete with low-slope roofs, wide overhangs, wainscot brick on the front, and a carport on the side. Because the roof pitch on these homes is no more than 2:12, almost all of them have roof problems. In addition, some have only two bedrooms and one bath.

Redesigning the House

Making the second-story addition look like it belongs is a design challenge. On the inside this means finding a good place for the stairs without moving too many walls and sacrificing too much existing space. We like to put the stairs close to the center of the house, add some skylights, and open up the surrounding area as much as possible.

We integrate the two floors by matching the existing interior doors and trim wherever possible. Since it's hard to match older moldings and trim details, we often replace them with new ones. We also usually replace the downstairs windows since they're often drafty and rarely look right with the newer models upstairs. Using the same finish flooring and similar types of lighting on both floors also helps to unify the house.

Exterior. On the exterior, homes with second-story additions can look too tall and boxy. To make it worse, we routinely leave a 9-inch space between the tops of the existing ceiling joists and the bottoms of the new floor joists. While the additional height means two or three extra stair risers, we use this space to run the new plumbing, ductwork, and wiring, instead of having to build a lot of soffits to hide them. The air space also helps reduce noise levels on the first floor from people walking upstairs.

We've tried all sorts of techniques to keep the house from looking monolithic. If the ranch is brick, we use a different type of siding on top to break it up. Horizontal siding and slightly taller second-floor windows help, as do window boxes and wide overhangs. We've also tried cantilevering the second story and breaking the roofline with dormers and hips. Mansard roofs work well, but the look has fallen out of favor, at least in this part of the country.

Many Hands Make Light Work

After building more than a dozen second-story additions, we've developed a few rules that make the construction process easier for everyone.

Move fast. First of all, speed is essential. We never exceed 90 days and often aim for completion within 60 days. Since the homeowners often live in the house during construction, taking longer than this becomes unbearable for them. Even the most tolerant customers can only take so much of having workers invade their home every morning at 7:30.

Crew size. We wouldn't undertake a second-story addition if we didn't have a large enough crew to do the work. There are at least five workers on site and that number goes up to seven during the critical days when the roof is off. We need at least this many pairs of hands to get the house tarped and untarped (see "Wrestling Giant Tarps," next page).

Scheduling. Never is tight scheduling more crucial than when the roof is off. Just one leak will make cooperative customers surly. It will also mean more work for the crew and less profit. So when the roof is off, we don't mess around fixing first-floor windows or putting in the foundation. We get the roof shingled, even if it means working overtime.

We expect our subs to adhere to our schedules, so maintaining tight control is important. We do this by giving the subs plenty of notice and treating them well (paying them on time, giving them plenty of room, and so on). We also sub out as little as possible. For instance, we had a hard time finding an hvac contractor who could meet our schedules, so we got licensed for hvac ourselves. Now we subcontract only electric, plumbing, and gutters. Landscaping is left to the client.

Prefabrication saves time. To minimize site work, we prefabricate as many components as possible in the shop. This not only means better quality control, it makes for nicer working conditions. Headers, cripples, corner blocks, and partition blocks are all cut and nailed up before the roof is removed. We also frame up the 9-inch kneewalls that we insert between the stories. Then we label each of these parts with black magic marker, deliver them to the site, and stack them in the order we'll use them.

Look up. Finally, no matter where you're building, don't forget to look up. Since the house will be going up another 14 or 15 feet, any overhanging trees must be trimmed and wires have to be rerouted. We try to get the homeowners to take care of this type of detail since we're not in the tree-trimming business and subbing the work out just means more hassles.

Construction Details

Adding a second story to a house means additional stress on the existing structure. Most of this is concentrated along the eaves walls and the crawlspace center beam. Since framing practices are usually the same whether you're building a one-story or a two-story structure, the building can normally handle the weight. But it's always a good idea to verify existing conditions before you start pulling off the roof.

We always probe the foundation to make sure it is below frostline. We also look for cracks, which must be reinforced before work begins, and any moisture problems that might undermine the strength of the foundation or the substructure.

As an extra precaution, we have an architect who is also a structural engineer check the drawings to make sure they're correct. He not only certifies that the first floor is capable of carrying the new load, he also checks the sizing on the second-floor beams. This is especially useful when there are open spans.

Making It Happen

The ranch we worked on most recently provides a good example of the construction methods we use for adding second-story additions (see Figure 1). It is owned by a young couple who wanted a formal dining room, a computer room, and additional bedrooms. They also wanted to remodel the family room that had been added several years earlier. The room was built on a slab that was cracking, uneven, and lower than the rest of the house. It also had 8-foot ceilings that, because of the roofline, sloped down to 5½ feet. Finally, since they had recently built a new garage, the couple wanted to demolish the carport.

Adding a second story would leave room for the office and a first-floor guest room. It would also mean replacing the problematic low-slope roof with something that had more pitch and would stand up better in Chicago weather. A separate addition would be needed for the family room, since the old one was unsalvageable, and the new dining room would go in place of the old carport.

The first step of the job was fabricating framing components in the shop. While this was going on,

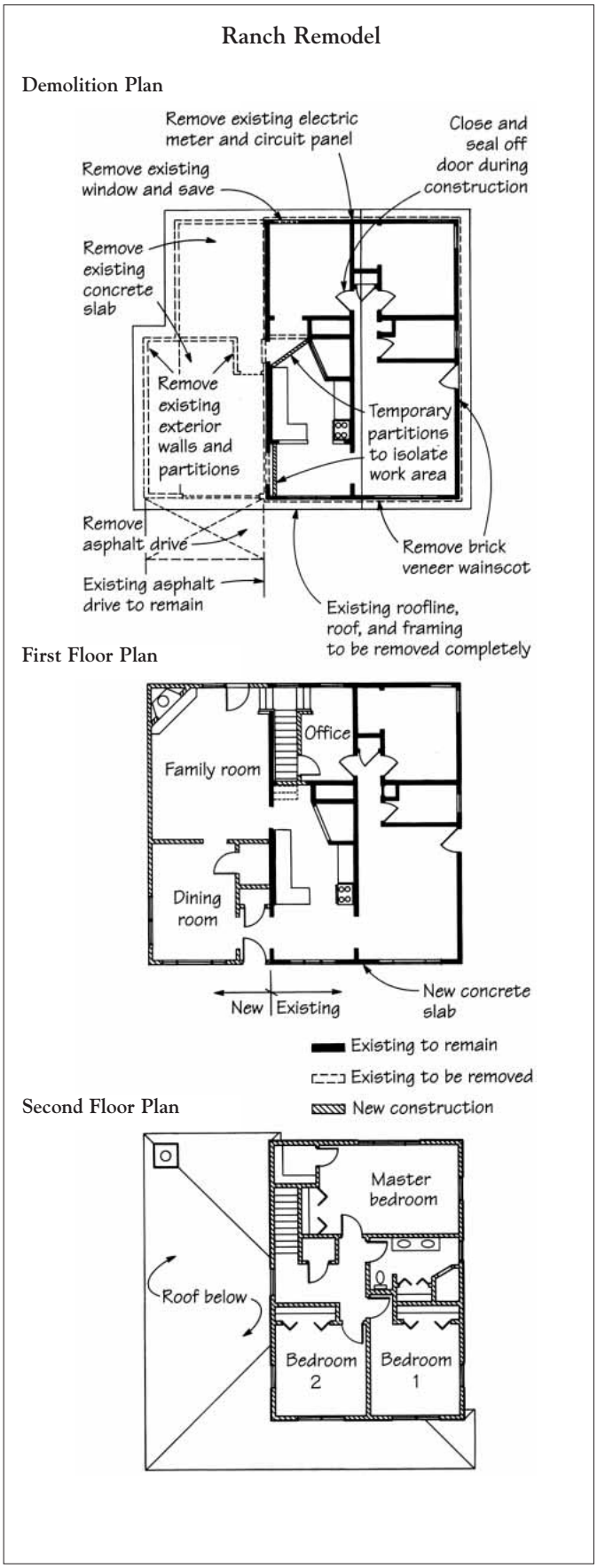

Figure 1. *Adding a second story gave the owners additional space without substantially changing the footprint of the building. Temporary partitions isolated the demolition area from the rest of the house, allowing the owners to continue living at the site while the work progressed.*

Wrestling Giant Tarps

Getting a house tarped in the strong winds that whip through the Chicago area is a little like wrestling a giant anaconda. The more people you involve in the process, the easier it becomes. And the more experience you get, the quicker it goes.

For those few critical days after the first-story roof is off, but before the second-story roof is shingled, all that comes between the homeowner's possessions and the sky is the first-floor ceiling. That's why, regardless of the weather forecast, we prepare the house for the worst weather Lake Michigan can dish up. In all the years we've done second-story additions, we've never had a leak of any consequence.

A house under wraps.

The tarps we use are 4 mil, fiberglass-reinforced blue plastic with eyelets every 3 feet. They're the same variety truckers use to cover loose loads and range in size from 4 x 6 feet all the way up to 40 x 60 feet. They sell for about 6 cents per square foot. We like the 40 x 60-foot size because it covers the house in one shot and we can always roll up any excess.

Since a tarp will stretch and rip, especially if there's snow or water laying on top of it, our first step is to create some pitch so any precipitation will slide off. We use a row of sawhorses or nail up some deadmen with a few 2x4s and place these along the center of the house. We cover sharp corners with insulation or carpet scraps to prevent the tarp from ripping.

Most holes occur when you're putting the tarp on or taking it off. This is especially true if you don't have enough help to lift the tarp quickly and evenly. That's why we require everyone at the job site — usually seven people — to help when it comes time to tarp or untarp a house. In the morning, this is the first job they do. In the evening, everyone stays to get the tarp on before they pack up their tools. The whole process takes about 10 minutes in the morning and about 20 minutes in the evening.

Our first step is to take care of any rough edges or nails that are sticking out. To cover the house, we unfold the tarp and stretch it across the lawn. Ropes are then threaded through the eyelets. With the foreman supervising, some of the crew grab the ropes and pull the tarp up their ladders, over the top, then down the other side. Other crew members stand on ladders at the sides of the house to help guide the tarp and make sure enough of it is draped over the sides for good coverage. Meanwhile one person crawls around underneath the tarp to make sure it's pulled tight and nothing is going to rip it.

To affix the tarp, we wrap the sections at the sides of the house and at the front over a row of 2x4s. Then we nail these straight into the first- or second-floor walls (depending on what phase of construction we're in), right above the windows. This is the best way we've found to keep the wind out. We often use the extra length at the back to cover any foundation work we're doing. If there's nothing on the ground to cover, we just roll up the excess and weight it down.

Untarping is just a matter of reversing the process. We always make sure the tarp isn't dragging over rough ends or nails, and once it's off, we fold it up and stash it away so it doesn't blow around the neighborhood.

We watch carefully for holes while we tarp or untarp, and we keep a brand new tarp on the site at all times in case. This also comes in handy if there's a big storm coming and we decide to double tarp the house. We never reuse tarps from other job sites. There are just too many opportunities for leaks. After they've been used on one job, we cut them down and use them to cover materials or to protect the landscaping around a demolition site.

In the winter we leave the insulation on the existing ceiling to help hold in the heat. If there's a flue, we cut a hole in the tarp and place a prefab sheet metal chimney with cap around the flue. We secure the metal chimney to the framing, then tape the tarp to the sheet metal sides. This keeps the weather out, and prevents flue gases from being trapped under the tarp.

Our clients are always a little nervous about living under a tarp. Although we reassure them that the tarp will keep the water out, they're never really prepared for how the house looks for those few days: When the sun shines in, everything is a pleasant robin's-egg blue.

— J. W.

Figure 2. *With the carport removed, the authors' crew prepares to pour a new slab for the family and dining rooms.*

Figure 3. *A 9-inch-high 2x6 wall separates the top of the ceiling joists from the bottom of the new second-floor joists, making space for plumbing and ductwork.*

part of the crew moved to the site to take care of the demo work — removing the old siding and tearing off the carport and family room (see Figure 2). We then brought the whole crew to the site to tear off the roof and start on the second story.

After the roof was off, we installed the prefabricated kneewalls (see Figure 3). These were framed with 2x6s for stability and set on 2x6 blocks nailed adjacent to the ceiling joists. The blocks were necessary because the rafter cuts on the ceiling joists didn't provide bearing. After double-plating the kneewalls, we set the floor joists.

Next, we installed the floor sheathing, tacking it into place where necessary so that we could pull it up later to install wiring, pipes, and so on. Then, using our prefab components, we framed and sheathed the exterior walls on the second-floor deck and tipped them up into place. We left the housewrap at the bottom of the second-story walls 6 to 12 inches longer than needed to overlap the wrap on the 9-inch kneewalls to prevent leaks.

At this point, we framed the interior bearing walls (we framed non-bearing partitions after the roof was on). We stick-built the roof for this job since hip trusses are expensive and time-consuming. But for simple gable roofs, using trusses can usually shave a day off the time that the roof is off.

To protect against leaks, we kept the house tarped until we finished shingling. We also left the exterior sheathing intact over the windows instead of cutting the openings.

Once the roof was done, we reduced the crew to five and framed the first-floor addition, the porch, the interior partitions, and the stairs. While plumbing, electric, and hvac work progressed inside, we moved outside to take care of windows, siding, soffits, and fascia. We also upgraded the existing electric service from 60 to 200 amps and added a downflow furnace upstairs, running supply ducts in the 9-inch space and insulated return ducts in the attic.

The rest of the work was standard finish work. The homeowners did the painting themselves and finished in plenty of time for us to start the trim.

Construction took a total of 77 calendar days. The Christmas holidays caused some of our delays, and we also lost some time because of inclement weather. So we were pretty close to our 60-day target. In addition, we were only 3% above our estimated cost, which pleased the owners.

No Salesmen Needed

One of the fringe benefits of specializing in second-story additions is you never need to do much to market your services. A second story going up in a neighborhood full of ranches is the best promotional tool in the business. We use job signs and truck signs to make it easy for curious neighbors to get our number. Then it's just a matter of qualifying the leads.

We also make it a point to keep the site as neat and clean as possible. This not only makes the whole process more tolerable to both the owners and their neighbors, it also helps us get more jobs in the neighborhood. ■

Jim Walter and Bob Mager are co-owners of Lakeview Lumber and Construction, a $700,000 general remodeling firm in Lake Barrington, Ill. The company builds an average of three second-story additions each year.