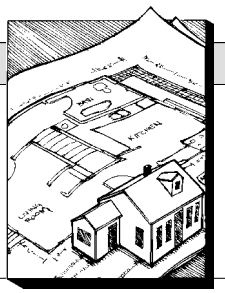
Expanding a Cape: The Problem of "Massing Space"



by Gordon Tully

Expanding a small Cape Cod house is a common design problem, and one which is often poorly solved. This case study focuses on successfully adding space to a typical Cape Cod having the following characteristics: 24x32-foot footprint; living room one side, kitchen and dining room on the other; two small gable dormers in front, large shed dormer in back; two small bedrooms over the living room, master bedrooms over the kitchen/dining rooms; two baths up and a half bath down; full basement; and one-car attached garage on a slab (see Figure 1).

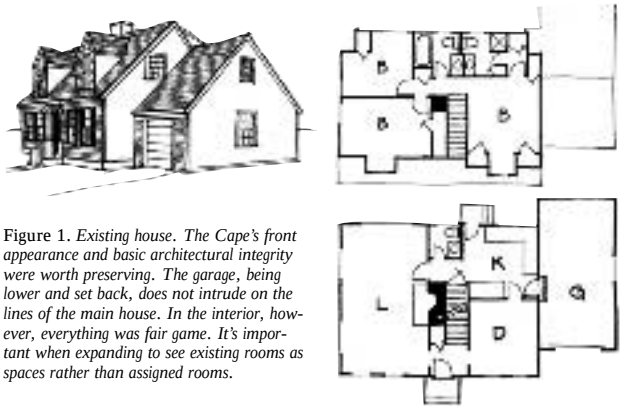


Figure 1. *Existing house. The Cape's front appearance and basic architectural integrity were worth preserving. The garage, being lower and set back, does not intrude on the lines of the main house. In the interior, however, everything was fair game. It's important when expanding to see existing rooms as spaces rather than assigned rooms.*

First Things First

Expanding any house involves two different processes. First, you expand the space, developing the overall volume and shape of the house to end up with exterior lines and a new, expanded footprint. This process is known as massing, and will be our main concern here. Done successfully, it will preserve the architectural integrity of the original structure while paving the way for the second stage: working out a detailed floor plan (to be considered next month).

In this first stage of design, it is best to work with small, simple scale models, often called "massing models." You need only a general idea of how rooms might be laid out within the new volume. To supplement the model you will need some small-scale drawings of the existing floor plans, as well as a cross-section to keep spaces in order vertically.

Concentrate on simply setting aside undesignated blocks of living space with connecting halls and stairs. you should, of course, leave space for baths and utility areas. But don't get bogged down in assigning names to spaces; that can be done at a later stage. What you are after now, in a sense, is the box the spaces come in. Work at a small scale at this stage: I use 1/8 inch equals 1 foot. The small scale will keep you focused on the forest, because you can't even draw the trees yet.

Saving the Basic House

The front of a Cape Cod is often charming and well-proportioned, and such is the case here. Therefore, we want to add our substantial wing without overwhelming or disfiguring the lines of the main, original house, especially from the front. This means that no large addition can be added to the side of the house. In addition, whatever new volume is visible from either front corner must be secondary in size and scale to that of the main house.

In this case, there is already a garage wing set back against the kitchen end of the house. The garage meets all my standards for a properly designed addition visible from the front. Its size does not challenge the main house, as would that of a wider two-car garage. And because its slab is at grade and its first story has a lower stud height, its roof is about 5 feet lower than that of the main house, leaving the main house's gable end unobscured.

A good start to the design is to leave this wing alone. We might evict the car and use the space for something else, but the garage's shape is fine just as it is.

Adding to the Rear

This leaves the rear of the house as the only place to add onto. While a rear addition will use up some of the back yard, it almost certainly will not encroach on any side yard. And in many cases, a rear addition will be the only possibility compatible with setback limits.

The rear of this house, like that of most Capes, is already disfigured by a long shed dormer. Mercifully, the shed dormer does not extend to the end of the roof; had it, I would have either cut the dormer back to restore the gable end of the main house or given up trying to save the house's basic shape on the grounds that the "patient had already died."

One obvious way to gain space would be to extend the existing shed dormer. There are several problems with this idea, however:

- The added space would be a long blob that likely would be difficult to use.
- The longer rafters would be at a much flatter pitch, creating roofing and possibly snow-load problems.
- The entire rear wall of the house, including foundations, would have to be removed.

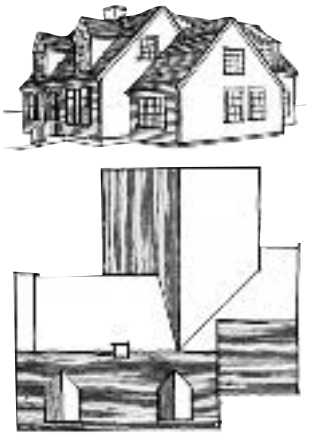


Figure 2. *Expanded house. A great deal of space has been added without compromising the main house's lines (top). The roof plan (bottom) can help you and the clients envision how the old and new fit together.*

- The result would be quite unattractive.

the best approach, then, is to extend a gable-ended wing at right angles to the rear of the house, designed so that the roof of the addition is invisible from the front (see Figure 2). As a first step, we'll make the addition the same width as the house (24 feet) and extend it out 16 feet. Placing the ridge and eaves of the addition at the same heights as those of the main house will create a generous upstairs room under a cathedral ceiling. We'll add dormers to further improve the upstairs room (which might make anew master bedroom) and to lighten up the scale of the wing.

This gives us a well-scaled, highly flexible design that doesn't destroy the original lines of the main house. The spaces within the house now fall into place, presenting many possibilities. The garage, for instance, easily could become a living space adjacent to the first floor of the new addition (see Figure 3). Dropping the addition's first floor to the level of the garage slab not only would pull those spaces together, but also would allow a higher ceiling in the new living space. Other options exist as well; that there

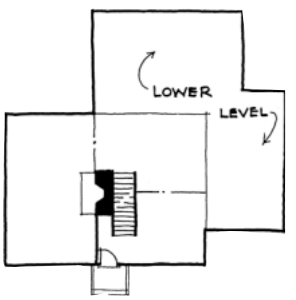


Figure 3. The new first floor presents numerous possibilities for using the added space, such as integrating the garage into the new living area.

are so many is one sign the space has been expanded successfully.

We have accomplished our goal, expanding the house's volume greatly without compromising its architectural integrity. The separate problem of working out a detailed floor plan within that space can now be considered. We'll take a look at that next month. ■

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