

To Keep an Old House in Good Standing

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A CQUIRING an old New England house brings with it definite and special responsibilities of preservation. To the potential owner some of these problems may appear at first discouraging, but the reward in restoring and preserving one of these old landmarks far outweighs any initial difficulties.

First, a complete survey of the building is of the utmost importance. The survey should be made with an understanding of the individual structural units and their role in holding the building together. Any picturesque sagging or bulging may indicate that the foundations have settled or moved, or that there is some other lack of support. Wall partitions in particular should receive careful attention in order to find out whether any structural timbers have been changed.

Also of primary concern is the health of these units, the sills, studs, girders, joists second-floor girts, posts, braces, plates and summer beams (if the house is of summer-beam construction). Often these timbers are rotted or infested with insects. In some cases the trouble can be confirmed by a trained eye; in others the building must be uncovered in places to determine the existence and extent of damage. This examination must proceed from foundation level to the ridge, including roof timbers, boarding and covering, with especial attention given to corners, baseboards, finish and plaster for the detection of possible trouble.

When the true condition of the structure has been determined, its faults and assets weighed, it is time to consider how it may best be put in order. First, of course, the foundations and all structural timbers

resting on them should be made sound. Secondly, the possibility of the existence of termites, carpenter ants and powder-post beetles must be eliminated from the sills to the roof. Any wood used in replacement, or exposed during the work of repairs, should be coated with a good wood preservative, preferably one intensely disliked by these insects. I have found Wood Life to be one such preservative.

In the writer's opinion all timbers which are rot or bug-infested and have been replaced, should be removed from the premises. In the field of maintenance any new wood needs and should have three coats of wood preservative. Thereafter, in order to obtain the best preservation results with maximum economy, exterior woodwork should be given an additional coating once every three years. It is well to bear in mind that wood is protected by oils, and not by pigment or colors.

If the foundation is low and outside woodwork rests on the ground the earth should be removed and the area graded to carry water away from the house. It is very important to have proper ventilation in the cellar and under any unexcavated parts of the building. If the cellar has seepage water in the floor, or through foundation walls, the floor should be graded and drained either by the use of exterior pipes or by a well and sump pump. It is useful to have a drain that does not require an electric pump since electricity is sometimes unavailable.

Moisture can be one of the greatest of menaces to an old house and can make its entrance in many ways. It may originate in the roof from poor flashing in val-



FIG. 1. INTERSECTION OF PLATE, CORNER POST, END GIRT AND RAFTER,
SEVENTEENTH-CENTURY CONSTRUCTION

leys and in chimney areas or around the eaves if the gutters are filled with leaves and dirt. It may be caused by the backing up of ice and snow under the shingles, by lack of ventilation, or leaks around window frames and sills. When such leaks

recur over a period of time costly repairs of rotten wood and interior walls and ceilings will be necessary.

The writer would argue that it is a poor idea to use second-hand timbers in the repair of an old house. No matter how

adequate they may look, they are not new and will themselves have to be replaced eventually if the house is to have a long life. There is far too much work in-



FIG. 2. INNER FACE OF END GIRT SHOWN IN FIG. 1 WITH FLOOR JOISTS AND CEILING ABOVE, PLASTERED BETWEEN THE JOISTS

involved in replacing structural timbers in an old house to permit putting one's faith in any whose lasting qualities are unknown. If an existing original structural timber is in poor condition and its interior finish is good it may be left in place, but only after its bad wood has been removed and some further support added.

The old houses of New England were made by master craftsmen who took great pride in their work at a time when wood was plentiful and cost very little. However, it required a good many hours to cut, adze and saw all the timbers necessary to build a house, and the early builders seemingly used only the timbers they thought necessary to keep their products structurally secure. The writer feels it is very important that anyone restoring or repairing an old building should use as

nearly as possible the same method of framing originally used, replacing all timbers which have been cut out or discarded at some time. Should it be desirable, for practical living purposes or other reasons, to change the structure, the timbers removed or destroyed should be replaced with other similar supports to invest the building with its original strength.

Besides the more material aspects of these considerations there is something further which does not come under the heading of repair. There is another influence in these old dwellings, built not only for shelter and accommodation, but with a sense of what was fundamentally right in strength and proportion. In studying them one gets often a curious feeling of the personality of the builder. The imprint of his ideas which have survived in characteristics of the house and of the personalities of those who have lived there, have left an impression as strong as the timbers of which they are materially constructed.

To revert to the examination of an old house, it has already been said that a trained eye may confirm existing trouble spots. Invariably, in order to determine the extent of the damage, uncovering is necessary. For instance, in the matter of sills the finish board which covers them will normally conceal their true condition. A sagging wall, however, is a good indication that trouble exists, and removal of the covering board will often confirm this supposition. To replace a sill it is necessary to raise the side of the building sufficiently to remove all pressure from this member of the frame. Clapboards and boarding are removed on the exterior wall, and timbers are firmly fastened to all posts on the side of the house. In some cases it is necessary to add others to the second-floor girt.

With building jacks under the timbers

the whole side is raised slowly, cautiously and in its entirety. At the same time, a careful watch must be maintained on the interior to be sure that no damage is caused to plaster and interior finish. Fol-

sure that all supporting studs are sound at the point of intersection. If rotted or faulty wood is found, these are then spliced with new material.

During the course of this and subse-



FIG. 3. EXTERIOR WALL SHOWING POSTS AND STUDS (OR SIDE BEARERS) CUT OFF BELOW GIRT, SEVENTEENTH-CENTURY CONSTRUCTION

lowing this, all floor joists in the cellar which depend on this sill for support must also be jacked and raised just enough to take the weight of the floor from the rotted sill. A new sill is then inserted to house the floor joists and to support the post and studs which will rest upon it. Before the jacks are removed, the building must be uncovered at the bottom to an extent far enough above the sill to make

quent work mentioned, it must be remembered that all new and old structural timbers should be coated with two applications of a wood preservative.

Figure 1 shows the intersection of an end girt, front plate, principal rafter, and corner post. The corner post is not only responsible for the support of the end girt, plate and principal rafter, but also the ends of two second-floor girts a story be-

low, therefore assuming a vital importance for structural soundness at this point.

damage caused by termites and rot, the corner post was hollowed out, leaving only a shell which showed on the interior.



FIG. 4. EXTERIOR WALL SHOWING CORNER POST, GIRT, STUDS AND BRACES, AND SILL, EIGHTEENTH-CENTURY CONSTRUCTION

The house from which this illustration was taken, being seventeenth century in its construction, had its corner post (shown in this plate) exposed on the interior. In order to correct the structural

A new post of the proper size was inserted in this shell. The rotted part of the girt was removed, spliced and ironed together. The plate was repaired in the same way, and each new piece of wood

prepared to rest on the post in the same manner as the original timbers. The principal rafter, very badly rotted, was replaced entirely. This trouble spot was discovered, and uncovered, because of broken plaster and the bulging of the plate shown in figure 2.

One cannot attach too much importance to the evidence of the bulging of an exterior wall, a settling of a foundation, or, on the interior, cracked plaster and a floor which has sagged away from the baseboard. When the evidence uncovered reveals that timber units at some height in the structure must be replaced, for example in the installation of a second-floor girt, it is necessary to jack up the second floor, relieving pressure on the girt at that point, and also to jack up the end girt on the attic-floor level to relieve pressure and weight carried by the studs on this floor. At the same time, the corner post (if rotted) is cut out, filled and spliced, and there remains the matter of cutting, housing and fitting a new second-floor girt in place. During the process of this work any studs in poor condition are spliced if possible, replaced if necessary, and, if any have been previously moved, reinstalled in their original location.

Figure 3 illustrates an exterior wall which had every sign of improper support. When uncovered, as may be seen, original studs (or in this case side-bearers) were revealed as having been cut off. In places the sill was completely rotten and the post and girt in bad condition. Financial restrictions and practical reasons made it necessary to leave the windows and

door shown in this figure in their present positions. This meant that the procedure here involved replacing the sill, patching and splicing the girt, and putting in new studs in new positions to give the added support necessary in order to make this wall structurally sound.

Figure 4 shows a corner of a mid-eighteenth-century house which, before it was uncovered, revealed a definite sag and bulge at the second-floor level. It is clear in this picture that the corner post is structurally unsound. The first-floor corner brace and the second floor girt are rotted and not supported by the post, and an original 8 x 8 sill has practically disappeared. This damage was entirely owing to rot from moisture. To repair the situation a new sill was required; the corner post was cut out, filled and spliced, and a new corner brace was installed to replace the rotted one. The second-floor girt had all its rotted wood removed, was spliced, and fastened securely to the remainder of the girt and corner post.

These pictures and commentary constitute, of course, only a few of the problems which may have to be faced in repairing and maintaining an old house. In conclusion one should also stress the great importance of the photographic and written record. The uncovering of any part of the frame of an old house will usually reveal important evidence about its original condition or later changes. For the very vital matter of interpretation and study the record of what was found to exist as it can be measured, described and photographed is of the utmost importance.