

Wood-Cornice Restoration

by Larry Jones



A cornice adds architectural interest to an old building. In fact, on many commercial buildings and urban rowhouses, the cornice is the only notable detail.

Nobody likes to maintain cornices, though, because they're so big and out of reach. So inevitably the cornice has to be restored. A good restoration might involve design modifications (as well as flashing, woodworking repairs, and a paint job—all of which we'll discuss) and will last for decades.

Cornice Types

Wooden cornices have been built in every size and shape, but there are only three basic methods of attaching them to buildings.

The parapet cornice is probably the most common type, and is used on both wood and masonry structures.

of being attached to the face of the building, it supports itself structurally. If left unchecked, water damage can eventually cause the entire cornice to fall from the building.

The flush-mount cornice is most commonly seen on facades between floors, usually between the first and second floors of a three- or four-story building. It may also be surfaced mounted on a parapet. This cornice type is often attached to the wall on spike boards (surface mounted or set into the masonry). Sometimes floor joists or other interior supports extend through the facade to support the cornice.

Inspection

During an initial inspection, check for missing, damaged, deteriorated, and non-original elements. Old

walls to deteriorate, creating cracks that weaken the wall. Moisture damage is a frequent problem. On wooden structures, the facade, parapet wall, or false front may start to bow, arc outward, or sag from the cornice weight; it can suffer the same moisture deterioration that's attacking the cornice itself. Sometimes structural weaknesses and deterioration in supporting walls are hidden by the cornice, and become apparent only after you partially dismantle the cornice during repair.

Most of the deterioration you'll find will be moisture related. Trace leaks back to their sources and look for weakened, water-damaged structural members. Use an ice pick, awl, or knife to probe—gently—for deteriorated wood.

Paint failure and subsequent wood decay start at joints where moisture and dirt collect. Some particularly susceptible areas:

- horizontal projections (foot moldings)
- mitered or butted joints (frieze moldings)
- exposed end grain
- laminations of built-up pieces (brackets or trusses)
- vertical surfaces washed by rainwater (crown molding, fascia, frieze panel)
- areas where flashing was ineffective or has failed (crown molding)

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on an old cornice. On masonry buildings, cornices were commonly fastened to spike boards; over the years, the boards are likely to have warped, and their fasteners to have rusted. This can cause the cornice to warp and twist away from the building. Be cautious around a loose cornice—it must be supported or secured before you work on it.

Wall Problems

The condition of the parapet wall itself is often overlooked. But cornice deterioration may have spread to (or even started with) the roof, parapet, or facade wall. Although this article deals mainly with simple cornice repair, it's important to look for structural weaknesses in the wall as well.

Most well-built cornices mounted on masonry parapet walls have shed roofs (or properly designed coping and flashing) to protect the back of the wall from the weather. Some masonry—and most wood—frame-parapet walls are shielded by metal copings, wall pans, flashings, and counterflashings. Black asphalt-type roofing cement is the least effective, shortest-lived, and most irreversible way to protect the backs of parapet walls.

Missing or corroded coping and flashing can cause extensive water damage to the back of the wall, and



A glance from the ground indicates only minor problems with this cornice. A closer look reveals deflecting bricks in the parapet, and an unsound structural condition.

even spread decay to the roof structure. Old sand-lime mortar joints left exposed to the weather will sometimes expand, causing the wall to gradually arc toward the cornice, thereby creating a structurally unsound condition. But the most common masonry deterioration is erosion from weathering. The wall may have to be repointed or—in severe cases—dismantled down to sound bricks or stone and relaid.

Wood-frame parapet walls often can be strengthened by removing the exterior sheathing from their backs and bolting new structural timbers alongside existing ones. A cornice that's coming loose from its moorings must be temporarily stabilized before repair work begins; this can be done with built-up shoring. Note: This is dangerous work. Don't try to secure a loose cornice unless you're absolutely sure of what you're doing. For major repairs to strengthen unsafe parapet walls, consult a structural engineer.

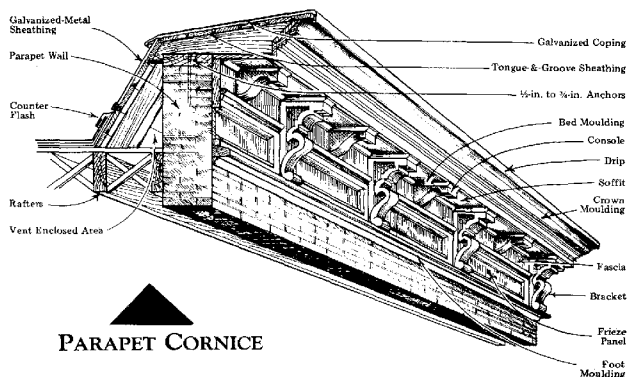
Cornice Structure and Anchors

The internal framework of a wooden cornice varies considerably with the size and complexity of the cornice. A small, simple cornice may have no enclosed interior spaces, while larger ones may have spaces big enough to crawl into. The framework for most cornices consists of 2x4s. Whatever the design of the rough structural framing, it's constructed to resist gravity's downward pull. For instance, closed-soffit designs, such as a flush-mount cornice, often have a boxed framework with diagonal bracing for added strength.

Most cornices were built in place, so their structural-support systems are such that the cornice can't be removed in one piece. Therefore, it's usually easier to repair it in place on the building. A cornice with unsound structure will probably have to be partially disassembled to reveal the nature and condition of its internal support system. Again, make sure the cornice is temporarily supported before going into it.

A good way to gain access is to come in from the top. By carefully removing sections of the roof covering and wood sheathing, you should be able to look directly down in at the structural supports. Make your repairs from the top, trying to avoid removing either the decorative trim or facing boards. A lot of these brittle pieces get broken during removal and reinstallation.

Wooden gusset plates, diagonal bracing, and additional framing members are all ways to strengthen the existing structural frame. (The design and sizing are best specified by an engineer.) Use screws to fasten interior framing members; for really



PARAPET CORNICE

It's built on top of a parapet wall (which extends above the roof of a building) and projects out over the facade, often partially supported by its decorative brackets. The decorative portions, which extend down the facade, are frequently attached to the surface with spike boards.

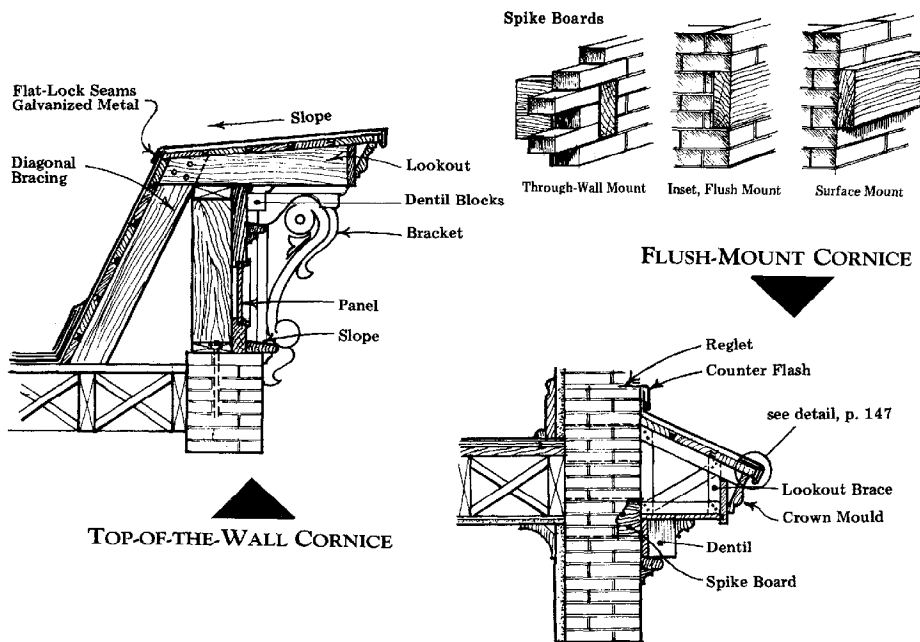
The top-of-the-wall cornice may, from the street, closely resemble the parapet type. But its overall design is more lightweight and allows for deeper-paneled decorative surfaces. This cornice usually rests on a masonry wall or facade that stops at or slightly above the roofline. Instead

photos of the building, and intact cornices on similar buildings, are the best sources of information about original details. Take photos of your own while you poke around the cornice; they're useful for jogging your memory of how the parts go together. Photos are also invaluable if you want a millwork shop to duplicate a bracket. It may be easier to take photos and measurements to the shop than to remove and take the bracket.

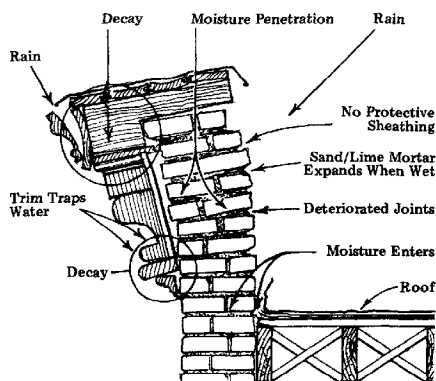
Wooden cornices can be found atop stone, brick, stucco, and wood-frame structures. Building stresses such as settling can cause masonry



With few surfaces that would trap moisture, this cornice has held up well. White pieces indicate replaced parts. Samples of each have been saved for future reference.



Where Water Will Attack



Deteriorated roofing and flashing have allowed water penetration into this cornice, rotting the interior supports. Parts have begun to pop off onto unsuspecting passersby.

strong joints, also use waterproof glue. You'll save time if you use an electric screw gun. Replace deteriorated members with treated lumber if wood rot is likely to recur.

To re-anchor a cornice that has pulled away from the building, you have to know how it was attached, and understand what forces have been acting on it to pull it loose. Remember that most cornices rest most of their weight on the top of the facade wall; the elements fastened to the front of the facade are largely decorative. You're not likely to find many heavy anchors attached to the facade.

When the front of a cornice has pulled away from the building, you may be able to pull it back by installing anchors (either the through-the-wall variety or expansion bolts). On old buildings, don't use masonry

anchors or bolts that are shot into the masonry with a powder charge. Installation of too many anchors can seriously weaken masonry parapet walls.

A severely deteriorated cornice—one that can't be shored up and refastened—may have to be removed. Some cornices can be lifted free with a crane; others have to be dismantled piece by piece.

If there's enough left to work with, you may want to restore the cornice in the shop, using either carpentry or epoxies. Even if the structure has to be rebuilt, you might be able to salvage some of the decorative parts. Try to exactly duplicate missing or unsalvageable pieces; if you can't, then save whatever old pieces you can and fill in with replacement pieces that match. Plywood used on exposed panels nearly always ends up looking like plywood.

Design Changes

Some cornices are better designed, and therefore weather better, than others. Once you understand the weathering characteristics of the cornice, you might be able to improve on the original design without noticeably altering its appearance. For instance, an original foot molding can collect water, dirt, and bird droppings on its flat, projecting top surface. It will save wear on the cornice if you replace the

molding with a new one of similar design—but with a sloping top surface.

Remember the shingle principle when modifying cornice design: All joints and fastener holes should be overlapped from above to shed water. The tops of large horizontal projections aren't visible from the street, so flash them. Make sure you provide an exit for water (both liquid and vapor) that might get inside the cornice.

Provide adequate ventilation for closed interior spaces; moisture buildup leads to peeling paint and wood decay. (If the cornice has no boxed-in enclosures, then there's nothing to ventilate.) If possible, provide plenty of cross ventilation from the soffit through the cornice and out the back side of the parapet wall or lean-to shed. Ready-made, circular vents are easy to install, but admit far too little air; they're useful only in the smallest enclosures. ■

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Next month: Repairing, Flashing, and Painting