Ten Shortcuts That Don't Pay

by Michael Lennon

A veteran home inspector points out ten areas where corners cut today yield building troubles tomorrow

When it comes to discussions about which building practices work and which don't, home inspectors have an advantage over other professionals: hindsight. They get to see how time, weather, and neglect have treated the materials and techniques that go into a house. The lessons are often very clear, but they don't always get back to the people who can use them to best advantage — builders.

Some of the problems found by home inspectors are unique to the site or design of a particular house. But many more occur routinely and would be very simple to prevent if greater care or time were taken. Structurally, houses are built with a "forgiveness" factor to take care of unexpectedly harsh conditions. This same concept applies to systems like drainage, flashing, ventilation, etc. The "failures" I see in existing homes are typically caused by shortcuts in methods and materials that cut a little too deeply into that safety margin.

As a builder, it's hard to know whether the cost-cutting measures you're taking on a tightly bid project will really cause a problem down the road. Wait ten or twenty years, and the answers are more obvious. Here, then, are ten areas where I commonly see serious problems that have been caused by sloppy building or unwise cost-cutting practices.

1 Inadequate Drainage

The backfill in the overdig area around foundation walls inevitably settles. This creates a negative grade toward the foundation. Downspouts that empty roof drainage into this area (something splash blocks won't prevent) increase ground saturation. This results in the hydrostatic pressure that creates damp basements and wet crawlspaces. Build foundations high enough to establish a more pronounced grade away from the house, and extend downspouts with leader pipes to deliver water past the overdig area.

The gravel beds beneath sidewalks and driveways are often traps for yard runoff water. This leads to settlement and slab cracking in all climates, and frost heaving where it's cold. Knowing where surface water will flow will help you spot areas that need drainage.

Fill dirt used for corrective grading around foundation where original backfill settled.

2 Caulk at Windows and Doors

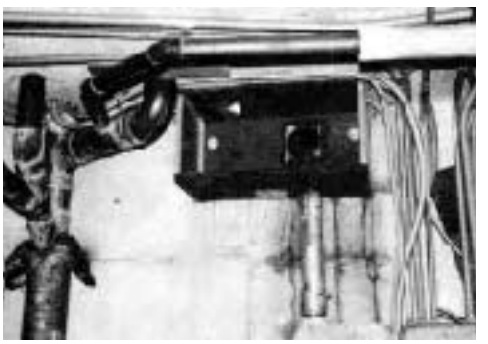
The generous gable-end rakes and deep eaves of older homes weren't just a matter of style. They also keep the wash of rain and the occasional overflowing gutter from finding entry points on exterior walls. In the absence of wide overhangs, window and door head flashing is much more reliable than a bead of caulking for keeping water out. Installing the full trim packages that manufacturers recommend with siding materials will also go a long way toward avoiding future problems.

Use "J" stops when installing aluminum siding at window and door jambs. Caulking this joint just establishes a high maintenance area that looks more and more unsightly — and is no more waterproof — as additional applications of caulk are added.

Buildup of caulk where siding dies into window jamb.

3 Water-Soaked Electrical

Water can make its way into electrical distribution boxes quite easily if the entrance cable comes through the top of the panel. Rain enters the meter base, travels under the insulating jacket, and drips down over the circuit breakers and bus bars. Route the entrance cable up through the bottom of distribution panels to create a kind of "drip loop."



Top-mounted conduit on this electrical box also served as a channel for water.

4 Truly Flat Roofs

Roofs need to drain; failing to provide drainage with a flat roof usually results in substantial damage. A level roof deck will sag over time and create ponds. Drains are designed to relieve this, but it seems they are always attached to structural uprights which remain at their original height while the roof around them deflects.

Although some single-ply materials are guaranteed not to leak even if water remains standing on them for more than 48 hours, most are not. Pack out the roof with rigid foam if necessary to get a positive pitch, and avoid seams wherever there's a chance of ponding. Also make sure that roof deck fasteners aren't sticking up or scattered about before the roofing is applied; these back out and puncture the membrane from the underside.

Most roofing — and material warranties — will not stand up to ponding caused by too little roof slope and poorly placed drains.

5 Sloppy HVAC

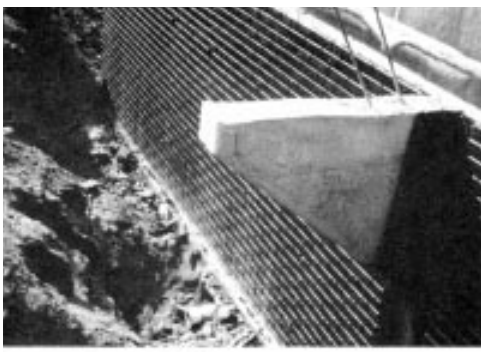
I frequently see improperly sized ducting and poorly placed registers that can't deliver enough air conditioning to second stories and fail to warm up the lower levels. Make sure the return air ducting is large enough and that registers are located so they warm cold surfaces like windows and floors.

As houses get tighter, I am finding more problems with backdrafting; a potentially fatal oversight. Make sure there is enough combustion air for furnaces, and that negative pressure within the house won't bring flue gases back into living areas. Also check for hurried work: metal flue pipes that are shoved too deep into masonry chimneys so that they block them partially, and flue and duct sections that aren't screwed together and drift apart over time.

Backdrafting scorch marks discolor the draft hood of a forced-air furnace.

6 Stoops Without Support

Here's one I see a lot: Failing to provide adequate support under heavy masonry stoops causes settling and rotating. The result is doors that stick, thresholds that separate and lift up, siding and trim that pull away from the house, and even cracked foundations behind the stoop. The small, concrete haunches poured as part of the front foundation wall typically aren't enough to keep a large stoop from rotating. The addition of piers, footed below the frost line in undisturbed or properly compacted soil, will make the difference by supporting the forward edge of the stoop.



Poured haunches like these (left) allow concrete stoops to sink and rotate (below left).

7 Poor Attic Ventilation

Inadequate attic ventilation contributes to uncomfortably warm second floors and shortened shingle life in hot weather, and ice damming in cold weather. It can also allow the moisture created inside the home to condense in the attic, and this invites even greater problems. Plastic gable-end vents tend to restrict air flow, while ridge vents can become blocked with heavy snow. Also, ridge vents aren't effective without corresponding soffit vents. Be generous in calculating net free ventilation area, and make sure that you encourage air flow with both inlet and outlet areas.

Poor attic ventilation leads to curled shingles in summer (left) and ice dams in winter (below left).

8 Last-Minute Retaining Walls

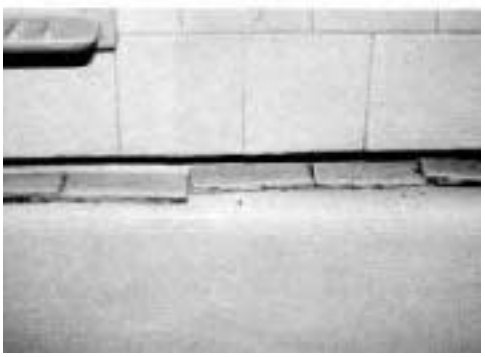
Block retaining walls — used commonly in my area for basement areaways — are often underbuilt and poorly drained. Lacking the compressive loading of a house on the top, they buckle over time. Building them a block higher to allow for better grading away from their high sides, and adding rebar for strength and a drainage system for hydrostatic relief, will give them much greater longevity.

Basement entryway retaining wall buckled by lack of rebar and drainage.

9 Mastic-Set Tile Around The Tub

Ceramic tile applied over drywall with mastic is a major source of problems. Often it is discovered in a state of advanced decay. The situation is made worse when the bottom course of tile is simply grouted and no tub caulking is used. The grout quickly fails, and water works its way behind the tile.

I'd like to see the tile thin-set to fiberglass-reinforced backerboard for the first 12 inches above the tub. Combined with a careful bead of caulking at the tub rim and the generous use of plumbers' putty behind escutcheon plates, this would really help lessen tile problems and damage behind and beneath tubs.



Escutcheons that aren't caulked tight leave an easy path for water to enter walls (left). A grout joint between tub rim and the first course of tiles guarantees failure (below left).

10 Hurry-Up Roof Flashing

Show me a masonry chimney or a skylight penetrating a roof, and I will show you a leak 50% of the time. Why? It's mostly a matter of flashing. Skylights should be built up on curbs with flashing that is fabricated to form a "seamless" collar, or with traditional step-and-cap flashing to keep water out.

Chimneys should be flashed and counterflashed by bending and tucking the metal into mortar joints left open by the mason. That's the old way, and it's still the best. Using adhesives — caulk, cold patch, etc. — to join metal flashing to masonry just isn't effective for more than a few years.

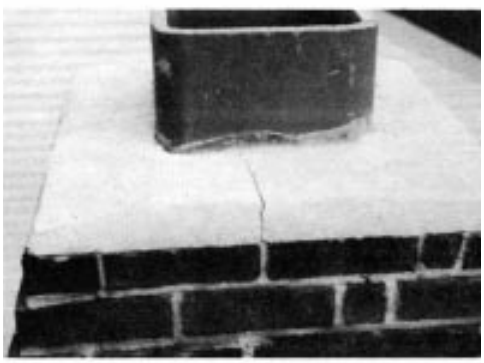
Two other points with chimneys. In snow climates, crickets are a must for chimneys that penetrate a roof or cut into the eaves; no saddle flashing will keep things dry over the winter. Also, use a manufactured chimney cap with screening to keep birds out and sparks in. What I often see instead is a "mortar-wash" or parging cap, which readily cracks and allows water to seep in and create further problems.

The other area of pitched roofs that leaks frequently is valleys. First, use a heavy base sheet, or in cold climates, a material like W.R. Grace's *Snow and Ice Shield* that seals around nail shanks driven through it. (You should also use a material like this along eaves and around dormers and angle intersections of gambreled roofs in ice damming climates.)

Second, make sure you clip the top edges of asphalt or fiberglass shingles where they butt an open valley to keep water from creeping back up under the roofing. I also like valley flashing with "slater's edges" (rolled edges) for the same reason. What I see much too frequently is coil stock bent by a roofer with his knee and nailed down in long sections. This buckles and eventually splits with expansion and contraction.

It also pays to go back over the roof after the siding has been installed. Look for missing or torn shingles where the pump jack posts were tied in, and keep an eye out for missing flashing at chimneys and sidewalls. ■

Sidewall flashing cemented to masonry with mastic will last only a few years before pulling away.



Chimney capped with mortar "wash" already showing cracks.

Top corner of shingle in an open valley that wasn't clipped to prevent water penetration, but was nailed through the flashing.

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