

Techniques That Don't Work

by Gordon Tully

Building good buildings is hard enough without dealing with materials or techniques that just don't work. Here are four that I feel work so rarely, or so poorly, that they should virtually never be used.

Exterior Foundation Insulation

While working on several state-funded housing projects, I was instructed to use exterior foundation insulation. Every installation was a problem, and I vowed never to use it again.

There is no solution to the termite problem posed by exterior foundation insulation. Termites crawl through very small gaps, and you cannot create a reasonably priced, gap-free barrier at the top of a foundation. At best, the barrier forces the termites to tunnel around it. The mythical "maintenance personnel" that are supposed to see these tunnels won't, since the tunnels will be hidden behind the bottom course of shingles.

"Don't worry," I am advised, "the exterminator poisoned the soil." For 50 years? In approved concentrations, using approved chemicals? I doubt it. Besides, fewer people these days want their houses so treated.

Finally, there is no practical way to cover the insulation board, and there are inevitable gaps between foundation and insulation that allow sand and gravel to get in, with unknown results.

Some contractors "solve" these problems by cutting the insulation off flush with the ground, leaving the foundation exposed above grade — which is the only place where the insulation is needed. I can sympathize with the frustration that leads to such radical measures. But it makes more sense to just put the insulation on the inside.

Basement Wall Waterproofing

Water leaks through basement walls as a result of pressure caused by a vertical head of water standing next to the foundation. If the water can find no other drain path, it will enter the basement either through breaks in the wall or at the seams around the footings, where the pressure is greatest.

Trying to prevent or fix this problem by using expensive

"waterproofing" treatments on the foundation wall is folly. Doing this will only force the water harder against the footing, where it will eventually find a leak. If this leakage doesn't occur, you still lose, because the basement becomes a boat floating in muck, and the slab is likely to crack under the pressure. Waterproofing deals only with the symptoms of

water problems can be solved by properly leading surface water away from the building, using gutters, rainwater leaders that lead water away from the house (instead of to the flower beds), and proper grading. Doing these things will generally keep the basement dry. For the other 5% of the time, you might add an inside drain system (installed through

need to install a drainage course next to the wall, and another drain to lead the water away through footing drains; or intercept the water away from the house and lead it away.

In all these cases waterproofing doesn't help much, because it only moves the point of eventual penetration down to the footing level, where the pressurized water will eventually find a way in.

In general, once you have properly solved the water problem, either by eliminating the source or by leading the water away, ordinary dampproofing of the basement walls is more than adequate to keep basements dry. If you have so much water outside the basement that it leaks in through the walls, your problem is getting control of the water, not just plugging the leaks, which will soon be replaced by others.

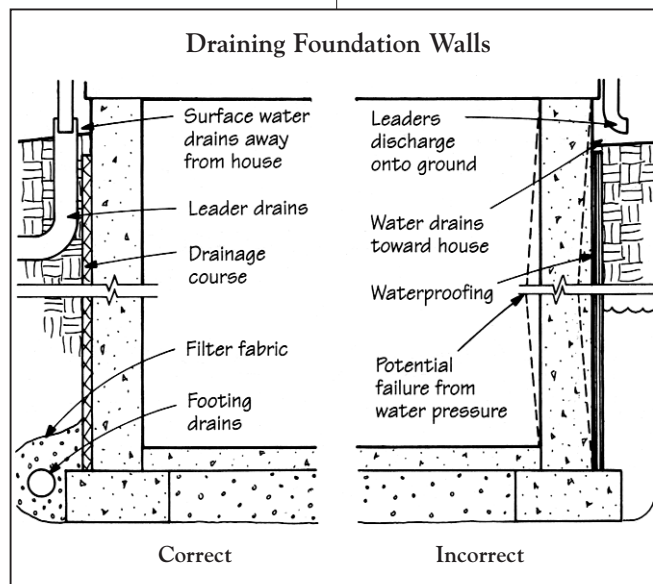
Vinyl Siding

On the same state-funded jobs mentioned earlier, we were instructed to use vinyl siding. We got about as good a job as you can with public bidding, and as long as you stand back from the house the image is pretty convincing. Those vinyl siding catalog photos really aren't lying — much.

But up close to one of these jobs, you find a vast gulf between the image and the wood siding being imitated. The installer laps the siding so the joints will show only when you approach the building "the wrong way." These joints give the game away, because they are very noticeable to start with, and are aligned for two or three courses, drawing further attention to themselves.

Probably the biggest problem is trim, though vinyl siding makers have improved in that area. Still, most trim details are made of aluminum. Unless you detail the building carefully and simply, to make it easy to clad in aluminum, it will look as if school children have cut the trim out of paper and pasted it on. All the niceties, such as rake projections at gutter ends, must be omitted unless you have a budget that allows elements to be custom-made.

But the worst feature of vinyl siding is that, technically, the water skin is behind the siding. Granted, the siding sheds 99% of the water — but so does a leaky roof. If you specify (as I did) that



Preventing foundation-wall leaks (left) means directing surface water away from the wall with leader drains and grading, and steering the water near the wall to a gravel bed drained by perforated pipe.

Without these precautions (right), roof runoff collects against the house and saturates the ground at and above the footing. Waterproofing will only delay the entry of this water, which will either build up and crack the wall or enter at the footing.

the problem (leakage through the walls) and can actually make matters worse.

In a new house, of course, preventing basement leaks is relatively easy, as long as the foundation doesn't go below groundwater level: just use adequate gravel backfill down to the footing level and install a drainage pipe to carry off the collected water.

Leaks in existing houses, however, pose a stickier problem, since digging down to the footings is expensive and tears up the existing plantings. It's in this situation that waterproofing is often posed as a solution. But for the reasons cited above (and more below) it doesn't work.

Start at the top. The best way to solve basement water problems is to eliminate the source of the water. Probably 95% of basement

the basement slab) leading to a sump pump.

But when the bottom is wet...

Water coming in from below grade creates a much more serious problem. If the basement floor is permanently or periodically below the water table, your best course is to fill the basement to a level above the highest water level and install a tight vapor barrier.

If your client insists on trying to keep an underwater basement dry, you need to take extraordinary measures, because you're now in the boat business. You'll need sump pumps, an emergency generator, an outside drainage course, footing drains, and, most likely, an expert to help design the system.

Occasionally, a basement floor is built below an impervious underground layer on top of which water flows. Here you'll

the inner skin under the siding be water-resistant at the house-wrap layer, the contractor simply doesn't know what to do.

Take, for example, the innumerable penetrations through the outside skin: standpipes, lights, service entries, exhaust ducts, exterior electrical outlets, and hose bibs. It requires great ingenuity and patience to seal these off at the house-wrap layer, rather than at the outside surface where they penetrate the siding. Also, many of these devices cannot be mounted to the siding itself, but must penetrate through a proprietary mounting block. These are not made in enough sizes to mount everything you need.

I don't even want to think about what these buildings will look like in 25 years.

Exterior Field Paint

My favorite paint story involves a famous Virginia tidewater mansion built in 1763. It was painted, if I remember correctly, about every 40 years until the 1970s, when they began removing lead from paint. Since then, it has received more coats of paint than it did in the previous 200.

I think it's time we woke to the fact that exterior field painting doesn't work anymore. The removal of lead has radically decreased the durability of house paints, while the removal of mercury has weakened the resistance of oil-based paints to mildew. And as we all know, it's only a matter of time before oil-

based paints themselves are a memory. Perhaps most important, few budgets allow for the painstaking application required to make any paint job last. Stains work somewhat better, since they don't form a skin, and can be touched up more easily. But they don't last very long either, and they don't form a sealing film.

My personal solution is to use cedar shingles, which preserve themselves with their own extractions, and leave them either unfinished or, for clients who want the siding to retain a uniform look, coated with Flood's CWF (The Flood Company, P.O. Box 399, Hudson, OH 44236; 800/321-3444); this requires a recoat every few years but is easy to apply. I omit window trim and use clad windows. Yet even then I am stuck with roof and other trim. I don't specify clear cedar or fir for this trim when I can avoid it (pretty soon we won't have the choice anyway, so we might as well leave a few big trees). So stain is still essential.

Sadly, these alternatives do not allow for the wonderful glossy and subtle-hued paints which make Victorian houses so interesting. If you own one of these "painted ladies," I would advise setting up a handsome endowment to deal with your next round of paint experiments, when the chemistry is revolutionized yet again in response to environmental problems. ■

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