



RISK ALERT

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Fiber-Cement Shakes and Shingles: What's the Risk?

What is the Problem with Fiber-Cement?

Fiber-cement roofing products, introduced in the 1980s and sold until the late 1990s, seemed a good alternative to hazardous asbestos-fiber or combustible wood products. Fiber-cement products were made from an aggregate of about two-thirds Portland cement and about one-third cellulose fibers for reinforcement, shaped in molds and cured under pressure, then coated with a paint sealant. The cellulose fiber content was typically wood, newsprint or kraft fibers, wood chips, or some combinations of these materials. Perlite, tallow, silica, and clay were also used as fillers.

With a Class A fire rating and availability in a range of attractive styles and colors that imitated wood products, fiber-cement shingles and shakes became popular in California and other Western states. Manufacturers offered 25-50 year warranties, promising that fiber-cement products would be resistant to fire, insects, fungus, moisture, and weathering.

However, within five years of installation, many property owners reported partial or complete failure with problems such as swelling, cracking, warping, delamination, crumbling, embrittlement, flaking, shrinking, breakage on impact, discoloration and fading, premature weathering, and supporting growth of moss, mold, mildew, and fungi.

Despite their being coated with sealants, some fiber-cement products are not sufficiently water-resistant for use in outdoor settings. When moisture enters the faulty product, it moves readily into the cellulose fibers, causing them to swell, and forcing cracks in the cement, which cannot expand.

Once damaged, fiber-cement shakes or shingles can no longer protect the building and its contents from rain, snow, sun, and other environmental conditions. And once water enters the building, there is increased risk for mold, mildew, insects, and other problems within the structure itself. In addition, the damaged, moisture-laden roof often becomes too heavy for the structure it was intended to protect, causing sagging rafters and other damage.

Almost every fiber-cement product that was introduced on the market during the 1980s and 1990s has been discontinued and withdrawn from the market, and, in more than one case, has become the target of successful class-action product liability suits.

Some property owners have received settlements from successful class-action suits brought against some manufacturers of the faulty products. Affected property owners should consult their legal counsel to determine if their properties qualify for inclusion in any of these actions. Though the initial settlements were made in the late 1990s, additional settlements were approved as late as 2005, and some classes may still be open. More information may be found at <http://www.calshakeclassaction.com/>.

What Action Should Property Owners Take?

To determine if fiber-cement products may be present, check construction, renovation, and maintenance records relating to the roof or siding, such as contracts, warranties, invoices, proof of payment, etc. The brand most commonly identified as problematic is American Cemwood; other brands include Cal-Shake, Permatek, Permatek II, Royal, Cascade, Pacific Slate and Trieste.

Look closely at the product on the roof. (Problems may not be visible from a distance.) Use extreme care in positioning and climbing ladders, walking on the roof, as the shakes or shingles may be brittle and unable to withstand the pressure of the ladder or even careful footsteps.

Because of the extreme fragility of the defective fiber-cement roofing products, any attempt to repair or replace any part of the roof may cause additional damage. Thus, remediation may require replacement of the entire roof.

Newer fiber-cement products are being marketed as desirable "green" products, because of their longevity and the fact that they incorporate recycled fibers. In some cases, they may be acceptable. When considering construction or renovation with fiber-cement products:

- Consult local building officials or engineering consultants to ensure that the material and methods are appropriate for your climate and for your building.
- Ensure that your building is designed to support the extra weight of fiber-cement roofing. A fiber-cement roof may absorb water and become too heavy for the building.
- Use fiber-cement products only in dry climates. Moisture and freeze-thaw cycles will prove injurious.
- Choose manufacturers and brands that have established good performance and service records. Do not use any suspect brands, even if they are offered at a discount. They may be leftovers from discontinued brands.
- Choose products that meet accepted local building codes, as well as standards from ASTM, UL, FM, and other standards-making organizations.
- Choose products that offer extended warranties, but be aware that warranties are sales tools as much as they are consumer protection documents.
- Install the products according to the manufacturer's specifications. Engage a qualified, licensed professional.
- Do not accept or install any products that show signs of damage, including cracks, defective coatings, etc.
- Maintain paints and coatings scrupulously.

The information in this *Risk Alert* was adapted from published, publicly-available sources. Readers are advised to consult a licensed professional engineer in matters relating to the topics described herein. For more information on fiber-cement products, including the references for this *Risk Alert*, request Sequoia Risk Management Guide SRMG-023, *Fiber-Cement Roofing Shakes and Shingles: What's the Risk?*