Manufactured-Stone Nightmares

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As a contractor specializing in remediation and repairs, I've been concentrating for years on fixing failed applications of EIFS and traditional stucco. I've learned from experience that most stucco failures result from improper flashing and drainage details behind the stucco. Typically, houses that end up with rotten sheathing and framing under the stucco don't have properly installed building papers and flashings.

In recent years, I've been finding more and more cases of leaking and rot behind another material that is very similar to stucco: cementitious manufactured stone veneer, or "cast stone," as it is sometimes called. The problems we are finding with cast stone are just like the problems we've seen with incorrectly applied stucco. But the weather detailing flaws we identify in artificial stone jobs often cause even greater problems than the errors made with stucco. With cast stone veneer, leaks and rot often show up sooner, progress more quickly, and cause more severe damage inside the wall.

After investigating and repairing at least a hundred examples, I've concluded that the problems with cast stone go back to a misunderstanding of the material. Installers as well as building inspectors have gotten used to thinking of cast stone as a masonry material, and they expect walls to get the kind of weather detailing behind the stone that is traditional with brick: a single layer of paper; lapped a couple of inches at the horizontal joints. But, unlike brick, cast stone is not installed with an air space between the cladding and the framed wall. Cast stone veneers are cementitiously adhered to a stucco-like base coat that is applied directly to the wall. Like stucco, cast stone gets saturated with water in a rainstorm and holds that water right up against the framed wall. The papers and flashings under the veneer have to fend off that moisture load without the benefit of any drainage or drying space. One layer of paper isn't going to do the job - two layers, as specified under stucco, are necessary.

If anything, cast stone should in fact be backed up by even tougher details than stucco. That's because it has some characteristics that may help create a more stressful moisture load for walls during wet weather.

For one thing, manufactured stone is a cement-based product that absorbs and holds water like stucco, but cast stone is thicker than stucco and can thus store more moisture. Also, most of the cast stone brands now have "ledge-stone" versions of the product, which have a long, horizontal shape; the long, flat, shelf-like ledges are often sloped toward the framing when installed, which provides a place for rain water to puddle up and soak into the wall.

The greater thickness of cast stone also complicates the task of fabricating and installing practical flashing components. The kick-out or diverter flashing required where a roofline butts into a wall is a good example. On job after job, my company gets paid good money to go in after the fact, tear cast stone veneer off a wall, and retrofit a larger kick-out flashing to the wall because the original roofer's kick-out flashing was too small to push water out beyond the plane of the cladding. If the diverter flashing is too small, it may as well not be there: All the water flowing. and blowing against that spot will just get dumped into the wall system below.

Of course, all the other typical vulnerable spots in a stucco application are just as problematic, if not more so, in a cast-stone application. Window pan flashings, for instance, are a good idea in a manufactured-stone job. However, we are more likely to see a reverse-lap flashing error, with building paper run to the window edge in such a way that the window flange directs water beneath the paper instead of on top of it. And, as with stucco, brick, or any other cladding, a cast-stone veneer should be equipped with weeps of some kind at any bottom termination, whether at the foundation sill or above a window or abutting roof. Otherwise, water will pool longest at the lowest points, and those areas may stay continuously wet.

We also see problems when cast stone is paired with another material on the same wall. It's very common, for instance, for a single house to have stucco or EIFS as well as cast stone; if the joint where the two meet is detailed wrong, water can get to the wood-framed wall and cause trouble.

On many occasions, our company has found a shocking amount of water damage and rot under the cast stone cladding of homes less than two years old, or in some cases less than one year old. The amount of water that can be taken in and held by cultured stone is significant - enough to support robust growth of wood-destroying funguses. If rot organisms have water and they have wood, they will thrive until the wood is gone. Often, what we find under cast stone looks more like the ashes of a fire than like lumber.

If it's caught soon enough, the damage can be repaired. But this is far more costly than doing the job right the first time. Although I make my living from this kind of work, I wish that every builder and contractor who installs this material, as well as the building officials who inspect the jobs, could see some of the failures I have seen and learn how to avoid them. Too often, I've seen problems like these ruin a family's finances when they lead to the uninsured loss of much of a home's value.