

What Material Can You Use to Fill a Dowel Hole?

Q: We have some cubic granite pieces that are pinned into a concrete foundation, and the spec says to epoxy the pins into the holes in the granite. But the holes drilled by the fabricator are about 1½” diameter, and the pins are only ¾”. That’s going to take a lot of epoxy – is there a cheaper product that can be used?

A: I think I would opt to just use a larger diameter pin. Over-sizing a hole diameter to 2x of the pin diameter is not a good idea. Some engineers limit the hole diameter to no more than 1/8” greater than the pin diameter. Epoxy, or any adhesive, for that matter, does not perform well when used in thick layers. The smaller this annulus region is, the higher the capacity of the pin. I would also suggest using a threaded, or otherwise deformed pin to gain the advantage of a mechanical interlock between the epoxy and the pin. If tolerances and alignment issues mandate that the hole must be significantly oversized, then either switch to an epoxy grout, or add sand to your epoxy. The sand will not only save on the amount of epoxy product you need to purchase, but it will produce a better end result. Epoxy is exothermic during cure, meaning it produces heat, and when large amounts are used, the heat can be great enough to negatively affect its bonding capability after cure. The sand will reduce the amount of epoxy, thereby reducing the amount of heat generated, and also provides some thermal mass which can absorb some of the heat. If the pin is required to have capacity in tension, I would also recommend testing its pullout capacity just to be sure of its adequacy.

Type of Construction: Residential, Commercial, Government, Education, Healthcare

Key words: Granite, Limestone, Marble, Onyx, Quartzite, Serpentine, Slate, Soapstone, Travertine, Anchoring, Commercial Cladding, Safety

Published: MIA Newsletter

Date: 04/01/2012

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