

## Anchoring Sinks to 2 cm Countertops ◀ ▶ My Opinion

*Have a technical question? Check MIA's Dimension Stone Design Manual VII first. If you can't find the answer there, contact MIA's Technical Director, Chuck Muehlbauer, at [technical@marble-institute.com](mailto:technical@marble-institute.com). This FREE service is for MIA members only! (Non-member charge: \$85/hour) As a courtesy to other members, please limit phone conversations to ten minutes per call. All opinions and advice provided by Chuck Muehlbauer or anyone else from MIA are provided as general information only. MIA assumes no responsibility and shall not be liable for any damages resulting from your use of this information. Any information provided by the MIA is the exclusive property of MIA and shall not be disseminated, republished, or reproduced in any manner without the prior written consent of MIA.*

**Q:** I am curious why the *Dimension Stone Design Manual* doesn't include any cautionary statement about anchoring sinks to the underside of 2 cm countertops. I don't think these stones are strong enough to carry the sink; sinks under 2 cm countertops should always be carried by the cabinet frame in my opinion.

**A:** I'm going to both disagree and agree with you, as it is all a matter of which stone type we're talking about. Medium to high strength granite varieties without extreme variability can easily carry these loads, and anchors that have more than adequate capacity for hanging the sink are available. Provided the fabricator understands and verifies that the properties of the stone are adequate, there is nothing unsafe about anchoring a sink to the underside of a 20 mm countertop with the right stone. Unfortunately, many times the fabricator doesn't know the properties of the stone, and doesn't know the capacity of the anchor in that stone, and in that case an unsafe condition can result. So if one is not sure about the condition, I agree with you that it is prudent to use some type of rail or other hardware to carry the sink loads directly to the cabinet frame. I don't think a general prohibition on anchoring to 20 mm stone is in order, as it isn't always problematic. One practice that we don't endorse, however, is adhesive-only attachment of the sink to the countertop. Since I travel extensively for my job, and since travel budgets in the association biz are, shall we say, "modest", I find myself spending a lot of nights in low-end hotel

chains. These chains have been attempting to improve their image by putting stone vanity tops in their guest rooms. Generally, they will be extremely inexpensive varieties of 20 mm stone. Whenever I see one, I always crawl under the vanity and take a peek at how they secured the sink to the top. Apparently the attraction of the low bid outweighs the craving for quality in these purchasing decisions. Frequently, there is nothing holding up the sink other than adhesive.

**Q:** Where can I find a specification for the minimum anchor depth in stone? The Indiana Limestone Institute website says: "The minimum depth of anchor embedment, the minimum center to center distance and the minimum edge distance shall be in accordance with the manufacturers' recommendations (expansion bolts and similar anchors). It is good practice to install expansion bolts to an embedment depth greater than the recommended minimum depth. This results in substantial increases in the factor of safety with a negligible cost effect." I was hoping you guys had something more definitive.

**A:** The reference that you cite discusses the use of expansion bolts in Indiana limestone, which is a "medium density" limestone, and in which the use of common expansion anchors is endorsed by the association. There are many rock types where I would not recommend the use of expansion bolts, particularly the harder rocks, like granite. For an expansion bolt to perform, there has to be some

compressibility in the material to facilitate mechanical engagement, and the high compressive moduli of elasticity of many of the harder rock varieties prevents this. Additionally, if the holes in the stone are diamond cored with modest downfeed rates, the interior walls of the hole can be quite smooth, which further reduces the effectiveness of the anchor. I've tested expansion anchors in hard rocks, and while they did produce rather high reactions, they did not produce a conical failure mode as would be seen in concrete. Therefore, you are really relying on a friction anchor with this combination. Anchors with a mechanical engagement into a dovetail slot (of which there are several varieties available) are a much safer option for the hard rocks. Regardless of the type of anchor; strap, pin, expansion, T31, wire, extrusion in kerf, etc., the general protocol is to mockup the anchor and stone sample and test it per ASTM C1354 to verify its capacity. Then verify that it is being used in the field in the same manner in which it was tested.

**Q:** Is there any MIA document clarifying that it's acceptable practice to template from existing countertops?

**A:** Templating from the existing in a remodel situation is a very common practice, and an acceptable practice. Yet I think it's a reasonable protocol to first verify that the existing countertops are acceptable dimensionally, before using them as a template model.