

## Variation Sample vs. Provided Material ◀ ▶ 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:** We have a client that is rejecting several containers of material because it "doesn't look exactly like the sample we provided." We gave them one 12" x 12" sample, and the label on the back of the sample clearly has a very clear disclaimer that stone is a natural material and some variation should be expected. This is standard grade material. Can the MIA intervene and clarify that the material is acceptable?

**A:** Unfortunately, there are no recognized "grades" across the industry. Given suppliers may offer grading of their materials, using various terms including "monumental", "architectural", "select", "quarry-run", "variegated", etc. But these grades, and the definition of the characteristics that are and are not included in them are established by those producers. Therefore, the terminology is not applicable to other products in the industry.

It's simpler in the lumber industry, where they deal with a limited number of species. In their industry, they can establish a consensus opinion as to what size and frequency of knots determines if a board is #2 Pine or #3 Pine.

With the thousands of stone species that we work with, this isn't possible. We depend on sampling and mockups to demonstrate range and character. One sample cannot demonstrate range with a single sample, despite the disclaimer that the material will vary, because a single sample cannot establish the limits of the variation.

The use of multiple samples, a mockup, an exemplar project, or

even digital photographs need to be used to establish the limits of the range.

**Q:** I'm hoping to start doing my own C99 Modulus of Rupture and C880 Flexural Strength tests. Is there a place where I can purchase ASTM compliant fixtures for these tests? And why is the C99 fixture shown on "rockers", but the C880 is rigid?

**A:** I know of no one that offers a ready-made fixture for sale for either of these tests. All of the labs with which I'm familiar have either made their own or had the fixtures custom made by a local machine shop. The drawings included in the procedures are very schematic, intended to show only how the apparatus functions, so you will need more detailed drawings to have one built. I can send you the drawings that I provided to the machine shop when I had mine built. The "rockers", or "gimbals" shown in the C99 fixture drawing were a result of the last update to the graphic. The graphic was modified to change the previous "knife edge" loading and support contacts to a rod of 1/2" (13 mm) radius, and at the same time the gimbaling was added to the graphic.

The C880 fixture graphic doesn't show it, but the text describing the apparatus reads "employing bearing blocks which will ensure that forces applied to the beam will be vertical only and applied without eccentricity." Since test samples are commonly warped or include textured, non-uniform finishes, the fixture needs to be gimbaled to avoid eccentric load application, regardless if the graphic shows it or not.

**Q:** We have a pavement design using tight "butt" joints between the stone pavers. The contractor is telling us he must have a joint to comply with MIA standards. Where does it state this?

**A:** In the Marble Institute of America's *Dimension Stone Design Manual* version 7.1, page 14-2, section 2.4, joint widths for horizontal applications are discussed. The use of tight joints is specifically prohibited in this text.

While we are certainly aware that tight joints are used in certain regions of the United States and elsewhere in the world, we are also aware of numerous problems associated with this practice. Fabrication tolerances, dynamic building movements, and differing thermal expansion of materials are not accommodated in tight joint flooring systems.



Encourage a rising star at your company to enter the **Natural Stone Scholarship** for a chance to win a **free trip to StonExpo 2011**. There's nothing to lose!!!

See the informational flyer at the end of the newsletter.