ROOFING SLATE STANDARDS ARE CHANGING

BY MATT MILLEN

At the Annual Meeting of the National Slate Association (NSA) on February 13, 2003, in New Orleans, two important things about ASTM roofing slate standards were agreed upon: The ASTM C 406 "Standard Specifications for Roofing Slate" and the standard test methods need improvement. The standards as they currently exist can be difficult to interpret by quarries and testing labs and are of limited use to designers, consultants, contractors and owners. What's wrong with them?

- The ASTM C 406 stated service lives of S1 for more than 75 years, S2 for 40 to 75 years, and S3 for 20 to 40 years, are unrealistically low. Also, there is a poor correlation between the standards and the quality of a slate. There are slates that have performed well for over 150 years; yet, despite their proven reputation for durability, they are unable to comply with the ASTM standards.

- The Modulus of Rupture test method, ASTM C 120, which is currently undergoing revision, has placed undue emphasis on the thinness of the slate, making it difficult if not impossible for thicker slate to qualify. ASTM is exploring the use of a breaking load test to accommodate stone that cannot be practically split to 3/16 to 1/4 inch thickness.

- The Absorption test, ASTM C 121, considers initial water absorption, but research shows there is a poor correlation between this factor and life expectancy and that the rate of increase in water absorption during weathering is more important.

- The way a small test sample is cut is known to affect test results. The saw used and the edge preparation are critical in order to avoid poor results due to micro fracture damage.

- Non-adherence to ASTM test methods and the uniqueness of testing slate result in different labs showing different results on similar stone. This encourages lab shopping. Identifying preferred testing labs may help level the playing field.

- There is also a normal range of variance inherent in any natural material. Some natural material standards, such as for wood shingles, have a stated allowance for this variation.

A standard is of value only to the extent to which it can assess the quality and durability of a slate objectively. Quarries will not stop producing slate with a known and proven reputation for quality that is non-conforming with the standard. Instead, it is in a company's interest to ignore and avoid the standard. Contractors, designers, consultants, and owners also don't want to use the standard. If they do, they end up relying on a standard that has poor correlation to performance and quality and they may get themselves in trouble. Noncompliance with ASTM has been used by some unscrupulous or uninformed owners or owner's representatives to disrupt construction and avoid payment for good material and for construction services. An effort should be made to articulate the problems with ASTM C 406 as a warning to users, to encourage change, and to disarm those who would use non-conformance ruthlessly. An interim alternative to using only the ASTM Standards for material quality assurance would be to specify particular reputable quarries and stone types or to require that the slate has a satisfactory long-term performance record that is acceptable to the designer/specifier. Knowledgeable and reputable quarrymen and primary distributors are available to help with this process.

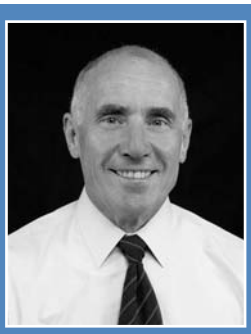
Of course, inadequate standards may be better than no standards. This is especially true at a time when roofing slate is becoming part of a world economy, and not all worldwide producers are familiar with traditional U.S. and Canadian expectations for quality and service life that are based on our specific roofing methods and climates.

The limitations of existing standards are a problem in North America as well as Europe. In Europe, the lack of correlation between national standards and proven performance quality is a major concern. An important effort is being put into a new European standard, European Committee for Standardisation (CEN) 1999, "Slate and Stone Products for Discontinuous Roofing and Cladding, European Standard prEN12326, Part 2 Methods of Test (draft)."

The NSA Standards Committee is developing a strategy for working with ASTM and improving the existing standard. All four members of the ASTM Technical Committee C 18 representing the roofing slate industry are NSA members. Improvements in ASTM C 120, the modulus of rupture test method, are in process to eliminate the bias against thicker slate. The terminology "weathering, semi-weathering, and unfading" also needs attention. The development of the new European Standard is being watched closely for its possible application in North America and its foreshadowing of an eventual international standard identifying several grades of acceptable roofing slate.

The National Slate Association's Standards Committee includes: Pete Papay, Penn Big Bed Slate Company, Inc.; Jonathan Hill, Greenstone Slate; Judith Selwyn, Preservation Technology Associates, Inc.; John Conlon; Chris Bean, Evergreen Slate Company, LLC; David Large, North Country Slate; and Chuck Smid, The New England Slate Company. Input on roofing slate standards is appreciated from all who are interested. Contact NSA at 1-866-256-2111. ■

About the Author



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