One World... Why Not One Standard and One Mark?

Jeff Griffiths, CSI, is the director of business development for SaftiFirst. He has more than 25 years of experience within the glass and glazing industry, having worked with both sloped and vertical glazing systems incorporating wood, aluminum, and steel structural components along with a wide variety of glass products. A member of the Construction Specifications Institute (CSI), Griffiths serves on Glass Association of North America's (GANA's) Fire Rated Glazing Council Educational Committee, Window & Door Manufacturers Association's (WDMA's) Interior Products Code Committee, and the American National Standards Institute (ANSI) Z9.1 Test Standard Committee. He can be contacted via e-mail at **jeffg@safti.com.**

The concept of having only one standard and one mark might seem like the Holy Grail for many specification writers. Given the surge in market globalization over the past decade, there is a growing desire to harmonize the array of standards and facilitate cooperative recognition among testing agencies. This is increasingly becoming a goal whether one is a design professional trying to specify a building product or a manufacturer trying to produce one.

The question remains as to whether simplification and uniformity truly benefit design/construction professionals, manufacturers, and end-users. The answer may be revealed by reviewing what the industry is up against in the quest for uniformity, what has been accomplished, and what still needs to be done.

Marks and standards

Labeled building products bear the mark of the testing agency. This is evidence for the authority having jurisdiction (AHJ) that the agency maintains periodic inspection of the production of labeled equipment or materials and ensures the product complies with mandated standards.

With respect to these standards, they are defined in the International Code Council's (ICC's) *A Guide to the Use of Standards in the ICC International Codes* as:

> a published technical document that represents an industry consensus on how a material, product or assembly is to be designed, manufactured, tested or installed so that a specific level of performance is obtained.

A standard in this sense is commonly referred to as a "voluntary consensus standard"[1] and is typically the result of a process depending on the efforts of thousands of individual experts representing a range of interests from industry, consumer groups, labor organizations, and government agencies. Since the American standardization community largely comprises groups supported by industry, product performance standards are developed under the influence of individuals with an eye focused squarely on the marketplace and maintenance of one's own perceived advantages.

Different means, same ends

In *Overview of the U.S. Standardization System*, the American National Standards Institute (ANSI) states:

> the U.S. standardization infrastructure is reliable, flexible, and responsive. It reflects a basic national belief that society will benefit and innovation and creativity will flourish in a system that is free from government control but strengthened through essential governmental participation.

However, many U.S. manufacturers would contend the lack of uniformity of standards from one country to the next actually inhibits innovation and free trade. The American standardization system is highly decentralized, resulting in partitioned sectors in which the development of duplicate standards is driven by stakeholder needs.

The U.S. National Institute of Standards and Technology (NIST) estimates more than

80 percent of standards developed by Underwriters Laboratories (UL) are a duplication of ANSI standards.[2] This serves a productive purpose if it results in the alignment of standards among an array of countries and facilitates open trade. However, lack of alignment between U.S. and foreign standards often traps domestic manufacturers in a cycle of repetitive testing.

In the case of fire-rated products, for example, ASTM International E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, and International Organization for Standardization (ISO) 834, *Fire-resistance Tests–Elements of Building Construction*, employ different measurement devices and metrics despite essentially seeking similar results in an effort to protect individuals from dangerous levels of radiant heat transmission.

Similarly, ISO uses a different approach for smoke toxicity measurement than National Fire Protection Association (NFPA) 269, *Standard Test Method for Developing Toxic Potency Data for Use in Fire Hazard Modeling*, and ASTM E 1678, *Standard Test Method for Measuring Smoke Toxicity for Use in Fire Hazard Analysis*—nevertheless, the expectation is toxicity safeguards would need to be the same for all human beings.

On one hand, the European standardization community seeks to function in an environment of uniformity within a quite diverse marketplace. On the other hand, the U.S. standardization community is in an environment of multiplicity within a uniform marketplace.

Finding common ground

Conformity-assessment agreements established among participating nations are one means of bridging differences in standards among various countries. However, the additional layer of third-party document review, sampling, and redundant testing adds cost to products already burdened by import/export fees and currency exchange.

Other interested parties advocate Mutual Recognition Agreements (MRAs) between countries, accreditor-to-accreditor arrangements, and certifier-to-certifier agreements, contending these alternatives hold the promise of market access for manufacturers while reducing the inevitable added cost to consumers. Some success with these alternatives has been realized outside the building products industry. For example, the International Electrotechnical

Commission's (IEC's) Certification Body Scheme (CB) serves as a system for acceptance of test reports dealing with the safety of electrical and electronic products.

Given the nature of U.S. product and testing standards, however, laboratory accreditation and uniform certification within an environment of performance-based building codes seem to hold the key to global acceptance in the short term. For many manufacturers, the appeal of a globally marketable product without multiple designs for different jurisdictions or myriad—but nearly identical—tests by various certification agencies drives the desire for laboratory-to-laboratory agreements established under the guise of shared accreditation authorities. From the laboratories' perspective, the adoption of uniform calibration standards (*e.g.* ISO 17025, *General Requirements for the Competence of Testing and Calibration Laboratories*) and follow-up protocol among labs sharing the accreditation of a recognized authority eliminates uncertainty of test results and procedures followed by their competitors.

The NRTL model

There is already a model for such a system in the United States. In an effort to minimize unnecessary variations in product design and performance from one state to the next, model codes developed by the ICC have been adopted nationwide. For example, every version of the *International Building Code* (*IBC*) cites fire-rated labeling must be done by a Nationally Recognized Testing Laboratory (NRTL).

Administered by the U.S. Occupational Safety and Health Administration (OSHA), the NRTL program recognizes testing and certification organizations (any group that conducts laboratory testing and provides product certification can apply). However, not every organization holding NRTL status willingly recognizes the certifications bestowed by other NRTLs. Unfortunately, self-interest often stands in the way of public interest.

Competition among these NRTLs can result in efforts to block use of products bearing the mark of one certification agency from use as a component in products labeled under the service program of another. For example, UL and Warnock-Hersey Intertek (WHI) are the most prevalent NRTL marks recognized by code officials throughout the country. WHI allows its labeled components to be combined with those labeled by UL or any other NRTL, but reciprocity from UL is not the norm (despite their published adherence to ANSI and NFPA standards allowing such practice and their own guide information).[3]

According to Robert Berhing, UL's principle engineer of fire-resistive construction, "For the glazing materials to be acceptable for use by a manufacturer preparing a fire door that is to bear the UL Mark, the glazing materials are to be UL-certified." This author, however, would argue such business practices can stifle competition and undermine UL's position as a Conformity Assessment Body (CAB). (UL is unique relative to the other NRTLs in that the organization also actively promotes standards and code modifications.)

Conclusion

The branding efforts of UL, WHI, and other NRTLs undoubtedly reflect the competitive nature of the U.S. building product industry. However, just as the narrow adherence to one set of standards leads to limiting the range of choices of viable products, so does the narrow adherence to one mark. Specification writers seeking to simplify product selection should be careful of what they wish for. The desire for one standard and one mark will undoubtedly remain a pipe dream for the foreseeable future.

By remaining open to the common goals of multiple standards and shared competencies of multiple certification agencies, specifiers enable end-users to benefit from a greater range of competing products from within an industry where manufacturers are not burdened by the cost of multiple listings for a single product. Increased cooperation among organizations developing standards, providing accreditation, and conducting product testing is the quickest means to address the shrinking global marketplace.

Why not have many standards and many marks? Cooperative diversity can blunt the isolated efforts of those organizations seeking to gain competitive advantages by promoting one set of standards and one mark over others. The current system is working and emerging cooperative strategies can make it better.

Notes

[1] "Voluntary" refers only to the manner in which the document was developed—not to whether compliance to the standard is optional or mandatory. The ICC publication also points out a standard is not intended to be primary law, but is useful as a referenced authoritative resource.

[2] See NISTIR 6774, *Workshop on Fire Testing Measurement Needs*, from August 2001.

[3] UL confirms in its Guide Information (GSYX) that "glazing materials are intended to be installed in fire doors in accordance with ANSI/NFPA 80 and the installation instructions provided by the manufacturer of the door, glazing frame members or glazing materials." According to NFPA 80, *Fire Doors and Windows* (NFPA 80 [2007], Appendix K.1.), "a fire door assembly may be permitted to consist of the labeled, listed or classified components of different organizations, that are acceptable to the [AHJ]."