by **David West**

setting the standards

Every so often, I hear the industry talking about standards. Now standards are something I like to think I know a little bit about. After all, I've been a member of several standards writing committees for over fifteen years. I've drafted new standards, revised existing standards, and done research to identify where standards needed to be changed.

The interesting thing for me is that despite this involvement with standards, I'm really only just starting to understand what standards are for. You see, I'm beginning to realise that standards are what owners and architects quote when they write the specification but don't know how the stone should be installed, or when at the end of the job they don't like the colour of the stone, or the variation in joint width, or maybe they just don't want to pay the contractor. And standards are what the contractors quote when they need to cover up some sloppy fabrication, or careless installation, or when they need to justify doing the work in a cheaper way than the client wanted. Sometimes, I even get the impression that some sectors of the industry regard standards as an obstacle they need to find a way past. So as a consultant to all these people when they need help to sort out the problems that inevitably arise, I get to comb through standards trying to read between the lines, open or close the loopholes, or find a clause that addresses the particular situation.

And the frightening thing is that by and large, the people who wrote the standards weren't thinking like this at all. Their intention was to provide a tool to help the industry do business better - and the bottom line of doing business better is, of course, to make more money now and into the future.

Whenever I talk to business people, I come away with an affirmation that the fundamental rule of business is to satisfy the customer, and to do it in a way that makes a profit. Of course, we also have to obey the laws on health and safety and pay the taxes and so on.

So, it seems to me that maybe we have a slightly distorted view of the reason standards exist. If I look at the dictionary, the definitions I find for the word 'standard' are:

- a basis of measurement
- a criterion
- an established or accepted model
- an exemplar
- a definite level of excellence or adequacy that is required, desired, or possible

In other words, standards are business tools that help all of the participants in a transaction understand what can be achieved and how. Standards are also tools that help us agree what is to be supplied. We can use standards to help the supplier understand what we want delivered to us. We can use standards to help the installer understand how we want the flooring laid. We can use standards to help the architect understand what variation he should expect in the joint widths. And we can use standards to help us price the work at a reasonable level. That is, we can use standards as a tool to do better business.

Now I can almost hear the clamour ... "but the standards don't do this. They don't exist. They don't tell us how to install the stone. They don't specify the joint tolerances".

Sure, there are gaps in the standards. But what do you do if you can't fabricate that new shape in benchtops that are fashionable - you go and find a tool that does. What do you do if you can't fix those triangular panels on the wall with the T-pins - you go and get a bracket that does work. And so it is with standards - if they don't do what you want them to, you have to get some more that do.

So, now we come to the interesting party of the story. Who writes standards? It seems to me that this is the biggest source of misunderstanding in many parts of our world. The image is of a small group of experts sitting down and writing, in total agreement, a document that is perfect in every way. Oh, and I suppose that the government pays these experts using too much of those taxes we have to pay.

Well actually, it's not quite like that. Certainly not here in Australia. Those documents that cost an arm and a leg from Standards Australia certainly cost a lot of money to produce. After all, there are committee meetings to attend where the contents and structure are debated, followed by just about every single line of text. And then there is all the paper that has to be copied and printed and posted. And finally, there is the promotion and publicity and distribution. So of course they are expensive. But wait a moment. The real work, the process of thinking and writing down and shaping and honing and polishing the words. That isn't paid for. Not by the government, not by the industry. No, people like me do it in their own time. Just like the writing of this article, standards are written for love. Yeah, I know, a bit kinky. But that is the reality. And in this modern business world, if industry wants a standard, just like any other tool ... they get what they pay for.

In some industries, where they have realised just what a benefit the existence of good standards can be, major companies have employees whose job it is to ensure that the standards are the best they could possibly be. And they have employees whose responsibility it is to ensure that the company does its work in accordance with the standards. These industries typically write their own standards, and then they work with standards organisations to get them recognised, published and distributed more widely.

Let me give you an example. In Australia, we don't have any standards dedicated to dimension stone. There are a few standards that we use, but these have been prepared by other industries, and adapted to our cause. Or else they have been imposed upon the stone industry by other competitor industries, such as the brick industry or the ceramic tiling industry ... and the reason they were imposed is because these industries put funds into developing standards that were a good business tool for them ... too bad if it didn't help the stone industry ... maybe they'd sell more bricks or ceramic tiles!!!

In the United States, there is a very successful organisation called ASTM that writes 'voluntary consensus' standards. Their standards are not compulsory, but can be called up by codes or regulations, just as ours can be. Their standards are written by committees composed of interested members of industry. The committee composition is required to be balanced between producers of the product or service which is the subject of the standard, users of the product or service, and general interest, including members of the public, or academic, or government.

On Committee C18 on Dimension Stone, there are people who quarry stone, people who fabricate stone, and people who install stone. There are engineers and people who run test labs. There are representatives from government departments, and from industry associations. And there are consultants who have experience in one or more areas.

Standards are written when somebody says I think we need a standard about something, and a few other people agree. Then a small group of people go away and find a model on which to base the standard, they develop it, test it (by sending it out to other people to read and review and provide comments on), before going through a formal voting process to

confirm that it is acceptable, and publishing it. So getting a new standard is really quite easy. All you have to do is ask, and provide the reasons for the new standard, and help tell the writers what they need to include. It does take a while ... but much of this is because most of the people involved are doing it because they believe in the importance of the process, not because somebody is compensating them for the process. The members of Committee C18 are involved in the standards writing business because they believe it will help the stone industry do better business in the future. If they were paid for their efforts, by the rest of the industry it will benefit, then I'm sure that the standards would be written in a fraction of the time, and would be better and more comprehensive documents. And then we could all get on with doing better business.

We could do that here. Who's interested? Who believes that their business would be more profitable if there were better standards that were more widely recognised and accepted across our industry? Come and talk to me about it. After all, I am supposed to be representing the stone industry's interests on the following Standards Australia technical committees:

BD/26 Masonry Units and Segmental Pavers

BD/44 Fixing of Ceramic Tiles
(including BD/44/4 on Natural and Reconstituted Stone Tiles)

CE/12 Rocks for Engineering Purposes

And I can only do this if you talk to me. You can reach me via the editor of Discovering Stone, or by email to: david.west@hyder.com.au

This is the first of a series of columns on the standards writing process. Next issue I'm hoping to explain the new European Standards, and what they will mean to the industry in the future. In the meantime, the Editor has agreed to print a list of relevant standards each issue as a reference tool. If anybody knows of other useful standards, let me know and we'll incorporate them.

References:

1 http://www.standards.com.au
2 http://www.astm.org
3 http://bsonline.technindex.co.uk
4 http://www.cenorm.be

List of dimension stone standards

The following list of standards relevant to dimension stone is comprehensive, but not exhaustive. It has been compiled by searching the websites for Australian, American and British standards, where the latter now incorporate European standards as well. There also exist an assortment of German (DIN) standards, and a range of other standards from other European countries, which have not been referenced. Many of these are being developed into European standards. There are many draft European standards that have not been listed on these tables at this stage, but some reference to these will be made in the next issue.

All standards listed are the most recently published version, correct as at 15 March 2003. It is important to understand that the year reference appended to the number of the standard is an important designator that communicates the version of the standard to be used. Normally, most supply specifications and regulations refer to the most recent version of a standard, so that it is important to keep up to date.

The standards encompass a range of documents, including test methods, specifications for supply of stone, and guidelines for installation of stone. This ranges across the full gamut of stone uses, from traditional masonry construction, through paving and tiling to cladding, as well as cemetery monuments.

Australian Standards relating to Dimension Stone

http://www.standards.com.au

AS/NZS 3661.2:1994
Slip resistance of pedestrian surfaces - Guide to the reduction of slip hazards

AS/NZS 4586:1999
Slip resistance classification of new pedestrian surface materials

AS/NZS 4663:2002
Slip resistance measurement of existing pedestrian surfaces

HB 197:1999
An introductory guide to the slip resistance of pedestrian surface materials

AS 2358-1990
Adhesives - For fixing ceramic tiles

AS 3958.1-1991
Ceramic tiles - Guide to the installation of ceramic tiles

AS 3958.2-1992
Ceramic tiles - Guide to the selection of a ceramic tiling system

AS/NZS 4455:1997
Masonry units and segmental pavers

AS/NZS 4456:1997
Masonry units and segmental pavers - Methods of test

AS 3700-2001
Masonry structures

AS 4204-1994
Headstones and cemetery monuments

AS/NZS 4517:1998
Abrasive products - Segmented saws for machining of stone and masonry cutting - Dimensions of steel blades

ASTM Dimension Stone Standards

http://www.astm.org
Committee C18 on Dimension Stone
Test Methods

C97-02
Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone

C99-87(2000)
Standard Test Method for Modulus of Rupture of Dimension Stone

C120-00
Standard Test Methods of Flexure Testing of Slate (Modulus of Rupture, Modulus of Elasticity)

C121-90(1999)
Standard Test Method for Water Absorption of Slate

C170-90(1999)
Standard Test Method for Compressive Strength of Dimension Stone

C217-94(1999)
Standard Test Method for Weather Resistance of Slate

C241-90(1997)e1 Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic

C880-98
Standard Test Method for Flexural Strength of Dimension Stone

C1201-91(1996)
Standard Test Method for Structural Performance of Exterior Dimension Stone Cladding Systems by Uniform Static Air Pressure Difference

C1352-96(2002) Standard Test Method for Flexural Modulus of Elasticity of Dimension Stone

C1353-98e1 Standard Test Method Using the Taber Abraser for Abrasion Resistance of Dimension Stone Subjected to Foot Traffic

C1354-96 Standard Test Method for Strength of Individual Stone Anchorages in Dimension Stone Material Specifications

C406-00 Standard Specification for Roofing Slate

C503-99e1 Standard Specification for Marble Dimension Stone (Exterior)

C568-99 Standard Specification for Limestone Dimension Stone

C615-99 Standard Specification for Granite Dimension Stone

C616-99 Standard Specification for Quartz-Based Dimension Stone

C629-99 Standard Specification for Slate Dimension Stone

C1526-02 Standard Specification for Serpentine Dimension Stone

C1527-02 Standard Specification for Travertine Dimension Stone Guides

C119-02c Standard Terminology Relating to Dimension Stone

C1242-02a Standard Guide for Selection, Design, and Installation of Exterior Dimension Stone Anchors and Anchoring Systems

C1496-01 Standard Guide for Assessment and Maintenance of Exterior Dimension Stone Masonry Walls and Facades

C1515-01 Standard Guide for Cleaning of Exterior Dimension Stone, Vertical And Horizontal Surfaces, New or Existing

C1528-02 Standard Guide for Selection of Dimension Stone for Exterior Use British Standards on Natural Stone

BS 5385-1:1995 Wall and floor tiling. Code of practice for the design and installation of internal ceramic and natural stone wall tiling and mosaics in normal conditions

BS 5385-5:1994 Wall and floor tiling. Code of practice for the design and installation of terrazzo tile and slab, natural stone and composition block floorings

BS 5642-1:1978 Sills and copings. Specification for window sills of precast concrete, cast stone, clayware, slate and natural stone

BS 5642-2:1983 Sills and copings. Specification for copings of precast concrete, cast stone, clayware, slate and natural stone

BS 7533-4:1998
Pavements constructed with clay, natural stone or concrete pavers. Code of practice for the construction of pavements of precast concrete flags or natural stone slabs

BS 7533-6:1999 Pavements constructed with clay, natural stone or concrete pavers. Code of practice for laying natural stone, precast concrete and clay kerb units

BS 7533-7:2002 Pavements constructed with clay, natural stone or concrete pavers. Code of practice for the construction of pavements of natural stone setts and cobbles

BS 8000-11.2:1990 Workmanship on building sites. Code of practice for wall and floor tiling. Natural stone tiles

BS 8221-1:2000 Code of practice for cleaning and surface repair of buildings. Cleaning of natural stones, brick, terracotta and concrete

BS 8221-2:2000 Code of practice for cleaning and surface repair of buildings. Surface repair of natural stones, brick and terracotta

BS 8298:1994 Code of practice for design and installation of natural stone cladding and lining

European Standards for Natural Stones

BS EN 12370:1999 Natural stone test methods. Determination of resistance to salt crystallization

BS EN 12371:2001 Natural stone test methods. Determination of frost resistance

BS EN 12372:1999 Natural stone test methods. Determination of flexural strength under concentrated load

BS EN 12407:2000 Natural stone test methods. Petrographic examination

BS EN 13161:2001 Natural stone test methods. Determination of flexural strength under constant moment

BS EN 13364:2002 Natural stone test methods. Determination of the breaking load at dowel hole

BS EN 13755:2002
Natural stone test methods. Determination of water absorption at atmospheric pressure

BS EN 13919:2002 Natural stone test methods. Determination of resistance to ageing by SO2 action in the presence of humidity

BS EN 1925:1999 Natural stone test methods. Determination of water absorption coefficient by capillarity

BS EN 1926:1999 Natural stone test methods. Determination of compressive strength

BS EN 1936:1999 Natural stone test methods. Determination of real density and apparent density and of total and open porosity

BS EN 12440:2001 Natural stone. Denomination criteria

BS EN 12670:2002 Natural stone. Terminology

BS EN 1341:2001 Slabs of natural stone for external paving. Requirements and test methods

BS EN 1342:2001 Setts of natural stone for external paving. Requirements and test methods

BS EN 1343:2001 Kerbs of natural stone for external paving. Requirements and test methods

BS EN 771-6:2001 Specification for masonry units. Natural stone masonry units

BS EN 772-11:2000 Methods of test for masonry units. Determination of water absorption of aggregate concrete, manufactured stone and natural stone masonry units due to capillary action and the initial rate of water absorption of clay masonry units

BS EN 772-20:2000 Methods of test for masonry units. Determination of flatness of faces of aggregate concrete, manufactured stone and natural stone masonry units

BS EN 772-4:1998 Methods of test for masonry units. Determination of real and bulk density and of total and open porosity for natural stone masonry units