

EDITORIAL

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The Last Issue of CCA (and Thoughts on Future Standards Issues)

Part 1

This is the last issue of *Cement, Concrete, and Aggregates*. Future related papers, and papers left in “the system” will be sent to ASTM’s new all electronic journal, *Journal of ASTM International* or *JAI*. The associate editor of *JAI* for cement, concrete, and aggregates papers in addition to other materials is Professor Leslie Struble. I will serve as part of her editorial group.

CCA was first published in 1979 and has been published at two issues per year under the stewardship of Presley Wedding (1979–1987), then Professor P. K. Mehta (1988–1993), and finally, myself (1994–2004). The purpose of CCA was to provide a forum related to supporting standards activities of the sponsoring ASTM Committees, C-1 on Cement, C-9 on Concrete and Concrete Aggregates, C-13 on Concrete Pipe, and C-27 on Precast Concrete Products.

While CCA has served that purpose, as well as publication of related ASTM symposia, obtaining a steady stream of manuscripts has been at times problematic. The decision to close CCA was that of the ASTM Committee on Publications; however, it is anticipated that *JAI* will continue to provide the standardization support role.

It has been a pleasure serving as Editor-in-Chief of CCA, and I would like to thank:

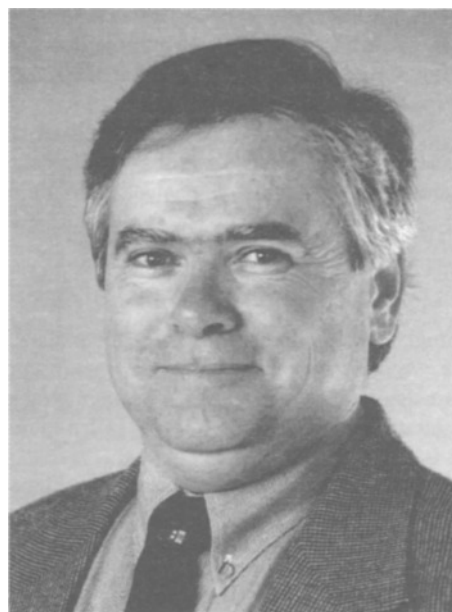
1. All the editorial board members (see the inside cover) for their support and effort,
2. The numerous unsung reviewers who did excellent jobs of monitoring and improving paper quality,
3. The ASTM staff who made the journal work.

Part 2

As a last kick-at-the-can as editor, I also wanted to talk about some of the issues that I see related to standards of the future.

Performance Standards

Moving from prescriptive to performance standards has a lot of appeal, and is not new, but applying this concept implies that we are aware of all the performance issues that we need to be concerned about. Secondly, it requires the existence or development of relevant test methods (and limits) that adequately address those



relevant performance issues. I, amongst others, think that we need to move forward, but carefully, by first identifying the performance needs, then taking stock of the adequacy of current test methods, encouraging the development of rapid yet reliable test methods, and finally, selecting reasonable test limits. This will take time (and the researcher’s favorite topic: money). In the meantime, we will likely have to live with a combination of partial prescriptive and partial performance tests.

Measurement of System Performance

With respect to Committee C-1, hydraulic cement is rarely used on its own, but is used as one component of an ever increasingly complex part of the paste fraction of concrete. So in many cases, it makes sense to consider performance standards either for concrete or for the whole paste system, rather than for cement alone. However, concrete tests are typically more cumbersome,

time-consuming, and expensive to perform and may not be sensitive enough to evaluate some cement-related issues. The paste fraction of concrete (or mortar fraction) is typically a combination of Portland cement, plus one or more pozzolans/slag, and from one to many types of chemical admixtures mixed in various dosages like a witch's brew with variable amounts of water at wide range of temperatures. While this complex combination works well together in concrete most of the time, problems do occur in practice, including: lack of workability, premature loss of workability, lack of set control, or lack of air control.

Therefore, C-1 and C-9 have formed a joint task group (possibly a future subcommittee) to look at potential test methods or practices that could be developed and used to detect potential "compatibility" problems before mixtures are used in concrete. I am biased, since I helped get this activity off the ground, but I think that if such tests and practices are developed, they will prove useful for preventing some of the most common performance problems faced by the concrete industry.

Performance Specifications for Durability (Do You Start to See the Theme Here?)

While really an ACI issue, new ways of more directly specifying concrete performance are needed. Too often, we use 28-day cylinder strengths as a surrogate for durability issues.

Water to cement ratio limits are often also specified, but verifying compliance is typically difficult. As well, measurement of w/c has become a political football in ongoing litigations related to durabil-

ity, and this has spilled over into ASTM activities. We often specify minimum strengths as well as maximum w/c to try and obtain concretes that will be resistant to penetration by water, aggressive ions, and gases. A number of test methods have been developed recently by subcommittee C09.66 to measure fluid penetration, such as C 1543, C 1556, and C 1585 to augment the older C 1202, as well as concrete-related tests such as E 96. (I will leave you to check these tests out for yourselves). Several more new tests are planned by subcommittee C09.66.

So why aren't some or all these new tests specified? It has happened, even prior to the existence of standard test methods. Chloride apparent diffusion tests such as C 1556 (and test limits) have been specified on some 100-year (give or take a few years) service life projects around the world, such as the Channel Tunnel, the Danish Great Belt Link, the Sarnia railway tunnel (between Michigan and Ontario), the Toronto Sheppard subway tunnel, The London Underground Jubilee Line, and the Tsing Ma bridge in Hong Kong. Diffusion values can be used as input for many diffusion-based service life prediction models, which give these tests some appeal. But such testing is time-consuming and expensive, so there will always be room for rapid index tests, such as C 1202, for quality control testing. What may become necessary, as these tests proliferate, is development of a guide or standard practice as to the selection of appropriate tests for different environmental exposures for both prequalification and construction quality purposes.

Anyway, I have only touched on a few items and even with these few, there is plenty of standards work required to move forward. See you at the meetings!