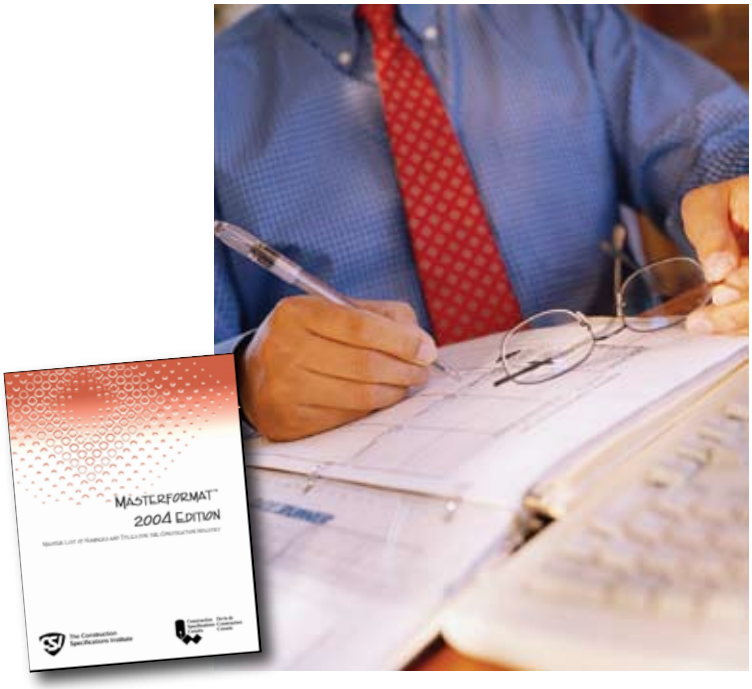
VIEWPOINT

Bringing Concrete Repair Specifications Up-to-Date

By William "Bud" Earley

Let's see now…does a self-leveling repair material used as an overlay go in Division 3 in Section 03300 or should it go in Section 03390? Wait. Master Format 2004 changed that to Section 03 01 30 Maintenance of Cast-in-Place Concrete! What is the name of that product, the one manufactured by the company who has once again changed their name? Sound familiar? Does updating your concrete repair specifications make you feel lost or confused? You are not alone.

Once a specification has been written, it often becomes a template. This convention has fueled the demand for today's design professional to write clear, concise, and easily understood performance-based specifications. Unfortunately, too many specifiers of architectural and engineering firms are still using their own master specification that they developed years ago.* While many of these specifications were suitable and appropriate in their time, given the consistency, rapidity, and complexity of change driving product technology in the concrete construction industry today, specifications should be reviewed and updated annually.



Product technology is constantly evolving. Manufacturers are caught in the cross-fire of this ever-changing landscape. While the manufacturing community is frequently at the helm of driving change, just as often, these companies are being driven by changes researched and developed in the field. Over the course of any given year, companies go out of business, are bought and sold, or change the names of entire product lines. Environmental legislation brings regulations and changes in formula, while modernization instigates new design considerations, such as tighter building envelopes and fast-track construction. In addition, the specification process has become increasingly complicated, simply because there are so many products and systems involved in a typical project. New products are constantly being developed and introduced, while others become obsolete and are discontinued. It is nearly impossible for a specification writer to be completely up to date on all of this information.

Despite, and because of, all these possibilities for change, specification writers should work hard to achieve an annual specification review and update. Experienced manufacturing representatives can be a valuable resource for this task, providing insight others cannot.† These professionals, who work closely with both contractors and specifiers, understand the contractor mindset, the constraints and challenges facing the specifier, the construction products marketplace, and the viability of the products they represent for a given application. Yes, it is true that product representatives are indeed salespeople concerned with generating sales for their employer. One might imagine most product representatives would love to put all their own products on a master specifications and delete all competitor products. However, the reality is that

* This is not the MasterSpec® produced by the American Institute of Architects (AIA), although there are many MasterSpec specifications in use that have not been updated in several years.

† See "Product Reps Bridge the Information Gap," by Paul R. Bertam Jr., FDSI, CDT, CWA, in CS November 2002.

manufacturer representatives—like architects, engineers, specifiers, and contractors—have a reputation to uphold. If these product/specification/application experts do not maintain integrity with their industry partners, they will not long maintain their reputations or their jobs.

Creating a Competitive Specification

Most product representatives would agree: "what" is specified is as important as specifying it correctly beside competitive materials. The phrase "specify apples to apples" is, or should be, a blueprint ingrained in the specifier's mind. Division 03—Concrete, Section 03930 Concrete Rehabilitation (New MasterFormat 2004 (MFO4), Section 03 01 30.71, "Rehabilitation of Cast-in-Place Concrete" provides relevant examples.[‡] This author often finds dissimilar products in this section of a specification. Specifications consistently place epoxy resins alongside cementitious products for repair of concrete. Given the choice between epoxy and cement-based patching compounds, the cement-based materials will be chosen nearly every time, because they cost less. When products are specified together, the end-user can choose whichever material he wants from the list. Often, an applicator will submit something altogether different from what is specified and still get it approved for use. This disparity leaves the door wide open in the choice between profits or performance.

Specifying by Name, Performance, or Project Constraint?

A recent specification review contained the following product options:

- A one-part, polymer modified, micro-silica enhanced repair mortar;
- A two-part, polymer-modified repair mortar enhanced with corrosion inhibitors; and
- A one-part, cement-based polymer-modified repair mortar.

It is difficult to determine the most important characteristic of the mortar requirements. All of the options are polymer-modified formulas. Does the application require a micro-silica enhanced repair material and why? Is there a critical requirement for a corrosion inhibiting material? Are both equally important, but the specifier is unaware of which product(s) offer a combination of these features? Is cost reduction an important criteria, and hence the cement-based option? The least expensive would most likely be the last product mentioned, and is most likely what the contractor would choose. The actual specification mentioned the product and manufacturer names, not the products performance criteria. Obviously, this method of specifying needs more clarity.

Specification Review Resources

Unless product representatives from each company make regular calls on the specification writers, it can be hard for specifiers to know about all the changes taking place. Lean staffing by many companies leave specifiers with little time to research the many product alternatives that are available. Fortunately, there are a few manufacturers who conduct specification reviews. These companies employ individuals with a specification-writing background, often holding industry credentials.[§] A specification review is not to be mistaken for a technical guide specification on a specific product/project—it involves providing a copy of one's existing specification to the representative to review and recommend changes.

When submitting a specification for review, it is best to put the information on a disk or submit it to the reviewer electronically. This allows recommendations and changes to be noted easily by using a different color, highlight, or font. Should the specification not be in the Concrete Specification Institute's (CSI) three-part format (and intended to be kept that way), the specifier should alert the specification reviewer not to change the format of the specifications. On the other hand, if a specifier wants his specification changes to CSI format, this is easy for a reputable reviewer to do.

Using a Specification Review

A review will likely consider Part 1, "General" of the specification document, typically listed under References or Quality Assurance. Part I usually includes industry standards from the American Concrete Institute (ACI), ASTM International, International Concrete Repair Institute (ICRI), the U.S. Army Corps of Engineers (CRD), and other technical organizations. A thorough review will help ensure the integrity of the overall organization of the specification, as well as consistency with industry convention, including correct titles and sub-titles. Whereas this may be a mundane task, it certainly helps keep a specification clear and correct.

[‡] In researching the changes to MasterFormat 2004, one is reminded of a favorite saying, given during a recent presentation of the subject: "Say it once. Say it correctly. And say it in the right place." Such a maxim sums up what this article is all about. Since 1961, the year that the first CSI standard for organizing construction information was issued, MasterFormat has been evolving. Many specifiers are just now making the transition to MFO4. When will there be a better time for a specification review?

[§] The Construction Specifications Institute (CSI) provides training programs for manufacturers, such as the Construction Document Technologist (CDT) program. Refer to "Failure to Communicate," by Deborah Slaton in CS April 2001.

Part II, "Products," which is also examined, is one of the most important areas to check during a specification review. Here, the reviewer typically checks to make sure both his products and competitors' products are specified correctly. This "apples to apples" comparison helps ensure a performance-based specification by verifying the equivalency of products' contents, that is, polymer-modified, silica-fume enhanced, what the shrinkage values are, is the product mixed with water or mixed with an acrylic, and so on. This is also where the individual conducting the review becomes a professional resource who knows not only his products, but also his competitor's and how they all relate to the specific application. Without the aid of a knowledgeably conducted specification review, specifiers are sometimes forced to rely on the only source of available information, the product technical data sheet. Because manufacturers can report their technical data using various test methods, it becomes even more difficult for the specifier to choose the best products. An experienced, well-versed product representative can reconcile differing testing methods, determining whether results deliver the same or similar performance, or if indeed they create "apples to oranges" product options in the specification. Recognizing this disparity, ICRI has introduced the Guideline for Inorganic Repair Material Data Sheet Protocol (Technical Guideline No. 03740), a document intended as a voluntary guideline for the owner, professional engineer, specification writer, and concrete repair contractor. It will guide manufacturers of inorganic concrete repair materials to present pertinent test information in a uniform, well-documented format. However, it is not intended to relieve the professional engineer or architect of any responsibility for the specification of concrete repair methods, materials, or practices.

Every specification writer has learned, through education or practice, key techniques for making written documents work as effective means of communication. An inability to accurately communicate through specifications may cause a repair application to fail. Part III, "Execution" is the final area open to review. In the case of concrete rehabilitation, Surface Preparation and Installation are sections critical to a successful application. Surface preparation requirements, as well as application procedures, can vary considerably from one manufacturer to another. For example, some products are much more labor intensive than others, or can only be applied using special equipment. Manufacturer Representatives can point out how vastly different two seemingly similar products can actually be. Once again, this is a critical area of the review in order to maintain a performance-based specification, as well as ensure product equivalency. In addition, ICRI offers technical guidelines on surface preparation requirements for reinforcing steel and concrete surfaces. Using industry standards can certainly make understanding and accomplishing on-site requirements much easier.

Recognizing the ever-changing world of specification writing, ICRI is currently working on creating guide specifications to coincide with the Technical Guidelines published by the organization, as well as for those currently in the works. These specification guides will provide general guidance to specification writers toward standardized preparation techniques.

Most industry experts would agree that concrete repair specification should undergo a thorough annual review. Updating specifications by cutting and pasting from an older document can cause specification writers to copy language, making for a less-competitive specification, as well as overlook the exciting opportunities new technologies provide. On the other hand, strict use of a guide specification can inadvertently result in a proprietary, rather than a performance-based specification. Of the many resources available to help specification writers bring concrete repair specifications up-to-date, one should not overlook the value of a specification review performed by an experienced manufacturer's representative.

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This Viewpoint article has been selected by the editors as an offering to the interest of our readers. However, the opinions given are not neccessarily those of the International Concrete Repair Institute or of the editors of this magazine. Reader comment is invited.

***William "Bud" Earley**, CSI, CDT, FICRI, is a National Business Development Manager for The Euclid Chemical Company. He has more than 30 years of experience in concrete restoration, repair, and protection, and serves on the International Concrete Repair Institute's Board of Directors. Earley is a member of the Construction Specifications Institute and is certified as a Construction Documents Technologist.*