Q: What can I offer customers to help their concrete projects really stand out — and help my business stand apart from the competition?

Decorative concrete is often described as one of the fastest growing segments of the concrete industry. While estimates are unavailable for the overall quantity of decorative concrete installed, colored concrete can amount to more than 30 percent in some major metropolitan markets. Some ready-mix concrete producers add pigment to 50 percent or more of their products.

Yet many installers remain unaware of decorative concrete’s potential or don’t know proper installation methods. Owners may not get the results they seek. Some find decorative concrete cost-prohibitive.

Recognizing these knowledge gaps, in December the American Concrete Institute (ACI) published a comprehensive guide to the Setting a Standard for Decorative Concrete

The ACI’s new guide shows what’s possible and tells contractors how to accomplish it.

By Jamie Farny, Portland Cement Association, and Larry Rowland, Lehigh White Cement Co.

Decorative concrete requires special materials and methods to achieve a consistent, high-quality aesthetic finish. Here, a mix of integral color and penetrating, reactive stain turns concrete into a design element at the Morton Arboretum, Lisle, Ill. Photo courtesy of Butterfield Color.
materials and methods used to produce decorative concrete finishes. With input from all segments of the industry, ACI Committee 310, Decorative Concrete, developed the 45-page Guide to Decorative Concrete (ACI 310R-13) on materials and techniques for imparting aesthetic finishes to concrete flatwork.

The committee engaged a variety of experts to share techniques and hands-on experience. They created what the ACI believes to be a guide reflecting proven techniques and the latest information available, but with standard materials and processes rather than proprietary systems.

As a guide, ACI 310R is written in non-mandatory language and is “intended for guidance in planning, designing, executing and inspecting construction. ... If items found in [the guide] are desired by the Architect/Engineer to be a part of the contract documents, they shall be restated in mandatory language for incorporation by the Architect/Engineer.”

This said, it is conceivable that many will use the document to develop project specifications. Some might use it to help identify effective means for quality control of their projects. And many will surely use it as an idea generator. More than 80 color photographs depict projects and techniques.

Many of those techniques can be combined for unique effects. In addition to attention to the specified materials, mixture designs, concrete placement, curing, protection, sealing and other treatments, this guide also considers the effects of these treatments on the overall aesthetics of facilities. Users may find many ways to make beautiful concrete flatwork, applying best practices established by leading applicators and suppliers.

**Experts Gather in Common Cause, Language**

The guide got its start in 2007. Michael Smith, longtime ACI member and founder of Concrete Artisans, Newtown, Pa., started ACI Committee 310 after recognizing disconnects in the decorative concrete industry.

To tackle the issues, ACI Committee 310 brought together concrete contractors, material producers, specialty finish applicators, designers and educators. The result of their six-year effort details recommendations for the production of cast-in-place decorative concrete flatwork. ACI 310R addresses decorative overlays,
Many of the techniques detailed in the ACI’s new guide to decorative concrete can be combined for unique effects. Here, an antiquing release agent is used with integrally colored stamped concrete to create the appearance of old-world stone pavers. Photo courtesy of Butterfield Color.

dry-shake hardeners, embedments, embossing, engraving, etching, imprinting, inlays, stains, stamping, and tooling and application of decorative overlays.

Through its discussion of these and other techniques, the guide offers a common vocabulary for the decorative concrete industry. A chapter on definitions of trade terms attempts to standardize the differing terms that have grown up over the years and supplements standard ACI CT-13 ACI Concrete Terminology.

Decorative concrete requires special materials and methods to achieve a consistent, high-quality aesthetic finish. To date, many designers and installers who don’t have experience with these special materials and methods have been reluctant to specify or place decorative concrete. The Guide aims to take the mystery out of producing decorative finishes. Techniques for coloring and texturing plastic concrete and hardened concrete, for example, are described by finish type.

**Understanding Key Variables**

Polished concrete finishes have emerged as resilient, environmentally friendly and attractive options. Durable and low-maintenance, polished concrete eliminates the need to cover perfectly good concrete with glued-down topping materials, such as vinyl composition tile or carpet, that don’t last as long as the concrete beneath. The guide covers grinding and polishing concrete, explaining how to specify the class of grind and level of gloss to yield the desired aesthetic for almost any project. It
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details the key variables in slab preparation and placement, such as floor flatness, that affect the appearance of polished floors.

As with any decorative concrete finish when properly applied, polished concrete is environmentally friendly. It won’t harbor dust, dirt or act as a medium for microbes. The guide addresses these and other “green” attributes in a section on sustainability.

Decorative concrete is often judged primarily on appearance, but it must stand up to use, too. Imparting decorative treatments should never detract from concrete’s durability. To achieve a long service life, decorative concrete may require that a few extra considerations be addressed. For example, where appropriate the guide refers readers to other ACI documents, such as ACI 308.1 for curing, and then provides specific suggestions for things that should be handled differently for decorative concrete. The guide clarifies special practices unique to decorative concrete to ensure that it gives clear, consistent recommendations.

The guide aims to take the mystery out of producing decorative finishes. Here, the 5,000-square-foot (465-square-meter) stamped concrete patio at a residence in Saratoga, Calif., is colored with dust-on broadcast colorant in shades of nutmeg on walls and trim, and cappuccino on the deck. The spiral galaxy designs are created with a glow-in-the-dark aggregate.

Photo courtesy of Tom Ralston Concrete.
The Diedrich Anti-Graffiti System is a solution to help protect and restore the beauty of masonry in the event it is attacked by vandals. This system combines a protective barrier that is resistant to water, ice, and damaging chemicals; as well as paint removers that restore beauty to an attacked wall.

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606 MULTI-LAYER PAINT REMOVER:
This aggressive paint remover can be used when an attacked wall is unresponsive to the 505 Stripper. Using 606 will remove the protective barrier provided by 333 Omegaseal and require a new application.

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Repairing Concrete
While much of the guide covers the process of placing new concrete installations, there is also a big market for repair and renovations. Sometimes budgets, time frames or other remodeling considerations don’t allow for complete removal or replacement. Concrete that is structurally sound and in relatively good condition can be aesthetically improved with the right materials and techniques.

The guide discusses surface preparation and crack repair to existing slabs to ready them for application of new decorative treatments. It also describes special procedures and tools used for accomplishing these repairs and the products required to make them.

Maintaining Durability, Aesthetics
One benefit common to many decorative concrete finishes is reduced maintenance compared to other building systems. While particular material producers or product manufacturers are knowledgeable about guidelines for maintaining their finishes, it’s important to have a basic understanding of what can affect a decorative finish and the best ways to protect it for long-term durability and appearance. The guide includes a chapter on general recommendations for maintenance of decorative finishes.

The guide can aid facility owners in understanding what constitutes appropriate care for their decorative concrete, whether they maintain it themselves or contract it out. Many decorative contractors have established solid businesses in maintenance. Retailers with high-traffic stores, for example, offer maintenance opportunities including spot repair and periodic resealing of decorative concrete floors.

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Supporting a Growing Market

Three years ago, Portland Cement Association surveyed the industry to understand the size of the market, where and how decorative concrete is used, and what its top selling points are. The survey confirmed that industry experts believe there is a large potential market for decorative concrete applications, and it continues to grow steadily.

Contractors who responded to the survey said that decorative concrete accounts for about a third of their business. The largest application for decorative concrete is the residential market, with single-family projects topping the list and multifamily close behind. Retail, restaurants and schools rounded out the top five markets using decorative concrete.

Perhaps not surprisingly, both end-users and contractors ranked “durability” as one of the top marketable attributes of decorative concrete, with “aesthetics” and “eliminating the need for other finishes” as the other top characteristics. Designers appeared to see elimination of other finishes as a key sustainable benefit. Applicators, however, reported that they rarely promoted sustainability to their customers.

Decorative concrete requires additional
planning, preparation and effort, so it is not for every situation. The guide highlights advantages and disadvantages of each technique. ACI-31OR-13 is intended to help designers understand what is possible, to show contractors how to accomplish it, and even help establish realistic owner expectations.

About the Authors
Larry Rowland is an accomplished educator with more than 25 years of experience in the material supply and construction industries. He serves as chair of the American Concrete Institute’s Decorative Concrete and Plastering committees and as chair of the Portland Cement Association’s Decorative Concrete and White Cement Committee. Rowland is a certified construction product representative with the Construction Specifications Institute and has served in numerous capacities with the Concrete Joint Sustainability Initiative, the Portland Cement Association, and the Architectural Precast Concrete Association.

Jamie Farny is market manager, buildings, of the Portland Cement Association. He promotes the use of concrete and masonry structural systems for low-rise buildings. He also promotes cement-based finishes like plaster and architectural and decorative concrete. To that end, he participates in several industry groups that develop codes and standards on cements, concrete and masonry, including ASTM International and the American Concrete Institute.
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