Stucco Trouble Shooting: Controlling the Cracks

Technology Moves Rapidly in Stucco With New Polymer-Based and Polymer-Modified Systems, as Even Conventional Three-Coat Systems Now Greatly Improved

The old adage, “What goes around, comes around,” certainly rings true in today’s architectural and building trends. There’s a movement afoot, rapidly gaining momentum, to return to the best of the past for “new” styles and materials.

Whether in office buildings, shopping malls, restaurants or townhouses—consumers and developers are rejecting “glass boxes” and cloned tract houses and asking for a touch of tradition—with all the individuality and warmth that goes with that concept.

The resurgence of traditional design goes hand-in-hand with renewed respect for traditional materials—natural earth materials used by building craftsmen for centuries. And stucco is one of the brightest stars in this company.

Stucco’s ingredients—sand, Portland cement, lime, and water— combine to form a highly durable, extremely versatile medium that can be used to achieve an almost infinite variety of effects, including texture and color. The stucco technique has been around for a few thousand years, and examples from antiquity still stand in Egypt and Greece.
Through the centuries, stucco has continued to be a mainstay for homes, churches and public buildings, wherever supplies of clay and limestone are readily available. In time, individual artisans from all over Europe brought their tools and knowledge to America—and various regional styles of stucco evolved.

Oddly enough, only certain geographic areas of the U.S. adopted stucco as an integral part of their architectural culture. As might be expected, many of them are mainly Sunbelt regions of Florida, California, Arizona, New Mexico, Texas and a few other decidedly non-Sunbelt pockets where an individual family of stucco workers combined craftsmanship, tradition, and extraordinary marketing skills to have a distinct impact on their communities.

One such area is Columbus, Ohio, home of Reitter Stucco, Inc. The company’s founder, Gabriel Reitter, Sr., who emigrated from a small village near Vienna, Austria in 1905, introduced stucco to Columbus in 1915. In his native village of 130 families, almost everyone had a family member who was a masonry artisan. So it was natural for Gabriel to bring his skill to America, and with it the commitment to excellence—a commitment still shared by the fourth generation of Reitters who carry on the family tradition. Younger members of the family have incorporated up-to-date technology and devised innovative new applications, but their devotion to their great-grandfather’s work ethic is readily apparent.

Many neighborhoods in Columbus display examples of Reitter Stucco’s handiwork—including office buildings, homes and stores, both new construction and renovations. Reitter has also done hotels, including Red Roof Inns, Marriott Courtyards, and Sunrise Suites, not only in Ohio but in other parts of the Midwest, as well.

Perhaps the best showcase for stucco’s versatility can be found at the Continent, a “City Within a City” in northern Columbus. The Continent is a vast complex of boutiques, restaurants, offices, and entertainment facilities designed to recreate the charm and diversity of a European marketplace.

The material used to create the special look of the Continent—and make the concept come to life—was stucco.

Fifteen years later, the Continent is still an immensely popular attraction, and the stucco work has staunchly withstood the effects of weather, people and age. In the words of Gabe Reitter II, “Stucco has proven to be a durable wall finish in all climatic conditions, ranging from hot and cold to wet and dry, and requiring a minimum need for maintenance. As our company motto states, ‘We put it on to stay’.”

Why Stucco?

In recent years, alternatives to stucco have been developed—specifically, synthetic exterior wall systems. Polymer-Based systems use synthetic material for the finish coat, while Polymer-Modified systems have a cementitious finish. Both types are often specified for cost-effective renovation of existing buildings, and for new structures of relatively simple, modern design.
The availability of synthetics certainly adds a new element of choice for architects and building material specifiers. But, despite synthetics, Portland cement-based stucco still holds a prominent position as a time-tested, exterior treatment.

Genuine stucco offers long-term durability in all climates when properly applied to the substrate. The finish has the classic look and texture of individual craftsmanship. Stucco’s resistance to fire, rot and fungus is superior. And, for today’s architectural direction, stucco offers a wealth of design capabilities for residential and commercial use.

**The Labor Factor**

It’s true that stucco is labor-intensive rather than material intensive. But, in terms of material costs, it is one of the most economical surfaces that can be specified, at about 50¢ per sq. ft., in comparison with $1.75 per sq. ft. for most manufactured systems. Even with labor costs included, stucco emerges as a lower cost installation.

Reitter Stucco carries and installs exclusively the Dryvit wall system, when manufactured systems are specified. Gabe Reitter cites the company’s effective training program and integrated product line as factors for standardizing on just one of the competing synthetic systems when he cannot use “real” stucco. Most manufactured systems are self-contained, and their installation is executed “by the numbers.” According to Reitter, “A systems man deals with dimensions, while a stucco man deals with buckets of mud.” Buckets of mud, yes—and a whole lot of skill. Skilled labor is the secret to a successful stucco business, and the real “magic” occurs when craftsmanship combines with the designer’s imagination.

In regard to labor—Reitter asserts that it takes four to six years to train a good stucco artisan. But he believes the investment in time is well worth it, because the market is there, and expanding rapidly.

**Stucco Techniques**

Application of stucco starts with preparation of the substrate and setting up the lathwork according to ASTM guidelines. The type and configuration of lath is determined by the style of construction. If the substrate is solid material, self-furring lath is used. Open-frame construction requires paper-backed l(291,975),(708,998)(9,975),(704,998)

The Labor Factor

It’s true that stucco is labor-intensive rather than material intensive. But, in terms of material costs, it is one of the most economical surfaces that can be specified, at about 50¢ per sq. ft., in comparison with $1.75 per sq. ft. for most manufactured systems. Even with labor costs included, stucco emerges as a lower cost installation.

Reitter Stucco carries and installs exclusively the Dryvit wall system, when manufactured systems are specified. Gabe Reitter cites the company’s effective training program and integrated product line as factors for standardizing on just one of the competing synthetic systems when he cannot use “real” stucco. Most manufactured systems are self-contained, and their installation is executed “by the numbers.” According to Reitter, “A systems man deals with dimensions, while a stucco man deals with buckets of mud.” Buckets of mud, yes—and a whole lot of skill. Skilled labor is the secret to a successful stucco business, and the real “magic” occurs when craftsmanship combines with the designer’s imagination.

In regard to labor—Reitter asserts that it takes four to six years to train a good stucco artisan. But he believes the investment in time is well worth it, because the market is there, and expanding rapidly.

**Stucco Techniques**

Application of stucco starts with preparation of the substrate and setting up the lathwork according to ASTM guidelines. The type and configuration of lath is determined by the style of construction. If the substrate is solid material, self-furring lath is used. Open-frame construction requires paper-backed lath,

Usual lathwork is hexagonal steel wire reinforcing mesh which serves as a base for the stucco, adding strength as well as protection from cracking.

Reitter Stucco chooses Keystone Steel & Wire Co.’s Keymesh® Galvanized Stucco Reinforcing Mesh for this vital step. Manufactured in Peoria, IL, Keymesh is galvanized, cold drawn steel wire woven into mesh fabric of hexagonal design, and fabricated to unroll evenly and lay flat without twisting or bulging. The material readily conforms to any configuration, so it is perfectly adaptable to broad flat surfaces, overhead application, isolated areas, or over wood or metal framing members.

Rated as having excellent fire and shear values for load and non-load bearing fire resistive construction, Keymesh is available in a variety of gauges and mesh sizes. Self-furred Keymesh has easily-identifiable “crimps” for proper furring and interlocking. (Interesting to note, Gabe Reitter cites that the idea for self-furring was given to a Keystone salesman many years ago, by Gabriel Reitter Jr.) Crimps are spaced so they will always fall over structural supports. Keymesh can be attached with galvanized staples, nails, tie wires, clips or screws, directly to supports.

Installation of expanded wire mesh, corner beads, casing beads and control joints is done as needed, before applying the stucco. The scratch (first) coat of Portland cement plaster is then applied, to a depth of 3/8” or more, completely embedding the wire mesh understructure. Hand or machine application is acceptable, although the use of heavy duty, high-speed machines which blow the material into the framework is cost effective only for larger projects.

When the scratch coat is set, one or more brown coats are applied, also to a depth of 3/8” or more, with drying and curing time in between. The finish coat con-
tains the color pigments desired for the finished surface, and is applied last. All coats combined generally provide a surface thickness of 7/8" to 1".

Special Effects With Stucco

The full spectrum of stucco’s versatility is shown most dramatically in the special ornamental and detailing effects that are possible with skilled use of the medium.

Some examples:

- Stucco is troweled and treated during the application and finish process to achieve a wide range of surface textures, from fine-grained and sandy to coarse, heavy daubs.
- A variety of aggregates—coarse or smooth, neutral or colored—can be added to the top two layers of stucco, for a totally custom look.
- Additions of thin-cut limestone architectural details, such as door crowns and window cornices, can be added atop the scratch coat of stucco. Reinforced with wire mesh and mortared into place, these additions become integral with the structure, as final stucco coats are added.
- Dimensional sculptures give a contemporary look to stucco facades, and are exceptionally striking for logo designs. Synthetic systems now available readily adapt to cut-outs, and can be finished with natural or synthetic stucco. Contrasting colors can be applied to the relief with the finish coat.
- Deep scoring of the stucco surface before drying and curing produces interesting geometric patterns, including overall patterns, such as “stucco brick.” Scoring through one colored layer to reveal a “mortar” or design of another color is called “scrafitti”, and is used in achieving the brick pattern. When the surface is completely dry, the “bricks” are uniformly scratched or scraped for a more authentic look.
- Finally, addition of other ornamental elements to an unadorned stucco surface opens even more possibilities for creating individualized exterior walls. Artisans at Reitter introduced the use of Cultured Stone® to the Columbus market.

Stucco Stone Products of Napa, California, manufactures Cultured Stone, which is a natural, dimensional product composed of Portland cement, lightweight aggregates and iron oxide colors, mixed in an exclusive formula. The resulting stones provide the authentic beauty of natural stone at a fraction of the cost and weight.

Available in 40 colors and texture choices, such as Granite Split Face, San Francisco Cobblestone, Classic Castle, and Cultured Brick, Cultured Stone can be applied to an entire wall, or used as decorative trim or chimney facing. Each stone is cast individually in one of hundreds of molds, thereby eliminating visual repetition.

Installation of Cultured Stone is similar to that of dimensional limestone trim. Substrate is prepared with Keymesh reinforcing mesh, and lined with the scratch coat of stucco. The stones are mortared to the scratch coat.

Marketing Stucco

Bringing awareness of the benefits of stucco finishes to areas where few examples exist can be a real challenge. Although Reitter has been the leader in stucco construction in Columbus for years, the company still puts strong emphasis on marketing, both local and national.

Reitter participates in CSI (Construction Specifications Institute) shows, Columbus Parade of Homes and other annual showcases. Often the homes that display the beauty and integrity of their stucco-work lead to commercial jobs like stores, banks, restaurants, apartment buildings, office buildings and hospitals, where the architect has more freedom—and a more liberal budget—to express himself or herself.

Reitter also reaches out to spec writers and designers through active membership in ten different chapters of trade associations. Consumer awareness is raised by ongoing communications—through community events and local press.

As this generation’s Gabe Reitter says, “It requires commitment to stay in this business for a fourth generation. But we know the business will always be there for us, as long as we maintain our quality.”

Judging by the looks of Columbus, where the eye beholds stucco applications that extend to the horizon, the prospects look very good indeed.

For More Information . . .

Stucco Installation, Application and Specifications
- ASTM C 926-86 Application of Portland Cement-Based Plaster
- ASTM C 1063-86 Installation of Lathing and Furring For Portland Cement-Based Plaster
- ASTM C 1032-86 Woven Wire Plaster Base
- Portland Cement Plaster (Stucco) Manual, PCA
- Reitter Stucco, Inc.
  1100 King Avenue
  Columbus, Ohio, 43212
- Keymesh Stucco Reinforcing Mesh
  Keystone Steel & Wire Co.
  7000 S.W. Adams Street
  Peoria, Illinois 61641
  800/447-6444
  (In IL, 800/322-2632)
- Cultured Stone
  Stucco Stone Products
  P.O. Box 270
  Napa, California 94559
  800/255-1727