Retaining Surface Color and Texture for Concrete Restoration

Russell Gray,
Nawkaw Corporation

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- The permanence of stain makes it a sustainable choice too.
- Most staining companies guarantee their applications for 25 years or more which means no required maintenance and no fading peeling or cracking.
- Unlike paint, stain does not require frequent reapplication 5 to 7 years.
- With the availability of gloss, sand and metal fleck finishes, concrete stain offers more choices and a greater return on your investment over time.
- Will not mask surface texture

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- Water-based emulsions of light fast colorants, binders and additives.
- Concrete (precast/ Insitu), Concrete Masonry, Fired Clay masonry, GFRC and EIFS.
- Expertise in color matching and blending.
- Translucent thru opaque finishes.
- Water-Repellent Available

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- A water-repellent stain can add any desired color to the concrete while preventing water from significantly penetrating the surface. It is applied in a one step application process.

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ASTM test data

The most recent set of accelerated weathering tests were conducted in an **Atlas UVCon Ultra Violet / Condensation Exposure Cabinet MII**.

This machine continuously cycles through extreme weather simulated conditions, i.e., UV radiation and elevated temperature and moisture condensation.

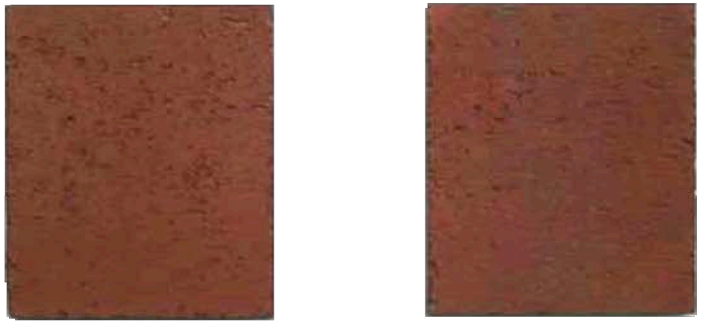
This test is widely used in the coatings industry to assess durability of exterior coatings.

Testing regime extended to simulate **25 years of continuous exposure on a vertical wall**.

At the end of its accelerated weathering exposure testing, the samples are examined for integrity and color fastness.

The results of these tests from our most recent set of exposure tests are shown pictorially:

Red



Unexposed **Exposed**

The sample on the left was exposed to no weathering while the one on the right withstood an equivalent of 25 years exposure to sunlight on a vertical wall in the accelerated testing apparatus.

Accelerated Weathering and Durability

- Test to guidelines described in ASTM .G53-88 Standard Practice for Operating Light and Water Exposure Apparatus (Fluorescent UV – Condensation Type) for Exposure of Nonmetallic Materials.

- Accelerated weathering tests are conducted in an **Atlas UVCon Ultra Violet / Condensation Exposure Cabinet MII**.

  At the end of accelerated weathering exposure testing, **samples are examined for integrity and color fastness.**

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- Penetrating
- Water Repellent
- Durable
- Warranty Available
- Water Base
- Low VOC Content
- LEED Credits

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LEED Option B.

Paints & Coatings:

(1 Point)

Requirements

Clear wood finishes, floor coatings, stains, and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District

(SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.

VOC Content Must be 250 g/L or below

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- Moisture intrusion to an exterior wall can significantly be reduced when stain is used. Film-type barriers, such as paint, can trap moisture in the wall that usually forms as a result of leakage or condensation. Stains are very permeable which allows the passage of moisture out from behind the wall. This can help reduce costly repairs for damage to brick and concrete surfaces

- Staining new construction will allow the process of moisture release from within the wall to occur naturally.

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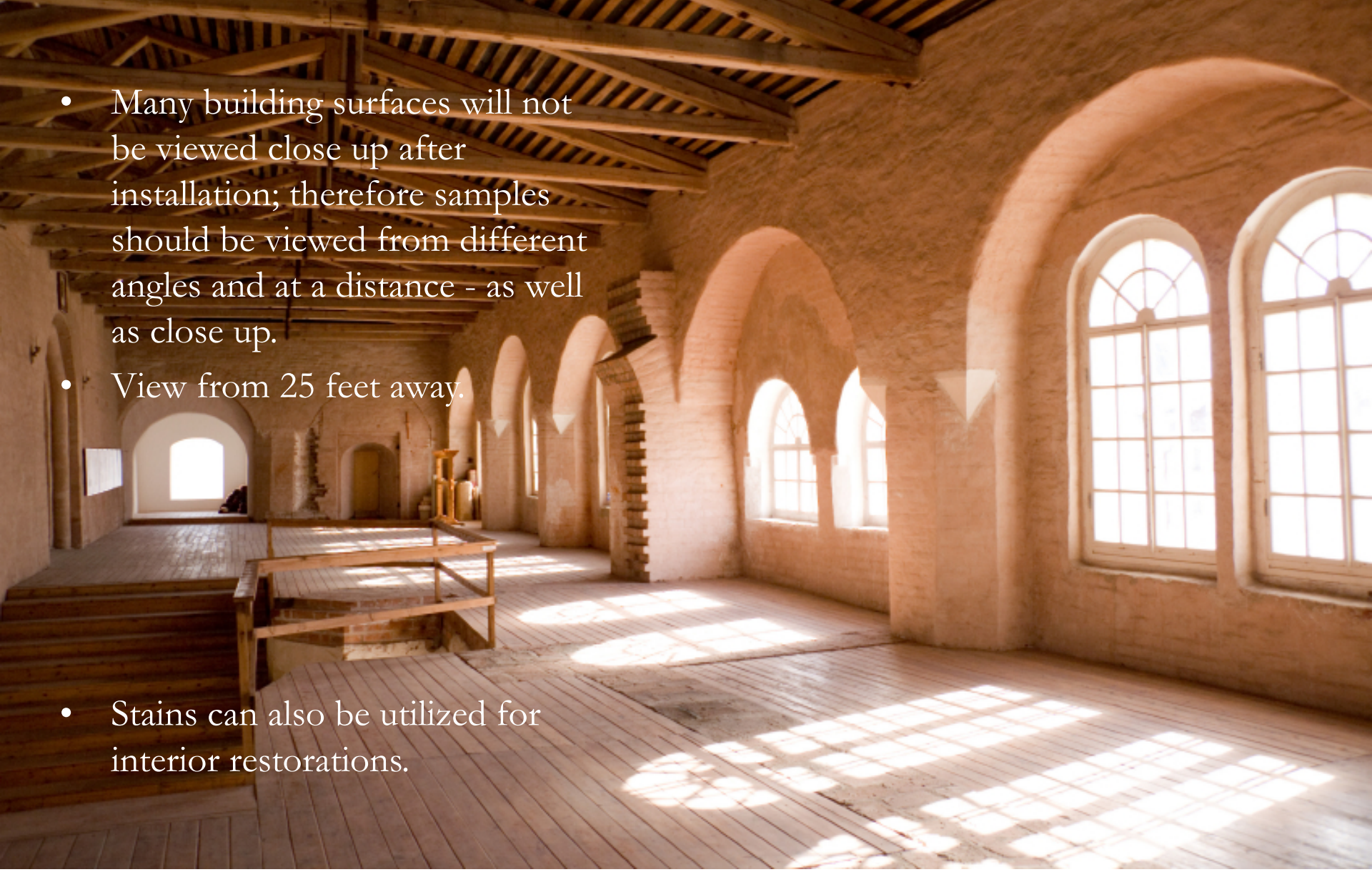

- Many building surfaces will not be viewed close up after installation; therefore samples should be viewed from different angles and at a distance - as well as close up.
- View from 25 feet away.

- Stains can also be utilized for interior restorations.

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Surface Preparation

- The first step to a consistent color blend with stain is to ensure correct surface preparation.
- verify that concrete walls are free and clean of any form oil or release agent
- and any chemical/acid wash is neutralized. Also,
- any masonry units must be structurally sound and fully intact.
- confirm that walls have a neutral ph level and
- any efflorescence is treated with proper neutralizing compounds.

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- The surface must be free of cracks, dirt, oils, paint, or other contamination which may affect the appearance or performance of the stain application.
- Air and substrate temperatures should be above 25 deg F or below 110 deg F.
- Application should be delayed if the substrate is wet or if it contains frozen water or
- when rain is likely to occur within 4 hours of application.

Hand Application

- More difficult and Time Consuming
- Increases Project Costs
- Less Chance of Accidental Spill and No Chance of Overspray
- More Color Variations Possible
- Ability to Cover More Specific Areas
- Any combination of brush/roller or Sponge can be used

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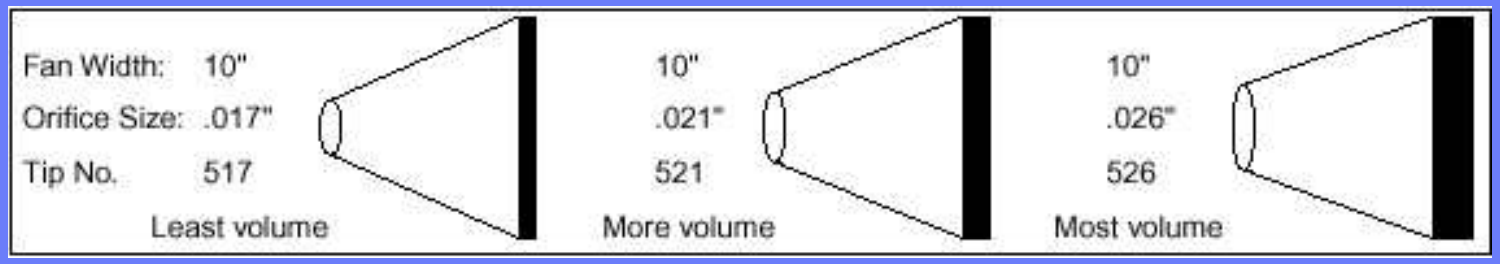
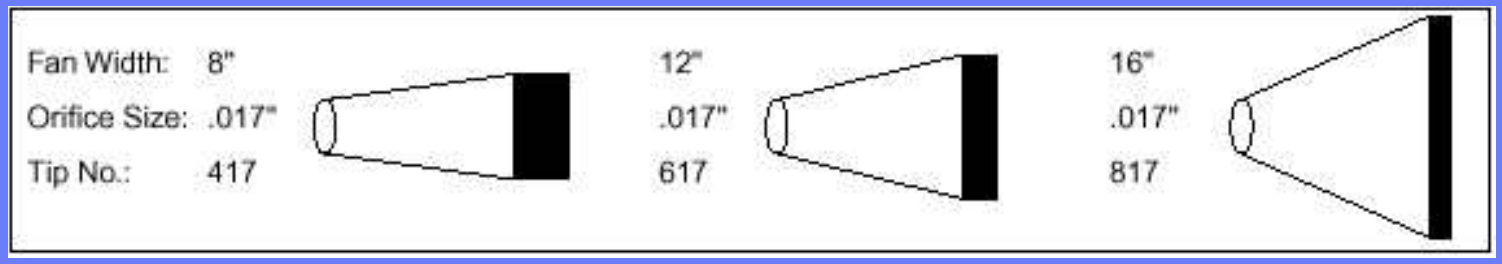
Spray Applications…

- Must have one skilled/experienced individual.
- Use lots of material, 250 square feet per gallon. Approximately 50% of product evaporates.
- Weather sensitive, wind.
- Overspray

HVLP
HUSKY
PRO

Spray Nozzle Specifications





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- Able to complete LOTS of square feet/meters per day.
- One skilled individual required.
- Easier color selection.

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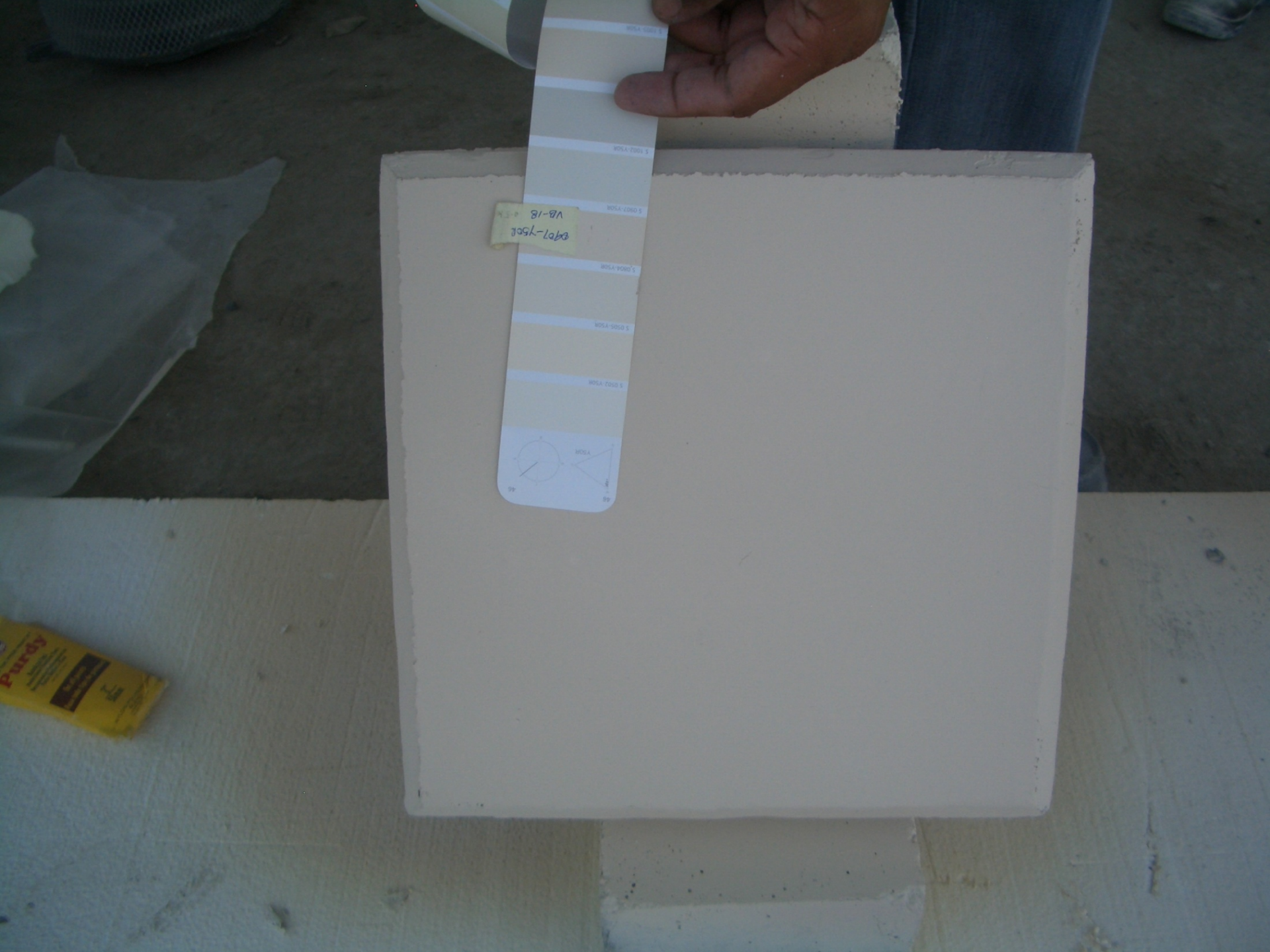
S 1005-Y50R
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S 0804-Y50R
S 0505-Y50R
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Y50R
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Purdy


ALDI

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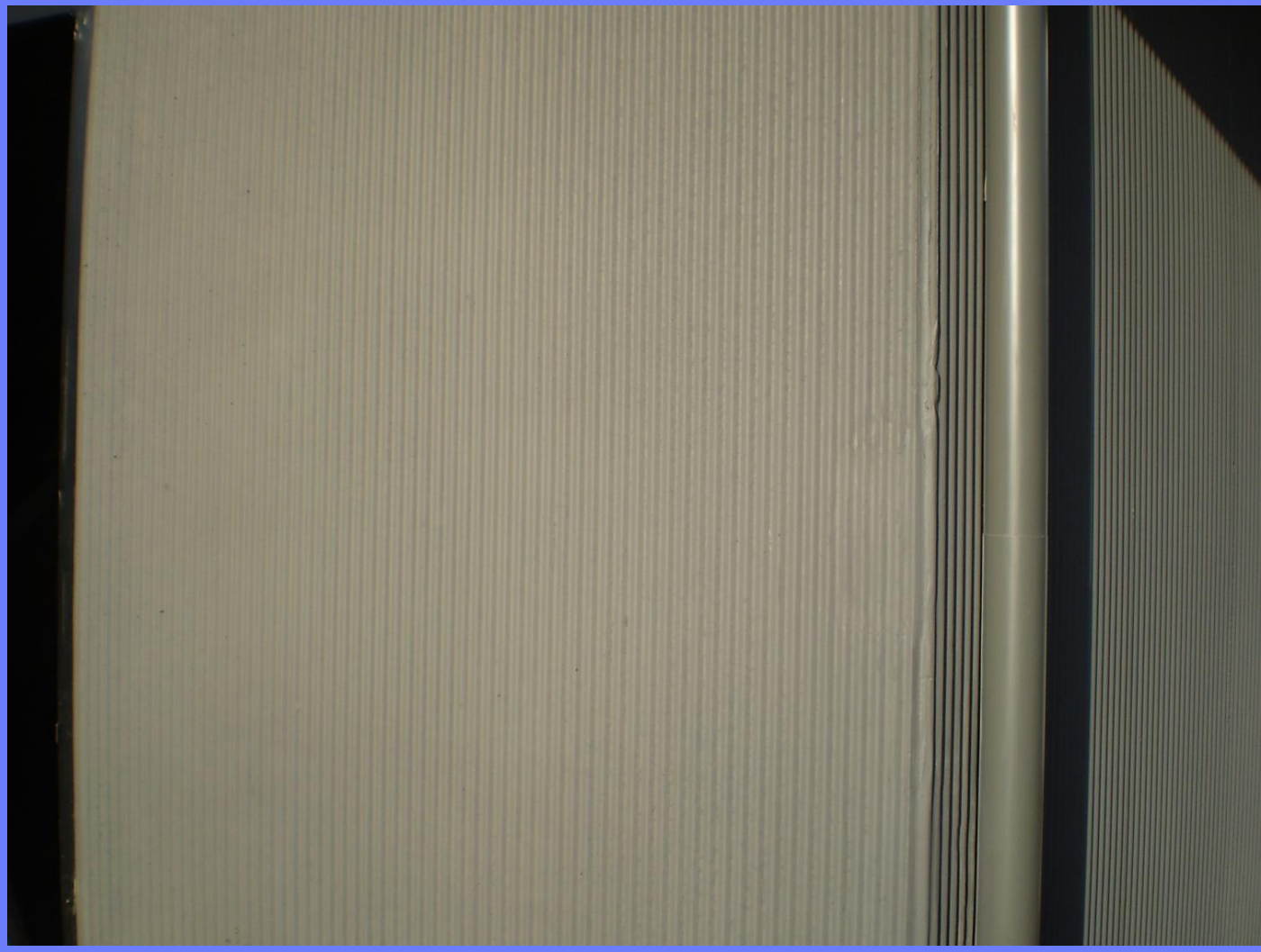
- Repairs Made
- Surface Prep

- Custom Color
- Stain Application



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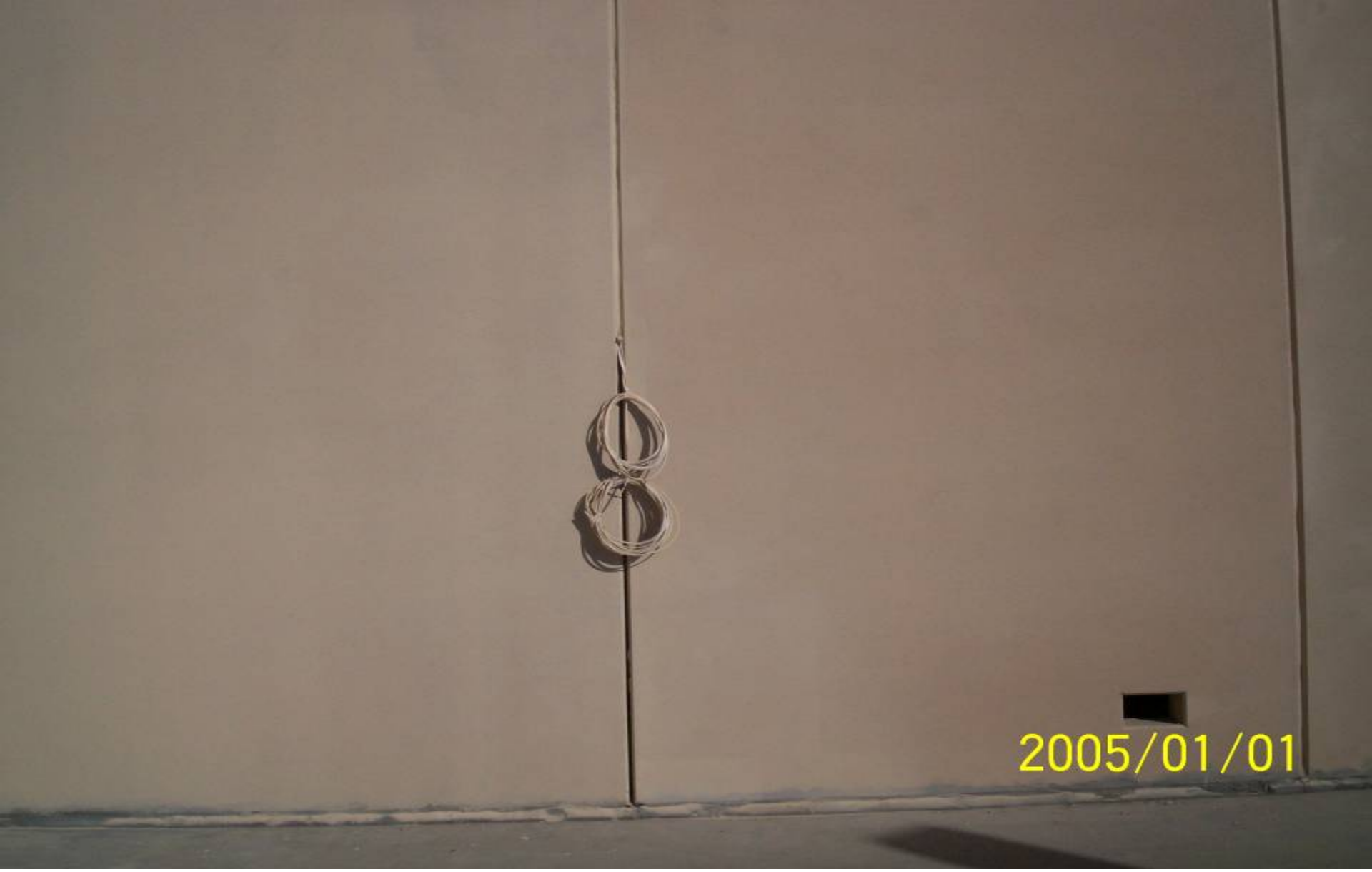

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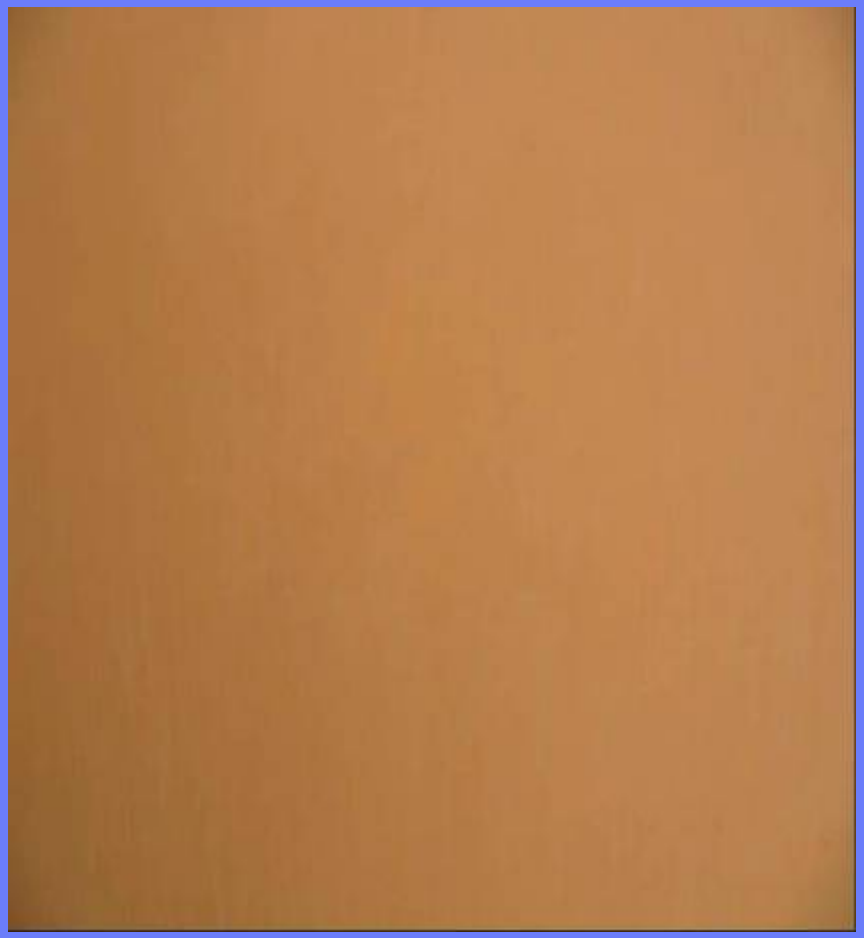

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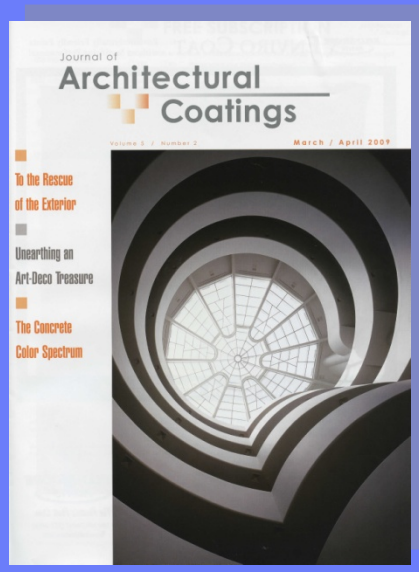
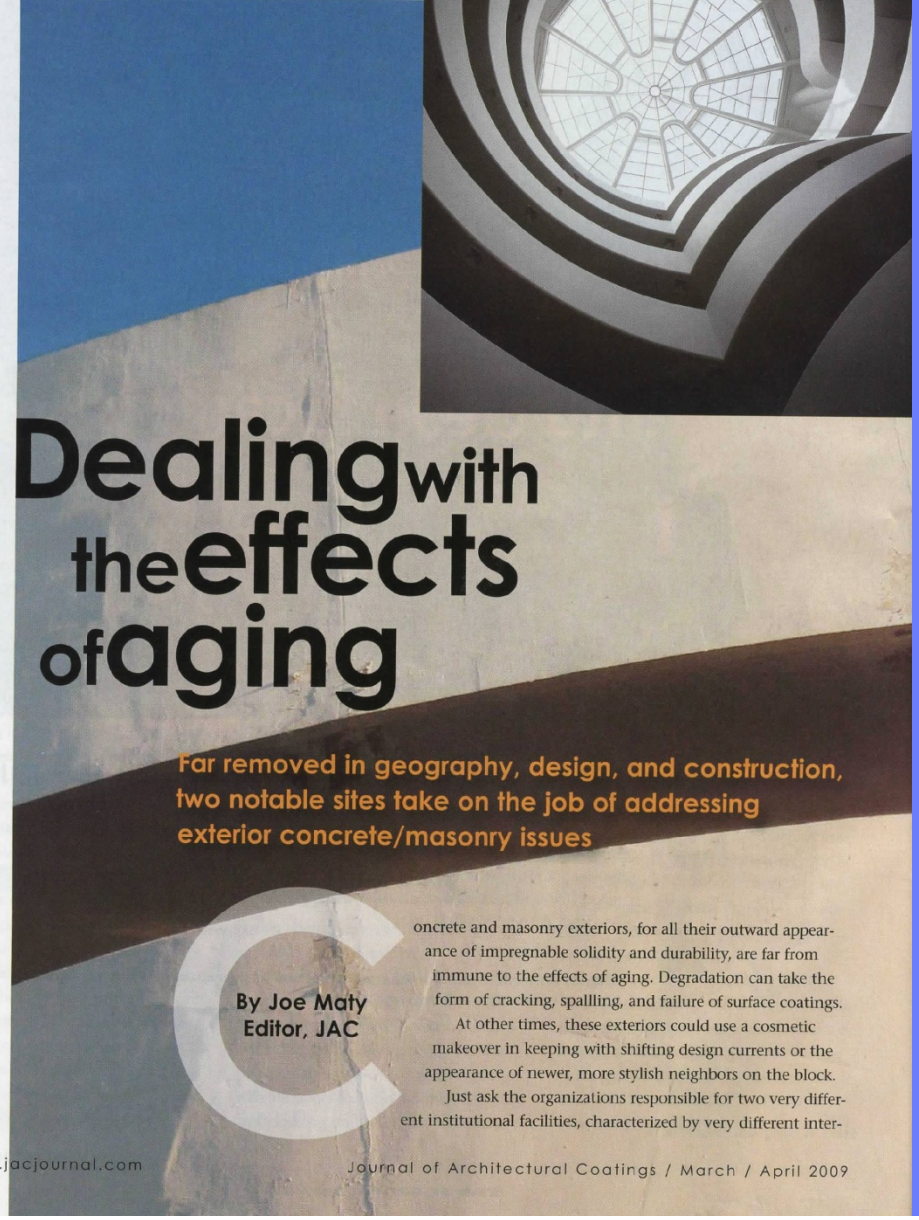
Ft. Worth Museum

Featured in
Journal of Architectural Coatings
Cover Story
March/April 2009





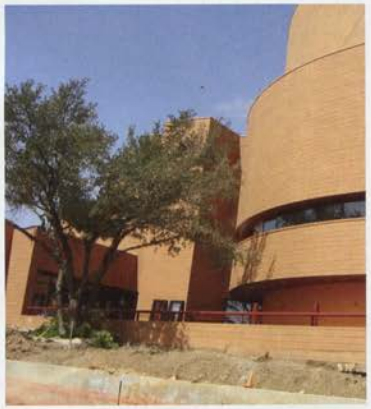
Dealing with the effects of aging

Far removed in geography, design, and construction, two notable sites take on the job of addressing exterior concrete/masonry issues

By Joe Maty
Editor, JAC

Concrete and masonry exteriors, for all their outward appearance of impregnable solidity and durability, are far from immune to the effects of aging. Degradation can take the form of cracking, spalling, and failure of surface coatings. At other times, these exteriors could use a cosmetic makeover in keeping with shifting design currents or the appearance of newer, more stylish neighbors on the block. Just ask the organizations responsible for two very different institutional facilities, characterized by very different inter-

A program of cleaning and coloring of the brick exterior of existing buildings at the Fort Worth Museum of Science and Hist formulated to provide a sense of unity with the site's new museum building. Photos courtesy of Nawkaw Corp.



which dates to 1983, and an adjacent, new building scheduled for completion late this year.

The museum is home to western-heritage artifacts, a museum school for preschoolers, a planetarium, in-house artifacts including a room for touring exhibitions, and an IMAX® domed ater. An ambitious construction anc vation program launched in 2006 includes major improvements to th ater and construction of a new mus facility designed by the architects Legorreta & Legorreta, based in Mex City. The museum's original buildin dating to the early 1950s, was razed make way for the new museum bui

Linbeck, the general contractor fc construction program, called on Na Southwest, part of Atlanta-based Na Corp., to execute a campaign of cle and coloring of the brick exterior o existing theater building and an en walkway connection. The objective the existing structures look as if the share a kinship with the new facilit

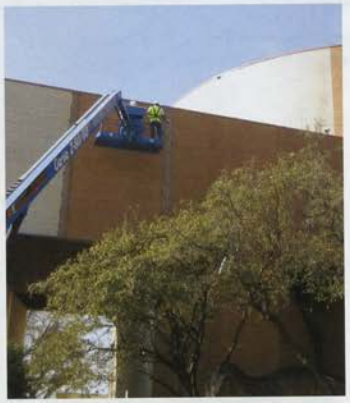
A regional, Southwest flavor is pr ed by the museum complex, with e tones that evoke the region's fronti

A regional, Southwest flavor is projected by the museum complex, with earth tones that evoke the region's frontier heritage and Mexican/Spanish influence.

itage and Mexican/Spanish influence. In the design of the new museum building, architect Ricardo Legorreta and son and partner Victor deployed trademark themes of bright colors, bold geometric statements, and interplay of light and shadow. Ricardo Legorreta is considered perhaps Mexico's foremost architect; he won the AIA Gold Medal in 2000.

In comments on the Fort Worth Museum, Legorreta and Legorreta said the designs and exterior materials make "a statement about Mexican, timeless architecture from a Mexican architect's point of view, where we find the use of color fundamental." The firm says it "goes more for colors that match the earth." Thus, the choice of brick masonry and the terra-cotta finish on the new building's EIFS elements, and the choice of light earth tones for color.

The scope of work included thorough cleaning of the exterior brick of the existing theater building, application of color-coordinated paint to metal elements including lintels, doors, grilles, and cop-



Recoloring of the exterior masonry was carried out using a water-based, penetrating stain composed of a multiple-polymer formulation of resin solids, color pigments, and tint base. Photos courtesy of Nawkaw Corp.

ing, and preparation and painting of concrete and stucco surfaces around building soffits and column bases. Remedial pointing, caulking, and sealing were also executed.

Nawkaw was enlisted to change the color of The Omni Theater so that it ment was used on the original white-colored brick and mortar on the existing theater building and adjacent corridor exterior. The product is a water-based, penetrating stain composed of a multiple-polymer formulation of resin solids, color pigments, and tint base. The material penetrates porous brick, masonry, and concrete surfaces, and is reported to possess a high degree of lightfastness, UV resistance, and resistance to weathering, mold, fungus, and mildew.

The company says penetrating stains of this type deposit the colored pigments required to alter the color of the masonry without sealing the surface. This approach allows the masonry to dry properly by evaporation of surface water and transmission of moisture from behind the masonry, and helps to prevent spalling of the substrate and mold growth within the wall.

Nawkaw says its permanent masonry stain can be employed to recolor brick, block, mortar, precast, concrete, stucco, and manufactured stone surfaces. The masonry stain products penetrate the surface and result in a non-textured, uniform, and natural appearance. The stains also can be used for decorative accents, color matching of building additions, historical color restoration, blending of renovated areas, graffiti resistance, or complete color changes.

The stains are reported to retain their color for 25 years or more, but do not alter the inherent appearance and textural qualities of the masonry substrate.

JAC

- Stain with added materials- such as sand and other coarse aggregate materials can replicate missing textures

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- Creating seamless areas - where texture was void.

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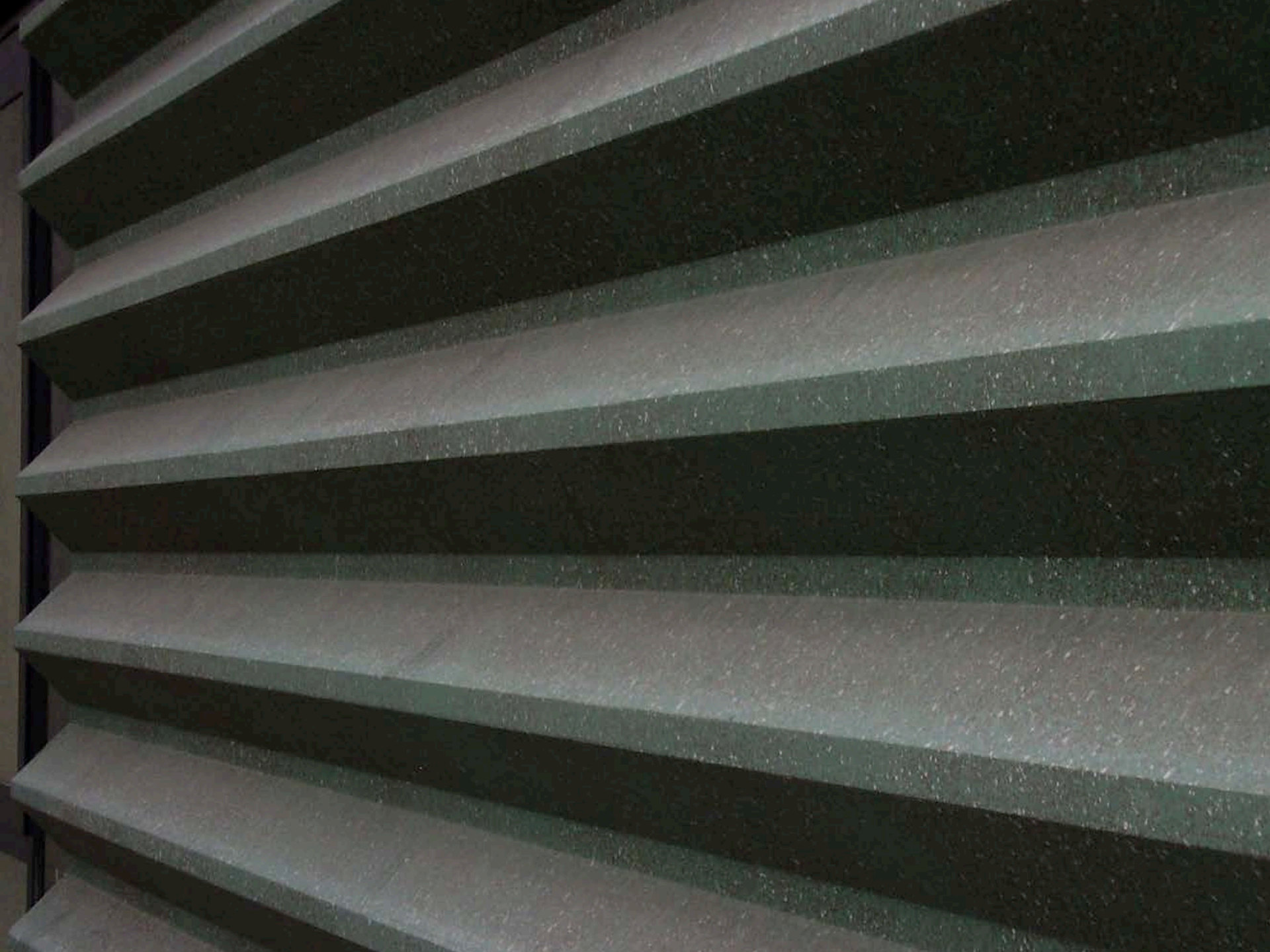

Atlanta Regency Hyatt Hotel

Interior Atrium Design

Required extensive cleaning & Surface Prep before stain application.

The exterior was void of texture in many areas

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Spray Application…

Hyatt Regency
Atlanta, GA

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Hand Application by
Nawkaw Southeast

ACI, Georgia Chapter
Award of Excellence
for Concrete Restoration

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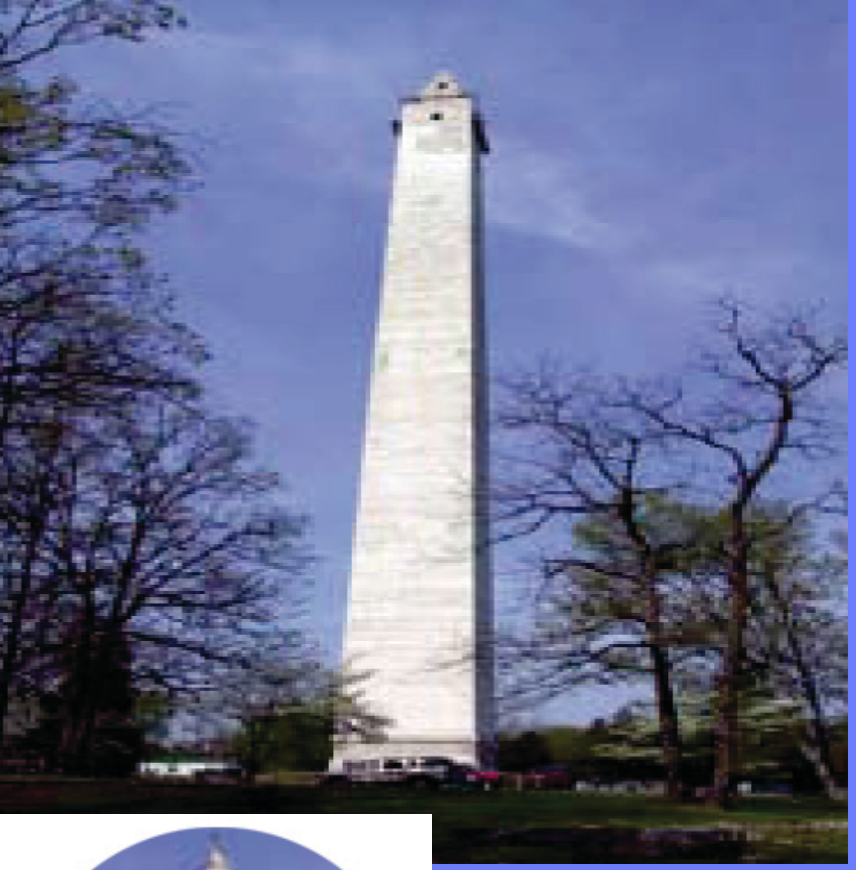
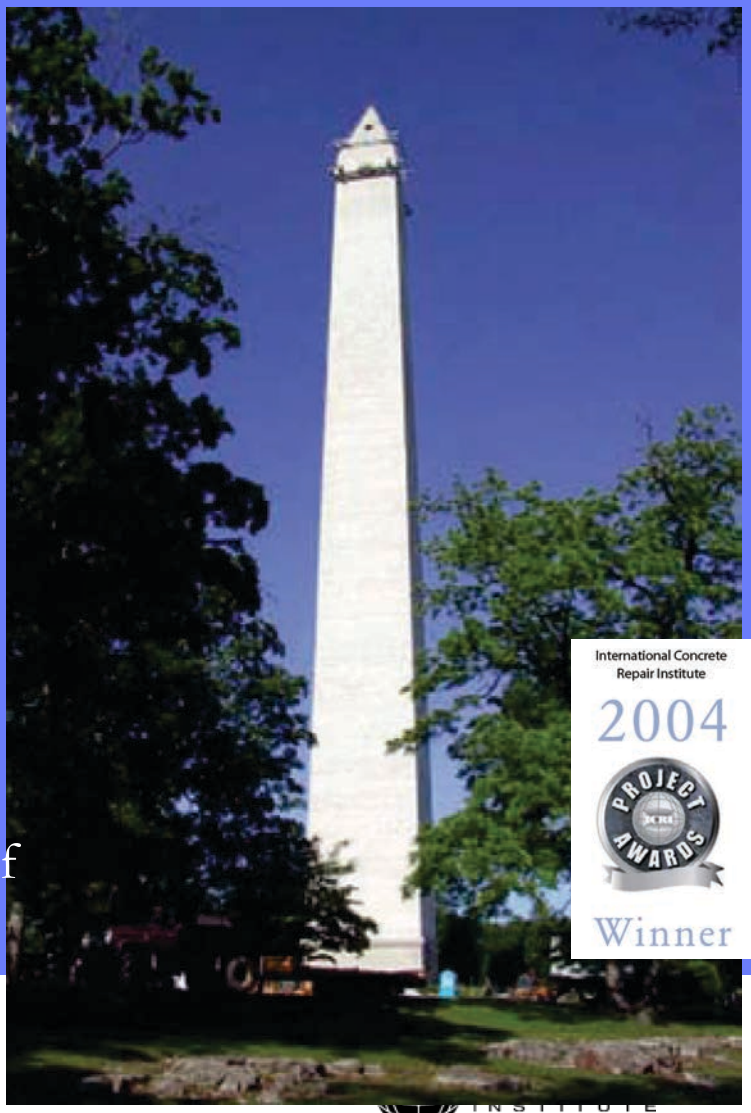
Jefferson Davis Monument

ICRI
Project Award Winner
for Concrete Restoration





Repaired areas were color blended by Nawkaw after GC completed restoration of this project.

International Concrete Repair Institute
2004
PROJECT AWARDS
Winner

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Correcting Integral Color

Art Gallery and Commercial Property
Miami, FL

- Powdered pigments have been around for decades, and they are still the most popular admixture choice for coloring new concrete.
- The key is consistency combined with a strict quality control process. Without these systems and methods in place, color variations will naturally occur.

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01.29.2009 09:06

- Achieving the correct color requires an understanding of the many factors that can influence the color of integrally colored concrete panels.

- These include:
- the concrete ingredients
- the mixture amounts
- method and duration of curing
- release agents, and
- the forming process.

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Thank you for your time.

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