Part 2
Decorative Concrete

Presented by: Keith Boudart

Focus

- Appreciation of variables
- Importance of Managing Expectations
- Decorative Concrete is not for everyone
- Sell the right product for the job.
- Good concrete practices = good start for decorative concrete
- Asking the right questions

Creating Decorative Concrete Masterpieces

New Concrete

- Color Selection process
  - Coloring options
- Basic Decorative Concrete Techniques
  - Stamped concrete
  - Stenciled Concrete
- Advanced Decorative Concrete Techniques
  - Surface Retarders
  - Decorative Scoring and finishing
  - Form Liners
  - Precast items
- Curing and Sealing Decorative Concrete

Existing Concrete

- Stains
- Overlays

Troubleshooting Issues

Color Selection Process

Integral Color

Color Hardener

Integral Coloring Admixture

- Opaque solid coloring
- Concrete Colored throughout
- Colors based on gray cement

Integral Color Admixture

- Provides opaque solid coloring
- Color the full thickness of the concrete

Integral Concrete Color: Placing Concrete

Integral Concrete Color: Finishing


DOWNERS
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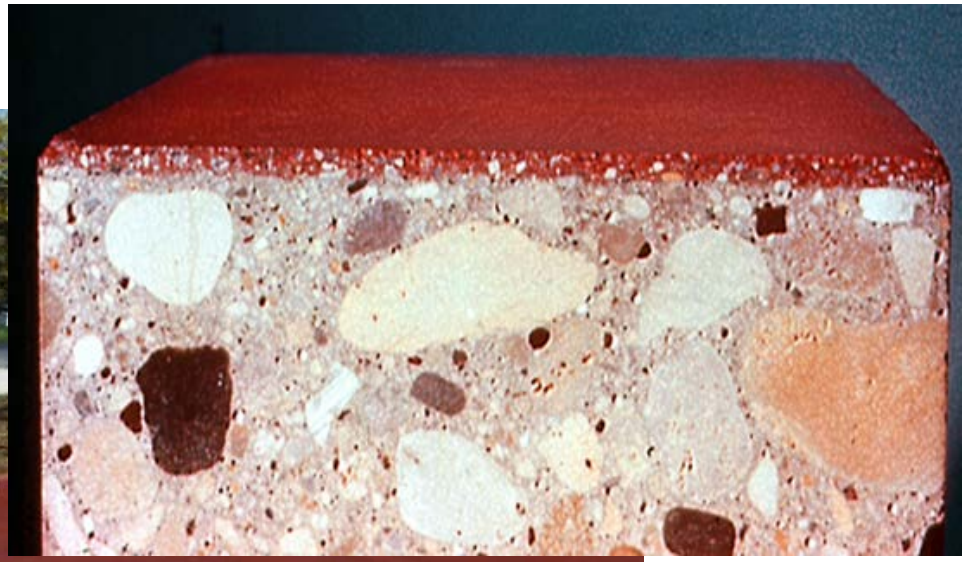
Shake-on Color Hardener



Shake-on Color Hardener

- Color in top ¼” of concrete
- Color not affected by concrete/ cement color
- Creates a durable surface

Shake-on Color Hardener

- Maintain slump of 4”-5”
- Consistent use of admixtures
- Consistency in all phases of the job
- Utilize evaporation retardant if needed
- Utilize & correctly apply curing materials
- Do not use plastic or wet curing
- Create mock up panels

Shake-on Color Hardener

Perma-Cast® Shake-on Color Hardener

Perma-Cast® Shake-on Color Hardener

Integral vs. Color Hardener

Integral

- Color influenced by cement
- May require white cement for light colors
- Horizontal or vertical applications
- Suitable for exposed aggregate
- Ineffective as a color hardener

Shake-on

- Not influenced by cement
- No white cement required
- Vertical requires special technique
- Specialty exposed only
- Ineffective as an integral color

Integral vs. Color Hardener

Color Hardener:

- No wash out charge
- Economical for small projects
- Accent to Integral Slabs
- More durable surface

Integral Color:

- Easier, cleaner
- Color throughout thickness of concrete

Integral Color and Color Hardener

Basic Techniques

- Stamped Concrete
- Stenciled Concrete

Stamped Concrete

- Can be used interior or exterior
- Replicate the look of wood, tile, bluestone, brick, cobblestone
- Used along with integral color or color hardener or both

Stamped Concrete Overview

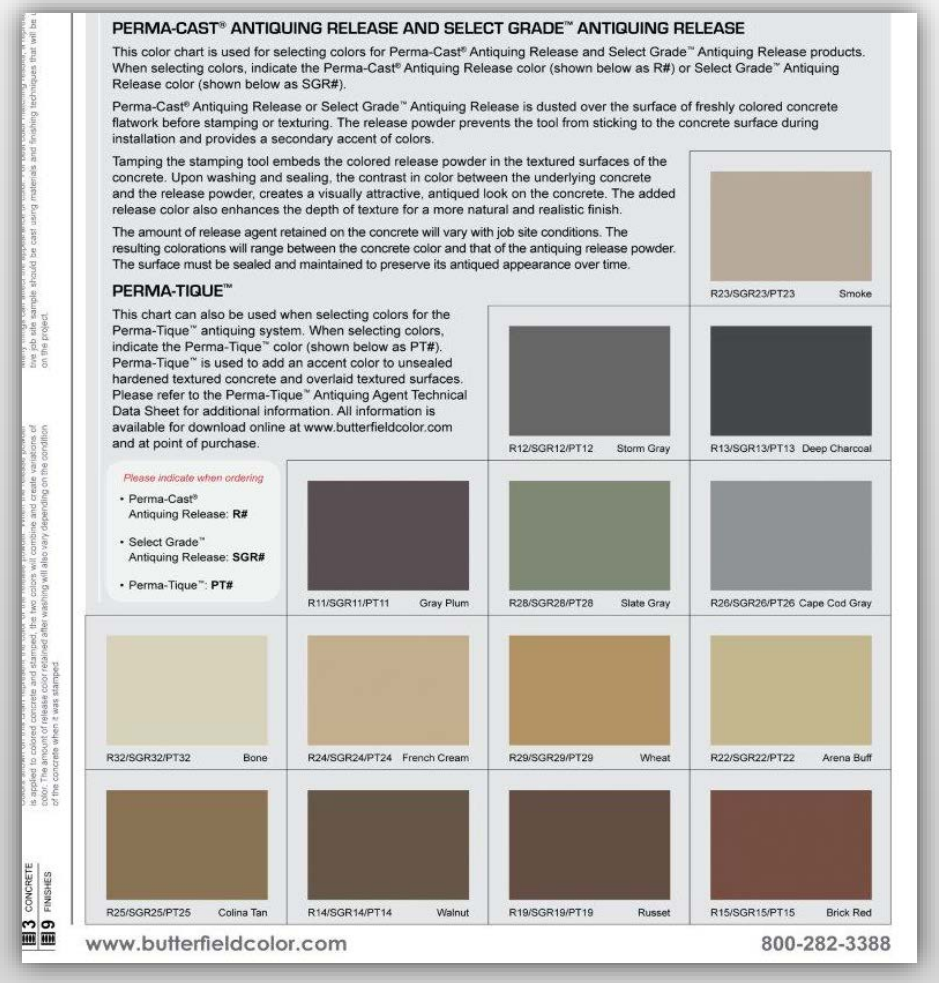
Release Agents

Powder Release Agent

Liquid Release Agent

Antiquing Release Agent

- 14 Standard Colors
- Approx. 1,200 sf per bucket
- Mini-packs available.
- Choose Color wisely



PERMA-CAST® ANTIQUING RELEASE AND SELECT GRADE™ ANTIQUING RELEASE

This color chart is used for selecting colors for Perma-Cast® Antiquing Release and Select Grade™ Antiquing Release products. When selecting colors, indicate the Perma-Cast® Antiquing Release color (shown below as R#) or Select Grade™ Antiquing Release color (shown below as SGR#).

Perma-Cast® Antiquing Release or Select Grade™ Antiquing Release is dusted over the surface of freshly colored concrete flatwork before stamping or texturing. The release powder prevents the tool from sticking to the concrete surface during installation and provides a secondary accent of colors.

Tamping the stamping tool embeds the colored release powder in the textured surfaces of the concrete. Upon washing and sealing, the contrast in color between the underlying concrete and the release powder, creates a visually attractive, antiqued look on the concrete. The added release color also enhances the depth of texture for a more natural and realistic finish.

The amount of release agent retained on the concrete will vary with job site conditions. The resulting colorations will range between the concrete color and that of the antiquing release powder. The surface must be sealed and maintained to preserve its antiqued appearance over time.

PERMA-TIQUE™

This chart can also be used when selecting colors for the Perma-Tique™ antiquing system. When selecting colors, indicate the Perma-Tique™ color (shown below as PT#). Perma-Tique™ is used to add an accent color to unsealed hardened textured concrete and overlaid textured surfaces. Please refer to the Perma-Tique™ Antiquing Agent Technical Data Sheet for additional information. All information is available for download online at www.butterfieldcolor.com and at point of purchase.

Please indicate when ordering

- Perma-Cast® Antiquing Release: **R#**
- Select Grade™ Antiquing Release: **SGR#**
- Perma-Tique™: **PT#**

R23/SGR23/PT23 Smoke
R12/SGR12/PT12 Storm Gray
R13/SGR13/PT13 Deep Charcoal
R11/SGR11/PT11 Gray Plum
R28/SGR28/PT28 Slate Gray
R26/SGR26/PT26 Cape Cod Gray
R32/SGR32/PT32 Bone
R24/SGR24/PT24 French Cream
R29/SGR29/PT29 Wheat
R22/SGR22/PT22 Arena Buff
R25/SGR25/PT25 Colina Tan
R14/SGR14/PT14 Walnut
R19/SGR19/PT19 Russet
R15/SGR15/PT15 Brick Red

3 CONCRETE 9 FINISHES

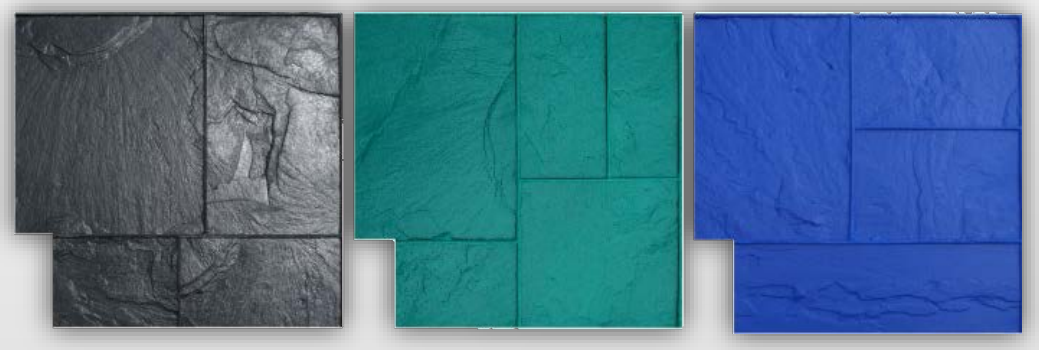
www.butterfieldcolor.com 800-282-3388

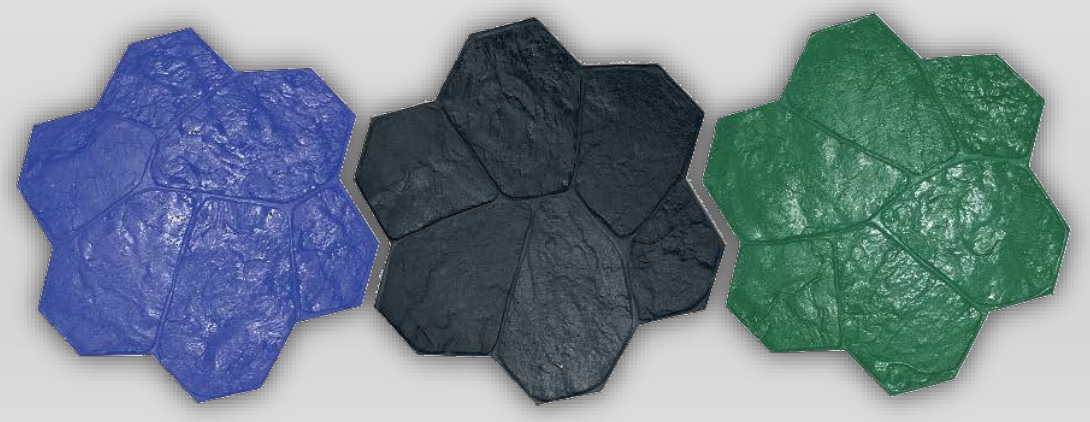
Stamping Tools

- Rigid, Flex & Texture Skin
- Realistic patterns which achieve natural effects
- Not all tools are created equal
- Tools designed to minimize surface cracking
- 100’s of patterns to choose from
- Most can be used on concrete and cement based overlays

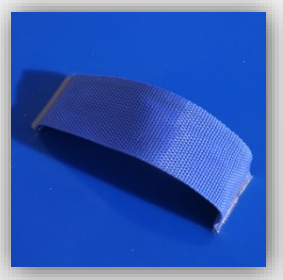
Stamping Tools

Minimize Repetition



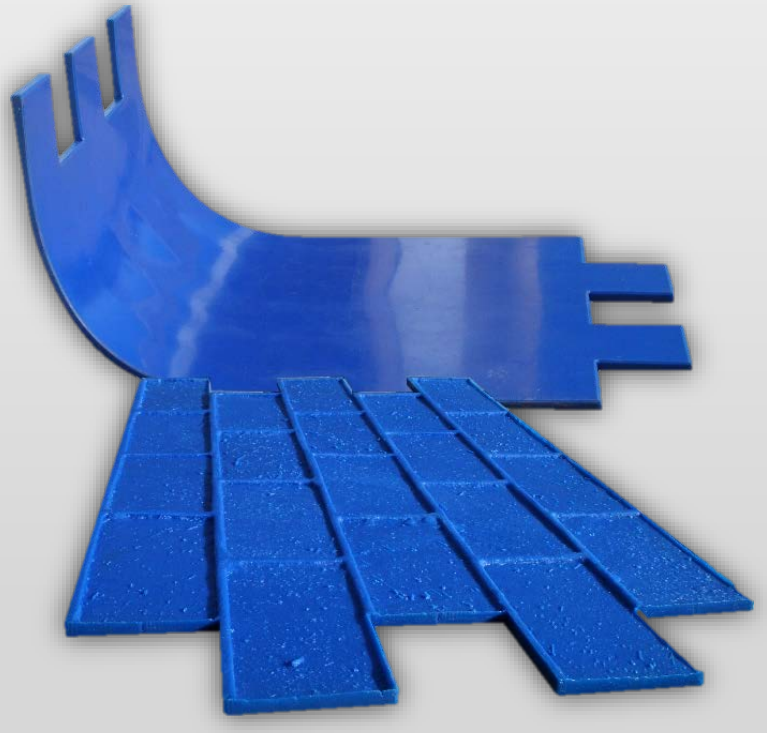


Stamping Tools



Rigid

Flexible



Stamping Tools

Texture Skins & Mats

Stamping Process: Broadcast Release

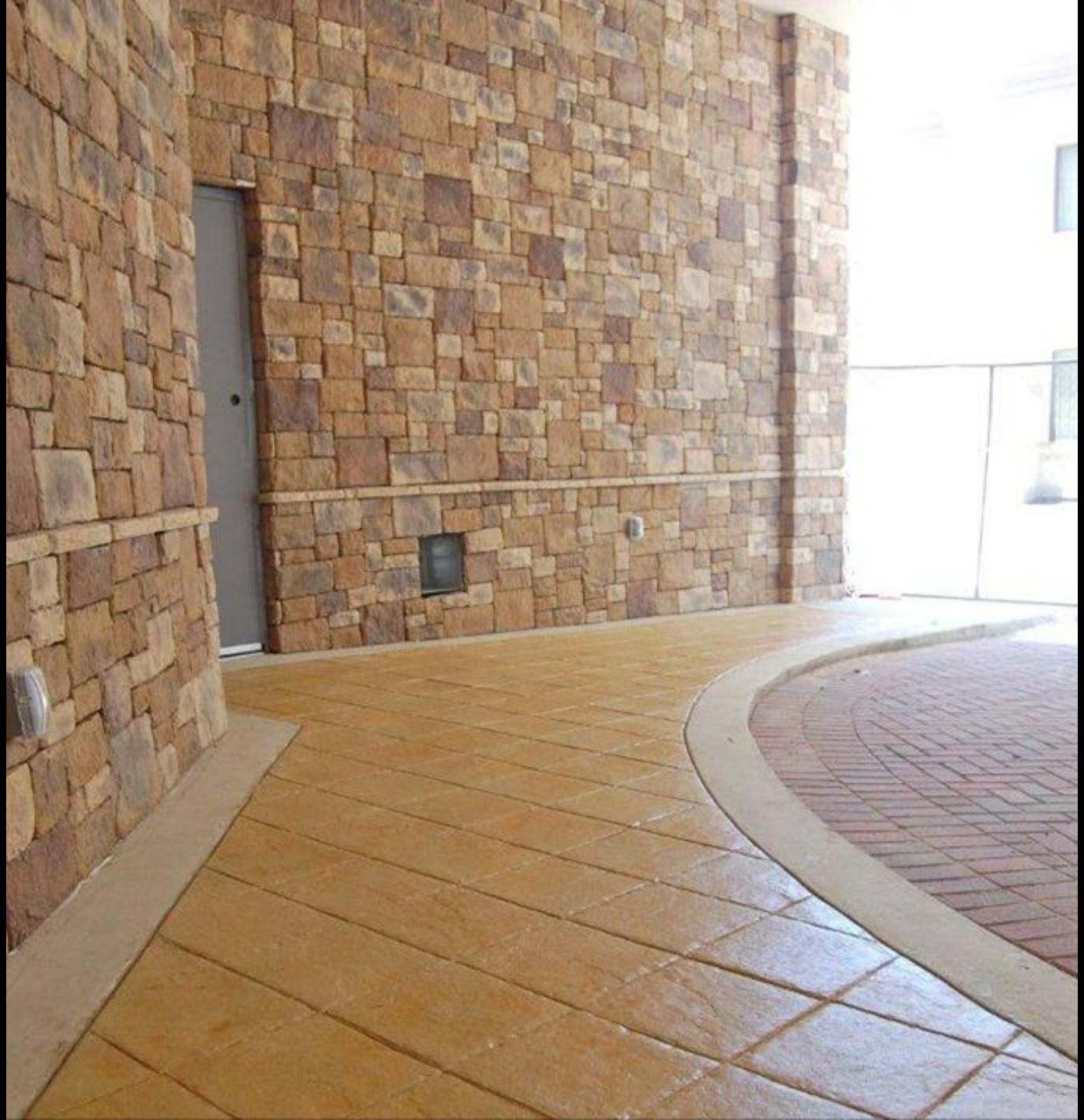
Stamping Process: Stamp

Stamping Process: Flex Tools

Stamping Process

Stamping Process: Detailing

Stamping Process: Washing Release

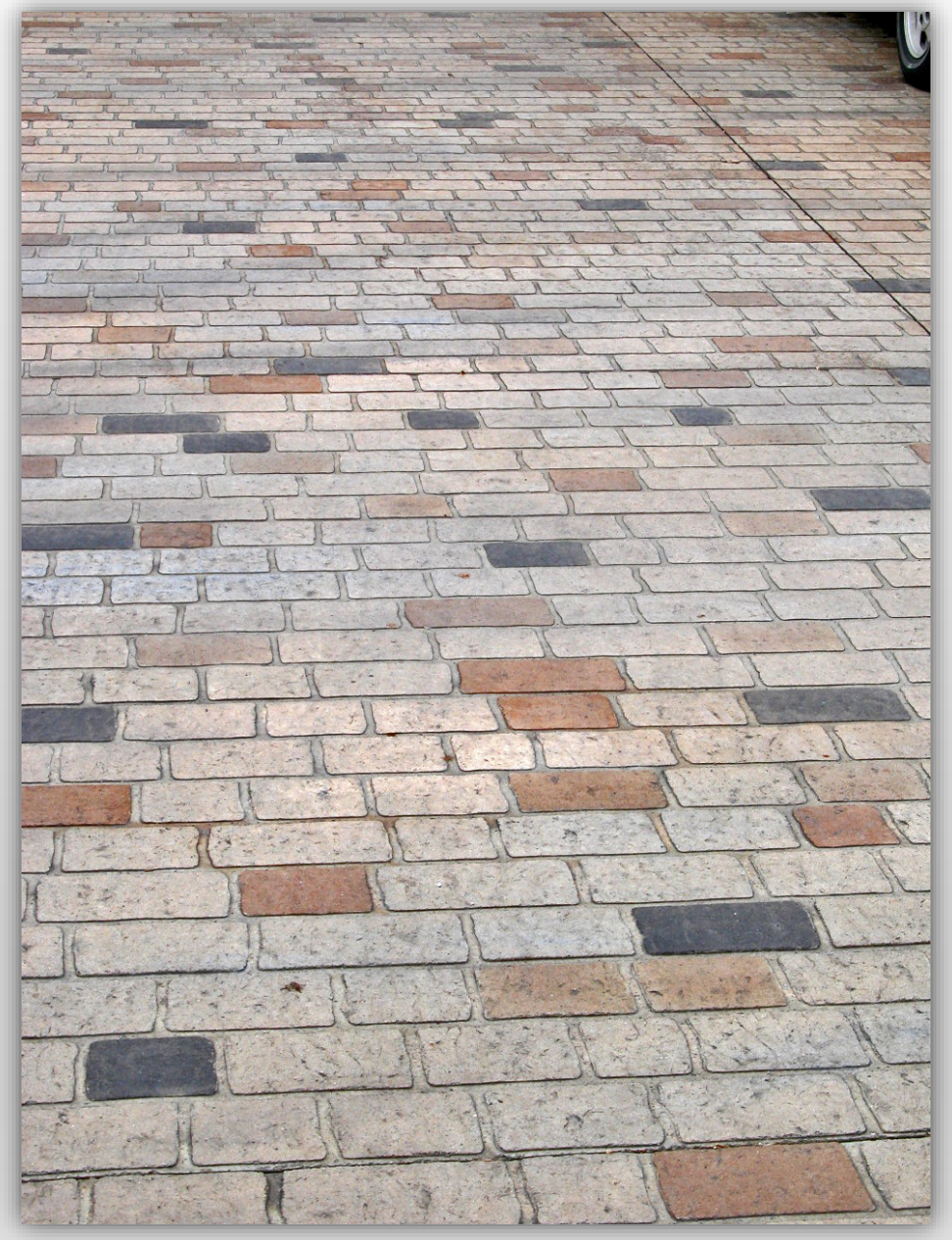


Stenciled Concrete

- Used with new concrete or with overlays
- Best look to replicate brick and cobblestone patterns
- Custom stencils affordable

Stenciled Concrete

- Paper stencil
- Sold in rolls
- Utilized with Color Hardener and/or Integral Color
- Excellent for creating repetitive pattern



Place the Concrete

- Strike Off, Edge, Float, and complete initial finishing
- Lay out Pours to work with stencil breaks
- If desired grout line color is not gray add integral color to mix

Lay Out Stencils

Cut and Detail Stencils

Set Stencils

Color Hardener Application

Color Hardener Application

Apply Release Agent

Clear Liquid Release

Adding Texture

Removing the Stencils

Cleaning/Detailing

Sealing

Stenciled Concrete


WARNING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Advance Techniques

- **Surface Retarders**
- **Decorative Sawing/Tooling**
- **Concrete Overlays**
- **Form Liners**
- **Benches Tables and precast items**
- **Concrete countertops**

Surface Retarders

- Used on new concrete surfaces
- Used with integral color or grey concrete
- Many grades available
- Specialty aggregate used to accent coloring
- Some grades work with stenciled

Decorative scoring/sawing/tooling

- Use of specialty saws to create pattern
- Works well with textured concrete to create look of tile and natural stone
- Scoring used during the staining process
- Tooling and sawing can be used to create control joints

Form Liners

- Step Form Liners
- Slab perimeter liners
- Wall Liners

Pre-cast items

- Benches
- Tables
- Other Precast items


BUTTERFIELD COLOR
Exposed Concrete Performance
TABLE MOLD SYSTEM
BUTTERFIELD COLOR
Exposed Concrete Performance
BOLDER CURVE TOOLS
CANTERA

The most important part: Sealers/Coatings and Waxes

- Suggest/require good sealer
- Discuss upfront costs vs. long term maintenance costs
- Discuss maintenance requirements with owner and provide suggestions in writing

Sealers and Finishes

Penetrating Sealer (Silane/Siloxane): $.25/sf

- **No color enhancement** — **Exterior use**
- **Used as water repellant**

Water base Acrylics: $.10-$.20/sf

- **Limited color enhancement** — **Limited durability**
- **Should be top coated with wax**

Solvent base acrylic: $.20-$.30/sf

- **Color enhancement** — **Not for interior (Smell)**

Polyurethane: $.75-$1.00/sf

- **High build protective coating** — **Interior only**
- **Color enhancement** — **Abrasion resistant**

Epoxy: $.75-$1.00/sf

- **High build coating** — **Interior only**
- **UV issues** — **Pigmented available**

Managing Expectations

The basics:

- Never offer something to “Match”
- Never let the owner dictate the application
- Never choose colors off the computer or a picture
- Always let the weather dictate “yes” or “no”
- Always Under-promise and Over-perform
- Always provide a mock up Managing Expectations

Know when to say when

- Never close a deal that you know will go bad
- When in doubt pass on a job
- Know when to tear it out and replace it

Last but not least…
Managing Expectations

- The word “Exact” does not exist with decorative concrete
- Expect some variation and discuss this with the client
- Always require a proportional mock-up for every project
- Discuss costs and maintenance options

Existing Concrete

- Concrete Stains
- Concrete Overlays

Staining Concrete

Creating Translucent coloring

Reactive Chemical Stain

- Translucent coloring
- Applied to cured concrete
- Will not hide defects
- Stain is translucent
- Limited color range
- Material: $.25/sf
- 3-day process


THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA

Non-Reactive Stain (Dye)

Water Based Stains (Dye)

- UV Stable
- 16 Standard Colors
- Mottled Coloring
- Low VOC product
- Larger Color Pallet
- Material: $.30/sf
- 3-day process

Stamp Overlays

- Can be used interior or exterior
- Replicate the look of wood, tile, bluestone, brick, cobblestone
- Used over existing prepared concrete surfaces
- Can be stained, colored and imprinted


MY LADY

Textured Fine Overlays

- Thin overlay ¼” thick
- Used over existing concrete
- May be textured or used with stencils
- Can be colored or stained


NO DIVING

Vertical Overlays

- Applied to concrete, drywall or concrete board
- Applied vertically up to 3” thick
- Create the look of natural stone or wood
- Stamp or carve
- Colored with stains or integral color

OPEN

Troubleshooting

- When proper techniques are ignored!

SECTION 7 SEALER TROUBLESHOOTING

Bubbles or Blistering

Definition

Finished surface has small bubbles that pop or shatter when stepped on. Can be found on the top of the surface but are typically more prevalent in lower spots or joints on stamped concrete projects.

Probable Cause 1 - Product was applied too thick.

Prevention

Take time to fully understand coverage rates and place a uniform coating over the entire surface, removing any puddles from low areas.

Solution

Solvent wash and allow to dry, do not apply any additional sealer.

Probable Cause 2 – Product was applied in temperatures outside of manufacturer's recommendation. Sealer placed on a hot surface will bubble or crack shortly after installation. Sealer placed on a cold surface will not dry properly and can become a sticky or powdery mess.

Prevention

Follow manufacturer recommendations for the air temperature and the ambient temperature. If possible apply sealer during the coolest part of the day when the concrete is not in direct sun.

Solution

Solvent wash and allow to dry, do not apply any additional sealer.

SECTION 7 SEALER TROUBLESHOOTING

Sealer Whitening

Definition

Commonly mistaken for efflorescence or blushing, sealer whitening is when moisture (water vapor or solvent) is trapped in the layers of sealer.

Probable Cause 1 - Initial sealer coat placed with excessive moisture on the surface.

Prevention

Do not place sealer over a wet or damp surface and utilize a ASTM 1315 Cure and Seal, Class A, breathable decorative concrete sealer with a lower solid content.

Solution

A solvent wash will typically take care of this problem if the solvent can leave the sealer open long enough for the moisture to dissipate. If the solvent wash does not work then stripping and sealer re-application will be necessary.

Probable Cause 2 – Incompatible sealers have been used, causing trapped solvents between sealer layers

Prevention

Use the same sealer that was originally applied. Re-sealing always poses a risk because the original sealer used is typically unknown, not only the manufacturer, but the type (water or solvent).

Solution

A solvent wash will typically take care of this problem if the solvent can leave the sealer open long enough for the moisture to dissipate. If the solvent wash does not work then stripping and sealer re-application will be necessary.

Probable Cause 3 – A water based acrylic has been used that was either not mixed or applied too heavily.

Prevention

Water based sealers require thorough mixing throughout the application, and applying the sealer in thin coats is even more important when compared to the use of solvent sealers.

Solution

Solvent washes will sometimes work in correcting some of the problems related to whitening of a water based sealer, but it is likely that sanding or stripping the sealer will be the correct course of action.

SECTION 7 SEALER TROUBLESHOOTING

Adhesion Failure

Definition

Sealer begins to flake off or wear off causing light spots. Usually appears like dots across the surface.

Probable Cause 1 - Excessive release was left on the surface prior to sealing a stamped project.

Prevention

This is one of the biggest reported sealer problems, which in reality is an application error. When cleaning release off the surface it is imperative that 80% or more of the release be removed. It is highly recommended that a mixture of 15-20 parts water to 1 part muriatic acid be used to clean powdered release off the stamped concrete surface. This will not only remove the release but also create some porosity in the surface for the sealer to adhere to. Be sure to thoroughly rinse the cleaning solution.

Solution

Sealer must be stripped, then acid wash the surface to remove the bulk of the release (80% or more). Use antiquing to recolor if necessary, and re-apply two thin sealer coats.

Probable Cause 2 – Simple wear and tear.

Prevention

When initially sealing be sure to provide the owner with the ASCC Sealer Expectations & Maintenance Guide. Acrylic sealer will realistically last somewhere between 2-3 years on a surface experiencing minimal traffic or UV rays.

Solution

Clean the surface using soap and water, then thoroughly rinse. A solvent wash is also a good practice prior to resealing. Apply two thin coats of sealer while the surface is clean and dry.

Probable Cause 3 – A high solids sealer was used on the initial sealer application.

Prevention

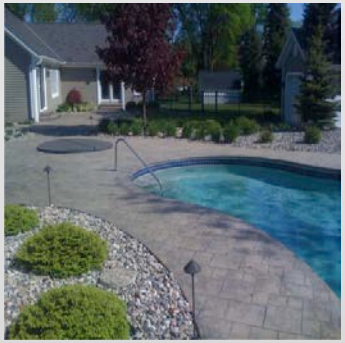
Sometimes high solid sealers cannot penetrate into the surface sufficiently, causing a weak bond and eventual adhesion failure.

Solution

Even if a higher gloss or sheen is desired, use a low solid sealer for the first thin coat, then apply a thin coat of a higher gloss sealer to obtain the desired sheen.

SECTION 7 SEALER TROUBLESHOOTING

Sealer Yellowing



Definition

Sealer turns yellow in areas exposed to UV rays.

Probable Cause 1 - A non-yellowing Class A sealer was not used or the Class A sealer used is defective.

Prevention

Decorative contractors should always use a non-yellowing, Class A, breathable sealer. Buying sealer products from distributors or manufacturers who stand behind their product is essential.

Solution

Once a sealer has yellowed the only proper fix is to strip and reseal, otherwise the yellow coating will be trapped under the new sealer applied.

Probable Cause 2 – Separation has occurred between the layers of sealer. This will act and appear almost identically to some of the adhesion issues.

Prevention

Be sure the surface is thoroughly clean and dry prior to resealing to ensure moisture is not trapped between layers causing adhesion failures.

Solution

Once a sealer has yellowed the only proper fix is to strip and reseal, otherwise the yellow coating will be trapped under the new sealer applied.

Thank you!

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