

In repair and restoration work it is recommended to first take care of the cause before repairing the effect. Many times a condition survey is needed to determine the cause(s) and to plan the proper, most cost-effective approach to correct the problem.

Surface preparation is very important. The best of products with poor surface preparation is no better than the lesser product with the proper surface preparation.

What is Surface Preparation?

“The process whereby a method or combination of methods is used to remove deteriorated or contaminated concrete and roughen and clean a substrate to enhance bond of a repair material or protective coating.”

* In doing so, this will provide the desired cleanliness and profile of the substrate in order for the repair material or protective coating to achieve its full potential.

***ICRI Concrete Repair Terminology.**

To restore Concrete, identify the **“Cause”** of the condition 1st...Then properly address the **“Effect”!**

- Examination of concrete for the purpose of identifying and defining areas of distress.
- For a lasting repair, it is critical to determine the cause of any problem to ensure that the appropriate products and procedures are specified.

Surface Preparation Standards

ICRI Guideline No. 03732 and the ACI 546 Concrete Repair Guide provides an in depth description of various types of surface preps, substrate condition surveys, and selection & specifying methods of surface preparation.

- ACI 546 Concrete Repair Guide
- ICRI 310.1R-2008, “Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion”
- ICRI 310.2R-2013 Surface Preparation Standards
- CSP # (Concrete Surface Profile) Designed to match equipment.

Surface Preparation Methods

- Water-blast
- Sand-blast
- Scabblor
- Scarifier
- Grinder
- Needle gun
- Hammer chisels
- Shot-blasting

Procedures that should be followed

- Provide a high profile substrate for a good mechanical bond.
- Have a defined edge...saw cut or use a grinding wheel to create a clean defined edge to which you will work the repair mortar.
- Mixing methods: drill & paddle, mortar mixer, concrete mixer (when stone added), pump, by hand.

Guide to Concrete Repair Continued

- Concrete substrate to be in a Saturated-Surface-Dry condition (SSD) so that the concrete will not absorb water from the repair mortar.
- When mixing less than a full bag always first mix the bag so that a representative sample is obtained.
- Add the powder to the water.
- Water requirements stay the same regardless if the material is used neat or if pea gravel is used.
- Application methods: by hand, form & pump, form & pour, dry packing, pneumatic (spraying), pneumatic (shotcrete).

General Use Repair Mortars:

ReCrete™ 5 Minute & ReCrete™ 20 Minute

- Cost-effective repair mortar with no polymers or fibers
- Min. thickness 1/8", max. 2", neat
- Extend with clean washed stone for repairs > 2" per Data Sheet
- Water substitution with Acrylic Bonding Agent J40 1:1, recommended for enhanced performance

Polyfast™ FS

- Rapid setting vertical and overhead applications
- Polymer modified
- Min. thickness 1/4", max. 2", neat
- Extend with clean washed stone for repairs > 2" per Data Sheet
- Easily shaped and finished

Vertical/Overhead Repair Mortars:

Architectural Finish™

- Polymer modified
- Use for rubbing, smoothing, resurfacing repairing vertical surfaces
- Colored blended to a light gray
- Featheredge to 1/8" application depth

Perma Patch VO™

- One component w/water or 2-component w/approved admixture
- Min. thickness 1/4", max. 2" neat
- Formulated for vertical / overhead applications
- Shrinkage compensated
- Can be sprayed or pumped through small volume pneumatic equipment
- Rapid strength gain
- Can be extended with aggregate for repairs > 2"

HD 25 VO

- Designed for vertical and overhead applications
- Polymer modified
- Min. thickness 1/4", max. 2" neat
- More rapid initial strength gain than Polyfast

Civil / Structural VO

- Vertical or overhead applications
- Formulated for use in spray applications using the wet process
- Can also be applied by hand or trowel
- Contains a corrosion inhibitor
- Very high compressive strengths

Form & Pour Repair Mortars:

Civil / Structural FPX

- For form & pour or horizontal applications
- Extended with blended aggregate
- Contains a corrosion inhibitor
- Long working time

Perma Patch™ F/P

- Flowable/self-consolidating
- Up to 40 minute working time
- Ideal for horizontal or formed vertical/overhead applications
- High early strength

Horizontal Repair Mortars:

Thin Resurfacer

- Polymer modified
- Min. thickness 1/16", max. 1/2" and cannot be extended
- Substitute 1 qt. of water with J-40 for enhanced performance

Special Patch

- Shrinkage compensated
- High early strength
- Rapid-hardening mortar that accepts foot traffic in 1-2 hours and pneumatic
- Good resistance to freeze-thaw and impact
- Excellent abrasion resistance to heavy loads and traffic
- polymer-modified, cementitious, two component

HD 50

- Pourable consistency
- Very rapid setting
- Polymer modified, fiber reinforced
- Min. thickness 1/2", max. 2", neat
- Extend with clean washed stone for repairs > 2" per Data Sheet

Pave Patch 3000

- Pourable consistency
- Very rapid setting
- Min. thickness 1/2", max. 2", neat
- Extend with clean washed stone for repairs > 2" per Data Sheet
- Capable of being extended up to 60% (40# stone) per bag
- Resists freeze-thaw cycles to extend the life of the patch

Resinous Based Repair Mortars

Rapid Resin Repair

- 100% solids 3-component low modulus repair material
- Chemically resistant
- Cures from -20°F to 130°F
- Low odor

Sure Patch™

- 100% solids 3-component low modulus repair material
- Trowelable
- Rapid strength gain
- Moisture insensitive

Epoxy/Cementitious Bonding Agent/Rebar Primer

Perma Prime™ 3C

- Bonding agent & rebar primer/protector
- Long open time
- Epoxy-modified with corrosion inhibitor

Specialty Repairs:

Snaplugs®

- High Strength cement compound
- Plugs for tie cone holes
- Gray in color
- Saves time and labor

Anchor All

- Non-shrink
- Pourable
- Fast setting
- Ideal for posts and dowels

Waterstop

- Rapid setting hydraulic cement
- For plugging & stopping water or fluid leaks in concrete or CMU
- Initial set 2½ min., final set 3½ min.
- Non-corrosive, non-rusting