

# SURFIX™ HI-BUILD

SPRAYABLE, CRYSTALLINE ENHANCED, HI-BUILD RESURFACING MORTAR

## DESCRIPTION

SURFIX™ HI-BUILD performs as a sprayable, cement-based, one-component, crystalline enhanced repair mortar for resurfacing and waterproofing concrete and masonry substrates. SURFIX™ HI-BUILD is ideally suited for horizontal, vertical and overhead repair applications.

## APPLICATIONS

Used for restoring a wide range of damaged concrete structures

Perfect for above or below grade, vertical and overhead concrete substrates where aggregate coverage has been lost

Can be used to correct concrete substrate irregularities of forms or unconsolidated concrete

Use in conjunction with the Penetron Crystalline Waterproofing System to stop leaks and rebuild surfaces.

## ADVANTAGES

Use for both interior and exterior applications

Can be applied overhead and vertically without the use of forming aides

Apply to 1/4-2" (6-51 mm)

One-component, only add water

Bonds tenaciously to cement-based substrates

Working time is approximately 45 minutes

Suitable for low velocity wet spray or hand trowel applications

Crystalline technology can help reduce reinforcing steel corrosion by decreasing exposure to moisture

## SHELF LIFE / STORAGE

12 months from the date of manufacture, when unopened bags are properly stored in a cool, dry place, unexposed to moisture and sunlight.

## PACKAGING

50-lb (22.7-kg) bags.

## TECHNICAL DATA

### Compressive strength (ASTM C109):

7 days	5,500 psi (37.9 MPa)
28 days	8,250 psi (56.9 MPa)

### Approximate coverage:

0.42 ft<sup>2</sup> (0.01 m<sup>2</sup>) or approximately 5 ft<sup>2</sup> (0.47 m<sup>2</sup>) at 1" (25 mm) thickness

### Color:

Gray

### Application temperature range:

40°-95°F (4°-35°C)

**NOTE:** Above 85°F (29°C), use ACI Hot-Weather Application Guidelines.

### Working time (70°F (21°C):

35-50 minutes

### Bond strength (ASTM C882):

7 days	2,600 psi (17.9 MPa)
28 days	3,400 psi (23.4 MPa)

### Flexural strength (ASTM C348):

7 days	1,500 psi (10.3 MPa)
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**NOTE:** Cooler temperatures, inadequate ventilation and higher humidity can extend drying times. All data derives from tests under laboratory conditions; field conditions may yield slightly different results.

## DIRECTIONS FOR USE

### Surface preparation:

SURFIX™ HI-BUILD should be stored at 40°F (4°C) to 80°F (27°C) 24 hours prior to installation. Surface and adjoining area must be clean, sound, and free from dirt, loose particles, dust, waxes, plastics, curing compounds, grease, paint, efflorescence, and any foreign materials that will inhibit a tenacious bond. If applicable, completely expose and clean all reinforcing steel, ensuring a minimum clearance of 3/4" (19 mm) behind reinforcing steel. Perform in accordance with ICRI Technical Guideline No. 310.1R-2008 (formerly No. 03730).

For best results, repair area edges should be saw cut to a minimum depth of 1/4" (6 mm). Mechanically prepare all surfaces to a minimum CSP (Concrete Surface Profile) 2 to 3. Refer to ICRI Guideline No. 310.2R-2013 "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays and Concrete Repair." Never use acid, chemical cleaners or mastic removers on any surface to which a Penetron Specialty product will be applied.

Apply a scrub coat application of loosely mixed SURFIX™ HI-BUILD slurry or PENE-TRON slurry. This should be applied to all surfaces coming into contact with the patching material. Do not allow scrub coat to dry prior to the placement of the SURFIX™ HI-BUILD. If scrub coat is dry, remove to a clean surface and reapply.

### Mixing:

SURFIX™ HI-BUILD requires 4.25-4.75 qt (4.0 - 4.5 l) of clean water per 50 lb (22.7 kg) of powder. Mix only the amount of material that can be placed in 35 minutes. Pour the

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required amount of potable water into a clean mixing container, then add the measured amount of SURFIX™ HI-BUILD while continuing to mix and blend thoroughly for 1-2 minutes to a lump free, putty-like consistency. Small amounts of material can be mixed using a hand trowel. For larger amounts, use a 1/2" drill (400-600 rpm) and paddle.

**NOTE:** SURFIX™ HI-BUILD is ready to use with the addition of water. DO NOT add any materials or additives to mixture other than those described above.

## Installation:

Immediately apply the fresh mortar into the entire surface, forcing SURFIX™ HI-BUILD firmly into the previously prepared area to ensure full contact with all bonding surfaces. When spraying, use low velocity wet-spray equipment capable of mixing, pumping, and applying the SURFIX™ HI-BUILD within the recommended water-addition range. Spray velocity must be sufficient to ensure proper compaction. Slightly overfill the area. After initial set, use a trowel to finish SURFIX™ HI-BUILD to the desired final profile, shaping the patch from the center towards the bond edge at the existing surfaces. A mist of water may be applied for final finishing.

In deeper areas, additional lifts can be made after the original patch has reached initial set. Score and roughen the original lift layer to improve bond between applications. SURFIX™ HI-BUILD can be placed in lifts up to 2" (51 mm) on vertical and for overhead applications by holding the mortar in place until initial set has occurred.

For applications receiving a coating, float SURFIX™ HI-BUILD with a wood or plastic float. For a brush finish, use a stiff-bristled broom or mason's brush, or for a smooth finish, use a steel-trowel to close the surface.

**NOTE:** The minimum ambient and surface temperatures should be 40°F (4°C) at time of application. Hot weather and conditions above 80°F (27°C) will reduce working time and accelerate set, while cold temperatures below 60°F (16°C) will have a retarding effect.

## Curing:

Cure in accordance with ACI-308R. Protect patch from rapid curing caused by high temperature, wind, low humidity and direct sun by covering with wet burlap or plastic for up to 24 hours. A water-based curing compound can also be used.

**NOTE:** Do not apply to frozen or frost covered areas.

Contact Penetron Specialty Products Technical Support for additional information and/or view the installation videos on our website: [www.penetronsp.com](http://www.penetronsp.com)

## APPLICATION TOOLS

For typical larger applications, use a forced action type mixer and low velocity pump with air pressure injected at the spray nozzle. For small applications use a mixing container, mixing paddle, heavy duty drill and hand trowels. Contact your Penetron Specialty Products representative for additional information on equipment and application tools.

## CLEAN UP

Clean all tools and equipment with water immediately after use, prior to material hardening.

## SPECIAL CONSIDERATIONS

- SURFIX™ HI-BUILD dries to a light gray color. Variations in the final color can occur due to changes in temperature, humidity and other jobsite conditions.
- Penetron Specialty Products recommends installing a test area, ensuring suitability of SURFIX™ HI-BUILD for its intended use.
- Substrate must have a minimum direct tensile bond test reading of 150 psi (1 MPa) per (ASTM C1583-04).

## JOB MOCKUPS

Penetron Specialty Products recommends that, when our products are used in any application or as part of any system that includes other manufacturers' products, the installer and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any installation. Written documentation of the tests performed shall be satisfactory to the design professional and installer. Test results must include the means and methods of application, products used, project specific conditions being addressed, and standardized tests performed for each proposed system or variation.

## SAFE HANDLING INFORMATION

Before using this product, review the SURFIX™ HI-BUILD Safety Data Sheet (SDS), which can be found on our website: [www.penetronsp.com](http://www.penetronsp.com). Avoid contact with eyes and wear suitable protective eye wear. Avoid prolonged or repeated contact with skin. Wear gloves and suitable protective clothing. Do not breathe dust. In case of insufficient ventilation, wear respiratory equipment. For additional information regarding first aid and emergency procedures, refer to the product Safety Data Sheet (SDS).

## Waste disposal:

This product, when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose in a landfill in accordance with local regulations.

KEEP OUT OF REACH OF CHILDREN

**WARRANTY:** PENETRON SPECIALTY PRODUCTS INC. warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON SPECIALTY PRODUCTS INC. shall be limited to replacement of the material proven to be defective and PENETRON SPECIALTY PRODUCTS INC. shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON SPECIALTY PRODUCTS INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.** User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of Penetron Specialty Products under normal environmental and working conditions. Because each project is different, PENETRON SPECIALTY PRODUCTS INC. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

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