



# FIVE STAR PRODUCTS, INC.

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## DESIGN-A-SPEC™ GUIDELINES RAPID SURFACE REPAIR EASY MIX

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## **PART A - GENERAL CONDITIONS - CONCRETE REPAIR**

### **1.01 SCOPE**

The work covered by this document consists of furnishing all equipment, materials, labor and performing all operations required for concrete repairs as directed by the engineer or owner.

### **1.02 QUALITY ASSURANCE**

- A. The manufacturer shall have been in the business of manufacturing similar products for over ten years, maintain a strict quality assurance program in accordance with ISO 9001: 2008, offer technical services, and provide a representative at the jobsite for product training, prior to product installation, upon written request.
- B. The contractor shall submit to the engineer, or owner, at least three job references where the contractor has successfully completed similar applications.

### **1.03 DELIVERY, STORAGE AND HANDLING**

- A. All materials shall be delivered to the jobsite in their original, unopened packages, clearly labeled with the manufacturer's identification, printed instructions and batch code.
- B. Store and condition the specified product as per the appropriate product data sheet.
- C. For handling instructions, refer to the Material Safety Data Sheet.

### **1.04 PROJECT/SITE CONDITIONS**

Refer to PART C - PREPARATION, ENVIRONMENTAL CONDITIONS, or contact the manufacturer directly for any physical or environmental limitations required by the product.

**PART B - MATERIAL SPECIFICATION - CONCRETE REPAIR****2.01 MATERIALS**

- A. The concrete repair material shall be a blended, pre-packaged polyurethane based mortar consisting of thermosetting resin and inert fillers. The manufacturer shall be ISO: 9001 2008 certified and have at least ten years of experience in the manufacture of concrete repair materials. The manufacturer shall offer technical services and provide a representative at the jobsite for product training prior to product installation upon five days advance notice.
- B. The concrete repair material shall meet all the following typical performance criteria when cured at 77°F (25°C):
- |     |                                    |                        |
|-----|------------------------------------|------------------------|
| 1.  | Compressive Strength, ASTM C-579B  |                        |
|     | 1 Hour                             | 2,000 psi (13.8 MPa)   |
|     | 1 Day                              | 6,000 psi (41.3 MPa)   |
|     | 7 Days                             | 7,000 psi (48.2 MPa)   |
|     | 28 Days                            | 8,000 psi (55.1 MPa)   |
| 2.  | Bond Strength, ASTM C-882          | 2,000 psi (13.8 MPa)   |
| 3.  | Tensile Strength, ASTM D-638       | 3,000 psi (20.7 MPa)   |
| 4.  | Elongation, ASTM D-638             | 15%                    |
| 5.  | Hardness, Durometer D, ASTM D-2240 | 70                     |
| 6.  | Cure Time (reopen to traffic)      | 30 minutes             |
| 7.  | Color                              | Dark Grey              |
| 8.  | Working time with Aggregate        | Approx. 5 minutes      |
| 9.  | Viscosity @ 77°F (25°C)            | 60 cps                 |
| 10. | Mix Ratio by Volume                | (1) Part A: (1) Part B |

*The data shown above reflect typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result in the field. Test methods are modified where applicable.*

- C. An acceptable product which meets these criteria is:

**Five Star Rapid Surface Repair Easy Mix**

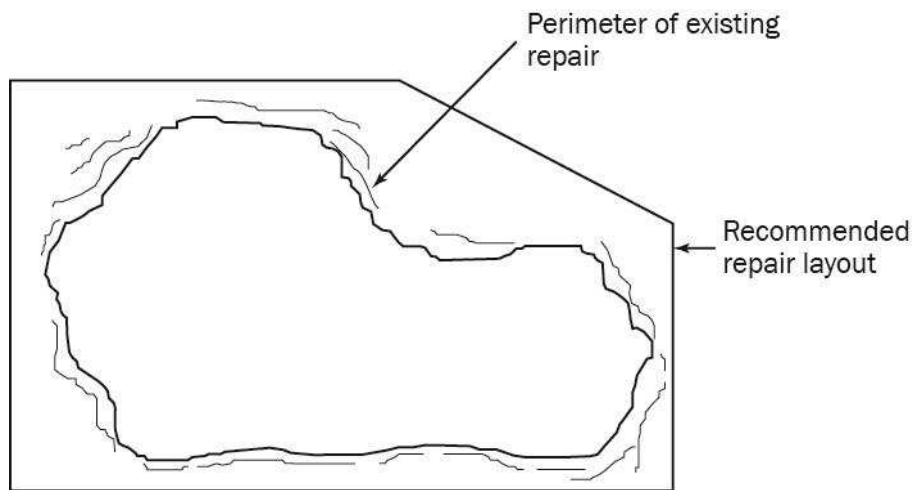
As manufactured by Five Star Products, Inc., Shelton, CT 06484 (203) 336-7900.

- D. Subject to meeting the performance criteria stated above, other products may be formally submitted to the engineer for approval up to three days prior to the bid date. All requests for approval shall contain certified test data verifying conformance with this specification. Three references of successfully completed projects of similar nature and scope of the work detailed in this specification shall be provided, as well as a minimum ten year history of use in the industry. The testing laboratory shall certify to any modifications made to the tests performed and provide details of modifications.

## PART C – PREPARATION - CONCRETE REPAIR

### 3.01 CONCRETE SURFACES

- A. Prepare concrete surfaces to a minimum Concrete Surface Profile (CSP) 4 to 5 in accordance with ICRI Technical Standard 310.1R (International Concrete Repair Institute) guidelines. As an alternative, roughen concrete surfaces to coarse aggregate exposure. Blow out all repair areas thoroughly with oil free compressed air, removing all dust, debris and bond inhibiting substances. Vertical saw-cut surfaces should be sandblasted.
- B. All surfaces must be visibly dry prior to placement. Use a heat source to ensure dry substrate prior to placement.
- C. For optimum performance, liquid components should be conditioned to between 60-80°F (15-26°C) prior to use.
- D. Fill or mitigate all substrate cracks prior to repair material replacement.
- E. All repair geometries shall be squared up and have neat, clean edges, where possible.



### 3.02 ENVIRONMENTAL CONDITIONS

- A. Condition and maintain all materials and surfaces that contact repair material to between 50°F and 90°F (10°C and 32°C). Shade from direct sunlight as necessary.

### 3.03 EQUIPMENT AND MATERIALS

- A. All necessary tools, equipment and materials shall be in good condition and as close as possible to area being repaired.
- B. Appropriate clothing and safety equipment shall be worn to avoid breathing dust and prevent eye and skin contact with both dry and mixed repair materials.

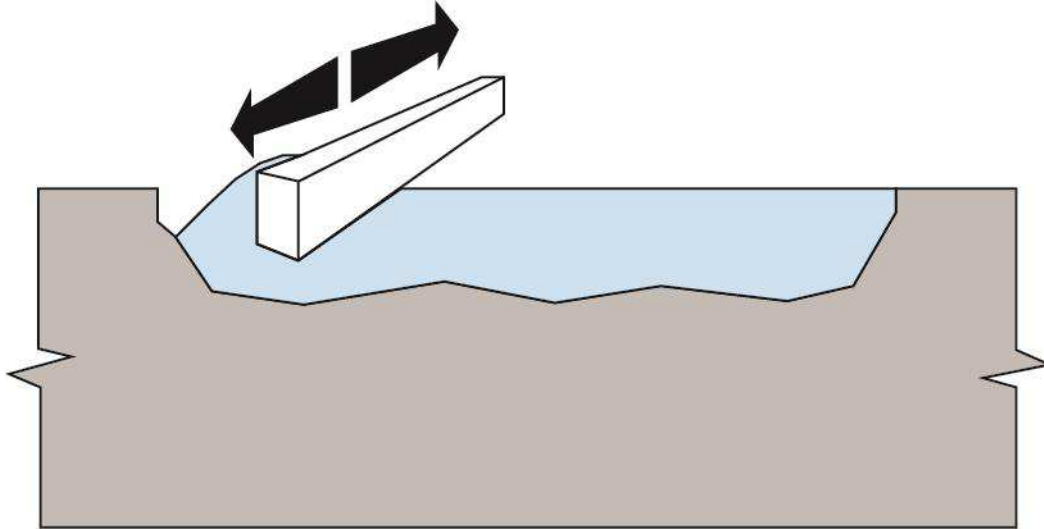
Drill and Paddle Mixer (Single Unit Mixes)

- A. Pour liquids into larger mixing container and mix with slow speed drill and paddle for 20 seconds. Avoid air entrapment. While mixing, slowly add Component C (aggregate) and mix until aggregate is completely wetted, approximately 45 seconds.
- B. Do not mix more material than can be placed within the working time of the repair material.
- C. PLACE IMMEDIATELY.

## PART D – APPLICATION - CONCRETE REPAIR

### 4.01 PLACEMENT PROCEDURES

- A. Substrate shall be completely dry prior to application. Use of a moisture meter is suggested when substrates are suspect or may be damp internally.
- B. Pour material into repair area immediately after mixing. Allow to level. Use of a steel trowel may be needed to help move material into desired area.
- C. Once desired level is achieved, screed repair material and finish if necessary using steel trowel.



## PART E - FINISHING AND CURING - CONCRETE REPAIR

### 5.01 FINISHING

- A. Finishing is not usually required as material is self-leveling. Any finishing needed can be accomplished with steel trowel sprayed with WD-40.

### 5.02 CURING

- A. Material is self-curing. **DO NOT WET CURE.**
- B. Repair material shall be protected from freezing, rain, hydrostatic pressure, vibration and traffic prior to set as recommended by the manufacturer.
- C. Traffic ready in 30 minutes to 2 hours depending on cure temperature.

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