

# ELEPHANT ARMOR®

## Application Guide



Proven advanced technologies that are changing the way we repair concrete surfaces!



Global Sealer Technologies





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### Description

Elephant Armor® is a single component, cementitious, fiber based, medium to fast setting, zero polymer, repair and overlay Engineered Ductal Mortar (EDM). In addition to a mechanical bond, our fiber creates a fully engaged molecular bond within our patented mortar matrix, providing extremely high tensile and flexural strength. It can be placed with a textured roller (preferred method) or traditional placement tools.

### Features / Benefits:

- Fiber reinforced: Superior flexural and tensile strength as thin as ¼”.
- High ductility, allowing the overlay or repair to ‘FLEX’ without failure.
- Highly resistant to de-icing salts, freeze/thaw.
- Superior tensile strain capacity over other cement based products for improved crack resistance.
- Superior bond strength to that of other fiber and acrylic based mortars.
- Ideal as a structural underlayment.
- Prevents the propagation of existing cracks through the surface.
- Highly impermeable and abrasion resistant (with the application of Vetrofluid).
- Unparalleled as a stampable overlay.

### Shelf Life

2 years in original unopened package if stored in a humidity controlled environment. Do not expose Elephant Armor® to moisture.

### Packaging

- 10 lb (4.5 kg) plastic pails
- 50 lb (22.7 kg) plastic lined bags

### Coverage / Yield

A 50 lb (22.7kg) bag of Elephant Armor® Mortar will yield approximately 0.5 ft<sup>3</sup> (0.014 m<sup>3</sup>) of material.

Applied at the following thicknesses, one 50 lb (22.7 kg) bag of Elephant Armor® Mortar will cover:

- ¼” (6.3 mm) – 22 ft<sup>2</sup> (2 m<sup>2</sup>)
- ½” (12.7 mm) – 11 ft<sup>2</sup> (1 m<sup>2</sup>)

Note: Coverage rates are approximate

### Primary Applications

Walkways, curbs, ramps, slabs, spalls, cracks, airports-runways, taxiways and gates, bridges, ICF walls, parking structures, tunnels, dams, industrial plants or anywhere a high strength concrete repair mortar is called for.

Structural monolithic underlayment or overlay for interior and exterior applications.





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## Directions For Use

### Assess the Damage

Evaluate the extent and nature of the damage to determine the appropriate repair approach. Identify areas of contamination, degraded concrete, or other surface issues that need to be addressed.

### Safety Precautions

Prioritize safety by wearing appropriate personal protective equipment (PPE) such as gloves, safety goggles, and a mask to protect yourself from dust, chemicals, and potential hazards.

Consult the Safety Data Sheet before use. [Download Elephant Armor® SDS](#)

### Surface Preparation

Surfaces to be treated with **Elephant Armor®** must be clean, sound and free from contaminants that can act as a bond breaker (such as oil, grease, dirt, curing compounds, acids, etc.) **It is the applicator's responsibility to ensure a proper bond. It is mandatory to chemically or mechanically remove any and all curing compounds or contaminants that are present.**

The surface may require pre-treatment with **GST International Degreaser Pro** or **Pro-Grade Cleaner**, followed by power-washing to clean the contaminated surface.

### Mechanical preparation options:

1. Fastest method for vertical and overhead preparation: Pressure washing, hydro blasting or sand blast to remove the cream of the concrete, paints or other contaminants. If pressure washing, hydro blasting or sand blasting do not remove contaminants go to step #2.

2. Fastest method for horizontal preparation: Mechanical grind the concrete surface using metal bonded tooling (16 grit or 35 grit) using walk behind grinders with vacuum systems. Hand held grinders with shrouds, vacuum and metal coarse wheel.

### Rinse and Dry

After cleaning, rinse the surface with clean water to remove any residue from the cleaning solution. Use **Pro-Grade Cleaner** to neutralize the surface if harsh stringents or acids have been used. Allow the surface to dry completely before proceeding to the next step. Ensure proper ventilation or use drying equipment if necessary.

### Ecobeton®-USA Vetrolfluid® Application (optional step)

In cases where the area to be repaired is severely degraded, an application of **Ecobeton®-USA Vetrolfluid®** should be applied to restore the stability and integrity of the substrate. Allow at least 72 hours for the **Vetrolfluid®** to cure prior to continuing the **Elephant Armor®** repair. [More about Ecobeton-USA® Vetrolfluid®](#)

### Prime the Area to be Repaired

The surface is now ready to be primed using one of the following methods:

1. **EA Primer Slurry Bond Coat:** The EA Primer/Slurry bond coat serves to enhance the bond strength between the damaged substrate and the **Elephant Armor®** repair material. The slurry coat, when mixed with 2 parts **Elephant Armor®** to 1 part EA Primer, provides for easy application on the damaged substrate using a roller or stiff masonry brush. If there is any exposed steel or rebar, apply a rust inhibitor first. Pay special attention to the corners, sides and any exposed rebar.

**Elephant Armor® Primer** can also be used in a NEAT application. This application conforms to the structural bonding requirements of ASTM C 1059-13, Type II.

**Important!** It is crucial that the slurry coat **does not fully dry** before placing the **Elephant Armor®**. The wet and tacky nature of the slurry coat helps retain moisture in the substrate, preventing premature drying and ensuring a favorable environment for the bond to develop. [More information on EA Primer Slurry Bond Coat®](#)





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**2. Saturated Surface Dry (SSD):** SSD is a common practice in the concrete repair industry and may also be used with Elephant Armor®, however there are certain considerations that should be kept in mind.

The repair area must be clean and free of all dust, debris, oil and organic stains. Dampen the repair area and place the Elephant Armor® using the appropriate tools and finishing techniques specific to the job. It is important that there is no standing water or pooling on the repair area prior to placement of the Elephant Armor®.

[See more information on SSD](#)

### Mixing

Mix the dry contents prior to adding water. Add approximately 5.5 - 6.5 US quarts (5.2 - 6.2 liters) of water (depending on desired slump). It is mandatory to thoroughly mix with a dual shaft power mixer. (example: **ColloMix Xo 55 Duo**)

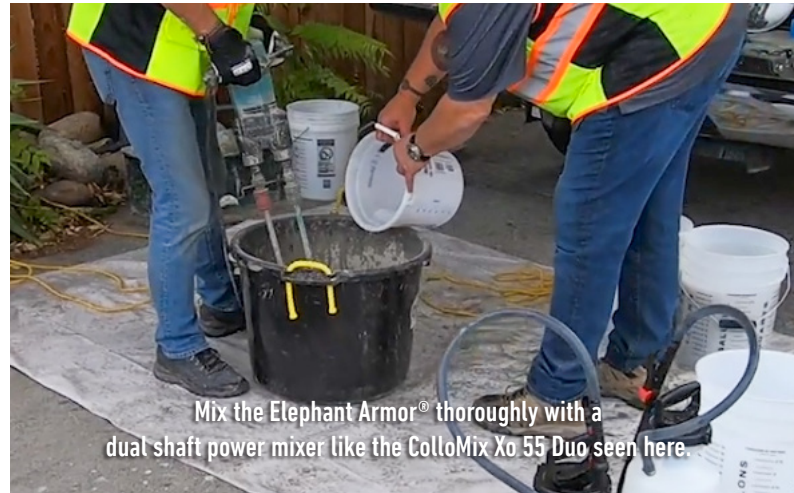
Due to our unique product design, this type of mixer is required to ensure sufficient shear capacity needed to properly provide a homogeneous mix. Do not use a drywall paddle blade. While mixing, ensure there is no unhydrated Elephant Armor® on the sides or bottom of the bucket, as this will alter the water/cement ratio. Continue mixing until the mixture is lump free and has achieved the desired consistency (slump) for your application. When mixing our ten pound buckets or a small amount of Elephant Armor®, a ½" drill or larger, using an egg beater, mortar or Jiffy Bit can be used. Actual mixing time will depend on mixer speed, shear capacity, and desired consistency or flow required.

### Application of Elephant Armor®

You are now ready to apply the Elephant Armor® repair material. Apply the repair material to the damaged areas, using **GST Textured Rollers and GST Squeegee Trowels**. Elephant Armor® can also be sprayed on to repair vertical surfaces. Follow our guidelines for mixing ratios, application techniques, and curing times. [See our Elephant Armor® repair videos](#)

### Application:

- Elephant Armor® is best placed with a textured roller and squeegee trowel (available at your GST International dealer) or traditional placement tools.
- ¼" and ½" gauges are available to be attached to the textured rollers for a more even finish.
- Do not over-trowel. Wait for initial set before applying final trowelling or a smooth roller finish. Initial set has begun as soon as the 'bleed water' begins to dissipate. Set times will vary with weather conditions.
- Elephant Armor® can be finished with trowels, brooms, decorative rollers or stamping mats.
- Elephant Armor® accepts integral powder or liquid colors, acid stain and water based or acrylic stains.
- Elephant Armor® Delay added to the mixing water will allow additional working time. (Please refer to package instructions)
- When placing Elephant Armor® Mortars, all repairs should be water-cured for approximately one hour after the mortar has achieved final set.



Mix the Elephant Armor® thoroughly with a dual shaft power mixer like the ColloMix Xo 55 Duo seen here.



Elephant Armor® is best applied using a GST Textured Roller.



GST Squeegee Trowels make finishing easy.



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### Curing

After completing the repair, provide appropriate curing conditions. Water curing is recommended after final set and the Elephant Armor® has lightened in color. Spray water on the repaired surface 2 or 3 times during a period of approximately 1 hour. Damp cloths may also be placed over the repair area for the same amount of time.

### Additional Protection

After the Elephant Armor® repair has fully cured, (24 hrs.) it is advisable to apply a light coat of Ecobeton®-USA Vetrofluid®. This additional application of Vetrofluid® helps further to enhance the longevity of the repair, providing an extra layer of protection and bond strength between the Elephant Armor® and the damaged substrate.

### Clean-Up

Clean-up Elephant Armor® with water, however Elephant Armor® is fast curing; have additional water on hand to clean the mixer blades and other tools **as they are used**.

### Important

GST International has created this instructional guideline for making concrete repairs with Elephant Armor® using proven techniques and industry best practices. The success of any concrete repair depends on proper implementation, surface preparation, and adherence to industry best practices. Since GST International cannot ensure these practices are carried out, we can not be held liable nor accept any responsibility for work done by others.

### Precautions / Limitations:

- Use required Safety Equipment and Best Practices.
- A feathered edge is not acceptable.
- Do not add more water than recommended.
- Do not over work or over trowel the spall repair or overlay.
- Follow ACI Hot Weather Concreting 305R-99 procedures.
- Do not apply Elephant Armor® Mortars to frozen surfaces, at temperatures below 40° F (4° C).
- Elephant Armor® Primer is not a substitute for water in any proportion with standard mixes of Elephant Armor® mortars.
- Consult the Safety Data Sheet in all cases before use. [Download SDS](#)

### KEEP THIS PRODUCT OUT OF THE REACH OF CHILDREN

This product is made from the finest raw materials available and manufactured to proven formulation under strict quality control for its intended use. However, results obtained with the use of this product under a variety of conditions may depend on circumstances beyond our control.

GST International, Inc. (including the seller thereof) warrants only that its products will be free from defects in materials. GST International, Inc.'s (including the seller thereof) sole obligation, and the purchaser's (including the person using or benefiting from its use) sole and exclusive remedy in the event of a defect covered by the foregoing warranty, shall be, at GST International, Inc.'s discretion, to (a) replace the defective product, or (b) refund to the purchaser the purchase price paid for such defective product. There are no warranties other than the limited express warranty provided above. In no event shall GST International, Inc. (or the seller of its products) be liable for incidental or consequential damages resulting or arising from the use of its products.

Manufactured Under Patent in the USA by  
Global Sealer Technologies International

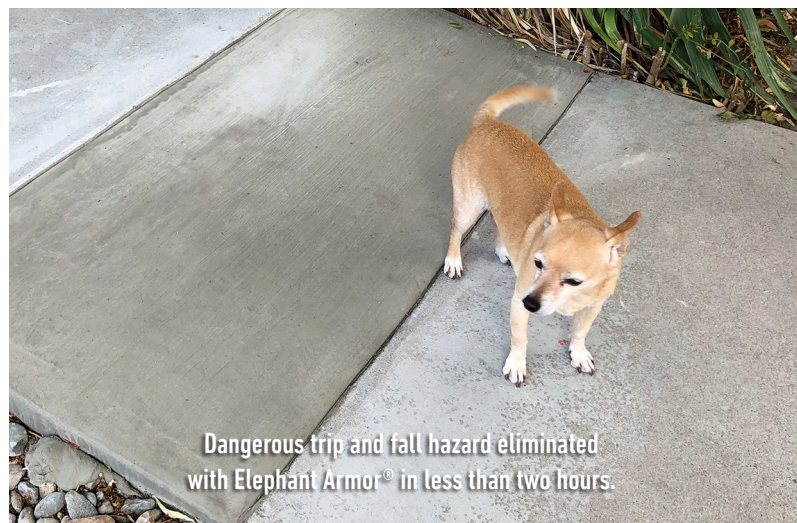
GST International, Sparks, NV (775) 829-2626



A no-slip broom finish is added to complete the repair.



Spray water on the repair 2 or 3 times over a period of 1 hour.



Dangerous trip and fall hazard eliminated with Elephant Armor® in less than two hours.