The World's Most Amazing Cementitious Repair and Overlay Product!

- Fiber reinforced: Superior flexural and tensile strength as thin as 1/4”.
- High ductility, allowing the overlay or repair to ‘FLEX’ without failure.
- Resists 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.
- Unparalleled as a stampable overlay.

Available in 3 Formulations

Just Add Water

PATENTED

Distributed by Abbotsford Concrete Products  1 800 663 4091  www.pavingstones.com
The World's Most Amazing Cementitious Repair and Overlay Product!

Elephant Armor®

Can Your Concrete Do This?

Flex Without Failure

Ideal for repair and overlay use on concrete walkways and driveways, curbs, ramps, slabs, spalls, cracks, bridges, parking structures, tunnels, dams, industrial plants or anywhere a high strength concrete repair mortar is called for.

Choose the best Elephant Armor® formulation for your project:

- **Ultra High Performance Mortar/Overlay** is a single component, cementitious, high fiber based, medium to fast setting repair and overlay mortar.

- **DOT Industrial Grade Mortar** is an ultra-high performance mortar with its high early and superior bond strength (4000 psi in 4 hours) offers unlimited possibilities for repair work, maintenance, or new construction.

- **Ultra High Performance Asphalt Repair** is designed for easy, long lasting asphalt repairs. A cement based product that is odor free, environmentally friendly solution to asphalt repairs and micro-trenching reinstatement.

Designed for easy, permanent concrete repairs and overlays. Elephant Armor®’s patented design is so revolutionary, it makes all other cement-based mortars obsolete.

Easy to Use, Just Add Water
Active Runway or Busy Highway, Elephant Armor® is the Permanent Solution

GST International’s Elephant Armor® is designed to limit catastrophic failure no matter what material it is applied over. Due to its ability to micro-fracture and flex over moving surfaces, Elephant Armor® reduces the potential for structural cracking. Surfaces include: concrete, asphalt, steel, wood and EPS structural foam. More importantly, it is the only product on the market that can be applied over existing cracks and limit the propagation of those cracks through the new Elephant Armor® surface.

Highway Repair

Spall in concrete highway. Multiple types of mixing and placement equipment can be used to lay Elephant Armor®. Place and finish Elephant Armor® like any concrete. Repair should last a lifetime.

Street Repair – City of Sebastopol, CA

It is no longer necessary to follow traditional "Remove and Replace" methods of repair for failing concrete roadways. With minimal environmental impact by significantly reducing the time of repair, a new lifecycle can be achieved. This will also reduce repair costs by as much as 50%.

Failing broken and degraded concrete panel. Elephant Armor® being applied using a roller. Repair completed with a broom finish. After three years of continuous use.

Significant cost savings without the need for deconstruction – Annacis Island, Vancouver, BC

Distressed concrete road in high traffic industrial area. The area is primed with Elephant Armor® Primer and large cracks filled with Elephant Armor®. Place and finish Elephant Armor® like any concrete. Roadway repaired for use in a matter of hours. Traffic volume in excess of a hundred trucks per hour.
CalTrans Sidewalk Repair
Severely degraded sidewalks can now be repaired quickly and economically without the traditional method of deconstruction and reconstruction. A permanent repair can now be done in a fraction of the time and at a significantly reduced cost.

MTSU – Murfreesboro, Tennessee, White Paper
A sidewalk repair demonstration was performed at Middle Tennessee State University in conjunction with their CIM program to compare traditional remove and replace repair methods with Elephant Armor® encapsulation. The study proved that using Elephant Armor® reduced the repair time by over 80% and significantly lowered the repair cost. This also reflects minimal impact on businesses and homeowners.

Sidewalk Repair – Downtown Nashville, TN
Elephant Armor® was used on this sidewalk repair to bring it into ADA compliance and eliminate multiple trip and fall hazards. This repair of almost an entire city block took less than one day to complete and with minimal impact to the businesses and environment.
Badly spalled & degraded concrete floor.

The area was resurfaced with Elephant Armor® without deconstructing the failed surface.

Repair your concrete sidewalk and stairs with an Elephant Armor® overlay without deconstruction

Worn-out sidewalk and stairs.

Apply Elephant Armor® overlay as thin as 1/4” over existing concrete.

Elephant Armor® can be stamped or textured with texture roller.

Finished job stained and sealed.
Sea Wall Repairs are a Breeze with Elephant Armor®

Sea Wall Repair – East Coast

Removal of loose debris, pressure washing, and steel remediation are part of the reconstruction of this sea wall. Proper preparation before Elephant Armor® is installed will ensure longevity and lessen future degradation. Workers were able to reconstruct without any deconstruction by applying the Elephant Armor® in 2” lifts, eliminating the use of forms. Elephant Armor® was applied with trowels and then rolled into place. The final finish was achieved with smooth rollers* (*see page 11). Because Elephant Armor® can be rolled on instead of troweled, considerable labor savings are attained. This method of reconstruction drastically reduced the overall cost of the project, in comparison to deconstruction and rebuild.

Sea Wall Repair for National Park Service, San Francisco, CA

This historic Sea Wall in San Francisco which had been severely damaged by long term exposure to salt water, was given new life by encapsulating it with Elephant Armor® Ultra High Performance Mortar. Treated with GST’s Stain Block Elite sealer, this historic monument should see decades of new life without future failure.

Severely degraded sea wall repaired three years ago using Elephant Armor®
Specially engineered as a concrete repair or overlay product that offers tremendous flexural and tensile performance as thin as 1/4".

Elephant Armor® is a single component, cementitious, high fiber based, medium to fast setting concrete repair and overlay mortar that can be placed with a trowel or textured roller. This ultra-high performance mortar can be used for repair work, maintenance or new construction.

It offers high early strength and superior bond strength. It is shrinkage compensated, so only very minimal shrinkage may occur. This repair mortar is able to maintain a strong resistance to de-icing salts, freeze/thaw cycles, and abrasion.

Elephant Armor® Asphalt Repair & Micro-Trenching Reinstatement Material being line-pumped into roadway micro-trench for fiber optic cable installation, using a volumetric mixer for an odor free, environmentally friendly, cost effective solution.

Truckee Meadows Water Authority Aqueduct Repair, Reno, NV. Due to the abrasive nature of the snow melt runoff, both vertical and horizontal concrete flume surfaces have been restored with this product. Elephant Armor® Ultra High Performance Mortar/Overlay was utilized for both types of repairs, metering the amount of water added.
Elephant Armor® offers endless opportunities for unique and difficult repair situations due to its exceptional compressive, flexural and tensile strength capabilities. Working with Matson Inc., one of the world’s largest trans oceanic shipping companies, GST International has developed a new and unique system for repairing the degrading steel decks on their ocean going ships and barges.

Once the steel on these barge decks degrades due to the constant exposure to seawater, the traditional method of repair has been to pour a 3” to 4” steel reinforced concrete topping slab over the failing surface. While this protects the failing steel, it also adds a tremendous amount of weight, severely restricting the amount of payload the ships can carry. With the Elephant Armor® overlay system, these barges can be resurfaced using a minimal amount of material to achieve a better and more permanent repair. The decks require only 1/2” of the Elephant Armor® material, (placed in 2, 1/4” lifts) thereby not restricting the payload weights that can be transported. This permanent repair can be done at a fraction of the cost and at a significantly reduced timeframe.

Elephant Armor® overlay is rolled and finished over existing primed concrete to a thickness of 1/2”.

This permanent repair can be done at a fraction of the cost and at a significantly reduced timeframe.

The decks require only 1/2” of the Elephant Armor® material, thereby increasing the payload weights that can be transported.

Unprecedented performance after years of continuous traffic abuse.

Ideal product for vertical and overhead repairs.

Damaged curb was repaired without deconstruction or forming.

Repaired quickly without the need of costly forming.

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Elephant Armor® has successfully been used in harsh and remote environments where access with conventional methods would be very costly.

By using Elephant Armor® on the Slide Mountain KTVN Tower Base Repair, located at 10,000 ft in the Sierra Nevada Mountains, there was a 75% reduction in costs vs the traditional repair method specified.

Marine Infrastructure Repair

Damaged concrete surface on dock.  Repaired without costly deconstruction or forming.
Spray on Elephant Armor®

With its superior flexural and tensile strength Elephant Armor® can be sprayed to encapsulate flexible foam, taking movement without cracking, displacing or failing. It can also be used as a spray coat on vertical surfaces that are failing or that are required to emulate a specific existing environment.

Failing century-old wall is given new life and structural integrity by encapsulating crumbling old brick with Elephant Armor®. Repairs costs were reduced by 80% compared to the typical deconstruction and reconstruction estimates.

The Making of a Wine Cave with Elephant Armor®

Elephant Armor® was sprayed, troweled and rolled to the desired finish. A single step installation process that provides a structural and architectural finish, greatly reducing construction costs.

Elephant Armor® can be colored and textured

Create counter tops or decorative stonework for outdoor living areas.
For best results, use Elephant Armor® Tools & Accessories

**Tools & Accessories**

- **9" (230mm) and 18" (450mm) Smooth Roller**
- **9" (230mm), 9.5" (240mm) and 18" (450mm) Textured Roller**
- **Expandable Aluminum Roller Frame** (rollers not included)
- **1/4" and 1/2" Roller Depth Gauges** for 9", 9.5" and 18" rollers
- **Aluminum Roller** with 1/4", 1/2" and 3/4" Depth Gauges (sold separately)
- **GST 2 Gallon Pump-up Sprayer** for application of Elephant Armor® Cure and Primer
- **GST Sprayer Tips** for GST 2 gallon pump-up sprayer

**Elephant Armor® Cure**
Provides an effective curing membrane that will dry to a clear (non-yellowing) membrane.

**Elephant Armor® Primer**
A high solids, acrylic polymer latex bonding agent specifically designed to be used with Elephant Armor® on any concrete or asphalt surface.

**Elephant Armor® Overlay Primer**
is a ready-to-use, rewetable polyvinyl acetate bonding agent, which bonds Elephant Armor® mortars to properly prepared concrete, and between Elephant Armor® lifts. It can also be used to bond to wood and EPS foam.

**Elephant Armor® Delay**
to increase working time. (comes with measuring scoop)

**GST 2 Gallon**
Sprayer Tips for application of Elephant Armor® Cure and Primer

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The World's Most Amazing Cementitious Repair and Overlay Product!

Read all application instructions on the product label before you begin applying Elephant Armor®

The GST Elephant Armor® patented family of Ultra High Performance Mortars are single component, cementitious, fiber reinforced, medium to fast setting concrete repair and overlay products that can be placed with a textured roller (preferred method) or traditional placement tools. These ultra-high performance mortars, with their high early and superior bond strength, can be used for repair work, maintenance, or new construction. Applications include: walkways, curbs, ramps, slabs, pavers, cracks, bridges, ICf walls, parking structures, tunnels, dams, industrial plants or anywhere a high-strength concrete repair mortar is called for.

Elephant Armor® is shrinkage compensated resulting in minimal shrinkage. Elephant Armor® maintains a strong resistance to de-icing salts, freeze-thaw cycles and abrasion. These varying slump mortars should be placed to a minimum thickness of ¼”.

Elephant Armor® Ultra High Performance Mortars can be used for structural monolithic overlays for interior and exterior applications. Elephant Armor® can also be used as a structural underlayment for other materials such as self-levelers, trowel coats and epoxies. It has unparalleled structural flexibility and tensile strength and can be used to create seamless floors without control or expansion joints.

Elephant Armor® Ultra High Performance Mortar/Overlay, Asphalt Repair and DOT Industrial Grade Mortar are available in 50 lb (22.6 kg) bags.

Elephant Armor® Ultra High Performance Mortar/Overlay, Asphalt Repair and DOT Industrial Grade Mortar are also available in 10 lb (4.5 kg) pails. It is pre-packaged and comes ready to use. Its ease of use is unparalleled - all you have to do is add water. These flexible repair mortars/overlays have an average yield of:

- 50 lb bags: 9.3 sq. ft. at ¼” thickness; 18.75 sq. ft. at ½” thickness, however yield in service will vary.
- 10 lb pails: 1.8 sq. ft. at ¼” thickness; 3.7 sq. ft. at ½” thickness, however yield in service will vary.

Elephant Armor® Ultra High Performance Mortar/Overlay and Asphalt Repair initial set is 20 to 60 minutes and final set is 1½ to 2 hours, depending on ambient temperature, humidity and sun exposure.

Elephant Armor® DOT Industrial Grade initial set is 20 to 30 minutes and final set is 1½ hours, depending on ambient temperature, humidity and sun exposure.

Elephant Armor® set time can be extended with retarders, such as GST Delay, or mixing with heated water for a faster set time.

Specifications:

Elephant Armor® Ultra High Performance Mortars bond to all suitable concrete, masonry, and cementitious substrates. For full depth repairs onto an aggregate base, a fixed bi-directional geogrid must be properly installed prior to application. Please refer to www.gstinternational.com for more details.

<table>
<thead>
<tr>
<th></th>
<th>Flexural Strength</th>
<th>Splitting Tensile Strength</th>
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<td>ASTM C 496</td>
<td>ASTM C 109 Cube</td>
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<td>34.7 mpa (4940 psi)</td>
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<td>EA Asphalt Repair</td>
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<td>EA DOT</td>
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Manufactured Under Patent in the USA by Global Sealer Technologies International GST International, Sparks, NV (775) 829-2626

IMPORTANT: Repair surfaces must be clean, sound, and free from contaminants that can act as a bond breaker (such as oil, curing compounds, acids, dirt and loose debris). GST Pro-Grade Masonry Cleaner and power washing is strongly advised in order to properly prepare the bonding surface! To ensure the proper bond, the appropriate Elephant Armor® Primer MUST be applied to the cleaned and prepared substrate. These primers meet ASTM C1059 Type 1 and 2.

When placing Elephant Armor® Ultra High Performance Mortars, all repairs and overlays must have GST’s Elephant Armor® Cure applied immediately after finishing. If a stain or sealer is going to be applied, do not use Elephant Armor® Cure, water cure for a minimum of two hours.

It is the responsibility of the installer to verify compatibility of acid stains, topical stains, dyes, color additives, decorative accents, antiquing, top coats, sealers and primers.

The use of non-breathable films such as epoxies and urethanes are not recommended for exterior applications. (Visit www.gstinternational.com for additional information.)

Elephant Armor® Ultra High Performance Mortars must be placed to a hard edge! Existing cracks, cold joints, saw cuts and free-standing formwork shall be finished flush at a depth of not less than ¼”. A feathered edge is not acceptable. Refer to www.gstinternational.com for detailed instructions.

In mixing Elephant Armor® Ultra High Performance Mortars, stir dry contents prior to adding approximately 1½-1½ gal. of water and thoroughly mix with a ½” drill or larger, using an egg beater, mortar or Jiffy bit. (Do not use a dry wall paddle blade). For ideal mixing, a dual shaft power mixer is recommended (example: CifaMix Xo 55 duo). Continue mixing until mixture is homogeneous, lump free and the desired consistency (slump) for your application. Actual mixing time will depend on mixer speed, shear capacity and desired consistency or flow.

DO NOT BREATHE DUST, AVOID CONTACT WITH SKIN AND EYES!

Elephant Armor® Ultra High Performance Mortars

DANGER ! ! !

Contains: Silica CAS#1333-85-9, Alumosilicate Glass, Calcium Sulfoaluminate Cement CAS# 960375-09-1, Cement, Portland CAS# 65997-15-1, Quartz CAS# 14808-60-7

Causes skin and eye irritation. May cause cancer. May cause respiratory irritation. Avoid breathing dust/fumes/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

If In Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If On Skin: Wash with plenty of water. If exposed, concerned or if irritation occurs, get medical advice/attention.

Call a Poison Center if you feel unwell. Store locked up. Store in well ventilated place. Dispose of contents/container in accordance with local regulations.

WARNING

Proposition 65: One or more of the components contained in this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

SDS (available at www.gstinternational.com) for additional safety information regarding this product.

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. and the seller therefore disclaim any responsibility for damage of any kind. The only warranty extended, expressed or implied, is for defective material.

GST International shall not be liable for any incidental, consequential or damages arising directly or indirectly from the use of Elephant Armor®.