

CARBON REINFORCEMENT

StrongHold™ CF Carbon Reinforcement STR-516-CF is a high strength uni-axial carbon fabric used for strengthening concrete and is part of the StrongHold™ General Concrete Repair System. The fabric is used in conjunction with StrongHold™ CF Saturating Polymers.

Advantages

- Corrosion resistant – minimizing costs and wear
- Adds only a 1/16th of an inch to the repaired surface
- Light weight (4 ounces per square foot)
- Low thermal expansion
- Lightweight and flexible
- FDA Compliant for Food Types I & VIII and Condition of Use “E” under Title 21 CFR Chapter 175 Part 300 Indirect Food Additives: Adhesives and Components of Coatings: Resinous & Polymeric Coatings

Typical Data & Physical Properties

| | | |
|--|-------------------------------------|-------------------------------------|
| Storage Conditions | Store dry, do not over-stack boxes | |
| Color | Black | |
| Heat Distortion Temperature HDT (ASTM D648) | 440°F | 227°C |
| Typical Value – Tensile Strength (ASTM D3039) | 150,000 psi | 1,034,214 kPa |
| Design Value – Tensile Strength (ASTM D3039) | 119,400 psi | 823,234 kPa |
| Typical Value – Young’s Modulus (ASTM D3039) | 12,530 ksi | 86,391 MPa |
| Design Value – Young’s Modulus (ASTM D3039) | 10,948 ksi | 75,484 MPa |
| Elongation @ Break (ASTM D3039) | 1.17% | |
| Single Ply Thickness | 0.047 inches | 0.119 cm |
| Compressive Strength (ASTM D695) | 11,000 psi | 75,842 kPa |
| Lap Shear (ASTM D3165) | 3,417 psi | 23,559 kPa |
| Flexural Strength (ASTM D790) | 18,000 psi | 124,105 kPa |
| Flexural Modulus (ASTM D790) | 3,611,000 psi | 248,977 MPa |
| Minimum Bond Strength to Properly Prepared Concrete | 200 psi | 1,379 kPa |
| Shore D Hardness (ASTM 2240) | 78 | |
| Thermal Expansion (ASTM E831) | 3.65 x 10 ⁻⁶ in/in-deg F | 6.57 x 10 ⁻⁶ in/in-deg C |



Installation Procedures for StrongHold™ CF

Design Specifications

Certified Installer Company Name

Certified Technician(s)

HJ3 Design Case #

Project Name

Material Handling & Storage

Product was stored between 65F and 80F

Packing Slip has been verified against order and design calculations

| Record | Primer | Filler | ShapeShift | Saturant | Fabric | Top Coat |
|--------|--------|--------|------------|----------|--------|----------|
|--------|--------|--------|------------|----------|--------|----------|

ITEM CODE

QTY

LOT #'s

EXP

Environmental Conditions

Surface Temp

Use an infrared thermometer to obtain value and record below:

_____ (°F) _____ (°C)

Ambient Temperature

Use a digital temp gauge to obtain value and record below:

_____ (°F) _____ (°C)

Skin Temperature is > (5F/3C) above Dew Point

Skin Temp _____ (°F) _____ (°C) – Dew Point _____ (°F) _____ (°C)

= VALUE _____ (°F) _____ (°C)



Surface Prep

Surface Repair Prep Guidelines were followed Restore the concrete per ICRI 310.1R.

Minimum surface profile was achieved & verified Confirm surface profile meets ICRI CSP #3 not to exceed #6.

Surface is Clean & Dry Confirm that surface moisture is < 5%.
Confirm surface is dust free by performing coin dust test.

NOTE: Upper Surface Temperature Application Limit = 200°F (93°C). For higher temps consult HJ3.

Installation

Prime the surface with 7-10 mils StrongHold™ GF Primer

Start by pouring the entire contents of Primer Polymer Part B into the container marked Part A. Mix for 3 minutes using a low speed drill at 400-600 RPM. Using a brush or roller nap apply the primer to 100% of repair area. Make sure surface is saturated to rejection; No dry spots shall be visible in the prepared area after priming.

Fill Pits & Smooth Transitions StrongHold™ GF Hi-Mod Paste

Start by pre-mixing the Part A for 3 mins until completely smooth and consistent. Then pour the entire contents of Filler Part B into the container marked Part A. Mix for 3 minutes using a low speed drill at 400-600 RPM. Apply hi-mod paste to fill pits, bugholes, and surface irregularities. Use hi-mod paste to create transitions over high spots using a 3:1 transitions.

Saturate the glass fabric using StrongHold™ GF Saturant

Start by pouring the entire contents of Saturant Polymer Part B into the container marked Part A. Mix for 3 minutes using a low speed drill at 400-600 RPM. Unwrap the glass fabric from its packaging. Unroll the glass and prepare for wet-out and keep foreign matter off of the dry fabric. Use a brush, roller nap, or spatula to fully wet out the glass fiber on both sides. Roll the wet glass fiber onto a clean core.

Apply StrongHold™ GF Saturated Fabric to primed & prepared surface

After saturating, press the saturated fabric on to the substrate and using a roller apply pressure to the surface of the fabric to ensure good bonding. Roll out any trapped air before the polymer sets. Smooth with roller in all directions to remove air pockets. Overhead applications will require Hi-mod paste between layers. All bubbles, voids, and fiber disruptions shall be removed while fiber is still wet.

Apply StrongHold™ Compression Film

If repair structure can be fully enveloped e.g.(column), then apply 4 layers of compression film in the same direction as the “wet” fabric. Compression film shall be applied to “wet” fabric and can be removed in 12-24hrs depending on ambient temperature.

Apply ChemSeal™ (or approved) Top Coats

After all layers of fabric have been installed, apply designated ChemSeal™ Coating or other pre-approved coating. If Saturated StrongHold™ GF fiber has cured for more than 5 days then for all ChemSeal™ Top Coats, sand lightly to remove gloss, then clean with solvent and damp rag, waiting 20 minutes for solvent to flash. Top Coat shall cover 100% of surface area at applied at designated minimum thickness.



Post-Installation Inspection & Repair

Visual Inspection

A visual inspection shall be performed to detect defects such as but not limited to: dry fiber, voids, bubbles, insufficient overlaps.

Acoustic Tap-Test

An acoustic tap test shall be performed to detect voids and delamination between the composite repair and surface.

QC Repair

All anomalies requiring repairs shall be performed prior to return to service.

Cure

**Surface Temps < 77°F / 25°C
(Shore D of 78 required)**

A Minimum 72 hours of Cure Time has been achieved prior to return to service.

**Surface Temps > 77°F / 25°C
(Shore D of 78 required)**

A Minimum 24 hours of Cure Time has been achieved prior to return to service.

NOTE:

Cure times can be decreased by adding heat to the repair location.

Consult with HJ3 for a specific cure schedules associated with elevated temperatures.