



## Richtech Carbon Fiber System INSTALLATION GUIDE

RICCAR18 • RICCAR674 • RICCAR678  
RICCAR684 • RICCAR688



**INTRODUCTION**

The Richtech Carbon Fiber wall-bracing system is the most effective solution on the market for fixing cracking, bowing and shifting walls. A trusted system built for the rigors of residential and commercial applications, Richtech Carbon Fiber delivers exceptional performance—providing value for your customers and opportunity for your business.

- **PROVEN STRENGTH:** Richtech Carbon Fiber is the only carbon fiber product on the market that uses the same industrial-grade epoxies used on bridge columns, parking garages and high-rise buildings.
- **10X STRONGER THAN STEEL**
- **5X STRONGER THAN ANY OTHER PRODUCT AVAILABLE**

**WHAT IS RICHTECH CARBON FIBER?**

Richtech Carbon Fiber is a superior wall-bracing system that permanently fixes cracked and bowed walls—without obtrusive nuts, bolts and beams.

- Versatile – Used in residential and commercial applications.
- Industrial strength – 10x stronger than steel.
- Super thin – When applied on the wall and painted, it is nearly invisible.
- Easy to install – No special tools required.
- Comprehensive – Effective on cement block, poured concrete, brick – any porous surface.

**HOW RICHTECH CARBON FIBER WORKS**

Richtech Carbon Fiber is composed of thousands of thin carbon fibers, in a parallel alignment, that are tightly woven into a fabric material. When the material is installed/applied to a wall, it is impregnated with an epoxy saturant that bonds the carbon fibers to each other and becomes one with the wall. These fibers are highly resistant to stretching—10 times as resistant as steel at the same thickness. With Richtech Carbon Fiber applied, the crack and wall cannot move because the bond will not stretch.

**TYPES OF WALL CONSTRUCTION**

Richtech Carbon Fiber can be used on:

**Block | Brick\* | Poured Concrete\* | Stone\***

\*These applications may require more epoxy paste

**GUIDELINES FOR USE**

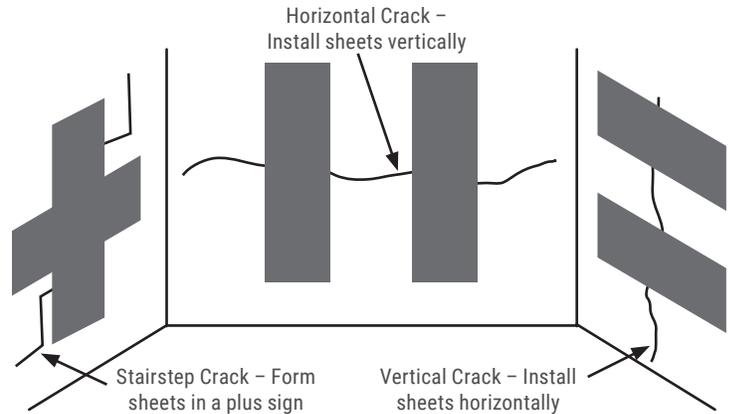
Based on engineering specifications, Richtech Carbon Fiber can be used on cracks/bows up to 2” in deflection. If the deflection is greater than 2”, a pushback is recommended prior to product installation.

**How to measure wall deflection:**

Using a plumb bob, measure out 2” from wall; hang a string with a weight attached at the bottom: If the widest width to the wall is 2” or less, it falls within the deflection parameter and Richtech Carbon Fiber can be applied.

**How to determine proper product placement:**

Richtech Carbon Fiber sheets must be installed PERPENDICULAR to the direction in which the crack is running. To properly reinforce cracks, follow these guidelines for installing Richtech Carbon Fiber sheets:



**NUMBER OF SHEETS REQUIRED FOR INSTALL**

Total Length of Wall	# of Sheets Necessary
1’ – 4’	1
5’ – 8’	2
9’ – 14’	3
15’ – 20’	4
21’ – 26’	5
27’ – 32’	6
33’ – 38’	7
39’ – 44’	8
45’ – 50’	9
51’ – 56’	10

This is a minimum guideline. Installation placement is dependent upon the severity and geometry of the crack and wall (do not violate the maximum 4’- between-sheet rule). In other words, an 18’ wall would require 4 sheets with less than 4’ between sheets; the placement of those 4 sheets depends on where the wall needs most correction, or where the greatest stress is located.

**WEATHER AND TEMPERATURE VARIABLES**

For Richtech Carbon Fiber to cure properly, the ambient temperature in the work area must be 50 degrees Fahrenheit or higher. If you are installing the product in an unconditioned space and use heat to raise the temperature, do not use space heaters that run on propane or petroleum products: The fumes from these types of units will interfere with the curing process of the epoxies.

## EPOXY MIXING INSTRUCTIONS

### RI Epoxy Paste:

Used to level small surface defects and to provide a smooth surface to which the Richtech Carbon Fiber System will be applied.

1. Pre-mix part A separately before combining. Mix by hand using a paint stick for approximately 60-100 stirs.
2. Once combined, use a Jiffy Mixer to stir both parts together for approximately 45-60 seconds. If mixing by hand, blend thoroughly for approximately 100-200 stirs. Be sure to scrape the sides of the bucket while mixing.

### RI Primer:

Used to penetrate the pore structure of cementitious substrates and to provide a high bond base coat for the Richtech Carbon Fiber System.

1. Pre-mix part A separately before combining. Mix by hand using a paint stick for approximately 60-100 stirs.
2. Once combined, use a Jiffy Mixer to stir both parts together for approximately 45-60 seconds. If mixing by hand, blend thoroughly for approximately 100-200 stirs. Be sure to scrape the sides of the bucket while mixing.

### RI Saturant:

Used to encapsulate Richtech Carbon Fiber. When reinforced with Richtech Carbon Fiber, the RI SATURANT cures to provide a high performance fiber reinforced polymer laminate.

1. Pre-mix part A separately before combining.
2. Part A must be thoroughly mixed before adding part B, as it is a non-homogeneous resin. Use a Jiffy Mixer for 15-20 seconds, or mix by hand for approximately 100-200 stirs. Be sure to scrape the sides of the bucket while mixing.
3. Once part A has been mixed, add part B. Combine using a Jiffy Mixer to stir both parts together for approximately 45-60 seconds. If mixing by hand, blend thoroughly for approximately 100-200 stirs. Be sure to scrape the sides of the bucket while mixing.

### Tips for installing:

- When using a Jiffy Mixer, keep the blade towards the bottom of the bucket. Be careful to avoid whipping the epoxies, so that you are not adding air to the mixture.
- When stirring by hand, make sure to scrape the sides of the bucket. This will ensure the epoxy has been completely mixed.
- When using a Jiffy Mixer, we recommend two options.
  1. Use three different blades- one for each of the epoxies (epoxy paste, primer, and saturant).
  2. Thoroughly clean the blade before each use. We recommend using Xylene to remove any excess epoxy.
  3. Jiffy Mixer is the preferred method of mixing and combining the chemicals together. For bulk orders, a paddle mixer is required.\*

## INSTALLATION

1. Calculate how many carbon-fiber sheets are required for affected wall areas and determine where sheets will be placed. (Refer to table on pg. 4)
2. Measure and mark the wall 1" wider than, and 1" above and below, each sheet location.
3. Scrape the marked areas thoroughly. If the wall is painted, grind the paint off with a 4" or 6" diamond-tip sander. (Use a dustless, HEPA-filtered vac to minimize dust.)



4. When using RI Epoxy Paste, prepare by mixing 3 parts (A) to 1 part (B). Mix enough to fill all cracks and holes in the marked areas, and let it set up for a few minutes (so it thickens adequately to hold it in the cracks; be aware: it will not dry completely). Use a putty knife to fill all cracks and holes with epoxy paste; feather the edges.



5. Mix enough primer to thickly coat all marked areas. Mix 3 parts (A) to 1 part (B).
6. Use the smooth roller to apply the primer within all the marked areas. Let the primer set for 10 to 15 minutes to absorb deep into the porous surface



7. Mix enough saturant to put two thick coats on all marked areas. RI Saturant is mixed 3 parts (A) to 1 part (B). Two coats of RI Saturant are used because, the first coat is applied to the wall; the second coat is applied after the fiber is in place.



8. Use the smooth roller to apply a thick coat of saturant onto all marked areas.

9. Take pre-cut carbon-fiber sheets and place them over the saturant. Press and smooth out by hand.



10. Take the ribbed roller and firmly roll from the middle to the top, and from the middle to the bottom, to squeeze the saturant in-between the fibers and to eliminate ALL air bubbles. Roll in one direction only.



11. Use the smooth roller to apply a second, thick coat of saturant.



12. Apply the ribbed roller again.



13. Dispose of all pre-mixed leftover materials.  
14. On residential applications, advise the homeowner to wait at least 48 to 72 hours before painting. The lower the temperature, the longer it will take to cure.

### SAFETY GUIDELINES

Listed below are basic safety precautions for Richtech Carbon Fiber installations:

1. Always use plastic gloves when working with epoxies (primer, epoxy paste and saturant).
2. Wear safety glasses to protect eyes
3. Ventilate the work area: fumes are non-toxic but could be an irritant; proper airflow also ensures air turnover, avoiding buildup of heavy vapors

SAFETY FIRST: We recommend following these common-sense guidelines during install for ample protection:

**RESPIRATORY** – Vapors may be irritating to nose and mucus membranes. *Recommended safety gear: N95 Amston Charcoal Mask.*

**EYES** – Contact with epoxy may cause severe irritation, tearing, and blurred vision. If contact occurs, flush eye with water for 15 minutes, lifting upper and lower lids occasionally; and seek medical attention. *Recommended safety gear: Safety glasses.*

**SKIN** – Prolonged or repeated exposure to epoxy may cause skin irritation or redness; and an allergic reaction may occur in some individuals. *Recommended safety gear: Rubber gloves.*

### ADDITIONAL EQUIPMENT REQUIRED

Richtech Carbon Fiber provides you with the tools needed to complete the carbon fiber and epoxy application. We recommend using the following additional equipment:

#### 1. Jiffy Mixer

Using a Jiffy mixing paddle or a spiral mixing paddle when combining parts A & B of the epoxy paste, primer, and saturant will help strengthen the bond between the two epoxies. It is necessary to completely mix both A & B together. For bulk quantities, make sure the mixer is at least 600 rpm.

#### 2. Xylele Cleaner

Use a strong solvent to wipe clean the paddles and mixers between each use. Avoid any cross-mixing of the epoxies.

#### 3. Dustless HEPA vacuum with attached 4-6" diamond tipped sander

Use a diamond tipped sander to remove and paint on the walls, and open the pores of the wall before applying the epoxies.

### FREQUENTLY ASKED QUESTIONS

*Q: Can I use cement to fill big cracks?*

A: If cracks are very wide, use fast-setting hydraulic cement or a polyurethane expandable foam as filler.

*Q: How much time do I need to leave between applying the crack filler and the primer?*

A: Start applying the primer a few minutes after crack filler application.

*Q: What is the best paint to use on walls with Richtech Carbon Fiber applications?*

A: A good latex paint will do. Use latex paint that is specified for use on concrete walls. Avoid any paint that is oil- or petroleum-based, because it will affect the curing process. **\*\*DO NOT use Drylok Waterproofer Paint**

*Q: Can I mix all ingredients before I begin?*

A: Because epoxy is quick-setting, it's best to measure your walls, mark them for placement, apply filler and primer—and then mix and apply epoxy and Richtech Carbon Fiber sheets.

*Q: I have a wall with multiple cracks and a center that has bowed out: The middle is leaning in and the center has moved across the sill plate by about 2 inches. Can I use Richtech Carbon Fiber to correct this?*

A: If the wall has moved across the sill plate at all, or the wall has moved off the lower block, Richtech Carbon Fiber can only be applied if the shearing is corrected first. With that problem addressed, Richtech Carbon Fiber can then be applied.