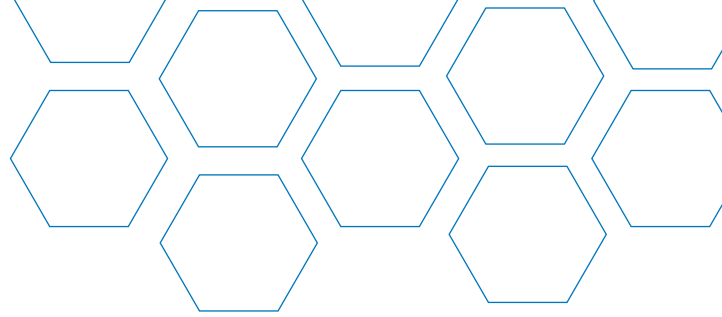




**GATEWAY<sup>LLC</sup>  
COMPOSITES**



# Composite Strengthening Systems

CFRP strengthening systems should be installed by contractors experienced with doing concrete and masonry repairs, surface preparation, and the application of composite reinforcements and coatings.

## Storage

Fabrics should be kept boxed or bagged and away from direct sunlight, moisture, dirt and dust.

## Safety

Review Safety Data Sheets (SDS) for all raw materials prior to use. Always wear personal protection equipment. Perform work in a well ventilated area. Wear particle masks or NIOSH respirator if the work area is not well ventilated. Wear safety glasses to protect eyes from possible irritation. Wear gloves to protect hands from possible irritation. Use caution when handling or working with carbon fiber around electrical equipment as carbon fibers are electrically conductive.

## Design

Design calculations shall be made by a licensed professional engineer. Design should comply with ACI 440.2R.

## Surface Preparation

The surface must be dry, clean, free from paint, waxes, grease, dust, oil or dirt and free from frost. For bumps, fins and protrusions use hammer, sand blasting, pressure washing, shot blasting, grinding or other approved mechanical means to achieve an open-pore texture with a CSP (concrete surface profile) 3 or better. Round corners to a minimum 1/2" radius where the fabric will be wrapped. Surface should be wiped with clean cloth after grinding, blasting, brushing surface to remove dust particles.

Uneven surfaces (voids) and mortar joints must be filled with appropriate filler compound (Gateway 777 Epoxy Filler Compound). Filler Compound should be pressed into the voids/cracks and feathered for smooth surface. A smooth surface is critical for fabric bonding. Uneven surface can result in voids between fabric and substrate which leads to delamination of composite.

The adhesive strength of the concrete may be verified after surface preparation by random pull-off testing (ACI 440.3R or ASTM D4541) at the discretion of the engineer. Minimum tensile strength of 200 psi must be achieved.

It is the responsibility of each purchaser and end user to determine the suitability of the Product for its intended use. Prior to using any Product, consult a qualified design professional for advice regarding the suitability and use and application of the Product, including whether the capacity of any structural element may be impacted by a repair. "Dry Fiber Properties" are confirmed by Certificate from the fiber manufacturer. "Laminate Properties" are typical and to be used by technically skilled persons at their own discretion and risk. The properties do not constitute any warranty or guarantee. All values are for material selection purposes only. An externally applied CFRP system is a vapor barrier. Consult with a licensed, professional engineer to evaluate the results of encapsulating a porous substrate. The installer must read, understand and follow all written instructions, and warnings contained on the product label(s), Product Data Sheet(s), Safety Data Sheet(s) and the [www.gatewaycomposites.com](http://www.gatewaycomposites.com) website prior to use. For use only by qualified applicators.



120 East Hwy A  
Wentzville MO 63385  
**636.887.0637**

Fax: 636.548.2288  
[info@gatewaycomposites.com](mailto:info@gatewaycomposites.com)  
**[gatewaycomposites.com](http://gatewaycomposites.com)**

**WOVEN, ENGINEERED  
& ASSEMBLED**  
**IN THE USA**  
GATEWAY COMPOSITES LLC



## Application

Review the specified number of plies and fiber orientation per the engineer's design.

Fabric should be cut to appropriate lengths with a utility knife or high quality commercial grade textile scissors/shears. Do not fold or crease fabric. Keep the fabric free of dust, oils, moisture, and other contaminants at all times.

Mix primer and saturant resin components using recommended procedures from resin manufacturer(s). If specified, apply primer resin to surface.

Using a medium nap roller, apply approximately a 20 mil wet film thickness of saturant resin to the surface to be strengthened. Apply the Gateway Composites carbon fiber fabric onto the uncured saturant. Use a rib roller in the direction of the fibers to enable complete impregnation of the fabrics fibers and release of air bubbles as seen by uncured saturant resin "bleeding" through the fabric. Apply a second 20-30 mil coat of saturant resin over the fabric and use nap roller for complete fabric impregnation of resin and removal of air bubbles. Repeat this step for additional plies.

If a topcoat is specified for chemical, thermal or abrasion resistance, refer to manufacturers procedure for mixing and application guidelines.

## Limitations

- Design calculations must be made by a licensed professional engineer.
- Do not apply to concrete less than 30 days old.
- Do not apply to concrete less than 50°F.
- System is a vapor barrier.

## Disposal

Dispose of in accordance with local disposal regulations.

It is the responsibility of each purchaser and end user to determine the suitability of the Product for its intended use. Prior to using any Product, consult a qualified design professional for advice regarding the suitability and use and application of the Product, including whether the capacity of any structural element may be impacted by a repair. "Dry Fiber Properties" are confirmed by Certificate from the fiber manufacturer. "Laminate Properties" are typical and to be used by technically skilled persons at their own discretion and risk. The properties do not constitute any warranty or guarantee. All values are for material selection purposes only. An externally applied CFRP system is a vapor barrier. Consult with a licensed, professional engineer to evaluate the results of encapsulating a porous substrate. The installer must read, understand and follow all written instructions, and warnings contained on the product label(s), Product Data Sheet(s), Safety Data Sheet(s) and the [www.gatewaycomposites.com](http://www.gatewaycomposites.com) website prior to use. For use only by qualified applicators.

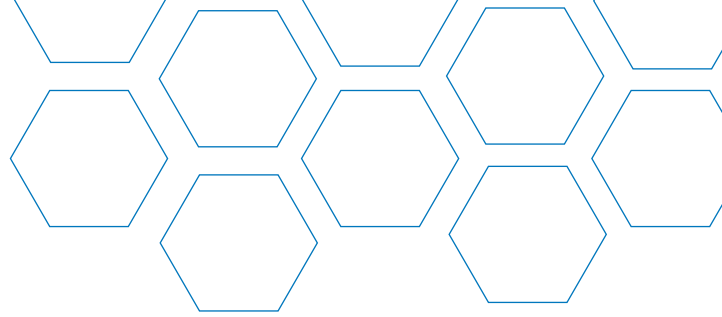
120 East Hwy A  
Wentzville MO 63385  
**636.887.0637**

Fax: 636.548.2288  
[info@gatewaycomposites.com](mailto:info@gatewaycomposites.com)  
**[gatewaycomposites.com](http://gatewaycomposites.com)**





**GATEWAY** LLC  
**COMPOSITES**



## PW350 Plain Weave Carbon 350g/m<sup>2</sup> – 10oz/yd<sup>2</sup>

GCCF12KPW350 is a plain weave, high strength, non corrosive carbon fiber fabric oriented in the 0° and 90° directions. The fabric is field laminated with a resin system to create a carbon fiber reinforced polymer (CFRP) system to reinforce structures such as buildings, parking garages, tanks, pipes, bridges, stacks and piling including walls (poured and masonry), columns, beams, slabs and pile elements.

|                        |   |
|------------------------|---|
| <b>Product ID:</b>     | GCCF12KPW350-24                                   |
| <b>Description:</b>    | 12K Carbon Fabric, Plain Weave, 350 gsm           |
| <b>Raw Material:</b>   | 12K Carbon Fiber                                  |
| <b>Weave:</b>          | Plain Weave                                       |
| <b>Construction</b>    | 6.0 epi (±0.5) x 6.0 ppi (±0.5)                   |
| <b>Carbon Weight:</b>  | 350 gsm (±25 gsm) (10.3 oz/yd <sup>2</sup> ± 0.8) |
| <b>Width*:</b>         | 12, 24 inch (±0.5 inch)                           |
| <b>Edge Type:</b>      | Aramid Leno @ Selvege                             |
| <b>Std. Roll Size:</b> | 100 linear yard                                   |

### PROPERTIES

#### Carbon Fiber Properties (Lot Average)

|                  | English   | Metric    |
|------------------|-----------|-----------|
| Tensile Strength | ≥700 ksi  | ≥4963 MPa |
| Tensile Modulus  | ≥33.4 msi | ≥234 GPa  |

#### Cured Laminate Properties\*

|                                  |             |         |
|----------------------------------|-------------|---------|
| Tensile Strength (ASTM D3039)    | 105,000 psi | 724 MPa |
| Tensile Modulus (ASTM D3039)     | 6,900 ksi   | 48 GPa  |
| Elongation at Break (ASTM D3039) |             | 1.3%    |
| Thickness (ASTM D3039)           | .022 in     | 0.56 mm |

"Carbon Fiber Properties" are confirmed by Certificate from the fiber manufacturer. "Cured Laminate Properties" are typical. The properties do not constitute any warranty or guarantee. All values are for material selection purposes only. The customer must determine suitability of any information or material for any contemplated use and assumes all risk. This information is for use by technically skilled persons at their own discretion and risk.

120 East Hwy A  
Wentzville MO 63385  
**636.887.0637**

Fax: 636.548.2288  
info@gatewaycomposites.com  
**gatewaycomposites.com**

