

StructureWrap™ V2 090 UC Carbon fiber fabric for structural strengthening

Product Description

StructureWrap V2 090 UC is a proprietary high tensile strength, stitch bonded, unidirectional carbon fiber fabric certified by ICC-ES as meeting building code requirements. The material is combined in the field utilizing StructureWrap V2 200 Epoxy to form a carbon fiber reinforced polymer (CFRP) laminate used to strengthen and/or upgrade structural elements.

Applications

Structural capacity changes

- Increased live or dead loads in structures
- Increased traffic volumes on bridges and viaducts
- Dampen vibrating structures or change the natural frequency
- Accommodate changes of building utilization or industrial machinery layout
- Allow for the removal of walls, columns or sections of floor slabs

Seismic retrofitting

- Upgrade of reinforced concrete columns
- Retrofit of unreinforced masonry walls
- Increase lateral shear resistance in reinforced masonry walls

Blast resistant upgrades

- Column protection
- Masonry wall protection

Structural damage and repair

- Repair of large diameter pipes to achieve strengthening and water-proofing
- Repair of aging or corroded members
- Repair or upgrade of inferior materials
- Repair of inadequate construction techniques
- Repair of members due to fire or natural disaster

Advantages

- Certified by ICC-ES (ESR-3573)
- Meets ACI 440.2r-08 criteria
- May be utilized to enhance shear, confinement or flexural strength
- Can accommodate complex 3-D shapes
- High strength to weight ratio
- Light weight and adds negligible dead load to structure
- Non-corrosive, non-magnetic
- Acid resistant
- Finished application does not change the aesthetics of the structure

Composite Gross Laminate Properties

	Ultimate Value		Design Value	
	US Units (psi)	SI Units (Mpa)	US Units (psi)	SI Units (Mpa)
Ultimate Tensile Strength Primary Fiber Direction	125,070	862	105,000	724
Tensile Modulus	10,825,000	74,365	10,825,000	74,635
Elongation at Break	1.16%	1.16%	0.97%	0.97%
Flexural Strength	138,075	952	82,760	570
Compressive Strength	37,565	259	29,300	202
Short Beam Shear	7,252	50	6,800	47
Tensile Strength per Inch Width	2.5 kips/in		2.1 kips/in	
Coefficient of Thermal Expansion	.000029in/in/°F	52.87µm/m/°C	.000029in/in/°F	52.87µm/m/°C
Glass Transition Temperature	160.7°F	71.5°C	160.7°F	71.5°C
Laminate Thickness	.02in	.51mm	.02in	.51mm



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Product Data Sheet

StructureWrap V2 090 UC

How to Use

Refer to StructureWrap design and installation manual for specific instructions on installation procedure.

Packaging

Rolls: 25 in. x 50 ft. (104 ft.²); 25 in. x 300 ft. (625 ft.²); Custom widths of 6"-50" are available

Kits: Pre-measured kits containing a 25 in. x 50 ft. (104 ft.²) roll of fabric and 3 gallons of StructureWrap V2 200 Epoxy

Limitations

- The installed system acts as a vapor barrier. Concrete should not be fully encapsulated in areas of freeze/thaw.

Caution

StructureWrap V2 090 UC is non-reactive and non-toxic. However, caution must be used when handling since stray fibers and dust may be present on the surface. Gloves and the use of an appropriate properly fitted NIOSH approved respirator is recommended to prevent skin and lung irritation when handling, cutting and applying StructureWrap V2 090 UC.

Consult the StructureWrap V2 090 UC SDS for further safety information.



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