

StructureWrap™ V2 190 UC Carbon fiber fabric for structural strengthening

Product Description

StructureWrap V2 190 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, adds negligible dead load to structure
- Non-corrosive and non-magnetic
- Acid and alkali 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	205,140	1,414	180,280	1,245
Tensile Modulus	16,849,000	116,170	16,849,000	116,170
Elongation at Break	1.22%	1.22%	1.07%	1.07%
Flexural Strength	118,000	814	100,000	690
Compressive Strength	72,000	499	61,000	424
Short Beam Shear	6,500	45	5,500	38
Tensile Strength per Inch Width	7.2 kips/in		6.3 kips/in	
Coefficient of Thermal Expansion	.000028in/in/°F	50.07µm/m/°C	.000028in/in/°F	50.07µm/m/°C
Glass Transition Temperature	160.7°F	71.5°C	160.7°F	71.5°C
Laminate Thickness	0.035in	0.850mm	0.035in	0.850mm



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StructureWrap V2 190 UC

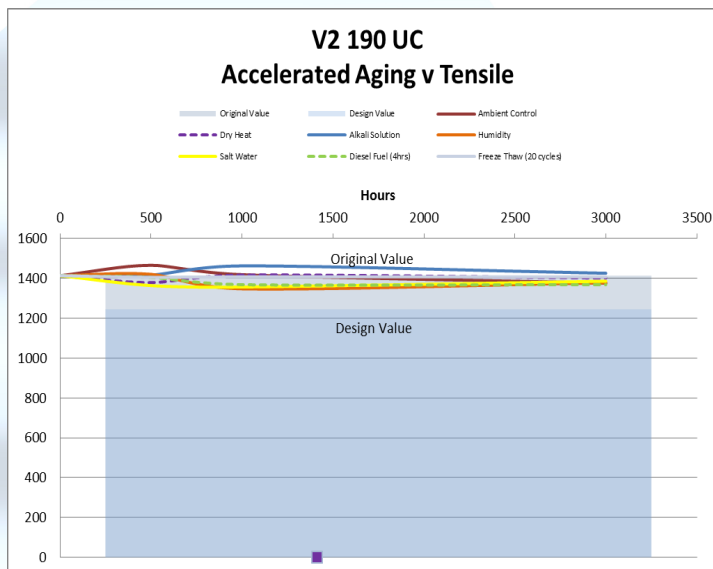
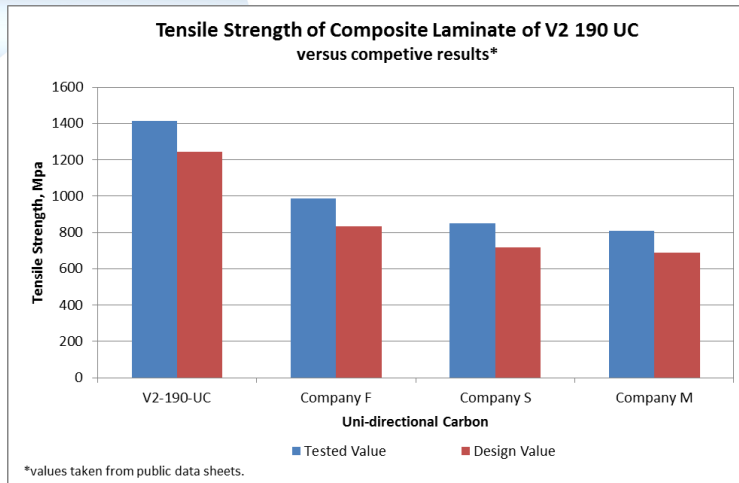
How to Use

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

Competitive Testing and Additional Physical Testing

Competitive Testing - V2 Structural Systems takes its performance values very seriously and commits to its unique performance in each properly installed application. The following chart compares commercially available data with performance values (both typical and design) for StructureWrap V2 190 UC versus commonly available carbon reinforcement systems. Note that the StructureWrap V2 190 UC Design and Typical values exceed the standard values of all competitive products in the industry.

Accelerated Aging - V2 Structural Systems is aware of the rigorous and abusive environments that it's products are expected to perform in. Every environment can not be specifically tested but V2 tests each of it's systems in the harshest environments available in laboratory conditions. V2 also extends its aging process well beyond the required limits of performance. The chart below describes the change in tensile stress upon aging for the described hours in the specified conditions. Note that even after 3,000 hours in the cruelest environments that the V2 strengthening system does not even draw near to the Design Value that we stand behind.



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Product Data Sheet

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 190 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 190 UC.

Consult the StructureWrap V2 190 UC SDS for further safety information.



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