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RepWrap™ 600UD - Stitch-Bonded, Uni-Directional FRP Fabric

DESCRIPTION:
RepWrap™ 600UD is a 600-gram lightweight, high-tensile strength, uni-directional, stitch bonded carbon fabric that is produced from our continuous, tow-carbon fiber. It easily wets out with **RepPoxy SAT** saturant resin and can be installed using either the "wet lay-up" or "dry lay-up" techniques. The light weight of the fabric allows dry application to **RepPoxy SAT** epoxy coated surfaces followed with a saturating coat of **RepPoxy SAT**, and finally by **RepCoat UV** anti-carbonization and UV resistant topcoat significantly simplifying field applications. TuffTex Materials' **RepWrap** Systems are used to obtain a bonded FRP (fiber reinforced polymer) field laminate reinforcement system that will strengthen and enhance the performance of structural elements once installed.

FEATURES:
- Easy Installation
- Flexibility to Conform to Shape Variances
- High Strength, Alkali Resistant, Non-Corrosive
- Lightweight/ High Strength to Weight Ratio
- Low Impact Aesthetics

USES:
- Blast Mitigation
- Changes or Increases in Design Criteria
- Increase Load Bearing Properties in Columns, Walls, Beams and Slabs
- Increase Seismic Ductility and Axial Loads on Concrete Columns and Elements
- Rehabilitate Structural Integrity Due to Impact or Deterioration
- Repair of Structures Damaged by Fire
- Strengthen Concrete Bridges, Silos, Warehouses Tunnels and Parking Garages

COLOR:
Black

TECHNICAL DATA:
Complies with NSF/ANSI Std. 61 Requirements

PREPARATION:
Surface should be sound with no loose materials. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials and other bond inhibiting materials from the surface. Surface may be dry or damp, but free of standing water and frost. Consult **RepWrap** Systems technical data sheets for additional information on surface preparation. Existing uneven surfaces must be filled with an appropriate repair mortar such as **RepPoxy Gel** epoxy or **RepCrete VOH** concrete repair. The adhesive strength of the concrete should be verified after surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure. Concrete surfaces require a medium sandpaper finish equal to or greater than an ICRI CSP #3. Surface preparation may be completed by shot blasting or the use of TuffTex Materials' profile and etch cleaner, **Prep-Etch**. Some applications are at the engineer's discretion; the contact between the substrate and the fabric may be determined to be non-critical. In these cases, a thorough cleaning of the substrate using low pressure sand or water blasting is sufficient.

PLACEMENT:
RepWrap 600UD is only applied as a component of the **RepWrap** System.
- The **RepWrap 600UD** material should be cut to the proper dimensions specified using heavy duty shears or a utility knife.
- Cut sections of **RepWrap 600UD** can be temporarily stored by carefully rolling fabric into a tight roll. Do not fold or crease the fabric. Fabric should be kept free of dust, oils, moisture and other contaminants at all times.
- Apply the **RepWrap 600UD** fabric directly into uncured **RepPoxy SAT** saturant applied on the substrate. There is no need to "pre-wet" the **RepWrap 600UD** fabric with **RepPoxy SAT** saturant prior to applying the fabric against the substrate.
- Using a rib roller or squeegee, press the fabric against the substrate until visual signs of **RepPoxy SAT** saturant are observed bleeding through the fabric. The rib roller or squeegee should only be run along the direction of the primary fibers in the fabric.
- Apply a layer of **RepPoxy SAT** saturant over the top of the **RepWrap 600UD** fabric to completely encapsulate the fabric. Consult with the **RepPoxy SAT** saturant data sheet on details for applying **RepWrap** saturant. If Required: Apply a second layer of fabric while the saturate is still tacky. When tack free, coat the exposed surface of final fabric layer using a protective layer of **RepCoat UV**.

CURING/DRYING TIME:
Varies with temperature and humidity. Ambient temperature should be 50° F and rising for best installation results. At temperatures below 50° F, please consult your TuffTex representative.

CLEAN UP:
Clean tools and equipment with Xylene or TuffTex Materials' **RepClean**.

PACKAGING:
Roll Sizes:
12.5" x 200' Roll (208.3 sqft: 19.35 sqm)
25" x 200' Roll (417 sqft: 38.74 sqm)
50" x 200' Roll (833.3 sqft: 77.42 sqm)

STORAGE:
The material should be stored between 40°F – 95°F (4°C – 35°C) in a cool, dry area away from direct sunlight.

SHELF LIFE:
Shelf life of properly stored, unopened containers is 24 months (two years).

CERTIFICATION:
Installation of **RepWrap** products should be performed only by manufacturer's specially trained & certified contractors. **RepWrap** Fabrics are manufactured in accordance with TuffTex Materials written and published data. A Certificate of Conformance is provided with each shipment.

LIMITATIONS:
TuffTex Materials recommends design calculations be made by a certified independent licensed PE. Encapsulation of Concrete with FRP Systems are not recommended in freeze/thaw zones, as the systems are a vapor barrier.

CAUTION:
A Obtain, read, and understand the Safety Data Sheet (SDS) before use of this or any other TuffTex Materials' product. With **RepWrap 600UD**, gloves are recommended to be worn to protect against skin irritation. When cutting **RepWrap 600UD** fabric protect against airborne carbon dust generated by the cutting procedure by use of an appropriate, NIOSH approved respirator.
READ SDS PRIOR TO USING PRODUCT.
KEEP OUT OF THE REACH OF CHILDREN.

WARRANTY:
Due to the use of this product beyond our control, we assume no liability for damages of any kind, and the user accepts the product "as is" and without warranties, expressed or implied, from either **TuffTex Materials, Inc.** or its agents. The suitability of the product for an intended use shall be solely up to the user. Our only obligation shall be to replace or pay for any material proved defective, with our liability limited to the purchase price of materials supplied by us.

DISCLAIMER:
Refer to the SDS sheet before use. The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of TuffTex Materials. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Published technical data and instructions are subject to change without notice. Contact your local TuffTex distributor or technical representative for additional technical data and instructions.

PHYSICALS:	
0° Carbon Fiber: RepWrap 600UD	18.63 oz/sqy (632 g/sm)
A-Glass Veil: C-LA 1812	1.20 oz/sqy (41 g/sm)
Polyester Stitch 167dtex	0.53 oz/sqy (18g/sm)
Total Fabric Weight	20.36 oz/sqy (691 g/sm)
Fabric Construction	
Stitch Length	0.13" (3.2 mm)
Stitch Pattern	Tricot
Dry Thickness	0.039" (0.99 mm)
Standard Roll Length	300 ft (91.4 m)
Dry Roll Width	50" (1270 mm)
Typical Fiber Properties (Dry)	
Tensile Strength (ASTM D4018)	638 ksi (4,400 MPa)
Tensile Modulus (ASTM D4018)	37 Msi (255 GPa)
Ultimate Elongation at Break (ASTM D4018)	1.70%
Composite Average Properties*	
Tensile Strength (ASTM D3039)	170 ksi (1,173 MPa)
Modulus of Elasticity (ASTM D3039)	13.5 Msi (93 GPa)
Elongation at Break (ASTM D3039)	1.3%
Composite Design Properties**	
Tensile Strength (ASTM D3039)	142 ksi (978 MPa)
Modulus of Elasticity (ASTM D3039)	11.2 Msi (77 GPa)
Elongation at Break (ASTM D3039)	1.0%

**Average values shown. Typical fiber Volume Fraction (FVF) is 41.9% values shown are RepWrap 600UD without protective coating.*

*** Based on ACI 440.2R Document; Average - 3 Standard*