BLOME INTERNATIONAL
Protective Barriers For A Cleaner Environment

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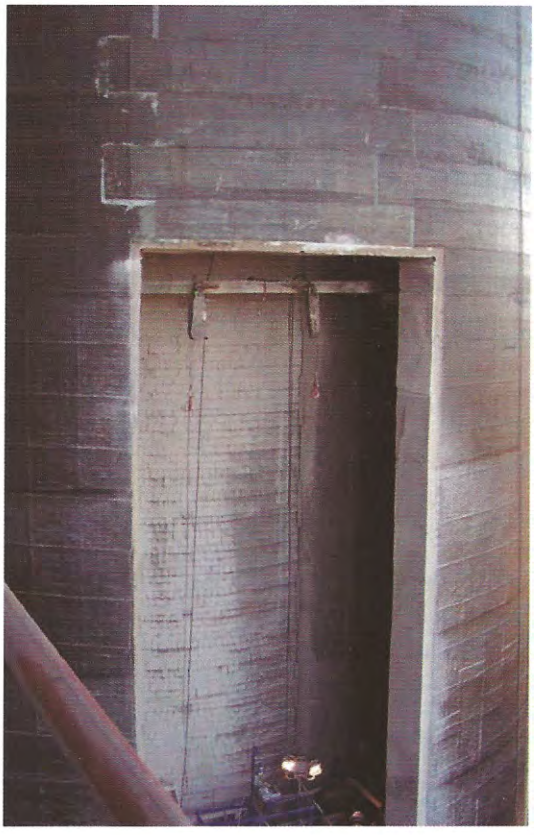
COMPOSITE STRENGTHENING SYSTEMS



Composite Strengthening Systems

- **Carbon Fiber Fabric Systems**
- **Structural Glass Fabric Systems**
- **Structural Carbon Plate**
- **Polymer Resins/Adhesives**

Blome Composite Systems

Blome International supplies a complete line of Composite Strengthening Systems for concrete, steel and reinforced masonry structures. These systems incorporate Carbon Fiber and Structural Glass fabrics with advanced polymer resin technology to provide structural strengthening and/or confinement. These systems are used to restore, retrofit, upgrade and confine spalls for various structures.

Typical Applications

- **Concrete Columns & Beams**
- **Concrete Silos & Tanks**
- **Concrete Chimneys & Stacks**
- **Tile Lined, Concrete Tanks & Vessels**
- **Steel Tanks & FRP Structures**
- **Underground Concrete Water Pipe (PCCP)**

Structural Restorations and Upgrades

Blome International provides complete engineering analysis to determine, first, the viability of a composite structural retrofit or upgrade and, ultimately the optimum system to meet your requirements. Structural retrofits are designed to replace lost reinforcement from years of service in harsh operating conditions, or to add extra reinforcement to accommodate operational or seismic upgrades. Carbon Fiber (CFRP) Systems are typically used for structural strengthening applications. CFRP Systems are available utilizing either uni-directional or bi-directional fabric weaves and can be designed to strengthen in both the vertical and horizontal (hoop) directions. Blome offers various weights and weaves of fabric to optimize CFRP System designs. Pre-formed Structural Carbon Plate and Strips are also used in the design of many CFRP retrofit or upgrade systems.

Confinement

Many existing concrete and masonry tile structures exhibit surface spalling due to years of weathering, freeze/thaw cycles and continuous operation in harsh conditions. In many industrial and process facilities equipment such as tanks, silos, chimneys, columns, beams, slabs and piping are regularly exposed to harsh chemical and thermal conditions. Blome CFRP and Structural Glass (GFRP) Systems are ideal for confinement of spalls and to provide a corrosion resistant exterior surface for this industrial process equipment. Confinement Systems are typically installed in the horizontal (hoop) direction and will eliminate spalling of concrete and masonry tile structures.

Blome Carbon Fiber Fabrics Properties*

Blome Product Designation	Weight per sq. yard	Tensile Strength (fiber)	Tensile Modulus (fiber)	Tensile Strength (laminate design)	Tensile Modulus (laminate design)	Elongation at break (laminate design)	Nominal thickness per layer	Strength per inch width per layer (laminate design)
CS-U9C	9 oz.	550,000 psi	34×10^6 psi	10.5×10^5 psi	8.2×10^6 psi	1.0%	0.02 in.	2,100 lbs.
CS-U18C	18 oz.	550,000 psi	34×10^6 psi	104,000 psi	9,446,600 psi	0.98%	0.04 in.	4,160 lbs.
CS-B6C	5.7 oz.	550,000 psi	34×10^6 psi	66,000 psi (0° & 90°)	6.0×10^6 psi (0° & 90°)	1.2%	0.01 in.	660 lbs.

* Partial listing of Properties - For complete listing of physical properties and design values consult individual product data sheet on specific Blome products.

Blome Structural Glass Fabrics Properties**

Blome Product Designation	Weight per sq. yard	Tensile Strength (fiber)	Tensile Modulus (fiber)	Tensile Strength (laminate design)	Tensile Modulus (laminate design)	Elongation at break (laminate design)	Nominal thickness per layer	Strength per inch width per layer (laminate design)
CS-U13G	13 oz.	3.3×10^5 psi	10.5×10^6 psi	73,200 psi	2,210 psi	1.93%	0.020 in.	1,464 lbs.
CS-U27G	27 oz.	3.3×10^5 psi	10.5×10^6 psi	77,100 psi	3,426,300 psi	2.12%	0.04 in.	3,084 lbs.
CS-B10G	9.6 oz.	3.3×10^5 psi	10.5×10^6 psi	35,300 psi (0° & 90°)	2.35×10^6 psi (0° & 90°)	1.2%	0.013 in.	459 lbs.

** Partial listing of Properties - For complete listing of physical properties and design values consult individual product data sheet on specific Blome products.

Carbon Fiber Fabric

Structural Glass Fabric

Polymer Resins & Fabrics