

# Fiberglass Molded Products

*Corrosion Resistant*

*Slip Resistant*

*Low Maintenance*

*Fire Retardant*

*High Strength-to-Weight Ratio*

*Nonconductive*

*Impact Resistant*

*Low Installation Cost*

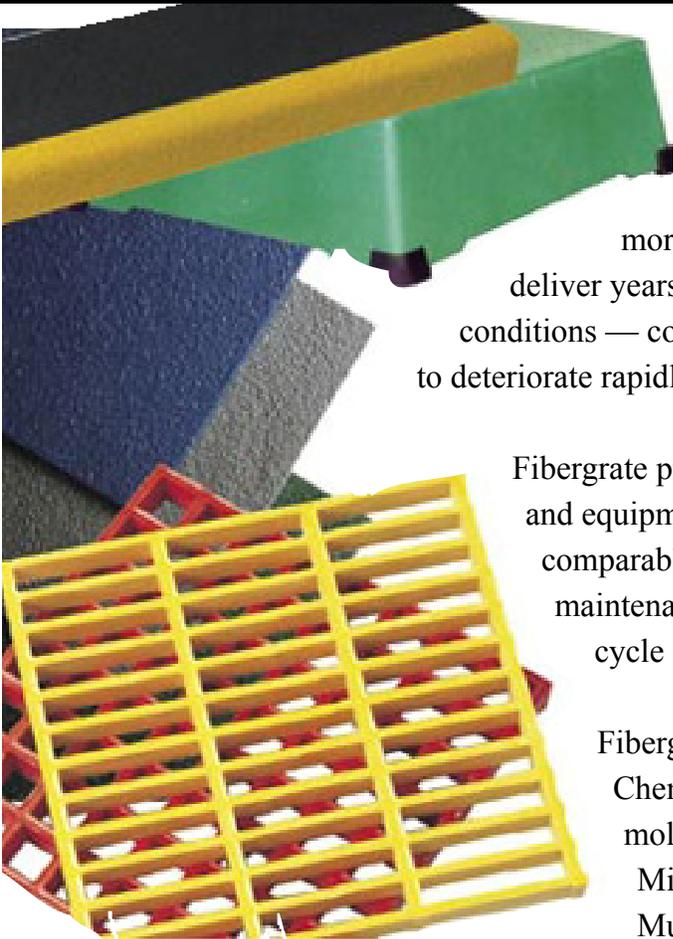
*Long Service Life*

*Superior Ergonomics*

**Fibergrate**  
Composite Structures

*High Performance Composite Solutions*

# Fiberglass Molded Products



Combining unmatched corrosion resistance with strength, long life and safety, Fibergrate sets the standard for fiberglass reinforced plastic (FRP) molded products. With more than ten custom resins, Fibergrate products are proven to deliver years of reliable service, even in the most demanding corrosive conditions — conditions which cause conventional metallic and wood products to deteriorate rapidly.

Fibergrate products are lightweight and easy to fabricate. Savings on labor and equipment often make the total installed cost of Fibergrate products comparable to that of steel. Combining these installation savings with low maintenance, long life and worker safety, Fibergrate products offer a life cycle cost that is significantly lower than that of metallic products.

Fibergrate's molded grating lines include Fibergrate<sup>®</sup> and Chemgrate<sup>®</sup> molded grating for most applications, Fibergrate<sup>®</sup> molded high load capacity grating for H-20 and forklift traffic, Micro-Mesh<sup>®</sup> access flooring, AirMesh<sup>®</sup> screening and Multigrid<sup>®</sup> grating. For applications requiring a solid walkway, Fibergrate carries Fiberplate<sup>®</sup> and Chemplate<sup>®</sup> structural floor panels as well as Chemdeck<sup>®</sup> and Fibergrate<sup>®</sup> covered grating. Stair solutions include Fibertred<sup>®</sup> and Chemtred<sup>®</sup> stair treads panels for industrial and commercial use, covered stair treads for architectural applications and stair tread covers for existing stairways. Ergonomic work platform solutions include Safe-T-Stands<sup>®</sup> which are available in varying heights and raised ergonomic workmats.

Fibergrate's complete line of molded products and turnkey services offers a variety of solutions for most applications.

## Fibergrate Markets

- Architectural
- Bridge & Highway
- Chemical
- Commercial
- Food & Beverage
- Manufacturing
- Metals & Mining
- Microelectronics
- Oil & Gas
- Offshore
- Pharmaceutical
- Power
- Pulp & Paper
- Recreation
- Telecommunications
- Transportation
- Water & Wastewater



# Fibergrate® Benefits



- **Corrosion Resistance** - the use of more than ten premium grade resin systems with a thoroughly wetted fiberglass process and a one-piece molded construction ensures solid structural integrity in tough environments
- **Slip Resistance** - a meniscus or permanent grit surface provides a safe, slip-resistant walking surface
- **Low Maintenance** - corrosion resistant and requires no scraping, sandblasting or painting
- **Fire Retardant** - flame spread rating of 25 or less, as tested in accordance with ASTM E-84; meets the self-extinguishing requirements of ASTM D-635
- **High Strength-to-Weight Ratio** - less than one-half the weight of steel grating allowing easy removal for access below floor level and installation with no heavy equipment and less manpower
- **Electrically and Thermally Nonconductive** - all-FRP construction provides additional worker safety
- **Impact Resistance** - can withstand major impacts with little structural damage and no failure
- **Easily Fabricated** - does not need heavy lifting equipment or expensive tools; can be easily carried by two workers; can be cut using standard circular or saber saws fitted with abrasive blades; has excellent utilization
- **Electronically Transparent** - does not affect electromagnetic or radio wave frequencies

## FRP vs. Steel

$$\text{VALUE} = \frac{\text{PRICE}}{\text{SERVICE LIFE}}$$

When comparing the price of Fibergrate fiberglass reinforced plastic (FRP) products to comparable metal or other conventional products, there are several factors to consider.

One of the most important factors is the **safety cost**. Slips and falls are the second leading cause of industrial accidents and one of the leading causes of death. The slip-resistant surfaces of Fibergrate products can dramatically reduce accidental slips and falls. With each lost workday accident costing \$50,000 to \$100,000, Fibergrate could be the least expensive solution available.

The initial, or **first cost** is usually figured on a square-foot basis. Fibergrate FRP material costs are typically higher than metal products. Too often the product with the lowest price is selected, particularly in new construction projects, because it seems to be the most economical. Unfortunately, the cheapest product often ends up costing more than Fibergrate FRP due to high maintenance and replacements costs of corroded building materials. The National Association of Corrosion Engineers estimates that the economic losses due to corrosion in the U.S. amount to \$300 billion a year. Replacing corroded, unsafe flooring is one of Fibergrate's biggest markets. In most cases, if Fibergrate FRP had been installed initially, very few problems would have occurred.

Another important factor is **installed cost**. Fibergrate FRP products are often less expensive than metallic products when installation costs are figured into the total price. Metal grating requires costly and time-consuming cutting and welding, and must be "end-banded." Fibergrate FRP can easily be fabricated with hand tools. Molded grating construction requires no end-banding which saves time and money. Square mesh bearing bars run in both directions, maximizing utilization. Fibergrate FRP products weigh less than metal, making it easier to handle and less expensive to transport.

The most important factor is **total or life cycle cost**. In highly corrosive applications, metal products will often deteriorate in a few years or less. In the same installation, Fibergrate FRP products will last many times longer. Combined with safety cost savings, this often makes Fibergrate the lowest cost product available. These are the reasons so many companies have switched from conventional metallic products to Fibergrate FRP products.

# Engineering Notes

The strength and corrosion resistance of FRP grating are related to the glass content, resin content, resin type and method of construction. Fibergrate molded products provide an outstanding balance of corrosion resistance, slip resistance and strength.

There are three frequently used methods of support for molded fiberglass grating:

- 1) two continuous edge supports with bearing bars perpendicular to the supports;
- 2) continuous support around all sides; and
- 3) four-corner support, or point support. (For example, pedestals are provided to support the grating a few inches above the existing floor when large volumes of liquids are flowing onto the floor and where a slip-resistant drainable floor surface is required because of operating requirements.)

Panels are normally supported around the perimeter to assure panel-to-panel alignment.

In using Fibergrate's grating, the principles are similar to metal grating usage, but you must keep in mind that the flexural modulus of elasticity of reinforced fiberglass bars is lower than that of steel. As a result, the allowable deflection is often the limiting consideration.

## Engineering Notes

Optimum floor installation costs are achieved by minimizing the combined cost of the support structure and grating. As the span is decreased, load capacity requirements of the grating are reduced. Estimating two or three span options will establish the optimum system.

**Mesh Selection:** The following notes can be helpful in selecting the optimum mesh configuration.

- (1) Grating with heavier bars should be selected for floors subjected to more abusive services. In these type applications the 3/8" wide

bearing bars and 5/8" crossbars of the 1" (1" x 4") Heavy Duty and the 1-1/2" (1-1/2" x 6") would be more suitable than the 1/4" wide bars on other mesh sizes.

- (2) Rectangular mesh pattern grating provides the highest load-carrying capacity based upon cost per square foot.
- (3) Square pattern mesh configurations have nearly equal strength in both directions. Spans larger than four feet, multiple floor cutouts, high load/four-sided support layouts or pedestal supported floors are conditions frequently well-served by square mesh configurations. High utilization per standard panel and bidirectional aesthetics are beneficial features of square mesh patterns.

**Simple Beam Support:** All data in our tables are based on simple beam support. Load and deflection for other types of beams, i.e., cantilever, fixed end support, continuous support, etc. can be estimated by using standard beam formulas.

**Load vs. Deflection:** Load vs. Deflection is approximately proportional for a given span (i.e. if a concentrated 400 lb load deflects a 30" span 1/4", an 800 lb load would deflect the same span 1/2").

**Other Spans:** Consult Fibergrate's Engineering Department.