



## #3 Horizontal Bar™

**#3 Horizontal Bar™ is the best in class GFRP (Glass Fiber Reinforced Polymer) rebar from MST-BAR. Engineered for concrete flatwork, #3 Horizontal Bar™ is manufactured with long-lasting Vinyl Ester Resin and corrosion-proof Glass to reinforce your concrete with a superior grade, code approved reinforcement.**

- **Rust-Proof**  
Eliminates spalling and corrosion cracks.
- **200+ Years Service Life**  
Engineered to last for generations.
- **Quick & Simple Installation**  
Up to 50% labor savings compared to traditional steel rebar.
- **Transportation Savings**  
75% lighter than traditional steel rebar. Load on your truck's ladder rack, no Class-A CDL required.
- **High Performance in All Climates**  
Stronger reinforcement in freeze-thaw regions and guaranteed longevity in corrosive coastal regions.
- **No Waterproofing**  
Eliminates need for costly waterproofing agents and epoxy coating necessitated by rust-prone steel rebar.
- **Stronger Than Steel**  
Over 4X stronger than Grade 40 rebar.
- **Nonconductive & Nonferrous**  
Ideal for projects with electromagnetic sensitivity.
- **Superior Crack Control**  
80% less crack initiation compared to traditional steel rebar.
- **Chemical Resistant**  
Impervious to de-icing salts and other chemicals.



**B&B FRP**  
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## HANDLING & INSTALLATION

Working with **#3 Horizontal Bar™** is quick and simple with our best practice guidelines.



Always wear gloves when handling **#3**

**Horizontal Bar™** to protect against fiberglass splinters. Direct contact to skin can cause irritation.



Use a diamond blade when field-cutting **#3**

**Horizontal Bar™**. Do not shear the bars.

If lap-splicing is necessary, use contact lap splices. Lap length should be no less than 15 inches.



Tie and chair **#3 Horizontal Bar™**

as you would steel rebar. Tie wire, rebar clips, and plastic zipties are acceptable methods of securing the bar.

Beware of settlement of loading when using **#3 Horizontal Bar™** with high slump concrete or when vibrating.

## PHYSICAL & MECHANICAL PROPERTIES

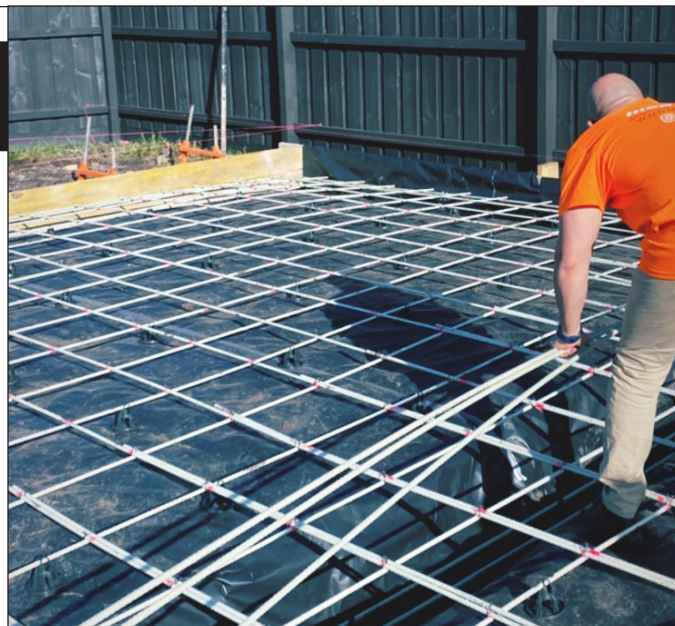
|                              |                                                |
|------------------------------|------------------------------------------------|
| Nominal Bar Dimensions       | 0.375 in (10 mm) Diameter / 20 ft (6 m) Length |
| Nominal Cross-Sectional Area | 0.11 in <sup>2</sup> (71 mm <sup>2</sup> )     |
| Bar Composition              | Vinyl Ester Resin & ECR Glass Fiber            |
| Bar Profile                  | Integral Rib Design (No Sand-Coating Required) |
| Guaranteed Tensile Strength  | 145 ksi (1000 MPa)                             |
| Elastic Modulus              | 6380 ksi (45 GPa)                              |
| Transverse Shear Strength    | 23 ksi (160 MPa)                               |
| Guaranteed Pull-Out Capacity | 2900 psi (20 MPa)                              |



## MST-BAR Slab on Grade design for shrinkage and slight load bearing application.

In this design the following assumptions have been used:

- Soil to have a good compaction
- Bars to be placed properly
- Control joint to be cut properly
- Expansion joint to be considered properly
- Spacing between bars to be accurate



## Design Aid for Slab on Grade with GFRP substituting steel reinforcement or W.W.F.

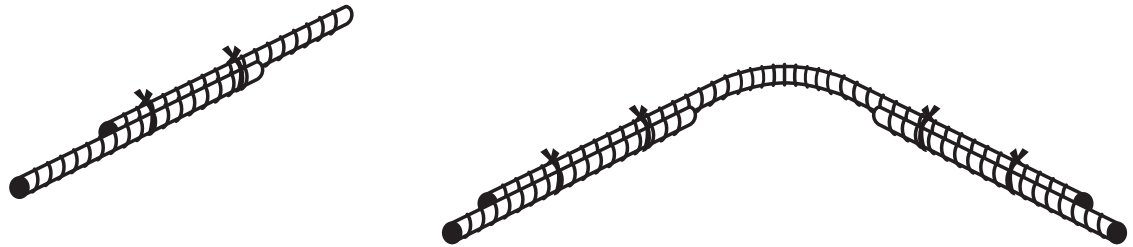
ONLY USE FOR MST-BAR • ONLY ON SLAB OF GRADE APPLICATION

| Slab Thickness      | Function and load                                                                                                                  | Temperature Zone | GFRP Required in each direction                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------|
| 100mm<br>(4 Inches) | - Residential driveway<br>- 5 Ton Pickup Truck<br>- Live Load = 100 PSF                                                            | Subzero          | Mid-strip: #3 Horizontal Bar @300<br>Edge-strip: #3 Horizontal Bar @400                                                  |
| 150mm<br>(6 Inches) | - Parking garage<br>- 5 Ton Pickup Truck<br>- Public walkway and platforms with light maintenance vehicle<br>- Live Load = 100 PSF | Subzero          | Mid-strip: #3 Horizontal Bar @300<br>Edge-strip: #3 Horizontal Bar @400                                                  |
| 150mm<br>(6 Inches) | - Live Load = 250 PSF<br>- Commercial trucks                                                                                       | Subzero          | Mid-strip: #3 Horizontal Bar @200<br>Edge-strip: #3 Horizontal Bar @400<br>—Plus 2 Bar @400 Top along all exposed joints |
| 200mm<br>(8 Inches) | - Live load = 250 PSF<br>- Commercial trucks                                                                                       | Subzero          | <b>MST-BAR #3@300</b><br>—Plus 3-Bar@300 Top along all exposed joints                                                    |

### NOTES:

1. Sawcut control joints at 4m to 5m spacing maximum, depth of sawcut shall be 25% of slab thickness.
2. If you wish to use MST-BAR 10M(3/8") bars you can increase the spacing accordingly based on tensile capacity of the MST-BAR, capacity between the two is 26%, therefore spacing can be increased by 26%.
3. Expansion joints shall be at maximum spacing of 15 meters(50ft.).
4. Mid-strip is 50% of width of panel between joints.
5. Edge-strip is 25% of width of panel along all joints.
6. All #3 Horizontal Bar rebars are placed at mid-depth of slab unless otherwise noted
7. Cover to additional top rebars shall be 30 to 40mm minimum

## Splices and Corners



**Overlap 40 bar diameters.**

