



# 4EQ STRUCTURAL BAR™

## COMPOSITE REBAR FOR STRUCTURAL APPLICATIONS

### PRODUCT TECHNICAL DATA

4EQ Structural Bar™ is a high performance composite rebar from MSTBAR®. Engineered to maintain it's superior strength for generations, 4EQ Structural Bar™ is your rust-proof replacement for steel rebar sizes #3, #4, and #6 in structural applications. 4EQ Structural Bar™ is manufactured using boron-free ECR Glass Fibers and Vinyl Ester Resin, providing your reinforced concrete exponential strength and longevity.

### ADVANTAGES

- **Rust-Proof**  
Eliminates spalling and corrosion cracks.
- **200+ Years Service Life**  
Engineered to last for centuries.
- **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.
- **All Climate Performance**  
Stronger reinforcement in freeze-thaw regions and guaranteed longevity in corrosive coastal regions.
- **No Field-Bending**  
Eliminate laborious field-bending of steel for less worker fatigue.
- **Stronger Than Steel**  
Over 4.5X stronger than Grade 40 steel.
- **Only One Diameter Needed**  
Trim your rebar inventory down to one size for vertical and horizontal reinforcement.
- **Compatible with All Forming Systems**  
Works with any forming system from ICF systems to aluminum forms.
- **Strategic Reinforcement Design**  
Use 4EQ Structural Bar™ with our simple and patent-pending system and reinforce with confidence.

### PHYSICAL & MECHANICAL PROPERTIES

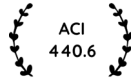
BAR DIMENSIONS	0.45 in Diameter 20 ft Length
CROSS-SECTIONAL AREA	0.16 in <sup>2</sup>
BAR COMPOSITION	Vinyl Ester Resin & ECR Glass Fiber
BAR PROFILE	Integral Rib Design (No Sand-Coating Required)
GUARANTEED TENSILE STRENGTH	185 ksi (1275 MPa)
ELASTIC MODULUS	8702 ksi (60 GPa)
TRANSVERSE SHEAR STRENGTH	31.9 ksi (220 MPa)
GUARANTEED PULL-OUT CAPACITY	2900 psi (20 MPa)

## DESIGN CODES & SPECIFICATION

4EQ Structural Bar™ meets and exceeds all of (but not limited to) the following specifications and design criterions:



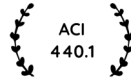
**ASTM D7957** "Standard Specification for Solid Round Glass Fiber Reinforced Polymer Bars for Concrete Reinforcement"



**ACI 440.6** "Specification for Carbon and Glass Fiber-Reinforced Polymer Bar Materials for Concrete Reinforcement"



**CSA S807** "Specification for Fibre-reinforced Polymers"



**ACI 440.1** "Guide for the Design and Construction of Structural Concrete Reinforced with FRP Bars"

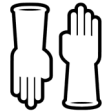


**AASHTO LRFD** "Bridge Design Guide Specifications for GFRP-Reinforced Concrete"

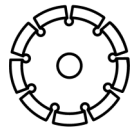


**CSA S806** "Design and Construction of Building Structures with Fibre-Reinforced Polymers"

## HANDLING & INSTALLATION



Working with 4EQ Structural Bar™ is quick and simple with our best practice guidelines. Always wear gloves when handling 4EQ Structural Bar™ to protect against fiberglass splinters. Direct contact to skin can cause irritation.



Use a diamond blade when field-cutting 4EQ Structural 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 4EQ Structural Bar™ as you would steel rebar. Tie wire, rebar clips, and plastic zip ties are acceptable methods of securing the bar. Beware of settlement or floating when using 4EQ Structural Bar™ with high slump concrete or when vibrating.



4EQ Structural Bar™ is the first and only composite rebar to meet the acceptance criteria AC454 from the International Code Council's Evaluation Service. This makes 4EQ Structural Bar™ compatible with your local residential and commercial building code, nationwide. For more information on the Code Council's ESR program and how it works with your local codes, call your MSTBAR Rep today.

## CONTACT US

To learn more about MSTBAR® Composite Rebar Products, and other innovative construction solutions offered by TUF-N-LITE, give us a call or visit us on the web.

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