



Designation: D8444/D8444M – 24

Standard Specification for Fiber Reinforced Polymer Dowel Bars for Load Transfer Between Concrete Slabs¹

This standard is issued under the fixed designation D8444/D8444M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers glass fiber reinforced polymer (GFRP) dowel bars, provided in cut lengths and having a smooth surface so that when embedded in concrete, the expansion and contraction of concrete along the longitudinal axis of the dowel is not inhibited. A dowel bar, commonly referred to as a dowel, acts as a shear transfer device between concrete slabs. In addition, GFRP dowel bars are electromagnetically transparent, lightweight compared to steel, and non-corroding. Dowels covered by this specification shall meet the requirements for geometric, material, mechanical, and physical properties described herein.

1.2 Dowel bars produced according to this standard must meet the requirements using the test methods referenced in [Table 1](#). Quality control and acceptance of production lots of dowel bars must meet the requirements using the test methods referenced in [Table 2](#).

1.3 The text of this specification references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables) shall not be considered as requirements of the specification.

1.4 The following dowel bars are not covered by this specification:

1.4.1 Dowel bars made of more than one load-bearing fiber reinforcement type (that is, hybrid FRP).

1.4.2 Dowel bars having an external surface treatment, coating or bond-breaking agent added after production.

1.4.3 Dowel bars having an external surface enhancement for bonding with concrete (that is, bars intended for concrete reinforcement).

1.4.4 Dowel bars with geometries other than solid, round cross sections.

1.5 This specification is applicable for either SI (as Specification D8444M) or inch-pound units (as Specification D8444).

¹ This specification is under the jurisdiction of ASTM Committee D30 on Composite Materials and is the direct responsibility of Subcommittee D30.10 on Composites for Civil Structures.

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1.6 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.6.1 Within the text, the inch-pound units are shown in brackets.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field](#)

[C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens](#)

[C192 Practice for Making and Curing Concrete Test Specimens in the Laboratory](#)

[C904 Terminology Relating to Chemical-Resistant Nonmetallic Materials](#)

[D570 Test Method for Water Absorption of Plastics](#)

[D578/D578M Specification for Glass Fiber Strands](#)

[D792 Test Methods for Density and Specific Gravity \(Relative Density\) of Plastics by Displacement](#)

[D2584 Test Method for Ignition Loss of Cured Reinforced Resins](#)

[D3171 Test Methods for Constituent Content of Composite Materials](#)

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.