Design and construction of building structures with fibre-reinforced polymers
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Preface

This is the second edition of CSA S806, Design and construction of building structures with fibre-reinforced polymers. It supersedes the first edition published in 2002.

This Standard contains provisions for building structures composed of fibre-reinforced polymers (FRP). The fibres are of aramid, carbon, and glass. The polymers are resins that are rigid at room temperature; relevant provisions relate to thermosetting types of resin. The Standard covers general design requirements, limit states design, the properties of FRP components and reinforcing materials, the design of concrete components with FRP reinforcement, the design of concrete components prestressed with FRP, the design of components with surface-bonded FRP, the design of fibre-reinforced concrete (FRC)/FRP composite cladding, and seismic design and construction. Normative annexes provide test procedures that are integral to the Standard, while informative annexes describe best current practice.

CSA acknowledges that the development of this Standard was made possible, in part, by the financial support of the following: American Composites Manufacturers Association — FRP Rebar Manufacturers Council, BP Composites Ltd., Fibrewrap Construction Canada Inc., FReP North America Inc., Hughes Brothers, Inc., ISIS Canada, Public Works Government Services Canada, Pultrall Inc., Schöck, Sika Canada, and Vector Construction.

This Standard was prepared by the Technical Committee on Design and Construction of Building Structures with Fibre-Reinforced Polymers, under the jurisdiction of the Strategic Steering Committee on Structures (Design), and has been formally approved by the Technical Committee.

March 2012

Notes:
(1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.
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1 Scope

1.1 General
This Standard provides requirements for the design and evaluation of building components of fibre-reinforced polymers (FRP) in buildings and of building components reinforced with FRP materials. It is based on limit states design principles and is consistent with the National Building Code of Canada.

This Standard does not apply to the design of fibre-reinforced concrete (FRC), except for FRC/FRP cladding as defined in Clause 7.3 and Clause 13.

Note: Procedures, test methods, and specifications are provided in Annexes A to S.

1.2 FRP components
Requirements for the determination of engineering properties and design of self-supporting FRP components are covered by this Standard.

1.3 FRP reinforced components
Requirements for the determination of engineering properties and design of FRP reinforced building components are covered by this Standard. The FRP reinforcing elements covered include bars, tendons, mats, grids, roving, sheets, and laminates.

1.4 Exposure to fire and temperature effects
This Standard requires the designer to consider the possible effects of exposure to fire or elevated temperatures on the performance of FRP components and FRP reinforced components.

1.5 Terminology
In CSA standards, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (nonmandatory) to define their application.