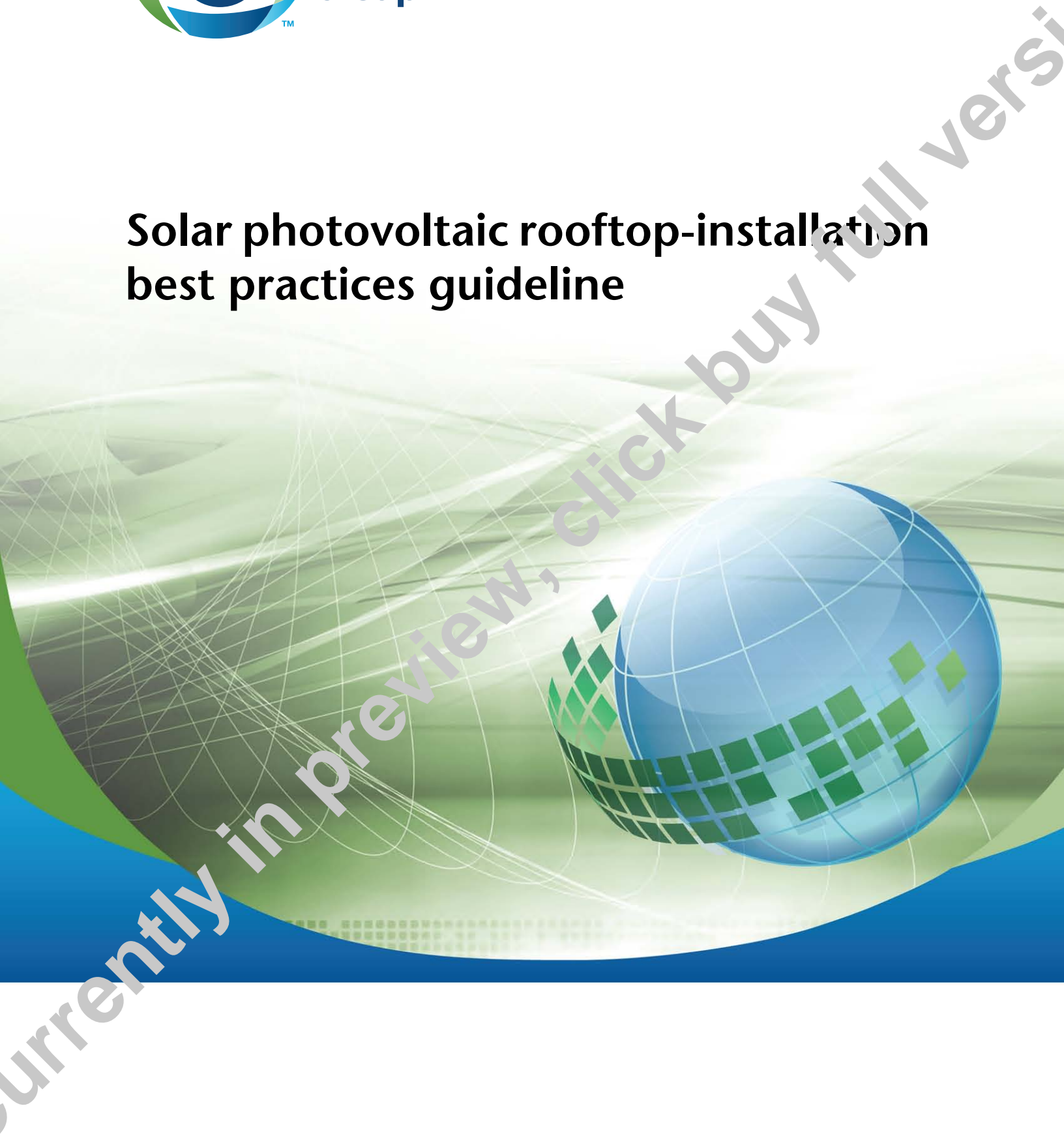




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SPE-900-13

Solar photovoltaic rooftop-installation best practices guideline



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Preface

This is the first edition of the CSA SPE-900, *Solar photovoltaic rooftop-installation best practices guideline*. CSA SPE-900 has been developed as a guideline, and does not contain any mandatory language. It provides guidance and best practices for solar photovoltaic rooftop-installation.

CSA Group acknowledges that the development of this Guideline was made possible, in part, by the financial support of the following:

- (a) Axis Property;
- (b) BCHydro;
- (c) Hydro Quebec;
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- (e) Ontario Ministry of Energy; and
- (f) SaskPower.

This Guideline was prepared by the Subcommittee on Best Practices for Solar Photovoltaic (PV) Rooftop Installations under the jurisdiction of CSA Strategic Steering Committee on Performance, Energy Efficiency, and Renewables.

Notes:

- (1)** Use of the singular does not exclude the plural (and vice versa) when the sense allows.
- (2)** Although the intended primary application of this Guideline is stated in its Scope, it is important to note that it remains the responsibility of the users of the Guideline to judge its suitability for their particular purpose.
- (3)** To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:
 - (a) Standard designation (number);
 - (b) relevant clause, table, and/or figure number;
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 - (d) rationale for the change.

SPE-900-13

Solar photovoltaic rooftop-installation best practices guideline

1 Scope

1.1

There is a need in the Canadian marketplace for guidance on solar photovoltaic rooftop installation, as photovoltaic modules are not currently addressed in many of the building codes. This guideline is intended to outline best practices for rooftop solar photovoltaic systems by addressing the following:

- (a) structural analysis of the building itself resulting from the solar photovoltaic system installation;
- (b) structural analysis of the solar photovoltaic racking;
- (c) flammability of rooftop solar photovoltaic mounting systems;
- (d) preventing water penetration of the roofing system due to the installation of a solar photovoltaic system;
- (e) climbing hazards associated with solar photovoltaic system installations;
- (f) avalanche hazards (due to snow and wind loads) associated with solar photovoltaic installation; and
- (g) safe roof access for first responders (i.e., fire fighters) in the event of an emergency or maintenance personnel (e.g., electricians, window cleaners, or other service personnel)

1.2

This guideline is intended to be used by solar photovoltaic system designers, installers, system owners, local building officials, fire departments, insurers, project financiers, etc.

1.3

The values given in SI (metric) units are the standard. Any values given in parentheses are for information only.

1.4

This guideline addresses rooftop solar photovoltaic systems only. It is applicable to residential, institutional, commercial, and industrial (ICI) buildings with either flat roofs or pitched roofs. While the focus is on rooftop-mounted systems, some of the principles described herein can be applied to photovoltaic systems mounted to facades, carports, awnings, sound barriers, and other building structures. This guideline will also examine different roofing materials and systems, including membranes, standing-seam metal roofing, steel high-rib roofing, steel shingle, asphalt, tile, slate, cedar shakes, and green roofs. Lastly, it will take into consideration the structure itself, including the structural systems and type of building materials (e.g., wood-frame rafters and joists, prefabricated wood trusses, structural steel beams and joists, and other systems in steel, masonry, concrete, and wood).

1.5

It is important to note that this guideline does not address solar photovoltaic system electrical hazards, as these issues are addressed by the *Canadian Electrical Code, Part I (CEC)*. However, this guideline does direct the user to the appropriate sections of the *CEC* as required. In addition, this guideline does not address building-integrated solar photovoltaic systems (BIPV).