

## 2021 International Solar Energy Provisions®

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# PREFACE

## Introduction

The International Code Council develops model codes and standards used in the design, build and compliance process. The codes are founded on broad-based principles that make possible the use of new materials and new building designs. The *International Codes*<sup>®</sup> (I-Codes<sup>®</sup>) are chosen by most US communities and many global markets for the design, construction and administration of safe, sustainable, affordable and resilient structures, including solar energy systems. As solar technologies have matured, become more cost effective and more mainstream, solar provisions have been featured throughout the I-Codes.

This 2021 *International Solar Energy Provisions*<sup>®</sup> (ISEP<sup>®</sup>) brings together in one, easy-to-use format all solar energy provisions found throughout the 2021 I-Codes for both solar thermal and photovoltaic energy systems. These provisions are fully coordinated with those already in the I-Codes, including the *International Building Code*<sup>®</sup>, *International Energy Conservation Code*<sup>®</sup>, *International Fire Code*<sup>®</sup>, *International Mechanical Code*<sup>®</sup>, *International Plumbing Code*<sup>®</sup>, *International Residential Code*<sup>®</sup> and the *International Swimming Pool and Spa Code*<sup>®</sup>, thereby simplifying implementation. Adoption of the family of the 2021 I-Codes by a jurisdiction would include all of the provisions found in this document.

As electrical-related components and systems are a critical part of any solar energy system, those provisions of the *National Electrical Code*<sup>®</sup> (NEC<sup>®</sup>) (NFPA 70<sup>®</sup>) that are most directly related to solar energy systems have been extracted and reprinted in this 2021 *International Solar Energy Provisions*. These electrical provisions have been organized in specific coordinated sections such as definitions, solar water heating and photovoltaic systems, in much the same format as the ISEP chapters, so that the user can easily and conveniently locate and apply them. The *National Electrical Code* (NEC) provisions are copyrighted by and have been included with the permission and cooperation of the National Fire Protection Association. The NEC provisions in this 2021 *International Solar Energy Provisions* apply to both commercial and residential systems and are a part of the ISEP Commercial and ISEP Residential provisions. Readers should refer to NFPA's 2020 *Electrical Code Handbook* for the reasoning behind the NFPA 70, including NEC concepts, real-world examples and the background behind code revisions.

Modeled after the format of the *International Energy Conservation Code*<sup>®</sup> (IECC<sup>®</sup>), the commercial and residential sections are separate and distinct, each including administrative provisions, definitions, general regulations, and system-specific requirements for solar thermal (or solar heating and cooling) and photovoltaic system types. Provisions for typical water heaters and other heating or cooling systems have also been included because they may be used as backup or in hybrid solar systems.

In addition to the 2021 *International Solar Energy Provisions*, this document includes three ICC solar standards in their entirety. They include: ICC 900/SRCC 300–2020 *Solar Thermal System Standard*, ICC 901/SRCC 100–2020 *Solar Thermal Collector Standard*, and ICC 902/PHTA 902/SRCC 400–2020 *Solar Pool and Spa Heating System Standard*. Additional resources such as sample permitting forms and basic principles from the US Department of Energy make the 2021 ISEP the most comprehensive document for solar energy provisions/standards in the nation.

## Letter Designations

The 2021 ISEP is divided into two distinct parts: Part CS, Commercial Solar Energy; and Part RS, Residential Solar Energy. The section numbers in Part CS are preceded by capital letters CS (e.g., CS101.1) to indicate commercial provisions. Section numbers in Part RS are preceded by capital letters RS (e.g., RS101.1) to indicate residential provisions. In parentheses immediately following the ISEP section numbers are the code acronym and section number from the original *International Code* source, according to the following list:

(IBC): *International Building Code*;

(IECC): *International Energy Conservation Code*;

(IFC): *International Fire Code*;

- (IMC): *International Mechanical Code*;
- (IPC): *International Plumbing Code*;
- (ISPSC): *International Swimming Pool and Spa Code*;
- (R): *International Residential Code* – Building Provisions;
- (M): *International Residential Code* – Mechanical Provisions;
- (N): *International Residential Code* – Energy Provisions; and
- (P): *International Residential Code* – Plumbing Provisions.

## Format Designations

Because the ISEP provisions are a compilation, the original text often contains language referencing back to the source code itself. However, such provisions also apply to the ISEP as a whole. When the phrase [this code] or [this chapter] is shown in brackets, it denotes a reference to the ISEP as a collection of the same relevant code provisions.

Supporting, clarifying or contextual notes have been added throughout the document to aid in understanding. So as not to be confused with the code text, and for purposes of easy identification, these notes are shown directly under the section, indented and in an italicized font.

## Marginal Markings

Solid vertical lines in the margins within the body of the provisions indicate a technical change from the requirements of the 2018 edition. Deletion indicators in the form of an arrow (➡) are provided in the margin where an entire section, exception or table has been deleted or an item in a list of items or a row of a table has been deleted.

## Italicized Terms

Selected words and terms defined in Chapter 2, Definitions, are italicized where they appear in code text and the Chapter 2 definition applies. Where such words and terms are not italicized, common-use definitions apply. The words and terms selected have code-specific definitions that the user should read carefully to facilitate better understanding of the code.

The 2021 ISEP Definitions chapters are not intended as all-inclusive lists of the italicized terms in the *International Codes*. Only those italicized terms directly related to solar energy systems have been included and defined in the 2021 ISEP chapters. Where terms are italicized and not defined herein, the definitions can be found in the corresponding source code document.

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