

**Green Construction Code  
Essentials:  
Based on the 2021 *International  
Green Construction Code*®**

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# Preface

**C**onstruction practices, materials and building design have evolved over time from simple structures to resource-intensive building systems. Historically, humans lived near accessible resources, first as hunters and gatherers and later as agriculturists. Shelters were constructed to provide safe and protective environments. Over time, structures progressed from bio-based portable shelters to stone, earthen and wood structures to the air-conditioned and electrically powered glass, steel and concrete commercial buildings we know today. Until the industrial era, buildings were a product of local climates and regionally available resources. Today, most buildings have become ubiquitous and less responsive to local and regional environmental conditions.

Fire safety became a concern as buildings became larger and more combustible, particularly in densely populated cities. Immediately following the Great Fire of London in 1666, which had rapidly spread through the densely built timber housing of the city, the Rebuilding of London Act was passed to regulate construction materials and proximity to open space. In the United States when loss of life and massive property damage became intolerable following events such as the great Chicago Fire in October 1871, the need to regulate construction was satisfied by building codes.

Insurance companies and the public health movement laid the foundation for modern fire, building, health and sanitation codes as people know them today. As building codes evolved, mechanically supplied ventilation, maintenance and property protection found its way as vital components, next followed by energy efficiency, water conservation and green construction.

The *International Green Construction Code*® (IgCC®) was first introduced in 2010 as the IgCC Public Version 1. The code went through a full development cycle and joined the International Codes®



(I-Codes®) with the 2012 IgCC publication. The ASHRAE 189.1 standard was first published in January 2010. It was developed with the goal of providing above-code provisions for high-performing green buildings. In 2018 the IgCC and ASHRAE 189.1 merged to eliminate confusion in the marketplace regarding multiple green building code/standard provisions for the construction community. These technical provisions, however, may overwhelm the architect or builder unfamiliar with green construction. Sorting through the complex and detailed provisions and understanding their relationship to other codes can be intimidating.

*Green Construction Code Essentials* captures the provisions that regulate high-performance commercial green buildings and references ICC/ASHRAE 700 for low- and mid-rise residential buildings. *Green Construction Code Essentials* is written as an overview of the IgCC, providing the intent of many provisions and the interface with other I-Codes. Understanding green code provisions is essential to the application of the IgCC to any building design; thus, the text is illustrated to further simplify and communicate essential concepts. The text is presented and organized in a user-friendly style with an emphasis on clear, understandable language. This book is directed to readers familiar with basic construction and building system principles with a limited knowledge of the *International Energy Conservation Code*® (IECC®) and ANSI/ASHRAE/IES 90.1. Anyone involved in the design, construction or regulation of building construction can learn from this book. Building owners, design professionals and contractors in nearly any building trade will gain a basic understanding of the principles, provisions and applications of the technical content of the IgCC. The reader will be able to use this book to more fully explore the most common IgCC measures.

This book is not intended to explain all of the provisions of the IgCC or all of the acceptable materials and methods of construction. It focuses on the most common and used provisions applicable to many conditions in commercial construction. This is not to say that the information not covered is any less important or less valuable to the reader. This book should be used with the 2021 IgCC, which should be referenced for more detail.

Reasonable application of the code provisions is supported by a basic understanding of the scope and intent of both the IgCC and the other I-Codes. This book also references other codes and standards to help understand interrelated concepts and provisions.

*Green Construction Code Essentials* contains full-color photos, definition of terms and illustrations to help the reader visualize and better understand the application of the code requirements. Practical

examples, simplified tables and highlights of particularly useful information help clarify the most essential requirements of the code, thereby helping the reader determine compliance. References to the applicable sections of the 2021 IgCC are included to easily locate the code section for more detail and exact code language. As the second edition of this publication, the author welcomes comments and feedback to improve future editions.

## ABOUT THE INTERNATIONAL CODE COUNCIL

The International Code Council is the leading global source of model codes and standards and building safety solutions that include product evaluation, accreditation, technology, codification, training and certification. The Code Council's codes, standards and solutions are used to ensure safe, affordable and sustainable communities and buildings worldwide. The International Code Council family of solutions includes the ICC Evaluation Service, the International Accreditation Service, General Code, S. K. Ghosh Associates, NTA Inc., Progressive Engineering Inc., ICC Community Development Solutions and the Alliance for National & Community Resilience. The Code Council is the largest international association of building safety professionals and is the trusted source of model codes and standards, establishing the baseline for building safety globally and creating a level playing field for designers, builders and manufacturers.

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## ABOUT ASHRAE

With more than 50,000 members from over 132 nations, ASHRAE is a diverse organization dedicated to advancing the arts and sciences of heating, ventilation, air conditioning, and refrigeration to serve humanity and promote a sustainable world. The Society and its members focus on building systems, energy efficiency, indoor air quality, and sustainability within the industry. Through research, standards writing, publishing, and continuing education, ASHRAE shapes tomorrow's built environment today.

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## ABOUT THE INTERNATIONAL GREEN CONSTRUCTION CODE

The 2021 IgCC is a comprehensive model code that provides the design and construction industry with the single, most effective way to deliver low-impact, resilient and high-performance buildings. The provisions are applicable to new buildings as well as additions and alterations to existing buildings.

The IgCC is one of the I-Codes published by the International Code Council. All of these codes and the administration provisions of the IgCC are maintained and updated through an open code development governmental consensus process and are available internationally for adoption by the governing authority to provide consistent and enforceable regulations for the built environment. In an agreement with the American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE), the IgCC technical provisions are maintained through the American National Standard Institute (ANSI) approved ASHRAE consensus process utilizing ANSI/ASHRAE/ICC/

USGBC/IES 189.1—2020. The International Code Council is responsible for the administrative provisions of the IgCC.

By collaborating on developing the 2021 IgCC, the strategic developing organizations supporting it envision a new era of building design and construction that includes environmental health and safety as code minimums. The IgCC provides fundamental criteria for energy efficiency, resource conservation, water efficiency, land use, site development, indoor environmental quality and building performance that can be adopted broadly.

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