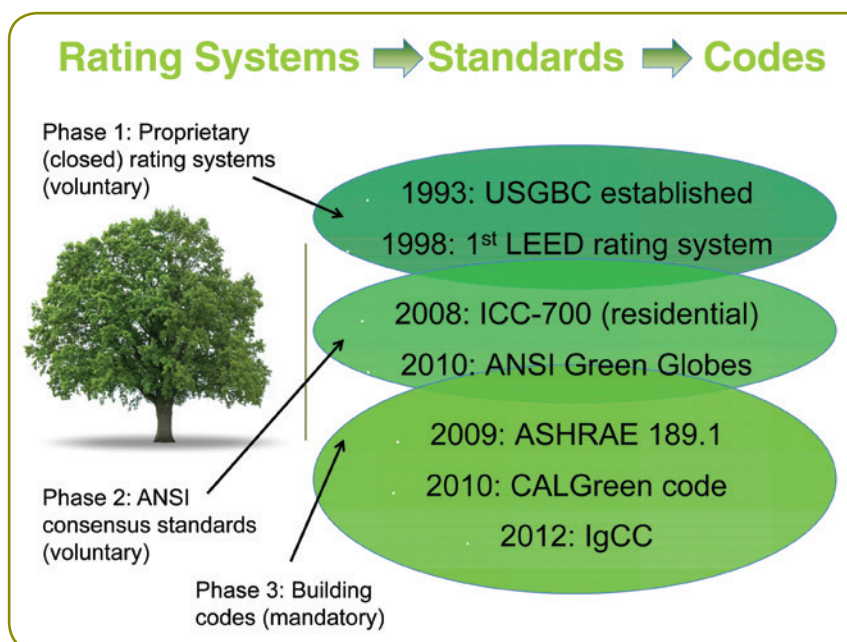




**Are You Ready for the  
Mandatory Measures  
In the New Green  
Building Codes?**

For decades, manufacturers have demonstrated product compliance to the family of I-Codes through [ICC-ES](#) evaluation reports. These reports show that a product has been evaluated to meet the mandatory requirements established by model building codes and enforced by local building officials. Over the past decade, a myriad of voluntary green building rating systems have been developed by multiple organizations. This has challenged the manufacturing community to show voluntary product compliance to a wide range of green attributes and scoring systems to the satisfaction of regulators that are not normally engaged in code compliance. These voluntary declarations by manufacturers are about to change as mandatory declarations of green product performance will be regulated by the same building officials who enforce the rest of the I-Codes.

In 1998, the U.S. Green Building Council (USGBC) rolled out the first LEED (Leadership in Environmental and Energy Design) voluntary green building rating system. A decade later, consensus-based, American National Standards Institute (ANSI) green building standards began to emerge. In 2008, the National Association of Homebuilders (NAHB) and the [International Code Council](#) (ICC) introduced the *National Green Building Standard* (ICC® 700-2008) for residential buildings, followed in 2010 by The Green Building Initiative’s (GBI’s) Green Globes standard and ASHRAE 189.1 for commercial buildings. The next step in this evolution — from voluntary rating systems and standards to mandatory code-based requirements — is now underway. California led the way in 2010 with the *California Green Building Standards Code* (CALGreen). And ICC’s new [International Green Construction Code](#)™ (IgCC™) provides a framework for nationwide coverage of mandatory green building requirements.



The IgCC and ASHRAE 189.1 are mandatory documents with minimum requirements, while ICC 700 is a rating system with minimum point-based requirements. All are written in language that is enforceable by code officials and cover a unique set building occupancy classifications. The following table lists the specific building occupancy classifications, and the applicability of each document based on building height. The owner or the owner’s agent selects the applicable document in the occupancy classification according to the jurisdiction requirements.

Occupancy Classification	Applicability of Building Occupancy Classifications		
	IgCC	ASHRAE 189.1	ICC-700
R-1	Yes	Over 3 stories only	Yes
R-2 (4 stories and less)	Jurisdictional Option <sup>(a)</sup>	Over 3 stories only	Yes
R-2 (5 stories and more)	Yes (ICC compliant R-2 occupancies are also deemed to comply)	Yes	Yes
R3	Jurisdictional Option <sup>(a)</sup>	Over 3 stories only	Yes
R-4 (4 stories and less)	Jurisdictional Option <sup>(a)</sup>	Over 3 stories only	Yes
R-4 (5 stories and more)	Yes (ICC compliant R-4 occupancies are also deemed to comply)	Yes	Yes
IRC (one- and two-family dwellings and townhouses (3 stories and less))	Jurisdictional Option <sup>(a)</sup>	No	Yes
Non-Residential Commercial Occupancies	Yes	Yes	No

(a) The IgCC jurisdictional option, where selected, requires compliance with ICC-700.

The challenge for manufacturers is to demonstrate the green attributes of their products to the local building official. The remainder of this document will focus on the IgCC and will answer the following questions: What makes the IgCC different from other green building provisions? How will mandatory code-based green building requirements be evaluated and enforced? Who will decide whether a product or building design complies? Will implementation be reasonably streamlined or will it add cost and complexity to each building project?

This white paper will answer these questions and explain how ICC Evaluation Service’s Environmental Programs are expanding to meet these new challenges.

## **What makes the IgCC different from other green building provisions?**

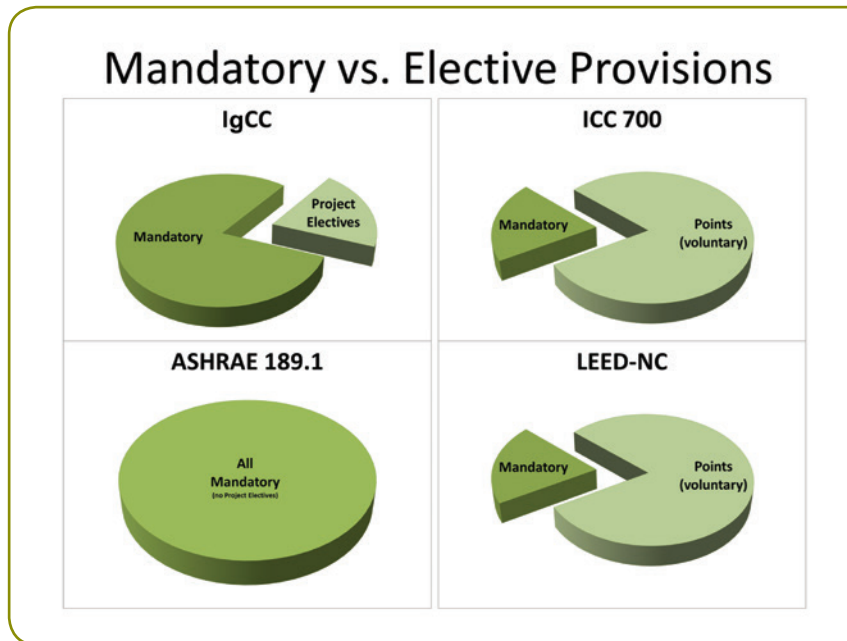
ICC has created a family of model codes that are designed to protect buildings and the safety of their occupants. Over the past several decades, ICC model codes have increasingly incorporated green building concepts — primarily in areas of water conservation in the [International Plumbing Code®](#) (IPC®), air quality in the [International Mechanical Code®](#) (IMC®), and energy conservation in the [International Energy Efficiency Code®](#) (IECC®).

The IgCC is the first model code that broadens this approach to include those design, construction and operational aspects that impact sustainability through reference to existing ICC model codes. The philosophical difference between the IgCC and other ICC model codes may be summarized as follows: *Traditional model codes focus on the negative impact that the environment has on the longevity and safety of buildings. The IgCC focuses on reducing the negative impacts of buildings on the environment. It also provides jurisdictions with the ability to adapt the code to address regional environmental goals and concerns, including the ability encourage and recognize higher building performance through the project electives of Appendix A.*

Because the field of sustainability is still evolving, the IgCC has taken an incremental approach to improving the environmental performance of buildings. It establishes a broad range of *mandatory* baseline requirements that improve both building and site sustainability and can be met by the project design team with minimal additional cost. It also provides a series of (*voluntary*) elective provisions that permit individual jurisdictions or design teams to further improve performance. Building products must comply with mandatory, green baseline requirements, in much the same way as they must comply with other mandatory provisions such as structural, fire, and durability requirements.

The IgCC is organized to address the key elements of green building design common to prior rating systems and standards — Site Development and Land Use, Material Resource Conservation and Efficiency, Energy Conservation, Water Resource Conservation and Efficiency and Indoor Environmental Quality.

**Traditional model codes focus on the negative impact of the environment on buildings. The IgCC focuses on the negative impact of buildings on the environment.**



## How will mandatory code-based green building requirements be evaluated and enforced?

The voluntary provisions of green building rating systems are typically evaluated by verifiers trained to document and tabulate the points or credits in accordance with a specific rating system. The verifier’s point tabulations can subsequently form the basis of certification to a specific tier of compliance (i.e., bronze, silver, gold, etc.). Mandatory code requirements will be evaluated and enforced in a very different manner. As with all code requirements, the building official will be the final judge regarding compliance. Depending on the adoption language of the local jurisdiction, demonstration of IgCC compliance might be a prerequisite to obtaining a building permit (in a process similar to traditional plan reviews for compliance with other code requirements).

ICC recognizes that many of the concepts within the IgCC are new to the enforcement and building design communities. To assist in the enforcement and implementation of the code, ICC is developing tools such as a guideline on building commissioning, compliance forms, templates, code commentary, training workbooks, and other publications.

## Who will decide whether a product or building design complies?

Since building officials may not have the time or depth of specialized technical expertise to review and approve all documentation related to

IgCC provisions, it is likely that they will rely on valid research reports from approved sources. This process is likely to be similar to today's widespread acceptance of evaluation reports related to structural or fire code compliance by [ICC Evaluation Service](#) (ICC-ES). For most products, building officials will be inclined to rely on reports from organizations whose evaluation or certification programs have a proven track record based on evaluation procedures that are developed in open forums and that are technically rigorous.

### **Will implementation be reasonably streamlined or will it add cost and complexity to each building project?**

One of the challenges in implementing green building provisions is to reap the sustainability benefits without imposing overwhelming cost or complexity penalties. For the IgCC, this challenge will be addressed on two levels. First, it will be incumbent upon organizations such as ICC-ES to develop [environmental criteria](#) (i.e., evaluation rules) that fulfill the intent of the code requirements without imposing undue burdens upon the supplier of the product or service. Second, it must be clearly understood that ICC's mission is not completed simply because the IgCC has been approved. From past experience, ICC knows that the inaugural edition of any model code requires close monitoring, feedback from users, and a framework for initiating revisions and updates. To further its outreach, ICC created the [Sustainability Membership Council](#), which is open to all ICC members. The council will have an opportunity to influence the direction of ICC in the field of green and energy code enforcement.

### **How are ICC-ES Environmental Programs evolving to meet these needs?**

The ICC-ES Environmental Programs provide manufacturers with verification that their products meet specific sustainability targets. Most manufacturers will choose to meet, at a minimum, the mandatory requirements defined by the IgCC that are applicable to their products. The Environmental Programs provides an independent and comprehensive evaluation of the sustainable attributes of building products. The end result of this evaluation is a Verification of Attributes Report™ (VAR™), which is available to the enforcement and design community, free of charge, on the Environmental Programs [website](#). To meet the needs of our clients, the ICC-ES Environmental Programs evaluates products for compliance not only with the IgCC, but also with the other nationally recognized green building rating systems. ICC-ES

has evaluated products for compliance with a broad range of attributes — from relatively straightforward topics such as recycled content to more complex subjects that involve life-cycle assessment.

Additionally, some manufacturers will opt for confirmation of environmental performance measures that go beyond IgCC requirements, referred to as “deeper green.” To meet these needs, ICC-ES has developed a program to develop and publish Type III environmental product declarations ([EPDs](#)) for building products. EPDs provide a third-party, internationally recognized, comprehensive disclosure of a product’s environmental impact based on life-cycle assessment (LCA), which calculates the environmental impacts of a product at each stage of the supply chain through to end of life. Within this program, ICC-ES is the designated Program Operator responsible for the preparation, maintenance, and communication of general program instructions governing the development of Product Category Rules (PCRs) that are used to produce EPD’s in accordance with ISO 14025 or ISO 21930. The purpose of the PCR is to prescribe rules that determine the scope and content of EPD’s from different manufacturers. EPDs that properly follow a PCR should allow for the comparison of environmental performance between products on an equivalent basis.

### **How will sustainability evolve in the future?**

It is clear that technology will continue to advance in the areas of building efficiency, safety, reliability and sustainability. The concepts of LCA will shape standards that will define future benchmark requirements for buildings and products. Manufacturing organizations will develop PCRs for products in their industry. Individual manufacturers will publish EPDs for entire product lines as a means to declare a comprehensive environmental impact. To further its outreach, ICC created the Sustainability Membership Council, which is open to all ICC members, and the Sustainability, Energy, and High Performance Code Action Committee, participation which is open to all interested parties. This council and committee will have an opportunity to influence the direction of ICC in the field of green and energy code adoption, enforcement and development. Concurrently, ICC-ES will continue to monitor the evolving provisions of the IgCC and other green building standards and rating systems and will update our programs to meet the sustainability evaluation and verification needs of our customers.

**For more information, please contact ICC Evaluation Service (ICC-ES), at 1-800-423-6587, ext 3877 or [environmental@icc-es.org](mailto:environmental@icc-es.org)**