The International Green Construction Code (IgCC)

Dave Walls, ICC
Executive Director Sustainability
• Nonprofit corporation
• Headquartered in Washington D. C.
• Regional Offices in U.S. (California, Alabama, & Illinois)
• Self-funded (receives no funding from federal or state government)
• Staff of nearly 300 engineers, architects, and administrators
• Parent of ICC-ES and IAS subsidiaries
ICC Vision

Protect the health, safety and welfare of people by creating safe buildings and communities

ICC Mission

To provide the highest quality codes, standards, products and services for all concerned with the safety and performance of the built environment
A 53,000 - member association dedicated to building safety

Members include code officials, designers, contractors, manufacturers, academia, etc.

Develops the model codes used to construct residential and commercial buildings
A family of 15 coordinated and correlated codes

- International Building Code®
- International Fire Code®
- International Mechanical Code®
- International Plumbing Code®
- International Residential Code®
- International Fuel Gas Code®
- International Property Maintenance Code®
- International Private Sewage Disposal Code®
- International Zoning Code®
- International Wildland Urban Interface Code®
- ICC Performance Code for Buildings and Facilities®
- International Swimming Pool & Spa Code
- International Green Construction Code®
- International Energy Conservation Code®
- International Existing Building Code®
Model Code Structure

- Example of a Typical Code structure
- Overview of Green codes

Diagram:

- Model Code
  - Adopted Code w/amendments
  - Local Code w/amendments

Directions:
- International Codes
- California Codes (Title 24)
- LA City Codes
What is the IgCC?

- An Adoptable, Useable and Enforceable code.
- Intended to reduce the negative impacts of the built environment on the natural environment

Addresses:

- Site Development and Land Use
- Material Resource Conservation and Efficiency
- Energy Conservation, Efficiency & CO2e Emission Reduction
- Water Conservation and Efficiency
- Indoor Environmental Quality and Comfort
Overview

The International family of Codes
Intent and Scope

- Consistent and coordinated with the ICC family of Codes & Standards
- Intended to be enforced primarily by building officials/local governments
- Intended to drive green building into everyday practice
- Applicable to the construction of
  - All buildings, both existing and new, except:
    - Single family residences, Duplexes, and Townhouses
    - R-2 (Apartments, etc.) and R-4 (Assisted living facilities) Occupancies 4 stories or less in height.
  - Exceptions above are regulated by ICC 700 where the jurisdiction indicates so in Table 302.1.
Developed By:

- IgCC developed by ICC in association with cooperating sponsors:
  - ASTM and
  - American Institute of Architects (AIA)

- References ASHRAE Standard 189.1 as an alternative compliance path, as developed by:
  - ASHRAE and partners
  - USGBC and
  - Illuminating Engineers (IES)

- ASHRAE 189.1 and IgCC will merge in 2018
IgCC Context

- The IgCC is *not* a rating system, nor is it intended to replace them.

- The IgCC is a *code* which is intended to be adopted on a *mandatory* basis.

- The IgCC consists of *minimum mandatory requirements*, similar to the other I-Codes.

- The IgCC contains a new regulatory framework that facilitates both jurisdictional customization and flexibility for owners and designers.
Jurisdictional Requirements

- Allows jurisdictions to customize the code to address 20 additional environmental criteria
- These criteria may not be appropriate for all jurisdictions.
- May be beneficial in others.
- Allow the jurisdiction to set higher minimum levels of performance.

Whole Building Life Cycle Assessment

- Not a mandatory requirement.
- An alternative to the material selection requirements of Section 505.
Chapter 4: Site Development and Land Use

- Preservation of natural resources (Tied to T302.1)
- Natural resources inventory required
- Stormwater management
- Site Lighting (Tied to T302.1)
- Landscape irrigation
- Management of vegetation, soils and erosion control
- Building site waste management
- Transportation impact
- Heat island mitigation
Chapter 5: Material Resource Conservation and Efficiency

- Construction material and waste management plan
- 50% construction waste diversion min.
- Jurisdictions can select higher values in Table 302.1
- Requires recycling areas for use by building occupants
- 55% of materials must be:
  - Recycled,
  - Recyclable,
  - Bio-based, or
  - Indigenous.
  (Materials are permitted to have multiple attributes.)
- EPD’s Compliance Option
- Mercury limits for fluorescent lamps
Chapter 6: Energy Conservation, Efficiency & CO$_2$e Emission Reduction

- Chapter 6 is applicable to new buildings and additions to existing buildings.

- Contains detailed energy requirements.

- Energy requirements for alterations to existing buildings are found in Ch 10.

- The IgCC provides the following energy compliance paths:
  - **Prescriptive**-based
  - **Performance**-based zEPI (Zero Energy Performance Index)
Chapter 6 Contents

General
- Modeled performance pathway requirements.
- Energy metering, monitoring and reporting
- Automated demand-response infrastructure
- Building envelope systems
- Building mechanical systems

- Building service water heating systems
- Building electrical power and lighting systems
- Specific appliances and equipment
- Building renewable energy systems
- Energy systems commissioning and completion.
Chapter 7: Water Conservation and Efficiency

- Seeks water efficiency regardless of the source
- Encourages the use of lower quality water wherever possible and permissible.
- Efficiency provisions for
  - Plumbing fixtures/fittings
  - Appliances
  - Carwashes
  - Cooling towers
- HVAC systems and equipment
- Water treatment systems
- Metering
- Rainwater collection systems
- Gray water reuse systems
- Reclaimed water systems
- Other alternative water sources
Chapter 8: Indoor Environmental Quality and Comfort

- Indoor Air Quality Management Plan Required
- HVAC & Air-handling systems
  - Air-handling system access
  - Durability and cleanability
  - Filters
  - Ventilation requirements
- IAQ construction phase requirements
- IAQ & pollutant control measures
- Material emissions limits
- Acoustics (Tied to T302.1)
- Daylighting
Chapter 9: Commissioning, Operations & Maintenance

- Pre-occupancy inspection and testing
- Operation and maintenance manual
- Building maintenance schedules
- Addresses many issues beyond energy

- Commissioning (T903.1)
- List of items for which commissioning is required or encouraged
- Distinguishes between pre-occupancy and post-occupancy commissioning
Chapter 10: Existing Buildings

- Alterations/renovations:
  - Loosely based on IEBC
  - Whatever is changed must meet current IgCC requirements.
  - Unaltered components can remain as they are
  - Requirements primarily related to energy & water
  - Capped at 10% of the total cost of alterations & other exceptions.

- Additions are treated much like new construction.

- Historic buildings exempted from many provisions

- Jurisdictions can choose to offer the evaluation of existing buildings for IgCC compliance.

- Chapter 11 covers similar info for building sites.
Appendix A: Project Electives

- Encourages and recognizes construction that exceeds minimum code requirements.

- Encourages green practices that are difficult or impossible to mandate. (e.g., infill and brownfield site development).

- Encourages the implementation of practices that are not triggered by the code or mandated by the jurisdiction in Table 302.1.

- Enforceable only where specifically adopted.

- The jurisdiction sets the minimum number of electives that must be complied with on all projects constructed in the jurisdiction.

- The owner or the owners representative select the specific project electives to be implemented on each project.
What are the take aways?

INTERNATIONAL GREEN CONSTRUCTION CODE

- Comprehensive & integrated
- Sets minimum requirements
- Creates a Baseline
- Consensus code development process
- Complete support system
- ICC will provide assistance with integration
For more information see: www.iccsafe.org/igcc