

Code Green: What Contractors Need to Know to Work on IgCC Projects

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Overview



- 1. Introduction
- 2. Standards, Rating Systems and Codes
- 3. What is the IgCC?
- 4. How Does the IgCC Work?
- 5. What are the Business Opportunities?





Business Opportunities





This has nothing to do with whether or not you can calculate your Carbon Footprint





3200%

In the last 9 years U.S. non residential green building went from 1.4% to 47% - a 3200% increase

McGraw Hill SmartMarket Report February 2014



12.7 Billion

square feet of nonresidential construction are currently participating in LEED

USGBC February 2015



25,035

nonresidential projects have been LEED Certified to date

USGBC January 31, 2015



47%

of new nonresidential construction in 2014 was green and represented 46% of square footage Certified in 2014

McGraw-Hill Construction February 2015



25,035

nonresidential projects have been LEED Certified to date

USGBC January 31, 2015



1.7 Million

square feet certified to LEED per day

USGBC December 2014



What is "Green" Building?

• "Green Building" is a "holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants and the community."

2010 California Green Building Standards, California Code of Regulations, Title 24, Part 11; Section 202, Definitions, http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf_(last visited May 6, 2013).



What is "Green" Building?

• "Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction..."

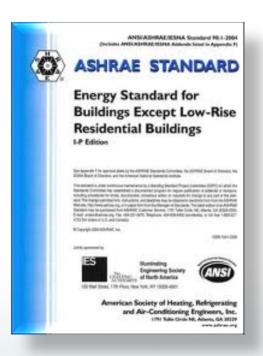
http://www.epa.gov/greenbuilding/pubs/about.htm (Last visited 12/11/13)



Green Standards









Green Rating Systems







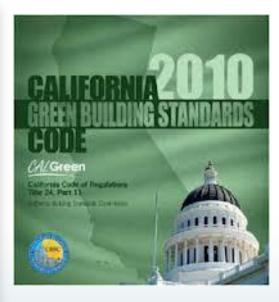


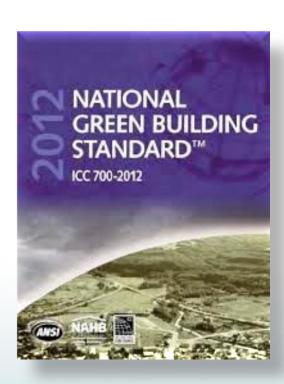




Green Codes



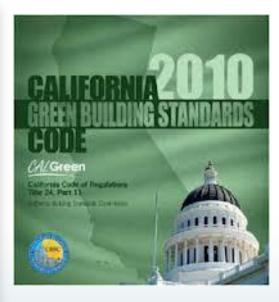


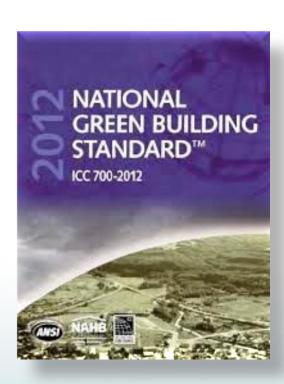




Green Codes









Comparing Green Building Rating Systems, Building Codes and Building Standards



Aspirational & elective criteria
Above Code
Ratings define achievement
3rd party review or self
certified

Interpreted by 3rd party
Updated irregularly

CODES

Building Code is the Law
Little flexibility
Permits required
Interpreted by Code Official
Generally, updated every 3
years



Set stakeholder based metrics
Define industry practices
Basis of rating systems and codes

No inspection

No enforcement



Comparing Green Building Rating Systems, Building Codes and Building Standards



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Green Building Ratings, Codes & Standards













5.1 Planning and Design



Site Sustainability



Site Development and Land Use



Water Efficiency



5.3 Water Efficiency & Conservation



Water Use Efficiency



Water Resource Efficiency



Energy & Atmosphere



5.2 Energy Efficiency



Energy Efficiency



Energy Efficiency & Atmospheric Quality



Indoor Environmental Quality



5.5 Environmental Quality



Indoor Environmental Quality



Indoor Environmental **Quality & Comfort**



Materials & Resources



5.4 Material Conservation & Resource Efficiency



Building Impact on Atmosphere, Materials & Resources



Material Resource Conservation



Innovation in Design



Additional CALGreen Voluntary measures are required for Tier 1 & 2



Construction and **Operations Plans**



Commissioning, O&M



Regional Priority



Jurisdictional & **Elective Requirements**



Existing Buildings & Sites

Source: Simon & Associates, Inc., International Code Council, Inc.,





LEED v4 Delayed

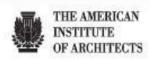
Until October 31, 2016





SAFE & SUSTAINABLE BY THE BOOK













2015 May 30, 2015



- Uses "model" code approach that provides communities the ability to modify.
- Minimum & advanced levels of performance (green & high-performance buildings).
- Works as an overlay to the ICC Family of Codes. References other I-Codes
 - ✓ IBC, IFGC, IMC, IPC, IPMC, IFC, IWUIC, ICCPC, IEBC, IZC, IECC.



- Written in mandatory language that provides a new regulatory framework.
- Provides both performance & prescriptive options.
- Code can be modified to account for local conditions.
- Addresses the 2030 Challenge.
- Designed with local, state & federal law in mind.



- ANSI/ASHRAE/USGBC/IES Standard 189.1 also is offered as a compliance option.
 - The Standard is included with the IgCC.
- NAHB ICC 700 is offered as a compliance option
 - For low-rise residential, including R-3 occupancies and R-2/R-4 occupancies that are four stories and less in height
- Residential occupancies of five stories and above has three paths comply with the IgCC base requirements, comply with ASHRAE 189.1, or comply with ICC 700.



- The IgCC is *not* a rating system, nor is it intended to replace them.
- The IgCC is code which is intended to be adopted on a mandatory basis.
- Unlike most rating systems, the IgCC primarily consists of minimum mandatory requirements, just as other I-Codes.



How it is organized:

- Chapter 1: Administration
- Chapter 2: Definitions
- Chapter 3: Jurisdictional Requirements
 & Life Cycle Assessment
- Chapter 4: Site Development & Land Use
- Chapter 5: Material Resource
 Conservation & Efficiency
- Chapter 6: Energy Conservation, Efficiency and CO₂e Emission Reduction
- Chapter 7: Water Resource
 Conservation, Quality & Efficiency

- Chapter 8: Indoor Environmental Quality & Comfort
- Chapter 9: Commissioning, Operation
 & Maintenance
- Chapter 10: Existing Buildings
- Chapter 11: Existing Building Site
 Development
- Chapter 12: Referenced Standards
- Appendix A: Project Electives
- O Appendix B: Radon Mitigation
- Appendix C: Optional Ordinance
- Appendix D: Enforcement Procedures



Adopting Jurisdictions*:

STATES

Rhode Island Maryland Florida North Carolina Oregon

http://www.iccsafe.org/gr/Documents/jurisdictionadoptions.pdf

LOCAL JURISDICTIONS

Richland, Washington
Scottsdale, Arizona
Kayenta Township, Arizona
Phoenix, Arizona
Boynton Beach, Florida
Boulder, Colorado
Boulder County, Colorado
Fort Collins, Colorado
Keene, New Hampshire
Dallas, Texas
Washoe County, Nevada



The Basics:

- Who can adopt the IgCC?
- Does a jurisdiction have to adopt <u>all</u> of the provisions of the IgCC?
- How does a local jurisdiction adopt the IgCC?
- After adopted, is the IgCC mandatory or voluntary?
- What types of projects does the IgCC apply to?



- Four Types of Code Provisions:
 - 1. Jurisdictional Choices (Table 302.1)
 - 2. Alternate Compliance Options
 - 3. Project Electives (Appendix A)
 - 4. All Other Sections



Jurisdictional Choices (Table 302.1):

Jurisdictions must elect whether specific provisions are mandatory for all buildings regulated by the code, and the level of compliance required.

	TABLE 302.1 REQUIREMENTS DETERMINED BY THE JURISDICTION				
Section	Section Title or Description and Directives	Jurisdictional Requirements			
	CHAPTER 1. SCOPE				
101.3 Exception 1.1	Detached one- and two-family dwellings and multiple single-family dwellings (town-houses) not more than three stories in height above grade plane with a separate means of egress, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	□ Yes	□ No		
101.3 Exception 1.2	Group R-3 residential buildings, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	□ Yes	□ No		
101.3 Exception 1.3	Group R-2 and R-4 residential buildings four stories or less in height above grade plane, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	□ Yes	□ No		
	CHAPTER 4. SITE DEVELOPMENT AND LAND USE				
402.2.1	Flood hazard area preservation, general	□ Yes	□ No		
402.2.2	Flood hazard area preservation, specific	□ Yes	□ No		
402.3	Surface water protection	□ Yes	□ No		
402.5	Conservation area	1100	- 1VO		
402.7	Agricultural land	□ Yes	□ No		
402.8	Greenfield sites	□ Yes	□ No		
407.4.1	High-occupancy vehicle parking	□ Yes	□ No		
407.4.2	Low-emission, hybrid and electric vehicle parking	□ Yes	□ No		
409.1	Light pollution control	□ Yes	□ No		
	CHAPTER 5. MATERIAL RESOURCE CONSERVATION AND EFFICIENCY				
503.1	Minimum percentage of waste material diverted from landfills	□ 50% □ 65% □ 75%			



Project Electives (Appendix A):

number of electives

required in each section.

Jurisdictions can elect whether or not to require Project Electives. Project Electives become mandatory only as selected and indicated by an owner for a specific project. Jurisdictions determine

	SITE PROJECT ELECTIVES		
SECTION	DESCRIPTION	MINIMUM NUMBER OF ELECTIVES REQUIRED AND ELECTIVES SELECTED	
A102.2	The jurisdiction shall indicate a number between and including 0 and up to and including 6 to establish the minimum total number of project electives that must be satisfied.	_	_
A104.1.1	Flood hazard area preservation	☐ Yes	□ No
A101.1.2	Flood hazard area minimization	□ Yes	□ No
A101.1.3	Flood hazard area, existing building	□ Yes	□ No
A104.2	Wildlife corridor	□ Yes	□ No
A104.3	Infill site	□ You	- M
A104.4	Brownfield site	✓ Yes	□ No
A104.5	Site restoration	☐ Yes	□ No
A104.6	Mixed use development	☐ Yes	□ No
A104.7	Changing and shower facilities	Voc	□ No
A104.8	Long-term bicycle parking and storage	□ Yes	□ No
A104.9	Heat island	□ Yes	□ No
A104.9.1	Site hardscape project elective 1	□ Yes	□ No
A104.9.2	Site hardscape project elective 2	□ Yes	□ No
A104.9.3	Site hardscape project elective 3	□ Yes	□ No
A104.9.4	Roof covering project elective	□ Yes	□ No

TABLE A104



Putting it all together...

	CHAPTER 4. SITE DEVELOPMENT AND LAND USE		
402.2.1	Flood hazard area preservation, general	☐ Yes	□ No
402.2.2	Flood hazard area preservation, specific	☐ Yes	□ No
402.3	Surface water protection	☐ Yes	□ No
402.5	Conservation area	☐ Yes	□ No
102.7	- igricultural land	□ 1co	
402.8	Greenfield sites	☐ Yes	□ No
401-	High occupancy vehicle parking	□ Voc	
107.1.0	Low-emission, hybrid and electric vehicle parking	☐ Yes	□No
407.4.2	Low-emission, hybrid and electric vehicle parking		

• **402.8 Greenfield sites.** Where this section is indicated to be applicable in Table 302.1, site disturbance or development shall not be permitted on *greenfield* sites.



Putting it all together...

• 303.1 Whole building life cycle assessment. Where a whole building life cycle assessment is performed in accordance with Section 303.1, compliance with Section 505 shall not be required.



Putting it all together...

A104.2	Wildlife corridor	☐ Yes	□ No	
Δ 104-2	T CU		T No	
A104.4	Brownfield site	☐ Yes	□ No	
A104.5	Site restoration	□ 1es	□ No	
A104.6	Mixed use development	☐ Yes	□ No	
A104.7	Changing and shower facilities	☐ Yes	□ No	
A104.8	Long-term bicycle parking and storage	☐ Yes	□ No	

• **A104.4 Brownfield site project elective.** The development of a building site that is a *brownfield* site with a new building with associated site improvements shall be recognized as a project elective.



- Existing Buildings & Sites
 - Applies to alterations, repairs, additions, and changes of occupancy of existing buildings and structures
 - Exception for historic buildings
 - Other Provisions:
 - **▼**Demolition of existing buildings



Administration of the Code

- The Code Official is authorized to
 - × enforce the Code,
 - ▼ render interpretations of the Code,
 - x adopt policies and procedures to clarify application of the Code,
 - ▼ issue notices or orders to ensure compliance with the Code, and
 - **x** make inspections.



How Does the IgCC Work?

Administration of the Code

- The Code Official may also
 - * accept reports of inspection by "approved agencies" or individuals; and
 - ▼ engage expert opinions as deemed necessary to report upon "unusual technical issues that arise".



How Does the IgCC Work?

Enforcement of the Code

- Exhibit D: Enforcement Provisions
- Not mandatory unless adopted by the jurisdiction.
- o "D105.3 Prosecution of violation. Any person failing to comply with a notice of violation... shall be deemed guilty of a misdemeanor or civil infraction as determined by the jurisdiction, and the violation shall be deemed a strict liability offense..."
- Bonds, Incentives & the Green Building Fund



How Does the IgCC Work?

Example: Dallas Green Construction Code

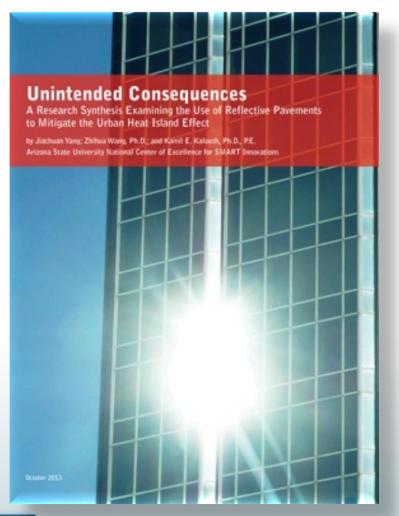
 Does <u>not</u> adopt Appendix D (Enforcement Provisions) of the 2012 IgCC;

o Provides that:

* "a person violating a provision of this ordinance, upon conviction, is punishable by a fine not to exceed \$2,000."



Junk Science?



Caution to not let the rating system get ahead of the science



Opportunity



Almost 2
Billion
parking
spaces
exist in the
U.S.

The 'Hottest' Topic

Eco-Friendly Facts

Morsø

Made in Denmark

Established 1853

Ingredients	
Recycled material (cast iron)	98%
Renewable energy to produce	80%
Recycled packaging (Green Point)	100%
Manufacturer's Warranty 10	years
Funitarian mandal Dayfarman	

Environmental Performance	
Carbon Neutral Heating	Wood
Advanced non-cat combustion	100%
Thermal efficiency	75%+
Particle emissions	Low
EPA - Phase 2	
Nordic Swan eco-label	

Environmental Product Declarations



Opportunity



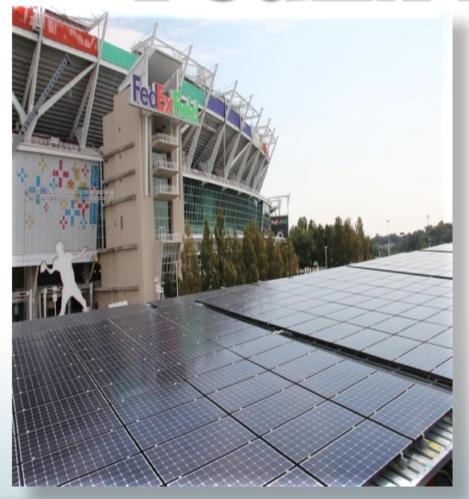
Almost 2
Billion
parking
spaces
exist in the
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Opportunity



Almost 2
Billion
parking
spaces
exist in the
U.S.

FedEx Field



8,000 solar panels provide the power and shade 841 parking spaces



Legal Aspects of Green Building Codes

- Sustainable Project Contracts
- Standard of Care
- Who Is Liable?
- Consequential Damages?





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