

Welcome

IgCC 2012



Rhode Island
Green Buildings Act



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RIGL §37-24-5

IgCC 2012 and the Rhode Island Green Buildings Act
Intermediate Overview and Chapter Review | 28-June-2013



STEPHEN TURNER INC.
Building Better Performance

Presenting today...

Stephen Turner, LEED AP

- Rhode Island
 - Vice-Chairman of RIGreen Building Advisory Council
 - RI Building Codes & Standards Committee, Chairman of RI Energy Code Subcommittee, RI Rehabilitation Code Board, RI State Energy Plan Implementation Committee
 - President, Stephen Turner Inc., 10 person firm dedicated to commissioning-related services in Providence
- National
 - Professional engineer registered in NY state
 - Chairman for recent revisions of ASHRAE Standard 55 on thermal comfort
- International
 - Chairman of ISO Technical Committee 205, Building Environment Design, publishes international standards for building performance

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Presenting today...

Christopher Armstrong, Assoc. AIA, LEED AP^{BD+C}

- Rhode Island
 - AIAri representative on the Rhode Island Green Building Advisory Council
 - Member of AIAri Committee on the Environment (AIAri COTE)
 - Rhode Island representative on the USGBC's Upper Northeast Regionalization Committee for LEED-NC v3.0
 - Lead Commissioning Agent, Stephen Turner Inc.
 - Student of building science
- National
 - Member, Boston Society of Architects Building Enclosure Council



Learning Objectives

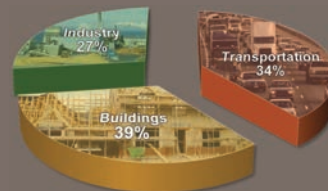
- Why Build Green?
- Understanding Codes vs. Standards vs. Rating Systems
- The 2012 International Green Construction Code (IgCC 2012) with proposed RI amendments
- Future Trends for Green Building Codes and Standards



Why Build Green?

Buildings are Responsible for:

- 72% of electricity consumption
- 39% of primary energy use
- 38% of all carbon dioxide (CO₂) emissions
- 40% of raw materials (3 billion tons/yr. globally)
- 30% of waste output (136 million tons/yr.)
- 14% of potable water (15 trillion gal./yr.)



Source: EPA and Environmental Information Administration Annual Energy Outlook (2008)



Why Build Green?

Green buildings achieve higher rents*

Energy Star = +\$2.40/sf
LEED = +\$11.33/sf

Green buildings achieve higher occupancy*

Energy Star = +3.6%
LEED = +4.1%

Green buildings achieve higher prices per square foot*

Energy Star = +\$61/sf
LEED = +\$171/sf

Non-green buildings will become obsolete*

*Source: Co-Star Green Study - 2008



Why Build Green?

The cost of energy continues to rise.

- Electricity has increased 41% between 1999 and 2010



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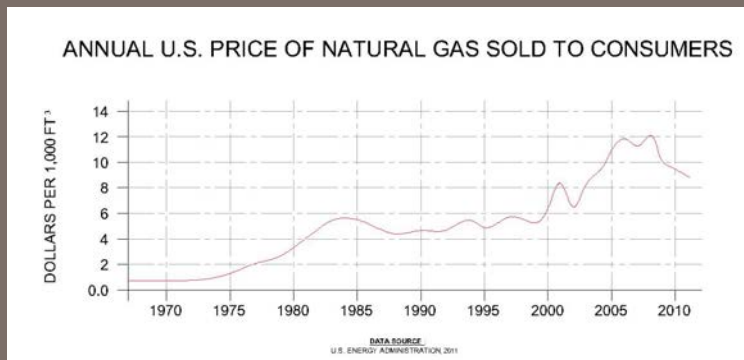


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Why Build Green?

The cost of energy continues to rise.

- Natural gas has increased 82% between 1999 and 2010



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Why Build Green?

The cost of energy continues to rise.

- Heating oil has increased 300% between 1999 and 2010



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Why Build Green?

Recent research shows that if building energy codes* were upgraded to be 30 to 50 percent more stringent, adopted among states, and effectively implemented, excellent progress would be made in the areas of energy consumption, cost savings, and CO₂ emissions reduction:

Reduced energy consumption

approximately 0.5-quadrillion Btu per year by 2015,
and 3.5-quadrillion Btu per year by 2030.

Rising cost savings

more than \$4 billion per year back in homeowners' pockets by 2015, a figure
that could rise to over \$30 billion per year by 2030

Reduced CO₂ emissions

by roughly 3 percent in terms of the projected national CO₂ emissions in 2030.

*2006 International Energy Conservation Code® (IECC) and
ANSI/ASHRAE/IESNA5 Standard 90.1-2004

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Why Build Green?

It's the Law!!

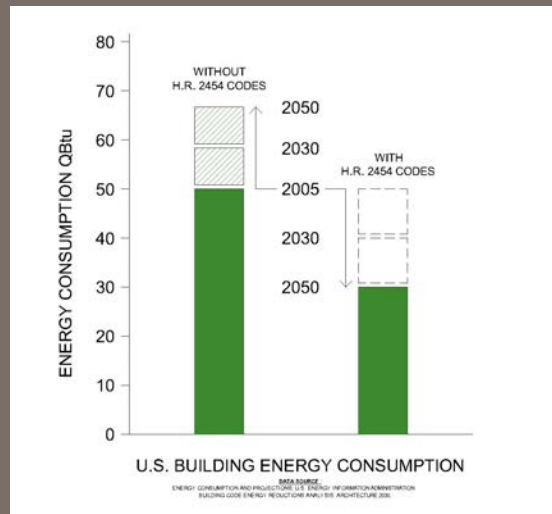
Sec. 201 of the American Clean Energy and Security Act of 2009 (H.R. 2454) passed by the House calls for national building code energy reduction targets of:

- 30% below the baseline energy code in 2010*
- 50% below the baseline energy code in 2014-2015*
- 5% additional reduction every three years to 2029-2030

*The baseline energy code is defined as the 2006 International Energy Conservation Code (IECC) for residential buildings and ASHRAE 90.1-2004 for commercial buildings.



Why Build Green?



Codes, Standards and Rating Systems

Code (i.e., IECC & IgCC)

- “Letter of the law”
- Written in enforceable, mandatory language
- Minimum requirements, AKA “The Floor”



Standard (i.e., ASHRAE 90.1, 189.1)

- “Standard practices”
- Typically referenced by codes
- Not intended to be applicable to all projects

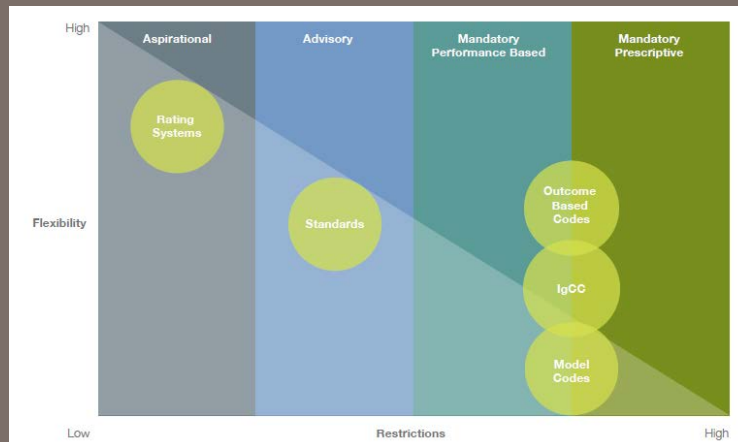


Rating System (i.e., LEED, Green Globes, etc.)

- Voluntary programs
- 3rd party review or self certified
- Encourages the pursuit of new best practices and technologies
- Encourages achievement better than code “The Ceiling”



Codes, Standards and Rating Systems



Source: AIA Guide to the IgCC



IgCC 2012



How does the IgCC Compare?

IgCC 2012 vs. IECC 2012

- +/-10% energy use reduction
- The IgCC Addresses more than just energy
 - Site Development and Land Use
 - Material Resource Conservation and Efficiency
 - Water Resource Conservation and Quality
 - Indoor Environment Quality
 - Operations and Maintenance



IgCC 2012



How does the IgCC Compare?

IgCC 2012 vs. ASHRAE 189.1-2011

- Both address; Site, Material, Energy, Water & IEQ
- Base IgCC compliance is approximately equivalent to 189.1 compliance
- 189.1 does not have the flexibility to be customized to regional needs and/or be more stringent
- 189.1 is not intended to apply to all possible projects



IgCC 2012



How does the IgCC Compare?

IgCC 2012 vs. LEED-NC v3.0 (2009)

- Both address; Site, Material, Energy, Water & IEQ
- Base IgCC compliance would achieve 35 points and would not qualify for LEED Certification
- Jurisdictional Requirements and Project Electives could achieve an additional 37 points and qualify for up to 72 points and be eligible for LEED Gold Certification



IgCC 2012



Chapter 1 – Scope and Administration

- Overlays other ICC codes
- Defines applicability
 - New building and site design and construction
 - Alterations and additions to, maintenance and demolition of, existing buildings
 - Changes in occupancy
- Allows for innovative approaches to green building while providing predictable, enforceable code
- Translates the principles of sustainability contained in rating systems into a code



IgCC 2012



Chapter 1 – Scope and Administration (Cont'd)

- Applies to new and existing commercial and high rise residential buildings
 - Excludes single family homes or low rise residential buildings, occupancies that fall under the IRC
 - Excludes all group R-3 occupancies
 - Excludes group R-2 and R-4 occupancies \leq 3 stories in height



IgCC 2012



Chapter 1 – Scope and Administration (Cont'd)

The IgCC provides model code language to establish baseline regulations for new and existing buildings for:

- Site Development and Land Use
 - Material Resource Conservation
 - Energy Conservation
 - Water Resource Conservation
 - Indoor Environmental Quality and Comfort
 - Commissioning
 - Operations and Maintenance
-
- RI will “blue page” the usual jurisdictional changes made in all codes



INTERESTED IN LEARNING MORE?

**CONTACT OUR OFFICE FOR MORE INFORMATION AT
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