

Rhode Island Commercial Stretch Code

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STATE OF RHODE ISLAND
**OFFICE OF
ENERGY RESOURCES**



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Today's Agenda

1. **Commercial & Residential Stretch Code Development**
2. **Brief overview of Commercial Stretch Code**
3. **Q&A**
4. **Public comment period**

Purpose

- OER has undertaken the development of commercial and residential stretch codes as directed by Executive Order 15-17
- In August of 2016 the EERMC approved the work plan for ERS to work with the OER and an advisory committee to develop draft stretch codes
- Today we will be presenting the proposed Commercial Stretch Code and seeking input from members of the public

Stretch Code Development Process

- Executive Order 15-17
- Stakeholder committees formed
- Reviewed Rhode Island's amended 2012 Green Construction Code & RI's Green Buildings Act requirements (§ 37-24)
- Reviewed additional model stretch codes and high performance building programs
- Reviewed proposed draft of 2018 International Energy Conservation Code
- Selected code model with input from stakeholder group
- Established methodology for working with National Grid efficiency and renewable energy programs
- Produced draft documents

Stakeholder Committee Organizations

- Energy & Resource Solutions (ERS) (Consultant)
- Green Building Advisory Committee
- National Grid
- Northeast Energy Efficiency Partnerships
- Rhode Island Building Code Commission
- Rhode Island Division of Capital Asset Management & Maintenance (DCAMM)
- Rhode Island Energy Efficiency and Resource Management Council (EERMC)
- Rhode Island Office of Energy Resources (OER)

Commercial Stretch Code

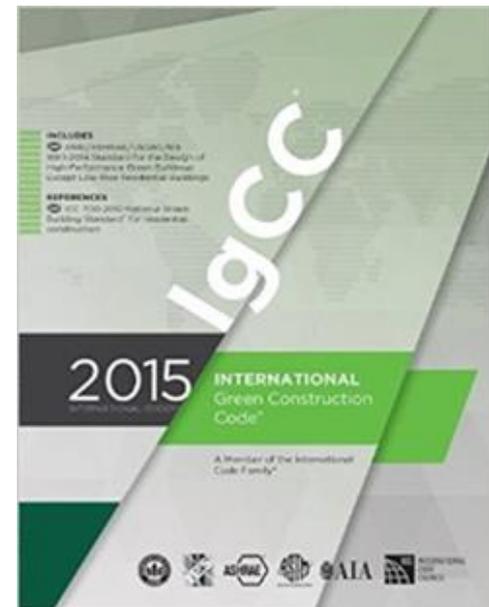
Goals

- Promote energy efficient commercial construction
 - Reduce negative environmental impacts
 - Lower operating (heating and cooling) costs
- Update the efficiency standards for public buildings
- Adopt one standard (Stretch Code) as a voluntary standard for commercial construction and as an update and replacement for the RI Green Construction Code (to help with Green Buildings Act Compliance)
- Construct healthy buildings – indoor environmental quality
- Work with National Grid to provide financial incentives for stretch code qualifying projects

Commercial Stretch Code

2015 International Green Construction Code (IGCC) selected as primary model code

- Energy efficiency provisions strengthened:
 - Promote performance better than base code
 - Align with National Grid incentive programs
- Modified for R.I. climate and market conditions
- Amended with features from other model codes and stakeholder generated provisions



Commercial Stretch Code Content Summary

Stretch Code Energy Impacts

- **Energy Performance Levels**
 - 10-15% better than current Energy Code
 - Equal to or better than proposed 2018 International Energy Code
 - Equal to or better than performance levels required for qualifying for National Grid electric and gas financial incentives
 - Utilizes the Zero Energy Performance Index (ZEPI) which rates buildings on a scale from a year 2003 code compliant building to a zero net energy building

Recommend Compliance Paths

zEPI* Scale to ZNE

National Milestones
CBECS** 2003 Average

Policies and Projects

Average Performance of US Building Stock in the Year 2000

RISC Target 46.....

ASHRAE 90.1-2004 Addendum bm Baseline 75

ASHRAE 90.1-2010 58
ASHRAE 90.1-2013 54

IgCC-2015 (Chapter 6)

Arch 2030 Goal - 2010

Arch 2030 Goal - 2015

Arch 2030 Goal - 2020

Arch 2030 Goal - 2025

Zero Net Energy



58 New Construction Guide (NCG): Tier 1

49 New Construction Guide (NCG): Tier 2

41 Boulder Energy Code-2014

Zero Net Energy

* zEPI-Zero Energy Performance Index
** CBECS-Commercial Buildings Energy Consumption Survey-U.S. Department of Energy



Commercial Stretch Code Content Summary

Stretch Code Compliance Paths

■ Prescriptive Path

- Menu driven compliance – similar construct to base R.I. code

■ Performance Path:

- Building performance modeling path using DOE 2 building simulation tools familiar to design professionals
- Some prescriptive requirements retained:
 - Lighting
 - Lighting controls
 - Water heating

eQUEST Building Creation Wizard

Building Footprint

Footprint Shape: **H-Shape**

Zoning Pattern: **Perimeter / Core**

Building Orientation

Plan North: **North**

Footprint Dimensions

Perimeter Zone Depth: **30.0** ft

X1: **356.0** ft Y1: **273.9** ft

X2: **109.5** ft Y2: **82.2** ft

X3: **136.9** ft Y3: **109.5** ft

Area Per Floor, Based On

Building Area / Number of Floors: **75,000** ft2

Dimensions Specified Above: **75,000** ft2

Floor Heights

FIR-TO-FIR: **13.0** ft FIR-TO-CELL: **9.0** ft

38.7% Perimeter Zone

Wizard Screen 3 of 32

Help < Previous Next > Finish



Primary Energy Provisions



- Site orientation and features
- Insulation levels
- Air sealing & testing
- Fenestration performance
- HVAC design, equipment & controls
- Lighting design & controls
- Daylighting
- Plug loads
- Systems commissioning
- Renewable energy

Additional Provisions

- Transportation access
- Indoor air quality
- Local materials
- Water conservation
- Construction management



Commercial Stretch Code

Thank you
Questions & Comment Period



Contact Information: Becca.Trietch@energy.ri.gov
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Important Dates & Deadlines

Dec 22, 2017

Public
Comments due
for the
Residential
Stretch Code

Dec 27, 2017

Public
Comments
due for the
Commercial
Stretch Code

More Information & Documents:

<http://www.energy.ri.gov/policies-programs/lead-by-example/case-studies/stretch-code-development.php>