

# **CRC @ ALA Annual Conference**

***Rod Petrick,  
CRC Industry Affairs Chair***



# Outline

- CRC @ IL Energy Code Advisory Council
- IECC 2012 Insulation Requirements
  - Clarifications – Insulation – New & Existing Buildings
- IECC 2015 Code Requirements
- PIMA LTTR Changes
- New Illinois Law
- IL Licensing Laws – Limited, Unlimited



# CRC

- **Who is CRC?**

- ***CRC Members Cover the Region***

- *No. Illinois*
    - *No. Indiana*
    - *So. Wisconsin*
    - *Downstate IL*

- ***Roofs - Low Slope, Steep Slope***

- ***Traditional BUR, Single Ply, Reflective and Ballasted Green Roofs, Vegetative Green Roofs, Photovoltaics***
    - ***Waterproofing & Damproofing, Air Barriers***

# CRC

- ***CRC Members are Involved...***
  - CRCA Membership Meetings
    - Education – Energy, Insurance, Safety, Codes
    - Relationships - Luncheons
    - Celebrate Students – Scholarship
    - Contractors, Manufacturers, Distributors, Consultants, Others...



# CRC

- ***CRC Members are Involved...***
  - CRC Members are IL Licensed Contractors
    - CRC Membership means Value
      - Education
      - Seminars – OSHA, City of Chicago
      - Committees
      - **Website Listing @**  
**[Chicagoroofing.org](http://Chicagoroofing.org) .....**



# CRC

- *CRC Members are Involved...*
  - Committees
    - Industry Affairs – Chicago Code, ICC Code, Legislative
    - Safety – Fire, Fall Protection
    - Program - Meetings
    - Contract & Insurance - Programs
  - Legislative Reception



# CRC ACTIONS & 2012 IL Energy Code

## 'Process Takes Time'

- Feb. 12 - CRC Participated in IL Energy Advisory Council Teleconference
- Feb. 12 - CRC Petition sent to IL Energy Advisory Council..referred to Joint Committee on Administrative Rules (JCAR), CDB as facilitator
- June 12 – CRC Comments to JCAR
- Oct. 12 - CRC Meets with CDB representatives
- Nov. 12 - CRC Supports Clarifications as submitted by CDB
- Jan. 13 – Final Clarifications; D. Meyers @ CRC
- **April/Sept. 13 – NRCA Proposals @ ICC – CRC Changes**
- **June '13 – Sept '13 - City of Chicago Discussions**
- **June 2014 IECC Publishes...**

# CRC & 2012 IL Energy Code

## Commercial & Residential - Insulation

- IECC Insulation – Residential, +39% or +22%
  - 2006 - R-38, (but R-30 ‘Deemed to Comply...’?)
  - 2009 - R-38
  - 2012 – R-49
  - **2015 – .....**





# CRC & 2012 IL Energy Code Commercial & Residential - Insulation

- IECC 2012 Definitions...



# CRC & 2012 IL Energy Code

## Commercial & **Residential** - Insulation

- IECC 2012 Definitions...
- **RESIDENTIAL BUILDING.** For this code, includes detached one- and two-family dwellings and multiple single family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.



# CRC & 2012 IL Energy Code Commercial & Residential - Insulation

- IBC Definitions - Residential

- R-2

- R-3

- R-4 buildings three stories or less in height above grade plane.



# CRC & 2012 IL Energy Code

## Commercial & Residential - Insulation

**310.4 Residential Group R-2. Residential occupancies containing *sleeping units or more than two dwelling units* where the occupants are primarily permanent in nature, including:**

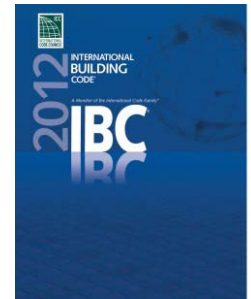
- Apartment houses
- *Boarding houses (nontransient) with more than 16 occupants*
- *Congregate living facilities (nontransient) with more than 16 occupants*
- Convents
- *Dormitories*
- Fraternities and sororities
- Hotels (nontransient)
- *Live/work units*
- Monasteries
- Motels (nontransient)
- Vacation timeshare properties



# CRC & 2012 IL Energy Code

## Commercial & Residential - Insulation

- 310.5 Residential Group R-3. Residential occupancies** where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:
- Buildings that do not contain more than two *dwelling units*
  - *Boarding houses (nontransient) with 16 or fewer occupants*
  - *Boarding houses (transient) with 10 or fewer occupants*
  - Care facilities that provide accommodations for five or fewer persons receiving care
  - *Congregate living facilities (nontransient) with 16 or fewer occupants*
  - *Congregate living facilities (transient) with 10 or fewer occupants*



# CRC & 2012 IL Energy Code

## Commercial & Residential - Insulation

**310.6 Residential Group R-4. This occupancy shall include** buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. *The persons receiving care are capable* of self-preservation. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Convalescent facilities
- *Group homes*
- Halfway houses
- Residential board and *custodial care facilities*
- Social rehabilitation facilities



# CRC & NEW IL Energy Code

TABLE R402.1.1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>

1

CLIMATE ZONE	FENESTRATION U-FACTOR <sup>b</sup>	SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b, e</sup>	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE <sup>i</sup>	FLOOR R-VALUE	BASEMENT <sup>c</sup> WALL R-VALUE	SLAB <sup>d</sup> R-VALUE & DEPTH	CRAWL SPACE <sup>c</sup> WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	13	8/13	19	5/13 <sup>f</sup>	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5 <sup>h</sup>	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	←	13/17	30 <sup>g</sup>	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10 <sup>h</sup>	15/20	30 <sup>g</sup>	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10 <sup>h</sup>	19/21	38 <sup>g</sup>	15/19	10, 4 ft	15/19



# CRC & NEW IL Energy Code

## Commercial & Residential - Insulation

**R402.2.1 Ceilings with attic spaces. When Section R402.1.1 would require R-38 in the ceiling, R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. *Similarly, R-38 shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves.*** This reduction shall not apply to the *U-factor alternative approach in section R402.1.3* and the total UA alternative in Section R402.1.4.





# CRC & NEW IL Energy Code

## Commercial & Residential - Insulation

**R402.2.2 Ceilings without attic spaces.** Where Section R402.1.1 would require insulation levels above R-30 and the design of the roof/ceiling assembly **does not allow sufficient space for the required insulation, the minimum *required insulation for such roof/ceiling assemblies shall be R-30.*** This reduction of insulation from the requirements of Section R402.1.1 shall be limited to 500 square feet (46 m<sup>2</sup>) or 20 percent of the total insulated ceiling area, whichever is less. This reduction shall not apply to the *U-factor alternative approach in Section R402.1.3 and the total UA alternative in Section R402.1.4.*

# CRC & NEW IL Energy Code

## Commercial & Residential - Insulation

- So, what's the R-Value requirement?
  - Low Sloped Roof – Congregate Living?
    - How Tall? <3 Stories, Ceiling Insulation - R-49
  - Low Sloped Roof - Congregate Living?
    - How Tall? > 3 Stories
    - Above Deck Insulation? R-25??
    - *VARIANCE BY AHJ*
  - **Except....Existing Buildings**
    - **R-20**
    - **Eliminate Air Barrier**
    - **Space...see next slides.**



# CRC & 2012 IL Energy Code

## Commercial & Residential - Insulation

- IECC 2012 Definitions...
- **COMMERCIAL BUILDING.** For this code, all **buildings** that are not included in the definition of “Residential buildings.”
- IECC Commercial Chapter...



# CRC & NEW IL Energy Code

## Commercial & Residential - Insulation

- IECC Insulation...Commercial, **Low Slope, +30%**
  - 2006 – R-15
  - 2009 – R-20
  - 2012 – R-25
  - **NEW 2015 – ....**
  - **NEW NRCA STUDY....2014**

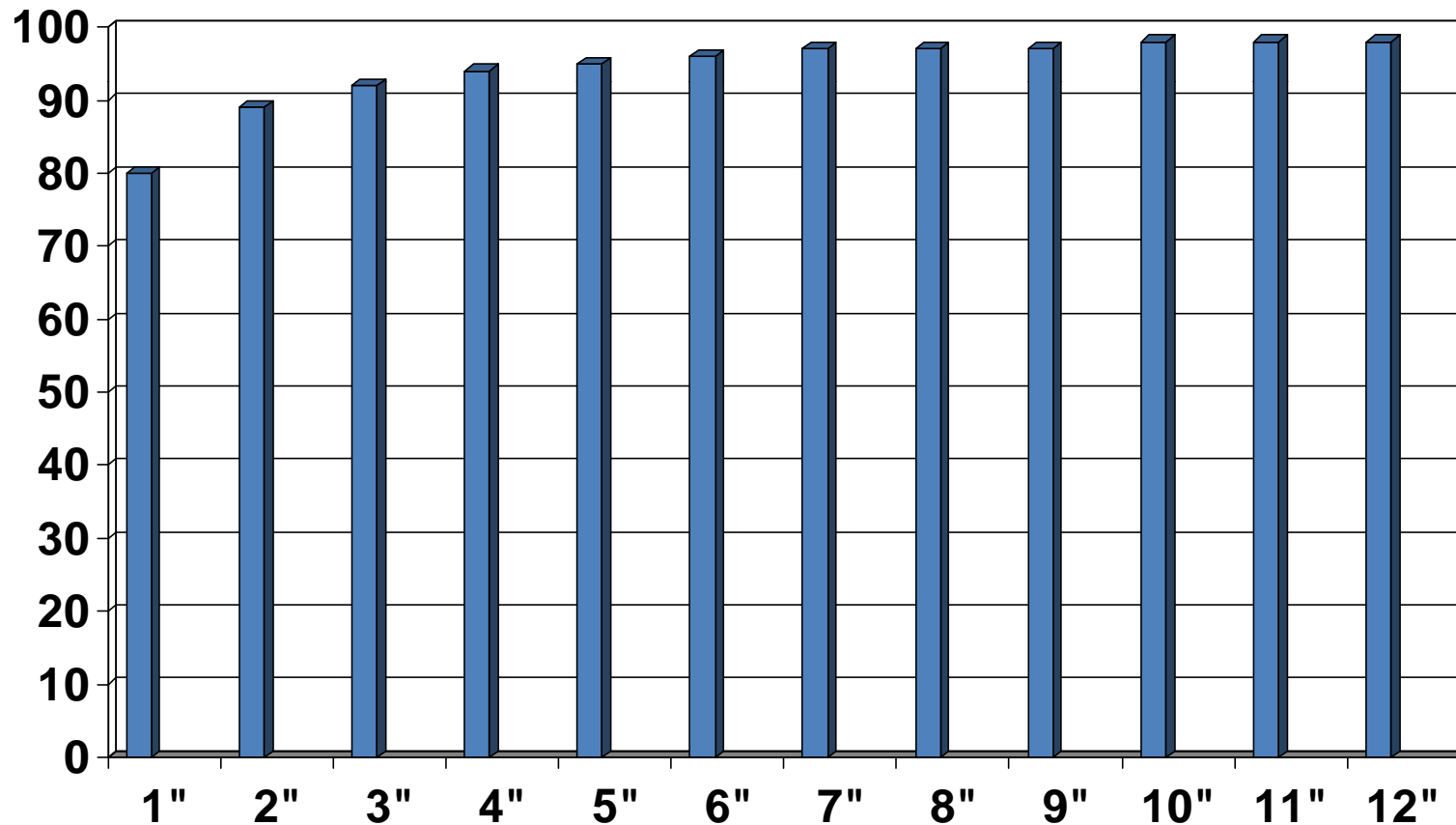


- *Does more insulation provide ROI ?*



# Insulation Calculations?

- ❑ Total Heat Flow Reduction with Increased Insulation Thickness (Massave.com)



# Insulation Effect Study

## NRCA's Energy Wise Calculator

- ❑ Insulation Effect - Study – Energy Wise
  - ❑ 10,000 SF - Heating/Cooling costs
    - R-10 to R20 – Saved \$959
    - R-20 to R-30 - Saved \$293
    - Adding R-10 to R-20 = \$1.60/SF (\$10,600)
      - Adds 2" (R12.0) Insulation, Fastening, Labor \$1.60/sf
      - *54 year payback R20 to R-30*
      - Roof Life - 20 years?
    - In New Construction – Makes sense
    - In Renovation Construction....??
      - Raise HVAC Units, Windows, Doors...
  - ❑ **Source: NRCA Energy Wise Calculator**



# Insulation Effect Study

## NRCA's Energy Wise Calculator

- Best ROI – Life Expectancy Roof**
  - About R – 15.5**



# State of IL 2012 Insulation Clarifications

- Table 5.5-5 of Standard 90.1 allows commercial roofs in Illinois, with insulation entirely above deck, to be insulated to R-20 in lieu or the 2012 IECC requirement for R-25.
  - Therefore, both paths to compliance (IECC or ASHRAE Standard 90.1) are recognized compliance options
  - **FOR EXISTING BUILDINGS ONLY**





# State of IL IECC Clarifications

- *The use of ASHRAE Standard 90.1-2010 as an alternative compliance path for commercial buildings is permitted....*
  - *For EXISTING BUILDINGS ...  
AND NO FAÇADE CHANGE*
    - *ASHRAE 90.1-2010 – R-20*
    - *IECC 2012 – R-25*
    - *NO AIR BARRIER Required*



# IL IECC Clarifications – TAPER

- Q: When using tapered insulation where the insulation is close to zero thickness near a roof drain, is the required R-value [R-20ci from Table 502.2(1), Climate Zones 2-6, “Insulation entirely above deck”] **taken as the average thickness over the entire roof or is the minimum R-value** required at the roof drain together with the additional tapered thickness on top of that?



# State of IL IECC Clarifications

- A: Neither. The **minimum R-20ci** [Table 502.2(1), Climate Zones 2-6, and “Insulation entirely above deck”] applies to the area-weighted average U-factor (U-0.048 from Table 502.1.2) of the tapered insulation assembly. However, at no point (i.e., at roof drains) is ***the thickness of insulation to vary more than 1-inch (25 mm) from the required minimum R-20ci.***
- ***Chicago Clarification – ‘Average Thickness’***



# State of IL Air Barrier Clarifications

## ➤ EXISTING BUILDINGS

➤ ‘Put simply, **no continuous Air Barrier is required** when the extent of work is **limited solely to reroofing, roof recover, roof replacement as defined by the IBC**, and the Exceptions (1-8) itemized in Section C101.4.3, which permit a degree of compliance...subject to approval of the code official.’

➤ State of IL Website...

[http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/FAQ-2.htm](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/FAQ-2.htm)

# NEW LTTR Values

- IECC 2009 – R-20
- IECC 2012 – R-25
- **NEW IECC 2015 – R-30**
- **Add in New LTTR Calculations from PIMA and....**

## ***From PIMA's website,***

*“In order to provide a comprehensive approach to predicting long-term R-value throughout North America, the updated **ASTM C1289** standard now incorporates two test methods, **ASTM C1303** and **CAN/ULC-S770-09**, which offer a similar approach to predicting the long-term thermal performance for foam insulation materials that exhibit air and blowing agent diffusion or aging over time. Both test methods employ a technique called ‘slicing and scaling’ to accelerate this aging process and provide an accurate and consistent prediction of product R-value after five years, which is equivalent to a time-weighted thermal design R-value for 15 years. The update to ASTM C1289 in no way impacts Polyiso’s physical properties.” Can/ULC-S770-09 can be found at <http://www.scc.ca/en/standardsdb/standards/25480>*

Revised LTTR Values - PIMA		Effective 1/1/2014
Thickness	New LTTR Values per inch thickness	New LTTR Values Per Thickness
1"	5.6	5.6
2"	5.7	11.4
3"	5.8	17.4
4"	5.9	23.6

SOURCE: Mark Graham, NRCA  
**Verify with Insulation Manufacturer**

# NEW LTTR Values

- As thickness increases, R-Value Decreases
- Dec. 31, 2012 ISO in Warehouse - ‘R-6/inch’
- Jan. 1, 2014, Same ISO is ‘R-5.6/inch’
- Approx 7% decrease in R reported
- Tapered Insulation Calculations?
  - Average at 2.5”??
- Clarify Proposals based on “inch thicknesses’ rather than R-Value





# 2012 IL Energy Code SUMMARY

- Commercial Buildings – General
  - Air Barrier
    - Required in New Construction & Existing Buildings
    - **Clarifications – Not required for Existing Buildings – AHJ Approval Required**
  - Insulation
    - Increases IECC 2009 from **R-20** to IECC 2012 **R-25 – R-30 ??**
    - **Clarifications for Existing Buildings – AHJ Approval Required**
      - R-20 if blocking and flashings allow
      - Replace with like kind high 'R' value Insulation
  - Reflectivity
    - Chicago YES. .72 NEW, .50 AGED 3 Years.
    - Suburbs & Downstate NO...NOT NOW.



# CRC & NEW IL Energy Code

- State of IL Website – Clarifications
- General -
  - [http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/FAQ-index.htm](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/FAQ-index.htm)
- Roofing Related
  - [http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/FAQ-2.htm](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/FAQ-2.htm)



# CRC @ IL Energy Code Advisory Council

## 2015 IL Energy Conservation Code

- Purpose:
  - *'Represent viewpoints of your industry as it relates to the business and issues before the Advisory Council'.*



# CRC @ IL Energy Code Advisory Council

- Lisa Mattingly, CDB
- Robert Coslow, CDB
- Ray Boosinger, CDB
- Don Plass, Building and Fire Code Academy
- **George Patterson, CRC & CRCA**
- Thomas Ayers, City of Rock Island
- John Meek, Felmley Dickerson Co.
- Bruce Maxey, BLDD Architects
- John Goetz, RD Lawrence Construction
- Ted Schieler, Sheiler & Rassi Quality Builders
- David Wytmar, Wytmar
- Ryan Nation, Hanson, Inc.
- Scott Dettmer, Dettmer Homes
- Tom Bucheit, Bric Partnership



# CRC @ IL Energy Code Advisory Council

- 2015 I-Codes available NOW @ [www.iccsafe.org](http://www.iccsafe.org)



# CRC @ IL Energy Code Advisory Council

- IL Energy Code Advisory Council
- Meetings & Teleconferences
  - 2014 Teleconferences
  - Discuss 2015 'Clarifications'



# **CRC @ IL Energy Code Advisory Council**

- ***2015 Illinois IECC Code Adoption Process***
  - ***State Law – Adapt 18 months after Publication***
  - ***June 2014 – IECC Publishes***
  - ***Commercial Review – Aug. 1 to Nov. 30, 2014***
  - ***Residential Review – Dec. 1, 2014 – April 30, 2015***
  - ***Comments Due Nov. 30 to amend IL Code***
  - ***Email Comments to CDB –***

**[Lisa.Mattingly@Illinois.gov](mailto:Lisa.Mattingly@Illinois.gov)**

# **CRC @ IL Energy Code Advisory Council**

- ***2015 IECC Code Adoption Process***
  - ***CDB Review & Approval – May 2015***
  - ***Joint Committee on Administrative Rules Review***
  - ***2015 IECC Adopted in IL - 1/1/2016***
    - ***Concurrent Residential & Commercial Adoption***
    - ***Applies to Buildings Permitted after 1/1/16***



# **CRC @ IL Energy Code Advisory Council**

- ***2015 IECC Code Adoption Process***
  - ***CRC Meetings with State .... 2013-2014***

# **CRC @ IL Energy Code Advisory Council**

- ***2015 Code Enforcement***
  - ***'Energy Auditors'***
    - ***Educating Building Code Officials for Enforcement***
  - ***Energy Benchmarking – City of Chicago***
    - ***For now...***

# CRC & NEW 2012 IL Energy Code Commercial & Residential - Insulation

- IECC Insulation – Residential, +39% or +22%
  - 2006 - R-38, (but R-30 ‘Deemed to Comply...’?)
  - 2009 - R-38
  - 2012 – R-49
  - **2015 – R-54**



# CRC & NEW IL Energy Code

## **Commercial & Residential -**

### **Insulation**

- IECC Insulation...Commercial, **Low Slope, +30%**
  - 2006 – R-15
  - 2009 – R-20
  - 2012 – R-25
  - **NEW 2015 – R-30**



# **CRC & NEW 2015 IL Energy Code Commercial & Residential - Insulation**

- Rooftop Photovoltaic Panels
  - Scope in IBC Roofing Chapter
  - Wind Uplift
  - Fire Resistance
- Reroofing
  - No Air Barrier Required in Reroofing
  - Clarified Applicability



# **CRC & NEW 2015 IL Energy Code Commercial & Residential - Insulation**

- **Rooftop Drainage (Chapter 15)**
  - **Secondary Drainage Exception - Reroofing**



# **CRC & NEW 2015 IL Energy Code Commercial & Residential - Insulation**

- **International Green Construction Code**
  - **Public Comment Hearings Oct. 1-5**
    - **Ft. Lauderdale**
  - **IgCC Publishes late 2014**
  - **ICC passes IGCC to ASHRAE**
    - **IgCC & 189.1**



# NEW 2015 Code SUMMARY

- Garden Vegetative Roofs....FIRE CODE
  - Sprinkler Systems
  - Water...
    - Plants and moisture
    - Removal of dried plants
  - Rooftop Antennas...
  - Fire Marshals
- Insulation Increases
- Continuous Air Barrier





**Free  
Subscription**

**[www.CRCA.org](http://www.CRCA.org)**

**Get the latest  
updates on  
codes,  
legislation and  
more!**



The Magazine of Roofing and Waterproofing in Chicago and Beyond

**CRCA TODAY** WINTER 2014

CRCA 31<sup>st</sup> Annual Trade Show & Seminars

Time to Pay Up

What's Up With Polyisocyanurate Insulation R-Values?

Requirements for Rooftop Garden



Chicago Roofing Contractors Association

CRCA TODAY | 4415 W. Harrison St., #436 | Hillside, IL 60162

# **CRCA Trade Show & Seminars**

**Save The Date!**

**January 22, 23, 2015**

**Drury Lane**

**Free to attend!**

**[www.CRCA.org](http://www.CRCA.org)**

# **CRC @ ALA Annual Conference**

*Rod Petrick, CRC Industry Affairs Chair*

