

CRCA Downstate Education Symposium & Legislative Reception April 4, 2017



CRCA Industry Affairs & Membership Committees

CRCA Downstate Educational Symposium – Today's Events

- *Welcome & Introductions -*
 - *George Patterson, Troy Wormley, Tony Roque*
- *Roofing Safety – Frank Marino, Safety Check, Inc.*
- *State of Illinois Licensing Laws – Rod Petrick, Margaret Vaughn*
- *Illinois Energy Code – Bill McHugh*

CONTACT INFO:

bill@crca.org

708-449-3340





President & Membership

George Patterson
Troy Wormley



Industry Affairs Committee

Tony Roque



Introductions

CRCA Believes in Building Relationships



Relationships start with CRCA Members & Committees

***Trade Show
Committee
Rod Petrick,
Co-Chair
Greg Dedic,
Co-Chair***



***Program
Committee
Tony Roque,
Co-Chair
Mike McMillin,
Co-Chair***



***George
Patterson,
CRCA's 2017
President***

CRCA 2017 Events

- CRCA Membership Meetings & Seminars
 - ***NEW Feb. 14 – CRCA Educational Meeting***
 - ***NEW April 4 - Downstate Meeting & Legsl. Reception***
 - **April 11 – CRCA I-9 Breakfast**
 - **April 13 – CRCA CWIR**
 - **May 16 - Scholarship Dinner – Mike Good, Astronaut**
 - **July 14 - CRCA Industry Day Golf Outing**
 - **August 12 – CRCA @ Kane County Cougars Game**
 - **September 12 - Membership Education Meeting**
 - **November 14 - Membership Education Meeting**
 - **December 1 - Awards Dinner**
 - **December 12 – CRCA Committee Day**
 - **January 17, 18, 19 – CRCA Trade Show & Seminars**
 - **Roofing Week in Illinois**

CRCA Members = Leadership

- **Industry Affairs – CRCA Gets Involved**
 - ***Illinois IECC Energy Code Adoption Process***
 - ***Illinois Energy Code Advisory Committee***
 - ***Illinois Roofing Industry Licensing Board***
 - ***International Code Council – IECC, IBC, IFC, IEBC***
 - ***NFPA Fire Protection Features Committee***
 - ***Chicago Crane Operators Ordinance***
 - ***Chicago Building & Energy Code Clarifications***

CRCA Members = Leadership

- **CRCA NEW Committees ...**
 - **CRCA Emerging Leaders**
 - **CRCA Chicagoland Women in Roofing**
 - **CRCA Technical Committee**
 - **Structural Lightweight Concrete Study**
 - **Reflectivity**
 - **Partners with NRCA**

CRCA TODAY & CRCA Directory Gets Around!

- **Member List, Education Articles**
- **Project Profiles**
- **CRCA Today Quarterly**
 - **10,000+ - DOWNSSTATE**
- **CRCA Directory Annual**
 - **3,500+**
 - **Contractor, Consultant, Specifier, Building Code Official Readers Spec, AND Buy Roofing**
- **Advertising –**
- **Alyssa or Linda @ CRCA.org**

CRCA TODAY
FALL 2015
WINTER 2016

The Magazine of Roofing and Waterproofing in Chicago and Beyond

CRCA 33rd Annual Trade Show & Seminars - Register Now!

OSHA To Raise Fines

City of Chicago Crane Operator License

CRCA
Chicago Roofing Contractors Association

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

CRCA Membership Benefits

- **CRCA Represents ALL Illinois**
 - Codes, Standards, Advocacy
 - Illinois Code Adoption Process
 - Roofing Industry Licensing Act Maintenance
- **Committee Participation - Open to All**
- **FREE** Membership Education Luncheons
- **FREE** Educational Symposium & Reception
- CRCA Today – State of Illinois
- **CRCA Website Listing**
- **CRCA Events**

Membership Growth

Join CRCA

Industry, Company, Personal and Professional Growth

Contractor & Associate Memberships

\$500 1st Year – All Levels





Roofing Safety

**Frank Marino, Safety Check, Inc.,
CRCA's Safety Consultant**



International & Illinois Energy Codes

Bill McHugh, CRCA Executive Director

Today's Energy Code Outline

Rules First – Then the Variances

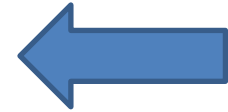
- **NEW Energy Code**
 - **Illinois Adoption –**
 - **2015 IECC Low Sloped Commercial**
 - **Roofs, Air Barriers, Insulation**
 - **The Rules, Definitions, Etc.**
 - **Insulation Required**
 - **New Buildings**
 - **Existing Buildings**
 - **HOW DO WE DEAL WITH EXISTING BUILDINGS?**
 - **Exceptions & Authority Having Jurisdiction (AHJ) Variances**
 - **Chicago's NEW Roofing Memorandum 2016**

IECC - Air Barriers – #1

Materials Permeability Ratings

C402.5.1.2 Air barrier compliance options. A continuous air barrier for the opaque building envelope shall comply with Section C402.5.1.2.1 or C402.5.1.2.2.

C402.5.1.2.1 Materials. Materials with an **air permeability not greater than 0.004 cfm/ft² (0.02 L/s · m²)** under a pressure differential of 0.3 inch water gauge (75 Pa) when tested in accordance with **ASTM E 2178 shall comply with this section.** Materials in Items 1 through 16 shall be deemed to comply with this section, provided joints are sealed and materials are installed as air barriers in accordance with the manufacturer's instructions.



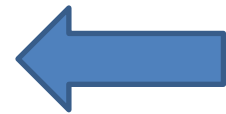
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IECC - Air Barriers – #2

Materials Deemed To Comply

C402.5.1.2 Air barrier compliance options. A continuous air barrier for the opaque building envelope shall comply with Section C402.5.1.2.1 or C402.5.1.2.2.

C402.5.1.2.1 Materials. Materials with an air permeability not greater than 0.004 cfm/ft² (0.02 L/s · m²) under a pressure differential of 0.3 inch water gauge (75 Pa) when tested in accordance with ASTM E 2178 shall comply with this section. **Materials in Items 1 through 16 shall be deemed to comply with this section, provided joints are sealed and materials are installed as air barriers in accordance with the manufacturer's instructions.**



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IECC - Air Barriers – Deemed to Comply

1. **Plywood** with a thickness of not less than 3/8 inch (10 mm).
2. **Oriented strand board** having a thickness of not less than 3/8 inch (10 mm).
3. **Extruded polystyrene insulation board** having a thickness of not less than 1/2 inch (12.7 mm). **Foil-back polyisocyanurate insulation board** having a thickness of not less than 1/2 inch (12.7 mm).
5. **Closed-cell spray foam** a minimum density of 1.5 pcf (2.4 kg/m³) having a thickness of not less than 1 1/2 inches (38 mm).
6. **Open-cell spray foam with** a density between 0.4 and 1.5 pcf (0.6 and 2.4 kg/m³) and having a thickness of not less than 4.5 inches (113 mm).
7. **Exterior or interior gypsum board** having a thickness of not less than 1/2 inch (12.7 mm).
8. **Cement board** having a thickness of not less than 1/2 inch (12.7 mm).
9. **BUR** - Built-up roofing membrane.
10. **Modified bituminous roof membrane.**
11. **Fully adhered single-ply roof membrane. .**
12. A **Portland cement/sand parge, or gypsum plaster** having a thickness of not less than 5/8 inch (15.9 mm).
13. **Cast-in-place and precast concrete.**
14. **Fully grouted concrete block masonry.**
15. **Sheet steel or aluminum.**
16. **Constructed of clay or shale masonry units.**

IECC - Air Barriers

Full Assemblies

C402.5.1.2.2 Assemblies. Assemblies of materials and components with an **average air leakage not greater than 0.04 cfm/ft²** (0.2 L/s · m²) under a pressure differential of 0.3 inch of water gauge (w.g.)(75 Pa) when tested in accordance with ASTM E 2357, ASTM E 1677 or ASTM E 283 shall comply with this section. Assemblies listed in Items 1 through 3 shall be deemed to comply, provided joints are sealed and the requirements of Section C402.5.1.1 are met.

State of Illinois & IECC Adoption Process

- **IL Adoption Process – Legislation**
 - State of IL Law – Residential & Commercial
 - Adopt CURRENT IECC 12 months after Publication, AND
 - After 6 month review by CDB, JCAR Approval
 - Illinois Energy Conservation Advisory Council @ CDB
 - CRCA's George Patterson & Bill McHugh
 - 14 Monthly Calls, Then Final Votes
 - JCAR – Joint Committee on Administrative Rules 2015
 - **IECC 2015 ...WITH ILLINOIS AMENDMENTS**
 - **Permits Applied for on or after 1/01/2016**
 - **School – Regional Office of Education**
 - **Cycle Starts again – Fall, 2018 IECC Publication**
 - **January – June - 2019 – Possible NEW IECC in IL**

ICC's 2018 Code Development Process for 2018 IECC

- Code Development Cycles – “A&B”
- Code Development Proposals – January, ‘16
- Publication – Monograph – March, ‘16
- Committee Action Hearings & On-Line Votes – April, ‘16
- Report of the Hearings – June, ‘16
- Public Comments – July, ‘16
- Public Comment Publication – Monograph – Sept. ‘16
- Public Comment Hearings & On-Line Votes – Oct. ‘16
- Report, Challenges, Staff Compiles – Oct. – May- ‘16
- Publish New Code – Late Summer/Fall, ‘17

- www.ICCSafe.ORG

IL Energy Code Adoption Process

- ***2015 IL IECC Code Adoption – From 2013 to 2015***
 - ***Commercial Review – 08/2015***
 - ***CDB Review & Approval – 11/2015***
 - ***Residential Review – 12/2014 – Spring '15***
 - ***JCAR Process – 12/2015***
 - ***CRCA Questions – 11-30-2015***
 - ***More IL Energy Conservation Advisory Council Teleconferences***
 - ***JCAR Votes – 12-15-2015***
 - ***2015 IECC Effective in IL – 1/1/2016***
 - ***Concurrent Residential & Commercial Adoption***
- ***2016 & 2017 – Dept. of Commerce and Economic Opportunity Educational Programs***

IL Energy Code Adoption Process

Illinois Energy Conservation Advisory Council

- Lisa Mattingly, CDB, Chair
- Don Plass, Building and Fire Code Academy
- 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, Groundwork, Ltd.
- Ryan Nation, Hanson, Inc.
- Scott Dettmer, Dettmer Homes
- Tom Bucheit, Bric Partnership
- Bruce Selway, State of IL, Dept. of Commerce
- **George Patterson, CRCA**

State of IL Energy Code & Chicago....

- **All Municipalities**

- Commercial – “Above Code”, more stringent....

- *If adopted 2006 IECC before 5/15/2009*

- Residential Code is BOTH Min/Max. Restrictions

- www.Ildceo.net/energycode

- **Municipalities >1,000,000, or codes in place**

- Can adopt MORE STRINGENT Energy Code

- **Chicago Urban Heat Island Effect Ordinance**

- Reflectivity, with exceptions.

State of IL Energy Code FACTS

- **What the IL Law Doesn't Cover...**

- Designated Portions of Historic or Landmark Districts, exterior envelope exceptions...by code.
- Buildings NOT using fossil fuel or electricity for COMFORT CONDITIONING
- Non Conditioned Spaces
- Illinois State Board of Education Buildings
- More on USBE Buildings Later....

- **First, Definitions....**

IECC - Definitions Set the Tone

[IBC 2015] BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

[IECC 2015] CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

Definitions Set the Tone

Illinois Amendment:

Authority Having Jurisdiction, AHJ.

Means the organization, officer or individual responsible for approving equipment, materials, an installation or procedure.

IBC=International Building Code

IECC – International Energy Conservation Code

Code Official – Energy AHJ

Building Official – Building AHJ

Fire AHJ - Might be someone else...

Definitions

BUILDING. Any structure used or **intended** for **supporting or sheltering** any use or occupancy, including any mechanical systems, service water heating systems and electric power and lighting systems located on the building site and supporting the building.

HISTORIC BUILDING. Any building or structure that is one or more of the following:

1. Listed, or certified as eligible for listing by the **State Historic Preservation Officer** or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
2. Designated as historic under an applicable **state or local law**.
3. Certified as a contributing resource within a **National Register-listed**, state-designated or locally designated historic district.

Definitions

(IECC) 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. **[IECC 2015, 202]**

NOTE: IECC, Illinois, Chicago are DIFFERENT.

Definitions

(Chicago) Residential Building – a building containing **one or more dwelling units not exceeding four stories** above grade where occupants are primarily permanent. This definition shall apply for this Article only and shall not be used in other portions of the Municipal Code of Chicago, except where specifically referenced.

AUTHORITY HAVING JURISDICTION (“AHJ”). The City of Chicago Department of Buildings or Building Commissioner or the Building Commissioner's assignee.

CODE OFFICIAL. The City of Chicago Department of Buildings or Building Commissioner.

[Chicago Energy Code 2009] CBC Varies

Definitions

(Illinois) Residential Building. Means a detached one-family or two-family dwelling or any building that is three stories or less in height above grade that contains multiple dwelling units, in which the occupants reside on a primarily permanent basis, such as a townhouse, a row house, an apartment house, a convent, a monastery, a rectory, a fraternity or sorority house, a dormitory, and a rooming house; provided, however, that when applied to a building located within the boundaries of a municipality having a population of 1,000,000 or more, the term “RESIDENTIAL BUILDING” means a building containing one or more dwelling units, not exceeding four (4) stories above grade, where occupants are primarily permanent.

(Illinois Amendment)

Definitions

COMMERCIAL BUILDING. For this code, all buildings that are **not included in the definition of “Residential building.”** of the floors associated with the *conditioned space*.
[IECC 2015, 202]

Definitions

APPROVED. Approval by the *code official* as a result of investigation and tests conducted by him or her, or by reason of accepted principles or tests by nationally recognized organizations.

Code Official = Local, County, (ISBE)

Illinois State Board of Education

Definitions

ROOF ASSEMBLY (For application to IBC Chapter 15 only). A system designed to provide weather protection and resistance to design *loads*. The system consists of a *roof covering* and *roof deck* or a single component serving as both the roof covering and the *roof deck*. **A roof assembly includes the *roof deck, vapor retarder, substrate or thermal barrier, insulation, vapor retarder and roof covering.* [IBC, IECC 2015, Chicago 2016]**

Definitions

ROOF COVERING. The covering applied to the *roof deck* for weather resistance, fire classification or **appearance.**

[IBC 2015]

ROOF COVERING SYSTEM. See “Roof assembly.”

[IBC 2015]

ROOF DECK. The flat or sloped surface constructed on top of the *exterior walls* of a building or other supports for the purpose of enclosing the *story* below, or sheltering an area, to protect it from the elements, not including its supporting members or vertical supports.

[IBC 2015, Ch.2, Chicago 2016]

Definition

CONTINUOUS INSULATION (ci). Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

[IECC 2015, Ch. 2]

Definitions

REROOFING. The process of **recovering or replacing** an existing **roof covering**. See “Roof recover” and “Roof replacement.”

[IBC, IECC 2015, Ch.2]

**NEW IN CHICAGO ONLY:
ROOF COVERING REPLACEMENT.**

Definitions – CHICAGO Memorandum

ROOF COVERING REPLACEMENT.

Where an existing *roof covering* is removed, **exposing insulation or sheathing** and a new roof covering installed. This occurs typically in ballasted single ply roof systems, lengthens the insulation in serviceable condition, **and is allowed where the energy usage of the building does not increase.**

**[Chicago Code Memorandum,
Roof Requirements, 2016]**

Definitions

ROOF COVERING REPLACEMENT.

- Remove Roof Covering
- **Exposing insulation or sheathing**
- New roof covering
- **NO INCREASE IN ENERGY CONSUMPTION**
- **NO min. R-30ci required.**

[Chicago Code Memorandum, Roof Requirements, 2016]

Definitions

ROOF RECOVER. The process of installing an additional *roof covering* over a prepared existing *roof covering* **without** removing the existing *roof covering*.

[IBC, IECC 2015, Ch,2]

[NOT in CHICAGO MEMORANDUM]

NOTE: IECC Section C503.1, Exception 5...

NEW Assembly insulation level NOT LESS THAN
THE PRE-EXISTING R-VALUE

Industry Issues - Insulation

SECTION IECC C503 ALTERATIONS –

EXCEPTIONS- NO min R-30ci - ROOF RECOVER

Exception: The following *alterations need not comply* with the requirements for new construction, provided the energy use of the building is not increased:

3. Existing ceiling, wall or floor cavities exposed during construction, provided that these cavities are filled with insulation.
4. Construction where the existing roof, wall or floor cavity is not exposed.

5. *Roof recover.*

[IECC 2015]

ROOF RECOVER IS NOT PEEL OFF & REPLACE...

ROOF RECOVER DOES NOT EXPOSE INSULATION OR ROOF DECK...

'AS LONG AS ENERGY USE IS NOT INCREASED'....

Definitions

ROOF REPLACEMENT. The process of removing the existing *roof covering*, repairing any damaged substrate and installing a new *roof covering*.

[IBC, IECC 2015,

AND Chicago Memorandum, 2016]

Definitions

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof **for the purposes of its maintenance.**

[IBC, IECC 2015, Chicago Memorandum, 2016]

Industry Issues – Insulation

SECTION C503

ALTERATIONS

C503.1 General. *Alterations to any building or structure* shall comply with the requirements of the code for new construction. ***Alterations shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration.*** *Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.*

Alterations complying with ANSI/ASHRAE/IESNA 90.1. need not comply with Sections C402, C403, C404 and C405. installed interior lighting power.

[IECC 2015]

Industry Issues - Insulation

C503.3.1 Roof replacement.

Roof replacements shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the ***building thermal envelope*** and contains insulation entirely above the roof deck.

[IECC 2015]

MEANS min. R-30ci...

Industry Issues - Insulation

Chapter 5 – Existing Buildings -

C501.2 Existing buildings. Except as specified in this chapter, **this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building** or building system lawfully in existence at the time of adoption of this code.

Definitions

ROOF RECOVER. The process of installing an additional *roof covering* over a prepared existing *roof covering* **without** removing the existing *roof covering*. [IBC, IECC 2015]

•IBC requirements

- No More than two Roof Coverings*
- Substrate can accept new Roof Covering*
- No Wet Insulation/Materials*
- NO EXPOSING INSULATION and or ROOF DECK.***
- NO Remove Top Membrane, Add New Membrane..***

Definitions

ROOF RECOVER. *IBC requirements*

- *No More than two Roof Coverings*
- *Substrate can accept new Roof Covering*
- *No Wet Insulation/Materials*
- ***NO EXPOSING INSULATION and or ROOF DECK.***
- ***NO Remove Top Membrane, Add New Membrane..***

Definitions

ROOF REPLACEMENT. The process of removing the existing *roof covering*, repairing any damaged substrate and installing a new *roof covering*. **[IBC, IECC 2015, Chicago Memo]**

- Questions

- Tear offs – Insulation?
- 2 roofs, remove 1 – Need insulation?
- **Chicago – Roof membrane replacement, 2 roofs.**
- **Chicago – Third roof, structural analysis**
- **IBC – No Third Roof Statement**

Definitions

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof **for the purposes of its maintenance.**

[IBC, IECC 2015, Chicago Memo]

- Add Crickets for Slope to existing, no peel.
- Flashing Repairs, Drains, Stacks...
- **A small area, under a certain AHJ decided percentage for ... 'PURPOSE OF MAINTENANCE'..**
- **....As determined by the LOCAL AHJ...**

Definitions

ROOF REPAIR.[Chicago Memo]

- Add Crickets for Slope to existing, no peel.
- Flashing Repairs, Drains, Stacks...
- NO min. R-30 ci

Definition

CONTINUOUS INSULATION (ci). Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

COMBINE ABOVE AND BELOW DECK???

NOPE...UNLESS AHJ APPROVES.

Definitions

IBC 2015 - ADDITION. An extension or increase in floor area or height of a building or structure.

IECC 2015 - ALTERATION. Any construction, **retrofit** or renovation to an existing structure **other than repair or addition** that requires a permit.

IBC 2015 - ALTERATION. Any construction or renovation to an *existing structure other than repair or addition.*

ALL REQUIRE Minimum R-30ci, continuous insulation

State of IL Energy Code FACTS

COMMERCIAL Occupancies, Permit Applied on or after 1/1/16, Low Slope Roofs

- **Minimum R-30ci**
- **Min. R-30ci for Tapered**
 - **Reduced 1", 4' to Drains/Scuppers – 1/4" in 12"**
 - **Reduced 1", 8' to Drains/Scuppers – 1/8" in 12"**
- **NEW CONSTRUCTION – Min. R-30ci**
- **EXISTING BUILDINGS – Min. R-30ci....**
 - **Amendments, Exceptions, Variances by AHJ, or Chicago Memorandum**

State of IL Energy Code FACTS

TABLE C402.1.3
OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	
Roofs													
Insulation entirely above roof deck	R-20ci	R-25ci	R-25ci	R-25ci	R-25ci	R-25ci	R-30ci	R-30ci	R-30ci	R-30ci	R-30ci	R-30ci	R-30ci
Metal buildings ^{a, b}	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-25 + R-11 LS	R-25 + R-11 LS	R-25 + R-11 LS
Attic and other	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-49	R-49	R-49	R-49
Walls, above grade													
Mass	R-5.7ci ^f	R-5.7ci ^f	R-5.7ci ^f	R-7.6ci	R-7.6ci	R-9.5ci	R-9.5ci	R-11.4ci	R-11.4ci	R-13.3ci	R-13.3ci	R-15.2ci	R-15.2ci
Metal building	R-13+ R-6.5ci	R-13 + R-6.5ci	R-13 + R-6.5ci	R-13 + R-13ci	R-13 + R-6.5ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci
Metal framed	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci
Wood framed and other	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci
Walls, below grade													
Below-grade wall ^d	NR	NR	NR	NR	NR	NR	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci
Floors													
Mass ^e	NR	NR	R-6.3ci	R-8.3ci	R-10ci	R-10ci	R-10ci	R-10.4ci	R-10ci	R-12.5ci	R-12.5ci	R-12.5ci	R-12.5ci
Joist/framing	NR	NR	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30 ^f
Slab-on-grade floors													
Unheated slabs	NR	NR	NR	NR	NR	NR	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-10 for 24" below	R-15 for 24" below	R-15 for 24" below

CRCA Industry Affairs - Energy Code FACTS

- **Illinois School Board of Education Buildings = Different Rules...**

- *Illinois School Board of Education*

- *ISBE Code adopted by Law = ICC's IECC 2009*

- **2015 - IECC 2009 = R-20**

- **2016 – R-??**

- *ISBE Buildings CAN BE EXEMPT FROM R-30*

- *Architect/Consultant Specs...*

State of IL Energy Code FACTS

Insulation under roof deck towards the R-30? NOPE.

C402.2.2 Roof assembly. The minimum thermal resistance (R -value) of the insulating material installed **either between the roof framing or continuously on the roof assembly** shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

[IECC 2015]

State of IL Energy Code FACTS

Insulation under roof deck towards R-30? NOPE.

Can Insulation under ceiling count?

NO, except engineering analysis, AND AHJ Approved

Hard Ceiling?

NO, except engineering analysis AND AHJ Approved

State of IL Energy Code FACTS

RESIDENTIAL Occupancies

Steep Slope IBC > 2":12" - Low Slope <2:12

- *Steep – Min. R-49 - Residential – (R-402.1.2)*
- *Exceptions....Granted ONLY by AHJ*
- *Illinois Amendments....*
- *NOTE: 2.5"/12" in some areas...*

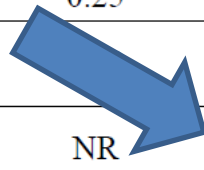
State of IL Energy Code FACTS

RESIDENTIAL Occupancies, Permit Application after 12/31/15-Steep Slope Roofs

•R-49 Residential – (R-402.1.2)

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

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



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.

COMMERCIAL BUILDING. For this code, all buildings that are **not included in the definition of “Residential building.”** of the floors associated with the *conditioned space*.



State of IL Energy Code EXCEPTIONS

Low Slope (<2":12") IL R-503-

RESIDENTIAL ONLY...NOT COMMERCIAL

- ***‘Max. Thickness of Insulation Compatible with the space and existing uses shall be installed...’***
- ***Min. R-3.5 per inch***
- ***If min 8” clearance, Minimum R-20 ci.***
- ***Tapered Insulation = SIMPLE AVERAGE R-20 ci.***
- ***Link to IL Amendments -***
<http://www.illinois.gov/cdb/business/codes/Documents/Illinois%20Specific%20Amendments%20with%20Modifications%20Shown.pdf>

State of IL Energy Code FACTS

New Energy Code – RESIDENTIAL Occ.

Low Slope RESIDENTIAL ROOFS (2:12)

3. Insulation with new roof covering for roof slopes less than 2 units vertical in 12 units horizontal (2:12) inches only in areas where the tapered insulation is used above an existing roof covering to create slope between drains or upslope from obstructions to water flow.

IL Exceptions – Repairs - NO R-49 - R-504

Chicago Memo – Roof Membrane Replacement

State of IL Energy Code FACTS

- Chapter 5 – Existing Bldgs. – Alterations

Alterations shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration. [REF ICC IECC C503.1 General]

State of IL Energy Code FACTS

- **VARIANCES – Who do you call?**
 - *Code Official – Building Official ONLY*
 - *Code Official – Illinois DCEO*
 - *See Chapter 1, Section 104.10 and 104.11...*

State of IL Energy Code FACTS

- ***FLASHING HEIGHT LIMITATIONS?***
- ***Reduce Insulation, without increasing energy usage...***
 - ***NRCA Manuals – 8” Min. above roof surface***
 - ***CRCA Roofing Specs, 8” Min., since 1969***
 - ***Manufacturers Installation Instructions***
 - ***8” Minimum Heights***
 - ***Refer to NRCA Manual Recommendations, 8”***
- ***IL - ONLY AHJ CAN APPROVE THIS***
- ***Chicago – Acceptable by memorandum***

State of IL Energy Code FACTS

•**FINAL REASON...THE CODE ALLOWS IN RESIDENTIAL, BUT LIMITED...**

•**R503.1.1 Building envelope - Exceptions:**

6. For roof replacement on existing buildings with a roof slope of less than 2 units vertical in 12 units horizontal (2:12), and where the roof covering is removed and insulation remains,

and where the required R-value cannot be provided due to thickness limitations presented by existing rooftop conditions, (including heating, ventilating and air-conditioning equipment, low door or glazing heights, parapet heights, weep holes, and roof flashing heights not meeting the manufacturer's specifications),

the maximum thickness of insulation compatible with the available space and existing uses shall be installed.

Insulation used shall be minimum R-3.5 per inch. In areas where flashing may be terminated a minimum of 8 inches above the roof covering (including required insulation), the minimum insulation shall be a minimum of R-20.

IECC 2018 NEW – CE 287

C503.3.1 Roof replacement. *Roof replacements shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck.*

Exception: Where the required R-value cannot be provided because of the thickness limitations presented by existing rooftop conditions, including heating, ventilating and air-conditioning equipment, low door or glazing heights, parapet heights and roof flashing heights, the maximum thickness of insulation compatible with the available space and existing uses shall be installed **where approved by the code official.**

State of IL Energy Code FACTS

- ***FLASHING HEIGHT LIMITATIONS?***
- ***Reduce Insulation, without increasing energy usage...***
 - ***Chicago Memorandum – No Approval Needed***

Chicago Memo Exception - Flashings

- *Reduce Insulation Thickness*
- *Not increase energy usage*
- *No Approval Needed; Submit w/Reasons.*

“If installation of new insulation requires other elements of the building to be changed where that wasn’t part of the scope already.”

“This means that ... heights are not required to be increased”...

State of IL Energy Code FACTS

- ***Commercial Variance, Tapered Insulation?***

RESIDENTIAL ALLOWS - R503 ALTERATIONS –
R503.1.1 Building Envelope

7. R-value for roof assemblies with tapered insulation above deck with slope greater than 1/8 units vertical in 12 units horizontal (1/8:12) shall average R-20.

Definitions & Questions

Summary...Roof Recover...

ROOF RECOVER. The process of installing an additional *roof covering* over a prepared existing *roof covering* without removing the existing *roof covering*.

•Questions

- Prepare, Recover Board, New Roof Covering? **NO min R-30 ci**
- New Roof Covering over old Roof Covering? **NO min R-30 ci**
- Remove Roof Covering, Repair Insulation, New Roof Covering?
minR-30ci
- 2 Roofs, remove roof covering, add another? **min R-30 ci**
- 'Roof Peeling' & Membrane Replacement – **min R-30 ci**

•**AHJ APPROVAL REQUIRED for VARIANCES...**

State of IL Energy Code FACTS

ROOF RECOVER—NO min R-30ci REQUIRED

503.1 Exceptions:

3. Existing ceiling, wall or floor cavities exposed during construction, provided that these cavities are filled with insulation.

4. Construction where the existing roof, wall or floor cavity is not exposed.

5. Roof recover.

[IBC, IECC 2015]

State of IL Energy Code FACTS

• **VARIANCES - Existing Commercial Buildings**

- Reason Statements When Applying
- Flashing Height Limits Insulation Thickness...
 - NRCA Manual 1970 – 8” Minimum Flashing Heights
 - CRCA Specs 1968 – 8” Minimum Flashing Heights
 - Manufacturers Installation Instructions, 8” Flashing Heights
 - Manufacturer Letter for less than 8”??
 - Roof Recover is EXEMPT FROM Min R-30ci
- “Technical Infeasibility”

*** AHJ Approval Required**

CHICAGO Energy Code FACTS

- **Variations - Existing Buildings – Chicago**
 - *DOB has not required special administrative relief*
 - **DOB Requires Statement**
 - *Amount of Insulation*
 - *Description of Constraints*
 - *Minimum R-Value, when needed, R-3.5 ci @ state*
 - *NO LESS than prior insulation thickness*
 - **If Occupancy change increases energy usage**
 - *NEW CONSTRUCTION REQUIREMENTS APPLY*
 - *Exception NOT ALLOWED*

State of IL Energy Code **FACTS & SUMMARY**

- **Air Barrier**
- **@ New Construction – Required....**
 - NEW SEAL Penetrations, Roof Deck and Covering
- **@ Roof Repl./Recover in 2015 IECC?**
 - Not unless wall cavity is opened and insulation exposed ...

State of IL Energy Code FACTS & SUMMARY

- **Existing Buildings – IL – By Occupancy**
 - **Residential APPROVED –**
 - Tapered is Simple Average Insulation Thicknesses
 - R-3.5 minimum for ‘replace in kind’
 - R-20 for <2.5”:12”, limited size
 - ***IF COMMERCIAL, AHJ Approves***

State of IL Energy Code FACTS & SUMMARY

- Commercial Buildings – General 2015....
 - **Air Barrier**
 - Required in New Construction & Existing Buildings
 - EXCEPTION....not required for Existing Buildings where façade not removed and insulation not exposed on walls.
 - **Insulation**
 - New Construction – min R-30 ci
 - IL Amendments – Residential
 - Chicago Memo – Commercial & Residential
 - Exceptions for Existing Buildings – AHJ Approval Required
 - Min R-20 if flashings allow = AHJ Approval Required
 - Replace with like kind or min. R-3.5 ci = AHJ....

State of Illinois & Chicago Energy Code Adoption Process

- Chicago – DOB
 - We're following the State's IECC Energy Code ”
 - City Council Resolution @ CRCA.org



State of Illinois & Chicago Energy Code

Adoption of IECC

- **Chicago**....Proof that IECC 2015 is Required...

18-13-100 Referenced codes and standards, and, unless otherwise modified by this chapter, shall be considered part of the requirements of this chapter to the extent of each prescribed reference: **2015 International Energy Conservation Code**, including, but not limited to, IECC—Commercial Provisions (hereinafter known as "IECC 2015 - CE") and IECC Residential Provisions (hereinafter known as "IECC 2015 - RE"); ANSI/ASHRAE/IES Standard 90.1-2013, including all published errata and excluding published Addenda that encompass ASHRAE 90.1-2013 (hereinafter known as "ANSI/ASHRAE 90.1-2013);

City of Chicago Energy Code FACTS

- **Reflectivity, 2° / 12" Slope, with exceptions.**
- **Initial .72 OR**
- **AGED 3 years - .50...**
 - Tested to ASTM E903/E1918, Portable Reflectometer
 - Cool Roof Rating Council OR Energy Star
- **Exceptions**
 - Super Low Sloped Roof Assemblies – Gravel 15lbs.
 - Gravel Ballast at 15lbs./sf @.30
 - Vegetative – Pavers, 50%, remainder .30.
 - Solar Powered – PV, Solar Thermal

City of Chicago Energy Code FACTS

•Alterations – Chapter 5

C503 Alterations. Revise to read: C503.1 General.

Alterations to any building or structure shall comply with the requirements of the code for new construction.

Alterations shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.

City of Chicago Energy Code FACTS

•**C504.3 Roof repair - Roof reflectance.** Where an existing low-sloped roof is repaired to mend, fix, patch, cure, refurbish or otherwise salvage a portion of an existing roof in order to maintain or extend the life span of such roof, the portion of the roof that is repaired shall meet or exceed the reflectance value in effect when the roof was originally permitted.

Above Code Requirements Allowed

•Chicago Energy Conservation Code

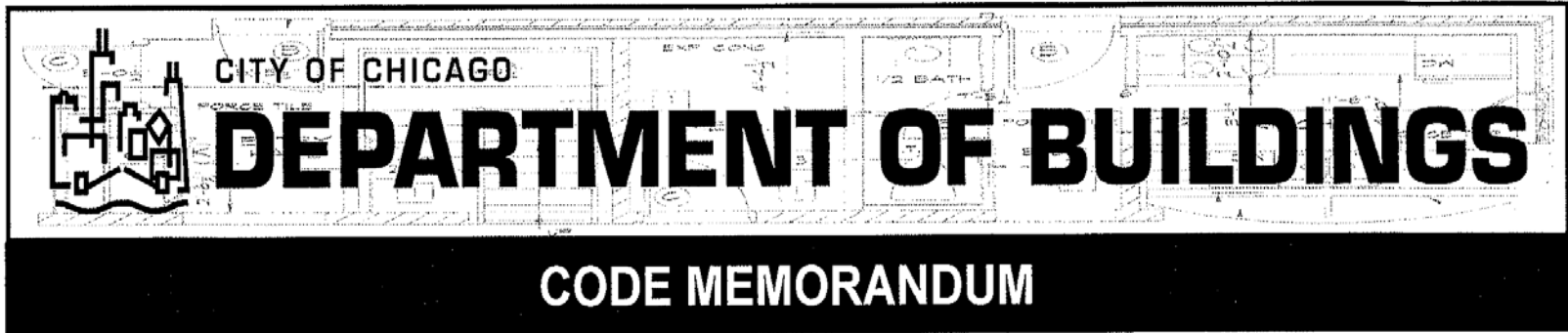
• http://www.cityofchicago.org/city/en/depts/bldgs/supp_info/chicago-energy-conservation-code.html



City of Chicago Energy Code

- **NEW Construction = IECC – min. R-30ci**
 - Reflectivity @.72 new OR .50 aged – ***SAME AS 2009***
- **Existing Buildings = IECC – min. R-30ci**
 - Reflectivity @.72 new OR.50 aged – ***SAME AS 2009***
- **VARIANCES – SEE Chicago DOB MEMO**
 - Replace with higher R Value product to meet minimum flashing heights
 - Tapered Insulation = Simple Average ‘R’

Chicago Code



To: Department of Buildings Plan Examiners and Inspectors

From: Judith Frydland
Commissioner

A handwritten signature in black ink, appearing to be "JF", written over the name "Judith Frydland".

Date: June 20, 2016

Re: **Roof Requirements**

Chicago Memo Exception - Flashings

- ***Reduce Insulation Thickness***
- ***Not increase energy usage***
- ***No Approval Needed; Submit w/Reasons.***

“If installation of new insulation requires other elements of the building to be changed where that wasn’t part of the scope already....”

“This means that ... Flashing heights are not required to be increased” ...

Chicago Memo – Steep Slope

- ***Definitions***
 - ***Roof Assembly – Sheathing, VR, Deck, Insulation, Roof Covering***
 - ***Roof Covering – Weather Resistance, Fire Classification or Appearance***
 - ***Roof Covering Replacement – ...existing roof covering removed, exposing insulation or sheathing, and new roof covering installed.***
 -

Chicago Memo – Steep Slope

- ***Definitions***

- ***Roof Sheathing – flat or sloped surface
.....enclosing.....to support the roof covering
and other elements.***
- ***Positive Roof Drainage – 48 hours***
- ***Roof Repair – ‘purpose of its maintenance’***
- ***Roof Replacement – Remove covering, repair
damaged substrate including insulation or
sheathing and installing a new roof assembly***

Chicago Memo – Steep Slope

- ***Maximum Number of Layers***
 - ***Structural components of a roof are designed for the dead load of a single layer of roofing. The City of Chicago allows an additional layer of roofing”...two. A third layer would be only allowed if accompanied by a structural analysis....***

Chicago Memo – Steep Slope

- ***Ice Barrier/Water Barrier***
 - ***The City of Chicago Code 13-196-530 (c) states....***
 - ***“The Roof shall be tight and have no defects and roof drainage shall be adequate to prevent rain water from causing dampness in the walls.”***
 - ***“The Code Requires that the building be kept dry, but not how to do that”***
 - ***“To protect the building and walls against water infiltration due to ice forming along the eaves, a barrier....that seals around nail holes shall be used....”***

Chicago Memo – Steep Slope

- ***Flashing, Crickets, Saddles, Drip Edge:***
 - ***Provide adequate flashing to prevent moisture from entering the wall ...”***
 - ***Metal Flashing shall be minimum -.019 (no.26) galvanized sheet.***
 - ***Provide a cricket or saddle on ridge side of chimney or penetration....skylights....***
 - ***Roofing Material shall be installed to manufacturers installation instructions...fasteners, underlayment, sheathing.***

Chicago Memo – Steep Slope

- ***Residential R-Values***
 - ***R-49 in IECC Assumes Steep Slope***
 - ***Low Slope – Not Assumed***
 - ***U-Value Alternative - $U.026 = R38.5$***
 - ***Therefore, Code supports R-38.5***

CRCA's Industry Issues

Today's Outline

- **Air Barriers**
- **Chicago Crane Ordinance (2 minutes)**
- **Energy Codes**
 - **Illinois Adoption - 2015 IECC Residential & Commercial**
 - **Chicago's Adoption – 2015 IECC**
 - **The Rules, Definitions, Etc.**
 - **Insulation Required**
 - **New Buildings**
 - **Existing Buildings**
 - **HOW DO WE DEAL WITH SPECIAL CASES?**
 - **Exceptions & Authority Having Jurisdiction (AHJ) Variances**

CRCA & NEW IL Energy Code

- **Links for Info**

- **IL IECC 2015 Amendments:**

- <http://www.illinois.gov/cdb/business/codes/Documents/Illinois%20Specific%20Amendments%20with%20Modifications%20Shown.pdf>

- **IL IECC 2015 Amendments Shortcut** - www.ILdceo.net/energycode

- **IL Clarifications from 2012**

- <http://www.illinois.gov/dceo/whyillinois/KeyIndustries/Energy/Pages/FAQ-2.aspx>

- **IL School Code (ISBOE) :**

- <http://ilga.gov/legislation/ilcs/ilcs4.asp?DocName=010500050HArt%2E+19b&ActID=1005&ChapterID=17&SeqStart=135900000&SeqEnd=137700000>

- **Chicago Energy Code**

- http://www.cityofchicago.org/city/en/depts/bldgs/supp_info/chicago-energy-conservation-code.html

- **CRCA.org** - www.crca.org

CRCA's Contact Info

- ***Industry Affairs Committee Leaders***
- ***Tony Roque, Chair, Rod Petrick***
- ***Bill McHugh***

CONTACT INFO:

bill@crca.org

708-449-3340



State of Illinois Roofing Contractor Licensing Laws

**Rod Petrick, CRCA
Margaret Vaughn,
Vaughn Consulting, CRCA Legislative
Consultant**



Upcoming CRCA Events

- **CRCA I-9 *Breakfast Seminar*** - April 11
- **CRCA CWIR *Membership Education Meeting*** - April 13
- **CRCA *Scholarship Dinner*** – May 16, Oak Brook
- **CRCA *Industry Day Golf Outing*** – July 13
- **CRCA *Membership Education Meeting*** – Sept. 12
- **CRCA *Membership Education Meeting*** – Nov. 14
- **CRCA *Awards Dinner*** – Dec. 1
- **CRCA *Trade Show & Seminars*** – Jan. 17, 18 & 19
 - “Roofing Week in Illinois”

Don't Miss CRCA's Events

CRCA Membership Benefits

- **CRCA Represents ALL Illinois**
 - Codes, Standards, Advocacy
 - Illinois Code Adoption Process
 - Roofing Industry Licensing Act Maintenance
- **Committee Participation - Open to All**
- **FREE** Membership Education Luncheons
- **FREE** Educational Symposium & Reception
- CRCA Today – State of Illinois
- **CRCA Website Listing**
- **CRCA Events**

CRCA Downstate Educational Symposium – Today's Events

- *Thanks to Speakers...*
- *Roofing Safety – Frank Marino, Safety Check, Inc.*
- *State of Illinois Licensing Laws – Rod Petrick,
Margaret Vaughn*
- *Illinois Energy Code – Bill McHugh, CRCA*

CONTACT INFO:

bill@crca.org

708-449-3340

CRCA Membership Luncheon & Program

February 14, 2017

www.crca.org



CRCA Industry Affairs Committee Leaders