

# CRCA Roofing Industry Update

- **CRCA at RCI – CAC**
  - Bill McHugh, CRCA Executive Director
  - Rod Petrick, CRCA/MRCA Past President



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC – 2009 Update***
- **CRCA Trade Show & Educational Programs**



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC – 2009 Update***
- **CRCA 2009 Educational Programs**
  - *Thursday - The Colors of Roofing...*
    - *Rod Petrick & Steve Phillips*
    - *Chicago Energy Code & Legal Implications*



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC – 2009 Update***
- **26<sup>th</sup> Annual Trade Show & Seminars**
  - **Friday Seminars – 8:30am – 12:30pm**
    - 7:00 –9:00am – Safety – Frank Marino, Josh Moore
    - 8:30 – 9:30am – New Codes & Trends – Mark Graham
    - 9:30 – 10:30am – Waterproofing – Rich Koziol, RCI
    - 10:30 – 11:30am – Steep Slope – Dr. Rene Dupuis
    - 11:30 – 12:30am – Garden & Reflective Roofing –  
Tom Hutchinson, Mike Herlihy



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC – 2009 Update***
- **CRCA 2009 Educational Programs**
  - All Programs Qualify for CE Credits
    - RCI CEH Hours
    - AIA LU's
    - Self report other LU's...



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - CRCA Membership....Means Value
    - Roofing Contractors, Consultants,  
Manufacturers, Reps, Distributors...

# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - Membership Meetings – Join CRCA!
    - Relationships - Luncheons
    - Education – Energy, Insurance, Safety
    - Community – Larry Wert
    - Celebrate Students – Scholarships



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - CRCA “Industry Day” Golf Outing
    - Contractors
    - Consultants
    - Manufacturers
    - Reps, Distributors, Friends



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - CRCA Awards Dinner
    - Supplier of the Year
    - Safety Award
    - Award of Excellence
    - Clyde Scott Award
    - Special Awards



# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - Membership means Value
    - Website Listing @ CRCA.org
    - Seminars – OSHA, City of Chicago
    - CRCA Directory Listing
    - CRCA Membership Meetings
    - CRCA Committees
      - Industry Affairs
      - Safety
      - Program
      - Contract & Insurance
      - Steep & Shingle

# CRCA Roofing Industry Update

- ***CRCA at RCI-CAC***
  - Membership means Value
    - Consultants Welcome
      - Website Listing
      - Directory
      - Much, Much More...
  - CRCA Means Relationships



# CRCA Roofing Industry Update

- **CRCA & MRCA at RCI – CAC**
  - Rod Petrick – Past CRCA/MRCA President
    - Chicago Energy Code History/Update
    - MRCA T & R Update



# Roofing Industry Update

## Chicago Energy Code 2009



Project: Chicago City Hall Green Roof  
Chicago, Illinois  
Completed in 2002  
System: Sarnafil's Waterproofing System 1000  
Total Area: 33,000 ft<sup>2</sup>  
Architect: Thomas W. Vukovich, City Architect, Dept. of General Services

# CRCA Roofing Industry Update

- Roofing Alliance – Chicago Energy Code
  - **CRCA Contractors, Manufacturers, Associates**
  - **NRCA – Mark Graham**
  - **SRI - Rene Dupuis**
  - **ORNL - Andre Desjarlais**
  - **Others...including RCI**



# CRCA Roofing Industry Update

## Chicago Energy Code

- March 2001 – Daley proposes energy code
- June 2001 – City Council passes energy code
- November 2001 – City meets with industry
  - CRCA, NRCA, Manufacturers
- December 2001 - City grants stay of enforcement, New Energy Code

# CRCA Roofing Industry Update

## Chicago Energy Code

- March 2002 – Roofing Industry Alliance (RIA)
- April 2002 – 1<sup>st</sup> RIA Meeting
- April 2002 – City issues 2<sup>nd</sup> enforcement stay
- May-August – City requests RIA report to defend RIA position – issues 3<sup>rd</sup> stay of enforcement
- November 2002 – RIA presents interim report
- December 2002 – ***RIA and City amend code***

# CRCA Roofing Industry Update

## Chicago Energy Code

- Original Chicago Energy Code - 2001
  - Roof reflectivity - 0.65 initial 0.50 aged
  - Emissivity - 0.9
- Amended Chicago Energy Code - 2003
  - Roof Reflectivity 0.25 initial and aged
  - No Emissivity Required
- Medium Slope Roofing Code - 2005
  - 2:12 to 5:12 slope - New construction only
  - 0.15 initial and aged
  - No Emissivity Requirement

# CRCA Roofing Industry Update

## Chicago Energy Code

- January 2003 - City Council Amendment
  - Compliance Date - April 1, 2003
- January 2003 - RIA gathering data
  - Roof reflectivity effects on urban heat island
- August 2004 – Chicago Committee on Buildings
  - CRCA Testimony, City of Chicago Ordinance
  - 2:12 – 5:12 Reflectivity – New Construction
- November 2005 – Chicago Air Shed Study
  - Report & Presentation – Atlanta, GA

# CRCA Roofing Industry Update

## Chicago Energy Code

- ***CRCA Meetings with City of Chicago***
  - 2003 – CRCA & Commr. Roberson
  - 2004 & 2005 – CRCA & Commr. Kaderbeck
  - 2005 – & 2006 - CRCA & Commr. Knight
  - 2007 – CRCA & Commr. Rodriguez
  - '07/08 – CRCA & Deputy Commr.'s
    - Dennis Mondero – Dept. of Buildings
    - David O'Donnell – Dept. of Environment
  - Oct. 2008 – CRCA @ Council Committee
    - Aldermen – Stone, Rugai
  - Nov. 2008 – City Council Approval



# CRCA Roofing Industry Update Chicago Energy Code

- ***CRCA Meetings***

- 2001 – CRCA / NRCA & City Meet

- Air Shed Study Review

- Reflectivity & Energy Optimization Discussions

- 2008 – CRCA / NRCA / Alliance Meetings

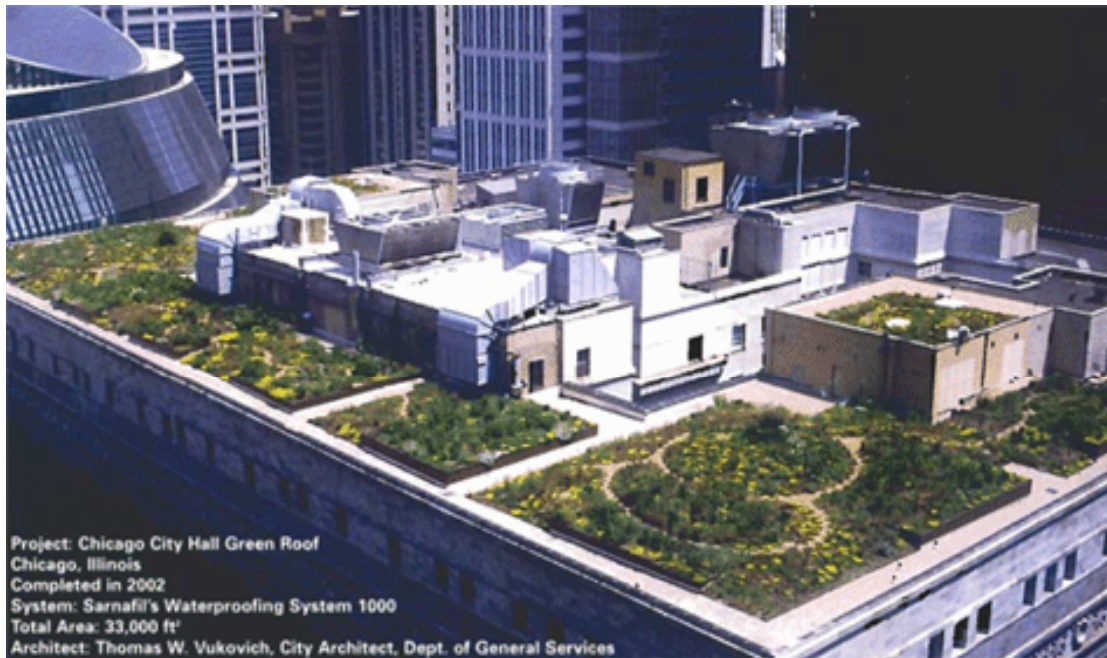
- City of Chicago & Others....

- ***2009 – New Chicago Energy Code Ordinance 04-22-2009 “Earth Day”***



# Roofing Industry Update

## Chicago Energy Code Language



Project: Chicago City Hall Green Roof  
Chicago, Illinois  
Completed in 2002  
System: Sarnafil's Waterproofing System 1000  
Total Area: 33,000 ft<sup>2</sup>  
Architect: Thomas W. Vukovich, City Architect, Dept. of General Services

# Roofing Industry Update

- 2008 CRCA Team–Energy Code Discussions
  - **City of Chicago Set the Agenda & Participants**
    - CRCA Team
      - Rod Petrick, Jason Doran, Bill McHugh
      - Contractors, Manufacturers / Associates
    - NRCA – Mark Graham
    - ORNL - Andre Desjarlais

# Roofing Industry Update

## Chicago Energy Code

- ***New Requirements*** - April 22, 2009
- Earth Day...new Energy Code
  - Urban Heat Island Effect
    - Lower City temperature to conserve energy
      - Low Slope Roofs - <2" : 12"
      - Medium Slope Roofs – 2" :12" to 5" : 12"
  - Energy Conservation
    - Reduce Demand for Energy - Insulation

# Roofing Industry Update

## Chicago Energy Code

- **URBAN HEAT ISLAND EFFECT – Def.**
  - A microclimatic condition wherein large amounts of dark absorbing surfaces (such as asphalt paving and dark roofs) trap energy from sunlight and release it back into the atmosphere, causing higher ambient temperatures and higher pollution levels.

# Roofing Industry Update

## Chicago Energy Code

- ***New Requirements***
- April 22, 2009 – Earth Day...new Energy Code
  - All Roof Projects, Buildings Permitted
    - ***After April 22, 2009***
  - Urban Heat Island
    - ***Reflectivity Requirements***
  - Energy Conservation
    - ***Insulation***

# Roofing Industry Update

## Chicago Energy Code

- New Chicago Energy Code 2008
  - Based on International Code Council Req'ts.
    - International Energy Conservation Code - 2003
      - Chicago Amendments
      - Chicago Language
      - Chicago Code Books
        - » Index Publishing Company
        - » American Publishing Company

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.3.1 - .5.4.3**
  - “...minimize the urban heat island effect.”

# Roofing Industry Update

## Chicago Energy Code

### **Section 18-13-101.5.3.1 – Exceptions – Low & Medium Slope**

#### **1. Extensive & Intensive Green Roofs**

- Vegetation – US EPA; Photovoltaic,  
Solar Thermal Equipment

#### **2. Rooftop Deck – cover 1/3 total gross rooftop area**

**Remainder....meet reflectance....**

# Roofing Industry Update

## Chicago Energy Code

### **Section 18-13-101.5.4.1 – 3**

#### **Reflectance Values**

- 1. ASTM E903; E1918**
- 2. Portable Reflectometer at/near Ambient Conditions**
- 3. Display Verification Labels:**
  - 1. Cool Roof Rating Council**
  - 2. Energy Star**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1 – 3**  
**Reflectance Values**

### **1. New Construction**

1. Meet or Exceed .72 initial, *OR .50 3yr. Aged*

### **2. Exceptions**

1. Vegetative or PV = > 50% of Roof
2. 15 lbs./sf Ballast - Aggregate Reflectivity - .30

# Roofing Industry Update

## Chicago Energy Code

### Section 18-13-101.5.4.1 – 3

#### Reflectance Values

#### 1. New Construction

1. *Meet or Exceed .72 initial, OR .50 3yr. Aged*

#### 2. Exceptions

2. Ballasted Roofs – 15 lbs./sf Aggregate,  
- Minimum Reflectance, .30

3. Ballast – “River rock, aggregate or larger, pavers, *or other means of weighing down* a roofing membrane over a substrate to resist wind uplift.”

1. 15lbs./sf Over Single Ply

2. BUR + Flood w/Gravel, *SYSTEM* totaling 15 lbs./sf meets

3. Pavers

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1 – 3**  
**Reflectance Values - Full or Partial Replacements**
- **Full or partial replacements or retrofits of existing low-sloped roofs originally permitted prior to January 1, 2009 by substituting the original materials or roofing system with new materials shall utilize roofing products that meet or exceed an initial reflectance value of 0.72 or a three-year installed reflectance value of 0.5 as determined by the Cool Roof Rating Council or Energy Star. Insulation installation must be maximized per section 18-13-101.4.**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1**
- **Reflectance Values - Full or Partial Replacements**
- **Exception**
  - **50% Green Vegetative, remainder .3**
  - **Rooftop Deck**
- **Replacing Ballasted & Very Low Sloped Roofs....**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1**
- **Exception - Replacing Ballasted Roofs....**
  - one of the following two sets of requirements must be met:
    - (i) the reflectance value for the entire roof shall be a minimum of 0.30 and a minimum of 15 lbs/sq. ft. of ballast coverage over the entire roof shall be provided,
    - or (ii) the reflectance value shall be a minimum of 0.72 or a three-year installed reflectance value of 0.5 as determined by the Cool Roof Rating Council or Energy Star.

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1**
- **Reflectance Values - Replacing Ballasted & Very Low Sloped Roofs....<1/4" : 12"**
  - **Aggregate .30**
  - **"The exposed top layer of aggregate must substantially cover the roof area, such that the maximum exposure of the underlying water-repellent layer is no more than 5% of the total area of the roof."**
- **Allows Coal Tar, Dead Level Asphalt**
- **Insulation – MUST USE LTTR 6.0, to same thickness or greater....if low curb heights.**
- **If T/O 1" perlite, replace with 1" ISO**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1 - Repairs**
- **Reflectance Values - ...Existing Roof Repair, mend fix, patch, cure, refurbish or otherwise salvage a portion of an existing roof in order to maintain or extend the lifespan of such roof....**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1**
- **Reflectance Values - ...Existing Roof**  
...the portion repaired shall meet or exceed the reflectance value in effect when the **roof was originally permitted.**
- **Insulation - Meet Original Thickness, but...Min. LTTR - 6.0 per inch thickness**
  - *Accommodates low flashings...*

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-101.5.4.1**
- **Insulation - Reroofing**
  - **Insulation - Meet Original Thickness**
  - **...but;**
    - **Min. LTTR - 6.0 per inch thickness –**
      - **Accommodates low height Curbs, Windows at walls, for flashings...**

# Roofing Industry Update

## Chicago Energy Code

- **Section 18-13-402.3.1**
- **Insulation – New Construction**
  - **Prescriptive or Performance Based**

# Roofing Industry Update

## Chicago Energy Code

### Roof Insulation – Table 18-13-502.2(1)

- **Insulation Above Deck – R-20ci**
- **Metal Joists (w/R-5 Thermal Blk –R-19**
- **Wood Framed/other non metal  
between joists– R-30**

# Roofing Industry Update

## Chicago Energy Code

### **Roof Insulation – Table 18-13-502.2(2)**

#### **Metal Building Assemblies**

- **Standing Seam, 1 layer – R-19 +R-5  
Thermal Blocks**
- **Metal Joists (w/R-5 Thermal Blk –R-19**
- **Wood Framed/other non metal  
between joists– R-30**

# Roofing Industry Update

## Chicago Energy Code

### **Envelope Sealing – 18-13-502.4(3)**

#### **Sealing Building Envelope Openings & Penetrations**

- **Caulking Materials or**
- **Closed Gasketing Systems**
- **Or...taped and covered with moisture vapor permeable wrapping material**

# Roofing Industry Update

## Chicago Energy Code

- Medium Slope – NO CHANGES
- Medium Slope Roofing Code – 2005/9
  - 2:12 to 5:12 slope - New construction only
  - 0.15 initial and aged
  - No Emissivity Requirement

# Roofing Industry Update

## Chicago Energy Code

- Residential Insulation Requirements by Component - Table 18-13-401.2.1
  - Skylights – U-0.60
  - Ceiling – R-49
  - Fenestration – U-0.35
  - Wood Frame, Wall – R19 or R-13 + 5C
  - Mass Wall – R-15
  - Floor – R-30, or fill framing, R-19 Min.
  - Basement Wall – R-10 / 13C
  - Slab – R-10, @4'deep
  - Crawl Space Walls – R-10/13C

# Roofing Industry Update

## Chicago & CRCA – What's Next?

- Garden Roof Requirements
  - Wind Uplift
  - Fire Resistance
- Permitting
  - Roofing Specific Issues
    - Licensed Contractors
    - Permitting Process
  - Sidewalk Roofing Operations
    - Permitting Issues

# Roofing Industry Update

Chicago Energy Code

May change, as technology advances...stay tuned!



# CRCA / MRCA

## Roofing Industry Update

- ***MRCA 2008 Technical Programs***
  - ***TPO Study***
  - ***Green Roofing Update***
  - ***Shingle – Vented / Unvented Systems***
  - ***Photovoltaics***
  - ***BIM – Building Information Modeling  
Education for the Roofing Community***
  - ***Roofing Trends...***



# CRCA / MRCA

## Roofing Industry Update

- ***MRCA 2009 Technical & Research Initiatives – T&R Committee***
  - ***Self Adhered Base Sheet Test Project***
  - ***Photovoltaics Study Task Force***
  - ***BIM Continuing Education***
  - ***Consideration...Expand Underlayment Study***



# CRCA Roofing Industry Update

- **CRCA & MRCA at RCI – CAC**
  - Rod Petrick - CRCA / MRCA President
    - Chicago Energy Code History & Update
    - MRCA Technical & Research Update



# CRCA Roofing Industry Update

- **CRCA & MRCA at RCI – CAC**
  - Thanks...for the relationships...
  - Questions?

