CRCA Membership & Air Barrier Basics

- Emergency Exits
  - Really Bill?
  - EDITH...Exit Drills In The Home
- Emergency –
  - Call 911 –
- Mobile Phones... Vibrate/Silent/Off
- Stay Safe...
Thanks – CRCA Building Envelope Chairs
Dan Flickinger, SJ Mallein
Troy Wormley, WBR Roofing
CRCA Member Value Means Strong CRCA

Members in Chicagoland & Beyond

• 130+ Contractors & Growing
• 20+ Roof Consultant Firms
• 245+ Associates: Materials, Equipment, Insurance, ALL Types of Services
  • 108 - Manufacturers
  • 68 - Distributors
  • 12 – Mfr.Rep Firms
• 108 - Manufacturers
• 68 - Distributors
• 12 – Mfr.Rep Firms
• 31 - Associate Branches
• 41 - Industry Services
• 5 – Vacuum
RESOURCES
Membership-Marketing
Technical Assistance
Code Assistance
FAQ's

NETWORKING
Member Events
Member Listing
Committee Involvement
Membership Tools

ADVOCACY
Industry Standards
Regulations
Legislation

CRCA
Driving High Standards Of Professionalism

EDUCATION
Safety
Codes
Technical
Legal

Visit CRCA.org or call 708-449-3340 for membership details & to join today!
Why CRCA?
CRCA’s Committee Action

• Affiliate Relations
• Awards
• Building Envelope
• Chicagoland Women in Roofing (CWIR)
• Contracts & Insurance
• Emerging Leaders
• Financial
• Health & Safety
• Industry Affairs & Technical
• Marketing
• Membership
• Nominating
• Program
• Scholarship
• Trade Show
• Trustees @ Chicagoland Roofing Council
CRCA TODAY – Articles, Ads…Advocacy

- Quarterly
- Articles
- Company Profiles
- 10,000+ Circulation Illinois & beyond
- Roofing Contractors, Consultants, Specifiers, Building Owners
  - Linda, Jessica, Bill @ CRCA.org
- Thanks CRCA Marketing Committee
CRCA Events & Leadership
CRCA’s Present & Future = Contractor & Consultant Member Growth

Become a CRCA Member Today!

• Virtual Meeting SPECIAL - $50 off first year dues
• Larger Membership = Greater Voice
What do I get for Dues?

Complimentary Education/Networking Event Registrations

• One complimentary attendee at all CRCA Membership Luncheons & the CRCA Foundation Scholarship Dinner
• Unlimited complimentary attendees at most CRCA’s Contracts & Insurance, Emerging Leaders & Chicagoland Women in Roofing (CWIR) Events
• Unlimited complimentary attendees at the CRCA Member Appreciation Casino Night

Legal Assistance

• Cotney Construction Law provides CRCA Members with free 15 minutes consultations per month to discuss any legal issue. Additionally, all CRCA Members will receive one free month with the purchase of an annual subscription plan.

CRCA Website Listing @ CRCA.org

• CRCA is committed to promoting our members. As a member your company is listed on the CRCA.org member list which receives over 12,000 visitors per year.
What do I get for Dues?

CRCA Membership Directory Listing
- CRCA’s Annual Member Directory, which is sent out to over 900 building officials, general contractors, specifiers, architects and other industry leaders.

National, State & Local Advocacy
- CRCA supports our members through advocating on issues affecting the roofing and construction industries. (ICC, NFPA, Illinois, Chicago)

Company & Industry Leadership
- CRCA Members are leaders in the industry.

Committees ... ALL MEMBERS
- All CRCA Members are welcome to participate in CRCA Committees. Email jessica@crca.org to volunteer today
ICC’s Code Development Process & Air Barrier

Air Barrier in Codes - “Assembly Consensus”
ICC’s Code Development Process

LATEST UPDATES

Voting Member Survey; Online Remote Voting

The International Code Council (ICC) Board of Directors has appointed an ad hoc committee to evaluate the possibility of an online remote voting process for ICC Board of Directors elections and other business at the Annual Business Meeting and is interested in your feedback. ICC continually strives to provide exceptional value and opportunities for members to make their voices heard, so your input is critical.

We have partnered with an independent consulting firm, McKinley Advisors, to assist in this research effort and ensure a data-driven process. This effort includes a survey for Governmental Member Voting Representatives (“GMVRs”) and Honorary Members. If you are a GMVR or Honorary Member, you may have received an e-mail from McKinley Advisors containing a link to this survey; however, you may also access the survey using the following link: http://mckinley.ICC-Surveys.sqizmo.com/93/

As a reminder, only survey responses from Governmental Member Voting Representatives and Honorary Members will be considered, and you may only participate in the survey once.

Read More

2019 Group B Public Comment Agenda Now Available

The public comment agenda is now available. Click here for the agenda.

2019 Group B Discussion Guide and Public Comment Agenda Updates Now Available

Oct 8, 2019 8:50 EDT

www.ICCSafe.org
ICC’s Code Development Process

• Code Development Cycles – “Groups of Codes”
• Call for Committees – June 1, 2020
• Cycle A & B + 1 year compilation = 3 Years
• Cycle A – Starts January, 2021
  • International Building Code (IBC)
  • All IBC (Building) Except Structural

www.ICCSafe.ORG
ICC’s Code Development Process

• Code Development Cycles – “Groups of Codes”
• Call for Committee – June 1, 2020
• Cycle B – Starts January, 2022
  • International Existing Building Code
  • International Energy Conservation Code
  • International Fire Code (IFC)
  • International Residential Building Code
• 2024 I-Codes Published – June, 2023

www.ICCSafe.ORG
ICC’s Code Development Process

• TO ICC SHEET...

www.ICCSafe.ORG
ICC’s Codes are Amended...

“Assembly Consensus”
IL Energy Code Adoption Process

- **IL Adopts Current IECC, 18 months after Publication**
- **2018 IL IECC Code Adoption – 2018 & 2019**
  - Proposals Submitted – Jan. 2018
    - 02/2018-10/2018
  - CDB Review & Approval – 11/2018
  - JCAR Process – 12/2018 to 05/2019
    - JCAR Review – 1/2019 to 05/2019
    - CRCA Questions – 12/2018 to 05/2019
    - CDB BoD Meeting – 05/14/2019
    - JCAR Votes – 06/2019
  - **2018 IL ECC (Modified IECC) Becomes Effective in Illinois – 7/1/2019**
    - Concurrent Residential & Commercial Adoption...possible.
    - Chicago Too....
- **2021 Code Adoption...Same Process starts 18 months after I-Codes**
Air Barrier IECC Code Requirements

• Air Barrier Definition – IBC

AIR BARRIER. One or more materials joined together in a continuous manner to restrict or prevent the passage of air through the building thermal envelope and its assemblies.
Air Barrier IECC Code Requirements

• Air Barrier
• @ New Construction – Required....
• @ Roof Replacement / Recover in 2015 IECC?
  • Not unless wall cavity is opened, and insulation exposed ...
  • NEW SEAL Penetrations, Roof Deck and Covering
    • See later slide...
Air Barriers – Three Paths to Comply

C402.5 Air leakage—thermal envelope (Mandatory). The *thermal envelope* of buildings shall comply with Sections C402.5.1 through C402.5.8,

or the building *thermal envelope* shall be tested in accordance with ASTM E 779 at a pressure differential of 0.3 inch water gauge (75 Pa), or an equivalent method approved by the code official and deemed to comply with the provisions of this section when the tested air leakage rate of the building thermal envelope is not greater than 0.40 cfm/ft2 (2.0 L/s • m2). Where compliance is based on such testing, the building shall also comply with Sections C402.5.5, C402.5.6 and C402.5.7. 

[IECC 2018, Chapter 4]
Air Barriers – Required Where?

C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections C402.5.1.1 and C402.5.1.2.

Exception: Air barriers are not required in buildings located in Climate Zone 2B.

[IECC 2018, Chapter 4]
Air Barriers – The Building Envelope

What’s your scope of work?? “…the building thermal envelope…” IS..

BUILDING THERMAL ENVELOPE. The basement walls, exterior walls, floors, ceilings, ROOFS and any other building element assemblies that enclose conditioned space or provide a boundary between conditioned space and exempt or unconditioned space.

[IECC 2018, Chapter 2]
C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be **continuous** for all assemblies that are the thermal envelope of the building and across the **joints and assemblies**.

2. Air barrier **joints and seams shall be sealed**, including **sealing transitions** in places and **changes in materials**. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.

[IECC 2018, Chapter 4]
Air Barriers – Penetrations

C402.5.1.1 Air barrier construction .... Continued.

3. **Penetrations** of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Sealing shall allow for expansion, contraction and mechanical vibration. Joints and seams associated with penetrations shall be sealed in the same manner or taped. Sealing materials shall be securely installed around the penetration so as not to dislodge, loosen or otherwise impair the penetrations’ ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation. Sealing of concealed fire sprinklers, where required, shall be in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.

[IECC 2018, Chapter 4]
Air Barriers – Wow, Electrical Fixtures?

C402.5.1.1 Air barrier construction .... Continued.

4. Recessed lighting fixtures shall comply with Section C402.5.8. Where similar objects are installed that penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.

[IECC 2018, Chapter 4]
**Air Barriers – Materials Permeability Rating**

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 E2178 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.

[IECC 2018, Chapter 4]
Air Barriers – Materials Deemed to Comply List

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).
4. Foil-back polyisocyanurate insulation board having a thickness of not less than 1/2 inch (12.7 mm). (2018 – Polyisocyanurate Insulation Board)
5. Closed-cell spray foam a minimum density of 1.5 pcf (2.4 kg/m3) having a thickness of not less than 11/2 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.


12. Portland cement/sand parge, or gypsum plaster having a thickness of not less than 5/8 inch (15.9 mm).


15. Sheet steel or aluminum.

16. Be constructed of clay or shale masonry units.

**NOTE...Charging Language Still Applies:**

**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.  

[IECC 2018, Chapter 4]
Air Barriers – Assemblies
Same as IECC

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.

[IECC 2018, Chapter 4]
Air Barriers – Assemblies
Same as IECC

C402.5.1.2.2 Assemblies.

...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.

1. **Concrete masonry walls** coated with either one application of block filler or two applications of a paint or sealer coating.

2. **Masonry walls** constructed of clay or shale masonry units with a nominal width of 4 inches (102 mm) or more.

3. **Portland cement/sand parge, stucco or plaster** not less than 1/2 inch (12.7 mm) in thickness.

[IECC 2018, Chapter 4]
Air Barriers – What Else

C402.5.1.2.2 Assemblies.

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.

1. **Concrete masonry walls** coated with either one application of block filler or two applications of a paint or sealer coating.

2. **Masonry walls** constructed of clay or shale masonry units with a nominal width of 4 inches (102 mm) or more.

3. **Portland cement/sand parge, stucco or plaster** not less than 1/2 inch (12.7 mm) in thickness.

[IECC 2018, Chapter 4]
Fire Testing
ASTM E 2307 & NFPA 285
2603.5 Exterior walls of buildings of any height. *Exterior walls* of buildings of Type I, II, III or IV construction of any height shall comply with *Sections 2603.5.1 through 2603.5.7*. *Exterior walls* of cold storage buildings required to be constructed of noncombustible materials, where the building is more than one story in height, shall comply with the provisions of Sections 2603.5.1 through 2603.5.7. *Exterior walls* of buildings of Type V construction shall comply with Sections 2603.2, 2603.3 and 2603.4. Fireblocking shall be in accordance with Section 718.2.

2603.5.1 Fire-resistance-rated walls. Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.

**NOTE:** E 119/UL 263 = ASSEMBLY w/Air Barrier... [IBC 2018, Chapter26-Plastics]
Air Barrier in Fire-Resistance-Rated Assemblies

Why IBC Plastics & Chapter 7 Fire Sections in Air Barrier Program?
- Fire-Resistance-Ratings – Assembly Based...
  - ASTM E119/UL 263
- Reaction To Fire – Component Based
  - UL 790/ASTM E108
  - UL 723/ASTM E84
- NFPA 285 – Hybrid – REQUIRED FOR CERTAIN EXTERIOR WALLS
- Designer must Reference...Another CRCA Program...
703.2 Fire-resistance ratings. The fire-resistance rating of building elements, components or assemblies shall be determined in accordance with the test procedures set forth in ASTM E119 or UL 263 or in accordance with Section 703.3. The fire-resistance rating of penetrations and fire-resistant joint systems shall be determined in accordance Sections 714 and 715, respectively.

[IBC 2018 703.2]
Roof Fire Tests Not Required!
UL790-ASTM E108 – UL723 Steiner Tunnel

Sprinkler Age.com Image
Air Barrier in Fire-Resistance-Rated Assemblies

Why IBC Plastics & Chapter 7 Fire Sections in Air Barrier Program?
- Fire-Resistance-Ratings – Assembly Based...
  - ASTM E119/UL 263
- Reaction To Fire – Component Based
  - UL 790/ASTM E108
  - UL 723/ASTM E84
- NFPA 285 – Hybrid – REQUIRED FOR CERTAIN EXTERIOR WALLS
- Fire....Grey Area in Codes...
- Designer must Reference...Another CRCA Program...
SECTION C503 ALTERATIONS

C503.1 General. Alterations to any building or structure shall comply with the requirements of Section C503 and the code for new construction. Alterations shall be such that the existing building or structure is not 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.

[IECC 2018, Chapter 5]
Air Barriers – Reroofing

SECTION C503 ALTERATIONS - C503.1 General…..continued...

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

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

5. Roof recover.

6. Air barriers shall not be required for roof recover and roof replacement where the alterations or renovations to the building do not include alterations, renovations or repairs to the remainder of the building envelope.

C503.2 Change in space conditioning. Any nonconditioned or low-energy space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

[IECC 2018, Chapter 5]
Air Barriers – What’s Next?

What’s Next....Future CRCA Webinars..

1. Summary – Air Barrier 101..but, there’s more.
2. Air Barrier Materials – Descriptions, Advantages Disadvantages
3. Air Barrier Details –
   1. Roof to Wall Tie in
   2. Penetrations
   3. Manufacturers instructions – Roof? Air Barrier?
4. More of Topics, Lots of Good Info...