

August 31, 2018

Jeff Heck
Executive Director, Capital Development Board
401 South Spring Street
3rd Floor, Stratton Building
Springfield, IL 62706
jeff.heck@illinois.gov

**Re: Capital Development Board Meeting – September 11, 2018
2018 International Energy Conservation Code**

Dear Mr. Heck,

On behalf of the Polyisocyanurate Insulation Manufacturers Association (PIMA), I write to inform you of our intent to attend the September 11th Capital Development Board (CDB) meeting. We understand the CDB is scheduled to consider the adoption of a new state building energy code based on the 2018 International Energy Conservation Code (IECC). And while we value the work of the Illinois Energy Conservation Advisory Council (IECAC), we respectfully disagree with two recommended amendments that modify the energy code requirements for commercial buildings related to roof replacements.

Our objections to the amendments were detailed in comprehensive comments to the IECAC. We have summarized our arguments in attached document. In short, the recommended amendments weaken the energy code compared to both the base IECC requirements and the current Illinois energy code. Additionally, the proponent has failed to provide sufficient justification for the amendments. As a result, the amendments contravene the letter and intent of the *Energy Efficient Building Act*. Therefore, we request that the CDB approve the adoption of the 2018 IECC without the referenced amendments.

If appropriate, please share the enclosed comments with the CDB members ahead of the next meeting. And please contact me if you have questions regarding our position or would like to receive a copy of our comments to the IECAC. I can be reached at (703) 224-2289; jkoscher@pima.org. Thank you in advance for your consideration.

Sincerely,



Justin Koscher
President

Enclosures

cc: Amy Romano, CDB General Counsel
Lisa Hennigh, IECAC Chairperson
Jeff Mang, Hogan Lovells

PIMA Objections to Rollbacks of the Illinois Energy Conservation Code Related to Roof Replacements for Commercial Buildings

The Polyisocyanurate Insulation Manufacturers Association (PIMA) appreciates the opportunity to provide members of the Capital Development Board (CDB) with comments regarding the planned consideration and potential adoption of the 2018 International Energy Conservation Code (IECC). PIMA is the trade association for North American manufacturers of rigid polyisocyanurate (polyiso) foam insulation – a product that is used in most low-slope commercial roofs as well as in commercial and residential walls. Polyiso insulation products and the raw materials used to manufacture polyiso are produced in over 50 manufacturing facilities across North America. PIMA members operate three manufacturing sites in Illinois – East Moline, Elwood, and Franklin Park. The insulation industry overall employs nearly 20,000 workers in the State.

As part of the Illinois energy code development process, the Illinois Energy Conservation Advisory Council (IECAC) has recommended that the CDB approve amendments to the 2018 IECC related to commercial building roof alterations that would significantly weaken the energy code compared to both the base IECC and the current Illinois energy code. **A change of this magnitude will have a negative impact on Illinois’ environmental and energy policy goals for buildings and contravenes Illinois law under the *Energy Efficient Building Act (EEBA) (20 ILCS 3125)*.**

I. Overview of Code Rollback Related to Roof Replacements – “Peel and Replace”

The first amendment (attached hereto) in question, which was authored by the Chicago Roofing Contractors Association (CRCA) and is referred to by the IECAC as proposal #C04-02, would amend the following sections of the 2018 IECC:

- **Section C202 (Definitions):** add a new definition for “Roof Membrane Peel and Replacement,” to read “where an existing weather resisting roof membrane alone is removed, exposing insulation and sheathing and only a new weather resisting roof membrane is installed.”
- **Section C503 (Alterations):** add an exception to the energy code requirements for “roof membrane peel and replacement.”

Currently, this type of reroofing activity is considered a “roof replacement” and is required under sections C503.1 (Alterations) and C503.3.1 (Roof Replacement) to comply with the R-values listed under section C402 (Building Envelope Requirements) as well as other building code provisions. The roof replacement requirements have been part of the code for many years. Additionally, the Illinois EPA Office of Energy (which now has responsibility for implementing the State’s energy code) has published a *Frequently Asked Questions and Technical Notes* document explaining that the peel and replacement activity is not separately defined under the current Illinois code and must comply with the energy requirements for roof replacements. The exception that applies is based on a code official’s determination that the installation of additional insulation above the structural roof deck necessary to achieve a code-required R-value is deemed technically infeasible to accommodate the added thickness.¹

The CRCA “Peel and Replace” proposal would allow a large percentage (perhaps a majority) of roof replacements to occur without the need to comply with the energy code, even if the current roof has no insulation. Furthermore, the concept of the “Peel and Replace” proposal has never been vetted at the

¹ See <http://epa.illinois.gov/topics/energy/index-1> or <https://smartenergy.illinois.edu/node/249>.

national level during development of the IECC or the ASHRAE Standard 90.1, and has not been adopted (or even considered) by any other state.

II. “Peel and Replace” Amendment Contravenes the EEBA Requirements

The *Energy Efficient Building Act* (EEBA) directs the CDB to review and adopt the IECC as the “minimum requirements for commercial buildings” for the purpose of reducing air pollutant emissions, addressing peak energy demand, assuring the reliability of the electric grid, and controlling energy costs for residents and businesses. The EEBA permits the CDB to “appropriately adapt” the IECC when the Board makes a finding that the changes to the model code are necessary to apply to:

- “the particular economy;
- the population distribution;
- the geography; and
- the climate of the State and construction therein.”

The EEBA further requires that any change to the IECC be “consistent with the public policy objectives of the Act.” **Therefore, under the EEBA, a proponent or the CDB itself must demonstrate that any change to the model code meets the criteria set forth above and is in furtherance of the public policy objectives of the EEBA.** These requirements are evidence of the intent by the Illinois legislature to show great deference to the model code requirements and the expertise underpinning the development of the IECC.

The “Peel and Replace” proposal is a concept that would significantly modify both the 2018 IECC model language and Illinois’ existing building energy code for commercial buildings as follows:

- The “Peel and Replace” option is not currently recognized by the State.
- Existing guidance makes it clear that “Peel and Replace” work is subject to the requirements for roof replacements.
- The “Peel and Replace” option would serve as an exception to the existing requirements that roof replacements comply with above-deck insulation levels.
- Under the “Peel and Replace” concept, fewer roofing projects on existing buildings will need to comply with the insulation requirements of the energy code.
- Therefore, the “Peel and Replace” proposal constitutes a change to, and a weakening of, both the 2018 IECC model requirements and the existing requirements of Illinois’ energy code.

First, the record does not support a finding that the “Peel and Replace” proposal meets the required criteria for approving a change that modifies the model code requirements. The basis for this proposal is merely the proponent’s desire to codify additional conditions under which roof replacements are exempt from the insulation requirements of the IECC.

Second, the “Peel and Replace” proposal would weaken the code requirements and result in greater energy usage and emissions resulting from higher energy consumption in buildings. Therefore, the proposal is inconsistent with the public policy objectives of the EEBA.

The CDB should reject the proposed change because it is inconsistent with the authorizing statute. Furthermore, discussions at the IECAC level as well as the subcommittee level failed to produce sufficient justification for the proposal, per the EEBA requirements. Additional discussion and analysis will not

address the fact that the proposal is inconsistent with the public policy objectives of the EEBA. **Therefore, we request that you approve the 2018 IECC without the “Peel and Replace” proposal.**

III. Energy & Environmental Impact of the “Peel and Replace” Amendment

Nationally, approximately 2.5 billion square feet of commercial, low-slope roofs are replaced or re-covered each year on existing buildings. Replacing a typical existing roof with an energy code-compliant roof reduces whole building energy use by an average of 5.7%. Taking advantage of the normal rate of re-roofing (i.e., roof coverings have an average lifespan of 15-20 years), improving these roofs to the minimum required by code would result in a ten-year cumulative energy cost savings of more than \$12 billion and a cumulative CO₂ emissions reduction of more than 100 million metric tons (equal to the annual emissions of 24.8 coal-fired power plants or 21.4 million cars).

Based on the amount of re-roofing that occurs in Illinois (i.e., approximately 100 million square feet per year) and the percentage of those roofs that use membrane systems, the “Peel & Replace” exemption could have the following impacts for Illinois:

- **Increased building energy operating costs over 10 years: \$80 million to \$120 million.**
- **Increased CO₂ emissions over 10 years: 0.7 to 1.0 million metric tons.** This level of CO₂ emissions is equal to:
 - The annual emissions from 148,000 to 222,000 cars, or
 - The annual emissions from energy production needed for 75,000 to 112,000 homes.
- **Increased emissions of air pollution affecting ozone and sulfur dioxide levels.**

This information is based on an analysis and report prepared in 2009 by Bayer MaterialScience (now Covestro), titled: *The Energy and Environmental Impact Reduction Opportunities for Existing Buildings with Low-Slope Roofs*. This report is still the most comprehensive analysis available evaluating the cost-effectiveness of roof insulation upgrades in existing buildings. Ten different U.S. Department of Energy (DOE) commercial building prototypes in 13 locations and 5 climate zones were modeled using DOE’s EnergyPlus software and RS Means construction cost data. The EnergyPlus software simulates the energy use and interactions for the entire building, not just the performance of the roof.

IV. “Peel and Replace” Amendment Would Codify Poor Roofing Practice

In a typical roof replacement project, the existing roof covering and underlying substrate (including insulation) will be removed. This provides the roofing contractor with the opportunity to inspect the existing roof deck and structure for defects and to make any necessary repairs. If the existing roof deck is in good condition, a new roof system is installed. The “Peel and Replace” proposal by definition creates a new category of reroofing that leaves the underlying substrate in place and would eliminate the opportunity to inspect the conditions of the roof structure. This may create unintended consequences for the building owner and the overall fitness of the building.

Importantly, commercial roofs are tested and approved as assemblies. For example, a roof system including the membrane, insulation, cover board and attachment system(s) will be evaluated for performance criteria such as fire and wind uplift. In a “Peel and Replace” project, the roofing contractor would be installing a “new” system (i.e., new membrane over existing components) without the means to demonstrate that the system has been tested to meet the building code requirements.

PIMA presented the “Peel and Replace” amendment to the Director of Principal Engineers and Regulatory at UL (formerly known as Underwriters Laboratories) – a global safety consulting and certification company headquartered in Northbrook, Illinois. UL is a leader in the building materials testing and certification field, and works extensively with roof system manufacturers to evaluate system performance per building code requirements. UL issues approvals for roof systems in three categories – new, recover (i.e., installation of new roof covering over existing covering without modification), and replacement. UL confirmed that a partial roof replacement as contemplated under the “Peel and Replace” amendment would **not** be covered under any of these approval categories. **As a result, contractors, building owners, and code officials would not have an independent, third-party method of determining whether the “Peel and Replace” system complies with critical building performance standards such as wind uplift and fire.** At minimum, a “Peel and Replace” system would need to undergo extensive and expensive testing to ensure the materials and overall system comply with the code.

Therefore, the “Peel and Replace” proposal is likely to result in the installation of untested roof systems, which will create unknown risks for building owners, roofing contractors, and Authorities Having Jurisdiction.

V. Objection to Code Change Proposal #C01-02 (Roof Replacement Technical Feasibility/Flashing Heights)

The IECAC is recommending another CRCA proposed amendment (attached hereto) that we oppose – code change proposal #C01-02 (referred to as the reroofing “technical feasibility” amendment). As detailed in extensive written and oral comments to the IECAC, this proposal injects unnecessary language into the Illinois code and, as a result, is likely to create confusion for code officials. The amendment is overly broad and does not require any improvement in energy efficiency, even where only a small portion of the roof is impacted by an issue of technical feasibility. Unfortunately, the true impact of the “technical feasibility” amendment will be fewer roof replacements that comply with the energy code than currently comply under existing law.

As submitted, the “technical feasibility” proposal is intended to provide the roofing contractor with the authority to self-certify that conditions on the existing roof render code compliance technically infeasible. The proponent’s reason statement suggests that Chicago’s enforcement policy is the ideal model, or “paradigm,” where the **“building official does not need to verify, grant permission nor review the question”** of the validity of the contractor’s assessment of the rooftop conditions that necessitate exemption from the energy code. This provision would be tantamount to granting a variance for the project – an action within the exclusive control and discretion of the code official.

The intent of giving the roofing contractor this power is to provide certainty at the time the project is bid for the building owner – a point in the project where code officials have zero interaction or insights. However, the IECAC recognized this affront to the code official’s enforcement role and made clear that its recommendation was based on the understanding that the decision to approve a “technical feasibility” exemption would be at the sole discretion of the official.

However, the intent of the “technical feasibility” proposal cannot be fulfilled if the final decision lies with the code official. Moreover, the proposal is unnecessary because current Illinois code already provides the authority to the code official to grant an exemption to the energy requirements for roof replacements. It is also important to note that a recent study by the Midwest Energy Efficiency Alliance

examined requests for variances from several Illinois energy code provisions and found no unique circumstances for roof replacements that would justify the need for the “technical feasibility” amendment.² **For these reasons, we respectfully request that the CDB approve the 2018 IECC without the “technical feasibility” amendment.**

Notwithstanding our objections, we urge the CDB to require the development of code official guidance if the 2018 IECC is approved with this amendment included. Clear guidance will be required to prevent any confusion or conflict. Furthermore, we request that all stakeholders be allowed to participate in the development of any future guidance materials related to this change.

VI. Conclusion

PIMA values the work completed by the Illinois Energy Conservation Advisory Council members. However, we respectfully disagree with their recommendations to amend the energy code in regards to roof replacements for commercial buildings. These amendments will work to defeat the letter and intent of the *Energy Efficient Building Act*, and represent a weakening of current Illinois law. **Therefore, we request that the Capital Development Board approve the 2018 International Energy Conservation Code without amendments #C04-02 and #C01-02.**

Thank you for the opportunity to submit these comments.

² See <http://www.mwalliance.org/sites/default/files/meea-research/existing-comm-buildings-enforcement-4.11.18.pdf?current=/taxonomy/term/11>.

Public Code Change Proposal Form

To Amend the 2018 Illinois Energy Conservation Code

Code Section: C202, C503.1

Office Use Only	
Proposal Number:	C04-02
Date Submittal Received:	June 1, 2018

Date: April 25, 2018
Name: Bill McHugh
Jurisdiction/Company: The McHugh Company
Submitted on Behalf of: Chicago Roofing Contractors Association
Address: 4415 Harrison St., #540
 Hillside, IL 60162
Phone: 708-449-3340 office; 630-220-0947 mobile
E-Mail: bill@crca.org

Related Sections Impacted by this Amendment:

Revise as Follow (in strike-thru / underline format):

IECC 202, 503.1.

ADD NEW DEFINITIONS AS FOLLOWS:

Roof Covering Membrane Peel and Replacement. Where an existing roof covering membrane alone is removed, exposing insulation or sheathing, and only a new roof covering membrane, alone, is installed.

Renumber all sections that follow this exception.

IN SECTION 503.1, Exceptions, ADD NEW TEXT AS FOLLOWS:

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.

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

1. Storm windows installed over existing fenestration.
2. Surface-applied window film installed on existing single-pane fenestration assemblies reducing solar heat gain, provided that the code does not require the glazing or fenestration to be replaced.
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.

6. Roof Covering Membrane Peel and Replacement, where the work results in roof assembly insulation level not less than the pre-existing R-Value. ~~Where greater than 25 percent of the total roof area insulation or sheathing is damaged, it shall be deemed a roof replacement or otherwise as approved by the Authority Having Jurisdiction.~~ Addition of any amount of recover board to prepare surfaces shall be deemed a roof recover.

Reason:

As outlined in the Energy Office FAQ No. 14 – C503 ROOF ALTERATIONS, neither the definitions of Roof Replacement nor Roof Recover handle the situation that is described in the newly proposed definition. Both definitions invoke the addition of material not

scoped in a *roof covering peel and replacement*. The proposed definition provides a clear direction to the code user for this circumstance. This allows the building owner and manager to remove (or “peel”) only the existing roof covering, reuse the existing insulation that has much life left in it, and replace the roof covering alone. There are several applications where this is not only practical, but preferred. The proposal, if approved, will be consistent with the positions of the IL Energy Office (Now IL EPA) FAQ No. 14, effective 2016-1-1 and of the Chicago DoB in their 2016 Roofing Code Memorandum effective 2016-7-20. The proposal also covers where two roofs exist, and where the underlying roof assembly is dry, or ‘recover’ board was used to prepare the surface for a roof membrane, removing the top layer, leaving the underlying layer, is also considered a *roof covering peel and replacement* operation.

This proposal covers two operations that are not clear in the IECC: 1) Codifying Illinois FAQ No. 14 which clarifies application of the phraseology, *roof covering peel and replacement*, and 2) Addressing the circumstance where the *roof covering peel and replacement* could be confused with the sole use of recovery board and weather-resistant roof membrane.

Cost Impact

The code change proposal will not increase the cost of construction. This code proposal provides an option not available to the building owner and manager.

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Signature (for release of copyrights):



A proponent shall not submit multiple amendments to the same code section. When a proponent submits multiple amendments to the same section, the proposals shall be considered as incomplete proposals. The proponent of the proposal shall be notified and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the corrected amendment is received after the final date, the proposal shall not be considered by the ILECAC. This restriction shall not apply to amendments that attempt to address differing subject matter within a code section.

COMMERCIAL

C01-02

Public Code Change Proposal Form

To Amend the 2018 Illinois Energy Conservation Code

Code Section: C503.1, C202

<i>Office Use Only</i>	
Proposal Number:	C01-02
Date Submittal Received:	June 1, 2018

Date: March 19, 2018
Name: Bill McHugh
Jurisdiction/Company: The McHugh Company
Submitted on Behalf of: Chicago Roofing Contractors Association
Address: 4415 Harrison St., #540
Hillside, IL 60162
Phone: 708-449-3340
E-Mail: bill@crca.org

Related Sections Impacted by this Amendment:

Revise as Follow (in strike-thru / underline format):

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.

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

1. Storm windows installed over existing *fenestration*.
2. Surface-applied window film installed on existing single-pane *fenestration* assemblies reducing solar heat gain, provided that the code does not require the glazing or *fenestration* to be replaced.
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*.

Code Official involved in technical infeasibility decision, in exception 6. Added C503.3.1 information to stay consistent between C503.1 and C503.3.1. Changes are in Red.

6. Roof replacements for roof systems 2:12 slope or less shall comply with the low slope roof insulation requirements unless the installation of insulation above the structural roof deck, and necessary to achieve the code-required R-value, is deemed infeasible by the code official to accommodate the added thickness of insulation above the roof deck. Conditions of infeasibility presented by existing rooftop conditions, include, but are not limited to flashing heights at HVAC or skylight curb, low door or glazing heights, parapet heights, weep holes, drainage patterns, or flashing height limitations due to cricket or saddle construction, subject to manufacturer's specifications, manufacturers installation instructions and code official approval.

Change in the definition. Either one, or both, works with CRCA.

ROOF REPLACEMENT. The process of removing the existing *roof covering*, repairing any damaged substrate and installing a new *roof covering*. Must comply with the minimum flat roof insulation requirement roof systems Roof Assemblies with 2":12" slope or less shall comply with the low slope roof insulation requirements for new construction unless the code official determines that the installation of insulation above the structural roof deck, and necessary to achieve a code-required R-value, is deemed "technically infeasible" to accommodate the added thickness. This includes and is not limited to or any one or more of the following conditions: Flashing heights at HVAC or skylight curb, flashing heights at windows, doors, vents-through-roof, drainage patterns, parapet walls.

Reason:

The purpose of this code proposal is to provide the code official clear guidance when roofing work takes place on existing buildings. When the scope of work is to replace the roof covering – defined in the International Energy Conservation Code – (IECC) - as the roof membrane and roof insulation - and the flashing heights are too low, the building owner and manager should not have to rebuild the rooftop to accommodate thick roofing components such as insulation.

This is codifying the 'interpretation' that the State of Illinois has on its FAQ website, #14 C503, Roof Alterations, to provide the building official solid guidance to make decisions for when these types of applications take place.

The City of Chicago published a Chicago Roofing Memorandum that clarifies the scope issue. In their opinion, the IECC does not dictate that when replacing the roof membrane that the insulation now needs to conform to new construction roof insulation thicknesses. The City of Chicago's Paradigm is that the scope of work is to replace the roof, not rebuild the top of the building to accommodate insulation. In fact, the City of Chicago only requires a letter stating that the flashing heights won't accommodate the additional thickness of insulation to gain permission to not comply with the new construction requirements. The building official does not need to verify, grant permission nor review the question.

Cost Impact:

The code change proposal will decrease the cost of construction significantly for older buildings that are having roof replacement or roof recover operations performed.

This code proposal will provide the building owner and manager with the option to not have to rebuild the roof assembly and in some cases, reducing costs. In other cases, it does not provide cost savings.

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