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On the Cover: Photo courtesy of Olsson Roofing Company, Inc. The project, located at the Chicago Premium Outlet Mall, was a 320,000 SF new flat roof system, with a 60 mil Rhinobond System, with over 6,000 hours worked. The project also included 38,000 of standing seam with 13,000 of perimeter metal with over 4,800 hours worked.

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CRCA Leadership Message "CRCA Has Soul!"

By Dennis Runyan



Dennis Runyan

ooking in from the Outside

My friend, Dave Tilsen (Tilsen Roofing Company, Madison, WI), and I were standing at the back wall of Drury Lane's Crystal Room this past January, at one of the CRCA Trade Show and Seminars events and noticed that the room was filled with smiling, laughing, and hand shaking people, all making happy noise throughout the crowd.

Dave turned to me and with the head down, low voice, looks you in the eyes posture that he assumes when he is about to be profound, and says... "CRCA has Soul."

After the slow smiles take over our faces and we nod slowly to each other...the truth of his simple statement caused us to lean back and just feel the mood of the room.

CRCA has SOUL...

What a simplistic way to describe how a group of people that live and breathe the roofing industry on a daily basis gather, not just for this one time a year event, but how they actively participate in each other's lives by sharing that part of each of them that truly enjoys this business.

This is not a feeling that my friend and I just noticed. It is however, the first time in the many, many years that I have had the pleasure to attend the January CRCA Trade Show and Seminar, in the normally Siberian temperature range, that I ever heard it put into words or in this case "a" word.

These people have gotten this association stuff down, from the organizational abilities clearly shown by the hard working past, present, and future roofing contractors, suppliers, representatives, and the people they attract and involve, that make this association feel the way it does. You are struck with the sense of caring. Not just the kind that smells only of personal gain, but for the things that make a group great... that is its will and determination to make the roofing industry a better place to live.

The opening event, CRCA's Roofing Industry Breakfast, brings together all the players in the vast landscape of the Chicago metropolitan roofing industry into one room at one time. This includes consultants, specifiers, architects, code officials, city, county, and state officials, with suppliers, manufacturers, and contractors in attendance. If the conversations taking place at each of the crowded tables isn't enough to make you realize how billions of dollars of business can be condensed into one room's talent pool, nowhere else in the roofing industry has this feel that I am aware of. It is no wonder the breakfast has a large "waiting" list each year. This is evident as you eavesdrop on a table's conversation, where you can learn something you never knew about our industry, let alone the timely dissemination of new information that is always clearly and concisely delivered by recognized leaders of the roofing industry. I am blessed to count some of the past and current leadership of the CRCA as true friends. They have introduced me to so many people within the association, that have so much to offer in the way of roofing knowledge. The Chicago metropolitan area, with its myriad of regulatory nuances that include energy restrictions for reflectivity and emissivity, increasing insulation R factor requirements, permitting differences from area to area, the constant presence of OSHA, and not to mention the new regulations for crane operations, make belonging to an association like the CRCA the easiest avenue to keep abreast of the ever changing landscape of rules and regulations. Even though Chicago is such a huge market, the people involved in the CRCA appear to treat it like small town neighborhood people, willing to include you and offer their help with a genuine smile and a firm handshake.

I have asked and even begged many times through the years to be allowed to join and participate in membership of the CRCA. Needless to say as an lowa contractor, I do not have the qualifications or the geographical wherewithal to get the opportunity. If I were a contractor with any possibility of being a part of this group......a group with "soul"......it would be the first invoice I would pay in the industry.

Dennis Runyan is President of Dryspace, a commercial, industrial, institutional roofing and waterproofing firm located in Cedar Rapids, IA. Dennis is Past President of the Iowa Roofing Contractors Association and serves on NRCA's Technical Operations Committee. He can be reached at dennis@dryspace.com.

Editors Note: At the April, 2016 CRCA Board Meeting, the board approved adding a new category of membership to CRCA, "Friends of CRCA". This membership level was created to include firms that may not fall under the traditional contractor or associate categories and support the association through special assignments at CRCA. Dennis is the first "Friends of CRCA" Member, appointed by 2016 CRCA President George Patterson. Congratulations Dennis!

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2016 CRCA Safety Stand Down Staying Ahead of the Construction Industry

By Frank J. Marino, CSP



Frank J. Marino, CSP

n January 22, 2016 the CRCA Health and Safety Committee sponsored the safety seminar during the 2016 Chicago Roofing Contractors Association Annual Trade Show at Drury Lane in Oak Brook, IL. This year, CRCA's Safety Committee decided to focus on the greatest

hazard facing today's roofer—Falls. Working within the Alliance with OSHA, the committee performed a Safety Stand Down, in an effort to further educate roofers as to the hazards associated with falls on the roof, as well as methods to eliminate these hazards. OSHA's official Safety Stand Down was the 2nd week of May this year. However, in the spirit of the CRCA OSHA Alliance, OSHA agreed to hold a Safety Stand Down during the 2016 trade show earlier in January. This created a great opportunity for contractors to interact with OSHA as well as setting up all roofers for success in 2016 with safety.

The presentation began with a review of the inspections performed by Safety Check, Inc., on behalf of the contractors. The results showed fall protection accounted for 56% of all the safety inspection recommendations made in 2015. Fire protection came in second, with 15% of the violations noted. Of the fall protection issues found during inspections, warning line deficiencies made up a majority, with the absence of fall protection entirely, at a close second. These statistics created several talking points as well as highlighted the need for the stand down.

The presentation then moved into regional fatality statistics presented by Larry Joswiak, OSHA Assistance Area Director at the Chicago North office. Of the 132 fatalities that occurred in Region Five (Indiana, Illinois, Ohio, Minnesota, Wisconsin, and Michigan) in 2015, 36 of them were due to falls. Joswiak went on to explain that seven of those fall fatalities were due to falls from a roof.

After a thorough review of fall statistics in the roofing industry, he began the Safety Stand Down. The Safety Stand Down is a "voluntary event for employers to talk directly to employees about safety. This stand down focuses on "Fall Hazards" and reinforcing the importance of "Fall Prevention". The Stand Down is based around three standard practices all employers should adhere to:

PLAN

Plan ahead to get the job done safely

PROVIDE

• Provide the right equipment

TRAIN

• Train everyone to use the equipment safely

(OSHA, 2016)

Joswiak then went on to provide valuable information as it relates to fall prevention on the roof, including fall protection equipment that can be used. It was at this point, the presentation was turned over to Bob Turner, from Capital Safety/3M. He was able to provide a personal fall arrest system (PFAS) demonstration using a volunteer from the crowd. The demonstration showed the proper use of PFAS, as well as forces applied to the body during a fall. The demonstration also highlighted the benefits of utilizing a shock absorbing lanyard as opposed to a straight lanyard. Turner was able to show all attendees the importance of utilizing PFAS properly and why it is important to use all pre-engineered systems per the manufactures specifications.



Bob Turner, Capital Safety/3M (right) demonstrates the importance of a personal fall arrest system (PFAS) (CRCA photo)

As the presentation wrapped up, the attendees and all presenters engaged in a spirited question/answer session that left all involved with the tools to prevent falls in 2016. Overall, the feedback on the presentation was excellent with many saying they have a better grasp of fall prevention requirements after participating in the seminar. Thanks to all who were involved and we look forward to a safe 2016.

Frank Marino is a partner at Safety Check, Inc. He can be reached at fmarino@safetycheckinc.com. Safety Check has been serving CRCA Members as CRCA's Safety Consultant for over fifteen year.

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Legally Speaking Just Because It's "Legal"

By Bob Dunlevey



Bob Dunlevey

ust because marijuana may become legal in your state, it doesn't mean that your employees can use or possess it on the job or come to work impaired by it.

Many employees are under the mistaken belief that if the citizens say "yes" to the passage of a state marijuana

law, that an employer cannot create or enforce policies which forbid the use, possession and dissemination of marijuana in the workplace. This is simply not true! Employers continue to be permitted to promulgate reasonable work rules and regulate the workplace to ensure a safe work environment free of hazards. In fact, OSHA, the Department of Transportation, and other state and federal agencies demand it.

Some states such as Illinois, Minnesota, Arizona, and Delaware have added to their marijuana laws specific protections for workers possessing "medical marijuana prescriptions." This attempts to shield those employees from adverse employer actions when the employee merely tests positive but is not impaired. Most of these specific protections are not being upheld by courts at this time based primarily on the classification of marijuana under federal law as a Schedule I Drug. Even if marijuana is declassified under federal law and the state law forbids an employer to take action against an employee using it, that employer may still discharge or discipline the employee if he or she is shown to be working impaired.

Approximately two years ago, Illinois passed its law allowing the medicinal use of marijuana—the Compassionate Cannabis Pilot Program Act. The law, among other things, forbids employers from discriminating against employees solely because of their status as a medicinal user, unless this would cause the employer to be in violation of a federal law such as DOT regulations which are quite stringent. Thus, an Illinois employer cannot discipline or discharge an employee solely because of the use by a registered patient of medical marijuana during non-working time or merely because of the employee's status as a registered user. Refusing to hire an applicant solely on the basis of his or her status as a registered user would violate the law unless a federal law such as the DOT regulations took precedence. Remember that this Illinois law does not permit an employee to be impaired at work. Moreover, the law does not prohibit an employer from enforcing its customary policies concerning a drug free workplace such as zero tolerance and drug testing. However, an employer may have to make reasonable accommodations for an employee registered to use medical marijuana under Illinois' disability laws.

Ohio's proposed constitutional amendment, which failed to pass, provided that nothing in the law is intended "to permit or accommodate the use ... [or] possession ... in the workplace or ... employer's ability to restrict the use of such products by employees, except that a patient with a medical marijuana certification may self-administer the medical marijuana subject to the same conditions applied to administration of prescribed medicines."

Therefore, the proposed law itself confirmed that employers can forbid the use and possession of recreational marijuana in the workplace. If an employee is using marijuana for medicinal purposes, the employer need not permit the employee to use such during working time if the employee's possible impairment could create an unsafe situation for the employee and fellow workers. Remember, that this Ohio constitutional provision could still be trumped by federal law, which still treats marijuana as an illegal drug.

A recent Colorado State Supreme Court ruling has confirmed that the federal drug laws trump state laws on the topic. At least until marijuana is declassified by the Feds as a Schedule I Drug, employers can ban the use, possession and dissemination of it in the workplace in states where it is legal. This is even if the employee claims he or she needs an accommodation under the Americans with Disabilities Act. The Act does not protect current drug users and no accommodation need be accorded. If and when marijuana is declassified by the Feds, employers will be forced to make a decision. An employee using marijuana for medicinal purposes during working time or testing positive off duty, must be accorded a reasonable accommodation provided it does not present a direct safety threat to the employee or the fellow workers.



Regardless of what may be the eventual ruling on state laws clashing with employers' rights to regulate their workplace, many employers are modifying their substance abuse policies to move toward using a standard of impairment for discipline, instead of just relying upon a positive drug screen. The reason for this is that employers need not permit impaired employees to perform work without regard to state marijuana laws. Further, employers should move toward identifying safety sensitive jobs which may result in holding employees in those positions to a higher standard, excluding the need to show impairment. Job descriptions will need to be modified as well.

Because the laws of different states vary so greatly and because court cases are rapidly changing the complexity of the issues, each employer needs to do a specific analysis of the law of its state and the employer's own situation before promulgating and enforcing policies related to marijuana.

Bob Dunlevey is an OSBA Board Certified labor and employment law attorney representing employers. For more information, including other related articles and PowerPoint presentations published by Dunlevey, Mahan + Furry, go to www.dmfdayton.com.



CRCA's Trade Show & Seminars Report Winter Weather Roofing— Cold, Hard Facts

Presented by Peter Kalinger, Technical Director, Canadian Roofing Contractors Association. Written by CRCA Staff

(CRCA NOTE: Yes, it's spring...but it will be cold and dark again in a short six months. Use this article to plan ahead for what's coming in the fall of 2016.)

he Canadian Roofing Contractors Association's Peter Kalinger brought a great perspective to the Chicago Roofing Contractors Association's 2016 Trade Show & Seminars. Quoting Sinclair Lewis, he stated, "Winter is not a Season, it's an occupation."

Kalinger delivered a review of technical literature on cold weather roofing. He showed that the research on cold weather roofing application is actually quite old. He cited a 1972 Cold Weather Research Laboratory "Literature Survey of Cold Weather Construction Practices" report and a 1960 National Research Council of Canada report on "Winter Construction in Canada."

Cold Weather Roofing History

He discussed the history of why cold weather construction grew. It seemed in post World War II, governments with strapped budgets were looking for ways to stimulate growth in economies and provide full employment for workers, reducing unemployment payments. One way to do both was to have the construction economy work in the winter.

"...costing the nation (private owners and taxpayers) at least \$3 to \$4 billion a year in economic waste, creating unnecessary hardship for some 4.6 million workers...Except for agriculture, construction has the greatest seasonal variation of any major industry division. Its employment is characterized by summer peaks and winter valleys...and the industry takes more money out of the employment insurance system than it puts in."

Report by R.J. Myers, Deputy Commissioner of Labor Statistics on construction seasonality In the US, President Lyndon Johnson also pushed for a survey of seasonal employment and underemployment to find ways to deal with these problems. He later directed the heads of various departments to reduce seasonal unemployment.

Kalinger cited D.O. Mills, a Massachusetts Institute of Technology researcher's program in 1968 about Seasonality in Construction. He stated there are several barriers to winter construction and challenges that the roofing industry had to deal with. These include increased planning, costs of construction, productivity reduction, specifications and products that inhibit winter work and distrust about winter construction by all involved in the industry.

Cold Weather Roofing Issues

Kalinger provided the following Key Winter Construction Issues:

 Getting the Work Done: Productivity can be slowed by snow, sleet, rain, extreme temperatures, reduced daylight time and a limited work schedule.



(Canadian Roofing Contractors Assn. Photo)

- 2. **Performance:** Wind resistance, moisture transport from the building to within the assembly and also thermal stability of the materials, can all affect the installed performance of the roof assembly.
- 3. Materials: Winter weather brings limitations to materials used in roofing and there are precautions to their use. Built-up roofing and modified bitumen membranes can be applied to temperatures as low as 15°F (-26°C), as referenced in the Canadian Roofing Contractors Association Specifications Manual. Hot applied materials have issues as well during winter construction. The issues range from how far kettles can be from the roof covering as it is constructed, as well as the temperature as the worker is applying the material, among other things.



Kettles need to be heated to keep temperatures for application at manufacturer's specs. (Canadian Roofing Contractors Assn. Photo)

Single ply membranes have limitations based on the adhesives used and specified by the roof covering materials manufacturer. Temperature limits are specified for many reasons. Key adhesive application, hot or cold, can make the difference when looking at wind uplift resistance for any roof covering and roof assembly. Some adhesives are recommended to be stored unopened, and at temperatures ranging from 60°-90°F. Additionally, the Midwest Roofing Contractors Association (MRCA) in a Technical & Research Committee Advisory Bulletin, dated February, 2011, stated that "the product cannot be subjected to freezing...." Some manufacturers have blackout dates for shipping materials to certain geographic areas.

4. Winter Weather Effects: There are thermal and moisture issues to deal with for winter roofing. Construction generated moisture is an issue that has been studied by the Canadian Roofing Contractors Association. Kalinger spent time on winter roofing's function from providing the ability to build today vs. tomorrow, personnel retention, overhead cost spreading, reduction of summer overtime, construction startup and shutdown costs and productivity due to better resource utilization.

He also discussed the many types of materials that are applied during cold weather. Each had precautions and preparatory work to be done. Additionally, he touched on the issues with condensation in cool roofs as well. He referenced a paper he co-authored with Hamed H. Saber, Michael C. Swinton and Ralph M. Paroli on the "Long-Term Hygrothermal Performance of White and Black Roofs in North American Climates". Kalinger also mentioned the issues of air intrusion where conditioned air enters into the building envelope assembly but cannot escape to the exterior environment. The National Roofing Contractors Association, Canadian Roofing Contractors Association, Single Ply Roofing Industry and National Research Council of Canada are carrying out extensive research on air leakage and intrusion in mechanically fastened single-ply systems.

There are solutions that can provide the action of limiting moisture accumulation in building envelopes. Construction and in-service moisture accumulation due to diffusion, air leakage and air intrusion can be controlled by adequate ventilation during construction. It also is controlled by dehumidification prior to building occupancy and sealing gaps between building envelope assemblies. Sealing gaps around penetrations and steel deck end laps, using multiple layers of insulation (a minimum of two) with staggered joints to help retard warm, moist air flow from the interior of the building into the roofing assembly, can also help limit moisture accumulation in the roof assembly.



(Canadian Roofing Contractors Assn. Graphic)



Result of sheer and temperature gradient differences (Canadian Roofing Contractors Assn. Photo)



Result of sheer and temperature gradient differences (Canadian Roofing Contractors Assn. Photo)

Finally, Kalinger discussed a current study on increased insulation thicknesses and the possible adverse affect on roof performance. The sheer and temperature gradient differences can sometimes create issues.

In conclusion, he stated, that "Winter weather roofing is difficult, costly and high risk. We've been attempting to find solutions since the 1950's. Advanced materials and techniques have not been a panacea and, perhaps it's time to think out of the box."



Peter Kalinger is Technical Director of the Canadian Roofing Contractors' Association (CRCA) and has more than 30 years' experience in the roofing industry. He can be reached at kalinger@ roofingcanada.com.

Editors Note: The Chicago Roofing Contractors Association was pleased to have Peter Kalinger present at last January's CRCA's Trade Show & Seminars. Peter is a good friend to CRCA and the Roofing Industry throughout North America. Check out Peter's full presentation at CRCA's Trade Show & Seminars at <u>www.CRCA.org</u>, Events, Trade Show.



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CRCA's Trade Show & Seminars Report Technical Issues Affecting the Roofing Industry

Presented by Matt Dupuis, PhD, PE, SRI, Principal, SRI Written by CRCA Staff

RCA welcomed Matt Dupuis, Structural Research Inc. (SRI) to CRCA's Trade Show & Seminars this January. He addressed a number of issues and problems seen in the roofing industry including the dimensional stability of polyisocyanurate (ISO) insulation, air Intrusion, lightweight structural concrete, and modified cap sheet laning. Dupuis also provided information (Preliminary Results) on the 2015 Midwest Insulation Contractors Association (MRCA) In-Service Single-Ply Reflectivity study.

ISO Stability

Dupuis' cited that ASTM C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board allows, 2% in length and width, 4% in thickness changes. That means a 4ft x 8ft board can change in size by 0.92in and 1.92in and still be in within specifications.

This change in dimensions is under specified conditioning and is NOT NECESSARILY representative of field application conditions. However, it is Dupuis' opinion that this is an indicator of potential movement in the field.

Additionally, "We are now seeing knit lines in ISO become an issue after installation." The knit lines manifest as grooves in the roof insulation boards.





'Knit lines' in roofing, from underlying insulation. (SRI, Inc. Photos)

He offered some tips on the facer selection for roof insulations. Polyisocyanurate insulation (ISO) has a choice of two facers...Paper and Coated Fiberglass. When is Paper or Fiberglass suitable?

Choose Paper Facers for Insulation When...

- Ballasted systems
- Mechanically attached
- Fast schedule
- High value
- Biological growth not an issue

Choose Coated Glass Facers for Insulation When...

- Adhered system
- High performance (conservative design)
- Biological growth is a concern
- Can imply use with mechanically fastened and ballasted systems

Air Intrusion

There are two types of air movements through building envelope assemblies. Air leakage and Air Intrusion are defined as follows: **Air Leakage**—Unwanted movement of air from the conditioned interior to the exterior of the building

Air Intrusion—Unwanted movement of air from the conditioned interior and/or the exterior into a building envelope component (i.e. roof system or wall assembly)

Air intrusion is the most underestimated source of moisture entry into a roof. Examples of sources are gaps in the exterior or interior building at walls, open steel roof deck flutes, unsealed vertical or horizontal joints, or even HVAC curbs all can potentially introduce moisture to the roof system.



Gaps caused by penetrations of the building envelope to accommodate cables, structural steel, can allow moisture into the building. (SRI, Inc. Photo)

Dupuis discussed a structure where air intrusion was a problem. The large food processing and warehouse in the Midwest was an approximately 100,000 ft² building, with a 20,000 ft² processing area of highly conditioned space and 80,000 ft² lightly conditioned dry storage area, a warehouse.

The project utilized a large and sophisticated General Contractor and Roofing Contractor on the project. A mechanically fastened single-ply membrane was installed and over the processing area and received multiple layers of ISO. The warehouse was value engineered to a single layer of 2.5 inch ISO. The dimensional change of the ISO appeared to have created gaps and has allowed unmitigated air movement from the interior to the underside of the membrane, causing condensation problems during cold weather.



White Roof (SRI, Inc. Photo)



Moisture under roof covering. Note gaps in insulation. (SRI, Inc. Photo)

Moisture in Structural Lightweight Concrete

He also covered moisture in concrete, especially Lightweight Structural Concrete by describing the two types of concrete materials used as a structural material for buildings. *Regular Weight Concrete* is a 150 lb/ft³ density material with a regular aggregate made of rock. *Lightweight Structural Concrete* is around 110 lb/ft³ and uses a different aggregate. Expanded shales and clays are used in Lightweight Structural Concrete.

Why use Lightweight Structural Concrete? It has several key advantages including:

- Less Cracking
- Less shrinkage
- Less weight
- Typically better fire rating (inch per inch to regular weight)
- All for same structural strength
- And a LEED credit...

There are also reasons, from a roofing perspective, why NOT to use Lightweight Structural Concrete. Disadvantages include:

- Vast amounts of latent moisture, approx. ½ gallon extra water per square foot of concrete deck area
- Very slow dry times
- Field experience showing that rewetting with light weight structural concrete is very possible
- Roofing industry does not have a standard to assess when it is safe to adhere, or loose lay, fasten a roof over the material

The same disadvantages can also be said for regular weight concrete. However, lightweight structural concrete is different. The amount of moisture in structural lightweight concrete seems to be a big issue in applying vapor retarder, insulation and roof covering to the roof deck that is made of the material.

There is a relentless vapor drive which can destroy systems without a vapor retarder in a matter of months. It seems that any breach in vapor retarder causes a plume or moisture in roof system. There are reports that induction welded single-ply can survive. When insulations are used with organic facers, they will not survive due to moisture attacking the facer causing lost adhesion or cohesion of the facer to the board, and to the roofing membrane. Even epoxy coatings have had reported failures. As an industry, we need more research on this topic.

Lightweight structural concrete is totally different than lightweight insulating concrete. They are completely different in aggregate types and as a result, density and R-Value. In insulating concrete, successful roofing applications have taken place. Using lightweight insulated concrete, venting is highly recommended and used to manage the inherent moisture in the deck. Without venting, there is a risk that blisters will result with adhered roof systems.

As to lightweight insulating concrete, "The roofing industry understands this stuff! Just follow the rules.", stated Dupuis.

Polymer Modified Bitumen Cap Sheet Laning

Dupuis spent time on the subject of "Laning", a patterned granule loss in the machine direction of the modified bitumen sheet. The loss of granules can be detrimental to long term performance of the roof covering. There may be several causes to "Laning", including, but not limited to, granule segregation of different granule aggregate sizes in different parts of the sheet, insufficient pressure from the press roller during manufacturing, and or the chemical contamination of granules.

Single Ply Roof Reflectivity

Supported by the Midwest Roofing Contractors Association, Chicago Roofing Contractors Association, Western States Roofing Contractors Association, Florida Roofing and Sheet



"Laning" of granules on modified bitumen roof covering. (SRI, Inc. Photo)

Metal Contractors Association, and the National Roofing Contractors Association, this study is a follow up to the studies done in the early 2000's, launched by the Chicago Roofing Contractors Association.

Through the Cool Roof Rating Council evaluation process (CRRC-100), individual membrane products have been evaluated for reflectivity at three years of age by a specified methodology. The purpose of this study was to examine the in service reflectivity and compare it to the value returned by the CRRC-100 method.

The preliminary report is that after the large database of roofs was collected in cooperation with NRCA, MRCA, WSRCA, FRSA and the Chicago Roofing Contractors Association (CRCA), that the Cool Roof Rating Council (CRRC) aged values should only be used for design requirements and product comparisons NOT as actual expected in service values. Additionally, these values can vary greatly based on an individual roof's microclimate

Finally, recommendations were made that when contractors find themselves in risky designs, to document conditions with lots of pictures of various issues that may occur. Bad scheduling may cause other trades to damage the roof.

Look for SRI, Inc. to issue a full report in a major scientific journal and or symposium.



Matt Dupuis, PhD, PE, is a principal at SRI, Inc., Middleton, WI. He can be reached at matt@sriengineering.com. Matt's firm provides technical expertise to building owner clients and MRCA's Technical and Research Committee.

Editors Note: The Chicago Roofing Contractors Association (CRCA) was pleased to be involved in this project and looks forward to future research on key technical issues with SRI, Inc., and many other partners.

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CRCA's Trade Show & Seminars Report Roofing Claims and Lawsuits

Presented by Stephen Phillips, Esq., Hendrick, Phillips, Salzman and Flatt Written by CRCA Staff

uring his years working with the National Roofing Contractors Association (NRCA) and representing roofing contractors in his law practice, Stephen Phillips has seen many different situations. Many claims and lawsuits have been brought against roofing contractors and serious accidents have occurred on job sites. At CRCA's January Trade Show & Seminars, he discussed several of the situations commonly seen:

Falls and Roofing Claims

Safety is a big issue. The picture below shows a critical issue...fall protection through unprotected openings and deteriorated roof decks. "We all want people to go home safe at night," stated Phillips. Yet, a roof opening that was made and not properly covered by other trades created a hazardous condition and lead to a fall by a roofing mechanic while carrying material across the roof.



Unsecured Roof Opening Where Roofer Fell Through

Another example came within a few days of the aforementioned issue. Safety concerns don't stop at openings where falls from heights can occur. Falls can also be caused by poor housekeeping among other issues.



Curb Cut in and Left Uncovered After Accident

Phillips offered CRCA's Trade Show & Seminar attendees with contract language that gives some guidance to roofing contractors who want to protect themselves against issues created by others in the construction process. This includes the building owner and/or manager, general contractor and other trades. Phillips recommended that decking issues, structural support, and other issues be covered prior to roof recover, roof replacement or roof repair operations to address safety concerns.

Lightweight Structural Concrete Issues

In addition to Dr. Matthew Dupuis, Phillips also covered legal issues that result from roofing over lightweight structural concrete and other "wet" decks. "When moisture is trapped within a roof assembly, there is the possibility of blisters, inadequate long term adhesion, and deterioration of facers, delamination, and wind uplift field testing failure and reduced insulation thermal efficiency." The issue is not limited to new construction or only lightweight structural concrete decks. There can also be moisture problems resulting from normal weight concrete decks. Beware! Even with existing buildings there may be issues with lightweight structural concrete that has been in place for years. He stated that "Traditional concrete decks, using hot-applied asphalt to adhere insulation and a roof membrane, provided a roof assembly that performed satisfactorily. Roof systems installed in recent years over concrete decks, particularly lightweight structural concrete decks, where cold, foam and water based adhesives have been applied to the concrete deck have been problematic."

There are a variety of reasons for the recent issues. The amount of moisture in lightweight structural concrete decks and the long and very slow drying process is the primary cause of the problem. Curing compounds and sealing agents can inhibit adhesion to the concrete deck, regardless of type. Thicker insulation boards make adhesion more difficult and self-adhering vapor retarders can also be problematic. The National Roofing Contractors Association (NRCA) has been researching this issue for some time. In 2009, NRCA's Vice President, Technical, Mark Graham wrote in *Professional Roofing Magazine* that lightweight structural concrete and roof systems have moisture related concerns. An industry issue update was also issued by NRCA as well.

Wind Issues

Wind uplift resistance, wind speeds, uplift tests and wind warranties seem to be quite the issue in the roofing industry today. Wind uplift testing in the field tends to bring mixed results. The testing equipment may work well in the lab, but has significant variability issues when used on actual roofs.

Problem Projects

Phillips reviewed several problem projects that roofing contractors have faced. First, a modified bitumen torch applied roof covering was applied to a 300psi cellular lightweight insulating concrete. The torch applied vapor retarder that was applied over a primer, to a 5 $\frac{1}{2}$ " poured lightweight structural concrete deck, with a 1 $\frac{1}{2}$ " non-vented metal deck. This was a roof of about 1,300 squares in New Orleans, LA. Blisters occurred during construction, primarily at the membrane base field ply. Some vapor barrier to concrete areas had adhesion problems, with moisture present.

Second, a fully adhered white 60 mil TPO roof covering adhered in solvent-based adhesive to 1/2" Gypsum Cover Board, over two layers of 3.1" isocyanurate insulation. The ISO was attached with ISO adhesive in 1/2" to 3/4" beads spaced at 12" o.c. per 4' x 4' board in the field. There was also a lightweight structural concrete deck over non-vented metal decking. A manufacturer's 25-Year warranty starting in 2010 was issued. Several buildings had this configuration in Ft. Lee, Virginia. There was moisture infiltration within roof assembly. A third project was a roof replacement operation over an existing built-up roof. The previously installed top modified bitumen roof covering was removed and the existing original built-up roof remained. The roof then received a total fully-adhered 60 mil non-reinforced EPDM roof covering over one layer of 1.5" 4' x 8' polyisocyanurate insulation mechanically attached through original 4-ply gravel surfaced BUR.

The ISO was hot mopped after power vacuuming gravel surfacing. The original 1.5" foam roof insulation hot mopped vapor retarder – contained asbestos, hence the desire to not tear off the complete roof covering and insulation, vapor retarder. There was a steel deck and some areas had acoustical metal decking. In this case, the manufacturer granted a 20 Year No Dollar Limit (NDL) Warranty for the roof.

Subsequent to installation, cupping and curling of the newly installed polyisocyanurate insulation underneath the fully adhered EPDM membrane took place. At different times of the year, moisture is located between the underside of the facer of the new insulation and the top side of the original, existing built-up roof. The isocyanurate insulation was not dimensionally stable.

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On a fourth project, a 20-Year Warranty was issued in 2012 for a fully adhered .60 mil white TPO roof covering installed in bonding adhesive directly to Range II lightweight insulating concrete. The 300 psi 4.5" castin-place structural concrete deck had a 2.5" non-vented metal deck.

On this roof, blister occurred and there were areas of delamination of the TPO membrane from the lightweight insulating concrete (LWIC), and there was elevated global moisture content in both the LWIC and the poured structural concrete deck.

For the fifth project, another re-roofing project, the roofing contractor was to remove the two existing roofs, a mechanically-fastened EPDM top roof with insulation and an underlying asphalt built-up roof with perlite insulation. The assembly was attached to a metal deck with asphalt. The EPDM roof was removed and underlying insulation removed. Work started on the removal of built-up roofing and perlite insulation with a roof cutter and mechanized scraper without use of reciprocating function.

While the removal of the existing roof was underway, separation/delamination of spray-applied fire resistive material (SFRM) from the underside of the roof deck occurred. The roofing contractor was directed to proceed with the re-roofing, but the building owner filed suit against the roofing contractor after roof replacement was completed for the cost of replacement of SFRM on the underside of the metal roof deck.

On the sixth project, metal framing for a photovoltaic solar array installed on top of newly installed EPDM roof covering was under construction. The project was struck by a wind storm. Extensive damage to the roof membrane and interior damage took place. Claims were made against the contractor for negligence, alleging that the contractor failed to take steps to secure sufficiently the solar array when warned that the storm was coming.

Insurance Protection Can Help

Phillips shared the following recommended insurance coverage:

- Commercial General Liability (CGL) covers bodily injury and property damage, excludes the work itself
- Builder's Risk covers damage to the Work itself during construction until final acceptance due to perils (e.g. wind storms, fire, vandalism); customarily excludes defective workmanship, defective materials and defective design

- Professional Liability customarily maintained by Architects, Engineers and other design professionals to cover alleged malpractice (negligence) claims
- Contractor's Errors & Omissions relatively new policy offered by CNA; covers the work itself for "wrongful acts" (e.g. negligence) of the insured contractor. It is a claims made policy.
- Pollution Liability necessitated by pollution exclusion in CGL policy; covers claims for fumes, spills and discharge of pollutants.

What other actions reduce risks?

Phillips shared the following principles to reduce risks of:

- 1. Preparation, Planning, Precautions and Communication with all involved in projects.
- 2. **Contract provisions** critical to protecting contractors.
- 3. **Insurance** As mentioned above, there is insurance available to protect yourself.

What else?

Steps roofing contractors should take for protecting themselves include, but are not limited to:

- Scrutiny of contract delete or modify unreasonable, overly broad indemnification provisions
- Scrutiny and evaluation of deck conditions
- Add contract provisions to reduce risks
- Take precautionary steps
- Be professional and knowledgeable
- Plan and prepare for potential risks
- Gain technical expertise
- Knowledge of building codes



Editors Note: Stephen Phillips, Esq., has been advising the roofing industry for most of his legal career. His insights have always been fair and on target to protect against having terms pushed upon roofing contractors. He works nationally providing contractors with a very broad view of the law from both a legal and technical standpoint. CRCA thanks Stephen for his support.

He can be reached at reached at smp@hpsf-law.com.

CRCA Industry News

RCA Committees Are Active – CRCA has had its most active committee involvement ever in 2016. Membership, Emerging Leaders, Program, Trade Show, Safety, Steep and Shingle, Industry Affairs and others have all met and built working relationships. CRCA's 2016 President George Patterson also organized a Committee Chair luncheon to coordinate efforts by all the committees. Many thanks to the volunteers and staff teams who work tirelessly to make CRCA what it is today. Email info@ crca.org to get involved.



Christine Clearwater (Drug Free Solutions photo)

2016 CRCA Events Reach

Many–CRCA's February Membership Luncheon, with a presentation on Illinois' adoption of the IECC and how to comply drew record crowds. Christine Clearwater, from Drug Free Solutions spoke on the impact and expense of drug abuse in the workplace in March.

CRCA's Scholarship Dinner, held May 17,

recognized CRCA's contributions to future generations. Keynote speaker, Pete Rosengren, Vice President at the Daily Herald Media Group, will speak on family businesses and how to best position them for success. His presentation will be available at www.CRCA. org, Members-Only portal after the event. The 2016 Scholarship Recipients will also be recognized.



CRCA's Emerging Leaders Committee – CRCA's newest

committee had a great reception and networking event in late January at the CRCA Trade Show & Seminars. The April Event included three industry experts: John Arellano (GAF), Matt Dupuis (Structural



John Arellano





Kami Farahmandpour

Matt Dupuis

Research, Inc.) and Kami Farahmandpour (Building Technology Consultants, Inc.), who shared their perspective of how a roofing technical issue is approached and strategies to address from each particular market segment role and perspective.

The August Emerging Leader event will have a Technology Theme. Watch www.CRCA.org/Events for more information.

CRCA @ **CSI Chicago Chapter**—CRCA's Bill McHugh and International Energy Conservation Consultant Darren Meyers spoke at the Construction Specifications Institute (CSI) Chicago Chapter Meeting Tuesday, March 22. They covered the roofing requirements in the new 2015 International Energy Conservation Code which was recently adopted in Illinois. Learn more about the code at CRCA.org/Members-Only portal for a complete report on the requirements. Email info@crca.org to get membership information today.

On behalf of CRCA, McHugh also spoke to Northwest Chapter of Building Officials and Code Administrators (NWBOCA) on May 10 and to the Chicago Chapter of Construction Specifications Institute (CSI) on May 17. To learn more visit: http://www.nwboca.org/ or http:// chicago.csinet.org/

CRCA & City of Chicago Crane Regulations-

CRCA's office has received many calls regarding the Chicago Crane Ordinance recently, many with misinformation about the Chicago Crane Operator Ordinance, its effective date and more.

- **YES**, the City of Chicago is enforcing the new rules for crane licensing as of March 1, 2016.
- **YES**, if your company is operating a crane in Chicago lifting 2,000 lbs. or more, the regulations apply.
- **YES**, your operator can renew the license without testing, if the license did not expire.

Need info about where and how to get certified by the City of Chicago? Check out the article in this issue of *CRCA Today* or in the Winter 2016 issue available at www.CRCA.org/Resources/magazine.

CRCA's Trade Show & Seminars a Big Success-

With over 2500 attendees, 300 at each education session, over 135 exhibiting firms and more, another great show brought together the industry for 'Roofing Week in Chicago'. Check out the articles on the seminars in this issue of *CRCA Today*. CRCA's Trade Show Committee is already working on 2017's show. Mark your calendar now for January 19 and 20, 2017 at Drury Lane.



CRCA Exhibitors educated many on products and services (CRCA photo)



Stephen Phillips spoke on roofing claims and lawsuits (CRCA photo)

Meet CRCA's New Staff—Alyssa Milazzo joins CRCA's staff to work in many areas of CRCA. She has a Masters Degree in Journalism and is very excited about working with CRCA and the industry. Her talents in website, social media, writing and working with others will help CRCA grow. Email her at Alyssa@crca.org to introduce yourself.

Illinois Legislative Report – CRCA's Legislative Consultant Margaret Vaughn reported that Illinois Senator Mike Noland (D-Elgin) sponsored SB2982, on behalf of CRCA this February. This important bill proposes to close the loop hole in the current Illinois Roofing License law that allows employees of property owners to perform roofing working without a license. An amendment was added that still allows employees to do "roof repair" (maintenance) but "roof replacement" or "roof recover" would have to be done by a licensed roofing contractor. The bill passed out of the Illinois Senate on April 21, 2016 and now resides in the Illinois House Business & Occupational License Committee. Stay tuned for more information!

IDFPR License Renewal Changes to Electronic

Only—Effective immediately, the Illinois Department of Financial and Professional Regulation (IDFPR) will no longer issue paper renewal notices and licenses. Although this is a department-wide initiative, the divisions impacted at this time are Professional Regulation and Real Estate. For more information, visit https://www.idfpr.com/.

The Construction Industry Service Corporation

(CISCO) announced the approval of the 2016 Board of Directors Slate, which includes CRCA Member John Cronin (Trinity Roofing Service, Inc.) as Secretary. Congratulations!



The National Roofing Contractors Association (NRCA)

announced the 2016 officers and directors in February during the annual convention in Orlando, which includes CRCA Member Alex Hernandez (Clark Roofing Co.) as Vice Chairman. NRCA also announced CEO Bill Good's

Bill Good speaks at CRCA's January Event (CRCA Photo)

retirement and succession plan. Good is set to retire

this coming December, with the association transitioning to U.S. Rep. Reid Ribble (R-Wisc.) for leadership.



OSHA's Silica Rules—

Those who believe that the new OSHA Silica Rules deal

with cutting concrete, sand and fireproofing dust only and <u>not roofs</u> are in for a surprise. Does your company perform roof replacements including tear offs? Cut into old gravel roofs? Cut pavers? Sweep gravel dust? If so, then it might mean cutting the roof with wet cutting methods for both steep and low sloped roofs. Adding water to the roof replacement or roof recovering process is contrary to practices taught for generations. Roofing contractors, steep slope or low slope, keep buildings watertight both during rooftop operations and also after. Plus, this will really affect safety aspect for workers once water is introduced to roofing operations. Check out the complete article later in this issue of *CRCA Today*.

ICC

ICC's IECC Committee Action Hearings—ICC's



had several code proposals that were heard that mirror the discussions that took place in Illinois' adoption of the 2015 International Energy Conservation Code. More on the results of the hearings will be published in the Summer issue of *CRCA Today*.



ASHRAE on Net Zero

Energy—The ASHRAE hosted its annual free live webcast on Thursday, April 21st from 1:00 to 4:00 pm ET. The webcast, "Making Net Zero Net Positive:

Solving the Efficiency & Cost Paradox," focused on realistic solutions and methods of energy conservation. Learn more about the presenters and the initiative at https://www.ashrae.org/membership-conferences/ webcasts, at the bottom of the page.



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George Patterson, 2016 CRCA President

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FOR MORE INFORMATION, CONTACT CRCA AT INFO@CRCA.ORG OR CALL 708-449-3340 OR VISIT WWW.CRCA.ORG



New OSHA Silica Standard–Effect On Roofing and Construction

by CRCA Staff

SHA estimates that over two million construction workers are exposed to respirable crystalline silica in over 600,000 workplaces. Why is this of concern?

This exposure has been proven to cause such serious health risks as Silicosis, COPD, TB, Lung Cancer and Renal Disease as silica dust has been identified as a known human carcinogen. The US Government started following silica concerns back in 1938 and developed exposure limits starting in 1971. In 1999, OSHA began to take a closer look which resulted in stakeholder meetings and standards were drafted during the course of the next fifteen years. The final rule was issued on March 24, 2016. OSHA estimates that with the new ruling in place, over 600 lives and over 900 new cases of silicosis could be prevented each year. This could provide a net cost savings of approximately \$7.7 billion annually.

WHO IS AFFECTED?

Roofers are among the many construction workers exposed to the silica dust generated by cutting, sawing and drilling such construction materials as tile, brick, stone such as pavers and more. Exposure is also realized by grinding mortar joints when installing flashing. Roofers can also be exposed to silica dust when using blowers or dry sweeping concrete and clay tile roofs. It is important to note that exposure can occur from other trades on the roof as well.



WHAT ARE THE KEY PROVISIONS?

- REDUCE the permissible exposure limit (PEL) for respirable crystalline silica to 50 micrograms per cubic meter of air, averaged over an 8-hour shift
- REQUIRE EMPLOYERS to:
 - Use engineering controls (water or ventilation) to limit worker exposure to the PEL
 - Provide respirators when controls cannot adequately limit exposure
 - Limit worker access to high exposure areas
 - Develop a written exposure control plan
 - Offer medical exams to highly exposed workers
 - Train workers on silica risks and how to limit exposure

HOW CAN EXPOSURES BE CONTROLLED?

- Wetting down work operations (dust)
- Using exhaust ventilation
- Enclosing the work site

Note: respirators are only allowed when work practice controls cannot maintain the proper exposures at or below the PEL.

WHEN IS THE COMPLIANCE DEADLINE?

While the standard takes effect on June 23, 2016, construction employers must comply with all requirements of the silica standard by June 23, 2017.

(CRCA Photo)

Equipment/ Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		= 4 hrs/ shift	> 4 hrs shift
(II) Handheid power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust amissions.		
	When used outdoors. When used indoors or in an enclosed area.	None	APF 10 APF 10

WHERE TO LEARN MORE?

Visit <u>www.OSHA.gov/silica</u> to learn more about the exposure controls required and other important information such as the table below.

OSHA Announces Final Electronic Reporting Rule

OSHA announced in May that effective January 1, 2017, certain employers will be required to submit injury and illness data electronically vs. the current reporting method. Some of this data will also be posted on the OSHA website, in an effort to encourage employers to improve worksite safety as well as provide valuable information to workers, job seekers, researchers and the general public.

Compliance Schedule

The new reporting will be phased in over two years.

- Establishments with 250 or more employees in industries covered by the recordkeeping regulation must submit information from their 2016 Form 300A by July 1, 2017. These same employers will be required to submit information from all 2017 forms (300A, 300, and 301) by July 1, 2018. Beginning in 2019 and every year thereafter, the information must be submitted by March 2.
- Establishments with 20-249 employees in certain high-risk industries must submit information from their 2016 Form 300A by July 1, 2017, and their 2017 Form 300A by July 1, 2018. Beginning in 2019 and every year thereafter, the information must be submitted by March 2.

S NRCA Responds to OSHA's March 25 Release of its Final Rule Governing Workplace Exposure to Crystalline Silica, (attributable to William Good, CEO, NRCA)

Based on our initial review, the National Roofing Contractors Association (NRCA) has serious concerns regarding OSHA's new silica regulation. First and foremost, we are concerned the final regulation significantly will increase fall hazards for roofing workers by requiring contractors to implement engineering controls that are not suited to work performed on sloped roofs. We are also concerned the rule will add significant new compliance costs for contractors that OSHA continues to seriously underestimate. Although we continue to have serious concerns, we appreciate OSHA made modest improvements in the final rule in response to concerns we articulated in testimony on the regulation as originally proposed.

NRCA submitted detailed comments to OSHA in response to the initial proposed regulation released in 2013 and also testified at a hearing on the proposal in April 2014. Additionally, NRCA representatives met with officials in the Office of Management and Budget in February 2016 to reiterate these concerns as the final silica regulation underwent its final review.

When it becomes effective for the construction industry in June of 2017, OSHA's final silica regulation will dramatically reduce the permissible exposure level (PEL) for silica in construction workplaces to 50 micrograms per cubic meter (from the current 250) and will establish an action level of 25 micrograms per cubic meter. To meet these much lower levels, new engineering controls will become necessary to ensure compliance. With respect to roofing work, this likely will require workers who face even minimal amounts of exposure to silica dust to use wet cutting methods and dust masks.

NRCA is most concerned the new requirements will increase the risk of falls for roofing workers. Under the new rule, workers in many cases will have to use wet saws on the rooftop, introducing new hazards such as slipping on wet surfaces and tripping on hoses. We call on OSHA to work cooperatively with us to identify implementation strategies that protect workers from the new fall hazards created by the rule.

Despite some improvements in the final rule, NRCA continues to be concerned compliance with the regulation may not always be technologically feasible and will cause much uncertainty for employers. For example, some commercial laboratories have indicated they are not capable of measuring workplace silica levels with accuracy or consistency at such low levels.

NRCA leadership and staff will continue reviewing the 1,772page final rule issued March 25 to determine and analyze the potential effects on the roofing industry and will provide further information and guidance for members in the future.

CRCA Replies to "The Hutchinson File"

ecently, Tom Hutchinson, Hutchinson Design Group, Barrington, IL had an article published in "Roofing, the Industry Voice" Magazine. (Posted at www.CRCA.org)

CRCA has great respect for Hutchinson and all he's done as a roofing specialist architect. He's had many great projects, volunteered as RCI President and more. However, he presented incorrect information about CRCA's view on several issues. CRCA takes this opportunity to correct some of his statements.

Here's what was said:

Tom Hutchinson stated: "CRCA, for example, is fighting the new code increases in roof insulation."

CRCA Responds: CRCA is not fighting the new code mandated, increased insulation thicknesses in new construction and where technically feasible for existing buildings.

Hutchinson stated: "Although the organization states a variety of reasons, it appears that the fear of owners delaying work that costs more because of increased insulation thickness is the greatest concern."

CRCA Responds: CRCA is concerned about technical infeasibility. If it costs more to roof the building due to flashing heights reconstruction than it does to close the building down, where are we? We've hurt the community with an empty building. CRCA believes if technical infeasibility exists, then a variance should be sought from the Authority Having Jurisdiction (AHJ).

Hutchinson Stated: "I believe the CRCA's position is foolish. Why would a predominately union-based contractor organization fight a code mandate that allows their members to increase profits?"

CRCA States: First, CRCA's Contractor Members are both Union and Non Union Roofing Contractors and both types are active at CRCA. Yes, contractors, like



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architects, need to make a profit. However, CRCA Member Roofing Contractors are in business to provide great roofs, with value, that don't leak. We believe it is beneficial to add insulation to buildings, saving energy, up to the point of diminishing returns.

CRCA Agrees with Hutchinson

CRCA agrees with Hutchinson that in new construction and for existing buildings where technically feasible, to install the energy code mandated minimum (min) R-30 continuous insulation (ci). Where infeasible, contractors can apply for variances from the code official to reduce insulation thicknesses to install the maximum possible given the 8" minimum flashing height requirements. Flashing heights are specified in the manufacturers installation instructions and National Roofing Contractors Association's (NRCA) Manuals.

CRCA agrees that insulation provides value, up to the point where technology doesn't deliver gains greater than returns. CRCA believes that where it is technically feasible, as much insulation as is required by the 2015 International Energy Conservation Code (IECC) – on low sloped roofs, min R-30 ci - shall be followed. Why? It's the law in Illinois!

CRCA agrees that good design is imperative. Where technically feasible to meet wind uplift, fire resistance, and other requirements, edges, equipment, etc., can be raised and accommodate new thicker insulation AND meet 8" minimum height above the roof covering for flashings.

CRCA agrees that mock ups and inspection at the beginning of the project, to get everyone on the same page, is critical. CRCA also agrees that professional roofing contractor installation is key to success in addition to working with competent specifiers, roof consultants and code officials. The goal is a leak free roof assembly for the ultimate customer, the building owner and manager and building occupants.

CRCA agrees that in new construction, flashing heights that accommodate the increased insulation thicknesses are possible due to design and the building comply with the code mandated min R-30 ci. On existing buildings, where it is technically possible, we agree here too.

More agreement with Hutchinson – To a Point The perfect building, where roof flashings can meet the NRCA industry standard or manufacturer required 8" above roof covering flashings does abutting doors, curbs, roof top units (RTU), plumbing stacks and doors, glass windows at abutting roof surfaces is sometimes not physically possible.

This is where it becomes technically infeasible. On existing buildings where it is technically infeasible, we believe that a review should be done and a request made to the Authority Having Jurisdiction (AHJ). The request is for a variance allowing less insulation than the code mandated min R-30 ci.

Why? The building sometimes cannot technically be altered enough to accommodate the insulation thicknesses specified in the 2015 IECC or ASHRAE 90.1. Tapered insulation systems are even more difficult.

The energy code's charging language asks that for additions, alterations, that the energy usage of the building is not increased. A variance that provides the building owner and manager the maximum amount of insulation while still maintaining the 8" flashing heights from the roof covering, gets that done. To accommodate rooftop units, equipment curbs, skylights, parapets, under door and window flashings, reduced insulation thickness is needed.

Why 8" high flashings? It's specified in 1969's "Roofing Specifications", which CRCA authored and reviewed with the Chicago Chapter, Construction Specifications Institute. The NRCA still includes 8" minimums in their manuals and has since 1970. The 8" height seems best to keep the water, wind driven rain and snow out of the flashings.



Can existing buildings with low flashing heights have new 8" high flashings from the roof surface custom built? Many can. Where it is technically feasible, CRCA Contractors work with building owners to get it done and provide the minimum R-30 ci.

Where it is technically infeasible, CRCA challenges Hutchinson, the insulation and roof covering manufacturers he consults with to develop insulation products that can provide higher 'R's with less thicknesses of insulation installed. We – CRCA and Hutcinson – do have the same goal – help AIA meet "zero energy buildings by 2030", while providing value to the building owner and manager.

CRCA Solutions Offerred at ICC

CRCA agrees that min R-30 ci is possible for new construction and where the insulation can fit on existing buildings. For other situations, we are up against the wall of technical infeasibility. That's why we proposed at the International Code Council solutions for existing buildings where more insulation won't fit.

CRCA supported the NRCA proposals below at the International Code Council's Energy Code 2018 Development Process with this proposal:

NEW PROPOSAL: 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. [IECC 2015, 503.3.1]

This language already exists in the International Code Council's 2012 International Green Construction Code.

CRCA also proposed at the State of Illinois' adoption of ICC's 2015 International Energy Conservation Code the same concept. The Illinois Energy Conservation Advisory Council edited the proposal and it now part of the Illinois 2015 Energy Conservation Code, (IL ECC) Residential Occupancies:

IL ECC: For roofs on existing buildings with slopes less than 2"/12", where the roof covering is



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> removed and insulation remains, and where the required R-Value cannot be provided because of thickness limitations presented by existing rooftop conditions, including heating, ventilating and air-conditioning equipment, low door or glazing heights, weep holes, and roof flashing heights not meeting the manufacturers specifications, the maximum thickness of insulation compatible with the available space and existing uses shall be installed. The insulation used shall have an R-value of not less than R-5.0 per inch. In areas where flashing is terminated not less than 8 inches above the roof covering, including required insulation, insulation shall be as required by Table C402.1.3.

CRCA Concludes

CRCA agrees with much more than Hutchinson's article states. We hope he will join CRCA by challenging the industry to invent new insulations with higher R's, less thickness, to solve the existing buildings issues. We also hope he joins CRCA as a Roofing Consultant Member.

CRCA's Union and Non Union Contractors' goal is to provide the building owner and manager the right combination of roofing, insulation and slope, proven through value, and not leak. With value, code compliance is easier and the need for policing goes away.

Bill McHugh is Executive Director of the Chicago Roofing Contractors Association. He can be reached at bill@crca.org.

CRCA Contractor Members

The Contractor Members of the Chicago Roofing Contractor Association install all types of roofs, including reflective single ply, modified bitumen, built up, gravel, reflective coatings, shingle, shake, slate and tile, vegetative garden or photovoltaic coverings. From formation following the Great Chicago Fire of 1871, CRCA Members have moved with the times and technology, yet continue to maintain some of the same goals set forth over 140 years ago. To find a CRCA Professional Contractor, visit www.CRCA.org.

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- Standing Seam Roof Panels
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CRCA Associate Members

The Associate Members of the Chicago Roofing Contractors Association are a vital part of the association and actively support the activities. Besides their generosity, they are represented on the CRCA Board of Directors, Co-Chair the Membership and Trade Show Committees and serve on the Health & Safety, Contracts & Insurance, Industry Affairs, Program and Scholarship Committees.

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Industry Calendar

First CRCA History Quiz:

The following 4 questions contain information the CRCA History Committee has uncovered.

These questions are meant to be hard and you may not know the answers. Instead, we hope this pushes you to appreciate the great history and traditions of our industry as well as an understanding for how we arrived to where we are today as the Chicago Roofing Contractors Association.

- Before the Great Chicago Fire, Samuel Barrett made about _____ pounds of saturated felt in a day.
 - a. 1000
 - b. 2000
 - c. 3000
 - d. 4000
- 2. In the 1890's, what roofing material overtook the Chicago roofing market?
 - a. Tin
 - b. Slate
 - c. Clay
- 3. In 1880, how many shingle factories could be found in the United States?
 - a. 25
 - b. 30
 - c. 35
 - d. 45
- 4. Which associations officially started between 1880-1890? (Two answers)
 - a. Amalgamated Gravel Roofers Protective Association
 - National Association of Master Composition Roofers/Master Slate & Gravel Roofers of America
 - c. Associated Roofers of America
 - d. Chicago Roofing Contractors Association

If you're interested in learning more, join the CRCA History Committee – contact info@crca.org

July 14, 2016

CRCA Industry Day Golf Outing* Silver Lake CC, Orland Park www.CRCA.org

August 13, 2016

CRCA Event, Kane County Cougars* Geneva, IL www.CRCA.org

August 17-20, 2016

NAWIC 61st Annual Meeting & Education Conference Grand Hyatt San Antonio San Antonio, TX www.nawicconvention.org

Sept. 13, 2016

CRCA Membership Luncheon & Education Session* Maggiano's Little Italy, Schaumburg www.CRCA.org

Sept. 16, 2016 CAC-RCI Meeting

www.cac-rci.org

Oct. 4, 2016

ALA MW Architecture Conference Drury Lane Conference Center Oakbrook Terrace www.alatoday.org/

Oct. 16-25, 2016

ICC Annual Conference and Public Comment Hearings Kansas City www.ICCSAFE.org

Oct. 31-Nov. 2, 2016

MRCA Conference Columbus, OH www.mrca.org

Nov. 4, 2016

CAC-RCI Meeting www.cac-rci.org

Nov. 15, 2016

CRCA Membership Luncheon & Education Session* Maggiano's Little Italy, Oak Brook www.CRCA.org

Dec. 2, 2016

CRCA Awards Dinner* Location TBD www.CRCA.org

*Event is for CRCA Members and their guests. Visit www. CRCA.org for membership information.

Answer Key: 1. C 2. B 3. D 4. A&B

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