# Coating concerns

## Building code compliance for roof coatings is limited

by Mark S. Graham

Protective roof coatings sometimes are used as roof covering surfacings to provide an additional layer of weather protection. Specific roof coatings also can enhance a roof covering's fire resistance, solar reflectivity and aesthetic appearance. However, not all roof coating products on the market comply with building code requirements.

### IBC 2018

In the *International Building Code,® 2018 Edition*, Chapter 2—Definitions, "roof coating" is defined as "a fluid-applied, adhered coating used for roof maintenance or *roof repair*, or as a component of a *roof covering* or *roof assembly*." The italicized words denote specific additional terms also defined in Chapter 2.

In IBC 2018's Chapter 15—Roof Assemblies and Rooftop Structures, Section 1507.10-Built-up Roofs, Table 1507.10.2-Built-up Roofing Material Standards lists the following roof coating products as acceptable to be applied to built-up membrane roof systems:

- Acrylic roof coatings complying with ASTM D6083, "Specification for Liquid Applied Acrylic Coating Used in Roofing"

- Asphalt roof coatings complying with ASTM D1227, "Specification for Emulsified Asphalt Used as a Protective Coating for Roofing;" ASTM D2823, "Specification for Asphalt Roof Coatings, Asbestos Containing;" ASTM D2824, "Standard Specification for Aluminum-pigmented Asphalt Roof Coatings, Nonfibrated and Fibrated without Asbestos;" or ASTM D4479, "Specification for Asphalt Roof Coatings-Asbestos-free"

Section 1507.12-Spray Polyurethane Foam Roofing lists the following coating products:

- Acrylic roof coatings complying with ASTM D6083
- Silicone coatings complying with ASTM D6694, "Standard Specification for Liquid-applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems"
- Moisture-cured polyurethane coating complying with ASTM D6947, "Standard Specification for Liquid Applied Moisture Cured Polyurethane Coating Used in Spray Polyurethane Foam Roofing Systems"

Section 1507.15-Liquid-applied Roofing lists the following roof coating products:

- Asphalt roof coatings complying with ASTM D1227
- Acrylic roof coatings complying with ASTM D6083
- Silicone coatings complying with ASTM D6694
- Moisture-cured polyurethane coatings complying with ASTM D6947

The inclusion of these material standards for liquid-applied roof coverings appears to be a misnomer in the code because the roof coating products indicated typically are not used with liquid-applied roof coverings.

In addition to complying with the specific ASTM International material standards indicated in the code, a roof coating also needs to be included in a roof assembly's fire classification listing (testing and certification) for it to comply with the code's Section 1505-Fire Classification. Approved testing agencies' listing guidelines typically require listed products to bear the testing agency's label (UL mark, FM Approvals' diamond) on product package marking.

In IBC 2018, an exception has been added to Section 1511-Reroofing clarifying the application of a new roof coating over an existing roof coating or covering is permitted and will not be considered a roof covering layer.

## Compliance concerns

NRCA's review of a number of roof coating products currently available in the U.S. market reveals a notable number of these products do not include the necessary product standards and approved testing agency markings to substantiate code compliance.

Also, it is noteworthy specific roof coating requirements are not provided in the code for roof coating use on polymer-modified bitumen membrane, single-ply membrane and metal roof panel roof systems. From these omissions, a reasonable interpretation of the code is roof-coating application over these roof system types is not code-approved. In this instance, use of the code's alternative materials acceptance provisions can be used. Additional information about the code's alternative acceptance provisions is provided in "Other options," June 2008 issue, page 20.

> "NRCA encourages manufacturers to make their compliances readily accessible"

## NRCA's recommendations

NRCA considers the use of field-applied roof coatings to be a viable option for surfacing roof coverings and roof system maintenance and repair situations when code compliance can be readily substantiated.

NRCA encourages roof coatings manufacturers to make their compliances with applicable ASTM International material standards and fire classifications more readily accessible. Also, manufacturers need to provide the necessary product markings to facilitate designers, specifiers and roofing contractors to be able to substantiate code compliance.

Additional information about specifying and using field-applied roof coatings is provided in *NRCA Guidelines for Roof Coatings* and in Chapter 7—Surfacings of *The NRCA Roofing Manual: Membrane Roof Systems—2019*.

NRCA has submitted a series of code change proposals to the International Code Council relating to field-applied roof coatings for consideration in the 2021 I-Codes. These changes are intended to clarify and streamline the codes' requirements for field-applied roof coatings. Initial ICC action on these and other code change proposals will take place during ICC's committee action hearings, April 28-May 8 in Albuquerque, N.M. NRCA looks forward to having roof coatings manufacturers support these code changes.

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## MCA updates white paper

The Metal Construction Association has made available an updated white paper, "Choosing Between Fire Retardant and Standard Core Metal Composite Material," regarding the use of metal composite material.

Metal composite material is made of two sheets of aluminum between which a solid core of extruded thermoplastic or a liquid plastic core has been injected in a continuous process with no glues or liquid adhesives between the materials. The core material must not contain air spaces or foamed insulation material.

Metal composite material manufacturers usually provide two types of core products: standard and fire retardant. MCA's MCM Fabricator Council developed the white paper to clarify the allowable uses for standard and fire-retardant metal composite material in accordance with the most recent editions of the International Building Code.

In addition, metal composite material manufacturers involved with MCA have submitted a code change proposal to the IBC 2018 Code Development-Cycle A. The manufacturers' proposal aims to simplify the building code regarding the use of metal composite material assemblies, enabling designers and code officials to more easily understand whether fire retardant or standard core metal composite material is required for a specific application.

"While this proposal must still complete the International Code Council's code change process, MCA wanted to make the design community aware of this potential change in the use of metal composite material systems which, if approved, would be incorporated into the 2021 IBC," says Tom Seitz, an MCA council member.

"Choosing Between Fire Retardant and Standard Core Metal Composite Material" is available at www.metalconstruction.org/Tech-Resources.

## Cyber risks accompany technology use


As construction companies increasingly invest in technology, they must be aware of cyber risks, according to www.enr.com. The risk of cybercrime increases in frequency and severity as interconnectivity of devices, digitization and the adoption of technology rise.

Kroll's 2017-18 Global Fraud & Risk Report reveals more than 93 percent of responding construction companies experienced a cyber incident during 2017—a 16 percent increase from the previous year. The most common incidents were viruses, email phishing, data breaches and wire-transfer fraud. Additionally, industry competitors were the source of 23 percent of the incidents.

Cyber incidents often are accidental but some arise from malicious intent and are perpetrated by random criminals, competitors or rogue employees. The target typically is the theft or deletion of data or disruption of systems.

A cyber breach can result in various first- and third-party effects for a company, including immediate costs incurred when responding to a cyber breach, loss of revenue, liability and reputation damage. Regulators are requiring organizations and companies to take more responsibility regarding cybersecurity and can allow authorities to penalize companies with inadequate data management and breach-response protocols. Reportedly, only 30 percent of organizations have prepared cyber-response plans.

To learn more about cyber risks in the construction industry, go to www.professionalroofing.net.

In response, companies are helping firms understand their cyber-risk exposures, and cyber policies are being tailored to cyber exposures in various industries—including construction. Principal coverages include coverage for response costs related to a cyber event, such as delay costs and extra expense.

## Wireless monitoring to limit injuries raises worker concerns

Before asking workers to wear motion monitors as part of safety programs, employers must assure employees the results will not be used in performance reviews, according to Bloomberg Law.

The American Society of Safety Professionals released a report Jan. 3 that surveyed 952 safety professionals and focused on using wearable motion sensors and heart rate monitors to measure worker fatigue. The report identified the need to seek cooperation regarding a monitoring program from a union or other employee organizations and offer workers detailed information regarding how monitoring data will be used.

Wireless motion monitors are meant to help show employers how certain tasks cause fatigue—a factor that can increase the risk of injury. Slightly more than half of survey respondents supported the use of wearable technologies to track safety and health risks.

The report included a testing portion that involved 28 subjects performing tasks—such as lifting boxes and moving boxes on a cart for three hours—while wearing wireless movement monitors on their ankles, hips, wrists and chests, as well as heart rate monitors. The monitors spotted changes in how workers walked and lifted as they became tired.

Lora Cavuoto, an associate professor in the Department of Systems and Industrial Engineering at the State University of New York at Buffalo, says companies that decide to use motion monitors should focus on specific activities and not continuous monitoring. Additionally, she says employers need to emphasize to employees that such monitoring is voluntary.