



38TH CRCA TRADE SHOW & SEMINARS

**JANUARY 19-21, 2022
DRURY LANE, OAK BROOK TERRACE, IL**

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CANVAS BAG



RAFFLE



COFFEE BREAK



SANITIZER STATIONS



BREAKFAST





Chris Huettig, KARNAK Mark Graham, NRCA Jim Martin, R.M. Lucas



**Mark
Graham**

Roof coating basics...

A definition...

ROOF COATING. A fluid-applied, adhered coating used for roof maintenance or *roof repair*, or as a component of a *roof covering system* or *roof assembly*.

--*International Building Code, 2021 Edition*

SECTION 1509 ROOF COATINGS

1509.1 General. The installation of a *roof coating* on a *roof covering* shall comply with the requirements of Section 1505 and this section.

1509.2 Material standards. Roof coating materials shall comply with the standards in Table 1509.2.

**TABLE 1509.2
ROOF COATING MATERIAL STANDARDS**

MATERIAL	STANDARD
Acrylic coating	ASTM D6083
Asphaltic emulsion coating	ASTM D1227
Asphalt coating	ASTM D2823
Asphalt roof coating	ASTM D4479
Aluminum-pigmented asphalt coating	ASTM D2824
Silicone coating	ASTM D6694
Moisture-cured polyurethane coating	ASTM D6947

3. The *mechanical equipment screen* shall be constructed of *fire-retardant-treated wood* complying with Section 2303.2 for exterior installation.
4. Where the *fire separation distance* is not less than 20 feet (6096 mm), the *mechanical equipment screen* shall be constructed of materials having a *flame spread index* of 25 or less when tested in the minimum and maximum thicknesses intended for use with each face tested independently in accordance with ASTM E84 or UL 723.

[BG] 1511.7 Other rooftop structures. *Rooftop structures* not regulated by Sections 1511.2 through 1511.6 shall comply with Sections 1511.7.1 through 1511.7.5, as applicable.

[BG] 1511.7.1 Aerial supports. Aerial supports shall be constructed of noncombustible materials.

Exception: Aerial supports not greater than 12 feet (3658 mm) in height as measured from the *roof deck* to the highest point on the aerial supports shall be permitted to be constructed of combustible materials.

[BG] 1511.7.2 Bulkheads. Bulkheads used for the shelter of mechanical or electrical equipment or vertical *shaft* openings in the *roof assembly* shall comply with Section 1511.2 as *penthouses*. Bulkheads used for any other purpose shall be considered as an additional story of the building.

[BG] 1511.7.3 Dormers. Dormers shall be of the same type of construction as required for the roof in which such dormers are located or the *exterior walls* of the building.

[BG] 1511.7.4 Fences. Fences and similar structures shall comply with Section 1511.6 as *mechanical equipment screens*.

[BG] 1511.7.5 Flagpoles. Flagpoles and similar structures shall not be required to be constructed of noncombustible materials and shall not be limited in height or number.

[BG] 1511.8 Structural fire resistance. The structural frame and roof construction supporting loads imposed upon the roof by any *rooftop structure* shall comply with the requirements of Table 601. The fire-resistance reduction permitted by Table 601, Note a, shall not apply to roofs containing *rooftop structures*.

SECTION 1512 REROOFING

1512.1 General. Materials and methods of application used for recovering or replacing an existing *roof covering* shall comply with the requirements of Chapter 15.

Exceptions:

1. *Roof replacement* or *roof recover* of existing low-slope *roof coverings* shall not be required to meet the minimum design slope requirement of $1/4$ unit vertical in 12 units horizontal (2-percent slope) in

Section 1507 for roofs that provide *positive roof drainage*.

2. Recovering or replacing an existing *roof covering* shall not be required to meet the requirement for secondary (emergency overflow) drains or *scuppers* in Section 1502.2 for roofs that provide for *positive roof drainage*. For the purposes of this exception, existing secondary drainage or *scupper* systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or *scuppers* designed and installed in accordance with Section 1502.2.

1512.2 Roof replacement. *Roof replacement* shall include the removal of all existing layers of *roof assembly* materials down to the *roof deck*.

Exception: Where the existing *roof assembly* includes an ice barrier membrane that is adhered to the *roof deck*, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

1512.2.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.
4. The application of a new protective roof coating over an existing protective roof coating, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

1512.2.1.1 Exceptions. A *roof recover* shall not be permitted where any of the following conditions occur:

1. Where the existing roof or *roof covering* is water soaked or has deteriorated to the point that the existing roof or *roof covering* is not adequate as a base for additional roofing.
2. Where the existing *roof covering* is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of *roof covering*.

1512.2 Roof replacement. *Roof replacement* shall include the removal of all existing layers of *roof assembly* materials down to the *roof deck*.

Exception: Where the existing *roof assembly* includes an ice barrier membrane that is adhered to the *roof deck*, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

1512.2.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.
2. Complete and separate roofing systems, such as standing-seam *metal roof panel* systems, that are designed to transmit the roof *loads* directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1512.3.
4. The application of a new protective roof coating over an existing protective roof coating, *metal roof panel*, built-up roof, spray polyurethane foam roofing system, *metal roof shingles*, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

Is a building permit required for re-coating?



Mark S. Graham

Vice President, Technical Services

National Roofing Contractors Association

10255 West Higgins Road, 600

Rosemont, Illinois 60018-5607

(847) 299-9070

mgraham@nrca.net

www.nrca.net

Twitter: [@MarkGrahamNRCA](https://twitter.com/MarkGrahamNRCA)

Personal website: www.MarkGrahamNRCA.com

Types of Roof Coatings

Asphalt

Cutback (Solvent-based)

- Composed of asphalt, solvent, fillers
- May or may not contain fibers or modifiers

Emulsion (Water-based)

- Composed of asphalt, clay, emulsifiers
- May or may not contain fibers or modifiers



Asphalt

Advantages:

- Proven performance
- Low cost per gallon
- Useful for priming and preparing roofs for reflective coatings

Disadvantages:

- Non-reflective



Asphalt

Applicable Substrates:

- Smooth BUR
- Smooth & Granule Mod. Bit.
- Granule Cap Sheet
- Metal
- Concrete

Limitations:

- Limited applicable substrates
- Limited color offering - Black



Aluminum

Cutback (Solvent-based)

- Composed of asphalt, aluminum pigment flakes and solvent
- May or may not contain fibers or modifiers

Emulsion (Water-based)

- Composed of asphalt, clay, emulsifier and aluminum pigment
- May or may not contain fibers



Aluminum

Advantages:

- Single-coat application
- No primer/base coat necessary
- Lowest cost reflective coating
- Performance since 1950's

Disadvantages:

- Less reflective than white
- Affected by ponding water
- Perceived at “low-tech”



Aluminum

Applicable Substrates:

- Smooth BUR
- Smooth & Granule Mod. Bit.
- Granule Cap Sheet
- Metal
- Concrete

Limitations:

- Limited applicable substrates
- Limited color offering - Aluminum



SEBS

- Thermoplastic rubber, hydrocarbon solvent, reflective pigments and proprietary additives
- Produces a reflective, rubber-like elastomeric coating
- May be colored – most white, gray or tan



Photo Courtesy of
KARNAK

SEBS

Advantages:

- High elongation & tensile strength
- Excellent adhesion – use over several different roof surfaces
- High reflectivity and emissivity
- Wide application window
- Low permeance
- Corrosion resistance

Disadvantages:

- Lower percent solids by weight



SEBS

Applicable Substrates:

- TPO, PVC, Hypalon
- EPDM
- Metal
- Concrete
- Asphalt - Smooth BUR & Mod. Bit.

Limitations:

- Asphalt surfaces require bleed blocking primer or base coat



When to Coat a Roof

- When roof is DRY!
 - Perform moisture survey & core cuts
- When lacking surface protection
 - Granule loss
 - Worn previous coatings
- When surface cracks, but no leaks
 - Alligatored BUR surfaces
 - Single-ply surface cracks



When to Coat a Roof

- When metal roof shows
 - Surface rusting
 - Painted surface eroded
- To improve reflectivity
- To keep fire rating of roof assembly
- To improve aesthetics



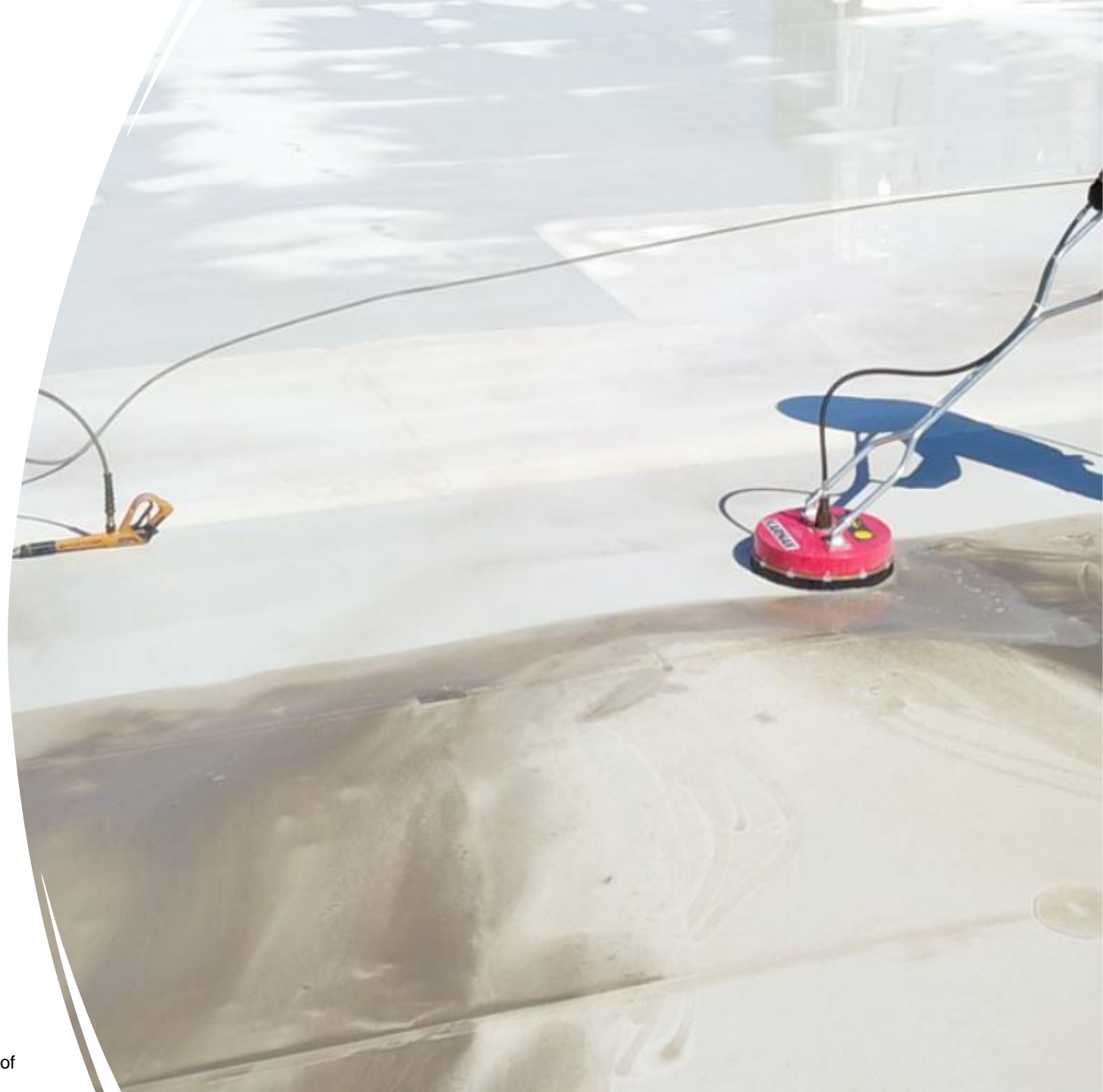
When **NOT** to Coat a Roof

- Roof is wet
 - Remove and replacement of wet not feasible
- Roof is not secure
 - Loose insulation
 - Unsecured membrane
- Rusted through metal panels
- Membrane eroded past scrim



Coating – Surface Preparation

- Extremely important
- Most important step in the application process



How Clean is Clean?

- All surface must be dry, sound and free of dirt, dust, rust, grease, oils or foreign substances
- White rag test
- Painters tape test



How Long do Roof Surfaces Need to Cure Before Coating?

- New BUR: 90-180 days
- New Mod. Bit:
 - Hot-applied – 90-180 days
 - Torch-applied – Coat after membrane cools
 - Cold-applied – 90-180 days
 - Self-adhered – No wait time
- TPO/PVC: Allow to weather min. 4 years
- EPDM: Coat after installation and cleaning
- Metal: Allow to weather 30 days

Photo Courtesy of
KARNAK



How Long do Sealants & Mastics Need to Cure Before Coating?

- Check with sealant/mastic manufacture
- Check with coating manufacturer
- If similar chemistries – typically 24-48 hours, but check with manufacturer



How Thick Should Coating be Applied?

- Dependent upon coating and manufacturer
- **IMPORTANT** to follow manufacturer's application guidelines
- Coating applied too thick may mud-crack or blister.
- Use wet mill gauge or grid roof to monitor application quality control



How Long do Coatings Last?

- Longevity dependent upon coating type, substrate, surface preparation, application and environmental conditions
- When applied per manufacturer's specification expect 3-5 years up to 20+ depending on coating type



Photo Courtesy of
KARNAK

Are Coatings Offered with Warranties?

- YES – material and material & labor warranties available
- Confirm with the manufacturer – may differ based on coating, substrate and applicator qualifications
- Note: Warranties do not cover existing substrate – surface preparation is key to success of application

Photo Courtesy of
KARNAK



Thank you!



Chris Huettig
National Director of Technical Services
chuettig@karnakcorp.com



LUCAS

Professional Quality Coatings, Adhesives & Sealants

Quality Products Since 1912





BEFORE



AFTER

BEFORE



AFTER





BEFORE

AFTER





BEFORE

AFTER





BEFORE



AFTER





BEFORE

AFTER



Is the Roof a Candidate for a Coating System?

First Step is a Visual Inspection



Is the Roof a Candidate for a Coating System?
First Step is a Visual Inspection



Core Cuts & Thermal Imaging are the Next Step to Accessing if the Roof is a Candidate for Coatings



FLIR ONE GEN 3

Thermal Camera for
Smart Phones



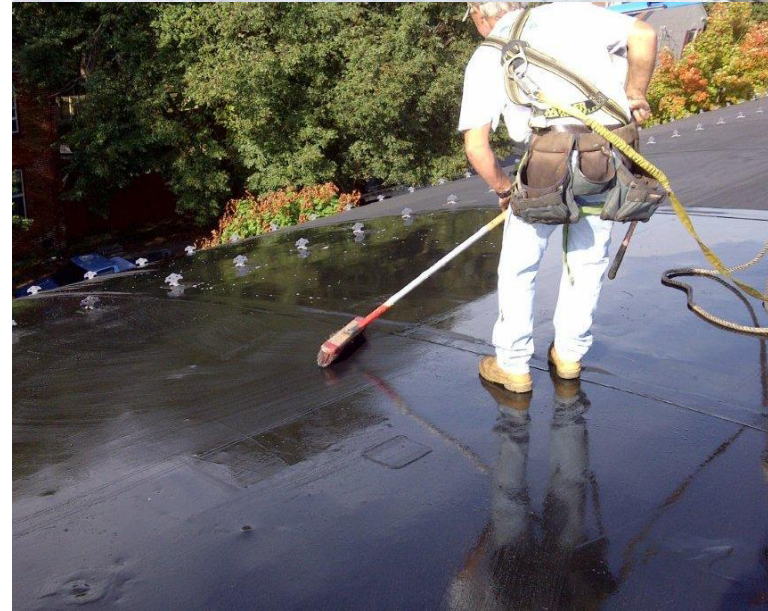
FLIR ONE PRO

Pro-grade Thermal
Camera for Smart

The Final Step is Approval from Lucas and Choosing the Correct Coating System



Cleaning All Roof Types



Clean to prep Existing Roofing Systems and for Future Maintenance



Primers



Applying to Granular Modified



Applying to EPDM, Granular Modified, Metal & Old Urethane Coating System



Applying Coating to Concrete, PVC, TPO, EPDM & Granular Cap



Lucas Acrylic Coatings

High Performance Acrylic Roof and Wall Coatings



- **Systems for metal, modified bitumen, and single-ply roofs**
- **Energy Star Rated**
- **Extends life of existing roof**
- **Lowers building temperatures**
- **UV stable formulations**
- **System warranties available**

Thank you!



Jim Martin
National Sales Manager
jmartin@rmlucas.com

