TRAFFIC DECK MEMBRANE TROUBLESHOOTING GUIDE

BUILDING TRUST

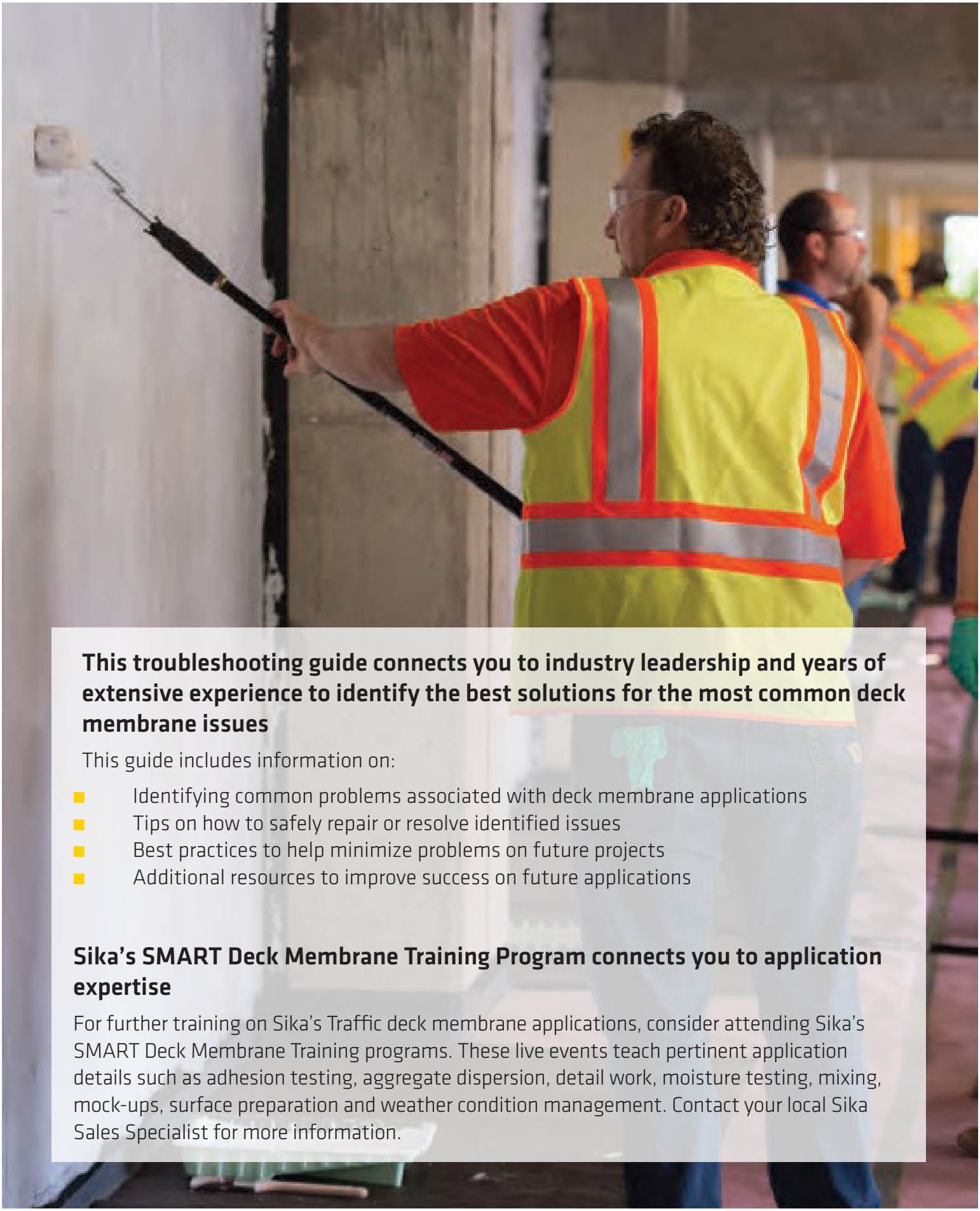
TROUBLESHOOTING GUIDE

Conquer your challenges with our systems and expertise

The Sika brand is built on the experience gained from more than a century in the construction industry. At our core there is a combined know-how and experience of a global community of Sika construction experts who help solve your construction challenges. As an industry leader in high build acrylic wall coatings, Sika has the right products and technical expertise to help you meet your project needs while saving time, money and labor.

Sika is committed to your continued success and safety

Sika Safety is a top priority at our company. We believe that business success and safety are interdependent. We are committed to enhancing health and safety awareness on projects. This troubleshooting guide was designed with safety in mind, since effective troubleshooting and application technique is critical to ensuring the safety of installers and facility users. Consult you Sika resources, such as this guide and your local sales specialist, to explore best practices for improving safety and productivity on all your projects.



This troubleshooting guide connects you to industry leadership and years of extensive experience to identify the best solutions for the most common deck membrane issues

This guide includes information on:

- Identifying common problems associated with deck membrane applications
- Tips on how to safely repair or resolve identified issues
- Best practices to help minimize problems on future projects
- Additional resources to improve success on future applications

Sika's SMART Deck Membrane Training Program connects you to application expertise

For further training on Sika's Traffic deck membrane applications, consider attending Sika's SMART Deck Membrane Training programs. These live events teach pertinent application details such as adhesion testing, aggregate dispersion, detail work, moisture testing, mixing, mock-ups, surface preparation and weather condition management. Contact your local Sika Sales Specialist for more information.

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06 Delamination / Debonding

Bond line failure between the coating and existing substrate or existing coating.

08 Bubbling / Cratering / Pinholing

A translucent, thin film forming a bubble on the surface which will form a crater when the bubble pops.

10 Blistering / Wrinkling

Sporadic swellings filled with air or fluid on the surface. Much thicker than a translucent bubble which typically occurs between coats. Can vary significantly in size, shape and thickness.

12 Cracks

Fractures in the existing substrate that telegraph through coating or fracture in cured membrane after application.

Contact the Sika Technical Support team at (201) 933 8800

14 Texture Variations / Insufficient Skid Resistance

The profile of the finished coating is insufficient to impart adequate skid, slip and wear resistance as well as provide protection and aesthetic features to the overall system.

16 Water Damage

Displacement of material due to a water event before the system has cured. Severity of damage is typically proportional to the length of time the coating has been allowed to cure.

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Appearance inconsistencies resulting from a variety of conditions not identified in previous sections.

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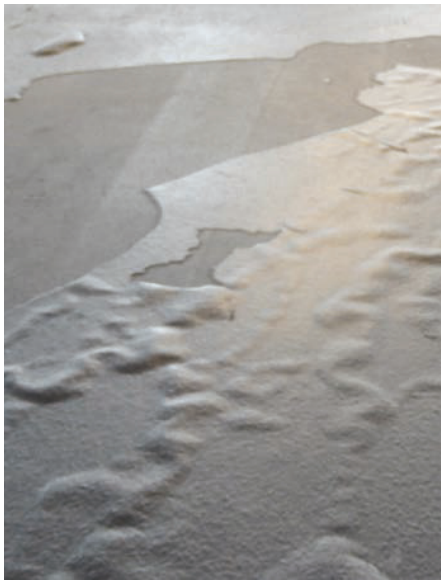
DELAMINATION / DEBONDING

Bond line failure between the coating and existing substrate or existing coating.

A. Improper concrete surface preparation

B. Contaminants



C. Moisture

D. Incorrect System Selection

E. Improper surface preparation of existing coating

F. Missed recoat window

LIKELY CAUSES

A. Improper concrete surface preparation
- Failure to abrade substrate to appropriate CSP (Concrete Surface Profile)

B. Contaminants
- Failure to remove dust, debris and oil

C. Moisture
- Failure to allow surface to dry after water event
- Environmental moisture resulting from a drop in dew point after application

D. Incorrect System Selection
- Exposure to conditions that exceed system design limitations

E. Improper surface preparation of existing coating
- Failure to abrade substrate (existing coating) to required surface profile

F. Missed recoat window

POSSIBLE REPAIR METHOD

- Remove loose / delaminated / debonded coating
- Abrade surface as recommended in Sika's Sikalastic Traffic data guides
- Reapply coating

TIPS TO MINIMIZE FUTURE OCCURRENCES

- Shot blasting is the recommended surface preparation method for concrete and existing coatings. Other means of abrasion may be acceptable if approved by a Sika representative in advance.
- Contact your local Sika representative and follow recoat recommendations in the technical data guide

Shotblasting a concrete substrate

BUBBLING / CRATERING / PINHOLING

A translucent, thin film forming a bubble on the surface which will form a crater when the bubble pops.

LIKELY CAUSES

- Moisture in the concrete that permeates through the top surface as the surface heats up from the sun / heat (vapor drive)
- Dew Point / Relative Humidity – atmospheric conditions causing excessive moisture in the air
- Curing at high heat can cause skinning on the surface, trapping CO2
- Moisture in the aggregate from improper storage or exposure to weather elements

POSSIBLE REPAIR METHOD

- Bubbles / pinholes / craters typically do not impair the function of the overall system. They can be aesthetically displeasing and should be addressed on a case-by-case basis.

TIPS TO MINIMIZE FUTURE OCCURRENCES

- Consider application in evenings as opposed to mornings to avoid rapid temperature fluctuations during application
- Store materials in controlled environment for proper conditioning
- Properly mix material. Be aware of local temperature and humidity forecasts. Reference Dew Point Chart for further information.
- At the first appearance of bubbling, a spiked roller may be used to mitigate the occurrence of bubbling / pinholing / craters. Consult Sika representative for more information.

Spiked roller

BLISTERING / WRINKLING

Sporadic swellings filled with air or fluid on the surface. Much thicker than a translucent bubble which typically occurs between coats. Can vary significantly in size, shape and thickness.

A. Over application

B. Excessive vapor drive

C. Incompatibility with existing coatings

D. Improper mixing

E. Curing at high heat

LIKELY CAUSES

A. Over application that exceeds recommended coverage rates. This primarily occurs in one-component systems and can be exacerbated by high heat, which leads to rapid skinning.
- Overly aggressive surface profile
- Pitted or uneven surfaces
- Improper sized squeegees
- Damp aggregate

B. Excessive vapor drive and high moisture levels in the concrete slab. This occurs most often in unvented pan decks, slab on grade and split slab applications.

C. Incompatibility with existing coatings

D. Improper mixing
- Failure to premix individual components in one-component systems
- Incorrect ratios when splitting two-component units

E. Curing at high heat can cause skinning on the surface, trapping carbon dioxide

POSSIBLE REPAIR METHOD

For few sporadic blisters:
- Remove existing blisters
- Abrade and/or clean existing surface
- Apply waterproof basecoat where relevant
- Patch blisters with urethane and / or epoxy mortar
- Apply topcoat

For numerous blisters over a large area:
- Remove existing blisters
- Apply primer when required
- Apply urethane intermediate coat
- Apply topcoat

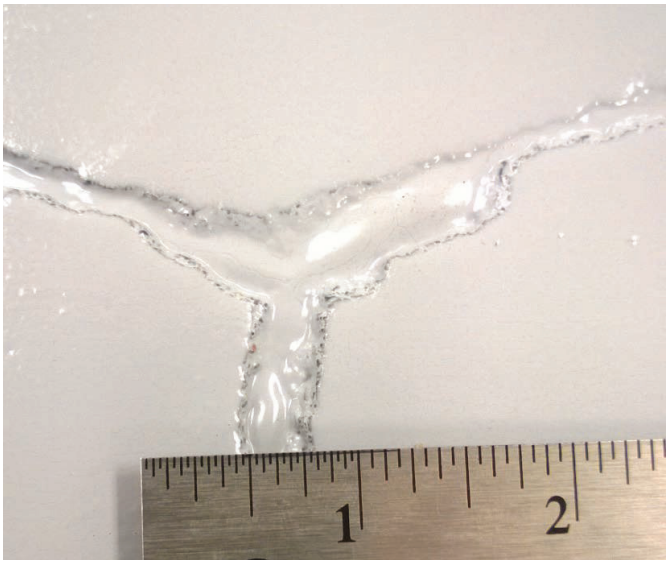
TIPS TO MINIMIZE FUTURE OCCURRENCES

- Check mil thickness periodically to ensure recommended coverage rates are maintained. Utilize a grid system to help ensure proper yield.
- Back roll in the opposite direction of squeegee to help evenly distribute material
- Be sure to allow adequate curing between coats
- Some instances may require leveling of the surface prior to application of coating
- Avoid splitting two-component kit units and maintain proper mixing ratios

Back rolling

CRACKS

Fractures in the existing substrate that telegraph through coating or fracture in cured membrane after application.



A. Improper detailing

B. Improper sealant chemistry

C. System component flexibility

LIKELY CAUSES

A. Improper detailing
- Failure to follow necessary preparation guidelines by routing and caulking cracks greater than 1/16" (1.5 mm) followed by prestripping
- Failure to follow necessary preparation guidelines by prestripping cracks less than 1/16" (1.5 mm) as indicated in manufacturer technical data guides
- Coating applied over moving joint exceeding elongation of membrane

B. Improper sealant chemistry
- Urethane coating applied over silicone sealant

C. Rigidity of system components
- Movement of substrate exceeds system capability. Note: Membrane may maintain waterproofing properties despite cracking and is therefore not necessarily deemed a system failure.

POSSIBLE REPAIR METHOD

For few sporadic blisters:
- Route existing crack
- Apply a Sika polyurethane sealant and strike flush.
- Apply the system basecoat to provide waterproofing properties
- Apply intermediate / topcoats

TIPS TO MINIMIZE FUTURE OCCURRENCES

- Properly detail cracks prior to application of systems as recommended in the manufacturer technical data guide
- In excessive movement situations, fabric-reinforced joints may be required
- Select system according to movement needs of structure
- Only use urethane sealants with urethane coatings. Urethane coatings will not bond to silicone sealants.
- Honor joints larger than 1" (2.5 cm)

Detailing cracks

TEXTURE VARIATIONS / INSUFFICIENT SKID RESISTANCE

The finished coating is insufficient to impart adequate skid, slip and wear resistance as well as provide protection and aesthetic features to the system.

LIKELY CAUSES

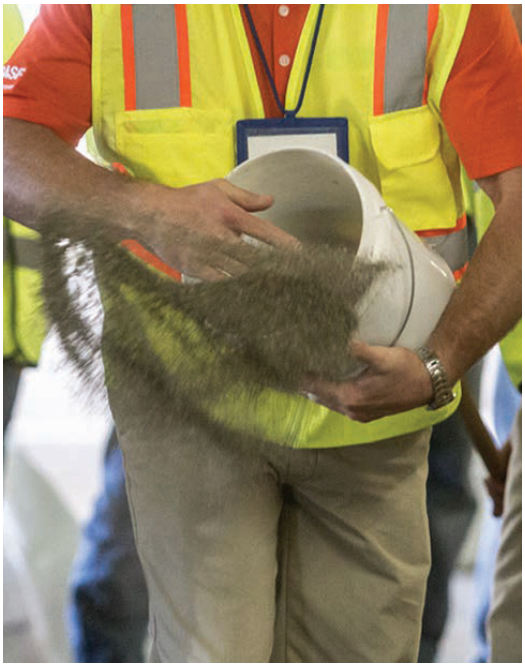
- Insufficient aggregate amount
- Inconsistent aggregate distribution
- Incorrect size of aggregate
- Improper back rolling
- Aggregate roll out resulting from a mil thickness of topcoat and/or intermediate coat that is insufficient to properly encapsulate aggregate.

POSSIBLE REPAIR METHOD

- Abrade affected areas
- Solvent wipe immediately before applying coating
- Apply one or two coats of intermediate / topcoat and recommended aggregate broadcasts depending upon traffic volume and location

TIPS TO MINIMIZE FUTURE OCCURRENCES

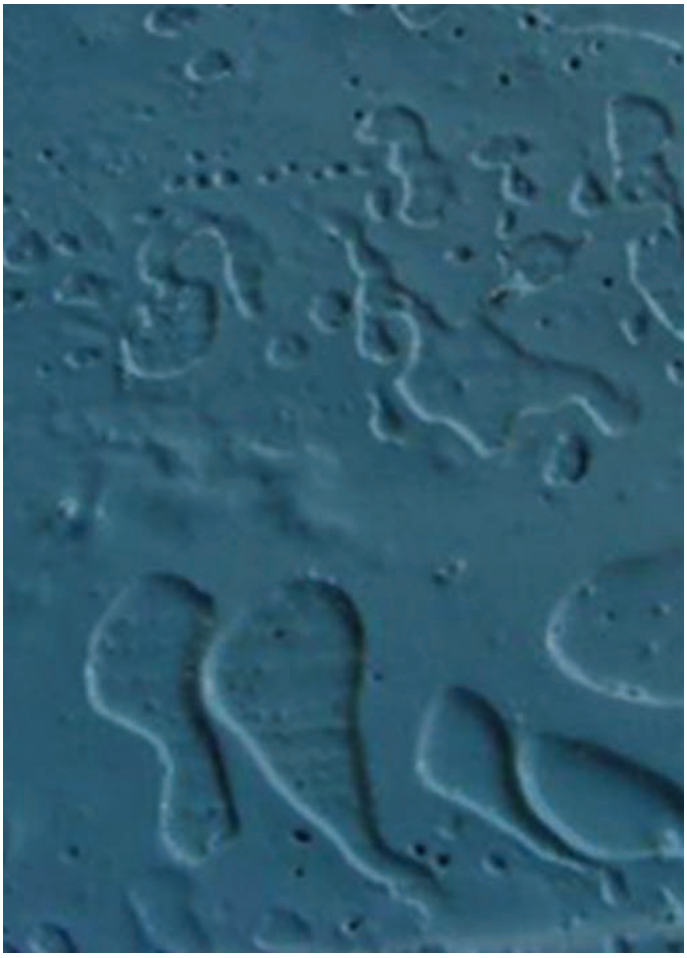
- Broadcast sufficient amount of aggregate per the mil thickness required by the system selected
- Broadcast and back roll aggregate into the system topcoat to provide additional slip resistance and desired texture
- When using two-component and epoxy intermediate coats, fractured aggregate may be acceptable to increase degree of slip resistance
- Refer to manufacturer technical data guide for proper aggregate sieve size and application rates
- Apply mock-ups whenever possible

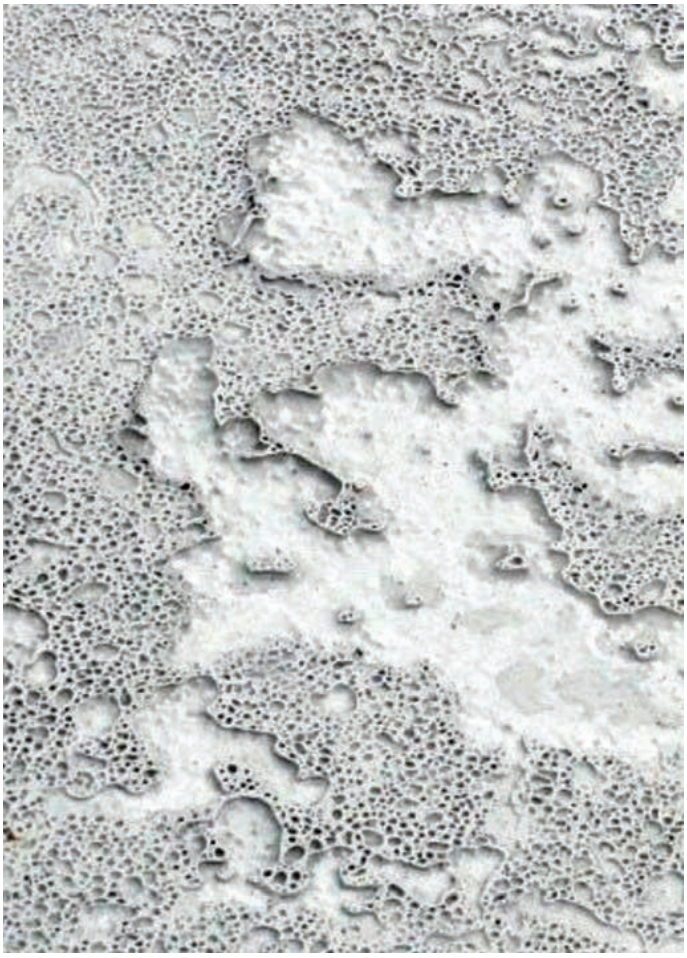


Broadcasting aggregate

WATER DAMAGE

Displacement of material due to a water event before the system has cured. Severity of damage is typically proportional to the length of time the coating has been allowed to cure.





LIKELY CAUSES

Introduction of water before cure

- Application during or immediately preceding inclement weather
- Sprinkler system activation prior to full cure of coating

POSSIBLE REPAIR METHOD

Contact your Sika representative to determine proper course of action

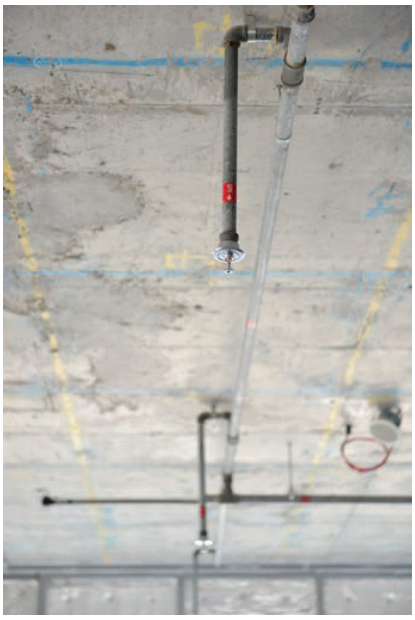
Severity of damage will dictate necessary recourse

- Minor damage may require a simple re-prime and reapplication
- Moderate damage may require grinding followed by solvent wipe, priming and reapplication
- Severe damage may require complete removal and reapplication of system

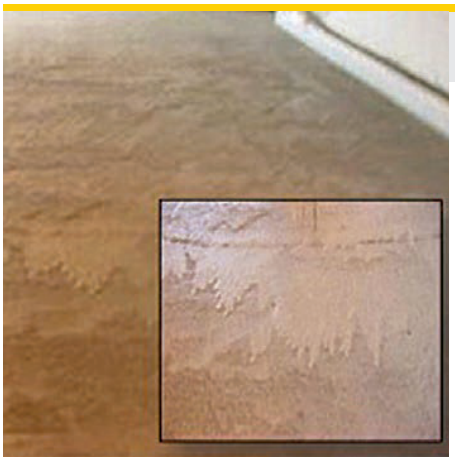
Note: If rain between coats of cured membrane occurs, please contact your representative for project-specific assistance.

TIPS TO MINIMIZE FUTURE OCCURRENCES

- Deactivate nearby sprinkler systems
- Do not apply coatings if rain is expected prior to initial cure of coating



Aesthetics



SAGGING

CAUSE: Excessive pitch and lack of back rolling

REPAIR: Grind high spots and recoat

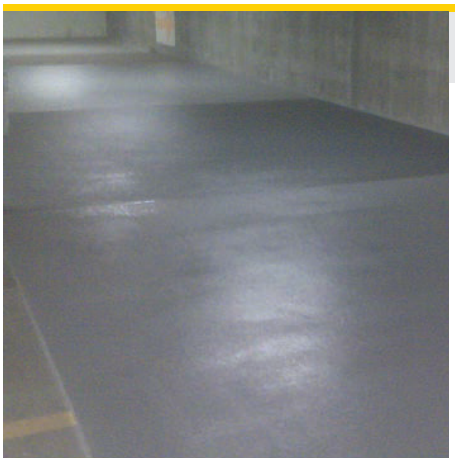
PREVENT: Use slope grade material and employ proper back rolling technique

DISCOLORATION

CAUSE: Non-UV-stable topcoat used in areas exposed to sunlight, contaminates such as salt residue on the surface, moisture on surface during cure, plasticizer migration from tires

REPAIR: Contact your Sika representative to determine proper course of action

PREVENT: Use proper UV-stable topcoat, provide proper drainage to prevent water ponding, do not apply coating if inclement weather is expected during cure, and ensure the system is cleaned and maintained. Also, ensure that owner expectations regarding color are managed. Be sure to install mockups.



COLOR VARIANCES

CAUSE: Color variations from applying two different systems, inconsistent roller marks, or variances from installation stop and start points. Also see section on texture variations as inconsistent textures can cause inconsistencies in appearance of coatings.

REPAIR: Contact your Sika representative to determine proper course of action

PREVENT: Ensure customer expectations regarding color are managed when applying different systems. Be sure to install mockups.

RUSTING

CAUSE: Loose steel shot not removed after shot blasting or iron in aggregate

REPAIR: Remove the coating in the affected area and reapply in accordance with Sika technical data guides. Contact your representative for more information.

PREVENT: Use magnet to remove all loose shot and blow off surface prior to applying coatings. Verify aggregate purity with aggregate supplier.

SPIKED SHOE DAMAGE

CAUSE: Walking on insufficiently cured coating with spiked shoes

REPAIR: Reapply coating to damaged areas in accordance with Sika technical data guides.

PREVENT: Coating must be able to support your weight in spikes before next application

SNOWPLOW DAMAGE

CAUSE: Scraping of the membrane from metal blade used to remove snow

REPAIR: Reapply coating to damaged areas in accordance with Sika technical data guides.

PREVENT: Ensure owner uses plastic or rubber blades on snow removal equipment

Note: Please consult your Sika representative for project-specific repair method recommendations

GUIDELINE PROCEDURES FOR COATINGS MOCK-UPS

Dew point refers to temperature at which moisture in the air will form water droplets on surfaces. Since surface moisture impacts the curing properties of liquid applied coating materials, it is important to apply products only when surface temperatures are above the dew point.

Using the chart below, the dew point can be calculated once ambient air temperature and relative humidity are measured.

When installing Sika Traffic deck membranes, ensure that the substrate temperature is at least 5° F (3°C) above the dew point during the application and cure for best performance. To use this chart, locate the ambient air temperature in the first column and then find the ambient relative humidity %. The intersection on the chart represents the dew point. For instance, at an ambient temperature of 70° F (21°C) and a relative humidity of 50%, the dew point would be 50° F (10°C). Therefore, installation of Sikalastic Traffic deck membranes should begin only after the surface temperature reaches 55° F (50° F + 5° F); 13°C (10°C + 3°C).

Air Temperature (dry bulb)	**Relative Humidity %**																		
°F (°C)	**100**	**95**	**90**	**85**	**80**	**75**	**70**	**65**	**60**	**55**	**50**	**45**	**40**	**35**	**30**	**25**	**20**	**15**	**10**
110°F (43°C)	**110°F** (43°C)	**108°F** (42°C)	**106°F** (41°C)	**104°F** (40°C)	**102°F** (39°C)	**100°F** (38°C)	**98°F** (37°C)	**95°F** (35°C)	**93°F** (34°C)	**90°F** (32°C)	**87°F** (31°C)	**84°F** (29°C)	**80°F** (27°C)	**76°F** (24°C)	**72°F** (22°C)	**65°F** (18°C)	**60°F** (16°C)	**51°F** (11°C)	**41°F** (5°C)
105°F (41°C)	**110°F** (43°C)	**103°F** (39°C)	**101°F** (38°C)	**99°F** (37°C)	**97°F** (36°C)	**95°F** (35°C)	**93°F** (34°C)	**91°F** (33°C)	**88°F** (31°C)	**85°F** (29°C)	**83°F** (28°C)	**80°F** (27°C)	**76°F** (24°C)	**72°F** (22°C)	**67°F** (19°C)	**62°F** (17°C)	**55°F** (13°C)	**47°F** (8°C)	**37°F** (3°C)
100°F (38°C)	**100°F** (38°C)	**99°F** (37°C)	**97°F** (36°C)	**95°F** (35°C)	**93°F** (34°C)	**91°F** (33°C)	**89°F** (32°C)	**86°F** (30°C)	**84°F** (29°C)	**81°F** (27°C)	**78°F** (26°C)	**75°F** (24°C)	**71°F** (22°C)	**67°F** (19°C)	**63°F** (17°C)	**58°F** (14°C)	**52°F** (11°C)	**44°F** (7°C)	**32°F** (0°C)
95°F (35°C)	**95°F** (35°C)	**93°F** (34°C)	**93°F** (33°C)	**90°F** (32°C)	**88°F** (31°C)	**86°F** (30°C)	**84°F** (29°C)	**81°F** (27°C)	**79°F** (26°C)	**76°F** (24°C)	**73°F** (23°C)	**70°F** (21°C)	**67°F** (19°C)	**63°F** (17°C)	**59°F** (15°C)	**54°F** (12°C)	**48°F** (9°C)	**40°F** (4°C)	**32°F** (0°C)
90°F (32°C)	**90°F** (32°C)	**88°F** (31°C)	**87°F** (31°C)	**85°F** (29°C)	**83°F** (28°C)	**81°F** (27°C)	**79°F** (26°C)	**76°F** (24°C)	**74°F** (23°C)	**71°F** (22°C)	**68°F** (20°C)	**65°F** (18°C)	**62°F** (17°C)	**59°F** (15°C)	**54°F** (12°C)	**49°F** (9°C)	**43°F** (6°C)	**36°F** (2°C)	**32°F** (0°C)
85°F (29°C)	**85°F** (29°C)	**83°F** (28°C)	**81°F** (27°C)	**80°F** (27°C)	**78°F** (26°C)	**76°F** (24°C)	**74°F** (23°C)	**72°F** (22°C)	**69°F** (21°C)	**67°F** (19°C)	**64°F** (18°C)	**61°F** (16°C)	**58°F** (14°C)	**54°F** (12°C)	**50°F** (10°C)	**45°F** (7°C)	**38°F** (3°C)	**32°F** (0°C)	
80°F (27°C)	**80°F** (27°C)	**78°F** (26°C)	**77°F** (25°C)	**75°F** (24°C)	**73°F** (23°C)	**71°F** (22°C)	**69°F** (21°C)	**67°F** (19°C)	**65°F** (18°C)	**62°F** (17°C)	**59°F** (15°C)	**56°F** (13°C)	**53°F** (12°C)	**50°F** (10°C)	**45°F** (7°C)	**40°F** (4°C)	**35°F** (2°C)	**32°F** (0°C)	
75°F (24°C)	**75°F** (24°C)	**73°F** (23°C)	**72°F** (22°C)	**70°F** (21°C)	**68°F** (20°C)	**66°F** 19°C)	**64°F** (18°C)	**62°F** (17°C)	**60°F** (16°C)	**58°F** (14°C)	**55°F** (13°C)	**52°F** (11°C)	**49°F** (9°C)	**45°F** (7°C)	**41°F** (5°C)	**36°F** (2°C)	**32°F** (0°C)		
70°F (21°C)	**70°F** (21°C)	**68°F** (20°C)	**67°F** (19°C)	**65°F** (18°C)	**63°F** (17°C)	**61°F** (16°C)	**59°F** (15°C)	**57°F** (14°C)	**55°F** (13°C)	**53°F** (12°C)	**50°F** (10°C)	**47°F** (8°C)	**44°F** (7°C)	**40°F** (4°C)	**37°F** (3°C)	**32°F** (0°C)			
65°F (18°C)	**65°F** (18°C)	**63°F** (17°C)	**62°F** (17°C)	**60°F** (16°C)	**59°F** (15°C)	**57°F** (14°C)	**55°F** (13°C)	**53°F** (12°C)	**50°F** (10°C)	**48°F** (9°C)	**45°F** (7°C)	**42°F** (6°C)	**40°F** (4°C)	**36°F** (2°C)	**32°F** (0°C)				
60°F (16°C)	**60°F** (16°C)	**58°F** (14°C)	**57°F** (14°C)	**55°F** (13°C)	**53°F** (12°C)	**52°F** (11°C)	**50°F** (10°C)	**48°F** (9°C)	**45°F** (7°C)	**43°F** (6°C)	**41°F** (5°C)	**38°F** (3°C)	**35°F** (2°C)	**32°F** (0°C)					
55°F (13°C)	**55°F** (13°C)	**53°F** (12°C)	**52°F** (11°C)	**50°F** (10°C)	**49°F** (9°C)	**47°F** (8°C)	**45°F** (7°C)	**43°F** (6°C)	**40°F** (4°C)	**38°F** (3°C)	**36°F** (2°C)	**34°F** (1°C)	**32°F** (0°C)						
50°F (10°C)	**50°F** (10°C)	**48°F** (9°C)	**46°F** (8°C)	**45°F** (7°C)	**44°F** (7°C)	**42°F** (6°C)	**40°F** (4°C)	**38°F** (3°C)	**36°F** (2°C)	**34°F** (1°C)	**32°F** (0°C)								
45°F (7°C)	**45°F** (7°C)	**43°F** (6°C)	**42°F** (6°C)	**40°F** (4°C)	**39°F** (4°C)	**37°F** (3°C)	**35°F** (2°C)	**33°F** (1°C)	**32°F** (0°C)										
40°F (4°C)	**40°F** (4°C)	**39°F** (4°C)	**37°F** (3°C)	**35°F** (2°C)	**34°F** (1°C)	**32°F** (0°C)													

GLOSSARY OF TERMS

Blisters:
Sporadic swells filled with air or fluid on the surface of a coating. They can vary significantly in size, shape and thickness and are typically much thicker than bubbles. (See also: Wrinkles)

Bubble:
A translucent thin film forming on the surface that creates a crater when popped.

Cracks:
Fractures in the existing substrate that telegraph through coating; or fractures that occur in cured membrane after application.

Crater:
Divot on surface formed from a bubble that has popped.

Debonding:
Bond line failure between the coating and existing substrate or coating. (See also: Delamination)

Delamination:
Bond line failure between the coating and existing substrate or coating. (See also: Debonding)

Pinholes:
Small hole or puncture in the coating which may cause a bubble to form.

Texture:
Profile of finished coating to impart skid and slip resistance as well as provide protection and aesthetic features to the overall system.

Water Damage:
Displacement of material due to a water event before the system has cured. Severity of damage is typically proportional to the length of time the coating has been allowed to cure.

Wrinkles:
Sporadic swells filled with air or fluid on the surface of a coating, causing the coating to look wrinkled. The size, shape and thickness of wrinkles vary and are typically much thicker than bubbles. (See also: Blisters)

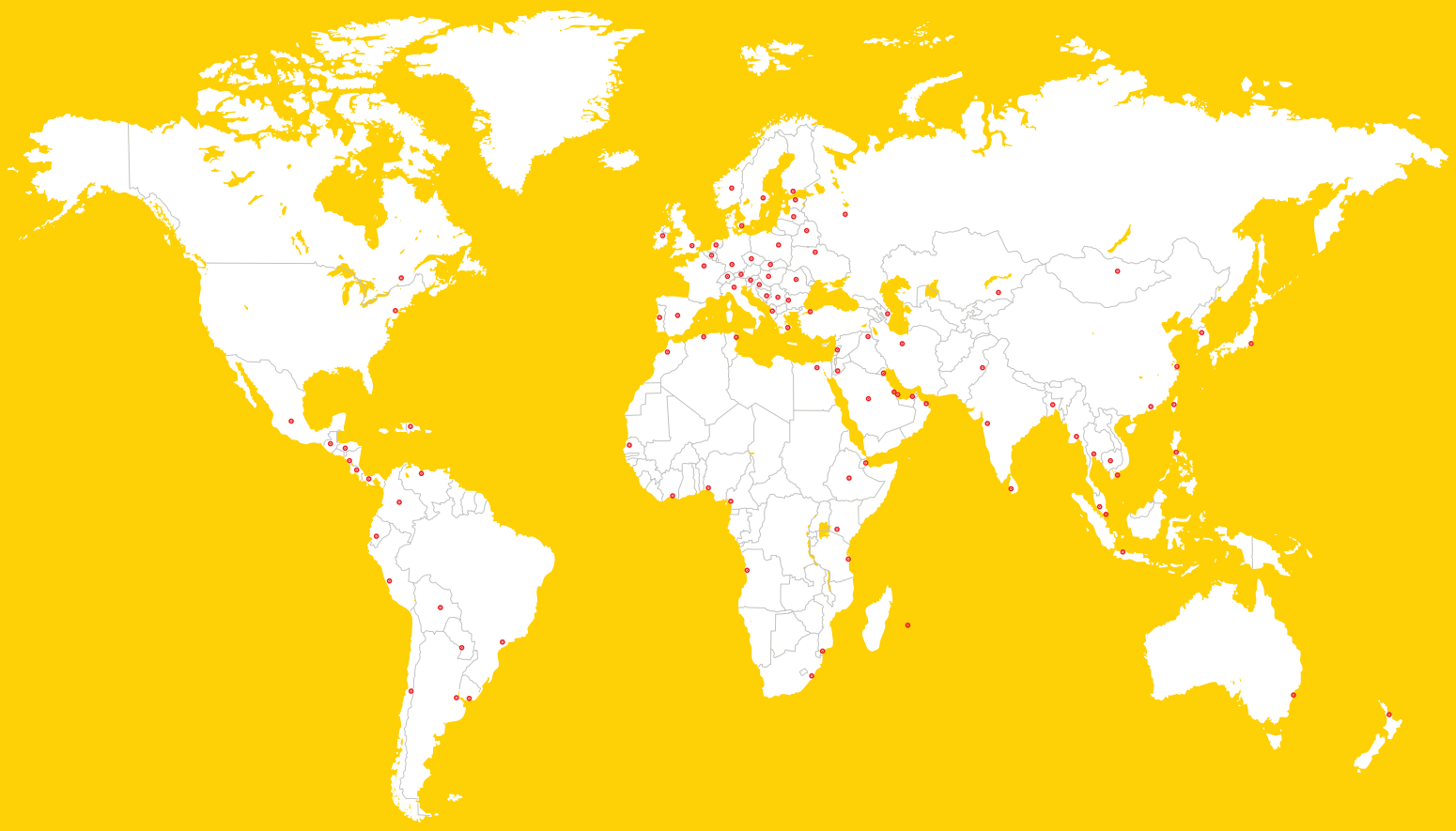
ADDITIONAL RESOURCES

Consult the following for more information:

Sika's Technical Support:

A team of experienced Technical Support Specialists are available to assist with your immediate needs. Technical Support can be reached at (201) 933 8800 or at www.usa.sika.com/en/construction/adhesives-sealants/contact-the-team

GLOBAL BUT LOCAL PARTNERSHIP



WE ARE SIKA
With more than 100 years of experience, Sika is a worldwide innovation and sustainability leader in the development and production of systems and products for commercial and residential construction, as well as the transportation, marine, automotive, and renewable energy manufacturing industries.

Sika has offices in 103 countries with over 400 manufacturing facilities and more than 33,000 employees worldwide. With annual sales of CHF 11.24 billion in 2023, our commitment to quality, innovation, and the environment as well as putting our customer's needs first, encompasses why Sika is the global leader in our industries.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.

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