

CRACK REPAIR

RANDALL KRATZ – DISTRICT MANAGER MD/DC/VA
SIKA CORPORATION – REFURBISHMENT, SEALING & BONDING
WITH SIKA SINCE 1991
GRADUATE DREXEL UNIVERSITY - COMMERCE & ENGINEERING
410-336-3757
KRATZ.RANDALL@US.SIKA.COM

✓ Certificates will be provided
via email and make take up
to a week to distribute

LEARNING OBJECTIVES

- ✓ Identify the concerns related to cracks
- ✓ Recognize the types and causes of cracks
- ✓ Learn the common crack repair techniques for selection and proper execution
 - Rout & Seal [$< \$10/\text{LF}^*$]
 - Rout & Fill [$< \$10/\text{LF}^*$]
 - Flood & Fill [$< \$5/\text{SF}^*$]
 - Epoxy Injection [$> \$50/\text{LF}^*$]
 - Urethane Injection [$> \$50/\text{LF}^*$]
 - Sealers & Coatings [$< \$10/\text{SF}^*$]

*Cost provided for general comparison reference. Varies substantially based on factors such as quantity, access, labor rates...



CRACK CONCERNS

- ✓ Unsightly and path for efflorescence
- ✓ May continue to widen
 - Freezing/thawing
 - Traffic
 - Yielding
- ✓ Water damage #1 complaint in buildings
- ✓ Process water loss or contamination
- ✓ Ground contamination of chemical loss
- ✓ Hasten sulfate damage
- ✓ Structure damage from reinforcement corrosion
- ✓ Ultimately can lead to structural failure

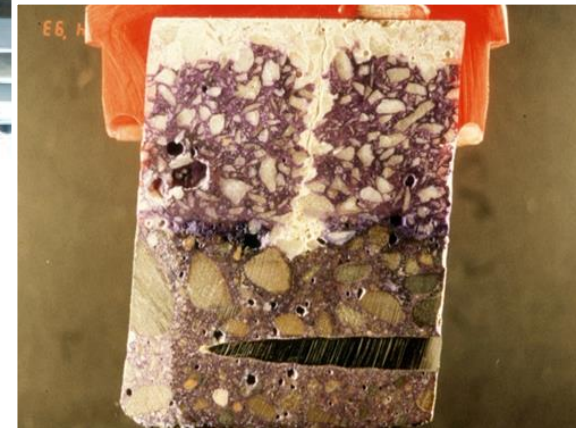


Table 4.1 Guide to reasonable* crack widths, reinforced concrete under service loads

Exposure condition	Crack width	
	in.	mm
Dry air or protective membrane	0.016	0.41
Humidity, moist air, soil	0.012	0.30
Deicing chemicals	0.007	0.18
Seawater and seawater spray, wetting and drying	0.006	0.15
Water-retaining structures†	0.004	0.10

*It should be expected that a portion of the cracks in the structure will exceed these values. With time, a significant portion can exceed these values. These are general guidelines for design to be used in conjunction with sound engineering judgement [sic].

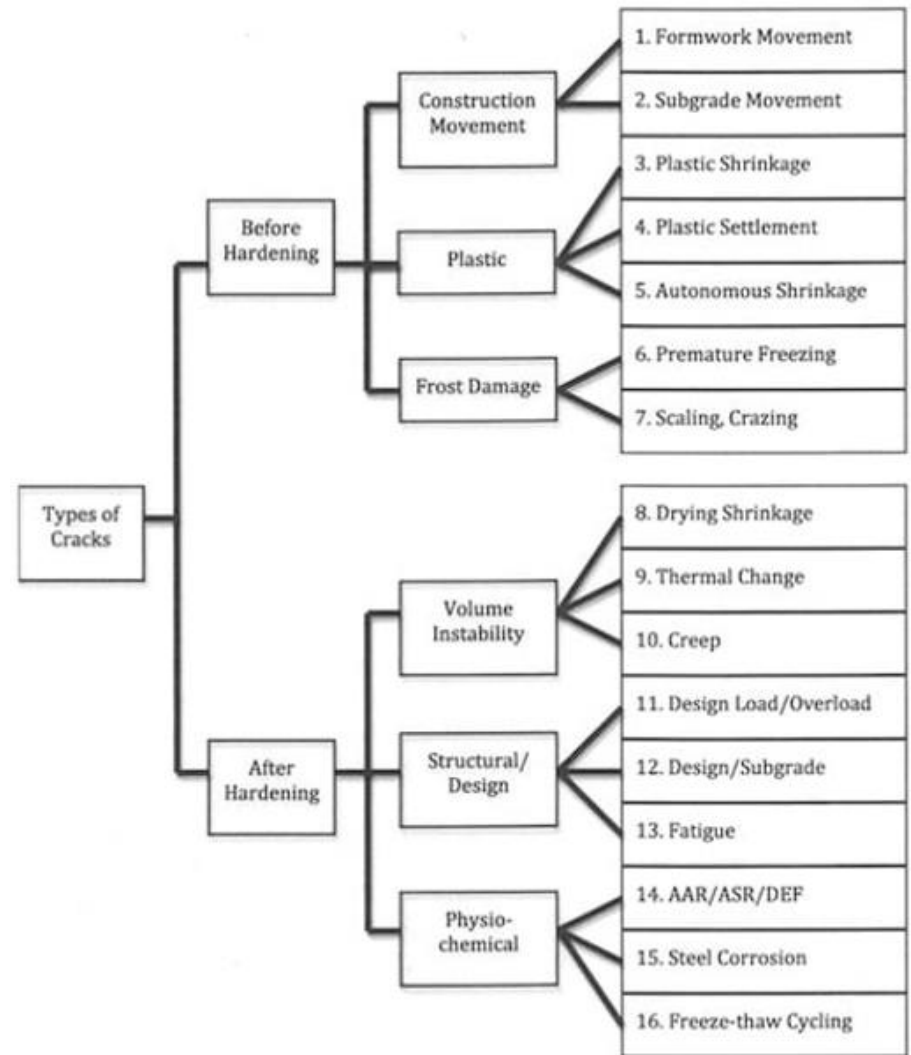
†Excluding [sic] nonpressure pipes.

Note: Table 4.1, Guide to Reasonable Crack Widths, Reinforced Concrete Under Service Loads, was reproduced from ACI 224R-01 (Reapproved 2008) *Control of Cracking of Concrete Structures* with permission from the American Concrete Institute.

- ✓ A dollar bill is 4 mils thick
- ✓ Once cracks reach ½" wide, generally treat as a spall repair
- ✓ Width of crack based on throat, not mouth

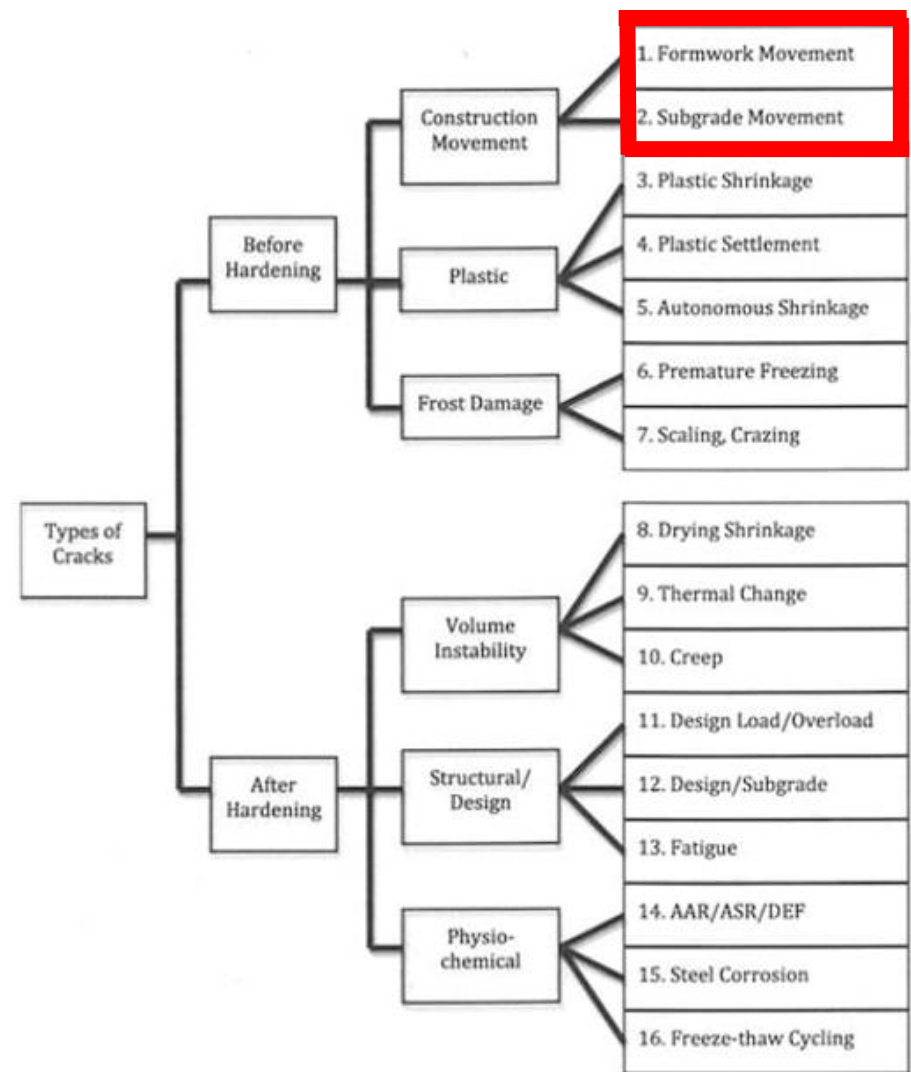
TYPES OF CRACKS AND CAUSES

- ✓ Understanding the type and cause of the crack will allow for better selection of repair technique



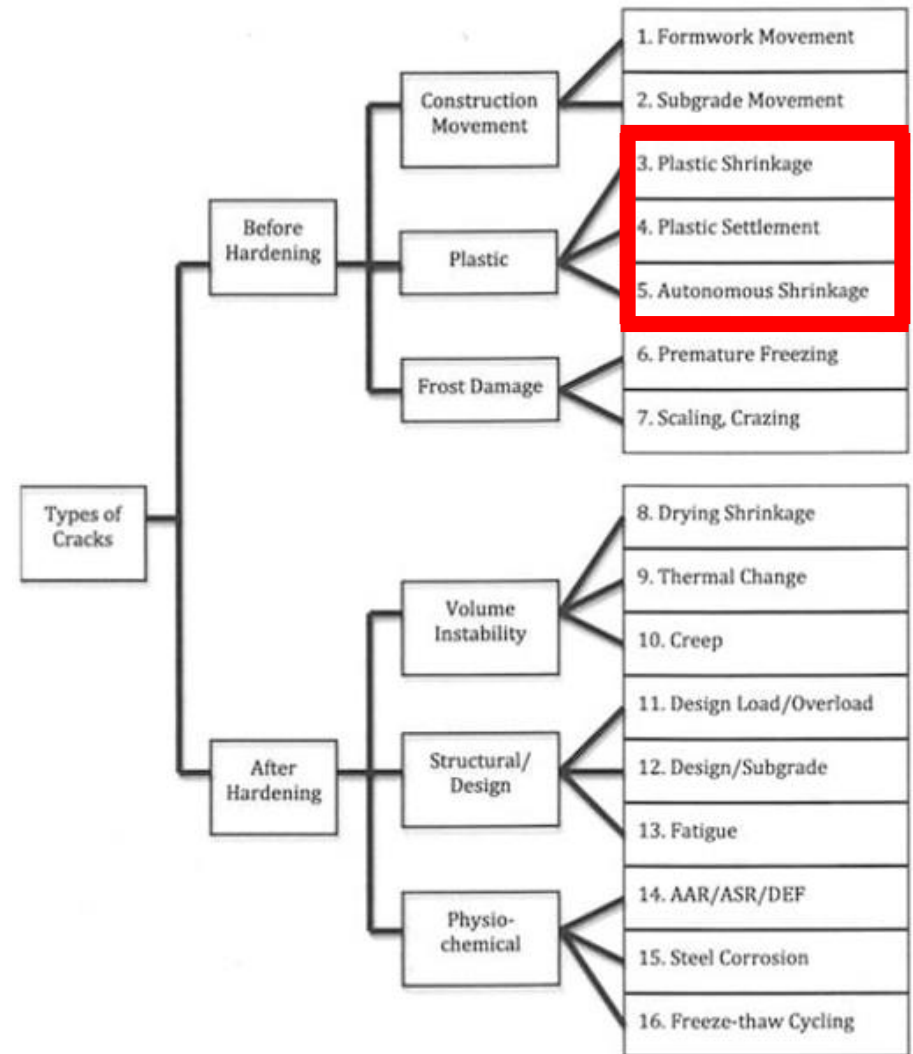
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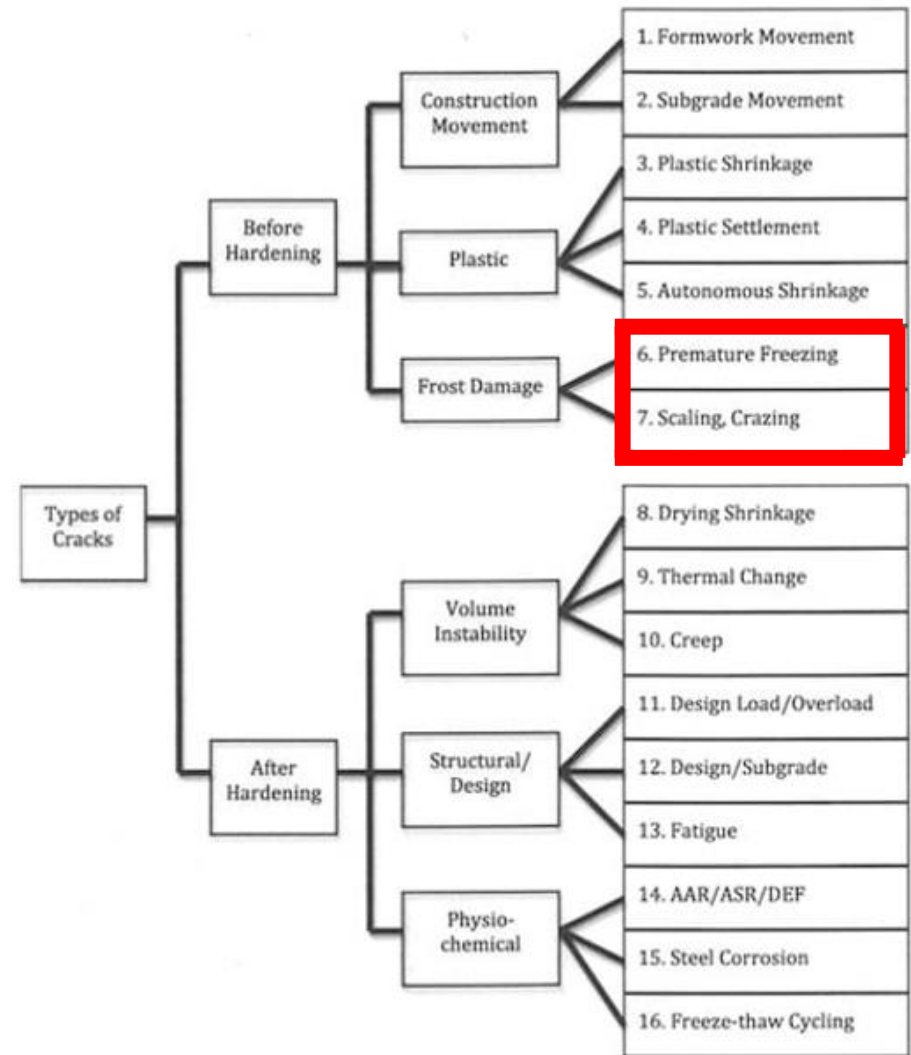
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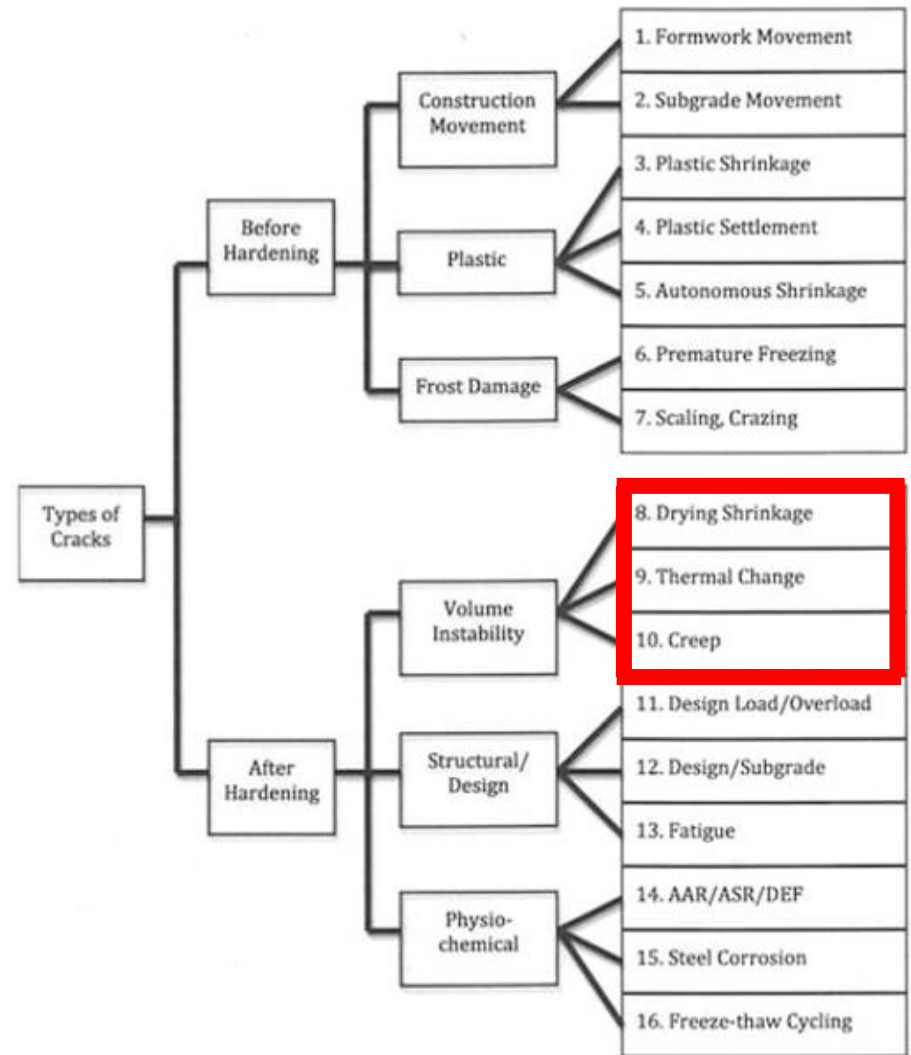
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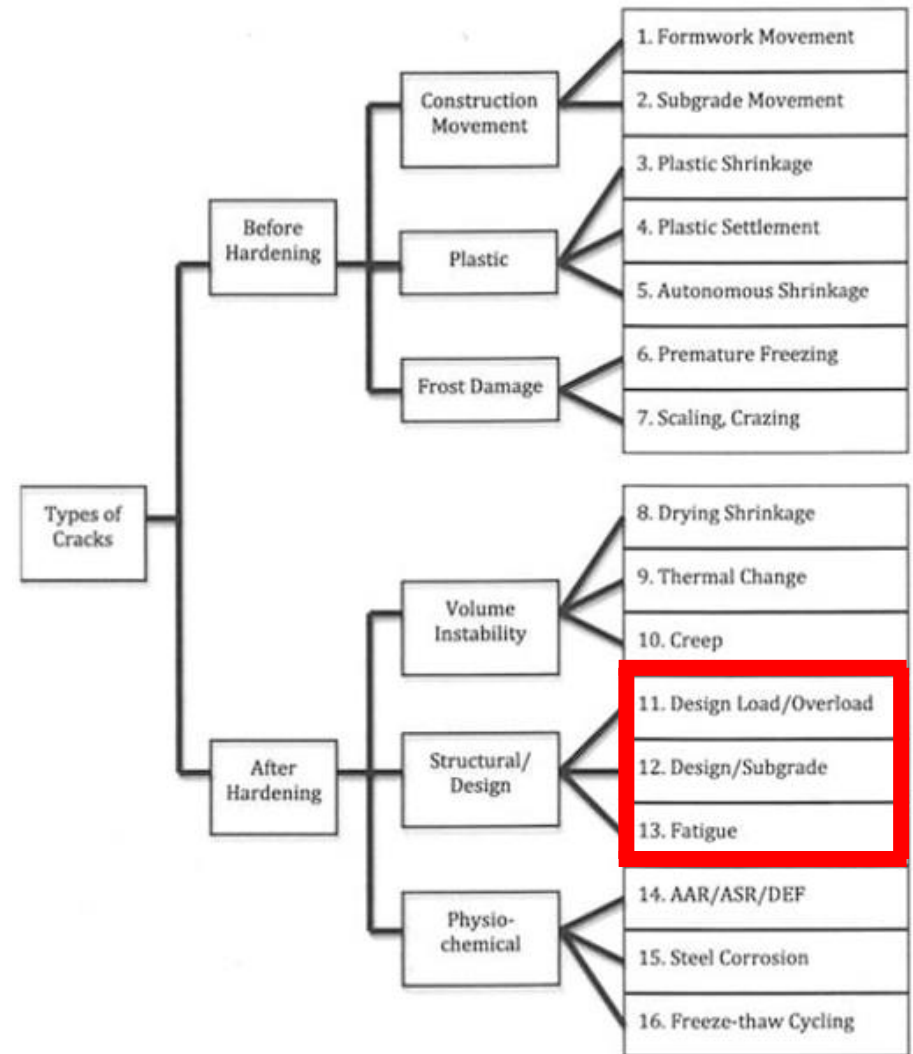
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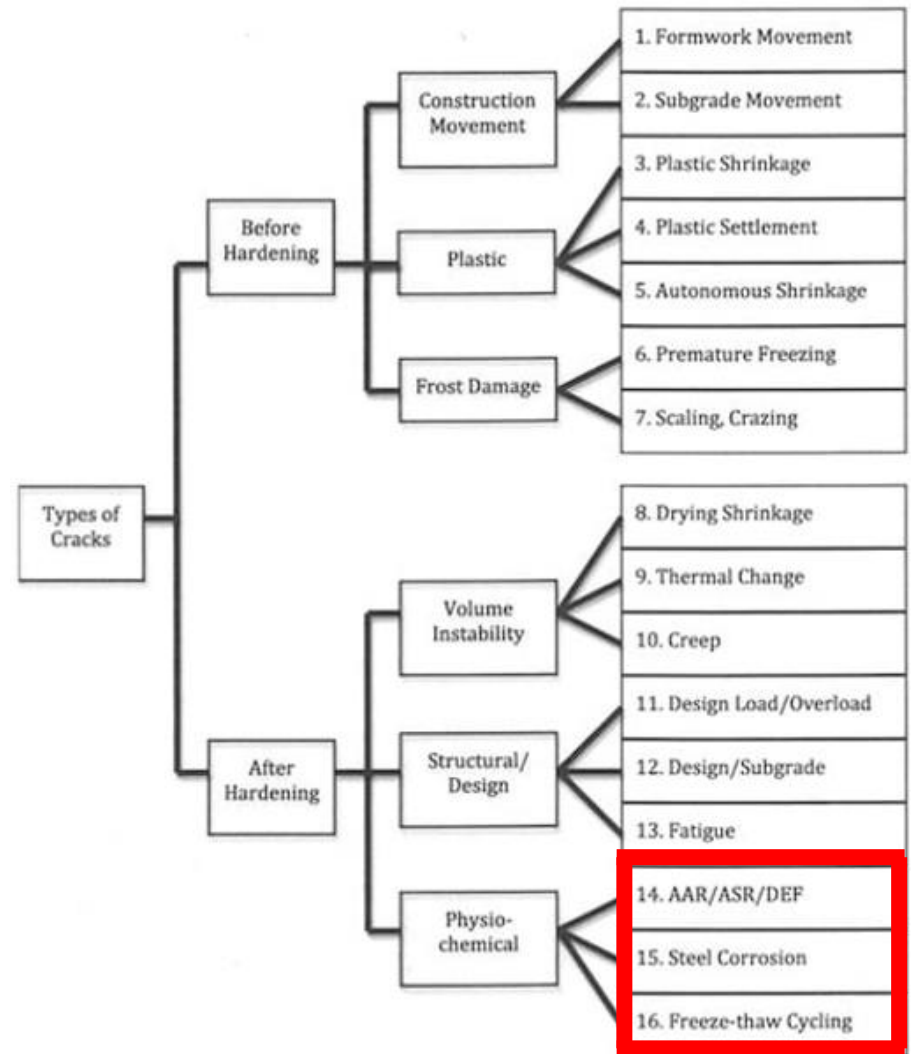
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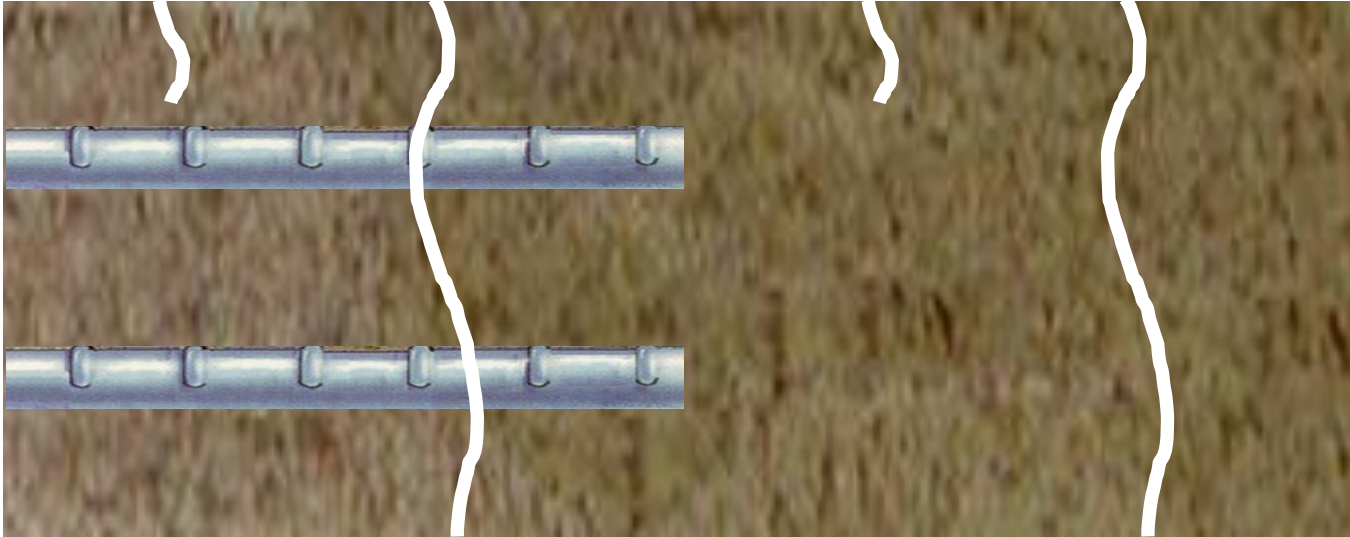
TYPES OF CRACKS AND CAUSES

- ✓ Understanding the type and cause of the crack will allow for better selection of repair technique



SELECTING CRACK REPAIR TECHNIQUE

- ✓ Understand the type, cause, goal, and existing condition
- ✓ **Goal(s):** waterproof, restore surface integrity, restore structural integrity, make appealing
- ✓ **Existing Condition:** static, dynamic, structurally sound, structurally deficient

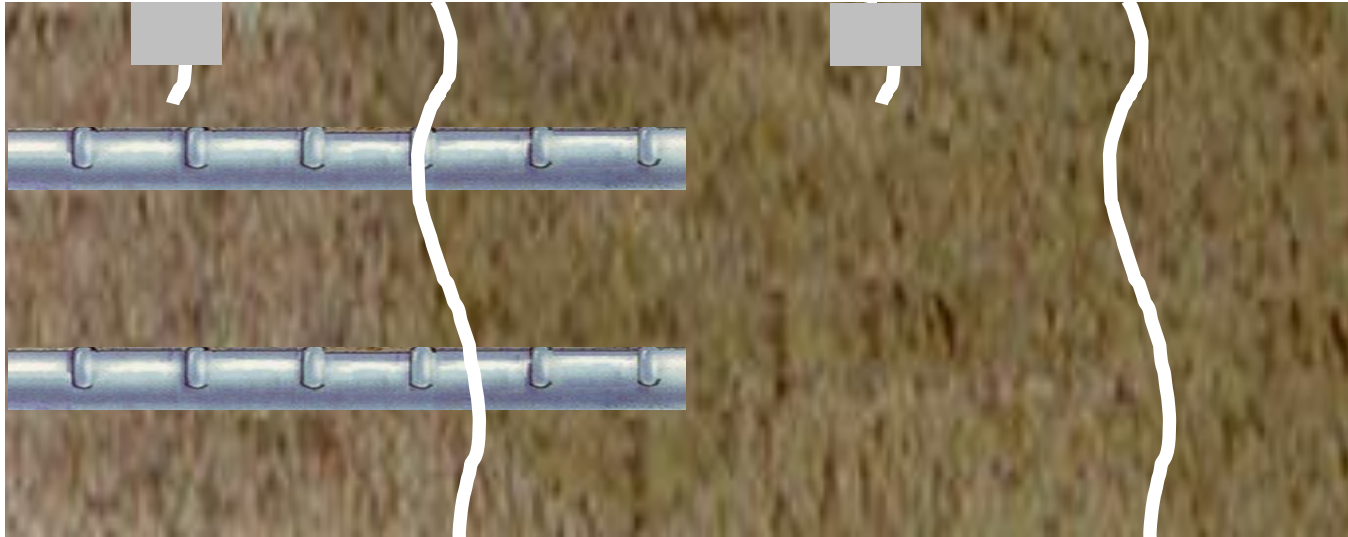


- ✓ Consult licensed structural engineer

SELECTING CRACK REPAIR TECHNIQUE

- ✓ **Static:** non-moving, do not expect reflective/new crack, mostly finer <25 mils, shallower, result of 1-time event
- ✓ **Dynamic:** moving, expect reflective/new crack (acting as joint) more concerning, result of reoccurring forces
 - Load flexing
 - Thermal movement
 - Heaving

Solid or
Flexible



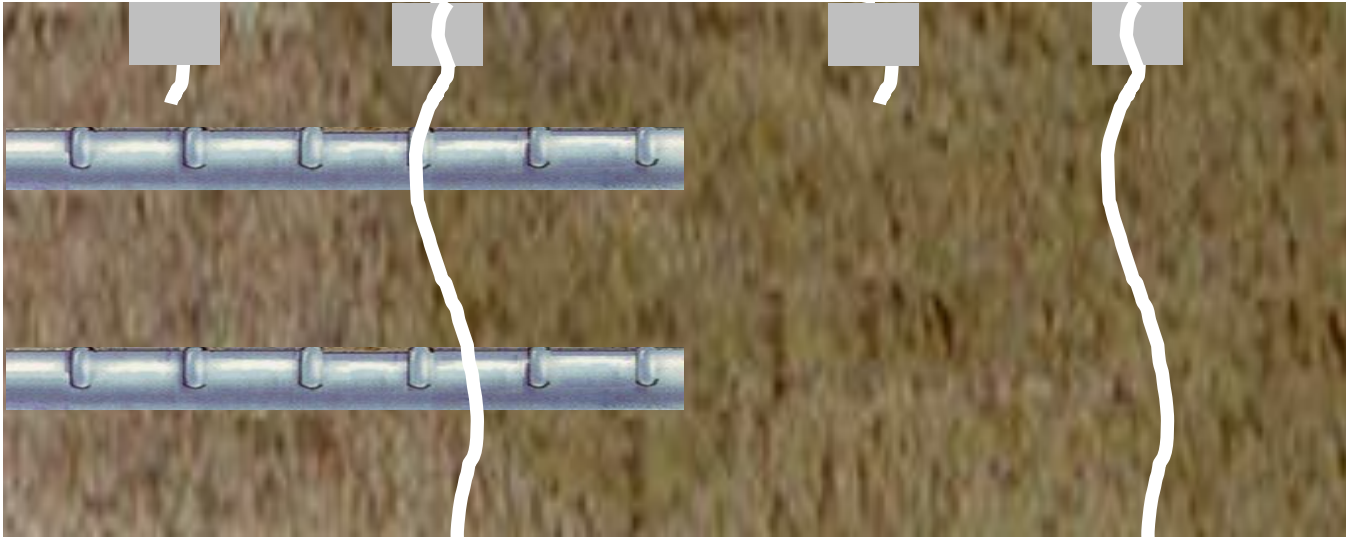
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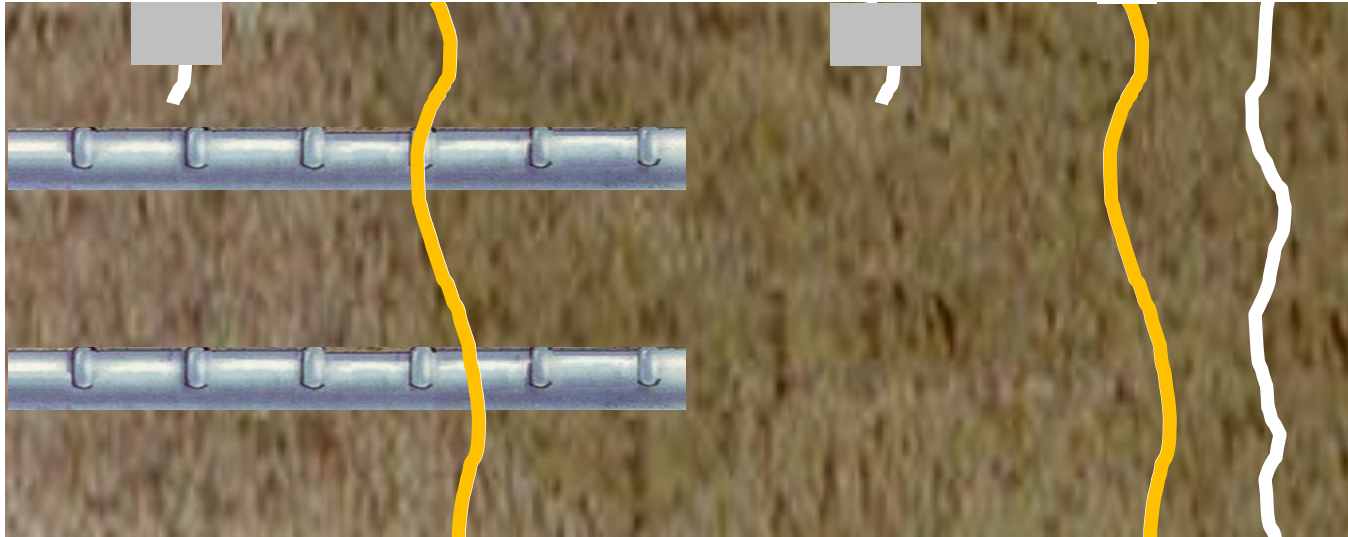


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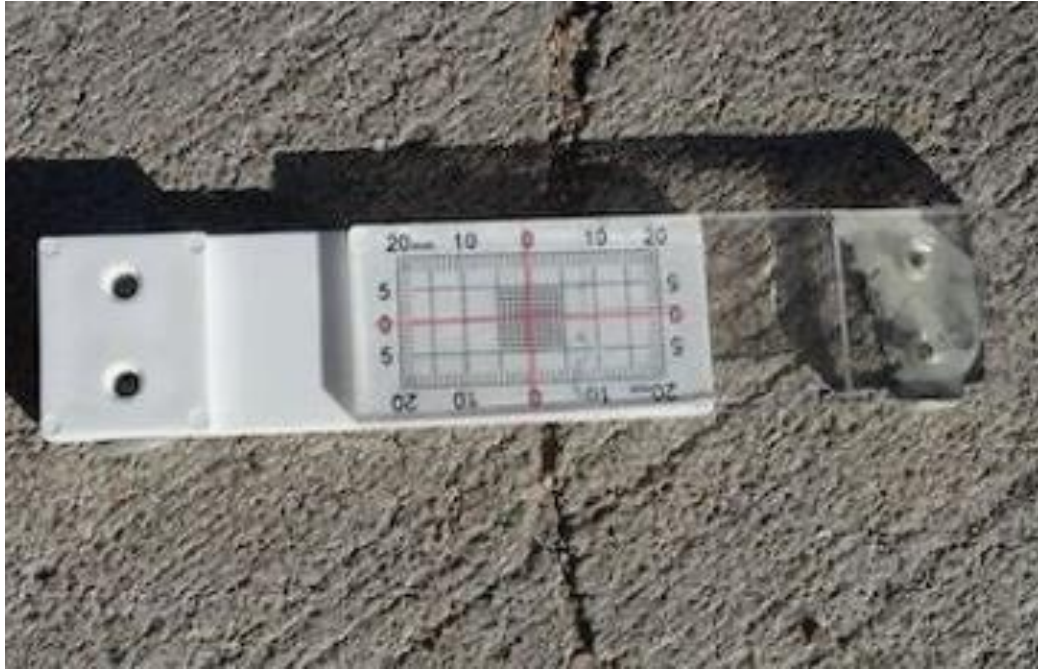
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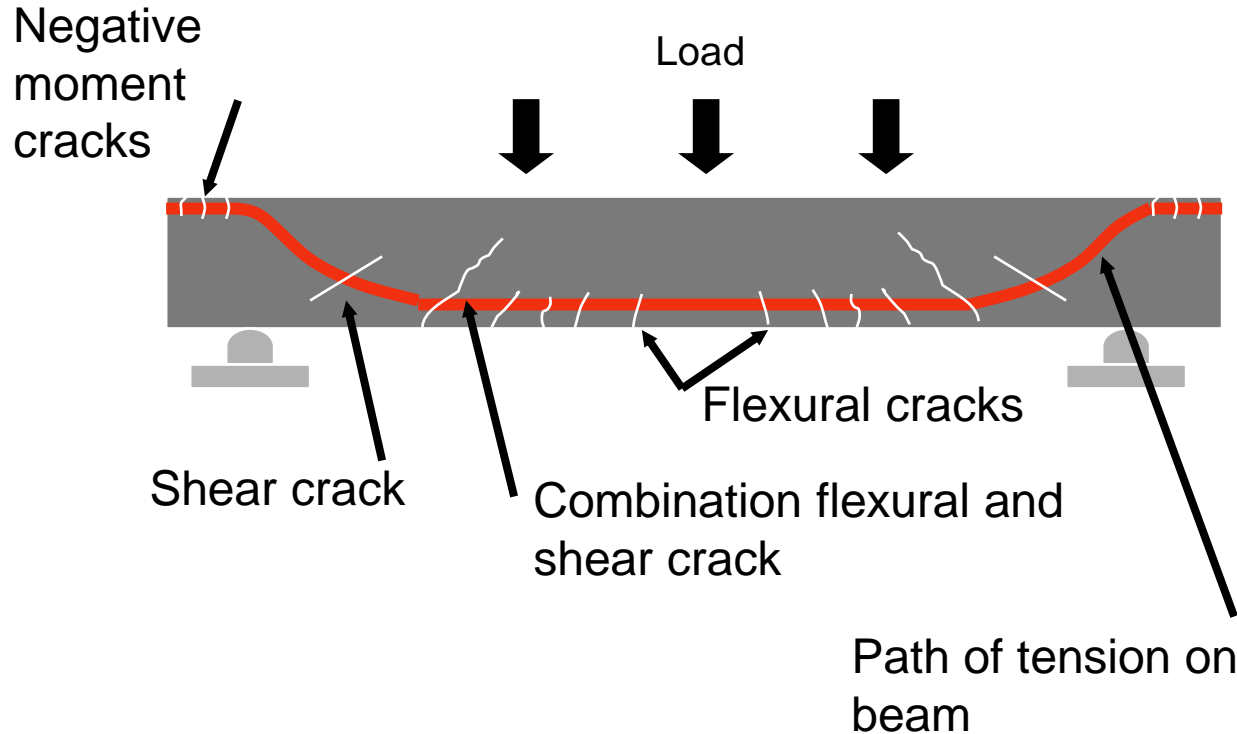
SELECTING CRACK REPAIR TECHNIQUE

- ✓ Crack movement can be monitored – usually over 6 months



- ✓ Consult licensed structural engineer

STRUCTURALLY SOUND OR DEFICIENT



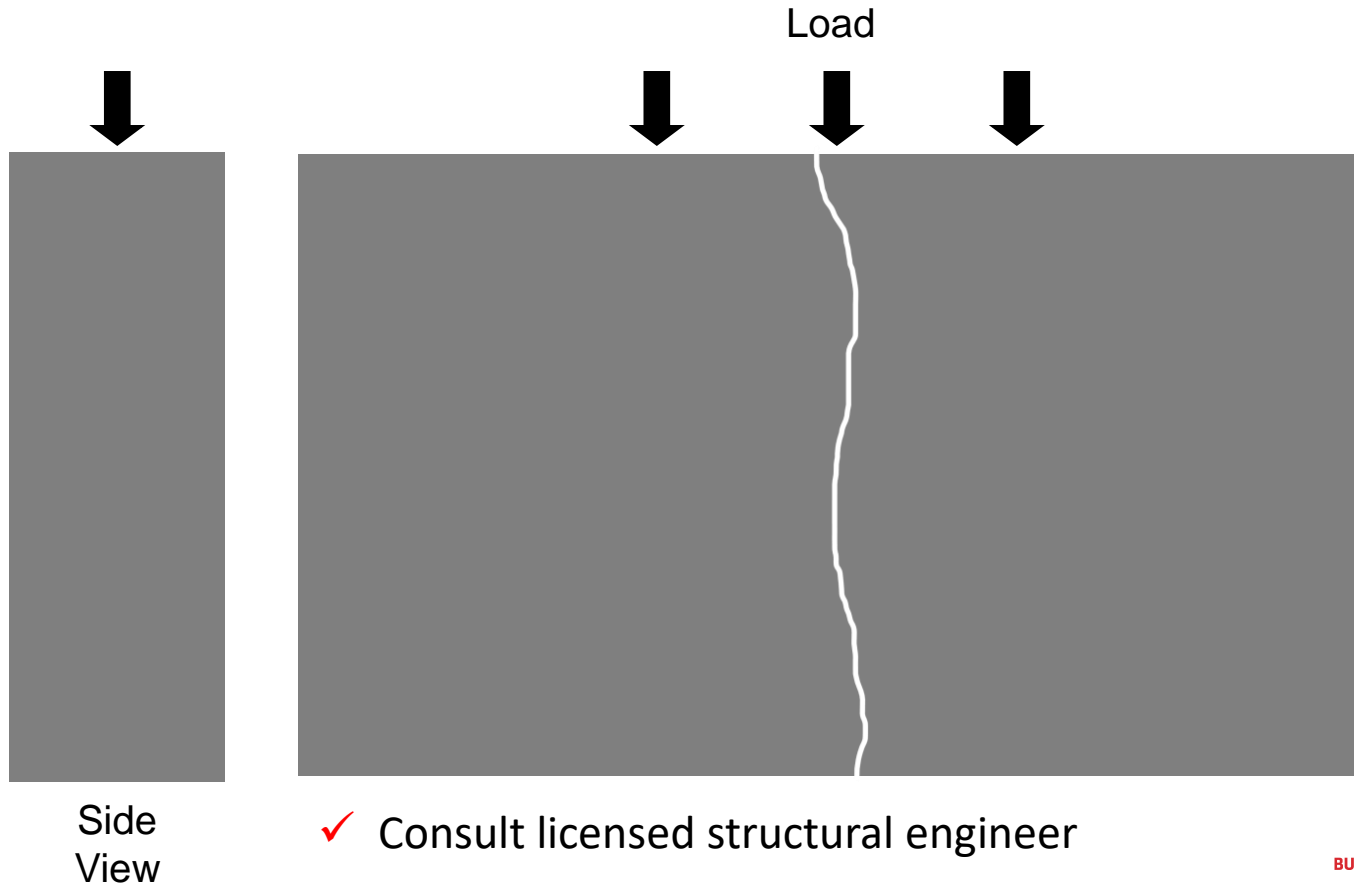
- ✓ Restoring original integrity may not be enough
- ✓ Consult licensed structural engineer

BEYOND CRACK REPAIR



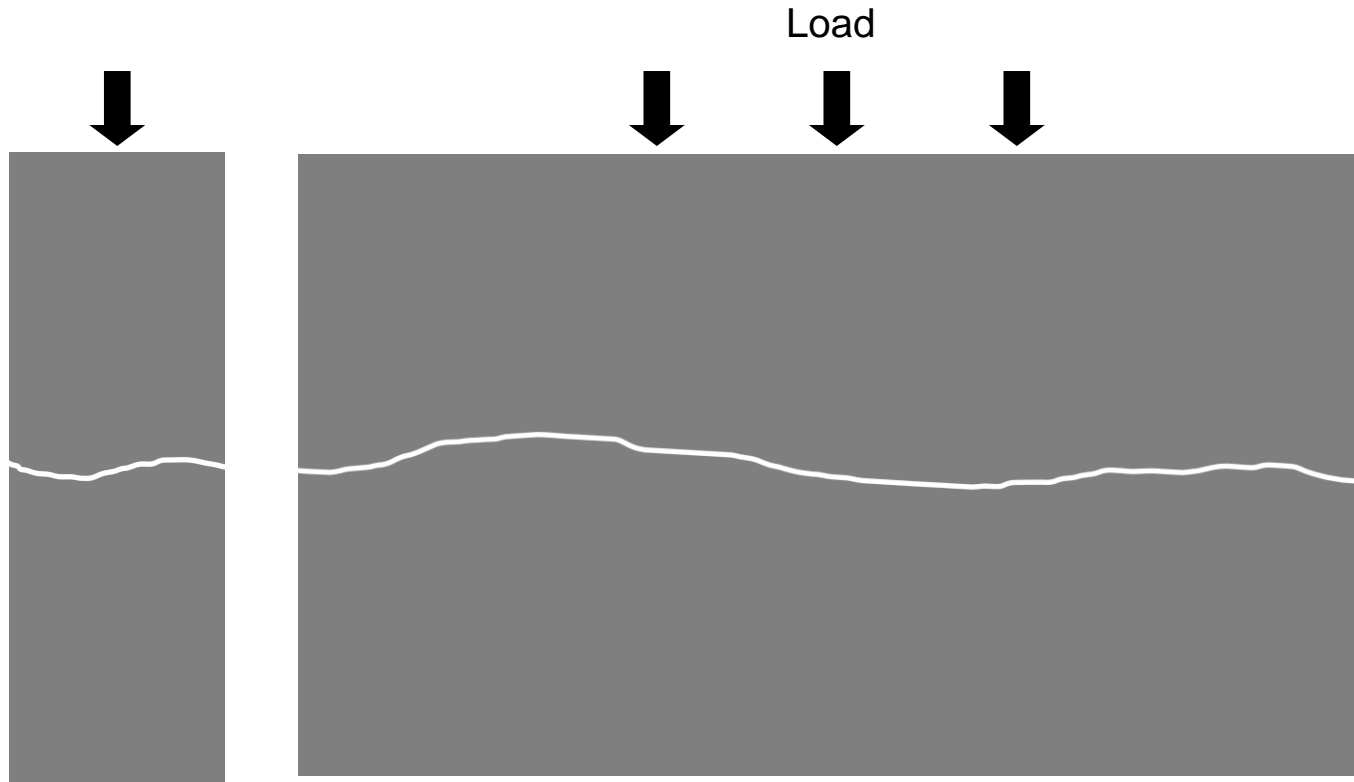
- ✓ Consult licensed structural engineer

STRUCTURALLY SOUND OR DEFICIENT



✓ Consult licensed structural engineer

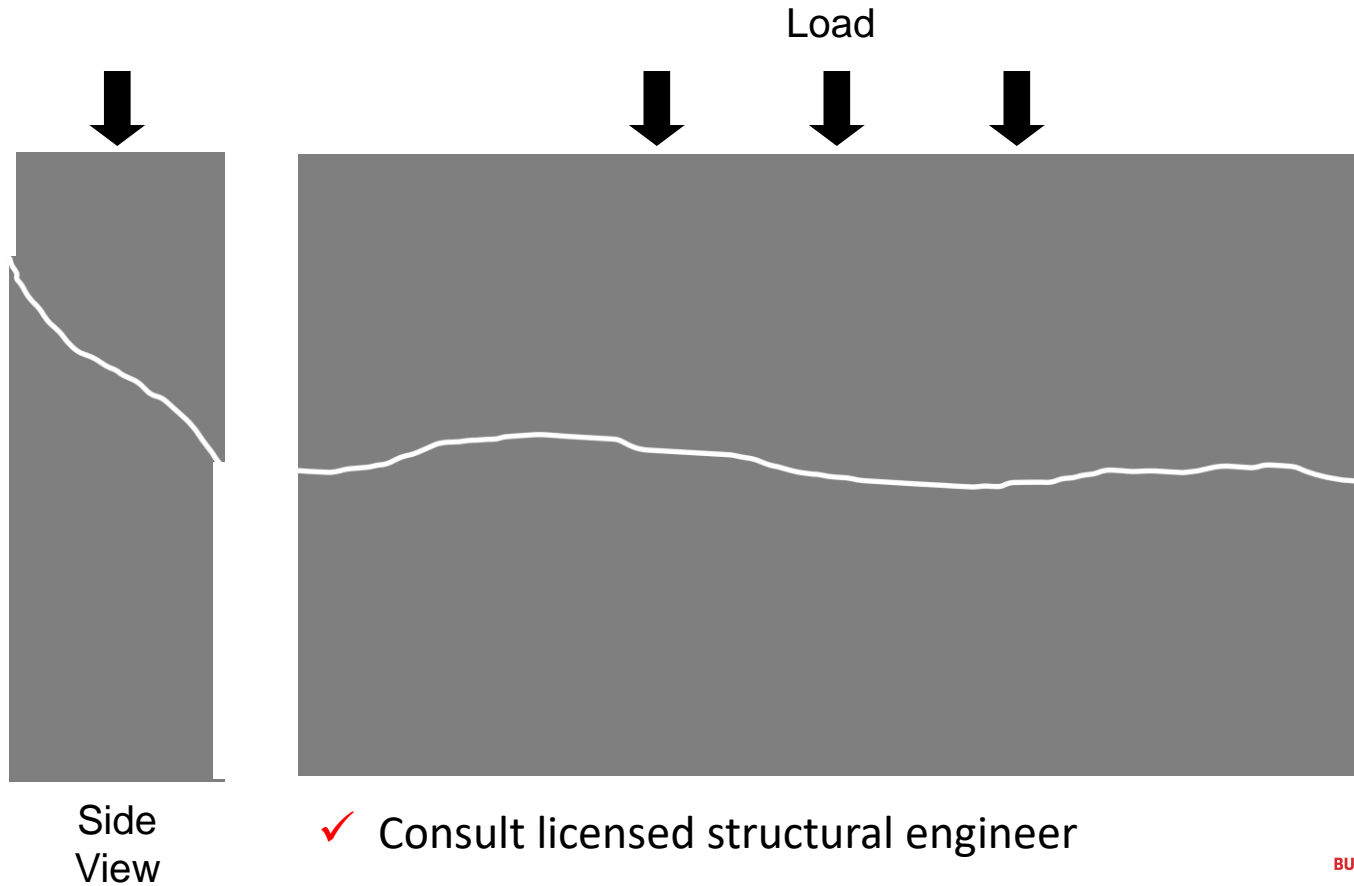
STRUCTURALLY SOUND OR DEFICIENT



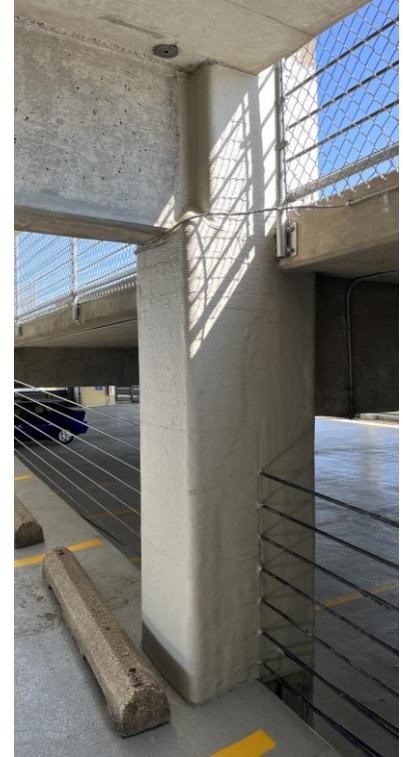
Side
View

✓ Consult licensed structural engineer

STRUCTURALLY SOUND OR DEFICIENT



BEYOND CRACK REPAIR



✓ Consult licensed structural engineer

CRACK REPAIR TECHNIQUE SELECTION CHART

Generalization. Always consult PDS for the material's/system's suitability.

Goal/Condition	Route & Seal	Route & Fill	Flood & Fill	Epoxy Injection	Urethane Injection	Sealers & Coatings
Waterproof/Protect ...(positive side, static)	✓	✓	✓	✓	✓	✓
Waterproof/Protect ...(positive side, dynamic)	✓	🤔	🤔	🤔	✓	✓
Waterproof/Protect ...(negative side, static)	🤔	🤔	🤔	✓	✓	✗
Waterproof/Protect ...(negative side, dynamic)	🤔	🤔	🤔	🤔	✓	✗
Waterproof/Protect ...(active leakage)	✗	✗	✗	🤔	✓	✗
Restore Surface Integrity ...(static)	✗	✓	✓	✓	✗	✓
Restore Structural Integrity ...(weld/eliminate)	✗	🤔	🤔	✓	✗	✗
Make Visually Appealing ...(conceal)	✗	✗	✗	✗	✗	✓

SELECTING CRACK REPAIR TECHNIQUE

- ☐ Waterproof/protect
- ☐ Restore surface integrity
- ☐ Restore structural integrity
- ☐ Make visually appealing

Rout & Seal

- Flexible sealing

Rout & Fill

- Solid filling

Flood & Fill

- Solid filling

Epoxy Injection

- Structural repair

Urethane Injection

- Active leak sealing

Sealers & Coatings

- Aesthetic protection



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ROUT & SEAL

- ✓ Waterproofing and protective
- ✓ Excellent positive side sealing
- ✓ Flexible to tolerate movement
- ✓ Fine to wide crack widths
- ✓ Long life expectancy
- ✓ Can be coated
- ✓ Easy to do
- ✓ Low cost

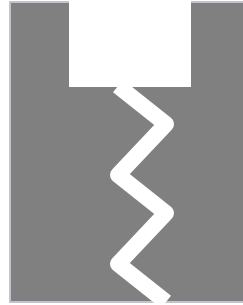


ROUT & SEAL

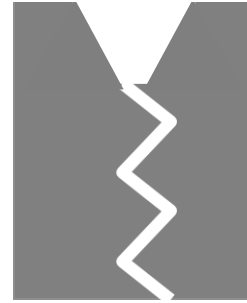
Crack



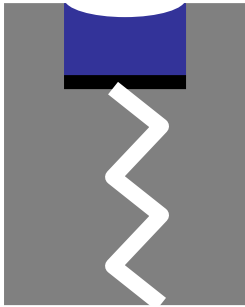
Routed



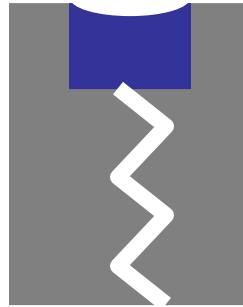
V-notched



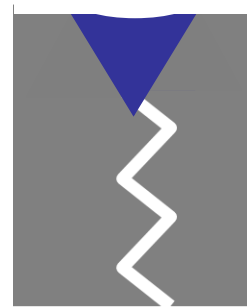
Bond-breaker tape & sealed



Sealed



Sealed



ROUT & SEAL – PREPARATION

- ✓ Use crack chaser or saw
- ✓ Rout $\frac{1}{4}$ " by $\frac{1}{4}$ " to $\frac{1}{2}$ " by $\frac{1}{2}$ "
- ✓ Dustless equipment available
- ✓ Remove dust - blow, vacuum, or sweep



ROUT & SEAL - MATERIALS



Sikaflex 1A & Sikaflex 2c NS EZ Mix+ – traffic/immersion service, coat-able, damp substrate

Sikaflex HY 100 – quickly coat-able, better UV light resistance

Sikasil WS 295 and Sikasil 728 – best UV light resistance, not coat-able



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ROUT & SEAL - MATERIALS

Sikaflex 1A & Sikaflex 2c NS EZ Mix+

Sika Hyflex 150 LM

Sikasil WS 295 & Sikasil 728

- ✓ Lasting, flexible, and waterproofing
- ✓ Strike flush to make less noticeable
- ✓ Choose color for best substrate match
- ✓ Can broadcast sands and fines into surface to improve substrate match



SELECTING CRACK REPAIR TECHNIQUE

- ☐ Waterproof
- ☐ Restore surface integrity
- ☐ Restore structural integrity
- ☐ Make visually appealing

Rout & Seal

- Flexible sealing

Rout & Fill

- Solid filling

Flood & Fill

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- Structural repair

Urethane Injection

- Active leak sealing

Sealers & Coatings

- Aesthetic protection



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ROUT & FILL

- ✓ Restores surface integrity
- ✓ Structural if full depth
- ✓ Waterproofing
- ✓ Fine to ¼" wide cracks
- ✓ Permanent life expectancy
- ✓ Can be coated
- ✓ Easy to do
- ✓ Low cost

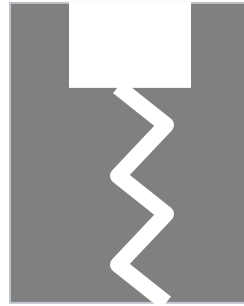


ROUT & FILL

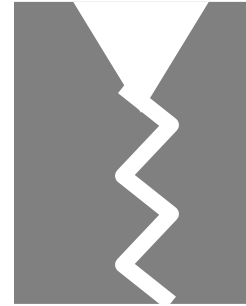
Crack



Routed



V-notched



Filled



Filled



Rout or V-notch
the crack,
remove dust,
then fill.

ROUT & FILL

Crack



Routed



V-notched



Filled



Filled



Rout or V-notch
the crack,
remove dust,
then fill.

Repair mortar/epoxy gel



ROUT & FILL - MATERIALS

Sikadur 55 SLV (105 cps)

Sikadur 35 Hi-Mod LV (375 cps)

Sikadur CrackFix (cartridge packaging of Sikadur 35 Hi-Mod LV)



✓ Might pour directly into wider cracks

ROUT & FILL - MATERIALS



- ✓ Routing/v-notching helps contain resin, improves edges, creates consistent width, and funnels resin into crack for better penetration

ROUT & FILL



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ROUT & FILL



ROUT & FILL - MATERIALS

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Sikadur CrackFix

- ✓ Routing/v-notching helps contain resin, improves edges, creates consistent width, and funnels resin into crack for better penetration
- ✓ Adhesive strength of epoxy is higher than adhesion strength of cement
- ✓ Compressive strength is much higher than 5,000 psi



ROUT & FILL - MATERIALS

Sikadur 55 SLV (105 cps)

Sikadur 35 Hi-Mod LV (375 cps)

Sikadur CrackFix

- ✓ Surface integrity restored
- ✓ Can broadcast sands and fines into surface
 - improve substrate match
 - remove glossy appearance
 - make suitable substrate to adhere to
- ✓ After filling crack, can fill rout with Sikadur 31 Hi-Mod Gel for better control and gray color
- ✓ After filling crack, can fill rout with repair mortar to improve substrate match



SELECTING CRACK REPAIR TECHNIQUE

- ☐ Waterproof/protect
- ☐ Restore surface integrity
- ☐ Restore structural integrity
- ☐ Make visually appealing

Rout & Seal

- Flexible sealing

Rout & Fill

- Solid filling

Flood & Fill

- Solid filling

Epoxy Injection

- Structural repair

Urethane Injection

- Active leak sealing

Sealers & Coatings

- Aesthetic protection



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FLOOD & FILL

- ✓ Restores surface integrity
- ✓ Structural if full depth penetration
- ✓ Blocks water and chlorides
- ✓ Fine (2 mils) to ¼" wide cracks
- ✓ Long life expectancy
- ✓ Can be coated
- ✓ Easy to do
- ✓ Cost effective for large volume of cracks over a given area
- ✓ Fast application
- ✓ Quick return to service



FLOOD & FILL - PREPARATION

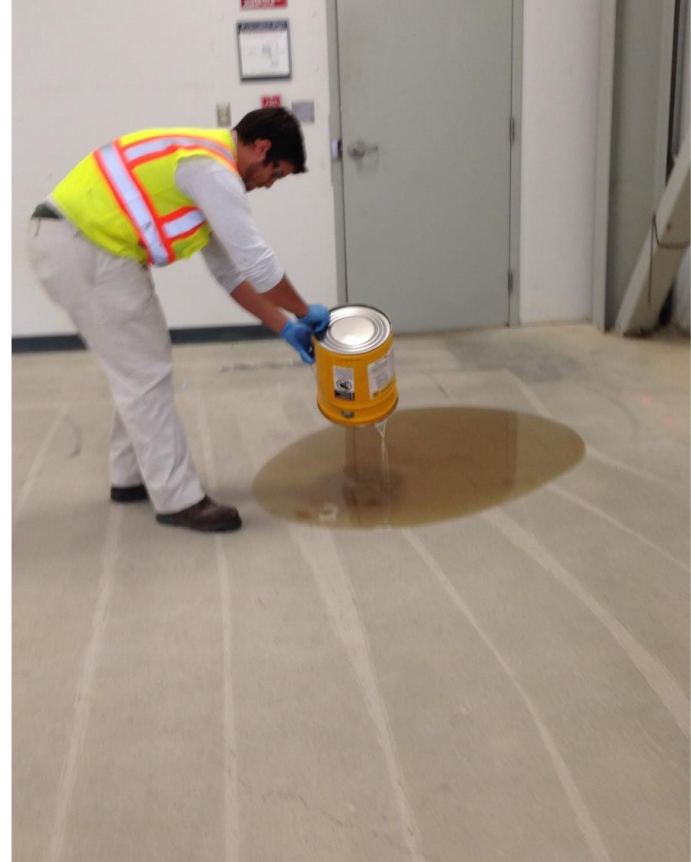


- ✓ Prepare entire area to open cracks, clean and profile
- ✓ Shotblast, or pressure wash and allow to dry

FLOOD & FILL - MATERIALS

Sikadur 55 SLV – high modulus epoxy

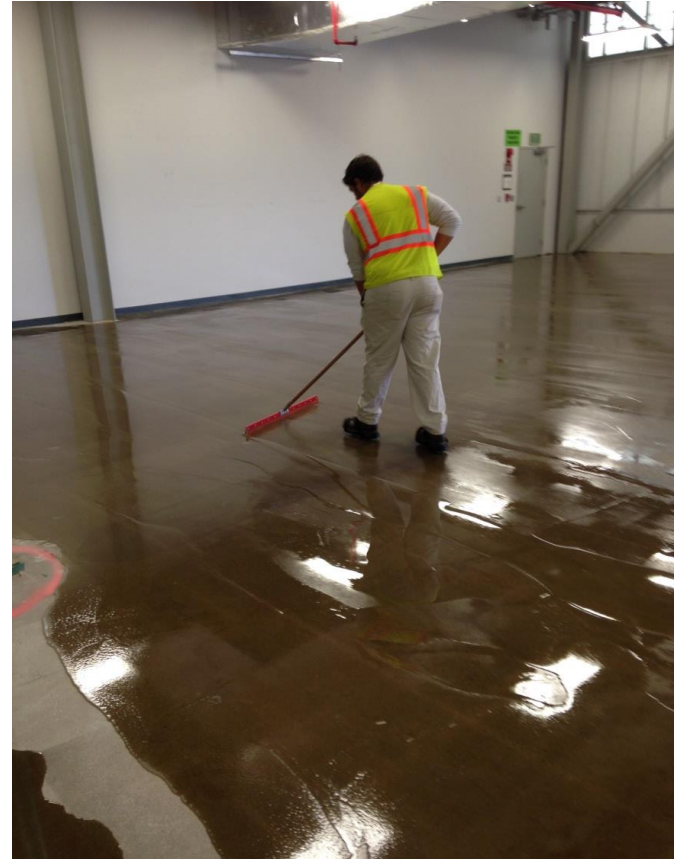
✓ Pour out resin onto the surface



FLOOD & FILL - MATERIALS

Sikadur 55 SLV – high modulus epoxy

- ✓ Pour out resin onto the surface
- ✓ Spread by squeegee over the area



FLOOD & FILL - MATERIALS

Sikadur 55 SLV – high modulus epoxy

- ✓ Pour out resin onto the surface
- ✓ Spread by squeegee over the area
- ✓ Allow to pond about 20 minutes
- ✓ Keep pushing resin over cracks



FLOOD & FILL - MATERIALS

Sikadur 55 SLV – high modulus epoxy

- ✓ Pour out resin onto the surface
- ✓ Spread by squeegee over the area
- ✓ Allow to pond about 20 minutes
- ✓ Keep pushing resin over cracks
- ✓ Move pond along
- ✓ Broadcast sand for slip resistance & improved appearance



FLOOD & FILL - MATERIALS

Sikadur 55 SLV – high modulus epoxy

- ✓ Thin surface layer will wear away under vehicular traffic
- ✓ Resin in cracks will remain long term
- ✓ Dust/debris may prevent full penetration, but resin still blocking most chlorides and water from entry



SELECTING CRACK REPAIR TECHNIQUE

- ❑ Waterproof
- ❑ Restore surface integrity
- ❑ Restore structural integrity
- ❑ Make visually appealing

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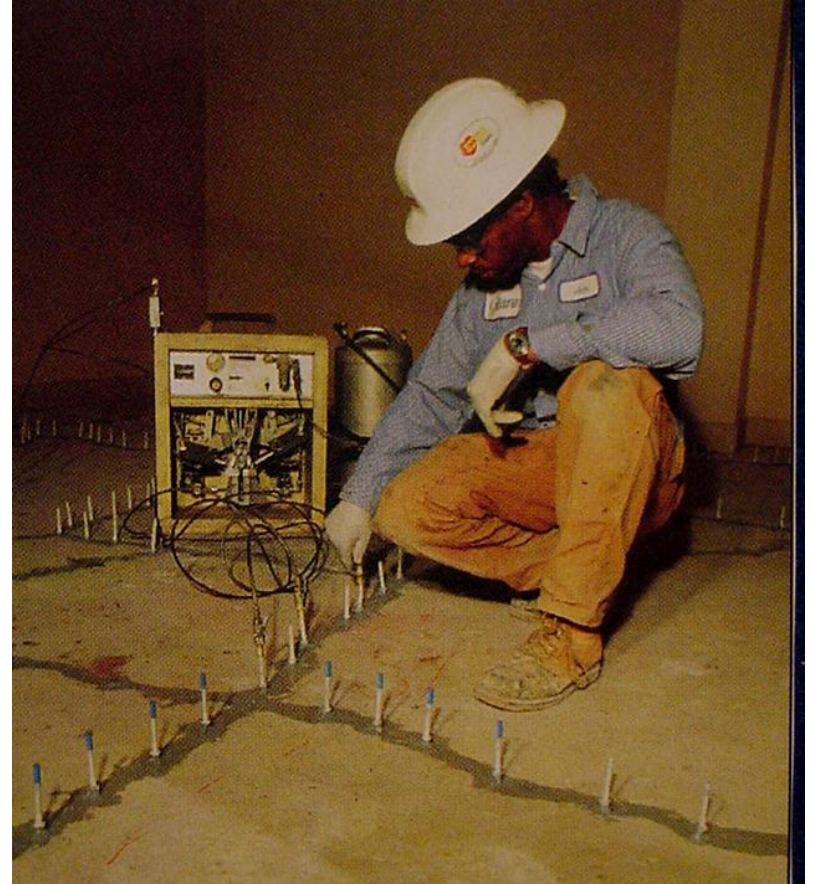
Sealers & Coatings

- Aesthetic protection



EPOXY INJECTION

- ✓ Restores structural integrity as pressure forces full penetration
- ✓ Crack is welded/eliminated
- ✓ Waterproofing and protective
- ✓ Fine (2 mils) to ¼" wide cracks
- ✓ Permanent life expectancy
- ✓ Can be coated
- ✓ Time consuming
- ✓ Expensive



EPOXY INJECTION

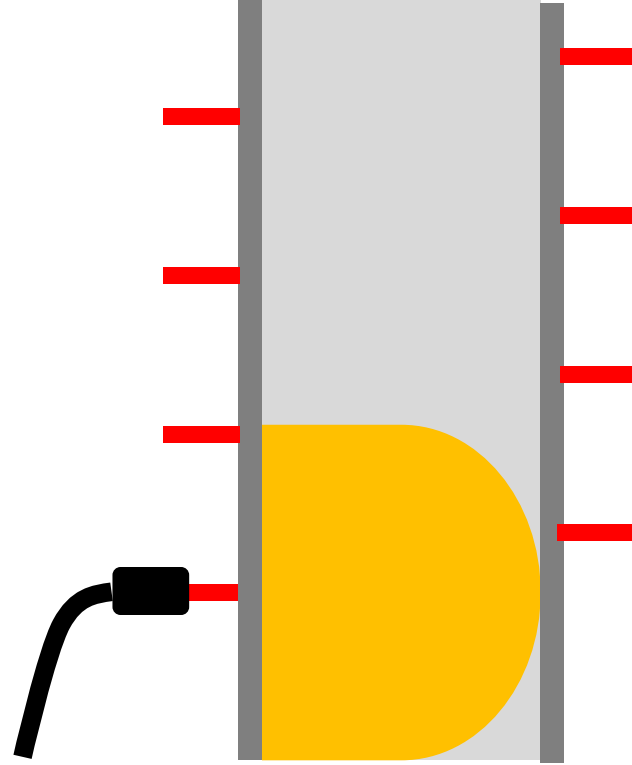
- ✓ Clean and open pores of surface for the cap seal to adhere
- ✓ Apply cap seal to secure ports and withstand injection pressure
- ✓ Surface mounted ports avoid potentially packing dust in cracks from drilling for embedded ports



EPOXY INJECTION

Port Spacing Factors

- ✓ Width of crack
- ✓ One side or both sides sealed
- ✓ Depth of crack
- ✓ Commonly 6", 9", or 12" and not more than depth of crack



EPOXY INJECTION - MATERIALS



Sikadur 31 Hi-Mod Gel

- ✓ Good working time
- ✓ Inject next day
- ✓ Economical

Sikadur 33

- ✓ Rapid setting
- ✓ Inject in 1 hour
- ✓ Considerable odor

Sika AnchorFix-1

- ✓ Cartridge packaging
- ✓ Inject in 1 hour
- ✓ Considerable odor



EPOXY INJECTION - MATERIALS



- ✓ Many types of ports
- ✓ Surface mounted ports
 - Avoid packing dust
 - Easier to center
 - Improve finished appearance
- ✓ Ensure proper connection to injection line
- ✓ Have closing mechanism

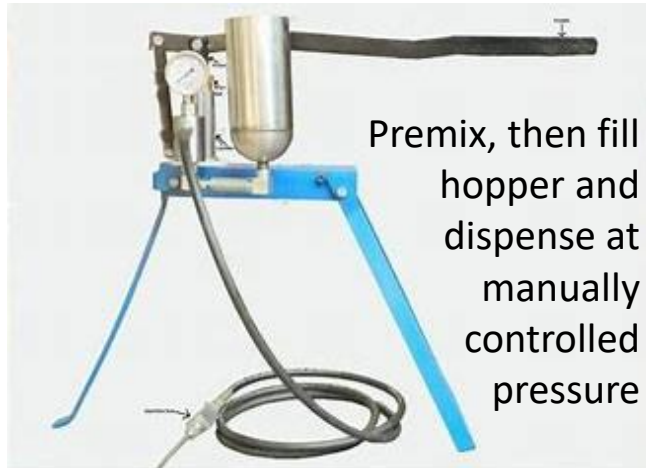


EPOXY INJECTION - EQUIPMENT



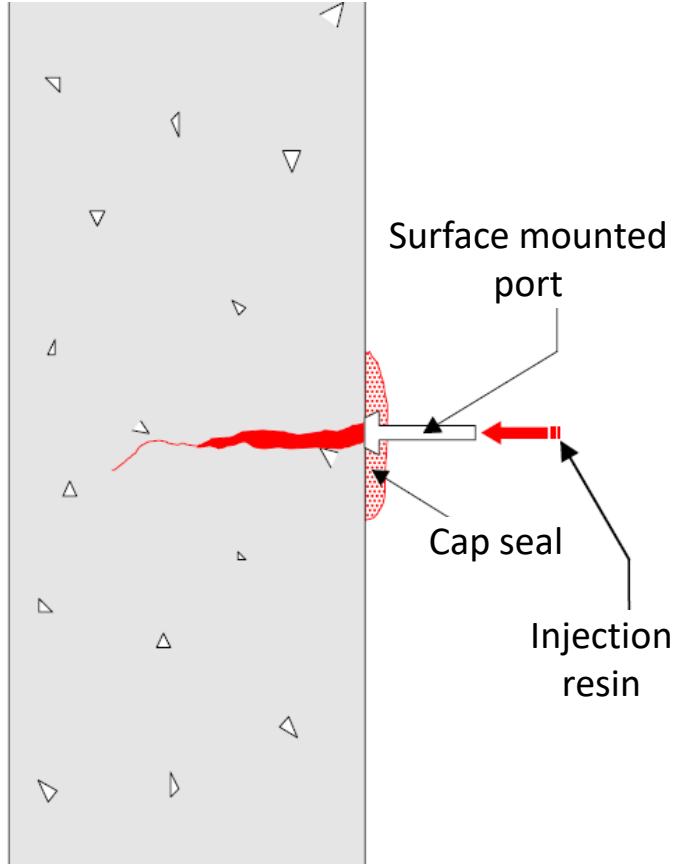
Meter, mix,
and dispense
at controlled
pressure

Premix, then fill
hopper and
dispense at
controlled
pressure



Premix, then fill
hopper and
dispense at
manually
controlled
pressure

EPOXY INJECTION - MATERIALS



CAP SEALS

- ✓ **Sikadur 31 Hi-Mod Gel** (bulk, slow)
- ✓ **Sikadur 33** (bulk, fast)
- ✓ **Sikadur AnchorFix-1** (Cartridge, fast)



INJECTION RESINS

- ✓ **Sikadur 55 SLV** (105 cps)
- ✓ **Sikadur 52** (200 cps)
- ✓ **Sikadur 35 Hi-Mod LV** (375 cps)
- ✓ **Sikadur Injection Gel**

EPOXY INJECTION



Sikadur 55 SLV (105 cps)

Sikadur 52 (200 cps)

Sikadur 35 Hi-Mod LV (375 cps)

Sikadur Injection Gel



- ✓ Leave all ports open
- ✓ Inject starting from bottom
- ✓ Normal pressure range is 100-200 psi
- ✓ Monitor strokes for volume injected
- ✓ Use ports to visually verify filling
- ✓ Close filled ports and move up
- ✓ Have rapid setting resin to seal any leaks
- ✓ Retain some injection resin

EPOXY INJECTION



Sikadur 55 SLV (105 cps)

Sikadur 52 (200 cps)

Sikadur 35 Hi-Mod LV (375 cps)

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EPOXY INJECTION



Sikadur 55 SLV (105 cps)

Sikadur 52 (200 cps)

Sikadur 35 Hi-Mod LV (375 cps)

Sikadur Injection Gel

- ✓ Can inject crack and allow to cure
- ✓ Then chip off cap seal and ports to prepare for concrete repair mortar
- ✓ No reflective crack in repair mortar

EPOXY INJECTION



Sikadur Injection Gel

- ✓ When blindside not capped and low viscosity resin would run out
- ✓ Gel holds place when pressure removed

EPOXY INJECTION



EPOXY INJECTION



✓ Structural integrity completely restored

EPOXY INJECTION - MATERIALS



✓ Even the finest of cracks can be penetrated and restored to full structural integrity

VERIFYING EPOXY INJECTION

- ✓ Retain samples cured properly
- ✓ Visual – all ports filled
- ✓ Volume calculation
 - $12''\text{D} \times 1/12''\text{W} \times 12'\text{L} = 144 \text{ in}^3$
- ✓ Take cores
- ✓ Ultrasonic testing or GPR for NDT



EPOXY INJECTION - MATERIALS



✓ Cartridge systems provide convenience

Sika AnchorFix-1 - Gel consistency, fast curing, cap seal resin mixes in static mixing tube during extrusion

Sikadur CrackFix - Low viscosity, structural epoxy resin mixes in static mixing tube during extrusion (Sikadur 35 Hi-Mod LV)

Sikadur Crack Repair Kit – includes everything but the caulking gun to inject about 10' of crack.



EPOXY INJECTION - MATERIALS



- ✓ Sikadur CrackFix being injected and reaching the next port

EPOXY INJECTION - MATERIALS

Sikadur Crack Repair Kit –
ultimate in convenience



Simple to
attach ports

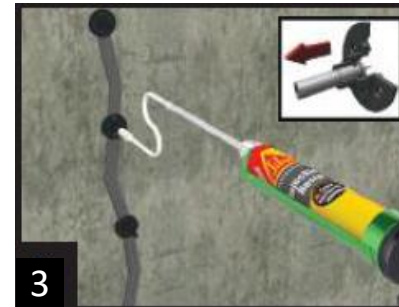
1

Fan tip
attachment
for easy cap
sealing



2

Simple closing
sturdy ports



3

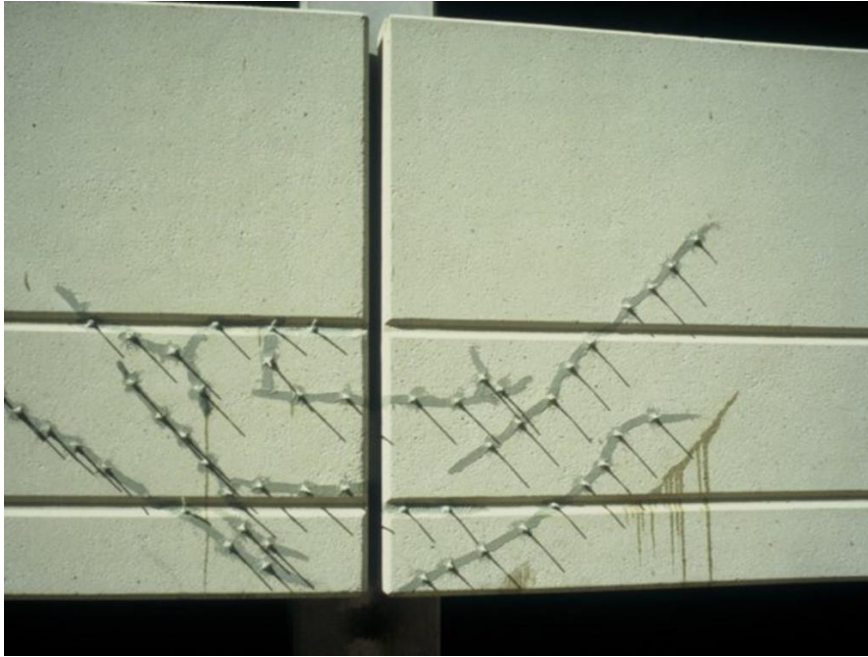
Anti-fatigue
flexible hose

EPOXY INJECTION - MATERIALS



- ✓ Set ports
- ✓ Complete cap seal
- ✓ Wait 30 – 60 minutes
- ✓ Inject

EPOXY INJECTION - MATERIALS



- ✓ Cap seal can be carefully grinded/sanded to minimize visibility

SELECTING CRACK REPAIR TECHNIQUE

- ❑ Waterproof/protect
- ❑ Restore surface integrity
- ❑ Restore structural integrity
- ❑ Make visually appealing

Rout & Seal

- Flexible sealing

Rout & Fill

- Solid filling

Flood & Fill

- Solid filling

Epoxy Injection

- Structural repair

Urethane Injection

- Active leak sealing

Sealers & Coatings

- Aesthetic protection



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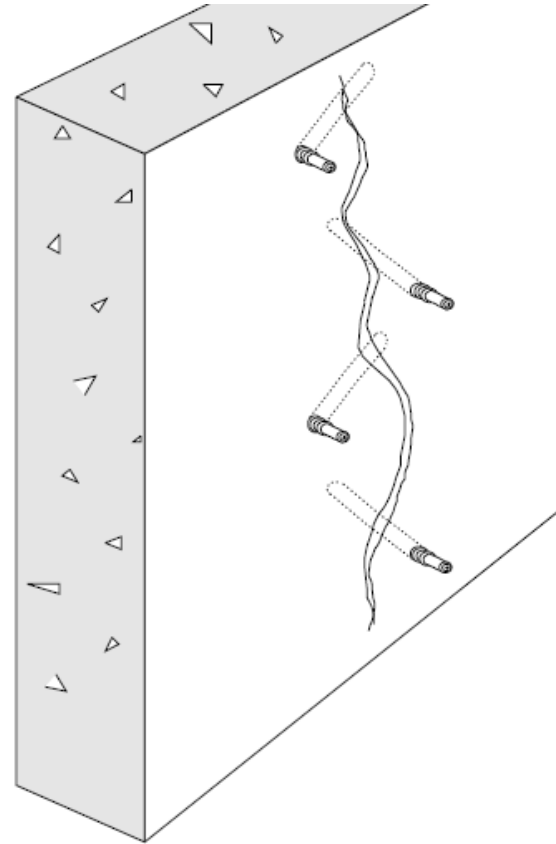
URETHANE INJECTION

- ✓ Waterproofing and protective
- ✓ Effective negative side waterproofing
- ✓ Works with highly active leakage
- ✓ Allows for some movement
- ✓ Fine to wide cracks and joints
- ✓ Good life expectancy
- ✓ Can be coated
- ✓ Time consuming
- ✓ Expensive



URETHANE INJECTION

- ✓ Drill holes for packers at 45-degree angle to insert crack at midpoint of wall/slab
- ✓ Crack should be wet, inject water first if necessary



URETHANE INJECTION - MATERIALS

Injection Packers

- ✓ Zirk fitting check valve
- ✓ Expanding rubber seal
- ✓ Bang-in plastic packers



URETHANE INJECTION - EQUIPMENT

- ✓ Always mix with activator first, then use automated or manual pressure



URETHANE INJECTION - MATERIALS

SikaFix HH+

- ✓ Hydrophobic with more expansion

SikaFix HH LV

- ✓ Hydrophobic with lower viscosity and NSF/ANSI 61 Potable Water Approval

SikaFix HH Hydrophilic

- ✓ Hydrophilic with high elongation
- ✓ Will shrink during dry periods

SikaFix Accelerator

- ✓ Used with HH+ and HH LV to control speed of reaction



URETHANE INJECTION

- ✓ Inject location with highest leakage last
- ✓ Expect to chase the leak



URETHANE INJECTION

✓ Injection pressure usually > 200 psi

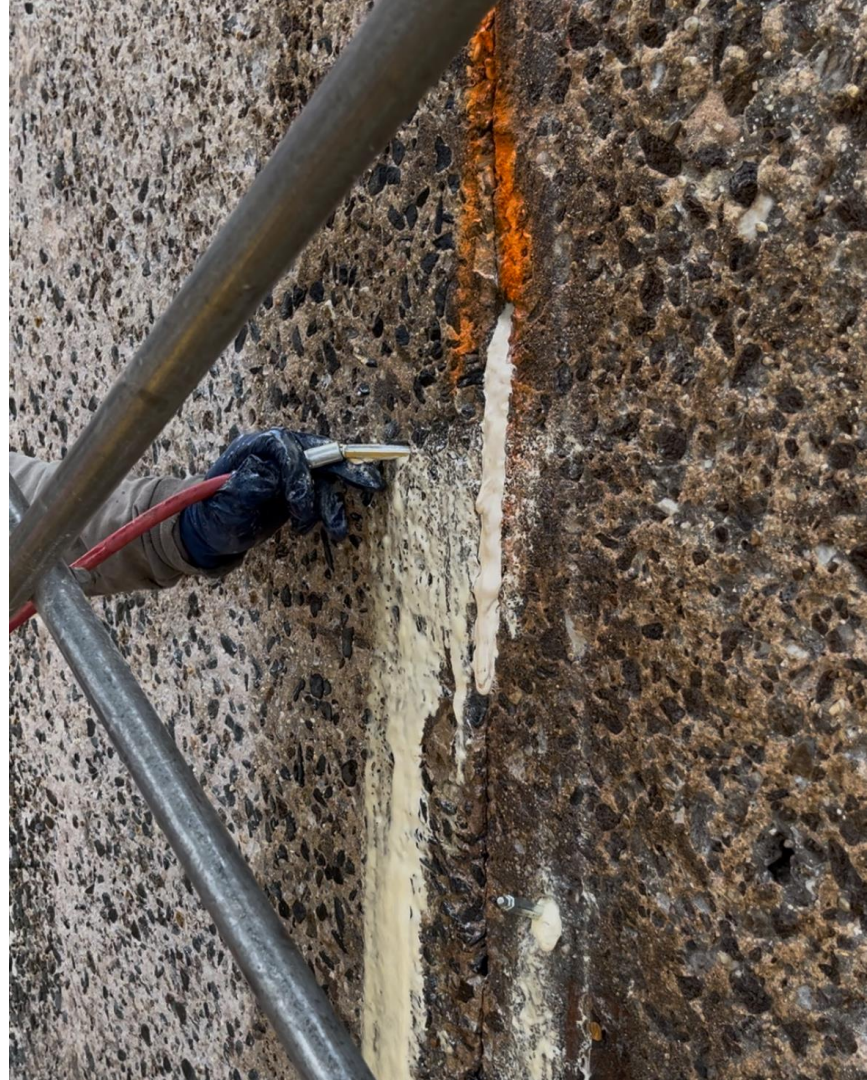


Water
flushes

Bubbling

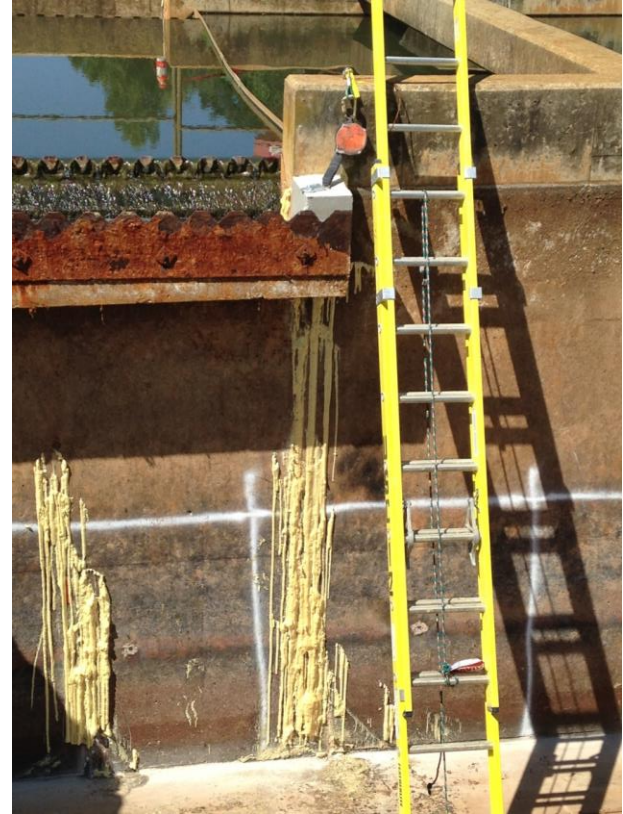
Diluted
urethane
flowing

Seal begins



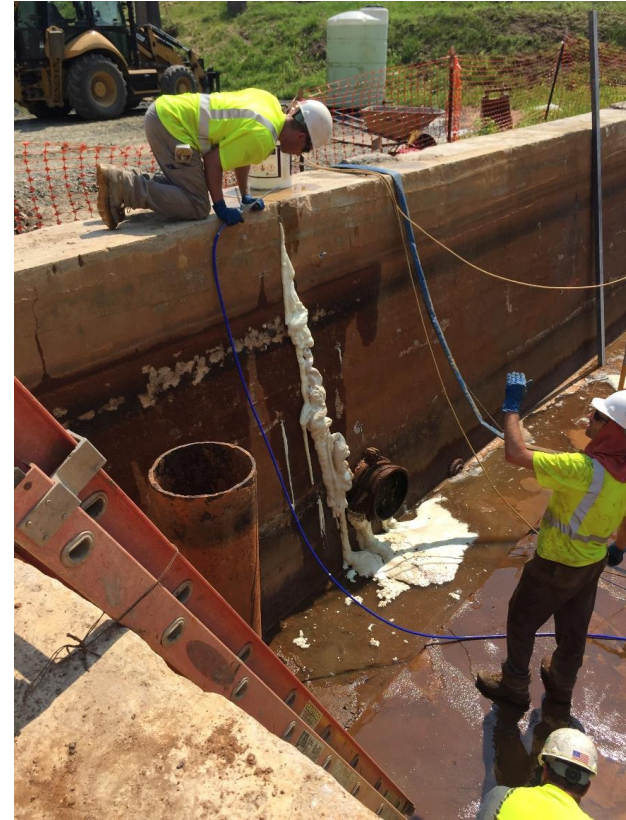
URETHANE INJECTION

- ✓ Material will react to a flexible foam
- ✓ Verify sealed and continuous fill of crack
- ✓ Reinject ports
- ✓ Inject water into ports
- ✓ Leave, or remove ports and plug
- ✓ Shave off excess urethane grout



URETHANE INJECTION

- ✓ Material may expand up to 30 times when unrestrained



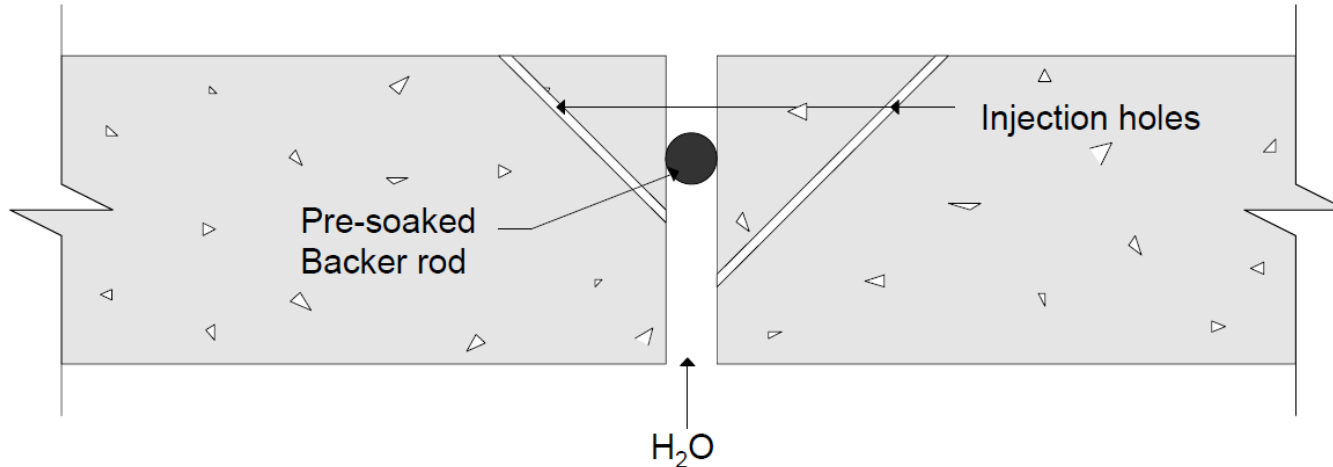
URETHANE INJECTION

- ✓ Some situations may require shallower injecting or even straight into the crack



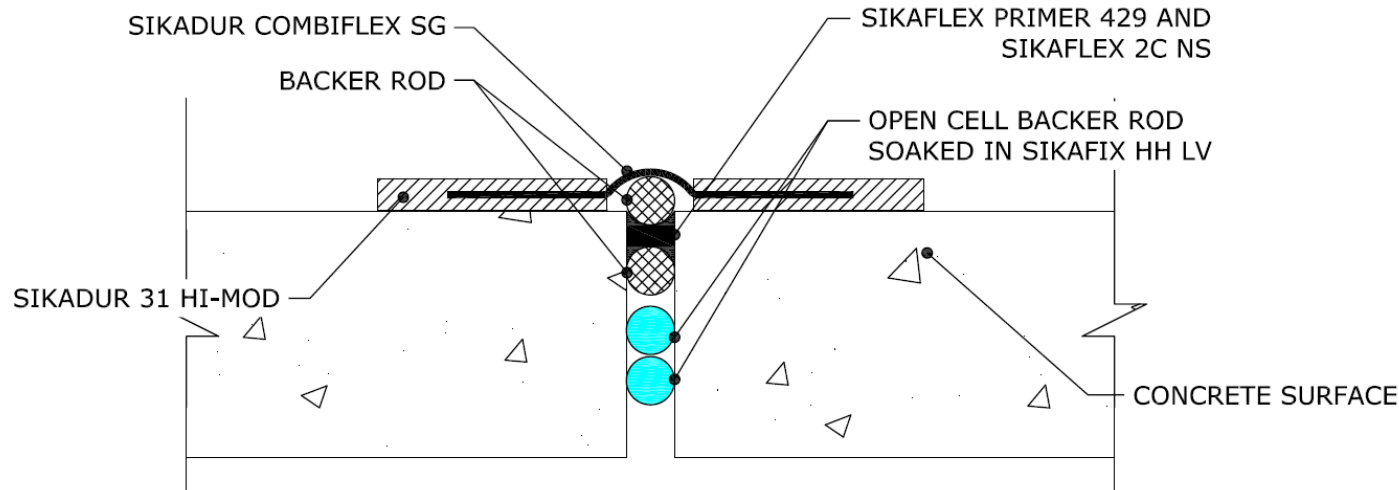
URETHANE INJECTION

- ✓ When there is high flow the urethane grout will be washed out before reacting
- ✓ Soak oakum or open-cell backer rod in urethane grout and push into crack or joint to dam and slow leakage
- ✓ Then continue to pack fill or inject



URETHANE INJECTION

- ✓ Urethane grout is not intended for use as a moving joint sealant
- ✓ Often used to stop active leakage and reduce backside pressure
- ✓ Then joint sealant can be installed to dry substrate
- ✓ Consider Sikadur Combiflex SG for higher moving joints and critical sealing applications



SELECTING CRACK REPAIR TECHNIQUE

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- ❑ Restore surface integrity
- ❑ Restore structural integrity
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Rout & Fill

- Solid filling

Flood & Fill

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Epoxy Injection

- Structural repair

Urethane Injection

- Active leak sealing

Sealers & Coatings

- Aesthetic protection



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Urethane Injection

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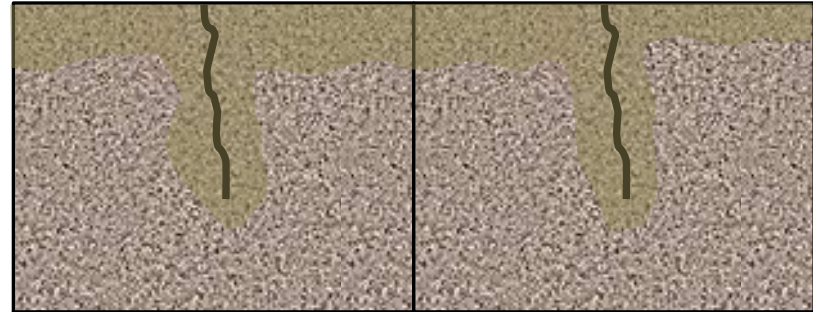
Sealers & Coatings

- Aesthetic protection



PENETRATING SEALERS

- ✓ Protective repellant – screens out about 85% of water and chlorides
- ✓ No affect on appearance (still test)
- ✓ Will keep cleaner
- ✓ Effective on cracks up to 12 mils wide
- ✓ 5, 10, 15-year life expectancies
- ✓ Easy to apply
- ✓ Very economical



PENETRATING SEALERS



- ✓ 20%, 40% or 100% silane sealers
- ✓ Ideal consumption ~125 sf/gal (2 coats at 250 or 3 coats at 375 sf/gal/coat)
- ✓ Spray or roll apply

WALL COATINGS



- ✓ The most effective way to conceal cracks is to cover over them
- ✓ Solid crack repairs can be concealed with hard or elastomeric coatings
- ✓ Flexible crack repairs are better concealed with elastomeric coatings

HARD WALL COATINGS

Sika Thorocoat 400

- ✓ Economical lasting colors & textures
- ✓ Anti-carbonation

Sika Thorocoat 200 LR

- ✓ Anti-carbonation, light reflective

Sika Thorocoat 350 Aquasol

- ✓ Hydrophobic, photocatalytic



ELASTOMERIC WALL COATINGS

Sika Thorolastic 750

- ✓ Economical lasting colors & textures
- ✓ Anti-carbonation

Sika Thorolastic 850

- ✓ Anti-carbonation, silicone-modified

Sikagard 570

- ✓ Anti-carbonation, UV hardened skin



Fayette St Post Office, Baltimore 2011



WALL COATINGS



✓ Severe cracking

WALL COATINGS



✓ Cracks \geq 30 mils (1/32") routed

WALL COATINGS



Before



After

BUILDING TRUST



WALL COATINGS



- ✓ Attractive
- ✓ Protective
- ✓ Cracks sealed and concealed

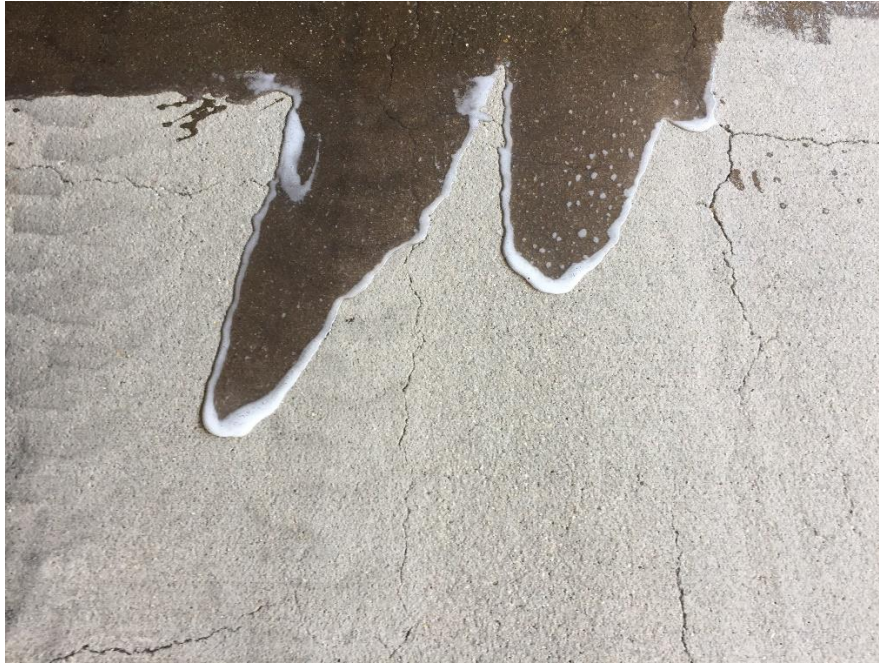
DECK COATINGS



- ✓ Severe map cracking through precast double tee deck leaking water



DECK COATINGS



Sikadur 55 SLV – flood and fill cracks



Sikadur 22 Lo-Mod – traffic coating

✓ Waterproof, slip-resistant, and extremely durable

DECK COATINGS



Sikaflex Sealant – rout & seal cracks $\geq 1/16''$

Sikalastic Traffic Systems – traffic coating



DECK COATINGS



Sikalastic Traffic Systems – conceals all cracks

✓ Waterproof, slip-resistant, and traffic durable

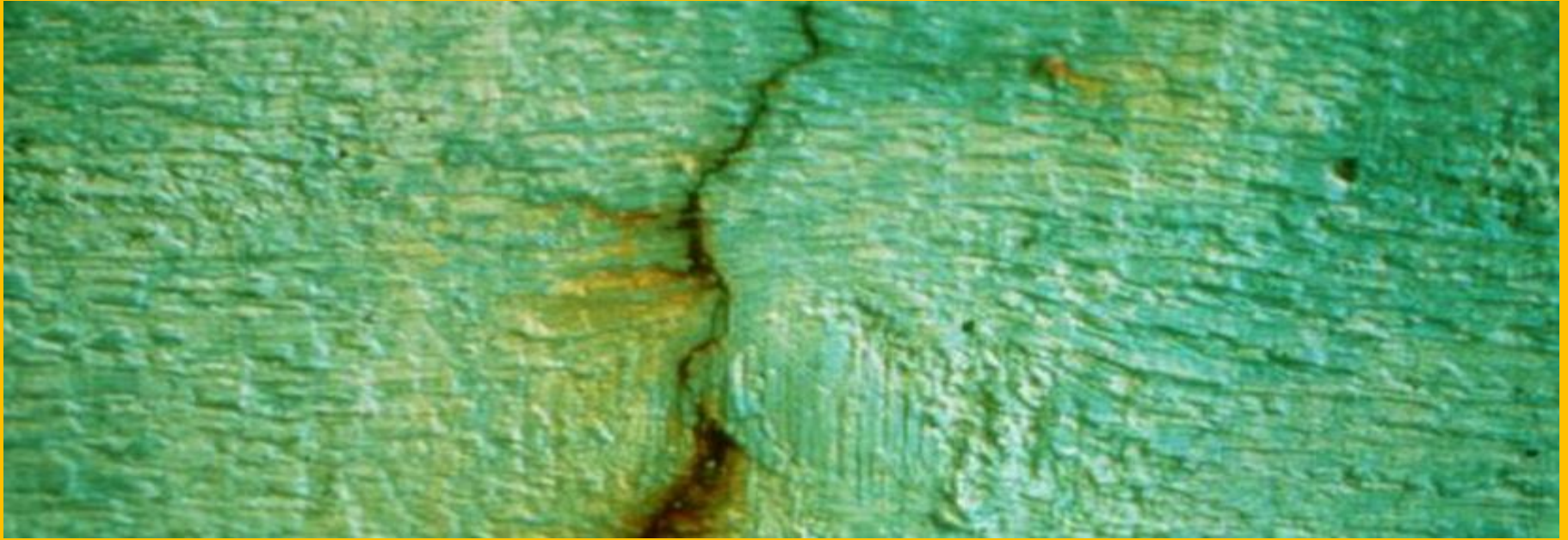
CRACK REPAIR TECHNIQUE SELECTION CHART

Generalization. Always consult PDS for the material's/system's suitability.

Goal/Condition	Route & Seal	Route & Fill	Flood & Fill	Epoxy Injection	Urethane Injection	Sealers & Coatings
Waterproof/Protect ...(positive side, static)	✓	✓	✓	✓	✓	✓
Waterproof/Protect ...(positive side, dynamic)	✓	🤔	🤔	🤔	✓	✓
Waterproof/Protect ...(negative side, static)	🤔	🤔	🤔	✓	✓	✗
Waterproof/Protect ...(negative side, dynamic)	🤔	🤔	🤔	🤔	✓	✗
Waterproof/Protect ...(active leakage)	✗	✗	✗	🤔	✓	✗
Restore Surface Integrity ...(static)	✗	✓	✓	✓	✗	✓
Restore Structural Integrity ...(weld/eliminate)	✗	🤔	🤔	✓	✗	✗
Make Visually Appealing ...(conceal)	✗	✗	✗	✗	✗	✓

AVAILABLE RELATED PRESENTATIONS

- ✓ The Do's & Don'ts of Concrete Repair (Part 1 – Material Selection)
- ✓ The Do's & Don'ts of Concrete Repair (Part 2 – Preparation & Installation)
- ✓ Crack Repair
- ☐ Concrete Protection **Thursday 4/17/25 2:00PM EST**
- ☐ The Do's & Don'ts of Deck Membranes **Thursday 5/1/25 2:00PM EST**



CRACK REPAIR

THANK YOU!

RANDALL KRATZ – DISTRICT MANAGER MD/DC/VA
SIKA CORPORATION – REFURBISHMENT, SEALING & BONDING
WITH SIKA SINCE 1991
GRADUATE DREXEL UNIVERSITY - COMMERCE & ENGINEERING
410-336-3757
KRATZ.RANDALL@US.SIKA.COM

✓ Certificates will be provided
via email and make take up
to a week to distribute