September 21- 25, 2025

Gila River Casino & Resort in Chandler, Arizona

Extend the Life of Your Asphalt Pavement: Crack Sealing & Patching from A-Z

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Agenda

- **1:30pm – 3:00pm**
  - Intro to Crack Treatments & Sealant Selection
  - Crack Types & Formation
  - Equipment & Proper Installation
- **3:00pm – 3:30pm Break**
- **3:30pm – 5:00pm**
  - Outdoor Equipment Demos

Module 1: Introduction to Crack Treatments & Sealant Selection

- What is a Crack Treatment?
- Crack Sealing vs Crack Filling?
- Benefits
- Crack Sealing as a Pre-treatment
- Factors Influencing Sealant Selection; Considerations

What is a Crack Treatment?

- **Crack Treatments – methods in which cracks are directly treated through sealing or filling operations.[1]**
  - Crack Sealing
  - Crack Filling

- **Crack Treatments are cost-effective pavement preservation methods that extend pavement life**
  - Protect your investments (roads, bridges, parking lots, etc.)
  - Maintains pavement structure
  - Limits future deterioration, prevents potholes

What is Crack Filling & Sealing?

- **Crack Sealing:**
  - Placement of <u>specialized treatment materials (sealant)</u> above or into cracks using unique configurations to <u>prevent</u> the intrusion of water and incompressible materials into the crack

- **Crack Filling:**
  - Placement of <u>ordinary treatment materials</u> into low-moving cracks to <u>reduce</u> infiltration of water and to reinforce the adjacent pavement

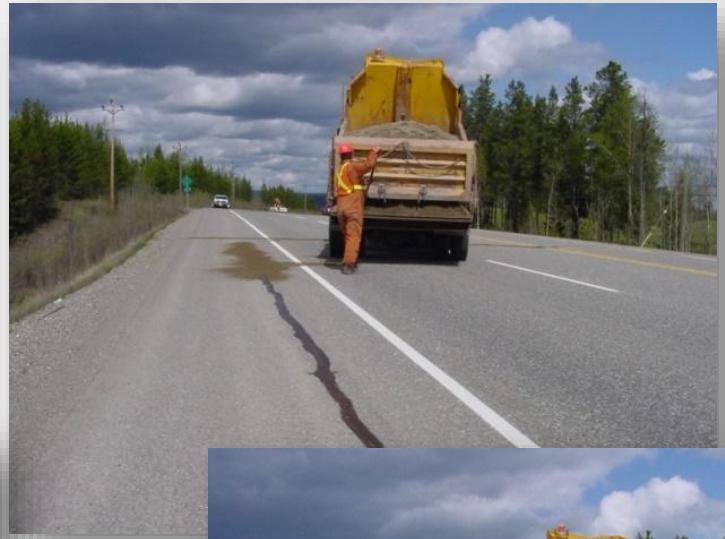
Crack Sealing	Crack Filling
Seals the crack to prevent the intrusion of water and incompressible materials	Fills some of the void in the crack to reduce intrusion of water and incompressible materials
Specialized treatment materials	Ordinary treatment materials
Highly-elastic and flexible material	Rigid material or semi rigid
Endures vertical & horizontal movement	Can not endure vertical & horizontal movement
Crack preparation to assure long service life of sealant	Cursory crack preparation
Sealant placement configuration	Fill crack void, then dust with sand
Considered semi-permanent	Considered temporary
Seals routed/working crack (Life average of 5 years. Up to 10 years on new pavements)	Filling not recommended for moving cracks, unable to accommodate movement
Seals overbanded/non-working crack (Life approximately 2 to 5 years)	Fills non-working crack (Life approximately a few months up to 1 year)
Modification to perform in a wide variety of climatic temperatures	More susceptible to environmental conditions

Crack Sealing Materials	Crack Filling Materials
Asphalt rubber (ASTM D 5078 or State Specifications)	Asphalt cement (Paving Grade or Roofing Grade)
Rubberized asphalt (ASTM D 6690 type 1,2 & 3 or State Specification)	Asphalt cutback (MC-30, 70 and 250)
Low-modulus rubberized asphalt (ASTM D 6690 type 4 or State Specifications)	Asphalt emulsion (SS-1, SS-1h, CSS-1, and CSS-1h)
	Fiberized asphalt
	Mineral-filled (stone, lime, flyash dust) asphalt
	Sand-asphalt mixes

Sealing vs. Filling

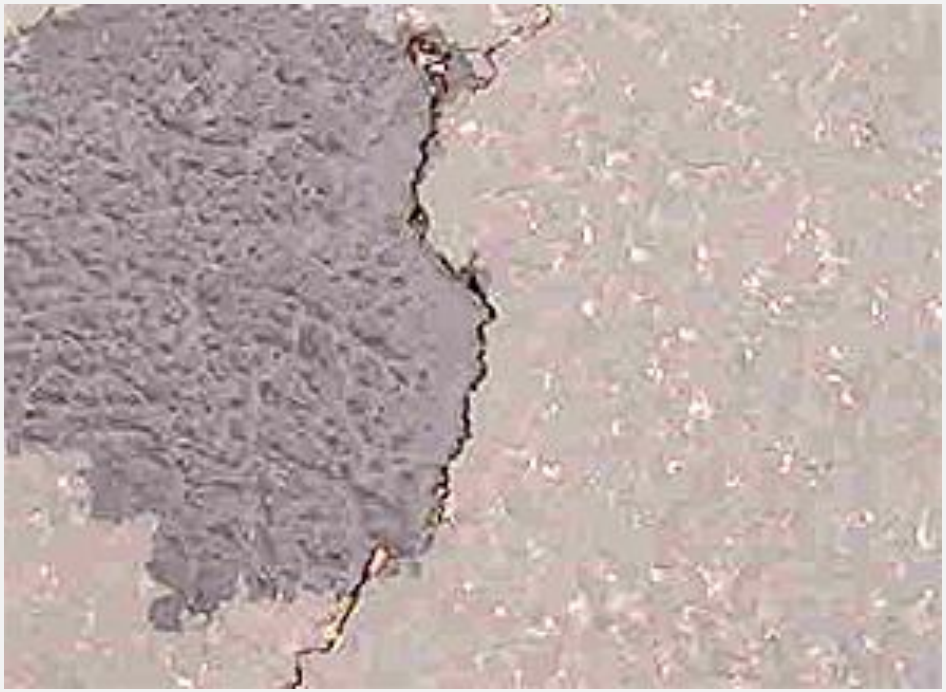
Crack Sealing

Crack Filling



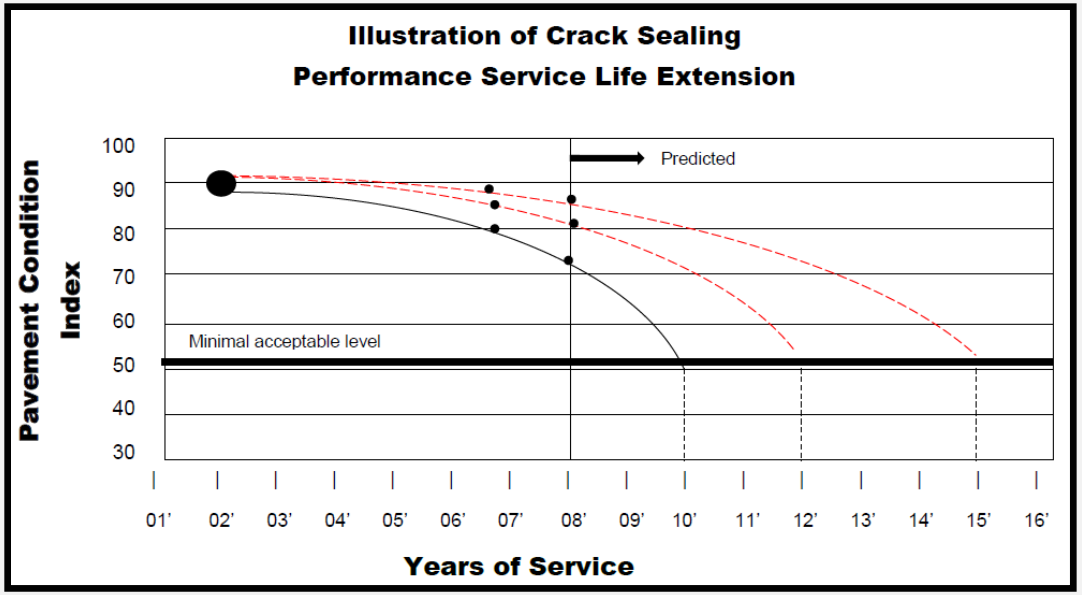
Why Crack Seal?

Crack Treatments are cost effective pavement preservation methods that: extend pavement life, protect your investments, maintain pavement structures, limits deterioration, and prevents potholes.



Why Crack Seal?

Slow deterioration and extend pavement service life up to 5 years. Crack treatment is the lowest cost preservation treatment, significantly less than other treatments and provides the most benefit for money spent.



Benefits

- Less money spent to maintain pavement[1,4]
- Less time wasted in traffic because a road is closed due to more extensive maintenance[6]
- Decreased exposure of highway workers to traffic[6]
- Smoother ride[7]
- Less money you spend repairing your vehicle[8]

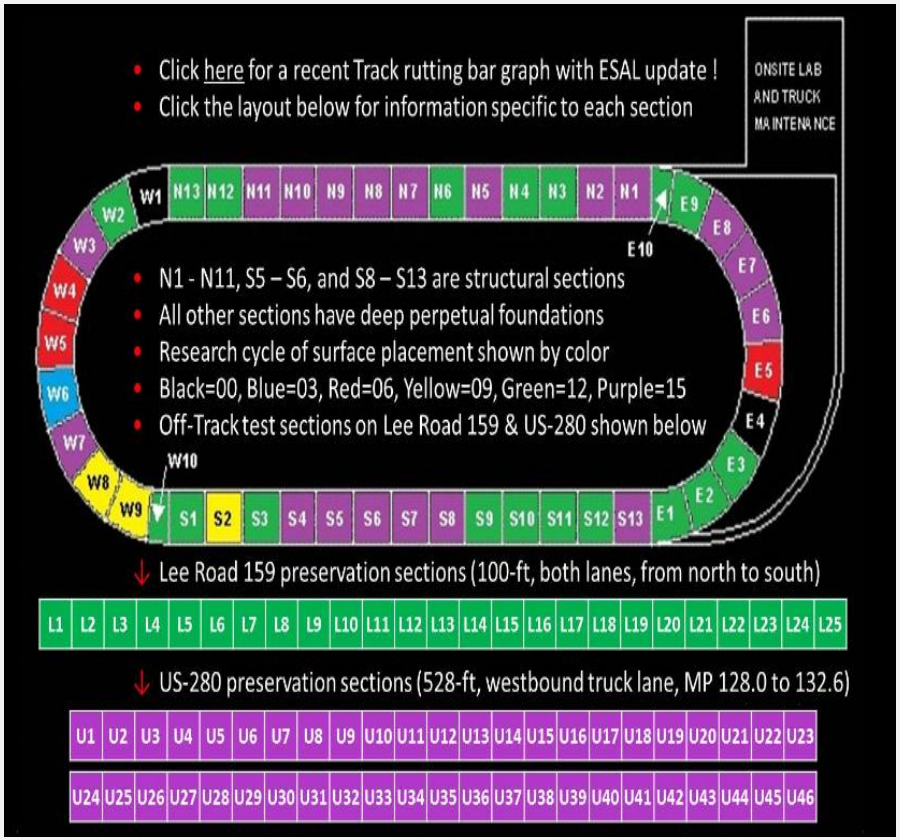
Urban road decay costs average drivers up to $377 each year[8]

Crack Sealing as a Pre-Treatment

- Crack Treatments are commonly used as a pre-treatment in conjunction with surface treatments

- Sealing prior to surface treatments enhances the treatment and further extends the pavement life.[9]

NCAT Preservation Study



- National Center for Asphalt Technology, Auburn University
- Lee Road 159, AL
- www.pavetrack.com
- 3-year Preservation Study
- 25 Treatments (2012-2015)
- Crack sealing reduced development of interconnected cracking, and reduced subgrade moisture levels
- Crack Sealing as pretreatment improved surface treatment results by reducing cracking through chip seals and microsurfacing

Crack Sealing Effects Summary

- **Crack Sealing alone**
  - Reduced cracking by 75% compared to no treatment
- **Crack Sealing as Chip Seal Pretreatment**
  - Reduced cracking by 100% compared to no pretreatment
- **Crack Sealing as Microsurfacing Pretreatment**
  - Reduced cracking by 45% compared to no pretreatment

Factors Influencing Sealant Selection

Crack Sealant is subjected to a variety of climates, conditions, and stresses:

Different sealants engineered to perform effectively in different environments

Climate

- Location High temperatures
- Location Low temperatures
- Installation time of the year

Specifications

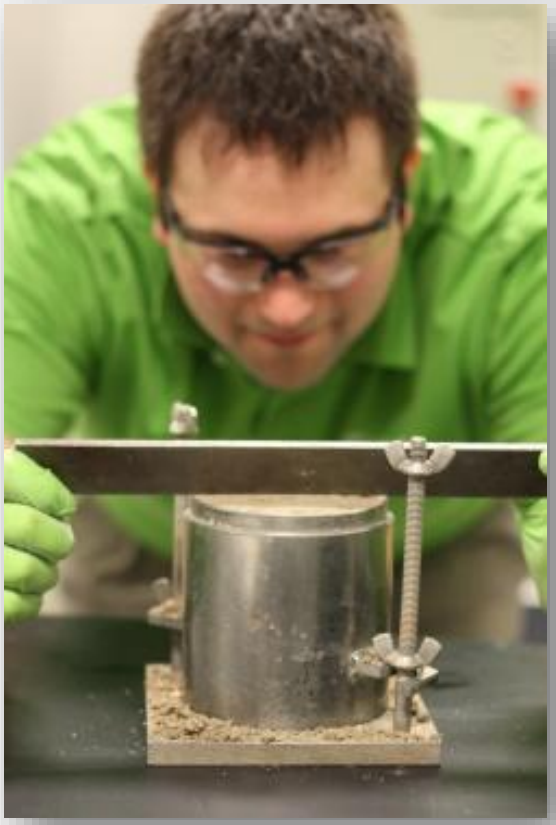
ASTM D6690 (Crack Sealant Specification)

ASTM D6690 Type I material

ASTM D6690 Type II material

ASTM D6690 Type III material

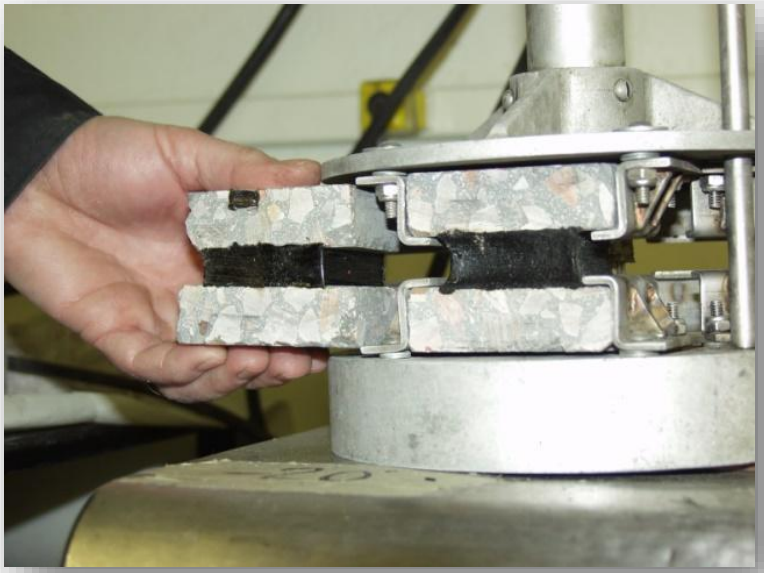
ASTM D6690 Type IV material – (Low Modulus)



Low Temperatures Specify

-34, -40 areas	D6690 Type IV
-22, -28 areas	D6690 Type II,III
-16 areas	D6690 Type I
-10 areas	State, local specs

Adhesion



Bond Test

- Evaluates the ability of the material to remain adhered to concrete test block when extended multiple times.
- Temperature, # of cycles, block conditions, specimen size, and extension % can vary with the specification and grade of tested material.
- Failure shows as adhesive or cohesive separations when extended.

Adhesion

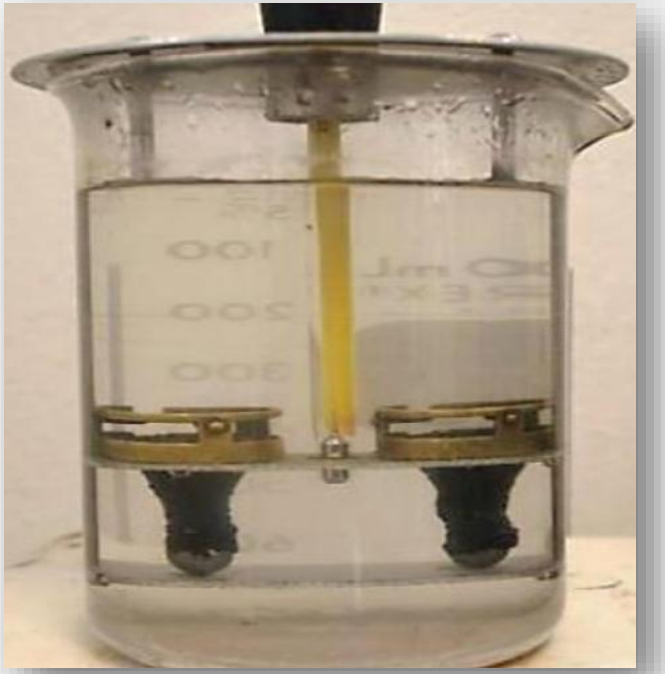
Adhesive Failure

Adhesive failures occur when the sealant remains intact but pulls away from the pavement/walls of the crack

Cohesive Failure

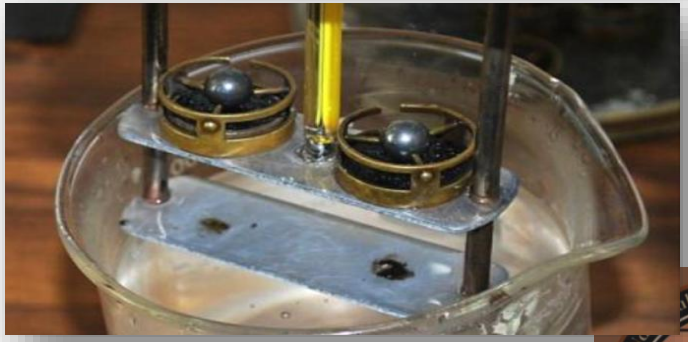
Cohesive failure occurs when the sealant remains adhered to the pavement but the sealant itself cracks open

Softening Point

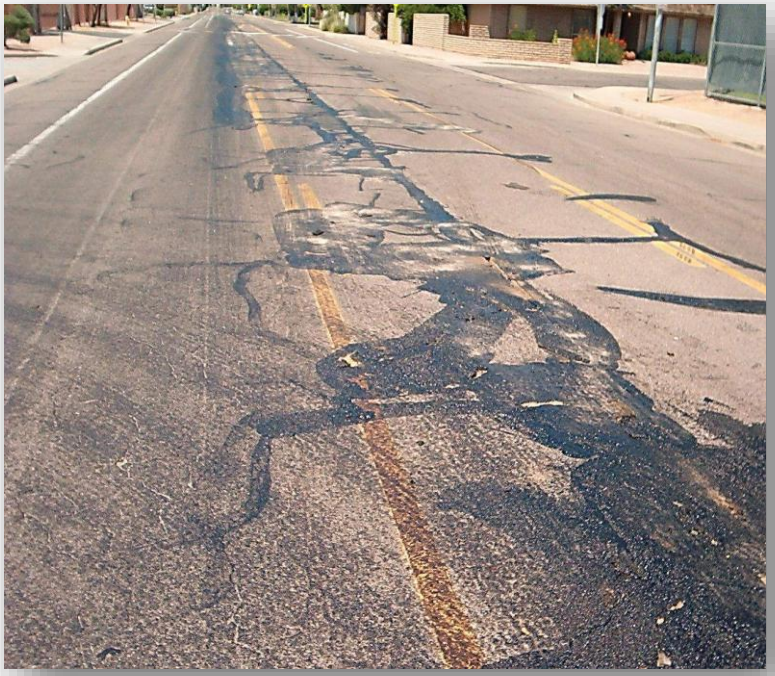


Indicates the temperature at which the material changes from a solid to viscous liquid. The higher the softening point, the more resistant to tracking the material is.

- Materials that meet 176 F° minimum, are best for reservoir applications.
- Overbands require higher minimum softening temps.
- Best materials can be heated to 45 F° above pavement before softening.



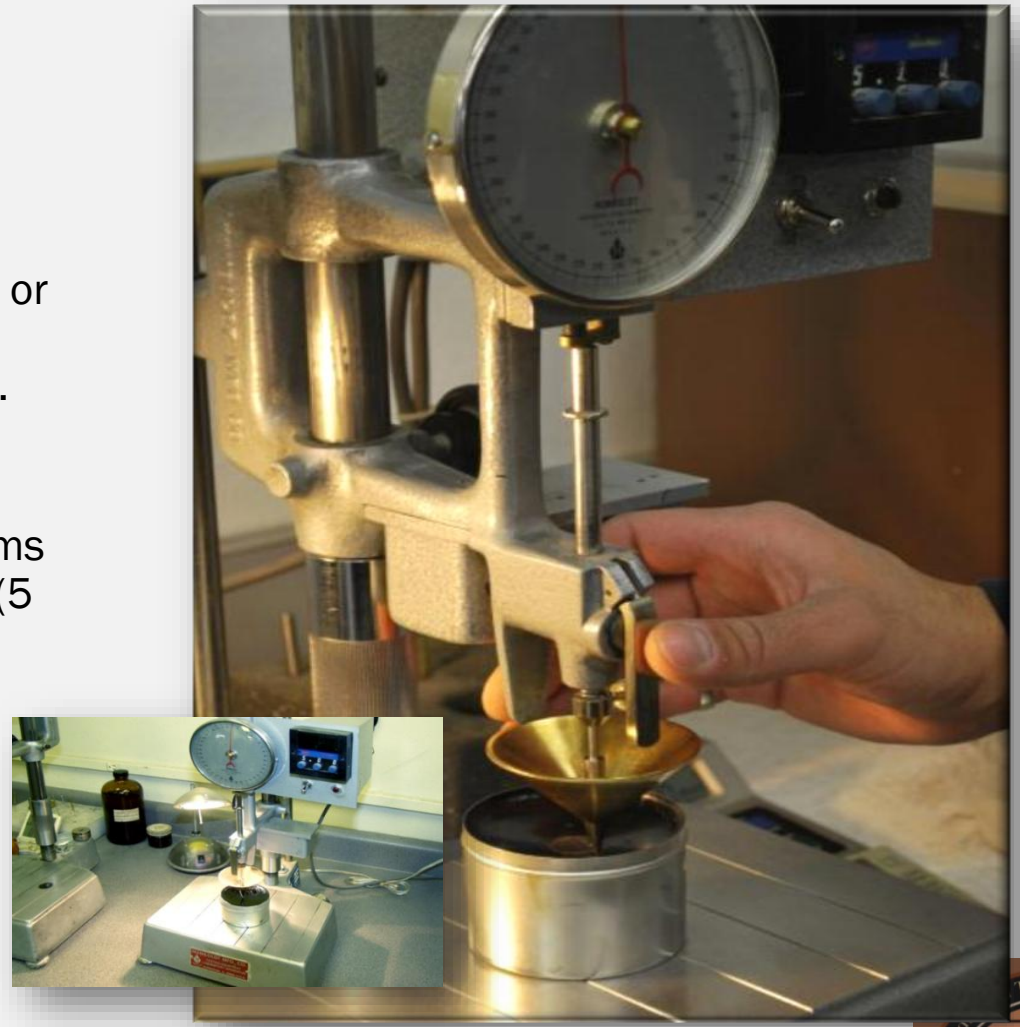
Tracking



Selecting sealant with the appropriate high temperature stability (softening point) will help prevent tracking

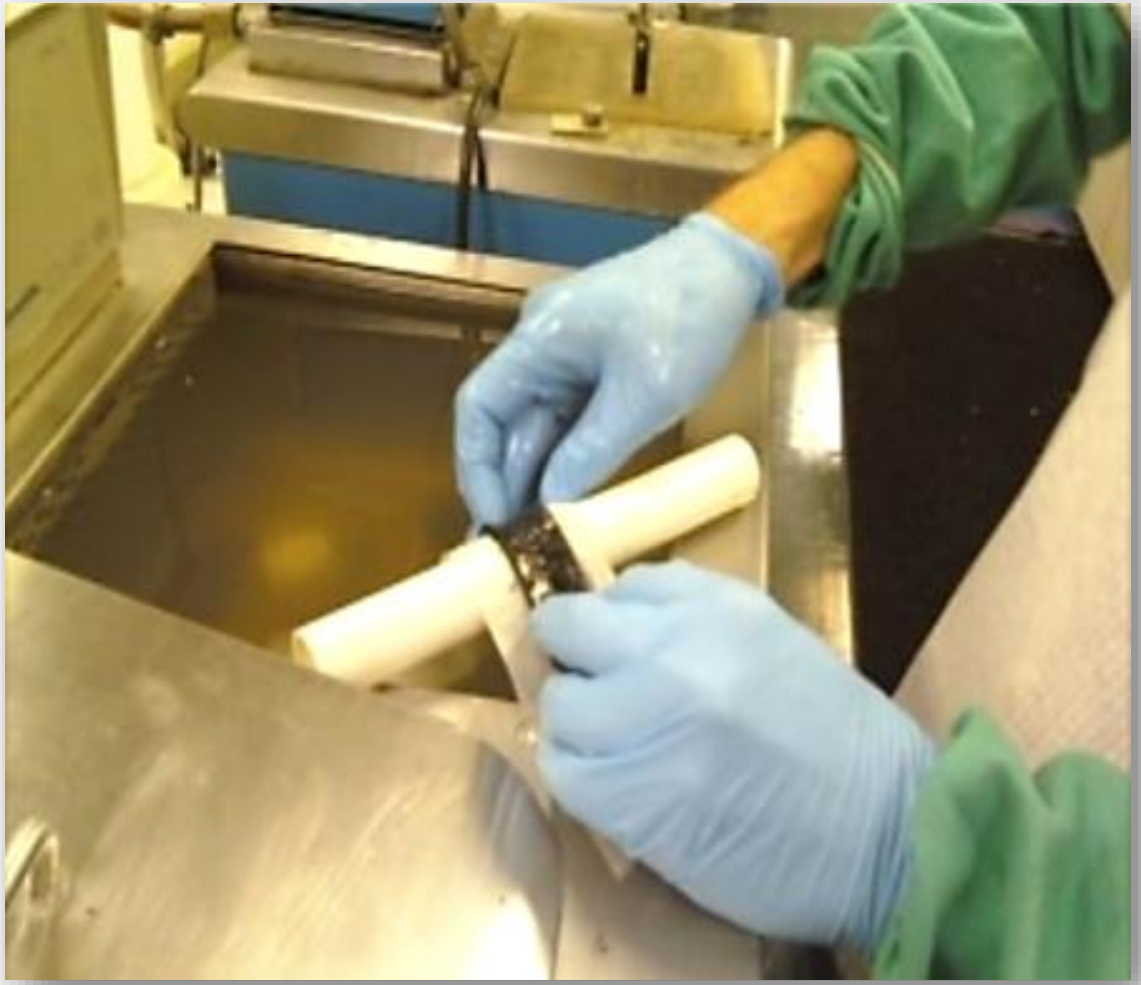
Cone Penetration

- Indication of material hardness or stiffness at a specified temperature (77°F is standard).
- Measures the amount of indentation of a specified cone with a specific weight (150 grams is standard) for a specific time (5 seconds is standard).
- Higher penetration indicates softer material.



Flexibility

- Often called the bend or fracture test
- Indicates the ability of an 1/8” x 1”x4” specimen to be bent around a mandrel at specific temperatures without cracking
- Indicates the temperature at which sealant stiffens and loses flexibility



Cracking

Selecting sealant with the appropriate low temperature stability/flexibility is important to prevent cracking (cohesive failure)

Sealant Selection

Many sealant options to meet your project's needs. Quality material + Quality application are most important to extending the life of your asphalt pavements!

- **Asphalt Rubber Sealant**
- **AR + Polymer Modified Sealants**
- **Polymer Modified Sealants**
- **High Rubber & Polymer Modified**
- **Low Resilience Sealants**
- **Fiberized Sealants**
- **Direct Fire Sealants**
- **Parking Lot Sealants**

Questions?

Agenda

Module 2: Crack Types & Formation

- Crack Movement
- Low Moving and High Moving Cracks
- Crack Growth
- Crack Formation and Types
- Pavement Condition
- Crack Density
- Crack Width
- Trigger point to justify crack treatment
- When is pavement too far gone for crack treatment?
- Seasonal and Environmental Factors
- Application Configuration
- Reservoir Design Dimensions

Crack Movement

- **All cracks move; to varying degrees**
- **Horizontal Thermal Movement**
  - Temperature changes
  - Pavements contract during lower winter temperatures, opening cracks in the pavements
  - Pavements expand during higher summer temperatures, closing cracks in the pavements
- **Vertical Movement**
  - Up and down movement
  - Caused by traffic loads

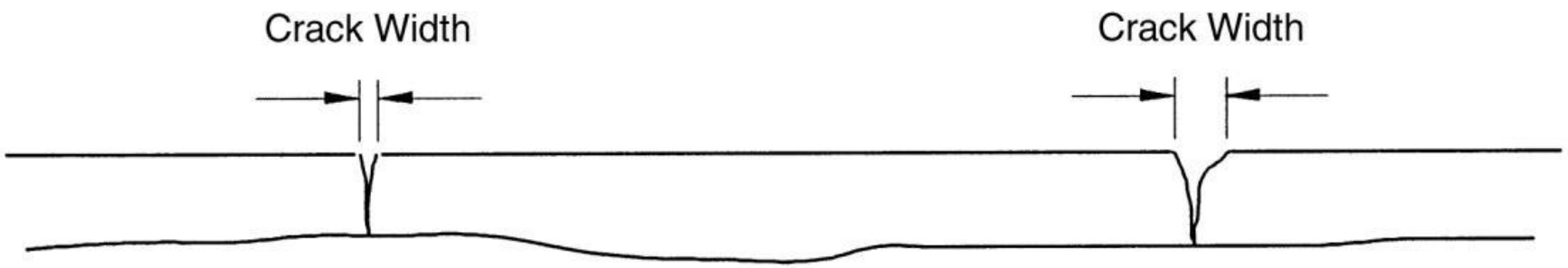
Low Moving Cracks

- Defined as annual movement less than 1/8” (3 mm) per year
- Types are typically:
  - Fatigue (alligator)
  - Block
- Low moving cracks grow average of 1mm annually

High Moving Cracks

- **Defined as annual movement greater than or equal to 1/8” (3mm)**
- **High Moving Cracks:**
  - Transverse are always moving
  - Other moving cracks:
    - Reflective
    - Thermal
    - Longitudinal
    - Edge
- **May move up to 1” each year**
  - Can open up to 100% of original width as the pavement temperature changes from summer to winter extremes

Crack Growth



- **Cracks tend to widen or grow over time**
  - Asphalt shrinkage with age
  - Thermal movement
  - Debris ravels crack face
- **Proper crack sealing will delay and prevent further deterioration and growth of the crack**

Crack Formation & Types

- Cracks occur when the AC is no longer flexible enough to resist weather/traffic
  - Traffic loadings
  - Seasonal temperature changes

- Asphalt concrete is most flexible and resistant to cracking at construction

Transverse

- Transverse cracks form perpendicular to the pavement lane
  - Thermal
  - Reflective (Reflection)
- Typically caused by environmental factors and by reflection of underlying joints
- Often experience concentrated and extreme movement (further spaced the more movement – Ex: 50’ vs 30”)
- Crack Sealing (and routing when appropriate) is recommended to accommodate the expected crack movement

Longitudinal

- Longitudinal cracks run parallel to the pavement lane
  - Construction Joint
  - Thermal/Reflective
  - Wheel path
- Typically caused by construction of pavement joint, thermal conditions, and traffic loading
- Crack Sealing (and routing when appropriate) is recommended to prevent intrusion of moisture and debris.

Block

Block cracks typically form in older pavement

- Hardening of asphalt
- Thermal effects/shrinkage of asphalt during cold weather
- Form in traffic and non-traffic areas

Effectively treated by crack sealing [16]

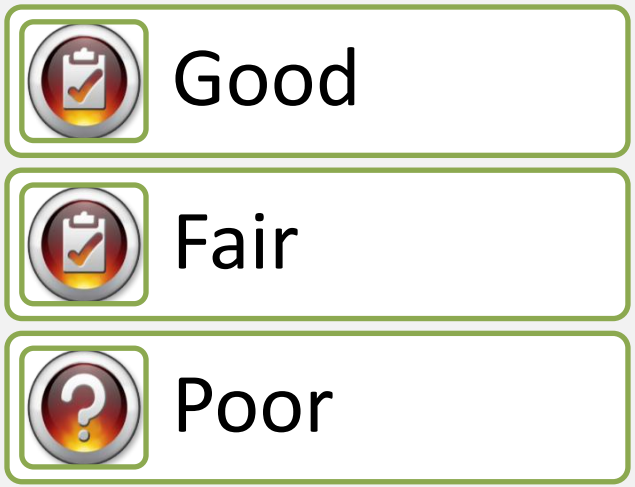
Edge Joints & Cracks

- Edge Joints
- Edge cracks typically form due to:
  - Lack of lateral support or weak base
  - Settlement of underlying material
  - Heavy traffic along edge
- Prevent intrusion of run-off water and debris by crack sealing

Fatigue

- Fatigue cracks are also known as “alligator” cracks
- Indication of structural failure
- Typically occurs later in a pavement’s life due to high traffic loads
- Crack seal or fill cracks larger than 1/8” (3mm) as a pre-treatment to other surface treatments

Pavement Condition



- Good: Crack Sealing increases life expectancy
- Fair: Crack Sealing increases life expectancy
- Poor: Crack Sealing increases life expectancy in studies; however results and inconsistent - all variables of the pavement should be evaluated to determine the appropriate treatment

Crack Density

Greater than 20% Crack Density

Less than 20% Crack Density

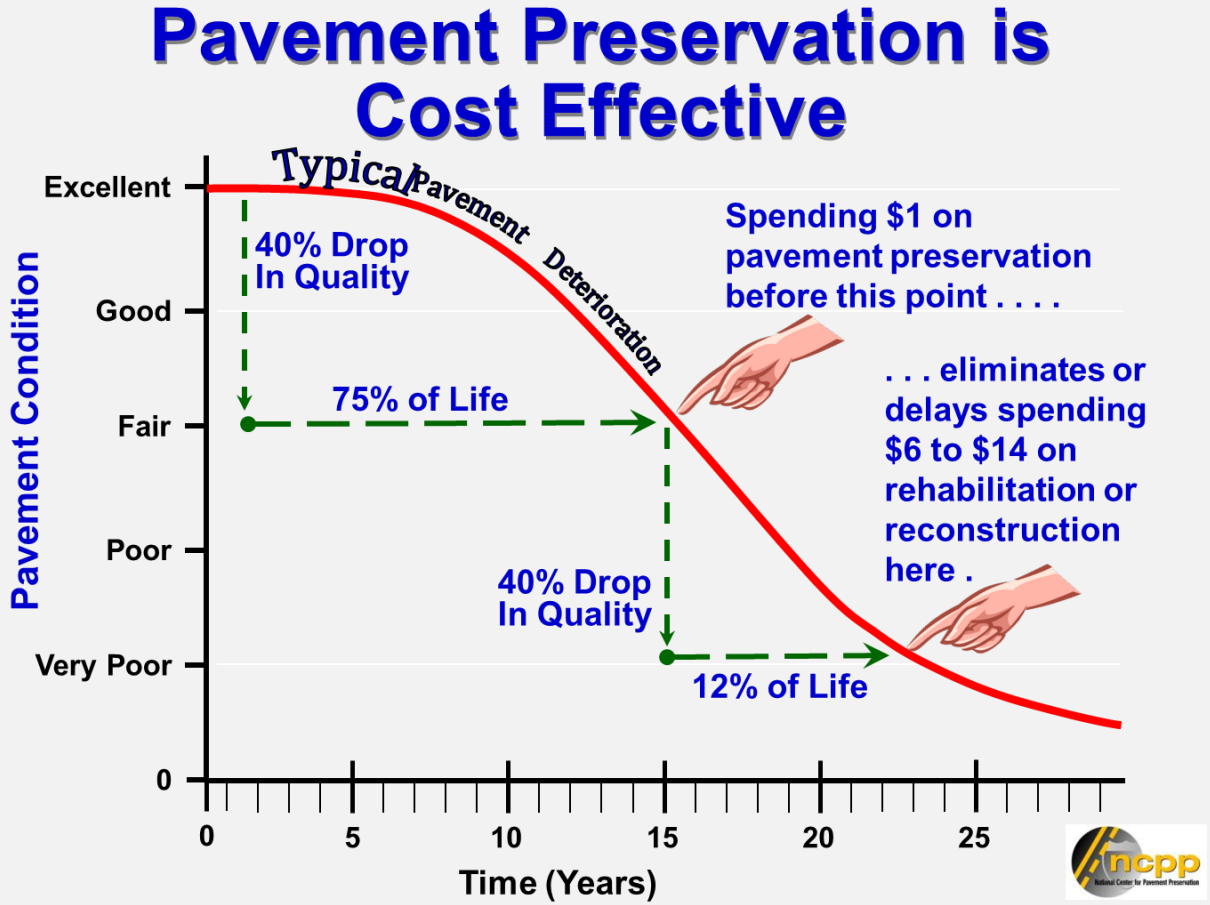
Crack density can be used as a general guideline to determine whether or not routing is appropriate. Dependent upon other pavement variables, routing may or may not be appropriate outside of these guidelines.

Crack	Crack Width	Crack Density Less than 20%	Crack Density Greater than 20%
Hairline to Large	≤ 1/8” (3mm) – 1 ½” (38mm)	Rout & Seal	Seal Routing not recommended
Wide	>1 ½” (38mm)	Seal with Mastic	

Rout and Seal cracks up to 1 ½” wide

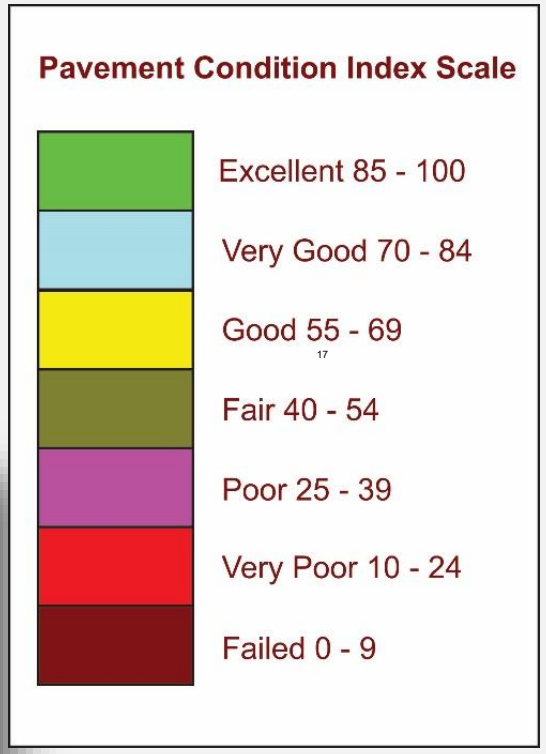
Use Mastics to seal wide cracks (1 ½” or greater)

When to Crack Seal?



Pavements Too Far Gone for Crack Treatment

- Extensive fatigue cracking
- Structural failure of underlying pavement base
- PCI
  - Very Poor
  - Failed



Seasonal & Environmental Factors

Crack Sealing can be accomplished in all 4 seasons:

- Summer is typical/customary
- Spring & Fall are optimal
- Winter crack sealing can be done with proper care and if conditions are appropriate

Seasonal & Environmental Factors

- Winter is a good alternate
- Performed in virtually any outside air temperature
- Need dry crack warmed to 40°F
- Hot Air Lance
- Extend your preservation season! Crack seal when no other treatments can be performed

Winter Crack Sealing

- Clean, dry cracks and proper temperature are the keys to effective crack sealing
- Having a dry road is even more important than air or pavement temperature
- When sealing in the winter, choose a softer, more flexible sealant
- Apply sealants at the upper-end of their recommended application temperature range.
- Ensure that your equipment is ready to work in the cold
- Keep the sealant narrow and tight to the pavement to minimize exposure and damage from traffic and snow plows

Seasonal & Environmental Factors

- Work force availability
- Traffic conditions
- Conjunction with other projects

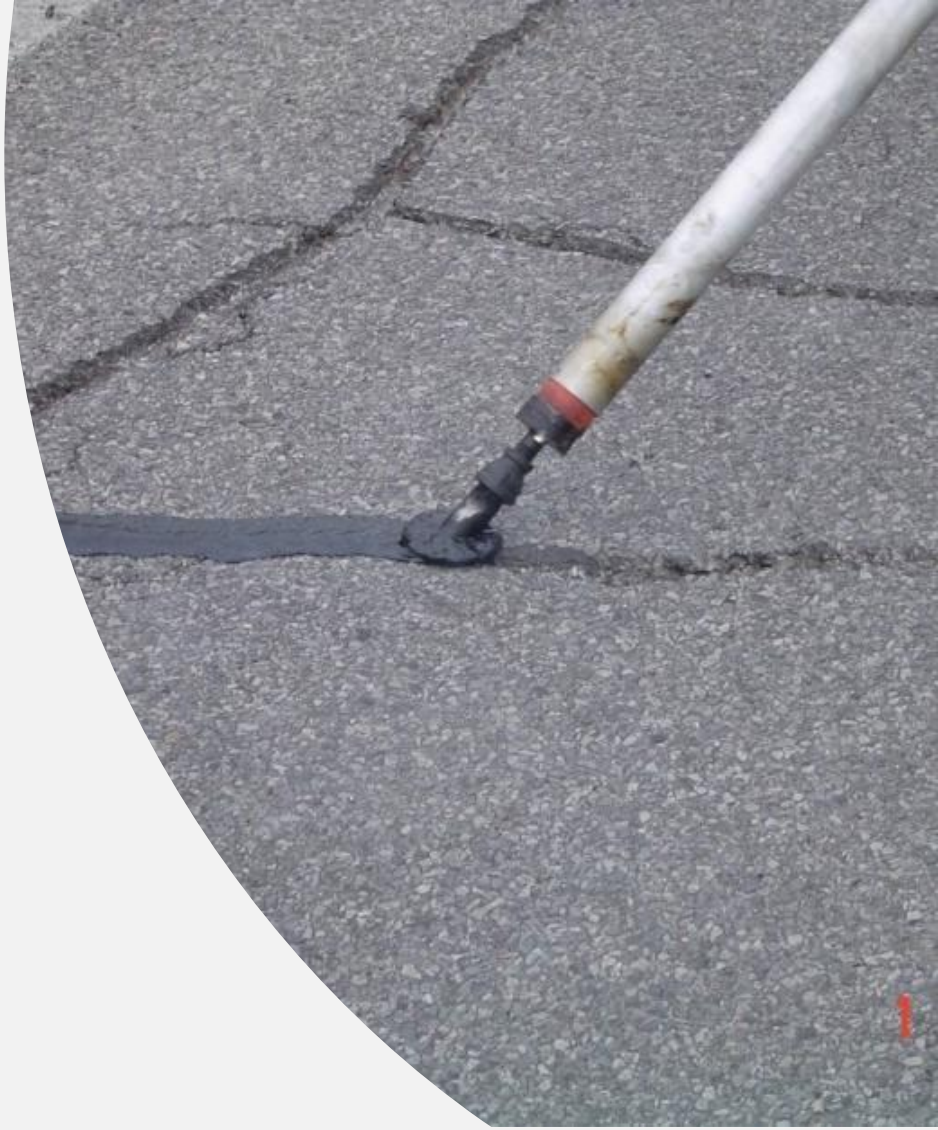
Placement Configurations

- Proper installation is a must! [1]

- Sealant shape and reservoir configurations influence performance and are the primary design considerations! [1]

- Maximize cost effectiveness by selecting a quality sealant and completing a quality application.

What are Placement Configurations?



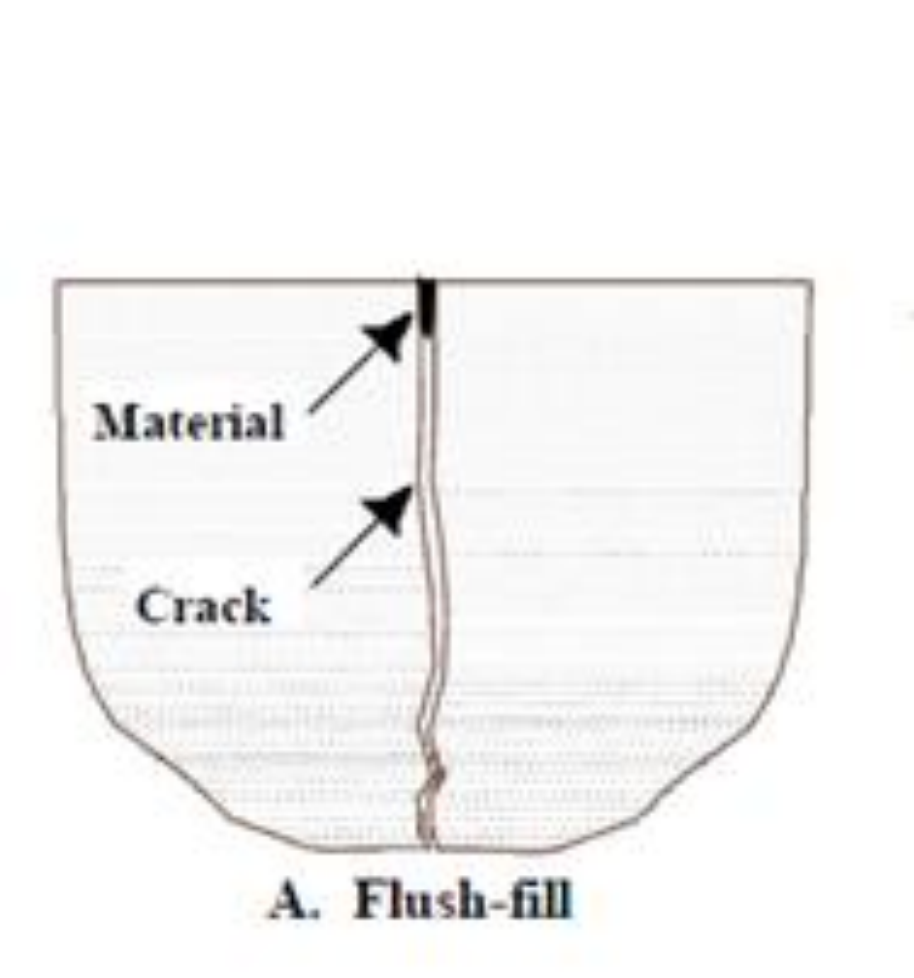
4 Categories of sealant placement configuration for crack sealing:

- **Flush Fill**
- **Overband**
- **Reservoir**
- **Combination**

Flush Fill Configuration

Flush Fill

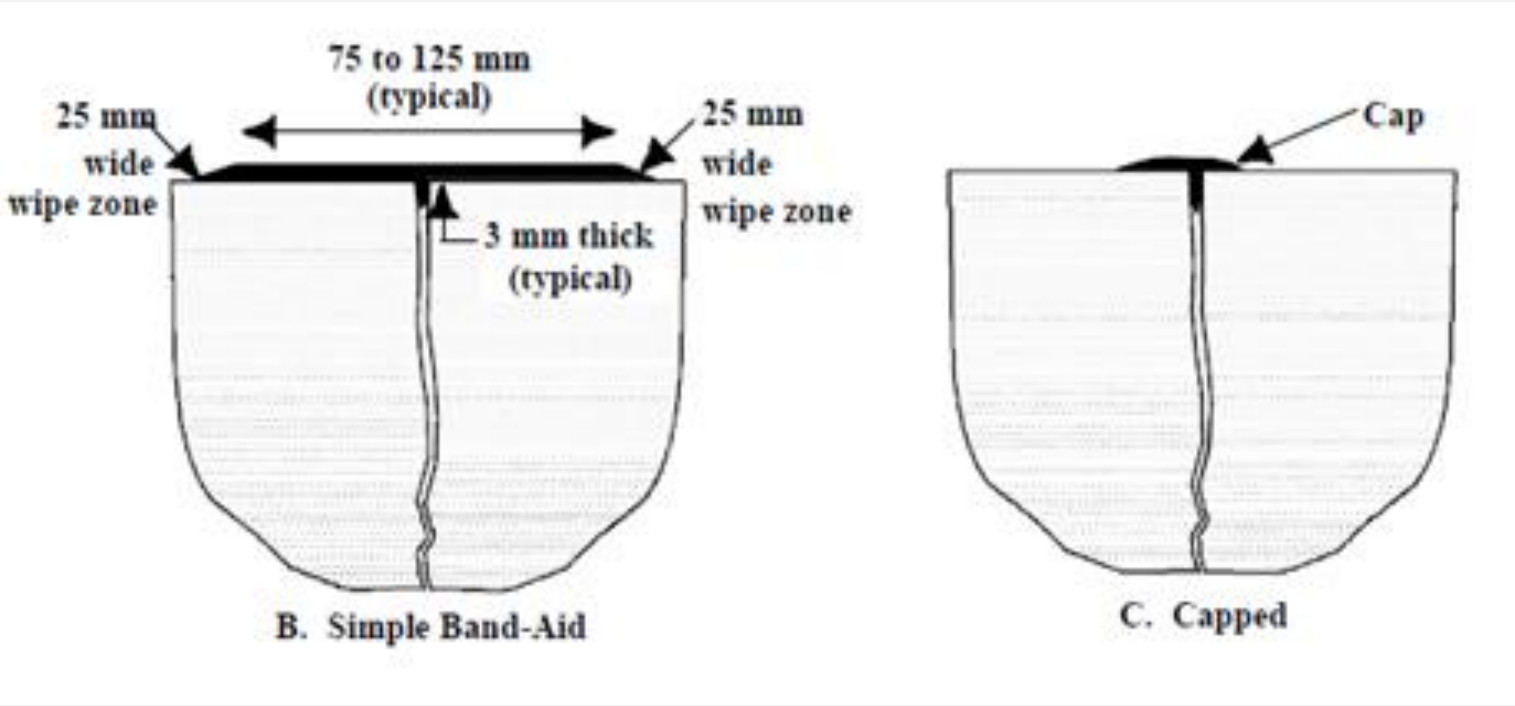
- **Sealant placed into crack, flush with the pavement**
- **Any excess is struck off**
- **Commonly used when cracksealing before an asphalt overlay**



Overband Configuration

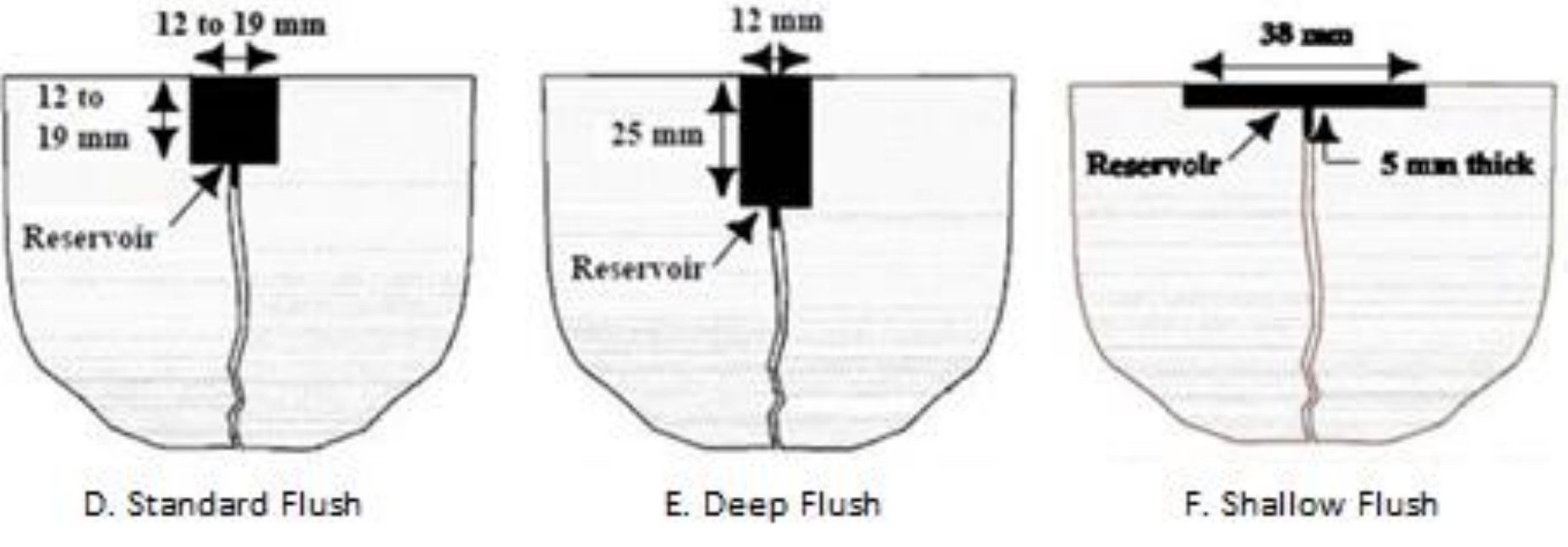
Overband Configurations

- **Squeegeed overband (Figure B)**
- **Capped overband w/ sealing disc (Figure C)**
- **Most common application technique “blow & go”**



Overband Application using a Squeegee

Reservoir Configurations (Routing)



D. Standard Flush

E. Deep Flush

F. Shallow Flush

Reservoir Configurations

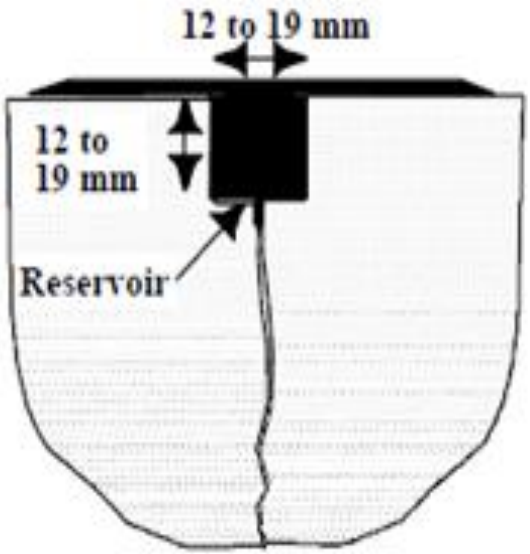
- Standard Flush
- Deep Flush
- Shallow Flush

Reservoir Configurations

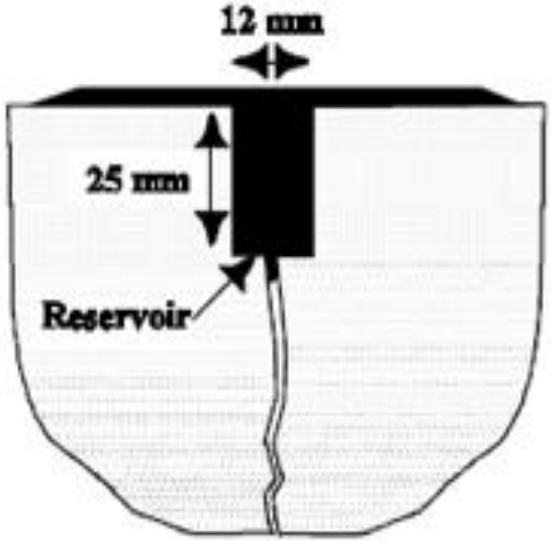
Combination Configurations

Combination Configurations

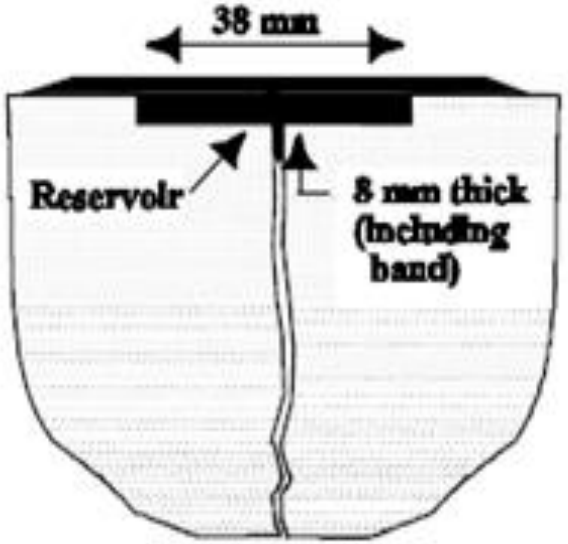
- **Designed Reservoir (Routed Crack)**
- **Material placed into and over the reservoir with an overband (squeegee or use of a sealing disc)**
- **Overband centered over crack reservoir**



I. Standard Recessed Band-Aid

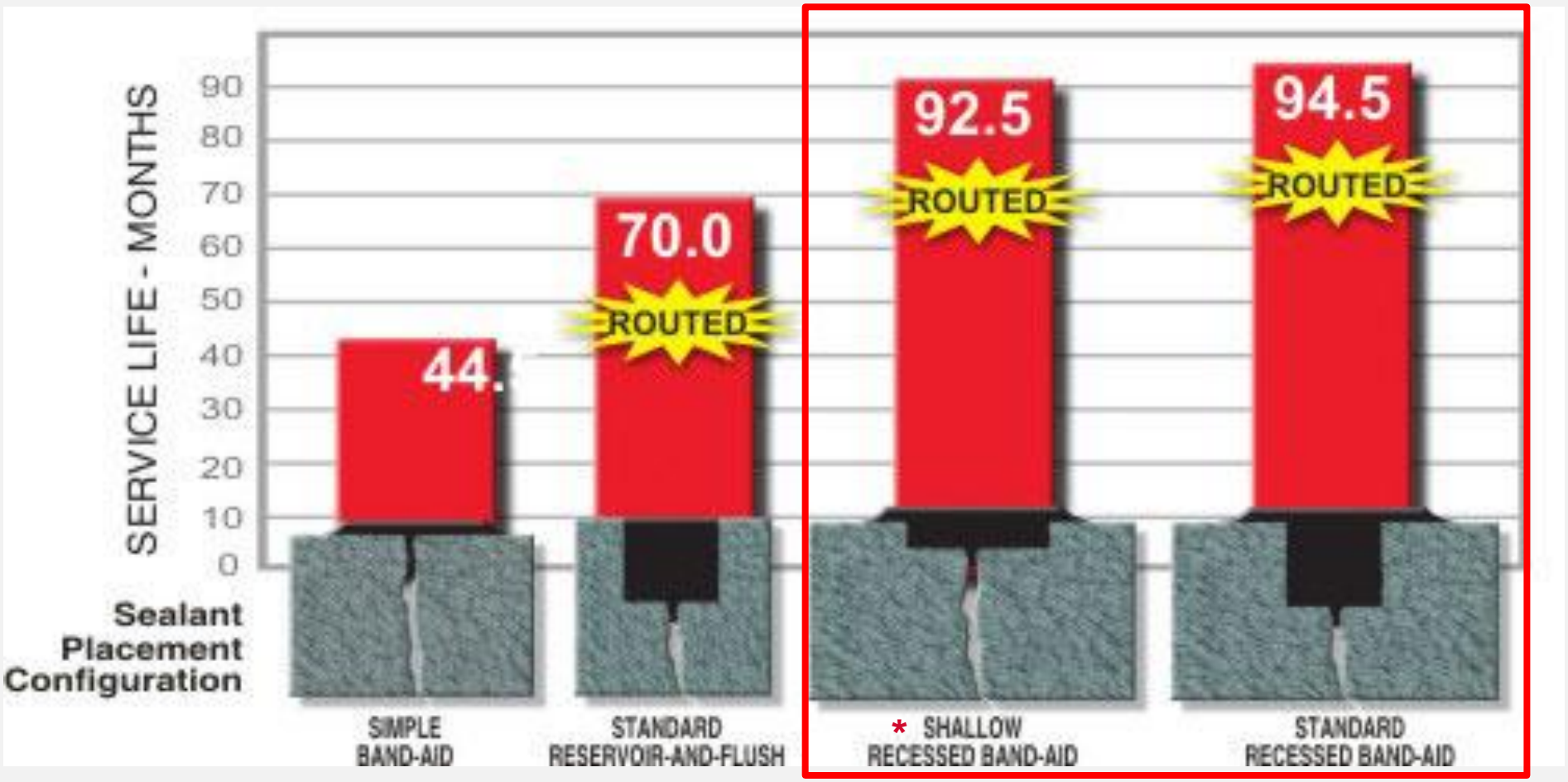


J. Deep Recessed Band-Aid



K. Shallow Recessed Band-Aid

Combination Application



*** Extreme Cold Climate**

Reservoir Design Dimensions

Questions?

Module 3 Equipment & Installation Best Practices

Installation Best Practices

- Preparation
- Reservoir Cutting
- Proper Sealant Heating
- Maintaining Melter Temperatures
- Equipment
- Application Configurations
- Finishing
- Personnel, Traffic Control, Safety, Opening to Traffic, and Re-sealing

Preparation Best Practices

- Structurally sound pavement
- Dry Crack
- Clean Crack

Structurally Sound Pavement

- Intact Bonding Surface
- Tight, strong surface
- No surface raveling
- No Loose aggregate

Dry Crack

SURFACES NEED TO BE *DRY*

DRY PAVEMENT SURFACE AND CRACK INTERIOR

NO DAMPNESS

NO DARKENING OR DISCOLORATION DUE TO MOISTURE

NO FROST OR DEW

MOISTURE WILL PREVENT PROPER ADHESION AND GUARANTEE SEALANT FAILURE

Weather Considerations

Ideal Conditions:

- Moderate to warm temperatures
- Little to no wind
- Spring and Fall

Weather Considerations

- Wind
- Temperature
  - 40° F (4° C) and rising
  - Hot air lance in cooler conditions
  - Cloud coverage and shade
  - Rain

Clean Crack

- Surfaces Need To Be Clean
- Pavement surface and crack walls free from dirt and debris
- Dirt will prevent proper adhesion

Compressed Air

Crack cleaning via Compressed Air:

- Blow out debris, dirt, weeds etc.
- Blow debris away from traffic and co-workers
- Ensure that operator is staying within the traffic control lane during cleaning
- Ensure sufficient pressure and velocity
    - Recommended air pressure minimum 90 PSI
- “Finger Test” inspection to determine if cleaning is sufficient
- **Compressed air is the most common method to clean and prepare cracks**

Compressors

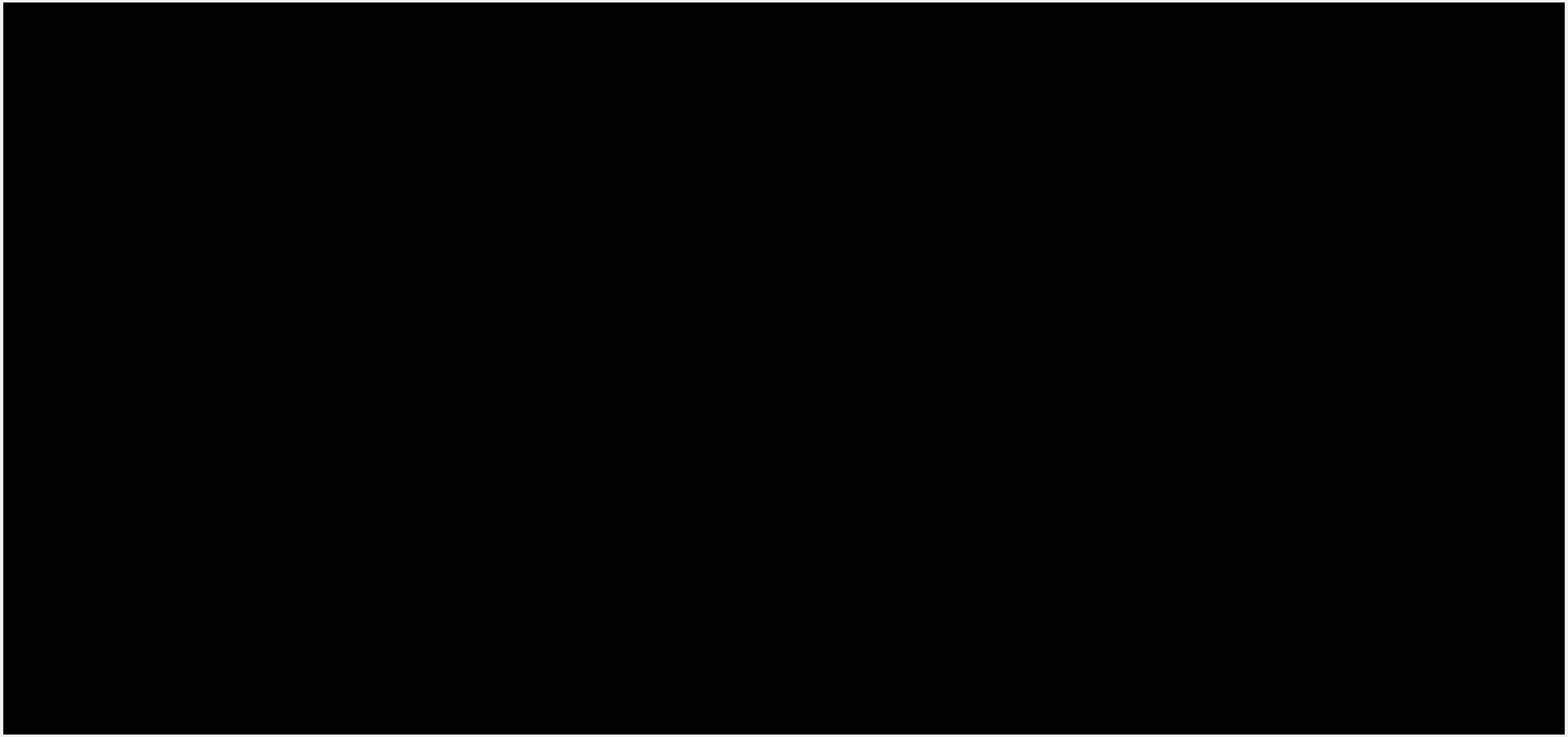
- High pressure air compressors are effective at cleaning out cracks prior to sealing; an important step in the application process
- Ensure compressor capacity to maintain effective high pressure (min 90 psi)
- Blow out debris, dirt, weeds etc.
- Blow debris away from traffic and co-workers
- Ensure that operator is staying within the traffic control lane during cleaning
- Ensure sufficient pressure and velocity
- **Compressed air is the most common method to clean and prepare cracks**

Crack Cleaning w/ an Air Compressor

Vacuum Systems

- Vacuum systems
- Environmentally Friendly
- Required in certain areas that have PM10 regulations
- Injects compressed air into crack removing debris and then vacuums debris into vacuum. Fines are filtered and cleaner air is released into atmosphere

Vacuum Systems



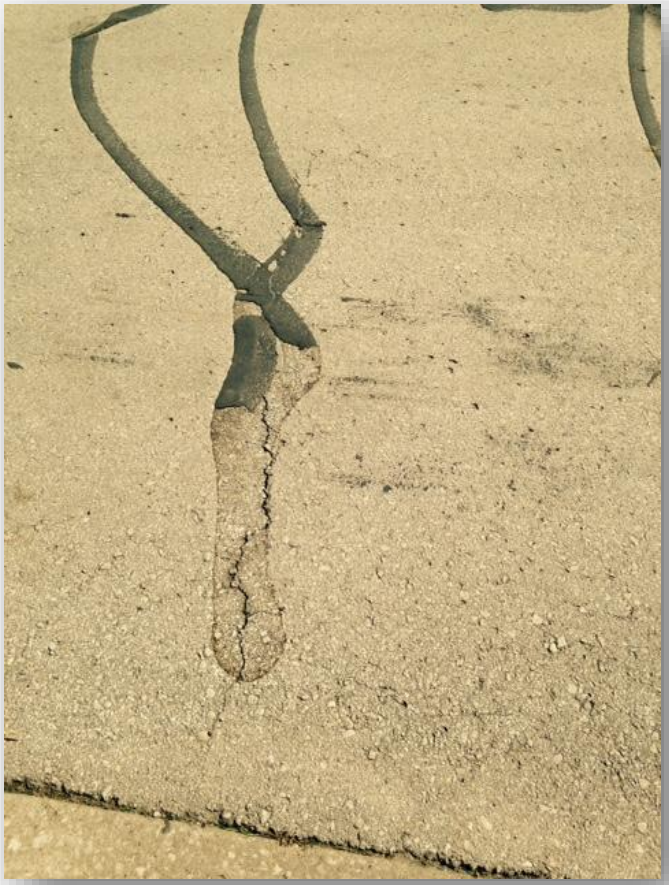
Hot Air Lancing

- Hot Air Lancing
  - Removes debris, burns weeds, removes moisture, and warms pavement
- NEVER to be used to continue work during rain or when pavement surface is saturated
- Conditions where hot air lancing is frequently recommended:
  - Moist climates
  - Nighttime crack treatment projects
  - Temperatures below the dew point

Wire Brushing

- Wire Brushing
- Wheel mounted units: rotating, narrow, round wire brush that runs through crack to remove debris
- May be used along with compressed air
- Brushes wear quickly, requiring frequent change

Improper Cleaning



Reservoir Cutting (Routing)

- Routing is an effective method to cut a designed reservoir and is also an effective method to clean crack face, provides ability for sealant to accommodate crack movement
- Straight, uniform reservoir is best
- Production depends on pavement conditions but in studies has ranged from: 220 meters (~720 linear feet/hr) up to 300-600 meters (1,000-2,000 linear feet/hr)

Rotary Impact Router

- Most widely used reservoir cutting equipment
- High productivity of 600-800 linear feet per hour
- Follows meandering cracks well
- Depth control
- Variety of models and options available

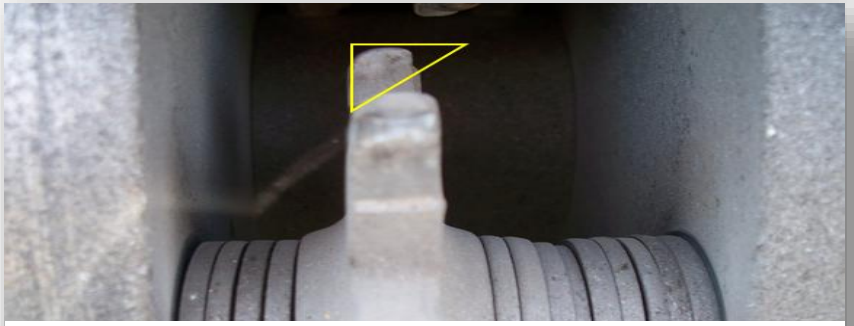
Reservoir Cutting

Reservoir dimensions should follow the project design. Here are some general best practices for routing reservoirs:

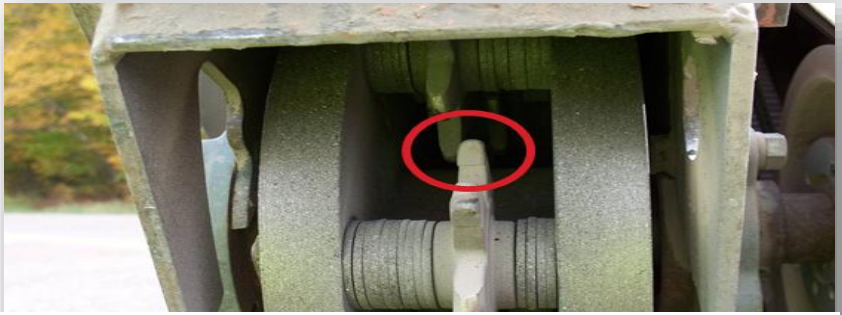
- Produce an equal cut centered over the crack for uniform bond on both sides of the crack
  - Rout at least 3mm (1/8”) from each side of the crack
- Cold weather climates may require wider reservoirs.
  - Reservoir should never be greater than 38mm (~1.5 in) wide and never less than 10 mm (~3/8 in) deep
- Stop if excessive spalling occurs
  - Router should follow crack without difficulty
  - Minimize spalling and cracking

Reservoir Cutting

- Check cutters frequently during use (rotate when appropriate)
- Pay attention during operation for any noise that indicates an issue or excessive vibration
- Have correct amount of washers/spacers to reduce ‘wobble’ – which reduces physical effort of operation and provides a cleaner cut
- Avoid routing alligatored areas or poor pavement conditions



This cutter is rounded and needs to be replaced



This cutter has rounded edges on the inside and shows how it was rotated to provide a square outside cutting edge

Rotary Impact Router Video

Proper Sealant Temperature

- **Follow the Manufacturer's recommended application temperature range!!**
  - *Common Minimum-Maximum application temperature range is 380°F - 400°F*
- **Over-heating or under-heating the sealant will result in limited performance and/or failure**

Proper Sealant Heating

- Load and heat sealant prior to planned start of installation
- Always apply product within manufacturer's minimum and maximum temperature range
- Inspect your temperature regularly
- Overheating may damage product properties
- Under-heating may cause adhesion issues

Maintaining Temperature

- **Add material as you go (add equal amount into machine as it's being put down). Do not drain tank fully before reloading/adding sealant.**
- Agitation should be continuous; except when melter lid is opened to add sealant
- Agitation increases heating and maintains sealant temperature uniformity
- Add sealant blocks equal to installation rate to best maintain sealant temperature – avoid adding many blocks all at one time

Maintaining Temperature

- Heating for too long at high temperatures can damage sealant
- Thickening or gelling (getting “stringy”) are signs of overheating
- In this case; sealant must immediately be drained from melter and disposed
- Using damaged sealant may result in: adhesion, tracking/bleeding issues
- Always follow manufacturer’s instructions for heating temperatures

Proper Pavement Temperature

- Pavement Temperature 40°F minimum
- CAUTION should be observed when applying products below the dew point
- Hot Air Lance can be used to warm the pavement

Re-Heating

- Some manufacturers recommend to attempt to use all sealant on the day of installation. Check manufacture recommendations to ensure you are following their instructions for re-heating.
- Some sealants can be reheated; check manufacturer’s instructions

Sealant Melters

- For application of hot applied sealants
- Variety of manufacturers, capacities, fuel sources, melt rates and features
- Units range from small direct fire equipment to large dual pump and wand applicators with onboard air compressors

Small Direct Fired Melter

- For small project usage ONLY
  - Parking lots, residential driveways
- Manual propane burner and agitation
- Ensure sealant is appropriate for direct fire unit as not all sealants are compatible with this unit
- Maintain appropriate temperature and constant agitation to guard against overheating of sealant

Oil Jacketed Double Boiler Melter

Most hot applied sealants are heated and installed using oil jacketed double boiler melters:

- Heats and melts sealant to application temperature
- Agitates sealant inside tank
- Pumping system to feed material through hose, wand and into crack.
- Temperature control system provides safer and more controlled method of heating sealant

Oil Jacketed Double Boiler Melters

- Variety of sizes and features
  - 50 - 400+ gallons
  - Towable trailer units
  - Skid mounts
  - Gravity
- Diesel or propane fired burners

Gravity Feed Melters

50 gallon capacity

400 lb per hour melt rate

Application Tools

- Hoses & Wands
- Wand tips
- Squeegees

Hoses

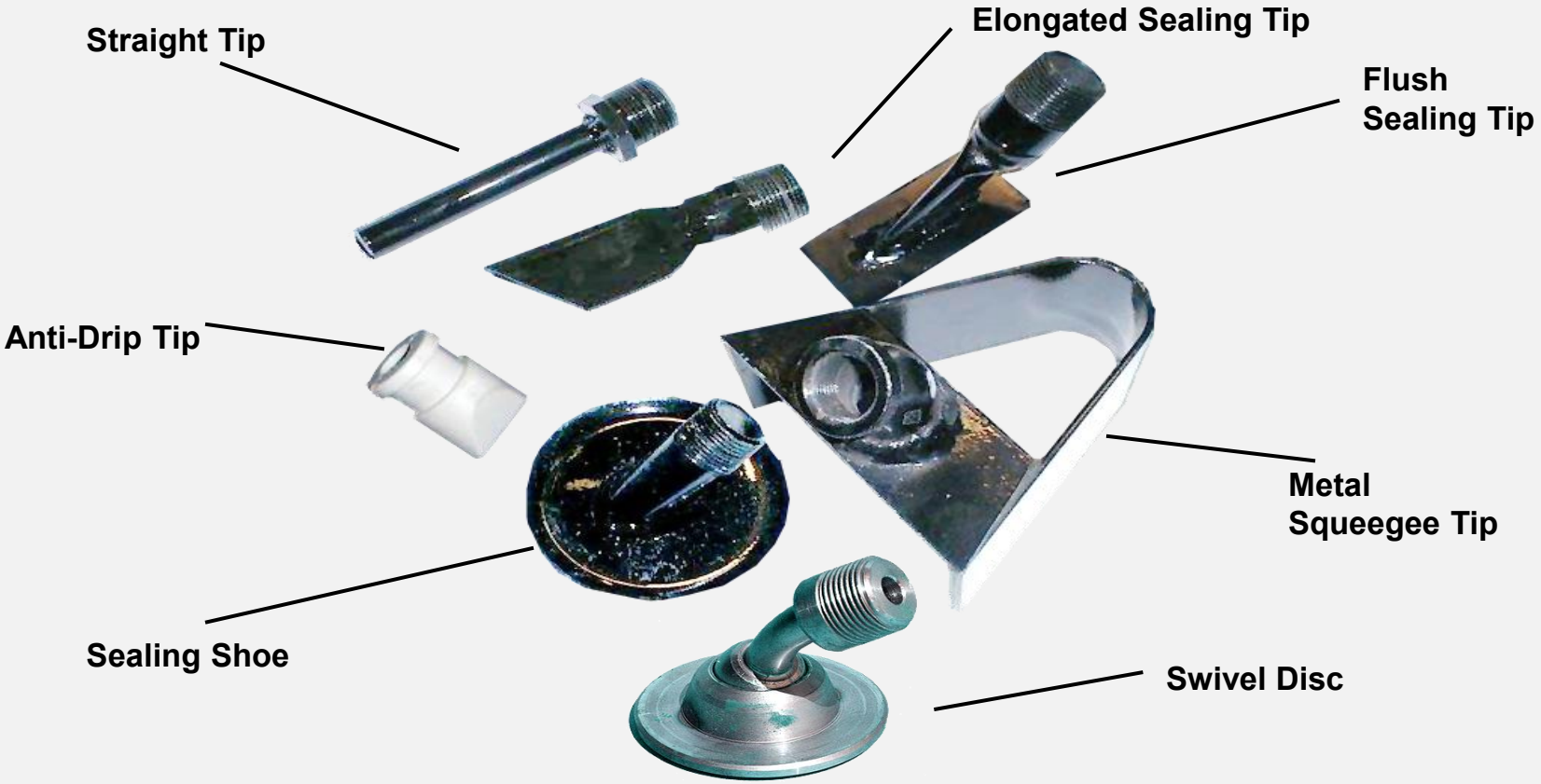
- Hoses are available in heated and unheated versions
- Variety of manufacturers and lengths

Some larger melters are equipped to handle two hoses per unit for higher production.

Wands

- Wands attach to the hose in order to apply sealant to the ground
- Trigger and valve controlled wands are most common

Wand Tips


Straight Tip
Elongated Sealing Tip
Flush
Sealing Tip
Anti-Drip Tip
Metal
Squeegee Tip
Sealing Shoe
Swivel Disc

Squeegees

- Squeegees are commonly used for crack sealing
- Smooth and level sealant
- Form overbands
- Force sealant down into crack for greater contact/adherence to crack walls
- Typical overbands should extend 1” beyond the crack on each side

Equipment Questions?

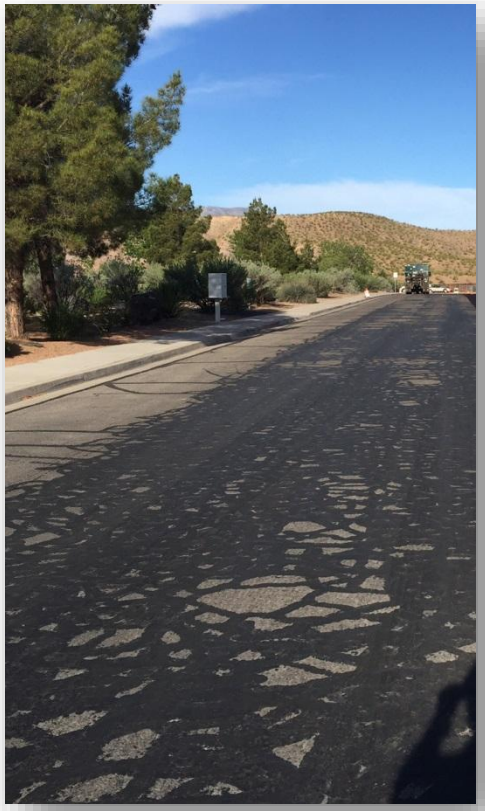
Proper installation is a must!

Proper Application

PROPER OVERBAND

- Narrow
- Tight to the pavement
- Pavement texture visible through sealant

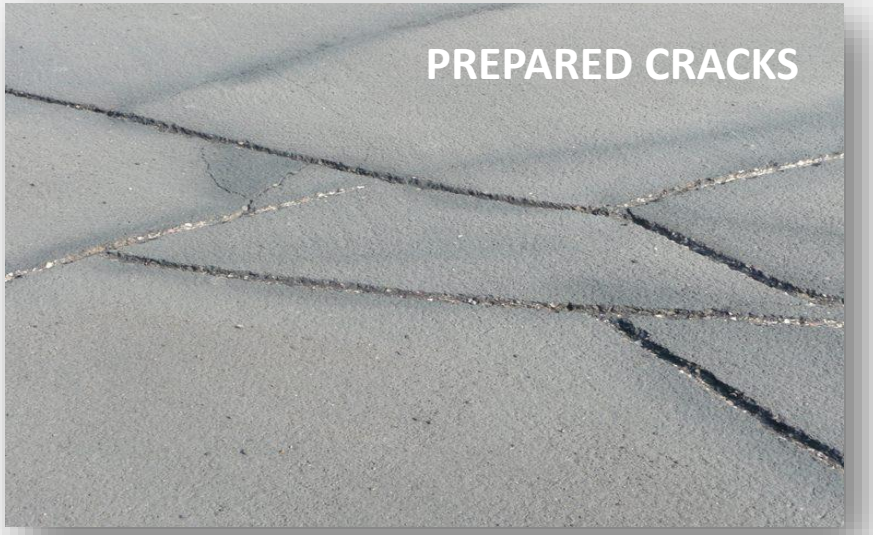
Improper Application



Finishing

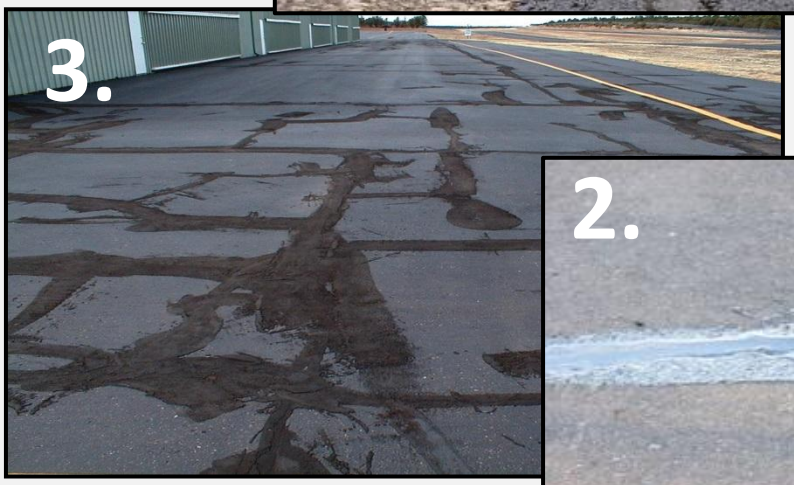
Good applications are achieved by:

1. Meeting the project design configuration: (Flush, Overbands, Reservoirs, Combination)
2. Performing good, clean applications free from drips, puddles, and excess sealant



Common Finishing Issues

1. Sagging
   - Apply a second coat to achieve desired level
2. Puddling
   - Turn and go back over crack to make a smooth, even application
3. Drips and excessive application
   - Use a drip stopper
   - Avoid poor workmanship



Drip Stopper

Application Configuration Questions?

Traffic Control

Traffic control should be designed in accordance with part 6, Temporary Controls, of the FHWA Manual on Uniform Traffic Control Devices or as per the project specifications

- Treatments typically performed one lane at a time
- Traffic controls move as the work zone proceeds
- Lane closure time should be appropriate for product to cooled/cured to bear traffic

Personnel Requirements

Typical Crack Treatment Crews have 4-5 workers. Additional personnel will be needed depending upon the requirements of the project. Here are some of the most common functions in a crack sealing operation:

- Traffic Control
- Router Operator
- Air Compressor Operator
- Driver
- Sealant Loader
- Sealant Operator
- Squeegee Operator
- Detack/Finishing
- Clean-up
- Maintenance

Inspections

Crack treatments need monitoring and inspection throughout the process to ensure installation proceeds as planned including:

- Equipment
- Sealant used
- Reservoir dimensions
- Crack cleanliness and dryness
- Application temperatures
- Weather conditions

Clean Up

- Care should be taken to clean up all garbage, materials, traffic control items, and debris after any crack treatment

- Excessive sealant/spills should be removed
- Sealant boxes and packaging materials need to be disposed
- All debris must be removed: blowers, backpacks, street sweepers and/or vacuums may be used
    - blow away from traffic and people
- Traffic control items including cones and signs should be removed

Opening to Traffic

- Crack treatment areas should not be opened to traffic or pedestrians until:
  - the sealant has cooled to the pavement surface temperature
  - Cured sufficiently to not be affected by traffic
- Application configurations should be taken into consideration
- De-tacking products may be used to open treatments to traffic more quickly

De-tack Application

Keep traffic off treatment until sufficiently cooled or cured

Safety Hazards

Hazards:

- Exposure to traffic
- Elevated temperature materials
- Proximity to powered equipment

Always read the manufacturer's operation and safety manuals prior to working with equipment and sealant materials.

PPE of the Past

Dress for Safety! PPE!

When operating equipment and/or working with hot materials always wear the following or as required by your employer:

- Long pants
- Long sleeved shirt buttoned at wrist
- Heat resistant gloves
- EYE PROTECTION (safety glasses or face shield)
- HARD SOLED SHOES or BOOTS
- Traffic safety vest and hard hats

Questions?? Thank You!

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