



Waterproof Traffic Coatings and Precast Concrete Double Tee Joints

*Mosby Lawrence, Neogard Div. of Jones-Blair
Company*

Precast Parking Garages



Precast Double Tee Construction

Cast off site and erected at job location



Precast Construction For Parking Garages

- Speed of Construction
- Durable
- Low maintenance
- Greater crack control



Precast Double Tee Construction



Leaks Occur at Joints

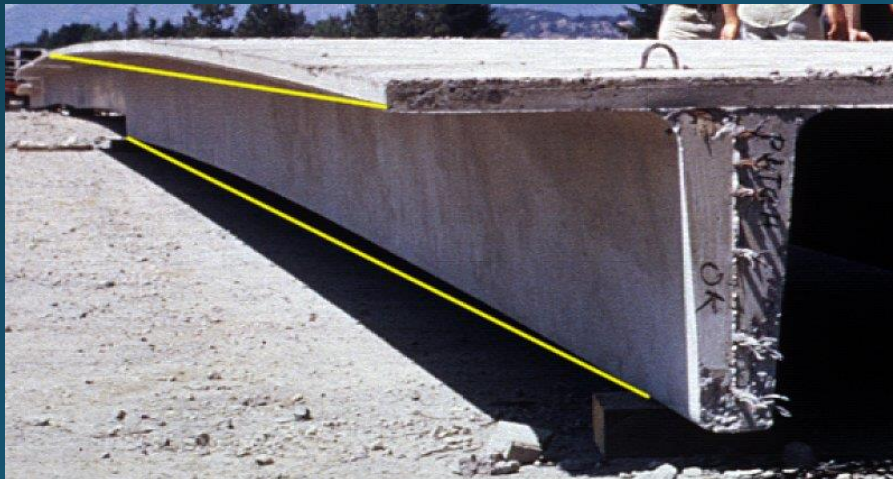


Precast Double Tee Joint Issues

- Wide Joints
- Uneven Joints
- Control Joints in Topping Slab
- Joints at Deck to Wall Transition

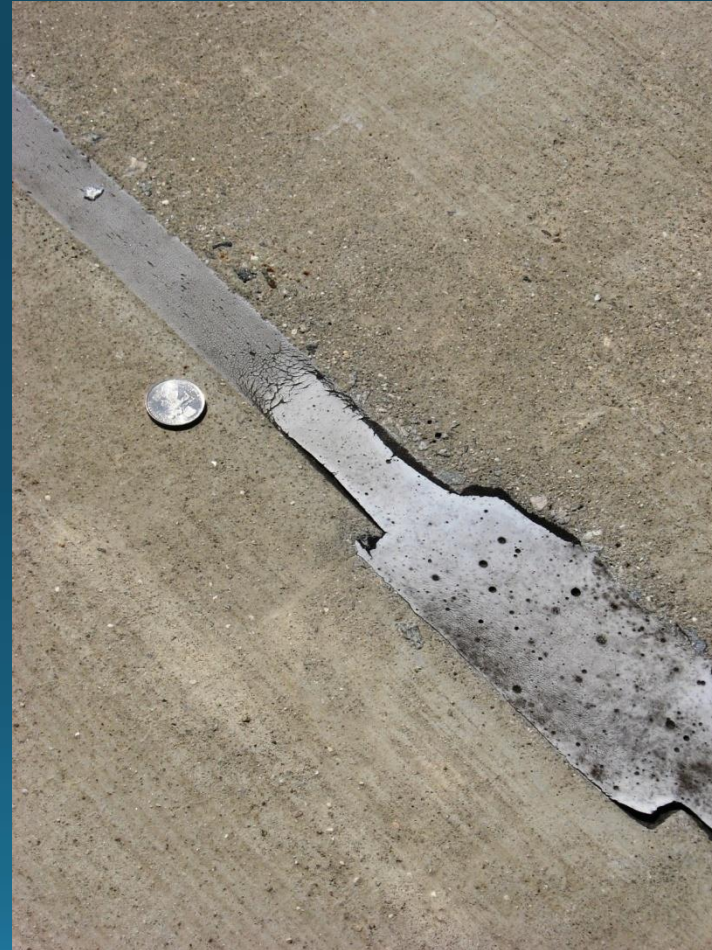
Coating/Joint Issues

1. Wide Deck Joints



Wide Joints in Deck

1. Wide Joints in Deck
 - Tee Connections



Wide Joints

Sealant Depression





Wide Joints

Coating system cracks at joint edges as sealant is depressed from weight of traffic

Crack Over Tee Joint



Wide Joints

Tee Connections



Tee Connection - Large surface area impacted by traffic



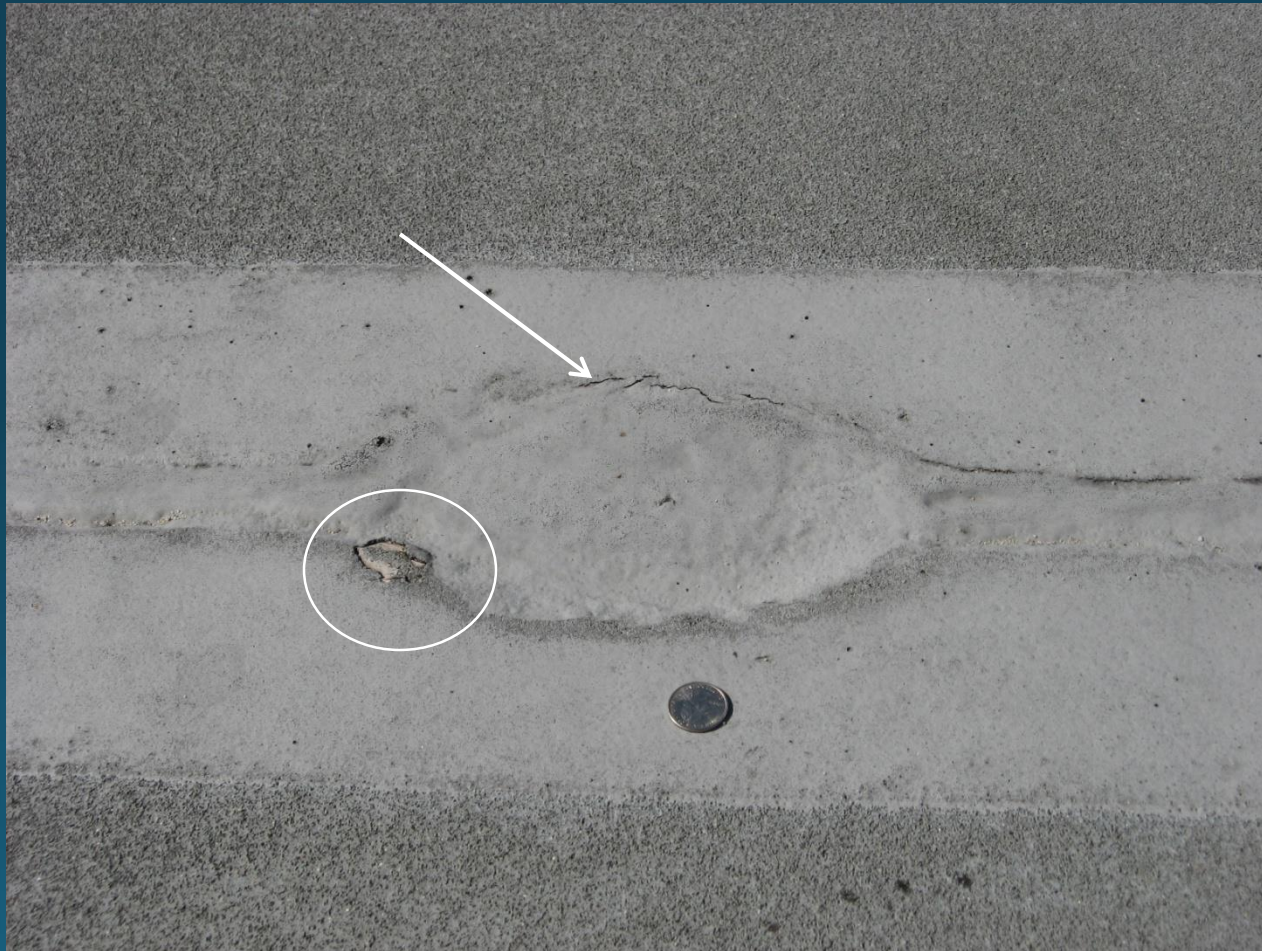
Wide Joints

Tee Connections



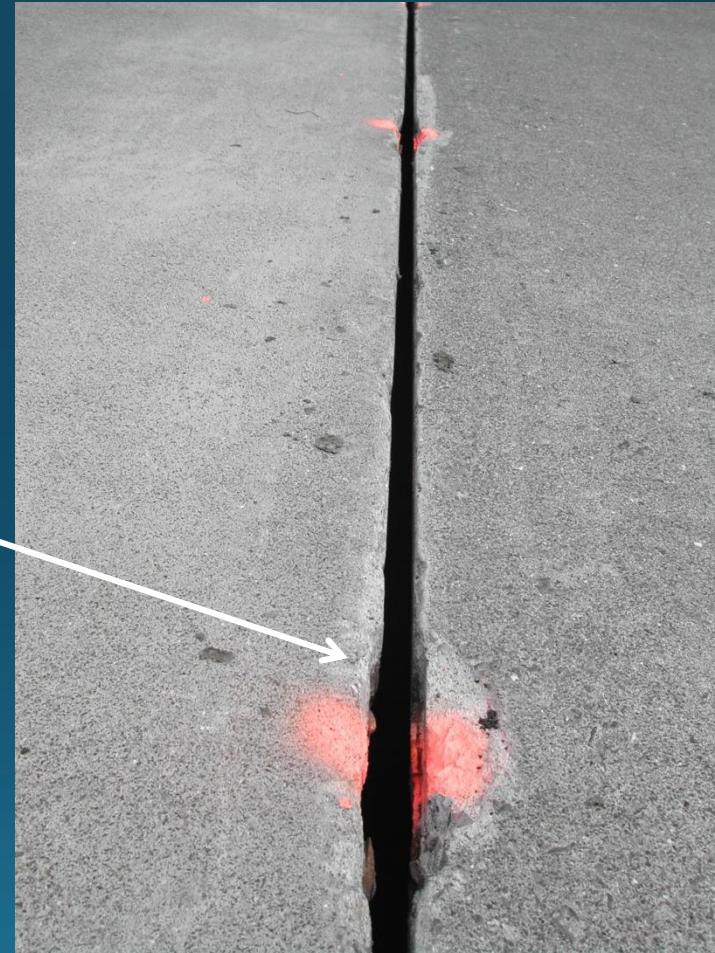
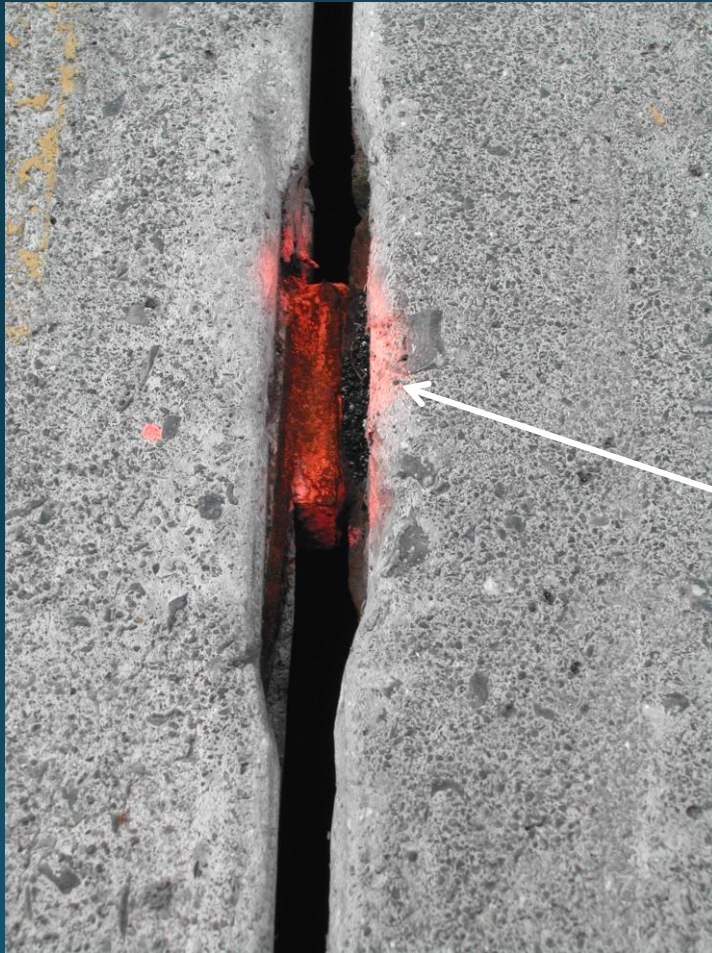
Wide Joints

Tee Connections



Tee Connections

Broken Connections



THE SOLUTIONS



Double Tee Joint Issues

- Repair connections before coating installation



The Solution

1. Wide Deck Joints

- a. Reinforcement Fabric

Reinforcement Fabric

Polyester, soft finish, stitchbonded fabric

Weight, 3 oz/sq yd, Trapezoidal Tear
Strength 16.1 lbs (ASTM D117), Tensile
57.1 (ASTM D1682)



Reinforcement Fabric Over Joint

Joint Treatment

- Install joint sealant
- Install detail coating material
- Embed reinforcement fabric, roll out bubbles, etc.



Reinforcement Fabric Over Joint

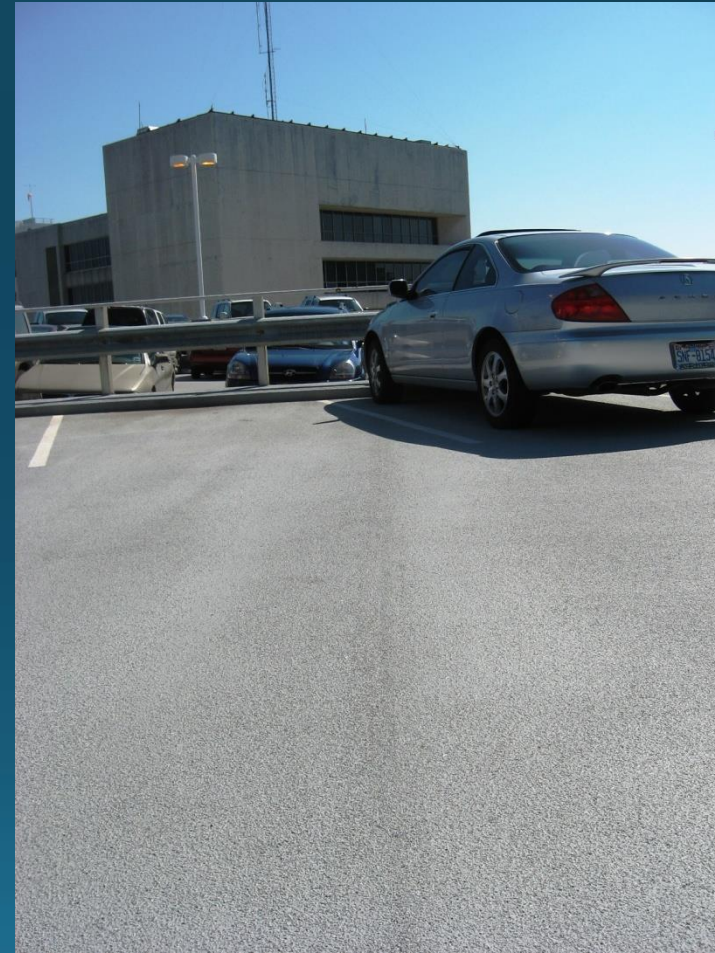
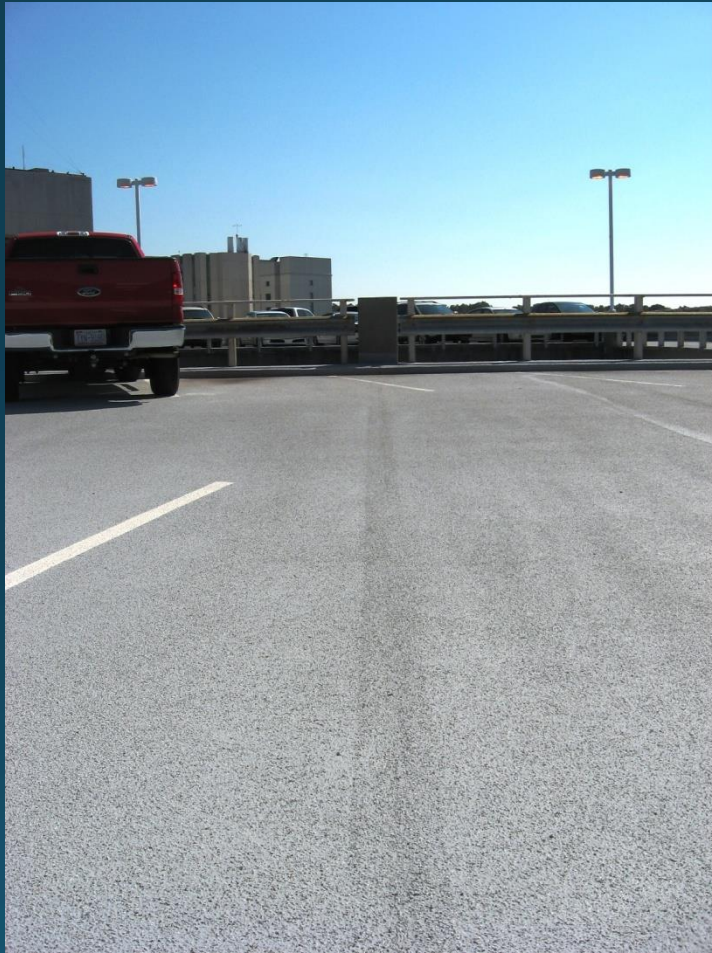
Completed Detail



Completed Detail



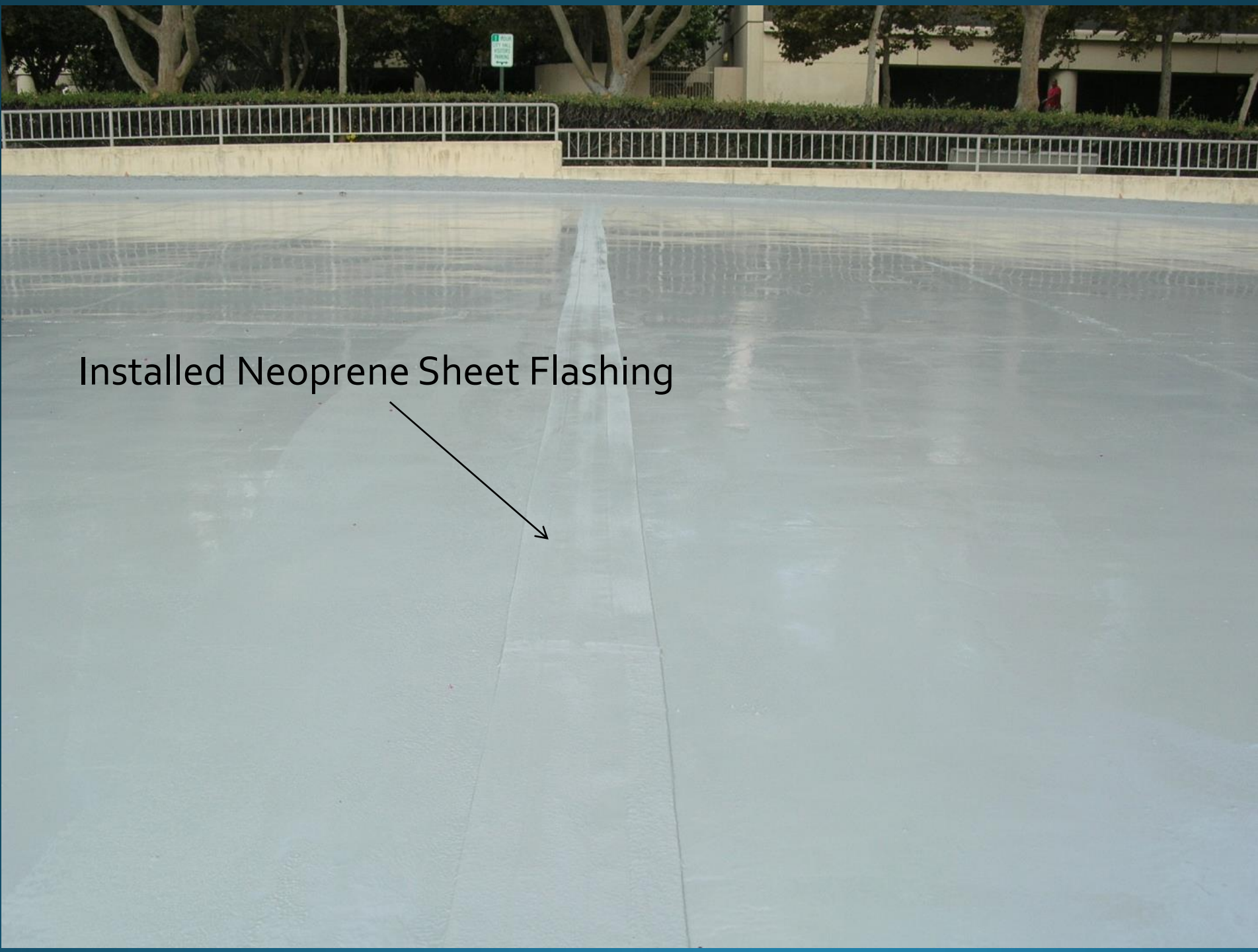
Finished Reinforced Joints



The Solution

1. Wide Deck Joints

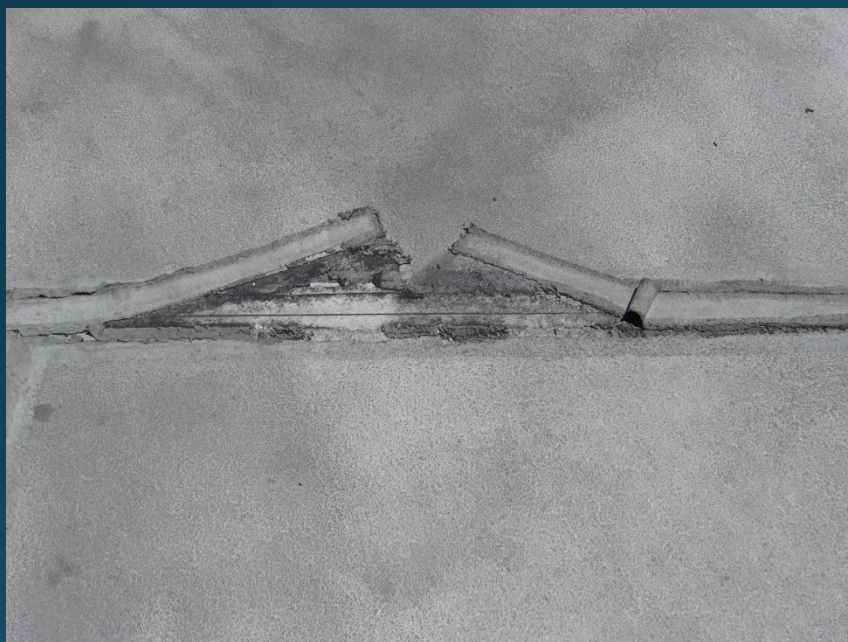
- a. Reinforcement Fabric
- b. Sheet Flashing – Pedestrian traffic Only



Installed Neoprene Sheet Flashing



Not recommended for applications subject to vehicular traffic



The Solution

1. Wide Deck Joints

- a. Reinforcement Fabric
- b. Sheet Flashing – Pedestrian Only
- c. Sealant Only

Sealant Only

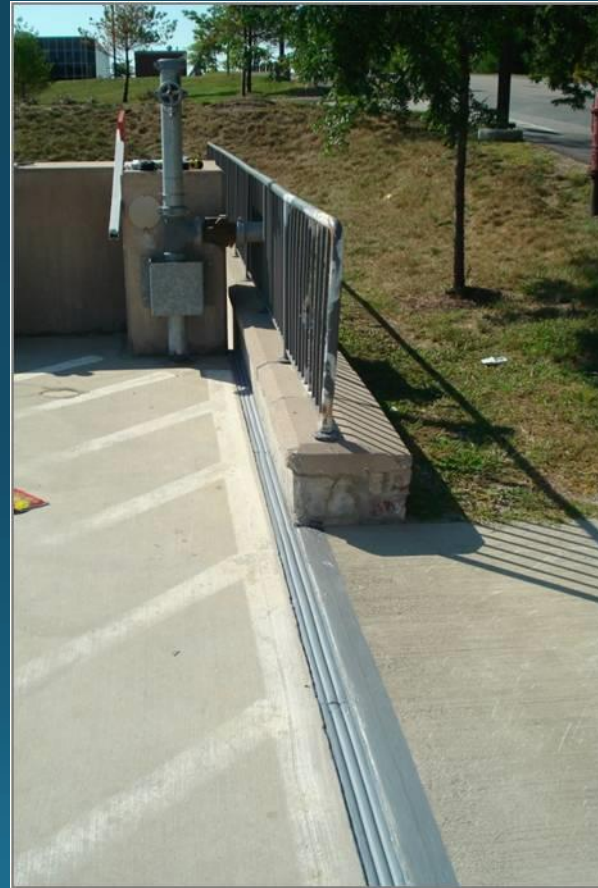


The Solution

1. Wide Deck Joints

- a. Reinforcement Fabric
- b. Sheet Good
- c. Caulk Only
- d. Engineered Joint

Engineered Joint



The Solution

1. Wide Deck Joints

- a. Reinforcement Fabric
- b. Sheet Good
- c. Caulk Only
- d. Engineered Joint
- e. Detail and Coat

Coating Over Caulked Joint

- Little to no deflection between panels
- Even transition between panels
- Use sealant with proper hardness and movement capability
- Install coating detail as required by manufacturer



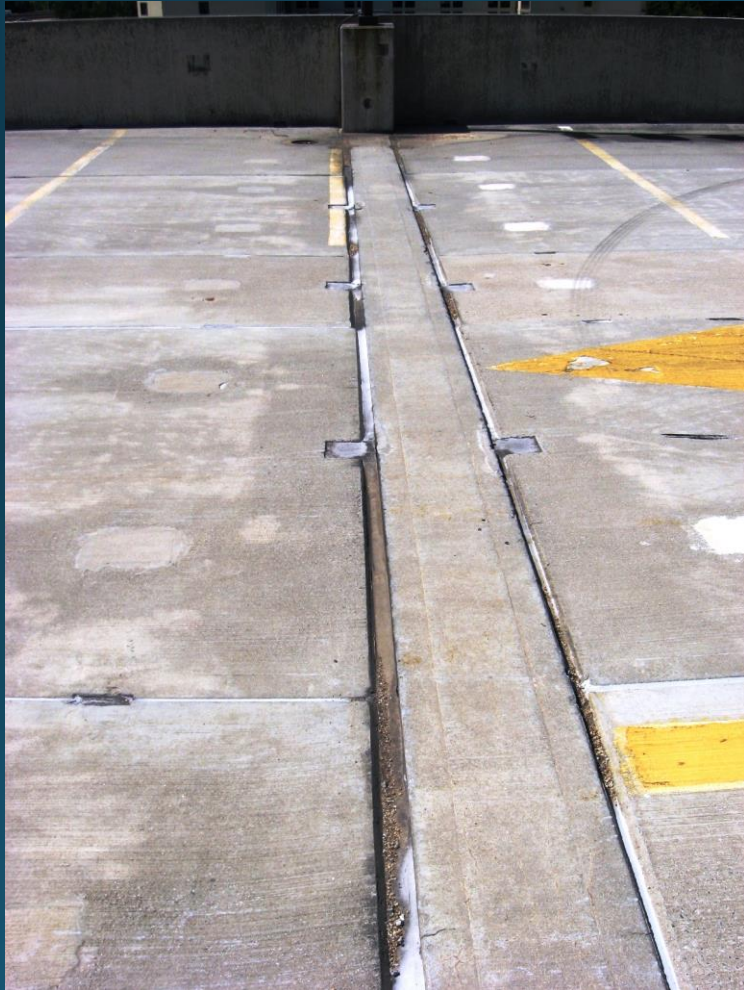
Successful Installations



Additional Issues



Uneven Joints



Uneven Joints

Double Tee Joint Issues

- Uneven Joints create impact points that lead to premature wear of coating system



Uneven Joints

Ridges at weld pockets



Damage at impact point



The Solution

2. Uneven Joints

- a. Grind joint edge/high sections
- b. Level with urethane/sand slurry mix



Coating/Joint Issues

3. Control Joints in Topping Slab



Control Joints in Topping Slab

$\frac{1}{4}$ " inch joints are too narrow for sealant to perform properly



Control Joints in Topping Slab

Double Tee Joint Issues

- PCI recommends to tool joints in fresh concrete, not saw cut
- Cracks do not always occur at the desired location



THE SOLUTIONS



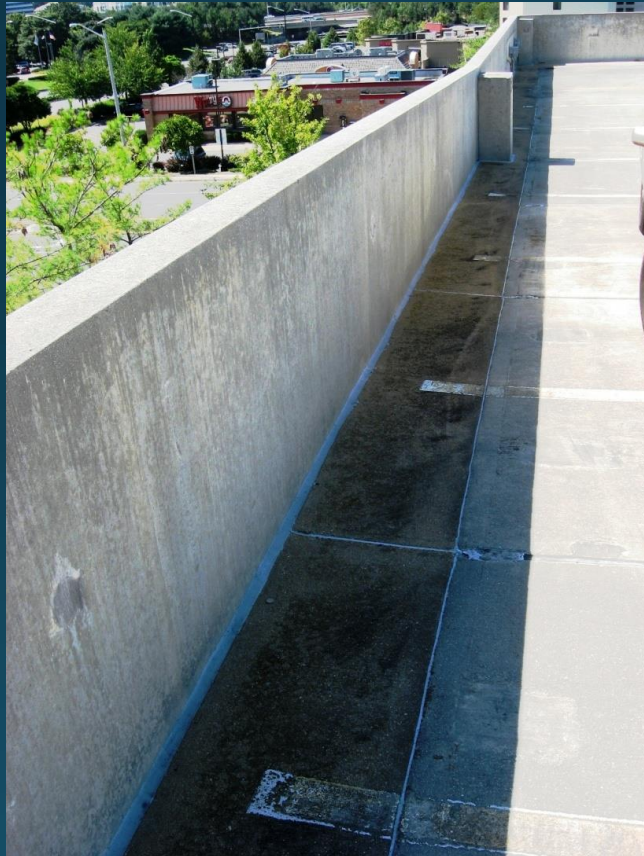
The Solution

3. Joints in Topping Slab

- a. Cut to a minimum $\frac{1}{2}$ " in width.
- b. Seal with traffic grade sealant
- c. Detail properly and coat



Coating/Joint Issues

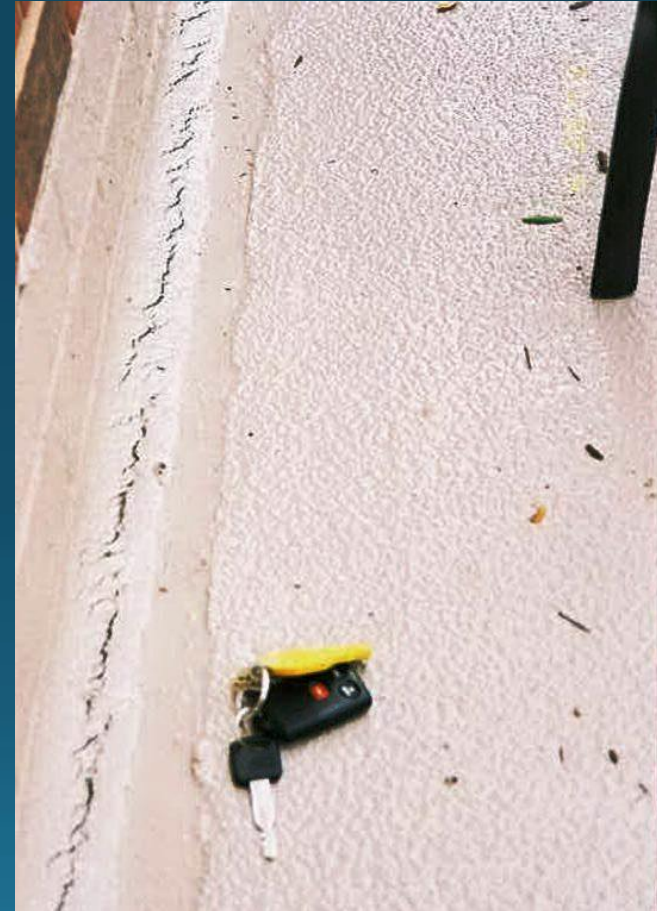


4. Joints at Deck to Wall Transition

Breach at wall to slab transition joint



Excessive movement stresses sealant and coating



Joints at Deck to Wall Transition

Double Tee Joint Issues

- Wide joints in deck and at transitions



The Solution

4. Wide Transition Joints

- a. Detail with Sheet Flashing
- b. Engineered Joint



Engineered Joint

Open



Sealed





Conclusion

- Know the system to be installed
 - Know the limitations

- Know the dynamics for movement of the project
 - Tee connections
 - Sealant condition
 - Span length
 - Termination points

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