



# Avoiding Surface Defects on Exterior Pavement

## RECOMMENDATIONS:

- The American Concrete Institute (ACI) recommends 4500 psi at no more than a 0.45 water to cementitious ratio for freeze-thaw durability.
- Low humidity and high winds require the use of a finishing aid as those ambient conditions increase the evaporation rate of water from the surface making it difficult to close.
- Follow proper ACI guidelines on jointing.
  - Joint depth is dependent on the thickness of the slab.
  - Jointing needs to be 1/4 of the depth of the concrete at a minimum, if this can't be achieved with hand jointers use an early-entry concrete saw.
  - Per ACI the length of panels should not be more than 25% greater than the width.

Pavement thickness, in.	Maximum spacing, ft
4, 4.5	10
5, 5.5	12.5
6 or greater	15

- Be aware of re-entrant corners in planning out your joint layout.
- Carry all joints through the edge of the slab.
- Manage your customers' expectations by providing and having them sign off on a Terms and Conditions document for proper care and warranty exclusions.

## PRACTICES TO AVOID:

- According to the National Ready Mix Concrete Association and The American Concrete Institute, hard-troweling air entrained exterior flatwork or surfaces that will be exposed to freezing and thawing, deicing agents or both is not recommended. Using a steel trowel/fresno on exterior concrete traps the bleed water by sealing the surface and removes all the air entrainment at the surface.
- Avoid adding or spraying water on the surface to enhance finishing.
- Avoid premature finishing, allow bleed water to evaporate from the surface prior to continuing the finishing process. Working the bleed water back into the surface increases the water cementitious ratio at the surface weakening it—which will lead to scaling.

## PRACTICES TO AVOID CONTINUED:

- Avoid overworking the surface as it can significantly reduce or destroy the air entrainment at the surface, making it susceptible to scaling in freezing conditions.
- ACI recommends not using any deicing chemicals for the first year of service. Use sand or other grit materials for traction.



## PROTECTION SOLUTIONS:

- Cure the concrete immediately after finishing by applying an ASTM C309 approved curing compound to aid the surface from prematurely drying out which can result in a weakened wearing surface.
- To prevent water intrusion into the concrete surface utilize an integral sealer (Ozinga Shield), or for the same protection apply a topical penetrating siloxane sealer (Ozinga Water Stop 20).
- Ozinga's OzFlat premium exterior mix is a robust exterior concrete mix that meets ACI recommendations for strength and maximum water to cement ratio and contains both an integral sealer as well as fibers for shrinkage crack prevention.

