



Technical Memo 102-am/ds, Alpha Mix & Deep Seal

When **Alpha Mix** and **Deep Seal** are utilized in combination, they will produce a most extraordinary portland cement concrete, which may be batched using normal methods, conventional blends of portland cement, and common aggregates.

Alpha Mix provides portland cement concrete with the maximum and most beneficial degree of hydration. Below are some the **Alpha Mix** attributes:

- Requires only normal batching, placing, and finishing techniques.
- Increased workability, through lubricity.
- Slump factor may be raised, if need be, at job-site using just water.
- An economical improvement to portland cement concrete.
- Increased compressive strength without modifying original mix design.
- Surface noticeably harder and more abrasion resistant.
- Plastic shrinkage as well as stress cracking is virtually eliminated.
- Concrete is significantly less permeable to water and other contaminants.
- Installation is more acid and chemical resistant.
- Slab curl virtually eliminated through better uniformity of setting.
- Installation more resistant to both internal and external dusting.
- Provides greater durability.
- Virtually eliminates possibility of alkali-aggregate reactions.
- Greatly lowers potential for adverse internal chemical reactions.
- Installations are more environmentally friendly.
- Improves surface bonding quality for coatings, adhesives, etc.
- Increased thermal resistance.
- Very impermeable surface allows easier removal of snow and ice.
- Greater resistance to freeze-thaw damages.
- Outdoor installations are noticeably more self-cleaning.
- Less maintenance requirements.

This two-step process is a briefly described below:

Step #1 - **Alpha Mix** is added to the mix water before any other components.

- a. Concrete mix becomes more homogeneous, providing additional workability through lubricity while discouraging particle segregation.
- b. Reduces cement potency loss through water dilution (hydration) and/or hydrolysis (chemical decomposition by addition of water).
- c. Increases percentage of each cement particle used as an end result, by greater water saturation of each cement particle, effectively lowering the amount of cement wasted through particle non-utilization.
- d. Contains ingredients which work to promote expedient, prolific formation of silicate polymer chains and/or strands.
- e. Converts “conventional” portland concrete mixes to “high performance”.

Step #2 - **Deep Seal** solution is applied as a cure method (low-pressure spray-on or flood-on).

- a. Causes more cement particle saturation utilizing even more of the included cement while, in effect, raising the cement to water ratio, effectively lowering the pore size and permeability factor, and raising the compressive strength, etc.
- b. Contains ingredients to branch and/or extend silicate polymer strands or chains at their water terminus ends.
- c. Reorients and/or repositions silicate polymer strands or particles for a greater, more efficient, calcium hydroxide lamination.
- d. Prevents too rapid dehydration or evaporation of mix water.