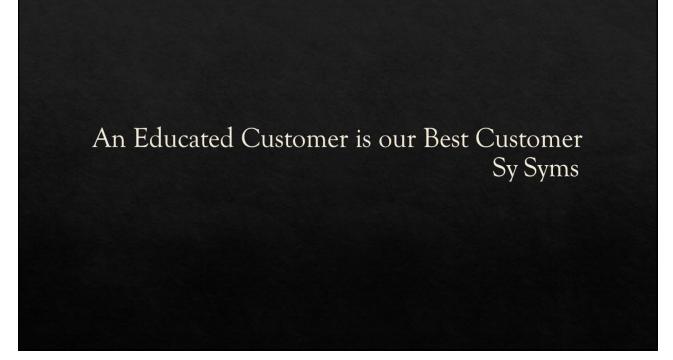


"how will <u>you</u> cure <u>my</u> concrete"

/

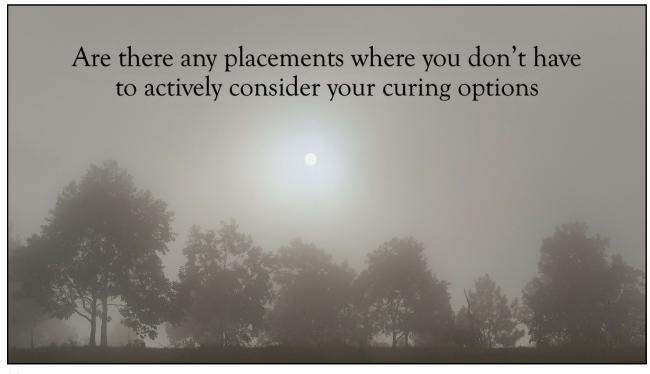


### Our Shared Challenge How do we – as an industry:

- ♦ Maintain high standards when we have low barriers of entry
- ♦ Provide consistent and relevant information trends, processes, products
- ♦ Make industry training available continuing education, dialogue
- ♦ Inclusion even those who don't want to listen
- Create demand for <u>professional</u> services
- Create opportunities for differentiation
- ♦ Obligation each the public on what the industry considers good quality concrete
- ♦ Self regulate!

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## Definition of Curing

**curing** — action taken to maintain <u>moisture</u> and <u>temperature</u> conditions in a freshly placed cementitious mixture to allow hydraulic cement hydration and (if applicable) pozzolanic reactions to occur so that potential properties of the mixture may develop.

Hydration stops when RH in the slab drops below 80% or the temperature falls below 14F

## Why talk about Curing?

- ♦ Achieve full potential of concrete \$
- Strength, Permeability and .....
  - -Improves Abrasion resistance
  - Volume stability = reduces shrinkage and cracking, less crazing,
  - Improves Freeze-thaw and scaling resistance etc.
  - S lows carbonation providing longer protection for reinforcing,

All contributes to more Durable concrete!!

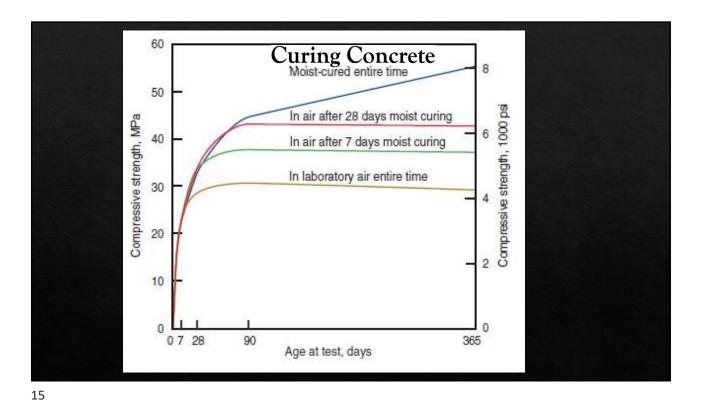
- ♦ Do we fall short?
  - ♦ Many don't cure at all! (Instances when curing not needed?)
  - ♦ Some instances where excessive protection provided? Temp Differential
  - ♦ Haphazard curing or poor adjustment to changed conditions
  - ♦ Anticipate curing 'conflicts' with use/exposure?
  - ♦ Post placement—is continued protection necessary?

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# Compressive Strength of Concrete at Various Ages

The strength of concrete increases with age. The table shows the strength of concrete at different ages in comparison with the strength at 28 days after casting.

Age	Strength percent
1 day	16%
3 days	40%
7 days	65%
14 days	90%
28 days	99%



Are there any placements where you don't have to actively consider your curing options





#### ODOT

451.11 Curing. Immediately after the finishing operations have been completed and after all free water has dissipated, spray and seal all exposed concrete surfaces with a uniform application of curing membrane in such a manner as to provide a continuous uniform film (equal to a white sheet of typing paper), without marring the surface of the concrete. Apply a minimum of 1 gallon (1 L) of material for each 150 square feet (3.7 m²) of surface treated using an approved self-propelled mechanical sprayer. Provide an adequate shield to protect the fog spray from the wind. Before each use, thoroughly agitate the curing material.

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### Cure 'n Seal

- ♦ Hybrid Product
- ♦ Re-application 28 days later with same product avoids incompatibility issues



