

## ***Does Your Concrete Bleed? Consider a New Provision in ACI 301-16***

ACI 301-16 “Specifications for Structural Concrete” adopted a new provision for initial curing of flatwork. This provision will increase the cost of performing work for concrete that does not bleed enough to show a visible water sheen. The new provision is shown below:

**5.3.6.2 Initial curing of unformed concrete surfaces**—If bleed water sheen is not visible on surface of concrete after strikeoff and initial bull floating, provide initial curing by means of fogging or application of evaporation retarder until final curing method is applied. Do not use fogging in cold weather concreting.

*What triggers this provision?* If a bleed water sheen is not visible on the surface after strikeoff and initial bull floating. The concrete may bleed, however that may not be enough. It must bleed enough to be visible on the surface. This means that the same concrete may or may not need initial curing depending on the environmental conditions. If there is wind, the bleed water may be evaporating, which means it may not be visible on the surface. If it is not visible, then initial curing will be required.

*Timing will be troublesome.* “Concrete Craftsman Series: Slabs on Ground” (ACI CCS-1(10)) states strikeoff is done immediately after spreading and consolidating the concrete. Then bull floating is to be done immediately after strikeoff “before bleed water appears on the surface”. Thus, when the finisher is done bull floating there should be no bleed water on the surface. **Therefore, the initial curing provision of ACI 301-16 is likely to be required on all flatwork.** And, it doesn’t really seem possible to bull float a surface with no bleed water and then have a bleed water sheen appear immediately after the bull float pass.

*What if a bleed water sheen is visible?* Let’s assume the impossible, and there is no bleed water prior to bull floating but one is visible immediately after bull floating. That would mean no initial curing is required. But what happens if the bleed water sheen disappears in 5 or 15 or 30 minutes? The specification provision seems to say that initial curing is triggered when observing immediately after bull floating. However, this could be interpreted differently by inspectors and if the bleed water sheen disappears any time prior to final curing—be prepared to get out the fogger or evaporation retarder.

*How should contractors handle this new specification provision?* We recommend increasing the cost of all flatwork, whether exterior or interior, hard troweled or broomed. With the use of water reducers, which most ready mix producers prefer as it decreases their cost by reducing cement requirements, we don’t see many concretes that bleed. And you won’t know until you see a mix design and get the concrete in a mockup. But if the wind changes, your mockup results change. It appears that this provision will require fogging or evaporation reducer on **every flatwork placement.**

If fogging is used, the specification requires that it provide complete coverage of the area to be cured and to maintain a visible water sheen without accumulation of standing water until final setting. If an evaporation retarder is used, the specification requires that it be applied in accordance with the manufacturer’s instructions and not be used as an aid in subsequent finishing or texturing.

Other provisions have changed from ACI 301-10 to ACI 301-16. And while we don’t expect to see the ACI 301-16 specification in use until 2017 or later, contractors should review that document now. The document is available at [www.concrete.org](http://www.concrete.org).