

# CONCRETE BASICS

## Scaling

---

by John Albinger, IRMCA Technical Consultant

Now is the time to think about scaling, not in spring when the phone starts ringing. “Cold weather concreting” is right around the corner. (By the way, it’s not a bad idea to get a copy of ACI 306, and read it)

A couple of years ago IRMCA invited producers and contractors to a meeting about scaling. We gave the attendees a list of factors that contributed to scaling and asked them to rank those factors from most contributing to least contributing. Without exception the producers blamed the finishing and lack of curing and the contractors blamed the concrete. It’s been that way for the 40+ years I’ve been in this business.

Reality is that we both have responsibility. (There’s that word again) Let’ talk about what we (the producers) need to do:

1. **Mix designs** – A .45 is the maximum water to cementitious ratio that should be used in exterior concrete, regardless of the time of year that the concrete is placed (“cementitious” is cement plus pozzolans, fly ash and slag). When concrete is placed in the spring or summer the percentages of each of these materials is less important than in fall or winter. We have time and temperature on our side so that the concrete can develop 4000 PSI before being exposed to freeze thaw conditions. However, what adjustments, if any, should we make in the fall? The quandary is how far do we have to go to make up for what the contractor is probably not going to do, properly cure? The simple answer is, how many complaints we want next spring. So how far do we go? Cement develops strength faster than pozzolans. Cement costs more money than pozzolans. So? You must carefully choose the percentages all the while keeping in mind the long range consequences. No matter what you decide, you need at least 600 pounds of total cementitious material in your exterior concrete, plus a water reducer.
2. **Entrained Air** – Check it frequently!!! 5-7% as delivered is critical. If nobody is checking the air on the job it would be in your best interest to do it yourself.
3. **What the contractor orders** – Now for quandary number two: cost + price + competition. We tell the contractor what he should use - it might cost more than his usual 4000 PSI mix – and the competition didn’t tell him he had to use any “special” mix. If he chooses not to take your good advice, as nicely or firmly as you can, tell him you can’t be responsible for what might happen in the future and put a note to that effect in your file.
4. **Placement** – making sure the right mix is used isn’t everything. Slump, finishing, and curing are high on the list of contributing factors. Visit job sites. If you are concerned with what you see, say something to the contractor. Go on record. Keep a log - noting your concerns. Protect yourself while helping educate your customers.

If you want to talk more about scaling, with or without your contractors, call the IRMCA office.



ILLINOIS READY MIXED ASSOCIATION | 303 Landmark Drive, Suite 1A | Normal, IL 61761

PHONE: (309) 862-2144 | FAX: (309) 862-3404 | EMAIL: [irmca@irmca.org](mailto:irmca@irmca.org) | [www.irmca.org](http://www.irmca.org)