A Pictorial Look at Causes and Effects of Concrete Imperfections

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Use a good concrete mixture, finishing, and curing practices for the application

Photo Courtesy of Jereme Montgomery
Scaling
Scaling contributors

Inadequate or no curing
Crazing
Progression in 12 years
Timing
Timing, air content, and troweling
Reinforcement in walls

- Not enough
Reinforcement in slabs

• For slabs, more than 0.10% steel reinforcement they are prone to increased random cracks
  
  #4 rebar at 42”o.c. in 5-inch slab
  = 0.10%

• Sawcut to 1/3 slab depth if reinforced

• If more than 0.50% steel reinforcement, then joints are not necessary. The slab will have a number of very tight cracks
  • Similar to continually reinforced pavement
Settlement cracking
Isolation joint related
Sun, wind, and low humidity
Rapid evaporation
Avoid the rain

Photo courtesy of Danny Sturm – JEO Consulting Group
Don’t overload it
Aggregate related
Sometimes the unexpected happens
We can place concrete under water correctly

- If we do it right
But if we don’t.....
Acts of God

Facebook photo reportedly from Kansas
Acts of God

Video courtesy of Ron Lowry

Video courtesy of Joe Roenfeldt - Bolton and Menk
Acts of God
Acts of God

Photos courtesy of Danny Sturm – JEO Consulting Group
Questions?