



Troubleshooting Newsletter Articles

1. June 2018
 - a. Failure to Specify a Time Limit for Tolerance Measurements
 - b. Specifying Maximum Crack Widths for Structural Concrete
 - c. Gap-Under-a-Straightedge Specification for Floor
 - d. Get the Designer Involved for Embedded Steel Plates
2. October 2016
 - a. White deposits on troweled floor
 - b. Medium broom finish not uniform
 - c. Cracking not a terminal illness
 - d. Tolerance question on stone cladding of sheer walls
3. April 2016
 - a. Floor defects
4. July 2015
 - a. How valuable photos can be in analyzing a problem
5. January 2015
 - a. Placing concrete in congested wall forms
 - b. Birdbaths on pavement slab
 - c. Superflat slab on metal decking?
 - d. Amount of ice needed to reduce concrete temperature by 20°F
6. August 2014
 - a. F-number flatness specified, but flooring installer wants ¼-in. gap under 10-ft. straightedge
 - b. Coring because cylinder strengths don't meet 7-day strength requirement
 - c. Requirements for durability of a farm silo floor
 - d. Elevation tolerance for the bottom of a truck-leveler pit
7. January 2014
 - a. Allowable crack width.
 - b. Will leaving forms in place provide adequate curing?
 - c. Do stem walls chemically bond to footings?
8. September 2013
 - a. Specification mentions integral color but use is not designated on plans.
 - b. Water-based acrylic sealer for decorative concrete.
 - c. Floor levelness requirement for concrete slab placed on carton void forms.
 - d. Cold weather field curing requirements.

- e. Test section definition for F-number testing.
 - f. Responsibilities for Jobsite Test Cylinder Storage.
 - g. Verification of water slump prior to adding a high-range water reducer – CLARIFICATION.
(see April 2012)
9. May 2013
- a. Effect of integral color admixtures on air content.
 - b. Does ACI prohibit earth-formed footings?
 - c. Air hole size and spacing in wall blackouts.
 - d. Fine broom finish to receive ceramic tile flooring.
 - e. Guideline for pre-construction meetings.
 - f. Effect of liquid deicers on concrete
10. December 2012
- a. Sampling method results in out-of-spec concrete pour.
 - b. Vapor retarder needed for slab placed on carton forms?
 - c. Reinforcement at reentrant corner in a floor.
 - d. Closure strip for a floor slab that's not post-tensioned?
 - e. Effect of slag cement on concrete shrinkage.
 - f. Combination blades and dry-shakes.
 - g. Calcium chloride in steel-fiber reinforced concrete?
11. August 2012
- a. Using ACI committee membership as a qualification for interpreting ACI documents.
 - b. Pervious concrete pavement specification.
 - c. Ammonia smell from concrete.
 - d. Cracking in tilt-up building floor slab.
 - e. Vague requirements for form material.
12. August 2012
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13. April 2012
- a. Early cracking in post-tensioned elevated slabs.
 - b. Maximum running slope for ADA accessible ramps.
 - c. Maximum slab-on-ground placement size and keyed construction joints.
 - d. Strength difference for larger cylinders?
 - e. Tolerance on nosing location for cast-in-place stairs.
 - f. Verification of water slump prior to adding a high-range water reducer.
14. December 2011
- a. Tight plumb tolerance.
 - b. Floor covering adhesion failure
 - c. Short cores from a floor

- d. How to measure straightedge straightness
 - e. Will contraction joints prevent random cracking of slabs on metal decking?
 - f. Wandering sawed joint.
15. July 2011
- a. Steel reinforcement in sidewalks?
 - b. Joint spacing for airport pavements.
 - c. Durability of lightweight concrete decks in a parking structure.
 - d. External vibration of walls.
 - e. When does curing start?
 - f. Investigating an underyield problem.
16. January 2011
- a. Concrete cover required for a 2-hour fire rating for walls.
 - b. Stabbing vertical rebar into footings.
 - c. Bar placing in concrete slabs.
 - d. Can floors curl after 40 years?
 - e. How cold can rebar be during cold weather concreting?
17. December 2010
- a. Polished lightweight concrete floor.
 - b. Cause of cracking at isolation joints.
 - c. Flatness requirements for maple flooring used in gymnasium.
 - d. Avoiding remove-and-replace for low air content.
18. June 2010
- a. Entrained air in tilt-up wall panels.
 - b. Elevation tolerance for the top surface of a machine foundation.
 - c. Allowable bughole size.
 - d. Contraction joints in a short, wide wall.
 - e. Concrete cover requirements for concrete cast against earth
19. April 2010
- a. Measure f-numbers after joints are sawed?
 - b. Door opening tolerance.
 - c. Responsibility for providing structural drawings.
 - d. Minimum slope for a concrete parking lot.
 - e. Performance of concrete made with white cement.
 - f. Grinding a concrete swimming pool deck.
20. October 2009
- a. Measuring flatness of floors with numerous penetrations.
 - b. Welded wire reinforcing through contraction joints in a slab on grade.
 - c. Vibrating concrete in a high wall.
 - d. Strength needed for stripping of forms without damaging the concrete surface.
 - e. Curing a rubbed finish.
 - f. Noncontact splices in flexural members.
 - g. No specifications and only a drawing plus drawing notes for slab-on-ground construction.

21. April 2009

- a. Tolerance on fine-graded base course elevation.
- b. On-site slump adjustments with water.
- c. Placing footings in the rain.
- d. Curing concrete placed in the cold weather.
- e. How to use a modified highway straightedge.
- f. Placing tolerances for reinforcing bars.

22. June 2008

- a. Trowel finish for air-entrained concrete.
- b. Accidental dose of calcium chloride.
- c. Curing time for lean concrete base course?
- d. Connect tilt-up panels with welded connections?
- e. What floor cracks are acceptable?
- f. Light, normal or hard-troweled: what's the difference?
- g. Water-repellent admixture reduces strength.
- h. Advice on mat footings.

23. August 2005

- a. Rust stains on exposed wall
- b. Cracks caused by early truck traffic.
- c. Type 1 vs. type 2 curing compound.
- d. Tolerance for top of wall elevation.
- e. Tape removes acid stain.
- f. Does a low air content make the air-void system marginal?
- g. Cause of concrete cracking.
- h. How to handle a difficult placement.

24. April 2004

- a. Tolerances on concrete street elevations.
- b. Cracking caused by late concrete discharge?
- c. Cracks in curb.
- d. Required lap for welded wire fabric.
- e. Wall cracking issues.
- f. Wavy finish, even when using pans.
- g. Rained-on concrete.

25. June 2003

- a. Broom finish definition.
- b. Cold weather concrete protection.
- c. Dealing with lost cylinders.
- d. How soon can the driveway be salted?
- e. Curing lightweight concrete on elevated slabs.
- f. Are Bugholes surface defects?
- g. Carbon black for colored concrete?
- h. Casting tilt-up panels over depressions in a slab.

26. December 2002

- a. Topping thickness on hollow-core floor slabs.
- b. When can calcium chloride be used as an accelerator?
- c. How soon can a wall be bushhammered?
- d. Tolerance for top of wall elevation.
- e. Minimizing tilt-up panel surface blemishes.
- f. Welded wire fabric location in concrete slab on metal decking.

27. July 2002

- a. Temperature control for massive footings.
- b. Cleaning concrete splatter.
- c. Delamination problem.
- d. Injectable water stops.
- e. Constructability issues for high-density concrete.
- f. What's a class AX floor?
- g. Attaching form ties to soldier piles.
- h. R-value for a tilt-up wall.
- i. Dowel residential patio into foundation wall?
- j. Effects of clean rust on rebar bond.

28. January 2002

- a. Removing tire marks.
- b. Test-cylinder curing.
- c. Vapor retarder life expectancy.
- d. Erection tolerance for precast plank
- e. Sidewalk joint spacing.
- f. Rebar placing tolerance.
- g. Embed P-T strand ends in concrete?
- h. Rock salt finish.
- i. Uplift pressure on forms.
- j. Tapered walls on a radius.

29. February 2001

- a. Pour rate for walls.
- b. F-number specifications.
- c. Low strength concrete in columns.
- d. Cause of pavement cracking.
- e. When to start curing.
- f. Vapor retarder location.
- g. Concrete on metal decking.
- h. Wrong concrete in the footing.
- i. Thin floor slab.

30. August 2000

- a. Steel trowel finish for silica fume concrete.
- b. Minimum rebar temperature for cold-weather concreting.

- c. Thin unbounded overlay.
- d. Checkerboard concrete placing on metal deck.
- e. Removing red chalk lines.
- f. Curb and gutter tolerances.
- g. Concrete block supports for rebar.

31. April 2000

- a. Concrete protection from high temperatures.
- b. Joints in bonded overlays.
- c. Repairs for half basement.
- d. Repairs for half basement.
- e. High-low thermometer source.
- f. Low water/cement needed?
- g. Bughole problems.
- h. Alternative to remove and replace.
- i. Tolerable crack widths.

32. December 1999

- a. Straightedge specifications.
- b. Cold weather protection for mat foundation.
- c. Speeding up cracking.
- d. Spall causes and repair methods.
- e. Slab thickness tolerances.
- f. Damage to shrinkage compensated concrete slab.
- g. No bug holes, no rubbing.

33. October 1999

- a. Effect of household bleach on concrete.
- b. Quality management course.
- c. Who owns sidewalk cracks?
- d. Proper internal vibration procedure.
- e. Proper internal vibration procedure.

34. June 1999

- a. Floor that's easy to clean but not slick.
- b. Standard method for making test beams.
- c. ADA requirements for stairs.
- d. Flatness and levelness requirements for elevated slabs.
- e. Getting rid of floor moisture.
- f. Who pays for joint sealant reservoir.
- g. Crusting concrete.
- h. ACI sawcut joint depth requirements.

35. August 1998

- a. Elevated concrete panel floor system.
- b. Contraction joint too wide?
- c. Splicing requirements for bundled bars.

- d. Fire resistance rating for concrete slab.
- e. Dusting floor remedy.
- f. Reducing water vapor emission.
- g. Blotchy color in black driveway.
- h. Removing acorn stains.

36. June 1998

- a. Expansion joints for pavements?
- b. Discolored driveway.
- c. Estimating pan-joint concrete quantities.
- d. Finding new cracks in concrete.
- e. F-numbers for sloping floors.
- f. What are ISO 9000 requirements?
- g. Tool or sawcut joints in precast topping slab.
- h. Mix adjustments for finishing problems.

37. March 1998

- a. Tailgating concrete for a slab on grade.
- b. Steel nosing for concrete curb.
- c. Will a 30 foot free fall damage concrete.
- d. Repairing scratches on a cure and seal.
- e. Class A or B finish for lap pan forms?
- f. Controlling shrinkage in repair concrete.

38. September 1997

- a. Cause of a giant popout.
- b. Concrete mix for temperatures up to 2500 degrees F.
- c. Mirror like finish for a cast-in-place walls.
- d. Superplasticizer effect on form pressures.
- e. Recipe for expansive grout.

39. June 1997

- a. Effect of antifreeze on epoxy bond.
- b. Expansion joints for driveways.
- c. Who's responsible for under yield?
- d. Sand over a vapor retarder?
- e. Cause for floor delamination.

40. March 1997

- a. Questionable core test results.
- b. Will a curled slab get better with age?
- c. Safe cutoff date for placing driveways in cold climates.
- d. Will heaters damage two-day-old concrete?
- e. No-gloss sealer for exposed aggregate flatwork.
- f. Effect of fertilizer on concrete.
- g. Realistic minimums for F numbers.

41. October 1996

- a. Staggered joints in concrete parking lot.
 - b. Resume wet curing to increase floor strength?
 - c. Building a fire resistant burn pit.
 - d. Will laser controlled screeds damage vapor retarder?
 - e. Required joint depth for early cut saws.
 - f. ACI building code requirements don't apply to slabs on grade.
 - g. More on honeycomb repair.
 - h. Effect of sugar on concrete.
42. June 1996
- a. Requirements for jointing concrete pavements.
 - b. How soon can walls be stripped in cold weather?
 - c. Preventing cement balls from forming.
 - d. Dry pack repairs for honeycomb.
 - e. Meeting flatness tolerances for elevated slabs.
43. April 1996
- a. Core length and floor thickness.
 - b. Bumps at construction joints caused by curling?
 - c. Removing discoloration caused by curing method.
 - d. Surface preparation for concrete topping.
 - e. Locate reinforcing before determining penetration resistance or rebound number?
 - f. Do shrinkage reducing measures also reduce strength?
 - g. Can this floor be saved if it got too much calcium chloride?
 - h. Aluminum forms not allowed?
44. December 1995
- a. Selection of welded wire fabric.
 - b. How much air is too much?
 - c. Rust stain on surface.
 - d. Rubbed finish.
45. June 1995
- a. Location of construction joints in a metal deck reinforced composite slab.
 - b. Equivalent concrete strength by core testing.
 - c. Placing a flat floor.
 - d. Dusting due to sudden rain storm.
46. March 1995
- a. Tilt-up wall brace removal.
 - b. Vertical loads on jump forms.
 - c. Slump test location during concrete pumping.
 - d. Rebound hammer for form removal.
 - e. Cracks in tank walls.
47. September 1994
- a. Bugholes in architectural walls.
 - b. Using silica fume.

- c. Allowable crack width.
 - d. Proper mixing.
48. April 1994
- a. One or two component sealants.
 - b. Concrete during a break in cold weather.
 - c. Filling warehouse contraction joints.
 - d. Form pressures for mixes with pozzolans and superplasticizers.
49. October 1993
- a. Timing of surface treatments.
 - b. Surface hardeners for flat floors?
 - c. Fire damaged board-finished concrete.
 - d. Thin overlay for parking structure ramp.
 - e. Is concrete with white portland cement stickier?
 - f. Form plywoods produce different finish and color.
50. June 1993
- a. Finishing flatwork.
 - b. Monitoring wall cracks.
 - c. Working with shrinkage compensating concretes.
 - d. Ethylene glycol.
 - e. Cement burns.
 - f. Questions on water-reducers.
51. February 1993
- a. Plywood spans in formwork when wide supports are used.
 - b. Restrictions on calcium chloride in concrete on metal decking.
 - c. What cracks to repair?
 - d. Surface blemishes in pan joist construction.
 - e. Joints in slip formed curb and gutter.
 - f. Vault construction using grid-crete.
52. October 1992
- a. Tolerance for foundations.
 - b. Damp basements due to calcium chloride.
 - c. Joints needed in reinforced slab?
 - d. Loss of air content during pumping.
 - e. Levelness on elevated slabs.
53. June 1992
- a. Are low strength test results acceptable?
 - b. Use a liquid floor hardener prior to applying epoxy coating?
 - c. Tolerance on squareness of column cross section.
 - d. Will leaving forms in place provide adequate curing?
 - e. Tear up the floor because one core shows floor not thick enough?
 - f. Curling floor slab.
54. February 1992

- a. Timing joint sawing in cold weather.
- b. Cracks in curb and gutter.
- c. Detail calls for wire mesh that's continuous through a keyway.
- d. Do stem walls chemically bond to footings?
- e. Causes for air content fluctuations.
- f. Will asphalt based dampproofing coatings leach from foundation walls?
- g. Form design for relatively low-strength concrete in cold weather.
- h. Cause for cracking of elevated deck concrete slab.

55. November 1991

- a. Improving concrete pumpability.
- b. Best way to install vapor barrier.
- c. Causes of spot retardation.
- d. Understanding f-numbers for flatness and levelness.
- e. Information on building post-tensioned slabs on grade.
- f. Why aren't expansion joints always needed?

56. June 1991

- a. The metal lead in contact with damp concrete may deteriorate.
- b. Undissolved flake calcium chloride causes floor problem.
- c. Dusting of concrete ceilings unlikely.
- d. Friction factor for concrete on concrete.
- e. Surface depressions in slabs.
- f. Stains in precast panels.
- g. Crushed dry ice probably not a good way to cool concrete.
- h. Saving a non-air-entrained concrete curb.

57. February 1991

- a. Bigger aggregate reduces curling.
- b. Dealing with low cylinder test results.
- c. Air loss in pumped concrete.
- d. Color uniformity problems with a concrete driveway.
- e. Causes for overlay debonding.
- f. Don't run deformed bars or wire mesh through control joints

58. November 1990

- a. Preventing trowel burns on white floors.
- b. Which heater fuel is best?
- c. Straightedge equivalents for F numbers.
- d. Void forms for use on swelling soils.
- e. Trial mixes by ready mix producers.
- f. Alternatives for superplasticizers.
- g. Marks in slab caused by rebar near the surface.

59. July 1990

- a. Removing keel marks from formed surfaces.
- b. Smaller diameter cores more likely to yield low strengths.

- c. Reasons for granular bases under slabs on grade.
- d. Will rain damage footing concrete?
- e. Low water content reduces air content.
- f. Is entrained air required in wet-mix shotcrete?
- g. Steel vibrator head may damage epoxy-coated rebar.
- h. Listing of concrete repair contractors.
- i. Cleaning the underside of rebars during repair operations.
- j. Effect of fly ash on setting time of concrete.
- k. Will rainwater provide enough water to cure dry-packaged concrete?
- l. Patching materials for frozen deck slabs.

60. April 1990

- a. Avoid using type III cement in hot weather.
- b. Bad smelling mixing water may not harm concrete.
- c. Don't use deformed bars in control joints.
- d. How many test cylinders are required?
- e. Use a light-reflective dry shake or a coating to get a white concrete floor.
- f. Streaks in walls caused by using new aluminum forms.
- g. Reinforced concrete that doesn't contain steel.

61. February 1990

- a. Circular cracking pattern in floor may be caused by overload.
- b. How many pop outs are acceptable?
- c. Winter protection of concrete.
- d. How much strength does concrete develop after 7 days?
- e. Volume of grout.
- f. How to control cracking in racquetball court.

62. October 1989

- a. Filling joints cut in freshly finished concrete.
- b. Coloring agent knocks out air.
- c. Efficiently removing high spots on a concrete floor.
- d. Rubbed finish for concrete walls.
- e. Safe working loads for form ties.
- f. How to check frequency of internal vibrators.

63. July 1989

- a. Causes of craze cracking.
- b. Improving pumpability of concrete.
- c. How to make new sidewalks match ones that are 20 years old.
- d. Does position in structure affect rebound hammer results?
- e. Check calibration for aggregate moisture tester.
- f. Very lightweight concrete.
- g. Will calcium chloride thaw a frozen subgrade?
- h. What is FRAPMC?

64. April 1989

- a. Cause of excessive joint opening.
 - b. Correcting air content readings for air in aggregate voids.
 - c. Insulation beneath concrete slabs on grade.
 - d. Colored dry shake hardener doesn't retain color.
 - e. Plumb and level standards for residential construction.
 - f. Remove curing compound before placing an overlay.
65. January 1989
- a. Filling random cracks in a floor.
 - b. Problems with lignite pop outs.
 - c. Preventing blistering.
 - d. Getting stuck with problems caused by poor design.
 - e. Cause of discolored concrete pool deck.
 - f. Sources for insulated stay-in-place forms.
66. October 1988
- a. Cool water for cooling concrete.
 - b. Removing furniture oil stains from a concrete floor.
 - c. Nonflowing joint filler.
 - d. Suppliers of electric heating cables for snow melting on concrete slabs.
 - e. Beware of retarders in flatwork placed in hot weather.
 - f. Repairs for cold room concrete.
67. July 1988
- a. Concrete saw blade life.
 - b. Patching board finished concrete.
 - c. Joint filler problems in an industrial floor.
 - d. Keystone finish for flatwork.
 - e. Sparkle finish for concrete flatwork.
68. April 1988
- a. Yield loss in tall walls.
 - b. Effect of form oil on rebar.
 - c. Blistering in heated enclosure.
 - d. How to get high early strength.
 - e. Cause for peeling of urethane coating.
 - f. Problems with control of air content.
 - g. Protecting concrete from spalling.
69. January 1988
- a. Field cured cylinders not used for acceptance purposes.
 - b. Air-entrained concrete can be troweled.
 - c. Dusting of formed surfaces.
 - d. When to grind a defective surface.
 - e. Concrete for a long haul.
 - f. Avoid un-jointed elongated slabs to control cracking.
70. October 1987

- a. Timing of joint sawing.
- b. Preventing cracks in a warehouse slab.
- c. Resurfacing an old slab.
- d. A specification for slump.
- e. Superplasticizers.
- f. Flexural strength and compressive strength.

71. July 1987

- a. A rained on truck ramp.
- b. A rained on bridge deck pavement.
- c. "Failure of a compressive strength test.
- d. Exposure of concrete to high temperature.
- e. The purpose of a slump test.
- f. Watertightness of concrete.

72. April 1987

- a. Wire mesh and jointing.
- b. Whether or not fly ash is cementitious.
- c. Calcium chloride and chloride ion.
- d. Aluminum in contact with concrete.
- e. Storing ammonium nitrate.
- f. Superplasticizers and fly ash in the same mix.

73. January 1987

- a. Curing a decorative concrete finish.
- b. Cylinder testing.
- c. Calcium chloride for winter concreting.
- d. Resurfacing a concrete floor.
- e. High early strengths.
- f. Cement asbestos.

74. September 1986

- a. Plastic cracking in slabs placed on vapor barriers.
- b. Coping with wind, hot sun and dry-shake hardener.
- c. Scaling of concrete driveways that were sealed.
- d. Correcting a wavy surface finish.

75. July 1986

- a. Low concrete cylinder strength tests.
- b. Meeting a maximum concrete temperature specification in hot weather.

76. May 1986

- a. Early random cracking in floor.
- b. Floor required to resist both wear and mild ice.
- c. Discoloration of tile over rain damaged concrete.