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. Crazing not a terminal illness
   d. Tolerance question on stone cladding of sheer walls

3. April 2016
   a. Floor defects

   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.
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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.

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.

   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.


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.
   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.
   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
   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.

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
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
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.
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.