Cracks in Concrete Slabs

I. There are two basic types of "natural" and one man-made cracks in concrete slabs:
   A. Moving or Dynamic:
      - Random cracks
      - Expansion joints
      - Settling cracks
   B. Non-Moving or Static Cracks:
      - Shrinkage cracks
      - Spider cracking
      - Control cuts
   C. Damage or Impact Cracks
      - May be moving depending on the extent of the impact
      - May be repaired

II. Identifying dynamic and static cracks:
   A. Moving or Dynamic:
      a. Crack is large & getting larger; i.e. changing
      b. Settling of structure continues
      c. Height differential usually a sign of dynamic cracks
   B. Can use various measuring devices-can take time
      - Dynamic crack may never move again
      - Static crack may move under changing conditions
      - No guarantee of any crack "staying" the way it is- unpredictable

Large dynamic crack

Large dynamic crack with height-differential

Basic crack measuring with tape rule.

A more sophisticated method for checking movement of a crack. The dial is mounted to two fixed holes in wall allowing repetitive, precise measuring – can work on floors also.

Measuring a crack width to ascertain movement may take a considerable time, as you would have to have the ability for precise repetitive measurements and hope to catch a movement. The slab may not move for weeks, months or years, and as stated above a crack that has been dormant for many years may suddenly show movement when conditions such as live load changes within the structure or external landscaping changes occur. Settling caused cracks may continue to move (however slightly) over a period of many years depending on the subterranean soil structure.

III. Moving crack FIX**:**

- Shot blast
- Clean out crack or chase with saw
- Remove all old stopping, elastomeric or coating material
- Coat sidewalls with AC Tech 2170® System
- Fill with appropriate elastomeric material

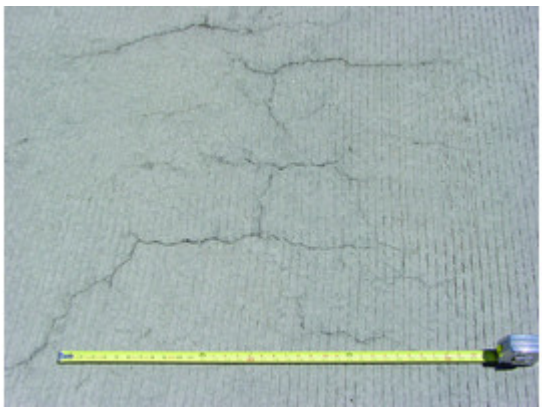
Photo shows repair of an expansion joint; place final stopping/elastomeric material in after all flooring coatings are installed & prior to final flooring.

Cracks such as this, need to be "chased" out with a diamond saw to even out the sidewalls for best adhesion of all subsequent fillers and coatings.

Always Honor Expansion Joints, Use Industry Standard Practices

IV. Static or Non-Moving cracks FIX:

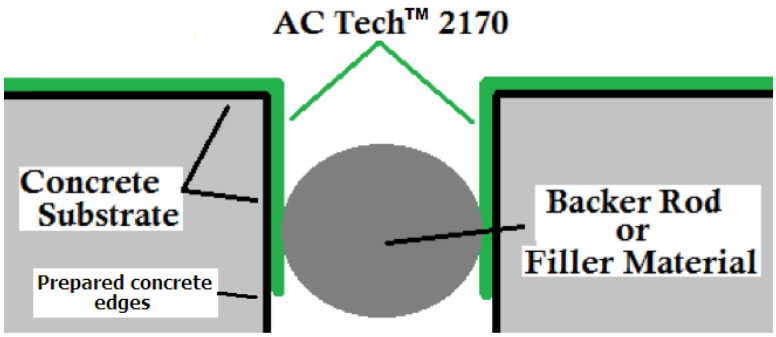
- Shot blast
- Clean out crack or chase with saw (if necessary)
- Remove all old stopping or coating material
- Flood small spider cracks & control cuts with AC•Tech 2170™ System
- If control cuts or cracks are too large to flood (or too expensive); Pre-treat with AC•Tech 2170™ mixed with a fumed silica as a thickening agent (such as Cab-O-Sil® or like material) and trowel in and let cure for appropriate time (refer to product data sheet). When this is cured apply the AC•Tech 2170™ to entire floor area flooding over the pre-treated cracks.



Static shrinkage cracking.

Static Control cuts.

These types of cracks/cuts (above) can be flooded with the AC•Tech 2170™ Systems.



Proper coating method for both large cracks and expansion joints

Crack Checklist:

A. Identify whether crack is dynamic or static;
B. Always make sure that crack or joint is properly cleaned out;
C. Always make sure that the side-walls are coated with the ACT 2170® System;
D. Honor Expansion Joints through all coatings;
E. Use a thickening agent such as fumed silica (or sand) to pre-fill large cracks;
F. Flood all pre-treated and small static cracks with the ACT 2170® material
G. There are no guaranties that a moving crack will not move in the future or that a static crack will not at some time move. Surface, liquid applied coating systems, whether they be epoxy or some other material, will not "glue" a concrete slab together no matter what; if it is going to crack it will crack. A crack in the vapor reduction membrane will compromise the integrity of the system and require repair in the area of the crack.

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When Performance Counts!

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