

The JOINTS | Slabs on Grade

WHY JOINTS

Joints in on-grade concrete slabs are used to “limit the frequency and width of random cracks, and to reduce the amount of slab curling” (slabs on grade curl because the upper side dries faster than the bottom side.) Cracks are produced mostly by movement and the shrinking of the concrete.

These are the three kinds of joints in concrete slabs on grade:

ISOLATION JOINTS

Isolation joints completely separate the vertical and horizontal movement between the slab and adjoining construction elements, for example, between adjoining slabs, between a slab and a vertical surface, and so on. The depth of isolation joints is the full thickness of the slab. A joint filler as high as the thickness of the slab and as wide as the width of the joint is placed between the slab and the adjacent construction. The joint filler extends the full length of the joint and may have a sealant at the top.

CONSTRUCTION JOINTS

These are placed to define the concrete placement. When a concrete pour is interrupted so that the placed concrete hardens, a construction joint between the hard concrete and the new pour is placed. These joints can be keyed or doweled.

CONTRACTION JOINTS (CONTROL JOINTS)

Construction joints are typically placed at column lines and between column lines, at equal distances. These joints are typically formed by sawing or grooving a continuous slot in the slab to create a weak plane below which a crack will form. They are 1/4 of the concrete thickness deep, at equal distances from one another.

ACI 302.1R-15 Guide to Concrete Floor and Slab Construction

Where floor finishes, topping slabs, concrete underlayment, or other materials are laid over the concrete slab, the joints in the concrete slab on grade should be continued through these (this is called “honoring the joints”).

The location and the number of joints is determined by the designer (structural engineer mostly)

Question of the week

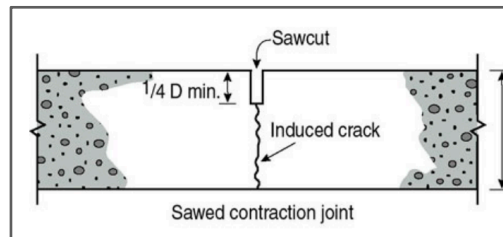
What kinds of joints are there in concrete slabs on grade and what are they for?

QUICK ANSWER: There are three kinds of joints: Construction, contraction, and isolation.

What for? To control the location of the cracks.



Joint filler at isolation joint (WR Meadows)



Contraction joint (Portland Cement Association)

National Ready Mixed Concrete Association

