

# RULES FOR DESIGNING CONTRACTION JOINTS

Adapted from "Rules for Designing Contraction Joints" by Kim Basham, PhD PE FCI. Read the full article at [ForConstructionPros.com/20999043](https://www.forconstructionpros.com/20999043)

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## Panels formed should be square.

- Avoid long, narrow, L or T shapes.
- Limit the length of the long side to 1.25 times the short side
- The long side should never be longer than 1.5 times the short side.

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## Joints should be continuous.

- If discontinuous joints cannot be avoided, insert two or three #4 3-ft. reinforcing bars in the next slab to intercept the crack that will grow from the discontinuous joint.
- Place bars perpendicular to discontinuous joint and use reinforcing chairs to hold the bars in place in the top 1/3 of the slab.

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## Identify and address re-entrant corners.

- If unavoidable, locate contraction joints to control cracking or place "corner" reinforcing bars diagonally in front of re-entrant corners to intercept cracks.

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## Install at locations where slabs typically crack.

- Place a contraction joints where cracks commonly occur so cracks form in the weekend concrete sections.

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## Keep the max distance between joints in feet at 2 to 2.5 times the slab thickness in inches.

- In general, reducing the joint spacing or panel size reduces the risk of random cracking.

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For sidewalks and driveways...

## Space transverse contraction joints at intervals about equal to the slab width.

- For 4-in. thick and wider than about 10 ft., add a longitudinal contraction joint along the center.
- Remember Rule #1.

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For tooled or grooved joints...

## Depth of the contraction joint should be 1/4 of the slab thickness.

- For interior floors, specify a 1/8-in. edge radius for the top of the groove or joint.
- Specify an edge radius of 1/4 to 1/2 in. for exterior slabs.

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For wet-cut sawcut joints...

## Depth of the contraction joint should be 1/4 the slab thickness or 1-in. min.

- To ensure joint activation or cracking, sometimes a sawcut depth of 1/3 the slab thickness is specified.
- The depth tolerance for sawcut joints is  $\pm 1/4$  in.

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## For thicker slabs, increase the saw cut depth to ensure joint activation.

- For joints installed with an early-entry dry-cut saw, joint depth should be 1-1/4 in. with a  $\pm 1/4$  in. tolerance for slabs up to 9 in. in thickness.
- If using fiber reinforcement, contact the technical rep for recommended saw cut depths to ensure joint activation.

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## Start saw cutting as soon as joint raveling no longer occurs.

- Some minor edge raveling is acceptable to ensure joints are installed before the concrete shrinkage stresses become too large.