# Concrete Briefs

## Concrete Joints

There are two types of concrete: Concrete that has cracked… and concrete that hasn't cracked yet. The trick is knowing how to control cracking. In exterior flat work, a stable, uniform base and a good concrete curing are essential, but most cracks that we see could be controlled by a quality joint planning and construction. Joints create a plain of weakness in the concrete directing the concrete where to crack.

*Saw Cut Joint*

There are three types of joints: *Contraction Joints, Construction Joints and Isolation joints.*

### Contraction Joints

The most common are contraction joints which control cracks that are caused by restrained shrinkage, loads and other stresses. The joint depth should be AT LEAST ¼ of the slab thickness. A narrow joint width between 1/10 to 1/8 inches wide is a common way to avoid joint sealing. Concrete naturally wants to generally crack in squares. The jointing pattern should be cut as close to squares as possible. Where it is not possible, the length of a panel should not exceed more than 25% of the width. For irregular shaped panels and where angles would be less than 45 degrees, pre-cut wire mesh or fibers may be used to control cracking.

Per the American Concrete Institute's 330 guide for parking lot design, we do not recommend welded wire mesh be widely distributed throughout the slab. If wire mesh holds the concrete together and joints give concrete a place to separate, the two practices are actually fighting each other and only serve to increase labor and material costs.

Joint spacing is determined by the slab thickness. Generally, the smaller the joint spacing the better. Maximum spacing based on slab thickness and should not exceed 30 times the slab thickness. Recommended spacing is about 30% closer if possible.

For unrestrained edges, tie bars should be used in the first joint from the slab edge to avoid the risk of the panel becoming separated from the slab. To be safe, abutting asphalt should be considered an unrestrained edge. Unrestrained edges should be thickened to help with load bearing.

### Construction Joints

Construction Joints are joints where construction needs to stop such as between work days. The adjacent slabs should be tied together or thickened due to the load transfer from one slab to another.

### Isolation Joints

Isolation joints should be used to separate the pavement from other structures or fixed objects within or abutting the paved area. This is most common in sign posts, drains and utility access areas.


*Isolation Joint*

No matter what type of joint you are using, good planning will go a long way to making sure that cracks happen exactly where you want them. A guide to jointing can be found on our web site at ChaneyEnterprises.com/ConcreteParking.

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