

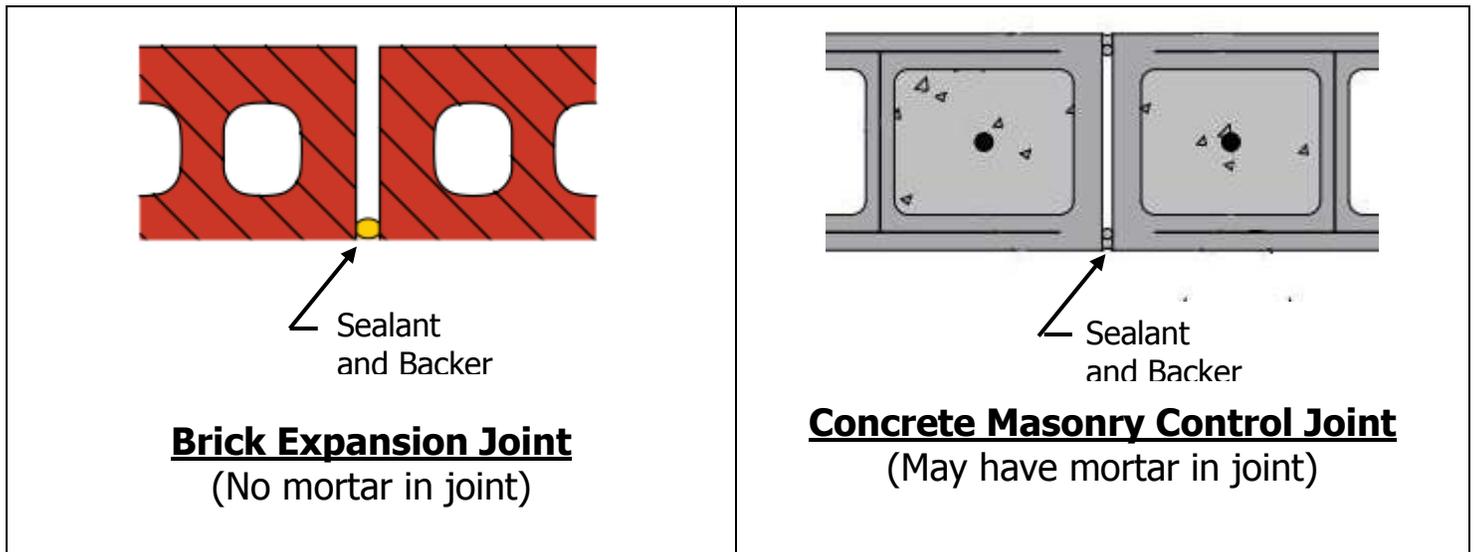
SUBJECT: Control Joints vs Expansion Joints

This TSD is designed to explain the difference and the general rules for using Control Joints and Expansion Joints.

Control joints are placed in concrete masonry to help limit cracking due to shrinkage. They also help control cracks from movements other than shrinkage. Control joints get larger as concrete shrinks away from the joints, opening the gap. That is why mortar is allowed, but not required in concrete masonry control joints. For detailed information on Concrete Masonry Control joints see Nation Concrete Masonry Association TEK 10-2C. <http://www.ncma-br.org/pdfs/38/TEK%2010-02C1.pdf>

Fired clay brick and other ceramic masonry units have a one-time moisture expansion that causes them to grow slightly over several years. Fired clay products do not shrink upon drying as concrete products do. The amount of expansion depends on firing characteristics of the masonry units, but is typically not more than 0.10 inches in 25 ft. Expansion joints are placed in clay masonry walls to allow room for the wall to expand. Expansion joints will get smaller as clay products expand, closing the gap. For that reason, mortar should never be allowed in brick expansion joints. For detailed information on control joints see Brick Industry Association Tech Note 18A.

<http://www.gobrick.com/Portals/25/docs/Technical%20Notes/TN18A.pdf>



The above referenced Tech notes also provide guidance on the best locations for control joints and expansion joints. Those locations are similar for expansion and control joints with a few exceptions.

Here is a brief list of rules that will assist the designer in choosing appropriate joint locations. Spacings apply equally to expansion joints and control joints:

1. Typical joint spacing should be 24 – 26 feet maximum for continuous walls.
2. 16 – 20 ft spacing with lots of openings
3. No more than 12 feet from outside corners on each side
4. Place joints at inside corners
5. Place joints where two or more walls intersect.
6. Place joints where wall height changes or where walls are supported at different levels.
7. Place joints between adjoining structures.
8. Do not place joints a edge of openings in concrete masonry
9. Do not place joints where bond beam reinforcing is needed for concrete masonry.
10. Work with structural engineer for concrete masonry walls.
11. See Acme TSD 208 for proper lintel sizes for openings in masonry veneer.
12. Use shelf angles for veneer openings wider than 12 feet.

There are special cases where there is a band of brick veneer within a field of concrete masonry veneer or a band of concrete masonry within a field of brick. In those cases, the brick will expand while the concrete masonry shrinks, causing cracks near the middle of the concrete masonry. The best way to limit such cracks is to add an extra joint in the narrow band (whether brick or CMU). Another design option, when the narrow band is concrete masonry, is to do nothing and allow cracks to appear. These cracks can be repaired cosmetically, and may be less visible than an added control joint.

