

## Diagnose cause of cracks in exterior walls

By BILL GARWOOD  
For the Journal-Constitution  
Published on: 03/10/06

In previous articles, I discussed ways to analyze cracks in foundations and interior walls. Another area of the house where cracks often appear is in exterior masonry walls. Because the most common exterior masonry surface in the Atlanta area is brick veneer siding, here are some common causes of cracks in these surfaces.

### Foundations

On most houses in this area, the exterior brick is not structural. The structure of the house is provided by the foundation and the wood frame walls, floors, ceilings and roof. The brick veneer is real brick but is used as the siding on the wood-framed walls. Because brick is heavy, proper design of the foundation is critical to avoid movement and cracking of the brick. In homes built since about 1950, the foundation is extended near the bottom to create a ledge to support the brick. In older homes, the foundations for the house and the brick veneer may be separate. This distinction is critical in assessing the severity of cracks in the brick. If your house was built after 1950, cracks in the brick may indicate movement in the house structure. However, if your house was built before 1950, cracks may be in the brick only. If you think that the cracking in your brick veneer is a result of movement in the structure, consult with a qualified, registered structural engineer or foundation-repair contractor.

### Brick ties

Brick veneer is connected to the frame walls with metal ties. Failure to properly install the ties is another cause of cracking. This is often accompanied by a bowing of the brick wall. If you stand on the ground and look either up or along a brick wall and observe a bulge, it is very possibly the result of incorrect installation of brick ties. Unfortunately, the repair for this condition often requires removal and reinstallation of the brick.

### Support on roof framing

Based upon the design of the house, brick veneer is often installed on second-floor walls or as the siding on the wood frame around metal chimneys. In these cases, the brick is supported by the wood roof framing instead of a foundation. If the roof framing is not strong enough, the brick will sag. This often results in cracks in the brick veneer. Because these cracks are typically high up, it may require binoculars to see them. Look for cracks in the brick above the framing it rests on. With chimneys, look for a horizontal crack at the eave. If the attic inside the cracked brick is accessible, repairs typically involve reinforcement of the framing supporting the brick. The amount of reinforcing, however, must be designed by a qualified, registered structural engineer who can calculate the weight of the brick and what is required to support it.

### Expansion

Another common cause of cracking in brick veneer is expansion. In hot weather, brick, like most other materials, will expand. This expansion may result in some cracking in the brick. This condition may even be seasonal, disappearing in colder weather. In most cases expansion cracks are not serious and do not require repair.