DPIS Engineering, LLC
The Builder's Solution
Texas Registration No. 16584

DPIS BUILDER SERVICES
SINGLE SOURCE SOLUTION

# Shrinkage and Corner Cracks in Concrete

During the concrete curing process, plastic shrinkage cracks can occur in a foundation. See photo on bottom left. Concrete shrinks as it cures. The surface of the slab-on-grade foundation cures faster than the concrete below the surface of the foundation and the surface layer of concrete becomes less plastic. Shrinkage cracks are usually limited to the upper surface of the slab and are typically 1/16" or less in width. Although the cracks are noticeable in the surface of the slab, they are not a structural concern due to the function of a post-tension reinforced slab-on-grade. The tendons, when stressed to design specification, induce compression forces into the concrete. The cable tension causes the two surfaces of a crack to fit tightly and will not separate unless the flexure stress exceeds design. These are referred to as hairline cracks.

Corner cracks on slab-on-grade foundations are a common occurrence on homes with brick veneer applied to the exterior walls. See photo on bottom right. This phenomenon occurs as the result of differential thermal expansion between the brick and the concrete foundation.

During construction a plastic membrane moisture barrier is placed behind and under the brick veneer to direct any moisture out through the moisture vents placed in the bottom course of brick. This plastic moisture barrier also provides a slip surface that allows the brick to move independent of the foundation during solar heating and cooling of the brick. Unfortunately, the plastic is not always extended over the surface of the outside corner of the brick ledge of the foundation. Thus, the brick mortar bonds to the foundation at the corner well enough to cause a fracture crack to form at the exterior corner(s) of the foundation.

Although corner cracks are unsightly, they are not indicative of a structural failure in the foundation. Cosmetic repairs can be attempted but the crack will probably reoccur. With or without these corner cracks, the foundation remains capable of performing its primary function of properly supporting the home.

Sincerely,

DPIS Engineering, LLC
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