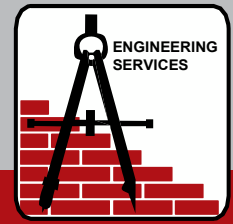




General Shale Brick

Technical Bulletin - Masonry Cracks



Cracks are a common occurrence in masonry construction. At the most basic level there are two types of cracks that will appear in masonry.

Causes

Manufacturing cracks, often referred to as dryer or hairline cracks, often appear in masonry walls. These cracks DO NOT occur in the wall. They are formed in the dryer prior to being fired. With the vast array of textures and finishes offered by General Shale today, these cracks are inevitable and, in some cases, intentional. The structural integrity of the brick is unaffected by these cracks.

Movement cracks are another frequently occurring masonry crack. As the name suggests they occur from some form of movement, and is in no way a fault of the brick. The source of movement can vary. Some of the common types of movement cracks are settlement, moisture, lintel deflection, mortar shrinkage, and temperature changes. These cracks occur in the wall. In some cases, they can span the entire depth of the masonry unit. Although the units can be affected, the cracking is not due to defects in the masonry or any problems stemming from the manufacturing process. These cracks show up in mortar as well, and often the masonry units are not impacted. Certain types of movement cracks, such as settlement, tend to move along joints in a stair step pattern.

Codes and Standards

The acceptance criteria for cracks are established by ASTM. Other technical standards acknowledge and address acceptance criteria for masonry cracks as well.

Documents published by the National Association of Home Builders (NAHB), the American Society for Testing Materials (ASTM), and The Building Research Establishment (BRE) contain guidelines and acceptance criteria for the various types of cracks. "Residential Construction Performance Guidelines, 2nd Edition", published by the NAHB contains acceptance criteria for cracks in masonry veneer. Section 4-38 of the Performance Guidelines states "Cracks visible from 20 feet or larger than 1/4" are not acceptable". Although this is a reputable document the 1/4" standard is quite liberal. Various technical publications, including work performed by Tom Grimm PE, define the size of a crack visible from 20 ft. to be $\approx 1/16"$ (0.059") or more in width. Typically for masonry construction, cracks up to $\approx 1/16"$ are deemed acceptable.

Actions to Take

The most important factor in assessing cracks is to determine if they are active or passive. If the cracks are not changing and occur primarily in the joints, then tuck pointing is a potential fix. Cracks that are continuing to grow will require further evaluation to determine the root cause.



Manufacturing Crack



Movement Crack