



The block manufacturing process sometimes includes friable deleterious materials containing lime, pyrite, lignite, and calcium. Measures are taken to minimize the presence of these deleterious materials in block bodies, but it is impossible to completely remove due to the nature of the raw materials used. Occasionally larger particles make it into the block. When pieces like this are located near the face of the unit they can result in popouts.

Any soft, lightweight and absorptive aggregate particles or contaminants can cause surface popouts. These deleterious substances typically swell when exposed to moisture and/or freezing conditions. This expansion places increasing pressure on the faces of the units at these locations. These pressures can sometimes fracture and pop off the overlaying surface material.

On a more positive note, popouts are strictly cosmetic in nature and do not negatively impact the long-term performance or structural integrity of the units. Once popouts have occurred they should not continue for an extended period of time. Most popouts will occur during the first year of service life of the unit.

Materials included in concrete products adhere to ASTM Standards. Although these materials may be in compliance with ASTM C33 *Standard Specification for Concrete Aggregates* and C331 *Standard Specification for Lightweight Aggregates for Concrete Masonry Units*, popouts can still occur. These standards allow for up to 3 percent deleterious material whereas as little as 0.2 percent of a deleterious substance in a mix can be enough to result in popouts.

The criteria for assessing popouts in CMU and determining acceptability is the standard 20-foot viewing distance outlined ASTM C90 *Standard Specification for Loadbearing Concrete Masonry Units*.

General Shale will repair popouts that exceed viewing distance criteria. It is recommended any remaining deleterious material should be removed with a drill. The crater is then filled with a standard sand-cement patch compound.



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