

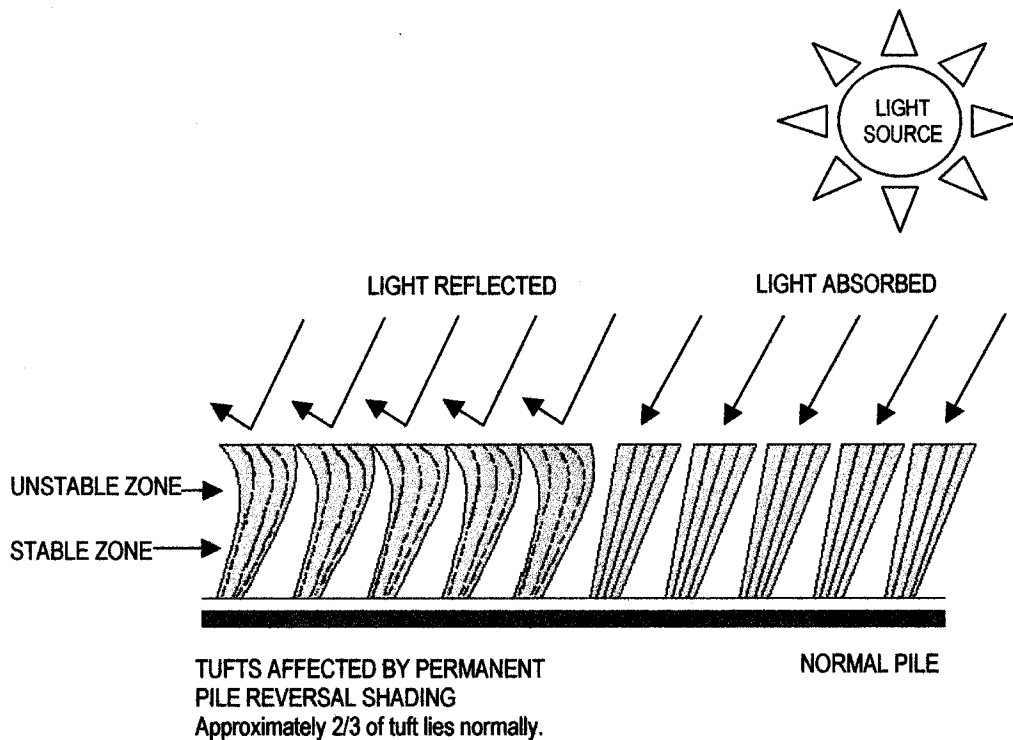


The Carpet and Rug Institute
P.O. Box 2048, Dalton, Georgia 30722
Phone: 800-882-8846 x2125 Fax: 706-428-3125
E-mail: cri-tech@carpet-rug.com Website: www.carpet-rug.com

Technical Bulletin

PILE REVERSAL - WATERMARKING SHADING

All pile yarn carpet is subject to pile reversal; however, it is most likely to be observed in smooth surfaced, densely constructed, plush type qualities. This phenomenon is difficult, if not impossible, to predict or prevent. Pile reversal creates a permanent change in the carpet's appearance caused by the difference in the way light reflects off the sides and tip of a yarn as the pile lays in different directions. Shaded areas appear light from one direction and dark from another direction. After a period of use, carpet may look as though water has spilled on sections of the carpet, hence, the term "water marking." Other terms also commonly used to describe pile reversal are "pooling," "shading," and "highlighting."



Why the carpet pile, which lays uniformly in one direction when installed, changes direction permanently, is often a mystery. In many installations, the pile reversal direction is predictable from the pattern of foot traffic. Carpet pile is pushed away from turning traffic and toward the sides of a corridor. Shading lines can cross carpet seams even when the manufactured direction of the joined pieces of carpet differ. In other situations, location factors, such as an uneven subfloor, are thought to be possible causes for this phenomenon.

Pile reversal is not a manufacturing defect and does not affect the durability of the carpet. Pile reversal is not due to the materials used to produce the carpet, the manufacturing process, or any combination of these factors. Watermarking or shading may develop on a carpet made with any fiber(s) or manufacturing process. Once the condition has developed, it cannot be permanently removed.

When pile reversal takes place, there is little which can be done to return the carpet to its original appearance. Brushing or vacuuming may create some degree of temporary appearance change; however, this change is only at the top portion of the tuft. The pile will return to the reversed position after it is again subjected to foot traffic.

The visual impact of pile reversal depends on the nature of the carpet. Loop pile carpets or cut pile carpets with matte yarns have a low light reflecting quality. Boldly patterned carpets tend to help hide patterns of reflected light caused by pile reversal. If the pile collapse is moderate, shading may not be visible even though pile reversal has occurred.

It is not possible to assure that pile reversal will not develop in any carpet.