

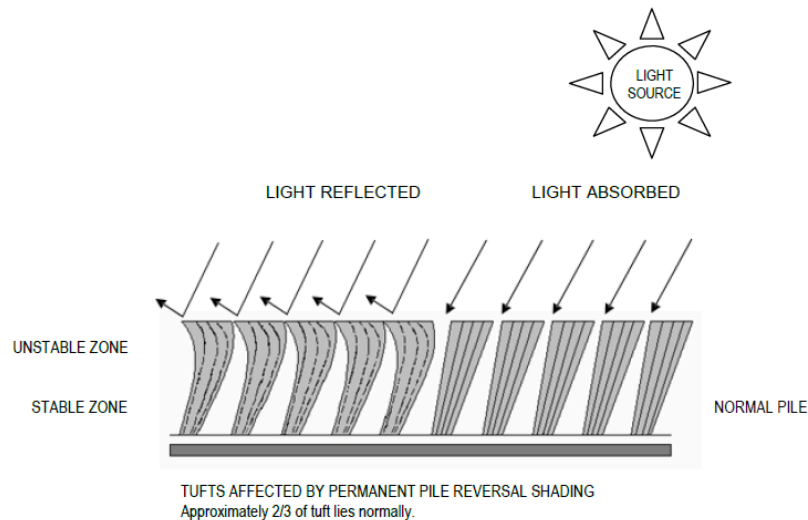
Statement on Pile Reversal – ‘Shading’

Definition of Pile Reversal - ‘Shading’

During use, carpeting often appears to change color in certain areas. This phenomenon does not involve a true color change, but rather a difference in light reflection between various surface areas. Also known as ‘shading’, ‘pooling’ or ‘watermarking’, after a period of use some carpet areas may appear as if water has spilled on the surface.

Pile reversal is not a manufacturing defect and does not affect the durability, performance or longevity of the carpet. Pile reversal is a normal phenomenon for any cut pile carpet made from any type of yarn.

Pile reversal can be defined as a localised change in the appearance of a carpet brought about by pile tufts leaning in different directions. Areas of cut pile leaning towards the observer will appear darker whereas pile tufts leaning away will appear lighter. This may give the appearance of a color change, which is in reality only an optical effect. These effects can be temporary or permanent.



CRI Technical Bulletin: 'Pile reversal – Watermarking Shading'

Temporary Shading

Temporary shading is a localised effect caused, for example, by footprints or rolling luggage, which can be removed simply by brushing or vacuuming the carpet pile in the direction of its natural lay.

Permanent Shading

This occurs in two forms:

- Tracking: areas of permanent shading relating to foot traffic patterns within a location are referred to as "tracking effects". Turning points in a room and doorways are susceptible to this form of predictable traffic induced shading.
- Random shading: areas of permanent shading that do not appear to be related to known traffic patterns are referred to as "random shading effects". These vary in shape, size and position and are caused by largely unpredictable local conditions.

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Local conditions will also affect the propensity of a carpet to shade. These are related to the condition of the building climate and sub floor as follows:

Moisture

Ambient or trapped humidity can induce shading. Prior to carpet installation, the moisture level in the floor should be tested. This method uses a hygrometer or probe to measure the relative humidity of the screed or concrete base. The concrete would be considered dry if the relative humidity is below 75%.

Levelness or Flatness of the Sub Floor

The sub floor should be smooth and free from ridges, indentations or high points that may affect the performance of the carpet. When a 3m long straight edge is laid on the floor, no gap greater than 3mm should be visible. Ridges, protrusions or indentations greater than 0.8mm should be filled or levelled.

Protective Coverings

Experience has shown that when carpets are covered with a protective layer, the risk of pile reversal is increased. Two factors contribute to this. One factor is that during the time the carpet is covered, it is not vacuumed and we know vacuuming/brushing assists the pile recovery following compression. The other factor is that moisture can be trapped beneath the protective membrane, if it is impervious, and may cause a degree of directional ‘setting’ to the tufted pile direction in its compressed state.

Recommendations

1. While shading is unavoidable the appearance of pile shading can be lessened by careful carpet design. Choose low-pile, loop-pile, or textured carpets to minimize shading risk.
2. Avoid plush, velvety, or high-cut pile carpets if shading is a pivotal concern.
3. Opt for patterned or multi-tone carpets to help mask shading effects.
4. Avoid placing high-shading-prone carpets in high-traffic areas.
5. Ensure professional installation with proper underlay support to minimize uneven wear.
6. If carpet protection is necessary, **use a breathable covering and avoid prolonged coverage** (beyond two weeks), especially in areas with foot traffic. For wheeled traffic, additional **hardshell protection** is recommended. If covered for extended periods, remove protection periodically to allow aeration and vacuum thoroughly using an upright cleaner with a gentle brushing action.
7. Vacuum regularly using an adjustable beater bar with a gentle brushing action or suction-only mode to prevent excessive pile disturbance.
8. Schedule periodic professional cleaning (e.g., steam cleaning) to help lift fibers and maintain appearance.
9. Rotate furniture periodically to distribute wear evenly and reduce shading patterns.