

# Permanent Pile Reversal Shading

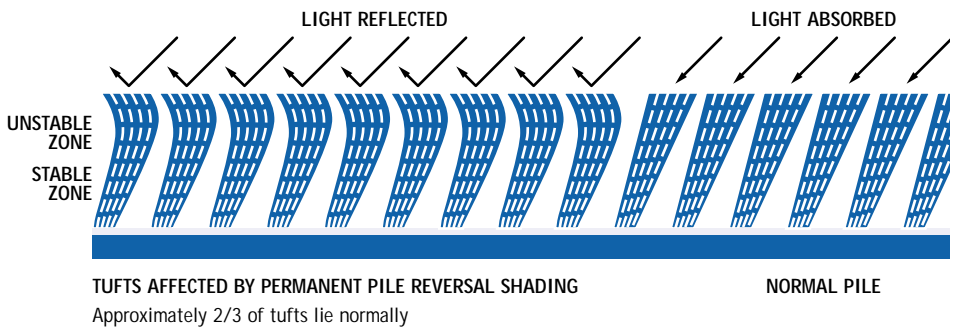
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## What is Permanent Pile Reversal Shading?

Permanent Pile Reversal Shading is a phenomenon that can appear in any cut pile carpet. Its occurrence is random and its causes are largely unexplained. It is also commonly referred to as watermarking, pooling or puddling. A cut pile carpet that has 'shaded' will show areas lighter or darker than the surrounding carpet pile. This variation is caused by the reflection of light from pile tufts which come to lay in different directions (Diagram 1).



**Diagram 1** - Illustration of Permanent Pile Reversal Shading Effect

Visually, Permanent Pile Reversal Shading is not unlike the brushed appearance of other cut pile fabrics such as suede, velour and velvet, although the appearance change in a carpet that has 'shaded' will be permanent.

Permanent Pile Reversal has been associated with cut pile carpet for many years, in fact well before the advent of machine made carpets. Despite extensive research and development of methods and techniques to minimise the occurrence of shading, the characteristic is not predictable.

As Permanent Pile Reversal Shading will have some impact on the appearance of a carpet, consumers should consider the possibility that it may occur when buying a cut pile carpet.

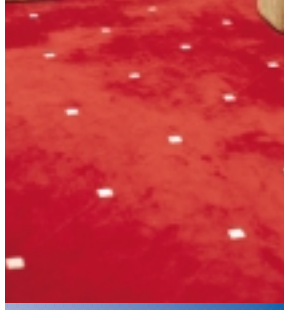
Reputable manufacturers apply warnings on Permanent Pile Reversal Shading to their samples and major retailers are well informed about the phenomenon and will advise the consumer prior to sale.

Tracking and footmarking may also appear in cut pile carpets but these are not permanent and should not be confused with Permanent Pile Reversal Shading. Tracking and footmarking are further discussed on the following pages.

Cut pile carpets offer a luxurious finish and provide a high level of underfoot comfort and feel. Because of these features, a major percentage of all carpets sold in Australasia is cut pile carpet. Only a small proportion of installations will develop Permanent Pile Reversal Shading.



Photograph A



Photograph B

*Photographs A and B (left) are of the same carpet viewed from two different angles and show the effect illustrated in Diagram 1. It can be seen that Permanent Pile Reversal Shading is more evident in the photograph on the right, compared to the photograph on the left. The degree of 'shading' seen will depend on the angle of viewing and the ambient light source.*

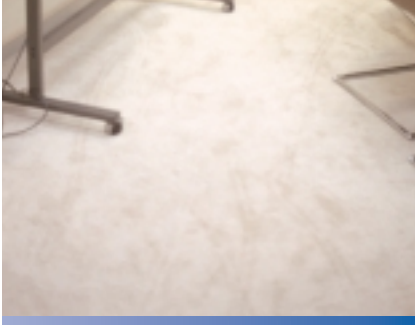
## SHADING - common usage terms and common misunderstandings

The general term 'shading' is sometimes incorrectly used to describe a number of carpet characteristics that are not related to Permanent Pile Reversal Shading. The following outlines common usage terms and explains which terms are, and which terms are not, Permanent Pile Reversal Shading.

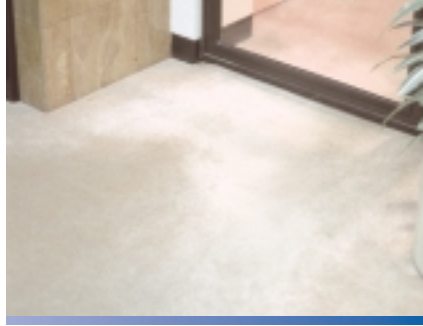
**Watermarking, pooling and puddling** are terms used to describe irregular areas of light or dark in the carpet that may resemble water spillage marks. These effects are permanent and referred to as **Permanent Pile Reversal Shading**. The appearance change is permanent – it will not go away (Photograph Front Cover and Photograph C).



Photograph C - Watermarking, pooling and puddling



Photograph D - Footmarking



Photograph E - Tracking

**Footmarking** (Photograph D) is seen as small localised marks on the carpet pile that are typically caused by dragging or scuffing associated with normal foot traffic. The appearance change caused by footmarking is temporary and can be reversed by vacuuming or brushing of the pile fibres in the normal direction of pile lay. Footmarking is a characteristic of most cut pile carpets and is **not** related to Permanent Pile Reversal Shading.

**Tracking** (Photograph E) describes the flattening or crushing of the carpet pile in areas that receive more concentrated foot traffic than adjacent areas. Tracking can appear in carpets of any construction and will depend on traffic patterns and the wear characteristics of the particular carpet that has been installed. Tracking is **not** related to Permanent Pile Reversal Shading.

## What is known about Permanent Pile Reversal Shading?

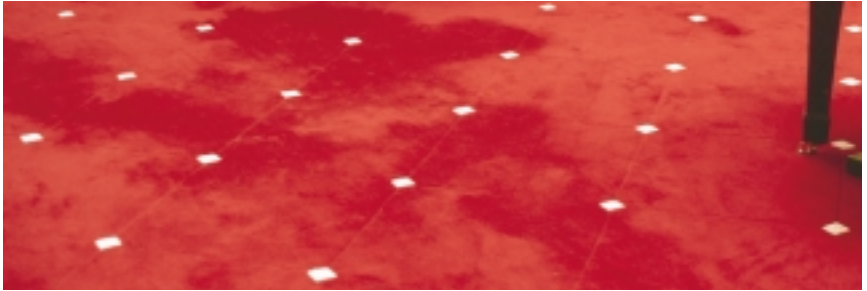
Despite extensive research and development of methods and techniques to minimise the occurrence of shading, the characteristic is not predictable.

However, the consensus of expert opinion about Permanent Pile Reversal Shading is that:

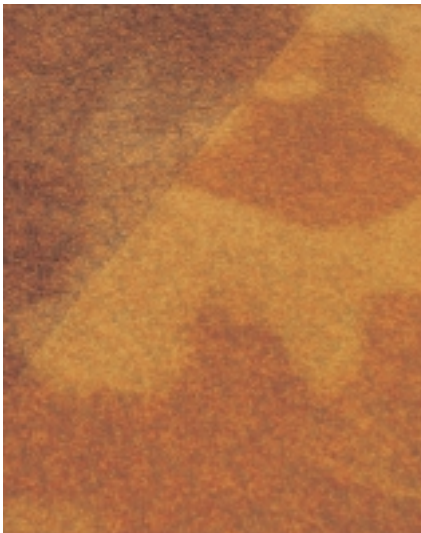
- It can occur in any cut pile carpet (or rug) including hand knotted, tufted, woven, bonded, knitted or hand-made carpets and rugs
- It can occur in carpets made from all carpet fibres and blends of different fibres (e.g. nylon, wool, acrylic, polyester, polypropylene and their blends)
- Its occurrence will not lead to premature wear of the carpet and it will have no effect on the durability of the carpet
- It has not been linked to methods of installation.

## Where does Permanent Pile Reversal Shading Occur?

Although research from around the world is inconclusive, location factors are thought to be linked to the incidence of Permanent Pile Reversal Shading. Trials have shown that an installed carpet, showing no sign of Permanent Pile Reversal Shading, can develop the phenomenon when relaid in a shading-prone location. However, it has not been possible to isolate the specific factors responsible although floor temperature, humidity, air currents, static electricity and earth rays have all been investigated as possible causes.



Photograph F



Photograph G

*Photographs F and G show Permanent Pile Reversal Shading contours running across the boundaries of carpet tiles. These photographs suggest that location factors are strongly linked to the occurrence of **Permanent Pile Reversal Shading**.*

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## Profile

The Carpet Institute of Australia Limited (CIAL) is a non-profit organisation sponsored by Australian carpet manufacturers, their suppliers and other companies that provide goods and services to the carpet industry.

The CIAL undertakes a range of activities covering government affairs, industrial matters, consumer relations, product marketing, research and information services, and technical development. The CIAL also administers the Australian Carpet Classification Scheme and the Carpet Industry Arbitration Service.

CIAL member companies are bound by a Code of Ethics which promotes fair dealing and ethical business practices.

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*The **Carpet... It Just Feels Better** campaign is an initiative of the Carpet Institute of Australia.*