



## *Fading and Flashing – Common but Misunderstood*

Two extremely difficult problems paint and stain users wrestle with are *Fading* and *Flashing*. While both problems result in an unsightly appearance, their main causes are quite different. In an attempt to shed some light on these two complex types of coating failures, we have provided some technical insights. (We have also cited a few helpful hints toward prevention of these occurrences.)

### **FADING**

Why do paints and stains fade? Paints and stains are made up of resins or oils which are the binders that hold the pigments on the wood once the solvent evaporates. Resins and drying oils are the “glues” which bond to and protect the wood, holding everything in place. The harsh elements of our environment, like the sun’s ultraviolet radiation, rain, sleet, wind and heat, act on the resins and oils causing a degradation at the air/coating surface interface. When cured, resins and oils have varying degrees of sheen or gloss, and when that resin or oil is “wrapped” around the pigment, the total complex has a certain sheen or lustre. As the resins become exposed to ultra-violet radiation, water and wind shear, they break down into smaller chemical units which tend to easily wash off the surface. In the process of normal weathering, after the environmental elements break down the resin or oil, the pigments are exposed at the outer surface of the coating. The exposed pigments scatter or diffuse the light energy in random patterns resulting in a flatter appearance which is “fade.” Color changes may also take place. Incidentally, paint and stain manufacturers always use earth-tone and non-fade pigments in their coatings to help reduce the amount of visible fade.

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Following are some other reasons for fading:

1. Heat and rapid cooling cycles may result in fracturing of the coating. An example of this would be the south exposure (the sun side) being heated to 120-140 degrees, then suddenly cooled by a quick rain storm.
2. High elevations with more intense ultraviolet energy coupled with wind shear could result in rapid fade.
3. Poor surface preparation of chalky and contaminated surfaces will reduce the life of the coating’s color retention.
4. Application on severely weathered or sandblasted wood can result in a separation of the pigment from the binder as the binder and solvent rapidly penetrate into the extremely porous surface. The pigment-to-binder ratio is suddenly brought into an imbalance resulting in the pigment not being adequately protected. This imbalance causes premature fade.

### **FLASHING**

Flashing is described as a random, uneven sheen or gloss development, and is usually associated with oil-based stains and paints. Flashing is also referred to as oil “hold out.” It can occur when there are uneven porosity levels in the wood siding. Flashing is also possible when the product is unevenly applied, resulting in uneven film thickness. Applying a penetrating stain on a sealed surface will result in flashing.

*(Continued on back)*

## Fading & Flashing – Common but Misunderstood *(Continued from front)*

Areas of non-penetration of a semi-transparent or Cabot's Semi-Solid Stain will be shinier than the areas where the stains penetrate. Dew and fog may affect the drying of a coating and result in uneven sheen or gloss.

A form of flashing with repeated patterns is called "lapping." Lapping occurs when the stain or flat paint is applied over an area which has partially or completely dried. An example of this is working from a ladder on horizontal lap or beveled siding. By the time the person completes a given section from top to bottom, then proceeds to apply the product at the top again, after moving the ladder, the new application over the partially dried section results in a double layer at the lap. The lapped section, which may be two to four inches in width, appears to have a shinier surface than the rest of the siding. Lapping can be avoided by applying the product within the confines of natural breaks in the siding, such as between a corner trim board and a window. Working from scaffolding will also help.

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A quality paint or stain job can be achieved when good preparation practices are followed, employing good construction practices, painting in a consistent manner, and avoiding very high temperatures and very windy days. Using quality paints, stains and brushes will always help ensure excellent results.

Today, the use of technologically-advanced 100% acrylic (water-based) coatings can help prevent both fading and flashing. Due to the chemical make-up of 100% acrylic resins, these water-based coatings have superior ultraviolet protection, resulting in better color retention and less potential for fading. Also, 100% acrylic (water-based) coatings possess the ability to spread more evenly across a substrate. This *balance* results in an even sheen level, decreasing the chances for flashing.

Whether it's an oil- or water-based coating being used, proper application techniques, quality products, and especially thorough surface preparation will minimize fading and flashing occurrences.



**Cabot®**  
Newburyport, MA 01950  
Tel.: 800-US-STAIN  
Fax: 1-800-998-3299

Visit the Cabot Home Page at:  
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