

WHY DO DECKS CHANGE COLOR?

If you were to photograph wood through a microscope, it would appear to be an irregular honeycomb. This is why wood is called a “cellular” substrate; it is made up of microscopically small cells.

No matter where a board is cut from a tree, the surface will be made up of cut cells, exposed to the surface like little “catch-basins”.

Imagine in your mind for a moment, a kitchen table entirely covered with wooden bowls, edge to edge. As we look down at the table from above, it appears to be the color of the bowls...like wood.

Now, imagine a box of Cheerios is opened and scattered randomly over the table and empty bowls. As the bowls fill, we no longer see the bottoms of the wooden bowls, and can now only see the rims of the bowls.

If we look down at the table now, the dominant color is no longer the color of the bowls, but instead we see the color of the Cheerios.

On an actual wooden deck, the cells are similar to the bowls mentioned above. Even though the cells are treated with a deck stain, or a wood-preserved, they are still empty.

Three substances combine to fall upon a wooden deck:

- 1.) Microscopically small particles of dust.
- 2.) Emissions (air pollutions)
- 3.) Tree Pollen (present even in cities)

The particles which are larger than the wood cells will be blown off the deck by wind or washed away by rain. The particles which are smaller than the cell will fill the cavity and will become trapped by gravity, just as our “Cheerios” fell to the bottom of the bowl.

As the wood cells fill, we no longer see the bottoms, only the cell walls. Therefore, the majority of the color we see is “grey”, which is the color of the combined dust, emissions, and pollen.

This does not occur on vertical siding because the dust is blown out of the cell “bowl” to settle on a horizontal surface. Actual tests have proven that vertical boards retain color, while horizontal boards do not, when both are exposed the same condition, sun-light, rain etc.

When a penetrating product, which contains resins, is applied to the deck, the resins penetrate the grey, dusty contamination, drying hard to form a new bottom to the cell, and the pigmentation colors the new surface.

With each successive application, the “bowls” become more shallow, until eventually they are filled solidly to the top. Then, all new dust falling on the deck will be blown away and the deck will appear to retain its color.

Actually, the deck never did change color, but rather, the color was hidden by the dust, emissions and pollens.

By contrast, a board-deck, to which several coats of varnish are applied, will not rapidly change color because the cells are filled and the contaminants are washed-off the glass-like finish. However, varnishes and other surface films are not a good alternative for architectural decks, because they crack and peel, and are very expensive to maintain.

Decks and horizontal railings can be protected, including color retention, dimensional stabilization (warping, shrinking, and cracking) and water repellency. The trick is called...”maintenance”! In order to keep the deck beautiful, it must have a penetrating tinted type of wood finish applied as often as is necessary. For instance, to protect the “Pride of Ownership” in a deck that is exposed to severe conditions (either strong sun or harsh weather) an ideal maintenance program may be:

- 1.) Apply each spring to restore color before the summer, when use is the heaviest.
- 2.) Apply also in the fall, to protect during the winter, to replace any weathering that has occurred during the summer.