

The Science of Color

Color is a very important part of our daily lives. Everything has color, and a large percentage of exterior paint and stain buying decisions are based on color alone. While choosing color is a very subjective experience, there are important objective factors that influence color perception. Among these are the coatings themselves, the wood or substrate texture, subcoats and light source.

The color of the wood or substrate will affect the appearance of all stain products; and this is especially true of clears, translucent, semi-transparent and semi-solid stains. Porous wood, such as rough-cut lumber, will absorb more product and allow more of the substrate to show through.

In addition, the first coat of a two-coat system will usually appear darker than the second coat. The second coat will tend to be “smoother” and will reflect the light source more uniformly. This reflected light may even appear to cause the coating to have a slightly higher sheen, changing the color our eye perceives. The color of primers or subcoats will also influence the final topcoat color of a paint or stain. For example, a light, pastel color applied over a darker subcoat will appear different than over a light subcoat.

Choosing Colors

Some of the basic principles which must be considered when choosing a color are:

- * A color will appear different under various light sources as the pigments in a coating absorb or reflect different wavelengths of light. Observe the color under the proper light source; i.e., exterior stains should be viewed under daylight conditions.

- * Color samples such as color cards and stained or painted wood chips offer an approximation of the true color. Never rely solely on a small chip to determine a final color choice. A color chosen from a one-by-one inch sample will look a lot darker when applied to a large surface. In addition, take into consideration that store-matched colors may not match exactly to a manufactured ready-mix color.

- * For best results, a sample of the chosen color should be brushed out on the surface to which it will be applied. Colors change as they dry; therefore, no color decision should be made until the product is completely dry. This is especially true of latex or water-based products.

Tinting Exterior Paint and Stains

Pigments used in exterior coatings must resist the effects of light, heat or chemicals and contribute to good color retention. When tinting exterior paints and stains, colorants must be for use in exterior applications.

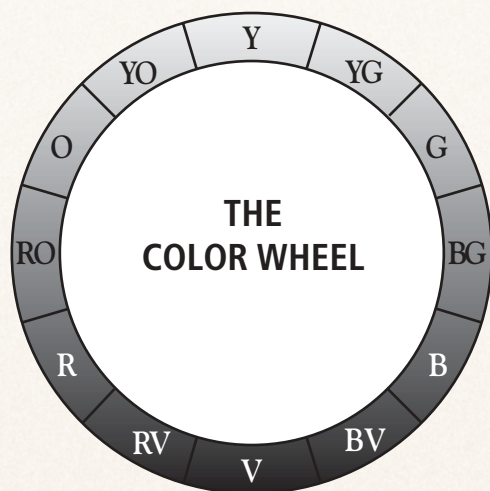
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The Science of Color *(Continued from front)*

* Low viscosity, semi-transparent oil-based stains should not be tinted with universal (glycol-type) tint colors unless the oil product has been formulated with a special wetting agent or surfactant to accept these colorants. Universal colorants which are not properly dispersed may cause color streaking when the products are applied.

* Low-end, oil-based, white stains with high levels of extender pigments (fillers) such as talc should not be tinted to pastel shades. They may prematurely fade or chalk, causing a loss of color.

Premium quality paints and stains which use the finest, purest ingredients will perform better, hold their color and fade less. Quality may cost more initially; however, the labor involved in surface preparation and product application is the largest cost. Staining with high quality products will be less frequent and much more cost effective.



The **primary colors** are red, yellow and blue.

The **secondary colors** are green, orange and violet and are placed between the primaries on the color wheel.

The **intermediate colors** are positioned between the appropriate primary and secondary colors on the color wheel. They are: yellow-orange, red-orange, red-violet, yellow-green, blue-green and blue-violet.

The Elements of Color

- **True Complements** are colors which are directly opposite from each other on the color wheel
- **Split Complements** are the colors on either side of a color's true complement
- **Alternate Complements** are colors which are two steps away from a color's true complement
- Red, red-orange, orange, yellow-orange, yellow and yellow-green are considered **Warm Colors**
- Green, blue-green, blue, blue-violet, violet and red-violet are considered **Cool Colors**
- **Neutrals** are almost non-colors — grays, black, white, browns and beiges
- **Light Colors** reflect light and appear to enlarge an object or area
- **Dark Colors** absorb light and have the opposite effect



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