PAINTED FASTENERS

Have you ever looked up at a metal roof and seen row after row of bright shiny screw heads reflecting back at you in the bright sun and wondered why they didn't do a better job of camouflaging them? Although many metal roofs exhibit this very situation, the fact is that even more roof systems have made great effort to disguise all the exposed fasteners. They do this by painting their heads so that they simply blend into the surroundings. This is but one example of where painted heads provide a unique and creative solution to a problem.

Considering all the fasteners used in the world, only a very small percentage have painted surfaces, such as heads or collars. For these unique situations **painted heads provide several advantages and solutions:**

- **Improve Aesthetics**
  - √ Camouflage- by painting the exposed surfaces of the fastener in a complementary color to its surroundings, the fastener can be disguised to be less prominent or even made virtually invisible.
  - √ Color Matching- matching the exposed surfaces of the fastener with the color of the surrounding materials provides a cohesive look that is desired in certain applications, like furniture, metal roofing, and composite wood decks.
  - √ Surface Uniformity- Traditional platings and coatings for fasteners typically exhibit some degree of variation in the surface conditions like iridescence, hue, contact marks, and texture. Painted fasteners can eliminate all these conditions and provide a uniform and extremely attractive surface.
- **Improve Protection from the Elements**
  - √ In unison with traditional platings and coatings, painted surfaces can provide additional protection against rusting and oxidation in outside or moist environments.
  - √ Painted surfaces can also improve protection against other harsh environmental elements, particularly U.V. from exposure to sunlight.
- **Cost Effectiveness**
  - √ Pre-painting exposed surfaces can eliminate labor costs necessary to prep and paint unpainted fasteners.
  - √ Pre-painted fasteners improve quality, as the application process produces significantly more durable finishes that are less likely to chip or flake than parts painted in-place.

Methods of Painting Fasteners

- **E-coating:** E-coating, also known as electrophoretic deposition, is the process of applying paint to conductive surfaces using electric current. This common automotive paint finish can be applied to fasteners, although they must be coated in bulk, which means the paint finish is applied to the entire fastener. When properly controlled it does not fill recesses or threads and can provide excellent corrosion protection. However, it is limited with colors, most often available only in gray or black.
- **Spray Application:** Selective areas of a fastener, usually just the head, can be painted using spray methods. Parts are fixtured in racks, the heads cleaned, and an even layer of paint sprayed on the head. The trays are delivered to an oven where the paint is cured.
- **Powder Coating:** Once again, this is usually a selective process, although entire parts can be powder coated. Parts are fixtured, often in a sleeve so that only the head is exposed and directed past a nozzle which releases dry powderized paint. This is usually done electrostatically, so that the powderized paint is drawn to and adheres to the area to be painted. Once the powder is applied, parts will be shuttled into an oven where the heat melts the powderized paint and fuses it to the surface.

Advantages and Disadvantages

- Commercially applied liquid paint methods, although usually oven cured, do not provide as durable a finish as powder coating. **Powder Coating develops a strong bond which is less likely than liquid paint to chip or flake off.**
- During the powder coating curing process, the powder melts into a uniform, smooth, and very durable surface. This gives powder coated parts a very attractive appearance.
- Both powder coating and liquid paint have unlimited color options.
- **Painting stainless steel heads can reduce the efficacy of stainless steel because the paint can inhibit the protection mechanism generated by the formation of chromium oxides.**

Common Applications

- **Metal Roofing and Siding Screws**: Many of the screws and bonded neoprene sealing washers have heads painted to match the color of the metal sheeting. Especially on roofs that have exposed screws, the painted heads blend them into the surrounding sheet and make them less distinguishable. [See **Figure 1**]
- **Composite Decking Screws:** Composite deck boards have become very popular for decks and porches. Many of these use hidden connectors but others screw through the top of the board. In these installations typically a screw with a painted head is used to disguise the fastening point. [See **Figure 2**]
- **Gutters:** Gutter screws are usually matched with the color of the gutter. This provides a more professional-looking job. [See **Figure 3**]
- **Vinyl and Aluminum Clad Windows:** Screws with color matched heads are often used with colored trimmed aluminum and vinyl clad windows.
- **Automotive:** Door strikers and door latch hardware in cars are often powder coated to provide a nice, aesthetic appearance.

Summary

For applications where the fastener must blend in with its surroundings, painted heads and other surfaces are a good solution. Most paint options allow for a wide range of color choices and are used in applications like metal roofing, composite deck boards, and colored trim. Like many special technologies, different solutions provide varying levels of performance and cost, making this a good option for many users. ■

Figure 1: Roofing Screws

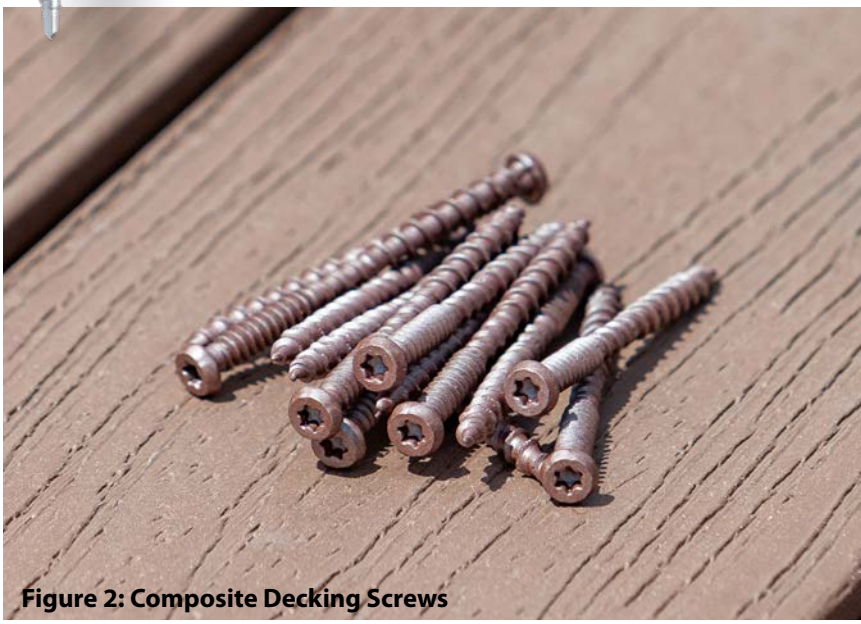

Figure 2: Composite Decking Screws

Figure 3: Painted Gutter Screws

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