SENTRIGARD
METAL ROOFING SYSTEMS

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Technical Bulletin

RUST FILINGS ON COATED AND UNCOATED STEEL

RUST FILINGS

The appearance of the rust "specks" on the surface of any coated or uncoated sheet, are usually reported as premature sheet rusting within one year of installation. The particles present are typically the size of fine to coarse grades of sand, and are most likely to be concentrated around doors, windows, vents, gables, fasteners, and penetrations where cutting has taken place. In some cases they may appear very uniformly over large areas. The concentration of the rust specks may vary from a few isolated chips to several thousand per square foot.

Generally, this type of surface "contamination", which is not uncommon, originates during installation: metal filings are produced when power tools are used to cut, grind, or drill the metal. The metal chips are hot and magnetically "charged" when created and will adhere to the coating surface. In time, these bare filings begin to rust. It is also possible for metal chips generated by a source not related to the buildings construction (such as air borne particles originating several miles away) to be deposited upon the sheets. Nothing in Sentrigard's manufacturing process generates metal filings, so these filings had to occur after the material left our plant.

Rust files can usually be removed easily, especially if they are cleaned soon after panel installation, as they are only adhered to the surface of the coating. A very effective method of removal is to clean the affected areas with Soft Scrub and a wet sponge using light pressure (Soft Scrub is a common household cleaner), and then thoroughly rinsing the metal panel to remove all loose rust files and Soft Scrub residue. This method will remove the majority of the rust files and allow the paint to retain much of its original shine. In many instances, a slight brownish stain may remain, especially in the case of light paint colors.

Removal of rust filings is not always an easy task, however. The red rust around the chip can be removed easily, but close examination may reveal that the small dark cores of the metal chips have been removed. Unless the metal chip is completely removed, rust will again appear around the chip within a short period of time. For demonstration purposes it is likely that 5 to 10 minutes would be spent thoroughly cleaning a 5" square area. The complete removal of the red rust (and metal chips) with the paint surface appearing new, clean and flawless, even under magnification will be proof that the rust has not arisen from the base metal of the sheet, but from an external source. Once the area has been completely cleaned the rust will not reappear unless the source of contamination is still present, with the possible exception of a few loose particles washing down from an upper panel area.

Rust files on coated steel are a cosmetic concern and can be removed as described above or left untreated, as they will not normally affect the service life of the panels. If left unattended the rust filings will eventually weather away, but the process may require 5 years or more. To minimize the visual impact of existing rust filings, it may prove beneficial to remove all loose particles or chips from the roof with power washing or similar procedures. It is important to insure that cleaning procedures be such that the paint surface not be damaged, however, when removing loose metal chips from the panel surface. A very gentle power wash/ rinse is suggested, for example, which will not remove or otherwise damage the paint finish. On uncoated steel these metal files will accelerate the sacrificial action of the panel's metallic coating and will reduce the life expectancy of the panel. Therefore, the filings must be removed from unpainted material.

The best method of minimizing the problems of rust filings is to cut metal panels with tin snips or a hand shear whenever possible. If power cutting cannot be avoided, cut the panels with the finished color side down. Power cutting should be done well away and down wind of the skidded panels and the building to reduce the potential of hot filings embedded themselves to the paint or coated surface. Metal panels cut or drilled with power equipment should be brushed lightly with a cloth or soft bristled brush immediately after cutting to remove any metal filings.

Cleaning Methods – In-house Test Results

In the in-house test, four cleaning methods were evaluated.

Method 1: Using a wet rag wiped over the panel surface.

Method 2: A solution of Spic and Span in water and a nylon scrubbing pad was used to clean and loosen the files from the panel surface.

Method 3: Soft Scrub on a wet sponge. (Soft Scrub is a common household cleaner made by Clorox.)

Method 4: Polishing Compound on a damp rag.

Conclusions:

Although the nylon pad did the best job in removing the files from the surface of the panel, the damage it caused to the paint surface is not acceptable. The Soft Scrub and sponge removed the majority of files without damaging the paint finish. This cleaning method is acceptable, and the materials needed are readily available.