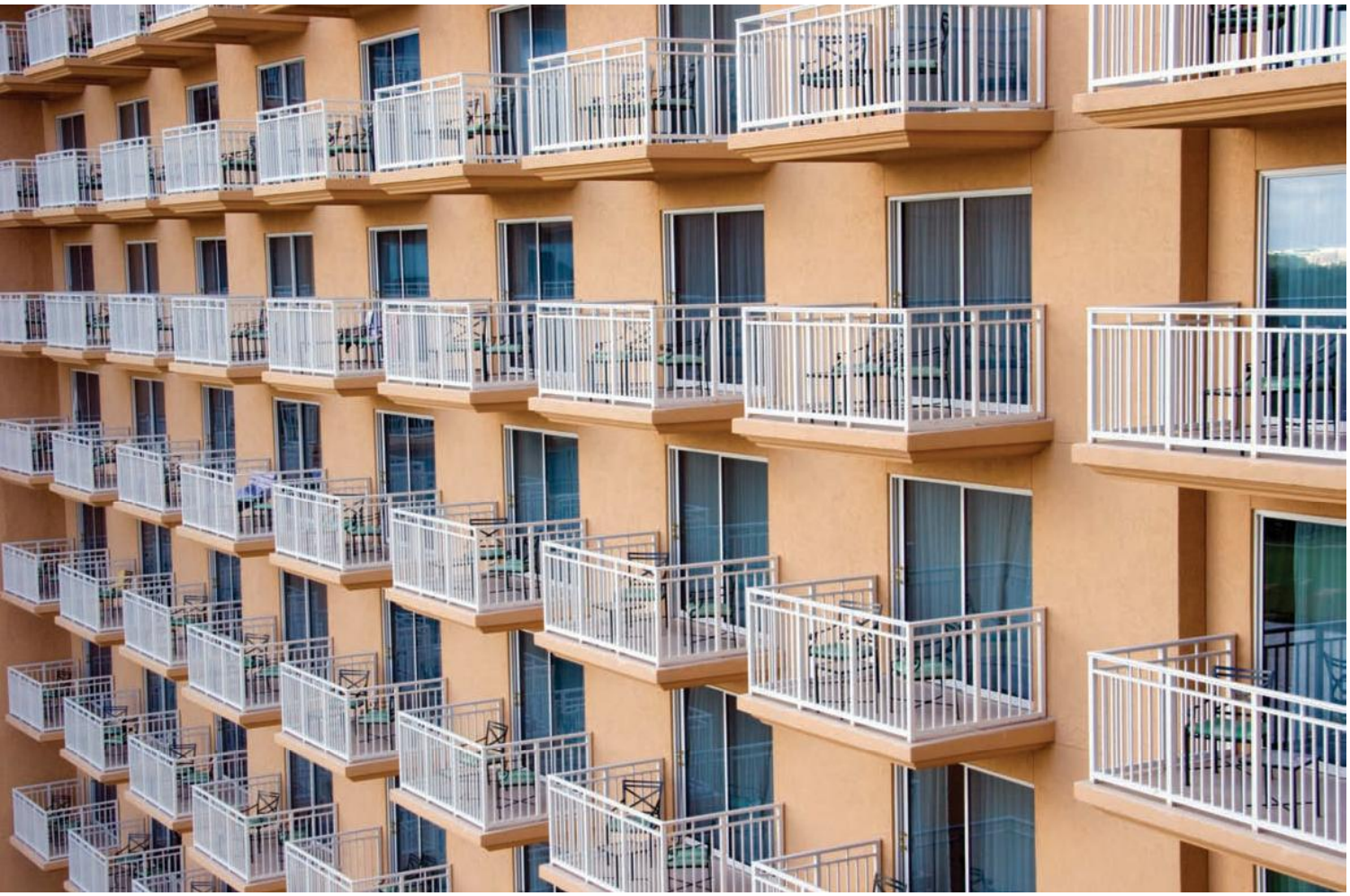

The What, Where, and Why of Electrolysis

by Vicki Foster

The purpose of this article is to improve the general awareness of the complicated process that is involved behind the simplest corrosion reactions and relate this to the impact corrosion has on building maintenance. Corrosion is the primary means by which metals deteriorate. Most metals corrode on contact with water (moisture in the air) and salt, which are specific problems for coastal areas such as Florida. Electrolysis is a process in which a metal is destroyed by a chemical reaction with its environment. Electrolysis is most severe along and near the coastal waters where there is high salt and humidity in the air. Electrolysis specifically affects the sliding glass doors at the bottom of the aluminum extrusion where the metal casing of the nylon wheels is in close contact. These two different metals act like a magnet and draw salt and humidity to this area facilitating corrosion.

Most of my service calls to customers regarding their sliding glass door are complaints of the doors not rolling. Metal wheels with metal casings freeze up due to a lack of maintenance and the effects of electrolysis. Wheels are replaced using an aluminum casing and nylon wheels to retard corrosion and create a quiet rolling door that will not damage the sliding door track. If the wheels are not maintained and metal wheels are used, corrosion will continue and, eventually, a hole will appear on the door frame and will no longer hold a wheel casing. This means the entire door frame is useless and must be replaced at a much higher price than just replacing the sliding door wheels.

What Causes Electrolysis?

Electrolysis occurs when there is moisture and salt present in the air, due to the proximity to coastal waters. Dissimilar metals are in close contact with each other, such as an aluminum extrusion from a sliding door and the metal casing around a sliding door wheel or a metal screw used in a shutter track. These two different metals, when exposed to heat and humidity, produce an electric current that starts the corrosion process.

Corrosion is often perceived as a curse we have to endure helplessly. Many are surprised when they learn there are many ways to prevent and control this natural force. Starting at the manufacturer, the surface of metals can be made resistant to corrosion through anodization which is an electrolytic process that coats the metal surface with a powder.

The Benefits of Aluminum Anodizing

Anodizing is an electrolytic process for producing a controlled aluminum oxide film on a metal surface. Oxides form naturally on untreated aluminum. The anodizing process produces a coating which is uniform and dense making it harder than natural oxidation. Aluminum oxide possesses excellent electrical insulating qualities. An anodic film is formed by converting the surface of the part into aluminum oxide. Unlike paint, which can flake off if not applied properly, anodized aluminum finishes are actually formed from the original material and cannot flake off. The aluminum oxide finish is very hard and wear resistant. Anodizing is good for many consumer products and sporting goods due to its corrosion protection properties and increased durability. A condominium association can verify if an aluminum product has been anodized, through the product approval submitted by the manufacturer; it isn't something that is easily visible. Use reputable service companies. Do your homework; if it is too cheap, there is probably a reason why.

What to Do about Limiting the Effects of Corrosion...

A form or barrier must be used when different metals are in close proximity and have not been anodized at the manufacturer, such as Vaseline, silicone spray, or wax. If corrosion has already occurred and damage is found early enough, preventative maintenance can slow the process, but once the corrosion has started, it is impossible to stop. It can be slowed down with regular maintenance, such as silicone spray on the metals and by removing any salt and dirt surrounding the area. Buildings located on or near the water must maintain regular maintenance with silicone spray at least every six months or more; of course, more often is even better depending on time and costs limitations.

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