

Guide to tea staining of stainless steel hardware

A significant amount of hardware used in architectural applications in the window and door industry is fully or partially manufactured from Stainless Steel. There are some misconceptions and a general lack of knowledge regarding the use of and preservation of Stainless Steel hardware.

Materials

Architectural hardware for the window and door industry is manufactured from various grades of Stainless Steel. The most common grade used is the so called Architectural Grade 304 but others that are commonly used are from the 300 series such as *Marine Grade 316* and also others from the 400 series. The selection of which grade is used for the various components of a hardware assembly will be determined by the manufacturer taking into account factors such as forming process, machining operations, surface finish/ treatment, handling, availability of raw material in appropriate form, cost and end application.

Tea Staining

It is important to understand at the outset that Stainless Steel is not stain free but literally taken it will stain less than ordinary carbon steel. Nearly all Stainless Steel suffers from what is known as Tea Staining, a condition closely associated with exposure to coastal environments, and which is defined as;

A discoloration of the surface of Stainless Steel which is controllable, but which does not affect the structural integrity or the longevity of the material.

Factors to be considered by the consumer that will impact the degree of tea staining on stainless steel hardware are environmental factors and maintenance.

Environmental Factors

It is probable that tea staining will occur within 5 km of the coast, and also likely that it will get progressively worse the closer the product is to the coastal location.

The effects of prevailing winds, topography, shielding, pollution and temperature can create regions of higher than average effect up to 13 miles (20km) from the coast.

Maintenance

The purchase of Stainless Steel items of any kind carries with it the expectation of lustrous appearance and a trouble free long life, whereas in reality this is usually only achievable by applying suitable care and maintenance. With door and window hardware exposed to the elements, this is of great importance. Tea staining is a visual sign that maintenance may be necessary to continue the function and operation of the hardware. It is also possible that Stainless Steel hardware will develop tea staining during the construction phase of a building and will require maintenance before owner occupation unless it is adequately protected from site contamination.

It is recommended that hardware be washed with warm soapy water on a soft rag and then rinsed off and wiped dry with a clean soft rag to remove salt and other contaminants. This should be done at least 6 monthly or 3 monthly in coastal locations.

Please note that these are minimum requirements and it is likely that there will be locations such as within close proximity to coastal surf where maintenance should be performed monthly.

After cleaning, an application of a moisture displacing, oil based product such as CRC Marine 66®, Innox® or WD40® will help to preserve the surface and prolong its appearance. Other wax or silicon based polishes may also aid in the preservation and protection of the hardware surface.

Warranty

Centor Stainless Steel hardware is not warranted against the effects of tea staining. The surface finish or visual appearance and the preservation of that look if required are the responsibility of the consumer.

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