

# STAINLESS STEEL CLEANING AND MAINTENANCE

YOUR GO-TO GUIDE TO KEEP YOUR BALUSTRADE  
AND STAIRCASE AS **GOOD AS NEW**

## TABLE OF CONTENTS

- |     |   |     |  |
|-----|---|-----|--|
| 01. | Introduction to the corrosion resistant properties of Stainless Steel | 02. | The Self-Repair Mechanism of Stainless Steel                           |
| 03. | The Initial Cleaning of your Stainless Steel Balustrades              | 04. | Routine Maintenance Cleaning of your Stainless Steel Balustrades       |
| 05. | These cleansers can be used on your Stainless Steel Balustrades       | 06. | Cleaning utensils that can be used on your Stainless Steel Balustrades |
| 07. | Recommended Cleaning Intervals on your Stainless Steel Balustrades    |     |  |

**This cleaning manual** applies to any stainless steel products manufactured and installed by Steel Studio. This includes stainless steel balustrades, stainless steel components used in glass balustrade systems and staircases. Steel Studio does not accept responsibility for any loss or damage caused to products due to incorrect maintenance and usage of the products.



### INTRODUCTION TO THE CORROSION RESISTANT PROPERTIES OF STAINLESS STEEL:

Stainless Steel is inherently a corrosion resilient material that does not need additional surface protection to enhance its appearance and durability. Some routine maintenance and cleaning are required to keep stainless steel surfaces in its original condition to ensure that the aesthetic appearance and corrosion resistance aren't affected. Stainless steel is no different to other construction materials such as glass, plastics or coated steels, which are never maintenance-free throughout the entire life span of a building project. These guidelines are meant to give building owners, developers and facility manager's advice on efficient, cost-effective cleaning methods that will allow them to take advantage of the corrosion resistant properties of stainless steel and maintain the aesthetic properties of the products manufactured from stainless steel.



### THE SELF-REPAIR MECHANISM OF STAINLESS STEEL:

What makes stainless steel resistant to corrosion? Alloying properties in stainless steel form a thin, transparent; 'passive layer' on the surface. Although this passive protective layer consists of only a few atoms in its thickness, it automatically reforms when exposed to oxygen from sources like air or water. If the material is scratched or damaged on the surface layer, the passive layer continues to repair itself and protect the stainless steel surface from discolouration and corrosion. This explains the reason why stainless steel does not require any specific protective coating or other corrosion protection to remain intact, bright and shiny even after decades of use.



### THE INITIAL CLEANING OF YOUR STAINLESS STEEL BALUSTRADES:

## THE FIRST CLEANING OF YOUR NEW STAINLESS STEEL BALUSTRADES

This first cleaning will be done by Steel Studio before hand over to you. If the construction of the building is not completed at the same time as the completion of your balustrades, then the stainless steel parts must be protected adequately so that it only requires simple 'maintenance cleaning' at the building hand-over stage, which should be sufficient. An adhesive plastic film can be applied to protect the material during fabrication, transport and assembly. Although this film could provide



protection from damage during the ongoing building process, these plastic films can deteriorate when exposed to ultraviolet radiation from sunlight and this may make these films challenging to remove. The film adhesives can stick to the stainless steel surface. This is why protective plastic films should be removed as soon as they are no longer needed for protection during the installation stage, starting at the top of the building and working downwards.

## WHAT TO DO WITH MORTAR AND CEMENT SPLASHES ON YOUR STAINLESS STEEL BALUSTRADES

These types of splashes and stains caused by other trades in the building process can be cleaned with a solution containing a small amount of phosphoric acid and rinsed with de-ionised water and dried. De-ionised water minimises water staining marks. Stainless steel cleaning products are available from specialist finishing companies. It is advisable never to allow contractors to use mortar removers or hydrochloric acid, not even diluted hydrochloric acid, on stainless steel balustrades. If hydrochloric acid has accidentally been applied to or spilt over the stainless steel, immediately rinse generously



with fresh water and dry. Building contractors and tradesmen aren't always aware of how dangerous proprietary building mortar removers containing hydrochloric acid are to stainless steel components and the damage it could cause to these components. This should be stressed to the contractor by the client. It is always advisable that the sequence of operations is planned in such a way so that any tile fixing and cleaning is completed before stainless steel components such as skirting boards or kick plates are installed nearby.

## GRINDING, WELDING AND CUTTING OF CARBON (NON-STAINLESS) STEEL CLOSE TO YOUR NEW STAINLESS STEEL BALUSTRADES

Iron particles that are picked up from tools or from contact with structural steel, scaffold tubing, etc. must be cleaned off as soon as possible. Steel dust particles created during manufacturing processes such as welding, cutting, drilling and grinding of carbon (non-stainless) steel will rust quickly. Besides destroying themselves, if any fabrication of carbon steel is performed close to your new stainless steel balustrades, the particles can locally break the self-healing 'passive film' of the stainless steel causing pitting corrosion in spite of the normally good corrosion resistance properties of the stainless steel. At an early stage, light deposits on the stainless steel can be removed mechanically using nylon pads, such as the 'Scotch-Brite' type you use in your kitchen. The contamination can also be removed with a stainless steel cleaner containing phosphoric acid. If pitting attack has occurred on the stainless steel, acid pickling treatments or



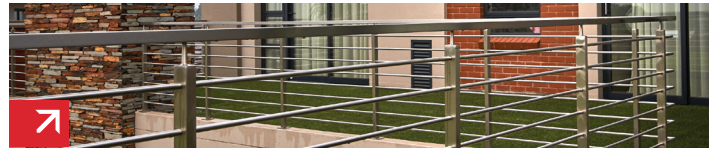
mechanical rectification will be needed to restore the surface, depending on the severity. Pickling agents can come in paste form. They are suitable in on-site application for localised areas on the stainless steel. It is essential to follow the strict supplier's instructions so that safety during work and environmental protection is adhered to. Companies who specialise in finishing will carry out this on-site service. Pickling could change the surface appearance of the steel during the restoration of the corrosion resistance of the surface. Further possible mechanical or chemical treatments may be required to restore the surface back to its original finish. It is crucial to avoid contamination, in the first place by either protecting the stainless steel parts, while other work is being done or by installing the stainless steel balustrades after all other trades that could cause contamination have been completed.



## ROUTINE MAINTENANCE CLEANING OF YOUR STAINLESS STEEL BALUSTRADES:

### ON EXTERNAL APPLICATIONS

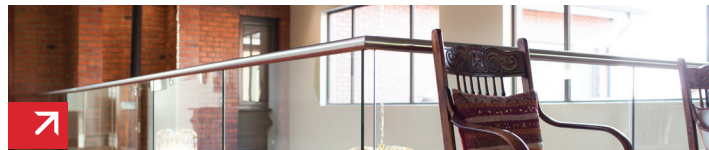
External applications such as facades and for the purpose of this discussion, balustrades, rainfall can generally be expected to wash off any accumulations of dirt and other deposits efficiently, depending on the amount of exposure and the elevation. Particular attention should be given to stainless steel balustrades in sheltered



outdoor areas when establishing a routine cleaning schedule to ensure that accumulations of airborne contaminants are removed. This is particularly important in marine, coastal and industrial environments, where the airborne chlorides build up and result in localised corrosion, if not adequately cleaned off.

### ON INTERIOR APPLICATIONS

On internal balustrades, finger marks can often be a challenge. An extensive range of finishes are available in stainless steel, many that are particularly suitable for use in heavily exposed (high traffic) public areas. Selecting finishes that are less sensitive to fingerprint marking in the design process will reduce the effort and costs of cleaning during



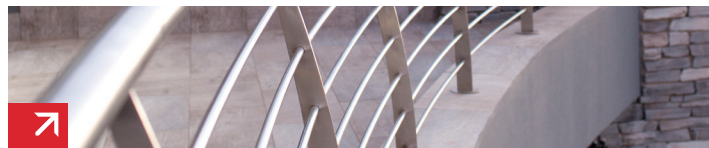
the service life of the finished building. Brushed finishes, which are a popular choice for interiors, may show finger marks in the period immediately after installation, but the visibility of the marking should become less evident after the first few cleaning operations.



## THESE CLEANSERS CAN BE USED ON YOUR STAINLESS STEEL BALUSTRADES

### HOW TO REMOVE FINGERPRINTS FROM YOUR STAINLESS STEEL BALUSTRADES

Fingerprints and other marks on your stainless steel balustrades can easily be removed with soapy water or a mild detergent. Stainless steel spray cleaners are available, which provide ease of cleaning with a lightly sprayed film coating that produces an even and smooth lustre. These types of cleaners



remove fingerprints and will return the surface to a finish that reduces fingerprint marks afterwards. Apply the spray to the surface and polish with a dry cloth after that. Your closest national stainless steel development association should be able to advise on products locally available.

### HOW TO CLEAN MIRROR-POLISHED STAINLESS STEEL BALUSTRADES

Mirror polished stainless steel can be cleaned with glass cleaners. These products must be free of chloride. For more stubborn marks and stains, mild household cream cleansers should be sufficient. This may also be suitable for cleaning off watermarks and light discolouration. After cleaning,



remove any residue with (preferably de-ionised) water which is available in supermarkets for steam ironing and also car batteries and dry to avoid streaking and watermarks. Scouring powders should not be used as these products can leave scratches on shiny stainless steel surfaces.

## HOW TO TREAT SEVERE OIL AND GREASE MARKS ON YOUR STAINLESS STEEL BALUSTRADES

More stubborn marks like oil and grease can be removed with alcohol-based products. Methylated spirit, isopropyl alcohol or other solvents such as acetone may also work successfully. These products are not necessarily a corrosion hazard to stainless steel. Care needs to be taken with



solutions to avoid spreading the staining on the stainless steels, which can then be difficult to remove entirely. It is recommended to apply clean solvent several times with a clean, soft cloth until all traces of the oil/grease are removed.

## HOW TO TREAT HEAVILY NEGLECTED STAINLESS STEEL BALUSTRADE SURFACES

Heavily neglected surfaces may be treated with metal polish, such as those for cleaning chromium-plated items like automotive trimming. Polishes used for re-finishing car paint can also be considered. Highly polished surfaces may become scratched during the use of these cleaners. Therefore care must be taken. Alternatively, use proprietary stainless steel cleaners that contain phosphoric acid to remove contamination, afterwards, rinse with de-ionised water and dry. It is recommended that the entire surface of the component is treated so that a patchy appearance is avoided. Before commencing with any cleaning, ensure that you have received the appropriate health and safety literature from the supplier and fully understand it. If in doubt, seek further advice.

## HOW TO CLEAN PAINT AND GRAFFITI OFF OF YOUR STAINLESS STEEL BALUSTRADES

Paint can be removed from stainless steel with alkaline or solvent-based paint removers. Hard scrapers or knives should not be used as cleaning utensils as the underlying stainless steel surface may become scratched.



### NEVER USE THESE CLEANERS ON STAINLESS STEEL BALUSTRADES:

- Cleansers containing **chloride**, especially detergents that contain hydrochloric acid,
- **Bleaches** should never be used on stainless steels; if accidentally spilt or applied on stainless steel surfaces, it needs to be rinsed off immediately with liberal amounts of fresh water,
- **Silver-cleaners** must be avoided to clean stainless steel.



### CLEANING UTENSILS THAT CAN BE USED ON YOUR STAINLESS STEEL BALUSTRADES:

A damp cloth or chamois leather is usually suitable for cleaning off general soiling, fingerprints, and marks. Nylon pads such as those known as 'Scotch Brite' pads are generally sufficient for more stubborn dirt. Non-stainless steel scouring pads, cleaning wool or wire brushes cannot be used on stainless steel. Not only will these scratch the surface, but they can also leave carbon steel deposits on the stainless steel surface, which can develop into rust spots, in the instance that the surface gets wet. Soft nylon brushes can be used for the cleaning of patterned stainless steel finishes. Steel wire brushes that are non-stainless steel must not be used. On 'grained' directional or brushed stainless steel finishes, the direction of cleaning strokes should be along the grain and not across the grain. It is advisable to wipe the surface dry to prevent watermarks if water was used to wash or rinse the surface. The use of de-ionised water prevents the formation of hard water staining. Cross-contamination from iron particles can be avoided by ensuring that cleaning utensils have not been used on carbon steel before. Cleaning materials for use on stainless steel balustrades should be reserved exclusively for that purpose.



## RECOMMENDED CLEANING INTERVALS ON YOUR STAINLESS STEEL BALUSTRADES:

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The cleaning of stainless steel balustrades is really no different from other materials in the building that require routine maintenance. Cleaning should be done before any visible build up of soiling or finger-marking so that the effort and cost of cleaning are minimised along with the risk of permanent altering of the appearance of the surfaces. On building exterior applications, stainless steel balustrades may be exposed to potentially more aggressive environments, as a result of contact with: Marine atmospheres, Environments laden with industrial pollutants, Salt spray from road de-icing salt, Atmospheric dirt and traffic film. All of the above incidences cause brown staining to appear on the stainless steel balustrades. It is good practice to clean your stainless steel balustrades at the same frequency as the building's windows. Depending on the severity of soiling and contaminant build-up, regular cleaning intervals of 6-12 months with light soiling and 3-6 months with heavy soiling or environments such as the ones listed above are advisable. Stainless steel cleaners containing phosphoric acid will remove this form of contamination.

## CONTACT DETAILS

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For more information or cleaning and maintenance advice of your stainless steel balustrades or staircase, contact us on **011-608-1963** to speak to one of our qualified experts.

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BALUSTRADES   STAIRCASES   POOL ENCLOSURES

