	CLEANING AND MAINTENANCE MANUAL FOR PRODUCTS	VERSION: 1
	CLIENTS AND CONTRACTORS	FECHA: 24/07/2023

1. OBJECTIVE.

Provide a clear and detailed guide for performing the cleaning and proper maintenance of products in a safe, fast, and effective manner, minimizing the risk of failures and breakdowns.

2. SCOPE.

Define cleaning materials, techniques, material lifespan cycles, and best practices for carrying out proper maintenance of products supplied by ALCO S.A.S. to its direct and indirect customers.

3. DEVELOPMENT.

Neither dust nor oxidation affects the strength or durability of aluminum; therefore, cleaning and surface care are generally necessary for its appearance. Unlike most other metals, aluminum is somewhat self-preserving.


Exposure of aluminum components to atmospheric agents results in the formation of a surface deposit containing various contaminants present in the atmosphere. Depending on their quantity and characteristics, these contaminants can lead to surface alterations that modify the material's appearance. Hence, the cleaning of surfaces should not be neglected since it is easier to clean a dusty surface than one with encrustations.

The choice of cleaning frequency depends on the location where the surface is exposed. Whenever one of the three factors listed below reaches minimum, medium, or maximum values, it is advisable to clean the surface at least once, twice, or thrice a year, respectively.




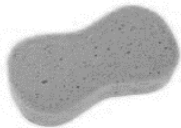


Grado de humedad, o sea el tiempo durante el cual la humedad permanece en contacto con la superficie.

1. Humidity level, i.e., the duration for which humidity remains in contact with the surface.
2. Contamination, i.e., the presence of industrial fumes in the air, particularly sulfur dioxide, carbon, etc.
3. Contaminación, o sea la presencia en el aire de los humos industriales, especialmente anhídrido sulfuroso, de carbono, etc.


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MATERIALS.

TABLE OF RECOMMENDED CLEANING ELEMENTS		
ELEMENT	DESCRIPTION	
Towel	Cloth, rag, or non-abrasive towel, preferably made of microfiber or cotton, if possible, that doesn't bleed or discolor.	
Soap	Detergent with a neutral pH, free from ammonia, bleach, acids, waxes, alcohol, or any other petroleum-derived product.	
Hose or pressure washer	If using a pressure washer, ensure that the pressure is moderate, as excessive pressure could lead to unwanted detachment.	
Sponge	Non-abrasive sponge, preferably made of foam.	
Toothbrush	Use a toothbrush with soft bristles, avoid rough brushes or those with abrasive components.	
Glass cleaner.	Use it to apply soap on the glass uniformly and reach difficult-to-access areas.	

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CONDITIONS AND TECHNICS OF CLEAN

GENERAL

- Cleaning should be done with water and neutral soap. The use of solvents and acids to clean the products will result in a loss of warranty.
- Sliding windows that are not very large can have their sliding panels disassembled and comfortably washed in a large tub or laundry sink. It's important to dry them thoroughly before reinstalling them on the track or guide.
- Fixed panels should not be disassembled; disassembling them will result in a loss of warranty.
- Never use cleaning products containing abrasives or products that contain ammonia, bleach, acids, wax, alcohol, or solvents, or petroleum derivatives.
- Prevent cleaning products from settling or being absorbed into the surfaces.


ALUMINUM

- For both painted and anodized aluminum profiles, it is crucial to avoid the use of abrasive or corrosive cleaning products. Opt for gentle cleansers, such as soapy water or cleaning solutions specifically designed for aluminum.
- When cleaning aluminum profiles, it is advisable to use microfiber cloths or soft sponges. Avoid scrubbers or hard brushes that may scratch or damage the painted or anodized surface.
- Completely refrain from using cleaners containing strong acids or alkaline solutions, as they can irreversibly damage both the painted and anodized finish of the aluminum.
- After cleaning, make sure to thoroughly rinse the aluminum profiles with clean water to remove any cleaner residue and prevent the accumulation of substances that may harm the finish over time.

GLASS

- Do not clean with a cloth when the surface has particles of dust, sand, or cement; apply plenty of water to remove contaminating particles and proceed with drying using either a cloth or the rubber blade of a glass cleaner.
- Do not use industrial or antiseptic soaps, as they can cause stains on the glass.
- If the surface has a manufacturer's label, apply citrus-based adhesive remover (D-Limonene), acetone, or nail polish remover on the label. To remove the residue, use a toothbrush and hot water. Never use metal blades, spatulas, or any device that could cause scratches on the surface.

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- To clean large glass surfaces, it is recommended to use a glass cleaning device to facilitate the task and avoid the risk of falling.
- To remove excess soap and dry, it is recommended to use the squeegee that comes with the glass cleaning device. If you don't have the device, use a dry cotton or microfiber cloth.
- Do not pour caustic products like sodium hydroxide, potassium hydroxide, ammonia, sulfuric acid, hydrochloric acid, liquid caustic soda, among others, onto the surface.

GLASS WITH FILM

Fingerprints, grease stains, streaks, dust, water spots, sealant residues, scratches, and abrasions are more noticeable on reflective glass than on non-reflective glass, extra care should be taken in handling and cleaning them.


- They should be cleaned at least 3 times a year to prevent materials such as metallic ions, alkaline streaks from concrete, plaster, or stucco from remaining on them for an extended period.
- When cleaning externally reflective glass, abrasive cleaners containing fluorides or compounds that produce hydrogen should not be used.
- These glasses may develop cracks as the accumulation of heat between the glass and the film, along with temperature changes, can cause them to occur, and over time, they may shatter the glass.

ACCESORIES.

Establish a regular cleaning schedule for accessories such as handles, hinges, and locks. The frequency will depend on the environment and the level of exposure to factors that may cause dirt, dust, or corrosion.

- After cleaning and rinsing, make sure to thoroughly dry the accessories with a clean, soft cloth to prevent the formation of water spots or moisture-related corrosion.
- Conduct periodic inspections of aluminum and glass accessories to identify any signs of wear, corrosion, or damage. This way, you can address any issues in a timely manner and take preventive measures to maintain their good condition.
- In the tracks where the panels slide, there are often significant sediment build-ups, causing the bearings to clog and the panels not to slide smoothly. It is recommended to periodically clean the tracks with a non-abrasive toothbrush or a vacuum cleaner to ensure proper bearing movement.

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- When cleaning the structures, a detailed drying of the exposed screws should be carried out, especially if they are not made of stainless steel, to prevent future corrosion and extend the lifespan of the structure.

WARNINGS:

- **Fall hazard:** Cleaning aluminum and glass structures in high-risk areas such as balconies, terraces, or elevated heights involves a significant risk of falls. Strict safety measures, such as the use of secure harnesses and scaffolding, should be followed, and only trained and properly equipped personnel should perform these tasks.
- **Electrical shock risk:** If aluminum and glass structures have electrical components or cables nearby, there is a risk of electrical shock during cleaning. Ensure that the electrical power is disconnected before starting and avoid the use of water or liquids near electrical installations.
- **Glass breakage risk:** When cleaning structures with glass, it is essential to avoid the use of blunt tools or utensils that may hit or scratch the glass, which could result in breakage and serious injuries.
- **Hazardous chemicals:** If chemical cleaning products are used in high-risk areas, it is important to exercise caution to prevent spills. Contact with corrosive chemicals can cause damage to the skin, eyes, and mucous membranes.
- **Cleaning in high-risk areas should be avoided in adverse weather conditions,** such as strong winds, rain, or thunderstorms. These conditions can significantly increase the risk of accidents and should be postponed until conditions are safe.

Remember that it is always best to rely on trained and experienced professionals to perform cleaning in high-risk areas on aluminum and glass structures. Safety should be always the utmost priority.

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MAINTENANCE.

At least once per semester, or less frequently as per usage, doors and windows must undergo maintenance, which should include the replacement of elements and the execution of activities that result from completing the following checklist:

GENERAL ASPECTS	SPECIFIC ASPECTS
Window Structure	Missing Elements, Damaged Elements, Finishing Inspection
Translucent Materials	Scratched glass Broken glass Scratched polycarbonates
Assembly	Disassembled framework Loose seals
Accesorios	Bearing operation Operation of articulated arms Hinge operation Lock operation Guide operation
Seals	Absence or deterioration of felts and seals
Installation	Fastening check Sealing check Check of levels and plumb lines of bays

- A joint seal inspection should be carried out at least every two years, replacing them if there are leaks.
- Seal reviews every three (3) years.
- Felt inspection every three (3) years.
- Seal inspection every two (2) years. Seal renewal every ten (10) years.
- Profile finish inspection every five (5) years.
- Hardware lubrication every (1) year.

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TABLE OF ACCESSORIES FUNCTIONING

Opening type	Use	Frequency	Max Cycles
Doors	Unlimited use	Once every 6 months	50.000 Cycles
	Normal Use		50.000 Cycles
	Intensive use (schools, hospitals, public buildings...)	Once every 3 months	50.000 Cycles
	Emergency exit doors	Once a month	50.000 Cycles
Windows/Sliding	General	Once every 6 months	10.000 Cycles

GLASS COVERS / FACADES

- Under no circumstances should anyone walk on top of the sill covers, let alone on laminated glass. (Failure to follow these recommendations can result in water leaks due to seal deterioration and/or glass breakage and cracks, which become evident during significant temperature changes.)
- Do not place foreign objects such as handles, canes, wooden and/or aluminum ladders.
- Cleaning should be performed every six (6) months. Follow general recommendations for this, using systems and structures that are not supported on the sill covers, let alone on laminated glass.
- Silicone joints should be maintained at least every two (2) years, hiring qualified personnel for this purpose and conducting a prior inventory of laminated glass. Perform an inspection of their condition.


ACCESSORIES

Rubber or rigid PVC gaskets:

Regular cleaning, at least once every two (2) months, to prevent their premature aging because of the accumulation of contaminants in the environment. This cleaning should be done with water and soap, and under no circumstances with products like diesel fuel, thinner, solvent, alcohol, or similar substances.

Gasket replacement should be carried out when the material has cracked or crystallized.

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SCREWS.

It should be checked at least every six (6) months, verifying that there are no missing assembly or fastening screws, or that they are loose or have lost corrosion protection, and proceed accordingly to replace, renew, or simply tighten them.

LOUVER ELEMENTS

Clips or glass holders, operators, operator arms, pins, and rivets should be checked at least every six (6) months, ensuring that all of them are functioning correctly and replacing any damaged parts or those that are on the verge of breaking due to wear or material fatigue. The glass in louvers should be securely fastened to the clips; if there is any doubt about the securement, it is recommended to adhere the glass to the clip using clear acetic silicone.

HINGEDS

They should be lubricated at least once every two (2) months and checked every six (6) months, ensuring they function correctly, and replacing those that are damaged or on the verge of collapsing due to wear or metal fatigue.


EXTENSIBLE ARMS

- They should be cleaned with water and soap at least once every two (2) months, removing dust, dirt, or construction residues like mortars and plasters that may hinder their sliding. Lubricants such as oil, grease, or Vaseline should not be used as they reduce friction on the arms, preventing the panels from being suspended at the desired point by the operator.
- The screws must be securely fixed to the frame, complete, and secured. If there are screws with stripped threads, they should be replaced with blind rivets, never with screws of a larger diameter.

RAILS AND BEARINGS


- At least once every two (2) months or when debris hinders the movement of the trolleys, the rails should be cleaned, removing debris or fragments of mortar or plaster that impede the operation of the wheels. These accessories should be inspected every six (6) months, not only checking that they function correctly but also
- Replacing those that, due to wear, cause the trolley's frame to run directly on the veins of the rail, also wearing out the material from which both elements are made, that is, the rail and frame.

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- Nylon wheels are self-lubricating and do not require the use of oils, greases, or Vaseline for their operation. Bearings made from non-self-lubricating materials should be lubricated with oil at least once every two (2) months.

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CHANGES LOG			
VERSION	DESCRIPTION	RESPONSIBLE	DATE
1	Creation, transcription, and document translation	JUAN CAMILO ACOSTA	03/11/2023

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