



# Alumex Aluminum Care and Maintenance Guide for Profiles

RECOMMENDED METHODS OF TRANSPORTATION,  
STORAGE HANDLING INSTALLATION  
CLEANING MAINTENANCE AND REPAIR



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## 01. Aluminium Extrusion Transportation

Transporting Aluminium extrusion products requires careful handling and specific equipment to ensure the safety and integrity of the products. Here are the basic requirements for lorries used to transport Aluminium extrusion:

- **Clean and Damage - Free Lorry:** The lorry used for transporting Aluminium extrusion should be clean and free from any damages or debris. This is important to prevent contamination of the Aluminium extrusion products and to maintain their quality.
- **Flat Lorry Bed:** The lorry bed should have a flat surface. A flat bed ensures that the Aluminium extrusion products can be loaded and secured properly, minimizing the risk of movement and damage during transit.
- **Rubber Sheet on Lorry Bed:** The floor of the lorry bed should be covered with a rubber sheet or mat. This rubber sheet provides a non-slip surface and helps protect the Aluminium extrusion products from scratches and damage during transportation. It also prevents the products from coming into direct contact with the metal bed, which could cause abrasion.
- **Wooden Blocks:** Wooden blocks should be used to secure and separate the Aluminium extrusion products. These blocks are strategically placed between the products to prevent them from colliding with each other or with the lorry body. The wooden blocks should be covered with a rubber sheet or padding. This additional layer of cushioning helps absorb shocks and vibrations during transit, reducing the likelihood of any physical damage to the products



"A" Type Lorry



"B" Type Lorry



"C" Type Lorry



"D" Type Lorry

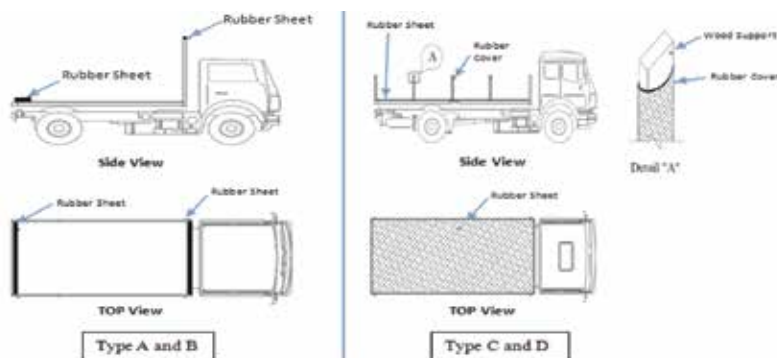


Image 01 : Type of Lorry

**The Quantity to be applied according to the type of lorry.**

Lorry Type		The Quantity of Wooden block applied	Length of loadable Aluminum Extrusion profile
A)	Lorry Length < 10 feet	04	3.66m
B)	10 feet < Lorry Length > 16 feet	06	6.1m & 6.5m
C)	16 feet < Lorry Length > 18 feet	06	6.1m & 6.5m
D)	16 feet < Lorry Length > 18 feet	08	6.1m & 6.5m

*Always cover the lorry well with a tarpaulin so that it does not get wet during the transportation of Aluminium Extrusion Profile.*



**DO's**



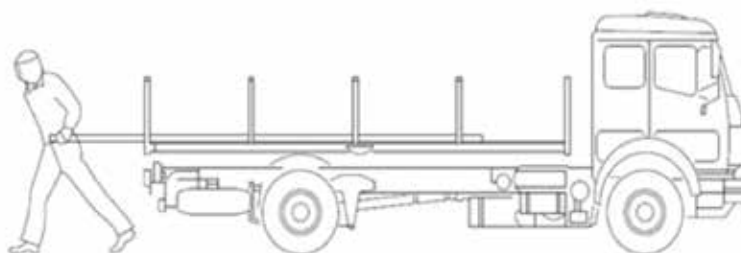
**Image 02: Tarpaulin Cover**

When unloading Aluminium extrusion profiles, it's essential to follow proper procedures to ensure the safety of the products and prevent any damage. Here are some points to consider:

**Do Not Pull the Aluminium Extrusion Profile:** Avoid pulling the Aluminium extrusion profile out of the transport vehicle or storage area. Pulling can cause excessive stress on the profile, potentially leading to deformation or damage. Instead, use a controlled lifting or sliding motion to remove the profile from its position.



**DONT**

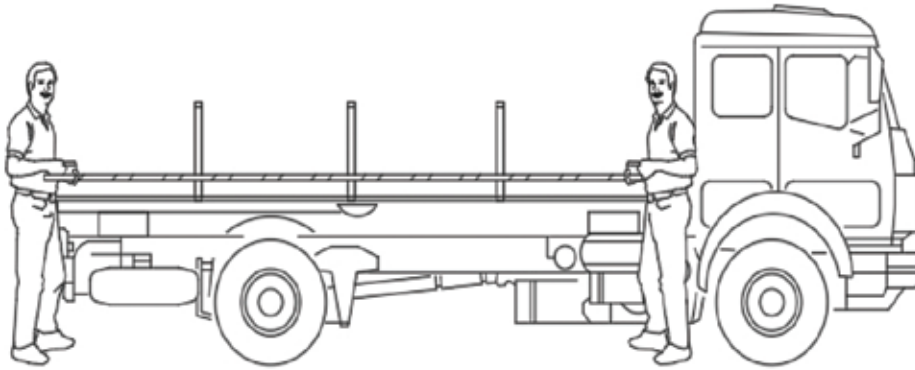


**Image 03: Pulling the Aluminium Extrusion when unloading**

- **Use Two-Person Handling:** Enlist the help of at least two people when unloading Aluminium extrusion profiles. This ensures that the load is evenly supported from both sides, reducing the risk of twisting or bending during unloading. Coordinate your movements and communicate effectively with your handling partner to maintain balance and control.



## DO's



**Image 04: Two person handling when unloading**

- **Handle with Care:** Exercise great care throughout the unloading process. Avoid dropping the packed goods, as this can lead to sliding and potentially cause scratches or dents on the Aluminium extrusion profiles. Use appropriate lifting and handling techniques to maintain control and stability

By adhering to these basic requirements, you can ensure that Aluminium extrusion products are transported safely, minimizing the risk of damage and maintaining their quality. It's also important to follow any additional safety and handling guidelines provided by the manufacturer or industry standards to ensure the safe transportation of these products.

## 02. Customer Storage

### Storage Environment:

- Aluminium should be stored indoors at a stable temperature.
- Protect it from moisture.
- Keep it away from combustible products, construction dust, smoke, and pollutants.

### Storage Handling Guidelines:

- Allow air to flow freely over the Aluminium when storing.
- Keep Aluminium away from caustics, nitrates, and phosphates.
- Do not store Aluminium extrusion profiles on the ground.



Image 05: Extrusion Profile Storing on the Ground

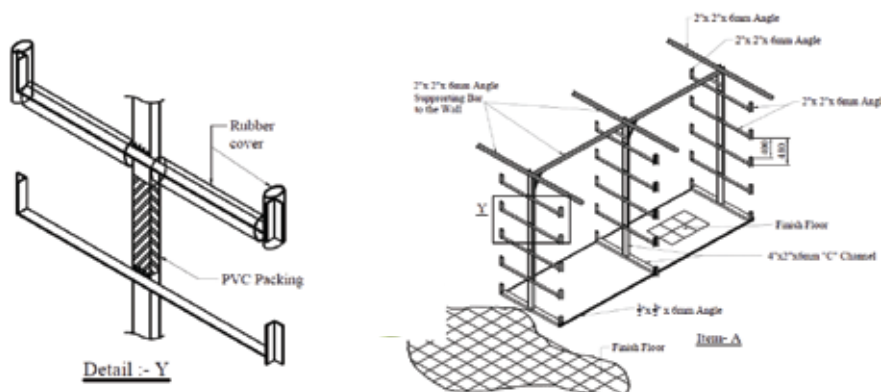


Image 06: Storage Bin and Racks



- Long, thin extrusions should be stored horizontally in racks
- Always use a rack for storage and cover it with a rubber sheet.
- Only store the amount of Aluminium in the rack that it can safely hold to avoid damage.
- Lift extrusions from racks instead of pulling them along the rack to prevent damage.



Image 07: Storage Bin and Racks



- Avoid outdoor storage where Aluminium can be exposed to rain, dew, or moisture.
- Powder-coated and wood-finished profiles packed with McFoam should not be stored outdoors or in wet places (exposed to rain). Defects, such as McFoam patches, can occur due to chemical reactions between McFoam and the profile's surface caused by water infiltration into the packaging due to exposure to rain.
- If Aluminium arrives wet, unpack it and dry it immediately with a soft cloth.



Image 08: Mc-Foam Patches



Image 09: Mc-Foam Patches

- Practice FIFO (first in, first out) to ensure that older stock is used before newer stock to maintain product freshness and quality.
- The Aluminium extrusion profiles should remain stored in the racks, following the same packaging format as described above, until they are sold. Under no circumstances should the packs be separated from the profiles, as doing so may result in scratching caused by friction against the profiles, and such defects are particularly noticeable in powder-coated profiles
- When removing Aluminium extrusion profiles from packaging, avoid pulling them out by removing one side of the pack. This can cause damage due to tight contact between profiles.

*These guidelines are crucial for maintaining the quality of Aluminium materials and ensuring they remain suitable for their intended applications. Proper storage and handling can help prevent damage and corrosion, ultimately saving time and resources in the long run.*

### 03. Fabrication and Finishing

#### Anodized Aluminium Extrusion Installation

Aluminium Anodized finishes, result in the controlled formation of an oxide layer which is much harder, more durable and about a thousand times thicker than the thin oxide layer naturally formed. It has excellent tolerance in coastal environments and its appearance proves popular in architecturally designed features as well as window and door suites.

- During fabrication, handling should be performed to prevent any damage.
- When cutting Aluminium extrusion profiles, ensure that there are no Aluminium chips present during stacking and storage, as Stacking with Aluminium chips can damage the anodizing layer
- Protect the profiles with suitable anti-corrosion materials at cutting points to prevent corrosion.
- Apply sealant at corner cutting points during assembly to prevent corrosion.
- Use stainless steel screws to prevent corrosion at fastening points.
- Pay particular attention to points of contact between aluminum and other metals, as they may be susceptible to electrolysis.
- After fabrication, remove all protective tapes within 1 month.

*Defects Can happen leaving the protective tape on the fabricated profile for a longer period than required*



*Printed content on the protective tape transferred onto the profile surface due to leaving the protective tape on the fabricated profile for a longer period than required*

**Image 10: Printed content on the protective tape transferred onto the profile surface**

- After fabrication, remove all protective tapes within 1 month.
- After fabrication, remove immediately if expose to sunlight.
- Note that protective tape has a lifetime of 1 year, so it must be removed within 6 months, whether the profiles are fabricated or not.

## Aluminum Profile Defects Due to The Use of Non-Standard Fabrication, Lack of Cleaning and Proper Maintenance

Powder coating can also provide resistance to surface defects and certain corrosion conditions. It involves applying a durable, protective coating in powder form to the aluminum surface.

During construction and assembly work, the coated objects must be protected from any mechanical damage, cement or concrete spillage. Direct contact with unapproved adhesives, unapproved tapes, cleaning materials, acids, alkali and other aggressive cleaning procedures should be avoided.

- During fabrication, handling should be performed to prevent any damage



Image 11: The ends of the fabricated window frames are wrapped in Mc-Foam and stacked in order to avoid damage



Image 12: The critical areas of fabricated window frame

These highlighted profile edges are critical areas. During fabrication, installation, or stacking, please handle these frames or profiles carefully. When stacking, ensure you place these frames or profiles on rubber pallets or wooden pallets to prevent damage. If any of these profiles become damaged during fabrication, installation, or stacking, please follow the damage repair procedure to avoid corrosion

Profiles that undergo powder coating may be subjected to further processing. To avoid problems affecting the coating:

- Protect the profiles with suitable anti-corrosion materials at cutting points to prevent corrosion.
- Apply sealant at corner cutting points during assembly to prevent corrosion



Image 13: Corrosion can crawl through corners



Image 14: Proper cleaning of weep frame holes

### ALUPROT For Finished Goods Cutting Edge Protection

- Cutting Edge must be dipped in Solution for 1 minute
- Dip the cutting edge until it changes to a yellow colour. If the colour is too light, you can increase the dipping time.



Image 15: Alu Prot Solvent

- Pay particular attention to points of contact between aluminum and other metals, as they may be susceptible to electrolysis.
- Use stainless steel screws to prevent corrosion at fastening points.
- When using other components to fabricate powder-coated or wood-finished aluminium, SS-316 metal (Recommended) should be applied during the fabrication process to prevent bimetallic reactions.

Bimetallic corrosion occurs when dissimilar metals come into contact with each other or are in close proximity. In the presence of an electrolyte, such as moisture (especially saltwater), these two metals form an electrical couple. Once the couple is established, there is an exchange of electrons. To put it simply, one metal extracts material from the other, leading to corrosion. If you've ever observed a white, chalky substance on thresholds, you've witnessed galvanic corrosion





**Image 16: Bimetallic/ Galvanic Reaction**

- After fabrication, remove all protective tapes within 1 month.
- After fabrication, remove immediately if expose to sunlight.
- Note that protective tape has a lifetime of 1 year, so it must be removed within 6 months, whether the profiles are fabricated or not.

### Defects Can happen keeping long time Protective Tape



**Image 17: leaving the protective tape on the fabricated profile for a longer period than required**



**Image 18: Pasting unapproved tapes**

Use a smooth cutter blade to prevent profile edge defects, as a non-smooth cutter blade can cause cutting defects. In cases where a non-smooth blade is used for cutting, elevated temperatures may occur, which can result in the removal of the powder surface and bonding with the metal.

### Defects Can happen Using non-Smooth Cutting blade

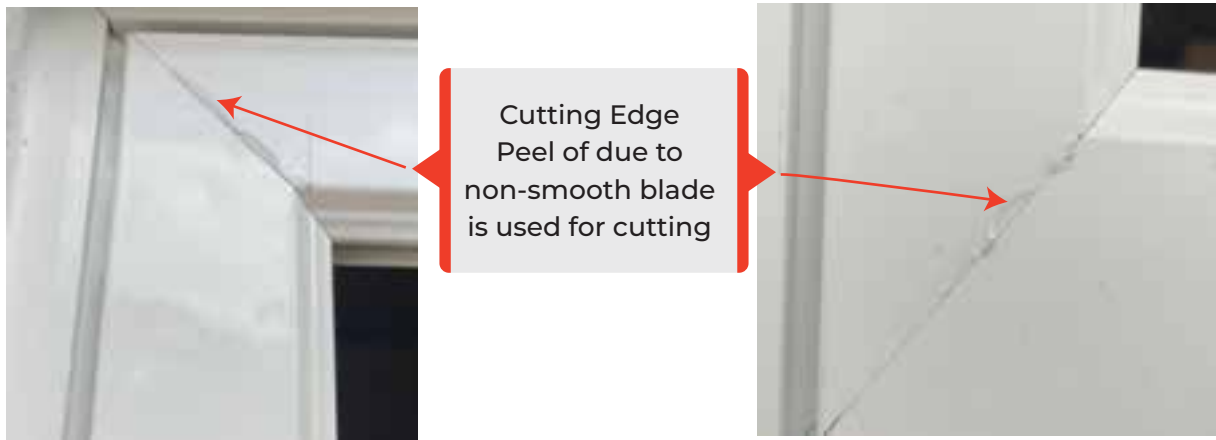


Image 19: Cutting Edge Peel

- The end user is responsible for cleaning and maintaining the product after fabrication and installation.
- The fabricator is responsible for conducting periodic inspections and providing guidance to the end user.

Following these guidelines and practices can help ensure the longevity, appearance, and performance of aluminum profiles with different surface finishing applications. Proper care and maintenance are crucial to preserving their protective and aesthetic qualities.

## 04. Cleaning

Correct maintenance has a major influence in maintaining the aesthetic appearance of a coating, thus expanding its years of service. A maintenance-free surface coating for the construction industry is unavailable in the market. No maintenance-free surface coating for the construction industry exists. The life of powder coated finish can be greatly enhanced if a regular maintenance program is adopted. The chemical attack on decorative surfaces that are not regularly cleaned becomes increasingly severe and after several years it may be impossible to restore the original appearance. A regular cleaning and maintenance regime are essential.

### Cleaning of powder coated surface after installation

The initial cleaning that should occur after installation, to remove atmospheric dust, deposits of dirt, possible cement deposits, glues, shipping materials such as protective tapes, stickers etc.

Since the coating is usually exposed to a variety of environmental conditions, depending on what weather zone in the global it is exposed to, maintenance should be handled differently in different part of the world.

Periodic cleaning is generally recommended at,

- **Normal environment: Clean every 06 Month**
- **Marine and/or industrial environment: Clean every 3 months**
- **Swimming and Leisure Pools: Clean every 3 months**

however, in highly exposed areas the frequency should be increased, depending on the severity of climate conditions on the coated object or components as follows.

- **The geographical location of the building.**
- **The environment surrounding the building. i.e., marine, swimming pool, Industrial or a combination of these environments etc.**
- **Level of atmospheric pollution**
- **Prevailing wind**
- **Protection of the building by other buildings**
- **Possibility of airborne debris (e.g., Sand / dust etc.) causing erosive wear of the coating**
- **If the environmental circumstances change during the lifetime of the building (e.g. Rural becomes industrial)**



**Image 20: Without proper maintenance in hazardous environment**

In hazardous environments the normal frequency of cleaning should be at a maximum of three-monthly intervals. However, where there is high atmospheric pollution or an extremely hazardous atmosphere (i.e., a combination of factors above or others) the period between cleaning should be reduced.

Cleaning of window sections etc., can be conveniently carried out at the same time as glazing cleaning.



**Image 21: Cleaning**

**Test Area:** Before cleaning, always test a small, inconspicuous area to ensure that the cleaning process won't cause colour changes or damage to the surface.

**Prompt Cleaning:** Remove any dirt or stains as soon as possible to prevent them from becoming more difficult to clean over time.

**Loose Deposits:** During construction, if loose deposits remain on the surface despite cleaning efforts, use a wet sponge with water to remove them.

**Cleaning Products:** If the surface cannot be cleaned with water alone, use a soft brush or non-abrasive cloth with a neutral mild household or car wash detergent following the supplier's instructions. After cleaning, rinse thoroughly with fresh water.

**Avoid Abrasives:** Do not use steel wool, scrapers, sandpaper, scouring liquids, or powders, as they can scratch the coated surface. Avoid strong solvents, alkaline, or acid cleaners.

**Avoid Hard Water:** Refrain from using hard water for cleaning due to its mineral content, which can cause staining and long-term damage to the coating.

**Temperature Consideration:** Do not clean the surface if it's hot due to direct sunlight, as this can affect the cleaning process.

**Metallic Coatings:** Special care is required when cleaning surfaces with metallic coatings. Use mild detergent for routine cleaning and avoid rubbing or polishing, as it can cause discoloration and damage.

**Matt Finishes:** For Matt finishes, use mild detergent for cleaning and avoid rubbing or polishing to maintain the gloss level of the coating.

**Cleaning Frequency:** The recommended cleaning frequency depends on factors such as geographical location, environmental conditions (e.g., pollution, salt exposure), and protection from other elements. Cleaning can range from once a year in favourable conditions to monthly in high-corrosion areas.

**Cleaning Process:** Clean the surface with a soft cloth or sponge moistened with water containing a mild detergent. Rinse thoroughly after cleaning to remove any residue.

**Prevent Contact with Building Materials:** Ensure that building materials like cement, concrete, asbestos, plaster, stucco, and paints do not come into contact with the finished surfaces. If contact occurs, remove them promptly.



**Image 22: Solvent misuse on powder coated surface after 3-year Period**

**Defects Can happen not done Periodic Cleaning**



**Image 23: not done Periodic Cleaning**

Adhering to these cleaning guidelines will help preserve the appearance and longevity of the finished surfaces while preventing damage or discoloration

## 05. Damage Repair

Depending on the damage, different kinds of repair may be necessary.

Powder coated profile repair procedure using jotamastic 80 is to restore the appearance and protective properties of the coating, ensuring the profile is visually appealing and resistant to corrosion.

### 01. Surface preparation

Clean the damaged area of the powder coated window profile using a suitable cleaning agent, if necessary, clean the surface with a mild and non-abrasive neutral cleaner (pH 5-8) and let it air dry. use a clean rag or cloth to wipe off any dirt, dust, or other contaminants.



**Image 24: Defected Surface**

Check the damage areas. Damaged areas exposing undamaged Pre-treatment (i.e. for metal surface) should be rubbed down by careful sanding (using sandpaper 0#) to preserve the Pre-treatment. Dampen a lint-free cloth or tack with xylene and wipe liberally to clean the areas to be repaired.



**Image 25: Surface Preparation**

## 02. Application of the primer

### Environmental Conditions Before and After Application of Primer

Before application, test the atmospheric conditions, in the vicinity, of the substrate for the dew point formation as per ISO 8502-4.

Standard Grade	Winter Grade
Air Temperature 5 - 60 °C	Air Temperature -5 - 40°C
Substrate Temperature 5 - 60 °C	Substrate Temperature -5 - 60°C
Relative Humidity 10 - 85%	Relative Humidity 10 - 85%

### Application of the primer

Jotamastic 80 can be applied onto a reasonably small area of damaged powder coated substrates, using a high-quality and solvent resistance brush. Larger areas may require a different method of application. The surface of the damaged substrate must be dry, clean and 'surface prepared' surface to receive the primer.

**Film thickness per coat: 100-120 µm**

### Drying and Curing Time of Primer

Substrate temperature	27 - 35°C
Surface (touch) dry	4h
Walk-on-dry	6h
Dry to over coat, minimum	5h
Dried/cured for service	7d

*Drying and curing times are determined under controlled temperatures and relative humidity below 85 %, and at average of the DFT range for the product.*

- Surface (touch) dry : The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.
- Walk-on-dry : Minimum time before the coating can tolerate normal foot traffic without permanent marks, imprints or other physical damage.
- Dry to over coat, minimum : The shortest time allowed before the next coat can be applied.**
- Dried/cured for service : Minimum time before the coating can be permanently exposed to the intended environment/medium.



**Image 26: Applying the Primer**

### 03. Application of the Top Coat

#### Environmental Conditions Before and After Application of Top Coat

Before application, test the atmospheric conditions, in the vicinity, of the substrate for the dew point formation as per ISO 8502-4.

#### Standard Grade

Air Temperature	27 - 35°C
Substrate Temperature	27 - 35°C
Relative Humidity	10 - 85%

#### Application of Top Coat

Top Coat can be applied onto a reasonably small area of damaged powder coated substrates, using a clean, high-quality, natural or synthetic roller or brush. Larger areas may require a different method of application. The surface of the damaged substrate must be dry, clean and 'surface prepare surface to receive the top coat.

When using a brush, a more long haired brush is recommended to improve flow and appearance. To achieve specified dry film thickness, it may be necessary to apply multiple coats.

When using a roller, addition of small volumes (5-10 %) of thinner will improve appearance when used as finish coat. To achieve specified dry film thickness, it may be necessary to apply multiple coats.

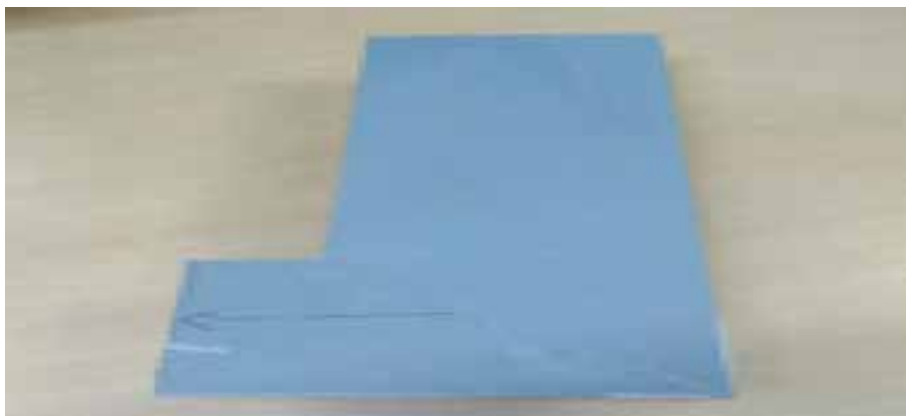
*Film thickness per coat:  $\mu\text{m}$*

#### Drying and Curing Time of Primer

Substrate temperature	27-35°C
Surface (touch) dry	4h
Walk-on-dry	6h
<b>Dry to over coat, minimum</b>	<b>8h</b>
Dried/cured for service	7d

Drying and curing times are determined under controlled temperatures and relative humidity below 85 %, and at average of the DFT range for the product.

- Surface (touch) dry : The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.
- Walk-on-dry : Minimum time before the coating can tolerate normal foot traffic without permanent marks, imprints or other physical damage.
- Dry to over coat, minimum** : **The shortest time allowed before the next coat can be applied.**
- Dried/cured for service : Minimum time before the coating can be permanently exposed to the intended environment/medium.



**Image 27: Final Product**

**Special Note:**

- If you notice only a scratch or a small surface defect as Aluminium metal is visible. You can follow these steps for treatment to prevent corrosion:
  - > Use ALUPROT solvent to treat the affected area.
  - > Afterward, apply touch-up paint (2K Paints) for repair, or you can use the appropriate powder coating.

**Image 27: Properly Packed & Stacked Aluminium Fabricated Frames to Prevent Damages**