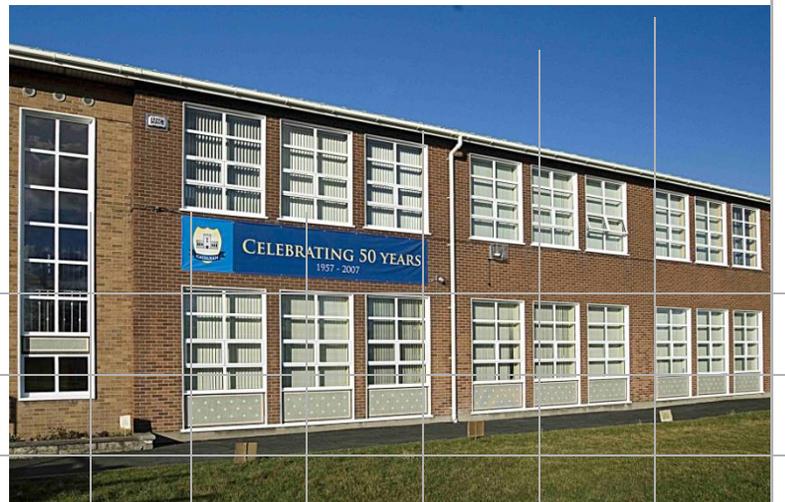


# AMS Architectural & Metal Systems

## Installation, cleaning and maintenance manual for windows and doors



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# **SECTION 1**

## **INSTALLATION**

### Delivery and storage:

Where windows and doors are to be stored on site prior to installation it is important to ensure they are stored correctly. The ground should be level and all items should be positioned securely. They should be protected from rain and snow fall. If the frames are wrapped with shrink wrap or similar then they should be protected from direct sunlight to avoid moisture build up between the frame and wrapping. All frames should be protected from dirt and dust and even concrete which can build up if stored for any length of time on site as a result of construction works.

### Installation:

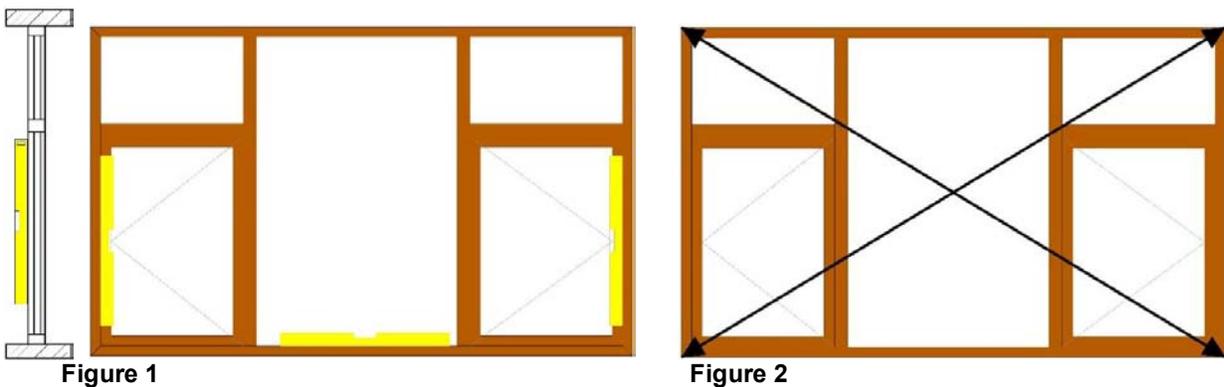
Before installation commences ensure that the dimensions and design of the window/door is correct and as per the order and original design. Ensure the reveal is ready and in a fit state for installation. Check that all dpc, epdm and insulations are place as per the architects details, any damage to the reveals should be rectified before frames are fitted. Ensure that the person fitting the product has been trained to do so and has the necessary equipment to do the job proficiently and in a safe manner.

For correct fixing, each frame member should be fixed to the substrate or to an adjacent window or doorset to resist all likely imposed loads that could cause the frame to deflect. These loads might be due to:

- ~ wind loads;
- ~ operating loads;
- ~ Gravity;
- ~ Accidental impact;
- ~ Attempted burglary.

Windows and doorsets should be installed plumb and square within the aperture, without twist, racking or distortion of any member and to operate correctly after installation. Where un-glazed frames are installed, the glazing pocket is to be covered and kept free from dirt, dust and plaster, if this area is not clean then the drainage of the system will be compromised. Just before glass is fitted all drainage slots should be checked and freed from any dirt, dust and plaster. Where un-glazed frames are fitted, these should not be used by other trades as access into and out of the building, this will cause damage to the system / paint work and could result in replacement of the frame, this also applies for doors.

Installation packers should be used adjacent to fixing positions to prevent outer frame distortion during installation. Installation packers should be resistant to compression, rot and corrosion, they should be of a suitable material so as to avoid cold bridging. They should span the full depth of the outer frame. The fixings should be tightened so that the frame is held securely against the packers. Over-tightening can lead to distortion and should be avoided. *Some lugs need to be packed off the substrate to prevent distortion.* Where enhanced security is required, additional packers might be necessary adjacent to hinge and locking points.



The frame should be set square in the frame and be plumbed, the diagonal dimensions should be checked and should be equal.

## Fixing distances

Wherever practicable the sides of the frame should be secured in accordance with the recommendations outlined below, figure 3. If it is impossible to follow these recommendations, then, on large contracts, alternative positions should be agreed with the purchaser, and on domestic installations, the closest possible fixing positions should be used.

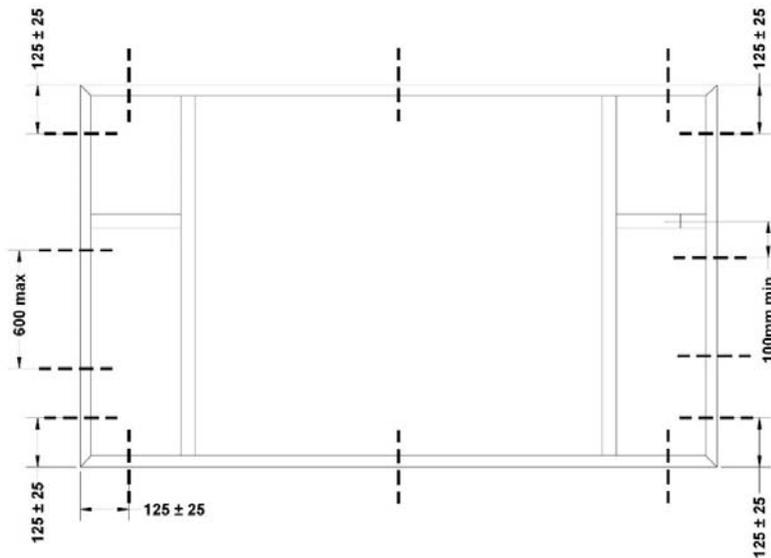


Figure 3:

Fixing distance for aluminium windows and doorsets as per BS 8213-4:2007

Wherever practicable all four sides of the frame should be secured as follows.

- Corner jamb fixings should be between 100 mm and 150 mm from the external corner.
- No fixings should be less than 100 mm from the centre line of a mullion or transom.
- Intermediate fixings should be at centres no greater than 600 mm.
- There should be a minimum of two fixings on each jamb.
- On windows and doorsets over 1 800 mm wide, central head and sub-sill fixings should be provided.

## Fixing lugs

Where lugs are used externally they should be secured to the wall using one-way or other suitable security screws.

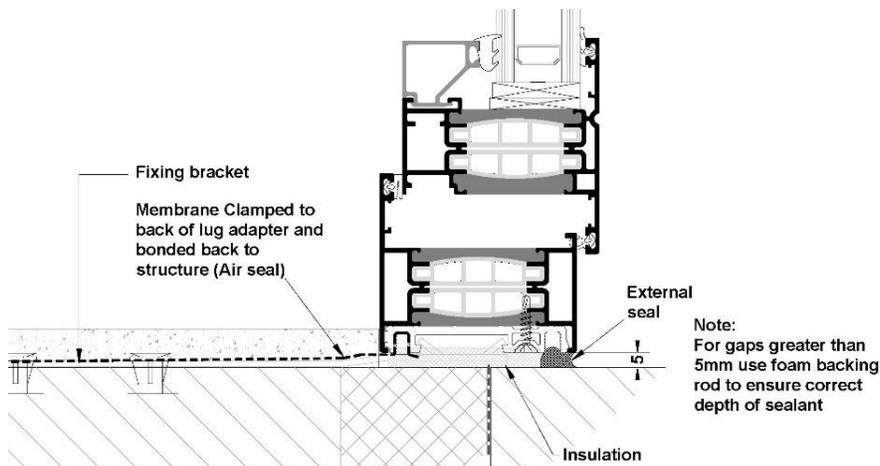
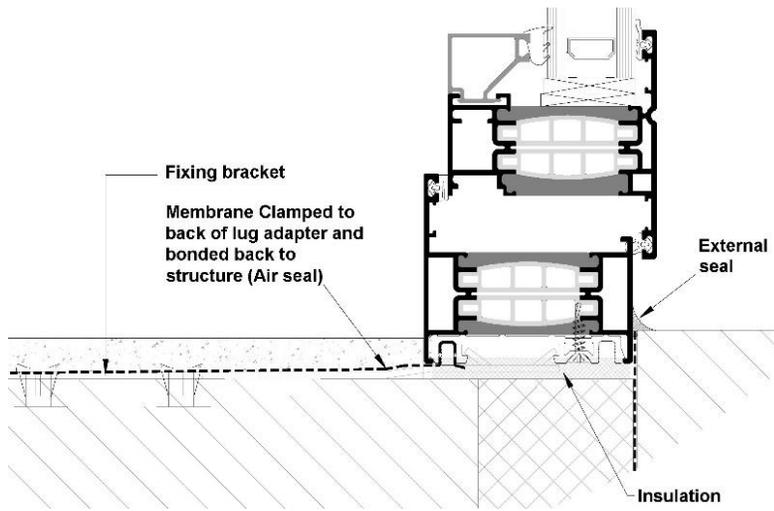


Figure 4

Detail of window into flush reveal:

Internal air seal membrane either bonded to the back of the frame or wedged into the air seal adapter. A continuous external silicone seal acts as the weather seal. This is to be compatible with reveal construction. A thermal barrier to be fitted between frame and structure.



**Figure 5**

**Detail of window into checked reveal:**

Internal air seal membrane either bonded to the back of the frame or wedged into the air seal adapter. A continuous external silicone seal acts as the weather seal. This is to be compatible with reveal construction. A thermal barrier to be fitted between frame and structure.

**Finishing off and making good**

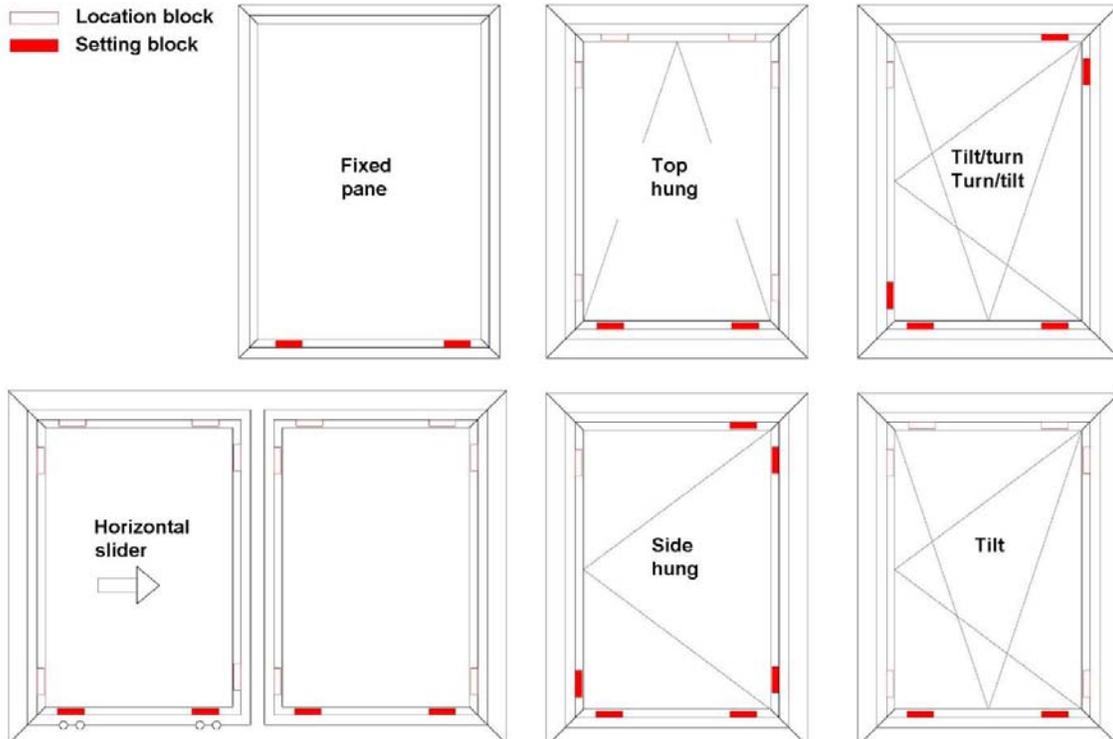
Debris or contaminants should be removed and any drainage paths should be cleared. Any materials such as trims or sealant should not be applied on top of loose material. Protective tapes should be removed as soon as practicable, as ageing of tapes can cause difficulties in removal. Detail of the air seal, weather seal and thermal barrier should be agreed before installation, the responsibility for all 3 processes should be clearly defined.

**Glazing**

All glazing should conform to the recommendations given in the relevant part of BS 6262 and in BS 8000-7. In addition, any glass or insulating glass unit manufacturer's instructions should be followed. All insulating glass units should be examined for damage prior to installation. Defective units should not be used. Insulating glass units incorporating safety glass should be oriented with the safety glass on the appropriate side. Insulating glass units with low emissivity coatings should be oriented in accordance with the manufacturer's instructions. Failure to do so can render the coating less effective.

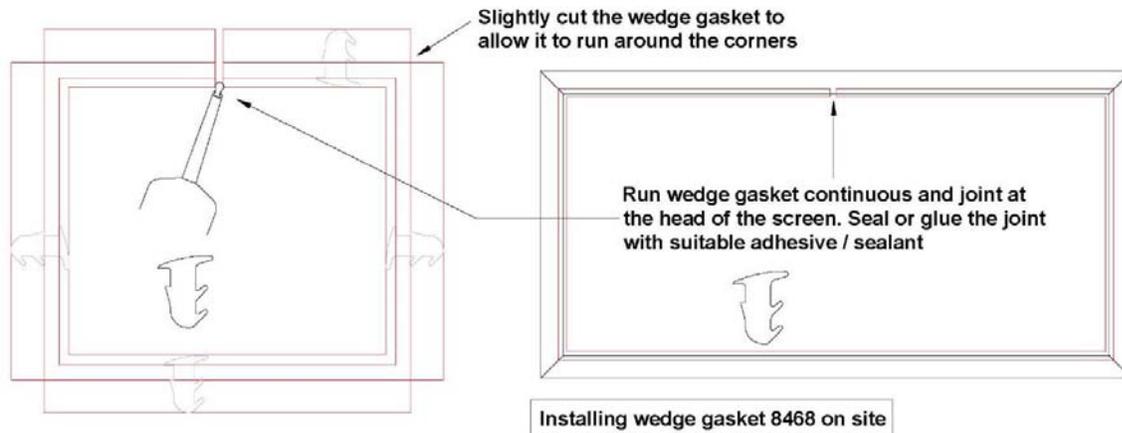
**Figure 6**

**Setting and location block position**



## Glazing methods

Many windows and doorsets are delivered ready glazed. Alternatively they can be supplied with glass units and pre formed glazing gaskets to be applied on site. Where un-glazed frames are installed and just before glass is fitted, all drainage slots should be checked and freed from any dirt, dust and plaster (As previously mentioned the glazing pocket should be covered until glass is being fitted). Insulating glass units, setting and location blocks (see Figure 4), frame to glass and bead to glass gaskets, bead to frame air seals, corner sealing blocks, beads and bead end caps, bedding and capping sealants should be installed in accordance with BS 8000-7 and AMS technical manual. The wedge gasket should run continuous with the joint occurring in the centre of the unit at the top, joint can be bonded with, low viscosity, epdm glue



## Sealing

Sealants should be low modulus with high elasticity to allow movement without comprising the seal performance. Perimeter joints should be sealed on the outside, and also on the inside for new build, with a sealant appropriate to:

- ~ The frame surface;
- ~ The substrate material;
- ~ Joint size and configuration;
- ~ Anticipated joint movement;
- ~ Anticipated exposure to weather.

In situations where sealants rely upon atmospheric moisture to initiate curing, deep filling should be avoided. The sealant should be applied against a firm backing so that it is forced against the sides of the joint during application. To avoid failure in service, the sealant should not adhere to the backing because this would restrict the lateral movement of the joint. *These recommendations can be achieved through the use of a closed-cell, oversize circular foam strip.* For steel and aluminium framed windows and doorsets, recommended best practice is to have an insulating fill inserted or injected wherever practicable around their full perimeter behind the external seal between frame and structural opening

## Final inspection

Before final inspection all tapes are to be removed and the window/door and glass is to be cleaned (it may be decided to not remove tapes if risk of damage due to site works still exist). The final inspection should be carried out, preferably accompanied by contractor/building owner, to ensure that the installation is fully in accordance with the surveyor's and manufacturer's instructions.

It is essential that they are made aware of the method(s) of operation, locking and unlocking and fire egress. This should be accompanied by written operating and maintenance instructions such as those published by trade federations. It is good practice to have the purchaser or purchaser's designated representative sign off the installation after the inspection has been passed.

## **SECTION 2**

# **GUIDE FOR CLEANING AND MAINTENANCE OF POWDER COATED ALUMINIUM**

## Scope

These recommendations cover procedures for cleaning and maintenance of painted aluminium extrusions and curtain wall panels. The procedures are intended for use with powder coated, architectural and aluminium extrusions such as window frames, door frames, trims as well as curtain wall panels, column covers, spandrels, mullions, louvers, vertical trims, etc. A cleaning and maintenance record must be kept and be available upon request, the frequency of cleaning is outlined further in this document.

## General

Cleaning of powder coated aluminium may be scheduled with other cleaning, for example, glass and painted aluminium components can be cleaned at the same time. Cleaning will be more often required in areas of low rainfall or in heavily industrialised areas. Foggy coastal regions with frequent cycles of condensation and drying may tend to give a build-up of atmospheric salts and dirt. In any climate, sheltered areas such as overhangs, may become soiled because of lack of rain washing. Thorough rinsing is especially important after cleaning of these sheltered areas.

If automatic wall cleaning equipment is to be used on a building, a test should be made early in equipment design to ensure that the cleaning solutions, brushes, as well as the frequency of cleaning should be taken into consideration to ensure that there is no detrimental effect on the coating.

## Cleaning Procedures and Care after Installation

Construction residue, including concrete or mortar, etc., should be removed as soon as possible. The exact procedure for cleaning will vary depending on the nature and degree of soiling. Method of cleaning, type of cleaner, etc., of one component of the building must be used with consideration for other components such as glass, sealants, painted surfaces, etc.

Protective tape applied to the surface of powder coated profiles must be removed as soon as possible after installation. This will depend on other trades completing work in associated areas of the building.

In all circumstances protective tape must not be left on the aluminium surface for more than six months. Tape residue must also be removed within this period of time to ensure easy removal.

## Frequency

The frequency of such cleaning will depend on many factors including:

- ~ The geographical location of the building
- ~ The environment surrounding the building, i.e., marine, swimming pool, industrial, or a combination of these environments etc.
- ~ Levels 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)

As a guide, the different environments should adhere to the following cleaning schedule, it is important that the cleaning and maintenance records are kept up to date to reflect this:

- ~ Normal environment: **Intervals of 12 months.**
- ~ Marine environment: **Intervals of 3 months.**
- ~ Industrial environment: **Intervals of 3 months.**
- ~ Swimming pool environment: **Intervals of 3 months.**

Classification of normal and marine environments can be determined as follows:

Normal: Area located greater than 5000m from the edge of the coastal shoreline

Marine: Area located less than 5000m from the edge of the coastal shoreline

Industrial: Area located less than 5000m from a source of solid, liquid or gaseous airborne pollution that may cause the degrading of the powder coating.

## Cleaning Solutions

The best method of cleaning is by regular washing of the coating using a solution of warm water and mild detergent. All surfaces should be cleaned using a soft cloth or sponge, using nothing harsher than natural bristle brushes. If the atmospheric pollution has resulted in heavy soiling of the coating, then nothing harsher than white spirit should be used for cleaning.

## General Cleaning Tips

- “ Over-cleaning or excessive rubbing can do more harm than good.
- “ Strong solvents or strong cleaner concentrations can cause damage to painted surfaces.
- “ Avoid abrasive cleaners. Do not use household cleaners that contain abrasives on painted surfaces.
- “ Abrasive materials such as steel wool, abrasive brushes, etc, can wear and harm finishes.
- “ When using recommended solutions avoid drips and splashes. Remove run downs as quickly as possible.
- “ Avoid temperature extremes. Heat accelerates chemical reactions and may evaporate water from solution. Extremely low temperature may give poor cleaning effects. Cleaning under adverse conditions may result in streaking or staining. Ideally, cleaning should be done in shade at moderate temperature.
- “ Do not substitute a heavy duty cleaner for a frequently used mild cleaner.
- “ Do not scour painted surfaces.
- “ Never use paints removers, aggressive alkaline, acid or abrasive cleaners. Do not use trisodium phosphate or highly alkaline or highly acid cleaners. Always do a test surface.
- “ Follow manufacturer's recommendations for mixing and diluting any recommended cleaners.
- “ Never mix recommended cleaners.
- “ To prevent marring, make sure cleaning sponges, cloth, etc., are grit-free.

## Inspection and precautions

It is suggested that the building owner provide a qualified inspector who will see that the desired effect is being obtained with the use of sound procedures. Inspection should commence early in the cleaning procedure.

Consideration must be given to building surroundings and possible effects of run down on shrubbery, personnel, equipment, etc., located below. These factors may require considerations toward methods of timing.

## Disclaimer

The information provided in this document is for guidance only and is not intended to replace any manufacturers recommended procedures. The guarantee on powder coating is also subject to the conditions as set out by the powder supplier. These conditions are available on request

**SECTION 3**

**REPAIRING DAMAGED  
POWDER COATED FINISHES**

## **Repair, fading, blemishes and light scratches, to powder coating.**

### *Repair faded powder coating*

Faded powder coating means, the surface of the coating has oxidised. This is usually only on the surface, (2-3 microns). By rubbing with cutting compound the surface will be removed and new paint exposed with its original colour. However, if the original coating was a matt finish it will now have been polished to a gloss.

### *Repair light scratches and blemishes to powder coating.*

Scratches may be deeper than 2-3 microns. Use cutting compound to remove the powder coating down to the level at the bottom of the scratch. A fine rubbing down paper may speed up the process (800 to 400 grit, no coarser), but the job will need to be finished with cutting compound to remove the fine scratches left by the rubbing down paper.

### **Repairs by aerosol. *Cleaning prior to painting.***

The original paint needs to be clean prior to touch up, or touching in repainting. Indoor components may have been polished with polishes containing Silicone. This will repel any further painting and must be removed from the local area. Clean the surface by washing with a detergent and a scotch-bright. Multi Cleanqis specifically designed for cleaning material prior to painting. Thoroughly rinse and dry. If solvents are needed to remove marks, a soft cloth dampened with Isopropyl Alcohol may be used. Solvents containing esters, ketones, or chlorinated solvents must not be used without consultation with the paint manufacturer, as these are too aggressive and will melt the paint. A small discrete area should be tested first.

### **Repair Powder.**

The surface contaminants may need to be removed by abrading with fine rubbing down paper 400 grit. If the component has been damaged, causing chipping or cutting to the paint, the loose flakes should be removed. Gently step where the paint has been chipped need to be feathered. Coarse rubbing down paper 80 grit will do this faster, but it will leave noticeable scratches. Finer paper will produce better results, 250 grit paper is a good compromise, (this will wear smooth quickly, so replace it frequently).

### *Primer preparation*

When the original paint edges have been rubbed down smooth and a step is not noticeable, remove the dust, apply a light coat of paint/primer, and allow it to dry. This will show how well the area has been prepared. Continue rubbing down and applying light coats, until the edges of the damaged paint have disappeared. Applied properly, at this stage all physical signs of repair can be lost.

### **Primer:**

#### *Do I need a primer?*

If the preparation has exposed the metalwork, for more than four square centimetres, then a primer should be used. A primer is good for filling defects, as it has a high concentration of solids, it will also dry more quickly than a topcoat.

#### *What type of primer?*

The primer needs to be a single pack paint (does not need a hardener), dries fast and is easy to rub down. Historically, we recommended using cellulose but its use is now restricted due to VOC emissions. This presents a problem, as most paints that do not fall foul of this legislation are not aggressive enough to melt into the powder. They will dry on it, making intercoat adhesion near non-existent.

#### *Easiest way to apply a primer.*

The simplest and quickest way to apply paint, including primer, is to use an aerosol. A tapered thickness without brush marks can be applied, this is a thin coating on the extremities of the repair area, building up to a thick coating where the protection is required.

### **Application technique for aerosol.**

Apply three very light coats and allow each to dry. When the surface has been covered with the new paint, heavier coats may be applied. Do not rush, as this will produce runs; allow two minutes between each coat. The aerosol should never be nearer than 150mm. Continue to move when spraying and keep the same distance from the work piece. Smooth strokes from side to side, covering the local area of damage. Start to move the aerosol before releasing the paint, and before the end of the stroke, stop releasing the paint. This should avoid ridges of paint at each end of the stroke.

#### *Patience*

On a warm day, if each coat has been allowed to dry before the next application, it should be possible to rub the paint down after about 30 minutes. If it starts to drag and ball the paint, leave it to dry further. It will now have to be rubbed right back to a smooth surface again, which may take another hour. More patience is required. (The thinner the coats of paint, the faster they will dry.)

**Types of paint.**

If a primer is not used then the paint must have an aggressive solvent that will melt its way into the powder coating. An indication of suitability is the speed it takes to dry. Household polyurethane, which takes 24 hours to harden, is not suitable. This will sit on the powder, instead of melting its way into it. The result is, it will peel off. It is always good practice to mechanically abrade a key by using rubbing down paper, or at least use a Scotch brite. A small discrete area should be tested first.

**SECTION 4**

**MAINTENANCE AND CLEANING INSTRUCTIONS:**

**HARDWARE & ACCESSORIES**

**Hardware, windows/doors:**

Recommended maintenance to window and door hardware is twice a year for normal environments and 3 times a year for hazardous/Marine/swimming pool environment.. For more detailed Information on individual component maintenance refer to the manufactures literature and recommendations. Maintenance all hardware:

- Check lubrication of all locks, hinges, closers, shoot bolts.
- Check the operation of locking mechanisms and free movement of any operating rods.
- Check locking strikes, keeps and handles are securely and correctly located.
- Adjust friction on stays, pivots and restrictors (where fitted) to ensure retention of vent.
- Where special safety devices are fitted these should also be checked to ensure that they are correctly retained and operating satisfactorily.
- Periodically wipe metalwork clean with a soft cloth.
- Lubricate cams, cam slots, handles and hinges with light machine oil.
- All hinges with sliding shoes, which travel along a track, must be kept clear of debris at all times. We recommend that using damp cloth and a mild solution of warm soapy water cleans the friction stay hinges. Apply with a soft cloth and dry thoroughly afterwards.
- Care must be taken not to damage the surface of the hardware used. Abrasive cleaning agents must be avoided. For optimum performance, please lubricate all pivot points with a light machine oil.
- Check the keeps, cams and hinges are free from build-up of debris and clean if necessary.
- If the window/door is in an area of high moisture, or a salt laden atmosphere, such as by the sea, then a periodic wipe with a cloth moistened with light machine oil will help prevent sticking. This will also enhance the corrosion resistance of the finish.
- Do not use window cleaner, or any cleaner containing detergent or vinegar, as this could corrode the metal components of the locks.

**Only** clean your windows/doors with a mild, neutral pH, diluted detergent. Never use aggressive, acid based detergents or scouring powder because they can damage the protective surface of your hardware. To maintain the surface quality we recommend the following preventative measures:

- After cleaning the hardware surface treat with a silicon and corrosion free (ie non-acidic) oil, eg: sewing machine oil.
- Lubricate or oil all moving parts and locking points.
- Use **only** clean and non-resinous grease or oil.

**Warning - Malfunctions carry a risk of injury!**

Do not continue to operate the window/door, but make it safe and have it repaired immediately; the following jobs should only be carried out by a specialist window company:

- Replacement of fittings
- Removal and replacement of sashes
- Adjustments of fittings - especially of hinges and stays

**EPDM seals:** Recommended maintenance every 6 Months for normal environments and every 3 months for Hazardous/marine/swimming pool environments.

- Check weather-strips for damage, shrinkage or distortion and replace as necessary. clean using spray silicone or Vaseline oil (in the latter case dry with a soft cloth) Do not use metal scrapers, knives, wool steel or scouring powder on windows and shutters in particular on the seals and the glass parts to avoid damage or permanent scratches. Use wood or plastic spatulas.

**Sealants:** Recommended maintenance every 12 Months.

- Check glazing gaskets and sealants applied to all joints around fixing screw heads and that adaptor interfaces are intact and undamaged. Where gasket or sealant has been damaged or failed, it should be replaced.

**Drainage:** Recommended maintenance every 12 Months.

- Check that no obstructions are present at drainage slots and holes.

AMS advise that the above details are the minimum recommended procedures that are necessary to maximise the products life. Where an issue arises with any installed product, AMS recommend that the original approved specialist fabrication and Installation Company is contacted for specialist advice.

## **SECTION 5**

### **Guarantees**

Below are the guarantees AMS offer on the hardware that make up our window and door systems. Guarantees are based on normal intended use and on information as supplied by the product supplier. These guarantees are dependent on regular, recorded maintenance and as per the guidelines in this document. The hardware suppliers, listed below, offer further detailed maintenance instructions and conditions of guarantees which is available on request. For further information on guarantees and detailed maintenance please contact the AMS technical department.

**Paint finishes – 25 years guarantee**

Refer to the specific paint guarantee for terms and conditions. AMS are applicators of the following paint system.

- Inver
- Axalta
- Valspar

**Decoral Paint finish –10 years.**

Refer to Decoral documentation for terms and conditions of guarantee.

**Espag handles – 10 year mechanical guarantee.**

Titon espag Handle  
Prolinea Espag handle

**Espag locks –10 year mechanical guarantee.**

Nico Supercoat/espag lock

**Friction hinges – 10 year guarantee.**

Cotswold HD friction stays  
Cotswold HD restrictors.

**Door hinge – 10 year mechanical guarantee.**

Fab and fix anchorage series hinge

**Door handle – 10 year mechanical guarantee.**

Fab and fix lever/lever handle  
MILA pro secure, SBD, handle

**Door locks – 25 year operational guarantee.**

GU multi point locks

**Tilt and turn Gear: – 10 year mechanical guarantee.**

Siegenia . Aubi.

**Patio door Lock: – 5 year guarantee.**

MILA . Fearless in line patio lock

**Patio door handle: – 10 year mechanical guarantee.**

Pro-Linea inline patio door handle

**Patio door rollers: – 10 year guarantee**

Independent engineering patio rollers.

**Folding sliding door gear: – 10 year mechanical guarantee.**

Siegenia . Aubi.

**Lift and slide door gear: – 10 year mechanical guarantee.**

Siegenia . Aubi.

**Gaskets –10 year guarantee**

Producta epdm seals.

**Test reports:**

AMS test reports cover the following system hardware and accessories. Any hardware installed that is not on this list below is not covered by the test reports and the reports should not be used for such projects. Any fabricators/installer fitting other hardware than below must have the system tested before fitting any products to the building.

**CE marking:**

All AMS products are in accordance with building regulations and fully CE marked. All declaration of performances are available upon request. It is the responsibility of the company installing the window/door into the building to provide the CE mark to the client/building owner. For windows and door the product standard, BS EN 143651-1:2006 +A1:2010 gives guidance on supplying CE marking.

The Declaration of performances as supplied by AMS are based on product testing with specific hardware options. Any deviation away for the items listed in the test reports results in the D.O.P. being invalid and cannot be used for CE marking purposes.