



# Avery Dennison® Facade Film

## Installer Handbook



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This handbook is an easy reference guide for installers of Avery Dennison Facade Film who have participated in “Painting with Film” workshops, and may be preparing for Specialist Facade Installer certification. It covers the important topics to consider when preparing and applying film to facades and window frames.

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# Area of Application

## Inventory of building

A budget, setting out the required investment in time and materials can be made after the building has been inventoried for:

- > General state of repair (damage, leakage, etc.)
- > Surface material (type of glazing, aluminium, plastic, wood, etc.)
- > Finishing (paintwork, etc.)
- > Surface condition
  - » Is paintwork in a good condition, blistered or chalked?
  - » Is there any corrosion?
  - » Is the glass damaged?

Degree of surface contamination, silicon remnants

- > General accessibility, availability of storage facilities, power outlets, etc.

Determine which pre-treatments are required to ensure smooth application of the film to the facade. Surface irregularities remain visible under the film.

- > Repair
- > Remove old stickers
- > Smoothen the surface

Record any damage found in advance in a report, so that you cannot be held liable after completion of your work. Light and dark film affects the amount of heat absorbed by the surface. Surfaces can expand when temperatures rise and shrink when temperatures drop. Check in advance whether these dimensional changes could lead to structural problems. (See also page 8: Glass: Avoid thermal breakage)



## Surface and choice of film

Facade Film is specifically designed to meet the demands of exterior application onto building facades, claddings, panels and window frames. Recommended substrates include (anodised or powdercoated) aluminium, steel, HPL, PVC/ plastic - ie substrates where it is more difficult or impossible to paint. Facade Film is constructed out of a single layer, up to 10 year durable and available in gloss, satin and luster finish.

Rough surfaces, active surfaces (like wood), poorly adhering paint or a complex shaped surface (where stretching of the film is required) are not suitable for application of Avery Dennison Facade Film.

Prior to an actual application apply a small piece of film to determine the compatibility of the film with the substrate as it is at that point. It will indicate what preparations are needed to achieve the required bond to the substrate, but it will also be an example of what the building owner or project manager can expect as result.

## Work area and accessibility

Whether indoors or outdoors, the work area must be freely accessible and offer sufficient space for installers with tools, films and elevation equipment, if applicable.

In case of an outdoor situation, this may require:

- > Clearing a path for the required elevation equipment (move parked cars, bicycles).
- > Closing off the work area to the public.
- > Making the foundation suitable for the placement of elevation equipment.
- > Applying for the necessary exemptions/permits.

In case of an indoor situation, this may require:

- > The removal of window dressing.
- > Clearing the work area (moving desks, cupboards, etc.)

## Weather conditions

Wind, precipitation and temperature (fluctuations) influence the progress and speed of processes during outdoor application.

### Wind and precipitation:

Take the wind direction and movement of the sun into account in your work sequence (and the facade sections to be wrapped). Seek out calm conditions and the most ideal temperature.

When wind and rain seriously complicate the work, create a shelter in the form of a canvas cover and/or a windscreen.

### Temperature (fluctuations):

If you work on the same graphic at different times, large temperature fluctuations (bright sunlight/shade) may occur, thereby making image alignment more difficult. Extreme example: a length of non-laminated window film applied in bright sunlight, during the middle of the day, will be centimetres longer than the adjoining length applied in the shade early in the morning. If positioning alignment becomes a problem, corrections may be possible by cutting and shortening the film at the point of transfer to a panel or frame. When working from masking tape hinges, always place the hinges at the same height so that any stretch will occur in the same sections. Try as best as possible to avoid stretching of the film by heat. Due to its memory, the film will shrink into its original format, causing the edges to curl. Facade Film can also be slightly more difficult to apply as the film becomes soft and adhesive grabby. Wet application method can be considered.

### At higher temperatures:

- > The initial bonding increases.
- > The film becomes less rigid, making application more difficult.
- > Large sections of film will expand more during application. (through the weight of the film and friction resistance during squeegeeing)

### At lower temperatures:

- > The initial bonding decreases.
- > The film becomes more rigid, making application easier. Use of AT is generally not required.





# Preparation

## Elevation equipment

When working at height, seek advice from a specialist to determine the most suitable type of elevation equipment.

### Options:

- > Fixed scaffolding or mobile scaffolding in various sizes
- > Various types of aerial platforms (telescopic, scissor lifts)
- > Window-washing system (cradle with cables), either present or to be fitted

### When choosing the elevation equipment, take the following factors into account:

- > Accessibility in/around the building
- > Load-bearing capacity of the foundation
- > Maximum working height
- > Weather conditions when working outdoors
- > Cover against weather conditions
- > Number of engaged installers
- > Duration of project
- > Costs in case of stoppage (e.g., due to weather)

Confirm that the equipment or system controls function properly, the batteries are charged and/or the diesel tank is filled and a power outlet is available if necessary.

## Safety and permits

Do not endanger yourself or your environment, but take preventive measures, such as the bracing of scaffolding, securing yourself to the elevation equipment and demarcating the work area by means of cones and tape.

Prevent tools, film or backing paper falling from the elevation equipment, thereby causing injury to those below. Remove the released backing paper and cutting waste during the work process in such a way that you and your colleagues are not hindered.

Determine whether diplomas or certificates are required to operate specific equipment. Have the equipment operated by a specialist, if necessary. Make sure you have the necessary permits and certificates required to use the equipment at the work site (diplomas, certificates and permits differ per country).

## Preparing the surface

Whether it concerns existing, new or renovated buildings, all surfaces are affected by contamination. This contamination (e.g., dust, silicon, grease) influences the bonding of the film. New build window panes and panels are often highly contaminated due to work carried out by third parties (paint stains glue remains, welding spots). Dust traps and spider webs occur along frames and light fittings in existing buildings. Facades from the 1970's, 80's or 90's with chalked aluminium or synthetic frames have often been 'upgraded' by having the frames treated with a spray- or roll-on gloss agent, which most likely affects the bonding of the film. Visual indications for the presence of existing coating layers for example are high gloss finish on an obviously older building, blistering and cracking, roller/brush marks and paint drips.

The most effective method to determine if Facade Film can be applied directly onto coated/chalked substrate is by means of using a test strip of film. Apply the film onto the substrate and remove it after a couple of minutes. If the adhesive side of the removed film is "clean of residue" the substrate is suitable for application.

If a substrate is painted and the bond of paint to substrate needs to be assessed this can be done by means of the cross-hatch (or cross-cut) test:

- > An oblique cross is cut into the paint
- > Apply tape onto the cut section
- > Pull away the tape in swift motion

The amount of tape removed determines the bond of the paint to the substrate and therewith its suitability for using Facade Film directly or requirement for pre-treatment. The cross-hatch method is a standard test method. You can find relevant information on this topic online.

All the surfaces must be prepared thoroughly before application.

How do you proceed?

Keep in mind: your specialism is the application of film. Not the cleaning of buildings. So delegate the cleaning work to an experienced specialised firm with appropriate equipment if needed.



- > **Step 1:** Remove any loose dirt and spider webs with dustpan and brush.
- > **Step 2:** Organic contamination can be sprayed with a water/soda (or vinegar) solution. To be left to soak for 24 hours
- > **Step 3:** Wash the surface and fittings using a water and soap. Make sure the surface is free of moisture if you intend to proceed with dry application of film to glass and frames immediately after cleaning.
- > **Step 4:** Remove paint stains, glue remains, welding spots by means of a wet glass knife. Be careful to avoid scratching the glass. Perform this action wet!
- > **Step 5:** If the film stretches to the floor, avoid rising dust (due to static film) by sweeping the floor and slightly wetting it by spraying.
- > **Step 6:** Degrease the surface (giving special attention to the edges) with Avery Dennison Surface Cleaner and generous use of moisture absorbing tissues or cloth. Check for silicon residue.

Check after cleaning and preparation whether the necessary bonding can be achieved. There are a few helpful tricks to test if the surface is "clean" and ready to be applied to:

- > Feel: Fingernail test
- > Listen: Using masking tape
- > See: Dyne pens for measuring surface tension substrate (High = good bond, low = poor)

Silicone contamination often occurs on surfaces which have previously been (carelessly) restored or renewed. It can also appear as a result of "sweating out" of silicone particles from newly installed window rubbers/sealants. Silicone contamination should be removed with aid of a (wet) glass knife/scrapper, an abrasive liquid and finally cleaned with Avery Surface Cleaner (Green)

Occasionally, surface preparation not only means cleaning the substrate, but sometimes involves repairing it; Use of filler, primer and smoothing out the surface might be needed. Damaged surfaces can be repaired using two-component filler. Repaired substrates need to be sanded with fine grain sanding paper (320/360) to obtain the smoothest result when applied with Facade Film later on.

In case of filiform corrosion it is crucial to treat it thoroughly to ensure that corrosion will not resurface in due time. Steps to treat filiform corrosion:

- > Remove corrosion (sanding/scraping)
- > Deep clean with Avery Surface Cleaner (Green)
- > Fill with polyester filler
- > Seal with epoxyprimer

Be extra careful with sanding down aluminium. To avoid oxidation do not sand down to bare aluminium. If this happens you have to treat the surface with a two-component epoxy primer to prevent the metal substrate from oxidizing.

Final step in repairing the substrate always is a thorough clean with Surface Cleaner

## Material of choice

### Vertical lengths, horizontal lengths or blocks

The film can be supplied in vertical or horizontal lengths, of different sizes, or as blocks. It is advised to attune the production/delivery to the type of elevation equipment used (if any).

#### Window-washing system:

When working from the cradle of a window-washing system, the use of vertical lengths is recommended. After all, the system is primarily designed for vertical movement. Movement lengthways is only possible when the cradle has returned to the roof edge. When working as a team, use the maximum breadth that can be processed without difficulty.

#### Aerial platform:

If you are working from an aerial platform, you can opt for either vertical or horizontal lengths. It is very efficient to use blocks with the same breadth as the cradle of the aerial platform. Applying film in vertical lengths has a number of advantages over horizontal lengths: it is easier to hold the roll of film, use of the squeegee is less tiring and the released backing paper falls into the cradle of the aerial platform.

#### Scaffolding:

When working from scaffolding, the use of horizontal lengths and blocks is most logical. While vertical lengths can also be applied, this is more difficult in practice as it requires moving down to the next scaffold board.



### Supply of materials

The larger the cladding or substrate surface, the greater the volume of materials required. Large sections of material cannot be unwrapped for assessment, inspection or arrangement outdoors at the work site.

Supplied materials therefore require:

- > A good thorough check in advance on completeness and quality.
- > Coding (number and particulars top/bottom).
- > Application/work instructions.
- > Solid packaging (in correct (reverse) work sequence) e.g., cardboard tube. The loose components are not stacked, but rolled in separately (from outside to inside), so that the installer can extract the film from the packaging as required.

### Positioning large parts

Before commencement of application work, check that the dimensions of the facade are identical to the dimensions stated on the work drawing and the pre-sized supplied film sections.

If applicable, start applying the sections of film based on the numbering on the packaging. This often means that you have to count windows or panels, using the work drawing, in order to determine the correct starting point/panel.

If working directly from a roll of Facade Film, then the unwind direction of the roll should be leading and the chosen application direction maintained. This is an absolute must for metallic films and recommended for all solid coloured ones.

It is possible to start application from several points at the same time. This also involves a risk, however, if the film size deviates through height differences in frames/ claddings one should take care that all parts are applied in the same direction. The direction of the imprint on the liner will be of support to guarantee the correct choice.

### Dry or wet application

**When choosing between dry or wet application, take the following into account:**

- > **Type of film.** (Is the film suitable for dry or wet?) Facade Film IS suitable for wet application.
- > **Efficiency.** When finishing, take into account that delays may arise due to residual moisture. Residual moisture can hinder the finishing of corners and along edges, the wrapping of frames, the application of sealer and/or laminate strips along edges.
- > **Visible adhesive layer.** If the adhesive layer on the rear of windows is visible, a more attractive effect is obtained through wet application of the film. The thin layer of water between the film and glass result in a uniform adhesive bond to the glass. (There are no squeegee patterns as you may see in case of dry application).

#### Dry application:

Vertical and horizontal lengths can conveniently be applied 'from the roll'.

#### Working method:

- > Position the length of film.
- > Fix the film on both sides at approx. 15 cm from the short side, using a firm hinge made of masking tape. (Use broad masking tape or so-called blue tape)
- > Remove the backing paper from the section of film at a height of approx. 15 cm and squeegee the film.
- > Subsequently roll up the loose hanging long section of film from the opposite end up to the squeegeed section.
- > Pull part of the backing paper loose from under the role and squeegee the film with a zigzag motion. Hold the squeegee in one hand and the roll of film in the other.
- > If the roll becomes too heavy for one hand (which is often the case when squeegeeing a horizontal length), have one of your colleagues hold the roll while you use the squeegee.
- > Finally, re-apply the squeegee to the edges for good measure.

#### Wet application

##### Working method:

- > Determine the position where you want to start applying the film.
- > Spray the surface wet with water (mixed with a minimum amount of soap. 5 cl Ph neutral soap for 10 l water).
- > (Partly) remove the backing paper from the section of film.
- > Attach this section to the wet surface and slide the film into the correct position.
- > Squeegee the water from under the attached section to enable bonding and prevent the film from sliding.
- > Remove the rest of the backing paper and squeegee the rest of the water from under the film. (Make sure that the backing paper does not get wet, as it will then be more difficult to remove)
- > Finally, re-apply the squeegee to the edges for good measure.

**Tip:** You can make efficient use of water with the aid of a pump spray with nozzle.





# Application

## Cutting

When cutting film on the various surfaces (glass, aluminium, plastics, etc.) be just as careful as you would be when cutting film on the bodywork of a vehicle.

### Why?

Cutting through the film can cause irreparable scratches to the top layer of the surface.

- > A cut in the top layer of anodised aluminium, for example, will in time lead to corrosion.
- > Windows and panels are generally held in a housing finished off with sealant or rubber. Cutting into these finished edges creates the risk of leakage.

Cut the film along a ruler or squeegee (work drawing) next to the rubber or sealant. Not on it!

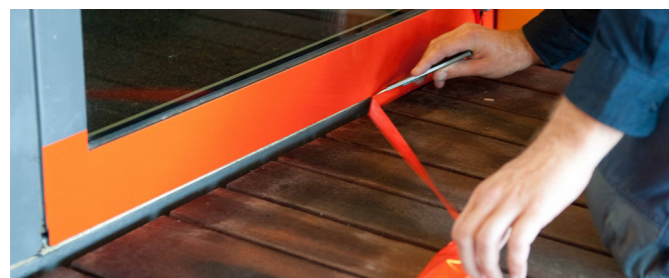
Preferably cut the film using 30° stainless steel break-off blades at the smallest possible angle in relation to the surface.

**Tip:** *Stainless steel break-off blades are less likely to damage the surface than regular steel break-off blades. Take note: Replacing windows, panels and frames is a very expensive exercise.*

## Finishing of film edges and corners

Film along the edges and corners should be applied without any stress. The dry method gives usually better results, since its immediate bond to the substrate. If the bonding is not optimal at these locations it is recommended to use a heat gun to heat up the film in order to improve the adherence level. Nevertheless, it is an absolute must to re-squeegee all edges and corners after the application.

To prevent the film from lifting or curling a protective layer of edge sealer or a strip of film can be applied along the edges and on the corners.



## Overlaps in adjoining film sections

### Overlaps:

Limit the visibility of overlaps as much as possible. Organise your work sequence in such a manner that you do not look directly at the bare edges of a film section.

Gloss finished film surfaces make the overlap more visible compared to lustre or matte. Small overlaps attract more attention than broad overlaps.

### Cutting off overlap:

You can prevent overlap by cutting it off.

Cut away the two applied films along the overlap. Then pull away the cutaway strip of film and squeegee the two film sections until they are flush with the surface.

Be careful not to damage the surface when cutting the overlap. The seam might in time become slightly broader. The colour of the underlying surface determines whether that is acceptable or not.

## Glass: avoiding thermal breakage

Thermal breakage can occur through temperature differences between the inner and outer pane in a thermopane sandwich.

The result is material stress in the structure, causing the pane to crack.

These temperature differences can arise if the panes are wrapped, whether fully or partially, on the inside or outside with a film that absorbs or reflects heat.

The largest risk of thermal breakage occurs after (partial) covering on the inside of the pane. Wrapping on the outside is thus recommended.

Thermal breakage can also occur in case of a local temperature deviation in the inner or outer pane of a thermopane structure.

This occurs when part of a pane is covered on the inside or outside with a film that absorbs or reflects heat. High-risk local cooling arises if the shadow of an object/building prevents the sun from shining on part of the window. High-risk local heating arises if use is made of an external heat source (such as a paint stripper or steam wallpaper remover) to heat the film.

A combination of the aforementioned factors is of course also possible.

Generally speaking:

The darker the applied film (part), the more solar heat is absorbed. The lighter the applied film (part), the more solar heat is reflected.

**Tip:** *Have a stress or force calculation made in advance by a specialist in order to determine whether the chosen film can be applied to the windows without risk. The calculation takes into account the: type of glazing (single, thermopane, high-efficiency glazing, sun orientation, objects that could cast a shadow)*

**Tip:** *Never heat panes locally in order to remove film. Heat panes as uniformly as possible. If possible, make use of the sun by removing the film on a warm summer day.*

**Tip:** *Exclusively apply films to windows that can be removed using solar heat.*

**Tip:** *When applying film outdoors under cool weather conditions, it may be necessary to heat the edges of the film to increase the initial bonding. Take utmost care when doing so. Heat the film as lightly as possible and prevent heat transfer to the pane.*



## Frames

When covering frames, observe a number of basic principles:

- > The total frame consists of several components: top, bottom, left side, right side.
- > These four sides subsequently comprised multiple flat profile sections.
- > Wrap the profile sections in sequence from bottom to top and from inside to outside. That ensures that your overlaps are laid in a roof tile pattern.
- > External corners of connecting profile sections can be wrapped as a single section
- > Make a cut in internal corners of connecting profile sections.
- > To prevent shrinkage seams in internal corners, wrap the film approx. 1 cm past the corner.

Film that becomes slightly deformed during application should be reheated to 80-90°C. Prevent thermal breakage occurring at the adjoining panes.

When applying film on window frames, be prepared to have cut away old, worn, dried out sealant or window rubbers. After application you can choose to either re-apply new window rubbers (be aware of silicone contamination) or a corrosion repellent urethane base sealer (non-acidic).

## Maintenance

### Maintenance of Facade Film

In addition to keeping the building looking good, regular cleaning is important because it can help prolong the life of the “building wrap”. The frequency of cleaning depends on several external conditions such as location, local or regional pollution, natural elements (birds, trees etc). We recommend to discuss the preferred frequency of cleaning upfront.

#### Preferred method

The best way to clean Facade Film is to do it the old fashioned way, by hand.

- > Pre rinse: Using a hose, rinse with clean water. This helps remove the loose dirt particles and helps avoid scratching the film.
- > Wash: Use a mild detergent. Detergent should be free from abrasive components, strong solvents and alcohols. Detergent should have a pH balance between 3 and 11. Wash with a soft cloth or a synthetic or natural sponge, starting from the top and working down.
- > Note: avoid abrading the surface with unnecessary scrubbing.
- > Rinse: Rinse thoroughly with clean water.
- > Dry: Let the film dry naturally or dab it dry with microfiber towel.

#### Pressure washer

- > Using a pressure washer is an option but needs to be used with caution.
- > Keep pressure below 1200 psi and at least 300 mm from surface.
- > Keep temperature below 80 degrees C.
- > Spray perpendicular (at 90 degrees) to the surface to avoid lifting and use nozzle with a 40 degree wide spray angle..

#### Recommended cleaning fluid

Use a mild cleaning detergent and water mix that does not contain any strong soluble substances, alcohol or abrasive components. The detergent should be free from abrasive components, have a pH balance between 3 and 11, and be free from strong solvents or alcohols. Test all cleaning-aids before using. Soften contaminants, such as bird droppings, tree sap, and similar contaminants by soaking for several minutes with hot, soapy water. Then rinse thoroughly. If a harsher chemical is needed, be sure to test first in an inconspicuous area. Avoid using abrasive tools that may scratch the graphics.



## Preparation installer exam

### How to prepare for the Specialist Facade Installer exam

This paragraph contains important information about the Avery Dennison Specialist Facade Installer exam that you will hopefully be taking shortly. The exam consists of 3 practical exercises supplemented with a number of theory questions.

The practical exercises as well as the theory questions are based on the course material presented to you in the “Painting with Film” workshops. Before taking the SFI exam, you are advised to recapitulate the content of the Painting with Film workshops you have attended before.

Depending on the results booked for the separate items, you can pass the Specialist Facade Installer (SFI) exam. If you have passed the exam, you are Avery Dennison certified to apply Facade Film and will be also eligible for related Avery Dennison ICS Warranty. If in case you do not manage to pass, the exam can be retaken at a later stage.

#### Requirements to become an Avery Dennison Specialist Facade Installer

The qualifying exams containing the tests below:

- > Theory exam, multiple choice
- > Cutting control test
  - » Control cut depth test
  - » Alongside squeegee at wet application on a panel
  - » Alongside a rubber trim at dry application
  - » Cutting and finishing at an outward angle frame
  - » Cutting and finishing at inside corner
- > Flat Surface Application test
  - » Apply a sheet of Facade Film using wet application method
  - » Apply a sheet of Facade Film using dry application method
- > Application on window frame
  - » Prepare, apply and finish Facade Film using the right techniques, the right procedure and in such a way as explained during the workshops.

#### Important rules and regulations to pass

All tests have to be witnessed and judged by Avery Dennison chosen officials.

During the tests the officials will judge you on your workmanship:

- > Overall approach and thoroughness (e.g. cleaning and tools)

- > Mastering techniques of cutting and squeegeeing
- > Correct application procedure and sequence
- > Finishing
- > Esthetical result

You will pass the exam, if you have scored sufficient points on the theory test and if, during the practical exam, you have proven to master all the techniques which enable you to deliver a high standard application, qualifying for an Avery Dennison warranty.

#### Agenda and timeframe

The SFI exam will take place in the second half of the day of the “Painting with Film 2” workshop. The theoretical exam will take approximately 1 hour, the practical exercises approximately take up about 3 hours.



**We wish you good luck.**  
**The Avery Dennison Graphics Team.**

# Information

For more information about facade film please visit [graphics.averydennison.eu/facade](https://graphics.averydennison.eu/facade)

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Solutions

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