

LG Hausys interior film

Installation Manual

Physical and chemical properties

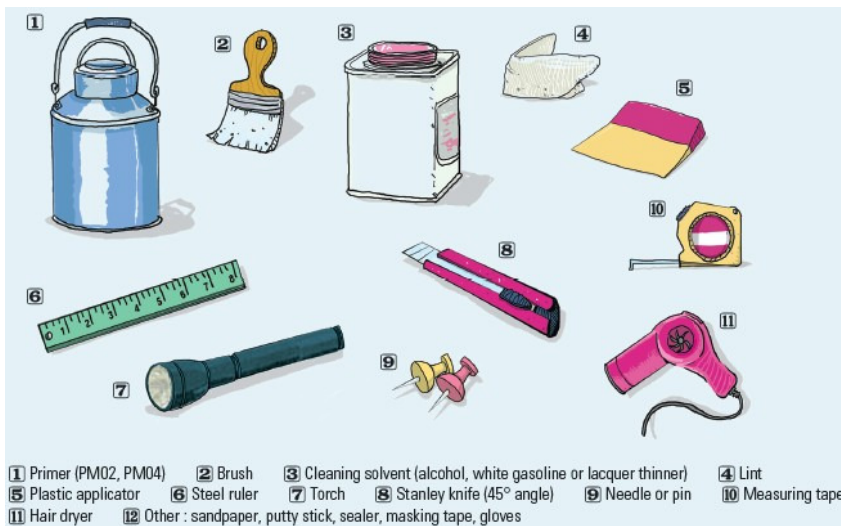
Property		Test Result	Test Meathod
Dimensional Stability		Within 0.8mm (Length / Width)	Measuring a 100×100mm piece of film on a 150×150mm aluminum plate after 24 hours at 80℃
Temperature for adhesion		10℃ ~ 30℃	Measuring ideal temperature range for best adhesion
Weather ability		No effect	Measuring colour change and fading after 200 hours on weather-O-meter with XENON ARC lamp
Abrasion		No change	Measuring surface wearability by TABER abrasion tester. (abrasion wheel : CS-17, load : 1kg, cycle : 1,000)
Heat resistance		No change	Measuring film adhesion to aluminium plae after 30days at 60℃
Moisture resistance		No change	Testing film adhesion to aluminium plate after 30days at 40℃ and 90% relative humidity.
Low temperature resistance		No change	Testing film adhesion to aluminium plate after 15days at -30℃
Resistance to stains		No change	Measuring stains caused by the following liquid solutions 24 hours later, after wiping out with wet cloth : salt solution (1%), ethanol (50%) olefin oil, orange juice, caustic soda (10%), soap solution, coffee, coke. milk, vinegar.
Resistance to chemical	Solution	Result	Measuring the level of damage after soaking film (on aluminum plate) in different chemical solutions for 48hours
	Heptane	No change	
	Ethyl Alcohol	No change	
	Water	No change	
	Salt solution(5%)	No change	
	MEK	Damaged	
	Xylene	Damaged	

LG Hausys interior film

Flammability	Self extinguished	Measuring the flammability of film (on aluminum plate) All LG Hausys interior films have the function of fire retardant °C
Adhesion strength	Substrate	Measuring the adhesion strength of 25mm wide film applied on each substrate after 1 days under ambient temperature (tensile speed : 300mm/min, 180° peel)
	Lauan veneer	2.5↑
	Timber veneer	3.0↑
	Gypsum board	0.5↑
	Asbestos slate board	2.0↑
	Melamine-baked steel sheet	3.0↑
	Aluminium sheet	2.5↑
	Stainless steel sheet	2.5↑
	Acrylic board	2.5↑
	MDF	2.0↑

Preparation

Tools and Materials



Cleaning and preparing substrate

Before installing the LG Hausys Interior Film, it is important to prepare the substrate surface and follow the

LG Hausys interior film

specific instructions for each type of substrate, to ensure a high-quality, long lasting installation.

Substrate	Preparation method
General instructions	<p>A. For better adhesion and finish, scuff uneven surface with sandpaper or apply putty to make it flat.</p> <p>B. It is recommended to use a good adhesion, hard-type putty.</p> <p>C. In case you have to cover the whole surface with putty, sand it 2 to 3 times after dry to make it flat.</p> <p>D. In case you are only touching up patches, try to use putty of same colour of the substrate.</p>
Wood products	<p>A. Scuff the surface with sandpaper.</p> <p>B. Apply putty on uneven area and smooth with sandpaper. Clean surface with solvent.</p> <p>C. Coat with the designated primer 2 or 3 times allowing to dry after each coat. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).</p>
Untreated steel, electro-galvanized steel	<p>A. Remove rust and stain with sandpaper first and clean the surface with solvent.</p> <p>B. Apply putty on uneven area and smooth with sand paper. Wipe out with solvent.</p> <p>C. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).</p>
Aluminum, stainless steel, painted steel	<p>A. Abrade uneven and welded areas with sandpaper.</p> <p>B. Remove stain with solvent, apply putty on uneven and welded areas and smooth with sandpaper.</p> <p>C. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).</p>
PVC laminated steel	<p>A. Check that the surface is in good condition to avoid low adhesion and bubbling.</p> <p>B. Remove stain with solvent and apply primer.</p> <p>C. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).</p>
Painted substrate	<p>A. Test paint type and condition for adhesion by pre-applying a small piece of film on the surface.</p> <p>B. Remove stain with solvent and make sure that the surface is not damaged.</p> <p>C. Apply putty on uneven areas and smooth with sandpaper.</p> <p>D. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).</p>

LG Hausys interior film

Substrate	Preparation method
Melamine laminates, Polyester coated laminates	A. Abrade the surface with sandpaper and remove stain with solvent. B. Adhere film after complete primer dry for over 30minutes(PM02-Solvent type). Adhere film after complete primer dry for over 2hours(PM04-Water type).
Plastic	A. Avoid substrates that contain any additives. Substrates such as flexible PVC, PP, Nylon and fluorine are especially not recommended. B. Remove stain with solvent. C. Priming is not necessary. Adhere film straight away.
Mortar, limestone	A. Finish with steel trowel after joints are filled with joint material to prevent cracks. B. Allow it to dry for a minimum of 3 weeks. C. Remove stain with sandpaper or wire brush and clean the surface. D. Coat surface with sealer and apply putty over the whole area for better adhesion. E. Adhere film after complete primer dry for over 30minutes(PM02-Solvent type). Adhere film after complete primer dry for over 2hours(PM04-Water type).
Gypsum board, calcium silicate board, asbestos slate	A. Fill voids with filler and apply putty after sealer coat. B. Abrade the surface with sandpaper and clean with solvent. C. Adhere film after complete primer dry for over 30minutes (PM02-Solvent type). Adhere film after complete primer dry for over 2hours (PM04-Water type).

Installation

Substrate conditioning, storage and handling

Substrate	Preparation method
Substrate conditioning	Temperature For unprimed surfaces to gain maximum adhesion. LG Hausys Interior Film should be installed to substrate with a temperature ranging between 10℃~30℃. If the substrate temperature is below 10℃, it should be heated by infra-red ray lamp, jet heater or hair dryer to ensure the correct temperature. If the recommended primer is used, it is possible to apply the film to substrate with a temperature of 10℃ and over. Once the film is adhered to substrate, press the film to the substrate while heating it with a dryer.
Substrate conditioning	Dust and contamination It is vital that the work area is free from dust particles, as should particles be

LG Hausys interior film

trapped between substrate and

film, they will show through the surface of the film.

Ensuring that the work area is well it will assist in identifying any contamination or air bubbles in the surface.

Safety

The primer and substrate sealant are combustible and inflammable and should not be used or stored near heat, sparks or naked flames.

Work areas should be well ventilated.

Application table

The work table or bench should be covered with corrugated paper or a blanket to ensure the interior film is not damaged.

Storage and handling

Precautions

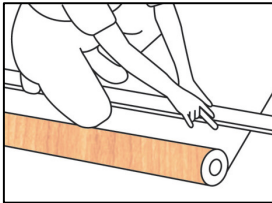
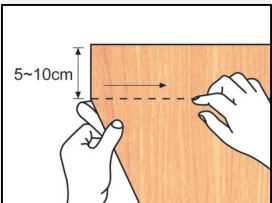
LG Hausys Interior Film should be stored in a dry, cool, dark room.

LG Hausys Interior Film has a shelf life of one year.

Where possible when transporting LG Hausys Interior Film, it should be top loaded to avoid damage.

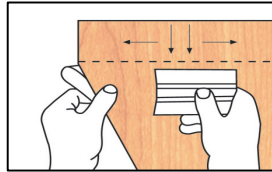
Particular care should be taken in storage and handling in winter as the film can become hard and more susceptible to damage.

Procedure for installation on flat areas

Procedure		How-To
Substrate conditioning		Lay the film on flat working table and measure the substrate. Always cut the film allowing for a 2~4cm over trim.
Positioning		Start positioning by placing the film on the substrate. Peel back the release paper and fold it. Gently press with your thumb to gain enough adhesion to hold the film in place.

LG Hausys interior film

Adhesion Step 1

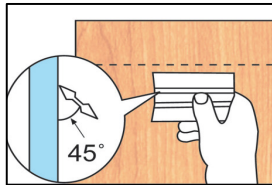


To eliminate any air bubbles under the film start in the middle of the panel.

With the plastic applicator apply pressure on the film to gain full adhesion.

Start in the middle of the panel and work your way out to the sides of the panel in each direction.

Hold the plastic applicator at a 45° angle to the substrate making sure you work the applicator in one direction only.



Step 2



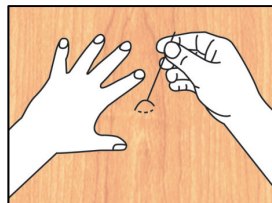
Pull back the release paper 300mm at a time.

While pulling back the release paper, apply pressure with the plastic applicator working from the top to the bottom of the panel.

Step 3

Once the LG Hausys Interior Film is adhered, press the entire panel again with the plastic applicator working from the top of the panel to the edges. Particular attention should be paid to the edge of the panels.

Air bubble releasing



If during installation air should be trapped behind the film causing a bubble, gently strip back the film and reapply with the plastic applicator. Very small air bubbles can be released by pricking the bubble with a pin.

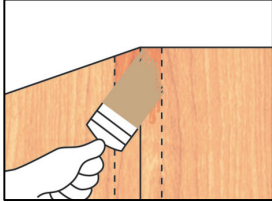
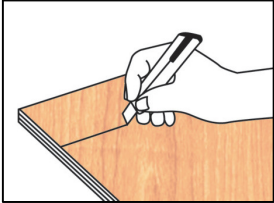
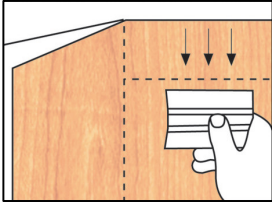
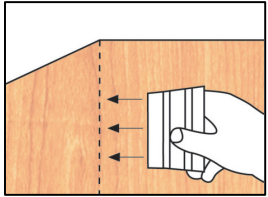
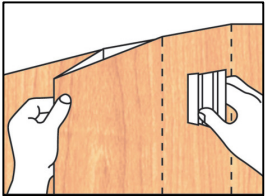
Press out the entrapped air by moving your thumb toward the puncture.

Finishing

Any excess over trim should then be trimmed off with a Stanley knife.

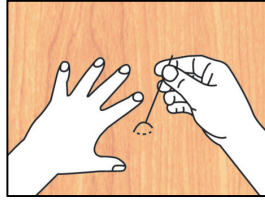
LG Hausys interior film

Procedure for installation on Internal corner

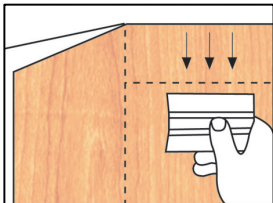
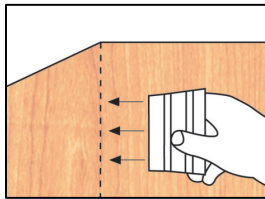
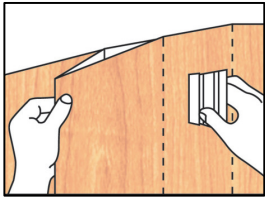
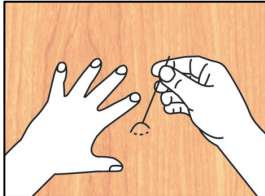
Procedure		How-To
Preparation		When LG Hausys Interior Film is applied to internal corners, firstly apply primer to the corner covering at least 50mm of each surface. This will ensure maximum adhesion.
Cutting and Positioning		Follow the same method as for flat panels
Adhesion Step 1		Apply the film from the widest section of the internal corner. Using the applicator, apply pressure to ensure the film does not bubble or drop. Press and squeeze along the corner.
Step 2		When the temperature is under 20°C, apply the film while heating it evenly. Do not over heat as this could cause the film to wrinkle.
Step 3		Once the film is installed into the first section of the corner gently lift and pull the film and apply pressure to the remaining corner section.
Step 4		Once installed, apply pressure to the entire section using the plastic applicator, especially the corner section.

LG Hausys interior film

Air bubble releasing
and finishing

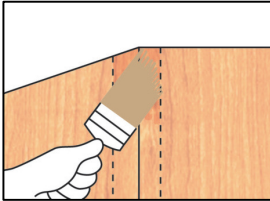
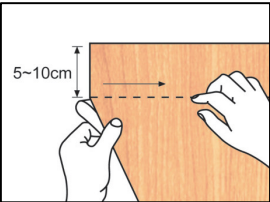
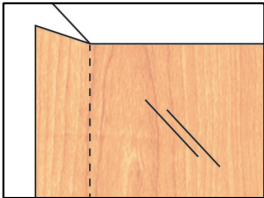
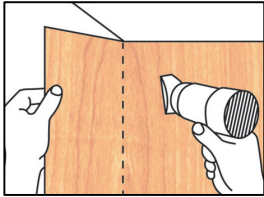
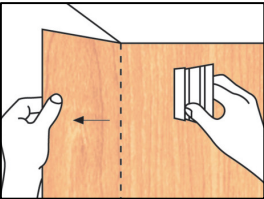


Follow the same procedure as for flat areas.

Procedure		How-To
Adhesion Step 1		Apply the film from the widest section of the internal corner. Using the applicator, apply pressure to ensure the film does not bubble or drop. Press and squeeze along the corner.
Step 2		When the temperature is under 20 °C, apply the film while heating it evenly. Do not over heat as this could cause the film to wrinkle.
Step 3		Once the film is installed into the first section of the corner gently lift and pull the film and apply pressure to the remaining corner section.
Step 4		Once installed, apply pressure to the entire section using the plastic applicator, especially the corner section.
Air bubble releasing and finishing		Follow the same procedure as for flat areas.

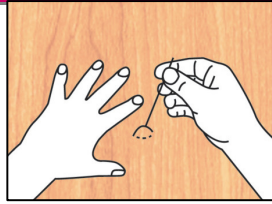
LG Hausys interior film

Procedure for installation on External corner treatment

Procedure		How-To
Preparation, measuring and cutting		Follow the same procedure as detailed for internal corners.
Trimming		Trim film to the desired width including the corner over trim.
Positioning		Follow the same procedure as for flat panels.
Adhesion Step 1		Apply the film from the width section bordering the external corner. Do not strip off the release paper of the narrower corner section.
Step 2		Using the applicator, apply pressure to ensure the film does not bubble or drop. Press and squeeze along the corner. When the temperature is below 20 °C, apply the film while heating it evenly. Do not over heat as this could cause the film to wrinkle.
Step 3		Using the same method as for flat panels, remove the release paper 200 to 300mm at a time. Hold the film while applying pressure with the applicator
Step 4		Once installed, apply pressure using the plastic applicator to the entire section, especially the corners.

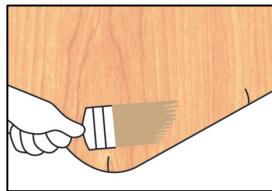
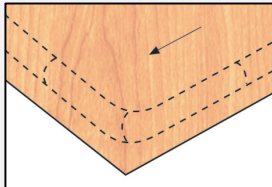
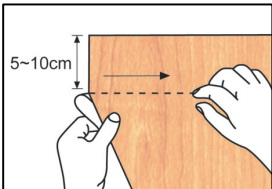
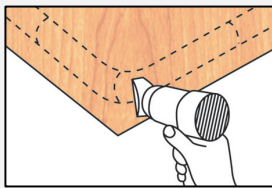
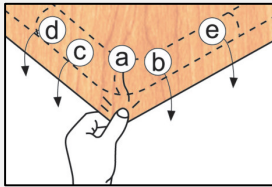
LG Hausys interior film

Air bubble releasing
and finishing



Follow the same procedures as for flat areas.

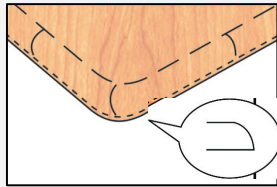
Treatment for three-dimensional curved surfaces

Procedure		How-To
Preparation		Once any bullnose or curved edges have been shaped and sanded, apply primer to the curved surface and reverse side. If the primer is easily adsorbed by the substrate, reapply the primer on the former has dried.
Measuring and cutting		Cut the film 100mm larger than the substrate size.
Positioning		Follow the same procedure as for flat surfaces
Adhesion Step 1		Apply the film from the width section bordering the external corner. Do not strip off the release paper of the narrower corner section.
Step 2		After the film is softened, hold the (a) part with the fingers and pull in the direction of the arrow. Follow by pulling the (b), (c), (d) and (e) parts working away from the corner. Ensure that enough pressure is applied to avoid any air bubbles or so that the film does not

LG Hausys interior film

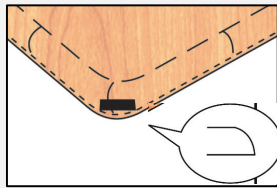
crumple.

Step 3



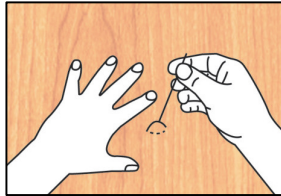
To prevent the edge of the film from peeling off and shrinking, ensure the film is covering 20 to 30mm of the reverse side of the panel.

Step 4



Cut off any excess of rolled up film with a Stanley knife. Apply pressure again to the entire panel, especially at the curved edge. To ensure the film does not shrink from the corner, apply a staple on the corner.

Air bubble releasing
and finishing



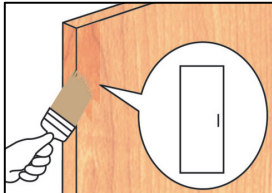
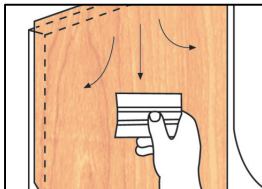
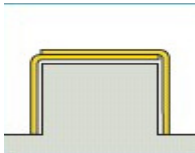
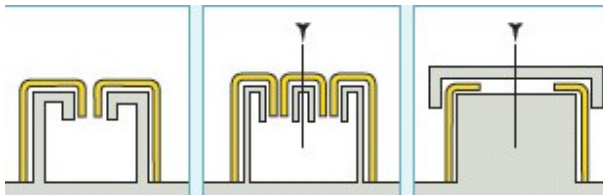
Follow the same procedure as for flat areas

LG Hausys interior film

Procedure for installation on door surfaces

Flush panels and smooth doors

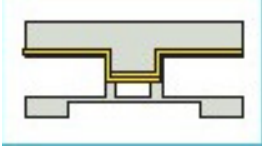
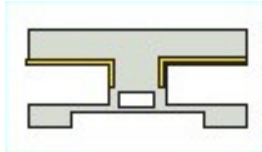
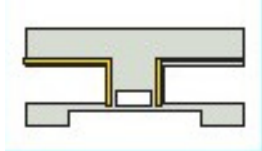
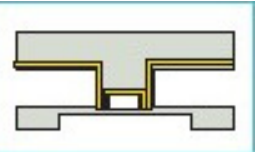
- LG Hausys Interior Film can be applied to doors either in the factory after manufacture or on the work site prior to the final installation of the door.
 - The door frame should be installed and any fitting adjustments should be made prior to applying the LG Hausys Interior Film.
 - LG Hausys Interior Film can be installed whilst the door is hanging.
- However, it is easier to remove the door from the frame and lay the door flat on a working table and apply the film whilst the door is horizontal.
- Remove any hardware such as locks handles etc and replace at the completion of work.

Procedure		How-To
Preparation	Step 1	 <p>Remove any dust, oiliness or surface contaminants on the substrate with a lint free cloth and thinners. Any surface imperfections should be removed with sandpaper.</p>
	Step 2	<p>After cleaning the substrate, apply primer particularly to the top and edges of the door.</p>
Adhesion		 <p>Install as per instructions for flat areas.</p>
	Flush panel	 <p>Apply the film by overlapping both sides on the joint at the top of the door.</p>
		

LG Hausys interior film

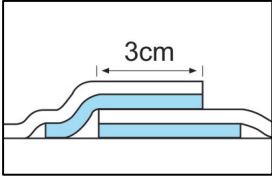
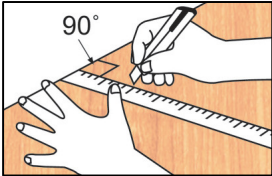
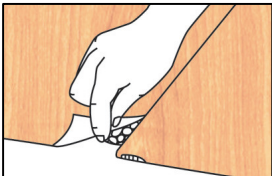
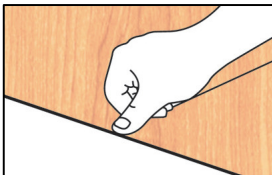
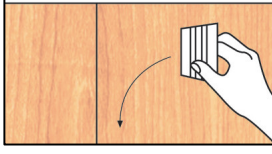


Procedure for installation on partition walls

LG Hausys Interior Film can be applied to partitions either in the factory after manufacture or on the work site prior to the final installation of the partition

Procedure		How-To
Preparation		Remove any dust, oiliness or surface contaminants on the substrate with a lint-free cloth and thinners. Any surface imperfections should be removed with sandpaper.
Priming		Apply primer to the dege, joins and overlapped part of the film
Installation		If the film is being installed at the work site, install as detailed in figure A and B.
		To ensure a good quality joint finish, apply th film by overlapping at the partition join. It is important that the film is well adhered to the top section of the partition so that it does not peel off. Ensure that at least 10mm of film is adhered to the top of the partition.
		If the film has already been applied at the factory, prior to delivery to the work site, simply install the partition as per figure C and D.

LG Hausys interior film

Procedure for butt joining method

Procedure		How-To
Adhesion		When butt joining, LG Hausys Interior Film leave 50mm of the release paper on the back of the film. Leave a minimum of 30mm over trim on both sides of the join so that they can be overlapped.
Conditioning		To minimize any shrinkage at the joint, leave the LG Hausys Interior Film for 24hours before cutting back the over trim.
Cutting		Place a ruler on the center of the joint. Carefully slice through both pieces of the film. The knife blade should be at right angles to the film.
Dust removal		Remove the cut fragment of the film. Also remove any dust from the surface of the substrate.
Release paper removal		Strip off the release paper as per figure C.
Adhesion		Once both edges of the film are butt together, press into place with the tip of your finger.
Finishing		Once satisfied with the quality of the butt joint, press down with the plastic applicator.

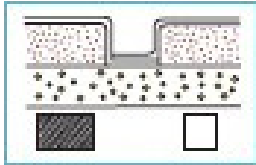
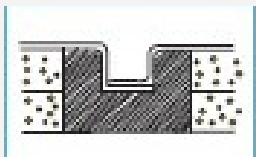
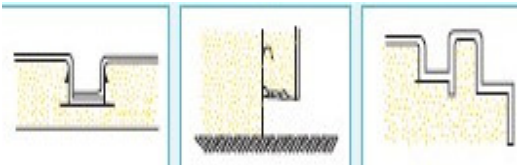
LG Hausys interior film

Installation procedure for walls

1. Application on space left joint

Characteristics

- A. Prior or installation of the LG Hausys Interior Film check the roll for damage.
- B. It is also important to check the rolls for colour match prior to installation.
- C. It is also important to install the film with any patterns, embossing or textures running in the same direction.

Item		Requirements
Calcium silicate insulator or flexible board		When using calcium silicate insulator or flexible boards, cut with a panel saw ensuring all cut edges are smooth. When joining, allow a 6mm deep by 6mm wide gap between the panels.
Gypsum plaster board		Install a kiln dried timber batten at the joins as detailed in figure B. Do not join the film directly onto the edges of the plaster or gypsum board. Ensure all fixing screws and nails are sealed with putty.
Mortar		Fill all joins with PVC filler to ensure joints do not crack. The walls should be smooth and free from defects. Smooth out any uneven wall with a steel trowel or spatula as per figures C, D and E. Thoroughly wash down wall prior to installation.

2. Flat joining application

It is important to overlap the film at joins.

Joining specifications

Overlapping is important as substrates such as flexible board and gypsum plaster can expand and contract. Overlapping at the joins will ensure that the joins are less noticeable should panels contract.

3. Installation for narrow joins

If the joint between panels is under 4mm, the following installation method should be used.

LG Hausys interior film

Joining specifications

As it is difficult to gain a neat narrow join, it is advisable to install a joiner or moulding over the joint.

4. Overlapping join applications

A simple method of joining is to overlap the film 10~15mm, applying primer to the lower film.

Installation precautions for Dynamic Metal series

1. Ensure ambient room temperature is above 12 °C.
2. Take care to apply the film only once as repeated repositioning of the film can cause delamination.
3. Avoid installation to three-dimensional curved surface as stretching of the film can cause colour and pattern variation.
4. The surface of the substrate must be clean and smooth as any imperfections in the substrate may show through the high gloss metallic surface.
5. Wrap the plastic applicator in a lint-free cloth so that it does not scratch the surface.

Physical properties

Dynamic Metal film is produced using advanced quality control, however there may be some colour variation between production batches.

Prior to installation, ensure that the colour of the substrate does not effect the colour of the film.

Ensure the substrate is clean and smooth so that imperfections do not show through the finished product.

Substrate preparation

Substrate	Wood, Veneer, Hard board	Gypsum board, Calcium Silicate board, Asbestos Plate	Overlapped Chlorinated Copper Plate	Mortar	Painted steel	Aluminum, Stainless steel
Surface preparation		Punch nails		Ensure walls are dry		Remove rust
Sealer coating	—	—	Sealer	Sealer		
Application Putty	EP putty, Moisture resistant putty, Cross putty			EP putty, Moisture Resistant putty, Cross putty, Board putty	Polyester putty, EP putty	

LG Hausys interior film

Surface grinding	Sand paper	1) Uneven, welded area-grinder 2) Flat area-sandpaper
Surface Cleaning	Brush, Alcohol, thinner	
Primer Coating	(PM02-Solvent type) ·Dilute primer and thinner by 1:1 on overall. ·Use undiluted primer on edge. ·Adhere film after complete primer dry for over 30minutes.	(PM04-Water type) ·Dilute primer and water by 1:1 on overall. ·Use undiluted primer on edge. ·Adhere film after complete primer dry for over 2hours.

Other installation precaution

When two sheets of film are applied by overlapping

Item	Requirements
Priming	Apply the primer (PM-04) on lower film and overlap the top film after a complete dry.
Embossed patterns	It is not possible to join embossed by dynamic patterns using the overlapping method. Please contact your distributor for further information.

Substrate sheet sizes

Item	Requirements
Board sizes	Where possible avoid horizontal joints in the substrate and using large sheet sizes that suit the ceiling height. If it is necessary to join substrate panels, alternate the horizontal joint at the top and bottom as per detail.
Substrate movement	To help eliminate movement in the substrate and cracking of fillers or putty, ensure the joints are well nailed.

Direction of colour design and embossing

The embossing has a delicate directional pattern.

Take care to install panels in the same direction, as if they are installed in opposite directions this can give the appearance of colour variation.

LG Hausys interior film

Primer application

When applying the primer to installed walls, apply it to prime alternated panels so that overlapping film does not become adhered to adjoining panels prior to being installed into the joins.

Things to be aware of during Interior Film application

1. Before applying

Do not forget to check out the type and condition of material (MDF, etc.) to attach films to so as to identify any parts that might cause a problem.

In the case of MDF, a different density might cause incoherent adhesive strength and printing resistance performance. It is necessary to use MDFs with consistent density.

- It is necessary to use alcohol to remove pollutants from the surface to be sprayed, and check if there is any damage to the sprayed face due to solvents. If it has an uneven surface, you can apply putty then finish with sandpaper. Use a dust brush to remove foreign substances.

In case of steel plates, remove any surface pollutants first with alcohol, lacquer or thinners. For an uneven surface, apply putty, then finish with sandpaper. Use a dust brush to remove foreign substances.

Do not forget to carry out a prior inspection for any problems (pattern name, appearance, etc.) for products selected by customers.

Film application should be done after woodwork and before painting or wallpaper hanging.

2. Prior task for Surface

It is necessary to finishing thoroughly with sandpaper for cross section parts which are to have film applied (MDF etc.).

In particular, if the material is wood (MDF, PB, etc.), the smoothness of an edge or crevice is very important. Therefore you should finish the part with sandpaper or with pate treatment before proceeding any further.

3. Primer Treatment

During primer treatment, a cross section of wood (MDF, PB, etc.) tends to absorb more primer than other parts. Thus, spray at least 2 or 3 coats of primer. Once primer is applied, the next treatment should start when the previous primer has completely dried.

4. How to apply

Make sure to hide the cross section of the cut-out film as much as possible.

Try not to show the substrate to be applied with film.

LG Hausys interior film

It is possible there may be some color difference between product lots, so it is necessary to classify lots. When surface treated product is overlapped with another product, you should spray undiluted PM04 solution, an exclusive water-type primer for LG Hausys Interior Film then proceed after it has completely dried.

- In particular, be careful with El REINA (EL, EP), WOOD (DP, RW, MXA, NE), SOLID (RB, RS) patterns.

5. Things to be aware of when applying specific products

NATURE CRAFT	HIGH GLOSS
Requires Butt Joint-style application. Butt overlap application may exfoliate on the overlapping part due to embossing or surface treatment layer. It is not available for curved area application as its special multi-layer structure could make exfoliation or surface crease with application of heat on the surface. When cutting and applying the product, it is necessary to consider how to connect patterns. If you cut the film by the printed markings on the release paper, it is impossible to match the patterns on different films.	To fully achieve gloss effect of the film surface, you should work in a clean environment. •If there are some foreign substances such as dust and dirt on the substrate to apply film (MDF, etc.) and the film's adhesive side during application, the film surface could be marred or damaged. As the product is hard, it is necessary to pay more attention to finishing to ensure no loose edges by applying more strength to obtain visually pleasing finish.

6. Other to Note

If you intend to apply film to a substrate not covered in the specifications regarding application methods and materials (MDF, etc.),

please contact the LG HAUSYS or the dealer to check application possibility.

You should follow the guidelines on the specifications to apply films.

When film is applied, it is necessary to use the exclusive primer for LG Hausys Interior Film.

- PM02 (Solvent primer), PM04 (Water primer)