

[Interior film construction academy]

# Interior film construction manual



## Construction Specifications

### 1. Scope of Application

This specification applies to areas where Z: IN interior film construction is required, applies to the specified interior film construction.

### 2. Purpose

The final process of the interior film product that the general consumer thinks depends on the construction, the purpose of this study is to establish the criteria to be followed during construction to realize development performance.

### 3. Submission

Submit in accordance with the applicable regulations of the process plan and submission.

#### 3.1. Construction plan

- 1) Detailed process plan
- 2) Construction condition inspection plan
- 3) Quality control plan

(Construction order and method, material management, work environment, maintenance and repair, quality assurance period, selection / management / inspection test plan)

#### 3.2. Detailed drawing of construction

- 1) Details of the site that the Supervisor considers necessary

#### 3.3. Sample

- 1) Z: IN interior film sample: 500mm x 500mm sample and color table included

#### 3.4. Construction confirmation

- 1) Confirmation before construction

Prior to the Z: IN interior film finishing, the construction material is suitable for the Z: IN interior film finishing work, the contract drawing is appropriate, and the Z: IN interior film finishing work can be done in the prepared construction conditions. A certificate must be submitted to the Supervisor for approval.

#### 3.5. Product data

- 1) Characteristics, properties of Z: IN interior film

### **3.6. Quality certification documents**

- 1) Test report which is to be tested in accordance with the specification test of this section

### **3.7. Completion submission**

- 1) Submit the work record book after completion of construction.

## **4. Quality Assurance**

### **4.1. Qualifications of contractor**

- 1) LG Hausys has a certificate to guarantee the quality, or a holder of the construction expert's certificate, and submit the note of authentication and certificate before the start of the final construction to receive the approval of the Supervisor.

### **4.2. Sample construction**

- 1) Construction of Z: IN interior film finishing construction shall be carried out according to the place and area designated by the client's agent.
- 2) The sample construction site shall be regarded as part of the construction work.

### **4.3. Consultation before construction**

It shall be subject to the relevant provisions of the consultation and coordination of construction.

- 1) Review various requirements for Z: IN interior film finishing work.

## **5. Transport Storage and Handling**

**5.1.** Z: IN the interior film is wrapped in a roll that has not been cut, and it is brought into its original state with the label with the serial number specified.

**5.2.** Keep the material from direct sunlight, in a place free from moisture, and keep it from collapsing and folding, keeping it according to color, pattern, and serial number so that it can be used in order of manufacturing number easily

**5.3.** Do not damage when transporting and handling materials, and immediately remove the damaged material out of the office.

## **6. Field work Conditions**

**6.1.** Keep the ambient temperature at 15 ~ 25 °C for 72 hours before installation, during installation and for 48 hours after installation.

**6.2.** The space in which the Z: IN interior film is applied is suitably ventilated continuously and cures for the period recommended by the manufacturer.

**6.3.** The surface where the Z: IN interior film is applied maintains a minimum illumination of 15L / sf (160Lx).

## **7. Warranty**

**7.1.** The warranties described in this section do not invalidate the warranty and warranty obligations in the contract, and apply to this construction, including contract and other warranties and warranties.

### **7.2. Guarantee**

The contractor shall perform construction according to the requirements of this specification and drawings. If the performance is not maintained within the warranty period stated in the contract, or if the result is different from the specifications and drawing requirements, the contractor shall retake or repair the result of the construction at no charge at his own risk.

## **8. Maintenance and Repair**

Damaged parts of the Z: IN interior film are removed by removing the defective part in a proper manner and then re-working normally.

## **9. Materials**

### **9.1. General common material**

1) Z: IN interior film shall be vinyl chloride type and shall be 0.3mm or more in thickness and 1,220mm or more in width.

2) Adhesion method should have resistance performance of combustion.

3) The flame retardation certificate issued by the Korea Institute of Fire Science and Technology must be attached to the surface of the product.

### **9.2. Material details**

| Item                                      | Size                  | Test method |
|---|-----------------------|-------------|
| Thickness (including adhesive)            | 0.15~0.36mm           | Micrometer  |
| Tensile strength (Kgf / cm <sup>2</sup> ) | L 150~350<br>W 50~350 | ASTM 882    |

|                         |                    |  |
|-------------------------|--------------------|--|
| Elongation (%)          | L 0~400<br>W 0~400 | ASTM 882   |
| Adhesion (24HR)         | ≥1,000g/in         | 180 peeling PSTC-1   |
| Application temperature | ≥15°C              | 15 to 25°C optimum On clean substrate  |
| Dimensional stability   | 1.2mm ↓            | Adhered to aluminum plate, Length<br>Direction<br>(100°C oven, 2hr, average) |
| Release paper thickness | 0.14mm ± 10%       | Micrometer   |

※ Thickness: NC, PW 0.40~0.53mm, release paper thickness: GS, GM 0.05mm ± 10%

### 9.3. Material quality control

According to applicable regulations of materials.

- 1) Establish a quality management system in accordance with ISO 9001.
- 2) When bringing in the material of the Z: IN interior film material, the manufacturer shall confirm the manufacturer's name, product name, and date of manufacture.

## 10. Construction

### 10.1. Construction order

- 1) (surface to be applied) Size measurement
- 2) Putty work and sanding
- 3) Primer application
- 4) Film cutting and classification
- 5) (Before film construction) Sanding
- 6) Film construction
- 7) Finish cleaning and finishing quality check

## Interior film construction process

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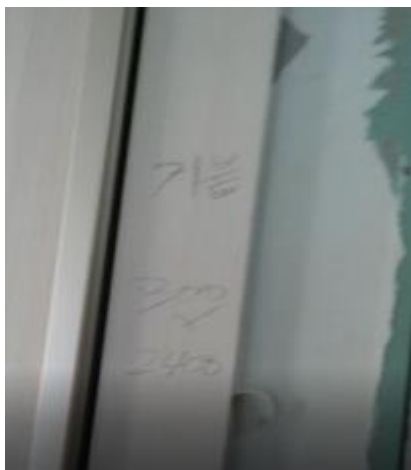
### 1. Surface to be applied (below, "surface") size measurement

#### 1.1. The importance of measurement

- 1) Measuring is the process of calculating the product standard that reflects all situations on the site and minimizes the loss, and it is the most important work that determines whether there is a primary defect such as a fault of foundation.
- 2) Careful attention should be paid to the fact that it is necessary to perform the pre-adjustment role of the construction conditions and the possibility of defects in addition to the calculation of the cut specification of the product.

#### 1.2. Measuring method

- 1) Measure the width (width) and length (length) of the adhered surface using a tape measure, and determine the cutting size by including 20 to 50 mm margin values of width (width) and length (length).  
However, the ceiling view and the long and long wall surface shall be measured so that the clearance value does not exceed the maximum width of 100 mm and the maximum length of 100 mm.
- 2) The measured size should be written in pencil on the adhered surface, and recorded separately on the cutting note. Also, when recording, give a separate number (eg. door 1, door 2, window 1, window 2, etc.) and make a group so that they will not be confused when cutting the film in the future.



[ Dimensioning surface ]



[ Foundation note recording ]

## 2. Putty Work and Sanding Work

### 2.1. Definition of putty work

1) The putty work is a preliminary work to fill the space between the material and the material and the void space of the material and to secure the quality of the interior film surface. It is important to spread the putty at a certain interval and constant thickness.

### 2.2. Putty part

Uneven surfaces such as connecting parts of the material, nail marks, screw marks, scratch marks, stab marks

### 2.3. Putty Type

| Type                                 | Advantages  | Disadvantages   |
|--------------------------------------|---|---|
| Water-soluble putty<br>(Handy Court) | It is made of natural lime powder and water<br>Excellent workability, low price   | Because it dissolves in water, there are restrictions on use in high humidity places, and drying time is long.<br>It is weak in strength and permeability. It is not used in metal and PVC, but it is used in wood. |
| Meteoric putty<br>(Poly Putty)       | Drying time shortened, construction period shortened<br>Excellent putty strength and can use metal and PVC coated surface | Curing time is fast and small amount of hardener is frequently added<br>Note the amount of hardener   |

### 2.4. Putty work tools

- 1) Putty scraper
- 2) Scraper  
(for removing foreign matter)
- 3) Sandpaper
- 4) Handy coat
- 5) Poly putty (subject)
- 6) Poly putty  
(curing agent)



## **2.5. Definition of sanding operation**

- 1) Sanding work, it is work to flatten the putty part and the projected part of the adhered surface after drying.

## **2.6. How to work sanding**

- 1) It is recommended to use sandpaper # 80 ~ # 120. The granular number per unit area is the number of the sandpaper, and the lower the number, the rougher it is.
- 2) Choose sandpaper according to product pattern and design. For sensitive pattern designs such as monochrome or metal series, use a higher number.
- 3) Sanding work is done several times lighter than strengthening to improve the quality of construction.
- 4) When sanding, it is necessary to understand clearly how to scrape putty. Strength of the force, long sanding in the putty direction, removing the step between the putty surface and the attached surface, and confirmation of the result is required.
- 5) When sanding large surface, it is advantageous to use rotating type machine sander.
- 6) If the sanding work is not done properly, it may cause a claim such as protrusion and streaking, so you have to work carefully.

## **3. Primer Application**

### **3.1. Definition of action**

- 1) It is an operation to strengthen the adhesion between the adhesive surface and the adhered surface of the interior film and to maintain durability.

### **3.2. Things to keep in mind**

- 1) Since it works after sanding surface, it completely removes dust and foreign matter.
- 2) In the case of aqueous primer, in the high humidity environment (relative humidity 70% or more), the surface to be coated should be completely dried using a dryer or the like.
- 3) In order to prevent contamination of the finished materials in other processes, sufficiently apply the coating after protection materials.

### **3.3. Type of primer**



| Type           | Advantage  | Disadvantage   |
|----------------|--|--|
| Aqueous primer | By using water as diluent, it is easy to maintain and use, price is cheap  | Drying time is relatively long. Operation limit at 0 ° C or lower in winter            |
| Oily primer    | Suitable for use on metal surfaces and short drying time. Thinner is diluted, so there is no temperature limitation in winter. | Vulnerable to fire, non-environmental awareness, It is difficult to use, price is high |

### 3.4. How to work with primers

#### 1) Aqueous primer

- . It is good to use a long brush which has thick hair.
- . The cut surface of the wood is applied in sufficient amount to flow the primer.
- . After applying the primer to material like metal, be sure to wipe the coated surface with a cloth.
- . After application, complete drying for at least 2 hours.
- . If there is oil in the corner, the interior film will not adhere, so be sure to clean it with thinner or alcohol.
- . Work after protection to prevent contamination of other process finishing materials.

#### [ Mixing ratio of aqueous primer and water ]

| Time              | Month                             | Primer | Water | Drying time (recommended) |
|-------------------|-----------------------------------|--------|-------|---------------------------|
| Winter            | December to March                 | 1      | 1     | 24                        |
| Spring and autumn | April to May, October to November | 1      | 1.5   | 12                        |
| Summer            | June to September                 | 1      | 2     | 8                         |

#### 2) Oily primer

- . It is better to use a short brush which has thin hair.
- . The mixture ratio of primer and thinner should be diluted to 50:50 regardless of the season. However, since thinner is volatile, it should be used frequently.
- . It is applied to the surface of the substrate at a coating amount of 1/3 of the aqueous primer.
- . Caution should be exercised because pvc materials can dissolve in oily primer.
- . After primer application, allow to dry completely for at least 30 minutes.
- . Work after protection to prevent contamination of other process finishing materials.

### 3.5. Primer tool

- 1) Aqueous primer
- 2) Primer dilution tank
- 3) Brush



## 4. Film cutting and sorting

### 4.1. Definition of Action

Cut and classify interior films by workgroup based on dimensions recorded in foundation notes

### 4.2. Sequence of the work

- 1) Cut according to the work area, and record the name of area and dimensions on the rear side of films.
- 2) In order to minimize loss, cut according to the following cutting order.
  - ① wide and long, ② wide and short, ③ narrow and long, ④ narrow and short
- 3) To prevent work site confusion, bind each site and record site name.
- 4) After the completion of the foundation, mark it as completed in the foundation note to prevent duplicate foundation.

[ Cutting Order ]

|       | Wide | Narrow |
|-------|------|--------|
| Long  | ①    | ③      |
| Short | ②    | ④      |



[ Cutting Tools ]



[ Sort by Part ]

## 5. Sanding (before film construction)

### 5.1. Definition of work

Sanding and cleaning of the surface of the adhered surface before the film is applied to prevent surface defects due to foreign matter such as dust entering between the adhered surface and the film.



[ Putty sanding ]



[ Cleaning work ]

## 6. Film Construction

### 6.1. Basics

- . Since the interior film is a plastic material, it is a material that shrinks and expands a lot. Minimal shrinkage can occur depending on site conditions and use environment.
- . All parts where the film meets the film shall be constructed so that the bottom film is left with a width of 3 mm or less and overlaps with 3 mm or less thereon.
- . Since the color difference may occur between product lot, it should be divided into Lot.
- . When the products are stacked, it is necessary to apply the aqueous primer sufficiently on the interior film and then dry completely

## 6.2. Construction tools

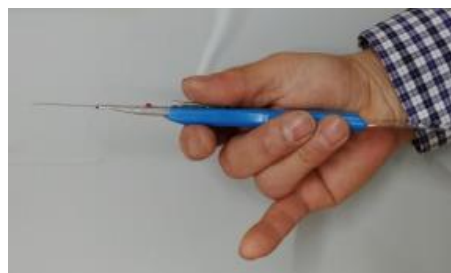
- 1) Knife
- 2) Squeeze
- 3) Felt
- 4) Sandpaper
- 5) Personal tool bag
- 6) Supporter of knife
- 7) Hair brush
- 8) Tape measure



## 6.3. How to use construction tool

### 1) Precautions on using the knife

#### . How to grip



- . The knife catches lightly with the feeling that only the thumb, the index finger, and the middle finger are used.
- . When cutting, hold the pencil tip and cut it.
- . Types of interior film construction knives include a general knife and a knife with

stainless steel on the back of the knife. For beginners, it is better to work with a standard knife to learn the feel of the end of the blade.

- . A standard knife is used as a squeeze and a set. A stainless steel knife can be used instead of a squeeze as a stainless steel part behind the knife.
- . The blade should be used at least 3 bars. If the blade is short, since the sense of being transmitted is weakened, sophisticated work is limited. If the blade is too long, it is easy to break, it can get scratched by the blade fragments, and the blade may be bent and cut off where it is not planned.
- . The blade must be cut off frequently to maintain sharpness at all times. When installing interior film on wood, use 2 ~ 3 blades per day, and 3 ~ 5 blades per day when lapping on metal.

## 2) Squeeze

- . The squeeze is made of plastic material, so be careful when squeezing the film that the surface of the film may be polished by frictional heat.
- . It is better to use with wrapped cotton cloth as much as possible,
- . When squeezing, always press the squeeze over half the length of the squeeze and press it tightly.



[ Squeeze appearance ]

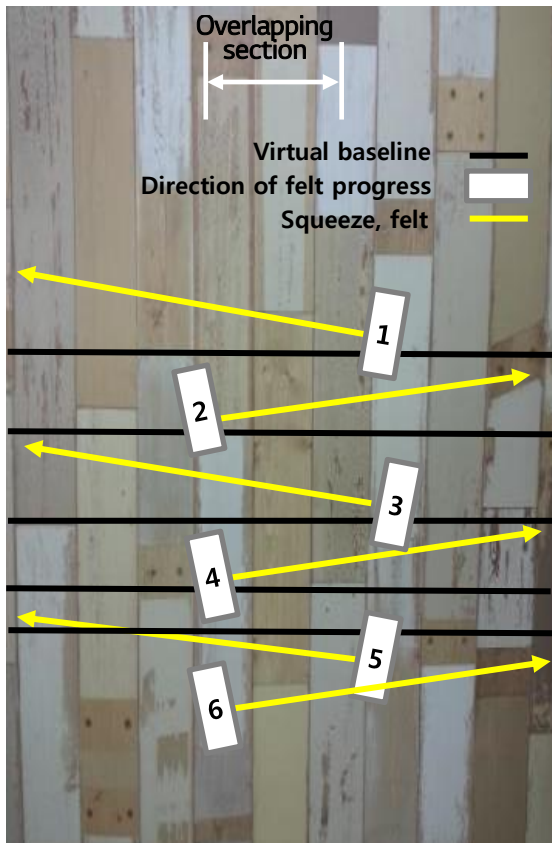
## 3) Felt

- . Felt is a lapping tool made of fleece or other beast's hairs made of water vapor, heat and strong pressure.
- . The pressing force is strong, the surface of the film is not glossy due to frictional heat and is suitable for pressing the surface.
- . The standard size is 100mm x 150mm x 20mm thick.



[ Felt appearance ]

#### 4) How to work on squeeze and felt



- . Squeeze left and right in order from 1 to 6, proceeding from top to bottom.
- . In the vertical direction, start at the top and end at the bottom.
- . In the horizontal direction, it starts on the left or right side and ends on the right side or left side.
- . The felt is squeezed in the direction of the yellow arrow, drawing a slightly upward (10 degree) curve with respect to the horizontal line (virtual reference line).
- . The pressing gap can be squeeze without bubbles by pressing the bottom portion of the squeezed portion halfway up and down.

. When pressing in the left and right direction, the center overlapping area is ensured at least 300 mm, and it is completely pressed to the entire adhered surface from top to bottom, left to right and right to left.

#### 6.4. Planar site construction sequence

##### 1) Positioning

. Attach the film to the top of the adhered surface slightly, align the bottom center of the bottom, then peel off the top of the 5 to 10 cm top and stick it first.

##### 2) Attachment

. The upper part is squeezed from the center part first by squeezing, and is squeezed to the left and right. At this time, move in the same direction to prevent

air bubbles.

- . Peel off the release paper about 30 cm each time, and pull the film lightly backward and squeeze from top to bottom.
- . After squeezing as a whole, check the bubbles carefully and squeeze the finishing area carefully again, especially the end of film.
- ※ Please refer to squeeze operation flowchart for detailed plane attachment order.

### 3) Bubble treatment and finishing

- . When large bubbles occur during operation, peel off the film itself and press it again with a squeeze to prevent bubbles from entering. When small air bubbles are generated, they must be compressed in one direction, and the air bubbles must be subtracted to prevent them from spreading to the other side.
- . Finally, cut off unnecessary parts with a knife and finish.

## 6.5. Construction order

### 1) Center line alignment

- . Temporarily attach the edges to the corners by keeping the top, bottom, left and right spacing of the surface constant.

### 2) Squeeze the face

- . Use a squeeze or felt to squeeze strongly so as to avoid bubbles.

### 3) Attaching the outer edge (below, "Out corner")

- . Make a 90 degree angle by repeatedly squeezing the top to bottom or left to right sides while turning the angle of 15 degrees, 45 degrees, 75 degrees from the corner with your fingertip.

### 4) Attaching the inside edge (below, "In corner")

- . Use a squeeze to start the inner edge slowly and weakly, and then squeeze it strongly. Repeat the squeeze until the inner corner angle is sharpened to make a 90 degree angle.

### 5) Attaching the inner surface of the groove (below, "Inner surface")

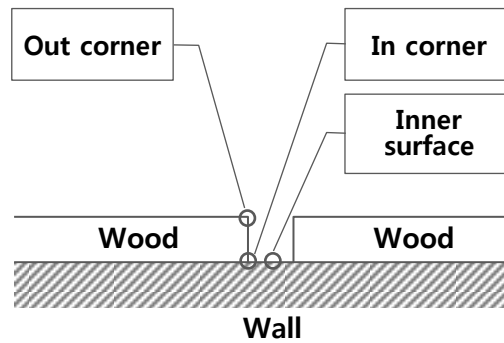
- . Use a squeeze to adjust the angle.

### 6) (opposite side) Attaching in corner

- . Do the same way like 4)

### 7) (opposite side) Attaching out corner

- . Do the same way like 3), and finish.

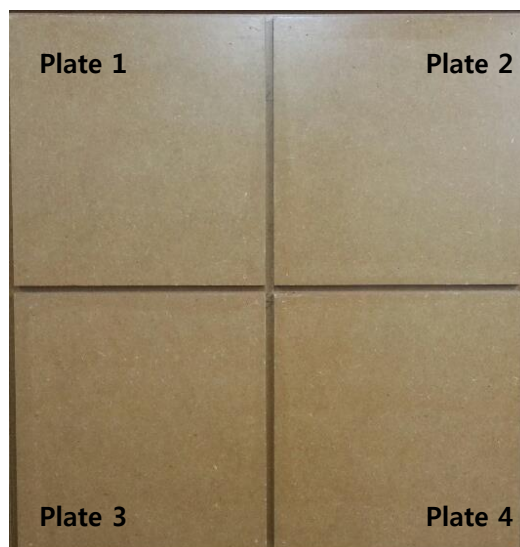


[ Picture of the groove ]

### 6.6. Plate construction order

: A procedure for attaching an interior shape in which four plates are combined will be described.

Plate 1 → Plate 2 → Plate 3 → Plate 4 in this order.



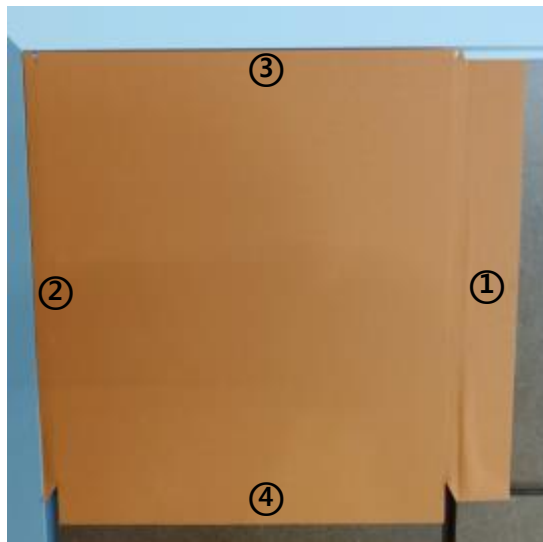
[ Plate Photos ]

#### 1) Plate 1 construction

- . The film is attached in anticipation of the imaginary center line.
- . Cut it in advance as shown in the cut view of the picture.
- . Place in the order of ① out corner, in corner, inner surface, in corner, and unnecessary film cutting.
- . The underfilms at the four plates crossover points are squeezed.
- . Attach the upper and lower parts of the film after pressing the out corner of ②.
- . After pressing the out corner of ③, attach the film.
- . Place in the order of ④ out corner, in corner, inner surface, in corner, and



unnecessary film cutting.



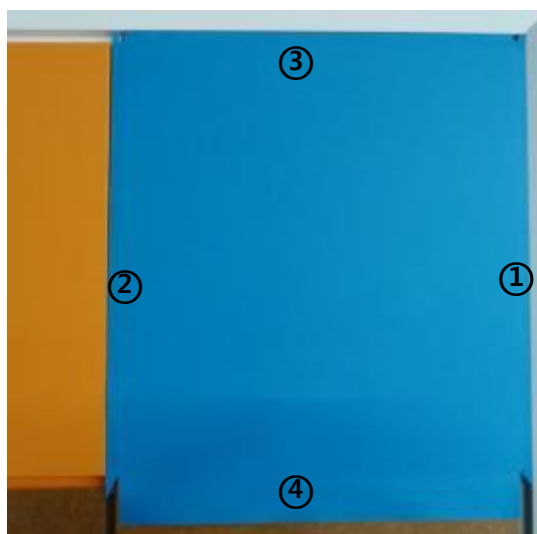
[ Plate 1 film tailoring appearance ]



[ Cross section construction ]

## 2) Plate 2 construction

- . The film is attached in anticipation of the imaginary center line.
- . Cut it in advance as shown in the cut view of the picture.
- . After pressing the out corner of ①, attach the upper and lower parts.
- . After pressing the out corner of ②, attach the upper and lower parts.
- . After pressing the out corner of ③, attach the film.
- . ④, out corner, in corner, inner surface, in corner, and unnecessary film cutting.



[ Plate 2 film tailoring appearance ]



[ Cross section construction ]

### 3) Plate 3 construction

- . The film is attached in anticipation of the imaginary center line.
- . Cut it in advance as shown in the cut view of the picture.
- . ①, out corner, in corner, inner surface, in corner, and the unnecessary film cutting.
- . After pressing out corner of ②, attach the upper and lower parts.
- . After pressing out corner of ③, attach the film.
- . After pressing out corner of bottom part ④, attach film.



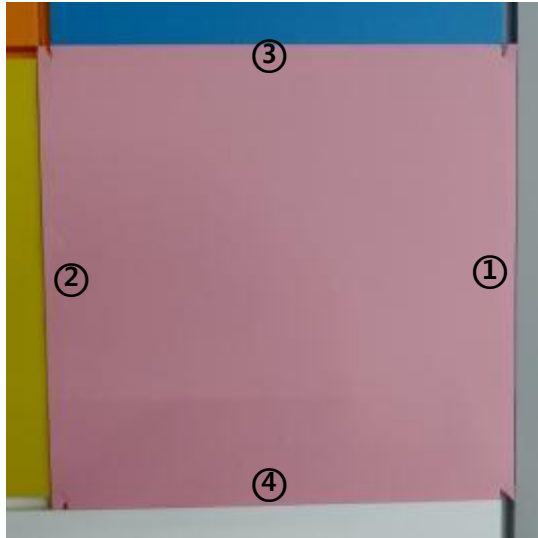
[ Plate 3 film tailoring appearance ]



[ Cross section construction ]

### 4) Plate 4 construction

- . The film is attached in anticipation of the imaginary center line.
- . Cut it in advance as shown in the cut view of the picture.
- . After pressing out corner of ①, attach the upper and lower parts.
- . After pressing out corner of ②, attach the upper and lower parts.
- . After pressing out corner of ③, attach the film.
- . After pressing out corner of bottom part ④, attach film.



[ Plate 4 film tailoring appearance ]



[ Cross section construction ]

#### 5) Check the finish quality

- . Check whether the in and out corners are perpendicular to each other, and check the appearance quality (foreign matter, etc.).
- . If the cut surface is lifted or the adhesive is on, apply heat with a lighter to the fingertip and finish.



If the plates are repeated a lot, it is easier to work on the left and right, giving priority to the vertical work.

### 7. Finish cleaning and finishing quality check

#### 7.1. Finishing cleaning

- 1) Move the garbage (interior film scrap, release paper, etc.) to the designated disposal site after the construction.
- 2) Clean up the perimeter of the construction.



If small pieces of nail-sized film are attached to the floor, such as marble, it is difficult to peel off. It is easy to peel off when you put it on the work clothes during the film construction.

#### 7.2. Closing quality check

- 1) Make sure that the 90 degree construction of out corner and in corner is well done.
- 2) Make sure that the finishing cut is well done.

- 3) Check that foreign matter does not flow and the surface condition of film is good.
- 4) Make sure that the film and film meet properly.
- 5) Make sure that you did not cut to underfilm when cutting.

#### **8. On-site manager delivery**

**Final inspection of the final quality and site clean-up, the final site supervisor is informed.**

## Specific product construction instructions

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### 1. Nature Craft (NC)

1.1. We should do construction of joining together. There is a fear of peeling off the overlapped portion due to the embossing and the surface treatment layer during the overlapping construction.

1.2. When a surface is heated by a special multi-layer product structure, it is impossible to construct a surface because delamination or surface wrinkling may occur between the products.

1.3. It is necessary to cut and construct by considering custom connection between patterns. If you cut according to the printing scale of the release paper, you will not be able to make a custom connection between the patterns.

### 2. High Gloss (GS, GM)

2.1. In order to reproduce the luster effect of the film surface, it must be installed in a clean environment.

1) Surface build-up and protrusion marks may occur on the surface of the film if foreign matter (dust, dirt, etc.) is adhered to the MDF and adhesive surface of the film.

2.2. Since the hardness of the product is high, it is necessary to apply more force and perfect finishing work to prevent creeping of the bending part in order to prevent the corner part from falling off and to achieve a clear visual effect.

## Construction Quality Checklist

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| Step                     | Check item  | Processing method  |
|--------------------------|---|--|
| Before film construction | 1. After sanding the surface, did you check the surface of the surface with your bare hands?          | Remove foreign matter from the surface with bare hands.              |
|                          | 2. Cleaning around the lapping area, did you check the dust condition?                                | Remove the dirt in the gap with a brush and a vacuum cleaner.        |
|                          | 3. Did you check for wrinkles, convexities, or differences after putty work?                          | Check with your bare hands, and work your sanding again.             |
| After film construction  | 1. Is the thickness of film overlapped with the film under and under film constant and straight?      | Cut and straightened with the bar.                                   |
|                          | 2. Is the end line of the film evenly and uniformly cut?  |  |
|                          | 3. Is the spot where it meets the other material, the wall, tile, etc. cut correctly?                 |  |
|                          | 4. Are the edges well bonded without stretching?  | Apply heat with dryer to bond.                                       |
|                          | 5. In corner, out corner angle is well caught, is it perfect?   | If the in corner is untreated, it will be reinstalled.               |
|                          | 6. After lapping, did you check the wiggles, convexity, and shear differences in the putty work area? | After removing the film, perform the pretreatment again and re-work. |
|                          | 7. Have you checked whether there is foreign matter in the lapping surface after lapping?             | 1. Rubbing with a squeeze.   |
|                          |   | 2. Put the squeeze on the spot and tap on squeeze with a hammer.     |
|                          | 3. Heat with dryer, press with finger.  |  |