



PROCESSING GUIDELINES FOR TOUCHME HPL

This document has been prepared with the purpose of providing general information and guidelines for processing operations of Stylam TouchMe laminates.

1. INTRODUCTION

Stylam TouchMe is a special purpose laminate that has excellent resistance to fingerprints along with a satin smooth surface finish. The process involves providing multi layers of special PU + acrylic lacquer coatings on a regular laminate through latest hot coating technique. This makes the surface very less porous and super satin with gloss levels as low as 3 GU.

Besides all the properties for EN 438 standards for a standard HPL, TouchMe laminates have excellent properties of resistance to fingerprints and marks. Surface protection through special hot coating treatment makes laminates scratch resistant. TouchMe laminates are available for complete range of designs and sizes for the standard Stylam laminates.

By using the recommendations in this Installation Guide as a starting point, users will find useful information to guide them in obtaining the most appropriate installation. However, these recommendations are not intended to assume or replace the responsibility of the user to establish engineering design, practices, and procedures best suited to individual job conditions. This document will provide basic information on the fabrication and installation of decorative laminates and a better understanding of the product and its uses.

In General: High-pressure decorative laminates are used as surfacing material on counters, desk tops, cabinets, wall paneling and furniture. Dimensional change is a characteristic found in varying degrees in all cellulose type materials like wood. Also, like wood, high-pressure decorative laminate has grain direction. When humidity changes, the width of the laminate undergoes greater dimensional change than the length by a ratio of approx. 1.5 to 1. As humidity decreases, the laminate contracts and when the humidity increases, the laminate expands. The physical characteristics of the material should be considered in planning its fabrication and installation.

2. TRANSPORT, HANDLING & STORAGE

2.1 TRANSPORT

In export consignments, Stylam laminates are transported in wooden crates. These crates along with other packing and protection materials provide adequate protection to laminates during shipment and inland transportation. After removal from containers, as far as possible, laminates should be transported in wooden crates to final point of usage.

In domestic consignments, Stylam laminates are transported as individual laminates. For any small quantity transportation from warehouse or dealer to the point of usage, laminates should ideally be transported in flat / horizontal state. It is recommended that TouchMe laminates are not rolled and transported as flat horizontal panels.

2.2 HANDLING

All TouchMe laminates have thick and high quality protection film to provide surface protection. Care should be taken when handling decorative laminates to avoid breakages and damage. While loading and unloading, the laminates should be lifted, not slid.

Individual laminates should be carried with the decorative face towards the body.

It is recommended to use two persons for lifting the laminates, holding the laminate along its length and abrasion between decorative faces should be avoided.

2.3 STORAGE

Stylam laminates should always be kept in an enclosed and dry store together with corresponding substrate materials, backing boards and adhesives, at a temperature range of 20°C to 40°C. When materials are brought into a workshop from temperatures or humidity levels different from ambient (e.g. after delivery), they should be allowed to stabilize before fabrication. Usually a minimum of three days is required.

Stylam laminates should preferably be stored face to face and in flat position in horizontal racks. Use similar sizes ply board or block board of suitable thickness after every 150 mm to keep the stack flat. Always place top cover board on the stack to keep the laminates flat. Otherwise, simply turn over the top laminate of the stack upside down to minimize its exposure to environment.

See section on pre-conditioning for further information on storage prior to fabrication.

3. PREPARATION OF FABRICATION

3.1 PRE-CONDITIONING

Pre-conditioning is the very important to achieve proper stability and strength of bonding of laminates with substrate. Laminates and substrates like MDF, block board or ply board behave differently in terms of expansion and contraction when exposed to changes in climatic conditions. Pre-conditioning ensures that the differential effects of changes in climatic conditions like temperature and humidity on the constituents of furniture like laminates and substrate are minimized.

Decorative laminates and core materials should be conditioned before bonding so that all materials reach equilibrium. The uniformity in climatic conditions will ensure uniform behavior of laminates and substrate during bonding and risk of abnormal behavior like cracking and bowing will be minimized.

The laminates that will become the opposite faces of the same substrate should be conditioned as a pair, with their sanded backs joined together. This set of laminates and substrate should be for the duration of time that is suitable with the prevalent climatic conditions at site. This will ensure that they achieve near identical moisture contents prior to so that bonding, and any subsequent dimensional movements will therefore be similar in both magnitude and direction.

3.2 TYPE OF SUBSTRATE

Substrate is a composite panel on which the laminates are pasted for any fabrication activity while the laminate provides top covering surface to the fabricated structure. The primary purpose of the substrate is to support the laminate and provide flatness. The main properties of substrate are mechanical strength, surface smoothness, moisture resistance and fire resistance etc. Some of the common type of substrates available are particle board, block board, ply board, MDF and HDF etc.

3.3 TYPE OF ADHESIVE

A variety of adhesives have been found satisfactory for bonding decorative laminates to core materials. The choice of adhesive is based upon the service for which the assembly is intended and upon the bonding facilities available. In all cases, the adhesive manufacturer's instructions for use should be followed closely. Common type of adhesives used for joining laminates to the substrate includes PVA based, urea/melamine based, epoxy, hot melt and contact adhesives.

Contact adhesives may be used for bonding laminates to a variety of cores. They are particularly useful for application to metal or other impervious surfaces. There are two primary types of contacts; solvent-based and water-based. Water-based adhesives are not suitable for bonding laminates to steel or iron surfaces. The solvent or the water must be evaporated before satisfactory bonding can be accomplished. It should be considered that contact adhesives do not restrict the movement of the laminate caused by varying humidity conditions to the same extent as thermosetting adhesives.

4. FABRICATION TOOLING

Being harder than conventional wood based substrates and ply board, laminates may require use of power tools but conventional hand tools can also be used for various fabrication activities. A brief detail of various power and hand tools used is listed below;

4.1 POWER TOOLS

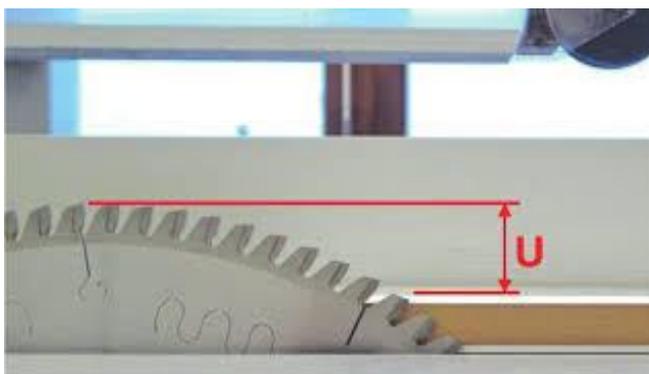
Fixed Circular Saws

Fixed circular saws are best suited when cutting multiple laminates to same size or cutting of fabricated panels. Fixed circular saw give better results of cutting as pressure can be exerted on the material to be cut to avoid chipping.

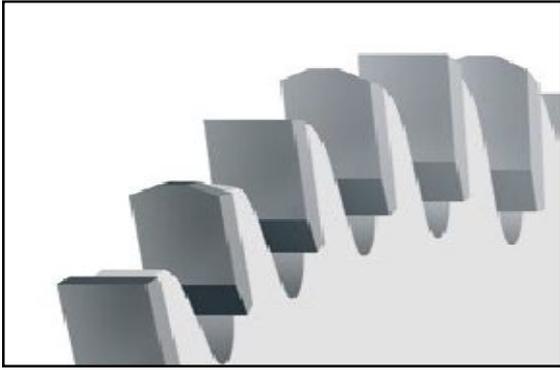
Most common type of fixed circular saws are **Beam saws** having provision of pressure beam to avoid chipping and **Panel saw** for cutting panels to smaller pieces. Because decorative laminates have a relatively hard surface, tool wear will be greater than with most wood based products. For longer life and better performance, tungsten carbide tipped (TCT) or polycrystalline (PCD) circular saws should be used.

Below parameters should be considered while deciding the circular saw blades.

Blade diameter	: 250 - 350 mm
Feed Speed	: 20 - 30 m/min
Saw rotational Speed	: 3000 - 4000 rpm
Saw projection	: 5 – 10 mm



Saw Projection depicted as "U".



Source: Leitz

It is recommended that laminates should be cut with decorative side facing upwards. Generally, saws should be fine toothed and close pitched, with alternative teeth top beveled. The tooth profile recommended is FZ/TR which means using Flat tooth and Trapezoidal tooth on alternate basis.

Circular Saws (Portable)

Portable circular saws are similar to fixed circular saw cutters in principle but are useful for on-site work. The direction of rotation of these saws requires the laminates to be cut face down to avoid chipping. Use of fine toothed saw helps in avoiding subsequent finishing operations.

Drilling

- Decorative laminates can be drilled using an electric drill with the more common types of drill bits (e.g. high speed steel, twist drill or point bits). Large holes can be drilled using a hole saw, fly cutter or can be plunge cut with a router and template.
- For machine drilling (drill press), a high speed straight shank twist drill is satisfactory. Longer tool life helps improve reproducibility while sharper blades like HSS improve the quality of the cuts. By controlling the feed speed of the drill, the panel is less likely to be damaged.
- Screws and bolts should be slightly countersunk and use lower rotational speed to make countersunk holes.
- To prevent stress cracking, the drill diameter should always be 0.05 mm (0.002 inch) larger than the specified diameter of the hole. It also helps in adjusting to small dimensional movements. Edges of the hole should be smooth and cleaned after drilling.
- Regardless of the diameter of the hole, all material being drilled should be backed up with wood at the exit to prevent breakout at the bottom of the drilled hole.

4.2 HAND TOOLS

Hand Saw

Laminates should be cut with a sharp, fine-toothed dovetail saw held at a low angle. The laminate should be supported on both sides of the cut as close as possible and over the entire length. Adequate pressure should be applied to avoid chipping of cut edges.

Laminate Cutters

A pen cutter knife with a laminate scoring tooth blade fixed on the metal blade can be used. The laminate should be laid flat firmly with decorative side up. It should then be cut repeatedly with sharp teeth of the cutter using firm pressure. Care should be taken not to scratch the decorative surface.

5. BONDING OF LAMINATES AND SUBSTRATE

All required precautions to be considered before bonding operation have been listed above in pre-fabrication clause. The same should be followed and the laminates cut as per the clause of cutting listed above, laminates must be prepared by smoothening of edges whatsoever by emery. The two key steps to a good bond are surface preparation and proper application.

Precautions to be taken for bonding:

- First step for good bonding process is the preparation of substrate surface.
- Ensure proper cleaning of substrate and the laminates to be pasted. The presence of dust or foreign particles between the laminate and the substrate may result in problems related to poor bonding.
- Ensure proper selection of adhesive as listed in clause related to pre-fabrication.
- The applicator must carefully read the instructions provided by the adhesive manufacturer regarding the application of adhesive and make sure the adhesive has been processed accordingly. Multi-part adhesives should always be stirred and mixed thoroughly.
- The applicator has to ensure uniform application of adhesive on both substrate and laminate. In case any non-uniformity is observed, recoat the surface. The substrate edges should be double coated with adhesive as they have higher porosity.
- After pasting laminate with substrate, ensure proper pressure on the bonded surface as recommended by the adhesive manufacturer. It is recommended that pressure be applied over the entire laminate to avoid any air gaps.
- Another way of exerting proper pressure and avoidance of air gaps is the use of dowels to ensure that the laminate aligns properly with the substrate.
- To remove any air bubbles, hand rollers can be used, moving them from centre towards the edges.
- If contact adhesives are used, panel width should be restricted to a maximum of 600 mm. Contact adhesives should be avoided if the ambient conditions for the installation are warm and dry. Don't touch the coated surfaces until both they have dried.

- Contact adhesives can often be reactivated by heat and re-bonded with proper pressure provided that adequate adhesive has been applied. In cases where the edge is lifting, extra adhesive may be added and the proper pressure applied.
- Adhesives as well as laminates are sensitive to environmental conditions. Unsuitable temperature and humidity may affect the shelf life of the adhesive, and lead to adhesive being overly dry or wet.
- In case a spray adhesive is used, ensure an even spray all over the surface.
- When fabricating vertical panels onsite, limit the laminate to about 3 feet width and larger panels should be fabricated in a workshop.
- Once the rough cut laminate has been bonded to the substrate, it should be allowed to set for a few hours before attempting any further fabrication.

Removal of protection film:

Once a satisfactory bonding has been achieved post fabrication, the protection film can be removed. If some residue stains of the film adhesive are visible on the laminate surface, you can use hot water or IPA solution to remove them with soft cotton cloth.

6. TYPICAL PROBLEMS—CAUSES AND PREVENTION

Some typical problems can come during the various fabrication activities for laminates.

- 1. Cracking of laminates:** Cracking of the laminate at corners and around cutouts may be caused by improper conditioning, improper bonding, poor planning or any combination of these. Conditioning both the laminate and substrate helps to prevent cracking caused by shrinkage. Rough edges, inside sharp corners (without radius) and forced fits can also cause cracking. All edges and inside corners should be provided 3 mm (1/8 in.) radius to minimize stress cracking. A radiused corner created by a 6 mm (1/4 in.) diameter router bit is normally used. Seam placement of the laminate can also reduce stress cracking.
- 2. Separation of laminates from substrate:** Separation of the laminate from the substrate is generally caused by a poor adhesive bond. Factors that can influence the bond and cause poor adhesion are:
 - Improperly prepared or dirty gluing surfaces
 - Insufficient amount of adhesive on either or both laminate and substrate
 - Insufficient agitation or mixing of the adhesive
 - Temperature of the gluing area and materials below 20°C or higher humidity
 - Bonding when the adhesive coated surfaces are over-dried or under-dried
 - Bonding with insufficient pressure

- 3. Blistering or bubbling caused by exposure to heat:** The forming of a blister or bubble over a small well defined area, often accompanied by darkening of the laminate, can be caused by either a single or continual exposure to an outside source of heat. Appliances which produce heat, hot objects, light bulbs etc. should not be placed in contact or close proximity to the laminate surface. Temperatures exceeding 65°C may result in separation of laminate from the substrate due to adhesive failure.

7. CLEANING OF STAINS

TouchMe laminates have been designed to provide smooth satin finish with anti-finger print for long time. But to maintain the same finish for long time, some important guidelines have been listed below;

In case of any marks or stains on the TouchMe surface, we strongly recommend cleaning the surface immediately after soiling by wiping with a damp cloth, or with the recommended cleaning agents and accessories as given below.

Recommended:

- TouchMe laminates surface is best kept clean using normal water and mild detergent.
- For the cleaning of everyday household substances like tomato ketchup, tea, coffee, oil / fat stains, lemonade, butter, shoe polish, pen-pencil, wine etc., it is recommended to use damp plain cloth dipped in warm water. Normal dish washing liquid or soft melamine/sponge foam can also be used.
- For persistent marks and dis-colouration due to long term exposure to tobacco smoke or industrial dirt, you can a mild abrasive cream or paste cleaner with care. But in no case, rubbing/polishing pads or harsh abrasive cleaning agents should be used.
- For ink marks from felt-tip and ball-point pens, it is recommended to use suitable solvents like IPA, methylated spirits, acetone, etc. with a clean white cloth.
- For paint splashes and graffiti, organic solvents such as white spirit and cellulose thinners can be used to remove the stains, as they will not affect the laminate surface.
- After using a cleaner, the surface should be rinsed with clean water and polished dry with a soft cloth.
- For cleaning of dried stains, use sponge cloth or melamine foam dipped in warm water for few minutes to moist the stain and then remove gently with slight rubbing.
- Because of the nature of the surface, deep textured finishes are inevitably more difficult to clean than smooth surfaces and light textures. For stubborn marks in textured surfaces a nylon bristle brush can be used in conjunction with any of the above cleaners to remove deep-seated stains and marks.
- Non-scratch liquids or creams are recommended for stubborn stains.

Not recommended:

- It is strongly recommended not to use acid based, ceramic cleaners and lime-scale removers as they can cause permanent staining. Any spillage or splashes of these cleaners must be washed off the laminate surface immediately.
- Furniture polishes should not be used, as a buildup of silicone wax on the surface may result causing permanent dis-colouration marks which can be very difficult to remove.
- In no case, harsh cleaning materials such as steel sponge, steel wool or scrubbing pads (like Scotch Brite) should be used whatever may be the stain.
- It is not recommended to clean by sharp or pointed metal objects or concentrated acids.
- If the stain has dried, it is not recommended to use force to remove the stain. Soak paper towel in acetone/IPA/methylated spirits on the affected area for few minutes and then remove gently with slight rubbing.
- In general, we advise you to clean Merino laminate surface promptly after soiling with a damp cloth or the recommended cleaning agents for you to enjoy the surface for many years to come.

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