

Edgemate® HPL / Phenolic Veneer Laminate Application & Finishing Recommendations



Read All Application Instructions Prior to the Use of Edgemate HPL/Phenolic Veneer Laminates

Storage and Handling

- Edgemate Veneer Laminates should be stored **flat** face to face. We recommend storing the panels in an atmospherically stabilized room to avoid extreme fluctuations of temperature and humidity.

Stabilization and Conditioning

- Prior to fabrication, the laminates and substrates should be allowed to **acclimate** in the same ambient conditions for **three days**. During this period, **the panels should be separated** to allow good air circulation. This conditioning is especially important for areas without humidity control.
- Ideal fabrication conditions are: Temperature: 63° to 71° F (18° to 22° C) Relative Humidity: 50 to 60%

Substrates

- Edgemate Veneer Laminates can be applied to many types of normal substrate materials having flat, thoroughly clean, dry surfaces. **Direct application to solid wood, sheet rock, plaster, metal or cement is not recommended.**

Balanced Construction

- To **avoid warping** of a panel laminated with Edgemate Veneer Laminates, the **stress on both sides must be balanced**. The best result is obtained by using Edgemate Veneer Laminates on both sides.
- Another, more economical method – without any guarantee from Edgemate – is to obtain a balance by using an ordinary laminate of the same thickness.

Important: All cut edges must be sealed with a clear varnish or lacquer to avoid moisture penetration.

Inlay Construction

- When fabricating an inlay design, a space of 1/64” to 1/32” should be left between adjacent species to allow for differences in wood movement.

Fabrication

- Cutting, routing, or drilling can be done with tungsten carbide tipped tools.

Bonding

All surfaces to be glued must be thoroughly dry and clean.

- **Press Bonding: Gluing with the use of a press is the safest method.** The temperature of the press should not exceed 104° F (40° C). Conventional laminate glues are recommended (PVA or urea).
- **Bonding without a press:** A number of solvent based Neoprene glues may be used at ambient temperatures between 64° to 71° F (18° to 22° C). Colder temperatures will delay evaporation of the solvents, and high humidity can cause harmful condensation. **A hand roller can achieve results comparable to press bonding.** Rolling should be carried out in both directions starting out from the center and working towards the outside with particular attention to the edges.
- **Application of glue:** Apply and **even coat of glue** to the sides being bonded. A serrated trowel should be used to insure that the glue is sufficiently thick at the edges. **If using solvent glues**, the film of glue must be clearly visible and sufficiently thick after evaporation. Porous or extremely absorbent surfaces may require several coats of glue. Before gluing, both sides must be touch dry. Application to both sides if the substrate should take place within a short period of time and in a horizontal position.
- **Cleaning off glue:** PVA glue is easily removed with water. **Neoprene** or other solvent-based glues **must be removed immediately.** Once the glue is hardened, removal without surface damage may be difficult.

Important

Edgemate's written or verbal application instructions are suggested based on our experience with this product. However, due to varying procedures and conditions, this information is given without obligation or warranty. We recommend that thorough testing of this product, adhesives and finishing materials be completed prior to final application.

Edgemate warrants the quality of our products only. The use and processing of Edgemate Products are beyond our control and therefore exclusively the responsibility of the user. In the event of any claim, Edgemate's liability will not exceed the value of the Edgemate materials involved.

Fabrication Recommendations for Edgemate HPL/Phenolic Veneer Laminates

General Discussion

The properties of the final laminate assembly will be influenced by the choice of laminate type, substrate, adhesive, and by workmanship.

Workmanship encompasses such things as:

- a. Proper adhesive spread.
- b. Proper cure time for the thermosetting and polyvinyl acetate adhesives and proper drying time for contact adhesives.
- c. Use of proper bonding pressures.
- d. Use of proper fabrication techniques.
- e. Proper conditioning of laminate and substrate.

Like wood, a high-pressure decorative laminate has a grain direction and its dimensional behavior is similar to that of wood. **When humidity varies the width of a laminate undergoes greater dimensional change than the length by a ratio of nearly two to one.** Dimensional change is a characteristic found in varying degrees in all cellulosic materials. As humidity decreases the laminate sheet contracts, and when the humidity increases the laminate sheet expands.

The 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.** The following information for the individual types of adhesives is intended only as a supplement to the manufacturer's instructions.

Thermosetting Types

Urea-formaldehyde adhesives are satisfactory for most applications. They can be used for room temperature bonding or for "hot" bonding. Hot bonding may tend to increase panel warpage and a backer laminate should be used to control warpage. When hot bonding, the temperature should not exceed 140° F for best results.

Polyvinyl Types (White Glue)

Polyvinyl acetate (PVA) emulsion adhesives may be used for bonding laminates to wood substrates where resistance to moisture and high heat are not required in the application (e.g. furniture, kitchen cabinets, and office partitions). They are generally not suitable for sink tops. They are room temperature setting adhesives, requiring only that the water in the emulsion be absorbed by the components. There are catalyzed PVA's which are cured at high temperatures with improved performance.

Contact Types

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 - solvent based and water based (water based adhesives are not suitable for bonding laminates to steel or iron surfaces.) The solvent or the water should be evaporated before satisfactory bonding can be accomplished.

Contact adhesives should be uniformly applied to both surfaces to be bonded by a brush, sprayer, paint roller or notched spreader. Brushing is the least acceptable method because of the difficulty in obtaining uniform application.

These adhesives have high immediate bonding strength, and care should be taken when aligning the two surfaces to be bonded. Once contact has been made, the components cannot be realigned.

Contact adhesives do not restrict the movement of the laminate caused by varying humidity conditions to the same extent as thermosetting adhesives. This characteristic should be kept in mind when selecting the adhesive for the application.

Factors Affecting Bonded Assemblies

1. Improperly prepared or dirty gluing surface.
2. Adhesive not agitated or stirred thoroughly.
3. Insufficient amount of adhesive on either or both of the surfaces to be bonded.
4. Bonding of surfaces under 70°F
5. Bonding of surfaces when humidity is too high – Experience has shown that when the relative humidity is above 80 percent at temperatures of 70°F (21.2°C) or higher, moisture may condense on the surface during drying (known as "blushing") and will prevent a good bond.
6. Bonding when surfaces are over dry or under dry – Care should be taken to follow the manufacturer recommendations concerning the allowable tack range of the adhesive. If assembly is made before the adhesive is dry or after the allowable open time is exceeded, unsatisfactory bond may result.
7. Bonding without sufficient pressure – To ensure the intimate contact necessary for an adequate bond, sufficient pressure should be applied over the entire area using as much pressure as possible without damaging the assembly.

8. **Field bonding of oversized sheets – it is recommended that the maximum sheet size used for vertical field application to be limited to 2 x 8 feet (609.6 x 2438.4mm). If larger panels are required, these should be shop fabricated.**

Conditioning and Storage of Materials Prior to Fabrication

Materials should be properly conditioned before they are used. Conditioning should make allowances for the geographical location in which fabrication or installation takes place. For example, end products, which are produced and used in the Southeastern United States, are not susceptible to shrinkage of the laminate with its attendant problem, as are articles used in northern climates. This is due to the fact that in the Southeast, the average yearly humidity is higher and the temperature does not vary as widely. Similarly, installations in the Southwest, which normally has low humidity, are not as likely to be affected by changes in the length and width of the laminate after fabrication. In these areas, normal conditioning of the component parts for 48 hours prior to fabrication at the prevailing climatic conditions is usually sufficient for the satisfactory fabrication and installation.

However, end products are not frequently fabricated in one area of the country and marketed in a distant area. For example, a wardrobe may be fabricated in a location where temperature and humidity are both high and then be shipped into an area where they are both low. The laminate will tend to reach moisture equilibrium with the new environment and shrink. In such cases, it is advisable to dry the components before fabrication of the end product, and the use of a thermosetting adhesive is highly recommended.

The importance of pressure when using contact adhesives cannot be over emphasized. A pressure of 50 pounds per linear inch (0.89 kilograms per linear millimeter) should be necessary. Pinch rollers should not be used of on-the-job applications. However, a long-handled rubber roller with a roll 2 to 3 inches (50.8 to 76.2mm) in diameter and 3 inches (76.2mm) long, commonly called a “J” roller, can be used satisfactory.

Typical Problems – Causes and Prevention

Some of the problems which may arise after laminates have been fabricated and installed are the following:

1. **Cracking of the laminate at corners and around cutouts may be caused by improper conditioning, improper bonding and, sometimes, poor planning, or any combination of these reasons. Cracking may be caused by shrinkage;** conditioning helps to prevent it. Rough edges, inside corners which have not been rounded, and forced fits can contribute to cracking. If the seams are properly placed in the layout of the laminate, stresses can be minimized.
2. **Opening of joints or seams may be caused by improper conditioning and bonding. Allowance should be made for some movement of the laminate.**
3. Separation of the laminate from the substrate may generally be caused by a poor adhesive bond. The bonding procedure should be reviewed with close attention to uniform glue line, uniform pressure, cleanliness of mating surfaces, and the eight itemized precautions listed for adhesives. If the edges fail to bond, extra adhesive may be applied and the product reclamped.
Contact adhesives can often be reactivated by heat and rebounded by adequate pressure if the glue line is not starved.

Cracking of laminate in the center of the sheet may be caused by flexing of the substrate when it covers wide spans. Wide spans call for sturdy framework, and special attention should be given to the uniformity of glue lines and gluing pressures.