

# LAMINATING PRINCIPLES

## Laminating to Substrates

Architectural applications usually require decorative laminate to be bonded to a substrate. Laminating decorative laminate to substrate materials should be done according to the proven principles of fabrication.

- Symmetrically balance substrates with similar treatment (Laminate) on both surfaces. (See the next section [Fabrication](#) for recommended balancing procedures).
- Use compatible materials, preferably having similar coefficients of expansion and contraction.
- Adhesives must be properly applied, bonded by pressure and/or cured (always follow the adhesive manufacturer's recommendation).
- All components should have properties suitable for the end use of the finished product.

The following bonding principles are particularly applicable to decorative laminate work:

- Uniform pressure over entire surface is important.
- Laminating pressure should be as low as is practical to ensure proper contact between both surfaces; except for contact adhesive which requires the maximum pressure possible.
- Excessive pressure may intensify telegraphing of core imperfections.
- Backing sheet is recommended for all bonded work. It is necessary on unsupported or unrestrained work (cabinet and full size doors, tables, paneling, etc.).
- Backing sheet helps balance the unit by controlling moisture gain and loss in the substrate and adds physical strength.

Grain raising, swelling particles, improper sanding and other imperfections on the substrate surface may "telegraph" through to influence the surface appearance of the laminate. This can be eliminated by proper laminating practices and careful selection of the substrate, adhesives, and the laminate finish and thickness.

Plywood, steel, aluminum, or fiber-reinforced plastic (FRP) may be used in some applications, but its dimensional movement are significantly less than high-pressure decorative laminate (HPDL). This may result in potential panel warpage, stress cracking, and open seams.

**NOTE:**

- It should be noted that certain properties of the assembly are influenced by the substrate. Plaster board, gypsum board, plaster, concrete, and similar materials are not recommended because their internal bond strength is not sufficient for this application.
- It is best to use the same grade of laminate on face and back of substrate. This is seldom economically practical. Therefore, Arborite® Backing Grade is recommended as an alternate.

**Bonding to Metal**

- Differential in thermal movement between metal and plastic laminates will result in bowing under certain conditions.
- Bonding laminate direct to the metal can be done provided the metal is properly prepared. Epoxy adhesives are recommended.
- The metal surface must be degreased, absolutely clean and free from paint or other coatings.
- If welding is to be done, the details should be planned so the laminate will not be damaged.