

FORMICA® LAMINATE BY FORMICA GROUP / VENEERED TO METAL SUBSTRATES TECHNICAL BRIEF



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THE INFORMATION UNDER THIS HEADING WILL INCLUDE (I) GENERAL INFORMATION, (II) MATERIALS, (III) CONDITIONS AND (IV) METHODS.

I. GENERAL INFORMATION

Successful application of Formica® Brand Laminate to metal surfaces is dependent on the type of metal used, thickness and rigidity of the metal core, preparation of bonding surfaces, adhesive and adhesive application techniques and the use of proper pressuring techniques. Because of the dissimilarity of Formica Brand Laminate sheets and metal, a contact type of adhesive can be used to accommodate the different dimensional movements of the materials.

II. MATERIALS

A. METAL CORE:

1. Stainless steel, minimum gauge thickness 20
2. Cold roll steel, minimum gauge thickness 20
3. Aluminum, gauge is dependent on construction or core

B. ADHESIVES:

Formica #155 Spray Type Contact Cement

C. SURFACING MATERIAL:

Laminate by Formica as manufactured by Formica Corporation

D. METAL CLEANING MATERIALS:

Commercially available metal cleaning and degreasing materials

III. CONDITIONS

A. Complete all welding of components, including braces, before applying the Formica Brand Laminate material. All burrs, weld spots, and similar rough work onto which Formica Brand Laminate will be applied must be ground. Metal panels made of stamped or rolled and welded rib construction cannot take high pressures without showing indentations adjacent to the ribs or bending and preventing intimate contact of the two adhesive films. Therefore, blocking must be used between ribs and pressures kept adequate.

B. The temperature of all the materials and the area in which the actual fabrication is done shall not be less than 70° F with a recommended relative humidity of not less than 35% and not more than 55%. contact with the floor or an outside wall. Optimum conditions for storage are approximately 75°F (24°C), and 45% to 55% relative humidity.

C. It is desirable that all Formica Brand Laminate edges be held down or restrained with metal moldings. Formica Brand Laminate edges should never be tightly contained between moldings or within an area which would constrain the normal dimensional movement.

D. All inside corners of Formica Brand Laminate must be radiused as large as possible (minimum 1/8"). The edge of the radius is to be smooth and free of chips or crazes.

IV. METHODS

High volume production of Formica Brand Laminate to metal should include conveyors through (1) cleaning process; (2) automatic sprayer or roller coating adhesive application; (3) controlled forced drying of adhesive films and driven pinch roller pressing.

THE FOLLOWING ARE TYPICAL PROCEDURES TO APPLY LAMINATE BY FORMICA TO METAL SURFACES:

STEP 1 – SURFACE PREPARATION

Metal surfaces must be free of oil, grease, oxides, or any other contaminant. The surface of the metal should be dry wiped after the cleaning and degreasing process, if necessary, to assure that all residue has been removed. Care should be taken so no chips or particles of dirt are trapped in the adhesive line which would show through the Formica Brand Laminate surface after pressing. Commercially available metal cleaning materials are satisfactory. A “bonderized” surface is ideal and recommended.

STEP 2 – APPLICATION OF ADHESIVE

A smooth, adequate adhesive film should be applied, in accordance with the adhesive manufacturer’s recommendations. A proper adhesive film is best accomplished by either automatic spray or roller-coating techniques.

STEP 3 – ADHESIVE DRYING

Forced drying is recommended to establish and maintain a constant time for adhesive drying. This assures consistent maximum bond strength between Formica Brand Laminate and the maximum bond strength between Formica Brand Laminate and the metal surface.

A typical forced drying cycle of 140°F to 150° F for 4 to 5 minutes is recommended, to be adjusted to suit the conditions and equipment. Infrared ovens or a bank of infrared bulbs provide excellent forced drying conditions. All forced drying systems should be exhausted to the atmosphere. When air drying, the rate of evaporation will vary because of the changing amounts of moisture in the air and the changing temperatures. In forced drying a cycle can be established and used throughout the year. Air drying necessitates periodic testing to determine if the adhesive film is dry enough for bonding. When ready for bonding, the adhesive will not transfer as a wet film to smooth bag-type kraft paper if touched lightly.

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TECHNICAL BRIEF CONTINUED



STEP 4 – INDEXING OF THE LAMINATE BY FORMICA TO THE METAL

In most cases it is necessary to use indexing arrangements to precisely position the Formica Brand Laminate to the metal prior to pressing. Proper indexing is necessary because once adhesive films make contact, further alignment is not possible. If the Formica Brand Laminate must be removed from the metal, it is necessary to apply Formica® Brand Contact Solvent to the adhesive line which will soften the adhesive and cause release.

STEP 5 – PRESSING OF THE ASSEMBLY

Adequate bonding pressure over the entire surface is absolutely necessary. A hollow metal core with only a few supporting ribs cannot be veneered at pressures exceeding 25 psi without causing show-through of the supporting rib. In order to use maximum psi on hollow-rib supported core, wood fill should be used between the ribs to provide support. Warm, dry adhesive films will adhere better than cold films and result in greater bond strength. Therefore, when using forced drying, the pressing should be done while the components are warm.

Pinch rollers are recommended for high volume production.

STEP 6 – FINISHING AND STORAGE

After pressing, the assembly may be trimmed to size using carbide-tipped saws or routers, or installed within containing perimeter moldings. It is recommended that the assembly not be subjected to any extreme changes of atmospheric conditions for 2 to 3 days after fabrication. This may stress the materials and cause problems associated with stress.

MANUFACTURER

Laminate by Formica sheets are manufactured by Formica Corporation.

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TECHNICAL SERVICES

Technical assistance may be obtained through your local Formica® Brand Products Distributor or from Formica Corporation trained representatives in sales offices throughout the country. To assist these representatives, Formica Corporation maintains a sales technical services staff in Cincinnati, Ohio. For technical assistance, contact your distributor or sales representative; write the company directly at Formica Corporation Technical Services Department, 10155 Reading Road, Cincinnati, OH, 45241; call (513) 786-3578 or 1-800-FORMICA™; or fax (513) 786-3195. In Canada, call 1-800-363-1405. In Mexico, call (525) 530-3135.

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GreenGuard Environmental Institute
Formica® high-pressure laminate (HPL) is GreenGuard Indoor Air Quality Certified under the GreenGuard Standard for Low-Emitting Products.

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