THERMALLY FUSED MELAMINE

TFM or thermally fused melamine is made by fusing a resin-impregnated sheet of décor paper directly to a substrate. There is no kraft paper used in TFM, and the resulting panel is ready for finishing. The décor paper generally weighs between 60 and 130 g/m² and is the same as the paper used in the production of HPL, making for easy matching across materials. Heat and pressure activate the resin in the saturated TFM sheet, creating a cross-linked bond with the substrate. This effectively seals the substrate. Particleboard and MDF are ideal substrates for TFM because they are consistent, uniform in strength and free of defects.

TFM CONTINUED ON PAGE 30
TFM decorative panels can be manufactured with enhanced visual and performance characteristics. Surface textures are created with steel press plates that emboss the decorative overlay to heighten the realism of wood grain, stone or abstract designs. Steel press plates can also be used to create or control the gloss level of the surface.

TFM decorative panels have excellent scratch and wear resistance. They are widely used in laminate flooring, office furniture, closet system components, store fixtures and cabinets. It is also an appropriate spec in healthcare, hospitality, commercial and retail settings. TFM decorative panels typically require a decorative edge treatment and can be specified with or without edge, and with single or opposite-side face treatments. Due to the performance, design flexibility and cost advantages, TFM offers an excellent option for designers and specifiers.
The two most common thermoset resin systems used in TFM decorative panels:

**MELAMINE**: The resin is introduced into the paper during an impregnating operation. After the paper is impregnated it is partially cured (B stage) using curing ovens. The melamine resin is fully cured under heat and pressure during hot press lamination. The B staged paper has a definite shelf life that varies with temperature and humidity. Melamine resins are fully cured at 300-400 psi and 300-400 F. They are noted for their hardness, scratch resistance and color stability and are the most commonly used resin in saturated paper overlays.

**POLYESTER**: The resin is introduced into the paper during an impregnating operation. After the paper is impregnated it is partially cured (B stage) using curing ovens. Polyester resin is fully cured at 175-200 psi and 275-350 F during hot press lamination. The B staged paper has a definite shelf life that varies with temperature and humidity. Polyester resins are noted for their chemical, stain, water and impact resistance, color clarity and machinability.

THERMALLY FUSED MELAMINE PROVIDES EXCELLENT HARDNESS AND SCRATCH RESISTANCE SUITABLY DURABLE FOR ALL THE HARD-WORKING AREAS OF THE MODERN HOME, FROM FURNITURE FOR THE DINING ROOM and KID’S BEDROOMS TO STORAGE AND ENTERTAINMENT SYSTEMS.
Known as rigid thermoformable foils (RTF), three-dimensional laminate (3DL) and two-dimensional laminate (2DL), these materials are thermoplastic film overlays. They provide end users the freedom to design components with contoured surface profiles and seamless edges without requiring edge treatments. Designers can also use film overlays to customize shapes and incorporate punch-outs, logos and concave/convex surfaces. These films are available in solid colors or printed designs.

The films used in 3DL and 2DL are thermoplastic, meaning they soften when heated to take on the shape of their substrate and return to a firm state when sufficiently cooled.

3DLs are primarily made of polyvinyl chloride (PVC) and polyester (PET) films. They can be seamlessly membrane pressed or vacuum formed around contoured components, including edges. 3DL can also be used in 2DL applications such as profile wrapping and flat lamination. 3DLs are available in typical thicknesses from 0.008” to 0.040” and customized gloss ranges. In addition, they can be embossed with specific patterns to improve realistic aesthetics.

3D laminates are resistant to chipping, cracking or breaking making them a popular choice for retail store fixtures. In addition, their application seals the core panel substrate from bacteria and moisture, which make them an increasingly popular choice in healthcare settings for over bed tray tables, furniture and cabinetry. Due to their ability to wrap around custom shapes, edges and contoured surfaces, designers often specify 3DL materials for POP displays, commercial hospitality components, office furniture and door/drawer fronts for cabinetry.

2DLs are generally made from vinyl, polypropylene (PP) or oriented polypropylene (OPP). They are designed to be flat laminated or profile wrapped.

2DLs are available in a variety of thicknesses ranging from 0.001” to 0.007”, and can be solid colored, reverse printed or top printed with an overlay based on end use requirements.

2D laminates provide excellent water and chemical resistance, and varying degrees of scratch and stain resistance. Common uses for 2D Laminates include walls and ceilings of recreational vehicles, vertical surfaces for retail store fixtures, cabinets, commercial flooring, and residential components.
3D LAMINATES RESIST CHIPPING, CRACKING AND BREAKING, MAKING THEM A PERFECT SURFACE LAYER FOR SCULPTED SUBTRATE PANELS ➊, ➋ AS WELL AS CABINET DOORS ➋. A SEAMLESS EDGE PROFILE AND AN EASY TO CLEAN SURFACE ARE IDEAL FOR HEALTHCARE APPLICATIONS ➌. WOODGRAIN FILM OVERLAYS, COATED FOR SCUFF, SCRATCH AND STAIN RESISTANCE, ARE WELL-SUITED TO OFFICE FURNITURE ➎.

Films can be divided into eight categories:

**2ML REVERSE PRINTED RIGID FILM:** Print design and base coat are printed on the back of the film in reverse order. This film is used for wall paneling (mostly in recreational vehicles), kitchen cabinets, furniture and manufactured housing.

**SEMI-RIGID CLEAR FILM / REVERSE PRINTED:** The film is frequently embossed and can be coated with scuff resistant coatings. These films range from 4 to 8 mils in thickness. Some can be mitre folded.

**SANDWICH FILM:** Semi-rigid two-ply overlay. The opaque base film is top printed and a clear overlay is laminated on top. This film is designed for mitre folding and flat sheet lamination. These films range from 5.5 to 8 mils in thickness. Some are available with scuff resistant topcoating.

**SOLID COLOR FILM / SEMI-RIGID FILM:** This film is integrally colored and can be top printed and/or embossed. Top printed film is used extensively in manufactured housing, recreational vehicles, commercial paneling and movable walls. Plain solids are used in furniture, kitchen cabinets, fixtures and displays and office furniture applications. Thicknesses range from 3.5 to 8.0 mils. Some films are available with scuff resistant topcoatings.

---

**IN THE BEGINNING IT WAS BELIEVED THE WORLD WAS FLAT AND SO WERE OUR LAMINATES... BOY, WERE WE WRONG!**

**WELCOME TO THE NEW WORLD OF 3D LAMINATES**

**HRWOOD.COM**
FILM OVERLAYS ARE VACUUM FORMED OR MEMBRANE PRESSED OVER CONTOURED SUBSTRATES ➊. AMONG THE DESIRABLE QUALITIES OF FILM OVERLAYS ARE THEIR RESISTANCE TO WATER AND CHEMICALS ➋. COMMON USES FOR 2D LAMINATES INCLUDE CABINET DOORS ➌.

THERMOFORMED OVERLAY FILMS: Single-ply or two-ply construction. Gauges range from .010" to .030" and the film may be printed in wood grain or decorative patterns. Films may be embossed and may be coated with scuff and stain resistant coatings. Primers to promote adhesion are available. Films are designed for thermoforming with heat and pressure in a bladder press or vacuum forming process. Decorative effects can be achieved with two-ply films when a router is used to expose a different color in the bottom ply film. Films may also be flat laminated or mitre folded. Raised panel cabinet doors and free-formed furniture components are the most common applications for this type of film.

WRAPPING FILMS: Are rigid vinyl films in gauges from .005" to .010". Film may be printed in wood grain or decorative patterns, may be embossed and may be coated with scratch and stain resistant coatings. Films are designed for wrapping profiles, like picture frames and furniture moulding, and can also be flat laminated and mitre folded.

CALENDERED POLYPROPYLENE FILM: These films range from 5 to 20 mils in thickness and are available in a range of solid colors. Typical applications include flat laminations and edge banding for garage and kitchen cabinets as well as electronics.

ORIENTED POLYPROPYLENE (OPP) FILM (OPAQUE): Relatively new to the decorative overlay category, these films are stretched (oriented) in both the machine and cross-machine direction to deliver improved dimensional stability. In addition, OPP offers resistance to water and chemicals. Because of its non-absorbent print surface OPP is ideal for high fidelity wood grain prints and decorative patterns. OPP films may be embossed and are typically coated for scuff, scratch and stain resistance. Oriented polypropylene films are available in thicknesses ranging from 0.9 to 2.2 mil (23 gsm to 56 gsm). Typical applications include RTA furniture, cabinets, wrapped profiles, ceiling and wall panels.

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Beachwood and Boardwalk
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Matching TFM available from Tafisa in “Alto” finish:
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Cabinet boxes are typically built from particleboard because of its dimensional stability. These cabinet faces are finished with textured high pressure laminate (HPL). A variety of textures, ranging from flat/matte to deep ridges and grain patterns can be embossed into decorative surfacing materials by using release papers, press plates, or textured cylinders in the laminating process. TFM can also carry texture and is a common material specification for vertical surfaces.

Engineered five-piece doors are produced by profile wrapping the stiles and rails, which can be done with a variety of materials including 2DL and 3DL film overlays, OPP or polyester saturated papers. The interior flat panels can be of the same material or a matched TFM. Contoured door and drawer fronts can also be achieved by routing homogenous MDF panels and then vacuum forming (3D laminating) a rigid thermofoil over the surface.

Producers of decorative surfacing materials work together to maintain "surface material matching programs," allowing designers to precisely specify different materials in the same application with a cohesive aesthetic.
Decorative foils are an intermediate-range paper-based overlay and are also called impregnated papers. They are generally pre-impregnated with a blend of melamine, acrylic and urea resins during the paper-manufacturing process or post-impregnated after the paper is fully cured. Decorative foils weigh between 40 and 200 grams/m² untreated. During the impregnation process, the cellulose papers typically gain between 20 and 50 percent of their base weight. Those between 100 and 200 grams are dubbed specialty papers and are more likely than lighter-weight varieties to be used for exposed decorative surfaces.

Heat transfer foils involve the transfer of a complete coating system from a carrier film to a substrate by means of heat and pressure. When transferred at point of contact between heated roller and substrate, the coating system provides both a decorative effect and a protective layer to provide specified end use properties. The foils are gravure printed in reverse sequence on a co-polymer film. That is, the release coat is applied first followed by a protective coating, the decorative pattern, the base coat and finally, the heat-activated adhesive. These foils can be applied vertically or horizontally to flat surfaces, curves, edges and contoured profiles. They are thermoformable, making them ideal for applications with doors or decorative trim, and can be restamped after application to correct defects or damage.
The impregnated foils are bonded with an adhesive system to a substrate (ex: MDF or particleboard). Quantity, method and type of impregnation as well as the type of adhesive system and substrate will have a direct effect on the finished product. These qualities will be demonstrated in cutting and machining performance. Although impregnated papers do not require a topcoat to be considered a foil, most foils receive a finished topcoat for increased durability and scratch-resistance.

Due to substrate surface advancements, the use and performance of decorative foils has increased. Widespread use of decorative foils ranges from retail fixtures to closet systems, RTA furniture, profile wrappings and POP displays. Specifiers choose decorative foils for their sharp print fidelity; wear-, stain- and water-resistant qualities; ease of maintenance and durability as well as their cost-effectiveness and reliable machining and manufacturing characteristics.
Light basis weight papers range in weight from 23 to 50 grams/m². The paper may contain acrylic, polyester or other resins added during the paper making process to improve the internal bond strength. The paper is then printed and topcoated with polyurethane, urea, polyester, acrylic or melamine or a combination thereof for increased durability and performance.

These papers can be printed with excellent quality and high-fidelity patterns. Optional chemical, optical, or gloss-matte embossing of these papers enhances the realism of woodgrain and natural patterns. Light basis weight papers have long been common in higher levels of value engineering and are widely used in cabinets, store fixtures, paneling, shelving, closet systems, RTA and home office furniture.

Light basis weight papers are usually divided into two categories, standard and industrial. Standard grade papers contain a lower amount of resin in the base paper and offer an economical overlay for use on general surface applications.

Industrial grade papers with their higher resin content, should be specified for applications that demand higher production and processing performance (i.e., improved cutting and machining). The cost effectiveness of this overlay group is further enhanced by the possibility of single sided panels. It is not necessary to laminate both sides of the substrate to achieve a balanced panel. As an additional application, depending on their weight, light basis weight papers can be profile wrapped to produce trim that is an exact match of the flat surface.

Light basis weight papers will accept a variety of adhesives applied during the laminating process. Additionally, they can be supplied precoated with hotmelt adhesive ready for hot roll laminating without any additional adhesive application to the paper or substrate. The performance and appearance of the finished panel will be affected by the adhesive system used and substrate quality.
HPL is the direct descendent of the original plastic laminate. It is considered to be one of the most durable decorative surface materials and is available with special performance properties including chemical, fire and wear resistance. Special grades of HPL can be postformed around curved edges by application of heat and restraint.

HPL is produced by saturating multiple layers of kraft paper with phenolic resin. A layer of printed décor paper is placed on top of the kraft paper before pressing. The resulting sandwich is fused together under heat and pressure (more than 1,000 PSI). Because phenolic and melamine resins are thermoset plastics, the curing process transforms the resin into plastic by a cross linking process that converts the paper sheets into a single, rigid laminated sheet. Thermosetting creates strong, irreversible bonds that contribute to HPL's durability.

HPL is laminated to a panel utilizing a variety of adhesives. Particleboard or MDF are the preferred substrate because they provide a stable, durable, consistent and economical foundation. Due to its durability, HPL is a common choice for horizontal surfaces including flooring, countertops and desktops. It also performs well in horizontal and vertical applications for high traffic settings such as hospitality, office furniture, healthcare, retail casework, commercial interiors and educational facilities.

A relatively new development in HPL technology is Double Belt Press (DBP) for the production of Continuous Pressed Laminate (CPL). CPL is decorative paper impregnated with resins and fused under heat and high pressure with resin-impregnated backer(s). Laminate properties are similar to standard HPL and typical thickness range is .4 mm to 1mm. CPL is available in desired sheet lengths or continuous rolls.

Flexible CPL is decorative paper impregnated with flexible thermosetting resins and fused under heat and high pressure with resin-impregnated backer(s). This engineered CPL offers a unique range of formable decorative laminates suitable for profile wrapping and edgebanding applications. Common thickness range is .2 mm through .4 mm. Surface properties are similar to vertical grade HPL and are used significantly to complement HPL and TFM laminates.
There are many types or grades of high pressure laminates engineered for specific performance requirements:

**GENERAL PURPOSE:** Most widely used HPL and suitable for horizontal and vertical surface applications. Typical thickness range from 0.028” to 0.048” (0.71 to 1.22 mm).

**POSTFORMING:** Can be formed around curved edges by application of heat and restraint. Maximum thickness is approximately 0.038” (0.97 mm) and can normally be formed to radii as small as 3/8” (9.5 mm).

**BACKER:** HPL produced without a decorative face. Available as standard (most common; slightly thinner than decorative HPL) or regrind (reclaimed HPL with decorative sheet sanded off).

**SPECIAL PRODUCTS:** Special purpose high pressure laminates include cabinet liners, high-wear, fire-rated, electrostatic dissipative and chemical resistant laminates.

In addition to aesthetic attributes, the lamination of particleboard or MDF with HPL can improve the physical performance of the substrate. For example, a shelf of 3/4" industrial (M-2) particleboard that is 24" long will carry 45 lbs per square foot (psf) of uniform loading with 0.133” deflection. The same shelf can carry 85 lbs psf before reaching the same deflection if overlaid with HPL.

SPECIAL GRADES OF HPL CAN BE POSTFORMED AROUND CURVED EDGES BY APPLICATION OF HEAT AND RESTRAINT. HPL SURFACES ARE WELL-SUITED TO THE RIGOROUS DEMANDS OF THE KITCHEN AND ARE AVAILABLE IN AN EXTENSIVE ARRAY OF PATTERNS AND DESIGNS.
Another common decorative surfacing material used in the lamination industry is natural wood veneer. Veneers are available in a variety of wood species, both domestic and imported. Composite panels, like particleboard and MDF, are the preferred substrate for veneers due to their superior surface qualities of being flat, smooth, uniform, dense and free of knots and grain patterns. In addition, their dimensional stability, strength properties and cost advantages further increase the advantages of using these substrates.

Veneers are typically sliced between 1/25" to 1/50" (1.0 mm to 0.51 mm) and are available plain or with a paper or fleece backer that have varying degrees of flexibility. The backers provide stability and strength to the veneer and minimize splintering, cracking and checking. Veneered composite panel constructions are used in many applications including high quality furniture, case goods, store fixtures and cabinetry. Some veneers are used for profile wrapping, typically over MDF, for high end millwork applications.

Veneers can be overlaid with either heat activated resins or cold pressed. The main resin used in hot press systems is a urea-based adhesive due to its ability to make the panel more rigid, faster processing parameters and lower cost base. Another hot press resin system that is increasingly used is a soy-based resin. Cold press systems typically use polyvinyl acetates, casein and contact adhesives. These systems are used for smaller production quantities and may be less rigid than heat activated resin systems.
Another common decorative surfacing option is paint coating. With the advance of technology, coatings can now be applied to composite wood substrates in either liquid or powder forms. Paint can also be used in tandem with special inks, particularly in applications calling for printed wood grains or abstract patterns. Aside from wood grain printing, coatings are available as a decorative color finish or as a clear protective topcoat. The surface characteristics of composite panel products, especially MDF, allow for direct coating and printing applications, which result in exceptionally consistent defect-free finishes. While some industrial finishes are available on a retail basis, most coatings are custom formulated to fit the specific prefinisher’s line configuration and the requirements of the intended end application.

Liquid Coatings

There are many types of liquid coatings used as industrial decorative surfaces. Coatings can be water or solvent-based, and chemistry advancements continue to provide increases in performance of both types. Both families of coatings are used in finishing cabinets and furniture, exterior siding, millwork, trim, flooring and fixtures.

Water-Based Acrylic Latex Coatings: These coatings are used in industrial, commercial and residential settings and are formulated for both interior and exterior applications. Manufacturers can modify these coatings with different types of resins and cross-linking agents to extend the service life and exterior durability of the coating system. These additives also improve the chemical, corrosion and water resistance properties.

One of the advantages of water-based coatings is their lower VOC content, which reduces their impact to indoor air quality. They are also superior to other coating types in their exterior durability and color retention, which is a function of the acrylic resins used in the formulation. However, these coatings do not perform as well as solvent borne coatings in chemical and wear resistance.

Solvent-Based Coatings: The higher VOC nature of solvent-based coatings limits their use primarily to industrial settings that are equipped with specialized air handling and treatment devices. These coatings can be modified with urethanes, epoxies, nitrocellulose, alkyds and acrylics to impart certain performance qualities.

Solvent-based coating systems are widely recognized for their outstanding chemical and wear resistant properties. This family of coatings is used for high gloss finishes that have superior abrasion resistance. Their toughness and performance properties are among the reasons they are extensively used in the furniture and kitchen cabinet manufacturing business. In addition, there is minimal grain raise and fiber swell with solvent-based coatings, and the finish is easier to touch up and repair if damaged.

Ultra-Violet (UV) Coatings: The main difference with this coating type is how the coating is cured or dried. UV coatings have special ingredients that react almost instantaneously with UV radiation. This results in a significantly faster curing process. As a result, UV coatings are extremely tough, durable and long lasting. They are mainly formulated as clear coats and sealers.
The popularity of powder coating has continued to grow as an industrial finishing system. Initially developed as an alternative way to coat metal, the advantages of this evolving technology have made powder coating the fastest growing industrial finish for metal in the world. Powder coatings are used on appliances, machinery, furniture and fixtures. The powder coating process significantly reduces waste, with nearly 95% transfer efficiency and low VOC emissions.

In the late 1990’s, companies began experimenting with applying powder to wood products, particularly MDF. As MDF was a wood-based product and not prone to carrying electrical charges (critical for the electrostatic process), there were significant processing challenges to overcome. With the development of specially engineered MDF and powders, along with new processing techniques, these efforts were successful and a new way to finish composite panel products was launched.

Powder coating is an advanced method of applying a decorative and protective finish onto a wide range of materials and products that are used for both industrial and consumer applications. The powder used for the process is a mixture of finely ground particles of pigment and resin that is sprayed onto a surface to be coated. The charged particles adhere to the electrically grounded surface until heated and cured to create a variety of smooth and textured finishes that are uniform and durable. The coating process is a single-stage application where all exposed surfaces are coated simultaneously.

The benefits of powder coatings include increased design flexibility, cost efficiency and seamless edges. Powder coatings also provide high resistance to heat, moisture, abrasion, staining and fading, and offer a range of colors, textures and finishes.
### Overlay Manufacturers

<table>
<thead>
<tr>
<th>Company</th>
<th>Brand Name</th>
<th>Special Treatments, Features, and Capabilities</th>
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</thead>
<tbody>
<tr>
<td>AET Films</td>
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<td>Special treatments: high wear, sustainable.</td>
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<tr>
<td>American Renolit Corporation</td>
<td>Renolit</td>
<td>3D laminates, MDF, HPL, and specialty laminates.</td>
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<tr>
<td>Arcelin</td>
<td></td>
<td>Exterior film.</td>
</tr>
<tr>
<td>Bauschulznemann NA</td>
<td></td>
<td>Decorative and solid color printed papers.</td>
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<td>Citotexa America, Inc.</td>
<td></td>
<td>Special treatments: high wear, sustainable.</td>
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<tr>
<td>Coveright Surfaces Americas</td>
<td></td>
<td>Special treatments: high wear, sustainable.</td>
</tr>
<tr>
<td>Formica Corporation</td>
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<td>Special treatments: high wear, sustainable.</td>
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<td>Interprint, Inc.</td>
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<td>Special treatments: high wear, sustainable.</td>
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<tr>
<td>Kapstone Charleston Kraft LLC</td>
<td></td>
<td>Special treatments: high wear, sustainable.</td>
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<tr>
<td>Lamigraf, S.A.</td>
<td></td>
<td>Special treatments: high wear, sustainable.</td>
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<td>Munksip Paper</td>
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<td>Olen Industries Inc.</td>
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<td>Omnipova Solutions, Inc.</td>
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<td>Riken U.S.</td>
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<td>Sudjek, LLC</td>
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<td>Surface Source International</td>
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<td>Technocell Dekor</td>
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<td>Toppam Interamérica Inc.</td>
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<td>U.S. Coating Company</td>
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<td>Wilsonart</td>
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<tr>
<td>Zamma Corporation</td>
<td></td>
<td>Special treatments: high wear, sustainable.</td>
</tr>
</tbody>
</table>
LEED for Commercial Interiors and LEED for New Construction and Major Renovations.

WHITE CITY, OREGON
Spectraboard, Spectracore, ColorLam, FSC/SFI

TAFISA CANADA INC.

AMERICAN LAMINATES, INCORPORATED

COLUMBIA FOREST PRODUCTS

DURAFRAME PARA-STALL SA DE CV

FLORIDA PLYWOODS, INC.

FUNDER AMERICA, INC.

JMC WOOD MANUFACTURING

KML CORPORATION

LAMINATE TECHNOLOGIES

LAMINATORS

OLON INDUSTRIES INC. [COMPOSITION DIVISION]

PANEL SPECIALISTS, INC.

PANOLAM INDUSTRIES INTERNATIONAL, INC.

PASQUIER PANEL PRODUCTS

PATRICK INDUSTRIES, INC.

PPM PANELS MEXICO MEXICO, S.A. DE C.V.

REXCELL SA DE CV

ROCKIE, INC.

SHOLENO INDUSTRIES, INC.

STEVENS INDUSTRIES, INC.

TAFISA CANADA INC.

TIMBER PRODUCTS COMPANY

UNIBOARD

VSIULAM DIVISION DE PRODUCES FORESTIERE AFA INC.

* These companies and facilities offer products made with “No added urea-formaldehyde” (NAUF) panel products. NAUF panel products may be eligible for low-emitting materials credit under LEE for Commercial Interiors and LEED for New Construction and Major Renovations.
<table>
<thead>
<tr>
<th>COMPANY AND LOCATION</th>
<th>BRAND NAME</th>
<th>CERTIFIED WOOD</th>
<th>NAUF (NO ADDED UREA-FORMALDEHYDE)</th>
<th>SPECIAL TREATMENTS, FEATURES, CAPABILITIES AND SERVICES</th>
<th>SUBSTRATES OFFERED</th>
<th>PB, MDF, OR HB PRODUCER</th>
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<tbody>
<tr>
<td>AMERICAN ADHESIVE COATINGS LLC</td>
<td>Lawrence, Massachusetts</td>
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<td></td>
<td>Manufacturer of hot melt adhesives for particleboard and MDF laminations to paper up to five feet wide.</td>
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<tr>
<td>BAUSCHLINNEMANN NA</td>
<td>Greensboro, North Carolina, Myrtle Beach, South Carolina</td>
<td>TecoFoil, TecoLine, TecoTop, TecoLam</td>
<td></td>
<td>Pre-applied hotmelt adhesive.</td>
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<td>CLOSETMAID COMPANIES</td>
<td>Chino, California</td>
<td></td>
<td></td>
<td>Wood powder coating, custom components, cut-to-size, CNC routing.</td>
<td>PB, MDF, HB</td>
<td>No</td>
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<td>COLUMBIA FOREST PRODUCTS</td>
<td>Chatham, Virginia, Hearst, Ontario, Klamath Falls, Oregon, Old Fort, North Carolina, Trumann, Arkansas</td>
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<td>Primer Finish, Hardwood Plywood, Cut-to-Size Available, Beaded Panels.</td>
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<td>Hardwood Plywood and Laminating, Beaded Panels.</td>
<td>PB, MDF, HB, Plywood</td>
<td>No</td>
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<tr>
<td>FLAKEBOARD</td>
<td>St. Stephen, New Brunswick</td>
<td>Rezcote</td>
<td></td>
<td>Standard acrylic and UV top coat, unlimited solid colors, wood grain print.</td>
<td>PB, MDF, Fibrex®</td>
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<tr>
<td>FUNDER AMERICA, INC.</td>
<td>Mocksville, North Carolina</td>
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<td></td>
<td>Wood powder coating, custom components, cut-to-size, CNC routing.</td>
<td>MDF</td>
<td>No</td>
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<tr>
<td>ROSEBURG</td>
<td>Dillard, Oregon</td>
<td>UltraFinish-UV Cured Paints &amp; Finishes, SkyBlend™</td>
<td>FSC</td>
<td>UV fill and topcoat, wood grain print, PB, MDF, VC, acrylic solid colors with custom color program, prefinished shelving and edge banding.</td>
<td>PB, MDF, SkyBlend™, and others</td>
<td>Yes</td>
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</tbody>
</table>

* These companies and facilities offer products made with “No added urea-formaldehyde” (NAUF) panel products. NAUF panel products may be eligible for low-emitting materials credit under LEED for Commercial Interiors and LEED for New Construction and Major Renovations.
<table>
<thead>
<tr>
<th>COMPANY AND LOCATION</th>
<th>BRAND NAME</th>
<th>SPECIAL TREATMENTS, FEATURES, CAPABILITIES AND SERVICES</th>
<th>SUBSTRATES OFFERED</th>
<th>RB,MDF OR HB PRODUCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKZO NOBEL COATINGS, INC.</td>
<td>Chemcraft®</td>
<td>Industrial wood finishes that provide decorative and protective qualities for wood, MDF, wood composites and wood-based products. AkzoNobel specializes in Building Products Interior and Exterior, Cabinetry, Contract Furniture, Distribution, Flooring, Furniture, Windows and Doors, and more. We pride ourselves in exceptional Sales, Customer Service and Technical Support.</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>AMERICAN ADHESIVE COATINGS LLC</td>
<td></td>
<td>Manufacturer of hot melt adhesives for particleboard and MDF laminations to paper up to five feet wide.</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>THE VALSPAR CORPORATION</td>
<td></td>
<td>Decorative and protective coatings for wood, metal and plastic in the industrial markets, interior and exterior decorative paints and aerosols for architectural use, coatings and inks for rigid packaging containers, automotive and fleet refinish products, floor coatings and specialty polymers, composites and colorants.</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>TIGER DRYLAC POWDER COATINGS</td>
<td></td>
<td>Environmentally friendly powder coatings for wood (MDF) as well as metals. Largest selection of colors and finishes in the industry. North American as well as Global production and distribution network.</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>
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OVERLAY

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www.laminatefinder.com

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www.bauschlinnemann.de

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www.chi,yodaamerica.com

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Terry Jenkins@KapStonePaper.com

LAMIGRAF, S.A.
c/. Mas Dorca 14-16 Ametlla Park
L’Ametlla del Valles
Barcelona, Spain 08480
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lamigraf@lamigraf.com
www.lamigraf.com

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Fairlawn, Ohio 44333
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www.omnova.com/laminates

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20 Progress Drive
Shelton, Connecticut 06484
(203) 925-1556 Fax (203) 225-0050
www.panolam.com

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(609) 636-2935 Fax (609) 387-4958
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(314) 209-1655 Fax (314) 209-1656
schattdecor@decorusa.net
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(413) 821-9000 Fax (413) 821-9010
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961 Route 10E, Unit 2-i
Randolph, New Jersey 07869
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www.ssinorthamerica.com

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mglatz@uscoating.com
www.uscoating.com

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smartline@wilsonart.com
www.wilsonart.com

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Laminates Division
14468 Litchfield Drive
Orange, Virginia 22960
(540) 672-5200 Fax (540) 672-9200
plspielman@zamma.com
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subscribe online at www.surfaceandpanel.com
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**COATERS**

AMERICAN ADHESIVE COATINGS LLC  
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Lawrence, Massachusetts 01843-3708  
(978) 688-7400 Fax (978) 691-5015  
aacc@tiac.net  
www.aacc-hotmelts.com

BAUSCHLINNEMANN NA  
7918 Industrial Village Road  
Greensboro, North Carolina 27409  
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www.flakeboard.com

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jking@funderamerica.com  
www.funderamerica.com

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Western Sales: (800) 245-1115  
Southeast Sales: (866) 387-2646  
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AKZO NOBEL COATINGS, INC.  
1431 Progress Avenue  
High Point, North Carolina 27261  
(336) 801-0894 Fax (336) 883-8494  
ron.cooper@akzonobel.com  
www.akzonobelcoatings.com

AMERICAN ADHESIVE COATINGS LLC  
12 Osgood Street  
PO Box 1708  
Lawrence, Massachusetts 01843-3708  
(978) 688-7400 Fax (978) 691-5015  
aacc@tiac.net  
www.aacc-hotmelts.com

THE VALSPAR CORPORATION  
1717 English Road  
High Point, North Carolina 27262  
(336) 889-2157 Fax (336) 802-4736  
woodbldg@valspar.com  
www.valspar.com

TIGER DRYLAC POWDER COATINGS  
1100 Commons Boulevard  
Reading, Pennsylvania 19605  
(800) 243-8148 Fax (610) 926-8149  
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www.tiger-coatings.us

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