

# High Pressure Laminate and Thermally-Fused Melamine:

A Study in Form and Function



by Rick Troxel, Roseburg Forest Products

The combined use of high pressure laminate and thermally-fused melamine in decorative surface design is growing exponentially. This should come as no surprise considering the practice epitomizes the Frank Lloyd Wright axiom, “Form and function should be one, joined in a spiritual union.” With laminate and melamine synergy, **form** is the designer’s choice of color and texture and **function** is the application of that design using high pressure laminate and thermally-fused melamine in a value-engineered manner that becomes one, “joined in a spiritual union.”



**Above,** The use of high pressure laminate and TFM together can save 30% to 50% in material costs without sacrificing quality.

**Opposite,** Savings are obtained by the use of thermally-fused melamine, which can be as durable as vertical-grade laminate at a lower cost.

Thermally-fused melamine (TFM) migrated to North America from Europe 30 years ago and has traveled a long road to acceptance in the architectural and design community. Per capita usage of TFM is estimated at about five square feet per person in the U.S., 12 square feet per person in Canada, and over 20 square feet per person in Europe. Growth of TFM in North America has exploded over the past ten years.

### Factors Driving the Growth and Acceptance of Thermally-Fused Melamine

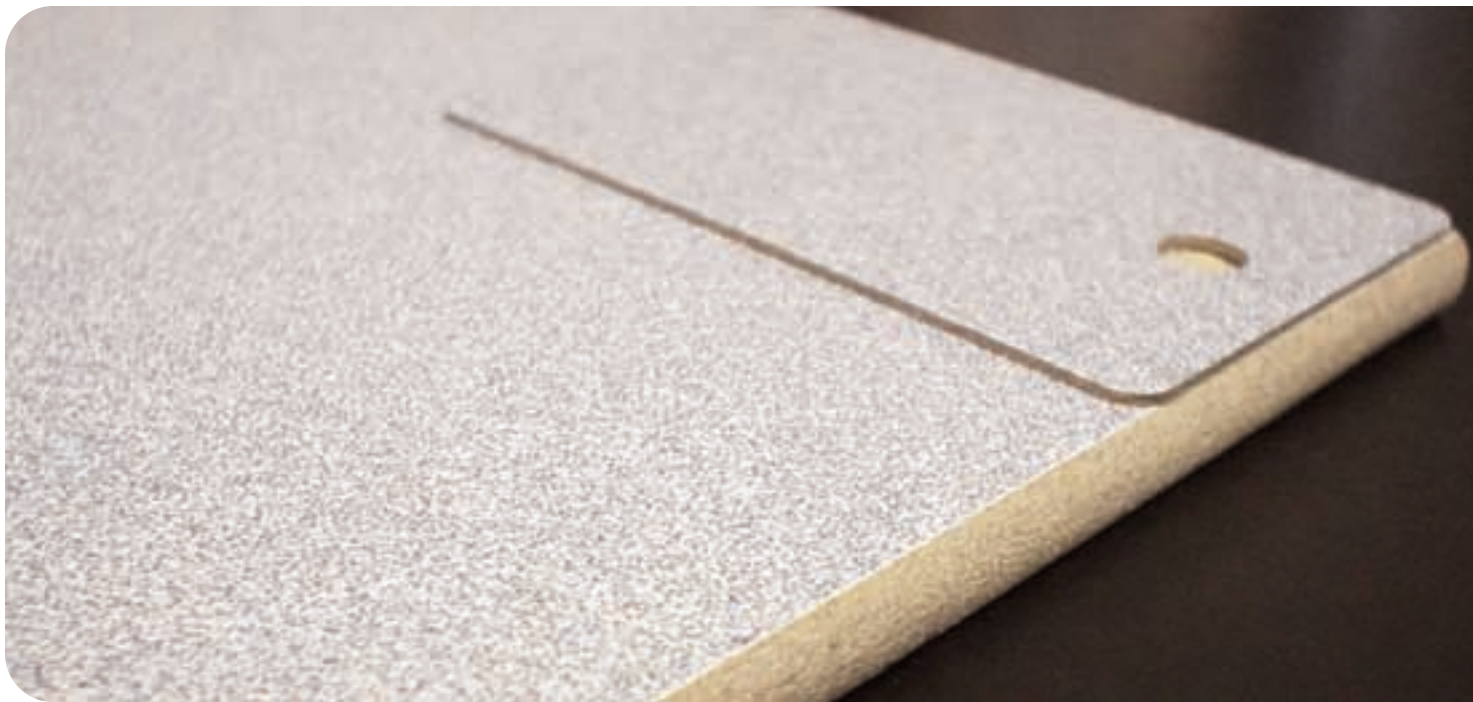
#### *Improved Durability and Availability*

Today, TFM typically performs like vertical grade high pressure laminate when measured against the same NEMA (National Electrical Manufacturers Association) standards. To understand why this is true, let’s examine how these two products are manufactured. Both high pressure laminate and TFM begin with the same decorative paper, which is saturated with melamine resin to enhance durability. (An additional melamine wear layer is added to high pressure laminate patterns and woodgrains.) To create high pressure laminate, the melamine-saturated decorative paper is fused under heat (265° Fahrenheit) and high pressure (1200°) to several layers of phenolic-saturated kraft paper (the number of layers determines the thickness). The high pressure

laminate sheet is then glued to a substrate.

With TFM, the same melamine-saturated decorative paper is thermally fused directly to a substrate of particleboard or medium density fiberboard. The resulting melamine panel surface appears identical to high pressure laminate and performs similarly. The TFM savings are derived from omitting the kraft paper layers and the additional cost of gluing high pressure laminate to a substrate. Because TFM has no kraft paper to act as an impact cushion behind the decorative surface, it is not recommended for counter-tops. TFM should be used for vertical or low-impact/wear horizontal surfaces.

When first introduced to the market in white, almond, and gray, TFM rapidly became the surface of choice for the interior of cabinets. As durability improved, fabricators discovered thermally-fused melamine worked well for exterior vertical surfaces and even some low-impact horizontal applications. Seeing an excellent opportunity to maintain design integrity, nearly every major high pressure laminate manufacturer offers its design on decorative papers to melamine producers. Many distributors stock melamine that matches the most popular high pressure laminate designs and have developed quick-ship programs for nearly all the others. The fact that some high pressure laminate and TFM manufacturers have actually



**Above,** is a cross-section of TFM, which is made by thermally fusing melamine-saturated decorative paper directly to a substrate. On the right side of the photo is a cross-section of high pressure laminate. TFM savings are realized by omitting the kraft paper layers and the added cost of gluing the laminate and the required balance sheet to a substrate.

merged into one company is further evidence that the rapidly growing phenomenon of laminate and TFM synergy is here to stay.

### Value Engineering

More than ever, architects and designers are being asked by their clients to find the most efficient and effective means to maintain design integrity and deliver cost-saving solutions. The value proposition of utilizing high pressure laminate/TFM synergy can save between 30% to 50% of laminate material costs. The impact of these savings is greatest on large scale institutional projects including casegoods, lockers, wardrobes, and wall coverings, as well as kitchen and bath cabinets in

hotels, apartment complexes, and retirement centers.

As laminate manufacturers embraced TFM as another viable way to carry their particular designs to a project, they delivered the laminate and melamine synergy message to the architecture and design community. In 1998, the Woodwork Institute of California recognized the value and importance of pairing laminate and TFM by adding the following information to the 9th Edition *Manual of Millwork*, Section #15 Casework-Laminated Plastic, 1.9: “Use of Thermoset Melamine for exposed surfaces at WIC CUSTOM GRADE is a valid cost savings alternative and is acceptable if so specified.”

### Fabricator Driven

Fabricators know all about TFM. They have been working with melamine for over 20 years and have utilized laminate and TFM synergy wherever it makes sense. They are in direct contact with TFM suppliers and have seen the durability and availability improve. When asked by designers or their clients to offer value-engineering solutions to a project, they often turn to melamine first. Nobody knows better how and where to use high pressure laminate and TFM together than the fabricators themselves.

Among the first manufacturers to realize the potential of this synergy were those who design

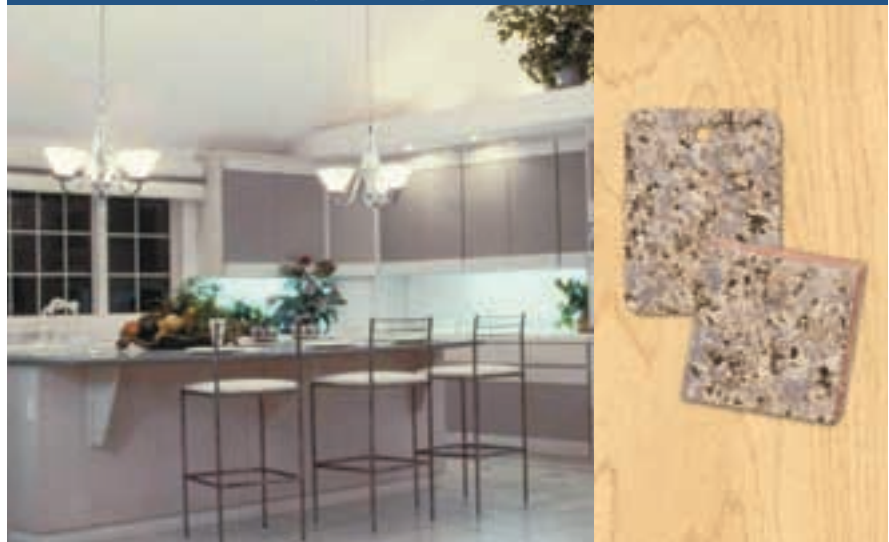
and manufacture their own products. Hospitality, office furniture, and store fixture manufacturers, who answer to their own bottom line, soon discovered they could use laminate and matching thermally-fused melamine where it made sense and saved money, without sacrificing the quality of their products.

As the general architecture and design community discovers the advantages of using laminate and TFM together, the concept is spreading to other traditional market sectors including cabinet doors and drawer fronts in institutional casegoods. What better way to value-engineer a project for a school district, retirement home, or tenant improvement? Ask your fabricators where it would make sense to value engineer your next project with matching high pressure laminate and TFM.



**Above,** High pressure laminate and TFM synergy.

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### The Future of Laminate and TFM Synergy

It's important to note that these two remarkable products are growing in use and both have a legitimate place in your projects. New digital and printing technologies are producing fabulously realistic woodgrains, metals, and otherworldly patterns in both laminate and thermally-fused melamine. High pressure laminate can be bent and formed into a tight radius, it can be made chemical and static resistant, and with additional layers of kraft paper, it can be highly rigid and impact-resistant. The matching of various decorative surface products does not end with laminate and TFM though. There is an ever-widening circle of value-engineered laminate

and melamine offering matching solutions for your projects, including rigid thermofoils, real wood veneers, solid surfacing, and various forms of edge banding.

While TFM cannot and will not be all the things high pressure laminate is, it can offer the architect, designer, specifier, project manager, and fabricator the ability to value engineer while preserving the design/form and the functional integrity of their projects. High pressure laminate and TFM is, as Frank Lloyd Wright would describe it, "joined in a spiritual union."

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