

Advances in MDF and Polystyrene Moulding

By Patrick Sarver

With dramatic improvements in quality in the past few years, MDF and polystyrene moulding are offering production framers more affordable options

Everyone these days seems to be looking for products that do the job for less. Production framers are no exception and are looking for materials that can be used to create lower cost wall art that clients still find appealing. One area where different framing materials are increasingly being considered are medium density fiberboard (MDF) and polystyrene. These materials have been available for quite some time. But in the past two or three years they have reached new levels of quality and variety that production framers, retail clients, and end users are finding them to be reasonable alternatives—especially considering their lower price points.

MDF Moulding

“Today’s quality U.S.-made MDF offers many advantages,” says Jim Parrie, president of Millennial Technologies, an industry consulting firm. “The quality of MDF and the manufacturing processes have improved so dramatically that it’s like comparing today’s personal computers to those from 1985. It’s consistent in size, shape, and color, and there’s almost 100 percent yield. It also ships much lighter and cuts cleaner.”

One of the most visible improvements is the quality of the finishes on MDF. “We are constantly improving our exclusive finishes,” says Dave Rosner, senior vice president of marketing at FramERICA. “Not only are they designed to last, but we are also continually striving to develop new designs. Some of our advances in laminate technology have allowed us to

create mouldings like the Stainless and Vintage collections, which are among the best selling mouldings in North America. Our BonanzaWood MDF core is also more homogenous, consistent, smoother, and better for the environment. Our goal has been to create an engineered wood with all of the best qualities of traditional wood without its negative attributes.”

While the finishes on MDF are getting more realistic, the durability has also shown marked improvement in the past few years. “Special topcoats can be applied that make the paper laminates more durable,” says Scott Haley, director of sales at Horton Components. “Think about laminate flooring, which is made with the same process. Who would have thought you could have paper laminate flooring with a lifetime warranty—but you can. The paper laminates and foil wraps have also improved in their looks, with the finishes and textures constantly getting better.”

From a production standpoint, MDF also offers some advantages. “MDF cuts and joins like traditional wood moulding,” says Rosner. “Because it doesn’t have any knots or imperfections, however, there’s a lot less waste. It cuts easily and joins perfectly using PVA glue and hardwood underpinner nails.”

Rosner adds that FramERICA receives MDF from handpicked sources in North America. “This substrate is tested to ensure that

it meets our stringent standards before being authorized as BonanzaWood grade,” he says. “We are dedicated to providing MDF with a lifetime guarantee, so the MDF is constantly being refined.”



FramERICA's state-of-the-art facility on Long Island can provide custom-designed MDF moulding on a just-in-time basis for production framers.

Different Grades

Not all MDF moulding is the same, of course. “Some places still grind up old wooden pallets and furniture in their MDF, while others use sawdust generated by the normal milling of high quality timber,” says Parrie. “What you want are high quality grades, because the difference in price between, say, 25 and 30 cents a foot gives you a much better join, it doesn’t warp, it doesn’t chew up blades, it doesn’t give off a foul smell, and the screws don’t pull out of the back. High quality MDF is very much worth the price difference. Higher quality wraps also last longer.”

While American manufacturers are working on improvements in MDF finishes, imported MDF manufacturers can have other priorities. China, for example, has taken a different direction with MDF in that most of it is not wrapped. “There, MDF is being used like wood, painting a finish on top of it,” says Paul Pratt, an industry rep and sales representative for MyMoulding. “If you need a black finish, it really doesn’t matter whether you’re working with wood or MDF. Chinese manufacturers are focusing on creating wood-like finishes for the OEM market, especially in supplying OEM frame factories in China.”

Environmental Issues

One of the concerns about MDF in the past has been the fact that it contains formaldehyde, which is used in its manufacture. Today MDF is required to meet certain environmental standards, notably those of the California Air Resource Board (CARB). “These standards were created to make sure that formaldehyde levels are very low,” says Pratt. “There was a time when factories in China and other places had to look for sources that could meet these standards, but most of them can now meet those standards. That’s important because the ports of Long Beach and Los Angeles bring in 40 percent of ship-

ping into the U.S., and the MDF has to meet California standards whether it stays in California or is shipped to other states.”

“MDF today is actually an environmentally friendly product,” says Haley. “First, you’re using the whole tree instead of cutting sections out for wood, so there’s very little waste. And there really aren’t any issues with the current crop of MDF mouldings meeting any environmental standards. There might be a few mills out there that do not meet CARB standards, but all the domestic suppliers we work with meet the requirements. Next year, there’s a phase two that will reduce the formaldehyde even more. In two or three years the standards board will allow zero formaldehyde.”

Indeed, most domestic suppliers of MDF moulding strive to make their product environmentally sound. “Our BonanzaWood complies with all the policies of CARB and often outpaces those requirements,” says Rosner. “Our suppliers also meet or exceed every standard, which has led FramERICA to be certified as an environmentally preferable product downstream licensed facility by the Composite Panel Association.”



Assisi Vintage is one of the latest MDF mouldings with metallic finishes from FramERICA.



Horton Components’ #839-2930 is part of the company’s extensive line of MDF moulding.

Wood or MDF?

The choice of wood moulding versus MDF has a lot to do with what it’s being used for. On one hand, says Parrie, “comparing a top-of-the-line wood moulding to MDF is not fair. Even if you try to substitute a 2” vinyl wrap moulding for a piece of real maple, it won’t be the same because it’s not meant to be. The point is that if you’re looking for a high quality, mid-price moulding, MDF can fill your needs. For most commercial jobs of pre-framed art, some of the new MDFs with metal wrap mouldings or lacquers are certainly preferable

to wood mouldings because they don’t scratch, ding, or show fingerprints.”

“MDF allows us to control our price points,” says

Haley. “For production framing, you can get the same durability and quality with MDF as with wood—plus an extra savings. And the MDF is getting better and better.”

This doesn't mean that wood moulding is about to go away for production framing. It still has advantages in a number of areas, including size. MDF only comes in certain thicknesses, for example. “If you want to make a large, deep moulding—like a 3” or 4” moulding that is 2” or 2-1/2” high—you can't use MDF but have to go to wood,” says Pratt. “Unless you laminate it, you can't get anything that thick. But for a smaller, flatter profile, MDF does a very good job.”

There are also finishes where wood still holds an advantage. “If you need a lacquer finish, for example, you can't do a lacquer on MDF or poly but have to use wood,” adds Pratt. “If you want to do staining, you have to have wood with a good grain to give you the desired results. Wood grain finishes can be duplicated, but if you look at them closely you can tell that they're not really the same. It's the same story for a good painted finish. Wood definitely has its place. When wood is allowed to be seen and felt, and the richness of the grain is allowed to come out, that's when you use wood. If you're just looking for a painted finish or a satin black, there's no reason to go to wood. That's why a lot of satin black finishes on photo frames and things like that are either MDF or plastic—simply because you can't see the material underneath.”

Polystyrene Moulding

“When people think of polystyrene moulding, the first thing that comes to mind is a cheap plastic look of the frames,” says Chris Bair, director of sales and marketing for Chelsea Framing Products. “Five years ago all of the tones that are trendy right now, like mahoganies and espressos, had a plastic look. Well, that's changed drasti-

cally with some of the foil advancements and how foil is applied to the product. The trendy colors and designs are also definitely coming through better. For example, we're doing a bamboo moulding right now that looks far more

realistic. You virtually can't tell the difference between it and real bamboo moulding. Metallic finishes have also been strong, especially stainless steel and platinum finishes. Four or five years ago we were doing stainless finishes, but they just weren't as durable or as good looking as a paper finish on MDF. Today, all the metallic finishes are pretty close to MDF.”

“Today's hot-stamp foil technology is producing very real looking, high quality finishes on poly moulding that were only found on pricier wood moulding in the past,” says Mark Speiser, vice president of Decor Moulding. “Today's poly is being produced with better technology, resulting in improved finishes and substrate quality.”

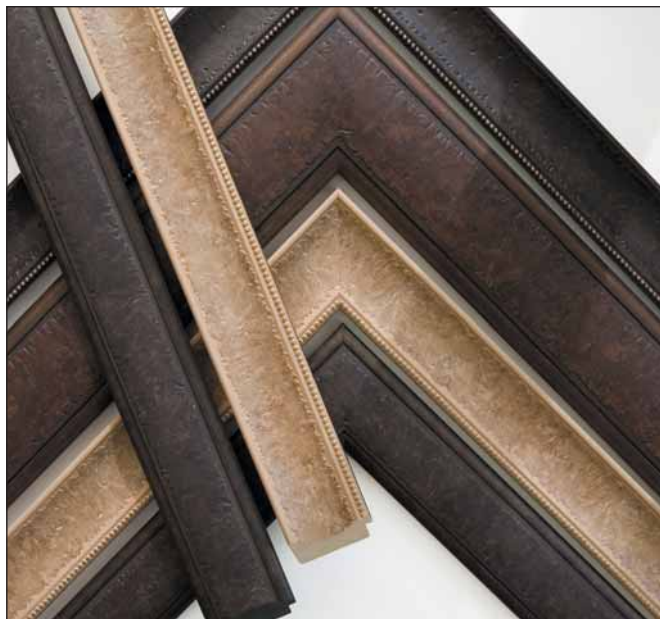
Another advantage of plastic is that it is produced using a wheel so when it comes out hot, it can be embossed. “This allows a manufacturer to add beads and other details that would require a gesso process on wood,” says Pratt. “Using new technology, foil factories have also learned how to produce very durable finishes. For exam-

ple, one company is coming out with a heavy-duty satin black by the end of the year that would be able to stand up to a lot of handling by consumers in stores without scratching or scuffing, reducing a lot of charge-backs to OEMs.”

Distributors of poly moulding have also been collaborating with manufacturing companies to produce custom designs and quality improvements that will appeal to their OEM clients. “We've been working with the manufacturers to create original textures and combinations of foils so that they are even more realistic than the latest standard finishes,” says Mark Gottlieb, president of Uni-



Hi-Wood/Chelsea Framing Products is one of the largest manufacturers of polystyrene moulding.



The Montecito line is a collection of polystyrene profiles that has been custom-developed by Universal Framing Products.

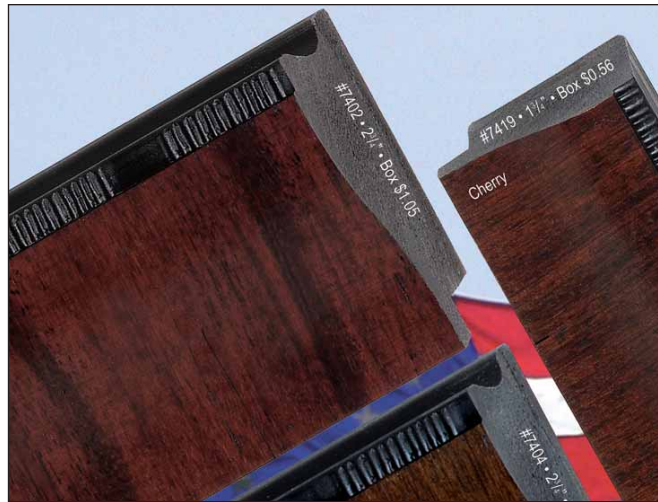
versal Framing Products. “These exclusive finishes and textures are beyond all the other new and improved foils out there. The advances are really coming fast, and for some of the latest mouldings you can’t tell the difference between poly and wood.”

Poly Production

“Most poly moulding is made with recycled polystyrene, which kind of puts it in the green product category, since it is more than a 90 percent post-consumer recycled product,” says Gottlieb. “Recycled polystyrene is turned into plastic pellets that are mixed with about 10 percent virgin polystyrene then re-extruded as moulding. Virgin polystyrene alone is too flexible and rubbery, so the moulding would bow. With 100 percent recycled plastic, the moulding is too brittle. It varies a little by manufacturer, but it’s basically 90 percent recycled and 10 percent virgin.”

“The workability of poly has really improved, because poly is not as brittle as it used to be,” says Pratt. “The companies I work with in Korea, for example, use a higher percentage of virgin plastic because it cuts better and has a better edge. Some poly manufacturers in other countries make their moulding at a much higher temperature, which can create a bit more brittleness that results in a little saw-tooth edge if the blade’s not sharp. So it’s important to pay attention to how a particular factory makes its poly moulding.”

“Today’s poly cuts better, and there are much better glues to hold it together,” says Parrie. “There are some manufacturing challenges with cutting poly. You need a good poly blade. You cannot use a wood blade because it will melt poly. You also



Decor Moulding’s Liberty line of polystyrene moulding offers a contemporary wood veneer look.



Chelsea Framing Products #L052-S525 is an espresso-and-gold polystyrene moulding that shows the quality of the newest products.



Foil is applied to polystyrene moulding at the MyMoulding factory.

have to make adjustments with your joiner, and the glue is applied very differently than for MDF because it dries very fast. Hangers may pull out the back if you have a really brittle poly or one that’s too soft, which leads to weight limitations. And there are also size limitations because some poly will bow if it gets too hot.”

“There’s a misconception that if you change over to poly, you’ve got to get all new equipment,” says Bair. “You can use exactly the same machinery that you do for

wood. There are some tricks on how to make sure it works better, however. You do have to adjust the speed of the blades, for example, because the friction builds up heat and that can melt plastic. If you take the teeth per inch (TPI) of your blade down, that helps. You can go all the way down to 32 TPI. Even more important is that you need to cut poly it in a smooth stroke—go right down through and right back up. If you go halfway and stop, heat will build up and that will curl the edges of the moulding.”

“You can cut poly a lot faster than wood,” says Gottlieb. “There are fewer touchup issues in the corners. With wood you have to be more careful with the finishes. You have to be concerned about gesso or gesso chipping and the sharpness and the speed of the blade. You have to slow the speed of the cycling down, depending on the wood. Or you have to deal with different wood densities in a finger joint product, where there are different densities of wood to deal with. Poly is faster to cut

than any kind of wood, making it conducive to production. And there’s also less wearing of blades with poly.”

“While it’s not done often, a factory can also produce sticks of poly at the length a production framer would

find most efficient,” says Pratt. “A job might require, say, an 11’ or a 9’ stick instead of 9?”—which is what most of them are—and that can reduce waste to a real minimum”

Environmental Issues

The only environmental issue that has arisen for poly is a concern over lead in moulding from Asian sources. “Lead is more of an issue with China, especially with the recent issues of lead in children’s toys,” says Bair. “Some Chinese manufacturers have had some poly moulding test positive for lead, whether it was from the foils or the poly itself, although this has not been a major problem. We consistently test our product at our factory in South Korea for lead, and we’ve never had a problem.”

Poly versus Wood

As with MDF, there are areas in which poly moulding offers advantages over wood and vice versa. For example, Speiser says, “In retail framing, where custom labor is most of the expense, saving a few dollars on a custom framing by using non-wood moulding doesn’t make sense. But for economy framing done by production framers, where the cost of materials is a larger part of the cost, poly has much more of an advantage.”

“The poly business is growing quite dramatically,” says Pratt. “More people adding poly because, as wood prices go up, there’s a product vacuum created on the bottom that needs to be filled. And because the finishes are so good now, poly is very similar to wood for those applications.”

“While there are many types of wood tones and textured wood items available in poly today—gold, silver, ornate, all kinds of finishes—there are certain finishes that are harder to duplicate in poly,” says Gottlieb. “These would be distressed finishes, hand rubs, leafing. For those, wood is still the primary choice.”

“The bottom line is that price point is the primary driver of why people use poly,” says Bair. “Poly is a lot easier to work with than wood. It’s moisture resistant, it doesn’t have splinters, and it doesn’t warp, there are no knots, so it’s a definite production friendly product. And the finishes have advanced so much in the past two years that poly is more acceptable to everybody. We extrude all of our moulding in 9’ lengths, so you can also calculate and maximize your yields easier than if you’re buying wood moulding in different lengths. The only reason to still use wood is for a customer who is resistant to carrying poly,



This polystyrene moulding MyMoulding has a beading inner edge, which is created as the moulding is extruded.

although that’s pretty rare today. The one thing to keep in mind is that polystyrene is a manufactured product. While there might be 10 companies shipping polystyrene moulding, every one has a different makeup. Some are a little more brittle; some are a little denser. People who may have had a bad experience with polystyrene in the past may just have been using poly from the wrong factory.”

MDF or Polystyrene?

Are there any clear advantages for MDF versus polystyrene moulding? The companies that manufacture one or the other are quick to point out the benefits of what they offer. But overall, the answer is more about the specifics of what is required for the job at hand. Here are some viewpoints:

“MDF is great for flat and smooth surfaces all day long, but companies

just can’t create ornate MDF moulding,” says Parrie.

“That’s when you want to look at poly. If a client wants gold or silver ornate frames, is price sensitive, and doesn’t care whether it’s poly or wood, then it makes sense to go with the poly because it’s going to sell for 40 percent less than wood.”

“MDF is usually the best option in terms of value, consistency, workability, and design,” says Rosner. “Poly is inexpensive but, in my opinion, offers a less desirable look and is structurally unsound at times. It can be cumbersome to work with, with sharp edges when cut and the inability to be touched up. It requires slower blades and special glues. Conversely, MDF is environmentally friendly, easy to use, made domestically, cuts and joins with ease, and offers a good value. BonanzaWood is also made in America and is available just in time no matter the quantity.”

“When it comes to price point, MDF is notably good for simple, flat mouldings,” says Speiser. “When the profile and finish are more intricate, however, then poly has the cost advantage.”

“I can picture MDF having an advantage over poly in terms of handling and durability, but it can also crack or crumble,” says Gottlieb. “Due to its density it may handle better in shipping, although its weight will cost double for shipping compared to poly. MDF will also wear blades out faster because you can cut a lot of poly faster compared to MDF.”

“An advantage of poly is that you can do more with embossing,” says Carla Staley, marketing director at Universal Framing Products. “MDF is wrapped, but you can emboss poly, you can texturize it, and you can add different foils. The finished textures are superior to MDF. But

both MDF and poly make sense depending on what you're doing."

"One big difference between MDF and poly is weight," says Pratt. "Poly is fairly light, while MDF is heavy. On the one hand, humans tend to buy things by the pound because they think they're getting more for their money. On the other, freight charges can add up for MDF. If you're looking for really nice wood finishes, and the choice is between MDF and poly, right now the advantage would be with MDF. For simple black and other solid colors, however, poly would be a better choice. The same choice goes for metallics, because foils are so versatile now. And poly can also give you some good wood finishes for

the money because of the texturing. Poly is basically about inexpensive finishes—things that are not complicated and can be done in one pass."

Practical Considerations

"Before I bought any quantities of either MDF or poly, I would want to have 40' or 50' of a moulding shipped to my warehouse," says Parrie. "Let me cut it and join it. Let my people play with it before I buy a container of it. You don't know how it's going to join; you don't know how the hanger's going to go in it. You want to make a prototype of whatever it is you're going to do, perhaps even two or three to see how they fit and feel."

Parrie also adds that it's common for people try to put things in poly that are too big or heavy. "Then they have to string wire across the back or screw Masonite to it," he says. "All that reverse engineering to add strength makes it more expensive when you would just be better off using wood."

Final Points

The choice of wood, MDF, or poly is often based on the needs and the sensibilities of the end user. "One important thing to keep in mind is that many of today's consumers, especially younger ones, don't care about quality the way people did in the past," says Parrie. "It's all about what looks good right now. They're going to keep something on the wall for three to five years and then trash it. It's not like the old days, when our parents would buy a dining room table for life. Today's consumers keep what they buy for five years or so and then get a new one. It's all about the lifestyles of today."

The improvements in MDF and poly quality are giving production framers new options that allow them to manage costs while providing reasonable alternatives to traditional moulding. "Wood is and always should always be there, especially with the rich stains with finishes," says Pratt. "But there are also places for MDF and poly in the market. And the industry today needs a variety of products to address the different needs of customers the best way possible, including price requirements, because it is a very competitive world out there." ■



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