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They Make Patterns For Part Casting

Need a part cast for a restoration, a new build, or to start manufacturing parts? To cast a part, you need a mold, and to make a mold, you need a pattern. Raber Pattern Works has been making patterns from wood and, more recently, aluminum and polyurethane, for nearly 50 years.

"There aren't many left who make patterns like we do," says Allen Raber. "Wood can be used to make a mold for casting a part, but wood has a tendency to crack as it absorbs moisture over time. A two-part poly mixture or aluminum pattern will hold up better over time for repeat molding."

Every pattern starts as wood. If repeated molding is part of the plan, the wood pattern will be used to create a poly or metal match plate.

Raber and his brother Abraham have taken over management of the firm in recent years. They still use the same woodworking techniques and equipment their father, Emanuel, learned in his father's furniture shop during the 1960s and 1970s. However, the Rabers are looking forward to adding new techniques and technologies in the near future.

"We want to get into AutoCAD software for designing and 3D printing for making the patterns," says Raber. "Some of our customers prefer wood for the way it draws out of the sand mold. However, if you understand the casting process and know what you're doing, the new technologies work as well."

It's that knowledge that Raber feels sets the family business apart. Initially, what became Raber Pattern Works was part of what is now the Clark Casting foundry. Today, the two are operated separately by Raber cousins.

"We still work together," says Raber. "A lot of our pattern work goes to them, but we also work with other foundries."

Understanding how the foundries make their molds and castings with Raber Patterns is key to how the patterns are made. Whether simple or complex, each pattern starts with specific dimensions and designs.

Past projects have ranged from toilet paper holders to scale-model toys and parts for full-size and scale-model steam engines. One job was to create a pattern for a 13-ft pilaster (trim) for a Washington, D.C., storefront doorway. Another was to make a pattern for stair treads for a spiral staircase for the Washington Aqueduct.



Stanley Steamer automobile cylinder block pattern and core boxes.

"People will call and ask what it costs to have a pattern made," says Raber. "Having the actual part in hand is the best option. However, if they can provide pictures and dimensions, I can usually give a ballpark estimate."

If a part is worn, broken or severely corroded, Raber may need to estimate the original dimensions. The type of metal to be cast and the rate of contraction during cooling must also be considered.

The estimate will also depend in part on the type of material used for the pattern. A much bigger factor is the piece's complexity. Does it involve interior core boxes? Core boxes create cavities within the mold.

"One of our most complex projects was a pattern for a cylinder block for a Stanley Steamer automobile," says Raber. "It involved five different core boxes that all had to interlock within the pattern to form the insides of pistons and the water jacket."

Another complexity involves the type and amount of machining to be performed on the final part.

"Everywhere there'll be machining done, we have to add to the pattern to ensure space in the mold for extra material to be machined."

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The machine accepts five dies with four patterns to tailor the pie to the occasion. Through direct retail sales and a dealer in Texas, the Raber Fry Pie Press has been sold in all 50 states and 18 countries. A recent Facebook Reel from a customer went viral, further boosting interest.

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Photo courtesy of Will Brinkerhoff

Bill Brinkerhoff and Kathy Sample, co-founders of Farm Stop.

Food Hub Shares Success Story

Anyone considering starting a food hub for local growers may want to attend the 4th Annual National Farm Stop Conference. The conference brings together leaders of the U.S. local food movement to share ideas and explore the growth and future of Farm Stop-style retail food consignment. It's just one example of how two successful entrepreneurs are paying it forward.

"Argus Farm Stop started in Ann Arbor, Mich., as a way for local farmers to have a year-round outlet for their products and consumers to have a year-round supply of locally grown food," says Casey Miller of Farm Stop. "Our mission is to grow our local agricultural economy. We want small local farmers to succeed."

Farm Stop co-founders Bill Brinkerhoff and Kathy Sample opened the Argus Farm Stop at a former gas station in 2014. Farmers set their prices, taking 70%. Farm Stop keeps 30% to cover costs. Every effort is made to connect farmers with customers, and staff is trained on how each farmer grows their crops and where.

The store succeeded in spades. In 2017, they expanded to a second location after a manager, other staff, and customers expressed interest.

"We went from 40 growers originally to around 400 today," says Miller. "Some are year-round, while we see our cranberry producer only once a year. Some of those that are now year-round were only seasonal at first but expanded and innovated once they had a place to sell their produce."

Over the first 11 years, Argus Farm Stop's two locations returned more than \$26 million to local farmers. Over time, the model evolved as needed, but the mission has remained the same.

"When COVID hit, we closed one location and devoted the other to selling online as a CSA, curating food boxes ourselves," recalls Miller. "The local farmers markets shut down, but our farmers continued to sell through us. Our sales went up, and the increased sales have continued."

When COVID restrictions ended, online sales continued, and a new location opened for a store and a nearby cafe. Sales continued to grow, as did interest in the concept.

"Within the first 2 years, people were interested in what we were doing," says Miller. "Our owners had been inspired by a Wooster, Ohio, store called Local Roots."

The owners of that store encouraged Sample and Brinkerhoff by sharing information and allowing them to shadow staff.

"They wanted to pay it forward by helping others," says Miller. "After COVID, more

and more were reaching out to us, as we could demonstrate that a local food chain was more resilient. During the pandemic, people saw images of food rotting in the field while local store shelves sat empty. Meanwhile, we were selling more than ever."

When a trainer at a large company in the area was laid off, Food Stop decided to hire him and formalize its staff training. That decision led to a monthly, free, online educational program. In 2024, Food Stop decided to host a 3-day conference on setting up a food hub.

"We expected perhaps 50 people," recalls Miller. "We quickly ran out of space and ended up with standing room only at 130 from 25 states."

In 2025, the conference drew more than 200 attendees from more than 30 states. In 2026, attendance reached 240 from 37 states plus Canada. Plans are in place for the fourth National Farm Stop Conference, March 29-31, 2027, in Ann Arbor.

Additional learning opportunities are posted on the Argus Farm Stop website.

"Demand for information on food hubs has continued to grow," says Miller. "A new Farm Stop opened this summer in Minneapolis. The first day, there was a line out the door from when they opened until they closed. They're doing an incredible amount of business."

The Minneapolis store may be called Farm Stop, but it has no financial ties to the original Argus Farm Stop. The name isn't trademarked, and the concept isn't franchised. Anyone is welcome to use the name and adopt the concept.

"We aren't interested in opening more stores or franchising," says Miller. "We just want other communities to experience the same success."

She points to Farm Stops that have opened in larger cities like Minneapolis, as well as in smaller towns. The key, she suggests, is to have enough producers to make a farmers market successful. In one case, a group of farmers came together to open one as a farmer-owned co-op. It's in Bloomington, Ind., and they report that the number of farmers joining has grown, notes Miller.

"We believe the sky is the limit for the number of food hubs that can succeed," she says.

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