



Company profile:

Z Modular
Chandler, AZ
180 employees
Modular construction

Challenges:

Infinite part sizes
Need quick delivery
Need to increase throughput
Blend two fixtures into one cell

Bluco modular solution:

Modular Rail System
Custom Welding Tables
13 ½' Vertical Modular U-Forms

“WE NEEDED A SOLUTION THAT WOULD ALLOW US TO HOLD EVERYTHING TOGETHER WHILE WE WELDED IT INTO PLACE, KEEPING IT WITHIN OUR TOLERANCES.”
- MATT MILLER, PLANT MANAGER

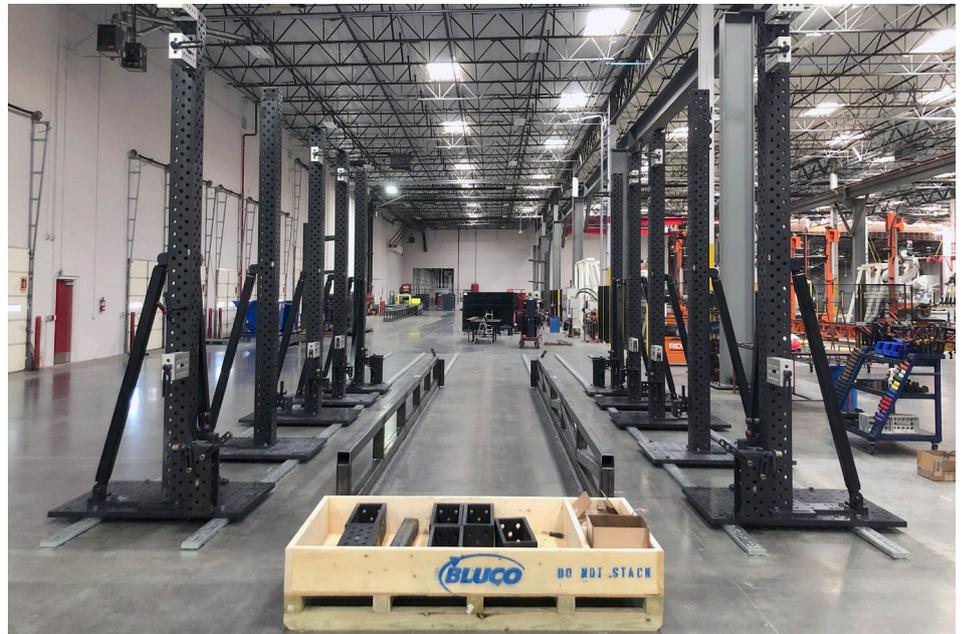
They were committed to achieving the impossible ...

When Zekelman Industries announced the launch of their Z Modular facility in Arizona in 2019, they had a goal that few would be able to reach successfully. They would deliver steel-framed volumetric modular building units up to 50% faster, without cost overruns, built to 1/16” tolerance. In a nutshell, their goal was to deliver the golden trifecta to the construction industry: fast, affordable and very, very good.

DOUBLE OR NOTHING

When doubling production is the only way forward, the solution is modular

They had most of the ingredients they needed to get it done. The Arizona facility would be Z Mod’s third, so they’d been down this road before. They would be producing 90% of the raw materials needed for construction, including the steel (Zekelman’s specialty), so timelines were mostly under their control. And they had a knowledgeable team in place. The plan was to eventually rely on automation to deliver the speed they needed to take them over the top. But Matt Miller, Z Mod’s Chandler Plant Manager, wanted to establish that speed even before the automation came online. “Not only that,” says Miller, “but there were also the usual factors that are just a part of modular construction, including the need to fixture for an infinite number of size variations.” For all that, in Miller’s mind there was only one solution. (Continued)



TOP LEFT: Bluco installed the solution in one week, starting with the floor rail.

TOP RIGHT: The final solution is 3D, with 13 ½' uprights.

ABOVE: Custom parts were needed to stand up the u-forms. Console Blocks were a temporary solution that allowed the system to be used immediately.

THE RESULTS:

Less floor space used

Reduced production cost

Faster throughput

Spot-on accuracy

Repeatability

IF WE HAVE ANYTHING THAT WE'RE PROTOTYPING, WE USE THE **BLUCO** SYSTEM, BECAUSE IT'S EASY FOR US TO MOVE THINGS AROUND. IT'S REALLY FOR PRODUCTION, BUT IT COMES IN HANDY FOR THOSE ONE-OFFS, TOO.

- MATT MILLER

Z Modular turns to Bluco modular

Being a modular company themselves, a modular fixturing solution made perfect sense to Z Mod. They knew that for high mix, low volume production, there was simply no better choice. "I knew we needed a modular system because we build so many different assemblies with different dimensions," says Miller. "We needed something that was flexible, so we could move the tooling around quickly and easily." He also needed someone with experience to nail what he knew would be a very specialized solution.

Design experience makes the difference

Miller reached out to Bluco Senior Application Engineer, Todd Bennett, who told Miller something he was hoping to hear: Bluco had done this before. In fact, Bluco's 30+ years of modular fixturing experience makes "we've done this before" a common theme no matter what the industry. In the case of modular construction, Bluco had fixtured not only Z Mod's Texas plant, but another modular construction facility located near Bluco in Naperville, Illinois. Miller made a visit to Bluco's on-site Validation Center and to the modular construction facility nearby, where he was able to see similar solutions in action. "Seeing what Bluco had already done helped me visualize what was possible. From there, I started wondering how Bluco could take it to the next level," says Miller.

A design curveball

With a taste of what could be accomplished using modular fixturing, Miller started assembling a wish list. While he originally wanted one fixture for roof assemblies, and another for floor assemblies, he challenged Bluco to take that idea and Make it Better. "He asked us if we could design a single fixture that would hold both assemblies at the same time," says Bennett. Working alongside Miller and his production team, the design started to take shape.

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A home run solution in under two months

Ultimately, the solution would be a 60' long floor rail system with 13 ½' vertical modular u-forms. From design to installation, the solution was up and running in 45 days. Getting there required a week of on-site installation (done by the Bluco team), out-of-the-box thinking, and an eye toward solving future challenges. “We weren’t just designing for what’s happening there this week, or even this year,” says Bennett. “We looked ahead to design for what happens when the automation comes online. Looking past that, how could we make it repeatable in other facilities.”

Double the production in less space

For Miller’s part, he’s now able to do two assemblies in the time it would have taken to do one under the original plan. This puts him one step ahead of the game. “Even when the automation comes online, we’ll still be using the Bluco system,” he says. “It will just help us build that many more.” On top of that, he’s saving space. “If we had gone with a fixed positioning system, we’d be really limited in our ability to move tooling around, and it would have taken up a lot more floor space,” he adds.

Looking ahead

Another goal of this project was to leave the team at Z Mod in a position to be able to handle additional fixture designs themselves. To that end, Bluco provided training on how to manipulate the modular components in CAD. But that’s hardly the end of Bluco’s involvement. “Even though everything worked exactly as we needed it to right from the beginning, we’re still looking at ways to make it better,” says Miller. “We’ve had multiple discussions along the lines of ‘yeah, we have it, and it’s working well, but is there an even better way to do it?’”

“That’s literally what Bluco is all about,” adds Bennett, “we won’t ever stop trying to Make it Better for our customers.” ■

TOP: Assembled modular frames as far as the eye can see. Bluco’s modular solution allows them to produce more of these modular frames faster.

ABOVE: These finished modular units, which were part of the modular multifamily residential building pictured on page one, were built by Z Mod and delivered to the site 95% complete, and each within 1/16” tolerance.

THERE’S NOBODY THAT DOES WHAT BLUCO DOES TO THE LEVEL THEY DO IT, INCLUDING THEIR SERVICE. TODD HAS BEEN GREAT THROUGHOUT THE PROCESS. HE’S NOT THE TYPICAL SALES GUY. HE’S GOT MUCH MORE TECHNICAL KNOWLEDGE, AND I APPRECIATE THAT HE COMES AT IT FROM THAT ANGLE.

- MATT MILLER