

New Hudson Facades

Rize Additive Manufacturing Enables Operational Innovation that Saves New Hudson Facades Up to \$50K Per Quarter, Cuts Inspection Time in Half and Improves Accuracy

CHALLENGES

New Hudson Facades wanted to speed production, cut costs and increase product quality without incurring the high cost of hiring or training 3D printing specialists or building specially-equipped additive manufacturing facilities.

SUMMARY

NHF's CNC users operate RIZE ONE 24/7 in an office to save \$200K annually, increase production speed 15% and inspection frequency 5X within the same timeframe.

RESULTS

- 15% increase in production speed
- 5X routine inspection frequency within the same timeframe
- \$200K savings per year on fixture costs
- Improved production accuracy
- 50% reduction on assembly inspection times

At the forefront of architectural innovation, [New Hudson Facades \(NHF\)](#), founded in 2014, is the industry leader in the design, engineering, manufacturing and installation of custom aluminum and glass façade systems on world-class sky scrapers. Their 180,000 square foot manufacturing facility in Linwood, PA is equipped with the industry's most advanced technology, including high-capacity CNC machining equipment, specialized inventory systems and other industry-leading capabilities. The facility continues to innovate with automated assembly lines, robotic glazing equipment, material handling and inspection equipment and, now, industrial desktop 3D printers.

Safe, Easy, Strong Additive Manufacturing Essential for Operational Innovation

Already familiar with 3D printing, Andrew Black, the company's engineering manager, decided to incorporate additive manufacturing in NHF's operations to speed production, cut costs and increase product quality.

To streamline the process, Andrew's vision was to locate the technology in his office, next to NHF's CNC users who would be using the technology. Further, Andrew did not want to incur the high cost of hiring or training 3D printing specialists or building specially-equipped additive manufacturing facilities to store and dispose of toxic chemicals & fumes.

To meet these requirements, Andrew specified that the additive manufacturing equipment they implemented had to be fast, easy to learn and use, safe and produce strong, functional parts. Operating in an office, the process could not include any of the messy or harmful post-processing methods required of most 3D printers.

NHF Selects Rize One 3D Printer

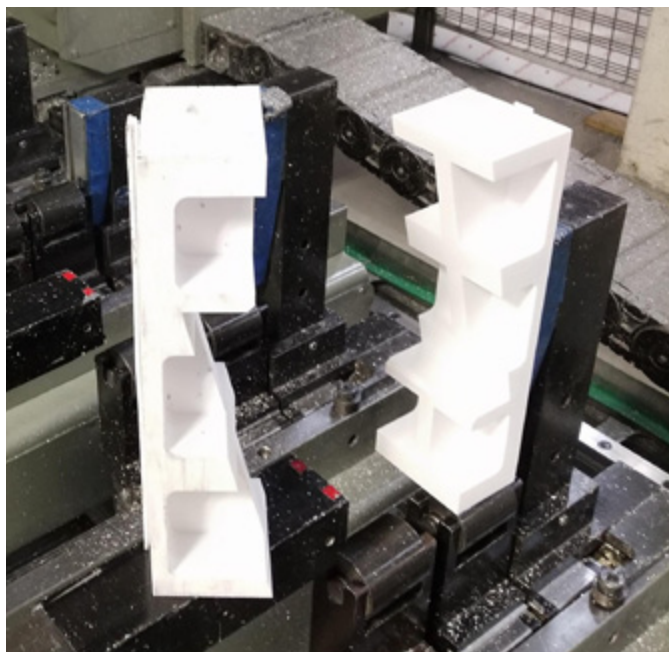
Andrew turned to [Cimquest](#), a leading provider of comprehensive manufacturing solutions, for their recommendation on the best additive manufacturing technology to meet NHF's unique requirements. Cimquest's experts immediately pointed Andrew to the [Rize One](#) 3D printer. Rize provides the safest and easiest industrial additive manufacturing process, enabling users to produce functional best-in-class Z-strength parts at the point of consumption, 2X faster than other technologies and at a fraction of the cost.

Rize One Cuts Costs, Speeds Production, Improves Quality

The Rize One 3D printer is so easy to learn and use, Andrew and NHF's CNC users are running their Rize One 3D printer 24/7 in their office, producing an average of two parts per day for a variety of functional applications.

"I put Rize One right next to my desk, so I can use it all the time," said Andrew Black, Engineering Manager at NHF. *"It's so easy, anyone can use it."*

For example, NHF uses Rize One to produce clamping fixtures used in the assembly process for holding custom aluminum extrusions manufactured for NHF's glazing systems. Previously they machined fixtures at \$200 per part because they found it was difficult for their CNC machines to grab the extrusions. They needed a more accurate means to match the shape of the work holding to the extrusions. And, since they typically produce 100-200 unique and temporary aluminum profiles per project, the custom tooling needed to be low cost and easy to produce.



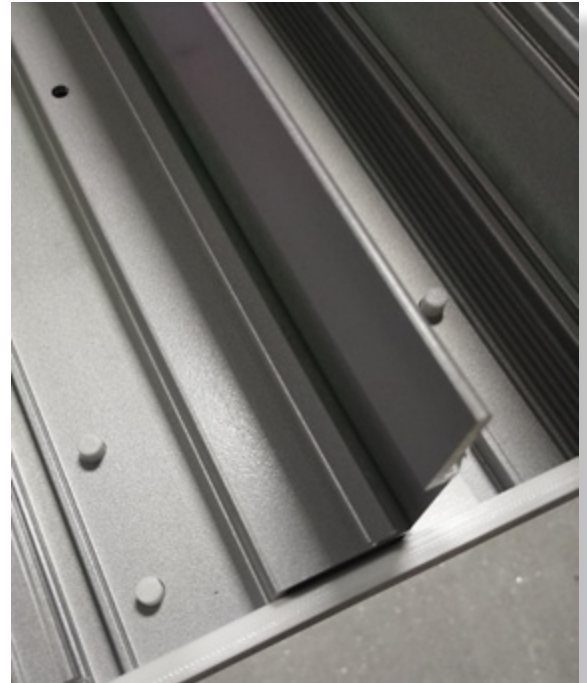
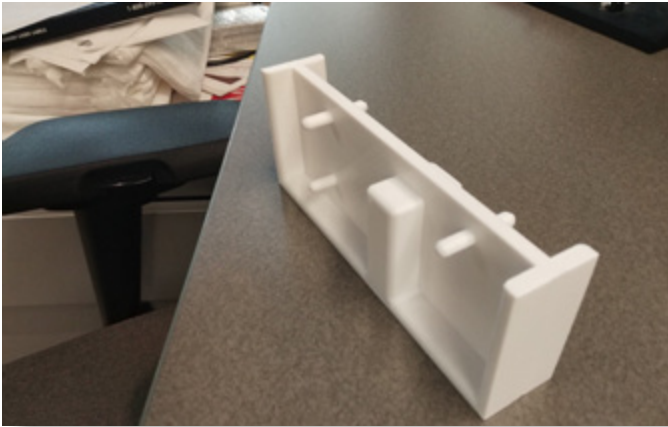
They tried using plastic on a CNC mill, however, while that technique was fast, it required significant expertise. With Rize One, NHF produces accurate, low cost clamping fixtures at \$50 per part. This amounts to a savings of up to \$50K per quarter on the clamping fixtures alone.

Another use case for Rize One at NHF is fabricating custom check gauges, or custom fixturing, for CNC machines used in quality inspections. Previously, a NHF operator used a caliper to check the accuracy of parts, which took approximately 15 minutes per part and with inconsistent results.

Using Rize One, Andrew and his team design and print custom profiles, or 3D blocks, for each project that meet with other profiles via unique hole patterns, each slightly different from the other. After machining, the 3D



printed check gauges are slipped over the end of the part to ensure the holes are in precisely the right locations. Using Rize One to determine if the milling is correct has proven much faster and more accurate than caliper measurements. Checking time has been cut in half, speeding overall production time by 15%.



Moreover, the inspections are more consistent and reliable. Andrew anticipates NHF's QA/QC rejection rate to drop from 1.5% to 0.5%. However, the most notable improvement in accuracy using Rize 3D printing is the increase in the frequency of routine inspections from 5% to 25% of their parts, with no slowdown in production.

Recently, NHF also began using their Rize One 3D printer to produce blocks and gauges that align parts during assembly, significantly streamlining the process. These 3D printed tools have increased the repeatability of the assembly process and cut the time of certain assembly activities by 50%, significantly reducing bottlenecks.



Looking Ahead

NHF's robotics and facilities engineers are testing custom nozzles produced on Rize One that mount to a robotic arm and dispense a two-part silicone used as a sealant on glazing panels between the glass and the aluminum frame. The copper tips they used sometimes broke the glass, in addition to breaking themselves, and are expensive, costing \$100 each to produce.

Andrew is also planning to test 3D printing bar codes onto functional parts with Rize's unique ink marking capability. The 3D printed bar or QR code creates a secure and immutable digital thread between the digital part and its digital twin. Given the large number of custom parts NHF produces for each project, all with minor differences that might be imperceptible to the eye, using Rize to 3D print bar codes onto each part would ensure part traceability and compliance. Adds Andrew,

“We're finding creative new uses every day for our Rize 3D printer.”

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