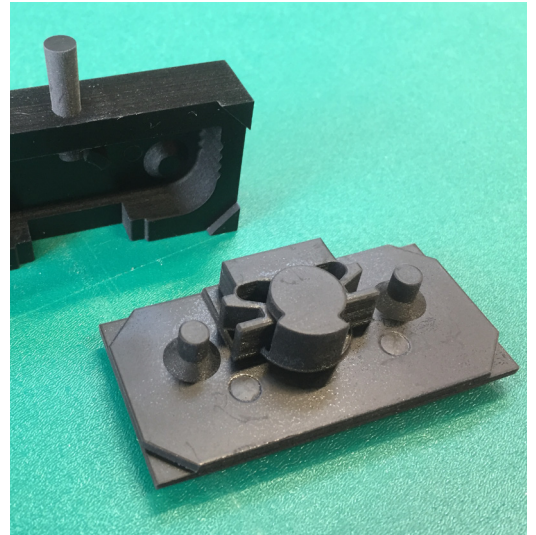


# A Profile of 3D Success

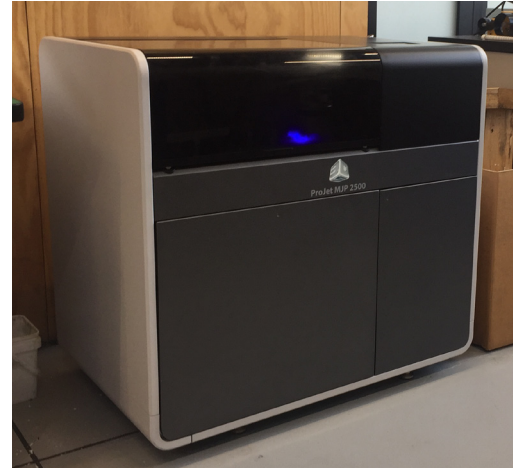
3D Printing  
APL Window Solutions



Case Study

“You can talk directly to someone (Fuji Xerox) who knows your business, where the machine’s sitting, and they can visualise what’s potentially gone wrong. Makes life easy.”

*Darryl Vooght. APL Design and Innovation Manager*



### APL Window Solutions: A profile of 3D success

Formed in 1971, APL Window Solutions is New Zealand’s largest window and door solutions supplier, and the parent company of popular window brands Altherm Window Systems, First Windows & Doors and Vantage Windows & Doors.

APL’s head office has a dedicated design and innovation department, and production and warehousing facilities to develop, extrude, surface finish and distribute profiles to over 70 manufacturers around the country. Coupled with this, it also has a dedicated manufacturing division producing Entrance Doors and componentry. APL also supplies a variety of purpose designed hardware ranges.

You’ll find APL’s profiles in windows and doors around New Zealand, from entry level housing, to architecturally designed homes, and large commercial buildings.

### Early adopters

In the late 1990s APL invested in a new 3D CAD software programme called SolidWorks. Unlike its competitors at the time, SolidWorks was within the price range of most companies. APL lost no time in realising its potential. Within a year they were sending their own 3D profile drawings to RPM Solutions in

Australia to print their prototype models. RPM subsequently merged with 3D Systems, a global leader in 3D solutions.

APL’s Design and Innovation Manager, Darryl Vooght, heads up the team developing new product design. While appreciating the opportunities 3D printing offered in those relatively early days, he says it came with limitations. “It would take around seven days to receive our prototypes back from Australia. By the time the part was made, sent back to us by courier and scrutinised by Customs, it wasn’t a speedy process. And if we needed to refine the design, we’d have to go through the process all over again.”

### Home-use vs. High-end

Wanting to achieve a better turnaround time, APL dabbled in using home/hobbyist style 3D printers a couple of years ago. But removing the supports from the printed output was a painstaking manual process that didn’t always produce a standard, usable result. “By the time you cleaned up the model, it wasn’t a very accurate representation of what you’d designed,” said Darryl. “It showed up the considerable difference between home-user 3D printers, and the high-end printers we accessed through 3D Systems in Australia.”

The exercise further highlighted the

value of a fast turnaround. This set the wheels in motion to bringing professional 3D printing in-house.

### The ProJet MJP 2500 Plus

After a positive 20-year relationship, Darryl trusted the 3D Systems brand. He was delighted to find that Fuji Xerox is the exclusive distributor of 3D Systems printers in New Zealand.

When Darryl opened discussions with Fuji Xerox he was impressed with their range of devices, the comprehensive local support, and the finance options available to APL. After a demonstration in Fuji Xerox’s dedicated 3D showroom, the 3D Systems ProJet 2500 Plus quickly shone as the right device for APL.

The ProJet MJP 2500 Series is designed to combine professional-grade 3D printing capabilities with an affordable price, an office-friendly footprint and easy part processing. It delivers high resolution models, prototypes and injection moulded quality parts on-demand. And with a generous plate size of 295 x 211 x 142 mm, APL can print more items in one go.

The MultiJet Printing (MJP) process behind the ProJet 2500 Plus creates precise plastic parts that are ideal for APL’s functional prototyping and rapid tooling, along with many other applications. It prints rigid parts with



ABS-like plastics and elastomeric parts for real functionality and performance. APL print their models in a durable plastic from the VisiJet M2 range.

### Speed and quality

Fuji Xerox New Zealand had the device installed and up and running at APL's Hamilton design facility by early 2017, and within hours the APL team were successfully printing prototypes.

Now, quality and speed are at APL's fingertips, and seven-day turnarounds are a thing of the past. "With the ProJet it now takes about a day to output a whole plate's worth of prototypes," says Darryl.

And the days of tediously removing supports by hand is over for the APL team as well. No scraping, high-pressure water jets, caustic chemicals or special facilities are required. "Once printed, we put them in a bath where the wax supports are fully dissolved. Within an hour, we have a model that looks like our design. And once painted, the models are indistinguishable from the real thing." The only manual finishing involved is spray-painting the models at the end.

Fuji Xerox has their own fully trained, local 3D engineers for on-the-ground

support, and that's something that Darryl and his busy team appreciate very much. "You can talk directly to someone who knows your business, where the machine's sitting, and they can visualise what's potentially gone wrong. Makes life easy."

### Speed to market

While 3D prototyping is now standard in the window and door industry, Darryl says the ProJet helps APL maintain their competitive edge with that all-important speed-to-market.

"Prior to buying the ProJet, we would visualise designs using 3D imaging from the computer program or we'd send some of the designs away to be printed. We find that clients often struggle to understand a concept or product from a drawing, so we're now printing a lot more, and in fine detail, which makes it easier to 'sell' the idea."

The ProJet also allows Darryl and his team to come up with ways to quickly refine or improve product designs, and extend their range to suit specific customer requirements.

### Convenience and cost

Darryl says that the ProJet is more

expensive to run than expected. However, he admits, that's because they print a lot more than they ever anticipated. Previously, they'd carefully pick and choose which models to send to Australia for printing. Now, the creative floodgates are open. "We can now print multiple iterations or design on one build, just to see which one does work slightly better. The ProJet's reasonable build plate and cost supports our approach."

The cost though, says Darryl, returns more payback in terms of commercial advantage.

Darryl and his team now apply a rapid process of continuous design improvement and innovation, resulting in savings on costly production tools or potential issues further down the track. "If we find our models fall short during testing, we can make changes right away, reprint them overnight, and have the successful design ready to sell to our customers the next day."

Darryl's team love being able to design on the go, and he says it supports their desire for innovation as well as bringing down the cost of trying new concepts. And APL's customers love how their ideas can be brought to life, practically overnight.



## At a glance

### Organisation:

APL Window Solutions

### Industry sector:

Manufacturing

### Employees:

300 plus throughout  
New Zealand

### Business requirement:

High speed ultra-precision  
3D printing

### Primary objective:

Painstaking manual process with the home/hobbyist style 3D printers produced an inaccurate result on prototypes production.

The print images required a high degree of manual finishing, and impacted turnaround time.

### Solution:

3D Systems ProJet MJP 2500 Plus from Fuji Xerox

- High-throughput device designed to print precision parts
- Dissolvable supports so wax output can be processed quickly and easily
- Precise plastic parts for high resolution models, prototypes and injection moulded quality
- Generous plate size of 295mm x 211mm x 142 mm
- Print rigid parts for ABS-like plastics and elastomeric parts

### Outcomes:

- Print multiple iterations or design on one build
- Fast turnaround time on finishing due to precision output
- Huge commercial cost advantage

## About Fuji Xerox New Zealand

Fuji Xerox delivers market leading document services and print solutions to the New Zealand market place. Our core philosophy is to be 'strong', 'kind' and 'interesting'; a 'strong' company that delivers excellent products and services that satisfy customers, and is able to reward its shareholders continuously; a 'kind' company that contributes to local and global communities with a particular focus around young people; and an 'interesting' company at which employees find their life and work fulfilling. We aim to be a company with a good balance of all three attributes. Visit us at [www.fujixerox.co.nz](http://www.fujixerox.co.nz)

For more information about our 3D printing technologies, visit us at [www.fujixerox.co.nz/3D](http://www.fujixerox.co.nz/3D)

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