BuildingPoint™

CASE STUDY

WATKINS STEEL

Mid-sized, innovative steel fabrication and installer adopts end-to-end digital workflow to significantly increase accuracy, reduce rework and deliver more to clients.

COMPANY

Based in Brisbane, Australia, family-owned Watkins Steel has been delivering steel fabrication and metalwork services to South East Queensland since 1968. Watkins Steel specialises in metalwork, small structural steel, urban artscapes and architectural structures and employs fifty staff across steel detailing, fabricating, drafting, estimating and installation. With steady growth since its establishment, Watkins Steel are currently operating from a 3500 square metre factory. They know that their recent investment in technology will play a huge role in their future growth.

CHALLENGE

Watkins Steel has a significant focus on refurbishments which are not easy, clean or straight forward. These jobs generally involve two people on site for three to four hours and then revisiting two or three times just to get the initial site measurement correct. Often times this work needs to be done outside of hours so as not to disturb business or create hazards for customers. This process is highly inefficient and puts increased pressure on those measuring up and working on site.

Frustrated with losing margin because of guesswork and rework Des Watkins (Director) and two other Watkins Steel managers attended a design-led innovation workshop in 2015 run by Sam Bucolo from the University of Technology Sydney. The opportunity to interview people from the construction industry about their pain points, showed the team they were really being judged on how well (and quickly) they reacted to problems on site.

“That’s what the construction industry is all about, overcoming problems on site,” says Des. “So we started to think, what if these problems didn’t exist in the first place? Taking out the human error was the only way we could truly solve this.”

Watkins Steel have been using Tekla Structures, a Trimble Buildings software package for structural detailing, since 2009. They were already aware of other Trimble Buildings solutions, so engaged with local Trimble Buildings distributor, BuildingPoint Australia, to find out more. At the same time, Watkins began looking at robotic steel fabrication machines from Voortman that would work straight off the Tekla models.

RESULTS

Near 100% accuracy on every job first time

- 100% accuracy of site measurements from a laser scan taking five to eight minutes
- 100% accuracy of shop drawings carried out in Tekla
- Fabrication to plus or minus one millimetre over 12 metres using the Voortman V808 Coping Machine
- 500-800 man hours per month saved in steel fabrication
- 100% accuracy of layout with the Trimble layout solution

“The construction industry is all about overcoming problems on site. That’s when we started to think, what if these problems didn’t exist in the first place?”

Des Watkins, Director Watkins Steel

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Trimble
Authorised Distribution Partner

“Its created an entirely digital workflow, eliminating human error”

Des Watkins - Director

SOLUTION

Watkins invested in four new pieces of technology which worked with the Tekla Structures software they already had.

These are:

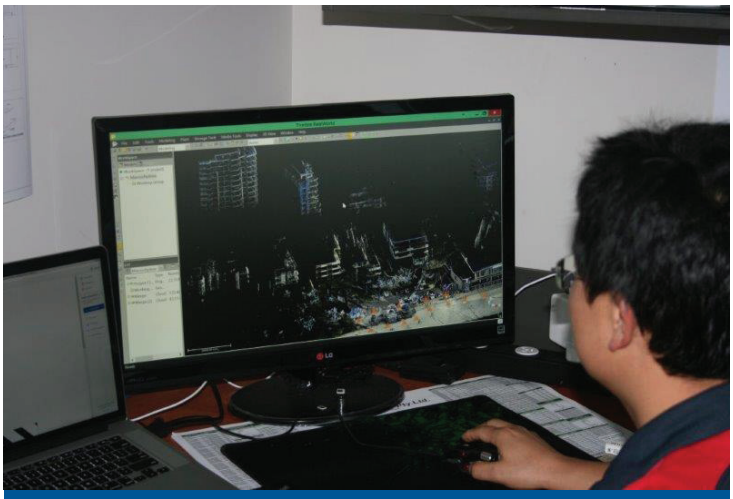
- Trimble laser scanner and Realworks software for site measurement
- Voortman V808 Coping Machine for automated and precise steel fabrication
- Trimble Robotic Total Station and Field Link software for onsite steel installation
- Trimble Connect for sharing models with clients in the cloud

Trimble’s philosophy is to take technology that has traditionally been programmed for surveyors and develop simplified, industry-specific workflows so it can be put directly in the hands of industry professionals. This has meant that, with a few days of training and getting their technology out to site, the team at Watkins Steel have been able to get to know the basics of the laser scanner and the layout solution.

“Now when I go to site, instead of spending hours worrying about whether we’ve got all of the right measurements, it only takes five to eight minutes to do the scan. During that time I can be talking to the client or the site foreman, developing my relationship with them and talking about what we are doing.”

Tony Dickinson, Estimator and Business Development Manager

Des says, “All of this technology is absolutely fantastic, and the Tekla software is what brings it all together. Tekla’s what reads all the site measurements that come from the laser scanner and turns this into a constructable model. That’s what ends up down on the factory floor to fabricate the steel and metal and what drives the layout technology when we’re back out on site installing. Its created an entirely digital workflow, eliminating human error.”



Ben Yu, Project Manager reviews point clouds in Real Works

OUTCOME

Watkins Steel is all but weeks into their journey and feel they have only unlocked 10-20% of the potential of the technology. They are using the new technology to do existing work more efficiently so, rather than having to develop a market for it, they are already using it on every single job that comes through the door. The improvements they have seen through the entire workflow have been significant.

“We’ve gone from so much rework and projects taking far longer than anticipated, to being able to guarantee parts of our workflow 100% first time. For me it’s all about eliminating the human error so we can deliver a better result to our clients.” says Des.

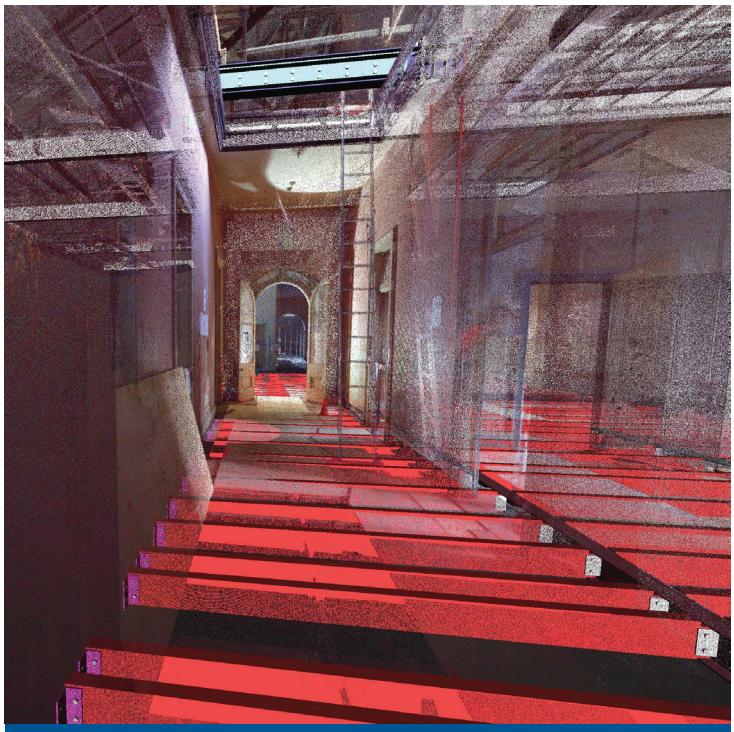
“The first step is the laser scanner which guarantees our site measurements with 100% accuracy. By adopting the latest version of Tekla Structures, we can guarantee our shop drawings and because Tekla feeds the Voortman and flatbed plasma machine, the fabrication is processed to plus or

minus one millimetre over 12 metres, so you're getting close to guaranteeing 100% accuracy on the steel. No longer are we onsite for hours and hours taking potentially inaccurate measurements and then sometimes even having to fabricate onsite. We've taken all of the guesswork out."

Communicating with the client throughout the process has also gotten far easier too. Now, when Watkins Steel responds to a Request for Information (RFI), rather than a paper plan, they will share the existing model with the Tekla plans overlaid via Trimble Connect. This means the client can see exactly what they are going to get and any clashes are evident right in the beginning.

Tony Dickinson, Estimator and Business Development Manager who's been with the business for twenty years, says "Now when I go to site, instead of spending hours worrying about whether we've got all of the right measurements, it only takes five to eight minutes to do the scan. During that time I can be talking to the client or the site foreman, developing my relationship with them and talking about what we are doing."

Voortman V808 Coping Machine to fabricate, cut and mark the steel



In the recent refurbishment of an historic train station, the technology really came into its own. Traditionally this would have been an incredibly challenging project however, with the new technology; work was carried out without disturbing the public, with no onsite fabrication of steel and everything went 100% to plan.

NEXT STEPS

Des Watkins is passionate about innovation and is constantly on the lookout for ways to improve the way Watkins Steel operates.

He says, "Even though we've only unlocked some of the potential of the laser scanner, we are getting more and more confident with that technology. Our next step is to really come to grips with the layout solution and begin to embed that into our processes. We are already looking at new Voortman technology to increase the capacity of our automated steel fabrication and we've also only recently taken on the Trimble Connect Cloud platform as well as a Trimble handheld scanner.

"When you know you're onto a winning thing, you can't stop there. I'm passionate about constant innovation to deliver better to our customers and that's what we'll continue to do."