



*In my 20 years of experience in the industry, ferrules have never lined up. We were able to overcome this by using the 3D laser scanner and Total Station to detect any discrepancies between the design drawings and ferrule points. Based on this information, we could modify the steelwork to fit before it went to site, ensuring that installation would be a smooth process with minimal rectification work required.*

**Tony Dickinson, Business Development Manager, Watkins Steel**

*Interface between pre-cast panels and structural steel generally provides numerous issues with alignment due to the tolerances between the 2 trades. The 3D scanning of the installed panels and ferrule locations meant that these tolerances were accounted for with exact measurements, ensuring that all interfacing members perfectly aligned. This eliminated on site cutting and adjustments, ultimately saving time and money on site. Given that the scanning model maps the entire area, other advantages were gained beyond the structural steel interface. Being provided with the 3D model meant we were able to review the as built structure in 3D format. This also allowed us to better plan for further technical elements of the build that needed to occur.*

**Jed Overdijk, Senior Project Manager, McNab**

Watkins Steel was contracted by McNab Construction to supply structural steelwork for a new 11 story student accommodation building in Woolloongabba. The job required the supply of steelworks that had to match the existing pre-cast panel cut outs and ferrules on site.



## STUDENT ACCOMODATION SUCCESS STORY

### Challenges

- Roof steel needed to be erected as soon as the pre-cast panels were installed. All fabricated steel had to be cut to size so that there would be minimal clashes with existing ferrule points when third party riggers installed the steelworks.
- Given the tight construction program, Watkins Steel needed to ensure accuracy in fabrication to minimise rectification works that would hold up other trades.

### Solution

- Construction reached level 11 and the tilt up walls were already in place when the site was measured using the **Faro Focus 3D X 130 Laser Scanner**. These scans were loaded into software to digitally re-create a '3D point cloud' model with exact measurements.
- In parallel to the site measurement, the Watkins team also used the **Trimble RTS773 Total Station** to accurately locate all the ferrule points in the pre-cast panels.
- Using the architect's Rivet model, the in-house drafting team created detailed shop drawings of the structural steelwork using **Tekla Structures 3D Modeling Software**. Once the shop drawings were done, the completed Tekla model was also imported into the '3D point cloud' model to check for any clashes between the design drawings, site scans, and ferrule points.
- At this stage, all steelwork had been processed and fabricated using the **Voortman V808 Coping Machine**, which line-marked and cut holes as per the design drawings. Based on the identification of several clashes between the design drawings and existing ferrule points by the Watkins team, steelwork was modified in the workshop before it was delivered to site for installation.
- Using the **Trimble RTS773 Total Station** with the completed Tekla model loaded into its software, a partial mark out was done to show the anchor bolts location where the steelwork was to be mounted by third party riggers.

### Benefits



**Guaranteed 100% accuracy of site measurements** using the laser scanner. All measurements were exact and could be linked to the drawings



**Site measurement took an hour.** Only 6 scans were needed to collect all required measurements



**Improved plan approval time frame.** Importing the architect's Rivet model into Tekla saved time during the drafting phase



**Reduced fabrication time by 10%** and significantly reduced the need for re-work using the Voortman V808 machine, processing 12.6 tonnes of steel



**Guaranteed 100% accuracy of site markouts with the Total Station.** 2 men took 1/2 day to partially mark out site for installation, saving 1 1/2 days if site mark out was performed manually



**Saved time on installation with less rectification required**—significant rectification work was avoided using the Total Station and 3D laser scanner

Make your project a success with the Watkins Steel difference. Contact the Watkins team today.