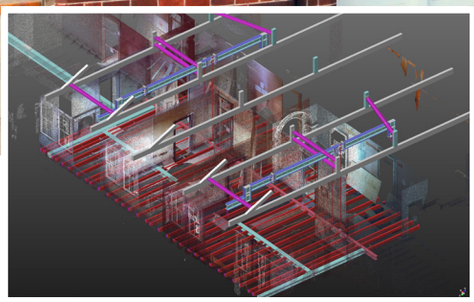
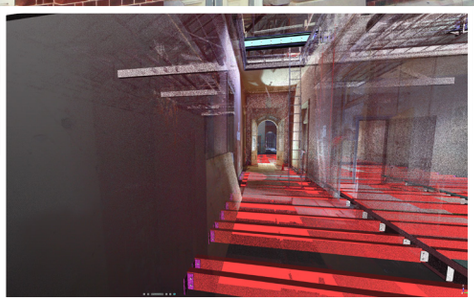
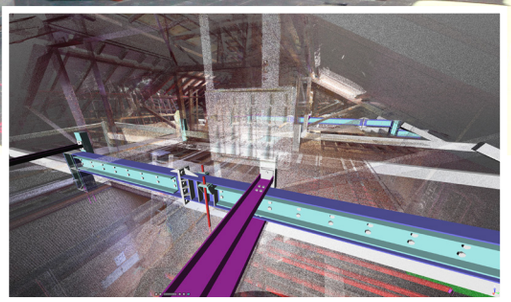
Project: Queensland Rail Roma Street Heritage Building Stabilisation
Location: Roma Street Railway Station, Brisbane
Builder: Kane Constructions Pty Ltd
May- July 2015







The Queensland Rail Roma Street Heritage building was structurally a challenging project. Heritage architects wanted to keep the existing floor above the museum area intact so they wouldn't have to redo the entire lath and plaster ceiling underneath. The engineers came up with a solution that included new steel beams and suspension system that would fit amongst the existing timber structures. The challenging part was to get all of the dimensions of the existing structures right and avoid any rectification works to the new steel on-site. We managed to avoid any cutting and re-welding works as hot works had to be avoided in a 140 year old heritage building. All of the elements Watkins Steel brought to site fitted perfectly, and the fact that the suspension system between the two floor levels with 40mm rods in between lined up perfectly was remarkable.

Bojana Zivec, Project Manager, Kane Constructions Pty Ltd

A job like this would normally be a nightmare with such an old building. By using the latest technology at each step in our process—the Faro laser scanner, Tekla planning software and our Voortman V808—the project went to plan. We met the tight timeframes, fitting the steelwork was a breeze and there was no rework needed, which meant we delivered for our client, Kane Constructions.

Tony Dickinson, Business Development Manager, Watkins Steel

Watkins Steel was contracted by Kane Constructions to supply and install steelwork as part of the restoration and stabilisation project of the historic Roma Street Railway Station building.

The job required 40mm threaded steel rods to be lined up from new steel beams in the roof and floor, which would lift a 65mm bow in the existing wooden floor beams.

ROMA STREET SUCCESS STORY

Challenges

"Both site measuring and installation were huge challenges on this project" **Tony Dickinson, Watkins Steel**

- With high ceilings and no flooring, it was difficult to access all areas safely to take measurements. With such an old building, the structure was complex and highly variable—adding to the difficulty.
- The plans required the new steel to be fitted around the old timber joists and framing. As no cranes were allowed, the beams had to be made in smaller sections and joined on-site (increasing the likelihood of rectification works).
- There was added concern of high fire risk should any rectification of the steelworks be needed on-site.

Solution

- The team used their **Faro Focus 3D X 130 Laser Scanner** to scan the site. The scans were loaded into software to create a point cloud—a 3D computer model of the site with all of the required measurements.
- With the point cloud, the in-house drafting team created detailed shop drawings of the steelwork using **Tekla Structures 3D modelling software**. Once the shop drawings were done, the completed Tekla model was imported to the point cloud to check for any clashes, and to verify the exact size of the steel beams required for the first floor and ceiling spaces.
- The plans were approved quickly as part of the Request for Information (RFI) process, as screen shots of the point cloud were shared with project architects and engineers, along with the detailed shop drawings.
- From there, the construction drawings and model were taken to the in-house production team for processing and fabrication of the steelworks. The model was fed into the **Voortman V808 coping machine** that cut the beams, then line-marked and cut holes, as per the plans.
- A total of 128 pieces of steelwork had to be installed on-site, with assembly of the floor beams done first, followed by the roof beams. All steelwork fitted perfectly to plan.

Benefits

Guaranteed accuracy of site measurements using the laser scanner.

Site measurement took 5 hours (saving 21 hours). Scan was also done by one person instead of two.

Improved RFI time to 4 hours (saving 36 hours). Sharing the point cloud screen shots alongside the plans sped up approvals.

Using the Voortman V808, 8 tonne of steel was processed in 70 hrs—cutting fabrication time in half.

Saved time on installation. No rectification required—128 pieces of steelwork fitted perfectly first time.

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

106 Depot St, Banyo QLD 4014 (07) 3414 7400 admin@watkinssteel.com.au www.watkinssteel.com.au