

Under Cover



MARC JOHNSON

The Victorian heritage of Britain's rail network is revered and detested in equal measure. We're proud to be the country that gave birth to the railway, but when trains are cancelled or complex projects overrun, it's the ageing infrastructure that gets much of the blame.

Take station roofs, for example. The grand nineteenth-century glass and wrought iron train sheds are an architectural triumph but, after a hundred years or so, the cost and effort of maintaining them is mounting. A bucket and mop have become all too common on station platforms and concourses.

In 2014, Story Contracting was awarded one of four major Network Rail building and civils framework contracts covering Scotland. Several months on from that win, the company is now in the middle of a programme to replace old and damaged glazed canopy roofs at Scottish stations with self-cleaning polycarbonate panels.

In February, John MacArthur joined Story Contracting's rail division as head of region for Scotland, having spent the past 18 years with Balfour Beatty. He spoke to Rail Engineer about the station schemes Story is delivering over the next few years.

"There's a lot of the stations that have glazed canopy roofs," he commented. "What they've been finding is that some of these panels are working loose just through age and a lack of maintenance over the years, and there has been a couple of reported instances of glazing falling out, which is of concern."

So far the company has completed a platform refurbishment scheme at High Street in Glasgow and has

just finished a canopy replacement scheme at Inverness. This latter has involved replacing the glazed canopies with a polycarbonate system over platforms 5, 6 and 7. Supplied by Twinfix, the panels are more hard-wearing and require little maintenance.

"It's a clever system," said John. "Each panel interlocks to the adjacent one with a fixing in the corners but it's a very quick system to install which is the key benefit. It reduces the amount of time that you're working at height, so from a health and safety perspective it significantly reduces the risk."

The work was delivered over a series of nightshift possessions which not only had to take into account the role Inverness plays as a train stabling facility but also the impact that noise from the work would have on the Royal Highland Hotel which adjoins the station concourse.

Story is currently planning a project at Stirling station to deliver a modified version of the same system. Unlike Inverness, Stirling is a listed building; its protected status has required the manufacturer to get creative with its off-the-shelf design. Planners insisted that the new glazing bar had the same dimensions as the existing one.

Working together, Story and Twinfix used a 3D printer to create a plastic model of the new glazing bar; this will be taken to the planners to help expedite the approval process. The model also provided Twinfix with an inexpensive way of checking the dimensional tolerances of the glazing bar before going into full production.

Station schemes

Major hub stations such as Glasgow Queen Street and Edinburgh Waverley have tended to be the focus for investment in Scotland. Within the framework agreement, Story has also carried out a goods access feasibility study at Edinburgh Waverley, another station with significant planning constraints.

In order to extend platforms at Edinburgh Waverley for EGIP



TWINFIX™

Multi-Link-Panels: non-fragile Rooflights

Twinfix is a family run business, celebrating their 25th anniversary this year. As experienced innovators they offer a range of well-engineered glazing products, many of which are fitted on the roofs of Rail Stations and Depots.

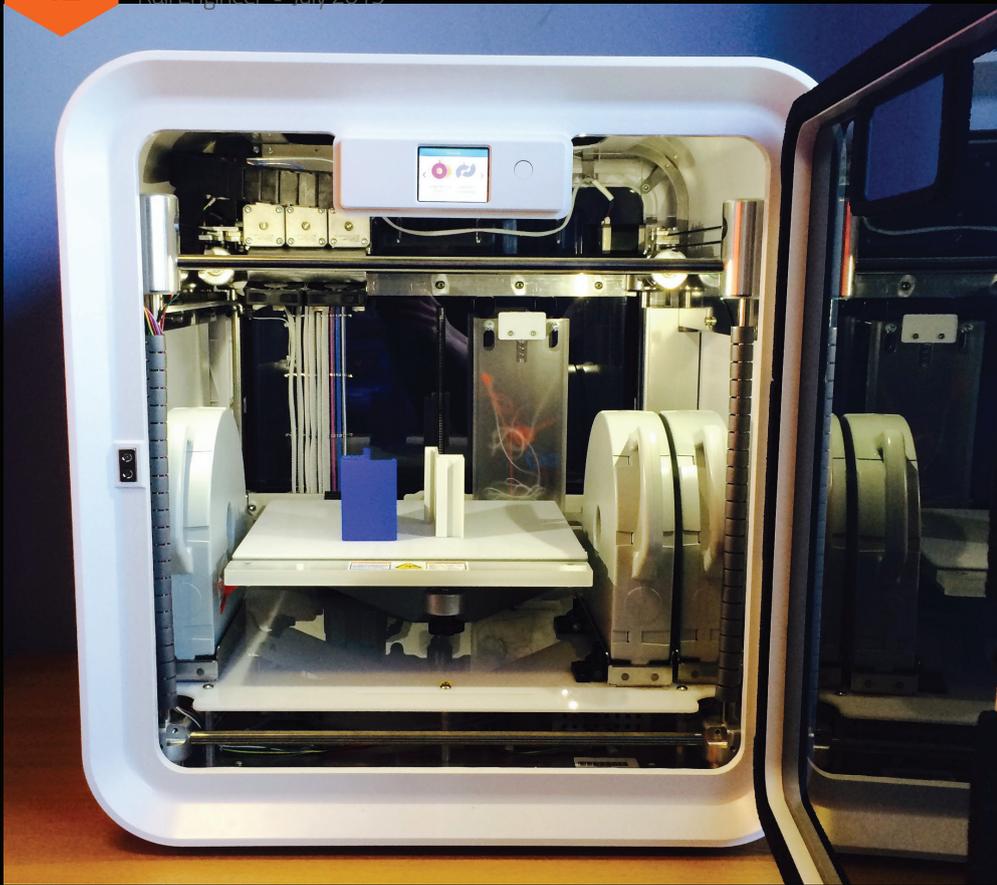
The Multi-Link-Panel that is being installed by Story Contracting in Scotland is an aluminium-framed, modular rooflight system, designed with a unique fixing method that results in incredibly quick installation times.

In order to drive efficiencies within their work in rail Twinfix have utilised up-to-date 3D printing to aid product innovation and development, employing this new technology to view a 3D model of a revised Multi-Link bar design for use in future rail applications.

- Safe in use: All Multi-Link-Panels pass the ACR[M]001:2014 drop test, in accordance with HSE recommendations, with a 'B' designation.
- The Twinfix Georgian wired grade solid polycarbonate is particularly popular as it mimics Georgian wired glass.
- Polycarbonate absorbs vibrations without cracking, crazing or breaking.
- The aluminium framework can be powder coated to a RAL colour to suit your project.
- The light weight of the finished product results in less stress to the fabric of original buildings.
- Sleek in-line access hatches (developed at the request of Network Rail) offer unobtrusive and safe access through the glazing for maintenance purposes.
- Factory manufactured rooflight panels means no costly mistakes on site.

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A 3D printer was used to create plastic models of the new glazing bars.

(Edinburgh Glasgow Improvement Programme), the station has to lose one of its goods entrances. One solution being considered by Story and the scheme's designer, Arup, involves a new bridge and conveyer system fitted around the existing platforms.

"It is an unusual one," said John. "We're used to going in and doing glazing systems and new bridges with passenger lifts, but I can't imagine there are many stations in the UK where they're having to consider an automated conveyer system to get goods into the station."

More money is now being spent on other parts of the network as well. Projects like phase two of the

Highland main line upgrade will see journey times cut between Perth and Inverness. Story is currently on the ground at Aberdeen and is planning works at eight more stations.

New and longer trains due on the network mean that, in total, 27 stations will undergo platform extension works in CP5. In August, Story Contracting hopes to begin a platform extension project at North Berwick station.

Alliance

The schemes are being delivered against the backdrop of a new operating structure in Scotland. The new ScotRail franchise has seen the creation of

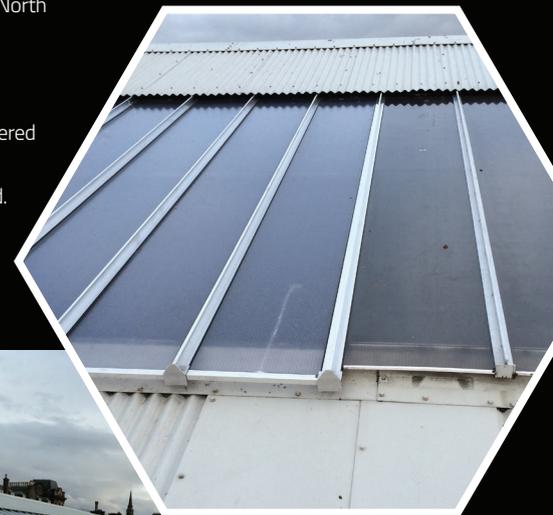
an alliance between Network Rail and Abellio. The franchise has made its own commitment to station improvements, primarily improving retail, adding customer information screens and improving ticketing facilities.

This closer working relationship has also seen Story build stronger ties with Network Rail, quite literally - the two share an office in Uddingston just outside of Glasgow. It's a working arrangement which is conducive to completing quality projects, said John.

"Every scheme you develop, you begin to see the pros and cons of the options being considered. Traditionally the contractor would have focused primarily on buildability. However, in the shared office environment, we have constant dialogue with the Network Rail team and much better visibility of their operational concerns. These are then put into the mix which means we reach the correct solution much earlier in the process.

"It also means that collectively we can speak to Abellio, the principal train operator in Scotland. It's important that we all take a step back and remember that Story, Network Rail and ScotRail all have the same shared goal of providing a safe and efficient railway for the travelling public. We firmly believe that the framework puts us in a much better place to deliver this."

The roof of Inverness station.



Delivering Design & Build Solutions In Stations Across Our Rail Network

STORY

Track | Structures Renewal and Refurbishment | Building and Property | Earthworks | On Track Plant



High Street Station, Glasgow

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NetworkRail *Supplier of the Year*
2014