

# Restoring the fabric of a textiles landmark

Priestley faced the unknown when it set about converting a listed building with heavily constrained planning permission into a mixed-use scheme



## PROJECT REPORT HELENA RUSSELL

The mixed-use conversion of Conditioning House in Bradford is just six months from completion when CN visits the project. Rob Pell, head of construction for main contractor Priestley Construction, is looking forward to a significant milestone in the programme: being able to walk freely around the interior for the very first time (a goal subsequently achieved when the team gained full access in the first week of May).

The recent history of this significant building, which lay disused and derelict for some 30 years, explains why it has taken so long to reach this stage. Pell estimates that when the contract kicked off, only about 35 per cent of the building was accessible. This not only made it impossible to confirm its true

<b>Project</b> Conditioning House
<b>Client</b> Priestley Homes
<b>Contractor</b> Priestley Construction
<b>Architect</b> Priestley Design
<b>Structural engineer</b> Dunster Consulting
<b>Building control</b> Bureau Veritas UK
<b>M&amp;E consultant</b> Troup Bywaters & Anders
<b>Fire consultant</b> Leodis Consultants
<b>Start date</b> May 2019
<b>Completion date</b> December 2020 (pre-coronavirus schedule)

condition, but also had a knock-on effect on the scheme's design. The contractor's chief executive, Nathan Priestley, laughs drily when asked what impact the necessarily slow exploration of the structure and painstaking building surveys had on progress.

"In the planning phase a lot of it was basically guesswork," he

admits, revealing that the planning permission was heavily conditioned. This ensured that each time a new part of the building was opened up, any historical or archaeological aspects of the listed building were properly recorded and addressed.

In its 20th century heyday, the four-storey building was a key part of the UK's textile industry, and the only conditioning house in the country (see box, right). But after its closure, the building changed hands and was left unoccupied for many years. By the time Priestley Homes took it on in 2016, it had suffered serious structural damage from water ingress and fires, asbestos contamination, numerous break-ins, theft of roof tiles and more.

Pell recalls: "The design has changed as the true state of the building was uncovered. In the first place we had to build a lot of temporary structures so the structural engineers could get access to carry out a full survey."

A fire had caused damage in the basement boiler room, but problems were compounded by the presence of a duct running the full height of the building, which led to about two-thirds of the top floor being contaminated by asbestos.

"We had to stop work on about 15 separate occasions for decontamination procedures as each section was opened," Pell explains.

### Bradford's priciest penthouse

Behind its facade, the conditioning house is actually two buildings, separated by a full-height atrium, from which deliveries were hoisted from lorries to each floor. It sits on a



corner site, and the two buildings are only connected over the top three floors on the south side, creating a U-shaped building in plan.

Initial permission was for conversion of the site to 133 residential units with office space, gym and cafe on the upper and lower ground floors. This soon became 152 residential units as surveys progressed, and more recently a proposal to reconfigure the roof on one of the buildings has been approved, enabling 15 square metres – a second bedroom – to be added to each of the units on the top floor.

About 75 per cent of the residential units are two-bed, the remainder being one-bed, and a four-bed penthouse will also be included in the top-floor corner

position. Priestley hopes this will go down as the most expensive penthouse ever sold in Bradford.

Extracting extra value from the site has been welcomed, given that construction costs have risen. "The project has been almost impossible to budget," Priestley acknowledges. "The contract

**"We had to stop work on about 15 occasions for decontamination procedures as each section was opened"**

ROB PELL, PRIESTLEY CONSTRUCTION

started off at £7.5m and is now at £11.5m." Most of this is down to the lack of information available in the early stages, and the need to adapt as survey data came back.

### Cast-iron columns

The building is brick with ashlar dressing, sandstone lintels and windowsills. Floor types vary, with the top floor formed of concrete and lower floors built of cast-iron columns on a grid of about 5.5 to 6 metres square, supporting wooden connecting beams and a wooden floor. In the two main buildings, all floors were built as open plan, with offices housed in the link structure. In a contemporary example of efficient design, the cast-iron column diameters and the external wall thicknesses reduce by 150mm and 200mm

respectively from lower ground floor to the top floor of Conditioning House.

The columns have all been hammer-tested and inspected by ultrasound, and are in extremely good condition, Pell says.

Not so the thousand connecting beams, all of which were drilled and moisture-tested; more than half of these have been replaced across the building, with one block more severely affected than the other. Most have been replaced like-for-like, although floor-loadings for the residential units allowed a much less dense wood to be specified, reducing the weight of beams by some 200kg.

Douglas Fir beams replace the Parana pine originals, which were designed to hold heavy wool bales and machinery.

### UNIQUE HISTORY

From its imposing exterior, Bradford's Conditioning House looks similar to the many other buildings that serviced the textile industry on which the city's prosperity was built. But its original purpose makes it unique in the UK. The lab testing service it provided, in checking and controlling the moisture content of textiles, as well as certifying their weight and length, was first established on a different site in the city in 1887 and relocated to its new home in 1902.

The facility was thought to have been inspired by conditioning houses built in France, Germany and Italy after the three countries agreed a standardised allowance for moisture content in wool, silk and cotton. It is the only building of its kind in the UK and was purpose-built by Bradford city architect FEP Edwards to the designs of F Wild, who died in 1901 while it was being constructed.

The business reached a peak in the late 1950s with some 118 million pounds-in weight of various textile items recorded as being subjected to more than 308,000 tests in 1957. Business declined during the 1970s and Conditioning House was closed in the late 1980s. It has remained vacant ever since. In 1983, it was given its Grade II listing by English Heritage.

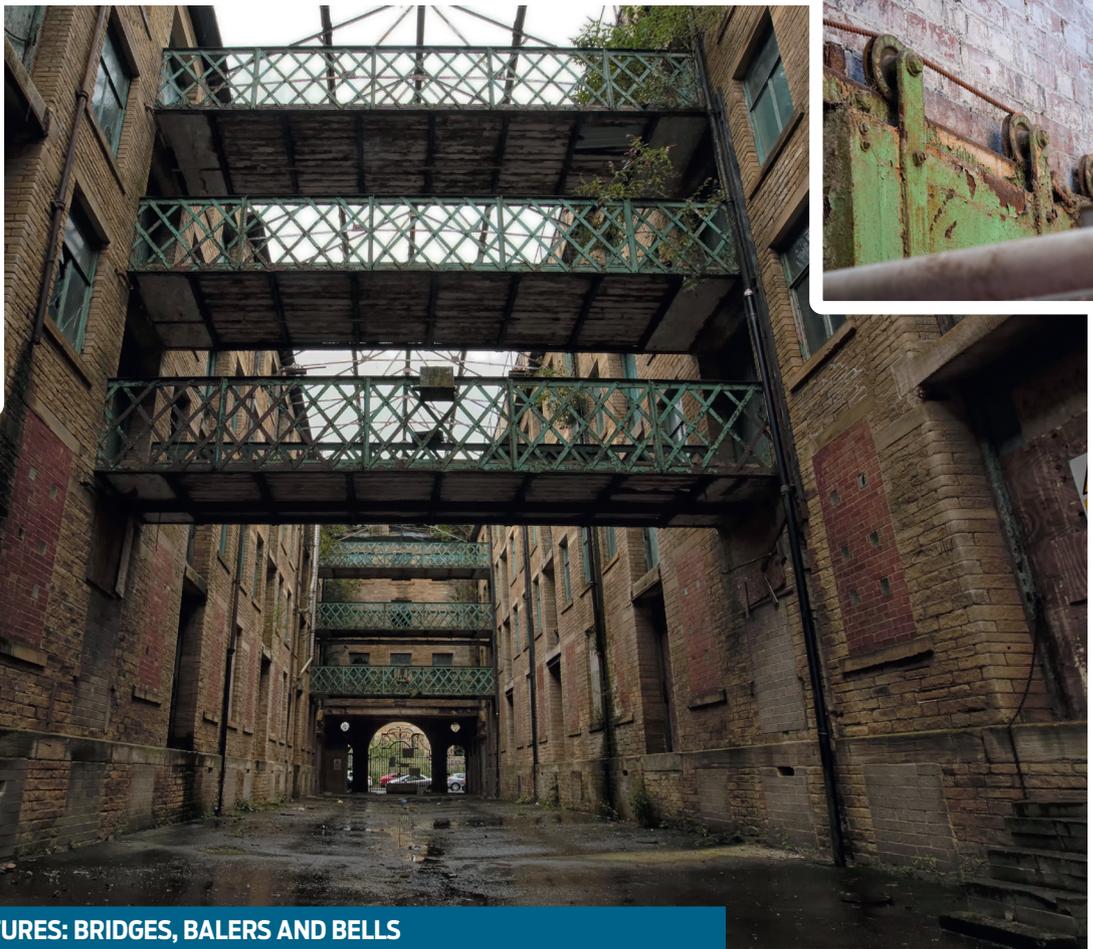
The phasing process of connecting-beam replacement was complex, Pell explains: each square had to be worked on in a precise order, specified by the structural engineers, to prevent structural destabilisation.

Operatives cut holes in the floors to allow the beams to be winched to the upper levels, as there was no other feasible option. It took an average of five-to-six weeks to complete the refurbishment of each square.

Steel beams replace or strengthen the floor and roof beams at strategic locations. These are more complex to install than the wooden beams due to the



The historic Grade II-listed building was left derelict for three decades



## QUIRKY HERITAGE FEATURES: BRIDGES, BALERS AND BELLS

Retaining and restoring heritage features in the building – even when not required by planning conditions – is encouraged by the developer. The most obvious aspects are the six steel link bridges that connect the two buildings across the central atrium (above); these will be refurbished and the lattice parapets adapted to meet building regulations. Half of each bridge will provide external space for each of the 12 apartments that adjoin them (see top left).

When *Construction News* visited, Pell revealed that the developer had just given the go-ahead for

refurbishment and retention of the six crane wheels (see top right) and lifting units in the top floor to create quirky features in the mezzanines of the apartments. Although much of the building had been stripped, some machinery, such as the large-scale baler, remained.

Manufacturers' plates have been removed from these for display in the public areas. Another curious feature that will be retained is the row of fire bells on the external wall.

Most of the stonework was in good condition, Pell says, but some repairs are needed to the masonry on the

pediments that crown the top floor and surround the main doorway.

The vehicle entrance and original gates on the southern elevation will also be restored, as one of the planning conditions.

The contractor went to some lengths to salvage original roof tiles, too – especially since those in easy reach had been stolen while the building was empty. Priestley explains that they devised an incentive scheme to encourage the roofers to carefully remove the old tiles; they were paid a higher piecework rate for reused tiles than new.

▶ need to create new tie-ins to the walls, but with a more efficient result.

### Window work

The building's Grade II-listed status prompted planning conditions to safeguard its aesthetics, in particular with regard to window replacements. The facade features impressive

wooden windows measuring some 1.5 metres by 1.2 metres, which were even larger on the ground floor.

Each had to be individually measured and will be replaced by lookalike double-glazed units with pressure-treated timber frames that are manufactured in Lithuania.

Every window unit incorporates

a ventilation louvre in the transom, as the developer was not permitted to make any holes in the external walls, Pell says.

To maintain consistency in the facade, this detail had to be incorporated in every window unit, even where it would not be active.

New windows will be created on the western elevation, as

none existed in the original.

Structurally this is delicate; it's a building that housed a large baling machine that was installed some years after completion, when holes had to be cut in several floors and tie-bars added between the walls to accommodate it. Similarly, the six former loading-bay doors are being reproduced with windows incorporated into them.

Phase one of the project – surveys, access and remedial work – finished in 2019.

At the time of *CN's* pre-coronavirus lockdown visit, completion of the residential units was scheduled for September and the full scheme was slated to wind-up by the end of the year.

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