



Scaffolding Case Study

Scaffolding Cathedral Park - Bristol



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Cathedral Park, Bristol

Shield Services Group were engaged by Fortis Vision to erect a 50m temporary roof structure over Cathedral Park in Bristol City Centre. Cathedral Park is a Grade II listed cathedral that was converted into student accommodation in 2012 and is home to over 250 students.

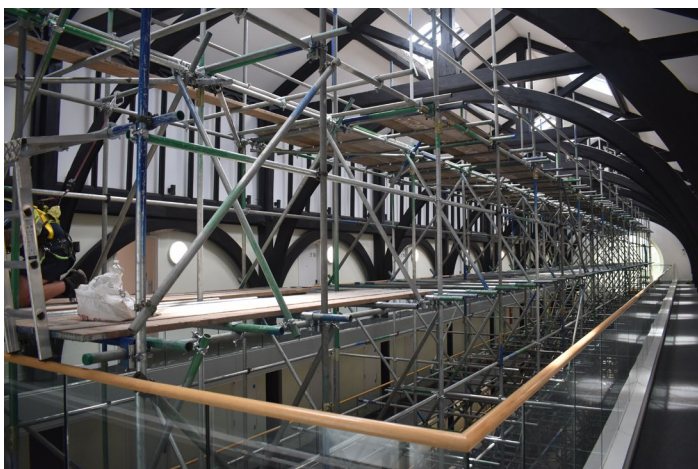
The scaffold was required to facilitate the replacement of all existing Velux roof windows.

Consecrated as a Roman Catholic Cathedral in 1850, all care was taken to preserve the condition of the original features and Bath Stone exterior. A variety of 1330mm and 780mm beams were used supplement the external independent in spanning flat roof surfaces and support the large temporary Roof.



Shield Scaffolding team outside the Grade II listed Cathedral Park

Due to the footprint of the building, the temporary roof is staged in both 28m and 32m spans. After completion, the structure was shrink-wrapped to allow further protection from the elements. Internally, a 15m birdcage was erected to provide a working platform at the ceiling level so that safe access is provided.

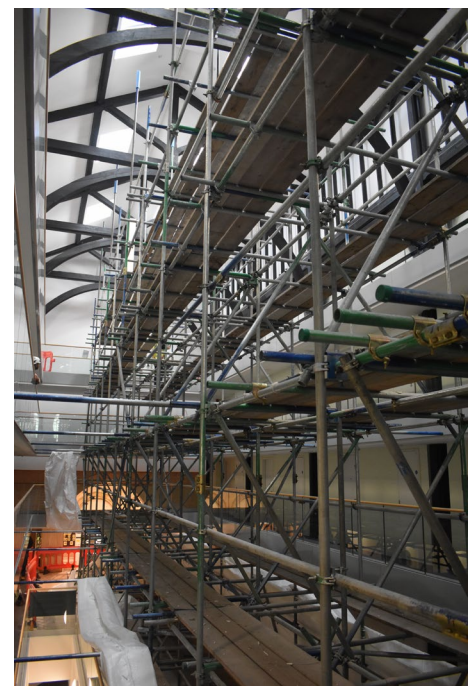


Top level of the 15m high birdcage structure

Erected during term-time, the internal structure in the main foyer presented challenges to protect the safety, comfort and academic virtues that every student home should provide. Neighbourly start/finish curfews were implemented for the welfare of student residents and hours were cut during exam season to remain considerate to those affected by our work.

The internal structure was built entirely with spanners and hand tools to bring noise levels to an absolute minimum during working hours.

Not only did this reduce the impact of our project on residents but protected our employees from the noise risks from powered tool operation in high-resonance areas.



Birdcage rising through the floors

Spanner-only installation was novel for our colleagues at all experience levels and proved to be a cathartic exercise in the scaffolding methods of old.

To remain sympathetic to the integrity of the historic vaulted crypt beneath the building, the birdcage was narrowed and working platform cantilevered to minimise the scaffold components required and subsequent load imposed on the vaults below, the structure was also butted 8ft in all directions to provide additional stability.

The external scaffold, built to accommodate the roof, had to have discrete tie assemblies to minimise the violation of the unique exterior facades. To achieve this, use of shear plates was entirely eliminated in the vast 20m span erected over the flat roof at the north elevation. For post-project attention to detail, holes were restored with era-suitable render and patina.

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External scaffold structure ahead of HAKI roof system being constructed

To mitigate working at height risks, the roof was built in sections of HAKI Roof components at ground level and crane lifted into position. To facilitate this, a jig was erected of tube and fitting construction to promote efficient and accurate erection of individual roof sections by scaffolders at the ground before the sections were raised and installed into the structure.



Jig with roof section in place prior to lift

This presented a particular challenge as site cabins, welfare, a 50 tonne mobile crane, 10 scaffolders and 32m of HAKI roof had to be safely sited within a site compound measuring just 500m² to build the roof totalling over 1250m². Precision planning and communication with the client and lifting contractor saw the erection and dismantle of the roof take place without injury.



External scaffold structure ahead of HAKI roof system being constructed

This project had digital scaffold inspection tags which allows us to influence greater control of the inspection regime of our structures. Only approved inspectors can conduct statutory inspections which are complete with photos to satisfy our client of the depth of our inspections. We're able to assign specific internal inspectors to any given project. Ensuring only trained, competent and authorised individuals conduct inspections and prevents unauthorised operatives or third parties signing off scaffolds which written Scafftags do not protect against.

Additionally, we sought to push beyond simple safety measures to exceed compliance standards through the use of braked gin wheels to mitigate falling object risks and the provision of secure safety gates installed on all HAKI staircases erected on this project to protect against unauthorised access to the scaffold.



HAKI staircase with security gate

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Due to the success of previous investment in a minibus to cut down on the number of vehicles being sent to projects, we invested in a second minibus to reduce our environmental impact in delivering this project. The vehicle also meets the Euro 6 Diesel standard complying with the Clean Air Zone brought in by Bristol City Council to improve air quality.



External scaffold structure ahead of HAKI roof system being constructed

Additionally, we have engaged with a local up-cycling project, Bristol Wood Recycling Project, to ensure that the lifespan of our timber boards stretch beyond their serviceable life on our projects. Boards removed from the Cathedral Park project that no longer met the timber board standard prescribed within TG5:24 were offered to the not-for-profit. Such schemes help promote awareness of the environmental impact of our work amongst our colleagues

Cathedral Park was a primary project for the 3 candidates in our first cohort of apprentices. Here, we could promote the development of their skills and knowledge on a project with such a variety of working practices, challenges and restrictions. One of our apprentices is a graduate from Shield's "Second Chance" initiative. Having worked at Shield on a day-release basis, Stephen Brown relocated his life from Birmingham to Bristol following his release from prison to embark on his career in scaffolding and enroll on an apprenticeship.

Some of our Workforce at Cathedral Park was fulfilled by operatives from our 'Second Chance' initiative. Returning Citizens, currently in an open prison are released for work at Shield on license, known as ROTL. By offering opportunities to offenders, senior management evidenced to the workforce that people aren't unworthy of a second chance to succeed and our belief in investing in people and their capacity for change is a genuine value at Shield. This has manifested itself in helping

inspire new colleagues coming from companies with a lower emphasis on safe working practices that there is another way to do scaffolding where safety culture and quality workmanship is not just respected but encouraged and prioritised.

"Fortis Vision worked with Shield Services Group delivering an AOV and roof light replacement scheme for a student residential property.

The property in question, is a grade II listed cathedral in central Bristol. This complex scheme involved full building scaffold cover to accommodate a temporary roof whilst the works were undertaken.

Shield's commitment to compliance in design and then to delivery was outstanding and we, as the principal contractor felt at ease that this phase of the project was well looked after.

The project was delivered live with students still residing within the property, and with a full height scaffold structure erected internally as well as crane operations externally, this was a real challenge to manage on the ground.

The delivery team were both accommodating and dynamic to the situation and the project was successfully delivered on time and in budget. Fortis Vision really enjoyed working with Shield Services Group on this project and look forward to potential collaborations in the future."

Joel Phillips, Construction Manager