



Scaffolding Case Study

Scaffolding The Crescent Centre - Bristol



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The Crescent Centre, Bristol

Shield Scaffolding Services was contracted by Kier Group to install scaffold to all elevations of The Crescent Centre located in central Bristol. The project required the provision of eight lifts to the existing structure plus a further two to facilitate the construction of a further steel-framed floor.

The £28m Crescent Centre refurbishment project in central Bristol included a new two-storey feature façade and a one-storey rooftop extension with the addition of three private roof terraces.



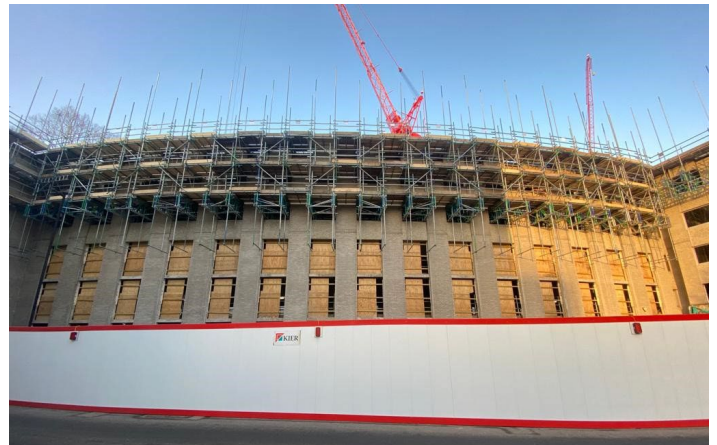
The Crescent Centre prior to the commencement of the refurbishment



Artists impression of the finished property following refurbishment

At the ground floor, Kier Group constructed an extension on both curved easterly elevations. To facilitate this construction, two splayed truss-out sections were installed and emerged from the third-floor window openings, measuring 90m, utilising over 1500m of 780mm beams. The splayed truss-out sections also returned into a truss-out installed window-to-window in the central core of building, adding to the scaffold's complexity.

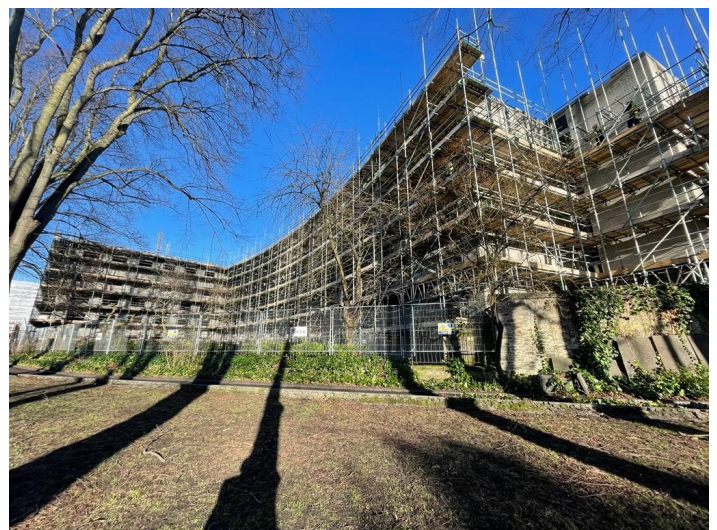
Splayed truss-out sections were secured to central columns within the building and anchored with band and plate couplers. Due to the curve of the building, ladder beams were staggered along the column spine to connect the beamwork. These supported 5 splayed lifts across their entire length.



External view of the truss-out construction appearing from windows



Internal view of truss-out assembly and anchoring assembly



Rear of building and proximity to public spaces

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Passenger hoist at rear of building

At the rear, the scaffold supported a 2 tonne capacity passenger hoist with access points on each lift. Multiple cantilevers were installed over the site boundary with catch-fans in place to protect members of the public from falling objects, as this area is a public park.

Additionally, a series of towers, crash-decks and edge-protection systems were erected to accommodate safe working practice and fall protection to third-party contractors and visitors.

As the project progressed, there was limited space for the on-site cranes to load materials onto the roof due to the ongoing extension on the top floor. To allow our client to overcome this logistical challenge, a series of cantilevered loading bays were installed on the 8th lift with a load capacity of 10kN/m² to allow material loading into the roof area without increasing the footprint of the scaffold at the ground level.

The vast amount of contractors on site was also challenging. Various trades working above and below meant that significant efforts were put into managing exclusion zones and preventing falling objects. From October 22 through to June 2023, the entire project recorded no incidence of falling objects due to excellent control and management by both the Kier Site Management Team and Shield's Supervisor, Marc Sweet. Daily hold-points were in place to ensure exclusion zones were complete in each of our working areas wherever there was any risk of falling objects.

To help protect both members of the public and contractors on site, multiple techniques were adopted to mitigate falling objects. "Scaffgap" was installed on every lift into the 50mm gap between the inside boards and main deck boards where the scaffold standards protrude through the working lifts. Across the 400m perimeter of the building, we installed approximately 3500m of "Scaffgap". Catch fans and protection fans were installed to provide further protection and assist Kier in the prevention of falling objects.



View of scaffold with protection system in place

Shield's scaffolding teams always look to provide the client with the best value and quality in our service. This came to the fore at the Crescent site, where we were quickly embraced by Kier as key trade in the facilitation of the refurbishment, proposing crucial design and safety elements to the way that the site and all of its trades operated.

Bristol City Centre provides some significant challenges for main contractors seeking to carry out wholesale external refurbishments to buildings, as a result of the tight, winding streets where access is a major consideration in the safe and successful operation of the site.

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We invested in a minibus to cut down on the number of vehicles being sent to this project in and reduce the 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.

During our time at The Crescent Centre, we worked diligently to help Kier provide a safe place to work for all contractors and engaged consistently with their SHE Team to maintain excellent control and safety standards. Kier have been able to achieve zero lost time accidents at this project.

In December 2022, our labourer, Oliver Shopland, won Kier's monthly safety award for his excellent practice in lifting operations. Following this, in March 2023, Kier awarded Shield their Quarterly SHE Award for the entire Western & Wales Region.



Oliver receives his award from Kier Project Manager Martin Symonds

When working with a main contractor, such as Kier Group, you understand there will be additional opportunities to engage with individuals and initiatives outside of the job itself. At The Crescent, we helped promote our own 'Second Chance' and 'Careers In Construction' initiatives, alongside Kier's own efforts.

"At Kier Construction, we embed Social Value across all our projects, leaving tangible benefits for the communities that we are working in. We aim to generate up to 30% Social Return on Investment against our project values."

We need our supply chain partners to engage in social value in order to deliver the highest impact for our clients and communities. Shield Services Group has provided outstanding commitments to delivering social value on Kier projects. This includes embedding their Second Chance scheme, which offers long-term meaningful employment to those facing barriers to work including ROTL programmes, and participating in student engagements."

Shield have held student tours with local secondary schools to promote their specialising services as amicable career options to young people who are currently selecting their options. Shield have offered extensive opportunities to local students, including site tours, scaffolding tours and collaborative workshops. Shield extend this offer to engage with students who cannot leave school, by bringing interactive sessions to them."

We will continue to work with Shield to deliver positive social value outcomes for our communities"

Emma Higgs, CSR Coordinator

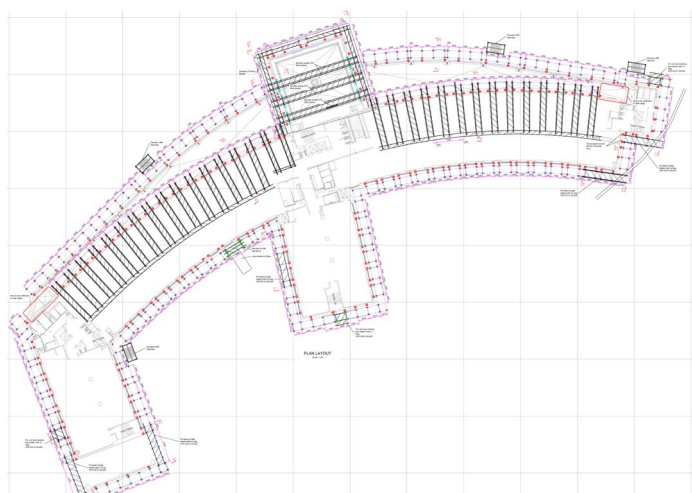
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Following the successful delivery of this project, Shield Scaffolding Services was awarded the Project of the Year (small category) at the NASC 2023 awards.



Shield's team receive their accolade at the NASC 2023 awards



Plan view of the scaffolding design for The Crescent Centre

An important part of the judging process was the assessment of the strong testimonials provided from Kier Group, especially that from Project Manager, Martyn Symonds.

“The Crescent is a significant scaffold package for a contractor of the size of Shield, and they have completed an impressive structure to the entire perimeter of a very challenging shape of building.

Three months into the project, it became clear that a general independent would not be suitable on the east-curved elevations due to the construction of ribbon sections at the ground level. We engaged with Shield Scaffolding for a solution. The agreed solution was to erect a truss-out across the entirety of both curved elevations. The intricacy of the scaffold erected by Shield makes this structure a candidate for Project of The Year.

We have received many internal and external visitors, including senior management that have always been struck by how visually impressive the scaffold is, which is a credit to the whole Shield Scaffolding team.

Shield Scaffolding have provided us with a stable and knowledgeable team of scaffolders, throughout the project which has undoubtedly contributed to their success on site here.”

Martyn Symonds, Project Manager