



Hub spurs regeneration

Big changes are afoot in Radcliffe, as a town centre redevelopment is underway with a steel-framed Civic Hub that includes a swimming pool and library taking centre stage.

Part of the Metropolitan Borough of Bury, the market town of Radcliffe is in the midst of a multi-million-pound regeneration scheme, with a £40M Civic Hub forming the scheme's centrepiece.

Designed by Pozzoni Architecture, the Hub will on completion, offer a host of amenities for the local populace, helping to increase footfall and breathe new life into the centre of Radcliffe.

The scheme, jointly funded by Bury Council's Capital Programme and the Government's Levelling Up Fund, will include sport and leisure facilities, a library, as well as offices and meeting rooms.

Councillor Eamonn O'Brien, Leader of Bury Council, says: "We are investing unprecedented amounts of money into regenerating Radcliffe, and

the hub will play a crucial part in that, transforming the town centre for generations to come.

"Local residents and businesses have been keenly awaiting this – now, working together, we are making it happen."

The Civic Hub's plot was previously occupied by a number of 1960s-built units, including shops and a dance studio, which were demolished as part of the project's early works. This was undertaken by main contractor Vinci Building, starting in November 2023.

Once the site was cleared, piled foundations that are up to 9m-deep, were installed in readiness for the steel frame erection programme to commence.

A steel-framed design for the Civic Hub was chosen during the early design stages as the method

offered a number of advantages.

"The project lends itself to a steel solution, because of the height and spans needed for some of the facilities," says Vinci Building Senior Project Manager Matt Legg.

Measuring approximately 100m-long × 40m-wide, the three-storey hub has been designed as a steel braced frame. Stability is derived from cross bracings, which are predominantly located around perimeter walls, in areas where there are fewer windows or doors.

Around half of the building's ground floor is occupied by the Hub's aquatic zone, which consists of a main 25m-long swimming pool and an adjacent learner pool. The latter will have a moveable floor, allowing the depth to be raised or lowered, depending on what lessons or activities are taking place.

The main pool is housed in a double-height space that also accommodates spectator seating for 150 people. Creating this column-free space are a series of 23m-long roof beams, each weighing 5t. There is no other facility positioned above

FACT FILE

Radcliffe Civic Hub

Main client: Bury Council

Architect: Pozzoni Architecture

Main contractor: Vinci Building

Structural engineer: AJP

Steelwork contractor: Leach Structural

Steelwork

Steel tonnage: 320t

"The project lends itself to a steel solution, because of the height and spans needed for some of the facilities."



The wider scheme

Adjacent to the Civic Hub plot, another part of the same scheme involves the refurbishment of the existing Market Chambers building.

The revamped Victorian red brick structure will have retail and a café on the ground floor, while above, the first floor will have a dance studio and the second uppermost floor will accommodate offices.

Next door, on a plot between the Chambers and Radcliffe Market Hall, an old bank has been demolished to make way for a stand-alone three-storey steel-framed extension.

This building will primarily provide vertical circulation and linkage to each floor of the reconfigured Chambers, as well as the Market Hall. It will also accommodate part of the dance studio, toilet provision and plant space.

To the rear will be an exposed seating terrace to enable food and drink, purchased in the market, to be consumed outside, with a view of the River Irwell.

Work is also being undertaken in the Market Hall, where the basement is being converted into a multi-use events space. ■



The two-storey part of the project sits next to the main double-height swimming pool.

the main pool area and so roof beams support a cladding system.

The ceiling height decreases in the area housing the learner pool, as above this zone there are first-floor dance studios and a gym. Because of the loadings these facilities will impose, the floor, spanning the learner pool, is supported by three 23m-long [plate girders](#), with the heaviest weighing 22t.

Working on behalf of Leach Structural Steelwork, the girders have been [fabricated](#) and supplied by Jamestown Manufacturing.

"We are using a single 90t-capacity [mobile crane](#) to erect the entire steel frame," explains Leach's Project Manager Ian Wallwork. "The three plate girders represent the heaviest lifts on the project."

As well as some heavy lifts, coordination has been a key feature of the steel package. Approximately half of the hub's steel frame was erected before Christmas, with the remainder being installed in the New Year.

The break in the programme has allowed some groundworks to be completed, while the

▶ 20



How the redeveloped town centre will look once the scheme is complete.



A single 90t-capacity crane has been used for the entire steel erection programme.



Supporting a studio and a gym, three large plate girders span the learner pool.

►19 area where the steel frame had yet to be erected, created space for Leach to position its crane in order to install the steelwork and metal decking for a nearby extension building (see box).

Next to the pool hall, the hub will have a ground floor comprising the main entrance/reception, the changing village for the adjacent pools and a children's library.

Alongside the aforementioned studios and gym, the first floor will predominantly have the main

part of Radcliffe's new library (the existing facility is being redeveloped as part of the council's wider plans), while above, the second-floor, which covers approximately a quarter of the building footprint, will accommodate office space, meeting rooms and plant.

Creating a composite flooring solution, the first and second floors of the Hub are formed with steel beams supporting metal decking and a concrete topping.

The majority of the ground floor is a cast in-situ suspended concrete slab, with the exception of two secant piled basements, that are covered with metal decked flooring.

One basement houses the plant for the swimming pools, while the other accommodates the lowest part of a clip 'n climb wall, which then extends upwards into the ground floor.

Radcliffe Civic Hub is due to complete in 2026. ■

Composite slabs at Radcliffe Civic Hub

The Radcliffe Civic Hub is a good example of a project using composite slabs where the benefits of speed of construction and general structural economy can be exploited. Liam Dougherty of the SCI offers advice on the use of composite slabs as a flooring solution.

Composite slabs consist of profiled steel decking with an in-situ reinforced concrete topping. The decking not only acts as permanent formwork to the concrete, but also provides sufficient shear bond with the concrete so that, when the concrete has gained strength, the two materials act together compositely.

Typically there are two generic types of steel decking: re-entrant profiles and trapezoidal profiles. The traditional decking profiles are between 50mm to 80mm-deep with slab thicknesses in the range of 100mm to 250mm and typically spans between 3m to 4.5m, for which temporary propping is usually not required.

Some manufacturers also offer profiles in excess of 80mm-deep with slab thicknesses in the range of 280mm to 320mm, the deepest of which can span 6m

unpropped as a simply supported member. Decking profiles, which are over 200mm-deep, are mainly used in shallow floor construction, where the steel beams are integrated into the depth of slab.

The construction stage, in other words the ability of the decking to support the wet weight of concrete and construction loads, usually governs the slab design. Even though composite slabs may be continuous over a number of supports, they are usually designed as simply supported members in the normal condition.

Manufacturers' load-span tables for slabs are normally based on testing which is more economical than design based on analytical models. However, designers should take care not to use load-span tables for design situations outside the scope of the tests on which behaviour is based. For example, tests only ever consider uniform loading, the mechanical

shear interaction between the steel and concrete may be different when composite slabs are subject to concentrated line or point loads. In these instances, design based on analytical models will be necessary.

Openings can be accommodated readily in composite slabs. Small openings up to 300mm-wide are unlikely to present a problem structurally and do not normally require additional reinforcement. However, for opening larger than this, additional reinforcement or trimming steel may be required depending on the size of the opening.

Extensive guidance on the design and construction of composite slabs, addressing the good practice aspects of these activities is given in SCI P300. SCI has released Tedds modules to check the resistance of composite slabs to concentrated loads and openings. ■