

FACT FILE

Telehouse Administrative Building, London

Main client: Telehouse Europe

Architect: ARC:MC

Main contractor: Flynn

Structural engineer: ARC:ST

Steelwork contractor: Billington Structures

Steel tonnage: 310t

Steel addition for data campus

With a sustainable design at its core, a new Administrative Building, located on a confined site, will provide a data provider with better and more efficient office spaces.

London-based data provider Telehouse Europe is expanding its Docklands campus with the construction of a new Administration Building, which will enhance the provision of office space for its clients.

The new building will include a centralised control area, service desk for customers, and high-quality office spaces, allowing the company to provide an end-to-end space for reliable, secure and flexible services at what is said to be Europe's most connected data centre ecosystem.

Telehouse Europe Managing Director Takayo Takamuro, says: "The opening of our new

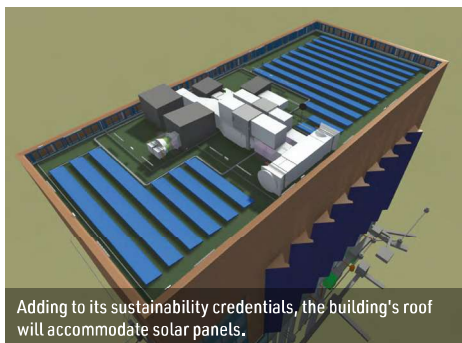
Administrative Building will elevate Telehouse's operational excellence further, acting as a driving force for sustainability and improved ways of working within the data centre industry."

The five-storey structure is a steel-framed building, designed around two offset concrete cores, that accommodate stairs and two lift shafts respectively, as well as providing the steelwork with part of its stability.

Working in unison with the cores and helping to reduce torsion in the structure, extra stability is gained from a moment frame, positioned within the southern end of the steel frame.

Within the completed building, the ground, first, second, third and fourth floors will accommodate administrative offices and communal spaces, while the uppermost fifth level will house a plant room. Enhancing the building's sustainability credentials, the steelwork will support a brown roof and an array of solar panels.

A steel solution was chosen for the project for a number of reasons, such as achieving the desired sustainability credentials – the building is aiming for a BREEAM 'Excellent' rating – and the ease with which the material could create the desired 10m-long internal spans.



Adding to its sustainability credentials, the building's roof will accommodate solar panels.



Footbridges will help the new building integrate into the existing campus



Steel erection was challenging due to the proximity of other buildings.

Creating the clear spans are a series of cellular beams, up to 900mm-deep that accommodate the building services within their depth. Some of these steel members will be left exposed in the completed scheme, helping to create a modern industrial-looking office environment.

Aside from a concrete ground floor slab, the building's upper levels and roof are all formed with the steel beams supporting metal decking, creating a composite solution.

The choice of steelwork has also helped with the speed of construction and site logistics.



Architectural façades

In order to maximise the Administrative Building's floorplates, every floor above ground level, including the roof, has a cantilever.

Extending beyond the perimeter columns by up to 2m, the cantilevers are present on all four of the building's elevations.

Adding some architectural interest, the two main elevations – east and west – also feature saw-tooth façades along the middle section of the

second, third and fourth floors.

"The saw-tooth design is due to the tight footprint and the adjacent buildings on the campus. The protruding 'teeth' allow for individual windows on the two elevations of each tooth, giving the office spaces better access to daylight," says ARC:MC Architect Cian Duffy.

"It would be difficult to achieve with a typical flat façade."

This feature element is formed by a series of 2m-long beams and channels, bolted in a V-shaped configuration. These sections have been installed within the 6m-wide cantilevering bays on all three floors. ■

The latter has been a key element of the project, as the site is surrounded by existing buildings. Using any other framing solution would have been challenging, with more deliveries and equipment required on an already constrained site.

With little room for material storage and just one narrow access road to the site, the steelwork was fabricated and delivered in manageable loads and erected onsite by a tower crane.

As well as the surroundings, what lies beneath the ground also had to be taken into account. Numerous services cross and surround the site, all of which have to remain undamaged and operational.

This meant the piled foundations and the columns they support, had to be designed around the services, which ultimately led to the building's perimeter columns being slightly inset from

the project's footprint, in order to avoid any subterranean obstructions.

Another important logistical challenge that had to be overcome during the steel erection programme was a series of live cables that traverse the site.

Connecting into three adjacent data buildings, the cables had previously been accommodated within link footbridges and the first floor of the site's previous two-storey structure.

During the preliminary works, the old building was demolished, while the footbridges were partially left in place – as they are free-standing – and will be reconnected into the completed Admin Building.

On the plot of the new steel structure, the cables, which were 'live' and had to remain in place, were temporarily supported by a series of steel trestles.

Steel beams, forming the Admin Building's first floor were carefully manoeuvred to sit beneath the cables and provide permanent support. Once they were in place, the trestles were removed and the steel erection was able to progress upwards.

Summing up, Flynn Managing Director Kevin Flynn, says: "The Telehouse project is strategically important to our business as it further enhances our presence in the London data centre market. Our team and supply chain partners are well placed to deliver another critical environment in a 'live' operational campus for another leading international client."

The Telehouse Administrative Building is due to be complete by the end of 2025. ■



The completed building will sit in the heart of the campus.