

COMMERCIAL

Steelwork frames low carbon offices

FACT FILE

Network W1, London

Main client: **Derwent London**

Architect: **Piercy & Company**

Main contractor: **Kier Construction**

Structural engineer: **Elliott Wood**

Steelwork contractor: **Bourne Steel**

Steel tonnage: **1,000t**

Targeting a BREEAM 'Outstanding' rating, sustainability is at the forefront of the design for a nine-storey office development in London's West End.

The floor plates have been designed to create 10m clear internal spans.

Derwent London's Network W1 project, on the corner of Tottenham Court Road and Howland Street, is said to have sustainability at its heart. With carbon reduction as a key focus of the build, the scheme is aiming to achieve a better embodied carbon intensity than the Greater London Authority target of 600 kgCO₂e/m².

Once complete, the nine-storey building will provide 12,449m² of workspace and 464m² of retail space in the heart of London's prime W1 postcode in Fitzrovia.

According to project architect Piercy & Company, the building comprises three volumes: a base with active frontages for new retail and a street-facing work lounge; a middle volume of workspace; and an upper-level pavilion with terraces and green-roof areas around the perimeter of the building.

Designed with a highly flexible floorplate system to accommodate different types of future use, the middle volume of Network will be used as Category A offices.

A number of framing options were considered during the initial design process and steelwork was the preferred choice as it is less carbon intensive, when high levels of recycled steel (see box) is incorporated. The material also provides a lighter frame, which ultimately has cost savings as there are less foundations works needed.

Starting at ground floor level, the steelwork is founded on a concrete basement substructure with four piled secant walls. Below this, the foundations for the building consist of a 1.2m-thick concrete raft. Stability for the steel frame is derived from a centrally-positioned concrete core, which connects

to steel beams via cast-in plates.

Some extra stability has been required during the erection sequence and this has been supplied by temporary cross bracings, which are removed once the floors have been completed and recycled.

As with most steel framed city centre developments, open-plan floorplates are an important part of the design. To create the required spaces, the perimeter columns are spaced at 6.5m centres, while internally there are spans of up to 10m.

The design includes precast flooring planks supported by steel beams and throughout the building there are more than 2,000 of these units, which were all installed and grouted as part of Bourne Steel's package. The company's works also include the installation of safety barriers as well as on and offsite painting of the steelwork. The latter is very important as a decorative finish is being applied to the columns and beams as the steel frame will be exposed within the completed scheme, creating modern industrial-looking floorplates.

"The concrete core and the underside of the precast planks will also be exposed," says Elliott Wood Associate James Hinks. "We wanted a clean and smooth soffit which was best achieved with the precast option."

As well as long spans and the exposed nature of the interior, the building's design prioritises wellbeing in the workplace, with 2.95m floor-to-ceiling heights that allow natural light to flood in, openable windows on every floor plus 259 cycle spaces, 27 showers, 180 lockers and a dedicated drying room.

Although much of the steel frame is based around

Sustainability credentials

With high sustainability aspirations, the Network building is a net zero carbon development that will utilise an all-electric strategy with electricity from renewable sources, low energy cooling and renewables. The façade features a sculptural repeating module that will be fabricated offsite to ensure minimal material wastage. Blue roofs and rain gardens contribute to rainwater attenuation and flood management.

Helping to achieve the sustainability aims of the project, a steel framed solution was chosen, which includes recycled content. This is said to be saving approximately 1,280 tonnes of embodied carbon emissions compared to using non-recycled steelwork.

Furthermore, Bourne Steel says more than 50% of the 1,000t of steelwork used on the project has been sourced from Electric Arc Furnace (EAF) production facilities.

This steelwork is considered to be much greener and more efficient in terms of energy consumption for the production process, as it can utilise renewable energy from wind farms instead of carbon fuels such as oil and gas. ■

a regular column grid pattern, there are a couple of significant exceptions. One is the double-height reception area, that faces south onto Howland Street.

► 20



"We are implementing our integrated technical excellence, working with our in-house carbon team to reduce embodied carbon through our delivery and also utilising modern methods of construction and offsite production to deliver this showcase development for our client."

The completed building will offer desirable workspaces in the heart of London's West End.