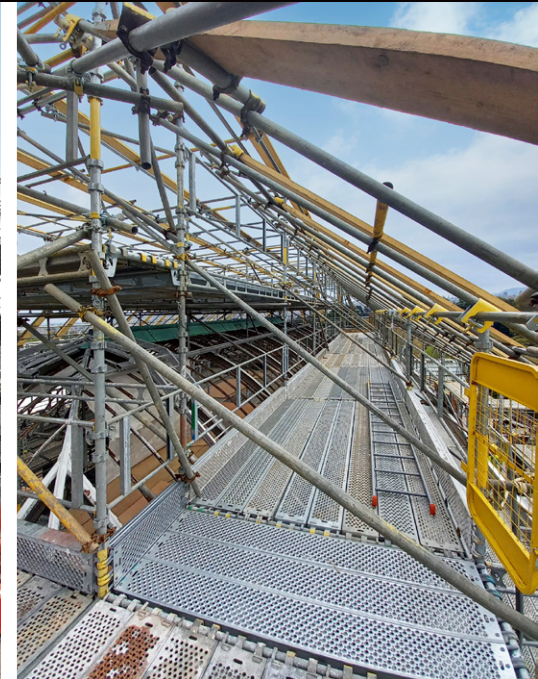




Victorian Palm House restoration

Provision of fully encapsulated HAKI system scaffolding to provide an enclosed weatherproof environment for refurbishing historic Grade A-listed buildings.

Location: **Edinburgh**



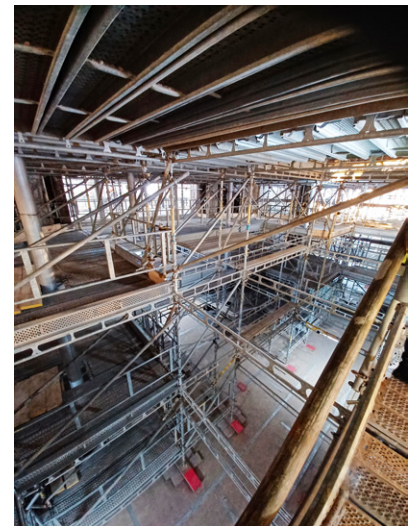
Provision of fully encapsulated HAKI system scaffolding to provide an enclosed weatherproof environment for refurbishing historic Grade A-listed buildings.

With 40% of the world's plant species under threat of extinction, the Royal Botanic Garden Edinburgh (RBGE) is a world-leading centre of excellence in science, conservation, horticulture, and education. Currently, the site is home to 13,500 plant species, and its work to research and conserve biodiversity has never been more important.

In 2022, Balfour Beatty was awarded a £12.5m contract to restore the magnificent historic Grade-A listed Temperate and Tropical Palm Houses, built in 1834 and 1856, respectively, to rejuvenate these existing structures that are part of Scotland's architectural heritage. The in-depth refurbishment programme involved replacing deteriorated and damaged stonework, roof structures, and windows. Additionally, the restoration process included the restoration of all ironwork, such as the spiral staircases, guttering, and downpipes, to comply with the legal requirements for listed buildings.

The main contractor, Balfour Beatty, provided a suitable construction process by creating a roadmap before starting to identify low-carbon opportunities on site, including operating diesel-free machinery/equipment and pursuing cross-industry collaborations. Initiatives included using geopolymers to make concrete from waste and creating positive social value by offering work placements for locals.

Balfour Beatty is currently constructing a new energy centre on site because RBGE's palm houses accounted for around half of the site's carbon emissions. On completion of the upgraded pipework infrastructure installation to support LDHP power, gas, and water services, the new systems will become managed internally, improving operational control and enhancing the site's overall energy efficiency.



Information reference sources include:

<https://www.rbge.org.uk/news/articles/restoration-contract-awarded-to-balfour-beatty/>

<https://www.balfourbeatty.com/media-centre/latest/balfour-beatty-features-in-new-civil-engineer-discussing-its-journey-towards-net-zero-at-the-royal-botanic-garden-edinburgh/>

<https://www.rbge.org.uk/news/media-centre/press-releases/current/the-royal-botanic-garden-edinburgh-awards-restoration-contract-to-balfour-beatty/>

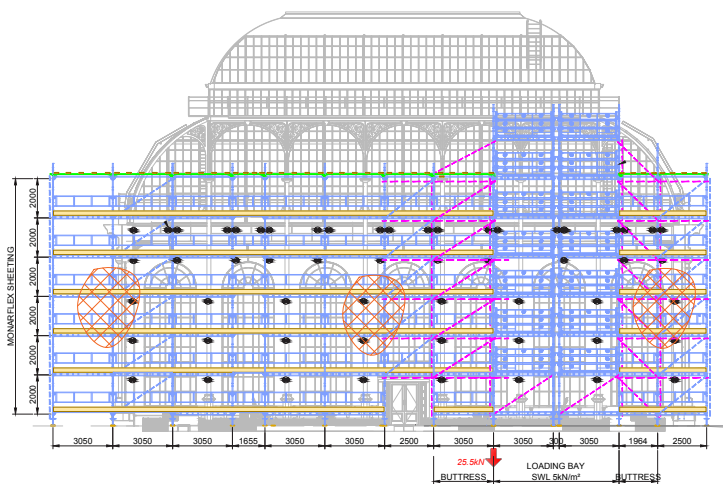
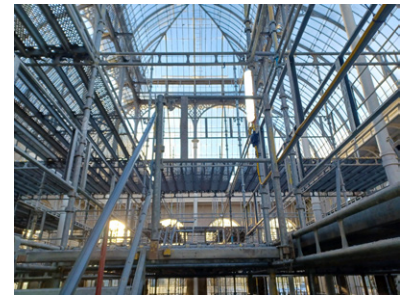
<https://www.balfourbeatty.com/media-centre/latest/the-royal-botanic-garden-edinburgh-biomes-initiative/>



Value Engineering

Balfour Beatty required access to all areas of the palm house, including the internal walls, structural support pillars, and the underside of the internal glass roof. To facilitate this, we designed and built an internal birdcage scaffold using the HAKI scaffold system, integrated with stair-access towers fitted with hoist towers and landings.

Additional scaffolding covered with shrink-wrap sheeting created a fully encapsulated and watertight environment, enabling safe access to the outer walls and external roof glass area above the glass panes. The scaffold was then dismantled progressively to allow the placement of the new glass panes, ensuring the building remained fully watertight throughout the process. Balfour Beatty replaced over 7,000 panes of glass, and this process enabled them to be removed efficiently while remaining fully protected from external weather conditions.



WEST ELEVATION

Head Office

Enigma Industrial Services Ltd
Hawthorn House
Woodlands Park
Ashton Road
Newton-le-Willows
WA12 0HF

Tel: 0330 678 1199
Email: info@enigma-is.com
Web: www.enigma-is.com

