

## Infrastructure : Rail



Nationwide Coverage Provided by 12 Enigma Service Centres around the UK

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## Case Studies

#### **Glasgow Central Station Refurbishment**

Principle Contractor Bovis Lend Lease. Value of scaffold subcontract - £3m+

Scaffolding Project to provide a suspended platform from roof lattice steelwork while maintaining little impact to the normal activities of day to day rail & passengers. Design challenges – to ensure weight restriction on suspect roof trusses were not overloaded. Hence the design was centred around the extensive use of aluminium alloy truss beams.

Also, provide a temporary roof over one of the most extensive glass roofs in Europe. Requiring the scaffold temporary roof to be built on skates allowing the structure to be rolled along as glazing works progressed.



#### Edinburgh Waverley Station Roof Repairs

Principle Contractor Amec Spie Rail. Value of scaffold subcontract - £1m+

Design, supply, installation and removal of temporary working platforms over the Northside mainline from platforms 1/2 to 19/20, 400m long over four sections. All works carried out during weekday night-shift possessions and 56-hour weekend blockades.

#### **Dundee Hotel & Station complex**

Principle Contractor Balfour Beatty Construction. Value of subcontract - £0.5m

The supply of trackside bricklayer access scaffolds (during possessions) for new /replacement retaining walls and passenger stairways. Including the provision of bridged access scaffolds over live lines to facilitate the construction of hotel elevations spanning above.

## Historic Projects

#### **Findhorn Viaduct - Inverness**

The supply of access & encapsulation to the underside lattice steelwork utilising a suspended scaffold allowing for blasting & painting activities while the line was live. Findhorn Viaduct spanning both land & water is situated in a remote location, which presented additional logistical challenges when servicing the site with materials required for the project.

#### Castlebank St Rail Bridge - Finnieston Glasgow

The supply of access & encapsulation to the underside and wing wall of the steel bridge during strengthening, blasting & painting activities while the rail line remained operational.

### **York City Station**

The provision of various access & encapsulation solutions to assist the Principle Contractor Jarvis /Serco – with complex station upgrade work. This incorporated platforms, footbridges and roof support pillars which were corroding and required strengthening, blasting & painting. Most of the enabling works were carried out on night shift to minimise disruption to rail traffic & rail passengers.

#### **Stirling Station Complex**

Provision of an access & encapsulation solution to enable general refurbishment and painting of the railway station concourse, platforms, footbridges and main entrance areas.

#### **Carron Bridge**

Suspended access solution incorporating encapsulation provided for bridge strengthening and upgrade repairs.

#### **Clachan – Leslie Viaduct**

Bridged access provided including encapsulation for blasting & painting repairs.

#### **St Andrews Sub Station**

Scottish Power/Network Rail – General refurbishment of the sub-station including the internal erection of birdcage scaffold for the new roof installation this also, involved utilising a bridged scaffold structure over live lines. All work was carried out throughout possessions during night shift patterns to minimise disruption.



## Design & Engineering

The Enigma In-house design and engineering team boast a wealth of experience and are industry-leading in scaffolding design, collaboratively working with our clients, to provide innovative solutions and technical expertise to solve complex challenges. By utilising the latest design and planning software along with our knowledge and experience, we can offer economical solutions to complex access requirements. Our design team have gained an invaluable reputation for excellence by delivering safe, reliable projects and are trusted by many national construction organisations.



We work closely with clients to make things possible by applying our know-how to solving problems.

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### Public Access Stairs

HAKI Public Access Stairs can handle high volumes of footfall to ensure safety in-line with leading UK standards, the 2.5m wide stairs can accommodate up to 36 people per lift at any one time. With specialist additional design features including child-safe, adjustable handrails and slip-resistant solid steel decks helping to protect the public against falling from a height. In-line and spiral configurations are available to suit all applications, providing flexibility with specialist project requirements.

HAKI Public Access Stairs can also, be easily combined with the HAKI Bridge System and Cladding to provide temporary footbridges.

### Hakispan

Bridge maintenance and repairs are challenging when spanning roads and railways. HAKISPAN is a complete lacing, bracing and decking system for quick and safe suspended bridge access. By maximising spanning capability it reduces the selfweight of structures by up to 80% and is 10 times faster to erect than traditional aluminium beams.

HAKISPAN structures can be built and dismantled safely using fall prevention measures from utilising bays either side. This helps to reduce programme times and minimise possessions and road closures.

Static and mobile working platforms can also, be safely suspended from the span enabling work to be carried out in sections throughout project phases.

### High Level Birdcage

The HAKI high-level birdcage is ideal for train station infrastructure improvement upgrades, by minimising disruption during suspended ceiling installation programmes. HAKI birdcage scaffolds can be quickly constructed with more than one lift height or single lift and sections can be partly decked for speed and economy.

Fall protection safety is also, enhanced by utilising advanced Guardrails; removing the need for work from scaffold steps when adding in subsequent lifts. Whilst, noise pollution is kept to a minimum with no hammering required throughout erection, maintenance or during the dismantling phase.

### HAKI Bridge System

The 2m wide HAKI Bridge System (HBS) is a safe temporary railway crossing solution for pedestrians and can be built off-site and positioned within just 15 minutes, to minimise possession time disruption on busy track sections. Designed following leading British and European standards, the system can handle impressive loadings of up to 7.5kN/m2 with a maximum span up to 30m dependent on the imposed live load.

The HAKI Cladding System can also be used to enclose the bridge to offer further safety benefits, including the risk of falling objects and falls from height. Whilst also providing noise reduction and protecting the general public from bad weather or high winds.

### Cladding System

HAKI cladding system is the ideal solution for site hoarding, stair and bridge enclosures, to reduce noise and improve public safety. By preventing falling objects from temporary stairs, bridges or working platforms. The lightweight toughened plastic fire-resistant panels are compatible with both scaffolding systems and traditional tube & fitting scaffolding.

The cladding system can also, be used to create swing doors for stair towers, to provide security when not in use. One man installation is possible with the specifically designed HAKI cladding track.

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Insulation

Protective Coating

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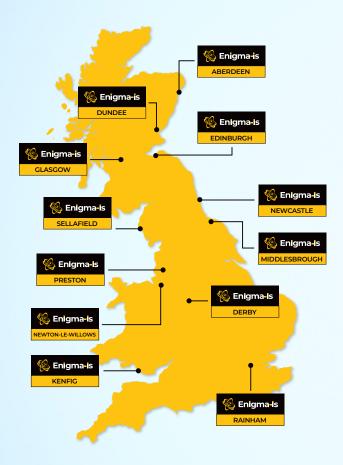




UK DISTRIBUTION PARTNERSHIP

# Nationwide Coverage

Provided by 12 Enigma Service Centres around the UK



### 🛱 STOCK

Enigma operates one of the UK's largest scaffolding asset bases with over 2,000 scaffolding and related products available to purchase or hire.

## SERVICE

With over 85 year's industry knowledge & experience, Enigma provides an accredited safety first professional service. Ensuring clients benefit from convenient access to simpler and safer systemised solutions and reduced lead times for projects nationwide.

### SUPPORT

The In-house QSHE and design & engineering teams provide clients with economical solutions for complex challenges. Including ongoing training, and technical support services through knowledge and resourcesharing practices.

### DELIVERY & COLLECTION

Collect stock, or have it delivered, from Enigma Industrial Services depots strategically located around the UK.