

SPECIAL ACCESS SCAFFOLD SYSTEMS

Types and Top Tips



It's believed that scaffolds were used 17,000 years ago by Palaeolithic cave painters.

European Standard EN 12811-1 applies to modern scaffolds, irrespective of material used. The key purpose of a scaffold has not changed for centuries: to provide workers with a safe, stable, access platform on which to work during construction or maintenance of man-made structures such as buildings, bridges and towers.

A correctly erected access scaffold reduces the risk of persons and objects falling when working at height. In fact, a building or structure cannot be constructed above 2 metres without a platform. Access scaffolds are therefore indispensable to the performance of builders, civil engineering or structural contractors.

Scaffolding materials are manufactured typically in steel or aluminium and then configured into scaffold systems. The three main scaffolding types are:

- Tube and fitting/coupler components
- Modular systems formed of prefabricated components
- Façade systems for access to walls

Additionally, timber and bamboo scaffolding is still widely used in countries such as China and India.

For many structures, it is sufficient to erect general access or working scaffolds, encompassing the four loading duty classifications in EN 12811-1.



Special Access Scaffolding



A unique soffit access system was designed for the Marina Bay Sands Hotel Skypark. The scaffold system was erected at the 200m level onto two specially manufactured tracks.

Owing to varying curvatures and off parallel steelwork, this section of work was accessed by an innovative, cantilevered, 2.5m wide tracked platform that swivelled round the final radius. Experienced, highly skilled operatives worked under the supervision of senior NSS staff.

For sites and contracts where general scaffolds are impossible to use, special purpose scaffolds are needed – known as either **special access systems** or **'specials'**.

Examples of unusual sites for scaffolds are: heritage buildings such as King's Cross railway station in London, the new Abu Dhabi airport terminal and high-rise hotels like Marina Bay Sands in Singapore.

Special access systems are tailor-made for

each client and contract's need. Designers and fabricators of these systems will need expert knowledge and extensive experience of configuring and installing a variety of specials, in addition to general access scaffold expertise.

Moreover, all scaffolding operatives must have specific training in special access systems and be familiar with their unique performance characteristics.



Typical Special Access Configuration

Despite being one-off designs, the aim is to configure each system from standard components whilst allowing maximum scope for flexibility of solution. Structural aluminium, with a pre-fabricated panel, forms the heart of each NSS special access system, accounting for around 95% of the components. The remainder is the adaptive part, manufactured on an individual bespoke contract basis.





Typical Special Access Configuration

At NSS, we have designed and installed special access systems on a wide range of contracts and sites over the past 50 years.



Most NSS systems can be pre-built at ground level, accelerating installation time and reducing the inherent risks associated with working at height.

The standard core NSS components all have known stiffness and material characteristics. The 1st stage of design involves sketches and 2D drawings illustrating the concept.



During 2nd stage analysis, the NSS special access system configuration can be assessed in a full scale test procedure, including erecting a test rig.



Spans and Tracks

Special access systems such as designed by NSS can be used to span up to 45 metres, unsupported.

Made of lightweight aluminium, they are 10 times faster to erect and install than conventional scaffold tubes and fittings.



At Queen St, Glasgow, we erected a 37m clear span across the railway platforms to provide an arched access platform on the upper level, with a water and debris membrane on the underside.



This curved, tracked and stepped access platform was profiled to the glazing surface of this retail canopy, using two tracks, top and bottom. It was erected and dismantled at ground level and lifted into position using two winches.



Spans and Tracks

Special access systems can be also tracked to allow platforms to be moved easily.





This 120 tonnes, travelling, mobile special access system was 96m long with an arched 37m span. It was suspended from the Victorian station roof of King's Cross, London, on two triangular (Toblerone) tracks. The system was in full use during the 3 year renovation and was moved manually 4 times, with each move taking less than one hour.

View a video showing the moving of the King's Cross special access scaffold. Click on the image or the link below: vimeo.com/233826889



Top Tips for Special Access Systems



BCJ, the main contractor at Chek Lap Kok airport, said: "the airport could not have been completed in time for the official opening without the NSS special access scaffold system".

Typically, special access systems are required on non-standard structures and sites. But whether you are designing and building a new airport, shopping mall, football stadium or renovating an historic railway or cathedral, you will find that there is a specials configuration that will work for your particular contract and site.

In today's competitive construction market, you need access systems that are cost-effective to erect, support and dismantle. Unique projects will always often suffer from scope creep, client changes after start, long decisionmaking processes and stress on resources. Special access systems can provide you with a flexible, yet highperformance answer to your scaffolding requirements.

Here are some tips for specifying special access scaffolding systems of lightweight aluminium bridge panels: **Tip 1:** Do you need clear access below a roof for the public or other trades, such as in a shopping mall or station?

Tip 2: How long is the work face? If it's less than 30m, a conventional general access scaffold may be adequate, otherwise a tracked special will be preferable.

Tip 3: Is the roof strong enough to support steel scaffold? In which case, aluminium scaffolding such as NSS bridge panels will be preferable.

Tip 4: Is it possible to erect a trackway at high level with sufficient length for a 12.5m section?

Tip 5: *Is there sufficient space to erect the system on the ground and lift into position?*

Tip 6: How quickly does the scaffold need to be erected? Steel will take much longer than aluminium.

For additional information and no-obligation advice on special access, please visit *nssspecialaccess.com* or email *tonydoyle@nssaccess.com*