

Successful construction with PERI



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Welcome to PERI scope

With our attention now firmly on 2007 we are pleased to reflect on a very successful 2006 for PERI. Globally the group has performed strongly and now has subsidiaries established in 48 countries worldwide bringing our products and services to the largest ever number of clients.

Our growth is being supported by the major expansion of our manufacturing facilities to almost double production capacity and support the global demand for our equipment well into the next decade.

In the UK a strong concrete industry helped us achieve record growth positioning us as market leaders in the specialist supply sector for formwork and falsework.

A changing health and safety culture has also contributed to our success with an increasing demand for lightweight falsework systems which can be erected from below and the requirement for full weather protection screening on high rise buildings. Examples of these products in use are shown opposite and on pages 6, 10, 12.

2006 saw the launch of our new system scaffold, PERI UP, targeting the health and safety requirements of the access and falsework industries. With an integrated advanced guardrail

and unequalled adaptability the product has received an excellent response from the market. The product is featured on page 8 and with current levels of interest we are confident our scaffolding business will grow significantly in 2007.

Innovation is at the heart of PERI's success. Bauma 2007, is the world's largest construction trade fair and takes place in Munich from 23rd - 29th April. In our expanded Exhibition stand of 4,200 m² we will be presenting new innovative products together with live demonstrations and the opportunity to discuss your formwork and scaffolding requirements with our experts. We extend an open invitation to all our readers.

On behalf of everyone at PERI UK, I would like to thank all our customers for their ongoing trust and support. We hope you find this edition of PERI Scope interesting and as 2007 promises to be another very busy year for the UK construction industry we wish you success in your business and look forward to the opportunity to work together on future projects.

Carl Heathcote
Managing Director



PERI's new RCS P screening system For protection of workforce

Warton Road, Stratford, London E15

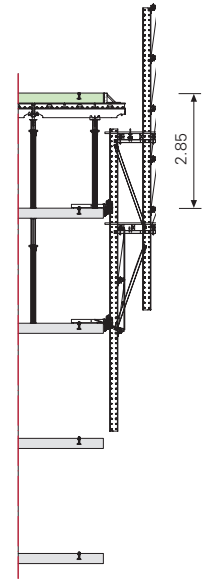
PERI's RCS P (Rail Climbing System – Protection) was used to provide a safe and efficient working environment during the construction of an 18-storey residential tower block on Warton Road in Newham, London.

Telford Homes commissioned the new build, an elliptical shape tower providing 127 units, and Atlantic Contracts Ltd was appointed to undertake the concrete frame construction.

In addition to TRIO panel formwork, used to cast the walls of the main structure and an adjacent low-rise residential building, Atlantic Contracts specified the use of PERI's RCS P system for the project.

The RCS P system is designed for use on high-rise buildings and it offers protection across three concurrent levels of construction. The highly effective system features a series of plywood clad, steel framed panels that are secured to the building at all times by means of patented guide shoes. The system prevents workers falling from height and also eliminates the potential dangers of falling tools or debris.

The facility of being able to enclose the work area allows operators to feel safe and secure and also offers a significant measure of protection against inclement weather conditions. A significant design feature



After installation the panels are firmly secured to the structure at all times.

Cross-section showing levels of protection.

**John McKeogh,
Site Manager**

"The RCS P system is a good safe system for high-rise construction. Once in position it is easy to use and provides plenty of protection on all fronts."



m

of PERI's RCS P system is its climbing shoes which are bolted to the concrete frame at 2.50 m centres. The panels are guided by the climbing shoes as they are raised to the next level of construction. Unlike jump-form systems the panels never leave the guide shoes and are always firmly held against the structure.

Although PERI offer the facility for pre-fabrication at their Rugby depot, Atlantic Contracts elected to assemble the required 23 panels on site. Damien Barden, Site Manager for Telford Homes, also made full use of the panels' surface to prominently advertise his companies logo high above the London skyline.

Contractor:
Atlantic Contracts Ltd.
Field Service:
PERI Weissenhorn, PERI Dartford



Nearing the end of the project: The RCS P system is ready to be removed and the structure's

permanent cladding, complete with multicoloured balconies, is being applied.

Front Cover:
RCS C (Carriage) system being used to construct a central core on the Bankside development.

PERI VARIO girder wall formwork helps bridge two communities

Highley Alveley Bridge Refurbishment, Shropshire



**Dave Johnson,
Proprietor**

"We used the PERI VARIO GT 24 pre-made panel system to form the sides of the beams and for the straight faces of the piers because it is quick, light and easy to use. It proved to be a very effective and highly efficient system. We were also impressed by the technical support and back-up provided by PERI over the course of the project."



PERI Ltd, were selected to supply VARIO panel formwork for a new pedestrian bridge which links the villages of Highley and Alveley on opposite banks of the River Severn in Shropshire.

Mowlem, later acquired by support services and construction company Carillion, was appointed as main contractor for the new bridge and elected Reinforced Structures as sub-contractor to oversee the formwork and reinforced concrete side of the project.

To minimise working over the river, the main beams for the centre span of the bridge were precast on the Alveley bank and lifted into position by a 1000 t mobile crane.

Mass concrete formers mirroring the arch of the soffit of the bridge were cast on the ground adjacent to the bridge using PERI's compact panel system. Ply was then fixed to the top of the mass concrete to form the soffit for the beams. The sides of the beams were formed using the PERI VARIO GT 24 system.

The piers and abutments with their ribbed feature surface were cast in one pour using specially shaped circular shutters for the tight radius bullnose at the ends of the piers and the corners of the abutments. The PERI VARIO GT 24 system was used for the straight faces of the piers and abutments.

For speed, reduced on site preparation and to achieve the required high quality finish, all the shutters were pre-assembled at the PERI factory in Rugby and delivered to site ready for use.

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Top: Tight radius VARIO bullnose shutters, to form the bridge abutments, were pre-fabricated at the Rugby depot.

Right: The completed footbridge.



Contractor:
Reinforced Structures
Field Service:
PERI UK, Rugby Office

PERI Climbing System forms 14 cores at Bristol's most significant post-war site

The Bristol Alliance, Bristol



**Mick Vincent,
Site Manager**

"All the PERI equipment is adaptable and very user-friendly. The SKYDECK we used to form the slabs on the Bristol Alliance project was successfully assembled by general site operatives rather than skilled carpenters."

The City of Bristol is undergoing exciting changes with a new retail, leisure and residential development project worth £500m. A large quantity of PERI formwork equipment is being employed to help construct the one million sq ft of retail and leisure space.

Referred to as the Bristol City Centre Expansion on Broadmead, this exciting development is commissioned by two of the UK's leading property companies, Land Securities and Hamner, under the name

Bristol Alliance. Building and civil engineering firm, Alfred McAlpine was awarded the contract and they in turn appointed UK concrete frame contractor, Byrne Bros (Formwork) Ltd. to be responsible for erecting the structures.

Byrne Bros. have been using PERI products for ten years and, as the company already owned large quantities of PERI equipment, any additional new components required for the project were ordered-in to replenish their existing stock.

PERI equipment used on the 36 acre site included; SKYDECK, VARIO, RUNDIFLEX, MULTIPROP, CB 240 (2.40 m walkway) and CB 160 (1.60 m walkway).

For the 14 concrete cores (20-35 m high), of which 4 were being erected at any one time, CB Climbing Brackets and internal platform beams were used to support VARIO girder wall formwork with trailing platforms to allow finishing of the concrete face. On block 7, featuring an 18 storey mixed retail building,

PERI SKYDECK panel slab system is being used to cast the slab around a previously completed core. As the superstructure rises, Byrne Bros. intend to cocoon the building with the RCS P system in order to protect operatives and the public at this busy city centre location.

This is the most significant regeneration programme in the area since World War 2 and is set to create 4,000 jobs.



Contractor:
Byrne Bros. (Formwork) Ltd.
Field Service:
PERI UK, Rugby Office



SKYDECK and MULTIPROP used to form floor slabs.

Following platforms allow for concrete finishing works.

SKYDECK Forms 7.50 m high soffit on Europe's largest office park development

First Central Development, Park Royal, London W3

Built on the site of the old Guinness brewery, and within eyesight of the new Wembley arch, the First Central development will ultimately incorporate nine new office blocks, a hotel and leisure facilities and a new tube station on the central line.

FC 200, the second building to be constructed on Europe's largest office park development, is being realised by recent SKYDECK converts – John Doyle Construction Ltd. A safety driven company, John Doyle have been won over by PERI's coveted erect-from-below system of light-weight components.

What set this project apart from the many other SKYDECK projects this year were the impressive 7.50 m tall MULTIPROP towers used to support the SKYDECK soffit formwork at the east face of the building. Adjacent to this, PERI MULTIPROP Strike-and-erect slab formwork was employed to form the 11.5 m high soffit of the central atrium.

The rest of the post-tensioned slabs varied in thickness between 250 mm for 9 m spans and 350 mm for 12 m spans. These were also formed with SKYDECK with the exception of the internal corners where traditional formwork was fabricated with MULTIPROPS. In all, over 2,600 MULTIPROPS and over 3,000 SKYDECK panels were delivered to site in order to complete the project.

To ensure the safety of operatives working on the slab, 65 SDB SKYDECK Platforms were craned into place along the cantilevered edges. Minimising risk involved in the erection procedure, SDB Platforms are lowered by crane and positioned by a single operative who can stand well back from the exposed edge. Additionally, the need for minimal ledger frames of the SKYDECK system allowed clear, tidy walkways to be designated for safe access while light system components minimised exposure to manual handling risks.

In the end, the concrete frame was completed to program in under ten months and, more importantly, without incident or injury to site personnel.

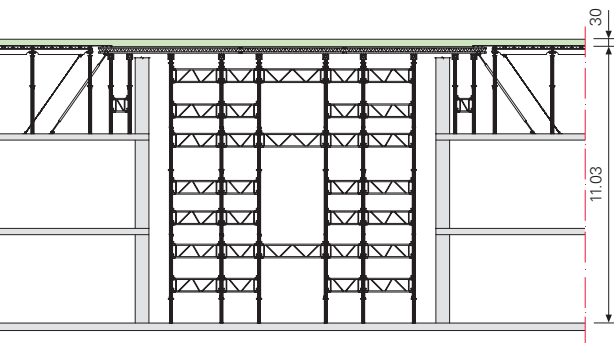


SKYDECK: Safe erection from below does not come at the cost of a high quality finish.



**Jim Seward,
Project Manager**

“Quite often during the First Central project we had problems with the crane being down due to poor weather. The great thing about the SKYDECK system is that the components are so light that we could move them to the next floor by hand helping us keep on schedule.”



11.50 m high falsework supports the soffit of the central atrium.



Contractor:
John Doyle Construction Ltd.
Field Service:
PERI UK, Rugby Office

PERI's flexible and efficient scaffolding system used on £0.3 billion regeneration scheme

Imperial Wharf, London



PERI UP Industrial façade scaffolding.

St George plc is creating an impressive mixed use development on the Fulham/Chelsea borders in South West London. Imperial Wharf, a prime regeneration scheme of world-class importance has already won numerous awards for planning and design and is fast becoming London's premier riverside address.

With an overall project value of £300m phased construction began in May 2000 and is due for completion in 2011. Imperial Wharf will provide 1800 luxury apartments, restaurants and shops within this mixed tenure development of 282,500 square feet on a 32 acre site.

St George plc appointed main contractor J. Reddington Ltd. to construct the concrete shell and cores to blocks C and H of the development. J. Reddington in turn specified the use of over £1m worth of PERI formwork and scaffolding equipment for the project including MULTIPROP, TRIO & SKY-DECK. Already very familiar with the PERI range, having more than 10 years experience of the products, J. Reddington have now invested further in PERI's new scaffolding system, PERI UP.

PERI UP is the most innovative modular system scaffold that is as adaptable as traditional scaffold with the ability to safely erect behind an advancing guardrail.

Designed as a core kit of only nine components it can cater for a wide range of applications including:

- Facades
- Stair Towers
- Shoring
- Maintenance Towers & Scaffolds
- Birdcages
- Falsework

PERI UP is being used as a façade scaffold to the four H blocks currently under construction. Ranging in height from 4-8 storeys they feature balconies, bays and insets which the new ledger based system, using 250 mm wide steel decks, is more than flexible enough to deal with.



**Richard Rorrison,
Contracts Manager:**

"The PERI UP system is very good and efficient. PERI has obviously invested a lot of time in this market. They provide very good back-up service, with a dedicated team available to help produce technical drawings and calculations. PERI UP allows variation in platform heights and safer stacking which make construction much faster. On the vertical members, there are fixings every 500 mm which facilitates easy adaptation."

The PERI UP Rosett was erected in 2.00 m lift heights with every level decked and fitted with internal console brackets which are raised and lowered to enable the bricklayers to construct the traditional external brick facade.



Incorporated working/loading platform.

Internal console brackets are fitted with guardrail posts and guardrails to safely allow slab edge features and cavity wall insulation to be installed from the outside in advance of the brick outer skin. An additional feature on this project was the further extension of the console brackets to close the gap between slab edge and scaffold to ensure that the inner façade skin panels could not slip down whilst being fitted. This attention to detail allowed all the trades involved to work safely without interruption thereby reducing down-time and improving efficiency.

As with all city sites, restricted site access meant that elevations and sections of the complete scaffold had to be installed at different times. Through careful planning this was overcome, without complicated interfacing and hazardous stepped platforms, and with site staircase accesses added easily to the outside of each section as necessary.

The Imperial Wharf development will soon have its own railway station following installation of one planned for Chelsea in west London, on the Network Rail West London Line (WLL) between Clapham Junction and Willesden Junction.

Contractor:
J. Reddington Ltd.
Field Service:
PERI UK, Rugby Office

See the full range of PERI UP equipment at SED 2007.

For details see
www.sed.co.uk
or www.peri.ltd.uk



Over £1m of PERI equipment used to construct 'jewel in the crown' project

School of Informatics, University of Edinburgh



Douglas Hanley,
Construction Manager

"This is the third major project I have used PERI systems on and we have found them to be safe, fast and efficient, PERI's ability to supply the right solution for all our formwork and falsework has been a key factor to the success of all these projects, PERI systems have certainly lived up to our expectations in relation to square metre erection rates, I know there are other systems on the market that may be a bit cheaper, but quality is not cheap."



PERI formwork and falsework has been instrumental in the transformation of a city centre car park into a £40 million centre for the study and teaching of information technology.

The Potterow development in Edinburgh, planned for completion in 2007, will provide a new Informatics Forum for the School of Informatics at the site on the current Crichton Street car park.

Work on Phase 1, to the south of the site, began in September 2005 and consisted of the concrete framed structure of the linked buildings – which have an angular 'S' shape floorplan – with structural steel infill forming the internal atrium.

The structure comprises contiguous piled wall basement construction, eight insitu concrete cores (stairwells and lift shafts) with flat 300 mm soffit slabs in reinforced concrete supported by various sized pre-cast columns.

Principle contractors, Balfour Beatty Construction, hired PERI equipment including large volumes of TRIO (1,000 m²), VARIO (1,600 m²), SKY-DECK (3,000 m² and 150 SDB edge platforms) and MULTIPROP (3,000) to assist in construction of the £4 million concrete frame.

PERI's fabrication team was also called into action with the off-site fabrication of 1,600 m² of pre-assembled VARIO wall formwork panels. In areas where quality of finish was important the VARIO panels were fabricated with the face ply fixed from the rear thus producing a blemish free 'as struck' surface.

The supply of pre-assembled formwork greatly reduced on-site make time for the featured finished areas.

An average of 400 cubic metres of concrete was poured each week throughout casting of the frame. External treatment includes pre-cast concrete panels with a variety of finishes including stonework cladding. The building provides an area of 12,000 m² over four and six floors. Phase 2, situated at the north-west of the site has a basement, is nine storeys high and connects to Phase 1 on four levels, providing 4,000 m² of accommodation.



At the ground floor entrance area, three large, fibreglass "boat" moulds were secured to the deck of the MULTIPROP strike-and-erect slab formwork to produce aesthetic troughs in the slab. In order to increase the column centres in the

entrance area, the 110 mm thick slab was post-tensioned. For the rest of the soffits, with heights of up to 7.50 m, SKYDECK panel slab system was used with crane-placed SDB platforms.

Contractor:
Balfour Beatty Construction Ltd,
Edinburgh
Field Service:
PERI UK, Glasgow Office

Quality of finish achieved using panel systems.

The Edinburgh School of Informatics, home to a multinational group of researchers and senior academics, is the only five-star, A-rated school of computing in the UK. It is regarded as the most important such department in the world outside the United States. Not surprisingly, it is seen as one of the 'jewels in the crown' of the University of Edinburgh, making a significant contribution economically both to the University and to Edinburgh itself with research income alone of £5 million per year.



Artists impression of finished project.

PERI's Rail Climbing System: Safe, cost effective and versatile

Bankside 123 Development, Southwark, London SE1



Building 2 of the Bankside 123 development.

Lying adjacent to the Tate Modern art gallery, the Bankside123 development is a three building £220 million mixed-use scheme that will provide 85,000 m² of office, retail and leisure space for the district of Southwark, London.

With building one nearing completion, construction began on the partially joined buildings two and three with the help of PERI's new Rail Climbing System (RCS).

Byrne Bros. Ltd, who were sub-contracted to build the ten storey concrete frames, chose the RCS C (Carriage) configuration for the five cores and opted to use the portable hydraulic system to drive the climbs.

Communication between PERI and their clients is not only an essential part of a projects success but it can also be crucial to the improvement or development of their products. This is never truer than during the teething period of a new system. In this case, the task of pre-assembly was co-ordinated between PERI's fabrication team (main platforms) and Byrne Bros. yard operatives (intermediate and finishing platforms). The 0.5 km of platforms built during this phase were shipped to site and erected within three weeks.

Highlighting its versatility, similar components of the RCS system were used in the fabrication of the RCS P (Protection) system panels employed to protect the busy road at the front of building two. Project Manager, Eddie Meyer, was impressed by the safety of the RCS P system and its synergy with

the SKYDECK slab formwork used to pour the 2,500 m² slab in a two week turnaround period.

The RCS system was an ideal compromise for this city-centre project where crane-time was at a premium and the mid-rise building height would not justify the expense of a fully automatic climbing system. Only a few portable hydraulic apparatus were needed to raise the platforms while the rail concept ensured they were secured firmly to the cores at all times.



In spite of its compact design, the hydraulic cylinder of the mobile climbing hydraulics has a 5 t lifting capacity.



Quick-release connectors save time when removing the climbing device on the climbing shoe. The hydraulic cylinders are simply moved to the next climbing unit.



The hydraulic cylinder weighs only 25 kg which means it is easily moved by hand.

The RCS Portable Hydraulic System – can be post fixed at any stage of construction.



An artists impression of the finished development.



**Eddie Mayer,
Project Manager**

“The RCS P system does exactly what it sets out to do – it protects the workforce from the weather and falls from height and ensures debris does not fall on public passers-by. When used with SKYDECK it is invaluable as a safe access platform for the slab formwork.”



RCS P providing protection to the workforce and main road below.



High screening provides a safe working environment.

Contractor:
Byrne Bros. (Formwork) Ltd.
Field Service:
PERI UK, Leeds Office
& PERI Weissenhorn

Massive TRIO arrangements produce high quality finish

Budds Farm WTW, Havant



Martin Ansell,
Contracts Manager

"We had plenty of TRIO panels in stock (3,000 m²) and – as we find the system easy to handle and fast to erect – it suits our requirements. PERI TRIO is the best system for the 9 m high walls. For the first time we also used the TRIO concreting platforms and they were very successful."



Contractor:
M.J. Gallagher Contracts Ltd.
Field Service:
PERI UK, Rugby Office

PERI's core product, the TRIO wall formwork panel system is currently being used to construct a new 9 m high aeration tank for the extension of an existing wastewater treatment facility at Budds Farm in Havant, Hampshire.

The consortium 4Delivery, comprising United Utilities, Costain and Montgomery

Watson Harza, has appointed MJ Gallagher Contracts Ltd. to construct a tank which has a 9,000 m² area, with dividing and surrounding walls totaling 1.7 km at Budd's Farm in Havant. Site Manager, Martin Ansell of MJ Gallagher was responsible for specifying the PERI TRIO formwork having had past success with the system.

5,000 m³ of concrete is being used to create the base and just over 5,000 m³ for the walls, with one base pour and four wall pours a week. Four sets of 9 m high x 22 m long TRIO panel arrangements were assembled on the ground with BFD couplers and TAR 85 Walers. They were then turned over and covered with an extra layer of plywood in order to

produce the desired concrete finish before being raised into position ready for pouring. 44 smaller panels 0.72 m x 1.20 m have been ordered to finish the upper level of the tank.

The Budds Farm new tank is scheduled for completion in February 2007. The scheme is due for completion in March 2008.

TSE panel enables inner core formwork to be struck and moved as a single unit

Lochrin Square Development, Edinburgh

The Lochrin Square development (designed by Michael Laird architects Ltd) is situated at the heart of Edinburgh's Financial District and comprises two office buildings overlooking an attractive landscaped courtyard.

Main Contractor Sir Robert McAlpine used PERI equipment to cast the four concrete cores, which provide rigidity and support to the steel frame, while the outside of the building is

finished with Timber, Glass and stone cladding.

At basement level, PERI SKYDECK and MULTIPOP "strike-and-erect" was used to form the soffit and the downstand beams of the underground car park. Senior works Manager, Sandy Laidlaw commented: "The ease and speed with which we were able to lay the slabs using SKYDECK was a real bonus..." Referring to the CB 240 Climbing

Scaffold used on the two cores of building 2, he went on to say: "...I was also very impressed by the climbing platform system which helped us achieve the levels of productivity that the project demanded".

All four cores were cast with TRIO panel formwork utilising the TSE Shaft Element for the interiors. This component allows all the inner core formwork to be struck in seconds and moved as a

single unit. TRIO formwork, with SB Brace Frames, was also used to pour the single sided concrete wall where building 1 backs onto the façade of a 130 year old, B-listed building.

PERI's involvement with the contractor at Tender stage meant that much of the planning and preparation for the formwork side of the project was completed early on.

Contractor:
Sir Robert McAlpine
Field Service:
PERI UK, Glasgow Office



Sandy Laidlaw, Senior Works Manager
"The design support we received from PERI was first class, where there may have been complications on site due to the nature of the project; PERI provided imaginative and workable solutions. This was backed up by excellent service whereby PERI delivered pre-fabricated units to site, despite the constraints, thus saving time, labour and attendant cost."



The TRIO TSE panel holds all the interior core formwork together. It allows the panels to be retracted from the walls during striking and then lifted out as a single unit.



Award winning building constructed with PERI formwork

Oxtalls Campus, University of Gloucester

One of the UK's biggest state-of-the-art sports science campuses at The University of Gloucestershire showcased the use of a range of PERI formwork and falsework for a new 3-storey extension.

Main contractor, HBG Construction appointed Thames Valley Construction to erect the three storey high concrete frame within a 14 week programme. PERI's TRIO wall panel formwork, MULTIPROP tables, FB 180 platforms and VARIO girder column formwork were used to facilitate a

speedy and safe construction of the 1,800 tonne reinforced concrete structure.

In a three week period, Thames Valley Construction used over 2,000 m² of PERI formwork for the new extension. Four cores were cast using PERI TRIO wall panel formwork and 40 VARIO Columns (comprising an assortment of rectangular and circular columns of different dimensions) were used for the construction of 2,700 m² exposed columns.

In addition, PERI MULTIPROP tables with Aluminium primary beams enabled the swift assembly of the slabs. FB 180 platforms were erected around the structure to provide access for operatives working on the slab and installing the TRIO formwork panels for the walls. The site personnel were particularly impressed by the vast working area provided by the platforms in such a short space of time. Rather than having to erect scaffolding they were able to simply crane them onto pre-cast brackets in just a few minutes.

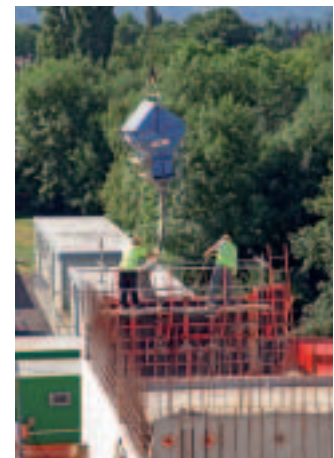
Originally designed by Architects, Fielden Clegg Bradley, with consultancy firm, WSP, the client wanted a low energy design building. The result is a contemporary building which has won the Civic Trust Award in 2003 for sustainability and also the RIBA 2003 Award for architectural standard and contribution to the local environment.



Dean Pumford, Site Foreman
"The main building remained open during construction and so we had to operate within a very restricted site with limited access. PERI were able to offer a 'just in time' delivery programme thus alleviating any potential problems we may have had during the project."



Overall view of site



TRIO wall formwork

Contractor:
Thames Valley Construction Ltd.
Field Service:
PERI UK, Dartford office

Visit us:



23rd to 29th April, Munich, Germany



22nd to 24th May, Rockingham, Corby

The illustrations featured in this brochure are photographs taken at particular time on a construction site. Therefore the safety details shown cannot be considered as final.

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PERI Ltd
Formwork Scaffolding Engineering
Market Harborough Road
Clifton upon Dunsmore
Rugby, Warwickshire
CV23 0AN
Tel: (0)1788 86 16 00
Fax: (0)1788 86 16 10
E-Mail: info@peri.ltd.uk
www.peri.ltd.uk