

PERIBOOK



Dear Readers,

Welcome to the new issue of our PERIBOOK!

We are delighted that you are taking the time to find out more about our company and our products. Our goal at PERI is to support you with customised solutions for your construction sites, regardless of whether you are building a detached house, planning a demanding high-rise project, carrying out renovations, undertaking an industrial project or working on infrastructure projects.

The purpose of our PERIBOOK is to show you how diverse our solutions and services are and how we can help you to successfully realise your projects. Sustainability and digitalisation play a central role in this. Our innovative systems and digital solutions will not only help you to optimise your construction processes, but also to save energy and resources. We put you, the customer, and your challenges at the centre of everything we do: with a comprehensive range of formwork, scaffolding and civil engineering systems, sophisticated safety solutions, efficient apps and tailored project support, we are much more than just a supplier. We regard ourselves as a partner who is there to support you throughout the entire project. This is made possible by our specialist consultants and engineers, who are on hand worldwide to make your construction projects safer, more efficient and more successful.

Our customers also take centre stage in our PERIBOOK. Together, we report on their projects and experiences with PERI: from the renovation of the historic Basilica of St Ulrich and Afra in Augsburg, where our scaffolding and structural solutions facilitated an uninterrupted scaffolding installation despite complex geometries, to the construction of the Pinnacle One Yonge Tower in Toronto, where our self-climbing system enabled simultaneous climbing of formwork and working platforms for the lift and stair shaft without the use of cranes, and even the Danjiang Bridge in Taipei, designed by Zaha Hadid, where our engineering solutions made the construction process particularly fast and resource-efficient. With our expertise and commitment, we can ensure that your projects are carried out efficiently and successfully anywhere in the world.

We invite you to immerse yourself in the world of PERI and discover the ways in which we can support you as a partner – from the planning stage right through to implementation. You can find more information on our website www.peri.com and contact our sales engineers at any time, who will be happy to assist you with your next project.

We hope you find our PERIBOOK inspirational and look forward to working with you.

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OUR COMPANY

WE ARE PERI

For us, construction has always been about shaping the future.

For more than 50 years now, we have been making construction more economical, faster and safer worldwide with cutting-edge technology, innovative strength, and our proximity to customers. As a strong partner, we are always there to assist our customers and actively support them in making their construction projects a reality – not only with our products and systems, but also with our services.

Our entrepreneurial mindset, reliability, openness and our passion for our customers have seen us become one of the world's leading manufacturers of formwork and scaffolding systems while also offering an extensive range of solutions and services. We are always looking to the future. In 2024, for instance, we put our new production facility in Weissenhorn into operation and at the same time launched a completely new and sustainable coating process onto the market.

Our customers, partners and employees can rely on us at all times. We always keep our promises and deliver high quality. We believe that openness and dialogue are the key to innovation and collaboration. Our passion for construction spurs us on and we always strive to achieve the best for our customers.



WHAT DRIVES US

VISION

What we aspire to:

We strive to be the leading partner for all formwork and scaffolding applications – worldwide.

MISSION

What we stand for:

We make construction more efficient, faster and safer. Providing the best service to our customers is what drives us every day.



A FAMILY BUSINESS

WITH A GLOBAL VISION

In 1969, Artur and Christl Schwörer founded PERI with the aim of streamlining concrete construction. The founders wanted to make construction work easier, faster and safer. The first production hall was built in Weissenhorn near Ulm, where our headquarters are still located today.

Our autonomy as a family business gives us the freedom to act independently and with foresight. Instead of having to make short-term decisions, we can develop sustainable strategies and consistently invest in modern technologies and future-proof solutions – and give them the time they need to realise their full potential. With this long-term approach, we have grown from our humble beginnings in Weissenhorn into a globally operational company with sites in over 70 countries. This expansion enables us to be close to our customers at all times and to offer them customised solutions and comprehensive services. This is how we safeguard our success over the long term and stand by our customers as a reliable partner, both now and in the future.

But it's not just the products and technologies that make us so special. It is our unmistakable PERI Spirit that is palpable in every decision and in every project. The Schwörer family is still actively involved in the company and, together with the entire PERI Team, embodies the values of reliability, openness and enthusiasm.



Christl Schwörer

Co-founder and member of the PERI Group Advisory Board

“Our family business relies on the people who work for us every day and the passion, creativity and courage they bring to their projects. With their support and the ideals on which my husband and I founded PERI in 1969, we have grown into the global company we are today. Our vision at that time was to revolutionise the construction industry. At PERI, we continue to pursue this objective to this day, thereby shaping the future of construction.”



From left to right: Nathalie and Christl Schwörer, Alexander, Marco and Christian Schwörer

OUR STORY



1969 Artur Schwörer and his wife Christl found the company PERI. The first T 70 Wooden Girders are produced.

1970 With the ship lift near Lüneburg, PERI receives its first major order, supplying the extra-long T 70 V Formwork Girders.

1971 PERI exhibits its products at the bauma trade fair in Munich and hands out the very first PERI Handbook at the fair.

1974 The first subsidiaries are founded in France and Switzerland.

1976 Production is expanded and the customer magazine "PERI Aktuell" is published.

1980 PERI develops the MODUL Slab Formwork made of aluminium.

1982 PERI USA, the first PERI subsidiary outside Europe, is founded.

1984 The T 70 V undergoes further development to become the Wooden Lattice Girder GT 24.

1986 TRIO Panel Formwork is launched on the market.

1989 PERI introduces the ACS Self-Climbing System with hydraulic drive.

1992 PERI opens its first production facility outside Europe in Turkey and introduces the SKYDECK Slab Formwork with drophead system.

1998 PERI enters the scaffolding market with PERI UP.

2007 For tunnel, bridge and building construction, PERI supplies the VARIOKIT Construction Kit consisting of standardised, rentable system components.

2009 On 15 April, Artur Schwörer dies at the age of 76. One year earlier, he received the Bavarian Order of Merit for his life's work, the most prestigious award in Bavaria.

2013 PERI develops apps for the construction site and an online customer portal called myPERI. In addition, a new office building is built in Weissenhorn.

2016 The new plant for scaffolding systems is opened in Günzburg.

2019 PERI celebrates its 50th anniversary. The new training centre opens in Weissenhorn.

2020 The fully automated scaffolding production facility including galvanising plant in Günzburg is expanded and is one of the most advanced in the world.

2021 With 3D Construction Printing, PERI brings disruptive technology to market maturity and completes Germany's first printed residential building with the COBOD BOD2.

2022 Publication of the first sustainability report.

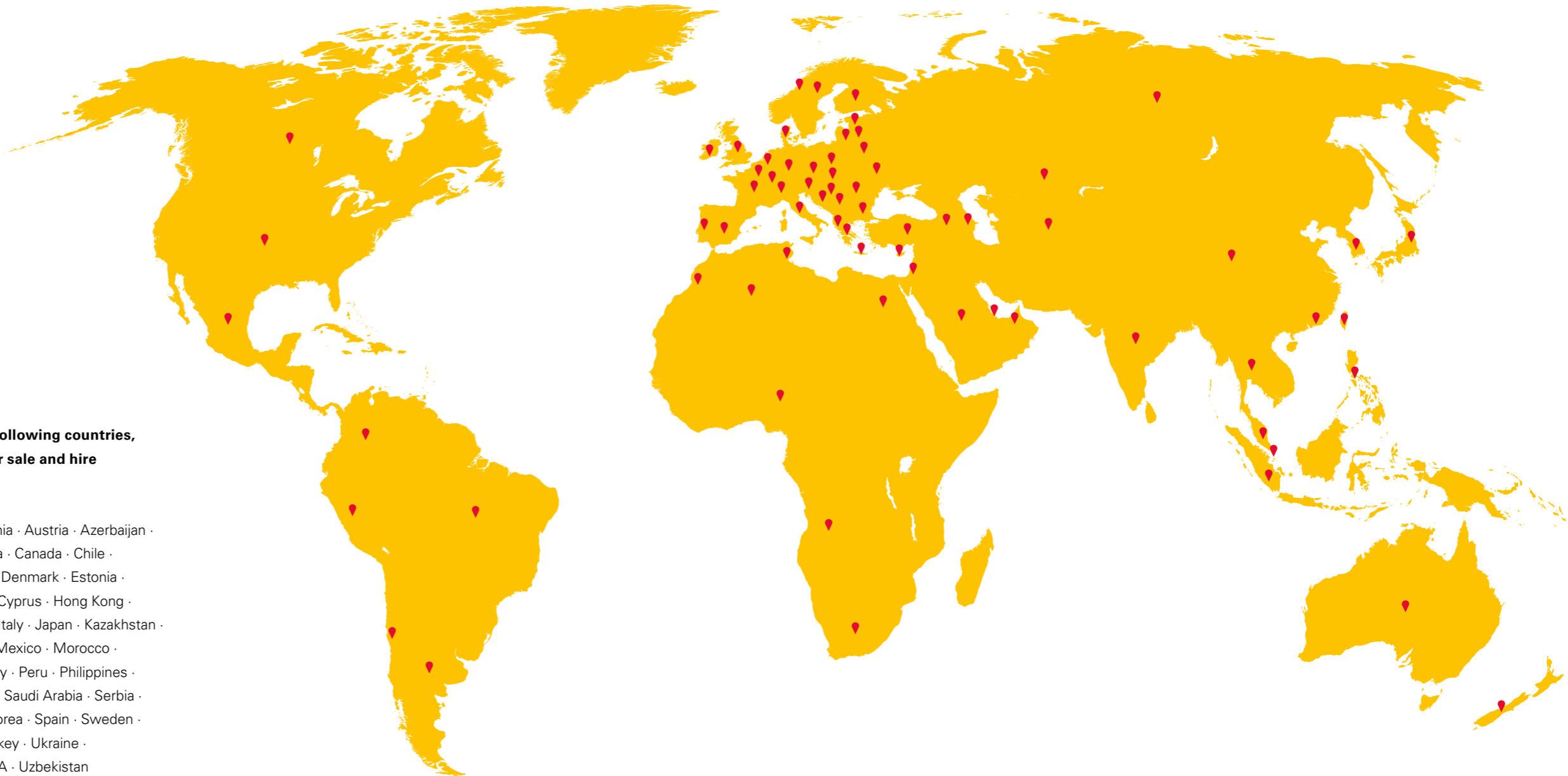
2023 promaintain, one of the leading service providers for industrial scaffolding, becomes part of the PERI Group. PERI SE also acquires a majority stake in KERN Tunneltechnik SA, a leading provider of secondary lining solutions for tunnelling projects.

2024 PERI invests 65 million euros in the production facility in Weissenhorn. The new PERIskin Coating Process employed there improves corrosion prevention while using around 80 per cent less energy.



THE WORLD

IS OUR CONSTRUCTION SITE



We have subsidiaries and offices in the following countries, offering our customers PERI Systems for sale and hire locally:

- Albania · Algeria · Angola · Argentina · Armenia · Austria · Azerbaijan · Australia · Belarus · Belgium · Brazil · Bulgaria · Canada · Chile · China · Columbia · Croatia · Czech Republic · Denmark · Estonia · Finland · Egypt · France · Germany · Greece/Cyprus · Hong Kong · Hungary · India · Indonesia · Ireland · Israel · Italy · Japan · Kazakhstan · Latvia · Lithuania · Luxembourg · Malaysia · Mexico · Morocco · Netherlands · New Zealand · Nigeria · Norway · Peru · Philippines · Poland · Portugal · Qatar · Romania · Russia · Saudi Arabia · Serbia · Singapore · Slovakia · South Africa · South Korea · Spain · Sweden · Switzerland · Taiwan · Thailand · Tunisia · Turkey · Ukraine · United Arab Emirates · United Kingdom · USA · Uzbekistan

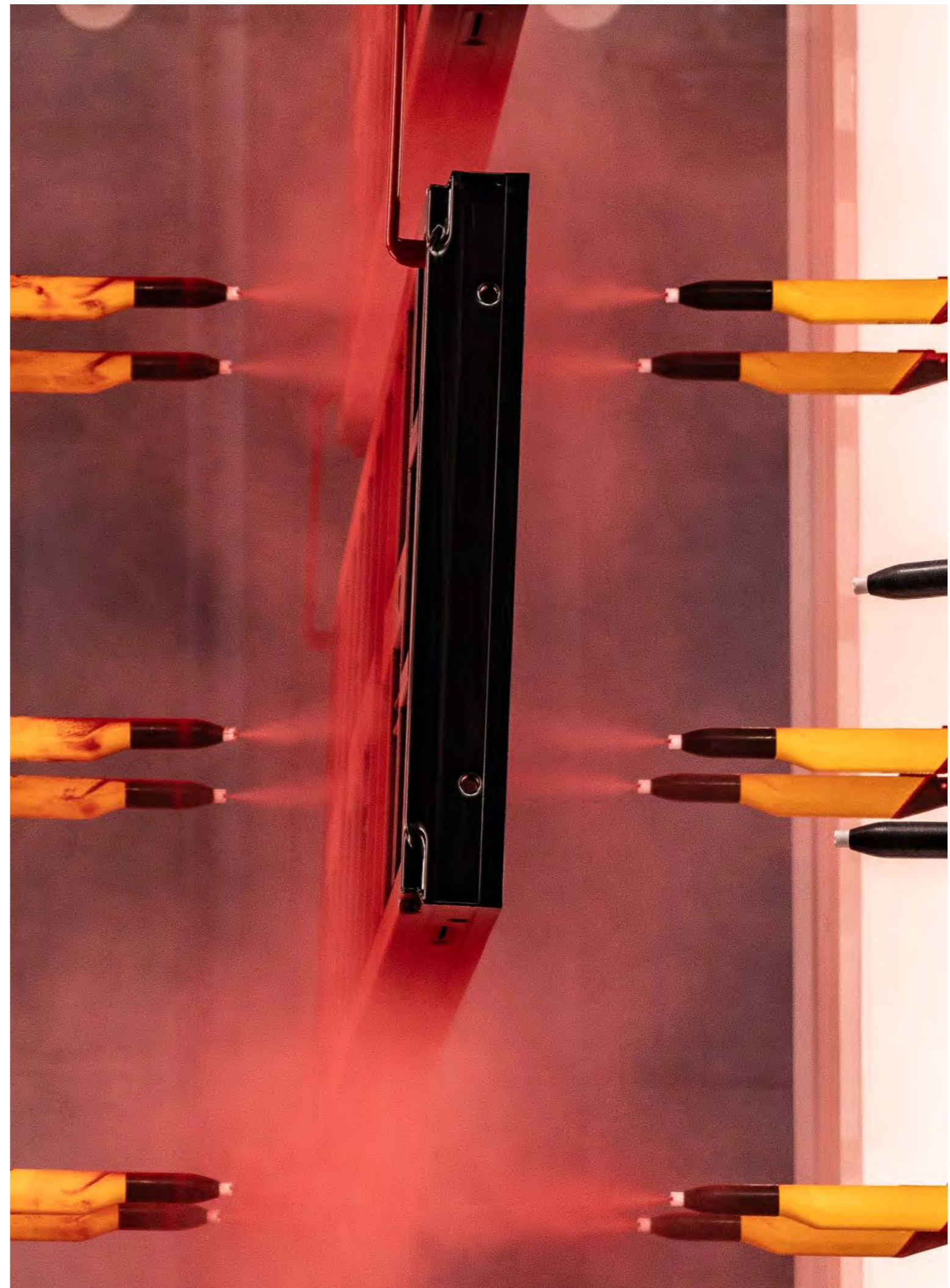
QUALITY

THAT MAKES THE DIFFERENCE



Quality is at the heart of everything we do. From the development stage right through to series production, we use state-of-the-art production and testing methods to ensure that our systems meet the highest standards. Even during the development stage at our research facilities in Germany, Italy, Sweden, the USA and India, our components are subjected to extensive testing. This is how we ensure that our products can withstand even the toughest construction site conditions.

Our highly automated production facilities, such as our plant for scaffolding systems in Günzburg, Germany, or our new frame production line at the formwork plant in Weissenhorn, Germany, not only ensure the highest standards of quality, but also guarantee that materials are readily available worldwide. We ensure that our formwork and scaffolding systems deliver the promised quality by means of continuous monitoring and multi-certified processes. We also invest continuously in the latest production and testing technologies to ensure we are constantly improving. We focus on resource-saving processes and durable products that can be reused and, if necessary, professionally repaired. This is an important factor in reducing our ecological footprint.



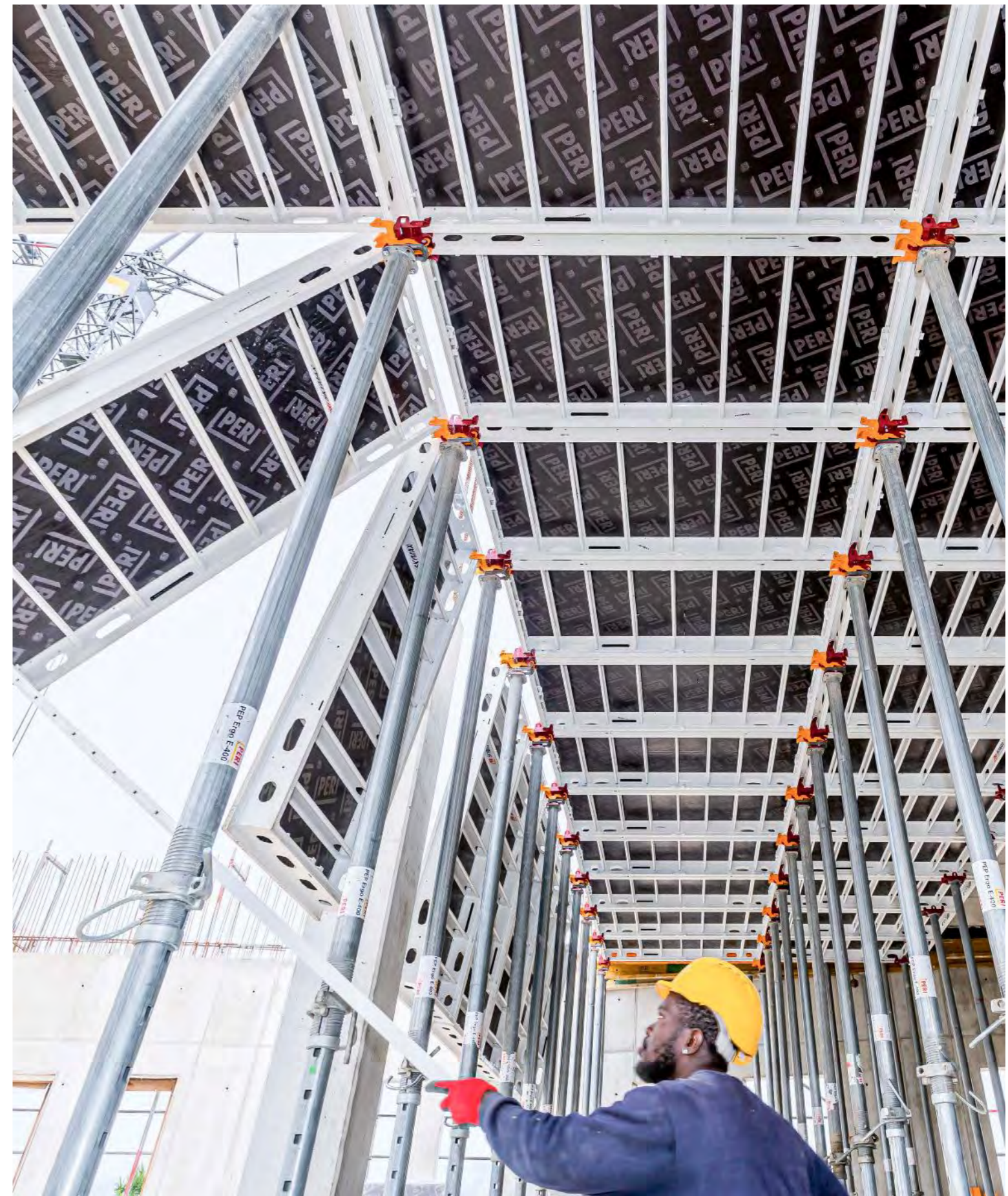


THE RIGHT **FORMWORK** FOR EVERY PROJECT

PERI has been providing innovative formwork solutions for more than 55 years. As our products are of high quality, our customers are able to use them for many years, thereby improving sustainability by reducing the consumption of raw materials.

We assist with a wide variety of construction projects: from simple garden walls and detached houses and apartment blocks to architecturally sophisticated buildings with high architectural concrete requirements and complex infrastructure or high-rise projects. We can offer the ideal solution for any size of project.

Our portfolio includes the sale and rental of **wall formwork** with single-sided and double-sided tie technology, circular formwork and facade formwork. Our aluminium **slab formwork**, girder slab formwork, slab tables, beam/slab formwork, lifting platforms and transportation devices provide time and cost benefits and are particularly safe to use. We also offer **column formwork**, some of which can be handled by crane, which includes solutions for high architectural concrete requirements and unusual geometries as well as systems with time-saving assembly characteristics. A particular highlight of our portfolio is our **universal formwork**, DUO, made of recyclable polymer-based composite material. This system can be used for numerous wall, slab, column and foundation applications and comes with an app to simplify planning. Our experts also develop customised **freiform formwork** for unusual requirements.



Our slab formwork not only provides safety, for example by being assembled from the working level below, but also enables efficient working processes.



Your project is the focal point of what we do – whether it's a small detached house, a large infrastructure project or a skyscraper. With our particularly lightweight universal formwork, DUO, you can form foundations, walls, slabs and beams, for example.

The development activities for our formwork systems at our research facilities in Germany, Italy, the USA, Sweden and India are constantly setting new standards for the construction industry, focussed on the success of our customers. We strive to simplify work processes, protect users and maximize the efficient compatibility of our systems – without losing sight of the importance of sustainability. For instance, our highly automated frame production line and the innovative PERI Surface Coating System in the new formwork plant in Weissenhorn are important steps towards more sustainable production. Our new, extremely resistant PERIskin is produced there in a coating process that requires only a fraction of the energy of other coating methods – and this is generated from wood waste in our own biomass power plant.

Our props, safety technology, software and apps also facilitate a safe and efficient construction process. Additional items such as sensors that measure the degree of concrete maturity or check the ratio of water to cement also contribute to completing your projects faster, safer and with higher quality.



Many of our formwork systems are equipped with RFID technology as standard. RFID technology helps to make the flow of materials on the construction site more transparent while also optimising logistical processes. Thanks to the RFID tags, it is also possible to call up specific component information, assembly and usage instructions as well as product videos digitally by scanning the panels.



We provide the right formwork for the different requirements of construction sites around the world. Our portfolio includes products that are particularly lightweight and can be installed without a crane, as well as systems that are impressively quick and efficient to install while also achieving high-quality concrete results.

A WIDE RANGE OF ACCESSORIES FOR YOUR BUILDING NEEDS

With more than 2,000 components, PERI offers a broad portfolio of safety accessories, formwork girders, formwork panels, wood-based materials, release agents and waterproofing technology. These complement and enhance our formwork and scaffolding solutions in an ideal way.

We always take a forward-looking approach to the development of new components, which is why we not only offer a wide range of products, but also work continuously to improve the efficiency and safety of our products. An example of this is the RFID technology we have been using in our underlay slabs since 2011 to transmit various information throughout the entire product life cycle. We therefore have a wealth of experience in this field and are able to offer compelling solutions using technology that is now considered standard.



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Catch Fans can be used as a safety net for people as well as for falling objects and small parts and, together with the PERI PROKIT Lateral Protection, offers an excellent safety solution for working at heights.



Choosing the appropriate formwork panel is crucial for the concrete design and result. PERI offers suitable products for every kind of construction project using different types of wood, surface finishes, thicknesses and formats.

Safety on the construction site is a high priority not only for our customers, but for us too. For this reason, developing safety components that can be seamlessly combined with our PERI Products is particularly important to us. Our PROKIT and PROKIT Alpha Guardrails, for example, stand out with their light weight and high efficiency due to low material costs. An ideal addition is the PERI Catch Fan, which can be used intuitively in combination with PROKIT and offers reliable protection for fall heights of up to 6 m.

Thanks to our many years of experience, we know the requirements and circumstances of our core products inside out. If our PERI Formwork Systems should ever require reinforcement, our **formwork girders and panels** offer the ideal solution.

For example, our Formwork Girder GT 24, which can be connected quickly and easily, increases the load-bearing capacity of the formwork if specific circumstances require it. And our formwork panels complement our formwork systems perfectly. Like the ROBU B Formwork Panel, which impresses with its particularly robust material. Various waterproofing techniques for tie holes, joints and surfaces add the finishing touches to our portfolio.

Our **props and shoring towers** are characterised by their high load-bearing capacity and long service life. Their low weight, safety features such as the hand pinch protection and clever details such as a self-cleaning thread make them impressive to use.

We are not only concerned with the high efficiency of our products, but also with their environmental compatibility. We are particularly mindful of using environmentally friendly alternatives for chemical products, such as our **release agents**. The formwork oil we offer is a biodegradable product that is certified with the EU Ecolabel.

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READY FOR THE FUTURE WITH **PERI UP**

Our PERI UP Scaffolding Kit brings together facade and modular scaffolding, paving the way to the scaffolding world of the future with a single system. After all, PERI UP is the right solution for almost any application. With just a few system components that impress with their universal component logic, our modular scaffolding kit caters for a huge range of applications and is therefore particularly efficient. And in a wide variety of sectors.

Our PERI UP Scaffolding Kit for **facade scaffold construction** offers options for both vertical and frame variants. In particular, the low weight of the components, the virtually coupling-free and advancing assembly process and the integrated lift lock in the decks provide a high level of safety and swift installation. The 'push-fitting instead of screwing together' function and self-locking component connections can also be found in a large number of other PERI UP Components.

In **industrial scaffolding construction**, the ability to reposition large-format units speeds up the process. Furthermore, the metric system grid and the ability to easily change the direction of the decks make the components highly adaptable to local conditions. Special adapters and console brackets provide additional options for building in different directions and are easy to latch. It is also possible to erect safe working platforms at different heights using the core components of the PERI UP Scaffolding Kit. PERI UP Staircases are of particular interest here in addition to ladders and passages. Depending on the staircase solution used, you could benefit from carrying out assembly in advance and simply mounting it on the existing scaffold – without the need for an additional row of standards or time-consuming bolting. Thanks to the modularity of the system, it is also possible to combine the access points flexibly with the working scaffolds, thereby keeping the stockyard lean.





With the single-system logic of PERI UP, our aim is to make system components and applications simple and easy to combine with just a few components. What's more, the easy-to-plan system grid can also be combined with the steel components from the VARIOKIT Engineering Construction Kit.

To ensure that every user can fully utilise the benefits of the PERI UP Scaffolding Kit, we make tailored training courses and dedicated contact persons available. Moreover, we offer tried-and-tested and intuitive **digital planning solutions** that make working with PERI UP even easier and more efficient.

With promaintain, PERI has also brought an experienced **industrial scaffolding service provider** under the umbrella of the PERI Group as an independent unit. Promaintain is a leading provider of efficient project planning and execution services, assisting scaffolding companies, industrial plant operators and EPCs. Their portfolio includes services such as turnaround management, 3D laser scanning and 3D animation. Scaffolding companies benefit from this additional expertise and receive the ideal support when assembling scaffolding materials.

Our safety scaffolds such as the PERI UP Weather Protection Roof and the PERI UP Cladding Enclosure System provide comfortable working conditions even in inclement weather. The latter also shields the surroundings from noise and dirt. These safety scaffolds are part of the construction kit and can be attached easily to the working scaffolds. Additional elements such as suspended scaffolds, trench bridges, truss systems, shoring towers for the construction of falsework or staircase solutions for a wide range of requirements round off the application spectrum of the PERI UP Scaffolding Kit.

Given the fact that PERI UP can be integrated into formwork or civil engineering solutions, PERI is your one-stop shop. This early involvement in the project and access to PERI's network opens doors and brings trades together. Applications such as the PERI UP **Reinforced Scaffold** and PERI UP **Shoring Towers** and **Falsework** are therefore

tried and tested solutions for both scaffolding construction companies and contractors. What's more, there is the option of upgrading our PERI UP Scaffolding Kit with VARIOKIT Steel Components to create a Mega Scaffolding Kit designed to meet the special requirements of industrial and engineering scaffolding. Not only is the PERI UP Scaffolding Kit particularly versatile, it also wins clients over with its high quality.

As early as the product development stage, we see to it that our materials not only deliver what they promise, but also provide the necessary protection during use. In addition, our primary plant for scaffolding materials in Günzburg is kitted out with efficient systems engineering facilities, state-of-the-art welding processes and fully automatic welding robots. In this way, the primary plant ensures that PERI's outstanding quality, material availability and delivery reliability are maintained worldwide.



The PERI UP Scaffolding Kit also meets the requirements of large industrial construction sites. Thanks to integrated solutions for the entire project life cycle, projects can be completed faster, more safely and more transparently.



Our modular facade scaffold combines the speed, safety and lightness of facade scaffolding with the versatility of modular scaffolding. It is possible to scaffold facades of almost any geometry safely and efficiently thanks to easy-to-integrate console brackets, stair solutions and other accessories from the PERI UP Scaffolding Kit.

ENGINEERING SOLUTIONS

THAT CONNECT PEOPLE



From a civil engineering point of view, infrastructure projects such as bridges and tunnels, but also high-rise buildings and towers are the most challenging structures. Our **civil engineering solutions** have been developed to meet precisely these requirements and cover a broad spectrum of infrastructure and building construction projects. For tunnel and bridge construction, we offer custom solutions that usually consist of a combination of shoring and specifically adapted formwork. Our portfolio also includes various climbing solutions for high-rise and bridge construction.

Our practical, sophisticated modular construction systems are designed to facilitate cost-effective solutions for the majority of requirements in civil engineering. The focus is on rentable core and system components that cover a wide range of applications in the general engineering, tunnelling and **bridge construction** sectors. Besides their adaptability, they also make an important contribution to sustainability, as the components can be used in countless projects.

Our VARIOKIT Solutions are particularly economical: our unique modular system is characterised by short assembly times, a wide range of application options and enormous flexibility. Combining them with PERI UP and PERI System Formwork opens up almost unlimited possibilities for countless project requirements. VARIOKIT is also ideally suited to technically demanding structures. With complementary system components, we can provide a coherent solution for any project, regardless of whether it is a truss or load-bearing system.

With the tunnel formwork carriage, the VARIOKIT Engineering Construction Kit can also be used for tunnelling projects using the cut-and-cover or mining methods. For particularly complex and unusual projects, we also have customised solutions in our portfolio, such as steel formwork for **tunnel construction**. With the company KERN Tunneltechnik SA as part of the PERI Group, we are able to offer other special formwork and specialised machinery as well as a wide range of engineering and logistics services for tunnel construction.



Our rentable modular systems are used in the construction of bridges and tunnels and can be flexibly adapted to project requirements.



The merger with KERN Tunneltechnik SA enables us to offer our customers tunnelling solutions with an even greater degree of customisation.

In **high-rise construction**, too, our systems are designed to increase the cost-effectiveness of construction projects. And there is one thing above all else that we must not lose sight of: the safety of employees. This is of paramount importance to PERI. As such, our **climbing systems** provide a high level of protection at great heights. In addition to solutions based on our standard system components, such as the RCS Rail Climbing System, we also develop customised solutions. Our systems can be supplemented with other PERI Products with ease. The ability to combine different components in a modular system allows us to offer you simple and compact all-in-one solutions from a single source.

A successful project requires not only the right products but also solution-led and economically optimised planning. PERI therefore provides not only the ideal components for the project at hand, but also support throughout every phase of the project: PERI Engineering is our comprehensive engineering service. These **engineering services** help you to cope with the increasing construction volume in the face of ever tighter deadlines. Other **PERI Services**, such as pre-assembly and logistical services, also help our customers to achieve their targets and successfully complete projects.



When combined with project-specific constructions, PERI Climbing Systems, VARIOKIT and PERI UP facilitate the economical completion of architecturally demanding high-rise construction projects.



Our engineers draw on their extensive expertise and years of experience to develop innovative and customised planning solutions.

PERI ENGINEERING:

WORKING TOGETHER TO MAKE
COMPLEX PROJECTS A REALITY

Our workforce of more than 2,300 engineers and sales engineers plan, manage and provide support for challenging construction projects around the world. Our project engineers utilise our global **engineering network** to ensure that we always offer the best solution, both from an economic and technical perspective, even when the requirements are complex. This collaboration across borders enables a unique exchange of knowledge, which is a decisive factor in the success of complex projects such as the Fehmarnbelt Tunnel or the Panama Canal project. That is because existing expertise can be put to use precisely where it is needed. At PERI, products, solutions and services come from a single source, thereby supporting that the project runs particularly efficiently and economically with high quality standards.

For example, our engineers also provide support with **structural calculations**. They assess projects in advance to determine whether the planned solutions can be used safely and carry out verifiable structural calculations as proof of stability for the formwork and scaffolding structure.

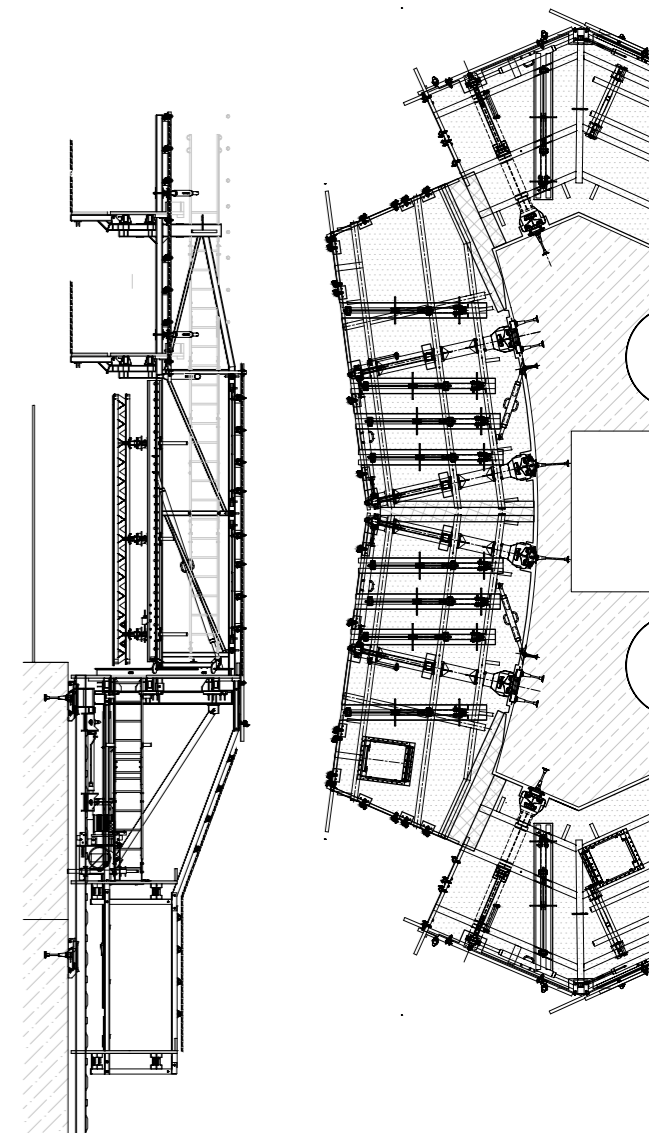
PERI Engineering Services also include the preparation of project-specific **installation and assembly plans** for professional installation of special applications. For the production of intricately curved reinforced concrete components, our experts also plan and realise custom-fit three-dimensional formwork elements based on 3D building models. With our individually planned and manufactured PERI Free-form and Special Formwork, our customers are also perfectly equipped



We plan and manufacture all kinds of special-purpose formwork – from simple formats and recess boxes to customised special elements, 3D formwork units and platforms.

for any project, no matter how unusual the demands – be it complex geometries or surfaces of the highest quality standards. Our portfolio also includes software, **3D renderings** and visualisations, integrated BIM models and customer-specific planning solutions to ensure future-proof construction.

At PERI, we thrive on close dialogue with our customers and stand out due to our extensive practical experience and the ongoing further training we provide. But we don't just develop the expertise of our experts. With our **internal training programme**, we also pass on the knowledge we have gained over many years to the engineers of tomorrow. Drawing on our pronounced technical expertise and immense passion for what we do, we will continue to stand ready to assist our customers with even the most complex projects and offer the right solutions.



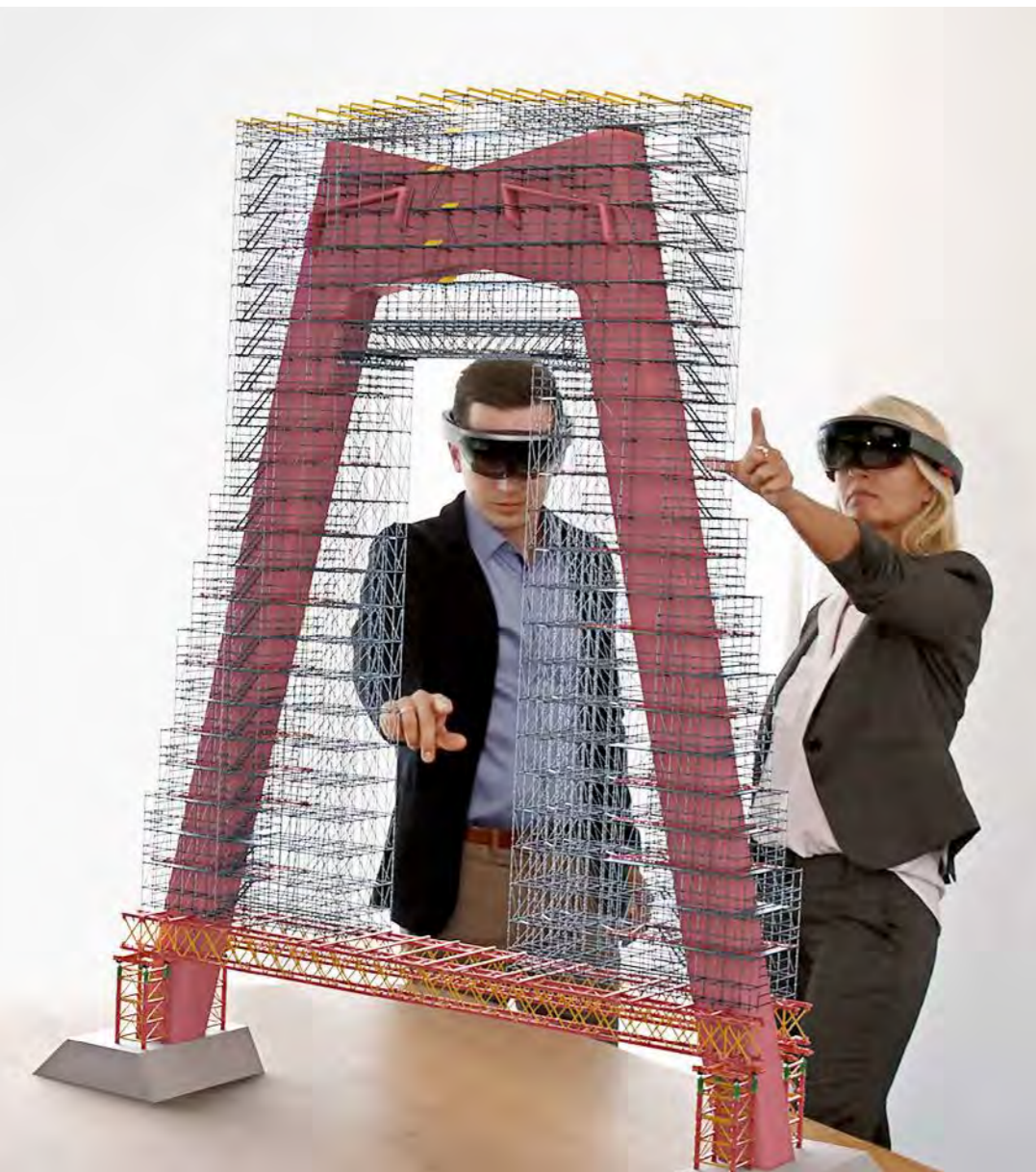


RETHINKING CONSTRUCTION WITH **DIGITAL SOLUTIONS**

As a pioneer in the field of digitalisation, we are opening up completely new ways of planning, managing and building using our cutting-edge technologies. With various digital tools, we are able to complement our physical products and cover each and every project phase, from the planning and construction phase right through to management. The common goal behind all of our digital solutions is to support, automate and simplify work processes. This provides a higher level of safety, greater efficiency, improved quality and, ultimately, lower costs. Our customer portal, myPERI, is a comprehensive information platform that enables the digital management of construction projects across all project phases.

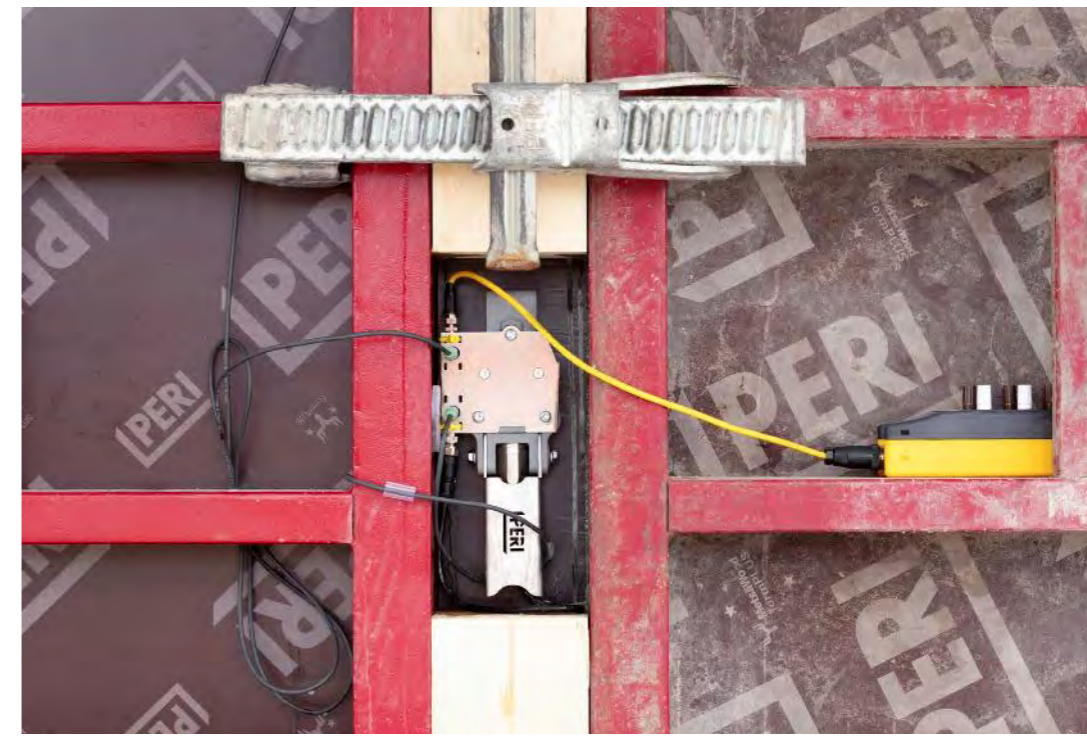
Proper planning is the foundation for project success. Our portfolio therefore includes various digital **planning solutions** for a wide range of requirements. Using efficient PERI CAD Software, it is possible to create professional formwork and scaffolding solutions for complex engineering structures in great detail. Simple floor plans of residential or office buildings, on the other hand, can be planned intuitively with our PERI Quick Solve Application. We also offer special tools for determining material requirements on site, logistics costs incurred or the time required for each construction phase.





Using augmented and virtual reality, PERI Planning can be walked through virtually or projected into the physical environment. The virtual and real worlds start to merge with one another.

If a construction site is to be cost-efficient, it is extremely important to ensure that construction processes are transparent. The more information available, the better the progress on the construction site. With our **BIM services**, we are enabling continuous use of the relevant data across the entire building life cycle. Visualisation plays an important role in all stages of the construction process. The PERI Extended App can therefore be used to visualise project-specific models, data and BIM content during construction using technologies such as augmented reality and virtual reality.



Our sensors provide real-time information about concrete pressure. Like the PREMIO Sensor here, which determines the concrete pressure and thus minimises the risk of formwork fractures and deformations.

What's more, our **construction sensor solutions** can help you make the right decisions on the construction site. This is because the PREMIO, PHONO, TEMO and SONO Concrete Sensors transmit real-time information about the concrete – no matter where you are. The result is greater safety, time savings and cost efficiency.

Our portfolio also includes **tools for optimising complex tasks and processes**.

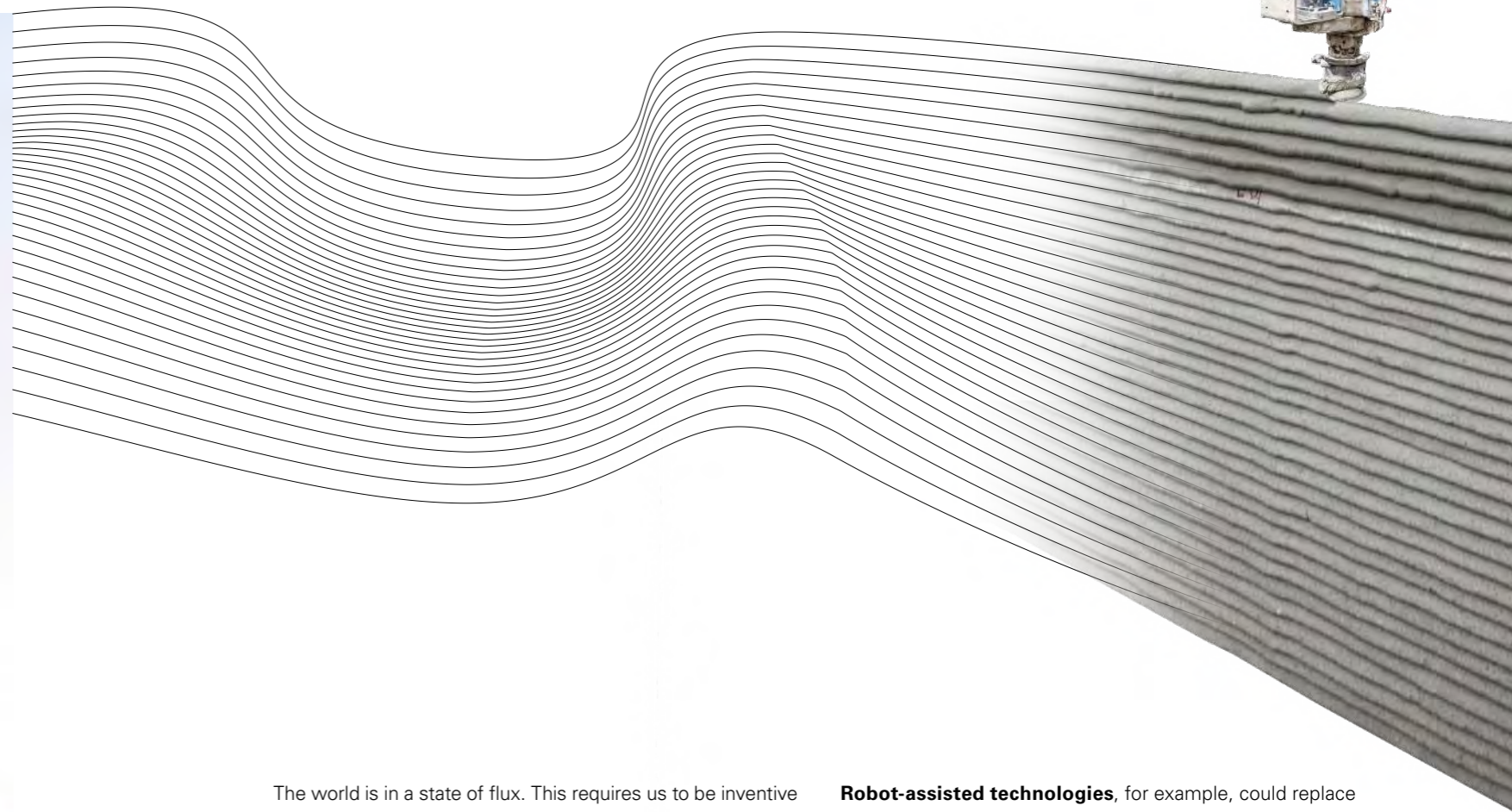
With automated tracking, we enable the clear identification, tracking and precise planning of materials on the construction site. In addition, all important product information and certifications can be called up and the current payment status can be viewed.



With the innovative Smart Asset Management platform, PERI offers comprehensive software and hardware solutions with SYFIT that make construction equipment management more transparent, efficient, and cost-effective.

INNOVATIONS

THAT SHAPE THE FUTURE



The world is in a state of flux. This requires us to be inventive and creative. We have the courage to break new ground. We want to break away from old patterns in order to create space for innovative technologies and working methods. In doing so, we are addressing questions such as: What approach will we be taking to construction in 30 years' time? What materials will we be using? And what technologies?

We are committed to offering our customers the right solution not only now, but also in the future. For this reason, we are constantly challenging our existing business model, pursuing disruptive approaches and creating scenarios for the construction industry in 50 years' time that are based on sound data.

Robot-assisted technologies, for example, could replace repetitive tasks and significantly improve safety. Innovative materials could completely change the way we build and take on a central role in terms of sustainability. **3D Construction Printing** has already demonstrated impressively how we are breaking away from traditional patterns and finding innovative solutions for the buildings of the future.

We are fuelled by curiosity: We look out into the world with the aim of discovering the latest technologies as early as possible and contributing to their development with our long-standing expertise. Because at PERI, we are already thinking about tomorrow today.



OUR SERVICES

FOR THE ENTIRE PROJECT LIFECYCLE

Products and services go hand in hand at PERI. This is also reflected in our comprehensive service portfolio: in addition to engineering, structural calculations, pre-assembly, professional maintenance, 3D design and logistics services, we offer round-the-clock access to all important project information on our myPERI Customer Portal. For years now, we have also been one of the leading companies in the industry when it comes to Building Information Modelling (BIM), helping our customers to identify interface problems at an early stage and optimise construction processes.

The purpose of our **services** is to ensure that PERI Formwork and Scaffolding Systems are always used in line with time constraints as well as meeting cost and quality standards. The basis for this is the execution plan records, which are based on 2D views or realistically visualised 3D building models. Using these, our engineers work together with our customers to develop technical solutions that optimise the use of materials and the construction process. Our engineers also prepare verifiable, static calculations as proof of stability for the formwork and scaffolding assembly as well as project-specific assembly and joinery plans for the professional installation of special-purpose applications.



Elisabeth Mamsen

Project manager for CC Hochhaus,
PERI Germany

“For us, customer focus means working on our customers’ projects as if they were our own. We take a holistic approach to projects and ensure that they run smoothly. That starts with the consulting and planning stage, before progressing into training and software applications, but also extends beyond every phase of project implementation. The most important cornerstones of our joint success are our expertise, the ongoing dialogue with customers and the trust that this creates.”

Thanks to our global logistics services, the materials are always in the right place at the right time.



We stand ready to advise, support and carry out planning for our customers from the very beginning and throughout the entire project. We work together to find the right solution for almost any requirement.

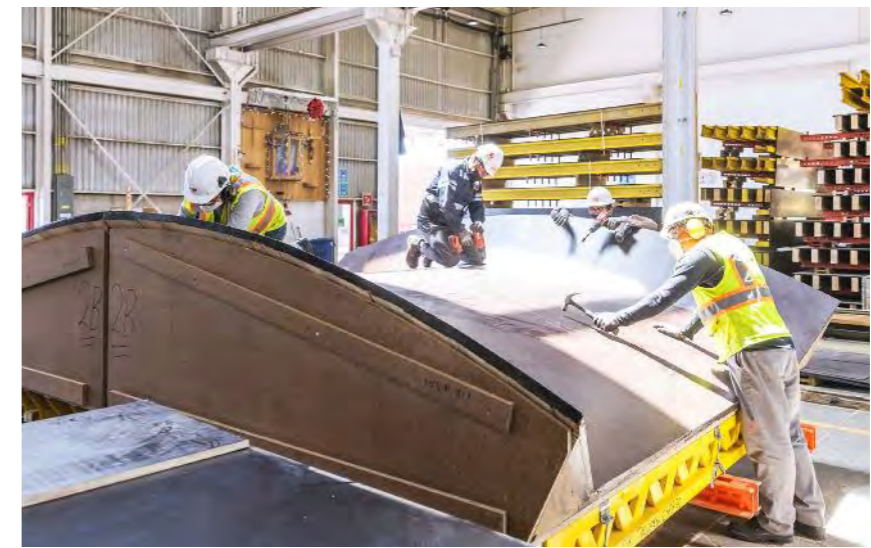
With our **project management services**, we also offer professional advice and assistance in person at the construction site. Our PERI Project Managers are responsible for pulling together all the technical, commercial and logistical aspects. They keep track of the entire process chain and are able to react quickly to site-related changes. KPI reports and target/actual comparisons prepared by our specialists also enable them to monitor success transparently. As a result, our customers get everything from a single source: PERI plans, calculates and coordinates the products and construction process for each specific project.

With our **equipment services**, we offer professional cleaning and repair for our products at many locations worldwide as well as formwork assembly at the factory. The pre-assembly of project-specific formwork units is carried out by PERI Assembly Specialists at the factory, enabling even greater productivity and cost certainty during the construction phase. Our portfolio ranges from simple CNC panel cuts and recess boxes to customised special-purpose elements, 3D formwork elements and platforms. All elements are customised for each project requirement in the defined quality and suitable for the planned number of applications.

To ensure that the project runs on schedule, it is also important that the required materials are supplied reliably in the right place at the right time. With 160 warehouse locations around the world, our **logistics services** enable us to exchange materials in an organised manner and make construction projects more cost-effective. If required, PERI Freight Management can provide support as early as the planning phase in order to make subsequent processes as efficient as possible.

With our large international **rental parks**, we can also ensure optimum material availability – with the customary PERI Quality Standards, anywhere in the world. The option of renting entire PERI Solutions or, if necessary, individual components will enable you to adapt to special situations with ease at any time.

We also assist our customers with the development of new business areas. In addition, we offer target-oriented on-site training, either at the construction site itself or in our PERI Exhibition Halls around the world.



Having our experts assemble the formwork at the factory ensures that the project runs smoothly on the construction site.



You can cover peaks in demand and lower investment costs by hiring formwork and scaffolding materials from our rental parks.



We offer practice-oriented product training and specialist seminars as well as online training for the formwork, scaffolding and construction industry. The content of the training is tailored to the individual needs of your company.

Practical on-site training courses include valuable expert tips on how our products can be used as safely and efficiently as possible. In theoretical training courses, our customers learn about topics such as PERI Software Solutions. Our training courses also help participants to share knowledge and network. Our experts are always available to answer questions and solve individual problems.



Our rental model makes us a pioneer of the circular economy in our industry, promoting the sustainable use of our products. We ensure the longevity of the material through proper care and maintenance.

BUILDING SUSTAINABLY

FOR FUTURE GENERATIONS

In a world that is facing the mounting challenge of global warming, sustainability is fast becoming an indispensable guiding principle. As a manufacturing company with over 240 offices, rental warehouses and sales offices, we are conscious of our responsibility towards the environment and climate protection, and are proud to be helping to make the world a better place.

Since our company was founded over 50 years ago, we have taken a far-sighted approach to entrepreneurship. We believe in the power of innovation and are committed to developing sustainable solutions, for example by researching alternative materials and components or using **recycled materials**. We are committed to using durable and material-efficient products and, with our expertise and experience, we play our part in constructing buildings all over the world in a safe, efficient and resource-saving manner.

For this reason, we never lose sight of our ecological footprint. In our production facilities, we have already managed to achieve a recycling rate of almost 100% for materials such as steel and aluminium. What's more, our DUO Universal Formwork is made from recycled DUO Panels. Our **rental model** not only makes us environmentally conscious as a company, but also encourages our customers to conserve resources by reusing our formwork and scaffolding solutions several times while maintaining the same quality standards. When selecting our suppliers, we ensure that they conduct their business in a sustainable, environmentally and socially conscious manner.



In our biomass power plant in Weissenhorn, we process the wood waste from the production of formwork girders into climate-friendly heat.



Recycling our products: DUO Universal Formwork is made from recycled DUO Panels. Customers return their old materials to one of our offices and we ensure that they are turned into almost completely new products.

As our overriding goal is to reduce emissions, we place considerable emphasis on climate protection and resource conservation. For example, we have been a **climate-neutral company** since 2021 and use 100 % green electricity. Moreover, we landscape around 20,000 m² of our company premises each year to create, maintain and promote diverse habitats in the interests of valuable biodiversity. Similarly, we are turning our attention to the areas of water consumption and waste management, which has seen us not only use renewable energy but also generate it ourselves. Many of our sites therefore already have their own photovoltaic systems or a biomass cogeneration plant.

We not only want to meet the requirements of today, but also take into account the needs of future generations. Our **climate protection strategy** is geared towards reducing our emissions in the long term and preventing climate-related damage. With our five building blocks (environment, people, products, governance and supply chain), we have adopted a clear strategic direction as a roadmap for further sustainable development at PERI – and are incorporating ecological and social issues into our core business. Together, we are busy working on a better future today.



PERI demonstrates its commitment to environmental protection in various ways. For instance, in 2024 we planted around 4,000 trees in cooperation with the German Forest Protection Association and ClimatePartner to counteract the negative impact of climate change on our forests.



Dr. Jürgen Mayer
Head of TwistBlock Moulds,
PERI South Africa



“With TwistBlock Moulds, PERI has developed a formwork system that can be used to produce TwistBlocks in the simplest possible way. These hollow concrete blocks, which were developed by the non-profit organisation Start Somewhere, are a fire-safe construction system that can be used to build cost-effectively without plaster or mortar. Furthermore, the production of our TwistBlock Moulds creates sustainable jobs in the local area. As part of its sustainability strategy, PERI uses this technology to help build one school per year – most recently in South Africa.”

OUR PROJECTS

54	RESIDENTIAL CONSTRUCTION
72	HIGH-RISE CONSTRUCTION
96	CULTURAL BUILDING CONSTRUCTION
118	INFRASTRUCTURE CONSTRUCTION
168	INDUSTRIAL CONSTRUCTION
188	BUILDING IN EXISTING STRUCTURES

RESIDENTIAL CONSTRUCTION



Innovative scaffolding technology for sustainable housing

The Metrodom Green project brings together sustainable architecture with innovative scaffolding technology. The residential complex is located in a redeveloped district of Budapest and includes 513 apartments that are set to be built in two construction phases. One of its most striking characteristics is the facade greenery, which extends from the fifth to the tenth floor and is maintained by a sophisticated irrigation system.

Thanks to the modular design of the PERI UP Scaffolding Kit, the specific requirements of the project could be addressed flexibly. A tailored solution was created using over 19,000 m³ of modular scaffolding and 12,000 m² of facade scaffolding, which both shortened the construction time and increased efficiency.

A 36-m high scaffolding system covering an area of over 12,000 m² was required to erect this ambitious facade. Given the complex layout, difficult anchoring situation and metal beams on almost every vertical surface, an innovative scaffolding solution was required. The biggest challenge was the prefabricated panel structure of the green wall, which limited the number of anchoring options for the scaffolding. In response to this challenge, the PERI UP Scaffolding Kit was used.

PERI Engineers provided detailed 3D drawings that enabled precise design and efficient execution of the construction phases. In addition to the 3D concept, training and on-site support were also key aspects that contributed to the successful implementation of the project.

The Metrodom Green project impressively demonstrates how innovative scaffolding technology can contribute to the implementation of sustainable architectural solutions and how intelligent solutions can meet both design and safety requirements.

The PERI Engineers developed a tailored solution, whereby the PERI UP Facade Scaffolding was attached directly to the modular scaffolding between the balconies. This not only enabled a safe and stable construction, but also met the high requirements for load-bearing capacity and height.



A special feature of the project is the lobby, which required the construction of almost 2,000 m³ of scaffolding for its steel structure and suspended ceiling.



The concept photo gives an impressive indication of how the Metrodom Green residential complex will look. Support for the greening of the facade was provided by PERI UP Scaffolding. (Layout: Hajnal Építész Iroda)



Contractor
MTB Industrial GmbH
Budapest, Hungary

Field service
PERI Hungary, Budapest



Olivér Rác
Managing director and co-owner

"I was impressed by the PERI Scaffolding Solutions and Services. The quality and safety of the scaffolding material and the clever, bespoke designs met the unique requirements of our project. The ongoing support on the construction site, the efficient material management and the problem-solving skills were invaluable to us and testament to the high level of professionalism and commitment."



Shorter cycle times and optimised material usage with ALPHADECK

The refurbishment of the “Heart of Willoughby” community centre was completed successfully despite challenging time constraints. With the help of PERI Systems, a new clubhouse building, retail space and luxury retirement flats with underground car parks were constructed.

The “Heart of Willoughby” was a refurbishment project in the suburb of Willoughby centred around the historic Willoughby Club, which first opened in 1969. The biggest challenge of the project was the particularly tight schedule. In order to fulfil these requirements, the customer relied on systems from PERI. These not only led to a reduction in the amount of labour required, but also to adherence to the tight construction schedule.



Contractor
Westpoint Formwork
Belmore, Australia

Field service
PERI Australia,
Sydney

Tom Petrovic
Construction site manager

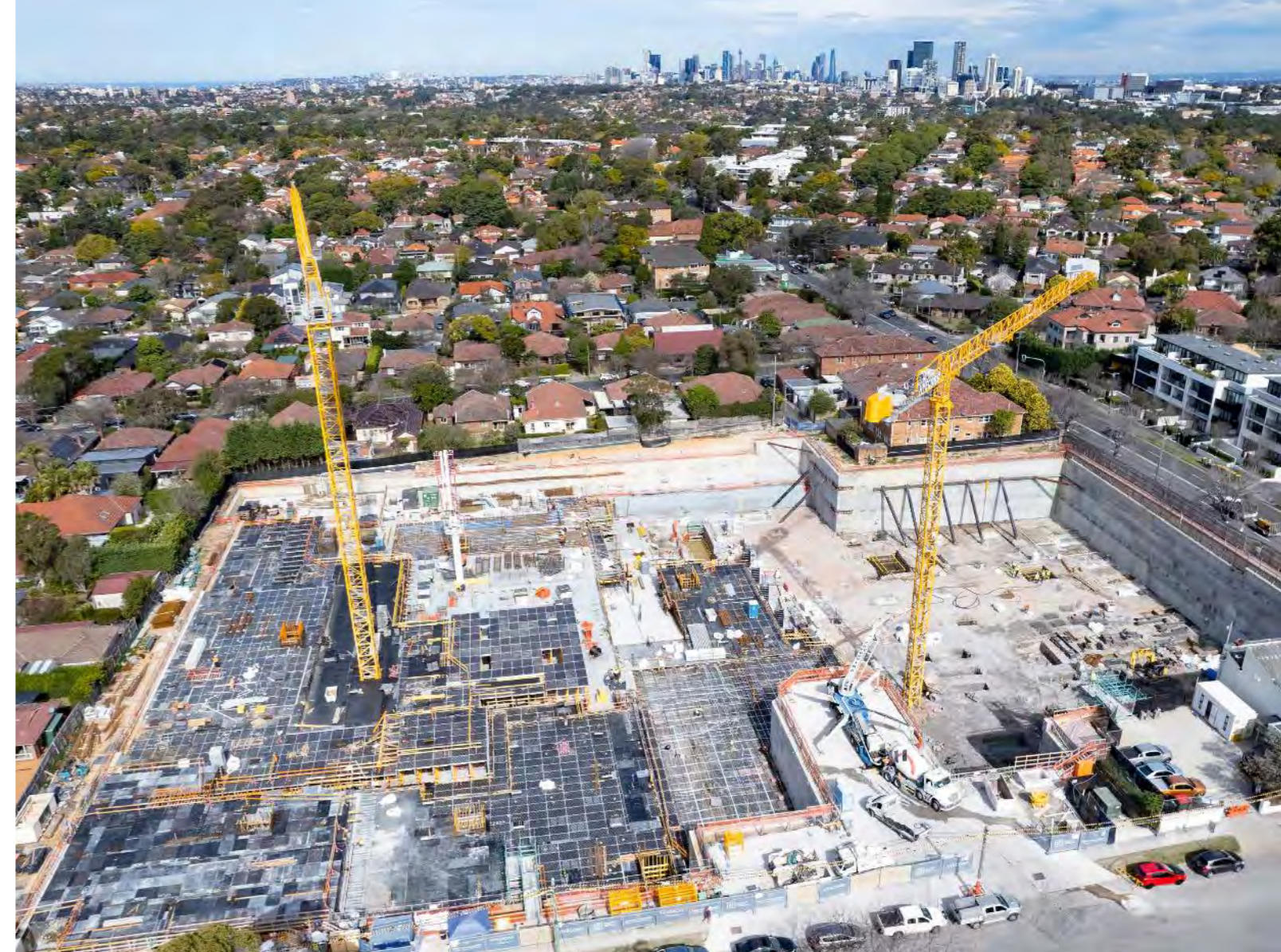
“Speed was the key challenge on this project. We opted to work with PERI to speed up the processes. The reason we chose ALPHADECK was the drophead system, as it allowed us to release the panels earlier while maintaining support. PERI Systems are built to last.”



The construction project comprised various multi-storey buildings of different heights on a total floor area of 140,000 m². The use of 5,000 m² of ALPHADECK was particularly impressive. Thanks to this slab formwork, it was possible to work both safely and extremely quickly, as the lowering head made it possible to strip the formwork at an early stage.

Another advantage was the minimal bracing required for the formwork, which ensured quick and efficient assembly. On the upper levels, ALPHADECK was used together with MULTIPROP due to the high bracing, as particularly thick slabs were required there. This combination proved to be extremely reliable and efficient due to the high compatibility of ALPHADECK and MULTIPROP throughout the entire process.

The panel size of 2.16 m² per unit also contributed to the rapid progress of the work, as formwork for the steel fixings could be erected in just one work step. As a 1.2 m x 1.8 m unit in the standard version can accommodate up to 550 mm concrete thickness, a high load-bearing capacity could be achieved with just a few formwork elements. In addition, the system consists of just three parts: Slab, lowering head and prop. With this simple design, assembly was particularly quick and valuable working time was saved.



The PERI ALPHADECK formwork was used for 5,000 m² of formwork surface and impressed the customer in particular with its innovative drophead system for early stripping.



The combined use of ALPHADECK and MULTIPROP saved the customer time and labour.



PERI Slab Tables deliver short cycle times and accelerate construction

A residential complex has been built on a 25,543 m² site on Aqua Avenue in Mérida with the aim of combining work and home life with shopping and leisure opportunities in a single location. The development includes office buildings, a hotel complex and numerous flats. PERI contributed to the project by providing integrated formwork solutions.

The VARIODECK Steel Waler Slab Table was used for this structure. This is ideal for projects with large slab areas, as they can be formed in a relatively short time. Slab thicknesses of up to 50 cm can be realised with just four slab props. Greater slab thicknesses are also possible if the corresponding number of props are used. The tables were delivered in a pre-assembled state, meaning they were ready for immediate use. The fact that the props could be freely selected and the guardrails safely assembled at ground level before the crane was deployed also contributed to safety and efficiency.

In addition to the PERI Materials that the customer already had at their disposal, around 90 t of additional PERI Materials were supplied for the construction of the residential complex.

The ST 100 System, with its impressively quick and easy assembly properties, was used for the formwork in the hotel lobby. The individual frames can be fitted together without tools, bolts or screws. Almost all heights could be accommodated with just one type of frame. As well as being easy to assemble and dismantle, the stacking tower impressed with its high load-bearing capacity. Leg loads of up to 53 kN were possible, depending on the tower height and wind load.

The PERI Systems used sped up the progress of the project, optimised the concreting process and enabled cycle times of only seven to ten days. Thanks to the PERI Solution, efficiency could be increased by 20 %, thereby reducing the execution time.



The choice of props and the customisation options offered by the VARIOKIT System Components ensured flexibility of design.



The ST 100 System was assembled using plug-in connections. As such, there was no need for connecting bolts or other parts that could easily go missing on the construction site.



Contractor
Parmol
Mérida, Mexico

Field service
PERI Mexico,
Mexico City

Celia Garcia
Site manager

"Working with PERI was an absolute pleasure. The innovative formwork solutions and support they provided made our construction project easier and faster."

Combining different systems to make significant time savings



In the heart of the South African business metropolis of Sandton, a new residential and commercial complex has been built in Barlow Park. As part of the project, over 1,500 residential units, a 5500 m² retail building, a school, a fitness centre and commercial premises were built in two phases. PERI supported by providing sophisticated formwork solutions.

In the course of the project, walls, lift shafts and floor slabs were to be formed as efficiently as possible while adhering to the tight construction schedule. The HANDSET Alpha Panel Formwork proved to be an adaptable solution for various wall requirements. There were same wall thicknesses and heights throughout the residential apartments and retaining walls up to 7.5 m height.

For the residential slabs, the 8.2 m x 2.4 m slab tables proved to be an efficient solution, as PERI delivered them to the construction site in a pre-assembled state. This resulted in considerable time savings. The CB Climbing Formwork was used for the lift shaft. The craneable system offered ease of use and fast cycle times. The entire climbing unit consists of formwork, working platform, console brackets with carriage and strongbacks as well as the finishing platform. The console bracket's high load capacity allows it to be combined with very large scaffolding units.

All of the solutions provided by PERI helped the client significantly in terms of time and safety and resulted in a successful project completion. What's more, PERI Supervisor provided assistance throughout the entire construction process. He trained site personnel on the proper use and application of systems and solutions by conducting site observations to ensure compliance with assembly instructions and engineering drawing.



Pre-assembled slab tables were used to ensure efficient production of the slabs, thus increasing productivity on the construction site.



The compatibility of the PERI Systems contributed to the fact that the time and cost framework required for the construction site could be adhered to.



Contractor
WBHO Building North,
Sandton, South Africa
S&O Formwork,
Johannesburg, South Africa

Field service
PERI South Africa,
Western Cape

Pieter du Plessis

Site manager

"The formwork solutions provided by PERI contributed significantly to the efficiency and effectiveness of our project. The professional and supportive nature of the collaboration with PERI played a key role in our ability to achieve our project goals. We look forward to continuing this productive partnership in future projects."

A PERI Formwork Solution for ambitious facades

In the Spanish city of Pamplona, 46 new rental apartments were built as part of a social housing project in the neighbourhood of Ripagaina. PERI contributed to the project by providing customised special formwork and a comprehensive field service.

The residential project is characterised by a facade that blends harmoniously into the unique landscape and is reminiscent of smoothed rock. The challenging geometry of the concrete facade demanded a high degree of holistic engineering and planning expertise. For this reason, PERI not only contributed to the facade construction process by providing a specific formwork solution, but also by providing technical support and advice. PERI's holistic approach to the field service enabled the architectural, construction and formwork phases to be coordinated efficiently.

The curved facade posed a particular challenge during the planning phase. The PERI Engineering Team created a 3D model to enable them to visualise the intended outcome of the formwork systems prior to the start of construction. This model combined the customer's plans and BIM design with the formwork solutions. In this way, it was possible to analyse, select and customise a precisely fitting formwork system.

The formwork solution consisted of VARIO GT 24 Girder Wall Formwork and CB Climbing Formwork, ensuring a high level of safety even at great heights. The timber and phenolic formwork made it possible to achieve the desired modular shape and combine a climbing wall system with the geometry of the timber facade. The formwork solution made use of three different panel types. The Supepan P5H Structural Panel, which combines a chipboard core and MDF Surface Layers, was used for the wooden slat formwork. Poplar Twin with a thickness of 18 mm was used for the interior surfaces of the building. Using 21-mm thick Birch Plywood for the outer surfaces ensured the best possible concrete result. The individual parts of the customised formwork solution were cut with great precision on CNC machines and then transported to the construction site on special-purpose wide-load transporters. The assembly consultant from PERI oversaw the on-site installation process.

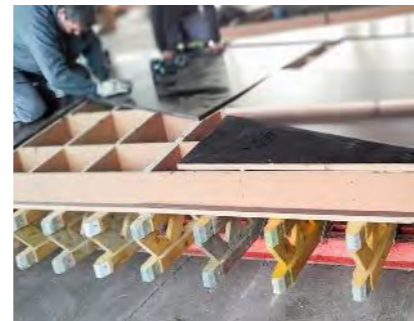
From the outset, PERI was in regular contact with the customer and assumed responsibility for project management. The commercial and technical teams from PERI supervised the construction process, answered questions and provided engineering expertise and innovative solutions to ensure that the project ran efficiently and smoothly.



The PERI Assembly Team oversaw the on-site installation process and was on hand to answer any questions.



To construct the curved facade, engineers from PERI produced a customised formwork solution and combined it with the CB Climbing Formwork.



A variety of panel types were used for the special-purpose formwork in order to meet the architectural requirements in the best possible way.



Contractor
Joint Venture Servinabar-Acciona
Pamplona, Spain

Field service
PERI Spain,
Madrid

Mikel Arrarás
Site manager

"We needed a simple and comprehensive solution that would enable us to construct a facade with a curved geometry and complex shapes. To achieve this, PERI offered us a comprehensive solution that included engineering services, production of customised formwork and system coupling. The benefit of working with PERI was that by using digital design tools and producing a mock-up, we were able to see the results in advance and then apply them to the facade. We were also assisted by the sales department, technicians and other PERI Employees. From a logistical point of view as well, everything was very well coordinated."

Maximum protection with a minimum of materials



Image above: The combination of SKYTABLE and BR Shaft Platforms ensured an accelerated process, as the systems could already be installed on the next storey.

Image below: SKYDECK Slab Tables were used to create large slab surfaces.



Contractor
Les Construction Bé-Con inc.
Québec, Canada

Field service
PERI Canada, Montreal

Guillaume Bell
Project manager

“With SKYTABLE, we were able to produce large slab surfaces while simplifying and speeding up the striking process in a single, seamless step. The system was easy to install and operate. Given the challenging wintry conditions in Québec, SKYTABLE was an obvious choice to allow the general contractor to quickly close the walls behind us.”

Solstice sur les Plaines is a real estate project in the picturesque city centre of Québec. Attention to detail and the utmost quality standards were paramount in the construction of these upmarket residential units. A combination of different PERI Systems contributed to completing the project was completed quickly and safely, even in difficult winter conditions.

The PERI Solution, which was based around SKYTABLE Slab Tables and the BR Shaft Platform, impressed in various respects. The safety of the construction site personnel was

just as important as protecting them from the elements. In addition, reusable systems that are quick and safe to install were used. Another requirement was the ability to reuse systems that had already been installed while minimising the use of cranes.

A total of 30,000 m² of SKYTABLE was used to implement the ten-storey project efficiently. This minimised the striking time and contributed significantly to rapid construction progress. Crane utilisation was also optimised. The solution also provided sufficient protection from the Canadian winter,

as the protection was fitted directly to the slab tables and thus remained there throughout the entire period of use. This meant that constant removal and reinstallation work was not necessary.

The BR Shaft Platform made it possible to climb stairwells and lifts without the need for an additional platform. It prevented people and objects from falling and increased the available access area on the storey where work was being carried out. These systems enabled the general contractor to close off parts of the building in winter so that workers on the construction site could access higher storeys.

Combined with the solution for removing the loads, no additional materials were required, which further accelerated the construction process and saved space on the construction site. This played a crucial role in keeping to the tight schedule for Solstice sur les Plaines and was instrumental in ensuring that the first residents were able to move into their new homes on time.



The PERI UP Facade Scaffolding met all requirements and enclosed an area of approx. 5,000 m² per office tower. The concreting work was carried out using, among other things, MAXIMO Panel Formwork. The scaffolding was raised parallel to the construction of the shell and gradually dismantled as the facade work progressed. Thanks to the integrated guardrail in advance the scaffolding could be assembled and dismantled safely and efficiently from the lower scaffolding level.

A clever solution for the project was the front-mounted bracket levels comprising VARIOKIT System Components: These were installed at a height of 15 m and securely supported ten PERI UP Scaffolding Levels. This construction enabled safe and efficient assembly of the facade elements. Thanks to the combination of the compatible modular systems VARIOKIT and PERI UP, complex drilling work could be avoided and the load transfer could be tailored to the building structure.

Another remarkable feature of the construction project in Ulm were the off-set platforms, which were integrated into the PERI UP Facade Scaffolding and each stands out 1.50 m. They served as load platforms in every second scaffold level for the delivery, storage and pre-assembly of the facade elements.



Approximately 5,000 m² of PERI UP Scaffolding was used for each of the individual office towers, which grew upwards during construction and were dismantled again during the installation of the facade.



The bracket levels attached to the front are visually and technically outstanding. Ten brackets, each comprising VARIOKIT System Components and installed at a height of approx. 15 m, supported the 10 PERI UP Scaffolding Levels positioned above.

Compatibility of PERI Systems accelerates construction process

The Universelle in Ulm's Science Park III is not only an architectural masterpiece, but also an important location for science. The new complex boasts approximately 35,000 m² of office space in three buildings, including more than 10,000 m² for laboratories, research and development. Scaffolding and formwork solutions from PERI ensured rapid construction progress.

Construction of the office complex in the Science Park Ulm posed a variety of challenges. A 1-m wide working and protective scaffolding was required for the construction of the shell and the subsequent assembly of the facade. In addition, the southern construction site had to be kept clear so that sheet piles could be pulled, while load platforms were created within the scaffolding to supply and store the facade elements.



Contractor
Schäfer Gerüstbau GmbH
Ulm, Germany

Field service
PERI Germany,
Weissenhorn

Martin Dreher
Site manager

"The PERI UP Solution has provided us with a high degree of flexibility. It also facilitates space-saving transport compared to frame construction. The option of combining it with VARIOKIT System Components is also extremely advantageous, for example to create a bracket solution."

Europe's largest 3D-printed building: printed in only 170 hours

The largest 3D-printed building in Europe at the time of completion was built in Heidelberg in 2023. The Wavehouse serves as a data centre and impresses above all with its architectural aesthetics, which embody the innovative power of 3D printing in the construction industry. The construction was made possible by the COBOD BOD2 3D Printer. The PERI UP Scaffolding System supported the safe construction of the 9-m high building.

A special feature of the Wavehouse construction project was the sheer size of the 3D-printed building, which was unique in Europe at the time of construction.

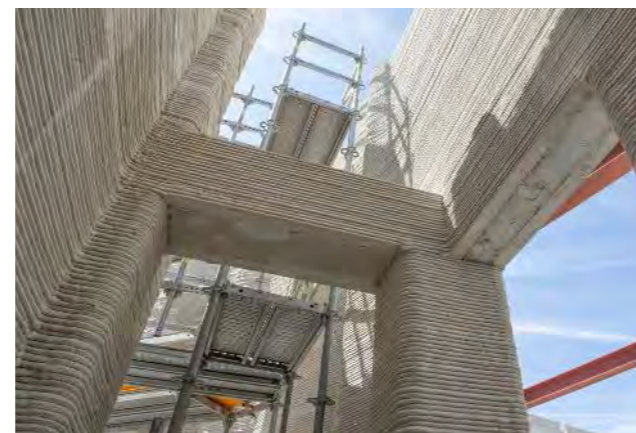
The building is 54-m long, 9-m high and 11 m wide. The wave-shaped facade of the Wavehouse was created using parametric designs and printed using PERI 3D Construction's 3D printing process. Windows were deliberately omitted, as the premises

of the server centre are not intended as a workplace for people. The windowless construction also allows the server waste heat to be used more effectively, which is to be used for the sustainable energy and heat supply of a neighbouring new building. With the modularly configurable printer, PERI 3D Construction provided an efficient solution for the construction of the futuristic building.

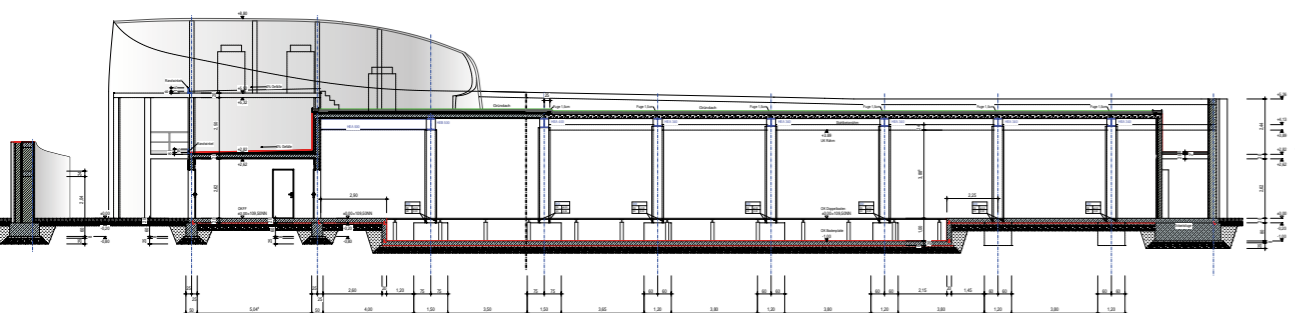
The gantry printer is modularly configurable and therefore impresses with its particularly high degree of flexibility, enabling the realisation of large projects. After a single calibration run, the printer can print 1 m² of cavity wall in just five minutes. The facade of the Wavehouse was completed in just a few months, with only around 170 hours of actual printing time. PERI supported the project not only with innovative technology, but also with several years of expertise in 3D construction printing.



Using the COBOD BOD2 3D Printer, the wave-shaped facade of the 9-metre high building was printed in just 170 hours.



The facade is an architectural highlight and demonstrates the design freedom that the innovative construction method allows.



The construction of the wave-shaped facade, which saw a total of 333 tonnes of recyclable printed concrete layered on top of each other, proved to be a major challenge during the implementation phase. To create the specific shape, the concrete had to meet certain strength development requirements and maintain its shape. As the individual concrete layers grew, so did the PERI UP Scaffolding, which enabled safe and flexible work operations. The building, which serves as a data centre for the company Heidelberg iT Management GmbH & Co. KG, was handed over to the tenant at the end of January 2024.



Contractor
KRAUSGRUPPE
Heidelberg, Germany

Field service
PERI 3D Construction,
Germany,
Weissenhorn

© fotoagenten-hd

Hans-Jörg Kraus

Client and managing partner

"As an independent family business embracing both its traditions and the future, we are helping to promote innovative construction methods in Heidelberg, thereby making a positive contribution to sustainable construction. PERI assisted us with their expertise and experience in 3D construction printing, enabling us to create the largest 3D-printed building in Europe to date, and at the same time set an example for innovation in the construction industry with our WAVEHOUSE."

HIGH-RISE CONSTRUCTION

Four towers grow at once thanks to PERI Systems

In the heart of Frankfurt, four futuristic towers have claimed a home in the skyline at a height of 233 metres. PERI supported the implementation of the inner-city project FOUR in Frankfurt, providing a variety of systems in addition to project and logistics support.

For the inner cores of the four high-rise buildings, different variants of the ACS and RCS Climbing Systems were used, which in turn were supplemented with BR Shaft Platforms and panel formwork from the PERI Portfolio. The decision to use the RCS MAX Rail Climbing System ensured a particularly high level of efficiency and safety. Synchronised climbing of several platforms, which was carried out by means of the RCS MAX Hydraulic Units and the Drive Rails C and CL, sped up the process of moving to the next section considerably.

SKYDECK Panel Slab Formwork was used for the floor slabs, in addition to the MULTIFLEX Girder Slab Formwork and project-specific slab tables. This enabled efficient slab formwork for every floor plan. Thanks to the early striking option of SKYDECK, the cycle times were particularly short. PERI Climbing Protection Panels were used to completely enclose the leading edges of the upper floors. Personnel were therefore protected against fall hazards at all times, while also being protected from strong winds.

Special solutions involving the VARIOKIT Brace Frames and a PERI UP Facade Scaffold were required for the construction of the high storeys and the cantilevers for the forward- and backward-sloping slabs. In addition to organising the timely delivery of the formwork and scaffolding material, PERI also created material forecasts with detailed preliminary planning. Provision of up-to-date material and cost statements as well as important key figures on the project were the other support services provided.



PERI Climbing Protection Panels were used to completely enclose the leading edges of the towers' upper floors.



The decision to use the RCS MAX Rail Climbing System resulted in a particularly high level of efficiency and safety.

Name	Height	Use	Used PERI systems	Finalisation
RT-1 Skyscraper	233 m	Office areas	ACS, RCS, RCS MAX, PERI UP, BR Shaft Platform, MAXIMO, DOMINO, TRIO, SKYDECK, MULTIFLEX, RCS Climbing Protection Panel, Catchfan, SB, MULTIPROP, VARIOKIT	09/2024
RT-2 Skyscraper	178 m	Living areas		09/2025
RT-3 Skyscraper	128 m	Living areas/ Hotel		10/2024
RT-4 Skyscraper	104 m	Office areas/ Hotel		10/2023



Contractor
GP CON GmbH
Frankfurt am Main,
Germany

Field service
PERI Germany,
Frankfurt
PERI Competence Centre
for Building Construction,
Bürstadt

Roger Schmitt
Site manager

“We already worked with PERI on the development of the high-rise buildings. For us, PERI was the logical choice to be able to implement the sophisticated architecture and enable efficient structural planning. [...] Our working relationship with PERI was collaborative, innovative and great.”



Just one crane lift:
Faster tower construction thanks
to the PERI Climbing System

In Ramat Gan, on the border between Tel Aviv and Givatayim, two imposing towers dominate the skyline: a residential tower and an office tower with a total floor area of 150,000 m². PERI assisted with the construction by supplying coordinated formwork and scaffolding systems as well as providing engineering support during all project phases.

Both towers are characterised by their sophisticated architecture. This meant that particularly high quality and safety standards were expected during construction. PERI Engineers developed customised formwork and platform solutions to fulfil these requirements and to make the work processes efficient at the same time.

For instance, the storeys of the office tower, which has an area of 1,300 m² per storey, have pre-stressed slabs. These were installed quickly with the aid of a modern climbing system. The 60-storey residential tower with its ground area of 900 m² also benefited from the climbing system.

The CB 240 Climbing System made it possible to climb formwork in just a single crane movement. In addition, hydraulic RCS Rail Climbing Systems were used to ensure a continuous connection between the structure and the climbing unit. This improved the safety of work operations and significantly accelerated the progress of construction work. The RCS P Climbing Protection Panel also ensured a safe working environment by completely enclosing the open facade areas.

Finally, SKYDECK Panel Slab Formwork was used to construct the slabs. The low weight of SKYDECK's components meant that shuttering times were shorter and workers could conserve energy. As a result, each footprint could be concreted quickly and easily from the bottom up.

Thanks to advanced system solutions and continuous technical support, PERI helped to ensure that the work processes were optimised and the construction project was successfully completed.



Both the office and residential towers were erected quickly and efficiently using a climbing system.



Contractor
Danya Cebus
Israel, Or Yehuda

Field service
PERI Israel,
Rosh Haayin

Yakir Levy
Project manager

“The partnership with PERI has proven to be an extremely successful strategic move. The combination of innovative technology and comprehensive professional support enabled us to achieve impressive results in practice. Thanks to the advanced systems and expertise of the PERI Team, we have been able to streamline our work processes significantly and reduce operating costs. The dedicated advice and customised solutions we received demonstrated that we had chosen the right business partner.”



Contractor
Ashtrom
Israel, Bnei Brak

Field service
PERI Israel,
Rosh Haayin

Naor Maravi
Project manager

“The close working relationship with PERI proved to be an excellent strategic decision. The advanced systems and dedicated technical support led to a significant reduction in the shell construction time, which resulted in considerable cost savings. PERI's team of experts showed exceptional commitment and worked closely alongside us to solve all the execution challenges that arose, offering creative and efficient solutions.”

Hitting the heights in 5-day cycles with RCS Climbing Formwork

There's a new addition to Vienna's skyline. Following PERI's successful involvement in the construction of DC Tower 1, this has now been followed by DC Tower 2. With its impressive total height of 174 metres, this tower will have a major impact on the cityscape.

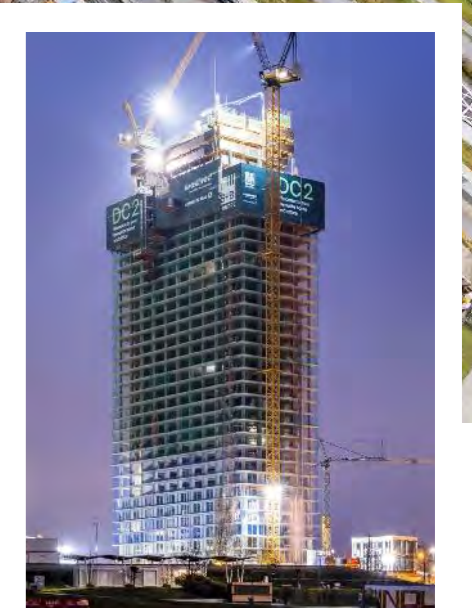
Up to the sixth floor, the building was constructed in the conventional manner due to the solid steel components in the wing walls. The tried-and-tested MAXIMO Panel Formwork, the lightweight and flexible SKYDECK Panel Slab Formwork and the SRU Shaft Platform were all used. The RCS Rail Climbing System was installed in the core of the building for the remainder of the construction work, enabling a 5-day cycle to be achieved for each floor. In addition, a concrete spreader with a radius of 36 m was used for concreting the building core, the slabs and the columns.

The building core was divided into four sections so that the work could be organised efficiently. The climbing formwork was equipped with a closed concreting platform, which facilitated the safe and effective installation of the reinforcement, despite the reinforcement being over two and a half storeys high. The MAXIMO Panel Formwork, which was precision-adjusted using carriages, ensured fast shuttering times. The RCS P Climbing Protection Panel was also deployed, reliably protecting the workers from fall hazards, falling objects and strong winds.

All climbing platforms and enclosure elements were delivered pre-assembled in order to minimise the final assembly time. A passenger and material lift with a payload of 2 t was used at the same time. The hydraulic system, which was used for the first time on this project, was able to service six storeys with formwork material and personnel.

The flexible working scaffold from the PERI UP Scaffolding Kit also proved its worth on this project. It was not only used for daily activities such as reinforcement, shuttering and concreting, but also impressed with its high level of safety: the seamless decking surfaces enabled work on the formwork to be carried out safely. In addition, the fall edges were safeguarded with the quick-fit PROKIT Safety System.

The combination of the PERI Systems used allowed the tight schedule to be adhered to. To ensure a high level of quality, final assembly on the construction site was supervised by a PERI Chief Erector.



By using the new RCS MAX Mobile Hydraulic System, it was possible to climb two climbing platforms into the next section using rail guidance.



The lightweight, easily manageable system components of the SKYDECK Panel Slab Formwork enabled energy-saving work processes and short shuttering times.



Othmar Laister
Site manager

"Our collaboration with PERI has been great from the first moment onwards. We are completely satisfied, both with the technical development and with the service on site."

Contractor
Porr AG
Vienna, Austria

Field service
PERI Austria,
Nußdorf ob der Traisen



Contractor
Tankyapı Enerji Taahhüt
İnşaat San. Ve Tic. A.Ş.
Ankara, Türkiye

Field service
PERI Türkiye,
İstanbul

Mikail Yeğit
Project manager

“Ever since we started working with PERI, we have been in constant dialogue with them regarding the development of scaffolding projects. Our requests for assembly drawings, support from a supervisor and practical and quick solutions to challenges that arose were always met by our PERI Representatives. Deliveries were made on time and as a result of discussions and follow-up, as agreed in our business plan. The fact that it is a tall structure and that safety is our number one priority were the main reasons for choosing to work with PERI.”



The PERI UP Scaffolding Kit made the construction of the impressive glass dome possible, which now characterises the cityscape of Ankara.



A total of 500 t of modular scaffolding was adapted optimal to the curved facades and created safe working surfaces, even in the case of radial structures.

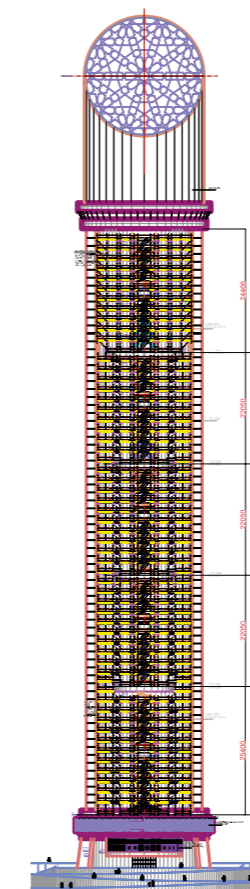
The new landmark of Ankara, built with the PERI UP Scaffolding Kit

The Cumhuriyet Tower in Ankara, also known as the Republic Tower, blends modern design with advanced engineering. The construction of the 175-m high tower and its extraordinary glass dome was facilitated by PERI UP Modular Scaffolding, enabling safe, swift and precise fulfilment of the project requirements.

Situated in Keçiören, a district of Ankara, the Cumhuriyet Tower is an impressive building that was inaugurated on 29 October 2023 to mark the 100th anniversary of the Turkish Republic. The new landmark of the Turkish capital rises 175.4 m into the sky, with the glass and steel spire starting at a height of 137.8 m and extending a further 37.6 m into the air.

The building houses a restaurant in its glass dome as well as a wide range of cultural and tourist facilities such as a museum and multi-purpose halls.

The complex glass structure placed the highest demands on both planning and construction work. The modular scaffolding from the PERI UP Scaffolding Kit was the ideal solution for this project: with its modular design, it enabled precise adaptation to the complex geometry of the structure. At the same time, the high load-bearing capacity and meticulous planning ensured that work could be carried out safely and efficiently at great heights.



A total of over 500 t of PERI UP Scaffolding was used, which was delivered to the construction site on schedule thanks to diligent logistical management. With the aid of a crane, the scaffolding was raised in stages to the required heights and securely anchored.

The combination of modern architecture and engineering expertise makes the Cumhuriyet Tower a true masterpiece. PERI supported the project by providing not only custom-fit systems and optimised logistical services, but also detailed 3D planning, assembly plans and close cooperation with the construction team on site. All of this enabled the specific requirements of the tower project to be met and construction to be completed efficiently.

Sophisticated architecture completed in only twelve months

The new headquarters of energy network operator, Snam, was built in Milan in challenging conditions. Besides the unique architecture, adherence to a particularly demanding schedule was also required. This was achieved thanks to comprehensive on-site support and shorter planning and delivery times on the part of PERI.

The company building, which covers a total area of 19,000 m², had a very short construction period of just one year and had extremely high technical requirements. During the construction of the 65-m high building with 14 storeys, 13 of which above the ground, PERI provided support not only with solutions, but also with expertise in high-rise construction. The uppermost of the three structures was to be offset by 4 m from the slab below. To this end, special-purpose cast console brackets made of steel girders and trapezoidal sheets were developed to keep the loads away from the structures below.

The slabs, walls and columns of the architecturally sophisticated high-rise building were constructed using PERI Formwork, Scaffolding and Climbing Solutions. The slab of the ninth storey posed a particular challenge.

To construct this, different loads and support heights in different areas had to be managed, which was accomplished with the aid of PERI SKYDECK and MAXIMO Formwork as well as stable support from the PERI UP Scaffolding Kit and MULTIPROP Towers. The walls and columns were constructed using TRIO Formwork, while customised formwork was produced for the various sizes of columns on the upper storeys. To shorten the construction time, PERI supplied 2,200 m² of formwork material in the space of just one week. The simple way in which the systems are operated also contributed to rapid construction progress.

The fact that the PERI Systems were perfectly coordinated with each other enabled not only fast but also safe operation. For instance, safety systems such as PROKIT and fall protection nets on the RCS Climbing System improved worker protection at great heights. In addition, crane-movable CB Console Brackets and BR Platforms with suspension systems facilitated the transport of the formwork.

PERI assisted the customer in keeping to the tight schedule by shortening delivery and planning times. To further optimise construction site procedures, experts from PERI were also present on site to advise the construction site team.



PERI helped the customer to keep to the tight schedule by shortening delivery and planning times for technical solutions.



Three stacked yet offset structures are a special feature of the building, which were created with the aid of PERI Systems.



Contractor
C.M.B.
Carpi, Italy

Field service
PERI Italy,
Agrate Brianza

Antonio Squillace
Technical site manager

“The efficiency and ductility of the technical solution based on PERI UP Shoring enabled us to complete a very ambitious project, namely the construction of a slab section with a cantilever of 9 m, with virtually impossible deadlines. The ease with which the construction site personnel could familiarise themselves with the PERI Systems and their operational friendliness were particularly important for meeting the tight deadlines. And finally, given the complexity of the project, the close cooperation with the PERI Engineers in adapting the solution to the actual dimensions required by the planners and the constant support they provided on the construction site were crucial.”



RCS P Climbing Protection Panel enhances safety and increases productivity

The futuristic-looking BEYOND skyscraper with a height of 320 m forms the starting point of an innovative urban project that aims to blend lifestyle, work life and leisure time seamlessly. The project focuses on sustainability by featuring green roofs, an environmentally friendly design and energy-efficient solutions.

VARIO GT 24, a dimensionally stable formwork for complex building geometries and high architectural concrete requirements, and DOMINO, a lightweight panel formwork with DW Tie Technology that can be operated from both sides, were used to form the walls.

To implement the demanding building architecture and maintain the high safety standards, PERI Engineers adapted the formwork and platform solutions according to the project requirements. Throughout the project, PERI provided technical support and supplied materials to cover all project tasks.

The RCS P Climbing Protection Panel provided a high level of protection and a safe working environment by completely enclosing the structural mass. This meant that the personnel were protected at all times against fall hazards, falling objects and strong winds, which also significantly increased work productivity.

Systems used included the ACS P Hydraulic Self-Climbing System ACS P, which is designed for high-rise buildings and high-rise building cores constructed in advance. This system is guided by rails as it climbs the building under construction, reducing crane time for lifting the formwork and optimising work processes.

The lightweight and flexible SKYDECK Panel Slab Formwork was chosen for forming the slabs. The easily manageable system components enabled energy-saving work processes and short shuttering times. Aside from the direct requirements, the PERI Solution's integrated safety features ensured that construction progressed according to the tight schedule and that the workers were able to carry out their project assignments safely and securely.



Contractor
Tidhar Group
Ra'anana, Israel

Field service
PERI Israel,
Rosh Haayin

Shalom Bohnik
Senior project manager

"The successful collaboration between Tidhar and PERI demonstrates the power of technical innovation and operational excellence on the construction site. The dedicated technical guidance provided by PERI's experts, combined with advanced formwork systems specially adapted for this prestigious tower, enables Tidhar to realize BEYOND's unique construction vision to the highest standards and provide immediate solutions to any challenges on site."



The use of self-climbing systems has reduced crane operating time and increased efficiency.



Engineering support and coordinated PERI Systems increased productivity on the construction site.

PERI Engineering realises 50 t of scaffolding from the 43rd floor upwards

The “Lighthouse 2.0” construction project has created new living space with 381 new flats in the newly established district of “Aarhus Ø”, not far from the centre of the city of the same name. PERI assisted with the construction of the 142-m high building by supplying comprehensive formwork and scaffolding solutions from a single source.

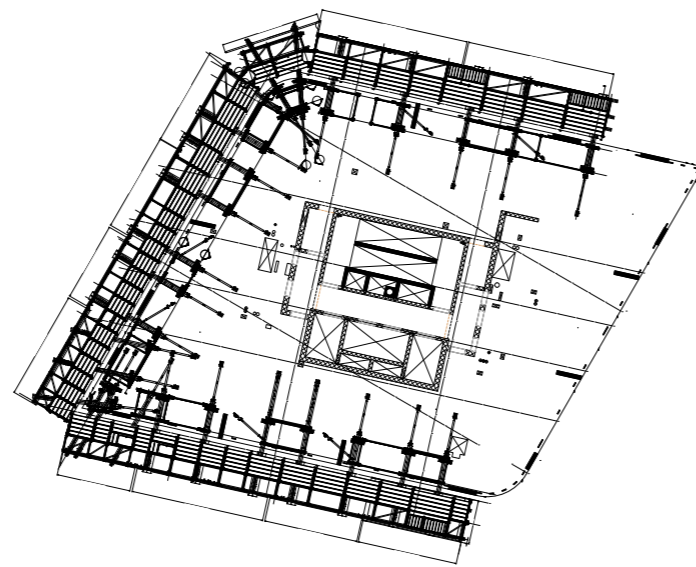
The special architectural requirements and the demanding construction schedule called for close cooperation between the general contractor Per Aarsleff A/S and PERI. Innovative approaches were taken to ensure that the project was completed on time. For example, the ACS Self-Climbing System, which had already proven its worth in numerous construction projects around the world, was used for the first time in Denmark. The rail-guided climbing formwork impresses not only with its hydraulic drive and large climbing units, but also with its high lifting force. This meant that a concreting cycle of just one week per floor could be realised.



A fine-meshed net was installed at a height of around 140 metres to increase safety.

Extensive technical calculations had to be carried out to construct the complex apex of the building. All framework conditions had to be taken into account – from wind and weather to the safety of the workers on the scaffolding and passers-by. PERI’s solution was characterised by a clever combination of materials. Instead of scaffolding the entire building, the aim was to erect and use the required scaffolding as efficiently as possible. PERI therefore installed a temporary platform on the 43rd floor on which the scaffolding was erected. This meant that significantly less material was required on the construction site. In addition, steel girders were installed which protruded 4 m from the building and supported the 12-m high free-standing PERI UP Scaffold.

Overall, it took PERI Denmark’s engineers more than 400 hours of work and calculations to create the customised solution, which included around 50 t of scaffolding material.



The ACS Self-Climbing System was used for the first time in Denmark for the Lighthouse 2.0 project, enabling rapid construction progress to be made.



Contractor
Per Aarsleff A/S
Viby, Denmark

Field service
PERI Denmark,
Greve

Jesper Scharff Lanng
Site manager

“We always knew that other means would be necessary for the upper storeys. The large panoramic windows on the 44th floor as well as the restaurant and the design of the roof terrace required an innovative custom solution. That said, when you install 50 t of scaffolding across four storeys on the 43rd floor, then that’s a completely different ball game.”



Canada's tallest residential tower rises faster thanks to PERI Systems

The Pinnacle One Yonge construction project is based on the designs of Hariri Pontarini Architects. With its sleek and masterfully designed towers, it is a prominent feature of the Toronto skyline. A customised PERI Solution consisting of various climbing systems accelerated the construction process and provided safety at the same time.

The Toronto skyline on the shores of Lake Ontario is one of the landmarks of the Canadian metropolis and has undergone a noticeable transformation since 2018 as a result of the Pinnacle One Yonge project.

The project also includes the 217-m high tower 'The Prestige', for which the contractor Premform Construction opted for a combination of different PERI Solutions. The RCS Climbing Protection Panel protected the workers from the icy wind during formwork operations involving MAXIMO Panel Formwork and SKYDECK Slab Formwork. Furthermore, crane usage times were reduced as the RCS Climbing Protection Panel provided additional storage and access areas beyond the slab edge.

PERI Systems were also used in the construction of the 345-m high 'SkyTower' – which will be the tallest residential tower in Canada to date when completed. To keep shuttering times as brief as possible, the shuttering processes needed to be automated to the greatest possible extent. The ACS Core 400 Self-Climbing System, for example, ensured that the entire lift and staircase core could be constructed without a tower crane and with minimal use of labour by raising the formwork and working platforms storey by storey. The RCS Climbing Protection Panel was also used to protect the SkyTower from the elements. During the course of the project, Premform was able to benefit from the new innovative MPS Pro Modular Protection Screen. Wide MPS Pro Panels were delivered to the construction site fully pre-assembled and only required pin connections to quickly expand on site. Both systems were able to cope with the tapered shape of the SkyTower without any problems.

To reduce the amount of space required on the construction site, the RCS G Wall Panel System was developed and deployed. By suspending the wall panels from RCS G Frames, it was possible to keep the formwork system at the top of the building at all times, which not only significantly reduced the need for storage space, but also crane operating times.



Contractor
Premform Construction Ltd.
Toronto, Canada

Field Service
PERI Canada, Bolton

Mario Machado
Site supervisor

"For a project of this magnitude, we need to be able to rely on the solution to work and that our goals in terms of safety and efficiency can be achieved. This was and is the case with PERI. They even exceeded our expectations."



With 105 storeys and a total height of 354 metres, the SkyTower is currently the tallest residential tower in Canada.



Premiere: The innovative MPS Pro Modular Protection Screen was used for the first time in the construction of the SkyTower.

Innovative solutions for a skyscraper with historical character

In the Warsaw district of Wola, a skyscraper known as The Bridge soars above the city, successfully combining modern elegance with historical architecture. PERI assisted with the construction of the striking skyscraper by providing innovative formwork and scaffolding systems as well as the expertise of experienced engineers.

The building's in-situ concrete core was constructed using the adaptable ACS Self-Climbing System, which allows the formwork operations to be carried out swiftly and in all kinds of weather. Changes in the geometry of the core occurring near the mid-height of the building were easy to accommodate thanks to the high adaptability of the hydraulic climbing system. Thanks to the combined customer's and PERI's experience in the field of high-rise construction a choice was made to use an advancing core solution. This meant that the core and following slabs could be built independently of each other, reducing the time needed to complete each floor.

PERI supplied a set of bespoke supporting structures, combining VARIOKIT Load Bearing Frames and Forms, with PERI UP Access Functions for inclined and complicated architectural concrete columns reaching up to 17.6 m in height.

The compact system components of the lightweight and adaptable SKYDECK Panel Slab Formwork meant that work could be carried out with minimal physical effort.



This solution ensured a high degree of safety during reinforcement, shuttering and pouring operations as well as shoring. In order to create safe conditions for efficient work, the core platforms and the edges of the building were tightly covered with RCS P Protection Panels, whose telescopic design allowed them to adapt to the ever-changing shapes of successive slabs.

The slabs were formed using the lightweight and flexible SKYDECK Panelized Slab Formwork which allows for quick material rotation between consecutive cycles. It is the system most favored by customers involved in high-rise structures construction because of its performance and safety. Together with PERI's adaptable climbing systems and customised supporting structures, the project was completed efficiently and safely.

Thanks to the close cooperation with PERI Engineers and the use of efficient formwork and climbing systems, it was possible to optimise the construction process and significantly reduce the construction time.

A lighter RCS C Self-Climbing System was used for the part of the service core which was discontinued after reaching mid-height of the building.



Contractor
Monting Invest
sp. z o.o.
Warsaw, Poland

Field service
PERI Poland,
Plochocin

Ryszard Dąbek
Chief executive officer

"Skyscraper construction requires collaboration with an experienced partner. That is why we opted to work with PERI again. The professional solutions and support provided by PERI's engineering staff at every stage of construction enabled the construction work to be completed on schedule."

Expertly thought-out support for the cantilevering of the construction site

A 34-storey residential building with an exposed concrete facade was erected on the southern waterfront promenade of Corrientes. The top five floors also have balconies with views of the Parana River. Thanks to PERI's solution, the construction work was carried out safely and efficiently with easy-to-use systems.

The striking architectural concrete facade of the building was realised with VARIO GT 24 Girder Wall Formwork in combination with the CB 160 Climbing System. VARIO GT 24 is characterised by its dimensional stability and is specially designed for demanding building geometries and high architectural concrete quality. The formwork was supplemented by the CB 160 Climbing Unit, which, with a platform width of 1.60 m, enabled easy handling, fast cycle times and straightforward adaptation to the structure.



The VARIODECK Steel Waler Slab Tables were very well suited to the project, as these large slab tables facilitated a short concreting cycle.



With a cleverly coordinated step-by-step plan, PERI made it possible to construct the sophisticated cantilevered balconies without any issues.

On the front side, constructing the balconies from the 29th to the 34th floor also proved to be a challenge. A two-stage solution was used in this case. In the first phase, the balcony slabs, which are supported by the building, were carried by tension cables over three cantilevered beams on the 35th floor. A self-supporting work and support platform was built using ALPHAKIT so that the beams could be shuttered and concreted individually. In the second phase, VARIODECK Steel Slab Tables were used, which not only made it easier to form the slabs, but also provided safe working platforms for the construction workers. ALPHAKIT proved its worth here as a shoring system. The construction sequence began with the slab of the 34th floor and ended on the 29th floor.

The VARIODECK Steel Slab Tables proved to be an efficient solution, as the props could be installed quickly and easily and the large formwork surfaces of the tables made for short concreting cycles. The safeguards were installed securely at ground level before the table unit was moved into position with the crane.



Contractor
AET SA (Arq.C.Nob)
CONSTHA SA
Corrientes, Argentina

Field service
PERI Argentina,
Escobar

Arq. Gabriel Sprench
Site manager

"The cantilever at the site proved to be the biggest challenge on this project. We are very satisfied with the support we received from PERI during construction."

High-speed residential construction with RCS MAX

Wembley Park Gardens is located right next to the London Underground station, Wembley Park. It is a mixed-use residential development and forms a key part of the Greater London Authority’s plans to deliver 454 new homes on unused brownfield land in Wembley Park. On this project, RCS MAX Rail Climbing Formwork was instrumental in speeding up construction considerably.

A total of five apartment blocks with 13 to 21 storeys were built. Block E, which at 21 storeys is the tallest tower in the complex, was concreted using RCS MAX Rail Climbing Formwork. PERI’s solution allowed crane operations to be allocated to other tasks, which not only prevented delays but also significantly accelerated the construction process. This meant that work on the tower was consistently ahead of schedule during the concreting phase. What’s more, the RCS MAX Rail Climbing Formwork made it possible to climb all six platforms simultaneously, resulting in further time savings as it only

took 30 minutes to cycle from one level to the next. The rapid progress brought about by the use of RCS MAX Rail Climbing Formwork meant that an efficient weekly cycle could be achieved. Given the fact that all of the platforms could be climbed at the same time, there were no gaps to contend with, meaning RCS MAX also improved safety levels.

A further feature of the solution is the accounting for the site’s small footprint, which further reduced the workload on site, not least because the platforms were delivered pre-assembled.

PERI’s solution was topped off by the use of PERI UP Scaffolding Components which were adapted to fit the spatial limitations within the core, creating an access staircase from the bottom to the working levels. Continuous technical support was provided to ensure that the hydraulic components ran smoothly.



Continuous technical support was an important factor in the success of the project, as was the climbing formwork training that was conducted before initial deployment.



With RCS MAX Rail Climbing Formwork, all platforms could climb simultaneously. This meant that there were no gaps between the platforms, improving worker safety.



Contractor
Flatley Construction,
Elstree, United Kingdom

Field service
PERI UK, Rugby

Vasile Gherasim
Site manager

“The climbing formwork training course is useful because it enables you to work safely on any climbing system. This saves us a lot of time because our employees can demonstrate their expertise and competence when we move on to the next project.”

CULTURAL BUILDING CONSTRUCTION



In the course of the restoration work carried out on the famous Trevi Fountain in Rome, a unique solution was created for visitors: A walkway in the fountain basin enabled tourists to experience the cultural monument from a completely new perspective. The structure was built quickly, safely and economically with the help of PERI UP Modular Scaffolding and PERI UP Public Stairs.

The Trevi Fountain was built in the 18th century by Nicola Salvi in the Baroque style. As part of a comprehensive refurbishment project, the fountain had to be completely fenced off to protect both visitors and the monument. However, to allow tourists a direct view of the historic monument, the city of Rome decided to build a publicly accessible walkway in the empty fountain basin. Visitors were able to admire the fountain's imposing statues up close without having to enter the historic monument.

Modular scaffolding from the PERI UP Scaffolding Kit was used for the walkway, which provided the required load-bearing capacity of 500 kg/m² and also met the necessary safety and flexibility requirements.

The PERI UP Public Stairs played a central role in this project. Developed specifically for public areas, it fulfilled the high safety and standard requirements and allowed visitors easy access to the walkway. As part of the PERI UP Scaffolding Kit, the PERI UP Public Stairs blended into the overall concept and ensured that visitors could experience the monument safely and conveniently.

To protect the vulnerable fountain basin, rubber pads and wooden planks were used to support the scaffold supports. In addition, multi-layer sheets were laid on the walkway's surface to improve walking comfort and provide a firm footing for visitors wearing all kinds of footwear.

As the standard components used could be assembled without welding or cutting, they will also be available for reuse in future projects. The scaffolding solution from the PERI UP Scaffolding Kit made it possible to erect the footbridge quickly and dismantle it again after the work was completed, without affecting the cultural heritage of the Trevi Fountain.

Renovation of the world-famous Trevi Fountain becomes a success thanks to PERI UP



Contractor
Fratelli Navarra Srl
Milan, Italy

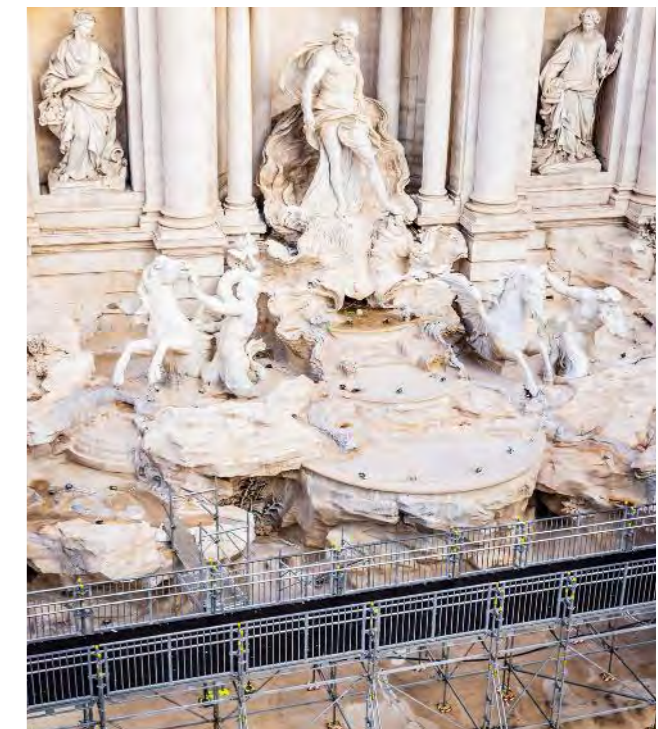
Field service
PERI Italy,
Agrate Brianza

Giorgio Saba
Project manager

"The solution proposed by PERI enabled us to hire a cost-effective scaffold that was extremely quick and easy to erect, complied with regulations and met the client's requests."



The access solution, consisting of PERI UP Modular Scaffolding and the PERI UP Public Stairs, provided visitors with safe and convenient access to the Trevi Fountain.



Thanks to the versatility of the PERI UP Scaffolding Kit and additional protective measures such as rubber pads, it was possible to erect the scaffolding structure right in the middle of the historically significant monument.

Rapid construction progress in the desert thanks to efficient solutions

The Extremely Large Telescope (ELT), the largest telescope in the world to date, is located in the middle of the Atacama Desert and was designed to provide science with new insights into the early history and future of our universe. Formwork and scaffolding systems from PERI ensured the quick and efficient construction of foundations, wall structures and ceilings.

The ELT is currently being built on Cerro Amazones, a 3,060-m high mountain in the Atacama Desert, and when completed will far exceed the performance of existing telescopes. The heart of the ELT is the hemispherical dome, which, among other things, offers space for the main mirror with a diameter of 39 m. The complete structure will weigh 3,700 t after completion. However, due to the geographical location in the middle of the desert, not only the construction but also the logistics of the required materials proved to be particularly challenging for the project.

PERI therefore provided support in this area too, ensuring a coordinated and efficient delivery of the required formwork material. For example, PERI supplied the HANDSET Alpha Panel Formwork used to create the foundations.



By combining the ST 100 Stacking Towers with components from the PERI UP Scaffolding Kit, access to the platform could be enabled.

The formwork enabled efficient concreting of the high and thick walls without the need for a crane. At the same time, high-quality concrete surfaces were created that made it possible to reduce working times for post-treatment.

TRIO Panel Formwork was the system of choice for the large concrete volume of the massive wall structures and the associated high concrete pressure. Thanks to the 2.40 m x 2.70 m large panels, the walls could be concreted particularly quickly as less time was required for assembly.

Almost in parallel to these measures and with the aid of ST 100 Stacking Towers, a complex supporting structure was put in place to transfer the loads of the overhanging platform. By combining components from the PERI UP Scaffolding Kit, access to the platform above could then be facilitated. The ceiling of the so-called base in the centre of the ELT was created with the help of MULTIFLEX Girder Slab Formwork. Thanks to the individually adjustable distances between the beams and supports as well as the alignment of the beams, the circular area could be covered quickly and flexibly.



The base in the centre of the ELT was built quickly and flexibly with the aid of MULTIFLEX Girder Slab Formwork.



PERI not only provided the suitable formwork and scaffolding systems for the ELT, but also supported the rapid construction progress from an engineering perspective through the development of simple assembly concepts. These could be successfully implemented thanks to the versatile material. The PERI Engineers also helped to minimise time losses by responding flexibly and efficiently to short-term project requirements and adapting the construction site design accordingly.

From the very outset, PERI worked hand in hand with the customer and also provided support and advice on the reuse of existing material. This led to increased profitability and shorter construction times. According to European Southern Observatory (ESO) estimates, construction work will be ongoing until 2028.



Contractor
Cimolai S.p.A.
Antofagasta, Chile

Field service
PERI Chile, Antofagasta
PERI Chile, Santiago

Jorge Yutronic
Project manager

“PERI offered us the highest level of quality, efficiency and responsiveness from a logistical, technical, engineering and commercial perspective. We achieved a lot with PERI in a very short time frame. The products provided by PERI met all our needs and more.”

First PERI School in Nairobi built with sustainable formwork solution



As part of the PERI Sustainability Initiative 'Building Sustainability', PERI is supporting the construction of schools in developing countries. The Global One Primary School in East Africa, which provides over 200 children with access to education, served as the foundations for this initiative. For this construction project, specifically designed formwork, termed Twist Block Moulds, was used.

Challenging conditions such as a lack of skilled labour, limited space and a shortage of building materials make it difficult to construct essential buildings in disadvantaged locations such as Kibera. Using TwistBlocks, which are hollow concrete blocks specially designed for construction in developing countries, it was possible to build the first PERI School there within a year. To construct the three-storey primary school building, a total of 7,000 of these building blocks were used, whose cavities provide natural insulation in both summer and winter. The Global One primary school has nine classrooms, providing space for 225 children. It bears the name of the Global One Foundation, which acted as the school sponsor and PERI's project partner and has already supported a number of projects in Kenya.

No trained specialists were required for the construction of the school building, as the fireproof building blocks can be assembled very easily and without mortar or plaster. The intuitive plug-in system also allowed the ground plan to be designed in a flexible way, making it possible to build the 360 m² school even in the limited space available in Kibera.

The TwistBlocks themselves were developed by the aid organisation Start Somewhere. PERI assisted with the production of the blocks using the user-friendly TwistBlock Moulds Formwork System, which ensures simple and sustainable production of the blocks on site. The formwork is produced from recycled plastic in local factories in Kenya and South Africa. This means that new moulds can be created from the same materials over and over again and new jobs can be created at the same time. TwistBlocks that have already been installed can be removed without leaving any residue and up to 80% of them can be re-used. This makes the system not only particularly cost-efficient, but also safe and sustainable.

To build the Global One primary school, PERI, together with Start Somewhere, founded a local factory for the production of TwistBlocks, which were used to make the bricks for the school building. With this approach, the aim is to build a new PERI School every year.



Company
PERI SE
Weissenhorn, Germany

Field service
PERI South Africa,
Cape Town

Andreas Mayer
Head of corporate sustainability

"Education is very important to us, as it is the cornerstone for the children's future careers. That said, this is not simply a school we are building. By producing the TwistBlocks locally, we are also creating jobs and helping people to help themselves. At PERI, we are very pleased that our network of participating companies such as Start Somewhere and Global One Foundation is making these projects possible."



The Global One Primary School was built entirely from TwistBlocks, which were assembled without mortar.



TwistBlock Moulds from PERI make sustainable and independent production of hollow concrete blocks possible in developing countries.



A safe and durable scaffolding solution for a modern cultural centre



Contractor
Bouwbedrijf Van de Ven
Veghel, Netherlands

Field service
PERI Netherlands,
Schijndel

Toon Veugelers
Project manager

The visitor tour begins on the 10th floor and guides visitors safely through the building via the PERI Staircase and Scaffolding Construction.



Thanks to PERI's engineering expertise, the construction meets all requirements in terms of both the safety standards of public access solutions and aesthetics.

The Noordkade in Veghel, once part of the CHV cattle feed factory, has been converted into a modern cultural and leisure destination. Newly established as a chocolate factory, the building requiring refurbishment is to combine industrial charm with contemporary elements. PERI supplied over 45 t of material for the project, which will remain permanently on the building as part of the experience concept.

The solution goes well beyond the usual construction site requirements, as the safety standards for public access solutions are significantly stricter and more complex than for construction site scaffolding. The PERI UP Public Stairs were designed specifically for public areas and offer a high level of safety for visitors to the modern cultural centre. PERI's solution for this project combined the public stairs with the versatile PERI UP Modular Scaffold and the VARIOKIT Engineering Construction Kit.

This combination made it possible to erect a 24-m high scaffold with a span of 35 m, which will guide up to 200 visitors per hour safely through the building. The staircase tour begins on the 10th floor and leads down to the lower floors. Particular emphasis was placed on the undulating design of the staircase, which not only adds an aesthetic touch but also ensures a safe and pleasant walking route. Given the historical nature of the building, second-hand scaffolding material was used at the customer's request.

PERI's solution was characterised by its flexibility: The systems are modular and compatible, which enabled a high degree of adaptability during installation. This enabled the complex geometries of the historic building to be cleverly scaffolded. In addition, a bridge and a wheelchair-accessible ramp were integrated, which were equipped with VARIOKIT System components to enable uninhibited access.

The scaffolding solution remains permanently on the building – an unusual approach in scaffolding construction. This not only makes it easy to walk around, but also has a lasting impact on the character of the event location.

"Why did we choose to work with PERI? Well, PERI was able to supply the materials we needed to meet our requirements, but more importantly, their enthusiasm and expertise were impressive. Our contacts took the initiative and were ready to start planning and implementing. We liked that straight away. We also liked their solution-oriented approach and flexibility in the preparation and implementation phase. A whole series of changes and adjustments were made along the way. In an old building, you have to deal with challenges such as the materials, structures and dimensions of the existing building and anchor the new scaffold to the existing structure. It's good to have a committed and reliable partner who has the expertise and willingness to build scaffolding that meets your wishes and requirements."

Outstanding architectural concrete quality in a short construction time thanks to PERI Formwork Technology

At first glance, it is impossible to tell that a veterinary clinic is located behind the undulating architectural concrete facade. The extraordinary architecture houses a modern clinic providing medical care for animals in Albania. PERI Formwork Solutions played a decisive role in the construction project.

This veterinary hospital in Tirana was built in just ten months and stands out in particular for its impressive architecture. The building has a total of five floors, four of which are above ground. Besides the curved building sections and floors, the varying heights were also among the particular challenges of the construction process.

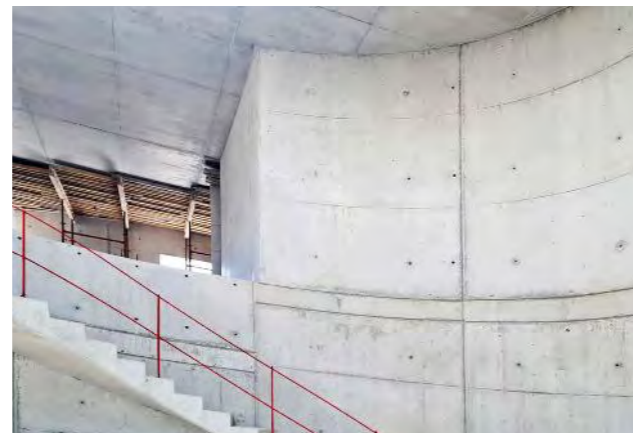
To create the architectural concrete facade, it was necessary to find solutions for achieving a high level of surface quality. Aside from the quality of the concrete surface, a swift construction process and user-friendly systems were also of great importance to the project team.

The right approach was to use 1,000 m² of RUNDFLEX Circular Wall Formwork. With this formwork, an optimal concrete result was achieved quickly for the curved parts of the building. In addition, 300 m² of VARIO GT 24 Formwork was used to produce the straight concreting sections. Using the PERI Birch Formwork Panel resulted in an excellent architectural concrete quality, which now, on completion of construction, serves as an eye-catcher both inside and out.

The challenging project was completed efficiently with high-quality architectural concrete thanks to the PERI Formwork Systems used. In particular, the rapid formwork assembly and disassembly process helped to speed up construction progress considerably. Thanks to the continuous support provided throughout all project phases, it was possible to meet all of the demanding deadlines. This resulted in the project being completed on schedule.



PERI Formwork Systems featuring PERI Birch Formwork Panels played a decisive role in the construction of the circular building sections.



The high quality of the architectural concrete is evident throughout the building and creates a modern ambience.



Contractor
SHEHU-2AB Konstruktion,
Tirana, Albania

Field service
PERI Turkey, Istanbul

Jani Sheja
Owner

“Both the time saved and the quality of the concrete surface were important for our project. It is also very important to us that we explain to our workers on the construction site how the systems are used. That was easy. PERI Formwork and Scaffolding Systems have been our preferred choice for a long time now and we are satisfied with them. We can recommend them to others without hesitation.”

Formwork and scaffolding from a single source contribute to a smooth process

Picture above: By partnering with PERI, the customer received the required systems from a single source, meaning that everything went off without a hitch.

Picture below: A PERI UP Weather Protection Roof was used to provide a weather-independent roof covering that could be adapted easily to the project requirements.



Malmö International School in Sweden is a modern educational institution for pupils from pre-school age to year nine, where English is the medium of instruction. PERI assisted with the construction of the school by providing a comprehensive solution for formwork and scaffolding from a single source.

The new school in Malmö provides 10,300 m² of learning space for 550 pupils, who receive an international education with the aid of globally standardised curricula. The adaptable layout of the building means that the school can also be converted into a regular primary school with space for 700 pupils if required. In-situ concrete walls were used in the construction of the school building. The majority of the concrete used was climate-friendly in order to minimise the carbon footprint. The roof is also equipped with a large solar system. It was possible to meet the material and structural requirements of the construction project using a customised combination of PERI Systems. A major benefit for the customer was that with PERI, many of the systems were supplied from a single source, thereby enabling the project to run smoothly and efficiently.

The lightweight DUO Universal Formwork impressed during the construction of the foundations, as it could be installed without the need for a crane in the early construction phase. All of the walls in the project were poured using MAXIMO Wall Formwork, while MULTIFLEX was used for the slabs. QUATTRO Column Formwork was used for the column formwork. While the PERI UP Weather Protection Roof provided a safe roof covering, the versatility of the components of the VARIOKIT Engineering Construction Kit proved invaluable in the production of customised solutions. Moreover, the PERI UP Facade Scaffold provided stable support and a safe means of access throughout the construction phase and also served to support in-situ concrete beams and parts of the structure.

By pairing the wide range of different PERI Systems with the technical expertise of PERI's consultants, it was possible to create a combined solution that met the specific requirements.



Contractor
MVB Syd AB
Malmö, Sweden

Field service
PERI Sweden,
Halmstad

Benny Persson
Site manager

"The partnership with PERI was a real success factor for our construction project. PERI showed a level of commitment and expertise that really took the end result to new heights and made the project run smoothly from start to finish."



Contractor
World Youth Day
Lisbon, Portugal

Field service
PERI Portugal,
Castanheira do Ribatejo

Miguel Sarmiento
Volunteer civil engineer

“Only with PERI were we able to find a professionally designed solution while at the same time deliver 200 t of material and assemble everything by the required deadline. We are very happy with the service provided by PERI, not to mention their excellent availability and working methods.”

Visionary stage design with 200 t of PERI UP Scaffolding

For World Youth Day 2023 in Lisbon, approx. 1.5 million young people from all over the world gathered in Lisbon to meet the Pope. Just a few months before the planned major event, the World Youth Day 2023 Foundation tasked PERI with the provision of 200 t of scaffold material and technical support for the construction of the impressive stage structure.

However, the project presented several challenges from the very outset. On the one hand, the stage had to be designed in such a way that it could withstand the strong winds on the construction site. On the other hand, there was a historical monument within the scaffolding structure. This had to be protected, which is why the usual bracing was not possible. Added to this were the gigantic dimensions of the rear towers, which were located close to an Olympic-sized swimming pool.

PERI constructed a solution that included elements of the PERI UP Scaffolding Kit with 4,000 m² VT 20 Alpha Formwork Girders and 2,000 m² 3-layer plywood boards. The structure was anchored to the counterweights, which weighed a total of 115 t, using SRU Steel Walers and tie rods.

3D design played a central role, enabling the design and installation team to identify and overcome potential obstacles at an early stage. Thanks to this precise planning and design, not only could the customer’s design ideas be implemented, but all the necessary safety requirements could also be met in full.

The timely delivery of materials, efficient construction and quick solutions to unexpected challenges helped ensure that the World Youth Day passed safely and smoothly. The openness in communication and the ability to flexibly respond to changes underlined the quality of the cooperation between PERI and the World Youth Day 2023 Foundation.



The 26-m high rear tower was a complex structure as it could not be braced and anchored in the usual way. There was also a historical statue in the middle of the scaffolding that needed to be protected.



The PERI UP Scaffolding Kit was used to create multiple access points to support the safe execution of the choreography planned for the event.

Difficult cantilever solved with system components

To meet the growing need for medical care in the St. Louis area, Barnes-Jewish Health Systems (BJC) decided to undertake a remarkable renovation project. Part of this was the demolition of the old Queeny Tower and the construction of a new facility in its place.

The conditions on site coupled with the plans drawn up by the architects at CannonDesign called for precisely coordinated solutions that would enable the construction work to progress quickly while at the same time realising the architectural vision. One of the main features was a projection on the west side of the 16-storey tower, which protruded 6.70 m from the building.

Therefore, the PERI engineers decided in favour of a modular formwork solution for the construction of the western section. They combined a variety of PERI systems with SKYDECK, VPS beams, VST heavy-duty towers, PD 5 shoring system and MULTIPROP aluminium slab props. On the one hand, these systems were characterised by the fact that they could be used for a variety of areas, which minimised on-site material requirements. Moreover, these PERI Systems were beneficial in that they could be combined with each other and adapted to the geometry with great precision.

Transferring the loads into the structure was a decisive factor in speeding up the construction schedule.



Very few props were required for the use of SKYDECK Panel Slab Formwork, which simplified and expedited the working processes on the lower level considerably. The cantilever was realised quickly and safely by combining the VPS with the PD5 shoring system, as the working platforms were pre-assembled. On the one hand, this ensured safety before stepping onto the platforms for the first time. In addition, the load of the cantilever itself could be safely transferred during construction using VPS steel girders, while the load of the slabs was taken up by the PD5 shoring system. Separating the loads and transferring it into the structure additionally helped accelerate the overall construction schedule significantly. The area underneath the cantilever was the main entrance for material coming into the lower levels. Since there were no shoring towers in the way, workers were able to move more freely on the ground.

In addition, MAXIMO Panel Formwork and the ACS Core 400 Self-Climbing Formwork were used on this project as proven climbing solutions for shortening the climbing cycles.

All in all, the PERI solution, with its continuous on-site support, meant that the tight schedule could be adhered to and the special architectural features could be realised without any problems.

One of the architectural highlights of the BJC Health Tower is the cantilever on the west side, which was made possible by a combination of different PERI Systems.



Contractor
McCarthy Building
Companies Inc
St. Louis, USA

Field service
PERI USA, Chicago

Travis Dearthmont
Project Manager

"We examined several different options when it came to the cantilever. Starting from the support all the way to the ground. There are some particular constraints at the corner where the building juts out of the ground, so we had to find a creative solution to overcome these challenges. That's how we arrived at the VPS System, combined with a lot of PD5."



Clear view and safe access at the World Cup thanks to PERI UP



Contractor
SK NOVÉ MĚSTO
NA MORAVĚ, z.s.
Nové Město na
Moravě, Czech Republic

Field service
PERI Czech Republic,
Jesenice

Otakar Binder
Marketing manager

“Our sporting events would not be so easy to organise without PERI’s cooperation. Every year, the versatility of the planning solutions helps us to add to the arena’s facilities or expand the usable space and infrastructure. We know that we are not the easiest of customers. We often turn up at the last minute with unusual requests, but PERI always caters to our needs. I think our business relationship has long since grown into a friendship and a passion for a common cause. Thank you very much!”

For the Biathlon World Championships in the Czech Republic, a large number of temporary structures were required in order to meet the high demands for spectator comfort and TV coverage. Thanks to PERI’s adaptable solutions, in particular PERI UP Scaffolding and the PROKIT Protection System, the organisers were able to tailor the Vysočina Arena to the requirements of the event.

The Biathlon World Championships at the Vysočina Arena attracted over 210,000 spectators in February 2024. In the run-up to the event, numerous temporary structures had to be erected, including spectator stands, walkways, scaffolding for LED screens, TV studios and sales stands. These structures not only had to be functional and safe, but also quick to erect and dismantle.

PERI UP Scaffolding and the PROKIT Lateral Protection System were used to erect safe and adaptable structures along the course. The integrated features of the PERI UP Scaffolding Kit, such as components with lift locks and non-slip decks, provided greater safety during assembly as well as during the event itself. In addition, the guardrails of the PROKIT Lateral Protection System further increased safety on site. Of particular relevance was the construction of additional grandstands with a capacity of 7,000 seats. Pedestrian crossings were installed between the grandstands to channel the flow of spectators in a safe and organised manner.

For TV broadcasting, platforms with a high load-bearing capacity were built, which were designed for the high weight of the equipment. Setting up the scaffolding for the huge LED screens proved to be a particular challenge. Platforms for TV studios and sales stands were also set up at various locations within the arena. What’s more, platforms over a stream and on steep terrain were successfully constructed to extend the spectator area and provide TV crews with safe working areas.

Even in these challenging conditions, PERI Solutions demonstrated their benefits in terms of efficiency, safety and ease of use: the assembly process was completed quickly and on schedule to ensure that the Biathlon World Championships started on time. The sophisticated measures enabled over 210,000 spectators to witness the Biathlon World Championships at the Vysočina Arena.



PERI UP Scaffolding and the PROKIT Lateral Protection System were used to expand the event infrastructure of the Vysočina Arena for the Biathlon World Championships.



Decks with a non-slip surface, PROKIT Mesh Barriers and integrated lift locks improve safety levels for visitors and workers.

Material-optimised renovation of historical landmark



The renovation work on the Conveyor Bridge at the Zollverein Coal Mine Industrial Complex in Essen required exceptional scaffolding technology in order to meet the stringent requirements of the UNESCO World Heritage Site. With the aid of the PERI UP and VARIOKIT Modular Systems, a solution was realised that was both functionally and economically compelling.

A masterpiece of mining architecture, the Zollverein Coal Mine Industrial Complex in Essen and the neighbouring coking plant have been a UNESCO World Heritage Site since 2001. To preserve this historic industrial landmark, the coking plant's conveyor bridge and its three steel truss supports have been undergoing extensive renovation work since October 2023. The 120 m long and 30-m high steel bridge demanded a great deal from the scaffolding technology, which not only had to provide a stable base for the renovation work, but also had to bridge the railway track below and the pedestrian walkways.

PERI worked with the customer to develop a customised scaffolding concept based on the two modular systems PERI UP and VARIOKIT.

The Mega Scaffolding Kit brings together the system components of both systems, which, thanks to a metric basic grid and standardised fasteners, can be combined in virtually unlimited ways. This facilitated the precise customisation required to meet the complex demands of the project. This made it possible to bridge the railway track and pedestrian walkways and at the same time create a stable working platform. The eye-catching features and scaffolding highlights were the three VARIOKIT Truss Girders, which spanned the bridge efficiently with widths of up to 26.50 m and thus supported the working scaffold.

Another benefit of the solution was the enormous saving in materials: by using the bridging solutions, it was possible to save around 9,000 m³ of scaffolding material compared to conventional scaffolding. The VARIOKIT Girders were installed particularly quickly and safely. The girder assembly process at ground level was completed within a week and the six girder segments were lifted into their final position by mobile crane in just half a day. The result was a quick, safe and economical scaffolding solution that facilitated the renovation work, enabling the historic conveyor bridge to be restored to its former glory.



The 120-m long and 30-m high conveyor bridge was scaffolded cost-efficiently using two PERI Modular Systems – PERI UP and VARIOKIT.



This PERI concept with wide-span VARIOKIT Truss Girders created space beneath the conveyor bridge and offered considerable savings potential.

Contractor
Lindner Gerüstbau GmbH
Krieschow, Germany

Field service
PERI Germany,
Weissenhorn

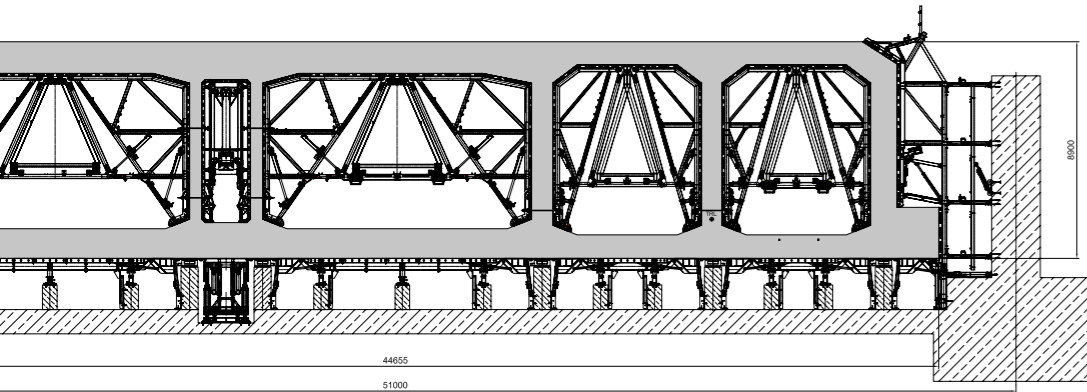


Detlef Benack
Technical operations manager

“In the course of the tendering and calculation process, we looked for a way to bid for the tendered scaffolding construction in a significantly smaller format and therefore more efficiently and at a lower price using considerably less material and personnel. Having worked with PERI for many years, we were aware of the benefits of the ‘Mega Scaffolding Kit’, and together we developed a scaffolding design that gave us a competitive edge in terms of costing. This enabled our company to win the tender as the most favourable bidder”

INFRASTRUCTURE CONSTRUCTION

11,000 t of PERI Equipment used for submerged tunnel in a league of its own



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Construction of the Fehmarnbelt Tunnel is one of the largest civil infrastructure projects in Europe. Once completed, the 18-km long tunnel will be the longest submerged tunnel in the world. Engineers from PERI developed a customised formwork solution for the construction of the 79 standard tunnel elements.

The Fehmarnbelt Tunnel will connect Denmark and Germany by both road and rail, with a journey time of seven minutes by train and ten minutes by car. The submerged tunnel has a total width of 42 m and comprises five tunnel tubes. The 217 m long standard tunnel elements are being manufactured on site in five separate production lines in a purpose-built factory that is the size of around 140 football pitches. Each standard element will be concreted in nine sections, with a length of 24 m and a height of 9 m. Around 3,000 m³ of concrete is being used for each section, resulting in a weight of more than 8,000 t per element.

To meet the customer's requirements, engineers from PERI opted for a monolithic incremental launching method to produce the standard tunnel elements. This method minimises the risk

of water ingress during operation of the tunnel, which has been designed to last over 100 years, and is why the outer walls are also concreted without ties. At the same time, this approach saves a considerable amount of raw materials, equipment and labour costs. The formwork pressure is continuously monitored using PERI InSite Construction Pressure Sensors.

The special steel components of the PERI Formwork Solution were produced in Poland, Italy and at the PERI Plant in Weissenhorn, Germany. Furthermore, using MAXIMO Panel Formwork reduces the need for labour on the construction site thanks to its quick and easy handling characteristics. PERI UP Scaffolding Solutions ensure safe access, while PROKIT Mesh Barriers prevent personnel from falling.

Planning and executing the delivery of all the materials – more than 1.4 million individual parts – with a total of 12 ships and over 275 lorries in line with the requirements and deadlines was of central importance for successful start-up of production. The PERI Team will assist the customer throughout the entire project, which is an important contributing factor to the success of the project.



The special-purpose formwork designed by PERI's engineers is a key part of the production process for the 79 standard tunnel elements.



More than 275 lorries and 12 ships were used for the delivery of over 11,000 t of PERI Formwork Material.

PERI Systems get the Diana Bridge back up and running safely

When the Diana Bridge was closed in 2022, extensive consolidation and renovation work began to restore the safety and stability of the structure. One of the challenges was accessing hard-to-reach areas such as arches and pillars. Thanks to versatile PERI Solutions, it was possible to create safe working platforms and efficiently manage the requirements of the project.

The Diana Bridge, an important transport structure on Lake Coghinas in Italy, was in a critical condition due to structural problems and visible damage and was therefore closed. The

refurbishment included repairing the supporting structures, modernising the carriageway and reinforcing the piers. Precise and adaptable scaffolding and formwork solutions were required in order to carry out this work safely.

Accessing the hard-to-reach areas such as the arches and pillars was particularly challenging. The PERI UP Modular Scaffold played a pivotal role in this respect. Designed as a suspended scaffold, it could be flexibly adapted to the various structural elements of the bridge – from the arches to the massive piers. The innovative connection technology of the



Bruno Colomo
Technical director

“The problems that had to be solved primarily concerned the variability of the structural elements. A quick and safe assembly process was possible thanks to the use of the innovative modular scaffolding system. The system’s considerable versatility expedited the construction process and also offered real benefits in terms of safety.”

Contractor
Ser.Lu. Costruzioni S.r.l
Cagliari, Italy

Field service
PERI Italy
Agrate Brianza

PERI UP Components and enclosed working areas ensured that work could be carried out safely and conveniently even at great heights.

To repair damaged elements such as kerbs and piers, additional formwork systems were required that could be flexibly adapted to the geometries. The team relied on the VARIOKIT Engineering Construction Kit for the kerb renovation work. This way, the formwork could be used efficiently in all areas where the damaged concrete had to be rebuilt. Another PERI Solution proved its worth during the columns renovation work:

it was possible to assemble the HANDSET Alpha Formwork by hand and without crane assistance. It was therefore particularly suitable for confined and difficult-to-access working areas.

The fact that the systems could be tailored precisely to the requirements on site – especially in terms of how they interacted – made the work far easier. At the same time, the stringent safety and stability requirements were met. Consequently, the renovation work was able to proceed as planned and the bridge can now be used safely again.



PERI’s adaptable working platforms provided safe access to the hard-to-reach arches and piers of the Diana Bridge.

Using formwork and scaffolding systems from a single source accelerated the construction process.

Efficient pylon construction thanks to a comprehensive solution from a single source

The Danjiang Bridge, designed by architect Zaha Hadid, will span the Tamsui River in New Taipei when it is completed in 2025. With a length of 920 m and a height of 200 m, the asymmetrical cable-stayed bridge required detailed planning. One major challenge was the changing pylon shape.

PERI assisted with the project by providing individually planned and coordinated formwork and civil engineering solutions. In addition to the unusual pylon design, the demanding schedule also had to be taken into account. The pylon erection process was nevertheless extremely efficient, as the customer received everything from a single source: formwork, engineering and project planning solutions.

Among other things, PERI supplied a customised formwork solution that enabled a total area of 18,000 m² to be concreted. 3,000 m² of the futuristic geometry was created using 3D Freeform Formwork. The biggest challenge was posed by the changing shape of the pylon, which was constructed in 53 concreting sections.

PERI's solution for achieving the varying geometry involved a combination of the VARIO, SCS and ACS Systems. The VARIO GT 24 Girder Wall Formwork provided the ideal basis for most sections of the pylon. To ensure safe working conditions and fast, efficient processes, a combination of the PERI ACS and SCS Climbing Systems was chosen. The SCS Climbing System made it possible to construct the inclined design at the upper and lower ends. The centre, straight section was constructed using the ACS Self-Climbing System, which climbed the structure on rails during the construction process.

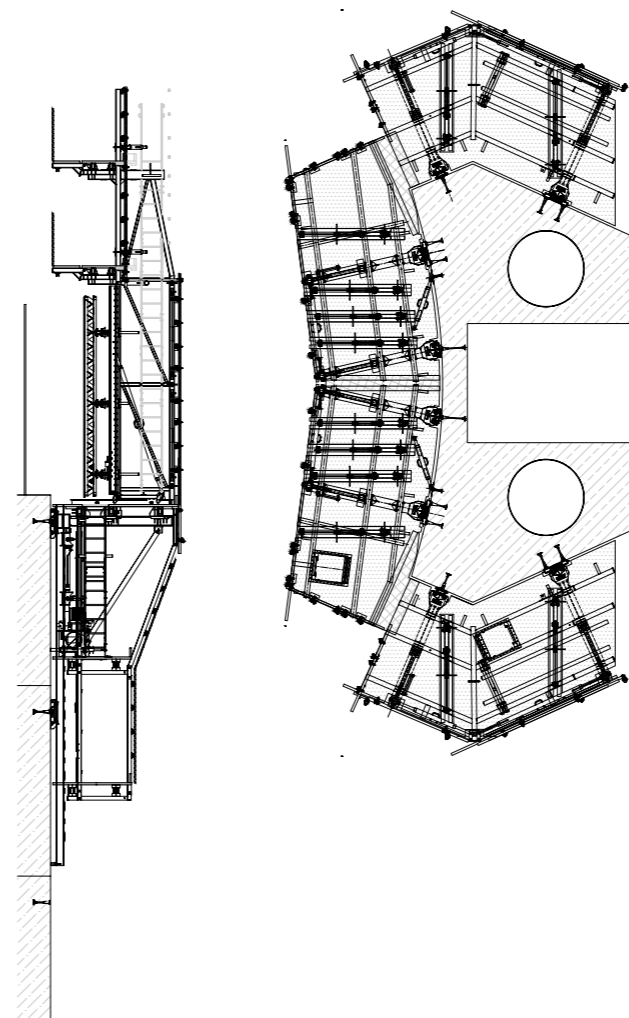
Engineers from PERI were on hand to advise the construction team throughout the project. Comprehensive, detailed planning and on-site support enabled rapid construction progress, meaning that the project requirements were met and the tight construction schedule was adhered to.



The cross-section of the pylon changes from convex to concave. The engineers from PERI therefore developed a customised formwork solution for each section.



The two PERI SCS and ACS Climbing Systems facilitated quick, safe and efficient construction of the unique pylon structure.



Contractor
Kung Sing Engineering Corporation (KSECO)
Taipei City, Taiwan

Field service
PERI Japan, Tokyo

Zeng Wei-Cheng
Jobsite manager

"Since we started using PERI Products, the project has been running smoothly. Efficiency is consistently high, meaning that our progress requirements are being met in full. For us, it's a good feeling knowing that PERI will always be able to competently solve any problems that arise at any point during the construction process. We are very satisfied with PERI's service because it enables us to work efficiently."

PERI Steel Formwork Carriages and project support advance tunnel construction



Contractor
MossIA Ans
Moss, Norway

Field service
PERI Norway,
Sande i Vestfold

Amalia Valero
Chief lining engineer

“Four PERI Formwork Systems were used for the construction of two tunnels for the intercity project in Moss, Norway. Working in close collaboration, PERI customised the design to meet all our requirements, including the need for versatile formwork capable of accommodating different tunnel radii without compromising the final quality of the structure.”

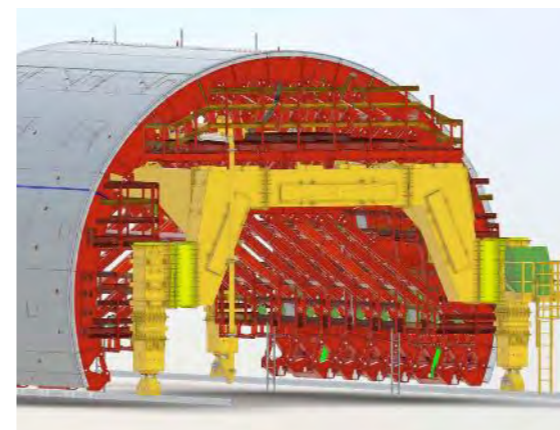
The new railway line from Sandbukta to Moss then on to S st d (SMS 2A) should significantly shorten the journey time from Moss to Oslo and encourage more people to travel by train. The project includes two tunnels that run underground for more than 5 km through the municipality of Moss. PERI assisted with the construction of the tunnels by providing a customised solution.

When the new SMS 2A railway line is completed, four trains will run between Oslo and Moss every hour. The line is part of Norwegian railways company’s intercity project. The central elements of the almost 10-km long line include the 2.3-km long Moss Tunnel and the 2.1-km long Carlberg Tunnel as well as a new railway station with an 800-m long platform.

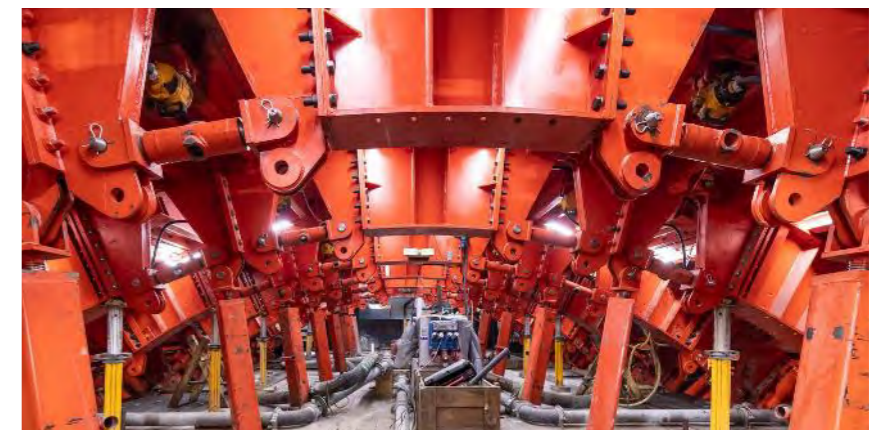
One of the challenges in building the tunnels was that they have different radii. PERI’s engineers therefore opted for a solution using customised steel formwork carriages, which were able to accommodate three different geometries.

The carriages could be customised to suit radii of 6.60 m, 6.75 m and 6.85 m. What’s more, the carriages largely consisted of reusable standard elements in order to minimise the use of resources. PERI’s solution allowed the work to be carried out quickly and accurately. A total of four formwork carriages were used.

The support provided on site was also a key factor in the success of the project. This saw the PERI Team train the workers on the construction site on how to use the carriages correctly. The team also optimised the subsequent construction process by providing training sessions. PERI was involved in the project throughout the entire construction phase. The comprehensive solution of systems and support played a key role in ensuring that the work on the tunnels could be carried out on schedule.



The customised steel formwork carriages could be adapted to different radii.



The customised tunnel formwork carriages could be adapted quickly and precisely to suit several different radii.

Fewer repositionings thanks to a comprehensive solution from a single source

The new Saaletal Bridge is the engineering highlight of the new bypass from Bad Kösen across the Saale valley. With a length of 1.2 km and a maximum height of up to 60 m, it rests on a total of 16 pillars. It is the first bridge in Germany to be built using a hybrid construction method.

The two ramp areas were constructed as steel composite bridges using the incremental launching method. The middle section with a length of 320 m was built as a haunched pre-stressed concrete box girder using the balanced cantilever construction method in order to be able to connect both sections seamlessly at the end. PERI developed an overall concept for this project which, in addition to the coordinated systems, also included engineering and project support.

The project saw the VARIOKIT VBC Balanced Cantilever Carriage being used for the first time in Germany. The PERI Solution permitted a standard cycle length of 5.75 m, which reduced the number of cycles from the original number of 19 to 14 cycles per cantilever and thus also significantly

reduced the number of repositionings. During the construction of the 16 pillars, the SCS Climbing Formwork together with the VARIOKIT Engineering Construction Kit demonstrated why they were the solution of choice: the pillars, which taper towards the top, grew by 5 m in height every week.

For the two hammer heads, which served as the starting segment for the balanced cantilever carriage, a formwork solution was required that ensured high precision even at a height of 50 m. The VARIOKIT Engineering Construction Kit served as the basis for this. Thanks to the combination with PERI UP, the operating areas were safely accessible at all times. The haunched pre-stressed concrete box girder, whose cross section changed continuously, was also taken into account in the PERI Solution, as was the curve radius of 550 m and the gradient in the transverse and longitudinal directions.

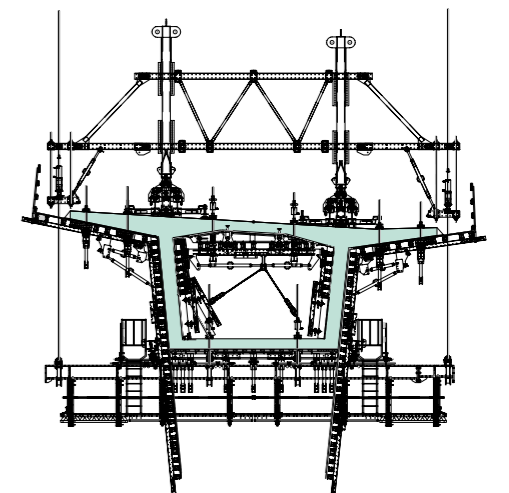
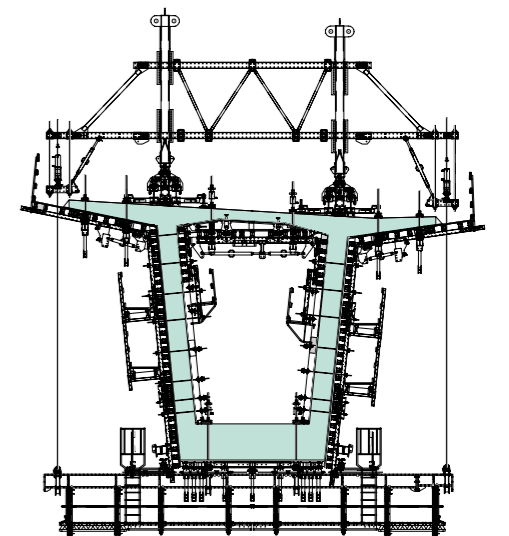
An international PERI Team of experts from Germany, Poland and Austria supported the implementation of the concept on site. 3D models and animations also contributed to the successful completion of the project.



The PERI Overall Concept included individual solutions for the challenges of the Saaletal bridge. Central to the success was the option to seamlessly combine different PERI Systems.



The Saaletal Bridge was built using a hybrid construction method. For the section that was implemented using the balanced cantilever construction method, the VARIOKIT VBC Balanced Cantilever Carriage was used for the first time in Germany.



André Mäcker, Detlef Heide
Foremen

Contractor
STRABAG AG
Dresden, Germany

Field service
PERI Sales and Civil Engineering
Systems, Erfurt
PERI Competence
Centre Infrastructure,
Weissenhorn/Cottbus

"The construction project was extremely challenging and gave us a lot of things to think about and resolve. We took on the task and, together with PERI, managed to find solutions to any issue that arose."

Achieving success 70 m below ground with PERI Solutions



The images on this page are taken from OHLA's work for the greater Stockholm area.

A new railway platform for the Blue Line is being built at Stockholm's Gullmarsplan underground station. Once it is completed in 2030, the station's importance as a transport hub is set to increase. PERI assisted with the project by providing efficient solutions as well as on-site service and expertise.

The new platform at Gullmarsplan Station is being built around 70 m below ground level and will be accessible via five state-of-the-art high-speed lifts. The project aims to significantly improve the city's transport connections.

One of the biggest challenges during construction was the low rock cover in some areas, which made it impossible to use conventional blasting methods. To prevent a rock collapse, the area around the tunnel profiles was frozen. To this end, pipes were drilled around the tunnels, into which a mixture of salt and water was pumped to cool the area down to -5 °C. As soon as the area was frozen, the tunnels were carefully blasted and temporarily stabilised with shotcrete and anchors.

To improve efficiency, both tunnels were bored and concreted at the same time. Before the freezing process was completed,



PERI's efficient tunnel formwork solution was instrumental in enabling the team to keep to the schedule during the freezing process.



PERI stood ready to advise the customer with their technical expertise and facilitated the progress of the project on site with their know-how and services.

a concrete enclosure with movable formwork from PERI was constructed within the tunnels. With the aid of VARIO Tunnel Formwork, the casting process went off without a hitch, contributing significantly to an efficient workflow.

It wasn't just the freezing process that posed a challenge, but also the inaccurate construction plans from the 1960s. However, thanks to the use of efficient PERI Solutions and technical support on site, PERI was able to support the customer in adhering to the schedule in the best possible way – despite the challenging conditions.



Contractor
OHLA Sverige AB
Stockholm, Sweden

Field service
PERI Sweden,
Stockholm

Alexandra Elvesund
Communication manager

"Working with PERI was a wonderful experience. They gave us a great deal of support with our need for service and expertise."



Contractor
Leighton Contractors
Asia Ltd
Taguig City, Philippines

Field service
PERI Philippines,
Muntinlupa City

Jeffrey Reynado
Superstructure site manager

“The VPS System enables quicker cycles and operation than conventional systems, which allowed us to complete eleven crossheads each week using the eight VPS Sets supplied by PERI. The system is very quick, safe and convenient to use on the construction site. PERI has been a great help to Leighton and we would recommend working with PERI on future projects.”



Time-saving bridge construction using the VARIOKIT Pier System

In the busy Candaba region of the Philippines, two existing viaducts were extended by adding a third carriageway in between them, to relieve the high volume of traffic along the North Luzon Expressway (NLEX). Customised engineering solutions from PERI were used for this project. The VARIOKIT Pier System (VPS) was substantially effective in saving time.

The greatest challenge posed by the project was the extremely short construction period of just one year. Moreover, the regular flow of traffic on the two surrounding carriageways was to be maintained during the construction of the third Candaba Viaduct. As the construction site of the 5.5-km long viaduct was located in a marshland prone to flooding, it was also necessary to find a system that would enable reliable

transfer of loads and safe access without the need for complex ground preparation. PERI developed a holistic solution to ensure high efficiency on site as well as a consistently safe working environment.

The customer placed particular emphasis on using a system with the shortest possible cycle times in order to complete the project as quickly as possible. To keep to the ambitious schedule, PERI developed a customised solution consisting of the PERI UP Shoring Tower MD and the innovative, ground-independent VPS, which reduces cycle times by up to half compared to conventional systems. This meant that a total of eleven pier heads could be constructed each week using eight sets of VPS.

Coupled with the impressive load-bearing capacity of the MD Shoring Tower of up to 100 kN per leg, it was possible to complete the 250 cross girders on schedule. The system’s flexibility also enabled the team to cope with the challenging terrain by transferring loads from the ground to existing structures.

PERI also assisted with the project by supplying VARIO GT 24 Girder Wall Formwork and PERI UP Access Solutions. The particularly flexible VARIO System minimised material requirements, which was beneficial given the limited space available on site. All of the PERI Systems used also ensured safe working conditions on the construction site thanks to their sophisticated safety features.

PERI’s engineering team was involved from the planning stage right through to implementation and, together with product specialists on site, helped to ensure that the project was completed efficiently and on schedule.



The customised PERI Solution facilitated rapid construction progress without interrupting traffic.



VPS paved the way for short concreting cycles and enabled the 250 cross girders to be completed on time.

Rapid bridge construction using the time and material-saving VIL Incremental Launching System



The VIL Incremental Launching Facility impressed with its high load-bearing capacity, leading to time and material savings.



Combined with PERI UP, the flexibility of VARIOKIT made for a safe and fast construction process.



Once completed, the Jenina Viaduct will help to improve transport links between the Slovenian region of Koroška and the central part of the country. The construction process was accelerated by material-saving PERI Systems that could be deployed simultaneously.

The viaduct consists of two parallel bridges that run over 14 piers with a height of up to 18.5 m. The incremental launching method was used for construction. To enable optimum adaptation to the pier geometry, PERI produced a customised formwork solution consisting of TRIO and VARIO GT 24, which was combined with CB 240 Console Brackets. In addition, working platforms were formed from SB Brace Frames, allowing the pier heads to be concreted in a single step. The bridge parapets were also created using a VARIOKIT Solution. As the bridges are very close to each other, the flexibility of VARIOKIT combined with PERI UP proved instrumental in achieving a safe, swift and simple implementation.

For the main superstructures, PERI's VIL Incremental Launching Facility was chosen, as it ensured work to be carried out particularly quickly. The workstation was designed in such a way that the lateral formwork automatically detached from the concrete structure at the end of a concreting section and clicked into the correct position when lifted – without any additional work steps.

During construction of the carriageway slab, formwork consisting of VARIO GT 24 was used, which was suspended from the VIL Console Brackets. Given the high load-bearing capacity of the VIL Console Brackets, it was possible to drastically reduce the amount of additional support and anchoring materials used, making the entire construction process more efficient. With the two parallel VIL Stations, the customer was able to achieve rapid construction progress and erect the viaduct quickly.

The subsequent process of widening the first section of the bridge to integrate an additional lane connection proved to be a particular challenge. This stage of the construction project was realised efficiently using VARIO GT 24 formwork, supported by the scaffolding system PERI UP. The retaining walls of the VIL Station were poured using DOMINO Formwork, which made it possible to work quickly and without a crane.

In addition, PERI supported the customer by providing technical advice on site, thus ensuring a faster, co-ordinated process, which further reduced the overall construction time.



Sifet Mandžuka
Site manager

Contractor
Garnol d.o.o.
Kranj, Slovenia

Field service
PERI Croatia, Zagreb
PERI Slovenia, Maribor

“The project preparation process presented us with major challenges, as the bridge design is technically and architecturally extremely complex. PERI offered us safe and reliable solutions backed by professional support throughout the project. I was impressed by the PERI VIL Support Brackets, as they meant that we needed fewer additional props, fewer console brackets and had less wasted anchor material. The two parallel VIL Stations enabled us to work very quickly, efficiently and economically.”

Dunajec Bridge

Nowy Targ
Poland



Contractor
INTERCOR Sp. z o.o.
Zawiercie, Poland

Field service
PERI Poland, Zabierzów

Robert Bzura, Jakub Dziura

Construction site management

“The PERI VBC Formwork Traveller allows us to change the formwork quickly and easily and to work safely above the river. We were able to build the structure efficiently within the planned technological parameters thanks to the well-thought-out yet simple and relatively easy-to-use solutions of the compatible systems. Thanks to the commitment of all PERI Departments, the construction work is proceeding smoothly and any difficulties that arise are resolved on an ongoing basis so that there are no delays in the project schedule.”

PERI Systems enable progress in weekly cycles

A two-lane bridge was built over the Dunajec River near the Nowy Targ bypass in southern Poland under challenging conditions. Thanks to the use of PERI Systems, the work could be carried out on schedule, regardless of the weather conditions and without damaging the subsoil or the environment of the riverbed.

A particular concern during the construction of the Dunajec Bridge on the Zakopianka motorway and state road was adhering to the weekly concreting cycle for each section. The two-lane bridge was to be built in ten cantilever sections, starting at each pier. To stick to the required schedule and to ensure that the reinforced concrete work on the main span could continue uninterrupted, the contractor opted for the VBC Balanced Cantilever Carriage with hydraulic drive and automatic formwork stripping functions. With the help of the VBC Balanced Cantilever Carriage, it was possible to concrete segments of up to 5 m in length in just one cycle, enabling work to be carried out efficiently and on schedule.

The VARIO Formwork Panels combined with health and safety systems ensured that all the necessary construction processes could be carried out safely and quickly. The ability to quickly

and safely adapt the formwork and the clever link between the wing and web formwork of the box girder enabled a fast workflow. It was also essential for rapid construction progress that the VBC Forming Carriage was able to return to the launch pier using its own hydraulic drive. This allowed it to be moved to the other lane of the bridge.

The Dunajec River was to be spanned without interfering with the riverbed. This was achieved by choosing the balanced cantilever construction method using the VBC Balanced Cantilever Carriage. Thanks to its longitudinal and transverse rigidity, the carriage made it possible to construct the box girder accurately in fewer and longer segments and also provided a safe workplace for retensioning. With the aid of the compatible PERI Systems, all work could be carried out safely at all times, regardless of weather conditions.

PERI ensured that all the necessary formwork and scaffolding systems were delivered reliably and on time to ensure smooth progress on the construction site. The customer also received technical support and practical training from PERI Experts on site.



To meet the weekly concreting cycle, segments of up to 5 m in length per section were formed using the VBC Balanced Cantilever Carriage.



To ensure a smooth construction process, the customer received technical support from PERI Experts on the construction site near Nowy Targ.

Customised solution simplifies and accelerates tunnel construction

The 880-m long Copthall Tunnel is one of five green tunnels being built along the new HS2 high-speed line in the United Kingdom. Once the works are complete, the reinforced concrete tunnel will blend harmoniously into the natural surroundings and be covered with trees and plants.



The customised formwork carriages consisted of a combination of special parts and VARIOKIT Standard Components and made a decisive contribution to efficient use.



The formwork carriages helped to reduce cycle times by up to 80% and keep crane operating times short.

The construction of Copthall tunnel, situated between the Northolt Tunnel and the Colne Valley Viaduct was made possible by formwork carriages developed by a dedicated PERI Infrastructure Team specifically for this project. To facilitate and speed up the construction process as much as possible, engineers from PERI designed two types of carriages to enable the site team to pour the walls and ceiling slab simultaneously. A total of four formwork carriages were used, two for the tunnel ceiling and two for the tunnel walls. The aspects of durability, productivity and sustainability were particularly important to the engineers.

The solution was also characterised by the combination of special components and standard components from the VARIOKIT Engineering Construction Kit. The wall formwork made of steel plates was designed for the concreting of 20.00 m long and 7.50-m high walls. The carriage that the plates were attached to was built almost entirely with standard VARIOKIT Elements. The internal and external formwork on the wall carriages could be raised, lowered and retracted hydraulically. This saved crane time for moving the formwork and also significantly reduced the amount of labour required. Overall, cycle times were reduced by over 80%.

The wheel units made it easy to move the carriages forwards and backwards. Intuitive steering enabled reliable navigation even in curved areas of the tunnel. Each unit can carry a load of 50 t and runs on the floor slab itself. As such, it was not necessary to lay rails or use construction site vehicles or cranes. The carriages used for the tunnel ceiling also consisted of a combination of special and standard components. Not only did they support the reinforcement and concrete load in full, they also featured hydraulic cylinders. This allowed the carriage to be lowered, folded, moved and positioned so that the rebar and concreting works could be carried out simultaneously.



Contractor
Kilbridge
London,
United Kingdom

Field service
PERI United Kingdom,
Rugby

Teresa Martin
Project manager

“This is a fully hydraulic system that can lift and move four formwork shutters with a total weight of 128 t to pour the walls of the tunnel. So far, we have been able to save around five days of work per wall compared to conventional formwork systems, as we can complete the installation work and prepare the system for concreting in a single day.”



Faster than planned: Bridge renovation with PERI UP



The closed deck surfaces of the PERI UP Scaffolding Kit enabled the team to work safely at height.

It was possible to scaffold the complex geometry of the bridge arch precisely using the PERI UP Modular Scaffold.



The renovation work carried out on the Leonardo da Vinci Bridge in Sasso Marconi not only involved the preservation of the striking 144 m arch, but also earthquake safety measures and widening of the carriageway. Thanks to the PERI UP Modular Scaffold, the bridge was comprehensively modernised and safely reopened in just one year.

Built in the 1950s, the Leonardo da Vinci Bridge spans the Reno River and connects the Porrettana road with the A1 motorway. After more than 70 years of intensive use, it was closed to traffic in 2021 due to serious damage. The aim of the renovation project was to preserve the bridge's striking arch, widen the carriageway from 8.50 m to 11.30 m and make the bridge earthquake-proof for future requirements.

For this challenging project, the team put its faith in modular scaffolding from the PERI UP Scaffolding Kit. The modular scaffolding was compelling due to its flexibility and the

possibility of scaffolding the curved geometry of the bridge precisely and virtually coupling-free using system components. A total scaffolding area of 2,500 m² was erected in order to safely carry out both the demolition of the damaged bridge sections and the renovation work.

The work was carried out in challenging conditions, as the River Reno could not be diverted and changing water levels had to be taken into account. The PERI UP Scaffolding provided the requisite safety and stability in these difficult circumstances to enable the work to progress quickly and reliably.

It was particularly important that the project was implemented quickly. All of the scaffolding work, including the disassembly phase, was completed in just five months. This was made possible by the comprehensive preliminary planning work and the high flexibility of the PERI UP Scaffolding Kit. The work was completed on schedule in December 2023, allowing the bridge to be opened to traffic on time.



Contractor
Service Ponteggi S.r.l.
Quinto di Treviso, Italy

Field service
PERI Italy,
Agrate Brianza

Alex Alban
Company owner

"When you embark on a long journey of growth, it is important to utilise the means that allow you to do so. And PERI's solutions and systems have given us the opportunity to develop our business in all areas, bringing us safety, efficiency, and aesthetic appeal."

Accelerated work process through material movement in a single crane lift

The newly constructed cable-stayed bridge in Mexico City, an impressive 515.50-m long in-situ concrete structure, was designed to bypass a source of drinking water. The railway bridge is used as a passage for the Mexico-Toluca passenger train. PERI contributed to the project by supplying more than 100 t of equipment and helped to significantly shorten the execution time.

VARIO GT 24 Girder Wall Formwork was used in combination with the CB 240 Climbing System to construct the bridge piers. VARIO GT 24 is a dimensionally stable formwork system for complex building geometries and high architectural concrete requirements, which enables a wide variety of shapes to be formed. In addition, TRIO Panel Formwork was used to erect the walls.

Thanks to the CB 240 Climbing System, it was possible to move the entire platform and formwork unit in a single crane movement, which accelerated the work process considerably. What's more, the platform cladding, which was laid over the console brackets, ensured that the working areas in front of and behind the formwork were free of trip hazards. The use of ALPHAKIT, the handy shoring kit, scored points with its particularly quick and easy assembly. This resulted in a safe and speedy workflow, which improved the efficiency of the construction project.

The PERI UP Industrial Scaffolding fulfilled the high requirements for assembly and work safety. Clever components such as the system-integrated guardrail in advance assembly,



A combination of coordinated PERI Systems accelerated the construction work on the Manantial Bridge.



Due to the low weight of the ALPHAKIT Steel Components, the parts could be completely assembled by hand - without any lifting equipment.

decks with integrated lift locks and connections that follow the principle of "push-fitting instead of screwing together" sped up the assembly process and boosted safety. The ST 100 Stacking Tower was also used, characterised by its high load-bearing capacity and quick assembly and dismantling characteristics. The stackable frames could simply be slotted into each other without screws or pins, which made assembly even easier. All the necessary assembly heights could be achieved with just a single frame type, while the stable diagonal braces guaranteed tight connections and safe crane handling processes.

The fact that the PERI Systems were quick and easy to install shortened the execution time and significantly increased productivity on the construction site. As a result, the project was completed efficiently and on time.



Contractor
Constructora Puente
Manantial
Mexico City, Mexico

Field service
PERI Mexico,
Mexico City

Yesica Cruz Medrano
Front line supervisor

"The outstanding service and innovative solutions that PERI provided us with were reflected in the quality of the outcome."



Comprehensive PERI Solution shortens construction time on complex bridge project



Contractor
AzVirt Belgrade
Belgrade, Serbia

Field service
PERI Serbia, Šimanovci

Saša Todorović
Project manager

"PERI has once again proven to be a reliable partner in meeting all the challenges of this complex project. Thanks to their wide range of products, PERI Employees have always been able to respond quickly and effectively to changes in the workflow, which are virtually unavoidable in projects of this type."

As part of the new road link between the towns of Ruma and Loznica, a motorway bridge was built over the River Sava near the Serbian city of Šabac. PERI developed a comprehensive solution comprising formwork, scaffolding, a climbing system and specialist support on site.

The biggest challenge faced during the project was the extremely short construction phase, which was limited to just a few months for certain stages due to high water levels. By supplying pre-assembled system segments, PERI even managed to shorten the estimated construction time.

The main bridge construction with a hollow-box cross-section and spans of 40 m to 155 m was particularly challenging. Complex balanced cantilever technology was used for the central spans, where the VARIOKIT VBC System proved its worth. Two complex piers were initially constructed in the water using a combination of VARIO GT 24 Girder Wall Formwork and the CB Climbing System. Massive supports were erected on the more than 12-m high piers with the help of SB Brace Frames, on which a total of four pairs of VBC Units could then be mounted. Hydraulic modules moved the 80 t structure to the next concreting cycle.

The VBC Balanced Cantilever Carriage proved to be particularly efficient, as segments measuring up to 5 m in length could be concreted both to the left and to the right at the same time. Thanks to PERI's well organised logistics systems, the pre-assembled VBC Carriages were delivered on time by more than 35 lorries. Despite the customer having no experience with the system, they were not only able to set it up independently thanks to the training they received from PERI, but were also able to operate the hydraulics themselves.

Safe working conditions were made possible by the PERI UP Scaffolding Kit, which was used both as a load-bearing and access structure and reliably supported the formwork. The majority of the main bridge was constructed using shoring towers with heights of up to 12 m, which were erected on the embankment. To improve the throughput as the water level rose, a stable structure consisting of VST Heavy-Duty Shoring Towers and ALPHAKIT Truss Girders was erected above the level of the embankment.

Engineers and experts from PERI Serbia provided the construction site team with technical support throughout the entire construction process.



The particularly large spans of the main bridge were constructed using the PERI VBC System.



In its role as a shoring system, the PERI UP Scaffolding Kit provided dependable support and enabled safe access at great heights.

Maximum efficiency and concrete quality for tunnel construction on the M85

The Bécsi-dombi Tunnel was built to extend the M85 motorway near Sopron in Hungary. It is a 780-m long twin bore tunnel that leads up to the Austrian border. PERI assisted with the project by providing customised formwork solutions and accessories, thereby increasing the efficiency of the construction process and achieving the best possible concrete results.

The four-lane Bécsi-dombi Tunnel was the final part of the extension of the M85 motorway, which bypasses the town of Sopron and runs over the Wiener Berg to the border. The complex project involved the construction of two main tunnels, which required the use of various formwork systems and technical equipment. For the construction work, a total of 62 blocks were built using the tunnelling technology and five blocks using the cut-and-cover technology with 12.5 m long concreting sections in each case. One of the main requirements was to achieve a high level of architectural concrete quality with as little labour as possible.

PERI's solutions made it possible to carry out the work efficiently and to achieve extremely high quality results. Thanks

to a concrete distribution system, it was possible to achieve the high surface requirements with just a few workers. PERI also supplied two curing gantries, which were installed along the tunnel formwork and controlled the temperature and humidity. This ensured a high surface quality of the concrete.

The customised tunnel formwork carriage from PERI, which can be moved hydraulically, impressed with its pneumatic vibration system and formwork that does not require any foundation anchors. Instead, the formwork absorbs the horizontal forces generated during concreting by means of a special internal equalising structure. In addition, PERI supported the project with further formwork solutions and a rebar gantry. A semi-automatic reinforcement positioning system ensured optimum adaptability to the geometry of the tunnel.

What's more, PERI supplied a total of four sets of formwork for emergency recesses and fire hydrants, which were integrated into both passages for safety reasons. PERI VARIOKIT Systems were used to construct two emergency crossings between the two main tunnels as an additional safety precaution.



To ensure a high-quality concrete result, the curing gantries controlled the temperature and humidity along the tunnel formwork.



The customised formwork carriage from PERI offered the possibility of hydraulic movement with a pneumatic vibration system.

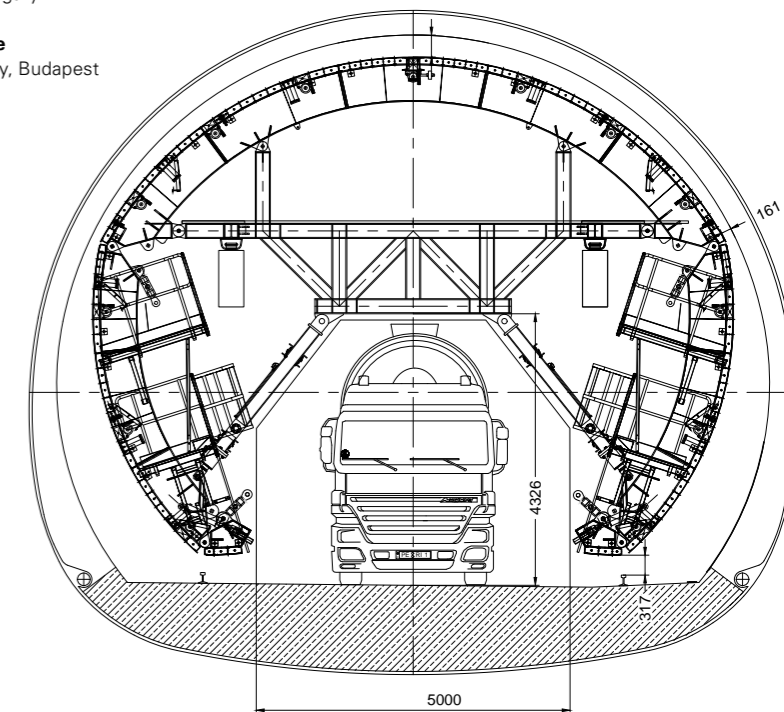


Zoltán Horváth, Gábor Sunyovszky
Site managers

"The surface quality of the concrete meets the high demands placed on steel plates. The deformations therefore remained within the permissible limits."

Contractor
SDD Konzorcium
Lábatlan Hungary

Field service
PERI Hungary, Budapest



Construction time reduced thanks to additional supporting structure with VST Towers



A steel bridge structure with a high load-bearing capacity was required for the construction of the two-lane road bridge over an inlet of the Adriatic Sea in southern Croatia. PERI supplied the efficient formwork and scaffolding solutions needed to carry out the project.

Completed in July 2022, the bridge is a total of 2,404 m long and divided into 13 different spans. The main bridge with a length of 485 m over the Pelješac Channel is a cable-stayed bridge with twelve pylons. The five central spans are each 285 m long and the clearance height is 55 m. The composite bridge established an inner-Croatian road link between southern Dalmatia, including Dubrovnik, and the rest of the country. High wind forces and the risk of earthquakes called for special technical solutions.

TRIO Panel Formwork and the VARIO GT 24 System were used to construct the bridge piers, which consist of a reinforced concrete hollow structure with a Y-shaped pier head. The CB Bracket System with its high load-bearing capacity was used as a work platform, enabling sections to be concreted at a height of 4 m.

As the CB 240 Console Brackets are equipped with carriages, it was possible to work on the reinforcement without removing the external formwork from the console brackets.

The temporary use of VST Heavy-Duty Shoring Towers meant that the longer sections of the steel bridge structure could be installed quickly, thereby reducing the construction time. PERI UP Stair Towers were used to provide safe access

to the platforms. These are characterised by their high load-bearing capacity, ease of installation and integrated safety features.

The VARIOKIT Steel Composite Carriage was used to produce the reinforced concrete bridge slab. The flexibility of the system allowed it to be customised to any bridge cross-section and facilitated safe, quick and simple work operations. The load-bearing capacity of the VCC System paved the way for longer concreting sections and made it possible to move to a new concreting position without the use of a crane.



Contractor
AVAX SA
Zagreb branch office
Zagreb, Croatia

Field service
PERI Croatia, Zagreb

Matko Balic
Site manager

“The decision to use VST Towers shortened the construction time and reduced costs because all of the VST Equipment could be hired from PERI.”



By using VST Towers as a temporary additional supporting structure, the contractor was able to assemble longer sections of the steel bridge structure, which shortened the overall construction time.



The PERI UP Stair Tower provided a safe and convenient means of access to the top.



Sophisticated PERI Solutions tackle extreme conditions in aerial passenger line construction

PERI was involved in the construction of what is currently the steepest aerial passenger line in the world, the Schilthorn 20XX project. A classic aerial tramway with a capacity of 800 passengers per hour has been built between Stechelberg and Mürren in Switzerland. Goods and baggage logistics have also been fully automated on this line.

In the village of Mürren, three different foundations for the new aerial passenger line were constructed in the space of six months. PERI provided support to the 007 consortium (Gasser Felstechnik AG, Lungern and Gerber + Troxler Bau AG, Interlaken) and supplied not only formwork and civil engineering solutions, but also provided structural calculations and detailed technical design services for the project. A total of eight individual foundations were constructed. Four with dimensions of 6 m x 6 m x 6 m, three individual foundations with dimensions of 5 m x 2 m x 2 m and one individual foundation with a connecting beam measuring approx. 18 m x 15 m.

Thanks to the flexibility of the TRIO Wall Formwork and the ability to combine it with the VARIOKIT Engineering Construction Kit, PERI Engineers were able to devise a clever formwork solution for the challenging foundation geometries. These characteristics helped to resolve a lot of the finer details and enable the construction project to be realised efficiently.

Around 41 t of formwork were transported up the mountain to build the foundations. The TRIO System proved its worth with its prestressed steel tie rod technology, some of which runs through the foundations at a length of up to 10 m. The VARIOKIT Components provided the necessary flexibility and stability for the formwork. These were necessary because part of the formwork had to be anchored in the rocky subsoil. Generally speaking, logistical access and supply to construction sites in mountainous regions is a complex challenge. For this reason, the formwork for the foundation elements was transported to the construction site using a temporary material cableway. PERI Systems proved to be an effective solution in this respect.



Contractor
007 consortium
Gasser Felstechnik AG,
Lungern, Switzerland
Gerber + Troxler Bau AG,
Interlaken, Switzerland

Field service
PERI Switzerland, Ohringen

Simon Aepli
Foreman

“The TRIO Formwork System, combined with the VARIOKIT Engineering Construction Kit, is the ideal solution for constructing cable car mast foundations, some of which have complex shapes, in rough and exposed mountainous terrain.”



The PERI System Solution proved to be an effective solution for the construction of the cable car mast foundations, even in rough mountain terrain.



Using TRIO Panel Formwork, it was possible to create a variety of foundation elements, as the craneable formwork system can be deployed both vertically and horizontally.

Integrated PERI Solution facilitates time-saving refurbishment



© Alberto Brevi

PERI delivered a special-purpose customised formwork system in the shape of the arch to the construction site.



© Alberto Brevi

The PERI UP Scaffold and the old structure formed a protruding working area, enabling the formwork to be positioned at the top with the crane.



© Alberto Brevi

This historic railway bridge, which crosses the Tassonaro torrent, was extensively refurbished in 2023. The reason for this was subsidence of the subsoil, which led to cracks in the concrete. For this project, various PERI Systems were combined to form an integrated solution in order to reduce the time required for assembling, using and removing the formwork.

Built in the 1930s from stone and white marble, the bridge is around 200 m long and consists of nine arches. During the Second World War, it survived both bombing raids and attempts to destroy it. To protect against seismic activity caused by clay banks, deep foundations were excavated up to 35 m below river level during construction.

The interiors of the nine arches of the viaduct underwent structural refurbishment using concrete and metal reinforcement. At the client's request, the formwork used should be pre-assembled. In addition to the arches, the foundations and piers of the viaduct were also reinforced. PERI developed a special-purpose bespoke solution which comprised a clever combination of VARIO GT 24 Girder Wall Formwork, RUNDFLEX Circular Wall Formwork and components from the PERI UP Scaffolding Kit. The pre-assembled, customised formwork was the equivalent of a complete arch and was delivered to the construction site by PERI. Once on site, the structure was fully pre-assembled on the ground and then lifted by crane onto the working area, for which a 30-cm thick reinforcement made of concrete and metal was poured onto the intrados of the arches.

It was pushed beneath the arch using a roller system and positioned for the concrete pour. This system enables the entire structure to be shuttered and deshuttered without any disassembly between the individual sections. The concrete pumping system was then fitted to the formwork with a nozzle and vibrators on the structure itself. For the first two arches, the PERI UP Scaffold was erected on the old structure, which was to be preserved at the client's request. For the other arches, only PERI UP was used.

The work processes were accelerated in particular by the combination of the PERI Systems and their ease of use. The PERI Team provided support during both the planning stage and on-site execution in order to ensure the partial preservation of the structure.



Contractor
D'Addetta S.p.A.
Berceto, Italy

Field service
PERI Italy,
Rome

Marco Tarana
Technical director

"We really valued the close co-operation with PERI's technical office in adapting the solution to the actual dimensions of the nine arches, not to mention the continuous on-site support. The systems' practicality and intuitiveness also boosted efficiency on the construction site, as the workers immediately understood how to use them."

Cantilever system with rental components accelerates viaduct construction despite difficult conditions



Contractor
Kolektor CPG, d.o.o.
Nova Gorica, Slovenia

Field service
PERI Croatia, Zagreb
PERI Slovenia, Maribor

Luka Bizjak
Project manager

“PERI’s many years of experience in civil engineering projects and the combination of innovative products enabled us to make excellent progress at the project execution stage. All the technical solutions were tailored to our requirements, which guaranteed us cost certainty and optimised use of materials. PERI VBC with its rental system components and high load-bearing capacity demonstrated its advantages from the outset and made the construction workers’ jobs a lot easier.”

The Vinjan Viaduct in Slovenia was built as part of the railway line extension between Divača and Koper. The local environment posed a major challenge on account of the ground and weather conditions. PERI supplied a comprehensive solution consisting of robust formwork and scaffolding systems, which enabled rapid construction progress despite the difficult conditions.

The harsh environment and strong winds made the construction of the 649.57-m long Vinjan Viaduct considerably more difficult. Given the local conditions, a particularly robust system was required for the bridge’s superstructure, and so the balanced cantilever method was used. The project was also subject to a tight schedule. The VARIOKIT Balanced Cantilever System (VBC) offered enormous benefits in terms of stability and construction time. The system’s hydraulics enabled the carriages to be moved forwards and backwards quickly, while the stabilising ties reduced the amount of work required. The simple backwards movement also simplified the knocking off and dismantling process, which in turn accelerated the construction process. A total of three VBC Sets were supplied. As only a small part of the system needed to be customised, it was particularly economical to use.

The piers measuring up to 60 m in height also proved to be challenging to construct. These were to be built on foundations that offered little space for working platforms. The solution used was a combination of VARIO GT 24 Wall Formwork and the console brackets of the CB 240 Climbing System. When combined, the two systems offered a high degree of flexibility and efficiency, as the high load-bearing capacity of the formwork and the CB 240 Console Brackets meant that larger units could be moved to the next concreting phase. This further accelerated the construction work.

Components from the PERI UP Scaffolding Kit facilitated the work and provided safe access at all times. Optimising the individual systems to meet the customer’s requirements also contributed to a smooth process on site.



Thanks to the VBC System, it was possible to make rapid construction progress despite the challenging environment.



Rentable system parts ensured cost security and optimised use of materials.

Customised cantilever solution expedites bridge construction



The balanced cantilever carriage was delivered pre-assembled and just-in-time, which freed up valuable space on the construction site.

By using the VBC Formwork Carriages, it was possible to build the bridge efficiently using the cantilever construction method with a shorter construction time.

A new bridge has been built over the Danube between the Hungarian towns of Kalocsa and Paks as part of a road construction project. This was achieved using a specific cantilever installation. PERI supported the construction project with an efficient comprehensive solution that saved both construction time and valuable space on the construction site.

The new Danube bridge should help to significantly shorten the journey time between Kalocsa and Paks. The bridge was constructed in three sections. PERI was involved in the construction of the central, 440-m long bridge section by providing a comprehensive solution consisting of formwork and scaffolding systems, as well as engineering expertise.

One particular challenge was the use of a cantilever solution to construct the bridge, which not only served as formwork for the concrete slabs of the new segments, but also enabled the steel elements of the composite bridge section to be lifted and positioned.

A total of four VBC Balanced Cantilever Carriages were used for the superstructure, which were modified by PERI Engineers to make them suitable for a composite bridge with a box girder cross-section. A special feature of the cantilever carriage was the built-in crane, with which a 15-tonne steel segment could be lifted to the desired position. To ensure efficiency, the carriages were assembled at a different location and only the large units were lifted into place on the construction site. This saved both valuable workspace on the construction site and construction time of around one month.

TRIO Wall Formwork and RUNDIFLEX Circular Wall Formwork with additional elements of the VARIO GT 24 Girder Wall Formwork were used for the two bridge piers, enabling precise construction of the pier geometry. PERI UP and MULTIPROP Towers were used as supports for the upper plate of the hammerhead, which formed the starting segment. While climbing along the ever-changing pylon shape, CB Working Platforms ensured a high level of safety.

The customer's wishes were met and the construction time considerably reduced thanks to the use of various PERI Systems and the support of PERI Engineers. At the time of its completion, the 946-m long bridge was the largest self-supporting structure in Hungary, with one lane for traffic in each direction and a cycle path on both sides.

About the project

The project is being implemented as a state investment, with the Ministry of Construction and Transport exercising the client rights and technical supervision. As a result of the public procurement procedure, the construction of a new Danube bridge and the related roads 512 and 5124, connecting to the surrounding settlements and the M6 motorway, was carried out by Duna Aszfalt Zrt. as the Main Contractor. The detailed design of the bridge was prepared by CÉH zRt. and Pont-TERV Zrt., while the road designs were created by UTIBER Kft.



Contractor
Hidépítő Zrt.
Budapest, Hungary

Field service
PERI Hungary, Budapest

Róbert Feczko

Construction site manager

"PERI provided us with a fast and efficient solution that met the particular technical challenges of the project."



© Rami Haham

PERI as a strategic partner for the construction of a complex concrete bridge

The Etzel Bridge is part of the Harling Bridge project and connects the north of Bnei Brak with Tel Aviv. It provides direct access to the new residential neighbourhood, which will comprise around 2,100 residential units. PERI played a key role as a partner for logistical and engineering matters and supported the project with customised solutions.

Aluminium MULTIPROP Slab Props were also used. These slab props can bear significantly higher loads than conventional tubular steel slab props and are also impressively lightweight. They can be adapted precisely to the site conditions and also function as platform supports and lateral protection for the working levels during bridge construction.

The bridge, a steel structure featuring in-situ concrete, was built in two phases. The centre of the bridge and the roundabout were concreted first, then the right and left bridge arms were poured.

The engineers from PERI developed a comprehensive logistical concept for the construction project and supported those involved on site with expert technical guidance. The PERI Solution was also characterised by the fact that all systems were quick and easy to assemble, which increased safety on the construction site. This enabled the work processes to be optimised and expedited so that the project could be completed successfully and on time.

One of the biggest challenges was the construction of the bridge deck over an area of 5,000 m² at a height of 6 m. PERI UP Shoring Towers were used to form the 125 cm thick carriageway slab. This system's flexible grid enabled optimum adaptation to the various geometries and load requirements of the bridge.



Contractor
Terre Armee IL LTD
Netanya, Israel

Post Tensioning Subcontractor
Perstcon LTD

Designer
Kedmor ING.

Field service
PERI Israel,
Rosh Haayin

Nir Rogozinski
Deputy managing director

“The decision to work with PERI proved to be an important factor in the success of the project. The advanced technical capabilities combined with the uncompromising professionalism of the team enabled us to achieve impressive results. The extensive support and innovative solutions provided by PERI’s engineers were instrumental in streamlining work processes and reducing overall costs. The close collaboration and their immediate response to every challenge we faced on site proved that we had chosen a reliable and professional strategic partner who prioritises project success.”



The excellent logistical and technical planning services of the PERI Engineers proved to be a success factor in the construction of the complex Cast-in-Place Posttensioned Prestressed Concrete Bridge.



The complex shape of the bridge can be built without a special solution thanks to the flexibility of PERI Shoring Towers.

Old Skuru Bridge

Stockholm
Sweden

Over 100-year-old bridge successfully restored thanks to a customised solution



Contractor
Svevia AB
Stockholm, Sweden

Field service
PERI Sweden,
Stockholm

Malin Thorhede

Project manager

"Working with PERI was a very straightforward experience. We had regular, weekly coordination meetings, which enabled us to be particularly flexible."



The combination of scaffolding, formwork and climbing systems made for a stable overall solution.



The arch of the bridge was built at a height of 32 m. PERI provided project-specific solutions and technical expertise.



The renovation work on the over 100-year old Skuru Bridge in Nacka near Stockholm, Sweden, presented a particular challenge. PERI assisted with the project by providing tailored solutions that were optimally adapted to the specific requirements of the historic construction.

The old Skuru Bridge was built in 1914 based on the plans of bridge designer Axel Björkman. As the construction plans drawn up at the time were imprecise, the calculations for the renovation proved particularly challenging. At the same time, the location of the bridge, surrounded by dense traffic and residential areas, necessitated special measures to minimise noise pollution so as to protect local residents and the environment. A number of different PERI Solutions were used to carry out the renovation work, enabling the project to progress step by step. Tailored solutions and in-depth dialogue with the customer ensured that the specific project requirements were successfully implemented.

The VARIOKIT VST Heavy-Duty Shoring Tower and VRB Girders were used for the refurbishment of the edge beams. Built from components from the VARIOKIT Engineering Con-

struction Kit, VST is extremely versatile and can be optimally adapted to the specific requirements of large-scale projects. In addition, the heavy-duty shoring tower was combined with PERI UP Scaffolding, which ensured stable support and good accessibility during the restoration work. The MULTIFLEX Slab Formwork complemented the solution with its versatility and could be tailored precisely to the geometry of the existing bridge construction.

The arch of the Skuru Bridge was erected at a height of 32 m above the carriageway. For this reason, the RCS Rail Climbing System, which is particularly versatile due to its mobile climbing hydraulics, was used to climb along the structure quickly and safely. SRU Shaft Platforms were used to carry out the internal formwork of the shaft walls in a straightforward manner.

PERI supported the customer with both project-specific solutions and comprehensive technical expertise. Continuous dialogue and close cooperation enabled the renovation work on the Skuru Bridge to progress successfully despite the challenging conditions.

Quick assembly and coordinated delivery enable efficient construction

Once completed, the new IB transport link through eastern Serbia will connect the towns of Požarevac, Golubac and Veliko Gradište with Corridor 10 over a distance of almost 70 km. PERI assisted in the construction of the bridge over the Morava river required for this project using a clever combination of formwork and scaffolding systems.

Finding an efficient way to realise the central spans with an overall length of 28 m was one of the project's major challenges. PERI made this possible by combining the ALPHAKIT Shoring Construction Kit, VRB Truss Girders and VST Shoring Towers, which were used for the substructure of the centre span.

PERI solved the issue of bridging the central span with the help of the VRB Formwork Girder, which was supported by shoring towers with a height of 8 m each.

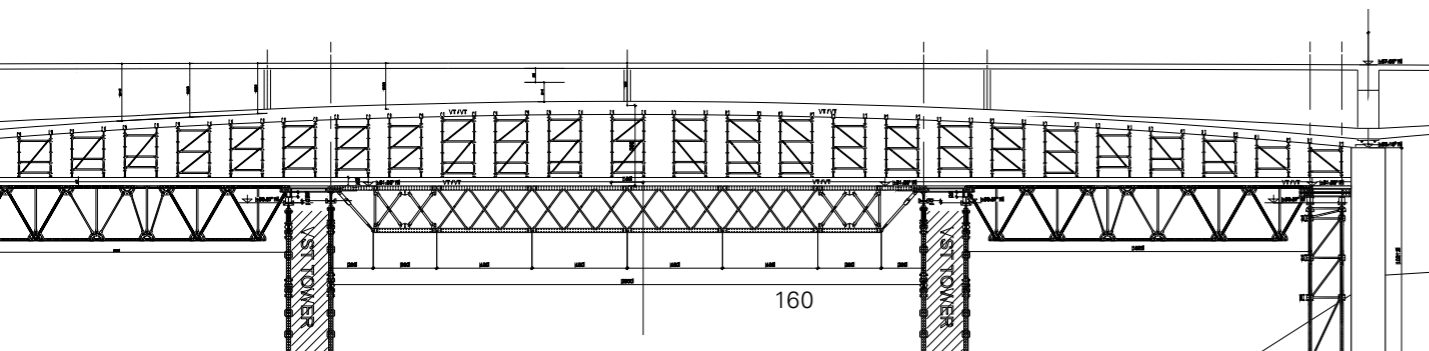
The flood area of the bridge was constructed as a continuous girder with six spans comprising 30 m of reinforced concrete each. To this end, it was necessary to provide shoring for a total of six spans simultaneously. PERI was able to meet the requirements with the PERI UP Scaffolding Kit and provided support for the project with shoring towers, a reinforcement scaffold and PERI UP Staircase Solutions. The coordinated delivery and quick installation of the system, not to mention its simple handling characteristics, ensured smooth and efficient progress.



The coordinated delivery of the formwork and scaffolding solutions increased the cost-effectiveness of the project.



A well-thought-out combination of PERI System Solutions made it possible to construct the spans efficiently.



The main structure and the flooding structure of the bridge were formed using various PERI Solutions. The HANDSET ALPHA and DOMINO Formwork Systems were particularly impressive due to their low weight and simple handling characteristics. The oval cross-section of the supports at full height was achieved using a combination of TRIO Wall Formwork and SRS Circular Steel Columns, which enabled concreting to be carried out at great heights. The MULTIFLEX Girder Slab Formwork ensured that the carriageway slab was built efficiently, as it proved to be particularly easy to use. DOMINO Panel Formwork was used to construct the walls of the main structure above the river, which was facilitated by the low weight of the formwork and quick assembly process.



Contractor
OBW Gradnja d.o.o
Belgrade, Serbia

Field service
PERI Serbia, Šimanovci

Wang Yu Gang
Site manager

"The PERI Team provided an excellent solution for designing and installing the formwork and shoring system for the construction of large-span bridges using in-situ concrete. The girder and formwork system has a simple design, is calculated precisely and is easy to assemble, which was universally recognised by our site personnel and the team of consultants. We would like to thank PERI for the impressive support they provided prior to the collaboration and are hopeful that we will reach new levels of performance in future projects thanks to the expertise we have gained."

A diverse range of bridge components – one formwork system

On Abiola Street in Ikeja, a 135 m long road bridge was built, which saw the DUO Universal Formwork System demonstrate its advantages. It was used several times as part of the PERI Solution, reducing the amount of material required, simplifying the work and enabling fast processes in general.

Ikeja, a city of economic and political importance, is located around 30 km north of Lagos. The Abiola-Onijemo Link Road is a key local transport infrastructure project. This strategically important road and bridge now connect two communities that were previously separated by marshland. DUO Universal Formwork, PERI UP and VT 20 Girders were used in the construction of the bridge.

While the superstructure of the 135-m long Abiola Bridge was mainly constructed using precast concrete elements, PERI Systems played a decisive role in the substructure, which was concreted in-situ. The reinforced concrete bridge rests on nine piers, all of which were built using

DUO Universal Formwork. DUO was also used in the construction of the abutments and the 25-m long retaining walls. The versatility of the formwork significantly reduced the amount of material required. Another advantage was the low weight of the panels, which made on-site work processes easier. Equally beneficial was the user-friendliness of the DUO System, which allowed work routines to be established quickly and accelerated the progress of the project. This versatile PERI Solution was complemented by PERI UP Scaffolding, which provided safe access points and carried the loads. The VT 20 Solid Web Girders were equally versatile and could be installed by one person in some cases.

The deadlines were met without any difficulty and the bridge was completed as planned. The reduction in material costs and the simplification of work processes contributed significantly to the rapid progress of the project. Linking the two communities with this strategically important infrastructure has the potential to positively influence the economic and social development of the entire region.



Wojciech Krysa
Project manager

“We opted for the PERI DUO System because it offered us a lot of options thanks to its low weight and versatility. Its modularity is the main advantage, as the same panels and components can be used in several different applications.”

Contractor
GELD Construction Ltd.,
Abuja, Nigeria

Field service
PERI Nigeria, Lagos



The versatility of the PERI Solution is based on the fact that a small number of components could be used for different bridge sections.



The small number of systems and components and their versatile deployment characteristics resulted in significant time and cost savings.

PERI Combination of systems enhances safety and rapid cycle times



Technically sophisticated engineering solutions from a system combination of VARIOKIT and PERI UP contributed to the successful construction of the Brenner Base Tunnel.



A high level of safety was made possible by the PERI UP Reinforcement Scaffolds when working on the formwork. These are ideal for construction site activities such as reinforcement, forming and concreting.



The Brenner Base Tunnel is a railway tunnel connecting Italy and Austria and was designed to relieve congestion on the roads along the Brenner Pass. At 64 km in length, it will be the longest underground railway tunnel in the world when completed.

PERI was involved in the construction of Lot H41 Sillschlucht Pfnos and supplied the formwork and scaffolding. Tunnel specialists from PERI combined VARIOKIT System Components and the PERI UP Scaffolding Kit to create the tunnel formwork carriages. Three easy-to-use and safe formwork carriages were thus made available within a short period of time, ensuring that the required cycle times were adhered to. On-site assembly was also accompanied by two PERI Supervisors.

In addition, three movable project-specific wall formwork elements made from components from the VARIOKIT Engineering Construction Kit were used to create a partition wall on a gap with a length of approx. 3,600 m in the northern part of the tunnel.

Two working levels on the closing formwork side not only made it easier to make vertical adjustments to the changing wall height, but also to install and remove the formwork ties.

Several PERI UP Reinforcement Carriages were used throughout the project, one of which was mobile. MAXIMO Panel Formwork was used to create the foundation. The ease of handling and the ability to quickly implement the stable formwork have resulted in decisive advantages on the construction site.

The PERI Engineers also generated 3D representations of the construction processes from assembly to operation of the systems. This ensured a more efficient design of the complex construction project.



Contractor
ARGE BBT H41
Brenner pass,
Austria-Italy

Field service
PERI Austria,
Nußdorf ob der Traisen

Georg Wasserteurer
Technical specialist

“PERI provided us with an economical and efficient overall package consisting of services, formwork and scaffolding systems. The support of the supervisors in building the central wall formwork particularly helped.”

INDUSTRIAL CONSTRUCTION

Safe and fast construction of LNG tanks thanks to RCS Climbing System

PERI has played a major role in the construction project for the Dangjin LNG production base and made an important contribution to the Korean LNG infrastructure with its advanced systems. The KOGAS-funded construction project comprises ten storage tanks, a mooring area at the pier and a vaporisation and transmission plant. The project will be realised in three construction phases.

Particularly worthy of mention is the first use of the RCS Climbing System with hydraulics in the construction of an LNG tank. For each tank, 108 platforms of the system were used – 54 on the inside and 54 on the outside. These facilitated efficient working and climbing processes as they were raised hydraulically to the next level using two pumps. The lifting process for each pair of platforms took just five minutes, meaning that all the platforms in a tank could be moved to the next level in just eight hours. The safe construction method ensured that the works could be carried out without delays.



The use of advanced PERI Systems improved efficiency and safety on the construction site.



VARIO Girder Wall Formwork enables contractors to form walls in complex shapes and was therefore very well suited to the construction of the LNG tanks.

As part of the first phase, which is due to be completed by 2030, four storage tanks and the main plant have been constructed. PERI assisted with the construction work by providing formwork as well as climbing systems. For instance, the walls of the tanks were constructed using VARIO Girder Wall Formwork. This is also suitable for complex building geometries and allows walls to be formed in a wide variety of shapes.

Three more storage tanks are planned for the second and third phases. It is expected that the RCS Rail Climbing System will also be suitable for use in these construction phases, meaning that the contractors will also benefit from particularly safe climbing processes and rapid construction progress. As the climbing rails are connected to the building at all times by means of the climbing shoe, it is possible to climb safely even in windy and unfavourable weather conditions.



Contractor
DAOR E&C CO., LTD,
Seoul, Korea

Field service
PERI Korea, Seoul



Kim Beomsoo
Site manager

“We are very satisfied with the results achieved through the use of PERI Products on our construction site. They enabled us to set up the LNG construction site and guarantee everyone’s safety.”



Reliable access to complex refinery structures

PERI UP Modular Scaffolding was used during the modernisation of the ORLEN Unipetrol Refinery in Kralupy nad Vltavou, Czech Republic. The modular scaffolding impressed on account of its versatility, quick installation characteristics and integrated safety features. The solution even provided workers with both safe and efficient access to areas that were difficult to reach.

The modernisation work carried out at the ORLEN Unipetrol Refinery involved renewing the compressor and converting the facilities for the production of fuel additives such as MTBE and ETBE. These additives improve the octane rating of petrol and reduce knocking in the engine. Making the facility accessible was crucial in ensuring that the work could be carried out safely.

The scaffolding also had to be erected in tricky areas such as underneath power bridges and along cable routes. It was in these situations that the PERI UP Modular Scaffolding proved its worth with its flexibility and ease of handling. The versatility of the modular system made it possible to adjust the height and width on site to accommodate the complex geometry of the refinery with its pipes and towers. This meant that the work could be carried out efficiently and the time required for assembly and disassembly was significantly reduced.

A total of 3,000 m³ of PERI UP Scaffolding was used. A particular highlight was the 18-m high stair tower, which provided safe access to the MTBE column. The tower was firmly anchored to the steel structure and provided a safe, convenient ascent to the 15-m high platform of the MTBE facility.



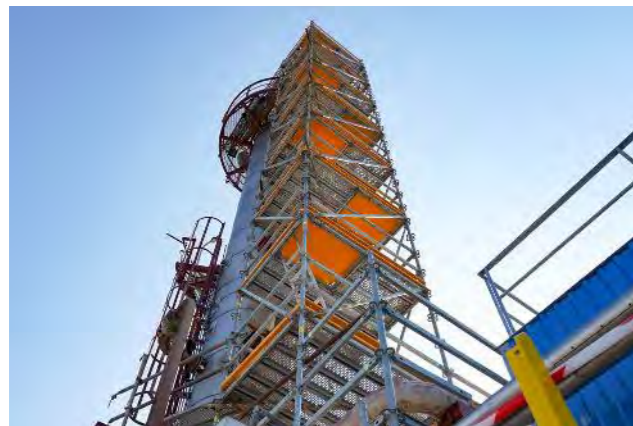
Contractor
Pento spol. s r.o. Prague,
Czech Republic

Field service
PERI Czech Republic,
Jesenice

In addition, access towers for power bridges and a bridge in the "Block 25" zone were erected. Thanks to the scaffold's 25 cm metric grid, it was possible to adapt it to the conditions on site without the need for complex special-purpose solutions. The integrated safety features ensured optimum working conditions throughout the entire project.

Radek Valášek
Site manager

"Although the revitalisation project in Kralupy nad Vltavou was a challenge, we were able to complete it successfully. A major contributing factor was the decision to use the variable PERI UP Scaffolding Kit, which enabled us to create safe access to the hard-to-reach technologies that needed to be repaired or replaced."



The 18-m high stair tower was firmly anchored to the steel structure and provided a safe and stable route to the MTBE column.



The gap-free decks with non-slip surfaces provided safe access even in confined spaces.



Safe maintenance of ZSG fleet with PERI UP

The Lake Zurich Shipping Company Zürichsee-Schiffahrtsgesellschaft (ZSG) with its fleet of 17 ships transports more than 1.7 million passengers annually. Regular maintenance work ensures that the fleet covers approximately 330,000 km per year. For this purpose, ZSG decided to invest in a state-of-the-art scaffolding system. PERI UP complies with all the required safety standards, offers flexibility and meets the logistical requirements of the fleet.

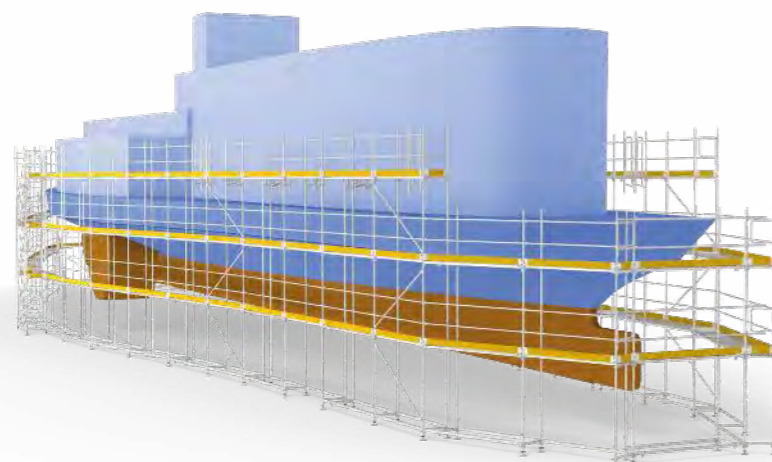
PERI supplied a solution consisting of PERI UP Facade Scaffolding, which is not only efficient and safe, but also takes up little storage space. Despite only 84 m² of space in the shipyard, the modular facade system offers maximum flexibility and safety. PERI Engineers supported the project with 3D CAD plans that enabled precise visualisation and orientation for scaffolding assembly.



"Stadt Zürich", the oldest steamship on Lake Zurich, was built in 1909. Over the years, the ship has been modernised and expanded several times. It is now under Swiss monument protection.



PERI delivered an efficient scaffolding solution to meet the specific requirements of this unique project.



Moreover, the ZSG maintenance team was trained in the safe use of scaffolding and is now familiar with the advantages of the PERI UP System. Thanks to the modular design, efficient scaffolding could be erected for the complex shapes of the ships and the installation was carried out from a safe position thanks to the prior assembly of guardrails for the inside and fall protection guardrails on the outside.

Particularly challenging was the maintenance of Lake Zurich's oldest steamship, the "Stadt Zürich", which has been carrying passengers since 1909. With the PERI UP Facade Scaffolding, the renovation work was carried out efficiently and safely, while full maintaining the historical integrity of the ship.



Fritz Friedli
Interior design project manager

Company
Lake Zurich Shipping
Company
Zurich, Switzerland

Field service
PERI Switzerland,
Ohringen

"By using 3D planning, the scaffolding material could be precisely defined so that the entire ZSG fleet could be equipped with the smallest possible scaffolding stock. The required storage space and floor space were also reduced to a minimum thanks to the easy handle version. In addition, the use of modular facade scaffolding made it possible to erect scaffolding for complex geometries such as the bow of a ship, which further reinforced the decision to choose PERI UP."

Formwork and scaffolding from a single source accelerate silo construction



Contractor
Lötscher Tiefbau AG
Lucerne, Switzerland

Field service
PERI Switzerland,
Ohringen

Markus Steinmann

Foreman

“The collaboration with PERI went off without a hitch. Every single PERI System, whether it was climbing formwork, wall formwork or scaffolding, met our requirements in full. Construction processes and communication are much simpler and more efficient when all the systems come from a single source.”

A sophisticated comprehensive solution proved compelling in the construction of a 20-metre high silo with eight chambers for sand and gravel. Thanks to optimally coordinated systems, the construction process was safe, precise and efficient, from the foundation work to the completion of the shell.

The construction project in Malters in Switzerland involved the erection of a 20-metre high and 45-metre long silo for processing concrete aggregates. The requirements for the project were varied and technically demanding: they included the erection of a 6.5-metre high wall, work operations at a height of 20 metres and the installation of a 43-metre long concrete beam.

Precise coordination of the systems used was crucial to the success of the project. In the first wall sections, MAXIMO Wall Formwork, the MX Opposing Guardrail Holder and the PROKIT Lateral Protection Barrier were used. The ability to install pre-assembled guardrails and formwork elements contributed significantly to work safety and to speeding up processes.

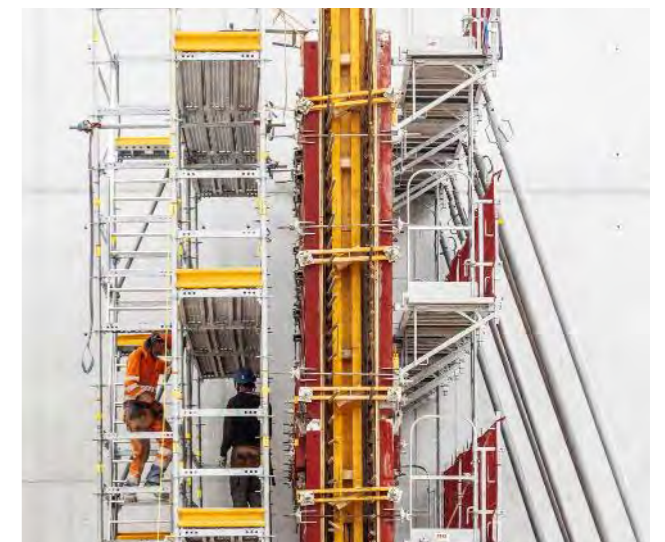
In the construction phases at greater heights, the CB 240 Climbing Formwork and the PERI UP Scaffolding Kit ensured that the work continued seamlessly. The climbing formwork enabled rapid construction of the roughly 20-m high silo, while the PERI UP Stair Towers and reinforcement scaffolds ensured safe access to the working areas – even in confined spaces.

The 43-metre long concrete beam posed a particular challenge. A combination of MULTIPROP Props and PERI UP Shoring was used in this case. The solution not only ensured stability, but also enabled work to continue in other areas at the same time.

Thanks to the precise interplay between the various PERI Systems, the construction project was not only completed on time, but also met the highest safety and quality standards.



Construction progress was accelerated by the fact that many of the PERI Systems used could be moved by crane.



PERI Solutions were used in every construction phase – from reinforcement to formwork deshuttering.

With PERI UP, a 5.000-t mining machine can be scaffolded

The assembly of the KK 1600 bucket wheel excavator in the Bílina lignite mine placed extremely high demands on safety and flexibility. The use of the PERI UP Scaffolding Kit enabled the 5.000 t mining equipment to be assembled quickly and safely.

The assembly of the KK 1600 bucket wheel excavator in the Bílina mine, Czech Republic, required a safe but flexible scaffolding solution to enable access to all areas of the huge machine. The excavator, which is over 190 m long and has a 13 m diameter bucket wheel, is used to extract lignite and is one of the largest of its kind in Europe. One of the biggest challenges during the assembly was the need to erect safe working platforms at various heights and locations for the

bucket wheel excavator. In order to complete the complex project safely and on time, 200 t of material from the PERI UP Scaffolding Kit were used.

A key element of the project was the construction of a 28-m high structure to provide access to the excavator's conveyor belt. Additional platforms and stair towers were installed at various heights to facilitate access to all parts of the huge machine. The modular design and the consistent 25-cm grid size of the PERI UP Modular Scaffolding made it possible to react flexibly to structural and technological characteristics. Thanks to its self-locking components and intuitive assembly, the PERI UP Scaffolding was not only easy to erect, but also offered a high level of safety.



The flexible 25-cm grid size of the PERI UP Modular Scaffolding also enables complex scaffolding.



A total of 200 t of scaffolding material was required to scaffold the excavator, a piece of equipment that is over 190 m in length.

Due to the quick and safe assembly of the PERI UP Scaffolding, the work was completed in line with the tight schedule for the project. The close cooperation between the PERI Team and the construction site employees ensured that the scaffolding material was always delivered on time and installed professionally. The support of an on-site specialist advisor proved to be a further advantage and enabled the team to react flexibly to unforeseen challenges.



Contractor
MALU, s.r.o.
Kadaň, Czech Republic

Field service
PERI Czech Republic,
Jesenice

Marian Gorol
Business owner

"Thanks to the wide range of applications and the assembly safety of the PERI UP Scaffolding, we succeeded in implementing this highly complex project. We also greatly appreciated the excellent cooperation with the PERI Sales Engineer during the processing, as well as the timely delivery of the scaffolding material to the construction site."

PERI System Compatibility enables rapid hall construction



In Kecskemét, Hungary, the new Hilti production hall was built using a modular construction concept that required the use of numerous formwork and shoring systems. PERI provided coordinated solutions for the various construction phases, thereby enabling a timely construction process.

The sophisticated structure of the production hall includes three building sections, which placed different demands on the formwork technology. The first part of the project was realised with prefabricated concrete elements, while the construction work for the remaining two sections was carried out using the in-situ concrete method with exposed concrete quality. The 45-cm thick ceilings posed a particular challenge. These were formed at a height of 7.90 m and therefore required a shoring system with a high load-bearing capacity.

The entire formwork process had to be completed within a few months, which required extremely precise planning and timely execution. For this demanding construction phase,

various PERI Systems were used, including several formwork systems, the ST 100 Shoring Tower and other solutions from the PERI UP Scaffolding Kit. Approx. 450 t of material in total were used on the construction site.

Thanks to the quick assembly of the shoring, the formwork for the ceiling was carried out efficiently with the MULTIFLEX Slab Formwork. Combining the ST 100 Shoring Tower in a frame construction with the modular shoring system from PERI UP also enabled flexible adaptation to the construction site requirements. Over the course of the work, the customer also opted to use the formwork products TRIO, DOMINO and MULTIPROP, which meant that a variety of applications could be covered from a single source.

The solutions from PERI enabled valuable time to be saved, allowing the team to adhere to the tight project schedule. The system compatibility of the PERI Products was particularly advantageous, as it facilitated smooth implementation and eliminated the need to use special solutions.



Contractor
CLC-Construct Kft
Budapest, Hungary

Field service
PERI Hungary, Budapest

Endre Kristóf
Site manager

“The ST 100 Stacking Towers can be erected quickly, which significantly accelerated the construction process. The compatibility of the PERI Systems is particularly worthy of mention here, as it enabled smooth integration on the construction site.”



The use of PERI's compatible formwork and shoring systems enabled smooth integration and efficient execution.



A combination of several formwork systems provided the central building block for the prefabricated columns with bases in the second and third sections of the hall.



Quick access: Facade scaffolding for circular tanks

A skilled scaffolding solution was required for the insulation work on two circular tanks at the Kempten sewage treatment plant, each with a volume of 100 m³. With the PERI UP Facade Scaffolding and scaffmax software, the complex scaffolding could be implemented safely and efficiently.

The renovation work on the two 12-m high circular tanks with a diameter of 3.50 m presented the project team with several challenges. The scaffolding had to be flexible enough to accommodate the curves of the tanks. In addition, safe access needed to be provided to the pipe connections and the head area of the tanks.

When it comes to the scaffolding of complex geometries, modular scaffolding is usually the solution of choice. However, as the customer already had PERI UP Facade Scaffolding in their inventory and with this scaffolding being both universally applicable and modular, a solution that was both safe and flexible could be achieved. Thanks to the integrated scaffolding node and the metric system grid, the scaffolding could be flexibly adapted to the shape of the tanks – without the use of complex pipe coupling work. This meant that horizontal beams, brackets and diagonals could be installed virtually tool-free. This significantly accelerated the scaffolding work, enabling three fitters to complete the scaffolding in a single day.

The planning and design work for the scaffolding was carried out by the customer themselves using the scaffmax software, which enabled the PERI UP Scaffolding to be precisely adapted to project requirements. Thanks to the metric system



In addition to the professional execution of the insulation work, the PERI UP Scaffolding also provided safe access to the pipe connections and the head area at a height of around 12 m.



Horizontal beams, brackets and diagonals could be connected to the tried and tested PERI UP Scaffolding Nodes without couplings, allowing installation to be virtually tool-free.

grid and the combination of scaffolding fields with lengths of between 1 m and 3 m, the stair access and the floored areas between the tanks could also be seamlessly integrated. The customer's own inventory was expanded with rented yellow corner plates. This allowed the scaffolding to be adapted to the curves of the tanks.

The PERI Solution not only offered great flexibility and reduced material and labour costs, but also a high level of safety without tripping hazards or gaps in the flooring. The option for customers to supplement their own scaffolding inventory through project-related rental of components expands the possible applications and offers PERI UP Customers a high degree of flexibility – also for future projects.



Contractor
Geruestbau Gschwend GbR
Rettenberg, Germany

Field service
PERI Germany, Weissenhorn

Klaus Weber

Scaffolding foreman and managing director

“Fewer verticals in the corner areas means less material, which reduces our investment and logistics costs and increases the speed of assembly. And with the metric system grid, we can combine field lengths and widths so that we always have the right fit.”



Pure efficiency: One scaffolding system for every construction requirement

The construction of the new Nestlé plant in India called for a scaffolding system that could be flexibly adapted to accommodate different building structures and construction phases. The PERI UP Scaffolding Kit proved to be a complete solution for the facade, formwork and reinforcement work and enabled efficient material utilisation for the complex requirements of the industrial construction site.

The new plant marks an important milestone for Nestlé India, the country's second largest FMCG company, as it expands its production capacity. The construction of the high-tech production plant placed considerable demands on the scaffolding solution. As different building structures needed to be scaffolded in different construction phases, a versatile, quickly adaptable system was required. Safety on the construction site was also a key factor.

To meet these requirements, modular scaffolding from the PERI UP Scaffolding Kit was used. It initially served as an access solution for the facade and reinforcement work and

was then used as shoring for slab formwork and beams. The modular system's sophisticated design enabled efficient use of materials, as the same components could be used in different phases. This not only reduced material costs, but also optimised logistical processes as less storage space was required on the construction site.

Another area of focus was worker safety. PERI carried out regular training sessions to ensure that the teams on site knew how to use the system safely and install it correctly. System-integrated safety features such as the self-locking components and closed, non-slip decking also increased safety on the construction site and ensured that work progressed smoothly.

Thanks to its versatility and user-friendliness, the PERI UP Scaffolding Kit proved to be the optimal solution for this complex construction project. In addition to the material savings, the scaffolding provided access to all areas of the building, including hard-to-reach areas, and aided the workers in carrying out their work safely and efficiently.



Contractor
PSP Projects Ltd.
Ahmedabad, India

Field service
PERI India, Mumbai

Sagar Patel

Director

"The PERI UP Scaffolding Kit's modular design and ease of assembly expedited our activities on the construction site and increased worker productivity, despite using more than 1,000 t of scaffolding. PERI was a reliable partner who provided us with technical support from the planning stage right through to execution in coordination with the client. Thanks to the sophisticated scaffolding, our workers were able to reach even the most difficult areas with ease, minimising fatigue and increasing overall job satisfaction."



The reinforcement scaffold was later used as a facade scaffold and access solution, which saved materials and optimised the construction site logistics.



The PERI UP Reinforcement Scaffold, built from modular components, enabled a safe assembly process and provided flexible access.

PERI Technology supports forward-thinking renovation

By modernising the Baltımanı Biological Wastewater Treatment Plant, Istanbul is bolstering the sustainability of its energy supply. PERI assisted with the construction work by supplying customised formwork and scaffolding systems that met the complex construction requirements for the new biological water treatment plants. In this way, the project is making a decisive contribution to improving the environmental conditions in the Marmara Sea.

The Baltımanı Biological Wastewater Treatment Plant in Istanbul, Türkiye, has undergone extensive modernisation. In operation since 1997, the original wastewater treatment plant has now been converted into a biological wastewater treatment plant that will produce around 44,000 Nm³ of biogas for energy generation on a daily basis. This volume of biogas can meet the average electricity requirements of around 27,500 households each day. In addition to sedimentation basins and office buildings, six egg-shaped digesters with a volume of 10,000 m³ each were built, placing special demands on the formwork and scaffolding technology. PERI developed a customised solution for this.

The digesters, which would have been difficult to build using conventional formwork methods due to their complex geometry, were successfully constructed using GT 24 Formwork Girders and the SCS Climbing Formwork System. A total of 2,000 m² of circular formwork and 1,000 m² of wall formwork were used. One particular advantage was the fact that the VARIOKIT Circular Formwork could be reused across eight construction phases, which reduced the amount of materials used and the construction time.

PERI UP Scaffolding was used on the outside, while the SCS Climbing System carried the formwork on the inside upwards as construction progressed. This made it possible to form the egg-shaped structure efficiently, as the formwork climbed upwards from cycle to cycle over the course of construction. A total of 6,280 m² of PERI UP Scaffolding with heights of up to 40 m was used. The modular design of the PERI UP Scaffolding Kit also allowed it to use the scaffolding as a working platform for the aluminium cladding even after the main structure was completed.



The eggshaped digesters placed special demands on the formwork and scaffolding technology, which PERI was able to provide with solutions.



With PERI Formwork and Scaffolding Systems from a single source, it was possible to construct the complex clarification plant in an efficient manner.

Several different formwork systems and the versatile PERI UP Scaffolding Kit were used as working scaffolds, access solutions and shoring throughout the project. Despite the multitude of systems used, everything came together seamlessly – a result of precise planning, close coordination with the construction site team and detailed application plans, which were supplemented by 3D models. All of the systems came from a single source, making it even easier to carry out the complex construction work by streamlining the processes.



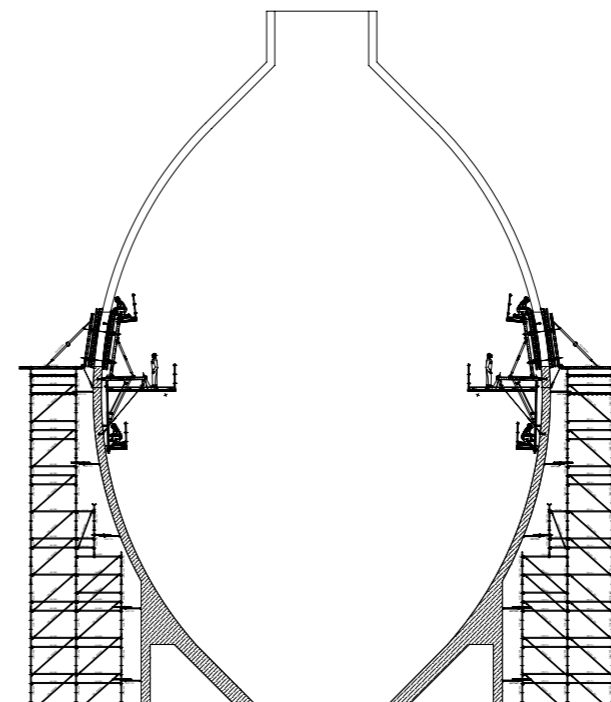
Contractor
Kuzu Toplu Konut
İnşaat A. Ş.
Istanbul, Türkiye

Field service
PERI Türkiye,
Istanbul

Ali Rıza Üreten

Project manager for infrastructure and clarification plants

“The fact that the PERI UP Scaffolding was safe, functional and easy to install gave us a considerable advantage at every stage of the construction progress. [...] We would like to thank the team from PERI Türkiye for their engineering solutions and support in using the formwork systems, which played a crucial role in the successful completion of this challenging project.”



BUILDING IN EXISTING STRUCTURES



A successful restoration project using a rollable scaffolding construction

An impressive scaffolding solution facilitates the comprehensive refurbishment of the famous Puente de la Mujer in Buenos Aires. This architectural masterpiece in the heart of Buenos Aires necessitated a highly specialised scaffolding structure that could be adapted flexibly to the complex geometry of the bridge construction to enable safe and efficient maintenance work.

According to its creator, world-famous architect Santiago Calatrava, the Puente de la Mujer reflects the spirit of a "couple dancing the tango". The mast represents the man, who is holding the central "needle" – the woman – with the aid of cables. At a length of 170 m and with a 40-m high mast, the landmark in the modern district of Puerto Madero is not only an artistic highlight, but also constitutes a technical challenge for any planned modernisation measures.

As the load-bearing capacity of the footbridge is limited to 400 kg per square metre, it was impossible to use heavy machinery such as cranes or aerial work platforms, meaning alternative solutions had to be developed. In addition to PERI UP

Scaffolding, a combination of various PERI Products, namely GT 24 Formwork Girders, VARIOKIT Steel Ledgers and wooden panels, were used to distribute the loads. These could be combined efficiently as they were available from a single source.

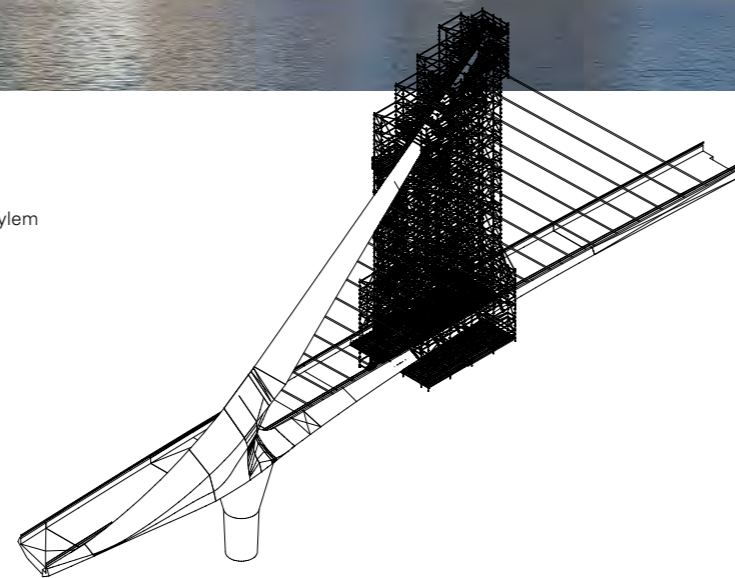
Two mobile scaffolds were designed in such a way that they could be moved along the bridge using rollers. Every four days, the scaffold was moved by 3 m to continue with the painting work on the sides and underside of the bridge. Another scaffold was erected for the central mast, which is the structure's key design element. This specially adapted scaffolding solution enabled the 40-m high mast to be reached safely.

The PERI UP Scaffolding Kit impressed with its versatility and safety, especially when it was adapted to the complex shape of the structure. The mobile scaffolding not only provided swift access to hard-to-reach areas, but also enabled bridge operations to be resumed as quickly as possible. After only a few months of work, the Puente de la Mujer was returned to its former splendour and remains an iconic landmark that delights visitors and residents alike.



Contractor
Logistal S.A. Teylem
S.A. UT
Buenos Aires,
Argentina

Field service
PERI Argentina,
Buenos Aires



Cristian Losada
Technical director

"The main difficulty was reaching the top of the tower without overloading the bridge, which can only support 400 kg per square metre. Various approaches, such as hiring barges with cranes or mounting cranes on the dyke, failed due to height and safety concerns as well as the load-bearing capacity of the dyke. In the end, we decided to erect the PERI Scaffold on the bridge structure. The technical support received from PERI was of great importance throughout the entire process. This project is particularly challenging, not only because of its size, but also because of its central location in Buenos Aires."



The mobile scaffolding was moved by 3 m every four days, while the sides and underside of the bridge were painted at the same time.



The scaffold used for renovating the mast of the Puente de la Mujer was 40-m high and solved the challenge posed by the low load limit of the pedestrian bridge.

Combined weather protection solution for comprehensive roof renovation

The roof renovation of two residential buildings with a length of around 120 metres in the Fisksätra district of Stockholm placed special demands on the construction planning team. PERI responded by developing an innovative solution that combined rollable weather protection and PERI UP Modular Scaffolding, allowing the works to be completed quickly while reducing the use of materials.

The enormous length of the two roofs called for a sophisticated approach to material logistics and the construction process. A rollable weather protection system was used to make the work efficient and guarantee construction progress. PERI's technical team and the client worked together closely to plan the placement of the PERI UP Scaffolding. On one side, it was strategically installed on the uppermost balconies, on the other side directly on the roof. This clever arrangement reduced the material requirements considerably.

To shorten the assembly time, the individual segments of the PERI UP LGS 75 System were pre-assembled on the ground and then lifted onto the scaffold using a mobile crane. A major advantage of the rollable weather protection was that the crane did not have to be repositioned in order to insert the individual segments. Furthermore, it was possible to move the already installed elements from one roof to another using the crane.

PERI UP Stair Towers and Working Platforms were used to ensure safe and swift access and reliable transport of the materials. This meant that the required materials could be lifted efficiently to the upper floor. The rollable weather protection not only offered protection from rain and adverse weather conditions, but also impressed with its adaptability. For example, the weather protection segments could be repositioned, opened or closed as required, which further optimised the construction process.

The renovation work was carried out from July 2022 to March 2023. Thanks to the weather protection, work could continue uninterrupted throughout the project, which significantly improved productivity.

The benefits of the PERI UP Scaffolding Kit were utilised to the full on the project in Fisksätra: low material usage, high adaptability and the ability to implement complex construction projects quickly and economically. Thanks to the close cooperation with the PERI Technical Team, it was possible to further optimise the material requirements and realise the project to the exact specifications.



The PERI UP LGS 75 is a slender weather protection roof that was able to bridge the span width of 13 m with ease.



The logistics of transporting the work materials upwards was solved by using a working platform made of system components and a material lift.



Kei Yasumoto

Owner

“For the refurbishment of two apartment blocks in Fisksätra, we worked with PERI to construct what is currently the longest LGS System in the world. To maximise efficiency, we opted for a rollable weather protection system. We worked with PERI Sweden and their technical department to develop a proposal in which we installed PERI UP on the uppermost balconies on one side for weather protection and on the roof on the other side to minimise the material requirements. Ingenious! Thank you for being a phenomenal company to collaborate with.”

Contractor

Faktor Ställningsentreprenad
Skarpnäck, Sweden

Field service

PERI Sweden, Stockholm



Renovation without the traffic chaos: Quick and compact

The main traffic arteries from the A1 motorway into the Vienna urban area have been upgraded to ensure that they can cope with the 26,000 vehicles that pass through them every day. PERI assisted with the bridge renovation project by providing versatile systems for building and bridge construction.

Cantilevered parapets and edge beams covering a total length of around 2.3 km had to be refurbished. Due to the limited space available, VGK Cantilevered Parapet Brackets were chosen to meet the client's requirements for straightforward installation and application. The VGK System is a rational and efficient solution, especially for short bridge superstructures, as it can also be assembled by hand thanks to its low individual component weight. As the formwork unit and work platform are separated from each other, the deck was closed at all times. In addition, the full enclosure made it possible to safely

renovate and lay concrete in the area around the railway and the cycle/walking path. A total of 2,500 VGK Cantilevered Parapet Brackets were used.

The cantilevered parapets and edge beams were replaced with project-specific SRU Steel Waler Brackets for the listed stone wall, where no anchoring was permitted in the masonry. Due to the light underbracing with a coordinated static system, a high load-bearing capacity with low deflection is achieved by the supporting effect of the kicker braces.

VARIOKIT Underbracing and a full enclosure were used to renovate the underpass so as not to interfere with road traffic. The other areas of the bridge, the elevated road and the retaining wall were spanned with the VGK Cantilevered Parapet Bracket. The VGK was anchored to the existing structure in the narrow sections using an adhesive anchor and the PERI Refurbishment Anchor.



Having the formwork unit separate from the work platform was a particular advantage, as it meant that the deck was closed at all times.



The VGK Cantilevered Parapet Bracket is a popular solution for bridge refurbishment due to the low weight of the individual components.



Florian Wigisser
Site manager

Contractor
Leyrer + Graf Baugesellschaft m.b.H.
Gmünd, Austria

Field service
PERI Austria,
Nussdorf ob der Traisen

"PERI's solution-oriented approach and support made it possible to design the scaffolding for the Nikolai supporting structures in a very efficient manner. The close communication and coordination between the construction site team and PERI's technical and scheduling departments is also worthy of praise."

Scaffolding for a complex building geometry



The renovation of the 93-m high Afra Tower of the Basilica of St. Ulrich and Afra in Augsburg required a custom-made scaffolding solution. To safely carry out the plastering, stonemasonry and plumbing work, the working and protective scaffolding had to be adapted to the complex conditions of the church building.

The tower scaffolding with PERI UP and VARIOKIT combined many sophisticated elements of scaffolding construction. The scaffolds needed to be carefully adjusted to accommodate the Afra Tower, which is enclosed on three sides by the basilica. In addition to structural aspects, the planning work also had to take nature conservation into account, as peregrine falcons nested in the tower. Work began in spring 2023, with the initial scaffolding being installed up to just below the balustrade. The scaffolding could only be continued to the top of the onion dome once the young fledglings had left the nest.

The location of the basilica and the building itself meant that a great deal of fine-tuning was needed in terms of planning and design. On the one hand, access to the construction site was difficult, which resulted in extensive logistics planning. On the other hand, loads could not be transferred over the surrounding church roofs.

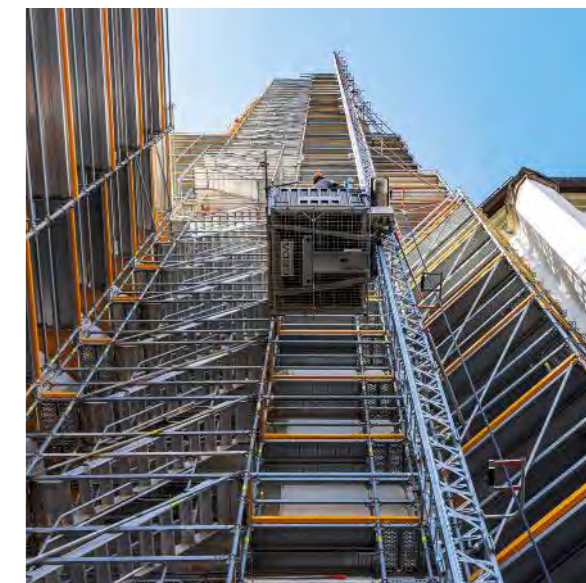
PERI Engineers therefore developed a solution that saw a heavy-duty platform being integrated at a height of 10 m and PERI UP Scaffolding Towers erected for safe load transfer. From a height of 35 m, a bracket platform consisting of VARIOKIT Components was used to serve as a stable base for the tower scaffolding above.

Another challenge was the transition of the tower from a square to an octagonal cross-section halfway up the structure. In order to securely stabilise the tower scaffolding, which now had to accommodate an octagonal shape, a second suspended VARIOKIT Bracket Level was installed at a height of 65 m. The result was the emergence of a unique scaffolding solution. Within the six scaffolding levels between the cross-sectional transition and the bracket frame, the standing scaffolds and hanging scaffolds combined to create a continuous supporting structure.

The scaffolding planning and static calculations by PERI Engineers enabled a solution that made the tower completely accessible up to the onion-shaped top and the golden cross. Thanks to the flexibility of the 25-cm basic grid and the ability to combine PERI UP and VARIOKIT Systems, complex pipe coupling designs could be avoided. This meant that the scaffolding could be implemented in an efficient manner.



The transition from a square to octagonal cross-section halfway up the tower presented engineers with a unique challenge that was ultimately solved with the use of a PERI UP Scaffolding Kit.



Above the heavy-duty platform, the scaffolding elevator and stairs enabled access all the way up to the onion-shaped tower top.



Martin Wenrich
Deputy sales manager

“The tower scaffolding of the Augsburg Basilica has pretty much all the sophisticated elements of scaffolding construction with three statically different systems. PERI provided us with excellent support in this project. The collaboration was fantastic.”

Contractor
Schäfer Gerüstbau GmbH
Memmenhausen, Germany

Field service
PERI Germany,
Weissenhorn



Precise work in confined spaces thanks to PERI UP and Digital Planning

The extensive modernisation of Bahnhofplatz 2 in the bustling centre of Zurich placed the highest demands on both planning and execution. With the PERI UP Scaffolding Kit and digital planning tools, it was possible to create a solution that enabled precise work in the tightest of spaces, while at the same time safely guiding pedestrian traffic.

The general refurbishment work to be carried out on the building, which was constructed around 1890, involved completely gutting it, leaving only the historic steel beams intact. 3D planning played a central role in visualising all the scaffolding solutions and facilitating collaboration between the various trades. As far as the planning and management of all construction processes were concerned, the BIM methodology implemented by PERI provided real added value by linking a 3-dimensional, animated visualisation with other project planning factors. Even individual alterations made during the construction project are immediately visible to all parties. The increase in transparency and improvement in efficiency led to greater planning and cost certainty.

The assembly process for the pedestrian tunnel with a width of 4.00 m and a height of between 3.20 m and 4.20 m presented a particular challenge. It was installed in just three nights using the PERI UP Scaffolding Kit and

SRU Steel Beams. The clever use of system components meant that the work could be completed quickly and accurately, providing safe passage for pedestrians in the busy area.

Furthermore, at the junction of the streets "Bahnhofplatz" and "Waisenhofstraße", a steel construction platform with debris protection was installed by the client. Given the distance to be covered was 7.50 m and the maximum passage height was 4.20 m, a sophisticated design was required. PERI's Mega Scaffolding Kit, consisting of standard parts from the PERI UP Scaffolding Kit and the VARIOKIT Engineering Construction Kit, was precisely the solution that was required. This was achieved by connecting the RCS Climbing Rail and an SLS Spindle to the steel construction platform with millimetre precision in line with the 3D plans.

The versatility of the PERI UP Scaffolding Kit also proved beneficial for the facade scaffolding. For instance, even complex geometries such as balconies and protruding frescoes could be integrated without any difficulty. It was possible to carry out the assembly work without any personal fall protection equipment, as an advanced guardrail was integrated into the system. The compact design of the scaffolding components also made transport and storage easier, which proved beneficial in the cramped conditions in the city centre.

The versatility of the PERI UP Scaffolding Kit enabled access to complex geometries such as the 100 year old sandstone frescoes.

3D laser scanning, CAD planning and BIM paved the way for detailed scaffolding planning, including use of time and materials, despite the complex building geometry.

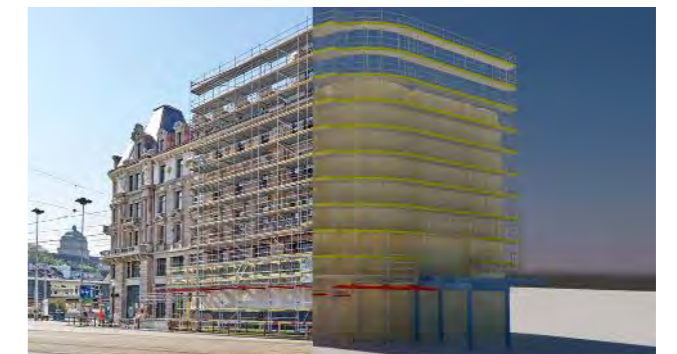


Contractor
Wanner +
Frankhauser AG
Zurich, Switzerland

Field service
PERI Switzerland,
Ohringen

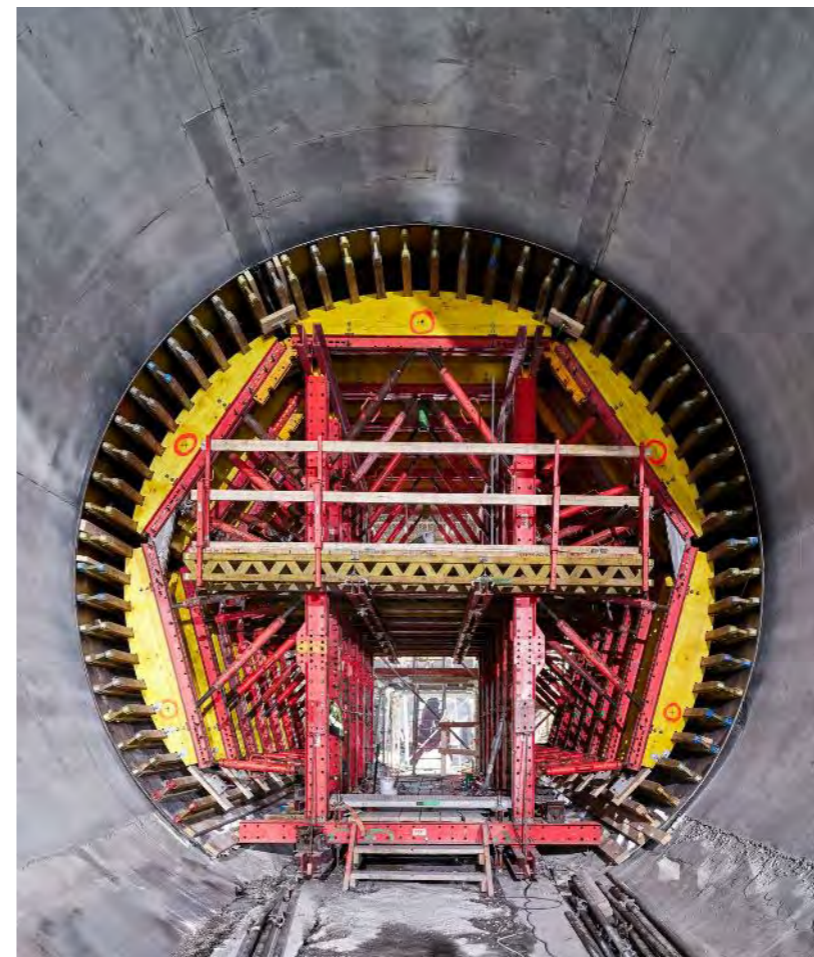
Yasar Bülbül
Site manager

"In the planning phase, the 3D drawings were used to review all the necessary access points in detail and to discuss the interfaces with the various trades. The assembly process then went smoothly without any deviations from the plans or schedule – so it was a win-win for everyone involved. The PERI UP Facade Scaffold makes you feel safe!"





Seattle Aquarium, USA



Gullmarsplan, Stockholm, Sweden



Global One Primary School, Nairobi, Kenya



Green Quarter, Steinfeld, Germany



BEYOND, Givatayim, Israel



San Leonardo Bridge, Sasso Marconi, Italy



Danjiang Bridge, New Taipei, Taiwan



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In addition, the wood used for the paper production of the PERI Book comes from FSC®-certified forests. The FSC® label confirms that the entire processing and supply chain – from the forest and wholesalers through to the printing stage – is fully certified.

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In addition, the computer graphics used are to be regarded as system representations. To facilitate understanding, these and the detailed illustrations shown have been partially reduced to certain aspects. The safety installations that are not shown in these detailed descriptions must nevertheless be available. The systems or items shown might not be available in every country.

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Formwork Scaffolding Engineering

www.peri.com