Edition 2

Ideas. Solutions. Possibilities.

Success stories

Layher®

More Possibilities. The Scaffolding System.

MORE PERFORMANCE.
MORE POSSIBILITIES.
MORE VALUE.

Dear Readers,
Welcome to the second issue of our
Success stories magazine.

EDITORIAL

It features several of the exciting and informative customer Success stories we've been compiling throughout the year about projects that your colleagues in the scaffolding, trades, construction and event industries have executed efficiently and safely. In this issue you'll discover what a children's swing and Axel Springer the publisher have in common, why the White Horse Inn moved from Wolfgangsee Lake to Ammersee Lake, why Kilkenny should also be famous for its milk and why concrete is such a versatile material. All the stories are based around companies and entrepreneurs that operate successfully in their markets – and have even opened up new lines of business – with Layher scaffolding systems. Every day we strive to make the biggest possible contribution to our customers' success with our More Possibilities Package package of advice, delivery excellence, detailed technical documentation and innovative products. Because our success depends on their success.

Enjoy reading!
More Success stories – including video clips – are published on www.scaffoldingstories.com. Perhaps you'll find some inspiration there for your own projects. Take advantage of the added value that Layher delivers to customers for your business and your future.

TEUPE & SÖHNE GERÜSTBAU GMBH

New Axel-Springer building, Berlin

HANGING FLOORS AND SUPPORTING ELEMENTS

A spectacular new building is currently under construction in central Berlin, less than a mile away from the Brandenburg Gate and right on top of the former border between eastern and western Germany. It's going to be the new headquarters for Axel Springer SE, the publishing house responsible for the German tabloid BILD, among other publications. Designed by famous Dutch architect Rem Koolhaas, the building is located on a 10,000 m² plot of land between Schuetzenstrasse, Zimmerstrasse und Jerusalemer Strasse. Tracing the course of the Wall diagonally through the building as a void to creating an expansive interior atrium, it will fascinate architecture and history fans alike.

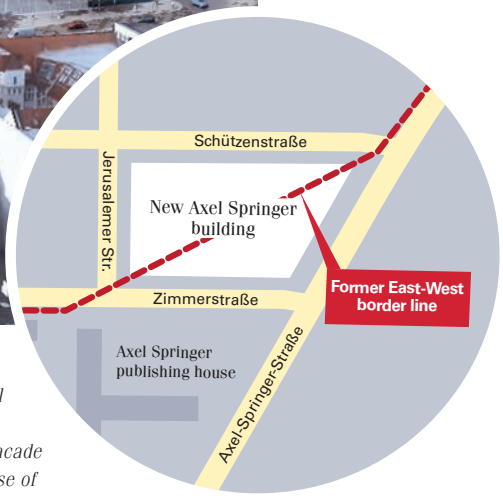

axel springer

INDI-VIDUAL LOADS OF UP TO 5,200 KN

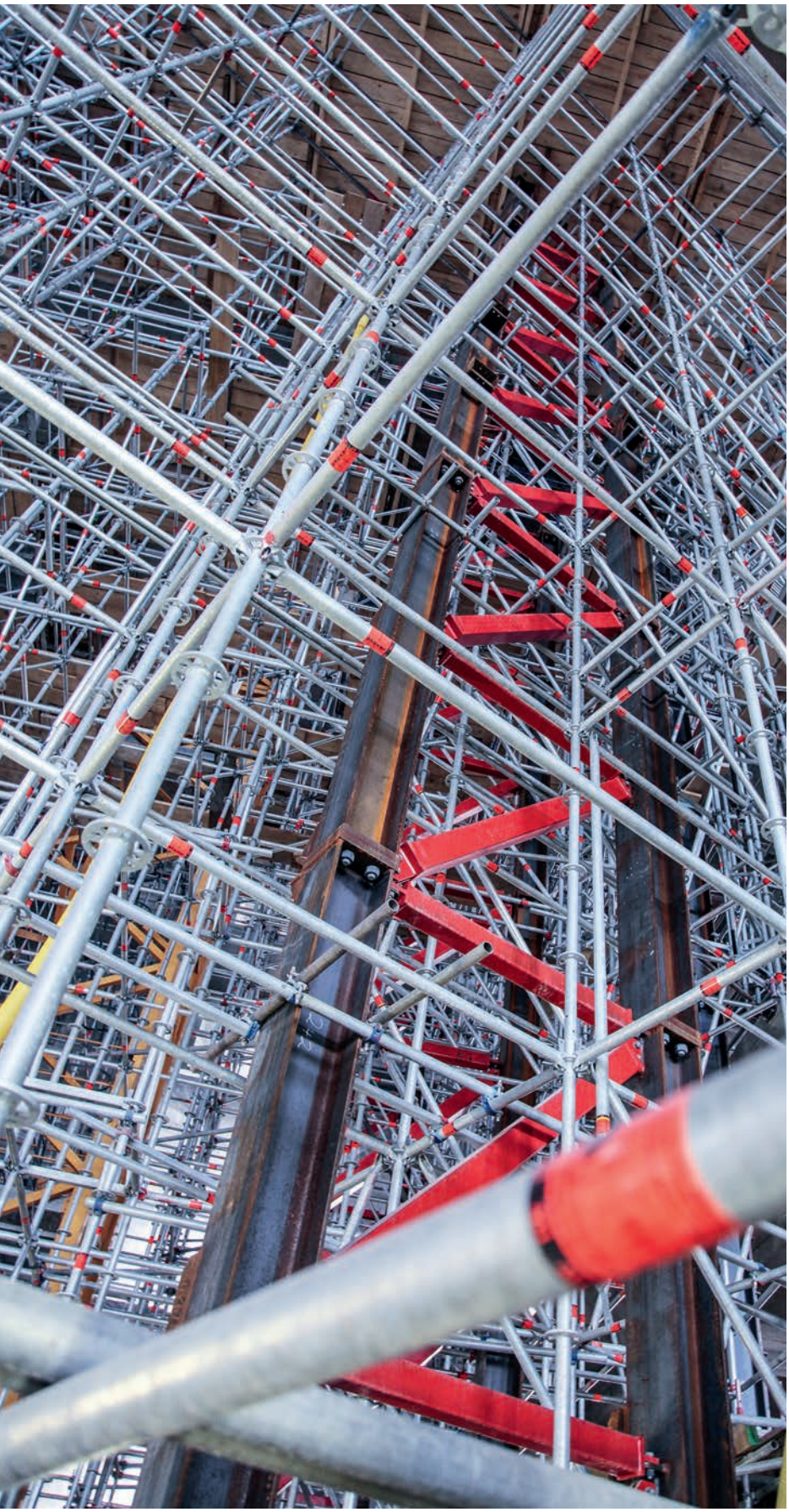
When you accompany Dieter Gescher, statics expert at Teupe & Söhne Gerüstbau GmbH, CTO of Teupe GmbH Stahl- und Maschinenbau and head of the technical office with 14 staff, through the breath-taking new Axel Springer building his enthusiasm for all the technical details of this construction project is infectious.

It is designed so that the first four floors up to the atrium create the impression of a stairway, followed by a straight diagonal line back to the roof from the fifth floor upwards. In order to be able to dispense with as many supporting elements as possible, the top five floors will be hung in suspension with the help of a steel heavy-load structure, the so-called 'transfer support structure'. During the construction phase individual loads of up to 5,200 kN are being supported by a Teupe-projected combination of standard Allround Scaffolding components and heavy duty towers. "Here in the atrium we've got a birdcage structure composed of 125,000 m^3 of Layher Allround Scaffolding and 1,200 t Teupe heavy-duty towers to cope with these enormous loads," said Ludger Schroer, Teupe's Senior Site Supervisor. "Layher's material and More Possibilities Package ideally equips us for our projects," explained Dieter Gescher.

From left to right: Dieter Gescher, Chief Technology Officer and Head of the Technical Office at Teupe GmbH Stahl und Maschinenbau, Layher engineer Roland Hassert, Head of Construction Application Technology, Technical Department and Ludger Schroer, Senior Site Supervisor at Teupe & Söhne Gerüstbau GmbH

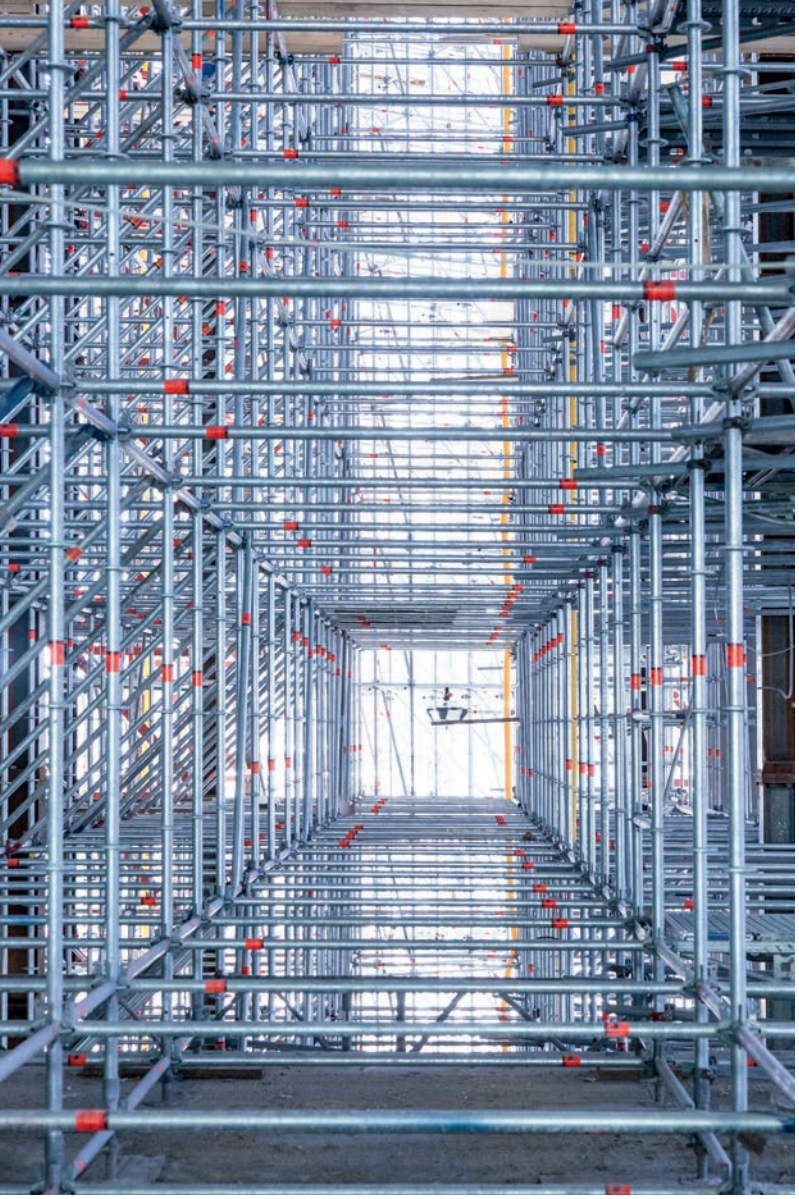


The new Axel Springer building is located on a former parkland site opposite the Axel Springer headquarters on Zimmerstraße and has the space to accommodate 3,500 employees. The design incorporates a 30-meters-high atrium with three-dimensional facade elements running diagonally through the centre of the building tracing the former course of the Berlin Wall. A park will be created on top of the building to replace the one it is built on. Both will be open to the public.



BIRDCAGE SCAFFOLDING UP TO 40 m HIGH

Since November 2016, when Züblin was engaged as general contractor, numerous Teupe Group statics experts and engineers have been working on this complex, large-scale project. The company did the statics for the scaffolding, all technical processing and all work scheduling itself. The modular Layher Allround System considerably simplified the scaffolding planning process. From March 2017 onwards Teupe had up to 20 scaffolding specialists permanently on site to erect the birdcage and supporting scaffolding, facade and safety scaffolding, stairtowers and various special-purpose structures. The high birdcage scaffolding, which is up to 40 m high in places, incorporates the Teupe heavy-duty towers and Layher Allround Scaffolding to provide a shoring structure capable of bearing loads of between 12 kN/m² and 40 kN/m². "The load transfer to the floor structure and the step-by-step dismantling of the birdcage scaffolding is scheduled to take place between October 2018 and April 2019. It's going to be one of the highlights in this construction project," said Dieter Gescher. "The statics and the logistics in this project were both major challenges, and because it wasn't possible to store the scaffolding materials on the building site we had to get it delivered on a just-in-time basis in over 100 articulated lorries. To make something like that work, you have to plan the scaffolding and assembly process in meticulous detail," added Ludger Schroer.



"WE USED A BIRDCAGE STRUCTURE WITH 125,000 m³ OF LAYHER ALLROUND SCAFFOLDING AND 1,200 t TEUPE HEAVY DUTY TOWERS IN THE ATRIUM ALONE TO COPE WITH THE TREMENDOUS LOADS."

Ludger Schroer, Senior Site Supervisor at Teupe & Söhne Gerüstbau GmbH

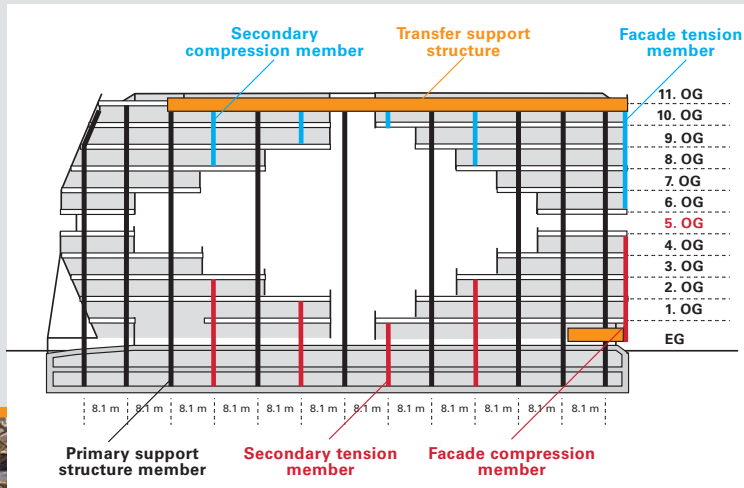
OVER 60 YEARS OF TOP QUALITY SOLUTIONS

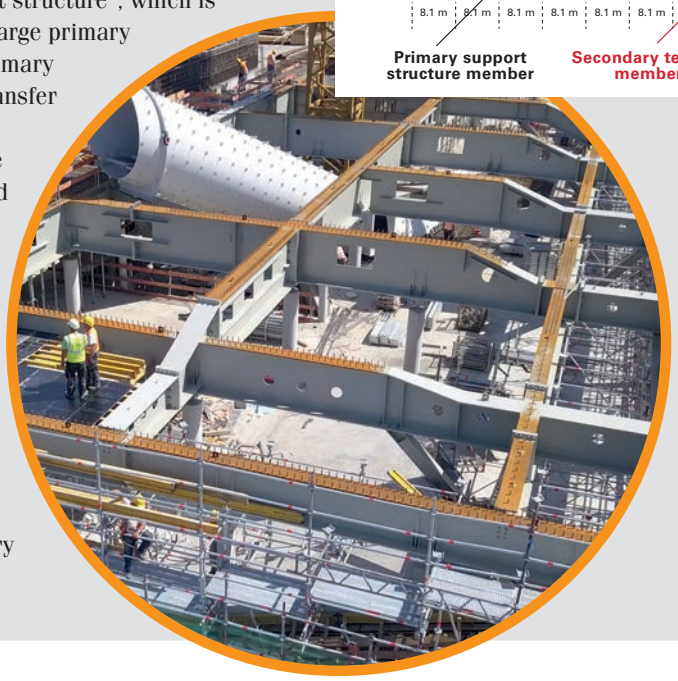
The owner-managed, medium-sized Teupe Group has Europe-wide operations. With more than 400 employees it is a market leader in Germany for scaffolding construction and lifting equipment. It is also a successful market player in the mechanical engineering and steel construction sectors. Founded in 1951 in Stadtlohn by Heinrich Teupe as a wooden and ladder scaffolding trading company, it now has sites in Germany, Austria and Switzerland and has been a Layer customer right from day one. "Teupe delivers innovative and high quality solutions, and it is committed to the continuous optimisation of its portfolio. We always take advantage of the training and other services offered by Layher to keep our employees up to date, and we appreciate the good working relationship with our partners at Layher, not to mention their technical expertise," concluded Ludger Schroer.

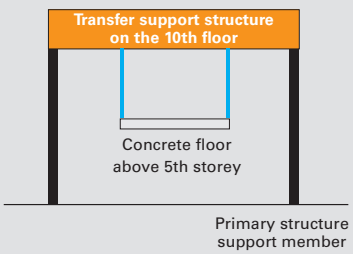
THE CHILD-REN'S SWING PRINCIPLE

The new Axel Springer building not only boasts unique architecture and an impressive glass facade, it also has an unconventional structural design that transfers loads according to the same principle as a children's swing.

What makes this building's load-bearing structure special is how the loads are transferred from floor to floor. On floors one to five they are transferred in the conventional way, i.e. directly into the foundations via support structure members. Above that, the upper floors extending into the atrium are hung on secondary support elements, which means that the floor loads are initially transferred up to floor 10 via tension members and then distributed via the primary support structure. The loads up at the top of the building are transferred via a solid, welded steel girder grid, the "transfer support structure", which is held up by the building's large primary support structure. The primary support members then transfer the loads from the top of the building down into the foundations. In its finished state the load-bearing concept is comparable to a child's swing. The seat – in this case the concrete floor – hangs on chains – the secondary support elements – attached to a horizontal bar – the transfer support structure – on legs – the primary support structure.







When the construction work is finished the suspended floors will be hung onto the steel structure (transfer support structure) on the 10th floor and the shoring will be removed.

REM KOOLHAAS

ARCHITECT, AUTHOR, PROVOCATEUR

Dutch architect Rem Koolhaas studied architecture at the Architectural Association School of Architecture in London and is one of the most internationally acclaimed exponents of avant-garde, contemporary architecture. He founded the Office for Metropolitan Architectur (OMA) – an international practice with an affiliated think tank – the AMO – which applies architectural thinking to projects outside the domains of architecture and urbanism. His most significant works include the Garage Museum of Contemporary Art in Moscow (2015), the Fondazione Prada in Milan (2015), the China Central Television (CCTV) Headquarters in Peking (2012), Casa da Música in Porto (2005), the Seattle Central Library (2004) and the Dutch Embassy in Berlin (2003). His current projects include the Qatar Foundation Headquarters, the Qatar National Library, the Taipei Performing Arts Center, the new Axel Springer building in Berlin and Factory in Manchester. In addition to his work as an architect, Koolhaas is a professor at Harvard University and, until 2014, he was director of the 14th International Architecture Exhibition at the Venice Biennale.

Bild Rem Koolhaas: © 準建築人手札網站 Forgemind ArchiMedia, flickr.com

China Central Television Headquarters in the People's Republic of China


© Yeti-Hunter, wikipedia.org


© Nicola, flickr.com

Seattle Central Library, the municipal library of the largest city in north-western USA


© commons.wikimedia.org

Casa da Música is the northern Portuguese city of Porto's municipal concert hall


© pixabay.com

The De Rotterdam building was designed as a vertical city within a city. It was named "Best Tall Building in Europe" in 2014.

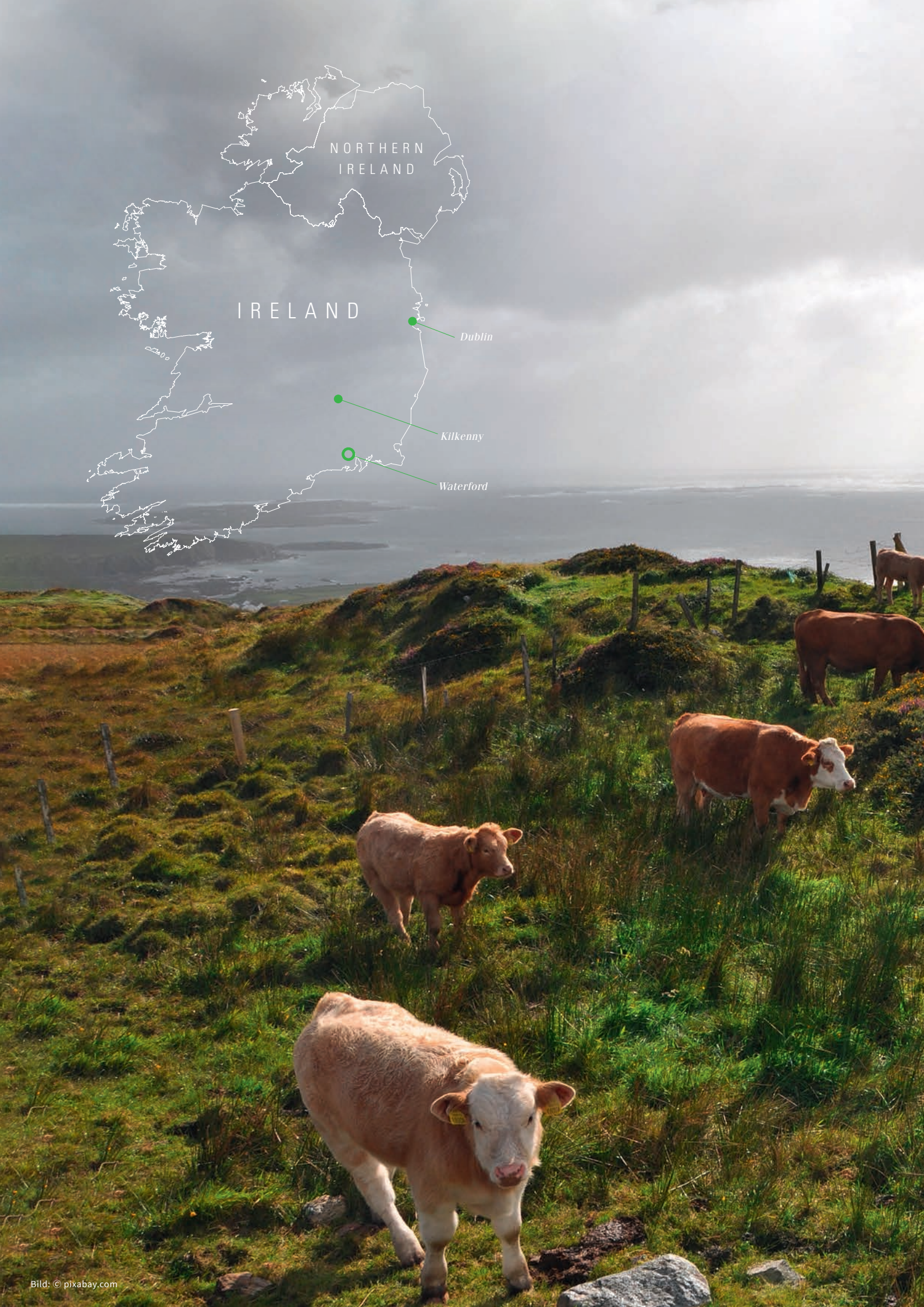


Bild: © pixabay.com

SKYLINE SCAFFOLDING LTD.

Glanbia dairy, Waterford

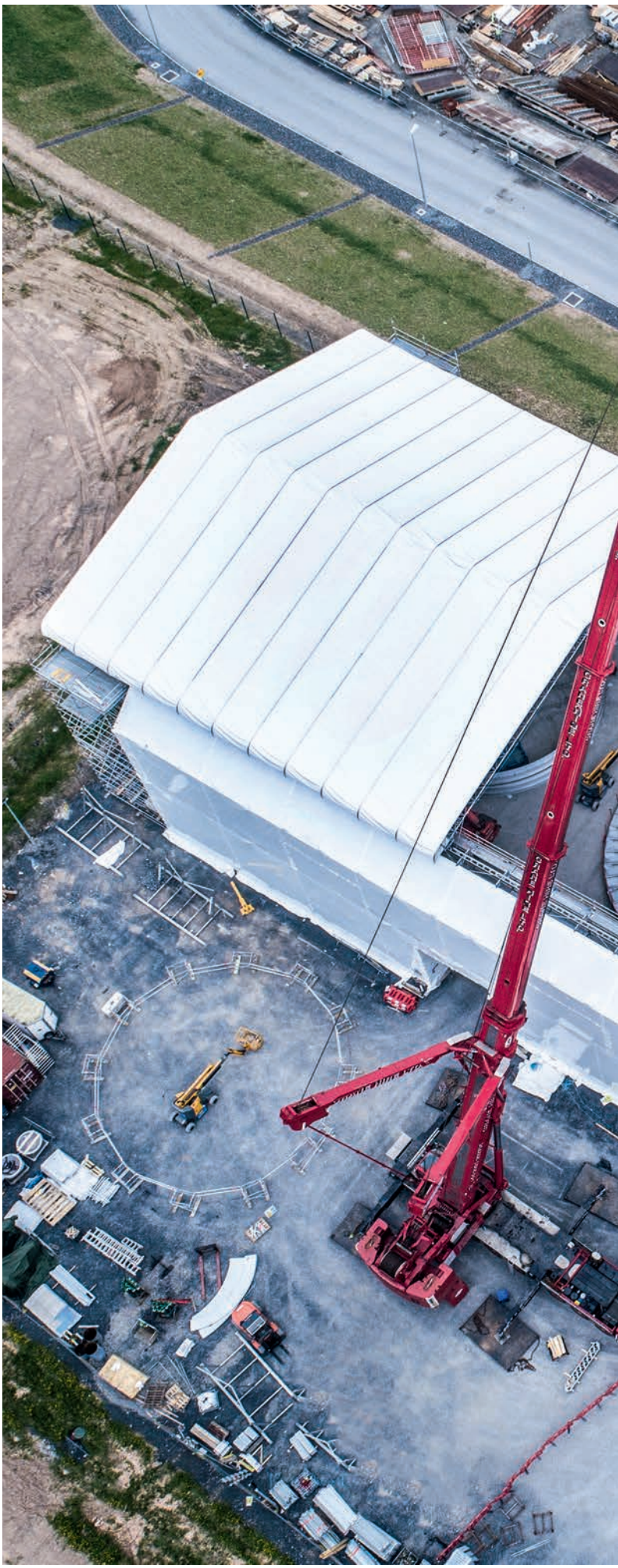
– IRELAND –

STRONG BEER AND BEST MILK

People outside Ireland who hear the name of Kilkenny, at least the beer drinking community, automatically associate it with the Irish ale of the same name. But Kilkenny is also a town and a county in south-eastern Ireland with a booming dairy farming industry. In Waterford, some 30 miles south of Kilkenny, the new Glanbia dairy that is being built confronted the experts at Skyline Scaffolding Ltd. with an unusual challenge.

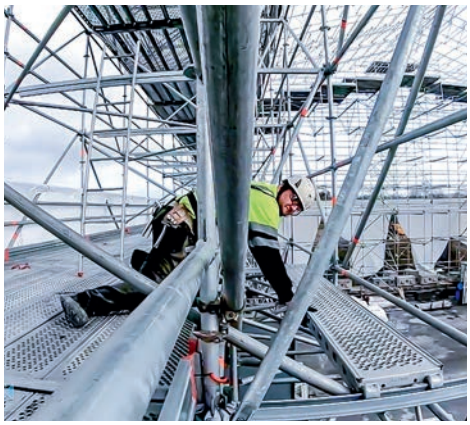
1,645 m² TEMPORARY WELDING HALL FOR THE MILK TANKS

To make it possible to prefabricate the dryer in a weatherproof environment at the construction site, the Irish scaffolding specialists erected a freestanding 1,645 m² structure using Layher Allround Scaffolding. The Keder Roof XL has an impressive 26 m span and no tie at eaves height to ensure plenty of headroom for the construction of the dryer. To make the structure weatherproof it was shrink wrapped, which meant it couldn't be anchored, so the Layher technical office in the UK responsible for the technical concept incorporated ballast at the lowest level.



PROJECTING RAILS ON THE EAVES SIDE TO ALLOW THE ROOF TO ROLL OPEN

The roof had to open so that the dryer could be removed from the structure by crane when completed, which is why the Skyline team opted for a mobile roof. The rails were installed projecting out on the eaves side to allow the roof to roll open. An unconventional solution was found to make the opening even larger for the crane: the Keder Roof XL ledgers were removed between every second beam so that the roof covering could be pushed together like an accordion.



It's a cost-effective solution for both small and large spans. Depending on the local weather conditions, spans of up to 30 m are possible, setting new standards for temporary roofing over construction sites or stages. The Keder Roof XL has many applications, ranging from roofing during the addition of storeys to buildings or roof repairs, weather protection for new structures, roadworks on motorways and bridges, and numerous applications for events and festivals.

"Layher's integrated scaffolding system is suitable for all kinds of applications and structures," commented a representative of Skyline Scaffolding Ltd. "This is the first project where we've supplemented Allround Scaffolding with a Keder Roof XL. Now we can offer our customers all kinds of new things, and it definitely gives us a competitive advantage in the market." The Keder Roof XL can be very simply combined with our existing scaffolding. "We can very quickly and flexibly meet a wide range of customer requirements with Layher products and, as a result, we're very successful in our market," said Skyline. "We were able to apply our entire experience and creativity in this project, and the Layher engineers in the UK helped us to come up with this unconventional folding concept." The Keder Roof XL is based on lightweight 75 cm-high aluminium lattice beams with integrated keder section in the top chord.

SPANS OF UP TO 30 m ARE POSSIBLE WITH THE KEDER ROOF XL

USED SCAFFOLDINGS:

- ALLROUND SCAFFOLDING
- SYSTEM FREE ACCESSORIES
- PROTECTIVE SYSTEMS

SAFETY AND SATISFACTION ARE THE KEYS TO SUCCESS

OUR MANY YEARS OF EXPERIENCE ENABLE US TO DELIVER FAST, EFFICIENT AND OPTIMUM SOLUTIONS, EVEN IN GENUINELY CHALLENGING PROJECTS. AND THE LAYHER SYSTEMS ARE A GREAT ADVANTAGE."

Skyline Scaffolding Ltd.

Skyline Scaffolding Ltd. was founded in 1999. It offers a comprehensive range of scaffolding project planning, implementation and support services to industrial, commercial and private clients. Based in logistically advantageous Cahir, Co. Tipperary, the Irish company has built a reputation for its strong commitment to customer service and safety, which is reflected in various awards and certifications such as the Construction Industry Federation Award – Safe-T-Cert and the NISO Safety Award. "Our many years of experience enable us to deliver fast and efficient solutions, even in genuinely challenging projects. And the Layher scaffolding systems are a great advantage," said a company spokesperson. "There is ongoing investment in both training and equipment to maintain the high standards that our clients expect."

Video clip of the Skyline project

© Kanchelskis, commons.wikimedia.org

Brewery at St. Francis Abbey in Kilkenny

Kilkenny Irish Cream Ale is a red ale that is slightly milder than the more famous Guinness stout. It is brown in colour with a slight red tinge and dates back to 1710, when John Smithwick established a brewery at St. Francis Abbey in Kilkenny. The beer was brewed at the abbey right up until the end of 2013, when production was relocated to the St. James Gate Brewery in Dublin.

„Sláinte!“

The Irish-Gaelic word “sláinte” is literally translated as “health” and commonly used as a drinking toast. So if you toast someone with “sláinte” you are drinking to their good health. It’s pronounced [slorn-tsche]!

OPERA GMBH & CO. KG

Stage on the waters of Ammersee Lake

‘THE WHITE HORSE INN’ AT AMMERSEE LAKE

When the operetta ‘The White Horse Inn’ is staged on the waters of Ammersee Lake, the 350-strong audience will be seated on a new Layher grandstand with tip-up seats. Stefan und Johannes Dankel, brothers and managing directors of event technology service provider Opera GmbH & Co. KG, have extended their portfolio of exclusive event marquees and event technology to include grandstands and they collaborated with Layher to overcome the special challenges associated with this exposed lakeside location.

WET FEET AND EXCELLENT ACOUSTICS

The Utting Lake Theatre Company actors and actresses traditionally perform without the assistance of technology, which isn't without implications for an open-air event like this one - located right next to the water in a picturesque lakeside environment – particularly when it comes to grandstand construction. "We've used an amphitheatre-like grandstand layout for effective acoustics because it concentrates the sound onto the seating area so that the entire audience can hear the performance. The grandstand is founded in the water to give the audience the sensation of actually sitting on the lake – and making 'The White Horse Inn (at Ammersee Lake)' an even more captivating experience," explained Stefan Dankel. The Layher event specialists made this extraordinary grandstand possible with a combination of standard and special components. Layher Allround Scaffolding was used to create the substructure for its excellent load-bearing capacity and because it can be quickly and flexibly assembled and dismantled. To put the under-water supports properly in place the six-man team in Utting had to get their feet wet. It was the perfect opportunity for them to cool off in the refreshing waters of Ammersee Lake. Corrosion-resistant, galvanised steel elements were used to secure the foundation of the grandstand on the lake bed. "This is the first grandstand we've built with Layher scaffolding and we're very glad to have the Layher technicians and field service team here to advise and support us. Even the parts that were planned and custom-made for this event fitted perfectly straight away," added Johannes Dankel.

The Technical Office in Eibensbach planned this first project and two experts were on site to support the build.

"WE'VE USED AN AMPHITHEATRE-LIKE GRANDSTAND LAYOUT FOR EFFECTIVE ACOUSTICS BECAUSE IT CONCENTRATES THE SOUND ONTO THE SEATING AREA SO THAT THE ENTIRE AUDIENCE CAN HEAR THE PERFORMANCE."

Stefan Dankel, Managing Director Opera GmbH & Co. KG

CORROSION-RESISTANT, GALVANISED STEEL ELEMENTS WERE USED TO SECURE THE FRONT PART OF THE GRANDSTAND ON THE LAKE BED.

From left to right: Managing Directors of Opera GmbH & Co. KG – Johannes and Stefan Dankel with Layher Regional Sales Manager Joachim Weisser during the build

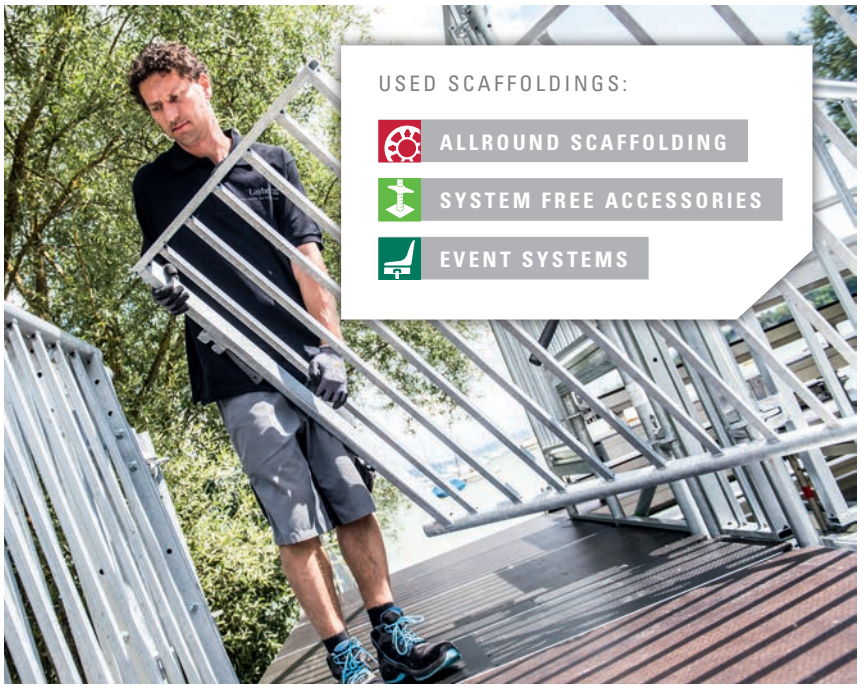
SAFETY FIRST!

A detailed plan, meticulous logistics and perfect-fit components made it possible to complete the build in just one day.

During the project planning stage, what initially appeared to be a straightforward undertaking actually turned out to be pretty complex, with diverse safety requirements to be met and a number of special requests from the theatre company. For example, despite the different gradients it was necessary to implement the escape and rescue routes that were free of tripping hazards before the local authorities would issue the necessary permit. Having the part of the grandstand in the water made it more difficult to create a safe foundation for the front section. The technical team at the Layher head office in Eibensbach collaborated with the field service

team and the TÜV technical inspectors to plan this debut project for a company that traditionally specialises in premium marquees, and Layher also sent out two specialists to assist with the build.

"We've been using Layher products for the floors and stages in our marquees for a while now because we can easily solve many statics-related problems with them. That's why we decided to contact Layher for a solution when the event organiser requested us to provide the grandstand. It wasn't a problem to combine the new materials with the ones we already had, and we have a very good and close relationship with the Layher field service team, so the decision wasn't really hard," said Dankel. The Layher grandstand allows Opera GmbH & Co. KG to extend its portfolio and cater to an even broader spectrum of customer requirements. The industrious entrepreneurs are already working on new ideas for the future, such as combining their marquees with Layher material, so that they can offer customers an even wider range of solutions.



ALL STRINGENT OFFICIAL AND SAFETY REQUIREMENTS COMPLIED WITH!

Light and easy to handle elements – that can be assembled by one person.

From left to right: Stefan and Johannes Dankel, Managing Directors of Opera GmbH & Co. KG, on the finished event stage

A SUCCESS STORY THAT STARTED OFF WITH ONE MARQUEE

The secret to the success of Opera GmbH & Co. KG, a company that the two brothers originally started up out of their garage, is probably the unique concert shell marquee system that they use to realise high quality customer projects. Coming from an event background, the two brothers had always been aware of the Layher brand and its reputation for reliable and flexible German-engineered solutions. “We first used the Layher system for our marquee floors and stages. Now we can combine it with Layher scaffolding to realise projects that we wouldn’t otherwise be able to implement for customers,” explained Stefan Dankel. “Another reason why we chose Layher, in addition to its proven and well thought-out system, was that we wanted a German supplier. Things don’t always go to plan at events, and on many occasions we’ve had to request Layher for additional material on the day of the build. You can only do that if your partner’s local,” said Johannes Dankel. “We believe that to be an entrepreneur you have to be genuinely enterprising and keep on searching for new solutions that help you build your business. With Layher as our partner we now have many more opportunities to be enterprising,” said Stefan Dankel, who handles the technical planning side of the business.

Video clip of the Opera project

Curtain up!

'The White horse inn' is a cult musical with international hits.

The romantic comedy about the head waiter who is desperately in love with the resolute young owner of 'The White Horse Inn' was written by Oskar Blumenthal and Gustav Kadelburg during a stay at the inn. Ralph Benatzky composed an inspiring musical score for the operetta, which premiered at the Grosses Schauspielhaus theatre in Berlin on 8 November 1930. In 1960, when the movie starring Peter Alexander was screened in German cinemas, the story about the inn on the banks of Wolfgangsee lake, and head waiter Leopold's painful wooing of his boss, beautiful innkeeper Josepha, had already been translated into many languages and enchanted people around the world.

The Utting Lake Theatre Company's open-air theatre on the banks of Ammersee Lake: For many years now the theatre company has been producing a new programme each year for its three-week summer season. The passionate professionals and amateurs in the company stage classics on the romantic lakeside open-air stage, with sunset over Ammersee Lake as their unique backdrop.

KARL KÖHLER GMBH

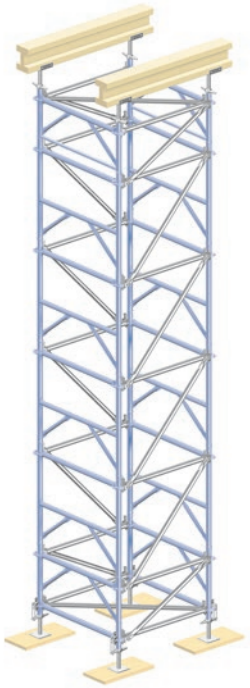
Office and workshop building with car park, Heilbronn

IT'S ALL ABOUT SAFETY, FLEXIBILITY AND EFFICIENCY

The "construction professionals" at Karl Köhler GmbH deliver efficient solutions in diverse construction and civil engineering projects based on three generations of experience. Concrete plays an important role in these projects and it's safe to say that, over the years, it has become one of the company's specialisations.

The headquarters of Karl Köhler GmbH in Besigheim, © Photograph, Dietmar Strauß

COMPLETE TRUST IN THE SHORING TG 60



LOAD-BEARING CAPACITY OF UP TO 6 TONNES.

When Managing Director Horst Köhler walks through his new company headquarters in Besigheim the construction material of concrete is omnipresent. The design was chosen in an architecture competition in which entrants were requested to submit their ideas for a new building that would function as a "calling card" for the company. That's why the chosen design features concrete, one of the company's fortes. Another project featuring concrete, albeit less creative, was the new car park for Heilbronner Versorgungs GmbH (HVG). Köhler always uses the Layher Shoring TG 60 as cost-effective and reliable formwork for concrete ceilings.

In this system, the TG 60 frame replaces the standards, ledgers and diagonal braces, making it very fast to assemble and dismantle. Integrated all-round side protection guarantees the safety of the assembly personnel. The towers can either be assembled horizontally on the ground or upright. The base jacks on the ramp are supported by infinitely adjustable plates that can compensate an incline of 16 % to give the tower the necessary stability. A work level is integrated in the system just below ceiling level to allow fast, safe and fatigue-free working for the concrete constructors. The Allround Scaffolding's advantages are clearly in evidence on the ramps because it has a load-bearing capacity of up to 6 t. ▸▸

From left to right: Horst Köhler, Managing Director at Karl Köhler GmbH with his employees Denis Kraus and Andreas Fauth

New car park for Heilbronner Versorgungs GmbH (HVG)

Hot-dip galvanized steel decking with a perforated, non-slip work surface

Adjustable plates for stepless compensation of gradients up to 16 %

USED SCAFFOLDINGS:

- ALLROUND SCAFFOLDING
- SHORING TG 60
- SYSTEM FREE ACCESSORIES

A GENUINE UNIVERSAL TALENT

Karl Köhler GmbH is committed to the fast, cost-effective and safe implementation of its complex projects, which is why the technical equipment it uses in those projects is so important. In the past, Horst Köhler used different scaffolding systems. "We use our own scaffolding as the support frame for ceiling formwork, as a crane-lift working scaffold for wall formwork and steel fixing, as well as for various site setup applications. We've been using the Layher AllroundGerüst® with TG 60 elements since 2016 because it's very versatile, flexible and safe – a genuine all-round scaffolding," added the Managing Director. The company can reduce its parts stock with Layher scaffolding because all the Layher parts are compatible with each other and can be used for diverse applications. The Shoring TG 60 isn't a rigid tower system, it's an extremely flexible scaffolding that can be individually adapted to the formwork girders' grid dimensions or load by using Allround ledgers and diagonal braces in the appropriate length. It can also easily be integrated in birdcage scaffolding, which is additional proof of this system's extraordinary adaptability. In fact, it can be used to scaffold anything, from honeycomb-shaped silos to elliptical church halls.

"The Allround screw-free connection technology with innovative auto-lock function and direct load distribution in the couplers offers us options for projecting scaffold units that other scaffolding providers can't," explained Köhler. "We use the Layher LayPLAN software for the detailed planning of our scaffolding and, if we have an especially complicated application, the Layher Technical Office in Eibensbach is just a phone call away. It's helped us to solve tricky problems on several occasions."

Cost effectiveness with the LayPLAN CAD software for project and assembly planning

SAFETY COMES FIRST

"In our business it's important for us, our employees and our increasingly responsible customers that processes are fast and safe. With Layer we can guarantee that. The assembly of the lightweight, symmetrical TG 60 frame using proven Allround connection technology isn't just easy, it's also up to 30 % faster than the assembly of scaffolding from individual parts. The integrated all-round side protection keeps the construction workers safe," emphasised Köhler, who runs the business with his brother representing the third generation of the family. Another impressive feature, according to Köhler, is the robustness and durability of the hot-dip galvanized scaffold. "It hardly shows any traces of wear however many times you assemble and dismantle it, and that's definitely relevant in our business. Layher's high quality and safety standards are reflected by the fact that it initially obtained DIN EN ISO 9001 certification in 2004 and has undergone regular recertification audits ever since. It also has an occupational health and safety certificate from the German statutory accident insurance organisation for the construction industry (BG Bau).

Video clip of the Köhler project

SUCCESS THROUGH TRAINING AND PLANNING

When the decision to use Layher products had been made, more than 60 of the company's managers and skilled employees spent two days at the Layher Training Centre for theoretical and practical induction training that allowed them to use the system's many advantages as efficiently as possible. Layher also provides material requirements tables, assembly drawings, type test statics and spacing recommendations for formwork girders. Köhler has additionally developed an own colour code for its scaffolding to simplify the process of identifying the size of the individual parts.

The Köhler colour coding system, displayed here on a construction site awning, improves logistics efficiency at the construction site. It substantially reduces assembly mistakes and speeds up the overall assembly process.

SOLID CONSTRUCTIVE CREATIVE

Concrete surfaces – smooth or textured, plain coloured or printed, chemically or mechanically processed – can be used in various architectural concepts to give the building a signature look. Here are a few ideas.

EXPOSED CONCRETE WITH ANCHOR HOLES

There are all kinds of design options for exposed concrete walls, including textured formwork, coloured concrete or a special arrangement of shell elements. Another small but very interesting and eclectic detail is the formation of visible prestress points on the formwork anchor. Variations on the width and depth of the closure, and in the choice of material and colour of the cones and plugs, can also make a big visual impact.

COLOURED CONCRETE

Coloured concrete is used for large-format facade and balustrade elements, floor panels, stair coverings and paving stones. The concrete is coloured by mixing pigments or coloured aggregates into the wet concrete. Colour effects can also be achieved on the surface of the concrete with treatments such as acid washing, leaching, flame blasting or sand blasting.

BUSH-HAMMER FINISH

A finished concrete surface can also be texturised. A special concrete with a Jura additive was used at the Karl Köhler GmbH headquarters. When the concrete had set, stonemasons used chisels and bush hammers to create a homogeneous, very natural looking relief effect.

ULTRA HIGH-PERFORMANCE CONCRETE

The development of Ultra High-Performance Concrete (UHPC), an extremely durable material with a compressive strength of over 200 MPa, opens up a number of new and interesting concrete applications. It can be used to construct stable and cost-effective buildings with very streamlined designs. One example is the Museum Mucem in Marseille, which features an ultra high-performance concrete latticework skin that is only 10 cm thick.

TEXTURED EXPOSED CONCRETE

Textured surfaces are another design option which can be created with the formwork. Usually, textures are created with absorbent formwork and plastic form liners, though it is also possible to place rush mats inside the formwork to create a unique, grass-like texture on the concrete surface. Individual form liners with lettering, logos and self-designed patterns can be used to reflect the project and customer preferences.

PHOTO CONCRETE

One method of applying photographic images onto concrete is to print surface retarders onto plastic foil, stick them into the formwork and then cast the concrete. When the formwork is removed the destroyed concrete matrix is washed off to reveal the image. Another method is to use a CNC cutter to replicate the photo in a board material. Then the formwork is created with the help of an elastic matrix. The relief-like surface of the concrete creates light and shadow effects that replicate the image.

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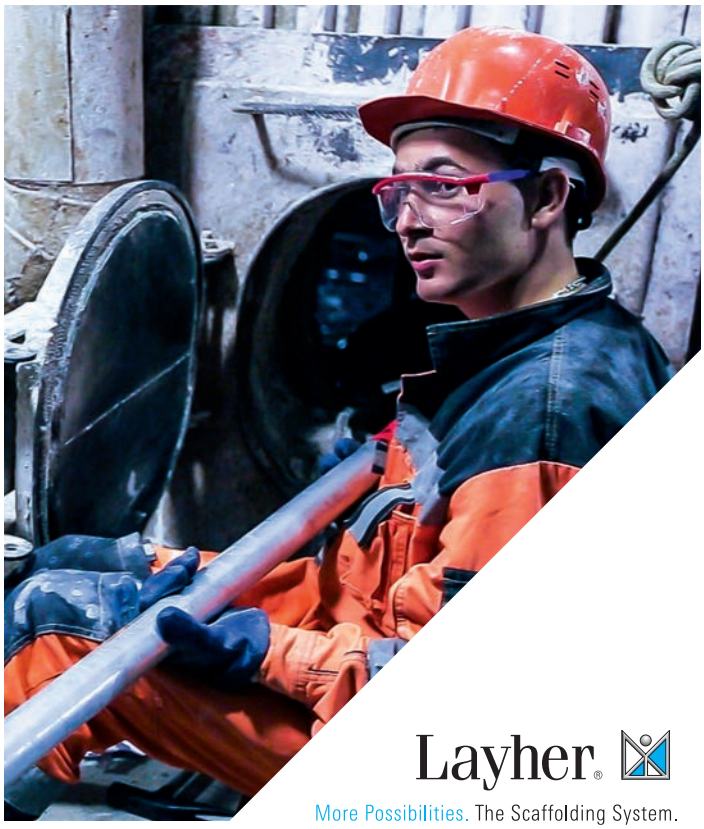

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