Edition 5

Ideas. Solutions. Possibilities.

Success stories

Layher®

More Possibilities. The Scaffolding System.

Team.
Work.
Passion.

The Layher name has been synonymous with safety, high-quality scaffolding systems, outstanding service and dependable partnership for more than 75 years. As a family-owned company, we are closely interconnected with our region and its people. Design, production, sales, logistics and management are at home in Gueglingen-Eibensbach. This is where we produce quality “Made in Germany”. We have a global presence with more than 2,200 employees and sales subsidiaries in 42 countries, and we live by our brand promise of “More possibilities” with enthusiasm and inventiveness. Your success is our aim.

Find out more at: **www.layher.com**

This magazine contains illustrations designated with the mixed reality symbol. Use the Layher app to bring the scaffolding structures to life. You can download the app at app.layher.com or by scanning the QR code. Try it out!

Available on the App Store

Get it on Google Play

EDITORIAL

Dear Readers,

The digitalisation of processes has unquestionably gained significant momentum as a trend in our sector over the past year. Through our LayPLAN SUITE software solutions and the Layher SIM® (Scaffolding Information Modeling) process based on them, we have been taking these developments into account for some time now, helping to make scaffolding construction safer and more efficient.

Sustainability, too, is an increasingly hot topic. Layher's Integrated System concept, focusing on products with a long life cycle, traditionally creates value that lasts for generations. Every structure built using Layher material additionally contributes to conserving natural resources, because not only does it manage with fewer Lightweight components but these also weigh very little and can be assembled using less material. In this issue, we describe several exciting success stories that demonstrate the positive effects of these factors in practice.

We begin with a story from Nuremberg, where a team of scaffolders led by Peter and Daniel Schüttler were obliged to use the Layher Allround Bridging System when refurbishing the crematorium in order to create a solid foundation for bridging the church choir and installing Keder Roof XL.

We then move on to the north-east of Scotland, where I-Scaff Access Solutions Ltd. resorted to aluminium FlexBeams and Layher system decks to build large and very economical work platforms for the refurbishment of the walkways underneath the Forth Road Bridge.

Our journey continues with the cathedral in Esztergom, Hungary, where for the first time ever, colleagues from Belvárosi Épít Kft. combined the Layher Allround Bridging System with the Allround FW System in preparation for refurbishing the dome.

The venue for our final story is Hamburg's Sierichstrasse, where Christopher Busch and his team of scaffolding specialists were well and truly challenged when it came to adding an extra storey to an apartment block, because it was not possible to anchor the Layher SpeedyScaf into the facade on the upper floors. A few structural tricks were necessary here to ensure it would support the Keder Roof XL.

As usual, you can find more stories at www.scaffoldingstories.com showing how Layher solutions spell success for our customers.

Enjoy reading and watching!

Layher®

More Possibilities. The Scaffolding System.

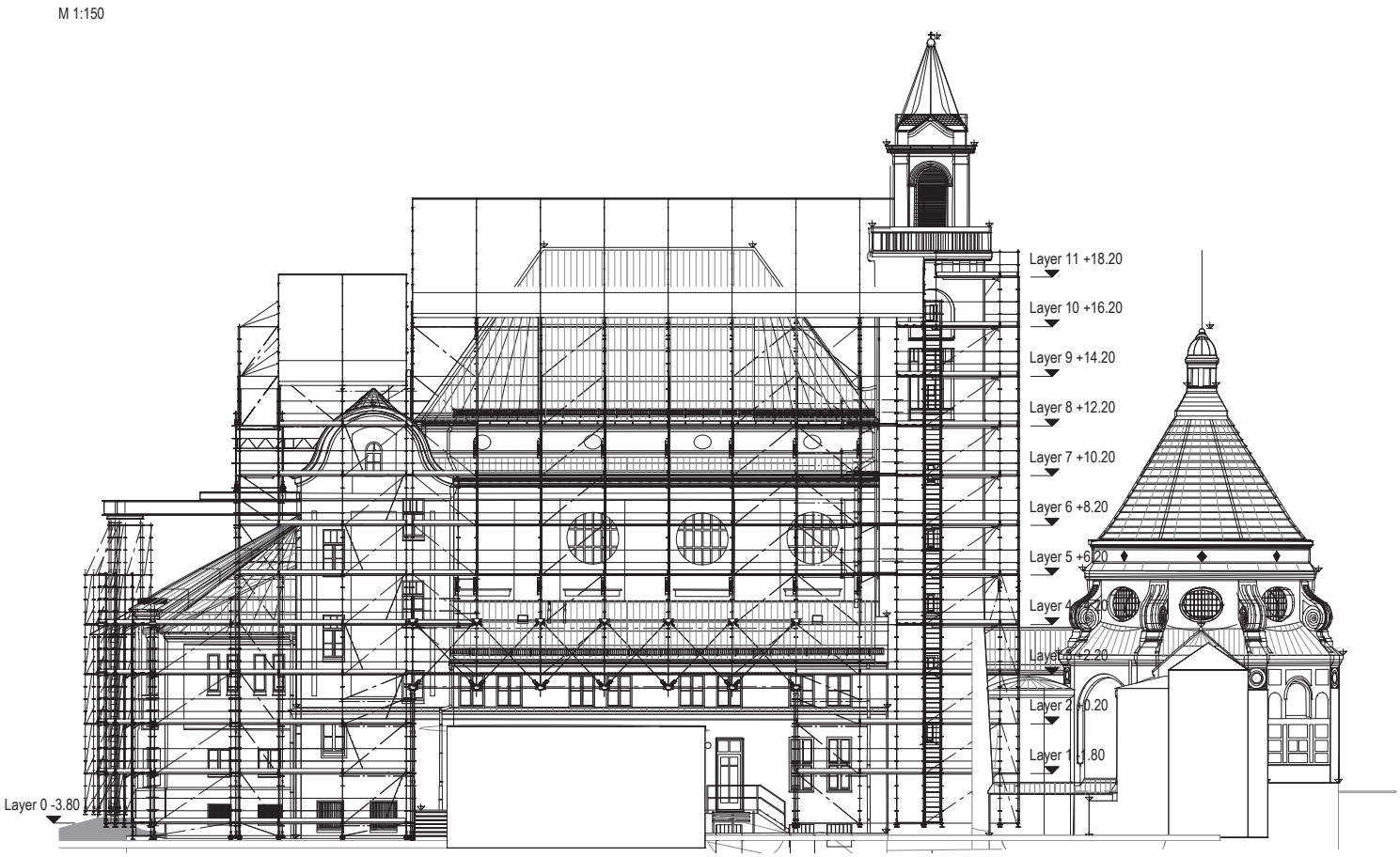
SCHÜTTLER GERÜSTBAU

Crematorium, Nuremberg

A NUREMBERG INSTITUTION GETS A NEW ROOF

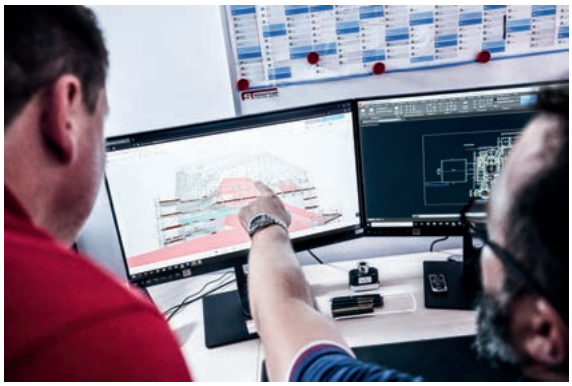
When the Westfriedhof cemetery on the western edge of Nuremberg first opened in 1880 it was the first municipal cemetery of a prospering city, which is today the second-largest city in Bavaria. In 1913 the Nuremberg Crematorium was built directly next to the cemetery. Designed by Friedrich Küfner, it was the first cremation establishment in Bavaria. Nuremberg-based Schüttler Gerüstbau GmbH were contracted to renovate the facade and roof of this impressive building, as well as the funeral chapel and columbarium. The Schüttler team collaborated with a specialist engineering firm for the professional planning of project statics with Layher's LayPLAN SUITE software.


Nuremberg

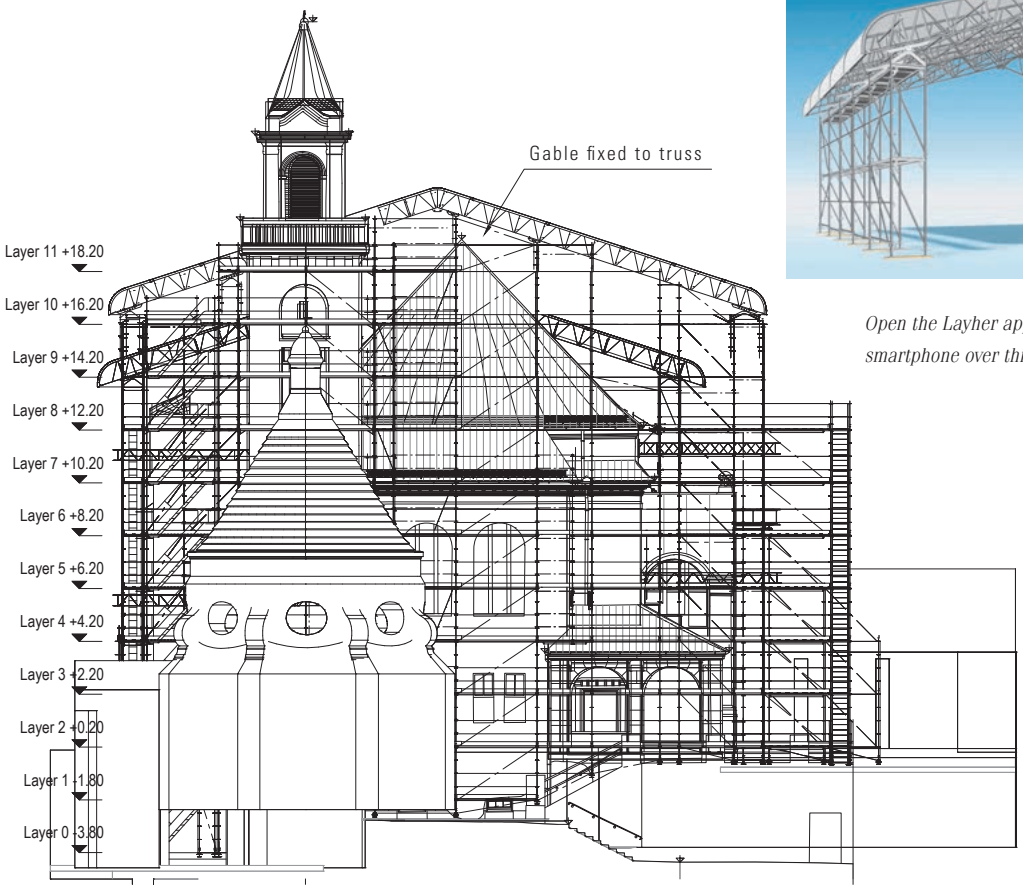


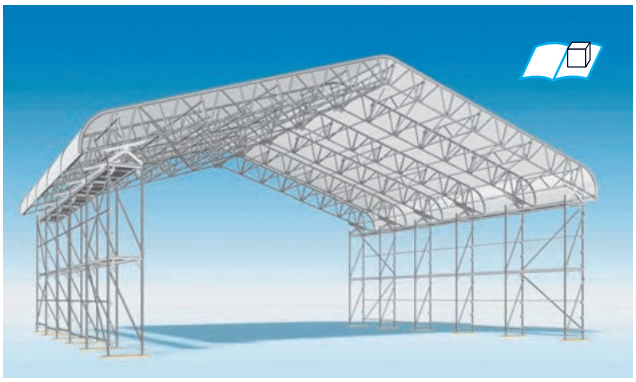
WELL PLANNED IS HALF DONE

FOR PLANNING THE 2,600 M² LARGE LAYHER ALLROUND SCAFFOLD AN ENGINEERING FIRM SPECIALIZED IN SCAFFOLDING PROJECTS WAS INVOLVED



"We had been involved in another municipal project previously, so the city officials approached us directly for a professional opinion," said Peter Schüttler, managing director of the long-established scaffolding services company. "The building has a very complex architecture, so we told them it was important to engage an engineering firm specialising in scaffolding projects in the process of planning the 2,600 m² Layher Allround scaffold on the basis of a substantiated structural analysis. I'm sure we were awarded the contract for this exciting project as a result of this professional approach." Two Layher Allround Bridging Systems and two 15-metre-long HEB 600 steel beams were used to bridge sections of the roof and decrease the total weight on the scaffold and the Keder Roof System parts above them. To ensure that the roof renovation could go ahead in any weather conditions, a Keder Roof XL with a span of 23 m and an eaves height of up to 20 m was also installed.





Open the Layher app, select Mixed Reality in the menu, hold your smartphone over this image and check out the Keder Roof XL in 3D.

Peter (left) and Daniel (right) Schüttler of the scaffolding firm of the same name in Nuremberg together with Julian Haubner (centre), the site supervisor and planner responsible for the project. Thanks to the digital planning software, all critical points can be evaluated in advance and adapted if necessary.

Layher Allround Scaffolding supports the Layher Allround Bridging System.

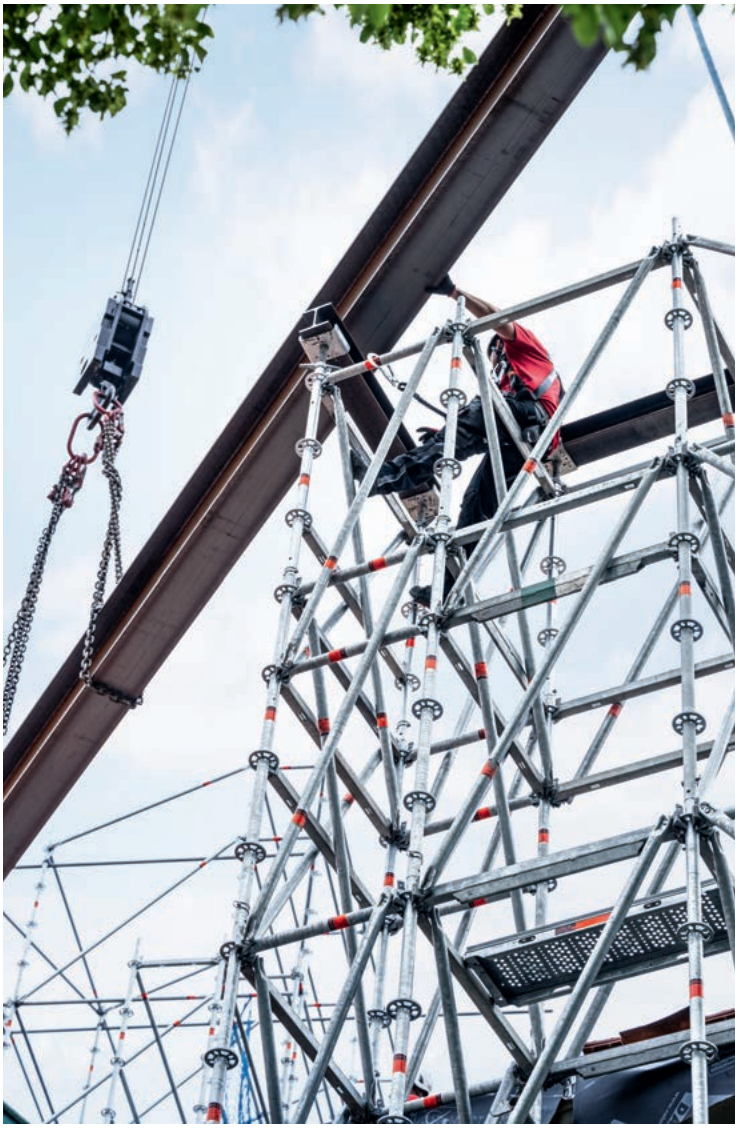
EVERYTHING NEW, PLEASE!

Planner Julian Haubner can display all plans in 3D on his tablet, which is his constant companion on the construction site.

Precision work by the truck-mounted crane as it places the Layher Allround Bridging System in position for bridging the roof area – and it's a perfect fit!

"WITH THE EXCEPTION OF THE STEEL BEAMS, THE ENTIRE SCAFFOLD WAS BUILT WITH STANDARD MATERIALS IN THE INTEGRATED LAYHER ALLROUND SYSTEM."

"We used new Layher Allround Scaffolding material for this prestigious project. With the exception of the custom-made steel beams for load transfer, the entire scaffold was built with standard materials in the integrated Layher Allround System," explained Julian Haubner, construction supervisor and planner at Schüttler Gerüstbau GmbH. The scaffolding expert and his team of four professional scaffolders implemented the build, flexibly adapting the scaffold to the other trades' requirements. "We always have to work very closely with the roofing contractors when we're building a scaffold, otherwise we can't transfer the loads away from the beams that are needed to support the rest of the scaffold. It takes quite a bit of coordination and you can't always plan things to the day, but everything usually works out well," added the construction supervisor, summing up.



THE VERSATILE ALLROUND SYSTEM CERTAINLY DEMONSTRATES THE "MORE POSSIBILITIES" CONCEPT IN THIS PROJECT

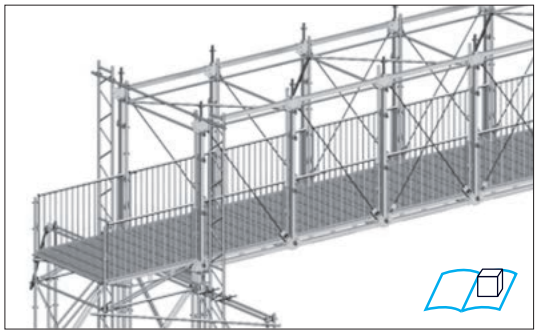
THE VARIOUS OVERHANGS AND AISLES WERE CONNECTED BY TWO ALLROUND BRIDGING SYSTEMS OF 15 M AND 18 M IN LENGTH

"The building's complex architecture posed a number of challenges to the planners. Both the columbarium and the north facade required a round scaffold. The various overhangs and aisles were connected by two Allround Bridging Systems of 15 m and 18 m in length, plus diverse lattice beams. We also installed two 15-metre-long steel beams on the north facade, supported by two towers built from Layher Allround Scaffolding material, for load transfer," commented junior boss Daniel Schüttler. The large Allround Bridging Systems were pre-assembled on the ground and then lifted into position on top of the steel beams by truck-mounted crane. To provide safe access to the construction site two Layher platform stairtowers extending up to 22.5 m in height were positioned at opposite corners of the building. An additional 18 m^2 platform was also installed next to one of the stairtowers at a height of 13 m to simplify material logistics in connection with the roof renovation. To ensure that the roof renovation work could go ahead in all weather conditions, two staggered Keder Roof XL structures, each with a 23-metre-span, were installed. Finally, everything was covered with protection nets and tarpaulin. "We planned the entire project on the computer in 3D drawings with the help of LayPLAN CAD software. The 3D model of the building helped us to identify potential problems in advance of the project and to precision-plan our scaffold, the build and the logistics," added Peter Schüttler.

The Keder Roof XL is easy to combine with the Layher Allround Scaffolding and Layher SpeedyScaf Systems.

The scaffolding structure is anchored with lattice beam connections.

The Layher Allround Bridging System was preassembled safely on the ground before being moved by crane to the correct position in the scaffolding.



Open the Layher app, select Mixed Reality in the menu, hold your smartphone over this image and check out the Allround Bridging System in 3D.

HEB 600 steel beams support the Layher Allround Bridging System.

Extensive scaffolding was erected around the crematorium in preparation for the refurbishment of the facade and roof.

AT HOME IN THE SCAFFOLDING TRADE SINCE 1976

FREQUENT ACTIONS TO MAKE SCAFFOLDING APPRENTICESHIPS MORE ATTRACTIVE

Walter Schüttler laid the cornerstone for the company when he founded Schüttler Spezial-Bauartikel back in 1976. In 1998 the current managing director Peter Schüttler established Schüttler Gerüstbau and orchestrated the successful expansion of the Nuremberg-based company with the assistance of his son Daniel. "We've always used Layher material and that has been instrumental to the success of our projects. In many of those projects efficiency, safety and stability are absolutely essential, and the Layher products are designed to deliver exactly that," said the entrepreneur, explaining the reason for choosing the scaffolding system from Eibensbach. Gerüstbau Schüttler GmbH also uses Layher's LayPLAN SUITE software to improve planning precision and efficiency in its projects. The company has 70 employees and is mainly involved in structural engineering projects on a public tender basis. Scaffolding for building maintenance represents one of its biggest lines of business. "We know it would be near impossible for us to be successful in our market without our committed team," emphasised Daniel Schüttler. "That's why we always try to give something back to them. We organise a range of activities for employees, such as barbecues and summer fetes, to make them feel part of the family. We're also one of only a few companies to have its own rap song. It does a great job making scaffolding apprenticeships more attractive to the younger generation," added Daniel with obvious pride. The company provides comprehensive basic and advanced training to its scaffolders, and ensures that all members of staff are regularly sent on courses – especially Layher training courses – so that they are always up to date on the latest products and safety requirements. "Our excellent relationship with our long-standing partner Layher, and the many contact and information options it offers us, makes an important contribution to the success of our projects. I have never once regretted committing to Layher products. They're perfect for us," said Peter Schüttler in closing. Despite the importance of the business side of things, Peter Schüttler is keen to support a wide range of social projects, and the ever-growing list of projects that have received financial sponsorship from Schüttler is pretty impressive.

"OUR EXCELLENT RELATIONSHIP WITH OUR LONG-STANDING PARTNER LAYHER, AND THE MANY CONTACT AND INFORMATION OPTIONS IT OFFERS US, MAKES AN IMPORTANT CONTRIBUTION TO THE SUCCESS OF OUR PROJECTS."

USED PROUCTS

ALLROUND SCAFFOLDING
Allround Bridging System

SYSTEM FREE ACCESSORIES

PROTECTIVE SYSTEMS
Keder Roof XL

SOFTWARE

Video clip
of Schüttler
project

CREMATION – THE RENAISSANCE OF AN OLD TRADITION

In many countries, cremating bodies is a common practice. Now also experiencing a renaissance in German culture, it is carried out at separate facilities known as crematoriums. The first cremations in Europe probably took place 3,000 years ago. Even then, the ashes of the deceased were scattered on land or in water after cremation or stored in special vessels.

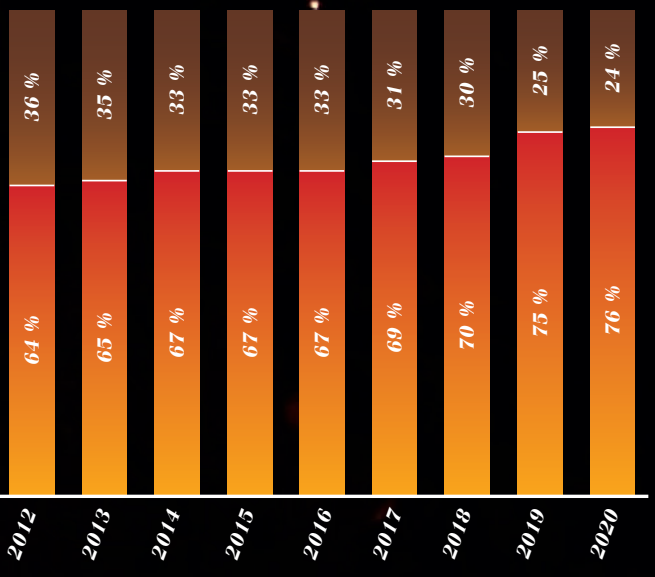
In our western, often Christian-dominated culture, cremation was rejected for centuries because it was incompatible with the idea of the "resurrection of the dead". The "Edict of Paderborn", enacted by Charlemagne in 785 AD, actually condemned the burning of corpses as a pagan custom and outlawed it on pain of death. It was not until the late 18th century that calls were voiced in favour of cremation again as a way to overcome hygienic problems and the shortage of cemetery space.

It took until 1878 for the first German crematorium to be built in Gotha, followed by a second one in Heidelberg in 1891. Against this background, the association “Freidenker für Feuerbestattung” (Free Thinkers for Cremation) was founded in 1905. However, Pope Leo XIII forbade Catholics from joining such associations, as cremation was still considered a “barbaric custom” by the clergy. It was only in 1964 that the ban was lifted in Catholic canon law; the Orthodox Church, like Judaism and Islam, rejects it to this day. In the Protestant Church, the cremation of bodies has been tolerated since the end of the 19th century.

The German Cremation Act of 1934 give equal legal status to burial and cremation. In German crematoriums, a second post-mortem examination must be carried out by a public health officer or a forensic pathologist to enable any irregularities to be detected prior to cremation.

A wide range of options are meanwhile available for urn grave design. For example, in some federal states urns can be buried anonymously in cemeteries. In so-called forest cemeteries, biodegradable urns are buried underneath trees. Sea burials, where a water-soluble urn is sunk from on board a ship, are another possibility. A special form of immortality for deceased persons entails turning the cremated remains into a synthetic diamond, which surviving relatives can then wear as a permanent keepsake in the form of a necklace or ring.

A piece of fire clay with a number on it is used to identify the remains after burning.



Change in preferences for burial (top) or cremation (bottom). *As of 2022*

Source: https://de.statista.com


SCOTLAND
Edinburgh

I-SCAFF ACCESS SOLUTIONS

Forth Road Bridge, United Kingdom

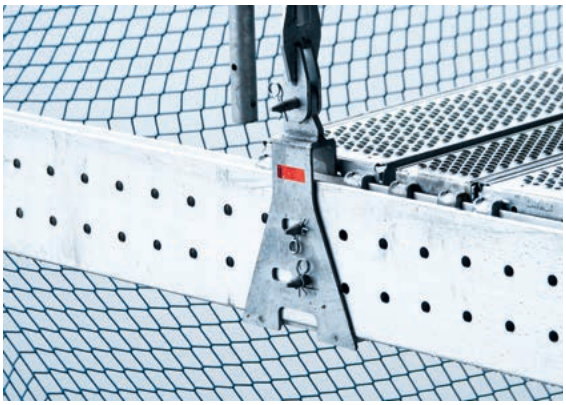
BRIDGE REFURBISHMENT MADE IN SCOTLAND

When it was built nearly 60 years ago, the suspension bridge across the Firth of Forth – an estuary on the north-western outskirts of Edinburgh, capital of Scotland – was the longest of its kind anywhere in Europe. With a total length of 2.5 km and a clear height of 44 m above sea level, it remains an imposing structure to this day and one of the region's most iconic architectural landmarks. When a 120 m long and 36 m wide section of the maintenance facilities underneath the bridge was due for refurbishment, the specialists at I-Scaff Access Solutions Ltd. opted for a solution using Layher Allround Scaffolding and the aluminium FlexBeam. Apart from requiring significantly less equipment, this also halved the assembly time compared to the scaffolding material used so far.

THE SOLUTION HAS TO WORK IN PRACTICE

Ever since the eighties, a series of maintenance bridges totalling some 10 km in length has existed underneath the road deck, enabling easy and safer access to the bridge itself for ongoing maintenance and inspection activities. Another temporary access level now had to be created, so that these maintenance facilities could undergo their own programme of maintenance. Conventional tube and coupler scaffolding of the kind that is still commonplace in the UK was used for the first five phases due to it's flexibility. However, we were able to convince the specialists at I-Scaff Access Solutions Ltd., the British firm responsible for installing it, of the Layher Allround System's manifold benefits in combination with the aluminium FlexBeam for the sixth phase.

The decision for aluminium FlexBeams brought clear advantages every step of the way in terms of safety, efficiency and convenience.

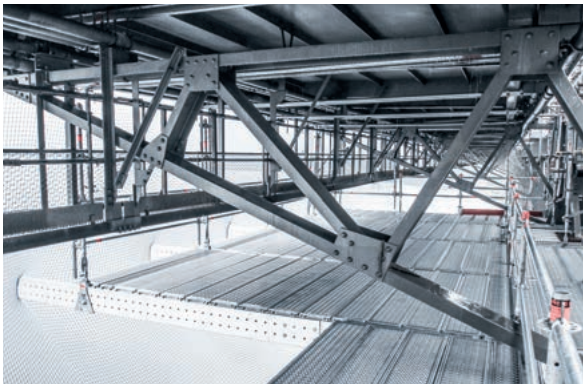


The suspension shoe enables easy suspension of the aluminium FlexBeams.

"WE WERE PROMISED MORE EFFICIENCY AND SAFETY UPFRONT ... AND I MUST SAY, OUR HIGH EXPECTATIONS WERE SIGNIFICANTLY EXCEEDED IN EVERY RESPECT."

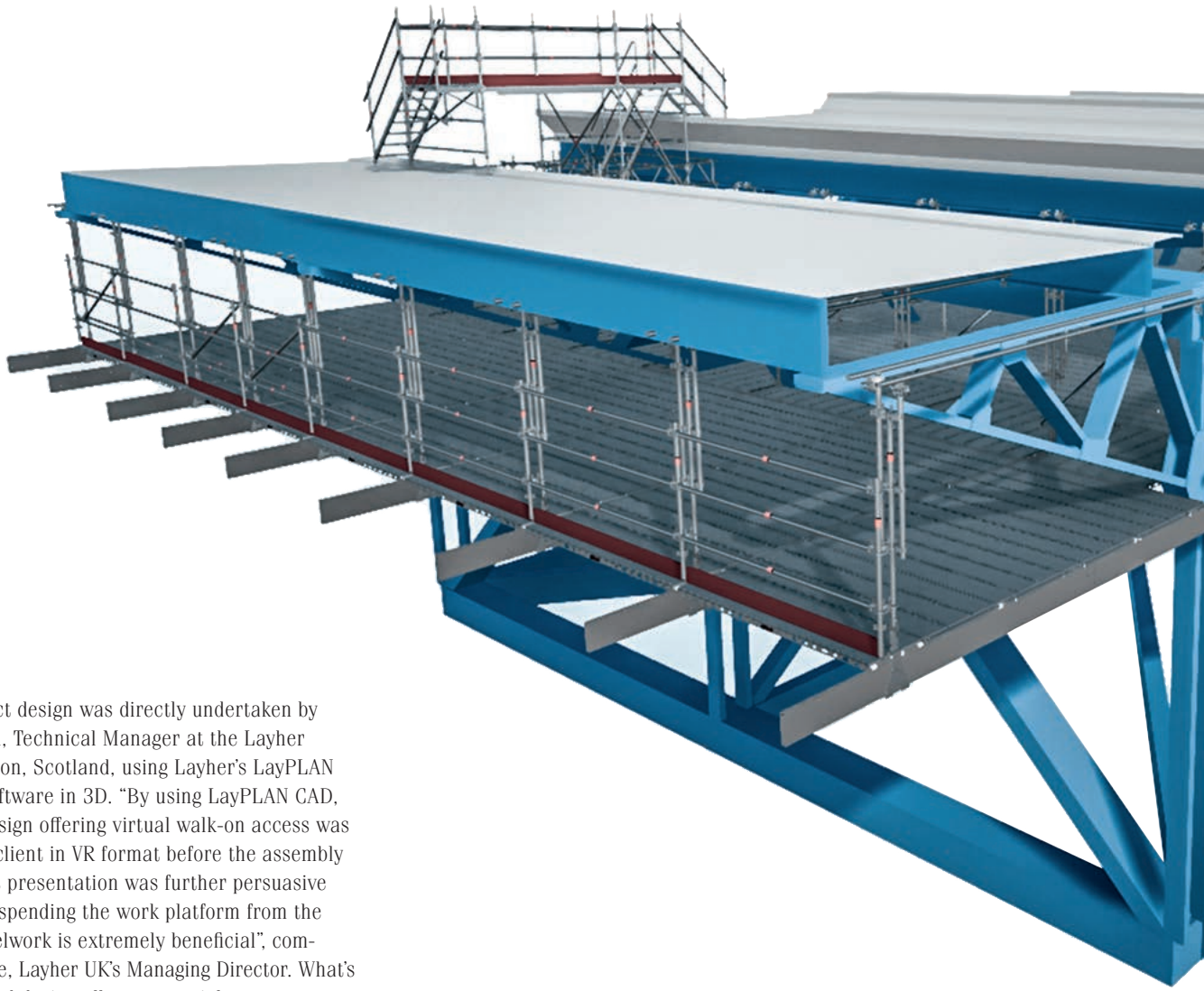
"After watching a very impressive presentation, we decided to switch to Layher material for the sixth project phase. We were promised more efficiency and safety upfront ... and I must say, our high expectations were significantly exceeded in every respect", said Ross Brown, Managing Director of I-Scaff Access Solutions Ltd., who oversaw the project on behalf of Millar Callaghan Engineering Services Ltd., the main contractor. "Using the Layher FlexBeam and the Allround System brought clear advantages for us every step of the way in terms of safety, efficiency and convenience."

The work platform made it a simple task to dismantle the bridge being maintained and refurbish it next to the bridge itself. The amply dimensioned Layher Scaffolding System includes 4.5 m intervals that were greatly appreciated by the contractor's personnel handling parts up to 9 m long, because it meant they could carry out their work underneath the bridge without any major obstructions. The basic structure comprised of Layher Allround components was suspended from the bridge's own steelwork with the aid of couplers, with the individual standards linked in groups of three using wedge-head couplers. Layher steel decking in different lengths was located on the aluminium FlexBeams connected to these standards to form a reliable and sturdy work platform. By using decking in different lengths, the scaffolding could be adapted very flexibly to the situation on site.



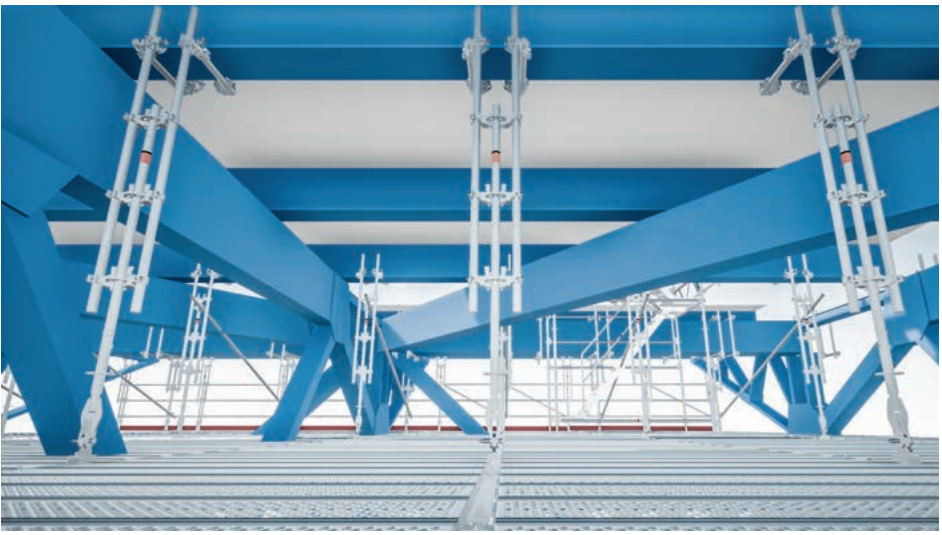
The combination of aluminium FlexBeams and Layher system decks allowed amply dimensioned working areas with no major obstructions.

DIGITAL PLANNING STREAMLINES PROCESSES



The suspension of the structure from the bridge's steelwork using three scaffolding standards was likewise designed directly in 3D in the LayPLAN CAD planning software.

The project design was directly undertaken by Kenneth Redman, Technical Manager at the Layher depot in Livingston, Scotland, using Layher's LayPLAN CAD planning software in 3D. "By using LayPLAN CAD, a detailed 3D design offering virtual walk-on access was available to the client in VR format before the assembly work began. This presentation was further persuasive evidence that suspending the work platform from the bridge's own steelwork is extremely beneficial", commented Sean Pike, Layher UK's Managing Director. What's more, the detailed design allows potential sticking points to be identified early on and suitable solutions found. Additional guardrail and edge protector elements were fitted where required for work safety reasons. Finally, safety netting was installed under the full working area to prevent dropped objects from falling into the waterway below.



LayPLAN SUITE
LayPLAN CLASSIC
LayPLAN CAD
LayPLAN MATERIALMANAGER
LayPLAN TO RSTAB
LayPLAN TO REVIT
LayPLAN TEAMVIEWER
LayPLAN VR VIEWER

"BY USING LayPLAN CAD,
A DETAILED 3D DESIGN OFFERING
VIRTUAL WALK-ON ACCESS WAS AVAILABLE
TO THE CLIENT IN VR FORMAT
BEFORE THE ASSEMBLY WORK BEGAN."

The aluminium FlexBeams and Layher steel decks provided a quick and safe way to build the work platforms needed to refurbish the metal walkways.

CERTAINLY FAST AND EFFICIENT

"WE WERE ABLE TO ASSEMBLE UP TO 80 M² PER DAY ON AVERAGE AS A RESULT OF THE LAYHER SYSTEM – AT HIGH SECURITY REQUIREMENTS ON THE SITE."

I-Scaff Access Solutions Ltd. has its offices a good half an hour's drive north-east of the bridge. The scaffolding specialists were also given training there in the assembly of the aluminium FlexBeam in the run-up to the project, enabling the Layher solution to be used very efficiently and bringing all its benefits to life on the site. "In fact, our philosophy is quite simple", Brown continued. "We try to offer our customers the best possible service and advice at all times. That's how we got to know our partner at Layher UK. Our two firms are a perfect match." The scaffolding professionals at I-Scaff and Layher have been working together successfully since six years. Ross Brown's final verdict could hardly be more positive: "We were able to assemble up to 80 m² per day on average as a result of the Layher system – at high security requirements on the site. On top of that, the smaller number of components meant we could construct a platform that enabled the contractor's personnel to undertake their work far more easily and with fewer obstructions. Last but not least, transport and storage needs were also minimised. We were able to demonstrate the tangible benefits of the Layher material to our customer, Millar Callaghan Engineering Services Ltd., in this way with a concrete project.
I'm confident that this was only the beginning of yet another success story here in the UK."

The I-Scaff team were able to install twice as many m² per day with Layher's Integrated System as they were in earlier phases without the aluminium FlexBeam.

The Forth Road Bridge spans the very busy Firth of Forth estuary at a height of 44 m.

USED PROUCTS

ALLROUND SCAFFOLDING

Aluminium FlexBeam

SYSTEM FREE ACCESSORIES

SOFTWARE

Video clip of I-Scaff project

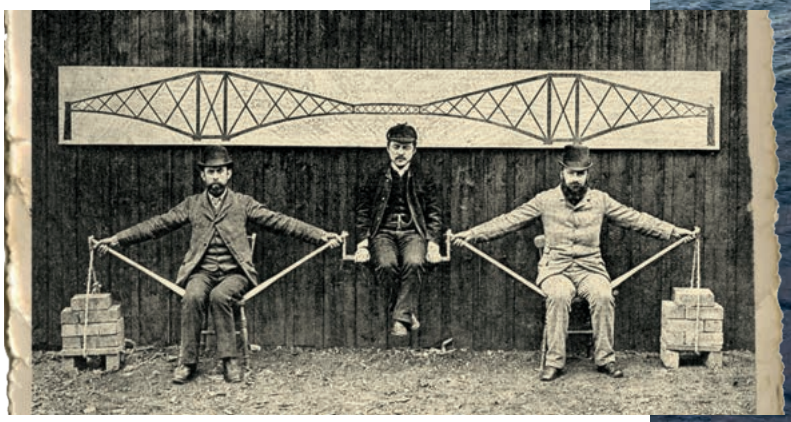
Long before the Forth Road Bridge, an imposing railway bridge was built over the Firth of Forth in 1890, and with its three red spans visible from afar it remains one of the region's most iconic architectural landmarks to this day.

1890

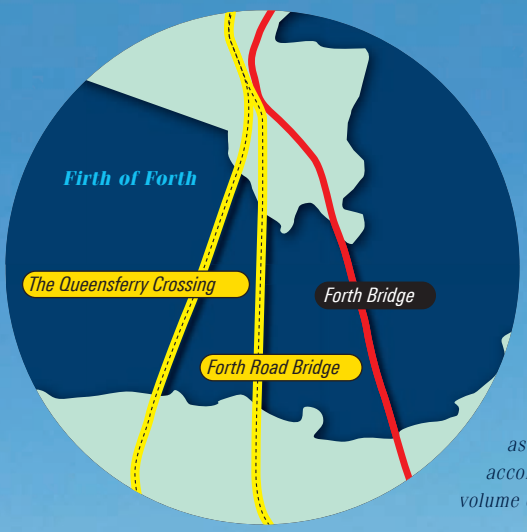
A WONDER OF VIKTORIAN ENGINEERING

As the first major structure worldwide to be constructed of steel, the Forth Bridge represents an important milestone in the history of modern railway engineering and still holds the record today as the world's longest cantilever bridge. The bridge's construction paved the way for the first through railway line up the east coast of Britain from London to Aberdeen at the end of the 19th century.

The principle of the long-span cantilever bridge was not yet widespread at the time and therefore had to be explained to a critical audience with the aid of practical demonstrations. The bridge's upper chords only have to transmit tensile forces. The lower chords, on the other hand, absorb compression and anchorages placed at the ends act as counterweights that balance the bridge loads. In July 2015, the Forth Bridge was inscribed as Scotland's sixth UNESCO World Heritage Site, putting it in the same league as the Taj Mahal and the Great Wall of China.



The bridge's principle, which was still very new at the time, was demonstrated to critical residents in 1887 with the help of human "cantilevers" in an attempt to win broader support for the project among the population.



The Forth Railway Bridge, glowing red from afar, is one of three crossings over the Firth of Forth estuary in Scotland. The Forth Road Bridge was built just a short distance away in 1964. The Queensferry Crossing, which opened right next to it in 2017, was designed as a second road bridge to accommodate the increasing volume of private vehicles.

FACTS AND FIGURES

- *First opened:* **1890**
- *Overall length:* **2,467** *m*
- *Main structure (portal to portal):* **1,630** *m*
- *Highest point:* **110** *m above high water and* **137** *m above the foundations*
- *Superstructure:* **53,000** *t of steel,* **6.5** *million rivets*
- *Piers:* **120,000** *m² of concrete and masonry, faced with* **61***-centimetre-thick granite*
- **200** *trains every day, carrying* **3** *million passengers each year*
- *Total painted area:* **230,000** *m² (requiring* **240,000** *litres of paint)*
- *Lighting:* **1,040** *lights using approximately* **40,000** *m of cable*
- **57** *lives lost during construction*

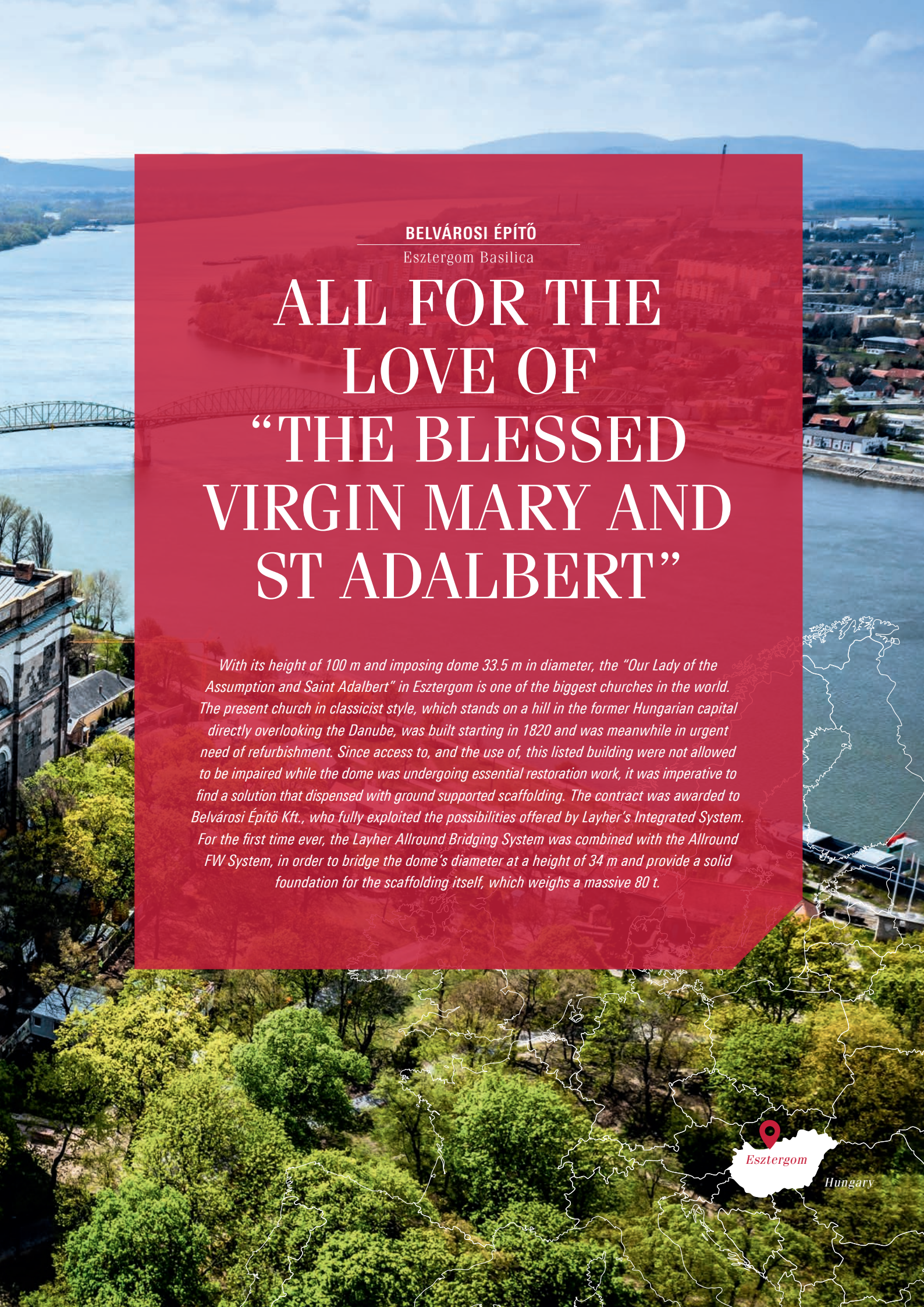

CAPUT, MATER ET MAGISTRA ECCLESIARUM HUNGARIAE

BELVÁROSI ÉPÍTŐ

Esztergom Basilica

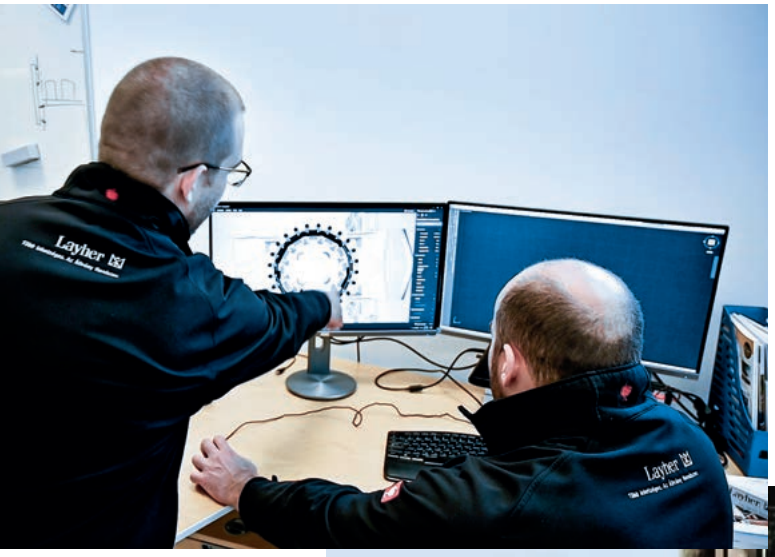
ALL FOR THE LOVE OF "THE BLESSED VIRGIN MARY AND ST ADALBERT"

With its height of 100 m and imposing dome 33.5 m in diameter, the "Our Lady of the Assumption and Saint Adalbert" in Esztergom is one of the biggest churches in the world. The present church in classicist style, which stands on a hill in the former Hungarian capital directly overlooking the Danube, was built starting in 1820 and was meanwhile in urgent need of refurbishment. Since access to, and the use of, this listed building were not allowed to be impaired while the dome was undergoing essential restoration work, it was imperative to find a solution that dispensed with ground supported scaffolding. The contract was awarded to Belvárosi Építö Kft., who fully exploited the possibilities offered by Layher's Integrated System. For the first time ever, the Layher Allround Bridging System was combined with the Allround FW System, in order to bridge the dome's diameter at a height of 34 m and provide a solid foundation for the scaffolding itself, which weighs a massive 80 t.

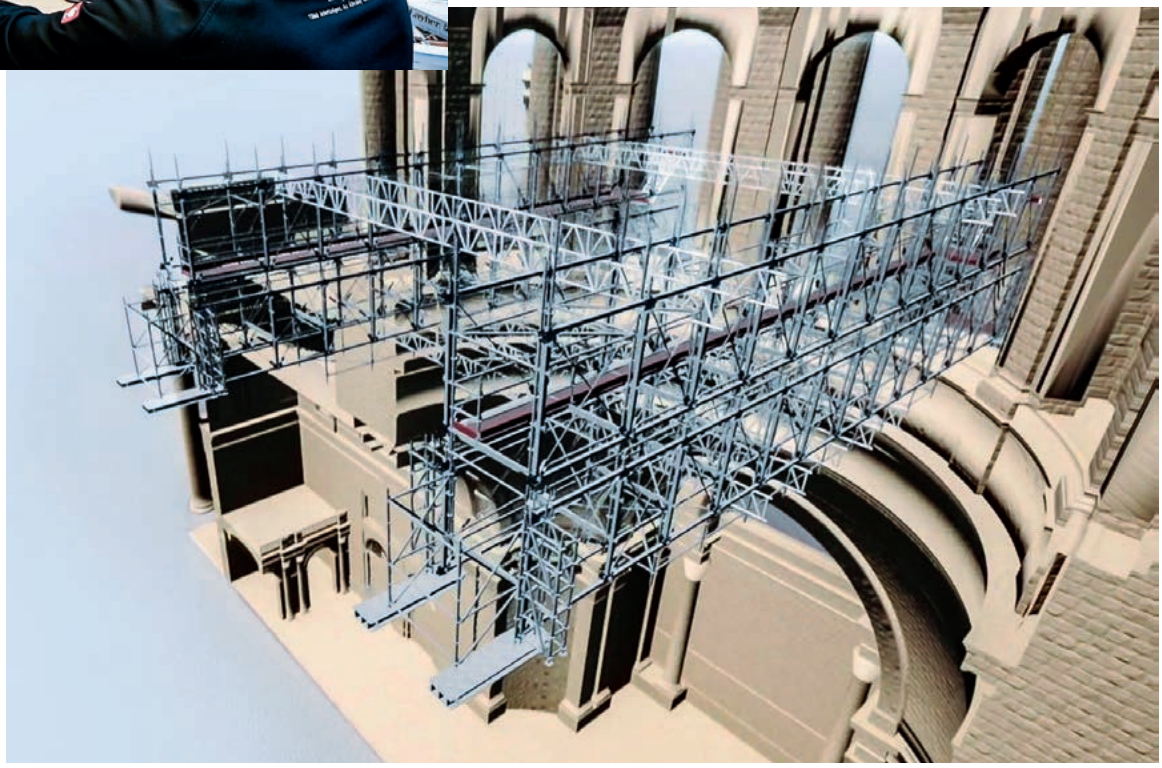


SENSITIVITY AND THE COURAGE TO INNOVATE WERE CALLED FOR

A team of civil and structural engineers and other construction pros got together with the scaffolding specialists, their customer and Layher Hungary to develop an integrated system solution. To rule out problems when the scaffolding was erected, plan the assembly work as diligently as possible and coordinate the logistics, Layher's application engineers provided upfront support in the form of detailed digital 3D drawings in LayPLAN CAD as well as digital advance planning using Layher SIM (Scaffolding Information Modeling). "We weren't the only ones that described it as one of the most complex scaffolding structure assignments ever", says Patrik Tóth, Technical Team Lead at Layher Hungary. "We had to bridge the full 26 m of the dome diameter at a height of 34 m in a way that was self-supporting before we subjected to the 80 t load of the dome scaffolding. That was, and still is, pretty spectacular", he adds.



"WE WEREN'T THE ONLY ONES THAT DESCRIBED IT AS ONE OF THE MOST COMPLEX SCAFFOLDING STRUCTURE ASSIGNMENTS EVER."

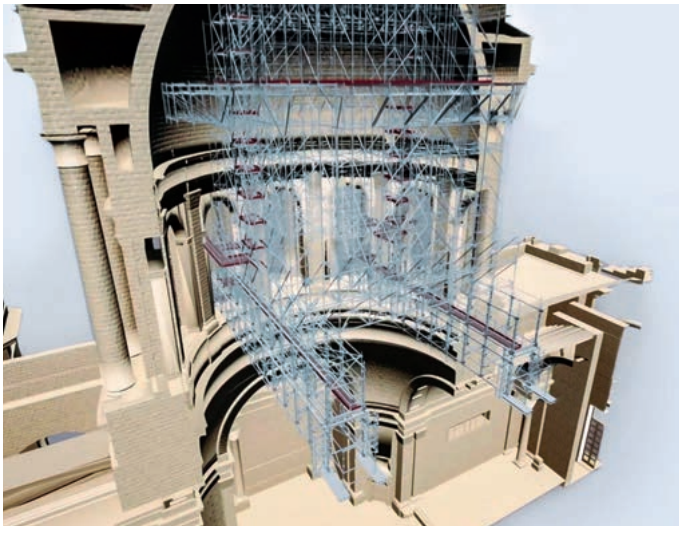


Layher's application engineers undertook detailed digital planning upfront for the entire project using LayPLAN CAD and Layher SIM (Scaffolding Information Modeling).

The lightweight access bridge was pre-assembled on the floor of the church, then lifted to a height of 34 m with winches and anchored there.

"The assignment promised to be very exciting and challenging, not least due to the location. Esztergom Basilica is one of the biggest churches in Central Europe and it's surrounded by other historic monuments. Apart from good ideas, a highly sensitive approach was also called for when the scaffolding was erected", explains László Ruzsics, General Manager at Belvárosi Építő Kft. "A lightweight access bridge was constructed on the church floor from Layher Allround FW Systems and lifted by winches to a height of 34 m. After this auxillary load bearing element had been anchored to the window ledges, the main load bearing Layher Allround Bridging System was added onto the FW System. Finally, Layher Allround FW elements were used again to connect the main bridging systems at a 90 degree angle and achieve the final load bearing skeleton as well as the required load bearing capacity", Ruzsics continues. What made this such an unusual project was that the Allround Bridging System had never previously been used together with the Allround FW System. Layher was able to realise the entire scaffolding solution with standard system components and avoid the need for an expensive and complicated, customised steel beam structure.

"WE HAD TO BRIDGE THE FULL 26 M OF THE DOME DIAMETER AT A HEIGHT OF 34 M IN A WAY THAT WAS SELF-SUPPORTING BEFORE WE SUBJECTED TO THE 80 T LOAD OF THE DOME SCAFFOLDING."



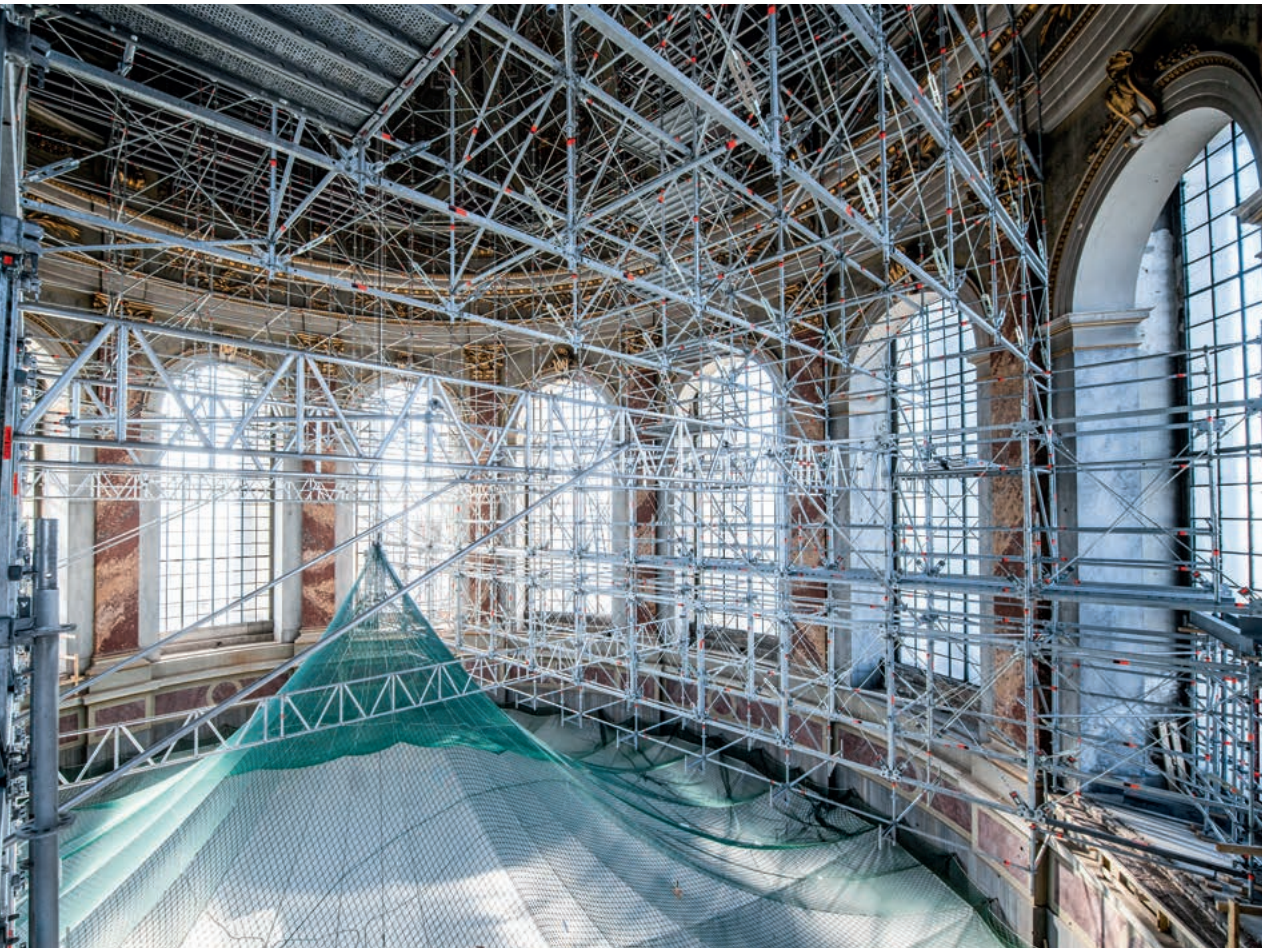
The actual work scaffolding in the dome is comprised of Layher Allround Scaffolding and weighs 80 t.

ALLROUND SYSTEM'S POSSIBILITIES FULLY EXPLOITED

TO RENEW THE GOLD PLATING ON THE CROSS A SPECIAL STRUCTURE FROM ALLROUND MATERIAL HAS TO BE BUILT 100 M ABOVE THE GROUND

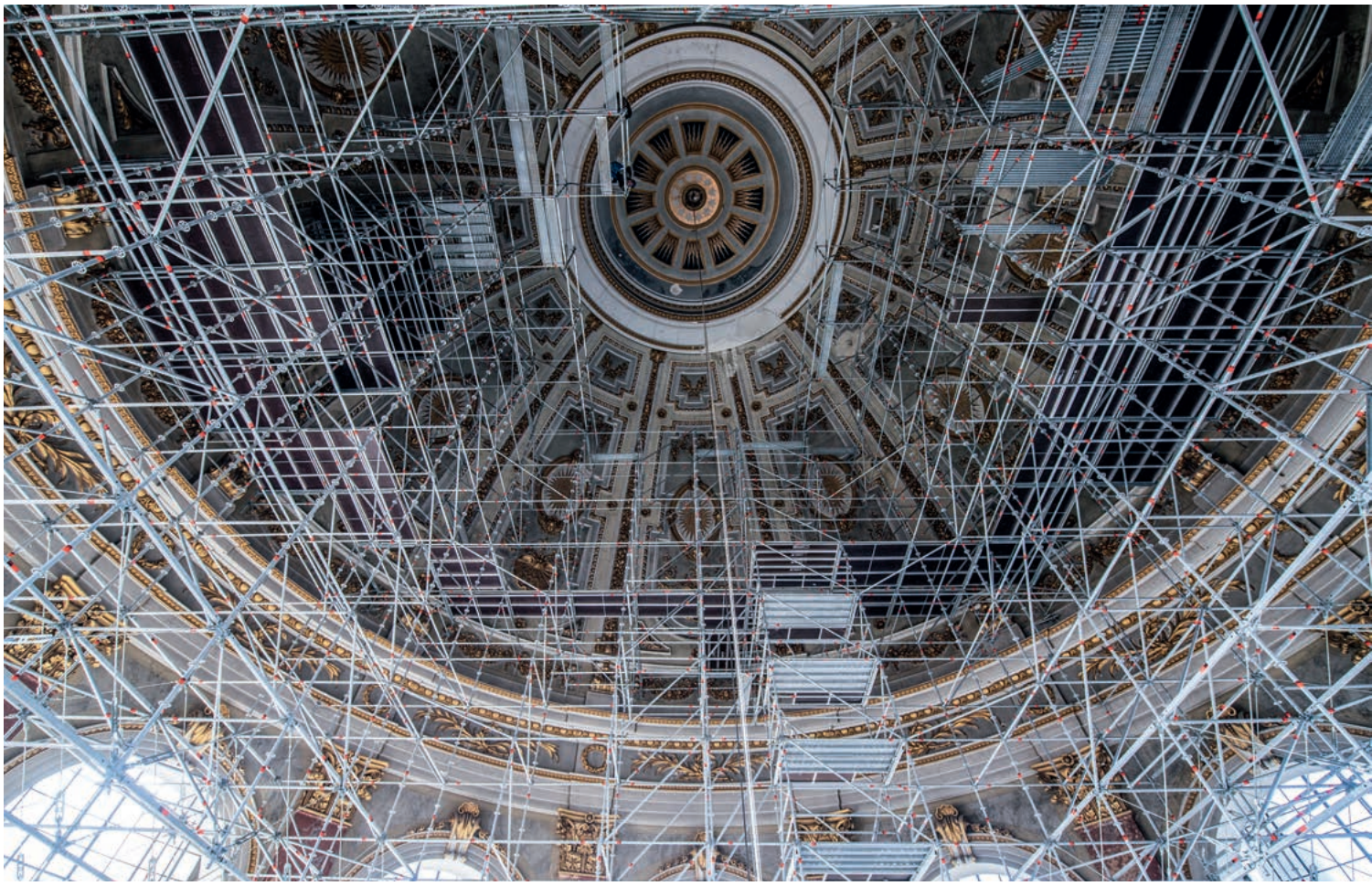
Two elements made from Allround Bridging Systems and supported on the window edges serve as a special bracing structure for the work scaffolding underneath the dome. Bridging structures built with the Allround FW System were assembled to these elements at a 90° angle. The overall structure is capable of supporting the 80 t weight of the work scaffolding without any problem. A platform was then mounted on top of this supporting structure to allow the restoration work to be carried out safely. The fact that the elements are structurally and dimensionally integrated in Allround Scaffolding meant the way was clear to continue working with Allround standard components. This flexible and lightweight modular Allround Scaffolding enabled the work scaffolding to be adapted quickly and easily to the dome's geometry. Approximately 30 m high, it has two working levels that are no trouble to extend if the restorers so wish. "They can assemble and dismantle it very fast because the Lightweight components weigh so little, and there's no unnecessary load on the structure if no work is taking place", says Gusztáv Pruzsinszki, Scaffolding Engineer at Layher Hungary. Scaffolding also had to be erected around this element in order to renew the gold plating on the cross because it could not be removed. Since the structure had to cope with high wind loads and other weather conditions 100 m above the ground, sturdy scaffolding using Allround material was once again a must.

The scaffolding for refurbishing the apex was suspended from the centre of the dome using Layher Allround material.



For the first time ever, the Layher Allround Bridging System and the Layher Allround FW System were combined here in this cathedral. The structure has a high load-bearing capacity and was specially designed to support the 80 t weight of the work scaffolding.

Esztergom Basilica stands majestically on a rock directly overlooking the Danube and is one of the region's outstanding architectural highlights.



AN EXPE-RIENCED TEAM

The scaffolding pros also completely covered the tambour columns in Layher Allround Scaffolding in preparation for refurbishing and reconstruction.

In addition to Layher's Integrated System, the scaffolding team's assembly expertise was a key factor in the project's smooth execution. With many years of experience behind them, the erectors were able to complete the work at a height of 34 m not only safely but above all fast. The detailed preparations with the LayPLAN CAD software enabled the toughest challenges to be detected upfront during the planning phase, so that solutions could be found to maximise efficiency and safety. Before the structure was actually installed in the church, the scaffolding pros conducted an outdoor trial, to ensure that the work could also take place safely and without any problems 36 m up. Extensive loading tests were carried out to verify the calculations. All measurements confirmed that the envisaged structure would function as planned. Since 2006, the specialists at Belvárosi Építő Kft. have acquired a reputation for outstanding technical work when it comes to restoring Hungary's historic monuments. This rapidly growing company currently employs 90 people of its own plus several subcontractors at its site in Szentendre, around 20 km north of Budapest.

USED PROUCTS

ALLROUND SCAFFOLDING

Allround Bridging System

Allround FW System

SYSTEM FREE ACCESSORIES

SOFTWARE

Video clip of Belvarosi-Epito project

ESZTERGOM BASILICA

HUNGARY'S TALLEST CHURCH

With its back to the Danube, this stronghold of the Hungarian Roman Catholic Church sits enthroned on a 50-metre-high rock.

The original cathedral in Esztergom, the former Hungarian capital, was built around the year 1010 by King Stephen I of Hungary. However, this church was burned down and had to be rebuilt three times over the centuries. When the seat of the archbishopric was moved back to Esztergom in 1820, the cathedral was erected in its present form as Hungary's mother church. The foundation stone for the church was laid on the day of the patron saint Adalbert on 23 April 1822. The building took thirty years to complete and was consecrated at a festive ceremony in the presence of Franz Joseph, King of Hungary and Emperor of Austria.

Esztergom Basilica suffered severe damage during the Second World War. It was hit by some 95 bombs and shells during wartime, totally destroying a part of the colonnade and the cladding of the dome.

In recent decades, a great deal of money has been invested in the extensive renovation of both the building and the entire grounds, including the last repairs to war damage and the installation of a panoramic walkway at the base of the dome at a height of more than 30 m.

In spring 2019, it was announced that the equivalent of a further 40 million euros would be spent on refurbishment over the next four years. The interior of the dome is also being renovated as part of this work.

Stephan I, *also known as King Saint Stephen, was a Magyar prince of the Árpád dynasty and from 1000 to 1038 the first ruler of the Kingdom of Hungary founded by him.*

THE CATHEDRAL'S SHEER SIZE INSPIRES AWE:

Inner area: **5,660** *m²*

—

Dimensions:
Overall length **118** *m, width* **49** *m, height from the lower church to the top of the cross* **100** *m*

—

Main facade:
Eight **22***-m-high, plain columns with Corinthian capitals*

—

Suspended dome:
17*-m-thick walls,* **24** *Corinthian columns,* **12** *windows*

—

Two bell towers: *each* **57** *m high*

—

Bell 1:
5,782 *kg, diameter* **218.5** *cm*

—

Bell 2 (middle bell):
280 *kg, diameter* **81** *cm*

—

Bell 3 (soul bell):
20 *kg, diameter* **31** *cm*

—

Panoramic walkway:
almost **400** *steps*

BUSCH GERÜSTBAU

Sierichstrasse, Hamburg

STRUCTURAL CHALLENGE HIGH ABOVE HAMBURG'S ROOFTOPS

Beyond the port and the Elbphilharmonie concert hall, Hamburg has numerous other highlights in store for visitors as well as the odd curiosity. Whether or not you count Sierichstrasse in the city's Winterhude district among them is probably a matter of taste. It's one of the few streets in Europe that changes direction in the course of the day to accommodate commuter flows. Whereas in the mornings, cars are allowed to use its two lanes to travel into the city centre, from the afternoon onwards traffic is only permitted in the opposite direction. The street is lined with historic villas and large apartment buildings. One of these stately blocks of houses is to be raised by 1.5 storeys to create modern penthouse flats, which given Hamburg's weather is only feasible with a weather protection roof. Hamburg-based Busch Gerüstbau GmbH & Co. KG were charged with planning and implementing the essential facade scaffolding as well as the 2,000 m^2 Keder Roof XL solution.

“PLANNING AND REALISATION GET STICKIER AND STICKIER DAY BY DAY”

“We need facade scaffolding and a Keder Roof if we’re going to add an extra story to a building. What at first sounded like an everyday assignment over the phone became bigger and trickier by the day when it came to the planning and implementation”, explains Christopher Busch, Managing Director of the Hamburg scaffolding specialist of the same name. Sierichstrasse – one of Hamburg’s busiest streets – had to be narrowed to a single lane in the area of the facade to make room for the crane and the construction site equipment. So as not to occupy more public space than absolutely necessary, the footpath was turned into a covered pedestrian tunnel using Layher Allround Scaffolding and Protect System elements. A 70 m long and up to 6 m wide platform was erected over it and also over the whole of the front garden. “Anyone who has ever passed by here during the rush hour will know that every inch of road is vital. That’s why covering over the garden completely was the best option. It means we can store all the required building materials temporarily without any problem during the 18-month construction period and reduce the disruption to traffic to a minimum”, adds Stefan Grasnick, the site supervisor responsible for the project.

APPROX. 7,400 M² LAYHER SCAFFOLDING
1,330 LINEAR METRES OF LATTICE BEAMS
OVER 2,000 M² KEDER ROOF XL

All in all, approximately 7,400 m² of Layher scaffolding was erected at the site by the Hamburg scaffolding specialists. Before an extra storey could be added to the building, the existing roof first had to be dismantled, with huge implications for the Layher SpeedyScaf facade scaffolding, because it made it impossible to anchor it into the facade on the top three floors. “We went round in circles a few times with this structural dilemma, because the entire Keder Roof XL also rests on the SpeedyScaf and so the upper layers had to be provided with additional vertical reinforcement.” Stefan Grasnik is an experienced scaffolder but “It proved to be quite a battle of materials all the same. We installed a further 1,330 linear metres of lattice beams horizontally and vertically on the SpeedyScaf alone to make it all structurally safe as well.” Three scaffolding ‘tables’, each weighing more than 2.3 t, were hooked into the roof part, so that the overall scaffolding structure would be even better equipped to meet the tough challenges. René Stender, Layher Area Sales Manager for Hamburg, is visibly impressed: “The structural engineering consultants did a truly fantastic job here. These supporting structures help to make both the entire scaffolding and the over 2,000 m² Keder Roof XL fit to withstand the endless vagaries of the weather.” ▸▸

Pedestrian tunnel made from Layher Allround Scaffolding and Protect System elements.

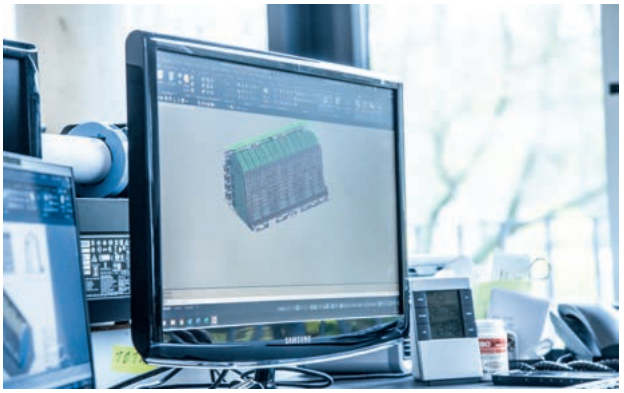
More than 2,000 m² of Keder Roof XL were erected directly on the free-standing SpeedyScaf Scaffolding and three "scaffolding tables" hooked in.

A 70-metre-long platform of Layher Allround Scaffolding was erected over the front garden to simplify material logistics on-site.

Managing Director Christopher Busch (back) and Site Supervisor Stefan Grasnick

The complete scaffolding was planned in-house in 3D using LayPLAN Suite.

"SCAFFOLDING IS INCREASINGLY DIGITAL – AND WE'RE AT THE FOREFRONT, CONSTANTLY LEVERAGING THE BENEFITS."

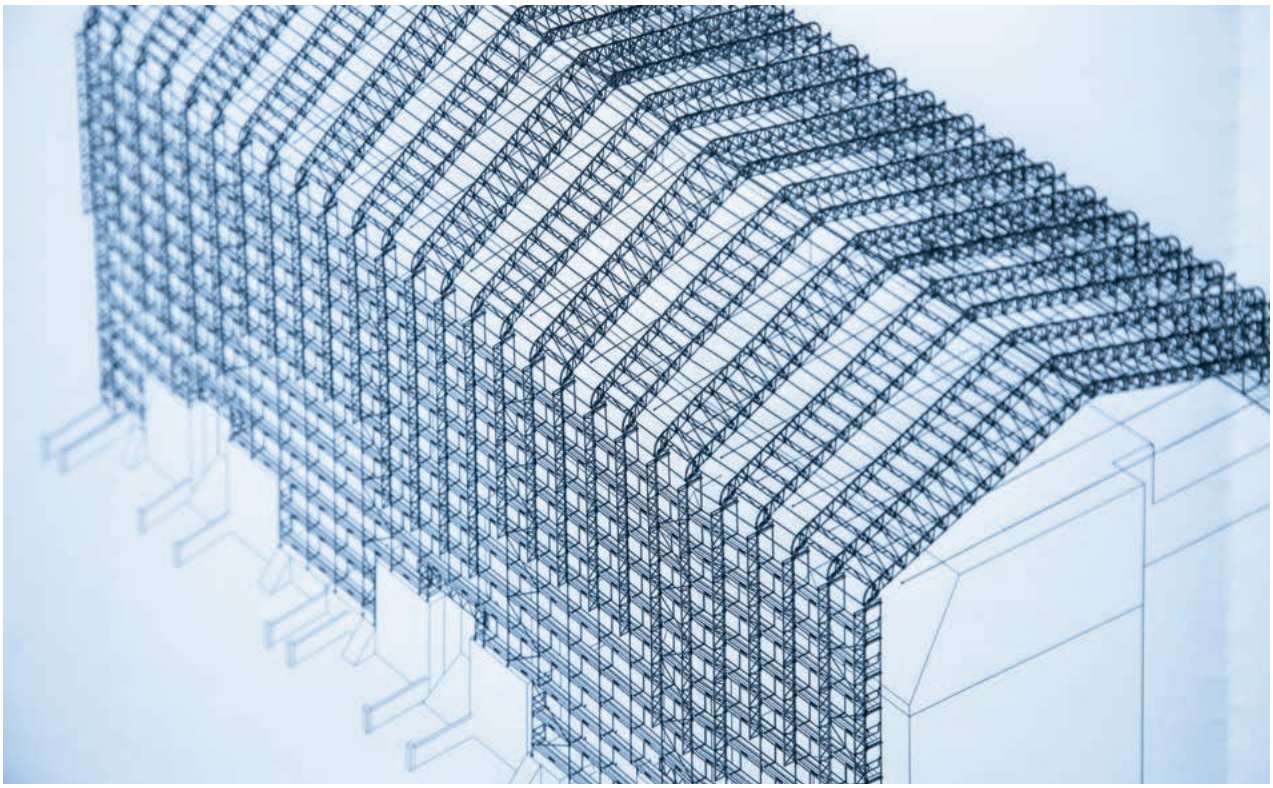


By creating a 3D representation of the building as the basis for planning, details and special challenges can be identified at an early stage.

SUCCESS ALWAYS COMES FROM TEAMWORK

"A project like this relies on teamwork – and I don't just mean the people in the construction crew or in the office. The cooperation with our customer, other trades, the structural engineering consultants and – last but not least – Layher is equally fundamental for the success of our work", Christopher Busch comments. The close collaboration with the structural specialists and Layher's regional contact played a particularly important role in this project, because the requirements have changed frequently, meaning that new calculations and a lot of new material have been needed for the construction site at short notice. Busch could not be more satisfied: "This clearly shows the advantages of a good network in which everyone pulls together to realise a project professionally."

"We've just had an employee trained by Layher directly to use the LayPLAN CAD software, and we'll be able to plan and implement our projects even more efficiently in future", Stefan Grasnick reports. Seeing all the details of a scaffolding design on the computer upfront opens up immense possibilities. Not only can the required materials, logistics and assembly steps be planned very precisely; architectural or structural challenges can also be identified at an early stage and solutions worked out on the PC. "Scaffolding is increasingly digital – and we're at the forefront, constantly leveraging the benefits", the two professionals conclude, not without pride.



The 3D structure enables detailed material and logistics planning.

HAMBURG'S ECONOMIC MIRACLE

The modern premises not far from Hamburg Airport are meanwhile home to 30 permanent employees. The company was founded by Gerhard Busch in 1963 as a specialist painting and decorating business during the "period of the German economic miracle". In 1988, the scaffolding segment was spun off into Gerhard Busch Gerüstbau GmbH. Busch has trusted in scaffolding solutions from Layher from the outset, and to this day works exclusively with Layher's Integrated System.

"WE'VE A REPUTATION AMONG OUR CUSTOMERS FOR QUALITY AND EXPERTISE – SOMETHING WE HAVE IN COMMON WITH LAYHER."

Christopher Busch, René Stender (Layher Area Sales Manager for Hamburg) and Stefan Grasnick (from left) are visibly proud of the complex scaffolding structure.

Busch Gerüstbau GmbH & Co. KG can look back on many exciting projects in and around Hamburg over the years.

Christopher Busch, an engineering graduate and son of the founder, joined the management team in 2003 and has been at the helm of the steadily growing firm ever since. As "Hamburg-born and bred", they're especially proud of their work at well-known Hamburg institutions like the Davidwache police station, the Alster Arcades, the airport and Hamburg State Opera House. "We've a reputation among our customers for quality and expertise – something we have in common with Layher, who I'd definitely say stand for similar values", Busch concludes.

USED PROUCTS

- SPEEDYSCAF
- ALLROUND SCAFFOLDING
- SYSTEM FREE ACCESSORIES
- PROTECTIVE SYSTEMS
  Keder Roof XL
- SOFTWARE

Video clip of Busch project

HAMBURG

WINTER-HUDE

FORMERLY A LANDING PLACE FOR BOATS AND BARGES – TODAY AN URBAN RESIDENTIAL DISTRICT WITH A LOT OF FLAIR.

Agnesstrasse in Winterhude in the year 1903

Winterhude today enjoys a central situation in the Hanseatic city and is a lively place to live with the omnipresent Alster lake and various canals featuring prominently. According to folklore, the name derives from "Winter" – the former owner – and the North German word "hude", referring to places where small ships could run aground on a shallow shore and be pulled onto dry land. There are still many towns in northern Germany with this suffix, reflecting their original function and location.

Winterhude was first mentioned in 1250, but it was not until the middle of the 19th century that the small farming village was developed and linked up to its surroundings after a bridge was constructed there in 1859. Johann Friedrich Bernhard Sierich, who acquired a large part of the land, and Julius Gertig, who had a harness racing track built on what is now Schinkelplatz, played a key role in this project. Major streets in Winterhude were later named after both of them. When the Hamburg gate lock, i.e. the opening of the city gates in the evening and at night on payment of a fee, was lifted in the 1860s and a regular Alster steamer service connected the town with Hamburg's Jungfernstieg, the neighbourhood really began to flourish.

In 1894, Winterhude was finally incorporated into Hamburg and meanwhile forms part of the inner city, although the older residents of Winterhude in particular still speak of their "village".

Background: Map of the Bailiwick of Winterhude from 1867

Water, like the Alster Canal shown here, is still omnipresent today.

Waterfront homes such as this mansion next to Fernsicht Bridge are commonplace.

Hamburg's City Park Lake is also situated in Winterhude.

Water has always been a defining element of Winterhude and continues to determine the cityscape today through the Alster and the many canals. The first industrial buildings date back to 1875. "Nagel & Kaemp", for example, a rice mill factory which later manufactured harbour cranes, settled on the Osterbek Canal. In 1982, this industrial monument was converted into the Kampnagel Culture Factory, whose reputation especially as a theatre venue extends far beyond Hamburg's boundaries. Following the retreat of industry in the mid-1970s, Winterhude became an increasingly popular residential area due to its waterside location and proximity to the city centre, and is swiftly becoming one of Hamburg's trendiest places to meet and live.

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