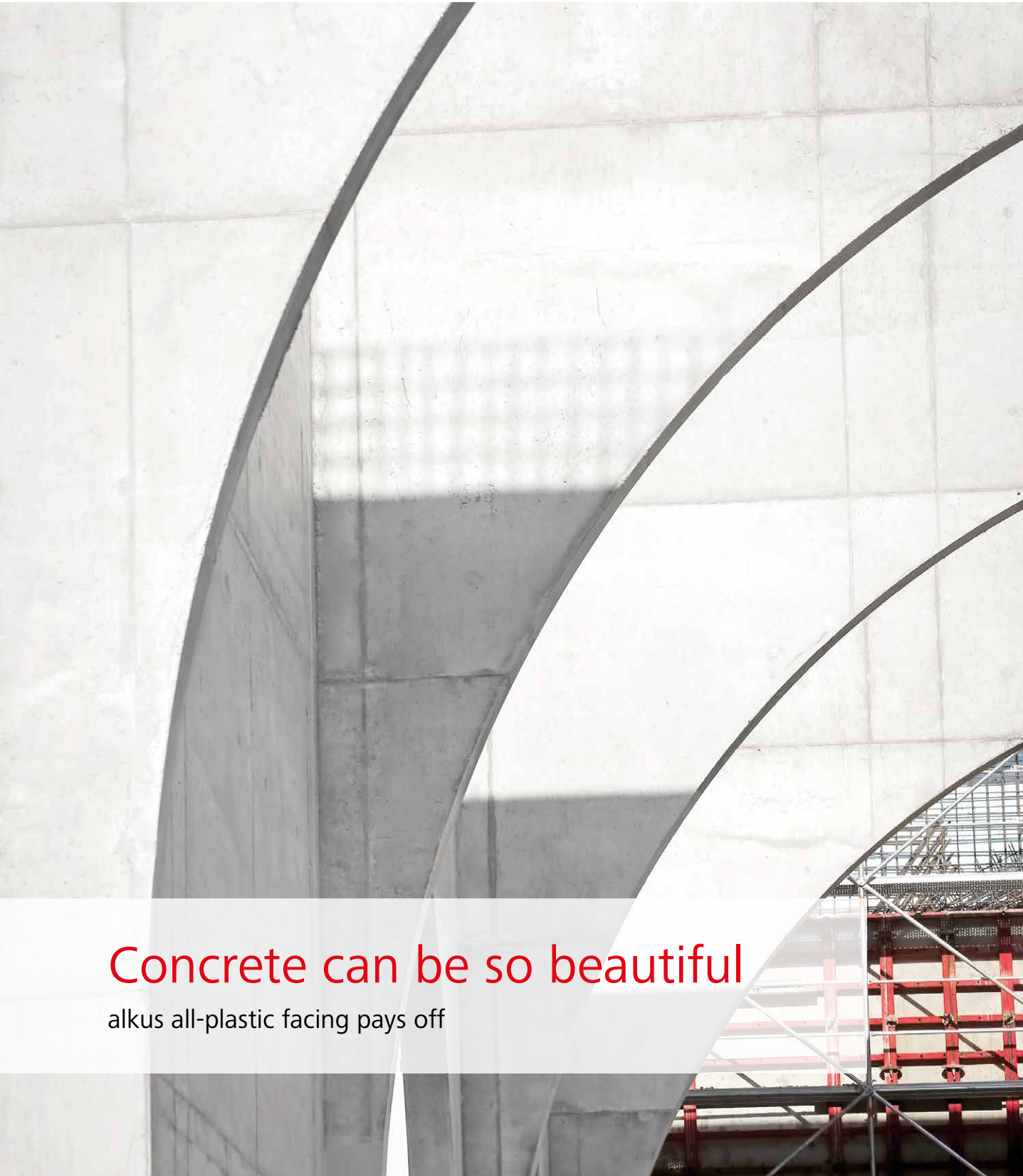


FormworkPress

Professional Formwork News

XI/2021



Concrete can be so beautiful

alkus all-plastic facing pays off

Contents

Editorial	3
News	
Information about MEVA	4
1,500 applications with only one facing alkus all-plastic facing for sustainable concrete construction	6
Architectural concrete and safety Construction of a sports hall: Mammut 350 defies high pressures	8
Climbing in reverse gear Safe deconstruction of a high-rise building in the Philippines	10
Craneway girder at a lofty height Construction of an incineration plant with efficient solutions from MEVA	12
Sustainability with recycled concrete University project in Munich reveals new opportunities	14
Investing in the future MEVA modernising with an eye on product quality and sustainability	15
Attractive arcades New eye-catcher in Pécs: market hall with immaculate surfaces	16

Imprint

Site photos show situations which do not always depict the final assembly of formwork with regard to safety regulations. Imprint: Edition XI/2021. Circulation: 2500 copies. Publisher: MEVA Schalungs-Systeme GmbH, Industriestr. 5, D-72221 Halterbach. Layout: MEVA. Print: C. Maurer Druck + Verlag, D-73312 Geislingen/Steige. Reprint and re-use of any editorial content only by copyright permission. We accept no liability for the content of external internet sites, nor for a violation of privacy or any other law arising from these.

“1,500 applications with only one facing – that’s an unbeatable economic factor.”

Dear Reader,

While reading the last issue of our FormworkPress, you will have undoubtedly noticed that time and time again, our formwork users expressed their enthusiasm about the practical and economical benefits offered by alkus all-plastic facing. Twenty years have now passed since the quantum leap that brought about the formwork facing revolution.

In collaboration with an interdisciplinary research and development community, this clever plastic composite design was developed and launched on the market in 2000. As a partner with industrial experience, MEVA played a major role in this development and we immediately recognised the enormous potential of the innovative facing in terms of cost effectiveness, efficiency and sustainability.

Following this conviction, we equipped our wall and slab formwork systems with alkus, one step at a time – at first as an option and for many years now as standard. This all-plastic facing is increasingly replacing plywood facing because of its practical and qualitative properties. A superior service life is just one of many advantages.

Our decision to rely 100% on the best facing available proved correct at an early stage. By November 2004, we had already documented 681 applications for a set of our Mammut formwork system fitted with the alkus all-plastic facing as standard. Back then, it became clear that alkus facing can last almost just as long as the well-nigh indestructible, robust steel frame of our formwork.

Today, we know that MEVA systems equipped with alkus all-plastic facings suffer practically no losses in concrete quality terms over their entire life cycle. 1,500 applications with only one facing – that’s an unbeatable economic factor that makes all the difference for more and more end users. True to the motto: think long-term, profit in the long term.

Of course, we’re looking beyond facing in this issue of our customer magazine. We will whisk you away to interesting construction sites and let you participate in the implementation of the projects.

I wish you a pleasant read.



Florian F. Dingler,
Owner and Managing Director
of MEVA Schalungs-Systeme GmbH

News

Information about MEVA



New MEVA locations

In Spartanburg in South Carolina a site with a total area of 5,600 m² was inaugurated in order to intensively support the US regions around the cities Charlotte (North Carolina), Atlanta (Georgia) and Jacksonville (Florida) and to be able us to deliver more quickly. MEVA's new regional centre for the southeast of the USA also incorporates the existing MEVA site in Charlotte. "Together with our US headquarters in Springfield, Ohio, we are well positioned to serve most of the eastern half of the country," explained Scott Fisk, president of MEVA Formwork Systems.

The strong interest in MEVA products and solutions on the part of local construction companies in the thriving province Visayas is the reason for opening a second location in the Philippines. In order to be able to optimally support the archipelago's second-largest conurbation – after Manila – operations were started at a 2,000 m² site with an outdoor area and roofed-over areas in Cebu City. MEVA's goal here is to become the regional market leader for climbing systems used in high-rise construction.

Craneway girder at a lofty height

To pour the foundations, walls and ceilings of a new sewage sludge incineration plant in Hannover, Germany, MEVA had to come up with safe and quick solutions. The greatest challenge was the construction of a craneway girder at a clearance height of 21.1 metres, with a total length of 120 metres, a height of 1 metre and an overhang between 1.1 and 1.6 metres, completely surrounding the bunker.

As a barrier-free working and pouring scaffold, the KLK 230 climbing scaffold supported the loads resulting from the formwork and the concrete. But it was still necessary to deal with some obstacles as the KLK units had to be installed with low tolerances around wall lesenes located at irregular intervals. To allow the climbing scaffolds to be used several times without time-consuming conversion work and thus achieve efficient construction progress, the optimum adaptations were determined beforehand. Contractor GP Hoch- und Ingenieurbau GmbH was very satisfied with MEVA's formwork solutions. Foreman Jürgen Brandt: "Together with the MEVA engineers, we found and employed practical solutions that ensured rapid construction progress and a high degree of on-site safety."



At the heart of country music

SoBro is a rapidly growing residential community located close to downtown Nashville, Tennessee. It is an abbreviation for South of Broadway, which is the name of one of the most famous streets located in this downtown area at the heart of country music. Lithko Contracting LLC was awarded the job of constructing a new multi-use residential structure known as the Broadstone SoBro project, which also features a parking garage with three levels and a podium slab, all to be built from concrete.

Because of the flexibility of the MEVA HN slab formwork with its drophead shoring system, Lithko chose to use it for both the flat slab and thickened slabs areas. According to Superintendent Jason Dixon, it was also selected because of the speed of erection and ease of stripping. Adapting the system to support the thickened slabs was an easy transition by simply adding smaller primary beams and post shores to support the additional weight. The project also required a work area to be provided outside of the slab edge for the workers to gain access when pouring the concrete. MEVA HN provided the solution since the primary beams can be cantilevered outside of the existing slab edge from the floor below.



Slab formwork in Georgia

The Caucasus is MEVA's new frontier: Georgia, located between the Caspian and the Black Seas, has seen a rapid development in the past couple of years. Both foreign and local investors have recognised the potential of the country. Developers, architects, and local contractors are working on projects with high quality and international standards.

MEVA supports this development and has equipped a local contractor with the easy-to-handle Meva-Dec slab formwork system to ensure productivity and quality in the construction of two residential towers in the capital Tbilisi. Delivery is complete and installation has started.

The MevaDec formwork was chosen because its flexibility and simple, energy-saving handling ensure fast construction progress. The system is not bound to a rigid grid pattern, which means it can be flexibly adapted to suit any building layout and slab thickness. Minimised filler areas allow it to be set up more quickly. In the process, the predefined prop spacing ensures safety and optimised material stock on the construction site.

1,500 applications with only one facing

alkus all-plastic facing for economical and sustainable concrete construction

When pouring concrete, the facing is in direct contact with the material. In order to achieve consistent results and quality, it must fulfil key requirements. Besides tightness, load transfer and adaptability, these include formability, dimensional stability, and low concrete adhesion. Mechanical loading and the impact of chemicals, water and pressure are the principal factors that have a detrimental effect on conventional plywood formwork facings, which often need to be replaced and disposed of after about 50 applications. This costs construction companies a great deal of time and money. In addition, shortages of lumber and raw materials are currently resulting in price increases and delivery delays.

This is where alkus AL offers clear advantages. Due to its extraordinarily long life cycle, the all-plastic facing fitted as standard in all MEVA formwork systems is clearly superior to its plywood counterpart, especially with regard to cost effectiveness and sustainability. It can be used for more than 1,000 applications – and sometimes over 1,500 times – and achieves consistently high-quality results. During the same period of time approximately 20 to 30 plywood facings would have to be used and disposed of as hazardous waste. alkus, by contrast, can be repaired time and time again using the same material and reused immediately, even directly on the construction site.

In 2000, Liechtenstein-based alkus AG presented this innovative product as the first 100% wood-free facing: a plastic sandwich panel with a foamed plastic core and plastic coating on both sides as well as aluminium reinforcement between the layers. It possessed all the positive properties of plywood facings together with additional benefits such as the ability to be simply formed and

repaired with no loss of quality. As a partner with industrial experience, MEVA was involved in a research and development community to develop the product up to series production readiness. What at that time was just a desired result is now tried-and-tested reality: alkus facing is outstandingly durable. Some of the first facings produced are still in use today.

Guaranteed to last

The facings have a service life similar to that of the panel frame. It is thus very rarely necessary to replace the facings – though this can be done quickly and easily when necessary. If the frame needs to be repaired, the facing can be removed and replaced without any problem. It does not absorb water and is not affected by moisture. alkus does not swell, shrink or discolour. It is exceedingly resistant to moisture, cold, UV radiation, acids, alkalis, rotting and fungal decay. Hence, there are no restrictions on its service life. In fact, it has a 7-year warranty covering UV resistance and flexural strength as well as rotting, discolouration and the formation of ripples. Users thus avoid any economic risk and are guaranteed long-term planning and investment security.

Flexibility the trump card

Users of standard MEVA panels can maintain and recondition the facing themselves and also carry out sound repairs using the same material on the construction site after a short period of on-the-job training. Sawing, nailing and drilling can be done using conventional woodworking tools and whole sections of the facing can be replaced without difficulty. alkus can be welded and simply bent into shape. Thanks to its integrated aluminium reinforcement, alkus AL retains its rigidity even after bending. This ensures that excellent quality



can be achieved even when pouring wide-ranging concrete forms. The facing is thus exceptionally well suited for use in special formwork and tunnel construction.

Concrete with a high-quality surface finish

Dimensional accuracy and flush panel joints contribute to the excellent surfaces in architectural concrete quality (SB2/SB3). The robust, hard-wearing alkus facings can be welded together to form seamless large-scale surfaces. Even after repairs carried out after a great many applications, the surfaces always retain their technical properties and do not develop weak points, something that is unthinkable with plywood facing and only possible to a limited extent with other plastic facings.

Sustainable and resource-conserving

Plastic is more sustainable than wood – that doesn't sound logical, but in this case it's a fact. alkus facing has a number of ecological advantages. Unlike laminated phenolic or melamine resin-coated plywood facings, which often have to be disposed of as hazardous waste after a short life cycle, this all-plastic facing is 100% recyclable at the end of its long service life. It is non-absorbent, requires up to 90% less release agent, and can be quickly cleaned using very little water and auxiliary agents due to its low concrete adhesion properties. Such sustainability pays off financially and can also be advantageous when submitting project tenders.



alkus facing in figures

1 alkus all-plastic facing can be used more than 1,000 times and sometimes even more than 1,500 times.

7 years: The long-term warranty on alkus provides end users with a high level of planning security.

21 years on the market and some first-generation alkus facings are still in use today.

30 times more durable than many plywood facings and six times more durable than other plastic facings.

90 % less release agent is required by the non-absorbent alkus facing.

100 % wood-free, 100 % recyclable.

1,000 bar: alkus facing can be cleaned with a high-pressure cleaner to remove concrete residue and dirt.





Architectural concrete and safety

Construction of a school and sports hall: Mammut 350 defies high pressures

The Swiss community of Holderbank is growing. Hence, the local school urgently needed an extension with a sports hall. This was built in architectural concrete quality.

The architects planned a two-storey wooden structure with classrooms and additional rooms. A concrete sports hall was designed as the sub-structure for this school building. The sports hall consists of a more than 8 m high longitudinal wall built completely below ground and opposite this an approximately 6 m high wall erected on a slope. Seven columns were then placed on this wall to compensate for the height difference and support 23-ton joists pushed into recesses in the higher wall. Daylight streams into the sports hall between these columns.

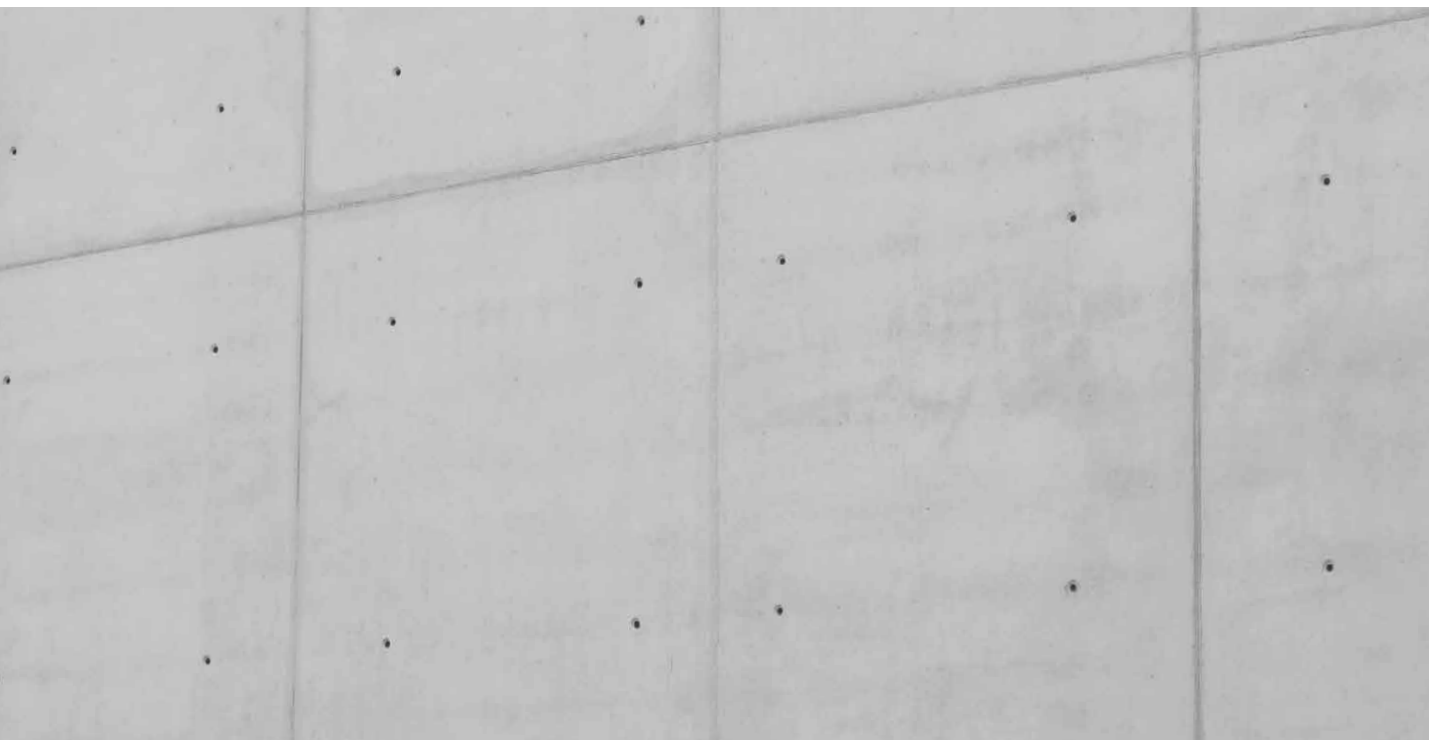
One of the requirements demanded of ERNE AG Bauunternehmung was that the walls and columns should stand out with an architectural concrete finish. This experienced company relied on the rugged Mammut 350 wall formwork, which effortlessly fulfilled the combined requirements on architectural concrete and large-format walls. Thanks to the symmetrical tie hole and joint pattern, the system ensures a pleasing appearance when used both horizontally and vertically, and makes a significant

contribution to the overall outcome of a construction project from an architectural viewpoint.

New alkus facings for top results

For this project 300/250 panels were fitted with brand-new alkus all-plastic facings, thus ensuring a smooth, flawless surface finish throughout without any undesirable discolouration. The investment in the durable facing was well worthwhile, as it can be easily repaired using the same material and its surface ground for reuse hundreds of times. Thus, it more than pays for itself over the course of its life cycle compared to significantly less durable plywood facings that need to be replaced on a regular basis.

Rapid construction progress and consistent concrete finishes were achieved by easily and safely combining several 300 cm high panels with widths 250 and 125 cm on the ground to produce total surface areas of more than 55 m² that were then supplemented with three working platforms from the SecuritBasic safety system installed one on top of the other. The entire construction was then lifted to its destination by crane and after a 7.30 m wide pouring operation simply relocated for the next cycle. In this way, the architects' requirements regarding smooth, large-format surfaces were fulfilled.



To pour each column, two large-size panels were connected to a 125 cm wide panel and stabilised using alignment rails.

Fresh-concrete pressure of 100 kN/m²

The high load capacity of the Mammut 350 formwork was an important aspect during this project. The team at ERNE AG Bauunternehmung used the particularly strong 20 mm tie rods. This enabled the formwork to withstand a fresh-concrete pressure of 100 kN/m² over the entire surface. To be on the safe side, the formwork was closed using two nuts for each tie rod. After all, it's better to be safe than sorry.

This also applies to the modular Triplex heavy-duty props that transferred the forces acting on the formwork into the ground as well as to the Securit-Basic working platforms that can be attached firmly with only one single part – the flange screw – to ensure comfortable and safe working conditions. Thus, nothing else stood in the way of rapid construction processes and top results.

i

Project data

- **Project**
 - New construction of a sports hall, Holderbank, Switzerland
- **Contractor**
 - ERNE AG Bauunternehmung, Birrhard, Switzerland
- **MEVA system**
 - Mammut 350 wall formwork
 - SecuritBasic safety system
 - Triplex heavy-duty brace
- **Engineering and support**
 - MEVA Schalungs-Systeme AG, Seon, Switzerland



Climbing in reverse gear

MGS screen system guarantees safe deconstruction of high-rise building in the Philippines

During deconstruction of a high-rise building in Manila the rail-guided MGS screen system ensured all-round safety for the personnel.

Building plots are scarce in Makati, the capital's vibrant financial district. The prospering Bank of the Philippine Islands had to first raze to the ground its 40-year-old, 21-storey headquarters building, which was no longer large enough, in order to create space at the same location for its future office development.

Careful planning, well-thought-out measures and reliable technology were the prerequisites for successful and safe deconstruction right next to the busy arterial roads Ayala Avenue and Paseo de Roxas. The construction companies involved in the project used MEVA's MGS, which normally climbs upwards hydraulically or by crane during high-rise construction. Here, it was the other way round: the MGS was lowered step by step with the help of a crane. With the all-round enclosure of the entire storeys, the MGS prevented debris, tools and dust from falling, dampened the noise produced by the demolition equipment, and provided the workers with a safe and weather-protected work platform.

Irregular floor plan – no problem

After ten months the high-rise construction had been completely demolished and it was possible to start construction of the new headquarters on schedule. 50 platforms with several different platform lengths up to 5.20m were employed. As the MGS is flexible with regard to the size of the units formed, it was no problem at all to adapt it to suit the irregular building layout.

The screening can be created using perforated or unperforated cladding sheets or with various fabrics. Each unit was formed by safely and conveniently forming four platforms one above the other on the ground with a spacing of 3.4 metres corresponding to the storey height. Each unit was equipped with a screen to ensure privacy and work safety and with a special noise protection barrier made of non-woven fabric. The complete units with freely positionable guide rails were then attached to the slabs or the building's walls. The attachment was facilitated by the adjustable guide shoes and the folding mechanism. Anchored to the upper storey of the condemned building with the help of a crane, the system enabled work to be performed concurrently on four storeys. Following the planned deconstruction process, the construction then climbed downwards stage by stage.



Demolition work on one of the 21 floors: The MGS screen system enabled safe and rapid dismantling and protected the surrounding area.

The planning of the work processes was complicated by the fact that some of the construction plans were only available as old blueprints. However, this and other challenges – such as managing the preparation and assembly schedule on the active storeys or installation work during the ongoing demolition operations – were mastered with aplomb through smooth cooperation between all participants.

The construction companies involved are now looking back with satisfaction on an unusual project that was completed without accidents and on schedule. “MEVA helped us find solutions for problems and managed and monitored the assembly work, as this was the first time we had used this solution,” reports Guenn Jimenez, project manager at JLC Construction. “The MGS system guaranteed the safety of the workers and passers-by. We are very satisfied with the service provided and would warmly recommend MEVA as a partner for demolition projects, especially for high-rise buildings.”

Arnel F. Ferareza, project manager at Design Coordinates, Inc., is also enthusiastic. “The MGS completely fulfilled our requirements with regard to the enclosure and soundproofing. The good working relationship with the MEVA engineers as well as their experience impressed me. I can happily recommend the MEVA solutions and will certainly consider using them again for future projects.”

i

Project data

- **Project**
 - High-rise deconstruction, Manila (PHL)
- **Contractors**
 - MDC - Makati Development Corp.
 - DCI Design Coordinates, Inc.
 - JLC Construction (PHL)
- **MEVA system**
 - MGS screen system
- **Engineering and support**
 - MEVA Schalungs-Systeme Haiterbach, Asia Pacific Far East

Craneway girder at a lofty height

Construction of an incineration plant with efficient solutions from MEVA



To pour the foundations, walls and ceilings of a sewage sludge incineration plant in Hannover, MEVA had to come up with safe and quick solutions. The construction of a crane-way girder at a height of 21 metres was the high point of the project.

The KVA Lahe incineration plant in Hannover is expected to become operational in January 2023. The project managed by GP Hoch- und Ingenieurbau GmbH comprises three construction phases: the machine room (28.3 x 20 m), the incineration plant building (28.5 x 16.2 m) and the sewage sludge bunker (42.5 x 17 m) which can be seen from afar. The 20 m high bunker walls and a stair tower were created using slip formwork for time reasons. The crane-way girder was then manufactured in situ at a height of 21 metres. To this end, the platforms for the MEVA KLK 230 climbing scaffold were pre-assembled at the Hannover and Haiterbach sites. The wall formwork concept is based on MEVA's Mammut 350 system. To guarantee optimum use of the formwork, solutions were developed that required a minimum of assembly work during relocation.

9.6 metres – one pouring cycle

The foundations were formed using Mammut 350 and SK 80 brace brackets, which are also suitable for applications on sloping surfaces thanks to their ability to be tilted up to 15°. The industrial formwork Mammut 350 played to its strengths during the construction of the 30 cm thick and up to 9.6 m high walls of the machine room and the incineration plant building, which each had to be poured in one cycle. This saved a lot of time and was achievable due to the high fresh-concrete pressure capacity of 100 kN/m² over the entire surface. Beforehand, the optimum sizes of the gangs were determined so that they could be used for further pouring processes immediately after each pouring cycle without needing to be modified.

The slabs and concrete beams were produced using MevaFlex by the team led by foreman Jürgen Brandt. The facings rested on H20 girders, reliably supported by the MT 60 shoring tower. In the bunker it was necessary to produce slabs at a clearance height of 14.35 metres. The simple assembly – horizontally or vertically on the ground and without tools, bolts and pins – with individual parts each weighing no more than 15 kg proved to be a huge

advantage. Due to its high load capacity of 60 kN per leg, the shoring tower was predestined for this project.

Use of KAB 190 as formwork platforms

While constructing the incineration plant building and the machine room, GP Hoch- und Ingenieurbau used the high-performance KAB 190 foldable working platforms as working and safety scaffolds. The wall formwork for the storeys was supported by the KAB platforms suspended on the outside of the building. Due to their high load-bearing capacity (300 kg/m²), the KAB platforms were able to be used as assembly platforms for the second slip-forming stage on the mixing bunkers at a height of 22 metres.

Craneway girder with KLK 230

The greatest challenge – at least from an optical point of view – was the construction of a craneway girder at a clearance height of 21.1 metres. The craneway girder with a total length of 120 metres, a height of 1 metre and an overhang between 1.1 and 1.6 metres completely surrounded the bunker and was poured in four L-shaped sections. GP Hoch- und Ingenieurbau did not rely on load towers here, but rather chose a more economical solution, which did not require space at ground level either. As a barrier-free working and pouring scaffold, the KLK 230 climbing scaffold supported the loads resulting from the formwork and the concrete.

The KLK 230 with its convenient, 2.30-metre-wide working platform can also be used for polygonal or round floor plans. In Hannover only right angles had to be catered for. However, it was still necessary to deal with some issues as the KLK units have to be installed with low tolerances around wall lesenes located at irregular intervals. To allow the climbing scaffolds to be used several times without time-consuming conversion work and thus achieve efficient construction progress, the optimum adaptations were determined beforehand.

GP Hoch- und Ingenieurbau GmbH was very satisfied with MEVA's formwork solutions. Foreman Jürgen Brandt: "Together with the MEVA engineers, we found and employed practical solutions that ensured rapid construction progress and a high degree of on-site safety."



The KAB 190 foldable working platform (top) and the KLK 230 climbing scaffold adapted precisely to the hindrances and provided plenty of room for the work.

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Project data

- **Project**
 - New construction of the Lahe sewage sludge incineration plant, Hannover, Germany
- **Contractor**
 - GP Hoch- und Ingenieurbau GmbH, Hannover, Germany
- **MEVA system**
 - Mammut 350 wall formwork
 - KLK 230 climbing scaffold
 - MT 60 shoring tower
 - KAB 190 foldable working platforms
 - Triplex heavy-duty brace
- **Engineering and support**
 - MEVA Schalungs-Systeme GmbH, Haiterbach, Germany



Students at Munich University of Applied Sciences presented their recycled-concrete project supervised by Prof. Dr. Andrea Kustermann (far right).

Sustainability with recycled concrete

University project in Munich reveals new opportunities

Four load-bearing and sixteen individually designed architectural-concrete columns, and a slab on top: The new pavilion in the grounds of the former Bayernkaserne (“Bavaria Barracks”) in Munich is an eye-catcher. However, its true special feature tends to remain hidden to the viewer: The building covering an area of 20m² is made completely out of recycled concrete manufactured on the spot out of the building waste produced when the barracks were demolished.

With this project, civil engineering students at Munich University of Applied Sciences wanted to demonstrate the range of possible applications for recycled concrete. It has the potential to bring the construction industry a step closer to climate neutrality by means of the circular economy. This sustainable concrete reduces resource consumption as the previously unusable material is reused directly. Hence, there is no pile of waste and the energy needed for transportation is saved.

Recycled concrete & alkus – an ideal combination

The alkus all-plastic facing used as standard in MEVA formwork perfectly supplements the recycled concrete for fit-for-the-future construction work. It is significantly more durable than laminated phenolic

or melamine resin-coated facings made of multi-layer plywood, which must be replaced frequently and end up as hazardous waste and have a high environmental impact. MEVA supported the university project and its pioneering role in Europe with AluStar formwork and know-how.

200,000 tonnes of recycled concrete were manufactured from the rubble at the Munich site and then reused for new buildings. The model pavilion is intended to convince property developers, as there is still little practical experience of using concrete made of completely recycled aggregate, in particular with regard to its ability to withstand external influences. The pavilion also presents the spectrum of design options available when using recycled concrete: the architectural-concrete columns were created with different surface structures.

Munich property developer as pioneer

The initiators of the sustainable construction material have already recorded one great success: GWG, a municipal housing company in Munich, has committed to using the recycled material for the construction of residential buildings. Furthermore, a new youth centre is to be created using a large proportion of recycled concrete.



The new fully automatic cleaning line reduces resource consumption and increases material availability.

Investing in the future

MEVA modernising with an eye on product quality and sustainability

In future, the new production and rental formwork reconditioning facilities at MEVA will be the state of the art. By the end of this year, they will have been comprehensively modernised through a €7 million investment in order to improve product quality, material availability and sustainability. “Both factories had reached their limits of their technical and logistical capabilities,” explains owner and managing director Florian F. Dingler. “To ensure high quality in the long term, we decided to make a major investment in modern technology and sustainable solutions.”

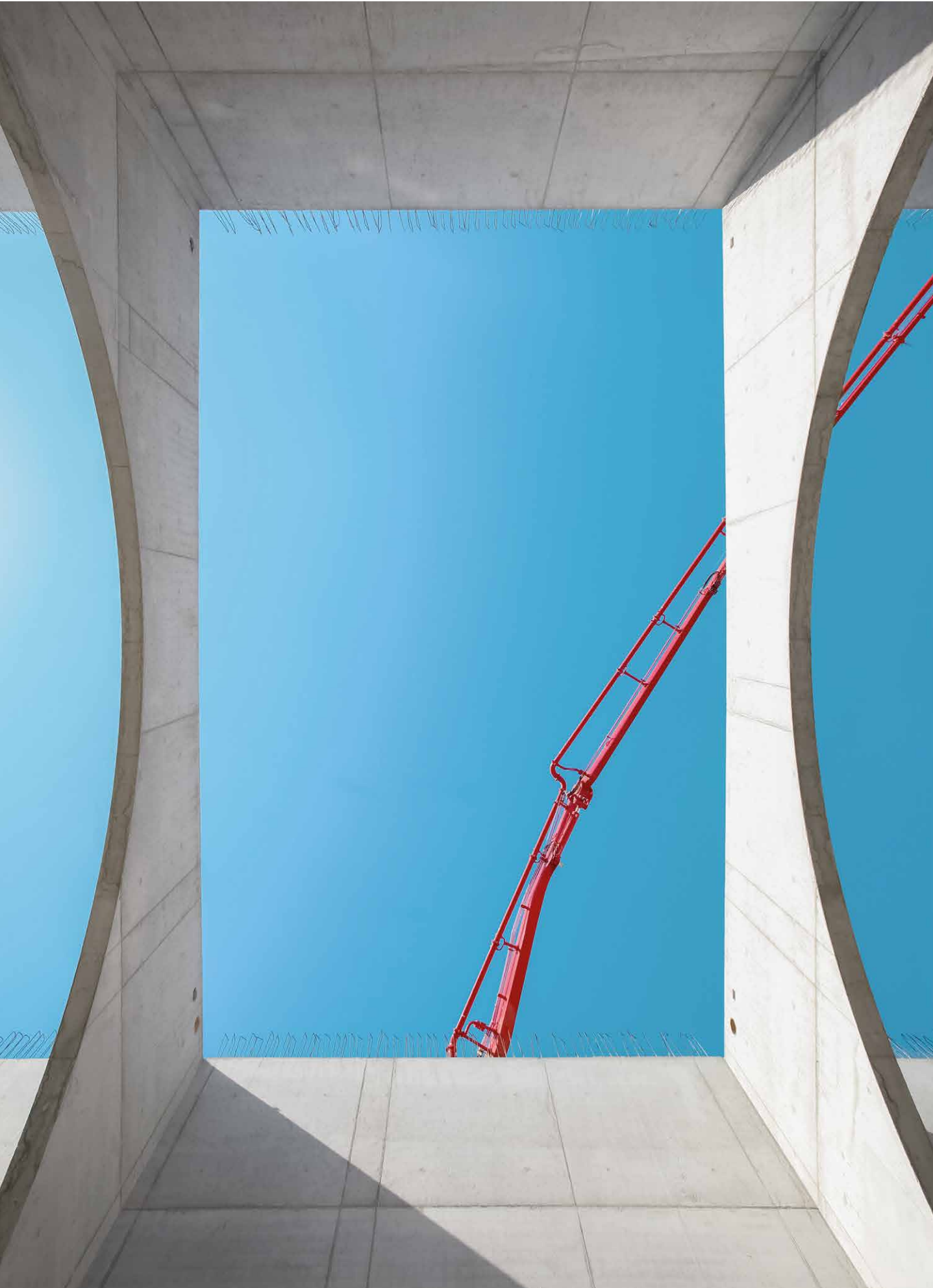
Robots, lasers and photovoltaic systems

Since 2019, Production Plant I has been successively modernised through renewal of the electronic infrastructure, an assembly system for large-size panels, an H-table robot, a laser tube cutter and the introduction of a shop floor management system. Extensive investments in the building infrastructure and installation of a 950 kWp photovoltaic system round off the conversion work. In conjunction with a 300 kWh energy storage unit, in future we will be able to produce approximately 60% of the Haiterbach plant’s energy requirements in an environmentally friendly way.

Fully automatic cleaning

In Factory II, the formwork centre in Haiterbach, a fully automatic cleaning line is replacing the old system. MEVA is thus living up to its claim to be the sector’s pioneer in the field of formwork cleaning as well. Intelligent system control enables optimum water and energy management for the lowest possible use of resources. A rotatory unit for regrinding facing surfaces and 20 m long roller conveyors for repairs also contribute to more rapid material turnover, flexible processing of customer orders and a high degree of material utilisation. The infrastructure has been upgraded by means of ergonomic workplaces, outdoor roofing, LED lighting and optimised truck logistics as well as a container terminal.

Managing director Florian F. Dingler: “We decided to modernise in Haiterbach for a good reason, as this is where our know-how is located, with superbly trained and experienced employees. MEVA is living up to its commitments to job security, competitiveness and environmental protection, and our customers can continue to place their trust in the quality and durability of our products.”



Attractive arcades

New eye-catcher in Pécs: a market hall with immaculate surfaces

A newly built market hall in the Hungarian city of Pécs is exceptional in more ways than one: apart from impressing with bright architecture and colossal arches, it was constructed with eco-efficient concrete. MEVA also contributed to the successful site operations.

In summer, Hungary's fifth-largest city, Pécs, witnessed the completion of the structural works for a new market hall, a blend of modern and classical architecture, lightweight and linear, featuring long sequences of arches. The city authorities had mandated B. Build & Trade Kft. to erect the monolithic reinforced-concrete structure. The contractor opted to use the Mammut 350 wall formwork system, the MEP shoring tower and Triplex heavy-duty braces, supplied by MEVA Hungary.

Arches big and small

The attractive newbuild occupying a 1,750 m² footprint will soon replace the existing old market hall. Even from afar, the market hall is a veritable eye-catcher. It comprises two series of 11 smaller arches, each with a clear width of 8.10 m, on the longitudinal fronts. Standing perpendicular to these are two external and 12 internal arches which are even bigger, with a clear span of 13.60 m, and lend

the interior an airy feel. While the curved openings give the impression of having simply been cut out of the expansive wall surfaces, their creation demanded in-depth design and construction expertise.

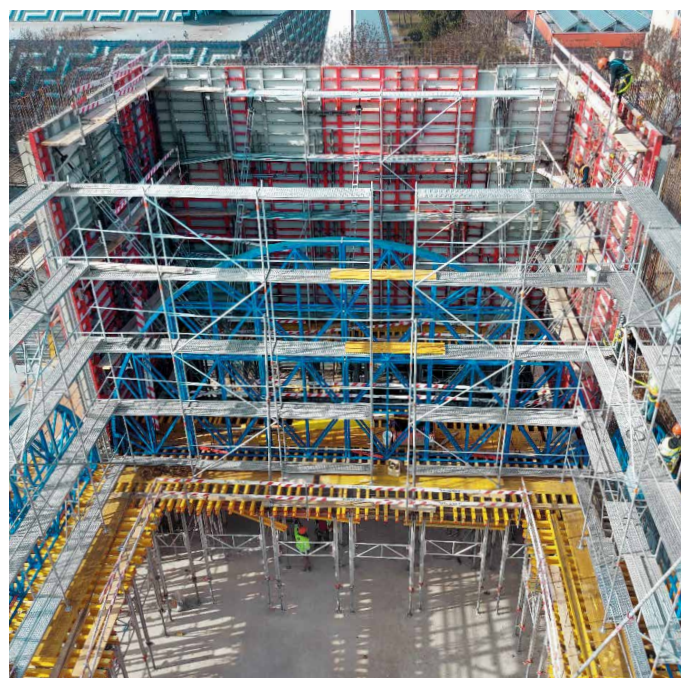
Two semi-circular steel-mesh brackets, 13.60 m and 8.10 m wide respectively and custom designed by the Tura Group, were placed exactly between the top edges of the precast-concrete piers and supported by MEVA MEP shoring towers at a height of 4 m. Large, high-performance Mammut 350 formwork panels were then mounted on and over the steel-mesh brackets. To keep construction times short, the contractor deployed maximum-sized formwork assemblies for swift movement by crane between work locations.

High loads and wind pressure

The modular MEP shoring tower vouched for safety and stability, as it was easily able to carry the weight of the steel-mesh brackets, formwork and concreted walls. The versatility offered by the differently sized MEP frames and flexible vertical

... continued on page 18

The MEP shoring tower and H20 beams support steel-mesh brackets and Mammut 350 panels that lend the arches their form.





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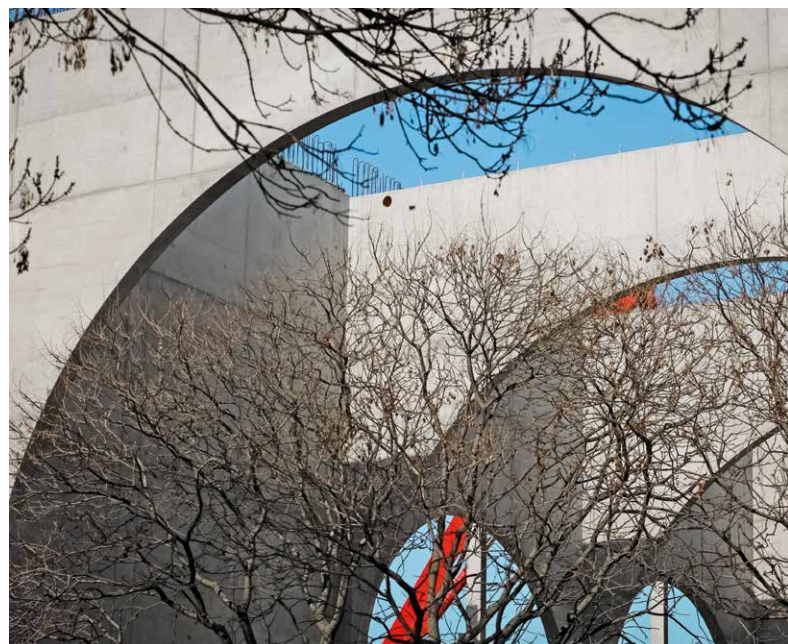
adjustment enabled the B. Build team to precision-align the various assemblies in accordance with the building geometry. As the system consists of only a few basic components, it is quick and easy to put together, without creating any dense “forests” of props. The workers thus enjoyed ample room to manoeuvre. The 13 m tall formwork assemblies were effortlessly stabilised against wind pressure and other loads by the modular Triplex braces.

Aesthetic concrete finish

One particular feature of the Mammut 350 system turned out to be a real blessing on this project: the symmetrical tie hole and joint pattern of the formwork panels, whether placed horizontally or vertically, allowed the concrete surfaces to be designed in line with aesthetic criteria. Throughout the construction period, the alkus all-plastic facings, fitted as standard, guaranteed the creation of homogeneous architectural concrete finishes to all the walls. Moreover, the simplicity of cleaning and patching the alkus facings proved a real time-saver on site.

The arcade building’s large concrete surfaces, including two of the big internal arches, were cast with expansion joints in order to prevent stress cracking due to the varying expansion properties of the materials in the filigree assembly. As a further precaution, the deployed concrete incorporated a special cement supplied by Lafarge as a binder, which reduces the proneness to cracking of structural concrete.

To speed up site operations and thereby cut construction costs, the scheme in southern Hungary made provision for early stripping. In addition, the cement from the Lafarge factory in Királyegyháza is more eco-efficient than other binders as it is produced by a process involving up to 40% lower carbon dioxide emissions due to a reduced proportion of clinker. This, together with the use of the durable, resource-efficient and wood-free alkus facings on the Pécs market hall project, is fully in keeping with Hungary’s “Build Greener” campaign.



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Project data

- **Project**
 - Pécs market hall, Hungary
- **Contractor**
 - B. Build & Trade Kft., Budapest, Hungary
 - Shell construction: Tura Group
- **MEVA systems**
 - Mammut 350 wall formwork
 - MEP shoring tower
 - Triplex heavy-duty brace
- **Engineering and support**
 - MEVA Zsalurendszerek Zrt., Budapest, Hungary

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