

FormworkPress

Professional Formwork News

IV/2021



Building a masterpiece

Art museum and concrete sculpture – page 12

Contents

News

Expansion in Dubai, climbing downwards in Manila, BIM²form update,
new opportunities in Benelux 4

In action on Canadian Highway 401
MevaLite and MEVA32: high-speed production on culvert ramp project..... 6

Inlet water structure for mining
CR Meyer chose Imperial wall formwork system – for good reasons 8

Monongahela Railroad
Successful restoration of a historic building with MEVA32 10

Building a masterpiece

Architectural concrete in Zurich 12

Imprint

Site photos show situations which do not always depict the final assembly of formwork with regard to safety regulations. Imprint: Edition IV/2021. Circulation: 800 copies. Publisher: MEVA Schalungs-Systeme GmbH, Industriestr. 5, D-72221 Hailterbach. 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.

"Our products have been accepted in the U.S. market very quickly."

Dear Reader,

More than 20 years ago, MEVA US was founded with headquarters in Springfield, OH, to win over the U.S. market with innovative products and outstanding services. We met strong competitors here, but our products have been accepted in the market very quickly – for good reasons.

On the one hand, this is because we established innovations such as the alkus all-plastic facing, which is very durable and still delivers the best concrete quality even after hundreds of uses. Another reason for our success in North America is our willingness to adapt the systems by making them work exactly for this market. For example, we transformed our successful Mammut wall formwork system from European to American needs. This resulted in the Imperial system with the correct measurements, with high capacity, by integrating tie-off bars, and making the system usable with taper ties.

Since then, Imperial has played to its strengths on numerous construction sites, e.g. on a project in Minnesota – see on page 8 in this issue. Mammut, the "European sister", meanwhile guaranteed best-quality concrete surfaces in a project that is well worth seeing in Zurich, Switzerland. You can read about from page 12.

MEVA US seized the opportunity to further develop the products to make them an even better fit for

their market. This has enabled MEVA US to come up with some market-specific solutions. Another product was engineered new and especially for our customers in North America: MEVA32, the strong, efficient and flexible shoring system. The aluminum frame is lightweight and has a load capacity of 32 kips. It is designed to suit many different shoring applications, which will save time and space on the job site. The largest frame weighs approximately 50 pounds, allowing the frames to be handled easily by just one worker. The high load capacity means fewer frames are required per square foot, saving labor and equipment – advantages that brought projects in Ontario (p.6) and Pittsburgh (p.10) to a successful conclusion.

Simple. Smart. Safe. Our motto can be seen not only in the design and quality of our products, but also in our daily support for you. We care about every single customer and project – from the largest to the smallest.

Find out more in this issue. Enjoy your read.
Best regards,



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

News

Information about MEVA



MEVA expansion in Dubai

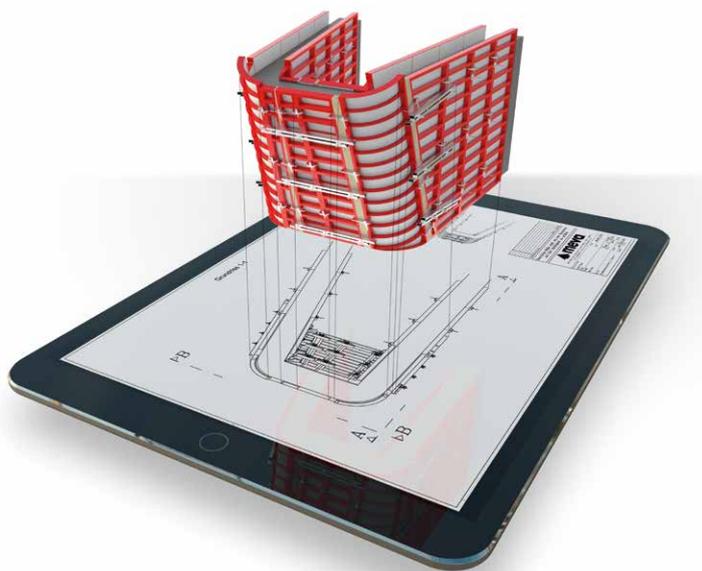
In 2006, MEVA set up a site in Dubai, the largest city in the United Arab Emirates. This served as the base for supplying formwork systems from Haiterbach for construction of the Burj Khalifa, which to this day remains the world's tallest building. 15 years after this milestone in the company's history, its offices and facilities in the city's Al Quoz district have become far too small. This has prompted the team to relocate to a more spacious, 215,000 sq. ft site with new offices, sheds and logistics spaces in Dubai's National Industries Park. The modern industrial estate lies close to the Expo 2020 Center, the Jebel Ali Port and Al Maktoum International Airport.

The buildings and facilities have been equipped to cater for expansion in the Middle East. A growing team will now set about optimising the supply and support services offered to customers in the region. The new site will also act as the main hub for the entire Gulf region. MEVA already operates in Qatar and is currently stepping up its sales activities in Saudi Arabia.

Climbing downwards in Manila

A roughly 40-year-old bank building in Makati, the financial district of the Philippines' capital Manila, no longer offers sufficient floorspace for staff and is to be replaced by a new skyscraper. However, the site's location in the densely developed inner-city area has necessitated special demolition measures involving the use of MGS (MEVA guided screen), which is widely used in Manila for high-rise construction – albeit with one particular feature: instead of climbing upwards story by story in the normal manner, the rail-guided system is working in the opposite direction.

In doing so, it fulfils two functions: avoiding hazards from falling debris and dust while simultaneously attenuating noise emissions from the demolition equipment. For this purpose, a special nonwoven fabric was fitted as a noise barrier to the MGS units. The full-perimeter enclosure at the slab edges was initially installed around the existing building's top stories and is now gradually climbing downwards as demolition work proceeds.



BIM²form update available

A few weeks ago, MEVA's software partner BIM² comprehensively updated its software BIM²form. BIM²form is an add-in for Autodesk® Revit® that enables automated digital formwork planning in partial steps and thus offers a new level of efficiency in model-oriented planning.

The update means that BIM²form is now available for the Revit versions 2019, 2020 and 2021. The entire user interface was redesigned in order to optimise its use and also to provide a neutral platform. The Wall, Slab and Manage features were extended. In addition, a storage manager was integrated as the first step towards storage-based planning, a large number of new parts and parametrically nested families were added, and additional functions were included.

BIM²form is available in a free 30-day test version. This can be simply requested via the website www.bim2.eu/en. Further information is also available on the website.

MEVA acquires Acropol Group

Through its purchase of the Acropol Group, MEVA is strengthening its presence in Belgium and Luxembourg. The takeover of the formwork and shoring tower rental company with a 25-strong staff encompasses the sites at Landen/Belgium and Rodange/Luxembourg. With a succession plan in place, the previous owner family handed over the business to their partner of choice.

For MEVA, the acquisition will open up new sales opportunities in the neighboring countries. Benelux customers can now fully capitalize on MEVA's comprehensive product portfolio while contractors in north-eastern France and western Germany will enjoy quicker and more flexible deliveries from the nearby sites. Alongside the rental business, the focus will now be on formwork sales and service offerings.

The Landen site comprises a 30,000 sq. ft shed, modern offices, training and showroom facilities plus an approx. 200,000 sq. ft outdoor area.

In action on Canadian Highway 401

MevaLite and MEVA32 delivering high-speed production on culvert ramp project

The origin of Highway 401 in southern Ontario can be traced back to the Queen Elizabeth Highway. Opened in the 1930's, the four-lane highway with its grassy median was the first of its kind in Canada. Today, parts of the Highway 401 pass through Toronto and it is considered to be one of the busiest highways in all North America.

When MEVA was approached about providing formwork for the new culvert ramp on the Highway 401, Tamer Gerges, MEVA's Canadian Sales Representative, realized that competition would be fierce.

The culvert ramp is designed with two 30'-0 tall abutment walls. The abutment walls and bridge will then be poured at the same time. MevaLite and the new MEVA32 shoring system were recommended as the systems of choice. As part of the challenge in constructing the bridge, the forms were required to remain in place until after the

slab for the ramp was poured. Since MevaLite can be erected as either a handset formwork or flown as gang, the system was selected. The contractor assembled MevaLite as a gang and then flew it into place for the two abutment walls. MevaLite worked perfectly since it offered the contractor the ability to strip the formwork by hand during removal since crane access would not be available as the formwork was now under the bridge. The 30'-0 tall abutment walls were designed with an inverted batter, which required the use of the heavy duty MEVA Triplex wall braces that supported the inverted batter and ensured the walls remained aligned.

The cast-in-place bridge deck featured an "Arched Rigid Design" which required a shoring system that would be flexible enough to support varying deck heights and slab thicknesses. The bridge was designed with a thickened slab of 3.0 ft centered over the abutment walls and then tapering to 1.7 ft in the center of the bridge deck. Due to limited space



and adverse conditions at the base of the structure, the contractor chose to erect the MEVA32 towers in two frame-high sections and then flew each section into place to ultimately assemble to a five-frame high tower (30'-0 heights). One of many features offered by MEVA32 is the ability to build the towers laying on the ground and then fly them into place vertically. This feature reduces the amount of time required for workers to be climbing up the shoring towers and provides a more stable environment to assemble the towers and then fly them into the final location. The towers were stacked five frames high using frame combinations of the 8'-0, 6'-0 and 4'-0.

Rather supporting a parking garage, high-rise or building a bridge, MEVA32 is delivering customer satisfaction while saving labor and increasing their profits.

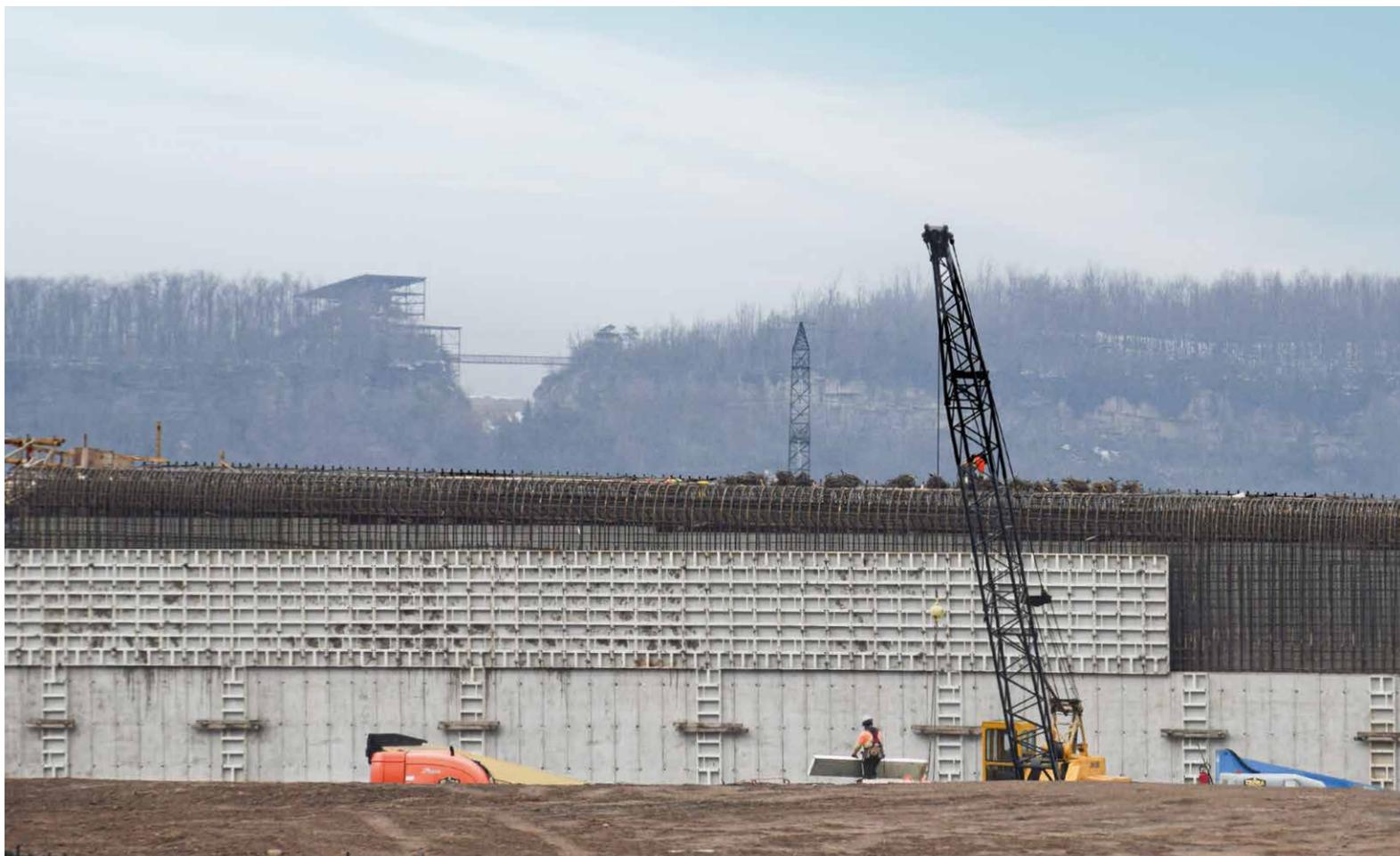
i

Project data

- **Project**
 - Culvert ramp, Highway 401, Ontario (CDN)

- **MEVA systems**
 - MevaLite wall formwork
 - MEVA32 shoring system
 - Triplex heavy-duty bracing system

- **Engineering and support**
 - MEVA Formwork Systems Inc., Springfield, Ohio





Inlet water structure for mining

CR Meyer chose the Imperial wall formwork system – for good reasons

Taconite is an iron-bearing sedimentary rock in which iron minerals are interlayered with quartz or carbonate. During the late 19th and early 20th centuries, the United States was able to mine such an abundance of high-quality iron ore that Taconite was considered a waste product with very little value. However, by the late 1940's, much of the high-grade iron ore once found in the United States had been depleted leaving Taconite as the new source for iron ore.

Located in the Iron Range of Northern Minnesota, a company who has been mining iron ore for the last 100 years is now expanding one of their large Taconite mines. The focus of the expansion is to add a new inlet structure, which will control the water flow between two retention ponds that are required for the mining process. The new inlet water structure will need to be 60'-0 tall to handle the water volume.

CR Meyer, located in Coleraine, Minnesota, is the contractor building the structure. According to Nick Ossefoort, project superintendent for CR Meyer, they chose the Imperial wall formwork system because of the 2025 psf pour rating and large panel sizes combined with their years of familiarity with the formwork. The structure is being poured in three 20'-0 lifts, with the formwork remaining in place after each pour to support the formwork for the next lift. The second and third concrete pours are at a height of 40'-0 and 60'-0 respectively.

MEVA is supplying the heavy-duty Triplex wall braces to offer a solution to support the alignment of the formwork at the 40'-0 and 60'-0 heights. Nick Ossefoort also emphasized that because of their longstanding relationship with Advance Shoring, this was an equally important reason they selected MEVA for this project.



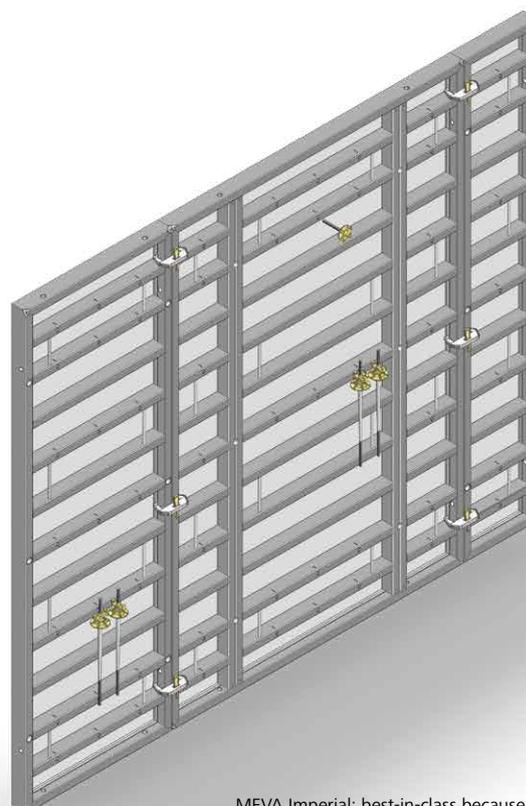
i

Project data

- **Project**
 - Iron ore mining, inlet water structure, Minnesota (USA)
- **Contractors**
 - CR Meyer, Coleraine (MN)
- **MEVA systems**
 - Imperial wall formwork
 - Triplex heavy-duty bracing system
- **Engineering and support**
 - MEVA Formwork Systems Inc., Springfield, Ohio

Jerrod Yeager, Sales Manager for Advance Shoring, shared that as water passes between the two retention ponds, sediment will accumulate at the bottom of the pond. Therefore, every year or two they are required to raise the height of the inlet structure by pouring 10' to 15' high extensions onto the existing concrete structure.

MEVA is proud to be associated with this project, but equally proud that 2021 marks the 20th year that Advance Shoring has been a committed MEVA Valued Partner (MVP), providing MEVA Imperial products along with quality engineering to their customer base throughout the North Central United States. In 2019, Advance Shoring also added the MevaLite formwork line. According to Jerrod Yeager, their customers were asking for a lightweight formwork solution and in order to fulfill those needs, Advance made the commitment to add MevaLite to their rental fleet.



MEVA Imperial: best-in-class because of high-quality design and construction, accessories, and panel details.



Monongahela Railroad

Successful restoration of the Hazelwood Round House with MEVA32

As the train hauling iron ore slowly pulls into the Hazelwood Roundhouse, steam billows from the engine as the locomotive comes to a halt...

Built by the Monongahela Railroad Company, the Hazelwood Round House and Turntable, located in the city of Pittsburgh PA, was constructed in 1887. The building was used to stabilize and move train engines and materials to support a growing steel industry throughout Pennsylvania and West Virginia.

In 2017, the local architectural firm, GBBN, was selected to oversee the renovation and redesign of the 134-year-old brick build. When completed, the renovated building will be the new home

of Global Silicon Valley Labs, whose mission is to support entrepreneurs while fostering innovation around the world through their online innovation platforms.

The renovation presented several challenges, including replacing portions of the roof, removing an area of the building that had collapsed, and finally installing a 7,000 sq ft 12" elevated concrete slab constructed inside the historic building.

According to Andy Blasco, Superintendent for PJ Dick Corporation who is overseeing the renovation project, the MEVA32 aluminum shoring system was selected because of the reduced weight of the frame. Weighing only 49 lbs, MEVA32 allowed



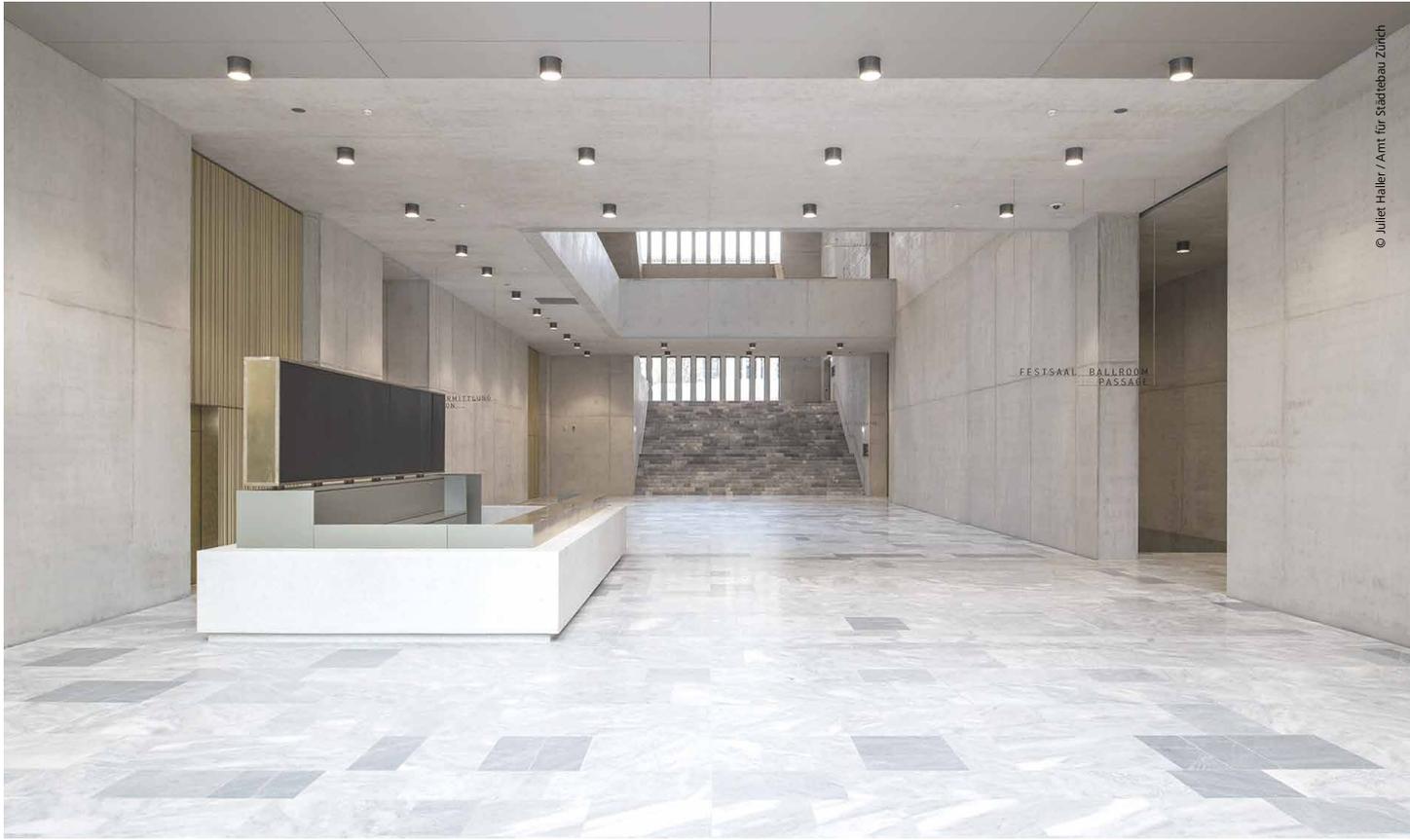
construction staff to carry the system in and out of the building by hand. Andy also commented that MEVA32 offered PJ Dick flexibility when facing the challenge of erecting shoring up against the existing radius wall inside the building. Due to the limited space inside the historic building, MEVA32 allowed for a 30% reduction in the number of shoring towers thanks to the 16 kip per leg system.

Rather building a new concrete structure or accepting the challenge of a restoration project, MEVA32 continues to offer the contractor both labor and freight savings when compared to the competition.

i

Project data

- **Project**
 - Monongahela Railroad Round House, Pittsburgh, PA (USA)
- **Contractors**
 - PJ Dick Corporation, Pittsburgh, PA
- **MEVA systems**
 - MEVA32 shoring system
- **Engineering and support**
 - MEVA Formwork Systems Inc., Springfield, Ohio



A masterpiece made of architectural concrete

Kunsthaus Zurich extension places big demands on master builders

Based on a design by star architect David Chipperfield, an open, light-flooded, cuboid-shaped building has been erected in the Swiss city of Zurich. The construction company Marti AG took on the architectural and structural engineering challenges together with MEVA and created a structure that resembles a concrete sculpture.

Approximately two years after the start of construction, Marti AG completed the building shell according to plan. In the meantime, the extension of the art museum in Zurich has become a resplendent eye-catcher in the center of Zurich. As of this October, art lovers from around the world will be able to wander around the superb new building. Carefully located height differences between the rooms create a pleasant atmosphere. The clear geometrical concept and large-format architectural-concrete surfaces offer the perfect setting for numerous works of art.

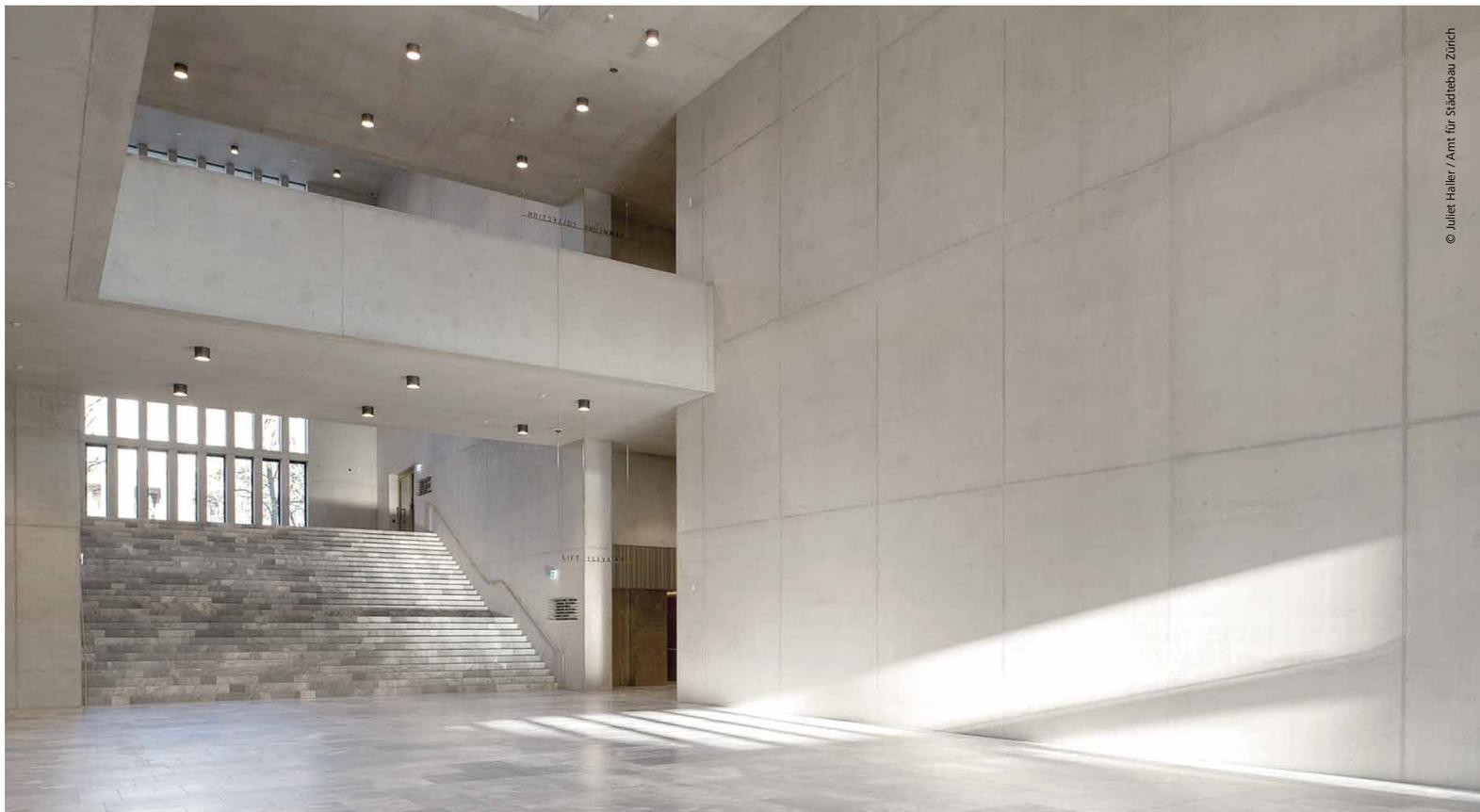
Sharp edges

The extension with a usable area of approximately 200,000 sq ft houses numerous smaller rooms that are designed to offer the optimum conditions for

the sometimes rotating exhibitions. "An important aspect of the planning and implementation in the entire building was the stipulation that all corners be sharp-edged," explains Marti AG's construction manager Franz Bütler. For this reason, the walls in the entire building were uniformly produced using the tried-and-tested wall formwork Mammut 350.

Due to the dimensional accuracy of the formwork and the high fresh-concrete pressure capacity of 2,088 psf, it was possible to pour concrete up to a height of 13.1 ft without taking the rate of placing into account, making things a lot easier for Marti's building professionals, who always had to keep a close eye on the details during this project.

The slabs of the exhibition rooms were implemented using the standard slab formwork MevaDec. Due to the system's arbitrary grid pattern, it was possible to freely select the beam orientation, thus reducing the number of compensations and making the work easier and quicker. In more spacious rooms the slabs were formed using the MevaFlex slab formwork supported by the flexible MEP shoring tower. Particular attention was also given to the atrium, which was constructed over five concreting

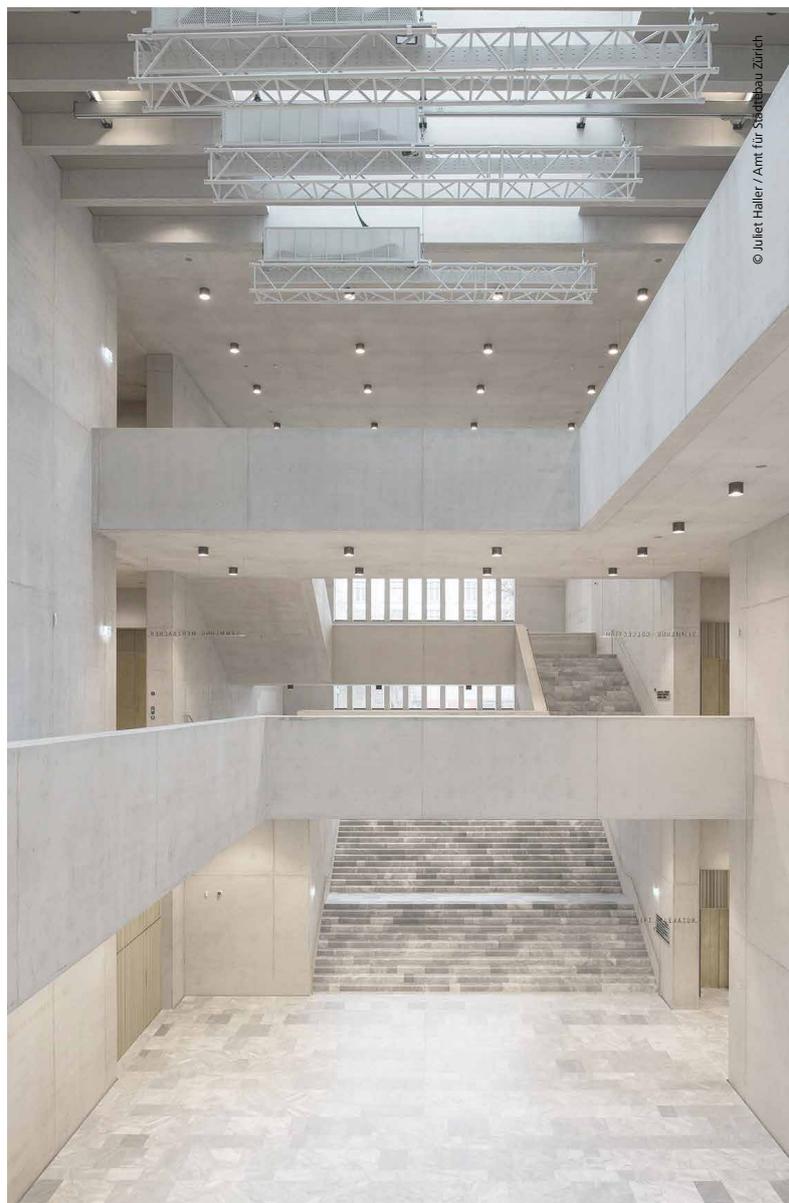


cycles. The oval recess in the building's ceiling was planned in three dimensions by the MEVA engineers and created using special formwork.

High-quality concrete finishes

The modern museum building stands out due to the excellent architectural-concrete finish on all surfaces. Particularly high requirements applied in the meeting rooms, the shop, and the cafeteria. To fulfil these uniformly, MEVA organised its own training course on-site with regard to the preparation and maintenance of the alkus all-plastic facings used. As the facing can be repaired using the same material, scratches and holes can be plugged flawlessly; at the same time, the facing retains its fundamental properties, preventing discoloration and enabling smooth, uniform surfaces to be achieved. The environmentally friendly all-plastic facing with its long service life is fitted as standard in MEVA's formwork systems. In many areas of the museum the joint pattern of the Mammut 350 wall formwork produced an extensive and wished-for pattern in the architectural concrete.

... continued on page 14





The KLK 230 climbing scaffold was used as a barrier-free working scaffold to enable the formwork to be precisely aligned.



Due to the dimensional accuracy and efficiency of the Mammut 350 formwork, it was possible to pour concrete up to a height of 13.1 ft without taking the rate of placing into account.

... continued from page 13

With great care

The formwork engineers’ masterpiece is, however, the new building’s central hall. With its high atrium and all-round galleries, it enables the visitors to easily get their bearings in the four-story building. When standing in the hall, the concept of the new building as a light-flooded cuboid can be easily perceived. And the Mammut 350 joint pattern is also visible here. “Alongside the high architectural-concrete quality, that was an important requirement for this project,” says MEVA engineer Volker Götz, who supervised the project right from the start. “The architect drew inspiration from this pattern and specified it for the entire building,” explains Volker Götz. “This was a significant challenge in the large hall. Despite openings and flights of stairs in various locations, the joint pattern had to extend precisely and without offsets over the entire height.” Construction manager Franz Bütlér adds: “The work required exact planning and had to be performed with great care, but together we managed to do a good job.”

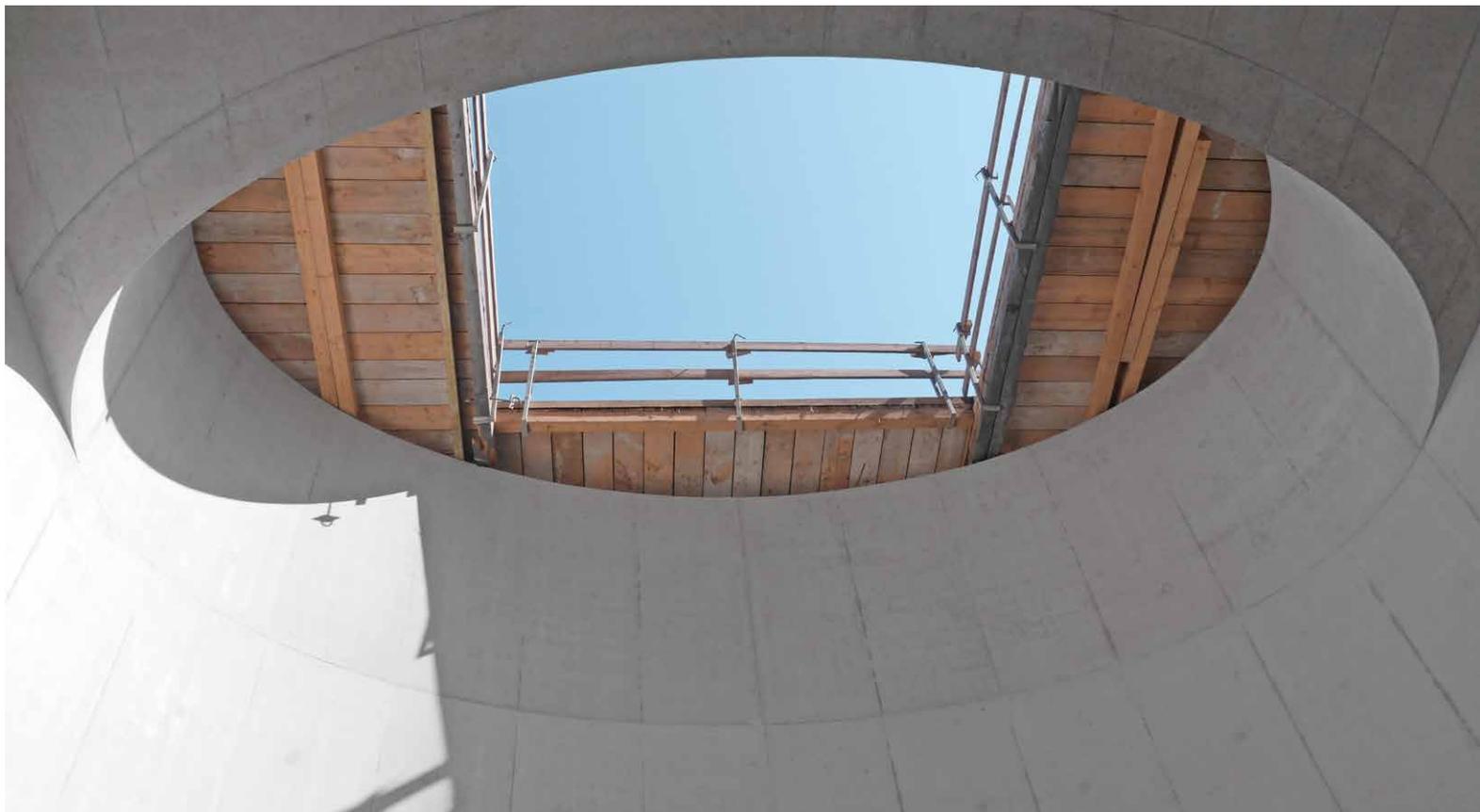
The Mammut 350 wall formwork proved to be an absolute all-rounder in the entire hall. Thus, 11.5 x 8.2 ft panels were used horizontally in order to form the tall flights of stairs first of all and later on also the 8.2 ft thick concrete beams under

the roof of the large hall. The KLK 230 climbing scaffold was mounted on the wall to enable alignment of the formwork. Once again, the architectural-concrete quality was the top priority – and the uniform pattern even continued on the large concrete beams as if created by the Mammut 350 frame imprint.

The tried-and-tested MevaFlex slab formwork system was used to produce the slab at a height of 92 ft. Correspondingly dimensioned 3S shuttering panels were prepared in order to create the desired pattern as if it had been produced by the imprints left by Mammut 350 panels. The excellent results required were achieved using new shuttering panels. After first use, the panels were turned over so that the clean, unused side could be employed for the next cycle. It is also remarkable how regular the results are here. Not only does the pattern extend uniformly across the entire ceiling; the openings for the lamps are also always in the middle of the shuttering panel imprint.

Extraordinary precision

In other areas, the precise planning groundwork is less conspicuous. However, especially for the 3.3 ft thick outer walls, it was necessary to work meticulously, as misalignment of the formwork joints



The oval recess in the ceiling above the atrium was created using special formwork.

was only permitted in a tolerance range of 0.04 to 0.08 in. That corresponds to about one quarter of the dimensional tolerance specified in the Swiss SIA standard 414/1. The reason for this is the natural stone façade that was precisely designed in the vicinity of the high window façades and columns. A greater deviation would have caused the concrete wall to protrude underneath the façade. The requirement to achieve a 11.5 x 8.2 ft frame imprint also applied indoors. The schedule required rapid progress of the construction work. Using two Mammut 350 formwork sets, the 92 ft high walls were formed in four 23-ft cycles. The KLK 230 climbing scaffold was used to erect and precisely align the formwork. Reinforced with Triplex heavy-duty props, the KLK 230 served as a scaffold for the alignment of the high formwork units.

Reliable partnership

With the newly built extension, Zurich now has a new architectural eye-catcher and an outstanding port of call for art connoisseurs. Franz Bütler, construction manager at Marti AG, expressed his satisfaction with the project: "The art museum was a very interesting construction site. Thanks to reliable partners such as MEVA, we have done a really good job here."



Project data

- **Project**
 - Extension of the art museum, Zurich (CH)
- **Project management / principle**
 - Zurich, Amt für Hochbauten
- **Contractor**
 - Marti AG, construction company, Zurich
- **MEVA systems**
 - Mammut 350 wall formwork
 - MevaDec slab formwork
 - Special formwork
 - KLK climbing system
 - MEP shoring tower
- **Engineering and support**
 - MEVA Schalungs-Systeme AG Seon (CH)

You can rely on us wherever you are.

With 40 offices on 5 continents, we are
on the spot wherever you need us.

MEVA North America

MEVA Formwork Systems, Inc.
2000 Airpark Dr.
Springfield, OH 45502
United States of America
Tel. +1 937 328 0022
Fax +1 937 328 0044

Southeast Distribution Center
11701 Mt. Holly Road
Charlotte, NC 28214

info@mevaformwork.com
www.mevaformwork.com

Headquarters (Germany)

MEVA Schalungs-Systeme GmbH
Industriestrasse 5
D-72221 Haiterbach
Tel. +49 7456 692-01
Fax +49 7456 692-66

Berlin
München
Nord
Rhein/Ruhr
Rhein/Main
Stuttgart

Tel. +49 3375 9030-0
Tel. +49 89 329559-0
Tel. +49 511 94993-0
Tel. +49 2304 24445-0
Tel. +49 171 7728414
Tel. +49 7024 9419-0

info@meva.net
www.meva.net

Subsidiaries/international bases

A-Pfaffstätten Tel. +43 2252 20900-0
AUS-Adelaide Tel. +61 8 82634377
Benelux, Gouda Tel. +31 182 570770
BH-Riffa Tel. +973 3322 4290
CDN-Toronto Tel. +1 416 8278714
CH-Seon Tel. +41 62 7697100
DK-Køge Tel. +45 56 311855
F-Sarreguemines Tel. +33 387 959938
GB-Tamworth Tel. +44 1827 60217
H-Budapest Tel. +36 1 2722222
IND-Mumbai Tel. +91 22 27563430

LATAM latam@meva.net
MA-Casablanca Tel. +212 684-602243
MAL-Perak Tel. +60 12 5209337
N-Oslo Tel. +47 67 154200
PA-Panama City Tel. +507 2372222
PH-Manila Tel. +63 998 5416975
QA-Doha Tel. +974 4006 8485
SGP-Singapore Tel. +65 67354459
UAE-Dubai Tel. +971 4 8042200
USA-Springfield Tel. +1 937 3280022



MEVA Schalungs-Systeme GmbH

Industriestrasse 5 Tel. +49 7456 692-01
72221 Haiterbach Fax +49 7456 692-66
Germany info@meva.net
www.meva.net