# DokaXpress

The formwork magazine

Vol. 24 Issue 1

Formwork and Scaffolding.
**We make it work.**

2024

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**AR Marker Symbol:** Download the app at DokaAR.com, open the app on your smartphone or tablet device, scan the image with the AR Marker symbol to fully experience the latest developments of Doka USA!

**Imprint:** Doka Xpress is a publication of Doka USA. Publisher: Doka USA 251 Monroe Avenue, Kenilworth, NJ 07033 Editorial: Diana Sanicki & Luisa Campos Marketing, Doka USA, Ltd. In some cases the site photos show the situation during formwork assembly and are therefore not always complete from the point of view of safety.

As we start 2024, we are confident in the construction industry opportunities in front of all of us. The end of 2023 marked a slight slowdown in construction starts with interest rate and inflation concerns. According to the Dodge Construction Network Outlook, 2024 is anticipated to usher in a transition towards robust growth with a projected 7% increase in total construction starts. We at Doka are well positioned to demonstrate our differentiation for customers to secure projects utilizing our solutions, services, and availability of products.

There continues to be optimism related to anticipated federal government funding that will enable shovel ready projects in manufacturing and infrastructure, as a result of the Infrastructure Investment and Jobs Act (IIJA).

Doka stands ready to service all project types, particularly in the face of ongoing labor shortages. Our forming, shoring, and scaffolding solutions are designed to reduce field labor, drive productivity and improve safety.

We continue to invest in properties, facilities, and inventory to better serve our customers across the United States more efficiently. This included new or upgraded branches in New Jersey, Colorado, Florida, and Texas. In 2024, we will add a second location in Texas (Dallas) and a new location in Utah (Salt Lake City) and our Georgia location will be upgraded. Our Texas (Houston) branch now includes a dedicated Girder Facility to handle, maintain, and modify heavy steel girders in response to the increasing demand for infrastructure projects.

Our comprehensive services in each of these locations, and the collaborative working relationship between our people reflects our values of passion, partnering, and high-performing solutions.

We realize there's an enormous amount that must be done to facilitate our customers' tight timelines, in confined spaces, and with complex specifications. In any condition, under any challenge, our customers can be assured that at Doka, "We Make It Work!"

**Michael Kennedy,**
CEO, Doka USA

The Meadows at Plato Price and New Pineola in Charlotte, NC for the 2023 Jimmy & Rosalynn Carter Work Project.

## Building strength, stability and self-reliance through shelter.

Habitat for Humanity is a nonprofit organization that helps families build and improve places to call home. We believe affordable housing plays a critical role in strong and stable communities. Habitat for Humanity works in more than 70 countries — and has helped more than 46 million people improve their living conditions since 1976.

Habitat works together with families, local communities, volunteers and partners from around the world so that more people are able to live in affordable and safe homes. Their advocacy efforts focus on policy reform to remove systemic barriers preventing low-income and historically underserved families from accessing adequate, affordable shelter.

*"At Doka USA, we believe that everyone deserves a decent and affordable place to call home. We are thrilled to partner with Habitat for Humanity to support their admirable mission of building strong, vibrant communities through affordable housing," said Michael Kennedy, CEO of Doka USA.*

In 2023, Doka USA team members had the opportunity to lend a 'hand up' with the global housing organization by building homes in the US and contributing to their construction through various volunteer projects across 10 locations including our participation during the 2023 Jimmy & Rosalynn Carter Work Project.

Read more on page 15.

# News flash

From Left: Cosimo Palden, Paolo Zumaglini, Michael Kennedy, Alfred & Elizabeth Umdasch, Hilde Umdasch, Wolfgang Litzlbauer

## Umdasch Family Visits Doka USA!

We want to express our heartfelt gratitude to the Umdasch family, esteemed founding family members.

Doka USA had the honor of hosting Hilde Umdasch and Alfred & Elizabeth Umdasch at our USA headquarters in Kenilworth, NJ, office during the Global Leaders' Summit. They officially opened our national support and northeast office with a ribbon-cutting ceremony!

A tree was planted in their honor to express our gratitude, symbolizing growth, strength, and our enduring partnership. We are incredibly thankful for their support of Doka USA.

Together, we will continue to achieve greatness in the construction industry and our communities!

PROJECT

# The Rise of 520 Fifth Avenue

## Doka customized formwork enables spiraling setbacks

Designed by Kohn Pederson Fox, the 520 Fifth Avenue high-rise, currently under construction, is a supertall mixed-use structure located in Midtown Manhattan, NY. When complete, this reinforced concrete superstructure will include restaurants, office space, public recreation and retail as well as almost 100 residences. At 76 stories and 1,001 ft tall, the slender tower (it's only 85 feet wide at street level) with its spiraling setbacks will be the second-tallest building on Fifth Avenue, after only the Empire State Building. Characterized by oversized windows recessed in stepped arches, the skyscraper will provide impressive views of the Midtown skyline. The general contractor, Suffolk Construction began excavation at the site in late 2021. Today, the installation of the building's façade is well underway. Topping out of the tower is expected in spring 2024, with project completion anticipated in 2026.

### The Facts

**Project:** 520 Fifth Avenue

**Location:** 520 Fifth Ave, New York, NY

**General Contractor:** Suffolk Construction

**Concrete Contractor:** Trident General Contracting

**Architect:** Kohn Pederson Fox

**Developer:** Weidner Apartment Homes

**Type of structure:** Mixed-Use Highrise

**Height:** 1,001 ft.

**Stories:** 76 stories

**Sq. Ft:** 1,000,000

**Cycle time:** Avg. 3-day cycle planned

**Construction time:** 2 years

**Products used:** Core: Frami; Facade: Xclimb 60 with Frami and Protection Screens; **Reshoring:** Eurex Props; **Shoring**: Superdek and Staxo; **Egress**: Exterior climbing Stair Towers

1 To facilitate the transitioning slab edges as crews move from floor to floor, the Doka team designed and customized an exterior protection systems. The protection screens incorporate small modifiable sections that can be removed at each transition to reduce the screen sizes during the upward climb. The screens can be reduced in size while on the building, minimizing the need to acquire and swap screens during construction.


2


3

## The Challenges

Constructing the steel and reinforced concrete superstructure of this supertall high-rise required careful planning, logistics and creative solutions to support the core and facade construction. The skyscraper design incorporates a number of stepped setbacks with terraces wrapped in a curtain wall of oversized windows. At just 85-ft wide at street level, and workspace at a premium, the concrete contractor looked to Doka to support and streamline construction.

## The Solution

From a customized shoring system to modifiable protection screens, the Doka team developed a comprehensive formwork solution that supports all phases of the superstructure construction, while streamlining concrete placement, minimizing field assembly, and reducing formwork materials.

**2** Superdek was the ideal system for the shoring on the project. Specifically, Doka designed a shoring system using 6' x 8' grids. As the slab thickness increased, so did the number of props/stringer lines. This solution helped maintain the same grid spacing throughout construction.

**3** Modular Frami wall formwork was ideal for supporting core and façade work.

# The Wave of the Future

## Custom cantilevered formwork shines on distinctive Biscayne Bay residential tower

Una Residences is the first new condominium development in the Brickell neighborhood of Miami, FL in over a decade. Located on the shore of Biscayne Bay, this 47-story luxury residential tower, inspired by the classic yacht design, seems to flow like an ocean wave as it rises. When complete, the development will include 135 2-5 bedroom units with floor-to-ceiling windows overlooking the Biscayne Bay as well as three pools and private boat slips. Construction is expected to be complete in early 2024.



## The Facts

**Project:** UNA Residences

**Location:** Miami, FL

**General Contractor:** Civic & Ant Yapi Joint Venture

**Concrete Contractor:** Moore Group

**Architect:** Adrian Smith + Gordon Gill Architecture

**Type of structure:** Residential Tower

**Height:** 579 ft.

**Stories:** 47 stories

**Sq. Ft.:** 1,098 – 4,796 sq. ft. units

**Cycle time:** Avg. 6 days per floor

**Construction time:** Nov. 2020-early 2024

**Products used:**
**Core**: Framax; **Reshoring**: Doka Super prop and Eurex props; **Shoring**: Doka truss tables and 10K shoring towers; **Other**: Unique stepped cantilever shoring design

**1** The cantilevered portion of the tower construction was the most difficult part of the effort, both because of the heavy loads imposed by the overhang and the significant amount of material required to be put in place. Doka and the contractor worked closely to engineer the unique stepped formwork design using Doka solutions that took into account the post-tension slabs below. These solutions included gantry beam materials, heavy duty shoring and scaffolding and Doka Super Props. The stepped cantilever shoring design enabled a direct load path that allowed for a simpler installation of cantilever equipment, using fewer robust elements and delivering greater flexibility to the site. These systems all worked together to handle the loads that were imposed on the structure, particularly on the back-of-building overhang, while making it safe for the workers on that level and for those working below.

**2** The Doka Truss Tables incorporated access ladders that securely guide the slab to the working deck, which eliminated the need for crews to remove, strip and reset formwork for every lift.

## The Challenges

This structure includes a three level, below grade reinforced concrete parking garage, one of the deepest foundations in South Florida, and one of the most complex to build because of the high water table. A second challenge is the tower design. As the structure climbs to its 579-ft height, it gradually cantilevers out from the base on the west side to allow for larger residences.

## The Solution

Doka put together a team from all over the world to make this complex project move forward safely and within the time constraints. Doka provided detailed installation drawings and provided on site field services to ensure efficient formwork installation throughout the project especially for the cantilever area.

For the three-story parking garage, Doka's modular systems included D22 support brackets and Frami handset formwork and Framax. The Frami and D22 support frames were used on the foundation perimeter's single sided walls as these systems needed to be hand set and stripped under the poured slabs. Framax was used for the core walls including the universal panels made the columns tie-less which were quick to setup and strip. The combination made it possible to form the foundation walls, as well as the main pile cap and shear walls, quickly and easily.

SPONSORSHIP

# Doka USA Announces Support for Habitat for Humanity in the United States

As a responsible corporate citizen, Doka USA is committed to making a positive impact on society and recognizes the importance of safe and stable housing for individuals and families. By joining forces with Habitat for Humanity, Doka USA aims to leverage its expertise and resources to address the affordable housing crisis and improve the lives of those facing housing challenges.

Over the next few years, Doka USA will be working with the global housing organization to build homes in the USA. This will help ensure that more people have access to a safe, decent and affordable home in the future. Doka USA is not only supporting the construction of houses, but Doka employees will also contribute to their construction through various volunteer projects. One example is this year's participation in Habitat for Humanity's Jimmy & Rosalynn Carter Work Project. This project will involve several Doka employees volunteering their time and effort to build and repair houses for those in need - further demonstrating Doka's commitment to helping those in need.

"At Doka USA, we believe that everyone deserves a decent and affordable place to call home. We are thrilled to partner with Habitat for Humanity to support their admirable mission of building strong, vibrant communities through affordable housing," said Michael Kennedy, CEO of Doka USA. "Through this collaboration, we hope to combine our strengths and contribute to creating safe and sustainable housing solutions that will positively impact the lives of families across the country."

Wolfgang Litzlbauer, CEO of the Umdasch Group, confirmed: "By supporting Habitat in the USA, we can closely dovetail our social commitment with our corporate strategy and thus achieve the greatest possible impact with our available means and resources."



## DOKA USA 2023 HABITAT TIMELINE

**June** — 23

**Southeast Branch**

The **Southwest** partnered with the Gwinnett County, GA local affiliate and kicked off the first of many projects that will take place around the US by wrapping houses and installing doors and windows.

**Lawrenceville, GA**

**July** — 7


**Mid-Atlantic Branch**

**Baltimore, MD**

The **Mid-Atlantic** partnered with the Chesapeake local affiliate with some painting projects.

**August** — 11

**Midwest Branch**

The **Mid-west** branch worked with the Will County local affiliate on many projects including setting trim and flooring, installing doors, hanging kitchen and bathroom cabinets, and property and debris clean up.

**Channahon, IL**

**September** — 4

**Northwest Branch**

The **Northwest** branch partnered with the Tacoma/Pierce County local affiliate working on interior trim, painting, tiling, cabinetry, and landscaping.

**Sumner, WA**

**14**

**Farwest Branch**

**Riverside, CA**

The **Farwest** branch supported the Riverside local affiliate with priming and painting exterior walls (cutting and rolling teams), as well as eaves, and trim.

**October** — 5

**Mountain Branch**

**Commerce City, CO**

The **Mountain** branch removed and old deck and replaced with a new one.

**Carter Work Project**

**6**

Doka participated in and sponsored the Carter Work Project (27 homes/500 volunteers per day) October 1st – 6th in Charlotte, NC. Included below is the volunteer manual which includes a brief overview of the week.

**Charlotte, NC**

**National Support Office & Northeast Branch**

**37**

Our **Northeast** Branch and National Support Office teams partnered with the Bergen County local Habitat to work on various projects in Westwood, NJ.

**Kenilworth, NJ**

**December** — 12

**Pompano Beach, FL**

The **Far South** branch will partner up with their local affiliates to volunteer on some exciting projects.

**Far South Branch**

**11**

**Tomball, TX**

The **South Texas** Branch main focus for the event was to help clean up the jobsite as they are almost complete with the jobsite, as well as help build a fence. They were so thankful for our help. We finished 2 hours earlier than expected!

**South Texas Branch**

Scan the QR code to ee some of the highlights of our 2023 Habitat participation.

- 10 LOCATIONS.
- 143 EMPLOYEES.
- 1,000 EMPLOYEE VOLUNTEER HOURS.
- 8 HOMES PLUS 27 CARTER WORK PROJECT HOMES.
- MULTIPLE PICNIC TABLES AND BENCHES .

doka | Habitat for Humanity

PROJECT

# Redefining Efficiency, Quality at Hunts Point

Slipform system delivers essential solution to state-of-the-art facility

Skanska, as part of a joint venture with R.J. Industries, Inc., was chosen to build facilities at Hunts Point Wastewater Treatment Plant in the Bronx. The project includes the construction of four 3.2 million gallon, post-tensioned, cast-in-place concrete digesters. Work includes the installation of cast-in-place concrete, a gas room, a control building, an above-ground digester feed pump station, a guardhouse and walkway bridges. It also includes a range of systems works plus site clearing, excavation and final landscaping.


1


2

**1** The high-quality concrete finish minimized the need for patching wall surfaces.

**2** The contractor was able to reduce labor requirements and improve safety by eliminating form ties and climber anchors.

**3** Doka's Slipform technology facilitates faster construction times, improved quality control, and the ability to create tall and seamless structures.

## The Facts

**Project:** Hunts Point WWTP

**Location:** The Bronx, New York City, NY

**General & Concrete Contractor:** Skanska RJ Industries HPWWTP JV

**Type of structure:** New Anaerobic Digesters Facilities – Wastewater Treatment Plant

**Height:** Tank wall: 88'-0" Overall height: 95'-6"

**Sq. Ft:** 23,500 per tank

**Cycle Time:** Continuous 24-hour operation

**Construction time:** Total time to pour 1 tank ranged from 8 to 11 days

**Products used:** Doka Slipform System; Shoring: Dokaflex/Staxo 100; **Other**: Framax, Frami, Staxo100, DokaFlex, Platform K, A-Frame, MF-240

« The slipform was a great, great aspect not only for the safety of the erection of these tanks, but also from a schedule aspect. We were able to complete four tanks in just over two months where a conventional jump system would have taken about two months just to complete one tank. So we were able to complete each tank in just over 8 days and it was huge for a schedule impact and letting us to attack some other work in a quicker manner. »

**Chuck Stewart, Superintendent**
for Skanska


3

## The Challenges

To build the treatment plant efficiently, the Skanska/RJ Industries planned a three-shift, 24-hour construction operation. However, the joint venture needed to have a "Plan B" in place for all probable adversities such as:

- Heavy rains, which could affect the concrete placement and curing.
- Strong winds, which could affect crane operation—thus affecting steel and concrete placement.
- High daytime temperatures, requiring adjustment of concrete mixes to control curing.
- Inconsistent concrete mix deliveries, which affect the slipping rate.

## The Solution

To allow for the construction of the monolithic structure, Doka's Slipform System was the ideal solution because of its flexibility. It involves continuously pouring concrete into the Slipform, which gradually rises as the concrete sets and hardens.

The Slipform was assembled and dismantled only twice—at the beginning and at the end of the tank wall casting, which eliminated all stripping and resetting of forms common when using a conventional formwork system. All other construction tasks including the placement of concrete, rebar and embedded steel were executed simultaneously with the Slipform process, greatly improving efficiency. Ultimately, the three-shift crews exceeded the scheduled construction times.

# SERVICES

Learn more
https://www.doka.com/us/solutions/services-us/field-service

## Forming know-how in person. Meet the Doka USA Field Service Team

Experienced formwork artisans, the Doka field service experts can help supervise the formwork assembly or introduce your team to our formwork systems. They can handle even the most complex and specialized formwork projects, such as automated climbing formwork, tunnel formwork travelers, or on-site assembly of unique formwork components.

The field service professionals at Doka are prepared to assist and train site personnel. All Doka Field Service Technicians are specially trained, experienced field specialists who come on site to explain exactly how the formwork is used to safely maximize benefits. It starts with field instruction on how to handle the formwork, steps through all the operating routines, helps to familiarize and finishes with a certification.

**Problem Solving:**
Doka's field service team is a liaison between regional branch offices, and the on-site construction management team (contractor, superintendent, safety manager, project manager), They also assist and train personnel on many construction sites providing field certification on hydraulic climbing systems and standard formwork and shoring applications. They can also provide formwork assembly support and expertise on short notice.

**Your advantages:**
Time saving by optimum, effective use of the formwork.
- Formwork know-how is shared, providing a fast benefit from the advantages of Doka systems
- Higher level of safety because systems are used correctly
- Cost savings by optimum system utilization
- Reduction in job closing costs because material defects are avoided and wear and tear minimized
- Extension of product lifespan
- Optimization of formwork application
- Correct use of special formwork

Doka Field Service Team members have technical knowledge, such as the ability to interpret blueprints and plans, and excellent interpersonal abilities to work well with a wide range of various personalities. Our field service specialists have outstanding communication skills, which allow them to efficiently manage many duties and facilitate projects. Qualitative talents include good problem-solving abilities, technical competence, and strong analytical abilities.
The field service crew is very focused and energized, and they spend a lot of time out in the field helping customers.

Sometimes it's just as easy as explaining things with our customers while looking at the drawings—and they can't quite "picture" it being done. Then, as you're building it, they are looking at the system with a smile saying, "Oh, I get it now!" That's what I like about my job. —Jon Beckman

I like what we do as formwork instructors. We teach our customers how to use our products, the safest and usually the most effective way to use them. We also get to learn from the customer, their perspective, and sometimes a better way of doing things with our products.— Doug Robinson

If you want professionalism, Doka Formwork Instructors are the way to go. Professionalism at its best!— Rich Barton

Field Service to me is about being out there working with the guys building concrete relationships and making friends. — Steve Burokas

Our customers value us for our on-site expertise in demonstrating the correct assembly of formwork, ensuring safe and efficient installation.— Michael Koenigsdorfer

My name is Luis Orriols, currently serving the Florida market. I been performing Field Service for 9 years, my one year Doka Anniversary was just celebrated in November. I'm currently servicing Block 45 in Miami, which is Doka's first Garage Beam job in Florida. The thing I love most about my job is the customer interaction and support, we create a bond/trust with each other. I love how every job is different and I get to use a wide variety of skill's everyday, including my favorite.. trouble shooting. — Luis Orriols

I enjoy my role as a Field Service team member because of the close contact with our Doka customers, being a part of the building process on site, traveling to different projects, and meeting and training crews. — Matthias Roemer

# Hudson's Development Reimagines Central Detroit

## Innovative solutions, collaboration lift skyscraper to new heights

Words like bold and iconic have been attributed to the new Hudson's Site, currently under construction in downtown Detroit. For Michigan-based Bedrock Management Services, it is the revitalization of the 200 block of Woodward Avenue. The centerpiece of this development effort is a 49-story skyscraper that will rise 685.4 feet, making it the second tallest structure in the city. According to the developer, it will include 1.5 million square feet of office, retail, food and beverage, hotel, residential, event and meeting, parking and open space. A new plaza will connect the skyscraper to the new structure next door.

### The Facts

**Project:** Hudson's Site

**Location:** Detroit, MI

**Developer:** Bedrock Management Services

**General Contractor:** Barton Malow Companies

**Concrete Contractor:** Downtown Concrete Partners (DCP): joint venture between Barton Malow Concrete and The Colasanti Companies.

**Architect:** SHoP Architects

**Type of structure:** Mixed-Use Skyscraper

**Height:** 685.4-ft.

**Sq. Ft.:** 1,500,000

**Stories:** 49

**Construction time:** Dec. 2021 – Jan. 2024

**Products used: Basement Columns:** Frami; Basement Slab Formwork: Dokamatic Tables & 10K Shoring Towers; **Block Cores**: Top50 with Inside SCP Self-Climber & Outside xClimb60 Platforms, Mounts For Concrete Placing Boom; **Tower Cores**: Top50 with SCP Self-Climber, Mounts For Concrete Placing Boom & Tech Crane; **Tower Columns:** Frami Columns; **Tower Screen Protection**: XClimb60 Protection Screen, Screens with integrated storage platforms and stair towers; Automated climbing TLS material hoist

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1 **Tech crane mount** - Doka was able to facilitate a mini-crane mount on the self-climbing core to assist the site with material hoisting. Jason Barber, Key Accounts Manager with Doka, said, "The challenge was to achieve an average five-day cycle time on typical levels. However, with the number of rebar embeds and size of the pours, conventional methods would not have worked for managing materials. The only way to make a five-day cycle happen was to add a tech crane onto the core to provide extra hoisting to the job site." Along with conventional mounts on the top of the core to place concrete, Doka also placed a mount on the core to support the tech crane. The mini crane was mounted on the SCP Self-Climber with an engineered custom frame to support the loads. "The Doka team presented the idea to the customer. We developed a computer model of the day-to-day activities for five days. And then we showed how the tech crane would impact the schedule by adding that extra hoisting," said Barber. Doka facilitated two hydraulically climb cores, climbing the inside and the outside on those cores to facilitate the rebar and the embed placement. With the hydraulic core climbers, the contractor did not need overhead gantry over the top of the wall, and they could fly rebar cages with ease.

2 **Slab and column formwork** - Crews prepare to pour slab over the formwork and post-tension cables (blue) on this level. Note the column formwork is suspended over the slab formwork. The left side shows the perimeter safety screens including the perimeter walkway, which were already in place prior to setting slab formwork. Once the slab is poured and set, crews jack the column forms down to sit on the concrete, and can then pour the columns. Barber said, "One of the unique thing about the columns on this project is the sheer number. There were 112 different column cross sections—and they changed every floor. The flexibility of Frami panels and clamp forms were particularly beneficial in this instance, making it very easy for crews to adapt to all of the different columns sizes and heights."

3 The Doka Super Climber self-climbing core system with its single stroke cylinder to raise all interior and exterior core formwork was used to support the beams and core walls. This modular, efficient solution also provided additional value. As the cores were constructed, the crews needed to set the steel beams that would support the elevators. Doka engineers attached an electric hoisting mechanism (green box) to the Super Climber, which allowed crews to hoist these beams and stair sections with ease. Since the hoist rolls back and forth, crews have movement back and forth, and left and right, allowing them to hold the beams in place while welding, for extra safety and efficiency. Brian Gulick, Superintendent with Barton Malow on the Hudson site, said, "It greatly helped our production levels with the rods in the core walls as some lifts we had were up to 1600 lbs. of steel per cubic yard. It helped us get bars into places that we couldn't lift by hand."

## The Challenges

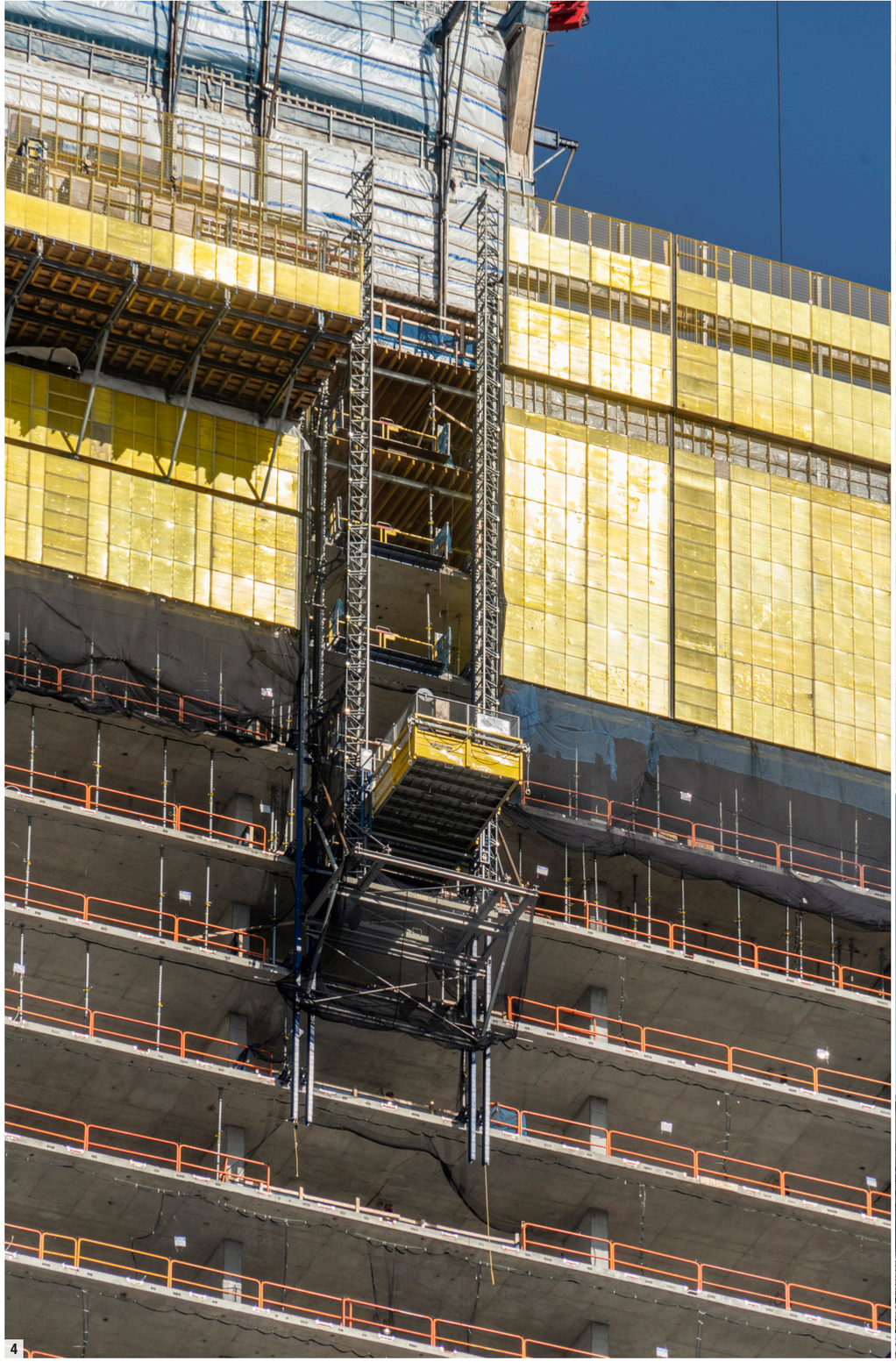
Located on busy Woodward Avenue in Downtown Detroit, Hudson's Site is inherently complicated largely due to scope, scale, and its urban location. From a construction perspective, those challenges range from very tight project footprint to the high concrete pour pressures. Doka has been on the development project since 2017 working closely with Downtown Concrete Partners (DCP), the general contractor, Barton Malow Companies and the customer.

## The Solution

Early on in the project, the project team quickly realized that Doka was the only supplier that had the full scope solutions to support a project of this size and complexity. Beyond the standard column and core formwork, specialized engineering as well as assembly and site services would emerge front and center largely because of the skyscraper's unique design. The skyscraper sits on a massive underground with the first 11 stories constructed using structural steel to take advantage of the material's high strength and versatility. Then, from 12 stories to top, it is a cast-in-place concrete frame. Doka collaborated closely with the project team and especially the customer early on to make sure the right formwork solutions were in place at the right time. For instance, Doka provided the suspension points of climbing systems at cores and slabs in a BIM Revit model for clash detection. This analyses eliminate any clashes on site and position changes of suspension points were done in advance. The basement took about a year and a half because of the sheer size, essentially an entire city block that was 45-feet underground. Crews had to pour massive slabs as well as something close to 2.5 miles of walls, totaling around 250,000 square feet. The team relied on Frami formwork for the basement columns ad Dokamatic Tables and 10K Shoring Towers for the basement slab formwork. Prior to preparing the cast-in-place concrete frame, Doka installed screens on the steel frame building.

« With all the formwork systems and the design, it was nice to have Doka on board with all their professional help from Operations, Engineering to Field services. All the fellows and ladies, that were there to help us along the way, whether it was trucking, working through design changes with the engineers or the field service guys, that were out here helping us assemble and put the things together. I feel like anytime you call them, they were able to help answer questions or get me the material that we needed for the site for our team. »

**Brian Gulick, P.E.**, Superintendent with Barton Malow on the Hudson



4

5

6

4 **Rail-Mounted TLS Material Hoist** While material table lifting systems on top towers are not unusual in the industry, this particular solution was unique. Typically, during a lift from one level to the next, a table lifting system is completely unmounted from the building and lifted by crane and then remounted on the building. The process can take two to three hours and requires considerable crane time. The Doka-designed automated self-climbing TLS solution eliminates the need for a crane. The hydraulic action pushes up about a foot a minute, so around 15 minutes to hydraulically jump that up one level. It's faster and safer. Doka further extended the reach of the TLS to six levels. Usual mast anchoring was integrated on the climbing profiles and reduced the amount of suspension points in the slab.

5 Crews installing the Doka Super Climber self-climbing core system.

6 Doka engineered and installed safety bridges between the two cores for improved access between the structures.

# Colorado Dam Gets a Facelift

## Doka's safety and shoring solutions aid in building construction

The Albion Dam in Boulder, CO is a curved concrete gravity dam that was initially constructed in the early 1900s to impound Albion Lake. It is owned by the City of Boulder and operated as part of the area's raw water system. The Albion Dam rehabilitation project will mitigate concrete deterioration, improve the watertightness of the upstream face, and upgrade the spillway and outlet works.

### The Facts

**Project:** Albion Dam

**Location:** Nederland, CO

**Developer:** Boulder County

**General Contractor:** Big Sky Civil

**Concrete Contractor:** Big Sky Civil

**Type of structure:** Dam

**Height:** 30 feet

**Stories:** 4 stories

**Sq. Ft:** 1,500

**Cycle time:** 3-day cycle planned

**Construction time:** April to October 2023

**Products used: Walls**: Framax; **Façade**: Framax and D22

1

**1** The dam formwork D22 system has an anchor tensile force of 220 kN (49.5 kips) that allows this system to operate in a one-sided application. It adapts easily to inclined wall zones and to kinks in the walls. It also allows the formwork and the dam scaffold to be raised together from one casting section to the next.

2

3

**2** The Framax and D22 were selected because of simplicity and ease of setup. Once set up, the combination was cycled around the project and re-used for succeeding pours in the same configuration, adding to the overall efficiency of the project while lowering cycle times.

**3** The gangs of Framax wall form panels and the D22 platforms act as a single unit for greater efficiency through multiple pours. In a one-sided application, such as on this dam, the concrete pressure forces during pouring are transferred to the anchor system that is also supporting the D22 platform.

## The Challenge

The rehabilitation of the dam includes repouring concrete along the dam face. The challenge was to create a safe, efficient and simple one-sided dam formwork solution that climbs the existing dam in a way that supports complex and repetitive pours with minimal reset. Conventional formwork approaches would require that time-consuming form set, strip and placement and then reset after each climb.

## The Solution

The Doka team engineered a cohesive and connected wall formwork and platform system. The forms are attached to the platform in a panelized schema that keeps the gangs together while climbing the dam. Since the formwork and platform are linked, crews only need to rely on one crane pick as compared to a more conventional solution that would require three crane picks. Further, the connected solution is easy to reposition. Doka won this job largely because of its creative engineered panelized system solution, a combination of Framax and D22 systems that drives speed and efficiency.

PROJECT

# Campus Connections

## Flexible formwork supports California's first all-electric research building

The Avia Labs at Millbrae Station is an all-electric life science building under development in Millbrae, CA, a city situated next to San Francisco International Airport. The 6-story, 315,000-square-foot research building includes a four-level,164,000-square-foot subterranean parking garage. The structure includes a flat curtain wall system designed to reduce noise from nearby transit and airport noise on the north side and floor-to-ceiling windows set between glass fiber-reinforced concrete panels on the south side. Further the design includes stepped massings and angular terraces on the upper floors that cantilever over the pedestrian plaza and lobby entrance. The project is on track for completion in early 2025.


1


2

**1** The D22 system was secured perpendicular to the sloping parking garage ramp and allowed Largo the flexibility to adjust the FRAMAX panels accordingly.

**2** The combination of the D22 and Framax flexibility allowed crews to easily adapt to the variance from the 9-foot tall pours to the 12-foot tall pours, while accommodating the pilasters with minimal extra material.


**3** Crews poured about every third day. In total, they cycled about 240 linear feet of one-sided Doka wall formwork to accomplish about 1,900 linear feet of concrete.

## The Facts

**Project:** Avia Labs at Millbrae Station

**Location:** Millbrae, CA

**General Contractor:** Level 10 Construction

**Concrete Contractor:** Largo Concrete

**Architect:** Flad Architecture

**Developer:** Longfellow Real Estate Partners

**Type of structure:** Life sciences building

**Height:** 102 ft.

**Stories:** 6

**Sq. Ft.:** 1,000,000

**Cycle Time:** 3 days

**Products used:** Walls: D22 and Framax

### The Challenges

The ramps and sloping walls of the life sciences building's underground garage proved the most challenging aspect of the project construction in the early phases. Accommodating a slope while making sure that the wall joints were vertical (not perpendicular) to that slope needed to be accomplished with formwork.

### The Solution

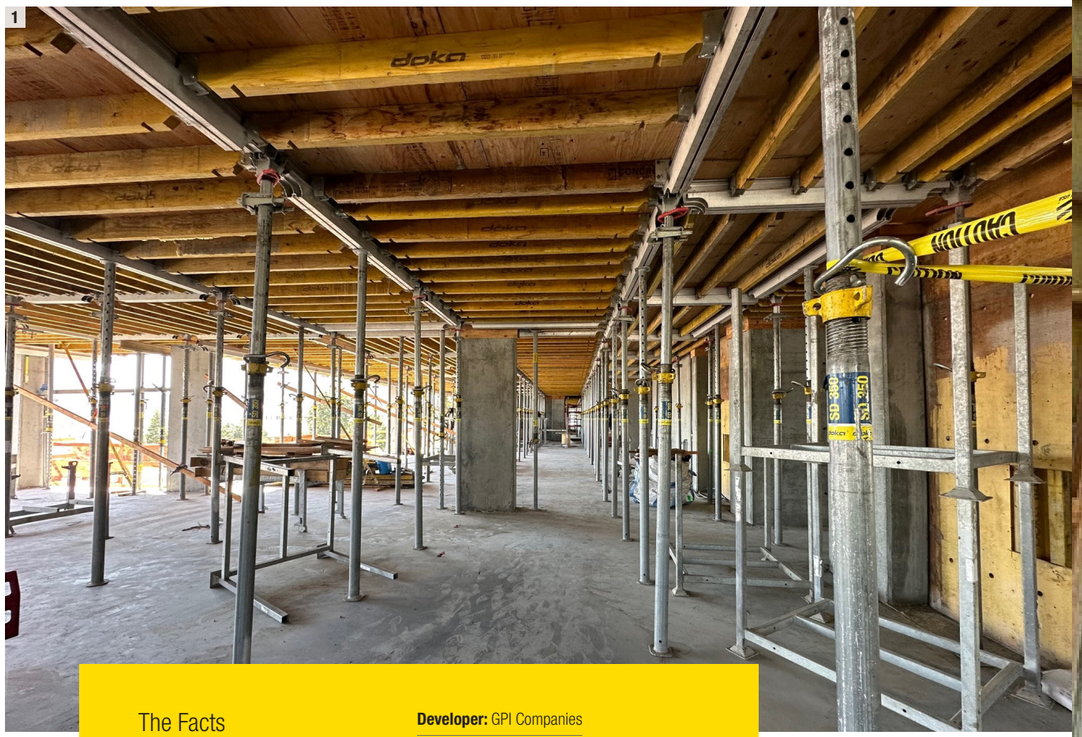
Ultimately, the contractor selected the D22 system with the Framax Xlife steel-framed formwork. Largo superintendents and Doka engineers were integral to the pre-construction meetings, discussing the sequences, making sure panels joints lined up, etc. Largo began working with Doka wall formwork on site in July 2023. The Largo crew especially liked the ease of use of the D22 system with easy handling of the Framax system, with few panel formats and consistent grids for fast forming. The Framax flexibility was ideal for the site's varying pour heights.

# Pre-Assembly with Purpose in Beverly Hills

## Customized formwork facilitates a Class A finish

Rosewood Residences Beverly Hills is a new multi-use condominium community currently under construction at 9908 South Santa Monica Boulevard in Beverly Hills, California. Developed by GPI Companies and designed by Thomas Juul-Hansen, this four-story structure is unique in the large residences, which offer privacy and space—just 17 units—along with a rooftop dining and recreation area and ground floor commercial space, all in a prime Los Angeles location. As the general contractor on the project, nationally known Swinerton Construction is also self-performing the concrete work.

1




2

1 Superdek shoring helped create a wide walking space (up to an 8x8 grid).

2 Doka provided entirely pre-assembled Top 50 gang forms that were ready to install upon delivery to site.

### The Facts

**Project:** Rosewood Residences Beverly Hills

**Location:** Beverly Hills, CA

**General Contractor:** Swinerton Construction

**Concrete Contractor:** Swinerton Construction

**Architect:** Steinberg Hart and Thomas Juul-Hansen

**Developer:** GPI Companies

**Type of structure:** Low-rise, multi-use condominium

**Height:** 60 ft.

**Stories:** 4

**Sq. Ft.:** 13,000

**Construction time:** Aug. 2022-early 2024

**Products used: Core**: Top 50; **Reshoring**: Eurex props & Super Props; **Shoring**: 10K & Superdek; **Other**: Top 50 (shear walls)

**3** The compact site required a high level of site coordination to maneuver materials as needed. The highly flexible Top 50 formwork was used for cores and 10K frames and Superdek formwork as the shoring material.

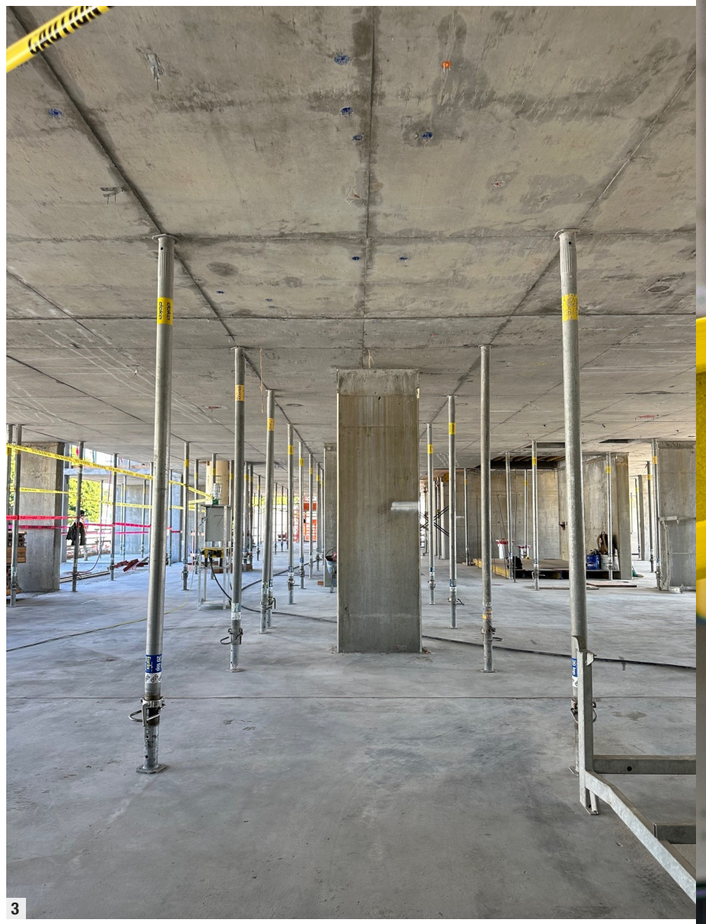
**4** Superdek stripped to show final concrete finish. Also, Eurex props are in place as reshoring.

## The Challenges

One of the top challenges on this project was the requirement for a Class "A" finish on the cores and shear walls, the highest quality surface finish. To meet this requirement, the design and assembly of the formwork—in this case, Top 50—needed to be precisely executed for the field. Site services and engineering are essential throughout the construction. Another challenge was limited space. The jobsite had very little room for storage or pre-assembly.

## The Solution

After many meetings and jobsite visits to other local projects, Swinerton chose Doka because of its ability to supply a full package of formwork. The the construction company especially liked the Superdek, Top 50 and 10K as the primary formwork solutions. The setting speed of Superdek shoring, in particular, saved time and labor in the field, allowing crews to reuse materials and efficiently cycle from floor to floor. Doka engineering and site service called for the Top 50 formwork for shear and core walls because of flexibility to accommodate site-specific situations. Multiple pre-assembly drawings were created and coordinated with the pre-assembly team and Doka's local project management team to ensure on-time delivery per structure in the field.



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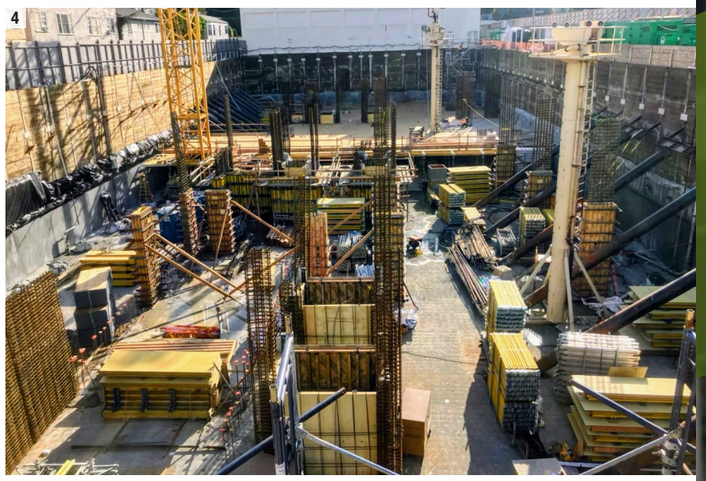

4

# Enabling a Creative Reveal at Chicago's Newest Hotel

Loading platforms, shoring towers and formwork-platform scaffolds give hotel project a lift

The new 28-story RIU Plaza Hotel is located just off Michigan Avenue in the Streeterville neighborhood (north side) of Chicago. Developed by The Prime Group, the construction of this concrete and steel structure is facilitated by national general contractor W.E. O'Neil with McHugh Concrete as the concrete contractor. The base of the tower will span two floors with 23 floors of guest rooms above, and a suspended terrace and a sky bar at the top. Rather than brick or glass curtain wall façades, the designers opted for a combination painted architectural concrete and aluminum-framed windows, giving the structure a distinctive old-world feel. Construction began in 2022, with opening planned for 2024.

## The Facts

**Project:** RIU Plaza Hotel

**Location:** Chicago, IL

**General Contractor:** W.E. O'Neil

**Concrete Contractor:** McHugh Concrete

**Architect:** Lucien LaGrange Studio

**Developer:** The Prime Group

**Type of Structure:** High-Rise Hotel

**Height:** 345 feet

**Stories:** 28 stories

**Sq. Ft:** 260,000

**Construction time:** Oct. 2022-Oct. 2023

**Cycle time:** 3-day average

**Products used:** : **Core**: Frami, X-Climb Gallow; **Façade**: MF240, Frami/SKE 100+, Top50 w reveal strip for brick pattern; **Shoring**: 10K shoring towers; **Other**: X-Climb Loading Platform

**1** The Doka platforms were used to retrieve anchors from the structure along with storing tools. It's enclosure allowed workers to safely walk the perimeter of the building without the need to tie off with fall protection.


2


3


4

**2** The platforms were also used to retrieve anchors from the structure along with storing tools. It's enclosure allowed workers to safely walk the perimeter of the building without the need to tie off with fall protection.

**3** This rail climbing system comprised of working platforms to handle the formwork was hydraulically lifted each lift entirely independent from the crane. The brackets are extremely strong, which permits wide, variable spacing and also makes it possible to lift concrete placing booms.

**4** SKE100 plus was used on the North and South sides of the structure. The high load capacity of 10 tons per bracket and the tall formwork-platform scaffolds allow work to proceed simultaneously, making it possible to separate the forming and rebar operations.

## The Challenges

The hotel site is situated in a congested area, immediately off of Chicago's Magnificent Mile. The site is located between two existing buildings, with an alley on the backside, and busy Ontario street at the front, with no space to store equipment or materials. As well, the footprint of the structure changes at every level for the first four floors and then steps in at level 26 with higher floor-to-ceiling heights. Altogether, the formwork solution for this structure required in-depth design and engineering and planning.

## The Solution

On a job with no space to store and build on-site assemblies, pre-assembly of formwork was necessary for this project. Doka pre-assembly service made it possible to deliver critical formwork components to site on an on-time, as-needed basis.

# The Shape of Things to Come

## Tree columns and truss tables form South Charlotte tower perspectives

The Ballantyne Reimagined project is a 20-acre development in south Charlotte, North Carolina. The multi-year, multi-phase project includes the construction of a 26-story apartment tower that will have 350 units plus seven free-standing, low-slung retail buildings. It will include 14,000 square feet of indoor space and a 7,000-square-foot patio dining area. Doka teamed with Lithko to facilitate the construction of core, columns, floors and façade.

1

2

3

**1** The columns on the tower changed from floor to floor, starting as a round column, transitioning to rectangular and splitting on the upper floors.

**2** The Doka preassembly team custom built the tree column formwork (e.g., brackets, heads, struts) offsite and then delivered the formwork to the jobsite as needed.

**3** A tree column after the pour.

4


### The Facts

**Project:** Ballantyne Block A

**Location:** Charlotte, NC

**General Contractor:** Samet

**Concrete Contractor:** Lithko

**Developer:** Northwood Development/Investors

**Type of structure:** Mixed Use/Residential

**Height:** 286 ft

**Stories:** 27 stories

**Sq. Ft.:** 428,488 of elevated slabs, 60,876 of SOG

**Cycle time:** Level 14 Pour 1 to Level 15 Pour 1 = 5 days

**Construction time:** 34 weeks (concrete)

**Products used:** Frami; **Facade**: MF240 and Frami; **Shoring**: DokaTruss Tables; **Other**: Pre Assembly – Tree Column

## The Challenges

One of the biggest challenges constructing this apartment tower was the special tree columns that were designed into the structure. The columns change from floor to floor, starting as a round column, transitioning to rectangular and splitting on the upper floors, which required new and customized formwork at every floor. In addition, the core construction was complicated due to a beam that had to be shored in the center of the structure. Further slab thicknesses varied by floor.

## The Solution

The Doka engineering team worked closely with Lithko to put together a comprehensive system of formwork to facilitate the entire project. For instance, the lightweight, easy-to-handle Frami panels were used to support the tower core construction. Due to the number of similar floor types, Doka engineers recommended DokaTruss Tables for faster cycle times while the façade was supported by MF240 climbing formwork and Frami panels. The most unique aspect of the project was the custom designed tree column formwork, which was engineered and preassembled to facilitate the poursthe project from the bid phase to the top-out phase was why Doka was selected as the formwork supplier.


**4** DokaTruss Tables proved to be the fastest method to set and strip large slab.

**5** Each truss table was lifted into place as needed, ready for rebar, then prepared for the concrete pour.

# Uptown and Up Tempo in Charlotte

## Versatile formwork solutions keep residential building construction on track

The former Barringer Hotel site in uptown Charlotte is the new home to a 353-unit mixed-income residential building, called Trella Uptown—the first of its kind in North Carolina according to Inlivian (formally known as the Charlotte Housing Authority). Inlivian is developing the property through a partnership Urban Atlantic, a mixed-use housing developer based in Bethesda, MD. When complete, nearly one-third of the units will be reserved for people making 80, 50, or 30% average median income. The exterior design incorporates a 1940s art deco architecture. The complex will include access to a spa pool, co-working cafe, rooftop terrace, dog park and sports courts.


2

1 Lithko crews liked that the Frami formwork were lightweight, with less hardware, such as clamps and ties, than other formwork solutions, which allowed for fast cycle times.

2 With the Frami formwork, crews were able to work on multiple columns at once.

### The Facts

**Project:** Trella Uptown

**Location:** Charlotte, NC

**General Contractor:** NRP Group

**Concrete Contractor:** Lithko

**Architect:** Lucien LaGrange Studio

**Developer:** Inlivian, Urban Atlantic

**Type of Structure:** Mid-Rise Building

**Height:** 100 feet

**Stories:** 7 stories

**Sq. Ft:** 101,000, (Incl. pre cast garage: 171,000)

**Construction time:** 30 weeks

**Cycle time:** 26,000 square foot cycles

**Products used: Slab**: SuperDek; **Columns**: Frami

## The Challenges

Located on the corner of North Tryon and 8th Street in uptown Charlotte, the Trella Uptown project site has limited space in and around the area. On-time and just-in-time deliveries were a necessity to support timely and sequential construction activities.

## The Solution

The Doka engineering team recommended using a combination of SuperDek for slab formwork and Frami universal panels for forming the many and varied columns around the site. Specifically, the SuperDek drop head allows for early removal of joists and stringers. It's also less labor intensive, faster and safer than alternative formwork solutions because it can be set from the ground. Lithko used the SuperDek system for the first time on this project and greatly appreciated the versatility of the SuperDek stringer and joist system, which helped compress the cycle schedule.

**3** Crews work on structural columns with Frami formwork in the shadow of the Charlotte skyline.

PROJECT

# Future-Focused on the Front Range of Colorado

## High coordination, formwork flexibility guide construction of new water treatment plant

The Morrison Water Treatment Plant expansion project in Morrison, CO, includes the construction of a new water treatment building, installation of a 0.5 MGD water treatment filter skid, and upgrades to an existing sewer system to accommodate future expansion to 1 MGD. Located in the shadow of the world-famous Red Rocks Amphitheatre concert venue, the new water treatment facility will serve the Town of Morrison, a community in the Front Range Urban Corridor of the Denver metro.

### The Facts

**Project:** Town of Morrison Water Treatment Plant Expansion

**Location:** Morrison, CO

**General Contractor:** Burns & McDonnell

**Concrete Contractor:** Burns & McDonnell

**Architect:**

**Developer:** Town of Morrison

**Type of structure:** Water Treatment Plant

**Height:** 18 ft.-23 ft

**Stories:** 0

**Sq. Ft.:** 7,000

**Cycle Time:** 2 crews, pouring every 10 days

**Construction time:** May-October 2023

**Products used: Foundation Walls**: Frami; **Water Treatment Walls**: Framax

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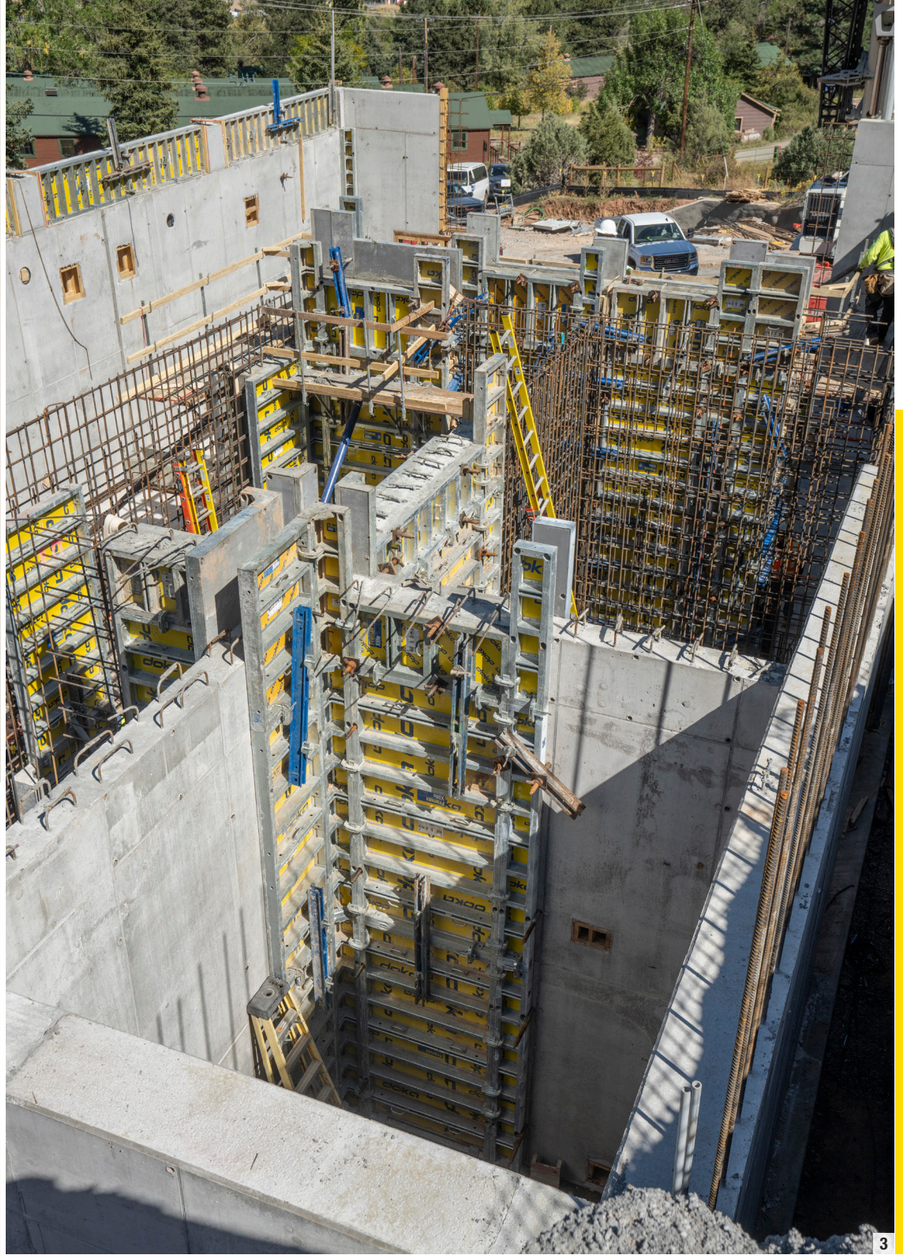

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## The Challenges

The relatively small footprint of the site and high walls of the water treatment plant added complexity to the construction of the new Morrison water treatment plant. As there was limited space on the site, coordinated deliveries with the customer were essential to ensure formwork was delivered as needed. Another concern was the high walls of the facility, which rose to 23-feet in some places, creating very high pour pressures.

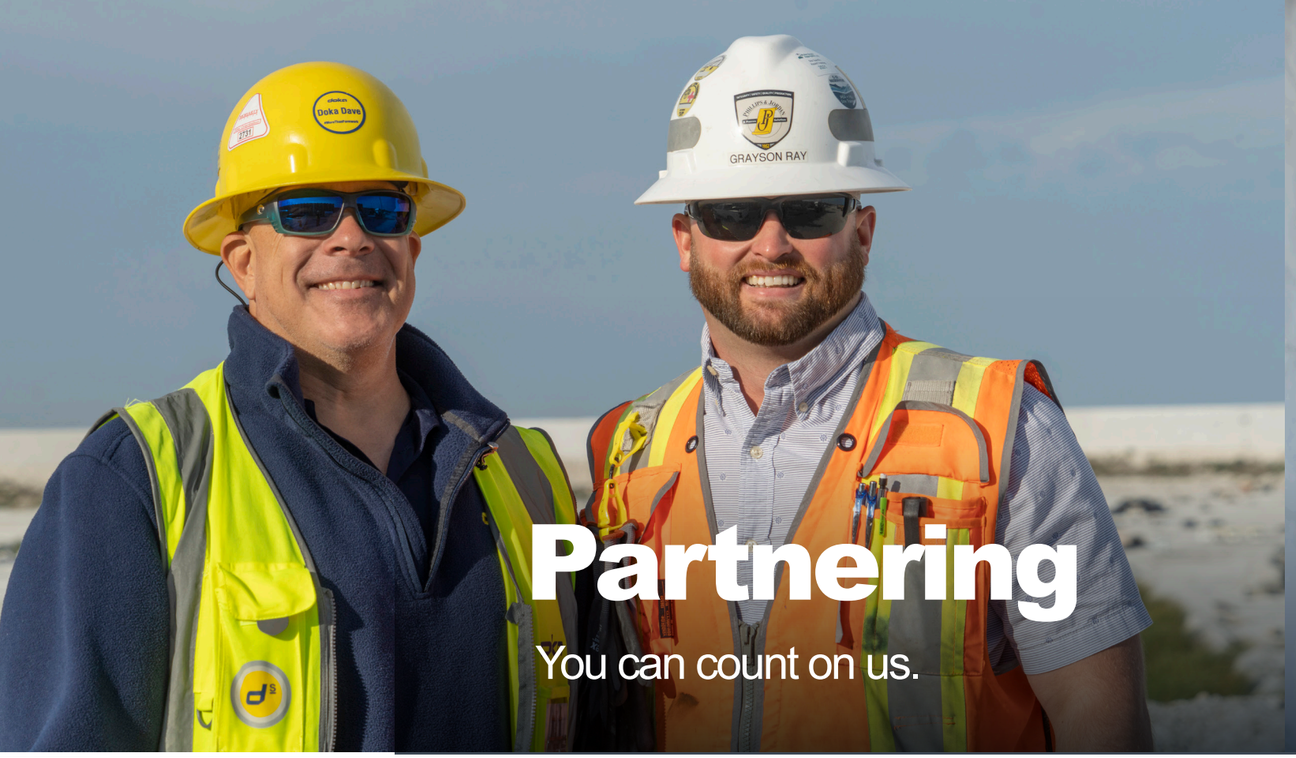
## The Solution

Doka engineering and formwork crews were directly involved with the contractor and the customer from the beginning of the project to ensure success. Early on, Doka developed a map that was coordinated with the concrete contractor to organize and sequence the formwork, beginning with the foundation, so it was ready for on-time delivery. For the foundation, which measured 4' tall x 50' long x 100' wide. square feet, the Doka team recommended the Frami XLife handset formwork because of its lightweight design, which makes it easy to handle.

**1** The water treatment plant walls ranged from 20' to 23' tall, creating concerns about formwork pressure. In preparation for pouring the high walls, Doka engineering provided engineered stamps, statics, systems and sequencing requirements to support wall construction using the Doka Framax wall formwork. This formwork solution also supports monolithic pours, even on such tall walls.

**2** With the nearby Red Rocks Amphitheatre in the background, crews worked methodically to build structural concrete walls with efficiency.

**3** Crews poured on average 3,000 square feet of wall every pour.

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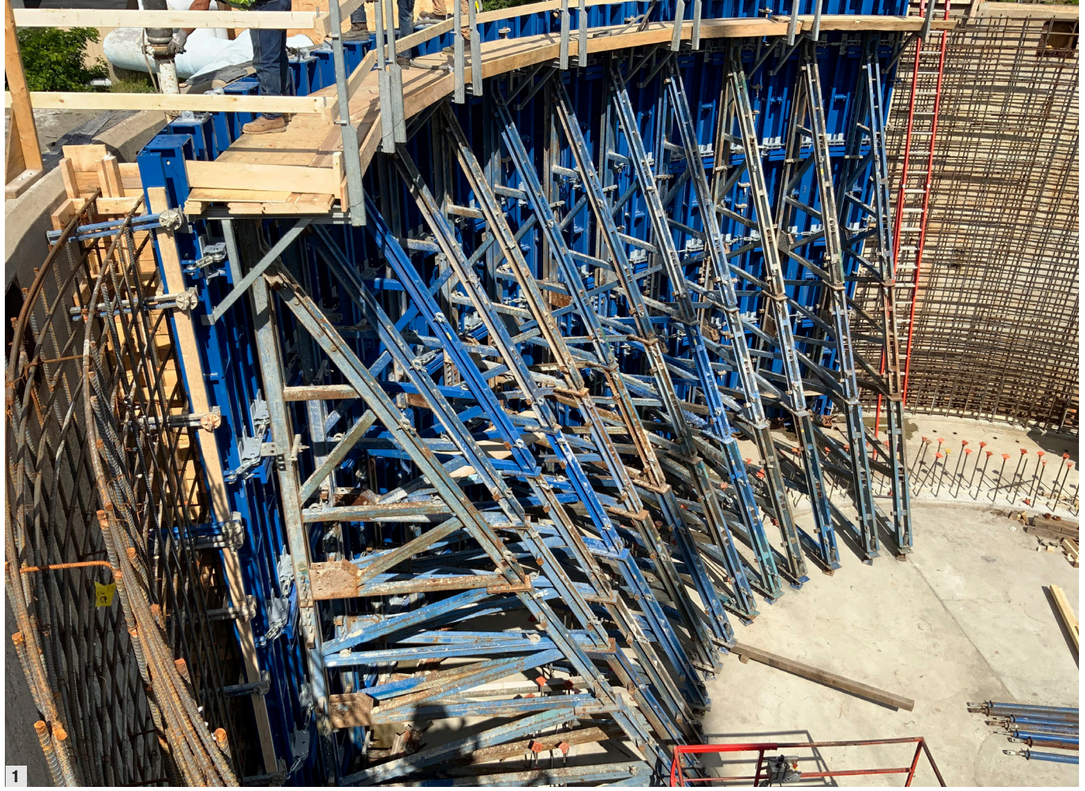
# A Super-Sized, Single-Sided Focus

## Curved flexible formwork streamlines construction of new WWTP tank in Fall River

The City of Fall River's Wastewater Treatment Facility (WWTF) Improvements project is the second phase of a complete WWTF rehabilitation/upgrade for reliable NPDES compliance and to address water quality and public health and safety issues. The tank is 24-feet high with a 19-foot radius.



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**1** Doka's Supporting Construction Frames helped the SuperCurve formwork resist lateral concrete pressures and ensured quality pours during the single-sided pours.

**2** A nearby existing tank wall complicated the construction of the treatment plant tank. The SuperCurve formwork proved ideal for these tight conditions.

**3** The flexibility and maneuverability of the Doka SuperCurve formwork shortened cycle times.

## The Facts

**Project:** Fall River WWTP

**Location:** Fall River, MA

**General & Concrete Contractor:** DOC (previously Daniel O'Connell's Sons)

**Engineer:** CDM Smith

**Developer:** City of Fall River

**Type of structure:** Wastewater Treatment Facility

**Height:** 24 ft.

**Products used: Walls**: SuperCurve; **Other**: Supporting Construction Frames, 10K, Frami

3

## The Challenges

The primary challenge on this project was the proximity of the new tank to an existing tank, which required a one-sided forming solution on a very high radiused wall (24-feet).

## The Solution

DOC selected the Doka SuperCurve steel circular formwork system as the primary formwork, because of its easy maneuverability and minimal assembly time with less labor. The SuperCurve system has a high pour pressure up to 1,250 psf, which also made it ideal for the high 24-foot walls of this treatment plant tank and the single-sided pour conditions. It's also able to form circular or curved walls with a radius of a minimum of 7'-0". Further, the crew was able to cycle the forms as a single unit.

# A Range of Opportunity

## Fit and formed at downtown Boise luxury development

Located at the corner of 12th and Idaho in the heart of downtown Boise rises a luxury mixed use development. Inspired by Idaho's Sawtooth Range, this 26-story, 300-foot luxury rental apartment development will comprise 298 residential units consisting of a balanced mix of studio, one, two bedroom and large club level units above six parking levels including approximately 9,000 square feet of retail space. The building is on track for completion in early 2024.


1


2

**1** Customized Top 50 formwork was preassembled offsite with customized tie-holes, shapes, and patterns to optimize the McAlvain crew's pour cycles.

**2** For safety, McAlvain relied on the Staxo 250 stair towers, which could sit right on top of the loading platform, thus allowing easy and safe access to work-deck levels on the multi-story structure. Crews poured about every third day. In total, they cycled about 240 linear feet of one-sided Doka wall formwork to accomplish about 1,900 linear feet of concrete.

3

4

## The Facts

**Project:** Sawtooth Tower

**Location:** Boise, ID

**General Contractor:** Power Construction Company

**Concrete Contractor:** McAlvain Companies

**Architect:** Solomon Cordwell Buenz and Associates (SCB)

**Developer:** White Oak Realty Partners / Oppenheimer Development Corporation

**Type of structure:** High-Rise Building

**Height:** 290 ft.

**Stories:** 26

**Sq. Ft.:** 420,200

**Cycle Time:** 5 days

**Construction time:** April 2023 – Jan 2024

**Products used:** Framax and Top 50; **Other**: SCP System, Screen Protection, Loading Platforms, Staxo 250 Stair Tower

**3** The construction crew especially appreciated the Doka screen protection systems that were easy to install and provided protection from weather, particularly wind, while still providing ventilation and light.

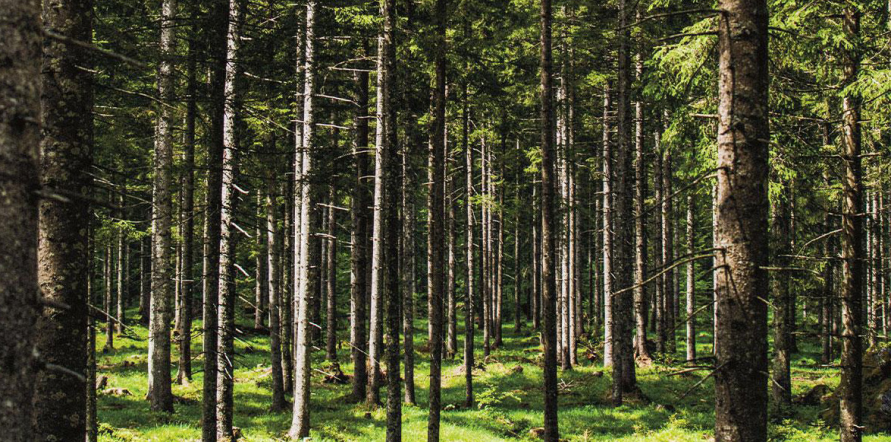
**4** Pre-assembled Doka loading platforms, which have a maximum load capacity of 3,000 kg or 5,000 kg, provide easy access to materials. These platforms are clamped in place between the slabs.

### The Challenges

As is the case with many urban construction projects, space was limited around the construction site. The lay down area is about 45’ x 160’, which required careful planning and coordination for formwork throughout construction. On the structure, one of the biggest challenges would be engineering and assembling formwork to facilitate efficient pours.

### The Solution

Working directly with McAlvain Companies, Doka engineering team put together a complete formwork solution for walls, columns and floors. On the first level, the crews used Framax with its large gang forms and wide tie spacing to form with speed and quality. As the building height increased, crews switched to large-area customized and pre-assembled Top 50 formwork. On the outside of the structure, a full suite of protection systems, loading platforms and ladder offered a safer work environment.



# Net ZERO by 2040

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Sustainability is a key part of our business strategy. Join us on our journey towards sustainable change and our big goal: Net-Zero 2040.

Climate change is one of the biggest challenges of our time. The solutions are manyfold. At Doka, we focus on the levers that have the greatest potential impact from our core business: innovative technologies that radically reduce greenhouse gas emissions and drive the circular economy.

Read More: https://www.doka.com/us/about/sustainability/sustainability

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