Rebuilding Infrastructure across North America
Dear Customers and Colleagues,

The New Year is just starting and we are already soaring to new heights! A report released in October by Dodge Data & Analytics predicted construction starts for 2016 will rise 6% to $712 billion, following gains of 9% in 2014 and an estimated 13% in 2015. Not only has the construction market recovered, but Doka is seeing exciting growth in a wide variety of markets and the opportunities for our customers are huge.

For Doka, we are literally rising to new heights with a variety of high-rise projects including New York’s impressive super tower Central Park Tower or Miami’s Midtown 5, which is expected to help contribute to downtown redevelopment; the 610 Lexington Avenue that will rise to 65 stories in Midtown Manhattan; as well as the new Kosciuszko Bridge in New York that will carry the Brooklyn-Queens Expressway over Newtown Creek. While these projects tower high in the sky, Doka is also proud to soar to new heights on some key industrial projects including Baltimore’s Back River Waste Water Treatment Plant and Denitrification Pumping Station, which will be the largest in the world once complete, as well as the Old Dominion Electric Cooperative natural gas fired generation facility. While the three-story Allendale 5 Medical Center in Edmonton, Alberta may not be the tallest structure, its aggressive schedule and LEED Certified status will certainly set it apart in its market. All of these projects, and many more, showcase the amazing architectural feats of today. Doka is honored to be a member of the team needed to safely and efficiently construct these marvels.

One such feat is the SEC Trunk Sewer Project Pickering project in Ontario, Canada, which will be recognized as part of the Triad awards program from Concrete Construction magazine at the World of Concrete in February. Congratulations to our Toronto team on their “truly outstanding example of innovation and teamwork in concrete construction.”

It is our hope that 2016 is a safe and profitable year for all of our valued customers. Please continue to share your ideas for new technologies as we know our formwork solutions are critical to raise you to new heights. We appreciate your business.

Andrew Mair
Chief Executive Officer
Doka USA, Ltd. / Doka Canada, Ltee.
Big upgrades, tight schedule

To improve the river’s water quality as well as meet a federal mandate to reduce nitrogen and phosphorous flowing into Chesapeake Bay, Baltimore is upgrading the Back River waste water treatment plant so it can provide enhanced nutrient removal. The high-profile project includes construction of two new 150-foot-diameter Backwash Clarifier tanks, a new 600 foot x 120-foot-long Filter Building, and a 300-million-gallon-per-day Denitrification Pumping Station that, when finished, will be the largest in the world.

**Backwash clarifier tanks.** The two 150-foot-diameter tanks require 20-foot-high walls. Doka’s articulated water / with H-20 formwork was supplied to deliver smooth, curved walls for diameters greater than 24 feet. By turning the spindles that are built into the panels, users can set the radius and adjust it as needed to match the shaping template.

**Filter building.** The design includes (48) 60-foot-long Y walls, five-foot-thick base mats and troughs. To form the Y walls, the contractor used Framax formwork with custom steel channels for support. Doka supplied 10 sets of forms for 288 wall pours; since only a hammer is required for assembly, the crew was able to gang form each wall in little more than an hour. Doka also provided
The Facts

Project name: Back River WWTP
Location: Baltimore, Maryland
Type of project: Wastewater Treatment Plant
Square footage: Up to 60,000 sq ft
General contractor: Archer Western Contractors, Ltd.
Formwork used: Framed formwork Framax Xlile, Framed formwork Frami Xlile, 10k Shoring System, articulated waler with H2O formwork
Start and scheduled end date of work: January 2014 - June 2016

The Challenge

Staying safe and on schedule is a top priority for Archer Western Contractors, Ltd. The biggest challenge to completing the large structures on the project, according to the general contractor, is the project’s restrictive 36-month timeline.

The Solution

A safety orientation meeting ensured for safe and proper use of Doka systems on site. The sequence of minimal customization formwork was planned out to optimize forming times for all areas of the project. Plus, with a branch office located 17 miles from the project site, Doka was the only local company that could provide a high level of customer support.

Archer Western was also able to apply an architectural treatment to the building exterior by overlaying the Framax formwork with smooth HDO plywood to conceal the form joints.

Denitrification pumping station. The pumping station features walls and structural slabs up to 30 feet high.

Doka’s 10 kip shoring was used for the high slabs and beams. The steel, load-bearing tower is ideal for heights greater than 18 feet.

Work began January 2014, and the project is scheduled to be completed June 2016. Doka’s standard solutions and quick assembly times are enabling the general contractor to stay on schedule and within budget.
Archer Western Contractors Ltd. is especially impressed with how fast crew members were able to cycle the Y wall forms.

Doka’s 10 kip shoring was used for the high slabs and beams.
The Facts

Project name: Allendale 5 Medical Center
Location: Edmonton, Alberta
Type of project: Medical Building
General contractor: Maple Reinders
Concrete contractor: Shearwall Triforce, Inc.
Formwork used: Climbing formwork MF240, shaft platform, Frami Xlife

The Challenge

Distinctive features of the project included two side-by-side concrete core towers with connected safety platforms, but one core was standard and the second only had two sides, in an L shape— all within an accelerated construction schedule.

The Solution

Frami Xlife, for core 1 with biased cut corners. No inside formwork was required. Using climbing formwork MF240 allowed for speedy stripping and the cycling equipment. Shaft platforms were used to connect the cores’ platforms together for a safe work area.

Connected platforms allow for a safe work environment on both towers.

Speedy Completion of Medical Center

The newest medical professional development in Edmonton, Alberta is a three-story LEED Certified building easily accessible from over ten well established Edmonton neighborhoods. While being built, the construction schedule for Allendale 5 Medical Center was accelerated, resulting in a very aggressive and challenging timetable.

Concrete contractor Shearwall Triforce was approached by general contractor Maple Reinders to complete the concrete scope two months early, which included a 90,000 sq ft multistory parking garage and three 80 ft cores. Doka was brought onboard for their technical expertise and their ability to problem solve, both essential for the fast pace of this project.

Doka used their climbing formwork MF240 for quicker cycle time for the towers. Climbing formwork MF240 permitted controlled, regular working cycles on the tall structures. A shaft platform was used to accomplish the connection between the cores with enough room to allow for roll back of the MF240.

“Through a collaborative effort with Doka, we devised a detailed plan and cycle schedule that would meet our client’s request,” said Michael DoBush, Vice President, Shearwall Triforce. “This included engineering of the core formwork, running interference between approved weld plate shop drawings, approved rebar shop drawings and Doka lifting pockets to ensure no time was lost onsite, as we had none to spare. I’m very pleased to announce we met our November 4th and December 17th project milestones. We look forward to working with Doka Canada on future 2016 Projects.”
Deepest Shafts Used for New Kosciuszko Bridge

The $554.7 million new Kosciuszko Bridge in New York will carry the Brooklyn-Queens Expressway over Newtown Creek. The renovation project planned for the existing six-lane bridge includes replacing the current structure with a new nine-lane bridge and two eastbound spans, one westbound span, a bike path and a walkway.

The bridge consists of drilled shafts for the main span pylons that are the deepest shafts ever constructed by the contractor, Skanska, and are among the deepest by any contractor in New York City. The main span pylons of the new Kosciuszko Bridge will stand approximately 303.5 ft tall – nearly the height of the Statue of Liberty, which is 305 ft tall. The project involves using 200,000 cu yds of concrete. Additionally, more than 10,000 lbs (5,147 tons) of rebar will be used on the project.

The Facts

<table>
<thead>
<tr>
<th>Project name: Kosciuszko Bridge</th>
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<tbody>
<tr>
<td>Location: New York City</td>
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<tr>
<td>Type of project: Cable-stayed bridge</td>
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<tr>
<td>General contractor and/or architect: Skanska-Kiewit-ECCO III JV.</td>
</tr>
<tr>
<td>Formwork used: Large-area formwork Top 50, Framed formwork Frami Xlife with inside strippable corners on the inside, Automatic climbing formwork Xclimb 60</td>
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<tr>
<td>Start and scheduled end of work: April 2014 – Early 2017</td>
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The Challenge

For this special bridge project, the general contractor needed an experienced partner to provide the most efficient solutions in particular to build the deep drilled shafts for the main span pylons.

The Solution

Doka was brought onto the Kosciuszko Bridge project because of their past successes with Skanska-Kiewit. Construction is in its second year, with the span’s estimated completion date set for early 2017.

Doka suggested using Top 50 formwork on the exterior of the pylon and Frami with inside strippable corners on the inside. To support the wall formwork, Xclimb 60 is used.
In Midtown Manhattan, New York City, a new residential skyscraper, 610 Lexington Avenue, will rise to 65 stories after completion. Navillus Contracting brought in Doka because of their previous strong working relationship. Also, Doka’s hydraulic climbing systems would offer superior labor and time savings for the 712-ft-tall high-rise project.
In anticipation of the several belt or transfer walls on the project, Xclimb 60 climbing platforms with custom slab mount shoes were used. In addition, Doka’s large loading or picking platforms were used to ensure safe and efficient cycling operation. All loads were stripped and easily picked from the loading platforms and then brought up to the deck by crane.

The innovative design of the building required the first 10 floors to be constructed with architectural concrete, so a “core ahead” approach was implemented. This approach would allow the formwork to be reused from lift to lift and maintain the required finish. This was done using Doka’s MF 240 climbing formwork with Doka’s Top 50 timber beam formwork. The platforms were anchored into the slab edge and custom spacers accommodated the angle in the walls designed for simple and efficient forming. In addition, special tie cones were used to create a visually pleasing tie pattern where the tie cone and anchor cone had a similar diameter.

To work in the limited area, platforms and the setup face of the belt walls were delivered in pre-assembled units ready to be installed from the truck. Additionally, the geometry of the structure has a constant wave on the East and West side of the tower, making the use of any exterior system difficult. However, the design of the Xclimb 60 system allowed the openings to be covered safely and easily.

To accommodate the small footprint, several inventive techniques were used. A custom dropdown shoe allowed the platforms to be set below the slab while supported by a shoe which was mounted to the top of slab. Additionally, custom angled spacer shoes allowed the platforms to attach to the shear walls securely and safely.

The use of the Xclimb 60 on 610 Lexington Avenue provided huge benefits for the contractor. Without the Xclimb 60 system, the 2-day cycle would not have been possible. Additionally, the crane was then free to address other areas of the project, while the forming and safety continued to advance.

“It’s working better than I thought,” said Zoltan Big, NYC Union Carpenter, Navillus Construction. “The belt wall was up and steel was being installed in one day, this would have normally taken days if done by hand.”

▲ 610 Lexington Avenue is expected to complete concrete work in 2016 and open in 2017.
### The Facts

**Project name:** Central Park Tower (formerly Nordstrom Tower)

**Location:** 217 West 57th Street, New York

**Type of project (office building, bridge):** High-rise 1550'-0”

**General contractor and/or architect:** Extell Developments, designed by Adrian Smith and Gordon Grill, CM Lend Lease

**Concrete contractor:** Pinnacle Industries

**Square footage:** 1.2 million square feet of development rights

**Formwork used:** Up to 62 Xclimb 60 brackets, over 11,000 square feet of working platforms, a 6 cylinder Super Climber SCP with over 65’ feet of suspended Staxo stair tower and 2 lower levels offering about 5,000sf of platform and over 20,000 square feet of Large-area formwork Top 50

**Start date and scheduled end date of work:** 2014-2019

### The Challenge

Lend Lease, the construction manager, requires the highest level of safety on all projects. The concrete core structure with core ahead building method asked for Doka’s know-how to facilitate speedy progress on the jobsite.

### The Solution

Pinnacle Industries and Doka have a long time relationship and they know they can depend on Doka in all safety aspects. The adaptability of the Xclimb 60 system and the simplicity of the SCP system provide for a smooth construction process.

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**Super Tower on the Rise**

**With over 1.2 million square feet of prime real-estate,** the Central Park Tower (formerly known as Nordstrom Tower) will be added to the developer’s list of super towers. The 1550’-0” tall building will be one of the largest in New York and offering spectacular views over the city’s Central Park.
Doka and Pinnacle have been working closely together to ensure the project is a success. Few tower structures in NYC have been designed as a concrete core, making Doka’s Super Climber and X-climb 60 systems a perfect choice for the core ahead building method. The Super Climber’s speed and ease of use allows the labor force to focus on the other aspects of the project, such as the steel embeds for the structural steel beams to tie into the core.

Great extensive safety precautions have been taken to ensure safety. Doka’s Stair tower has been suspended from the super climber as well as a -2 level which allows uninterrupted egress from the working area. In addition, Pinnacle Industries has an extensive safety program which fosters a strong safety culture.

Doka’s superior engineering, service and systems made Pinnacle Industries decide to utilize Doka. The Super Climber is a prime example of the most technologically advanced forming systems available on the market. The system is efficient, simple and fast, this in conjunction with Doka’s preassembly, engineering, and field service, the project was off and running quickly and continues to move forward smoothly.
Efficient Construction Helps Miami’s Midtown 5 Contribute to Neighborhood Development

Midtown 5, which began construction in June 2015 will become a vital node within the neighborhood once it is completed in December 2016. Standing 24 stories high the building will contain over 400 apartments and 24,500 sq ft of retail and office space for a total of over 400,000 sq ft.

Teitelbaum Construction Inc. chose Doka to provide the formwork; the fast cycle times associated with the Dokaflex system, combined with the use of DokaTruss tables, helped construction stay on schedule.

The design of Midtown 5 involves a 60,000 sq ft podium level, 3 floors at 60,000 sq ft and 18 floors at 20,000 sq ft. Teitelbaum provided 10 kip shoring for the building’s 2nd level and this remained in place after the deck was poured for re-shoring. By using 2 full floors of Dokaflex shoring, quick cycle times were achieved while building to the tower level. Midtown 5’s floor level 5, where the building’s amenities are located, represented an atypical portion of the structure and included a series of complex concrete beams and a pool. For this section of the buil-
ding, Teitelbaum again used the 10 kip shoring system. Beginning at the 6th floor—a more typical portion of the tower’s structure—the contractor chose to employ the DokaTruss table system for the large slab formwork and this was used for the remainder of the project.

DokaTruss tables can accommodate room heights from 8 ft up to 13 ft-1 in. with standard single legs; for Midtown 5, floor level 5 required a 13 ft-8 in. height. Doka and Teitelbaum collaborated on an innovative method to gain the additional height. Teitelbaum installed 8 in. wood blocking under the 13 ft-1 in truss table height using standard truss table 4 ft-2 in. screw jacks.

Teitelbaum conducted pre-pour inspections prior to all slab pours, since jobsite safety was, as always, a priority for the project.

The Facts

<table>
<thead>
<tr>
<th>Project name:</th>
<th>Midtown 5</th>
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<tbody>
<tr>
<td>Location:</td>
<td>Miami, Florida</td>
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<tr>
<td>Type of project:</td>
<td>Apartment Building</td>
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<tr>
<td>General contractor:</td>
<td>McHugh Construction</td>
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<tr>
<td>Concrete contractor:</td>
<td>Teitelbaum Construction Inc.</td>
</tr>
<tr>
<td>Doka products used:</td>
<td>Dokaflex, DokaTruss</td>
</tr>
<tr>
<td>Start date and scheduled end date of work:</td>
<td>June 2015 - Dec. 2016</td>
</tr>
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</table>

The Challenge

In order to make up for time lost during the economic downturn, it has been especially important to keep the construction of Midtown Miami’s new buildings on schedule.

The Solution

A detailed plan was developed with the contractor months before the construction start date to ensure continued efficiency throughout the project with fast erection and stripping times of the formwork.
Increasing British Columbia’s Energy Supply

To meet the rising demand for LNG as a cleaner transportation fuel and important energy source, FortisBC initiated expansion of the existing facility at Tilbury Island. In October 2015, Bechtel Canada Co. began construction of the new LNG storage facility, which will add approximately 46,000 cubic meters (601,657 cubic yards) of LNG storage.

Bechtel brought in Doka as the formwork supplier for the new tank, which measures 117 feet tall and 155 feet in diameter. The vast capacity of Doka’s systems and Doka’s engineering capability were key factors in the selection of Doka for the project. Throughout the project, Doka worked hand-in-hand with Bechtel’s design team, refining concepts and ideas as needed. As a North American company, Doka’s ability to work seamlessly between Canada and the United States was an essential factor for the project’s success.

Doka supplied its Top 50 System, a modular gang form system, for the walls. The exterior walls included a large pilaster on opposite sides of the tank that were easily handled by the Top 50’s versatility. MF 240, a crane-lifted climbing formwork, was also selected, and
The Facts

Project name: Tilbury LNG Facility Expansion Project
Location: Delta, British Columbia, Canada
Type of project: Liquefied Natural Gas Storage Facility
Concrete contractor: Bechtel Canada Co.
Formwork used: Top 50, MF240 platforms, and a custom-manufactured waler
Start date and scheduled end date of work: October 2014 - October 2016

The Challenge
Local delivery was important to the contractor, as were onsite field service and after-delivery service. Flexibility in design and supply were critical to the project’s success.

The Solution
Doka provided quick response, custom solutions and worked with Bechtel to ensure their crews and workers were properly trained for the most efficient, safe use of material supplied.

MF240 platforms safely allowed workers on the jobsite to access the walls. Doka MF240 brackets provided optimum safety with reliable, safe work space and access. Access openings were included in the design to allow egress for all workers. In addition, Doka provided a custom waler that was manufactured specifically for the project. The formwork itself was also designed around crane capacity.

The project is scheduled for completion in October 2016.
Cleaner Power from Wildcat Point Generation Facility

Cleaner and more efficient to burn than other fossil fuels, natural gas has become a common fuel for power plants. The Old Dominion Electric Cooperative (ODEC) is constructing the $1.5 billion natural gas fired Wildcat Point generation facility in Rising Sun to provide cost effective power to residents across Maryland, Virginia and Delaware.

For the heat recovery steam generator (HRSG) foundation, a 75 ft x 300 ft x 4 ft high mat slab foundation was built. For this application, Doka provided an externally braced Frami Xlife system for a fast, safe, and cost efficient solution. Two combustion turbine generator (CTG) units were also placed on mat foundations that...
measured 50 ft x 100 ft x 4 ft high, and also utilized the externally braced Frami Xlife system. In addition, Frami formwork was also used for the pedestals and columns. The 5 ft thick top slab was supported with Doka’s 10 Kip shoring, with Frami formwork for the 5 ft high slab edge. A steam turbine generator was placed on a 60 ft x 160 ft x 6 ft thick mat foundation, formed with Doka’s steel girder forms for the 32 ft high columns, Staxo 100 shoring with Dokamatic tables to support the 9 ft thick table top slab and Framax Xlife formwork for the 9’ high slab edge. The use of Frami Xlife formwork with external bracing for the mat foundations eliminated the need for costly consumable thru ties. The number of thru ties required for the project was also reduced by the use of rebar clamps on the STG table top slab.

The Doka team scheduled coordination of engineering, and equipment deliveries for the project to maximize efficiency, and achieve the required schedule. Doka was also able to provide exceptional field service and fast responses to issues as they arose, making them a good fit for PCL’s needs.

The power plant is expected to become operational in 2016.

The Facts

**Project name:** Wildcat Point  
**Location:** Rising Sun, Maryland  
**Type of project:** Natural gas fired power plant  
**General contractor:** PCL Construction  
**Formwork used:** 7,500 sq ft of Framed formwork Frami Xlife, 10,000 sq ft of steel girder forms, 9,000 sq ft of Framed formwork Framax Xlife, 6,000 sq ft of 10 Kip shoring, 9,000 sq ft of Staxo shoring with Dokamatic tables  
**Start date and scheduled end date of work:** 2014 - 2016

The Challenge

PCL Industrial Construction wanted to have a single supplier and engineering for all of their forming and shoring needs, even though the project involved various types of concrete structures. In addition, safety was a central concern during the entire construction process.

The Solution

Doka was able to provide “one-stop shopping” for all formwork and shoring needs and could deliver the required engineering in a timely manner. On-site safety review meetings and the OSHA rated, integrated tie-off points on the Frami, Framax, and Staxo 100 systems enhanced jobsite safety.
New Bridge Takes Shape for the Nation’s Busiest Port

Since 1968, the Gerald Desmond Bridge has been a vital part of U.S. infrastructure, serving as major trade corridor that carries 15 percent of all containerized cargo imported to the United States through the Port of Long Beach, California. A new replacement structure will not only accommodate larger sizes of modern cargo ships, but also improve traffic flow and increase safety.

To execute the octagonal design of the double pylon masts with each casting section, or jump, Doka is providing approximately 2,500 square feet of Top 50 formwork. Doka’s SKE automatic climbing platforms are also being used inside and outside of the pylons to jump the Top 50 formwork system in 31 casting steps. Each casting step is 18 feet high and performed in an eight-day cycle. The SKE climbing brackets enable easy hydraulic climbing, without the need for cranes.

▲ Individual formwork parts were pre-assembled by the Doka team to ensure tight form joints and a best-in-class joint pattern, even with the challenging geometry of the pylons.
The pre-assembly team also ensured all custom components (i.e., splices and walers) connected to each other correctly via preconstruction mock-ups—so potential problems were resolved before the equipment reached the jobsite. The mock-ups were especially important because of the high number of custom components required for the unique formwork/climbing platform configuration.

The bridge’s two 516-foot-tall concrete towers, or pylons, will be seen for miles, with cables extending from them to connect to the bridge deck and support its 2,000-foot-long span. Construction began in 2013. When complete, it will be the first cable-stayed bridge in California—and the tallest of its kind.

The Facts

Project name: Gerald Desmond Bridge Replacement Project
Location: I-710 Long Beach, California
Type of project: Double pylon masts for cable-stayed bridge
General contractor and/or architect: Shimmick Construction Co. Inc., FCC Construction S.A. and Impregilo S.p.A.
Square footage: approx. 2,500 of formwork
Doka Products Used: Large-area formwork Top 50, Automatic-climbing formwork SKE plus, Framed formwork Frami Xlife
Start and scheduled end of work: Early 2015 – June 2018

The Challenge

The particular challenge in constructing the double pylon masts lies in their octagonal design, which tapers as it rises in height.

The Solution

In early 2015, Doka joined the construction team to supply a constant-changing custom formwork solution that can achieve the narrowing silhouette.

Climbing Sequence

Watch the first climbing sequence of the exterior and interior platforms to the 3rd casting step on Pylon 17.

https://youtu.be/T8DhLvyPZvs
In Brief

Now Hiring!

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Doka’s expansion and growth throughout North America has created opportunities in the USA and Canada: Sales, Management, Field Service, Engineering, Operations, and Administration.

Take the first step to your next challenge now. Apply today! Send your resume to employment@doka.com. Doka is an equal opportunity employer.