

Doka Xpress

Vol. 16 Issue 2

Indisputable #1 in
Formwork and Shoring



The Formwork Experts.

doka

Editorial



It's Not Just formwork. It's Doka.

Too often, formwork and other construction materials are considered simple line-items in the budget – a commodity. However, if safe and fast-paced construction are the goals for your projects, selecting the right formwork is essential to success. All formwork is not created equal. A commodity approach to formwork selection won't create the efficiencies needed to compete in today's construction market. There is no commodity solution that shaves time off your schedule, as well ensures that your workers and the general public around the jobsite are kept safe. Being the indisputable leader in formwork technology and solutions isn't simply part of our vision statement, rather, it is integrated into all aspects of our business.

We invite you to see this theme come to life in the following pages through the fascinating projects we are so honored to be part of in the United States and Canada. Our formwork is helping create some of the tallest and most innovative structures in New York, redevelopment projects in the LA Live District, creating structures for the growing readers at the Calgary New Central Library project, and providing more residential options in Chicago. From product design and development, engineering, project management, field support and more, it's not just formwork. It's Doka.

Andrew Mair
Director North & South America

Contents

Ten York	03
220 Central Park South	06
Two Towers Rise over LA Live District	08
Calgary New Central Library	12
400 W. Huron	15
250 South Street	18

News from DOKA



Central Park Tower, New York City ►

Utilizing Doka's Super Climber, the tower will reach 1,550', making it the tallest building by roof height in the U.S.



◀ Keeyask Generating Station, north of Winnipeg Canada

The 695-megawatt hydroelectric generating station is underway and will provide clean energy – an average of 4,400 gigawatt hours of electricity each year – to both Canada and to the US.



◀ Park Grove, Miami

This condo project will feature 3 towers and 298 completely finished residential units located in a 5.2-acre waterfront park with over 50,000 sq. ft. of amenities and a major collection of art, displayed throughout the property.



TEN YORK

Ten York is an iconic condominium luxury residence that will soar 735 feet, and will change the Toronto skyline forever. The tower, being constructed by Tridel, wedges alongside Toronto's major city artery, Gardiner Expressway, which makes Ten York one of the most prominent downtown locations.

The Facts

Location: 10 York Street, Toronto, Ontario, Canada

Construction work performed by: Hardwall Construction 2005 Ltd.

Architect: Wallman Architects

Developer: Tridel

Type of structure: Luxury residential building

Height: 735 ft.

Stories: 65

Cycle time: 4 day cycle



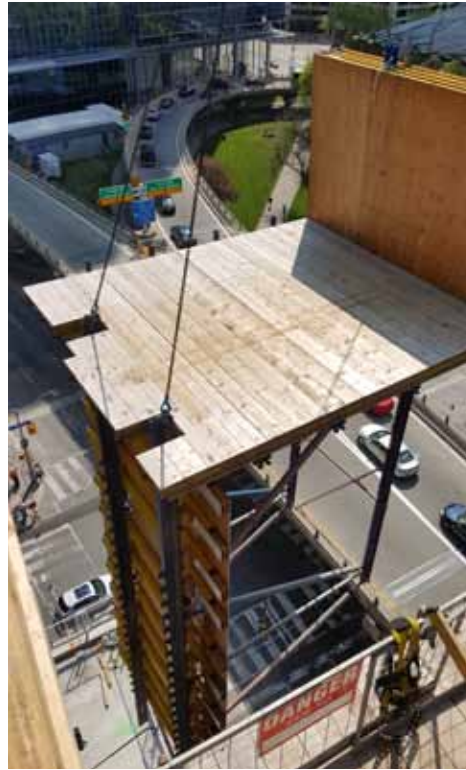
▲ The 735 ft. 10 York building is an architectural marvel soaring up from a triangular shaped wedge along side Toronto's main city artery.

The Challenge

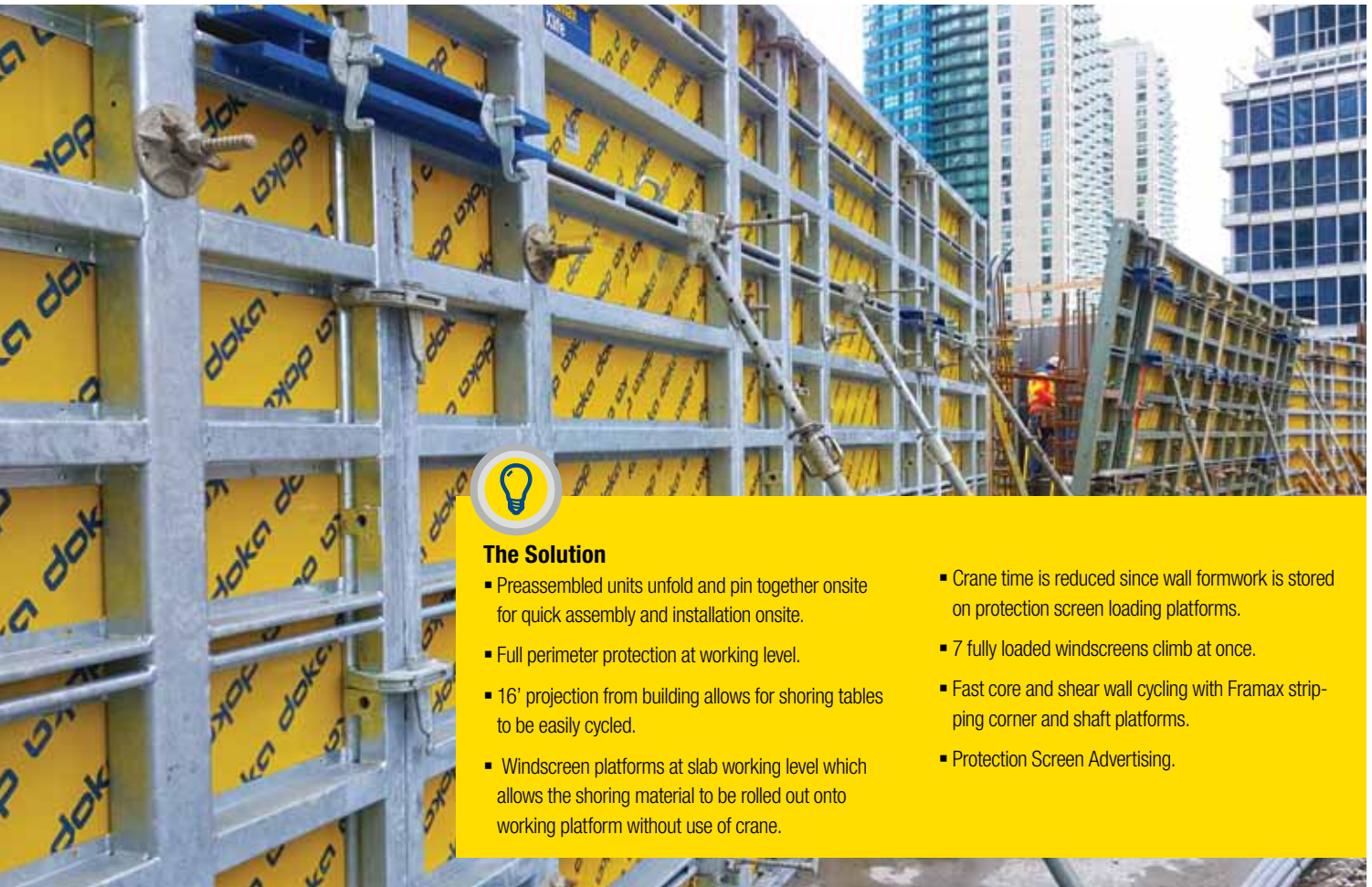
- 4 day cycle
- Not permitted to use traditional truss tables because of the close proximity of the jobsite to a major highway. .
- Shear wall construction restricts movement of shoring material through building.
- Limited spaced on ground for staging and storage of material.
- 10 ft. deep transfer slab suspended 40' above floor below.

Products used

- Shear walls: Framed formwork **Framax Xlife**.
- Facade: **Protection Screen Xclimb 60** with integral loading platforms.
- Re shoring: **Super props**.
- Shoring: Load-bearing tower **Staxo 100**.



► The full-area enclosure around the perimeter of the building enables all work to be carried out in complete safety, protected from all weather conditions. A wide platform storage can be integrated into the protection screen to provide storage and laydown space outside the building perimeter at any height.



The Solution

- Preassembled units unfold and pin together onsite for quick assembly and installation onsite.
- Full perimeter protection at working level.
- 16' projection from building allows for shoring tables to be easily cycled.
- Windscreen platforms at slab working level which allows the shoring material to be rolled out onto working platform without use of crane.
- Crane time is reduced since wall formwork is stored on protection screen loading platforms.
- 7 fully loaded windscreens climb at once.
- Fast core and shear wall cycling with Framax stripping corner and shaft platforms.
- Protection Screen Advertising.



The Professional

“This version of the Xclimb windscreen system demonstrates DOKA’s ability to continuously evolve and improve construction technology. DOKA’s systems have increased production and safety onsite.”

**Chris Taylor, Engineering Manager,
Hardwall Construction**



Why was Doka selected as the formwork supplier?

- Doka’s proven track record on previous projects.
- Engineering group’s ability to incorporate customers ideas and requests into design.
- Incredible site service staff.
- Economical and practical solutions.
- Pre-fabrication of panels.
- Easy assembly and installation onsite.

▲ The innovative climbing perimeter that offers work and loading platform protection in one system has resulted in saving valuable weeks of construction time.



The Doka Super Climber self-climbing core system increases jobsite production and reduces labor costs. At a push of a button, the entire core formwork, along with all platforms, interior and exterior formwork for an entire floor is raised in one single cylinder stroke raised independent of the crane.

220 Central Park South

The Challenge

- This building was designed with a perimeter spandrel beam which is a perfect fit for the custom made steel hinged column and beam formwork.

The Facts

Location: 220 Central Park South, Manhattan, New York City

Construction work performed by: Cross Country Construction LLC

Sq. ft.: 472,523

Height: 950 feet

Stories: 66

Cycle Time: 3 days on typical floors

Developer: Vornado Realty Trust

Architect: Robert A. M. Stern.

Type of structure: residential skyscraper

220 Central Park South is a residential skyscraper currently under construction, being developed by Vornado. It is located in Midtown Manhattan, New York City, and is being designed by American architect Robert A. M. Stern.

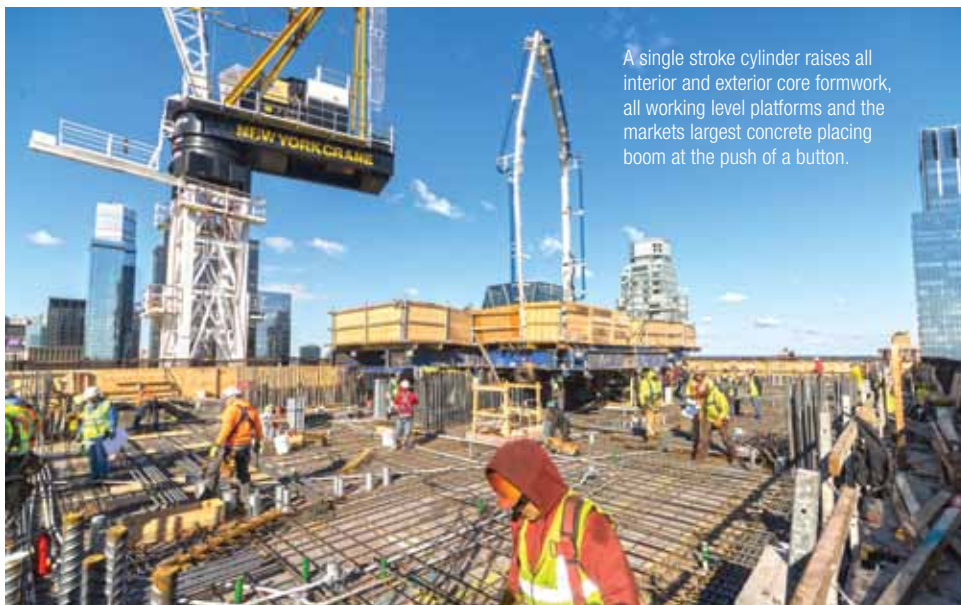
When completed, the tower will be the tenth tallest building in New York City, slightly shorter than Four World Trade Center.

The Solution

- The Xclimb 60 hydraulic climbing system is well matched to provide the rollback feature needed to ensure the stripped Formwork can clear the poured concrete in order to climb to the next lift.
- The Xclimb system also serves as a multi-level work platform system that doubles as protection from anything being able to fall from the working floors, similar to our protection screen system.
- The hydraulic climbing capability takes the need for the crane away and allows the crane to serve other aspects of the jobsite.
- The perimeter beam and column design with this smaller footprint yields a flat slab with little or no concrete beams. The project is a flat slab that can be formed very quickly using our large 4'x8' panels, making it a perfect fit to utilize Dokadek.

Products used

- Core: **Super Climber SCP**, **Frami Xlife** wall formwork
- Shear walls and Columns: **Frami Xlife** wall formwork
- Perimeter columns and spandrel beams: **Custom Steel** hinged forms
- Building Perimeter **Xclimb 60 hydraulic climbing system**
- Floors: **Dokadek** for the slabs in conjunction with **Dokaflex** in detailed cut up areas



A single stroke cylinder raises all interior and exterior core formwork, all working level platforms and the markets largest concrete placing boom at the push of a button.



The Professional

“We climb the perimeter system first thing in the morning and are able to start the deck formwork around 9:00 am. By noon, we are able to erect most all of the deck formwork because Dokadek is so fast when there are no interruptions. We did approx 7500 sq. ft. within three hours with 4 workers.”

**Darren, Foreman,
Cross Country Construction LLC**



◀ Dokadek is a beam-less, hand-set formwork system designed as a lightweight steel structure with yellow coated frames faced with timber/plastic-composite sheeting.

Challenge

- Overall an extremely tight space for loading/unloading equipment with no lay-down area.



Two Towers Rise over LA Live District

The Metropolis is an exclusive new collection of residential towers, sky pools and parks, dining as well as a boutique hotel in the heart of downtown Los Angeles. Positioned on 6.3 acres, the entire Metropolis site is part of a massive development of residential and commercial buildings around the Staples Center, which will have a great impact on the surrounding community.



The Facts

	Tower 2	Tower 3
Project	Webcor Builders	Pankow Builders & Penta Building Group (Joint Venture)
Height Stories	42 story high-rise, plus 18 story midrise, 9 levels of podiums and parking	56 story high-rise, plus 27 story midrise, spacing 11 levels of podium and parking
Developer	Greenland USA	
Location	Los Angeles	
Type of Structure	Residential High-Rise	
Construction Time	May 2015-July 2018	



The Solution

Tower ②:

- Doka provided complete Xclimb 60 Perimeter Protection Screens at 2.5 floors of cantilever, two Staxo stair towers - one suspended from the self-climber and another supported on a screen platform. On the high-rise core self-climber, 4,226 sq. ft. of Top 50 was used.
- Interior Core: The Super Climber SCP self-climber with 8 brackets using 6 cylinders to climb.
- Exterior utilized the SKE 50 plus exterior core self-climber with 20 cylinders.
- Additionally, 2,777 sq ft of additional Top 50 was required on the mid-rise core.
- Webcor used two separate hydraulic climbing systems to allow for larger rebar cages to be pre-tied and crane lifted into place.



Tower ③:

- Perimeter Protection system which would still allow them to fly Truss tables.
- Instead of supplying a folding screen, Doka designed a full perimeter of Super Loading Platforms and over 34,000 sq ft of Truss tables.
- The Super Loading Platforms provided a loadable working platform for picking/storing equipment while still providing protection to the work area below.
- Tower R3 also has twin Super Climber and SKE 50 self-climbing formwork systems on the cores, one at the mid-rise and the other on the high-rise, with a combined 7,000 sq ft of Top 50.

Pankow
THINKING BEYOND THE BUILDING



The Professional

“I’ve used truss tables my entire career and the Doka TrussTables are easy to install and very light weight”

**Tim Gridley,
Foreman, Pankow**

Products used

- Self-climbing system **SKE 50 plus**, **Dokaflex**, **10k shoring** system, **Doka Truss tables**, Protection Screen **Xbright**, **Eurex 30** top floor props, **Framax Xlife wall** forms, special steel construction for round columns, **Top 50**, **Super Climber**
- Services used: Project Management, Engineering, Field Service



▲ The full-area enclosure around the perimeter of the building enables all work to be carried out in complete safety, protected from all weather conditions. A loading platform can be integrated into the protection screen for straightforward, safe repositioning of slab formwork, tools and other materials.

Why was Doka selected as the formwork supplier?

- Proven technical expertise in high-rise construction methodology and the ability to service and supply the entire scope of the project.





◀ The sturdy, stable stair tower can be put together very quickly from frames and pre-assembled stairway elements. Intermediate exits permit safe access to all work-deck levels.



The Professional

“The Doka protection screens protect several levels supplying a hard barrier that not only secures the levels of any loose debris coming off the building but heightens production due to the worker having the sense of feeling that they are working in a controlled and contained environment. The working platform is another great asset to the protection screens and also provides a huge amount in savings, time and production. This keeps the construction of the structure in close quarters with each other by not having the crane go to the ground for everything that is involved for the cycle of the building.”

**Chris Neal,
Superintendent, PENTA**



▲ The DokaTruss table represents the fastest method to set and strip large slab formwork. The versatile design allows for maximum ganging of slab formwork. The DokaTruss table can be designed for up to 100 feet in length and 21 feet in width with only two trusses.

Resembling a graceful ship sailing into the future, Stuart Olson Construction relies on Doka's formwork solutions to create the architectural requirements of the new Central Library.



Challenge

- The design is the greatest challenge. There is very little repetitive work on this project due to very high slabs and architectural exposed walls, columns and slabs. Therefore, most of the forming solutions are custom. Many steel and concrete components are being built simultaneously and incorporated within each other.

Calgary New Central Library

Calgary's old library was built for a city population of 400,000 people. With the growth in Calgary and the surrounding area to almost 1.5 million people, it was time to increase the size of the library as well as modernize it.

The New Central Library located in East Village, will be 240,000 sq. ft. The challenging design, resembling a graceful ship sailing into the future, includes geometric exterior cladding and vast open interior spaces. The project, expected to be completed in 2018, will serve Calgarians for centuries.



◀ Complicated column cross-sections, large column heights, many formwork re-use cycles, tough specifications regarding the concrete finish – Column formwork Top 50 can handle them all.

The Facts

Location: Block 127 East Village SE Calgary, Alberta

Construction work performed by: Stuart Olson Construction Ltd. / Entuitive Consulting Engineers

Square footage: 240,000 sq/ft

Architect: Snøhetta / DIALOG

Type of structure: Commercial Building / Library



▲ Doka provided a tie-less column solution to be able to pour a 800mm x 1000mm x 11000mm column.

The Solution

- Doka was the only formwork supplier that was able to provide a tieless solution for the architectural columns and beams. Doka provided a tieless column solution to be able to pour a 800mm x 1000mm x 11000mm column.
- The ability to combine multiple Doka formwork systems to provide architectural and tieless formwork accommodated the needs of the client.
- Doka also provided a system that was set in conjunction with a concrete precast wall to pour an encasement around an existing operational LRT track.
- Slab design includes large architectural beams cast without ties.
- Doka's in-house team of engineers utilized AutoCad 3D modeling from the architect to complete the execution and assembly drawings for the customer.
- Certainty of schedule and planning including weekly meetings with the Stuart Olson Company to stay on top of the ever changing project demands and ensure the formwork solutions achieved the high quality architectural concrete finish.

Products used

- Core: **Framax Xlife**, Interior Shaft Platforms, **MF240**
- Shear walls and columns: **Framax Xlife**, **Top 50**, Pourform ph plus architectural plywood
- Floors: **Dokaflex**, **Eurex** supporting props, **Custom Steel** Formwork.



▲ Due to architectural exposed walls, columns and high slabs, most of the forming solutions are custom.



▲ The combination of Framax Xlife wall formwork and Doka climbing formwork MF240 proves its versatility on all tall structures. The formwork and climbing scaffold are linked together as a single unit which can be repositioned in one single crane cycle.



Frami Xlife and MF240 Climbing platforms on the outside core walls.

400 W. Huron

There is a great demand for residential development in the River North neighborhood of Chicago, and 400 W. Huron is a solution unlike any other currently being built. The rectilinear design of the steel and glass building makes it fit into the landscape of the neighborhood, which features several old converted warehouses and other spaces that are set to be upgraded.

The Challenge

- A change in the layout for the core of the lower levels and the design of the core itself, which has three interior walls. This requires the use of Frami formwork on only three sides of the platform, and the Doka team had to ensure they picked the platforms balanced.
- The contractor deemed the project to be too small to use a hydraulic climbing system and was interested in using a crane picked system, selecting Doka's MF240 climbing formwork.

The Facts

Location: 400 W Huron Ave., Chicago, IL

General Contractor: Smithfield Properties

Architect: Berkelhamer Architects

Construction work performed by: Concrete Structures of the Midwest

Type of structure: Luxury Condos

Stories: 15

Cycle time: 4 days

Products used

- Core: **Frami Xlife, Shaft platforms, Stripping corners, MF-240 climbing brackets**



Why was Doka selected as the formwork supplier?

- The constraints of the jobsite space and the cost-effective option of using the formwork over the standard hydraulic climber was a factor in the contractor's decision. Also, the system is jumped in only 15 picks, allowing it to keep up with the pace of the decks.
- Doka was brought onto the job due to its established relationship with the contractor, who is relying on Doka for six jobs at the moment.



▲ The use of MF-240 climbing formwork is unique in that it was utilized on a job with a small footprint, while in other jobs of this size, alternative self climbing systems are commonly used. However, the contractor wanted to try an alternative, and the MF240 is easily tailored to a wide range of different requirements.



The Professional

“Doka’s wall form systems are the best on the market. The engineering behind them are second to none. It’s safe, fast, and always produce a quality finish.”

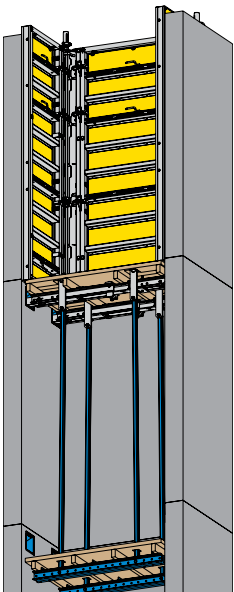
John Kulacz
Superintendent, Concrete Structures

The Solution

- Doka solved the challenge by designing the platform in a way that the hook is right at the center of gravity, keeping the platforms balanced.
- To ensure safety on the jobsite, the standard procedures for the MF-240 climbing formwork and Shaft platforms were followed. Additionally, the contractor keeps up with the concrete stairs so that they can be used to access the trailing platforms.
- Twenty MF240 brackets were used, along with 10 platforms and five shaft platforms.
- The flexible adaptation and quick assembly of the Frami Xlife makes it an ideal solution for fast and efficient forming of columns and walls in this tight jobsite. Due to their light weight and easy handling, they can be erected by hand without the use of a crane. Frami Xlife panels comply with OSHA requirements and allow the contractor to work quickly without compromising safety. Framed wall formwork Frami Xlife for:
 - 4,500 square feet of Frami Xlife for the core of the building
 - 1,500 square feet for columns and approximately
 - 5,700 square feet for the lower level, which had different pour heights.
- For the inside-shafts, five shaft platforms with stripping corners were used. In just one crane cycle, the entire unit is able to be repositioned quickly and safely in one piece. To further reduce labor times, the use of the Stripping corner makes it easy to set up and strike the formwork without the use of a crane. The combination of Shaft platforms and Stripping corners make this an ideal system to use for shafts, as the formwork can be stripped and set up again simply by turning a ratchet spindle at the top of the form.



► With the MF-240 climbing system, the Frami wall forms can be easily rolled back or tilted to allow easy repositioning for cleaning of formwork or typing rebar.



▲ Formwork and climbing scaffold are connected to each other so the entire unit could be raised in a single crane lift, reducing crane time to an absolute minimum.



▲ The #1 indisputable handset formwork system, Frami Xlife was used on the inside core walls, 5 shaft platforms on the elevator shaft and stair shafts.



Challenge

- Forming a non symmetrical V-Column 70' in height cast in 3 lifts.
- Cantilevered 5th floor slab with 36" concrete beams 70' high.
- Forming 70' column with no deviation.
- Limited space on-site in downtown Manhattan
- Triangular shaped geometry
- Emphasis on safety



▲ Slip resistant ladders and safety tie off points built into every frame, make Staxo 100 one of the safest shoring towers on the market.



▲ It's not just shoring. It's load-bearing tower Staxo 100.

The Facts

Location: 250 South Street New York, NY

Construction work performed by:

Pinnacle Industries

Architect: AAI Architects, P.C.

Developer: Extell Development Company

Type of structure: condominium apartment tower

Stories: 80

Cycle time: 4 Day

Sq.Ft: 6,775sf

Construction time: Setup time of all 400,000 cubic feet took just about 10 days; this includes the 2200 square feet of formwork and the construction of 3 working platforms.

250 South Street

The Lower East Side has been a vast and wide, low-rise, residential swath hugging the East River until Extell Development decided to erect this 811-foot-high condominium apartment tower in 2015, just to the north of the 330-foot-high, Manhattan Bridge. It is known as One Manhattan Square.



The Solution

- The Staxo system is supporting the 5th floor cantilever. It also provided working platforms and support for the full height of column forms.
- Shoring doesn't typically take lateral load, but Doka designed it so it could stand the full 70'-0" and support the formwork so the column was able to be plumbed and formed perfectly straight.
- Maximum safety is achieved with Staxo's safety tie-off points and slip resistant ladders integrated in every frame.
- Staxo's high leg load capacity (of up to 22.5 kip per leg), combined with the optimum adaptability to different layouts, floor shapes, and loads, including precise height adjustment, aids in project success.
- The column was formed on 3 sides with Frami, which allowed the contractor to pour the columns in manageable lifts but would ensure an accurate and precise outcome. With Frami, Doka was able to form the columns in full 70' height but place the concrete in 3 lifts.
- Frami Xlife panels allowed flexible and fast forming of the 5 x 3' columns with minimal ties required.
- Space savings transport devices minimized space required.



The Professional



“When we estimated this project, we went out to several form and scaffold suppliers for suggestions and solutions. We knew how we were going to build the concrete formwork, and were looking for a system to provide the support of both the sloping columns and deck above. After interviewing three form/scaffold design firms, it was Doka that provided the best and most efficient solution to solving this problem and providing the engineering that we required.”

Robert Mannino
Senior Estimator and Executive Project Manager, Pinnacle Industries



▲ Working platforms are integrated into the Staxo tower at different elevations to provide safety.



Why was Doka selected as the formwork supplier?

- Safety was a major objective for Lend Lease and Pinnacle Industries
- Solutions- forming the column full height, but being able to set rebar and pour in manageable lifts made accuracy and high quality results possible.
- Service, from the planning to installation.

In Brief

It's not just bridge pylon formwork.

It's automatic climbing SKE 100.

Gerald Desmond Bridge recently surpassed the existing bridge deck elevation (over 200') and continues to reach the sky with Doka's automatic climbing technology using SKE 100 (outside pylon) and SKE 50 (inside pylon).



See the system in action:
<http://bit.ly/BridgePylonForming>

It's not just formwork.

It's **doka.**

Booth #G1622 Gold Lot
#MoreThanFormwork



Save the Date: Conexpo March 7 - 11, 2017

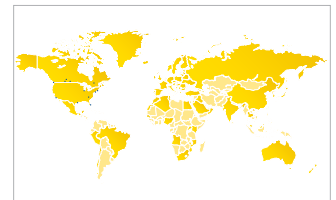
Doka will be exhibiting more than just formwork at the industry's largest trade-show. If you are looking for the latest in concrete formwork technology to help you complete your projects faster and more efficiently than ever before, let us be your solution! #MoreThanFormwork!

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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.

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