Formwork News

US Site Review
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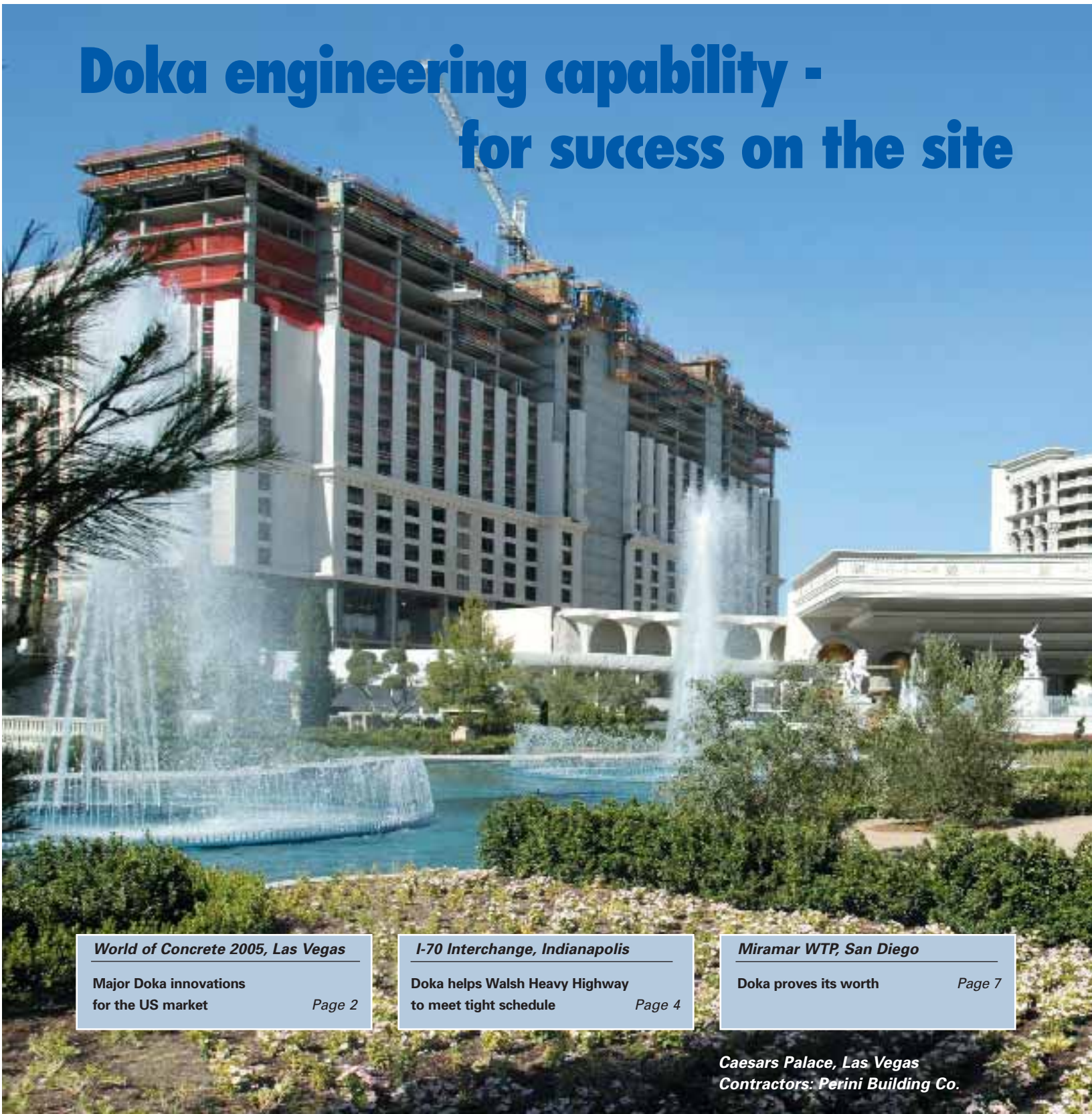
The Formwork Experts

Doka engineering capability - for success on the site



Caesars Palace, Las Vegas
Contractors: Perini Building Co.

18 SKE 100 automatic climbers lifted the whole formwork scaffold, including all the large area forms of core A, B, C and the "gallow" section, in just one climbing operation.

Conesco Doka helps speed completion at Caesars Palace II

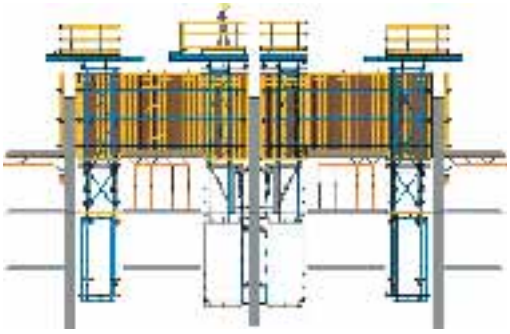
Time is money in Las Vegas where major casino resort projects are built at a breathtaking pace. The 26-story Caesars Palace II luxury hotel tower is no exception. Teams from Doka and its US operation, Conesco Doka, have responded to the challenge by providing contractor Perini Building Co. with a state-of-the-art formwork system, which has helped shave valuable months from an already-tight program.

Three key Doka formwork systems are at the heart of the tower's construction - SKE 100 automatic climbers, Top 50 large-area formwork and Framax universal panel column forms. Conesco Doka was able to supply the entire customized self-climbing system in just six weeks to help meet Perini's demanding schedule to deliver the hotel by the 3rd quarter of 2005.

"The Doka self-climbing form system was one of the key pieces that enabled Perini to negotiate a very logistically challenging site. This formwork system provided the ability to jump formwork, install reinforcing, and button up for pours in a limited amount of time.

This allowed Perini to maintain their typical fast, efficient and cost-effective schedule," said Jerry Lee Peterson, General Superintendent for Perini. "Conesco Doka stayed right with us and serviced the job well." A total of seven gantry-style cores are being built in two clusters at opposite halves of the building. Up to eight SKE 100 self-climbers are used at each core position to lift the formwork. Most of the steel superstructure frames for the gantry style self-climbing SKE systems are out of sight, hidden within the elevator shafts. But one section is attached to the building's exterior for construction of the 'gallow' section - an exterior wall running between two of the cores.

Casting the slab and core walls in a single pour saves on costs for rebar couplers.



Multiple automatic climbers can be combined for the rationalized production of highly complex cross sections of cores.

A key factor in the project's rapid progress has been the decision to synchronize core and deck construction. Casting the slab and core walls in a single pour at each level saves a day from the schedule. The core formwork is then climbed out of the way that night. Two different lift heights are used for the pours, from 9 ft and 13 ft 4 in, to accommodate variations in the heights.

The tower floors rise in two stages. One side of the building is always a day ahead of the other. This means that the formwork on the east end of the building has already been poured, stripped and moved up before the west end is ready to receive concrete. Doka Beam Forming Support 20 brackets were used inside the cores to support the slab edges from the climbing superstructures. This allowed the flying deck formwork to stop at the edge of the slab instead of protruding into the cores. This eliminated conflicts between the two systems, freeing up space in the cores.

Conesco Doka provided Framax Universal Panel column forms to allow Perini to pour half a floor, or 30 columns at a time. The columns are as high as 30 ft, with dimensions up to 30 in by 64 in. The high allowable pour rate of the forms and their easy adjustability helped Perini speed through the pours and the resizing of the forms as the column cross section reduces through the structure. The entire formwork system was designed by Conesco Doka and built in the Doka Ready-to-use West Coast Service Facility in Riverside, California. ■

With Doka self climbing systems even large formwork assemblies can be lifted without the need for a crane.

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Major Doka innovations for the US market

Outstanding quality, even longer service life and tremendous efficiency in day-to-day use - these are what make the new Doka products really stand out. At the World of Concrete 2005 expo in Las Vegas Conesco Doka will be reporting on some remarkable jobsite experience with them, and offering "concrete" advice and consulting.

The longer the new, near-indestructible "Formwork beam H20 top" is in use on construction sites, the more money it saves.

The Doka timber beam - the key component of all timber-beam formworks - has redefined the state-of-the-art once again: The new **H20 top** is the first formwork beam on the market to have a built-in shock absorber. This shock-absorbing end-reinforcement gives real and effective protection to the ends of the beams, largely preventing any damage.

The new **Doka framed formwork Framax Xlife** comes with a completely new form-facing that withstands major distress. The viscoplastic surfaced sheet has a considerably longer lifespan. This smooth surface results in clean concrete faces, and can be cleaned with minimal effort. When nails are hammered into the plastic surface, it does not splinter or chip.

As little or no water can penetrate into the sheet, it cannot swell up; those annoying impression marks on the concrete surface are now a thing of the past. When it comes to forming shafts, the new **Framax stripping corner I** is the ideal complement to Framax Xlife - it's amazingly efficient and delivers huge time-savings. A special stripping mechanism separates the shaft formwork from the concrete without any help whatever from the crane, requiring only minimal physical effort and no special tools. The system offers further significant advantages: The shaft formwork can be lifted and repositioned as a complete unit, saving yet more precious hours of labor and crane time. The new **Dokamatic table**, in formats of 8' x 16' and 7' x 16', is a versatile, pre-assembled, adaptable tableform for many very diverse tasks in the slab forming field. It makes a quick and easy job of adapting to widely varying thicknesses of

Framax Xlife, the new framed formwork from Doka, has an innovative form-facing that delivers clean concrete surfaces and is extremely easy to clean. This has a very much longer service life than conventional plywood sheets.

The new Framax stripping corner I makes for particularly efficient forming of shafts.

slab, and is also suitable for high-speed forming of edge-beams and slab edges. The Doka shifting trolley enables it to be repositioned very quickly, with almost no physical effort and with only a minimum of labor.

Alongside these innovations and the well-proven Doka formwork systems - all of them tried-and-tested the world over - Conesco Doka will also be presenting its extensive offerings in the **engineering and service sector**:

As a major US formwork company, Conesco Doka is well known for its wide-ranging engineering capabilities: It has got what it takes to tackle even the very toughest assignments in the fields of formwork planning and logistics, as well as providing custom site support. The US formwork specialist Conesco Doka can point to a slew of prestigious reference projects here: The “Heritage at Millennium Park”, for instance, with its 57-story residential high-rise in Chicago, or “Caesar's Palace II” in Las Vegas, both of which projects were constructed using Doka self-climbing systems on the basis of comprehensive planning services. Other formwork-technology challenges successfully solved by Conesco Doka underline the engineering expertise of the Little Ferry, N.J. based company: For example, the I-70 interchange bridges on the approach road to Indianapolis Airport, or the Miramar Water Treatment Plant in San Diego. On the Galveston Causeway Bridge, still under construction, Conesco Doka supplied planning services and equipment for the pier hammerheads and the bridge superstructure.

With the experience and know-how of an international formwork group behind it, and with its own impressive engineering capabilities, Conesco Doka has got what it takes to give US construction firms the flexible and efficient support they need to meet today's fierce competition head-on. At the end of the day, when work on a site is finished, much of the resulting user benefit - in the form of time-gains or savings in labor costs - will come down to the use of Doka systems. And the new products to be exhibited at World of Concrete all share this one purpose: To help construction companies to build even faster, better, and more cost-effectively. ■

US formwork specialist Conesco Doka can point to a slew of prestigious reference projects such as the I-70 interchange bridges on the approach road to Indianapolis Airport.

For large areas of slab, the Dokamatic table permits very short forming-times indeed. It can be repositioned extremely quickly and easily both horizontally and the vertically. Transportation of Dokamatic tables is made in a space-saving way.

An excellent concrete finish shown on the EB-AP bridge.

Doka formwork helps Walsh Heavy Highway meet I-70 challenge

Use of Doka's innovative and versatile Top 50 formwork gave Walsh Construction all the advantages of a custom-built system at a fraction of the price on a major interchange contract in the US state of Indiana. So considerable time savings at every stage of the design, construction and dismantling have been achieved.

Walsh's contract has involved the construction of three cast-in-place concrete bridges for a key interchange on the I-70 interstate highway. The work is part of a fast-track scheme to realign the I-70, increase its capacity, create interchanges to serve Indianapolis International Airport and make provision for future taxiway bridges over the road. Stakeholders for the scheme are the Indiana Department of Transportation, the Indianapolis Airport Authority and the City of Indianapolis. Completion of the entire project is due by the end of 2004. Walsh Heavy Highway ordered the superstructure formwork in July 2003 and the bridge structures were completed in phases between April and August 2004.

The three bridges are known by acronyms: AP-EB links the airport to the eastbound I-70; EB-AP connects the eastbound I-70 to the airport while AP-WB is the connector between the airport and the westbound highway. Work began with Conesco Doka providing outside

With a length of 800 ft the AP-EB bridge links the airport to the eastbound I-70.

The EB-AP bridge connects the eastbound I-70 to Indianapolis International Airport.

formwork for the two longer, wider bridges: the four span, 800ft (244m) AP-EB and the seven span, 1,350ft (411m) EB-AP. Both have superstructure widths of 53ft-4in (16.25m) and they were built to radiuses of 1,485ft (453m) and 1,590ft (485m) respectively. The final structure was the 345ft (105m), two span AP-WB, built in three sections between May and August 2004.

Use of Doka's Top 50 formwork enabled time and money savings at all stages of design and construction. The system gave major benefits, particularly since nearly all of the project's components were standard and available for rent. Top 50's ability to match the design needs in this way saved the cost of building formwork from scratch or using a custom forming system. Only a few custom-made steel splice plates were needed to accommodate the shape of the structures. Even with a rental period of over a year, there were considerable cost savings for Walsh, compared to the purchase of a custom form system. Top 50 also speeds erection and handling time tremendously, giving huge cost savings. Only a hammer is needed, as the system is assembled with simple connecting pins instead of nuts and bolts. Two factors dictated that separate formwork was needed for all but the last bridge. First, the construction schedule had to be demanding to ensure timely completion of the project. Second, the formwork could not be removed until all of the concrete had been cast and the post tensioning tendons stressed.

The superstructure of the two shorter bridges was post-tensioned from abutment to abutment while the third and longest bridge has an expansion joint near the middle. Top 50 is a relatively new system on the US market and Conesco Doka shortened the contractor's learning curve and eliminated guesswork by providing formwork engineering and field services. This translated into direct man-hour savings and a shorter time period for erection, demonstrating a further benefit of choosing Doka. ■

Use of Doka's innovative and versatile Top 50 formwork gave the contractor all the advantages of a custom-built system at a fraction of the price.

Framax components are easy to use and the system is very adaptable to changing situations.

Doka proves its worth at California water treatment plant

Conesco Doka is providing safe, easy-to-use and cost effective formwork for contractor Western Summit at the Miramar Water Treatment Plant in San Diego, California. Shipments began early in 2004 and are expected to continue until September 2005.

Western Summit Constructors has a successful history of working with Doka equipment and are familiar with the inherent safety features, as well as with Conesco Doka's engineering ability and high levels of service.

"On all projects using Doka equipment, I have been most impressed by the on-site support that Doka has provided and the knowledgeable personnel they assign to these projects," says Project Superintendent Rod McConnell.

"This is my fourth project using Doka equipment - mainly the Framax system," says McConnell. "The impressive thing about this system is that it provides a very short learning curve for our crews. Components are easy to use and the system is very adaptable to changing situations."

Western Summit knew from experience that this type of Euro-style clamp wall is the ideal choice to cope with the intricacies of intersecting walls and slabs, structures of varying heights and multiple penetrations. Framax also has a high allowable pour pressure, rated at 1650 psf.

From left to right : Rade Popovich , Project Manager; Steve Schaefer, Structure Superintendent; Rod McConnell, Project Superintendent

Western Summit specializes in the construction of major water treatment plants throughout the US and the company is extremely safety conscious, maintaining stringent guidelines on every project. In particular, Conesco Doka's system is ideal for meeting the essential requirement for fall protection. Many of the walls on the Miramar site are high - typically 30' - making safety a particularly important issue.

Framax has integral climbing and tie-off handles which meet this condition without the need for any labor-intensive additional hardware, illustrating a further advantage of Conesco Doka's extensive and versatile product range. ■

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