

# Renovation.

Formwork and scaffolding solutions from Doka.

**doka**



# Renovation projects: from single houses to bridges.



Renovation projects are no longer just a niche activity; they're becoming a cornerstone of shaping our built environment. From energy-efficient upgrades in single-family houses to the modernization of commercial spaces and bridges, the redevelopment of existing structures is gaining crucial importance.

Renovation projects present unique challenges, such as the need to take careful account of existing conditions, minimise inconvenience to residents or neighbouring businesses during the works, and comply with conservation guidelines or building regulations.

Doka provides a diverse range of formwork solutions tailored to meet the specific demands of renovation projects. Our offer, including engineering expertise, process optimization, formwork assembly, logistics, and rental options, makes Doka a valuable partner for the renovation endeavors.



0.16 kg<sup>CO<sub>2</sub> eq.</sup>

H20 top P beam 2.45m

\* 0,16 kg CO<sub>2</sub> eq. – carbon footprint of the H20 top P beam 2.45m

## Renovation: sustainability meets construction trends

The growing focus on renovation projects marks a positive step towards a more sustainable and efficient construction industry. Renovation uses less energy and materials compared to new construction, significantly reducing environmental impact.

Doka conducted life cycle assessments for more than 7,000 products. Therefore, as a Doka customer, you can compare the carbon footprints of our products to make informed and eco-friendly decisions.

This transparency allows you to minimize the environmental impact of your construction while ensuring efficiency and high-quality results.



65m pylon  
maintenance  
secured with  
Ringlock



From top to bottom instead of high into the sky

## Dismantling the “Deutsche Welle”

The former “Deutsche Welle” studio towers – one of the Germany Cologne’s landmarks- were dismantled from top to bottom with the help of Doka’s climbing technology.



### Project information

Demolition of one of Cologne’s landmarks – the 138m high towers of “Deutsche Welle” studio

### Project requirements

- Careful dismantling process (demolition from top to bottom instead of blasting)
- Controlled demolition procedure step by step
- Area around the site and the teams had to be protected from noise, dust, falling debris and vibrations.
- High level of asbestos and concern of nearby residents

### Doka solution

Both towers were fully enclosed with the **Protection screens Xclimb 60** for dismantling. This ensured the safety of the team at every height and prevented debris, small parts, and dust from falling.

- Full protection independent from wind & weather
- Huge reduction in noise emissions
- Rubber lips as an integrated seal between the protection screens to prevent small parts, debris and dust from falling
- 2,800m<sup>2</sup> of screen in total
- Pre-assembled units to enable fast assembly process



### Project information

- Renovation of old façade elements & concrete repair works
- Weight of old façade elements up to 5t
- 21 floors, total height 75m
- approx. 2,500m<sup>2</sup> per floor



## Renovation of Charite Berlin tower

### Doka solution

To safely transport the prefabricated elements weighing up to 5t, Doka engineers and the project team from Ed. Züblin AG developed a concept of downward-climbing platforms. For installing the new façade elements, the **self-climbing Xclimb 60 Protection screen with framed enclosure Xbright** around the building structure was applied, climbing from top to bottom.

### Project requirements

- 3 Phases:
  - PH1: Platforms for removal of old façade elements,
  - PH2: Protection screens to protect concrete repair works
  - PH3: Working platform to support installation of new façade elements
- Possibility to work on all 3 phases parallel
- Short crane times

- Fully automatic Xclimb 60 Protection screen with framed enclosure Xbright
  - to support PH2 & PH3
  - climbed from top to bottom (crane independent)
- Good lighting conditions due to translucent Xbright PC inlay
- Crane handled working platforms
  - to support PH1
  - made from Top 50 modular system components
  - width: 2.25m (generous work area); high load capacity: more than 5t



### Project information

- Waterworks HQ Budapest, Hungary
- 15 floors, total height 61.30m
- 490m<sup>2</sup> per floor
- Public area around the building



## Demolition of Waterworks HQ building in Budapest

### Project requirements

- Safety first! Very high safety requirement
- Fully automatic down-climbing system
- Suspension points under the slab

### Doka solution

For safe dismantling, the building was completely enclosed by automatic down-climb Xclimb 60 Protection screens. This system ensured the safety of workers at all heights, stopping falling debris, small parts and dust.



## Protection screen Xclimb 60

### Safe working at any structure height

- gapless enclosure prevents falls and protects the crew against wind and weather
- secured to the structure at all times

### Can be used anywhere

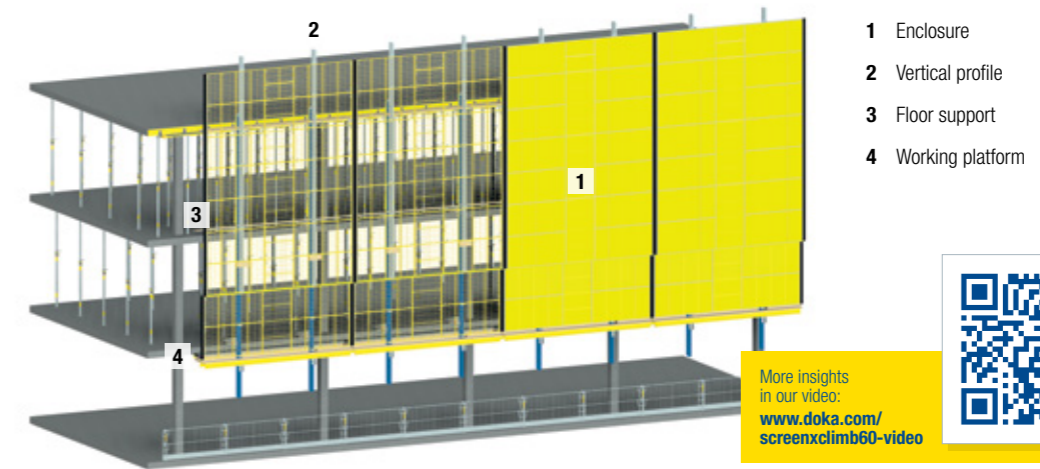
- several design variants with respect to type of enclosure and working platforms
- adjustable floor supports for facades with both changing and constant inclinations

### Smooth construction workflow

- crane lifts or repositioning by mobile hydraulic system
- the system can climb at any time, even while the slab is formed in



**No. 1 Nine Elms**, London, UK | 89 m: Automatic downward climbing with noise-abatement enclosure for controlled demolition work

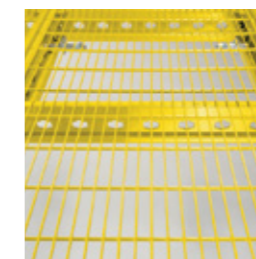


More insights in our video:  
[www.doka.com/screenxclimb60-video](http://www.doka.com/screenxclimb60-video)

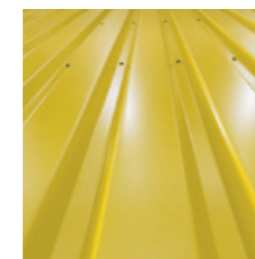
### Standard types of enclosure



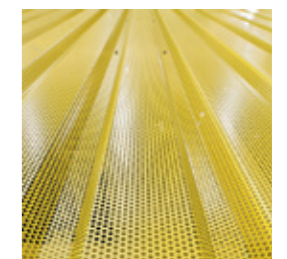
**Frame Xbright with PC inlay**  
translucent, wind-impermeable and non-see-through



**Frame Xbright**  
with mesh inlay translucent



**Trapezoidal sheet**  
wind-impermeable, non-see-through



**Perforated trapezoidal sheet**  
translucent

## Reconstruction of a historical church in Croatia

With Ringlock, Doka offers an extensive product portfolio of modular working scaffolding for numerous construction applications.

This tried-and-tested scaffold system solution has been established on the market for decades and is the ideal complement for carrying out new construction, redevelopments, building restoration as well as repairs and general maintenance. Ringlock impresses with its customary Doka quality at an attractive price/performance ratio. Thanks to its modular capabilities, the system is flexible and user friendly. With their in-depth construction expertise, our technicians provide you with tailored solutions to match your project requirements, to drive cost optimization and successful project execution.



### Project information

Structural reconstruction of The Parish Church of the Assumption of May, Croatia

### Project requirements

- On-site evaluation of the historical building to develop the right solution.
- Wrap the building close enough for restoration works while guaranteeing anchorages and material would not create further damage on the copper roof and centuries-old masonry.
- The tower has vertical settlement deviations and is therefore not vertically straight.

### Doka solution

- 3D modelling based on dimensioned drawings plus on-site measurement and evaluation
- Load-bearing cantilevers above the (mentioned) attached structural elements.
- Ringlock modular scaffolding was adapted to the current shape of the building completely enveloping the church's tower and all its protrusions, in a structure with a total area of 1,550m<sup>2</sup> of scaffolding.

## Renovation of a residential building, Austria

### Project requirements

- Total building height 25m
- The recesses in the façade and the sloping installation surface
- High safety requirements

### Ringlock scaffolding providing:

- Reliable Doka quality and safety standards
- Excellent combination of competitive pricing and performance
- Quick and easy assembly
- Flexible adaptation to project requirements with the modular design



### Project information

Renovation of the roof and parts of the façade of two 25 metre high residential buildings in Gmunden, Austria.



Some of the construction site photos show assembly conditions and are therefore not always complete in terms of safety.



The use of Ringlock convinced me because the assembly is quick and easy and you can easily overcome heights and level out the most difficult surfaces. We will continue to use this system in future for buildings with complicated architecture and height differences. Especially for renovation projects of old buildings such as churches and for interior restoration work.

Anton Lehner, site manager, Pecan GmbH



## A2 INSB G67, G69 Mooskirchen, Austria

### Project information

Renovation of two bridges on the A2 highway.

- Bridge length: 60m each
- Bridge width: 7.50m
- Bridge height: 6.00m

### Project requirements

- Ensure durability & load bearing capacity of the bridge superstructure
- Traffic under the bridge (highway) during renovation period still ongoing
- Strict time schedule (construction time)
- High safety requirements (safe workplace, no material downfall)

### Doka solution

- **Bridge edge beam formwork NG**
  - Used for the demolition of old bridge edge beam & construction of the new edge beam
  - Large working platform (generous working area)
  - Fully covered working platform (no material downfall)
  - inclined new edge beam geometry (no need for complex adjustments, thanks to Doka's new bridge edge beam formwork NG)
  - simple & cost-efficient solution



## Renovation of Stallbacka Bron bridge, Sweden

Maintenance and reconditioning are essential for the preservation of bridge structures and for extending their lifespan. System formwork from Doka provides ready-to-go solutions for a wide variety of applications

### Project requirements

- More than 50% increase of traffic volume until renovation start
- Traffic during renovation period still running
- High safety requirements (safe workplace, no material downfall)

### Doka solution

Platforms made of multi-purpose waling enclosed the bridge for demolition of cantilever parapets and cantilever arms. **Doka SL-1 assembly wagon** with ample space for working in safety was used for suspending the platforms

- Wagon length: 28m
- 5 wagons were used in total
- Wagons could be moved while the fresh concrete was hardening thus providing efficiency and a fast progress
- Fully covered suspended working platform for safe handling of formwork



### Project information

- The bridge is the most important connection between Trollhättan and Vänersborg with a very heavy daily traffic volume
- Bridge length: 1,392m
- Bridge width: 14.7m
- Bridge height: 28m



# A1 Raststation Großram, Austria

## Project requirements

- Traffic during renovation period still running
- High safety requirements (safe workplace, no material downfall)
- Strict timetable

## Project information

- Replacement of the bridge cantilever & bridge edge beam
- Bridge length: 210m
  - Bridge width: 14.70m



## Doka solution

### ▪ Assembly wagon SL-1

- Wagon length 8.00m
- Number of wagon's: 1
- Included Drive through opening 3.10x3.50m for unrestricted transports in terms of material deliveries
- Used only for assembly of the structural formwork Top 50
- suspended working platform for safe assembly of the formwork which was needed for the formwork of the replacement of the cantilever & bridge edge beam

### ▪ Structural formwork Top 50

- Cantilever length: 1.74m
- Bridge edge beam width: 0.31m
- Bridge edge beam height: 0.65m
- op50 elements with 2.00m & 2.50m width (74 pieces 2.50m & 14 pieces 2.00m)
- Used for demolishing the old supporting structure & pouring the new cantilever slab including the bridge edge beam



## Project information

In 2023, the section of the existing Voestbrücke bridge was renovated. This included maintenance work on the existing, approx. 65m high pylon.

# Voestbrücke: Danube River Crossing pylon refurbishment, Linz, Austria

## Project requirements

Provision of a 65m high **Ringlock modular scaffolding** providing safe working environment, uninterrupted access and effective execution of work.

## Doka solution

To achieve this, the pylon was enclosed with Doka modular scaffolding up to a height of over 60 meters. Integrated access ladders, enclosures and connection options for a material lift without direct tension anchoring to the pylon were necessary to ensure smooth work. The load transfer (at a maximum calculated wind load of 164 km/h) was realised via ring-shaped compression struts.





- The **ultra-light Supporting construction frame AL 1** from Doka offers versatile support for single-sided walls. Compatible with DokaXlight formwork, it allows manual erection during renovation work and on craneless construction sites.
- Doka's high-quality **Xsafe Catch Fan 4** quickly deals with the dangers of falling objects on construction sites, ensuring the safety of workers, bystanders, and pedestrians below. Its easy installation and rapid repositioning allow for comprehensive fall protection throughout the worksite.
- **Doka loading platform 3** offers a temporary zone for crane-lifted loads on high-rises. Works with Doka formwork, scaffolding, and construction equipment. Pre-assembled in two sizes (3 & 5 tons) for direct installation on structures.

## Conversion, extension, refurbishment and upgrading of existing buildings and structures.

For simple renovation and refurbishment projects, formwork needs to be lightweight, easy to handle without cranes, strong, and adaptable. Additionally, renovating buildings brings unique challenges such as fitting tight spaces, working around existing structures, and keeping disruption to a minimum. Ergonomic considerations are also crucial for workers operating in tight and potentially awkward spaces.

- **Doka Frami Xlife formwork 2** systems precisely fulfil these parameters. The small, robust Frami Xlife panels remain manual formwork despite their steel frame. Can be put to use quickly, anywhere thanks to its many practical features.
- **Doka's load-bearing towers Staxo 100 5** enable optimum adaptation to any project with a few components only. It combines high load capacity and safety in every situation. It provides high safety and speed on site thanks to built-in protective features such as integrated ladders and tying points.





