

A photograph of a modern building with a white, perforated facade. The building has several large, dark rectangular windows. A sign on the facade reads "Edmund, schau' in den Spiegel". In the foreground, there is an outdoor seating area with tables and chairs, and a small white utility vehicle. The sky is blue with some clouds.

doka

Understanding how to realise
exceptional ideas – together.

Formwork solutions for your fair-faced concrete project.

Concrete expression of **individuality**

With system and project-based formwork

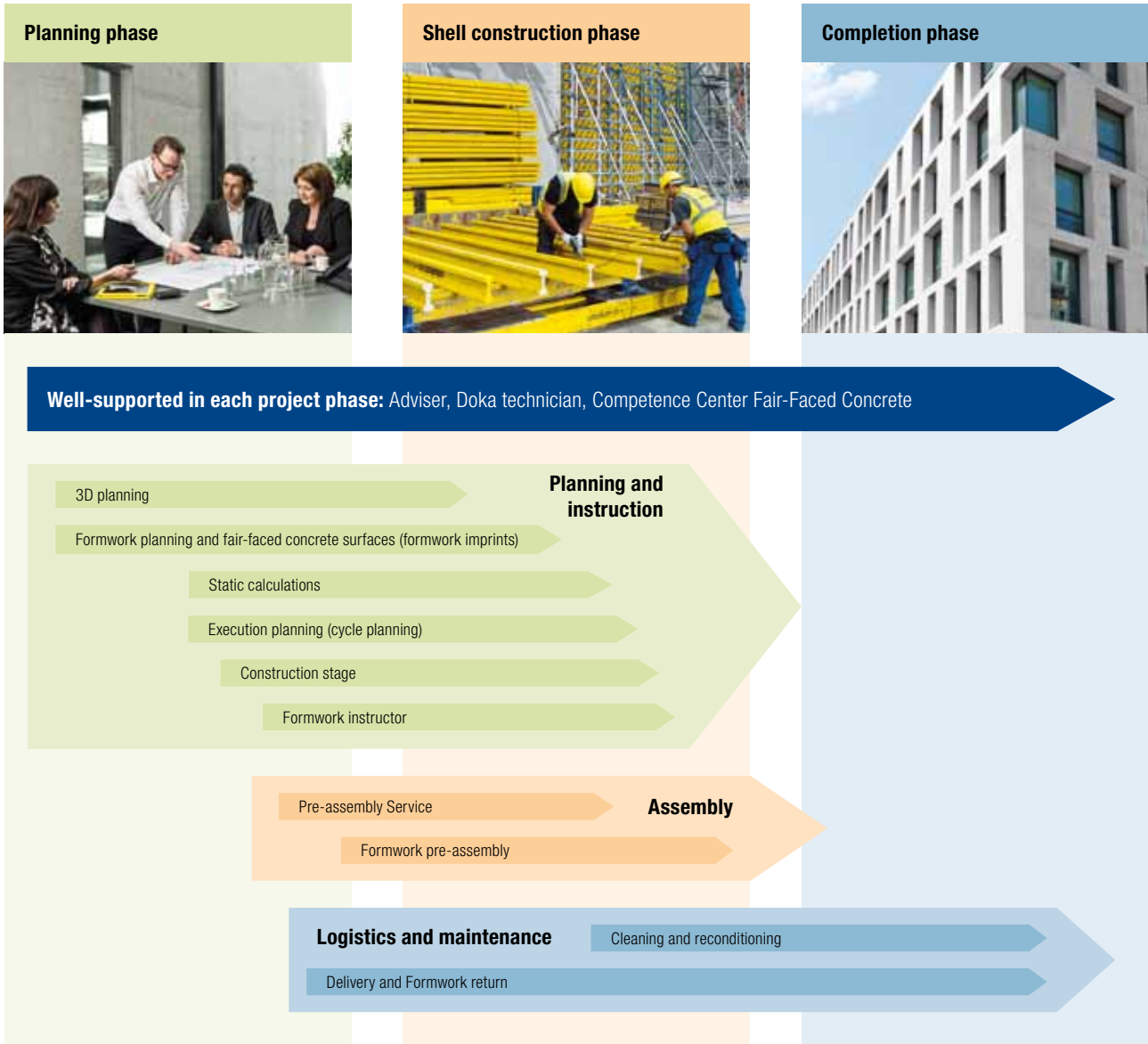
A clear trend is 'surfacing' in the language of architecture, towards concepts that are as individual as they are unique. Buildings convey interesting forms of expression to both the inside and outside. Cast-in-place concrete creates extra leeway for architecture. We work with our customers to develop holistic solutions for concrete technology, formwork technology, concrete installation and compaction - all customized to the requirements of the structure. We offer proven modular systems and project-based formwork for various surface design elements such as increment-grids, joints and texture.



Project success assured

With active support throughout all project stages

The experience gathered from hundreds of fair-faced concrete projects taught us: Each construction project is unique! The know-how of the Competence Center Fair-Faced Concrete is your reliable resource for achieving a construction process that is smooth and economical. From planning through to completion – we are by your side to ensure your project success.



Early involvement of formwork experts in your project is advantageous:

- Certainty in planning costs, time and quality
- Risk reduction through competent and experienced experts
- Optimised (construction) workflows
- Fair-faced concrete solutions even for particularly elaborate requirements

Architectural **interplay**

Exceptional structures through constructive collaboration

We recommend drafting as detail-oriented a project specification as possible so that together with your suppliers you will be able to plan, coordinate and ultimately meet the desired requirements.

Builder

- Construction time and costs
- Geometry of structure
- Requirement for fair-faced concrete

Architect, planner

- Geometry of structure
- Requirement for fair-faced concrete
- Form-tie points and tie hole closure
- Division of area / increment-grid

Factors influencing your fair-faced concrete project

Construction work

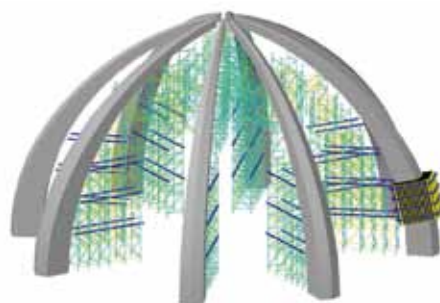
- Selecting materials
- Selecting equipment
- Concrete processing
- Construction site operation
- Component protection
- Installation parts
- Environmental conditions
- Interactions

Suppliers

- Concrete technology
- Formwork technology
- Reinforcement
- Release agents

Team success is evident in the concrete results.

Create a circle of experts including people in charge at the construction company, specialist planners and builders as well as representatives from the primary equipment and materials suppliers. Together you will ensure that you will achieve the desired quality of your construction project.



Criteria for success when planning fair-faced concrete projects

the standards set forth by builder and architect are crucial

A clear and detailed invitation to bid is a crucial contribution to your individual project result. We support you in considering all criteria relevant to quality costs.

As the builder, you pay particular attention to



Construction time and costs

Compliance with the completion date in agreed quality at calculated costs is of immense importance. We successfully accompany you through planning and processing the materials. This is how you get to the goal swiftly.

Geometry of structure

There is virtually no limit to individuality in fair-faced concrete projects. Even with highly complex structures we support you in keeping your costs as well as construction time within limits.

Fair-faced concrete requirements

Depending on their purpose, structures must meet certain requirements in terms of design, durability or sustainability. Doka's fair-faced concrete experts provide you with advice regarding specific rules and standards as well as options for implementing individual requirements.

Tip:



We recommend: Sample surfaces

Undesirable side effects caused by chemical and physical interactions (e.g. release agents, concrete additives) between individual material components during construction can be avoided. Conduct advance testing of interactions between the materials to be processed on sample surfaces and under local conditions. This way you ensure the quality of your individual fair-faced concrete

Division of area / increment-grid

In addition to the specified form tie arrangement, your visible surface is influenced by the formwork panel formats and/or frame imprints on panel joints. We support you when you select the right formwork system for your fair-faced concrete requirements.

Type of edge

Concrete edges are mostly formed using triangular ledges to produce chamfered edges. Forming arrises requires a high level of craftsmanship. It must be taken into account that a structural edge is equivalent to a "formwork panel joint" and is subject to the relevant criteria of the rules.

Geometry of structure

characteristics and complexity of structures impact project costs. We provide you with consultation regarding cost-effective methods of execution.

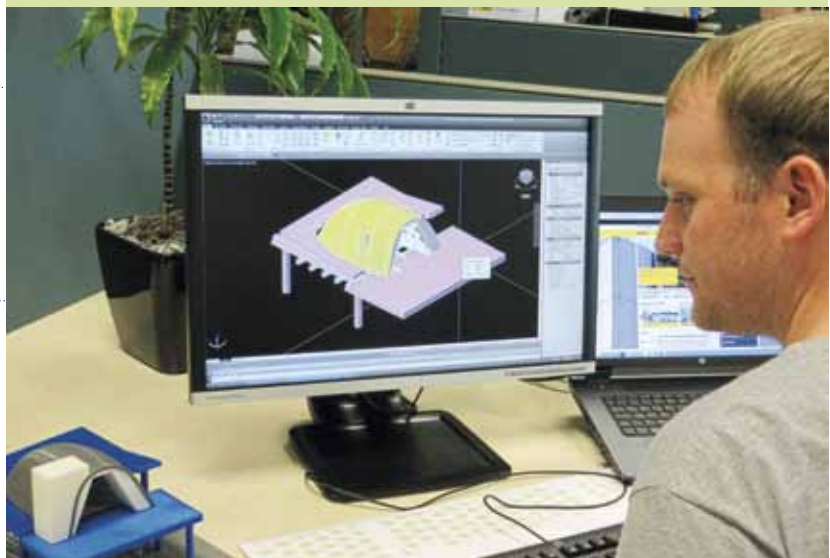
Surface texture

The surface structure is substantially influenced by your choice of form-facing ("imprint"), the formwork system (thus, with framed formwork the form-facing is predetermined) or by various rework methods.

Box-outs

Form tie arrangement must be coordinated with wall openings (doors, windows etc.).

As the architect and planner, you pay particular attention to



Fair-faced concrete requirements

Doka's fair-faced concrete experts support you in formulating individual requirements consistent with specific rules and standards in invitations to bid.

Form-tie points and tie hole closure

Form-tie point positioning and their closure will impact the appearance of your fair-faced concrete. By working with us you can exhaust all available creative options.

Casting sections

Dividing the area into of pouring sections significantly impacts its organization. This task is best coordinated with the superstructure planner.

Added value thanks to system

The right formwork for your requirements

Certainty of quality and costs are key factors in any building project. As a competent partner, Doka offers cost-efficient solutions for all design challenges. Costs of the formwork systems to be utilised depend on the desired added value.

With increased desire for quality and flexibility comes an increase in expenditures of material and time.

	Standard Rental yard formwork	Fair-faced concrete formwork			
	Framed formwork Framax Xlife	Framax Xlife doubled up	Wall formwork FF100 tec	Large-area formwork Top 50	Large-area formwork Top 100 tec
Flexible joint pattern	***	****	**	*****	*****
Flexible form-tie pattern	*	**	***	*****	*****
Form-facing as desired	*	*****	*****	*****	*****
Number of form-tie points	***	***	****	***	*****
Cost for 2 months, Formwork used 5 times	100%	226%	219%	237%	259%

Cost comparison of formwork systems using a fictitious project with 2-month rental period and formwork being used 5 times. Framed formwork is equal to a standard rental formwork unit without change of form-facing.

Factors influencing formwork costs:

- Rental costs: The proportion of framed formwork that can be rented is frequently greater than with timber-beam formwork.
- Operations scheduling: Formwork for special projects require longer planning and production times
- Freight: The volume of timber-beam formwork is generally larger than that of framed formwork
- Reconditioning: High demands for quality generate high costs for maintenance and care
- Assembly/disassembly: Unlike formwork for special projects, system formwork for rent is pre-assembled
- Form-facing: Using new form-facing will result in added costs

A question of arrangement

The path to a one-of-a-kind surface appearance begins with a plan for formwork samples

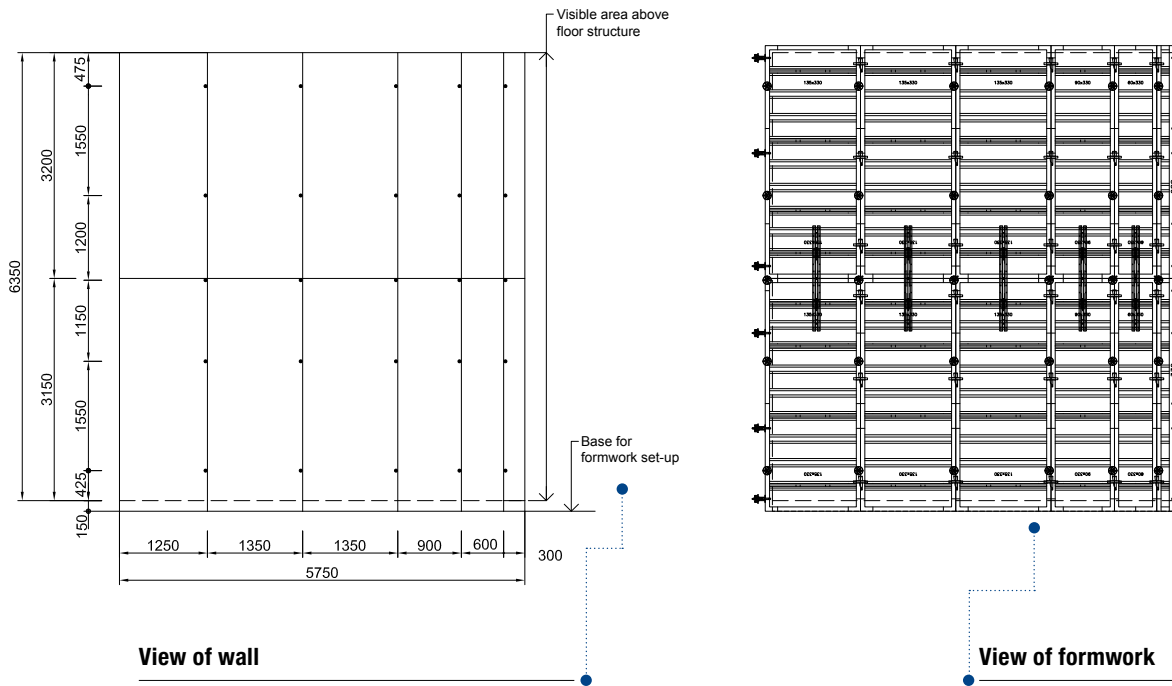
In the formwork sample schedule we are planning how to perfectly divide the area so you can achieve a unique fair-faced concrete result. The organization of visible surfaces refers to the arrangement of casting section seams, structural connection between forming elements, formwork sheets and form ties in wall formwork.



Tips:

- **Casting section joints** are the same as structural connections between formwork elements that are even more clearly visible and must be coordinated with the planner of the superstructure. In the case of horizontal construction joints, use of trapezoidal strips will result in neat connections and reduced cement paste bleeding.
- **Structural connections of formwork elements** are the result of the formwork systems selected.
- **Structural connections of formwork sheets** depend on the formwork the chosen supplier is able to deliver. The most often used format of plywood sheets with smooth coating is 1.25 / 1.50 x 2.50 / 3.00 m, the 3-ply sheet 3-S0 can be delivered in sizes up to 1.50 x 6.00 m.
Include formats of max. 2.0 x 5.0 m in your plans - they will provide an adequate product selection (e.g. Doka fair-faced concrete formwork sheet Xface). Selection of larger formats significantly impacts price and delivery time.
- **Formwork boards** come in nominal widths (e.g. 100 mm). However, the actual width may deviate by several millimetres from the nominal width as a result of different production and storage conditions. This means that a forming element that is 2.50 m wide is not comprised of exactly 25 boards of equal width. For this reason, the precise arrangement of form-tie points at the centre of the board entails very high expenditures for assembly and logistics.
- Form ties, in terms of their area of influence, must be limited for reasons of statics (e.g. systems with a Tie rod system 15.0 mm have approx. 1.0-1.5 m² area of influence per form tie, in systems with Tie rod system 20.0 mm the area of influence per form tie is approx. 2.0-2.5 m²); when arranging the form ties it is important to keep in mind the distance to wall openings, built-in components, component corners etc., to prevent them from colliding with box-outs.

Framed formwork Framax Xlife



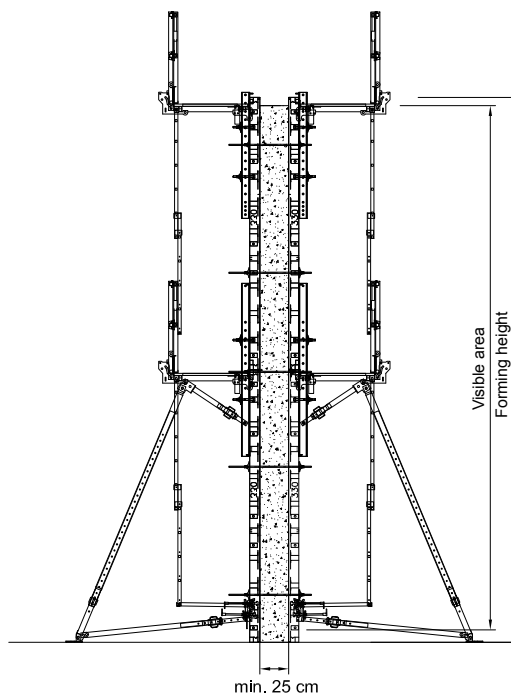
Please note

When using framed formwork, the pronounced imprint of the steel frame at the panel joints will remain visible.

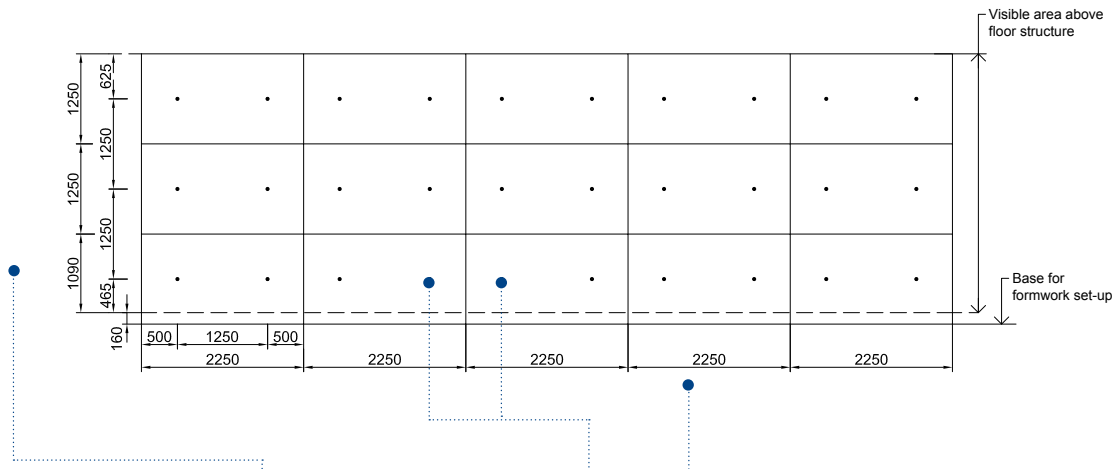
Tip:

Premium concrete surfaces

Our recommendation is to fix the formwork sheets from the back. Galvanised steel frames reduce the risk of rust stains.



Large-area formwork Top 100 tec



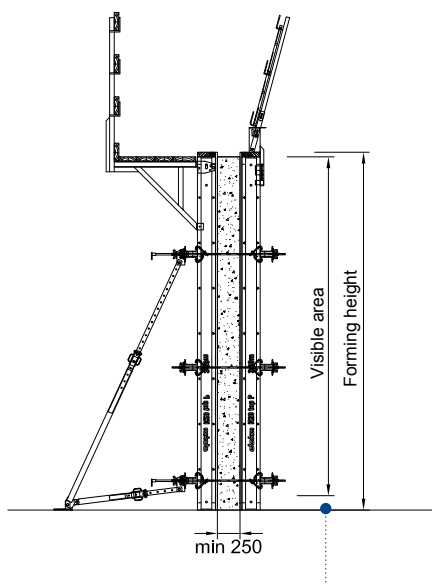
View of wall

For dimension when using commercial box beams, select approx. 50 cm max. (cantilever deformation!) Wider spacing possible when using the I tec composite formwork beam.

Form-tie points should be arranged so they are statically balanced, e.g. cantilever length = approx. field length/2. When using the Tie rod system 20.0 mm, the number of form-tie points can be reduced.

Selection of a system grid (25 cm increment-grid) provides additional options for avoiding misalignments.

Formwork footprint = unfinished floor



Sample formwork plan

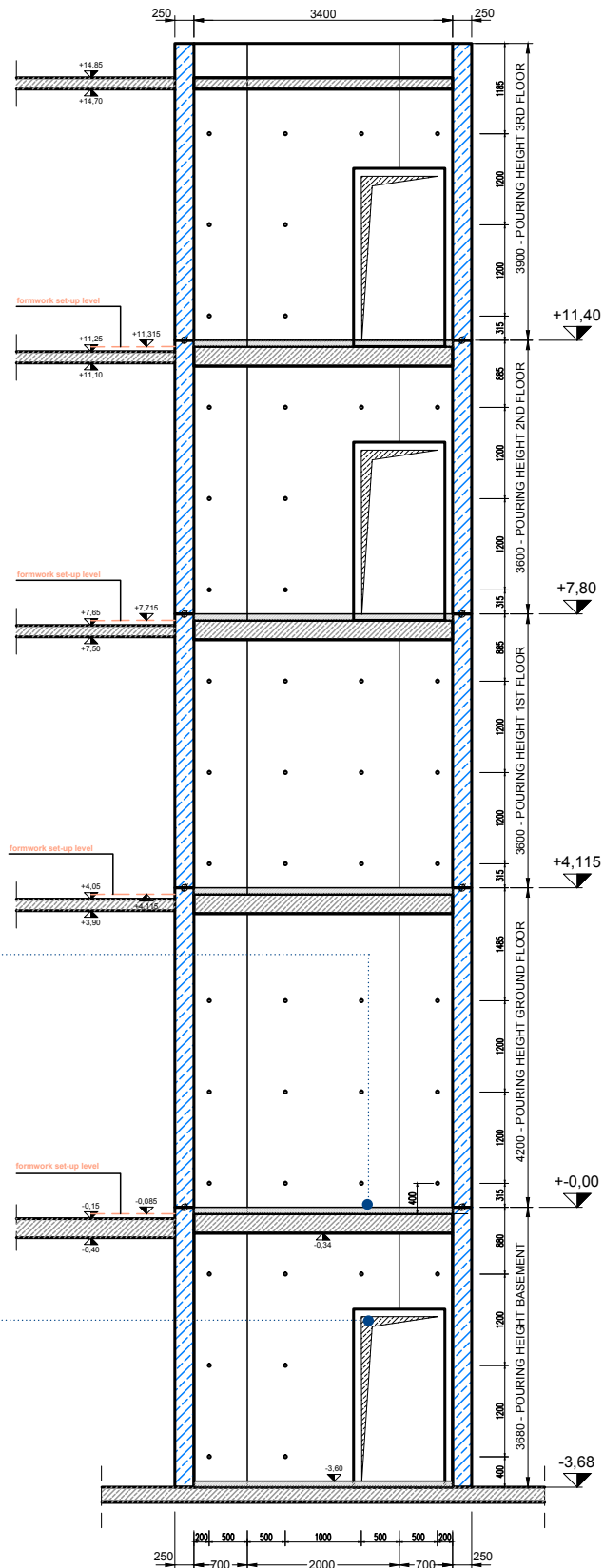
Large-area formwork Top 50

View of wall

Formwork view plan for Large-area formwork Top 50 produced specifically for project.

The formwork unit's set-up level equals top of unfinished concrete slab / floor plate. This may influence the visible level of form tie positions when building up the floor.

Arrange form ties that are passed through the box-outs of doors at least 5 cm from the concrete edge.



Monuments for generations

Making an impression with concrete

Fair-faced concrete offers architects and construction firms the leeway to realise even the most eccentric ideas and shapes. It is the high-quality products and outstanding specialist knowledge in particular that turn unique projects into monuments for generations. From useful and beautiful structures through to artistically designed architecture with whimsical details – fair-faced concrete always leaves a lasting impression.



Form-facing – for visual impact of the fair-faced concrete surface

Influencing surface structure and colouring by means of form-facing

In its visibly most beautiful form, fair-faced concrete is a challenge for formwork technology. Reliably casting concrete surfaces in the desired fair-faced concrete category requires a great deal of experience in handling suitable formwork materials. If the goal is to create the perfect appearance, the right formwork sheets are required to achieve premium concrete surfaces.



Formats:

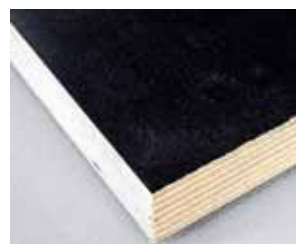
- Lengths: 302, 402 und 502 cm
- Widths: 202 cm
- Thickness: 21 mm

◀ Xface sheet

Features:

- Nordic birch plywood, cross-wise glued
- concrete side with durable synthetic resin coating, the back coated with phenol resin
- non-absorbent surface
- sheet for smooth concrete surfaces
- normal pore formation
- light concrete colour

Tip: Its fibre-reinforced synthetic resin coating delivers premium concrete surfaces that are stain-free and highly resistant to scratching.



Formats:

- Lengths: 250 to 300 cm
- Widths: 125/150 cm
- Thickness: 9/18/21 mm

◀ Dokaplex formwork sheet

Features:

- Nordic birch plywood, cross-wise glued
- same phenol resin coating on both sides
- used in wall and floor formwork
- sheet for smooth fair-faced concrete surfaces
- cut edge sealed
- very low absorbency
- surface without texture
- normal pore formation
- light concrete colour



Formats:

- Lengths: 100 to 600 cm
- Widths: 50/100/150 cm
- Thickness: 21 and 27 mm

◀ Formwork sheet 3-S0

Features:

- 3-ply sheet (spruce) crosswise glued
- minimal tendency for cracking due to thinner cover layers
- surface coated with glue
- slight board-type structure (depending on timber moisture)
- used in wall and floor formwork
- high-quality, consistent timber quality
- smooth concrete finish
- even concrete finish
- slightly absorbent surface
- low pore formation



Formats:

- Lengths: 250 to 600 cm
- Widths: 50/100 cm
- Thickness: 21 mm

◀ Texture sheet 3-S0

Features:

- (in addition to 3-S0 21 mm)
- brushed surface
- additional single-side varnish sealant layer
- board-type character due to milled longitudinal grooves (creates panicles)
- very low absorbency
- normal pore formation
- light concrete colour



Tip: It takes 2-3 uses before a uniform concrete finish is produced. For this reason changing the form-facing with each use is not recommended.



◀ Boards rough cut

Features:

- rough, board-type surface structure with dark concrete colour
- lighter after several reuses
- extremely absorbent
- hardly any pores on visible surface
- variations in absorbency due to knots, resin pockets etc.
- wood sugar prevents some of the concrete from setting
- wood fibres may remain on the surface



◀ Boards planed

Features:

- smooth concrete finish with distinct wood texture
- dark concrete colour – lighter after several reuses
- low pore formation
- variations in absorbency due to knots, resin pockets etc.
- wood sugar prevents some of the concrete from setting
- sanding on surface



Great looking surfaces. The systematic Doka way.

Solutions for simple and complex components

With its modular formwork systems, Doka has the right solution for the entire spectrum of architectural requirements. The range is oriented to be comprehensive and scores with convincing arguments: high standard of safety, excellent cost-efficiency, and great ease of handling. At Doka, we not only think in terms of large surfaces, but also look hard at the details.



◀ Framed formwork Framax Xlife

- frame imprint in concrete
- form-facing screwed on from back (no attachment of form-facing visible on concrete)
- neat horizontal and vertical joint pattern
- neat, fixed form-tie pattern



◀ Framed formwork Framax Xlife plus

- form-tie and joint pattern with form-tie points on the inside
- frame imprint in concrete
- form-facing screwed on from back (no attachment of form-facing visible on concrete)
- shorter forming times thanks to Tie rod system that can be operated from one side



◀ Large-area formwork Top 50

- timber-beam formwork assembled based on the project
- choice of form-facing
- no frame imprint
- for structures of any shape
- adaptable to formwork pressure
- choice of form-tie and joint pattern



◀ Large-area formwork Top 100 tec

- timber-beam formwork assembled based on the project
- choice of form-facing
- no frame imprint
- minor deflections
- Few form-tie points thanks to strong components
- Choice of form-tie and joint pattern



◀ Wall formwork FF20 and FF100 tec

- pre-assembled formwork elements with form-facing or pre-assembled girder grilles and form-facing of choice
- no frame imprint
- no screw imprints
- minor deflections and few form-tie points when using the reinforced FF100 tec design
- form-tie points on the inside symmetrically arranged with FF100 tec



◀ Dokaflex 30 tec and Dokaflex

- shoring heights up to 5.50 m
- infill zones by telescoping the system beams
- no frame imprint in concrete
- choice of form-facing



◀ Dokadek 30

- shoring heights up to 4.50 m
- basic structure of elements from below
- infill zones through seamless interlocking with Dokaflex
- imprint of Dokadek panel frame on concrete
- dimensions of Dokadek panels: 1.22 x 2.44 m, 0.81 x 2.44 m



◀ DokaShape

- formwork customized for complex component geometries
- unusual shapes realized easily and precisely
- uniform concrete surfaces with significantly less cracking and staining thanks to special coating on formwork bodies
- neatly formed joints resulting from precisely cut edges of formwork panels
- reduced expenditures from rework due to high-quality surface

Residential building

For visibly beautiful living spaces

Model housing development Hadersdorf House 6 ▶

Location:
Vienna, Austria

Construction work:
Strabag AG, Vienna

Architect:
Roger Diener, Basel

Challenge:
Form-tie and suspension points
for platforms in pre-defined
increment-grid

Solution:
Wall formwork FF20 with Texture
sheet 3-SO screwed on from the
rear





◀ **Single family residence**

Location:

St. Johann in Tyrol, Austria

Construction work:

EMPL BAU GmbH

Architect:

Stefan Metzner

Challenge:

Fair-faced concrete curtain walling to be poured subsequently with a uniform form-tie pattern without frame imprints, in case of sharp-edged corners with utmost dimensional precision

Solution:

Planing with Dokaplex formwork sheets, approx. 350 m² fair-faced concrete curtain walling (max. height approx. 9 m)

High-rise and commercial construction

For buildings that are useful as well as aesthetically pleasing

Commercial Park Schlitters ▶

Location:

Schlitters, Austria

Construction work:

Rieder GmbH & Co KG

Challenge:

Demanding fair-faced concrete surfaces with vertical longitudinal stripes at regular intervals for prestigious business buildings
Hidden form-tie points in texture grooves

Solution:

Framed formwork Framax Xlife, Folding platforms, Framax Xlife doubled up with Doka Xface Trapezoidal strips made of Xface sheets for longitudinal stripes





◀ **New Port House, Antwerp, Belgium**

Location:
Antwerp, Belgium

Construction work:
Interbuild

Architect:
Zaha Hadid Architects

Challenge:
Asymmetrical column made of self-compacting concrete with 12 lateral surfaces at different angles and special form-tie positions

Solution:

Large-area formwork Top 50 covered with 3-SO and doubled up on-site with Dokaplex sheets. Flexural rigidity, special walings, multi-ply formwork sheets for an exceptional fair-faced concrete result. Load-bearing tower Staxo 100, Formwork planning in 3D, Dokadek 30 for cast-in-place works in underground garage



**Exhibition and Training
Facility Brunner GmbH ▶**

Location:
Eggenfelden, Germany

Construction work:
Kellhuber GmbH

Architect:
Markus Frank

Challenge:
Presentation room having the cross-section of a European sacred building with vault in fair-faced concrete and back wall in black fair-faced concrete the texture of charred timber

Solution:
A type of tunnel formwork traveller with pre-assembled vault-shaped elements for quick forming and stripping as well as precise adjustments to the camber. Doka Wall formwork FF100 tec, Load-bearing tower Staxo 100 and Large-area formwork Top 50





◀ **New Merck factory canteen
Building R40**

Location:
Darmstadt, Germany

Construction work:
Diringer & Scheidel
Bauunternehmung

Architect:
Neumann Architekten GmbH
Frankfurt

Challenge:
Two-storey company restaurant
with basement and mechanical
equipment room on the roof
with exterior wall in category
4 fair-faced concrete with neat
form-tie and joint pattern as well
as a circular wall opening incl.
handrail for stairs

Solution:
Pre-assembled fair-faced
concrete formwork to reduce
assembly time while ensuring
high quality Large-area formwork
Top 50



Széchenyi István University ▶

Location:

Győr, Hungary

Construction work:

Záév Zrt.

Architect:

Gelesz és Lenzsér Építészeti,
Mérnöki és Szolgáltató Kft.

Challenge:

Two new structures connected to existing university buildings Fair-faced concrete on the building inside and out

Solution:

Timber beam formwork Top 50 based on the project for several reuses and reduced assembly effort on the site



◀ Palace Narodni

Location:

Prague, Czech Republic

Construction work:

Terracon a.s.

Architect:

Ing. Arch. Stanislav Fiala

Challenge:

Concrete architecture and art of imprint impressively combined when forming walls and floors.

Solution:

Special formwork with individually created surfaces where positive imprints of e.g. ropes, soles, tools or even hands are implemented.



◀ **Pharmapolis
Research Centre**

Location:
Debrecen, Hungary

Construction work:
Társ '95 Kft.

Architect:
Pitvar Építettervező és Szervező
Kft. Pitvar Kft.

Challenge:
Front desk and entrance areas in
fair-faced concrete look featuring
sloping columns measuring 3 m
in height and built without form
ties

Solution:
Non-tied Large-area formwork
Top 50

Sites of cultural interest

For artistically expressive architecture

Phaeno Science Center ▶

Location:

Wolfsburg, Germany

Construction work:

E. Heitkamp

Architect:

Zaha Hadid Ltd & Mayer Bährle,
Freie Architekten BDA

Challenge:

SVB, geometry of structure

Solution:

Large-area formwork Top 50,
Tongue-and-groove board
formwork



◀ Seaside Resort Kaltern (Lido di Caldaro)

Location:

Kaltern, Italy

Construction work:

Zimmerhofer, Campo Tures

Architect:

Ernst J. Fuchs, Wien the next
ENTERprise – architects

Challenge:

complex geometry of structure

Solution:

Customized formwork with
supporting structure, Formwork
sheet 3-S0



ARKKITEHDITNRT ©

◀ Sibelius Akatemian laajennus

Location:

Helsinki, Finland

Construction work:

Skanska

Architect:

ARKKITEHDITNRT

Challenge:

Sophisticated free-form surface shaped with the use of self-compacting concrete

Solution:

DokaShape system for realizing the complex shape, pre-assembled elements for quick use on-site, Top 50, Load-bearing tower Staxo 100, 3D planning



Infrastructure

For functional and perfectly shaped designs

Power Station Lehen >

Location:

Salzburg, Austria

Construction work:

G. Hinteregger & Söhne, Porr Bau GmbH and Teerag Asdag AG

Architect:

Architect JV maxRIEDER and Eric Wagner

Challenge:

An extraordinary feat of architecture featuring 2.5 m wide and up to 50 m long swan-neck-shaped weir piers was realised on a site with limited space.

Solution:

Flawless fair-faced concrete surface by covering Dokaplex formwork sheets. Wall formwork FF20 combined with pre-assembled standard panels and special FF20 panel connectors in 4 sections. Safe working conditions thanks to folding platform K.





◀ OVT Arnhem

Location:

Arnhem, Netherlands

Construction work:

BAM Ballast Arnhem
Centrum VOF

Architect:

UN Studio / Ben van Berkel

Challenge:

A train station building with sophisticated geometry in fair-faced concrete with inclined walls

Solution:

3D planning as well as a combination of steel-framed formwork and Large-area formwork Top 50 elements for an outstanding fair-faced concrete look





S0 212 Bridge across D1 ▶

Location:

Mengusovce – Jánovce, Slovakia

Challenge:

A bridge across a motorway section featuring a sophisticated design in terms of engineering as well as form

Solution:

Combination of Stair tower 250, Large-area formwork Top 50, Framed formwork Framax Xlife and Load-bearing tower Staxo 100





◀ Troja Bridge

Location:

Prague, Czech Republic

Construction work:

Metrostav

Challenge:

The most stringent criteria for fair-faced concrete and accuracy had to be met for the high-tech concept of the Troja Bridge that extends along 262 m with maximum spans of 200.4 m and the innovative structure.

Solution:

Tailor-made Dokamatic tables covered by 3-S eco formwork sheets

Fair-faced concrete check list

The most important criteria for project success

For high-quality production of fair-faced concrete surfaces we recommend that builders and architects in particular consider the following criteria early on.

Criterion for success	Tip	<input checked="" type="checkbox"/>
Fair-faced concrete team	Form a core team across the disciplines that is familiar with the requirements for fair-faced concrete structures (standards, specifications, etc.).	
Division and texture of the concrete surface	Use the support of Doka experts to select the right formwork system and ideal form-facing for your fair-faced concrete project.	
Sample formwork plan	Doka fair-faced concrete experts are happy to support you when planning construction joints, pouring lanes, form-tie increment grids, and more.	
Workflow	From installing the concrete to stripping time through to protection of fair-faced concrete surfaces: You can count on Doka to be at your side in the early planning stages.	
Form-tie points, form-tie hole and type of edge	Determine the form-tie point design, form-tie hole closure and type of edge. Doka has the answer to your individual requests.	
Release agents	Your release agent may strongly influence concrete porosity. For this reason you should test it on test surfaces and/or use Doka Optix for exceptionally low-porous concrete surfaces of homogeneous colouring.	
Concrete selection and processing	The right concrete recipe plays a significant part in concrete surface quality. You will find information in country-specific guidelines.	
Weather	Adapt the concrete recipe to weather conditions and note the following: Production of premium-grade fair-faced concrete is subject to limitations at ambient temperatures <10°C.	
Follow-up treatment	Start follow-up treatment immediately after stripping and protect your concrete surface with foil that will not come in contact with it. Avoid any draught between concrete surface and covering.	
Evaluation of fair-faced concrete surfaces	Determine the criteria for evaluating your surface before implementation works get under way. Do not evaluate immediately after stripping as the fresh concrete surface may still change.	

Information is available through your Doka adviser as part of the Doka fair-faced concrete training and/or at www.doka.com/ffc. Also request our practical information booklet "Forming fair-faced concrete" via e-mail to fairfaced-concrete@doka.com.

Focused capabilities

Fair-faced concrete expertise at Doka

With our Doka Competence Center Fair-Faced Concrete, we can rely on comprehensive know-how and will support you in planning and execution of any type of fair-faced concrete project. We understand what is important for our customers – this is how we overcome challenges successfully.





www.doka.com/ffc