Layher

More Possibilities. The Scaffolding System.

MORE POSSIBILITIES. THE SCAFFOLD-ING SYSTEM.

Digitalisation & Software

SIM2Field

2/5/2025

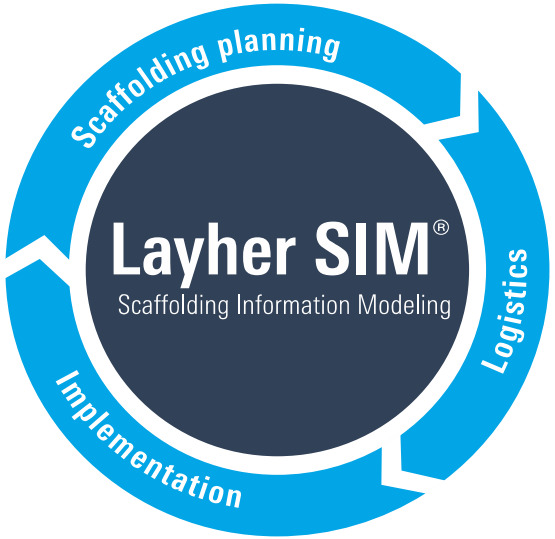
SIM2Field

3D-model-based scaffolding assembly: Digital positioning with total-station

Layher SIM® – Overview whole process

Basis for planning (Input data) → Planning process → Logistics → Execution / Assembly

Layher SIM® is a 3D-model-based process for the digitalization of scaffolding-specific work sequences.



Layher SIM® – Overview whole process

Basis for planning (Input data)

- 3D model
- Point cloud

Layher Service 3D Laserscan

Planning process

- Scaffold design with LayPLAN CAD
- Collision check
- 4D design
- Accurate material lists
- Visualisation (VR)
- Structural analysis
- Assembly drawings

LayPLAN SUITE

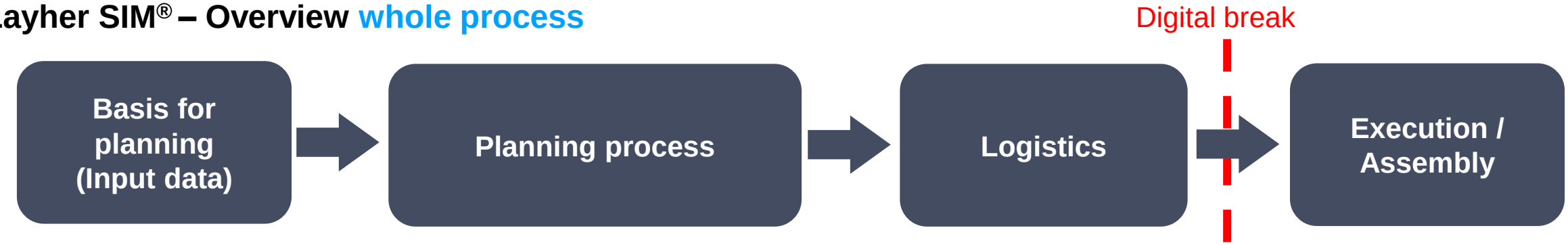
Logistics

- Exact parts list from 3D model (quantities and dates)

Execution / Assembly

- 2D Assembly drawings
- 3D model

Layher SIM® – Overview whole process



Current state:

- The planning process including the logistics works very well

Ongoing challenge:

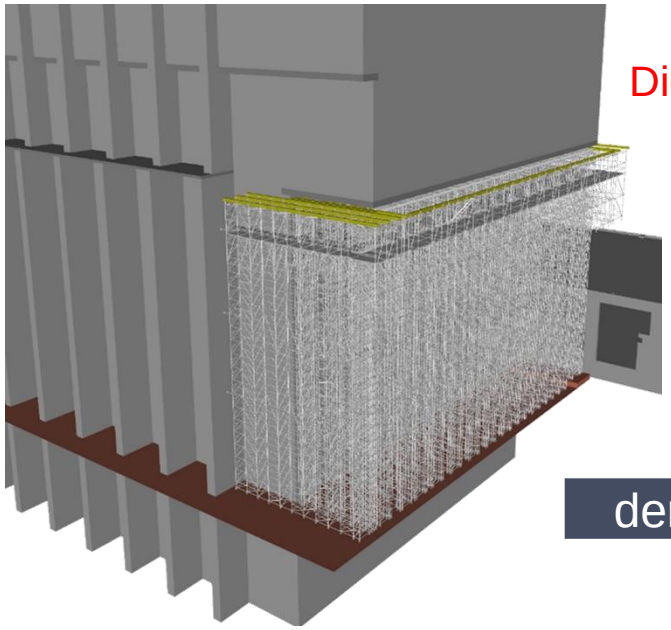
- Digital break in the assembly process on site

Layher SIM® – Overview whole process

Digital break

Basis for planning (Input data) → **Planning process** → **Logistics** | **Execution / Assembly**

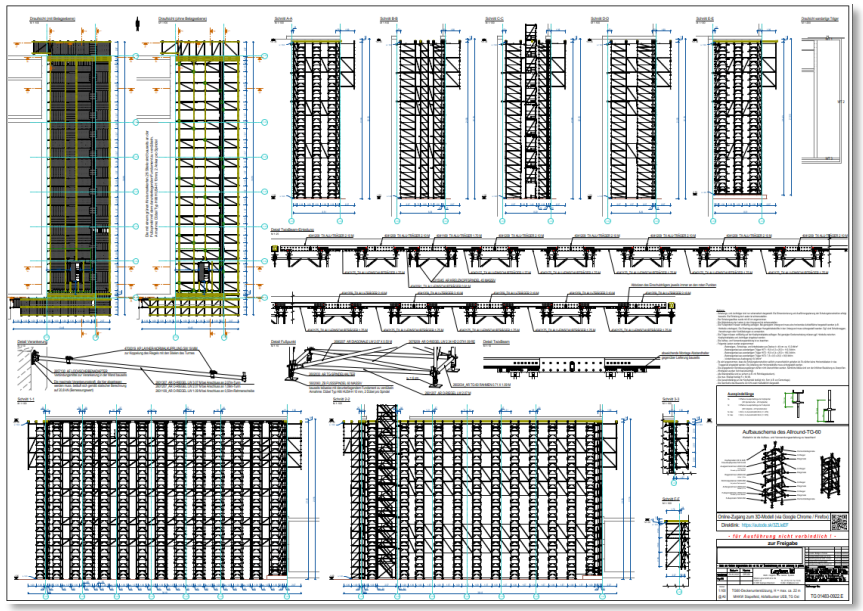
3D model / digital twin



Digital break

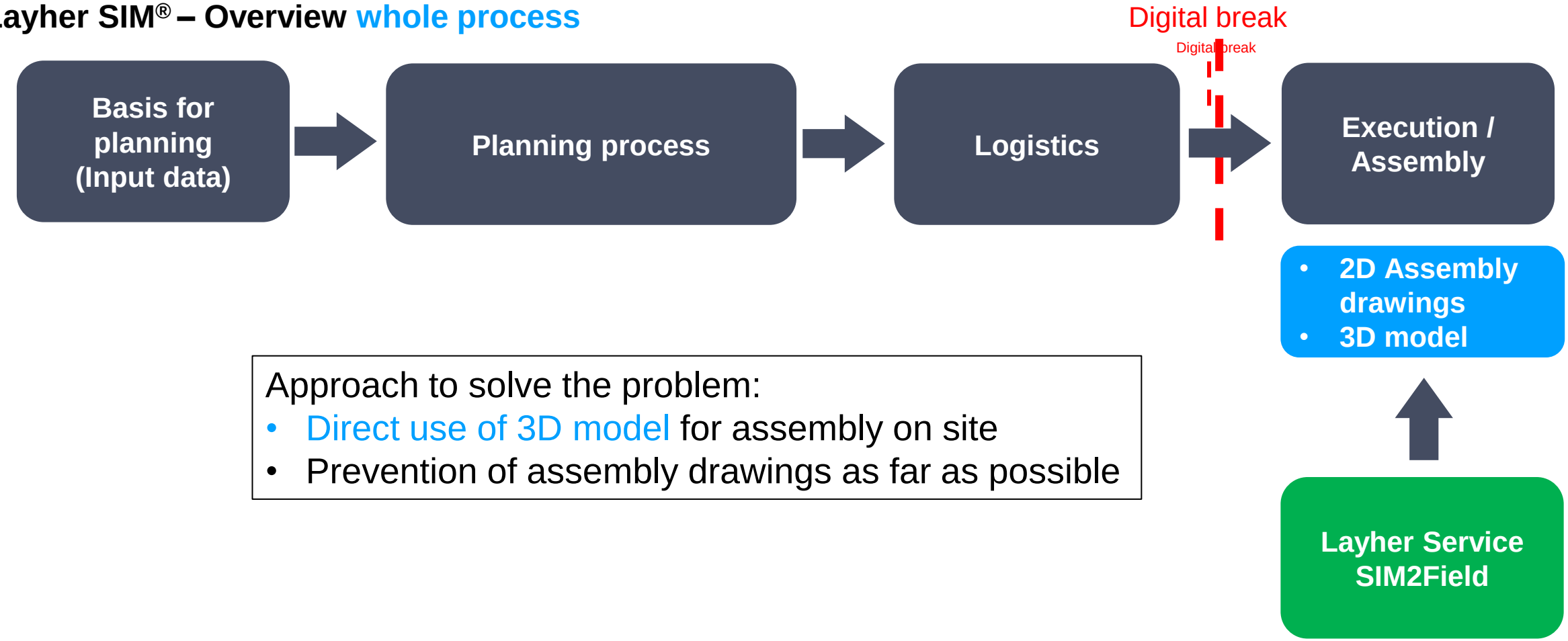
derivation

Assembly drawings for site



- Time consuming
- Partly misunderstanding and wrong assembly on site

Layher SIM® – Overview whole process



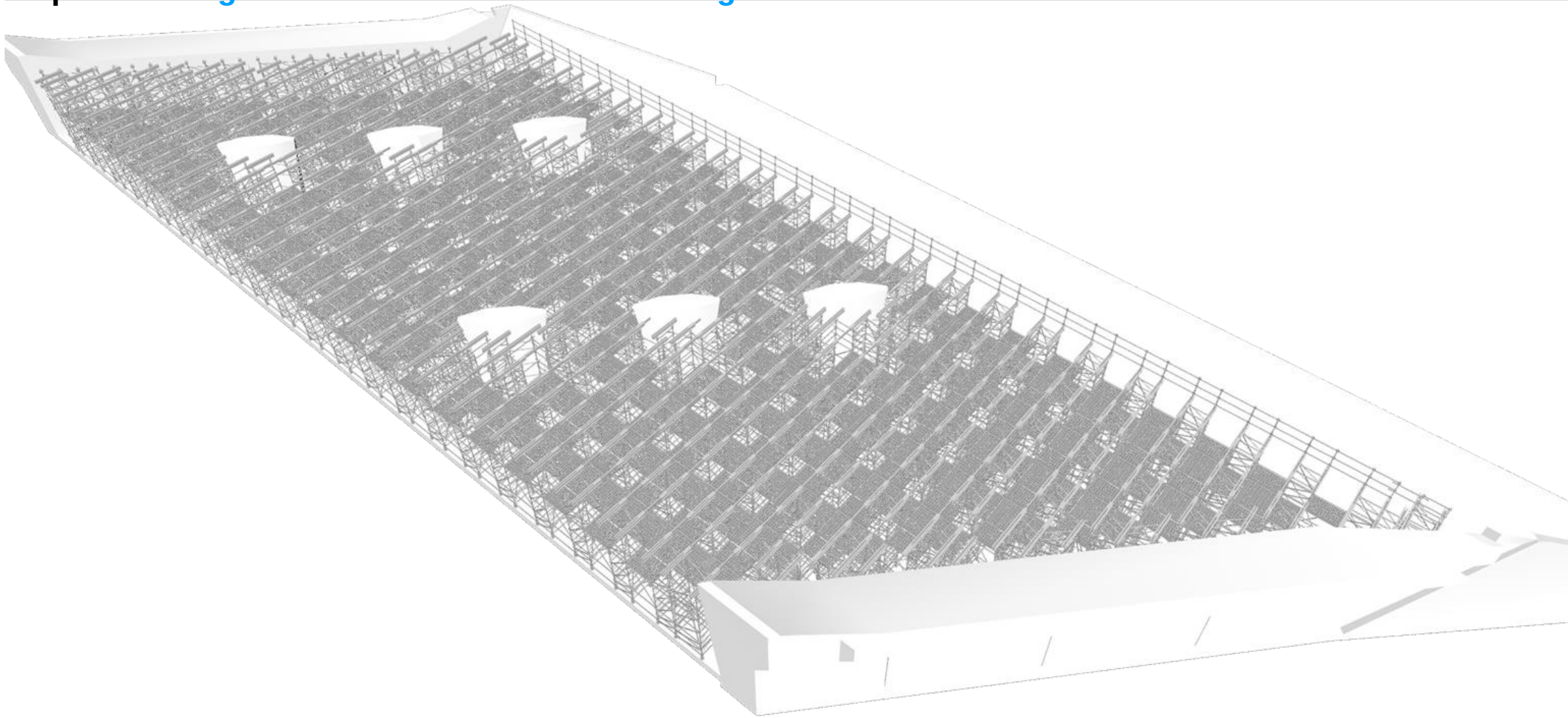
Approach to solve the problem:
- Direct use of 3D model for assembly on site
- Prevention of assembly drawings as far as possible

SIM2Field - Digital positioning with total station

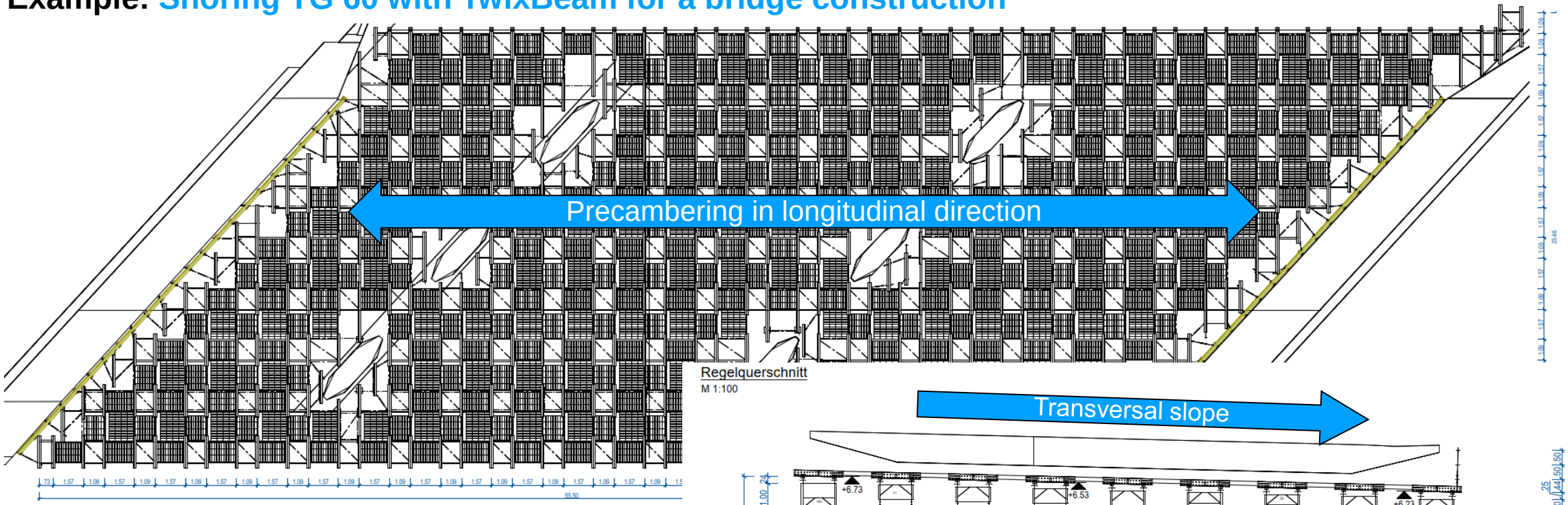
SIM2Field – Scaffolding assembly by use of digital 3D model

Step 1: Digital positioning with total station

Example: Shoring TG 60 with TwixBeam for a bridge construction



Example: Shoring TG 60 with TwixBeam for a bridge construction



- Axis of scaffold inclined to pillars and bearing construction of bridge
- Transversal slope of formwork
- Precambering in longitudinal direction

Position and height must be measured exactly!

Example: Shoring TG 60 with TwixBeam for a bridge construction

Example: Shoring TG 60 with TwixBeam for a bridge construction

Example: Shoring TG 60 with TwixBeam for a bridge construction

Example: Shoring TG 60 with TwixBeam for a bridge construction

Example: Shoring TG 60 with TwixBeam for a bridge construction

Example: Shoring TG 60 with TwixBeam for a bridge construction

Lessons learned:
- Reliable positioning and precise adjustment of the head jacks using SIM2Field
- Significant savings in assembly time compared to the 1st section (almost 2 weeks in total)

Layher Info
Technik- und Produkt-Informationen für Kunden und Partner

Layher
Mehr möglich. Das Gerüst System.

Mai 2024 | Art.-Nr. 8121.182

Erfolgreicher Einsatz von SIM2Field bei einer Brückenbau-Baustelle in Hamburg

DIGITALES ANLEGEN MIT TOTALSTATION IN DER PRAXIS BEWÄHRT

ERFOLGREICHER EINSATZ VON SIM2FIELD BEI BRÜCKENBAU

Großen oder auch komplexen Gerüstbauprojekten geht in der Regel eine detaillierte Planung in 3D voraus. Gerüstkonstruktionen lassen sich dabei nicht nur eng mit Auftraggebern und Sicherheitsverantwortlichen abstimmen, sondern vor allem auch an die Baustellenanforderungen anpassen. Mit SIM2Field wird dabei die Baustelle digital in den SIM-Prozess eingebunden; bereits vorhandene Daten können effizient genutzt und in der Projektausführung verarbeitet werden. Das zeit- und kostenintensive Einmessen auf Basis von Papierplänen entfällt.

Bei einem umfangreichen Projekt an einem Autobahnkreuz in Hamburg konnten durch SIM2Field die Erwartungen übertroffen werden. Das **Einmessen und Anlegen** ging dank **SIM2Field** einfach und schneller als gewohnt und bereits nach 5 Tagen war mehr als die Hälfte der 150 Tonnen Gerüstmaterial montiert. Insbesondere **beim Justieren der Kopfspindeln und Träger** wird im weiteren Projektverlauf eine **erhebliche Zeiteinsparung** erwartet. Durch den Einsatz von SIM2Field entsteht ein **maßgeblicher Wettbewerbsvorteil** und eine große Möglichkeit für Kosteneinsparungen für Layher Kunden – unabhängig der Branche – ob Bauindustrie oder Gerüstbau. Denn erfolgreiche Gerüstprojekte sind planbar – von der Auswahl des richtigen Produkts über die Planung bis hin zur erfolgreichen Ausführung.

IHR NUTZEN:

- Durchgängiger digitaler SIM Prozess bis auf die Baustelle.
- Direkte Nutzung der 3D-Gerüstmodelldaten aus LayPLAN CAD zur Montage.
- Vermeidung möglicher Fehlerquellen beim Einmessen und Anlegen der Gerüste auch bei komplexer Geometrie.
- Reduzierung von Papierplänen.
- Erhebliche Einsparung bei Montagezeiten bieten Wettbewerbsvorteile für Layher Kunden.

Technische Änderungen vorbehalten. Lieferungen erfolgen ausschließlich zu unseren derzeit gültigen AGB.

Wilhelm Layher GmbH & Co KG · Gerüste Tribünen Leitern · Ochsenbacher Straße 56 · 74363 Güglingen-Eibensbach · Deutschland
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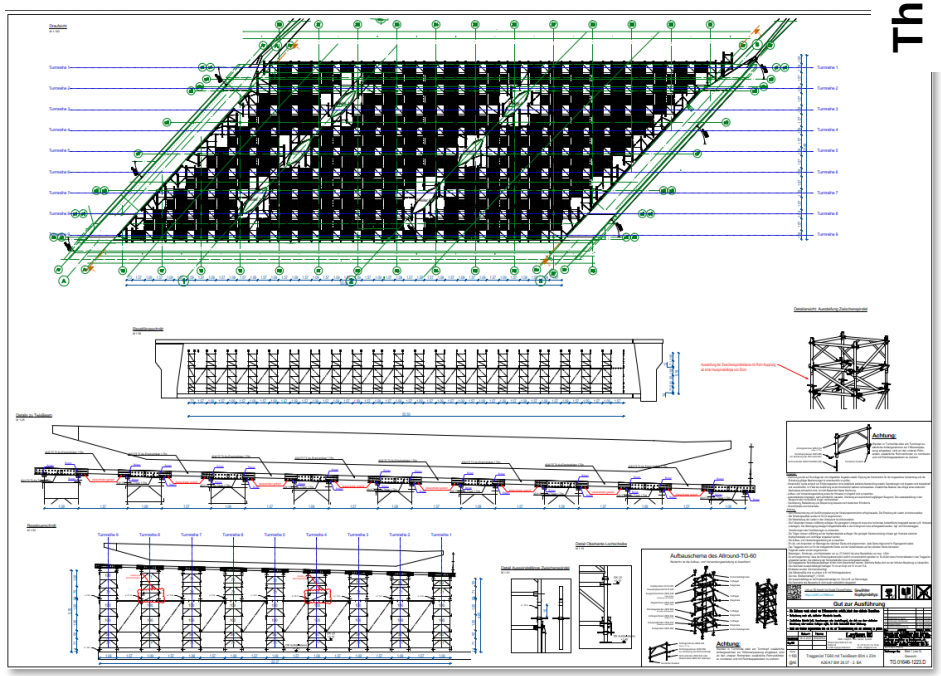
www.layher.com

Example: Shoring TG 60 with TwixBeam for a bridge construction

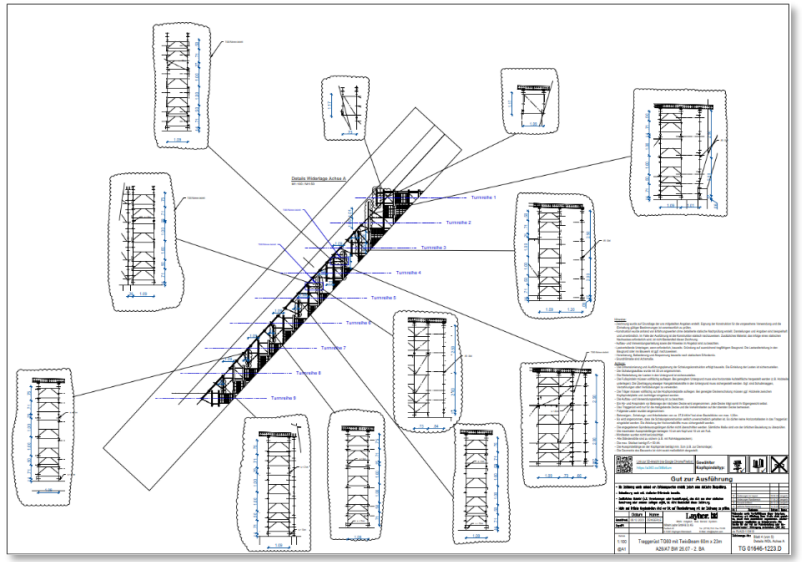
The positioning…

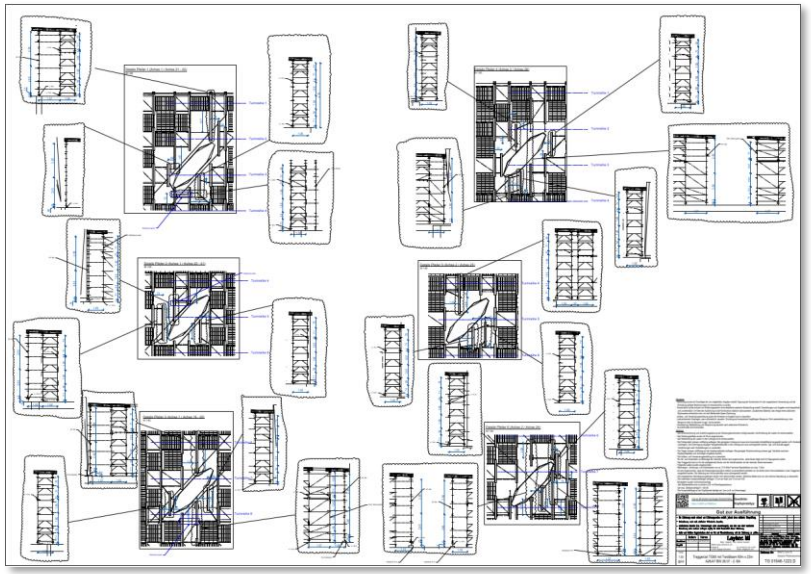
The assembly…

Current:
Assembly based on 2D assembly plans



The finished scaffolding!





Example: Shoring TG 60 with TwixBeam for a bridge construction

The positioning…

The assembly…

Current:
Assembly based on 2D assembly plans

SIM2Field ?

Idea:
Use of 3D models for further construction!

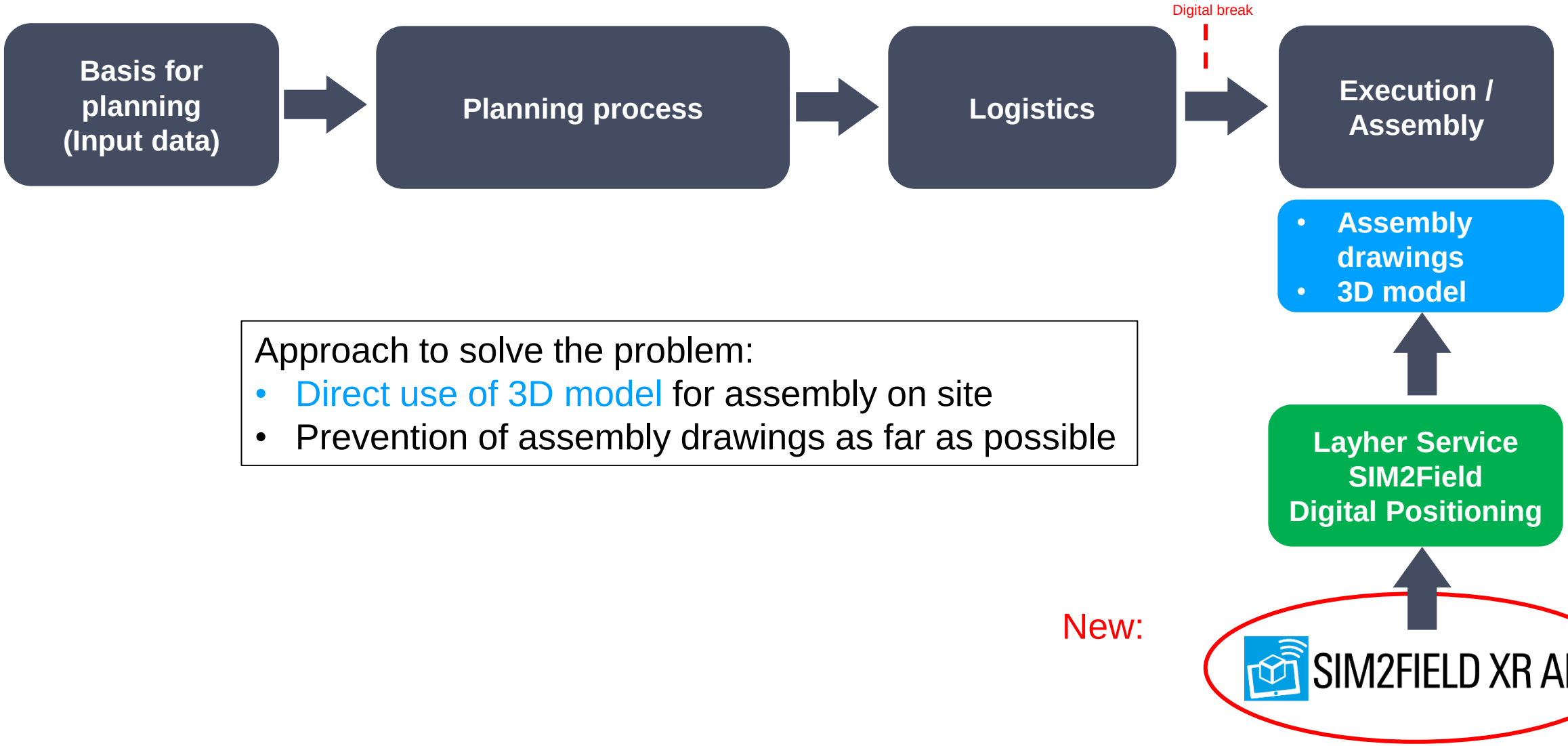
The finished scaffolding!

SIM2Field – Scaffolding assembly by use of digital 3D model

Step 2: Model-based scaffolding assembly with the SIM2Field XR App

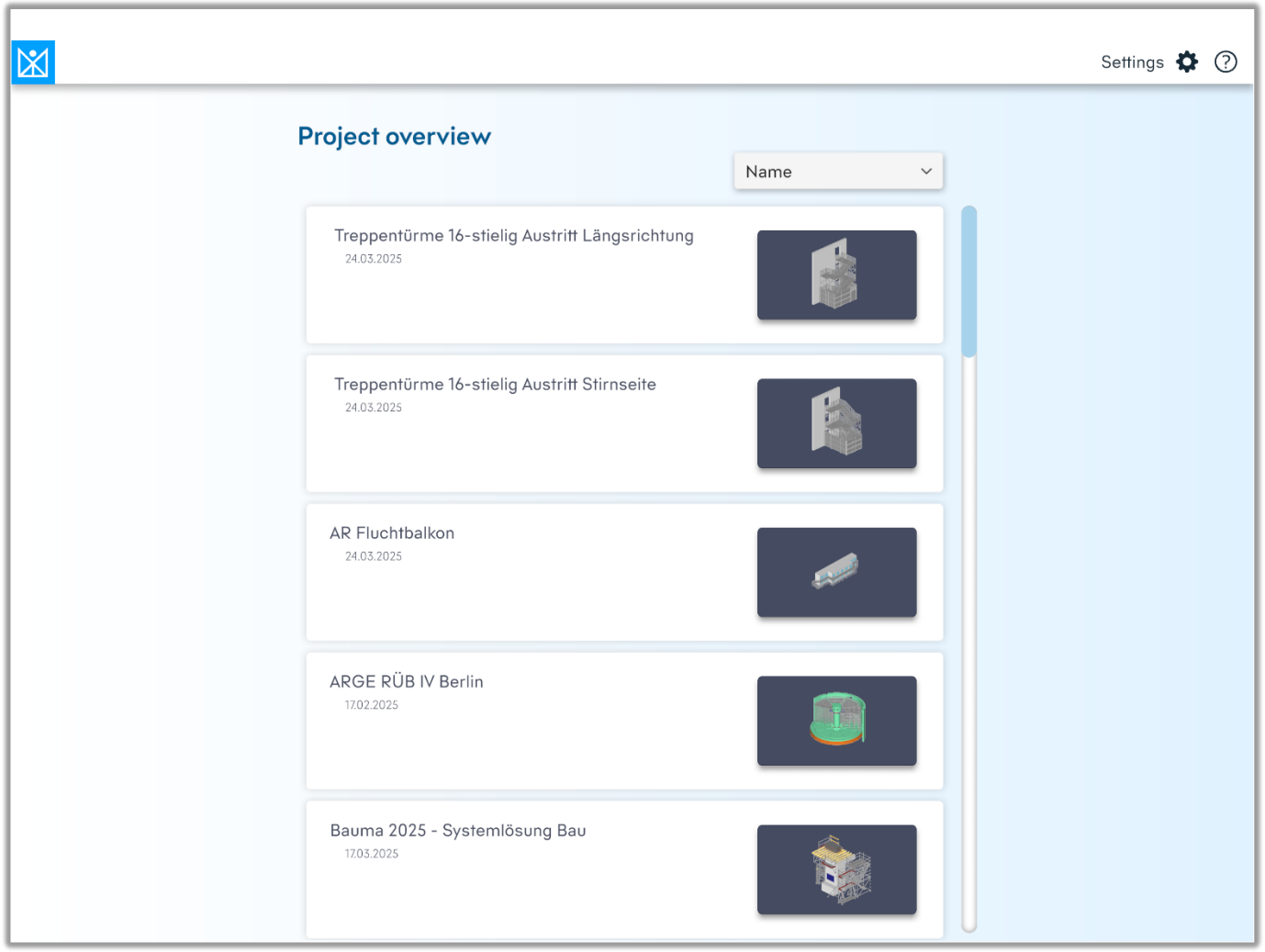
SIM2FIELD XR APP

Layher SIM® – Overview whole process



Approach to solve the problem:
- Direct use of 3D model for assembly on site
- Prevention of assembly drawings as far as possible

Layher SIM2Field XR App



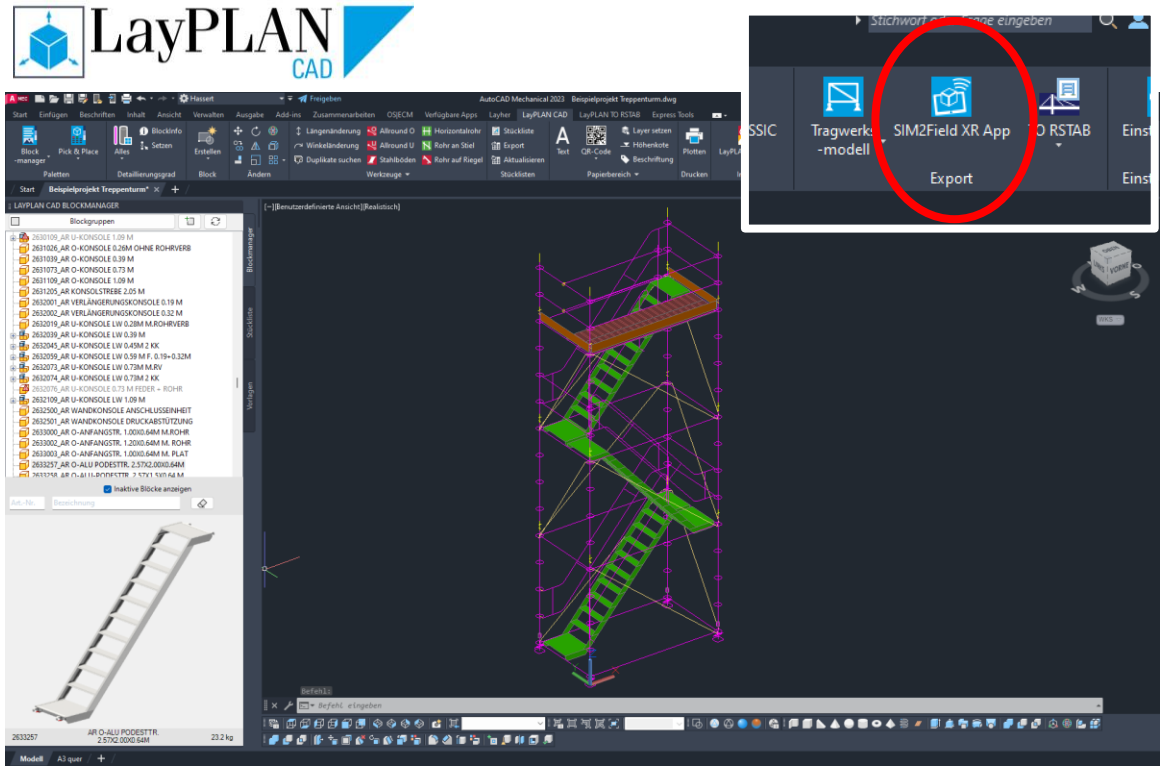
SIM2FIELD XR APP

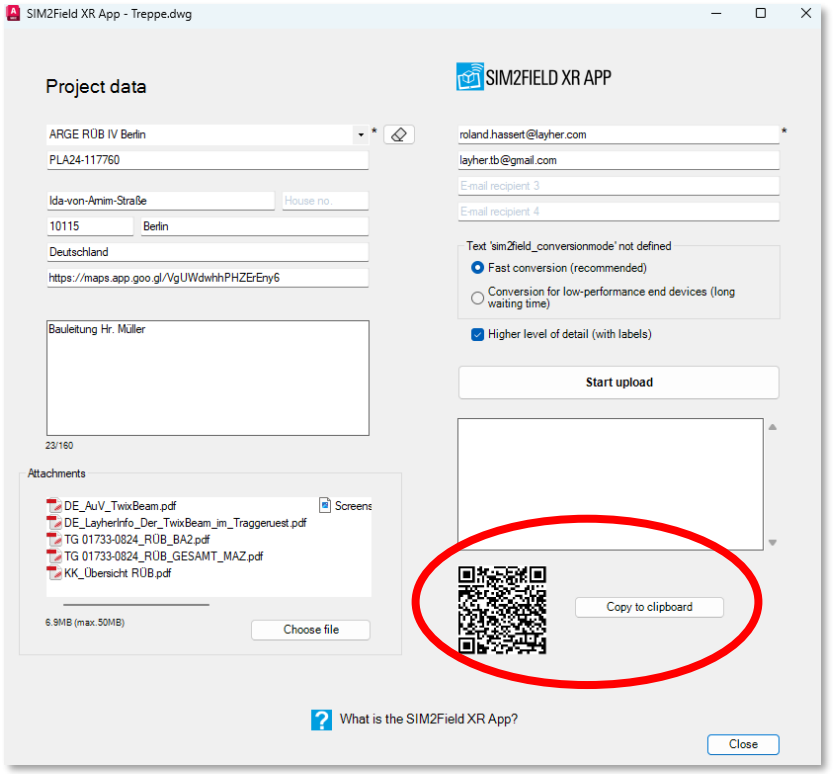
- App as assembly support on site
- Direct use of 3D model data from LayPLAN CAD
- Suitable for assembly of scaffolding after measuring and positioning e.g. with total station (digital “construction manual”)
- Offline mode
- SIM2Field XR App for iOS and Android

Download on the App Store

GET IT ON Google Play

Layher SIM2Field XR App – How do the models get onto the app?

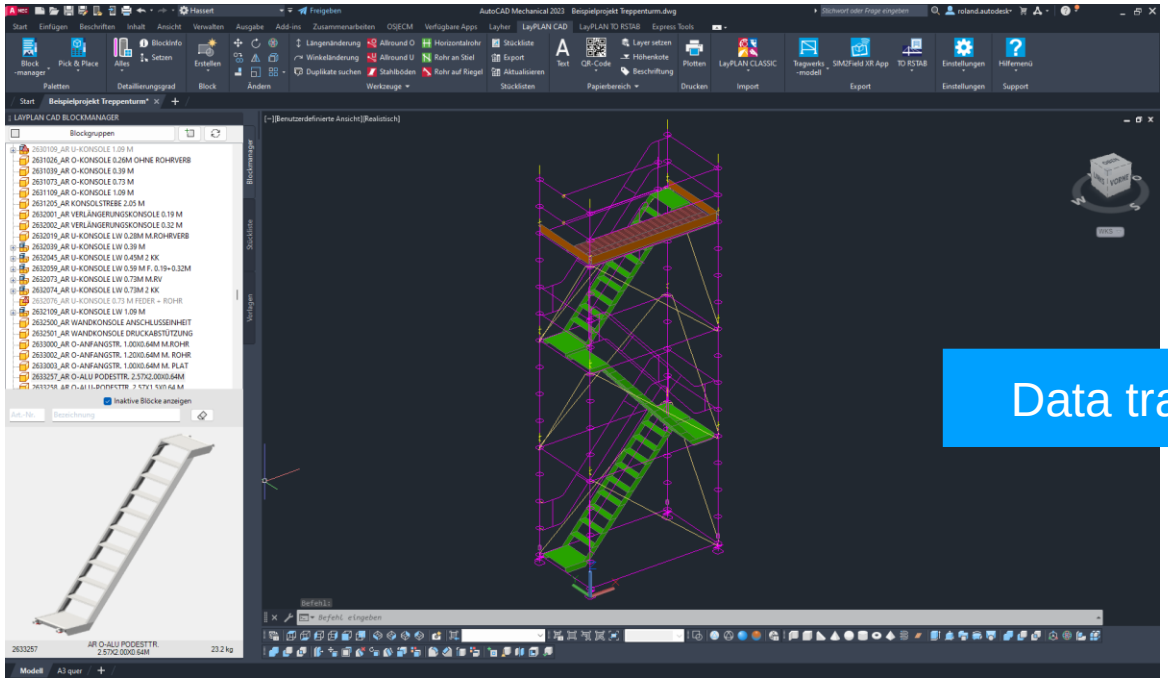




- New function in LayPLAN CAD → Export „SIM2Field XR App“
- Input mask with all relevant information about the project like location, PDF-documents and picture (JPG, PNG) can be attached
- Specification of e-mail recipients to whom the data should be sent (link to download)
- Preparation of QR code for loading the data into the app

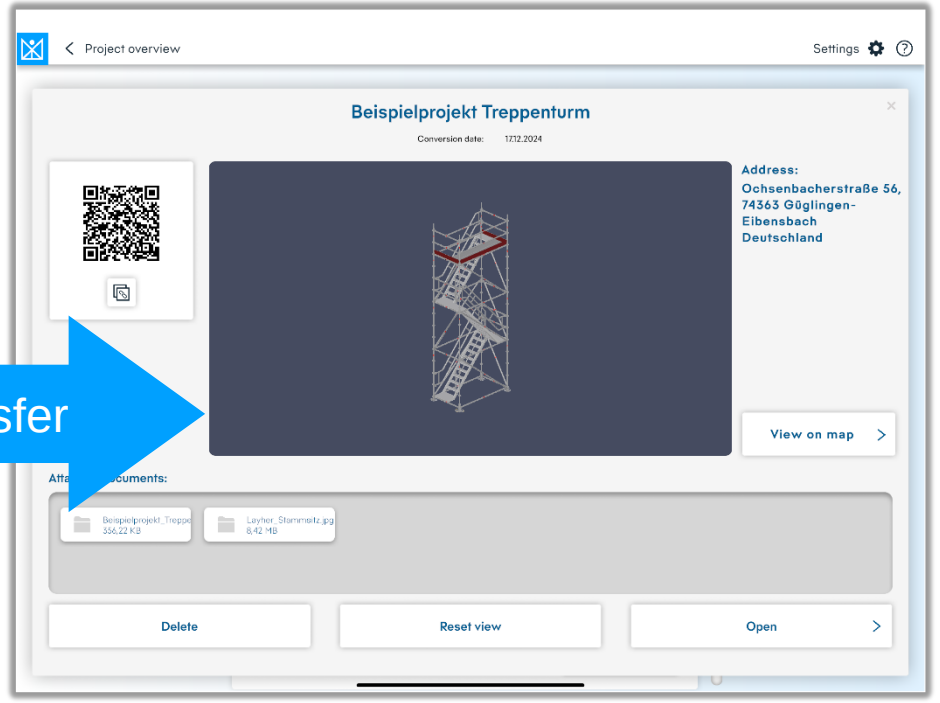
Layher SIM2Field XR App – How do the models get onto the app?

LayPLAN CAD



Data transfer

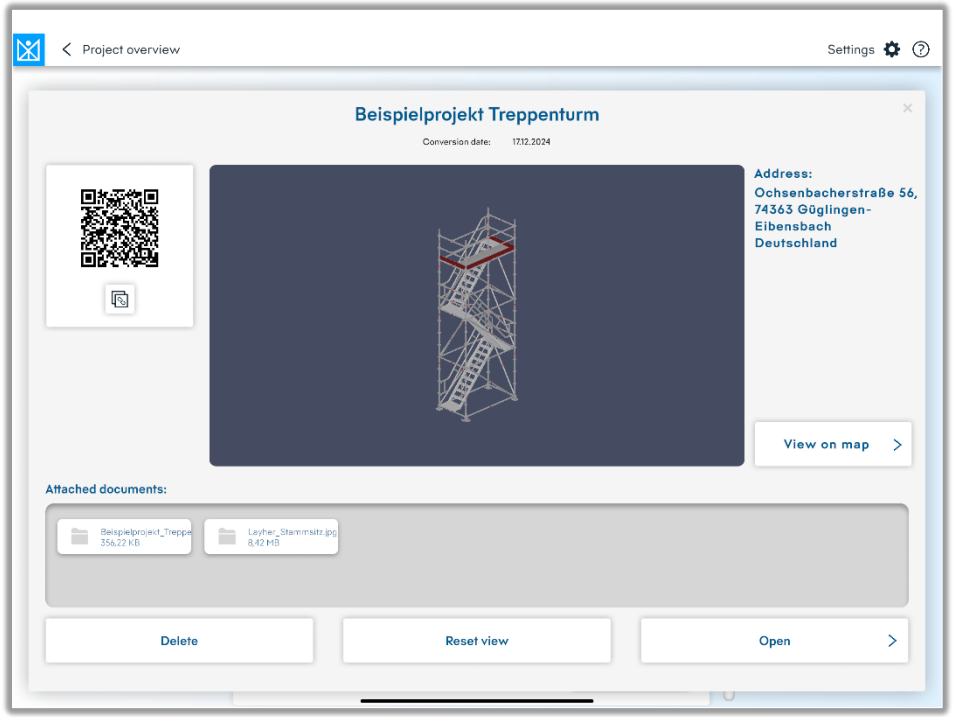
SIM2FIELD XR APP

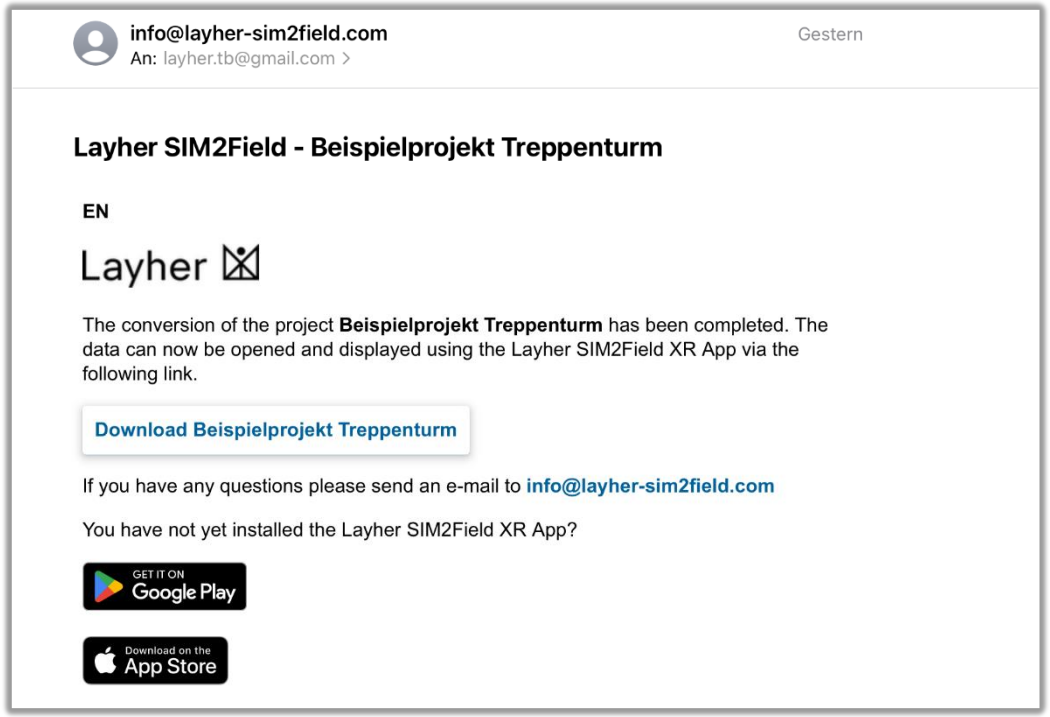


- Automated data conversion from LayPLAN CAD to the SIM2Field XR App via a cloud solution

Layher SIM2Field XR App – How do the models get onto the app?

SIM2FIELD XR APP

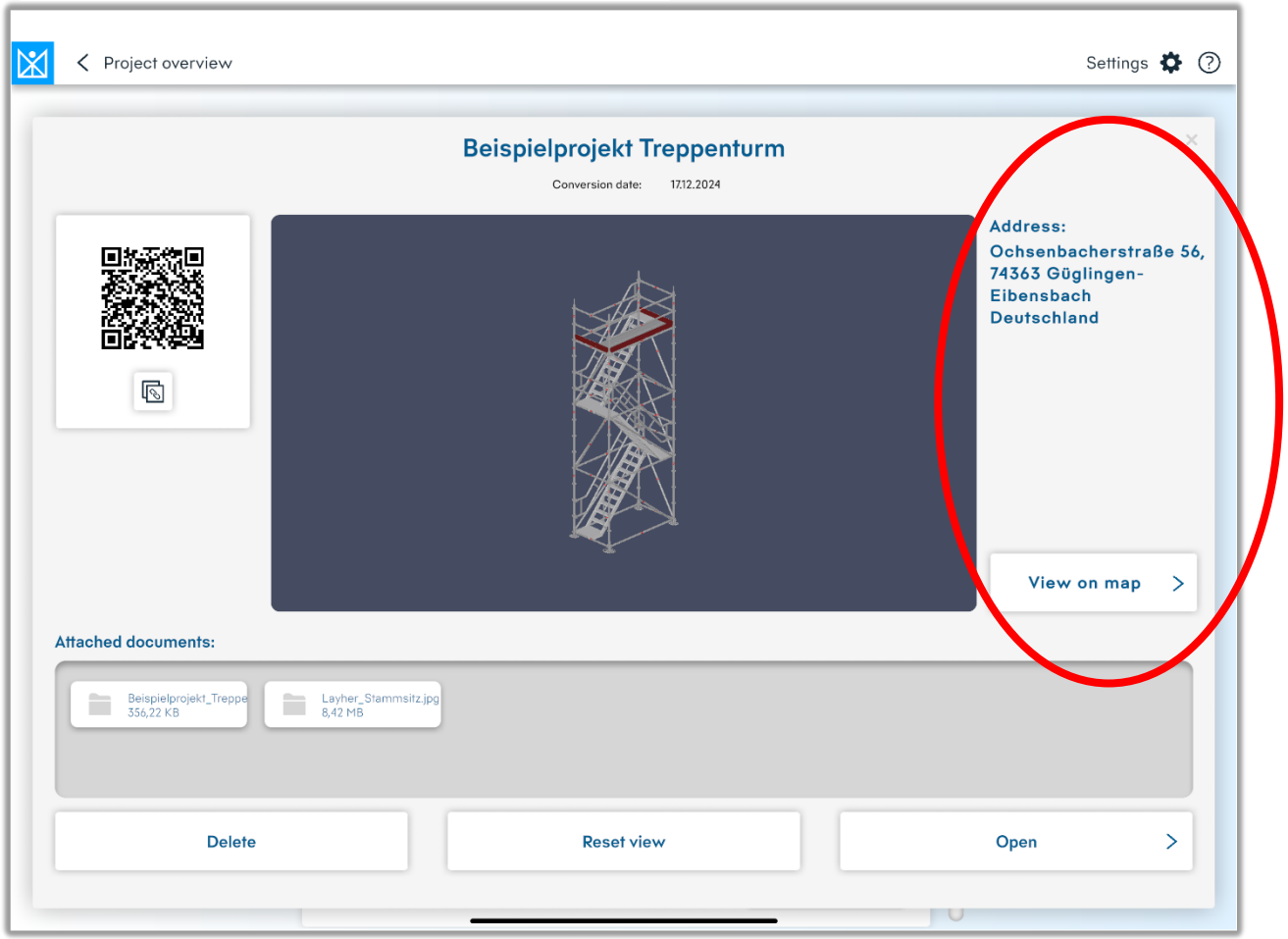




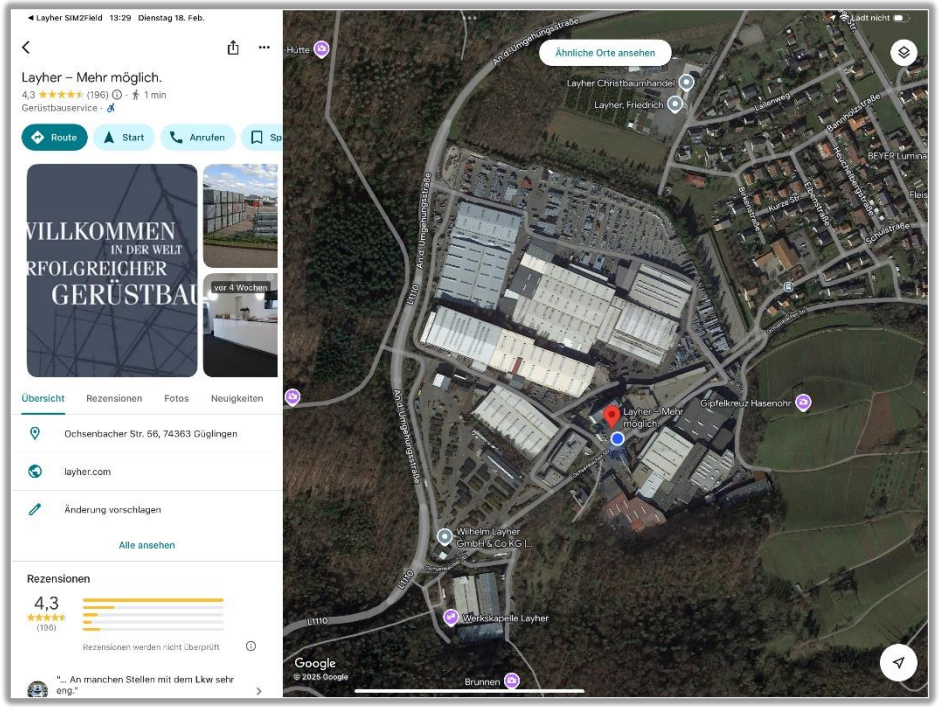
- Supply of data via e-Mail with a link to download the project data and the app (if necessary)
- Loading the data via hyperlink or QR code (then available offline)
- Update of project data when opening and an internet connection is available (versioning)

Layher SIM2Field XR App

Project preview

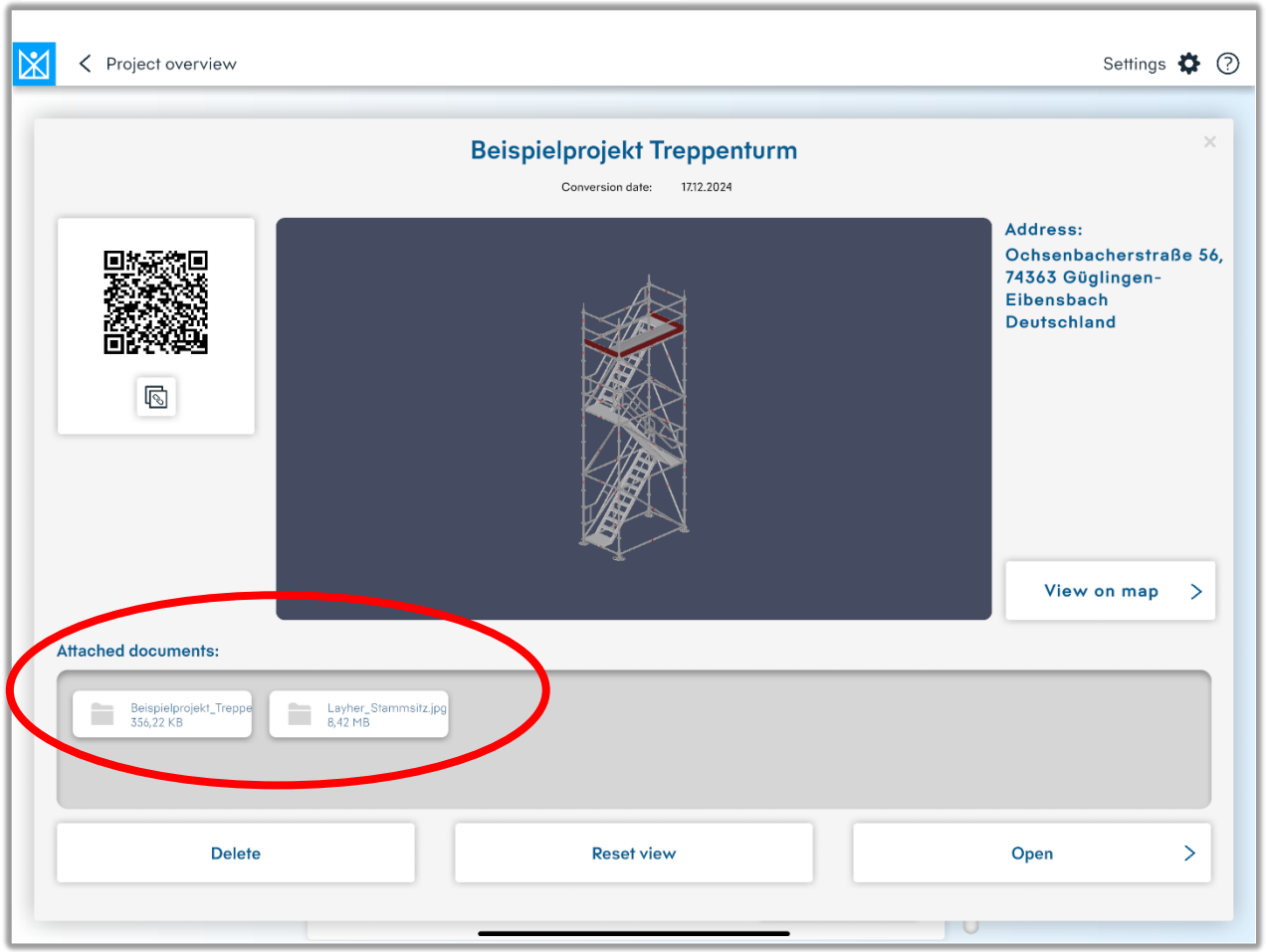


- Location incl. link to Google-Maps

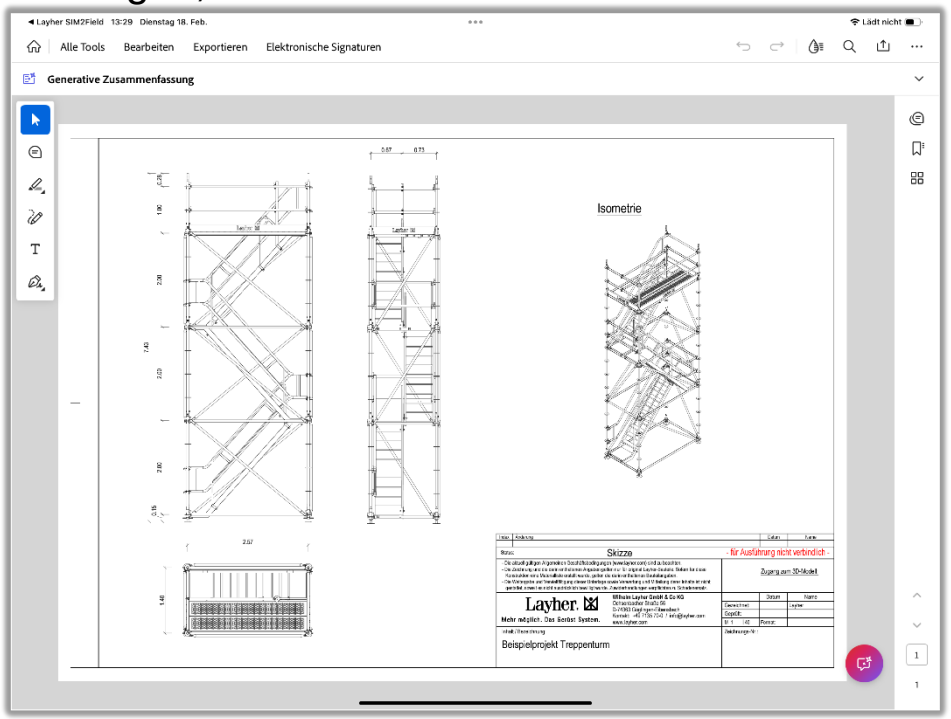


Layher SIM2Field XR App

Project preview

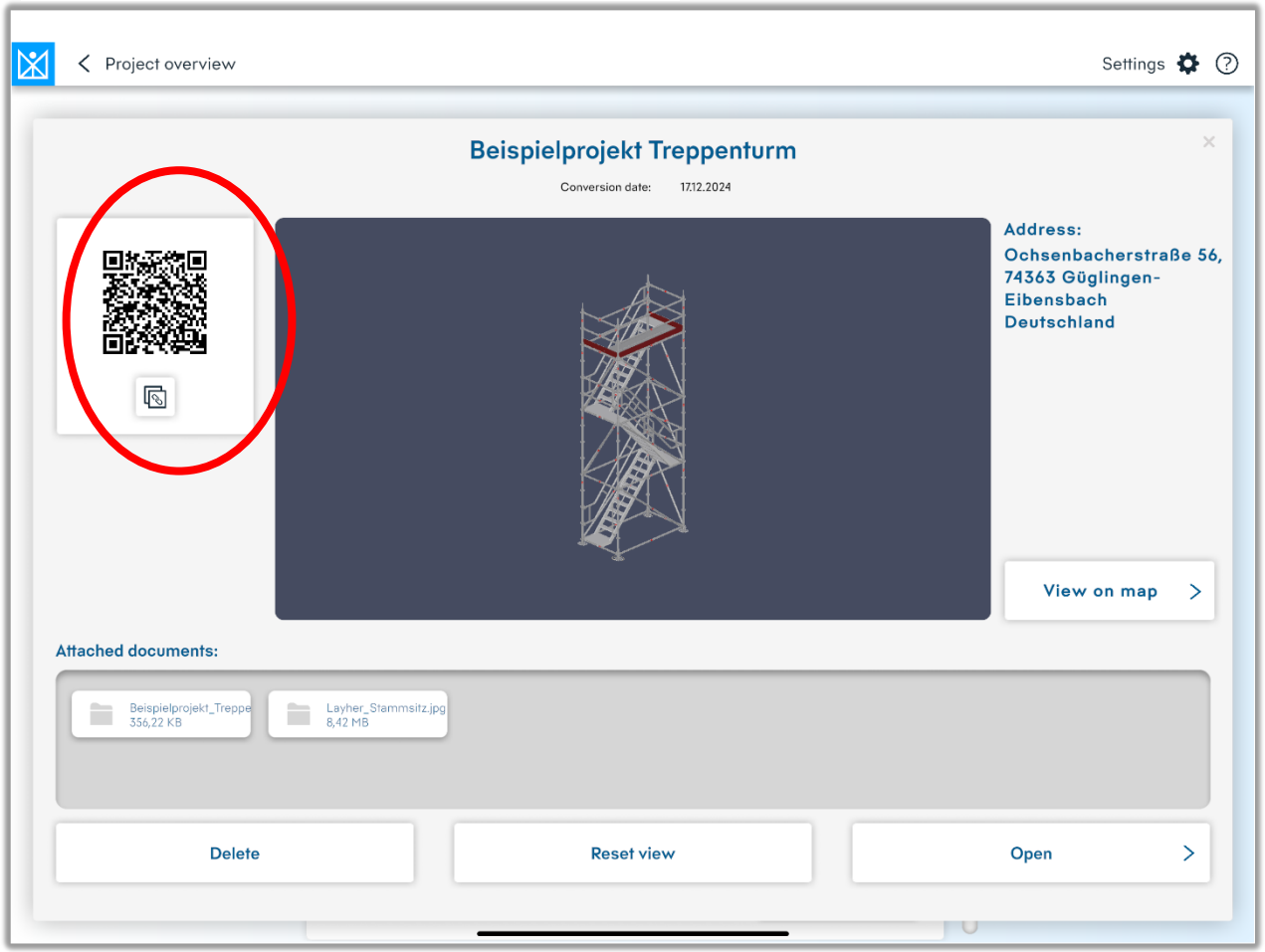


- Attached documents (PDF, JPG, PNG) e.g. instruction for use, statics, drawings, assembly instructions, construction site images, etc.



Layher SIM2Field XR App

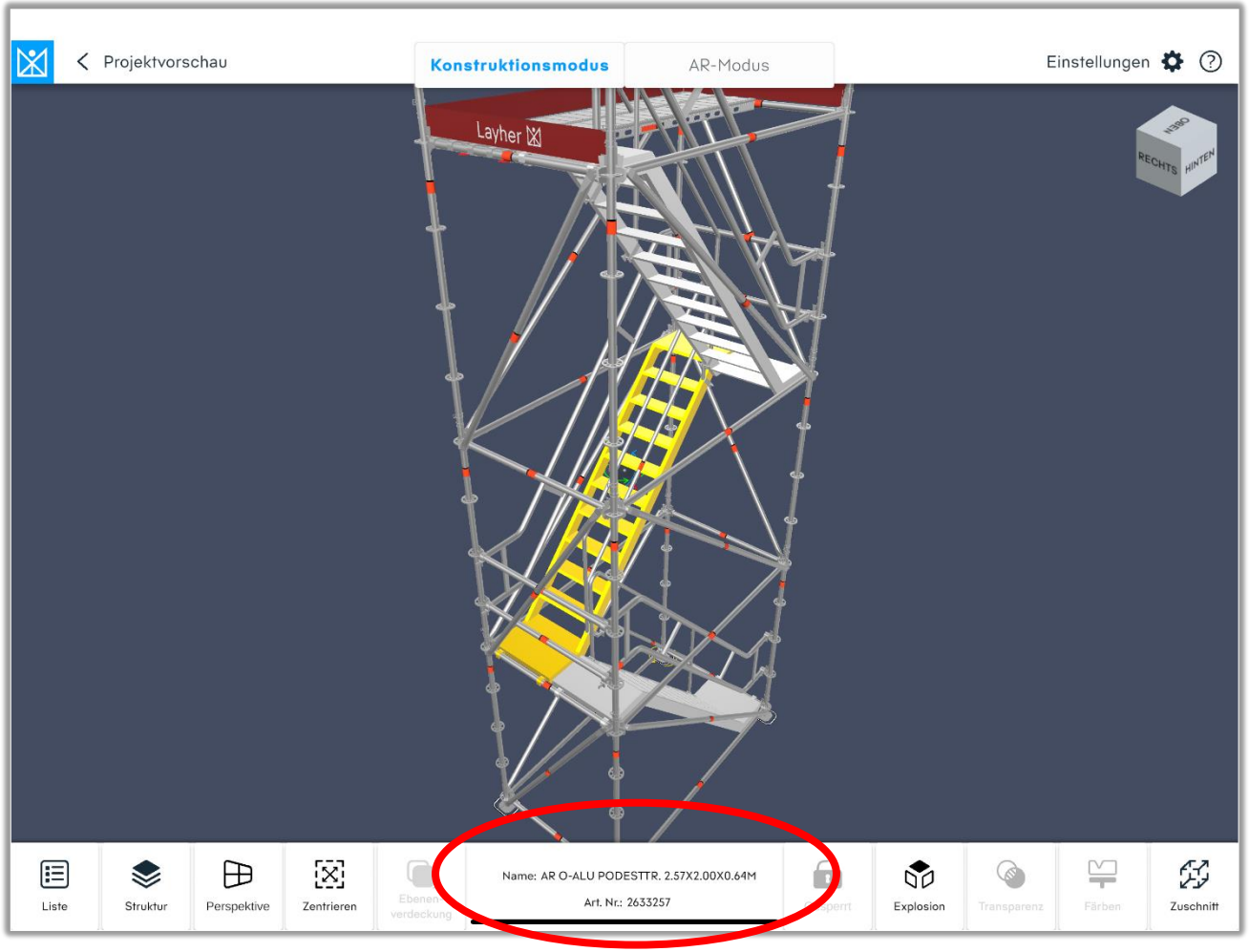
Project preview



- QR Code and link to share the project with other users

Layher SIM2Field XR App

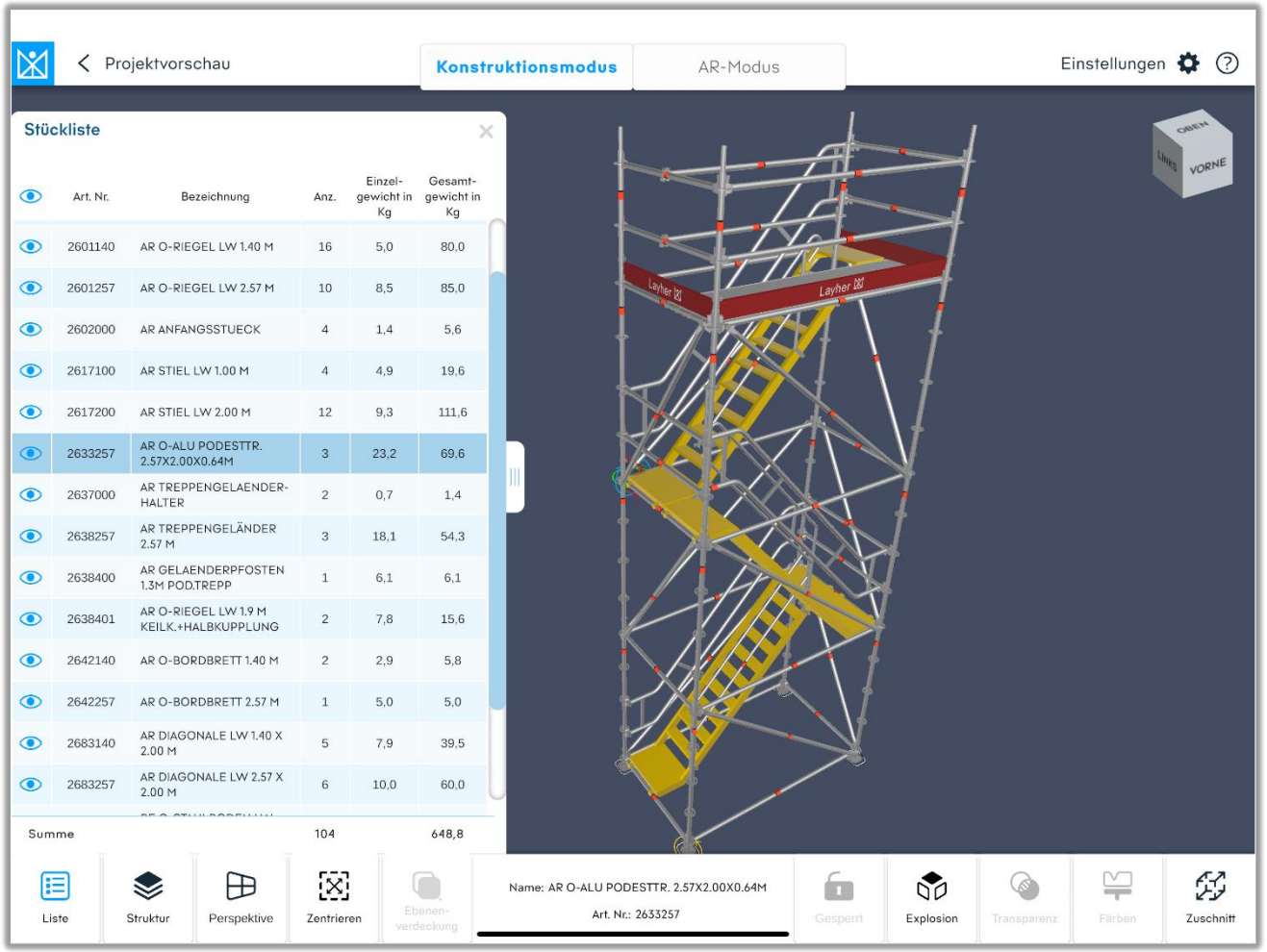
Construction mode



- View the 3D scaffolding construction
- Information on the individual components by clicking on them (article number and description)

Layher SIM2Field XR App

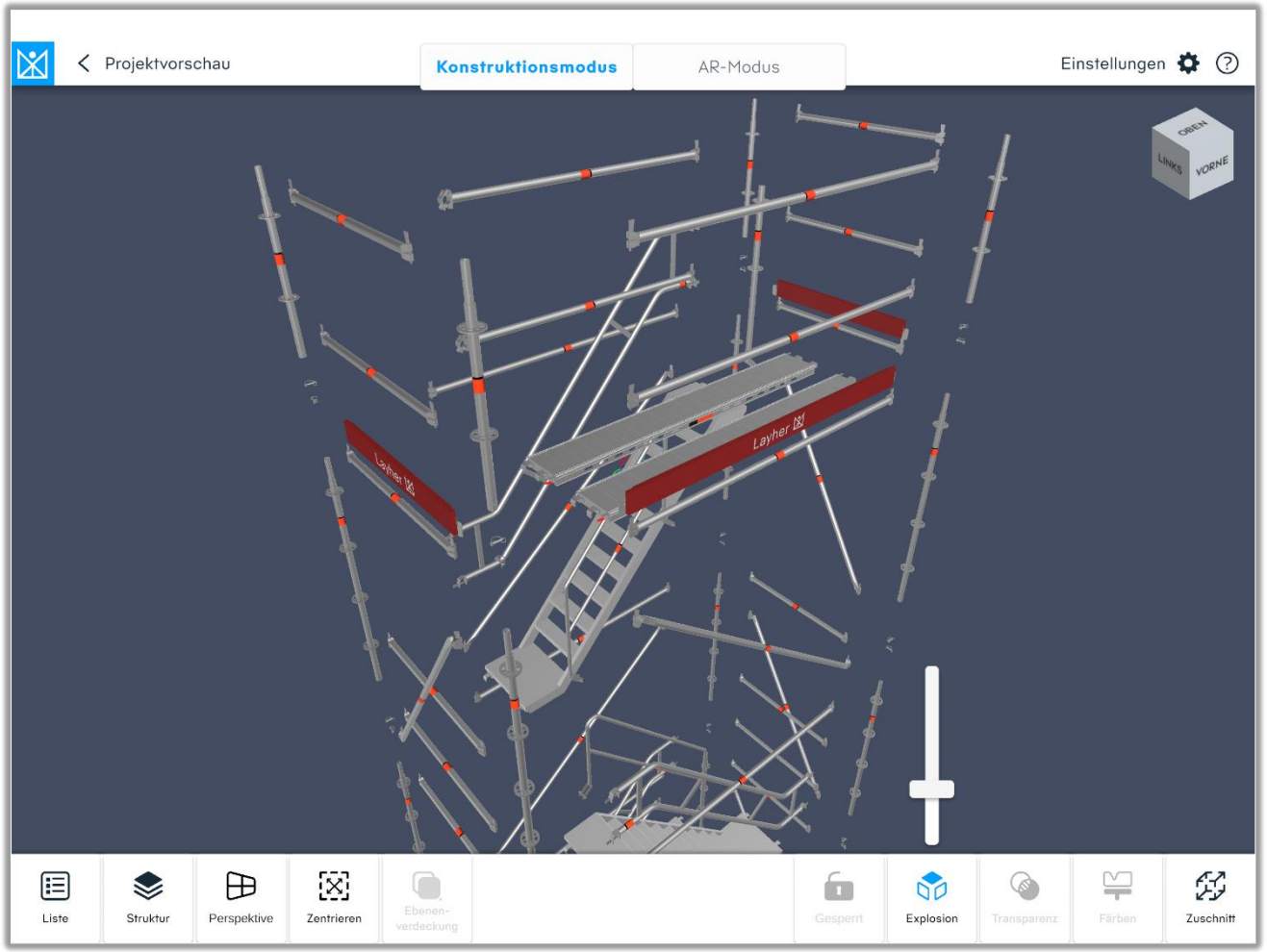
Construction mode



- Interactive parts list function
- View of article number, description, quantity, individual weight and total weight
- Sorting function according to article number, description, etc.
- Coloured display of the selected individual components in the 3D model
- Hiding and showing of individual components

Layher SIM2Field XR App

Construction mode

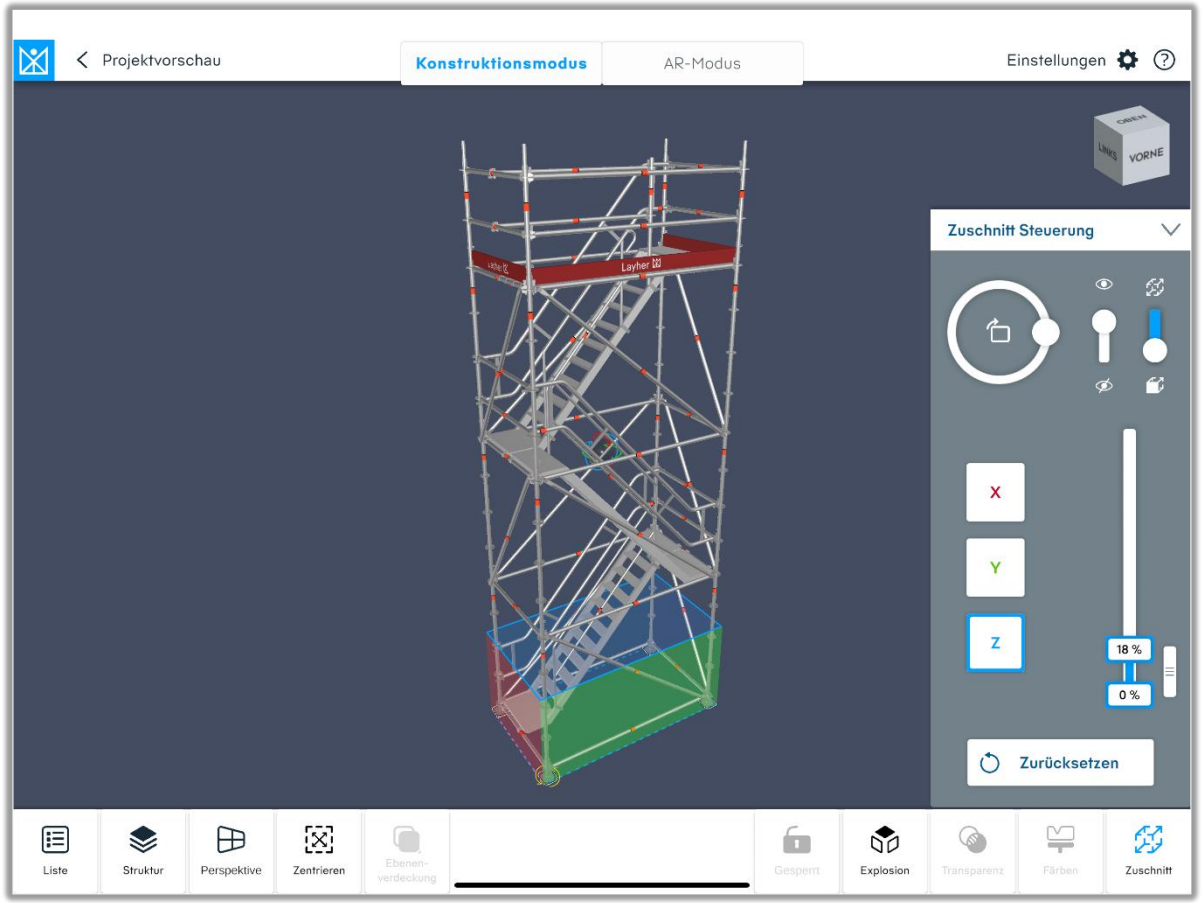


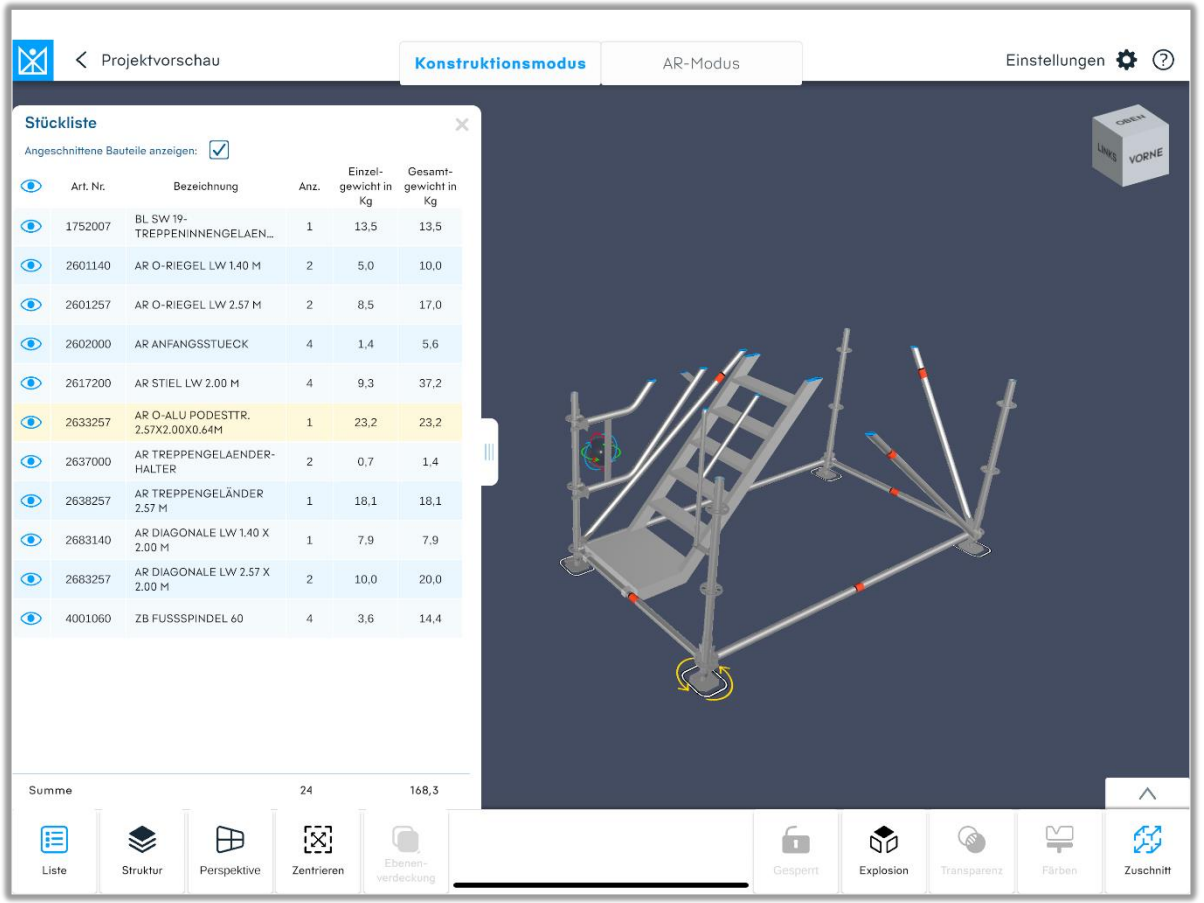
- Explosion mode for a better understanding of the assembly e.g. for small parts
- Replacement for the usual detailed drawings

Layher SIM2Field XR App

Construction mode

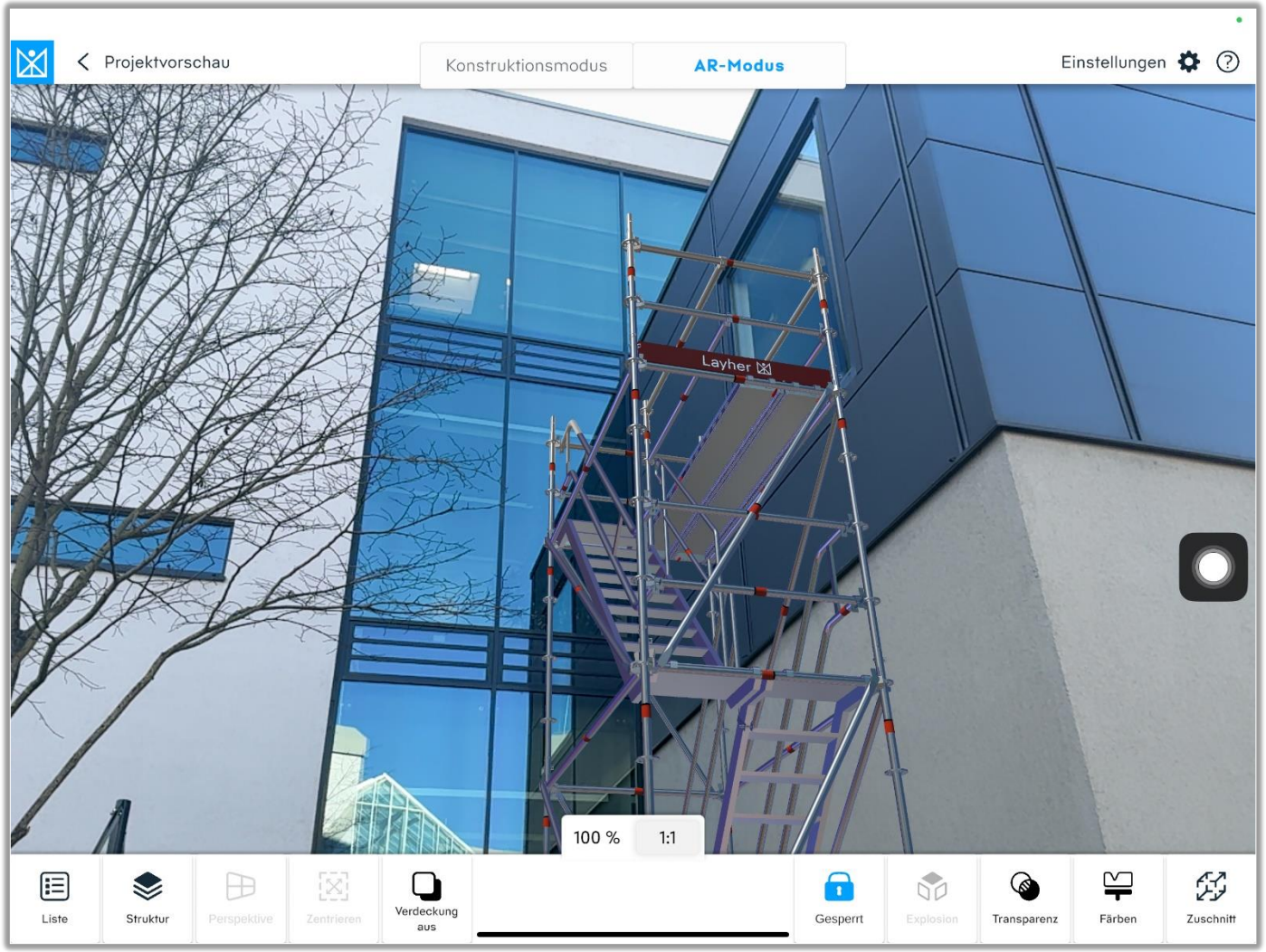
- Cutting to partial areas (limit box)
- Adjusted parts list for cutting





Layher SIM2Field XR App

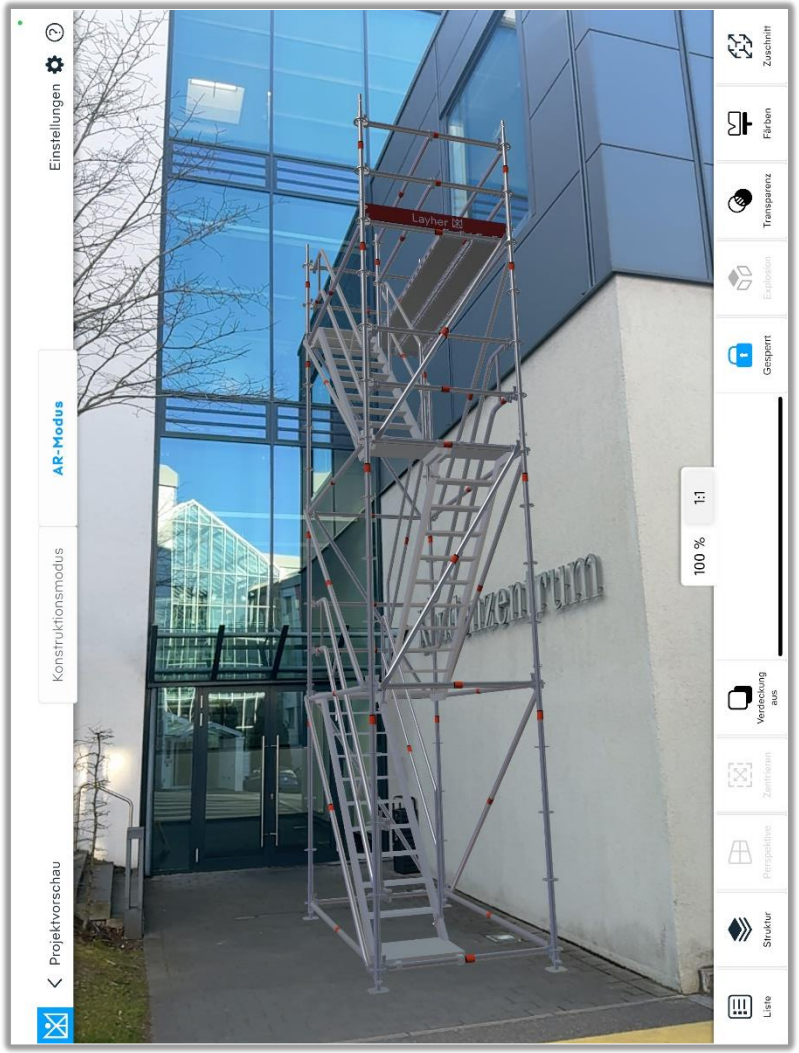
AR-Modus (Augmented Reality)



- Visualisation of the virtual 3D model in the real environment
- Placement and rotation by selecting a base plate
- Positioning of the model with usual finger swipes
- Lock function to prevent unintentional movement

Layher SIM2Field XR App

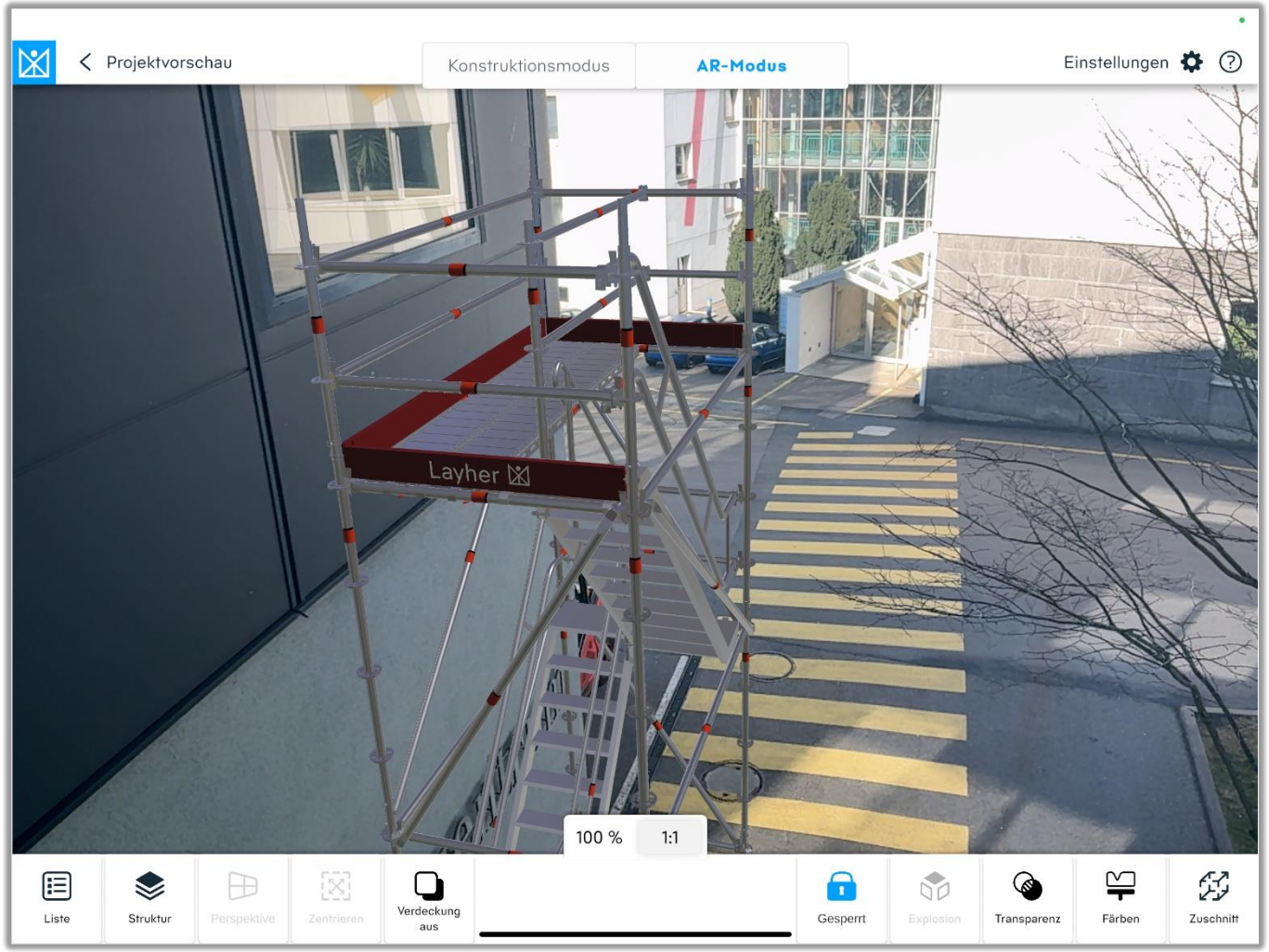
AR-Modus (Augmented Reality)



- Display of the virtual 3D model in the real environment in landscape and portrait format

Layher SIM2Field XR App

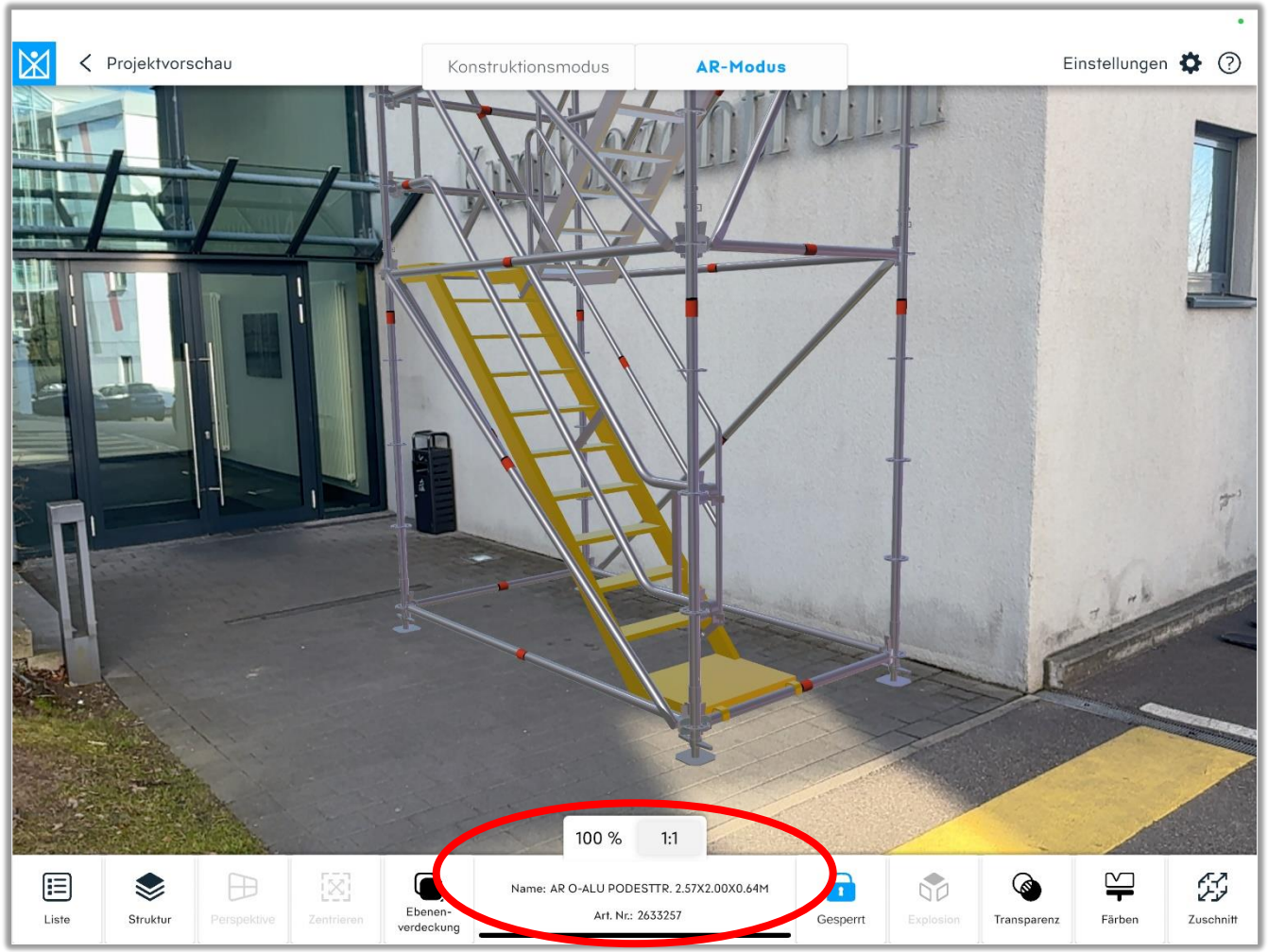
AR-Modus (Augmented Reality)



- After anchoring the scaffolding remains in place and can be viewed from different perspectives
- View from inside the building from the 1st floor

Layher SIM2Field XR App

AR-Modus (Augmented Reality)



- Information on the individual components by clicking on them (article number and description)

Layher SIM2Field XR App

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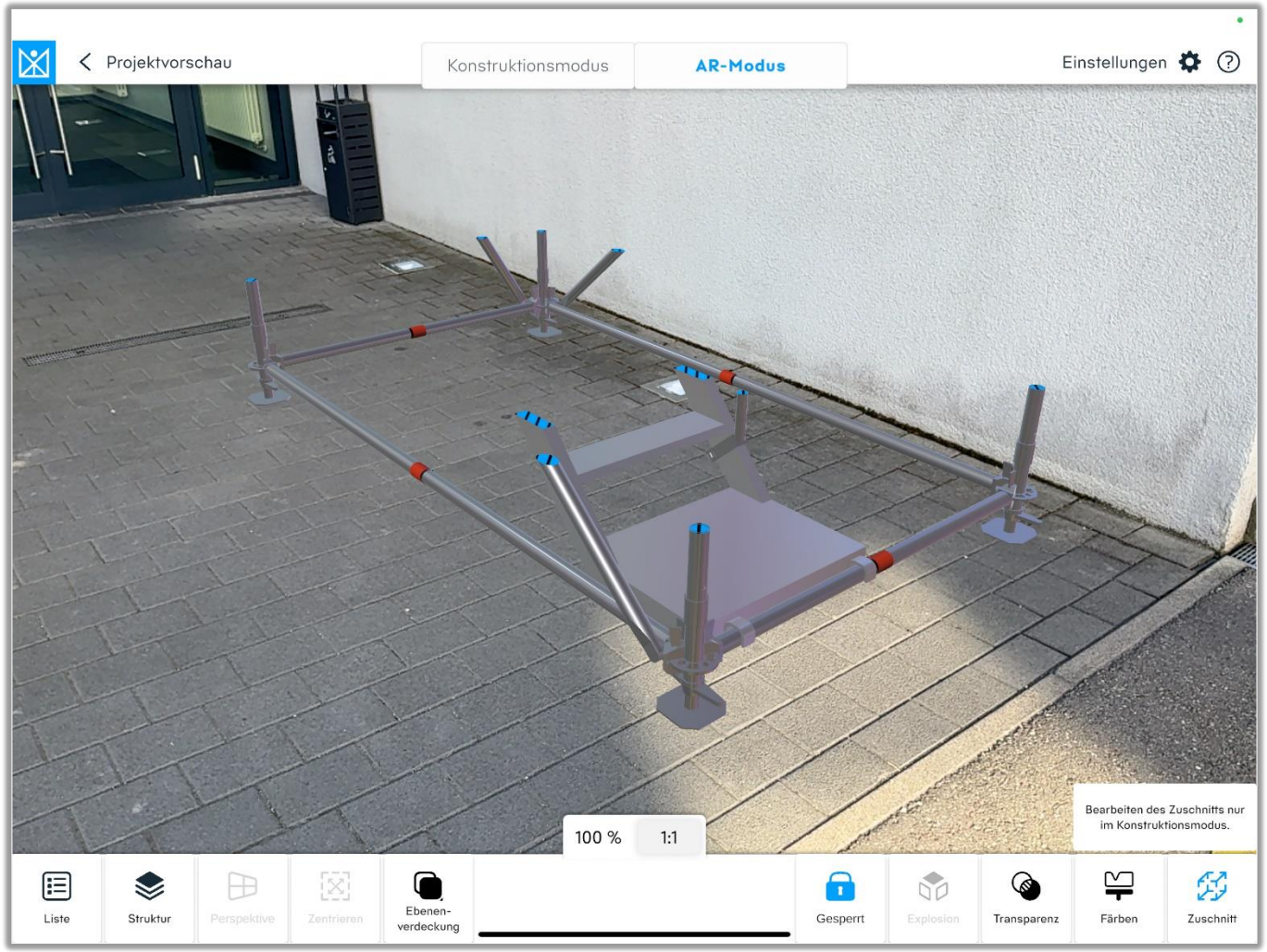
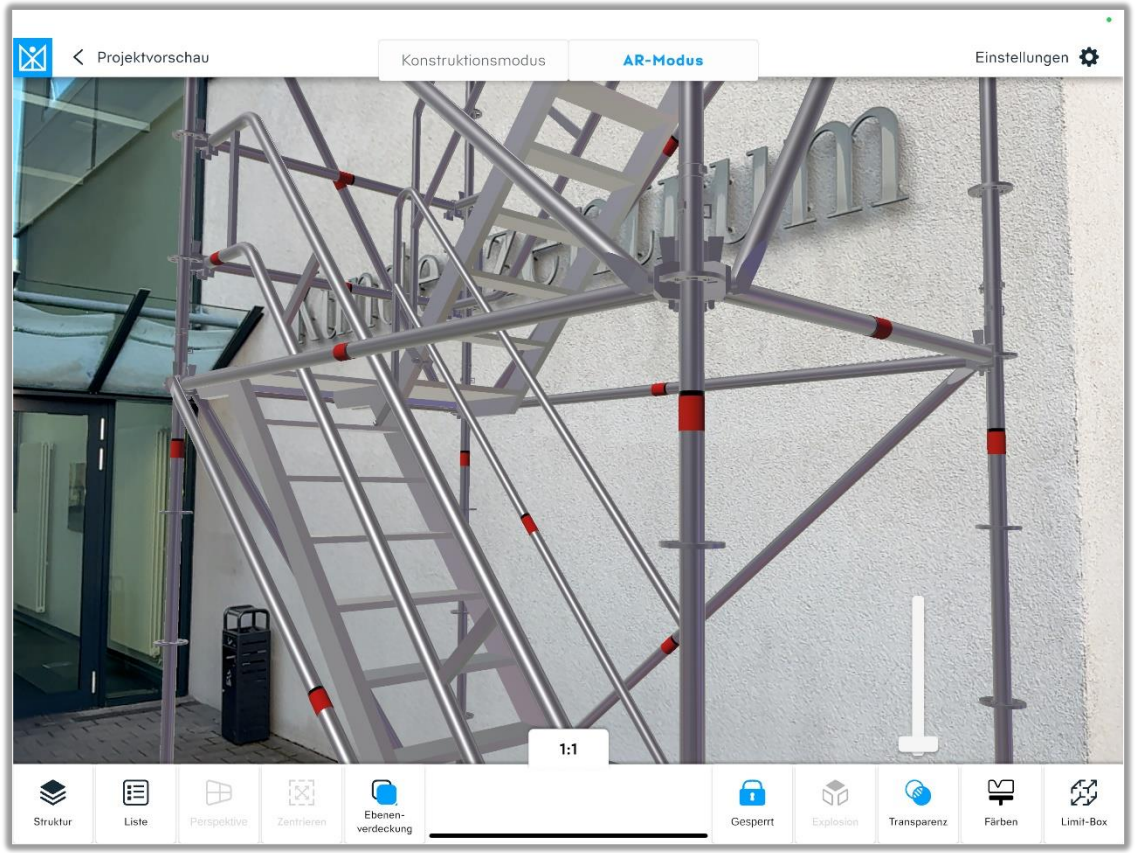


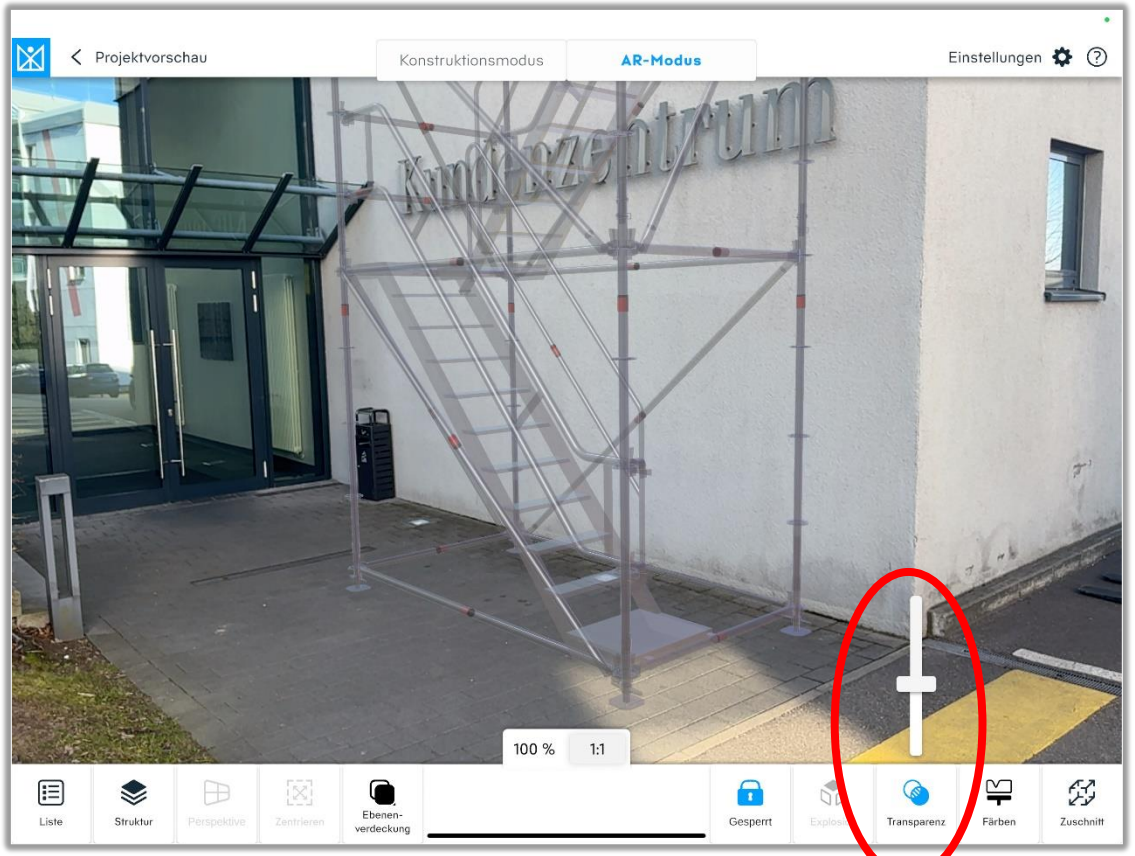
- Cutting to sections (limit box)
- View of details or assembly sections

Layher SIM2Field XR App

AR-Modus (Augmented Reality)

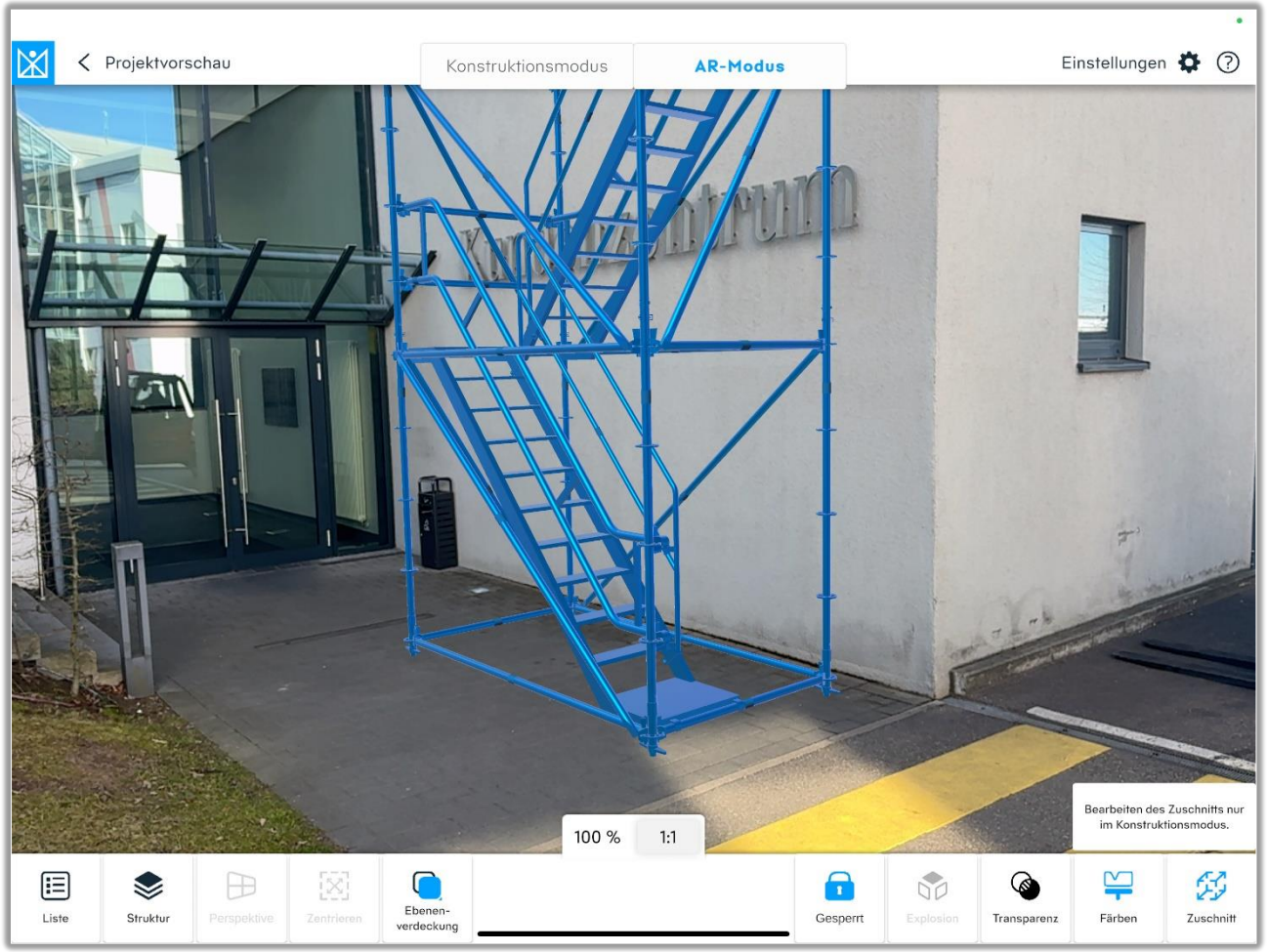


Transparency mode

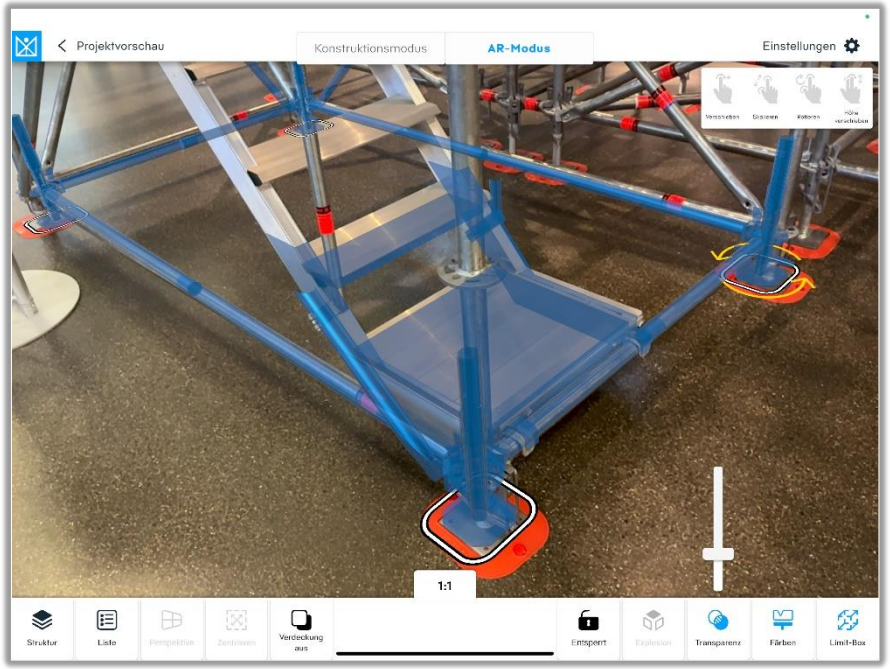


Layher SIM2Field XR App

AR-Modus (Augmented Reality)

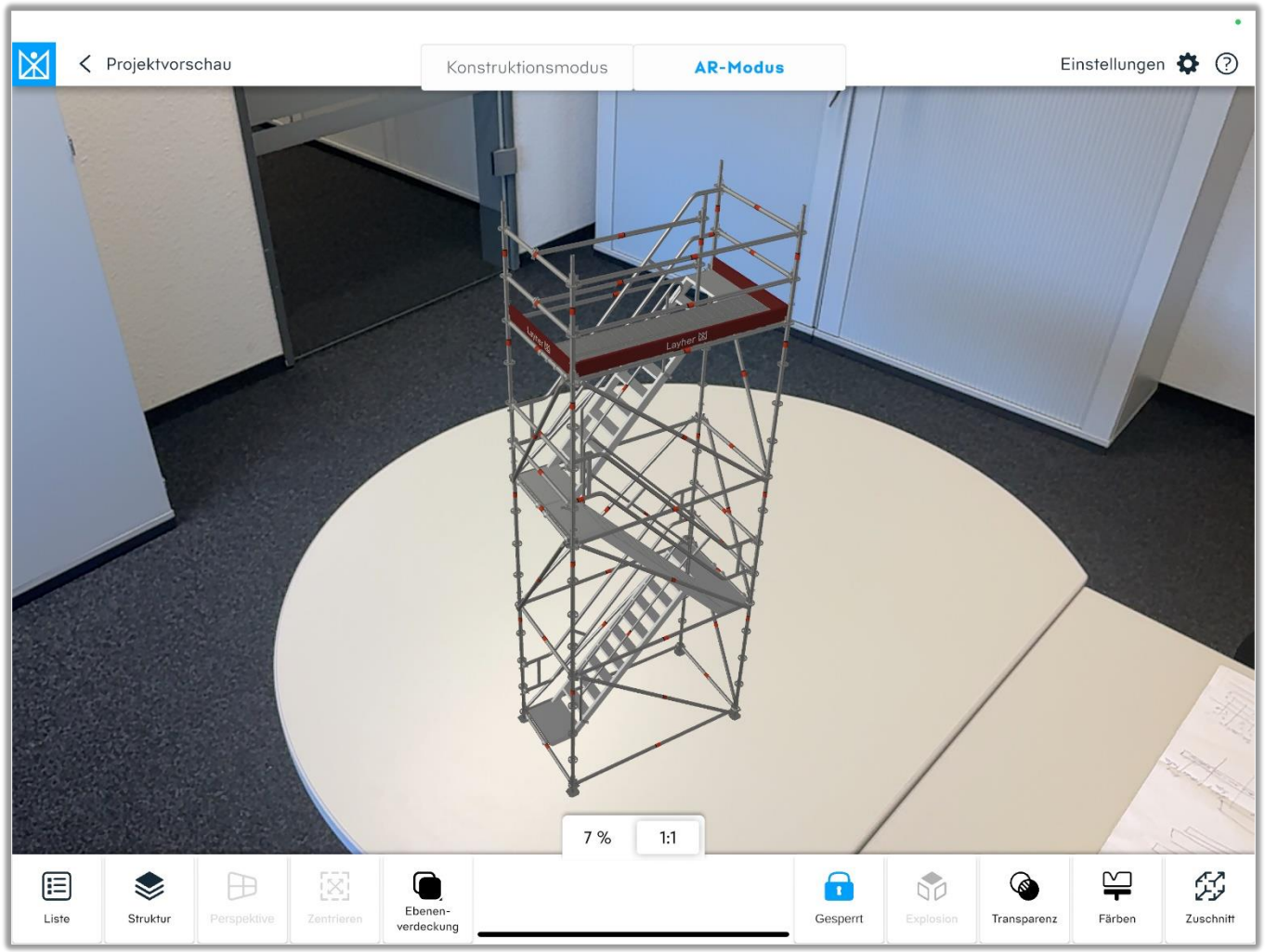


- Colouring of the scaffold for better contrast
- Transparency mode e.g. for check 3D model vs. actual scaffold



Layher SIM2Field XR App

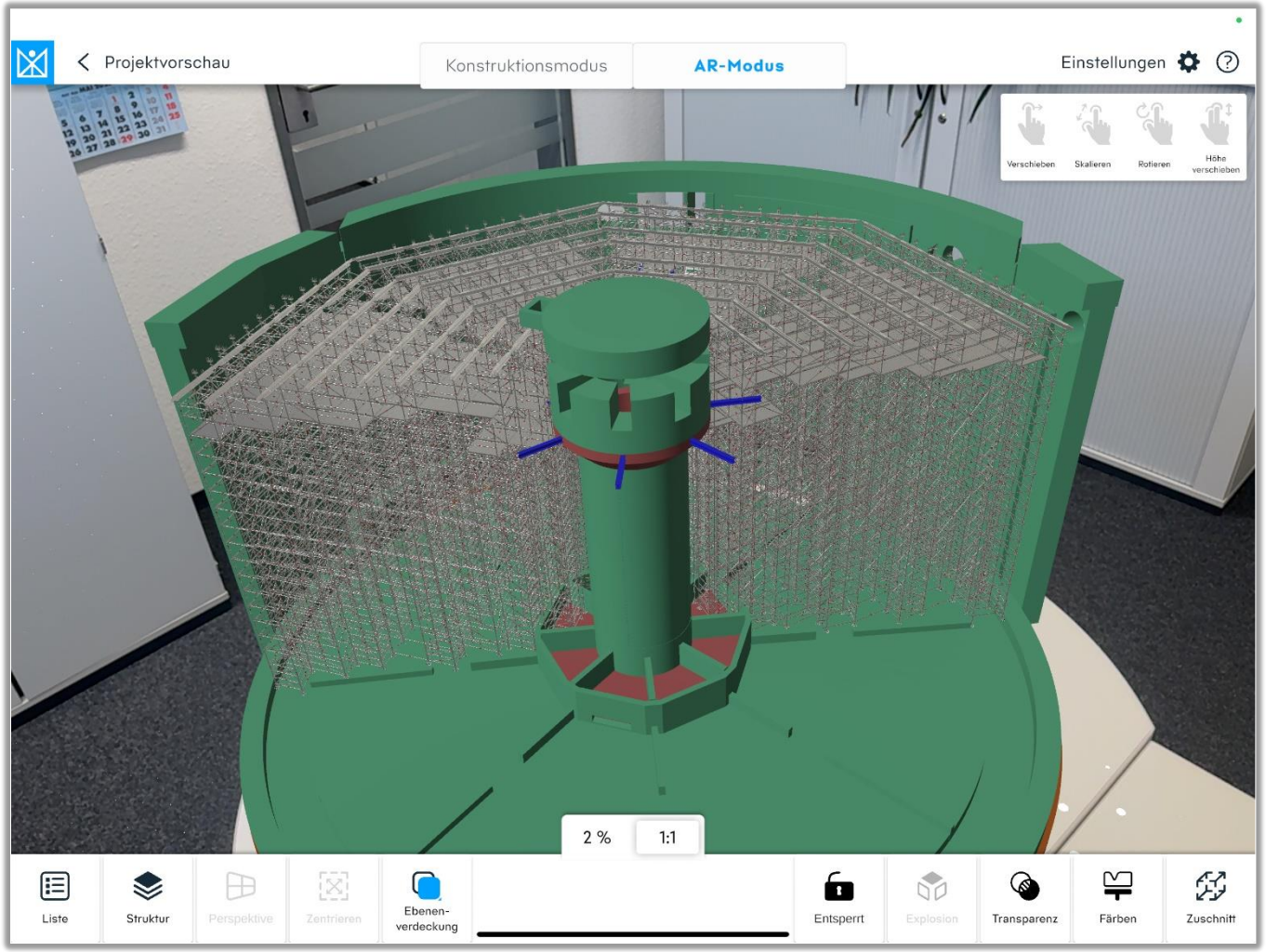
AR-Modus (Augmented Reality)



- Scaling in AR mode
- View for meetings in the office
- 1:1 button for real size

Layher SIM2Field XR App

Example RÜB Berlin: Shoring TG 60 with TwixBeam



- Extremely large scaffolding construction (appr. 300 tonnes or 56,000 individual parts)
- Only half is shown here (28,000 individual parts)

Layher SIM® – Overview whole process

Basis for planning (Input data)

- 3D model
- Point cloud

Layher Service 3D Laserscan

Planning process

- Scaffold design with LayPLAN CAD
- Collision check
- 4D design
- Accurate material lists
- Visualisation (VR)
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LayPLAN SUITE

Logistics

- Exact parts list from 3D model (quantities and dates)

Execution / Assembly

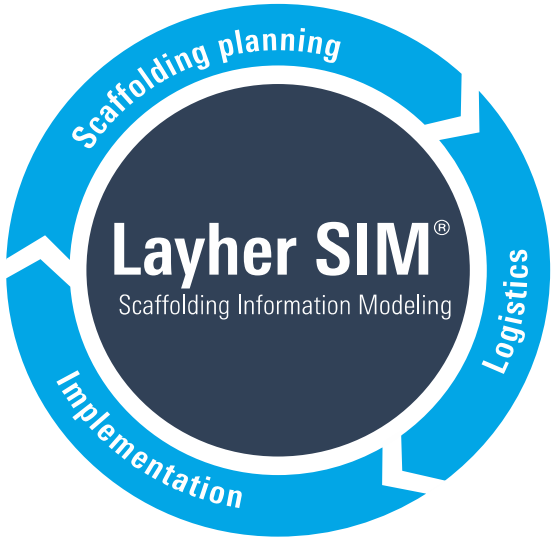
- 2D Assembly drawings
- 3D model

Layher Service SIM2Field + SIM2Field XR App

Layher SIM® – Overview whole process

Basis for planning (Input data) → Planning process → Logistics → Execution / Assembly

Layher SIM® is a 3D-model-based process for the digitalization of scaffolding-specific work sequences.



- Integrated digital SIM process based on the 3D models
- Digital solutions in all project phases: from measuring (3D laser scan) to scaffolding assembly on the construction site
- With SIM2Field the paperless construction site is possible!

Layher SIM2Field XR App

- How do I get the app?
- How does licensing work?
- What does it cost?

Layher SIM2Field XR App

- New function in LayPLAN CAD for exporting scaffolding models to the SIM2Field XR App is coming with the next update for Bauma
- The basic requirement for using the app is 3D model data from LayPLAN CAD
- The SIM2Field XR app is now available free of charge in the app stores (as an “unlisted” app)
- Link to download the app can be distributed by any LayPLAN CAD user (targeted distribution)
- Only available as a tablet version (use on a smartphone is pointless)
- User-friendly use without registration for all project participants

SIM2FIELD XR APP

Download on the App Store

GET IT ON Google Play

More possibilities for our customers in the field of digitalisation!

THANK YOU

Layher

More Possibilities. The Scaffolding System.

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