

LAYHER SYSTEM SOLUTIONS DIGITALISATION AND SOFTWARE



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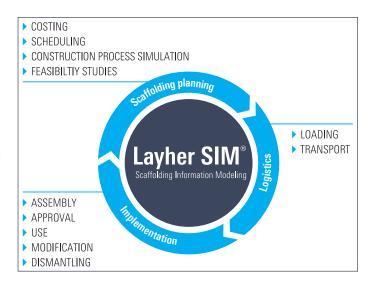
LAYHER SIM® - Scaffolding Information Modeling

WHAT IS LAYHER SIM®?

Layher SIM is a process. The SIM process is based on 3D models of the scaffolding structure, the object at which the scaffolding is to be erected and the terrain. The SIM process generates the digital twin for subsequent use on the basis of this 3D information.

Layher SIM was designed by Layher to meet the specific requirements of scaffolding construction and covers the entire lifecycle of the scaffolding project from planning through logistics and on to implementation. SIM not only allows you to plan, assemble and manage temporary scaffolding structures more efficiently, but also affords access to BIM at the same time.

LayPLAN SUITE is available as a powerful tool for the implementation of Layher SIM.



WHY USE LAYHER SIM®?

The aim of Layher SIM is to take advantage of the potentials of digitalisation and create added value for scaffolding construction. Dependable 3D planning of scaffolding structures without positioning conflicts is just one of the many benefits that go far beyond simple scaffolding planning itself. Added to that are the realistic visualisation of scaffolding, allowing work to be coordinated with other trades or construction sequence simulation, transfer of the scaffolding planning to structural analysis programs, and output of material lists and assembly plans. Transparency at every step results in a reduction in costs and an increase in safety and profitability. When they work with Layher's scaffolding construction customers, both building contractors and end customers in industry benefit from the many advantages SIM has to offer: a high degree of planning certainty, cost control and, above all, the ability to complete projects on schedule thanks to efficient and undisrupted construction processes. Delays and added costs due to inadequate planning are a thing of the past.

The benefits for you at a glance:

- Transparency in all work steps and cost control.
- Exact material requirements for every construction phase.
- Increase in safety and profitability for every project.
- ▶ Planning and scheduling certainty in every project.
- Improved planning quality and the resulting quality of assembly.
- Access to BIM.

FIND OUT MORE ON YOUTUBE

Short video of Layher SIM on-site Short video of Layher SIM in industry

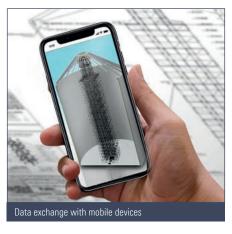


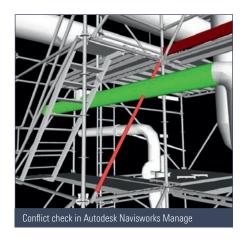


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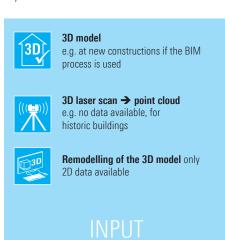




PROJECT WORKFLOW

The underlying task of Layher SIM is to perform the scaffolding planning that provides the basis and the digital twin for all subsequent process steps. One of the required inputs is the geometry data of the object at which the scaffolding is to be erected. This can be provided in the form of existing 3D models, the results of a 3D laser scan or remodelling based on 2D plans. Based on the digital twin, it is possible to obtain further information as output that can be used directly for subsequent process steps.

Layher SIM focuses on the end-to-end use of data and the elimination of digital barriers in order to ensure loss-free data exchange.





- Realistic 3D scaffolding planning.
- Visualisation of the design for professional presentation.
- Material lists for logistic planning and costing.
- 2D plans for assembly.
- ▶ Data transfer to structural analysis programs.
- ▶ VR model for virtual tour.
- Conflict check.
- ▶ Communication / data exchange with mobile devices.
- Construction process simulation.

OUTPUT

SUCCESSFUL SCAFFOLDING PROJECTS CAN BE PLANNED

The efficient construction of scaffolding and shoring structures makes a vital contribution to the overall success of building projects. The right products, good preliminary planning with Layher SIM and trained, qualified specialist personnel are the three fundamental prerequisites for successful scaffolding projects.

Layher SIM and the solutions in the LayPLAN SUITE permit the efficient, economical preliminary planning of your project.

The right products for economically efficient and safe solutions are available with Layher's integrated system. Information on the comprehensive product portfolio can be found on our website at **www.layher.com** as well as in the Layher product catalogues.

With an extensive range of seminars and detailed technical documentation, Layher provides you with the support you need to ensure that your employees are optimally qualified for their upcoming tasks. Whether for scaffolding planners or erectors — in theoretical or practical seminars — in the Layher Customer Centre in Eibensbach, at your own premises or as a webinar viewed from home. For further information, request our seminar brochure or visit us online at **seminare.layher.com**







FIND OUT MORE ON YOUTUBE

Information video on Layher SIM on-site



yt-sim-en.layher.com

Information video on Layher SIM in industry



yt-sim-ind-en.layher.com



LayPLAN SUITE, the integrated software solution. The suite includes all the LayPLAN programs, tools, plug-ins and interfaces, which are also able to interact with one another. The individual programs of the LayPLAN SUITE are described in detail on the following pages.

However, the LayPLAN SUITE is not just the umbrella concept bringing together all the LayPLAN modules but also a desktop app which allows you to administer the individual LayPLAN modules centrally.





LayPLAN CLASSIC is a stand-alone planning programme which facilitates a start in digital planning by allowing automated planning of predefined scaffolding applications: whether they are for circular or facade scaffolding made from SpeedyScaf, for birdcage scaffolding and free-standing towers made from Allround Scaffolding, or for structures with temporary roofs. Once the key data has been entered, scaffolding erectors receive a scaffolding proposal that includes anchoring, bracing and side protection in just a few seconds. In parallel, a detailed material list is determined in real time.

ADDED VALUE OF LAYPLAN CLASSIC

- Automated planning of standardised scaffolding structures using SpeedyScaf, Allround Scaffolding and Layher weather protection roofs.
- Automatic 2D assembly sketches.
- Integrated 3D viewer for detailed visualisation and persuasive order acquisition.
- ▶ Real-time material list for transport and assembly.
- Export function to LayPLAN CAD and Material Manager.
- ▶ No CAD knowledge necessary.

TARGET GROUP AND USAGE

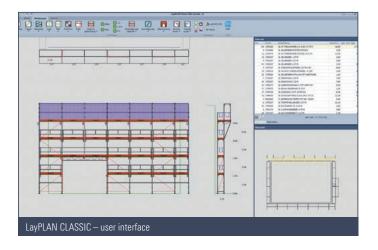
- Industry professionals.
- Scaffolding erectors.
- For rapid planning during the costing phase and for simple scaffolding structures focusing on facade scaffolding.

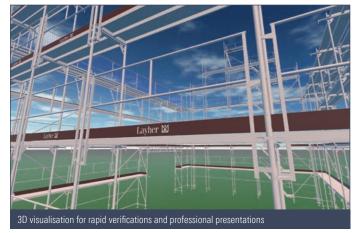
SYSTEM REQUIREMENTS

Operating system: Windows 7, Windows 10, Windows 11

Processor: min. 1.0 GHzRAM: 512 MB

Graphics card: no special requirements







LayPLAN CAD is a plug-in for Autodesk AutoCAD, which is available for individual scaffolding planning. It permits 3-dimensional planning of all types of scaffolding structures, irrespective of their complexity. Alongside the extensive component library, it provides scaffolding planners with design functions for the simple, fast insertion of components. A transfer to visualisation or animation software is also possible without any problem. This allows projects not only to be planned economically and at the same time adapted precisely to actual requirements, but also to be presented professionally to customers.

ADDED VALUE OF LAYPLAN CAD

- Scaffolding planning and design in 3D.
- Basic planning can be done in an automated process using LayPLAN CLASSIC – thus saving time.
- Visual conflict checks through realistic rendering.
- Extensive component library with a convenient search function including prefabricated assemblies and template drawings for even faster design.
- Component preview.
- Automatic component identifications.
- ▶ Real-time material list for transport and assembly.
- Further editing of the model data in visualisation software (e.g. rendering, VR) for order acquisition and for coordination with other trades, for conflict checking or for construction sequence simulation.
- Further editing of the model data in frame analysis programs for structural strength calculations as part of project-related verifications of stability. Unlike in the remodelling which is otherwise necessary, this avoids sources of error and saves time when planning.

For further information, see LayPLAN TO RSTAB.

Using LayPLAN TO REVIT, it is possible to transfer data to Revit for exchange with other project participants such as construction companies, architects, etc. Export as an IFC file is also possible in this way.

TARGET GROUP AND USAGE

- Scaffolding erectors.
- Construction companies.
- Event engineers.
- Engineering and planning offices.
- In both the offer and implementation phases.
- Prior knowledge of AutoCAD and a good feel for IT are an advantage.

SYSTEM REQUIREMENTS

CAD system: AutoCAD, AutoCAD Mechanical, AutoCAD Architecture

Versions 2017 – 2022

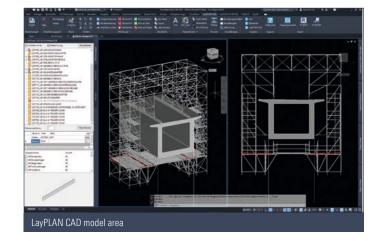
Operating system: Windows 7, Windows 10, Windows 11
 Processor: High-speed processor, e.g. > 3.0 GHz
 RAM: Recommended 16 GB, 32 GB is optimal

▶ Graphics card: Recommended: 4 GB GPU with 106 Gbit/s and compati-

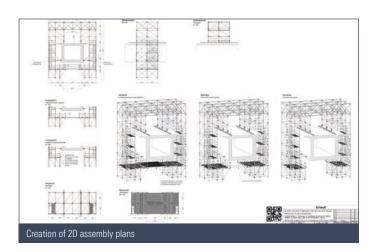
ble with DirectX 11, e.g. NVIDIA Quadro P2200 with 5GB

GDDR5X, max. 140GB/s

Hard drive: Recommended total capacity: 512 GB, SSD if possible









LayPLAN MATERIALMANAGER is part of both LayPLAN CLASSIC and LayPLAN CAD. With LayPLAN MATERIALMANAGER, material lists can be imported from the two modules at the touch of a button and can be individually edited – for example in order to perform a subdivision into different construction sections or adapt the logistics optimally to the construction workflows.

ADDED VALUE OF LAYPLAN MATERIALMANAGER

- ▶ Automatic creation of material lists from LayPLAN CLASSIC and LayPLAN CAD.
- Manual editing of material lists, for example splitting them into construction sections and applications.
- Detailed information on the scaffolding components (reference number, name, weight, price) including preview image.
- ▶ Formula functionality as in Microsoft Excel®.
- Output as PDF or exports to Excel (incl. linked formulae).
- Optional component images on the material lists in the printout this makes it easier to identify components during loading and assembly.

TARGET GROUP AND USAGE

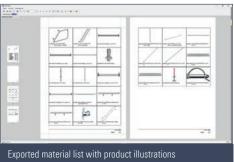
- Users of LayPLAN CLASSIC and LayPLAN CAD.
- In both the offer and implementation phases.

SYSTEM REQUIREMENTS

▶ There are no special requirements to observe.







Frame analysis programs are generally used for the structural strength verification of scaffolding structures. Using the LayPLAN TO RSTAB module, all modelling-relevant information about an Allround Scaffolding structure can be imported in 3D form into the RSTAB frame analysis program from Dlubal with all structurally relevant information. Automated transmission of the information means that it is not necessary to re-enter the model data. This means that users benefit from enormous time savings and also helps eliminate possible sources of errors during modelling.

ADDED VALUE OF LAYPLAN TO RSTAB

- ▶ Time saving thanks to automated 3D model transmission of Allround Scaffolding structures.
- Transmission of all structurally relevant information according to the approvals (geometry, cross-sections, materials, frame types, eccentricities and non-linear connections).
- Avoidance of possible sources of errors during modelling in the frame analysis program.

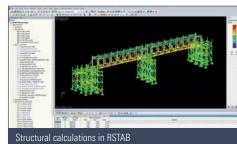
TARGET GROUP AND USAGE

- ▶ Scaffolding erectors with a technical office structural knowledge absolutely essential.
- ▶ Engineering and planning offices structural knowledge absolutely essential.
- In both the offer and implementation phases.
- Knowledge of AutoCAD and RSTAB required.

SYSTEM REQUIREMENTS

- AutoCAD, AutoCAD Mechanical or AutoCAD Architecture Versions 2017 2022
- LayPLAN CAD
- ▶ RSTAB 8 from Dlubal RSTAB 9 is not supported
- ▶ RS-COM Interface from Dlubal







Using LayPLAN TO REVIT, 3D scaffolding models from LayPLAN CAD can be converted into the native file format *.rvt of Autodesk Revit in just a few mouse clicks. Builders, planners and architects often use the BIM software Autodesk Revit. The *.rvt file format is the ideal solution for this target group, and this option gives scaffolding planners benefit a considerable competitive edge — without needing to know about using Autodesk Revit.

After the data has been transferred, all the necessary geometrical data and metadata of the installed scaffolding components — such as component weight or reference number — is available to the user in Autodesk Revit. This simplifies further processing of the scaffolding model, facilitates coordination and enables parts lists to be created — directly in Autodesk Revit Using Autodesk Revit, the scaffolding planning can then be exported to an IFC model — the neutral file format for data exchange in the BIM process. Data exchange between Layher SIM and the BIM process is thus assured.

ADDED VALUE OF LAYPLAN TO REVIT

- Scaffolding planning with LayPLAN CAD.
- Data conversion to *.rvt format.
- ▶ Reliable component geometries and information.
- No knowledge of Autodesk Revit required.
- ▶ End-to-end SIM process through interfacing with BIM.
- Possibility of exporting to IFC format via Revit.





- Further processing of the 3D scaffolding model
- Use of metadata
- Creation of material lists
 - FC export for data exchange in the BIM process

TARGET GROUP AND USAGE

- Users of LayPLAN CAD.
- Users who need to generate and deliver *.rvt files.
- Users who are interfaced with a BIM process and have to deliver the scaffolding model as a .ifc file.
- Knowledge of AutoCAD is required, knowledge of Revit is not absolutely necessary.

SYSTEM REQUIREMENTS

- AutoCAD, AutoCAD Mechanical, AutoCAD Architecture Versions 2017 – 2022
- Autodesk Revit 2019 or higher
- ▶ LayPLAN CAD
- Commonly used web browser such as Mozilla Firefox, Google Chrome etc
- Internet connection
- ▶ E-mail access





LayPLAN TEAMVIEWER is a tool available free of charge which allows users to access optimum, direct support in the event of problems or open questions. IT is installed automatically and can be opened by clicking on the icon or selecting the LayPLAN SUITE.

ADDED VALUE OF LAYPLAN TEAMVIEWER

- Fast and easy support.
- Direct TeamViewer availability.
- No separate downloads necessary.

SYSTEM REQUIREMENTS

Internet access



3D LASER SCANNING

The ideal starting point when using Layher SIM (Scaffolding Information Modeling) is a 3D model of the object at which the scaffolding is to be erected. In the case of historical buildings such as churches, bridge structures, etc., this data is often not available and this makes scaffolding planning difficult or sometimes impossible. To make it possible to determine the actual state of these objects despite this problem, Layher offers its customers a digital surveying solution using a 3D laser scanner. The 3D laser scanner generates data of the current situation on site which is accurate to the nearest millimetre. This data is then used for scaffolding planning in LayPLAN CAD. In this way, scaffolding structures can be digitally adapted to the real current conditions on-site and optimised. Planning and checks performed on the digital twin ensure a high level of transparency and certainty during planning with regard to materials, costs and deadlines, thus conferring an enormous competitive advantage. Typical areas of application for 3D laser scanners include, for example:

- Scaffolding erected at historic buildings, churches, bridges, monuments, etc.
- ▶ Scaffolding at industrial installations, shipbuilding and aircraft scaffolding.
- Use in event technology for recording the environment at the event location.
- 3D laser scanners can be used indoors or outdoors and scanning is possible even in the complete absence of light (e.g. in a boiler).

ADDED VALUE OF 3D LASER SCANNING

- Reliable geometrical data due to 3D surveying with millimetre accuracy.
- Range approx. 100 m.
- ▶ Can be used both indoors and outdoors.
- Data preparation by Layher for use in LayPLAN CAD.
- ▶ Integration in Layher SIM.
- Certainty with regard to deadlines and costs during planning.

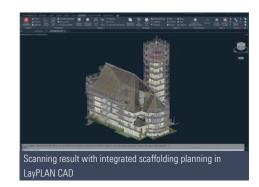
TARGET GROUP AND USAGE

- ▶ Scaffolding erectors who need digital surveys for the cases described here.
- Knowledge of AutoCAD and knowledge of the use of point clouds are required.

SYSTEM REQUIREMENTS

To enable you to make optimum use of the data from the 3D laser scanner in LayPLAN CAD, we recommend the Cloudworx plug-in for AutoCAD from Leica.





LAYHER CAD LIBRARY FOR REVIT

Independently of the LayPLAN SUITE, we make our scaffolding components available for Revit as individual, so-called families in the native *.rfa format. The library contains the complete Layher product catalogue for the product groups Allround Scaffolding, SpeedyScaf, Event Systems, Protective Systems and system-free accessories. It forms the optimum basis for the editing of scaffolding structures imported using LayPLAN TO REVIT or the individual planning of any type of scaffolding structure in Autodesk Revit. In addition to reliable geometrical data, the Revit families also contain further information on the Layher scaffolding components, such as reference number, designation and weight. This forms the ideal basis for high-quality planning, including the creation of parts lists directly in Revit. In the Revit families, geometrical and other information on the scaffolding components are merged, enabling the general requirements of BIM (Building Information Modeling) to be met. Finally, Autodesk Revit offers the option of exporting projects in the IFC format, for an unrestricted data exchange with other programs and project participants.

ADDED VALUE OF THE LAYHER REVIT COMPONENT LIBRARY

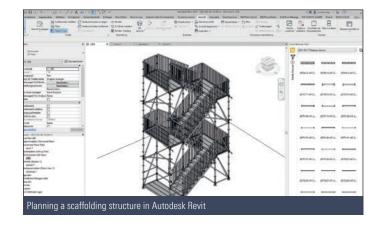
- Scaffolding planning with Autodesk Revit.
- ▶ Reliable component geometries and information.
- Creation of material lists.
- The latest data thanks to continuous updates.
- Export in IFC format is possible.

TARGET GROUP AND USAGE

> Scaffolding planners who have a knowledge of and use Revit.

SYSTEM REQUIREMENTS

Autodesk Revit 2019 or higher





The free-of-charge LayPLAN VR VIEWER enables virtual tours of scaffolding structures, to convey a realistic spatial impression of the overall situation. This provides an ideal basis for advance checking of the planned scaffolding structure in respect of occupational health and safety requirements, e.g. by the health and safety coordinator, or for coordination with other project participants. It also permits a virtual tour by and induction of the assembly team. Based on the data from LayPLAN CAD, Layher can create VR models for display in the LayPLAN VR VIEWER.

ADDED VALUE OF LAYPLAN VR VIEWER

- ▶ Virtual tour of scaffolding structures with VR headset and optional display in Desktop mode.
- Integrated measurement and comment function.
- ▶ Conveying of a realistic spatial impression of the overall situation, for order acquisition and for coordination with other trades or for construction sequence simulation.
- Verification of occupational health and safety through the involvement of health and safety coordinators.

TARGET GROUP AND USAGE

- Users of LayPLAN CAD.
- Offer and implementation phases.
- Acquisition, tour, coordination, instruction.

SYSTEM REQUIREMENTS

▶ High-performance computer; the exact specifications depend on the employed VR headset, e.g. HTC Vive Pro, Oculus Rift S.





LICENSING

LAYPLAN LOGIN PAGE

- You can request your personal LayPLAN Login data on the Layher website: http://software.layher.com
- ➤ The setup for the installation of individual or all LayPLAN Suite modules can be downloaded in the LayPLAN Login page.
- Licences for the activation and unlimited use of individual LayPLAN Suite modules are also ordered via an easy-to-use order form in the LayPLAN Login page.

TEST VERSIONS

Following initial installation, the individual modules of the LayPLAN SUITE can be tested free-of-charge for 30 days.

ORDERING THE CAD LIBRARIES

- The LayPLAN Login page also contains an order form for the Layher CAD libraries.
- Once you have successfully completed the order, you will receive a link allowing you to download the library.
- You will then receive information on updates to the libraries by email as they are published.

LICENSING

- All purchase licenses are valid for an unlimited duration. Updates are performed free-of-charge.
- Licensing is user-specific by means of a licence file.
- The users must be specified at the time of ordering. The first names, surnames and email addresses of the users are requested.
- All users receive their own personal licence file so that they can activate the programs which are authorised for them. The licence file also permits one further activation, e.g. for an office PC and in the home office

INSTRUCTOR, PUPIL AND STUDENT VERSIONS

- On production of a valid certificate, we will make the tools of the LayPLAN SUITE available to pupils and students free-of-charge for a period of 365 days.
- Are you an instructor in an accredited training establishment? Then please get in touch with us directly. We will be delighted to help you.

UPDATES

- Updates are made available at regular intervals free-of-charge.
- ➤ The updates include modifications to the catalogue file as well as functional extensions to individual LayPLAN modules in the LayPLAN SUITE.

Pos.	Description	Ref. No.	Single license ⊖ [EUR]
1	LayPLAN CLASSIC Scaffolding configurator for SpeedyScaf, Allround Scaffolding, weather protection roofs and rolling towers	6345.102	550.00
2	LayPLAN CAD Plug-in for AutoCAD, for designing complex scaffolding in 3D and for further processing of scaffolding proposals from LayPLAN CLASSIC	6345.103	990.00
3	LayPLAN MATERIALMANAGER	contained in both LayPLAN CLASSIC and LayPLAN CAD	
4	LayPLAN TO RSTAB	6345.104	1,990.00
5	LayPLAN TO REVIT	6345.105	1,990.00
6	LayPLAN TEAMVIEWER	contained in both LayPLAN CLASSIC and LayPLAN CAD	
7	LayPLAN VR VIEWER	free of charge	
8	Layher component library for Autodesk Revit	6345.202	320.00
9	3D laser scanning Flat-rate daily amount for digital surveying with 3D laser scanner including data preparation and travel expenses	Please ask your local Layher partner	

SUPPORT, TRAINING & SEMINARS

SUPPORT

If you have any questions on the subject of the LayPLAN SUITE, e.g. installation and setup, functions, licensing and activation, etc., please contact layplan-info@layher.com. You will receive a reply as quickly as possible. The LayPLAN Login page also contains downloadable guides for the individual LayPLAN modules.

LAYPLAN TEAMVIEWER

LayPLAN TEAMVIEWER is automatically installed at the same time as the LayPLAN SUITE. LayPLAN TEAMVIEWER makes fast, uncomplicated support possible. Questions can be answered and problems can be solved directly at your computer. You can again get in touch via layplan-info@layher.com

SEMINARS & WEBINARS

LayPLAN CLASSIC – from the planning to the presentation of simple scaffolding structures

This seminar is intended for users of LayPLAN CLASSIC. No experience or prior knowledge of the use of LayPLAN CLASSIC are required for this seminar. Find out how you can get from the building's ground plan to fully planned scaffolding in just a few clicks. It is even possible to take account of circular scaffolding, sloping terrain or weather protection roofs. You can also learn about how to use the 3D visualisation function in LayPLAN CLASSIC to make optimised, professional presentations to your clients.

AutoCAD Basic Training

This three-day seminar is intended for contractors, site managers, technical employees and engineers in the scaffolding construction and skilled trades sectors. It acquaints participants with the basic functionalities of AutoDesk AutoCAD, thus enabling them to go on to use the LayPLAN CAD scaffolding construction software.

LayPLAN CAD – from the planning to the presentation of complex scaffolding structures

This seminar is intended for users of LayPLAN CAD. Since LayPLAN CAD is a plug-in for AutoCAD, prior participation in the "AutoCAD Basic Training" seminar or a sound knowledge of the use of AutoCAD are prerequisites.

Find out how you can plan even the most complex scaffolding structures using the LayPLAN CAD component library for AutoCAD — irrespective of whether you are operating in the industrial scaffolding construction or event scaffolding sector or any other area. You can also learn how to use the 3D visualisation function in LayPLAN CAD to make optimised, professional presentations to your clients.

PRICES, DATES AND APPLICATIONS AT

LAYPLAN CLASSIC SEMINAR (GERMAN)



www.layher.com/Seminare/LayPLAN-CLASSIC

PRICES, DATES AND APPLICATIONS AT

AUTOCAD BASIC TRAINING SEMINAR (GERMAN)



www.layher.com/Seminare/Seminar-AutoCAD-Basis

PRICES, DATES AND APPLICATIONS AT

LAYPLAN CAD SEMINAR (GERMAN)



www.layher.com/Seminare/LayPLAN-CAD

If you are interested in individual English-language seminars, please get in touch with us via layplan-info@layher.com



Layher is your dependable partner with more than 75 years of experience. "Made by Layher" always means "Made in Germany" too — and that goes for the entire product range. Superb quality — and all from one source.

Proximity to the customer is a central factor behind Layher's success – geographically speaking too. Wherever our customers need us, we will be there – with our advice, assistance and solutions.



SpeedyScaf



Allround Scaffolding



System-free Accessories



Protective Systems



Shoring



Event Systems



Rolling Towers



Ladders



Software



lition 05.2022



Wilhelm Layher GmbH & Co KG Scaffolding Grandstands Ladders

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