



**UPDATE-NEWS
RELEASE
2024-1**

UPDATE-NEWS 2024-1

This summary comprises the most important improvements of the Release 2024-1.

Update News relating to former releases are available at

www.friilo.eu

- ▶ Campus
- ▶ Download area + News & Updates
- ▶ [Update News](#)

Update information referring to individual programs is available in the FRILO Control Center

If you have already installed the release, you will find the update information for each individual program in the FRILO Control Center under the „Programs“ tab by right-clicking on the respective program and then on „Info“.

Webinars/Online Event for Release 2024-1

On 21. November 2023, the new release was also presented in an online event. We will upload a recording of the event (in German) on our YouTube channel. [YouTube-channel](#)

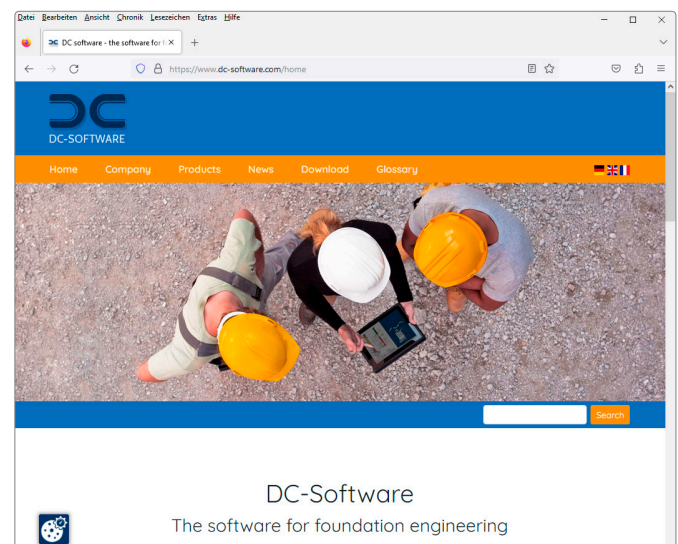
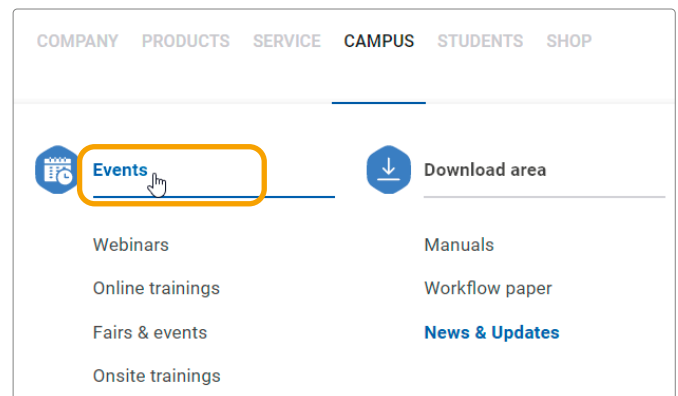
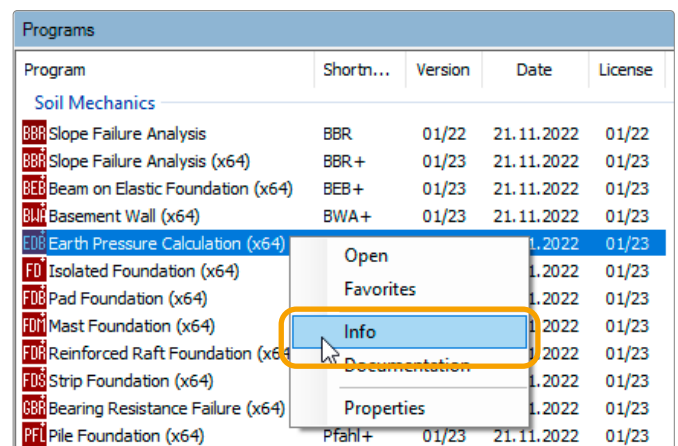
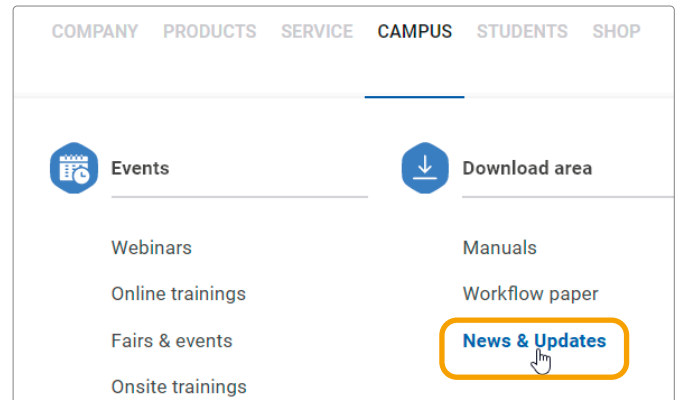
Upcoming events: see www.friilo.eu/event/

DC-Software

In 2022, we added the powerful solutions of DC-Software to our FRILO portfolio. Would you like to learn more about the software for foundation engineering and the numerous programmes for structural foundation design and soil mechanics? If so, you can find comprehensive information on our website www.dc-software.com.

FRILO Insight

The FRILO newsletter „FRILO Insight“ with product reports, current information, technical articles as well as tips & tricks that make it easier for you to work efficiently with our solutions is now available at CAMPUS - Download area - [News & Updates](#).



In this section, we point out the most important improvements and new features of individual programs.

- Direct start of SCIA Engineer in GEO
- Innovations in GEO and PLT
- Schöck Tronsole® in B7+
- Load transfer in steel construction programs
- Various new functionalities
- Localization France

Building Model GEO

Direct start SCIA Engineer / specified superpositions

In the Building Model, SCIA Engineer (SEN) can now be started directly via a button in the program interface. For H-load transfer, self-defined superpositions can be entered.

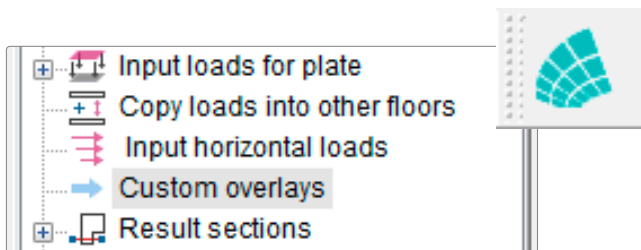
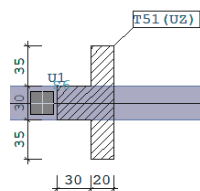


Fig.: New menu item "Predefined superpositions" and SCIA button

Building Model GEO and Slabs by Finite Elements PLT

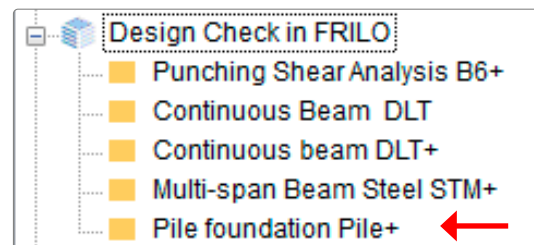
In both programs the limit of 255 walls was lifted. This means that the walls can now be numbered indefinitely. In addition, the representation of the isoelements and the bearing direction areas in the OpenGL representation has been supplemented.

When graphically displaying the downstand/upstand beams or the steel beams, the cross-sections can now be optionally displayed using the new "Settings" menu item – see figure on the right.



PLT: Export of pile loads to Pfahl+

In the PLT program, support forces can be transferred to the slab design program Pfahl+ on a load-by-load basis. In addition, state II deformations can now be output as a section.

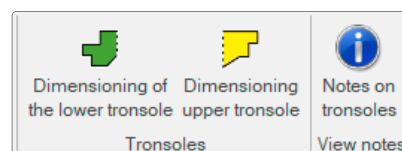


Flight of Stairs B7+

Implementation of the Schöck Tronsole®

As an additional option, Schöck Tronsole® (impact sound insulation) can now be designed on the supports in the B7+ program.

The product is selected automatically via a web interface based on the support reactions and the selected dimensions. The verifications are carried out in accordance with the approval.



Load transfer in steel construction

Interfaces to the column programs

In the Lateral Torsional Buckling Analysis BTII+, Crane Runway Girder S9+, Single-span Steel Beam STT+ and Trusses Steel FWS+ programs, load transfer to the column programs STS+, HO1+ and B5+ has been expanded. The height of the column as well as the height of the load application point and the eccentricity are taken into account.

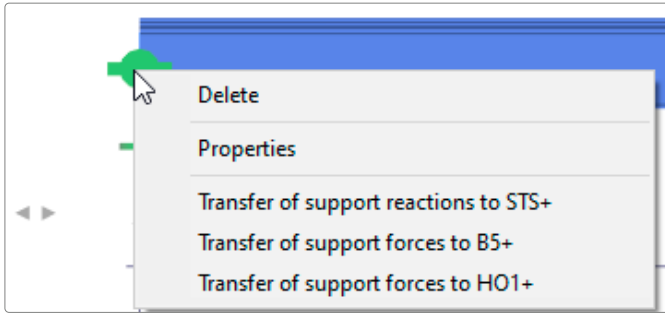


Fig.: The call is preferably made via the context menu (right mouse button) on the support

Various new functionalities

Document Designer FDD

The plan output from the FRILO programs has been optimized. Additional title blocks can be added to the layout. An additional description can now be entered for members.

FRILO BIM-Connector® FBC

From this release, analysis models that were opened via SAF import can be transferred to the FRILO framework program RSX. The focus is on the transfer of the geometry; supports, joints and couplings, and sometimes also loads, can also be transferred.

A direct interface between SEMA and FRILO for a bracing calculation was also implemented.

Furthermore, analytical models can be exported from the FBC as SAF files.

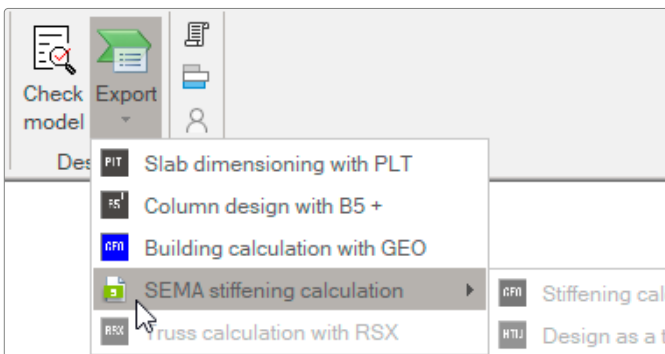


Fig.: The export menu with the current interfaces. By the way: The workflow (in German) for the handover to SEMA is now available for download as a PDF document on our homepage under [Download](#).

Framework RSX

The framework can optionally be represented as a volume model even in the deformed state. It is also now possible to define free dimension chains between any nodes. The alignment and distance are adjustable. The definition of cross-sections has been greatly improved.

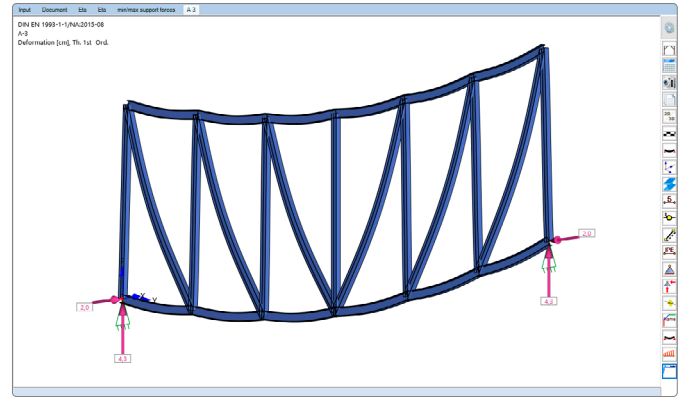


Fig.: 3D representation in the RSX

BSM+ Strut-and-Tie Model Reinforced Concrete

In the BSM+ program, a created strut-and-tie model can now be adjusted as desired using the new "Editing" menu item. Bars can be added/removed and nodes can be moved. In addition, user guidance has been improved with a "process line".

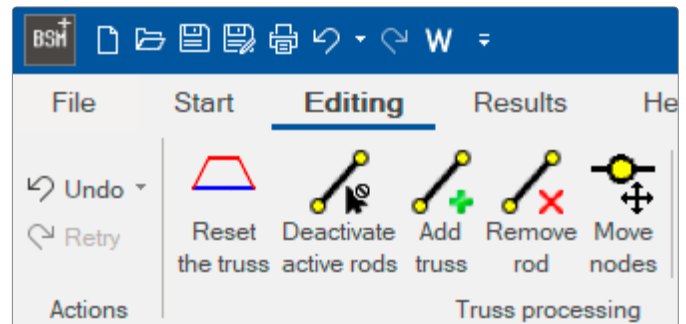


Fig.: The new editing symbols in BSM+

Reinforced concrete beams BTM+ and DLT+

In the BTM+ and DLT+ programs, a self-defined concrete can be selected when selecting a concrete quality. Based on an existing quality, all necessary values can be adjusted. In addition, the reinforcement layout was improved.

Roof programs DGK+, DKD+, DPD+ and DSP+

The HORA interface was implemented in the roof programs for Austria. In the DKD+ Collar Beam Roof, the design of connection details for one-part and two-part collar beam connections has been supplemented.

Rafter base on the left	no selection
Rafter base on the right	no selection
Purlin connection - support	no selection
Collar beam connection on the left	no selection
Collar beam connection on the right	no selection mit genagelter Knagge

Fig.: Connection details under the menu item Design

HTW+ Timber Wall Diaphragms

In the HTW+ program, the reduced load capacity according to shear field theory can now be taken into account. This ensures that the load-bearing capacities used in the verification can actually be activated.

Pile Foundation Pfahl+

In the Pfahl+ program, the analysis of resistance-settlement lines and the design of sheet piling or ductile cast iron piles can now be carried out.

Pile system			
Pile sort		Drilled pile	
Cross-section		Drilled pile	
Cross-section type		micro drilled pile Reinforced concrete prefabricated pile Prefabricated drilled steel pile Ductile driven pile	
Shaft diameter	ds		
Reinforcement layer	d1	[cm]	5.0
Pile dimensions			
Shaft length	Ls	[m]	16.40
Inclination	α	[°]	0.0
Toe expansion			<input type="checkbox"/>

Fig.: Selection of the pile type in the Assistant

Soil Settlement SBR+

User-defined sections can now be created in order to be able to evaluate the settlement curve along these sections as desired.

FRILO Control Center FCC: Integration of the DC software

DC items can be managed in the FCC starting with DC software 2024-1.

Localization and standards

French interface and output implemented in the foundation programs

As of this release, the interface in the programs FD+, FDS+, FDB+, FDM+, GBR+ and FDR+ is available in French and with a French edition.

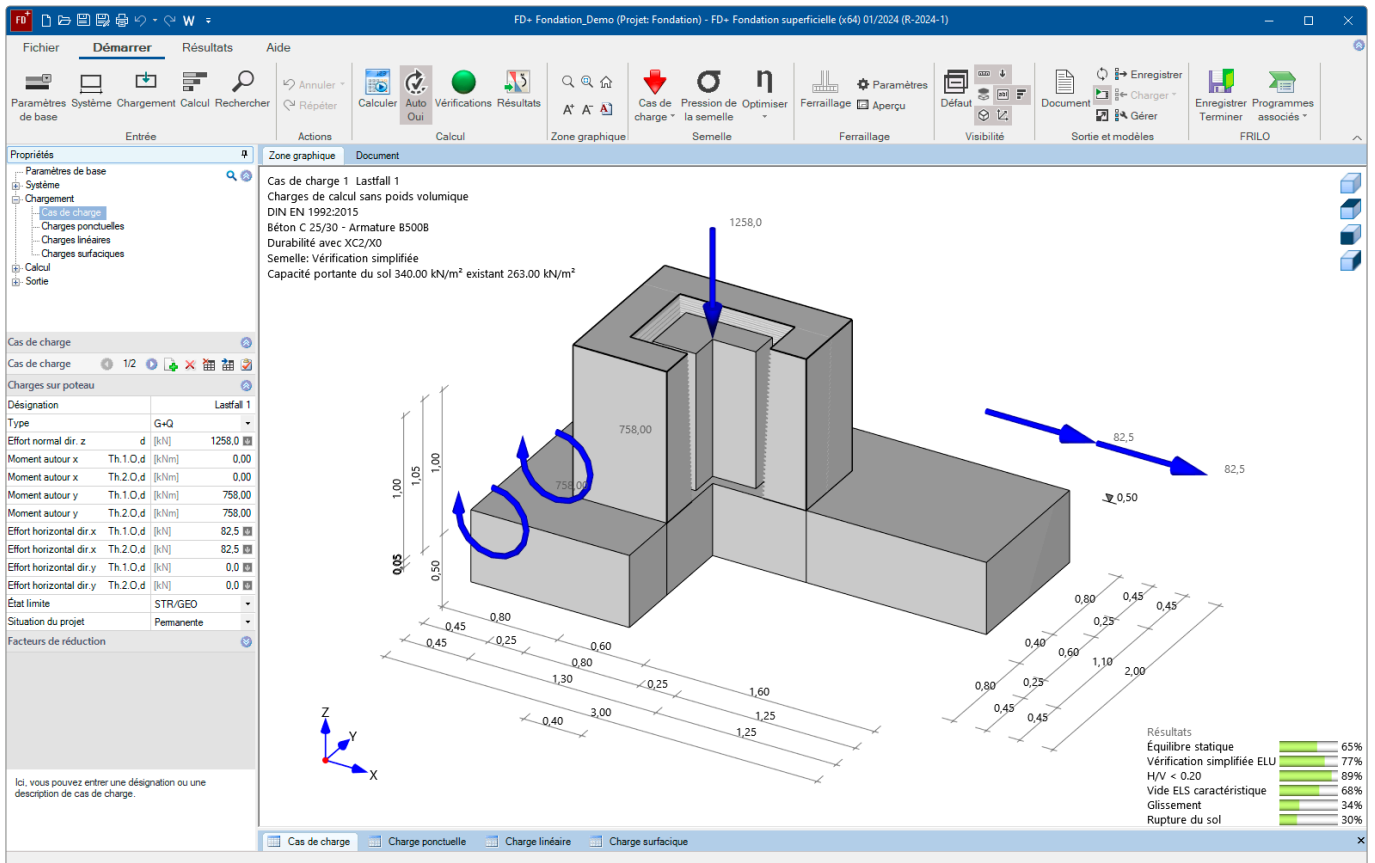


Fig.: French interface in the FD+ program

NEW PROGRAMS

The following is a list of the new programs in this release

- Steel Angle Connection SWA+
- Steel Cross-Sections General QS+
- Reinforced Timber Beam HTV+
- Additional option Reinforcement Graphics
- Toolbox: Collar Beam Connections

Steel Angle Connection SWA+

The SWA+ program measures hinged beam connections using angles in steel construction. The connection can be configured with or without a notch. The notch can be arranged either on one or both sides. SWA+ replaces the angle connections in the ST9 program.

System

- Beam connection with angle with/without beam notch
- Angle geometry and bolt patterns can be specified or taken from the connection configuration catalog.

Cross-sections

- Beam sections
 - I-section as standard section
 - I-section custom
 - Flat steel as a standard profile
 - Flat steel custom
- Angle
 - Angles isosceles and isosceles as standard cross-section or as user-defined cross-section

Loading

- Design internal forces from shear force VzD
- Entry of several design internal force combinations possible

Fasteners

Different bolts can be selected following the main beam and the secondary beam.

- Bolts: raw bolts and pins
- Sizes: M12, M16, M20, M22, M24, M27, M30, M36
- Strength classes: 4.6, 5.6, 8.8, 10.9

Material

The material can be chosen differently for the main beam, secondary beam and angle.

The following materials are available to choose from:

- Structural steel (S235, S275, S355, S450)
- Structural steel annealed (S275N – S460N)
- Structural steel thermo (S275M – S460M)
- Structural steel weatherproof (S235W – S355W)
- Heat-resistant steel (S460Q – S460QL1)
- Hollow profile warm (S235H – S355H)
- Hollow profile warm N (S275NH – S460NH)
- Custom steel type

Standards

EN 1993 with national appendix for Germany and Austria.

Design

The program provides all the necessary evidence according to the selected design standard:

- Evidence of shearing of the bolts
- Verification by hole bearing (main beam, secondary beam, angle)
- Block failure
- Verification by contact pressure
- Verification by the notching of the secondary beam
- Cross-sectional verification angle

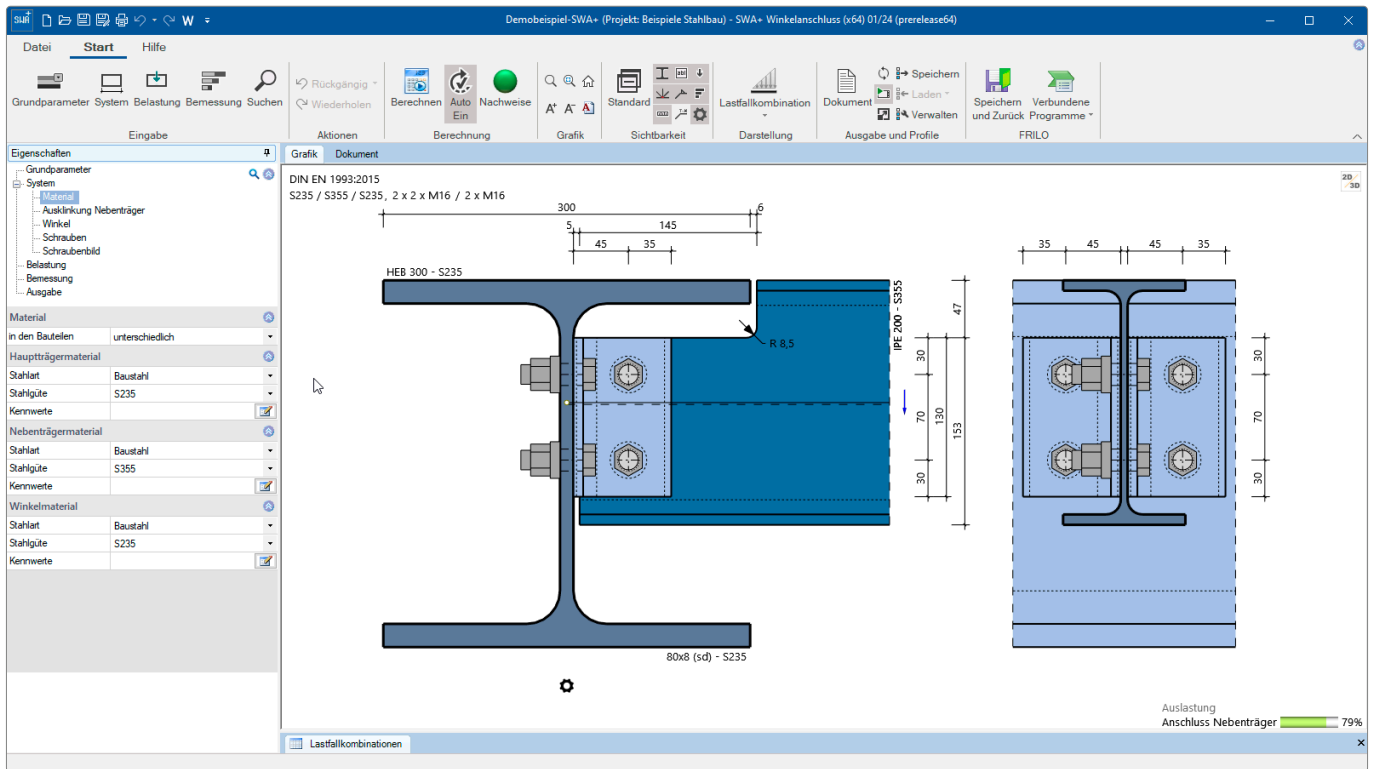


Fig.: The SWA+ surface. The gear symbol opens a suggestion dialog for the connection configuration

Interfaces

A transfer to the flag plate SFB+ program is available as well as the import of FRIL0-XML and export options such as Word, PDF, FRIL0-XML and DXF.

Output

The desired output scope can be defined using the output section options.

Steel Cross-Sections General QS+

The QS+ program is used to model and determine cross-sectional values of any thin-walled steel structure section.

Input options

The input is made graphically and/or in tables. In graphical cross-section modeling, DXF files can be used as an auxiliary layer.

Sheet metal and standard cross-sections can be used to create cross-sections and composite cross-sections.

Design

The program determines the following values for any thin-walled steel structure section:

- Cross-sectional area
- Area moments of inertia
- Moments of resistance

The design and determination of the stresses of the respective cross-section can be carried out using the program Verification of Steel Cross-Sections SQN+.

Handover options

- Cross-sections that were created with the QS+ program can be called up and used via the cross-section dialogs in the Framework RSX and Lateral Torsional Buckling Analysis BTII+ programs.
- The SQN+ program for cross-sectional verification can be accessed via "Connected programs".

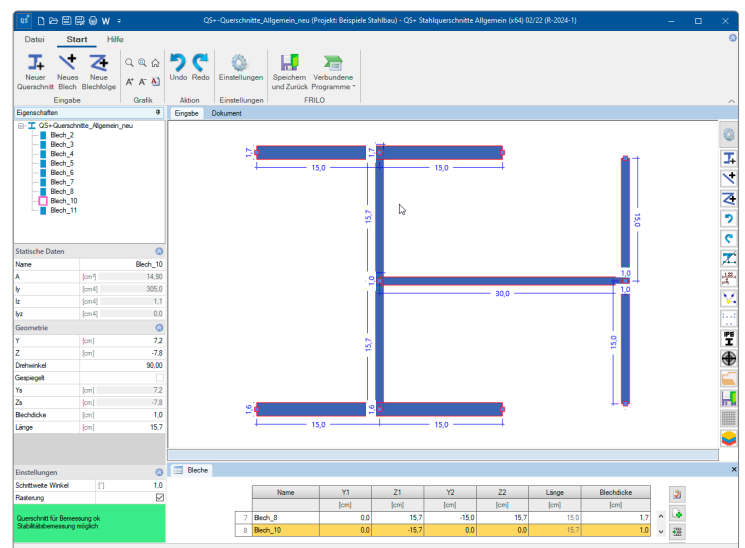
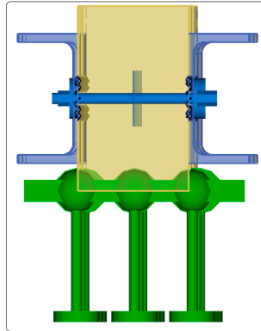


Fig.: The QS+ surface

Reinforced Timber Beam HTV+

Note: HTV+ will be available from mid-December.

The HTV+ program calculates single and multi-span timber beams with variably definable reinforcements (timber or steel reinforced). The reinforcements can be stored and loaded separately from the timber core. Bolts, pins, threaded rods and connector joints can be selected as connecting devices.



Furthermore, systems with cantilever arms can be defined.

Cross-sections can be different. Fields can be easily divided into sections, and joints are also possible. The superposition and dimensioning take place automatically. The program is designed to work in a graphically interactive manner. Three different views of the system are offered for optimal input.

coupled system is calculated using a truss analysis and the loads are distributed across the fasteners.

Loads

- Types of load:
- equal load
 - trapezoidal load
 - triangular load
 - concentrated load
 - concentrated moment

Free selection of the load approach on the timber core or any reinforcement.

Interfaces to advanced programs

- Direct transfer from the DLT+/HTM+ to the HTV+
- Spatial Framework RSX+ (alternative analysis)
- Multi-span beam BTM+ / STM+ / HTM+ (alternative analysis)
- Forwarding of the support loads to the column programs B5+, STS+ and HO1+ as well as the toolbox TB-HHS Timber Compression, Steel Plate.

Reinforcements/Connections

The lateral reinforcements can be connected to the timber core as a coupled system using a selection of fasteners. The timber core can be reinforced on one or both sides using a selection of steel sections or timber cross-sections. The supports of the different static systems can be freely selected and the loads can be set individually. The

The screenshot displays the HTV+ software interface. On the left, the 'Properties' panel shows design parameters for a 'Timber beam, DIN EN 1995:2013, Softwood C24, CS constant 12/20, with self-weight'. The main workspace shows a 3D perspective view of the beam with a uniform red load applied. Below it is a 2D cross-section diagram showing the timber core (12/20), reinforcement bars (Verb. 1 (FB ø 8.0) at 20.0 cm spacing), and UPE 140 reinforcement. A capacity utilization table is visible on the right side of the interface.

Capacity utilization	Value
Holz kern GZT	25%
Holz kern GZG	30%
Verstärkung GZT	18%
Verstärkung GZG	31%
Verbindungsmittel	10%
Support pressure	23%

Fig.: The HTV+ program interface

Additional option FD-BEW

In the programs Isolated Foundation FD+ and Strip Foundation FDS+, reinforcement graphics can be created using this additional option, which requires a license.

Toolbox Timber

For timber construction, the toolboxes TB-HKK, TB-HKN and TB-HKD were newly developed for analyzing collar beam connections with cleat, nails and connector joints. The analysis is carried out in accordance with EN 1995, taking into account the respective national annexes for Germany and Austria. The members can be made of different timber materials.

Collar Beam Connection with Cleat TB-HKK

This toolbox module can be used to provide proof of a one-part collar beam connection with a cleat. The force is transmitted via contact pressure in the pressure surfaces between the collar beam and rafter or collar beam and cleat. The resulting connecting force is broken down into both components orthogonally to the pressure surfaces. The pressure proofs of both contact members are carried out.

Collar Beam Connection Nailed in Two Parts TB-HKB

This module can be used to provide proof of a two-part nailed collar beam connection in accordance with EN 1995. The statically required number of nails for a given

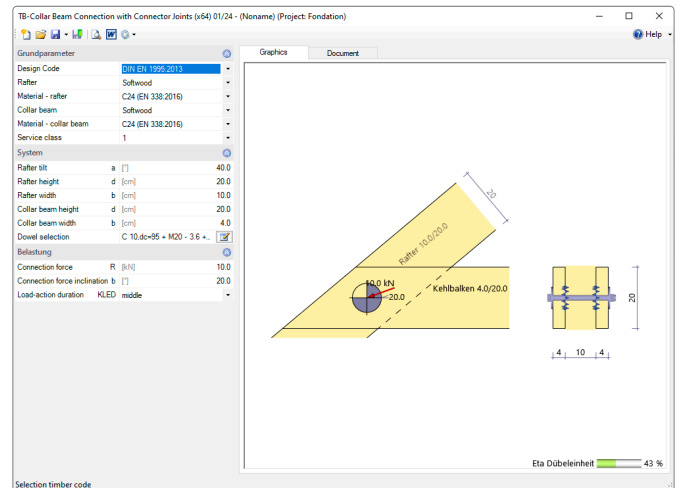


Fig.: Toolbox TB-HKD

nail diameter is calculated. The geometric arrangement and possible reductions are not taken into account!

Collar Beam Connection in Two Parts with Connector Joints TB-HKD

This program can be used to provide proof of a two-part collar beam connection with special design anchors in accordance with EN 1995. The statically required number of dowels for a given dowel type and diameter is calculated. The geometric arrangement and possible reductions are not taken into account!

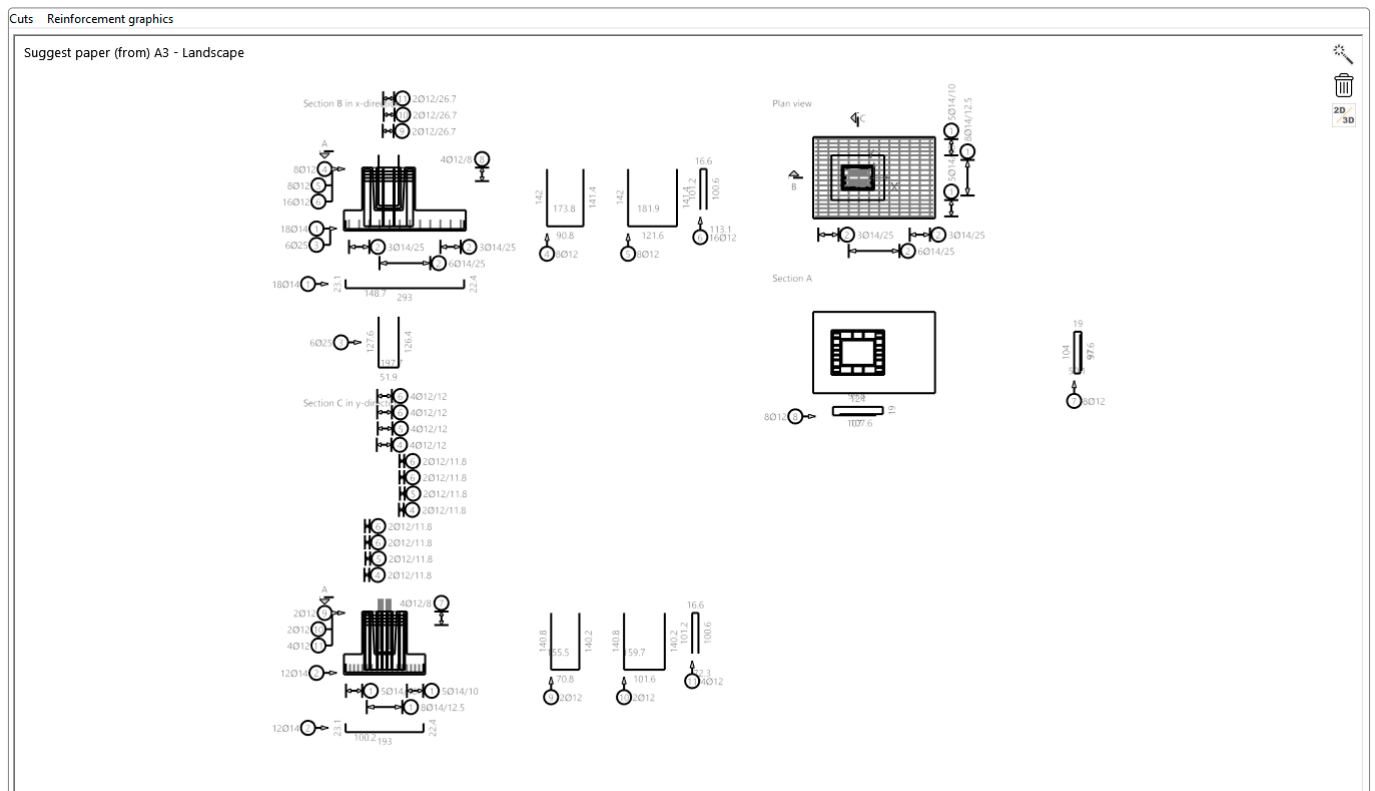


Fig.: Additional option FD-BEW – the drawing elements can be moved freely with the mouse

FRILO
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WE BUILD ON
STABILITY

FRILO Software GmbH
Stuttgarter Straße 40
70469 Stuttgart
Tel: +49 711 81002-0
Fax: +49 711 81002-30



www.friilo.eu
info@friilo.eu