



**UPDATE-NEWS**  
**RELEASE**  
**2022-1**

# UPDATE-NEWS 2022-1

This summary contains the most important new features in the 2022-1 Release.

You can find the update news for older releases under [www.frilo.eu](http://www.frilo.eu)

- ▶ Service
- ▶ Download + Demo
- ▶ Update-News

**Further notes and information**

- **Update information** (highlighted)
- Notes on the release (Overview: the most important update information)
- System requirements
- FRILO Software: installation and configuration
- License Manager – installing a new license
- Project administration in the network
- Basic operating instructions

## Update information on the individual programs

The detailed update information for each individual program can be found on our homepage

[www.frilo.eu](http://www.frilo.eu)

- ▶ Products

| GEO      | Building Model          | Info | Documents | - UpdateInfo      |
|----------|-------------------------|------|-----------|-------------------|
| ▶ GEO-EB | GEO Earthquake analysis |      |           | - Manual          |
| ▶ GEO-HL | GEO Horizontal Loads    |      |           | - Graphical input |
| ▶ GEO-ME | GEO Mass Calculation    |      |           |                   |

## Update info in the FRILO Control Center

If the release is already installed, you will find the update information in the FRILO Control Center under the tab „Programs“: simply right-click on the respective program and then click on „Info“.

| Program               | Shortn...                  | Version | Date  | License    |       |
|-----------------------|----------------------------|---------|-------|------------|-------|
| <b>Soil Mechanics</b> |                            |         |       |            |       |
| BBR                   | Slope Failure Analysis     | BBR     | 01/22 | 16.11.2021 | 99/22 |
| BEB                   | Elastic Bedded Beam        | BEB+    | 01/22 | 16.11.2021 | 99/22 |
| BWA                   | Basement Wall              | BWA+    | 01/22 | 16.11.2021 | 99/22 |
| EBB                   | Earth Pressure Calculation | EBB+    | 01/22 | 16.11.2021 | 99/22 |
| FDI                   | Isolated Foundation        |         |       | 16.11.2021 | 99/22 |
| FDB                   | Block Foundation           |         |       | 16.11.2021 | 99/22 |
| FDM                   | Mast Foundation            |         |       | 16.11.2021 | 99/22 |
| FDR                   | Reinforced Raft Foundation |         |       | 16.11.2021 | 99/22 |
| FDS                   | Strip Foundation           |         |       | 16.11.2021 | 99/22 |
| GBR                   | Bearing Resistance Failure |         |       | 16.11.2021 | 99/22 |
| PFL                   | Pile Foundation            |         |       | 16.11.2021 | 99/22 |

Context menu for EBK: Open, Favorites, **Info** (highlighted), Documentation, Properties

## Webinars / online event for the 2022-1 Release

The new release was also presented in an online event on the 18th of November 2021. We will provide a recording of the event at

- ▶ Service ▶ Video-Clips ▶ Webinars

Current dates: see [www.campus.frilo.eu](http://www.campus.frilo.eu)



# GENERAL UPDATE INFORMATION

This section shows the most important innovations and new functions of individual programs.

- **BIM-Connector® FBC**
- **Document Designer FDD**
- **Building Model GEO & FEM**
- **Framework RSX**
- **Eurocodes and other innovations**

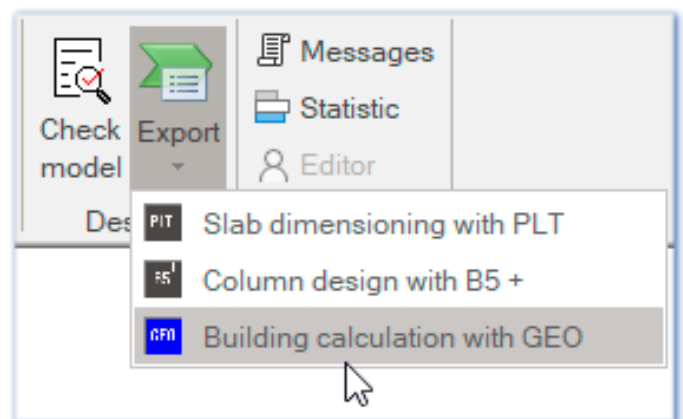
## FRILO BIM-Connector® FBC

### Export to the GEO Building Model

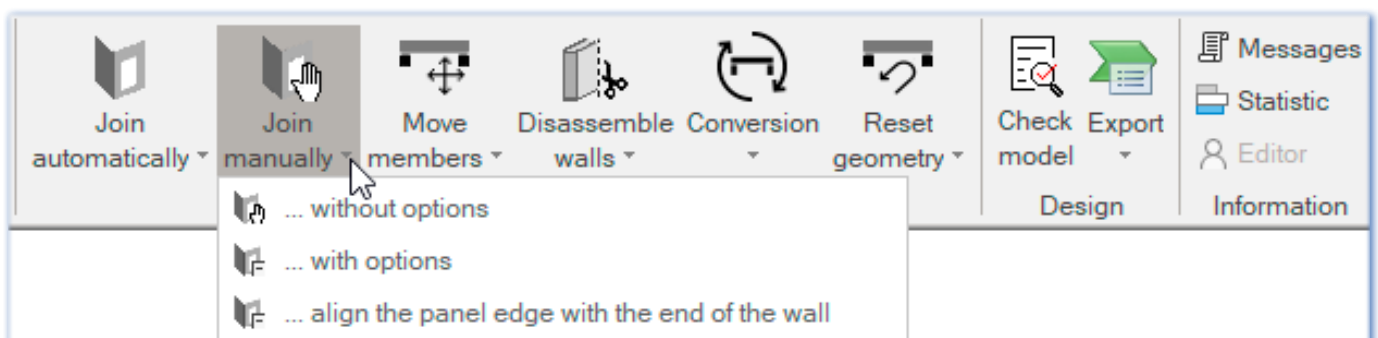
The time has come: with this release, data export from FBC is available directly to the GEO Building Model. This means that the entire structure can now be handed over. This means that all of the interfaces to the individual design programs available in GEO are available for a comprehensive BIM workflow:

- Slabs with PLT
- Columns with B5+, STS+, HO1+
- Punching Shear Analysis B6+
- Continuous Beam with DLT
- Foundations FD+, FDS+, FDR+ and BEB+
- Soil Settlement SBR+
- Walls with MWM+, MWX+ and SCN

The automation and optimization of the BIM workflow is also making progress. Various functions have been added to adjust the geometry, move components, convert walls into beam elements (lintels) and check models as well as existing functions have been optimized.



In addition to the correspondingly expanded manual, step-by-step guides for the workflow with Allplan, Vectorworks and Archicad are available on our [website](#) and on our [YouTube channel](#) you will find corresponding video clips with demonstrations of this integrated BIM process.



# Document Designer FDD

## Drag & drop and clickable PDF links

A new feature in the FDD is the ability to copy items within the program using the convenient Drag & drop function or to drag items with the mouse from the FRILO Control Center FCC directly into the FDD.

In addition, the table of contents has been given clickable jump labels so that a click in the table of contents of the PDF output takes you directly to the correct page. To do this, of course, you also have to be in the document view (Document tab). Of course, this also works in an exported PDF file (save PDF copy).

*Important: in the case of already existing documents, the FDD must first be refreshed so that the clickable links are created (Items tab - Refresh).*

For the comments that you can also create in the programs, you can now make your own default settings in the page layout for the fonts. In this way you can optically highlight the comment texts.

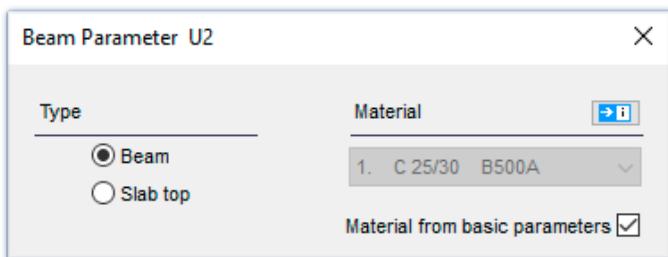
## Building Model GEO as well as Plate/Wall programs PLT and SCN

### GEO: results display in elevation

The view in X and Y direction as well as the load case-specific view of the moment curve across floors are now available as new display options for horizontal loads for the pillars or columns recognized as being on top of each other. Furthermore, the determined H-loads on the individual wall pillars and columns can be displayed in elevation. In addition, the stress curves of the pillars standing on top of each other can also be displayed.

### GEO / PLT

- Own material for downstand beam/upstand beam  
A downstand beam/upstand beam can now be assigned its own concrete quality (regardless of the material of the ceiling). To do this, remove the checkmark for material from basic parameters and select the material in the material list above.



- HALFEN HIT insulation elements for dimensioning balcony connections are now available.

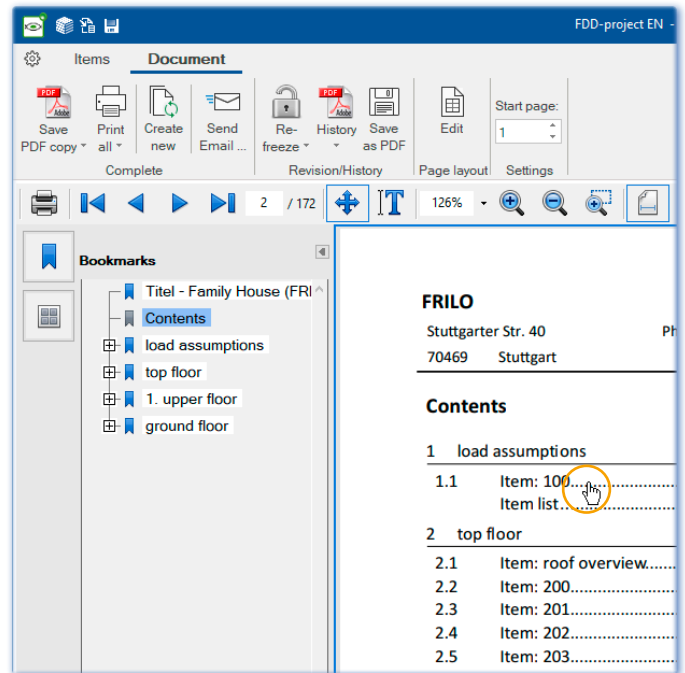


Fig.: the mouse pointer changes to the usual hand symbol for clickable links when you hover over an entry in the table of contents. The „Document“ tab is active.

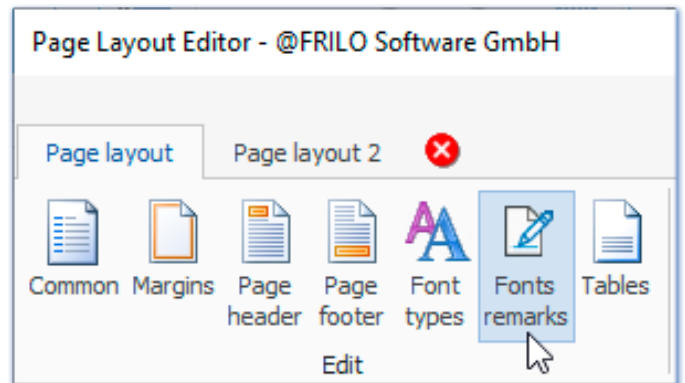
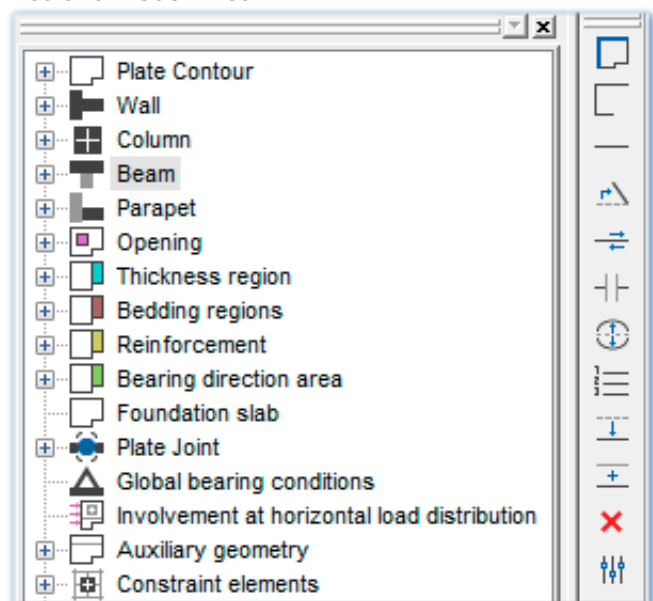


Fig.: comments can be set separately in the page layout editor.

### GEO / PLT / SCN

The toolbars in the user interface have been visually refreshed and modernized.



## Framework RSX - Option RSX-P

### Automatic generation of wind and snow loads

Automatic generation of wind and snow loads is possible for standard buildings that comply with the norm. The building contour is determined automatically. The associated panels (surfaces) are created automatically and labeled accordingly. The member loads are generated from the area loads using the finite element method.

This topic is explained in detail in a separate document RSX-Load Distribution.pdf (load generation for area loads).

For the reinforced concrete, the design for shear from shear force and torsion has been added.

## Cross Laminated Timber Beams HTB+

### Vibration verification

Vibration verification has been implemented in the HTB+ program for calculating cross laminated timber beams. The output has also been supplemented and improved.

## Reinforced Concrete Column B5+

### High strength steel, general method

The steel grade SAS 670 from Annahütte is available as an additional option for the non-linear calculation (general method).

## Continuous Beam Timber HTM+ and Continuous Beam Steel STM+

### Connection Toolbox

The TB-HHS Timber Pressure, Steel Plate Toolbox was linked to both programs so that the bearing pressure can be verified by directly transferring the bearing loads to this toolbox.

## Frame Corner Steel SRE+

### Proposal of suitable typed connections

The program has been expanded to include a suggestion function for the system of suitable typified versions of the assembly joint as part of the welded connection of the frame corner.

In addition, the design situations „exceptional“ and „earthquake“ can now be taken into account in the load case combinations.

## Portal Frame S7+ and Steel Frame STR+

### Interface to the detailed verification of the frame corner SRE+

For systems with girders running over the column, an interface for detailed verification of frame corner SRE+ was implemented in the solutions S7+ and STR+.

In addition, the design situations „exceptional“ and „earthquake“ can be taken into account by connecting the detailed programs SRE+ and SPS+.

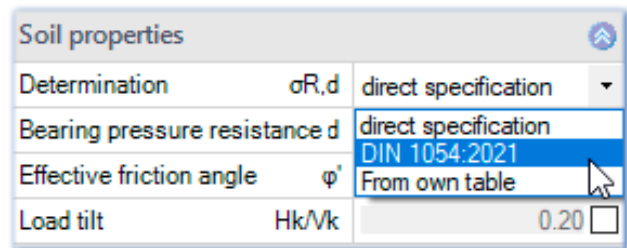
## Connection of the PLUS programs to SEMA

As of the upcoming SEMA release, the FRILO-PLUS programs for dimensioning the corresponding components can be called up from the SEMA program.



## New foundation standard

The new standard DIN 1054:2021 was implemented in the basic construction solutions (programs: BEB+, BWA+, FD+, FDM+, FDR+, FDS+, GBR+, SGW+, WSM+).



## Poland: Eurocode and localization

The Polish Eurocode is already implemented in many programs. New additions are the STS+ Single-span Steel Column and the STT+ Single-span Steel Beam. Programs in which the Polish language can already be selected:

- GEO/PLT/SCN
- BDU+/FD+/FDB+/FDS+/FDM+/FDR+/GBR+/SBR+/WSM+
- B5+/B6+/B7+/B8/B9+/B10+
- S9+/STM+/STS+
- Dach+/D7+/D10+
- all Masonry solutions
- HO1+/HO2+/HO3+/HO11+/HO13+/HO14+/HTM+/HTW+
- Document Designer FDD
- BIM-Connector FBC

At this point we give an overview of the new program

- **Pile Foundation Pfahl+**, which was included in the FRILO portfolio from this release.

## Pile Foundation Pfahl+

With the new FRILO Pfahl+ program, the internal and external load-bearing capacity can be verified for bored piles with rectangular and circular cross-sections.

By connecting the tried and tested FRILO programs SBR+ Soil Settlement and EDB+ Earth Pressure Calculation, both the soil settlements in the pile environment and the side pressure acting on the piles can be taken into account. By comparing the pile settlements and the soil settlements along the pile envelope surface, an effect from negative skin friction up to the neutral point can optionally be applied.

The axial pile resistances due to skin friction and peak pressure can be derived either by evaluating static pile test loads or on the basis of empirical values according to EA piles, separated according to the two limit states SLS and ULS. In the case of a resulting tensile load in the pile, the axial pile resistance from skin friction is verified accordingly. In the case of tension piles, the proof of security against lifting (UPL) is optionally provided with an attached floor prism.

When verifying the external pile load-bearing capacity in the horizontal direction, the user-defined pile foundation is redistributed in deeper soil layers until the resulting foundation stresses no longer exceed the maximum possible earth resistance stresses.

The dimensioning of the reinforced concrete cross-sections is based on a non-linear calculation, taking into account the additional loads according to the second-

order theory and the actual pile stiffness as a result of freely selectable reinforcement.

### Standards

- DIN EN 1997 / DIN EN 1992
- ÖNORM EN 1997 / ÖNORM EN 1992

### Model

Any number of horizontal soil layers and a groundwater horizon can be defined.

A single pile or an entire pile group with a circular or rectangular cross-section can be considered as a pile system. The design is always carried out on the individual pile without considering a pile group effect. By defining a pile group, the decisive side pressure on the individual pile can be derived from EA piles.

Optionally, a foot widening for circular piles is possible.

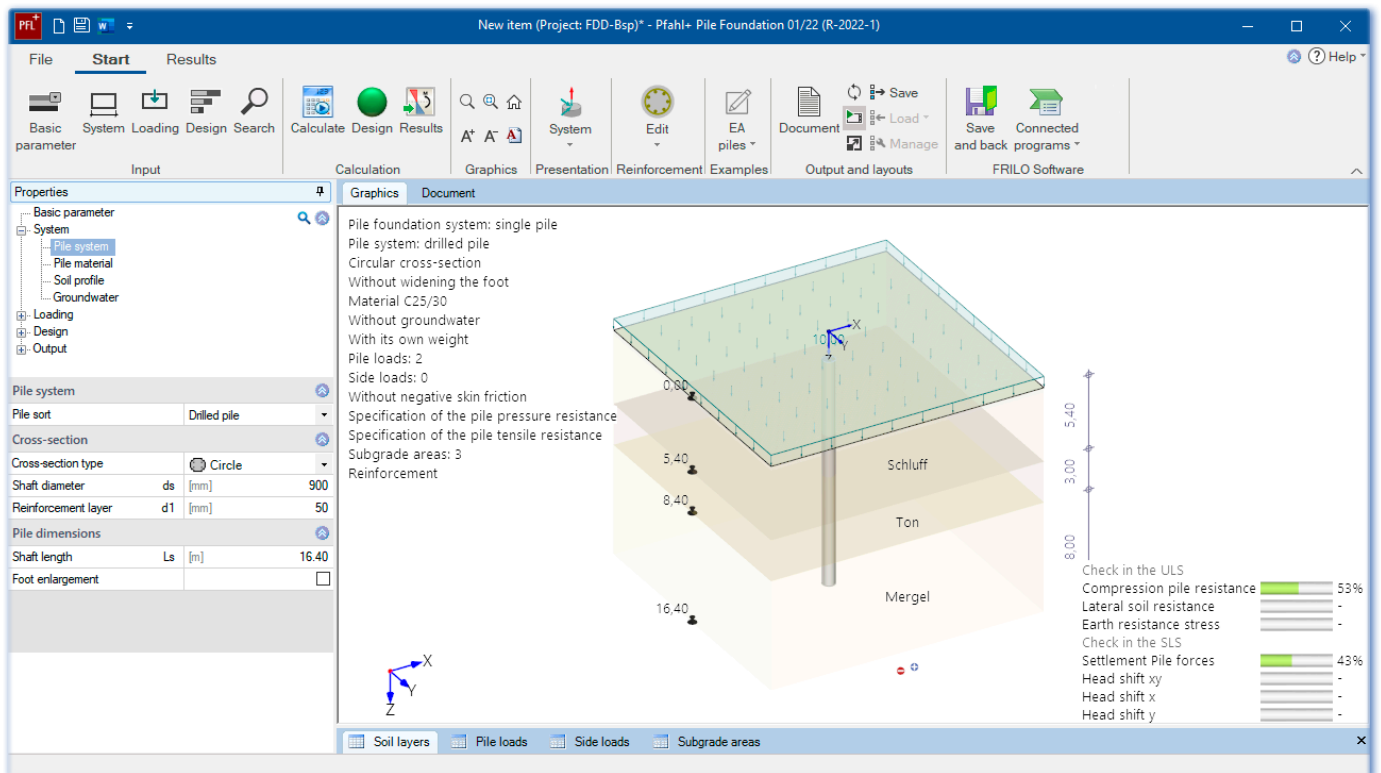
### Loading and superposition

A large surface load can be defined for the calculation of the soil settlement in the vicinity of the pile shaft.

The dead load of the piles can optionally be applied automatically.

The external loads on the piles can be defined in the form of vertical top loads, optionally also in connection with an eccentricity, in the form of horizontal top loads or also in the form of head moments in relation to the main axes in the x or y direction.

The number of load cases and their type of action can be freely selected.



An automatic superposition of the load cases according to the applicable superposition rules is also integrated. The approach of the variable loads and the number of decisive design combinations is controlled by the assignment of the variable loads to alternative and related groups.

Optionally, an additional load as a result of negative skin friction up to the neutral point can be taken into account if the soil settlement in the area of the pile envelope surface is greater than the pile settlement. As a calculation approach, both a direct specification of the negative skin friction force and an automatic calculation (by connecting the settlement program SBR+) via pile and soil settlements are available. A basic distinction is made here between the two limit states ULS (= Ultimate Limit State) and SLS (= Serviceability Limit State).

Optionally, it is also possible to apply side pressure to the piles in the x and/or y direction. Either any user-defined load polygons or an automatic calculation of the decisive side pressure from flow pressure or earth pressure by connecting the earth pressure program EDB+ can be considered.

## Results

All results can be output in graphical and tabular form in a clear result list with a level of detail that can be freely selected by the user. In particular, these are:

- Comparison of pile and soil settlements with representations of the neutral points in the limit states SLS and ULS to derive the negative skin friction.

- Illustration of the resistance-settlement curve for peak pressure, skin friction and pile load-bearing capacity, derived from empirical values or test loads.
- Design internal forces for compression and tension piles in the ultimate limit state (ULS) and serviceability limit state (SLS).
- Mobilized bedding stresses both in the direction of the main axes and as resultants.
- Superposition of the bedding stresses with the earth resistance to show the necessary stress limitation and, if necessary, redistribution of bedding stresses to greater depths.
- Deformations of the pile along the main axes in the Serviceability Limit State (SLS).
- Representation of the selected or required reinforcement.

## Interfaces to further programs

- Soil Settlement SBR+
- Earth Pressure Calculation EDB+ (Side Pressure Calculation)
- Reinforced Concrete Column B5+



Credits: Monkey Business Images, Adobe Stock, KoK-Liang (Titel)

You can find dates, webinars and online training courses on our FRILO campus  
[www.campus.frilo.eu](http://www.campus.frilo.eu)

**FRILO**   
A NEMETSCHEK COMPANY

FRILO Software GmbH  
Stuttgarter Straße 40  
70469 Stuttgart  
Tel: +49 711 81 00 20  
Fax: +49 711 81 00 230  
[www.frilo.eu](http://www.frilo.eu)  
[info@frilo.eu](mailto:info@frilo.eu)

