



**InfoCAD 23**  
**Update Information**

**Finite Elemente**  
**Prestressing**  
**Frameworks**  
**Dynamics**  
**BIM**

## InfoCAD Update March 2023 - Version 23

Dear customers,

the annual update for version 23 is completed and is available to all maintenance customers for download on our website.

For this purpose, please log in under your license number on the service page

[www.infograph.eu/en/service](http://www.infograph.eu/en/service).

Please download the file 'InfoCAD\_Setup\_23.exe' and start the installation.

Customers with a network license have to update their installation of the license manager 'InfoNetKey\_Setup\_23.exe' first.

All updates are briefly outlined in the attachment. More detailed explanations can be found in the help system and on the download page

[www.infograph.eu/en/downloads](http://www.infograph.eu/en/downloads).

We wish you the best of success with the new program functionalities.

Sincerely yours,

**InfoGraph**

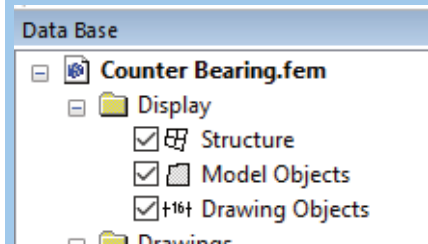
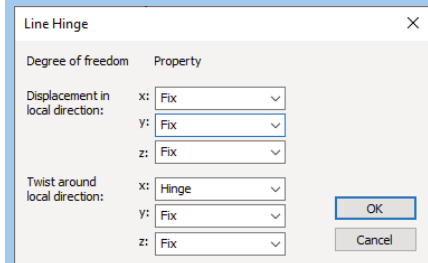
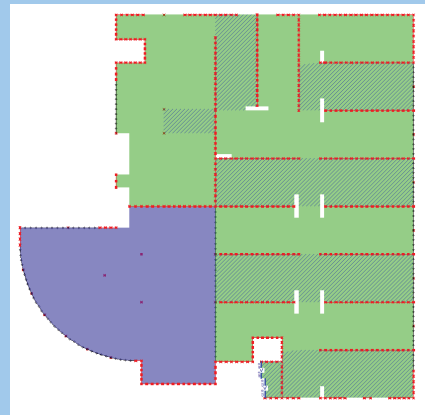
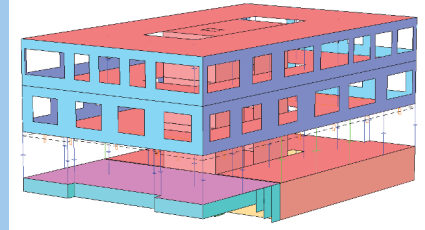
Ingenieurgesellschaft für graphisch  
unterstützte Datenverarbeitung mbH

## News in InfoCAD 23

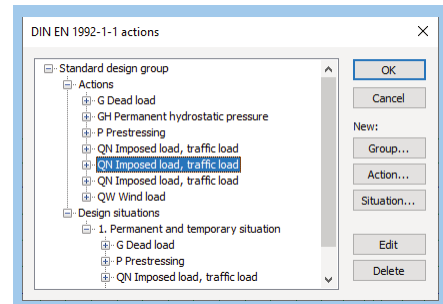
The following chapters provide you with the latest information on the InfoCAD program system and the most important changes with respect to the previous version 21.

### General Information

- FEM structures can now be colored according to the following properties:
  - Material
  - Element thickness
  - Bedding
  - Base reinforcement  $a_{sx} / a_{sy}$
  - Creep factor, shrinkage factor
 The corresponding quantities are documented in a legend.
- Selected model surfaces are now displayed transparently.
- The hidden mode is now taken into account for model surfaces.
- In the data tree, the display of structural, model drawing and IFC objects can be controlled.
- All numerical output is now done with a True-Type Font.
- To improve visibility, the line widths on the screen are enlarged from 4K resolution.
- The size of the toolbars is now scalable.
- Line hinges have been extended by 3 degrees of freedom. Thus, hinge definitions can now be made for all 6 local directions.
- In the polygon dialog, reinforcing steel can now be placed automatically when entering circular ring cross-sections.
- In the 'select group' dialog, it is now also possible to filter between single, line and area loads.
- Geometric single and line loads on beam elements can be converted into beam loads. This can be useful, for example, in connection with pre-deformation. The corresponding beam loads can also be converted back into geometric loads.
- Load case combinations can now be copied with the clipboard.
- In the display options, the element edges can now be hidden for filled area elements.
- Area element deformations can now be displayed in the local z-direction of the elements. This makes it easier to assess the radial deformations of cylindrical shells, for example.

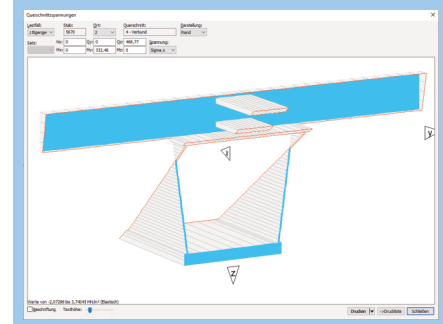


- In the action dialog, the actions can now be re-sorted using by 'drag and drop'. This creates a better overview for many actions.
- When exporting tables to the clipboard (e.g. for further processing with Excel), all decimal places are now transferred as well.



## Composite Section

- Composite cross sections are now available for linear and nonlinear calculations of beam elements. This enables the calculation of general composite structures with spatial loading. The internal constraints due to temperature loads as well as creep and shrinkage are also correctly captured. The internal forces and the cross-section stresses are available.

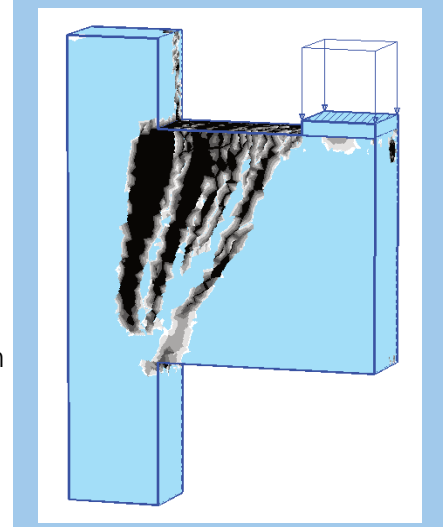


## FEM Analysis

- New development of extensive program libraries has accelerated the calculation speed significantly.

## Nonlinear Analysis

- The 'Nonlinear Analysis' can now be started explicitly in the calculation menu and in the batch processing.
- Additional material laws were implemented for the nonlinear calculation of solid structures:
  - Damage model (De Vree and Mazars)
  - Elasto-plastic damage model (Lubliner, Lee & Fenves)
  - Plasticity model (Drucker-Prager and Lubliner)
- For the plasticity models Rankine, Raghava, Huber - von Mises, Drucker-Prager and Lubliner, linear hardening can now be considered for solid models.



## Dynamics

- The 'dynamic train crossing' load was adapted to RIL 804, 1.3.2023. The load patterns of the existing trains were changed and new train types were included.

### Design according to EN 1992-1-1 and SIA 262

- Within the serviceability checks of prestressed structures, two sets of internal forces with the variation factors  $r_{sup}$  and  $r_{inf}$  are now also analyzed for the min/max combination.
- The cross-section dialog now indicates when the check selection is overridden by the specifications in the calculation settings.
- Within the punching shear check according to DIN EN 1992-1-1, the option "Wall corner Figure NA.6.12.1 (bottom)" with the wall sections  $b_x = b_y = 1.5d$  has been added.
- The shear joint check has been revised and is now also controlled by the "Reinforcement" calculation settings.
- The automatic determination of the shear joint position has been optimized for special cross-section shapes.
- For stirrup- and helix-reinforced circular and annular cross-sections, the shear design according to Bender/Mark/Stangenberg, (Beton- & Stahlbetonbau 2010) has been added. Activation takes place on the 'Base values' tab in the cross-section dialog.



### Bridge Checks according to EN 1992-2 and Recalculation Guideline

- In the calculation settings, you can now select the complete combination as an alternative to the min/max combination. In this case, all possibilities of the interaction of actions resulting from the combination rule are taken into account for the determination of the verification internal forces. However, the number of internal forces increases exponentially with the number of inclusive load cases and can therefore require a lot of time for the checks.
- Within the serviceability checks of prestressed structures, two sets of internal forces with the variation factors  $r_{sup}$  and  $r_{inf}$  are now also examined for the min/max combination.
- The cross-section dialog now indicates when the check selection is overridden by the specifications in the calculation settings.
- For concrete classes  $f_{ck} > 50$ , the strength of the concrete compression struts is now reduced in the shear and fatigue check according to DIN EN 1992-1-1, NDP to 6.2.3 (3).
- The table 'List of all steel layers' for beam and area reinforcement can now be edited (column  $A_s$ ).
- The stirrup reinforcement and the fatigue parameters can now also be specified in tabular form.





### Steel Checks

- The checks were aligned with the October 2022 revision of the National Annex Germany.



### Timber Checks

- A new material 'GL75', glulam 'BauBuche' according to ETA-14/0354 is available for DIN 1052 and EN 1995.



### Separate crack width checks

- In the checks according to DIN EN 1992-1-1, the crack width  $w_k = 0.25$  was added according to DIN 19702:2013-02, chapter 6.2.

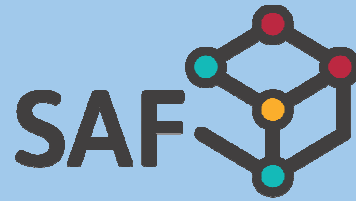
### InfoCAD BIM RV Add-In for Autodesk® Revit® 23

- The InfoCAD BIM Add-In for the current Autodesk Revit® 2023 version is available.

### BIM - SAF (Structural Analysis Format)

The new implemented SAF (Structural Analysis Format) is a file format based on MS Excel® for the exchange of analysis models.

- Import and export of the analytical building model.



### BIM - IFC

- Selected IFC objects are now displayed transparently.
- Column-like IFC objects with BREP geometry can now also be converted into model objects.
- When converting IFC objects to model objects, these will no longer be deleted.



### InfoCopy Utility

- The new switch "/pack" allows to delete all calculation results for a selection of project files to reduce the required memory space.

### Licensing and Virtualization

- CPU licenses can now also be used on virtual machines and cloud servers.
- Single-user licenses can now be updated directly from the license information dialog. For network licenses, a corresponding update function has been added to InfoMonitor.

**InfoGraph GmbH**

Kackertstraße 10  
D-52072 Aachen

Tel.: +49 241 88 99 80  
Fax: +49 241 88 99 88 8

[info@info-graph.de](mailto:info@info-graph.de)  
[www.info-graph.de](http://www.info-graph.de)



**InfoGraph**



*Software für die Tragwerksplanung*