What's New

ADVANCE DESIGN 2021.0.1

GRAITEC

Improvements and corrections

Advance Design 2021.0.1 includes the following corrections:

Modeling/Calculations

- **Fix**: Correction of the problem that causes the program to hang instead of showing an error during calculations of models where structural instability has occurred due to, for example, incorrect definition of releases. [20466 (Support 18099)]
- **Fix**: Improvement of the problem of longer seismic calculation time compared to the previous version. [20332 (Support 17957)]
- **Fix**: Correction of the problem of defining releases to adjacent elements when changing the type of a linear element to a bar. [20469, 20462 (Support 18087)]
- **Fix**: Correction of the problem of saving nodal acceleration results. [20494]

Loads

- **Fix**: The problem with displaying 'Intensity (resultant)' annotations only in the global system has been improved. Now the result can also be presented in a projected system, which is important for snow loads. [20401, 20398]
- **Fix**: Correction of a problem that may in some cases cause the program to shut down for models with imported load from the library. [20508 (Support 18135)]
- **Fix**: Correction of the problem with opening a window to generate load combinations from the context menu. [20457]
- **Improvement**: Improvement in determining the load from snow accumulation (according to EN 1991) in the case of a chain of load areas enclosed by parapets. [19538 (Support 17368)]

Timber Design

- **Fix**: Correction of the problem with displaying incorrect deflection verification results for timber elements in case their verification was performed individually. [20465 (Support 18096)]
- **Fix**: Correction of the problem with displaying different working ratios for stability verifications of timber elements in various ways of presenting results (graphically, on the shape sheet and reports). [20533 (Support 18168)]

Steel Design

- **Fix**: Correction of the problem that occurred during the calculation with the deflection verification excluded, which implied displaying a warning for each load combination separately, that it is not included in the calculation. Now one warning is shown with a list of omitted combinations. [20139]
- **Fix**: For calculations according to the Polish National Annex to EN 1993-1-1, the method of determining interaction factors for round hollow sections has been restored - they are calculated as for rectangular hollow sections, according to Annex 2 to EN 1993-1-1. [20498]
- **Fix**: Fixed the problem of the inability to define restraints for lateral buckling on a multi-selection of elements. [20512 (Support 18156)]
- **Fix**: Fixed an issue where the content of the optimization table was not displayed for specific models. [20324]

- **Fix**: Fixed the problem of not taking into considerations for EC3 stability calculations settings for buckling lengths defined in the calculation settings dialog in the imperfections section. [20435]

Import/Export

- **Fix**: Correction of a problem that may in some cases cause the program to shut down when synchronize the model using GRAITEC BIM. [20483 (Support 18117)]
- **Fix**: Improved a number of problems related to the exchange of data between Advance Design and CS Statik:
  - problem with the import of non-permanent load cases [20513 (Support 18161)]
  - problem with the import of load values for connections [20509, 20504 (Support 18153, 18151)]
  - problem with the lack of import of load values in specific cases [20500, 20501 (Support 18146, 18147)]
  - problem with import of column support data in specific cases [20497 (Support 18139)]
  - problem with the import of cross sections for steel elements in specific cases [20502 (Support 18149)]
- **Fix**: Correction of a problem of changing the status of the 'SLS types for stress limitation' option from the list of parameters of linear elements during import by using the .gtc or .gtcx file format. [20493]

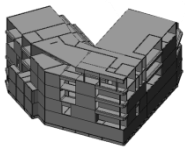
Other

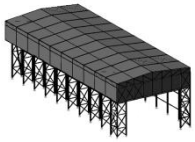
- **Fix**: Correction of the problem resulting in system crashes during installation of the program on some Windows 10 computers (HASP driver problem). [20488 (Support 18102)]
- **Fix**: Correction of the problem with incorrect setting of the location (national annexes to standards) when exporting data to RC Column module (BIM Designers), in case of a location set for Italy. [20475 (Support 18984)]
- **Fix**: Correction the problem of not being able to display a color scale window for the design results of linear elements. [20532 (Support 18179)]
- **Fix**: Correction of the problem of using the flexural tensile strength (fctm,fl) instead of the tensile strength (fctm) when calculating the deflection for concrete slabs in simple bending (acc. EC2), for the case when the shrinkage is enabled. [20557 (Support 18208)]
- **Improvement**: The setup for Advance Design is now also available in Slovak language. [20484]
- **Improvement**: It is now possible to create design groups for point elastic supports. [20490 (Support 18121)]

Tables with comparison of calculation speed

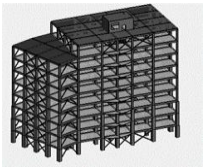
As in Advance Design 2021 version, the FEM calculation time for selected models was sometimes higher than in previous versions of the program; improvements were made in this regard.

The following tables show a comparison of the FEM calculation times for several selected models between Advance Design 2021.0.1, Advance Design 2020.2 and Advance Design 2019 Sp1.

Model	Geometry	Loads	Version	Calculation time
1. Concrete structure 	358 linear elements 439 planar elements 27328 FE nodes 165144 free DOFs	2 static load cases 35 modal modes 3 seismic load cases 130 combinations	**AD 2019 Sp1**	**12m 41s**
			AD 2020.2.1	**13m 15s**
			AD 2021.0.1	**11m 52s**

Model	Geometry	Loads	Version	Calculation time
2. Steel structure 	1096 linear elements 22 planar elements 224 load areas 11672 FE nodes 72330 free DOFs	3 static load cases 30 modal modes 3 seismic load cases 32 combinations	**AD 2019 Sp1**	**3m 44s**
			AD 2020.2.1	**5m 18s**
			AD 2021.0.1	**5m 03s**

Model	Geometry	Loads	Version	Calculation time
3. Concrete structure 	617 linear elements 1192 planar elements 66418 FE nodes 398421 free DOFs	3 static load cases 1 buckling case 13 combinations	**AD 2019 Sp1**	**4m 17s**
			AD 2020.2.1	**4m 12s**
			AD 2021.0.1	**5m 02s**

Model	Geometry	Loads	Version	Calculation time
4. Concrete structure 	800 linear elements 66 planar elements 17435 FE nodes 104286 free DOFs	7 static load cases 3 seismic cases 24 combinations	**AD 2019 Sp1**	**5m 06s**
			AD 2020.2.1	**5m 58s**
			AD 2021.0.1	**5m 20s**

Hardware reference:

- Processor: I7-9850H (2.6Ghz, 6 cores, 12 logical cores), 32MB RAM, SSD