

Useful tool: [3D-Standalone-Viewer](#)
 (OpenGL) for free download.

GEO 2D-Building Model

The **GEO** application with its close to practice concept offers a simple and comprehensible approach. Therefore, GEO enjoys a high acceptance on the market and a wide distribution.

Not the building model with all its details is in the focus of the approach but the simple and quick load determination and the preliminary design. The final design is performed in the individual Frilo design applications.

While the GEO basic module provides for the calculation of the vertical load transfer, the supplementary GEO-HL module allows the assessment of the vertical load distribution.

The add-on module GEO-EB is suitable for the determination of earthquake loads in accordance with the simplified response spectrum method.

The Frilo building model is based on components, which all have individually selectable properties. Therefore, you can easily define mixed structures of reinforced concrete, masonry, steel and timber.

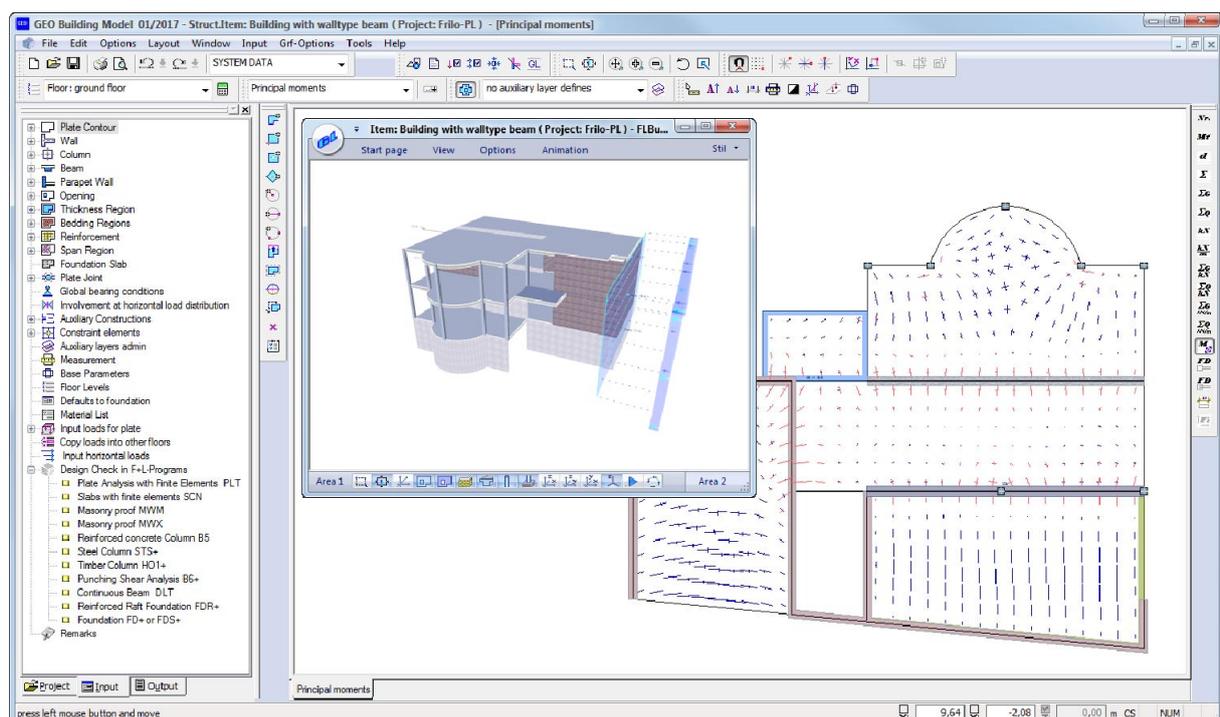
The total package is rounded off by a pragmatic and comprehensible approach to the distribution of the horizontal loads on the stiffening components. Working with GEO spares a lot of calculation work and allows the engineer to invest more time in constructive tasks.

Definition procedure

- Typical buildings in solid construction are considered as complete load-bearing structures.
- All supporting components are defined separately for each storey.
- You can copy a defined storey.
- You can edit each storey independently.
- You can enter all components and their properties, such as a ceiling with different regions (bearing direction, thickness, foundation, reinforcement), in graphic mode. Other definable components are walls, columns, beams and parapets.

Benefits

- Quick load determination for the foundations
- Dimensioning of foundations by specifying permissible soil pressures as well as minimum dimensions and minimum projections.
- Well structured representation of the load transfer, also in complex buildings
- Load transfer output suitable for review, loads are put out separately for each storey and component as G, P and full loads
Interactive control of the vertical load transfer
- Definition of the actions as per DIN 1055 and EN 1991
- Consideration of horizontal loads due to wind, inclination and earthquake
- Direct transfer of the geometry and the loading to the Frilo design applications



Standards

Selectable standards for reinforced concrete:

- DIN EN 1992
- ÖNORM EN 1992
- BS EN 1992
- UNI EN 1992
- DIN 1045 / DIN1045-1
- ÖNORM B 4700

Selectable standards for wind loads:

- New wind load standards
DIN 1055-4 and EN 1991 1-4

Material for steel columns:

- DIN EN 1993
- ÖNORM EN 1993
- BS EN 1993
- DIN 18800

Frilo design applications

- Ceiling calculation with PLT
- Floor slabs with PLT
- Columns with B5, STS+, HO1+
- Punching shear analysis with B6+
- Beams with DLT
- Foundations FD+, FDS+ and FDR+
- Walls with MW, MWX and SCN

Interworking with CAD

- Direct transfer of individual storeys as component models from ALLPLAN
- Import of floor plans storey by storey from CAD applications via the DFX interface
- As values from the PLT design application and reinforcement layouts from DLT10 and B5 can be directly transferred to the CAD applications ALLPLAN and Glaser -isb cad-

Earthquake

Optional add-on GEO-EB (Germany)

The FRILo Building Model calculates earthquake loads in accordance with the simplified response spectrum method as per DIN 4149, 6.2.2. or DIN EN 1998, NA 4.3.3.2 for Germany.

This method is permitted for structures with a regular layout that comply with particular requirements concerning the regularity of their floor plan and elevation and the basic vibration period.

For this calculation method, the earthquake zone, the basic values of ground acceleration and the soil conditions must be specified depending on the location of the building. You can enter the earthquake zone and the geological subsoil class either via a map, or by selecting a community from a list, if available, or by entering the values manually. In addition to this, you must assign an importance category to the building. On the basis of these specifications, the spectral values are assessed from the elastic response spectra, which depend on the subsoil.

In order to determine the acceleration design values, the calculated elastic spectral values are divided by the behaviour coefficients, which depend on the ductility class.

The equivalent horizontal earthquake forces are assessed in accordance with the simplified response spectrum method from the

Modules

GEO:

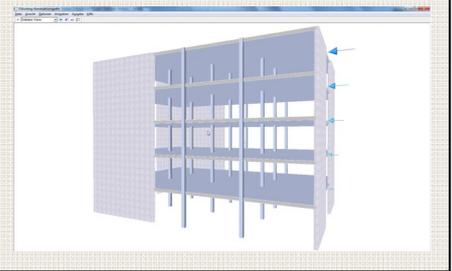
vertical load transfer

GEO-HL (add on):

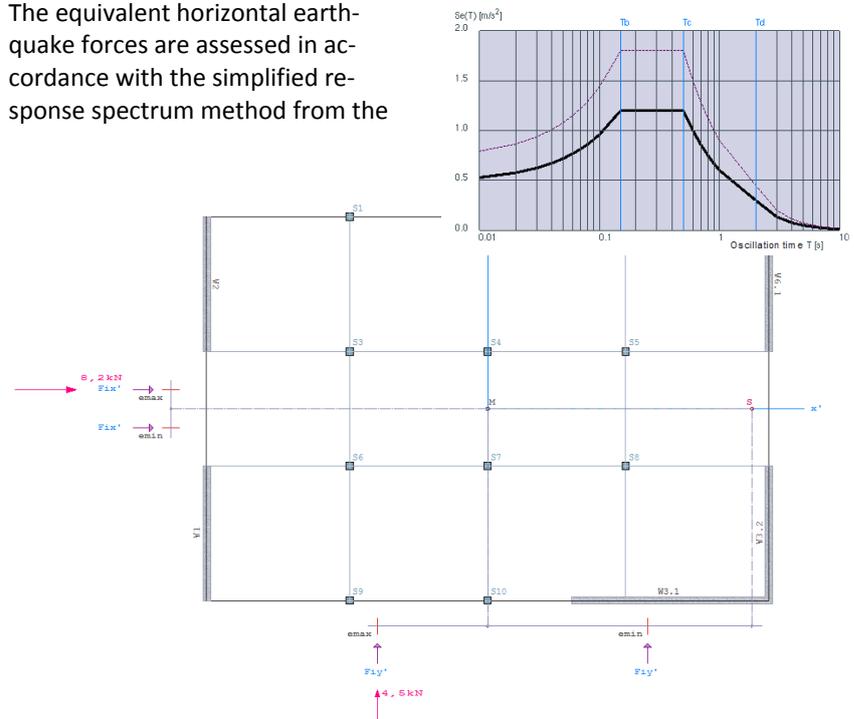
horizontal load transfer

GEO-EB (add on):

determination of earthquake loads as per DIN 4149, 6.2.2 and DIN EN 1998-1 for Germany and ÖNORM B 1998-1:2006-07, 4.3.3.2 for [Austria](#) (requires GEO + GEO-HL)r



total mass of the building. In contrast to the general response spectrum method, the simplified method only considers the first mode shape. When applying the earthquake forces to the building, the torsional effect of the earthquake load can be taken into consideration via the simplified approach specified by the standard.



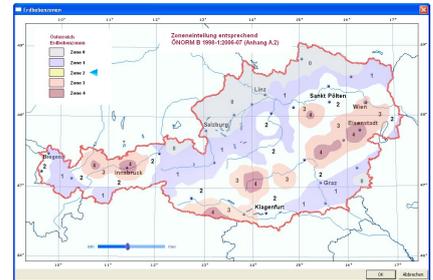
Earthquake

Optional add-on (Austria)

The earthquake add-on for Austria provides for the calculation of the earthquake loads in accordance with the simplified response spectrum method as per ÖNORM B 1998-1:2006-07, 4.3.3.2.

The general functions of the additional earthquake module for Austria are described on the previous pages of these product details.

The user can select the earthquake zone and the geological subsoil class either via an interactive map of Austria as per ÖNORM B 1998-1:2006-07, Appendix A.2 or a community list as per ÖNORM B 1998-1:2006-07, Appendix A.3 or the geophysical data of the Central Office for Meteorology and Geodynamics ZAMG.



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