# FIDES-CantileverWall

Cantilever Retainment Walls due to the Kinematic Element Analysis (KEA)

FIDES-CantileverWall serves the clear calculation of angular cantilever walls with spurs in both sides and any number of consoles. Kinematic Element Mechanisms will be generated automatically in order to calculate the static parameters. In this way the program can take into account correctly concentrated loads, line loads and area loads as well as any number of slopes for example for the determination of the Earth Pressure. The results are displayed in a compact form directly within the side view of the wall in order to assure a maximum degree of transparency.

All necessary calculations and verifications will be performed like: earth pressure, ground bearing capacity, tilting, sole pressure, sliding, settlement, ground failure, and sole canting. All geotechnical verifications can be performed according to a global or a partial safety concept (DIN 1054 (2003), SIA or with freely definable coefficients). The dimensioning can be carried out selectively according to the design codes EC2, DIN 1045, DIN1045-1, SIA-262 or ÖNORM B4700.
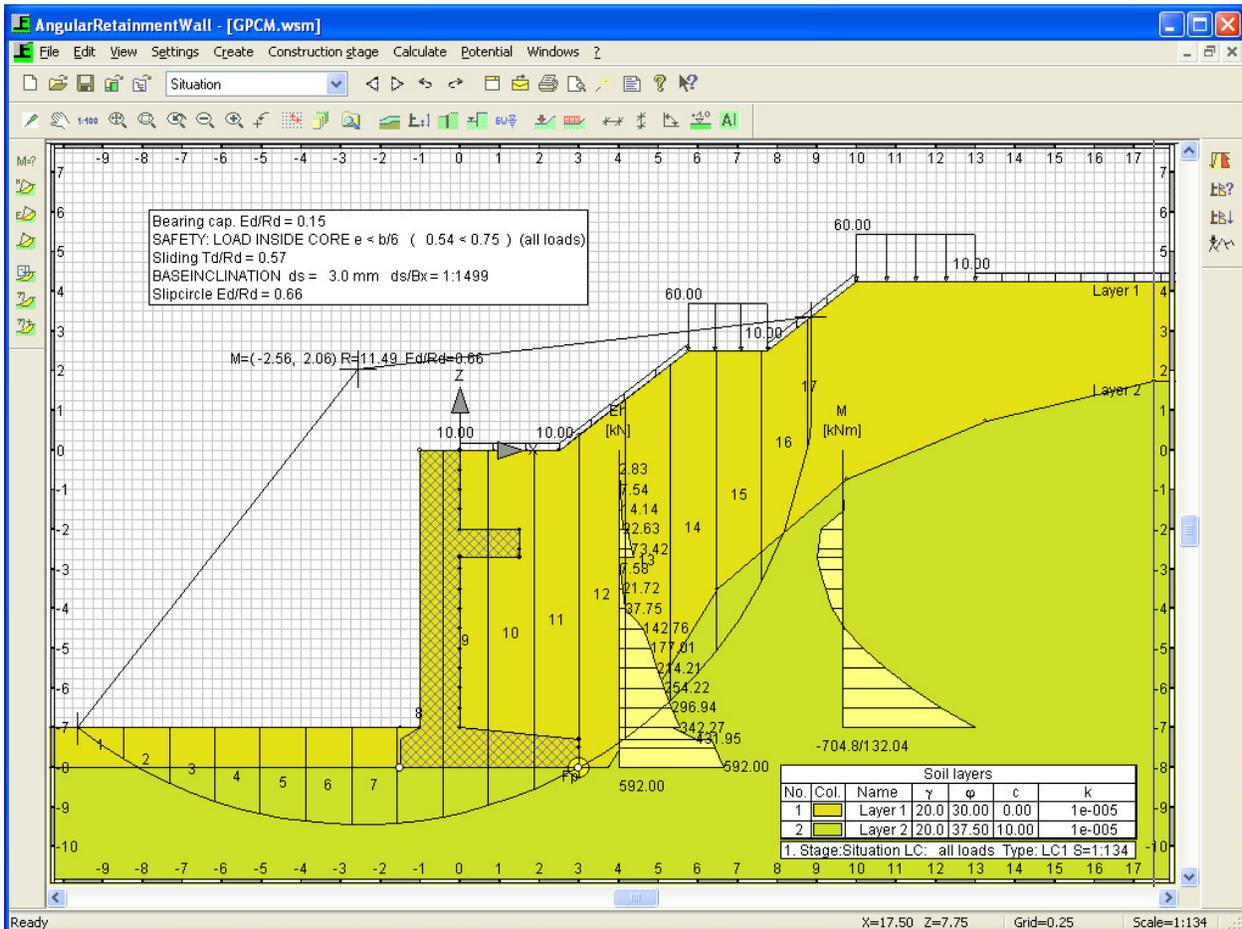
Performance characteristics

Graphical User Interface
- Object oriented graphical user interface
- CAD Input functionality
- Any number of polygonal bordered soil layers. A data base with material characteristics for a large number of soil types is included. This data base is common for all FIDES geotechnics modules and can be extended by the user.
- Import and Export functions for the data exchange with other FIDES geotechnical programs
- Detailed online help with thorough explanation of the computation method
- Windows Standard like for example Undo und Redo for all actions, Copy & Paste, Context menu, system explorer, ...

Computation
- Any type of geometry of the angular retaining wall
- Any number of consoles
- Any number of polygonal soil layers with any cliffy or vertically inclined embankments
- Takes into account a polygonal water free surface which can be imported from the program FIDES-Flow
- Seepage pressure sept-through soil layers
- Vertical and horizontal permanent loads. Line and area live loads. Any number of load cases and construction stages
- Earth pressure calculation according to Culmann
- Automatic calculation of the slip circle (can also be manually controlled)
- Segment (Lamellae) method according to Krey / Bishop
- Earth pressure calculation and determination of loads for Tilting, Slipping, Ground Failure and Settlement based on automatically generated kinematic mechanisms.

Complete DIN proof
- Various design codes may be selected for the dimensioning of the concrete wall like: EC2, DIN 1045, DIN1045-1, SIA-262, ÖNORM B4700

- Various codes may be selected for the earth static safety verification of the construction supervision like: DIN 1054 (1976), DIN 1054 (2003), SIA 267
- Free selection of the safety coefficients
- Ground failure, sole pressure (gaping joint, tilting), slipping, settlement, stability safety with slip circle
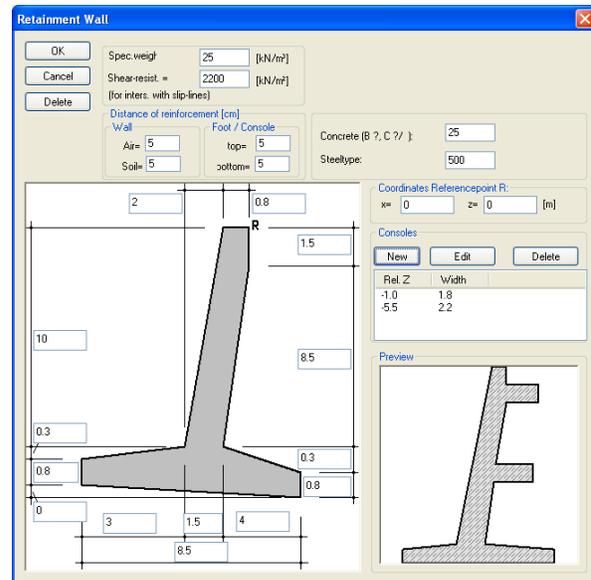
Results
- All required verifications and proofs
- Graphical output of: earth pressure distribution, forces M,N,Q, reinforcement placement in both sides of the wall, the free air side and the soil side
- Results mixed with Text and Graphics in MS-Word or RTF-Format

Application areas
- Analysis of embankments that are supported by angular retaining walls
- Gravity walls

Program extensions

FIDES-Flow
- Calculation of ground water flow
- Determination of the free water surface and the flow pressure from the potential theory