

WALLS

Analysis and design of retaining walls for deep excavations according to Eurocode/DIN/EAB/EAU

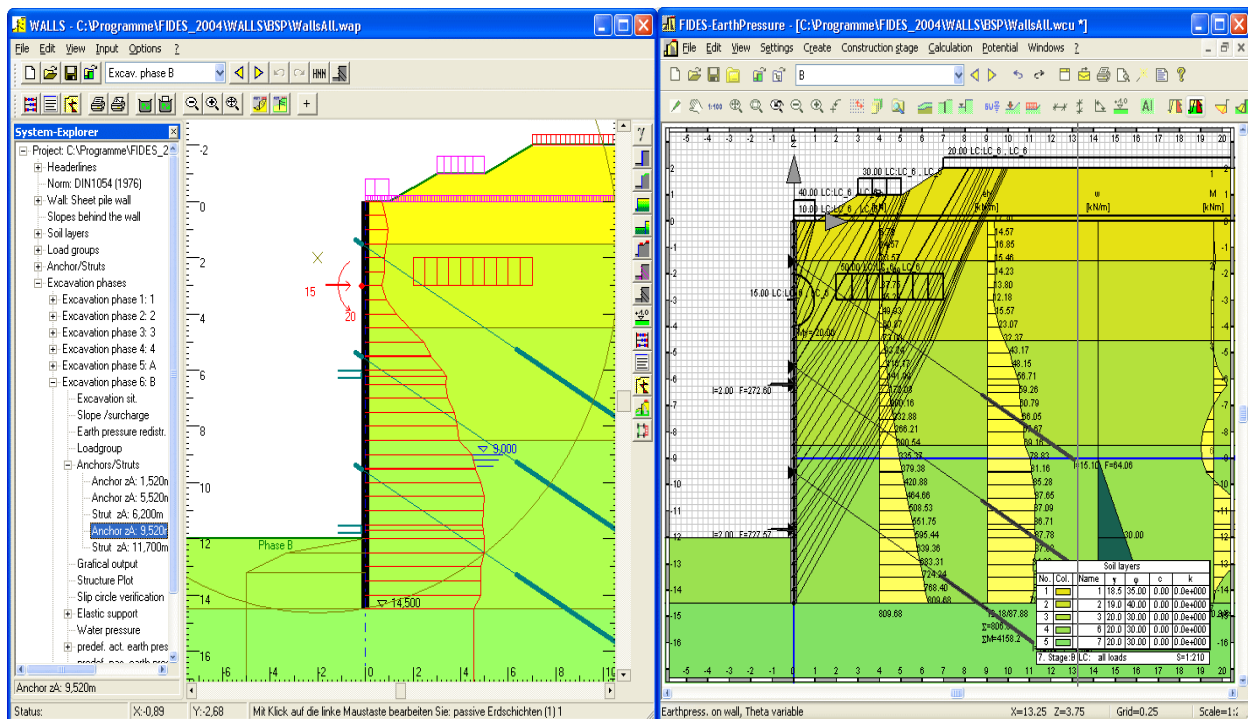
The Working Group for Construction Pits of the German society for soil mechanics publishes its recommendations for computations on excavations in the „EAB“. These recommendations are taken into consideration by the program. Buildings and structures in the cities and new constructions in high density areas place large requirements against the safety of deep excavations. New construction methods have been developed and known sheeting methods have been improved.

Extensive statics computations of the excavation walls will be necessary, in order to calculate the existing safety level. The exploration of several structural variants makes an optimal utilization of the bearing reserves possible.

Grout anchors in one or in several layers are increasingly used for the anchorage of the excavation walls.

Thus the necessary anchor lengths must be determined and the stability checks in the deep-seated sliding joint must be performed. In a constant reciprocal effect with practical building applications during the last 30 years, the now available software program WALLS has been developed. It includes full graphical interactive user interface.

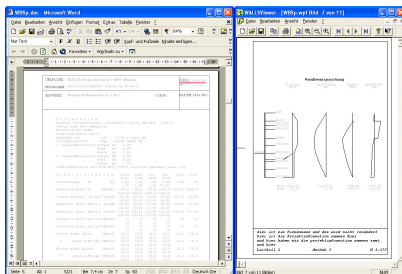
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Performance characteristics

WALLS-Base

- Various Wall types : Soldier H-Beam wall, drilling pile wall, In-situ concrete wall like bored and second pile wall or diaphragm wall, sheet pile wall etc.
- Calculation according to old and new DIN 1054, SIA 262, OENORM and Eurocode
- The bending stiffness of the wall may be variable or section wise constant at any distances
- Active, increased or neutral earth pressure according to classical DIN, Coulomb or Culmann methods
- Can access the extended soil data base that is common to all FIDES geotechnics programs
- All possible earth pressure redistributions according to various design codes are available
- Arbitrary load groups as permanent, life load, limited and unlimited surcharge loads and wall loads (H, M), different load-figures per surcharge load
- Any types of supporting measures : Anchors or Struts
- Anchors may be set active or pasive at any construction stage
- Any number of excavation and backfill phases
- Simple data transfer to other FIDES geotechnics programs, for example WALLS-FEA, FIDES-Slipcircle or FIDES-GeoStability
- Safety against ground failure by means of Slip Circle verification
- Automatic calculation of the radius and the center of the Slip Circle or of a user predefined Slip Circle geometry
- Graphical presentation and output plot of the Slip Circles
- Languages : German, English, Croatian, Greek



WALLS-Extended

All features of WALLS-Base and in addition :

- Any number of soil layers, geometries and ground levels
- Any number of supports : prestressed, elastic or stiff, Anchors or Struts. Calculation of the appropriate

anchor length by analysis of safety against deep-seated failure

- For any excavation stage it can be defined : horizontal active and passive earth pressure, water pressure and bedding module variation
- Earth pressure according to Culmann/Gudehus which can be imported from the program FIDES-Earthpressure
- Takes into account line and area loads with user selectable variation
- Elastic and prestressed Anchors
- Safety against hydraulic ground failure, systems with several groundwater storeys
- Water Flow with the boundary element method
- The water pressure values can be imported from the ground water flow and free water surface calculation of the programs FIDES-Flow, and FIDES-Earthpressure

Results

- Many types of graphical results in the graphics browser, for example : System, Forces, Earth pressure, Deformation, Contruction plot, Slip circle...
- Export to various formats : wmf, emf, hpgl, dxf
- Envelop graphs of extreme values
- Languages of output : English, German
- All results very detailed in ANSI-Format
- New: Results browser, titles of texts appear in a tree structure representation and can be selected easily
- Results can be exported to Richttext(RTF)-Format and MS Word
- Results : Mixed with text and graphics

WALLS - Program options

WALLS-Base

- Basic features and Slip Circle verification

WALLS-Extended

- Extended Version with all features available

WALLS-X

- New User Interface for application within the the SOFiStiK SSD structural desktop environment
- Included the same features like WALLS-Extended

Optional: WALLS-Dimensioning

- Individual dimensioning of all components : Wall, anchors

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