

FDB+

Block Foundation

FDB+ allows you to design block foundations in accordance with the method described in "Beispiele zur Bemessung nach Eurocode 2" (Examples for the Design as per Eurocode 2) published by "Deutscher Beton- und Bautechnik-Verein E.V." or in accordance with the method described in "Betonkalender 1988", Part II, page 453.

Block foundations are cast with a bucket.

They are characterized by a toothed connection between the bucket wall and the column base. This connection has the same effect as if the column was fitted with a monolithic foundation.

The design of the block foundation is performed separately for axial force action and for moment action if the calculation is based on the "Betonkalender".

Data entry

In addition to the menu on the left side of the screen, separately accessible tables and the graphical user interface (GUI) are available to enter, define and edit values and parameters.

Available standards

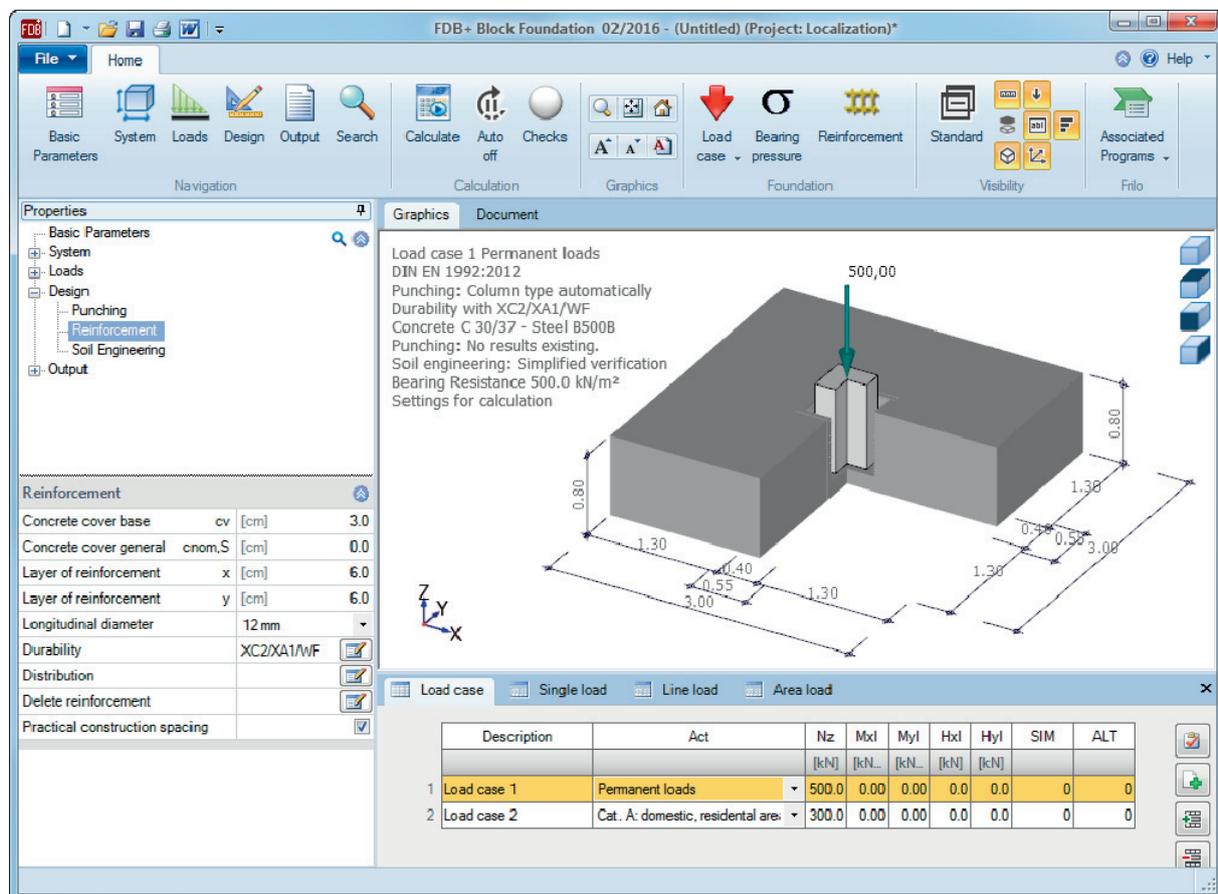
- DIN EN 1992
- ÖNORM EN 1992
- BS EN 1992
- EN 1992
- Foundation standard:
 - DIN EN 1997-1 in combination with DIN 1054:2010
 - ÖNORM EN1997-1
 - DIN 1054:1976/2005

Design in accordance with "Betonkalender"

- For axial force action:
 - In contrast to isolated foundations, the design for axial force acting on the block foundation is performed for the section along the column edge. The bending design required due to the action of axial force is performed in accordance with leaflet 240, P. 2.10. The results are put out separately for the x- and the y-direction.
- For moment action:
 - The design for moment action is performed on the equivalent beam.

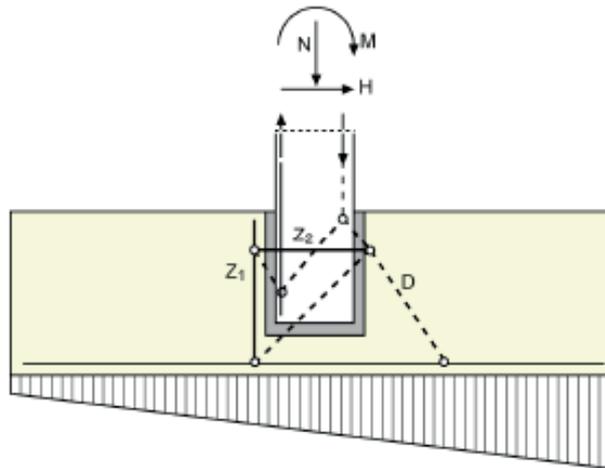
Depending on the loading direction, the equivalent beam has the following width:

$$b = cx + hm \text{ or } b = cy + hm.$$



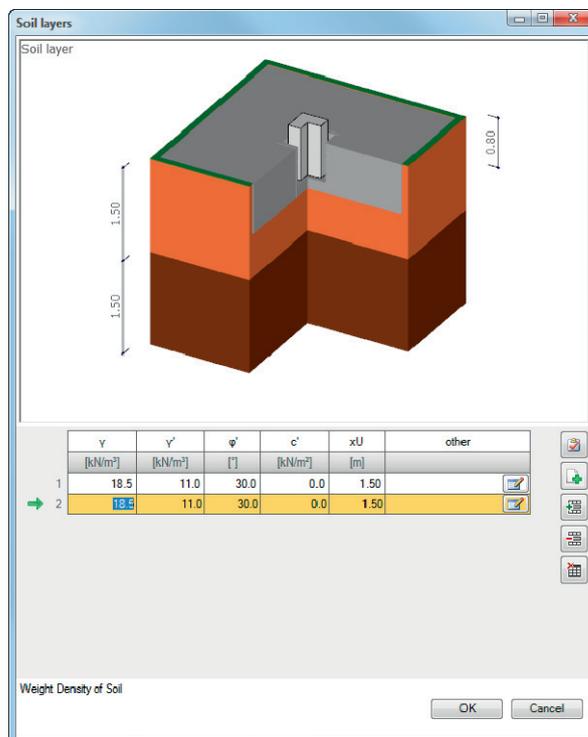
In these equations, c_x and c_y refer to the dimensions of the column and h_m refers to the effective height.

The reinforcement resulting from the design is distributed over half the width of the equivalent beam and runs upwards behind the corresponding side of the bucket recess serving as a connecting reinforcement.



Design based on "Beispiele zur Bemessung nach Eurocode 2" for axial force and moments action

In the design in accordance with "Beispiele zur Bemessung nach Eurocode 2" published by "Deutscher Beton- und Bautechnik-Verein E.V.", the foundation is designed in the column contact surface for action by moments and axial force. The vertical and horizontal stirrups are dimensioned with the help of the extended lever arm of the column reinforcement. The anchorage and lap lengths of the column reinforcement and the stirrups are verified.



Punching shear

Punching shear analyses are performed for the construction state (column self-weight transferred via the mounting plate) and for the limit state.

Ground failure analysis

The ground failure analysis is implemented in FDB+.

