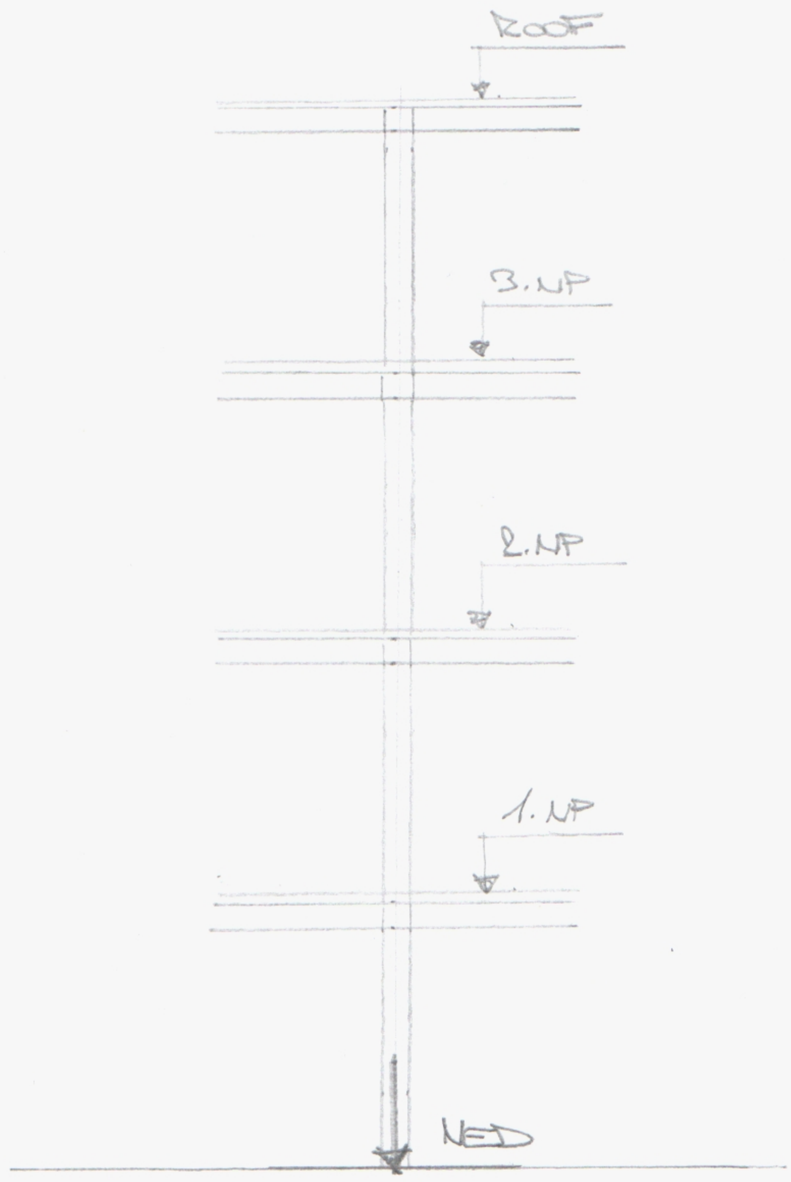
FOUNDATION DESIGN - FOOTING PADS

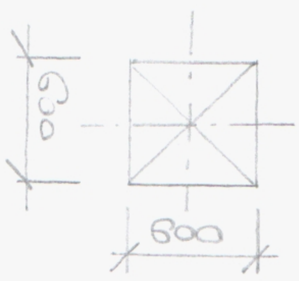
LOAD CALCULATION:

THICKAT SLAB SUPPORTED ON JOISTS AND COLUMNS



NED = 7150 kN → RESULT IS TAKEN FROM

THE COLUMN PRELIMINARY CALCULATION



DIMENSIONS OF THE COLUMN

· SELF WEIGHT OF THE FOOTING

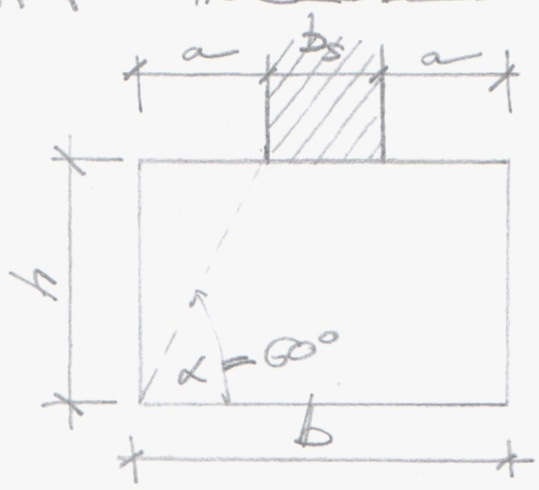
ESTIMATION:

$$G_o = 0{,}1 \cdot N_{ED} = 0{,}1 \cdot 7150 = 715\ kN$$

· DESIGN STRENGHT OF SUBSOIL:

SANDY GRAVEL $R_d = 400\ kPa$ → TABLE VALUE

· NO EXCENTRICITY INCLUDED



→ PLAIN CONCRETE

$$h = a \cdot tg(\alpha) = \left(\frac{b - b_s}{2}\right) tg(\alpha)$$

$$\sigma = \frac{N_d + G_o}{A_{eff}} \leq R_a$$

$$A_{eff} \geq \frac{N_d + G_o}{R_a} = \frac{7150 + 715}{400} = 19{,}69\ m^2$$

$a = 4{,}5\ m$

$b = 4{,}5\ m$

DIMENSIONS OF THE FOOTINGS PAD IS TOO LARGE !

BECAUSE OF THE SUBSOIL CONDITION, GEOLOGICAL CONDITION NEEDS TO BE ASSUMED.

FROM THE WEBSITE OF CZECH GEOLOGY SERVICE, WAS FOUND THAT ORIGINAL SUBSOIL IS MOSTLY COMPOSED FROM LOESS

FROM THIS REASON WAS DESIGNED WHITE REINFORCED CONCRETE BATH WITH THE SLAB THICKNESS 500 MM AND WALL THICKNESS 300 MM.

FOR THE MORE SOPHISTICATED DESIGN OF THE FOUNDATIONS GEOLOGICAL SURVEY AND ENGINEERING GEOLOGICAL SURVEY SHOULD BE DONE

FOR THE PURPOSE OF THIS PROJECT IS THIS DESIGN SATISFICATED