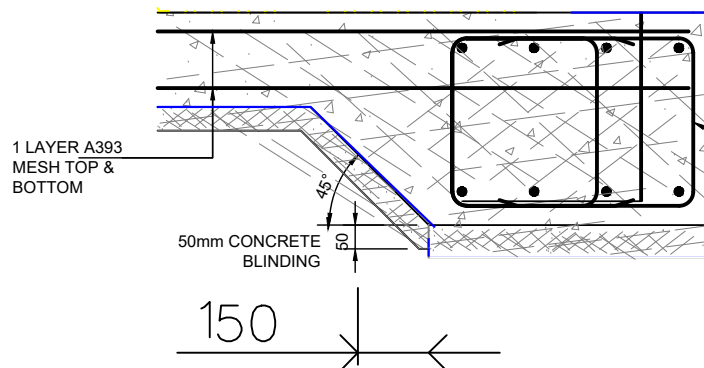


Project Rear 1 storey extension - RAFT FOUNDATION - 150mm slab				Job no. 2023-7459	
Calcs for Wendover Lower Rochester Road Higham Rochester Kent ME3 7HD				Start page no./Revision 1	
Calcs by SB	Calcs date 13/08/2026	Checked by DB	Checked date	Approved by SB	Approved date

RAFT FOUNDATION DESIGN (BS8110 : PART 1 : 1997)

Tedds calculation version 1.0.12



Soil and raft definition

Soil definition

Allowable bearing pressure

$$q_{allow} = 50.0 \text{ kN/m}^2$$

Number of types of soil forming sub-soil

One type only

Soil density

Firm

Depth of hardcore beneath slab

$$h_{hcoreslab} = 150 \text{ mm (Dispersal allowed for bearing pressure check)}$$

Depth of hardcore beneath thickenings

$$h_{hcorethick} = 150 \text{ mm (Dispersal allowed for bearing pressure check)}$$

Density of hardcore

$$\gamma_{hcore} = 20.0 \text{ kN/m}^3$$

Basic assumed diameter of local depression

$$\phi_{depbasic} = 1500 \text{ mm}$$

Diameter under slab modified for hardcore

$$\phi_{depslab} = \phi_{depbasic} - h_{hcoreslab} = 1350 \text{ mm}$$

Diameter under thickenings modified for hardcore

$$\phi_{depthick} = \phi_{depbasic} - h_{hcorethick} = 1350 \text{ mm}$$

Raft slab definition

Max dimension/max dimension between joints

$$l_{max} = 3.000 \text{ m}$$

Slab thickness

$$h_{slab} = 150 \text{ mm}$$

Concrete strength

$$f_{cu} = 35 \text{ N/mm}^2$$

Poissons ratio of concrete

$$\nu = 0.2$$

Slab mesh reinforcement strength

$$f_{yslab} = 500 \text{ N/mm}^2$$

Partial safety factor for steel reinforcement

$$\gamma_s = 1.15$$

From C&CA document 'Concrete ground floors' Table 5

A142

Minimum mesh required in top for shrinkage

$$\text{A393 (A}_{sslabtop} = 393 \text{ mm}^2/\text{m})$$

Actual mesh provided in top

$$\text{A393 (A}_{sslabbtm} = 393 \text{ mm}^2/\text{m})$$

Mesh provided in bottom

$$\phi_{slabtop} = 10 \text{ mm}$$

Top mesh bar diameter

$$\phi_{slabbtm} = 10 \text{ mm}$$

Bottom mesh bar diameter

$$c_{top} = 20 \text{ mm}$$

Cover to top reinforcement

$$c_{btm} = 35 \text{ mm}$$

Cover to bottom reinforcement

Average effective depth of top reinforcement

$$d_{tslabav} = h_{slab} - c_{top} - \phi_{slabtop} = 120 \text{ mm}$$

Average effective depth of bottom reinforcement

$$d_{bslabav} = h_{slab} - c_{btm} - \phi_{slabbtm} = 105 \text{ mm}$$