Example 1

Column footings (12'x12') for a proposed building carry a stress of 4 tsf. They are to be located 1ft away from the edge of the footings of an existing building which are 10' by 10' in plan. The centerlines of columns of the two buildings coincide.
What would be the increase in stress at 6' depth?

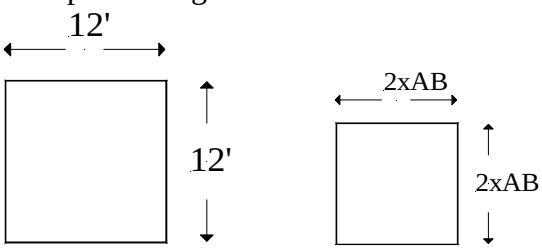
a. Below the corner of proposed footing

b. Below the middle of proposed footing

c. Below the middle of existing footing.

Example 2

Do Example 1 using Newmark's chart.



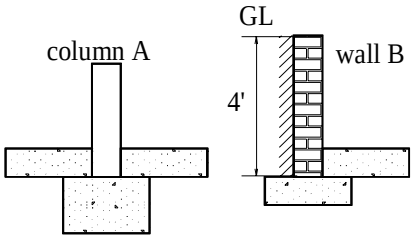
Example 3

A 6’×6’ column footing is 1.5’ thick and is located 2’ below ground in a silty clay 40 ft thick with c_u = 1.5 tsf, and γ = 115 pcf. Column load is 110 tons. Determine its elastic settlement.

Example 4

Design footings for the foundation arrangement shown. Floor slab thickness = 6″ and unit weight of underlying sand is $\gamma = 120$ pcf. No ground water was detected.

	LL	DL
Column A	60 T	170 T
Wall B	4 T/ft	2.2 T/ft



1. Solution (

Example 4)

depth, ft	N_F	σ', tsf	$C_N = (1/\sigma')^{0.5}$	N_{cor}	$^1N_{avg}$
5	12				
7.5	15				
10	18				
12.5	19				
15	23				
20	25				

[1] *running average*

Example 5

Plate load test data for two plates are as follows:

Dia, m	Stress, kPa	Settlement, mm
0.305	400	7.75
0.762	400	13

a. Determine settlement of a 1.5m×1.5m footing with a stress of 400 kPa.

b. If load-settlement curve is linear determine maximum footing load if settlement is not to exceed 13mm.

Example 6

In a reinforced structure, columns A-D have spacing of 22', 18', and 15'. Estimated column settlements are 0.50", 2.0", 1.75" and 0.75".

a. Is this structure acceptable for 1955 USSR code?
b. Would first crack appear in panel wall (Wahls, 1981)?