PERTEMUAN – 2/16
DAYA DUKUNG TANAH DAN KAPASITAS DUKUNG PONDASI
(a) Total Overburden Pressure $q_o$

$q_o$ is the intensity of total overburden pressure due to the weight of both soil and water at the base level of the foundation.

$$q_o = \gamma D_{w1} + \gamma_{sat} \bar{D}_w$$  \hspace{1cm} (12.1)
(b) Effective Overburden Pressure $q'_0$

$q'_0$ is the effective overburden pressure at the base level of the foundation.

$$q'_0 = \gamma D_{w1} + \gamma_b \overline{D}_w$$

when $\overline{D}_w = 0$, $q'_0 = \gamma D_{w1} = \gamma D_f$.

(c) The Ultimate Bearing Capacity of Soil, $q_u$

$q_u$ is the maximum bearing capacity of soil at which the soil fails by shear.

(d) The Net Ultimate Bearing Capacity, $q_{nu}$

$q_{nu}$ is the bearing capacity in excess of the effective overburden pressure $q'_0$, expressed as

$$q_{nu} = q_u - q'_0$$
Untuk pondasi dangkal, faktor keamanan (FK, Fs, FoS) = 2.5 – 4
Biasanya diambil sebesar 3
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FIGURE 6.1 General shear foundation failure. (After Vesić, 1963.)

FIGURE 6.2 Local shear foundation failure. (After Vesić, 1963.)
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FIGURE 6.3 Punching shear foundation failure. (After Vesić, 1963.)
Figure 12.5  Modes of failure of model footings in sand (after Vesic, 1963)