LAMPIRAN L-1

TABLE 4-2
Bearing-capacity factors for the Terzaghi equations

Values of N_γ for ϕ of 0, 34, and 48° are original Terzaghi values and used to back-compute $K_{p\gamma}$

ϕ, deg	N_c	N_q	N_γ	$K_{p\gamma}$
0	5.7*	1.0	0.0	10.8
5	7.3	1.6	0.5	12.2
10	9.6	2.7	1.2	14.7
15	12.9	4.4	2.5	18.6
20	17.7	7.4	5.0	25.0
25	25.1	12.7	9.7	35.0
30	37.2	22.5	19.7	52.0
34	52.6	36.5	36.0	
35	57.8	41.4	42.4	82.0
40	95.7	81.3	100.4	141.0
45	172.3	173.3	297.5	298.0
48	258.3	287.9	780.1	
50	347.5	415.1	1153.2	800.0

*$N_c = 1.5\pi + 1$. [See Terzaghi (1943), p. 127.]

TABLE 4-3
Shape, depth, and inclination factors for the Meyerhof bearing-capacity equations of Table 4-1

Factors	Value	For
Shape:	$s_c = 1 + 0.2K_p\frac{B}{L}$	Any ϕ
	$s_q = s_\gamma = 1 + 0.1K_p\frac{B}{L}$	$\phi > 10°$
	$s_q = s_\gamma = 1$	$\phi = 0$
Depth:	$d_c = 1 + 0.2\sqrt{K_p}\frac{D}{B}$	Any ϕ
	$d_q = d_\gamma = 1 + 0.1\sqrt{K_p}\frac{D}{B}$	$\phi > 10$
	$d_q = d_\gamma = 1$	$\phi = 0$
Inclination:	$i_c = i_q = \left(1 - \frac{\theta°}{90°}\right)^2$	Any ϕ
	$i_\gamma = \left(1 - \frac{\theta°}{\phi°}\right)^2$	$\phi > 0$
	$i_\gamma = 0$ for $\theta > 0$	$\phi = 0$

Where $K_p = \tan^2(45 + \phi/2)$ as in Fig. 4-2
θ = angle of resultant R measured from vertical without a sign; if $\theta = 0$ all $i_i = 1.0$.
B, L, D = previously defined

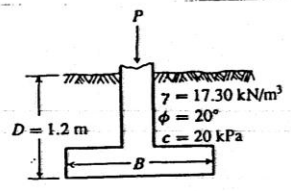
TABLE 4-4
Bearing-capacity factors for the Meyerhof, Hansen, and Vesić bearing-capacity equations

Note that N_c and N_q are the same for all three methods; subscripts identify author for N_γ

ϕ	N_c	N_q	$N_{\gamma(m)}$	$N_{\gamma(h)}$	$N_{\gamma(v)}$	N_q/N_c	$2\tan\phi(1-\sin\phi)^2$
0	5.14*	1.0	0.0	0.0	0.0	0.195	0.000
5	6.49	1.6	0.1	0.1	0.4	0.242	0.146
10	8.34	2.5	0.4	0.4	1.2	0.296	0.241
15	10.97	3.9	1.2	1.1	2.6	0.359	0.294
20	14.83	6.4	2.9	2.9	5.4	0.431	0.315
25	20.71	10.7	6.8	6.8	10.9	0.514	0.311
26	22.25	11.8	7.9	8.0	12.5	0.533	0.308
28	25.79	14.7	10.9	11.2	16.7	0.570	0.299
30	30.13	18.4	15.1	15.7	22.4	0.610	0.289
32	35.47	23.2	20.8	22.0	30.2	0.653	0.276
34	42.14	29.4	28.7	31.1	41.0	0.698	0.262
36	50.55	37.7	40.0	44.4	56.2	0.746	0.247
38	61.31	48.9	56.1	64.0	77.9	0.797	0.231
40	75.25	64.1	79.4	93.6	109.3	0.852	0.214
45	133.73	134.7	200.5	262.3	271.3	1.007	0.172
50	266.50	318.5	567.4	871.7	761.3	1.195	0.131

* $= \pi + 2$ as limit when $\phi \to 0°$.

Slight differences in above table can be obtained using program BEARING.EXE on diskette depending on computer used and whether or not it has floating point.



LAMPIRAN L-2

Persamaan daya dukung menurut beberapa peneliti yang ditunjukkan

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Terzaghi (lihat Tabel 4-2 untuk nilai tipikal dan nilai $K_{p\gamma}$)

$$q_{ult} = cN_c s_c + \bar{q}N_q + 0{,}5\gamma BN_\gamma s_\gamma \qquad N_q = \frac{a^2}{2\cos^2(45 + \phi/2)}$$

$$a = e^{(0{,}75\pi - \phi/2)\tan\phi}$$

$$N_c = (N_q - 1)\cot\phi$$

$$N_\gamma = \frac{\tan\phi}{2}\left(\frac{K_{p\gamma}}{\cos^2\phi} - 1\right)$$

Untuk:	menerus	bundar	bujur-sangkar
s_c =	1,0	1,3	1,3
s_γ =	1,0	0,6	0,8

Meyerhof (lihat Tabel 4-3 untuk faktor bentuk, kedalaman, dan inklinasi)

Beban vertikal: $q_{ult} = cN_c s_c d_c + \bar{q}N_q s_q d_q + 0{,}5\gamma BN_\gamma s_\gamma d_\gamma$

Beban miring: $q_{ult} = cN_c d_c i_c + \bar{q}N_q d_q i_q + 0{,}5\gamma BN_\gamma d_\gamma i_\gamma$

$$N_q = e^{\pi\tan\phi}\tan^2\left(45 + \frac{\phi}{2}\right)$$

$$N_c = (N_q - 1)\cot\phi$$

$$N_\gamma = (N_q - 1)\tan(1{,}4\phi)$$

Hansen (lihat Tabel 4-5 untuk faktor bentuk, kedalaman, inklinasi)

Umum: $q_{ult} = cN_c s_c d_c i_c g_c b_c + \bar{q}N_q s_q d_q i_q g_q b_q + 0.5\gamma BN_\gamma s_\gamma d_\gamma i_\gamma g_\gamma b_\gamma$

bila: $\phi = 0$

gunakan: $q_{ult}\ 5.14s_u(1 + s'_c + d'_c - i'_c - b'_c - g'_c) + \bar{q}$

N_q = sama seperti meyerhof di atas

N_c = sama seperti Meyerhof di atas

$N_\gamma = 1{,}5(N_q - 1)\tan\phi$

Vesic (lihat Tabel 4-5 untuk faktor bentuk, kedalaman dan lainnya).

Pakailah persamaan-persamaan Hansen di atas

N_q = sama seperti Meyerhof di atas

N_c = sama seperti Meyerhof di atas

$N_\gamma = 2(N_q + 1)\tan\phi$

LAMPIRAN L-3

TEKANAN TANAH

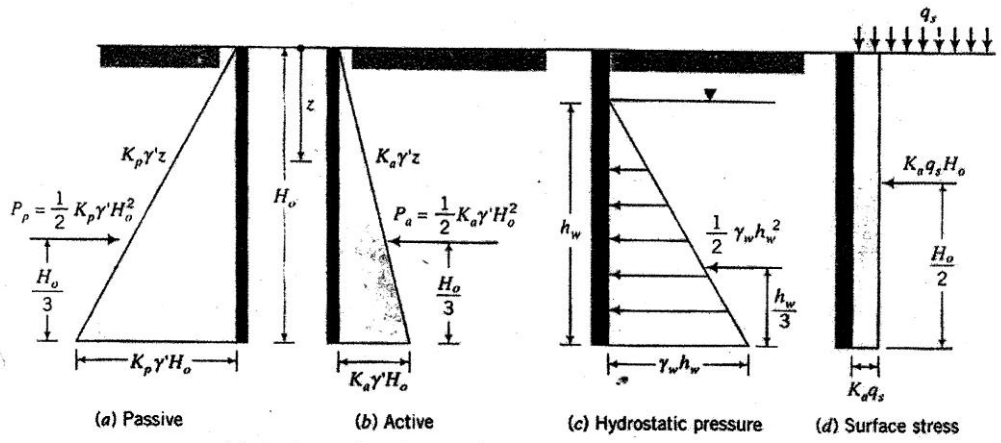


FIGURE 10.6 Variation of active and passive lateral earth pressures, hydrostatic pressure, and a uniform surface stress with depth.

Tekanan tanah : Luas diagram tekanan
Bentuk diagram :
- akibat tanah : bentuk segitiga
- akibat air : bentuk segitiga
- akibat beban luar : bentuk segi empat

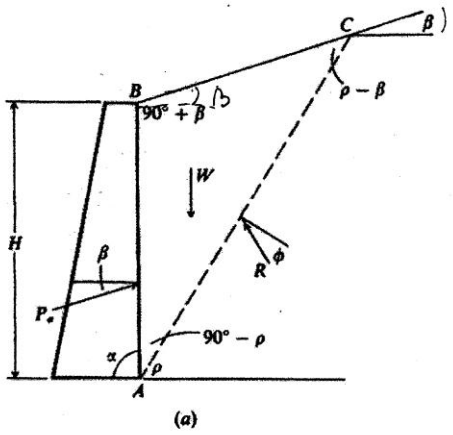
Luas △ : ½ alas x tinggi

□ : lebar x tinggi

LAMPIRAN L-4

TEORI TEKANAN TANAH RANKINE

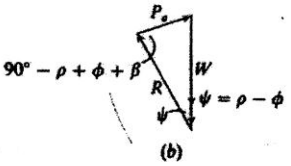
FIGURE 11-7 (*a*) Soil-structure system for the Rankine solution for $\alpha = 90°$; (*b*) force triangle in the Rankine solution.



Area $ABC = \frac{1}{2}H^2 \frac{\sin(90° - \rho)\sin(90° + \beta)}{\sin(\rho - \beta)}$

(1) $W = \frac{1}{2}\gamma H^2 \frac{\cos\rho\cos\beta}{\sin(\rho - \beta)}$

(2) $P_a = W \frac{\sin(\rho - \phi)}{\sin(90° - \rho + \phi + \beta)}$



$$Ka = \cos\beta \frac{\cos\beta - \sqrt{\cos^2\beta - \cos^2\phi}}{\cos\beta + \sqrt{\cos^2\beta - \cos^2\phi}}$$

$$Kp = \cos\beta \frac{\cos\beta + \sqrt{\cos^2\beta - \cos^2\phi}}{\cos\beta - \sqrt{\cos^2\beta - \cos^2\phi}}$$

0,478

LAMPIRAN L-5

No	Fitur	Hasil	Keterangan
1.	Melakukan save data	Sesuai / ~~tidak sesuai~~	
2.	Melakukan open data	Sesuai / ~~tidak sesuai~~	
3.	Melakukan analisis (*New Design)*	Sesuai ~~/ tidak sesuai~~	
4.	Menyimpan laporan data analisis	Sesuai ~~/ tidak sesuai~~	
5.	Melakukan *Cancel Design*	Sesuai / ~~tidak sesuai~~	
6.	Melihat laporan data analisis	Sesuai ~~/ tidak sesuai~~	

RIWAYAT HIDUP PENULIS

Aditya Pratama Putra lahir di Palangkaraya, 30 April 1990. Menyelesaikan pendidikan TK di Beringin II Palangkaraya, SD Negeri Percobaan Langkai 6, SMP Negeri 1 Palangkaraya, dan SMA di SMA Negeri 1 Palangkaraya . Lulus SMA Negeri 1 pada 17 Agustus tahun 2008 dan meneruskan pendidikan Double Degree (Sipil - SI) di Universitas Kristen maranatha sampai sekarang. Aktif di organisasi selama di SMA, yaitu OSIS bagian koordinator Olahraga bagian kepengurusan sepakbola periode 2006-2007. Sedangkan selama kuliah ikut serta dalam organisasi HIMA untuk periode 2010 – 2009 dengan menjabat staff Divisi Seni & Dokumentasi.