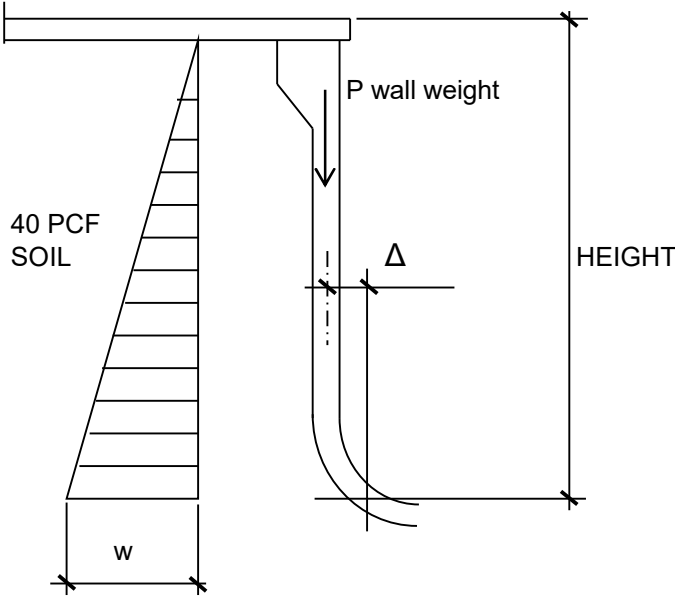


PELTON WYLIE + FAHRNEY ENGINEERING, INC.	SWIMMING POOL FOR: ROBERT KING	SHEET 1 OF 1
		DATE 4/6/2023
		BY GP
		JOB JFC012-19
2813 COFFEE ROAD SUITE D1 MODESTO, CA 95355		(209)575-9619
ROBERT KING 22280 LONGWAY RD, SONORA, CA		

POOL WALL DESIGN - NO SURCHARGE

POOL WALL LOADING - NON-EXPANSIVE SOIL



GENERAL EQUATIONS:

$$a = (A_s F_y) / (\Phi f_c b)$$

$$M_{ULT\ ALLOW} = \Phi A_s F_y (d - a / 2)$$

$$M_{ACT\ ULT} = [(.5 \times W \times H) H - P \Delta] (1.6)$$

ULT LOAD FACTOR



4/6/2023

GENERAL DESIGN CRITERIA

w = 0.062 KCF f_c = 2.00 ksi b = 12
 F_y = 40 KSI ϕ (USED IN ϕf_cb) = 0.85 ϕ (MULT ALL) = 0.90

POOL WALL DESIGN CHART

<u>POINT</u>	<u>H (feet)</u>	<u>Δ</u>	<u>M act ult</u>	<u>T (inches)</u>	<u>d (inches)</u>	<u>As</u>	<u>Mult allow</u>
1	1	0.00	0.02	5.0	1.75	0.20	0.93
2	2	0.00	0.13	5.0	1.75	0.20	0.93
3	3	0.25	0.41	5.0	1.75	0.20	0.93
4	4	0.25	1.01	5.5	2.25	0.20	1.23
5	5	0.50	1.94	7.0	3.75	0.20	2.13
6	6	0.75	3.34	7.0	3.75	0.40	4.03
7	7	1.00	5.31	8.5	5.25	0.40	5.83

EXAMPLE EQUATION

POINT 5 H = 5'-0" Δ = 0.50' T = 7.0" d = 3.75" A_s = 0.20 in² (#4 @ 12")
 M_{act ult} = [1.6(0.040 x 5³ / 6) - 0.9((0.150x5/12) x 5 x 0.5)] = 1.19 k-ft
 a = 0.20 x 40.0 / 0.85 / 2.00 ksi / 12 = 0.392
 M_{ult allow} = 0.9 x 0.20 x 40 x (3.75 - 0.392 / 2) / 12 = 2.13 k-ft