

Objectives

- To determine "Ultimate Loads" given actual or "Working Loads".
- To determine the lateral dimensions (to the closest quarter foot) of a spread footing that will support vertical load and moment.

The Problem

1. Determine the ultimate vertical load Q_u and the Ultimate moment M_u given the loads shown below. (Use: $U = 1.4DL$ & $U = 1.2DL + 1.6LL$)
2. Determine the minimum required dimensions of a square footing that will carry the working stress vertical load " Q_w " and overturning moment " M_w ". Use soil criteria (as described below) to determine the required footing size for bearing capacity purposes.

Name	$Q_{DL} =$ Kips	$Q_{LL} =$ Kips	$M_{DL} =$ Ft-kips	$M_{LL} =$ Ft-kips	Bear. Cap. = psf
Acosta,Monica L	3.0	5.0	10.0	5.0	1250
Baker,Ben Levi	3.0	5.0	10.0	5.0	1500
Brandtman,Erik Adam	3.0	5.0	10.0	5.0	2000
Bravo,Humberto Alonso	3.0	5.0	10.0	5.0	2500
Bush,Dalyn Denver	3.0	5.0	10.0	5.0	3000
Caldwell,Jonathan Scott	3.0	5.0	10.0	5.0	4000
Crete,Matthew Charles	3.5	5.0	10.0	5.0	1250
D'Anna,Rusty	3.5	5.0	10.0	5.0	1500
Deknoblough,Justin Ryan	3.5	5.0	10.0	5.0	2000
Duran,Ryan Gabriel	3.5	5.0	10.0	5.0	2500
Estrada,Carlos	3.5	5.0	10.0	5.0	3000
Giovannoni,Matthew Alaldino	3.5	5.0	10.0	5.0	4000
Henion,Cameron Dohn	4.0	5.0	10.0	5.0	1250
Johl,Bhupinder Singh	4.0	5.0	10.0	5.0	1500
Johnston,Nicholas Jay	4.0	5.0	10.0	5.0	2000
Jones,Jacob Randall	4.0	5.0	10.0	5.0	2500
Kean,Candace Lynette	4.0	5.0	10.0	5.0	3000
Lozano,Moises	4.0	5.0	10.0	5.0	4000
Malatesta,Aaron Charles	4.5	5.0	10.0	5.0	1250
Malizia,Andrew James	4.5	5.0	10.0	5.0	1500
Maxwell,Grant Allen	4.5	5.0	10.0	5.0	2000
Moore,George E.	4.5	5.0	10.0	5.0	2500
Murray,Matthew Eugene	4.5	5.0	10.0	5.0	3000
Pena-Trujillo,Luis F	4.5	5.0	10.0	5.0	4000
Simonis,Charles Lucas	5.0	5.0	10.0	5.0	1250
Slingsby,Lauren Claire	5.0	5.0	10.0	5.0	1500
Snider,LauraBeth	5.0	5.0	10.0	5.0	2000
Sobecki,Shane C	5.0	5.0	10.0	5.0	2500
Tharmakulasingham,Amalarajh	5.0	5.0	10.0	5.0	3000
Vazquez,Linda Marie	5.0	5.0	10.0	5.0	4000
Warren,Richard Lance	6.0	5.0	10.0	5.0	1250