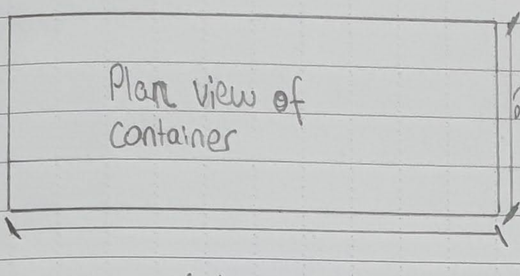
Office container foundations



height of container is 2.44m

steel deadload = 700016
= ~32kN

Live load = 3kPa and 2.7kN point load

in kN

= (3x2.44x6.1) + 2.7
= 47.4kN

Design load (vertical) = 32x1.35 + 47.4x1.5
= 114.3kN

designing so that 2 supports can take load if c.o.g. moves

∴ 114.3/2 = 57.2kN at each support (assuming 4 supports at each corner)

allowable bearing capacity = 100kPa

∴ plan area: F/A = σ
100 = 57.2/A
A = 0.572
∴ try 800x800mm base

Checking wind load

$v_{ult} = 150\ mph$
$= 67\ m/s$

$q = 0.613 \times 67^2$ Canadian approach
$= 2.75\ kPa$

$L/h = 6.1/2.44$
$= 2.5$

$C_e = (2.44/10)^{0.2} \geq 0.9$ (exposure factor)
$= 0.9$

$C_g = 2$ (gust effect factor)

$C_t = 1$ (topographic factor)

$I_w = 1$ (importance factor)

or $z = 0.1 \times 6.1 = 0.61$
$z \leq 0.4 \times 2.44 = 0.98$
and
$z \geq 1$
$\therefore z = 1$

Building category 2
'Single sheet'

	w:	e:
$C_p C_g + C_{pi} C_{gi}$ =	+2.7, -2.4	+2.7, -2.7

∴ for area 'w'

$$p = l_w \times q \times C_e \times C_t \times (C_p C_g + C_{pi} C_{gi})$$

$= 1 \times 2.75 \times 0.9 \times 1 \times 2.7 = 6.7$ kPa

$= 1 \times 2.75 \times 0.9 \times 1 \times -2.4 = -5.94$ kPa

for area 'e'

$p = 1 \times 2.75 \times 0.9 \times 1 \times 2.7 = 6.7$ kPa

$p = 1 \times 2.75 \times 0.9 \times 1 \times -2.7 = -6.7$ kPa

for simplicity taking as 6.7 kPa all over

∴ $F_n = 6.7 \times 6.1 \times 2.44$
$= 99.73$ kN

per support $= 99.73/2$
$= 49.87$ kN (sliding)

moment $= 49.87 \times 1.22$
$= 60.85$ kNm