Ensayo

Nombre del Alumno: Aguilar López Jorge Alberto

Nombre del tema: Cálculo de Cerramientos

Parcial: 2

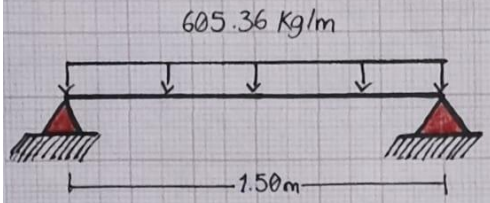
Nombre de la Materia: Análisis de estructuras

Nombre del profesor: Pedro Alberto García López

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 5

PROBLEMA 01:



$W \cdot L^2/8$

$$\frac{605.36\ Kg/m\ (1.50m)^2/8}{1000} = 0.17025\ t\cdot m$$

$0.17025\ t\cdot m\ (130000) = 22,132\ K/cm$

$$q\sqrt{\frac{22,132\ K/cm}{0.90 \times 7 \times 11^2 \times 136}\ x2+1} = 0.756$$

$\rho = (-0.756+1)\cdot 136/4200 = 0.00790\ cm^2$

$0.00790\ (7)\cdot 11 = 0.474\ cm^2$

$2\#2 = 0.64\ cm^2$

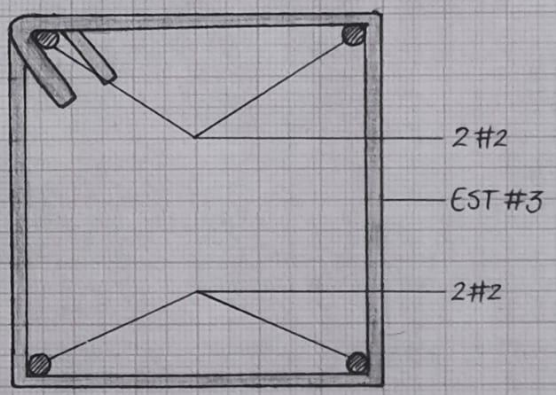
DATOS:

H= 13cm
b= 7cm
L= 1.50m
d= 11cm
F'C= 200 Kg/cm²
FY= 4200 Kg/cm²
F"C= 136
FR= 0.90

$ASMIN = 0.00235\ (7)\cdot 11 = 0.180\ cm^2$

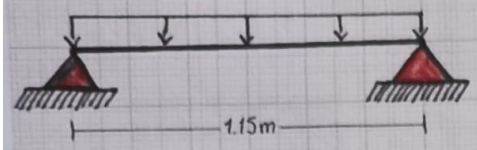
$ASMAX = 0.01143\ (7)\cdot 11 = 0.880\ cm^2$

$2\#2 = 0.64\ cm^2$



PROBLEMA 02:

323.36 Kg/m



$W \cdot L^2/8$

$\frac{323.36\ Kg/m\ (1.15m)^2/8}{1000} = 0.053\ t/m$

DATOS:

H= 10cm
b= 10cm
L= 1.15m
d= 6cm
F'C= 200 K/cm²
F'y= 4200 K/cm²
F"C= 136
FR= 0.90

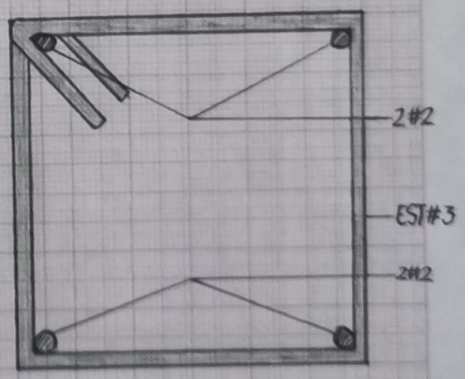
$0.053\ t/m\ (130000) = 6890\ K/cm$

$\varphi\sqrt{\frac{6890\ K/cm}{0.90 \times 10 \times 6^2 \times 136} \cdot 2+1} = 0.829$

$\rho = (-0.829+1) \cdot 136/4200 = 0.00553 cm^2$

$0.00553(10) \cdot 6 = 0.3318 cm^2$

$2\#2 = 0.64 cm^2$

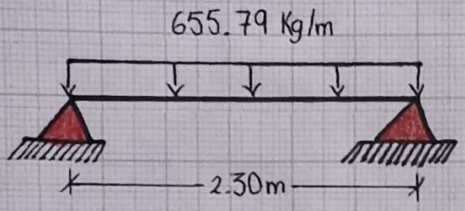


$AS\ MIN = 0.00235(10) \cdot 6 = 0.141 cm^2$

$AS\ MAX = 0.01143(10) \cdot 6 = 0.685 cm^2$

$2\#2 = 0.64 cm^2$

PROBLEMA 03:



$W \cdot L^2/8$

$\frac{655.79\ kg/m\ (2.30m)^2/8}{1000} = 0.433\ t/m$

$0.433\ t/m\ (130000) = 56550\ K/cm$

$q\sqrt{-\frac{56550\ K/cm}{0.90 \times 10 \times 16^2 \times 136} \cdot 2 + 1} = 0.799$

$\rho = (-0.799+1) \cdot 136 / 4200 = 0.00650\ cm^2$

$0.00650\ (10) \cdot 16 = 1.04\ cm^2$

$2\#3 = 1.42\ cm^2$

DATOS:

H= 20 cm
b= 10 cm
L= 2.30 m
d= 16 cm
FC= 200 K/cm²
Fy= 4200 K/cm²
F"C= 136
FR= 0.90

$ASMIN = 0.00235 \cdot 10 \cdot 16 = 0.376\ cm^2$

$ASMAX = 0.01143 \cdot 10 \cdot 16 = 2.288\ cm^2$

$2\#2 = 0.64\ cm^2$