ISAAC GABRIEL AGUILAR CANO
ARQ:PEDRO ALBERTO LOPEZ GARCIA

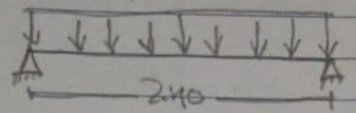
ALCULO DE TRABES

ARQUITECTURA

ENTREGA: 11/02/2024

TR-H

W= 4.30



Momento

$\frac{w \cdot L^2}{8} \rightarrow \frac{4.30 \times 2.40^2}{8} = 3.09$

Momento ultimo (Mu)

Mu = Mto (1.3^{x10^5})

Mu = 4.3x(130,000) = 401,700

$q = \frac{\sqrt{-M}}{FR \cdot b \cdot d^2 \cdot F''c} \cdot 2+1 \quad q = \frac{\sqrt{-401,700}}{0.90 \times 20 \cdot 36^2 \times 136} \cdot 2+1 = 0.7467$

$P = \frac{(-q+1) \cdot F''c}{FY} \rightarrow \frac{(-0.8641) \cdot 136 \, Kg/cm^2}{4,200} = 0.0044$

R = P = 0.0044

As = p(b)d

As = 0.0044 (20) 36 = 3.168 cm^2

No 3 → 0.71 cm^2 2 #s 3.96

No 4 → 1.27 cm^2

No 5 → 1.98 cm^2

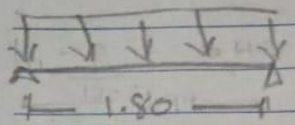
No 6 → 2.85 cm^2

As Min = 0.00235 (25) 26 = 1.52

As Max = 0.0114 (25) 26 = 7.41

T.R-3

6 5.177



7 Momento

$\frac{w \cdot L^2}{8} \rightarrow \frac{5.177 \times 1.80^2}{8} = 2.096$

Momento ultimo (Mu)

Mu = Mto (1.3^{x10^5})

Mu = 2.096 (130,000) = 272,480

$q \sqrt{\frac{-272,480}{0.90 \times 20 \times 36^2 \times 136}} \cdot 2+1 = \sqrt{0.8282} = 0.910$

$P \frac{(-q+1) \cdot F''c}{FY} \rightarrow \frac{(-0.910+1) \cdot 136}{4200} = 0.0029$

As = p(b)d

As = 0.0029 (20) 36 = 2.088 cm^2

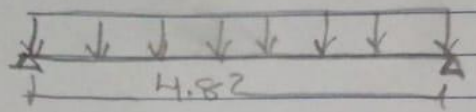
N.4 = 1.27 cm^2 2 #4 = 2.54

N.5 = 1.95 cm^2

N.6 = 2.85 cm^2

CR-2

$w = 1.45\ t/m$



Momento

$$\frac{w.l^2}{8} = \frac{1.45\,(4.82^2)}{8} = 4.2108$$

Momento ultimo (Mu)

$Mu = Mto \rightarrow (1.3^{x10^5})$

$Mu = 4.2108\,(130{,}000) = 547404$

$$q = \frac{\sqrt{-Mu}}{Fe.b.d^2.F''c} \cdot 2+1 =$$

$$p = \frac{(-q+1).F''c}{Fy} = \frac{(-.8062+1).136}{4200} = 0.0062$$

$As = p(b)d \rightarrow 0.0062\,(20)36 = 4.464\ cm^2$

$No4 = 1.27 cm^2$
$No5 = 1.95 cm^2$
$No6 = 2.85 cm^2$

$2\#5 + 1\#4 = 5.23 cm^2$

$As\ Min = p_{min}(b)d = 1.656$
$As\ Max = p_{max}(b)d = 7.92$