



Mi Universidad

Ejercicios

Nombre del Alumno: Pablo Daniel Castro Herrera

Nombre del tema: Métodos energéticos

Parcial: II

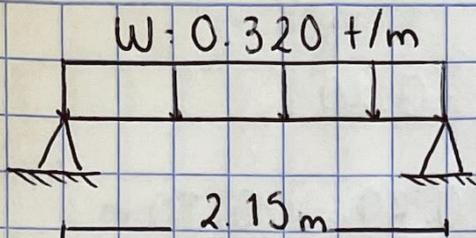
Nombre de la Materia: Análisis de estructuras

Nombre del profesor: Arq. Pedro García

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 5

Fecha: 07 de febrero 2024



$$h = \frac{2.15 \text{ m}}{12} = 0.20 \text{ m}$$

$$b = 0.5(0.20) = 0.10 \text{ m}$$

$$0.20 \text{ m} \times 0.10 \text{ m} \times 2.4 \text{ t/m} = 0.048 \text{ t/m} = 0.368 \text{ t/m}$$

$$0.320 \text{ t/m}$$

$$M_0 = \frac{0.368 \text{ t/m} (2.15)^2}{8} = 0.2126 \text{ t/m}$$

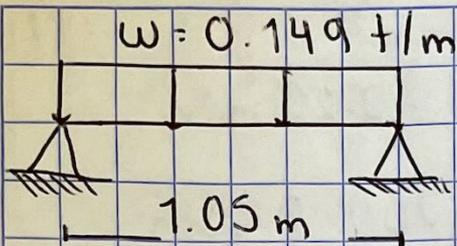
$$0.2126 \text{ t/m} (1.3 \times 10^5) = 47840$$

$$q = \int \frac{47840}{0.90 \cdot 10 \cdot 16^2 \cdot 136} \cdot 2 + 1 \quad q = 0.9404$$

$$P = \frac{(-0.9404 + 1) \cdot 136 \text{ kg/cm}^2}{4,200 \text{ kg/cm}^2} \quad P = 0.001929$$

$$A_s = 0.001929 (10) 16 = 0.3086 \text{ cm}^2$$

2 # 3 y 1 # 2



$$h = \frac{1.05}{12} = 0.20 \text{ m}$$

$$b = 0.5 (0.20 \text{ m}) = 0.10 \text{ m}$$

$$0.20 \text{ m} \times 0.10 \text{ m} \times 2.4 \text{ t/m} = 0.048 \text{ t/m} = 0.197$$

$$0.149 \text{ t/m}$$

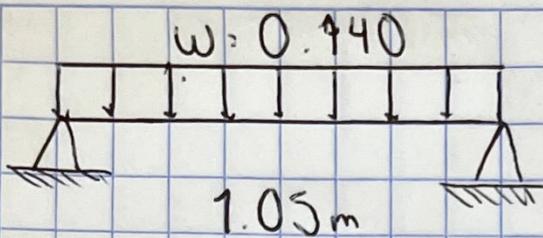
$$M_0 = \frac{0.197 \text{ t/m} (1.05 \text{ m})^2}{8} = 0.0271 \text{ t/m}$$

$$0.0271 \text{ t/m} (1.3 \times 10^5) = 3523$$

$$q = \sqrt{\frac{3523 \cdot 2 + 1}{0.9 \times 10 \times 16^2 \times 136}} \quad q = 0.988$$

$$P = \frac{(-0.988 + 1) \cdot 136}{4200} = 0.00038857$$

$$A_s = 0.00038857 (10) \cdot 16 = 0.0617$$



$$h = \frac{1.05}{12} = 0.20 \text{ m}$$

$$b = 0.5(0.20 \text{ m}) = 0.10 \text{ m}$$

$$0.20 \text{ m} \times 0.10 \text{ m} \times 4.2 = 0.048 \text{ t/m} = 0.188 \text{ t/m}$$

$$M_0 = \frac{0.188 (1.05)^2}{8} = 0.207$$

$$M_u = 0.207 (1.3 \times 10^9) = 26910$$

$$q = \int \frac{26910}{0.9 \times 10 \times 16^2 \times 136} \cdot 2 + 1$$

$$q = 0.91007$$

$$P = \frac{(-0.91007 + 1) 136}{4200}$$

$$P = 0.00291$$

$$A_s = 0.00291 (10) 16 = 0.4656$$