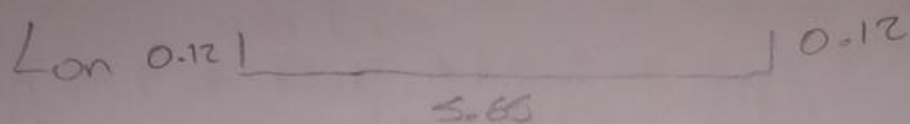


## Examen 3er unidad



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- 5to cuatrimestre
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- TALLER DE CONSTRUCCION DE MATERIALES BASICOS

# \* Cerramiento C-3



$$\text{Long} = 5.65 + 0.24 = \underline{5.89 \text{ m}}$$

$$\begin{aligned} \text{metros totales de varillas} &= (5.89 \text{ m}) (6 \text{ varillas}) \\ &= \underline{35.34 \text{ m}} \end{aligned}$$

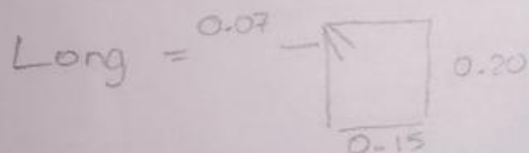
Desperdicio 30%

$$D = (35.33 \text{ m}) (1.03) = \underline{36.4002 \text{ m}}$$

$$\text{Pzas} = \frac{36.4002 \text{ m}}{12 \text{ m}} = 3.03335 \text{ pzas} \rightarrow \underline{4 \text{ pzas}}$$

$$\text{Peso} = (36.4002) (0.566) = \underline{20.6025 \text{ kg}}$$

# \* Estribos Dobles Var #2 @ 10



$$\text{Long} = 0.30 + 0.40 + 0.14 = 0.84 \text{ m}$$

$$\text{estribos dobles} = (0.84 \text{ m}) (2) = \underline{1.68 \text{ m}}$$

$$\text{Cant estribos} \rightarrow (5.65 \text{ m}) (0.10) = 56.5 \rightarrow \underline{57 \text{ estribos}}$$

Metros totales de Varilla

$$\text{MT} = (57 \text{ e}) (1.68 \text{ m}) = 95.76 \text{ m}$$

Desperdicio 30%

$$\rightarrow (95.76 \text{ m}) (1.03) = \underline{98.6328 \text{ m}}$$

$$\text{Peso} = (98.6328 \text{ m}) (0.250) = \underline{24.6582 \text{ kg}}$$

R 1

Cerramiento Armex 15x20 - 4

$$\text{Long} = 9.05 + 2.62 + 3.02 + 4.37 + 4.37 + 6.95 \\ + 3.02 + 2.62 + 2.62 + 2.62 = 41.26$$

$$\text{Cantidad de armex} = \frac{41.26 \text{ m}}{6 \text{ m}} \\ = 6.87 \rightarrow \underline{7 \text{ armex}}$$

#3

Varillas de Cerramiento C-2

$$\text{C-2 Long} = 0.24 \text{ m} \quad \text{---} \quad 1.375 \text{ m} \quad \text{---} \quad 0.12 \text{ m}$$

$$\text{Long } 1.375 + 0.24 = 1.615 \text{ m}$$

$$(1.615 \text{ m})(2 \text{ varillas}) = \underline{3.23 \text{ m}}$$

$$(3.23 \text{ m})(2 \text{ Trobes}) = \underline{6.46 \text{ m}}$$

$$\text{C-2 Long} = \text{---} \quad 3.47 \text{ m} \quad \text{---} \quad 0.12 \text{ m}$$

$$\text{Long} = 3.47 \text{ m} + 0.24 \text{ m} = \underline{3.71 \text{ m}}$$

$$\text{metros} = (3.71)(2 \text{ pros}) = \underline{7.42 \text{ m}}$$

$$(7.42 \text{ m})(2) = \underline{14.84 \text{ m}}$$

Despercio 30%

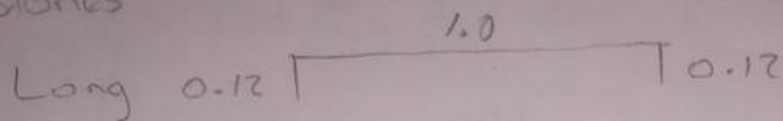
$$(14.84 \text{ m}) + (6.46 \text{ m}) = (21.29 \text{ m})(1.03 \text{ des})$$

$$\text{Pros} = \frac{21.9287 \text{ m}}{12 \text{ m}} = 1.82 \rightarrow \underline{2 \text{ pros}}$$

$$= 21.9287$$

$$\text{Peso} = (21.9287 \text{ m})(0.566) = \underline{12.411 \text{ Kg}}$$

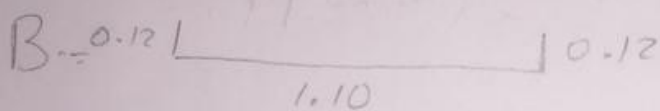
Bastones



$$\text{Long} = 1.0 + 0.24 = \underline{1.24 \text{ m}}$$

$$\text{Pzas} = (2.63 \text{ m}) \div (0.25) + 1 = 11.52 \rightarrow \underline{12 \text{ pzas}}$$

$$\text{metros totales} = (12 \text{ pzas}) (1.24) = \underline{14.88 \text{ m}}$$



$$\text{Long} = 1.10 + 0.24 = \underline{1.34 \text{ m}}$$

$$\text{Pzas} = (2.63 \text{ m}) \div (0.25) + 1 = 11.52 \rightarrow \underline{12 \text{ pzas}}$$

$$\text{Metros totales} = (1.34 \text{ m}) (12 \text{ pzas}) = \underline{16.08 \text{ m}}$$

$$\text{Total metros} = (16.08 \text{ m}) (2) = \underline{32.16 \text{ m}}$$

Total Metros Varrilla # 3

$$\underline{350.12 \text{ m}}$$

Desperdicio 3%

$$(350.12 \text{ m}) (1.03) = \underline{360.6236 \text{ m}}$$

$$\text{Metros totales de Varrilla} = 360.6236 \text{ m} + 308.7683 \text{ m}$$

$$= 669.3919 \text{ m}$$

$$\text{Cantidad pz varilla} = 669.3919 \text{ m} / 12 \text{ m} = 55.78 \rightarrow \underline{56 \text{ V}}$$

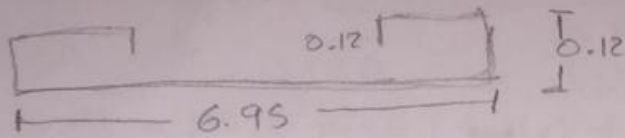
$$\text{Peso} = (669.3919 \text{ m}) (0.566) = \underline{378.8758 \text{ Kg}}$$

Parilla

Parilla de losa #3 @ 25 Longitudinales

Tablero 1

Long =



$$\text{Long} = 6.95 + 0.16 + 1.80 + 0.24 = 9.15 \text{ m}$$

Cantidad de Varrillas

$$3.025 / 0.25 + 1 = 13.1 = \underline{14 \text{ pzas}}$$

m de varilla

$$\text{mdv} = (9.15 \text{ m}) (14 \text{ pzas}) = \underline{128.1 \text{ m}}$$

$$3.025 + 0.8 + 0.12 = 3.945 \text{ m}$$

$$6.95 / 0.25 + 1 = 28.8 = 29 \text{ pzas} \quad \left. \vphantom{6.95 / 0.25 + 1} \right\} = 114.405$$

Bastones

$$B = 1.80 + 0.24 = 2.04 \times 14 = \underline{28.56}$$

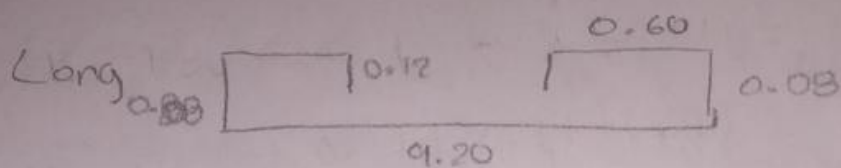
$$B = 0.75 + 0.24 = (0.99)(29) = \underline{28.71}$$

$$\text{m de varilla} \leq = 299.775$$

Desperdicio 3%

$$(299.775)(1.03) = \underline{308.7683 \text{ m}}$$

Parrilla de losa tablero 2 Longitudinales,

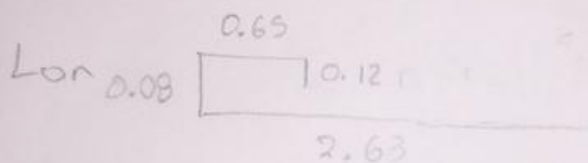


$$\text{Longitud} = 9.20 + 0.16 + 1.80 + 0.24 = \underline{10.8 \text{ m}}$$

$$\text{Pzas} = (2.63 \text{ m}) / (0.25) + 1 = 11.52 \rightarrow \underline{12 \text{ pzas}}$$

$$\text{Metros de varilla} = (10.8 \text{ m}) (12 \text{ pzas}) = \underline{129.6 \text{ m}}$$

Parrilla losa transversal



$$\text{Long} = 2.63 + 0.08 + 0.65 + 0.12 = 3.48 \text{ m}$$

$$\text{Pzas} = (3.48 \text{ m}) / (0.25) + 1 = 15.92 \rightarrow \underline{16 \text{ pzas}}$$

$$\text{Metros de varilla} = (3.48 \text{ m}) (16 \text{ pzas}) = \underline{55.68 \text{ m}}$$

$$\text{Long: } 2.63 + 0.16 + 1.30 + 0.24 = \underline{4.33 \text{ m}}$$

$$\text{Pzas} = (2.10) / (0.25) + 1 = 9.4 \rightarrow \underline{10 \text{ pzas}}$$

$$\text{Metros de varilla} = (4.33 \text{ m}) (10 \text{ pzas}) = \underline{43.3 \text{ m}}$$

Bastones:

$$\text{Long} = \frac{0.12}{0.65}$$

$$\text{Long} = 0.65 + 0.12 = 0.77 \text{ m}$$

$$\text{Pzas} = (9.20 \text{ m}) / (0.25) + 1 = 37.8 \rightarrow \underline{38 \text{ pzas}}$$

$$\text{Total metros} = (38 \text{ pzas}) (0.77 \text{ m}) = \underline{29.26 \text{ m}}$$

Concreto  $F' = 200$

Tableros sin contar trabes

Sumatoria de area de tableros por espesor

$$\begin{aligned} T_1 &= 5.6306 \\ T_2 &= 4.6406 \\ T_3 &= 4.6406 \\ T_4 &= 5.6306 \\ T_5 &= 9.3437 \\ T_6 &= 9.3437 \end{aligned}$$
$$(39.2298 \text{ m}^2)(0.12 \text{ m}) = 4.707576 \text{ m}^3$$

Concreto  $F' 200$

Longitudes de trabes de  $15 \times 20 \text{ cm}$

$$\text{area } \square = 0.15 \times 0.20 = 0.03 \text{ m}^2$$

$$\begin{aligned} C_1 &= 8.90 \\ C_2 &= 6.80 \\ C_3 &= 2.85 \\ C_4 &= 3.0250 \\ C_5 &= 3.0250 \\ C_6 &= 8.60 \\ C_7 &= 2.6250 \\ C_8 &= 2.4750 \\ C_9 &= 2.4750 \end{aligned}$$
$$(40.775 \text{ m})(0.03 \text{ m}^2)$$
$$1.2232 \text{ m}^3$$

$$C-3 \rightarrow \text{Area } (0.30 \text{ m})(0.20 \text{ m}) = 0.06 \text{ m}^2$$

$$\text{Long} = 5.50 \text{ m}$$

$$\text{Concreto m}^3 = (5.50 \text{ m})(0.06 \text{ m}^2)$$
$$= 0.33 \text{ m}^3$$

Total concreto  $F' 200$

$$TC = 4.707576 \text{ m}^3 + 1.2232 \text{ m}^3 + 0.33 \text{ m}^3 = 6.260776 \text{ m}^3$$

Desperdicio 50/0

$$\text{Total} = (6.260776 \text{ m}^3)(1.05) = 6.5738148 \text{ m}^3$$

## RESUMEN

### Varilla corrugada # 3

$$\text{Losa} \rightarrow 669.3919 \text{ m} \quad 727.7208 \text{ m}$$

$$\text{C-2} \rightarrow 21.9287 \text{ m}$$

$$\text{C-3} \rightarrow 36.4002 \text{ m}$$

$$Pzas = \frac{727.7208 \text{ m}}{12 \text{ m}}$$

$$Pzas = 60.6434 = 61 \text{ pzas}$$

$$\text{Peso } (727.7208) (0.566) = 411.8899 \text{ Kg}$$

### Armex 15 x 20 - 4

$$\text{C1 y C2} = 41.26 \text{ m}$$

$$Pzas = \frac{41.26 \text{ m}}{6 \text{ m}} = 6.87 \rightarrow 7 \text{ pzas}$$

### Concreto F' 200

$$\text{Losa} = 4.707576 \text{ m}^3$$

$$\text{C-1 y C-2} = 1.2232 \text{ m}^3$$

$$\text{C-3} = 0.33 \text{ m}^3$$

$$6.5738148 \text{ m}^3$$

### Varilla # 2

$$\text{C-3} = 24.6582 \text{ Kg}$$

Nota: Todos los resultados de esta hoja contienen añadido el desperdicio respectivo.