

SANDRA GUADALUPE RUIZ MORALES

TALLER DE CONSTRUCCION DE MATERIALES BASICOS

VOLUMEN DE OBRA

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A C E R O

▶ parilla, losa cuadrante 1 ojos B, C (abajo)

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

$$\text{pras} = 3.025 / 0.25 + 1 = 13.1 \rightarrow 14 \text{ pras}$$

$$\text{Total} = 9.15\text{m} (14) = 128.1\text{m}$$

longitudinal, ojo 2, 6

$$\text{long} = 1.80 + 0.24 = 2.04\text{m}$$

$$\text{pras} = 3.025 / 0.25 + 1 = 13.1 \rightarrow 14 \text{ pras}$$

$$\text{Total} = 2.04\text{m} (14) = 28.56\text{m}$$

baston, ojo 4

$$\text{long} = 3.025 + 0.16 + 1.5 + 0.24 = 4.925\text{m}$$

$$\text{pras} = 1.375 / 0.25 + 1 = 6.5 \rightarrow 7 \text{ pras}$$

$$\text{Total} = 4.925\text{m} (7) = 34.475\text{m} (2 \text{ tramos}) = 68.95\text{m}$$

transversal, ojo 2, 3

y 5, 6

$$\text{long} = 5.65 + 0.08 + 0.06 + 0.75 + 0.65 + 0.24 = 7.43\text{m}$$

$$\text{pras} = 4.20 / 0.25 + 1 = 17.8 \rightarrow 18 \text{ pras}$$

$$\text{Total} = 7.43\text{m} (18) = 133.74\text{m}$$

transversal
cuadrante A-C

eyes 3, 5

Cuadrante 2 ojos A-B (arriba)

$$\text{long} = 9.05 + 0.17 + 1.2 + 0.24 = 10.61\text{m}$$

$$\text{pras} = 2.625 / 0.25 + 1 = 11.5 \rightarrow 12 \text{ pras}$$

$$\text{Total} = 10.61\text{m} (12) = 127.32\text{m}$$

longitudinal ojo 1, 7

$$\text{long} = 0.65 + 0.75 + 0.24 = 1.64\text{m}$$

$$\text{pras} = 4.20 / 0.25 + 1 = 17.8 \rightarrow 18 \text{ pras}$$

$$\text{Total} = 1.64\text{m} (18) = 29.52\text{m}$$

Baston, ojo B, 3-5

$$\text{long} = 2.625 + 0.17 + 1.3 + 0.24 = 4.285\text{m}$$

$$\text{pras} = 2.925 / 0.25 + 1 = 10.7 \rightarrow 11 \text{ pras}$$

$$\text{Total} = 4.285\text{m} (11) = 47.135 (2 \text{ tramos}) = 94.27\text{m}$$

transversal

ojo 1-3

y 5-7



JE T'AI ME'

$$\text{long} = 1,1 + 0,24 = 1,34 \text{ m}$$

$$\text{Pzas} = 2,675 / 0,25 + 1 = 11,5 \rightarrow 12 \text{ pzas}$$

$$\text{Total} = 1,34 \text{ m} (12) = 16,08 \text{ (2 tramos)} = 32,16 \text{ m}$$

bastón
eje 3 y 5

$$\text{long} = 1 + 0,24 = 1,24 \text{ m}$$

$$\text{Pzas} = 2,625 / 0,25 + 1 = 11,5 \rightarrow 12 \text{ pzas}$$

$$\text{Total} = 1,24 (12) = 14,88 \text{ m}$$

bastón
Dc 4

$$\Sigma \text{ acero en parrilla losa} = 657,5 \text{ m}$$

► CR-1 armex

$$\text{eje A} \rightarrow 9,20 \text{ m}$$

$$\text{eje 1} \rightarrow 2,775 \text{ m}$$

$$\text{eje 2} \rightarrow 3,175 \text{ m}$$

$$\text{eje B} \rightarrow 9,20 \text{ m}$$

$$\text{eje 3} \rightarrow 2,775 \text{ m}$$

$$\text{eje 6} \rightarrow 3,175 \text{ m}$$

$$\text{eje C} \rightarrow 7,10 \text{ m}$$

$$\text{eje 5} \rightarrow 2,775 \text{ m}$$

$$\text{eje 7} \rightarrow 2,775 \text{ m}$$

$$\Sigma \text{ armex} = 42,95 \text{ m}$$

$$\text{Pzas} = 42,95 \text{ m} / 6 \text{ m} = 7,15 \rightarrow 8 \text{ pzas}$$

► CR-2

Varillas no. 3 eje B

$$\text{long} = 1,375 + 0,24 = 1,615 \text{ m (2 varillas)} = 3,23 \text{ m (2 tramos)} = 6,46 \text{ m}$$

Varilla no. 3 eje C

$$\text{long} = 1,15 + 0,24 = 1,39 \text{ m (2 varillas)} = 2,78 \text{ m (2 tramos)} = 5,56 \text{ m}$$

$$\Sigma \text{ varillas no. 3} = 12,02 \text{ m}$$

► CR-3

Varilla no. 3 5C4

$$\text{Long} = 5.80 + 0.24 = 6.04 \text{ (6 varilla)} = 36.24 \text{ m}$$

Varilla no. 2 (estribos)

$$\text{Long} = 0.70 + 0.14 = 0.84 \text{ m (2 pres)} = 1.68 \text{ m}$$

$$\text{pres} = 5.80 / 0.10 + 1 = 59 \text{ pres}$$

$$\text{Total} = 1.68 \text{ m (59)} = 99.12 \text{ m}$$

Total de varilla no. 3

$$\text{► losa} \rightarrow 657.5 \text{ m}$$

$$\text{► CR-2} \rightarrow 12.07 \text{ m}$$

$$\text{► CR-3} \rightarrow 36.24 \text{ m}$$

$$705.76 \text{ m (1.03)} = 726.9328 \text{ m}$$

$$\text{Pres} = 726.9328 \text{ m} / 12 \text{ m} = 60.57 \rightarrow 61 \text{ pres}$$

$$\text{Kg} = 726.9328 \text{ m (0.566)} = 411.443 \text{ Kg}$$

Total de varilla no. 2

$$\text{► CR-3 estribos} \rightarrow 99.12 \text{ m (1.03)} = 102.0936 \text{ m}$$

$$\text{Pres} = 102.0936 \text{ m} / 12 \text{ m} = 8.5 \rightarrow 9 \text{ pres}$$

$$\text{Kg} = 102.0936 \text{ m (0.250)} = 25.5234 \text{ Kg}$$

Total de armex

$$\text{► CR-1} \rightarrow 42.95 \text{ m} / 6 \text{ m} = 7.15 \rightarrow 8 \text{ pres}$$

CONCRETO

$$f'c = 200 \text{ kg/cm}^2$$

► Cerramientos

$$(0.15\text{m})(0.70\text{m})(9.70\text{m}) = 0.776 \text{ (2 tramos)} = 0.552\text{m}^3 > \text{eje A, B}$$

$$(0.15\text{m})(0.70\text{m})(7.10\text{m}) = 0.213 \text{ m}^3 > \text{eje C}$$

$$(0.15\text{m})(0.70\text{m})(2.975\text{m}) = 0.07425 \text{ (4 tramos)} = 0.297\text{m}^3 > \text{eje 1, 3, 5, 7}$$

$$(0.15\text{m})(0.70\text{m})(2.875\text{m}) = 0.08625 \text{ (2 tramos)} = 0.175\text{m}^3 > \text{eje 2, 6}$$

$$(0.30\text{m})(0.70\text{m})(2.875\text{m}) = 0.1725\text{m}^3 > \text{eje 4 sección 1 (abajo)}$$

$$(0.30\text{m})(0.70\text{m})(2.975\text{m}) = 0.1485\text{m}^3 > \text{eje 4 sección 2 (arriba)}$$

$$\text{Total} = 1.5555 \text{ m}^3$$

► losa

$$(5.6306\text{m}^2)(0.10) = 0.56306 \text{ m}^3 \text{ (2 tramos)} = 1.12612 \text{ m}^3 > \text{cuadrante A-B, 1, 3}$$

$$(4.6406\text{m}^2)(0.10) = 0.46406 \text{ m}^3 \text{ (2 tramos)} = 0.92812 \text{ m}^3 > \text{cuadrante A-B, 3, 4}$$

$$(9.3438\text{m}^2)(0.12) = 1.121256 \text{ m}^3 \text{ (2 tramos)} = 2.242512 \text{ m}^3 > \text{cuadrante B-C, 2, 4}$$

$$\text{Total} = 4.296752 \text{ m}^3$$

Total de concreto

$$\text{► CR} \rightarrow 1.5555 \text{ m}^3$$

$$\text{► losa} \rightarrow 4.296752 \text{ m}^3$$

$$5.852252 \text{ m}^3 (1.05) = 6.1448646 \text{ m}^3$$