CUANTIFICACIÓN

Taller de construcción

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Tabla de Datos

Concepto	Resultados
Limpieza	53.36 m²
Excavación	63.709425 m³
Zapata Corrida (Z-1):	
Acero N°3	39pz - 264.824 kg
Acero N°4	8pz - 95.577405 kg
Acero N°5	10pz - 175.604976 kg
Acero N°2	38pz - 111.6108 kg
Zapata Corrida (Z-2):	
Acero N°3	6pz - 38.593276 kg
Acero N°4	2pz - 12.77157 kg
Acero N°5	2pz - 22.955994 kg
Acero N°2	6pz - 17.922 kg
Dado D-1	8pz - 42.95 m
Dado D-2 =	
Acero N°2	6pz - 17.319495 kg
Acero N°3	3pz - 14.0847968 kg
Muro de contraste de cimentación	271pz
Plantilla de concreto f'c 100 kg/m²	2.343825 m³
Plantillo de concreto f'c 200 kg/m²	10.004793375 m³
Castillos K-1	72pz - 72 m
Castillo K-2 =	
Acero N°2	29pz - 85.3664 kg
Acero N°3	17pz - 111.932160 kg
Castillo K-3 =	
Acero N°2	20pz - 57.9684 kg
Acero N°4	9pz - 100.4976 kg

▷ Preliminares:

- Limpieza:

base = 9.20 $9.20 \times 5.80 = 53.36 m^2$

Largo = 5.80

- Excavación (z-1)

Eje A y B = $10.05 \times 1 \times 1.15 = 11.5575 m^3 \times 2 = 23.115 m^3$

Eje 1, 3, 5 y 7 = $1.6250 \times 1 \times 1.15 = 1.86875 \times 4 = 7.475 m^3$

Eje 2 y 6 = $2.0250 \times 1 \times 1.15 = 2.32875 \times 2 = 4.6575 m^3$

Eje C = $7.95 \times 1 \times 1.15 = 9.1425 m^3$

Σ z-1 = $44.39 m^3$

Σ z-2 = $4.61725 m^3$

- Excavación (z-2) =

Eje 4 = $1.6250 \times 1.10 \times 1.15 =$

$2.055625 m^3$

$2.0250 \times 1.10 \times 1.15 =$

$2.561625 m^3$

z-1 + z-2 = $49.00725 \times 1.30 =$

$63.709425 m^3$

- Plantilla de concreto fc 100 (z-1)

Eje A y B = $10.05 \times 1 \times 0.05 = 0.5025 (2) = 1.005 m^3$

Eje 1, 3, 5 y 7 = $1.6250 \times 1 \times 0.05 = 0.08125 (4) = 0.325 m^3$

Eje 2 y 6 = $2.0250 \times 1 \times 0.05 = 0.10125 (2) = 0.2025 m^3$

Eje C = $7.95 \times 1 \times 0.05 = 0.3975 m^3$

z-1 = $1.93 m^3$

z-2 = $0.20075 m^3$

- Plantilla de concreto f'c100 (z-2)

Eje 4 =

$1.6250 \times 1.10 \times 0.05 =$

$0.089375 m^3$

$2.0250 \times 1.10 \times 0.05 =$

$0.111375 m^3$

z-1 + z-2 = $2.13075 \times 1.1 =$

$2.343825 m^3$

- Plantilla de concreto fc 200 (z-1)

Eje A y B =

Base = $0.80 \times 0.15 \times 9.85 = 1.182 m^3$

Contratrabe = $0.15 \times 0.35 \times 9.20 = 0.483 m^3$

dala = $0.15 \times 0.20 \times 9.20 = 0.276 m^3$

$1.941 \times 2 = 3.882 m^3$

Eje 1, 3, 5, y 7 =

Base = $0.80 \times 0.15 \times 1.8250 = 0.219 m^3$

Contratrabe = $0.15 \times 0.35 \times 2.4750 = 0.1299375 m^3$

- Plantilla de concreto f'c200 (z-2)

Eje 4 =

- Pedazo 1 =

Base = $.90 \times .15 \times 1.8250 = 0.246375 m^3$

Contratrabe = $.30 \times .35 \times 2.4750 = 0.259875 m^3$

Dala = $.30 \times .20 \times 2.4750 = 0.1485 m^3$

0.65475

Norma

Z-1 (Concreto f'c 200)

dala = 0.15 x 0.20 x 2.4750 = 0.07425 m^3

0.4231875 m^3 x 4 = 1.69275 m^3

Eje 2 y 6 =

Base = .80 x .15 x 2.2250 = 0.267 m^3

Contratrabe = .15 x .35 x 2.875 = 0.1509375 m^3

Dala = .15 x .20 x 2.875 = 0.08625 m^3

0.5041875 m^3 x 2 = 1.008375 m^3

Eje C =

Base = .80 x .15 x 7.75 = 0.93 m^3

Contratrabe = .15 x .35 x 7.10 = 0.37275 m^3

Dala = .15 x .20 x 7.10 = 0.213 m^3

1.51575 m^3

Z-2 (Concreto f'c 200)

- Pedazo 2 =

Base = .90 x .15 x 2.2250 = 0.300375 m^3

Contratrabe = .30 x .35 x 2.875 = 0.301875 m^3

Dala = .30 x .20 x 2.875 = 0.1725 m^3

0.774375 m^3

Σ Z-1 = 8.09885 m^3

Σ Z-2 = 1.4295 m^3

Z-1 + Z-2 = 9.528375 x 1.05 =

10.004793 75 m^3

Parrilla Acero N° 3 =

Transversal

Eje A

long = .80 + .24 = 1.04m

Pza = 1.625 / .20 + 1 = 9.125 = 10

1.04m x 10pz = 10.4m x 2 = 20.8m

Pz = 1.25 / .20 + 1 = 7.25 = 8

1.04m x 8pz = 8.32m x 2 = 16.64m

Longitudinal

long = 9.85 + .24 = 10.09m

10.09m (4pz) = 40.36m

Total en eje A = 77.8m

Transversal =

Eje B

Longitudinal =

long = .80 + .24 = 1.04m

Pz = .25 / .20 + 1 = 2.25 = 3 - 2 = 1pz

1.04m x 1pz = 1.04m (2) = 2.08m

Pz = 0.575 / .20 + 1 = 3.875 = 4 - 2 = 2pz

1.04m x 2pz = 2.08m x 2 = 4.16m

Pz = 1.25 / .20 + 1 = 7.25 = 8 - 2 = 6pz

1.04 x 6pz = 6.24m x 2 = 12.48m

long = 9.85 + .24 = 10.09m

10.04 x 4 = 40.36

Total en eje B = 59.08

Transversal

Eje C

Longitudinal =

long = .80 + .24 = 1.04m Pz = 2.625 / .20 + 1 = 14.125 = 15

1.04 x 15 = 15.6m x 2 = 31.2m

7.75 + .24 = 7.99 (4pz) =

31.96m

Total en eje C = 63.16

Norma

Transversal — Eje 1, 3, 5 y 7

long = 0.80 + 0.24 = 1.04m

Pz = 1.8250 / .20 + 1 = 10.125 = 11

1.04m x 11 = 11.44m x 4 = 45.76m

Transversal = Eje 2,6

long = .80 + .24 = 1.04m

Pz = 2.2250 / .20 + 1 = 12.125 = 13

1.04 x 13 = 13.52m x 2 = 27.04m

Longitudinal

long = 3.4725 x 24 = 3.665m (4)

14.66m x 4 = 58.64m

Total en eje 1,3,5,7 = 104.4m

Longitudinal

long = 3.8250 + .24 = 4.065 x 4 pz =

16.24 (2) = 32.56m

Total en eje 2 y 6 = 59.6m

Contratrabe zapata 1 (Acero N°3) =

Eje A =

long = 9.20 + 0.24 = 9.44m x 2 = 18.88m

Eje B =

long = 9.20 + 0.24 = 9.44m x 2 = 18.88m

Eje C =

long = 7.10m + 0.24m = 7.34m x 2 = 14.68m

Eje 1, 3, 5, 7 =

long = 2.7750 + .24 = 3.015 x 2 pz =

6.03m x 4 = 24.12m

Eje 2 y 6 =

long = 3.1750 + 0.24 = 3.415m x 2 =

6.83m x 2 = 13.66m

Totales de Acero N°3 en cada eje (z-1) =

Eje A = 96.68m

Eje B = 77.96m

Eje C = 77.84m

Σ Eje 1, 3, 5, 7 = 128.52m

Σ Eje 2 y 6 = 73.26m

Total de m en Acero N°3 zapata 1 =

Σ de ejes = 454.26 x 1.03 = 467.8878

Pz = 467.8878 ÷ 12 = 38.99065

Pz = 39

Kg = 0.566 x 467.8878

Kg = 264.824

Contratrabe Acero N°5

Eje A = 9.85 + 0.40 = 10.25m x 2 pz = 20.5m

Eje B = 9.85 + 0.40 = 10.25m x 2 pz = 20.5m

Eje C = 7.75 + 0.40 = 8.15 x 2 pz = 16.3m

Eje 1, 3, 5 y 7 = 3.425 + .40 = 3.825 x 2 pz = 7.65 x 4 = 30.6m

Eje 2 y 6 = 3.825m + 0.40 = 4.225m x 2 pz = 8.45m x 2 = 16.9m

Total de Acero n°5 de 2-1 en cimentación:

104.8m x 1.07 = 112.136

Pz = 112.136 / 12 = 9.34

Pz = 10 /

Kg = 112.36 x 1.56 ( )

Kg = 175.604976 /

Contratrabe Acero N° 4 =

Eje A y B = 9.20 + .30 = 9.50 x 2 = 19m x 2 = 38m

Eje C = 7.10 + .30 = 7.40 x 2 = 14.8m

Eje 1, 3, 5 y 7 = 2.775 + .3 = 3.075 x 2 = 6.15 x 4 = 24.6m

Eje 2 y 6 = 3.175 + .30 = 3.475 x 2 = 6.95 x 2 = 13.9m

Total de Acero N° 4 de 2-1 =

91.3m x 1.05 = 95.865m

Pz = 95.865 / 12 = 7.988

Pz = 8 /

Kg = 95.865 x 0.997 kg

Kg = 95.577405 /

Contratabe estribos (Acero N°2)

L = .15 + .15 + .50 + .50 = 1.3 + .14 = 1.44m

Eje A y B = 9.20 / .15 + 1 = 62.3 = 63pz (1.44m) = 90.72 x 2 = 181.44m

Eje C = 7.10 / .15 + 1 = 48.3 = 49pz (1.44) = 70.56

Eje 1, 3, 5 y 7 = 2.775 / .5 + 1 = 19.5 = 20pz (1.44) = 28.8 x 4 = 115.2

Eje 2 y 6 = 3.175 / .15 + 1 = 22.16 = 23 (1.44) = 33.12 x 2 = 66.24m

Total de acero N°2 = 433.44 x 1.03 = 446.44 32

Pz = 38 / kg = 171.6108 /

- Zapata Corrida z-2 (Acero 2, 3, 4 y 5)

Parrilla Acero N°3 Eje 4

Transversal (seccion 1)

0.90 + 0.24 = 1.14m

Pz = 1.825 / .20 + 1 = 10.125 = 11

11 (1.14m) = 12.54m /

Longitudinal:

6.45 + 0.24 = 6.69m (4) = 26.76m /

Contratabe

Long = 5.8 + 0.24 = 6.04m x 2 = 12.08m /

Transversal (seccion 2)

Pz = 2.225 / .20 + 1 = 12.125 = 13

13 (1.14m) = 14.82m /

Acero N°3 en cimentación (z-2) = 66.2 x 1.03 = 68.186m

Pz = 68.186 / 12 = 5.68

Pz = 6 /

kg = 68.186 x 0.566 =

kg = 38.593276 /

Contratrabe Acero N°5

long= 6.45 + 0.40 = 6.85 x 2 = 13.7m

Acero N°5 en cimentación=

13.7m x 1.07 = 14.659

Pz = 14.659 / 12 = 1.221

Pz = 2/

kg = 14.659 x 1.566 =

kg = 22.955994/

Contratrabe Acero N°4=

5.8 + .30 = 6.10 x 2 = 12.2

Acero N°4 en cimentación=

12.2 x 1.05 = 12.81 / 12 = 1.067

Pz = 2/ Kg = 12.81 x 0.997 = 12.77157 kg/

Contratrabe estribos (Acero N°2)

L = .30 + .30 + .50 + .50 = 1.6 + .14 = 1.74

5.8 / .15 + 1 = 39.66 = 40 pz

40 (1.74) = 69.6

Acero N°2 en cimentación=

69.6 x 1.03 = 71.688 / 12 = 5.974

Pz = 6/ kg = 71.688 x .250 = 17.922 kg/

-Dala D-1 (m)

Eje A y B = 9.20m = 18.4 Eje 1, 3, 5 y 7 = 2.775m = 11.1m

Eje C = 7.10m Eje 2 y 6 = 3.175m = 6.35m

Total de m de Dala 1 =

42.95m / 6m

Pz = 7.15

Pz = 8/

-Dala D-2 (Acero N°2 y 3)

Acero n°3

long = 5.8 + 0.24 = 6.04m

6.04m x 4pz = 24.16m x 1.03 = 24.8848m

Total de acero n°3 en dala (D-2)=

24.8848m / 12 = 2.073

Pz = 3/

kg = 24.8848 x 0.566 =

kg = 14.0847908

Acero N°2 (Estribos

L = .30 + .30 + .20 + .20 = 1 + .14 = 1.14 m

Pz = 5.80 / .10 + 1 = 59 pz

59 x 1.14 m = 67.26 m

Total de acero n°2 en kg =

67.26 x 1.03 = 69.2778 / 12

Pz = 6

Kg = 69.2778 x 0.250 = 17.31945 kg

- Muro de enrase de cimentación

Zapata 1 =

Eje A y B = 9.20 (0.40) = 3.68 m² (13) = 48 x 2 = 96 pz

Eje 1, 3, 5 y 7 = 2.475 (.40) = 0.99 (13) = 13 (4) = 52 pz

Eje 2 y 6 = 2.8750 (0.40) = 1.15 (13) = 14.95 = 15 x 2 = 30 pz

Eje C = 7.10 (0.40) = 2.84 (13) = 36.92 = 37 pz

Total de pz en Z-1 = 215 pz

Norma

Muro de enrase Z-2 =

2.475 (0.40) = 0.99 (13) = 12.87 pz = 13 pz x 2 = 26 pz

2.8750 (0.40) = 1.15 (13) = 14.95 pz = 15 pz x 2 = 30 pz

Total de pz en Z-2 = 56 pz

Total de muro de enrase en cimentación (Z Z-1 y Z-2) =

271 pz

> Albañilería

- Castillo K-1 (A. mex) = * Altura de castillos 4 m en este proyecto

Eje A y B = 4 x 6 = 24 m x 2 = 48 m

Eje 1 y 7 = 4 x 1 = 4 x 2 = 8 m

Eje C = 4 x 4 = 16 m

Total de K-1 en terreno = 72 m

- K_2 (ACERO 3) =

cantidad de castillos en terreno

L = 4m P_2 = 6 6 x 4 = 24m (8) = 192 (1.03) = 197.76/12

P_2 = 16.48 = 17pz

Kg = 111.93216kg

Estribos N°2 (K-2)

P_2 = 4m/.15 = 26.66 = 27+1 = 28pz

L = 0.60 + .14 = 0.74(2) = 1.48m

28(1.48m) = 41.44m (8) = 331.52

331.52 (1.03) = 341.4656

pz = 341.4656/12 = 28.45

Pz = 29pz

Kg = 341.4656 x 0.250 =

Kg = 85.3664

Kg = 85.3664

- K-3 (ACERO N°4) =

L = 4m P_2 = 8 4 x 8 = 32m (3) = 96 x 1.05 = 100.8

pz = 100.8/12 = 8.4

Pz = 9

Kg = 100.8 x 0.997 kg

Kg = 100.4976

Estribos N°2 (K-3)

L = 1.2 + .14 = 1.34(2) = 2.68

Pz = 4m/.15 = 26.66 = 27+1 = 28pz

28 (2.68) = 75.04m (3) = 225.12

225.12 (1.03) = 231.8736

Pz = 231.8736/12 = 19.32

Pz = 20

Kg = 231.8736 x 0.250 =

Kg = 57.9684