- Lic. Arquitectura
- 5to cuatrimestre

  Equipo:
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- TALLER DE CONSTRUCCION DE MATERIALES BASICOS

Limpieza 23.4437 5

Usamos el
Comando area
en autocad ——> 57.1800 m^2

Excavación

Z-1

Anchura = 0.80
Alt = 1.10
Long 1 = 9.85
Long 2 = 9.85
Long 3 = 7.75
Long 4 = 1.82
Long 5 = 1.82
Long 6 = 1.82
Long 7 = 1.82
Long 8 = 2.22
Long 9 = 2.22

39.17 (0.80)(1.10)
= 34.4696 m^3

Anchura = 0.90
Alt = 1.10
Long 1 = 1.82
Long 2 = 2.22

4.04 (0.90)(1.10)
= 3.9996 m^3

Desperdicio 30 o/o

(34.4696) + (3.9996) = (38.4692)(1.30) m^3
= 50.00996 m^3

Plantilla de Concreto FC = 100 kg / cm² (m²)

Anchura : 0.80
Alt = 0.05
Long 1 = 9.85
Long 2 = 9.85
Long 3 7.75
Long 4 1.87
Long 5 1.82
Long 6 1.87
Long 7 = 1.87
Long 8 2.27
Long 9 = 2.27

39,17 Long → 1.5668 m³

Anchura : 0.90
Alt = 0.05
Long 1 1.82
Long 2 = 2.22

4.04 → 0.1818 m³

Desperdicio 10 %

(1.7486 m³) (1.1)

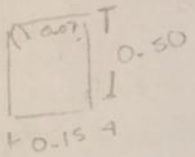
= 1.92346

Zapata Corrida Z-1 (Acero No. 2, 3, 4 y 5) (Kg y Pz)

Varilla Corrugada # 2

* Dobles : 0.07 m

* Longitud:



, Long = 1.30 m + 0.14 m = 1.44 m //

* Número de estribos.

9.20 / 0.15+1 = 62.333
= 63

9.20 / 2.15+1 = 62.333
= 63

7.10 / 0.15+1 = 48.333
= 49

2.87/a15 + 1
= 20.1333
= 21

2.87 / 0.15 + 1
= 20.1333
= 21

2.47/0.15+1 =
= 17.4666
= 18

2.47 / 0.15+1
= 17.4666
= 18

2.47/0.15 + 1
= 17.466
= 18

2_47 / 0.15 + 1
= 17.466
= 18

Total
289 Pzas
(289)(1.44)
= (416.16 m)(1.03)
= (428.6448)(0.25)
= 107.1612 kg

Varilla corrugada #3 Z-1

Dobles = 3/8 (0.254) = 0.009525 x 12
= 11.43
= 12

Longitud Parrilla varilla #3

9.85 m + 9.85 m + 7.75 m + 3.42 + 1.82 + 2.22
Dobleces (8.64)

Long = (47.81 m)(4) = (191.24 m

= 191.24 m

Longitud contratrabe Varrilla #3

Long = 9.20 m + 9.20 m + 7.10 m + 2.87 m + 2.87 m + 2.47 m
+ 2.47 m + 2.47 m + 2.47 m + (8.64 m)

Long = (47.72 m)(2 Pzas) = (82.24 + 8.64)

= 90.88 m

Longitud Parrilla transversal #3

Dobleces = 0.12 m

Long = 0.80 / 0.12, Long = 0.24 + 0.80

= 1.04 m

Numero de Pzas

Long = 9.85 m + 9.85 m + 7.75 + 3.42 + 1.82 + 2.22

39.17 m / 0.20 + 1 = 196.85 = 197

(197 Pzas)(1.04 m) = 204.88 m

Total = 487 m
Desperdicio 30%
(487 m)(1.03) = 501.61 m

Pzas 501.61 / 12 = 41.82
Pzas = 42

Kg = 283.91 Kg

Varilla Corrugada # 4 (1/2) (5/8) Z-1

Dobles = 0.12 m

Longitud = 9.20 m + 9.20 m + 9.10 m + 2.87 m + 2.87 m
+ 2.47 m + 2.47 m + 2.47 m + 2.47 m
+ Dobleces (4.32 m)

Long = 41.12

Pzas = 2

Lon = (41.12)(2) = (82.24) + (4.32)

= 86.56 m

Desperdicio 5%

(86.56 m)(1.05) = 90.888

= 90.888 m / 12

Pzas = 7.574

Pzas = 8

Kg = (90.888 m)(0.997)

Kg = 90.615336 kg

Varilla corrugada # 5

Dobles = 0.12

Longitud = 9.85 m + 3.42 m + 3.42 m
+ 3.42 m + 3.42 m
+ 9.85 m + 3.82 m
+ 3.82 m + 7.75 m

Long = 48.77 m

Longitudal = (48.77 m)(2 pzas)

= 97.54 m + 4.32 m (Dobleces)

Longt = 101.86 m

Desperdicio del 7%

(101.86 m)(1.07)

Total = 108.9902 m

$$Pzas = \frac{108.9902\ m}{12\ m}$$

Pzas = 9.08 → 10 Varillas

Peso = (108.9902 m)(1.566)

Peso = 170.67 kg

Zapata Corrida Z-2

Varilla Corrugada #2

Estribos

Dobles = 0.07

Longitud = 

1.60 + 0.14 = 1.74 m

Num estribos = (5.80 m) % (0.15 m) + 1

= 39.666

Long total = (39.666)(1.74 m)

= 69.01884 m

Desperdicio o/o 3

(69.01884 m)(1.03) = 71.089 40552

Pza = $\frac{71.0894052\ m}{12\ m}$

Pza = 5.92 -> 6 Pzas

Peso = (71.0894052 m)(0.250)

Peso = 17.7723513 Kg

Varilla corrugada # 3

Dobles = 0.12 m

Parrilla.

Longitud 0.12 | 6.45 | 0.12

Long = 6.45 + 0.24 = 6.69 m

(6.69 m)(4 pzas) = 26.76 m //

Contratrabe.

Dobles = 0.12 m

Longitud 0.12 | 5.80 | 0.12

Long = 5.80 + 0.24 = 6.04 m

(6.04 m)(2 pzas) = 12.08 m //

Parrilla transversal #3

Dobles = 0.12

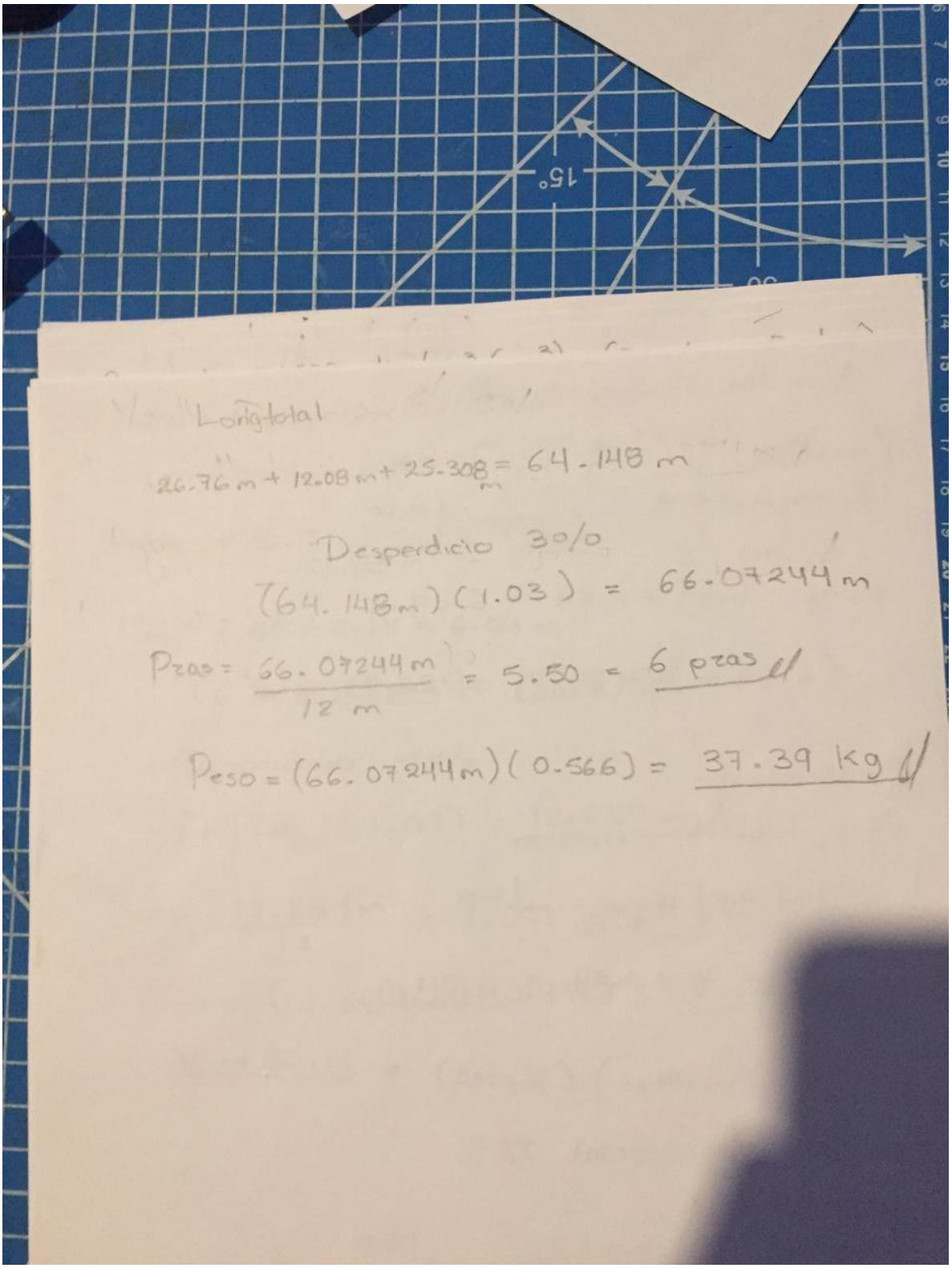
Longitud = 0.12 | 0.90 | 0.12

Long = 0.90 + 0.24 = 1.14 m

Num de pzas (1.82 m) ÷ (0.20) + 1 = 10.1 pzas > 22.2 pzas

Num de pzas (2.22 m) ÷ (0.20) = 12 pzas

(22.2 pzas)(1.14 m) = 25.3008 m



Long total

$26.76\,m + 12.08\,m + 25.308\,m = 64.148\,m$

Desperdicio 3%

$(64.148\,m)(1.03) = 66.07244\,m$

$Pzas = \frac{66.07244\,m}{12\,m} = 5.50 = \underline{6\ pzas}$

$Peso = (66.07244\,m)(0.566) = \underline{37.39\ kg}$

Varilla corrugada # 4

Dobles = 0.12 m

Long = 0.12 | ——— | 0.12
5.80

Long = 5.80 + 0.24 = 6.04 m

(6.04 m)(2 pzas) = 12.08 m //

Desperdicio 5%

(12.08 m)(1.05) = 12.684 m //

Pzas = $\frac{12.684\ m}{12}$ = 1.057 → 2 pzas //

Peso = (12.684 m)(0.997) = 12.645948 kg //

Varilla Corrugada #5 2-2

Dobles = 0.12 m

Long = 0.12 | 6.45 | 0.12

Long = 6.45 + 0.24 = 6.69 m //

LonTot = (6.69 m)(2 pzas) = 13.38 m

Desperdicio 7 %

(13.38 m)(1.07) = 14.3166 m //

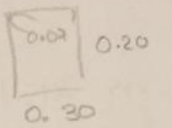
Pzas = $\frac{14.3166\ m}{12\ m}$ = 1.19305 → 2 pzas //

Peso = (14.3166 m)(1.566) = 22.41 kg //

Dala, D-2 (Acero Num. 2, 3), (Pza y Kg)

Dala – D-2, Acero # 2

Dobles = 0.07 m

Longitud = 

Long = 1m + 0.114 = 1.14 m

Numero de estribos

NE = (5.80 m) ÷ (0.10) + 1 = 59 Estribos

Longitud total = (59 pzas)(1.14) = 67.26 //

Desperdicio 3%

(67.26 m)(1.03) = 69.2778

Peso = (69.2778 m)(0.250) = 17.31945 kg //

Dala – D-2 Acero # 3

Dobles = 0.12 m

Long = 5.80 + 0.24 = 6.04

(6.04 m)(4 pzas) = 24.16 m

Desperdicio 3%

(24.16 m)(1.03) = 24.8848 m //

Pza = $\frac{24.8818}{12}$ = 2.07 = 3 pzas //

Peso = (24.8844)(0.566)

Peso = 14.08 kg //

Dala – 1 (Armex)

Suma de longitudes

Lon 1 = 9.20 m + Long = 9.20 m + Long 7.10 m + Long 2.87 + Long 2.87 = + Long = 2.47 m + Long = 2.47 m. 2.47 m + 2.47 m

Long total = 41.12 m

Pzas de armex = $\frac{41.12\,m}{6m}$ = 6.85 = 7_{pzas}

Concreto F'200 kg/cm³ (m³), (zapata + Dala)

Longitudes de zapata Z-1

Sumatoria Long = 9.85 m + 9.85 m + 7.75 + 1.82 m + 1.82 + 1.82 m + 1.82 m + 2.22 m + 2.22 m

Longtotal = 39.17 m

Volumen total = (39.17 m)(0.15)(0.80) = 4.7004 m³

zapata, Z-2

Sumatoria Long = 1.82 m + 2.22 m = 4.04 m

Volumen tota = (4.04 m)(0.15)(0.90) = 0.5454 m³

Contratrabe Z-1

Longitudes → 9.20m + 9.20m + 7.10m + 2.87 m + 2.87m + 2.47m + 2.47m + 2.47m + 2.47m

total = 41.12

Volumen total Z-1 = (41.12 m)(0.15)(0.35) = 2.1588 m³

Contratrabe Z-2

Longitudes → 2.87 m + 2.47 m

total long = 5.34 m

Volumen total = (5.34 m)(0.30)(0.35) = 0.5607 m³

Sumatorias de volumenes

$4.7004\ m^3 + 0.5454\ m^3 + 2.1588\ m^3 + 0.5607\ m^3 = 7.9653\ m^3$

Desperdicio 5%

$(7.7653\ m^3)(1.05) = \underline{8.363565\ m^3}$

Dala, D-1

Longitudes = 9.20m + 9.20m + 7.10m + 2.87m + 2.87 + 2.47m + 2.47m + 2.47m + 2.47m

total Long = 41.12 m

Volumenes total = $(41.12\ m)(0.15)(0.20) = \underline{1.2336\ m^3}$

Dala D-2

Longitudes → 2.87m + 2.47m = 5.34m

Total Long = 5.34 m

Volumen total = $(5.34\ m)(0.20)(0.30) = \underline{0.3204\ m^3}$

Dalas Desperdicio 5%

$(1.554\ m^3)(1.05) = \underline{1.6317\ m^3}$

Sumatorias de Volumenes totales, concreto F'200

$8.363565\ m^3 + 1.6317\ m^3 = 9.995265\ m^3$

Muro de enraces

Cantidad de ladrillos por m^2

$$CL = \frac{1}{(L+J_H) \times (H+J_V)}$$

$$CL = \frac{1}{(0.415)(0.215)} = 11.207$$

Desperdicio 10%

$(11.207)(1.1) = 12.32 \rightarrow$ 13 pzas //

Muros:

Longitud total = 41.12 m

m² de muro = $(41.12\ m)(0.40\ m) = 16.448\ m^2$

Cantidad de Block = $(16.448\ m^2)(13\ pzas)$

Cantidad blocks = 213.824 → 214 Blocks //

Castillo K-1 (m)

Castillos Armex, longitud -> 4 m
Numero de castillos = 18

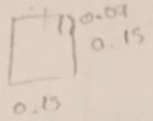
$m = 72\ m$

Cantidad de armex

$CA = \frac{72\ m}{6m} = 12\ \text{Armex}$

Estribos #2 @ 15

Dobles = 0.07

Long = 

Long = 0.60 + 0.14 = 0.74 m

Cantidad de estribos = (4m) o/o (0.15) + 1 = 27.66 estribos

Cantidad de metros = (0.74m)(27.66 estribos) = 20.4684 m

(20.4684 m)(2 cabillos) = 40.9368 m

Desperdicio 3o/o

(40.9368 m)(1.03) = 42.1649 m

Peso = (42.1649 m)(0.250) = 10.541225 kg

K-2 : 8
K-1 = 18 > 4m largo
K-3 = 3

Castillo K-2 (Acero No. 2,3) (pza y kg)

Varillas # 3

Dobles = 0.12 m

Longitud = 0.12 | 4.0 m | 0.12

Varillas por castillo = (6 varillas)(8 castillos) = 48 Varillas

Long = 0.24 m + 4.00 m = 4.24

LongTotal = (4.24 m)(48 Varillas) = 203.52 m

Desperdicio 3%

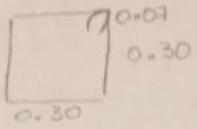
(203.52 m)(1.03) = 209.6256 m

$Pzas = \frac{209.6256\ m}{12\ m} = 17.4688 \rightarrow$ 18 Varillas

Peso = (209.6256 m)(0.566) = 118.6480 kg

Estribos # 2 @ 15

* Dobles = 0.07 m

Long = 

Long = (1.20 m) + (0.14 m) = 1.34 m

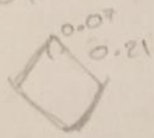
Cantidad de estribos

CE = (4m) % (0.15) + 1 = 27.66667 estribos

Metros de varilla

MV = (27.66667 E) (1.34 m) = 37.0644 m

* Dobles = 0.07

Long = 

Long 0.84 + 0.14 = 0.98 m

Cantidad de estribos, = (4m) % (0.15) + 1 = 27.66667 E

Metros de Varilla

MV = (27.66667 E) (0.98) = 27.1068 m

metros de varilla total

27.1068 m + 37.0644 m = 64.1712 m

Desperdicio 3% = (64.1712 m) (1.03) = 66.0963 m

Peso = (66.0963 m) (0.250) = 16.524075 kg

Castillo K-3 (Acero No. 2, 4) (Proy kg)

8 Varillas de # 4

Dobles = 0.12

Long = 0.12 | 4m | 0.12

Long = 0.24m + 4m = 4.24m

Varillas por Castillo = (8 varillas)(3 castillos) = 24 varillas

Longtotal = (4.24m)(24 varillas) = 101.76 m

Desperdicio 5%

D = (101.76 m)(1.05) = 106.848 m

Pzas = $\frac{106.848\ m}{12\ m}$ = 8.904 → 9 varillas

Peso = (106.848m)(0.997) = 106.5274 Kg