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CONSTRUCTORES
CALCULISTAS LTDA.

CONSTRUCCIONES, DISEÑOS E INTERVENTORIAS

MACROPROYECTO DE INTERES SOCIAL PARA EL "CENTRO OCCIDENTE DE COLOMBIA"

SAN JOSE
"Bloque 33"

MANIZALES

MEMORIA DE DISEÑO ESTRUCTURAL

Manizales, Agosto de 2015.

PRIMERA CURADURIA
URBANA DE MANIZALES

CONSTRUCTORES CALCULISTAS LTDA.

CONSTRUCCIONES, DISEÑOS E INTERVENTORIAS

PUENTE DE ANCHO 1.80M

BLOQUE 33

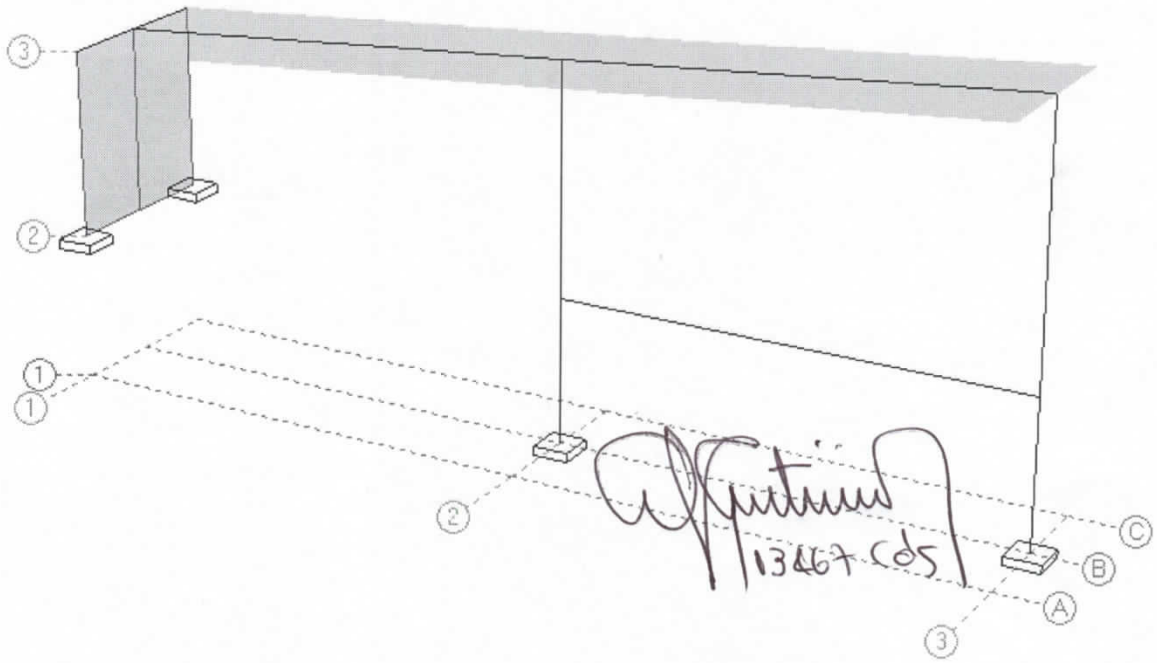
MANIZALES

MEMORIA DE DISEÑO ESTRUCTURAL

Manizales, DICIEMBRE de 2015.

PUENTE DE 1.80m. DE ANCHO

BLOQUE 33.



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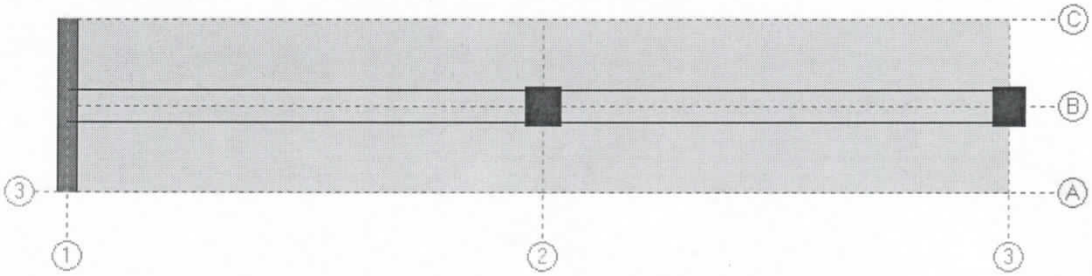
PRIMERA CURADURÍA
URBANA DE MANIZALES

PUENTE DE 1.80m. DE ANCHO

BLOQUE 33.

Planta



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Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **06:58:46 p.m. 03/12/2015**
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DRIFT-BASED FLEXIBLE-STORY CHECK - NSR-10

	EARTHQUAKE - X				EARTHQUAKE - Y			
Story	Δcm*	Δcm/h	Δn/Δn+1	Irregular	Δcm*	Δcm/h	Δn/Δn+1	Irregular
2	0.3178	0.0011	-	-	0.4799	0.0017	-	-
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* Δcm: Story drift at center of mass (cm)
n/n+1 Δ/h: (Δcm/h)n/(Δcm/h)n+1: Ratio between drift ratio at CM of a stotry and that of story above

Vertical irregularities type 1a, 1b, 2 and 3 do not apply if drift ratio of each story is less than 1.3 that of next story above (i.e. n/n+1 Δ/h < 1.3). Story drift ratio of top two stories are not considered

N/A: Non applicable to stories below seismic base

Stiffness-based flexible story check is not required!
It can be considered that vertical irregularities type 1aA, 1bA, 2A and 3A DO NOT EXIST !

Use: Øa = 1

DESIGN-SHEAR BASED STORY STIFFNESS

	X-DIRECTION			Y-DIRECTION		
Story	Shear X	Δcm X	Kx	Shear Y	Δcm Y	Ky
2	14.1	0.3178	44.5	11.3	0.4799	23.6
1	14.1	0.1124	125.9	11.3	0.1365	82.9

Shear: Design Shear, in ton
Δcm: Drift at center of mass, in cm
K: Story stiffness, in ton/cm

STIFFNESS-BASED FLEXIBLE-STORY CHECK - NSR-10

	EARTHQUAKE - X				EARTHQUAKE - Y			
Story	Kn	Kn/Kn+1	Kn/Kavg3	Irregular	Kn	Kn/Kn+1	Kn/Kavg3	Irregular
2	44.5	-	-	-	23.6	-	-	-
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Kn: Stiffness of story n, in ton/cm
Kn/Kn+1: Ratio between stiffness of story n and that of store above n
Kn/Kavg3: Ratio between stiffness of story n and average stiffness of three stories above n

Stiffness-soft story irregularity is considered to exist if Kn/Kn+1 < 0.7 or Kn/Kavg3 < 0.8
Stiffness-EXTreme soft story irregularity is considered to exist if Kn/Kn+1 < 0.7 or Kn/Kavg3 < 0.8

N/A: Non applicable to stories below seismic base

Stiffness-flexible story irregularity types 1aA and 1bA do NOT exist.

Notes:
The determination stiffness-soft story irregularity (vertical structural irregularity types 1a and 1b) is conducted based on story-stiffness computed for the design seismic shear distribution, according to FEMA's NEHRP Recommended Provitions for Seismic Regulations for New Buildings and other Structures, Provisions and Commentary ed. 1994, 1997, 2000, 2003, 2009, which is applicable to the following building codes derived from the above

documents: (USA) IBC-03/06, ASCE 7-05/10, CBC-01/07, UBC-97, (COLOMBIA) NSR-10, (PAN) REP-2004,(DOM) R-001, (GUA) NS

WEIGHT (MASS) IRREGULARITY CHECK

Level	Wn	Wn/Wn+1	Wn/Wn-1	Irregular
2	15.7	-	-	-
1	N/A	N/A	N/A	N/A

Wn: Effective weight of story n, in ton
Wn/Wn+1: Ratio between weight of story n and weight of store above n
Wn/Wn-1: Ratio between weight of story n and weight of story below n

Weight (mass) irregularity is considered to exist if effective weight of any story is more than 1.5 times the effective weight of an anjacent story. That is, if Wn/Wn+1 > 1.5 or Wn/Wn-1 > 1.5.
A roof that is lighter than the floor below is not considered.

N/A: Non applicable to levels at or below seismic base

Weight (mass) irregularity (2A) does NOT exist.

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **06:59:01 p.m. 03/12/2015**
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PLAN TORSIONAL IRREGULARITY CHECK - NSR-10

	EARTHQUAKE - X				EARTHQUAKE - Y			
Level	Δ/h max	Δ/h avg	max/avg Δ/h	Irregular	Δ/h max	Δ/h avg	max/avg Δ/h	Irregular
3	0.0027	0.0013	1.9908	EXT	0.0036	0.0020	1.7537	EXT
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Torsional irregularity is considered to exist if Δ/h max > 1.2 Δ/h ave
EXTreme torsional irregularity is considered to exist if Δ/h max > 1.4 Δ/h ave
N/A: Non applicable to levels at or below seismic base nor levels without rigid floors

TORSIONAL IREGULARITIES (1aP) EXIST !!!
EXTREME TORSIONAL IREGULARITIES (1bP) EXIST !!!

Notes:
The determination of torsional irregularities (plan structural irregularity type 1) and computation of amplification factors for accidental torsion Ax, is conducted according to FEMA's NEHRP Recommended Provitions for Seismic Regulations for New Buildings and other Structures, Provisions and Commentary ed. 1994, 1997, 2000, 2003, 2009, which is applicable to the following building codes derived from the above documents: (USA) IBC-03/06, ASCE 7-05/10, CBC-01/07, UBC-97, (COLOMBIA) NSR-10, and (PAN) REP-2004,(Dom) R-001, (GUA

AMPLIFICATION FACTORS ACCIDENTAL TORSION, Ax

	EARTHQUAKE - X				EARTHQUAKE - Y			
Level	δmax	δavg	δmax/δavg	Ax	δmax	δavg	δmax/δavg	Ax
3	0.432	0.430	1.004	1.000	1.219	0.616	1.978	2.717
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Displacement units: cm
Ax = [δmax /1.2 δave]² < 3.0
N/A: Non applicable to levels at or below seismic base nor levels without rigid floors

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **06:59:25 p.m. 03/12/2015**
File: C:\RCB\Temp\Structures\ERUM\Puentes\Puente 4.rcb

LINEAR ANALYSIS - SUMMARY MAXIMUM STORY DRIFT RATIO, Δ/h

	Drift-Ratio at CENTER OF MASS			MAXIMUM Corner Story-Drift-Ratio		
Story	DriftX	DriftY	DriftR	DriftX	DriftY	DriftR
2	0.0013	0.0020	0.0020	0.0027	0.0036	0.0036
1	0.0007	0.0009	0.0009	0.0007	0.0015	0.0015
Maxima	0.0013	0.0020	0.0020	0.0027	0.0036	0.0036

DriftX = $(\Delta x/h)max$
DriftY = $(\Delta y/h)max$
DriftR = $([(\Delta x/h)^2 + (\Delta y/h)^2]^{1/2})max$

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **07:12:31 p.m. 03/12/2015**
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SEISMIC PARAMETERS - NSR-10

Effective peak acceleration, Aa	0.25
Effective peak velocity coeff, Av	0.25
Importance coefficient, I	1.00
Site profile type, S	E
Amplification coefficient, Fa	1.45
Amplification coefficient, Fv	3.00
Limit period, To (sec)	0.21
Limit period, Tc (sec)	1.00
Long-period transition period, Tl (sec)	7.20
Amplified peak acceleration Aa Fa	0.36
Amplified peak veloc. coefficent Av Fv	0.75
Effective Building Weight	14.4 ton
Seismic base level	2

	X - DIRECTION	Y - DIRECTION
Seismic Force-resisting system	C: Moment	C: Moment
Fundamental period, T	0.139	0.239
Energy Dissipation Coefficient, Ro	7.00	7.00
Reduced Energy Dissipation Coefficient, R	4.20	4.20
Design base shear, V	13.0	11.7

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Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **07:11:10 p.m. 03/12/2015**
File: C:\RCB\Temp\Structures\ERUM\Puentes\Puente 4.rcb

LOAD COMBINATIONS

No	Load combination
1	1.4D0 + 1.4DL
2	1.2D0 + 1.2DL + 1.6LL
3	1.2D0 + 1.2DL + .5LL + EQX + .3EQY
4	1.2D0 + 1.2DL + .5LL - EQX - .3EQY
5	1.2D0 + 1.2DL + .5LL + EQX - .3EQY
6	1.2D0 + 1.2DL + .5LL - EQX + .3EQY
7	1.2D0 + 1.2DL + .5LL + .3EQX + EQY
8	1.2D0 + 1.2DL + .5LL - .3EQX - EQY
9	1.2D0 + 1.2DL + .5LL - .3EQX + EQY
10	1.2D0 + 1.2DL + .5LL + .3EQX - EQY
11	.9D0 + .9DL + EQX + .3EQY
12	.9D0 + .9DL - EQX - .3EQY
13	.9D0 + .9DL + EQX - .3EQY
14	.9D0 + .9DL - EQX + .3EQY
15	.9D0 + .9DL + .3EQX + EQY
16	.9D0 + .9DL - .3EQX - EQY
17	.9D0 + .9DL - .3EQX + EQY
18	.9D0 + .9DL + .3EQX - EQY

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

COLUMN SECTIONS

Number of prismatic sections = 1

Sec	Name	Shape	b (cm)	h (cm)	tw (cm)	tf (cm)	P1 (cm)	P2 (cm)	A (cm2)	I2 (cm4)	I3 (cm4)	J (cm4)
1	Column1	Rectang	40.00	35.00	-	-	-	-	1400.0	142917	186667	256535

Design Results - Columns

Column	Story	L (m)	Lu (m)	Sec Mat	bxh (cm)	TRANSVERSE REINFORCEMENT TIES	TRANSVERSE REINFORCEMENT XTIES	LONGITUDINAL REINFORCEMENT Sec	LdCmb critc	Pu (ton)	Mu2 (ton-m)	Mu3 (ton-m)	RHO -	As (cm2)
B-3	2	2.80	2.45	1	40x35	7 #3 @ 7.5 cm (end)	1 (b)	Top	1	4.38	2.04	0.12	0.0100	14.00
				1		10 #3 @ 15 cm (ctr)	1 (h)	Bot	1	4.38	0.78	0.12	0.0100	14.00
B-3	1	1.50	1.23	1	40x35	16 #3 @ 7.5 cm	1 (b)	Top	1	5.85	0.17	0.16	0.0100	14.00
				1		---	1 (h)	Bot	1	5.85	0.75	0.16	0.0100	14.00
B-2	2	2.36	2.01	1	40x35	7 #3 @ 7.5 cm (end)	1 (b)	Top	1	9.52	0.34	0.26	0.0100	14.00
				1		7 #3 @ 15 cm (ctr)	1 (h)	Bot	1	9.52	0.27	0.26	0.0100	14.00
B-2	1	1.50	1.23	1	40x35	16 #3 @ 7.5 cm	1 (b)	Top	1	10.56	0.27	0.29	0.0100	14.00
				1		---	1 (h)	Bot	1	10.56	0.59	0.29	0.0100	14.00

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **07:11:10 p.m. 03/12/2015**

BEAM SECTIONS

Number of prismatic sections = 2

Sec	Name	Shape	b (cm)	h (cm)	tw (cm)	tf (cm)	P1 (cm)	P2 (cm)	A (cm2)	I2 (cm4)	I3 (cm4)	J (cm4)
1	Beam1	Rectang	35.00	35.00	-	-	-	-	1225.0	125052	125052	185077
2	Beam2	Rectang	20.00	35.00	-	-	-	-	700.0	71458	23333	59733

Design Results - Beams

BEAM: B(2-3) FLOOR: 2 V-1

Length: L = 4.85 m, Lu = 4.50 m, a = 0.18 m, c = 0.18 m, Section: b = 35.0 cm, h = 35.0 cm, Sec: Beam1, Mat: RConcrete1

X, m:	0.18	0.63	1.08	1.53	1.98	2.43	2.88	3.33	3.78	4.23	4.68
Mu(-), ton-m:	-1.02	-0.69	-0.49	-0.49	-0.49	-0.49	-0.49	-0.49	-0.88	-1.39	-1.96
Mu(+), ton-m:	0.96	0.94	0.87	0.73	0.54	0.49	0.49	0.49	0.49	0.49	0.98
As(-), cm2:	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
As(+), cm2:	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
Vu, ton:	1.16	1.11	0.98	0.95	1.07	1.20	1.33	1.45	1.58	1.71	1.76
Tu, ton-m:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	6.25	6.25	12.50	12.50	12.50	12.50	12.50	12.50	12.50	6.25	6.25

DESIGN

B-2 — 13 #3@ 6.25 22 #3@ 12.5 13 #3@ 6.25 — B-3

BEAM: B(1-2) FLOOR: 3 V-1

Length: L = 4.97 m, Lu = 4.79 m, a = 0.00 m, c = 0.18 m, Section: b = 35.0 cm, h = 35.0 cm, Sec: Beam1, Mat: RConcrete1

X, m:	0.00	0.48	0.96	1.44	1.92	2.40	2.88	3.36	3.84	4.32	4.79
Mu(-), ton-m:	-3.00	-1.64	-1.64	-1.64	-1.64	-1.64	-1.64	-1.64	-1.64	-3.32	-6.54
Mu(+), ton-m:	1.64	1.64	1.79	2.84	3.42	3.37	2.67	1.64	1.64	1.64	3.27
As(-), cm2:	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.40	7.02
As(+), cm2:	3.16	3.16	3.16	3.16	3.51	3.45	3.16	3.16	3.16	3.16	3.34
Vu, ton:	6.61	6.15	5.09	4.03	2.97	2.74	3.80	4.86	5.92	6.98	7.44
Tu, ton-m:	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	6.25	6.25	12.50	12.50	12.50	12.50	12.50	12.50	12.50	6.25	6.25

DESIGN

B-1 — 13 #3@ 6.25 24 #3@ 12.5 13 #3@ 6.25 — B-2

BEAM: B(2-3) FLOOR: 3

Length: L = 4.87 m, Lu = 4.52 m, a = 0.18 m, c = 0.18 m, Section: b = 35.0 cm, h = 35.0 cm, Sec: Beam1, Mat: RConcrete1

X, m:	0.18	0.63	1.08	1.53	1.98	2.43	2.89	3.34	3.79	4.24	4.69
Mu(-), ton-m:	-6.00	-3.15	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-3.16
Mu(+), ton-m:	3.00	1.50	1.50	1.50	2.13	2.75	2.71	2.10	1.50	1.50	1.58
As(-), cm2:	6.39	3.21	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.22
As(+), cm2:	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16	3.16
Vu, ton:	7.07	6.68	5.72	4.76	3.80	2.85	2.77	3.73	4.69	5.65	6.03
Tu, ton-m:	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	6.25	6.25	12.50	12.50	12.50	12.50	12.50	12.50	12.50	6.25	6.25

DESIGN

B-2 — 13 #3@ 6.25 22 #3@ 12.5 13 #3@ 6.25 — B-3

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **07:11:10 p.m. 03/12/2015**

BEAM: 1(A-B) FLOOR: 3

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m | Section: b = 20.0 cm, h = 35.0 cm | Sec: Beam2 | Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-0.04	-0.03	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Mu(+), ton-m:	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
As(-), cm2:	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
As(+), cm2:	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
Vu, ton:	0.14	0.14	0.14	0.14	0.13	0.11	0.10	0.09	0.09	0.09	0.09
Tu, ton-m:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50

DESIGN

A-1 — 12 #3@ 7.5 — B-1

BEAM: 1(B-C) FLOOR: 3

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m | Section: b = 20.0 cm, h = 35.0 cm | Sec: Beam2 | Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.04
Mu(+), ton-m:	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
As(-), cm2:	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
As(+), cm2:	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
Vu, ton:	0.08	0.08	0.08	0.08	0.10	0.11	0.13	0.15	0.15	0.15	0.15
Tu, ton-m:	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25

DESIGN

B-1 — 14 #3@ 6.25 — C-1

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Linear Analysis- Support Reactions

Support		Load	Force (ton)			Moment (ton-m)		
Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz
B-2	1	1	-0.31	0.00	7.54	0.00	-0.42	0.00
		2	-0.81	0.00	12.32	0.00	-0.86	0.00
		3	0.01	-0.02	7.69	0.07	0.12	0.00
		4	-0.63	0.02	7.39	-0.07	-0.96	0.00
		5	-0.31	0.51	7.54	-1.96	-0.42	0.01
		6	-0.31	-0.51	7.54	1.96	-0.42	-0.01
		7	-0.44	-0.01	11.24	0.05	-0.33	0.00
		8	-0.93	0.01	11.01	-0.05	-1.16	0.00
		9	-0.68	0.39	11.13	-1.51	-0.75	0.01
		10	-0.68	-0.39	11.13	1.51	-0.75	-0.01
		11	0.14	-0.02	4.68	0.07	0.29	0.00
		12	-0.50	0.02	4.38	-0.07	-0.79	0.00
		13	-0.18	0.51	4.53	-1.96	-0.25	0.01
		14	-0.18	-0.51	4.53	1.96	-0.25	-0.01
B-3	1	1	-0.54	0.00	4.18	0.00	-0.54	0.00
		2	-0.69	0.00	6.28	0.00	-0.84	0.00
		3	0.00	-0.03	3.81	0.11	0.08	0.00
		4	-1.08	0.03	4.54	-0.11	-1.16	0.00
		5	-0.54	0.75	4.18	-3.13	-0.54	0.01
		6	-0.54	-0.75	4.18	3.13	-0.54	-0.01
		7	-0.24	-0.02	5.48	0.09	-0.29	0.00
		8	-1.07	0.02	6.04	-0.09	-1.24	0.00
		9	-0.65	0.58	5.76	-2.41	-0.76	0.01
		10	-0.65	-0.58	5.76	2.41	-0.76	-0.01
		11	0.22	-0.03	2.14	0.11	0.30	0.00
		12	-0.86	0.03	2.87	-0.11	-0.94	0.00
		13	-0.32	0.75	2.51	-3.13	-0.32	0.01
		14	-0.32	-0.75	2.51	3.13	-0.32	-0.01
A-1	2	1	0.42	0.55	2.24	0.25	0.23	-0.22
		2	0.75	0.84	3.20	0.30	0.41	-0.38
		3	0.81	0.61	2.39	0.25	0.65	-0.32
		4	0.03	0.50	2.08	0.24	-0.20	-0.11
		5	0.87	0.73	2.60	0.23	0.49	-0.31
		6	-0.03	0.38	1.87	0.26	-0.03	-0.13
		7	0.97	0.81	3.08	0.29	0.69	-0.42
		8	0.37	0.72	2.84	0.28	0.03	-0.26
		9	1.02	0.90	3.24	0.27	0.56	-0.41
		10	0.32	0.63	2.68	0.30	0.16	-0.27
		11	0.64	0.39	1.50	0.15	0.56	-0.24
		12	-0.13	0.28	1.19	0.14	-0.29	-0.02
		13	0.70	0.51	1.71	0.13	0.40	-0.22
		14	-0.20	0.16	0.98	0.16	-0.12	-0.04
C-1	2	1	0.42	-0.55	2.24	-0.25	0.23	0.22
		2	0.75	-0.84	3.20	-0.30	0.41	0.38
		3	0.81	-0.61	2.39	-0.25	0.65	0.32
		4	0.03	-0.50	2.08	-0.24	-0.20	0.11
		5	-0.03	-0.38	1.87	-0.26	-0.03	0.13
		6	0.87	-0.73	2.60	-0.23	0.49	0.31
		7	0.97	-0.81	3.08	-0.29	0.69	0.42
		8	0.37	-0.72	2.84	-0.28	0.03	0.26
		9	0.32	-0.63	2.68	-0.30	0.16	0.27
		10	1.02	-0.90	3.24	-0.27	0.56	0.41
		11	0.64	-0.39	1.50	-0.15	0.56	0.24
		12	-0.13	-0.28	1.19	-0.14	-0.29	0.02
		13	-0.20	-0.16	0.98	-0.16	-0.12	0.04
		14	0.70	-0.51	1.71	-0.13	0.40	0.22

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente de 1.80m de ancho. Bloque 33. **07:11:55 p.m. 03/12/2015**

LOAD COMBINATIONS

No	Load combination
1	D0 + DL
2	D0 + DL + LL
3	D0 + DL + .52EQX
4	D0 + DL - .52EQX
5	D0 + DL + .52EQY
6	D0 + DL - .52EQY
7	D0 + DL + .75LL + .4EQX
8	D0 + DL + .75LL - .4EQX
9	D0 + DL + .75LL + .4EQY
10	D0 + DL + .75LL - .4EQY
11	.6D0 + .6DL + .52EQX
12	.6D0 + .6DL - .52EQX
13	.6D0 + .6DL + .52EQY
14	.6D0 + .6DL - .52EQY

MODULO 4 WINDOWS
DISEÑO DE ZAPATAS AISLADAS RECTANGULARES

FECHA : 2015/12/04

Nombre de la Zapata a Diseñar Zap-1

Puente bloque 33

SOLICITACIONES

Carga P total de servicio (t)	12.4
Momento M tot de servicio (t-m)	0
Factor de Mayoración de Cargas	1.5

GEOMETRIA

Ancho b columna (cm)	40
Altura h col. (paralelo a M) (cm)	35

CONSTANTES DE DISEÑO

F´c del Concreto (kg/cm2)	210
Fy Acero Princip (kg/cm2)	4200
Recubrimnto d' al Centroide (cm)	5
% P.Propio (zapata+viga amarre)	6
L : dimensión en la dirección del Momento	5

CAPACIDAD DEL SUELO

Qa Admisible Suelo (kg/cm2)	0.79

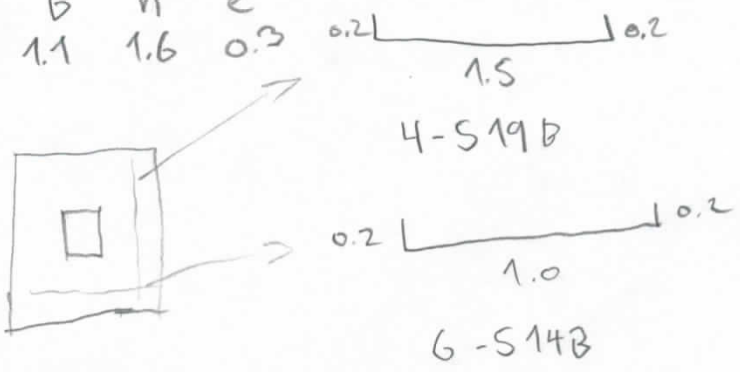
DISEÑO DE LA ZAPATA PARA VARIAS COMBINACIONES DE DIMENSIONES

Ancho B(m)	Largo L(m)	dvg anch(m)	dpunz(m)	dmín(m)	Hzap(m)	As Lmayor(cm2)	Arm Lmayor	Ast Lmenor(cm2)	Arm Cent Lmenor	Arm Ext Lmenor
0.64	2.6	0.17	0.11	0.17	0.22	8.03	1 # 4 a 10	8.99	1 # 4 a 20	1 # 4 a 20
0.74	2.25	0.15	0.11	0.15	0.2	7.59	1 # 4 a 11	6.75	1 # 4 a 25	1 # 4 a 25
0.84	1.99	0.13	0.11	0.15	0.2	6.24	1 # 4 a 17	5.97	1 # 4 a 25	1 # 4 a 25
0.94	1.78	0.11	0.11	0.15	0.2	5.23	1 # 4 a 20	5.34	1 # 4 a 25	1 # 4 a 25
✓ 1.04	1.6	0.11	0.11	0.15	0.2	4.4	1 # 4 a 25	4.8	1 # 4 a 33	1 # 4 a 33
1.14	1.46	0.13	0.11	0.15	0.2	3.77	1 # 4 a 33	4.38	1 # 4 a 33	1 # 4 a 33
1.25	1.34	0.14	0.11	0.15	0.2	3.75	1 # 4 a 33	4.02	1 # 4 a 33	1 # 4 a 33
1.35	1.29	0.15	0.11	0.15	0.2	3.87	1 # 4 a 33	4.05	1 # 4 a 33	1 # 4 a 45
1.45	1.29	0.15	0.11	0.15	0.2	3.87	1 # 4 a 33	4.35	1 # 4 a 33	1 # 4 a 45
1.55	1.29	0.15	0.11	0.15	0.2	3.87	1 # 4 a 33	4.65	1 # 4 a 33	1 # 4 a 45
1.65	1.29	0.15	0.11	0.15	0.2	4.2	1 # 4 a 33	4.97	1 # 4 a 33	1 # 4 a 45
1.75	1.29	0.15	0.11	0.15	0.2	4.59	1 # 4 a 33	5.32	1 # 4 a 33	1 # 4 a 45
1.85	1.29	0.15	0.11	0.15	0.2	4.98	1 # 4 a 25	5.67	1 # 4 a 33	1 # 4 a 45

LONGITUD MINIMA DE ANCLAJE

ldb(1) = (db) Fy / (4 sqr(F´c))= 36.4 cm
ldb(2) = 0.04 (db) Fy = 26.7 cm
Longitud Anclaje Mínima = 36.4 cm

b h e
1.1 1.6 0.3



MODULO 4 WINDOWS
DISEÑO DE ZAPATAS AISLADAS RECTANGULARES

Puente bloque 33

FECHA : 2015/12/04

Nombre de la Zapata a Diseñar Zap-2

SOLICITACIONES	
Carga P total de servicio (t)	6.3
Momento M tot de servicio (t-m)	0
Factor de Mayoración de Cargas	1.5
GEOMETRIA	
Ancho b columna (cm)	40
Altura h col. (paralelo a M) (cm)	35
CONSTANTES DE DISEÑO	
F´c del Concreto (kg/cm2)	210
Fy Acero Princip (kg/cm2)	4200
Recubrimnto d' al Centroide (cm)	5
% P.Propio (zapata+viga amarre)	6
L : dimensión en la dirección del Momento	5
CAPACIDAD DEL SUELO	
Qa Admisible Suelo (kg/cm2)	0.79

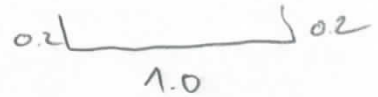
DISEÑO DE LA ZAPATA PARA VARIAS COMBINACIONES DE DIMENSIONES

Ancho B(m)	Largo L(m)	dvg anch(m)	dpunz(m)	dmín(m)	Hzap(m)	As Lmayor(cm2)	Arm Lmayor	Ast Lmenor(cm2)	Arm Cent Lmenor	Arm Ext Lmenor
0.5	1.7	0.1	0.06	0.15	0.2	2.47	1 # 4 a 25	5.1	1 # 4 a 25	1 # 4 a 25
0.6	1.41	0.08	0.06	0.15	0.2	1.81	1 # 4 a 33	4.23	1 # 4 a 25	1 # 4 a 25
0.7	1.21	0.07	0.06	0.15	0.2	2.1	1 # 4 a 33	3.63	1 # 4 a 25	1 # 4 a 25
0.8	1.06	0.08	0.06	0.15	0.2	2.4	1 # 4 a 33	3.18	1 # 4 a 33	1 # 4 a 33
0.9	0.94	0.1	0.06	0.15	0.2	2.7	1 # 4 a 33	2.82	1 # 4 a 33	1 # 4 a 33
1	0.92	0.1	0.06	0.15	0.2	2.76	1 # 4 a 33	3	1 # 4 a 33	1 # 4 a 45
1.1	0.92	0.1	0.06	0.15	0.2	2.76	1 # 4 a 33	3.3	1 # 4 a 33	1 # 4 a 45
1.2	0.92	0.1	0.06	0.15	0.2	2.76	1 # 4 a 33	3.6	1 # 4 a 33	1 # 4 a 45
1.3	0.92	0.11	0.06	0.15	0.2	2.76	1 # 4 a 33	3.9	1 # 4 a 33	1 # 4 a 45
1.4	0.92	0.11	0.06	0.15	0.2	2.76	1 # 4 a 33	4.2	1 # 4 a 33	1 # 4 a 45

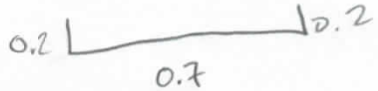
LONGITUD MINIMA DE ANCLAJE

ldb(1) = (db) Fy / (4 sqr(F´c))= 36.4 cm
ldb(2) = 0.04 (db) Fy = 26.7 cm
Longitud Anclaje Mínima = 36.4 cm

b h e
0.8 1.1 0.3



3-514B



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CONSTRUCTORES
CALCULISTAS LTDA.
CONSTRUCCIONES, DISEÑOS E INTERVENTORIAS

INTRODUCCION

Este informe contiene el análisis, cálculo y diseño estructural efectuado siguiendo los requisitos establecidos en las Normas colombianas de Diseño y Construcción Sismo Resistente NSR – 10.

Con base en las características generales expresadas en los planos Arquitectónicos, para el "**Bloque 33". Para el Macroproyecto San José", de propiedad del Municipio de Manizales, ubicado en la zona de renovación Urbana de La Ciudad de Manizales**, se realizan los análisis, y se da la normatividad expresada claramente en los planos estructurales que se deben cumplir, para la construcción del proyecto estudiado.

LIMITACIONES

El diseño estructural y las conclusiones consignadas en la memoria de cálculo se limitan a las características del proyecto antes anotado, y según lo establecido en los planos Arquitectónicos; **cualquier variación en el sistema estructural y de uso debe ser consultada con nuestra oficina.**

SOLUCION ESTRUCTURAL

Se diseñara esta estructura con el **SISTEMA DE MUROS EN CONCRETO REFORZADO DE 0.10 MTS.**, siguiendo los requisitos establecidos en la NSR – 10.

La Cimentación serán Caissons, con vigas de cimentación.

Las losas de entrepisos, serán maciza de e= 0.10 mts.

La cubierta será también una losa maciza.

Las cargas de diseño serán las siguientes:

Carrera 23 No. 25 – 61 - Edificio Don Pedro Oficina 706
Teléfonos 8 84 47 46 – 8 73 05 62 Manizales

CONSTRUCTORES CALCULISTAS LTDA.

CONSTRUCCIONES, DISEÑOS E INTERVENTORIAS

El programa calcula Internamente el peso propio de los diferentes elementos **DO**, donde van incluidos el peso de los muros en Concreto.

Losas
Carga Muerta: de Acabados 200 kg/m2
Carga Viva : 180 kg/m2 (Vivienda).
300 Kg/m2 (Escaleras)

Cubierta

En losa maciza
Carga muerta: 150 kg/m2
Carga Viva : 180 kg/m2

Carga Sísmica:

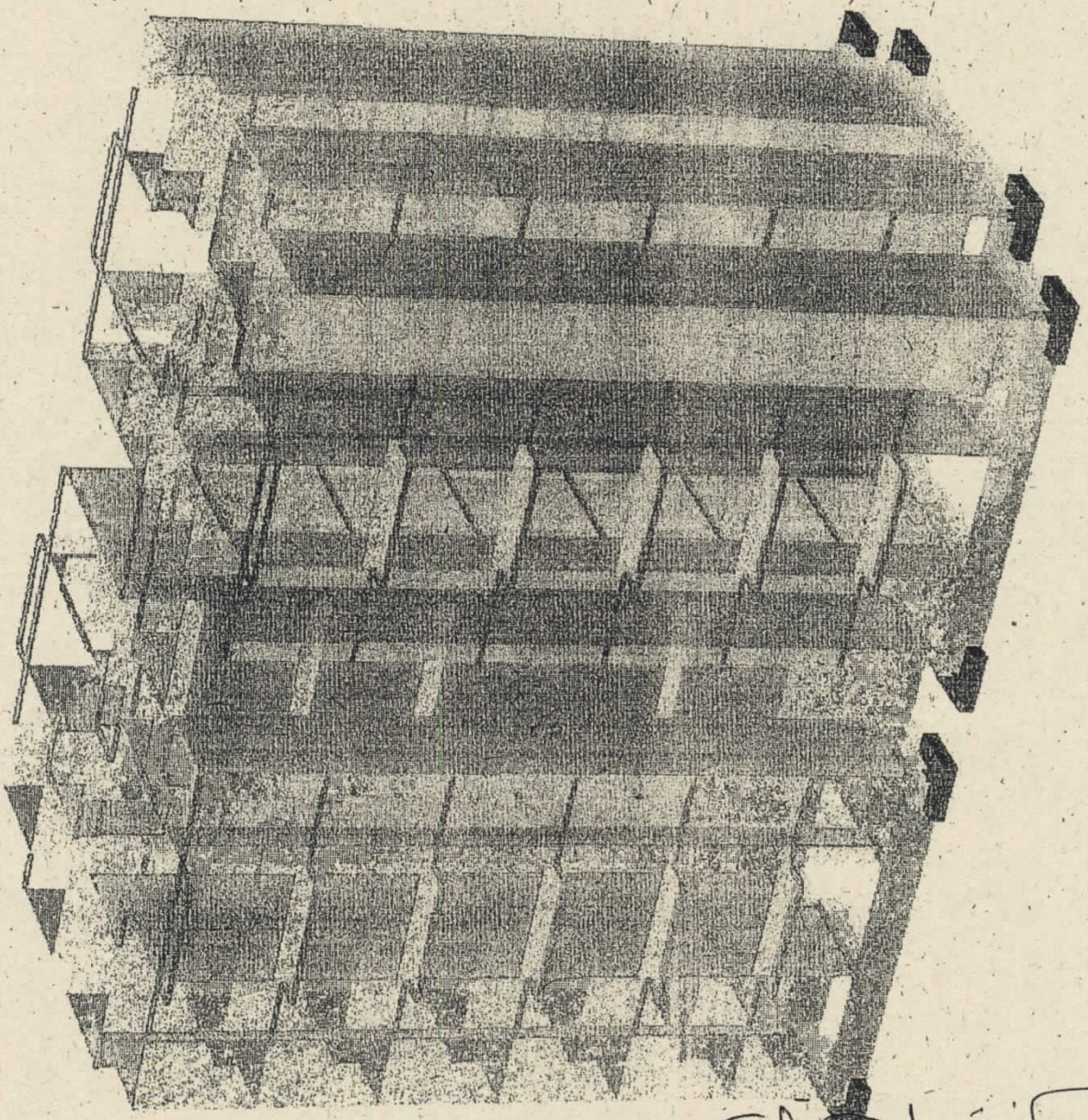
Zona de Amenaza Sísmica:	alta
	$A_a = 0.25$
	$A_V = 0.25$
Perfil de Suelo	E
Coeficiente de Amplificación	Fa= 1.45 Fv= 3.0
Coeficiente de importancia	I = 1.0 .

La cimentación **"CAISSONS, CON VIGAS EN CONCRETO REFORZADO UNIDAS ORTOGONALMENTE."**

Deberá leerse con cuidado y ceñirse en un todo, el Estudio de Suelos y el análisis de cimentación realizado por "El Ing. JORGE ALONSO ARISTIZABAL, QUASAR Ingenieros Consultores."

Ing. CARLOS ELIAS GUTIERREZ R.
Mat. 17202 – 13467 de Caldas

Carrera 23 No. 25 – 61 - Edificio Don Pedro Oficina 706
Teléfonos 8 84 47 46 – 8 73 05 62 Manizales



Bloque B.

Alf Gutiérrez
13467 CdS

Existing load combinations

	SELFW	DEAD	LIVE	EQK X	EQK Y	SOIL
1	1.4	1.4	0.	0.	0.	0.
2	1.2	1.2	1.6	0.	0.	0.
3	1.2	1.2	0.5	1.	0.3	0.
4	1.2	1.2	0.5	-1.	-0.3	0.
5	1.2	1.2	0.5	1.	-0.3	0.
6	1.2	1.2	0.5	-1.	0.3	0.
7	1.2	1.2	0.5	0.3	1.	0.
8	1.2	1.2	0.5	-0.3	-1.	0.
9	1.2	1.2	0.5	-0.3	1.	0.
10	1.2	1.2	0.5	0.3	-1.	0.
11	0.9	0.9	0.	1.	0.3	0.
12	0.9	0.9	0.	-1.	-0.3	0.
13	0.9	0.9	0.	1.	-0.3	0.
14	0.9	0.9	0.	-1.	0.3	0.
15	0.9	0.9	0.	0.3	1.	0.
16	0.9	0.9	0.	-0.3	-1.	0.
17	0.9	0.9	0.	-0.3	1.	0.
18	0.9	0.9	0.	0.3	-1.	0.
19	1.2	1.2	1.6	0.	0.	1.6

Bloques 33.

MACRO PROYECTO

CALCULO DE CIMENTACION PROFUNDA CIRCULAR PILAS PREEXCAVADAS

TIPO	PUT	c	fi	df	d	dw	Nc	Nq	Ng	Dia	campa	K	delta	Sigma	Qp	Ql	FS	Qt
	ton/m3	ton/m2	grados	m	m	m				m	m		grados	ton/m2	Ton	Ton		Ton
1	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	0.90	1.80	1	18	4.111	403.04	22.66043	3	141.9
2	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	0.90	1.80	1	18	4.7545	430.78	30.57542	3	153.8
3	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	0.90	1.80	1	18	5.398	458.52	39.67276	3	166.1
4	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	0.90	1.80	1	18	6.0415	486.26	49.95245	3	178.7
5	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	0.90	1.80	1	18	6.685	514	61.4145	3	191.8
6	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	0.80	1.60	1	18	4.111	313.25	20.14261	3	111.1
7	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	0.80	1.60	1	18	4.7545	335.17	27.17815	3	120.8
8	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	0.80	1.60	1	18	5.398	357.09	35.26467	3	130.8
9	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	0.80	1.60	1	18	6.0415	379.01	44.40218	3	141.1
10	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	0.80	1.60	1	18	6.685	400.92	54.59067	3	151.8
11	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	1.00	2.00	1	18	4.111	505.71	25.17826	3	177
12	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	1.00	2.00	1	18	4.7545	539.95	33.97269	3	191.3
13	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	1.00	2.00	1	18	5.398	574.2	44.08084	3	206.1
14	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	1.00	2.00	1	18	6.0415	608.44	55.50272	3	221.3
15	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	1.00	2.00	1	18	6.685	642.69	68.23833	3	237.0
16	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	1.50	2.00	1	18	4.111	505.71	37.76739	3	181.2
17	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	1.50	2.00	1	18	4.7545	539.95	50.95903	3	197.0
18	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	1.50	2.00	1	18	5.398	574.2	66.12126	3	213.4
19	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	1.50	2.00	1	18	6.0415	608.44	83.25408	3	230.6
20	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	1.50	2.00	1	18	6.685	642.69	102.3575	3	248.3

T-2

T-1

longitud ϕ_f ϕ_{camp}

Luis Amzago

17202-81186, $\phi_{camp} = 2.0$ ∴ $T = \frac{P}{A} = 205.33 \text{ Ton/m}^2$

T-4 ϕ_{camp} para 2.00 m ∴ $P = 930.02 + 68.24 = 998.26 \text{ Ton} = 333.$

T-5 2.70 m

$= 415 \text{ Ton}$

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo B)
File: C:\RCB\Structures\ERUM\ERUM2-Cimentacion-Vigas.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
10:57:54 a.m. 15/04/2015

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

WALL DATA

Total number of wall panels..... = 440

WALL PANELS

Wall	Story	B (m)	H (m)	t (cm)	Material -	System -
B(2-3)	1	1.55	2.50	10.0	1	G&L
B(8-9)	1	0.40	2.50	10.0	1	G&L
B(11-12)	1	0.40	2.50	10.0	1	G&L
B(14-15)	1	0.40	2.50	10.0	1	G&L
B(17-18)	1	0.40	2.50	10.0	1	G&L
B(23-24)	1	1.55	2.50	10.0	1	G&L
C(8-10)	1	0.65	2.50	10.0	1	G&L
C(16-18)	1	0.65	2.50	10.0	1	G&L
D(12-13)	1	1.25	2.50	10.0	1	G&L
D(13-14)	1	1.25	2.50	10.0	1	G&L
E(2-4)	1	2.06	2.50	10.0	1	G&L
E(22-24)	1	2.06	2.50	10.0	1	G&L
F(8-12)	1	2.02	2.50	10.0	1	G&L
F(14-18)	1	2.02	2.50	10.0	1	G&L
H(1-4)	1	2.91	2.50	10.0	1	G&L
H(4-5)	1	0.90	2.50	10.0	1	G&L
H(6-7)	1	0.93	2.50	10.0	1	G&L
H(8-12)	1	2.02	2.50	10.0	1	G&L
H(14-18)	1	2.02	2.50	10.0	1	G&L
H(19-20)	1	0.93	2.50	10.0	1	G&L
H(21-22)	1	0.90	2.50	10.0	1	G&L
H(22-25)	1	2.91	2.50	10.0	1	G&L
I(1-4)	1	2.91	2.50	10.0	1	G&L
I(5-7)	1	1.75	2.50	10.0	1	G&L
I(8-12)	1	2.02	2.50	10.0	1	G&L
I(14-18)	1	2.02	2.50	10.0	1	G&L
I(19-21)	1	1.75	2.50	10.0	1	G&L
I(22-25)	1	2.91	2.50	10.0	1	G&L
K(8-12)	1	2.02	2.50	10.0	1	G&L
K(14-18)	1	2.02	2.50	10.0	1	G&L
L(2-4)	1	2.06	2.50	10.0	1	G&L
L(22-24)	1	2.06	2.50	10.0	1	G&L
M(8-10)	1	0.65	2.50	10.0	1	G&L
M(16-18)	1	0.65	2.50	10.0	1	G&L
N(2-3)	1	1.55	2.50	10.0	1	G&L
N(8-9)	1	0.40	2.50	10.0	1	G&L
N(11-12)	1	0.40	2.50	10.0	1	G&L
N(14-15)	1	0.40	2.50	10.0	1	G&L
N(17-18)	1	0.40	2.50	10.0	1	G&L
N(23-24)	1	1.55	2.50	10.0	1	G&L
1(E-H)	1	2.60	2.50	10.0	1	G&L
1(I-L)	1	2.60	2.50	10.0	1	G&L
2(B-E)	1	2.60	2.50	10.0	1	G&L
2(L-N)	1	2.61	2.50	10.0	1	G&L
4(F-H)	1	2.05	2.50	10.0	1	G&L
4(I-K)	1	2.05	2.50	10.0	1	G&L
5(B-E)	1	2.60	2.50	10.0	1	G&L

Wall	Story	B	H	t	Material	System
5(L-N)	1	2.61	2.50	10.0	1	G&L
8(B-C)	1	1.31	2.50	10.0	1	G&L
8(G-H)	1	1.35	2.50	10.0	1	G&L
8(I-J)	1	1.35	2.50	10.0	1	G&L
8(M-N)	1	1.30	2.50	10.0	1	G&L
12(B-D)	1	2.15	2.50	10.0	1	G&L
12(D-F)	1	1.00	2.50	10.0	1	G&L
12(F-H)	1	2.05	2.50	10.0	1	G&L
12(I-K)	1	2.05	2.50	10.0	1	G&L
12(K-N)	1	3.16	2.50	10.0	1	G&L
13(F-H)	1	2.05	2.50	20.0	1	G&L
14(B-D)	1	2.15	2.50	10.0	1	G&L
14(D-F)	1	1.00	2.50	10.0	1	G&L
14(F-H)	1	2.05	2.50	10.0	1	G&L
14(I-K)	1	2.05	2.50	10.0	1	G&L
14(K-N)	1	3.16	2.50	10.0	1	G&L
18(B-C)	1	1.31	2.50	10.0	1	G&L
18(G-H)	1	1.35	2.50	10.0	1	G&L
18(I-J)	1	1.35	2.50	10.0	1	G&L
18(M-N)	1	1.30	2.50	10.0	1	G&L
21(B-E)	1	2.60	2.50	10.0	1	G&L
21(L-N)	1	2.61	2.50	10.0	1	G&L
22(F-H)	1	2.05	2.50	10.0	1	G&L
22(I-K)	1	2.05	2.50	10.0	1	G&L
24(B-E)	1	2.60	2.50	10.0	1	G&L
24(L-N)	1	2.61	2.50	10.0	1	G&L
25(E-H)	1	2.60	2.50	10.0	1	G&L
25(I-L)	1	2.60	2.50	10.0	1	G&L
B(2-3)	2	1.55	2.50	10.0	1	G&L
B(8-9)	2	0.40	2.50	10.0	1	G&L
B(11-12)	2	0.40	2.50	10.0	1	G&L
B(14-15)	2	0.40	2.50	10.0	1	G&L
B(17-18)	2	0.40	2.50	10.0	1	G&L
B(23-24)	2	1.55	2.50	10.0	1	G&L
C(8-10)	2	0.65	2.50	10.0	1	G&L
C(16-18)	2	0.65	2.50	10.0	1	G&L
E(2-4)	2	2.06	2.50	10.0	1	G&L
E(22-24)	2	2.06	2.50	10.0	1	G&L
F(8-12)	2	2.02	2.50	10.0	1	G&L
F(14-18)	2	2.02	2.50	10.0	1	G&L
H(1-4)	2	2.91	2.50	10.0	1	G&L
H(4-5)	2	0.90	2.50	10.0	1	G&L
H(6-7)	2	0.93	2.50	10.0	1	G&L
H(8-12)	2	2.02	2.50	10.0	1	G&L
H(14-18)	2	2.02	2.50	10.0	1	G&L
H(19-20)	2	0.93	2.50	10.0	1	G&L
H(21-22)	2	0.90	2.50	10.0	1	G&L
H(22-25)	2	2.91	2.50	10.0	1	G&L
I(1-4)	2	2.91	2.50	10.0	1	G&L
I(5-7)	2	1.75	2.50	10.0	1	G&L
I(8-12)	2	2.02	2.50	10.0	1	G&L
I(14-18)	2	2.02	2.50	10.0	1	G&L
I(19-21)	2	1.75	2.50	10.0	1	G&L
I(22-25)	2	2.91	2.50	10.0	1	G&L
K(8-12)	2	2.02	2.50	10.0	1	G&L
K(14-18)	2	2.02	2.50	10.0	1	G&L
L(2-4)	2	2.06	2.50	10.0	1	G&L
L(22-24)	2	2.06	2.50	10.0	1	G&L
M(8-10)	2	0.65	2.50	10.0	1	G&L
M(16-18)	2	0.65	2.50	10.0	1	G&L
N(2-3)	2	1.55	2.50	10.0	1	G&L
N(8-9)	2	0.40	2.50	10.0	1	G&L
N(11-12)	2	0.40	2.50	10.0	1	G&L
N(14-15)	2	0.40	2.50	10.0	1	G&L
N(17-18)	2	0.40	2.50	10.0	1	G&L
N(23-24)	2	1.55	2.50	10.0	1	G&L
1(E-H)	2	2.60	2.50	10.0	1	G&L
1(I-L)	2	2.60	2.50	10.0	1	G&L
2(B-E)	2	2.60	2.50	10.0	1	G&L
2(L-N)	2	2.61	2.50	10.0	1	G&L
4(F-H)	2	2.05	2.50	10.0	1	G&L
4(I-K)	2	2.05	2.50	10.0	1	G&L
5(B-E)	2	2.60	2.50	10.0	1	G&L
5(L-N)	2	2.61	2.50	10.0	1	G&L
8(B-C)	2	1.31	2.50	10.0	1	G&L

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo B)

Engineer: CARLOS ELIAS GUTIERREZ R
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Wall	Story	B	H	t	Material	System
8(G-H)	2	1.35	2.50	10.0	1	G&L
8(I-J)	2	1.35	2.50	10.0	1	G&L
8(M-N)	2	1.30	2.50	10.0	1	G&L
12(B-D)	2	2.15	2.50	10.0	1	G&L
12(D-F)	2	1.00	2.50	10.0	1	G&L
12(F-H)	2	2.05	2.50	10.0	1	G&L
12(I-K)	2	2.05	2.50	10.0	1	G&L
12(K-N)	2	3.16	2.50	10.0	1	G&L
13(F-H)	2	2.05	2.50	20.0	1	G&L
14(B-D)	2	2.15	2.50	10.0	1	G&L
14(D-F)	2	1.00	2.50	10.0	1	G&L
14(F-H)	2	2.05	2.50	10.0	1	G&L
14(I-K)	2	2.05	2.50	10.0	1	G&L
14(K-N)	2	3.16	2.50	10.0	1	G&L
18(B-C)	2	1.31	2.50	10.0	1	G&L
18(G-H)	2	1.35	2.50	10.0	1	G&L
18(I-J)	2	1.35	2.50	10.0	1	G&L
18(M-N)	2	1.30	2.50	10.0	1	G&L
21(B-E)	2	2.60	2.50	10.0	1	G&L
21(L-N)	2	2.61	2.50	10.0	1	G&L
22(F-H)	2	2.05	2.50	10.0	1	G&L
22(I-K)	2	2.05	2.50	10.0	1	G&L
24(B-E)	2	2.60	2.50	10.0	1	G&L
24(L-N)	2	2.61	2.50	10.0	1	G&L
25(E-H)	2	2.60	2.50	10.0	1	G&L
25(I-L)	2	2.60	2.50	10.0	1	G&L
B(2-3)	3	1.55	2.50	10.0	1	G&L
B(8-9)	3	0.40	2.50	10.0	1	G&L
B(11-12)	3	0.40	2.50	10.0	1	G&L
B(14-15)	3	0.40	2.50	10.0	1	G&L
B(17-18)	3	0.40	2.50	10.0	1	G&L
B(23-24)	3	1.55	2.50	10.0	1	G&L
C(8-10)	3	0.65	2.50	10.0	1	G&L
C(16-18)	3	0.65	2.50	10.0	1	G&L
E(2-4)	3	2.06	2.50	10.0	1	G&L
E(22-24)	3	2.06	2.50	10.0	1	G&L
F(8-12)	3	2.02	2.50	10.0	1	G&L
F(14-18)	3	2.02	2.50	10.0	1	G&L
H(1-4)	3	2.91	2.50	10.0	1	G&L
H(4-5)	3	0.90	2.50	10.0	1	G&L
H(6-7)	3	0.93	2.50	10.0	1	G&L
H(8-12)	3	2.02	2.50	10.0	1	G&L
H(14-18)	3	2.02	2.50	10.0	1	G&L
H(19-20)	3	0.93	2.50	10.0	1	G&L
H(21-22)	3	0.90	2.50	10.0	1	G&L
H(22-25)	3	2.91	2.50	10.0	1	G&L
I(1-4)	3	2.91	2.50	10.0	1	G&L
I(5-7)	3	1.75	2.50	10.0	1	G&L
I(8-12)	3	2.02	2.50	10.0	1	G&L
I(14-18)	3	2.02	2.50	10.0	1	G&L
I(19-21)	3	1.75	2.50	10.0	1	G&L
I(22-25)	3	2.91	2.50	10.0	1	G&L
K(8-12)	3	2.02	2.50	10.0	1	G&L
K(14-18)	3	2.02	2.50	10.0	1	G&L
L(2-4)	3	2.06	2.50	10.0	1	G&L
L(22-24)	3	2.06	2.50	10.0	1	G&L
M(8-10)	3	0.65	2.50	10.0	1	G&L
M(16-18)	3	0.65	2.50	10.0	1	G&L
N(2-3)	3	1.55	2.50	10.0	1	G&L
N(8-9)	3	0.40	2.50	10.0	1	G&L
N(11-12)	3	0.40	2.50	10.0	1	G&L
N(14-15)	3	0.40	2.50	10.0	1	G&L
N(17-18)	3	0.40	2.50	10.0	1	G&L
N(23-24)	3	1.55	2.50	10.0	1	G&L
1(E-H)	3	2.60	2.50	10.0	1	G&L
1(I-L)	3	2.60	2.50	10.0	1	G&L
2(B-E)	3	2.60	2.50	10.0	1	G&L
2(L-N)	3	2.61	2.50	10.0	1	G&L
4(F-H)	3	2.05	2.50	10.0	1	G&L
4(I-K)	3	2.05	2.50	10.0	1	G&L
5(B-E)	3	2.60	2.50	10.0	1	G&L
5(L-N)	3	2.61	2.50	10.0	1	G&L
8(B-C)	3	1.31	2.50	10.0	1	G&L
8(G-H)	3	1.35	2.50	10.0	1	G&L
8(I-J)	3	1.35	2.50	10.0	1	G&L

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE (Tipo B)
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Wall	Story	B	H	t	Material	System
8(M-N)	3	1.30	2.50	10.0	1	G&L
12(B-D)	3	2.15	2.50	10.0	1	G&L
12(D-F)	3	1.00	2.50	10.0	1	G&L
12(F-H)	3	2.05	2.50	10.0	1	G&L
12(I-K)	3	2.05	2.50	10.0	1	G&L
12(K-N)	3	3.16	2.50	10.0	1	G&L
13(F-H)	3	2.05	2.50	20.0	1	G&L
14(B-D)	3	2.15	2.50	10.0	1	G&L
14(D-F)	3	1.00	2.50	10.0	1	G&L
14(F-H)	3	2.05	2.50	10.0	1	G&L
14(I-K)	3	2.05	2.50	10.0	1	G&L
14(K-N)	3	3.16	2.50	10.0	1	G&L
18(B-C)	3	1.31	2.50	10.0	1	G&L
18(G-H)	3	1.35	2.50	10.0	1	G&L
18(I-J)	3	1.35	2.50	10.0	1	G&L
18(M-N)	3	1.30	2.50	10.0	1	G&L
21(B-E)	3	2.60	2.50	10.0	1	G&L
21(L-N)	3	2.61	2.50	10.0	1	G&L
22(F-H)	3	2.05	2.50	10.0	1	G&L
22(I-K)	3	2.05	2.50	10.0	1	G&L
24(B-E)	3	2.60	2.50	10.0	1	G&L
24(L-N)	3	2.61	2.50	10.0	1	G&L
25(E-H)	3	2.60	2.50	10.0	1	G&L
25(I-L)	3	2.60	2.50	10.0	1	G&L
B(2-3)	4	1.55	2.50	10.0	1	G&L
B(8-9)	4	0.40	2.50	10.0	1	G&L
B(11-12)	4	0.40	2.50	10.0	1	G&L
B(14-15)	4	0.40	2.50	10.0	1	G&L
B(17-18)	4	0.40	2.50	10.0	1	G&L
B(23-24)	4	1.55	2.50	10.0	1	G&L
C(8-10)	4	0.65	2.50	10.0	1	G&L
C(16-18)	4	0.65	2.50	10.0	1	G&L
E(2-4)	4	2.06	2.50	10.0	1	G&L
E(22-24)	4	2.06	2.50	10.0	1	G&L
F(8-12)	4	2.02	2.50	10.0	1	G&L
F(14-18)	4	2.02	2.50	10.0	1	G&L
H(1-4)	4	2.91	2.50	10.0	1	G&L
H(4-5)	4	0.90	2.50	10.0	1	G&L
H(6-7)	4	0.93	2.50	10.0	1	G&L
H(8-12)	4	2.02	2.50	10.0	1	G&L
H(14-18)	4	2.02	2.50	10.0	1	G&L
H(19-20)	4	0.93	2.50	10.0	1	G&L
H(21-22)	4	0.90	2.50	10.0	1	G&L
H(22-25)	4	2.91	2.50	10.0	1	G&L
I(1-4)	4	2.91	2.50	10.0	1	G&L
I(5-7)	4	1.75	2.50	10.0	1	G&L
I(8-12)	4	2.02	2.50	10.0	1	G&L
I(14-18)	4	2.02	2.50	10.0	1	G&L
I(19-21)	4	1.75	2.50	10.0	1	G&L
I(22-25)	4	2.91	2.50	10.0	1	G&L
K(8-12)	4	2.02	2.50	10.0	1	G&L
K(14-18)	4	2.02	2.50	10.0	1	G&L
L(2-4)	4	2.06	2.50	10.0	1	G&L
L(22-24)	4	2.06	2.50	10.0	1	G&L
M(8-10)	4	0.65	2.50	10.0	1	G&L
M(16-18)	4	0.65	2.50	10.0	1	G&L
N(2-3)	4	1.55	2.50	10.0	1	G&L
N(8-9)	4	0.40	2.50	10.0	1	G&L
N(11-12)	4	0.40	2.50	10.0	1	G&L
N(14-15)	4	0.40	2.50	10.0	1	G&L
N(17-18)	4	0.40	2.50	10.0	1	G&L
N(23-24)	4	1.55	2.50	10.0	1	G&L
1(E-H)	4	2.60	2.50	10.0	1	G&L
1(I-L)	4	2.60	2.50	10.0	1	G&L
2(B-E)	4	2.60	2.50	10.0	1	G&L
2(L-N)	4	2.61	2.50	10.0	1	G&L
4(F-H)	4	2.05	2.50	10.0	1	G&L
4(I-K)	4	2.05	2.50	10.0	1	G&L
5(B-E)	4	2.60	2.50	10.0	1	G&L
5(L-N)	4	2.61	2.50	10.0	1	G&L
8(B-C)	4	1.31	2.50	10.0	1	G&L
8(G-H)	4	1.35	2.50	10.0	1	G&L
8(I-J)	4	1.35	2.50	10.0	1	G&L
8(M-N)	4	1.30	2.50	10.0	1	G&L
12(B-D)	4	2.15	2.50	10.0	1	G&L

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo B)

Engineer: CARLOS ELIAS GUTIERREZ R
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Wall	Story	B	H	t	Material	System
12(D-F)	4	1.00	2.50	10.0	1	G&L
12(F-H)	4	2.05	2.50	10.0	1	G&L
12(I-K)	4	2.05	2.50	10.0	1	G&L
12(K-N)	4	3.16	2.50	10.0	1	G&L
13(F-H)	4	2.05	2.50	20.0	1	G&L
14(B-D)	4	2.15	2.50	10.0	1	G&L
14(D-F)	4	1.00	2.50	10.0	1	G&L
14(F-H)	4	2.05	2.50	10.0	1	G&L
14(I-K)	4	2.05	2.50	10.0	1	G&L
14(K-N)	4	3.16	2.50	10.0	1	G&L
18(B-C)	4	1.31	2.50	10.0	1	G&L
18(G-H)	4	1.35	2.50	10.0	1	G&L
18(I-J)	4	1.35	2.50	10.0	1	G&L
18(M-N)	4	1.30	2.50	10.0	1	G&L
21(B-E)	4	2.60	2.50	10.0	1	G&L
21(L-N)	4	2.61	2.50	10.0	1	G&L
22(F-H)	4	2.05	2.50	10.0	1	G&L
22(I-K)	4	2.05	2.50	10.0	1	G&L
24(B-E)	4	2.60	2.50	10.0	1	G&L
24(L-N)	4	2.61	2.50	10.0	1	G&L
25(E-H)	4	2.60	2.50	10.0	1	G&L
25(I-L)	4	2.60	2.50	10.0	1	G&L
B(2-3)	5	1.55	2.50	10.0	1	G&L
B(8-9)	5	0.40	2.50	10.0	1	G&L
B(11-12)	5	0.40	2.50	10.0	1	G&L
B(14-15)	5	0.40	2.50	10.0	1	G&L
B(17-18)	5	0.40	2.50	10.0	1	G&L
B(23-24)	5	1.55	2.50	10.0	1	G&L
C(8-10)	5	0.65	2.50	10.0	1	G&L
C(16-18)	5	0.65	2.50	10.0	1	G&L
E(2-4)	5	2.06	2.50	10.0	1	G&L
E(22-24)	5	2.06	2.50	10.0	1	G&L
F(8-12)	5	2.02	2.50	10.0	1	G&L
F(14-18)	5	2.02	2.50	10.0	1	G&L
H(1-4)	5	2.91	2.50	10.0	1	G&L
H(4-5)	5	0.90	2.50	10.0	1	G&L
H(6-7)	5	0.93	2.50	10.0	1	G&L
H(8-12)	5	2.02	2.50	10.0	1	G&L
H(14-18)	5	2.02	2.50	10.0	1	G&L
H(19-20)	5	0.93	2.50	10.0	1	G&L
H(21-22)	5	0.90	2.50	10.0	1	G&L
H(22-25)	5	2.91	2.50	10.0	1	G&L
I(1-4)	5	2.91	2.50	10.0	1	G&L
I(5-7)	5	1.75	2.50	10.0	1	G&L
I(8-12)	5	2.02	2.50	10.0	1	G&L
I(14-18)	5	2.02	2.50	10.0	1	G&L
I(19-21)	5	1.75	2.50	10.0	1	G&L
I(22-25)	5	2.91	2.50	10.0	1	G&L
K(8-12)	5	2.02	2.50	10.0	1	G&L
K(14-18)	5	2.02	2.50	10.0	1	G&L
L(2-4)	5	2.06	2.50	10.0	1	G&L
L(22-24)	5	2.06	2.50	10.0	1	G&L
M(8-10)	5	0.65	2.50	10.0	1	G&L
M(16-18)	5	0.65	2.50	10.0	1	G&L
N(2-3)	5	1.55	2.50	10.0	1	G&L
N(8-9)	5	0.40	2.50	10.0	1	G&L
N(11-12)	5	0.40	2.50	10.0	1	G&L
N(14-15)	5	0.40	2.50	10.0	1	G&L
N(17-18)	5	0.40	2.50	10.0	1	G&L
N(23-24)	5	1.55	2.50	10.0	1	G&L
1(E-H)	5	2.60	2.50	10.0	1	G&L
1(I-L)	5	2.60	2.50	10.0	1	G&L
2(B-E)	5	2.60	2.50	10.0	1	G&L
2(L-N)	5	2.61	2.50	10.0	1	G&L
4(F-H)	5	2.05	2.50	10.0	1	G&L
4(I-K)	5	2.05	2.50	10.0	1	G&L
5(B-E)	5	2.60	2.50	10.0	1	G&L
5(L-N)	5	2.61	2.50	10.0	1	G&L
8(B-C)	5	1.31	2.50	10.0	1	G&L
8(G-H)	5	1.35	2.50	10.0	1	G&L
8(I-J)	5	1.35	2.50	10.0	1	G&L
8(M-N)	5	1.30	2.50	10.0	1	G&L
12(B-D)	5	2.15	2.50	10.0	1	G&L
12(D-F)	5	1.00	2.50	10.0	1	G&L
12(F-H)	5	2.05	2.50	10.0	1	G&L

Wall	Story	B	H	t	Material	System
12(I-K)	5	2.05	2.50	10.0	1	G&L
12(K-N)	5	3.16	2.50	10.0	1	G&L
13(F-H)	5	2.05	2.50	20.0	1	G&L
14(B-D)	5	2.15	2.50	10.0	1	G&L
14(D-F)	5	1.00	2.50	10.0	1	G&L
14(F-H)	5	2.05	2.50	10.0	1	G&L
14(I-K)	5	2.05	2.50	10.0	1	G&L
14(K-N)	5	3.16	2.50	10.0	1	G&L
18(B-C)	5	1.31	2.50	10.0	1	G&L
18(G-H)	5	1.35	2.50	10.0	1	G&L
18(I-J)	5	1.35	2.50	10.0	1	G&L
18(M-N)	5	1.30	2.50	10.0	1	G&L
21(B-E)	5	2.60	2.50	10.0	1	G&L
21(L-N)	5	2.61	2.50	10.0	1	G&L
22(F-H)	5	2.05	2.50	10.0	1	G&L
22(I-K)	5	2.05	2.50	10.0	1	G&L
24(B-E)	5	2.60	2.50	10.0	1	G&L
24(L-N)	5	2.61	2.50	10.0	1	G&L
25(E-H)	5	2.60	2.50	10.0	1	G&L
25(I-L)	5	2.60	2.50	10.0	1	G&L
B(2-3)	6	1.55	2.50	10.0	1	G&L
B(8-9)	6	0.40	2.50	10.0	1	G&L
B(11-12)	6	0.40	2.50	10.0	1	G&L
B(14-15)	6	0.40	2.50	10.0	1	G&L
B(17-18)	6	0.40	2.50	10.0	1	G&L
B(23-24)	6	1.55	2.50	10.0	1	G&L
C(8-10)	6	0.65	2.50	10.0	1	G&L
C(16-18)	6	0.65	2.50	10.0	1	G&L
E(2-4)	6	2.06	2.50	10.0	1	G&L
E(22-24)	6	2.06	2.50	10.0	1	G&L
F(8-12)	6	2.02	2.50	10.0	1	G&L
F(14-18)	6	2.02	2.50	10.0	1	G&L
H(1-4)	6	2.91	2.50	10.0	1	G&L
H(4-5)	6	0.90	2.50	10.0	1	G&L
H(6-7)	6	0.93	2.50	10.0	1	G&L
H(8-12)	6	2.02	2.50	10.0	1	G&L
H(14-18)	6	2.02	2.50	10.0	1	G&L
H(19-20)	6	0.93	2.50	10.0	1	G&L
H(21-22)	6	0.90	2.50	10.0	1	G&L
H(22-25)	6	2.91	2.50	10.0	1	G&L
I(1-4)	6	2.91	2.50	10.0	1	G&L
I(5-7)	6	1.75	2.50	10.0	1	G&L
I(8-12)	6	2.02	2.50	10.0	1	G&L
I(14-18)	6	2.02	2.50	10.0	1	G&L
I(19-21)	6	1.75	2.50	10.0	1	G&L
I(22-25)	6	2.91	2.50	10.0	1	G&L
K(8-12)	6	2.02	2.50	10.0	1	G&L
K(14-18)	6	2.02	2.50	10.0	1	G&L
L(2-4)	6	2.06	2.50	10.0	1	G&L
L(22-24)	6	2.06	2.50	10.0	1	G&L
M(8-10)	6	0.65	2.50	10.0	1	G&L
M(16-18)	6	0.65	2.50	10.0	1	G&L
N(2-3)	6	1.55	2.50	10.0	1	G&L
N(8-9)	6	0.40	2.50	10.0	1	G&L
N(11-12)	6	0.40	2.50	10.0	1	G&L
N(14-15)	6	0.40	2.50	10.0	1	G&L
N(17-18)	6	0.40	2.50	10.0	1	G&L
N(23-24)	6	1.55	2.50	10.0	1	G&L
1(E-H)	6	2.60	2.50	10.0	1	G&L
1(I-L)	6	2.60	2.50	10.0	1	G&L
2(B-E)	6	2.60	2.50	10.0	1	G&L
2(L-N)	6	2.61	2.50	10.0	1	G&L
4(F-H)	6	2.05	2.50	10.0	1	G&L
4(I-K)	6	2.05	2.50	10.0	1	G&L
5(B-E)	6	2.60	2.50	10.0	1	G&L
5(L-N)	6	2.61	2.50	10.0	1	G&L
8(B-C)	6	1.31	2.50	10.0	1	G&L
8(G-H)	6	1.35	2.50	10.0	1	G&L
8(I-J)	6	1.35	2.50	10.0	1	G&L
8(M-N)	6	1.30	2.50	10.0	1	G&L
12(B-D)	6	2.15	2.50	10.0	1	G&L
12(D-F)	6	1.00	2.50	10.0	1	G&L
12(F-H)	6	2.05	2.50	10.0	1	G&L
12(I-K)	6	2.05	2.50	10.0	1	G&L
12(K-N)	6	3.16	2.50	10.0	1	G&L

Wall	Story	B	H	t	Material	System
13(F-H)	6	2.05	2.50	20.0	1	G&L
14(B-D)	6	2.15	2.50	10.0	1	G&L
14(D-F)	6	1.00	2.50	10.0	1	G&L
14(F-H)	6	2.05	2.50	10.0	1	G&L
14(I-K)	6	2.05	2.50	10.0	1	G&L
14(K-N)	6	3.16	2.50	10.0	1	G&L
18(B-C)	6	1.31	2.50	10.0	1	G&L
18(G-H)	6	1.35	2.50	10.0	1	G&L
18(I-J)	6	1.35	2.50	10.0	1	G&L
18(M-N)	6	1.30	2.50	10.0	1	G&L
21(B-E)	6	2.60	2.50	10.0	1	G&L
21(L-N)	6	2.61	2.50	10.0	1	G&L
22(F-H)	6	2.05	2.50	10.0	1	G&L
22(I-K)	6	2.05	2.50	10.0	1	G&L
24(B-E)	6	2.60	2.50	10.0	1	G&L
24(L-N)	6	2.61	2.50	10.0	1	G&L
25(E-H)	6	2.60	2.50	10.0	1	G&L
25(I-L)	6	2.60	2.50	10.0	1	G&L

GROUND SUPPORT DATA

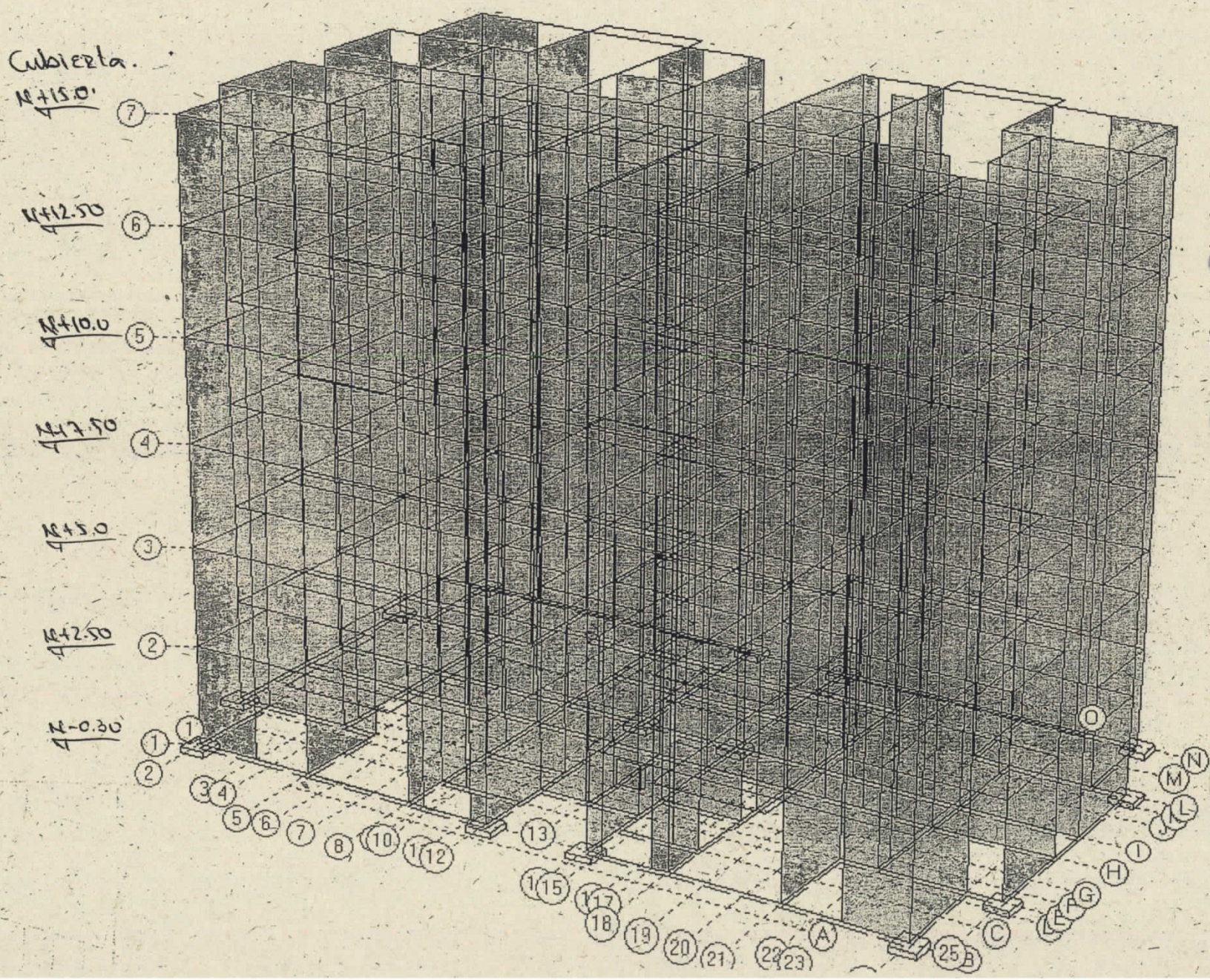
Total number of ground supports = 15

K = Spring constant(ton/cm)

Characteristics for All Degrees of Freedom
Value = K Dash = free C = constrained

Support	Floor	Type	Ux	Uy	Uz	TetX	TetY	TetZ
E-1	1	Fixed	C	C	C	C	C	C
L-1	1	Fixed	C	C	C	C	C	C
B-2	1	Fixed	C	C	C	C	C	C
N-2	1	Fixed	C	C	C	C	C	C
B-12	1	Fixed	C	C	C	C	C	C
I-12	1	Fixed	C	C	C	C	C	C
N-12	1	Fixed	C	C	C	C	C	C
G-13	1	Fixed	C	C	C	C	C	C
B-14	1	Fixed	C	C	C	C	C	C
I-14	1	Fixed	C	C	C	C	C	C
N-14	1	Fixed	C	C	C	C	C	C
B-24	1	Fixed	C	C	C	C	C	C
N-24	1	Fixed	C	C	C	C	C	C
E-25	1	Fixed	C	C	C	C	C	C
L-25	1	Fixed	C	C	C	C	C	C

Geometría.



Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE (Tipo 1)
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DRIFT-BASED FLEXIBLE-STORY CHECK - NSR-10

	EARTHQUAKE - X				EARTHQUAKE - Y			
Story	Δcm*	Δcm/h	Δn/Δn+1	Irregular	Δcm*	Δcm/h	Δn/Δn+1	Irregular
6	1.1294	0.0045	-	-	0.4868	0.0019	-	-
5	1.1333	0.0045	1.0035	NO	0.4897	0.0020	1.0059	NO
4	1.1061	0.0044	0.9759	NO	0.4733	0.0019	0.9667	NO
3	1.0171	0.0041	0.9196	NO	0.4271	0.0017	0.9023	NO
2	0.8705	0.0035	0.8558	NO	0.3421	0.0014	0.8009	NO
1	0.5478	0.0022	0.6293	NO	0.1986	0.0008	0.5805	NO

* Δcm: Story drift at center of mass (cm)
n/n+1 Δ/h: (Δcm/h)n/(Δcm/h)n+1: Ratio between drift ratio at CM of a stotry and that of story above

Vertical irregularities type 1a, 1b, 2 and 3 do not apply if drift ratio of each story is less than 1.3 that of next story above (i.e. n/n+1 Δ/h < 1.3). Story drift ratio of top two stories are not considered

Stiffness-based flexible story check is not required!
It can be considered that vertical irregularities type 1aA, 1bA, 2A and 3A DO NOT EXIST !

Use: Øa = 1

DESIGN-SHEAR BASED STORY STIFFNESS

	X-DIRECTION			Y-DIRECTION		
Story	Shear X	Δcm X	Kx	Shear Y	Δcm Y	Ky
6	253.8	1.1294	224.7	258.2	0.4868	530.5
5	469.7	1.1333	414.4	477.4	0.4897	975.0
4	631.5	1.1061	571.0	639.6	0.4733	1351.3
3	745.5	1.0171	733.0	751.4	0.4271	1759.3
2	816.1	0.8705	937.5	818.3	0.3421	2392.1
1	846.0	0.5478	1544.5	846.0	0.1986	4259.9

Shear: Design Shear, in ton
Δcm: Drift at center of mass, in cm
K: Story stiffness, in ton/cm

STIFFNESS-BASED FLEXIBLE-STORY CHECK - NSR-10

	EARTHQUAKE - X				EARTHQUAKE - Y			
Story	Kn	Kn/Kn+1	Kn/Kavg3	Irregular	Kn	Kn/Kn+1	Kn/Kavg3	Irregular
6	224.7	-	-	-	530.5	-	-	-
5	414.4	1.844	-	NO	975.0	1.838	-	NO
4	571.0	1.378	-	NO	1351.3	1.386	-	NO
3	733.0	1.284	1.817	NO	1759.3	1.302	1.848	NO
2	937.5	1.279	1.637	NO	2392.1	1.360	1.756	NO
1	1544.5	1.647	2.067	NO	4259.9	1.781	2.322	NO

Kn: Stiffness of story n, in ton/cm
Kn/Kn+1: Ratio between stiffness of story n and that of store above n
Kn/Kavg3: Ratio between stiffness of story n and average stiffness of three stories above n

Stiffness-soft story irregularity is considered to exist if Kn/Kn+1 < 0.7 or Kn/Kavg3 < 0.8
Stiffness-EXTreme soft story irregularity is considered to exist if Kn/Kn+1 < 0.7 or Kn/Kavg3 < 0.8

Stiffness-flexible story irregularity types 1aA and 1bA do NOT exist.

Notes:
The determination stiffness-soft story irregularity (vertical structural irregularity types 1a and 1b) is conducted based on story-stiffness computed for the design seismic shear distribution, according to FEMA's NEHRP Recommended Provitions for Seismic Regulations for New Buildings and other Structures, Provisions and Commentary ed. 1994, 1997, 2000, 2003, 2009, which is applicable to the following building codes derived from the above documents: (USA) IBC-03/06, ASCE 7-05/10, CBC-01/07, UBC-97, (COLOMBIA) NSR-10, (PAN) REP-2004, (DOM) R-001, (GUA) NS

WEIGHT (MASS) IRREGULARITY CHECK

Level	Wn	Wn/Wn+1	Wn/Wn-1	Irregular
6	160.2	-	0.907	-
5	176.6	-	1.000	-
4	176.6	1.000	1.001	NO
3	176.4	0.999	0.999	NO
2	176.6	1.001	0.993	NO
1	177.9	1.007	-	NO

Wn: Effective weight of story n, in ton
Wn/Wn+1: Ratio between weight of story n and weight of store above n
Wn/Wn-1: Ratio between weight of story n and weight of story below n

Weight (mass) irregularity is considered to exist if effective weight of any story is more than 1.5 times the effective weight of an anjacent story. That is, if Wn/Wn+1 > 1.5 or Wn/Wn-1 > 1.5.
A roof that is lighter than the floor below is not considered.

Weight (mass) irregularity (2A) does NOT exist. ✓

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)
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Engineer: CARLOS ELIAS GUTIERREZ R
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PLAN TORSIONAL IRREGULARITY CHECK - NSR-10

Level	EARTHQUAKE - X				EARTHQUAKE - Y			
	Δ/h max	Δ/h avg	max/avg Δ/h	Irregular	Δ/h max	Δ/h avg	max/avg Δ/h	Irregular
7	0.0049	0.0045	1.0789	NO	0.0026	0.0019	1.3366	YES
6	0.0049	0.0045	1.0780	NO	0.0026	0.0020	1.3330	YES
5	0.0048	0.0044	1.0759	NO	0.0025	0.0019	1.3294	YES
4	0.0044	0.0041	1.0724	NO	0.0023	0.0017	1.3254	YES
3	0.0037	0.0035	1.0637	NO	0.0018	0.0014	1.3212	YES
2	0.0023	0.0022	1.0676	NO	0.0010	0.0008	1.3133	YES

Torsional irregularity is considered to exist if Δ/h max > 1.2 Δ/h ave
EXTreme torsional irregularity is considered to exist if Δ/h max > 1.4 Δ/h ave

TORSIONAL IREGULARITIES (1aP) EXIST !!! ✓ $\Phi = 0.90$

Notes:
The determination of torsional irregularities (plan structural irregularity type 1) and computation of amplification factors for accidental torsion Ax, is conducted according to FEMA's NEHRP Recommended Provitions for Seismic Regulations for New Buildings and other Structures, Provisions and Commentary ed. 1994, 1997, 2000, 2003, 2009, which is applicable to the following building codes derived from the above documents: (USA) IBC-03/06, ASCE 7-05/10, CBC-01/07, UBC-97, (COLOMBIA) NSR-10, and (PAN) REP-2004, (Dom) R-001, (GUA

AMPLIFICATION FACTORS ACCIDENTAL TORSION, Ax

Level	EARTHQUAKE - X				EARTHQUAKE - Y			
	δmax	δavg	δmax/δavg	Ax	δmax	δavg	δmax/δavg	Ax
7	6.217	5.804	1.071	1.000	3.211	2.418	1.328	1.225
6	4.999	4.675	1.069	1.000	2.561	1.931	1.326	1.222
5	3.777	3.541	1.067	1.000	1.908	1.441	1.324	1.217
4	2.587	2.435	1.062	1.000	1.279	0.968	1.321	1.213
3	1.496	1.418	1.055	1.000	0.713	0.541	1.318	1.207
2	0.585	0.548	1.068	1.000	0.261	0.199	1.313	1.198

Displacement units: cm
$Ax = [\delta max / 1.2\ \delta ave]^2 < 3.0$

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE (Tipo 1)
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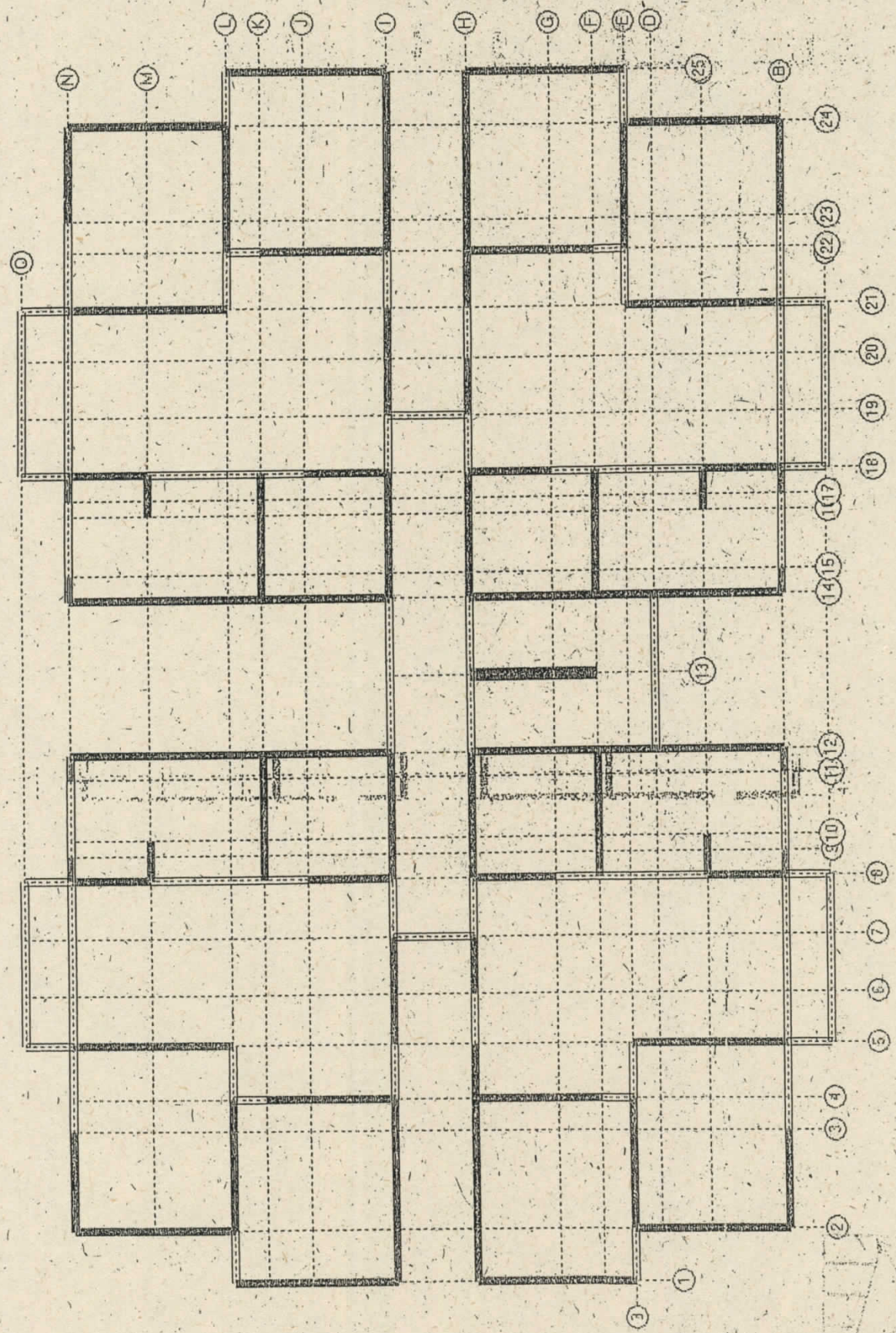
SEISMIC PARAMETERS - NSR-10

Effective peak acceleration, Aa	0.25
Effective peak velocity coeff, Av	0.25
Importance coefficient, I	1.00
Site profile type, S	E
Amplification coefficient, Fa	1.45
Amplification coefficient, Fv	3.00
Limit period, To (sec)	0.21
Limit period, Tc (sec)	1.00
Long-period transition period, Tl (sec)	7.20
Amplified peak acceleration Aa Fa	0.36
Amplified peak veloc. coefficent Av Fv	0.75
Effective Building Weight	1044.5 ton
Seismic base level	1

	X - DIRECTION	Y - DIRECTION
Seismic Force-resisting system	A: Wall	A: Wall
Fundamental period, T	0.397	0.251
Energy Dissipation Coefficient, Ro	5.00	5.00
Reduced Energy Dissipation Coefficient, R	4.50	4.50
Design base shear, V	846.0	846.0

$\phi = 0.90$

Chequeo de Costantz Vm.



Piso Tipo B

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:19:48 p.m. 20/03/2015

Diseño de Muros
N-0.30 m
N-2.50

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

PRIMERA CURADURIA URBANA DE MANIZALES

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	1	1.55	2.50	10.0	1	5	√4.55 3.8	#3@30 .002	13	-13.15	16.12	10.22	5.52	2.35	10x30*
B(8-9)	1	0.40	2.50	10.0	1	6	0.37 0.9	#3@30 .002	10	1.09	1.35	1.78	0.80	0.49	10x10
B(11-12)	1	0.40	2.50	10.0	1	4	0.34 0.9	#3@30 .002	18	-11.98	0.52	4.13	0.25	1.94	10x17*
B(14-15)	1	0.40	2.50	10.0	1	5	0.34 0.9	#3@30 .002	16	-12.00	0.52	4.13	0.25	1.94	10x18*
B(17-18)	1	0.40	2.50	10.0	1	3	0.37 0.9	#3@30 .002	8	1.08	1.35	1.78	0.80	0.49	10x10
B(23-24)	1	1.55	2.50	10.0	1	4	√4.55 3.8	#3@30 .002	12	-13.21	16.12	10.22	5.52	2.35	10x30*
C(8-10)	1	0.65	2.50	10.0	1	4	0.66 1.6	#3@30 .002	4	15.75	1.51	0.78	-	-	-
C(16-18)	1	0.65	2.50	10.0	1	5	0.66 1.6	#3@30 .002	5	15.75	1.51	0.78	-	-	-
D(12-14)	1	2.50	2.50	10.0	1	4	√36.54 6.1	2Ly#3@30 .0031	12	2.80	48.16	10.67	9.19	0.74	10x10
E(2-4)	1	2.06	2.50	10.0	1	3	√6.57 5.1	#3@30 .002	11	-16.42	28.44	13.06	6.38	3.33	10x45*
(22-24)	1	2.06	2.50	10.0	1	6	√6.59 5.1	#3@30 .002	14	-16.53	28.45	13.14	6.42	3.35	10x45*
F(8-12)	1	2.02	2.50	10.0	1	6	√6.32 5.0	#3@30 .002	12	-11.42	23.62	10.03	6.36	1.84	10x30*
F(14-18)	1	2.02	2.50	10.0	1	3	√6.32 5.0	#3@30 .002	13	-11.40	23.62	10.02	6.36	1.84	10x30*
H(1-5)	1	3.81	2.50	10.0	1	3	√18.13 9.4	#3@28.5 .0025	11	-12.00	119.05	22.72	11.55	5.59	10x90*
H(6-7)	1	0.93	2.50	10.0	1	5	0.82 2.3	#3@30 .002	5	11.93	1.73	1.12	-	-	-
H(8-12)	1	2.02	2.50	10.0	1	6	√7.98 5.0	#3@28.5 .0025	17	-29.72	8.46	10.44	5.59	2.43	10x45*
H(14-18)	1	2.02	2.50	10.0	1	3	√8.00 5.0	#3@28.5 .0025	15	-29.76	8.46	10.44	5.59	2.43	10x45*
H(19-20)	1	0.93	2.50	10.0	1	4	0.82 2.3	#3@30 .002	4	11.93	1.73	1.12	-	-	-
H(21-25)	1	3.81	2.50	10.0	1	6	√18.14 9.4	#3@28.5 .0025	14	-11.93	119.02	22.57	11.47	5.55	10x90*
I(1-4)	1	2.91	2.50	10.0	1	5	√14.52 7.2	#3@28.5 .0025	13	1.00	63.88	12.68	8.03	2.31	10x45*
I(5-7)	1	1.75	2.50	10.0	1	3	2.86 4.3	#3@30 .002	3	19.79	14.10	3.50	-	-	-
I(8-12)	1	2.02	2.50	10.0	1	4	√8.02 5.0	#3@28.5 .0025	16	-29.59	8.50	10.36	7.09	1.64	10x30*
I(14-18)	1	2.02	2.50	10.0	1	5	√8.02 5.0	#3@28.5 .0025	18	-29.62	8.50	10.36	7.09	1.64	10x30*
I(19-21)	1	1.75	2.50	10.0	1	6	2.86 4.3	#3@30 .002	6	20.28	14.21	3.50	-	-	-

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
I(22-25)	1	2.91	2.50	10.0	1	4	√14.52 7.2	#3@28.5 .0025	12	0.75	63.97	12.72	8.03	2.33	10x45*
K(8-12)	1	2.02	2.50	10.0	1	4	√6.30 5.0	#3@30 .002	14	-9.05	23.84	9.72	6.15	1.78	10x30*
K(14-18)	1	2.02	2.50	10.0	1	5	√6.30 5.0	#3@30 .002	11	-9.05	23.85	9.73	6.17	1.79	10x30*
L(2-4)	1	2.06	2.50	10.0	1	5	√6.75 5.1	#3@30 .002	13	-19.27	28.69	13.90	4.82	4.53	10x60*
L(22-24)	1	2.06	2.50	10.0	1	4	√6.75 5.1	#3@30 .002	12	-19.30	28.68	13.88	4.80	4.53	10x60*
M(8-10)	1	0.65	2.50	10.0	1	6	0.75 1.6	#3@30 .002	6	15.86	1.63	0.78	-	-	-
M(16-18)	1	0.65	2.50	10.0	1	3	0.75 1.6	#3@30 .002	3	15.86	1.63	0.78	-	-	-
N(2-3)	1	1.55	2.50	10.0	1	3	√5.34 3.8	#3@28.5 .0025	15	-26.71	7.15	9.94	5.90	2.01	10x30*
N(8-9)	1	0.40	2.50	10.0	1	4	0.44 0.9	#3@30 .002	6	6.17	1.94	1.90	0.80	0.55	10x10
N(11-12)	1	0.40	2.50	10.0	1	6	0.39 0.9	#3@30 .002	15	-12.34	0.50	4.15	0.25	1.95	10x17*
N(14-15)	1	0.40	2.50	10.0	1	3	0.39 0.9	#3@30 .002	17	-12.35	0.50	4.13	0.25	1.95	10x18*
N(17-18)	1	0.40	2.50	10.0	1	5	0.44 0.9	#3@30 .002	3	6.17	1.94	1.90	0.80	0.55	10x10
N(23-24)	1	1.55	2.50	10.0	1	6	√5.34 3.8	#3@28.5 .0025	17	-26.80	7.15	9.94	5.90	2.01	10x30*
1(E-H)	1	2.60	2.50	10.0	1	7	√8.73 6.4	#3@30 .002	12	-66.95	15.63	21.85	3.27	9.28	10x105*
1(I-L)	1	2.60	2.50	10.0	1	10	√8.10 6.4	#3@30 .002	14	-60.31	15.25	19.86	6.98	6.42	10x75*
2(B-E)	1	2.60	2.50	10.0	1	7	√10.05 6.4	#3@28.5 .0025	12	-21.84	11.43	8.39	-	-	-
2(L-N)	1	2.61	2.50	10.0	1	8	√9.85 6.4	#3@28.5 .0025	12	-19.17	11.71	7.86	-	-	-
4(F-H)	1	2.05	2.50	10.0	1	10	√5.46 6.0	#3@30 .002	13	-40.27	7.57	13.05	4.48	4.28	10x60*
4(I-K)	1	2.05	2.50	10.0	1	7	√5.59 5.0	#3@30 .002	11	-49.68	7.90	15.79	3.36	6.21	10x75*
5(B-E)	1	2.60	2.50	10.0	1	8	5.98 6.4	#3@30 .002	8	46.13	30.98	5.19	-	-	-
5(L-N)	1	2.61	2.50	10.0	1	7	6.01 6.4	#3@30 .002	7	44.31	31.29	5.21	-	-	-
8(B-C)	1	1.31	2.50	10.0	1	8	2.40 3.2	#3@30 .002	8	18.76	6.28	2.61	-	-	-
8(G-H)	1	1.35	2.50	10.0	1	7	2.19 3.2	#3@30 .002	14	-29.75	2.32	9.07	2.45	3.30	10x45*
8(I-J)	1	1.35	2.50	10.0	1	10	2.05 3.2	#3@30 .002	12	-29.62	1.92	8.76	4.21	2.26	10x30*
8(M-N)	1	1.30	2.50	10.0	1	9	2.28 3.2	#3@30 .002	9	18.68	6.11	2.59	-	-	-
12(B-H)	1	5.20	2.50	10.0	1	9	√21.42 12.8	#3@28.5 .0025	18	-14.79	146.72	20.46	13.98	3.24	10x78*
12(I-N)	1	5.21	2.50	10.0	1	8	√21.53 12.8	#3@28.5 .0025	15	-22.42	149.17	23.48	16.05	3.72	10x78*
13(F-H)	1	2.05	2.50	20.0	1	7	6.26	2Ly#3@35.6 .002	7	33.77	29.21	8.19	-	-	-
14(B-H)	1	5.20	2.50	10.0	1	7	√21.42 12.8	#3@28.5 .0025	16	-14.84	146.82	20.46	13.98	3.24	10x78*
14(I-N)	1	5.21	2.50	10.0	1	10	√21.54 12.8	#3@28.5 .0025	17	-22.45	149.25	23.48	16.05	3.72	10x78*
18(B-C)	1	1.31	2.50	10.0	1	10	2.40 3.2	#3@30 .002	10	18.77	6.28	2.61	-	-	-
18(G-H)	1	1.35	2.50	10.0	1	9	2.19 3.2	#3@30 .002	11	-29.75	2.32	9.07	2.45	3.30	10x45*
18(I-J)	1	1.35	2.50	10.0	1	8	2.05 3.2	#3@30 .002	13	-29.62	1.92	8.76	4.21	2.26	10x30*
18(M-N)	1	1.30	2.50	10.0	1	7	2.28 3.2	#3@30 .002	7	18.68	6.11	2.59	-	-	-
21(B-E)	1	2.60	2.50	10.0	1	10	5.98 6.4	#3@30 .002	10	46.15	31.04	5.19	-	-	-
21(L-N)	1	2.61	2.50	10.0	1	9	6.03 6.4	#3@30 .002	9	44.31	31.34	5.21	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:19:48 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(F-H)	1	2.05	2.50	10.0	1	8	5.46	#3@30 .002	12	-40.29	7.61	13.06	4.48	4.28	10x60*
22(I-K)	1	2.05	2.50	10.0	1	9	5.59	#3@30 .002	14	-49.83	7.90	15.69	3.34	6.17	10x75*
24(B-E)	1	2.60	2.50	10.0	1	9	10.05	#3@28.5 .0025	13	-21.77	11.48	8.39	-	-	-
24(L-N)	1	2.61	2.50	10.0	1	10	9.88	#3@28.5 .0025	11	-21.40	9.03	7.86	-	-	-
25(E-H)	1	2.60	2.50	10.0	1	9	8.76	#3@30 .002	13	-67.01	15.68	21.87	3.27	9.28	10x105*
25(I-L)	1	2.60	2.50	10.0	1	8	8.11	#3@30 .002	11	-60.18	15.27	19.81	6.98	6.42	10x75*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:24:11 p.m. 20/03/2015

Muros N+2.50m
N+0.00

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	2	1.55	2.50	10.0	1	10	3.60	#3@30 .002	18	-20.71	7.26	8.34	6.30	1.01	10x15*
B(8-9)	2	0.40	2.50	10.0	1	9	0.27	#3@30 .002	8	2.59	1.13	1.04	-	-	-
B(11-12)	2	0.40	2.50	10.0	1	8	0.38	#3@30 .002	18	-9.32	0.70	3.63	0.47	1.58	10x15*
B(14-15)	2	0.40	2.50	10.0	1	10	0.38	#3@30 .002	16	-9.34	0.70	3.61	0.47	1.58	10x15*
B(17-18)	2	0.40	2.50	10.0	1	7	0.27	#3@30 .002	10	2.59	1.13	1.04	-	-	-
B(23-24)	2	1.55	2.50	10.0	1	8	3.60	#3@30 .002	16	-20.78	7.28	8.34	6.30	1.01	10x15*
C(8-10)	2	0.65	2.50	10.0	1	8	0.38	#3@30 .002	8	12.80	0.57	0.78	-	-	-
C(16-18)	2	0.65	2.50	10.0	1	10	0.38	#3@30 .002	10	12.80	0.57	0.78	-	-	-
E(2-4)	2	2.06	2.50	10.0	1	3	7.07	#3@30 .002	11	-11.15	22.87	9.73	7.92	0.91	10x15*
E(22-24)	2	2.06	2.50	10.0	1	6	7.01	#3@30 .002	14	-11.28	22.86	9.73	7.92	0.91	10x15*
(8-12)	2	2.02	2.50	10.0	1	6	7.17	#3@28.5 .0025	12	-5.09	20.01	7.30	6.15	0.58	10x15*
F(14-18)	2	2.02	2.50	10.0	1	3	7.17	#3@28.5 .0025	13	-5.07	20.01	7.30	6.15	0.58	10x15*
H(1-5)	2	3.81	2.50	10.0	1	3	28.14	#3@28.5 .0025	11	-7.28	119.05	21.35	10.52	5.40	10x75*
H(6-7)	2	0.93	2.50	10.0	1	5	0.20	#3@30 .002	5	9.75	0.45	1.12	-	-	-
H(8-12)	2	2.02	2.50	10.0	1	6	11.61	#3@28.5 .0025	14	-8.28	24.95	9.77	8.22	0.77	10x15*
H(14-18)	2	2.02	2.50	10.0	1	3	11.60	#3@28.5 .0025	11	-8.31	24.95	9.77	8.22	0.77	10x15*
H(19-20)	2	0.93	2.50	10.0	1	4	0.20	#3@30 .002	4	9.75	0.45	1.12	-	-	-
H(21-25)	2	3.81	2.50	10.0	1	6	28.18	#3@28.5 .0025	14	-7.23	119.02	21.44	10.52	5.46	10x75*
I(1-4)	2	2.91	2.50	10.0	1	5	22.63	2Ly#3@30 .0025	13	1.44	63.88	12.47	8.03	2.22	10x45*
I(5-7)	2	1.75	2.50	10.0	1	3	1.58	#3@30 .002	3	16.36	7.80	3.50	-	-	-
I(8-12)	2	2.02	2.50	10.0	1	4	11.44	#3@28.5 .0025	16	-22.54	11.48	9.32	7.84	0.74	10x15*
I(14-18)	2	2.02	2.50	10.0	1	5	11.44	#3@28.5 .0025	18	-22.54	11.50	9.32	7.84	0.74	10x15*
I(19-21)	2	1.75	2.50	10.0	1	6	1.58	#3@30 .002	6	16.84	7.90	3.50	-	-	-
I(22-25)	2	2.91	2.50	10.0	1	4	22.63	2Ly#3@30 .0025	12	1.19	63.97	12.52	8.03	2.24	10x45*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:24:11 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	2	2.02	2.50	10.0	1	4	√6.46 5.0	#3@30 .002	14	-4.36	18.52	6.61	5.36	0.63	10x15*
K(14-18)	2	2.02	2.50	10.0	1	5	√6.46 5.0	#3@30 .002	11	-4.36	18.52	6.61	5.36	0.63	10x15*
L(2-4)	2	2.06	2.50	10.0	1	5	√7.05 5.1	#3@30 .002	13	-17.69	18.46	10.05	8.17	0.94	10x15*
L(22-24)	2	2.06	2.50	10.0	1	4	√7.05 5.1	#3@30 .002	12	-17.72	18.46	10.06	8.18	0.94	10x15*
M(8-10)	2	0.65	2.50	10.0	1	9	0.38 1.6	#3@30 .002	9	12.85	0.57	0.78	-	-	-
M(16-18)	2	0.65	2.50	10.0	1	7	0.38 1.6	#3@30 .002	7	12.85	0.57	0.78	-	-	-
N(2-3)	2	1.55	2.50	10.0	1	3	√3.98 3.8	#3@30 .002	15	-19.69	7.00	8.10	6.11	0.99	10x15*
N(8-9)	2	0.40	2.50	10.0	1	10	0.32 0.9	#3@30 .002	9	2.57	1.11	1.01	-	-	-
N(11-12)	2	0.40	2.50	10.0	1	7	0.42 0.9	#3@30 .002	15	-9.57	0.76	3.83	0.50	1.66	10x15*
N(14-15)	2	0.40	2.50	10.0	1	9	0.43 0.9	#3@30 .002	17	-9.57	0.76	3.83	0.50	1.66	10x15*
N(17-18)	2	0.40	2.50	10.0	1	8	0.32 0.9	#3@30 .002	7	2.56	1.11	1.01	-	-	-
N(23-24)	2	1.55	2.50	10.0	1	6	√3.98 3.8	#3@30 .002	17	-19.77	7.01	8.10	6.11	0.99	10x15*
1(E-H)	2	2.60	2.50	10.0	1	3	√9.82 6.4	#3@28.5 .0025	12	-54.34	17.31	18.46	12.63	2.92	10x39*
1(I-L)	2	2.60	2.50	10.0	1	5	√9.73 6.4	#3@28.5 .0025	14	-48.99	19.96	18.00	12.30	2.84	10x39*
2(B-E)	2	2.60	2.50	10.0	1	7	√11.80 6.4	#3@28.5 .0025	16	2.29	34.59	7.07	-	-	-
2(L-N)	2	2.61	2.50	10.0	1	10	√12.15 6.4	#3@28.5 .0025	17	2.56	34.15	6.90	-	-	-
4(F-H)	2	2.05	2.50	10.0	1	5	√5.59 5.0	#3@30 .002	13	-33.34	9.60	11.79	-	-	-
4(I-K)	2	2.05	2.50	10.0	1	3	√6.42 5.0	#3@30 .002	11	-39.58	9.44	13.39	10.88	1.26	10x15*
5(B-E)	2	2.60	2.50	10.0	1	10	3.70 6.4	#3@30 .002	9	37.66	32.00	5.75	3.64	1.04	10x39*
5(L-N)	2	2.61	2.50	10.0	1	9	3.69 6.4	#3@30 .002	8	37.68	32.36	5.77	3.65	1.05	10x39*
8(B-C)	2	1.31	2.50	10.0	1	8	1.12 3.2	#3@30 .002	8	16.19	3.31	2.61	-	-	-
8(G-H)	2	1.35	2.50	10.0	1	5	2.44 3.2	#3@30 .002	14	-23.88	3.52	7.96	5.73	1.11	10x15*
8(I-J)	2	1.35	2.50	10.0	1	3	2.51 3.2	#3@30 .002	12	-23.87	3.34	7.82	5.65	1.09	10x15*
8(M-N)	2	1.30	2.50	10.0	1	9	1.12 3.2	#3@30 .002	9	16.17	3.34	2.59	-	-	-
12(B-H)	2	5.20	2.50	10.0	1	9	√31.23 12.8	#3@28.5 .0025	18	-18.00	146.72	22.32	15.27	3.52	10x78*
12(I-N)	2	5.21	2.50	10.0	1	8	√30.46 12.8	#3@28.5 .0025	15	-17.56	149.17	22.37	15.28	3.53	10x78*
13(F-H)	2	2.05	2.50	20.0	1	9	2.19	2Ly#3@35.6 .002	9	28.11	14.39	8.19	-	-	-
14(B-H)	2	5.20	2.50	10.0	1	7	√31.25 12.8	#3@28.5 .0025	16	-18.04	146.82	22.32	15.27	3.52	10x78*
14(I-N)	2	5.21	2.50	10.0	1	10	√30.50 12.8	#3@28.5 .0025	17	-17.60	149.25	22.37	15.28	3.53	10x78*
18(B-C)	2	1.31	2.50	10.0	1	10	1.13 3.2	#3@30 .002	10	16.19	3.32	2.61	-	-	-
18(G-H)	2	1.35	2.50	10.0	1	4	2.44 3.2	#3@30 .002	11	-23.88	3.52	7.96	5.73	1.11	10x15*
18(I-J)	2	1.35	2.50	10.0	1	6	2.51 3.2	#3@30 .002	13	-23.87	3.34	7.88	5.67	1.10	10x15*
18(M-N)	2	1.30	2.50	10.0	1	7	1.12 3.2	#3@30 .002	7	16.17	3.34	2.59	-	-	-
21(B-E)	2	2.60	2.50	10.0	1	8	3.70 6.4	#3@30 .002	7	37.68	32.04	5.75	3.64	1.04	10x39*
21(L-N)	2	2.61	2.50	10.0	1	7	3.70 6.4	#3@30 .002	10	37.68	32.43	5.77	3.65	1.05	10x39*
22(F-H)	2	2.05	2.50	10.0	1	4	√5.55 5.0	#3@30 .002	12	-33.36	9.64	11.84	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:24:11 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	2	2.05	2.50	10.0	1	6	✓6.42	#3@30 .002	14	-39.74	9.46	13.38	10.86	1.26	10x15*
24(B-E)	2	2.60	2.50	10.0	1	9	✓11.80	#3@28.5 .0025	18	2.41	34.70	7.07	-	-	-
24(L-N)	2	2.61	2.50	10.0	1	8	✓12.19	#3@28.5 .0025	15	2.57	34.22	6.90	-	-	-
25(E-H)	2	2.60	2.50	10.0	1	6	✓9.84	#3@28.5 .0025	13	-54.40	17.37	18.64	12.75	2.95	10x39*
25(I-L)	2	2.60	2.50	10.0	1	4	✓9.73	#3@28.5 .0025	11	-48.84	19.97	17.95	12.27	2.83	10x39*

042-2016

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:28:29 p.m. 20/03/2015

Muros N +3.0m
+2.50m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcretel	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	3	1.55	2.50	10.0	1	10	3.15	#3@30 .002	18	-13.27	5.65	5.71	-	-	-
B(8-9)	3	0.40	2.50	10.0	1	6	0.26	#3@30 .002	4	4.09	1.23	0.87	-	-	-
B(11-12)	3	0.40	2.50	10.0	1	8	0.29	#3@30 .002	18	-6.34	0.52	2.50	-	-	-
B(14-15)	3	0.40	2.50	10.0	1	10	0.29	#3@30 .002	16	-6.34	0.52	2.48	-	-	-
B(17-18)	3	0.40	2.50	10.0	1	3	0.26	#3@30 .002	5	4.09	1.23	0.87	-	-	-
B(23-24)	3	1.55	2.50	10.0	1	8	3.16	#3@30 .002	16	-13.31	5.67	5.71	-	-	-
C(8-10)	3	0.65	2.50	10.0	1	4	0.27	#3@30 .002	4	8.82	0.58	0.78	-	-	-
C(16-18)	3	0.65	2.50	10.0	1	5	0.27	#3@30 .002	5	8.82	0.58	0.78	-	-	-
E(2-4)	3	2.06	2.50	10.0	1	3	5.82	#3@30 .002	11	-5.92	15.89	6.25	-	-	-
E(22-24)	3	2.06	2.50	10.0	1	6	5.76	#3@30 .002	14	-5.84	15.77	5.94	-	-	-
(8-12)	3	2.02	2.50	10.0	1	6	5.40	#3@30 .002	6	5.30	14.06	4.03	-	-	-
F(14-18)	3	2.02	2.50	10.0	1	3	5.40	#3@30 .002	3	5.30	14.05	4.03	-	-	-
H(1-5)	3	3.81	2.50	10.0	1	3	27.93	#3@28.5 .0025	11	-3.02	83.45	14.01	12.82	0.58	10x15*
H(6-7)	3	0.93	2.50	10.0	1	5	0.47	#3@30 .002	5	7.67	0.39	1.12	-	-	-
H(8-12)	3	2.02	2.50	10.0	1	6	11.27	#3@28.5 .0025	17	-15.43	12.36	7.82	-	-	-
H(14-18)	3	2.02	2.50	10.0	1	3	11.27	#3@28.5 .0025	15	-15.44	12.36	7.82	-	-	-
H(19-20)	3	0.93	2.50	10.0	1	4	0.47	#3@30 .002	4	7.67	0.39	1.12	-	-	-
H(21-25)	3	3.81	2.50	10.0	1	6	27.95	#3@28.5 .0025	14	-3.00	83.48	14.01	12.82	0.58	10x15*
I(1-4)	3	2.91	2.50	10.0	1	5	22.46	2Ly#3@30 .0025	13	2.29	49.93	9.39	-	-	-
I(5-7)	3	1.75	2.50	10.0	1	3	1.39	#3@30 .002	3	13.00	5.09	3.50	-	-	-
I(8-12)	3	2.02	2.50	10.0	1	4	11.23	#3@28.5 .0025	16	-15.52	12.05	7.82	-	-	-
I(14-18)	3	2.02	2.50	10.0	1	5	11.23	#3@28.5 .0025	18	-15.52	12.05	7.82	-	-	-
I(19-21)	3	1.75	2.50	10.0	1	6	1.39	#3@30 .002	6	13.52	5.17	3.50	-	-	-
I(22-25)	3	2.91	2.50	10.0	1	4	22.45	2Ly#3@30 .0025	12	2.05	50.02	9.39	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:28:29 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	3	2.02	2.50	10.0	1	6	5.21	#3@30 .002	6	3.30	13.03	4.03	-	-	-
K(14-18)	3	2.02	2.50	10.0	1	3	5.19	#3@30 .002	3	3.29	13.05	4.03	-	-	-
L(2-4)	3	2.06	2.50	10.0	1	5	6.07	#3@30 .002	13	-10.73	13.46	6.69	-	-	-
L(22-24)	3	2.06	2.50	10.0	1	4	6.07	#3@30 .002	12	-10.77	13.46	6.69	-	-	-
M(8-10)	3	0.65	2.50	10.0	1	6	0.31	#3@30 .002	6	8.96	0.63	0.78	-	-	-
M(16-18)	3	0.65	2.50	10.0	1	3	0.31	#3@30 .002	3	8.96	0.63	0.78	-	-	-
N(2-3)	3	1.55	2.50	10.0	1	7	3.20	#3@30 .002	15	-12.52	5.44	5.38	-	-	-
N(8-9)	3	0.40	2.50	10.0	1	4	0.27	#3@30 .002	6	3.97	1.21	0.87	-	-	-
N(11-12)	3	0.40	2.50	10.0	1	9	0.30	#3@30 .002	15	-6.34	0.52	2.47	-	-	-
N(14-15)	3	0.40	2.50	10.0	1	7	0.30	#3@30 .002	17	-6.34	0.52	2.49	-	-	-
N(17-18)	3	0.40	2.50	10.0	1	5	0.27	#3@30 .002	3	3.97	1.21	0.87	-	-	-
N(23-24)	3	1.55	2.50	10.0	1	9	3.21	#3@30 .002	17	-12.56	5.46	5.48	-	-	-
1(E-H)	3	2.60	2.50	10.0	1	3	10.40	#3@28.5 .0025	12	-38.36	16.70	14.19	12.44	0.88	10x15*
1(I-L)	3	2.60	2.50	10.0	1	5	10.17	#3@28.5 .0025	14	-34.20	18.12	13.27	11.63	0.82	10x15*
2(B-E)	3	2.60	2.50	10.0	1	7	11.15	#3@28.5 .0025	7	23.79	24.02	6.50	-	-	-
2(L-N)	3	2.61	2.50	10.0	1	10	12.10	#3@28.5 .0025	10	23.69	25.13	6.52	-	-	-
4(F-H)	3	2.05	2.50	10.0	1	5	5.86	#3@30 .002	13	-23.38	8.97	8.81	-	-	-
4(I-K)	3	2.05	2.50	10.0	1	3	6.55	#3@30 .002	11	-27.19	9.17	9.94	-	-	-
5(B-E)	3	2.60	2.50	10.0	1	10	2.97	#3@30 .002	10	29.80	12.81	5.19	-	-	-
5(L-N)	3	2.61	2.50	10.0	1	9	2.88	#3@30 .002	9	30.46	12.52	5.21	-	-	-
8(B-C)	3	1.31	2.50	10.0	1	8	0.87	#3@30 .002	8	13.13	2.34	2.61	-	-	-
8(G-H)	3	1.35	2.50	10.0	1	5	2.29	#3@30 .002	14	-16.20	3.10	5.71	-	-	-
8(I-J)	3	1.35	2.50	10.0	1	3	2.27	#3@30 .002	12	-16.13	2.99	5.67	-	-	-
8(M-N)	3	1.30	2.50	10.0	1	9	0.86	#3@30 .002	9	13.06	2.36	2.59	-	-	-
12(B-H)	3	5.20	2.50	10.0	1	9	31.44	#3@28.5 .0025	18	-10.57	146.72	19.35	13.22	3.05	10x78*
12(I-N)	3	5.21	2.50	10.0	1	8	30.84	#3@28.5 .0025	15	-10.94	149.17	20.12	13.76	3.19	10x78*
13(F-H)	3	2.05	2.50	20.0	1	9	2.00	2Ly#3@35.6 .002	9	22.45	9.76	8.19	-	-	-
14(B-H)	3	5.20	2.50	10.0	1	7	31.45	#3@28.5 .0025	16	-10.63	146.82	19.35	13.22	3.05	10x78*
14(I-N)	3	5.21	2.50	10.0	1	10	30.87	#3@28.5 .0025	17	-10.94	149.25	20.12	13.76	3.19	10x78*
18(B-C)	3	1.31	2.50	10.0	1	10	0.88	#3@30 .002	10	13.13	2.34	2.61	-	-	-
18(G-H)	3	1.35	2.50	10.0	1	4	2.29	#3@30 .002	11	-16.20	3.10	5.71	-	-	-
18(I-J)	3	1.35	2.50	10.0	1	6	2.27	#3@30 .002	13	-16.12	2.99	5.67	-	-	-
18(M-N)	3	1.30	2.50	10.0	1	7	0.86	#3@30 .002	7	13.06	2.36	2.59	-	-	-
21(B-E)	3	2.60	2.50	10.0	1	8	2.97	#3@30 .002	8	29.80	12.82	5.19	-	-	-
21(L-N)	3	2.61	2.50	10.0	1	7	2.89	#3@30 .002	7	30.46	12.53	5.21	-	-	-
22(F-H)	3	2.05	2.50	10.0	1	4	5.82	#3@30 .002	12	-23.37	8.92	8.84	-	-	-

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	3	2.05	2.50	10.0	1	6	6.55	#3@30 .002	14	-27.34	9.15	10.14	-	-	-
24(B-E)	3	2.60	2.50	10.0	1	9	11.14	#3@28.5 .0025	9	23.72	24.04	6.50	-	-	-
24(L-N)	3	2.61	2.50	10.0	1	8	12.14	#3@28.5 .0025	8	23.70	25.22	6.52	-	-	-
25(E-H)	3	2.60	2.50	10.0	1	6	10.43	#3@28.5 .0025	13	-38.40	16.73	14.30	12.52	0.88	10x15*
25(I-L)	3	2.60	2.50	10.0	1	4	10.17	#3@28.5 .0025	11	-34.08	18.12	13.30	11.65	0.82	10x15*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R.
04:29:23 p.m. 20/03/2015

Muros N+7.00 m
+5.00 m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement		VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	4	1.55	2.50	10.0	1	10	2.75	3.8	#3@30 .002	18	-6.98	4.26	3.45	-	-	-
B(8-9)	4	0.40	2.50	10.0	1	6	0.24	0.9	#3@30 .002	4	2.99	0.96	0.66	-	-	-
B(11-12)	4	0.40	2.50	10.0	1	10	0.32	0.9	#3@30 .002	18	-3.65	0.54	1.79	-	-	-
B(14-15)	4	0.40	2.50	10.0	1	8	0.32	0.9	#3@30 .002	16	-3.65	0.54	1.79	-	-	-
B(17-18)	4	0.40	2.50	10.0	1	3	0.24	0.9	#3@30 .002	5	3.00	0.96	0.66	-	-	-
B(23-24)	4	1.55	2.50	10.0	1	8	2.75	3.8	#3@30 .002	16	-7.01	4.26	3.45	-	-	-
C(8-10)	4	0.65	2.50	10.0	1	8	0.23	1.6	#3@30 .002	8	6.32	0.32	0.78	-	-	-
C(16-18)	4	0.65	2.50	10.0	1	10	0.23	1.6	#3@30 .002	10	6.32	0.32	0.78	-	-	-
E(2-4)	4	2.06	2.50	10.0	1	3	5.30	5.1	#3@30 .002	3	0.97	10.81	4.11	-	-	-
E(22-24)	4	2.06	2.50	10.0	1	6	5.30	5.1	#3@30 .002	6	1.00	10.81	4.11	-	-	-
(8-12)	4	2.02	2.50	10.0	1	4	4.44	5.0	#3@30 .002	4	5.36	9.11	4.03	-	-	-
F(14-18)	4	2.02	2.50	10.0	1	5	4.44	5.0	#3@30 .002	5	5.38	9.10	4.03	-	-	-
H(1-5)	4	3.81	2.50	10.0	1	3	24.82	9.4	#3@28.5 .0025	3	4.88	59.41	9.52	-	-	-
H(6-7)	4	0.93	2.50	10.0	1	5	0.42	1.3	#3@30 .002	5	5.65	0.26	1.12	-	-	-
H(8-12)	4	2.02	2.50	10.0	1	6	9.93	5.0	#3@28.5 .0025	14	-3.02	15.93	5.48	-	-	-
H(14-18)	4	2.02	2.50	10.0	1	3	9.93	5.6	#3@28.5 .0025	11	-3.03	15.93	5.48	-	-	-
H(19-20)	4	0.93	2.50	10.0	1	4	0.42	1.3	#3@30 .002	4	5.65	0.26	1.12	-	-	-
H(21-25)	4	3.81	2.50	10.0	1	6	24.84	9.4	#3@28.5 .0025	6	4.90	59.43	9.52	-	-	-
I(1-4)	4	2.91	2.50	10.0	1	5	19.82	7.2	#3@28.5 .0025	5	6.48	37.36	7.26	-	-	-
I(5-7)	4	1.75	2.50	10.0	1	3	1.32	4.3	#3@30 .002	3	9.65	3.02	3.50	-	-	-
I(8-12)	4	2.02	2.50	10.0	1	4	10.06	5.0	#3@28.5 .0025	16	-8.84	10.72	5.48	-	-	-
I(14-18)	4	2.02	2.50	10.0	1	5	10.06	5.0	#3@28.5 .0025	18	-8.84	10.72	5.48	-	-	-
I(19-21)	4	1.75	2.50	10.0	1	6	1.30	4.3	#3@30 .002	6	10.18	3.11	3.50	-	-	-
I(22-25)	4	2.91	2.50	10.0	1	4	19.79	7.2	#3@28.5 .0025	4	6.23	37.45	7.26	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:29:23 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	4	2.02	2.50	10.0	1	6	4.50 5.0	#3@30 .002	6	4.73	9.03	4.03	-	-	-
K(14-18)	4	2.02	2.50	10.0	1	3	4.50 5.0	#3@30 .002	3	4.73	9.03	4.03	-	-	-
L(2-4)	4	2.06	2.50	10.0	1	5	5.15 5.1	#3@30 .002	5	-0.58	11.06	4.11	-	-	-
L(22-24)	4	2.06	2.50	10.0	1	4	5.15 5.1	#3@30 .002	4	-0.61	11.07	4.11	-	-	-
M(8-10)	4	0.65	2.50	10.0	1	9	0.23 1.6	#3@30 .002	9	6.36	0.32	0.78	-	-	-
M(16-18)	4	0.65	2.50	10.0	1	7	0.23 1.6	#3@30 .002	7	6.36	0.32	0.78	-	-	-
N(2-3)	4	1.55	2.50	10.0	1	7	2.65 3.8	#3@30 .002	15	-6.52	4.09	3.22	-	-	-
N(8-9)	4	0.40	2.50	10.0	1	8	0.22 0.9	#3@30 .002	6	2.92	0.92	0.60	-	-	-
N(11-12)	4	0.40	2.50	10.0	1	7	0.33 0.9	#3@30 .002	15	-3.68	0.54	1.82	-	-	-
N(14-15)	4	0.40	2.50	10.0	1	9	0.33 0.9	#3@30 .002	17	-3.68	0.54	1.83	-	-	-
N(17-18)	4	0.40	2.50	10.0	1	10	0.22 0.9	#3@30 .002	3	2.92	0.92	0.60	-	-	-
N(23-24)	4	1.55	2.50	10.0	1	9	2.65 3.8	#3@30 .002	17	-6.53	4.09	3.22	-	-	-
1(E-H)	4	2.60	2.50	10.0	1	3	✓ 9.38 6.4	#3@28.5 .0025	12	-23.29	13.89	9.52	-	-	-
1(I-L)	4	2.60	2.50	10.0	1	5	✓ 9.02 6.4	#3@28.5 .0025	14	-20.38	14.40	8.77	-	-	-
2(B-E)	4	2.60	2.50	10.0	1	7	✓ 9.60 6.4	#3@28.5 .0025	7	16.61	17.67	6.50	-	-	-
2(L-N)	4	2.61	2.50	10.0	1	10	✓ 10.44 6.4	#3@28.5 .0025	10	16.55	18.52	6.52	-	-	-
4(F-H)	4	2.05	2.50	10.0	1	5	✓ 5.28 5.1	#3@30 .002	13	-13.88	7.36	5.92	-	-	-
4(I-K)	4	2.05	2.50	10.0	1	3	✓ 5.82 5.1	#3@30 .002	11	-15.79	7.67	6.52	-	-	-
5(B-E)	4	2.60	2.50	10.0	1	10	2.59 6.4	#3@30 .002	10	22.02	7.44	5.19	-	-	-
5(L-N)	4	2.61	2.50	10.0	1	9	2.52 6.4	#3@30 .002	9	22.65	7.51	5.21	-	-	-
8(B-C)	4	1.31	2.50	10.0	1	8	0.71 3.2	#3@30 .002	8	10.03	1.49	2.61	-	-	-
8(G-H)	4	1.35	2.50	10.0	1	5	2.01 3.2	#3@30 .002	14	-9.28	2.52	3.59	-	-	-
8(I-J)	4	1.35	2.50	10.0	1	3	2.00 3.2	#3@30 .002	12	-9.35	2.50	3.59	-	-	-
8(M-N)	4	1.30	2.50	10.0	1	9	0.70 3.2	#3@30 .002	9	10.00	1.51	2.59	-	-	-
12(B-H)	4	5.20	2.50	10.0	1	9	✓ 28.12 12.8	#3@28.5 .0025	9	47.61	78.86	13.00	-	-	-
12(I-N)	4	5.21	2.50	10.0	1	8	✓ 27.73 12.8	#3@28.5 .0025	8	45.25	77.13	13.02	-	-	-
13(F-H)	4	2.05	2.50	20.0	1	7	1.66 5.1	2Ly#3@35.6 .002	7	16.51	5.61	8.19	-	-	-
14(B-H)	4	5.20	2.50	10.0	1	7	✓ 28.12 12.8	#3@28.5 .0025	7	47.63	78.88	13.00	-	-	-
14(I-N)	4	5.21	2.50	10.0	1	10	✓ 27.75 12.8	#3@28.5 .0025	10	45.24	77.18	13.02	-	-	-
18(B-C)	4	1.31	2.50	10.0	1	10	0.71 3.2	#3@30 .002	10	10.03	1.49	2.61	-	-	-
18(G-H)	4	1.35	2.50	10.0	1	4	2.01 3.2	#3@30 .002	11	-9.30	2.52	3.59	-	-	-
18(I-J)	4	1.35	2.50	10.0	1	6	2.00 3.2	#3@30 .002	13	-9.35	2.50	3.59	-	-	-
18(M-N)	4	1.30	2.50	10.0	1	7	0.70 6.4	#3@30 .002	7	10.00	1.51	2.59	-	-	-
21(B-E)	4	2.60	2.50	10.0	1	8	2.59 6.4	#3@30 .002	8	22.02	7.46	5.19	-	-	-
21(L-N)	4	2.61	2.50	10.0	1	7	2.52 6.4	#3@30 .002	7	22.65	7.52	5.21	-	-	-
22(F-H)	4	2.05	2.50	10.0	1	4	✓ 5.28 5.1	#3@30 .002	12	-13.89	7.36	5.92	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:03 p.m. 20/03/2015

Muros N+10.00 m
+7.50

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcretel	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement		VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	5	1.55	2.50	10.0	1	10	1.96	3.8	#3@30 .002	10	-1.02	2.78	3.09	-	-	-
B(8-9)	5	0.40	2.50	10.0	1	6	0.19	0.9	#3@30 .002	6	2.22	0.17	0.48	-	-	-
B(11-12)	5	0.40	2.50	10.0	1	8	0.19	0.9	#3@30 .002	18	-1.52	0.32	0.87	-	-	-
B(14-15)	5	0.40	2.50	10.0	1	10	0.19	0.9	#3@30 .002	16	-1.52	0.32	0.87	-	-	-
B(17-18)	5	0.40	2.50	10.0	1	3	0.19	0.9	#3@30 .002	3	2.23	0.17	0.48	-	-	-
B(23-24)	5	1.55	2.50	10.0	1	8	1.96	3.8	#3@30 .002	8	-1.04	2.79	3.09	-	-	-
C(8-10)	5	0.65	2.50	10.0	1	4	0.16	1.6	#3@30 .002	4	3.58	0.23	0.78	-	-	-
C(16-18)	5	0.65	2.50	10.0	1	5	0.17	1.6	#3@30 .002	5	3.57	0.23	0.78	-	-	-
E(2-4)	5	2.06	2.50	10.0	1	3	3.91	5.1	#3@30 .002	3	2.55	6.03	4.11	-	-	-
E(22-24)	5	2.06	2.50	10.0	1	6	3.90	5.1	#3@30 .002	6	2.58	6.03	4.11	-	-	-
8-12)	5	2.02	2.50	10.0	1	4	3.33	5.0	#3@30 .002	4	5.36	5.17	4.03	-	-	-
F(14-18)	5	2.02	2.50	10.0	1	5	3.33	5.0	#3@30 .002	5	5.38	5.15	4.03	-	-	-
H(1-5)	5	3.81	2.50	10.0	1	3	√19.48	9.4	#3@28.5 .0025	3	5.23	36.63	9.52	-	-	-
H(6-7)	5	0.93	2.50	10.0	1	5	0.33	2.3	#3@30 .002	5	3.69	0.17	1.12	-	-	-
H(8-12)	5	2.02	2.50	10.0	1	6	√7.75	5.0	#3@28.5 .0025	6	1.11	10.85	5.05	-	-	-
H(14-18)	5	2.02	2.50	10.0	1	3	√7.76	5.0	#3@28.5 .0025	3	1.09	10.86	5.05	-	-	-
H(19-20)	5	0.93	2.50	10.0	1	4	0.33	2.3	#3@30 .002	4	3.69	0.17	1.12	-	-	-
H(21-25)	5	3.81	2.50	10.0	1	6	√19.50	9.4	#3@28.5 .0025	6	5.25	36.63	9.52	-	-	-
I(1-4)	5	2.91	2.50	10.0	1	5	√15.43	7.2	#3@28.5 .0025	5	5.21	24.42	7.26	-	-	-
I(5-7)	5	1.75	2.50	10.0	1	3	1.04	4.3	#3@30 .002	3	6.34	1.29	3.50	-	-	-
I(8-12)	5	2.02	2.50	10.0	1	4	√8.02	5.0	#3@28.5 .0025	4	1.00	10.92	5.05	-	-	-
I(14-18)	5	2.02	2.50	10.0	1	5	√8.02	5.0	#3@28.5 .0025	5	1.01	10.92	5.05	-	-	-
I(19-21)	5	1.75	2.50	10.0	1	6	1.10	4.3	#3@30 .002	6	6.84	1.41	3.50	-	-	-
I(22-25)	5	2.91	2.50	10.0	1	4	√15.86	7.2	#3@28.5 .0025	4	4.96	24.47	7.26	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:03 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	5	2.02	2.50	10.0	1	6	3.44	#3@30 .002	6	4.92	5.21	4.03	-	-	-
K(14-18)	5	2.02	2.50	10.0	1	3	3.44	#3@30 .002	3	4.92	5.23	4.03	-	-	-
L(2-4)	5	2.06	2.50	10.0	1	5	3.92	#3@30 .002	5	1.73	6.32	4.11	-	-	-
L(22-24)	5	2.06	2.50	10.0	1	4	3.92	#3@30 .002	4	1.71	6.32	4.11	-	-	-
M(8-10)	5	0.65	2.50	10.0	1	6	0.18	#3@30 .002	6	3.63	0.24	0.78	-	-	-
M(16-18)	5	0.65	2.50	10.0	1	3	0.18	#3@30 .002	3	3.63	0.24	0.78	-	-	-
N(2-3)	5	1.55	2.50	10.0	1	7	1.88	#3@30 .002	7	-0.64	2.66	3.09	-	-	-
N(8-9)	5	0.40	2.50	10.0	1	4	0.19	#3@30 .002	4	2.16	0.17	0.48	-	-	-
N(11-12)	5	0.40	2.50	10.0	1	9	0.19	#3@30 .002	15	-1.55	0.32	0.87	-	-	-
N(14-15)	5	0.40	2.50	10.0	1	7	0.19	#3@30 .002	17	-1.55	0.32	0.87	-	-	-
N(17-18)	5	0.40	2.50	10.0	1	5	0.19	#3@30 .002	5	2.17	0.17	0.48	-	-	-
N(23-24)	5	1.55	2.50	10.0	1	9	1.88	#3@30 .002	9	-0.65	2.67	3.09	-	-	-
1(E-H)	5	2.60	2.50	10.0	1	3	√7.46	#3@30 .002	3	22.65	10.65	5.19	-	-	-
1(I-L)	5	2.60	2.50	10.0	1	5	√7.07	#3@30 .002	5	20.95	10.48	5.19	-	-	-
2(B-E)	5	2.60	2.50	10.0	1	7	√7.65	#3@30 .002	7	10.01	11.39	5.19	-	-	-
2(L-N)	5	2.61	2.50	10.0	1	10	√8.00	#3@30 .002	10	10.01	11.97	5.21	-	-	-
4(F-H)	5	2.05	2.50	10.0	1	5	4.23	#3@30 .002	5	-4.51	5.59	4.09	-	-	-
4(I-K)	5	2.05	2.50	10.0	1	3	4.57	#3@30 .002	3	-5.09	6.00	4.09	-	-	-
5(B-E)	5	2.60	2.50	10.0	1	10	2.03	#3@30 .002	10	14.52	3.40	5.19	-	-	-
5(L-N)	5	2.61	2.50	10.0	1	7	1.98	#3@30 .002	7	14.52	3.34	5.21	-	-	-
8(B-C)	5	1.31	2.50	10.0	1	8	0.48	#3@30 .002	8	6.61	0.81	2.61	-	-	-
8(G-H)	5	1.35	2.50	10.0	1	5	1.51	#3@30 .002	5	11.27	1.94	2.70	-	-	-
8(I-J)	5	1.35	2.50	10.0	1	4	1.52	#3@30 .002	4	-2.61	2.02	2.70	-	-	-
8(M-N)	5	1.30	2.50	10.0	1	9	0.46	#3@30 .002	9	6.59	0.83	2.59	-	-	-
12(B-H)	5	5.20	2.50	10.0	1	9	√22.61	#3@28.5 .0025	9	28.17	50.45	13.00	-	-	-
12(I-N)	5	5.21	2.50	10.0	1	8	√22.29	#3@28.5 .0025	8	26.73	49.22	13.02	-	-	-
13(F-H)	5	2.05	2.50	20.0	1	9	1.33	2Ly#3@35.6 .002	9	10.86	2.25	8.19	-	-	-
14(B-H)	5	5.20	2.50	10.0	1	7	√22.62	#3@28.5 .0025	7	28.19	50.47	13.00	-	-	-
14(I-N)	5	5.21	2.50	10.0	1	10	√22.29	#3@28.5 .0025	10	26.72	49.24	13.02	-	-	-
18(B-C)	5	1.31	2.50	10.0	1	10	0.48	#3@30 .002	10	6.61	0.81	2.61	-	-	-
18(G-H)	5	1.35	2.50	10.0	1	4	1.52	#3@30 .002	4	11.27	1.95	2.70	-	-	-
18(I-J)	5	1.35	2.50	10.0	1	5	1.51	#3@30 .002	5	-2.61	2.02	2.70	-	-	-
18(M-N)	5	1.30	2.50	10.0	1	7	0.46	#3@30 .002	7	6.59	0.83	2.59	-	-	-
21(B-E)	5	2.60	2.50	10.0	1	8	2.03	#3@30 .002	8	14.52	3.41	5.19	-	-	-
21(L-N)	5	2.61	2.50	10.0	1	9	1.98	#3@30 .002	9	14.52	3.34	5.21	-	-	-
22(F-H)	5	2.05	2.50	10.0	1	4	4.23	#3@30 .002	4	-4.52	5.59	4.09	-	-	-

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	5	2.05	2.50	10.0	1	6	4.53	#3@30 .002	6	-5.32	5.96	4.09	-	-	-
24(B-E)	5	2.60	2.50	10.0	1	9	7.65	#3@30 .002	9	10.00	11.39	5.19	-	-	-
24(L-N)	5	2.61	2.50	10.0	1	8	8.01	#3@30 .002	8	10.02	12.00	5.21	-	-	-
25(E-H)	5	2.60	2.50	10.0	1	6	7.46	#3@30 .002	6	22.65	10.65	5.19	-	-	-
25(I-L)	5	2.60	2.50	10.0	1	4	7.03	#3@30 .002	4	20.86	10.47	5.19	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
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Engineer: CARLOS ELIAS GUTIERREZ R
04:30:48 p.m. 20/03/2015

Muros N+12.00m
+10.00m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

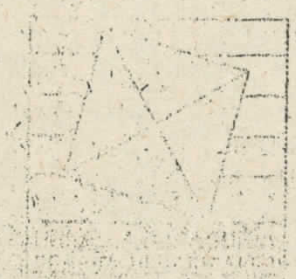
Wall	Story	B (m)	H (m)	t (cm)	Mat	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement		VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	6	1.55	2.50	10.0	1	8	1.00	3.8	#3@30 .002	8	0.52	1.41	3.09	-	-	-
B(8-9)	6	0.40	2.50	10.0	1	4	0.26	0.9	#3@30 .002	8	0.88	0.52	0.54	-	-	-
B(11-12)	6	0.40	2.50	10.0	1	10	0.20	0.9	#3@30 .002	10	-0.02	0.20	0.48	-	-	-
B(14-15)	6	0.40	2.50	10.0	1	8	0.20	0.9	#3@30 .002	8	-0.03	0.20	0.48	-	-	-
B(17-18)	6	0.40	2.50	10.0	1	5	0.26	0.9	#3@30 .002	10	0.88	0.52	0.54	-	-	-
B(23-24)	6	1.55	2.50	10.0	1	10	1.00	3.8	#3@30 .002	10	0.52	1.42	3.09	-	-	-
C(8-10)	6	0.65	2.50	10.0	1	3	0.12	1.6	#3@30 .002	3	1.67	0.16	0.78	-	-	-
C(16-18)	6	0.65	2.50	10.0	1	6	0.12	1.6	#3@30 .002	6	1.69	0.16	0.78	-	-	-
E(2-4)	6	2.06	2.50	10.0	1	7	2.75	5.1	#3@30 .002	7	1.86	3.44	4.11	-	-	-
E(22-24)	6	2.06	2.50	10.0	1	9	2.75	5.1	#3@30 .002	9	1.87	3.43	4.11	-	-	-
(8-12)	6	2.02	2.50	10.0	1	2	2.36	5.0	#3@30 .002	2	4.28	2.55	4.03	-	-	-
F(14-18)	6	2.02	2.50	10.0	1	2	2.36	5.0	#3@30 .002	2	4.28	2.55	4.03	-	-	-
H(1-5)	6	3.81	2.50	10.0	1	3	√13.65	9.4	#3@28.5 .0025	3	3.71	19.17	9.52	-	-	-
H(6-7)	6	0.93	2.50	10.0	1	5	0.52	2.3	#3@30 .002	5	1.73	0.26	1.12	-	-	-
H(8-12)	6	2.02	2.50	10.0	1	9	√5.44	5.0	#3@30 .002	9	0.95	6.77	4.03	-	-	-
H(14-18)	6	2.02	2.50	10.0	1	7	√5.46	5.0	#3@30 .002	7	0.94	6.79	4.03	-	-	-
H(19-20)	6	0.93	2.50	10.0	1	4	0.52	2.3	#3@30 .002	4	1.73	0.26	1.12	-	-	-
H(21-25)	6	3.81	2.50	10.0	1	6	√13.65	9.4	#3@28.5 .0025	6	3.72	19.17	9.52	-	-	-
I(1-4)	6	2.91	2.50	10.0	1	5	√10.56	7.2	#3@28.5 .0025	5	2.98	13.96	7.26	-	-	-
I(5-7)	6	1.75	2.50	10.0	1	3	0.72	4.3	#3@30 .002	3	3.00	0.26	3.50	-	-	-
I(8-12)	6	2.02	2.50	10.0	1	8	√5.44	5.0	#3@30 .002	8	0.86	6.94	4.03	-	-	-
I(14-18)	6	2.02	2.50	10.0	1	10	√5.42	5.0	#3@30 .002	10	0.86	6.94	4.03	-	-	-
I(19-21)	6	1.75	2.50	10.0	1	6	0.49	4.3	#3@30 .002	6	3.54	0.31	3.50	-	-	-
I(22-25)	6	2.91	2.50	10.0	1	4	√10.27	7.2	#3@28.5 .0025	4	2.70	14.01	7.26	-	-	-

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	6	2.02	2.50	10.0	1	2	2.64 5.0	#3@30 .002	2	4.07	2.84	4.03	-	-	-
K(14-18)	6	2.02	2.50	10.0	1	2	2.64 5.0	#3@30 .002	2	4.07	2.84	4.03	-	-	-
L(2-4)	6	2.06	2.50	10.0	1	10	2.81 5.1	#3@30 .002	10	1.79	3.52	4.11	-	-	-
L(22-24)	6	2.06	2.50	10.0	1	8	2.82 5.1	#3@30 .002	8	1.78	3.53	4.11	-	-	-
M(8-10)	6	0.65	2.50	10.0	1	5	0.13 1.6	#3@30 .002	5	1.70	0.18	0.78	-	-	-
M(16-18)	6	0.65	2.50	10.0	1	4	0.13 1.6	#3@30 .002	4	1.69	0.18	0.78	-	-	-
N(2-3)	6	1.55	2.50	10.0	1	9	1.09 3.8	#3@30 .002	9	0.42	1.51	3.09	-	-	-
N(8-9)	6	0.40	2.50	10.0	1	6	0.25 0.9	#3@30 .002	9	0.87	0.52	0.54	-	-	-
N(11-12)	6	0.40	2.50	10.0	1	7	0.21 0.9	#3@30 .002	7	-0.06	0.21	0.48	-	-	-
N(14-15)	6	0.40	2.50	10.0	1	9	0.21 0.9	#3@30 .002	9	-0.06	0.21	0.48	-	-	-
N(17-18)	6	0.40	2.50	10.0	1	3	0.25 0.9	#3@30 .002	7	0.87	0.52	0.54	-	-	-
N(23-24)	6	1.55	2.50	10.0	1	7	1.09 3.8	#3@30 .002	7	0.43	1.50	3.09	-	-	-
1(E-H)	6	2.60	2.50	10.0	1	3	5.51 6.4	#3@30 .002	3	7.77	7.40	5.19	-	-	-
1(I-L)	6	2.60	2.50	10.0	1	5	4.96 6.4	#3@30 .002	5	7.19	6.77	5.19	-	-	-
2(B-E)	6	2.60	2.50	10.0	1	7	4.88 6.4	#3@30 .002	7	4.05	6.50	5.19	-	-	-
2(L-N)	6	2.61	2.50	10.0	1	10	5.09 6.4	#3@30 .002	10	4.05	6.78	5.21	-	-	-
4(F-H)	6	2.05	2.50	10.0	1	5	3.18 5.1	#3@30 .002	5	0.05	4.01	4.09	-	-	-
4(I-K)	6	2.05	2.50	10.0	1	3	3.25 5.1	#3@30 .002	3	0.08	4.26	4.09	-	-	-
5(B-E)	6	2.60	2.50	10.0	1	2	1.66 6.4	#3@30 .002	2	8.76	1.22	5.19	-	-	-
5(L-N)	6	2.61	2.50	10.0	1	2	1.69 6.4	#3@30 .002	2	8.76	1.28	5.21	-	-	-
8(B-C)	6	1.31	2.50	10.0	1	9	0.17 3.2	#3@30 .002	9	3.40	0.28	2.61	-	-	-
8(G-H)	6	1.35	2.50	10.0	1	10	1.14 3.2	#3@30 .002	10	3.93	1.50	2.70	-	-	-
8(I-J)	6	1.35	2.50	10.0	1	7	1.11 3.2	#3@30 .002	7	3.79	1.45	2.70	-	-	-
8(M-N)	6	1.30	2.50	10.0	1	8	0.16 3.2	#3@30 .002	8	3.38	0.29	2.59	-	-	-
12(B-H)	6	5.20	2.50	10.0	1	9	√16.37 12.8	#3@30 .002	9	10.94	26.69	10.39	-	-	-
12(I-N)	6	5.21	2.50	10.0	1	8	√16.20 12.8	#3@30 .002	8	10.31	25.88	10.42	-	-	-
13(F-H)	6	2.05	2.50	20.0	1	10	0.43	2Ly#3@35.6 .002	10	5.23	1.07	8.19	-	-	-
14(B-H)	6	5.20	2.50	10.0	1	7	√16.39 12.8	#3@30 .002	7	10.96	26.71	10.39	-	-	-
14(I-N)	6	5.21	2.50	10.0	1	10	√16.19 12.8	#3@30 .002	10	10.31	25.87	10.42	-	-	-
18(B-C)	6	1.31	2.50	10.0	1	7	0.17 3.2	#3@30 .002	7	3.40	0.28	2.61	-	-	-
18(G-H)	6	1.35	2.50	10.0	1	8	1.14 3.2	#3@30 .002	8	3.94	1.50	2.70	-	-	-
18(I-J)	6	1.35	2.50	10.0	1	9	1.11 3.2	#3@30 .002	9	3.79	1.45	2.70	-	-	-
18(M-N)	6	1.30	2.50	10.0	1	10	0.16 3.2	#3@30 .002	10	3.38	0.29	2.59	-	-	-
21(B-E)	6	2.60	2.50	10.0	1	2	1.66 6.4	#3@30 .002	2	8.76	1.23	5.19	-	-	-
21(L-N)	6	2.61	2.50	10.0	1	2	1.69 6.4	#3@30 .002	2	8.76	1.28	5.21	-	-	-
22(F-H)	6	2.05	2.50	10.0	1	4	3.19 5.0	#3@30 .002	4	0.05	4.03	4.09	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

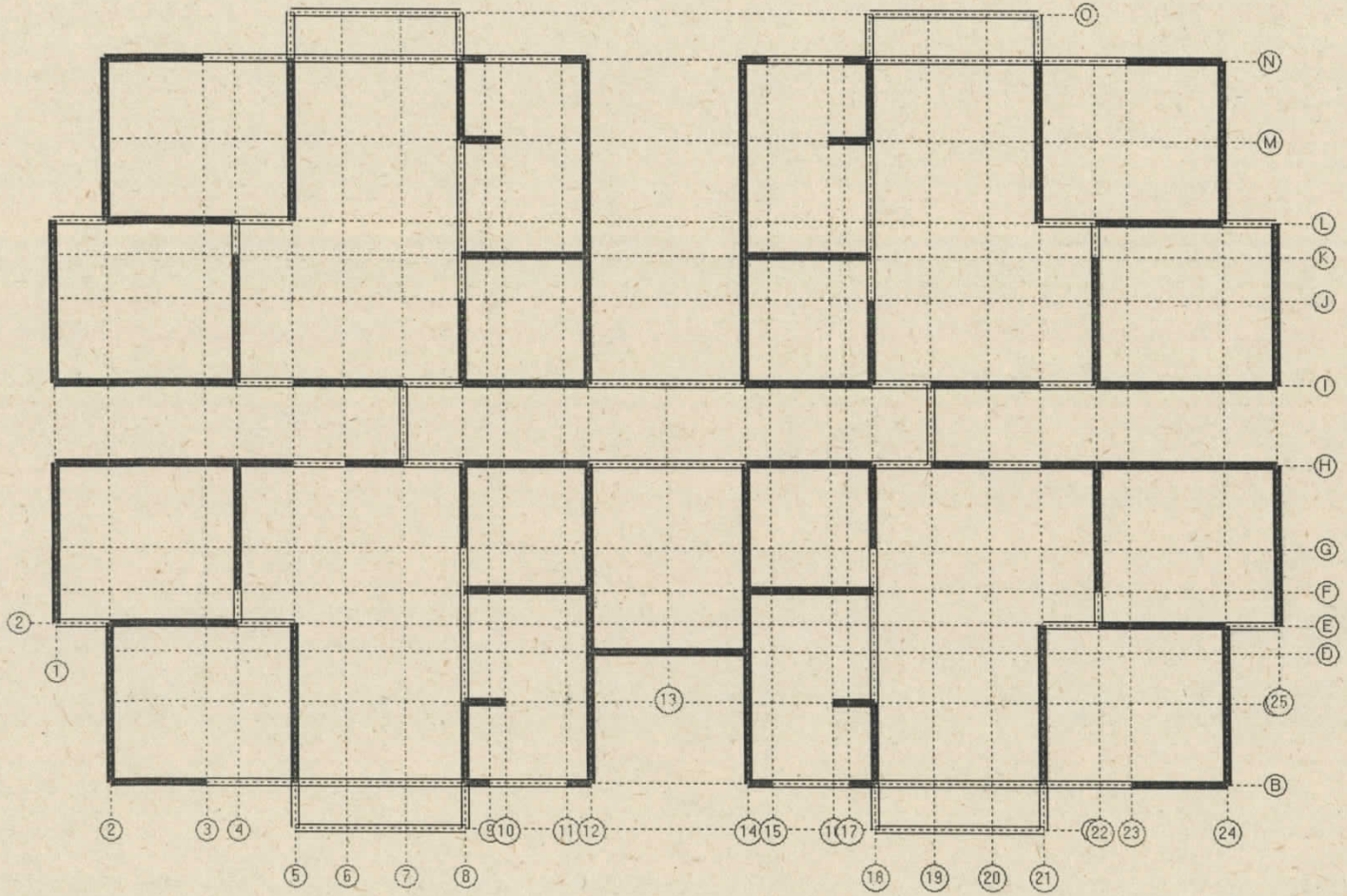
Engineer: CARLOS ELIAS GUTIERREZ R
04:30:48 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	6	2.05	2.50	10.0	1	6	3.41 5.0	#3@30 .002	6	-0.18	4.30	4.09	-	-	-
24(B-E)	6	2.60	2.50	10.0	1	9	4.86 6.4	#3@30 .002	9	4.05	6.48	5.19	-	-	-
24(L-N)	6	2.61	2.50	10.0	1	8	5.11 6.4	#3@30 .002	8	4.05	6.82	5.21	-	-	-
25(E-H)	6	2.60	2.50	10.0	1	6	5.48 6.4	#3@30 .002	6	7.76	7.38	5.19	-	-	-
25(I-L)	6	2.60	2.50	10.0	1	4	4.94 6.4	#3@30 .002	4	7.15	6.75	5.19	-	-	-



Bloques 33. Macroproyecto SAN JOSE

Planta Tipo



Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:19:48 p.m. 20/03/2015

Diseño de Muros
M-0.30 m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	1	1.55	2.50	10.0	1	5	4.55	#3@30 .002	13	-13.15	16.12	10.22	5.52	2.35	10x30*
B(8-9)	1	0.40	2.50	10.0	1	6	0.37	#3@30 .002	10	1.09	1.35	1.78	0.80	0.49	10x10
B(11-12)	1	0.40	2.50	10.0	1	4	0.34	#3@30 .002	18	-11.98	0.52	4.13	0.25	1.94	10x17*
B(14-15)	1	0.40	2.50	10.0	1	5	0.34	#3@30 .002	16	-12.00	0.52	4.13	0.25	1.94	10x18*
B(17-18)	1	0.40	2.50	10.0	1	3	0.37	#3@30 .002	8	1.08	1.35	1.78	0.80	0.49	10x10
B(23-24)	1	1.55	2.50	10.0	1	4	4.55	#3@30 .002	12	-13.21	16.12	10.22	5.52	2.35	10x30*
C(8-10)	1	0.65	2.50	10.0	1	4	0.66	#3@30 .002	4	15.75	1.51	0.78	-	-	-
C(16-18)	1	0.65	2.50	10.0	1	5	0.66	#3@30 .002	5	15.75	1.51	0.78	-	-	-
D(12-14)	1	2.50	2.50	10.0	1	4	36.54	2Ly#3@30 .0031	12	2.80	48.16	10.67	9.19	0.74	10x10
E(2-4)	1	2.06	2.50	10.0	1	3	6.57	#3@30 .002	11	-16.42	28.44	13.06	6.38	3.33	10x45*
(22-24)	1	2.06	2.50	10.0	1	6	6.59	#3@30 .002	14	-16.53	28.45	13.14	6.42	3.35	10x45*
F(8-12)	1	2.02	2.50	10.0	1	6	6.32	#3@30 .002	12	-11.42	23.62	10.03	6.36	1.84	10x30*
F(14-18)	1	2.02	2.50	10.0	1	3	6.32	#3@30 .002	13	-11.40	23.62	10.02	6.36	1.84	10x30*
H(1-5)	1	3.81	2.50	10.0	1	3	18.13	#3@28.5 .0025	11	-12.00	119.05	22.72	11.55	5.59	10x90*
H(6-7)	1	0.93	2.50	10.0	1	5	0.82	#3@30 .002	5	11.93	1.73	1.12	-	-	-
H(8-12)	1	2.02	2.50	10.0	1	6	7.98	#3@28.5 .0025	17	-29.72	8.46	10.44	5.59	2.43	10x45*
H(14-18)	1	2.02	2.50	10.0	1	3	8.00	#3@28.5 .0025	15	-29.76	8.46	10.44	5.59	2.43	10x45*
H(19-20)	1	0.93	2.50	10.0	1	4	0.82	#3@30 .002	4	11.93	1.73	1.12	-	-	-
H(21-25)	1	3.81	2.50	10.0	1	6	18.14	#3@28.5 .0025	14	-11.93	119.02	22.57	11.47	5.55	10x90*
I(1-4)	1	2.91	2.50	10.0	1	5	14.52	#3@28.5 .0025	13	1.00	63.88	12.68	8.03	2.31	10x45*
I(5-7)	1	1.75	2.50	10.0	1	3	2.86	#3@30 .002	3	19.79	14.10	3.50	-	-	-
I(8-12)	1	2.02	2.50	10.0	1	4	8.02	#3@28.5 .0025	16	-29.59	8.50	10.36	7.09	1.64	10x30*
I(14-18)	1	2.02	2.50	10.0	1	5	8.02	#3@28.5 .0025	18	-29.62	8.50	10.36	7.09	1.64	10x30*
I(19-21)	1	1.75	2.50	10.0	1	6	2.86	#3@30 .002	6	20.28	14.21	3.50	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:19:48 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
I(22-25)	1	2.91	2.50	10.0	1	4	14.52	#3@28.5 .0025	12	0.75	63.97	12.72	8.03	2.33	10x45*
K(8-12)	1	2.02	2.50	10.0	1	4	6.30	#3@30 .002	14	-9.05	23.84	9.72	6.15	1.78	10x30*
K(14-18)	1	2.02	2.50	10.0	1	5	6.30	#3@30 .002	11	-9.05	23.85	9.73	6.17	1.79	10x30*
L(2-4)	1	2.06	2.50	10.0	1	5	6.75	#3@30 .002	13	-19.27	28.69	13.90	4.82	4.53	10x60*
L(22-24)	1	2.06	2.50	10.0	1	4	6.75	#3@30 .002	12	-19.30	28.68	13.88	4.80	4.53	10x60*
M(8-10)	1	0.65	2.50	10.0	1	6	0.75	#3@30 .002	6	15.86	1.63	0.78	-	-	-
M(16-18)	1	0.65	2.50	10.0	1	3	0.75	#3@30 .002	3	15.86	1.63	0.78	-	-	-
N(2-3)	1	1.55	2.50	10.0	1	3	5.34	#3@28.5 .0025	15	-26.71	7.13	9.94	5.90	2.01	10x30*
N(8-9)	1	0.40	2.50	10.0	1	4	0.44	#3@30 .002	6	6.17	1.94	1.90	0.80	0.55	10x10
N(11-12)	1	0.40	2.50	10.0	1	6	0.39	#3@30 .002	15	-12.34	0.50	4.15	0.25	1.95	10x17*
N(14-15)	1	0.40	2.50	10.0	1	3	0.39	#3@30 .002	17	-12.35	0.50	4.13	0.25	1.95	10x18*
N(17-18)	1	0.40	2.50	10.0	1	5	0.44	#3@30 .002	3	6.17	1.94	1.90	0.80	0.55	10x10
N(23-24)	1	1.55	2.50	10.0	1	6	5.34	#3@28.5 .0025	17	-26.80	7.15	9.94	5.90	2.01	10x30*
1(E-H)	1	2.60	2.50	10.0	1	7	8.73	#3@30 .002	12	-66.95	15.63	21.85	3.27	9.28	10x105*
1(I-L)	1	2.60	2.50	10.0	1	10	8.10	#3@30 .002	14	-60.31	15.25	19.86	6.98	6.42	10x75*
2(B-E)	1	2.60	2.50	10.0	1	7	10.05	#3@28.5 .0025	12	-21.84	11.43	8.39	-	-	-
2(L-N)	1	2.61	2.50	10.0	1	8	9.85	#3@28.5 .0025	12	-19.17	11.71	7.86	-	-	-
4(F-H)	1	2.05	2.50	10.0	1	10	5.46	#3@30 .002	13	-40.27	7.57	13.05	4.48	4.28	10x60*
4(I-K)	1	2.05	2.50	10.0	1	7	5.59	#3@30 .002	11	-49.68	7.90	15.79	3.36	6.21	10x75*
5(B-E)	1	2.60	2.50	10.0	1	8	5.98	#3@30 .002	8	46.13	30.98	5.19	-	-	-
5(L-N)	1	2.61	2.50	10.0	1	7	6.01	#3@30 .002	7	44.31	31.29	5.21	-	-	-
8(B-C)	1	1.31	2.50	10.0	1	8	2.40	#3@30 .002	8	18.76	6.28	2.61	-	-	-
8(G-H)	1	1.35	2.50	10.0	1	7	2.19	#3@30 .002	14	-29.75	2.32	9.07	2.45	3.30	10x45*
8(I-J)	1	1.35	2.50	10.0	1	10	2.05	#3@30 .002	12	-29.62	1.92	8.76	4.21	2.26	10x30*
8(M-N)	1	1.30	2.50	10.0	1	9	2.28	#3@30 .002	9	18.68	6.11	2.59	-	-	-
12(B-H)	1	5.20	2.50	10.0	1	9	21.42	#3@28.5 .0025	18	-14.79	146.72	20.46	13.98	3.24	10x78*
12(I-N)	1	5.21	2.50	10.0	1	8	21.53	#3@28.5 .0025	15	-22.42	149.17	23.48	16.05	3.72	10x78*
13(F-H)	1	2.05	2.50	20.0	1	7	6.26	2Ly#3@35.6 .002	7	33.77	29.21	8.19	-	-	-
14(B-H)	1	5.20	2.50	10.0	1	7	21.42	#3@28.5 .0025	16	-14.84	146.82	20.46	13.98	3.24	10x78*
14(I-N)	1	5.21	2.50	10.0	1	10	21.54	#3@28.5 .0025	17	-22.45	149.25	23.48	16.05	3.72	10x78*
18(B-C)	1	1.31	2.50	10.0	1	10	2.40	#3@30 .002	10	18.77	6.28	2.61	-	-	-
18(G-H)	1	1.35	2.50	10.0	1	9	2.19	#3@30 .002	11	-29.75	2.32	9.07	2.45	3.30	10x45*
18(I-J)	1	1.35	2.50	10.0	1	8	2.05	#3@30 .002	13	-29.62	1.92	8.76	4.21	2.26	10x30*
18(M-N)	1	1.30	2.50	10.0	1	7	2.28	#3@30 .002	7	18.68	6.11	2.59	-	-	-
21(B-E)	1	2.60	2.50	10.0	1	10	5.98	#3@30 .002	10	46.15	31.04	5.19	-	-	-
21(L-N)	1	2.61	2.50	10.0	1	9	6.03	#3@30 .002	9	44.31	31.34	5.21	-	-	-

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(F-H)	1	2.05	2.50	10.0	1	8	5.46	#3@30 .002	12	-40.29	7.61	13.06	4.48	4.28	10x60*
22(I-K)	1	2.05	2.50	10.0	1	9	5.59	#3@30 .002	14	-49.83	7.90	15.69	3.34	6.17	10x75*
24(B-E)	1	2.60	2.50	10.0	1	9	10.05	#3@28.5 .0025	13	-21.77	11.48	8.39	-	-	-
24(L-N)	1	2.61	2.50	10.0	1	10	9.88	#3@28.5 .0025	11	-21.40	9.03	7.86	-	-	-
25(E-H)	1	2.60	2.50	10.0	1	9	8.76	#3@30 .002	13	-67.01	15.68	21.87	3.27	9.28	10x105*
25(I-L)	1	2.60	2.50	10.0	1	8	8.11	#3@30 .002	11	-60.18	15.27	19.81	6.98	6.42	10x75*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:24:11 p.m. 20/03/2015

Muros N+2.50m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	2	1.55	2.50	10.0	1	10	3.60	#3@30 .002	18	-20.71	7.26	8.34	6.30	1.01	10x15*
B(8-9)	2	0.40	2.50	10.0	1	9	0.27	#3@30 .002	8	2.59	1.13	1.04	-	-	-
B(11-12)	2	0.40	2.50	10.0	1	8	0.38	#3@30 .002	18	-9.32	0.70	3.63	0.47	1.58	10x15*
B(14-15)	2	0.40	2.50	10.0	1	10	0.38	#3@30 .002	16	-9.34	0.70	3.61	0.47	1.58	10x15*
B(17-18)	2	0.40	2.50	10.0	1	7	0.27	#3@30 .002	10	2.59	1.13	1.04	-	-	-
B(23-24)	2	1.55	2.50	10.0	1	8	3.60	#3@30 .002	16	-20.78	7.28	8.34	6.30	1.01	10x15*
C(8-10)	2	0.65	2.50	10.0	1	8	0.38	#3@30 .002	8	12.80	0.57	0.78	-	-	-
C(16-18)	2	0.65	2.50	10.0	1	10	0.38	#3@30 .002	10	12.80	0.57	0.78	-	-	-
E(2-4)	2	2.06	2.50	10.0	1	3	7.07	#3@30 .002	11	-11.15	22.87	9.73	7.92	0.91	10x15*
E(22-24)	2	2.06	2.50	10.0	1	6	7.01	#3@30 .002	14	-11.28	22.86	9.73	7.92	0.91	10x15*
(8-12)	2	2.02	2.50	10.0	1	6	7.17	#3@28.5 .0025	12	-5.09	20.01	7.30	6.15	0.58	10x15*
F(14-18)	2	2.02	2.50	10.0	1	3	7.17	#3@28.5 .0025	13	-5.07	20.01	7.30	6.15	0.58	10x15*
H(1-5)	2	3.81	2.50	10.0	1	3	28.14	#3@28.5 .0025	11	-7.28	119.05	21.35	10.52	5.40	10x75*
H(6-7)	2	0.93	2.50	10.0	1	5	0.20	#3@30 .002	5	9.75	0.45	1.12	-	-	-
H(8-12)	2	2.02	2.50	10.0	1	6	11.61	#3@28.5 .0025	14	-8.28	24.95	9.77	8.22	0.77	10x15*
H(14-18)	2	2.02	2.50	10.0	1	3	11.60	#3@28.5 .0025	11	-8.31	24.95	9.77	8.22	0.77	10x15*
H(19-20)	2	0.93	2.50	10.0	1	4	0.20	#3@30 .002	4	9.75	0.45	1.12	-	-	-
H(21-25)	2	3.81	2.50	10.0	1	6	28.18	#3@28.5 .0025	14	-7.23	119.02	21.44	10.52	5.46	10x75*
I(1-4)	2	2.91	2.50	10.0	1	5	22.63	2Ly#3@30 .0025	13	1.44	63.88	12.47	8.03	2.22	10x45*
I(5-7)	2	1.75	2.50	10.0	1	3	1.58	#3@30 .002	3	16.36	7.80	3.50	-	-	-
I(8-12)	2	2.02	2.50	10.0	1	4	11.44	#3@28.5 .0025	16	-22.54	11.48	9.32	7.84	0.74	10x15*
I(14-18)	2	2.02	2.50	10.0	1	5	11.44	#3@28.5 .0025	18	-22.54	11.50	9.32	7.84	0.74	10x15*
I(19-21)	2	1.75	2.50	10.0	1	6	1.58	#3@30 .002	6	16.84	7.90	3.50	-	-	-
I(22-25)	2	2.91	2.50	10.0	1	4	22.63	2Ly#3@30 .0025	12	1.19	63.97	12.52	8.03	2.24	10x45*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
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Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	2	2.02	2.50	10.0	1	4	6.46	#3@30 .002	14	-4.36	18.52	6.61	5.36	0.63	10x15*
K(14-18)	2	2.02	2.50	10.0	1	5	6.46	#3@30 .002	11	-4.36	18.52	6.61	5.36	0.63	10x15*
L(2-4)	2	2.06	2.50	10.0	1	5	7.05	#3@30 .002	13	-17.69	18.46	10.05	8.17	0.94	10x15*
L(22-24)	2	2.06	2.50	10.0	1	4	7.05	#3@30 .002	12	-17.72	18.46	10.06	8.18	0.94	10x15*
M(8-10)	2	0.65	2.50	10.0	1	9	0.38	#3@30 .002	9	12.85	0.57	0.78	-	-	-
M(16-18)	2	0.65	2.50	10.0	1	7	0.38	#3@30 .002	7	12.85	0.57	0.78	-	-	-
N(2-3)	2	1.55	2.50	10.0	1	3	3.98	#3@30 .002	15	-19.69	7.00	8.10	6.11	0.99	10x15*
N(8-9)	2	0.40	2.50	10.0	1	10	0.32	#3@30 .002	9	2.57	1.11	1.01	-	-	-
N(11-12)	2	0.40	2.50	10.0	1	7	0.42	#3@30 .002	15	-9.57	0.76	3.83	0.50	1.66	10x15*
N(14-15)	2	0.40	2.50	10.0	1	9	0.43	#3@30 .002	17	-9.57	0.76	3.83	0.50	1.66	10x15*
N(17-18)	2	0.40	2.50	10.0	1	8	0.32	#3@30 .002	7	2.56	1.11	1.01	-	-	-
N(23-24)	2	1.55	2.50	10.0	1	6	3.98	#3@30 .002	17	-19.77	7.01	8.10	6.11	0.99	10x15*
1(E-H)	2	2.60	2.50	10.0	1	3	9.82	#3@28.5 .0025	12	-54.34	17.31	18.46	12.63	2.92	10x39*
1(I-L)	2	2.60	2.50	10.0	1	5	9.73	#3@28.5 .0025	14	-48.99	19.96	18.00	12.30	2.84	10x39*
2(B-E)	2	2.60	2.50	10.0	1	7	11.80	#3@28.5 .0025	16	2.29	34.59	7.07	-	-	-
2(L-N)	2	2.61	2.50	10.0	1	10	12.15	#3@28.5 .0025	17	2.56	34.15	6.90	-	-	-
4(F-H)	2	2.05	2.50	10.0	1	5	5.59	#3@30 .002	13	-33.34	9.60	11.79	-	-	-
4(I-K)	2	2.05	2.50	10.0	1	3	6.42	#3@30 .002	11	-39.58	9.44	13.39	10.88	1.26	10x15*
5(B-E)	2	2.60	2.50	10.0	1	10	3.70	#3@30 .002	9	37.66	32.00	5.75	3.64	1.04	10x39*
5(L-N)	2	2.61	2.50	10.0	1	9	3.69	#3@30 .002	8	37.68	32.36	5.77	3.65	1.05	10x39*
8(B-C)	2	1.31	2.50	10.0	1	8	1.12	#3@30 .002	8	16.19	3.31	2.61	-	-	-
8(G-H)	2	1.35	2.50	10.0	1	5	2.44	#3@30 .002	14	-23.88	3.52	7.96	5.73	1.11	10x15*
8(I-J)	2	1.35	2.50	10.0	1	3	2.51	#3@30 .002	12	-23.87	3.34	7.82	5.65	1.09	10x15*
8(M-N)	2	1.30	2.50	10.0	1	9	1.12	#3@30 .002	9	16.17	3.34	2.59	-	-	-
12(B-H)	2	5.20	2.50	10.0	1	9	31.23	#3@28.5 .0025	18	-18.00	146.72	22.32	15.27	3.52	10x78*
12(I-N)	2	5.21	2.50	10.0	1	8	30.46	#3@28.5 .0025	15	-17.56	149.17	22.37	15.28	3.53	10x78*
13(F-H)	2	2.05	2.50	20.0	1	9	2.19	2Ly#3@35.6 .002	9	28.11	14.39	8.19	-	-	-
14(B-H)	2	5.20	2.50	10.0	1	7	31.25	#3@28.5 .0025	16	-18.04	146.82	22.32	15.27	3.52	10x78*
14(I-N)	2	5.21	2.50	10.0	1	10	30.50	#3@28.5 .0025	17	-17.60	149.25	22.37	15.28	3.53	10x78*
18(B-C)	2	1.31	2.50	10.0	1	10	1.13	#3@30 .002	10	16.19	3.32	2.61	-	-	-
18(G-H)	2	1.35	2.50	10.0	1	4	2.44	#3@30 .002	11	-23.88	3.52	7.96	5.73	1.11	10x15*
18(I-J)	2	1.35	2.50	10.0	1	6	2.51	#3@30 .002	13	-23.87	3.34	7.88	5.67	1.10	10x15*
18(M-N)	2	1.30	2.50	10.0	1	7	1.12	#3@30 .002	7	16.17	3.34	2.59	-	-	-
21(B-E)	2	2.60	2.50	10.0	1	8	3.70	#3@30 .002	7	37.68	32.04	5.75	3.64	1.04	10x39*
21(L-N)	2	2.61	2.50	10.0	1	7	3.70	#3@30 .002	10	37.68	32.43	5.77	3.65	1.05	10x39*
22(F-H)	2	2.05	2.50	10.0	1	4	5.55	#3@30 .002	12	-33.36	9.64	11.84	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
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Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	2	2.05	2.50	10.0	1	6	6.42	#3@30 .002	14	-39.74	9.46	13.38	10.86	1.26	10x15*
24(B-E)	2	2.60	2.50	10.0	1	9	11.80	#3@28.5 .0025	18	2.41	34.70	7.07	-	-	-
24(L-N)	2	2.61	2.50	10.0	1	8	12.19	#3@28.5 .0025	15	2.57	34.22	6.90	-	-	-
25(E-H)	2	2.60	2.50	10.0	1	6	9.84	#3@28.5 .0025	13	-54.40	17.37	18.64	12.75	2.95	10x39*
25(I-L)	2	2.60	2.50	10.0	1	4	9.73	#3@28.5 .0025	11	-48.84	19.97	17.95	12.27	2.83	10x39*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
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Muros N+3.0m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fysl Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

						HORIZONTAL REINFORCEMENT			VERTICAL REINFORCEMENT						
Wall	Story	B (m)	H (m)	t (cm)	Mat -	LCmb crit	Vu (ton)	Reinforcement	LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	3	1.55	2.50	10.0	1	10	3.15	#3@30 .002	18	-13.27	5.65	5.71	-	-	-
B(8-9)	3	0.40	2.50	10.0	1	6	0.26	#3@30 .002	4	4.09	1.23	0.87	-	-	-
B(11-12)	3	0.40	2.50	10.0	1	8	0.29	#3@30 .002	18	-6.34	0.52	2.50	-	-	-
B(14-15)	3	0.40	2.50	10.0	1	10	0.29	#3@30 .002	16	-6.34	0.52	2.48	-	-	-
B(17-18)	3	0.40	2.50	10.0	1	3	0.26	#3@30 .002	5	4.09	1.23	0.87	-	-	-
B(23-24)	3	1.55	2.50	10.0	1	8	3.16	#3@30 .002	16	-13.31	5.67	5.71	-	-	-
C(8-10)	3	0.65	2.50	10.0	1	4	0.27	#3@30 .002	4	8.82	0.58	0.78	-	-	-
C(16-18)	3	0.65	2.50	10.0	1	5	0.27	#3@30 .002	5	8.82	0.58	0.78	-	-	-
E(2-4)	3	2.06	2.50	10.0	1	3	5.82	#3@30 .002	11	-5.92	15.89	6.25	-	-	-
E(22-24)	3	2.06	2.50	10.0	1	6	5.76	#3@30 .002	14	-5.84	15.77	5.94	-	-	-
F(8-12)	3	2.02	2.50	10.0	1	6	5.40	#3@30 .002	6	5.30	14.06	4.03	-	-	-
F(14-18)	3	2.02	2.50	10.0	1	3	5.40	#3@30 .002	3	5.30	14.05	4.03	-	-	-
H(1-5)	3	3.81	2.50	10.0	1	3	27.93	#3@28.5 .0025	11	-3.02	83.45	14.01	12.82	0.58	10x15*
H(6-7)	3	0.93	2.50	10.0	1	5	0.47	#3@30 .002	5	7.67	0.39	1.12	-	-	-
H(8-12)	3	2.02	2.50	10.0	1	6	11.27	#3@28.5 .0025	17	-15.43	12.36	7.82	-	-	-
H(14-18)	3	2.02	2.50	10.0	1	3	11.27	#3@28.5 .0025	15	-15.44	12.36	7.82	-	-	-
H(19-20)	3	0.93	2.50	10.0	1	4	0.47	#3@30 .002	4	7.67	0.39	1.12	-	-	-
H(21-25)	3	3.81	2.50	10.0	1	6	27.95	#3@28.5 .0025	14	-3.00	83.48	14.01	12.82	0.58	10x15*
I(1-4)	3	2.91	2.50	10.0	1	5	22.46	2Ly#3@30 .0025	13	2.29	49.93	9.39	-	-	-
I(5-7)	3	1.75	2.50	10.0	1	3	1.39	#3@30 .002	3	13.00	5.09	3.50	-	-	-
I(8-12)	3	2.02	2.50	10.0	1	4	11.23	#3@28.5 .0025	16	-15.52	12.05	7.82	-	-	-
I(14-18)	3	2.02	2.50	10.0	1	5	11.23	#3@28.5 .0025	18	-15.52	12.05	7.82	-	-	-
I(19-21)	3	1.75	2.50	10.0	1	6	1.39	#3@30 .002	6	13.52	5.17	3.50	-	-	-
I(22-25)	3	2.91	2.50	10.0	1	4	22.45	2Ly#3@30 .0025	12	2.05	50.02	9.39	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE. (Tipo 1)
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Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	3	2.02	2.50	10.0	1	6	5.21	#3@30 .002	6	3.30	13.03	4.03	-	-	-
K(14-18)	3	2.02	2.50	10.0	1	3	5.19	#3@30 .002	3	3.29	13.05	4.03	-	-	-
L(2-4)	3	2.06	2.50	10.0	1	5	6.07	#3@30 .002	13	-10.73	13.46	6.69	-	-	-
L(22-24)	3	2.06	2.50	10.0	1	4	6.07	#3@30 .002	12	-10.77	13.46	6.69	-	-	-
M(8-10)	3	0.65	2.50	10.0	1	6	0.31	#3@30 .002	6	8.96	0.63	0.78	-	-	-
M(16-18)	3	0.65	2.50	10.0	1	3	0.31	#3@30 .002	3	8.96	0.63	0.78	-	-	-
N(2-3)	3	1.55	2.50	10.0	1	7	3.20	#3@30 .002	15	-12.52	5.44	5.38	-	-	-
N(8-9)	3	0.40	2.50	10.0	1	4	0.27	#3@30 .002	6	3.97	1.21	0.87	-	-	-
N(11-12)	3	0.40	2.50	10.0	1	9	0.30	#3@30 .002	15	-6.34	0.52	2.47	-	-	-
(14-15)	3	0.40	2.50	10.0	1	7	0.30	#3@30 .002	17	-6.34	0.52	2.49	-	-	-
N(17-18)	3	0.40	2.50	10.0	1	5	0.27	#3@30 .002	3	3.97	1.21	0.87	-	-	-
N(23-24)	3	1.55	2.50	10.0	1	9	3.21	#3@30 .002	17	-12.56	5.46	5.48	-	-	-
1(E-H)	3	2.60	2.50	10.0	1	3	10.40	#3@28.5 .0025	12	-38.36	16.70	14.19	12.44	0.88	10x15*
1(I-L)	3	2.60	2.50	10.0	1	5	10.17	#3@28.5 .0025	14	-34.20	18.12	13.27	11.63	0.82	10x15*
2(B-E)	3	2.60	2.50	10.0	1	7	11.15	#3@28.5 .0025	7	23.79	24.02	6.50	-	-	-
2(L-N)	3	2.61	2.50	10.0	1	10	12.10	#3@28.5 .0025	10	23.69	25.13	6.52	-	-	-
4(F-H)	3	2.05	2.50	10.0	1	5	5.86	#3@30 .002	13	-23.38	8.97	8.81	-	-	-
4(I-K)	3	2.05	2.50	10.0	1	3	6.55	#3@30 .002	11	-27.19	9.17	9.94	-	-	-
5(B-E)	3	2.60	2.50	10.0	1	10	2.97	#3@30 .002	10	29.80	12.81	5.19	-	-	-
5(L-N)	3	2.61	2.50	10.0	1	9	2.88	#3@30 .002	9	30.46	12.52	5.21	-	-	-
8(B-C)	3	1.31	2.50	10.0	1	8	0.87	#3@30 .002	8	13.13	2.34	2.61	-	-	-
8(G-H)	3	1.35	2.50	10.0	1	5	2.29	#3@30 .002	14	-16.20	3.10	5.71	-	-	-
(I-J)	3	1.35	2.50	10.0	1	3	2.27	#3@30 .002	12	-16.13	2.99	5.67	-	-	-
(M-N)	3	1.30	2.50	10.0	1	9	0.86	#3@30 .002	9	13.06	2.36	2.59	-	-	-
12(B-H)	3	5.20	2.50	10.0	1	9	31.44	#3@28.5 .0025	18	-10.57	146.72	19.35	13.22	3.05	10x78*
12(I-N)	3	5.21	2.50	10.0	1	8	30.84	#3@28.5 .0025	15	-10.94	149.17	20.12	13.76	3.19	10x78*
13(F-H)	3	2.05	2.50	20.0	1	9	2.00	2Ly#3@35.6 .002	9	22.45	9.76	8.19	-	-	-
14(B-H)	3	5.20	2.50	10.0	1	7	31.45	#3@28.5 .0025	16	-10.63	146.82	19.35	13.22	3.05	10x78*
14(I-N)	3	5.21	2.50	10.0	1	10	30.87	#3@28.5 .0025	17	-10.94	149.25	20.12	13.76	3.19	10x78*
18(B-C)	3	1.31	2.50	10.0	1	10	0.88	#3@30 .002	10	13.13	2.34	2.61	-	-	-
18(G-H)	3	1.35	2.50	10.0	1	4	2.29	#3@30 .002	11	-16.20	3.10	5.71	-	-	-
18(I-J)	3	1.35	2.50	10.0	1	6	2.27	#3@30 .002	13	-16.12	2.99	5.67	-	-	-
18(M-N)	3	1.30	2.50	10.0	1	7	0.86	#3@30 .002	7	13.06	2.36	2.59	-	-	-
21(B-E)	3	2.60	2.50	10.0	1	8	2.97	#3@30 .002	8	29.80	12.82	5.19	-	-	-
21(L-N)	3	2.61	2.50	10.0	1	7	2.89	#3@30 .002	7	30.46	12.53	5.21	-	-	-
22(F-H)	3	2.05	2.50	10.0	1	4	5.82	#3@30 .002	12	-23.37	8.92	8.84	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
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Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	3	2.05	2.50	10.0	1	6	6.55	#3@30 .002	14	-27.34	9.15	10.14	-	-	-
24(B-E)	3	2.60	2.50	10.0	1	9	11.14	#3@28.5 .0025	9	23.72	24.04	6.50	-	-	-
24(L-N)	3	2.61	2.50	10.0	1	8	12.14	#3@28.5 .0025	8	23.70	25.22	6.52	-	-	-
25(E-H)	3	2.60	2.50	10.0	1	6	10.43	#3@28.5 .0025	13	-38.40	16.73	14.30	12.52	0.88	10x15*
25(I-L)	3	2.60	2.50	10.0	1	4	10.17	#3@28.5 .0025	11	-34.08	18.12	13.30	11.65	0.82	10x15*

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:29:23 p.m. 20/03/2015

Muros N+7.50 m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	4	1.55	2.50	10.0	1	10	2.75	#3@30 .002	18	-6.98	4.26	3.45	-	-	-
B(8-9)	4	0.40	2.50	10.0	1	6	0.24	#3@30 .002	4	2.99	0.96	0.66	-	-	-
B(11-12)	4	0.40	2.50	10.0	1	10	0.32	#3@30 .002	18	-3.65	0.54	1.79	-	-	-
B(14-15)	4	0.40	2.50	10.0	1	8	0.32	#3@30 .002	16	-3.65	0.54	1.79	-	-	-
B(17-18)	4	0.40	2.50	10.0	1	3	0.24	#3@30 .002	5	3.00	0.96	0.66	-	-	-
B(23-24)	4	1.55	2.50	10.0	1	8	2.75	#3@30 .002	16	-7.01	4.26	3.45	-	-	-
C(8-10)	4	0.65	2.50	10.0	1	8	0.23	#3@30 .002	8	6.32	0.32	0.78	-	-	-
C(16-18)	4	0.65	2.50	10.0	1	10	0.23	#3@30 .002	10	6.32	0.32	0.78	-	-	-
E(2-4)	4	2.06	2.50	10.0	1	3	5.30	#3@30 .002	3	0.97	10.81	4.11	-	-	-
E(22-24)	4	2.06	2.50	10.0	1	6	5.30	#3@30 .002	6	1.00	10.81	4.11	-	-	-
(8-12)	4	2.02	2.50	10.0	1	4	4.44	#3@30 .002	4	5.36	9.11	4.03	-	-	-
F(14-18)	4	2.02	2.50	10.0	1	5	4.44	#3@30 .002	5	5.38	9.10	4.03	-	-	-
H(1-5)	4	3.81	2.50	10.0	1	3	24.82	#3@28.5 .0025	3	4.88	59.41	9.52	-	-	-
H(6-7)	4	0.93	2.50	10.0	1	5	0.42	#3@30 .002	5	5.65	0.26	1.12	-	-	-
H(8-12)	4	2.02	2.50	10.0	1	6	9.93	#3@28.5 .0025	14	-3.02	15.93	5.48	-	-	-
H(14-18)	4	2.02	2.50	10.0	1	3	9.93	#3@28.5 .0025	11	-3.03	15.93	5.48	-	-	-
H(19-20)	4	0.93	2.50	10.0	1	4	0.42	#3@30 .002	4	5.65	0.26	1.12	-	-	-
H(21-25)	4	3.81	2.50	10.0	1	6	24.84	#3@28.5 .0025	6	4.90	59.43	9.52	-	-	-
I(1-4)	4	2.91	2.50	10.0	1	5	19.82	#3@28.5 .0025	5	6.48	37.36	7.26	-	-	-
I(5-7)	4	1.75	2.50	10.0	1	3	1.32	#3@30 .002	3	9.65	3.02	3.50	-	-	-
I(8-12)	4	2.02	2.50	10.0	1	4	10.06	#3@28.5 .0025	16	-8.84	10.72	5.48	-	-	-
I(14-18)	4	2.02	2.50	10.0	1	5	10.06	#3@28.5 .0025	18	-8.84	10.72	5.48	-	-	-
I(19-21)	4	1.75	2.50	10.0	1	6	1.30	#3@30 .002	6	10.18	3.11	3.50	-	-	-
I(22-25)	4	2.91	2.50	10.0	1	4	19.79	#3@28.5 .0025	4	6.23	37.45	7.26	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:29:23 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	4	2.02	2.50	10.0	1	6	4.50	#3@30 .002	6	4.73	9.03	4.03	-	-	-
K(14-18)	4	2.02	2.50	10.0	1	3	4.50	#3@30 .002	3	4.73	9.03	4.03	-	-	-
L(2-4)	4	2.06	2.50	10.0	1	5	5.15	#3@30 .002	5	-0.58	11.06	4.11	-	-	-
L(22-24)	4	2.06	2.50	10.0	1	4	5.15	#3@30 .002	4	-0.61	11.07	4.11	-	-	-
M(8-10)	4	0.65	2.50	10.0	1	9	0.23	#3@30 .002	9	6.36	0.32	0.78	-	-	-
M(16-18)	4	0.65	2.50	10.0	1	7	0.23	#3@30 .002	7	6.36	0.32	0.78	-	-	-
N(2-3)	4	1.55	2.50	10.0	1	7	2.65	#3@30 .002	15	-6.52	4.09	3.22	-	-	-
N(8-9)	4	0.40	2.50	10.0	1	8	0.22	#3@30 .002	6	2.92	0.92	0.60	-	-	-
N(11-12)	4	0.40	2.50	10.0	1	7	0.33	#3@30 .002	15	-3.68	0.54	1.82	-	-	-
N(14-15)	4	0.40	2.50	10.0	1	9	0.33	#3@30 .002	17	-3.68	0.54	1.83	-	-	-
N(17-18)	4	0.40	2.50	10.0	1	10	0.22	#3@30 .002	3	2.92	0.92	0.60	-	-	-
N(23-24)	4	1.55	2.50	10.0	1	9	2.65	#3@30 .002	17	-6.53	4.09	3.22	-	-	-
1(E-H)	4	2.60	2.50	10.0	1	3	9.38	#3@28.5 .0025	12	-23.29	13.89	9.52	-	-	-
1(I-L)	4	2.60	2.50	10.0	1	5	9.02	#3@28.5 .0025	14	-20.38	14.40	8.77	-	-	-
2(B-E)	4	2.60	2.50	10.0	1	7	9.60	#3@28.5 .0025	7	16.61	17.67	6.50	-	-	-
2(L-N)	4	2.61	2.50	10.0	1	10	10.44	#3@28.5 .0025	10	16.55	18.52	6.52	-	-	-
4(F-H)	4	2.05	2.50	10.0	1	5	5.28	#3@30 .002	13	-13.88	7.36	5.92	-	-	-
4(I-K)	4	2.05	2.50	10.0	1	3	5.82	#3@30 .002	11	-15.79	7.67	6.52	-	-	-
5(B-E)	4	2.60	2.50	10.0	1	10	2.59	#3@30 .002	10	22.02	7.44	5.19	-	-	-
5(L-N)	4	2.61	2.50	10.0	1	9	2.52	#3@30 .002	9	22.65	7.51	5.21	-	-	-
8(B-C)	4	1.31	2.50	10.0	1	8	0.71	#3@30 .002	8	10.03	1.49	2.61	-	-	-
8(G-H)	4	1.35	2.50	10.0	1	5	2.01	#3@30 .002	14	-9.28	2.52	3.59	-	-	-
(I-J)	4	1.35	2.50	10.0	1	3	2.00	#3@30 .002	12	-9.35	2.50	3.59	-	-	-
(M-N)	4	1.30	2.50	10.0	1	9	0.70	#3@30 .002	9	10.00	1.51	2.59	-	-	-
12(B-H)	4	5.20	2.50	10.0	1	9	28.12	#3@28.5 .0025	9	47.61	78.86	13.00	-	-	-
12(I-N)	4	5.21	2.50	10.0	1	8	27.73	#3@28.5 .0025	8	45.25	77.13	13.02	-	-	-
13(F-H)	4	2.05	2.50	20.0	1	7	1.66	2Ly#3@35.6 .002	7	16.51	5.61	8.19	-	-	-
14(B-H)	4	5.20	2.50	10.0	1	7	28.12	#3@28.5 .0025	7	47.63	78.88	13.00	-	-	-
14(I-N)	4	5.21	2.50	10.0	1	10	27.75	#3@28.5 .0025	10	45.24	77.18	13.02	-	-	-
18(B-C)	4	1.31	2.50	10.0	1	10	0.71	#3@30 .002	10	10.03	1.49	2.61	-	-	-
18(G-H)	4	1.35	2.50	10.0	1	4	2.01	#3@30 .002	11	-9.30	2.52	3.59	-	-	-
18(I-J)	4	1.35	2.50	10.0	1	6	2.00	#3@30 .002	13	-9.35	2.50	3.59	-	-	-
18(M-N)	4	1.30	2.50	10.0	1	7	0.70	#3@30 .002	7	10.00	1.51	2.59	-	-	-
21(B-E)	4	2.60	2.50	10.0	1	8	2.59	#3@30 .002	8	22.02	7.46	5.19	-	-	-
21(L-N)	4	2.61	2.50	10.0	1	7	2.52	#3@30 .002	7	22.65	7.52	5.21	-	-	-
22(F-H)	4	2.05	2.50	10.0	1	4	5.28	#3@30 .002	12	-13.89	7.36	5.92	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE. (Tipo 1)
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Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	4	2.05	2.50	10.0	1	6	5.82	#3@30 .002	14	-15.96	7.67	6.51	-	-	-
24(B-E)	4	2.60	2.50	10.0	1	9	9.60	#3@28.5 .0025	9	16.59	17.63	6.50	-	-	-
24(L-N)	4	2.61	2.50	10.0	1	8	10.47	#3@28.5 .0025	8	16.56	18.56	6.52	-	-	-
25(E-H)	4	2.60	2.50	10.0	1	6	9.39	#3@28.5 .0025	13	-23.30	13.90	9.52	-	-	-
25(I-L)	4	2.60	2.50	10.0	1	4	9.02	#3@28.5 .0025	11	-20.28	14.39	8.77	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:03 p.m. 20/03/2015

Muros N+10.0 m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

042-2016

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement	VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	5	1.55	2.50	10.0	1	10	1.96	#3@30 .002	10	-1.02	2.78	3.09	-	-	-
B(8-9)	5	0.40	2.50	10.0	1	6	0.19	#3@30 .002	6	2.22	0.17	0.48	-	-	-
B(11-12)	5	0.40	2.50	10.0	1	8	0.19	#3@30 .002	18	-1.52	0.32	0.87	-	-	-
B(14-15)	5	0.40	2.50	10.0	1	10	0.19	#3@30 .002	16	-1.52	0.32	0.87	-	-	-
B(17-18)	5	0.40	2.50	10.0	1	3	0.19	#3@30 .002	3	2.23	0.17	0.48	-	-	-
B(23-24)	5	1.55	2.50	10.0	1	8	1.96	#3@30 .002	8	-1.04	2.79	3.09	-	-	-
C(8-10)	5	0.65	2.50	10.0	1	4	0.16	#3@30 .002	4	3.58	0.23	0.78	-	-	-
C(16-18)	5	0.65	2.50	10.0	1	5	0.17	#3@30 .002	5	3.57	0.23	0.78	-	-	-
E(2-4)	5	2.06	2.50	10.0	1	3	3.91	#3@30 .002	3	2.55	6.03	4.11	-	-	-
E(22-24)	5	2.06	2.50	10.0	1	6	3.90	#3@30 .002	6	2.58	6.03	4.11	-	-	-
(8-12)	5	2.02	2.50	10.0	1	4	3.33	#3@30 .002	4	5.36	5.17	4.03	-	-	-
F(14-18)	5	2.02	2.50	10.0	1	5	3.33	#3@30 .002	5	5.38	5.15	4.03	-	-	-
H(1-5)	5	3.81	2.50	10.0	1	3	19.48	#3@28.5 .0025	3	5.23	36.63	9.52	-	-	-
H(6-7)	5	0.93	2.50	10.0	1	5	0.33	#3@30 .002	5	3.69	0.17	1.12	-	-	-
H(8-12)	5	2.02	2.50	10.0	1	6	7.75	#3@28.5 .0025	6	1.11	10.85	5.05	-	-	-
H(14-18)	5	2.02	2.50	10.0	1	3	7.76	#3@28.5 .0025	3	1.09	10.86	5.05	-	-	-
H(19-20)	5	0.93	2.50	10.0	1	4	0.33	#3@30 .002	4	3.69	0.17	1.12	-	-	-
H(21-25)	5	3.81	2.50	10.0	1	6	19.50	#3@28.5 .0025	6	5.25	36.63	9.52	-	-	-
I(1-4)	5	2.91	2.50	10.0	1	5	15.43	#3@28.5 .0025	5	5.21	24.42	7.26	-	-	-
I(5-7)	5	1.75	2.50	10.0	1	3	1.04	#3@30 .002	3	6.34	1.29	3.50	-	-	-
I(8-12)	5	2.02	2.50	10.0	1	4	8.02	#3@28.5 .0025	4	1.00	10.92	5.05	-	-	-
I(14-18)	5	2.02	2.50	10.0	1	5	8.02	#3@28.5 .0025	5	1.01	10.92	5.05	-	-	-
I(19-21)	5	1.75	2.50	10.0	1	6	1.10	#3@30 .002	6	6.84	1.41	3.50	-	-	-
I(22-25)	5	2.91	2.50	10.0	1	4	15.36	#3@28.5 .0025	4	4.96	24.47	7.26	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:03 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	5	2.02	2.50	10.0	1	6	3.44	#3@30 .002	6	4.92	5.21	4.03	-	-	-
K(14-18)	5	2.02	2.50	10.0	1	3	3.44	#3@30 .002	3	4.92	5.23	4.03	-	-	-
L(2-4)	5	2.06	2.50	10.0	1	5	3.92	#3@30 .002	5	1.73	6.32	4.11	-	-	-
L(22-24)	5	2.06	2.50	10.0	1	4	3.92	#3@30 .002	4	1.71	6.32	4.11	-	-	-
M(8-10)	5	0.65	2.50	10.0	1	6	0.18	#3@30 .002	6	3.63	0.24	0.78	-	-	-
M(16-18)	5	0.65	2.50	10.0	1	3	0.18	#3@30 .002	3	3.63	0.24	0.78	-	-	-
N(2-3)	5	1.55	2.50	10.0	1	7	1.88	#3@30 .002	7	-0.64	2.66	3.09	-	-	-
N(8-9)	5	0.40	2.50	10.0	1	4	0.19	#3@30 .002	4	2.16	0.17	0.48	-	-	-
N(11-12)	5	0.40	2.50	10.0	1	9	0.19	#3@30 .002	15	-1.55	0.32	0.87	-	-	-
N(14-15)	5	0.40	2.50	10.0	1	7	0.19	#3@30 .002	17	-1.55	0.32	0.87	-	-	-
N(17-18)	5	0.40	2.50	10.0	1	5	0.19	#3@30 .002	5	2.17	0.17	0.48	-	-	-
N(23-24)	5	1.55	2.50	10.0	1	9	1.88	#3@30 .002	9	-0.65	2.67	3.09	-	-	-
1(E-H)	5	2.60	2.50	10.0	1	3	7.46	#3@30 .002	3	22.65	10.65	5.19	-	-	-
1(I-L)	5	2.60	2.50	10.0	1	5	7.07	#3@30 .002	5	20.95	10.48	5.19	-	-	-
2(B-E)	5	2.60	2.50	10.0	1	7	7.65	#3@30 .002	7	10.01	11.39	5.19	-	-	-
2(L-N)	5	2.61	2.50	10.0	1	10	8.00	#3@30 .002	10	10.01	11.97	5.21	-	-	-
4(F-H)	5	2.05	2.50	10.0	1	5	4.23	#3@30 .002	5	-4.51	5.59	4.09	-	-	-
4(I-K)	5	2.05	2.50	10.0	1	3	4.57	#3@30 .002	3	-5.09	6.00	4.09	-	-	-
5(B-E)	5	2.60	2.50	10.0	1	10	2.03	#3@30 .002	10	14.52	3.40	5.19	-	-	-
5(L-N)	5	2.61	2.50	10.0	1	7	1.98	#3@30 .002	7	14.52	3.34	5.21	-	-	-
8(B-C)	5	1.31	2.50	10.0	1	8	0.48	#3@30 .002	8	6.61	0.81	2.61	-	-	-
8(G-H)	5	1.35	2.50	10.0	1	5	1.51	#3@30 .002	5	11.27	1.94	2.70	-	-	-
(I-J)	5	1.35	2.50	10.0	1	4	1.52	#3@30 .002	4	-2.61	2.02	2.70	-	-	-
8(M-N)	5	1.30	2.50	10.0	1	9	0.46	#3@30 .002	9	6.59	0.83	2.59	-	-	-
12(B-H)	5	5.20	2.50	10.0	1	9	22.61	#3@28.5 .0025	9	28.17	50.45	13.00	-	-	-
12(I-N)	5	5.21	2.50	10.0	1	8	22.29	#3@28.5 .0025	8	26.73	49.22	13.02	-	-	-
13(F-H)	5	2.05	2.50	20.0	1	9	1.33	2Ly#3@35.6 .002	9	10.86	2.25	8.19	-	-	-
14(B-H)	5	5.20	2.50	10.0	1	7	22.62	#3@28.5 .0025	7	28.19	50.47	13.00	-	-	-
14(I-N)	5	5.21	2.50	10.0	1	10	22.29	#3@28.5 .0025	10	26.72	49.24	13.02	-	-	-
18(B-C)	5	1.31	2.50	10.0	1	10	0.48	#3@30 .002	10	6.61	0.81	2.61	-	-	-
18(G-H)	5	1.35	2.50	10.0	1	4	1.52	#3@30 .002	4	11.27	1.95	2.70	-	-	-
18(I-J)	5	1.35	2.50	10.0	1	5	1.51	#3@30 .002	5	-2.61	2.02	2.70	-	-	-
18(M-N)	5	1.30	2.50	10.0	1	7	0.46	#3@30 .002	7	6.59	0.83	2.59	-	-	-
21(B-E)	5	2.60	2.50	10.0	1	8	2.03	#3@30 .002	8	14.52	3.41	5.19	-	-	-
21(L-N)	5	2.61	2.50	10.0	1	9	1.98	#3@30 .002	9	14.52	3.34	5.21	-	-	-
22(F-H)	5	2.05	2.50	10.0	1	4	4.23	#3@30 .002	4	-4.52	5.59	4.09	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE. (Tipo 1)
04:30:03 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	5	2.05	2.50	10.0	1	6	4.53	#3@30 .002	6	-5.32	5.96	4.09	-	-	-
24(B-E)	5	2.60	2.50	10.0	1	9	7.65	#3@30 .002	9	10.00	11.39	5.19	-	-	-
24(L-N)	5	2.61	2.50	10.0	1	8	8.01	#3@30 .002	8	10.02	12.00	5.21	-	-	-
25(E-H)	5	2.60	2.60	10.0	1	6	7.46	#3@30 .002	6	22.65	10.65	5.19	-	-	-
25(I-L)	5	2.60	2.50	10.0	1	4	7.03	#3@30 .002	4	20.86	10.47	5.19	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)
File: C:\RCB\Structures\ERUM\ERUM2.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:48 p.m. 20/03/2015

Muros N+12.70m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

Design Results - Walls

Wall	Story	B (m)	H (m)	t (cm)	Mat -	HORIZONTAL REINFORCEMENT LCmb crit	Vu (ton)	Reinforcement		VERTICAL REINFORCEMENT LCmb crit	Pu (ton)	Mu2 (ton-m)	As tot (cm2)	As ctr (cm2)	As end (cm2)	Ends
B(2-3)	6	1.55	2.50	10.0	1	8	1.00	#3@30	.002	8	0.52	1.41	3.09	-	-	-
B(8-9)	6	0.40	2.50	10.0	1	4	0.26	#3@30	.002	8	0.88	0.52	0.54	-	-	-
B(11-12)	6	0.40	2.50	10.0	1	10	0.20	#3@30	.002	10	-0.02	0.20	0.48	-	-	-
B(14-15)	6	0.40	2.50	10.0	1	8	0.20	#3@30	.002	8	-0.03	0.20	0.48	-	-	-
B(17-18)	6	0.40	2.50	10.0	1	5	0.26	#3@30	.002	10	0.88	0.52	0.54	-	-	-
B(23-24)	6	1.55	2.50	10.0	1	10	1.00	#3@30	.002	10	0.52	1.42	3.09	-	-	-
C(8-10)	6	0.65	2.50	10.0	1	3	0.12	#3@30	.002	3	1.67	0.16	0.78	-	-	-
C(16-18)	6	0.65	2.50	10.0	1	6	0.12	#3@30	.002	6	1.69	0.16	0.78	-	-	-
E(2-4)	6	2.06	2.50	10.0	1	7	2.75	#3@30	.002	7	1.86	3.44	4.11	-	-	-
E(22-24)	6	2.06	2.50	10.0	1	9	2.75	#3@30	.002	9	1.87	3.43	4.11	-	-	-
F(8-12)	6	2.02	2.50	10.0	1	2	2.36	#3@30	.002	2	4.28	2.55	4.03	-	-	-
F(14-18)	6	2.02	2.50	10.0	1	2	2.36	#3@30	.002	2	4.28	2.55	4.03	-	-	-
H(1-5)	6	3.81	2.50	10.0	1	3	13.65	#3@28.5	.0025	3	3.71	19.17	9.52	-	-	-
H(6-7)	6	0.93	2.50	10.0	1	5	0.52	#3@30	.002	5	1.73	0.26	1.12	-	-	-
H(8-12)	6	2.02	2.50	10.0	1	9	5.44	#3@30	.002	9	0.95	6.77	4.03	-	-	-
H(14-18)	6	2.02	2.50	10.0	1	7	5.46	#3@30	.002	7	0.94	6.79	4.03	-	-	-
H(19-20)	6	0.93	2.50	10.0	1	4	0.52	#3@30	.002	4	1.73	0.26	1.12	-	-	-
H(21-25)	6	3.81	2.50	10.0	1	6	13.65	#3@28.5	.0025	6	3.72	19.17	9.52	-	-	-
I(1-4)	6	2.91	2.50	10.0	1	5	10.56	#3@28.5	.0025	5	2.98	13.96	7.26	-	-	-
I(5-7)	6	1.75	2.50	10.0	1	3	0.72	#3@30	.002	3	3.00	0.26	3.50	-	-	-
I(8-12)	6	2.02	2.50	10.0	1	8	5.44	#3@30	.002	8	0.86	6.94	4.03	-	-	-
I(14-18)	6	2.02	2.50	10.0	1	10	5.42	#3@30	.002	10	0.86	6.94	4.03	-	-	-
I(19-21)	6	1.75	2.50	10.0	1	6	0.49	#3@30	.002	6	3.54	0.31	3.50	-	-	-
I(22-25)	6	2.91	2.50	10.0	1	4	10.27	#3@28.5	.0025	4	2.70	14.01	7.26	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:48 p.m. 20/03/2015

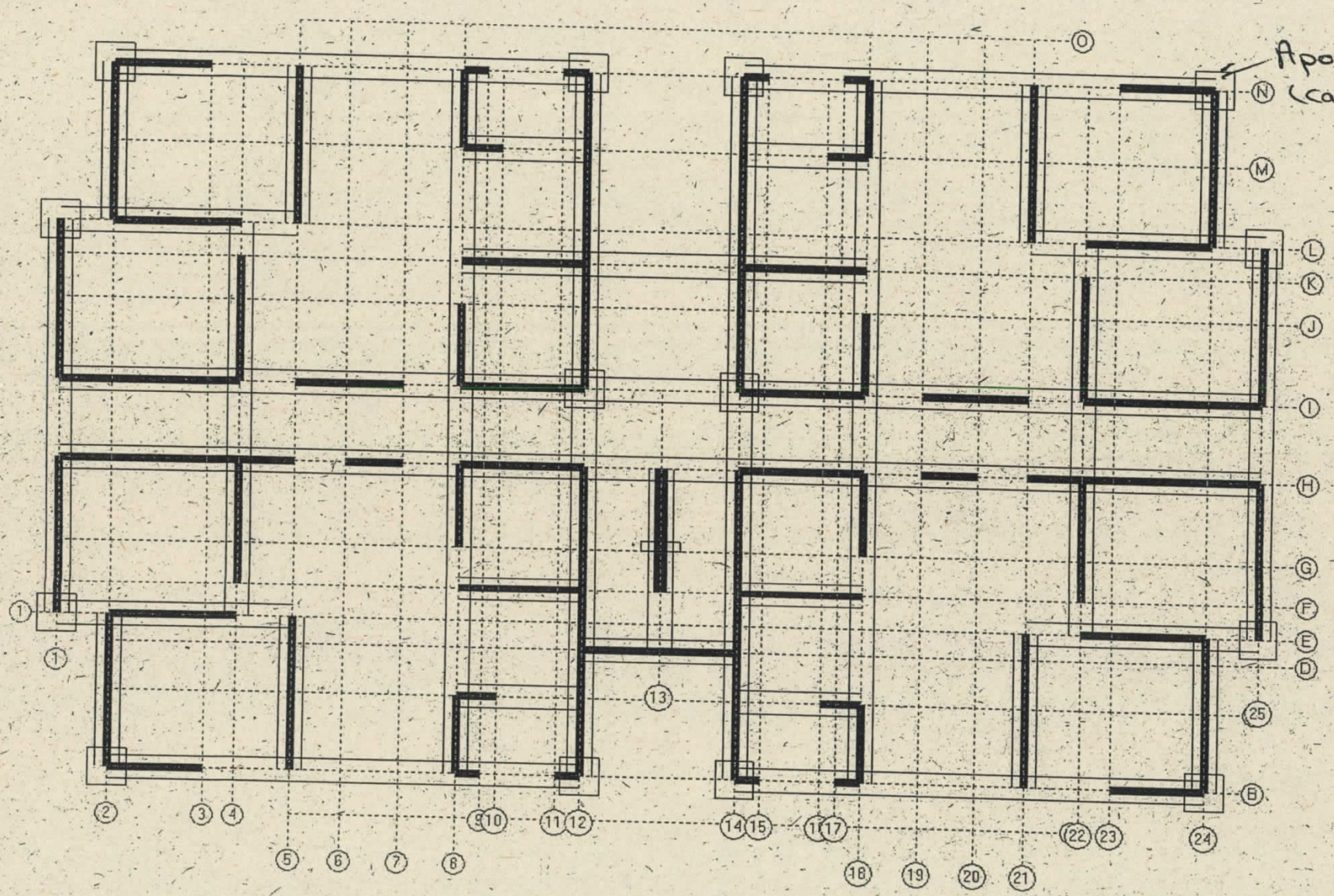
Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
K(8-12)	6	2.02	2.50	10.0	1	2	2.64	#3@30 .002	2	4.07	2.84	4.03	-	-	-
K(14-18)	6	2.02	2.50	10.0	1	2	2.64	#3@30 .002	2	4.07	2.84	4.03	-	-	-
L(2-4)	6	2.06	2.50	10.0	1	10	2.81	#3@30 .002	10	1.79	3.52	4.11	-	-	-
L(22-24)	6	2.06	2.50	10.0	1	8	2.82	#3@30 .002	8	1.78	3.53	4.11	-	-	-
M(8-10)	6	0.65	2.50	10.0	1	5	0.13	#3@30 .002	5	1.70	0.18	0.78	-	-	-
M(16-18)	6	0.65	2.50	10.0	1	4	0.13	#3@30 .002	4	1.69	0.18	0.78	-	-	-
N(2-3)	6	1.55	2.50	10.0	1	9	1.09	#3@30 .002	9	0.42	1.51	3.09	-	-	-
N(8-9)	6	0.40	2.50	10.0	1	6	0.25	#3@30 .002	9	0.87	0.52	0.54	-	-	-
N(11-12)	6	0.40	2.50	10.0	1	7	0.21	#3@30 .002	7	-0.06	0.21	0.48	-	-	-
N(14-15)	6	0.40	2.50	10.0	1	9	0.21	#3@30 .002	9	-0.06	0.21	0.48	-	-	-
N(17-18)	6	0.40	2.50	10.0	1	3	0.25	#3@30 .002	7	0.87	0.52	0.54	-	-	-
N(23-24)	6	1.55	2.50	10.0	1	7	1.09	#3@30 .002	7	0.43	1.50	3.09	-	-	-
1(E-H)	6	2.60	2.50	10.0	1	3	5.51	#3@30 .002	3	7.77	7.40	5.19	-	-	-
1(I-L)	6	2.60	2.50	10.0	1	5	4.96	#3@30 .002	5	7.19	6.77	5.19	-	-	-
2(B-E)	6	2.60	2.50	10.0	1	7	4.88	#3@30 .002	7	4.05	6.50	5.19	-	-	-
2(L-N)	6	2.61	2.50	10.0	1	10	5.09	#3@30 .002	10	4.05	6.78	5.21	-	-	-
4(F-H)	6	2.05	2.50	10.0	1	5	3.18	#3@30 .002	5	0.05	4.01	4.09	-	-	-
4(I-K)	6	2.05	2.50	10.0	1	3	3.25	#3@30 .002	3	0.08	4.26	4.09	-	-	-
5(B-E)	6	2.60	2.50	10.0	1	2	1.66	#3@30 .002	2	8.76	1.22	5.19	-	-	-
5(L-N)	6	2.61	2.50	10.0	1	2	1.69	#3@30 .002	2	8.76	1.28	5.21	-	-	-
8(B-C)	6	1.31	2.50	10.0	1	9	0.17	#3@30 .002	9	3.40	0.28	2.61	-	-	-
8(G-H)	6	1.35	2.50	10.0	1	10	1.14	#3@30 .002	10	3.93	1.50	2.70	-	-	-
(I-J)	6	1.35	2.50	10.0	1	7	1.11	#3@30 .002	7	3.79	1.45	2.70	-	-	-
8(M-N)	6	1.30	2.50	10.0	1	8	0.16	#3@30 .002	8	3.38	0.29	2.59	-	-	-
12(B-H)	6	5.20	2.50	10.0	1	9	16.37	#3@30 .002	9	10.94	26.69	10.39	-	-	-
12(I-N)	6	5.21	2.50	10.0	1	8	16.20	#3@30 .002	8	10.31	25.88	10.42	-	-	-
13(F-H)	6	2.05	2.50	20.0	1	10	0.43	2Ly#3@35.6 .002	10	5.23	1.07	8.19	-	-	-
14(B-H)	6	5.20	2.50	10.0	1	7	16.39	#3@30 .002	7	10.96	26.71	10.39	-	-	-
14(I-N)	6	5.21	2.50	10.0	1	10	16.19	#3@30 .002	10	10.31	25.87	10.42	-	-	-
18(B-C)	6	1.31	2.50	10.0	1	7	0.17	#3@30 .002	7	3.40	0.28	2.61	-	-	-
18(G-H)	6	1.35	2.50	10.0	1	8	1.14	#3@30 .002	8	3.94	1.50	2.70	-	-	-
18(I-J)	6	1.35	2.50	10.0	1	9	1.11	#3@30 .002	9	3.79	1.45	2.70	-	-	-
18(M-N)	6	1.30	2.50	10.0	1	10	0.16	#3@30 .002	10	3.38	0.29	2.59	-	-	-
21(B-E)	6	2.60	2.50	10.0	1	2	1.66	#3@30 .002	2	8.76	1.23	5.19	-	-	-
21(L-N)	6	2.61	2.50	10.0	1	2	1.69	#3@30 .002	2	8.76	1.28	5.21	-	-	-
22(F-H)	6	2.05	2.50	10.0	1	4	3.19	#3@30 .002	4	0.05	4.03	4.09	-	-	-

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE. (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
04:30:48 p.m. 20/03/2015

Wall	Story	B	H	t	Mat	LCmb	Vu	Reinforcement	LCmb	Pu	Mu2	As tot	As ctr	As end	Ends
22(I-K)	6	2.05	2.50	10.0	1	6	3.41	#3@30 .002	6	-0.18	4.30	4.09	-	-	-
24(B-E)	6	2.60	2.50	10.0	1	9	4.86	#3@30 .002	9	4.05	6.48	5.19	-	-	-
24(L-N)	6	2.61	2.50	10.0	1	8	5.11	#3@30 .002	8	4.05	6.82	5.21	-	-	-
25(E-H)	6	2.60	2.50	10.0	1	6	5.48	#3@30 .002	6	7.76	7.38	5.19	-	-	-
25(I-L)	6	2.60	2.50	10.0	1	4	4.94	#3@30 .002	4	7.15	6.75	5.19	-	-	-

Bloque Tipo B.



Bloque Tipo B.

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1) Tipo B
File: C:\RCB\Structures\ERUM\ERUM2-Cimentacion-Vigas.rcb

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:25 p.m. 09/04/2015

Planta de Cimentacion.

Vigas N+15 cm.
N-0.30 m

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

BEAM SECTIONS

Number of prismatic sections = 4

Sec	Name	Shape	b (cm)	h (cm)	tw (cm)	tf (cm)	P1 (cm)	P2 (cm)	A (cm2)	I2 (cm4)	I3 (cm4)	J (cm4)
1	Beam1	Rectang	10.00	10.00	-	-	-	-	100.0	833	833	1233
2	Beam2	Rectang	10.00	35.00	-	-	-	-	350.0	35729	2917	9567
3	Beam3	Rectang	40.00	70.00	-	-	-	-	2800.0	1143333	373333	955733
4	Beam4	Rectang	45.00	70.00	-	-	-	-	3150.0	1286250	531562	1265119

Design Results - Beams

BEAM: B(2-3) FLOOR: 1

Length: L = 1.55 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.55 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.16	0.31	0.47	0.62	0.78	0.93	1.09	1.24	1.40	1.55
Mu(-), ton-m:	-35.21	-29.32	-23.45	-17.60	-11.76	-6.18	-5.02	-6.81	-9.05	-11.53	-14.03
Mu(+), ton-m:	10.15	7.81	5.45	3.07	0.68	0.00	0.75	5.91	11.50	17.29	23.09
As(-), cm2:	16.28	13.36	10.53	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	10.36
Vu, ton:	37.63	37.63	37.63	37.63	37.63	37.55	37.50	37.50	37.50	37.50	37.50
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	11.93	11.93	11.93	11.93	11.93	11.97	12.00	12.00	12.00	12.00	12.00

DESIGN

B-2 16 #3@ 10 B-3

BEAM: B(3-5) FLOOR: 1

Length: L = 1.41 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.41 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.28	0.42	0.56	0.70	0.85	0.99	1.13	1.27	1.41
Mu(-), ton-m:	-24.91	-21.02	-17.15	-14.25	-11.48	-8.72	-5.96	-3.81	-2.11	-0.53	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.82	3.54	6.86	10.64	14.54	18.49
As(-), cm2:	11.23	9.39	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	27.45	27.45	27.45	27.45	27.45	27.45	27.47	27.47	27.47	27.47	27.47
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-3 10 #3@ 15 B-5

BEAM: B(5-8) FLOOR: 1

Length: L = 2.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.27	0.54	0.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.67
Mu(+), ton-m:	18.59	16.76	15.01	13.33	12.55	12.34	12.28	13.60	14.96	16.36	17.80
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	6.40	6.40	6.40	6.17	5.98	5.80	5.65	5.51	5.35	5.35	5.35
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-5 18 #3@ 15 B-8

BEAM: B(8-9) FLOOR: 1

Length: L = 0.40 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.40 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-3.63	-3.12	-2.60	-2.07	-1.54	-1.00	-0.47	0.00	0.00	0.00	0.00
Mu(+), ton-m:	16.03	15.50	14.95	14.40	13.85	13.29	12.74	12.18	11.64	11.09	10.56
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	13.91	13.91	13.91	13.91	13.91	13.91	13.91	13.91	13.91	13.91	13.91
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-8 3 #3@ 15 B-9

BEAM: B(9-11) FLOOR: 1

Length: L = 1.22 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.22 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.12	0.24	0.37	0.49	0.61	0.73	0.85	0.98	1.10	1.22
Mu(-), ton-m:	0.00	-0.27	-1.64	-3.30	-5.61	-8.18	-11.72	-15.28	-18.84	-22.40	-25.98
Mu(+), ton-m:	12.56	8.88	5.20	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.37	10.04	11.74
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	30.25	30.25	30.25	30.25	30.25	30.25	30.25	30.25	30.25	30.25	30.25
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-9 9 #3@ 15 B-11

BEAM: B(11-12) FLOOR: 1

Length: L = 0.40 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.40 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-21.29	-22.51	-23.73	-24.95	-26.17	-27.62	-29.32	-31.02	-32.72	-34.43	-36.14
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	9.51	10.09	10.66	11.25	11.83	12.53	13.36	14.19	15.03	15.89	16.75
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88

DESIGN

B-11 4 #3@ 10 B-12

BEAM: B(14-15) FLOOR: 1

Length: L = 0.40 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.40 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-36.14	-34.43	-32.73	-31.02	-29.32	-27.62	-26.18	-24.96	-23.74	-22.52	-21.30
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	16.75	15.89	15.04	14.19	13.36	12.53	11.84	11.25	10.67	10.09	9.52
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46	42.46
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88	9.88

DESIGN

B-14 5 #3@ 10 B-15

BEAM: B(15-17) FLOOR: 1

Length: L = 1.22 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.22 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.12	0.24	0.37	0.49	0.61	0.73	0.85	0.98	1.10	1.22
Mu(-), ton-m:	-25.99	-22.41	-18.84	-15.28	-11.72	-8.17	-5.61	-3.29	-1.64	-0.27	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	5.20	8.88	12.56
As(-), cm2:	11.74	10.04	8.37	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	30.26	30.26	30.26	30.26	30.26	30.26	30.26	30.26	30.26	30.26	30.26
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-15 9 #3@ 15 B-17

BEAM: B(17-18) FLOOR: 1

Length: L = 0.40 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.40 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	0.00	0.00	0.00	0.00	-0.46	-0.99	-1.53	-2.06	-2.59	-3.11	-3.62
Mu(+), ton-m:	10.57	11.10	11.64	12.19	12.75	13.30	13.86	14.42	14.97	15.51	16.05
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	13.93	13.93	13.93	13.93	13.93	13.93	13.93	13.93	13.93	13.93	13.93
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-17 3 #3@ 15 B-18

BEAM: B(18-21) FLOOR: 1

Length: L = 2.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.27	0.54	0.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70
Mu(-), ton-m:	-0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	17.81	16.36	14.96	13.60	12.28	12.34	12.55	13.32	15.00	16.75	18.58
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	5.34	5.34	5.34	5.50	5.64	5.80	5.97	6.16	6.22	6.22	6.22
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-18 18 #3@ 15 B-21

BEAM: B(21-23) FLOOR: 1

Length: L = 1.41 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.41 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.28	0.42	0.56	0.70	0.85	0.99	1.13	1.27	1.41
Mu(-), ton-m:	0.00	-0.53	-2.11	-3.81	-5.97	-8.72	-11.48	-14.25	-17.14	-21.02	-24.90
Mu(+), ton-m:	18.48	14.53	10.63	6.85	3.54	0.81	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.39	11.22
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	27.43	27.43	27.43	27.43	27.43	27.43	27.42	27.42	27.42	27.42	27.42
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-21 10 #3@ 15 B-23

BEAM: B(23-24) FLOOR: 1

Length: L = 1.55 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.55 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.15	0.31	0.46	0.62	0.77	0.93	1.08	1.24	1.39	1.55
Mu(-), ton-m:	-14.04	-11.54	-9.06	-6.81	-5.02	-6.18	-11.75	-17.59	-23.44	-29.31	-35.20
Mu(+), ton-m:	23.09	17.29	11.49	5.91	0.75	0.00	0.68	3.08	5.45	7.82	10.16
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	10.53	13.35	16.28
As(+), cm2:	10.36	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	37.48	37.48	37.48	37.48	37.48	37.54	37.62	37.62	37.62	37.62	37.62
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	12.00	12.00	12.00	12.00	12.00	11.97	11.94	11.94	11.94	11.94	11.94

DESIGN

B-23 15 #3@ 10 B-24

BEAM: C(8-10) FLOOR: 1

Length: L = 0.65 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.65 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.06	0.13	0.19	0.26	0.32	0.39	0.45	0.52	0.58	0.65
Mu(-), ton-m:	-0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.52	0.91	1.84	3.06	4.29	5.51	6.73	7.96	9.19	10.41	11.64
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85	18.85
Tu, ton-m:	0.25	0.25	0.25	0.25	0.25	0.26	0.25	0.25	0.25	0.25	0.25
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

C-8 5 #3@ 15 C-10

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

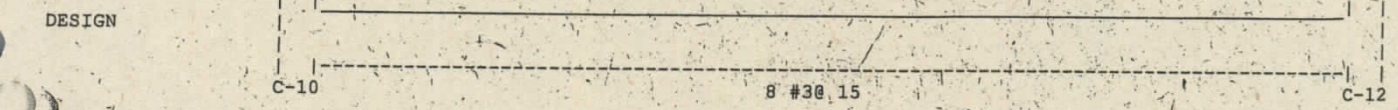
Engineer: CARLOS ELIAS GUTIERREZ R.
06:55:25 p.m. 09/04/2015

BEAM: C(10-12) FLOOR: 1

Length: L = 1.37 m, Lu = 1.17 m, a = 0.00 m, c = 0.20 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.12	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17
Mu(-), ton-m:	0.00	0.00	0.00	-0.04	-0.11	-0.18	-0.26	-0.33	-0.41	-0.49	-0.63
Mu(+), ton-m:	12.13	10.99	9.85	8.71	7.56	6.42	5.27	4.12	2.96	1.79	0.69
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	9.70	9.70	9.70	9.70	9.70	9.70	9.70	9.70	9.70	9.70	9.70
Tu, ton-m:	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

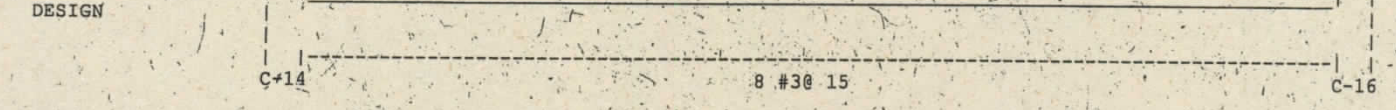


BEAM: C(14-16) FLOOR: 1

Length: L = 1.37 m, Lu = 1.17 m, a = 0.20 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.20	0.32	0.43	0.55	0.67	0.79	0.90	1.02	1.14	1.25	1.37
Mu(-), ton-m:	-0.65	-0.52	-0.44	-0.36	-0.28	-0.20	-0.12	-0.05	0.00	0.00	0.00
Mu(+), ton-m:	0.68	1.77	2.94	4.10	5.25	6.41	7.55	8.70	9.84	10.99	12.13
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72
Tu, ton-m:	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



BEAM: C(16-18) FLOOR: 1

Length: L = 0.65 m, Lu = 0.65 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.07	0.13	0.20	0.26	0.33	0.39	0.46	0.52	0.59	0.65
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.72
Mu(+), ton-m:	11.64	10.41	9.19	7.96	6.74	5.51	4.29	3.06	1.84	0.91	0.52
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.84	18.84	18.84	18.84	18.84	18.84	18.84	18.84	18.84	18.84	18.84
Tu, ton-m:	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)
Engineer: CARLOS ELIAS GUTIERREZ R
06:55:25 p.m. 09/04/2015

BEAM: D(12-13) FLOOR: 1

Length: L = 1.25 m, Lu = 1.25 m; a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
Mu(-), ton-m:	-0.10	-0.09	-0.10	-0.29	-0.62	-1.00	-1.39	-1.79	-2.19	-2.59	-3.00
Mu(+), ton-m:	0.97	0.60	0.26	0.07	0.03	0.03	0.02	0.01	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
Tu, ton-m:	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

D-12 — 9 #3@ 15 — D-13

BEAM: D(13-14) FLOOR: 1

Length: L = 1.25 m, Lu = 1.25 m; a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
Mu(-), ton-m:	-3.00	-2.59	-2.19	-1.79	-1.39	-1.00	-0.62	-0.29	-0.10	-0.09	-0.10
Mu(+), ton-m:	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.07	0.26	0.60	0.97
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	3.13	3.13	3.13	3.13	3.13	3.14	3.13	3.13	3.13	3.13	3.13
Tu, ton-m:	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

D-13 — 9 #3@ 15 — D-14

BEAM: E(1-2) FLOOR: 1

Length: L = 0.85 m, Lu = 0.85 m; a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.17	0.26	0.34	0.43	0.51	0.60	0.68	0.76	0.85
Mu(-), ton-m:	-38.82	-34.95	-31.01	-27.00	-23.93	-21.34	-18.75	-16.23	-14.55	-13.64	-13.03
Mu(+), ton-m:	2.67	2.24	1.73	1.14	1.48	2.29	3.09	3.96	5.65	8.11	10.85
As(-), cm2:	18.12	16.15	14.19	12.23	10.76	9.54	8.33	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99
Tu, ton-m:	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26

DESIGN

E-1 — 12 #3@ 7.5 — E-2

BEAM: E(2-4) FLOOR: 1

Length: L = 2.06 m, Lu = 2.06 m; a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.24	1.44	1.65	1.85	2.06
Mu(-), ton-m:	-7.36	-6.05	-4.76	-3.48	-2.67	-2.98	-5.45	-8.96	-12.64	-16.60	-20.59
Mu(+), ton-m:	18.11	14.35	10.56	6.75	3.39	1.11	0.97	1.83	2.86	4.15	5.45
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.19
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.54	18.54	18.54	18.54	18.65	18.77	18.89	19.02	19.02	19.02	19.02
Tu, ton-m:	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-2 — 14 #3@ 15 — E-4

BEAM: E(4-5) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-27.24	-24.49	-21.75	-19.01	-16.27	-13.54	-10.82	-8.09	-5.37	-2.66	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
As(-), cm2:	12.35	11.03	9.73	8.45	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	30.31	30.31	30.31	30.31	30.31	30.31	30.31	30.31	30.31	30.31	30.31
Tu, ton-m:	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-4 — 7 #3@ 15 — E-5

BEAM: E(21-22) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	0.00	-2.65	-5.37	-8.09	-10.81	-13.54	-16.27	-19.00	-21.74	-24.49	-27.24
Mu(+), ton-m:	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.45	9.73	11.02	12.34
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	30.30	30.30	30.30	30.30	30.30	30.30	30.30	30.30	30.30	30.30	30.30
Tu, ton-m:	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-21 — 7 #3@ 15 — E-22

BEAM: E(22-24) FLOOR: 1

Length: L = 2.06 m, Lu = 2.06 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.24	1.44	1.65	1.85	2.06
Mu(-), ton-m:	-20.59	-16.60	-12.64	-8.96	-5.45	-2.98	-2.67	-3.48	-4.76	-6.05	-7.36
Mu(+), ton-m:	5.45	4.15	2.86	1.83	0.97	1.11	3.39	6.76	10.57	14.35	18.12
As(-), cm2:	9.19	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.02	19.02	19.02	19.02	18.89	18.77	18.65	18.54	18.54	18.54	18.54
Tu, ton-m:	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-22 — 14 #3@ 15 — E-24

BEAM: E(24-25) FLOOR: 1

Length: L = 0.85 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.85 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.09	0.17	0.26	0.34	0.43	0.51	0.60	0.68	0.77	0.85
Mu(-), ton-m:	-13.02	-13.64	-14.54	-16.23	-18.74	-21.33	-23.92	-26.99	-31.00	-34.94	-38.80
Mu(+), ton-m:	10.86	8.11	5.65	3.96	3.09	2.28	1.47	1.13	1.72	2.23	2.65
As(-), cm2:	8.30	8.30	8.30	8.30	8.33	9.53	10.76	12.23	14.18	16.15	18.11
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99	47.99
Tu, ton-m:	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26

DESIGN

E-24 12 #3@ 7.5 E-25

BEAM: F(8-12) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-1.54	-1.37	-1.22	-1.11	-1.02	-0.96	-0.92	-0.89	-0.89	-0.90	-0.93
Mu(+), ton-m:	1.66	1.54	1.44	1.37	1.31	1.26	1.23	1.20	1.18	1.16	1.14
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	0.56	0.56	0.56	0.56	0.42	0.28	0.17	0.14	0.14	0.14	0.14
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-8 14 #3@ 15 F-12

BEAM: F(14-18) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-0.93	-0.90	-0.89	-0.89	-0.92	-0.96	-1.02	-1.11	-1.22	-1.37	-1.54
Mu(+), ton-m:	1.14	1.16	1.18	1.20	1.23	1.26	1.31	1.37	1.44	1.54	1.66
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	0.14	0.14	0.14	0.14	0.17	0.28	0.42	0.56	0.56	0.56	0.56
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-14 14 #3@ 15 F-18

BEAM: H(1-4) FLOOR: 1

Length: L = 2.91 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.91 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.29	0.58	0.87	1.16	1.46	1.75	2.04	2.33	2.62	2.91
Mu(-), ton-m:	-10.79	-8.49	-6.22	-3.98	-1.76	-0.79	-2.53	-4.72	-6.96	-9.37	-11.90
Mu(+), ton-m:	12.01	9.68	7.35	5.03	2.69	1.58	3.17	5.18	7.22	9.43	11.74
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.96	7.96	7.96	8.01	8.05	8.12	8.21	8.32	8.45	8.45	8.45
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	30.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-1 20 #3@ 15 H-4

Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE (Tipo 1)
06:55:26 p.m. 09/04/2015

BEAM: H(4-5) FLOOR: 1

Length: L = 0.90 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.90 m c = 0.00 m h = 70.0 cm Mat: RConcretel

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-9.28	-9.80	-10.31	-10.81	-11.31	-11.81	-12.33	-13.00	-13.67	-14.37	-15.10
Mu(+), ton-m:	9.40	9.95	10.48	11.00	11.52	12.04	12.59	13.27	13.97	14.69	15.43
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-4 7 #3@ 15 H-5

BEAM: H(5-6) FLOOR: 1

Length: L = 0.82 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.82 m c = 0.00 m h = 70.0 cm Mat: RConcretel

X, m:	0.00	0.08	0.16	0.25	0.33	0.41	0.49	0.57	0.66	0.74	0.82
Mu(-), ton-m:	-25.29	-22.42	-19.61	-16.80	-13.99	-11.19	-8.39	-5.60	-2.81	-0.02	0.00
Mu(+), ton-m:	25.28	23.03	20.83	18.64	16.46	14.28	12.10	9.93	7.76	5.59	4.36
As(-), cm2:	11.41	10.05	8.73	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	11.40	10.33	9.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	35.59	35.59	35.59	35.59	35.59	35.59	35.59	35.59	35.59	35.59	35.59
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	13.08	13.08	13.08	13.08	13.08	13.08	13.08	13.08	13.08	13.08	13.08

DESIGN

H-5 7 #3@ 12.5 H-6

BEAM: H(6-7) FLOOR: 1

Length: L = 0.93 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.93 m c = 0.00 m h = 70.0 cm Mat: RConcretel

X, m:	0.00	0.09	0.19	0.28	0.37	0.46	0.56	0.65	0.74	0.84	0.93
Mu(-), ton-m:	-0.78	-0.14	0.00	0.00	0.00	0.00	0.00	0.00	-0.40	-1.02	-1.64
Mu(+), ton-m:	5.40	4.80	4.19	3.58	3.36	3.38	3.99	4.65	5.30	5.96	6.62
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-6 7 #3@ 15 H-7

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

04-2-2016

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: H(7-8) FLOOR: 1

Length: L = 0.95 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.95 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.10	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.95
Mu(-), ton-m:	0.00	0.00	-3.18	-6.83	-10.49	-14.16	-18.01	-21.91	-25.82	-29.72	-33.63
Mu(+), ton-m:	5.91	4.93	7.30	9.67	12.06	14.44	17.00	19.63	22.24	24.86	27.47
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.81	11.66	13.55	15.49
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.74	9.96	11.20	12.46
Vu, ton:	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39

DESIGN

H-7 10 #3@ 10 H-8

BEAM: H(8-12) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-21.01	-17.15	-13.34	-9.68	-6.04	-2.42	-1.35	-3.22	-6.32	-9.43	-12.55
Mu(+), ton-m:	19.62	16.53	13.48	10.55	7.64	4.74	4.35	6.90	10.66	14.40	18.13
As(-), cm2:	9.38	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.74	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.98	18.98	18.98	18.98	18.88	18.78	18.69	18.62	18.62	18.62	18.62
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-8 14 #3@ 15 H-12

BEAM: H(12-13) FLOOR: 1

Length: L = 1.25 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.25 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
Mu(-), ton-m:	-2.15	-2.58	-3.34	-4.24	-5.15	-6.55	-7.97	-9.40	-10.83	-12.26	-13.70
Mu(+), ton-m:	2.87	1.68	0.82	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41	12.41
Tu, ton-m:	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-12 9 #3@ 15 H-13

BEAM: H(13-14) FLOOR: 1

Length: L = 1.25 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.25 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
Mu(-), ton-m:	-13.70	-12.26	-10.83	-9.40	-7.98	-6.55	-5.15	-4.25	-3.34	-2.58	-2.15
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.83	1.68	2.87
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.40	12.40	12.40	12.40	12.40	12.41	12.40	12.40	12.40	12.40	12.40
Tu, ton-m:	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-13 9 #3@ 15 H-14

BEAM: H(14-18) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-12.56	-9.44	-6.33	-3.22	-1.35	-2.42	-6.04	-9.68	-13.35	-17.15	-21.01
Mu(+), ton-m:	18.13	14.40	10.66	6.90	4.35	4.74	7.64	10.56	13.49	16.54	19.64
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.38
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.74
Vu, ton:	18.62	18.62	18.62	18.62	18.69	18.78	18.88	18.97	18.97	18.97	18.97
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-14 14 #3@ 15 H-18

BEAM: H(18-19) FLOOR: 1

Length: L = 0.95 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.95 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.09	0.19	0.29	0.38	0.47	0.57	0.66	0.76	0.85	0.95
Mu(-), ton-m:	-33.63	-29.72	-25.82	-21.91	-18.01	-14.16	-10.50	-6.84	-3.18	0.00	0.00
Mu(+), ton-m:	27.49	24.88	22.26	19.64	17.02	14.45	12.07	9.68	7.30	4.93	5.90
As(-), cm2:	15.49	13.55	11.66	9.81	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	12.47	11.21	9.97	8.74	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	41.08	41.08	41.08	41.08	41.08	41.08	41.08	41.08	41.08	41.08	41.08
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39

DESIGN

H-18 10 #3@ 10 H-19

BEAM: H(19-20) FLOOR: 1

Length: L = 0.93 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.93 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.09	0.19	0.28	0.37	0.47	0.56	0.65	0.74	0.84	0.93
Mu(-), ton-m:	-1.64	-1.02	-0.40	0.00	0.00	0.00	0.00	0.00	0.00	-0.14	-0.79
Mu(+), ton-m:	6.61	5.96	5.30	4.65	3.99	3.38	3.36	3.58	4.19	4.80	5.40
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04	7.04
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

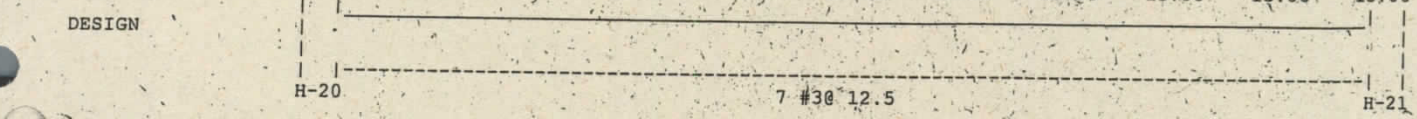
H-19 7 #3@ 15 H-20

BEAM: H(20-21) FLOOR: 1

Length: L = 0.82 m, Lu = 0.82 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.08	0.16	0.25	0.33	0.41	0.49	0.57	0.66	0.74	0.82
Mu(-), ton-m:	0.00	-0.02	-2.81	-5.60	-8.40	-11.19	-14.00	-16.80	-19.61	-22.43	-25.30
Mu(+), ton-m:	4.36	5.59	7.76	9.93	12.10	14.28	16.46	18.64	20.83	23.03	25.28
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.73	10.05	11.41
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.30	10.33	11.40
Vu, ton:	35.61	35.61	35.61	35.61	35.61	35.61	35.61	35.61	35.61	35.61	35.61
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	13.06	13.06	13.06	13.06	13.06	13.06	13.06	13.06	13.06	13.06	13.06

DESIGN



BEAM: H(21-22) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-15.10	-14.38	-13.68	-13.00	-12.34	-11.81	-11.31	-10.81	-10.31	-9.80	-9.28
Mu(+), ton-m:	15.43	14.68	13.97	13.27	12.59	12.04	11.52	11.00	10.47	9.94	9.40
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

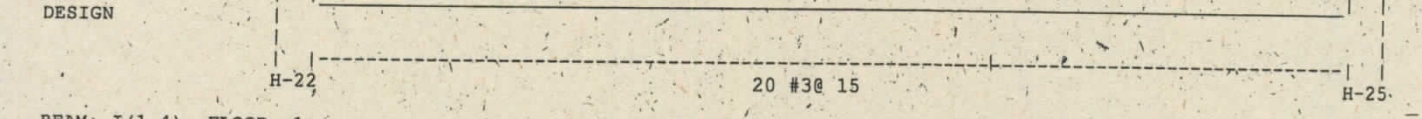
DESIGN

BEAM: H(22-25) FLOOR: 1

Length: L = 2.91 m, Lu = 2.91 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.29	0.58	0.87	1.16	1.46	1.75	2.04	2.33	2.62	2.91
Mu(-), ton-m:	-11.90	-9.37	-6.96	-4.72	-2.53	-0.79	-1.76	-3.98	-6.22	-8.49	-10.79
Mu(+), ton-m:	11.73	9.42	7.22	5.17	3.16	1.58	2.69	5.03	7.36	9.68	12.01
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	8.45	8.45	8.45	8.32	8.21	8.12	8.05	8.01	7.96	7.96	7.96
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	30.00	15.00	15.00	15.00	15.00	15.00

DESIGN

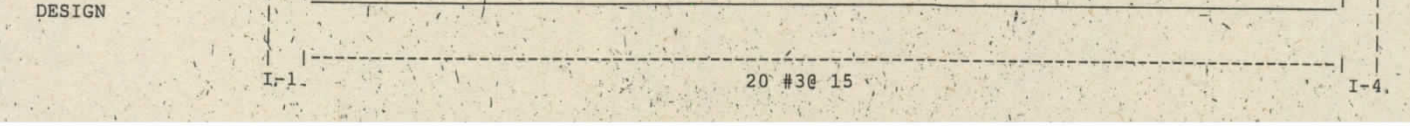


BEAM: I(1-4) FLOOR: 1

Length: L = 2.91 m, Lu = 2.91 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.29	0.58	0.87	1.16	1.46	1.75	2.04	2.33	2.62	2.91
Mu(-), ton-m:	-14.31	-11.20	-8.11	-5.04	-1.98	-1.80	-4.78	-7.85	-10.97	-14.14	-17.36
Mu(+), ton-m:	14.16	11.19	8.21	5.21	2.19	2.01	4.97	7.98	11.02	14.08	17.18
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.59	10.59	10.59	10.52	10.49	10.51	10.62	10.73	10.85	10.85	10.85
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	30.00	15.00	15.00	15.00	15.00	15.00

DESIGN



Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: I(4-5) FLOOR: 1

Length: L = 0.90 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.90 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-28.49	-24.82	-21.13	-17.43	-13.72	-10.02	-6.32	-2.62	0.00	-0.36	-3.52
Mu(+), ton-m:	29.25	26.24	23.21	20.17	17.12	14.07	11.02	7.98	5.57	7.02	10.82
As(-), cm2:	12.95	11.18	9.44	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	13.32	11.86	10.42	8.99	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	43.05	43.05	43.05	43.05	43.05	43.05	43.05	43.05	43.05	43.05	43.05
Tu, ton-m:	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68

DESIGN

I-4 12 #3@ 7.5 I-5

BEAM: I(5-7) FLOOR: 1

Length: L = 1.75 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.75 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.18	0.35	0.53	0.70	0.88	1.05	1.23	1.40	1.58	1.75
Mu(-), ton-m:	-8.40	-6.34	-4.28	-2.25	-0.22	0.00	-0.84	-2.76	-4.69	-6.63	-8.57
Mu(+), ton-m:	11.03	9.19	7.35	5.54	3.71	2.61	4.73	6.84	8.95	11.06	13.17
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.04	12.04	12.04	12.04	12.05	12.07	12.08	12.07	12.07	12.07	12.07
Tu, ton-m:	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-5 12 #3@ 15 I-7

BEAM: I(7-8) FLOOR: 1

Length: L = 0.95 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.95 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.10	0.19	0.29	0.88	0.48	0.57	0.67	0.76	0.86	0.95
Mu(-), ton-m:	-7.44	-4.86	-2.26	-2.19	-5.11	-10.20	-15.29	-20.39	-25.48	-30.57	-35.64
Mu(+), ton-m:	16.52	11.60	6.67	4.26	4.84	7.58	10.32	13.05	15.78	18.50	21.20
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.09	11.50	13.97	16.50
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.47
Vu, ton:	53.59	53.59	53.59	53.59	53.59	53.59	53.59	53.59	53.59	53.59	53.59
Tu, ton-m:	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Stirrup:	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Spacing, cm:	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59

DESIGN

I-7 8 #4@ 12.5 I-8

BEAM: I(8-12) FLOOR: 1

Length: L = 2.02 m, Lu = 2.02 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-16.49	-13.74	-11.03	-8.35	-5.70	-3.46	-5.85	-12.28	-18.93	-25.62	-32.34
Mu(+), ton-m:	33.95	27.36	20.77	14.18	7.58	1.96	0.00	2.07	4.60	7.10	9.58
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.41	11.57	14.84
As(+), cm2:	15.65	12.40	9.27	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	32.64	32.64	32.64	32.64	32.67	32.72	32.80	32.90	32.90	32.90	32.90
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	14.96	14.96	14.96	14.96

DESIGN

I-8 — 14 #3@ 15 — I-12

BEAM: I(12-14) FLOOR: 1

Length: L = 2.50 m, Lu = 2.50 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
Mu(-), ton-m:	-0.49	-0.23	-0.02	0.00	0.00	0.00	0.00	0.00	-0.02	-0.23	-0.49
Mu(+), ton-m:	0.00	0.00	0.00	0.13	0.22	0.24	0.22	0.13	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	0.59	0.59	0.59	0.47	0.24	0.00	0.24	0.47	0.59	0.59	0.59
Tu, ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-12 — 17 #3@ 15 — I-14

BEAM: I(14-18) FLOOR: 1

Length: L = 2.02 m, Lu = 2.02 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-32.37	-25.65	-18.96	-12.30	-5.88	-3.44	-5.68	-8.32	-11.00	-13.72	-16.46
Mu(+), ton-m:	9.60	7.12	4.62	2.09	0.00	1.33	7.56	14.15	20.74	27.34	33.93
As(-), cm2:	14.86	11.58	8.43	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.26	12.39	15.64
Vu, ton:	32.90	32.90	32.90	32.90	32.81	32.73	32.67	32.65	32.65	32.65	32.65
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	14.96	14.96	14.96	14.96	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-14 — 14 #3@ 15 — I-18

BEAM: I(18-19) FLOOR: 1

Length: L = 0.95 m, Lu = 0.95 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.19	0.29	0.38	0.47	0.57	0.66	0.76	0.85	0.95
Mu(-), ton-m:	-35.48	-30.43	-25.37	-20.30	-15.23	-10.16	-5.09	-2.19	-2.23	-4.80	-7.36
Mu(+), ton-m:	21.01	18.34	15.65	12.95	10.24	7.53	4.81	4.27	6.65	11.57	16.46
As(-), cm2:	16.42	13.90	11.45	9.05	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	9.38	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	53.36	53.36	53.36	53.36	53.36	53.36	53.36	53.36	53.36	53.36	53.36
Tu, ton-m:	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Stirrup:	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Spacing, cm:	12.67	12.67	12.67	12.67	12.67	12.67	12.67	12.67	12.67	12.67	12.67

DESIGN

I-18 — 8 #4@ 12.5 — I-19

BEAM: I(19-21) FLOOR: 1

Length: L = 1.75 m, Lu = 1.75 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.18	0.35	0.53	0.70	0.88	1.05	1.23	1.40	1.58	1.75
Mu(-), ton-m:	-8.37	-6.45	-4.54	-2.63	-0.73	0.00	-0.27	-2.28	-4.29	-6.32	-8.36
Mu(+), ton-m:	13.00	10.92	8.83	6.74	4.64	2.56	3.77	5.57	7.36	9.18	10.99
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	11.96	11.96	11.96	11.96	11.95	11.95	11.93	11.93	11.93	11.93	11.93
Tu, ton-m:	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-19 — 12 #3@ 15 — I-21

BEAM: I(21-22) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-3.69	-0.50	0.00	-2.56	-6.30	-10.04	-13.79	-17.54	-21.28	-25.01	-28.72
Mu(+), ton-m:	11.03	7.18	5.57	7.92	10.99	14.07	17.15	20.23	23.31	26.37	29.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.51	11.27	13.07
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.02	10.46	11.92	13.40
Vu, ton:	43.60	43.60	43.60	43.60	43.60	43.60	43.60	43.60	43.60	43.60	43.60
Tu, ton-m:	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50

DESIGN

I-21 — 12 #3@ 7.5 — I-22

BEAM: I(22-25) FLOOR: 1

Length: L = 2.91 m, Lu = 2.91 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.29	0.58	0.87	1.16	1.46	1.75	2.04	2.33	2.62	2.91
Mu(-), ton-m:	-17.32	-14.11	-10.95	-7.85	-4.79	-1.81	-1.96	-5.01	-8.07	-11.15	-14.25
Mu(+), ton-m:	17.14	14.06	11.00	7.98	4.97	2.01	2.16	5.17	8.15	11.12	14.07
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.81	10.81	10.81	10.69	10.58	10.47	10.45	10.49	10.56	10.56	10.56
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	30.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-22 — 20 #3@ 15 — I-25

BEAM: K(8-12) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-8.03	-6.37	-4.75	-3.16	-1.62	-0.17	-1.63	-3.38	-5.15	-6.93	-8.73
Mu(+), ton-m:	8.80	7.05	5.32	3.58	1.87	0.21	1.44	2.92	4.39	5.84	7.28
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	8.59	8.59	8.59	8.59	8.58	8.60	8.64	8.70	8.70	8.70	8.70
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-8 14 #3@ 15 K-12

BEAM: K(12-14) FLOOR: 1

Length: L = 2.50 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.50 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
Mu(-), ton-m:	-17.59	-14.29	-11.04	-7.83	-4.66	-2.10	-4.66	-7.83	-11.04	-14.30	-17.60
Mu(+), ton-m:	14.74	11.69	8.63	5.56	2.48	0.00	2.48	5.56	8.63	11.69	14.73
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.85	12.85	12.85	12.76	12.60	12.44	12.60	12.76	12.85	12.85	12.85
Tu, ton-m:	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-12 17 #3@ 15 K-14

BEAM: K(14-18) FLOOR: 1

Length: L = 2.02 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.02 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.20	0.40	0.61	0.81	1.01	1.21	1.41	1.62	1.82	2.02
Mu(-), ton-m:	-8.73	-6.93	-5.15	-3.38	-1.63	-0.17	-1.62	-3.16	-4.75	-6.37	-8.02
Mu(+), ton-m:	7.28	5.84	4.39	2.92	1.44	0.21	1.87	3.58	5.32	7.05	8.80
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	8.71	8.71	8.71	8.71	8.65	8.61	8.58	8.59	8.59	8.59	8.59
Tu, ton-m:	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-14 14 #3@ 15 K-18

BEAM: L(1-2) FLOOR: 1

Length: L = 0.85 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.85 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.09	0.17	0.26	0.34	0.43	0.51	0.60	0.68	0.76	0.85
Mu(-), ton-m:	-34.86	-31.52	-28.09	-24.61	-22.29	-20.24	-18.20	-16.24	-15.17	-14.82	-14.76
Mu(+), ton-m:	5.29	4.52	3.66	2.73	2.96	3.45	3.93	4.48	5.92	8.07	10.50
As(-), cm2:	16.11	14.44	12.76	11.08	9.98	9.02	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	42.16	42.16	42.16	42.16	42.16	42.16	42.16	42.16	42.16	42.16	42.16
Tu, ton-m:	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99

DESIGN

L-1 9 #3@ 10 L-2

BEAM: L(2-4) FLOOR: 1

Length: L = 2.06 m, Lu = 2.06 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.24	1.44	1.65	1.85	2.06
Mu(-), ton-m:	-8.50	-6.98	-5.48	-4.00	-3.06	-3.28	-5.62	-8.97	-12.51	-16.33	-20.19
Mu(+), ton-m:	17.04	13.44	9.81	6.16	3.01	1.00	1.07	2.13	3.35	4.83	6.33
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.00
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	17.79	17.79	17.79	17.79	17.92	18.05	18.19	18.33	18.33	18.33	18.33
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-2 — 14 #3@ 15 — L-4

BEAM: L(4-5) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	-26.48	-23.80	-21.13	-18.47	-15.81	-13.15	-10.50	-7.86	-5.21	-2.57	0.00
Mu(+), ton-m:	0.15	0.11	0.09	0.06	0.05	0.03	0.03	0.03	0.03	0.04	0.10
As(-), cm2:	11.98	10.70	9.44	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47	29.47
Tu, ton-m:	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-4 — 7 #3@ 15 — L-5

BEAM: L(21-22) FLOOR: 1

Length: L = 0.90 m, Lu = 0.90 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.72	0.81	0.90
Mu(-), ton-m:	0.00	-2.57	-5.22	-7.86	-10.51	-13.16	-15.81	-18.47	-21.14	-23.81	-26.49
Mu(+), ton-m:	0.10	0.04	0.03	0.03	0.03	0.04	0.05	0.07	0.09	0.12	0.15
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.44	10.70	11.99
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	29.48	29.48	29.48	29.48	29.48	29.48	29.48	29.48	29.48	29.48	29.48
Tu, ton-m:	0.68	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-21 — 7 #3@ 15 — L-22

BEAM: L(22-24) FLOOR: 1

Length: L = 2.06 m, Lu = 2.06 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3
Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.24	1.44	1.65	1.85	2.06
Mu(-), ton-m:	-20.19	-16.34	-12.51	-8.97	-5.62	-3.28	-3.06	-4.00	-5.48	-6.98	-8.50
Mu(+), ton-m:	6.33	4.83	3.35	2.13	1.07	1.00	3.01	6.15	9.81	13.43	17.04
As(-), cm2:	9.00	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.33	18.33	18.33	18.33	18.19	18.05	17.92	17.79	17.79	17.79	17.79
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-22 — 14 #3@ 15 — L-24

BEAM: L(24-25) FLOOR: 1

Length: L = 0.85 m, Lu = 0.85 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3
Mat: RConcrete1

X, m:	0.00	0.09	0.17	0.26	0.34	0.43	0.51	0.60	0.68	0.77	0.85
Mu(-), ton-m:	-14.75	-14.81	-15.17	-16.24	-18.20	-20.25	-22.29	-24.60	-28.08	-31.51	-34.85
Mu(+), ton-m:	10.49	8.07	5.92	4.48	3.94	3.46	2.97	2.73	3.67	4.53	5.30
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	9.03	9.99	11.08	12.76	14.43	16.10
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	42.12	42.12	42.12	42.12	42.12	42.12	42.12	42.12	42.12	42.12	42.12
Tu, ton-m:	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

DESIGN

L-24 — 9 #3@ 10 — L-25

BEAM: M(8-10) FLOOR: 1

Length: L = 0.65 m, Lu = 0.65 m, a = 0.00 m, c = 0.00 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3
Mat: RConcrete1

X, m:	0.00	0.06	0.13	0.19	0.26	0.32	0.39	0.45	0.52	0.58	0.65
Mu(-), ton-m:	-0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.48	0.92	1.85	3.02	4.27	5.51	6.76	8.01	9.25	10.50	11.75
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17
Tu, ton-m:	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-8 — 5 #3@ 15 — M-10

BEAM: M(10-12) FLOOR: 1

Length: L = 1.37 m, Lu = 1.17 m, a = 0.00 m, c = 0.20 m
Section: b = 40.0 cm, h = 70.0 cm
Sec: Beam3
Mat: RConcrete1

X, m:	0.00	0.12	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.11	-0.24
Mu(+), ton-m:	12.27	11.17	10.06	8.95	7.84	6.73	5.61	4.49	3.36	2.23	1.10
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43	9.43
Tu, ton-m:	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-10 — 8 #3@ 15 — M-12

BEAM: M(14-16) FLOOR: 1

Length: L = 1.37 m, Lu = 1.17 m, a = 0.20 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.20	0.32	0.43	0.55	0.67	0.79	0.90	1.02	1.14	1.25	1.37
Mu(-), ton-m:	-0.25	-0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	1.08	2.21	3.35	4.47	5.60	6.72	7.83	8.95	10.06	11.17	12.28
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45
Tu, ton-m:	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-14 — 8 #3@ 15 — M-16

BEAM: M(16-18) FLOOR: 1

Length: L = 0.65 m, Lu = 0.65 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.07	0.13	0.20	0.26	0.33	0.39	0.46	0.52	0.59	0.65
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.83
Mu(+), ton-m:	11.75	10.50	9.25	8.01	6.76	5.52	4.27	3.02	1.85	0.92	0.48
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17
Tu, ton-m:	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-16 — 5 #3@ 15 — M-18

BEAM: N(2-3) FLOOR: 1

Length: L = 1.55 m, Lu = 1.55 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.16	0.31	0.47	0.62	0.78	0.93	1.09	1.24	1.40	1.55
Mu(-), ton-m:	-36.85	-30.69	-24.54	-18.41	-12.30	-6.40	-4.61	-6.01	-8.27	-10.60	-12.95
Mu(+), ton-m:	9.73	7.53	5.32	3.10	0.86	0.00	0.84	6.03	12.06	18.14	24.22
As(-), cm2:	17.12	14.03	11.05	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	39.41	39.41	39.41	39.41	39.41	39.34	39.28	39.28	39.28	39.28	39.28
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	11.08	11.08	11.08	11.08	11.08	11.12	11.14	11.14	11.14	11.14	11.14

DESIGN

N-2 — 16 #3@ 10 — N-3

BEAM: N(3-5) FLOOR: 1

Length: L = 1.41 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.41 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.28	0.42	0.56	0.70	0.85	0.99	1.13	1.27	1.41
Mu(-), ton-m:	-24.92	-20.97	-17.03	-13.90	-11.10	-8.31	-5.52	-3.45	-1.74	-0.10	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.87	3.66	7.17	11.04	14.99	19.04
As(-), cm2:	11.23	9.37	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.46
Vu, ton:	28.04	28.04	28.04	28.04	28.04	28.06	28.12	28.12	28.12	28.12	28.12
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-3 10 #3@ 15 N-5

BEAM: N(5-8) FLOOR: 1

Length: L = 2.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.27	0.54	0.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.47
Mu(+), ton-m:	19.12	17.26	15.47	13.75	12.53	12.15	11.83	12.62	13.73	14.87	16.05
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.50	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	6.69	6.69	6.69	6.43	6.22	6.02	5.85	5.69	5.53	5.53	5.53
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-5 18 #3@ 15 N-8

BEAM: N(8-9) FLOOR: 1

Length: L = 0.40 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.40 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-3.38	-2.85	-2.31	-1.78	-1.25	-0.72	-0.20	0.00	0.00	0.00	0.00
Mu(+), ton-m:	14.29	13.77	13.25	12.74	12.22	11.71	11.20	10.69	10.18	9.66	9.14
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-8 3 #3@ 15 N-9

BEAM: N(9-11) FLOOR: 1

Length: L = 1.22 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.22 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.12	0.24	0.37	0.49	0.61	0.73	0.85	0.98	1.10	1.22
Mu(-), ton-m:	0.00	0.00	-1.41	-3.30	-5.67	-8.26	-11.64	-15.02	-18.42	-21.82	-25.22
Mu(+), ton-m:	10.74	7.42	4.10	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.76	11.38
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	27.69	27.69	27.69	27.69	27.69	27.69	27.69	27.69	27.69	27.69	27.69
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

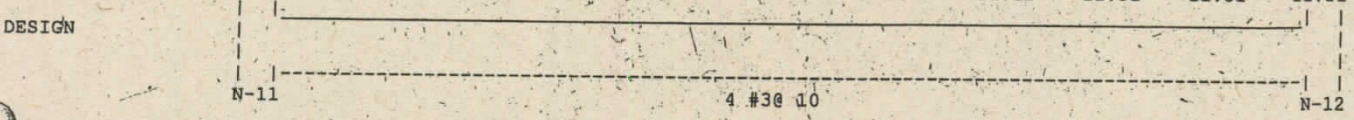
N-9 9 #3@ 15 N-11

BEAM: N(11-12) FLOOR: 1

Length: L = 0.40 m, Lu = 0.40 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-20.87	-21.94	-23.02	-24.10	-25.18	-26.26	-27.34	-28.73	-30.28	-31.82	-33.38
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	9.31	9.82	10.33	10.84	11.35	11.87	12.40	13.07	13.83	14.59	15.36
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	11.51	11.51	11.51	11.51	11.51	11.51	11.51	11.51	11.51	11.51	11.51

DESIGN

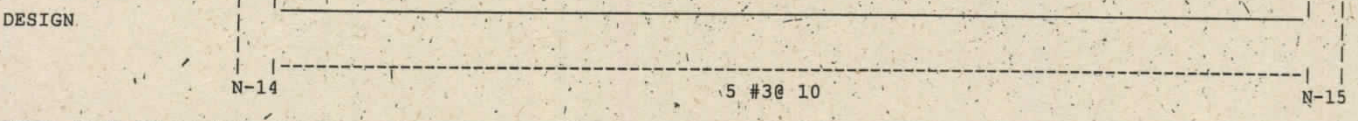


BEAM: N(14-15) FLOOR: 1

Length: L = 0.40 m, Lu = 0.40 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	-33.38	-31.83	-30.28	-28.73	-27.34	-26.26	-25.18	-24.10	-23.02	-21.94	-20.86
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	15.36	14.59	13.83	13.07	12.39	11.87	11.35	10.84	10.33	9.82	9.31
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50

DESIGN

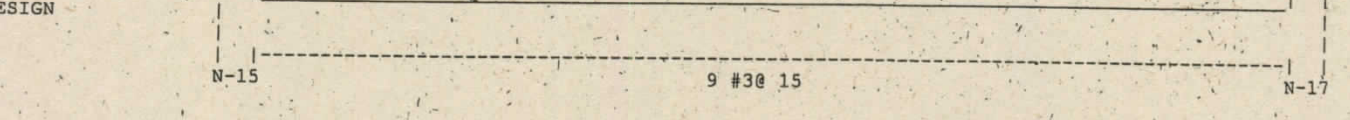


BEAM: N(15-17) FLOOR: 1

Length: L = 1.22 m, Lu = 1.22 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.12	0.24	0.37	0.49	0.61	0.73	0.85	0.98	1.10	1.22
Mu(-), ton-m:	-25.22	-21.81	-18.41	-15.02	-11.64	-8.26	-5.67	-3.30	-1.42	0.00	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	4.10	7.43	10.74
As(-), cm2:	11.38	9.76	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	27.68	27.68	27.68	27.68	27.68	27.68	27.68	27.68	27.68	27.68	27.68
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)
Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: N(17-18) FLOOR: 1

Length: L = 0.40 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 0.40 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.04	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40
Mu(-), ton-m:	0.00	0.00	0.00	0.00	-0.20	-0.73	-1.26	-1.78	-2.32	-2.85	-3.39
Mu(+), ton-m:	9.14	9.66	10.18	10.69	11.20	11.72	12.23	12.74	13.26	13.77	14.30
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39	13.39
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-17 3 #3@ 15 N-18

BEAM: N(18-21) FLOOR: 1

Length: L = 2.70 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 2.70 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.27	0.54	0.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70
Mu(-), ton-m:	-0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	16.06	14.87	13.73	12.62	11.83	12.15	12.53	13.75	15.47	17.26	19.13
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.50
Vu, ton:	5.53	5.53	5.53	5.70	5.85	6.02	6.22	6.43	6.51	6.51	6.51
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-18 18 #3@ 15 N-21

BEAM: N(21-23) FLOOR: 1

Length: L = 1.41 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 1.41 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.14	0.28	0.42	0.56	0.70	0.85	0.99	1.13	1.27	1.41
Mu(-), ton-m:	0.00	-0.11	-1.74	-3.46	-5.52	-8.31	-11.10	-13.90	-17.03	-20.97	-24.92
Mu(+), ton-m:	19.04	14.99	11.04	7.17	3.66	0.87	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.36	11.23
As(+), cm2:	8.46	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	28.08	28.08	28.08	28.08	28.08	28.06	28.02	28.02	28.02	28.02	28.02
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

N-21 10 #3@ 15 N-23

BEAM: N(23-24) FLOOR: 1

Length: L = 1.55 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 1.55 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.15	0.31	0.46	0.62	0.77	0.93	1.08	1.24	1.39	1.55
Mu(-), ton-m:	-12.94	-10.60	-8.27	-6.01	-4.61	-6.40	-12.30	-18.41	-24.54	-30.69	-36.85
Mu(+), ton-m:	24.21	18.14	12.06	6.03	0.83	0.00	0.86	3.10	5.32	7.53	9.73
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	11.05	14.03	17.11
As(+), cm2:	10.90	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	39.28	39.28	39.28	39.28	39.28	39.33	39.40	39.40	39.40	39.40	39.40
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	11.14	11.14	11.14	11.14	11.14	11.12	11.09	11.09	11.09	11.09	11.09

DESIGN

N-23 15 #3@ 10 N-24

BEAM: 1(E-H) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-26.47	-20.53	-14.64	-8.80	-2.98	-0.59	-0.90	-1.26	-1.65	-2.09	-2.57
Mu(+), ton-m:	0.36	0.25	0.10	0.00	0.00	2.80	8.57	14.33	20.08	25.84	31.62
As(-), cm2:	11.98	9.16	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.95	11.67	14.49
Vu, ton:	22.50	22.50	22.50	22.41	22.30	22.21	22.16	22.13	22.11	22.11	22.11
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-1 18 #3@ 15 H-1

BEAM: 1(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-18.36	-16.12	-13.81	-13.44	-12.99	-12.48	-13.65	-14.90	-16.48	-19.86	-23.32
Mu(+), ton-m:	15.04	12.07	9.03	7.91	6.71	5.44	5.84	6.31	7.11	9.69	12.35
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.84	10.47
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	25.51	25.51	25.51	25.51	25.51	25.54	25.56	25.56	25.56	25.56	25.56
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-1 9 #3@ 15 I-1

BEAM: 1(I-L) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-2.29	-1.84	-1.43	-1.07	-0.74	-0.46	-2.88	-8.09	-13.34	-18.63	-23.97
Mu(+), ton-m:	28.04	22.89	17.75	12.61	7.46	2.30	0.00	0.00	0.14	0.26	0.34
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	10.78
As(+), cm2:	12.73	10.27	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.79	19.79	19.79	19.78	19.81	19.88	19.98	20.11	20.19	20.19	20.19
Tu, ton-m:	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-1 18 #3@ 15 L-1

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 2(B-E) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-12.05	-9.23	-6.46	-3.81	-1.47	-0.26	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.21	1.02	2.88	5.19	7.68	10.12	12.54	14.92
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.47	10.47	10.47	10.37	10.20	10.04	9.90	9.77	9.69	9.69	9.69
Tu, ton-m:	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-2 18 #3@ 15 E-2

BEAM: 2(L-N) FLOOR: 1

Length: L = 2.61 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.61 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.31	1.57	1.83	2.09	2.35	2.61
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	-0.17	-1.20	-3.37	-5.83	-8.41	-11.05
Mu(+), ton-m:	13.99	11.81	9.59	7.34	5.05	2.93	1.19	0.49	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	8.93	8.93	8.93	9.00	9.13	9.28	9.44	9.61	9.73	9.73	9.73
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-2 18 #3@ 15 N-2

BEAM: 4(E-F) FLOOR: 1

Length: L = 0.55 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.55 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
Mu(-), ton-m:	-0.69	-0.67	-1.52	-2.36	-3.21	-4.06	-4.91	-5.77	-6.63	-7.48	-8.35
Mu(+), ton-m:	0.42	0.48	1.40	2.32	3.25	4.17	5.10	6.03	6.96	7.89	8.82
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-4 4 #3@ 15 F-4

BEAM: 4(F-H) FLOOR: 1

Length: L = 2.05 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.05 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-12.42	-10.12	-7.86	-5.64	-4.53	-3.59	-3.49	-3.73	-5.44	-7.18	-8.89
Mu(+), ton-m:	11.56	9.59	7.66	5.77	4.98	4.35	4.55	5.10	7.10	9.13	11.13
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.74	10.74	10.74	10.74	10.64	10.58	10.59	10.63	10.63	10.63	10.63
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

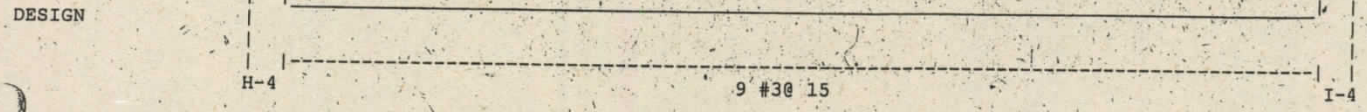
F-4 14 #3@ 15 H-4

BEAM: 4(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-11.61	-9.24	-6.89	-4.54	-2.68	-2.05	-3.93	-6.25	-8.70	-11.73	-14.75
Mu(+), ton-m:	15.59	12.54	9.49	6.45	3.90	2.57	3.75	5.37	7.12	9.43	11.74
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	23.29	23.29	23.29	23.29	23.29	23.32	23.34	23.34	23.34	23.34	23.34
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

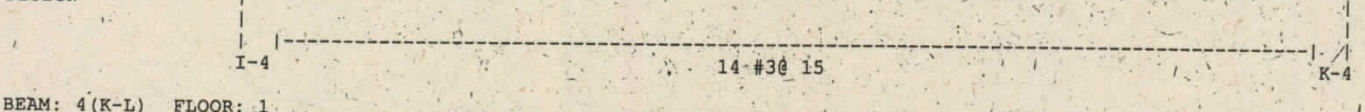


BEAM: 4(I-K) FLOOR: 1

Length: L = 2.05 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.05 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-11.70	-9.08	-6.46	-3.85	-1.86	-2.40	-4.19	-6.02	-7.89	-9.79	-11.73
Mu(+), ton-m:	8.95	7.00	5.05	3.08	1.73	2.90	5.31	7.75	10.22	12.72	15.24
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.75	12.75	12.75	12.75	12.75	12.75	12.75	12.76	12.76	12.76	12.76
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



BEAM: 4(K-L) FLOOR: 1

Length: L = 0.55 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.55 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
Mu(-), ton-m:	-7.38	-6.61	-5.84	-5.08	-4.32	-3.57	-2.81	-2.06	-1.31	-0.60	-0.85
Mu(+), ton-m:	9.93	8.87	7.80	6.74	5.68	4.62	3.56	2.50	1.45	0.44	0.38
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.32	19.32	19.32	19.32	19.32	19.32	19.32	19.32	19.32	19.32	19.32
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Macroproyecto SAN JOSE (Tipo 1) **06:55:26 p.m. 09/04/2015**

BEAM: 5(B-E) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	2.14	2.15	2.20	2.30	2.44	2.63	2.86	3.15	3.47	3.85	4.28
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	0.72	0.72	0.72	0.72	0.70	0.81	0.99	1.23	1.36	1.36	1.36
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-5 18 #3@ 15 E-5

BEAM: 5(L-N) FLOOR: 1

Length: L = 2.61 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.61 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.31	1.57	1.83	2.09	2.35	2.61
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	4.19	3.79	3.43	3.12	2.85	2.63	2.45	2.31	2.22	2.17	2.16
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	1.41	1.41	1.41	1.17	0.94	0.78	0.71	0.75	0.79	0.79	0.79
Tu, ton-m:	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-5 18 #3@ 15 N-5

BEAM: 8(B-C) FLOOR: 1

Length: L = 1.31 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.31 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.66	0.79	0.92	1.05	1.18	1.31
Mu(-), ton-m:	-4.43	-3.00	-1.63	-0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	2.32	2.09	1.94	1.95	1.98	2.85	4.19	5.64	7.09	8.53	9.98
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	11.03	11.03	11.03	11.03	11.03	11.00	11.04	11.04	11.04	11.04	11.04
Tu, ton-m:	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-8 9 #3@ 15 C-8

BEAM: 8(C-F) FLOOR: 1

Length: L = 1.84 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.84 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.18	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84
Mu(-), ton-m:	-1.60	-1.04	-0.46	0.00	0.00	-0.24	-2.48	-5.32	-8.18	-11.06	-13.94
Mu(+), ton-m:	15.18	12.36	9.53	6.69	4.03	2.65	2.68	3.32	3.99	4.67	5.36
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	15.49	15.49	15.49	15.49	15.52	15.58	15.65	15.71	15.71	15.71	15.71
Tu, ton-m:	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

C-8 12 #3@ 15 F-8

BEAM: 8(F-G) FLOOR: 1

Length: L = 0.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70
Mu(-), ton-m:	-13.80	-13.43	-13.06	-12.69	-12.33	-11.96	-11.60	-11.25	-10.90	-10.57	-10.24
Mu(+), ton-m:	5.32	5.36	5.39	5.43	5.46	5.50	5.54	5.59	5.64	5.70	5.78
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-8 5 #3@ 15 G-8

BEAM: 8(G-H) FLOOR: 1

Length: L = 1.35 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.35 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.27	0.41	0.54	0.68	0.81	0.94	1.08	1.22	1.35
Mu(-), ton-m:	-12.43	-10.13	-7.85	-5.94	-4.34	-3.01	-3.02	-3.18	-3.46	-4.24	-5.04
Mu(+), ton-m:	6.69	5.89	5.11	4.68	4.57	4.72	6.21	7.85	9.59	11.85	14.10
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	16.70	16.70	16.70	16.70	16.70	16.69	16.68	16.68	16.68	16.68	16.68
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

G-8 10 #3@ 15 H-8

BEAM: 8(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-10.75	-9.19	-7.61	-6.02	-6.54	-7.43	-9.91	-12.63	-15.39	-19.63	-24.00
Mu(+), ton-m:	21.67	17.69	13.69	9.67	7.76	6.20	6.24	6.50	6.78	8.55	10.43
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.74	10.80
As(+), cm2:	9.69	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	33.11	33.11	33.11	33.11	33.11	33.13	33.16	33.16	33.16	33.16	33.16
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	14.80	14.80	14.80	14.80	14.80	14.78	14.76	14.76	14.76	14.76	14.76

DESIGN

H-8 9 #3@ 15 I-8

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 8(I-J) FLOOR: 1

Length: L = 1.35 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.35 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35
Mu(-), ton-m:	-11.60	-9.97	-8.35	-6.74	-5.59	-4.81	-5.56	-6.57	-8.19	-9.93	-11.68
Mu(+), ton-m:	8.20	6.70	5.20	3.69	2.63	1.92	2.74	3.80	5.45	7.21	8.98
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.95	12.95	12.95	12.95	12.95	12.97	12.99	12.99	12.99	12.99	12.99
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

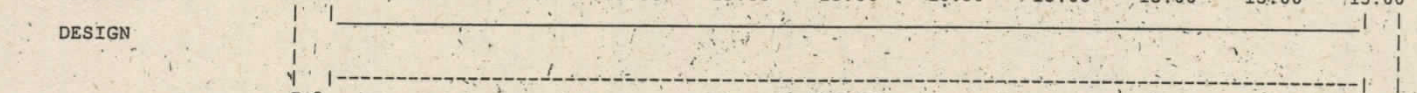
DESIGN

BEAM: 8(J-K) FLOOR: 1

Length: L = 0.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70
Mu(-), ton-m:	-13.22	-13.23	-13.23	-13.23	-13.22	-13.22	-13.23	-13.25	-13.45	-13.66	-13.88
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.21	0.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

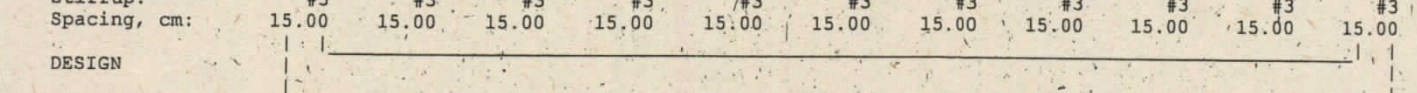


BEAM: 8(K-M) FLOOR: 1

Length: L = 1.86 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.86 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.19	0.37	0.56	0.74	0.93	1.12	1.30	1.49	1.67	1.86
Mu(-), ton-m:	-14.02	-11.03	-8.05	-5.18	-2.46	-0.62	-0.15	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.43	0.41	0.36	0.42	0.61	1.68	4.11	6.74	9.64	12.52	15.36
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	15.98	15.98	15.98	15.98	15.96	15.88	15.79	15.72	15.72	15.72	15.72
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

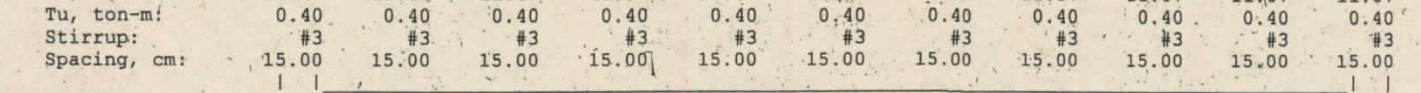


BEAM: 8(M-N) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.36	-1.54	-2.95	-4.39
Mu(+), ton-m:	10.04	8.59	7.14	5.69	4.25	3.04	2.04	1.80	1.58	1.61	1.65
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	11.07	11.07	11.07	11.07	11.07	11.10	11.07	11.07	11.07	11.07	11.07
Tu, ton-m:	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 12(B-C) FLOOR: 1

Length: L = 1.31 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.11 m c = 0.20 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.11	0.22	0.33	0.44	0.55	0.67	0.78	0.89	1.00	1.11
Mu(-), ton-m:	-22.68	-20.06	-17.45	-14.84	-12.31	-9.90	-7.52	-5.14	-2.99	-1.43	-0.44
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	3.13	5.35
As(-), cm2:	10.17	8.94	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38	23.38
Tu, ton-m:	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-12 8 #3@ 15 C-12

BEAM: 12(C-D) FLOOR: 1

Length: L = 0.84 m a = 0.20 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.64 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.20	0.26	0.33	0.39	0.46	0.52	0.58	0.65	0.71	0.78	0.84
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	12.83	13.95	15.06	16.17	17.28	18.38	19.49	20.60	21.72	22.89	24.15
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.67	9.19	9.72	10.27	10.87
Vu, ton:	19.52	19.52	19.52	19.52	19.52	19.52	19.52	19.52	19.52	19.52	19.52
Tu, ton-m:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

C-12 5 #3@ 15 D-12

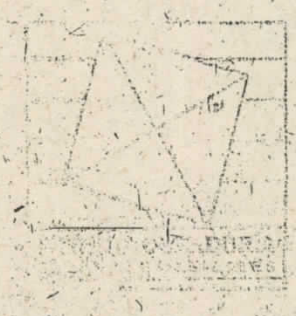
BEAM: 12(D-F) FLOOR: 1

Length: L = 1.00 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.00 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Mu(+), ton-m:	-9.25	-7.40	-5.56	-3.72	-2.12	-0.89	0.00	0.00	0.00	0.00	0.00
u(+), ton-m:	0.91	1.12	1.33	1.53	1.96	2.77	3.87	5.38	6.92	8.72	10.51
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33
Tu, ton-m:	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

D-12 7 #3@ 15 F-12



Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)
Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 12(F-H) FLOOR: 1

Length: L = 2.05 m, Lu = 2.05 m, a = 0.00 m, c = 0.00 m, Section: b = 40.0 cm, h = 70.0 cm, Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-3.09	-1.59	-0.65	-0.35	-0.44	-0.54	-0.66	-0.80	-0.95	-1.13	-1.32
Mu(+), ton-m:	0.14	0.19	0.76	1.97	3.54	5.11	6.67	8.23	9.79	11.35	12.90
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.65	7.65	7.65	7.65	7.65	7.64	7.63	7.61	7.61	7.61	7.61
Tu, ton-m:	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-12 — 14 #3@ 15 — H-12

BEAM: 12(H-I) FLOOR: 1

Length: L = 1.30 m, Lu = 1.30 m, a = 0.00 m, c = 0.00 m, Section: b = 40.0 cm, h = 70.0 cm, Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-5.63	-4.88	-4.14	-3.41	-3.04	-6.45	-13.73	-21.02	-28.32	-35.64	-42.97
Mu(+), ton-m:	29.88	22.62	15.36	8.10	1.17	0.00	0.00	0.00	0.08	0.75	1.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.39	12.87	16.50	20.29
As(+), cm2:	13.63	10.14	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	55.97	55.97	55.97	55.97	55.97	55.99	56.01	56.01	56.01	56.01	56.01
Tu, ton-m:	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Stirrup:	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Spacing, cm:	11.87	11.87	11.87	11.87	11.87	11.87	11.86	11.86	11.86	11.86	11.86

DESIGN

H-12 — 13 #4@ 10 — I-12

BEAM: 12(I-K) FLOOR: 1

Length: L = 2.05 m, Lu = 2.05 m, a = 0.00 m, c = 0.00 m, Section: b = 40.0 cm, h = 70.0 cm, Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-11.78	-9.45	-7.18	-5.36	-4.19	-3.11	-2.30	-1.90	-1.55	-1.22	-0.90
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	1.71	3.79	6.23	8.68	11.10	13.51
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.52	12.52	12.52	12.52	12.38	12.24	12.12	12.00	12.00	12.00	12.00
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-12 — 14 #3@ 15 — K-12

BEAM: 12(K-M) FLOOR: 1

Length: L = 1.86 m, Lu = 1.66 m, a = 0.00 m, c = 0.20 m, Section: b = 40.0 cm, h = 70.0 cm, Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.17	0.33	0.50	0.66	0.83	1.00	1.16	1.33	1.49	1.66
Mu(-), ton-m:	-2.91	-2.51	-2.12	-1.74	-1.38	-1.02	-0.68	-0.36	-0.08	0.00	0.00
Mu(+), ton-m:	11.77	11.04	10.29	9.53	8.77	7.99	7.20	6.40	5.58	4.76	4.03
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	4.56	4.56	4.56	4.56	4.58	4.64	4.70	4.72	4.72	4.72	4.72
Tu, ton-m:	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-12 — 11 #3@ 15 — M-12

BEAM: 12(M-N) FLOOR: 1

Length: L = 1.30 m a = 0.20 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.10 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.20	0.31	0.42	0.53	0.64	0.75	0.86	0.97	1.08	1.19	1.30
Mu(-), ton-m:	-0.27	-0.88	-1.90	-3.21	-4.56	-5.93	-7.30	-8.68	-10.07	-11.48	-12.93
Mu(+), ton-m:	1.34	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96	12.96
Tu, ton-m:	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-12 8 #3@ 15 N-12

BEAM: 13(D-F) FLOOR: 1

Length: L = 1.00 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.00 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Mu(-), ton-m:	0.00	-1.08	-2.93	-4.79	-6.65	-8.52	-10.39	-12.27	-14.15	-16.04	-17.93
Mu(+), ton-m:	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Tu, ton-m:	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

D-13 7 #3@ 15 F-13

BEAM: 13(F-G) FLOOR: 1

Length: L = 0.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70
Mu(-), ton-m:	0.00	0.00	-0.48	-2.36	-4.83	-7.30	-9.78	-12.26	-14.74	-17.49	-20.32
Mu(+), ton-m:	9.04	6.57	4.10	1.77	0.03	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.06
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	40.31	40.31	40.31	40.31	40.31	40.31	40.31	40.31	40.31	40.31	40.31
Tu, ton-m:	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70

DESIGN

F-13 8 #3@ 10 G-13

BEAM: 13(G-H) FLOOR: 1

Length: L = 1.35 m, Lu = 1.35 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.14	0.27	0.41	0.54	0.68	0.81	0.94	1.08	1.22	1.35
Mu(-), ton-m:	-27.04	-21.54	-16.06	-10.59	-5.13	-0.32	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.00	0.00	0.28	1.28	2.27	3.88	6.71	11.17	16.58	21.99	27.39
As(-), cm2:	12.25	9.63	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.84	12.42
Vu, ton:	40.32	40.32	40.32	40.32	40.32	40.29	40.25	40.25	40.25	40.25	40.25
Tu, ton-m:	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	10.70	10.70	10.70	10.70	10.70	10.71	10.72	10.72	10.72	10.72	10.72

DESIGN

G-13 — 14 #3@ 10 — H-13

BEAM: 14(B-C) FLOOR: 1

Length: L = 1.31 m, Lu = 1.11 m, a = 0.00 m, c = 0.20 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.11	0.22	0.33	0.44	0.55	0.67	0.78	0.89	1.00	1.11
Mu(-), ton-m:	-22.66	-20.05	-17.44	-14.83	-12.31	-9.90	-7.52	-5.15	-3.00	-1.45	-0.45
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	3.12	5.33
As(-), cm2:	10.16	8.93	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	23.34	23.34	23.34	23.34	23.34	23.34	23.34	23.34	23.34	23.34	23.34
Tu, ton-m:	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-14 — 8 #3@ 15 — C-14

BEAM: 14(C-D) FLOOR: 1

Length: L = 0.84 m, Lu = 0.64 m, a = 0.20 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.20	0.26	0.33	0.39	0.46	0.52	0.58	0.65	0.71	0.78	0.84
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	12.81	13.93	15.05	16.16	17.27	18.38	19.49	20.60	21.72	22.90	24.16
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.67	9.19	9.72	10.27	10.87
Vu, ton:	19.57	19.57	19.57	19.57	19.57	19.57	19.57	19.57	19.57	19.57	19.57
Tu, ton-m:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

C-14 — 5 #3@ 15 — D-14

BEAM: 14(D-F) FLOOR: 1

Length: L = 1.00 m, Lu = 1.00 m, a = 0.00 m, c = 0.00 m | Section: b = 40.0 cm, h = 70.0 cm | Sec: Beam3 | Mat: RConcrete1

X, m:	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Mu(-), ton-m:	-9.25	-7.40	-5.56	-3.72	-2.11	-0.89	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.91	1.12	1.33	1.53	1.97	2.77	3.88	5.38	6.92	8.72	10.51
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33	18.33
Tu, ton-m:	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

D-14 — 7 #3@ 15 — F-14

BEAM: 14(F-H) FLOOR: 1

Length: L = 2.05 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.05 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-3.09	-1.59	-0.65	-0.35	-0.44	-0.54	-0.66	-0.80	-0.95	-1.13	-1.32
Mu(+), ton-m:	0.14	0.19	0.76	1.97	3.54	5.10	6.67	8.23	9.79	11.35	12.90
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.65	7.65	7.65	7.65	7.65	7.64	7.63	7.61	7.61	7.61	7.61
Tu, ton-m:	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-14 14 #3@ 15 H-14

BEAM: 14(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-5.63	-4.88	-4.14	-3.41	-3.04	-6.45	-13.73	-21.03	-28.33	-35.65	-42.98
Mu(+), ton-m:	29.90	22.63	15.37	8.10	1.18	0.00	0.00	0.00	0.09	0.76	1.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	9.39	12.88	16.50	20.29
As(+), cm2:	13.64	10.15	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	55.98	55.98	55.98	55.98	55.98	56.01	56.03	56.03	56.03	56.03	56.03
Tu, ton-m:	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Stirrup:	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Spacing, cm:	11.87	11.87	11.87	11.87	11.87	11.86	11.86	11.86	11.86	11.86	11.86

DESIGN

H-14 13 #4@ 10 I-14

BEAM: 14(I-K) FLOOR: 1

Length: L = 2.05 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.05 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-11.77	-9.45	-7.18	-5.35	-4.19	-3.11	-2.30	-1.90	-1.55	-1.21	-0.89
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	1.70	3.79	6.23	8.68	11.10	13.50
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.51	12.51	12.51	12.51	12.38	12.24	12.11	12.00	12.00	12.00	12.00
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-14 14 #3@ 15 K-14

BEAM: 14(K-M) FLOOR: 1

Length: L = 1.86 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.66 m c = 0.20 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.17	0.33	0.50	0.66	0.83	1.00	1.16	1.33	1.49	1.66
Mu(-), ton-m:	-2.91	-2.51	-2.12	-1.74	-1.37	-1.02	-0.68	-0.36	-0.08	0.00	0.00
Mu(+), ton-m:	11.78	11.04	10.29	9.53	8.76	7.98	7.19	6.39	5.57	4.75	4.02
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	4.58	4.58	4.58	4.58	4.59	4.65	4.72	4.74	4.74	4.74	4.74
Tu, ton-m:	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-14 11 #3@ 15 M-14

BEAM: 14(M-N) FLOOR: 1

Length: L = 1.30 m a = 0.20 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.10 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.20	0.31	0.42	0.53	0.64	0.75	0.86	0.97	1.08	1.19	1.30
Mu(-), ton-m:	-0.27	-0.88	-1.91	-3.21	-4.56	-5.92	-7.29	-8.67	-10.06	-11.46	-12.91
Mu(+), ton-m:	1.33	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92
Tu, ton-m:	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

M-14 8 #3@ 15 N-14

BEAM: 18(B-C) FLOOR: 1

Length: L = 1.31 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.31 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.66	0.79	0.92	1.05	1.18	1.31
Mu(-), ton-m:	-4.44	-3.00	-1.63	-0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	2.32	2.09	1.93	1.94	1.97	2.85	4.20	5.64	7.09	8.54	9.99
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	11.04	11.04	11.04	11.04	11.04	11.01	11.05	11.05	11.05	11.05	11.05
Tu, ton-m:	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-18 9 #3@ 15 C-18

BEAM: 18(C-F) FLOOR: 1

Length: L = 1.84 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.84 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.18	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84
Mu(-), ton-m:	-1.60	-1.04	-0.46	0.00	0.00	-0.24	-2.48	-5.32	-8.18	-11.05	-13.94
Mu(+), ton-m:	15.18	12.36	9.53	6.69	4.03	2.65	2.68	3.32	3.99	4.67	5.35
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	15.49	15.49	15.49	15.49	15.52	15.58	15.65	15.71	15.71	15.71	15.71
Tu, ton-m:	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

C-18 12 #3@ 15 F-18

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 18(F-G) FLOOR: 1

Length: L = 0.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70
Mu(-), ton-m:	-13.79	-13.43	-13.06	-12.69	-12.33	-11.96	-11.60	-11.25	-10.90	-10.57	-10.24
Mu(+), ton-m:	5.31	5.35	5.39	5.42	5.46	5.50	5.54	5.58	5.64	5.70	5.77
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-18 5 #3@ 15 G-18

BEAM: 18(G-H) FLOOR: 1

Length: L = 1.35 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.35 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.27	0.41	0.54	0.68	0.81	0.94	1.08	1.22	1.35
Mu(-), ton-m:	-12.43	-10.13	-7.85	-5.94	-4.34	-3.01	-3.02	-3.18	-3.46	-4.24	-5.04
Mu(+), ton-m:	6.69	5.90	5.11	4.68	4.57	4.72	6.21	7.85	9.59	11.85	14.10
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	16.69	16.69	16.69	16.69	16.69	16.68	16.67	16.67	16.67	16.67	16.67
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

G-18 10 #3@ 15 H-18

BEAM: 18(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-10.75	-9.18	-7.61	-6.02	-6.53	-7.41	-9.89	-12.60	-15.34	-19.61	-23.97
Mu(+), ton-m:	21.66	17.68	13.68	9.67	7.75	6.19	6.21	6.47	6.75	8.54	10.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.73	10.78
As(+), cm2:	9.69	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	33.07	33.07	33.07	33.07	33.07	33.10	33.12	33.12	33.12	33.12	33.12
Tu, ton-m:	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	14.83	14.83	14.83	14.83	14.83	14.81	14.79	14.79	14.79	14.79	14.79

DESIGN

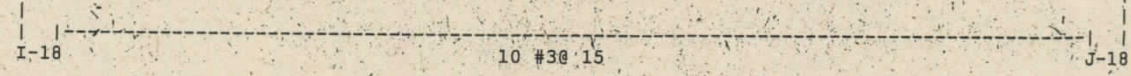
H-18 9 #3@ 15 I-18

BEAM: 18(I-J) FLOOR: 1

Length: L = 1.35 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.35 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.14	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35
Mu(-), ton-m:	-11.58	-9.96	-8.35	-6.74	-5.59	-4.80	-5.56	-6.56	-8.18	-9.91	-11.66
Mu(+), ton-m:	8.19	6.70	5.19	3.69	2.63	1.92	2.74	3.79	5.44	7.20	8.96
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.92	12.92	12.92	12.92	12.92	12.94	12.96	12.96	12.96	12.96	12.96
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

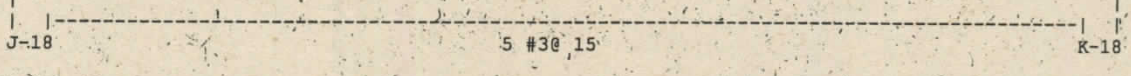


BEAM: 18(J-K) FLOOR: 1

Length: L = 0.70 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 0.70 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.07	0.14	0.21	0.28	0.35	0.42	0.49	0.56	0.63	0.70
Mu(-), ton-m:	-13.22	-13.23	-13.23	-13.23	-13.22	-13.22	-13.23	-13.25	-13.44	-13.65	-13.88
Mu(+), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.21	0.41
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

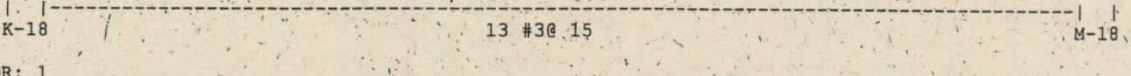


BEAM: 18(K-M) FLOOR: 1

Length: L = 1.86 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.86 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.19	0.37	0.56	0.74	0.93	1.12	1.30	1.49	1.67	1.86
Mu(-), ton-m:	-14.01	-11.03	-8.04	-5.18	-2.45	-0.62	-0.16	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.43	0.40	0.36	0.42	0.61	1.67	4.11	6.75	9.65	12.52	15.37
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	15.98	15.98	15.98	15.98	15.96	15.89	15.79	15.72	15.72	15.72	15.72
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

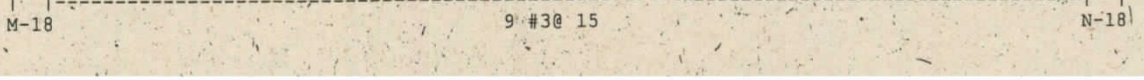


BEAM: 18(M-N) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.36	-1.54	-2.95	-4.39
Mu(+), ton-m:	10.04	8.59	7.14	5.70	4.25	3.04	2.04	1.80	1.58	1.61	1.66
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	11.08	11.08	11.08	11.08	11.08	11.10	11.07	11.07	11.07	11.07	11.07
Tu, ton-m:	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



BEAM: 21(B-E) FLOOR: 1

Length: L = 2.60 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 2.60 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	2.14	2.15	2.21	2.30	2.44	2.63	2.86	3.14	3.47	3.85	4.27
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	0.71	0.71	0.71	0.72	0.70	0.80	0.98	1.23	1.35	1.35	1.35
Tu, ton-m:	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-21 18 #3@ 15 E-21

BEAM: 21(L-N) FLOOR: 1

Length: L = 2.61 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 2.61 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.31	1.57	1.83	2.09	2.35	2.61
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	4.19	3.79	3.43	3.12	2.85	2.63	2.45	2.31	2.22	2.17	2.16
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	1.41	1.41	1.41	1.17	0.94	0.78	0.71	0.75	0.80	0.80	0.80
Tu, ton-m:	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-21 18 #3@ 15 N-21

BEAM: 22(E-F) FLOOR: 1

Length: L = 0.55 m, a = 0.00 m, Section: b = 40.0 cm, Sec: Beam3
Lu = 0.55 m, c = 0.00 m, h = 70.0 cm, Mat: RConcrete1

X, m:	0.00	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
Mu(-), ton-m:	-0.69	-0.67	-1.52	-2.36	-3.21	-4.06	-4.92	-5.77	-6.63	-7.49	-8.35
Mu(+), ton-m:	0.42	0.48	1.40	2.32	3.25	4.17	5.10	6.03	6.96	7.89	8.82
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83	16.83
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-22 4 #3@ 15 F-22

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 22(F-H) FLOOR: 1

Length: L = 2.05 m, Lu = 2.05 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-12.42	-10.12	-7.86	-5.64	-4.54	-3.59	-3.49	-3.73	-5.44	-7.17	-8.88
Mu(+), ton-m:	11.55	9.58	7.66	5.76	4.98	4.35	4.55	5.10	7.10	9.12	11.12
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.74	10.74	10.74	10.74	10.63	10.58	10.58	10.63	10.63	10.63	10.63
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

F-22 — 14 #3@ 15 — H-22

BEAM: 22(H-I) FLOOR: 1

Length: L = 1.30 m, Lu = 1.30 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-11.60	-9.23	-6.88	-4.53	-2.69	-2.06	-3.95	-6.27	-8.70	-11.72	-14.75
Mu(+), ton-m:	15.59	12.53	9.49	6.45	3.91	2.59	3.77	5.40	7.12	9.43	11.74
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	23.28	23.28	23.28	23.28	23.28	23.31	23.33	23.33	23.33	23.33	23.33
Tu, ton-m:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

H-22 — 9 #3@ 15 — I-22

BEAM: 22(I-K) FLOOR: 1

Length: L = 2.05 m, Lu = 2.05 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.21	0.41	0.62	0.82	1.03	1.23	1.44	1.64	1.85	2.05
Mu(-), ton-m:	-11.69	-9.08	-6.46	-3.85	-1.87	-2.42	-4.22	-6.05	-7.92	-9.83	-11.78
Mu(+), ton-m:	8.95	7.00	5.04	3.08	1.73	2.91	5.33	7.77	10.24	12.74	15.27
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	12.74	12.74	12.74	12.74	12.74	12.74	12.75	12.76	12.76	12.76	12.76
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

I-22 — 14 #3@ 15 — K-22

BEAM: 22(K-L) FLOOR: 1

Length: L = 0.55 m, Lu = 0.55 m, a = 0.00 m, c = 0.00 m; Section: b = 40.0 cm, h = 70.0 cm; Sec: Beam3, Mat: RConcrete1

X, m:	0.00	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
Mu(-), ton-m:	-7.39	-6.62	-5.86	-5.09	-4.33	-3.57	-2.82	-2.06	-1.32	-0.60	-0.85
Mu(+), ton-m:	9.94	8.87	7.81	6.74	5.68	4.62	3.56	2.51	1.46	0.44	0.38
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.30	19.30	19.30	19.30	19.30	19.30	19.30	19.30	19.30	19.30	19.30
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

K-22 — 4 #3@ 15 — L-22

BEAM: 24(B-E) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-12.05	-9.23	-6.46	-3.81	-1.47	-0.26	0.00	0.00	0.00	0.00	0.00
Mu(+), ton-m:	0.00	0.00	0.00	0.21	1.02	2.88	5.19	7.68	10.13	12.54	14.92
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	10.47	10.47	10.47	10.37	10.20	10.04	9.90	9.77	9.69	9.69	9.69
Tu, ton-m:	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

B-24 18 #3@ 15 E-24

BEAM: 24(L-N) FLOOR: 1

Length: L = 2.61 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.61 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.31	1.57	1.83	2.09	2.35	2.61
Mu(-), ton-m:	0.00	0.00	0.00	0.00	0.00	-0.17	-1.20	-3.36	-5.82	-8.40	-11.04
Mu(+), ton-m:	13.98	11.80	9.59	7.34	5.05	2.93	1.19	0.49	0.00	0.00	0.00
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	8.92	8.92	8.92	8.99	9.13	9.27	9.43	9.61	9.73	9.73	9.73
Tu, ton-m:	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

L-24 18 #3@ 15 N-24

BEAM: 25(E-H) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-26.48	-20.54	-14.64	-8.79	-2.98	-0.59	-0.91	-1.26	-1.66	-2.10	-2.58
Mu(+), ton-m:	0.36	0.25	0.10	0.00	0.00	2.81	8.58	14.34	20.09	25.86	31.64
As(-), cm2:	11.98	9.16	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.95	11.68	14.50
Vu, ton:	22.51	22.51	22.51	22.42	22.30	22.22	22.17	22.14	22.12	22.12	22.12
Tu, ton-m:	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

E-25 18 #3@ 15 H-25

Company: CONSTRUCTORES CALCULISTAS
Project: Macroproyecto SAN JOSE (Tipo 1)

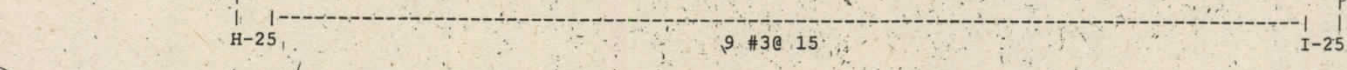
Engineer: CARLOS ELIAS GUTIERREZ R
06:55:26 p.m. 09/04/2015

BEAM: 25(H-I) FLOOR: 1

Length: L = 1.30 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 1.30 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.13	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.17	1.30
Mu(-), ton-m:	-18.33	-16.10	-13.79	-13.41	-12.97	-12.47	-13.65	-14.91	-16.49	-19.87	-23.33
Mu(+), ton-m:	15.03	12.07	9.02	7.89	6.69	5.43	5.84	6.31	7.11	9.69	12.35
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.85	10.48
As(+), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	25.51	25.51	25.51	25.51	25.51	25.53	25.56	25.56	25.56	25.56	25.56
Tu, ton-m:	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN

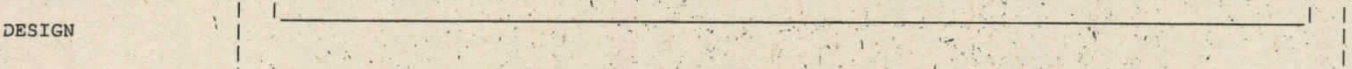


BEAM: 25(I-L) FLOOR: 1

Length: L = 2.60 m a = 0.00 m Section: b = 40.0 cm Sec: Beam3
Lu = 2.60 m c = 0.00 m h = 70.0 cm Mat: RConcrete1

X, m:	0.00	0.26	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60
Mu(-), ton-m:	-2.24	-1.80	-1.40	-1.04	-0.73	-0.45	-2.88	-8.08	-13.31	-18.59	-23.92
Mu(+), ton-m:	27.97	22.83	17.70	12.57	7.44	2.29	0.00	0.00	0.12	0.23	0.30
As(-), cm2:	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	10.76
As(+), cm2:	12.70	10.24	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Vu, ton:	19.74	19.74	19.74	19.73	19.77	19.83	19.93	20.06	20.15	20.15	20.15
Tu, ton-m:	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

DESIGN



Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Macroproyecto SAN JOSE. Bloque 33 **04:40:41 p.m. 21/08/2015**
File: C:\RCB\Structures\ERUM\ERUM2-Cimentacion-Vigas.rcb

Linear Analysis- Support Reactions

Support		Load	Force (ton)			Moment (ton-m)		
Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz
E-1	1	1	0.00	14.30	71.58	26.71	-16.64	0.00
		2	0.00	16.63	83.20	31.05	-19.78	0.00
		3	0.00	24.36	122.31	47.73	-11.63	0.00
		4	0.00	4.24	20.85	5.70	-21.64	0.00
		5	0.00	16.08	71.68	32.17	-5.82	0.00
		6	0.00	12.52	71.48	21.26	-27.45	0.00
		7	0.00	23.67	118.70	45.88	-15.20	0.00
		8	0.00	8.43	41.88	14.06	-22.78	0.00
		9	0.00	17.39	80.37	34.10	-10.80	0.00
		10	0.00	14.70	80.22	25.84	-27.18	0.00
		11	0.00	18.64	93.68	37.04	-4.98	0.00
		12	0.00	-1.48	-7.78	-4.98	-14.98	0.00
		13	0.00	10.36	43.05	21.48	0.83	0.00
		14	0.00	6.80	42.85	10.57	-20.80	0.00
L-1	1	1	0.00	-14.94	69.76	-27.68	-13.38	0.00
		2	0.00	-17.41	81.11	-32.20	-15.93	0.00
		3	0.00	-21.99	115.98	-47.76	-8.50	0.00
		4	0.00	-7.90	23.54	-7.60	-18.27	0.00
		5	0.00	-12.91	69.04	-21.91	-24.11	0.00
		6	0.00	-16.98	70.49	-33.44	-2.65	0.00
		7	0.00	-22.13	113.27	-46.27	-11.59	0.00
		8	0.00	-11.47	43.28	-15.87	-18.99	0.00
		9	0.00	-15.26	77.73	-26.70	-23.42	0.00
		10	0.00	-18.34	78.82	-35.44	-7.17	0.00
		11	0.00	-16.01	88.08	-36.69	-3.14	0.00
		12	0.00	-1.93	-4.36	3.47	-12.91	0.00
		13	0.00	-6.94	41.14	-10.84	-18.76	0.00
		14	0.00	-11.00	42.58	-22.37	2.70	0.00
B-2	1	1	-9.11	8.80	63.14	14.14	-32.19	0.00
		2	-11.15	10.47	75.11	16.78	-38.93	0.00
		3	-3.04	11.94	56.53	18.05	-9.78	0.00
		4	-15.17	5.66	69.74	10.23	-54.60	0.00
		5	-9.55	12.90	91.51	9.51	-43.38	0.00
		6	-8.67	4.70	34.76	18.77	-21.00	0.00
		7	-6.05	12.43	67.12	19.08	-20.28	0.00
		8	-15.23	7.68	77.11	13.16	-54.21	0.00
		9	-10.97	13.16	93.60	12.62	-45.72	0.00
		10	-10.31	6.95	50.63	19.63	-28.78	0.00
		11	0.60	8.42	31.28	12.39	3.09	0.00
		12	-11.53	2.14	44.48	4.58	-41.72	0.00
		13	-5.90	9.38	66.26	3.86	-30.50	0.00
		14	-5.03	1.18	9.51	13.11	-8.13	0.00
N-2	1	1	-9.09	-11.35	70.49	-12.71	-34.29	0.00
		2	-11.14	-13.48	83.82	-15.09	-41.42	0.00
		3	-2.26	-12.84	68.00	-16.57	-11.33	0.00
		4	-15.93	-9.86	72.98	-8.85	-57.26	0.00
		5	-8.45	-7.16	41.57	-17.23	-22.66	0.00
		6	-9.74	-15.54	99.41	-8.19	-45.93	0.00
		7	-5.45	-14.08	78.60	-17.42	-22.25	0.00
		8	-15.80	-11.82	82.37	-11.57	-57.03	0.00
		9	-10.14	-9.78	58.60	-17.92	-30.83	0.00
		10	-11.12	-16.12	102.38	-11.07	-48.45	0.00
		11	1.38	-8.30	39.80	-11.48	2.39	0.00
		12	-12.30	-5.32	44.78	-3.77	-43.54	0.00
		13	-4.81	-2.62	13.38	-12.15	-8.94	0.00
		14	-6.11	-11.00	71.21	-3.10	-32.21	0.00
B-12	1	1	4.55	9.63	89.79	34.23	26.19	0.00
		2	5.45	11.39	106.77	40.58	31.74	0.00
		3	6.11	15.42	103.75	35.07	31.38	0.00
		4	3.00	3.84	75.84	33.40	21.01	0.00
		5	6.14	15.73	125.67	39.83	29.47	0.00
		6	2.96	3.53	53.92	28.63	22.92	0.00

Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz
		7	6.40	15.34	113.09	39.62	34.28	0.00
		8	4.05	6.57	91.96	38.36	26.42	0.00
		9	6.43	15.57	129.69	43.23	32.83	0.00
		10	4.03	6.33	75.37	34.75	27.87	0.00
		11	4.28	11.57	67.83	21.37	20.90	0.00
		12	1.18	-0.01	39.92	19.70	10.53	0.00
		13	4.32	11.88	89.75	26.14	18.99	0.00
		14	1.14	-0.32	18.01	14.94	12.44	0.00
I-12	1	1	-2.62	-0.17	99.20	4.14	24.54	0.00
		2	-3.08	-0.24	116.39	4.79	28.87	0.00
		3	-5.57	3.36	95.45	-11.99	29.82	0.00
		4	0.32	-3.70	102.94	20.27	19.26	0.00
		5	-4.45	10.15	122.45	14.97	35.36	0.00
		6	-0.80	-10.49	75.95	-6.69	13.72	0.00
		7	-5.20	2.45	109.26	-7.59	31.79	0.00
		8	-0.74	-2.90	114.93	16.84	23.79	0.00
		9	-4.35	7.59	129.70	12.82	35.98	0.00
		10	-1.59	-8.04	94.49	-3.57	19.59	0.00
		11	-4.52	3.43	55.77	-13.65	20.01	0.00
		12	1.37	-3.63	63.26	18.62	9.44	0.00
		13	-3.40	10.22	82.77	13.31	25.55	0.00
		14	0.25	-10.42	36.27	-8.34	3.90	0.00
N-12	1	1	3.93	-11.45	68.19	-24.56	24.28	0.00
		2	4.70	-13.49	80.83	-28.95	29.45	0.00
		3	4.82	-10.19	52.64	-10.59	27.27	0.00
		4	3.04	-12.72	83.73	-38.52	21.29	0.00
		5	1.81	1.43	12.97	-11.18	19.56	0.00
		6	6.06	-24.34	123.40	-37.93	29.00	0.00
		7	5.19	-12.02	65.90	-17.28	30.42	0.00
		8	3.84	-13.94	89.44	-38.43	25.89	0.00
		9	2.90	-3.23	35.86	-17.72	24.58	0.00
		10	6.12	-22.74	119.47	-37.98	31.73	0.00
		11	3.25	-5.60	25.37	-0.77	17.56	0.00
		12	1.47	-8.14	56.46	-28.70	11.58	0.00
		13	0.23	6.02	-14.30	-1.35	9.85	0.00
		14	4.48	-19.76	96.13	-28.11	19.29	0.00
B-14	1	1	-4.55	9.63	89.77	34.22	-26.20	0.00
		2	-5.45	11.39	106.75	40.57	-31.75	0.00
		3	-3.00	3.84	75.83	33.38	-21.01	0.00
		4	-6.11	15.42	103.72	35.06	-31.39	0.00
		5	-6.14	15.73	125.64	39.82	-29.48	0.00
		6	-2.97	3.53	53.91	28.62	-22.92	0.00
		7	-4.05	6.56	91.95	38.35	-26.43	0.00
		8	-6.40	15.33	113.06	39.62	-34.29	0.00
		9	-6.43	15.57	129.66	43.22	-32.84	0.00
		10	-4.03	6.33	75.35	34.74	-27.88	0.00
		11	-1.18	-0.01	39.92	19.70	-10.53	0.00
		12	-4.28	11.57	67.81	21.37	-20.91	0.00
		13	-4.32	11.88	89.73	26.14	-19.00	0.00
		14	-1.14	-0.33	18.00	14.93	-12.44	0.00
I-14	1	1	2.62	-0.17	99.21	4.13	-24.56	0.00
		2	3.08	-0.24	116.41	4.78	-28.89	0.00
		3	-0.28	-3.70	102.84	20.26	-19.15	0.00
		4	5.52	3.35	95.57	-11.99	-29.97	0.00
		5	4.45	10.14	122.43	14.96	-35.36	0.00
		6	0.79	-10.49	75.98	-6.70	-13.76	0.00
		7	0.77	-2.89	114.86	16.83	-23.72	0.00
		8	5.16	2.45	109.36	-7.59	-31.90	0.00
		9	4.35	7.59	129.70	12.82	-35.98	0.00
		10	1.58	-8.03	94.52	-3.58	-19.63	0.00
		11	-1.33	-3.63	63.16	18.61	-9.33	0.00
		12	4.47	3.42	55.89	-13.65	-20.14	0.00
		13	3.40	10.21	82.75	13.31	-25.53	0.00
		14	-0.26	-10.42	36.30	-8.35	-3.94	0.00
N-14	1	1	-3.93	-11.45	68.17	-24.55	-24.28	0.00
		2	-4.70	-13.49	80.81	-28.94	-29.45	0.00
		3	-3.04	-12.70	83.65	-38.49	-21.29	0.00

Company: CONSTRUCTORES CALCULISTAS Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE. Bloque 33 04:40:41 p.m. 21/08/2015

Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz
		4	-4.83	-10.20	52.70	-10.61	-27.27	0.00
		5	-1.81	1.43	12.97	-11.17	-19.56	0.00
		6	-6.06	-24.34	123.38	-37.92	-29.00	0.00
		7	-3.84	-13.93	89.37	-38.40	-25.89	0.00
		8	-5.19	-12.03	65.93	-17.29	-30.42	0.00
		9	-2.90	-3.23	35.85	-17.72	-24.58	0.00
		10	-6.12	-22.74	119.45	-37.97	-31.73	0.00
		11	-1.47	-8.12	56.38	-28.67	-11.57	0.00
		12	-3.25	-5.62	25.43	-0.79	-17.56	0.00
		13	-0.23	6.02	-14.30	-1.36	-9.85	0.00
		14	-4.48	-19.76	96.11	-28.10	-19.29	0.00
B-24	1	1	9.10	8.80	63.11	14.14	32.17	0.00
		2	11.15	10.47	75.08	16.78	38.91	0.00
		3	15.17	5.66	69.73	10.23	54.58	0.00
		4	3.04	11.94	56.50	18.05	9.76	0.00
		5	9.54	12.90	91.47	9.52	43.36	0.00
		6	8.67	4.70	34.75	18.77	20.99	0.00
		7	15.23	7.67	77.09	13.16	54.19	0.00
		8	6.05	12.43	67.08	19.08	20.25	0.00
		9	10.97	13.15	93.56	12.62	45.69	0.00
		10	10.31	6.95	50.62	19.63	28.75	0.00
		11	11.53	2.14	44.48	4.58	41.72	0.00
		12	-0.60	8.42	31.25	12.39	-3.11	0.00
		13	5.90	9.38	66.23	3.86	30.49	0.00
		14	5.02	1.18	9.51	13.11	8.12	0.00
N-24	1	1	9.09	-11.35	70.49	-12.71	34.29	0.00
		2	11.13	-13.48	83.83	-15.09	41.42	0.00
		3	15.93	-9.86	72.99	-8.86	57.26	0.00
		4	2.25	-12.84	68.00	-16.56	11.33	0.00
		5	8.45	-7.17	41.60	-17.23	22.68	0.00
		6	9.74	-15.53	99.39	-8.19	45.91	0.00
		7	15.80	-11.82	82.38	-11.58	57.03	0.00
		8	5.45	-14.08	78.61	-17.41	22.25	0.00
		9	10.14	-9.78	58.62	-17.91	30.84	0.00
		10	11.11	-16.12	102.37	-11.07	48.43	0.00
		11	12.30	-5.32	44.79	-3.77	43.54	0.00
		12	-1.38	-8.30	39.80	-11.48	-2.39	0.00
		13	4.81	-2.63	13.40	-12.14	8.96	0.00
		14	6.10	-10.99	71.19	-3.10	32.19	0.00
E-25	1	1	0.00	14.30	71.59	26.71	16.64	0.00
		2	0.00	16.63	83.21	31.05	19.78	0.00
		3	0.00	4.23	20.86	5.72	21.63	0.00
		4	0.00	24.38	122.32	47.70	11.64	0.00
		5	0.00	16.07	71.68	32.16	5.83	0.00
		6	0.00	12.53	71.50	21.26	27.44	0.00
		7	0.00	8.42	41.89	14.07	22.77	0.00
		8	0.00	23.68	118.71	45.86	15.21	0.00
		9	0.00	17.39	80.37	34.09	10.81	0.00
		10	0.00	14.71	80.24	25.84	27.18	0.00
		11	0.00	-1.49	-7.78	-4.97	14.98	0.00
		12	0.00	18.66	93.69	37.02	4.99	0.00
		13	0.00	10.35	43.04	21.48	-0.83	0.00
		14	0.00	6.81	42.87	10.58	20.79	0.00
L-25	1	1	0.00	-14.94	69.73	-27.67	13.37	0.00
		2	0.00	-17.40	81.07	-32.19	15.92	0.00
		3	0.00	-7.94	23.68	-7.65	18.27	0.00
		4	0.00	-21.93	115.78	-47.69	8.48	0.00
		5	0.00	-12.91	69.03	-21.91	24.10	0.00
		6	0.00	-16.96	70.44	-33.43	2.65	0.00
		7	0.00	-11.49	43.37	-15.90	18.99	0.00
		8	0.00	-22.08	113.10	-46.22	11.57	0.00
		9	0.00	-15.25	77.71	-26.70	23.40	0.00
		10	0.00	-18.32	78.77	-35.42	7.16	0.00
		11	0.00	-1.97	-4.21	3.42	12.92	0.00
		12	0.00	-15.95	87.89	-36.62	3.13	0.00
		13	0.00	-6.94	41.14	-10.84	18.75	0.00
		14	0.00	-10.98	42.54	-22.36	-2.70	0.00

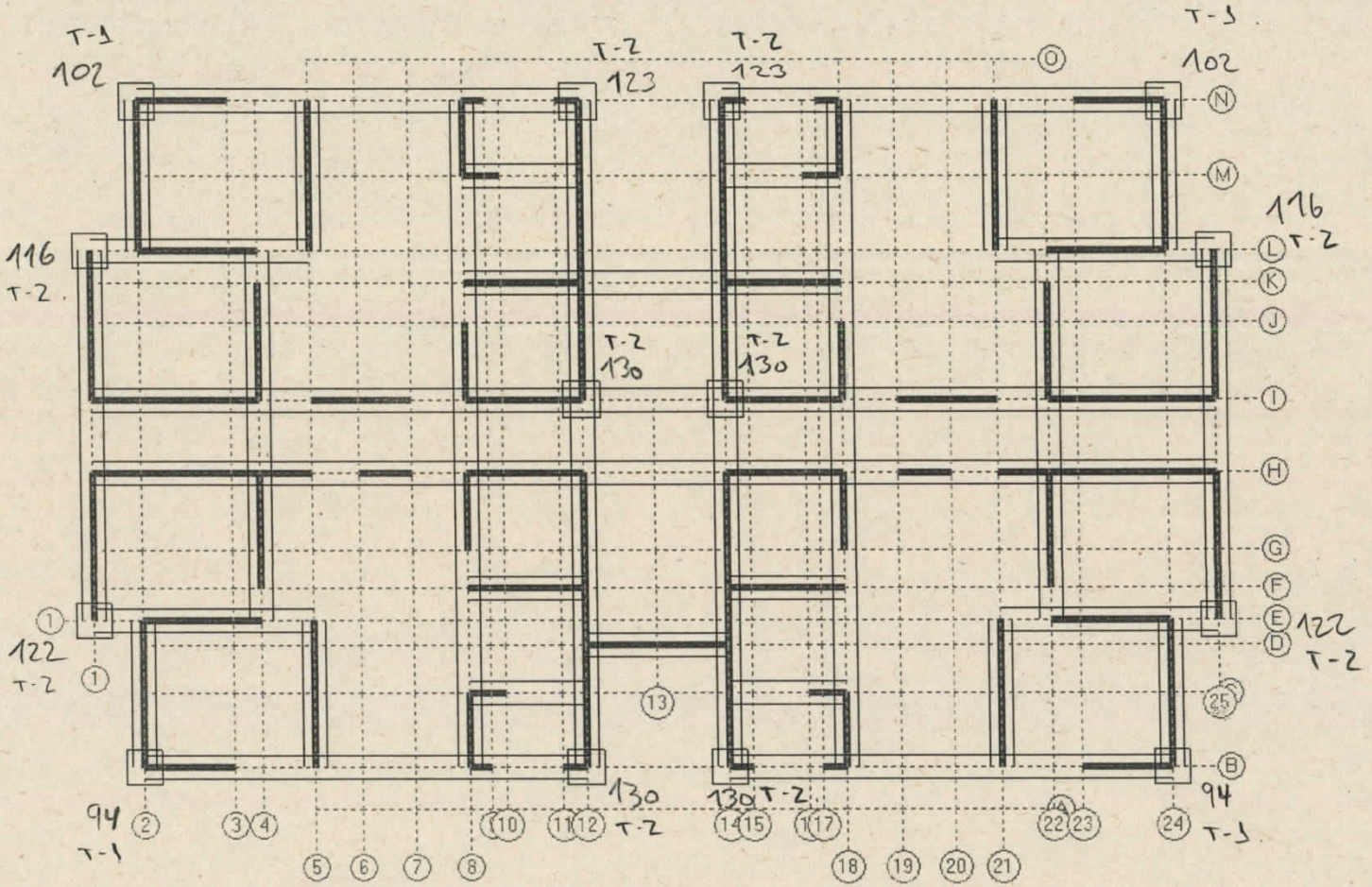
Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Macroproyecto SAN JOSE. Bloque 33
04:40:41 p.m. 21/08/2015

Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz

LOAD COMBINATIONS

No	Load combination
1	D0 + DL
2	D0 + DL + LL
3	D0 + DL + .7EQX
4	D0 + DL - .7EQX
5	D0 + DL + .7EQY
6	D0 + DL - .7EQY
7	D0 + DL + .75LL + .53EQX
8	D0 + DL + .75LL - .53EQX
9	D0 + DL + .75LL + .53EQY
10	D0 + DL + .75LL - .53EQY
11	.6D0 + .6DL + .7EQX
12	.6D0 + .6DL - .7EQX
13	.6D0 + .6DL + .7EQY
14	.6D0 + .6DL - .7EQY

Bloques 33. Macroproyecto SAN JOSE



T-1	0.80	1.60	6.0	111.1
T-2	0.90	1.80	6.0	141.90

Diseño de Cimentación Bloque. 33.

MACRO PROYECTO
CALCULO DE CIMENTACION PROFUNDA CIRCULAR PILAS PREEXCAVADAS

TIPO	PUT	c	fi	df	d	dw	Nc	Nq	Ng	Dia	campa	K	delta	Sigma	Qp	Ql	FS	Qt	Tipos
	ton/m3	ton/m2	grados	m	m	m				m	m		grados	ton/m2	Ton	Ton		Ton	
1	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	0.90	1.80	1	18	4.111	403.04	22.66043	3	141.9	T-2
2	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	0.90	1.80	1	18	4.7545	430.78	30.57542	3	153.8	
3	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	0.90	1.80	1	18	5.398	458.52	39.67276	3	166.1	
4	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	0.90	1.80	1	18	6.0415	486.26	49.95245	3	178.7	
5	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	0.90	1.80	1	18	6.685	514	61.4145	3	191.8	
6	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	0.80	1.60	1	18	4.111	313.25	20.14261	3	111.1	T-1
7	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	0.80	1.60	1	18	4.7545	335.17	27.17815	3	120.8	
8	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	0.80	1.60	1	18	5.398	357.09	35.26467	3	130.8	
9	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	0.80	1.60	1	18	6.0415	379.01	44.40218	3	141.1	
10	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	0.80	1.60	1	18	6.685	400.92	54.59067	3	151.8	
11	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	1.00	2.00	1	18	4.111	505.71	25.17826	3	177	
12	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	1.00	2.00	1	18	4.7545	539.95	33.97269	3	191.3	
13	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	1.00	2.00	1	18	5.398	574.2	44.08084	3	206.1	
14	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	1.00	2.00	1	18	6.0415	608.44	55.50272	3	221.3	
15	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	1.00	2.00	1	18	6.685	642.69	68.23833	3	237.0	
16	1.787	3	27	6.0	2.5	2.5	26.87	13.2	14.47	1.50	2.00	1	18	4.111	505.71	37.76739	3	181.2	
17	1.787	3	27	7.0	3.0	3.0	26.87	13.2	14.47	1.50	2.00	1	18	4.7545	539.95	50.95903	3	197.0	
18	1.787	3	27	8.0	3.5	3.5	26.87	13.2	14.47	1.50	2.00	1	18	5.398	574.2	66.12126	3	213.4	
19	1.787	3	27	9.0	4.0	4.0	26.87	13.2	14.47	1.50	2.00	1	18	6.0415	608.44	83.25408	3	230.6	
20	1.787	3	27	10.0	4.5	4.5	26.87	13.2	14.47	1.50	2.00	1	18	6.685	642.69	102.3575	3	248.3	

↑ longitud ↑ Φf ↑ Φcamp.

Luis Gonzalo

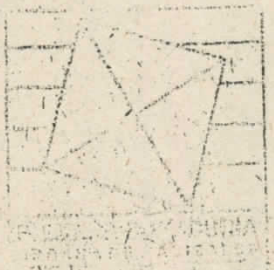
17202-81186, Φcamp = 2.0 ∴ $\sigma = \frac{P}{A}$ = 205.58 Ton/m²

T-4 ΦCamp para 2.10m ∴ P = 930.02 + 68.24 = 998.26 Ton / 3 = 333.

Losa 1 Bloque 7 tipo A

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm²	kgf-cm		cm²
B2	LOSA 10	End-I	-13805.44	Comb2	0.56	27810.01	Comb2	1.13
B2	LOSA 10	Middle	-13805.44	Comb2	0.56	42183.05	Comb2	1.72
B2	LOSA 10	End-J	-55221.78	Comb2	2.13	27610.89	Comb2	1.12
B3	LOSA 10	End-I	-55221.78	Comb2	2.13	27610.89	Comb2	1.12
B3	LOSA 10	Middle	-13805.44	Comb2	0.56	22823.37	Comb2	0.92
B3	LOSA 10	End-J	-25268	Comb2	1.02	13805.44	Comb2	0.56
B4	LOSA 10	End-I	-25268	Comb2	1.02	12634	Comb2	0.51
B4	LOSA 10	Middle	-6317	Comb2	0.25	12600.83	Comb2	0.51
B4	LOSA 10	End-J	-18406.1	Comb2	0.74	9203.05	Comb2	0.37
B5	LOSA 10	End-I	-18406.1	Comb2	0.74	9203.05	Comb2	0.37
B5	LOSA 10	Middle	-6317	Comb2	0.25	12600.83	Comb2	0.51
B5	LOSA 10	End-J	-25268	Comb2	1.02	12634	Comb2	0.51
B6	LOSA 10	End-I	-25268	Comb2	1.02	13805.44	Comb2	0.56
B6	LOSA 10	Middle	-13805.44	Comb2	0.56	22823.37	Comb2	0.92
B6	LOSA 10	End-J	-55221.78	Comb2	2.13	27610.89	Comb2	1.12
B12	LOSA 10	End-I	-55221.78	Comb2	2.13	27610.89	Comb2	1.12
B12	LOSA 10	Middle	-13805.44	Comb2	0.56	42183.05	Comb2	1.72
B12	LOSA 10	End-J	-13805.44	Comb2	0.56	27810.01	Comb2	1.13



Losa 1 Tipo B. Bloque.

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment kgf-cm	(-) Combo	As Top cm²	(+) Moment kgf-cm	(+) Combo	As Bot cm²
B1	LOSA 10	End-I	-17203.33	Comb2	0.69	25035.51	Comb2	1.01
B1	LOSA 10	Middle	-17203.33	Comb2	0.69	36796.51	Comb2	1.5
B1	LOSA 10	End-J	-68813.33	Comb2	2.14	34406.67	Comb2	1.4
B7	LOSA 10	End-I	-68813.33	Comb2	2.14	34406.67	Comb2	1.4
B7	LOSA 10	Middle	-17203.33	Comb2	0.69	48415.95	Comb2	1.99
B7	LOSA 10	End-J	-52213.36	Comb2	2.13	26106.68	Comb2	1.06
B8	LOSA 10	End-I	-52213.36	Comb2	2.13	26106.68	Comb2	1.06
B8	LOSA 10	Middle	-13053.34	Comb2	0.52	13053.34	Comb2	0.52
B8	LOSA 10	End-J	-13053.34	Comb2	0.52	13053.34	Comb2	0.52

losa 2 Bloque tipo A

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm²	kgf-cm		cm²
B1	LOSA 10	End-I	-17278.42	Comb2	0.7	24999.93	Comb2	1.01
B1	LOSA 10	Middle	-17278.42	Comb2	0.7	36725.36	Comb2	1.5
B1	LOSA 10	End-J	-69113.67	Comb2	2.15	34556.83	Comb2	1.41
B7	LOSA 10	End-I	-69113.67	Comb2	2.15	34556.83	Comb2	1.41
B7	LOSA 10	Middle	-17278.42	Comb2	0.7	48695.9	Comb2	2
B7	LOSA 10	End-J	-51125.2	Comb2	2.1	25562.6	Comb2	1.03
B8	LOSA 10	End-I	-51125.2	Comb2	2.1	25562.6	Comb2	1.03
B8	LOSA 10	Middle	-12781.3	Comb2	0.51	12781.3	Comb2	0.51
B8	LOSA 10	End-J	-12781.3	Comb2	0.51	12781.3	Comb2	0.51
B9	LOSA 10	End-I	-12781.3	Comb2	0.51	12781.3	Comb2	0.51
B9	LOSA 10	Middle	-12781.3	Comb2	0.51	12781.3	Comb2	0.51
B9	LOSA 10	End-J	-51125.2	Comb2	2.1	25562.6	Comb2	1.03
B10	LOSA 10	End-I	-51125.2	Comb2	2.1	25562.6	Comb2	1.03
B10	LOSA 10	Middle	-17278.42	Comb2	0.7	48695.9	Comb2	2
B10	LOSA 10	End-J	-69113.67	Comb2	2.15	34556.83	Comb2	1.41
B11	LOSA 10	End-I	-69113.67	Comb2	2.15	34556.83	Comb2	1.41
B11	LOSA 10	Middle	-17278.42	Comb2	0.7	36725.36	Comb2	1.5
B11	LOSA 10	End-J	-17278.42	Comb2	0.7	24999.93	Comb2	1.01

Losa 2 tipo B Bloque

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm²	kgf-cm		cm²
B1	LOSA 10	End-I	-13555.45	Comb2	0.55	27976.68	Comb2	1.13
B1	LOSA 10	Middle	-13555.45	Comb2	0.55	42538.38	Comb2	1.74
B1	LOSA 10	End-J	-54221.8	Comb2	2.13	27110.9	Comb2	1.1
B7	LOSA 10	End-I	-54221.8	Comb2	2.13	27110.9	Comb2	1.1
B7	LOSA 10	Middle	-13555.45	Comb2	0.55	21684.63	Comb2	0.88
B7	LOSA 10	End-J	-29472.59	Comb2	1.2	14736.3	Comb2	0.59
B8	LOSA 10	End-I	-29472.59	Comb2	1.2	14736.3	Comb2	0.59
B8	LOSA 10	Middle	-7368.15	Comb2	0.3	19254.14	Comb2	0.78
B8	LOSA 10	End-J	-7368.15	Comb2	0.3	14232.47	Comb2	0.57

losa 3 tipo A y B

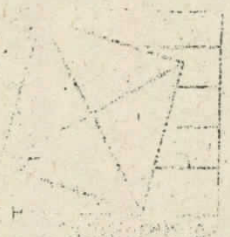
TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm²	kgf-cm		cm²
B1	LOSA 10	End-I	-37961.57	Comb2	1.55	94741.8	Comb2	3
B1	LOSA 10	Middle	-37961.57	Comb2	1.55	140115.75	Comb2	4.58
B1	LOSA 10	End-J	-151846.3	Comb2	5.01	75923.15	Comb2	2.38
B7	LOSA 10	End-I	-151846.3	Comb2	5.01	75923.15	Comb2	2.38
B7	LOSA 10	Middle	-140423.17	Comb2	4.59	37961.57	Comb2	1.55
B7	LOSA 10	End-J	-151846.3	Comb2	5.01	75923.15	Comb2	2.38
B8	LOSA 10	End-I	-151846.3	Comb2	5.01	75923.15	Comb2	2.38
B8	LOSA 10	Middle	-37961.57	Comb2	1.55	140115.75	Comb2	4.58
B8	LOSA 10	End-J	-37961.57	Comb2	1.55	94741.8	Comb2	3

losa 4 tipo A y B

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm²	kgf-cm		cm²
B1	LOSA 10	End-I	0	Comb2	0	0	Comb2	0
B1	LOSA 10	Middle	-14224.28	Comb2	0.57	9617.78	Comb2	0.39
B1	LOSA 10	End-J	-38471.11	Comb2	1.57	19235.56	Comb2	0.78
B7	LOSA 10	End-I	-38471.11	Comb2	1.57	19235.56	Comb2	0.78
B7	LOSA 10	Middle	-9617.78	Comb2	0.39	34015.67	Comb2	1.38
B7	LOSA 10	End-J	-9617.78	Comb2	0.39	22145.97	Comb2	0.89



losa 5 tipo A

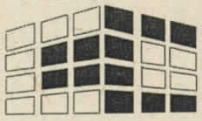
TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			kgf-cm		cm^2	kgf-cm		cm^2
B1	LOSA 10	End-I	-11603.78	Comb2	0.47	20994.52	Comb2	0.85
B1	LOSA 10	Middle	-11603.78	Comb2	0.47	31392.12	Comb2	1.28
B1	LOSA 10	End-J	-46415.14	Comb2	1.9	23207.57	Comb2	0.94
B7	LOSA 10	End-I	-46415.14	Comb2	1.9	23207.57	Comb2	0.94
B7	LOSA 10	Middle	-11603.78	Comb2	0.47	24156.97	Comb2	0.98
B7	LOSA 10	End-J	-19800.21	Comb2	0.8	11603.78	Comb2	0.47
B8	LOSA 10	End-I	-19800.21	Comb2	0.8	9900.11	Comb2	0.4
B8	LOSA 10	Middle	-8377.08	Comb2	0.34	4950.05	Comb2	0.2
B8	LOSA 10	End-J	-19800.21	Comb2	0.8	9900.11	Comb2	0.4
B9	LOSA 10	End-I	-19800.21	Comb2	0.8	11603.78	Comb2	0.47
B9	LOSA 10	Middle	-11603.78	Comb2	0.47	24156.97	Comb2	0.98
B9	LOSA 10	End-J	-46415.14	Comb2	1.9	23207.57	Comb2	0.94
B10	LOSA 10	End-I	-46415.14	Comb2	1.9	23207.57	Comb2	0.94
B10	LOSA 10	Middle	-11603.78	Comb2	0.47	31392.12	Comb2	1.28
B10	LOSA 10	End-J	-11603.78	Comb2	0.47	20994.52	Comb2	0.85

losa 5 tipo B

TABLE: Concrete Beam Flexure Envelope

Label	Section	Location	(-) Moment	(-) Combo	As Top	(+) Moment	(+) Combo	As Bot
			Kgf-cm		cm^2	kgf-cm		cm^2
B7	LOSA 10	End-I	0	Comb1	0	0	Comb1	0
B7	LOSA 10	Middle	-3526.83	Comb2	0.14	7418.62	Comb2	0.3
B7	LOSA 10	End-J	-14107.3	Comb2	0.57	7053.65	Comb2	0.28
B8	LOSA 10	End-I	-14107.3	Comb2	0.57	7053.65	Comb2	0.28
B8	LOSA 10	Middle	-5429.12	Comb2	0.22	11152.84	Comb2	0.45
B8	LOSA 10	End-J	-21716.5	Comb2	0.88	10858.25	Comb2	0.44
B9	LOSA 10	End-I	-21716.5	Comb2	0.88	10858.25	Comb2	0.44
B9	LOSA 10	Middle	-5429.12	Comb2	0.22	15891.11	Comb2	0.64
B9	LOSA 10	End-J	-14996.66	Comb2	0.6	7498.33	Comb2	0.3
B10	LOSA 10	End-I	-14996.66	Comb2	0.6	7498.33	Comb2	0.3
B10	LOSA 10	Middle	-3749.17	Comb2	0.15	3749.17	Comb2	0.15
B10	LOSA 10	End-J	-14988.3	Comb2	0.6	7494.15	Comb2	0.3
B11	LOSA 10	End-I	-14988.3	Comb2	0.6	7494.15	Comb2	0.3
B11	LOSA 10	Middle	-5434.68	Comb2	0.22	15888.36	Comb2	0.64
B11	LOSA 10	End-J	-21738.72	Comb2	0.88	10869.36	Comb2	0.44
B13	LOSA 10	End-I	-21738.72	Comb2	0.88	10869.36	Comb2	0.44
B13	LOSA 10	Middle	-5434.68	Comb2	0.22	11175.22	Comb2	0.45
B13	LOSA 10	End-J	-14022.09	Comb2	0.56	7011.04	Comb2	0.28
B14	LOSA 10	End-I	-14022.09	Comb2	0.56	7011.04	Comb2	0.28
B14	LOSA 10	Middle	-3505.52	Comb2	0.14	7275.15	Comb2	0.29
B14	LOSA 10	End-J	0	Comb1	0	0	Comb2	0



CONSTRUCTORES CALCULISTAS LTDA.

CONSTRUCCIONES, DISEÑOS E INTERVENTORIAS

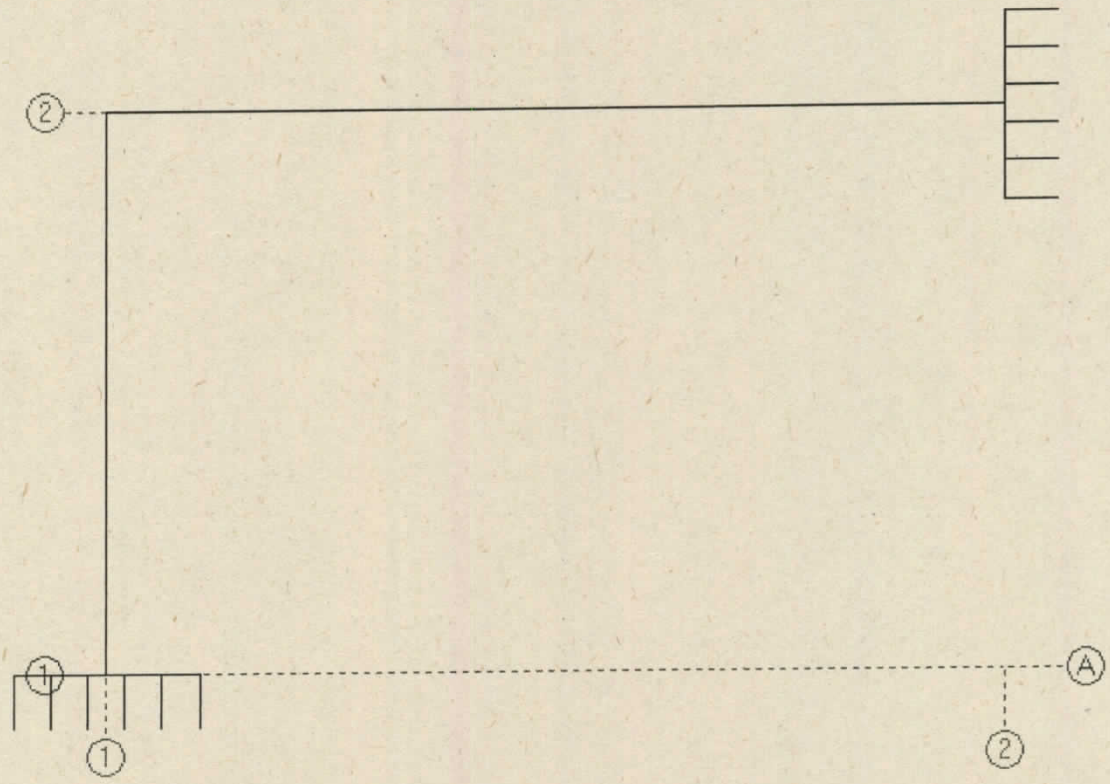
PUENTE DE ACCESO APARTAMENTOS

"Bloque 33"

MANIZALES

MEMORIA DE DISEÑO ESTRUCTURAL

Puente de Acceso Peatonal. Bloque 33



Company: CONSTRUCTORES CALCULISTAS
Engineer: CARLOS ELIAS GUTIERREZ R
Project: Puente peatonal de acceso. Bloque 33
04:54:59 p.m. 20/08/2015

SEISMIC DESIGN CODE: COL NSR-10

SEISMIC BASE LEVEL: 1

SEISMIC FORCE RESISTING SYSTEM

System X-Direction: C: Moment Res.Frame

Energy dissip capacity: 3: Special-DES

EQUIVALENT STATIC EARTHQUAKE FORCES COL NSR-10

Base Shear

$V = Sa\ W$

$Sa = 1.2\ Av\ Fv\ I/\ T$, $Sa = 1.2\ Av\ Fv\ Tl/T^2$ for $T > Tl$

$Sa = 2.5\ Aa\ Fa\ I$ for $T < Tc$, where $Tc = 0.48\ AvFv/AaFa$

SEISMIC PARAMETERS

Eff. peak acceleration & veloc., Aa = .25 Av = .25

Region:	10	9	8	7	6	5	4	3	2	1
Aa or Av	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10	0.05

LOCATION	Aa	Av	Menace
Barranquilla, Cartagena, San Andres, Valledupar	0.10	0.10	Low
Bogota, Medellin	0.15	0.20	Interm
Armenia, Bucaramanga, Cali, Manizalez, Pereira	0.25	0.25	High
Cucuta, Villavicencio	0.35	0.30	High
Quibdo	0.35	0.35	High

Importance coefficient, I ..... = 1.0

GROUP	COEFFICIENT
IV - Essential facilities	1.50
III- Public assistance facilities	1.25
II - Especial occupancy buildings	1.10
I - Normal occupancy buildings	1.00

ite profile type, S ..... = E

TYPE	SOIL PROFILE TYPE	Shear Wave Velocity
A	Hard Rock	> 1500 m/s
B	Rock	1500 - 760 m/s
C	Very Dense Soil & Soft Rock	760 - 360 m/s
D	Stiff Soil Profile	360 - 180 m/s
E	Soft Soil Profile	< 180 m/s
F	Soils requiring site-specific evaluations	

Seismic Force-resisting system = C: Moment
Energy Dissipation Coefficient, Ro = 7

T = 0.1 N ..... = .1
Ta = Ct (Hn)^x ..... = 0.047 H^0.9
= .15
*Tmax: 1.7 Ta ..... = .26 0
*Tmax = Cu Ta
Cu = 1.75 - 1.2 Av Fv >= 1.2

Fundamental period, T ..... = .15

DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS

	Short Periods	Long Period
Effect. peak acceleration & velc.,	Aa = 0.25	Av = 0.25
Site coefficients (Tables below),	Fa = 1.45	Fv = 3.00

Design response parameters, Aa Fa = 0.36 Av Fv= 0.75

Long-period transition period, Tl sec = 7.20 (2.4 Fv)

Site Coefficient Fa

Site Class	Aa<=0.1	Aa=0.2	Aa=0.3	Aa=0.4	Ss>=0.5
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	a	a	a	a	a

Site Coefficient Fv

Site Class	Av<=0.1	Av=0.2	Av=0.3	Av=0.4	Av>=0.5
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	a	a	a	a	a

a: Site-specific geotechnical investigation required

Reduction in R for Irregularity and Lack of Redundancy:

PLAN IRREGULARITIES			ELEVATION IRREGULARITIES	
Type	Description	Øp	Type Description	Øa
1aP	Torsional	0.9	1aA Flexible	0.9
1bP	Torsional Extrme	0.8	1bA Flexible Extrme	0.8
2P	Reentrant corners	0.9	2A Mass	0.9
3P	Diaph. discontin.	0.9	3A Geometrical	0.9
4P	Plane shifting	0.8	4A Plane shifting	0.8
5P	Unparallel grid	0.9	5aA Weak Story	0.9
			5bA Weak Story Extr	0.8

NOTE: EngSolutions RCB assumes irregular but redundant building.
For regular buildings make (Øp . Øa)= 1.0

	X - D I R E C T I O N	Y - D I R E C T I O N
Reduct. factor, (Øp.Øa) =	.9	.9
Redundancy factor, Ør =	1	1

R = (Øp Øa) Ør Ro

T O T A L B A S E S H E A R

Building Weight, W, (ton) = 6.21

Peak Acceleration Coeffi., Fa Aa =	.36
Peak Velocity coefficient, Fv Av =	.75
Transition period, Tc . . . . . =	1
Importance factor, I . . . . . =	1
Site class, S . . . . . =	E
Energ-disspat coeff, R =	6.3
Period, T, (sec) . . . =	.15
1.2 Av Fv I / T =	6
2.5 Aa Fa I =	.9
Sa =	.9

Total Base Shear, V, (ton) = 5.59

Equivalent Forces

$$Fi = (Wi\ Hi^n / \Sigma Wj\ Hj^n)\ V$$
$$V = \Sigma Fi$$
$$V = Sa\ W$$

E Q U I V A L E N T F O R C E S

Floor i -	Height Hi (m)	Weigth Wi (ton)	Wi Hi^n / ΣWj Hj^n	Force Fi (ton)	Shear Vi (ton)
2	3.50	6.21	1.000	5.590	5.59
Σ		6.21		5.590	

n = 1

ACCELERATIONS ON NON-RESISTING ELEMENTS- NSR-10

F L O O R A C C E L E R A T I O N S

Level	hi	hi/heq	ai
2	3.50	1.33	1.200

Seismic base level . . . . . = 1
Height above seismic base, hn . . . . . = 3.50 m
Equivalent height, heq = 0.75 hn . . . . . = 2.63 m
Ground acceleration, As = Aa Fa I . . . . . = 0.360
Spectral acceleration, Sa . . . . . = 0.900

ai = Sa hi/heq for hi > heq
ai = As + (Sa -As) hi/heq for hi < heq

Force on structural non-seismic element : Fp = ai Wp / Ro
Force on nonstructural element : Fp = ai ap Wp / Rp
> 0.5 Aa I Wp

ap : component amplification factor

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente peatonal de acceso. Bloque 33 **06:30:55 p.m. 20/08/2015**
File: C:\RCB\Structures\ERUM\Puente Bloque 33-Erum.rcb

LOAD COMBINATIONS

No	Load combination
1	1.4D0 + 1.4DL
2	1.2D0 + 1.2DL + 1.6LL
3	1.2D0 + 1.2DL + .5LL + EQ
4	1.2D0 + 1.2DL + .5LL - EQ
5	.9D0 + .9DL + EQ
6	.9D0 + .9DL - EQ

MATERIALS

Number of materials = 1

REINFORCED CONCRETE

Mat	Name	f'c Kg/cm2	fy Kg/cm2	fys1 Kg/cm2	fys2 Kg/cm2	E Kg/cm2	G Kg/cm2	w Kg/m3
1	RConcrete1	210	4200	4200	4200	218540	87430	2400.0

COLUMN SECTIONS

Number of prismatic sections = 1

Sec	Name	Shape	b (cm)	h (cm)	tw (cm)	tf (cm)	P1 (cm)	P2 (cm)	A (cm2)	I2 (cm4)	I3 (cm4)	J (cm4)
1	Column1	Rectang	30.00	30.00	-	-	-	-	900.0	67500	67500	99900

Design Results - Columns

Column	Story	L (m)	Lu (m)	Sec Mat	bxh (cm)	TRANSVERSE REINFORCEMENT TIES	TRANSVERSE REINFORCEMENT XTIES	LONGITUDINAL REINFORCEMENT Sec	LdCmb critc	Pu (ton)	Mu2 (ton-m)	Mu3 (ton-m)	RHO -	As (cm2)
A-1	1	3.50	3.33	1	30x30	8 #3 @ 7.5 cm (end)	1 (b)	Top	1	5.13	0.12	1.60	0.0100	9.00
				1		14 #3 @ 15 cm (ctr)	1 (h)	Bot	1	5.13	0.12	0.84	0.0100	9.00

BEAM SECTIONS

Number of prismatic sections = 1

Sec	Name	Shape	b (cm)	h (cm)	tw (cm)	tf (cm)	P1 (cm)	P2 (cm)	A (cm2)	I2 (cm4)	I3 (cm4)	J (cm4)
1	Beam1	Rectang	30.00	35.00	-	-	-	-	1050.0	107187	78750	144900

Design Results - Beams

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente peatonal de acceso. Bloque 33 **06:30:56 p.m. 20/08/2015**

V-P1.

BEAM: A(1-2) FLOOR: 2

Length: L = 5.64 m, Lu = 5.49 m, a = 0.15 m, c = 0.00 m | Section: b = 30.0 cm, h = 35.0 cm | Sec: Beam1 | Mat: RConcrete1

X, m:	0.15	0.70	1.25	1.80	2.35	2.90	3.44	3.99	4.54	5.09	5.64
Mu(-), ton-m:	-2.60	-1.76	-1.76	-1.76	-1.76	-1.76	-1.76	-1.76	-1.76	-3.64	-7.02
Mu(+), ton-m:	1.76	1.76	1.76	2.93	3.47	3.36	2.60	1.76	1.76	1.76	3.51
As(-), cm2:	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.24	6.54
As(+), cm2:	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.12
Vu, ton:	5.43	5.02	4.10	3.18	2.25	2.88	3.81	4.73	5.66	6.58	6.98
Tu, ton-m:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stirrup:	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3	#3
Spacing, cm:	7.50	7.50	15.00	15.00	15.00	15.00	15.00	15.00	15.00	7.50	7.50

DESIGN

A-1 — 11 #3@ 7.5 25 #3@ 15 11 #3@ 7.5 — A-2

Company: CONSTRUCTORES CALCULISTAS **Engineer: CARLOS ELIAS GUTIERREZ R**
Project: Puente peatonal de acceso. Bloque 33 **05:01:24 p.m. 20/08/2015**

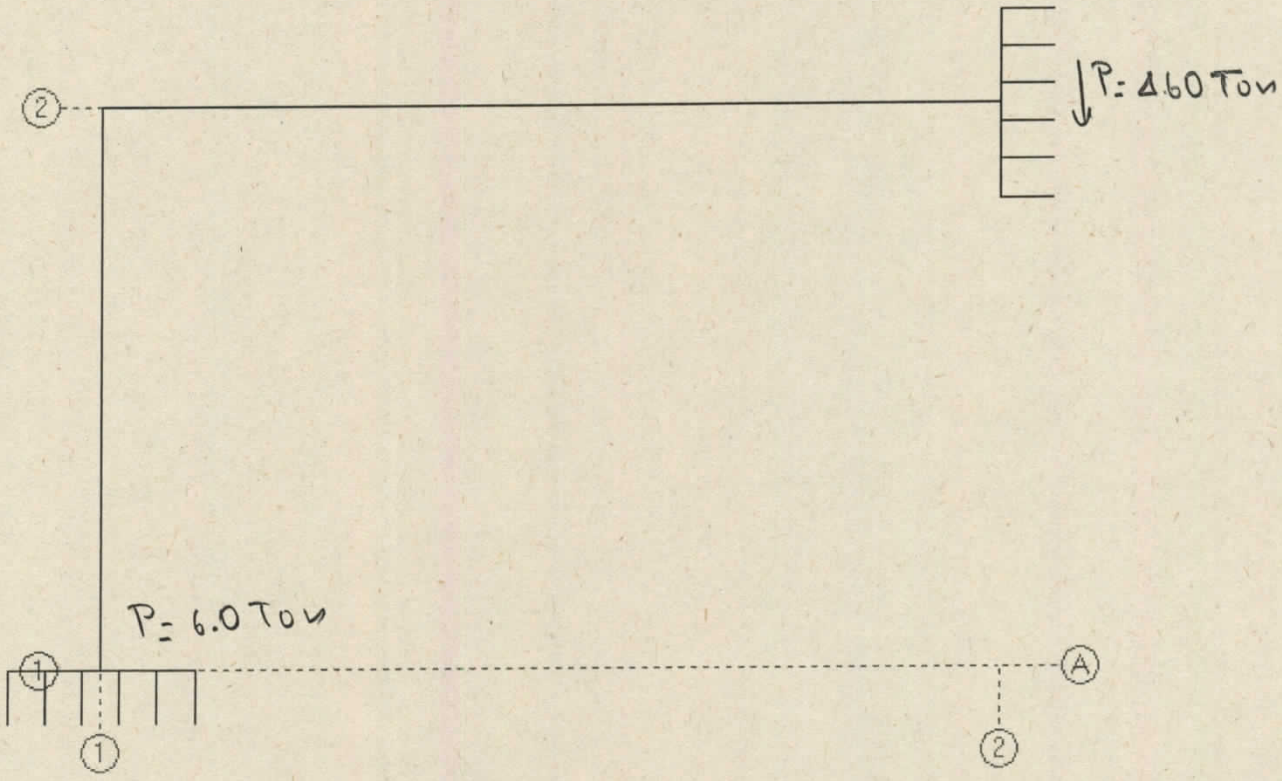
Linear Analysis- Support Reactions

Support		Load	Force (ton)			Moment (ton-m)		
Axis	Floor	LdComb	Fx	Fy	Fz	Mx	My	Mz
A-1	1	1	0.83	0.00	3.86	0.00	0.92	0.00
		2	1.59	0.00	5.92	0.00	1.77	0.00
		3	0.87	0.00	3.87	0.00	1.02	0.00
		4	0.79	0.00	3.85	0.00	0.82	0.00
		5	1.43	0.00	5.41	0.00	1.64	0.00
		6	1.37	0.00	5.40	0.00	1.48	0.00
		7	0.54	0.00	2.32	0.00	0.65	0.00
		8	0.46	0.00	2.30	0.00	0.45	0.00
A-2	2	1	-0.83	0.00	2.35	0.00	2.27	0.00
		2	-1.59	0.00	4.52	0.00	4.35	0.00
		3	3.05	0.00	2.34	0.00	2.25	0.00
		4	-4.70	0.00	2.36	0.00	2.29	0.00
		5	1.54	0.00	3.97	0.00	3.81	0.00
		6	-4.33	0.00	3.98	0.00	3.84	0.00
		7	3.38	0.00	1.40	0.00	1.34	0.00
		8	-4.37	0.00	1.42	0.00	1.38	0.00

LOAD COMBINATIONS

No	Load combination
1	D0 + DL
2	D0 + DL + LL
3	D0 + DL + .7EQ
4	D0 + DL - .7EQ
5	D0 + DL + .75LL + .53EQ
6	D0 + DL + .75LL - .53EQ
7	.6D0 + .6DL + .7EQ
8	.6D0 + .6DL - .7EQ

Diseño Cimientos



20150340
27 AGO. 2015

MODULO 4 WINDOWS
DISEÑO DE ZAPATAS AISLADAS CUADRADAS

FECHA : 2015/08/20

Nombre de la Zapata a Diseñar Zap-1

SOLICITACIONES	
Carga P total de servicio (t)	6
Momento M tot de servicio (t-m)	0
Factor de Mayoración de Cargas	1.5
GEOMETRIA	
Ancho b columna (cm)	30
Altura h col. (paralelo a M) (cm)	30
CONSTANTES DE DISEÑO	
F´c del Concreto (kg/cm2)	210
Fy Acero Princip (kg/cm2)	4200
Recubrimnto d' al Centroide (cm)	5
% P.Propio (zapata+viga amarre)	10
Máx Diámetro Varilla Columna (")	5

DIMENSIONES

Largo de la Zapata L = 0.92 m ⟶ Se hara de 1.20m x 1.20m
Ancho de la Zapata B = L = 0.92 m
Altura o Espesor Mínimo de Zapata = 0.2 m ⟶ 0.25m

ESFUERZOS EN EL SUELO

Esfuerzo Máximo = 7.9 t/m2
Esfuerzo Mínimo = 7.7 t/m2

DISEÑO A CORTANTE

d req por Viga Ancha = 0.1 m
d req por Punzonamiento = 0.07 m
d mínimo por Cortante = 0.1 m

DISEÑO A FLEXION

Mu(dis) {paralelo a b} = 0.52 t-m
Acero Tot As {paralelo a b} = 2.76 cm2
Armadura Sugerida {paralela a b} = 1 # 4 c/ 33.3
Mu(dis) {paralelo a h} = 0.52 t-m
Acero Tot As {paralelo a h} = 2.76 cm2
Armadura Sugerida {paralela a h} = 1 # 4 c/ 33

REVISION DE LA LONGITUD DE ANCLAJE

ldb(1) = (db) Fy / (4 sqr(F´c))= 36.4 cm
ldb(2) = 0.04 (db) Fy = 26.7 cm
Longitud Anclaje Mínima = 36.4 cm
Use Pedestal
Altura Mínima del Pedestal = 0.21 m
Sección Mínima del Pedestal = 0.4 x 0.4 m

PRIMERA CURADURÍA URBANA DE MANIZALES