



PROYECTO

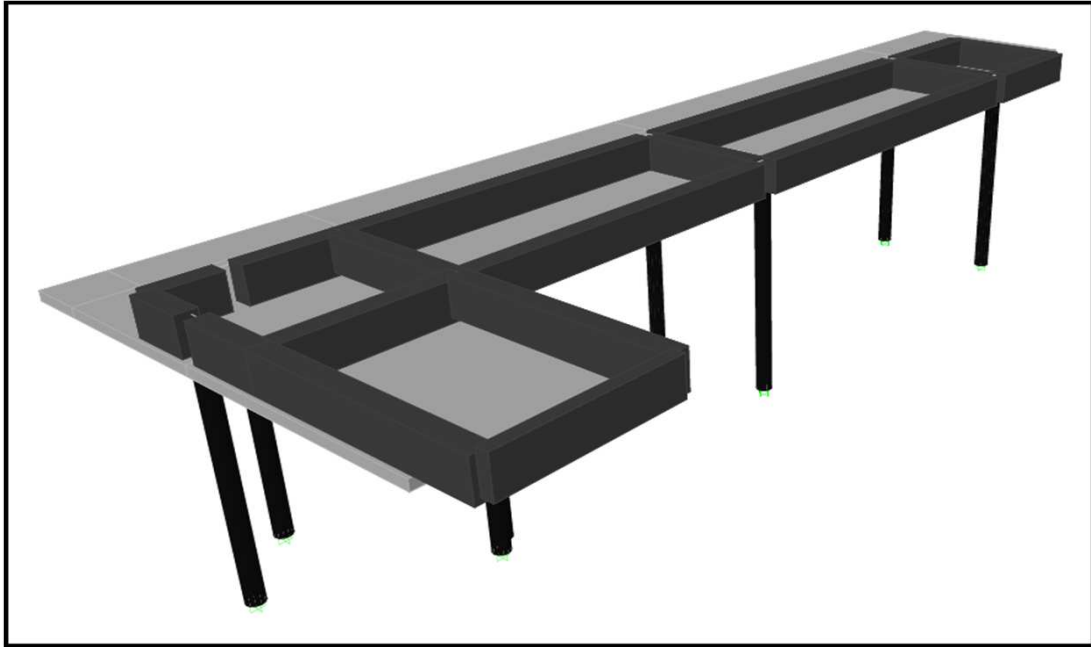
COLEGIO Y TEATRO EL ENSUEÑO

MODULO ESQUINERO

ANALISIS Y DISEÑO ESTRUCTURAL

Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

MEMORIA DE CALCULOS



1.0 DESCRIPCION DE PROYECTO.

El modulo I del colegio es una edificacion con un nivel de losa aligerada soportada en vigas de concreto y columnas metalicas, cimentados en caissons.

2.0 UBICACION

Bogota - Cundinamarca.

3.0 TIPO DE SISTEMA - ESTRUCTURAL

Porticos Mixtos.



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4.0 GEOMETRIA

4.1 NIVELES

N+0.00	Primer piso
N+3.50	Losa segundo piso

4.2 EJES LONGITUDINALES

Variables

4.3 EJES TRANSVERSALES

Variables

4.4 TIPOS DE LOSA

Losa Maciza (H=12cm)

4.5 TIPOS DE CIMENTACION

Caissons

5.0 ESPECIFICACIONES DE MATERIALES

5.1 CONCRETO

$f'c = 28 \text{ Mpa}$	Cimentacion y estructura.
------------------------	---------------------------

5.2 ACERO DE REFUERZO

$F_y = 420 \text{ Mpa}$	$\emptyset \geq 3/8"$
$F_y = 260 \text{ Mpa}$	$\emptyset \leq 1/4"$
$F_y = 420 \text{ Mpa}$	Mallas electrosoldadas

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5.3 ACERO ESTRUCTURAL

Perfiles Laminados y Platinas ASTM A-572 gr50 (Fy=350 Mpa)
 Perfiles Tubulares ASTM A-588 (Fy=350 Mpa)
 Acero de Steel Deck -Lamina Colaborante ASTM A-570 (Fy=232 Mpa)
 Acero de Elementos Formados en Frio (Fy=350 Mpa)
 Uniones:
 Pernos de Anclaje Astm A-307 (Pernos B-7)
 Tornillos de Alta Resistencia ASTM A-325
 Soldaduras E70XX

6.0 RESUMEN DE CARGAS

N+3.50

CM:

638

 kg/m2 CG:

100

 kg/m2
 CV:

200

 kg/m2

7.0 CALCULO DEL COEFICIENTE R

SISTEMA ESTRUCTURAL :
 GRADO DE DISIPACION DE ENERGIA:

R_o:
Ω_o:

IRREGULARIDADES: (ver Anexo)

Planta **Ø_p:**
 Alzada **Ø_a:**
 Redundancia **Ø_r:**

Porticos de concreto	
DMO	
5	
3.0	
1	
1	
0.75	

FACTOR R:

3.75

8.0 PARAMETROS ESTUDIO DE SUELOS

Estudio de suelos realizado por el GRUPO CAÑASGORDAS: Ing. Carlos Julio Echeverry

8.1 ESPECTRO DE DISEÑO

Zona de Amenaza Sísmica:
 Aceleracion Pico Efectiva
 Velocidad Pico Efectiva

Intermedia	
Aa:	0.15
Av:	0.2

8.2 RECOMENDACIONES DE CIMENTACION

Caissons a 17mts.



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9.0 REVISION DE DERIVAS

Deriva Maxima en el Sentido Longitudinal: 0.60% <= 1% **OK!**

Deriva Maxima en el Sentido Transversal: 0.63% <= 1% **OK!**

9.2 UMBRAL DE DAÑO

Deriva Maxima en el Sentido Longitudinal: 0.34% <= 0.40% **OK!**

Deriva Maxima en el Sentido Transversal: 0.37% <= 0.40% **OK!**



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ANEXOS

1. ESQUEMAS DEL MODELO

2. AVALUO DE CARGAS

- 2.1. AVALUO DE CARGAS VERTICALES
- 2.2. ESPECTRO DE DISEÑO
- 2.3. REVISION DE IRREGULARIDADES
- 2.4. COMBINACIONES DE CARGA
- 2.5. AJUSTE DE CORTANTE SISMICA EN LA BASE
- 2.6. RESUMEN DE CARGAS SISMICAS

3. DATOS DE ENTRADA

4. ANALISIS ESTRUCTURAL

5. CHEQUEO DE DERIVAS

6. DISEÑO DE ELEMENTOS ESTRUCTURALES

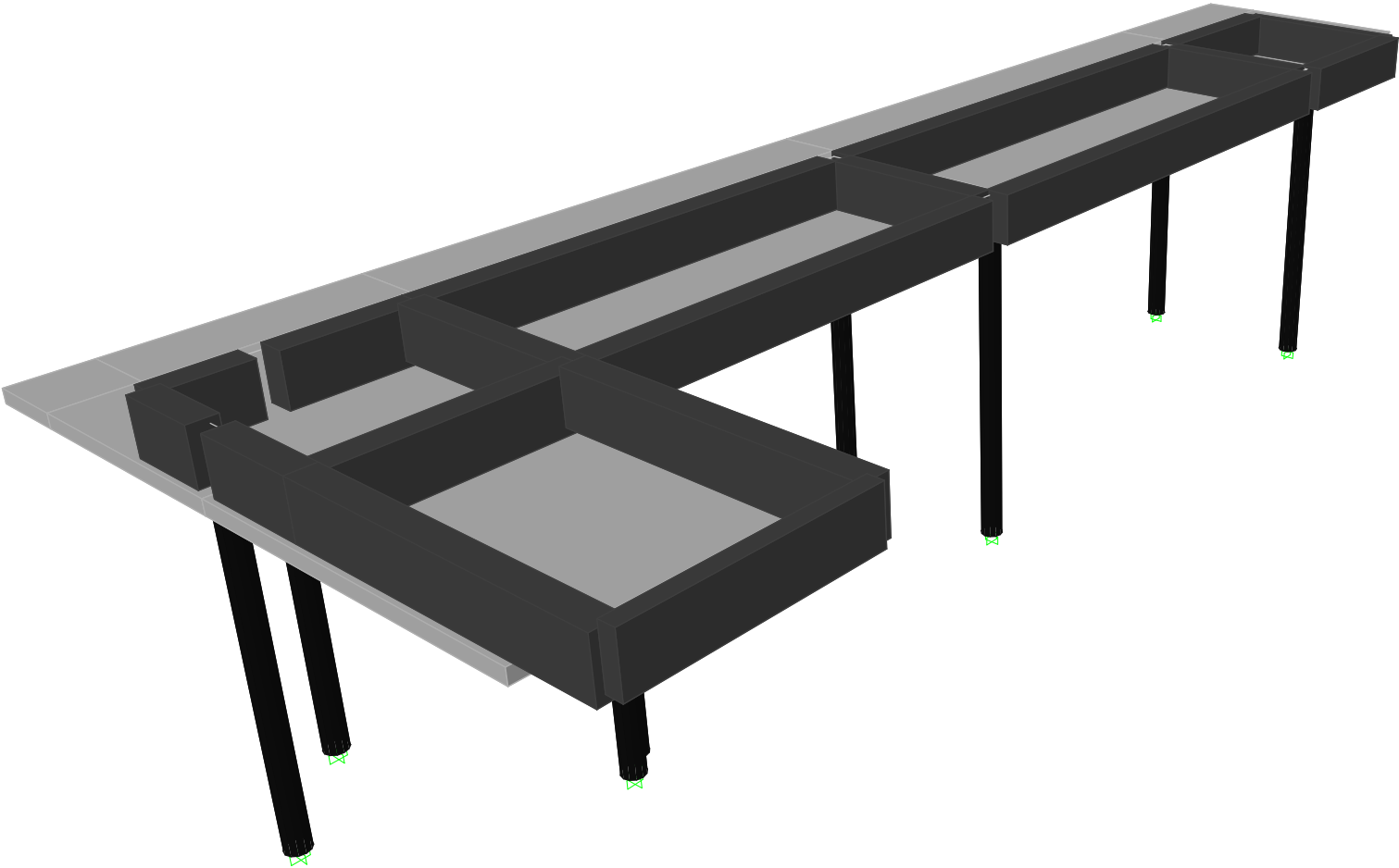
- 6.1. DISEÑO DE COLUMNAS METALICAS
- 6.2. DISEÑO DE VIGAS
- 6.3. CHEQUEO DE CONFINAMIENTO

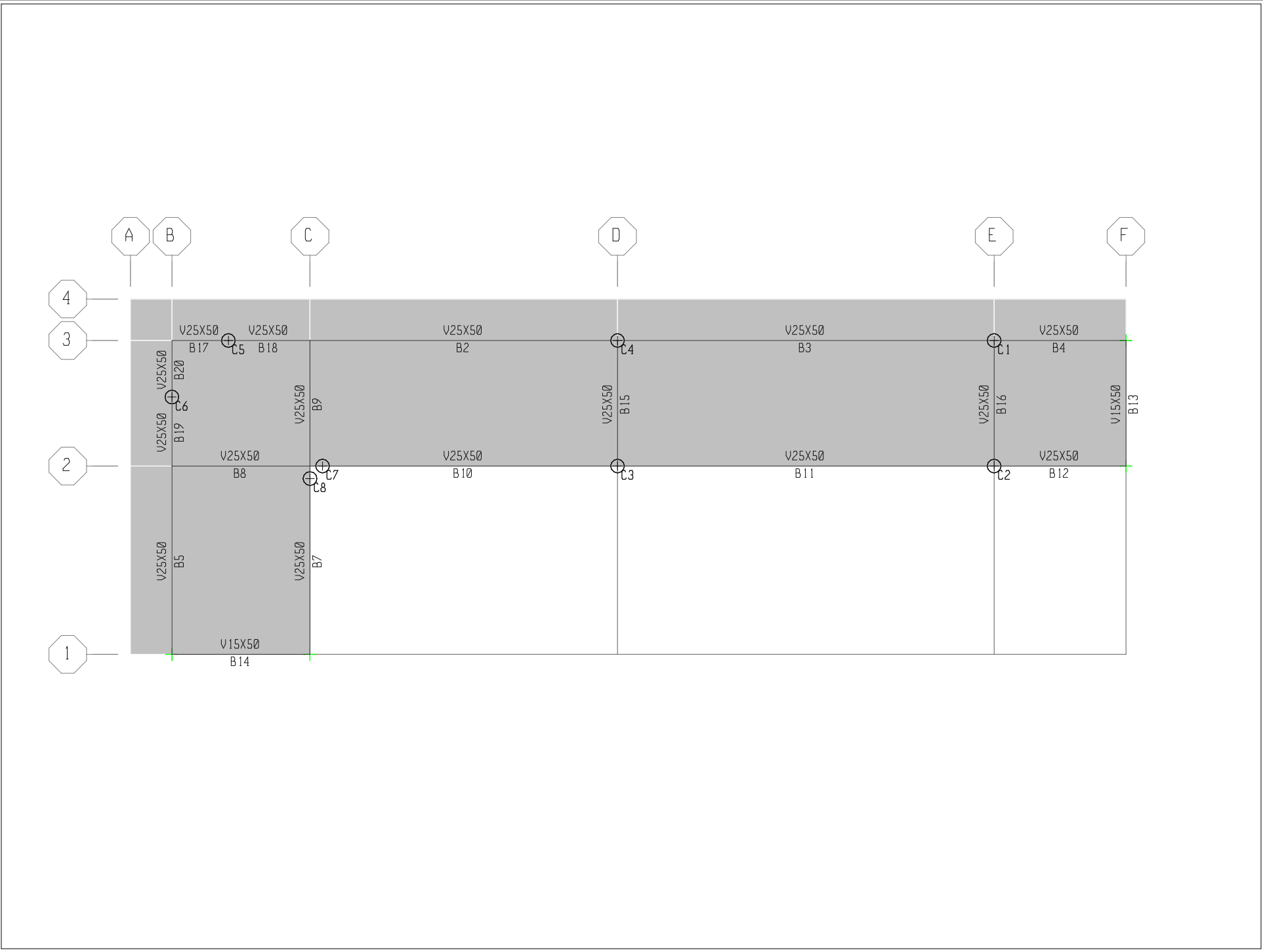
7. REACCIONES DE CIMENTACION

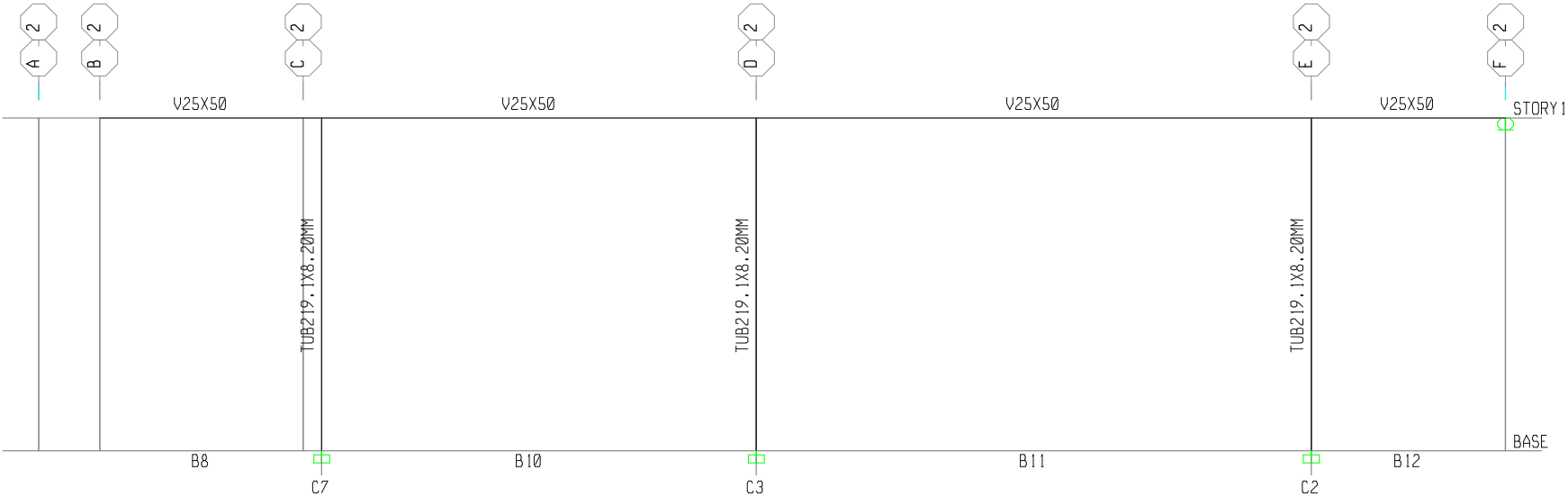


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ANEXO 1 . ESQUEMAS DEL MODELO









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ANEXO 2 . AVALUO DE CARGAS



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ANEXO 2.1. AVALUO DE CARGAS VERTICALES



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AVALUO DE CARGAS LOSA MACIZA NORMA NSR-10

Niveles: N+6.60, N+9.84

CARGAS MUERTAS - REF: CAPITULO B-3

T:	12	Cm	(Espesor de losa)
I:	288	Kg/m²	(Peso propio de la losa)
C:	250	Kg/m²	(Acabados o impermeabilización)
C:	100	Kg/m²	(Divisiones o densidad de muros)
CM:	638	Kg/m²	Total Carga Muerta
	6.38	KN/m²	

CARGAS VIVAS - REF: CAPITULO B-4

CM:	200	Kg/m²	Total Carga Viva
	2.0	KN/m²	

FACTORES DE CARGA

Wu:	1.4D	893.2	Kg/m²
Wu:	1.2D+1.6L	1085.6	Kg/m²
FC:	1.30		



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ANEXO 2.2 ESPECTRO DE DISEÑO

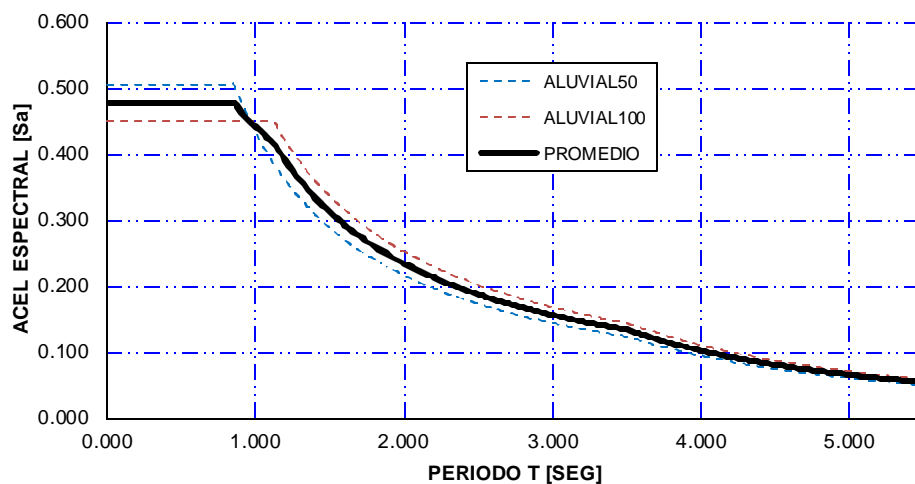


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ESPECTRO DE DISEÑO MICROZONIFICACIÓN SÍSMICA BOGOTA

BOGOTA		ALUVIAL50		ALUVIAL100	
Aa =	0.15	Fa :	1.35	Fa :	1.20
Av =	0.20	Fv :	1.80	Fv :	2.10
		Tc (s):	0.85	Tc (s):	1.12
		TL (s):	3.50	TL (s):	3.50
		Ao (g):	0.20	Ao (g):	0.18
A.6.2.1.2	→	I :	1.00	I :	1.00

ESPECTRO DE DISEÑO



Aceleraciones Espectrales para diferentes Períodos

	T [seg]	Sa [g]
Modo 1:	0.3272	
Modo 2:		
Modo 3:		
Modo 4:		
Modo 5:		
Modo 6:		
Modo 7:		
Modo 8:		
Modo 9:		
Modo 10:		

NOTA: El literal **A.6.2.1.2** permite que al calcular desplazamientos horizontales se use el coeficiente de importancia con un valor igual a la unidad ($I=1.0$).

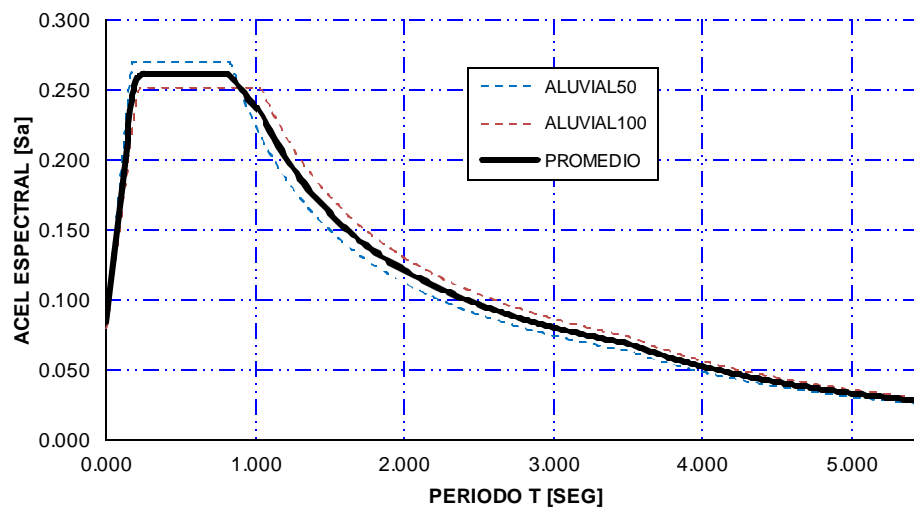


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UMBRAL DE DAÑO MICROZONIFICACIÓN SÍSMICA BOGOTA

BOGOTA		ALUVIAL50	ALUVIAL100
Ae =	0.13	Fa :	1.50
		Fv :	2.50
		Tc (s):	0.83
		TL (s):	3.50
		Ao (g):	0.09
		Fa :	1.40
		Fv :	2.90
		Tc (s):	1.04
		TL (s):	3.50
		Ao (g):	0.08

ESPECTRO PARA UMBRAL DE DAÑO



Aceleraciones Espectrales para diferentes Períodos

	T [seg]	Sa [g]
Modo 1:		
Modo 2:		
Modo 3:		
Modo 4:		
Modo 5:		
Modo 6:		
Modo 7:		
Modo 8:		
Modo 9:		
Modo 10:		



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ANEXO 2.3. REVISION DE IRREGULARIDADES

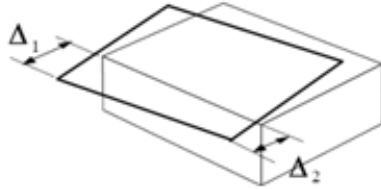


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REVISION DE IRREGULARIDADES NORMA NSR-10

IRREGULARIDADES EN PLANTA, Referencia Tabla A.3-6, Figura A.3-1

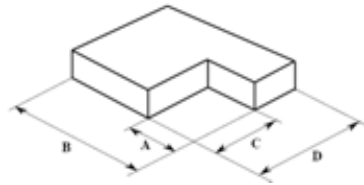
Tipo 1P



Tipo 1aP - Irregularidad Torsional $\phi_p=0.9$
Tipo 1bP - Irregularidad Torsional Extrema $\phi_p=0.8$

Δ_1 : % ϕ_p :
 Δ_2 : %

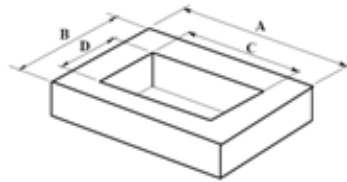
Tipo 2P



Tipo 2P - Retrocesos en las esquinas

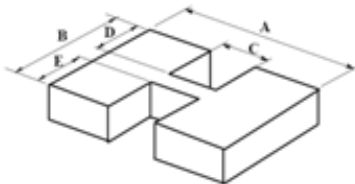
A: m
B: m ϕ_p :
C: m
D: m

Tipo 3P



Tipo 3P - Irregularidad del diafragma

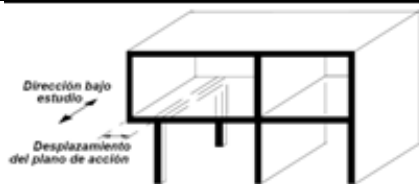
A: m
B: m ϕ_p :
C: m
D: m



Tipo 3P - Irregularidad del diafragma

A: m
B: m ϕ_p :
C: m
D: m
E: m

Tipo 4P



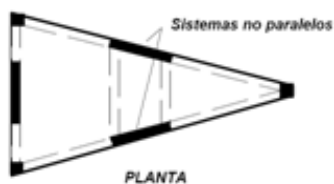
Tipo 4P - Desplazamiento del planos de acción $\phi_p=0.8$

ϕ_p :



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Tipo 5P

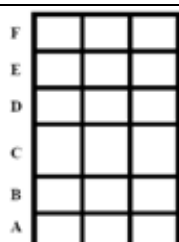


Tipo 5P - Sistemas no paralelos $\phi_p=0.9$

ϕ_p : **1.0**

IRREGULARIDADES EN ALZADA, Referencia Tabla A.3-7, Figura A.3-2

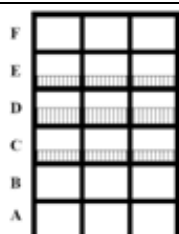
Tipo 1A.



Tipo 1aA - Piso Flexible $\phi_p=0.9$
Tipo 1bA - Piso Flexible Extremo $\phi_p=0.8$

Kc: ϕ_a : **1.0**
KD:
KE:
KF:

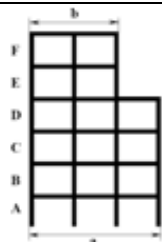
Tipo 2A.



Tipo 2A - Distribucion de Masa $\phi_p=0.9$

Mc: ϕ_a : **1.0**
MD:
ME:

Tipo 3A.



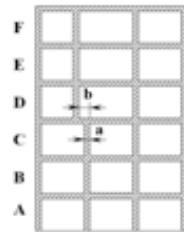
Tipo 3A - Geometrica $\phi_p=0.9$

a: m ϕ_a : **1.0**
b: m



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Tipo 4A.

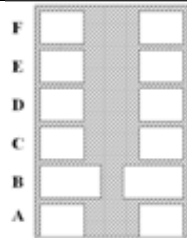


Tipo 4A - Desplazamiento del plano de acción $\phi_a=0.8$

a: m **ϕ_a :**

b: m

Tipo 5A.



Tipo 5aA - Piso Débil $\phi_p=0.9$

Tipo 5bA - Piso débil Extremo $\phi_p=0.8$

RpB: **ϕ_a :**

RpC:

IRREGULARIDAD POR AUSENCIA DE REDUNDANCIA, Referencia A.3.3.8

ϕ_r :

RESUMEN

ϕ_p :

ϕ_a :

ϕ_r :



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ANEXO 2.4. COMBINACIONES DE CARGA



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COMBINACIONES DE CARGA - SISMO NORMA NSR-10

Ro:	5	$R = R_o * \phi_p * \phi_a * \phi_r =$	3.75
ϕ_p:	1	$E = I * (1/R) * SISMO =$	0.333 * SISMO
ϕ_a:	1		
ϕ_r:	0.75		
I:	1.25	$0.3E = I * (1/R) * SISMO * 0.3 =$	0.100 * SISMO

COMBINACIONES DE CARGA - DISEÑO DE ELEMENTOS

COMBO	D	L	SISMOX	SISMOY
C1:	1.4			
C2:	1.2	1.6		
C3:	1.2	1	0.333	0.100
C4:	1.2	1	0.333	-0.100
C5:	1.2	1	-0.333	0.100
C6:	1.2	1	-0.333	-0.100
C7:	1.2	1	0.100	0.333
C8:	1.2	1	0.100	-0.333
C9:	1.2	1	-0.100	0.333
C10:	1.2	1	-0.100	-0.333
C11:	0.9		0.333	0.100
C12:	0.9		0.333	-0.100
C13:	0.9		-0.333	0.100
C14:	0.9		-0.333	-0.100
C15:	0.9		0.100	0.333
C16:	0.9		0.100	-0.333
C17:	0.9		-0.100	0.333
C18:	0.9		-0.100	-0.333

1.4D
1.2D+1.6L
1.2D+1.0L+1.0E
0.9D+1.0E



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COMBINACIONES DE CARGA - CIMENTACION
NORMA NSR-10

Ro:	5	$R = R_o * \phi_p * \phi_a * \phi_r =$	3.75
ϕ_p:	1		
ϕ_a:	1	$0.7E = 0.7 * I * (1/R) * SISMO =$	0.233 *SISMO
ϕ_r:	0.75		
I:	1.25	$0.75 * 0.7E = 0.75 * 0.7 * I * (1/R) * SISMO =$	0.175 *SISMO

COMBINACIONES DE CARGA - DISEÑO DE ELEMENTOS

COMBO	D	L	SISMOX	SISMOY
CIM1:	1			
CIM2:	1	1		
CIM3:	1		0.233	0.070
CIM4:	1		0.070	0.233
CIM5:	1	0.75	0.175	0.053
CIM6:	1	0.75	0.053	0.175
CIM7:	0.6		0.233	0.070
CIM8:	0.6		0.070	0.233

D
D+L
D+0.7E
D+0.75L+0.75(0.7E)
0.6D+0.7E



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RESISTENCIA AL CORTANTE VIGAS
C.21.3.3.1.b - NORMA NSR-10

Ro:	5	$R = R_o * \phi_p * \phi_a * \phi_r =$	3.75
ϕ_p:	1	$2 * E = 2 * I * (1/R) * SISMO =$	0.667 * SISMO
ϕ_a:	1		
ϕ_r:	0.75		
I:	1.25	$2 * 0.3E = 2 * I * (1/R) * SISMO * 0.3 =$	0.200 * SISMO

COMBINACIONES DE CARGA - DISEÑO DE ELEMENTOS

COMBO	D	L	SISMOX	SISMOY
VnV:1	1.2	1	0.667	0.200
VnV:2	1.2	1	0.667	-0.200
VnV:3	1.2	1	-0.667	0.200
VnV:4	1.2	1	-0.667	-0.200
VnV:5	1.2	1	0.200	0.667
VnV:6	1.2	1	0.200	-0.667
VnV:7	1.2	1	-0.200	0.667
VnV:8	1.2	1	-0.200	-0.667
VnV:9	0.9		0.667	0.200
VnV:10	0.9		0.667	-0.200
VnV:11	0.9		-0.667	0.200
VnV:12	0.9		-0.667	-0.200
VnV:13	0.9		0.200	0.667
VnV:14	0.9		0.200	-0.667
VnV:15	0.9		-0.200	0.667
VnV:16	0.9		-0.200	-0.667

1.2D+1.0L+2*E

0.9D+2*E



Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 2.5. AJUSTE DE CORTANTE SISMICA EN LA BASE



Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
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AJUSTE DE CORTANTE SISMICA EN LA BASE

1. Calculo del periodo aproximado según A.4.2.2 $T_a = C_t h^\alpha$

Tabla A.4.2-1
Valor de los parámetros C_t y α para el cálculo del periodo aproximado T_a

Sistema estructural de resistencia sísmica	C_t	α
Pórticos resistentes a momentos de concreto reforzado que resisten la totalidad de las fuerzas sísmicas y que no están limitados o adheridos a componentes más rígidos, estructurales o no estructurales, que limiten los desplazamientos horizontales al verse sometidos a las fuerzas sísmicas.	0.047	0.9
Pórticos resistentes a momentos de acero estructural que resisten la totalidad de las fuerzas sísmicas y que no están limitados o adheridos a componentes más rígidos, estructurales o no estructurales, que limiten los desplazamientos horizontales al verse sometidos a las fuerzas sísmicas.	0.072	0.8
Pórticos arriostrados de acero estructural con diagonales excéntricas restringidas a pandeo.	0.073	0.75
Todos los otros sistemas estructurales basados en muros de rigidez similar o mayor a la de muros de concreto o mampostería	0.049	0.75
Alternativamente, para estructuras que tengan muros estructurales de concreto reforzado o mampostería estructural, pueden emplearse los siguientes parámetros C_t y α , donde C_w se calcula utilizando la ecuación A.4.2-4.	$\frac{0.0062}{\sqrt{C_w}}$	1.00

Ct:	0.047	Coeficiente para el calcular el periodo de la estructura altura en metros, medida desde la base, del piso mas alto del edificio Exponente del periodo aproximado
h:	3.5	
α:	0.9	

Ta: 0.145 Seg

2. Valor de la aceleración espectral (ver anexo Espectro de Diseño)

Sa: 0.478 g

3. Valor del exponente k

k: 1.00 Seg

Valores de entrada - Etabs	Sa:	0.48
	k:	1.00

4. Valor del periodo máximo de la estructura (Análisis Dinámico)

$T < C_u T_a$ T: periodo de la estructura del análisis dinámico

$C_u = 1.75 - 1.2 A_v F_v > 1.2$

Av:	0.2
Fv:	1.95

Cu: 1.28 **CuTa:** 0.19



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T1: 0.3261 Seg Período Fundamental del análisis dinámico (Etabs)
T2: 0.2776 Seg Período Fundamental del análisis dinámico (Etabs)
Sa: 0.478 g

5. Cortantes Sísmicas en la Base

Vu: 24.69 Ton Cortante Basal según FHE (Etabs)
0.8Vu: 19.752 Ton **Edificio Regular**
0.9Vu: 22.221 Ton **Edificio Irregular**

6. Ajuste de resultados (gravedad)

Vux: 24.61 Ton
Vuy: 22.47 Ton

Edificio Regular

gx: 9.80
gy: 9.80

Edificio Irregular

gx: 9.80
gy: 9.80

Story Shears									
Edt View									
Story Shears									
	Story	Load	Loc	P	VX	VY	T	MX	MY
►	STORY1	FHE	Top	-2.52	-24.69	0.00	94.154	-12.180	40.018
	STORY1	FHE	Bottom	-2.52	-24.69	0.00	94.154	-12.180	-40.875
	STORY1	SISMOX	Top	2.57	24.61	0.91	100.220	12.122	47.924
	STORY1	SISMOX	Bottom	2.57	24.61	0.91	100.220	13.946	40.722
	STORY1	SISMOY	Top	2.11	0.91	22.47	165.853	1.239	3.836
	STORY1	SISMOY	Bottom	2.11	0.91	22.47	165.853	79.804	2.830

FUENTE: Modelacion en Etabs



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ANEXO 2.6. RESUMEN DE CARGAS SISMICAS



Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
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FUENTE DE MASA

Tipo de carga	% de participacion
Muerta	100%
Viva	10%


MASA POR PISO

Nivel	Masa (Ton/g)
N+3.60	1.67


FUERZAS SISMICAS POR PISO (Ton, m)

NIVEL	CARGA	P	VX	VY	T	MX	MY
STORY1	FHE	-2.52E+00	-2.47E+01	1.21E-10	9.42E+01	-1.22E+01	-4.09E+01
STORY1	FHEU	-1.38E+00	-1.35E+01	6.59E-11	5.14E+01	-6.65E+00	-2.23E+01
STORY1	SISMOX	2.57E+00	2.46E+01	9.13E-01	1.00E+02	1.40E+01	4.07E+01
STORY1	SISMOY	2.11E+00	9.13E-01	2.25E+01	1.66E+02	7.98E+01	2.93E+00
STORY1	UMBRALX	1.45E+00	1.33E+01	1.46E+00	5.95E+01	1.05E+01	2.20E+01
STORY1	UMBRALY	1.28E+00	1.67E+00	1.22E+01	9.43E+01	4.31E+01	3.33E+00

NOTA: El analisis se hace por el metodo dinamico con el ajuste de cortante en la base.

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 1 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 3. DATOS DE ENTRADA

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
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	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ETABS v9.7.3 File:MODELO1 Units:Ton-m Noviembre 6, 2014 20:20 PAGE 1

S T O R Y D A T A

STORY	SIMILAR TO	HEIGHT	ELEVATION
STORY1	None	3.600	3.600
BASE	None		0.000

ETABS v9.7.3 File:MODELO1 Units:Ton-m Noviembre 6, 2014 20:20 PAGE 2

M A S S S O U R C E D A T A

MASS	LATERAL	LUMP MASS
FROM	MASS ONLY	AT STORIES

Loads	Yes	Yes
-------	-----	-----

M A S S S O U R C E L O A D S

LOAD	MULTIPLIER
------	------------

DEAD	1.0000
LIVE	0.1000

ETABS v9.7.3 File:MODELO1 Units:Ton-m Noviembre 6, 2014 20:20 PAGE 3

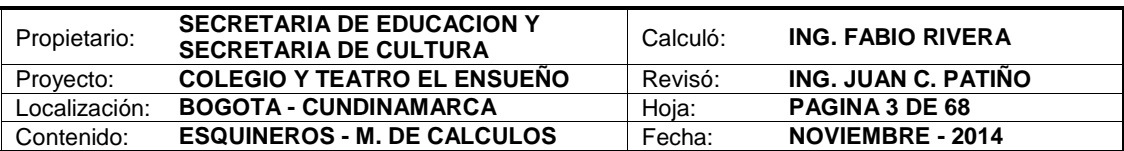
D I A P H R A G M M A S S D A T A

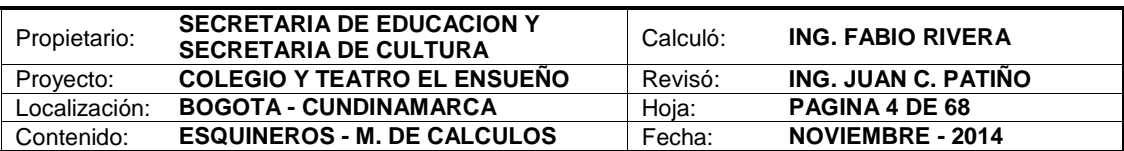
STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
STORY1	LOSA	1.671E+00	1.671E+00	5.034E+01	7.468	3.576

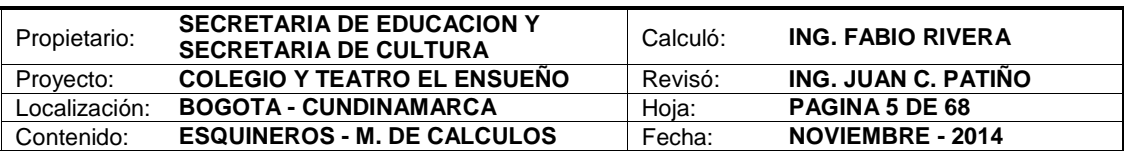
ETABS v9.7.3 File:MODELO1 Units:Ton-m Noviembre 6, 2014 20:20 PAGE 4

A S S E M B L E D P O I N T M A S S E S

STORY	POINT	UX	UY	UZ	RX	RY	RZ
STORY1	1	4.607E-02	4.607E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	2	1.897E-01	1.897E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	31	1.671E+00	1.671E+00	0.000E+00	0.000E+00	0.000E+00	5.034E+01
STORY1	(35)	3.898E-03	3.898E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(36)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(37)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(38)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(39)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(40)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(41)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(42)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(43)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(44)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(45)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(46)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(47)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(48)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(49)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(50)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(51)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(52)	2.051E-03	2.051E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(53)	3.898E-03	3.898E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(54)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(55)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(56)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(57)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(58)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(59)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(60)	4.103E-03	4.103E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00

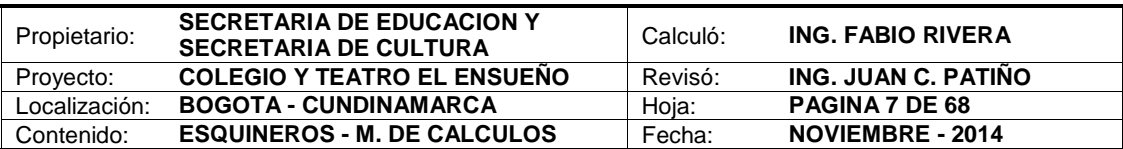
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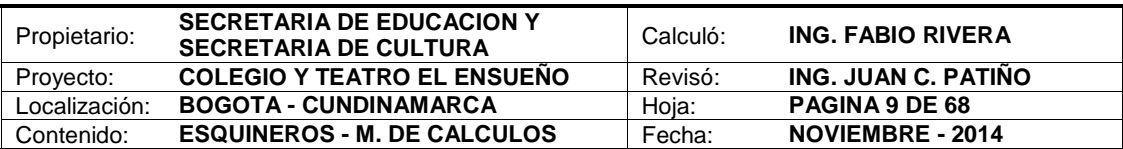
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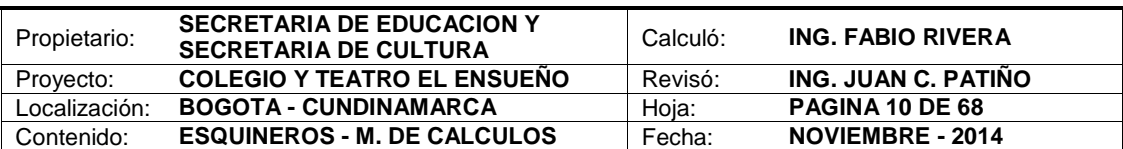
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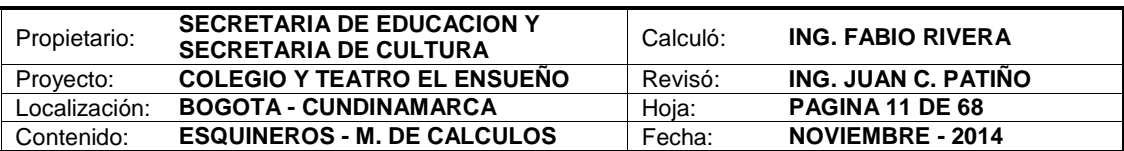
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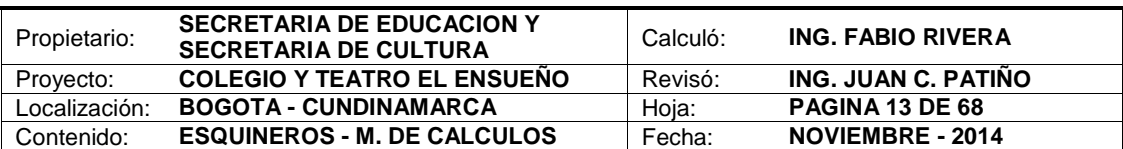
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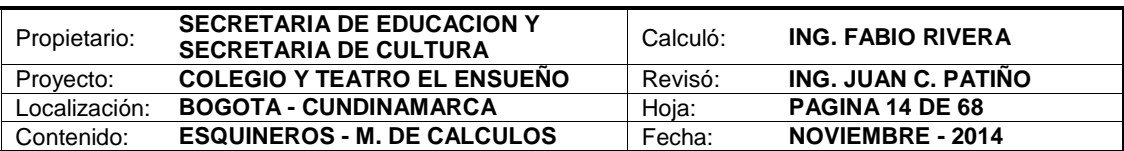
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Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 12 DE 68
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Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 15 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	(889)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(890)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(891)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(892)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(893)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(894)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(895)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(896)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(897)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(898)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(899)	3.200E-03	3.200E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(900)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(901)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(902)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(903)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(904)	1.600E-03	1.600E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(905)	1.643E-03	1.643E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(906)	3.286E-03	3.286E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(907)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(908)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(909)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(910)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(911)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(912)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(913)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(914)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(915)	3.471E-03	3.471E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(916)	3.286E-03	3.286E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(917)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(918)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(919)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(920)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(921)	3.471E-03	3.471E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(922)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(923)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(924)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(925)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(926)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(927)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(928)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(929)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(930)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(931)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(932)	3.286E-03	3.286E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(933)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(934)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(935)	3.323E-03	3.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(936)	3.286E-03	3.286E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(937)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(938)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(939)	1.662E-03	1.662E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(940)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(941)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(942)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(943)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(944)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(945)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(946)	3.249E-03	3.249E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(947)	1.625E-03	1.625E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(948)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(949)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(950)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(951)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(952)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(953)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(954)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(955)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(956)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(957)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 16 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	(958)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(959)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(960)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(961)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(962)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(963)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(964)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(965)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(966)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(967)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(968)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(969)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(970)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(971)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(972)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(973)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(974)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(975)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(976)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(977)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(978)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(979)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(980)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(981)	3.692E-03	3.692E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	(982)	1.846E-03	1.846E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	3	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	4	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	10	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	11	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	22	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	23	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	25	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	26	7.812E-03	7.812E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
STORY1	All	5.268E+00	5.268E+00	0.000E+00	0.000E+00	0.000E+00	5.034E+01
BASE	All	6.249E-02	6.249E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	All	5.330E+00	5.330E+00	0.000E+00	0.000E+00	0.000E+00	5.034E+01

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M A T E R I A L L I S T B Y E L E M E N T T Y P E

ELEMENT TYPE	MATERIAL	TOTAL MASS tons	NUMBER PIECES	NUMBER STUDS
Column	STEEL	1.23	8	
Beam	CONC	13.58	18	0
Floor	CONC	14.64		

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M A T E R I A L L I S T B Y S E C T I O N

SECTION	ELEMENT TYPE	NUMBER PIECES	TOTAL LENGTH meters	TOTAL MASS tons	NUMBER STUDS
V25X50	Beam	16	44.400	12.82	0
V15X50	Beam	2	4.200	0.76	0
TUB219.1X8.	Column	8	28.800	1.23	
SLAB12	Floor			14.64	

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M A T E R I A L L I S T B Y S T O R Y

STORY	ELEMENT TYPE	MATERIAL	TOTAL WEIGHT tons	FLOOR AREA m2	UNIT WEIGHT kg/m2	NUMBER PIECES	NUMBER STUDS
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	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 17 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	Column	STEEL	1.23	50.768	24.1433	8	
STORY1	Beam	CONC	13.58	50.768	267.5075	18	0
STORY1	Floor	CONC	14.64	50.768	288.3600		
SUM	Column	STEEL	1.23	50.768	24.1433	8	
SUM	Beam	CONC	13.58	50.768	267.5075	18	0
SUM	Floor	CONC	14.64	50.768	288.3600		
TOTAL	All	All	29.45	50.768	580.0108	26	0

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M A T E R I A L P R O P E R T Y D A T A

MATERIAL NAME	MATERIAL TYPE	DESIGN TYPE	MATERIAL DIR/PLANE	MODULUS OF ELASTICITY	POISSON'S RATIO	THERMAL COEFF	SHEAR MODULUS
STEEL	Iso	Steel	All	20389020.000	0.3000	1.1700E-05	7841930.769
CONC	Iso	Concrete	All	2180000.000	0.2000	9.9000E-06	908333.333
OTHER	Iso	None	All	20389020.000	0.3000	1.1700E-05	7841930.769

M A T E R I A L P R O P E R T Y M A S S A N D W E I G H T

MATERIAL NAME	MASS PER UNIT VOL	WEIGHT PER UNIT VOL
STEEL	7.9814E-01	7.8334E+00
CONC	2.4480E-01	2.4030E+00
OTHER	7.9814E-01	7.8334E+00

M A T E R I A L D E S I G N D A T A F O R S T E E L M A T E R I A L S

MATERIAL NAME	STEEL FY	STEEL FU	STEEL COST (\$)
STEEL	35153.480	45699.530	27679.91

M A T E R I A L D E S I G N D A T A F O R C O N C R E T E M A T E R I A L S

MATERIAL NAME	LIGHTWEIGHT CONCRETE	CONCRETE FC	REBAR FY	REBAR FYS	LIGHTWT REDUC FACT
CONC	No	2100.000	42000.000	42000.000	N/A


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F R A M E S E C T I O N P R O P E R T Y D A T A

FRAME SECTION NAME	MATERIAL NAME	SECTION SHAPE NAME OR NAME IN SECTION DATABASE FILE	CONC COL	CONC BEAM
C30X70	CONC	Rectangular	Yes	
V30X50	CONC	Rectangular		Yes
V35X50	CONC	Rectangular		Yes
V25X50	CONC	Rectangular		Yes
V15X50	CONC	Rectangular		Yes
TUB273.1X9.30MM	STEEL	Pipe		
TUB219.1X8.20MM	STEEL	Pipe		

F R A M E S E C T I O N P R O P E R T Y D A T A

FRAME SECTION NAME	SECTION DEPTH	FLANGE WIDTH TOP	FLANGE THICK TOP	WEB THICK	FLANGE WIDTH BOT	FLANGE THICK BOT
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	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 18 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

C30X70	0.7000	0.3000	0.0000	0.0000	0.3000	0.0000
V30X50	0.5000	0.3000	0.0000	0.0000	0.3000	0.0000
V35X50	0.5000	0.3500	0.0000	0.0000	0.3500	0.0000
V25X50	0.5000	0.2500	0.0000	0.0000	0.2500	0.0000
V15X50	0.5000	0.1500	0.0000	0.0000	0.1500	0.0000
TUB273.1X9.30MM	0.2731	0.2731	0.0093	0.0093	0.2731	0.0000
TUB219.1X8.20MM	0.2191	0.2191	0.0082	0.0082	0.2191	0.0000

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION AREA	TORSIONAL CONSTANT	MOMENTS OF INERTIA		SHEAR AREAS	
			I33	I22	A2	A3
C30X70	0.2100	0.0046	0.0086	0.0016	0.1750	0.1750
V30X50	0.1500	0.0028	0.0031	0.0011	0.1250	0.1250
V35X50	0.1750	0.0041	0.0036	0.0018	0.1458	0.1458
V25X50	0.1250	0.0018	0.0026	0.0007	0.1042	0.1042
V15X50	0.0750	0.0005	0.0016	0.0001	0.0625	0.0625
TUB273.1X9.30MM	0.0077	0.0001	0.0001	0.0001	0.0041	0.0041
TUB219.1X8.20MM	0.0054	0.0001	0.0000	0.0000	0.0029	0.0029

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION MODULI S33	SECTION MODULI S22	PLASTIC MODULI Z33	PLASTIC MODULI Z22	RADIUS OF GYRATION R33	RADIUS OF GYRATION R22
C30X70	0.0245	0.0105	0.0368	0.0158	0.2021	0.0866
V30X50	0.0125	0.0075	0.0188	0.0113	0.1443	0.0866
V35X50	0.0146	0.0102	0.0219	0.0153	0.1443	0.1010
V25X50	0.0104	0.0052	0.0156	0.0078	0.1443	0.0722
V15X50	0.0063	0.0019	0.0094	0.0028	0.1443	0.0433
TUB273.1X9.30MM	0.0005	0.0005	0.0006	0.0006	0.0933	0.0933
TUB219.1X8.20MM	0.0003	0.0003	0.0004	0.0004	0.0746	0.0746

FRAME SECTION WEIGHTS AND MASSES


FRAME SECTION NAME	TOTAL WEIGHT	TOTAL MASS
C30X70	0.0000	0.0000
V30X50	0.0000	0.0000
V35X50	0.0000	0.0000
V25X50	12.8238	1.3064
V15X50	0.7569	0.0771
TUB273.1X9.30MM	0.0000	0.0000
TUB219.1X8.20MM	1.2257	0.1249

CONCRETE COLUMN DATA

FRAME SECTION NAME	REINF CONFIGURATION		REINF SIZE/TYPE	NUM BARS 3DIR/2DIR	NUM BARS CIRCULAR	BAR COVER
	LONGIT	LATERAL				
C30X70	Rectangular Ties		#9/Design	2/4	N/A	0.0500

CONCRETE BEAM DATA

FRAME SECTION NAME	TOP COVER	BOT COVER	TOP LEFT AREA	TOP RIGHT AREA	BOT LEFT AREA	BOT RIGHT AREA
V30X50	0.0500	0.0500	0.000	0.000	0.000	0.000
V35X50	0.0500	0.0500	0.000	0.000	0.000	0.000
V25X50	0.0500	0.0500	0.000	0.000	0.000	0.000

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 19 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

V15X50 0.0500 0.0500 0.000 0.000 0.000 0.000

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DECK SECTION PROPERTY DATA

DECK SECTION	DECK TYPE	SLAB MATERIAL	DECK MATERIAL	DECK SHEAR THICK	DECK UNIT WT
DECK1	Filled	CONC	N/A	N/A	1.1230E-02
LOSA50	Filled	CONC	N/A	N/A	1.1200E-02
LOSA12	Solid	CONC	N/A	N/A	N/A

DECK SECTION SHEAR STUD DATA

DECK SECTION	STUD DIAM	STUD HEIGHT	STUD FU
DECK1	0.0191	0.1524	45699.530
LOSA50	0.0191	0.1524	45699.530
LOSA12	0.0191	0.1524	45699.530

DECK SECTION GEOMETRY DATA

DECK SECTION	SLAB DEPTH	RIB DEPTH	RIB WIDTH	RIB SPACING
DECK1	0.0889	0.0762	0.1524	0.3048
LOSA50	0.0800	0.4200	0.1200	0.8500
LOSA12	0.1200	N/A	N/A	N/A

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STATIC LOAD CASES

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
DEAD	DEAD	N/A	1.0000		
LIVE	LIVE	N/A	0.0000		
FHE	QUAKE	USER_COEFF	0.0000		
FHEU	QUAKE	USER_COEFF	0.0000		

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RESPONSE SPECTRUM CASES

RESP SPEC CASE: SISMOX


BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	MICROBOG	9.8000
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: SISMOY

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 20 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	MICROBOG	9.8000
UZ	----	N/A

RESP SPEC CASE: UMBRALX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0200	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	UMBMICROBOG	9.8000
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: UMBRALY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0200	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	UMBMICROBOG	11.2500
UZ	----	N/A

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L O A D I N G C O M B I N A T I O N S

COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
C1	ADD	DEAD	Static	1.4000
C2	ADD	DEAD	Static	1.2000
		LIVE	Static	1.6000
C3	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.3330
		SISMOY	Spectra	0.1000




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 21 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

C4	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.3330
		SISMOY	Spectra	-0.1000
C5	ADD	DEAD	Static	1.2000
		SISMOX	Spectra	-0.3330
		SISMOY	Spectra	0.1000
		LIVE	Static	1.0000
C6	ADD	DEAD	Static	1.2000
		SISMOX	Spectra	-0.3330
		SISMOY	Spectra	-0.1000
		LIVE	Static	1.0000
C7	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.1000
		SISMOY	Spectra	0.3330
C8	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	-0.1000
		SISMOY	Spectra	0.3330
C9	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.1000
		SISMOY	Spectra	-0.3330
C10	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISMOX	Spectra	-0.1000
		SISMOY	Spectra	-0.3330
C11	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.3330
		SISMOY	Spectra	0.1000
		DEAD	Static	0.9000
C12	ADD	SISMOX	Spectra	0.3330
		SISMOY	Spectra	-0.1000
		DEAD	Static	0.9000
		SISMOX	Spectra	0.3330
C13	ADD	SISMOY	Spectra	-0.1000
		DEAD	Static	0.9000
		SISMOX	Spectra	-0.3330
		SISMOY	Spectra	0.1000
C14	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.3330
		SISMOY	Spectra	-0.1000
		DEAD	Static	0.9000
C15	ADD	SISMOX	Spectra	0.1000
		SISMOY	Spectra	0.3330
		DEAD	Static	0.9000
		SISMOX	Spectra	0.3330
C16	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.1000
		SISMOY	Spectra	-0.3330
		DEAD	Static	0.9000
C17	ADD	SISMOX	Spectra	-0.1000
		SISMOY	Spectra	0.3330
		DEAD	Static	0.9000
		SISMOX	Spectra	-0.1000
C18	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.1000
		SISMOY	Spectra	-0.3330
		DEAD	Static	0.9000
ENVC	ENVE	C1	Combo	1.0000
		C2	Combo	1.0000
		C3	Combo	1.0000
		C4	Combo	1.0000
		C5	Combo	1.0000
		C6	Combo	1.0000
		C7	Combo	1.0000
		C8	Combo	1.0000
		C9	Combo	1.0000
		C10	Combo	1.0000
		C11	Combo	1.0000
		C12	Combo	1.0000
		C13	Combo	1.0000
		C14	Combo	1.0000
		C15	Combo	1.0000
		C16	Combo	1.0000
		C17	Combo	1.0000




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 22 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

		C18	Combo	1.0000
F1	ADD	DEAD	Static	1.0000
F2	ADD	DEAD	Static	1.0000
		LIVE	Static	1.0000
F3	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.2330
		SISMOY	Spectra	0.0700
F4	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.0700
		SISMOY	Spectra	0.2330
F5	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.1750
		SISMOY	Spectra	0.0530
		LIVE	Static	0.7500
F6	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.0530
		SISMOY	Spectra	0.1750
		LIVE	Static	0.7500
F7	ADD	DEAD	Static	0.6000
		SISMOX	Spectra	0.2330
		SISMOY	Spectra	0.0700
F8	ADD	DEAD	Static	0.6000
		SISMOX	Spectra	0.0700
		SISMOY	Spectra	0.2330
ENVF	ENVE	F1	Combo	1.0000
		F2	Combo	1.0000
		F3	Combo	1.0000
		F4	Combo	1.0000
		F5	Combo	1.0000
		F6	Combo	1.0000
		F7	Combo	1.0000
		F8	Combo	1.0000
VNC1	ADD	DEAD	Static	1.3000
		LIVE	Static	1.0000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	0.3000
VNC2	ADD	DEAD	Static	1.3000
		LIVE	Static	1.0000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	-0.3000
VNC3	ADD	DEAD	Static	1.1000
		LIVE	Static	1.0000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	0.3000
VNC4	ADD	DEAD	Static	1.1000
		LIVE	Static	1.0000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	-0.3000
VNC5	ADD	DEAD	Static	1.3000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	1.0000
VNC6	ADD	DEAD	Static	1.1000
		LIVE	Static	1.0000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	-1.0000
VNC7	ADD	DEAD	Static	1.3000
		LIVE	Static	1.0000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	1.0000
VNC8	ADD	DEAD	Static	1.1000
		LIVE	Static	1.0000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	-1.0000
VNC9	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	0.3000
VNC10	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	1.0000

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 23 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

VNC11	ADD	SISMOY	Spectra	-0.3000
		DEAD	Static	0.8000
VNC12	ADD	SISMOX	Spectra	-1.0000
		SISMOY	Spectra	0.3000
VNC13	ADD	DEAD	Static	0.8000
		SISMOX	Spectra	-1.0000
VNC14	ADD	SISMOY	Spectra	-0.3000
		DEAD	Static	1.0000
VNC15	ADD	SISMOX	Spectra	0.3000
		SISMOY	Spectra	1.0000
VNC16	ADD	DEAD	Static	0.8000
		SISMOX	Spectra	-0.3000
VNV1	ADD	SISMOY	Spectra	-1.0000
		DEAD	Static	1.2000
VNV2	ADD	LIVE	Static	1.0000
		SISMOX	Spectra	0.6670
VNV3	ADD	SISMOY	Spectra	0.2000
		DEAD	Static	1.2000
VNV4	ADD	LIVE	Static	1.0000
		SISMOX	Spectra	-0.2000
VNV5	ADD	SISMOY	Spectra	1.2000
		DEAD	Static	0.2000
VNV6	ADD	LIVE	Static	1.0000
		SISMOX	Spectra	0.6670
VNV7	ADD	SISMOY	Spectra	1.2000
		DEAD	Static	0.2000
VNV8	ADD	LIVE	Static	1.0000
		SISMOX	Spectra	-0.6670
VNV9	ADD	SISMOY	Spectra	0.6670
		DEAD	Static	0.9000
VNV10	ADD	SISMOX	Spectra	0.6670
		SISMOY	Spectra	0.2000
VNV11	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.2000
VNV12	ADD	SISMOY	Spectra	0.9000
		DEAD	Static	0.6670
VNV13	ADD	SISMOX	Spectra	-0.6670
		SISMOY	Spectra	0.2000
VNV14	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.6670
		SISMOY	Spectra	0.2000
		SISMOY	Spectra	-0.6670

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 24 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

VNV15	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.2000
		SISMOY	Spectra	0.6670
VNV16	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.2000
		SISMOY	Spectra	-0.6670
DU1	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	1.0000
		UMBRALY	Spectra	0.3000
DU2	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	1.0000
		UMBRALY	Spectra	-0.3000
DU3	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-1.0000
		UMBRALY	Spectra	0.3000
DU4	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-1.0000
		UMBRALY	Spectra	-0.3000
DU5	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	0.3000
		UMBRALY	Spectra	1.0000
DU6	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	0.3000
		UMBRALY	Spectra	-1.0000
DU7	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-0.3000
		UMBRALY	Spectra	1.0000
DU8	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-0.3000
		UMBRALY	Spectra	-1.0000
D1	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	0.3000
D2	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	-0.3000
D3	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	0.3000
D4	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	-0.3000
D5	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	1.0000
D6	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	-1.0000
D7	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	1.0000
D8	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	-1.0000

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R E S P O N S E S P E C T R U M F U N C T I O N - U S E R

FUNCTION NAME: MICROBOG

PERIOD	ACCEL
0.0000	0.4780
0.0250	0.4780
0.0500	0.4780
0.0750	0.4780
0.1000	0.4780
0.1250	0.4780



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 25 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

0.1500	0.4780
0.1750	0.4780
0.2000	0.4780
0.2250	0.4780
0.2500	0.4780
0.2750	0.4780
0.3000	0.4780
0.3250	0.4780
0.3500	0.4780
0.3750	0.4780
0.4000	0.4780
0.4250	0.4780
0.4500	0.4780
0.4750	0.4780
0.5000	0.4780
0.5250	0.4780
0.5500	0.4780
0.5750	0.4780
0.6500	0.4780
0.6750	0.4780
0.7000	0.4780
0.7250	0.4780
0.7500	0.4780
0.7750	0.4780
0.8000	0.4780
0.8250	0.4780
0.8500	0.4780
0.8750	0.4720
0.9000	0.4650
0.9250	0.4590
0.9500	0.4520
0.9750	0.4470
1.0000	0.4410
1.0250	0.4360
1.0500	0.4310
1.0750	0.4260
1.1000	0.4210
1.1250	0.4160
1.1500	0.4070
1.1750	0.3980
1.2000	0.3900
1.2250	0.3820
1.2500	0.3740
1.2750	0.3670
1.3000	0.3600
1.3250	0.3530
1.3500	0.3470
1.3750	0.3400
1.4000	0.3340
1.4250	0.3280
1.4500	0.3230
1.4750	0.3170
1.5000	0.3120
1.5250	0.3070
1.5500	0.3020
1.5750	0.2970
1.6000	0.2930
1.6250	0.2880
1.6500	0.2840
1.6750	0.2790
1.7000	0.2750
1.7250	0.2710
1.7500	0.2670
1.7750	0.2640
1.8000	0.2600
1.8250	0.2560
1.8500	0.2530
1.8750	0.2500
1.9000	0.2460




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 26 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

1.9250	0.2430
1.9500	0.2400
1.9750	0.2370
2.0000	0.2340
2.0250	0.2310
2.0500	0.2280
2.0750	0.2260
2.1000	0.2230
2.1250	0.2200
2.1500	0.2180
2.1750	0.2150
2.2000	0.2130
2.2250	0.2100
2.2500	0.2080
2.2750	0.2060
2.3000	0.2030
2.3250	0.2010
2.3500	0.1990
2.3750	0.1970
2.4000	0.1950
2.4250	0.1930
2.4500	0.1910
2.4750	0.1890
2.5000	0.1870
2.5250	0.1850
2.5500	0.1840
2.5750	0.1820
2.6000	0.1800
2.6250	0.1780
2.6500	0.1770
2.6750	0.1750
2.7000	0.1730
2.7250	0.1720
2.7500	0.1700
2.7750	0.1690
2.8000	0.1670
2.8250	0.1660
2.8500	0.1640
2.8750	0.1630
2.9000	0.1610
2.9250	0.1600
2.9500	0.1590
2.9750	0.1570
3.0000	0.1560
3.0250	0.1550
3.0500	0.1530
3.0750	0.1520
3.1000	0.1510
3.1250	0.1500
3.1500	0.1490
3.1750	0.1470
3.2000	0.1460
3.2250	0.1450
3.2500	0.1440
3.2750	0.1430
3.3000	0.1420
3.3250	0.1410
3.3500	0.1400
3.3750	0.1390
3.4000	0.1380
3.4250	0.1370
3.4500	0.1360
3.4750	0.1350
3.5000	0.1340
3.5250	0.1320
3.5500	0.1300
3.5750	0.1280
3.6000	0.1260
3.6250	0.1250



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 27 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

3.6500	0.1230
3.6750	0.1210
3.7000	0.1200
3.7250	0.1180
3.7500	0.1160
3.7750	0.1150
3.8000	0.1130
3.8250	0.1120
3.8500	0.1110
3.8750	0.1090
3.9000	0.1080
3.9250	0.1060
3.9500	0.1050
3.9750	0.1040
4.0000	0.1020
4.0250	0.1010
4.0500	0.1000
4.0750	0.0990
4.1000	0.0970
4.1250	0.0960
4.1500	0.0950
4.1750	0.0940
4.2000	0.0930
4.2250	0.0920
4.2500	0.0910
4.2750	0.0900
4.3000	0.0890
4.3250	0.0880
4.3500	0.0870
4.3750	0.0860
4.4000	0.0850
4.4250	0.0840
4.4500	0.0830
4.4750	0.0820
4.5000	0.0810
4.5250	0.0800
4.5500	0.0790
4.5750	0.0780
4.6000	0.0770
4.6250	0.0770
4.6500	0.0760
4.6750	0.0750
4.7000	0.0740
4.7250	0.0730
4.7500	0.0730
4.7750	0.0720
4.8000	0.0710
4.8250	0.0700
4.8500	0.0700
4.8750	0.0690
4.9000	0.0680
4.9250	0.0680
4.9500	0.0670
4.9750	0.0660
5.0000	0.0660
5.0250	0.0650
5.0500	0.0640
5.0750	0.0640
5.1000	0.0630
5.1250	0.0620
5.1500	0.0620
5.1750	0.0610
5.2000	0.0610
5.2250	0.0600
5.2500	0.0590
5.2750	0.0590
5.3000	0.0580
5.3250	0.0580
5.3500	0.0570

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 28 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

5.3750	0.0570
5.4000	0.0560
5.4250	0.0560
5.4500	0.0550
5.4750	0.0550
5.5000	0.0540

FUNCTION NAME: UMBMICROBOG

PERIOD	ACCEL
0.0000	0.2610
0.0250	0.2610
0.0500	0.2610
0.0750	0.2610
0.1000	0.2610
0.1250	0.2610
0.1500	0.2610
0.1750	0.2610
0.2000	0.2610
0.2250	0.2610
0.2500	0.2610
0.2750	0.2610
0.3000	0.2610
0.3250	0.2610
0.3500	0.2610
0.3750	0.2610
0.4000	0.2610
0.4250	0.2610
0.4500	0.2610
0.4750	0.2610
0.5000	0.2610
0.5250	0.2610
0.5500	0.2610
0.5750	0.2610
0.6000	0.2610
0.6250	0.2610
0.6500	0.2610
0.6750	0.2610
0.7000	0.2610
0.7250	0.2610
0.7500	0.2610
0.7750	0.2610
0.8000	0.2610
0.8250	0.2610
0.8500	0.2580
0.8750	0.2550
0.9000	0.2510
0.9250	0.2480
0.9500	0.2440
0.9750	0.2410
1.0000	0.2390
1.0250	0.2360
1.0500	0.2310
1.0750	0.2260
1.1000	0.2210
1.1250	0.2160
1.1500	0.2110
1.1750	0.2070
1.2000	0.2030
1.2250	0.1980
1.2500	0.1940
1.2750	0.1910
1.3000	0.1870
1.3250	0.1830
1.3500	0.1800
1.3750	0.1770
1.4000	0.1740



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 29 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

1.4250	0.1710
1.4500	0.1680
1.4750	0.1650
1.5000	0.1620
1.5250	0.1590
1.5500	0.1570
1.5750	0.1540
1.6000	0.1520
1.6250	0.1500
1.6500	0.1470
1.6750	0.1450
1.7000	0.1430
1.7250	0.1410
1.7500	0.1390
1.7750	0.1370
1.8000	0.1350
1.8250	0.1330
1.8500	0.1310
1.8750	0.1300
1.9000	0.1280
1.9250	0.1260
1.9500	0.1250
1.9750	0.1230
2.0000	0.1220
2.0250	0.1200
2.0500	0.1190
2.0750	0.1170
2.1000	0.1160
2.1250	0.1140
2.1500	0.1130
2.1750	0.1120
2.2000	0.1100
2.2250	0.1090
2.2500	0.1080
2.2750	0.1070
2.3000	0.1060
2.3250	0.1050
2.3500	0.1030
2.3750	0.1020
2.4000	0.1010
2.4250	0.1000
2.4500	0.0990
2.4750	0.0980
2.5000	0.0970
2.5250	0.0960
2.5500	0.0950
2.5750	0.0940
2.6000	0.0930
2.6250	0.0930
2.6500	0.0920
2.6750	0.0910
2.7000	0.0900
2.7250	0.0890
2.7500	0.0880
2.7750	0.0880
2.8000	0.0870
2.8250	0.0860
2.8500	0.0850
2.8750	0.0850
2.9000	0.0840
2.9250	0.0830
2.9500	0.0820
2.9750	0.0820
3.0000	0.0810
3.0250	0.0800
3.0500	0.0800
3.0750	0.0790
3.1000	0.0780
3.1250	0.0780




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 30 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

3.1500	0.0770
3.1750	0.0770
3.2000	0.0760
3.2250	0.0750
3.2500	0.0750
3.2750	0.0740
3.3000	0.0740
3.3250	0.0730
3.3500	0.0730
3.3750	0.0720
3.4000	0.0710
3.4250	0.0710
3.4500	0.0700
3.4750	0.0700
3.5000	0.0690
3.5250	0.0680
3.5500	0.0670
3.5750	0.0670
3.6000	0.0660
3.6250	0.0650
3.6500	0.0640
3.6750	0.0630
3.7000	0.0620
3.7250	0.0610
3.7500	0.0600
3.7750	0.0600
3.8000	0.0590
3.8250	0.0580
3.8500	0.0570
3.8750	0.0570
3.9000	0.0560
3.9250	0.0550
3.9500	0.0550
3.9750	0.0540
4.0000	0.0530
4.0250	0.0520
4.0500	0.0520
4.0750	0.0510
4.1000	0.0510
4.1250	0.0500
4.1500	0.0490
4.1750	0.0490
4.2000	0.0480
4.2250	0.0480
4.2500	0.0470
4.2750	0.0470
4.3000	0.0460
4.3250	0.0450
4.3500	0.0450
4.3750	0.0440
4.4000	0.0440
4.4250	0.0430
4.4500	0.0430
4.4750	0.0420
4.5000	0.0420
4.5250	0.0420
4.5500	0.0410
4.5750	0.0410
4.6000	0.0400
4.6250	0.0400
4.6500	0.0390
4.6750	0.0390
4.7000	0.0390
4.7250	0.0380
4.7500	0.0380
4.7750	0.0370
4.8000	0.0370
4.8250	0.0370
4.8500	0.0360




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 31 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

4.8750	0.0360
4.9000	0.0350
4.9250	0.0350
4.9500	0.0350
4.9750	0.0340
5.0000	0.0340
5.0250	0.0340
5.0500	0.0330
5.0750	0.0330
5.1000	0.0330
5.1250	0.0320
5.1500	0.0320
5.1750	0.0320
5.2000	0.0310
5.2250	0.0310
5.2500	0.0310
5.2750	0.0310
5.3000	0.0300
5.3250	0.0300
5.3500	0.0300
5.3750	0.0290
5.4000	0.0290
5.4250	0.0290
5.4500	0.0290
5.4750	0.0280
5.5000	0.0280

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 32 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 4. ANALISIS ESTRUCTURAL

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 33 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

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PROJECT INFORMATION

Company Name = Solarte y Cia Ingenieros Calculistas

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S T O R Y D A T A

STORY	SIMILAR TO	HEIGHT	ELEVATION
STORY1	None	3.600	3.600
BASE	None		0.000

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S T A T I C L O A D C A S E S

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
DEAD	DEAD	N/A	1.0000		
LIVE	LIVE	N/A	0.0000		
FHE	QUAKE	USER_COEFF	0.0000		
FHEU	QUAKE	USER_COEFF	0.0000		

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R E S P O N S E S P E C T R U M C A S E S

RESP SPEC CASE: SISMOX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	MICROBOG	9.8000
U2	----	N/A
UZ	----	N/A


RESP SPEC CASE: SISMOY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0500	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	MICROBOG	9.8000
UZ	----	N/A

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 34 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

RESP SPEC CASE: UMBRALX

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0200	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	UMBMICROBOG	9.8000
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: UMBRALY

BASIC RESPONSE SPECTRUM DATA

MODAL COMBO	DIRECTION COMBO	MODAL DAMPING	SPECTRUM ANGLE	TYPICAL ECCEN
CQC	SRSS	0.0200	0.0000	0.0500

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	UMBMICROBOG	11.2500
UZ	----	N/A

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AUTO SEISMIC USER COEFFICIENT
Case: FHE

AUTO SEISMIC INPUT DATA

Direction: X
Typical Eccentricity = 5%
Eccentricity Overrides: No

Top Story: STORY1
Bottom Story: BASE

C = 0.478
K = 1


AUTO SEISMIC CALCULATION FORMULAS

$V = C W$

AUTO SEISMIC CALCULATION RESULTS

W Used = 51.66

V Used = $0.4780W = 24.69$

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 35 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
STORY1	24.69	0.00	0.00	0.000	0.000	-5.865

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A U T O S E I S M I C U S E R C O E F F I C I E N T
Case: FHEU

AUTO SEISMIC INPUT DATA

Direction: X
Typical Eccentricity = 5%
Eccentricity Overrides: No

Period Calculation: Program Calculated
Ct = 0.035 (in feet units)

Top Story: STORY1
Bottom Story: BASE

C = 0.261
K = 1

AUTO SEISMIC CALCULATION FORMULAS

$V = C W$

AUTO SEISMIC CALCULATION RESULTS

W Used = 51.66

V Used = $0.261W = 13.48$

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
STORY1	13.48	0.00	0.00	0.000	0.000	-3.203

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M A S S S O U R C E D A T A

MASS	LATERAL	LUMP MASS
FROM	MASS ONLY	AT STORIES

Loads	Yes	Yes
-------	-----	-----

M A S S S O U R C E L O A D S


LOAD	MULTIPLIER
------	------------

DEAD	1.0000
LIVE	0.1000

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D I A P H R A G M M A S S D A T A

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
-------	-----------	--------	--------	-----	-----	-----

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 36 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1 LOSA 1.671E+00 1.671E+00 5.034E+01 7.468 3.576

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A S S E M B L E D P O I N T M A S S E S

STORY	UX	UY	UZ	RX	RY	RZ
STORY1	5.268E+00	5.268E+00	0.000E+00	0.000E+00	0.000E+00	5.034E+01
BASE	6.249E-02	6.249E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	5.330E+00	5.330E+00	0.000E+00	0.000E+00	0.000E+00	5.034E+01

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C E N T E R S O F C U M U L A T I V E M A S S & C E N T E R S O F R I G I D I T Y

STORY	DIAPHRAGM	/-----CENTER OF MASS-----//		--CENTER OF RIGIDITY--/	
LEVEL	NAME	MASS	ORDINATE-X	ORDINATE-Y	ORDINATE-X
STORY1	LOSA	1.671E+00	7.468	3.576	6.480

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M O D A L P E R I O D S A N D F R E Q U E N C I E S

MODE	PERIOD	FREQUENCY	CIRCULAR FREQ
NUMBER	(TIME)	(CYCLES/TIME)	(RADIAN/TIME)
Mode 1	0.44156	2.26469	14.22945
Mode 2	0.42125	2.37387	14.91548
Mode 3	0.41010	2.43842	15.32102
Mode 4	0.00970	103.11400	647.88436
Mode 5	0.00786	127.28539	799.75770
Mode 6	0.00548	182.54768	1146.98087
Mode 7	0.00511	195.87124	1230.69531
Mode 8	0.00499	200.34702	1258.81746
Mode 9	0.00485	206.01834	1294.45139
Mode 10	0.00392	255.00642	1602.25258
Mode 11	0.00388	257.87805	1620.29556
Mode 12	0.00358	279.51902	1756.26981

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M O D A L P A R T I C I P A T I N G M A S S R A T I O S

MODE	X-TRANS	Y-TRANS	Z-TRANS	RX-ROTN	RY-ROTN	RZ-ROTN
NUMBER	%MASS <SUM>	%MASS <SUM>	%MASS <SUM>	%MASS <SUM>	%MASS <SUM>	%MASS <SUM>
Mode 1	0.80 < 1>	42.33 < 42>	0.00 < 0>	42.33 < 42>	0.80 < 1>	56.97 < 57>
Mode 2	97.34 < 98>	2.61 < 45>	0.00 < 0>	2.61 < 45>	97.34 < 98>	0.05 < 57>
Mode 3	1.86 <100>	55.06 <100>	0.00 < 0>	55.06 <100>	1.86 <100>	42.98 <100>
Mode 4	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 5	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 6	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 7	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 8	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 9	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 10	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 11	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>
Mode 12	0.00 <100>	0.00 <100>	0.00 < 0>	0.00 <100>	0.00 <100>	0.00 <100>

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M O D A L L O A D P A R T I C I P A T I O N R A T I O S
(STATIC AND DYNAMIC RATIOS ARE IN PERCENT)

TYPE	NAME	STATIC	DYNAMIC
Load	DEAD	0.0608	1.6850

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 37 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

Load	LIVE	0.0761	0.8759
Load	FHE	100.0000	100.0000
Load	FHEU	100.0000	100.0000
Accel	UX	100.0000	100.0000
Accel	UY	100.0000	100.0000
Accel	UZ	0.0000	0.0000
Accel	RX	100.0000	100.0000
Accel	RY	100.0000	100.0000
Accel	RZ	91.9215	100.0000

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TOTAL REACTIVE FORCES (RECOVERED LOADS) AT ORIGIN

LOAD	FX	FY	FZ	MX	MY	MZ
DEAD	-7.084E-14	-9.792E-13	5.177E+01	1.975E+02	-3.551E+02	4.040E-11
LIVE	-2.772E-13	-3.756E-13	1.015E+01	3.911E+01	-6.936E+01	9.924E-12
FHE	-2.469E+01	1.186E-10	4.636E-12	-4.134E-10	-8.889E+01	9.415E+01
FHEU	-1.348E+01	6.413E-11	2.575E-12	-2.235E-10	-4.854E+01	5.141E+01
SISMOX	2.461E+01	9.134E-01	5.580E-12	3.288E+00	8.859E+01	1.002E+02
SISMOY	9.134E-01	2.247E+01	1.590E-11	8.089E+01	3.288E+00	1.659E+02
UMBRALX	1.333E+01	1.455E+00	2.880E-12	5.239E+00	4.800E+01	5.949E+01
UMBRALY	1.670E+00	1.215E+01	1.010E-11	4.376E+01	6.014E+00	9.432E+01


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S T O R Y F O R C E S

STORY	LOAD	P	VX	VY	T	MX	MY
STORY1	FHE	-2.523E+00	-2.469E+01	1.208E-10	9.415E+01	-1.218E+01	-4.088E+01
STORY1	FHEU	-1.378E+00	-1.348E+01	6.592E-11	5.141E+01	-6.651E+00	-2.232E+01
STORY1	SISMOX	2.570E+00	2.461E+01	9.134E-01	1.002E+02	1.395E+01	4.072E+01
STORY1	SISMOY	2.111E+00	9.134E-01	2.247E+01	1.659E+02	7.980E+01	2.930E+00
STORY1	UMBRALX	1.445E+00	1.333E+01	1.455E+00	5.949E+01	1.049E+01	2.199E+01
STORY1	UMBRALY	1.281E+00	1.670E+00	1.215E+01	9.432E+01	4.307E+01	3.328E+00

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 38 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 5. CHEQUEO DE DERIVAS

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 39 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

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L O A D I N G C O M B I N A T I O N S

COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
D1	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	0.3000
D2	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	1.0000
		SISMOY	Spectra	-0.3000
D3	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	0.3000
D4	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-1.0000
		SISMOY	Spectra	-0.3000
D5	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	1.0000
D6	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	0.3000
		SISMOY	Spectra	-1.0000
D7	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	1.0000
D8	ADD	DEAD	Static	0.9000
		SISMOX	Spectra	-0.3000
		SISMOY	Spectra	-1.0000

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D I S P L A C E M E N T S A T D I A P H R A G M C E N T E R O F M A S S

STORY	DIAPHRAGM	LOAD	POINT	X	Y	UX	UY	RZ
STORY1	LOSA	D1 Max	31	7.468	3.576	0.0213	0.0069	0.00093
STORY1	LOSA	D1 Min	31	7.468	3.576	-0.0213	-0.0067	-0.00091
STORY1	LOSA	D2 Max	31	7.468	3.576	0.0213	0.0069	0.00093
STORY1	LOSA	D2 Min	31	7.468	3.576	-0.0213	-0.0067	-0.00091
STORY1	LOSA	D3 Max	31	7.468	3.576	0.0213	0.0069	0.00093
STORY1	LOSA	D3 Min	31	7.468	3.576	-0.0213	-0.0067	-0.00091
STORY1	LOSA	D4 Max	31	7.468	3.576	0.0213	0.0069	0.00093
STORY1	LOSA	D4 Min	31	7.468	3.576	-0.0213	-0.0067	-0.00091
STORY1	LOSA	D5 Max	31	7.468	3.576	0.0073	0.0201	0.00204
STORY1	LOSA	D5 Min	31	7.468	3.576	-0.0073	-0.0199	-0.00202
STORY1	LOSA	D6 Max	31	7.468	3.576	0.0073	0.0201	0.00204
STORY1	LOSA	D6 Min	31	7.468	3.576	-0.0073	-0.0199	-0.00202
STORY1	LOSA	D7 Max	31	7.468	3.576	0.0073	0.0201	0.00204
STORY1	LOSA	D7 Min	31	7.468	3.576	-0.0073	-0.0199	-0.00202
STORY1	LOSA	D8 Max	31	7.468	3.576	0.0073	0.0201	0.00204
STORY1	LOSA	D8 Min	31	7.468	3.576	-0.0073	-0.0199	-0.00202

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S T O R Y D R I F T S

STORY	DIRECTION	LOAD	POINT	X	Y	Z	MAX DRIFT
STORY1	X	D1	26	2.860	2.800	3.600	0.006047
STORY1	X	D2	26	2.860	2.800	3.600	0.006047
STORY1	X	D3	26	2.860	2.800	3.600	0.006047
STORY1	X	D4	26	2.860	2.800	3.600	0.006047
STORY1	Y	D5	11	13.760	3.000	3.600	0.007329


	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 40 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	Y	D6	11	13.760	3.000	3.600	0.007329
STORY1	Y	D7	11	13.760	3.000	3.600	0.007329
STORY1	Y	D8	11	13.760	3.000	3.600	0.007329

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D I A P H R A G M D R I F T S

STORY	DIAPHRAGM	DIRECTION	LOAD	POINT	X	Y	Z	MAX DRIFT
STORY1	LOSA	X	D1	26	2.860	2.800	3.600	0.006047
STORY1	LOSA	Y	D1	11	13.760	3.000	3.600	0.002889
STORY1	LOSA	X	D2	26	2.860	2.800	3.600	0.006047
STORY1	LOSA	Y	D2	11	13.760	3.000	3.600	0.002889
STORY1	LOSA	X	D3	26	2.860	2.800	3.600	0.006047
STORY1	LOSA	Y	D3	11	13.760	3.000	3.600	0.002889
STORY1	LOSA	X	D4	26	2.860	2.800	3.600	0.006047
STORY1	LOSA	Y	D4	11	13.760	3.000	3.600	0.002889
STORY1	LOSA	X	D5	23	1.560	5.000	3.600	0.002395
STORY1	LOSA	Y	D5	11	13.760	3.000	3.600	0.006329
STORY1	LOSA	X	D6	23	1.560	5.000	3.600	0.002395
STORY1	LOSA	Y	D6	11	13.760	3.000	3.600	0.006329
STORY1	LOSA	X	D7	23	1.560	5.000	3.600	0.002395
STORY1	LOSA	Y	D7	11	13.760	3.000	3.600	0.006329
STORY1	LOSA	X	D8	23	1.560	5.000	3.600	0.002395
STORY1	LOSA	Y	D8	11	13.760	3.000	3.600	0.006329

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 41 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

DERIVAS PARA EL UMBRAL DE DAÑO

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LOADING COMBINATIONS

COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
DU1	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	1.0000
		UMBRALY	Spectra	0.3000
DU2	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	1.0000
		UMBRALY	Spectra	-0.3000
DU3	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-1.0000
		UMBRALY	Spectra	0.3000
DU4	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-1.0000
		UMBRALY	Spectra	-0.3000
DU5	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	0.3000
		UMBRALY	Spectra	1.0000
DU6	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	0.3000
		UMBRALY	Spectra	-1.0000
DU7	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-0.3000
		UMBRALY	Spectra	1.0000
DU8	ADD	DEAD	Static	0.9000
		UMBRALX	Spectra	-0.3000
		UMBRALY	Spectra	-1.0000

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DISPLACEMENTS AT DIAPHRAGM CENTER OF MASS

STORY	DIAPHRAGM	LOAD	POINT	X	Y	UX	UY	RZ
STORY1	LOSA	DU1 Max	31	7.468	3.576	0.0119	0.0046	0.00077
STORY1	LOSA	DU1 Min	31	7.468	3.576	-0.0119	-0.0044	-0.00075
STORY1	LOSA	DU2 Max	31	7.468	3.576	0.0119	0.0046	0.00077
STORY1	LOSA	DU2 Min	31	7.468	3.576	-0.0119	-0.0044	-0.00075
STORY1	LOSA	DU3 Max	31	7.468	3.576	0.0119	0.0046	0.00077
STORY1	LOSA	DU3 Min	31	7.468	3.576	-0.0119	-0.0044	-0.00075
STORY1	LOSA	DU4 Max	31	7.468	3.576	0.0119	0.0046	0.00077
STORY1	LOSA	DU4 Min	31	7.468	3.576	-0.0119	-0.0044	-0.00075
STORY1	LOSA	DU5 Max	31	7.468	3.576	0.0050	0.0111	0.00179
STORY1	LOSA	DU5 Min	31	7.468	3.576	-0.0050	-0.0109	-0.00177
STORY1	LOSA	DU6 Max	31	7.468	3.576	0.0050	0.0111	0.00179
STORY1	LOSA	DU6 Min	31	7.468	3.576	-0.0050	-0.0109	-0.00177
STORY1	LOSA	DU7 Max	31	7.468	3.576	0.0050	0.0111	0.00179
STORY1	LOSA	DU7 Min	31	7.468	3.576	-0.0050	-0.0109	-0.00177
STORY1	LOSA	DU8 Max	31	7.468	3.576	0.0050	0.0111	0.00179
STORY1	LOSA	DU8 Min	31	7.468	3.576	-0.0050	-0.0109	-0.00177

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STORY DRIFTS

STORY	DIRECTION	LOAD	POINT	X	Y	Z	MAX DRIFT
STORY1	X	DU1	23	1.560	5.000	3.600	0.003374
STORY1	Y	DU1	11	13.760	3.000	3.600	0.002014
STORY1	X	DU2	23	1.560	5.000	3.600	0.003374


	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 42 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	Y	DU2	11	13.760	3.000	3.600	0.002014
STORY1	X	DU3	23	1.560	5.000	3.600	0.003374
STORY1	Y	DU3	11	13.760	3.000	3.600	0.002014
STORY1	X	DU4	23	1.560	5.000	3.600	0.003374
STORY1	Y	DU4	11	13.760	3.000	3.600	0.002014
STORY1	Y	DU5	11	13.760	3.000	3.600	0.004748
STORY1	Y	DU6	11	13.760	3.000	3.600	0.004748
STORY1	Y	DU7	11	13.760	3.000	3.600	0.004748
STORY1	Y	DU8	11	13.760	3.000	3.600	0.004748


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D I A P H R A G M D R I F T S


STORY	DIAPHRAGM	DIRECTION	LOAD	POINT	X	Y	Z	MAX DRIFT
STORY1	LOSA	X	DU1	23	1.560	5.000	3.600	0.003374
STORY1	LOSA	Y	DU1	11	13.760	3.000	3.600	0.002014
STORY1	LOSA	X	DU2	23	1.560	5.000	3.600	0.003374
STORY1	LOSA	Y	DU2	11	13.760	3.000	3.600	0.002014
STORY1	LOSA	X	DU3	23	1.560	5.000	3.600	0.003374
STORY1	LOSA	Y	DU3	11	13.760	3.000	3.600	0.002014
STORY1	LOSA	X	DU4	23	1.560	5.000	3.600	0.003374
STORY1	LOSA	Y	DU4	11	13.760	3.000	3.600	0.002014
STORY1	LOSA	X	DU5	26	2.860	2.800	3.600	0.001626
STORY1	LOSA	Y	DU5	11	13.760	3.000	3.600	0.003748
STORY1	LOSA	X	DU6	26	2.860	2.800	3.600	0.001626
STORY1	LOSA	Y	DU6	11	13.760	3.000	3.600	0.003748
STORY1	LOSA	X	DU7	26	2.860	2.800	3.600	0.001626
STORY1	LOSA	Y	DU7	11	13.760	3.000	3.600	0.003748
STORY1	LOSA	X	DU8	26	2.860	2.800	3.600	0.001626
STORY1	LOSA	Y	DU8	11	13.760	3.000	3.600	0.003748

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 43 DE 68
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ANEXO 6. DISEÑO DE ELEMENTOS ESTRUCTURALES

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 44 DE 68
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ANEXO 6.1. DISEÑO DE COLUMNAS METALICAS

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 45 DE 68
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C O L U M N S T E E L S T R E S S C H E C K O U T P U T (AISC-LRFD93)

STORY LEVEL	COLUMN LINE	SECTION ID	/-----MOMENT INTERACTION CHECK-----/				/-----SHEAR22-----/		/-----SHEAR33-----/	
			COMBO	RATIO	=	AXL + B33 + B22	COMBO	RATIO	COMBO	RATIO
STORY1	C1	TUB219.1X8.20MM					C6	0.022	C10	0.025
		C10(C)	0.277	=	0.049 + 0.082 + 0.212					
STORY1	C2	TUB219.1X8.20MM					C6	0.022	C10	0.024
		C10(C)	0.251	=	0.032 + 0.075 + 0.206					
STORY1	C3	TUB219.1X8.20MM					C6	0.021	C10	0.019
		C6(C)	0.215	=	0.030 + 0.176 + 0.058					
STORY1	C4	TUB219.1X8.20MM					C6	0.020	C10	0.019
		C6(C)	0.241	=	0.059 + 0.173 + 0.057					
STORY1	C5	TUB219.1X8.20MM					C6	0.023	C10	0.018
		C6(C)	0.232	=	0.034 + 0.187 + 0.063					
STORY1	C6	TUB219.1X8.20MM					C4	0.019	C10	0.023
		C10(C)	0.225	=	0.026 + 0.058 + 0.190					
STORY1	C7	TUB219.1X8.20MM					C6	0.020	C10	0.020
		C6(C)	0.211	=	0.029 + 0.170 + 0.067					
STORY1	C8	TUB219.1X8.20MM					C6	0.020	C10	0.020
		C10(C)	0.207	=	0.023 + 0.072 + 0.168					

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
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	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 46 DE 68
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ANEXO 6.1. DISEÑO DE VIGAS

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 47 DE 68
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CONCRETE BEAM DESIGN OUTPUT (ACI 318-08/IBC 2009)

FLEXURAL AND TORSION DESIGN OF BEAM-TYPE ELEMENTS

STORY ID	BEAM BAY	SECTION ID	STATION ID	-----REQUIRED REINFORCING----->					
				TOP	COMBO	BOTTOM	COMBO	TORSION	COMBO
STORY1	B2	V25X50	0.000	0.000	ENVC	1.294	ENVC	0.000	ENVC
STORY1	B2	V25X50	24.500	1.380	ENVC	1.639	ENVC	0.000	ENVC
STORY1	B2	V25X50	24.500	1.380	ENVC	1.670	ENVC	0.000	ENVC
STORY1	B2	V25X50	49.000	1.380	ENVC	1.991	ENVC	0.000	ENVC
STORY1	B2	V25X50	49.000	1.380	ENVC	2.019	ENVC	0.000	ENVC
STORY1	B2	V25X50	73.500	1.380	ENVC	2.287	ENVC	0.000	ENVC
STORY1	B2	V25X50	73.500	1.380	ENVC	2.308	ENVC	0.000	ENVC
STORY1	B2	V25X50	98.000	1.380	ENVC	2.509	ENVC	0.000	ENVC
STORY1	B2	V25X50	98.000	1.380	ENVC	2.524	ENVC	0.000	ENVC
STORY1	B2	V25X50	122.500	1.380	ENVC	2.651	ENVC	0.000	ENVC
STORY1	B2	V25X50	122.500	1.380	ENVC	2.659	ENVC	0.000	ENVC
STORY1	B2	V25X50	147.000	1.380	ENVC	2.732	ENVC	0.000	ENVC
STORY1	B2	V25X50	147.000	1.380	ENVC	2.738	ENVC	0.000	ENVC
STORY1	B2	V25X50	171.500	1.380	ENVC	2.766	ENVC	0.000	ENVC
STORY1	B2	V25X50	171.500	1.380	ENVC	2.764	ENVC	0.000	ENVC
STORY1	B2	V25X50	196.000	1.380	ENVC	2.705	ENVC	0.000	ENVC
STORY1	B2	V25X50	196.000	1.380	ENVC	2.695	ENVC	0.000	ENVC
STORY1	B2	V25X50	220.500	1.380	ENVC	2.548	ENVC	0.000	ENVC
STORY1	B2	V25X50	220.500	1.380	ENVC	2.530	ENVC	0.000	ENVC
STORY1	B2	V25X50	245.000	1.380	ENVC	2.294	ENVC	0.000	ENVC
STORY1	B2	V25X50	245.000	1.380	ENVC	2.268	ENVC	0.000	ENVC
STORY1	B2	V25X50	269.500	1.380	ENVC	1.954	ENVC	0.000	ENVC
STORY1	B2	V25X50	269.500	1.380	ENVC	1.927	ENVC	0.000	ENVC
STORY1	B2	V25X50	294.000	1.380	ENVC	1.598	ENVC	0.000	ENVC
STORY1	B2	V25X50	294.000	1.380	ENVC	1.564	ENVC	0.000	ENVC
STORY1	B2	V25X50	318.500	1.380	ENVC	1.380	ENVC	0.000	ENVC
STORY1	B2	V25X50	318.500	1.380	ENVC	1.380	ENVC	0.000	ENVC
STORY1	B2	V25X50	343.000	1.380	ENVC	1.380	ENVC	0.000	ENVC
STORY1	B2	V25X50	343.000	1.380	ENVC	1.380	ENVC	0.000	ENVC
STORY1	B2	V25X50	367.500	1.380	ENVC	1.380	ENVC	0.000	ENVC
STORY1	B2	V25X50	367.500	1.380	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	392.000	1.678	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	392.000	1.756	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	416.500	2.654	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	416.500	2.742	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	441.000	3.745	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	441.000	3.766	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	465.500	3.766	ENVC	1.380	ENVC	4.521	ENVC
STORY1	B2	V25X50	465.500	3.793	ENVC	1.380	ENVC	4.521	C18
STORY1	B2	V25X50	479.045	4.286	ENVC	2.790	ENVC	4.521	C18
STORY1	B3	V25X50	10.955	4.130	ENVC	2.691	ENVC	0.000	ENVC
STORY1	B3	V25X50	25.000	3.766	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	25.000	3.766	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	50.000	3.573	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	50.000	3.476	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	75.000	2.445	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	75.000	2.358	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	100.000	1.437	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	100.000	1.359	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	125.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	125.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	150.000	1.331	ENVC	1.331	C2	0.000	ENVC
STORY1	B3	V25X50	150.000	1.331	ENVC	1.389	C2	0.000	ENVC
STORY1	B3	V25X50	175.000	1.331	ENVC	1.971	C2	0.000	ENVC
STORY1	B3	V25X50	175.000	1.331	ENVC	2.020	C2	0.000	ENVC
STORY1	B3	V25X50	200.000	1.331	ENVC	2.509	C2	0.000	ENVC
STORY1	B3	V25X50	200.000	1.331	ENVC	2.550	C2	0.000	ENVC
STORY1	B3	V25X50	225.000	1.331	ENVC	2.944	C2	0.000	ENVC
STORY1	B3	V25X50	225.000	1.331	ENVC	2.977	C2	0.000	ENVC



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Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 48 DE 68
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STORY1	B3	V25X50	250.000	1.331	ENVC	3.275	C2	0.000	ENVC
STORY1	B3	V25X50	250.000	1.331	ENVC	3.299	C2	0.000	ENVC
STORY1	B3	V25X50	275.000	1.331	ENVC	3.502	C2	0.000	ENVC
STORY1	B3	V25X50	275.000	1.331	ENVC	3.517	C2	0.000	ENVC
STORY1	B3	V25X50	300.000	1.331	ENVC	3.623	C2	0.000	ENVC
STORY1	B3	V25X50	300.000	1.331	ENVC	3.629	C2	0.000	ENVC
STORY1	B3	V25X50	325.000	1.331	ENVC	3.639	C2	0.000	ENVC
STORY1	B3	V25X50	325.000	1.331	ENVC	3.637	C2	0.000	ENVC
STORY1	B3	V25X50	350.000	1.331	ENVC	3.550	C2	0.000	ENVC
STORY1	B3	V25X50	350.000	1.331	ENVC	3.540	C2	0.000	ENVC
STORY1	B3	V25X50	375.000	1.331	ENVC	3.357	C2	0.000	ENVC
STORY1	B3	V25X50	375.000	1.331	ENVC	3.338	C2	0.000	ENVC
STORY1	B3	V25X50	400.000	1.331	ENVC	3.059	C2	0.000	ENVC
STORY1	B3	V25X50	400.000	1.331	ENVC	3.032	C2	0.000	ENVC
STORY1	B3	V25X50	425.000	1.331	ENVC	2.659	C2	0.000	ENVC
STORY1	B3	V25X50	425.000	1.331	ENVC	2.623	C2	0.000	ENVC
STORY1	B3	V25X50	450.000	1.331	ENVC	2.157	C2	0.000	ENVC
STORY1	B3	V25X50	450.000	1.331	ENVC	2.113	C2	0.000	ENVC
STORY1	B3	V25X50	475.000	1.331	ENVC	1.556	C2	0.000	ENVC
STORY1	B3	V25X50	475.000	1.331	ENVC	1.504	C2	0.000	ENVC
STORY1	B3	V25X50	500.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	500.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	525.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	525.000	1.331	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	550.000	1.828	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	550.000	1.907	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	575.000	2.836	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	575.000	2.924	ENVC	1.331	ENVC	0.000	ENVC
STORY1	B3	V25X50	589.045	3.486	ENVC	1.718	ENVC	0.000	ENVC
STORY1	B4	V25X50	10.955	3.455	ENVC	1.703	ENVC	0.000	ENVC
STORY1	B4	V25X50	23.333	3.093	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	23.333	3.025	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	46.667	2.403	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	46.667	2.343	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	70.000	1.798	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	70.000	1.746	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	93.333	1.281	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	93.333	1.238	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	116.667	0.854	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	116.667	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	140.000	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	140.000	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	163.333	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	163.333	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	186.667	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	186.667	0.846	ENVC	0.846	ENVC	0.000	ENVC
STORY1	B4	V25X50	210.000	0.004	ENVC	0.031	ENVC	0.000	ENVC
STORY1	B5	V25X50	0.000	0.006	ENVC	0.003	ENVC	4.521	ENVC
STORY1	B5	V25X50	25.000	0.451	ENVC	0.587	ENVC	4.521	ENVC
STORY1	B5	V25X50	25.000	0.451	ENVC	0.636	ENVC	0.000	ENVC
STORY1	B5	V25X50	50.000	0.451	ENVC	1.148	ENVC	0.000	ENVC
STORY1	B5	V25X50	50.000	0.451	ENVC	1.190	ENVC	0.000	ENVC
STORY1	B5	V25X50	75.000	0.451	ENVC	1.625	ENVC	0.000	ENVC
STORY1	B5	V25X50	75.000	0.451	ENVC	1.660	ENVC	0.000	ENVC
STORY1	B5	V25X50	100.000	0.451	ENVC	2.011	ENVC	0.000	ENVC
STORY1	B5	V25X50	100.000	0.451	ENVC	2.038	ENVC	0.000	ENVC
STORY1	B5	V25X50	125.000	0.451	ENVC	2.301	ENVC	0.000	ENVC
STORY1	B5	V25X50	125.000	0.451	ENVC	2.320	ENVC	0.000	ENVC
STORY1	B5	V25X50	150.000	0.451	ENVC	2.494	ENVC	0.000	ENVC
STORY1	B5	V25X50	150.000	0.451	ENVC	2.505	ENVC	0.000	ENVC
STORY1	B5	V25X50	175.000	0.451	ENVC	2.590	ENVC	0.000	ENVC
STORY1	B5	V25X50	175.000	0.451	ENVC	2.594	ENVC	0.000	ENVC
STORY1	B5	V25X50	200.000	0.451	ENVC	2.592	ENVC	0.000	ENVC
STORY1	B5	V25X50	200.000	0.451	ENVC	2.588	ENVC	0.000	ENVC
STORY1	B5	V25X50	225.000	0.451	ENVC	2.503	ENVC	0.000	ENVC
STORY1	B5	V25X50	225.000	0.451	ENVC	2.493	ENVC	0.000	ENVC
STORY1	B5	V25X50	250.000	0.451	ENVC	2.334	ENVC	0.000	ENVC



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 49 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B5	V25X50	250.000	0.451	ENVC	2.317	ENVC	0.000	ENVC
STORY1	B5	V25X50	275.000	0.451	ENVC	2.097	ENVC	0.000	ENVC
STORY1	B5	V25X50	275.000	0.451	ENVC	2.076	ENVC	0.000	ENVC
STORY1	B5	V25X50	300.000	0.000	ENVC	1.823	ENVC	0.000	ENVC
STORY1	B7	V25X50	0.000	0.000	ENVC	0.135	ENVC	4.521	C14
STORY1	B7	V25X50	25.000	0.545	ENVC	0.545	ENVC	4.521	C14
STORY1	B7	V25X50	25.000	0.545	ENVC	0.545	ENVC	4.521	C14
STORY1	B7	V25X50	50.000	0.545	ENVC	0.545	ENVC	4.521	C14
STORY1	B7	V25X50	50.000	0.545	ENVC	0.545	ENVC	4.521	C10
STORY1	B7	V25X50	75.000	0.545	ENVC	0.646	ENVC	4.521	C10
STORY1	B7	V25X50	75.000	0.545	ENVC	0.650	ENVC	4.521	ENVC
STORY1	B7	V25X50	100.000	0.545	ENVC	0.708	ENVC	4.521	ENVC
STORY1	B7	V25X50	100.000	0.545	ENVC	0.709	ENVC	0.000	ENVC
STORY1	B7	V25X50	125.000	0.545	ENVC	0.700	ENVC	0.000	ENVC
STORY1	B7	V25X50	125.000	0.545	ENVC	0.698	ENVC	0.000	ENVC
STORY1	B7	V25X50	150.000	0.545	ENVC	0.619	ENVC	0.000	ENVC
STORY1	B7	V25X50	150.000	0.545	ENVC	0.613	ENVC	0.000	ENVC
STORY1	B7	V25X50	175.000	0.817	ENVC	0.545	ENVC	0.000	ENVC
STORY1	B7	V25X50	175.000	0.835	ENVC	0.545	ENVC	4.521	ENVC
STORY1	B7	V25X50	200.000	1.246	ENVC	0.545	ENVC	4.521	ENVC
STORY1	B7	V25X50	200.000	1.267	ENVC	0.545	ENVC	4.521	C14
STORY1	B7	V25X50	225.000	1.757	ENVC	0.545	ENVC	4.521	C14
STORY1	B7	V25X50	225.000	1.782	ENVC	0.545	ENVC	4.521	C18
STORY1	B7	V25X50	250.000	2.349	ENVC	0.545	ENVC	4.521	C18
STORY1	B7	V25X50	250.000	2.378	ENVC	0.545	ENVC	4.476	C1
STORY1	B7	V25X50	275.000	3.022	ENVC	0.545	ENVC	4.476	C1
STORY1	B7	V25X50	275.000	3.094	ENVC	0.545	ENVC	4.436	C1
STORY1	B7	V25X50	280.000	3.126	ENVC	0.545	ENVC	4.436	C1
STORY1	B8	V25X50	0.000	0.307	ENVC	0.746	ENVC	4.521	C18
STORY1	B8	V25X50	24.444	0.661	ENVC	0.739	ENVC	4.521	C18
STORY1	B8	V25X50	24.444	0.661	ENVC	0.733	ENVC	4.521	C18
STORY1	B8	V25X50	48.889	0.661	ENVC	0.661	ENVC	4.521	C18
STORY1	B8	V25X50	48.889	0.661	ENVC	0.661	ENVC	4.467	C14
STORY1	B8	V25X50	73.333	0.661	ENVC	0.661	ENVC	4.467	C14
STORY1	B8	V25X50	73.333	0.661	ENVC	0.661	ENVC	4.452	C14
STORY1	B8	V25X50	97.778	0.661	ENVC	0.661	ENVC	4.452	C14
STORY1	B8	V25X50	97.778	0.661	ENVC	0.661	ENVC	4.430	C14
STORY1	B8	V25X50	122.222	0.661	ENVC	0.661	ENVC	4.430	C14
STORY1	B8	V25X50	122.222	0.661	ENVC	0.661	ENVC	4.399	C14
STORY1	B8	V25X50	146.667	0.765	ENVC	0.661	ENVC	4.399	C14
STORY1	B8	V25X50	146.667	0.816	ENVC	0.661	ENVC	4.319	C14
STORY1	B8	V25X50	171.111	1.374	ENVC	0.661	ENVC	4.319	C14
STORY1	B8	V25X50	171.111	1.432	ENVC	0.661	ENVC	4.224	C14
STORY1	B8	V25X50	195.556	2.052	ENVC	0.661	ENVC	4.224	C14
STORY1	B8	V25X50	195.556	2.115	ENVC	0.661	ENVC	4.144	C14
STORY1	B8	V25X50	220.000	2.685	ENVC	1.328	ENVC	4.144	C14
STORY1	B9	V25X50	0.000	2.940	ENVC	1.453	ENVC	3.856	C18
STORY1	B9	V25X50	25.000	2.303	ENVC	0.722	ENVC	3.856	C18
STORY1	B9	V25X50	25.000	2.238	ENVC	0.722	ENVC	3.902	C18
STORY1	B9	V25X50	50.000	1.554	ENVC	0.722	ENVC	3.902	C18
STORY1	B9	V25X50	50.000	1.495	ENVC	0.722	ENVC	3.975	C18
STORY1	B9	V25X50	75.000	0.887	ENVC	0.722	ENVC	3.975	C18
STORY1	B9	V25X50	75.000	0.836	ENVC	0.722	ENVC	4.058	C18
STORY1	B9	V25X50	100.000	0.722	ENVC	0.722	ENVC	4.058	C18
STORY1	B9	V25X50	100.000	0.722	ENVC	0.722	ENVC	4.165	C18
STORY1	B9	V25X50	125.000	0.722	ENVC	0.722	ENVC	4.165	C18
STORY1	B9	V25X50	125.000	0.722	ENVC	0.722	ENVC	4.205	C18
STORY1	B9	V25X50	150.000	0.722	ENVC	0.722	ENVC	4.205	C18
STORY1	B9	V25X50	150.000	0.722	ENVC	0.722	ENVC	4.217	C18
STORY1	B9	V25X50	175.000	0.722	ENVC	0.722	ENVC	4.217	C18
STORY1	B9	V25X50	175.000	0.722	ENVC	0.722	ENVC	4.261	C18
STORY1	B9	V25X50	200.000	0.197	ENVC	0.761	ENVC	4.261	C18
STORY1	B11	V25X50	10.955	3.034	ENVC	1.499	ENVC	4.521	ENVC
STORY1	B11	V25X50	25.000	2.670	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	25.000	2.638	ENVC	0.745	ENVC	4.521	ENVC



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 50 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B11	V25X50	50.000	1.988	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	50.000	1.958	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	75.000	1.342	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	75.000	1.314	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	100.000	0.745	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	100.000	0.745	ENVC	0.745	ENVC	0.000	ENVC
STORY1	B11	V25X50	125.000	0.745	ENVC	0.745	ENVC	0.000	ENVC
STORY1	B11	V25X50	125.000	0.745	ENVC	0.745	ENVC	0.000	ENVC
STORY1	B11	V25X50	150.000	0.745	ENVC	1.001	C2	0.000	ENVC
STORY1	B11	V25X50	150.000	0.745	ENVC	1.020	C2	0.000	ENVC
STORY1	B11	V25X50	175.000	0.745	ENVC	1.390	C2	0.000	ENVC
STORY1	B11	V25X50	175.000	0.745	ENVC	1.406	C2	0.000	ENVC
STORY1	B11	V25X50	200.000	0.745	ENVC	1.719	C2	0.000	ENVC
STORY1	B11	V25X50	200.000	0.745	ENVC	1.732	C2	0.000	ENVC
STORY1	B11	V25X50	225.000	0.745	ENVC	1.984	C2	0.000	ENVC
STORY1	B11	V25X50	225.000	0.745	ENVC	1.995	C2	0.000	ENVC
STORY1	B11	V25X50	250.000	0.745	ENVC	2.184	C2	0.000	ENVC
STORY1	B11	V25X50	250.000	0.745	ENVC	2.192	C2	0.000	ENVC
STORY1	B11	V25X50	275.000	0.745	ENVC	2.318	C2	0.000	ENVC
STORY1	B11	V25X50	275.000	0.745	ENVC	2.323	C2	0.000	ENVC
STORY1	B11	V25X50	300.000	0.745	ENVC	2.384	C2	0.000	ENVC
STORY1	B11	V25X50	300.000	0.745	ENVC	2.386	C2	0.000	ENVC
STORY1	B11	V25X50	325.000	0.745	ENVC	2.382	C2	0.000	ENVC
STORY1	B11	V25X50	325.000	0.745	ENVC	2.380	C2	0.000	ENVC
STORY1	B11	V25X50	350.000	0.745	ENVC	2.310	C2	0.000	ENVC
STORY1	B11	V25X50	350.000	0.745	ENVC	2.306	C2	0.000	ENVC
STORY1	B11	V25X50	375.000	0.745	ENVC	2.171	C2	0.000	ENVC
STORY1	B11	V25X50	375.000	0.745	ENVC	2.163	C2	0.000	ENVC
STORY1	B11	V25X50	400.000	0.745	ENVC	1.963	C2	0.000	ENVC
STORY1	B11	V25X50	400.000	0.745	ENVC	1.952	C2	0.000	ENVC
STORY1	B11	V25X50	425.000	0.745	ENVC	1.688	C2	0.000	ENVC
STORY1	B11	V25X50	425.000	0.745	ENVC	1.674	C2	0.000	ENVC
STORY1	B11	V25X50	450.000	0.745	ENVC	1.348	C2	0.000	ENVC
STORY1	B11	V25X50	450.000	0.745	ENVC	1.332	C2	4.521	ENVC
STORY1	B11	V25X50	475.000	0.745	ENVC	0.953	ENVC	4.521	ENVC
STORY1	B11	V25X50	475.000	0.745	ENVC	0.937	ENVC	4.521	ENVC
STORY1	B11	V25X50	500.000	0.745	ENVC	0.745	ENVC	4.521	ENVC
STORY1	B11	V25X50	500.000	0.745	ENVC	0.745	ENVC	4.521	C6
STORY1	B11	V25X50	525.000	0.819	ENVC	0.745	ENVC	4.521	C6
STORY1	B11	V25X50	525.000	0.845	ENVC	0.745	ENVC	4.521	C1
STORY1	B11	V25X50	550.000	1.425	ENVC	0.745	ENVC	4.521	C1
STORY1	B11	V25X50	550.000	1.453	ENVC	0.745	ENVC	4.521	C18
STORY1	B11	V25X50	575.000	2.074	ENVC	0.745	ENVC	4.521	C18
STORY1	B11	V25X50	575.000	2.104	ENVC	0.745	ENVC	4.521	C18
STORY1	B11	V25X50	589.045	2.458	ENVC	1.217	ENVC	4.521	C18
STORY1	B12	V25X50	10.955	2.659	ENVC	1.315	ENVC	0.000	ENVC
STORY1	B12	V25X50	23.333	2.422	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	23.333	2.397	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	46.667	1.961	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	46.667	1.938	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	70.000	1.535	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	70.000	1.514	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	93.333	1.155	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	93.333	1.137	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	116.667	0.825	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	116.667	0.809	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	140.000	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	140.000	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	163.333	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	163.333	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	186.667	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	186.667	0.654	ENVC	0.654	ENVC	0.000	ENVC
STORY1	B12	V25X50	210.000	0.000	ENVC	0.052	ENVC	0.000	ENVC
STORY1	B13	V15X50	0.000	0.152	ENVC	0.076	ENVC	0.000	ENVC
STORY1	B13	V15X50	25.000	0.055	ENVC	0.127	ENVC	0.000	ENVC
STORY1	B13	V15X50	25.000	0.055	ENVC	0.134	ENVC	0.000	ENVC
STORY1	B13	V15X50	50.000	0.055	ENVC	0.222	ENVC	0.000	ENVC




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 51 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B13	V15X50	50.000	0.055	ENVC	0.227	ENVC	0.000	ENVC
STORY1	B13	V15X50	75.000	0.055	ENVC	0.287	ENVC	0.000	ENVC
STORY1	B13	V15X50	75.000	0.055	ENVC	0.290	ENVC	0.000	ENVC
STORY1	B13	V15X50	100.000	0.055	ENVC	0.334	ENVC	0.000	ENVC
STORY1	B13	V15X50	100.000	0.055	ENVC	0.336	ENVC	0.000	ENVC
STORY1	B13	V15X50	125.000	0.055	ENVC	0.344	ENVC	0.000	ENVC
STORY1	B13	V15X50	125.000	0.055	ENVC	0.343	ENVC	0.000	ENVC
STORY1	B13	V15X50	150.000	0.055	ENVC	0.325	ENVC	0.000	ENVC
STORY1	B13	V15X50	150.000	0.055	ENVC	0.323	ENVC	0.000	ENVC
STORY1	B13	V15X50	175.000	0.055	ENVC	0.281	ENVC	0.000	ENVC
STORY1	B13	V15X50	175.000	0.055	ENVC	0.277	ENVC	0.000	ENVC
STORY1	B13	V15X50	200.000	0.000	ENVC	0.220	ENVC	0.000	ENVC
STORY1	B14	V15X50	0.000	0.278	ENVC	0.139	ENVC	0.000	ENVC
STORY1	B14	V15X50	24.444	0.087	ENVC	0.087	ENVC	0.000	ENVC
STORY1	B14	V15X50	24.444	0.087	ENVC	0.087	ENVC	0.000	ENVC
STORY1	B14	V15X50	48.889	0.087	ENVC	0.152	ENVC	0.000	ENVC
STORY1	B14	V15X50	48.889	0.087	ENVC	0.164	ENVC	0.000	ENVC
STORY1	B14	V15X50	73.333	0.087	ENVC	0.304	ENVC	0.000	ENVC
STORY1	B14	V15X50	73.333	0.087	ENVC	0.314	ENVC	0.000	ENVC
STORY1	B14	V15X50	97.778	0.087	ENVC	0.415	ENVC	0.000	ENVC
STORY1	B14	V15X50	97.778	0.087	ENVC	0.421	ENVC	2.529	C10
STORY1	B14	V15X50	122.222	0.087	ENVC	0.476	ENVC	2.529	C10
STORY1	B14	V15X50	122.222	0.087	ENVC	0.479	ENVC	2.434	C1
STORY1	B14	V15X50	146.667	0.087	ENVC	0.491	ENVC	2.434	C1
STORY1	B14	V15X50	146.667	0.087	ENVC	0.490	ENVC	2.356	C1
STORY1	B14	V15X50	171.111	0.087	ENVC	0.464	ENVC	2.356	C1
STORY1	B14	V15X50	171.111	0.087	ENVC	0.461	ENVC	2.350	C1
STORY1	B14	V15X50	195.556	0.087	ENVC	0.409	ENVC	2.350	C1
STORY1	B14	V15X50	195.556	0.087	ENVC	0.404	ENVC	2.391	C1
STORY1	B14	V15X50	220.000	0.000	ENVC	0.348	ENVC	2.391	C1
STORY1	B15	V25X50	10.955	0.753	ENVC	1.636	ENVC	0.000	ENVC
STORY1	B15	V25X50	25.000	0.508	ENVC	1.623	ENVC	0.000	ENVC
STORY1	B15	V25X50	25.000	0.470	ENVC	1.615	ENVC	0.000	ENVC
STORY1	B15	V25X50	50.000	0.405	ENVC	1.496	ENVC	0.000	ENVC
STORY1	B15	V25X50	50.000	0.405	ENVC	1.481	ENVC	0.000	ENVC
STORY1	B15	V25X50	75.000	0.405	ENVC	1.268	ENVC	0.000	ENVC
STORY1	B15	V25X50	75.000	0.405	ENVC	1.243	ENVC	0.000	ENVC
STORY1	B15	V25X50	100.000	0.405	ENVC	0.990	ENVC	0.000	ENVC
STORY1	B15	V25X50	100.000	0.405	ENVC	0.980	ENVC	0.000	ENVC
STORY1	B15	V25X50	125.000	0.405	ENVC	0.998	ENVC	0.000	ENVC
STORY1	B15	V25X50	125.000	0.405	ENVC	1.005	ENVC	0.000	ENVC
STORY1	B15	V25X50	150.000	0.405	ENVC	1.025	ENVC	0.000	ENVC
STORY1	B15	V25X50	150.000	0.405	ENVC	1.023	ENVC	0.000	ENVC
STORY1	B15	V25X50	175.000	0.813	ENVC	0.964	ENVC	0.000	ENVC
STORY1	B15	V25X50	175.000	0.862	ENVC	0.955	C10	0.000	ENVC
STORY1	B15	V25X50	189.045	1.224	ENVC	0.945	ENVC	0.000	ENVC
STORY1	B16	V25X50	10.955	1.144	ENVC	1.713	ENVC	0.000	ENVC
STORY1	B16	V25X50	25.000	0.854	ENVC	1.651	ENVC	0.000	ENVC
STORY1	B16	V25X50	25.000	0.809	ENVC	1.638	ENVC	0.000	ENVC
STORY1	B16	V25X50	50.000	0.424	ENVC	1.460	ENVC	0.000	ENVC
STORY1	B16	V25X50	50.000	0.424	ENVC	1.440	ENVC	0.000	ENVC
STORY1	B16	V25X50	75.000	0.424	ENVC	1.184	ENVC	0.000	ENVC
STORY1	B16	V25X50	75.000	0.424	ENVC	1.157	ENVC	0.000	ENVC
STORY1	B16	V25X50	100.000	0.424	ENVC	0.868	ENVC	0.000	ENVC
STORY1	B16	V25X50	100.000	0.424	ENVC	0.862	ENVC	0.000	ENVC
STORY1	B16	V25X50	125.000	0.424	ENVC	1.026	ENVC	0.000	ENVC
STORY1	B16	V25X50	125.000	0.424	ENVC	1.043	ENVC	0.000	ENVC
STORY1	B16	V25X50	150.000	0.438	ENVC	1.186	ENVC	0.000	ENVC
STORY1	B16	V25X50	150.000	0.483	ENVC	1.195	ENVC	0.000	ENVC
STORY1	B16	V25X50	175.000	1.011	ENVC	1.267	ENVC	0.000	ENVC
STORY1	B16	V25X50	175.000	1.062	ENVC	1.270	ENVC	0.000	ENVC
STORY1	B16	V25X50	189.045	1.410	ENVC	1.303	ENVC	0.000	ENVC
STORY1	B17	V25X50	0.000	0.923	ENVC	0.460	ENVC	3.748	ENVC
STORY1	B17	V25X50	22.500	1.039	ENVC	0.601	ENVC	3.748	ENVC
STORY1	B17	V25X50	22.500	1.058	ENVC	0.601	ENVC	3.718	C1



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 52 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B17	V25X50	24.444	1.059	ENVC	0.601	ENVC	3.718	C1
STORY1	B17	V25X50	24.444	1.080	ENVC	0.601	ENVC	3.749	C1
STORY1	B17	V25X50	45.000	1.368	ENVC	0.601	ENVC	3.749	C1
STORY1	B17	V25X50	45.000	1.447	ENVC	0.601	ENVC	3.761	C1
STORY1	B17	V25X50	48.889	1.454	ENVC	0.601	ENVC	3.761	C1
STORY1	B17	V25X50	48.889	1.550	ENVC	0.601	ENVC	3.753	C1
STORY1	B17	V25X50	67.500	1.952	ENVC	0.601	ENVC	3.753	C1
STORY1	B17	V25X50	67.500	2.098	ENVC	0.601	ENVC	3.757	C1
STORY1	B17	V25X50	73.333	2.130	ENVC	0.601	ENVC	3.757	C1
STORY1	B17	V25X50	73.333	2.305	ENVC	0.601	ENVC	3.819	C14
STORY1	B17	V25X50	79.045	2.438	ENVC	1.207	ENVC	3.819	C14
STORY1	B18	V25X50	7.578	3.275	ENVC	1.616	ENVC	3.863	C18
STORY1	B18	V25X50	7.778	3.273	ENVC	0.803	ENVC	3.863	C18
STORY1	B18	V25X50	7.778	2.987	ENVC	0.803	ENVC	3.722	C1
STORY1	B18	V25X50	21.667	2.639	ENVC	0.803	ENVC	3.722	C1
STORY1	B18	V25X50	21.667	2.376	ENVC	0.803	ENVC	3.720	C1
STORY1	B18	V25X50	32.222	2.193	ENVC	0.803	ENVC	3.720	C1
STORY1	B18	V25X50	32.222	1.958	ENVC	0.803	ENVC	3.856	ENVC
STORY1	B18	V25X50	43.333	1.770	ENVC	0.803	ENVC	3.856	ENVC
STORY1	B18	V25X50	43.333	1.541	ENVC	0.803	ENVC	3.917	ENVC
STORY1	B18	V25X50	56.667	1.280	ENVC	0.803	ENVC	3.917	ENVC
STORY1	B18	V25X50	56.667	1.083	ENVC	0.803	ENVC	3.929	ENVC
STORY1	B18	V25X50	65.000	0.998	ENVC	0.803	ENVC	3.929	ENVC
STORY1	B18	V25X50	65.000	0.814	ENVC	0.803	ENVC	3.912	ENVC
STORY1	B18	V25X50	81.111	0.803	ENVC	0.803	ENVC	3.912	ENVC
STORY1	B18	V25X50	81.111	0.803	ENVC	0.885	ENVC	3.863	ENVC
STORY1	B18	V25X50	86.667	0.803	ENVC	0.900	ENVC	3.863	ENVC
STORY1	B18	V25X50	86.667	0.803	ENVC	0.974	ENVC	3.819	C10
STORY1	B18	V25X50	105.556	0.803	ENVC	1.200	ENVC	3.819	C10
STORY1	B18	V25X50	105.556	0.803	ENVC	1.262	ENVC	3.757	C10
STORY1	B18	V25X50	108.333	0.803	ENVC	1.264	ENVC	3.757	C10
STORY1	B18	V25X50	108.333	0.803	ENVC	1.315	ENVC	3.725	C1
STORY1	B18	V25X50	130.000	0.000	ENVC	1.628	ENVC	3.725	C1
STORY1	B19	V25X50	0.000	0.000	ENVC	2.062	ENVC	4.360	C1
STORY1	B19	V25X50	22.000	0.509	ENVC	1.780	ENVC	4.360	C1
STORY1	B19	V25X50	22.000	0.509	ENVC	1.737	ENVC	4.342	C1
STORY1	B19	V25X50	25.000	0.509	ENVC	1.734	ENVC	4.342	C1
STORY1	B19	V25X50	25.000	0.509	ENVC	1.681	ENVC	4.325	C1
STORY1	B19	V25X50	44.000	0.509	ENVC	1.466	ENVC	4.325	C1
STORY1	B19	V25X50	44.000	0.509	ENVC	1.392	ENVC	4.308	C1
STORY1	B19	V25X50	50.000	0.509	ENVC	1.373	ENVC	4.308	C1
STORY1	B19	V25X50	50.000	0.509	ENVC	1.288	ENVC	4.299	C1
STORY1	B19	V25X50	66.000	0.643	ENVC	1.108	ENVC	4.299	C1
STORY1	B19	V25X50	66.000	0.772	ENVC	1.004	ENVC	4.282	C1
STORY1	B19	V25X50	75.000	0.843	ENVC	0.946	ENVC	4.282	C1
STORY1	B19	V25X50	75.000	1.020	ENVC	0.872	ENVC	4.276	C1
STORY1	B19	V25X50	88.000	1.263	ENVC	0.802	ENVC	4.276	C1
STORY1	B19	V25X50	88.000	1.487	ENVC	0.737	ENVC	4.249	C1
STORY1	B19	V25X50	100.000	1.707	ENVC	0.673	ENVC	4.249	C1
STORY1	B19	V25X50	100.000	1.952	ENVC	0.595	ENVC	4.219	C1
STORY1	B19	V25X50	100.200	1.955	ENVC	0.970	ENVC	4.219	C1
STORY1	B20	V25X50	10.955	1.397	ENVC	0.695	ENVC	4.295	C14
STORY1	B20	V25X50	15.000	1.349	ENVC	0.346	ENVC	4.295	C14
STORY1	B20	V25X50	15.000	1.235	ENVC	0.346	ENVC	4.123	C1
STORY1	B20	V25X50	22.500	1.202	ENVC	0.346	ENVC	4.123	C1
STORY1	B20	V25X50	22.500	1.116	ENVC	0.346	ENVC	4.087	C1
STORY1	B20	V25X50	40.000	0.928	ENVC	0.346	ENVC	4.087	C1
STORY1	B20	V25X50	40.000	0.869	ENVC	0.346	ENVC	4.061	C1
STORY1	B20	V25X50	45.000	0.862	ENVC	0.346	ENVC	4.061	C1
STORY1	B20	V25X50	45.000	0.833	ENVC	0.346	ENVC	4.024	C1
STORY1	B20	V25X50	65.000	0.815	ENVC	0.346	ENVC	4.024	C1
STORY1	B20	V25X50	65.000	0.836	ENVC	0.346	ENVC	3.964	C1
STORY1	B20	V25X50	67.500	0.837	ENVC	0.346	ENVC	3.964	C1
STORY1	B20	V25X50	67.500	0.852	ENVC	0.346	ENVC	3.900	C1
STORY1	B20	V25X50	90.000	0.993	ENVC	0.495	ENVC	3.900	C1

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 53 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

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C O N C R E T E B E A M D E S I G N O U T P U T (ACI 318-08/IBC 2009)

TORSION AND SHEAR DESIGN OF BEAM-TYPE ELEMENTS

STORY ID	BEAM BAY	SECTION ID	STATION ID	<-----REQUIRED REINFORCING----->			
				TORSION	COMBO	SHEAR	COMBO
STORY1	B2	V25X50	0.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	24.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	24.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	49.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	49.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	73.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	73.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	98.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	98.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	122.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	122.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	147.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	147.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	171.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	171.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	196.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	196.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	220.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	220.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	245.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	245.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	269.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	269.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	294.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	294.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	318.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	318.500	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	343.000	0.000	ENVC	0.000	ENVC
STORY1	B2	V25X50	343.000	0.000	ENVC	0.015	ENVC
STORY1	B2	V25X50	367.500	0.000	ENVC	0.016	ENVC
STORY1	B2	V25X50	367.500	0.008	ENVC	0.017	ENVC
STORY1	B2	V25X50	392.000	0.008	ENVC	0.018	ENVC
STORY1	B2	V25X50	392.000	0.009	ENVC	0.020	ENVC
STORY1	B2	V25X50	416.500	0.009	ENVC	0.021	ENVC
STORY1	B2	V25X50	416.500	0.009	ENVC	0.022	ENVC
STORY1	B2	V25X50	441.000	0.009	ENVC	0.023	ENVC
STORY1	B2	V25X50	441.000	0.010	ENVC	0.024	ENVC
STORY1	B2	V25X50	465.500	0.010	ENVC	0.025	ENVC
STORY1	B2	V25X50	465.500	0.012	ENVC	0.025	ENVC
STORY1	B2	V25X50	479.045	0.012	ENVC	0.025	ENVC
STORY1	B3	V25X50	10.955	0.000	ENVC	0.027	ENVC
STORY1	B3	V25X50	25.000	0.000	ENVC	0.026	ENVC
STORY1	B3	V25X50	25.000	0.000	ENVC	0.027	ENVC
STORY1	B3	V25X50	50.000	0.000	ENVC	0.026	ENVC
STORY1	B3	V25X50	50.000	0.000	ENVC	0.025	ENVC
STORY1	B3	V25X50	75.000	0.000	ENVC	0.024	ENVC
STORY1	B3	V25X50	75.000	0.000	ENVC	0.022	ENVC
STORY1	B3	V25X50	100.000	0.000	ENVC	0.021	ENVC
STORY1	B3	V25X50	100.000	0.000	ENVC	0.020	ENVC
STORY1	B3	V25X50	125.000	0.000	ENVC	0.019	ENVC
STORY1	B3	V25X50	125.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	150.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	150.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	175.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	175.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	200.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	200.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	225.000	0.000	ENVC	0.000	ENVC



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Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 54 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B3	V25X50	225.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	250.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	250.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	275.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	275.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	300.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	300.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	325.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	325.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	350.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	350.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	375.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	375.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	400.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	400.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	425.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	425.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	450.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	450.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	475.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	475.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	500.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	500.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	525.000	0.000	ENVC	0.000	ENVC
STORY1	B3	V25X50	525.000	0.000	ENVC	0.019	ENVC
STORY1	B3	V25X50	550.000	0.000	ENVC	0.020	ENVC
STORY1	B3	V25X50	550.000	0.000	ENVC	0.021	ENVC
STORY1	B3	V25X50	575.000	0.000	ENVC	0.022	ENVC
STORY1	B3	V25X50	575.000	0.000	ENVC	0.022	ENVC
STORY1	B3	V25X50	589.045	0.000	ENVC	0.023	ENVC
STORY1	B4	V25X50	10.955	0.000	ENVC	0.049	C10
STORY1	B4	V25X50	23.333	0.000	ENVC	0.049	C10
STORY1	B4	V25X50	23.333	0.000	ENVC	0.048	C10
STORY1	B4	V25X50	46.667	0.000	ENVC	0.047	C10
STORY1	B4	V25X50	46.667	0.000	ENVC	0.046	C10
STORY1	B4	V25X50	70.000	0.000	ENVC	0.045	C10
STORY1	B4	V25X50	70.000	0.000	ENVC	0.043	C10
STORY1	B4	V25X50	93.333	0.000	ENVC	0.042	C10
STORY1	B4	V25X50	93.333	0.000	ENVC	0.040	C10
STORY1	B4	V25X50	116.667	0.000	ENVC	0.039	C10
STORY1	B4	V25X50	116.667	0.000	ENVC	0.037	C10
STORY1	B4	V25X50	140.000	0.000	ENVC	0.036	C10
STORY1	B4	V25X50	140.000	0.000	ENVC	0.034	C10
STORY1	B4	V25X50	163.333	0.000	ENVC	0.033	C10
STORY1	B4	V25X50	163.333	0.000	ENVC	0.031	C10
STORY1	B4	V25X50	186.667	0.000	ENVC	0.030	C10
STORY1	B4	V25X50	186.667	0.000	ENVC	0.029	C10
STORY1	B4	V25X50	210.000	0.000	ENVC	0.028	ENVC
STORY1	B5	V25X50	0.000	0.009	ENVC	0.028	C18
STORY1	B5	V25X50	25.000	0.009	ENVC	0.027	C18
STORY1	B5	V25X50	25.000	0.000	ENVC	0.026	C18
STORY1	B5	V25X50	50.000	0.000	ENVC	0.025	C18
STORY1	B5	V25X50	50.000	0.000	ENVC	0.024	C18
STORY1	B5	V25X50	75.000	0.000	ENVC	0.023	C18
STORY1	B5	V25X50	75.000	0.000	ENVC	0.022	C18
STORY1	B5	V25X50	100.000	0.000	ENVC	0.021	C18
STORY1	B5	V25X50	100.000	0.000	ENVC	0.020	C18
STORY1	B5	V25X50	125.000	0.000	ENVC	0.019	C18
STORY1	B5	V25X50	125.000	0.000	ENVC	0.018	C18
STORY1	B5	V25X50	150.000	0.000	ENVC	0.017	C18
STORY1	B5	V25X50	150.000	0.000	ENVC	0.016	C18
STORY1	B5	V25X50	175.000	0.000	ENVC	0.015	C18
STORY1	B5	V25X50	175.000	0.000	ENVC	0.015	C18
STORY1	B5	V25X50	200.000	0.000	ENVC	0.016	C18
STORY1	B5	V25X50	200.000	0.000	ENVC	0.017	C18
STORY1	B5	V25X50	225.000	0.000	ENVC	0.018	C18
STORY1	B5	V25X50	225.000	0.000	ENVC	0.019	C18



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 55 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B5	V25X50	250.000	0.000	ENVC	0.020	C18
STORY1	B5	V25X50	250.000	0.000	ENVC	0.020	C18
STORY1	B5	V25X50	275.000	0.000	ENVC	0.021	C18
STORY1	B5	V25X50	275.000	0.000	ENVC	0.021	C18
STORY1	B5	V25X50	300.000	0.000	ENVC	0.022	C18
STORY1	B7	V25X50	0.000	0.012	ENVC	0.031	ENVC
STORY1	B7	V25X50	25.000	0.012	ENVC	0.030	ENVC
STORY1	B7	V25X50	25.000	0.012	ENVC	0.029	ENVC
STORY1	B7	V25X50	50.000	0.012	ENVC	0.028	C10
STORY1	B7	V25X50	50.000	0.011	ENVC	0.027	ENVC
STORY1	B7	V25X50	75.000	0.011	ENVC	0.026	C10
STORY1	B7	V25X50	75.000	0.010	ENVC	0.026	C10
STORY1	B7	V25X50	100.000	0.010	ENVC	0.027	ENVC
STORY1	B7	V25X50	100.000	0.000	ENVC	0.029	C10
STORY1	B7	V25X50	125.000	0.000	ENVC	0.029	ENVC
STORY1	B7	V25X50	125.000	0.000	ENVC	0.031	C10
STORY1	B7	V25X50	150.000	0.000	ENVC	0.032	C10
STORY1	B7	V25X50	150.000	0.000	ENVC	0.034	C10
STORY1	B7	V25X50	175.000	0.000	ENVC	0.034	C10
STORY1	B7	V25X50	175.000	0.009	ENVC	0.036	C10
STORY1	B7	V25X50	200.000	0.009	ENVC	0.037	C10
STORY1	B7	V25X50	200.000	0.013	ENVC	0.039	C10
STORY1	B7	V25X50	225.000	0.013	ENVC	0.040	C10
STORY1	B7	V25X50	225.000	0.016	ENVC	0.041	C10
STORY1	B7	V25X50	250.000	0.016	ENVC	0.042	C10
STORY1	B7	V25X50	250.000	0.021	ENVC	0.043	C10
STORY1	B7	V25X50	275.000	0.021	ENVC	0.044	C10
STORY1	B7	V25X50	275.000	0.037	ENVC	0.030	C10
STORY1	B7	V25X50	280.000	0.037	ENVC	0.030	ENVC
STORY1	B8	V25X50	0.000	0.015	ENVC	0.028	C10
STORY1	B8	V25X50	24.444	0.015	ENVC	0.028	C10
STORY1	B8	V25X50	24.444	0.015	ENVC	0.027	C10
STORY1	B8	V25X50	48.889	0.015	ENVC	0.026	C10
STORY1	B8	V25X50	48.889	0.016	ENVC	0.026	ENVC
STORY1	B8	V25X50	73.333	0.016	ENVC	0.027	ENVC
STORY1	B8	V25X50	73.333	0.017	ENVC	0.029	ENVC
STORY1	B8	V25X50	97.778	0.017	ENVC	0.029	ENVC
STORY1	B8	V25X50	97.778	0.018	ENVC	0.032	C10
STORY1	B8	V25X50	122.222	0.018	ENVC	0.032	ENVC
STORY1	B8	V25X50	122.222	0.020	ENVC	0.035	C10
STORY1	B8	V25X50	146.667	0.020	ENVC	0.035	C10
STORY1	B8	V25X50	146.667	0.020	ENVC	0.038	C10
STORY1	B8	V25X50	171.111	0.020	ENVC	0.038	C10
STORY1	B8	V25X50	171.111	0.021	ENVC	0.040	C10
STORY1	B8	V25X50	195.556	0.021	ENVC	0.041	C10
STORY1	B8	V25X50	195.556	0.021	ENVC	0.040	C10
STORY1	B8	V25X50	220.000	0.021	ENVC	0.041	C10
STORY1	B9	V25X50	0.000	0.025	ENVC	0.047	C10
STORY1	B9	V25X50	25.000	0.025	ENVC	0.047	C10
STORY1	B9	V25X50	25.000	0.025	ENVC	0.047	C10
STORY1	B9	V25X50	50.000	0.025	ENVC	0.046	C10
STORY1	B9	V25X50	50.000	0.025	ENVC	0.044	C10
STORY1	B9	V25X50	75.000	0.025	ENVC	0.044	C10
STORY1	B9	V25X50	75.000	0.024	C6	0.041	ENVC
STORY1	B9	V25X50	100.000	0.024	C6	0.040	C10
STORY1	B9	V25X50	100.000	0.023	ENVC	0.038	ENVC
STORY1	B9	V25X50	125.000	0.023	ENVC	0.037	ENVC
STORY1	B9	V25X50	125.000	0.022	ENVC	0.035	ENVC
STORY1	B9	V25X50	150.000	0.022	ENVC	0.034	ENVC
STORY1	B9	V25X50	150.000	0.020	ENVC	0.032	ENVC
STORY1	B9	V25X50	175.000	0.020	ENVC	0.031	ENVC
STORY1	B9	V25X50	175.000	0.018	ENVC	0.030	ENVC
STORY1	B9	V25X50	200.000	0.018	ENVC	0.030	C10
STORY1	B11	V25X50	10.955	0.010	ENVC	0.014	ENVC
STORY1	B11	V25X50	25.000	0.010	ENVC	0.014	ENVC



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 56 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B11	V25X50	25.000	0.010	ENVC	0.015	ENVC
STORY1	B11	V25X50	50.000	0.010	ENVC	0.014	ENVC
STORY1	B11	V25X50	50.000	0.009	ENVC	0.014	ENVC
STORY1	B11	V25X50	75.000	0.009	ENVC	0.013	ENVC
STORY1	B11	V25X50	75.000	0.009	ENVC	0.013	ENVC
STORY1	B11	V25X50	100.000	0.009	ENVC	0.012	ENVC
STORY1	B11	V25X50	100.000	0.000	ENVC	0.011	ENVC
STORY1	B11	V25X50	125.000	0.000	ENVC	0.011	ENVC
STORY1	B11	V25X50	125.000	0.000	ENVC	0.010	ENVC
STORY1	B11	V25X50	150.000	0.000	ENVC	0.009	ENVC
STORY1	B11	V25X50	150.000	0.000	ENVC	0.008	ENVC
STORY1	B11	V25X50	175.000	0.000	ENVC	0.008	ENVC
STORY1	B11	V25X50	175.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	200.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	200.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	225.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	225.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	250.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	250.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	275.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	275.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	300.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	300.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	325.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	325.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	350.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	350.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	375.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	375.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	400.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	400.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	425.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	425.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	450.000	0.000	ENVC	0.000	ENVC
STORY1	B11	V25X50	450.000	0.009	ENVC	0.008	ENVC
STORY1	B11	V25X50	475.000	0.009	ENVC	0.009	ENVC
STORY1	B11	V25X50	475.000	0.010	ENVC	0.010	ENVC
STORY1	B11	V25X50	500.000	0.010	ENVC	0.010	ENVC
STORY1	B11	V25X50	500.000	0.011	ENVC	0.011	ENVC
STORY1	B11	V25X50	525.000	0.011	ENVC	0.012	ENVC
STORY1	B11	V25X50	525.000	0.012	ENVC	0.012	ENVC
STORY1	B11	V25X50	550.000	0.012	ENVC	0.013	ENVC
STORY1	B11	V25X50	550.000	0.013	ENVC	0.013	ENVC
STORY1	B11	V25X50	575.000	0.013	ENVC	0.014	ENVC
STORY1	B11	V25X50	575.000	0.014	ENVC	0.013	ENVC
STORY1	B11	V25X50	589.045	0.014	ENVC	0.014	ENVC
STORY1	B12	V25X50	10.955	0.000	ENVC	0.035	ENVC
STORY1	B12	V25X50	23.333	0.000	ENVC	0.035	ENVC
STORY1	B12	V25X50	23.333	0.000	ENVC	0.035	ENVC
STORY1	B12	V25X50	46.667	0.000	ENVC	0.035	C10
STORY1	B12	V25X50	46.667	0.000	ENVC	0.034	C10
STORY1	B12	V25X50	70.000	0.000	ENVC	0.033	C10
STORY1	B12	V25X50	70.000	0.000	ENVC	0.033	C10
STORY1	B12	V25X50	93.333	0.000	ENVC	0.032	C10
STORY1	B12	V25X50	93.333	0.000	ENVC	0.031	C10
STORY1	B12	V25X50	116.667	0.000	ENVC	0.030	C10
STORY1	B12	V25X50	116.667	0.000	ENVC	0.029	C10
STORY1	B12	V25X50	140.000	0.000	ENVC	0.028	C10
STORY1	B12	V25X50	140.000	0.000	ENVC	0.027	C10
STORY1	B12	V25X50	163.333	0.000	ENVC	0.027	C10
STORY1	B12	V25X50	163.333	0.000	ENVC	0.026	C10
STORY1	B12	V25X50	186.667	0.000	ENVC	0.025	C10
STORY1	B12	V25X50	186.667	0.000	ENVC	0.025	C10
STORY1	B12	V25X50	210.000	0.000	ENVC	0.024	C10
STORY1	B13	V15X50	0.000	0.000	ENVC	0.006	C18
STORY1	B13	V15X50	25.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	25.000	0.000	ENVC	0.006	C18




Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 57 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B13	V15X50	50.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	50.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	75.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	75.000	0.000	ENVC	0.004	C18
STORY1	B13	V15X50	100.000	0.000	ENVC	0.004	C18
STORY1	B13	V15X50	100.000	0.000	ENVC	0.003	C18
STORY1	B13	V15X50	125.000	0.000	ENVC	0.003	C18
STORY1	B13	V15X50	125.000	0.000	ENVC	0.004	C18
STORY1	B13	V15X50	150.000	0.000	ENVC	0.004	C18
STORY1	B13	V15X50	150.000	0.000	ENVC	0.004	C18
STORY1	B13	V15X50	175.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	175.000	0.000	ENVC	0.005	C18
STORY1	B13	V15X50	200.000	0.000	ENVC	0.005	C18
STORY1	B14	V15X50	0.000	0.000	ENVC	0.009	C18
STORY1	B14	V15X50	24.444	0.000	ENVC	0.009	C18
STORY1	B14	V15X50	24.444	0.000	ENVC	0.009	C18
STORY1	B14	V15X50	48.889	0.000	ENVC	0.008	C18
STORY1	B14	V15X50	48.889	0.000	ENVC	0.008	C18
STORY1	B14	V15X50	73.333	0.000	ENVC	0.008	C18
STORY1	B14	V15X50	73.333	0.000	ENVC	0.007	C18
STORY1	B14	V15X50	97.778	0.000	ENVC	0.007	C18
STORY1	B14	V15X50	97.778	0.010	ENVC	0.006	C18
STORY1	B14	V15X50	122.222	0.010	ENVC	0.006	C18
STORY1	B14	V15X50	122.222	0.012	ENVC	0.005	C18
STORY1	B14	V15X50	146.667	0.012	ENVC	0.005	C18
STORY1	B14	V15X50	146.667	0.013	ENVC	0.005	C18
STORY1	B14	V15X50	171.111	0.013	ENVC	0.006	C18
STORY1	B14	V15X50	171.111	0.013	ENVC	0.006	C18
STORY1	B14	V15X50	195.556	0.013	ENVC	0.006	C18
STORY1	B14	V15X50	195.556	0.013	ENVC	0.006	C18
STORY1	B14	V15X50	220.000	0.013	ENVC	0.006	C18
STORY1	B15	V25X50	10.955	0.000	ENVC	0.035	C10
STORY1	B15	V25X50	25.000	0.000	ENVC	0.035	C10
STORY1	B15	V25X50	25.000	0.000	ENVC	0.032	C10
STORY1	B15	V25X50	50.000	0.000	ENVC	0.032	C10
STORY1	B15	V25X50	50.000	0.000	ENVC	0.029	ENVC
STORY1	B15	V25X50	75.000	0.000	ENVC	0.028	C10
STORY1	B15	V25X50	75.000	0.000	ENVC	0.027	C10
STORY1	B15	V25X50	100.000	0.000	ENVC	0.028	C10
STORY1	B15	V25X50	100.000	0.000	ENVC	0.031	C10
STORY1	B15	V25X50	125.000	0.000	ENVC	0.032	C10
STORY1	B15	V25X50	125.000	0.000	ENVC	0.035	C10
STORY1	B15	V25X50	150.000	0.000	ENVC	0.036	C10
STORY1	B15	V25X50	150.000	0.000	ENVC	0.038	C10
STORY1	B15	V25X50	175.000	0.000	ENVC	0.039	C10
STORY1	B15	V25X50	175.000	0.000	ENVC	0.040	C10
STORY1	B15	V25X50	189.045	0.000	ENVC	0.041	C10
STORY1	B16	V25X50	10.955	0.000	ENVC	0.038	C10
STORY1	B16	V25X50	25.000	0.000	ENVC	0.037	C10
STORY1	B16	V25X50	25.000	0.000	ENVC	0.035	C10
STORY1	B16	V25X50	50.000	0.000	ENVC	0.035	C10
STORY1	B16	V25X50	50.000	0.000	ENVC	0.032	C10
STORY1	B16	V25X50	75.000	0.000	ENVC	0.032	C10
STORY1	B16	V25X50	75.000	0.000	ENVC	0.029	ENVC
STORY1	B16	V25X50	100.000	0.000	ENVC	0.029	C10
STORY1	B16	V25X50	100.000	0.000	ENVC	0.032	C10
STORY1	B16	V25X50	125.000	0.000	ENVC	0.033	C10
STORY1	B16	V25X50	125.000	0.000	ENVC	0.036	C10
STORY1	B16	V25X50	150.000	0.000	ENVC	0.036	C10
STORY1	B16	V25X50	150.000	0.000	ENVC	0.038	C10
STORY1	B16	V25X50	175.000	0.000	ENVC	0.039	C10
STORY1	B16	V25X50	175.000	0.000	ENVC	0.041	C10
STORY1	B16	V25X50	189.045	0.000	ENVC	0.041	C10
STORY1	B17	V25X50	0.000	0.033	ENVC	0.067	C10
STORY1	B17	V25X50	22.500	0.033	ENVC	0.068	C10



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 58 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B17	V25X50	22.500	0.032	ENVC	0.060	C10
STORY1	B17	V25X50	24.444	0.032	ENVC	0.060	ENVC
STORY1	B17	V25X50	24.444	0.032	C10	0.068	C10
STORY1	B17	V25X50	45.000	0.032	C10	0.069	ENVC
STORY1	B17	V25X50	45.000	0.032	C10	0.060	C10
STORY1	B17	V25X50	48.889	0.032	C10	0.061	ENVC
STORY1	B17	V25X50	48.889	0.031	ENVC	0.069	C10
STORY1	B17	V25X50	67.500	0.031	ENVC	0.070	ENVC
STORY1	B17	V25X50	67.500	0.028	ENVC	0.062	C10
STORY1	B17	V25X50	73.333	0.028	ENVC	0.062	ENVC
STORY1	B17	V25X50	73.333	0.023	ENVC	0.071	C10
STORY1	B17	V25X50	79.045	0.023	ENVC	0.071	C10
STORY1	B18	V25X50	7.578	0.022	C6	0.023	C18
STORY1	B18	V25X50	7.778	0.022	C6	0.023	C18
STORY1	B18	V25X50	7.778	0.029	ENVC	0.029	C18
STORY1	B18	V25X50	21.667	0.029	ENVC	0.028	C18
STORY1	B18	V25X50	21.667	0.032	ENVC	0.025	C18
STORY1	B18	V25X50	32.222	0.032	ENVC	0.025	C18
STORY1	B18	V25X50	32.222	0.034	ENVC	0.025	C18
STORY1	B18	V25X50	43.333	0.034	ENVC	0.025	C18
STORY1	B18	V25X50	43.333	0.034	ENVC	0.026	C18
STORY1	B18	V25X50	56.667	0.034	ENVC	0.026	C18
STORY1	B18	V25X50	56.667	0.034	ENVC	0.022	C18
STORY1	B18	V25X50	65.000	0.034	ENVC	0.022	C18
STORY1	B18	V25X50	65.000	0.034	ENVC	0.027	C18
STORY1	B18	V25X50	81.111	0.034	ENVC	0.026	C18
STORY1	B18	V25X50	81.111	0.034	ENVC	0.020	C18
STORY1	B18	V25X50	86.667	0.034	ENVC	0.019	C18
STORY1	B18	V25X50	86.667	0.033	C10	0.027	C18
STORY1	B18	V25X50	105.556	0.033	C10	0.026	C18
STORY1	B18	V25X50	105.556	0.033	C10	0.018	C18
STORY1	B18	V25X50	108.333	0.033	C10	0.018	C18
STORY1	B18	V25X50	108.333	0.032	ENVC	0.027	C18
STORY1	B18	V25X50	130.000	0.032	ENVC	0.026	C18
STORY1	B19	V25X50	0.000	0.030	ENVC	0.030	C10
STORY1	B19	V25X50	22.000	0.030	ENVC	0.031	C10
STORY1	B19	V25X50	22.000	0.030	ENVC	0.018	C10
STORY1	B19	V25X50	25.000	0.030	ENVC	0.018	ENVC
STORY1	B19	V25X50	25.000	0.031	ENVC	0.030	C10
STORY1	B19	V25X50	44.000	0.031	ENVC	0.031	ENVC
STORY1	B19	V25X50	44.000	0.031	ENVC	0.020	C10
STORY1	B19	V25X50	50.000	0.031	ENVC	0.021	ENVC
STORY1	B19	V25X50	50.000	0.031	ENVC	0.030	C10
STORY1	B19	V25X50	66.000	0.031	ENVC	0.031	ENVC
STORY1	B19	V25X50	66.000	0.030	ENVC	0.024	C10
STORY1	B19	V25X50	75.000	0.030	ENVC	0.025	ENVC
STORY1	B19	V25X50	75.000	0.029	ENVC	0.029	C10
STORY1	B19	V25X50	88.000	0.029	ENVC	0.030	ENVC
STORY1	B19	V25X50	88.000	0.026	C4	0.029	C10
STORY1	B19	V25X50	100.000	0.026	C4	0.030	ENVC
STORY1	B19	V25X50	100.000	0.021	ENVC	0.027	C10
STORY1	B19	V25X50	100.200	0.021	ENVC	0.027	C10
STORY1	B20	V25X50	10.955	0.018	ENVC	0.042	C10
STORY1	B20	V25X50	15.000	0.018	ENVC	0.042	C10
STORY1	B20	V25X50	15.000	0.023	ENVC	0.040	ENVC
STORY1	B20	V25X50	22.500	0.023	ENVC	0.040	C10
STORY1	B20	V25X50	22.500	0.026	ENVC	0.041	ENVC
STORY1	B20	V25X50	40.000	0.026	ENVC	0.041	C10
STORY1	B20	V25X50	40.000	0.027	ENVC	0.040	ENVC
STORY1	B20	V25X50	45.000	0.027	ENVC	0.039	C10
STORY1	B20	V25X50	45.000	0.028	ENVC	0.040	ENVC
STORY1	B20	V25X50	65.000	0.028	ENVC	0.040	ENVC
STORY1	B20	V25X50	65.000	0.029	ENVC	0.039	ENVC
STORY1	B20	V25X50	67.500	0.029	ENVC	0.039	ENVC
STORY1	B20	V25X50	67.500	0.029	ENVC	0.039	C10
STORY1	B20	V25X50	90.000	0.029	ENVC	0.040	ENVC

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 59 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

RESISTENCIA AL CORTANTE DE VIGAS (C.21.3.3.1.b)

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C O N C R E T E B E A M D E S I G N O U T P U T (ACI 318-08/IBC 2009)

TORSION AND SHEAR DESIGN OF BEAM-TYPE ELEMENTS

STORY ID	BEAM BAY	SECTION ID	STATION ID	<-----REQUIRED REINFORCING----->			
				TORSION	COMBO	SHEAR	COMBO
STORY1	B2	V25X50	0.000	0.000	VNV16	0.035	VNV16
STORY1	B2	V25X50	24.500	0.000	VNV16	0.034	VNV16
STORY1	B2	V25X50	24.500	0.000	VNV16	0.034	VNV16
STORY1	B2	V25X50	49.000	0.000	VNV16	0.033	VNV16
STORY1	B2	V25X50	49.000	0.000	VNV16	0.033	VNV16
STORY1	B2	V25X50	73.500	0.000	VNV16	0.032	VNV16
STORY1	B2	V25X50	73.500	0.000	VNV16	0.031	VNV16
STORY1	B2	V25X50	98.000	0.000	VNV16	0.031	VNV16
STORY1	B2	V25X50	98.000	0.000	VNV16	0.030	VNV16
STORY1	B2	V25X50	122.500	0.000	VNV16	0.029	VNV16
STORY1	B2	V25X50	122.500	0.000	VNV16	0.028	VNV16
STORY1	B2	V25X50	147.000	0.000	VNV16	0.027	VNV16
STORY1	B2	V25X50	147.000	0.000	VNV16	0.026	VNV16
STORY1	B2	V25X50	171.500	0.000	VNV16	0.026	VNV16
STORY1	B2	V25X50	171.500	0.000	VNV16	0.026	VNV16
STORY1	B2	V25X50	196.000	0.000	VNV16	0.027	VNV16
STORY1	B2	V25X50	196.000	0.000	VNV16	0.028	VNV16
STORY1	B2	V25X50	220.500	0.000	VNV16	0.029	VNV16
STORY1	B2	V25X50	220.500	0.000	VNV16	0.030	VNV16
STORY1	B2	V25X50	245.000	0.000	VNV16	0.031	VNV16
STORY1	B2	V25X50	245.000	0.000	VNV16	0.032	VNV16
STORY1	B2	V25X50	269.500	0.000	VNV16	0.033	VNV16
STORY1	B2	V25X50	269.500	0.009	VNV8	0.034	VNV16
STORY1	B2	V25X50	294.000	0.009	VNV8	0.035	VNV16
STORY1	B2	V25X50	294.000	0.009	VNV8	0.036	VNV16
STORY1	B2	V25X50	318.500	0.009	VNV8	0.037	VNV16
STORY1	B2	V25X50	318.500	0.010	VNV8	0.038	VNV16
STORY1	B2	V25X50	343.000	0.010	VNV8	0.039	VNV16
STORY1	B2	V25X50	343.000	0.010	VNV8	0.040	VNV16
STORY1	B2	V25X50	367.500	0.010	VNV8	0.041	VNV16
STORY1	B2	V25X50	367.500	0.010	VNV8	0.042	VNV16
STORY1	B2	V25X50	392.000	0.010	VNV8	0.043	VNV16
STORY1	B2	V25X50	392.000	0.010	VNV8	0.044	VNV16
STORY1	B2	V25X50	416.500	0.010	VNV8	0.045	VNV16
STORY1	B2	V25X50	416.500	0.011	VNV8	0.046	VNV16
STORY1	B2	V25X50	441.000	0.011	VNV8	0.047	VNV16
STORY1	B2	V25X50	441.000	0.012	VNV8	0.047	VNV16
STORY1	B2	V25X50	465.500	0.012	VNV8	0.048	VNV16
STORY1	B2	V25X50	465.500	0.015	VNV8	0.049	VNV16
STORY1	B2	V25X50	479.045	0.015	VNV8	0.049	VNV16
STORY1	B3	V25X50	10.955	0.000	VNV16	0.011	VNV8
STORY1	B3	V25X50	25.000	0.000	VNV16	0.010	VNV8
STORY1	B3	V25X50	25.000	0.000	VNV16	0.010	VNV8
STORY1	B3	V25X50	50.000	0.000	VNV16	0.009	VNV8
STORY1	B3	V25X50	50.000	0.000	VNV16	0.007	VNV8
STORY1	B3	V25X50	75.000	0.000	VNV16	0.006	VNV8
STORY1	B3	V25X50	75.000	0.000	VNV16	0.004	VNV8
STORY1	B3	V25X50	100.000	0.000	VNV16	0.003	VNV8
STORY1	B3	V25X50	100.000	0.000	VNV16	5.225E-04	VNV8
STORY1	B3	V25X50	125.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	125.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	150.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	150.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	175.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	175.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	200.000	0.000	VNV16	0.000	VNV16



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 60 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B3	V25X50	200.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	225.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	225.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	250.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	250.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	275.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	275.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	300.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	300.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	325.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	325.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	350.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	350.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	375.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	375.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	400.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	400.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	425.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	425.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	450.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	450.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	475.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	475.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	500.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	500.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	525.000	0.000	VNV16	0.000	VNV16
STORY1	B3	V25X50	525.000	0.000	VNV16	2.099E-04	VNV8
STORY1	B3	V25X50	550.000	0.000	VNV16	0.001	VNV8
STORY1	B3	V25X50	550.000	0.000	VNV16	0.003	VNV8
STORY1	B3	V25X50	575.000	0.000	VNV16	0.004	VNV8
STORY1	B3	V25X50	575.000	0.011	VNV8	0.005	VNV8
STORY1	B3	V25X50	589.045	0.011	VNV8	0.005	VNV8
STORY1	B4	V25X50	10.955	0.012	VNV8	0.052	VNV8
STORY1	B4	V25X50	23.333	0.012	VNV8	0.051	VNV8
STORY1	B4	V25X50	23.333	0.010	VNV8	0.051	VNV8
STORY1	B4	V25X50	46.667	0.010	VNV8	0.050	VNV8
STORY1	B4	V25X50	46.667	0.010	VNV8	0.048	VNV8
STORY1	B4	V25X50	70.000	0.010	VNV8	0.047	VNV8
STORY1	B4	V25X50	70.000	0.009	VNV8	0.045	VNV8
STORY1	B4	V25X50	93.333	0.009	VNV8	0.044	VNV8
STORY1	B4	V25X50	93.333	0.000	VNV16	0.042	VNV8
STORY1	B4	V25X50	116.667	0.000	VNV16	0.041	VNV8
STORY1	B4	V25X50	116.667	0.000	VNV16	0.039	VNV8
STORY1	B4	V25X50	140.000	0.000	VNV16	0.038	VNV8
STORY1	B4	V25X50	140.000	0.000	VNV16	0.037	VNV8
STORY1	B4	V25X50	163.333	0.000	VNV16	0.036	VNV8
STORY1	B4	V25X50	163.333	0.000	VNV16	0.034	VNV8
STORY1	B4	V25X50	186.667	0.000	VNV16	0.033	VNV8
STORY1	B4	V25X50	186.667	0.000	VNV16	0.031	VNV8
STORY1	B4	V25X50	210.000	0.000	VNV16	0.031	VNV16
STORY1	B5	V25X50	0.000	0.010	VNV8	0.032	VNV16
STORY1	B5	V25X50	25.000	0.010	VNV8	0.031	VNV16
STORY1	B5	V25X50	25.000	0.009	VNV8	0.030	VNV16
STORY1	B5	V25X50	50.000	0.009	VNV8	0.030	VNV16
STORY1	B5	V25X50	50.000	0.000	VNV16	0.029	VNV16
STORY1	B5	V25X50	75.000	0.000	VNV16	0.028	VNV16
STORY1	B5	V25X50	75.000	0.000	VNV16	0.027	VNV16
STORY1	B5	V25X50	100.000	0.000	VNV16	0.026	VNV16
STORY1	B5	V25X50	100.000	0.000	VNV16	0.025	VNV16
STORY1	B5	V25X50	125.000	0.000	VNV16	0.024	VNV16
STORY1	B5	V25X50	125.000	0.000	VNV16	0.023	VNV16
STORY1	B5	V25X50	150.000	0.000	VNV16	0.022	VNV16
STORY1	B5	V25X50	150.000	0.000	VNV16	0.021	VNV16
STORY1	B5	V25X50	175.000	0.000	VNV16	0.020	VNV16
STORY1	B5	V25X50	175.000	0.000	VNV16	0.020	VNV16
STORY1	B5	V25X50	200.000	0.000	VNV16	0.021	VNV16
STORY1	B5	V25X50	200.000	0.000	VNV16	0.022	VNV16



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
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Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 61 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B5	V25X50	225.000	0.000	VNV16	0.023	VNV16
STORY1	B5	V25X50	225.000	0.000	VNV16	0.023	VNV16
STORY1	B5	V25X50	250.000	0.000	VNV16	0.024	VNV16
STORY1	B5	V25X50	250.000	0.000	VNV16	0.025	VNV16
STORY1	B5	V25X50	275.000	0.000	VNV16	0.026	VNV16
STORY1	B5	V25X50	275.000	0.000	VNV16	0.026	VNV16
STORY1	B5	V25X50	300.000	0.000	VNV16	0.026	VNV16
STORY1	B7	V25X50	0.000	0.016	VNV4	0.034	VNV8
STORY1	B7	V25X50	25.000	0.016	VNV4	0.034	VNV8
STORY1	B7	V25X50	25.000	0.015	VNV4	0.033	VNV8
STORY1	B7	V25X50	50.000	0.015	VNV4	0.032	VNV8
STORY1	B7	V25X50	50.000	0.015	VNV4	0.031	VNV8
STORY1	B7	V25X50	75.000	0.015	VNV4	0.030	VNV8
STORY1	B7	V25X50	75.000	0.013	VNV4	0.030	VNV8
STORY1	B7	V25X50	100.000	0.013	VNV4	0.031	VNV8
STORY1	B7	V25X50	100.000	0.012	VNV4	0.032	VNV8
STORY1	B7	V25X50	125.000	0.012	VNV4	0.033	VNV8
STORY1	B7	V25X50	125.000	0.010	VNV4	0.035	VNV8
STORY1	B7	V25X50	150.000	0.010	VNV4	0.036	VNV8
STORY1	B7	V25X50	150.000	0.011	VNV4	0.038	VNV8
STORY1	B7	V25X50	175.000	0.011	VNV4	0.038	VNV8
STORY1	B7	V25X50	175.000	0.015	VNV4	0.040	VNV8
STORY1	B7	V25X50	200.000	0.015	VNV4	0.041	VNV8
STORY1	B7	V25X50	200.000	0.019	VNV4	0.043	VNV8
STORY1	B7	V25X50	225.000	0.019	VNV4	0.043	VNV8
STORY1	B7	V25X50	225.000	0.024	VNV4	0.045	VNV8
STORY1	B7	V25X50	250.000	0.024	VNV4	0.046	VNV8
STORY1	B7	V25X50	250.000	0.030	VNV4	0.047	VNV8
STORY1	B7	V25X50	275.000	0.030	VNV4	0.048	VNV8
STORY1	B8	V25X50	0.000	0.018	VNV4	0.039	VNV8
STORY1	B8	V25X50	24.444	0.018	VNV4	0.039	VNV8
STORY1	B8	V25X50	24.444	0.018	VNV4	0.038	VNV8
STORY1	B8	V25X50	48.889	0.018	VNV4	0.037	VNV8
STORY1	B8	V25X50	48.889	0.018	VNV8	0.037	VNV8
STORY1	B8	V25X50	73.333	0.018	VNV8	0.037	VNV8
STORY1	B8	V25X50	73.333	0.020	VNV8	0.040	VNV8
STORY1	B8	V25X50	97.778	0.020	VNV8	0.040	VNV8
STORY1	B8	V25X50	97.778	0.021	VNV8	0.043	VNV8
STORY1	B8	V25X50	122.222	0.021	VNV8	0.043	VNV8
STORY1	B8	V25X50	122.222	0.023	VNV8	0.046	VNV8
STORY1	B8	V25X50	146.667	0.023	VNV8	0.047	VNV8
STORY1	B8	V25X50	146.667	0.024	VNV8	0.049	VNV8
STORY1	B8	V25X50	171.111	0.024	VNV8	0.049	VNV8
STORY1	B8	V25X50	171.111	0.026	VNV8	0.051	VNV8
STORY1	B8	V25X50	195.556	0.026	VNV8	0.052	VNV8
STORY1	B8	V25X50	195.556	0.027	VNV8	0.051	VNV8
STORY1	B8	V25X50	220.000	0.027	VNV8	0.052	VNV8
STORY1	B9	V25X50	0.000	0.030	VNV4	0.057	VNV8
STORY1	B9	V25X50	25.000	0.030	VNV4	0.056	VNV8
STORY1	B9	V25X50	25.000	0.030	VNV4	0.057	VNV8
STORY1	B9	V25X50	50.000	0.030	VNV4	0.056	VNV8
STORY1	B9	V25X50	50.000	0.029	VNV4	0.054	VNV8
STORY1	B9	V25X50	75.000	0.029	VNV4	0.053	VNV8
STORY1	B9	V25X50	75.000	0.028	VNV4	0.051	VNV8
STORY1	B9	V25X50	100.000	0.028	VNV4	0.050	VNV8
STORY1	B9	V25X50	100.000	0.026	VNV4	0.047	VNV8
STORY1	B9	V25X50	125.000	0.026	VNV4	0.047	VNV8
STORY1	B9	V25X50	125.000	0.024	VNV4	0.044	VNV8
STORY1	B9	V25X50	150.000	0.024	VNV4	0.044	VNV8
STORY1	B9	V25X50	150.000	0.023	VNV4	0.042	VNV8
STORY1	B9	V25X50	175.000	0.023	VNV4	0.041	VNV8
STORY1	B9	V25X50	175.000	0.021	VNV4	0.040	VNV16
STORY1	B9	V25X50	200.000	0.021	VNV4	0.040	VNV8
STORY1	B11	V25X50	10.955	0.013	VNV8	0.028	VNV16
STORY1	B11	V25X50	25.000	0.013	VNV8	0.027	VNV16



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 62 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B11	V25X50	25.000	0.012	VNV8	0.028	VNV16
STORY1	B11	V25X50	50.000	0.012	VNV8	0.027	VNV16
STORY1	B11	V25X50	50.000	0.011	VNV8	0.027	VNV16
STORY1	B11	V25X50	75.000	0.011	VNV8	0.027	VNV16
STORY1	B11	V25X50	75.000	0.010	VNV8	0.026	VNV16
STORY1	B11	V25X50	100.000	0.010	VNV8	0.026	VNV16
STORY1	B11	V25X50	100.000	0.009	VNV8	0.025	VNV16
STORY1	B11	V25X50	125.000	0.009	VNV8	0.025	VNV16
STORY1	B11	V25X50	125.000	0.000	VNV16	0.024	VNV16
STORY1	B11	V25X50	150.000	0.000	VNV16	0.024	VNV16
STORY1	B11	V25X50	150.000	0.000	VNV16	0.023	VNV16
STORY1	B11	V25X50	175.000	0.000	VNV16	0.022	VNV16
STORY1	B11	V25X50	175.000	0.000	VNV16	0.021	VNV16
STORY1	B11	V25X50	200.000	0.000	VNV16	0.021	VNV16
STORY1	B11	V25X50	200.000	0.000	VNV16	0.020	VNV16
STORY1	B11	V25X50	225.000	0.000	VNV16	0.020	VNV16
STORY1	B11	V25X50	225.000	0.000	VNV16	0.019	VNV16
STORY1	B11	V25X50	250.000	0.000	VNV16	0.018	VNV16
STORY1	B11	V25X50	250.000	0.000	VNV16	0.017	VNV16
STORY1	B11	V25X50	275.000	0.000	VNV16	0.017	VNV16
STORY1	B11	V25X50	275.000	0.000	VNV16	0.016	VNV16
STORY1	B11	V25X50	300.000	0.000	VNV16	0.016	VNV16
STORY1	B11	V25X50	300.000	0.000	VNV16	0.015	VNV16
STORY1	B11	V25X50	325.000	0.000	VNV16	0.015	VNV16
STORY1	B11	V25X50	325.000	0.000	VNV16	0.016	VNV16
STORY1	B11	V25X50	350.000	0.000	VNV16	0.016	VNV16
STORY1	B11	V25X50	350.000	0.000	VNV16	0.017	VNV16
STORY1	B11	V25X50	375.000	0.000	VNV16	0.017	VNV16
STORY1	B11	V25X50	375.000	0.000	VNV16	0.018	VNV16
STORY1	B11	V25X50	400.000	0.000	VNV16	0.019	VNV16
STORY1	B11	V25X50	400.000	0.000	VNV16	0.020	VNV16
STORY1	B11	V25X50	425.000	0.000	VNV16	0.020	VNV16
STORY1	B11	V25X50	425.000	0.009	VNV8	0.021	VNV16
STORY1	B11	V25X50	450.000	0.009	VNV8	0.022	VNV16
STORY1	B11	V25X50	450.000	0.010	VNV8	0.022	VNV16
STORY1	B11	V25X50	475.000	0.010	VNV8	0.023	VNV16
STORY1	B11	V25X50	475.000	0.012	VNV8	0.024	VNV16
STORY1	B11	V25X50	500.000	0.012	VNV8	0.024	VNV16
STORY1	B11	V25X50	500.000	0.013	VNV8	0.025	VNV16
STORY1	B11	V25X50	525.000	0.013	VNV8	0.025	VNV16
STORY1	B11	V25X50	525.000	0.014	VNV8	0.026	VNV16
STORY1	B11	V25X50	550.000	0.014	VNV8	0.027	VNV16
STORY1	B11	V25X50	550.000	0.016	VNV8	0.027	VNV16
STORY1	B11	V25X50	575.000	0.016	VNV8	0.027	VNV16
STORY1	B11	V25X50	575.000	0.017	VNV8	0.027	VNV16
STORY1	B11	V25X50	589.045	0.017	VNV8	0.027	VNV16
STORY1	B12	V25X50	10.955	0.012	VNV8	0.042	VNV8
STORY1	B12	V25X50	23.333	0.012	VNV8	0.041	VNV8
STORY1	B12	V25X50	23.333	0.011	VNV8	0.041	VNV8
STORY1	B12	V25X50	46.667	0.011	VNV8	0.041	VNV8
STORY1	B12	V25X50	46.667	0.010	VNV8	0.040	VNV8
STORY1	B12	V25X50	70.000	0.010	VNV8	0.040	VNV8
STORY1	B12	V25X50	70.000	0.010	VNV8	0.039	VNV8
STORY1	B12	V25X50	93.333	0.010	VNV8	0.038	VNV8
STORY1	B12	V25X50	93.333	0.010	VNV8	0.037	VNV8
STORY1	B12	V25X50	116.667	0.010	VNV8	0.037	VNV8
STORY1	B12	V25X50	116.667	0.010	VNV8	0.035	VNV8
STORY1	B12	V25X50	140.000	0.010	VNV8	0.035	VNV8
STORY1	B12	V25X50	140.000	0.011	VNV8	0.034	VNV8
STORY1	B12	V25X50	163.333	0.011	VNV8	0.033	VNV8
STORY1	B12	V25X50	163.333	0.011	VNV8	0.032	VNV8
STORY1	B12	V25X50	186.667	0.011	VNV8	0.032	VNV8
STORY1	B12	V25X50	186.667	0.011	VNV8	0.031	VNV8
STORY1	B12	V25X50	210.000	0.011	VNV8	0.030	VNV8
STORY1	B13	V15X50	0.000	0.000	VNV16	0.009	VNV8
STORY1	B13	V15X50	25.000	0.000	VNV16	0.008	VNV8
STORY1	B13	V15X50	25.000	0.000	VNV16	0.009	VNV8



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 63 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	B13	V15X50	50.000	0.000	VNV16	0.008	VNV8
STORY1	B13	V15X50	50.000	0.000	VNV16	0.008	VNV8
STORY1	B13	V15X50	75.000	0.000	VNV16	0.007	VNV8
STORY1	B13	V15X50	75.000	0.000	VNV16	0.006	VNV8
STORY1	B13	V15X50	100.000	0.000	VNV16	0.006	VNV8
STORY1	B13	V15X50	100.000	0.000	VNV16	0.005	VNV8
STORY1	B13	V15X50	125.000	0.000	VNV16	0.005	VNV8
STORY1	B13	V15X50	125.000	0.000	VNV16	0.005	VNV8
STORY1	B13	V15X50	150.000	0.000	VNV16	0.006	VNV8
STORY1	B13	V15X50	150.000	0.000	VNV16	0.007	VNV8
STORY1	B13	V15X50	175.000	0.000	VNV16	0.007	VNV8
STORY1	B13	V15X50	175.000	0.000	VNV16	0.007	VNV8
STORY1	B13	V15X50	200.000	0.000	VNV16	0.007	VNV8
STORY1	B14	V15X50	0.000	0.000	VNV16	0.010	VNV16
STORY1	B14	V15X50	24.444	0.000	VNV16	0.010	VNV16
STORY1	B14	V15X50	24.444	0.000	VNV16	0.010	VNV16
STORY1	B14	V15X50	48.889	0.000	VNV16	0.009	VNV16
STORY1	B14	V15X50	48.889	0.000	VNV16	0.009	VNV16
STORY1	B14	V15X50	73.333	0.000	VNV16	0.008	VNV16
STORY1	B14	V15X50	73.333	0.000	VNV16	0.008	VNV16
STORY1	B14	V15X50	97.778	0.000	VNV16	0.007	VNV16
STORY1	B14	V15X50	97.778	0.010	VNV4	0.007	VNV16
STORY1	B14	V15X50	122.222	0.010	VNV4	0.006	VNV16
STORY1	B14	V15X50	122.222	0.012	VNV4	0.006	VNV16
STORY1	B14	V15X50	146.667	0.012	VNV4	0.006	VNV16
STORY1	B14	V15X50	146.667	0.013	VNV4	0.006	VNV16
STORY1	B14	V15X50	171.111	0.013	VNV4	0.007	VNV16
STORY1	B14	V15X50	171.111	0.014	VNV4	0.007	VNV16
STORY1	B14	V15X50	195.556	0.014	VNV4	0.007	VNV16
STORY1	B14	V15X50	195.556	0.014	VNV4	0.007	VNV16
STORY1	B14	V15X50	220.000	0.014	VNV4	0.007	VNV16
STORY1	B15	V25X50	10.955	0.000	VNV16	0.055	VNV8
STORY1	B15	V25X50	25.000	0.000	VNV16	0.055	VNV8
STORY1	B15	V25X50	25.000	0.000	VNV16	0.052	VNV8
STORY1	B15	V25X50	50.000	0.000	VNV16	0.051	VNV8
STORY1	B15	V25X50	50.000	0.000	VNV16	0.048	VNV8
STORY1	B15	V25X50	75.000	0.000	VNV16	0.048	VNV8
STORY1	B15	V25X50	75.000	0.000	VNV16	0.047	VNV8
STORY1	B15	V25X50	100.000	0.000	VNV16	0.048	VNV8
STORY1	B15	V25X50	100.000	0.000	VNV16	0.051	VNV8
STORY1	B15	V25X50	125.000	0.000	VNV16	0.051	VNV8
STORY1	B15	V25X50	125.000	0.000	VNV16	0.055	VNV8
STORY1	B15	V25X50	150.000	0.000	VNV16	0.055	VNV8
STORY1	B15	V25X50	150.000	0.000	VNV16	0.057	VNV8
STORY1	B15	V25X50	175.000	0.000	VNV16	0.058	VNV8
STORY1	B15	V25X50	175.000	0.000	VNV16	0.060	VNV8
STORY1	B15	V25X50	189.045	0.000	VNV16	0.060	VNV8
STORY1	B16	V25X50	10.955	0.009	VNV4	0.062	VNV8
STORY1	B16	V25X50	25.000	0.009	VNV4	0.062	VNV8
STORY1	B16	V25X50	25.000	0.000	VNV16	0.060	VNV8
STORY1	B16	V25X50	50.000	0.000	VNV16	0.059	VNV8
STORY1	B16	V25X50	50.000	0.000	VNV16	0.057	VNV8
STORY1	B16	V25X50	75.000	0.000	VNV16	0.056	VNV8
STORY1	B16	V25X50	75.000	0.000	VNV16	0.053	VNV16
STORY1	B16	V25X50	100.000	0.000	VNV16	0.054	VNV8
STORY1	B16	V25X50	100.000	0.000	VNV16	0.057	VNV8
STORY1	B16	V25X50	125.000	0.000	VNV16	0.057	VNV8
STORY1	B16	V25X50	125.000	0.000	VNV16	0.060	VNV8
STORY1	B16	V25X50	150.000	0.000	VNV16	0.061	VNV8
STORY1	B16	V25X50	150.000	0.000	VNV16	0.063	VNV8
STORY1	B16	V25X50	175.000	0.000	VNV16	0.063	VNV8
STORY1	B16	V25X50	175.000	0.000	VNV16	0.065	VNV8
STORY1	B16	V25X50	189.045	0.000	VNV16	0.065	VNV8



Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUENO	Revisó:	ING. JUAN C. PATINO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 6.3. CHEQUEO DE CONFINAMIENTO



Propietario:	SEC. EDUCACION Y SEC. CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUENO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014


CHEQUEO DE CONFINAMIENTO
CAPACIDAD MODERADA DE DISIPACION DE ENERGIA (DMO)

SECCION cm		RECUBRIMIENTO	d (cm)
b	h	4 cm	46
35	50		

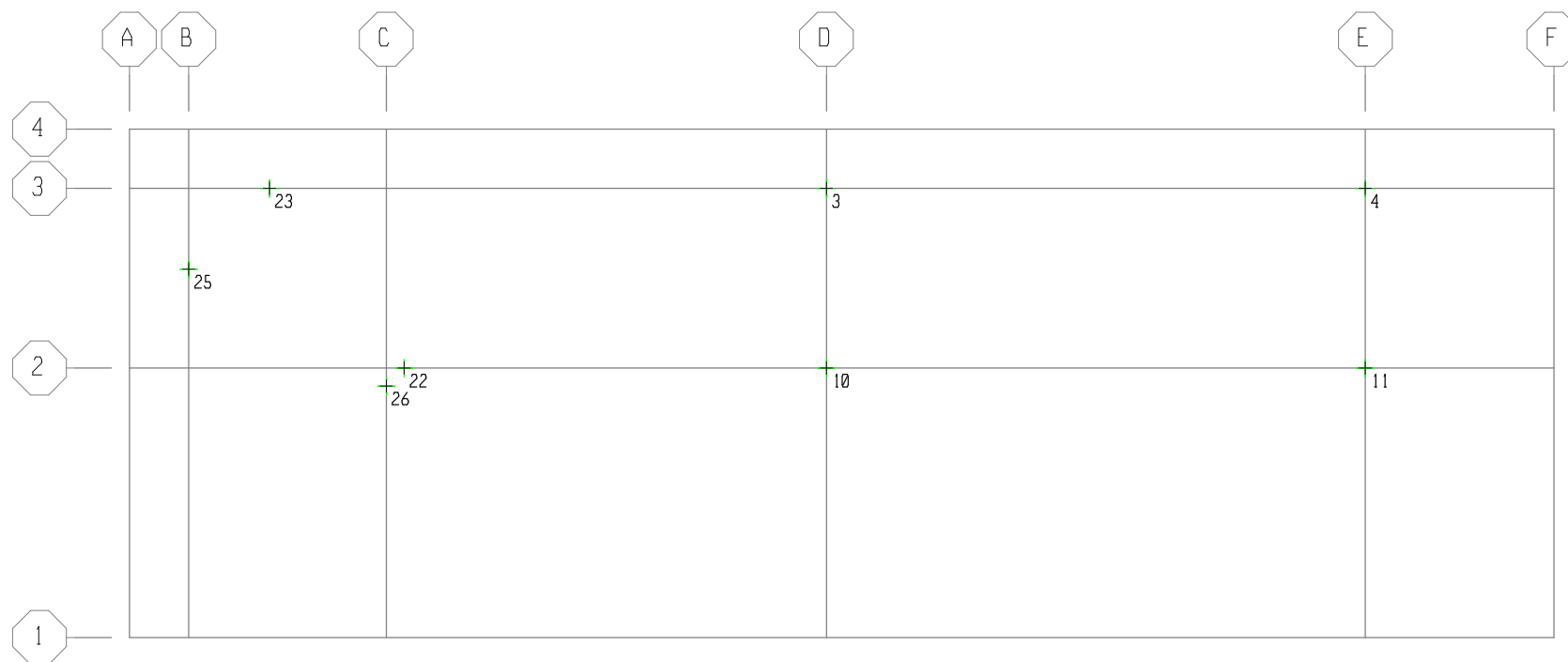
CONFINAMIENTO					
VIGAS DMO					
d/4	11.5				
8db	15.92	5	#	barra menor diametro	DMO
32dv	30.96	4	#	barra del estribo	8db
150 mm	15				
	11.50	USAR			


NO CONFINADO		
VIGAS DMO		
d/2	23	
	23	USAR

Ec (T/m2)	f'c = 28	Mpa
2675250	Wc = 2400	k/m3
2487006		

	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 64 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

ANEXO 7. REACCIONES DE CIMENTACION



	Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
	Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
	Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 65 DE 68
	Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

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L O A D I N G C O M B I N A T I O N S

COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
F1	ADD	DEAD	Static	1.0000
F2	ADD	DEAD	Static	1.0000
		LIVE	Static	1.0000
F3	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.2330
		SISMOY	Spectra	0.0700
F4	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.0700
		SISMOY	Spectra	0.2330
F5	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.1750
		SISMOY	Spectra	0.0530
		LIVE	Static	0.7500
F6	ADD	DEAD	Static	1.0000
		SISMOX	Spectra	0.0530
		SISMOY	Spectra	0.1750
		LIVE	Static	0.7500
F7	ADD	DEAD	Static	0.6000
		SISMOX	Spectra	0.2330
		SISMOY	Spectra	0.0700
F8	ADD	DEAD	Static	0.6000
		SISMOX	Spectra	0.0700
		SISMOY	Spectra	0.2330
ENVF	ENVE	F1	Combo	1.0000
		F2	Combo	1.0000
		F3	Combo	1.0000
		F4	Combo	1.0000
		F5	Combo	1.0000
		F6	Combo	1.0000
		F7	Combo	1.0000
		F8	Combo	1.0000

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S U P P O R T R E A C T I O N S

STORY	POINT	LOAD	FX	FY	FZ	MX	MY	MZ
STORY1	5	F1	0.00	0.00	0.54	0.000	0.000	0.000
STORY1	5	F2	0.00	0.00	0.62	0.000	0.000	0.000
STORY1	5	F3 Max	0.00	0.00	0.93	0.000	0.000	0.000
STORY1	5	F3 Min	0.00	0.00	0.15	0.000	0.000	0.000
STORY1	5	F4 Max	0.00	0.00	0.77	0.000	0.000	0.000
STORY1	5	F4 Min	0.00	0.00	0.31	0.000	0.000	0.000
STORY1	5	F5 Max	0.00	0.00	0.89	0.000	0.000	0.000
STORY1	5	F5 Min	0.00	0.00	0.31	0.000	0.000	0.000
STORY1	5	F6 Max	0.00	0.00	0.78	0.000	0.000	0.000
STORY1	5	F6 Min	0.00	0.00	0.43	0.000	0.000	0.000
STORY1	5	F7 Max	0.00	0.00	0.72	0.000	0.000	0.000
STORY1	5	F7 Min	0.00	0.00	-0.07	0.000	0.000	0.000
STORY1	5	F8 Max	0.00	0.00	0.56	0.000	0.000	0.000
STORY1	5	F8 Min	0.00	0.00	0.09	0.000	0.000	0.000
STORY1	5	ENVF Max	0.00	0.00	0.93	0.000	0.000	0.000
STORY1	5	ENVF Min	0.00	0.00	-0.07	0.000	0.000	0.000
STORY1	6	F1	0.00	0.00	3.17	0.000	0.000	0.000
STORY1	6	F2	0.00	0.00	3.82	0.000	0.000	0.000
STORY1	6	F3 Max	0.00	0.00	3.37	0.000	0.000	0.000
STORY1	6	F3 Min	0.00	0.00	2.98	0.000	0.000	0.000
STORY1	6	F4 Max	0.00	0.00	3.41	0.000	0.000	0.000
STORY1	6	F4 Min	0.00	0.00	2.94	0.000	0.000	0.000
STORY1	6	F5 Max	0.00	0.00	3.80	0.000	0.000	0.000



Propietario:	SECRETARIA DE EDUCACION Y SECRETARIA DE CULTURA	Calculó:	ING. FABIO RIVERA
Proyecto:	COLEGIO Y TEATRO EL ENSUEÑO	Revisó:	ING. JUAN C. PATIÑO
Localización:	BOGOTA - CUNDINAMARCA	Hoja:	PAGINA 66 DE 68
Contenido:	ESQUINEROS - M. DE CALCULOS	Fecha:	NOVIEMBRE - 2014

STORY1	6	F5 Min	0.00	0.00	3.51	0.000	0.000	0.000
STORY1	6	F6 Max	0.00	0.00	3.83	0.000	0.000	0.000
STORY1	6	F6 Min	0.00	0.00	3.48	0.000	0.000	0.000
STORY1	6	F7 Max	0.00	0.00	2.10	0.000	0.000	0.000
STORY1	6	F7 Min	0.00	0.00	1.71	0.000	0.000	0.000
STORY1	6	F8 Max	0.00	0.00	2.14	0.000	0.000	0.000
STORY1	6	F8 Min	0.00	0.00	1.67	0.000	0.000	0.000
STORY1	6	ENVF Max	0.00	0.00	3.83	0.000	0.000	0.000
STORY1	6	ENVF Min	0.00	0.00	1.67	0.000	0.000	0.000

STORY1	8	F1	0.00	0.00	0.70	0.000	0.000	0.000
STORY1	8	F2	0.00	0.00	0.81	0.000	0.000	0.000
STORY1	8	F3 Max	0.00	0.00	0.82	0.000	0.000	0.000
STORY1	8	F3 Min	0.00	0.00	0.59	0.000	0.000	0.000
STORY1	8	F4 Max	0.00	0.00	1.02	0.000	0.000	0.000
STORY1	8	F4 Min	0.00	0.00	0.39	0.000	0.000	0.000
STORY1	8	F5 Max	0.00	0.00	0.87	0.000	0.000	0.000
STORY1	8	F5 Min	0.00	0.00	0.70	0.000	0.000	0.000
STORY1	8	F6 Max	0.00	0.00	1.02	0.000	0.000	0.000
STORY1	8	F6 Min	0.00	0.00	0.55	0.000	0.000	0.000
STORY1	8	F7 Max	0.00	0.00	0.54	0.000	0.000	0.000
STORY1	8	F7 Min	0.00	0.00	0.30	0.000	0.000	0.000
STORY1	8	F8 Max	0.00	0.00	0.74	0.000	0.000	0.000
STORY1	8	F8 Min	0.00	0.00	0.11	0.000	0.000	0.000
STORY1	8	ENVF Max	0.00	0.00	1.02	0.000	0.000	0.000
STORY1	8	ENVF Min	0.00	0.00	0.11	0.000	0.000	0.000

STORY1	12	F1	0.00	0.00	0.07	0.000	0.000	0.000
STORY1	12	F2	0.00	0.00	0.04	0.000	0.000	0.000
STORY1	12	F3 Max	0.00	0.00	0.47	0.000	0.000	0.000
STORY1	12	F3 Min	0.00	0.00	-0.32	0.000	0.000	0.000
STORY1	12	F4 Max	0.00	0.00	0.30	0.000	0.000	0.000
STORY1	12	F4 Min	0.00	0.00	-0.16	0.000	0.000	0.000
STORY1	12	F5 Max	0.00	0.00	0.35	0.000	0.000	0.000
STORY1	12	F5 Min	0.00	0.00	-0.25	0.000	0.000	0.000
STORY1	12	F6 Max	0.00	0.00	0.22	0.000	0.000	0.000
STORY1	12	F6 Min	0.00	0.00	-0.12	0.000	0.000	0.000
STORY1	12	F7 Max	0.00	0.00	0.44	0.000	0.000	0.000
STORY1	12	F7 Min	0.00	0.00	-0.35	0.000	0.000	0.000
STORY1	12	F8 Max	0.00	0.00	0.27	0.000	0.000	0.000
STORY1	12	F8 Min	0.00	0.00	-0.18	0.000	0.000	0.000
STORY1	12	ENVF Max	0.00	0.00	0.47	0.000	0.000	0.000
STORY1	12	ENVF Min	0.00	0.00	-0.35	0.000	0.000	0.000

BASE	4	F1	-0.10	-0.03	8.11	0.057	-0.117	-0.001
BASE	4	F2	-0.12	-0.04	9.78	0.070	-0.142	-0.002
BASE	4	F3 Max	0.66	0.32	8.77	0.704	1.262	0.027
BASE	4	F3 Min	-0.86	-0.39	7.46	-0.590	-1.497	-0.030
BASE	4	F4 Max	0.20	0.87	9.57	1.713	0.427	0.061
BASE	4	F4 Min	-0.40	-0.94	6.65	-1.599	-0.661	-0.064
BASE	4	F5 Max	0.45	0.23	9.86	0.556	0.901	0.020
BASE	4	F5 Min	-0.69	-0.31	8.86	-0.422	-1.172	-0.023
BASE	4	F6 Max	0.11	0.64	10.46	1.311	0.276	0.045
BASE	4	F6 Min	-0.34	-0.72	8.26	-1.177	-0.547	-0.048
BASE	4	F7 Max	0.70	0.33	5.52	0.681	1.309	0.027
BASE	4	F7 Min	-0.82	-0.37	4.21	-0.613	-1.450	-0.029
BASE	4	F8 Max	0.24	0.89	6.33	1.690	0.474	0.061
BASE	4	F8 Min	-0.36	-0.93	3.41	-1.622	-0.615	-0.063
BASE	4	ENVF Max	0.70	0.89	10.46	1.713	1.309	0.061
BASE	4	ENVF Min	-0.86	-0.94	3.41	-1.622	-1.497	-0.064

BASE	11	F1	-0.07	0.01	4.87	0.006	-0.087	-0.001
BASE	11	F2	-0.09	0.01	5.79	0.006	-0.105	-0.002
BASE	11	F3 Max	0.68	0.36	5.52	0.652	1.285	0.027
BASE	11	F3 Min	-0.83	-0.34	4.23	-0.641	-1.460	-0.030
BASE	11	F4 Max	0.21	0.92	6.36	1.661	0.434	0.061
BASE	11	F4 Min	-0.36	-0.90	3.39	-1.650	-0.608	-0.064
BASE	11	F5 Max	0.48	0.28	6.05	0.495	0.931	0.020
BASE	11	F5 Min	-0.65	-0.25	5.07	-0.482	-1.131	-0.023



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BASE	11	F6 Max	0.13	0.69	6.68	1.250	0.293	0.045
BASE	11	F6 Min	-0.30	-0.67	4.44	-1.237	-0.494	-0.048
BASE	11	F7 Max	0.71	0.36	3.57	0.650	1.320	0.027
BASE	11	F7 Min	-0.80	-0.35	2.28	-0.643	-1.425	-0.029
BASE	11	F8 Max	0.24	0.91	4.41	1.659	0.469	0.061
BASE	11	F8 Min	-0.33	-0.90	1.44	-1.652	-0.573	-0.063
BASE	11	ENVF Max	0.71	0.92	6.68	1.661	1.320	0.061
BASE	11	ENVF Min	-0.83	-0.90	1.44	-1.652	-1.460	-0.064
BASE	10	F1	0.04	0.04	5.30	-0.033	0.048	-0.001
BASE	10	F2	0.05	0.05	6.29	-0.041	0.059	-0.002
BASE	10	F3 Max	0.80	0.28	5.85	0.403	1.422	0.027
BASE	10	F3 Min	-0.71	-0.20	4.75	-0.468	-1.326	-0.030
BASE	10	F4 Max	0.33	0.73	6.54	1.238	0.571	0.061
BASE	10	F4 Min	-0.25	-0.66	4.06	-1.303	-0.475	-0.064
BASE	10	F5 Max	0.61	0.22	6.46	0.291	1.088	0.020
BASE	10	F5 Min	-0.52	-0.14	5.63	-0.368	-0.976	-0.023
BASE	10	F6 Max	0.26	0.57	6.98	0.916	0.452	0.045
BASE	10	F6 Min	-0.17	-0.48	5.11	-0.993	-0.339	-0.048
BASE	10	F7 Max	0.78	0.26	3.73	0.416	1.403	0.027
BASE	10	F7 Min	-0.73	-0.22	2.63	-0.455	-1.345	-0.029
BASE	10	F8 Max	0.31	0.72	4.42	1.251	0.552	0.061
BASE	10	F8 Min	-0.26	-0.67	1.94	-1.290	-0.494	-0.063
BASE	10	ENVF Max	0.80	0.73	6.98	1.251	1.422	0.061
BASE	10	ENVF Min	-0.73	-0.67	1.94	-1.303	-1.345	-0.064
BASE	3	F1	0.01	-0.01	10.89	0.026	0.018	-0.001
BASE	3	F2	0.02	-0.02	13.14	0.033	0.023	-0.002
BASE	3	F3 Max	0.77	0.23	11.36	0.462	1.397	0.027
BASE	3	F3 Min	-0.74	-0.25	10.43	-0.410	-1.361	-0.030
BASE	3	F4 Max	0.32	0.68	12.23	1.299	0.566	0.061
BASE	3	F4 Min	-0.29	-0.71	9.56	-1.247	-0.530	-0.064
BASE	3	F5 Max	0.58	0.17	12.93	0.362	1.058	0.020
BASE	3	F5 Min	-0.55	-0.20	12.23	-0.298	-1.014	-0.023
BASE	3	F6 Max	0.24	0.51	13.58	0.988	0.436	0.045
BASE	3	F6 Min	-0.21	-0.54	11.58	-0.924	-0.393	-0.048
BASE	3	F7 Max	0.76	0.23	7.00	0.452	1.390	0.027
BASE	3	F7 Min	-0.75	-0.25	6.07	-0.421	-1.368	-0.029
BASE	3	F8 Max	0.31	0.69	7.87	1.288	0.559	0.061
BASE	3	F8 Min	-0.29	-0.70	5.20	-1.257	-0.538	-0.063
BASE	3	ENVF Max	0.77	0.69	13.58	1.299	1.397	0.061
BASE	3	ENVF Min	-0.75	-0.71	5.20	-1.257	-1.368	-0.064
BASE	23	F1	0.13	-0.01	5.60	0.018	0.155	-0.001
BASE	23	F2	0.16	-0.01	6.70	0.022	0.187	-0.002
BASE	23	F3 Max	0.87	0.25	6.64	0.513	1.517	0.027
BASE	23	F3 Min	-0.61	-0.27	4.56	-0.477	-1.206	-0.030
BASE	23	F4 Max	0.43	0.68	7.62	1.326	0.700	0.061
BASE	23	F4 Min	-0.17	-0.71	3.58	-1.290	-0.389	-0.064
BASE	23	F5 Max	0.71	0.19	7.21	0.395	1.202	0.020
BASE	23	F5 Min	-0.41	-0.21	5.64	-0.353	-0.843	-0.023
BASE	23	F6 Max	0.37	0.51	7.95	1.004	0.591	0.045
BASE	23	F6 Min	-0.08	-0.53	4.91	-0.962	-0.232	-0.048
BASE	23	F7 Max	0.82	0.26	4.40	0.506	1.455	0.027
BASE	23	F7 Min	-0.66	-0.27	2.32	-0.484	-1.268	-0.029
BASE	23	F8 Max	0.38	0.69	5.38	1.319	0.638	0.061
BASE	23	F8 Min	-0.22	-0.70	1.34	-1.298	-0.451	-0.063
BASE	23	ENVF Max	0.87	0.69	7.95	1.326	1.517	0.061
BASE	23	ENVF Min	-0.66	-0.71	1.34	-1.298	-1.268	-0.064
BASE	25	F1	0.03	-0.10	3.88	0.124	0.033	-0.001
BASE	25	F2	0.03	-0.12	4.64	0.150	0.040	-0.002
BASE	25	F3 Max	0.71	0.20	5.75	0.671	1.316	0.027
BASE	25	F3 Min	-0.66	-0.40	2.02	-0.423	-1.250	-0.030
BASE	25	F4 Max	0.26	0.67	5.07	1.540	0.468	0.061
BASE	25	F4 Min	-0.20	-0.87	2.69	-1.292	-0.402	-0.064
BASE	25	F5 Max	0.55	0.11	5.85	0.557	1.002	0.020
BASE	25	F5 Min	-0.48	-0.34	3.04	-0.270	-0.925	-0.023
BASE	25	F6 Max	0.21	0.46	5.35	1.207	0.367	0.045



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BASE	25	F6 Min	-0.14	-0.70	3.55	-0.920	-0.291	-0.048
BASE	25	F7 Max	0.70	0.24	4.19	0.622	1.303	0.027
BASE	25	F7 Min	-0.67	-0.36	0.46	-0.473	-1.263	-0.029
BASE	25	F8 Max	0.25	0.71	3.52	1.491	0.455	0.061
BASE	25	F8 Min	-0.22	-0.83	1.14	-1.342	-0.415	-0.063
BASE	25	ENVF Max	0.71	0.71	5.85	1.540	1.316	0.061
BASE	25	ENVF Min	-0.67	-0.87	0.46	-1.342	-1.263	-0.064

BASE	22	F1	-0.01	0.07	4.79	-0.075	-0.009	-0.001
BASE	22	F2	-0.01	0.08	5.72	-0.090	-0.011	-0.002
BASE	22	F3 Max	0.74	0.32	5.59	0.392	1.353	0.027
BASE	22	F3 Min	-0.75	-0.18	3.98	-0.542	-1.371	-0.030
BASE	22	F4 Max	0.28	0.75	5.10	1.198	0.513	0.061
BASE	22	F4 Min	-0.29	-0.62	4.47	-1.347	-0.530	-0.064
BASE	22	F5 Max	0.55	0.27	6.09	0.266	1.013	0.020
BASE	22	F5 Min	-0.57	-0.11	4.88	-0.439	-1.033	-0.023
BASE	22	F6 Max	0.21	0.60	5.72	0.870	0.384	0.045
BASE	22	F6 Min	-0.22	-0.44	5.25	-1.042	-0.404	-0.048
BASE	22	F7 Max	0.74	0.29	3.67	0.422	1.357	0.027
BASE	22	F7 Min	-0.75	-0.21	2.07	-0.512	-1.367	-0.029
BASE	22	F8 Max	0.28	0.73	3.19	1.228	0.516	0.061
BASE	22	F8 Min	-0.29	-0.64	2.56	-1.317	-0.527	-0.063
BASE	22	ENVF Max	0.74	0.75	6.09	1.228	1.357	0.061
BASE	22	ENVF Min	-0.75	-0.64	2.07	-1.347	-1.371	-0.064

BASE	26	F1	-0.03	0.04	3.83	-0.040	-0.037	-0.001
BASE	26	F2	-0.04	0.05	4.57	-0.047	-0.045	-0.002
BASE	26	F3 Max	0.70	0.30	4.15	0.443	1.306	0.027
BASE	26	F3 Min	-0.76	-0.22	3.51	-0.522	-1.380	-0.030
BASE	26	F4 Max	0.26	0.75	4.69	1.269	0.497	0.061
BASE	26	F4 Min	-0.32	-0.67	2.97	-1.349	-0.571	-0.064
BASE	26	F5 Max	0.51	0.24	4.63	0.319	0.966	0.020
BASE	26	F5 Min	-0.58	-0.15	4.14	-0.410	-1.053	-0.023
BASE	26	F6 Max	0.18	0.58	5.03	0.938	0.360	0.045
BASE	26	F6 Min	-0.26	-0.49	3.74	-1.029	-0.447	-0.048
BASE	26	F7 Max	0.71	0.29	2.62	0.459	1.321	0.027
BASE	26	F7 Min	-0.74	-0.24	1.97	-0.506	-1.366	-0.029
BASE	26	F8 Max	0.27	0.74	3.16	1.285	0.512	0.061
BASE	26	F8 Min	-0.31	-0.69	1.44	-1.333	-0.557	-0.063
BASE	26	ENVF Max	0.71	0.75	5.03	1.285	1.321	0.061
BASE	26	ENVF Min	-0.76	-0.69	1.44	-1.349	-1.380	-0.064

Summation	0, 0, Base	F1	0.00	0.00	51.77	197.543	-355.061	0.000
Summation	0, 0, Base	F2	0.00	0.00	61.92	236.652	-424.424	0.000
Summation	0, 0, Base	F3 MAX	5.92	2.26	59.21	230.185	-389.124	-7.072
Summation	0, 0, Base	F3 MIN	-5.92	-2.26	44.33	164.902	-320.998	7.072
Summation	0, 0, Base	F4 MAX	2.28	6.07	62.70	251.070	-427.170	33.143
Summation	0, 0, Base	F4 MIN	-2.28	-6.07	40.84	144.017	-282.951	-33.143
Summation	0, 0, Base	F5 MAX	4.45	1.71	64.99	251.478	-432.791	-5.241
Summation	0, 0, Base	F5 MIN	-4.45	-1.71	53.78	202.271	-381.375	5.241
Summation	0, 0, Base	F6 MAX	1.72	4.56	67.60	267.110	-461.267	24.859
Summation	0, 0, Base	F6 MIN	-1.72	-4.56	51.17	186.639	-352.899	-24.859
Summation	0, 0, Base	F7 MAX	5.92	2.26	38.50	151.167	-247.099	-7.072
Summation	0, 0, Base	F7 MIN	-5.92	-2.26	23.62	85.885	-178.973	7.072
Summation	0, 0, Base	F8 MAX	2.28	6.07	41.99	172.052	-285.146	33.143
Summation	0, 0, Base	F8 MIN	-2.28	-6.07	20.13	65.000	-140.927	-33.143
Summation	0, 0, Base	ENVF MAX	6.00	6.13	68.87	274.604	-461.274	19.023
Summation	0, 0, Base	ENVF MIN	-6.00	-6.13	18.65	59.426	-140.614	-19.023



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ANEXO 8. DISEÑO DE ELEMENTOS NO ESTRUCTURALES



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DISEÑO DE ELEMENTOS NO ESTRUCTURALES (MUROS)

COLEGIO ENSUEÑO

MUROS PRIMER PISO

REF: CAPITULO A.9 NSR-10

1. Grado de Desempeño requerido: **Superior (Grupo de Uso III)**

2. Criterio de Diseño: **Elementos separados de la Estructura**

3. Fuerzas Sísmicas de Diseño:

$$F_p = \frac{a_x a_p}{R_p} g M_p \geq \frac{A_a I}{2} g M_p$$

a_x = Aceleración del Punto de Soporte (ref: A.9.4.2.1)

$$a_x = A_s + \frac{(S_a - A_s) h_x}{h_{eq}} \quad h_x \leq h_{eq}$$

$$a_x = S_a \frac{h_x}{h_{eq}} \quad h_x \geq h_{eq}$$

a_p = Amplificación Dinámica del Elemento No Estructural (ref: A.9.4.2.2 y Tabla A.9.5-1)

R_p = Capacidad de Disipación de Energía en el Rango Inelástico del Elemento (ref: A.9.4.9 y Tabla A.9.5-1)

Muros de Fachada:

Mampostería Reforzada Separada lateralmente de la Estructura, Apoyada solo Abajo

a_p = **2.5** Rp mínimo: **6**

Muros Divisorios:

Corredores

a_p = **1.0** Rp mínimo: **3**

Muros de Altura Total

a_p = **1.0** Rp mínimo: **1.5**

Muros de Altura Parcial

a_p = **2.5** Rp mínimo: **1.5**

Tipos de Anclaje:

Especiales:	Rp=	6.0
Dúctiles:	Rp=	3.0
No Dúctiles:	Rp=	1.5
Húmedos:	Rp=	0.5

4. Calculo de las Aceleraciones de Piso:

A_a =	0.15	Bogotá (Cundinamarca)	Coefficiente de aceleración Pico-efectiva
A_s =	0.478		Aceleración espectral, para un período de vibración igual a cero.
S_a =	0.478		Aceleración espectral. (referencia FHE)
I =	1.25		Coefficiente de Importancia
h_n =	3.5		Altura desde la base al piso mas alto de la edificación

h_{eq} : **2.63** Altura equivalente del sistema de un GDL, que simula la edificación. ($h_{eq} = 0.75 h_n$)



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NIVEL	hx	ax
BASE	0.00	0.598

5. Diseño de los elementos de reforzamiento

Mampostería de perforación Vertical

Altura del Muro: 3 m

Separación Dóvelas(máx: 150 cms) 1.5 m

Use Separación de: 0.9 m

Espesor del Muro: 0.12 m

Amplificación dinámica: 1

Aceleración del elemento : 0.598 Ver Tabla de Arriba.

Rp- Relacionado con el Anclaje: 3

Masa del Muro: 583.2 kg

$$Fp = \frac{a_x a_p}{R_p} gMp \geq \frac{a_a I}{2} gMp = 116.3 \text{ kg} \quad 54.7 \text{ kg}$$

HIPOTESIS 1. MURO EN VOLADIZO

$$Mu = Fp \cdot h/2 = 174.4 \text{ kg-m}$$

HIPOTESIS 2. MURO SIMPLEMENTE APOYADO

$$Mu = Fp \cdot h/4 = 87.2 \text{ kg-m}$$

HIPOTESIS 3. MURO EMPOTRADO EN LA BASE Y APOYADO SUPERIORMENTE

$$Mu+ = 5Fp \cdot h/32 = 54.5 \text{ kg-m}$$

$$Mu- = 3Fp \cdot h/16 = 65.4 \text{ kg-m} \quad Mmax = 65.4 \text{ kg-m}$$

Diseño de las Dovelas:

Separacion entre dovelas: 120 cm

Espesor del muro: 0.14 m

Recubrimiento a la barra: 7 cm

Nota: f'm=80 kg/cm² y Acero de 4200 kg/cm²

HIPOTESIS 1. MURO EN VOLADIZO

FLEXION

$$a = 117085.5$$

$$b = -3780.0$$

$$c = 3.0$$

$$Ro1: 0.031479$$

$$Ro2: 0.000805$$

$$Ro \text{ max: } 0.0159$$

$$\text{use: } Ro = 0.0008 < Romax = 0.0159 \text{ OK!}$$



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Acero de Refuerzo Longitudinal en cada d6vela:

As= 0.68 cm² use: 4 Ø5mm
3 Ø1/4"
1 Ø3/8"

HIPOTESIS 2. MURO SIMPLEMENTE APOYADO

FLEXION

a= 117085.5

b= -3780.0

c= 1.5

Ro1: 0.031887

use: Ro= 0.0004 < Romax= 0.0159 OK!

Ro2: 0.000397

Ro max: 0.0159

Acero de Refuerzo Longitudinal en cada d6vela:

As= 0.33 cm² use: 2 Ø5mm
2 Ø1/4"
1 Ø3/8"

HIPOTESIS 3. MURO EMPOTRADO EN LA BASE Y APOYADO SUPERIORMENTE

FLEXION

a= 117085.5

b= -3780.0

c= 1.1

Ro1: 0.031987

use: Ro= 0.0003 < Romax= 0.0159 OK!

Ro2: 0.000297

Ro max: 0.0159

Acero de Refuerzo Longitudinal en cada d6vela:

As= 0.25 cm² use: 2 Ø5mm
1 Ø1/4"
1 Ø3/8"

CORTANTE

Fuerza Cortante resistida por el muro:

ØVc= 3384.7 kg

Fuerza Cortante Total Resistida por el muro:

ØV= 3384.7 kg

HIPOTESIS 1. MURO EN VOLADIZO

Vu max= Fp= 116.3 kg ØV= 3384.7 kg OK!

HIPOTESIS 2. MURO SIMPLEMENTE APOYADO

Vu max= Fp/2= 58.1 kg ØV= 3384.7 kg OK!

HIPOTESIS 3. MURO EMPOTRADO EN LA BASE Y APOYADO SUPERIORMENTE

Vu max= 11Fp/16= 79.9 kg ØV= 3384.7 kg OK!