PROYECTO:
PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

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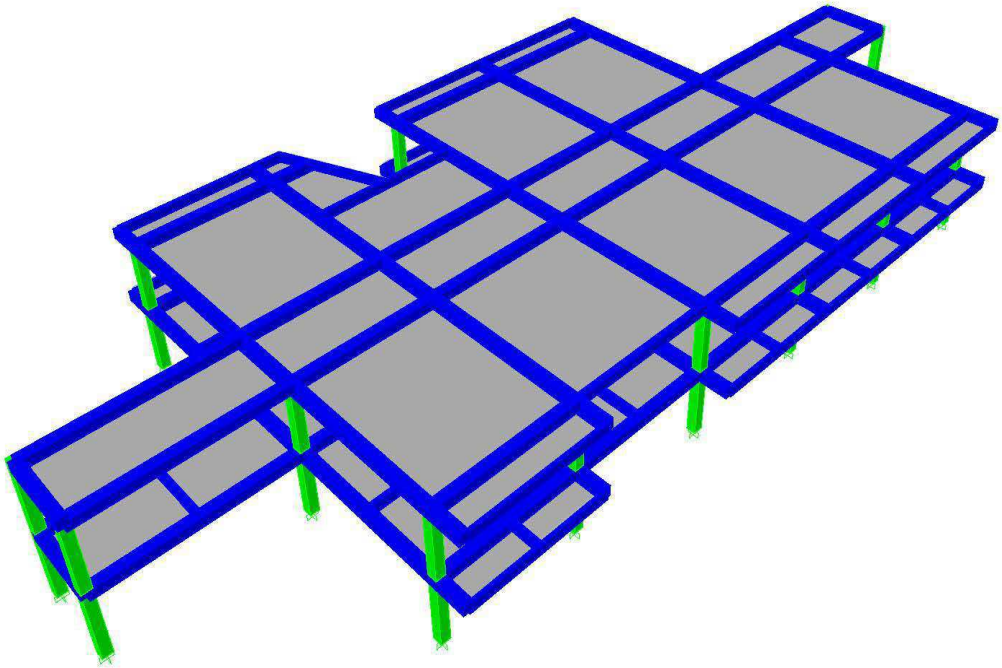


MEMORIAS DE ANÁLISIS Y DISEÑO ESTRUCTURAL

BOGOTÁ D.C., 18 DE NOVIEMBRE DE 2016

TABLA DE CONTENIDO

1. DESCRIPCIÓN DEL PROYECTO

1.1. INTRODUCCIÓN

El presente documento contiene las memorias de análisis y diseño estructural correspondiente al proyecto I.E. SEMINARIO, ubicado en el municipio de IPIALES (NARIÑO).

1.2. DESCRIPCIÓN ARQUITECTÓNICA

El proyecto se encuentra ubicado en un lote de **1000 m²** de área aproximadamente, en la cual se contempla la construcción de una edificación compuesta por dos (2) niveles, un nivel para salones y una cubierta liviana, su uso será Institucional.

1.3. DESCRIPCIÓN SISTEMA ESTRUCTURAL

El proyecto se soluciona mediante el diseño de una estructura aporticada, utilizando para los entrepisos y cubierta placa de e=0.10 m maciza, con vigas descolgadas de h=0.45 m según lo indicado en los planos estructurales. Se manejan luces que varían entre 3.00 m y 6.00 m en los dos sentidos de la estructura.

Para el análisis se empleó el programa de computador ***ETABS v.9.7.4.***, el cual tiene en cuenta los efectos de segundo orden. Las consideraciones sísmicas empleadas en el análisis estructural del proyecto son las siguientes:

- ✓ Método de análisis: ***Analisis Modal***
- ✓ Zona de amenaza sísmica: ***Alta***
- ✓ Capacidad de disipación de energía: ***Especial***
- ✓ Coeficiente de disipación de energía: $R_0 = 7.00$

El coeficiente de disipación de energía se afecta por las irregularidades presentes en la geometría de cada estructura, las cuales se describen a continuación:

- ✓ Irregularidad en Planta: $\phi p = 0.90$

El valor final del coeficiente R es igual a **6.30.**

Las cargas horizontales fueron distribuidas entre los diferentes pórticos en proporción a su rigidez y teniendo en cuenta los efectos de torsión.

El dimensionamiento dado a todos los elementos que intervienen en las estructuras satisfacen los requerimientos de solicitación ocasionados por las derivas presentes. Las cargas vivas de diseño son: **2.00 kN/m²** para salones, **5.00 kN/m²** para corredores, **5.00 kN/m²** para cubierta Placa, **0.35 kN/m²** para cubierta liviana (Tipo de cubierta F) y **0.50 kN/m²** para Granizo de acuerdo a lo establecido en las tablas 4.2.1-1 y 4.2.1-2 de la NSR-10.

Para la cimentación se siguieron las recomendaciones descritas en el respectivo estudio de suelos, por lo cual se diseñaron zapatas apoyadas a una profundidad de 1.00m desde el nivel actual del terreno. Los cimientos estarán conectados entre sí por vigas de amarre diseñadas según lo establecido en A.3.6.4.2 de la NSR-10. La capacidad portante de seguridad admisible del suelo utilizada para el dimensionamiento de la cimentación es de 0.22 MPa (22.0 Ton/m^2). El perfil de suelo es tipo E.

El diseño de todas las estructuras se realizó basado en la Norma Colombiana de Diseño y Construcción Sismo Resistente Ley 400 de 1997 (Modificada Ley 1229 de 2008) y Decreto 926 de Marzo de 2010, Decreto 092 del 17 de Enero de 2011, Decreto 0340 del 13 de Febrero de 2012 y en el Reglamento para Concreto Estructural ACI 318S-08.

1.4. MATERIALES

Los materiales utilizados son:

Concreto	21.1 MPa para vigas, placas, zapatas y columnas.
Concreto	14 MPa (para concreto de limpieza).
Acero	para refuerzo fy = 420 MPa para todos los diámetros.

Atentamente:

_____

EDGAR ROLANDO BARRERA
ING. ESTRUCTURAL
T.P. 15202-102710 BYC

_____

JAIR USECHE MACÍAS
ING. ESTRUCTURAL
T.P. 25202-56174 CND

MEMORIAL DE RESPONSABILIDAD

IPIALES, Septiembre de 2016.

Señores
PLANEACION MUNICIPAL
La Ciudad

Yo, **EDGAR ROLANDO BARRERA,** ingeniero civil con Matrícula Profesional Nº **15202-102710** de **BOYACÁ,** y Yo, **JAIR USECHE MACÍAS,** ingeniero civil con Matrícula Profesional Nº **25202-56174** de **CUNDINAMARCA** debidamente registrados en el consejo profesional de Ingeniería y Arquitectura de Boyacá y Cundinamarca, presentamos los Cálculos y Diseños Estructurales elaborados de acuerdo a los requerimientos de la **NORMA COLOMBIANA DE DISEÑO Y CONSTRUCCIÓN SISMO RESISTENTE LEY 400 DE 1997 (MODIFICADA LEY 1229 DE 2008) Y DECRETO 926 DE MARZO DE 2010**, para el I.E. SEMINARIO ubicado en el municipio de IPIALES (NARIÑO), declaramos que asumimos la responsabilidad por los perjuicios que causa de ellos puedan deducirse, exonerando a PLANEACION MUNICIPAL de cualquier responsabilidad.

Aceptamos y reconocemos que la revisión efectuada por PLANEACION MUNICIPAL no constituye una aprobación al Diseño Estructural, sino una verificación del cumplimiento de la **NORMA COLOMBIANA DE DISEÑO Y CONSTRUCCIÓN SISMO RESISTENTE**.

Atentamente,

EDGAR ROLANDO BARRERA
ING. ESTRUCTURAL
T.P. 15202-102710 BYC

JAIR USECHE MACÍAS
ING. ESTRUCTURAL
T.P. 25202-56174 CND

REPUBLICA DE COLOMBIA

Consejo Profesional Nacional de Ingeniería y Arquitectura

MATRICULA No. 2520256174CND

INGENIERO CIVIL

DE FECHA 27/07/95

APELLIDOS

USECHE MACIAS

NOMBRES

JAIR

C.C 19,428,425

UNIV. NACIONAL - BOGOTA

Presidente del Consejo

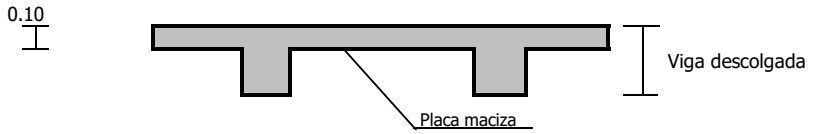
2. AVALÚO DE CARGAS

AVALÚO DE CARGAS

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

AVALUO DE CARGAS

1. PLACA MACIZA - ENTREPISO SALONES



Placa maciza e=0.10m	0.10x24		2.40 kN/m²
Muros			2.00 kN/m²
Acabados	20x0.05		1.00 kN/m²
		CM	5.40 kN/m²
		CV	2.00 kN/m²
		CR	7.40 kN/m²

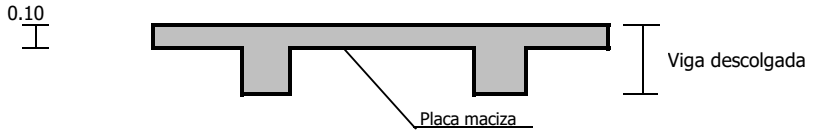
CU = 1.2x5.4+1.6x2 = ***9.7 kN/m²***

Espesor de placa equivalente:

e=CM/24 0.225 m

Muros perimetrales	2.2x0.15x13	4.29 kN/m

2. PLACA MACIZA - ENTREPISO CORREDORES - ESCALERAS



Placa maciza e=0.10m	0.10x24		2.40 kN/m²
Muros			0.00 kN/m²
Acabados	20x0.05		1.00 kN/m²
		CM	3.40 kN/m²
		CV	5.00 kN/m²
		CR	8.40 kN/m²

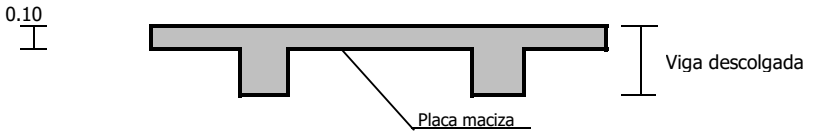
CU = 1.2x3.4+1.6x5 = ***12.1 kN/m²***

Espesor de placa equivalente:

e=CM/24 0.142 m

Muros perimetrales	2.2x0.15x13	4.29 kN/m

3. PLACA MACIZA - CUBIERTA



Placa maciza e=0.10m	0.10x24		2.40 kN/m²
Acabados	22x0.05		1.10 kN/m²
		CM	3.50 kN/m²
		CV	5.00 kN/m²
		CR	8.50 kN/m²

CU = 1.2x3.5+1.6x5 = ***12.2 kN/m²***

Espesor de placa equivalente:

e=CM/24 0.146 m

4. CUBIERTA LIVIANA

Teja termo-acústica			0.10 kN/m²
Correas metálicas			0.10 kN/m²
Acabados e iluminacion			0.10 kN/m²
		CM	0.30 kN/m²
Tabla 4.2.1-2 de NSR-10 (Tipo de cubierta F)		CV	0.35 kN/m²
		CR	0.65 kN/m²
Muros culata	0.75x0.15x13		1.46 kN/m

CU = 1.2x0.3+1.6x0.35 = ***0.92 kN/m²***

Espesor de placa equivalente:

e=CM/24 0.013 m

Pendiente de Cubierta α (º) = **8.54** → Equivale a 15%

Altitud de al cabecera municipal (m.s.n.m.)	2900	
B.4.8.3 de NSR-10 (Carga de granizo)	CG	0.50 kN/m²

Según la tabla B.4.2.1-2 - En cubiertas inclinadas con más de 15° de pendiente en estructura metálica o de madera la carga viva asumida puede ser 0.35 kN/m^2.
Según B.4.8.3.1 - Las cargas de granizo deben tenerse en cuenta en las regiones del país con más de 2.000 metros de altura sobre el nivel del mar o en lugares de menor altura donde la autoridad municipal o distrital así lo exija.
Según B.4.8.3.2 - Para cubiertas con inclinación mayor a 15% el valor de la carga viva para granizo puede reducirse a 0.50 kN/m^2.

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
AVALÚO DE CARGAS DE VIENTO
ANÁLISIS SIMPLIFICADO (sprfv)

Para que le análisis se pueda realizar mediante el método de diseño simplificado se requiere que se cumpla con lo establecido por la NSR-1 titulo B.6.4.1.1. y B.6.4.1.2.

a - El edificio sea de diafragma simple como se define en la sección B.6.2.
b - El edificio sea bajo de acuerdo con lo establecido con la sección B.6.2.
c - El edificio sea cerrado como se define en la sección B.6.2. y cumpla las provisiones de zonas propensas a huracanes de acuerdo con la sección B.6.5.9.3.
d - El edificio sea de forma regular como se define en la sección B.6.2.
e - El edificio no sea clasificado como flexible como se define en la sección B.6.2.
f - Las características de respuesta del edificio sean tales que el mismo no esté sujeto a las cargas por viento a travéz de él, a generación de vórtices, a inestabilidad por golpeteo o aleteo, y no esté ubicado en un sitio en el que se puedan presentar efectos de canalización o sacudimiento por la estela de obstrucciones en barlovento, que obliguen a concideraciones especiales.
g - El edificio tenga una sección transversal aproximadamente simétrica en cada dirección y tenga una cubierta plana o cubierta a dos o cuatro aguas con ángulo de inclinación $\emptyset \leq 45°$
h - El edificio esta eximido de los casos de carga torsional indicados en la nota 5 de la figura B.6.5.7. o estos casos no conctrolan el diseño de ninguno de los elementos del SPRFV del edificio.

De los anteriores parametros se observa que la edificación cumple con lo estipulado, por lo tanto:

Tipo de análisis permitido: ANÁLISIS SIMPLIFICADO

Entonces: $$Ps = \lambda KztIPs_{10}$$

Donde:

- λ= Factor de ajuste por altura y exposición, figura B.6.4.2.
- K_{zt}= Factor topográfico comose define en la sección B.6.5.7. evaluado a la altura promedio de la cubierta, **h,** B.6.5.1.
- I= Factor de importancia como se define en la sección B.6.5.5.
- P_{s10}= Presión de viento de diseño simplificado para la categoria de exposición **B,** con **h=10** m de la figura B.6.4.2.

	CIUDAD	**ZONA**	**VELOCIDAD DEL VIENTO**
Zona de amenza eólica=	PASTO	3	100 Km/h

Luego:

λ=	1.0
K_{zt}=	1.0
I=	1.0
P_{s10}=	**0.13**

Según B.6.4.2.1.1. Presiones mínimas: Los efectos de carga de las presiones de viento de diseño de la sección B.6.4.2.1. no serán menores que el caso de carga mínima de la sección B.6.1.3.1. suponiendo presiones Ps, de +0.40 kN/m^2 para las zonas de A, B, C y D y d 0.00 kN/m^2 paras las zonas E, F, G y H.

Por lo tanto la carga de viento a emplear es: **0.40** kN/m^2

3. ANÁLISIS SÍSMICO

ANÁLISIS MODAL
CÁLCULO DE DERIVAS MÁXIMAS
VERIFICACIÓN DE IRREGULARIDAD TORSIONAL

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ANÁLISIS SÍSMICO (ESPECTRO DE DISEÑO NSR-10)

ZONA DE AMENAZA SÍSMICA
ALTA

EFECTOS LOCALES

Perfil de Suelo	**E**
Coeficiente Aa	**0.30**
Coeficiente Av	**0.25**

COEFICIENTE DE IMPORTANCIA

Grupo de Uso	**III**
Coeficiente de importancia I	**1.25**

PERIODO FUNDAMENTAL DE LA EDIFICACIÓN

$T_a = C_t h^{\alpha}$		
C_t =	**0.047**	
h =	**6.35**	m
α =	**0.90**	
T_a=	**0.25**	Seg

VARIACIÓN COEFICIENTE DE CAPACIDAD DE DISIPACIÓN DE ENERGÍA

Ro: Coeficiente de capacidad de disipación de energía básico
R: Coeficiente de capacidad de disipación de energía, para ser empleado en el diseño.
ϕ_a: Coeficiente de reducción de R causado por irregularidades en altura de la edificación
ϕ_p: Coeficiente de reducción de R causado por irregularidades en planta de la edificación
ϕ_r: Coeficiente de reducción de R causado por ausencia de redundancia en el sistema estructural de resistencia sísmica

Ro	**7.00**
ϕ_a	**0.90**
ϕ_p	**1.00**
ϕ_r	**1.00**
ϕ	**1.00**
R	**6.30**

TIPO	DESCRIPCIÓN	VALOR
3P	IRREGULARIDAD DIAFRAGMA	ϕ_P: 0.90

ESPECTRO DE DISEÑO (AMORTIGUAMIENTO ξ=5% DEL CRÍTICO)

Fa: Factor de ampliación de la aceleración.
Fv: Factor de ampliación de la aceleración en el rango de velocidades constantes.
Sa: Valor del espectro de aceleraciones de diseño para un periodo de vibración dado.
Aa: Coeficiente que representa la aceleración horizontal pico efectiva para diseño.
Av: Coeficiente que representa la velocidad horizontal pico efectiva para diseño.
T: Periodo de vibración del sistema elástico, en segundos.
T_C: Periodo de vibración, en segundos, correspondiente a la transición entre la zona de aceleración constante del espectro de diseño, para periodos cortos, y la parte descendiente del mismo.
T_L: Periodo de vibración, en segundos, correspondiente al inicio de la zona de desplazamiento aproximadamente constante del espectro de diseño para periodos largos.

ZONA DE AMENAZA ALTA		
T_o:	0.21	Seg
T_C:	1.00	Seg
T_L:	7.20	Seg
Aa:	0.30	
Av:	0.25	
Fa:	1.20	
Fv:	3.00	

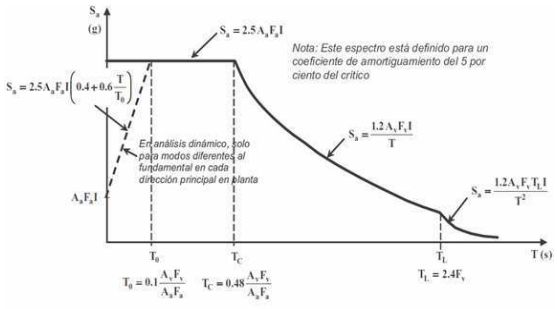
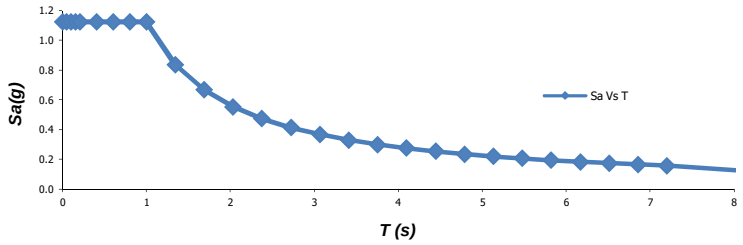


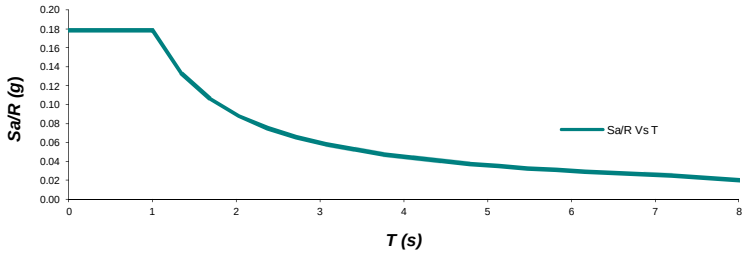
Figura A.2.6-1 — Espectro Elástico de Aceleraciones de Diseño como fracción de g

T	Sa	$Sa/R_{adoptado}$
(Seg)	**(%g)**	**(%g)**
0.00	1.125	0.179
0.05	1.125	0.179
0.10	1.125	0.179
0.16	1.125	0.179
0.21	1.125	0.179
0.41	1.125	0.179
0.60	1.125	0.179
0.80	1.125	0.179
1.00	1.125	0.179
1.34	0.837	0.133
1.69	0.666	0.106
2.03	0.553	0.088
2.38	0.473	0.075
2.72	0.413	0.066
3.07	0.367	0.058
3.41	0.330	0.052
3.76	0.300	0.048
4.10	0.274	0.044
4.44	0.253	0.040
4.79	0.235	0.037
5.13	0.219	0.035
5.48	0.205	0.033
5.82	0.193	0.031
6.17	0.182	0.029
6.51	0.173	0.027
6.86	0.164	0.026
7.20	0.156	0.025
8.20	0.120	0.019
9.20	0.096	0.015

Espectro Elástico de Diseño



Espectro Elástico de Diseño/R_{adop}



Sistema de resistencia Sísmica: Pórticos resistentes a momentos con Capacidad Especial de Disipación de Energía (DES).

Nota: El sistema de pórtico es un sistema estructural compuesto por un pórtico espacial, resistente a momentos, esencialmente completo, sin diagonales, que resiste todas las cargas verticales y las fuerzas horizontales.

MODELO MATEMÁTICO

Modelo Tridimensional con Diafragma Rígido: En este modelo los entrepisos se consideran diafragmas infinitamente rigidos en su propio plano. La masa de cada diafragma se considera concentrada en su centro de masa. Los efectos torsionales accidentales son incluidos haciendo ajustes en la localización de los centros de masa de los diafragmas.
Los efectos direccionales son tomados en cuenta a través de las componentes de los desplazamientos de los grados de libertad horizontales ortogonales del diafragma.

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ANÁLISIS SÍSMICO (ESPECTRO DE UMBRAL DE DAÑO NSR-10)

ZONA DE AMENAZA SÍSMICA
ALTA

EFECTOS LOCALES

Perfil de Suelo	**E**
Coeficiente Ad	**0.08**
Coeficiente Fv	**3.50**

COEFICIENTE DE IMPORTANCIA

Grupo de Uso	**III**
Coeficiente de importancia I	**1.25**
Coeficiente de Sitio Ŝ:	**4.38**

ESPECTRO DE UMBRAL DE DAÑO (AMORTIGUAMIENTO ξ=2% DEL CRÍTICO)

Sad: Valor del espectro de aceleraciones del umbral de daño para un periodo de vibración dado.
Ad: Máxima aceleración pico efectiva para el umbral de daño.
T: Periodo de vibración del sistema elástico, en segundos.
T_{Cd}: Periodo de vibración, en segundos, correspondiente a la transición entre la zona de aceleración constante del espectro sísmico del umbral de daño, para periodos cortos, y la parte descendiente del mismo.
T_{Ld}: Periodo de vibración, en segundos, correspondiente a la transición entre la zona de desplazamiento constante del espectro sísmico del umbral de daño, para periodos largos.

Ad: **0.08**
T_{Cd}: 2.19 Seg
T_{Ld}: 10.5 Seg

T (Seg)	Sad (%g)
0.00	0.080
0.05	0.112
0.10	0.144
0.15	0.176
0.20	0.208
0.25	0.240
0.49	0.240
0.73	0.240
0.98	0.240
1.22	0.240
1.46	0.240
1.70	0.240
1.95	0.240

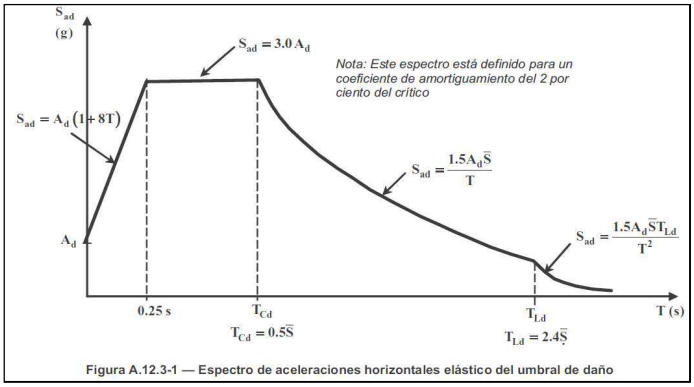
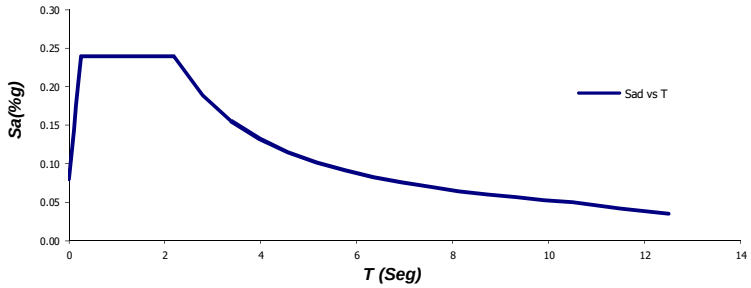


Figura A.12.3-1 — Espectro de aceleraciones horizontales elástico del umbral de daño

2.19	0.240
2.78	0.189
3.38	0.156
3.97	0.132
4.56	0.115
5.16	0.102
5.75	0.091
6.34	0.083
6.94	0.076
7.53	0.070
8.13	0.065
8.72	0.060
9.31	0.056
9.91	0.053
10.50	0.050
11.50	0.042
12.50	0.035

Espectro Del Umbral de Daño



Sistema de resistencia Sísmica: Pórticos resistentes a momentos con Capacidad Especial de Disipación de Energía (DES).

Nota: El sistema de pórtico es un sistema estructural compuesto por un pórtico espacial, resistente a momentos, esencialmente completo, sin diagonales, que resiste todas las cargas verticales y las fuerzas horizontales.

MODELO MATEMÁTICO

Modelo Tridimensional con Diafragma Rígido: En este modelo los entrepisos se consideran diafragmas infinitamente rigidos en su propio plano. La masa de cada diafragma se considera concentrada en su centro de masa. Los efectos torsionales accidentales son incluidos haciendo ajustes en la localización de los centros de masa de los diafragmas.
Los efectos direccionales son tomados en cuenta a través de las componentes de los desplazamientos de los grados de libertad horizontales ortogonales del diafragma.

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
CALCULO DEL CORTANTE BASAL DE LA ESTRUCTURA (ESPECTRO DE DISEÑO NSR-10)

CALCULO DEL CORTANTE BASAL DE LA ESTRUCTURA

$H_{edificio}$=	6.35	m	
Tipo de Perfil:	E		
Aa =	0.30		
Av =	0.25		
Fa =	1.20		
Fv =	3.00		
T_c =	1.00	Seg	
C_t =	0.047		
α =	0.90		
T_a =	0.25	Seg	
C_u =	1.20		
$C_u T_a$ =	0.30	Seg	
$T_{modelación\ estructural}$ =	0.27	Seg	
ΔT =	8.84	%	Ok!
$T_{adoptado}$ =	0.27	Seg	
S_a =	1.125		S_a obtenido del espectro de diseño
g =	9.81	m/s^2	
M =	810.24	Ton	Masa obtenida del modelo
V_s =	8942.04	kN	
90% Vs =	8047.83	kN	Cortante basal para comparación de acuerdo a A.5.4.5 NSR-10

MODELO INICIAL
Response Espectrum Base Reactions

PORCENTAJE PARA REVISIÓN DE CORTANTE BASAL DE ACUERDO A A.5.4.5 NSR-10: 90.0 %

	F1	F2	Total	Factor		g corregido
$V_{s(x)}$=	8159.11	-	8159.11	0.986	9.68	Se aplica en SISMO X
$V_{s(y)}$=	-	7766.38	7766.38	1.036	10.17	Se aplica en SISMO Y

MODELO CORREGIDO
Response Espectrum Base Reactions

	F1	F2	Total	90% Vs
$V_{s(x)}$=	8051.29	-	8051.29	**8047.83**
$V_{s(y)}$=	-	8051.36	8051.36	**8047.83**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
CALCULO DEL CORTANTE BASAL DE LA ESTRUCTURA (ESPECTRO DE UMBRAL DE DAÑO NSR-10)

CALCULO DEL CORTANTE BASAL DE LA ESTRUCTURA

$H_{edificio}$=	**6.35**	m	
Tipo de Perfil:	**E**		
Ad =	0.08		
Fv =	3.50		
C_t =	**0.047**		
α =	**0.90**		
T_a =	0.25	Seg	
C_u =	1.20		
$C_u T_a$ =	0.30	Seg	
$T_{modelación\ estructural}$ =	**0.27**	Seg	
ΔT =	8.84	%	Ok!
$T_{adoptado}$ =	0.25	Seg	
S_a =	**0.240**		S_a obtenido del espectro de diseño
g =	9.81	m/s^2	
M =	**810.24**	Ton	Masa obtenida del modelo
V_s =	**1907.63**	kN	

MODELO INICIAL
Response Espectrum Base Reactions

PORCENTAJE PARA REVISIÓN DE CORTANTE BASAL DE ACUERDO A A.5.4.5 NSR-10: 100.0 %

	F1	F2	Total	Factor		g corregido
$V_{s(x)}$=	1734.99	-	1734.99	1.100	**10.79**	Se aplica en SISMO X
$V_{s(y)}$=	-	1647.71	1647.71	1.158	**11.36**	Se aplica en SISMO Y

MODELO CORREGIDO
Response Espectrum Base Reactions

	F1	F2	Total	100% Vs
$V_{s(x)}$=	1908.38	-	1908.38	**1907.63**
$V_{s(y)}$=	-	1908.03	1908.03	**1907.63**

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **1.00** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	16	COMDER1 MAX	0.035938764	0.037168248	0.02355	0.74	OK
N+6.35	16	COMDER1 MIN	-0.035938764	-0.037168248	0.02355	0.74	OK
N+6.35	16	COMDER2 MAX	0.033952674	0.044261425	0.02544	0.80	OK
N+6.35	16	COMDER2 MIN	-0.033952674	-0.044261425	0.02544	0.80	OK
N+3.15	16	COMDER1 MAX	0.019671744	0.020144623	0.02816	0.88	OK
N+3.15	16	COMDER1 MIN	-0.019671744	-0.020144623	0.02816	0.88	OK
N+3.15	16	COMDER2 MAX	0.018536836	0.024022226	0.03034	0.95	OK
N+3.15	16	COMDER2 MIN	-0.018536836	-0.024022226	0.03034	0.95	OK
BASE	16	COMDER1 MAX	0	0	--	--	--
BASE	16	COMDER1 MIN	0	0	--	--	--
BASE	16	COMDER2 MAX	0	0	--	--	--
BASE	16	COMDER2 MIN	0	0	--	--	--
N+6.35	18	COMDER1 MAX	0.035938764	0.033479796	0.02235	0.70	OK
N+6.35	18	COMDER1 MIN	-0.035938764	-0.033479796	0.02235	0.70	OK
N+6.35	18	COMDER2 MAX	0.033952674	0.03953264	0.02375	0.74	OK
N+6.35	18	COMDER2 MIN	-0.033952674	-0.03953264	0.02375	0.74	OK
N+3.15	18	COMDER1 MAX	0.019671744	0.018158533	0.02677	0.84	OK
N+3.15	18	COMDER1 MIN	-0.019671744	-0.018158533	0.02677	0.84	OK
N+3.15	18	COMDER2 MAX	0.018536836	0.021468683	0.02836	0.89	OK
N+3.15	18	COMDER2 MIN	-0.018536836	-0.021468683	0.02836	0.89	OK
BASE	18	COMDER1 MAX	0	0	--	--	--
BASE	18	COMDER1 MIN	0	0	--	--	--
BASE	18	COMDER2 MAX	0	0	--	--	--
BASE	18	COMDER2 MIN	0	0	--	--	--
N+6.35	20	COMDER1 MAX	0.035938764	0.029602192	0.02115	0.66	OK
N+6.35	20	COMDER1 MIN	-0.035938764	-0.029602192	0.02115	0.66	OK
N+6.35	20	COMDER2 MAX	0.033952674	0.034425553	0.02200	0.69	OK
N+6.35	20	COMDER2 MIN	-0.033952674	-0.034425553	0.02200	0.69	OK
N+3.15	20	COMDER1 MAX	0.019671744	0.016077868	0.02541	0.79	OK
N+3.15	20	COMDER1 MIN	-0.019671744	-0.016077868	0.02541	0.79	OK
N+3.15	20	COMDER2 MAX	0.018536836	0.018725988	0.02635	0.82	OK
N+3.15	20	COMDER2 MIN	-0.018536836	-0.018725988	0.02635	0.82	OK
BASE	20	COMDER1 MAX	0	0	--	--	--
BASE	20	COMDER1 MIN	0	0	--	--	--
BASE	20	COMDER2 MAX	0	0	--	--	--
BASE	20	COMDER2 MIN	0	0	--	--	--
N+6.35	22	COMDER1 MAX	0.035938764	0.028467284	0.02080	0.65	OK
N+6.35	22	COMDER1 MIN	-0.035938764	-0.028467284	0.02080	0.65	OK
N+6.35	22	COMDER2 MAX	0.033952674	0.032817766	0.02147	0.67	OK
N+6.35	22	COMDER2 MIN	-0.033952674	-0.032817766	0.02147	0.67	OK
N+3.15	22	COMDER1 MAX	0.019671744	0.015510414	0.02505	0.78	OK
N+3.15	22	COMDER1 MIN	-0.019671744	-0.015510414	0.02505	0.78	OK
N+3.15	22	COMDER2 MAX	0.018536836	0.017874806	0.02575	0.80	OK
N+3.15	22	COMDER2 MIN	-0.018536836	-0.017874806	0.02575	0.80	OK
BASE	22	COMDER1 MAX	0	0	--	--	--
BASE	22	COMDER1 MIN	0	0	--	--	--
BASE	22	COMDER2 MAX	0	0	--	--	--
BASE	22	COMDER2 MIN	0	0	--	--	--
N+6.35	24	COMDER1 MAX	0.035938764	0.028940163	0.02097	0.66	OK
N+6.35	24	COMDER1 MIN	-0.035938764	-0.028940163	0.02097	0.66	OK
N+6.35	24	COMDER2 MAX	0.033952674	0.033101493	0.02160	0.68	OK
N+6.35	24	COMDER2 MIN	-0.033952674	-0.033101493	0.02160	0.68	OK
N+3.15	24	COMDER1 MAX	0.019671744	0.015699565	0.02517	0.79	OK
N+3.15	24	COMDER1 MIN	-0.019671744	-0.015699565	0.02517	0.79	OK
N+3.15	24	COMDER2 MAX	0.018536836	0.017969382	0.02582	0.81	OK
N+3.15	24	COMDER2 MIN	-0.018536836	-0.017969382	0.02582	0.81	OK
BASE	24	COMDER1 MAX	0	0	--	--	--
BASE	24	COMDER1 MIN	0	0	--	--	--
BASE	24	COMDER2 MAX	0	0	--	--	--
BASE	24	COMDER2 MIN	0	0	--	--	--
N+6.35	26	COMDER1 MAX	0.035938764	0.029413041	0.02103	0.66	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida 1.00 %

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	26	COMDER1 MIN	-0.035938764	-0.029413041	0.02103	0.66	OK
N+6.35	26	COMDER2 MAX	0.033952674	0.033479796	0.02167	0.68	OK
N+6.35	26	COMDER2 MIN	-0.033952674	-0.033479796	0.02167	0.68	OK
N+3.15	26	COMDER1 MAX	0.019671744	0.016077868	0.02541	0.79	OK
N+3.15	26	COMDER1 MIN	-0.019671744	-0.016077868	0.02541	0.79	OK
N+3.15	26	COMDER2 MAX	0.018536836	0.018253109	0.02602	0.81	OK
N+3.15	26	COMDER2 MIN	-0.018536836	-0.018253109	0.02602	0.81	OK
BASE	26	COMDER1 MAX	0	0	--	--	--
BASE	26	COMDER1 MIN	0	0	--	--	--
BASE	26	COMDER2 MAX	0	0	--	--	--
BASE	26	COMDER2 MIN	0	0	--	--	--
N+6.35	41	COMDER1 MAX	0.033101493	0.041897033	0.02439	0.76	OK
N+6.35	41	COMDER1 MIN	-0.033101493	-0.041897033	0.02439	0.76	OK
N+6.35	41	COMDER2 MAX	0.029602192	0.050503421	0.02670	0.83	OK
N+6.35	41	COMDER2 MIN	-0.029602192	-0.050503421	0.02670	0.83	OK
N+3.15	41	COMDER1 MAX	0.018063958	0.022698167	0.02901	0.91	OK
N+3.15	41	COMDER1 MIN	-0.018063958	-0.022698167	0.02901	0.91	OK
N+3.15	41	COMDER2 MAX	0.016172444	0.027426951	0.03184	1.00	OK
N+3.15	41	COMDER2 MIN	-0.016172444	-0.027426951	0.03184	1.00	OK
BASE	41	COMDER1 MAX	0	0	--	--	--
BASE	41	COMDER1 MIN	0	0	--	--	--
BASE	41	COMDER2 MAX	0	0	--	--	--
BASE	41	COMDER2 MIN	0	0	--	--	--
N+6.35	43	COMDER1 MAX	0.033101493	0.037168248	0.02271	0.71	OK
N+6.35	43	COMDER1 MIN	-0.033101493	-0.037168248	0.02271	0.71	OK
N+6.35	43	COMDER2 MAX	0.029602192	0.044261425	0.02429	0.76	OK
N+6.35	43	COMDER2 MIN	-0.029602192	-0.044261425	0.02429	0.76	OK
N+3.15	43	COMDER1 MAX	0.018063958	0.020144623	0.02706	0.85	OK
N+3.15	43	COMDER1 MIN	-0.018063958	-0.020144623	0.02706	0.85	OK
N+3.15	43	COMDER2 MAX	0.016172444	0.024022226	0.02896	0.90	OK
N+3.15	43	COMDER2 MIN	-0.016172444	-0.024022226	0.02896	0.90	OK
BASE	43	COMDER1 MAX	0	0	--	--	--
BASE	43	COMDER1 MIN	0	0	--	--	--
BASE	43	COMDER2 MAX	0	0	--	--	--
BASE	43	COMDER2 MIN	0	0	--	--	--
N+6.35	45	COMDER1 MAX	0.033101493	0.033479796	0.02147	0.67	OK
N+6.35	45	COMDER1 MIN	-0.033101493	-0.033479796	0.02147	0.67	OK
N+6.35	45	COMDER2 MAX	0.029602192	0.03953264	0.02251	0.70	OK
N+6.35	45	COMDER2 MIN	-0.029602192	-0.03953264	0.02251	0.70	OK
N+3.15	45	COMDER1 MAX	0.018063958	0.018158533	0.02561	0.80	OK
N+3.15	45	COMDER1 MIN	-0.018063958	-0.018158533	0.02561	0.80	OK
N+3.15	45	COMDER2 MAX	0.016172444	0.021468683	0.02688	0.84	OK
N+3.15	45	COMDER2 MIN	-0.016172444	-0.021468683	0.02688	0.84	OK
BASE	45	COMDER1 MAX	0	0	--	--	--
BASE	45	COMDER1 MIN	0	0	--	--	--
BASE	45	COMDER2 MAX	0	0	--	--	--
BASE	45	COMDER2 MIN	0	0	--	--	--
N+6.35	47	COMDER1 MAX	0.033101493	0.029602192	0.02022	0.63	OK
N+6.35	47	COMDER1 MIN	-0.033101493	-0.029602192	0.02022	0.63	OK
N+6.35	47	COMDER2 MAX	0.029602192	0.034425553	0.02066	0.65	OK
N+6.35	47	COMDER2 MIN	-0.029602192	-0.034425553	0.02066	0.65	OK
N+3.15	47	COMDER1 MAX	0.018063958	0.016077868	0.02418	0.76	OK
N+3.15	47	COMDER1 MIN	-0.018063958	-0.016077868	0.02418	0.76	OK
N+3.15	47	COMDER2 MAX	0.016172444	0.018725988	0.02474	0.77	OK
N+3.15	47	COMDER2 MIN	-0.016172444	-0.018725988	0.02474	0.77	OK
BASE	47	COMDER1 MAX	0	0	--	--	--
BASE	47	COMDER1 MIN	0	0	--	--	--
BASE	47	COMDER2 MAX	0	0	--	--	--
BASE	47	COMDER2 MIN	0	0	--	--	--
N+6.35	49	COMDER1 MAX	0.033101493	0.028467284	0.01985	0.62	OK
N+6.35	49	COMDER1 MIN	-0.033101493	-0.028467284	0.01985	0.62	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **1.00** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	49	COMDER2 MAX	0.029602192	0.032817766	0.02009	0.63	OK
N+6.35	49	COMDER2 MIN	-0.029602192	-0.032817766	0.02009	0.63	OK
N+3.15	49	COMDER1 MAX	0.018063958	0.015510414	0.02381	0.74	OK
N+3.15	49	COMDER1 MIN	-0.018063958	-0.015510414	0.02381	0.74	OK
N+3.15	49	COMDER2 MAX	0.016172444	0.017874806	0.02411	0.75	OK
N+3.15	49	COMDER2 MIN	-0.016172444	-0.017874806	0.02411	0.75	OK
BASE	49	COMDER1 MAX	0	0	--	--	--
BASE	49	COMDER1 MIN	0	0	--	--	--
BASE	49	COMDER2 MAX	0	0	--	--	--
BASE	49	COMDER2 MIN	0	0	--	--	--
N+6.35	51	COMDER1 MAX	0.033101493	0.028940163	0.02004	0.63	OK
N+6.35	51	COMDER1 MIN	-0.033101493	-0.028940163	0.02004	0.63	OK
N+6.35	51	COMDER2 MAX	0.029602192	0.033101493	0.02023	0.63	OK
N+6.35	51	COMDER2 MIN	-0.029602192	-0.033101493	0.02023	0.63	OK
N+3.15	51	COMDER1 MAX	0.018063958	0.015699565	0.02393	0.75	OK
N+3.15	51	COMDER1 MIN	-0.018063958	-0.015699565	0.02393	0.75	OK
N+3.15	51	COMDER2 MAX	0.016172444	0.017969382	0.02418	0.76	OK
N+3.15	51	COMDER2 MIN	-0.016172444	-0.017969382	0.02418	0.76	OK
BASE	51	COMDER1 MAX	0	0	--	--	--
BASE	51	COMDER1 MIN	0	0	--	--	--
BASE	51	COMDER2 MAX	0	0	--	--	--
BASE	51	COMDER2 MIN	0	0	--	--	--
N+6.35	53	COMDER1 MAX	0.033101493	0.029413041	0.02010	0.63	OK
N+6.35	53	COMDER1 MIN	-0.033101493	-0.029413041	0.02010	0.63	OK
N+6.35	53	COMDER2 MAX	0.029602192	0.033479796	0.02030	0.63	OK
N+6.35	53	COMDER2 MIN	-0.029602192	-0.033479796	0.02030	0.63	OK
N+3.15	53	COMDER1 MAX	0.018063958	0.016077868	0.02418	0.76	OK
N+3.15	53	COMDER1 MIN	-0.018063958	-0.016077868	0.02418	0.76	OK
N+3.15	53	COMDER2 MAX	0.016172444	0.018253109	0.02439	0.76	OK
N+3.15	53	COMDER2 MIN	-0.016172444	-0.018253109	0.02439	0.76	OK
BASE	53	COMDER1 MAX	0	0	--	--	--
BASE	53	COMDER1 MIN	0	0	--	--	--
BASE	53	COMDER2 MAX	0	0	--	--	--
BASE	53	COMDER2 MIN	0	0	--	--	--
N+6.35	54	COMDER1 MAX	0.033101493	0.029791344	0.02022	0.63	OK
N+6.35	54	COMDER1 MIN	-0.033101493	-0.029791344	0.02022	0.63	OK
N+6.35	54	COMDER2 MAX	0.029602192	0.033952674	0.02052	0.64	OK
N+6.35	54	COMDER2 MIN	-0.029602192	-0.033952674	0.02052	0.64	OK
N+3.15	54	COMDER1 MAX	0.018063958	0.016267019	0.02431	0.76	OK
N+3.15	54	COMDER1 MIN	-0.018063958	-0.016267019	0.02431	0.76	OK
N+3.15	54	COMDER2 MAX	0.016172444	0.01844226	0.02453	0.77	OK
N+3.15	54	COMDER2 MIN	-0.016172444	-0.01844226	0.02453	0.77	OK
BASE	54	COMDER1 MAX	0	0	--	--	--
BASE	54	COMDER1 MIN	0	0	--	--	--
BASE	54	COMDER2 MAX	0	0	--	--	--
BASE	54	COMDER2 MIN	0	0	--	--	--
N+6.35	57	COMDER1 MAX	0.033196069	0.041897033	0.02445	0.76	OK
N+6.35	57	COMDER1 MIN	-0.033196069	-0.041897033	0.02445	0.76	OK
N+6.35	57	COMDER2 MAX	0.029318465	0.050503421	0.02665	0.83	OK
N+6.35	57	COMDER2 MIN	-0.029318465	-0.050503421	0.02665	0.83	OK
N+3.15	57	COMDER1 MAX	0.018063958	0.022698167	0.02901	0.91	OK
N+3.15	57	COMDER1 MIN	-0.018063958	-0.022698167	0.02901	0.91	OK
N+3.15	57	COMDER2 MAX	0.015983292	0.027426951	0.03174	0.99	OK
N+3.15	57	COMDER2 MIN	-0.015983292	-0.027426951	0.03174	0.99	OK
BASE	57	COMDER1 MAX	0	0	--	--	--
BASE	57	COMDER1 MIN	0	0	--	--	--
BASE	57	COMDER2 MAX	0	0	--	--	--
BASE	57	COMDER2 MIN	0	0	--	--	--
N+6.35	59	COMDER1 MAX	0.033196069	0.037168248	0.02278	0.71	OK
N+6.35	59	COMDER1 MIN	-0.033196069	-0.037168248	0.02278	0.71	OK
N+6.35	59	COMDER2 MAX	0.029318465	0.044261425	0.02424	0.76	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **1.00** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	59	COMDER2 MIN	-0.029318465	-0.044261425	0.02424	0.76	OK
N+3.15	59	COMDER1 MAX	0.018063958	0.020144623	0.02706	0.85	OK
N+3.15	59	COMDER1 MIN	-0.018063958	-0.020144623	0.02706	0.85	OK
N+3.15	59	COMDER2 MAX	0.015983292	0.024022226	0.02885	0.90	OK
N+3.15	59	COMDER2 MIN	-0.015983292	-0.024022226	0.02885	0.90	OK
BASE	59	COMDER1 MAX	0	0	--	--	--
BASE	59	COMDER1 MIN	0	0	--	--	--
BASE	59	COMDER2 MAX	0	0	--	--	--
BASE	59	COMDER2 MIN	0	0	--	--	--
N+6.35	61	COMDER1 MAX	0.033196069	0.033479796	0.02153	0.67	OK
N+6.35	61	COMDER1 MIN	-0.033196069	-0.033479796	0.02153	0.67	OK
N+6.35	61	COMDER2 MAX	0.029318465	0.03953264	0.02245	0.70	OK
N+6.35	61	COMDER2 MIN	-0.029318465	-0.03953264	0.02245	0.70	OK
N+3.15	61	COMDER1 MAX	0.018063958	0.018158533	0.02561	0.80	OK
N+3.15	61	COMDER1 MIN	-0.018063958	-0.018158533	0.02561	0.80	OK
N+3.15	61	COMDER2 MAX	0.015983292	0.021468683	0.02677	0.84	OK
N+3.15	61	COMDER2 MIN	-0.015983292	-0.021468683	0.02677	0.84	OK
BASE	61	COMDER1 MAX	0	0	--	--	--
BASE	61	COMDER1 MIN	0	0	--	--	--
BASE	61	COMDER2 MAX	0	0	--	--	--
BASE	61	COMDER2 MIN	0	0	--	--	--
N+6.35	64	COMDER1 MAX	0.033196069	0.029602192	0.02030	0.63	OK
N+6.35	64	COMDER1 MIN	-0.033196069	-0.029602192	0.02030	0.63	OK
N+6.35	64	COMDER2 MAX	0.029318465	0.034425553	0.02060	0.64	OK
N+6.35	64	COMDER2 MIN	-0.029318465	-0.034425553	0.02060	0.64	OK
N+3.15	64	COMDER1 MAX	0.018063958	0.016077868	0.02418	0.76	OK
N+3.15	64	COMDER1 MIN	-0.018063958	-0.016077868	0.02418	0.76	OK
N+3.15	64	COMDER2 MAX	0.015983292	0.018725988	0.02462	0.77	OK
N+3.15	64	COMDER2 MIN	-0.015983292	-0.018725988	0.02462	0.77	OK
BASE	64	COMDER1 MAX	0	0	--	--	--
BASE	64	COMDER1 MIN	0	0	--	--	--
BASE	64	COMDER2 MAX	0	0	--	--	--
BASE	64	COMDER2 MIN	0	0	--	--	--
N+6.35	66	COMDER1 MAX	0.033196069	0.028467284	0.01992	0.62	OK
N+6.35	66	COMDER1 MIN	-0.033196069	-0.028467284	0.01992	0.62	OK
N+6.35	66	COMDER2 MAX	0.029318465	0.032817766	0.02003	0.63	OK
N+6.35	66	COMDER2 MIN	-0.029318465	-0.032817766	0.02003	0.63	OK
N+3.15	66	COMDER1 MAX	0.018063958	0.015510414	0.02381	0.74	OK
N+3.15	66	COMDER1 MIN	-0.018063958	-0.015510414	0.02381	0.74	OK
N+3.15	66	COMDER2 MAX	0.015983292	0.017874806	0.02398	0.75	OK
N+3.15	66	COMDER2 MIN	-0.015983292	-0.017874806	0.02398	0.75	OK
BASE	66	COMDER1 MAX	0	0	--	--	--
BASE	66	COMDER1 MIN	0	0	--	--	--
BASE	66	COMDER2 MAX	0	0	--	--	--
BASE	66	COMDER2 MIN	0	0	--	--	--
N+6.35	68	COMDER1 MAX	0.033196069	0.028940163	0.02011	0.63	OK
N+6.35	68	COMDER1 MIN	-0.033196069	-0.028940163	0.02011	0.63	OK
N+6.35	68	COMDER2 MAX	0.029318465	0.033101493	0.02017	0.63	OK
N+6.35	68	COMDER2 MIN	-0.029318465	-0.033101493	0.02017	0.63	OK
N+3.15	68	COMDER1 MAX	0.018063958	0.015699565	0.02393	0.75	OK
N+3.15	68	COMDER1 MIN	-0.018063958	-0.015699565	0.02393	0.75	OK
N+3.15	68	COMDER2 MAX	0.015983292	0.017969382	0.02405	0.75	OK
N+3.15	68	COMDER2 MIN	-0.015983292	-0.017969382	0.02405	0.75	OK
BASE	68	COMDER1 MAX	0	0	--	--	--
BASE	68	COMDER1 MIN	0	0	--	--	--
BASE	68	COMDER2 MAX	0	0	--	--	--
BASE	68	COMDER2 MIN	0	0	--	--	--
N+6.35	70	COMDER1 MAX	0.033196069	0.029413041	0.02017	0.63	OK
N+6.35	70	COMDER1 MIN	-0.033196069	-0.029413041	0.02017	0.63	OK
N+6.35	70	COMDER2 MAX	0.029318465	0.033479796	0.02024	0.63	OK
N+6.35	70	COMDER2 MIN	-0.029318465	-0.033479796	0.02024	0.63	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **1.00** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+3.15	70	COMDER1 MAX	0.018063958	0.016077868	0.02418	0.76	OK
N+3.15	70	COMDER1 MIN	-0.018063958	-0.016077868	0.02418	0.76	OK
N+3.15	70	COMDER2 MAX	0.015983292	0.018253109	0.02426	0.76	OK
N+3.15	70	COMDER2 MIN	-0.015983292	-0.018253109	0.02426	0.76	OK
BASE	70	COMDER1 MAX	0	0	--	--	--
BASE	70	COMDER1 MIN	0	0	--	--	--
BASE	70	COMDER2 MAX	0	0	--	--	--
BASE	70	COMDER2 MIN	0	0	--	--	--
N+6.35	71	COMDER1 MAX	0.033196069	0.029791344	0.02030	0.63	OK
N+6.35	71	COMDER1 MIN	-0.033196069	-0.029791344	0.02030	0.63	OK
N+6.35	71	COMDER2 MAX	0.029318465	0.033952674	0.02045	0.64	OK
N+6.35	71	COMDER2 MIN	-0.029318465	-0.033952674	0.02045	0.64	OK
N+3.15	71	COMDER1 MAX	0.018063958	0.016267019	0.02431	0.76	OK
N+3.15	71	COMDER1 MIN	-0.018063958	-0.016267019	0.02431	0.76	OK
N+3.15	71	COMDER2 MAX	0.015983292	0.01844226	0.02440	0.76	OK
N+3.15	71	COMDER2 MIN	-0.015983292	-0.01844226	0.02440	0.76	OK
BASE	71	COMDER1 MAX	0	0	--	--	--
BASE	71	COMDER1 MIN	0	0	--	--	--
BASE	71	COMDER2 MAX	0	0	--	--	--
BASE	71	COMDER2 MIN	0	0	--	--	--
N+6.35	85	COMDER1 MAX	0.035182158	0.037168248	0.02342	0.73	OK
N+6.35	85	COMDER1 MIN	-0.035182158	-0.037168248	0.02342	0.73	OK
N+6.35	85	COMDER2 MAX	0.030831676	0.044261425	0.02466	0.77	OK
N+6.35	85	COMDER2 MIN	-0.030831676	-0.044261425	0.02466	0.77	OK
N+3.15	85	COMDER1 MAX	0.01910429	0.020144623	0.02776	0.87	OK
N+3.15	85	COMDER1 MIN	-0.01910429	-0.020144623	0.02776	0.87	OK
N+3.15	85	COMDER2 MAX	0.016739898	0.024022226	0.02928	0.91	OK
N+3.15	85	COMDER2 MIN	-0.016739898	-0.024022226	0.02928	0.91	OK
BASE	85	COMDER1 MAX	0	0	--	--	--
BASE	85	COMDER1 MIN	0	0	--	--	--
BASE	85	COMDER2 MAX	0	0	--	--	--
BASE	85	COMDER2 MIN	0	0	--	--	--
N+6.35	87	COMDER1 MAX	0.035182158	0.033479796	0.02221	0.69	OK
N+6.35	87	COMDER1 MIN	-0.035182158	-0.033479796	0.02221	0.69	OK
N+6.35	87	COMDER2 MAX	0.030831676	0.03953264	0.02291	0.72	OK
N+6.35	87	COMDER2 MIN	-0.030831676	-0.03953264	0.02291	0.72	OK
N+3.15	87	COMDER1 MAX	0.01910429	0.018158533	0.02636	0.82	OK
N+3.15	87	COMDER1 MIN	-0.01910429	-0.018158533	0.02636	0.82	OK
N+3.15	87	COMDER2 MAX	0.016739898	0.021468683	0.02722	0.85	OK
N+3.15	87	COMDER2 MIN	-0.016739898	-0.021468683	0.02722	0.85	OK
BASE	87	COMDER1 MAX	0	0	--	--	--
BASE	87	COMDER1 MIN	0	0	--	--	--
BASE	87	COMDER2 MAX	0	0	--	--	--
BASE	87	COMDER2 MIN	0	0	--	--	--
N+6.35	89	COMDER1 MAX	0.035182158	0.029602192	0.02101	0.66	OK
N+6.35	89	COMDER1 MIN	-0.035182158	-0.029602192	0.02101	0.66	OK
N+6.35	89	COMDER2 MAX	0.030831676	0.034425553	0.02110	0.66	OK
N+6.35	89	COMDER2 MIN	-0.030831676	-0.034425553	0.02110	0.66	OK
N+3.15	89	COMDER1 MAX	0.01910429	0.016077868	0.02497	0.78	OK
N+3.15	89	COMDER1 MIN	-0.01910429	-0.016077868	0.02497	0.78	OK
N+3.15	89	COMDER2 MAX	0.016739898	0.018725988	0.02512	0.78	OK
N+3.15	89	COMDER2 MIN	-0.016739898	-0.018725988	0.02512	0.78	OK
BASE	89	COMDER1 MAX	0	0	--	--	--
BASE	89	COMDER1 MIN	0	0	--	--	--
BASE	89	COMDER2 MAX	0	0	--	--	--
BASE	89	COMDER2 MIN	0	0	--	--	--
N+6.35	91	COMDER1 MAX	0.035182158	0.028467284	0.02065	0.65	OK
N+6.35	91	COMDER1 MIN	-0.035182158	-0.028467284	0.02065	0.65	OK
N+6.35	91	COMDER2 MAX	0.030831676	0.032817766	0.02054	0.64	OK
N+6.35	91	COMDER2 MIN	-0.030831676	-0.032817766	0.02054	0.64	OK
N+3.15	91	COMDER1 MAX	0.01910429	0.015510414	0.02461	0.77	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS

ALTURA DE N+6.35	**3.20**	**m**
ALTURA DE N+3.15	**3.20**	**m**
ALTURA DE BASE	**0.00**	**m**

Deriva Máxima Permitida **1.00** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+3.15	91	COMDER1 MIN	-0.01910429	-0.015510414	0.02461	0.77	OK
N+3.15	91	COMDER2 MAX	0.016739898	0.017874806	0.02449	0.77	OK
N+3.15	91	COMDER2 MIN	-0.016739898	-0.017874806	0.02449	0.77	OK
BASE	91	COMDER1 MAX	0	0	--	--	--
BASE	91	COMDER1 MIN	0	0	--	--	--
BASE	91	COMDER2 MAX	0	0	--	--	--
BASE	91	COMDER2 MIN	0	0	--	--	--
N+6.35	93	COMDER1 MAX	0.035182158	0.028940163	0.02083	0.65	OK
N+6.35	93	COMDER1 MIN	-0.035182158	-0.028940163	0.02083	0.65	OK
N+6.35	93	COMDER2 MAX	0.030831676	0.033101493	0.02068	0.65	OK
N+6.35	93	COMDER2 MIN	-0.030831676	-0.033101493	0.02068	0.65	OK
N+3.15	93	COMDER1 MAX	0.01910429	0.015699565	0.02473	0.77	OK
N+3.15	93	COMDER1 MIN	-0.01910429	-0.015699565	0.02473	0.77	OK
N+3.15	93	COMDER2 MAX	0.016739898	0.017969382	0.02456	0.77	OK
N+3.15	93	COMDER2 MIN	-0.016739898	-0.017969382	0.02456	0.77	OK
BASE	93	COMDER1 MAX	0	0	--	--	--
BASE	93	COMDER1 MIN	0	0	--	--	--
BASE	93	COMDER2 MAX	0	0	--	--	--
BASE	93	COMDER2 MIN	0	0	--	--	--

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	**3.20**	**m**
ALTURA DE N+3.15	**3.20**	**m**
ALTURA DE BASE	**0.00**	**m**

Deriva Máxima Permitida **0.40** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	16	COMDERUMB1 MAX	0.00890	0.00920	0.00580	0.18	OK
N+6.35	16	COMDERUMB1 MIN	-0.00890	-0.00920	0.00580	0.18	OK
N+6.35	16	COMDERUMB2 MAX	0.00850	0.01110	0.00642	0.20	OK
N+6.35	16	COMDERUMB2 MIN	-0.00850	-0.01110	0.00642	0.20	OK
N+3.15	16	COMDERUMB1 MAX	0.00490	0.00500	0.00700	0.22	OK
N+3.15	16	COMDERUMB1 MIN	-0.00490	-0.00500	0.00700	0.22	OK
N+3.15	16	COMDERUMB2 MAX	0.00460	0.00600	0.00756	0.24	OK
N+3.15	16	COMDERUMB2 MIN	-0.00460	-0.00600	0.00756	0.24	OK
BASE	16	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	16	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	16	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	16	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	18	COMDERUMB1 MAX	0.00890	0.00830	0.00552	0.17	OK
N+6.35	18	COMDERUMB1 MIN	-0.00890	-0.00830	0.00552	0.17	OK
N+6.35	18	COMDERUMB2 MAX	0.00850	0.00990	0.00595	0.19	OK
N+6.35	18	COMDERUMB2 MIN	-0.00850	-0.00990	0.00595	0.19	OK
N+3.15	18	COMDERUMB1 MAX	0.00490	0.00450	0.00665	0.21	OK
N+3.15	18	COMDERUMB1 MIN	-0.00490	-0.00450	0.00665	0.21	OK
N+3.15	18	COMDERUMB2 MAX	0.00460	0.00540	0.00709	0.22	OK
N+3.15	18	COMDERUMB2 MIN	-0.00460	-0.00540	0.00709	0.22	OK
BASE	18	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	18	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	18	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	18	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	20	COMDERUMB1 MAX	0.00890	0.00740	0.00525	0.16	OK
N+6.35	20	COMDERUMB1 MIN	-0.00890	-0.00740	0.00525	0.16	OK
N+6.35	20	COMDERUMB2 MAX	0.00850	0.00860	0.00552	0.17	OK
N+6.35	20	COMDERUMB2 MIN	-0.00850	-0.00860	0.00552	0.17	OK
N+3.15	20	COMDERUMB1 MAX	0.00490	0.00400	0.00633	0.20	OK
N+3.15	20	COMDERUMB1 MIN	-0.00490	-0.00400	0.00633	0.20	OK
N+3.15	20	COMDERUMB2 MAX	0.00460	0.00470	0.00658	0.21	OK
N+3.15	20	COMDERUMB2 MIN	-0.00460	-0.00470	0.00658	0.21	OK
BASE	20	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	20	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	20	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	20	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	22	COMDERUMB1 MAX	0.00890	0.00710	0.00512	0.16	OK
N+6.35	22	COMDERUMB1 MIN	-0.00890	-0.00710	0.00512	0.16	OK
N+6.35	22	COMDERUMB2 MAX	0.00850	0.00820	0.00538	0.17	OK
N+6.35	22	COMDERUMB2 MIN	-0.00850	-0.00820	0.00538	0.17	OK
N+3.15	22	COMDERUMB1 MAX	0.00490	0.00390	0.00626	0.20	OK
N+3.15	22	COMDERUMB1 MIN	-0.00490	-0.00390	0.00626	0.20	OK
N+3.15	22	COMDERUMB2 MAX	0.00460	0.00450	0.00644	0.20	OK
N+3.15	22	COMDERUMB2 MIN	-0.00460	-0.00450	0.00644	0.20	OK
BASE	22	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	22	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	22	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	22	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	24	COMDERUMB1 MAX	0.00890	0.00720	0.00519	0.16	OK
N+6.35	24	COMDERUMB1 MIN	-0.00890	-0.00720	0.00519	0.16	OK
N+6.35	24	COMDERUMB2 MAX	0.00850	0.00830	0.00545	0.17	OK
N+6.35	24	COMDERUMB2 MIN	-0.00850	-0.00830	0.00545	0.17	OK
N+3.15	24	COMDERUMB1 MAX	0.00490	0.00390	0.00626	0.20	OK
N+3.15	24	COMDERUMB1 MIN	-0.00490	-0.00390	0.00626	0.20	OK
N+3.15	24	COMDERUMB2 MAX	0.00460	0.00450	0.00644	0.20	OK
N+3.15	24	COMDERUMB2 MIN	-0.00460	-0.00450	0.00644	0.20	OK
BASE	24	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	24	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	24	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	24	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	26	COMDERUMB1 MAX	0.00890	0.00730	0.00519	0.16	OK
N+6.35	26	COMDERUMB1 MIN	-0.00890	-0.00730	0.00519	0.16	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **0.40** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+6.35	26	COMDERUMB2 MAX	0.00850	0.00840	0.00552	0.17	OK
N+6.35	26	COMDERUMB2 MIN	-0.00850	-0.00840	0.00552	0.17	OK
N+3.15	26	COMDERUMB1 MAX	0.00490	0.00400	0.00633	0.20	OK
N+3.15	26	COMDERUMB1 MIN	-0.00490	-0.00400	0.00633	0.20	OK
N+3.15	26	COMDERUMB2 MAX	0.00460	0.00450	0.00644	0.20	OK
N+3.15	26	COMDERUMB2 MIN	-0.00460	-0.00450	0.00644	0.20	OK
BASE	26	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	26	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	26	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	26	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	41	COMDERUMB1 MAX	0.00820	0.01040	0.00606	0.19	OK
N+6.35	41	COMDERUMB1 MIN	-0.00820	-0.01040	0.00606	0.19	OK
N+6.35	41	COMDERUMB2 MAX	0.00740	0.01260	0.00664	0.21	OK
N+6.35	41	COMDERUMB2 MIN	-0.00740	-0.01260	0.00664	0.21	OK
N+3.15	41	COMDERUMB1 MAX	0.00450	0.00560	0.00718	0.22	OK
N+3.15	41	COMDERUMB1 MIN	-0.00450	-0.00560	0.00718	0.22	OK
N+3.15	41	COMDERUMB2 MAX	0.00400	0.00690	0.00798	0.25	OK
N+3.15	41	COMDERUMB2 MIN	-0.00400	-0.00690	0.00798	0.25	OK
BASE	41	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	41	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	41	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	41	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	43	COMDERUMB1 MAX	0.00820	0.00920	0.00560	0.17	OK
N+6.35	43	COMDERUMB1 MIN	-0.00820	-0.00920	0.00560	0.17	OK
N+6.35	43	COMDERUMB2 MAX	0.00740	0.01110	0.00613	0.19	OK
N+6.35	43	COMDERUMB2 MIN	-0.00740	-0.01110	0.00613	0.19	OK
N+3.15	43	COMDERUMB1 MAX	0.00450	0.00500	0.00673	0.21	OK
N+3.15	43	COMDERUMB1 MIN	-0.00450	-0.00500	0.00673	0.21	OK
N+3.15	43	COMDERUMB2 MAX	0.00400	0.00600	0.00721	0.23	OK
N+3.15	43	COMDERUMB2 MIN	-0.00400	-0.00600	0.00721	0.23	OK
BASE	43	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	43	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	43	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	43	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	45	COMDERUMB1 MAX	0.00820	0.00830	0.00530	0.17	OK
N+6.35	45	COMDERUMB1 MIN	-0.00820	-0.00830	0.00530	0.17	OK
N+6.35	45	COMDERUMB2 MAX	0.00740	0.00990	0.00564	0.18	OK
N+6.35	45	COMDERUMB2 MIN	-0.00740	-0.00990	0.00564	0.18	OK
N+3.15	45	COMDERUMB1 MAX	0.00450	0.00450	0.00636	0.20	OK
N+3.15	45	COMDERUMB1 MIN	-0.00450	-0.00450	0.00636	0.20	OK
N+3.15	45	COMDERUMB2 MAX	0.00400	0.00540	0.00672	0.21	OK
N+3.15	45	COMDERUMB2 MIN	-0.00400	-0.00540	0.00672	0.21	OK
BASE	45	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	45	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	45	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	45	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	47	COMDERUMB1 MAX	0.00820	0.00740	0.00502	0.16	OK
N+6.35	47	COMDERUMB1 MIN	-0.00820	-0.00740	0.00502	0.16	OK
N+6.35	47	COMDERUMB2 MAX	0.00740	0.00860	0.00517	0.16	OK
N+6.35	47	COMDERUMB2 MIN	-0.00740	-0.00860	0.00517	0.16	OK
N+3.15	47	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	47	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	47	COMDERUMB2 MAX	0.00400	0.00470	0.00617	0.19	OK
N+3.15	47	COMDERUMB2 MIN	-0.00400	-0.00470	0.00617	0.19	OK
BASE	47	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	47	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	47	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	47	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	49	COMDERUMB1 MAX	0.00820	0.00710	0.00489	0.15	OK
N+6.35	49	COMDERUMB1 MIN	-0.00820	-0.00710	0.00489	0.15	OK
N+6.35	49	COMDERUMB2 MAX	0.00740	0.00820	0.00502	0.16	OK
N+6.35	49	COMDERUMB2 MIN	-0.00740	-0.00820	0.00502	0.16	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida 0.40 %

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+3.15	49	COMDERUMB1 MAX	0.00450	0.00390	0.00595	0.19	OK
N+3.15	49	COMDERUMB1 MIN	-0.00450	-0.00390	0.00595	0.19	OK
N+3.15	49	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	49	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK
BASE	49	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	49	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	49	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	49	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	51	COMDERUMB1 MAX	0.00820	0.00720	0.00496	0.15	OK
N+6.35	51	COMDERUMB1 MIN	-0.00820	-0.00720	0.00496	0.15	OK
N+6.35	51	COMDERUMB2 MAX	0.00740	0.00830	0.00510	0.16	OK
N+6.35	51	COMDERUMB2 MIN	-0.00740	-0.00830	0.00510	0.16	OK
N+3.15	51	COMDERUMB1 MAX	0.00450	0.00390	0.00595	0.19	OK
N+3.15	51	COMDERUMB1 MIN	-0.00450	-0.00390	0.00595	0.19	OK
N+3.15	51	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	51	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK
BASE	51	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	51	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	51	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	51	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	53	COMDERUMB1 MAX	0.00820	0.00730	0.00496	0.15	OK
N+6.35	53	COMDERUMB1 MIN	-0.00820	-0.00730	0.00496	0.15	OK
N+6.35	53	COMDERUMB2 MAX	0.00740	0.00840	0.00517	0.16	OK
N+6.35	53	COMDERUMB2 MIN	-0.00740	-0.00840	0.00517	0.16	OK
N+3.15	53	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	53	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	53	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	53	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK
BASE	53	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	53	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	53	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	53	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	54	COMDERUMB1 MAX	0.00820	0.00740	0.00502	0.16	OK
N+6.35	54	COMDERUMB1 MIN	-0.00820	-0.00740	0.00502	0.16	OK
N+6.35	54	COMDERUMB2 MAX	0.00740	0.00850	0.00517	0.16	OK
N+6.35	54	COMDERUMB2 MIN	-0.00740	-0.00850	0.00517	0.16	OK
N+3.15	54	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	54	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	54	COMDERUMB2 MAX	0.00400	0.00460	0.00610	0.19	OK
N+3.15	54	COMDERUMB2 MIN	-0.00400	-0.00460	0.00610	0.19	OK
BASE	54	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	54	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	54	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	54	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	57	COMDERUMB1 MAX	0.00830	0.01040	0.00612	0.19	OK
N+6.35	57	COMDERUMB1 MIN	-0.00830	-0.01040	0.00612	0.19	OK
N+6.35	57	COMDERUMB2 MAX	0.00730	0.01260	0.00659	0.21	OK
N+6.35	57	COMDERUMB2 MIN	-0.00730	-0.01260	0.00659	0.21	OK
N+3.15	57	COMDERUMB1 MAX	0.00450	0.00560	0.00718	0.22	OK
N+3.15	57	COMDERUMB1 MIN	-0.00450	-0.00560	0.00718	0.22	OK
N+3.15	57	COMDERUMB2 MAX	0.00400	0.00690	0.00798	0.25	OK
N+3.15	57	COMDERUMB2 MIN	-0.00400	-0.00690	0.00798	0.25	OK
BASE	57	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	57	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	57	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	57	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	59	COMDERUMB1 MAX	0.00830	0.00920	0.00566	0.18	OK
N+6.35	59	COMDERUMB1 MIN	-0.00830	-0.00920	0.00566	0.18	OK
N+6.35	59	COMDERUMB2 MAX	0.00730	0.01110	0.00607	0.19	OK
N+6.35	59	COMDERUMB2 MIN	-0.00730	-0.01110	0.00607	0.19	OK
N+3.15	59	COMDERUMB1 MAX	0.00450	0.00500	0.00673	0.21	OK
N+3.15	59	COMDERUMB1 MIN	-0.00450	-0.00500	0.00673	0.21	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **0.40** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
N+3.15	59	COMDERUMB2 MAX	0.00400	0.00600	0.00721	0.23	OK
N+3.15	59	COMDERUMB2 MIN	-0.00400	-0.00600	0.00721	0.23	OK
BASE	59	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	59	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	59	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	59	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	61	COMDERUMB1 MAX	0.00830	0.00830	0.00537	0.17	OK
N+6.35	61	COMDERUMB1 MIN	-0.00830	-0.00830	0.00537	0.17	OK
N+6.35	61	COMDERUMB2 MAX	0.00730	0.00990	0.00558	0.17	OK
N+6.35	61	COMDERUMB2 MIN	-0.00730	-0.00990	0.00558	0.17	OK
N+3.15	61	COMDERUMB1 MAX	0.00450	0.00450	0.00636	0.20	OK
N+3.15	61	COMDERUMB1 MIN	-0.00450	-0.00450	0.00636	0.20	OK
N+3.15	61	COMDERUMB2 MAX	0.00400	0.00540	0.00672	0.21	OK
N+3.15	61	COMDERUMB2 MIN	-0.00400	-0.00540	0.00672	0.21	OK
BASE	61	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	61	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	61	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	61	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	64	COMDERUMB1 MAX	0.00830	0.00740	0.00510	0.16	OK
N+6.35	64	COMDERUMB1 MIN	-0.00830	-0.00740	0.00510	0.16	OK
N+6.35	64	COMDERUMB2 MAX	0.00730	0.00860	0.00511	0.16	OK
N+6.35	64	COMDERUMB2 MIN	-0.00730	-0.00860	0.00511	0.16	OK
N+3.15	64	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	64	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	64	COMDERUMB2 MAX	0.00400	0.00470	0.00617	0.19	OK
N+3.15	64	COMDERUMB2 MIN	-0.00400	-0.00470	0.00617	0.19	OK
BASE	64	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	64	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	64	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	64	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	66	COMDERUMB1 MAX	0.00830	0.00710	0.00497	0.16	OK
N+6.35	66	COMDERUMB1 MIN	-0.00830	-0.00710	0.00497	0.16	OK
N+6.35	66	COMDERUMB2 MAX	0.00730	0.00820	0.00496	0.15	OK
N+6.35	66	COMDERUMB2 MIN	-0.00730	-0.00820	0.00496	0.15	OK
N+3.15	66	COMDERUMB1 MAX	0.00450	0.00390	0.00595	0.19	OK
N+3.15	66	COMDERUMB1 MIN	-0.00450	-0.00390	0.00595	0.19	OK
N+3.15	66	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	66	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK
BASE	66	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	66	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	66	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	66	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	68	COMDERUMB1 MAX	0.00830	0.00720	0.00503	0.16	OK
N+6.35	68	COMDERUMB1 MIN	-0.00830	-0.00720	0.00503	0.16	OK
N+6.35	68	COMDERUMB2 MAX	0.00730	0.00830	0.00503	0.16	OK
N+6.35	68	COMDERUMB2 MIN	-0.00730	-0.00830	0.00503	0.16	OK
N+3.15	68	COMDERUMB1 MAX	0.00450	0.00390	0.00595	0.19	OK
N+3.15	68	COMDERUMB1 MIN	-0.00450	-0.00390	0.00595	0.19	OK
N+3.15	68	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	68	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK
BASE	68	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	68	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	68	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	68	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	70	COMDERUMB1 MAX	0.00830	0.00730	0.00503	0.16	OK
N+6.35	70	COMDERUMB1 MIN	-0.00830	-0.00730	0.00503	0.16	OK
N+6.35	70	COMDERUMB2 MAX	0.00730	0.00840	0.00511	0.16	OK
N+6.35	70	COMDERUMB2 MIN	-0.00730	-0.00840	0.00511	0.16	OK
N+3.15	70	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	70	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	70	COMDERUMB2 MAX	0.00400	0.00450	0.00602	0.19	OK
N+3.15	70	COMDERUMB2 MIN	-0.00400	-0.00450	0.00602	0.19	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	3.20	m
ALTURA DE N+3.15	3.20	m
ALTURA DE BASE	0.00	m

Deriva Máxima Permitida **0.40** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
BASE	70	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	70	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	70	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	70	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	71	COMDERUMB1 MAX	0.00830	0.00740	0.00510	0.16	OK
N+6.35	71	COMDERUMB1 MIN	-0.00830	-0.00740	0.00510	0.16	OK
N+6.35	71	COMDERUMB2 MAX	0.00730	0.00850	0.00511	0.16	OK
N+6.35	71	COMDERUMB2 MIN	-0.00730	-0.00850	0.00511	0.16	OK
N+3.15	71	COMDERUMB1 MAX	0.00450	0.00400	0.00602	0.19	OK
N+3.15	71	COMDERUMB1 MIN	-0.00450	-0.00400	0.00602	0.19	OK
N+3.15	71	COMDERUMB2 MAX	0.00400	0.00460	0.00610	0.19	OK
N+3.15	71	COMDERUMB2 MIN	-0.00400	-0.00460	0.00610	0.19	OK
BASE	71	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	71	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	71	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	71	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	85	COMDERUMB1 MAX	0.00870	0.00920	0.00580	0.18	OK
N+6.35	85	COMDERUMB1 MIN	-0.00870	-0.00920	0.00580	0.18	OK
N+6.35	85	COMDERUMB2 MAX	0.00770	0.01110	0.00619	0.19	OK
N+6.35	85	COMDERUMB2 MIN	-0.00770	-0.01110	0.00619	0.19	OK
N+3.15	85	COMDERUMB1 MAX	0.00470	0.00500	0.00686	0.21	OK
N+3.15	85	COMDERUMB1 MIN	-0.00470	-0.00500	0.00686	0.21	OK
N+3.15	85	COMDERUMB2 MAX	0.00420	0.00600	0.00732	0.23	OK
N+3.15	85	COMDERUMB2 MIN	-0.00420	-0.00600	0.00732	0.23	OK
BASE	85	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	85	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	85	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	85	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	87	COMDERUMB1 MAX	0.00870	0.00830	0.00552	0.17	OK
N+6.35	87	COMDERUMB1 MIN	-0.00870	-0.00830	0.00552	0.17	OK
N+6.35	87	COMDERUMB2 MAX	0.00770	0.00990	0.00570	0.18	OK
N+6.35	87	COMDERUMB2 MIN	-0.00770	-0.00990	0.00570	0.18	OK
N+3.15	87	COMDERUMB1 MAX	0.00470	0.00450	0.00651	0.20	OK
N+3.15	87	COMDERUMB1 MIN	-0.00470	-0.00450	0.00651	0.20	OK
N+3.15	87	COMDERUMB2 MAX	0.00420	0.00540	0.00684	0.21	OK
N+3.15	87	COMDERUMB2 MIN	-0.00420	-0.00540	0.00684	0.21	OK
BASE	87	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	87	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	87	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	87	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	89	COMDERUMB1 MAX	0.00870	0.00740	0.00525	0.16	OK
N+6.35	89	COMDERUMB1 MIN	-0.00870	-0.00740	0.00525	0.16	OK
N+6.35	89	COMDERUMB2 MAX	0.00770	0.00860	0.00524	0.16	OK
N+6.35	89	COMDERUMB2 MIN	-0.00770	-0.00860	0.00524	0.16	OK
N+3.15	89	COMDERUMB1 MAX	0.00470	0.00400	0.00617	0.19	OK
N+3.15	89	COMDERUMB1 MIN	-0.00470	-0.00400	0.00617	0.19	OK
N+3.15	89	COMDERUMB2 MAX	0.00420	0.00470	0.00630	0.20	OK
N+3.15	89	COMDERUMB2 MIN	-0.00420	-0.00470	0.00630	0.20	OK
BASE	89	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	89	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	89	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	89	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	91	COMDERUMB1 MAX	0.00870	0.00710	0.00512	0.16	OK
N+6.35	91	COMDERUMB1 MIN	-0.00870	-0.00710	0.00512	0.16	OK
N+6.35	91	COMDERUMB2 MAX	0.00770	0.00820	0.00509	0.16	OK
N+6.35	91	COMDERUMB2 MIN	-0.00770	-0.00820	0.00509	0.16	OK
N+3.15	91	COMDERUMB1 MAX	0.00470	0.00390	0.00611	0.19	OK
N+3.15	91	COMDERUMB1 MIN	-0.00470	-0.00390	0.00611	0.19	OK
N+3.15	91	COMDERUMB2 MAX	0.00420	0.00450	0.00616	0.19	OK
N+3.15	91	COMDERUMB2 MIN	-0.00420	-0.00450	0.00616	0.19	OK
BASE	91	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	91	COMDERUMB1 MIN	0.00000	0.00000	--	--	--

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

CÁLCULO DE DERIVAS MÁXIMAS (ESPECTRO DE UMBRAL DE DAÑO)

ALTURA DE N+6.35	**3.20**	**m**
ALTURA DE N+3.15	**3.20**	**m**
ALTURA DE BASE	**0.00**	**m**

Deriva Máxima Permitida **0.40** **%**

Nivel	Punto	COMBINACIÓN DE CARGA	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ	Deriva Δ	Observación
			Desplazamiento X	Desplazamiento Y	*m*	*%*	
BASE	91	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	91	COMDERUMB2 MIN	0.00000	0.00000	--	--	--
N+6.35	93	COMDERUMB1 MAX	0.00870	0.00720	0.00519	0.16	OK
N+6.35	93	COMDERUMB1 MIN	-0.00870	-0.00720	0.00519	0.16	OK
N+6.35	93	COMDERUMB2 MAX	0.00770	0.00830	0.00517	0.16	OK
N+6.35	93	COMDERUMB2 MIN	-0.00770	-0.00830	0.00517	0.16	OK
N+3.15	93	COMDERUMB1 MAX	0.00470	0.00390	0.00611	0.19	OK
N+3.15	93	COMDERUMB1 MIN	-0.00470	-0.00390	0.00611	0.19	OK
N+3.15	93	COMDERUMB2 MAX	0.00420	0.00450	0.00616	0.19	OK
N+3.15	93	COMDERUMB2 MIN	-0.00420	-0.00450	0.00616	0.19	OK
BASE	93	COMDERUMB1 MAX	0.00000	0.00000	--	--	--
BASE	93	COMDERUMB1 MIN	0.00000	0.00000	--	--	--
BASE	93	COMDERUMB2 MAX	0.00000	0.00000	--	--	--
BASE	93	COMDERUMB2 MIN	0.00000	0.00000	--	--	--

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

VERIFICACIÓN IRREGULARIDAD TORSIONAL

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* 1.2*($\Delta_1+\Delta_2$)/2	*Irregularidad Torsional Extrema* 1.4*($\Delta_1+\Delta_2$)/2	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	16	COMDER1 MAX	0.038	0.0393	0.0002	0.0249	0.8803	0.0330	NO	NO
N+6.35	16	COMDER1 MIN	-0.038	-0.0393	-0.0002	0.0249	0.8803	0.0330	NO	NO
N+6.35	16	COMDER2 MAX	0.0359	0.0468	0.0002	0.0269	0.9001	0.0349	NO	NO
N+6.35	16	COMDER2 MIN	-0.0359	-0.0468	-0.0002	0.0269	0.9001	0.0349	NO	NO
N+3.15	16	COMDER1 MAX	0.0208	0.0213	0.0001	0.0298	0.8761	0.0396	NO	NO
N+3.15	16	COMDER1 MIN	-0.0208	-0.0213	-0.0001	0.0298	0.8761	0.0396	NO	NO
N+3.15	16	COMDER2 MAX	0.0196	0.0254	0.0001	0.0321	0.8973	0.0417	NO	NO
N+3.15	16	COMDER2 MIN	-0.0196	-0.0254	-0.0001	0.0321	0.8973	0.0417	NO	NO
BASE	16	COMDER1 MAX	0	0	0					
BASE	16	COMDER1 MIN	0	0	0					
BASE	16	COMDER2 MAX	0	0	0					
BASE	16	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* 1.2*($\Delta_1+\Delta_2$)/2	*Irregularidad Torsional Extrema* 1.4*($\Delta_1+\Delta_2$)/2	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	26	COMDER1 MAX	0.038	0.0311	0.0001	0.0222	0.8523	0.0304	NO	NO
N+6.35	26	COMDER1 MIN	-0.038	-0.0311	-0.0001	0.0222	0.8523	0.0304	NO	NO
N+6.35	26	COMDER2 MAX	0.0359	0.0354	0.0002	0.0229	0.8604	0.0311	NO	NO
N+6.35	26	COMDER2 MIN	-0.0359	-0.0354	-0.0002	0.0229	0.8604	0.0311	NO	NO
N+3.15	26	COMDER1 MAX	0.0208	0.017	0.0001	0.0269	0.8539	0.0367	NO	NO
N+3.15	26	COMDER1 MIN	-0.0208	-0.017	-0.0001	0.0269	0.8539	0.0367	NO	NO
N+3.15	26	COMDER2 MAX	0.0196	0.0193	0.0001	0.0275	0.8603	0.0373	NO	NO
N+3.15	26	COMDER2 MIN	-0.0196	-0.0193	-0.0001	0.0275	0.8603	0.0373	NO	NO
BASE	26	COMDER1 MAX	0	0	0					
BASE	26	COMDER1 MIN	0	0	0					
BASE	26	COMDER2 MAX	0	0	0					
BASE	26	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* 1.2*($\Delta_1+\Delta_2$)/2	*Irregularidad Torsional Extrema* 1.4*($\Delta_1+\Delta_2$)/2	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	53	COMDER1 MAX	0.035	0.0311	0.0003	0.0213	0.8307	0.0298	NO	NO
N+6.35	53	COMDER1 MIN	-0.035	-0.0311	-0.0003	0.0213	0.8307	0.0298	NO	NO
N+6.35	53	COMDER2 MAX	0.0313	0.0354	0.0003	0.0215	0.8290	0.0302	NO	NO
N+6.35	53	COMDER2 MIN	-0.0313	-0.0354	-0.0003	0.0215	0.8290	0.0302	NO	NO
N+3.15	53	COMDER1 MAX	0.0191	0.017	0.0002	0.0256	0.8312	0.0359	NO	NO
N+3.15	53	COMDER1 MIN	-0.0191	-0.017	-0.0002	0.0256	0.8312	0.0359	NO	NO
N+3.15	53	COMDER2 MAX	0.0171	0.0193	0.0002	0.0258	0.8309	0.0362	NO	NO
N+3.15	53	COMDER2 MIN	-0.0171	-0.0193	-0.0002	0.0258	0.8309	0.0362	NO	NO
BASE	53	COMDER1 MAX	0	0	0					
BASE	53	COMDER1 MIN	0	0	0					
BASE	53	COMDER2 MAX	0	0	0					
BASE	53	COMDER2 MIN	0	0	0					

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

VERIFICACIÓN IRREGULARIDAD TORSIONAL

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	54	COMDER1 MAX	0.035	0.0315	0.0004	0.0214	0.8319	0.0300	NO	NO
N+6.35	54	COMDER1 MIN	-0.035	-0.0315	-0.0004	0.0214	0.8319	0.0300	NO	NO
N+6.35	54	COMDER2 MAX	0.0313	0.0359	0.0005	0.0217	0.8346	0.0303	NO	NO
N+6.35	54	COMDER2 MIN	-0.0313	-0.0359	-0.0005	0.0217	0.8346	0.0303	NO	NO
N+3.15	54	COMDER1 MAX	0.0191	0.0172	0.0003	0.0257	0.8333	0.0360	NO	NO
N+3.15	54	COMDER1 MIN	-0.0191	-0.0172	-0.0003	0.0257	0.8333	0.0360	NO	NO
N+3.15	54	COMDER2 MAX	0.0171	0.0195	0.0004	0.0259	0.8355	0.0362	NO	NO
N+3.15	54	COMDER2 MIN	-0.0171	-0.0195	-0.0004	0.0259	0.8355	0.0362	NO	NO
BASE	54	COMDER1 MAX	0	0	0					
BASE	54	COMDER1 MIN	0	0	0					
BASE	54	COMDER2 MAX	0	0	0					
BASE	54	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	71	COMDER1 MAX	0.0351	0.0315	0.0005	0.0215	0.8372	0.0299	NO	NO
N+6.35	71	COMDER1 MIN	-0.0351	-0.0315	-0.0005	0.0215	0.8372	0.0299	NO	NO
N+6.35	71	COMDER2 MAX	0.031	0.0359	0.0005	0.0216	0.8392	0.0301	NO	NO
N+6.35	71	COMDER2 MIN	-0.031	-0.0359	-0.0005	0.0216	0.8392	0.0301	NO	NO
N+3.15	71	COMDER1 MAX	0.0191	0.0172	0.0004	0.0257	0.8398	0.0357	NO	NO
N+3.15	71	COMDER1 MIN	-0.0191	-0.0172	-0.0004	0.0257	0.8398	0.0357	NO	NO
N+3.15	71	COMDER2 MAX	0.0169	0.0195	0.0003	0.0258	0.8394	0.0359	NO	NO
N+3.15	71	COMDER2 MIN	-0.0169	-0.0195	-0.0003	0.0258	0.8394	0.0359	NO	NO
BASE	71	COMDER1 MAX	0	0	0					
BASE	71	COMDER1 MIN	0	0	0					
BASE	71	COMDER2 MAX	0	0	0					
BASE	71	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	68	COMDER1 MAX	0.0351	0.0306	0.0002	0.0213	0.8187	0.0303	NO	NO
N+6.35	68	COMDER1 MIN	-0.0351	-0.0306	-0.0002	0.0213	0.8187	0.0303	NO	NO
N+6.35	68	COMDER2 MAX	0.031	0.035	0.0003	0.0213	0.8230	0.0302	NO	NO
N+6.35	68	COMDER2 MIN	-0.031	-0.035	-0.0003	0.0213	0.8230	0.0302	NO	NO
N+3.15	68	COMDER1 MAX	0.0191	0.0166	0.0002	0.0253	0.8197	0.0360	NO	NO
N+3.15	68	COMDER1 MIN	-0.0191	-0.0166	-0.0002	0.0253	0.8197	0.0360	NO	NO
N+3.15	68	COMDER2 MAX	0.0169	0.019	0.0002	0.0254	0.8246	0.0360	NO	NO
N+3.15	68	COMDER2 MIN	-0.0169	-0.019	-0.0002	0.0254	0.8246	0.0360	NO	NO
BASE	68	COMDER1 MAX	0	0	0					
BASE	68	COMDER1 MIN	0	0	0					
BASE	68	COMDER2 MAX	0	0	0					
BASE	68	COMDER2 MIN	0	0	0					

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

VERIFICACIÓN IRREGULARIDAD TORSIONAL

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	93	COMDER1 MAX	0.0372	0.0306	0.0002	0.0220	0.7846	0.0327	NO	NO
N+6.35	93	COMDER1 MIN	-0.0372	-0.0306	-0.0002	0.0220	0.7846	0.0327	NO	NO
N+6.35	93	COMDER2 MAX	0.0326	0.035	0.0001	0.0219	0.7601	0.0336	NO	NO
N+6.35	93	COMDER2 MIN	-0.0326	-0.035	-0.0001	0.0219	0.7601	0.0336	NO	NO
N+3.15	93	COMDER1 MAX	0.0202	0.0166	0.0001	0.0261	0.7851	0.0389	NO	NO
N+3.15	93	COMDER1 MIN	-0.0202	-0.0166	-0.0001	0.0261	0.7851	0.0389	NO	NO
N+3.15	93	COMDER2 MAX	0.0177	0.019	0.0001	0.0260	0.7603	0.0398	NO	NO
N+3.15	93	COMDER2 MIN	-0.0177	-0.019	-0.0001	0.0260	0.7603	0.0398	NO	NO
BASE	93	COMDER1 MAX	0	0	0					
BASE	93	COMDER1 MIN	0	0	0					
BASE	93	COMDER2 MAX	0	0	0					
BASE	93	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	85	COMDER1 MAX	0.0372	0.0393	0.0002	0.0248	0.8449	0.0342	NO	NO
N+6.35	85	COMDER1 MIN	-0.0372	-0.0393	-0.0002	0.0248	0.8449	0.0342	NO	NO
N+6.35	85	COMDER2 MAX	0.0326	0.0468	0.0002	0.0261	0.8406	0.0362	NO	NO
N+6.35	85	COMDER2 MIN	-0.0326	-0.0468	-0.0002	0.0261	0.8406	0.0362	NO	NO
N+3.15	85	COMDER1 MAX	0.0202	0.0213	0.0001	0.0294	0.8441	0.0406	NO	NO
N+3.15	85	COMDER1 MIN	-0.0202	-0.0213	-0.0001	0.0294	0.8441	0.0406	NO	NO
N+3.15	85	COMDER2 MAX	0.0177	0.0254	0.0001	0.0310	0.8394	0.0430	NO	NO
N+3.15	85	COMDER2 MIN	-0.0177	-0.0254	-0.0001	0.0310	0.8394	0.0430	NO	NO
BASE	85	COMDER1 MAX	0	0	0					
BASE	85	COMDER1 MIN	0	0	0					
BASE	85	COMDER2 MAX	0	0	0					
BASE	85	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	59	COMDER1 MAX	0.0351	0.0393	0.0003	0.0241	0.8039	0.0350	NO	NO
N+6.35	59	COMDER1 MIN	-0.0351	-0.0393	-0.0003	0.0241	0.8039	0.0350	NO	NO
N+6.35	59	COMDER2 MAX	0.031	0.0468	0.0004	0.0256	0.7938	0.0377	NO	NO
N+6.35	59	COMDER2 MIN	-0.031	-0.0468	-0.0004	0.0256	0.7938	0.0377	NO	NO
N+3.15	59	COMDER1 MAX	0.0191	0.0213	0.0002	0.0286	0.8043	0.0415	NO	NO
N+3.15	59	COMDER1 MIN	-0.0191	-0.0213	-0.0002	0.0286	0.8043	0.0415	NO	NO
N+3.15	59	COMDER2 MAX	0.0169	0.0254	0.0003	0.0305	0.7936	0.0449	NO	NO
N+3.15	59	COMDER2 MIN	-0.0169	-0.0254	-0.0003	0.0305	0.7936	0.0449	NO	NO
BASE	59	COMDER1 MAX	0	0	0					
BASE	59	COMDER1 MIN	0	0	0					
BASE	59	COMDER2 MAX	0	0	0					
BASE	59	COMDER2 MIN	0	0	0					

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

VERIFICACIÓN IRREGULARIDAD TORSIONAL

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	57	COMDER1 MAX	0.0351	0.0443	0.0005	0.0258	0.8343	0.0361	NO	NO
N+6.35	57	COMDER1 MIN	-0.0351	-0.0443	-0.0005	0.0258	0.8343	0.0361	NO	NO
N+6.35	57	COMDER2 MAX	0.031	0.0534	0.0007	0.0282	0.8326	0.0395	NO	NO
N+6.35	57	COMDER2 MIN	-0.031	-0.0534	-0.0007	0.0282	0.8326	0.0395	NO	NO
N+3.15	57	COMDER1 MAX	0.0191	0.024	0.0004	0.0307	0.8333	0.0429	NO	NO
N+3.15	57	COMDER1 MIN	-0.0191	-0.024	-0.0004	0.0307	0.8333	0.0429	NO	NO
N+3.15	57	COMDER2 MAX	0.0169	0.029	0.0005	0.0336	0.8321	0.0471	NO	NO
N+3.15	57	COMDER2 MIN	-0.0169	-0.029	-0.0005	0.0336	0.8321	0.0471	NO	NO
BASE	57	COMDER1 MAX	0	0	0					
BASE	57	COMDER1 MIN	0	0	0					
BASE	57	COMDER2 MAX	0	0	0					
BASE	57	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	41	COMDER1 MAX	0.035	0.0443	0.0006	0.0258	0.8629	0.0349	NO	NO
N+6.35	41	COMDER1 MIN	-0.035	-0.0443	-0.0006	0.0258	0.8629	0.0349	NO	NO
N+6.35	41	COMDER2 MAX	0.0313	0.0534	0.0006	0.0282	0.8727	0.0377	NO	NO
N+6.35	41	COMDER2 MIN	-0.0313	-0.0534	-0.0006	0.0282	0.8727	0.0377	NO	NO
N+3.15	41	COMDER1 MAX	0.0191	0.024	0.0004	0.0307	0.8623	0.0415	NO	NO
N+3.15	41	COMDER1 MIN	-0.0191	-0.024	-0.0004	0.0307	0.8623	0.0415	NO	NO
N+3.15	41	COMDER2 MAX	0.0171	0.029	0.0005	0.0337	0.8728	0.0450	NO	NO
N+3.15	41	COMDER2 MIN	-0.0171	-0.029	-0.0005	0.0337	0.8728	0.0450	NO	NO
BASE	41	COMDER1 MAX	0	0	0					
BASE	41	COMDER1 MIN	0	0	0					
BASE	41	COMDER2 MAX	0	0	0					
BASE	41	COMDER2 MIN	0	0	0					

Story	Point	Load	UX	UY	UZ	Δ_1	*Irregularidad Torsional* $1.2*(\Delta_1+\Delta_2)/2$	*Irregularidad Torsional Extrema* $1.4*(\Delta_1+\Delta_2)/2$	I.T.Extrema≥Δ1 >I.T.?	Δ1>I.T.Extrema?
			m	m	m	m				
N+6.35	43	COMDER1 MAX	0.035	0.0393	0.0003	0.0240	0.8183	0.0342	NO	NO
N+6.35	43	COMDER1 MIN	-0.035	-0.0393	-0.0003	0.0240	0.8183	0.0342	NO	NO
N+6.35	43	COMDER2 MAX	0.0313	0.0468	0.0003	0.0257	0.8140	0.0368	NO	NO
N+6.35	43	COMDER2 MIN	-0.0313	-0.0468	-0.0003	0.0257	0.8140	0.0368	NO	NO
N+3.15	43	COMDER1 MAX	0.0191	0.0213	0.0002	0.0286	0.8167	0.0409	NO	NO
N+3.15	43	COMDER1 MIN	-0.0191	-0.0213	-0.0002	0.0286	0.8167	0.0409	NO	NO
N+3.15	43	COMDER2 MAX	0.0171	0.0254	0.0003	0.0306	0.8139	0.0439	NO	NO
N+3.15	43	COMDER2 MIN	-0.0171	-0.0254	-0.0003	0.0306	0.8139	0.0439	NO	NO
BASE	43	COMDER1 MAX	0	0	0					
BASE	43	COMDER1 MIN	0	0	0					
BASE	43	COMDER2 MAX	0	0	0					
BASE	43	COMDER2 MIN	0	0	0					

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
VERIFICACIÓN DE INDICE DE ESTABILIDAD Qi

DESPLAZAMIENTO DE DIAFRAGMAS RIGIDOS

NIVEL	Diaphragm	COMBINACIÓN	DESPLAZAMIENTOS FUERZA SÍSMICA		Deriva Δ
		DE CARGA	Desplazamiento X	Desplazamiento Y	*m*
N+6.35	D1	COMDER1 MAX	0.0356	0.0312	0.022
N+6.35	D1	COMDER1 MIN	-0.0356	-0.0312	0.022
N+6.35	D1	COMDER2 MAX	0.0316	0.0362	0.022
N+6.35	D1	COMDER2 MIN	-0.0316	-0.0362	0.022
N+3.15	D1	COMDER1 MAX	0.0194	0.0168	0.026
N+3.15	D1	COMDER1 MIN	-0.0194	-0.0168	0.026
N+3.15	D1	COMDER2 MAX	0.0172	0.0195	0.026
N+3.15	D1	COMDER2 MIN	-0.0172	-0.0195	0.026

FUERZA CORTANTE DEL PISO i

PISO	Fx	Vi
	kN	kN
N+6.35	153.0	153.00
N+3.15	446.8	599.80

CÁLCULO DE CARGA MUERTA POR NIVEL

NIVEL	Área	Carga Muerta kN	Acumulado Carga Muerta	Carga Viva kN/m^2	Carga Viva kN	Acumulado Carga Viva	Sumatoria de Cargas
N+6.35	785.98	227.06	227.06	0.62	487.94	487.94	715.01
N+3.15	757.99	593.54	593.54	4.45	3376.30	3376.30	3969.84

INDICE DE ESTABILIDAD

$$Qi = \frac{Pi\Delta cm}{ViHpi}$$

Donde:

Pi — Suma de la carga vertical total, incluyendo muerta y viva, que existe en el piso i, y todos los pisos localizados por encima. Para el cálculo de los efectos P-Delta, no hay necesidad que los coeficientes de carga sean mayores que la unidad.

Δcm — Deriva del piso i, en la dirección bajo estudio, medida en el centro de masa del piso, como la diferencia entre el desplazamiento horizontal del piso i menos el del piso i-1.

Vi — Fuerza cortante del piso, en la dirección bajo estudio, sin dividir por **R.** Se determina por medio de la ecuación A.3-2. Corresponde a la suma de las fuerzas horizontales sísmicas que se aplican en el nivel i, y todos los niveles localizados por encima de él.

Hpi — Altura del piso i, medida desde la superficie del diafragma del piso i hasta la superficie del diafragma del piso inmediatamente inferior i-1.

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
VERIFICACIÓN DE INDICE DE ESTABILIDAD Qi

DESPLAZAMIENTO DE DIAFRAGMAS RIGIDOS

VERIFICACIÓN DE ESTABILIDAD

$$Qi(x) = \frac{Pi\Delta cm}{ViHpi}$$

NIVEL	COMBINACIÓN DE CARGA	Hpi	Pi	Δcm	Vi	Qi	ESTABILIDAD
		m	kN	m	kN		Qi<0.10
N+6.35	COMDER1 MAX	3.20	715.007	0.022	153.000	0.0317	ESTABLE
N+6.35	COMDER1 MIN	3.20	715.007	0.022	153.000	0.0317	ESTABLE
N+6.35	COMDER2 MAX	3.20	715.007	0.022	153.000	0.0322	ESTABLE
N+6.35	COMDER2 MIN	3.20	715.007	0.022	153.000	0.0322	ESTABLE
N+3.15	COMDER1 MAX	3.20	3969.841	0.026	599.800	0.0531	ESTABLE
N+3.15	COMDER1 MIN	3.20	3969.841	0.026	599.800	0.0531	ESTABLE
N+3.15	COMDER2 MAX	3.20	3969.841	0.026	599.800	0.0538	ESTABLE
N+3.15	COMDER2 MIN	3.20	3969.841	0.026	599.800	0.0538	ESTABLE

4. DISEÑO DE CIMENTACIÓN

DISEÑO DE CIMENTACIÓN

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ELECCIÓN DE CARGAS PARA DISEÑO DE CIMENTACIÓN

Combinaciones de carga **NSR-10** **F.S.**

Cargas Gravitacionales: CIMEN= 1D + 1L B.2.3-2 **3.00**

Cargas por Estado Limite de Servicio CIMEN2= 1D + 0.75L + 0.70*(0.75/R)Ex + 0.21*(0.75/ **B.2.3-8** **1.50**

CIMEN3= 1D + 0.75L + 0.21*(0.75/R)Ex + 0.70*(0.75/

Story	Point	Load	FX	FY	FZ	MX	MY	MZ	Load	COMBINACIÓN	Pumax
BASE	16	CIM1	35.41	25.28	335.29	-25.332	35.662	0.052	CIM1		
BASE	16	CIM2 MAX	58.65	48.07	341.04	26.019	84.743	0.502	CIM2 MAX		
BASE	16	CIM2 MIN	8.37	0.32	307.56	-74.515	-17.204	-0.404	CIM2 MIN	CIM1	335.3
BASE	16	CIM3 MAX	57.11	52.89	337.11	35.974	81.802	0.648	CIM3 MAX		
BASE	16	CIM3 MIN	9.9	-4.51	311.49	-84.47	-14.263	-0.549	CIM3 MIN		
BASE	18	CIM1	-12.61	43.74	630.98	-44.78	-14.101	0.052	CIM1		
BASE	18	CIM2 MAX	17.92	63.86	602.02	2.877	42.548	0.502	CIM2 MAX		
BASE	18	CIM2 MIN	-40.75	19.95	580.66	-88.684	-68.118	-0.404	CIM2 MIN	CIM1	631.0
BASE	18	CIM3 MAX	16.31	67.83	605.6	11.18	39.525	0.648	CIM3 MAX		
BASE	18	CIM3 MIN	-39.14	15.97	577.08	-96.986	-65.095	-0.549	CIM3 MIN		
BASE	20	CIM1	8.66	44.52	624.72	-45.928	7.935	0.052	CIM1		
BASE	20	CIM2 MAX	36.6	62.03	594.72	-3.522	61.905	0.502	CIM2 MAX		
BASE	20	CIM2 MIN	-21.12	23.23	575.74	-84.453	-47.77	-0.404	CIM2 MIN	CIM1	624.7
BASE	20	CIM3 MAX	34.96	65.45	594.05	3.39	58.852	0.648	CIM3 MAX		
BASE	20	CIM3 MIN	-19.48	19.81	576.41	-91.365	-44.717	-0.549	CIM3 MIN		
BASE	22	CIM1	-2.02	41.75	566.77	-43.385	-3.126	0.052	CIM1		
BASE	22	CIM2 MAX	27.42	58.3	549.73	-1.818	52.396	0.502	CIM2 MAX		
BASE	22	CIM2 MIN	-30.93	20.61	534.98	-80.193	-57.942	-0.404	CIM2 MIN	CIM1	566.8
BASE	22	CIM3 MAX	25.79	61.23	551.43	4.212	49.352	0.648	CIM3 MAX		
BASE	22	CIM3 MIN	-29.3	17.68	533.27	-86.223	-54.897	-0.549	CIM3 MIN		
BASE	24	CIM1	1.79	42.39	584.23	-44.374	0.825	0.052	CIM1		
BASE	24	CIM2 MAX	31.25	59.11	567.18	-2.066	56.358	0.502	CIM2 MAX		
BASE	24	CIM2 MIN	-27.79	20.85	549.53	-81.661	-54.689	-0.404	CIM2 MIN	CIM1	584.2
BASE	24	CIM3 MAX	29.6	61.93	567.25	3.707	53.294	0.648	CIM3 MAX		
BASE	24	CIM3 MIN	-26.15	18.03	549.46	-87.434	-51.625	-0.549	CIM3 MIN		
BASE	26	CIM1	-37.58	26.75	344.45	-28.496	-39.981	0.052	CIM1		
BASE	26	CIM2 MAX	-10.64	44.65	345.32	12.96	12.938	0.502	CIM2 MAX		
BASE	26	CIM2 MIN	-60.57	6.41	319.6	-67.365	-88.648	-0.404	CIM2 MIN	CIM1	344.5
BASE	26	CIM3 MAX	-11.98	47.26	347.75	18.446	10.199	0.648	CIM3 MAX		
BASE	26	CIM3 MIN	-59.23	3.8	317.18	-72.851	-85.909	-0.549	CIM3 MIN		
BASE	41	CIM1	23.06	2.52	160.89	-1.333	22.494	0.052	CIM1		
BASE	41	CIM2 MAX	41.03	33.94	198.96	60.876	64.086	0.502	CIM2 MAX		
BASE	41	CIM2 MIN	-0.56	-29.77	102.28	-62.768	-24.774	-0.404	CIM2 MIN	CIM1	160.9
BASE	41	CIM3 MAX	38.53	40.71	205.28	73.897	59.079	0.648	CIM3 MAX		
BASE	41	CIM3 MIN	1.94	-36.54	95.96	-75.788	-19.767	-0.549	CIM3 MIN		
BASE	43	CIM1	7.99	-22.17	443.28	23.837	6.875	0.052	CIM1		
BASE	43	CIM2 MAX	33.6	9.72	442.38	81.451	56.399	0.502	CIM2 MAX		
BASE	43	CIM2 MIN	-17.5	-53.17	388.82	-34.784	-42.335	-0.404	CIM2 MIN	CIM1	443.3
BASE	43	CIM3 MAX	31.03	16.02	445.77	92.943	51.313	0.648	CIM3 MAX		
BASE	43	CIM3 MIN	-14.92	-59.46	385.43	-46.275	-37.249	-0.549	CIM3 MIN		
BASE	45	CIM1	-0.59	-37.61	684.37	39.52	-2.023	0.052	CIM1		
BASE	45	CIM2 MAX	25.64	-7.73	650.39	90.851	48.153	0.502	CIM2 MAX		
BASE	45	CIM2 MIN	-26.4	-64.94	606.9	-14.501	-51.57	-0.404	CIM2 MIN	CIM1	684.4
BASE	45	CIM3 MAX	22.83	-2.49	655.13	100.479	42.824	0.648	CIM3 MAX		
BASE	45	CIM3 MIN	-23.6	-70.19	602.15	-24.129	-46.241	-0.549	CIM3 MIN		
BASE	47	CIM1	-1.93	-36.52	692.35	38.047	-3.412	0.052	CIM1		
BASE	47	CIM2 MAX	23.83	-10.04	655.76	83.357	46.278	0.502	CIM2 MAX		
BASE	47	CIM2 MIN	-27.88	-60.6	615.82	-9.768	-53.097	-0.404	CIM2 MIN	CIM1	692.4
BASE	47	CIM3 MAX	21.07	-5.79	658.45	91.141	40.998	0.648	CIM3 MAX		
BASE	47	CIM3 MIN	-25.12	-64.86	613.12	-17.553	-47.816	-0.549	CIM3 MIN		
BASE	49	CIM1	-0.55	-39.63	538.11	40.948	-1.982	0.052	CIM1		
BASE	49	CIM2 MAX	25.54	-13.48	521.57	84.156	48.046	0.502	CIM2 MAX		
BASE	49	CIM2 MIN	-26.47	-62.35	484.32	-5.812	-51.642	-0.404	CIM2 MIN	CIM1	538.1
BASE	49	CIM3 MAX	22.75	-9.7	524.64	91.069	42.737	0.648	CIM3 MAX		
BASE	49	CIM3 MIN	-23.69	-66.13	481.25	-12.725	-46.333	-0.549	CIM3 MIN		
BASE	51	CIM1	-0.08	-38.57	564.38	39.519	-1.488	0.052	CIM1		
BASE	51	CIM2 MAX	25.91	-12.04	546.5	83.54	48.432	0.502	CIM2 MAX		
BASE	51	CIM2 MIN	-26.04	-61.76	507.63	-7.939	-51.19	-0.404	CIM2 MIN	CIM1	564.4
BASE	51	CIM3 MAX	23.11	-8.43	549.27	90.138	43.105	0.648	CIM3 MAX		
BASE	51	CIM3 MIN	-23.23	-65.36	504.86	-14.536	-45.862	-0.549	CIM3 MIN		
BASE	53	CIM1	-30.47	-12.47	507.22	12.153	-32.98	0.052	CIM1		
BASE	53	CIM2 MAX	-0.73	12.73	505.87	58.741	20.827	0.502	CIM2 MAX		

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ELECCIÓN DE CARGAS PARA DISEÑO DE CIMENTACIÓN

Combinaciones de carga **NSR-10** **F.S.**

Cargas Gravitacionales: CIMEN= 1D + 1L B.2.3-2 **3.00**

Cargas por Estado Limite de Servicio CIMEN2= 1D + 0.75L + 0.70*(0.75/R)Ex + 0.21*(0.75/R)Ey **B.2.3-8** **1.50**

CIMEN3= 1D + 0.75L + 0.21*(0.75/R)Ex + 0.70*(0.75/R)Ey

Story	Point	Load	FX	FY	FZ	MX	MY	MZ	Load	COMBINACIÓN	Pumax
BASE	53	CIM2 MIN	-55.12	-37.76	450.12	-34.294	-81.335	-0.404	CIM2 MIN	CIM1	507.2
BASE	53	CIM3 MAX	-3.61	16.12	504.3	65.043	15.422	0.648	CIM3 MAX		
BASE	53	CIM3 MIN	-52.25	-41.15	451.69	-40.597	-75.931	-0.549	CIM3 MIN		
BASE	54	CIM1	1.6	0.53	93.47	-1.548	0.248	0.052	CIM1		
BASE	54	CIM2 MAX	24.63	23.28	124.2	42.785	47.1	0.502	CIM2 MAX		
BASE	54	CIM2 MIN	-21.96	-22.27	59.53	-45.752	-46.96	-0.404	CIM2 MIN	CIM1	93.5
BASE	54	CIM3 MAX	22.12	26.34	134.88	48.738	42.081	0.648	CIM3 MAX		
BASE	54	CIM3 MIN	-19.45	-25.33	48.86	-51.705	-41.941	-0.549	CIM3 MIN		
BASE	57	CIM1	23.11	-3.8	170.76	5.213	22.381	0.052	CIM1		
BASE	57	CIM2 MAX	40.91	28.43	204.81	66.59	63.831	0.502	CIM2 MAX		
BASE	57	CIM2 MIN	-0.37	-35.28	114.38	-57.057	-24.762	-0.404	CIM2 MIN	CIM1	170.8
BASE	57	CIM3 MAX	38.63	35.2	217	79.607	58.802	0.648	CIM3 MAX		
BASE	57	CIM3 MIN	1.9	-42.05	102.19	-70.074	-19.733	-0.549	CIM3 MIN		
BASE	59	CIM1	8.11	21.72	454.82	-21.64	6.833	0.052	CIM1		
BASE	59	CIM2 MAX	33.84	52.69	451.34	37.042	56.52	0.502	CIM2 MAX		
BASE	59	CIM2 MIN	-17.45	-10.31	400.76	-79.313	-42.471	-0.404	CIM2 MIN	CIM1	454.8
BASE	59	CIM3 MAX	30.66	58.82	457.73	48.364	50.545	0.648	CIM3 MAX		
BASE	59	CIM3 MIN	-14.27	-16.44	394.37	-90.636	-36.496	-0.549	CIM3 MIN		
BASE	61	CIM1	-4.52	35.38	535.54	-36.12	-6.256	0.052	CIM1		
BASE	61	CIM2 MAX	21.68	62.6	524.75	17.808	43.923	0.502	CIM2 MAX		
BASE	61	CIM2 MIN	-30.11	5.55	479.08	-87.392	-55.592	-0.404	CIM2 MIN	CIM1	535.5
BASE	61	CIM3 MAX	18.63	67.94	528.09	27.531	38.083	0.648	CIM3 MAX		
BASE	61	CIM3 MIN	-27.06	0.21	475.74	-97.114	-49.752	-0.549	CIM3 MIN		
BASE	64	CIM1	0.9	28.84	531.33	-29.687	-0.641	0.052	CIM1		
BASE	64	CIM2 MAX	26.72	53.33	517.71	17.456	49.144	0.502	CIM2 MAX		
BASE	64	CIM2 MIN	-24.88	2.99	478.31	-75.441	-50.17	-0.404	CIM2 MIN	CIM1	531.3
BASE	64	CIM3 MAX	23.63	57.61	521.14	25.269	43.262	0.648	CIM3 MAX		
BASE	64	CIM3 MIN	-21.78	-1.29	474.89	-83.254	-44.287	-0.549	CIM3 MIN		
BASE	66	CIM1	0.8	41.4	549.5	-43.017	-0.743	0.052	CIM1		
BASE	66	CIM2 MAX	26.8	63.95	532.24	3.875	49.227	0.502	CIM2 MAX		
BASE	66	CIM2 MIN	-25.3	15.12	494.45	-86.048	-50.608	-0.404	CIM2 MIN	CIM1	549.5
BASE	66	CIM3 MAX	23.7	67.71	535.1	10.772	43.336	0.648	CIM3 MAX		
BASE	66	CIM3 MIN	-22.2	11.36	491.59	-92.945	-44.717	-0.549	CIM3 MIN		
BASE	68	CIM1	-19.01	24.52	428.86	-25.863	-21.276	0.052	CIM1		
BASE	68	CIM2 MAX	7.86	48.49	423.11	20.331	29.596	0.502	CIM2 MAX		
BASE	68	CIM2 MIN	-43.46	-0.76	382.65	-70.666	-69.433	-0.404	CIM2 MIN	CIM1	428.9
BASE	68	CIM3 MAX	4.9	52.13	425.74	26.956	23.855	0.648	CIM3 MAX		
BASE	68	CIM3 MIN	-40.51	-4.39	380.02	-77.291	-63.692	-0.549	CIM3 MIN		
BASE	70	CIM1	-13.11	-10.33	275.48	9.929	-15.162	0.052	CIM1		
BASE	70	CIM2 MAX	15.42	13.14	285.93	52.328	37.438	0.502	CIM2 MAX		
BASE	70	CIM2 MIN	-38.76	-31.57	229.24	-34.72	-64.565	-0.404	CIM2 MIN	CIM1	275.5
BASE	70	CIM3 MAX	12.09	16.24	294.4	58.32	31.303	0.648	CIM3 MAX		
BASE	70	CIM3 MIN	-35.43	-34.67	220.77	-40.712	-58.43	-0.549	CIM3 MIN		
BASE	71	CIM1	-0.22	-0.05	89.04	-0.942	-1.803	0.052	CIM1		
BASE	71	CIM2 MAX	22.92	22.58	130.97	43.268	45.195	0.502	CIM2 MAX		
BASE	71	CIM2 MIN	-23.66	-22.73	43.72	-45.027	-48.905	-0.404	CIM2 MIN	CIM1	89.0
BASE	71	CIM3 MAX	20.15	25.63	126.51	49.21	39.654	0.648	CIM3 MAX		
BASE	71	CIM3 MIN	-20.9	-25.79	48.18	-50.969	-43.364	-0.549	CIM3 MIN		
BASE	85	CIM1	34.88	-28.29	335.73	30.183	34.199	0.052	CIM1		
BASE	85	CIM2 MAX	57.73	-3.23	338.67	79.133	82.229	0.502	CIM2 MAX		
BASE	85	CIM2 MIN	8.5	-50.93	309.68	-21.359	-17.25	-0.404	CIM2 MIN	CIM1	335.7
BASE	85	CIM3 MAX	54.77	1.52	340.81	89.004	76.22	0.648	CIM3 MAX		
BASE	85	CIM3 MIN	11.47	-55.68	307.55	-31.229	-11.24	-0.549	CIM3 MIN		
BASE	87	CIM1	-15.44	-42.29	569.61	44.372	-17.951	0.052	CIM1		
BASE	87	CIM2 MAX	11.13	-18.41	563.26	87.634	33.93	0.502	CIM2 MAX		
BASE	87	CIM2 MIN	-40.06	-61.84	525.22	-3.431	-67.578	-0.404	CIM2 MIN	CIM1	569.6
BASE	87	CIM3 MAX	8.06	-14.07	560.18	96.313	27.816	0.648	CIM3 MAX		
BASE	87	CIM3 MIN	-37	-66.18	528.3	-12.11	-61.463	-0.549	CIM3 MIN		
BASE	89	CIM1	30.21	-34.6	372.41	36.063	29.359	0.052	CIM1		
BASE	89	CIM2 MAX	53.09	-13.96	370.42	74.805	77.419	0.502	CIM2 MAX		
BASE	89	CIM2 MIN	4.36	-52.36	347.25	-5.701	-21.545	-0.404	CIM2 MIN	CIM1	372.4
BASE	89	CIM3 MAX	50.16	-10.86	372.79	81.38	71.446	0.648	CIM3 MAX		

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ELECCIÓN DE CARGAS PARA DISEÑO DE CIMENTACIÓN

Combinaciones de carga

		NSR-10	F.S.
Cargas Gravitacionales:	CIMEN= 1D + 1L	B.2.3-2	**3.00**
Cargas por Estado Limite de Servicio	CIMEN2= 1D + 0.75L + 0.70*(0.75/R)Ex + 0.21*(0.75/	**B.2.3-8**	**1.50**
	CIMEN3= 1D + 0.75L + 0.21*(0.75/R)Ex + 0.70*(0.75/		

Story	Point	Load	FX	FY	FZ	MX	MY	MZ	Load	COMBINACIÓN	Pumax
BASE	89	CIM3 MIN	7.29	-55.45	344.87	-12.275	-15.572	-0.549	CIM3 MIN		
BASE	91	CIM1	0.1	-44.02	590.56	45.498	-1.847	0.052	CIM1		
BASE	91	CIM2 MAX	29.07	-22.86	572.08	82.09	52.535	0.502	CIM2 MAX		
BASE	91	CIM2 MIN	-28.85	-60.36	556.98	3.911	-55.966	-0.404	CIM2 MIN	CIM1	590.6
BASE	91	CIM3 MAX	25.52	-19.9	573.21	88.145	45.914	0.648	CIM3 MAX		
BASE	91	CIM3 MIN	-25.3	-63.32	555.84	-2.144	-49.345	-0.549	CIM3 MIN		
BASE	93	CIM1	-38.49	-29	348.97	29.602	-41.837	0.052	CIM1		
BASE	93	CIM2 MAX	-12.36	-9.07	352.22	67.576	9.591	0.502	CIM2 MAX		
BASE	93	CIM2 MIN	-60.66	-46.36	321.06	-11.009	-88.927	-0.404	CIM2 MIN	CIM1	349.0
BASE	93	CIM3 MAX	-15.41	-6.33	348.7	73.265	3.488	0.648	CIM3 MAX		
BASE	93	CIM3 MIN	-57.61	-49.09	324.58	-16.698	-82.824	-0.549	CIM3 MIN		

CARGAS A CIMENTACIÓN

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

Story	Point	Load	FX	FY	FZ	MX	MY	MZ
BASE	16	CIM1	35.410	25.280	335.290	-25.332	35.662	0.052
BASE	18	CIM1	-12.610	43.740	630.980	-44.780	-14.101	0.052
BASE	20	CIM1	8.660	44.520	624.720	-45.928	7.935	0.052
BASE	22	CIM1	-2.020	41.750	566.770	-43.385	-3.126	0.052
BASE	24	CIM1	1.790	42.390	584.230	-44.374	0.825	0.052
BASE	26	CIM1	-37.580	26.750	344.450	-28.496	-39.981	0.052
BASE	41	CIM1	23.060	2.520	160.890	-1.333	22.494	0.052
BASE	43	CIM1	7.990	-22.170	443.280	23.837	6.875	0.052
BASE	45	CIM1	-0.590	-37.610	684.370	39.520	-2.023	0.052
BASE	47	CIM1	-1.930	-36.520	692.350	38.047	-3.412	0.052
BASE	49	CIM1	-0.550	-39.630	538.110	40.948	-1.982	0.052
BASE	51	CIM1	-0.080	-38.570	564.380	39.519	-1.488	0.052
BASE	53	CIM1	-30.470	-12.470	507.220	12.153	-32.980	0.052
BASE	54	CIM1	1.600	0.530	93.470	-1.548	0.248	0.052
BASE	57	CIM1	23.110	-3.800	170.760	5.213	22.381	0.052
BASE	59	CIM1	8.110	21.720	454.820	-21.640	6.833	0.052
BASE	61	CIM1	-4.520	35.380	535.540	-36.120	-6.256	0.052
BASE	64	CIM1	0.900	28.840	531.330	-29.687	-0.641	0.052
BASE	66	CIM1	0.800	41.400	549.500	-43.017	-0.743	0.052
BASE	68	CIM1	-19.010	24.520	428.860	-25.863	-21.276	0.052
BASE	70	CIM1	-13.110	-10.330	275.480	9.929	-15.162	0.052
BASE	71	CIM1	-0.220	-0.050	89.040	-0.942	-1.803	0.052
BASE	85	CIM1	34.880	-28.290	335.730	30.183	34.199	0.052
BASE	87	CIM1	-15.440	-42.290	569.610	44.372	-17.951	0.052
BASE	89	CIM1	30.210	-34.600	372.410	36.063	29.359	0.052
BASE	91	CIM1	0.100	-44.020	590.560	45.498	-1.847	0.052
BASE	93	CIM1	-38.490	-29.000	348.970	29.602	-41.837	0.052

DISEÑO VIGAS DE AMARRE

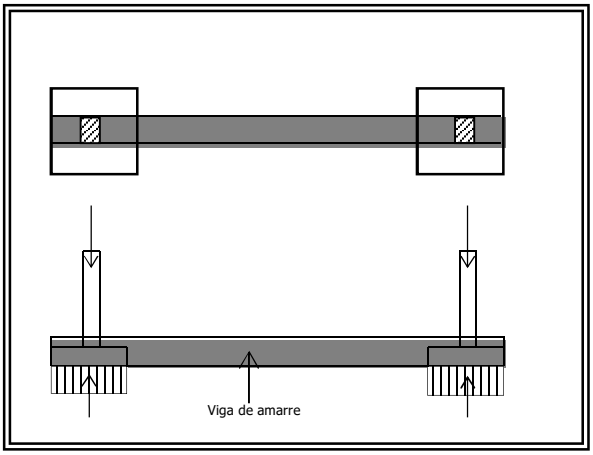
PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

VIGA DE AMARRE TIPO

f'c = **21.1** MPa
fy = **420** MPa

b = **0.30** m
h = **0.40** m

Pmáx = 692.35 kN



De acuerdo a el numeral A.3.6.4.2
de la NSR-10 tenemos:

Aa = ***0.30***
Paxial = 0.25*Aa*Pmáx
Paxial = *51.926* kN

DISEÑO A TENSIÓN

As = 1.7*51.92625/(0.90*420)
As = **2.34** cm^2

DISEÑO A COMPRESIÓN

P com = 1.7*51.92625
P com = *88.3* kN

Para esta carga la sección requiere cuantía mínima:

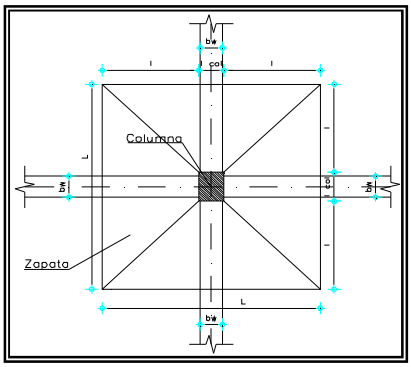
As = 0.00333*0.3*0.35
As = **3.50** cm^2

Se suministra un refuerzo constituido por 3#4 arriba y abajo (como refuerzo mínimo).

DISEÑO DE ZAPATAS
PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
Zapata Tipo 1 - Concentrica Und.18

Columna	**b =**	45	cm	**f'c =**	21.1	MPa	**σ =**	0.220	MPa
	t =	45	cm	**fy =**	420	MPa			

PREDIMENSIONAMIENTO



L =	1.900	m	
lcol =	0.450	m	
l =	0.725	m	

Cargas

Mu=	0.000	kN*m
Pu =	692.35	kN
Pp (10%) =	69	kN
Σ P =	762	kN

Area necesaria = $\frac{\Sigma P}{\sigma} = \frac{761.59}{0.220} =$ 3.46 m²

e =	0.00	m	
L =	1.861	m	*Aproximamos =* 1.90 m

Carga de diseño = $\frac{Pu}{A\ real} = \frac{692.35}{3.610} =$ 0.192 MPa

Esfuerzos

σmáx=	0.211	MPa	OK
σmin=	0.211	MPa	OK

DISEÑO DE ZAPATA CONCENTRICA

FLEXIÓN

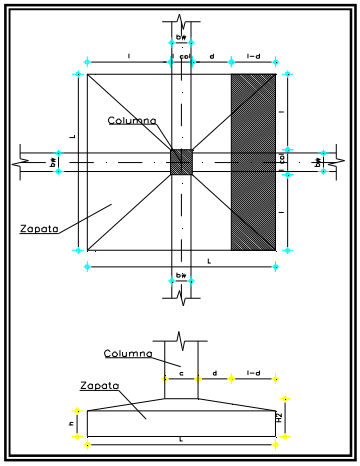
M borde de la columna = 55.44 kN*m

Mu = 1,7 * M borde de la columna = 94.26 kN*m

Con el criterio de calcular el refuerzo por metro lineal utilizamos una altura efectiva igual a:

d=	0.33	m
Cuantia =	0.00211321	
As =	6.97	cm²/m
Armadura:	11#422c./0.18	
	en ambos sentidos	

CORTANTE



a. En una dirección (d)

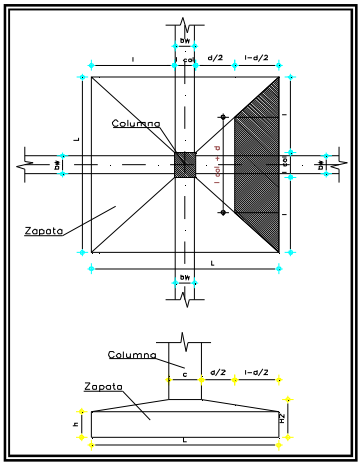
L =	1.90	m
l =	0.73	m
l - d =	0.40	m

H =	0.40	m
h =	0.30	m
H-h =	0.10	m

V (d) =	158.33	kN
Vu (d)=	1.7*V(d)	
Vu (d) =	269.16	kN
h´ =	0.29	m

$\upsilon v = \frac{Vu}{L * h'} =$ 0.491 MPa

ϕvc = 0.57 MPa **OK**



b. En dos direcciones (d/2)

Zapata Tipo 1 - Concentrica

L =	1.900	m	**H =**	0.40	m
d/2 =	0.165	m	**h =**	0.30	m
l - d/2 =	0.560	m	**H-h =**	0.10	m

V (d/2) =	158.3	kN
Vu (d/2) =	1.5*V(d)	
Vu (d/2) =	237.5	kN
d_1 =	0.31296296	m

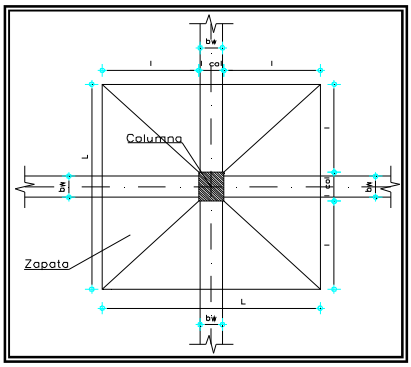
$$\nu u = \frac{Vu}{bo \times d_1} = 0.973 \text{ MPa}$$

ϕvc= 1.15 MPa **OK**

DISEÑO DE ZAPATAS
PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
Zapata Tipo 2 - Concentrica Und.7

Columna	**b =**	45	cm	**f'c =**	21.1	MPa	**σ =**	0.220	MPa
	t =	45	cm	**fy =**	420	MPa			

PREDIMENSIONAMIENTO



L =	1.400	m		***Cargas***		
lcol =	0.450	m	**Mu=**	0.000	kN*m	
l =	0.475	m	**Pu =**	372.41	kN	
			Pp (10%) =	37	kN	
			Σ P =	410	kN	

Area necesaria = $\frac{\Sigma P}{\sigma} = \frac{409.65}{0.220} =$ 1.86 m²

e =	0.00	m			
L =	1.365	m	*Aproximamos =*	1.40	m

Carga de diseño = $\frac{Pu}{A\ real} = \frac{372.41}{1.960} =$ 0.190 MPa

Esfuerzos

σmáx=	0.209	MPa	OK
σmin=	0.209	MPa	OK

DISEÑO DE ZAPATA CONCENTRICA

FLEXIÓN

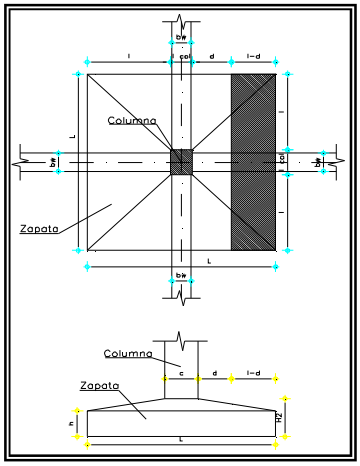
M borde de la columna = 23.58 kN*m

Mu = 1,7 * M borde de la columna = 40.08 kN*m

Con el criterio de calcular el refuerzo por metro lineal utilizamos una altura efectiva igual a:

d=	0.23	m
Cuantia =	0.002	
As =	4.60	cm²/m
Armadura:	8#417c./0.20	
	en ambos sentidos	

CORTANTE



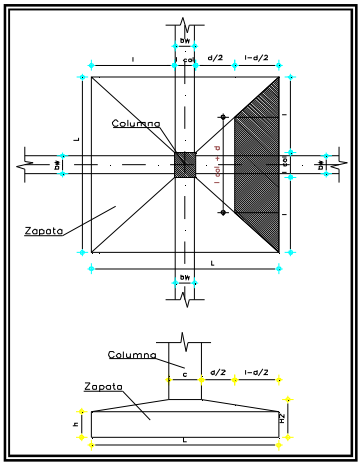
a. En una dirección (d)

L =	1.40	m	**H =**	0.30	m
l =	0.48	m	**h =**	0.30	m
l - d =	0.25	m	**H-h =**	0.00	m

V (d) =	71.69	kN
Vu (d)=	1.7*V(d)	
Vu (d) =	121.87	kN
h´ =	0.23	m

$\upsilon v = \frac{Vu}{L * h'} =$ 0.378 MPa

ϕvc = 0.57 MPa **OK**



b. En dos direcciones (d/2)

Zapata Tipo 2 - Concentrica

L =	1.400	m	**H =**	0.30	m
d/2 =	0.115	m	**h =**	0.30	m
l - d/2 =	0.360	m	**H-h =**	0.00	m

V (d/2) =	78.3	kN
Vu (d/2) =	1.5*V(d)	
Vu (d/2) =	117.4	kN
d_1 =	0.23	m

$$\nu u = \frac{Vu}{bo \times d_1} = 0.750 \text{ MPa}$$

ϕvc= 1.15 MPa **OK**

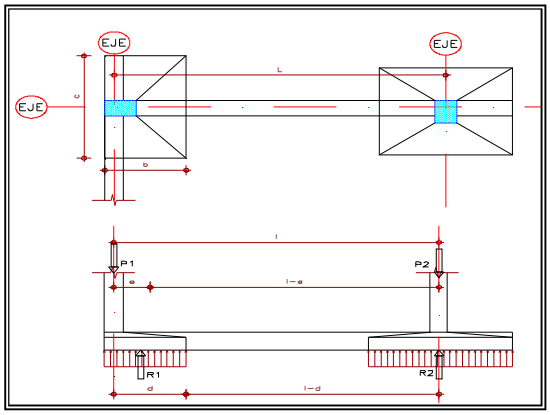
DISEÑO DE ZAPATA EXCENTRICA

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

Zapata Tipo 3 - Excentrica Und. 2

Columna b_c = 45 cm. | **t** = 45 cm. | **f'c** = 21.1 MPa | **fy** = 420 MPa | **σ** = 0.220 MPa

PREDIMENSIONAMIENTO



c = 1.50 m
b = 0.80 m
l-e = 8.77 m
d = 0.58 m
e = 0.18 m
L = 8.94 m

Cargas

Pu =	170.76	kN
Pp (10%) =	17.08	kN
Σ P_1 =	187.84	kN

Area necesaria = $\frac{\Sigma P1}{\sigma} = \frac{187.84}{0.22} =$ 0.85 m²

c » 2b | 0.85 = c x b | b = 0.50xc

c = 1.307 m | **b** = 0.65 m | ***Asumimos*** **c=** 1.50 m | **b=** 0.80 m

VALOR DE Δ R

ΔR*(L-e) = P1*e = ΔR * 8.77 = 32.87 kN-m
c = (P1 + ΔR)/(σ*b) = 1.09 m
σ_{neto} = (Pu+ΔR)/(b*c) = 0.145 MPa ***OK***

Entonces

ΔR = 3.75 kN
c= 1.50 m
σ_{neto}= 0.145 Mpa

DISEÑO DE VIGA DE CONTRAPESO :

Flexión Donde el cortante es cero (0), el momento es máximo

Md = ΔR(l-d) = 31.371 kN-m
Mu = 1.5 * Md = 47.06 kN-m

h = 0.40 m
bv = 0.30 m
d = 0.33 m

Cuantia = 0.0036
As = 3.54 cm²
3#4 Arriba
Armadura=
3#4 Abajo

Cortante

Carga long. Bajo la zapata exterior = 218.14 kN/m

Ai = 49.08 kN
Ad= 121.68 kN
V(d) = -3.75 kN

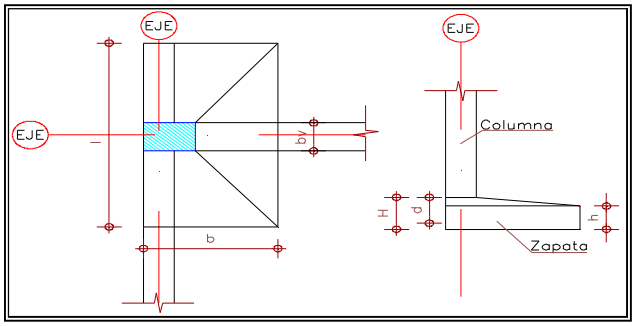
V borde de columna = 72.60 kN

	Separación de Estribos	***Nº Ramas y Tipo de Estribo***
Zona confinada	E # 3 c/ 0.08 m	2 Ramas Sencillo
En el resto de la luz	E # 3 c/ 0.17 m	2 Ramas Sencillo

DISEÑO DE ZAPATA EXCENTRICA

Zapata Tipo 3 - Excentrica Und. 2

Flexión Se considera como voladizos en el sentido más largo, soportados en la viga de contrapeso:



σ = 0.145 MPa
M=(σ*b*(c-bv)/2*(c-bv)/2)/2= 20.94 kN-m
Mu = 1,7*M = 35.60 kN-m

H = 0.30 m
d = **0.23** m
b = 0.80 m
h= 0.30 m

Cuantia = 0.0021
As = 3.78 cm²
Armadura= 8#411c./0.20 Longitudinales
4#418c./0.17 Transversales

Chequeo por cortante

$v_u = \frac{Vu}{b * d}$ Vu borde viga = σneto*b*(c-bv)/2 = 69.80 kN

Vu = 1.5* V borde = 104.71 kN

v_u = 0.569 MPa
ϕv_c = 0.574 MPa **OK**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
LONGITUD DE DESARROLLO (Ldc)

Para Fy= **420** Mpa

Para F'c= **21.1** Mpa

Barra No	Ldc (mm)	≥ 0.043 d_b F_y	Ldc + S
3	209	OK	279
4	279	OK	349
5	349	OK	419
6	420	OK	490
7	488	OK	558
8	558	OK	628

$$Ldc = \frac{0.24\ db\ Fy}{\lambda\sqrt{F'_c}} \geq 0.043\ d_b\ Fy$$

Numeral C.12.3.2 NSR-10

$$Ldc \geq 200\ mm$$

Donde: d_b : Diametro de la barra en mm
λ: 1.00 para concreto de peso normal (C.12.2.4) 1.00
La constante 0.043 esta en (mm²/N)

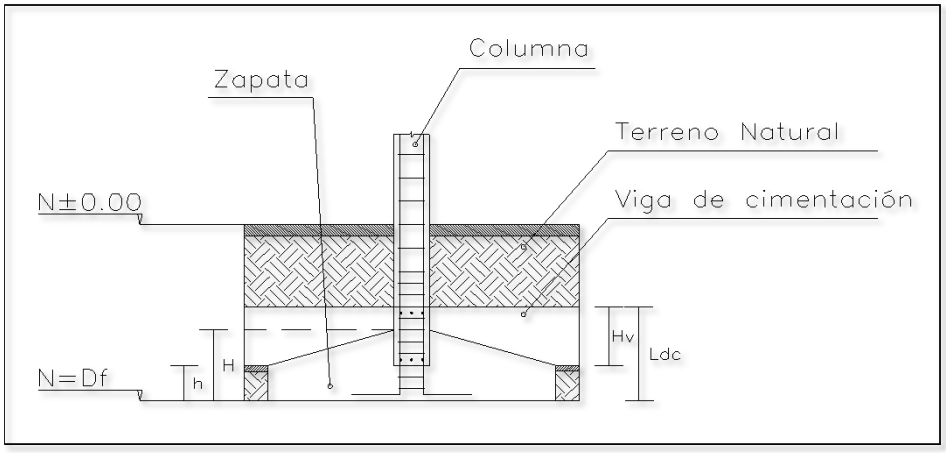
h= **0.30** m Altura zapata

H= **Var.** m Altura peralte zapata

Hv= **0.40** m Altura viga de amarre

S = **0.07** m Recubrimiento

Ldc= **0.63** m Longitud de desarrollo (Altura de empotramiento de cada columna)



En el diseño de las columnas, el diametro mas grande que llega a cimentacion en las barras es de No 8 y su longitud de desarrollo minimo es de 0.63 m dando cumpliento a C.12.3.2

5. DISEÑO DE VIGAS Y COLUMNAS

DISEÑO DE VIGAS Y COLUMNAS

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

V-101/ N+3.15

B= 0.15 H= 0.45 L= 3.13			B= 0.15 H= 0.45 L= 3.13			B= 0.15 H= 0.45 L= 1.35		
Mu=-19.11 As=1.96		Mu=-5.31 As=1.96	Mu=-8.77 As=1.96		Mu=-35.07 As=2.46	Mu=-18.07 As=1.96		Mu=-6.09 As=1.96
	Mu=20.70 As=1.96			Mu=13.21 As=1.96			Mu=0.00 As=1.96	
Vu=-22.02	Vu=-9.75	Vu=9.43	Vu=-4.20	Vu=14.19	Vu=26.45	Vu=-12.58	Vu=-8.74	Vu=-4.01

V-102/ N+3.15

B= 0.15 H= 0.45 L= 3.19			B= 0.15 H= 0.45 L= 3.20			B= 0.15 H= 0.45 L= 3.27		
Mu=-19.05 As=1.96		Mu=-5.21 As=1.96	Mu=-10.22 As=1.96		Mu=-40.88 As=2.90	Mu=-41.09 As=2.91		Mu=-10.27 As=1.96
	Mu=20.11 As=1.96			Mu=10.22 As=1.96			Mu=10.27 As=1.96	
Vu=-21.49	Vu=-8.92	Vu=9.13	Vu=2.99	Vu=15.59	Vu=28.51	Vu=-28.73	Vu=-15.71	Vu=-2.91

B= 0.15 H= 0.45 L= 3.27		
Mu=-5.43 As=1.96		Mu=-19.53 As=1.96
	Mu=20.73 As=1.96	
Vu=-8.72	Vu=8.99	Vu=21.86

V-103/ N+3.15

B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 2.02		
Mu=-160.04 As=11.58		Mu=-201.99 As=14.97	Mu=-141.92 As=10.16		Mu=-5.97 As=5.88
	Mu=152.05 As=10.95			Mu=0.00 As=5.88	
Vu=-132.44	Vu=-54.41	Vu=146.63	Vu=-92.77	Vu=-69.59	Vu=-50.07

V-104/ N+3.15

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73		
Mu=-158.50 As=11.45		Mu=-214.36 As=16.01	Mu=-212.98 As=15.90		Mu=-170.16 As=12.38
	Mu=146.22 As=10.50			Mu=156.57 As=11.30	
Vu=-129.12	Vu=-48.81	Vu=148.16	Vu=-148.99	Vu=-66.39	Vu=134.82

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

V-105/ N+3.15

B= 0.20 H= 0.45 L= 6.75			B= 0.20 H= 0.45 L= 7.40			B= 0.20 H= 0.45 L= 6.95		
Mu=-62.57		Mu=-89.60	Mu=-76.30		Mu=-79.67	Mu=-92.71		Mu=-102.86
As=4.48		As=6.64	As=5.56		As=5.83	As=6.90		As=7.77
	Mu=66.83			Mu=24.76			Mu=57.92	
	As=4.81			As=2.61			As=4.12	
Vu=-70.11	Vu=-5.38	Vu=78.09	Vu=-61.48	Vu=6.35	Vu=37.10	Vu=-77.34	Vu=-8.39	Vu=79.70

B= 0.20 H= 0.45 L= 7.03		
Mu=-106.43		Mu=-66.57
As=8.08		As=4.79
	Mu=65.92	
	As=4.74	
Vu=-83.85	Vu=-12.60	Vu=72.89

V-106/ N+3.15

B= 0.45 H= 0.45 L= 8.49			B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 7.05		
Mu=-139.60		Mu=-184.05	Mu=-185.84		Mu=-200.55	Mu=-194.36		Mu=-198.91
As=9.98		As=13.50	As=13.64		As=14.85	As=14.34		As=14.72
	Mu=110.54			Mu=162.32			Mu=117.44	
	As=7.79			As=11.76			As=8.30	
Vu=-97.82	Vu=-20.63	Vu=110.46	Vu=-146.97	Vu=-66.97	Vu=151.47	Vu=-143.39	Vu=16.82	Vu=175.21

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-195.35		Mu=-208.28	Mu=-211.88		Mu=-193.07	Mu=-138.56		Mu=-97.57
As=14.42		As=15.50	As=15.80		As=14.24	As=9.90		As=6.83
	Mu=162.11			Mu=174.34			Mu=65.60	
	As=11.74			As=12.71			As=5.88	
Vu=-149.56	Vu=-66.37	Vu=154.03	Vu=-158.38	Vu=-71.28	Vu=151.69	Vu=-89.14	Vu=-30.69	Vu=74.71

B= 0.45 H= 0.45 L= 4.47		
Mu=-74.47		Mu=-68.32
As=5.88		As=5.88
	Mu=18.62	
	As=5.88	
Vu=-41.34	Vu=-28.30	Vu=36.19

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

V-107/ N+3.15

B= 0.45 H= 0.45 L= 8.49			B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 7.05		
Mu=-141.03		Mu=-181.47	Mu=-182.13		Mu=-200.34	Mu=-223.79		Mu=-227.18
As=10.09		As=13.29	As=13.34		As=14.84	As=16.82		As=17.11
	Mu=109.81			Mu=156.18			Mu=184.60	
	As=7.73			As=11.27			As=13.54	
Vu=-97.62	Vu=-21.15	Vu=109.97	Vu=-143.69	Vu=-64.26	Vu=149.49	Vu=-164.56	Vu=-69.38	Vu=165.74

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-197.66		Mu=-203.14	Mu=-204.17		Mu=-210.57	Mu=-217.37		Mu=-173.97
As=14.62		As=15.07	As=15.16		As=15.69	As=16.27		As=12.68
	Mu=159.30			Mu=166.61			Mu=177.90	
	As=11.52			As=12.10			As=13.00	
Vu=-149.15	Vu=-66.45	Vu=151.46	Vu=-153.60	Vu=-66.95	Vu=155.95	Vu=-161.83	Vu=-76.51	Vu=147.22

B= 0.45 H= 0.45 L= 4.47		
Mu=-97.16		Mu=-62.46
As=6.80		As=5.88
	Mu=24.29	
	As=5.88	
Vu=-47.90	Vu=-34.87	Vu=30.50

V-108/ N+3.15

B= 0.20 H= 0.45 L= 6.75			B= 0.20 H= 0.45 L= 7.40			B= 0.20 H= 0.45 L= 6.95		
Mu=-61.00		Mu=-101.42	Mu=-110.48		Mu=-111.06	Mu=-100.80		Mu=-99.40
As=4.36		As=7.64	As=8.44		As=8.49	As=7.59		As=7.47
	Mu=61.54			Mu=55.11			Mu=48.03	
	As=4.40			As=3.91			As=3.38	
Vu=-68.11	Vu=-3.38	Vu=79.92	Vu=-83.05	Vu=-5.88	Vu=83.21	Vu=-76.83	Vu=-8.28	Vu=76.45

B= 0.20 H= 0.45 L= 7.08			B= 0.20 H= 0.45 L= 6.92		
Mu=-100.53		Mu=-103.91	Mu=-105.08		Mu=-63.26
As=7.57		As=7.86	As=7.96		As=4.53
	Mu=49.39			Mu=65.17	
	As=3.48			As=4.68	
Vu=-77.60	Vu=-6.54	Vu=78.51	Vu=-83.01	Vu=-13.34	Vu=71.18

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

V-109/ N+3.15

B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 7.05			B= 0.45 H= 0.45 L= 6.60		
Mu=-163.09		Mu=-199.45	Mu=-180.51		Mu=-180.43	Mu=-184.76		Mu=-201.59
As=11.82		As=14.76	As=13.21		As=13.20	As=13.56		As=14.94
	Mu=153.69			Mu=113.97			Mu=145.20	
	As=11.08			As=8.04			As=10.42	
Vu=-133.86	Vu=-55.36	Vu=146.49	Vu=-116.04	Vu=-47.74	Vu=115.83	Vu=-137.83	Vu=-57.04	Vu=143.18

B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-199.09		Mu=-202.94	Mu=-214.36		Mu=-166.86
As=14.73		As=15.05	As=16.01		As=12.12
	Mu=143.77			Mu=156.13	
	As=10.31			As=11.27	
Vu=-141.23	Vu=-58.13	Vu=142.41	Vu=-150.77	Vu=-69.32	Vu=134.13

V-110/ N+3.15

B= 0.15 H= 0.45 L= 3.13			B= 0.15 H= 0.45 L= 3.13		
Mu=-20.01		Mu=-5.86	Mu=-6.37		Mu=-25.48
As=1.96		As=1.96	As=1.96		As=1.96
	Mu=22.10			Mu=8.85	
	As=1.96			As=1.96	
Vu=-23.41	Vu=-10.91	Vu=8.20	Vu=9.01	Vu=12.81	Vu=16.62

V-111/ N+3.15

B= 0.15 H= 0.45 L= 3.19			B= 0.15 H= 0.45 L= 3.20			B= 0.15 H= 0.45 L= 3.27		
Mu=-25.14		Mu=-6.29	Mu=-8.87		Mu=-35.47	Mu=-33.92		Mu=-8.48
As=1.96		As=1.96	As=1.96		As=2.49	As=2.38		As=1.96
	Mu=14.99			Mu=8.87			Mu=8.48	
	As=1.96			As=1.96			As=1.96	
Vu=-23.31	Vu=-10.50	Vu=7.61	Vu=-3.84	Vu=13.33	Vu=26.40	Vu=-25.63	Vu=-12.24	Vu=4.80

B= 0.15 H= 0.45 L= 3.27			B= 0.15 H= 0.45 L= 3.22			B= 0.15 H= 0.45 L= 3.20		
Mu=-9.07		Mu=-36.28	Mu=-39.29		Mu=-9.82	Mu=-5.38		Mu=-19.35
As=1.96		As=2.55	As=2.78		As=1.96	As=1.96		As=1.96
	Mu=9.07			Mu=9.82			Mu=20.84	
	As=1.96			As=1.96			As=1.96	
Vu=-4.11	Vu=12.89	Vu=26.35	Vu=-28.26	Vu=-15.22	Vu=-2.57	Vu=-9.45	Vu=9.10	Vu=21.96

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

V-112/ N+3.15

B= 0.45 H= 0.45 L= 3.12		
Mu=-111.71 As=7.87		Mu=-121.06 As=8.57
	Mu=30.26 As=5.88	
Vu=-89.81	Vu=72.46	Vu=95.81

V-113/ N+3.15

B= 0.20 H= 0.45 L= 3.12		
Mu=-26.83 As=2.61		Mu=-27.93 As=2.61
	Mu=29.58 As=2.61	
Vu=-42.80	Vu=6.46	Vu=43.49

V-114/ N+3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00 As=5.88		Mu=-46.03 As=5.88	Mu=-185.06 As=13.58		Mu=-186.06 As=13.66	Mu=-119.10 As=8.43		Mu=-126.65 As=9.00
	Mu=0.00 As=5.88			Mu=135.25 As=9.65			Mu=31.66 As=5.88	
Vu=23.41	Vu=33.30	Vu=44.43	Vu=-118.61	Vu=44.21	Vu=121.00	Vu=-84.98	Vu=52.11	Vu=89.69

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-185.75 As=13.64		Mu=-193.98 As=14.31	Mu=-41.33 As=5.88		Mu=-0.00 As=5.88
	Mu=133.46 As=9.51			Mu=0.00 As=5.88	
Vu=-120.47	Vu=-39.43	Vu=122.97	Vu=-41.97	Vu=-31.40	Vu=-22.02

V-115/ N+3.15

B= 0.20 H= 0.45 L= 1.37			B= 0.20 H= 0.45 L= 3.95			B= 0.20 H= 0.45 L= 4.00		
Mu=-3.18 As=2.61		Mu=-32.06 As=2.61	Mu=-87.00 As=6.43		Mu=-21.75 As=2.61	Mu=-26.00 As=2.61		Mu=-104.00 As=7.87
	Mu=0.00 As=2.61			Mu=48.95 As=4.10			Mu=52.00 As=3.67	
Vu=-3.48	Vu=17.86	Vu=26.12	Vu=-78.51	Vu=-34.43	Vu=11.22	Vu=-6.69	Vu=39.68	Vu=84.65

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

B= 0.20 H= 0.45 L= 3.47			B= 0.20 H= 0.45 L= 4.27			B= 0.20 H= 0.45 L= 3.78		
Mu=-68.93		Mu=-71.19	Mu=-109.30		Mu=-27.33	Mu=-22.04		Mu=-88.18
As=4.97		As=5.15	As=8.33		As=2.61	As=2.61		As=6.52
	Mu=17.80			Mu=54.65			Mu=44.20	
	As=2.61			As=4.15			As=3.79	
Vu=-42.47	Vu=4.90	Vu=43.74	Vu=-88.63	Vu=-38.80	Vu=12.04	Vu=-6.18	Vu=36.94	Vu=77.95

B= 0.20 H= 0.45 L= 1.31		
Mu=-30.14		Mu=-3.48
As=2.61		As=2.61
	Mu=0.00	
	As=2.61	
Vu=-24.39	Vu=-16.88	Vu=-9.54

V-116/ N+3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00		Mu=-47.73	Mu=-264.39		Mu=-268.01	Mu=-127.74		Mu=-133.43
As=5.88		As=5.88	As=20.41		As=20.75	As=9.08		As=9.51
	Mu=0.00			Mu=249.95			Mu=33.36	
	As=5.88			As=19.11			As=5.88	
Vu=16.62	Vu=32.43	Vu=40.00	Vu=-181.45	Vu=84.43	Vu=183.79	Vu=-79.60	Vu=45.64	Vu=83.22

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-247.95		Mu=-254.69	Mu=-58.70		Mu=-0.00
As=18.93		As=19.53	As=5.88		As=5.88
	Mu=213.99			Mu=0.00	
	As=15.98			As=5.88	
Vu=-168.58	Vu=-64.63	Vu=172.62	Vu=-57.07	Vu=-46.85	Vu=-39.01

V-117/ N+3.15

B= 0.15 H= 0.45 L= 4.21			B= 0.15 H= 0.45 L= 3.81			B= 0.15 H= 0.45 L= 1.42		
Mu=-62.71		Mu=-15.68	Mu=-11.29		Mu=-45.15	Mu=-16.84		Mu=-6.46
As=4.61		As=1.96	As=1.96		As=3.22	As=1.96		As=1.96
	Mu=32.83			Mu=27.48			Mu=0.00	
	As=2.73			As=2.17			As=1.96	
Vu=-59.04	Vu=-19.01	Vu=17.48	Vu=6.15	Vu=-16.07	Vu=-40.60	Vu=10.46	Vu=6.73	Vu=-4.01

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

V-118/ N+3.15

B= 0.20 H= 0.45 L= 3.90			B= 0.20 H= 0.45 L= 4.00			B= 0.20 H= 0.45 L= 3.42		
Mu=-80.42		Mu=-20.11	Mu=-26.36		Mu=-105.45	Mu=-70.91		Mu=-50.85
As=5.89		As=2.61	As=2.61		As=7.99	As=5.13		As=3.59
	Mu=55.40			Mu=52.72			Mu=17.73	
	As=4.76			As=4.06			As=2.61	
Vu=-81.66	Vu=-36.93	Vu=8.99	Vu=-4.28	Vu=42.79	Vu=88.49	Vu=-48.92	Vu=-8.83	Vu=37.37

V-119/ N+3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00		Mu=-44.61	Mu=-255.26		Mu=-261.01	Mu=-123.95		Mu=-111.34
As=5.88		As=5.88	As=19.59		As=20.11	As=8.79		As=7.84
	Mu=0.00			Mu=247.13			Mu=30.99	
	As=5.88			As=18.86			As=5.88	
Vu=23.31	Vu=30.14	Vu=37.78	Vu=-180.01	Vu=81.74	Vu=182.70	Vu=-80.01	Vu=-42.41	Vu=71.80

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-208.13		Mu=-216.74	Mu=-40.63		Mu=-0.00
As=15.49		As=16.22	As=5.88		As=5.88
	Mu=177.73			Mu=0.00	
	As=12.99			As=5.88	
Vu=-137.20	Vu=-55.25	Vu=142.79	Vu=-41.44	Vu=-30.87	Vu=-21.49

V-120/ N+3.15

B= 0.20 H= 0.45 L= 1.37			B= 0.20 H= 0.45 L= 3.95			B= 0.20 H= 0.45 L= 4.00		
Mu=-3.57		Mu=-30.51	Mu=-83.41		Mu=-20.85	Mu=-25.56		Mu=-102.25
As=2.61		As=2.61	As=6.13		As=2.61	As=2.61		As=7.71
	Mu=0.00			Mu=48.66			Mu=51.12	
	As=2.61			As=4.14			As=3.67	
Vu=8.68	Vu=16.50	Vu=24.97	Vu=-79.26	Vu=-34.99	Vu=10.35	Vu=-6.42	Vu=39.76	Vu=84.95

B= 0.20 H= 0.45 L= 3.47			B= 0.20 H= 0.45 L= 4.27			B= 0.20 H= 0.45 L= 3.78		
Mu=-71.90		Mu=-72.32	Mu=-106.22		Mu=-26.55	Mu=-20.38		Mu=-81.52
As=5.21		As=5.24	As=8.06		As=2.61	As=2.61		As=5.98
	Mu=18.08			Mu=53.11			Mu=43.25	
	As=2.61			As=4.18			As=3.70	
Vu=-43.02	Vu=-3.35	Vu=43.26	Vu=-87.70	Vu=-37.55	Vu=12.85	Vu=-7.19	Vu=35.27	Vu=76.42

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

B= 0.20 H= 0.45 L= 1.31		
Mu=-27.12		Mu=-3.82
As=2.61		As=2.61
	Mu=0.00	
	As=2.61	
Vu=-22.74	Vu=-14.80	Vu=-7.46

V-121/ N+3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00		Mu=-82.95	Mu=-253.02		Mu=-249.63	Mu=-121.80		Mu=-125.27
As=5.88		As=5.88	As=19.38		As=19.08	As=8.63		As=8.89
	Mu=0.00			Mu=241.09			Mu=31.32	
	As=5.88			As=18.32			As=5.88	
Vu=52.03	Vu=61.00	Vu=72.81	Vu=-178.08	Vu=77.41	Vu=178.07	Vu=-72.91	Vu=37.50	Vu=75.10

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-257.99		Mu=-268.59	Mu=-85.66		Mu=-0.00
As=19.83		As=20.80	As=5.96		As=5.88
	Mu=238.95			Mu=0.00	
	As=18.13			As=5.88	
Vu=-180.88	Vu=-71.74	Vu=188.79	Vu=-76.74	Vu=-65.64	Vu=-57.24

V-122/ N+3.15

B= 0.20 H= 0.45 L= 1.37			B= 0.20 H= 0.45 L= 3.95			B= 0.20 H= 0.45 L= 4.00		
Mu=-4.46		Mu=-28.57	Mu=-85.15		Mu=-21.29	Mu=-26.07		Mu=-104.29
As=2.61		As=2.61	As=6.27		As=2.61	As=2.61		As=7.89
	Mu=0.00			Mu=49.16			Mu=52.15	
	As=2.61			As=4.23			As=3.75	
Vu=6.98	Vu=14.81	Vu=23.22	Vu=-80.60	Vu=-36.17	Vu=9.47	Vu=-5.62	Vu=40.88	Vu=86.25

B= 0.20 H= 0.45 L= 3.47			B= 0.20 H= 0.45 L= 4.27			B= 0.20 H= 0.45 L= 3.78		
Mu=-76.41		Mu=-70.24	Mu=-109.91		Mu=-27.48	Mu=-21.61		Mu=-86.42
As=5.56		As=5.07	As=8.39		As=2.61	As=2.61		As=6.38
	Mu=19.10			Mu=54.96			Mu=43.81	
	As=2.61			As=4.39			As=3.82	
Vu=-44.88	Vu=-4.76	Vu=41.42	Vu=-90.22	Vu=-39.82	Vu=11.01	Vu=-4.43	Vu=38.48	Vu=79.73

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

B= 0.20 H= 0.45 L= 1.31		
Mu=-27.80 As=2.61		Mu=-4.12 As=2.61
	Mu=0.00 As=2.61	
Vu=-23.00	Vu=-15.07	Vu=-7.73

V-123/ N+ 3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00 As=5.88		Mu=-86.70 As=6.03	Mu=-259.14 As=19.94		Mu=-256.30 As=19.68	Mu=-132.94 As=9.47		Mu=-94.54 As=6.60
	Mu=0.00 As=5.88			Mu=248.63 As=18.99			Mu=33.24 As=5.88	
Vu=54.61	Vu=63.58	Vu=75.39	Vu=-181.72	Vu=80.88	Vu=181.94	Vu=-86.81	Vu=-49.21	Vu=61.94

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-178.30 As=13.03		Mu=-179.83 As=13.16	Mu=-40.95 As=5.88		Mu=-0.00 As=5.88
	Mu=137.33 As=9.81			Mu=0.00 As=5.88	
Vu=-119.54	Vu=-37.99	Vu=120.56	Vu=-41.91	Vu=-31.25	Vu=-21.86

V-124/ N+ 3.15

B= 0.20 H= 0.45 L= 1.37			B= 0.20 H= 0.45 L= 3.95			B= 0.20 H= 0.45 L= 4.00		
Mu=-3.85 As=2.61		Mu=-30.64 As=2.61	Mu=-87.15 As=6.44		Mu=-21.79 As=2.61	Mu=-24.90 As=2.61		Mu=-99.61 As=7.49
	Mu=0.00 As=2.61			Mu=46.90 As=4.00			Mu=49.81 As=3.70	
Vu=8.53	Vu=16.35	Vu=24.97	Vu=-80.08	Vu=-35.78	Vu=9.62	Vu=-7.28	Vu=38.84	Vu=84.07

B= 0.20 H= 0.45 L= 3.42		
Mu=-58.85 As=4.19		Mu=-33.59 As=2.61
	Mu=14.71 As=2.61	
Vu=-51.46	Vu=-12.00	Vu=34.83

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

V-125/ N+3.15

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00 As=5.88		Mu=-43.78 As=5.88	Mu=-174.25 As=12.71		Mu=-182.27 As=13.35	Mu=-151.44 As=10.90		Mu=-93.72 As=6.54
	Mu=0.00 As=5.88			Mu=136.40 As=9.74			Mu=50.99 As=5.88	
Vu=21.96	Vu=31.85	Vu=42.98	Vu=-116.55	Vu=42.87	Vu=119.88	Vu=-185.00	Vu=-62.62	Vu=144.06

V-126/ N+3.15

B= 0.45 H= 0.45 L= 3.12		
Mu=-82.02 As=5.88		Mu=-73.80 As=5.88
	Mu=20.50 As=5.88	
Vu=-59.41	Vu=-50.32	Vu=53.64

V-201/ N+6.35

B= 0.15 H= 0.45 L= 6.45			B= 0.15 H= 0.45 L= 1.35		
Mu=-9.93 As=1.96		Mu=-22.10 As=1.96	Mu=-14.78 As=1.96		Mu=-3.07 As=1.96
	Mu=5.53 As=1.96			Mu=0.00 As=1.96	
Vu=-6.63	Vu=3.42	Vu=10.13	Vu=-11.43	Vu=-8.29	Vu=-4.51

V-202/ N+6.35

B= 0.15 H= 0.45 L= 6.60			B= 0.15 H= 0.45 L= 6.73		
Mu=-12.76 As=1.96		Mu=-10.98 As=1.96	Mu=-10.90 As=1.96		Mu=-13.57 As=1.96
	Mu=5.38 As=1.96			Mu=5.65 As=1.96	
Vu=-8.13	Vu=-1.28	Vu=8.09	Vu=-8.11	Vu=1.41	Vu=8.39

V-203/ N+6.35

B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 2.02		
Mu=-39.38 As=5.88		Mu=-70.41 As=5.88	Mu=-86.30 As=6.00		Mu=-0.69 As=5.88
	Mu=17.60 As=5.88			Mu=0.00 As=5.88	
Vu=-21.96	Vu=13.00	Vu=31.81	Vu=-59.16	Vu=-44.35	Vu=-31.51

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

V-204/ N+6.35

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73		
Mu=-47.85 As=5.88		Mu=-39.93 As=5.88	Mu=-36.53 As=5.88		Mu=-52.95 As=5.88
	Mu=14.89 As=5.88			Mu=16.86 As=5.88	
Vu=-27.05	Vu=-7.80	Vu=25.40	Vu=-24.53	Vu=8.93	Vu=28.56

V-205/ N+6.35

B= 0.20 H= 0.45 L= 7.05		
Mu=-21.04 As=2.61		Mu=-29.85 As=2.61
	Mu=26.07 As=2.61	
Vu=-27.57	Vu=2.69	Vu=22.74

V-206/ N+6.35

B= 0.45 H= 0.45 L= 8.49			B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 7.05		
Mu=-52.87 As=5.88		Mu=-47.77 As=5.88	Mu=-41.37 As=5.88		Mu=-50.78 As=5.88	Mu=-52.54 As=5.88		Mu=-53.49 As=5.88
	Mu=27.01 As=5.88			Mu=12.69 As=5.88			Mu=36.18 As=5.88	
Vu=-29.88	Vu=-5.12	Vu=29.15	Vu=-23.91	Vu=8.15	Vu=26.96	Vu=-38.90	Vu=14.12	Vu=34.68

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-49.05 As=5.88		Mu=-37.80 As=5.88	Mu=-36.59 As=5.88		Mu=-47.33 As=5.88	Mu=-32.08 As=5.88		Mu=-47.77 As=5.88
	Mu=12.26 As=5.88			Mu=13.90 As=5.88			Mu=14.45 As=5.88	
Vu=-27.27	Vu=-8.02	Vu=23.83	Vu=-24.21	Vu=7.75	Vu=27.37	Vu=-22.79	Vu=8.54	Vu=27.85

B= 0.45 H= 0.45 L= 4.47		
Mu=-44.01 As=5.88		Mu=-46.80 As=5.88
	Mu=23.93 As=5.88	
Vu=-42.65	Vu=-13.34	Vu=42.40

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

V-207/ N+6.35

B= 0.45 H= 0.45 L= 8.49			B= 0.45 H= 0.45 L= 6.45			B= 0.45 H= 0.45 L= 7.05		
Mu=-53.32 As=5.88		Mu=-46.50 As=5.88	Mu=-37.74 As=5.88		Mu=-63.05 As=5.88	Mu=-117.23 As=8.28		Mu=-121.78 As=8.63
	Mu=27.03 As=5.88			Mu=15.76 As=5.88			Mu=111.98 As=7.89	
Vu=-30.03	Vu=-5.28	Vu=29.03	Vu=-21.53	Vu=10.61	Vu=29.42	Vu=-105.42	Vu=6.27	Vu=106.71

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-62.71 As=5.88		Mu=-34.17 As=5.88	Mu=-37.65 As=5.88		Mu=-42.25 As=5.88	Mu=-36.11 As=5.88		Mu=-48.25 As=5.88
	Mu=15.68 As=5.88			Mu=16.03 As=5.88			Mu=12.44 As=5.88	
Vu=-29.89	Vu=-10.65	Vu=21.28	Vu=-25.07	Vu=6.78	Vu=26.41	Vu=-23.35	Vu=7.98	Vu=27.29

B= 0.45 H= 0.45 L= 4.47		
Mu=-36.95 As=5.88		Mu=-49.58 As=5.88
	Mu=27.75 As=5.88	
Vu=-40.43	Vu=15.01	Vu=44.70

V-209/ N+6.35

B= 0.45 H= 0.45 L= 6.45		
Mu=-42.61 As=5.88		Mu=-66.43 As=5.88
	Mu=16.61 As=5.88	
Vu=-23.01	Vu=11.90	Vu=30.70

V-209(A)/ N+6.35

B= 0.25 H= 0.45 L= 7.05		
Mu=-115.92 As=8.63		Mu=-118.50 As=8.85
	Mu=98.17 As=7.17	
Vu=-96.56	Vu=4.06	Vu=97.29

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

V-209(B)/ N+6.35

B= 0.45 H= 0.45 L= 6.60			B= 0.45 H= 0.45 L= 6.73			B= 0.45 H= 0.45 L= 6.62		
Mu=-65.68 As=5.88		Mu=-35.39 As=5.88	Mu=-37.36 As=5.88		Mu=-41.02 As=5.88	Mu=-40.35 As=5.88		Mu=-50.42 As=5.88
	Mu=16.42 As=5.88			Mu=16.59 As=5.88			Mu=15.18 As=5.88	
Vu=-30.52	Vu=-11.27	Vu=21.84	Vu=-25.14	Vu=6.60	Vu=26.23	Vu=-25.41	Vu=8.37	Vu=27.67

V-210/ N+6.35

B= 0.15 H= 0.45 L= 6.45		
Mu=-9.68 As=1.96		Mu=-19.16 As=1.96
	Mu=4.86 As=1.96	
Vu=-7.18	Vu=3.00	Vu=9.70

V-211/ N+6.35

B= 0.15 H= 0.45 L= 6.60			B= 0.15 H= 0.45 L= 6.73			B= 0.15 H= 0.45 L= 6.62		
Mu=-18.93 As=1.96		Mu=-9.03 As=1.96	Mu=-9.87 As=1.96		Mu=-11.30 As=1.96	Mu=-11.89 As=1.96		Mu=-12.84 As=1.96
	Mu=4.73 As=1.96			Mu=5.33 As=1.96			Mu=5.30 As=1.96	
Vu=-9.42	Vu=-2.56	Vu=7.59	Vu=-8.06	Vu=1.05	Vu=8.22	Vu=-8.20	Vu=-1.38	Vu=8.11

V-212/ N+6.35

B= 0.45 H= 0.45 L= 3.12		
Mu=-55.34 As=5.88		Mu=-64.70 As=5.88
	Mu=16.18 As=5.88	
Vu=-49.89	Vu=37.97	Vu=55.89

V-214/ N+6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00 As=5.88		Mu=-20.36 As=5.88	Mu=-75.65 As=5.88		Mu=-73.08 As=5.88	Mu=-52.95 As=5.88		Mu=-56.69 As=5.88
	Mu=0.00 As=5.88			Mu=35.30 As=5.88			Mu=14.17 As=5.88	
Vu=7.18	Vu=14.50	Vu=21.86	Vu=-47.73	Vu=7.39	Vu=48.21	Vu=-46.91	Vu=26.68	Vu=49.31

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-70.41		Mu=-82.32	Mu=-18.68		Mu=-0.10
As=5.88		As=5.88	As=5.88		As=5.88
	Mu=34.82			Mu=0.00	
	As=5.88			As=5.88	
Vu=-47.39	Vu=7.97	Vu=49.31	Vu=-20.99	Vu=-13.81	Vu=-6.63

V-216/ N+ 6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.52		Mu=-24.69	Mu=-174.03		Mu=-188.01	Mu=-81.67		Mu=-56.10
As=5.88		As=5.88	As=12.69		As=13.82	As=5.88		As=5.88
	Mu=0.00			Mu=155.32			Mu=20.42	
	As=5.88			As=11.20			As=5.88	
Vu=9.70	Vu=17.20	Vu=25.11	Vu=-143.36	Vu=7.67	Vu=146.99	Vu=-52.18	Vu=-30.53	Vu=36.02

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-95.20		Mu=-120.03	Mu=-38.60		Mu=-0.00
As=6.65		As=8.49	As=5.88		As=5.88
	Mu=74.64			Mu=0.00	
	As=5.88			As=5.88	
Vu=-66.43	Vu=-18.17	Vu=84.52	Vu=-39.91	Vu=-29.92	Vu=-21.36

V-217/ N+ 6.35

B= 0.15 H= 0.45 L= 3.81			B= 0.15 H= 0.45 L= 1.42		
Mu=-0.00		Mu=-15.75	Mu=-6.59		Mu=-3.28
As=1.96		As=1.96	As=1.96		As=1.96
	Mu=12.01			Mu=1.65	
	As=1.96			As=1.96	
Vu=-4.56	Vu=-8.63	Vu=-12.71	Vu=5.51	Vu=2.37	Vu=-4.51

V-219/ N+ 6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.67		Mu=-24.84	Mu=-175.85		Mu=-187.42	Mu=-79.05		Mu=-48.03
As=5.88		As=5.88	As=12.84		As=13.77	As=5.88		As=5.88
	Mu=0.00			Mu=155.35			Mu=19.76	
	As=5.88			As=11.21			As=5.88	
Vu=9.42	Vu=17.08	Vu=25.37	Vu=-144.02	Vu=6.50	Vu=147.02	Vu=-51.22	Vu=-29.47	Vu=31.55

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-84.07		Mu=-97.42	Mu=-21.00		Mu=-0.24
As=5.88		As=6.81	As=5.88		As=5.88
	Mu=63.43			Mu=0.00	
	As=5.88			As=5.88	
Vu=-62.41	Vu=-12.28	Vu=61.96	Vu=-22.89	Vu=-15.36	Vu=-8.13

V-221/ N+6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00		Mu=-33.80	Mu=-89.20		Mu=-79.14	Mu=-43.98		Mu=-42.04
As=5.88		As=5.88	As=6.21		As=5.88	As=5.88		As=5.88
	Mu=0.00			Mu=45.77			Mu=10.99	
	As=5.88			As=5.88			As=5.88	
Vu=15.65	Vu=24.11	Vu=34.17	Vu=-62.09	Vu=-6.23	Vu=60.65	Vu=-41.02	Vu=-19.49	Vu=39.76

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-80.59		Mu=-91.77	Mu=-32.55		Mu=-0.00
As=5.88		As=6.40	As=5.88		As=5.88
	Mu=46.02			Mu=0.00	
	As=5.88			As=5.88	
Vu=-61.09	Vu=6.25	Vu=63.24	Vu=-35.02	Vu=-24.29	Vu=-16.19

V-223/ N+6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.00		Mu=-35.74	Mu=-92.31		Mu=-77.68	Mu=-41.33		Mu=-44.03
As=5.88		As=5.88	As=6.44		As=5.88	As=5.88		As=5.88
	Mu=0.00			Mu=44.68			Mu=11.01	
	As=5.88			As=5.88			As=5.88	
Vu=16.39	Vu=25.41	Vu=36.70	Vu=-62.88	Vu=-6.83	Vu=59.95	Vu=-39.69	Vu=19.78	Vu=41.33

B= 0.45 H= 0.45 L= 7.80			B= 0.45 H= 0.45 L= 1.31		
Mu=-67.72		Mu=-73.70	Mu=-21.32		Mu=-0.16
As=5.88		As=5.88	As=5.88		As=5.88
	Mu=34.61			Mu=0.00	
	As=5.88			As=5.88	
Vu=-46.72	Vu=5.59	Vu=47.41	Vu=-23.23	Vu=-15.65	Vu=-8.39

PROYECTO: I.E. SEMINARIO INDIALES NARIÑO

V-225/ N+6.35

B= 0.45 H= 0.45 L= 1.37			B= 0.45 H= 0.45 L= 7.70			B= 0.45 H= 0.45 L= 3.12		
Mu=-0.18 As=5.88		Mu=-22.30 As=5.88	Mu=-75.52 As=5.88		Mu=-62.21 As=5.88	Mu=-49.64 As=5.88		Mu=-43.95 As=5.88
	Mu=0.00 As=5.88			Mu=34.17 As=5.88			Mu=12.41 As=5.88	
Vu=8.11	Vu=15.66	Vu=23.48	Vu=-47.71	Vu=-6.61	Vu=45.20	Vu=-50.22	Vu=-24.15	Vu=44.08

V-226/ N+6.35

B= 0.45 H= 0.45 L= 3.12		
Mu=-44.56 As=5.88		Mu=-38.29 As=5.88
	Mu=12.16 As=5.88	
Vu=-43.76	Vu=-25.25	Vu=39.60

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

Columna B-4

Nivel	H Libre	Losa	B	H	M1	M2	P	V1	V2	Cuantia	m/mr	Col/Vig Eje ppal	Col/vig Eje sec
N+6.35					34.57	50.83				12/#7 (2.3%)	0.25	3.20	1.38
	2.75	.45	.45	.45			-92.38	48.52	46.21				
					-95.09	-79.49				12/#7 (2.3%)	0.51		
N+3.15					103.50	87.61				12/#7 (2.3%)	0.56	3.50	1.92
	2.75	.45	.45	.45			-369.20	88.95	84.42				
		1.00			-132.44	-144.78				12/#7 (2.3%)	0.82		

Columnas C-4, D-4, E-4, F-4, G-4, B-3, C-3, D-3, E-3, F-3, G-3, H-3, B-2, C-2, D-2, E-2, F-2, G-2, H-2, B-1, D-1, E-1, F-1

Nivel	H Libre	Losa	B	H	M1	M2	P	V1	V2	Cuantia	m/mr	Col/Vig Eje ppal	Col/vig Eje sec
N+6.35					73.89	116.30				16/#8 (4.0%)	0.41	1.99	1.22
	2.75	.45	.45	.45			-252.71	40.56	106.05				
					-32.58	-160.12				16/#8 (4.0%)	0.43		
N+3.15					22.35	121.29				16/#8 (4.0%)	0.34	2.25	1.63
	2.75	.45	.45	.45			-698.17	70.16	100.64				
		1.00			-83.41	-155.69				16/#8 (4.0%)	0.55		

Columna A-3

Nivel	H Libre	Losa	B	H	M1	M2	P	V1	V2	Cuantia	m/mr	Col/Vig Eje ppal	Col/vig Eje sec
N+6.35					40.73	50.92				12/#5 (1.2%)	0.39	1.33	1.76
	2.75	.45	.45	.45			-28.62	39.57	35.01				
					-66.86	-45.80				12/#5 (1.2%)	0.48		
N+3.15					65.92	66.35				12/#5 (1.2%)	0.55	1.86	2.67
	2.75	.45	.45	.45			-79.75	65.17	76.65				
		1.00			64.71	143.45				12/#5 (1.2%)	0.99		

PROYECTO: I.E. SEMINARIO INDIGENAS NARIÑO

Columnas A-2, C-1

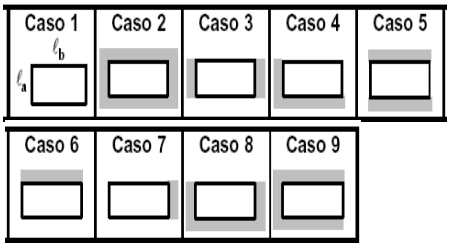
Nivel	H Libre	Losa	B	H	M1	M2	P	V1	V2	Cuantia	m/mr	Col/Vig Eje ppal	Col/vig Eje sec
N+6.35					39.92	38.70				8/#7 (1.5%)	0.28	1.71	2.25
	2.75	.45	.45	.45			-32.75	39.12	41.93				
					-56.64	56.94				8/#7 (1.5%)	0.41		
N+3.15					66.89	54.45				8/#7 (1.5%)	0.44	2.38	2.95
	2.75	.45	.45	.45			-86.53	64.93	78.14				
		1.00			-99.03	-137.36				8/#7 (1.5%)	0.83		

6. DISEÑO DE ELEMENTOS COMPLEMENTARIOS

DISEÑO DE ELEMENTOS COMPLEMENTARIOS

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO PLACA MACIZA ENTREPISO - SALONES DE CLASE

El diseño de la placa maciza se realiza de acuerdo con lo establecido en C.13.9 de las NSR - 10



Geometría de la losa

la =	**3.26**	m	fy =	**420**	MPa
lb =	**4.10**	m	f'c =	**21.1**	MPa
Relación m =	**0.80**				

Espesor escogido: **0.10** **m**

Teniendo en cuenta que la relación m es mayor de 0.5, la placa maciza trabaja en dos direcciones

Cargas

Peso propio de la losa	0.1x1.0x24	2.40	kN/m²
Muros divisorios		2.00	kN/m²
Acabados	0.05x20	1.10	kN/m²
Carga Muerta Total		5.50	kN/m²
Carga Viva		2.00	kN/m²
Carga Última		9.80	kN/m²

Tipo de soporte CASO Nº 2

DISEÑO A MOMENTO FLECTOR

Coeficientes para momento positivo por carga muerta y viva:

C_{aD} =	0.026
C_{bD} =	0.011
C_{aV} =	0.041
C_{bV} =	0.017

Mua =	**2.39**	kN.m	*Cuantía:*	0.0020	*As =*	1.40 cm²/m
Mu_b =	**1.59**	kN.m	*Cuantía:*	0.0020	*As =*	1.40 cm²/m

Coeficientes para momento negativo por carga última:

C_a =	0.065	Mu_a =	**6.77**	kN.m	*Cuantía:*	0.0034	*As =*	2.40 cm²/m
C_b =	0.027	Mu_b =	**4.45**	kN.m	*Cuantía:*	0.0022	*As =*	1.55 cm²/m

Distribución de refuerzo:

Sentido La *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

Sentido Lb *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

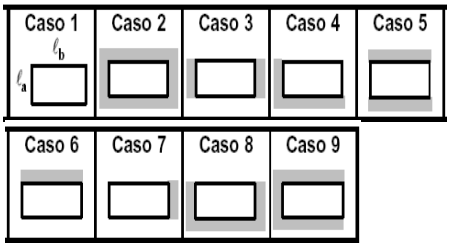
REVISIÓN A CORTANTE

Coeficientes de relación de carga en las dos direcciones para cortante:

W_a =	0.71		
W_b =	0.29		
ϕv_c =	**0.574**	**MPa**	
ϕv_{u_a} =	**0.143**	**MPa**	**OK**
ϕv_{u_b} =	**0.046**	**MPa**	**OK**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO PLACA MACIZA ENTREPISO - CORREDORES

El diseño de la placa maciza se realiza de acuerdo con lo establecido en C.13.9 de las NSR - 10



Geometría de la losa

la =	**3.12**	m	fy =	**420**	MPa
lb =	**4.16**	m	f'c =	**21.1**	MPa
Relación m =	**0.75**				

Espesor escogido: **0.10** **m**

Teniendo en cuenta que la relación m es mayor de 0.5, la placa maciza trabaja en dos direcciones

Cargas

Peso propio de la losa	0.1x1.0x24	2.40	kN/m²
Muros divisorios		0.00	kN/m²
Acabados	0.05x20	1.10	kN/m²
Carga Muerta Total		3.50	kN/m²
Carga Viva		5.00	kN/m²
Carga Última		12.20	kN/m²

Tipo de soporte CASO Nº 2

DISEÑO A MOMENTO FLECTOR

Coeficientes para momento positivo por carga muerta y viva:

C_{aD} =	0.028						2
C_{bD} =	0.009						
C_{aV} =	0.045						
C_{bV} =	0.014						
Mua =	**3.14**	kN.m	*Cuantía:*	0.0020	*As =*	1.40	cm²/m
Mu_b =	**1.76**	kN.m	*Cuantía:*	0.0020	*As =*	1.40	cm²/m

Coeficientes para momento negativo por carga última:

C_a =	0.069	Mu_a =	**8.19**	kN.m	*Cuantía:*	0.0042	*As =*	2.93	cm²/m
C_b =	0.022	Mu_b =	**4.64**	kN.m	*Cuantía:*	0.0023	*As =*	1.62	cm²/m

Distribución de refuerzo:

Sentido La *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

Sentido Lb *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

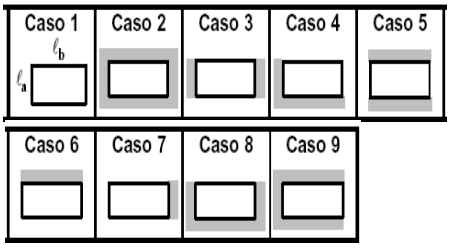
REVISIÓN A CORTANTE

Coeficientes de relación de carga en las dos direcciones para cortante:

W_a =	0.76		
W_b =	0.24		
ϕvc =	**0.574**	**MPa**	
ϕvu_a =	**0.193**	**MPa**	**OK**
ϕvu_b =	**0.046**	**MPa**	**OK**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO PLACA MACIZA CUBIERTA

El diseño de la placa maciza se realiza de acuerdo con lo establecido en C.13.9 de las NSR - 10



Geometría de la losa

la =	**3.12**	m	fy =	**420**	MPa
lb =	**3.74**	m	f'c =	**21.1**	MPa
Relación m =	**0.83**				

Espesor escogido: **0.10** **m**

Teniendo en cuenta que la relación m es mayor de 0.5, la placa maciza trabaja en dos direcciones

Cargas

Peso propio de la losa	0.1x1.0x24	2.40	kN/m²
Muros divisorios		0.00	kN/m²
Acabados	0.05x20	1.10	kN/m²
Carga Muerta Total		3.50	kN/m²
Carga Viva		1.80	kN/m²
Carga Última		7.08	kN/m²

Tipo de soporte CASO Nº 2

DISEÑO A MOMENTO FLECTOR

Coeficientes para momento positivo por carga muerta y viva:

C_{aD} =	0.024						2
C_{bD} =	0.012						
C_{aV} =	0.037						
C_{bV} =	0.019						
Mua =	**1.47**	kN.m	*Cuantía:*	0.0020	*As =*	1.40	cm²/m
Mu_b =	**1.07**	kN.m	*Cuantía:*	0.0020	*As =*	1.40	cm²/m

Coeficientes para momento negativo por carga última:

C_a =	0.060	Mu_a =	**4.14**	kN.m	*Cuantía:*	0.0021	*As =*	1.44 cm²/m
C_b =	0.031	Mu_b =	**3.07**	kN.m	*Cuantía:*	0.0020	*As =*	1.40 cm²/m

Distribución de refuerzo:

Sentido La *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

Sentido Lb *Malla electrosoldada Ø 5.5 mm c/.15 inferior*

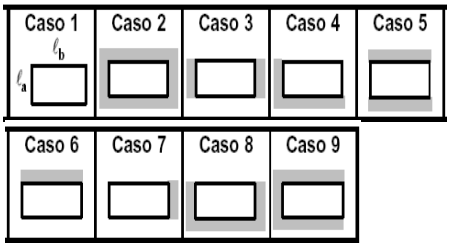
REVISIÓN A CORTANTE

Coeficientes de relación de carga en las dos direcciones para cortante:

W_a =	0.66		
W_b =	0.34		
$\phi v c$ =	**0.574**	**MPa**	
$\phi v u_a$ =	**0.087**	**MPa**	**OK**
$\phi v u_b$ =	**0.038**	**MPa**	**OK**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO PLACA MACIZA TANQUES

El diseño de la placa maciza se realiza de acuerdo con lo establecido en C.13.9 de las NSR - 10



Geometría de la losa

la =	**5.50**	m	fy =	**420**	MPa
lb =	**7.05**	m	f'c =	**21.1**	MPa
Relación m =	**0.78**				

Espesor escogido: **0.15** **m**

Teniendo en cuenta que la relación m es mayor de 0.5, la placa maciza trabaja en dos direcciones

Cargas

Peso propio de la losa	0.15x1.0x24	3.60	kN/m²
Muros divisorios		0.00	kN/m²
Acabados	0.05x20	1.10	kN/m²
Carga Muerta Total		4.70	kN/m²
Carga Viva		5.00	kN/m²
Carga Última		13.64	kN/m²

Tipo de soporte CASO Nº 2

DISEÑO A MOMENTO FLECTOR

Coeficientes para momento positivo por carga muerta y viva:

C_{aD} =	0.026						2
C_{bD} =	0.011						
C_{aV} =	0.041						
C_{bV} =	0.017						
Mua =	**9.90**	kN.m	*Cuantía:*	0.0020	*As =*	2.40	cm²/m
Mu_b =	**6.79**	kN.m	*Cuantía:*	0.0020	*As =*	2.40	cm²/m

Coeficientes para momento negativo por carga última:

C_a =	0.065	Mu_a =	**26.82**	kN.m	*Cuantía:*	0.0047	*As =*	5.63	cm²/m
C_b =	0.027	Mu_b =	**18.30**	kN.m	*Cuantía:*	0.0031	*As =*	3.77	cm²/m

Distribución de refuerzo:

Sentido La *1#4c/0.2*

Sentido Lb *1#4c/0.2*

Distribución de refuerzo superior:

Sentido La *1#4c/0.2*

Sentido Lb *1#4c/0.2*

REVISIÓN A CORTANTE

Coeficientes de relación de carga en las dos direcciones para cortante:

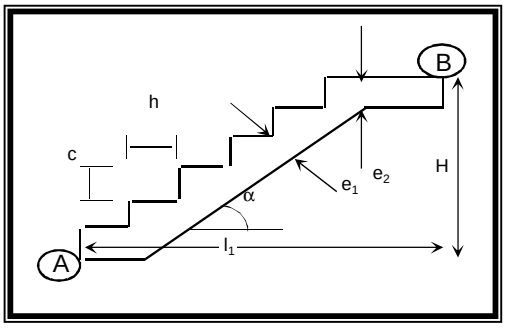
W_a =	0.71		
W_b =	0.29		
$\phi v c$ =	**0.574**	**MPa**	
$\phi v u_a$ =	**0.228**	**MPa**	**OK**
$\phi v u_b$ =	**0.073**	**MPa**	**OK**

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

DISEÑO DE ESCALERA 1

Diseño Tramos Inclinados

El diseño se realiza para el tramo inclinado de la escalera mas largo.



Geometría de la losa

l_1 =	**4.10**	m	fy =	**420**	MPa
H =	**3.15**	m	f'c =	**21.1**	MPa
c =	**17.5**	cm	h =	**28**	cm

Ancho paso: **188** **cm**
Espesor escogido: **15** **cm**
Pendiente α = h/l1 : 37.535 °

Cargas

Peso propio de la losa	0.15x1.88x24/cos37.53º	8.53	kN/m²
Peso propio de peldaños	1/2x(0.175x0.28)/0.28x24	2.10	kN/m²
Acabado peldaños	0.04x(0.175+0.28)/0.28x22	1.43	kN/m²
Afinado Inferior	0.02x22/cos37.53º	0.55	kN/m²
Sobrecarga		5.00	kN/m²
		23.14	**kN/m²**

CU = ***23.14*** **kN/m²**

e=CM/24 0.526 m

Diseño Tramo Inclinado

Momentos en tramo A-B. M= **48.63** kN-m

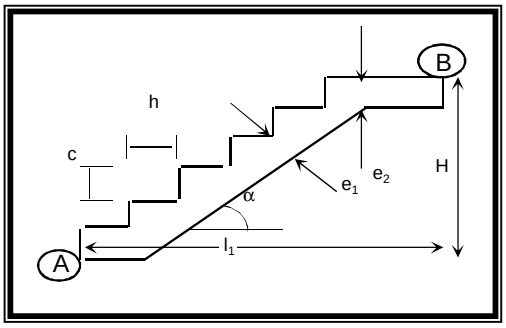
Cuantía:	0.0090		Asmín = 2.4 cm²/m
As	13.48	cm²/m	*Colocar 1#6c/0.2 longitudinalmente*
Cuantía mínima:	0.0020		
As Repartición	3.00	cm²/m	*Colocar 1#3c/0.2 longitudinalmente*

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO

DISEÑO DE ESCALERA 2 AUTOPORTANTE

Diseño Tramos Inclinados

El diseño se realiza para el tramo inclinado de la escalera mas largo.



Geometría de la losa

l_1 =	**3.74**	m	fy =	**420**	MPa
H =	**3.15**	m	f'c =	**21.1**	MPa
c =	**17.5**	cm	h =	**28**	cm

Ancho paso: **146** **cm**
Espesor escogido: **15** **cm**
Pendiente α = h/l1 : 40.106 °

Cargas

Peso propio de la losa	0.15x1.46x24/cos40.11º	6.87	kN/m²
Peso propio de peldaños	1/2x(0.175x0.28)/0.28x24	2.10	kN/m²
Acabado peldaños	0.04x(0.175+0.28)/0.28x22	1.43	kN/m²
Afinado Inferior	0.02x22/cos40.11º	0.58	kN/m²
Sobrecarga		5.00	kN/m²
		21.17	**kN/m²**

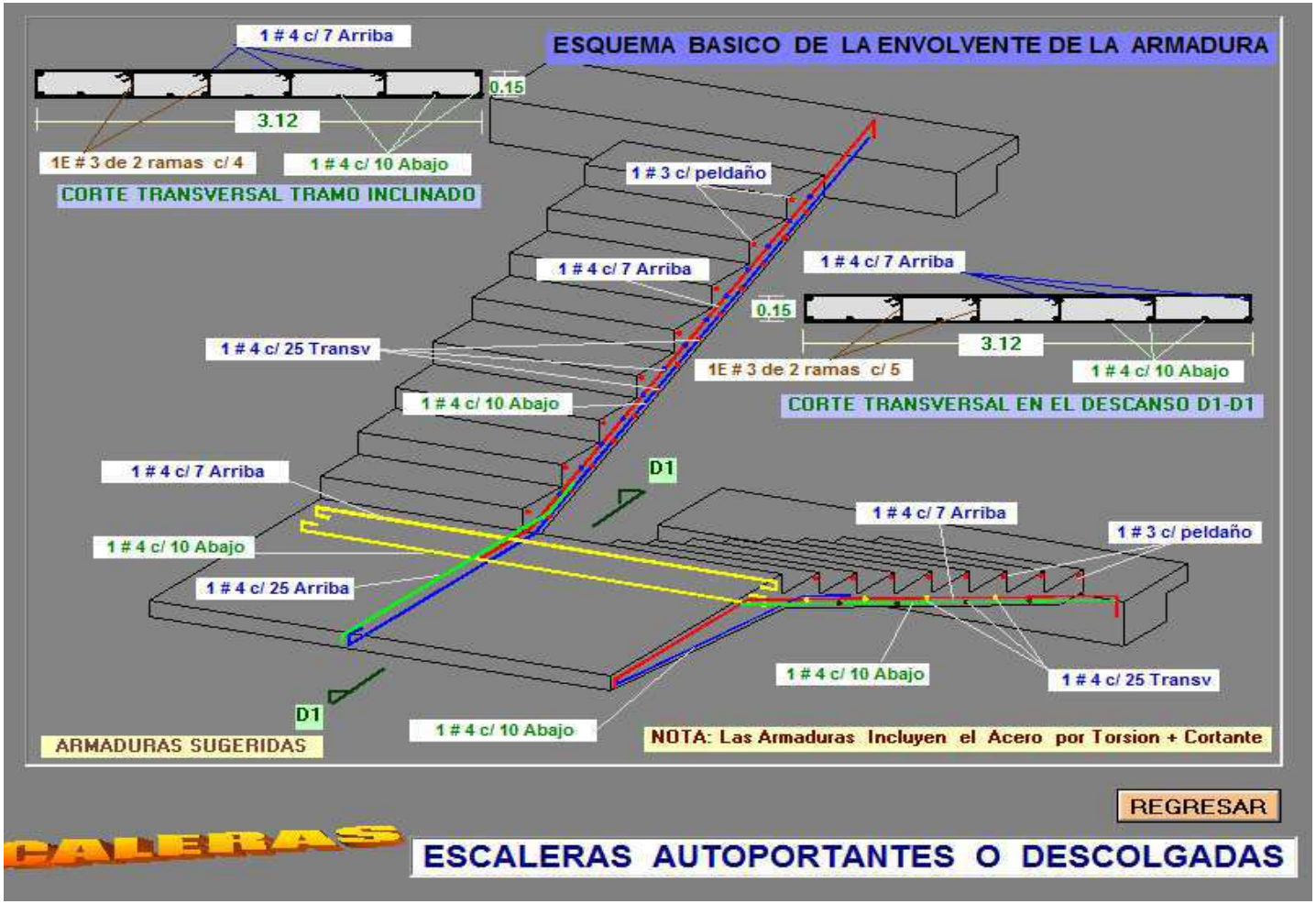
CU = ***21.17*** **kN/m²**

e=CM/24 0.457 m

Diseño Tramo Inclinado

Momentos en tramo A-B. M= **37.02** kN-m

Cuantía:	0.0066	Asmín = 2.4 cm²/m	
As	9.96 cm²/m	*Colocar 1#6c/0.2 longitudinalmente*	
Cuantía mínima:	0.0020		
As Repartición	3.00 cm²/m	*Colocar 1#3c/0.2 longitudinalmente*	


ESQUEMA BASICO DE LA ENVOLVENTE DE LA ARMADURA
1 # 4 c/ 7 Arriba
0.15
3.12
1E # 3 de 2 ramas c/ 4
1 # 4 c/ 10 Abajo
CORTE TRANSVERSAL TRAMO INCLINADO
1 # 3 c/ peldaño
1 # 4 c/ 7 Arriba
1 # 4 c/ 7 Arriba
0.15
3.12
1 # 4 c/ 25 Transv
1E # 3 de 2 ramas c/ 5
1 # 4 c/ 10 Abajo
1 # 4 c/ 10 Abajo
CORTE TRANSVERSAL EN EL DESCANSO D1-D1
1 # 4 c/ 7 Arriba
D1
1 # 4 c/ 7 Arriba
1 # 3 c/ peldaño
1 # 4 c/ 10 Abajo
1 # 4 c/ 25 Arriba
1 # 4 c/ 10 Abajo
1 # 4 c/ 25 Transv
D1
1 # 4 c/ 10 Abajo
ARMADURAS SUGERIDAS
NOTA: Las Armaduras Incluyen el Acero por Torsion + Cortante
REGRESAR
CALERAS
ESCALERAS AUTOPORTANTES O DESCOLGADAS

MODULO ESCALERAS 1.0
DISEÑO DE ESCALERAS EN CONCRETO

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
ESCALERA 2
DISEÑO ESCALERA
FECHA : 2016/09/28

ESCALERAS AUTOPORTANTES

GEOMETRIA

Longitud Horizontal del Tramo Inclinado LH (m)	3.74
Altura Vertical Tramo Inclinado H (m)	1.575
Separac Horizontal entre las 2 escaleras SH (m)	.2
Espesor de Placa de la Escalera, h. (m)	0.15
Espes Placa Descans (m)	0.15
Ancho Total Escalera (m)	3.12
Longitud de Huella (cm)	28
Altura Contrahuella (cm)	17.5

MATERIALES

F´c Concreto (kg/cm2)	210
Fy Acer Long (kg/cm2)	4200
Mód Elást Ec(kg/cm2)	2.0E5
Recubrimiento d` (cm)	5.0

Sobrecarga . Cargas Servicio Diametro Armad Princp

C Muerta Acab(t/m2)	.2
Carga Viva (t/m2)	.5

Fuerza de Restricción	66.63 t
Momento de Restricc	27.04 t-m
Fuerza Axial Máxima	92.86 t
Wu Descanso	5.1 t/m
Wu Tramo Inclinado	6.7 t/m

RESULTADOS

Diseño Descanso: Tramo Interior O-B:L= 1.66 m Diseño Descanso: Tramo Exterior B-C:L= 1.56 m

Y (m)	Momento Mu(v)(t-m)	As,A's (cm2)	Momento Mu(h)(t-m)	As,A's (cm2)	Mom Tors Tu(t-m)	Flejes Tu + Vu	As Torsión (cm2)
0	-27.04	0 , 0	0	15.35 , 0	0	1E#3a23	21.28
0.332	-27.41	15.35 , 0	-22.12	15.35 , 0	3.47	1E#3a23	14.57
0.664	-28.52	15.35 , 0	-44.24	15.35 , 0	6.94	1E#3a13	29.15
0.996	-30.36	15.35 , 0	-66.36	15.35 , 0	10.4	1E#3a9	43.72
1.328	-32.95	15.35 , 0	-88.48	15.35 , 0	13.87	1E#3a6	58.3
1.66	-36.27	15.35 , 0	-110.6	15.35 , 0	17.34	1E#3a5	72.87
1.66	-8.15	23.66 , 0	0	15.35 , 0	-16.29	1E#3a5	68.48
1.972	-5.21	14.6 , 0	0	15.35 , 0	-13.03	1E#3a7	54.78
2.284	-2.93	10.4 , 0	0	15.35 , 0	-9.78	1E#3a9	41.09
2.596	-1.3	10.4 , 0	0	15.35 , 0	-6.52	1E#3a14	27.39
2.908	-0.33	10.4 , 0	0	15.35 , 0	-3.26	1E#3a23	13.7
3.22	0	10.4 , 0	0	15.35 , 0	0	1E#3a23	21.28

RESULTADOS

Diseño Tramo Inclinado B-A de la Escalera. 2 Tramos Simétr.:L= 4.058 m

X (m)	Momento Mu(v)(t-m)	As,A's (cm2)	Momento Mu(h)(t-m)	As,A's (cm2)	Mom Tors Tu(t-m)	Flejes Tu + Vu	Cortante Vu (t)	As Torsión (cm2)
0	-25.61	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	-5.99	75.66
0.507	-20.9	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	0.86	75.66
1.015	-17.65	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	7.72	75.66
1.522	-15.87	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	14.57	75.66

X (m)	Momento Mu(v)(t-m)	As,A's (cm2)	Momento Mu(h)(t-m)	As,A's (cm2)	Mom Tors Tu(t-m)	Flejes Tu + Vu	Cortante Vu (t)	As Torsión (cm2)
2.029	-15.54	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	21.42	75.66
2.536	-16.69	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	28.28	75.66
3.044	-19.29	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	35.13	75.66
3.551	-23.36	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	41.98	75.66
4.058	-28.89	15.35 , 0	-114.1	15.35 , 0	-18	1E#3a4	48.83	75.66

Memorias de Cálculo

PROGRAMA DE DISENO Y CALCULO ESTRUCTURAL
ARQUIMET 2.0

Proyecto: I.E. SEMINARIO IPIALES NARIÑO Fecha: SEPTIEMBRE 2016

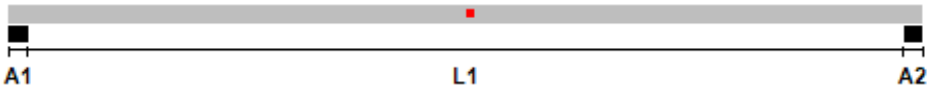
Ingeniero: J.E.B.O. Diseño: PHR-C1

Elementos calculados con el programa de diseño Arquimet 2.0 de ACESCO

REPORTE DE CORREAS

PHR C con atiesador 220 x 80 x 20 (3.00 mm)
con Fy = 35.15 Kgf/mm² cada 1.57 m con arriostramiento cada L/2.

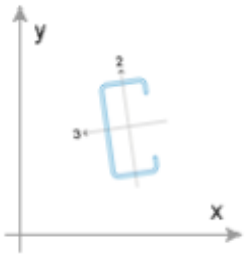
SECCION LONGITUDINAL

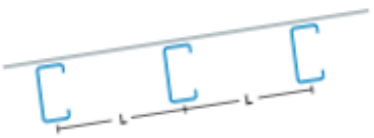


L1	6.73 m
A1	0.15 m
A2	0.15 m

CONFIGURACION	
TIPO DE CARGA	DISTRIBUIDA
Carga muerta	0.30 KN/m²
Peso propio correa	0.09 KN/m
Carga viva	0.35 KN/m²
Carga granizo	0.50 KN/m²
Viento compresión (Perpendicular)	0.40 KN/m²
Viento succión (Perpendicular)	0.40 KN/m²
Pendiente sección transversal	8.531° = 15.0000%

SECCION TRANSVERSAL





L = 1.57 m

Elementos calculados con el programa de diseño Arquimet 2.0 de ACESCO

REPORTES DE DISEÑO

REPORTE FLEXION				
	Apoyos		Interiores	
Ejes locales	3	2	3	2
Resistente (KN.m)	24.6636	4.9590	17.4981	4.9590
Calculado (KN.m)	7.2631E-06	4.2138E-08	13.1727	0.4243

REPORTE CORTANTE		
Ejes locales	2	3
Resistente (KN)	99.2653	75.4562
Calculado (KN)	7.6377	0.4961

COMBINACIONES DE CARGA					
No	Muerta	Viva	Granizo	Viento compresión	Viento succión
1	1.4000	0.0000	0.0000	0.0000	0.0000
2	1.2000	0.5000	0.0000	0.0000	0.0000
3	1.2000	0.0000	0.5000	0.0000	0.0000
4	1.2000	1.6000	0.0000	0.5000	0.0000
5	1.2000	0.0000	1.6000	0.5000	0.0000
6	1.2000	1.6000	0.0000	0.0000	0.5000
7	1.2000	0.0000	1.6000	0.0000	0.5000
8	1.2000	0.5000	0.0000	0.0000	1.0000
9	1.2000	0.0000	0.5000	0.0000	1.0000
10	1.2000	0.5000	0.0000	1.0000	0.0000
11	1.2000	0.0000	0.5000	1.0000	0.0000
12	0.9000	0.0000	0.0000	0.0000	1.0000
13	0.9000	0.0000	0.0000	1.0000	0.0000

REACCIONES - EJES GLOBALES (KN-m)

Elementos calculados con el programa de diseño Arquimet 2.0 de ACESCO

APOYO 1		
Combinacion	Rx	Ry
Muerta	-0.1781	1.9161
Viva de Cub.	-0.1733	1.8643
Granizo	-0.2476	2.6633
Viento Comp.	-0.3205	2.1364
Viento Succion	0.3205	-2.1364
Comb. 1	-0.2494	2.6825
Comb. 2	-0.3004	3.2314
Comb. 3	-0.3376	3.6309
Comb. 4	-0.6513	6.3504
Comb. 5	-0.7702	7.6287
Comb. 6	-0.6513	6.3504
Comb. 7	-0.7702	7.6287
Comb. 8	-0.6209	5.3679
Comb. 9	-0.6580	5.7673
Comb. 10	-0.6209	5.3679
Comb. 11	-0.6580	5.7673
Comb. 12	-0.4808	3.8609
Comb. 13	-0.4808	3.8609

APOYO 2		
Combinacion	Rx	Ry
Muerta	-0.1781	1.9161
Viva de Cub.	-0.1733	1.8643
Granizo	-0.2476	2.6633
Viento Comp.	-0.3205	2.1364
Viento Succion	0.3205	-2.1364
Comb. 1	-0.2494	2.6825
Comb. 2	-0.3004	3.2314
Comb. 3	-0.3376	3.6309
Comb. 4	-0.6513	6.3504
Comb. 5	-0.7702	7.6287
Comb. 6	-0.6513	6.3504
Comb. 7	-0.7702	7.6287
Comb. 8	-0.6209	5.3679
Comb. 9	-0.6580	5.7673
Comb. 10	-0.6209	5.3679
Comb. 11	-0.6580	5.7673
Comb. 12	-0.4808	3.8609
Comb. 13	-0.4808	3.8609

FUERZAS INTERNAS - EJES LOCALES (KN-m) *Elementos calculados con el programa de diseño Arquimet 2.0 de ACESCO*

APOYO 1				
Combinacion	R2	R3	M2	M3
Muerta	0.1081	1.9213	-9.5768E-09	-3.8307E-08
Viva de Cub.	0.1052	1.8694	-9.5768E-09	-2.2984E-07
Granizo	0.1502	2.6705	-1.9154E-08	6.1292E-07
Viento Comp.	0.0000	2.1603	0.0000	-2.2984E-07
Viento Succion	0.0000	2.1603	0.0000	-2.2984E-07
Comb. 1	0.1513	2.6898	-1.3408E-08	-5.3630E-08
Comb. 2	0.1823	3.2402	-1.6281E-08	-1.6089E-07
Comb. 3	0.2048	3.6408	-2.1069E-08	2.6049E-07
Comb. 4	0.2979	6.3767	-2.6815E-08	-5.2864E-07
Comb. 5	0.3700	7.6586	-4.2138E-08	8.1977E-07
Comb. 6	0.2979	6.3767	-2.6815E-08	-5.2864E-07
Comb. 7	0.3700	7.6586	-4.2138E-08	8.1977E-07
Comb. 8	0.1823	5.4006	-1.6281E-08	-3.9073E-07
Comb. 9	0.2048	5.8011	-2.1069E-08	3.0646E-08
Comb. 10	0.1823	5.4006	-1.6281E-08	-3.9073E-07
Comb. 11	0.2048	5.8011	-2.1069E-08	3.0646E-08
Comb. 12	0.0973	3.8895	-8.6191E-09	-2.6432E-07
Comb. 13	0.0973	3.8895	-8.6191E-09	-2.6432E-07

APOYO 2				
Combinacion	R2	R3	M2	M3
Muerta	0.1081	1.9213	1.9154E-08	9.1937E-07
Viva de Cub.	0.1052	1.8694	-1.9154E-08	1.2258E-06
Granizo	0.1502	2.6705	0.0000	3.3710E-06
Viento Comp.	0.0000	2.1603	0.0000	1.5323E-06
Viento Succion	0.0000	2.1603	0.0000	1.5323E-06
Comb. 1	0.1513	2.6898	2.6815E-08	1.2871E-06
Comb. 2	0.1823	3.2402	1.3408E-08	1.7162E-06
Comb. 3	0.2048	3.6408	2.2984E-08	2.7888E-06
Comb. 4	0.2979	6.3767	-7.6614E-09	3.8307E-06
Comb. 5	0.3700	7.6586	2.2984E-08	7.2631E-06
Comb. 6	0.2979	6.3767	-7.6614E-09	3.8307E-06
Comb. 7	0.3700	7.6586	2.2984E-08	7.2631E-06
Comb. 8	0.1823	5.4006	1.3408E-08	3.2485E-06
Comb. 9	0.2048	5.8011	2.2984E-08	4.3211E-06
Comb. 10	0.1823	5.4006	1.3408E-08	3.2485E-06
Comb. 11	0.2048	5.8011	2.2984E-08	4.3211E-06
Comb. 12	0.0973	3.8895	1.7238E-08	2.3597E-06
Comb. 13	0.0973	3.8895	1.7238E-08	2.3597E-06

PROYECTO: I.E. SEMINARIO
DISEÑO MIEMBROS ENSAMBLADOS
PHR A CONCRETO

MATERIALES

A-36
f_y = 252 N/mm^2
F_u = 400 N/mm^2

CARGAS

V = 7.64 KN

Pernos Φ = 6.35 mm
Agujeros Φ = 9.5 mm

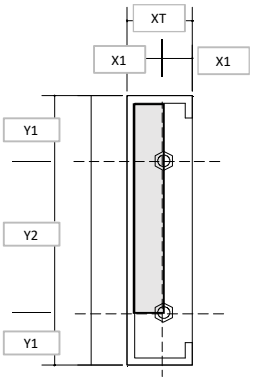
Espesor platina = 6.35 mm

DATOS DEL ELEMENTO

X1 = 40 mm
X2 = 40 mm
t = 0 mm
XT = 80 mm

Y1 = 35 mm
Y2 = 150 mm
Y1 = 35 mm

YT = 220 mm



A_g = 1397 mm^2

A_e = 1246 mm^2

FLUENCIA EN LA SECCIÓN BRUTA

Se debe cumplir:

$Pu < 0.90 F_y A_g$

Pu < 317 kN
OK

$A_{g\ Diseño}$ = 34 mm^2
OK

FRACTURA EN LA SECCIÓN EFECTIVA

Se debe cumplir:

$Pu < 0.75 F_u A_e$

Pu < 374 kN
OK

$A_{e\ Diseño}$ = 26 mm^2
OK

Resistencia al desgarre de un bloque por tensión y cortante

A_{nv} = 1246 mm^2
A_{nt} = 224 mm^2
$F_u A_{nt}$ = 90 KN
$0.6 F_u A_{nv}$ = 299 KN

Para el analisis se supone riesgo de falla por bloque,
con base en dos estados limites definidos asi:

Si $F_u A_{nt} > 0.6 F_u A_{nv}$ entonces; $P_u = Φ [0.6 F_y A_{gv} + F_u A_{nt}]$

Si $0.6 F_u A_{nv} > F_u A_{nv}$ entonces; $P_u = Φ [0.6 F_u A_{nv} + F_y A_{gt}]$

Fractura de la sección neta a corte, combinada con fluencia de la sección bruta a tensión.

A_{gv} = 1397 mm^2
A_{gt} = 254 mm^2

Por lo tanto,

P_u = 273 kN **OK**

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

VIGA CON APOYOS CONTINUOS
V-107 ENTRE EJES C y D

Las deflexiones inmediatas se calcularán por las fórmulas de la teoría de la elasticidad considerando los efectos que tienen la fisuración y el refuerzo sobre la rigidez de la viga; las deflexiones adicionales deben determinarse multiplicando las deflexiones inmediatas causadas por la carga muerta por el factor λ de la NSR-10 Titulo C.9.5.2.5. En luces continuas el momento de inercia efectivo debe tomarse como el promedio de los valores del momento de inercia efectivo para la sección crítica del momento positivo y la seccion crítica de momento negativo.

MOMENTO POSITIVO

f'c=	21.1	**MPa**	h=	45	**cm**
fy=	420	**MPa**	d=	40	**cm**
			b=	45	**cm**

As=	1420 **mm²**	14.2 **cm²**
n=	**9.3**	
As'=	2013 **mm²**	20.13 **cm²**

DETERMINACIÓN DE LA PROFUNDIDAD DEL EJE NEUTRO

$$\frac{bx^2}{2}+(2n-1)As'(x-d')=nAs(d-x)$$

Donde:

n	Relación de módulos de elasticidad entre acero/concreto
b	Base de la sección
d	Altura efectiva de la sección
d'	Recubrimiento del refuerzo superior
x	Profundidad del eje neutro
As'	Área del acero a compresión (mm^2)
As	Área del acero a tracción (mm^2)

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

Luego:

n	**9.3**				
As'	**2013**	mm^2	(2n-1)A's =	35283.21	mm^2
As	**1420**	mm^2	nAs =	13154.65	mm^2
d'	**50**	mm	5	cm	

Profundidad del eje neutro:

x= 99.0 **mm** 9.90 **cm**

MOMENTO DE INERCIA DE LA SECCION TRANSFORMADA FISURADA

$$\frac{bx^3}{3} + (2n-1)As'(x - d')^2 + nAs(d-x)^2$$

I cr= 142208.63 **cm^4** 0.00142 **m^4**

MOMENTO DE INERCIA SECCIÓN TOTAL DE CONCRETO

Ig= 341718.75 **cm^4** 0.00342 **m^4**
Yt= 35.10 **cm**

Mcr= $\dfrac{frIg}{Y_t}$ $fr = 0.7\sqrt{f'c}$

Mcr= 31.30 **kN-m**

Ma = Momento máximo presente en la viga

Ma= **184.6** **kN-m**

$$Ie = \left\{\frac{Mcr}{Ma}\right\}^3 * Ig + \left\{1 - \left\{\frac{Mcr}{Ma}\right\}^3\right\} * Icr$$

Ie= 143181.2 **cm^4** 14.318 ***OK***

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

MOMENTO NEGATIVO

f'c=	**21.1**	**MPa**	h=	**45**	**cm**
fy=	**420**	**MPa**	d=	40	**cm**
			b=	**45**	**cm**

As=	**1729**	**mm²**	17.29	**cm²**
n=	**9.3**			
As'=	**1420**	**mm²**	14.20	**cm²**

DETERMINACIÓN DE LA PROFUNDIDAD DEL EJE NEUTRO

$$\frac{bx^2}{2}+(2n-1)As'(x\ -d')=nAs(d-x)$$

Donde:

n	Relación de módulos de elasticidad entre acero/concreto
b	Base de la sección
d	Altura efectiva de la sección
d'	Recubrimiento del refuerzo superior
x	Profundidad del eje neutro
As'	Área del acero a compresión (mm^2)
As	Área del acero a tracción (mm^2)

Luego:

n	**9.3**				
As'	**1420**	mm^2	(2n-1)A's =	24889.30	mm^2
As	**1729**	mm^2	nAs =	16017.17	mm^2
d'	**50**	mm	5	cm	

Profundidad del eje neutro:

x=	114.9	**mm**	11.49	**cm**

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

MOMENTO DE INERCIA DE LA SECCION TRANSFORMADA FISURADA

$$\frac{bx^3}{3} + (2n-1)As'(x - d')^2 + nAs(d-x)^2$$

I cr= 163427.91 **cm^4** 0.00163 **m^4**

MOMENTO DE INERCIA SECCIÓN TOTAL DE CONCRETO

Ig= 341718.75 **cm^4** 0.00342 **m^4**
Yt= 33.51 **cm**

Mcr= $\frac{frIg}{Y_t}$ $fr = 0.7\sqrt{f'c}$

Mcr= 32.79 **kN-m**

Ma = Momento máximo presente en la viga

Ma= **227.18** **kN-m**

$$Ie = \left\{\frac{Mcr}{Ma}\right\}^3 * Ig + \left\{1 - \left\{\frac{Mcr}{Ma}\right\}^3\right\} * Icr$$

Ie= 163964.0 **cm^4** 16.396 ***OK***

Según el numeral C.9.5.2.3. la inercia efectiva es igual al promedio de las secciones críticas:

Ie= 153572.62 **cm^4** 15.357 **m^4**

DEFLEXIÓN ELÁSTICA INMEDIATA

$$\delta = \frac{5\,wl^4}{384\,EIg}$$

Donde:

δ	Deflexión elástica inmediata
w	Carga por metro lineal
l	Longitud de la viga
E	Módulo de elasticidad del concreto
Ig	Momento de la sección total

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

Luego:

w	**24.97**	**kN/m**
E	**21589**	**MPa**

δ= **0.0109** **m**

DEFLEXIÓN INMEDIATA POR :

CARGA MUERTA 80%	0.009	m	0.871	mm
CARGA VIVA 20%	0.002	m	0.196	mm

DEFLEXIÓN ADICIONAL LARGO PLAZO (5 AÑOS O MAS)

La deflexión adicional a largo plazo causada por la retracción de fraguado y el flujo plástico, se determinará multiplicando la deflexión causada por la carga muerta por el factor ƛ.

$$\lambda = \frac{\xi}{1 + 50\ \rho'}$$

Donde:

ξ	Coeficientes de efectos de largo plazo. Según NSR- 10 Titulo C.9.5.2.5
ρ'	Cuantia del refuerzo a compresión

Luego:

ξ	2.0
ρ'	0.00680

λ= **1.493**

δ= **0.0121** m

DEFLEXIONES MAXIMAS CALCULADAS PERMISIBLES

	L=	**7.05** **m**	
DEFLEXION LIMITE	L/480	**0.0147** **m**	
DEFLEXION LARGO PLAZO		**0.0140** **m**	***OK***

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

VIGA CON APOYOS CONTINUOS
V-119 ENTRE EJES 3 y 4

Las deflexiones inmediatas se calcularán por las fórmulas de la teoría de la elasticidad considerando los efectos que tienen la fisuración y el refuerzo sobre la rigidez de la viga; las deflexiones adicionales deben determinarse multiplicando las deflexiones inmediatas causadas por la carga muerta por el factor λ de la NSR-10 Titulo C.9.5.2.5. En luces continuas el momento de inercia efectivo debe tomarse como el promedio de los valores del momento de inercia efectivo para la sección crítica del momento positivo y la seccion crítica de momento negativo.

MOMENTO POSITIVO

f'c=	21.1	**MPa**	h=	45	**cm**
fy=	420	**MPa**	d=	40	**cm**
			b=	45	**cm**

As=	1935 **mm²**	19.35 **cm²**
n=	**9.3**	
As'=	2322 **mm²**	23.22 **cm²**

DETERMINACIÓN DE LA PROFUNDIDAD DEL EJE NEUTRO

$$\frac{bx^2}{2}+(2n-1)As'(x-d')=nAs(d-x)$$

Donde:

n	Relación de módulos de elasticidad entre acero/concreto
b	Base de la sección
d	Altura efectiva de la sección
d'	Recubrimiento del refuerzo superior
x	Profundidad del eje neutro
As'	Área del acero a compresión (mm^2)
As	Área del acero a tracción (mm^2)

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

Luego:

n	**9.3**				
As'	**2322**	mm^2	(2n-1)A's =	40699.26	mm^2
As	**1935**	mm^2	nAs =	17925.52	mm^2
d'	**50**	mm	5	cm	

Profundidad del eje neutro:

x= 110.1 **mm** 11.01 **cm**

MOMENTO DE INERCIA DE LA SECCION TRANSFORMADA FISURADA

$$\frac{bx^3}{3} + (2n-1)As'(x - d')^2 + nAs(d-x)^2$$

I cr= 185369.83 **cm^4** 0.00185 **m^4**

MOMENTO DE INERCIA SECCIÓN TOTAL DE CONCRETO

Ig= 341718.75 **cm^4** 0.00342 **m^4**
Yt= 33.99 **cm**

Mcr= $\frac{frIg}{Y_t}$ $fr = 0.7\sqrt{f'c}$

Mcr= 32.33 **kN-m**

Ma = Momento máximo presente en la viga

Ma= **247.1** **kN-m**

$$Ie = \left\{\frac{Mcr}{Ma}\right\}^3 * Ig + \left\{1 - \left\{\frac{Mcr}{Ma}\right\}^3\right\} * Icr$$

Ie= 185719.8 **cm^4** 18.572 ***OK***

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

MOMENTO NEGATIVO

f'c=	**21.1**	**MPa**	h=	**45**	**cm**
fy=	**420**	**MPa**	d=	40	**cm**
			b=	**45**	**cm**

As=	**2181**	**mm²**	21.81	**cm²**
n=	**9.3**			
As'=	**1626**	**mm²**	16.26	**cm²**

DETERMINACIÓN DE LA PROFUNDIDAD DEL EJE NEUTRO

$$\frac{bx^2}{2}+(2n-1)As'(x\ -d')=nAs(d-x)$$

Donde:

n	Relación de módulos de elasticidad entre acero/concreto
b	Base de la sección
d	Altura efectiva de la sección
d'	Recubrimiento del refuerzo superior
x	Profundidad del eje neutro
As'	Área del acero a compresión (mm^2)
As	Área del acero a tracción (mm^2)

Luego:

n	**9.3**				
As'	**1626**	mm^2	(2n-1)A's =	28500.00	mm^2
As	**2181**	mm^2	nAs =	20204.43	mm^2
d'	**50**	mm	5	cm	

Profundidad del eje neutro:

x=	124.5	**mm**	12.45	**cm**

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

MOMENTO DE INERCIA DE LA SECCION TRANSFORMADA FISURADA

$$\frac{bx^3}{3} + (2n-1)As'(x - d')^2 + nAs(d-x)^2$$

I cr= 198116.79 **cm^4** 0.00198 **m^4**

MOMENTO DE INERCIA SECCIÓN TOTAL DE CONCRETO

Ig= 341718.75 **cm^4** 0.00342 **m^4**
Yt= 32.55 **cm**

Mcr= $\frac{frIg}{Y_t}$ $fr = 0.7\sqrt{f'c}$

Mcr= 33.75 **kN-m**

Ma = Momento máximo presente en la viga

Ma= **261.01** **kN-m**

$$Ie = \left\{\frac{Mcr}{Ma}\right\}^3 * Ig + \left\{1 - \left\{\frac{Mcr}{Ma}\right\}^3\right\} * Icr$$

Ie= 198427.3 **cm^4** 19.843 ***OK***

Según el numeral C.9.5.2.3. la inercia efectiva es igual al promedio de las secciones críticas:

Ie= 192073.55 **cm^4** 19.207 **m^4**

DEFLEXIÓN ELÁSTICA INMEDIATA

$$\delta = \frac{5\,wl^4}{384\,EIg}$$

Donde:

δ	Deflexión elástica inmediata
w	Carga por metro lineal
l	Longitud de la viga
E	Módulo de elasticidad del concreto
Ig	Momento de la sección total

PROYECTO: I.E. SEMINARIO
CALCULO DE DEFLEXIONES

Luego:

w	**18.94**	**kN/m**
E	**21589**	**MPa**

δ= **0.0118** **m**

DEFLEXIÓN INMEDIATA POR :

CARGA MUERTA 80%	0.009	m	0.940	mm
CARGA VIVA 20%	0.002	m	0.212	mm

DEFLEXIÓN ADICIONAL LARGO PLAZO (5 AÑOS O MAS)

La deflexión adicional a largo plazo causada por la retracción de fraguado y el flujo plástico, se determinará multiplicando la deflexión causada por la carga muerta por el factor ג.

$$\lambda = \frac{\xi}{1 + 50\ \rho'}$$

Donde:

ξ	Coeficientes de efectos de largo plazo. Según NSR- 10 Titulo C.9.5.2.5
ρ'	Cuantia del refuerzo a compresión

Luego:

ξ	2.0
ρ'	0.00680

λ= **1.493**

δ= **0.0130** m

DEFLEXIONES MAXIMAS CALCULADAS PERMISIBLES

	L=	**7.70** **m**	
DEFLEXION LIMITE	L/480	**0.0160** **m**	
DEFLEXION LARGO PLAZO		**0.0152** **m**	***OK***

7. DISEÑO DE ELEMENTOS NO ESTRUCTURALES

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO DE ELEMENTOS NO ESTRUCTURALES

Units: kN*m

STORY DATA

Story	Height	Elevation	SimilarTo
N+6.35	3.2	6.35	None
N+3.15	3.2	3.15	None
BASE	0	-0.05	None

CENTER MASS RIGIDITY

Story	Diaphragm	MassX	MassY	XCM	YCM	CumMassX	CumMassY
N+6.35	D1	216.8817	216.8817	25.187	9.195	216.8817	216.8817
N+3.15	D1	583.3554	583.3554	25.245	9.145	800.2371	800.2371

XCCM	YCCM	XCR	YCR
25.187	9.195	25.826	9.367
25.229	9.158	25.823	9.476

STORY SHEARS

Story	Load	Loc	P	VX	VY	T	MX	MY
N+6.35	SISDISX	Top	0.000	434.490	319.660	7445.851	0.000	0.000
N+6.35	SISDISX	Bottom	0.000	434.490	319.660	7445.851	1022.923	1390.364
N+6.35	SISDISY	Top	0.000	330.250	443.000	12943.915	0.000	0.000
N+6.35	SISDISY	Bottom	0.000	330.250	443.000	12943.915	1417.593	1056.812
N+3.15	SISDISX	Top	0.000	1022.930	783.780	18355.323	1022.923	1390.364
N+3.15	SISDISX	Bottom	0.000	1022.930	783.780	18355.323	3525.969	4571.515
N+3.15	SISDISY	Top	0.000	812.540	1039.600	30931.906	1417.593	1056.812
N+3.15	SISDISY	Bottom	0.000	812.540	1039.600	30931.906	4648.074	3651.535

$$F_p = \frac{a_x a_p}{R_p} gM_p \geq \frac{A_a I}{2} gM_p \qquad a_x = \frac{C_{vx} V_s}{m_x g} \leq 2 S_a \qquad C_{vx} = \frac{m_x h_x^k}{\sum_{i=1}^{n} (m_i h_i^k)}$$

$$V_s = S_a gM$$

g:	9.81	m/s^2
Sa:	1.125	s

Grupo de us	I
Grado de desem	BAJO

Grupo de Uso	Grado de desempeño
IV	SUPERIOR
III	SUPERIOR
II	BUENO
I	BAJO

Grado de desempeño de los elemen BAJO

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO DE ELEMENTOS NO ESTRUCTURALES
ANALISIS DE CARGAS PARA MUROS

Espesor de muros:	0.15	m
Espesor de pañete en una cara:	0.01	m
Densidad de mamposteria:	13.00	kN/m3
Densidad mortero de pañete:	21.00	kN/m3
Altura Fachada:	2.75	m
Carga	5.94	kN/m
Descripción:	mamposteria reforzada, separada lateralmente de la estructura, apoyada arriba y abajo	
ap:	1.0	
Rp:	1.5	

ANALISIS DE CARGAS PARA ANTEPECHOS

Espesor de muros:	0.15	m
Espesor de pañete en una cara:	0.01	m
Densidad de mamposteria:	13.00	kN/m3
Densidad mortero de pañete:	21.00	kN/m3
Altura Antepecho:	1.00	m
Carga	2.16	kN/m
Descripción:	mamposteria reforzada, separada lateralmente de la estructura, apoyada solo abajo	
ap:	2.5	
Rp:	1.5	

Sección de vigas verticales:	0.12x0.25	m
f'c =	21.1	MPa
fy =	420	MPa

DISEÑO PARA MUROS

Story	*Fx*	*Wx*	*ax*	*ap*	*Rp*	*Fp*	*M*	*V*
N+6.35	434.49	2127.61	0.20	1.00	1.50	0.81	0.76	1.11
N+3.15	588.44	5722.72	0.10	1.00	1.50	0.41	0.38	0.56

	Sección Vigas V.			*As. (cm2)*		*Separación column.*		*Fl. 1/4"*
Story	*b*	*d*	*ρ*	*neces.*	*ubicado*	*S max*	S $_{escogida}$	*S $_{estribos}$*
N+6.35	0.12	0.21	0.00035	0.09	1.29	14.82	14.80	0.188
N+3.15	0.12	0.21	0.00017	0.04	1.29	29.50	29.50	0.188

DISEÑO PARA ANTEPECHOS

Story	*Fx*	*Wx*	*ax*	*ap*	*Rp*	*Fp*	*M*	*V*
N+6.35	434.49	2127.61	0.20	2.50	1.50	0.735	0.69	1.01
N+3.15	588.44	5722.72	0.10	2.50	1.50	0.370	0.35	0.51

	Sección columneta			*As. (cm2)*		*Separación column.*		*Fl. 1/4"*
Story	*b*	*d*	*ρ*	*neces.*	*ubicado*	*S max*	S $_{escogida}$	*S $_{estribos}$*
N+6.35	0.12	0.21	0.00031	0.08	1.29	16.31	16.30	0.188
N+3.15	0.12	0.21	0.00016	0.04	1.29	32.45	32.50	0.188

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
DISEÑO DE ELEMENTOS NO ESTRUCTURALES
DISEÑO DE ANCLAJES PARA MUROS

Story	*M*	*V*	*b*	*e*	*P*	*ϕ varilla*	$P_{resistente}$	*REVISIÓN*
N+6.35	0.76	1.11	0.12	0.21	3.64	1.29	81.65	OK
N+3.15	0.38	0.56	0.12	0.21	1.83	1.29	81.65	OK

DISEÑO DE ANCLAJES PARA ANTEPECHOS

Story	*M*	*V*	*b*	*e*	*P*	*ϕ varilla*	$P_{resistente}$	*REVISIÓN*
N+6.35	0.695	1.011	0.12	0.21	3.31	1.29	132.27	OK
N+3.15	0.350	0.509	0.12	0.21	1.67	1.29	132.27	OK

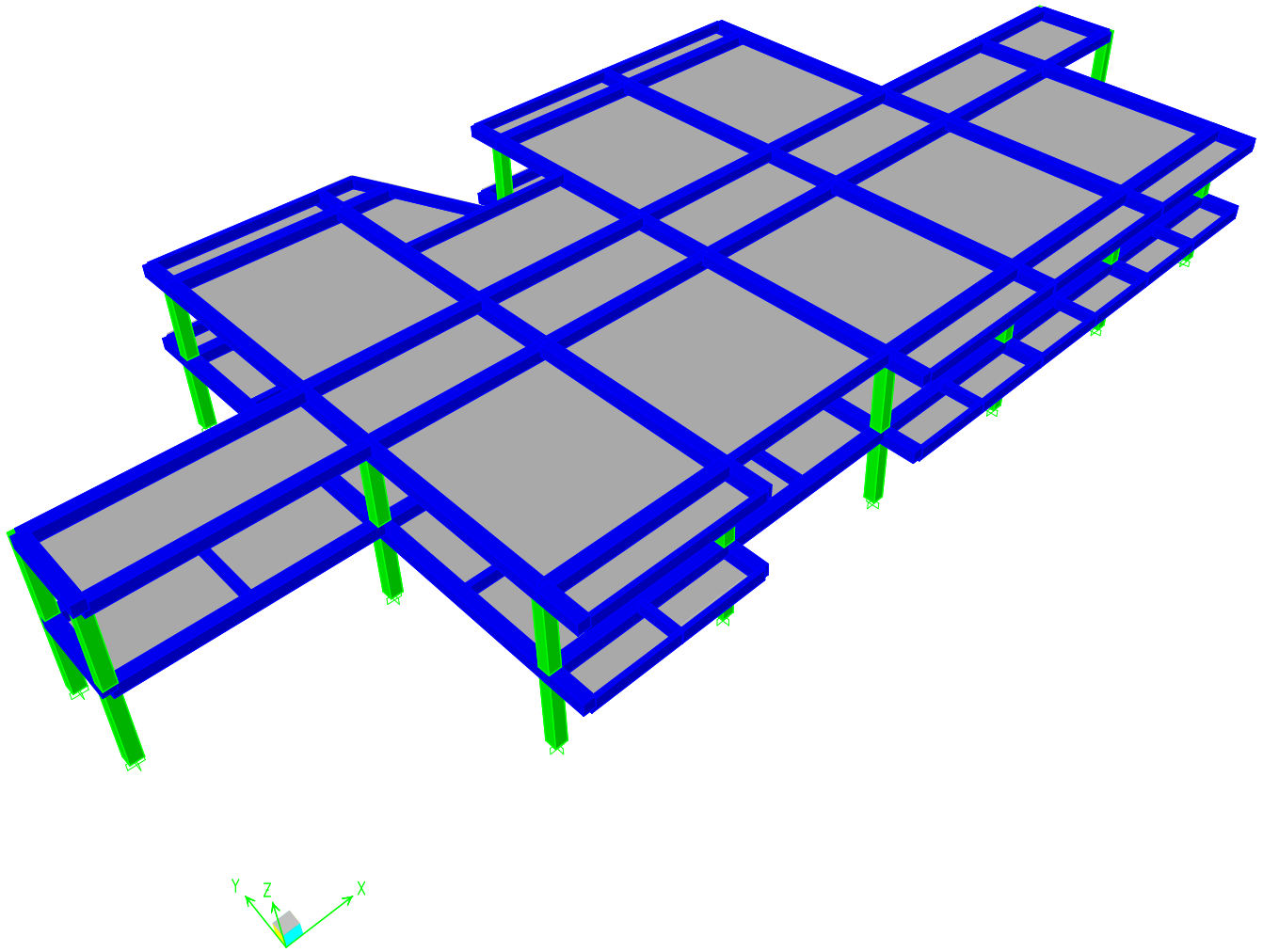
RESISTENCIA ULTIMA A TRACCION PARA VARILLAS DE REFUERZO GRADO 60
Instalados en Concreto de 27.6 Mpa, 4000 psi

φ Varilla	φ Broca	Empotramiento (Pulg/mm)		# Huecos X Cartucho G522	Ultima Resistencia Kgs/Lbs		DATOS DE RESISTENCIA ULTIMA DE ELONGACION Y ROTURA PARA VARILLAS GRADO 60			
							Carga Minima para Elongacion Kgs/Lbs		Carga Minima para Rotura Kgs/Lbs	
# 3 (9.5 m	1/2"	3 3/8"	85.7	117.4	4936	10881	2994	6600	4490	9900
# 3	1/2"	4 1/2"	114.3	87.5	4719	10404				
# 4 (12.7	5/8"	4 1/2"	114.3	66	8818	19441	5443	12000	8164	18000
# 4	5/8"	6"	152.4	49	8972	19780				
# 5 (15.9	3/4"	5 5/8"	142.9	40.4	12810	28240	11975	18600	12655	27900
# 5	3/4"	7 1/2"	190.5	30.2	15822	34880				
# 6 (19.1m	7/8"	6 3/4"	171.5	27.1	17658	28929	11975	26400	17962	39600
# 6	7/8"	9"	228.6	20.2	20661	45550				
# 7 (22.2	1 1/8"	7 7/8"	200	11.1	23430	51653	16330	36000	24494	54000
# 7	1 1/8"	10 1/2"	266.7	8	27774	61230				
# 8(25.4mm	1 1/4"	9"	228.6	8.6	29202	64378	21500	47400	32251	71100
# 8	1 1/4"	12"	304.8	6.5	34886	76910				

NOTA: xceder el 25% de la resistencia ultima publicada aquí.
cion de las vaillas y con 12 empotramientos se alcanza el punto de rotura en la mayoria de los casos.

8. ANEXOS DE COMPUTADOR

ANEXOS DE COMPUTADOR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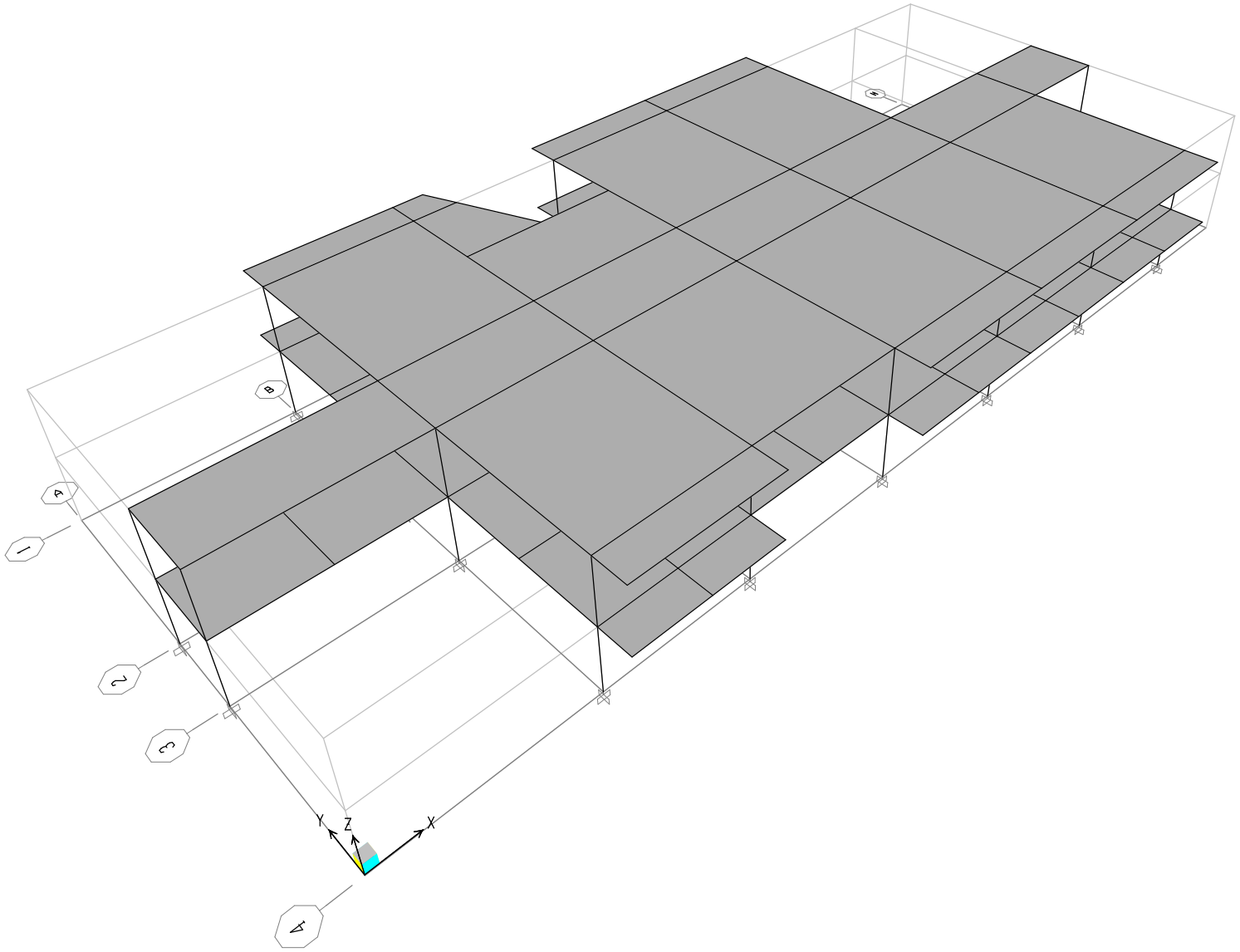
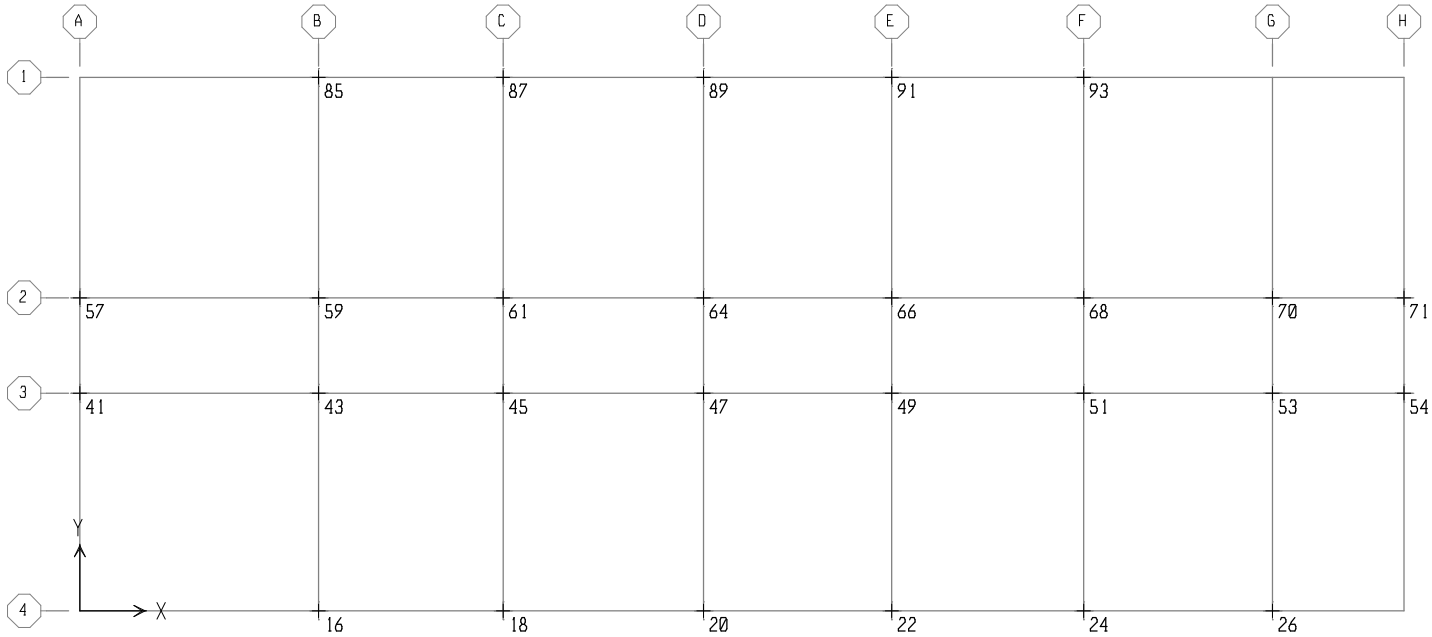
Z
X


4
B
A
1
2
C
Y
Z
X
A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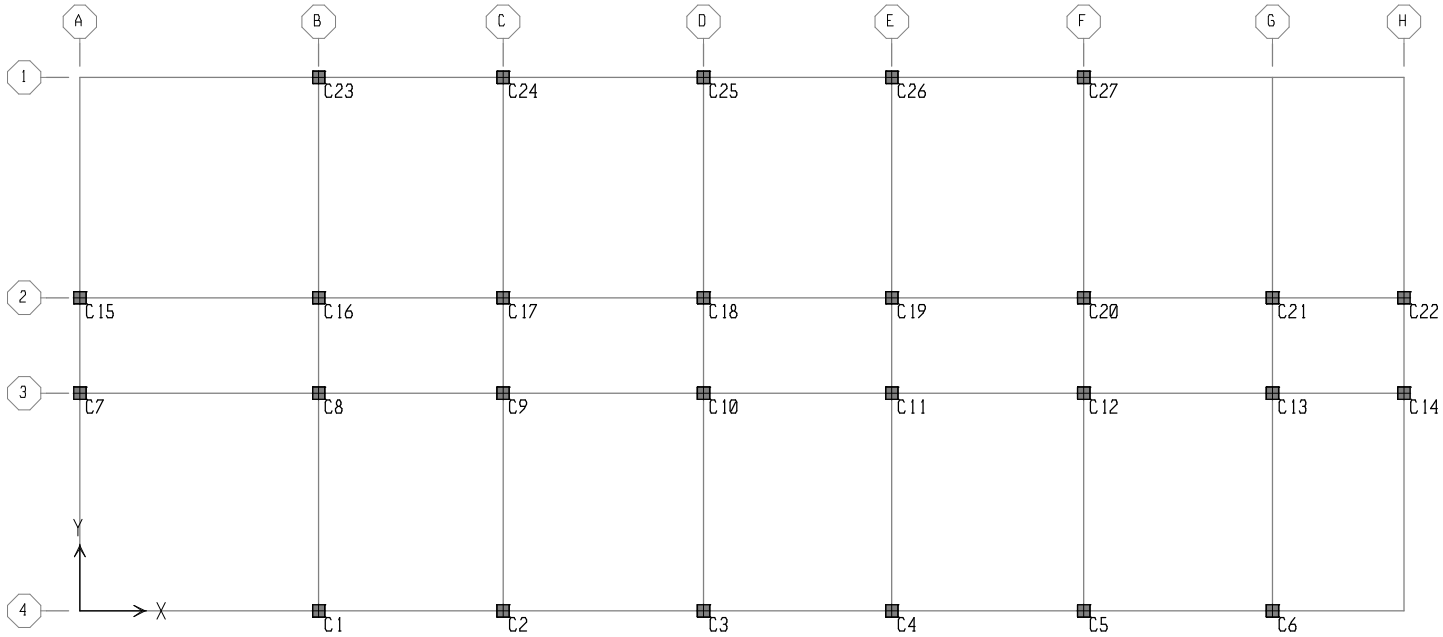
24
26
Y
X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C21
C22
C7
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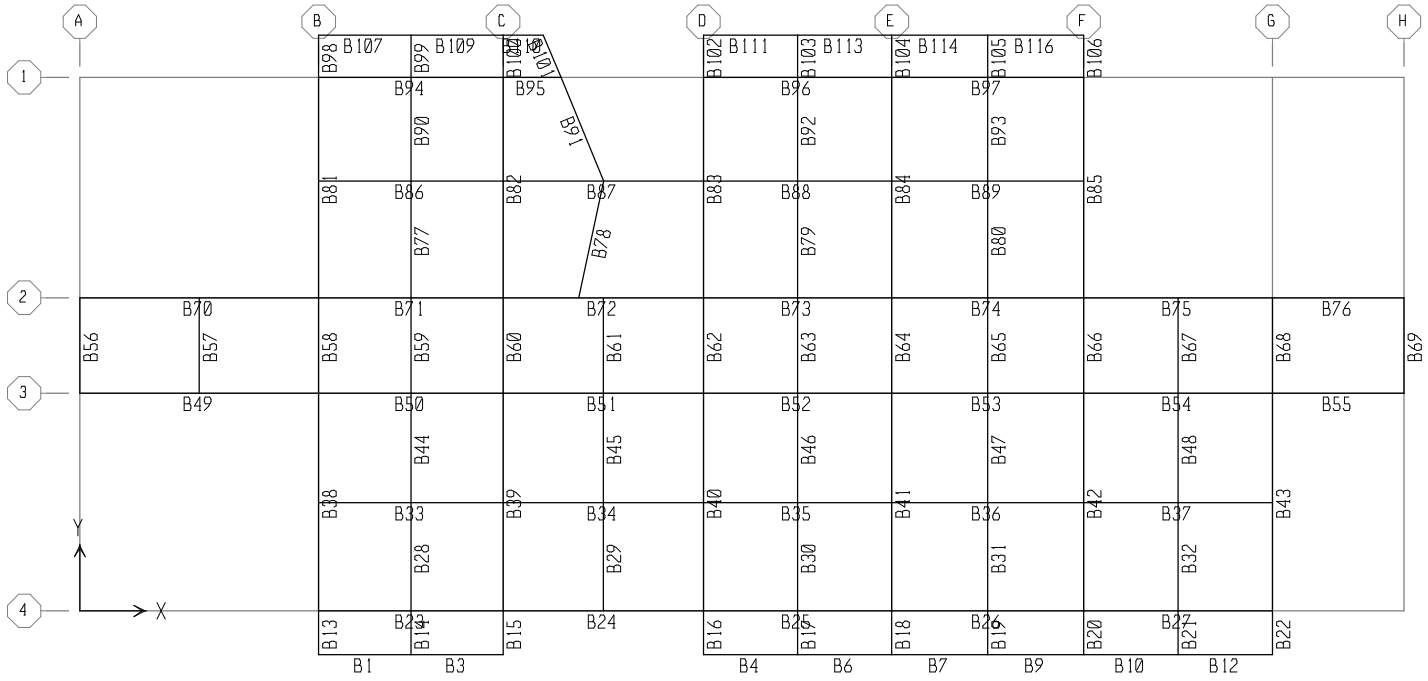
C9
C10
C11
C12
C13
C14
C1
C2
C3
C4
C5
C6
Y
X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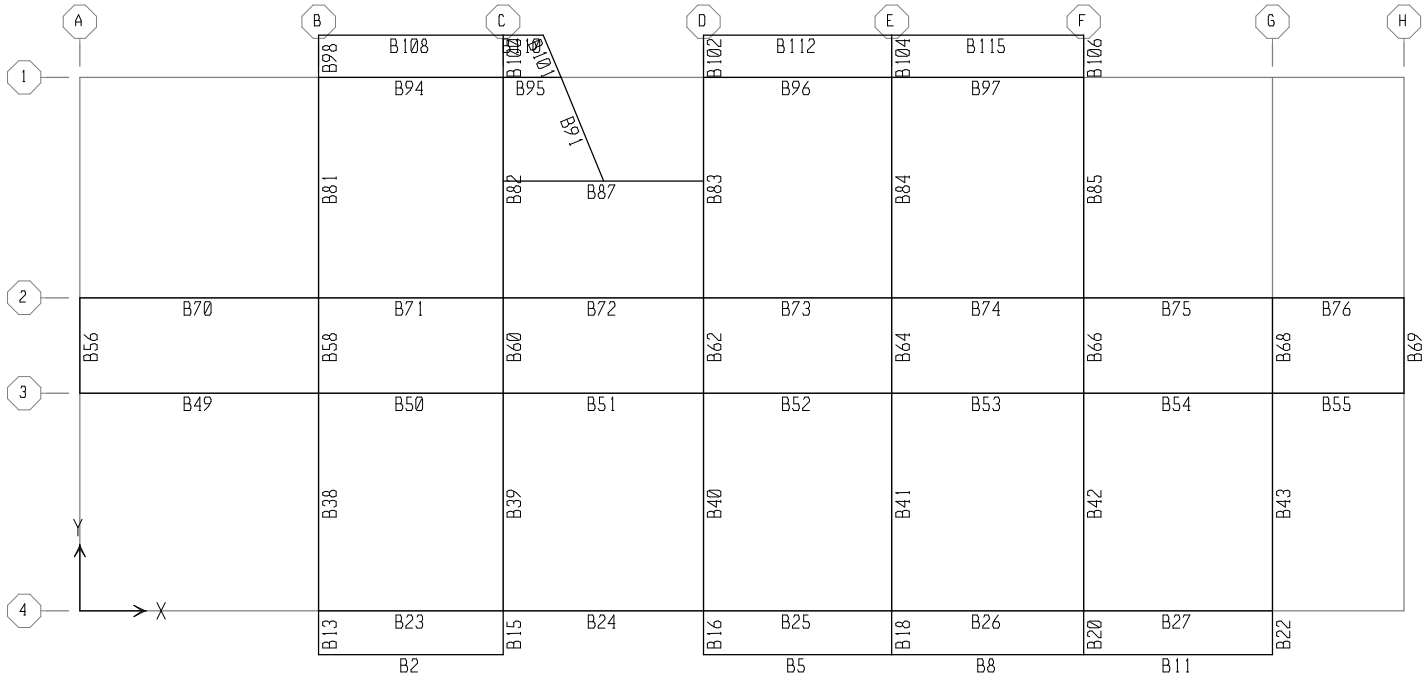
B94 B95 B96 B97
B90 B91 B92 B93
B81 B86 B82 B87 B83 B88 B84 B89 B85
B77 B78 B79 B80
B70 B71 B72 B73 B74 B75 B76
B56 B57 B58 B59 B60 B61 B62 B63 B64 B65 B66 B67 B68 B69
B49 B50 B51 B52 B53 B54 B55
B44 B45 B46 B47 B48
B38 B33 B39 B34 B40 B35 B41 B36 B42 B37 B43
B28 B29 B30 B31 B32
B13 B14 B15 B24 B16 B25 B17 B18 B26 B19 B20 B27 B21 B22
B1 B3 B4 B6 B7 B9 B10 B12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B98
B108
B102
B112
B104
B115
B106
B94
B95
B96
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B8
B11

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S T O R Y D A T A

STORY	SIMILAR TO	HEIGHT	ELEVATION
N+6.35	None	3.200	6.350
N+3.15	None	3.200	3.150
BASE	None		-0.050

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

POINT	X	Y	DZ-BELOW
1	8.940	-1.640	0.000
2	12.390	-1.640	0.000
3	15.827	-1.640	0.000
4	15.840	-1.640	0.000
5	23.340	-1.640	0.000
6	26.860	-1.640	0.000
7	30.390	-1.640	0.000
8	33.980	-1.640	0.000
9	37.570	-1.640	0.000
10	41.110	-1.640	0.000
11	44.640	-1.640	0.000
12	15.840	-1.578	0.000
13	15.840	-0.130	0.000
14	23.340	-0.130	0.000
15	26.860	-0.130	0.000
16	8.940	0.000	0.000
17	12.390	0.000	0.000
18	15.840	0.000	0.000
19	19.590	0.000	0.000
20	23.340	0.000	0.000
21	26.860	0.000	0.000
22	30.390	0.000	0.000
23	33.980	0.000	0.000
24	37.570	0.000	0.000
25	41.110	0.000	0.000
26	44.640	0.000	0.000
27	15.840	3.920	0.000
28	23.340	3.920	0.000
29	26.860	3.920	0.000
30	8.940	4.050	0.000
31	12.390	4.050	0.000
32	15.840	4.050	0.000
33	19.590	4.050	0.000
34	23.340	4.050	0.000
35	26.860	4.050	0.000
36	30.390	4.050	0.000
37	33.980	4.050	0.000
38	37.570	4.050	0.000
39	41.110	4.050	0.000
40	44.640	4.050	0.000
41	0.000	8.150	0.000
42	4.470	8.150	0.000
43	8.940	8.150	0.000
44	12.390	8.150	0.000
45	15.840	8.150	0.000
46	19.590	8.150	0.000
47	23.340	8.150	0.000
48	26.860	8.150	0.000
49	30.390	8.150	0.000
50	33.980	8.150	0.000
51	37.570	8.150	0.000
52	41.110	8.150	0.000
53	44.640	8.150	0.000
54	49.560	8.150	0.000
57	0.000	11.720	0.000
58	4.470	11.720	0.000
59	8.940	11.720	0.000
60	12.390	11.720	0.000
61	15.840	11.720	0.000
62	18.670	11.720	0.000
63	19.590	11.720	0.000

64	23.340	11.720	0.000
65	26.860	11.720	0.000
66	30.390	11.720	0.000
67	33.980	11.720	0.000
68	37.570	11.720	0.000
69	41.110	11.720	0.000
70	44.640	11.720	0.000
71	49.560	11.720	0.000
72	19.590	16.043	0.000
73	8.940	16.090	0.000
74	12.390	16.090	0.000
75	15.840	16.090	0.000
76	18.670	16.090	0.000
77	19.590	16.090	0.000
78	19.600	16.090	0.000
79	23.340	16.090	0.000
80	26.860	16.090	0.000
81	30.390	16.090	0.000
82	33.980	16.090	0.000
83	37.570	16.090	0.000
84	19.590	16.114	0.000
85	8.940	19.970	0.000
86	12.390	19.970	0.000
87	15.840	19.970	0.000
88	18.015	19.970	0.000
89	23.340	19.970	0.000
90	26.860	19.970	0.000
91	30.390	19.970	0.000
92	33.980	19.970	0.000
93	37.570	19.970	0.000
94	8.940	21.550	0.000
95	12.390	21.550	0.000
96	15.840	21.550	0.000
97	17.340	21.550	0.000
98	23.340	21.550	0.000
99	26.860	21.550	0.000
100	30.390	21.550	0.000
101	33.980	21.550	0.000
102	37.570	21.550	0.000

C O L U M N C O N N E C T I V I T Y D A T A

COLUMN	I END PT	J END PT	I END STORY
C1	16	16	Below
C2	18	18	Below
C3	20	20	Below
C4	22	22	Below
C5	24	24	Below
C6	26	26	Below
C7	41	41	Below
C8	43	43	Below
C9	45	45	Below
C10	47	47	Below
C11	49	49	Below
C12	51	51	Below
C13	53	53	Below
C14	54	54	Below
C15	57	57	Below
C16	59	59	Below
C17	61	61	Below
C18	64	64	Below
C19	66	66	Below
C20	68	68	Below
C21	70	70	Below
C22	71	71	Below
C23	85	85	Below
C24	87	87	Below
C25	89	89	Below
C26	91	91	Below
C27	93	93	Below

B E A M C O N N E C T I V I T Y D A T A

BEAM	I END PT	J END PT
B1	1	2
B2	1	4
B3	2	4
B4	5	6
B5	5	7
B6	6	7
B7	7	8
B8	7	9
B9	8	9
B10	9	10
B11	9	11
B12	10	11
B13	1	16
B14	2	17
B15	4	18
B16	5	20
B17	6	21
B18	7	22
B19	8	23
B20	9	24
B21	10	25
B22	11	26
B23	16	18
B24	18	20
B25	20	22
B26	22	24
B27	24	26
B28	17	31
B29	19	33
B30	21	35
B31	23	37
B32	25	39
B33	30	32
B34	32	34
B35	34	36
B36	36	38
B37	38	40
B38	16	43
B39	18	45
B40	20	47
B41	22	49
B42	24	51
B43	26	53
B44	31	44
B45	33	46
B46	35	48
B47	37	50
B48	39	52
B49	41	43
B50	43	45
B51	45	47
B52	47	49
B53	49	51
B54	51	53
B55	53	54
B56	41	57
B57	42	58
B58	43	59
B59	44	60
B60	45	61
B61	46	63
B62	47	64
B63	48	65
B64	49	66
B65	50	67
B66	51	68
B67	52	69
B68	53	70
B69	54	71
B70	57	59
B71	59	61
B72	61	64
B73	64	66
B74	66	68
B75	68	70
B76	70	71

B77	60	74
B78	62	78
B79	65	80
B80	67	82
B81	59	85
B82	61	87
B83	64	89
B84	66	91
B85	68	93
B86	73	75
B87	75	79
B88	79	81
B89	81	83
B90	74	86
B91	88	78
B92	80	90
B93	82	92
B94	85	87
B95	87	88
B96	89	91
B97	91	93
B98	85	94
B99	86	95
B100	87	96
B101	97	88
B102	89	98
B103	90	99
B104	91	100
B105	92	101
B106	93	102
B107	94	95
B108	94	96
B109	95	96
B110	96	97
B111	98	99
B112	98	100
B113	99	100
B114	100	101
B115	100	102
B116	101	102

R I G I D D I A P H R A G M P O I N T C O N N E C T I V I T Y D A T A

STORY	DIAPHRAGM	POINT	POINT	POINT	POINT	POINT
N+6.35	D1	16	18	20	22	24
		26	41	43	45	47
		49	51	53	54	57
		59	61	64	66	68
		70	71	85	87	89
		91	93	1	94	4
		96	5	98	7	100
		9	102	11	78	88
		97	75	79	76	72
		77	84			
N+3.15	D1	16	18	20	22	24
		26	41	43	45	47
		49	51	53	54	57
		59	61	64	66	68
		70	71	85	87	89
		91	93	1	4	5
		7	9	11	13	14
		94	96	98	100	102
		97	62	73	75	83
		78	88	17	44	60
		86	2	95	74	21
		48	65	90	6	15
		99	23	50	67	92
		8	101	19	46	63
		25	52	69	10	42
		58	30	32	34	36
		38	40	27	28	31
		35	29	37	39	79
		81	80	82	33	3
		12				

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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
A36	Iso	Steel	All	199900000.00	0.3000	1.1700E-05	76884615.38
CON21	Iso	Concrete	All	21538000.000	0.2000	9.9000E-06	8974166.667
CON28	Iso	Concrete	All	24870000.000	0.2000	9.9000E-0610362500.000	
A500	Iso	Steel	All	199900000.00	0.3000	1.1700E-05	76884615.38

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
A36	7.8271E+00	7.6820E+01
CON21	2.4000E+00	2.4000E+01
CON28	2.4000E+00	2.4000E+01
A500	7.8271E+00	7.6820E+01

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 ($)
A36	252000.000	400000.000	5000.00
A500	352000.000	400000.000	5000.00

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
CON21	No	21000.000	420000.000	420000.000	N/A
CON28	No	28000.000	420000.000	420000.000	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
C-45X55	CON21	Rectangular	Yes	
V-20X45	CON21	Rectangular		Yes
V-45X45	CON21	Rectangular		Yes
V-15X45	CON21	Rectangular		Yes
C-45X45	CON21	Rectangular	Yes	
V-25X45	CON21	Rectangular		Yes

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
C-45X55	0.4500	0.5500	0.0000	0.0000	0.0000	0.0000
V-20X45	0.4500	0.2000	0.0000	0.0000	0.0000	0.0000
V-45X45	0.4500	0.4500	0.0000	0.0000	0.0000	0.0000
V-15X45	0.4500	0.1500	0.0000	0.0000	0.0000	0.0000
C-45X45	0.4500	0.4500	0.0000	0.0000	0.0000	0.0000
V-25X45	0.4500	0.2500	0.0000	0.0000	0.0000	0.0000

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 AREA	TORSIONAL CONSTANT	MOMENTS OF INERTIA I33	MOMENTS OF INERTIA I22	SHEAR AREAS A2	SHEAR AREAS A3
C-45X55	0.2475	0.0084	0.0042	0.0062	0.2063	0.2063
V-20X45	0.0900	0.0009	0.0015	0.0003	0.0750	0.0750

V-45X45	0.2025	0.0058	0.0034	0.0034	0.1688	0.1688
V-15X45	0.0675	0.0004	0.0011	0.0001	0.0563	0.0563
C-45X45	0.2025	0.0058	0.0034	0.0034	0.1688	0.1688
V-25X45	0.1125	0.0015	0.0019	0.0006	0.0938	0.0938

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

	SECTION MODULI		PLASTIC MODULI		RADIUS OF GYRATION	
FRAME SECTION NAME	S33	S22	Z33	Z22	R33	R22
C-45X55	0.0186	0.0227	0.0278	0.0340	0.1299	0.1588
V-20X45	0.0068	0.0030	0.0101	0.0045	0.1299	0.0577
V-45X45	0.0152	0.0152	0.0228	0.0228	0.1299	0.1299
V-15X45	0.0051	0.0017	0.0076	0.0025	0.1299	0.0433
C-45X45	0.0152	0.0152	0.0228	0.0228	0.1299	0.1299
V-25X45	0.0084	0.0047	0.0127	0.0070	0.1299	0.0722

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

FRAME SECTION NAME	TOTAL WEIGHT	TOTAL MASS
C-45X55	0.0000	0.0000
V-20X45	367.3080	36.7308
V-45X45	2826.8160	282.6816
V-15X45	191.0736	19.1074
C-45X45	839.8080	83.9808
V-25X45	20.2500	2.0250

C O N C R E T E C O L U M N D A T A

	REINF CONFIGURATION		REINF	NUM BARS	NUM BARS	BAR
FRAME SECTION NAME	LONGIT	LATERAL	SIZE/TYPE	3DIR/2DIR	CIRCULAR	COVER
C-45X55	Rectangular	Ties	#8/Design	6/5	N/A	0.0500
C-45X45	Rectangular	Ties	#8/Design	5/5	N/A	0.0500

C O N C R E T E B E A M D A T A

FRAME SECTION NAME	TOP COVER	BOT COVER	TOP LEFT AREA	TOP RIGHT AREA	BOT LEFT AREA	BOT RIGHT AREA
V-20X45	0.0500	0.0500	0.000	0.000	0.000	0.000
V-45X45	0.0500	0.0500	0.000	0.000	0.000	0.000
V-15X45	0.0500	0.0500	0.000	0.000	0.000	0.000
V-25X45	0.0500	0.0500	0.000	0.000	0.000	0.000

S H E L L S E C T I O N P R O P E R T Y D A T A

SHELL SECTION	MATERIAL NAME	SHELL TYPE	LOAD DIST ONE WAY	MEMBRANE THICK	BENDING THICK	TOTAL WEIGHT	TOTAL MASS
SALONES	CON21	Membrane	No	0.2250	0.2250	3098.1223	309.8122
CORREDORES	CON21	Membrane	No	0.1420	0.1420	543.1152	54.3115
CUBPLACA	CON21	Membrane	No	0.1460	0.1460	326.2424	32.6242
PANTALLA	CON21	Shell-Thin	No	0.1500	0.1500	0.0000	0.0000
CUBLIVIANA	CON21	Membrane	Yes	0.0130	0.0130	210.8888	21.0889

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		

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

RESP SPEC CASE: SISDISX

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	DISENO	9.8100
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: SISDISY

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	DISENO	10.1700
UZ	----	N/A

RESP SPEC CASE: SISDERX

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	DERIVAS	9.8100
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: SISDERY

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	DERIVAS	10.1700
UZ	----	N/A

RESP SPEC CASE: SISUMBX

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	UMBRAL	10.7900
U2	----	N/A
UZ	----	N/A

RESP SPEC CASE: SISUMBY

BASIC RESPONSE SPECTRUM DATA

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

RESPONSE SPECTRUM FUNCTION ASSIGNMENT DATA

DIRECTION	FUNCTION	SCALE FACT
U1	----	N/A
U2	UMBRAL	11.3600
UZ	----	N/A

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
COMDIS1	ADD	DEAD	Static	1.4000
COMDIS2	ADD	DEAD	Static	1.2000
		LIVE	Static	1.6000
COMDIS3	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISDISX	Spectra	1.0000
		SISDISY	Spectra	0.3000
COMDIS4	ADD	DEAD	Static	1.2000
		LIVE	Static	1.0000
		SISDISX	Spectra	0.3000
		SISDISY	Spectra	1.0000
COMDIS5	ADD	DEAD	Static	0.9000
		SISDISX	Spectra	1.0000
		SISDISY	Spectra	0.3000
COMDIS6	ADD	DEAD	Static	0.9000
		SISDISX	Spectra	0.3000
		SISDISY	Spectra	1.0000
COMDER1	ADD	SISDERX	Spectra	1.0000
		SISDERY	Spectra	0.3000
COMDER2	ADD	SISDERX	Spectra	0.3000
		SISDERY	Spectra	1.0000
COMDERUMB1	ADD	SISUMBX	Spectra	1.0000
		SISUMBY	Spectra	0.3000
COMDERUMB2	ADD	SISUMBX	Spectra	0.3000
		SISUMBY	Spectra	1.0000
ENVOLVENTE	ENVE	COMDIS1	Combo	1.0000
		COMDIS2	Combo	1.0000
		COMDIS3	Combo	1.0000
		COMDIS4	Combo	1.0000
		COMDIS5	Combo	1.0000
		COMDIS6	Combo	1.0000
CIM1	ADD	DEAD	Static	1.0000
		LIVE	Static	1.0000
CIM2	ADD	DEAD	Static	1.0000

		LIVE	Static	0.7500
		SISDISX	Spectra	0.5250
		SISDISY	Spectra	0.1575
CIM3	ADD	DEAD	Static	1.0000
		LIVE	Static	0.7500
		SISDISX	Spectra	0.1575
		SISDISY	Spectra	0.5250

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

FUNCTION NAME: DERIVAS

FILE NAME: c:\users\andrea s\desktop\seminario\2254 - dye16 - i.e. seminario\modelo\derivas.txt
DATA TYPE: Period vs Acceleration
NUMBER OF HEADER LINES = 0

PERIOD	ACCEL
0.0000	1.1250
0.0500	1.1250
0.1000	1.1250
0.1600	1.1250
0.2100	1.1250
0.4100	1.1250
0.6000	1.1250
0.8000	1.1250
1.0000	1.1250
1.3400	0.8370
1.6900	0.6660
2.0300	0.5530
2.3800	0.4730
2.7200	0.4130
3.0700	0.3670
3.4100	0.3300
3.7600	0.3000
4.1000	0.2740
4.4400	0.2530
4.7900	0.2350
5.1300	0.2190
5.4800	0.2050
5.8200	0.1930
6.1700	0.1820
6.5100	0.1730
6.8600	0.1640
7.2000	0.1560
8.2000	0.1200
9.2000	0.0960

FUNCTION NAME: DISENO

FILE NAME: c:\users\andrea s\desktop\seminario\2254 - dye16 - i.e. seminario\modelo\diseño.txt
DATA TYPE: Period vs Acceleration
NUMBER OF HEADER LINES = 0

PERIOD	ACCEL
0.0000	0.1790
0.0500	0.1790
0.1000	0.1790
0.1600	0.1790
0.2100	0.1790
0.4100	0.1790
0.6000	0.1790
0.8000	0.1790
1.0000	0.1790
1.3400	0.1330
1.6900	0.1060
2.0300	0.0880
2.3800	0.0750
2.7200	0.0660
3.0700	0.0580
3.4100	0.0520
3.7600	0.0480

4.1000	0.0440
4.4400	0.0400
4.7900	0.0370
5.1300	0.0350
5.4800	0.0330
5.8200	0.0310
6.1700	0.0290
6.5100	0.0270
6.8600	0.0260
7.2000	0.0250
8.2000	0.0190
9.2000	0.0150

FUNCTION NAME: UMBRAL

FILE NAME: c:\users\andrea s\desktop\seminario\2254 - dye16 - i.e. seminario\modelo\umbral.txt
DATA TYPE: Period vs Acceleration
NUMBER OF HEADER LINES = 0

PERIOD	ACCEL
0.0000	0.0800
0.0500	0.1120
0.1000	0.1440
0.1500	0.1760
0.2000	0.2080
0.2500	0.2400
0.4900	0.2400
0.7300	0.2400
0.9800	0.2400
1.2200	0.2400
1.4600	0.2400
1.7000	0.2400
1.9500	0.2400
2.1900	0.2400
2.7800	0.1890
3.3800	0.1560
3.9700	0.1320
4.5600	0.1150
5.1600	0.1020
5.7500	0.0910
6.3400	0.0830
6.9400	0.0760
7.5300	0.0700
8.1300	0.0650
8.7200	0.0600
9.3100	0.0560
9.9100	0.0530
10.5000	0.0500
11.5000	0.0420
12.5000	0.0350

ETABS v9.7.4 File:I.E. SEMINARIO IPIALES Units:KN-m Septiembre 28, 2016 13:20 PAGE 13

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

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
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N+3.15	B103	Beam	Rectangular	None	V-20X45	Conc Frame	V-20X45
N+3.15	B104	Beam	Rectangular	None	V-45X45	Conc Frame	V-45X45
N+3.15	B105	Beam	Rectangular	None	V-20X45	Conc Frame	V-20X45
N+3.15	B106	Beam	Rectangular	None	V-45X45	Conc Frame	V-45X45
N+3.15	B107	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B109	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B110	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B111	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B113	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B114	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45
N+3.15	B116	Beam	Rectangular	None	V-15X45	Conc Frame	V-15X45

D I S T R I B U T E D L O A D A S S I G N M E N T S T O L I N E O B J E C T S

LOAD CASE	STORY LEVEL	LINE ID	LOAD TYPE	LOAD DIRECTION	ABSOLUTE DISTANCE A	ABSOLUTE DISTANCE B	LOAD A PER LENGTH	LOAD B PER LENGTH
DEAD	N+6.35	B13	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B15	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B16	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B18	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B20	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B22	Force	Gravity	0.000	1.640	1.460	1.460
DEAD	N+6.35	B38	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B39	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B40	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B41	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B42	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B43	Force	Gravity	0.000	8.150	1.460	1.460
DEAD	N+6.35	B56	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B58	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B60	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B62	Force	Gravity	0.000	3.570	1.460	1.460

DEAD	N+6.35	B64	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B66	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B68	Force	Gravity	0.000	3.570	1.460	1.460
DEAD	N+6.35	B81	Force	Gravity	0.000	8.250	1.460	1.460
DEAD	N+6.35	B82	Force	Gravity	0.000	8.250	1.460	1.460
DEAD	N+6.35	B83	Force	Gravity	0.000	8.250	1.460	1.460
DEAD	N+6.35	B84	Force	Gravity	0.000	8.250	1.460	1.460
DEAD	N+6.35	B85	Force	Gravity	0.000	8.250	1.460	1.460
DEAD	N+6.35	B98	Force	Gravity	0.000	1.580	1.460	1.460
DEAD	N+6.35	B100	Force	Gravity	0.000	1.580	1.460	1.460
DEAD	N+6.35	B102	Force	Gravity	0.000	1.580	1.460	1.460
DEAD	N+6.35	B104	Force	Gravity	0.000	1.580	1.460	1.460
DEAD	N+6.35	B106	Force	Gravity	0.000	1.580	1.460	1.460
DEAD	N+3.15	B13	Force	Gravity	0.000	1.640	4.290	4.290
DEAD	N+3.15	B22	Force	Gravity	0.000	1.640	4.290	4.290
DEAD	N+3.15	B23	Force	Gravity	0.000	6.900	4.290	4.290
DEAD	N+3.15	B24	Force	Gravity	0.000	7.500	4.290	4.290
DEAD	N+3.15	B25	Force	Gravity	0.000	7.050	4.290	4.290
DEAD	N+3.15	B26	Force	Gravity	0.000	7.180	4.290	4.290
DEAD	N+3.15	B27	Force	Gravity	0.000	7.070	4.290	4.290
DEAD	N+3.15	B38	Force	Gravity	0.000	8.150	4.290	4.290
DEAD	N+3.15	B43	Force	Gravity	0.000	8.150	4.290	4.290
DEAD	N+3.15	B68	Force	Gravity	0.000	3.570	37.320	37.320
DEAD	N+3.15	B72	Force	Gravity	5.400	7.500	19.980	19.980
DEAD	N+3.15	B75	Force	Gravity	0.000	7.070	1.950	1.950
DEAD	N+3.15	B78	Force	Gravity	0.000	4.468	4.290	4.290
DEAD	N+3.15	B81	Force	Gravity	0.000	8.250	4.290	4.290
DEAD	N+3.15	B83	Force	Gravity	0.000	8.250	4.290	4.290
DEAD	N+3.15	B85	Force	Gravity	0.000	8.250	4.290	4.290
DEAD	N+3.15	B94	Force	Gravity	0.000	6.900	4.290	4.290
DEAD	N+3.15	B95	Force	Gravity	0.000	2.175	4.290	4.290
DEAD	N+3.15	B96	Force	Gravity	0.000	7.050	4.290	4.290
DEAD	N+3.15	B97	Force	Gravity	0.000	7.180	4.290	4.290
DEAD	N+3.15	B98	Force	Gravity	0.000	1.580	4.290	4.290
DEAD	N+3.15	B102	Force	Gravity	0.000	1.580	4.290	4.290
DEAD	N+3.15	B106	Force	Gravity	0.000	1.580	4.290	4.290
LIVE	N+3.15	B68	Force	Gravity	0.000	3.570	18.700	18.700
LIVE	N+3.15	B72	Force	Gravity	5.400	7.500	10.250	10.250

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

CASE	STORY	AREA	AREATYPE	DIRECTION	LOAD
LIVE	N+6.35	F4	Floor	Gravity	0.5000
LIVE	N+6.35	F6	Floor	Gravity	0.5000
LIVE	N+6.35	F9	Floor	Gravity	0.5000
LIVE	N+6.35	F12	Floor	Gravity	0.5000
LIVE	N+6.35	F24	Floor	Gravity	0.5000
LIVE	N+6.35	F25	Floor	Gravity	5.0000
LIVE	N+6.35	F26	Floor	Gravity	0.5000
LIVE	N+6.35	F27	Floor	Gravity	0.5000
LIVE	N+6.35	F28	Floor	Gravity	0.5000
LIVE	N+6.35	F40	Floor	Gravity	0.5000
LIVE	N+6.35	F43	Floor	Gravity	0.5000
LIVE	N+6.35	F46	Floor	Gravity	0.5000
LIVE	N+6.35	F49	Floor	Gravity	0.5000
LIVE	N+6.35	F52	Floor	Gravity	0.5000
LIVE	N+6.35	F55	Floor	Gravity	0.5000
LIVE	N+6.35	F57	Floor	Gravity	1.8000
LIVE	N+6.35	F61	Floor	Gravity	0.5000
LIVE	N+6.35	F66	Floor	Gravity	0.5000
LIVE	N+6.35	F67	Floor	Gravity	0.5000
LIVE	N+6.35	F68	Floor	Gravity	0.5000
LIVE	N+6.35	F71	Floor	Gravity	1.8000
LIVE	N+6.35	F78	Floor	Gravity	0.5000
LIVE	N+6.35	F80	Floor	Gravity	1.8000
LIVE	N+6.35	F82	Floor	Gravity	0.5000
LIVE	N+6.35	F85	Floor	Gravity	0.5000
LIVE	N+3.15	F1	Floor	Gravity	2.0000
LIVE	N+3.15	F2	Floor	Gravity	2.0000
LIVE	N+3.15	F3	Floor	Gravity	2.0000
LIVE	N+3.15	F5	Floor	Gravity	2.0000
LIVE	N+3.15	F7	Floor	Gravity	2.0000
LIVE	N+3.15	F8	Floor	Gravity	2.0000
LIVE	N+3.15	F10	Floor	Gravity	2.0000
LIVE	N+3.15	F11	Floor	Gravity	2.0000

LIVE	N+3.15	F13	Floor	Gravity	2.0000
LIVE	N+3.15	F14	Floor	Gravity	2.0000
LIVE	N+3.15	F15	Floor	Gravity	2.0000
LIVE	N+3.15	F16	Floor	Gravity	2.0000
LIVE	N+3.15	F17	Floor	Gravity	2.0000
LIVE	N+3.15	F18	Floor	Gravity	2.0000
LIVE	N+3.15	F19	Floor	Gravity	2.0000
LIVE	N+3.15	F20	Floor	Gravity	2.0000
LIVE	N+3.15	F21	Floor	Gravity	2.0000
LIVE	N+3.15	F22	Floor	Gravity	2.0000
LIVE	N+3.15	F23	Floor	Gravity	2.0000
LIVE	N+3.15	F29	Floor	Gravity	2.0000
LIVE	N+3.15	F30	Floor	Gravity	2.0000
LIVE	N+3.15	F31	Floor	Gravity	2.0000
LIVE	N+3.15	F32	Floor	Gravity	2.0000
LIVE	N+3.15	F33	Floor	Gravity	2.0000
LIVE	N+3.15	F34	Floor	Gravity	2.0000
LIVE	N+3.15	F35	Floor	Gravity	2.0000
LIVE	N+3.15	F36	Floor	Gravity	2.0000
LIVE	N+3.15	F37	Floor	Gravity	2.0000
LIVE	N+3.15	F38	Floor	Gravity	2.0000
LIVE	N+3.15	F39	Floor	Gravity	5.0000
LIVE	N+3.15	F41	Floor	Gravity	5.0000
LIVE	N+3.15	F42	Floor	Gravity	5.0000
LIVE	N+3.15	F44	Floor	Gravity	5.0000
LIVE	N+3.15	F45	Floor	Gravity	5.0000
LIVE	N+3.15	F47	Floor	Gravity	5.0000
LIVE	N+3.15	F48	Floor	Gravity	5.0000
LIVE	N+3.15	F50	Floor	Gravity	5.0000
LIVE	N+3.15	F51	Floor	Gravity	5.0000
LIVE	N+3.15	F53	Floor	Gravity	5.0000
LIVE	N+3.15	F54	Floor	Gravity	5.0000
LIVE	N+3.15	F56	Floor	Gravity	5.0000
LIVE	N+3.15	F58	Floor	Gravity	2.0000
LIVE	N+3.15	F59	Floor	Gravity	2.0000
LIVE	N+3.15	F60	Floor	Gravity	2.0000
LIVE	N+3.15	F62	Floor	Gravity	2.0000
LIVE	N+3.15	F63	Floor	Gravity	2.0000
LIVE	N+3.15	F64	Floor	Gravity	2.0000
LIVE	N+3.15	F65	Floor	Gravity	2.0000
LIVE	N+3.15	F69	Floor	Gravity	2.0000
LIVE	N+3.15	F70	Floor	Gravity	2.0000
LIVE	N+3.15	F72	Floor	Gravity	2.0000
LIVE	N+3.15	F73	Floor	Gravity	2.0000
LIVE	N+3.15	F74	Floor	Gravity	2.0000
LIVE	N+3.15	F75	Floor	Gravity	2.0000
LIVE	N+3.15	F76	Floor	Gravity	2.0000
LIVE	N+3.15	F77	Floor	Gravity	2.0000
LIVE	N+3.15	F79	Floor	Gravity	2.0000
LIVE	N+3.15	F80	Floor	Gravity	2.0000
LIVE	N+3.15	F81	Floor	Gravity	2.0000
LIVE	N+3.15	F83	Floor	Gravity	2.0000
LIVE	N+3.15	F84	Floor	Gravity	2.0000
LIVE	N+3.15	F86	Floor	Gravity	2.0000

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B1	ENVOLVENTE MAX	0.000	0.000	-9.160	-0.763	5.333
N+3.15	B1	ENVOLVENTE MAX	0.345	0.000	-8.370	-0.763	8.393
N+3.15	B1	ENVOLVENTE MAX	0.690	0.000	-7.000	-0.763	12.605
N+3.15	B1	ENVOLVENTE MAX	1.035	0.000	-5.160	-0.763	16.827
N+3.15	B1	ENVOLVENTE MAX	1.380	0.000	-3.280	-0.763	20.059
N+3.15	B1	ENVOLVENTE MAX	1.725	0.000	-1.410	-0.763	22.244
N+3.15	B1	ENVOLVENTE MAX	2.070	0.000	0.470	-0.763	23.393
N+3.15	B1	ENVOLVENTE MAX	2.415	0.000	2.350	-0.763	23.519
N+3.15	B1	ENVOLVENTE MAX	2.760	0.000	4.930	-0.763	22.663
N+3.15	B1	ENVOLVENTE MAX	3.105	0.000	7.110	-0.763	21.128
N+3.15	B1	ENVOLVENTE MAX	3.450	0.000	8.290	-0.763	19.433
N+3.15	B1	ENVOLVENTE MIN	0.000	0.000	-23.490	-1.918	-20.335
N+3.15	B1	ENVOLVENTE MIN	0.345	0.000	-22.320	-1.918	-12.422
N+3.15	B1	ENVOLVENTE MIN	0.690	0.000	-20.130	-1.918	-6.615
N+3.15	B1	ENVOLVENTE MIN	1.035	0.000	-17.140	-1.918	-2.295
N+3.15	B1	ENVOLVENTE MIN	1.380	0.000	-14.070	-1.918	1.313
N+3.15	B1	ENVOLVENTE MIN	1.725	0.000	-11.000	-1.918	4.260
N+3.15	B1	ENVOLVENTE MIN	2.070	0.000	-7.930	-1.918	6.538
N+3.15	B1	ENVOLVENTE MIN	2.415	0.000	-4.860	-1.918	8.130
N+3.15	B1	ENVOLVENTE MIN	2.760	0.000	-2.600	-1.918	9.003
N+3.15	B1	ENVOLVENTE MIN	3.105	0.000	-1.230	-1.918	9.077
N+3.15	B1	ENVOLVENTE MIN	3.450	0.000	-0.440	-1.918	8.357
N+6.35	B2	ENVOLVENTE MAX	0.000	0.000	-2.990	-0.052	1.693
N+6.35	B2	ENVOLVENTE MAX	0.690	0.000	-1.980	-0.052	3.756
N+6.35	B2	ENVOLVENTE MAX	1.380	0.000	-0.980	-0.052	4.893
N+6.35	B2	ENVOLVENTE MAX	2.070	0.000	0.360	-0.052	5.104
N+6.35	B2	ENVOLVENTE MAX	2.760	0.000	1.710	-0.052	4.768
N+6.35	B2	ENVOLVENTE MAX	3.450	0.000	3.050	-0.052	4.864
N+6.35	B2	ENVOLVENTE MAX	4.140	0.000	4.390	-0.052	3.880
N+6.35	B2	ENVOLVENTE MAX	4.830	0.000	5.730	-0.052	3.272
N+6.35	B2	ENVOLVENTE MAX	5.520	0.000	7.070	-0.052	2.374
N+6.35	B2	ENVOLVENTE MAX	6.210	0.000	8.410	-0.052	0.783
N+6.35	B2	ENVOLVENTE MAX	6.900	0.000	9.750	-0.052	-1.503
N+6.35	B2	ENVOLVENTE MIN	0.000	0.000	-7.180	-0.521	-9.884
N+6.35	B2	ENVOLVENTE MIN	0.690	0.000	-5.620	-0.521	-5.922
N+6.35	B2	ENVOLVENTE MIN	1.380	0.000	-4.230	-0.521	-2.655
N+6.35	B2	ENVOLVENTE MIN	2.070	0.000	-3.230	-0.521	-0.081
N+6.35	B2	ENVOLVENTE MIN	2.760	0.000	-2.220	-0.521	1.798
N+6.35	B2	ENVOLVENTE MIN	3.450	0.000	-1.210	-0.521	1.669
N+6.35	B2	ENVOLVENTE MIN	4.140	0.000	-0.210	-0.521	-0.131
N+6.35	B2	ENVOLVENTE MIN	4.830	0.000	0.800	-0.521	-3.307
N+6.35	B2	ENVOLVENTE MIN	5.520	0.000	1.800	-0.521	-7.723
N+6.35	B2	ENVOLVENTE MIN	6.210	0.000	2.810	-0.521	-13.065
N+6.35	B2	ENVOLVENTE MIN	6.900	0.000	3.820	-0.521	-19.332
N+3.15	B3	ENVOLVENTE MAX	0.000	0.000	9.080	1.289	20.274
N+3.15	B3	ENVOLVENTE MAX	0.345	0.000	9.840	1.289	18.087
N+3.15	B3	ENVOLVENTE MAX	0.690	0.000	10.600	1.289	15.964
N+3.15	B3	ENVOLVENTE MAX	1.035	0.000	11.370	1.289	13.800
N+3.15	B3	ENVOLVENTE MAX	1.380	0.000	12.130	1.289	11.474
N+3.15	B3	ENVOLVENTE MAX	1.725	0.000	12.890	1.289	8.973
N+3.15	B3	ENVOLVENTE MAX	2.070	0.000	13.650	1.289	6.417
N+3.15	B3	ENVOLVENTE MAX	2.415	0.000	14.410	1.289	4.490
N+3.15	B3	ENVOLVENTE MAX	2.760	0.000	15.170	1.289	2.803
N+3.15	B3	ENVOLVENTE MAX	3.105	0.000	15.930	1.289	0.929
N+3.15	B3	ENVOLVENTE MAX	3.437	0.000	16.660	1.289	-1.049
N+3.15	B3	ENVOLVENTE MAX	3.437	0.000	16.670	1.289	-1.049
N+3.15	B3	ENVOLVENTE MAX	3.450	0.000	16.690	1.289	-1.131
N+3.15	B3	ENVOLVENTE MIN	0.000	0.000	0.660	0.508	9.170
N+3.15	B3	ENVOLVENTE MIN	0.345	0.000	1.210	0.508	7.772
N+3.15	B3	ENVOLVENTE MIN	0.690	0.000	1.760	0.508	5.855
N+3.15	B3	ENVOLVENTE MIN	1.035	0.000	2.320	0.508	3.525
N+3.15	B3	ENVOLVENTE MIN	1.380	0.000	2.870	0.508	0.902
N+3.15	B3	ENVOLVENTE MIN	1.725	0.000	3.430	0.508	-2.000
N+3.15	B3	ENVOLVENTE MIN	2.070	0.000	3.980	0.508	-5.301
N+3.15	B3	ENVOLVENTE MIN	2.415	0.000	4.540	0.508	-9.684
N+3.15	B3	ENVOLVENTE MIN	2.760	0.000	5.090	0.508	-14.762
N+3.15	B3	ENVOLVENTE MIN	3.105	0.000	5.650	0.508	-20.108
N+3.15	B3	ENVOLVENTE MIN	3.437	0.000	6.180	0.508	-25.501
N+3.15	B3	ENVOLVENTE MIN	3.437	0.000	6.180	0.508	-25.501
N+3.15	B3	ENVOLVENTE MIN	3.450	0.000	6.200	0.508	-25.721
N+3.15	B4	ENVOLVENTE MAX	0.000	0.000	-10.430	-0.593	-1.955
N+3.15	B4	ENVOLVENTE MAX	0.352	0.000	-9.610	-0.593	1.604
N+3.15	B4	ENVOLVENTE MAX	0.704	0.000	-8.190	-0.593	4.776
N+3.15	B4	ENVOLVENTE MAX	1.056	0.000	-6.310	-0.593	8.982
N+3.15	B4	ENVOLVENTE MAX	1.408	0.000	-4.400	-0.593	12.591
N+3.15	B4	ENVOLVENTE MAX	1.760	0.000	-2.480	-0.593	15.110
N+3.15	B4	ENVOLVENTE MAX	2.112	0.000	-0.560	-0.593	16.546
N+3.15	B4	ENVOLVENTE MAX	2.464	0.000	1.350	-0.593	16.917
N+3.15	B4	ENVOLVENTE MAX	2.816	0.000	4.210	-0.593	16.265
N+3.15	B4	ENVOLVENTE MAX	3.168	0.000	6.470	-0.593	14.813
N+3.15	B4	ENVOLVENTE MAX	3.520	0.000	7.680	-0.593	13.034
N+3.15	B4	ENVOLVENTE MIN	0.000	0.000	-23.380	-1.525	-25.412
N+3.15	B4	ENVOLVENTE MIN	0.352	0.000	-22.170	-1.525	-17.379
N+3.15	B4	ENVOLVENTE MIN	0.704	0.000	-19.910	-1.525	-9.962
N+3.15	B4	ENVOLVENTE MIN	1.056	0.000	-16.840	-1.525	-5.135
N+3.15	B4	ENVOLVENTE MIN	1.408	0.000	-13.710	-1.525	-1.484
N+3.15	B4	ENVOLVENTE MIN	1.760	0.000	-10.570	-1.525	1.480
N+3.15	B4	ENVOLVENTE MIN	2.112	0.000	-7.440	-1.525	3.749
N+3.15	B4	ENVOLVENTE MIN	2.464	0.000	-4.310	-1.525	5.307
N+3.15	B4	ENVOLVENTE MIN	2.816	0.000	-2.210	-1.525	6.115
N+3.15	B4	ENVOLVENTE MIN	3.168	0.000	-0.790	-1.525	6.167
N+3.15	B4	ENVOLVENTE MIN	3.520	0.000	0.020	-1.525	5.542

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B5	ENVOLVENTE MAX	0.000	0.000	-4.130	0.669	-2.048
N+6.35	B5	ENVOLVENTE MAX	0.705	0.000	-3.100	0.669	0.501
N+6.35	B5	ENVOLVENTE MAX	1.410	0.000	-2.070	0.669	2.326
N+6.35	B5	ENVOLVENTE MAX	2.115	0.000	-1.050	0.669	3.426
N+6.35	B5	ENVOLVENTE MAX	2.820	0.000	-0.020	0.669	3.802
N+6.35	B5	ENVOLVENTE MAX	3.525	0.000	1.010	0.669	4.562
N+6.35	B5	ENVOLVENTE MAX	4.230	0.000	2.040	0.669	4.284
N+6.35	B5	ENVOLVENTE MAX	4.935	0.000	3.060	0.669	3.909
N+6.35	B5	ENVOLVENTE MAX	5.640	0.000	4.390	0.669	3.332
N+6.35	B5	ENVOLVENTE MAX	6.345	0.000	5.990	0.669	1.788
N+6.35	B5	ENVOLVENTE MAX	7.050	0.000	7.590	0.669	-0.722
N+6.35	B5	ENVOLVENTE MIN	0.000	0.000	-9.460	0.186	-19.102
N+6.35	B5	ENVOLVENTE MIN	0.705	0.000	-8.090	0.186	-12.916
N+6.35	B5	ENVOLVENTE MIN	1.410	0.000	-6.720	0.186	-7.696
N+6.35	B5	ENVOLVENTE MIN	2.115	0.000	-5.350	0.186	-3.443
N+6.35	B5	ENVOLVENTE MIN	2.820	0.000	-3.980	0.186	-0.155
N+6.35	B5	ENVOLVENTE MIN	3.525	0.000	-2.610	0.186	1.952
N+6.35	B5	ENVOLVENTE MIN	4.230	0.000	-1.240	0.186	2.379
N+6.35	B5	ENVOLVENTE MIN	4.935	0.000	0.130	0.186	0.581
N+6.35	B5	ENVOLVENTE MIN	5.640	0.000	1.500	0.186	-1.942
N+6.35	B5	ENVOLVENTE MIN	6.345	0.000	2.580	0.186	-5.190
N+6.35	B5	ENVOLVENTE MIN	7.050	0.000	3.610	0.186	-9.162
N+3.15	B6	ENVOLVENTE MAX	0.000	0.000	1.320	2.086	12.997
N+3.15	B6	ENVOLVENTE MAX	0.353	0.000	2.140	2.086	13.366
N+3.15	B6	ENVOLVENTE MAX	0.706	0.000	4.020	2.086	13.395
N+3.15	B6	ENVOLVENTE MAX	1.059	0.000	7.110	2.086	12.598
N+3.15	B6	ENVOLVENTE MAX	1.412	0.000	10.250	2.086	10.777
N+3.15	B6	ENVOLVENTE MAX	1.765	0.000	13.390	2.086	8.052
N+3.15	B6	ENVOLVENTE MAX	2.118	0.000	16.530	2.086	4.286
N+3.15	B6	ENVOLVENTE MAX	2.471	0.000	19.670	2.086	1.496
N+3.15	B6	ENVOLVENTE MAX	2.824	0.000	22.760	2.086	-1.940
N+3.15	B6	ENVOLVENTE MAX	3.177	0.000	25.110	2.086	-5.967
N+3.15	B6	ENVOLVENTE MAX	3.530	0.000	26.400	2.086	-10.386
N+3.15	B6	ENVOLVENTE MIN	0.000	0.000	-3.910	1.056	5.329
N+3.15	B6	ENVOLVENTE MIN	0.353	0.000	-2.690	1.056	5.565
N+3.15	B6	ENVOLVENTE MIN	0.706	0.000	-0.880	1.056	5.130
N+3.15	B6	ENVOLVENTE MIN	1.059	0.000	1.010	1.056	3.953
N+3.15	B6	ENVOLVENTE MIN	1.412	0.000	2.930	1.056	2.017
N+3.15	B6	ENVOLVENTE MIN	1.765	0.000	4.850	1.056	-0.802
N+3.15	B6	ENVOLVENTE MIN	2.118	0.000	6.770	1.056	-4.367
N+3.15	B6	ENVOLVENTE MIN	2.471	0.000	8.690	1.056	-10.695
N+3.15	B6	ENVOLVENTE MIN	2.824	0.000	10.580	1.056	-18.161
N+3.15	B6	ENVOLVENTE MIN	3.177	0.000	12.000	1.056	-26.602
N+3.15	B6	ENVOLVENTE MIN	3.530	0.000	12.820	1.056	-35.664
N+3.15	B7	ENVOLVENTE MAX	0.000	0.000	-12.750	-1.059	-10.595
N+3.15	B7	ENVOLVENTE MAX	0.359	0.000	-11.910	-1.059	-6.132
N+3.15	B7	ENVOLVENTE MAX	0.718	0.000	-10.450	-1.059	-2.077
N+3.15	B7	ENVOLVENTE MAX	1.077	0.000	-8.520	-1.059	1.360
N+3.15	B7	ENVOLVENTE MAX	1.436	0.000	-6.570	-1.059	4.273
N+3.15	B7	ENVOLVENTE MAX	1.795	0.000	-4.610	-1.059	8.006
N+3.15	B7	ENVOLVENTE MAX	2.154	0.000	-2.660	-1.059	10.617
N+3.15	B7	ENVOLVENTE MAX	2.513	0.000	-0.710	-1.059	12.123
N+3.15	B7	ENVOLVENTE MAX	2.872	0.000	1.270	-1.059	12.567
N+3.15	B7	ENVOLVENTE MAX	3.231	0.000	3.610	-1.059	12.148
N+3.15	B7	ENVOLVENTE MAX	3.590	0.000	4.850	-1.059	11.287
N+3.15	B7	ENVOLVENTE MIN	0.000	0.000	-25.630	-2.210	-34.112
N+3.15	B7	ENVOLVENTE MIN	0.359	0.000	-24.310	-2.210	-25.198
N+3.15	B7	ENVOLVENTE MIN	0.718	0.000	-21.830	-2.210	-16.931
N+3.15	B7	ENVOLVENTE MIN	1.077	0.000	-18.680	-2.210	-9.682
N+3.15	B7	ENVOLVENTE MIN	1.436	0.000	-15.480	-2.210	-3.754
N+3.15	B7	ENVOLVENTE MIN	1.795	0.000	-12.290	-2.210	-0.494
N+3.15	B7	ENVOLVENTE MIN	2.154	0.000	-9.100	-2.210	2.039
N+3.15	B7	ENVOLVENTE MIN	2.513	0.000	-5.900	-2.210	3.829
N+3.15	B7	ENVOLVENTE MIN	2.872	0.000	-2.800	-2.210	4.834
N+3.15	B7	ENVOLVENTE MIN	3.231	0.000	-1.330	-2.210	5.069
N+3.15	B7	ENVOLVENTE MIN	3.590	0.000	-0.500	-2.210	4.689
N+6.35	B8	ENVOLVENTE MAX	0.000	0.000	-4.300	0.112	-2.612
N+6.35	B8	ENVOLVENTE MAX	0.718	0.000	-3.260	0.112	0.101
N+6.35	B8	ENVOLVENTE MAX	1.436	0.000	-2.210	0.112	2.821
N+6.35	B8	ENVOLVENTE MAX	2.154	0.000	-1.160	0.112	4.551
N+6.35	B8	ENVOLVENTE MAX	2.872	0.000	-0.110	0.112	5.279
N+6.35	B8	ENVOLVENTE MAX	3.590	0.000	1.080	0.112	5.333
N+6.35	B8	ENVOLVENTE MAX	4.308	0.000	2.480	0.112	4.973
N+6.35	B8	ENVOLVENTE MAX	5.026	0.000	3.870	0.112	3.958
N+6.35	B8	ENVOLVENTE MAX	5.744	0.000	5.270	0.112	1.940
N+6.35	B8	ENVOLVENTE MAX	6.462	0.000	6.660	0.112	-0.217
N+6.35	B8	ENVOLVENTE MAX	7.180	0.000	8.220	0.112	-3.005
N+6.35	B8	ENVOLVENTE MIN	0.000	0.000	-8.060	-0.030	-9.983
N+6.35	B8	ENVOLVENTE MIN	0.718	0.000	-6.430	-0.030	-4.985
N+6.35	B8	ENVOLVENTE MIN	1.436	0.000	-4.870	-0.030	-1.747
N+6.35	B8	ENVOLVENTE MIN	2.154	0.000	-3.470	-0.030	0.726
N+6.35	B8	ENVOLVENTE MIN	2.872	0.000	-2.080	-0.030	2.448
N+6.35	B8	ENVOLVENTE MIN	3.590	0.000	-0.830	-0.030	3.415
N+6.35	B8	ENVOLVENTE MIN	4.308	0.000	0.220	-0.030	2.393
N+6.35	B8	ENVOLVENTE MIN	5.026	0.000	1.270	-0.030	0.596
N+6.35	B8	ENVOLVENTE MIN	5.744	0.000	2.310	-0.030	-1.952
N+6.35	B8	ENVOLVENTE MIN	6.462	0.000	3.360	-0.030	-6.114
N+6.35	B8	ENVOLVENTE MIN	7.180	0.000	4.410	-0.030	-11.399
N+3.15	B9	ENVOLVENTE MAX	0.000	0.000	0.930	2.254	11.373
N+3.15	B9	ENVOLVENTE MAX	0.359	0.000	1.770	2.254	11.816
N+3.15	B9	ENVOLVENTE MAX	0.718	0.000	3.410	2.254	11.863
N+3.15	B9	ENVOLVENTE MAX	1.077	0.000	6.560	2.254	11.146

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B9	ENVOLVENTE MAX	1.436	0.000	9.750	2.254	9.359
N+3.15	B9	ENVOLVENTE MAX	1.795	0.000	12.950	2.254	6.602
N+3.15	B9	ENVOLVENTE MAX	2.154	0.000	16.140	2.254	3.081
N+3.15	B9	ENVOLVENTE MAX	2.513	0.000	19.340	2.254	0.169
N+3.15	B9	ENVOLVENTE MAX	2.872	0.000	22.490	2.254	-3.433
N+3.15	B9	ENVOLVENTE MAX	3.231	0.000	25.030	2.254	-7.654
N+3.15	B9	ENVOLVENTE MAX	3.590	0.000	26.350	2.254	-12.283
N+3.15	B9	ENVOLVENTE MIN	0.000	0.000	-4.170	1.128	4.585
N+3.15	B9	ENVOLVENTE MIN	0.359	0.000	-2.920	1.128	4.982
N+3.15	B9	ENVOLVENTE MIN	0.718	0.000	-0.760	1.128	4.718
N+3.15	B9	ENVOLVENTE MIN	1.077	0.000	1.170	1.128	3.584
N+3.15	B9	ENVOLVENTE MIN	1.436	0.000	3.120	1.128	1.674
N+3.15	B9	ENVOLVENTE MIN	1.795	0.000	5.070	1.128	-1.115
N+3.15	B9	ENVOLVENTE MIN	2.154	0.000	7.030	1.128	-4.987
N+3.15	B9	ENVOLVENTE MIN	2.513	0.000	8.980	1.128	-11.318
N+3.15	B9	ENVOLVENTE MIN	2.872	0.000	10.910	1.128	-18.804
N+3.15	B9	ENVOLVENTE MIN	3.231	0.000	12.370	1.128	-27.306
N+3.15	B9	ENVOLVENTE MIN	3.590	0.000	13.210	1.128	-36.456
N+3.15	B10	ENVOLVENTE MAX	0.000	0.000	-13.810	-0.957	-12.629
N+3.15	B10	ENVOLVENTE MAX	0.354	0.000	-12.990	-0.957	-7.857
N+3.15	B10	ENVOLVENTE MAX	0.708	0.000	-11.560	-0.957	-3.480
N+3.15	B10	ENVOLVENTE MAX	1.062	0.000	-9.660	-0.957	0.299
N+3.15	B10	ENVOLVENTE MAX	1.416	0.000	-7.740	-0.957	3.461
N+3.15	B10	ENVOLVENTE MAX	1.770	0.000	-5.810	-0.957	7.550
N+3.15	B10	ENVOLVENTE MAX	2.124	0.000	-3.880	-0.957	10.862
N+3.15	B10	ENVOLVENTE MAX	2.478	0.000	-1.960	-0.957	13.106
N+3.15	B10	ENVOLVENTE MAX	2.832	0.000	-0.060	-0.957	14.358
N+3.15	B10	ENVOLVENTE MAX	3.186	0.000	1.370	-0.957	14.931
N+3.15	B10	ENVOLVENTE MAX	3.540	0.000	2.440	-0.957	15.555
N+3.15	B10	ENVOLVENTE MIN	0.000	0.000	-28.260	-1.936	-39.517
N+3.15	B10	ENVOLVENTE MIN	0.354	0.000	-26.970	-1.936	-29.732
N+3.15	B10	ENVOLVENTE MIN	0.708	0.000	-24.690	-1.936	-20.571
N+3.15	B10	ENVOLVENTE MIN	1.062	0.000	-21.590	-1.936	-12.390
N+3.15	B10	ENVOLVENTE MIN	1.416	0.000	-18.440	-1.936	-5.385
N+3.15	B10	ENVOLVENTE MIN	1.770	0.000	-15.290	-1.936	-1.105
N+3.15	B10	ENVOLVENTE MIN	2.124	0.000	-12.140	-1.936	2.154
N+3.15	B10	ENVOLVENTE MIN	2.478	0.000	-8.990	-1.936	4.685
N+3.15	B10	ENVOLVENTE MIN	2.832	0.000	-5.900	-1.936	6.414
N+3.15	B10	ENVOLVENTE MIN	3.186	0.000	-3.610	-1.936	7.244
N+3.15	B10	ENVOLVENTE MIN	3.540	0.000	-2.640	-1.936	7.003
N+6.35	B11	ENVOLVENTE MAX	0.000	0.000	-3.920	-0.068	-1.988
N+6.35	B11	ENVOLVENTE MAX	0.707	0.000	-2.890	-0.068	0.419
N+6.35	B11	ENVOLVENTE MAX	1.414	0.000	-1.860	-0.068	2.096
N+6.35	B11	ENVOLVENTE MAX	2.121	0.000	-0.830	-0.068	3.539
N+6.35	B11	ENVOLVENTE MAX	2.828	0.000	0.200	-0.068	4.632
N+6.35	B11	ENVOLVENTE MAX	3.535	0.000	1.280	-0.068	5.302
N+6.35	B11	ENVOLVENTE MAX	4.242	0.000	2.660	-0.068	5.456
N+6.35	B11	ENVOLVENTE MAX	4.949	0.000	4.030	-0.068	4.970
N+6.35	B11	ENVOLVENTE MAX	5.656	0.000	5.410	-0.068	3.797
N+6.35	B11	ENVOLVENTE MAX	6.363	0.000	6.780	-0.068	2.252
N+6.35	B11	ENVOLVENTE MAX	7.070	0.000	8.160	-0.068	-0.022
N+6.35	B11	ENVOLVENTE MIN	0.000	0.000	-8.250	-0.179	-12.032
N+6.35	B11	ENVOLVENTE MIN	0.707	0.000	-6.870	-0.179	-6.689
N+6.35	B11	ENVOLVENTE MIN	1.414	0.000	-5.500	-0.179	-2.316
N+6.35	B11	ENVOLVENTE MIN	2.121	0.000	-4.120	-0.179	0.591
N+6.35	B11	ENVOLVENTE MIN	2.828	0.000	-2.750	-0.179	2.689
N+6.35	B11	ENVOLVENTE MIN	3.535	0.000	-1.420	-0.179	2.756
N+6.35	B11	ENVOLVENTE MIN	4.242	0.000	-0.390	-0.179	1.518
N+6.35	B11	ENVOLVENTE MIN	4.949	0.000	0.640	-0.179	-0.448
N+6.35	B11	ENVOLVENTE MIN	5.656	0.000	1.670	-0.179	-3.428
N+6.35	B11	ENVOLVENTE MIN	6.363	0.000	2.700	-0.179	-7.737
N+6.35	B11	ENVOLVENTE MIN	7.070	0.000	3.730	-0.179	-13.017
N+3.15	B12	ENVOLVENTE MAX	0.000	0.000	-0.920	1.920	15.492
N+3.15	B12	ENVOLVENTE MAX	0.353	0.000	-0.100	1.920	17.906
N+3.15	B12	ENVOLVENTE MAX	0.706	0.000	1.320	1.920	20.017
N+3.15	B12	ENVOLVENTE MAX	1.059	0.000	3.210	1.920	21.353
N+3.15	B12	ENVOLVENTE MAX	1.412	0.000	6.040	1.920	21.647
N+3.15	B12	ENVOLVENTE MAX	1.765	0.000	9.180	1.920	20.988
N+3.15	B12	ENVOLVENTE MAX	2.118	0.000	12.320	1.920	19.232
N+3.15	B12	ENVOLVENTE MAX	2.471	0.000	15.460	1.920	16.374
N+3.15	B12	ENVOLVENTE MAX	2.824	0.000	18.550	1.920	12.415
N+3.15	B12	ENVOLVENTE MAX	3.177	0.000	20.820	1.920	8.066
N+3.15	B12	ENVOLVENTE MAX	3.530	0.000	22.030	1.920	4.945
N+3.15	B12	ENVOLVENTE MIN	0.000	0.000	-9.530	0.861	6.448
N+3.15	B12	ENVOLVENTE MIN	0.353	0.000	-8.320	0.861	7.414
N+3.15	B12	ENVOLVENTE MIN	0.706	0.000	-6.050	0.861	7.672
N+3.15	B12	ENVOLVENTE MIN	1.059	0.000	-2.960	0.861	7.138
N+3.15	B12	ENVOLVENTE MIN	1.412	0.000	-0.730	0.861	5.862
N+3.15	B12	ENVOLVENTE MIN	1.765	0.000	1.190	0.861	3.752
N+3.15	B12	ENVOLVENTE MIN	2.118	0.000	3.110	0.861	0.953
N+3.15	B12	ENVOLVENTE MIN	2.471	0.000	5.040	0.861	-2.532
N+3.15	B12	ENVOLVENTE MIN	2.824	0.000	6.930	0.861	-6.699
N+3.15	B12	ENVOLVENTE MIN	3.177	0.000	8.350	0.861	-12.043
N+3.15	B12	ENVOLVENTE MIN	3.530	0.000	9.170	0.861	-19.627
N+6.35	B13	ENVOLVENTE MAX	0.000	0.000	7.180	1.693	0.521
N+6.35	B13	ENVOLVENTE MAX	0.164	0.000	8.880	1.693	-0.395
N+6.35	B13	ENVOLVENTE MAX	0.328	0.000	10.580	1.693	-1.265
N+6.35	B13	ENVOLVENTE MAX	0.492	0.000	12.280	1.693	-2.203
N+6.35	B13	ENVOLVENTE MAX	0.656	0.000	13.970	1.693	-3.319
N+6.35	B13	ENVOLVENTE MAX	0.820	0.000	15.670	1.693	-4.615
N+6.35	B13	ENVOLVENTE MAX	0.984	0.000	17.370	1.693	-6.090
N+6.35	B13	ENVOLVENTE MAX	1.148	0.000	19.090	1.693	-7.744

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B13	ENVOLVENTE MAX	1.312	0.000	20.820	1.693	-9.577
N+6.35	B13	ENVOLVENTE MAX	1.476	0.000	22.560	1.693	-11.588
N+6.35	B13	ENVOLVENTE MAX	1.640	0.000	24.300	1.693	-13.779
N+6.35	B13	ENVOLVENTE MIN	0.000	0.000	2.990	-9.884	0.052
N+6.35	B13	ENVOLVENTE MIN	0.164	0.000	4.080	-9.884	-1.156
N+6.35	B13	ENVOLVENTE MIN	0.328	0.000	5.170	-9.884	-2.751
N+6.35	B13	ENVOLVENTE MIN	0.492	0.000	6.260	-9.884	-4.625
N+6.35	B13	ENVOLVENTE MIN	0.656	0.000	7.350	-9.884	-6.778
N+6.35	B13	ENVOLVENTE MIN	0.820	0.000	8.450	-9.884	-9.209
N+6.35	B13	ENVOLVENTE MIN	0.984	0.000	9.540	-9.884	-11.918
N+6.35	B13	ENVOLVENTE MIN	1.148	0.000	10.630	-9.884	-14.906
N+6.35	B13	ENVOLVENTE MIN	1.312	0.000	11.720	-9.884	-18.173
N+6.35	B13	ENVOLVENTE MIN	1.476	0.000	12.810	-9.884	-21.718
N+6.35	B13	ENVOLVENTE MIN	1.640	0.000	13.910	-9.884	-25.541
N+3.15	B13	ENVOLVENTE MAX	0.000	0.000	23.490	5.333	1.918
N+3.15	B13	ENVOLVENTE MAX	0.164	0.000	25.410	5.333	-0.405
N+3.15	B13	ENVOLVENTE MAX	0.328	0.000	27.550	5.333	-2.276
N+3.15	B13	ENVOLVENTE MAX	0.492	0.000	29.920	5.333	-4.405
N+3.15	B13	ENVOLVENTE MAX	0.656	0.000	32.520	5.333	-6.817
N+3.15	B13	ENVOLVENTE MAX	0.820	0.000	35.350	5.333	-9.536
N+3.15	B13	ENVOLVENTE MAX	0.984	0.000	38.180	5.333	-12.575
N+3.15	B13	ENVOLVENTE MAX	1.148	0.000	40.770	5.333	-15.922
N+3.15	B13	ENVOLVENTE MAX	1.312	0.000	43.150	5.333	-19.554
N+3.15	B13	ENVOLVENTE MAX	1.476	0.000	45.290	5.333	-23.451
N+3.15	B13	ENVOLVENTE MAX	1.640	0.000	47.200	5.333	-27.590
N+3.15	B13	ENVOLVENTE MIN	0.000	0.000	9.160	-20.335	0.763
N+3.15	B13	ENVOLVENTE MIN	0.164	0.000	10.580	-20.335	-2.537
N+3.15	B13	ENVOLVENTE MIN	0.328	0.000	12.120	-20.335	-6.866
N+3.15	B13	ENVOLVENTE MIN	0.492	0.000	13.800	-20.335	-11.572
N+3.15	B13	ENVOLVENTE MIN	0.656	0.000	15.610	-20.335	-16.687
N+3.15	B13	ENVOLVENTE MIN	0.820	0.000	17.550	-20.335	-22.248
N+3.15	B13	ENVOLVENTE MIN	0.984	0.000	19.490	-20.335	-28.279
N+3.15	B13	ENVOLVENTE MIN	1.148	0.000	21.300	-20.335	-34.755
N+3.15	B13	ENVOLVENTE MIN	1.312	0.000	22.970	-20.335	-41.639
N+3.15	B13	ENVOLVENTE MIN	1.476	0.000	24.520	-20.335	-48.894
N+3.15	B13	ENVOLVENTE MIN	1.640	0.000	25.940	-20.335	-56.481
N+3.15	B14	ENVOLVENTE MAX	0.000	0.090	1.640	1.745	-1.290
N+3.15	B14	ENVOLVENTE MAX	0.062	0.090	1.770	1.745	-1.106
N+3.15	B14	ENVOLVENTE MAX	0.062	0.000	10.690	1.745	-1.106
N+3.15	B14	ENVOLVENTE MAX	0.164	0.000	11.090	1.745	-1.369
N+3.15	B14	ENVOLVENTE MAX	0.328	0.000	12.110	1.745	-1.868
N+3.15	B14	ENVOLVENTE MAX	0.492	0.000	13.590	1.745	-2.497
N+3.15	B14	ENVOLVENTE MAX	0.656	0.000	15.530	1.745	-3.299
N+3.15	B14	ENVOLVENTE MAX	0.820	0.000	17.920	1.745	-4.316
N+3.15	B14	ENVOLVENTE MAX	0.984	0.000	20.390	1.745	-5.581
N+3.15	B14	ENVOLVENTE MAX	1.148	0.000	22.510	1.745	-7.069
N+3.15	B14	ENVOLVENTE MAX	1.312	0.000	24.240	1.745	-8.739
N+3.15	B14	ENVOLVENTE MAX	1.476	0.000	25.440	1.745	-10.546
N+3.15	B14	ENVOLVENTE MAX	1.640	0.000	26.130	1.745	-12.449
N+3.15	B14	ENVOLVENTE MIN	0.000	-0.090	-3.530	-0.090	-3.189
N+3.15	B14	ENVOLVENTE MIN	0.062	-0.090	-3.340	-0.090	-3.265
N+3.15	B14	ENVOLVENTE MIN	0.062	0.000	2.450	-0.090	-3.265
N+3.15	B14	ENVOLVENTE MIN	0.164	0.000	2.730	-0.090	-4.373
N+3.15	B14	ENVOLVENTE MIN	0.328	0.000	3.390	-0.090	-6.270
N+3.15	B14	ENVOLVENTE MIN	0.492	0.000	4.320	-0.090	-8.372
N+3.15	B14	ENVOLVENTE MIN	0.656	0.000	5.500	-0.090	-10.753
N+3.15	B14	ENVOLVENTE MIN	0.820	0.000	6.950	-0.090	-13.490
N+3.15	B14	ENVOLVENTE MIN	0.984	0.000	8.440	-0.090	-16.637
N+3.15	B14	ENVOLVENTE MIN	1.148	0.000	9.670	-0.090	-20.153
N+3.15	B14	ENVOLVENTE MIN	1.312	0.000	10.640	-0.090	-23.963
N+3.15	B14	ENVOLVENTE MIN	1.476	0.000	11.350	-0.090	-27.993
N+3.15	B14	ENVOLVENTE MIN	1.640	0.000	11.800	-0.090	-32.167
N+6.35	B15	ENVOLVENTE MAX	0.000	0.000	9.750	19.332	-0.052
N+6.35	B15	ENVOLVENTE MAX	0.164	0.000	11.490	19.332	-0.849
N+6.35	B15	ENVOLVENTE MAX	0.328	0.000	13.230	19.332	-1.744
N+6.35	B15	ENVOLVENTE MAX	0.492	0.000	14.970	19.332	-2.817
N+6.35	B15	ENVOLVENTE MAX	0.656	0.000	16.710	19.332	-4.069
N+6.35	B15	ENVOLVENTE MAX	0.820	0.000	18.450	19.332	-5.501
N+6.35	B15	ENVOLVENTE MAX	0.984	0.000	20.190	19.332	-7.111
N+6.35	B15	ENVOLVENTE MAX	1.148	0.000	22.000	19.332	-8.901
N+6.35	B15	ENVOLVENTE MAX	1.312	0.000	23.910	19.332	-10.869
N+6.35	B15	ENVOLVENTE MAX	1.476	0.000	25.820	19.332	-13.017
N+6.35	B15	ENVOLVENTE MAX	1.640	0.000	27.730	19.332	-15.343
N+6.35	B15	ENVOLVENTE MIN	0.000	0.000	3.820	1.503	-0.521
N+6.35	B15	ENVOLVENTE MIN	0.164	0.000	4.910	1.503	-2.096
N+6.35	B15	ENVOLVENTE MIN	0.328	0.000	6.000	1.503	-4.117
N+6.35	B15	ENVOLVENTE MIN	0.492	0.000	7.090	1.503	-6.429
N+6.35	B15	ENVOLVENTE MIN	0.656	0.000	8.180	1.503	-9.027
N+6.35	B15	ENVOLVENTE MIN	0.820	0.000	9.270	1.503	-11.909
N+6.35	B15	ENVOLVENTE MIN	0.984	0.000	10.370	1.503	-15.077
N+6.35	B15	ENVOLVENTE MIN	1.148	0.000	11.460	1.503	-18.530
N+6.35	B15	ENVOLVENTE MIN	1.312	0.000	12.550	1.503	-22.268
N+6.35	B15	ENVOLVENTE MIN	1.476	0.000	13.640	1.503	-26.291
N+6.35	B15	ENVOLVENTE MIN	1.640	0.000	14.730	1.503	-30.599
N+3.15	B15	ENVOLVENTE MAX	0.000	0.000	16.690	25.721	1.289
N+3.15	B15	ENVOLVENTE MAX	0.062	0.000	17.060	25.721	0.485
N+3.15	B15	ENVOLVENTE MAX	0.062	0.000	26.410	25.721	0.485
N+3.15	B15	ENVOLVENTE MAX	0.164	0.000	27.050	25.721	-0.934
N+3.15	B15	ENVOLVENTE MAX	0.328	0.000	28.260	25.721	-3.032
N+3.15	B15	ENVOLVENTE MAX	0.492	0.000	29.700	25.721	-5.275
N+3.15	B15	ENVOLVENTE MAX	0.656	0.000	31.370	25.721	-7.691
N+3.15	B15	ENVOLVENTE MAX	0.820	0.000	33.270	25.721	-10.301

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B15	ENVOLVENTE MAX	0.984	0.000	35.240	25.721	-13.124
N+3.15	B15	ENVOLVENTE MAX	1.148	0.000	37.000	25.721	-16.150
N+3.15	B15	ENVOLVENTE MAX	1.312	0.000	38.530	25.721	-19.358
N+3.15	B15	ENVOLVENTE MAX	1.476	0.000	39.820	25.721	-22.726
N+3.15	B15	ENVOLVENTE MAX	1.510	0.000	40.060	25.721	-23.443
N+3.15	B15	ENVOLVENTE MAX	1.510	0.000	40.060	25.721	-23.443
N+3.15	B15	ENVOLVENTE MAX	1.640	0.000	40.890	25.721	-26.234
N+3.15	B15	ENVOLVENTE MIN	0.000	0.000	6.200	1.131	0.508
N+3.15	B15	ENVOLVENTE MIN	0.062	0.000	6.480	1.131	-0.128
N+3.15	B15	ENVOLVENTE MIN	0.062	0.000	11.840	1.131	-0.128
N+3.15	B15	ENVOLVENTE MIN	0.164	0.000	12.310	1.131	-2.665
N+3.15	B15	ENVOLVENTE MIN	0.328	0.000	13.170	1.131	-7.187
N+3.15	B15	ENVOLVENTE MIN	0.492	0.000	14.170	1.131	-11.934
N+3.15	B15	ENVOLVENTE MIN	0.656	0.000	15.290	1.131	-16.938
N+3.15	B15	ENVOLVENTE MIN	0.820	0.000	16.550	1.131	-22.234
N+3.15	B15	ENVOLVENTE MIN	0.984	0.000	17.850	1.131	-27.854
N+3.15	B15	ENVOLVENTE MIN	1.148	0.000	19.030	1.131	-33.781
N+3.15	B15	ENVOLVENTE MIN	1.312	0.000	20.070	1.131	-39.976
N+3.15	B15	ENVOLVENTE MIN	1.476	0.000	20.980	1.131	-46.404
N+3.15	B15	ENVOLVENTE MIN	1.510	0.000	21.160	1.131	-47.762
N+3.15	B15	ENVOLVENTE MIN	1.510	0.000	21.150	1.131	-47.762
N+3.15	B15	ENVOLVENTE MIN	1.640	0.000	21.760	1.131	-53.025
N+6.35	B16	ENVOLVENTE MAX	0.000	0.000	9.460	-2.048	-0.186
N+6.35	B16	ENVOLVENTE MAX	0.164	0.000	11.210	-2.048	-0.993
N+6.35	B16	ENVOLVENTE MAX	0.328	0.000	12.960	-2.048	-1.941
N+6.35	B16	ENVOLVENTE MAX	0.492	0.000	14.710	-2.048	-3.067
N+6.35	B16	ENVOLVENTE MAX	0.656	0.000	16.480	-2.048	-4.373
N+6.35	B16	ENVOLVENTE MAX	0.820	0.000	18.400	-2.048	-5.859
N+6.35	B16	ENVOLVENTE MAX	0.984	0.000	20.320	-2.048	-7.524
N+6.35	B16	ENVOLVENTE MAX	1.148	0.000	22.240	-2.048	-9.369
N+6.35	B16	ENVOLVENTE MAX	1.312	0.000	24.170	-2.048	-11.394
N+6.35	B16	ENVOLVENTE MAX	1.476	0.000	26.090	-2.048	-13.598
N+6.35	B16	ENVOLVENTE MAX	1.640	0.000	28.010	-2.048	-15.981
N+6.35	B16	ENVOLVENTE MIN	0.000	0.000	4.130	-19.102	-0.669
N+6.35	B16	ENVOLVENTE MIN	0.164	0.000	5.230	-19.102	-2.268
N+6.35	B16	ENVOLVENTE MIN	0.328	0.000	6.320	-19.102	-4.203
N+6.35	B16	ENVOLVENTE MIN	0.492	0.000	7.420	-19.102	-6.471
N+6.35	B16	ENVOLVENTE MIN	0.656	0.000	8.510	-19.102	-9.027
N+6.35	B16	ENVOLVENTE MIN	0.820	0.000	9.610	-19.102	-11.869
N+6.35	B16	ENVOLVENTE MIN	0.984	0.000	10.700	-19.102	-14.998
N+6.35	B16	ENVOLVENTE MIN	1.148	0.000	11.800	-19.102	-18.481
N+6.35	B16	ENVOLVENTE MIN	1.312	0.000	12.890	-19.102	-22.287
N+6.35	B16	ENVOLVENTE MIN	1.476	0.000	13.990	-19.102	-26.408
N+6.35	B16	ENVOLVENTE MIN	1.640	0.000	15.080	-19.102	-30.844
N+3.15	B16	ENVOLVENTE MAX	0.000	0.000	23.380	-1.955	1.525
N+3.15	B16	ENVOLVENTE MAX	0.164	0.000	24.450	-1.955	-0.876
N+3.15	B16	ENVOLVENTE MAX	0.328	0.000	25.750	-1.955	-2.800
N+3.15	B16	ENVOLVENTE MAX	0.492	0.000	27.280	-1.955	-4.876
N+3.15	B16	ENVOLVENTE MAX	0.656	0.000	29.030	-1.955	-7.132
N+3.15	B16	ENVOLVENTE MAX	0.820	0.000	31.020	-1.955	-9.590
N+3.15	B16	ENVOLVENTE MAX	0.984	0.000	33.000	-1.955	-12.266
N+3.15	B16	ENVOLVENTE MAX	1.148	0.000	34.750	-1.955	-15.145
N+3.15	B16	ENVOLVENTE MAX	1.312	0.000	36.280	-1.955	-18.205
N+3.15	B16	ENVOLVENTE MAX	1.476	0.000	37.580	-1.955	-21.426
N+3.15	B16	ENVOLVENTE MAX	1.510	0.000	37.820	-1.955	-22.112
N+3.15	B16	ENVOLVENTE MAX	1.510	0.000	37.820	-1.955	-22.112
N+3.15	B16	ENVOLVENTE MAX	1.640	0.000	38.650	-1.955	-24.786
N+3.15	B16	ENVOLVENTE MIN	0.000	0.000	10.430	-25.412	0.593
N+3.15	B16	ENVOLVENTE MIN	0.164	0.000	11.210	-25.412	-2.698
N+3.15	B16	ENVOLVENTE MIN	0.328	0.000	12.120	-25.412	-6.798
N+3.15	B16	ENVOLVENTE MIN	0.492	0.000	13.170	-25.412	-11.139
N+3.15	B16	ENVOLVENTE MIN	0.656	0.000	14.340	-25.412	-15.751
N+3.15	B16	ENVOLVENTE MIN	0.820	0.000	15.650	-25.412	-20.671
N+3.15	B16	ENVOLVENTE MIN	0.984	0.000	16.950	-25.412	-25.922
N+3.15	B16	ENVOLVENTE MIN	1.148	0.000	18.130	-25.412	-31.480
N+3.15	B16	ENVOLVENTE MIN	1.312	0.000	19.170	-25.412	-37.307
N+3.15	B16	ENVOLVENTE MIN	1.476	0.000	20.080	-25.412	-43.366
N+3.15	B16	ENVOLVENTE MIN	1.510	0.000	20.260	-25.412	-44.648
N+3.15	B16	ENVOLVENTE MIN	1.510	0.000	20.260	-25.412	-44.648
N+3.15	B16	ENVOLVENTE MIN	1.640	0.000	20.870	-25.412	-49.619
N+3.15	B17	ENVOLVENTE MAX	0.000	0.000	8.730	0.579	-1.694
N+3.15	B17	ENVOLVENTE MAX	0.164	0.000	9.390	0.579	-2.014
N+3.15	B17	ENVOLVENTE MAX	0.328	0.000	10.500	0.579	-2.411
N+3.15	B17	ENVOLVENTE MAX	0.492	0.000	12.060	0.579	-2.943
N+3.15	B17	ENVOLVENTE MAX	0.656	0.000	14.080	0.579	-3.649
N+3.15	B17	ENVOLVENTE MAX	0.820	0.000	16.560	0.579	-4.577
N+3.15	B17	ENVOLVENTE MAX	0.984	0.000	19.110	0.579	-5.757
N+3.15	B17	ENVOLVENTE MAX	1.148	0.000	21.360	0.579	-7.161
N+3.15	B17	ENVOLVENTE MAX	1.312	0.000	23.090	0.579	-8.745
N+3.15	B17	ENVOLVENTE MAX	1.476	0.000	24.290	0.579	-10.468
N+3.15	B17	ENVOLVENTE MAX	1.510	0.000	24.480	0.579	-10.838
N+3.15	B17	ENVOLVENTE MAX	1.510	0.000	24.480	0.579	-10.838
N+3.15	B17	ENVOLVENTE MAX	1.640	0.000	24.980	0.579	-12.285
N+3.15	B17	ENVOLVENTE MIN	0.000	0.000	1.560	-0.829	-3.572
N+3.15	B17	ENVOLVENTE MIN	0.164	0.000	2.010	-0.829	-4.963
N+3.15	B17	ENVOLVENTE MIN	0.328	0.000	2.720	-0.829	-6.574
N+3.15	B17	ENVOLVENTE MIN	0.492	0.000	3.690	-0.829	-8.407
N+3.15	B17	ENVOLVENTE MIN	0.656	0.000	4.930	-0.829	-10.541
N+3.15	B17	ENVOLVENTE MIN	0.820	0.000	6.420	-0.829	-13.047
N+3.15	B17	ENVOLVENTE MIN	0.984	0.000	7.920	-0.829	-15.972
N+3.15	B17	ENVOLVENTE MIN	1.148	0.000	9.150	-0.829	-19.265
N+3.15	B17	ENVOLVENTE MIN	1.312	0.000	10.120	-0.829	-22.853

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B17	ENVOLVENTE MIN	1.476	0.000	10.830	-0.829	-26.661
N+3.15	B17	ENVOLVENTE MIN	1.510	0.000	10.950	-0.829	-27.471
N+3.15	B17	ENVOLVENTE MIN	1.510	0.000	10.950	-0.829	-27.471
N+3.15	B17	ENVOLVENTE MIN	1.640	0.000	11.280	-0.829	-30.613
N+6.35	B18	ENVOLVENTE MAX	0.000	0.000	15.650	6.550	0.584
N+6.35	B18	ENVOLVENTE MAX	0.164	0.000	17.610	6.550	-1.518
N+6.35	B18	ENVOLVENTE MAX	0.328	0.000	19.570	6.550	-3.415
N+6.35	B18	ENVOLVENTE MAX	0.492	0.000	21.530	6.550	-5.518
N+6.35	B18	ENVOLVENTE MAX	0.656	0.000	23.490	6.550	-7.828
N+6.35	B18	ENVOLVENTE MAX	0.820	0.000	25.460	6.550	-10.344
N+6.35	B18	ENVOLVENTE MAX	0.984	0.000	27.420	6.550	-13.067
N+6.35	B18	ENVOLVENTE MAX	1.148	0.000	29.920	6.550	-15.997
N+6.35	B18	ENVOLVENTE MAX	1.312	0.000	32.530	6.550	-19.134
N+6.35	B18	ENVOLVENTE MAX	1.476	0.000	35.150	6.550	-22.477
N+6.35	B18	ENVOLVENTE MAX	1.640	0.000	37.760	6.550	-26.027
N+6.35	B18	ENVOLVENTE MIN	0.000	0.000	9.670	-9.261	0.171
N+6.35	B18	ENVOLVENTE MIN	0.164	0.000	10.930	-9.261	-2.409
N+6.35	B18	ENVOLVENTE MIN	0.328	0.000	12.190	-9.261	-5.458
N+6.35	B18	ENVOLVENTE MIN	0.492	0.000	13.450	-9.261	-8.829
N+6.35	B18	ENVOLVENTE MIN	0.656	0.000	14.710	-9.261	-12.521
N+6.35	B18	ENVOLVENTE MIN	0.820	0.000	15.970	-9.261	-16.535
N+6.35	B18	ENVOLVENTE MIN	0.984	0.000	17.240	-9.261	-20.871
N+6.35	B18	ENVOLVENTE MIN	1.148	0.000	18.500	-9.261	-25.528
N+6.35	B18	ENVOLVENTE MIN	1.312	0.000	19.760	-9.261	-30.506
N+6.35	B18	ENVOLVENTE MIN	1.476	0.000	21.020	-9.261	-35.806
N+6.35	B18	ENVOLVENTE MIN	1.640	0.000	22.280	-9.261	-41.428
N+3.15	B18	ENVOLVENTE MAX	0.000	0.000	52.030	14.104	4.296
N+3.15	B18	ENVOLVENTE MAX	0.164	0.000	53.250	14.104	-1.946
N+3.15	B18	ENVOLVENTE MAX	0.328	0.000	54.980	14.104	-6.726
N+3.15	B18	ENVOLVENTE MAX	0.492	0.000	57.240	14.104	-11.709
N+3.15	B18	ENVOLVENTE MAX	0.656	0.000	60.020	14.104	-16.938
N+3.15	B18	ENVOLVENTE MAX	0.820	0.000	63.320	14.104	-22.457
N+3.15	B18	ENVOLVENTE MAX	0.984	0.000	66.620	14.104	-28.293
N+3.15	B18	ENVOLVENTE MAX	1.148	0.000	69.400	14.104	-34.419
N+3.15	B18	ENVOLVENTE MAX	1.312	0.000	71.660	14.104	-40.790
N+3.15	B18	ENVOLVENTE MAX	1.476	0.000	73.390	14.104	-47.365
N+3.15	B18	ENVOLVENTE MAX	1.640	0.000	74.610	14.104	-54.101
N+3.15	B18	ENVOLVENTE MIN	0.000	0.000	27.760	-12.762	2.164
N+3.15	B18	ENVOLVENTE MIN	0.164	0.000	28.610	-12.762	-4.563
N+3.15	B18	ENVOLVENTE MIN	0.328	0.000	29.720	-12.762	-13.197
N+3.15	B18	ENVOLVENTE MIN	0.492	0.000	31.090	-12.762	-22.392
N+3.15	B18	ENVOLVENTE MIN	0.656	0.000	32.720	-12.762	-32.001
N+3.15	B18	ENVOLVENTE MIN	0.820	0.000	34.620	-12.762	-42.107
N+3.15	B18	ENVOLVENTE MIN	0.984	0.000	36.510	-12.762	-52.769
N+3.15	B18	ENVOLVENTE MIN	1.148	0.000	38.140	-12.762	-63.930
N+3.15	B18	ENVOLVENTE MIN	1.312	0.000	39.520	-12.762	-75.504
N+3.15	B18	ENVOLVENTE MIN	1.476	0.000	40.630	-12.762	-87.405
N+3.15	B18	ENVOLVENTE MIN	1.640	0.000	41.470	-12.762	-99.548
N+3.15	B19	ENVOLVENTE MAX	0.000	0.000	7.040	0.742	-2.239
N+3.15	B19	ENVOLVENTE MAX	0.164	0.000	7.690	0.742	-2.363
N+3.15	B19	ENVOLVENTE MAX	0.328	0.000	8.800	0.742	-2.582
N+3.15	B19	ENVOLVENTE MAX	0.492	0.000	10.360	0.742	-2.939
N+3.15	B19	ENVOLVENTE MAX	0.656	0.000	12.380	0.742	-3.478
N+3.15	B19	ENVOLVENTE MAX	0.820	0.000	14.860	0.742	-4.240
N+3.15	B19	ENVOLVENTE MAX	0.984	0.000	17.360	0.742	-5.254
N+3.15	B19	ENVOLVENTE MAX	1.148	0.000	19.600	0.742	-6.492
N+3.15	B19	ENVOLVENTE MAX	1.312	0.000	21.330	0.742	-7.911
N+3.15	B19	ENVOLVENTE MAX	1.476	0.000	22.540	0.742	-9.468
N+3.15	B19	ENVOLVENTE MAX	1.640	0.000	23.220	0.742	-11.120
N+3.15	B19	ENVOLVENTE MIN	0.000	0.000	0.550	-0.760	-4.464
N+3.15	B19	ENVOLVENTE MIN	0.164	0.000	1.000	-0.760	-5.494
N+3.15	B19	ENVOLVENTE MIN	0.328	0.000	1.710	-0.760	-6.839
N+3.15	B19	ENVOLVENTE MIN	0.492	0.000	2.690	-0.760	-8.404
N+3.15	B19	ENVOLVENTE MIN	0.656	0.000	3.920	-0.760	-10.263
N+3.15	B19	ENVOLVENTE MIN	0.820	0.000	5.420	-0.760	-12.491
N+3.15	B19	ENVOLVENTE MIN	0.984	0.000	6.910	-0.760	-15.138
N+3.15	B19	ENVOLVENTE MIN	1.148	0.000	8.140	-0.760	-18.154
N+3.15	B19	ENVOLVENTE MIN	1.312	0.000	9.120	-0.760	-21.464
N+3.15	B19	ENVOLVENTE MIN	1.476	0.000	9.830	-0.760	-24.993
N+3.15	B19	ENVOLVENTE MIN	1.640	0.000	10.280	-0.760	-28.667
N+6.35	B20	ENVOLVENTE MAX	0.000	0.000	16.390	7.456	0.240
N+6.35	B20	ENVOLVENTE MAX	0.164	0.000	18.350	7.456	-1.669
N+6.35	B20	ENVOLVENTE MAX	0.328	0.000	20.310	7.456	-3.633
N+6.35	B20	ENVOLVENTE MAX	0.492	0.000	22.270	7.456	-5.804
N+6.35	B20	ENVOLVENTE MAX	0.656	0.000	24.590	7.456	-8.181
N+6.35	B20	ENVOLVENTE MAX	0.820	0.000	27.210	7.456	-10.766
N+6.35	B20	ENVOLVENTE MAX	0.984	0.000	29.820	7.456	-13.557
N+6.35	B20	ENVOLVENTE MAX	1.148	0.000	32.440	7.456	-16.555
N+6.35	B20	ENVOLVENTE MAX	1.312	0.000	35.060	7.456	-19.760
N+6.35	B20	ENVOLVENTE MAX	1.476	0.000	37.670	7.456	-23.172
N+6.35	B20	ENVOLVENTE MAX	1.640	0.000	40.290	7.456	-26.790
N+6.35	B20	ENVOLVENTE MIN	0.000	0.000	10.080	-7.072	0.088
N+6.35	B20	ENVOLVENTE MIN	0.164	0.000	11.350	-7.072	-2.651
N+6.35	B20	ENVOLVENTE MIN	0.328	0.000	12.610	-7.072	-5.821
N+6.35	B20	ENVOLVENTE MIN	0.492	0.000	13.870	-7.072	-9.312
N+6.35	B20	ENVOLVENTE MIN	0.656	0.000	15.130	-7.072	-13.125
N+6.35	B20	ENVOLVENTE MIN	0.820	0.000	16.390	-7.072	-17.260
N+6.35	B20	ENVOLVENTE MIN	0.984	0.000	17.650	-7.072	-21.717
N+6.35	B20	ENVOLVENTE MIN	1.148	0.000	18.910	-7.072	-26.507
N+6.35	B20	ENVOLVENTE MIN	1.312	0.000	20.170	-7.072	-32.042
N+6.35	B20	ENVOLVENTE MIN	1.476	0.000	21.430	-7.072	-38.005
N+6.35	B20	ENVOLVENTE MIN	1.640	0.000	22.690	-7.072	-44.398

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B20	ENVOLVENTE MAX	0.000	0.000	54.610	12.288	4.191
N+3.15	B20	ENVOLVENTE MAX	0.164	0.000	55.820	12.288	-2.247
N+3.15	B20	ENVOLVENTE MAX	0.328	0.000	57.560	12.288	-7.273
N+3.15	B20	ENVOLVENTE MAX	0.492	0.000	59.820	12.288	-12.501
N+3.15	B20	ENVOLVENTE MAX	0.656	0.000	62.600	12.288	-17.976
N+3.15	B20	ENVOLVENTE MAX	0.820	0.000	65.900	12.288	-23.740
N+3.15	B20	ENVOLVENTE MAX	0.984	0.000	69.200	12.288	-29.821
N+3.15	B20	ENVOLVENTE MAX	1.148	0.000	71.980	12.288	-36.192
N+3.15	B20	ENVOLVENTE MAX	1.312	0.000	74.230	12.288	-42.808
N+3.15	B20	ENVOLVENTE MAX	1.476	0.000	75.970	12.288	-49.628
N+3.15	B20	ENVOLVENTE MAX	1.640	0.000	77.190	12.288	-56.609
N+3.15	B20	ENVOLVENTE MIN	0.000	0.000	29.260	-15.695	2.118
N+3.15	B20	ENVOLVENTE MIN	0.164	0.000	30.110	-15.695	-5.065
N+3.15	B20	ENVOLVENTE MIN	0.328	0.000	31.210	-15.695	-14.148
N+3.15	B20	ENVOLVENTE MIN	0.492	0.000	32.590	-15.695	-23.766
N+3.15	B20	ENVOLVENTE MIN	0.656	0.000	34.220	-15.695	-33.797
N+3.15	B20	ENVOLVENTE MIN	0.820	0.000	36.110	-15.695	-44.326
N+3.15	B20	ENVOLVENTE MIN	0.984	0.000	38.010	-15.695	-55.411
N+3.15	B20	ENVOLVENTE MIN	1.148	0.000	39.640	-15.695	-66.994
N+3.15	B20	ENVOLVENTE MIN	1.312	0.000	41.010	-15.695	-78.990
N+3.15	B20	ENVOLVENTE MIN	1.476	0.000	42.120	-15.695	-91.314
N+3.15	B20	ENVOLVENTE MIN	1.640	0.000	42.970	-15.695	-103.881
N+3.15	B21	ENVOLVENTE MAX	0.000	0.000	8.580	0.524	-1.848
N+3.15	B21	ENVOLVENTE MAX	0.164	0.000	9.240	0.524	-2.164
N+3.15	B21	ENVOLVENTE MAX	0.328	0.000	10.350	0.524	-2.569
N+3.15	B21	ENVOLVENTE MAX	0.492	0.000	11.910	0.524	-3.110
N+3.15	B21	ENVOLVENTE MAX	0.656	0.000	13.930	0.524	-3.831
N+3.15	B21	ENVOLVENTE MAX	0.820	0.000	16.410	0.524	-4.775
N+3.15	B21	ENVOLVENTE MAX	0.984	0.000	19.100	0.524	-5.972
N+3.15	B21	ENVOLVENTE MAX	1.148	0.000	21.350	0.524	-7.393
N+3.15	B21	ENVOLVENTE MAX	1.312	0.000	23.070	0.524	-8.994
N+3.15	B21	ENVOLVENTE MAX	1.476	0.000	24.280	0.524	-10.733
N+3.15	B21	ENVOLVENTE MAX	1.640	0.000	24.970	0.524	-12.567
N+3.15	B21	ENVOLVENTE MIN	0.000	0.000	1.660	-1.142	-3.854
N+3.15	B21	ENVOLVENTE MIN	0.164	0.000	2.110	-1.142	-5.245
N+3.15	B21	ENVOLVENTE MIN	0.328	0.000	2.820	-1.142	-6.842
N+3.15	B21	ENVOLVENTE MIN	0.492	0.000	3.800	-1.142	-8.659
N+3.15	B21	ENVOLVENTE MIN	0.656	0.000	5.030	-1.142	-10.771
N+3.15	B21	ENVOLVENTE MIN	0.820	0.000	6.530	-1.142	-13.253
N+3.15	B21	ENVOLVENTE MIN	0.984	0.000	8.020	-1.142	-16.153
N+3.15	B21	ENVOLVENTE MIN	1.148	0.000	9.250	-1.142	-19.423
N+3.15	B21	ENVOLVENTE MIN	1.312	0.000	10.230	-1.142	-22.987
N+3.15	B21	ENVOLVENTE MIN	1.476	0.000	10.940	-1.142	-26.770
N+3.15	B21	ENVOLVENTE MIN	1.640	0.000	11.390	-1.142	-30.697
N+6.35	B22	ENVOLVENTE MAX	0.000	0.000	8.160	13.017	-0.068
N+6.35	B22	ENVOLVENTE MAX	0.164	0.000	9.910	13.017	-0.816
N+6.35	B22	ENVOLVENTE MAX	0.328	0.000	11.660	13.017	-1.700
N+6.35	B22	ENVOLVENTE MAX	0.492	0.000	13.410	13.017	-2.762
N+6.35	B22	ENVOLVENTE MAX	0.656	0.000	15.160	13.017	-4.003
N+6.35	B22	ENVOLVENTE MAX	0.820	0.000	16.910	13.017	-5.423
N+6.35	B22	ENVOLVENTE MAX	0.984	0.000	18.660	13.017	-7.023
N+6.35	B22	ENVOLVENTE MAX	1.148	0.000	20.410	13.017	-8.803
N+6.35	B22	ENVOLVENTE MAX	1.312	0.000	22.270	13.017	-10.763
N+6.35	B22	ENVOLVENTE MAX	1.476	0.000	24.200	13.017	-12.902
N+6.35	B22	ENVOLVENTE MAX	1.640	0.000	26.120	13.017	-15.221
N+6.35	B22	ENVOLVENTE MIN	0.000	0.000	3.730	0.022	-0.179
N+6.35	B22	ENVOLVENTE MIN	0.164	0.000	4.830	0.022	-1.614
N+6.35	B22	ENVOLVENTE MIN	0.328	0.000	5.920	0.022	-3.380
N+6.35	B22	ENVOLVENTE MIN	0.492	0.000	7.020	0.022	-5.435
N+6.35	B22	ENVOLVENTE MIN	0.656	0.000	8.110	0.022	-7.777
N+6.35	B22	ENVOLVENTE MIN	0.820	0.000	9.210	0.022	-10.407
N+6.35	B22	ENVOLVENTE MIN	0.984	0.000	10.310	0.022	-13.323
N+6.35	B22	ENVOLVENTE MIN	1.148	0.000	11.400	0.022	-16.527
N+6.35	B22	ENVOLVENTE MIN	1.312	0.000	12.500	0.022	-20.018
N+6.35	B22	ENVOLVENTE MIN	1.476	0.000	13.590	0.022	-23.796
N+6.35	B22	ENVOLVENTE MIN	1.640	0.000	14.690	0.022	-27.861
N+3.15	B22	ENVOLVENTE MAX	0.000	0.000	22.030	19.627	1.920
N+3.15	B22	ENVOLVENTE MAX	0.164	0.000	23.950	19.627	-0.510
N+3.15	B22	ENVOLVENTE MAX	0.328	0.000	26.090	19.627	-2.378
N+3.15	B22	ENVOLVENTE MAX	0.492	0.000	28.460	19.627	-4.506
N+3.15	B22	ENVOLVENTE MAX	0.656	0.000	31.060	19.627	-6.918
N+3.15	B22	ENVOLVENTE MAX	0.820	0.000	33.890	19.627	-9.637
N+3.15	B22	ENVOLVENTE MAX	0.984	0.000	36.720	19.627	-12.677
N+3.15	B22	ENVOLVENTE MAX	1.148	0.000	39.320	19.627	-16.024
N+3.15	B22	ENVOLVENTE MAX	1.312	0.000	41.690	19.627	-19.656
N+3.15	B22	ENVOLVENTE MAX	1.476	0.000	43.830	19.627	-23.553
N+3.15	B22	ENVOLVENTE MAX	1.640	0.000	45.740	19.627	-27.693
N+3.15	B22	ENVOLVENTE MIN	0.000	0.000	9.170	-4.945	0.861
N+3.15	B22	ENVOLVENTE MIN	0.164	0.000	10.580	-4.945	-2.095
N+3.15	B22	ENVOLVENTE MIN	0.328	0.000	12.130	-4.945	-6.187
N+3.15	B22	ENVOLVENTE MIN	0.492	0.000	13.810	-4.945	-10.655
N+3.15	B22	ENVOLVENTE MIN	0.656	0.000	15.610	-4.945	-15.531
N+3.15	B22	ENVOLVENTE MIN	0.820	0.000	17.550	-4.945	-20.853
N+3.15	B22	ENVOLVENTE MIN	0.984	0.000	19.490	-4.945	-26.646
N+3.15	B22	ENVOLVENTE MIN	1.148	0.000	21.300	-4.945	-32.883
N+3.15	B22	ENVOLVENTE MIN	1.312	0.000	22.980	-4.945	-39.528
N+3.15	B22	ENVOLVENTE MIN	1.476	0.000	24.520	-4.945	-46.543
N+3.15	B22	ENVOLVENTE MIN	1.640	0.000	25.940	-4.945	-53.891
N+6.35	B23	ENVOLVENTE MAX	0.000	0.000	-5.590	-1.165	12.900
N+6.35	B23	ENVOLVENTE MAX	0.690	0.000	-2.570	-1.165	15.717
N+6.35	B23	ENVOLVENTE MAX	1.380	0.000	0.440	-1.165	16.451
N+6.35	B23	ENVOLVENTE MAX	2.070	0.000	4.110	-1.165	15.103

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B23	ENVOLVENTE MAX	2.760	0.000	8.130	-1.165	11.673
N+6.35	B23	ENVOLVENTE MAX	3.450	0.000	12.160	-1.165	8.762
N+6.35	B23	ENVOLVENTE MAX	4.140	0.000	16.180	-1.165	9.003
N+6.35	B23	ENVOLVENTE MAX	4.830	0.000	20.200	-1.165	10.815
N+6.35	B23	ENVOLVENTE MAX	5.520	0.000	24.230	-1.165	10.544
N+6.35	B23	ENVOLVENTE MAX	6.210	0.000	28.250	-1.165	8.192
N+6.35	B23	ENVOLVENTE MAX	6.900	0.000	32.280	-1.165	3.757
N+6.35	B23	ENVOLVENTE MIN	0.000	0.000	-24.620	-8.233	-48.976
N+6.35	B23	ENVOLVENTE MIN	0.690	0.000	-20.590	-8.233	-33.379
N+6.35	B23	ENVOLVENTE MIN	1.380	0.000	-16.570	-8.233	-20.559
N+6.35	B23	ENVOLVENTE MIN	2.070	0.000	-13.190	-8.233	-10.515
N+6.35	B23	ENVOLVENTE MIN	2.760	0.000	-10.170	-8.233	-3.248
N+6.35	B23	ENVOLVENTE MIN	3.450	0.000	-7.150	-8.233	-1.675
N+6.35	B23	ENVOLVENTE MIN	4.140	0.000	-4.140	-8.233	-7.482
N+6.35	B23	ENVOLVENTE MIN	4.830	0.000	-1.120	-8.233	-20.034
N+6.35	B23	ENVOLVENTE MIN	5.520	0.000	1.900	-8.233	-35.363
N+6.35	B23	ENVOLVENTE MIN	6.210	0.000	4.920	-8.233	-53.469
N+6.35	B23	ENVOLVENTE MIN	6.900	0.000	7.940	-8.233	-74.352
N+3.15	B23	ENVOLVENTE MAX	0.000	0.000	-62.000	-9.642	-34.436
N+3.15	B23	ENVOLVENTE MAX	0.690	0.000	-54.010	-9.642	5.884
N+3.15	B23	ENVOLVENTE MAX	1.380	0.000	-42.140	-9.642	42.793
N+3.15	B23	ENVOLVENTE MAX	2.070	0.000	-28.510	-9.642	88.303
N+3.15	B23	ENVOLVENTE MAX	2.760	0.000	-16.640	-9.642	120.665
N+3.15	B23	ENVOLVENTE MAX	3.450	0.000	-8.650	-9.642	153.698
N+3.15	B23	ENVOLVENTE MAX	3.450	0.000	68.930	22.671	153.650
N+3.15	B23	ENVOLVENTE MAX	4.140	0.000	80.540	22.671	109.188
N+3.15	B23	ENVOLVENTE MAX	4.830	0.000	98.750	22.671	66.354
N+3.15	B23	ENVOLVENTE MAX	5.520	0.000	120.020	22.671	17.360
N+3.15	B23	ENVOLVENTE MAX	6.210	0.000	138.230	22.671	-21.691
N+3.15	B23	ENVOLVENTE MAX	6.900	0.000	149.850	22.671	-67.671
N+3.15	B23	ENVOLVENTE MIN	0.000	0.000	-137.180	-32.549	-194.982
N+3.15	B23	ENVOLVENTE MIN	0.690	0.000	-125.560	-32.549	-103.904
N+3.15	B23	ENVOLVENTE MIN	1.380	0.000	-107.200	-32.549	-26.938
N+3.15	B23	ENVOLVENTE MIN	2.070	0.000	-85.750	-32.549	18.495
N+3.15	B23	ENVOLVENTE MIN	2.760	0.000	-67.390	-32.549	54.141
N+3.15	B23	ENVOLVENTE MIN	3.450	0.000	-55.770	-32.549	80.615
N+3.15	B23	ENVOLVENTE MIN	3.450	0.000	16.770	6.858	79.951
N+3.15	B23	ENVOLVENTE MIN	4.140	0.000	24.760	6.858	53.144
N+3.15	B23	ENVOLVENTE MIN	4.830	0.000	36.540	6.858	11.033
N+3.15	B23	ENVOLVENTE MIN	5.520	0.000	50.070	6.858	-45.332
N+3.15	B23	ENVOLVENTE MIN	6.210	0.000	61.850	6.858	-134.378
N+3.15	B23	ENVOLVENTE MIN	6.900	0.000	69.840	6.858	-233.950
N+6.35	B24	ENVOLVENTE MAX	0.000	0.000	-27.230	0.261	-28.656
N+6.35	B24	ENVOLVENTE MAX	0.750	0.000	-24.530	0.261	-9.135
N+6.35	B24	ENVOLVENTE MAX	1.500	0.000	-20.040	0.261	7.688
N+6.35	B24	ENVOLVENTE MAX	2.250	0.000	-13.780	0.261	50.433
N+6.35	B24	ENVOLVENTE MAX	3.000	0.000	-5.750	0.261	85.508
N+6.35	B24	ENVOLVENTE MAX	3.750	0.000	4.180	0.261	98.166
N+6.35	B24	ENVOLVENTE MAX	4.500	0.000	33.680	0.261	84.973
N+6.35	B24	ENVOLVENTE MAX	5.250	0.000	60.140	0.261	49.361
N+6.35	B24	ENVOLVENTE MAX	6.000	0.000	79.730	0.261	6.981
N+6.35	B24	ENVOLVENTE MAX	6.750	0.000	92.460	0.261	-10.134
N+6.35	B24	ENVOLVENTE MAX	7.500	0.000	98.320	0.261	-29.946
N+6.35	B24	ENVOLVENTE MIN	0.000	0.000	-97.610	-0.169	-137.813
N+6.35	B24	ENVOLVENTE MIN	0.750	0.000	-91.750	-0.169	-66.377
N+6.35	B24	ENVOLVENTE MIN	1.500	0.000	-79.020	-0.169	-10.244
N+6.35	B24	ENVOLVENTE MIN	2.250	0.000	-59.420	-0.169	9.079
N+6.35	B24	ENVOLVENTE MIN	3.000	0.000	-32.970	-0.169	22.303
N+6.35	B24	ENVOLVENTE MIN	3.750	0.000	-3.660	-0.169	28.669
N+6.35	B24	ENVOLVENTE MIN	4.500	0.000	6.140	-0.169	21.845
N+6.35	B24	ENVOLVENTE MIN	5.250	0.000	14.170	-0.169	8.330
N+6.35	B24	ENVOLVENTE MIN	6.000	0.000	20.430	-0.169	-11.852
N+6.35	B24	ENVOLVENTE MIN	6.750	0.000	24.910	-0.169	-68.520
N+6.35	B24	ENVOLVENTE MIN	7.500	0.000	27.620	-0.169	-140.492
N+3.15	B24	ENVOLVENTE MAX	0.000	0.000	-58.230	-13.897	-62.315
N+3.15	B24	ENVOLVENTE MAX	0.750	0.000	-50.680	-13.897	-21.296
N+3.15	B24	ENVOLVENTE MAX	1.500	0.000	-40.410	-13.897	13.045
N+3.15	B24	ENVOLVENTE MAX	2.250	0.000	-28.080	-13.897	49.539
N+3.15	B24	ENVOLVENTE MAX	3.000	0.000	-17.800	-13.897	81.803
N+3.15	B24	ENVOLVENTE MAX	3.750	0.000	-10.260	-13.897	113.972
N+3.15	B24	ENVOLVENTE MAX	3.750	0.000	47.820	39.690	113.933
N+3.15	B24	ENVOLVENTE MAX	4.500	0.000	58.440	39.690	82.346
N+3.15	B24	ENVOLVENTE MAX	5.250	0.000	73.830	39.690	50.178
N+3.15	B24	ENVOLVENTE MAX	6.000	0.000	92.800	39.690	13.655
N+3.15	B24	ENVOLVENTE MAX	6.750	0.000	108.190	39.690	-20.693
N+3.15	B24	ENVOLVENTE MAX	7.500	0.000	118.810	39.690	-61.718
N+3.15	B24	ENVOLVENTE MIN	0.000	0.000	-119.040	-41.419	-208.064
N+3.15	B24	ENVOLVENTE MIN	0.750	0.000	-108.420	-41.419	-122.477
N+3.15	B24	ENVOLVENTE MIN	1.500	0.000	-93.030	-41.419	-46.648
N+3.15	B24	ENVOLVENTE MIN	2.250	0.000	-74.060	-41.419	5.199
N+3.15	B24	ENVOLVENTE MIN	3.000	0.000	-58.670	-41.419	39.445
N+3.15	B24	ENVOLVENTE MIN	3.750	0.000	-48.050	-41.419	64.854
N+3.15	B24	ENVOLVENTE MIN	3.750	0.000	10.270	15.540	64.690
N+3.15	B24	ENVOLVENTE MIN	4.500	0.000	17.810	15.540	39.015
N+3.15	B24	ENVOLVENTE MIN	5.250	0.000	28.090	15.540	4.838
N+3.15	B24	ENVOLVENTE MIN	6.000	0.000	40.420	15.540	-46.814
N+3.15	B24	ENVOLVENTE MIN	6.750	0.000	50.690	15.540	-122.471
N+3.15	B24	ENVOLVENTE MIN	7.500	0.000	58.240	15.540	-207.886
N+6.35	B25	ENVOLVENTE MAX	0.000	0.000	-9.440	9.180	1.405
N+6.35	B25	ENVOLVENTE MAX	0.705	0.000	-6.360	9.180	6.976
N+6.35	B25	ENVOLVENTE MAX	1.410	0.000	-3.280	9.180	10.373
N+6.35	B25	ENVOLVENTE MAX	2.115	0.000	-0.190	9.180	11.596

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B25	ENVOLVENTE MAX	2.820	0.000	2.890	9.180	10.644
N+6.35	B25	ENVOLVENTE MAX	3.525	0.000	5.970	9.180	10.361
N+6.35	B25	ENVOLVENTE MAX	4.230	0.000	9.060	9.180	10.615
N+6.35	B25	ENVOLVENTE MAX	4.935	0.000	12.140	9.180	13.691
N+6.35	B25	ENVOLVENTE MAX	5.640	0.000	15.230	9.180	14.566
N+6.35	B25	ENVOLVENTE MAX	6.345	0.000	19.270	9.180	12.542
N+6.35	B25	ENVOLVENTE MAX	7.050	0.000	23.380	9.180	8.127
N+6.35	B25	ENVOLVENTE MIN	0.000	0.000	-32.080	2.042	-73.594
N+6.35	B25	ENVOLVENTE MIN	0.705	0.000	-27.970	2.042	-52.429
N+6.35	B25	ENVOLVENTE MIN	1.410	0.000	-23.850	2.042	-34.162
N+6.35	B25	ENVOLVENTE MIN	2.115	0.000	-19.740	2.042	-18.794
N+6.35	B25	ENVOLVENTE MIN	2.820	0.000	-15.630	2.042	-6.325
N+6.35	B25	ENVOLVENTE MIN	3.525	0.000	-11.520	2.042	1.238
N+6.35	B25	ENVOLVENTE MIN	4.230	0.000	-7.410	2.042	1.523
N+6.35	B25	ENVOLVENTE MIN	4.935	0.000	-3.300	2.042	-5.253
N+6.35	B25	ENVOLVENTE MIN	5.640	0.000	0.820	2.042	-14.901
N+6.35	B25	ENVOLVENTE MIN	6.345	0.000	3.970	2.042	-26.722
N+6.35	B25	ENVOLVENTE MIN	7.050	0.000	7.050	2.042	-41.224
N+3.15	B25	ENVOLVENTE MAX	0.000	0.000	-68.320	-8.062	-63.566
N+3.15	B25	ENVOLVENTE MAX	0.705	0.000	-60.100	-8.062	-17.991
N+3.15	B25	ENVOLVENTE MAX	1.410	0.000	-47.890	-8.062	20.270
N+3.15	B25	ENVOLVENTE MAX	2.115	0.000	-33.850	-8.062	69.059
N+3.15	B25	ENVOLVENTE MAX	2.820	0.000	-21.660	-8.062	106.990
N+3.15	B25	ENVOLVENTE MAX	3.520	0.000	-13.520	-8.062	145.206
N+3.15	B25	ENVOLVENTE MAX	3.520	0.000	62.450	27.383	145.447
N+3.15	B25	ENVOLVENTE MAX	4.230	0.000	74.520	27.383	102.421
N+3.15	B25	ENVOLVENTE MAX	4.935	0.000	93.470	27.383	61.377
N+3.15	B25	ENVOLVENTE MAX	5.640	0.000	115.610	27.383	14.573
N+3.15	B25	ENVOLVENTE MAX	6.345	0.000	134.520	27.383	-25.494
N+3.15	B25	ENVOLVENTE MAX	7.050	0.000	146.470	27.383	-72.878
N+3.15	B25	ENVOLVENTE MIN	0.000	0.000	-141.090	-26.652	-217.342
N+3.15	B25	ENVOLVENTE MIN	0.705	0.000	-129.140	-26.652	-121.617
N+3.15	B25	ENVOLVENTE MIN	1.410	0.000	-110.230	-26.652	-37.018
N+3.15	B25	ENVOLVENTE MIN	2.115	0.000	-88.120	-26.652	12.919
N+3.15	B25	ENVOLVENTE MIN	2.820	0.000	-69.240	-26.652	50.188
N+3.15	B25	ENVOLVENTE MIN	3.520	0.000	-57.400	-26.652	77.344
N+3.15	B25	ENVOLVENTE MIN	3.520	0.000	15.610	10.368	77.092
N+3.15	B25	ENVOLVENTE MIN	4.230	0.000	23.910	10.368	49.184
N+3.15	B25	ENVOLVENTE MIN	4.935	0.000	36.130	10.368	9.616
N+3.15	B25	ENVOLVENTE MIN	5.640	0.000	50.190	10.368	-47.713
N+3.15	B25	ENVOLVENTE MIN	6.345	0.000	62.400	10.368	-135.920
N+3.15	B25	ENVOLVENTE MIN	7.050	0.000	70.620	10.368	-235.253
N+6.35	B26	ENVOLVENTE MAX	0.000	0.000	-9.270	1.268	4.963
N+6.35	B26	ENVOLVENTE MAX	0.718	0.000	-6.130	1.268	10.493
N+6.35	B26	ENVOLVENTE MAX	1.436	0.000	-2.990	1.268	15.324
N+6.35	B26	ENVOLVENTE MAX	2.154	0.000	0.150	1.268	17.960
N+6.35	B26	ENVOLVENTE MAX	2.872	0.000	3.290	1.268	17.590
N+6.35	B26	ENVOLVENTE MAX	3.590	0.000	6.800	1.268	15.648
N+6.35	B26	ENVOLVENTE MAX	4.308	0.000	10.980	1.268	16.814
N+6.35	B26	ENVOLVENTE MAX	5.026	0.000	15.170	1.268	16.419
N+6.35	B26	ENVOLVENTE MAX	5.744	0.000	19.360	1.268	13.043
N+6.35	B26	ENVOLVENTE MAX	6.462	0.000	23.550	1.268	9.530
N+6.35	B26	ENVOLVENTE MAX	7.180	0.000	27.730	1.268	3.762
N+6.35	B26	ENVOLVENTE MIN	0.000	0.000	-26.670	-0.451	-43.957
N+6.35	B26	ENVOLVENTE MIN	0.718	0.000	-22.480	-0.451	-26.312
N+6.35	B26	ENVOLVENTE MIN	1.436	0.000	-18.290	-0.451	-13.229
N+6.35	B26	ENVOLVENTE MIN	2.154	0.000	-14.110	-0.451	-3.213
N+6.35	B26	ENVOLVENTE MIN	2.872	0.000	-9.920	-0.451	4.548
N+6.35	B26	ENVOLVENTE MIN	3.590	0.000	-6.100	-0.451	10.035
N+6.35	B26	ENVOLVENTE MIN	4.308	0.000	-2.960	-0.451	4.321
N+6.35	B26	ENVOLVENTE MIN	5.026	0.000	0.180	-0.451	-3.678
N+6.35	B26	ENVOLVENTE MIN	5.744	0.000	3.320	-0.451	-13.958
N+6.35	B26	ENVOLVENTE MIN	6.462	0.000	6.460	-0.451	-29.361
N+6.35	B26	ENVOLVENTE MIN	7.180	0.000	9.600	-0.451	-47.771
N+3.15	B26	ENVOLVENTE MAX	0.000	0.000	-70.410	-10.478	-72.197
N+3.15	B26	ENVOLVENTE MAX	0.718	0.000	-61.990	-10.478	-24.343
N+3.15	B26	ENVOLVENTE MAX	1.436	0.000	-49.480	-10.478	15.872
N+3.15	B26	ENVOLVENTE MAX	2.154	0.000	-35.070	-10.478	63.042
N+3.15	B26	ENVOLVENTE MAX	2.872	0.000	-22.560	-10.478	103.098
N+3.15	B26	ENVOLVENTE MAX	3.590	0.000	-14.140	-10.478	143.776
N+3.15	B26	ENVOLVENTE MAX	3.590	0.000	59.460	28.492	143.837
N+3.15	B26	ENVOLVENTE MAX	4.308	0.000	71.720	28.492	101.923
N+3.15	B26	ENVOLVENTE MAX	5.026	0.000	91.100	28.492	60.725
N+3.15	B26	ENVOLVENTE MAX	5.744	0.000	113.820	28.492	12.813
N+3.15	B26	ENVOLVENTE MAX	6.462	0.000	133.210	28.492	-28.858
N+3.15	B26	ENVOLVENTE MAX	7.180	0.000	145.460	28.492	-78.166
N+3.15	B26	ENVOLVENTE MIN	0.000	0.000	-144.480	-28.675	-232.422
N+3.15	B26	ENVOLVENTE MIN	0.718	0.000	-132.230	-28.675	-132.583
N+3.15	B26	ENVOLVENTE MIN	1.436	0.000	-112.840	-28.675	-44.369
N+3.15	B26	ENVOLVENTE MIN	2.154	0.000	-90.130	-28.675	11.678
N+3.15	B26	ENVOLVENTE MIN	2.872	0.000	-70.740	-28.675	50.081
N+3.15	B26	ENVOLVENTE MIN	3.590	0.000	-58.480	-28.675	77.217
N+3.15	B26	ENVOLVENTE MIN	3.590	0.000	15.940	10.759	77.063
N+3.15	B26	ENVOLVENTE MIN	4.308	0.000	24.360	10.759	49.231
N+3.15	B26	ENVOLVENTE MIN	5.026	0.000	36.870	10.759	10.108
N+3.15	B26	ENVOLVENTE MIN	5.744	0.000	51.280	10.759	-47.193
N+3.15	B26	ENVOLVENTE MIN	6.462	0.000	63.790	10.759	-135.948
N+3.15	B26	ENVOLVENTE MIN	7.180	0.000	72.210	10.759	-236.326
N+6.35	B27	ENVOLVENTE MAX	0.000	0.000	-7.480	-0.231	8.023
N+6.35	B27	ENVOLVENTE MAX	0.707	0.000	-4.390	-0.231	12.221
N+6.35	B27	ENVOLVENTE MAX	1.414	0.000	-1.300	-0.231	14.298
N+6.35	B27	ENVOLVENTE MAX	2.121	0.000	1.790	-0.231	15.504

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B27	ENVOLVENTE MAX	2.828	0.000	4.890	-0.231	13.796
N+6.35	B27	ENVOLVENTE MAX	3.535	0.000	8.600	-0.231	13.215
N+6.35	B27	ENVOLVENTE MAX	4.242	0.000	12.730	-0.231	14.913
N+6.35	B27	ENVOLVENTE MAX	4.949	0.000	16.850	-0.231	15.364
N+6.35	B27	ENVOLVENTE MAX	5.656	0.000	20.970	-0.231	14.845
N+6.35	B27	ENVOLVENTE MAX	6.363	0.000	25.100	-0.231	12.140
N+6.35	B27	ENVOLVENTE MAX	7.070	0.000	29.220	-0.231	7.248
N+6.35	B27	ENVOLVENTE MIN	0.000	0.000	-26.990	-1.425	-47.103
N+6.35	B27	ENVOLVENTE MIN	0.707	0.000	-22.870	-1.425	-29.479
N+6.35	B27	ENVOLVENTE MIN	1.414	0.000	-18.740	-1.425	-14.837
N+6.35	B27	ENVOLVENTE MIN	2.121	0.000	-14.620	-1.425	-4.425
N+6.35	B27	ENVOLVENTE MIN	2.828	0.000	-10.500	-1.425	3.800
N+6.35	B27	ENVOLVENTE MIN	3.535	0.000	-7.000	-1.425	7.142
N+6.35	B27	ENVOLVENTE MIN	4.242	0.000	-3.900	-1.425	0.413
N+6.35	B27	ENVOLVENTE MIN	4.949	0.000	-0.810	-1.425	-8.826
N+6.35	B27	ENVOLVENTE MIN	5.656	0.000	2.280	-1.425	-22.196
N+6.35	B27	ENVOLVENTE MIN	6.363	0.000	5.370	-1.425	-38.481
N+6.35	B27	ENVOLVENTE MIN	7.070	0.000	8.470	-1.425	-57.681
N+3.15	B27	ENVOLVENTE MAX	0.000	0.000	-72.530	-8.925	-75.671
N+3.15	B27	ENVOLVENTE MAX	0.707	0.000	-64.280	-8.925	-27.008
N+3.15	B27	ENVOLVENTE MAX	1.414	0.000	-52.020	-8.925	14.285
N+3.15	B27	ENVOLVENTE MAX	2.121	0.000	-37.910	-8.925	63.101
N+3.15	B27	ENVOLVENTE MAX	2.828	0.000	-25.640	-8.925	108.996
N+3.15	B27	ENVOLVENTE MAX	3.540	0.000	-17.310	-8.925	156.131
N+3.15	B27	ENVOLVENTE MAX	3.540	0.000	53.360	32.067	155.456
N+3.15	B27	ENVOLVENTE MAX	4.242	0.000	65.250	32.067	122.491
N+3.15	B27	ENVOLVENTE MAX	4.949	0.000	84.190	32.067	89.272
N+3.15	B27	ENVOLVENTE MAX	5.656	0.000	106.400	32.067	41.342
N+3.15	B27	ENVOLVENTE MAX	6.363	0.000	125.380	32.067	2.049
N+3.15	B27	ENVOLVENTE MAX	7.070	0.000	137.380	32.067	-41.194
N+3.15	B27	ENVOLVENTE MIN	0.000	0.000	-154.090	-24.810	-249.967
N+3.15	B27	ENVOLVENTE MIN	0.707	0.000	-142.090	-24.810	-144.787
N+3.15	B27	ENVOLVENTE MIN	1.414	0.000	-123.100	-24.810	-50.805
N+3.15	B27	ENVOLVENTE MIN	2.121	0.000	-100.870	-24.810	11.351
N+3.15	B27	ENVOLVENTE MIN	2.828	0.000	-81.850	-24.810	54.751
N+3.15	B27	ENVOLVENTE MIN	3.540	0.000	-69.740	-24.810	82.555
N+3.15	B27	ENVOLVENTE MIN	3.540	0.000	9.850	12.093	83.126
N+3.15	B27	ENVOLVENTE MIN	4.242	0.000	18.020	12.093	55.509
N+3.15	B27	ENVOLVENTE MIN	4.949	0.000	30.260	12.093	19.257
N+3.15	B27	ENVOLVENTE MIN	5.656	0.000	44.350	12.093	-26.557
N+3.15	B27	ENVOLVENTE MIN	6.363	0.000	56.610	12.093	-105.304
N+3.15	B27	ENVOLVENTE MIN	7.070	0.000	64.860	12.093	-198.669
N+3.15	B28	ENVOLVENTE MAX	0.000	0.000	-39.330	1.450	-28.976
N+3.15	B28	ENVOLVENTE MAX	0.405	0.000	-37.750	1.450	-13.312
N+3.15	B28	ENVOLVENTE MAX	0.810	0.000	-34.570	1.450	1.386
N+3.15	B28	ENVOLVENTE MAX	1.215	0.000	-29.800	1.450	16.390
N+3.15	B28	ENVOLVENTE MAX	1.620	0.000	-23.430	1.450	35.186
N+3.15	B28	ENVOLVENTE MAX	2.025	0.000	-15.910	1.450	49.127
N+3.15	B28	ENVOLVENTE MAX	2.430	0.000	-8.380	1.450	57.850
N+3.15	B28	ENVOLVENTE MAX	2.835	0.000	-2.010	1.450	61.744
N+3.15	B28	ENVOLVENTE MAX	3.240	0.000	3.620	1.450	62.980
N+3.15	B28	ENVOLVENTE MAX	3.645	0.000	8.840	1.450	61.218
N+3.15	B28	ENVOLVENTE MAX	4.050	0.000	11.280	1.450	57.746
N+3.15	B28	ENVOLVENTE MIN	0.000	0.000	-78.510	0.083	-87.359
N+3.15	B28	ENVOLVENTE MIN	0.405	0.000	-75.880	0.083	-58.097
N+3.15	B28	ENVOLVENTE MIN	0.810	0.000	-70.060	0.083	-30.387
N+3.15	B28	ENVOLVENTE MIN	1.215	0.000	-61.080	0.083	-7.271
N+3.15	B28	ENVOLVENTE MIN	1.620	0.000	-48.910	0.083	5.992
N+3.15	B28	ENVOLVENTE MIN	2.025	0.000	-34.440	0.083	16.397
N+3.15	B28	ENVOLVENTE MIN	2.430	0.000	-21.180	0.083	23.737
N+3.15	B28	ENVOLVENTE MIN	2.835	0.000	-10.390	0.083	28.218
N+3.15	B28	ENVOLVENTE MIN	3.240	0.000	-3.240	0.083	30.442
N+3.15	B28	ENVOLVENTE MIN	3.645	0.000	-0.060	0.083	31.055
N+3.15	B28	ENVOLVENTE MIN	4.050	0.000	1.520	0.083	30.700
N+3.15	B29	ENVOLVENTE MAX	0.000	0.000	-41.370	0.424	-29.835
N+3.15	B29	ENVOLVENTE MAX	0.405	0.000	-39.790	0.424	-13.346
N+3.15	B29	ENVOLVENTE MAX	0.810	0.000	-36.610	0.424	2.178
N+3.15	B29	ENVOLVENTE MAX	1.215	0.000	-31.840	0.424	20.133
N+3.15	B29	ENVOLVENTE MAX	1.620	0.000	-25.470	0.424	40.299
N+3.15	B29	ENVOLVENTE MAX	2.025	0.000	-17.620	0.424	55.543
N+3.15	B29	ENVOLVENTE MAX	2.430	0.000	-9.760	0.424	66.242
N+3.15	B29	ENVOLVENTE MAX	2.835	0.000	-3.400	0.424	72.505
N+3.15	B29	ENVOLVENTE MAX	3.240	0.000	1.380	0.424	74.486
N+3.15	B29	ENVOLVENTE MAX	3.645	0.000	6.600	0.424	73.468
N+3.15	B29	ENVOLVENTE MAX	4.050	0.000	9.040	0.424	70.740
N+3.15	B29	ENVOLVENTE MIN	0.000	0.000	-81.660	-0.477	-80.711
N+3.15	B29	ENVOLVENTE MIN	0.405	0.000	-79.020	-0.477	-50.725
N+3.15	B29	ENVOLVENTE MIN	0.810	0.000	-73.210	-0.477	-22.291
N+3.15	B29	ENVOLVENTE MIN	1.215	0.000	-64.220	-0.477	-0.578
N+3.15	B29	ENVOLVENTE MIN	1.620	0.000	-52.060	-0.477	12.864
N+3.15	B29	ENVOLVENTE MIN	2.025	0.000	-36.930	-0.477	23.410
N+3.15	B29	ENVOLVENTE MIN	2.430	0.000	-21.820	-0.477	30.702
N+3.15	B29	ENVOLVENTE MIN	2.835	0.000	-11.030	-0.477	35.097
N+3.15	B29	ENVOLVENTE MIN	3.240	0.000	-3.030	-0.477	37.236
N+3.15	B29	ENVOLVENTE MIN	3.645	0.000	0.150	-0.477	37.765
N+3.15	B29	ENVOLVENTE MIN	4.050	0.000	1.730	-0.477	37.329
N+3.15	B30	ENVOLVENTE MAX	0.000	0.000	-40.180	0.514	-31.643
N+3.15	B30	ENVOLVENTE MAX	0.405	0.000	-38.590	0.514	-15.638
N+3.15	B30	ENVOLVENTE MAX	0.810	0.000	-35.410	0.514	-0.598
N+3.15	B30	ENVOLVENTE MAX	1.215	0.000	-30.640	0.514	15.121
N+3.15	B30	ENVOLVENTE MAX	1.620	0.000	-24.270	0.514	34.413
N+3.15	B30	ENVOLVENTE MAX	2.025	0.000	-16.650	0.514	48.824

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B30	ENVOLVENTE MAX	2.430	0.000	-9.020	0.514	58.165
N+3.15	B30	ENVOLVENTE MAX	2.835	0.000	-2.650	0.514	63.823
N+3.15	B30	ENVOLVENTE MAX	3.240	0.000	2.750	0.514	65.198
N+3.15	B30	ENVOLVENTE MAX	3.645	0.000	7.970	0.514	63.575
N+3.15	B30	ENVOLVENTE MAX	3.920	0.000	9.930	0.514	61.419
N+3.15	B30	ENVOLVENTE MAX	3.920	0.000	9.930	0.514	61.419
N+3.15	B30	ENVOLVENTE MAX	4.050	0.000	10.410	0.514	60.241
N+3.15	B30	ENVOLVENTE MIN	0.000	0.000	-79.270	-0.414	-83.720
N+3.15	B30	ENVOLVENTE MIN	0.405	0.000	-76.630	-0.414	-54.502
N+3.15	B30	ENVOLVENTE MIN	0.810	0.000	-70.820	-0.414	-26.836
N+3.15	B30	ENVOLVENTE MIN	1.215	0.000	-61.830	-0.414	-4.137
N+3.15	B30	ENVOLVENTE MIN	1.620	0.000	-49.660	-0.414	8.928
N+3.15	B30	ENVOLVENTE MIN	2.025	0.000	-34.990	-0.414	19.120
N+3.15	B30	ENVOLVENTE MIN	2.430	0.000	-20.710	-0.414	26.193
N+3.15	B30	ENVOLVENTE MIN	2.835	0.000	-9.920	-0.414	30.394
N+3.15	B30	ENVOLVENTE MIN	3.240	0.000	-2.550	-0.414	32.338
N+3.15	B30	ENVOLVENTE MIN	3.645	0.000	0.630	-0.414	32.672
N+3.15	B30	ENVOLVENTE MIN	3.920	0.000	1.880	-0.414	32.310
N+3.15	B30	ENVOLVENTE MIN	3.920	0.000	1.880	-0.414	32.310
N+3.15	B30	ENVOLVENTE MIN	4.050	0.000	2.220	-0.414	32.042
N+3.15	B31	ENVOLVENTE MAX	0.000	0.000	-40.800	0.478	-32.723
N+3.15	B31	ENVOLVENTE MAX	0.405	0.000	-39.220	0.478	-16.466
N+3.15	B31	ENVOLVENTE MAX	0.810	0.000	-36.040	0.478	-1.173
N+3.15	B31	ENVOLVENTE MAX	1.215	0.000	-31.260	0.478	14.717
N+3.15	B31	ENVOLVENTE MAX	1.620	0.000	-24.900	0.478	34.475
N+3.15	B31	ENVOLVENTE MAX	2.025	0.000	-17.190	0.478	49.335
N+3.15	B31	ENVOLVENTE MAX	2.430	0.000	-9.490	0.478	59.284
N+3.15	B31	ENVOLVENTE MAX	2.835	0.000	-3.120	0.478	65.357
N+3.15	B31	ENVOLVENTE MAX	3.240	0.000	1.870	0.478	67.147
N+3.15	B31	ENVOLVENTE MAX	3.645	0.000	7.090	0.478	65.939
N+3.15	B31	ENVOLVENTE MAX	4.050	0.000	9.530	0.478	63.019
N+3.15	B31	ENVOLVENTE MIN	0.000	0.000	-80.600	-0.393	-85.469
N+3.15	B31	ENVOLVENTE MIN	0.405	0.000	-77.960	-0.393	-55.793
N+3.15	B31	ENVOLVENTE MIN	0.810	0.000	-72.150	-0.393	-27.670
N+3.15	B31	ENVOLVENTE MIN	1.215	0.000	-63.160	-0.393	-4.433
N+3.15	B31	ENVOLVENTE MIN	1.620	0.000	-51.000	-0.393	8.876
N+3.15	B31	ENVOLVENTE MIN	2.025	0.000	-36.170	-0.393	19.303
N+3.15	B31	ENVOLVENTE MIN	2.430	0.000	-21.570	-0.393	26.566
N+3.15	B31	ENVOLVENTE MIN	2.835	0.000	-10.780	-0.393	30.948
N+3.15	B31	ENVOLVENTE MIN	3.240	0.000	-2.990	-0.393	33.073
N+3.15	B31	ENVOLVENTE MIN	3.645	0.000	0.180	-0.393	33.588
N+3.15	B31	ENVOLVENTE MIN	4.050	0.000	1.770	-0.393	33.139
N+3.15	B32	ENVOLVENTE MAX	0.000	0.000	-40.700	-0.063	-33.671
N+3.15	B32	ENVOLVENTE MAX	0.405	0.000	-39.120	-0.063	-17.453
N+3.15	B32	ENVOLVENTE MAX	0.810	0.000	-35.940	-0.063	-2.199
N+3.15	B32	ENVOLVENTE MAX	1.215	0.000	-31.170	-0.063	12.774
N+3.15	B32	ENVOLVENTE MAX	1.620	0.000	-24.800	-0.063	32.378
N+3.15	B32	ENVOLVENTE MAX	2.025	0.000	-17.160	-0.063	47.099
N+3.15	B32	ENVOLVENTE MAX	2.430	0.000	-9.520	-0.063	56.496
N+3.15	B32	ENVOLVENTE MAX	2.835	0.000	-3.150	-0.063	62.280
N+3.15	B32	ENVOLVENTE MAX	3.240	0.000	2.020	-0.063	63.966
N+3.15	B32	ENVOLVENTE MAX	3.645	0.000	7.250	-0.063	62.655
N+3.15	B32	ENVOLVENTE MAX	4.050	0.000	9.690	-0.063	59.633
N+3.15	B32	ENVOLVENTE MIN	0.000	0.000	-80.080	-1.455	-87.489
N+3.15	B32	ENVOLVENTE MIN	0.405	0.000	-77.450	-1.455	-57.951
N+3.15	B32	ENVOLVENTE MIN	0.810	0.000	-71.630	-1.455	-29.964
N+3.15	B32	ENVOLVENTE MIN	1.215	0.000	-62.650	-1.455	-5.986
N+3.15	B32	ENVOLVENTE MIN	1.620	0.000	-50.480	-1.455	7.301
N+3.15	B32	ENVOLVENTE MIN	2.025	0.000	-35.780	-1.455	17.714
N+3.15	B32	ENVOLVENTE MIN	2.430	0.000	-21.460	-1.455	24.999
N+3.15	B32	ENVOLVENTE MIN	2.835	0.000	-10.670	-1.455	29.410
N+3.15	B32	ENVOLVENTE MIN	3.240	0.000	-3.070	-1.455	31.564
N+3.15	B32	ENVOLVENTE MIN	3.645	0.000	0.110	-1.455	32.106
N+3.15	B32	ENVOLVENTE MIN	4.050	0.000	1.690	-1.455	31.678
N+3.15	B33	ENVOLVENTE MAX	0.000	0.000	-33.170	1.060	-20.000
N+3.15	B33	ENVOLVENTE MAX	0.690	0.000	-29.520	1.060	1.896
N+3.15	B33	ENVOLVENTE MAX	1.380	0.000	-21.230	1.060	28.250
N+3.15	B33	ENVOLVENTE MAX	2.070	0.000	-9.480	1.060	48.427
N+3.15	B33	ENVOLVENTE MAX	2.760	0.000	-1.200	1.060	58.776
N+3.15	B33	ENVOLVENTE MAX	3.450	0.000	2.460	1.060	61.531
N+3.15	B33	ENVOLVENTE MAX	3.450	0.000	13.870	0.064	59.511
N+3.15	B33	ENVOLVENTE MAX	4.140	0.000	19.770	0.064	48.606
N+3.15	B33	ENVOLVENTE MAX	4.830	0.000	35.380	0.064	30.108
N+3.15	B33	ENVOLVENTE MAX	5.520	0.000	57.910	0.064	2.550
N+3.15	B33	ENVOLVENTE MAX	6.210	0.000	73.530	0.064	-20.051
N+3.15	B33	ENVOLVENTE MAX	6.900	0.000	79.920	0.064	-46.768
N+3.15	B33	ENVOLVENTE MIN	0.000	0.000	-68.110	-0.190	-61.264
N+3.15	B33	ENVOLVENTE MIN	0.690	0.000	-61.720	-0.190	-19.443
N+3.15	B33	ENVOLVENTE MIN	1.380	0.000	-46.100	-0.190	6.995
N+3.15	B33	ENVOLVENTE MIN	2.070	0.000	-23.570	-0.190	20.984
N+3.15	B33	ENVOLVENTE MIN	2.760	0.000	-9.270	-0.190	27.787
N+3.15	B33	ENVOLVENTE MIN	3.450	0.000	-3.440	-0.190	30.426
N+3.15	B33	ENVOLVENTE MIN	3.450	0.000	4.530	-0.921	30.071
N+3.15	B33	ENVOLVENTE MIN	4.140	0.000	8.180	-0.921	23.911
N+3.15	B33	ENVOLVENTE MIN	4.830	0.000	16.470	-0.921	12.800
N+3.15	B33	ENVOLVENTE MIN	5.520	0.000	28.220	-0.921	-6.136
N+3.15	B33	ENVOLVENTE MIN	6.210	0.000	36.500	-0.921	-48.345
N+3.15	B33	ENVOLVENTE MIN	6.900	0.000	40.160	-0.921	-101.426
N+3.15	B34	ENVOLVENTE MAX	0.000	0.000	-42.490	0.491	-52.384
N+3.15	B34	ENVOLVENTE MAX	0.750	0.000	-38.300	0.491	-21.749
N+3.15	B34	ENVOLVENTE MAX	1.500	0.000	-28.640	0.491	3.776
N+3.15	B34	ENVOLVENTE MAX	2.250	0.000	-14.880	0.491	33.408

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B34	ENVOLVENTE MAX	3.000	0.000	-5.220	0.491	49.072
N+3.15	B34	ENVOLVENTE MAX	3.750	0.000	-1.020	0.491	55.110
N+3.15	B34	ENVOLVENTE MAX	3.750	0.000	6.060	0.584	55.151
N+3.15	B34	ENVOLVENTE MAX	4.500	0.000	12.820	0.584	48.990
N+3.15	B34	ENVOLVENTE MAX	5.250	0.000	31.100	0.584	33.204
N+3.15	B34	ENVOLVENTE MAX	6.000	0.000	57.540	0.584	3.971
N+3.15	B34	ENVOLVENTE MAX	6.750	0.000	75.820	0.584	-21.453
N+3.15	B34	ENVOLVENTE MAX	7.500	0.000	83.210	0.584	-52.070
N+3.15	B34	ENVOLVENTE MIN	0.000	0.000	-83.050	-0.685	-110.472
N+3.15	B34	ENVOLVENTE MIN	0.750	0.000	-75.660	-0.685	-50.278
N+3.15	B34	ENVOLVENTE MIN	1.500	0.000	-57.380	-0.685	-3.298
N+3.15	B34	ENVOLVENTE MIN	2.250	0.000	-30.930	-0.685	15.135
N+3.15	B34	ENVOLVENTE MIN	3.000	0.000	-12.650	-0.685	24.443
N+3.15	B34	ENVOLVENTE MIN	3.750	0.000	-5.920	-0.685	28.550
N+3.15	B34	ENVOLVENTE MIN	3.750	0.000	1.000	-0.387	28.357
N+3.15	B34	ENVOLVENTE MIN	4.500	0.000	5.190	-0.387	24.223
N+3.15	B34	ENVOLVENTE MIN	5.250	0.000	14.850	-0.387	14.884
N+3.15	B34	ENVOLVENTE MIN	6.000	0.000	28.610	-0.387	-3.699
N+3.15	B34	ENVOLVENTE MIN	6.750	0.000	38.270	-0.387	-50.727
N+3.15	B34	ENVOLVENTE MIN	7.500	0.000	42.460	-0.387	-111.044
N+3.15	B35	ENVOLVENTE MAX	0.000	0.000	-38.940	0.696	-46.687
N+3.15	B35	ENVOLVENTE MAX	0.705	0.000	-35.150	0.696	-20.283
N+3.15	B35	ENVOLVENTE MAX	1.410	0.000	-26.540	0.696	1.751
N+3.15	B35	ENVOLVENTE MAX	2.115	0.000	-14.310	0.696	25.646
N+3.15	B35	ENVOLVENTE MAX	2.820	0.000	-5.730	0.696	40.868
N+3.15	B35	ENVOLVENTE MAX	3.520	0.000	-1.990	0.696	48.028
N+3.15	B35	ENVOLVENTE MAX	3.520	0.000	7.710	0.046	47.872
N+3.15	B35	ENVOLVENTE MAX	4.230	0.000	13.830	0.046	41.103
N+3.15	B35	ENVOLVENTE MAX	4.935	0.000	30.040	0.046	26.249
N+3.15	B35	ENVOLVENTE MAX	5.640	0.000	53.550	0.046	2.153
N+3.15	B35	ENVOLVENTE MAX	6.345	0.000	69.810	0.046	-19.733
N+3.15	B35	ENVOLVENTE MAX	7.050	0.000	76.450	0.046	-45.990
N+3.15	B35	ENVOLVENTE MIN	0.000	0.000	-76.830	-0.144	-100.821
N+3.15	B35	ENVOLVENTE MIN	0.705	0.000	-70.190	-0.144	-48.428
N+3.15	B35	ENVOLVENTE MIN	1.410	0.000	-53.930	-0.144	-7.688
N+3.15	B35	ENVOLVENTE MIN	2.115	0.000	-30.490	-0.144	10.490
N+3.15	B35	ENVOLVENTE MIN	2.820	0.000	-14.300	-0.144	19.599
N+3.15	B35	ENVOLVENTE MIN	3.520	0.000	-8.330	-0.144	24.246
N+3.15	B35	ENVOLVENTE MIN	3.520	0.000	1.590	-0.713	24.232
N+3.15	B35	ENVOLVENTE MIN	4.230	0.000	5.420	-0.713	19.907
N+3.15	B35	ENVOLVENTE MIN	4.935	0.000	14.070	-0.713	10.945
N+3.15	B35	ENVOLVENTE MIN	5.640	0.000	26.330	-0.713	-6.817
N+3.15	B35	ENVOLVENTE MIN	6.345	0.000	34.940	-0.713	-47.269
N+3.15	B35	ENVOLVENTE MIN	7.050	0.000	38.730	-0.713	-99.390
N+3.15	B36	ENVOLVENTE MAX	0.000	0.000	-39.570	0.623	-46.860
N+3.15	B36	ENVOLVENTE MAX	0.718	0.000	-35.670	0.623	-19.546
N+3.15	B36	ENVOLVENTE MAX	1.436	0.000	-26.760	0.623	3.168
N+3.15	B36	ENVOLVENTE MAX	2.154	0.000	-14.090	0.623	28.666
N+3.15	B36	ENVOLVENTE MAX	2.872	0.000	-5.170	0.623	43.281
N+3.15	B36	ENVOLVENTE MAX	3.590	0.000	-1.270	0.623	49.395
N+3.15	B36	ENVOLVENTE MAX	3.590	0.000	7.510	0.143	49.264
N+3.15	B36	ENVOLVENTE MAX	4.308	0.000	13.740	0.143	42.503
N+3.15	B36	ENVOLVENTE MAX	5.026	0.000	30.510	0.143	27.239
N+3.15	B36	ENVOLVENTE MAX	5.744	0.000	54.820	0.143	1.791
N+3.15	B36	ENVOLVENTE MAX	6.462	0.000	71.660	0.143	-21.250
N+3.15	B36	ENVOLVENTE MAX	7.180	0.000	78.510	0.143	-48.891
N+3.15	B36	ENVOLVENTE MIN	0.000	0.000	-77.600	-0.137	-100.533
N+3.15	B36	ENVOLVENTE MIN	0.718	0.000	-70.750	-0.137	-46.675
N+3.15	B36	ENVOLVENTE MIN	1.436	0.000	-53.920	-0.137	-4.927
N+3.15	B36	ENVOLVENTE MIN	2.154	0.000	-29.600	-0.137	12.393
N+3.15	B36	ENVOLVENTE MIN	2.872	0.000	-12.820	-0.137	21.143
N+3.15	B36	ENVOLVENTE MIN	3.590	0.000	-6.580	-0.137	25.227
N+3.15	B36	ENVOLVENTE MIN	3.590	0.000	1.730	-0.632	25.291
N+3.15	B36	ENVOLVENTE MIN	4.308	0.000	5.630	-0.632	20.955
N+3.15	B36	ENVOLVENTE MIN	5.026	0.000	14.540	-0.632	11.754
N+3.15	B36	ENVOLVENTE MIN	5.744	0.000	27.210	-0.632	-6.699
N+3.15	B36	ENVOLVENTE MIN	6.462	0.000	36.120	-0.632	-49.398
N+3.15	B36	ENVOLVENTE MIN	7.180	0.000	40.030	-0.632	-103.903
N+3.15	B37	ENVOLVENTE MAX	0.000	0.000	-41.960	0.590	-48.880
N+3.15	B37	ENVOLVENTE MAX	0.707	0.000	-38.160	0.590	-20.271
N+3.15	B37	ENVOLVENTE MAX	1.414	0.000	-29.490	0.590	4.293
N+3.15	B37	ENVOLVENTE MAX	2.121	0.000	-17.170	0.590	34.633
N+3.15	B37	ENVOLVENTE MAX	2.828	0.000	-8.470	0.590	53.960
N+3.15	B37	ENVOLVENTE MAX	3.540	0.000	-4.630	0.590	65.167
N+3.15	B37	ENVOLVENTE MAX	3.540	0.000	3.590	0.343	67.410
N+3.15	B37	ENVOLVENTE MAX	4.242	0.000	9.590	0.343	64.454
N+3.15	B37	ENVOLVENTE MAX	4.949	0.000	24.580	0.343	53.400
N+3.15	B37	ENVOLVENTE MAX	5.656	0.000	48.150	0.343	30.656
N+3.15	B37	ENVOLVENTE MAX	6.363	0.000	64.500	0.343	1.443
N+3.15	B37	ENVOLVENTE MAX	7.070	0.000	71.170	0.343	-22.206
N+3.15	B37	ENVOLVENTE MIN	0.000	0.000	-83.010	-0.179	-105.093
N+3.15	B37	ENVOLVENTE MIN	0.707	0.000	-76.340	-0.179	-48.193
N+3.15	B37	ENVOLVENTE MIN	1.414	0.000	-59.990	-0.179	-3.951
N+3.15	B37	ENVOLVENTE MIN	2.121	0.000	-36.350	-0.179	15.223
N+3.15	B37	ENVOLVENTE MIN	2.828	0.000	-19.930	-0.179	26.669
N+3.15	B37	ENVOLVENTE MIN	3.540	0.000	-13.390	-0.179	33.256
N+3.15	B37	ENVOLVENTE MIN	3.540	0.000	-2.200	-0.567	33.669
N+3.15	B37	ENVOLVENTE MIN	4.242	0.000	1.560	-0.567	30.890
N+3.15	B37	ENVOLVENTE MIN	4.949	0.000	10.190	-0.567	23.620
N+3.15	B37	ENVOLVENTE MIN	5.656	0.000	22.480	-0.567	8.669
N+3.15	B37	ENVOLVENTE MIN	6.363	0.000	31.140	-0.567	-18.782
N+3.15	B37	ENVOLVENTE MIN	7.070	0.000	34.950	-0.567	-63.493

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B38	ENVOLVENTE MAX	0.000	0.000	-19.860	0.662	-4.016
N+6.35	B38	ENVOLVENTE MAX	0.815	0.000	-14.440	0.662	9.961
N+6.35	B38	ENVOLVENTE MAX	1.630	0.000	-9.010	0.662	20.850
N+6.35	B38	ENVOLVENTE MAX	2.445	0.000	-3.590	0.662	32.279
N+6.35	B38	ENVOLVENTE MAX	3.260	0.000	1.840	0.662	36.668
N+6.35	B38	ENVOLVENTE MAX	4.075	0.000	7.580	0.662	35.273
N+6.35	B38	ENVOLVENTE MAX	4.890	0.000	16.220	0.662	31.794
N+6.35	B38	ENVOLVENTE MAX	5.705	0.000	24.860	0.662	27.079
N+6.35	B38	ENVOLVENTE MAX	6.520	0.000	33.490	0.662	15.516
N+6.35	B38	ENVOLVENTE MAX	7.335	0.000	42.130	0.662	6.146
N+6.35	B38	ENVOLVENTE MAX	8.150	0.000	50.770	0.662	-7.645
N+6.35	B38	ENVOLVENTE MIN	0.000	0.000	-50.380	-1.317	-87.828
N+6.35	B38	ENVOLVENTE MIN	0.815	0.000	-41.740	-1.317	-50.290
N+6.35	B38	ENVOLVENTE MIN	1.630	0.000	-33.100	-1.317	-21.127
N+6.35	B38	ENVOLVENTE MIN	2.445	0.000	-24.460	-1.317	-3.967
N+6.35	B38	ENVOLVENTE MIN	3.260	0.000	-15.820	-1.317	8.770
N+6.35	B38	ENVOLVENTE MIN	4.075	0.000	-7.490	-1.317	17.075
N+6.35	B38	ENVOLVENTE MIN	4.890	0.000	-2.070	-1.317	13.507
N+6.35	B38	ENVOLVENTE MIN	5.705	0.000	3.360	-1.317	0.960
N+6.35	B38	ENVOLVENTE MIN	6.520	0.000	8.780	-1.317	-16.203
N+6.35	B38	ENVOLVENTE MIN	7.335	0.000	14.210	-1.317	-47.021
N+6.35	B38	ENVOLVENTE MIN	8.150	0.000	19.630	-1.317	-84.881
N+3.15	B38	ENVOLVENTE MAX	0.000	0.000	-57.840	27.314	-43.173
N+3.15	B38	ENVOLVENTE MAX	0.815	0.000	-49.520	27.314	0.807
N+3.15	B38	ENVOLVENTE MAX	1.630	0.000	-37.960	27.314	36.696
N+3.15	B38	ENVOLVENTE MAX	2.445	0.000	-24.480	27.314	82.405
N+3.15	B38	ENVOLVENTE MAX	3.260	0.000	-13.020	27.314	112.309
N+3.15	B38	ENVOLVENTE MAX	4.050	0.000	-5.000	27.314	136.567
N+3.15	B38	ENVOLVENTE MAX	4.050	0.000	44.220	-13.430	136.110
N+3.15	B38	ENVOLVENTE MAX	4.075	0.000	44.490	-13.430	135.249
N+3.15	B38	ENVOLVENTE MAX	4.890	0.000	56.430	-13.430	102.457
N+3.15	B38	ENVOLVENTE MAX	5.705	0.000	74.000	-13.430	70.505
N+3.15	B38	ENVOLVENTE MAX	6.520	0.000	94.810	-13.430	27.206
N+3.15	B38	ENVOLVENTE MAX	7.335	0.000	112.210	-13.430	-8.273
N+3.15	B38	ENVOLVENTE MAX	8.150	0.000	123.980	-13.430	-51.846
N+3.15	B38	ENVOLVENTE MIN	0.000	0.000	-121.620	6.136	-213.449
N+3.15	B38	ENVOLVENTE MIN	0.815	0.000	-109.850	6.136	-118.755
N+3.15	B38	ENVOLVENTE MIN	1.630	0.000	-92.450	6.136	-35.954
N+3.15	B38	ENVOLVENTE MIN	2.445	0.000	-71.680	6.136	10.653
N+3.15	B38	ENVOLVENTE MIN	3.260	0.000	-54.460	6.136	46.830
N+3.15	B38	ENVOLVENTE MIN	4.050	0.000	-43.140	6.136	73.824
N+3.15	B38	ENVOLVENTE MIN	4.050	0.000	3.670	-34.636	72.889
N+3.15	B38	ENVOLVENTE MIN	4.075	0.000	3.880	-34.636	72.774
N+3.15	B38	ENVOLVENTE MIN	4.890	0.000	12.300	-34.636	54.381
N+3.15	B38	ENVOLVENTE MIN	5.705	0.000	23.960	-34.636	17.237
N+3.15	B38	ENVOLVENTE MIN	6.520	0.000	37.470	-34.636	-33.296
N+3.15	B38	ENVOLVENTE MIN	7.335	0.000	49.020	-34.636	-118.023
N+3.15	B38	ENVOLVENTE MIN	8.150	0.000	57.350	-34.636	-214.642
N+6.35	B39	ENVOLVENTE MAX	0.000	0.000	-46.390	0.840	-46.360
N+6.35	B39	ENVOLVENTE MAX	0.815	0.000	-39.920	0.840	-11.046
N+6.35	B39	ENVOLVENTE MAX	1.630	0.000	-31.350	0.840	23.094
N+6.35	B39	ENVOLVENTE MAX	2.445	0.000	-20.690	0.840	86.459
N+6.35	B39	ENVOLVENTE MAX	3.260	0.000	-7.930	0.840	137.916
N+6.35	B39	ENVOLVENTE MAX	4.075	0.000	7.850	0.840	155.286
N+6.35	B39	ENVOLVENTE MAX	4.890	0.000	47.100	0.840	135.005
N+6.35	B39	ENVOLVENTE MAX	5.705	0.000	84.960	0.840	80.638
N+6.35	B39	ENVOLVENTE MAX	6.520	0.000	114.710	0.840	13.411
N+6.35	B39	ENVOLVENTE MAX	7.335	0.000	136.350	0.840	-15.821
N+6.35	B39	ENVOLVENTE MAX	8.150	0.000	149.890	0.840	-51.182
N+6.35	B39	ENVOLVENTE MIN	0.000	0.000	-146.320	-0.570	-206.781
N+6.35	B39	ENVOLVENTE MIN	0.815	0.000	-132.780	-0.570	-99.651
N+6.35	B39	ENVOLVENTE MIN	1.630	0.000	-111.140	-0.570	-19.326
N+6.35	B39	ENVOLVENTE MIN	2.445	0.000	-81.390	-0.570	12.981
N+6.35	B39	ENVOLVENTE MIN	3.260	0.000	-43.530	-0.570	35.744
N+6.35	B39	ENVOLVENTE MIN	4.075	0.000	-6.690	-0.570	47.269
N+6.35	B39	ENVOLVENTE MIN	4.890	0.000	7.990	-0.570	40.281
N+6.35	B39	ENVOLVENTE MIN	5.705	0.000	20.750	-0.570	17.475
N+6.35	B39	ENVOLVENTE MIN	6.520	0.000	31.410	-0.570	-15.311
N+6.35	B39	ENVOLVENTE MIN	7.335	0.000	39.980	-0.570	-104.139
N+6.35	B39	ENVOLVENTE MIN	8.150	0.000	46.450	-0.570	-221.334
N+3.15	B39	ENVOLVENTE MAX	0.000	0.000	-88.390	12.597	-101.482
N+3.15	B39	ENVOLVENTE MAX	0.815	0.000	-81.600	12.597	-31.772
N+3.15	B39	ENVOLVENTE MAX	1.630	0.000	-68.350	12.597	29.770
N+3.15	B39	ENVOLVENTE MAX	2.445	0.000	-50.900	12.597	113.318
N+3.15	B39	ENVOLVENTE MAX	3.260	0.000	-37.850	12.597	184.411
N+3.15	B39	ENVOLVENTE MAX	3.920	0.000	-32.010	12.597	241.461
N+3.15	B39	ENVOLVENTE MAX	3.920	0.000	-32.010	12.597	241.461
N+3.15	B39	ENVOLVENTE MAX	4.050	0.000	-31.360	12.597	252.093
N+3.15	B39	ENVOLVENTE MAX	4.050	0.000	84.540	5.470	251.990
N+3.15	B39	ENVOLVENTE MAX	4.075	0.000	84.690	5.470	249.948
N+3.15	B39	ENVOLVENTE MAX	4.890	0.000	95.420	5.470	179.465
N+3.15	B39	ENVOLVENTE MAX	5.705	0.000	117.780	5.470	100.735
N+3.15	B39	ENVOLVENTE MAX	6.520	0.000	150.340	5.470	18.905
N+3.15	B39	ENVOLVENTE MAX	7.335	0.000	174.380	5.470	-43.248
N+3.15	B39	ENVOLVENTE MAX	8.150	0.000	185.570	5.470	-113.568
N+3.15	B39	ENVOLVENTE MIN	0.000	0.000	-183.280	-3.150	-305.149
N+3.15	B39	ENVOLVENTE MIN	0.815	0.000	-172.090	-3.150	-164.785
N+3.15	B39	ENVOLVENTE MIN	1.630	0.000	-148.050	-3.150	-37.478
N+3.15	B39	ENVOLVENTE MIN	2.445	0.000	-115.650	-3.150	33.449
N+3.15	B39	ENVOLVENTE MIN	3.260	0.000	-94.170	-3.150	88.446
N+3.15	B39	ENVOLVENTE MIN	3.920	0.000	-85.170	-3.150	126.851
N+3.15	B39	ENVOLVENTE MIN	3.920	0.000	-85.160	-3.150	126.852

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B39	ENVOLVENTE MIN	4.050	0.000	-84.260	-3.150	134.024
N+3.15	B39	ENVOLVENTE MIN	4.050	0.000	31.020	-7.931	132.736
N+3.15	B39	ENVOLVENTE MIN	4.075	0.000	31.130	-7.931	131.958
N+3.15	B39	ENVOLVENTE MIN	4.890	0.000	38.120	-7.931	92.787
N+3.15	B39	ENVOLVENTE MIN	5.705	0.000	51.570	-7.931	37.104
N+3.15	B39	ENVOLVENTE MIN	6.520	0.000	69.100	-7.931	-37.832
N+3.15	B39	ENVOLVENTE MIN	7.335	0.000	82.350	-7.931	-166.843
N+3.15	B39	ENVOLVENTE MIN	8.150	0.000	89.140	-7.931	-308.909
N+6.35	B40	ENVOLVENTE MAX	0.000	0.000	-47.550	0.643	-51.423
N+6.35	B40	ENVOLVENTE MAX	0.815	0.000	-41.060	0.643	-15.172
N+6.35	B40	ENVOLVENTE MAX	1.630	0.000	-32.480	0.643	19.568
N+6.35	B40	ENVOLVENTE MAX	2.445	0.000	-21.800	0.643	85.893
N+6.35	B40	ENVOLVENTE MAX	3.260	0.000	-9.020	0.643	137.686
N+6.35	B40	ENVOLVENTE MAX	4.075	0.000	6.670	0.643	155.333
N+6.35	B40	ENVOLVENTE MAX	4.890	0.000	46.870	0.643	135.271
N+6.35	B40	ENVOLVENTE MAX	5.705	0.000	84.800	0.643	81.064
N+6.35	B40	ENVOLVENTE MAX	6.520	0.000	114.620	0.643	11.832
N+6.35	B40	ENVOLVENTE MAX	7.335	0.000	136.340	0.643	-18.063
N+6.35	B40	ENVOLVENTE MAX	8.150	0.000	149.950	0.643	-54.100
N+6.35	B40	ENVOLVENTE MIN	0.000	0.000	-146.980	-0.835	-208.705
N+6.35	B40	ENVOLVENTE MIN	0.815	0.000	-133.370	-0.835	-97.506
N+6.35	B40	ENVOLVENTE MIN	1.630	0.000	-111.660	-0.835	-17.228
N+6.35	B40	ENVOLVENTE MIN	2.445	0.000	-81.840	-0.835	14.501
N+6.35	B40	ENVOLVENTE MIN	3.260	0.000	-43.910	-0.835	36.672
N+6.35	B40	ENVOLVENTE MIN	4.075	0.000	-5.940	-0.835	47.591
N+6.35	B40	ENVOLVENTE MIN	4.890	0.000	8.760	-0.835	40.632
N+6.35	B40	ENVOLVENTE MIN	5.705	0.000	21.530	-0.835	18.678
N+6.35	B40	ENVOLVENTE MIN	6.520	0.000	32.210	-0.835	-13.055
N+6.35	B40	ENVOLVENTE MIN	7.335	0.000	40.800	-0.835	-103.568
N+6.35	B40	ENVOLVENTE MIN	8.150	0.000	47.290	-0.835	-220.779
N+3.15	B40	ENVOLVENTE MAX	0.000	0.000	-89.220	2.910	-106.767
N+3.15	B40	ENVOLVENTE MAX	0.815	0.000	-82.430	2.910	-36.379
N+3.15	B40	ENVOLVENTE MAX	1.630	0.000	-69.180	2.910	25.842
N+3.15	B40	ENVOLVENTE MAX	2.445	0.000	-51.640	2.910	109.890
N+3.15	B40	ENVOLVENTE MAX	3.260	0.000	-38.590	2.910	182.615
N+3.15	B40	ENVOLVENTE MAX	3.920	0.000	-32.750	2.910	238.584
N+3.15	B40	ENVOLVENTE MAX	3.920	0.000	-32.750	2.910	238.584
N+3.15	B40	ENVOLVENTE MAX	4.050	0.000	-32.100	2.910	249.003
N+3.15	B40	ENVOLVENTE MAX	4.050	0.000	81.840	8.722	249.143
N+3.15	B40	ENVOLVENTE MAX	4.075	0.000	81.990	8.722	247.133
N+3.15	B40	ENVOLVENTE MAX	4.890	0.000	92.720	8.722	177.700
N+3.15	B40	ENVOLVENTE MAX	5.705	0.000	116.490	8.722	98.085
N+3.15	B40	ENVOLVENTE MAX	6.520	0.000	149.260	8.722	15.892
N+3.15	B40	ENVOLVENTE MAX	7.335	0.000	173.300	8.722	-46.925
N+3.15	B40	ENVOLVENTE MAX	8.150	0.000	184.490	8.722	-117.910
N+3.15	B40	ENVOLVENTE MIN	0.000	0.000	-181.830	-12.590	-295.245
N+3.15	B40	ENVOLVENTE MIN	0.815	0.000	-170.650	-12.590	-157.310
N+3.15	B40	ENVOLVENTE MIN	1.630	0.000	-146.600	-12.590	-32.430
N+3.15	B40	ENVOLVENTE MIN	2.445	0.000	-114.020	-12.590	36.136
N+3.15	B40	ENVOLVENTE MIN	3.260	0.000	-91.020	-12.590	89.032
N+3.15	B40	ENVOLVENTE MIN	3.920	0.000	-82.020	-12.590	125.755
N+3.15	B40	ENVOLVENTE MIN	3.920	0.000	-82.020	-12.590	125.755
N+3.15	B40	ENVOLVENTE MIN	4.050	0.000	-81.110	-12.590	132.609
N+3.15	B40	ENVOLVENTE MIN	4.050	0.000	31.730	-4.533	131.549
N+3.15	B40	ENVOLVENTE MIN	4.075	0.000	31.840	-4.533	130.754
N+3.15	B40	ENVOLVENTE MIN	4.890	0.000	38.840	-4.533	92.571
N+3.15	B40	ENVOLVENTE MIN	5.705	0.000	52.280	-4.533	38.745
N+3.15	B40	ENVOLVENTE MIN	6.520	0.000	69.910	-4.533	-34.327
N+3.15	B40	ENVOLVENTE MIN	7.335	0.000	83.160	-4.533	-161.285
N+3.15	B40	ENVOLVENTE MIN	8.150	0.000	89.960	-4.533	-301.299
N+6.35	B41	ENVOLVENTE MAX	0.000	0.000	-26.520	0.372	-21.823
N+6.35	B41	ENVOLVENTE MAX	0.815	0.000	-20.260	0.372	-2.758
N+6.35	B41	ENVOLVENTE MAX	1.630	0.000	-14.000	0.372	11.203
N+6.35	B41	ENVOLVENTE MAX	2.445	0.000	-7.730	0.372	30.135
N+6.35	B41	ENVOLVENTE MAX	3.260	0.000	-1.470	0.372	40.034
N+6.35	B41	ENVOLVENTE MAX	4.075	0.000	4.800	0.372	45.758
N+6.35	B41	ENVOLVENTE MAX	4.890	0.000	15.980	0.372	41.062
N+6.35	B41	ENVOLVENTE MAX	5.705	0.000	27.240	0.372	29.179
N+6.35	B41	ENVOLVENTE MAX	6.520	0.000	38.490	0.372	11.502
N+6.35	B41	ENVOLVENTE MAX	7.335	0.000	51.230	0.372	-1.340
N+6.35	B41	ENVOLVENTE MAX	8.150	0.000	64.220	0.372	-19.115
N+6.35	B41	ENVOLVENTE MIN	0.000	0.000	-65.690	-0.534	-103.847
N+6.35	B41	ENVOLVENTE MIN	0.815	0.000	-52.700	-0.534	-57.335
N+6.35	B41	ENVOLVENTE MIN	1.630	0.000	-40.190	-0.534	-19.992
N+6.35	B41	ENVOLVENTE MIN	2.445	0.000	-28.940	-0.534	-1.896
N+6.35	B41	ENVOLVENTE MIN	3.260	0.000	-17.690	-0.534	10.959
N+6.35	B41	ENVOLVENTE MIN	4.075	0.000	-6.440	-0.534	18.703
N+6.35	B41	ENVOLVENTE MIN	4.890	0.000	-0.110	-0.534	15.985
N+6.35	B41	ENVOLVENTE MIN	5.705	0.000	6.150	-0.534	4.422
N+6.35	B41	ENVOLVENTE MIN	6.520	0.000	12.410	-0.534	-12.248
N+6.35	B41	ENVOLVENTE MIN	7.335	0.000	18.680	-0.534	-48.028
N+6.35	B41	ENVOLVENTE MIN	8.150	0.000	24.940	-0.534	-93.149
N+3.15	B41	ENVOLVENTE MAX	0.000	0.000	-88.990	7.146	-109.788
N+3.15	B41	ENVOLVENTE MAX	0.815	0.000	-82.200	7.146	-39.592
N+3.15	B41	ENVOLVENTE MAX	1.630	0.000	-68.950	7.146	22.437
N+3.15	B41	ENVOLVENTE MAX	2.445	0.000	-51.540	7.146	105.896
N+3.15	B41	ENVOLVENTE MAX	3.260	0.000	-38.490	7.146	178.368
N+3.15	B41	ENVOLVENTE MAX	4.050	0.000	-32.000	7.146	243.439
N+3.15	B41	ENVOLVENTE MAX	4.050	0.000	77.520	6.027	242.986
N+3.15	B41	ENVOLVENTE MAX	4.075	0.000	77.670	6.027	241.084
N+3.15	B41	ENVOLVENTE MAX	4.890	0.000	88.400	6.027	175.174
N+3.15	B41	ENVOLVENTE MAX	5.705	0.000	112.170	6.027	98.059

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B41	ENVOLVENTE MAX	6.520	0.000	144.630	6.027	16.914
N+3.15	B41	ENVOLVENTE MAX	7.335	0.000	168.680	6.027	-44.167
N+3.15	B41	ENVOLVENTE MAX	8.150	0.000	179.860	6.027	-113.415
N+3.15	B41	ENVOLVENTE MIN	0.000	0.000	-179.890	-5.859	-292.519
N+3.15	B41	ENVOLVENTE MIN	0.815	0.000	-168.710	-5.859	-156.298
N+3.15	B41	ENVOLVENTE MIN	1.630	0.000	-144.670	-5.859	-33.132
N+3.15	B41	ENVOLVENTE MIN	2.445	0.000	-112.350	-5.859	34.272
N+3.15	B41	ENVOLVENTE MIN	3.260	0.000	-89.150	-5.859	86.246
N+3.15	B41	ENVOLVENTE MIN	4.050	0.000	-79.250	-5.859	128.931
N+3.15	B41	ENVOLVENTE MIN	4.050	0.000	29.750	-6.196	127.621
N+3.15	B41	ENVOLVENTE MIN	4.075	0.000	29.870	-6.196	126.876
N+3.15	B41	ENVOLVENTE MIN	4.890	0.000	36.860	-6.196	90.908
N+3.15	B41	ENVOLVENTE MIN	5.705	0.000	50.300	-6.196	39.372
N+3.15	B41	ENVOLVENTE MIN	6.520	0.000	67.780	-6.196	-29.440
N+3.15	B41	ENVOLVENTE MIN	7.335	0.000	81.030	-6.196	-152.664
N+3.15	B41	ENVOLVENTE MIN	8.150	0.000	87.830	-6.196	-288.943
N+6.35	B42	ENVOLVENTE MAX	0.000	0.000	-26.780	0.624	-22.971
N+6.35	B42	ENVOLVENTE MAX	0.815	0.000	-20.510	0.624	-3.698
N+6.35	B42	ENVOLVENTE MAX	1.630	0.000	-14.250	0.624	10.467
N+6.35	B42	ENVOLVENTE MAX	2.445	0.000	-7.980	0.624	28.442
N+6.35	B42	ENVOLVENTE MAX	3.260	0.000	-1.710	0.624	38.817
N+6.35	B42	ENVOLVENTE MAX	4.075	0.000	4.550	0.624	44.675
N+6.35	B42	ENVOLVENTE MAX	4.890	0.000	15.420	0.624	40.574
N+6.35	B42	ENVOLVENTE MAX	5.705	0.000	26.680	0.624	29.424
N+6.35	B42	ENVOLVENTE MAX	6.520	0.000	37.940	0.624	12.226
N+6.35	B42	ENVOLVENTE MAX	7.335	0.000	50.530	0.624	-0.569
N+6.35	B42	ENVOLVENTE MAX	8.150	0.000	63.530	0.624	-18.128
N+6.35	B42	ENVOLVENTE MIN	0.000	0.000	-66.470	-0.272	-107.119
N+6.35	B42	ENVOLVENTE MIN	0.815	0.000	-53.470	-0.272	-60.087
N+6.35	B42	ENVOLVENTE MIN	1.630	0.000	-40.820	-0.272	-22.230
N+6.35	B42	ENVOLVENTE MIN	2.445	0.000	-29.560	-0.272	-2.466
N+6.35	B42	ENVOLVENTE MIN	3.260	0.000	-18.300	-0.272	10.617
N+6.35	B42	ENVOLVENTE MIN	4.075	0.000	-7.050	-0.272	18.587
N+6.35	B42	ENVOLVENTE MIN	4.890	0.000	-0.390	-0.272	16.050
N+6.35	B42	ENVOLVENTE MIN	5.705	0.000	5.880	-0.272	4.683
N+6.35	B42	ENVOLVENTE MIN	6.520	0.000	12.150	-0.272	-11.793
N+6.35	B42	ENVOLVENTE MIN	7.335	0.000	18.410	-0.272	-46.955
N+6.35	B42	ENVOLVENTE MIN	8.150	0.000	24.680	-0.272	-91.636
N+3.15	B42	ENVOLVENTE MAX	0.000	0.000	-90.930	6.652	-113.655
N+3.15	B42	ENVOLVENTE MAX	0.815	0.000	-84.130	6.652	-41.880
N+3.15	B42	ENVOLVENTE MAX	1.630	0.000	-70.880	6.652	21.728
N+3.15	B42	ENVOLVENTE MAX	2.445	0.000	-53.470	6.652	107.432
N+3.15	B42	ENVOLVENTE MAX	3.260	0.000	-40.410	6.652	182.939
N+3.15	B42	ENVOLVENTE MAX	4.050	0.000	-33.930	6.652	250.862
N+3.15	B42	ENVOLVENTE MAX	4.050	0.000	81.020	5.844	250.629
N+3.15	B42	ENVOLVENTE MAX	4.075	0.000	81.170	5.844	248.630
N+3.15	B42	ENVOLVENTE MAX	4.890	0.000	91.900	5.844	179.580
N+3.15	B42	ENVOLVENTE MAX	5.705	0.000	116.020	5.844	99.256
N+3.15	B42	ENVOLVENTE MAX	6.520	0.000	148.510	5.844	16.095
N+3.15	B42	ENVOLVENTE MAX	7.335	0.000	172.560	5.844	-46.543
N+3.15	B42	ENVOLVENTE MAX	8.150	0.000	183.740	5.844	-117.349
N+3.15	B42	ENVOLVENTE MIN	0.000	0.000	-183.530	-6.118	-299.443
N+3.15	B42	ENVOLVENTE MIN	0.815	0.000	-172.340	-6.118	-160.513
N+3.15	B42	ENVOLVENTE MIN	1.630	0.000	-148.300	-6.118	-34.639
N+3.15	B42	ENVOLVENTE MIN	2.445	0.000	-115.960	-6.118	34.794
N+3.15	B42	ENVOLVENTE MIN	3.260	0.000	-92.450	-6.118	88.422
N+3.15	B42	ENVOLVENTE MIN	4.050	0.000	-82.550	-6.118	132.694
N+3.15	B42	ENVOLVENTE MIN	4.050	0.000	31.650	-7.085	131.485
N+3.15	B42	ENVOLVENTE MIN	4.075	0.000	31.760	-7.085	130.692
N+3.15	B42	ENVOLVENTE MIN	4.890	0.000	38.750	-7.085	93.177
N+3.15	B42	ENVOLVENTE MIN	5.705	0.000	52.200	-7.085	39.950
N+3.15	B42	ENVOLVENTE MIN	6.520	0.000	69.690	-7.085	-31.258
N+3.15	B42	ENVOLVENTE MIN	7.335	0.000	82.940	-7.085	-157.349
N+3.15	B42	ENVOLVENTE MIN	8.150	0.000	89.740	-7.085	-296.495
N+6.35	B43	ENVOLVENTE MAX	0.000	0.000	-22.500	1.859	-15.246
N+6.35	B43	ENVOLVENTE MAX	0.815	0.000	-17.060	1.859	0.873
N+6.35	B43	ENVOLVENTE MAX	1.630	0.000	-11.610	1.859	12.556
N+6.35	B43	ENVOLVENTE MAX	2.445	0.000	-6.170	1.859	25.667
N+6.35	B43	ENVOLVENTE MAX	3.260	0.000	-0.720	1.859	32.782
N+6.35	B43	ENVOLVENTE MAX	4.075	0.000	4.720	1.859	34.170
N+6.35	B43	ENVOLVENTE MAX	4.890	0.000	13.020	1.859	31.349
N+6.35	B43	ENVOLVENTE MAX	5.705	0.000	21.720	1.859	25.926
N+6.35	B43	ENVOLVENTE MAX	6.520	0.000	30.420	1.859	13.761
N+6.35	B43	ENVOLVENTE MAX	7.335	0.000	39.120	1.859	2.604
N+6.35	B43	ENVOLVENTE MAX	8.150	0.000	47.820	1.859	-12.128
N+6.35	B43	ENVOLVENTE MIN	0.000	0.000	-50.330	-0.693	-87.471
N+6.35	B43	ENVOLVENTE MIN	0.815	0.000	-41.630	-0.693	-50.001
N+6.35	B43	ENVOLVENTE MIN	1.630	0.000	-32.930	-0.693	-19.621
N+6.35	B43	ENVOLVENTE MIN	2.445	0.000	-24.230	-0.693	-2.198
N+6.35	B43	ENVOLVENTE MIN	3.260	0.000	-15.530	-0.693	9.693
N+6.35	B43	ENVOLVENTE MIN	4.075	0.000	-6.830	-0.693	17.140
N+6.35	B43	ENVOLVENTE MIN	4.890	0.000	-0.980	-0.693	14.897
N+6.35	B43	ENVOLVENTE MIN	5.705	0.000	4.460	-0.693	4.398
N+6.35	B43	ENVOLVENTE MIN	6.520	0.000	9.910	-0.693	-10.543
N+6.35	B43	ENVOLVENTE MIN	7.335	0.000	15.350	-0.693	-38.020
N+6.35	B43	ENVOLVENTE MIN	8.150	0.000	20.800	-0.693	-73.450
N+3.15	B43	ENVOLVENTE MAX	0.000	0.000	-60.950	-7.984	-57.132
N+3.15	B43	ENVOLVENTE MAX	0.815	0.000	-52.630	-7.984	-10.614
N+3.15	B43	ENVOLVENTE MAX	1.630	0.000	-41.070	-7.984	27.829
N+3.15	B43	ENVOLVENTE MAX	2.445	0.000	-27.480	-7.984	76.138
N+3.15	B43	ENVOLVENTE MAX	3.260	0.000	-16.020	-7.984	108.580
N+3.15	B43	ENVOLVENTE MAX	4.050	0.000	-8.000	-7.984	137.260

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B43	ENVOLVENTE MAX	4.050	0.000	42.910	31.749	137.321
N+3.15	B43	ENVOLVENTE MAX	4.075	0.000	43.190	31.749	136.393
N+3.15	B43	ENVOLVENTE MAX	4.890	0.000	55.120	31.749	101.432
N+3.15	B43	ENVOLVENTE MAX	5.705	0.000	72.690	31.749	63.651
N+3.15	B43	ENVOLVENTE MAX	6.520	0.000	93.710	31.749	17.294
N+3.15	B43	ENVOLVENTE MAX	7.335	0.000	111.110	31.749	-22.413
N+3.15	B43	ENVOLVENTE MAX	8.150	0.000	122.870	31.749	-70.213
N+3.15	B43	ENVOLVENTE MIN	0.000	0.000	-119.540	-32.215	-202.104
N+3.15	B43	ENVOLVENTE MIN	0.815	0.000	-107.780	-32.215	-109.105
N+3.15	B43	ENVOLVENTE MIN	1.630	0.000	-90.380	-32.215	-28.015
N+3.15	B43	ENVOLVENTE MIN	2.445	0.000	-69.420	-32.215	16.710
N+3.15	B43	ENVOLVENTE MIN	3.260	0.000	-52.190	-32.215	50.948
N+3.15	B43	ENVOLVENTE MIN	4.050	0.000	-40.870	-32.215	75.330
N+3.15	B43	ENVOLVENTE MIN	4.050	0.000	8.740	13.849	74.794
N+3.15	B43	ENVOLVENTE MIN	4.075	0.000	8.940	13.849	74.535
N+3.15	B43	ENVOLVENTE MIN	4.890	0.000	17.370	13.849	54.739
N+3.15	B43	ENVOLVENTE MIN	5.705	0.000	29.020	13.849	19.491
N+3.15	B43	ENVOLVENTE MIN	6.520	0.000	42.650	13.849	-31.182
N+3.15	B43	ENVOLVENTE MIN	7.335	0.000	54.200	13.849	-115.009
N+3.15	B43	ENVOLVENTE MIN	8.150	0.000	62.530	13.849	-210.728
N+3.15	B44	ENVOLVENTE MAX	0.000	0.000	0.170	-0.061	58.675
N+3.15	B44	ENVOLVENTE MAX	0.410	0.000	1.780	-0.061	60.411
N+3.15	B44	ENVOLVENTE MAX	0.820	0.000	5.770	-0.061	60.377
N+3.15	B44	ENVOLVENTE MAX	1.230	0.000	13.960	-0.061	57.238
N+3.15	B44	ENVOLVENTE MAX	1.640	0.000	25.000	-0.061	49.661
N+3.15	B44	ENVOLVENTE MAX	2.050	0.000	39.660	-0.061	36.421
N+3.15	B44	ENVOLVENTE MAX	2.460	0.000	54.350	-0.061	20.053
N+3.15	B44	ENVOLVENTE MAX	2.870	0.000	66.800	-0.061	1.807
N+3.15	B44	ENVOLVENTE MAX	3.280	0.000	76.000	-0.061	-12.992
N+3.15	B44	ENVOLVENTE MAX	3.690	0.000	81.950	-0.061	-29.457
N+3.15	B44	ENVOLVENTE MAX	4.100	0.000	84.640	-0.061	-46.919
N+3.15	B44	ENVOLVENTE MIN	0.000	0.000	-6.760	-1.183	32.451
N+3.15	B44	ENVOLVENTE MIN	0.410	0.000	-4.270	-1.183	33.928
N+3.15	B44	ENVOLVENTE MIN	0.820	0.000	0.330	-1.183	33.481
N+3.15	B44	ENVOLVENTE MIN	1.230	0.000	5.210	-1.183	30.504
N+3.15	B44	ENVOLVENTE MIN	1.640	0.000	11.730	-1.183	25.165
N+3.15	B44	ENVOLVENTE MIN	2.050	0.000	19.360	-1.183	16.873
N+3.15	B44	ENVOLVENTE MIN	2.460	0.000	27.000	-1.183	5.435
N+3.15	B44	ENVOLVENTE MIN	2.870	0.000	33.520	-1.183	-12.049
N+3.15	B44	ENVOLVENTE MIN	3.280	0.000	38.400	-1.183	-39.260
N+3.15	B44	ENVOLVENTE MIN	3.690	0.000	41.650	-1.183	-69.688
N+3.15	B44	ENVOLVENTE MIN	4.100	0.000	43.260	-1.183	-103.948
N+3.15	B45	ENVOLVENTE MAX	0.000	0.000	1.100	0.414	69.999
N+3.15	B45	ENVOLVENTE MAX	0.410	0.000	2.720	0.414	70.748
N+3.15	B45	ENVOLVENTE MAX	0.820	0.000	7.590	0.414	69.727
N+3.15	B45	ENVOLVENTE MAX	1.230	0.000	15.780	0.414	65.602
N+3.15	B45	ENVOLVENTE MAX	1.640	0.000	27.390	0.414	57.038
N+3.15	B45	ENVOLVENTE MAX	2.050	0.000	42.800	0.414	42.718
N+3.15	B45	ENVOLVENTE MAX	2.460	0.000	58.210	0.414	23.538
N+3.15	B45	ENVOLVENTE MAX	2.870	0.000	70.660	0.414	2.495
N+3.15	B45	ENVOLVENTE MAX	3.280	0.000	79.860	0.414	-13.236
N+3.15	B45	ENVOLVENTE MAX	3.690	0.000	85.800	0.414	-30.633
N+3.15	B45	ENVOLVENTE MAX	4.100	0.000	88.490	0.414	-49.027
N+3.15	B45	ENVOLVENTE MIN	0.000	0.000	-4.330	-0.413	38.194
N+3.15	B45	ENVOLVENTE MIN	0.410	0.000	-1.840	-0.413	39.142
N+3.15	B45	ENVOLVENTE MIN	0.820	0.000	1.870	-0.413	38.289
N+3.15	B45	ENVOLVENTE MIN	1.230	0.000	6.760	-0.413	34.900
N+3.15	B45	ENVOLVENTE MIN	1.640	0.000	13.270	-0.413	29.174
N+3.15	B45	ENVOLVENTE MIN	2.050	0.000	21.270	-0.413	20.449
N+3.15	B45	ENVOLVENTE MIN	2.460	0.000	29.270	-0.413	8.377
N+3.15	B45	ENVOLVENTE MIN	2.870	0.000	35.790	-0.413	-8.510
N+3.15	B45	ENVOLVENTE MIN	3.280	0.000	40.670	-0.413	-36.987
N+3.15	B45	ENVOLVENTE MIN	3.690	0.000	43.920	-0.413	-69.626
N+3.15	B45	ENVOLVENTE MIN	4.100	0.000	45.530	-0.413	-105.468
N+3.15	B46	ENVOLVENTE MAX	0.000	0.000	-0.510	0.430	60.771
N+3.15	B46	ENVOLVENTE MAX	0.410	0.000	1.110	0.430	62.562
N+3.15	B46	ENVOLVENTE MAX	0.820	0.000	5.120	0.430	62.582
N+3.15	B46	ENVOLVENTE MAX	1.230	0.000	13.310	0.430	59.498
N+3.15	B46	ENVOLVENTE MAX	1.640	0.000	24.850	0.430	51.976
N+3.15	B46	ENVOLVENTE MAX	2.050	0.000	39.750	0.430	38.757
N+3.15	B46	ENVOLVENTE MAX	2.460	0.000	54.660	0.430	21.077
N+3.15	B46	ENVOLVENTE MAX	2.870	0.000	67.110	0.430	1.774
N+3.15	B46	ENVOLVENTE MAX	3.280	0.000	76.310	0.430	-13.222
N+3.15	B46	ENVOLVENTE MAX	3.690	0.000	82.260	0.430	-29.884
N+3.15	B46	ENVOLVENTE MAX	4.100	0.000	84.950	0.430	-47.543
N+3.15	B46	ENVOLVENTE MIN	0.000	0.000	-6.480	-0.430	33.365
N+3.15	B46	ENVOLVENTE MIN	0.410	0.000	-3.990	-0.430	34.841
N+3.15	B46	ENVOLVENTE MIN	0.820	0.000	0.590	-0.430	34.505
N+3.15	B46	ENVOLVENTE MIN	1.230	0.000	5.470	-0.430	31.776
N+3.15	B46	ENVOLVENTE MIN	1.640	0.000	11.990	-0.430	26.709
N+3.15	B46	ENVOLVENTE MIN	2.050	0.000	19.730	-0.430	18.673
N+3.15	B46	ENVOLVENTE MIN	2.460	0.000	27.480	-0.430	7.438
N+3.15	B46	ENVOLVENTE MIN	2.870	0.000	34.000	-0.430	-9.078
N+3.15	B46	ENVOLVENTE MIN	3.280	0.000	38.880	-0.430	-36.180
N+3.15	B46	ENVOLVENTE MIN	3.690	0.000	42.130	-0.430	-67.827
N+3.15	B46	ENVOLVENTE MIN	4.100	0.000	43.740	-0.430	-102.215
N+3.15	B47	ENVOLVENTE MAX	0.000	0.000	-0.120	0.383	63.329
N+3.15	B47	ENVOLVENTE MAX	0.410	0.000	1.500	0.383	64.726
N+3.15	B47	ENVOLVENTE MAX	0.820	0.000	5.900	0.383	64.354
N+3.15	B47	ENVOLVENTE MAX	1.230	0.000	14.090	0.383	60.877
N+3.15	B47	ENVOLVENTE MAX	1.640	0.000	25.800	0.383	52.961
N+3.15	B47	ENVOLVENTE MAX	2.050	0.000	40.880	0.383	39.326

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B47	ENVOLVENTE MAX	2.460	0.000	55.960	0.383	21.074
N+3.15	B47	ENVOLVENTE MAX	2.870	0.000	68.410	0.383	1.495
N+3.15	B47	ENVOLVENTE MAX	3.280	0.000	77.610	0.383	-13.738
N+3.15	B47	ENVOLVENTE MAX	3.690	0.000	83.560	0.383	-30.637
N+3.15	B47	ENVOLVENTE MAX	4.100	0.000	86.250	0.383	-48.533
N+3.15	B47	ENVOLVENTE MIN	0.000	0.000	-5.670	-0.474	34.392
N+3.15	B47	ENVOLVENTE MIN	0.410	0.000	-3.180	-0.474	35.701
N+3.15	B47	ENVOLVENTE MIN	0.820	0.000	0.990	-0.474	35.243
N+3.15	B47	ENVOLVENTE MIN	1.230	0.000	5.880	-0.474	32.354
N+3.15	B47	ENVOLVENTE MIN	1.640	0.000	12.390	-0.474	27.128
N+3.15	B47	ENVOLVENTE MIN	2.050	0.000	20.230	-0.474	18.922
N+3.15	B47	ENVOLVENTE MIN	2.460	0.000	28.060	-0.474	7.468
N+3.15	B47	ENVOLVENTE MIN	2.870	0.000	34.580	-0.474	-9.454
N+3.15	B47	ENVOLVENTE MIN	3.280	0.000	39.460	-0.474	-37.002
N+3.15	B47	ENVOLVENTE MIN	3.690	0.000	42.710	-0.474	-69.367
N+3.15	B47	ENVOLVENTE MIN	4.100	0.000	44.320	-0.474	-104.288
N+3.15	B48	ENVOLVENTE MAX	0.000	0.000	-0.690	1.298	59.650
N+3.15	B48	ENVOLVENTE MAX	0.410	0.000	0.920	1.298	61.824
N+3.15	B48	ENVOLVENTE MAX	0.820	0.000	4.500	1.298	62.228
N+3.15	B48	ENVOLVENTE MAX	1.230	0.000	12.690	1.298	59.528
N+3.15	B48	ENVOLVENTE MAX	1.640	0.000	23.910	1.298	52.389
N+3.15	B48	ENVOLVENTE MAX	2.050	0.000	38.840	1.298	39.550
N+3.15	B48	ENVOLVENTE MAX	2.460	0.000	53.780	1.298	22.079
N+3.15	B48	ENVOLVENTE MAX	2.870	0.000	66.230	1.298	2.430
N+3.15	B48	ENVOLVENTE MAX	3.280	0.000	75.430	1.298	-12.401
N+3.15	B48	ENVOLVENTE MAX	3.690	0.000	81.380	1.298	-28.898
N+3.15	B48	ENVOLVENTE MAX	4.100	0.000	84.070	1.298	-46.391
N+3.15	B48	ENVOLVENTE MIN	0.000	0.000	-7.340	0.116	32.774
N+3.15	B48	ENVOLVENTE MIN	0.410	0.000	-4.850	0.116	34.396
N+3.15	B48	ENVOLVENTE MIN	0.820	0.000	0.160	0.116	34.434
N+3.15	B48	ENVOLVENTE MIN	1.230	0.000	5.040	0.116	31.903
N+3.15	B48	ENVOLVENTE MIN	1.640	0.000	11.550	0.116	26.922
N+3.15	B48	ENVOLVENTE MIN	2.050	0.000	19.320	0.116	18.965
N+3.15	B48	ENVOLVENTE MIN	2.460	0.000	27.080	0.116	7.798
N+3.15	B48	ENVOLVENTE MIN	2.870	0.000	33.590	0.116	-7.974
N+3.15	B48	ENVOLVENTE MIN	3.280	0.000	38.470	0.116	-34.843
N+3.15	B48	ENVOLVENTE MIN	3.690	0.000	41.720	0.116	-65.587
N+3.15	B48	ENVOLVENTE MIN	4.100	0.000	43.340	0.116	-99.613
N+6.35	B49	ENVOLVENTE MAX	0.000	0.000	-14.580	2.227	-3.044
N+6.35	B49	ENVOLVENTE MAX	0.894	0.000	-10.670	2.227	8.243
N+6.35	B49	ENVOLVENTE MAX	1.788	0.000	-6.760	2.227	16.035
N+6.35	B49	ENVOLVENTE MAX	2.682	0.000	-2.850	2.227	22.083
N+6.35	B49	ENVOLVENTE MAX	3.576	0.000	1.060	2.227	25.221
N+6.35	B49	ENVOLVENTE MAX	4.470	0.000	4.970	2.227	27.004
N+6.35	B49	ENVOLVENTE MAX	5.364	0.000	9.530	2.227	24.156
N+6.35	B49	ENVOLVENTE MAX	6.258	0.000	14.740	2.227	21.959
N+6.35	B49	ENVOLVENTE MAX	7.152	0.000	19.950	2.227	15.172
N+6.35	B49	ENVOLVENTE MAX	8.046	0.000	25.170	2.227	5.429
N+6.35	B49	ENVOLVENTE MAX	8.940	0.000	30.560	2.227	-6.025
N+6.35	B49	ENVOLVENTE MIN	0.000	0.000	-31.510	-0.332	-61.052
N+6.35	B49	ENVOLVENTE MIN	0.894	0.000	-26.300	-0.332	-35.211
N+6.35	B49	ENVOLVENTE MIN	1.788	0.000	-21.090	-0.332	-14.030
N+6.35	B49	ENVOLVENTE MIN	2.682	0.000	-15.870	-0.332	0.737
N+6.35	B49	ENVOLVENTE MIN	3.576	0.000	-10.660	-0.332	10.258
N+6.35	B49	ENVOLVENTE MIN	4.470	0.000	-5.440	-0.332	16.241
N+6.35	B49	ENVOLVENTE MIN	5.364	0.000	-0.870	-0.332	12.239
N+6.35	B49	ENVOLVENTE MIN	6.258	0.000	3.040	-0.332	2.553
N+6.35	B49	ENVOLVENTE MIN	7.152	0.000	6.950	-0.332	-10.630
N+6.35	B49	ENVOLVENTE MIN	8.046	0.000	10.860	-0.332	-29.013
N+6.35	B49	ENVOLVENTE MIN	8.940	0.000	14.770	-0.332	-53.843
N+3.15	B49	ENVOLVENTE MAX	0.000	0.000	-28.150	6.779	-10.384
N+3.15	B49	ENVOLVENTE MAX	0.894	0.000	-23.020	6.779	12.752
N+3.15	B49	ENVOLVENTE MAX	1.788	0.000	-15.430	6.779	35.206
N+3.15	B49	ENVOLVENTE MAX	2.682	0.000	-6.620	6.779	68.446
N+3.15	B49	ENVOLVENTE MAX	3.576	0.000	0.960	6.779	92.444
N+3.15	B49	ENVOLVENTE MAX	4.470	0.000	6.100	6.779	109.856
N+3.15	B49	ENVOLVENTE MAX	4.470	0.000	31.840	15.913	109.845
N+3.15	B49	ENVOLVENTE MAX	5.364	0.000	40.690	15.913	81.430
N+3.15	B49	ENVOLVENTE MAX	6.258	0.000	57.320	15.913	46.149
N+3.15	B49	ENVOLVENTE MAX	7.152	0.000	81.830	15.913	12.510
N+3.15	B49	ENVOLVENTE MAX	8.046	0.000	101.530	15.913	-10.066
N+3.15	B49	ENVOLVENTE MAX	8.940	0.000	111.580	15.913	-38.280
N+3.15	B49	ENVOLVENTE MIN	0.000	0.000	-99.270	-11.219	-162.453
N+3.15	B49	ENVOLVENTE MIN	0.894	0.000	-89.220	-11.219	-84.538
N+3.15	B49	ENVOLVENTE MIN	1.788	0.000	-69.520	-11.219	-22.784
N+3.15	B49	ENVOLVENTE MIN	2.682	0.000	-46.390	-11.219	4.117
N+3.15	B49	ENVOLVENTE MIN	3.576	0.000	-30.270	-11.219	22.235
N+3.15	B49	ENVOLVENTE MIN	4.470	0.000	-21.430	-11.219	31.453
N+3.15	B49	ENVOLVENTE MIN	4.470	0.000	-0.780	2.557	31.349
N+3.15	B49	ENVOLVENTE MIN	5.364	0.000	4.360	2.557	21.097
N+3.15	B49	ENVOLVENTE MIN	6.258	0.000	11.950	2.557	-1.746
N+3.15	B49	ENVOLVENTE MIN	7.152	0.000	20.750	2.557	-42.318
N+3.15	B49	ENVOLVENTE MIN	8.046	0.000	28.340	2.557	-118.021
N+3.15	B49	ENVOLVENTE MIN	8.940	0.000	33.480	2.557	-204.928
N+6.35	B50	ENVOLVENTE MAX	0.000	0.000	-7.330	6.758	5.065
N+6.35	B50	ENVOLVENTE MAX	0.690	0.000	-4.310	6.758	9.081
N+6.35	B50	ENVOLVENTE MAX	1.380	0.000	-1.290	6.758	11.348
N+6.35	B50	ENVOLVENTE MAX	2.070	0.000	2.670	6.758	10.892
N+6.35	B50	ENVOLVENTE MAX	2.760	0.000	6.700	6.758	8.635
N+6.35	B50	ENVOLVENTE MAX	3.450	0.000	10.720	6.758	6.628
N+6.35	B50	ENVOLVENTE MAX	4.140	0.000	14.740	6.758	7.309
N+6.35	B50	ENVOLVENTE MAX	4.830	0.000	18.770	6.758	8.334

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B50	ENVOLVENTE MAX	5.520	0.000	22.790	6.758	7.277
N+6.35	B50	ENVOLVENTE MAX	6.210	0.000	26.820	6.758	4.138
N+6.35	B50	ENVOLVENTE MAX	6.900	0.000	30.840	6.758	-1.084
N+6.35	B50	ENVOLVENTE MIN	0.000	0.000	-23.170	1.151	-43.712
N+6.35	B50	ENVOLVENTE MIN	0.690	0.000	-19.150	1.151	-29.110
N+6.35	B50	ENVOLVENTE MIN	1.380	0.000	-15.130	1.151	-17.618
N+6.35	B50	ENVOLVENTE MIN	2.070	0.000	-12.050	1.151	-8.262
N+6.35	B50	ENVOLVENTE MIN	2.760	0.000	-9.030	1.151	-1.964
N+6.35	B50	ENVOLVENTE MIN	3.450	0.000	-6.010	1.151	-0.862
N+6.35	B50	ENVOLVENTE MIN	4.140	0.000	-3.000	1.151	-7.134
N+6.35	B50	ENVOLVENTE MIN	4.830	0.000	0.020	1.151	-18.696
N+6.35	B50	ENVOLVENTE MIN	5.520	0.000	3.040	1.151	-33.034
N+6.35	B50	ENVOLVENTE MIN	6.210	0.000	6.060	1.151	-50.149
N+6.35	B50	ENVOLVENTE MIN	6.900	0.000	9.080	1.151	-70.041
N+3.15	B50	ENVOLVENTE MAX	0.000	0.000	-52.540	28.753	-41.581
N+3.15	B50	ENVOLVENTE MAX	0.690	0.000	-47.640	28.753	-6.799
N+3.15	B50	ENVOLVENTE MAX	1.380	0.000	-38.960	28.753	23.299
N+3.15	B50	ENVOLVENTE MAX	2.070	0.000	-27.450	28.753	68.101
N+3.15	B50	ENVOLVENTE MAX	2.760	0.000	-18.770	28.753	111.645
N+3.15	B50	ENVOLVENTE MAX	3.450	0.000	-13.860	28.753	156.051
N+3.15	B50	ENVOLVENTE MAX	3.450	0.000	70.700	-1.332	156.927
N+3.15	B50	ENVOLVENTE MAX	4.140	0.000	78.910	-1.332	108.515
N+3.15	B50	ENVOLVENTE MAX	4.830	0.000	95.480	-1.332	60.100
N+3.15	B50	ENVOLVENTE MAX	5.520	0.000	122.540	-1.332	13.724
N+3.15	B50	ENVOLVENTE MAX	6.210	0.000	142.110	-1.332	-19.437
N+3.15	B50	ENVOLVENTE MAX	6.900	0.000	151.320	-1.332	-57.282
N+3.15	B50	ENVOLVENTE MIN	0.000	0.000	-145.520	4.130	-213.819
N+3.15	B50	ENVOLVENTE MIN	0.690	0.000	-136.310	4.130	-121.678
N+3.15	B50	ENVOLVENTE MIN	1.380	0.000	-116.740	4.130	-38.087
N+3.15	B50	ENVOLVENTE MIN	2.070	0.000	-89.390	4.130	9.538
N+3.15	B50	ENVOLVENTE MIN	2.760	0.000	-72.750	4.130	43.384
N+3.15	B50	ENVOLVENTE MIN	3.450	0.000	-64.550	4.130	71.132
N+3.15	B50	ENVOLVENTE MIN	3.450	0.000	18.300	-20.555	71.400
N+3.15	B50	ENVOLVENTE MIN	4.140	0.000	23.210	-20.555	41.311
N+3.15	B50	ENVOLVENTE MIN	4.830	0.000	31.890	-20.555	4.162
N+3.15	B50	ENVOLVENTE MIN	5.520	0.000	43.400	-20.555	-49.198
N+3.15	B50	ENVOLVENTE MIN	6.210	0.000	52.080	-20.555	-137.034
N+3.15	B50	ENVOLVENTE MIN	6.900	0.000	56.980	-20.555	-233.422
N+6.35	B51	ENVOLVENTE MAX	0.000	0.000	-32.330	0.421	-26.915
N+6.35	B51	ENVOLVENTE MAX	0.750	0.000	-28.160	0.421	-4.122
N+6.35	B51	ENVOLVENTE MAX	1.500	0.000	-22.220	0.421	17.523
N+6.35	B51	ENVOLVENTE MAX	2.250	0.000	-14.500	0.421	61.435
N+6.35	B51	ENVOLVENTE MAX	3.000	0.000	-5.010	0.421	98.517
N+6.35	B51	ENVOLVENTE MAX	3.750	0.000	6.420	0.421	111.723
N+6.35	B51	ENVOLVENTE MAX	4.500	0.000	35.870	0.421	97.621
N+6.35	B51	ENVOLVENTE MAX	5.250	0.000	64.270	0.421	59.642
N+6.35	B51	ENVOLVENTE MAX	6.000	0.000	85.800	0.421	14.981
N+6.35	B51	ENVOLVENTE MAX	6.750	0.000	100.480	0.421	-6.492
N+6.35	B51	ENVOLVENTE MAX	7.500	0.000	108.280	0.421	-29.889
N+6.35	B51	ENVOLVENTE MIN	0.000	0.000	-107.090	-0.350	-141.579
N+6.35	B51	ENVOLVENTE MIN	0.750	0.000	-99.280	-0.350	-68.192
N+6.35	B51	ENVOLVENTE MIN	1.500	0.000	-84.610	-0.350	-11.389
N+6.35	B51	ENVOLVENTE MIN	2.250	0.000	-63.070	-0.350	11.263
N+6.35	B51	ENVOLVENTE MIN	3.000	0.000	-34.670	-0.350	27.463
N+6.35	B51	ENVOLVENTE MIN	3.750	0.000	-5.440	-0.350	35.834
N+6.35	B51	ENVOLVENTE MIN	4.500	0.000	5.820	-0.350	26.815
N+6.35	B51	ENVOLVENTE MIN	5.250	0.000	15.310	-0.350	10.011
N+6.35	B51	ENVOLVENTE MIN	6.000	0.000	23.020	-0.350	-13.244
N+6.35	B51	ENVOLVENTE MIN	6.750	0.000	28.960	-0.350	-71.685
N+6.35	B51	ENVOLVENTE MIN	7.500	0.000	33.130	-0.350	-146.062
N+3.15	B51	ENVOLVENTE MAX	0.000	0.000	-64.580	23.443	-73.961
N+3.15	B51	ENVOLVENTE MAX	0.750	0.000	-59.070	23.443	-27.309
N+3.15	B51	ENVOLVENTE MAX	1.500	0.000	-49.100	23.443	13.541
N+3.15	B51	ENVOLVENTE MAX	2.250	0.000	-35.810	23.443	70.692
N+3.15	B51	ENVOLVENTE MAX	3.000	0.000	-25.840	23.443	130.464
N+3.15	B51	ENVOLVENTE MAX	3.750	0.000	-20.330	23.443	184.773
N+3.15	B51	ENVOLVENTE MAX	3.750	0.000	70.410	-4.610	184.562
N+3.15	B51	ENVOLVENTE MAX	4.500	0.000	79.830	-4.610	129.394
N+3.15	B51	ENVOLVENTE MAX	5.250	0.000	102.570	-4.610	69.306
N+3.15	B51	ENVOLVENTE MAX	6.000	0.000	134.400	-4.610	12.390
N+3.15	B51	ENVOLVENTE MAX	6.750	0.000	157.140	-4.610	-28.999
N+3.15	B51	ENVOLVENTE MAX	7.500	0.000	167.640	-4.610	-76.189
N+3.15	B51	ENVOLVENTE MIN	0.000	0.000	-166.490	3.290	-259.116
N+3.15	B51	ENVOLVENTE MIN	0.750	0.000	-155.990	3.290	-147.037
N+3.15	B51	ENVOLVENTE MIN	1.500	0.000	-133.250	3.290	-45.654
N+3.15	B51	ENVOLVENTE MIN	2.250	0.000	-101.420	3.290	12.659
N+3.15	B51	ENVOLVENTE MIN	3.000	0.000	-79.030	3.290	52.381
N+3.15	B51	ENVOLVENTE MIN	3.750	0.000	-69.710	3.290	84.132
N+3.15	B51	ENVOLVENTE MIN	3.750	0.000	21.050	-22.391	83.868
N+3.15	B51	ENVOLVENTE MIN	4.500	0.000	26.560	-22.391	51.422
N+3.15	B51	ENVOLVENTE MIN	5.250	0.000	36.530	-22.391	11.541
N+3.15	B51	ENVOLVENTE MIN	6.000	0.000	49.820	-22.391	-48.069
N+3.15	B51	ENVOLVENTE MIN	6.750	0.000	59.790	-22.391	-149.974
N+3.15	B51	ENVOLVENTE MIN	7.500	0.000	65.300	-22.391	-262.575
N+6.35	B52	ENVOLVENTE MAX	0.000	0.000	-10.230	-1.361	-2.464
N+6.35	B52	ENVOLVENTE MAX	0.705	0.000	-7.140	-1.361	3.660
N+6.35	B52	ENVOLVENTE MAX	1.410	0.000	-4.060	-1.361	7.610
N+6.35	B52	ENVOLVENTE MAX	2.115	0.000	-0.980	-1.361	9.385
N+6.35	B52	ENVOLVENTE MAX	2.820	0.000	2.110	-1.361	8.987
N+6.35	B52	ENVOLVENTE MAX	3.525	0.000	5.190	-1.361	9.877
N+6.35	B52	ENVOLVENTE MAX	4.230	0.000	8.270	-1.361	10.778
N+6.35	B52	ENVOLVENTE MAX	4.935	0.000	11.360	-1.361	13.751

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B52	ENVOLVENTE MAX	5.640	0.000	14.630	-1.361	14.129
N+6.35	B52	ENVOLVENTE MAX	6.345	0.000	18.740	-1.361	11.608
N+6.35	B52	ENVOLVENTE MAX	7.050	0.000	22.850	-1.361	7.013
N+6.35	B52	ENVOLVENTE MIN	0.000	0.000	-31.370	-6.493	-70.055
N+6.35	B52	ENVOLVENTE MIN	0.705	0.000	-27.260	-6.493	-49.386
N+6.35	B52	ENVOLVENTE MIN	1.410	0.000	-23.150	-6.493	-31.617
N+6.35	B52	ENVOLVENTE MIN	2.115	0.000	-19.040	-6.493	-16.746
N+6.35	B52	ENVOLVENTE MIN	2.820	0.000	-14.930	-6.493	-4.774
N+6.35	B52	ENVOLVENTE MIN	3.525	0.000	-10.810	-6.493	1.904
N+6.35	B52	ENVOLVENTE MIN	4.230	0.000	-6.700	-6.493	1.365
N+6.35	B52	ENVOLVENTE MIN	4.935	0.000	-2.590	-6.493	-5.252
N+6.35	B52	ENVOLVENTE MIN	5.640	0.000	1.340	-6.493	-14.346
N+6.35	B52	ENVOLVENTE MIN	6.345	0.000	4.420	-6.493	-25.614
N+6.35	B52	ENVOLVENTE MIN	7.050	0.000	7.500	-6.493	-39.880
N+3.15	B52	ENVOLVENTE MAX	0.000	0.000	-56.490	21.848	-55.704
N+3.15	B52	ENVOLVENTE MAX	0.705	0.000	-51.440	21.848	-17.426
N+3.15	B52	ENVOLVENTE MAX	1.410	0.000	-42.440	21.848	15.903
N+3.15	B52	ENVOLVENTE MAX	2.115	0.000	-30.510	21.848	63.813
N+3.15	B52	ENVOLVENTE MAX	2.820	0.000	-21.540	21.848	112.373
N+3.15	B52	ENVOLVENTE MAX	3.520	0.000	-16.540	21.848	159.193
N+3.15	B52	ENVOLVENTE MAX	3.520	0.000	67.810	-3.107	159.249
N+3.15	B52	ENVOLVENTE MAX	4.230	0.000	76.380	-3.107	110.437
N+3.15	B52	ENVOLVENTE MAX	4.935	0.000	94.900	-3.107	61.126
N+3.15	B52	ENVOLVENTE MAX	5.640	0.000	123.390	-3.107	14.238
N+3.15	B52	ENVOLVENTE MAX	6.345	0.000	143.730	-3.107	-19.687
N+3.15	B52	ENVOLVENTE MAX	7.050	0.000	153.250	-3.107	-58.561
N+3.15	B52	ENVOLVENTE MIN	0.000	0.000	-151.030	3.150	-230.535
N+3.15	B52	ENVOLVENTE MIN	0.705	0.000	-141.510	3.150	-133.092
N+3.15	B52	ENVOLVENTE MIN	1.410	0.000	-121.170	3.150	-44.706
N+3.15	B52	ENVOLVENTE MIN	2.115	0.000	-92.750	3.150	6.538
N+3.15	B52	ENVOLVENTE MIN	2.820	0.000	-75.170	3.150	42.574
N+3.15	B52	ENVOLVENTE MIN	3.520	0.000	-66.780	3.150	71.910
N+3.15	B52	ENVOLVENTE MIN	3.520	0.000	17.200	-19.896	71.772
N+3.15	B52	ENVOLVENTE MIN	4.230	0.000	22.300	-19.896	41.774
N+3.15	B52	ENVOLVENTE MIN	4.935	0.000	31.330	-19.896	5.570
N+3.15	B52	ENVOLVENTE MIN	5.640	0.000	43.290	-19.896	-48.263
N+3.15	B52	ENVOLVENTE MIN	6.345	0.000	52.280	-19.896	-137.636
N+3.15	B52	ENVOLVENTE MIN	7.050	0.000	57.340	-19.896	-236.066
N+6.35	B53	ENVOLVENTE MAX	0.000	0.000	-9.080	0.465	5.361
N+6.35	B53	ENVOLVENTE MAX	0.718	0.000	-5.940	0.465	10.754
N+6.35	B53	ENVOLVENTE MAX	1.436	0.000	-2.800	0.465	15.007
N+6.35	B53	ENVOLVENTE MAX	2.154	0.000	0.340	0.465	17.535
N+6.35	B53	ENVOLVENTE MAX	2.872	0.000	3.480	0.465	17.055
N+6.35	B53	ENVOLVENTE MAX	3.590	0.000	6.950	0.465	15.279
N+6.35	B53	ENVOLVENTE MAX	4.308	0.000	11.140	0.465	16.243
N+6.35	B53	ENVOLVENTE MAX	5.026	0.000	15.320	0.465	15.815
N+6.35	B53	ENVOLVENTE MAX	5.744	0.000	19.510	0.465	12.672
N+6.35	B53	ENVOLVENTE MAX	6.462	0.000	23.700	0.465	9.096
N+6.35	B53	ENVOLVENTE MAX	7.180	0.000	27.890	0.465	3.265
N+6.35	B53	ENVOLVENTE MIN	0.000	0.000	-26.620	-0.363	-44.327
N+6.35	B53	ENVOLVENTE MIN	0.718	0.000	-22.430	-0.363	-26.715
N+6.35	B53	ENVOLVENTE MIN	1.436	0.000	-18.250	-0.363	-13.227
N+6.35	B53	ENVOLVENTE MIN	2.154	0.000	-14.060	-0.363	-3.273
N+6.35	B53	ENVOLVENTE MIN	2.872	0.000	-9.870	-0.363	4.426
N+6.35	B53	ENVOLVENTE MIN	3.590	0.000	-6.010	-0.363	9.773
N+6.35	B53	ENVOLVENTE MIN	4.308	0.000	-2.870	-0.363	3.892
N+6.35	B53	ENVOLVENTE MIN	5.026	0.000	0.270	-0.363	-4.245
N+6.35	B53	ENVOLVENTE MIN	5.744	0.000	3.410	-0.363	-14.927
N+6.35	B53	ENVOLVENTE MIN	6.462	0.000	6.550	-0.363	-30.440
N+6.35	B53	ENVOLVENTE MIN	7.180	0.000	9.690	-0.363	-48.958
N+3.15	B53	ENVOLVENTE MAX	0.000	0.000	-58.480	19.438	-59.708
N+3.15	B53	ENVOLVENTE MAX	0.718	0.000	-53.290	19.438	-19.335
N+3.15	B53	ENVOLVENTE MAX	1.436	0.000	-44.020	19.438	15.850
N+3.15	B53	ENVOLVENTE MAX	2.154	0.000	-31.690	19.438	65.926
N+3.15	B53	ENVOLVENTE MAX	2.872	0.000	-22.420	19.438	117.545
N+3.15	B53	ENVOLVENTE MAX	3.590	0.000	-17.230	19.438	166.634
N+3.15	B53	ENVOLVENTE MAX	3.590	0.000	69.030	-2.972	166.905
N+3.15	B53	ENVOLVENTE MAX	4.308	0.000	77.750	-2.972	116.147
N+3.15	B53	ENVOLVENTE MAX	5.026	0.000	97.550	-2.972	63.314
N+3.15	B53	ENVOLVENTE MAX	5.744	0.000	126.990	-2.972	13.163
N+3.15	B53	ENVOLVENTE MAX	6.462	0.000	148.010	-2.972	-23.174
N+3.15	B53	ENVOLVENTE MAX	7.180	0.000	157.810	-2.972	-64.697
N+3.15	B53	ENVOLVENTE MIN	0.000	0.000	-155.480	2.893	-237.621
N+3.15	B53	ENVOLVENTE MIN	0.718	0.000	-145.680	2.893	-136.231
N+3.15	B53	ENVOLVENTE MIN	1.436	0.000	-124.660	2.893	-44.353
N+3.15	B53	ENVOLVENTE MIN	2.154	0.000	-95.220	2.893	8.891
N+3.15	B53	ENVOLVENTE MIN	2.872	0.000	-75.990	2.893	45.663
N+3.15	B53	ENVOLVENTE MIN	3.590	0.000	-67.270	2.893	75.490
N+3.15	B53	ENVOLVENTE MIN	3.590	0.000	18.840	-19.686	75.568
N+3.15	B53	ENVOLVENTE MIN	4.308	0.000	24.020	-19.686	44.506
N+3.15	B53	ENVOLVENTE MIN	5.026	0.000	33.290	-19.686	7.058
N+3.15	B53	ENVOLVENTE MIN	5.744	0.000	45.630	-19.686	-48.526
N+3.15	B53	ENVOLVENTE MIN	6.462	0.000	54.900	-19.686	-141.668
N+3.15	B53	ENVOLVENTE MIN	7.180	0.000	60.080	-19.686	-244.322
N+6.35	B54	ENVOLVENTE MAX	0.000	0.000	-8.310	0.750	6.417
N+6.35	B54	ENVOLVENTE MAX	0.707	0.000	-5.220	0.750	11.200
N+6.35	B54	ENVOLVENTE MAX	1.414	0.000	-2.130	0.750	14.342
N+6.35	B54	ENVOLVENTE MAX	2.121	0.000	0.970	0.750	15.858
N+6.35	B54	ENVOLVENTE MAX	2.828	0.000	4.060	0.750	14.459
N+6.35	B54	ENVOLVENTE MAX	3.535	0.000	8.160	0.750	12.445
N+6.35	B54	ENVOLVENTE MAX	4.242	0.000	12.290	0.750	10.766
N+6.35	B54	ENVOLVENTE MAX	4.949	0.000	16.410	0.750	10.620

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B54	ENVOLVENTE MAX	5.656	0.000	20.530	0.750	8.883
N+6.35	B54	ENVOLVENTE MAX	6.363	0.000	24.660	0.750	4.961
N+6.35	B54	ENVOLVENTE MAX	7.070	0.000	28.780	0.750	-1.148
N+6.35	B54	ENVOLVENTE MIN	0.000	0.000	-24.880	-0.114	-42.296
N+6.35	B54	ENVOLVENTE MIN	0.707	0.000	-20.760	-0.114	-26.165
N+6.35	B54	ENVOLVENTE MIN	1.414	0.000	-16.630	-0.114	-13.494
N+6.35	B54	ENVOLVENTE MIN	2.121	0.000	-12.510	-0.114	-4.299
N+6.35	B54	ENVOLVENTE MIN	2.828	0.000	-8.390	-0.114	2.710
N+6.35	B54	ENVOLVENTE MIN	3.535	0.000	-5.280	-0.114	7.530
N+6.35	B54	ENVOLVENTE MIN	4.242	0.000	-2.180	-0.114	2.318
N+6.35	B54	ENVOLVENTE MIN	4.949	0.000	0.910	-0.114	-7.229
N+6.35	B54	ENVOLVENTE MIN	5.656	0.000	4.000	-0.114	-20.289
N+6.35	B54	ENVOLVENTE MIN	6.363	0.000	7.090	-0.114	-36.263
N+6.35	B54	ENVOLVENTE MIN	7.070	0.000	10.190	-0.114	-55.153
N+3.15	B54	ENVOLVENTE MAX	0.000	0.000	-62.450	20.222	-67.826
N+3.15	B54	ENVOLVENTE MAX	0.707	0.000	-57.370	20.222	-25.230
N+3.15	B54	ENVOLVENTE MAX	1.414	0.000	-48.340	20.222	12.384
N+3.15	B54	ENVOLVENTE MAX	2.121	0.000	-36.310	20.222	64.385
N+3.15	B54	ENVOLVENTE MAX	2.828	0.000	-27.250	20.222	121.803
N+3.15	B54	ENVOLVENTE MAX	3.540	0.000	-22.130	20.222	177.897
N+3.15	B54	ENVOLVENTE MAX	3.540	0.000	63.650	-8.841	176.796
N+3.15	B54	ENVOLVENTE MAX	4.242	0.000	72.080	-8.841	131.523
N+3.15	B54	ENVOLVENTE MAX	4.949	0.000	90.480	-8.841	80.526
N+3.15	B54	ENVOLVENTE MAX	5.656	0.000	119.050	-8.841	25.106
N+3.15	B54	ENVOLVENTE MAX	6.363	0.000	139.500	-8.841	-9.791
N+3.15	B54	ENVOLVENTE MAX	7.070	0.000	149.060	-8.841	-48.711
N+3.15	B54	ENVOLVENTE MIN	0.000	0.000	-163.720	3.022	-252.603
N+3.15	B54	ENVOLVENTE MIN	0.707	0.000	-154.150	3.022	-147.262
N+3.15	B54	ENVOLVENTE MIN	1.414	0.000	-133.710	3.022	-51.049
N+3.15	B54	ENVOLVENTE MIN	2.121	0.000	-105.060	3.022	8.023
N+3.15	B54	ENVOLVENTE MIN	2.828	0.000	-85.450	3.022	47.817
N+3.15	B54	ENVOLVENTE MIN	3.540	0.000	-76.850	3.022	80.248
N+3.15	B54	ENVOLVENTE MIN	3.540	0.000	16.990	-31.080	79.708
N+3.15	B54	ENVOLVENTE MIN	4.242	0.000	22.020	-31.080	52.274
N+3.15	B54	ENVOLVENTE MIN	4.949	0.000	31.030	-31.080	17.663
N+3.15	B54	ENVOLVENTE MIN	5.656	0.000	43.020	-31.080	-24.660
N+3.15	B54	ENVOLVENTE MIN	6.363	0.000	52.060	-31.080	-110.244
N+3.15	B54	ENVOLVENTE MIN	7.070	0.000	57.130	-31.080	-205.918
N+6.35	B55	ENVOLVENTE MAX	0.000	0.000	-5.430	-0.315	19.345
N+6.35	B55	ENVOLVENTE MAX	0.492	0.000	-2.900	-0.315	21.861
N+6.35	B55	ENVOLVENTE MAX	0.984	0.000	0.400	-0.315	26.661
N+6.35	B55	ENVOLVENTE MAX	1.476	0.000	4.460	-0.315	28.619
N+6.35	B55	ENVOLVENTE MAX	1.968	0.000	9.230	-0.315	27.027
N+6.35	B55	ENVOLVENTE MAX	2.460	0.000	15.390	-0.315	26.162
N+6.35	B55	ENVOLVENTE MAX	2.952	0.000	23.540	-0.315	28.186
N+6.35	B55	ENVOLVENTE MAX	3.444	0.000	31.390	-0.315	27.730
N+6.35	B55	ENVOLVENTE MAX	3.936	0.000	37.900	-0.315	23.723
N+6.35	B55	ENVOLVENTE MAX	4.428	0.000	42.940	-0.315	21.326
N+6.35	B55	ENVOLVENTE MAX	4.920	0.000	46.540	-0.315	18.418
N+6.35	B55	ENVOLVENTE MIN	0.000	0.000	-42.380	-3.118	-47.345
N+6.35	B55	ENVOLVENTE MIN	0.492	0.000	-38.780	-3.118	-27.755
N+6.35	B55	ENVOLVENTE MIN	0.984	0.000	-33.730	-3.118	-14.012
N+6.35	B55	ENVOLVENTE MIN	1.476	0.000	-27.230	-3.118	-2.078
N+6.35	B55	ENVOLVENTE MIN	1.968	0.000	-19.370	-3.118	7.672
N+6.35	B55	ENVOLVENTE MIN	2.460	0.000	-12.470	-3.118	11.801
N+6.35	B55	ENVOLVENTE MIN	2.952	0.000	-7.550	-3.118	3.637
N+6.35	B55	ENVOLVENTE MIN	3.444	0.000	-2.780	-3.118	-6.942
N+6.35	B55	ENVOLVENTE MIN	3.936	0.000	1.280	-3.118	-19.703
N+6.35	B55	ENVOLVENTE MIN	4.428	0.000	4.580	-3.118	-38.726
N+6.35	B55	ENVOLVENTE MIN	4.920	0.000	7.110	-3.118	-60.799
N+3.15	B55	ENVOLVENTE MAX	0.000	0.000	10.600	-1.181	34.016
N+3.15	B55	ENVOLVENTE MAX	0.492	0.000	12.750	-1.181	28.274
N+3.15	B55	ENVOLVENTE MAX	0.984	0.000	14.900	-1.181	21.472
N+3.15	B55	ENVOLVENTE MAX	1.476	0.000	17.050	-1.181	13.612
N+3.15	B55	ENVOLVENTE MAX	1.968	0.000	19.200	-1.181	4.693
N+3.15	B55	ENVOLVENTE MAX	2.460	0.000	21.360	-1.181	0.354
N+3.15	B55	ENVOLVENTE MAX	2.952	0.000	23.510	-1.181	15.137
N+3.15	B55	ENVOLVENTE MAX	3.444	0.000	25.660	-1.181	28.870
N+3.15	B55	ENVOLVENTE MAX	3.936	0.000	27.810	-1.181	41.546
N+3.15	B55	ENVOLVENTE MAX	4.428	0.000	29.960	-1.181	54.101
N+3.15	B55	ENVOLVENTE MAX	4.920	0.000	32.120	-1.181	65.244
N+3.15	B55	ENVOLVENTE MIN	0.000	0.000	-49.910	-5.688	-109.713
N+3.15	B55	ENVOLVENTE MIN	0.492	0.000	-47.040	-5.688	-85.864
N+3.15	B55	ENVOLVENTE MIN	0.984	0.000	-44.170	-5.688	-63.428
N+3.15	B55	ENVOLVENTE MIN	1.476	0.000	-41.300	-5.688	-42.403
N+3.15	B55	ENVOLVENTE MIN	1.968	0.000	-38.430	-5.688	-22.790
N+3.15	B55	ENVOLVENTE MIN	2.460	0.000	-35.560	-5.688	-10.228
N+3.15	B55	ENVOLVENTE MIN	2.952	0.000	-32.690	-5.688	-19.257
N+3.15	B55	ENVOLVENTE MIN	3.444	0.000	-29.820	-5.688	-29.708
N+3.15	B55	ENVOLVENTE MIN	3.936	0.000	-26.950	-5.688	-41.572
N+3.15	B55	ENVOLVENTE MIN	4.428	0.000	-24.080	-5.688	-55.785
N+3.15	B55	ENVOLVENTE MIN	4.920	0.000	-21.210	-5.688	-71.057
N+6.35	B56	ENVOLVENTE MAX	0.000	0.000	24.920	0.376	60.923
N+6.35	B56	ENVOLVENTE MAX	0.357	0.000	27.400	0.376	52.155
N+6.35	B56	ENVOLVENTE MAX	0.714	0.000	29.880	0.376	43.440
N+6.35	B56	ENVOLVENTE MAX	1.071	0.000	32.360	0.376	33.261
N+6.35	B56	ENVOLVENTE MAX	1.428	0.000	34.840	0.376	21.617
N+6.35	B56	ENVOLVENTE MAX	1.785	0.000	38.770	0.376	9.313
N+6.35	B56	ENVOLVENTE MAX	2.142	0.000	42.870	0.376	19.633
N+6.35	B56	ENVOLVENTE MAX	2.499	0.000	46.980	0.376	29.293
N+6.35	B56	ENVOLVENTE MAX	2.856	0.000	51.080	0.376	38.522
N+6.35	B56	ENVOLVENTE MAX	3.213	0.000	55.180	0.376	47.801

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B56	ENVOLVENTE MAX	3.570	0.000	59.280	0.376	56.195
N+6.35	B56	ENVOLVENTE MIN	0.000	0.000	-53.730	-0.319	-69.085
N+6.35	B56	ENVOLVENTE MIN	0.357	0.000	-49.620	-0.319	-51.208
N+6.35	B56	ENVOLVENTE MIN	0.714	0.000	-45.520	-0.319	-35.735
N+6.35	B56	ENVOLVENTE MIN	1.071	0.000	-41.420	-0.319	-21.146
N+6.35	B56	ENVOLVENTE MIN	1.428	0.000	-37.320	-0.319	-7.443
N+6.35	B56	ENVOLVENTE MIN	1.785	0.000	-34.670	-0.319	5.369
N+6.35	B56	ENVOLVENTE MIN	2.142	0.000	-32.190	-0.319	-8.388
N+6.35	B56	ENVOLVENTE MIN	2.499	0.000	-29.710	-0.319	-23.037
N+6.35	B56	ENVOLVENTE MIN	2.856	0.000	-27.230	-0.319	-39.605
N+6.35	B56	ENVOLVENTE MIN	3.213	0.000	-24.750	-0.319	-58.573
N+6.35	B56	ENVOLVENTE MIN	3.570	0.000	-22.270	-0.319	-79.005
N+3.15	B56	ENVOLVENTE MAX	0.000	0.000	59.770	2.038	122.470
N+3.15	B56	ENVOLVENTE MAX	0.357	0.000	61.520	2.038	100.831
N+3.15	B56	ENVOLVENTE MAX	0.714	0.000	63.670	2.038	81.296
N+3.15	B56	ENVOLVENTE MAX	1.071	0.000	66.210	2.038	60.674
N+3.15	B56	ENVOLVENTE MAX	1.428	0.000	69.140	2.038	38.067
N+3.15	B56	ENVOLVENTE MAX	1.785	0.000	73.780	2.038	16.173
N+3.15	B56	ENVOLVENTE MAX	2.142	0.000	81.080	2.038	36.047
N+3.15	B56	ENVOLVENTE MAX	2.499	0.000	87.220	2.038	56.632
N+3.15	B56	ENVOLVENTE MAX	2.856	0.000	92.190	2.038	75.266
N+3.15	B56	ENVOLVENTE MAX	3.213	0.000	96.010	2.038	96.524
N+3.15	B56	ENVOLVENTE MAX	3.570	0.000	98.680	2.038	117.086
N+3.15	B56	ENVOLVENTE MIN	0.000	0.000	-93.010	-1.827	-135.051
N+3.15	B56	ENVOLVENTE MIN	0.357	0.000	-90.350	-1.827	-102.286
N+3.15	B56	ENVOLVENTE MIN	0.714	0.000	-86.530	-1.827	-73.480
N+3.15	B56	ENVOLVENTE MIN	1.071	0.000	-81.550	-1.827	-45.993
N+3.15	B56	ENVOLVENTE MIN	1.428	0.000	-75.410	-1.827	-19.482
N+3.15	B56	ENVOLVENTE MIN	1.785	0.000	-69.440	-1.827	5.905
N+3.15	B56	ENVOLVENTE MIN	2.142	0.000	-66.120	-1.827	-20.563
N+3.15	B56	ENVOLVENTE MIN	2.499	0.000	-63.190	-1.827	-48.151
N+3.15	B56	ENVOLVENTE MIN	2.856	0.000	-60.650	-1.827	-76.750
N+3.15	B56	ENVOLVENTE MIN	3.213	0.000	-58.510	-1.827	-110.380
N+3.15	B56	ENVOLVENTE MIN	3.570	0.000	-56.750	-1.827	-145.166
N+3.15	B57	ENVOLVENTE MAX	0.000	0.000	-6.790	0.092	4.206
N+3.15	B57	ENVOLVENTE MAX	0.357	0.000	-5.710	0.092	6.460
N+3.15	B57	ENVOLVENTE MAX	0.714	0.000	-3.840	0.092	12.858
N+3.15	B57	ENVOLVENTE MAX	1.071	0.000	-1.190	0.092	19.618
N+3.15	B57	ENVOLVENTE MAX	1.428	0.000	2.240	0.092	26.966
N+3.15	B57	ENVOLVENTE MAX	1.785	0.000	6.570	0.092	29.584
N+3.15	B57	ENVOLVENTE MAX	2.142	0.000	17.930	0.092	26.737
N+3.15	B57	ENVOLVENTE MAX	2.499	0.000	26.960	0.092	19.159
N+3.15	B57	ENVOLVENTE MAX	2.856	0.000	35.450	0.092	12.288
N+3.15	B57	ENVOLVENTE MAX	3.213	0.000	41.000	0.092	6.044
N+3.15	B57	ENVOLVENTE MAX	3.570	0.000	43.470	0.092	3.679
N+3.15	B57	ENVOLVENTE MIN	0.000	0.000	-42.820	-0.111	-27.116
N+3.15	B57	ENVOLVENTE MIN	0.357	0.000	-40.360	-0.111	-13.280
N+3.15	B57	ENVOLVENTE MIN	0.714	0.000	-34.810	-0.111	-5.272
N+3.15	B57	ENVOLVENTE MIN	1.071	0.000	-26.400	-0.111	0.144
N+3.15	B57	ENVOLVENTE MIN	1.428	0.000	-17.370	-0.111	4.476
N+3.15	B57	ENVOLVENTE MIN	1.785	0.000	-6.140	-0.111	7.385
N+3.15	B57	ENVOLVENTE MIN	2.142	0.000	-1.930	-0.111	4.339
N+3.15	B57	ENVOLVENTE MIN	2.499	0.000	1.500	-0.111	-0.104
N+3.15	B57	ENVOLVENTE MIN	2.856	0.000	4.150	-0.111	-5.631
N+3.15	B57	ENVOLVENTE MIN	3.213	0.000	6.020	-0.111	-14.103
N+3.15	B57	ENVOLVENTE MIN	3.570	0.000	7.100	-0.111	-28.138
N+6.35	B58	ENVOLVENTE MAX	0.000	0.000	12.720	1.231	36.745
N+6.35	B58	ENVOLVENTE MAX	0.357	0.000	15.540	1.231	31.700
N+6.35	B58	ENVOLVENTE MAX	0.714	0.000	18.370	1.231	25.647
N+6.35	B58	ENVOLVENTE MAX	1.071	0.000	21.190	1.231	18.586
N+6.35	B58	ENVOLVENTE MAX	1.428	0.000	24.020	1.231	11.407
N+6.35	B58	ENVOLVENTE MAX	1.785	0.000	27.290	1.231	3.001
N+6.35	B58	ENVOLVENTE MAX	2.142	0.000	32.470	1.231	10.684
N+6.35	B58	ENVOLVENTE MAX	2.499	0.000	37.650	1.231	17.759
N+6.35	B58	ENVOLVENTE MAX	2.856	0.000	42.830	1.231	24.398
N+6.35	B58	ENVOLVENTE MAX	3.213	0.000	48.010	1.231	30.028
N+6.35	B58	ENVOLVENTE MAX	3.570	0.000	53.190	1.231	34.651
N+6.35	B58	ENVOLVENTE MIN	0.000	0.000	-51.110	-0.397	-65.512
N+6.35	B58	ENVOLVENTE MIN	0.357	0.000	-45.930	-0.397	-48.189
N+6.35	B58	ENVOLVENTE MIN	0.714	0.000	-40.750	-0.397	-32.716
N+6.35	B58	ENVOLVENTE MIN	1.071	0.000	-35.570	-0.397	-19.093
N+6.35	B58	ENVOLVENTE MIN	1.428	0.000	-30.390	-0.397	-8.210
N+6.35	B58	ENVOLVENTE MIN	1.785	0.000	-25.660	-0.397	1.322
N+6.35	B58	ENVOLVENTE MIN	2.142	0.000	-22.830	-0.397	-8.650
N+6.35	B58	ENVOLVENTE MIN	2.499	0.000	-20.010	-0.397	-20.593
N+6.35	B58	ENVOLVENTE MIN	2.856	0.000	-17.180	-0.397	-34.957
N+6.35	B58	ENVOLVENTE MIN	3.213	0.000	-14.360	-0.397	-51.171
N+6.35	B58	ENVOLVENTE MIN	3.570	0.000	-11.540	-0.397	-69.234
N+3.15	B58	ENVOLVENTE MAX	0.000	0.000	34.480	0.734	62.711
N+3.15	B58	ENVOLVENTE MAX	0.357	0.000	36.430	0.734	50.078
N+3.15	B58	ENVOLVENTE MAX	0.714	0.000	39.160	0.734	36.608
N+3.15	B58	ENVOLVENTE MAX	1.071	0.000	42.680	0.734	22.023
N+3.15	B58	ENVOLVENTE MAX	1.428	0.000	46.980	0.734	6.359
N+3.15	B58	ENVOLVENTE MAX	1.785	0.000	53.120	0.734	-7.127
N+3.15	B58	ENVOLVENTE MAX	2.142	0.000	65.610	0.734	5.426
N+3.15	B58	ENVOLVENTE MAX	2.499	0.000	75.800	0.734	20.581
N+3.15	B58	ENVOLVENTE MAX	2.856	0.000	83.680	0.734	34.341
N+3.15	B58	ENVOLVENTE MAX	3.213	0.000	89.240	0.734	46.986
N+3.15	B58	ENVOLVENTE MAX	3.570	0.000	92.480	0.734	58.795
N+3.15	B58	ENVOLVENTE MIN	0.000	0.000	-88.030	-0.408	-140.711
N+3.15	B58	ENVOLVENTE MIN	0.357	0.000	-84.790	-0.408	-109.795
N+3.15	B58	ENVOLVENTE MIN	0.714	0.000	-79.230	-0.408	-80.450

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B58	ENVOLVENTE MIN	1.071	0.000	-71.350	-0.408	-53.503
N+3.15	B58	ENVOLVENTE MIN	1.428	0.000	-61.160	-0.408	-30.095
N+3.15	B58	ENVOLVENTE MIN	1.785	0.000	-49.740	-0.408	-17.904
N+3.15	B58	ENVOLVENTE MIN	2.142	0.000	-44.670	-0.408	-31.576
N+3.15	B58	ENVOLVENTE MIN	2.499	0.000	-40.370	-0.408	-56.886
N+3.15	B58	ENVOLVENTE MIN	2.856	0.000	-36.850	-0.408	-85.422
N+3.15	B58	ENVOLVENTE MIN	3.213	0.000	-34.120	-0.408	-116.356
N+3.15	B58	ENVOLVENTE MIN	3.570	0.000	-32.170	-0.408	-148.861
N+3.15	B59	ENVOLVENTE MAX	0.000	0.000	-8.530	0.057	-25.162
N+3.15	B59	ENVOLVENTE MAX	0.357	0.000	-7.450	0.057	-22.286
N+3.15	B59	ENVOLVENTE MAX	0.714	0.000	-5.580	0.057	-19.937
N+3.15	B59	ENVOLVENTE MAX	1.071	0.000	-2.930	0.057	-18.393
N+3.15	B59	ENVOLVENTE MAX	1.428	0.000	0.500	0.057	-17.934
N+3.15	B59	ENVOLVENTE MAX	1.785	0.000	5.050	0.057	-18.761
N+3.15	B59	ENVOLVENTE MAX	2.142	0.000	16.370	0.057	-18.164
N+3.15	B59	ENVOLVENTE MAX	2.499	0.000	27.160	0.057	-18.742
N+3.15	B59	ENVOLVENTE MAX	2.856	0.000	35.790	0.057	-20.403
N+3.15	B59	ENVOLVENTE MAX	3.213	0.000	41.340	0.057	-22.871
N+3.15	B59	ENVOLVENTE MAX	3.570	0.000	43.800	0.057	-25.865
N+3.15	B59	ENVOLVENTE MIN	0.000	0.000	-42.400	-0.059	-68.822
N+3.15	B59	ENVOLVENTE MIN	0.357	0.000	-39.940	-0.059	-54.712
N+3.15	B59	ENVOLVENTE MIN	0.714	0.000	-34.390	-0.059	-42.760
N+3.15	B59	ENVOLVENTE MIN	1.071	0.000	-25.760	-0.059	-33.739
N+3.15	B59	ENVOLVENTE MIN	1.428	0.000	-15.330	-0.059	-30.509
N+3.15	B59	ENVOLVENTE MIN	1.785	0.000	-4.370	-0.059	-29.400
N+3.15	B59	ENVOLVENTE MIN	2.142	0.000	-0.170	-0.059	-30.692
N+3.15	B59	ENVOLVENTE MIN	2.499	0.000	3.260	-0.059	-34.106
N+3.15	B59	ENVOLVENTE MIN	2.856	0.000	5.910	-0.059	-43.762
N+3.15	B59	ENVOLVENTE MIN	3.213	0.000	7.780	-0.059	-56.085
N+3.15	B59	ENVOLVENTE MIN	3.570	0.000	8.860	-0.059	-71.321
N+6.35	B60	ENVOLVENTE MAX	0.000	0.000	8.180	-1.484	21.754
N+6.35	B60	ENVOLVENTE MAX	0.357	0.000	10.930	-1.484	18.343
N+6.35	B60	ENVOLVENTE MAX	0.714	0.000	13.680	-1.484	13.949
N+6.35	B60	ENVOLVENTE MAX	1.071	0.000	16.440	-1.484	8.573
N+6.35	B60	ENVOLVENTE MAX	1.428	0.000	19.190	-1.484	2.215
N+6.35	B60	ENVOLVENTE MAX	1.785	0.000	21.940	-1.484	-4.867
N+6.35	B60	ENVOLVENTE MAX	2.142	0.000	24.690	-1.484	3.326
N+6.35	B60	ENVOLVENTE MAX	2.499	0.000	27.450	-1.484	10.720
N+6.35	B60	ENVOLVENTE MAX	2.856	0.000	30.200	-1.484	17.131
N+6.35	B60	ENVOLVENTE MAX	3.213	0.000	34.700	-1.484	22.560
N+6.35	B60	ENVOLVENTE MAX	3.570	0.000	39.660	-1.484	27.006
N+6.35	B60	ENVOLVENTE MIN	0.000	0.000	-56.680	-9.622	-95.616
N+6.35	B60	ENVOLVENTE MIN	0.357	0.000	-51.720	-9.622	-76.267
N+6.35	B60	ENVOLVENTE MIN	0.714	0.000	-46.770	-9.622	-58.687
N+6.35	B60	ENVOLVENTE MIN	1.071	0.000	-41.810	-9.622	-42.876
N+6.35	B60	ENVOLVENTE MIN	1.428	0.000	-36.860	-9.622	-28.835
N+6.35	B60	ENVOLVENTE MIN	1.785	0.000	-31.900	-9.622	-22.484
N+6.35	B60	ENVOLVENTE MIN	2.142	0.000	-26.950	-9.622	-22.835
N+6.35	B60	ENVOLVENTE MIN	2.499	0.000	-21.990	-9.622	-30.800
N+6.35	B60	ENVOLVENTE MIN	2.856	0.000	-17.040	-9.622	-40.534
N+6.35	B60	ENVOLVENTE MIN	3.213	0.000	-13.830	-9.622	-52.038
N+6.35	B60	ENVOLVENTE MIN	3.570	0.000	-11.080	-9.622	-65.311
N+3.15	B60	ENVOLVENTE MAX	0.000	0.000	27.410	-0.226	39.914
N+3.15	B60	ENVOLVENTE MAX	0.357	0.000	29.370	-0.226	29.802
N+3.15	B60	ENVOLVENTE MAX	0.714	0.000	32.100	-0.226	18.853
N+3.15	B60	ENVOLVENTE MAX	1.071	0.000	35.620	-0.226	6.788
N+3.15	B60	ENVOLVENTE MAX	1.428	0.000	39.920	-0.226	-6.670
N+3.15	B60	ENVOLVENTE MAX	1.785	0.000	46.690	-0.226	-21.597
N+3.15	B60	ENVOLVENTE MAX	2.142	0.000	59.180	-0.226	-6.799
N+3.15	B60	ENVOLVENTE MAX	2.499	0.000	69.370	-0.226	6.566
N+3.15	B60	ENVOLVENTE MAX	2.856	0.000	77.250	-0.226	18.536
N+3.15	B60	ENVOLVENTE MAX	3.213	0.000	82.800	-0.226	29.391
N+3.15	B60	ENVOLVENTE MAX	3.570	0.000	86.050	-0.226	39.409
N+3.15	B60	ENVOLVENTE MIN	0.000	0.000	-82.380	-2.358	-147.753
N+3.15	B60	ENVOLVENTE MIN	0.357	0.000	-79.140	-2.358	-118.852
N+3.15	B60	ENVOLVENTE MIN	0.714	0.000	-73.580	-2.358	-91.522
N+3.15	B60	ENVOLVENTE MIN	1.071	0.000	-65.710	-2.358	-66.590
N+3.15	B60	ENVOLVENTE MIN	1.428	0.000	-55.520	-2.358	-44.882
N+3.15	B60	ENVOLVENTE MIN	1.785	0.000	-44.730	-2.358	-33.945
N+3.15	B60	ENVOLVENTE MIN	2.142	0.000	-39.650	-2.358	-46.156
N+3.15	B60	ENVOLVENTE MIN	2.499	0.000	-35.350	-2.358	-69.172
N+3.15	B60	ENVOLVENTE MIN	2.856	0.000	-31.840	-2.358	-95.412
N+3.15	B60	ENVOLVENTE MIN	3.213	0.000	-29.100	-2.358	-124.050
N+3.15	B60	ENVOLVENTE MIN	3.570	0.000	-27.150	-2.358	-154.259
N+3.15	B61	ENVOLVENTE MAX	0.000	0.000	-12.240	-0.115	-28.169
N+3.15	B61	ENVOLVENTE MAX	0.357	0.000	-11.160	-0.115	-23.969
N+3.15	B61	ENVOLVENTE MAX	0.714	0.000	-9.290	-0.115	-20.296
N+3.15	B61	ENVOLVENTE MAX	1.071	0.000	-6.640	-0.115	-17.429
N+3.15	B61	ENVOLVENTE MAX	1.428	0.000	-3.210	-0.115	-15.452
N+3.15	B61	ENVOLVENTE MAX	1.785	0.000	1.000	-0.115	-10.623
N+3.15	B61	ENVOLVENTE MAX	2.142	0.000	10.130	-0.115	-11.259
N+3.15	B61	ENVOLVENTE MAX	2.499	0.000	20.630	-0.115	-12.375
N+3.15	B61	ENVOLVENTE MAX	2.856	0.000	29.260	-0.115	-13.180
N+3.15	B61	ENVOLVENTE MAX	3.213	0.000	34.810	-0.115	-14.792
N+3.15	B61	ENVOLVENTE MAX	3.570	0.000	37.270	-0.115	-16.931
N+3.15	B61	ENVOLVENTE MIN	0.000	0.000	-49.020	-0.266	-71.075
N+3.15	B61	ENVOLVENTE MIN	0.357	0.000	-46.550	-0.266	-53.923
N+3.15	B61	ENVOLVENTE MIN	0.714	0.000	-41.010	-0.266	-39.571
N+3.15	B61	ENVOLVENTE MIN	1.071	0.000	-32.380	-0.266	-30.705
N+3.15	B61	ENVOLVENTE MIN	1.428	0.000	-20.670	-0.266	-25.774
N+3.15	B61	ENVOLVENTE MIN	1.785	0.000	-9.000	-0.266	-22.965
N+3.15	B61	ENVOLVENTE MIN	2.142	0.000	-2.560	-0.266	-22.568

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B61	ENVOLVENTE MIN	2.499	0.000	0.870	-0.266	-24.292
N+3.15	B61	ENVOLVENTE MIN	2.856	0.000	3.520	-0.266	-29.549
N+3.15	B61	ENVOLVENTE MIN	3.213	0.000	5.380	-0.266	-39.642
N+3.15	B61	ENVOLVENTE MIN	3.570	0.000	6.470	-0.266	-50.892
N+6.35	B62	ENVOLVENTE MAX	0.000	0.000	4.260	10.053	15.451
N+6.35	B62	ENVOLVENTE MAX	0.357	0.000	7.020	10.053	13.437
N+6.35	B62	ENVOLVENTE MAX	0.714	0.000	9.780	10.053	10.438
N+6.35	B62	ENVOLVENTE MAX	1.071	0.000	12.540	10.053	6.454
N+6.35	B62	ENVOLVENTE MAX	1.428	0.000	15.300	10.053	1.485
N+6.35	B62	ENVOLVENTE MAX	1.785	0.000	18.060	10.053	-4.312
N+6.35	B62	ENVOLVENTE MAX	2.142	0.000	20.820	10.053	3.065
N+6.35	B62	ENVOLVENTE MAX	2.499	0.000	23.580	10.053	9.715
N+6.35	B62	ENVOLVENTE MAX	2.856	0.000	26.340	10.053	15.381
N+6.35	B62	ENVOLVENTE MAX	3.213	0.000	30.170	10.053	20.061
N+6.35	B62	ENVOLVENTE MAX	3.570	0.000	35.150	10.053	23.757
N+6.35	B62	ENVOLVENTE MIN	0.000	0.000	-55.470	1.562	-92.511
N+6.35	B62	ENVOLVENTE MIN	0.357	0.000	-50.490	1.562	-73.597
N+6.35	B62	ENVOLVENTE MIN	0.714	0.000	-45.510	1.562	-56.460
N+6.35	B62	ENVOLVENTE MIN	1.071	0.000	-40.540	1.562	-41.100
N+6.35	B62	ENVOLVENTE MIN	1.428	0.000	-35.560	1.562	-27.600
N+6.35	B62	ENVOLVENTE MIN	1.785	0.000	-30.580	1.562	-21.440
N+6.35	B62	ENVOLVENTE MIN	2.142	0.000	-25.600	1.562	-20.162
N+6.35	B62	ENVOLVENTE MIN	2.499	0.000	-20.620	1.562	-26.487
N+6.35	B62	ENVOLVENTE MIN	2.856	0.000	-15.640	1.562	-34.591
N+6.35	B62	ENVOLVENTE MIN	3.213	0.000	-11.730	1.562	-44.472
N+6.35	B62	ENVOLVENTE MIN	3.570	0.000	-8.970	1.562	-56.130
N+3.15	B62	ENVOLVENTE MAX	0.000	0.000	18.820	2.092	26.666
N+3.15	B62	ENVOLVENTE MAX	0.357	0.000	20.770	2.092	19.623
N+3.15	B62	ENVOLVENTE MAX	0.714	0.000	23.500	2.092	11.744
N+3.15	B62	ENVOLVENTE MAX	1.071	0.000	27.020	2.092	2.748
N+3.15	B62	ENVOLVENTE MAX	1.428	0.000	31.320	2.092	-7.641
N+3.15	B62	ENVOLVENTE MAX	1.785	0.000	36.400	2.092	-19.484
N+3.15	B62	ENVOLVENTE MAX	2.142	0.000	47.700	2.092	-5.414
N+3.15	B62	ENVOLVENTE MAX	2.499	0.000	57.890	2.092	7.037
N+3.15	B62	ENVOLVENTE MAX	2.856	0.000	65.760	2.092	18.093
N+3.15	B62	ENVOLVENTE MAX	3.213	0.000	71.320	2.092	28.034
N+3.15	B62	ENVOLVENTE MAX	3.570	0.000	74.560	2.092	37.138
N+3.15	B62	ENVOLVENTE MIN	0.000	0.000	-82.740	0.401	-143.943
N+3.15	B62	ENVOLVENTE MIN	0.357	0.000	-79.500	0.401	-114.913
N+3.15	B62	ENVOLVENTE MIN	0.714	0.000	-73.940	0.401	-87.454
N+3.15	B62	ENVOLVENTE MIN	1.071	0.000	-66.070	0.401	-62.393
N+3.15	B62	ENVOLVENTE MIN	1.428	0.000	-55.880	0.401	-40.556
N+3.15	B62	ENVOLVENTE MIN	1.785	0.000	-43.370	0.401	-30.524
N+3.15	B62	ENVOLVENTE MIN	2.142	0.000	-37.090	0.401	-37.801
N+3.15	B62	ENVOLVENTE MIN	2.499	0.000	-32.790	0.401	-56.717
N+3.15	B62	ENVOLVENTE MIN	2.856	0.000	-29.280	0.401	-78.858
N+3.15	B62	ENVOLVENTE MIN	3.213	0.000	-26.540	0.401	-103.397
N+3.15	B62	ENVOLVENTE MIN	3.570	0.000	-24.590	0.401	-129.506
N+3.15	B63	ENVOLVENTE MAX	0.000	0.000	-9.950	0.056	-28.789
N+3.15	B63	ENVOLVENTE MAX	0.357	0.000	-8.860	0.056	-25.409
N+3.15	B63	ENVOLVENTE MAX	0.714	0.000	-7.000	0.056	-22.555
N+3.15	B63	ENVOLVENTE MAX	1.071	0.000	-4.350	0.056	-20.507
N+3.15	B63	ENVOLVENTE MAX	1.428	0.000	-0.920	0.056	-19.544
N+3.15	B63	ENVOLVENTE MAX	1.785	0.000	3.430	0.056	-19.934
N+3.15	B63	ENVOLVENTE MAX	2.142	0.000	14.960	0.056	-19.555
N+3.15	B63	ENVOLVENTE MAX	2.499	0.000	26.670	0.056	-20.478
N+3.15	B63	ENVOLVENTE MAX	2.856	0.000	35.300	0.056	-22.486
N+3.15	B63	ENVOLVENTE MAX	3.213	0.000	40.850	0.056	-25.300
N+3.15	B63	ENVOLVENTE MAX	3.570	0.000	43.310	0.056	-28.641
N+3.15	B63	ENVOLVENTE MIN	0.000	0.000	-42.970	-0.082	-71.819
N+3.15	B63	ENVOLVENTE MIN	0.357	0.000	-40.500	-0.082	-56.827
N+3.15	B63	ENVOLVENTE MIN	0.714	0.000	-34.960	-0.082	-43.739
N+3.15	B63	ENVOLVENTE MIN	1.071	0.000	-26.330	-0.082	-35.660
N+3.15	B63	ENVOLVENTE MIN	1.428	0.000	-14.620	-0.082	-32.302
N+3.15	B63	ENVOLVENTE MIN	1.785	0.000	-3.410	-0.082	-31.066
N+3.15	B63	ENVOLVENTE MIN	2.142	0.000	0.800	-0.082	-32.240
N+3.15	B63	ENVOLVENTE MIN	2.499	0.000	4.240	-0.082	-35.536
N+3.15	B63	ENVOLVENTE MIN	2.856	0.000	6.880	-0.082	-43.857
N+3.15	B63	ENVOLVENTE MIN	3.213	0.000	8.750	-0.082	-57.315
N+3.15	B63	ENVOLVENTE MIN	3.570	0.000	9.840	-0.082	-72.429
N+6.35	B64	ENVOLVENTE MAX	0.000	0.000	5.390	0.108	24.949
N+6.35	B64	ENVOLVENTE MAX	0.357	0.000	8.130	0.108	22.536
N+6.35	B64	ENVOLVENTE MAX	0.714	0.000	10.870	0.108	19.144
N+6.35	B64	ENVOLVENTE MAX	1.071	0.000	13.620	0.108	14.772
N+6.35	B64	ENVOLVENTE MAX	1.428	0.000	16.360	0.108	9.420
N+6.35	B64	ENVOLVENTE MAX	1.785	0.000	19.110	0.108	4.837
N+6.35	B64	ENVOLVENTE MAX	2.142	0.000	23.760	0.108	9.761
N+6.35	B64	ENVOLVENTE MAX	2.499	0.000	28.690	0.108	15.412
N+6.35	B64	ENVOLVENTE MAX	2.856	0.000	33.610	0.108	20.084
N+6.35	B64	ENVOLVENTE MAX	3.213	0.000	38.540	0.108	23.776
N+6.35	B64	ENVOLVENTE MAX	3.570	0.000	43.470	0.108	26.489
N+6.35	B64	ENVOLVENTE MIN	0.000	0.000	-44.870	-1.341	-54.859
N+6.35	B64	ENVOLVENTE MIN	0.357	0.000	-39.940	-1.341	-39.721
N+6.35	B64	ENVOLVENTE MIN	0.714	0.000	-35.010	-1.341	-26.343
N+6.35	B64	ENVOLVENTE MIN	1.071	0.000	-30.080	-1.341	-14.724
N+6.35	B64	ENVOLVENTE MIN	1.428	0.000	-25.150	-1.341	-4.865
N+6.35	B64	ENVOLVENTE MIN	1.785	0.000	-20.220	-1.341	2.655
N+6.35	B64	ENVOLVENTE MIN	2.142	0.000	-17.200	-1.341	-4.408
N+6.35	B64	ENVOLVENTE MIN	2.499	0.000	-14.460	-1.341	-13.769
N+6.35	B64	ENVOLVENTE MIN	2.856	0.000	-11.710	-1.341	-24.889
N+6.35	B64	ENVOLVENTE MIN	3.213	0.000	-8.970	-1.341	-37.769
N+6.35	B64	ENVOLVENTE MIN	3.570	0.000	-6.230	-1.341	-52.408

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B64	ENVOLVENTE MAX	0.000	0.000	20.300	1.439	25.332
N+3.15	B64	ENVOLVENTE MAX	0.357	0.000	22.260	1.439	17.758
N+3.15	B64	ENVOLVENTE MAX	0.714	0.000	24.990	1.439	9.348
N+3.15	B64	ENVOLVENTE MAX	1.071	0.000	28.510	1.439	-0.178
N+3.15	B64	ENVOLVENTE MAX	1.428	0.000	32.800	1.439	-11.099
N+3.15	B64	ENVOLVENTE MAX	1.785	0.000	38.460	1.439	-23.614
N+3.15	B64	ENVOLVENTE MAX	2.142	0.000	50.970	1.439	-11.353
N+3.15	B64	ENVOLVENTE MAX	2.499	0.000	61.160	1.439	-0.761
N+3.15	B64	ENVOLVENTE MAX	2.856	0.000	69.030	1.439	8.437
N+3.15	B64	ENVOLVENTE MAX	3.213	0.000	74.590	1.439	16.519
N+3.15	B64	ENVOLVENTE MAX	3.570	0.000	77.830	1.439	23.765
N+3.15	B64	ENVOLVENTE MIN	0.000	0.000	-75.760	-0.440	-140.326
N+3.15	B64	ENVOLVENTE MIN	0.357	0.000	-72.510	-0.440	-113.791
N+3.15	B64	ENVOLVENTE MIN	0.714	0.000	-66.960	-0.440	-88.826
N+3.15	B64	ENVOLVENTE MIN	1.071	0.000	-59.080	-0.440	-66.259
N+3.15	B64	ENVOLVENTE MIN	1.428	0.000	-48.890	-0.440	-46.917
N+3.15	B64	ENVOLVENTE MIN	1.785	0.000	-36.960	-0.440	-36.800
N+3.15	B64	ENVOLVENTE MIN	2.142	0.000	-31.890	-0.440	-47.732
N+3.15	B64	ENVOLVENTE MIN	2.499	0.000	-27.590	-0.440	-67.816
N+3.15	B64	ENVOLVENTE MIN	2.856	0.000	-24.070	-0.440	-91.125
N+3.15	B64	ENVOLVENTE MIN	3.213	0.000	-21.340	-0.440	-116.832
N+3.15	B64	ENVOLVENTE MIN	3.570	0.000	-19.380	-0.440	-144.108
N+3.15	B65	ENVOLVENTE MAX	0.000	0.000	-10.730	0.243	-30.717
N+3.15	B65	ENVOLVENTE MAX	0.357	0.000	-9.650	0.243	-27.056
N+3.15	B65	ENVOLVENTE MAX	0.714	0.000	-7.780	0.243	-23.922
N+3.15	B65	ENVOLVENTE MAX	1.071	0.000	-5.130	0.243	-21.593
N+3.15	B65	ENVOLVENTE MAX	1.428	0.000	-1.700	0.243	-20.349
N+3.15	B65	ENVOLVENTE MAX	1.785	0.000	2.510	0.243	-20.354
N+3.15	B65	ENVOLVENTE MAX	2.142	0.000	13.200	0.243	-19.717
N+3.15	B65	ENVOLVENTE MAX	2.499	0.000	24.760	0.243	-20.361
N+3.15	B65	ENVOLVENTE MAX	2.856	0.000	33.390	0.243	-22.089
N+3.15	B65	ENVOLVENTE MAX	3.213	0.000	38.940	0.243	-24.623
N+3.15	B65	ENVOLVENTE MAX	3.570	0.000	41.410	0.243	-27.684
N+3.15	B65	ENVOLVENTE MIN	0.000	0.000	-44.890	0.051	-76.427
N+3.15	B65	ENVOLVENTE MIN	0.357	0.000	-42.420	0.051	-60.751
N+3.15	B65	ENVOLVENTE MIN	0.714	0.000	-36.870	0.051	-46.505
N+3.15	B65	ENVOLVENTE MIN	1.071	0.000	-28.240	0.051	-37.290
N+3.15	B65	ENVOLVENTE MIN	1.428	0.000	-16.530	0.051	-33.495
N+3.15	B65	ENVOLVENTE MIN	1.785	0.000	-4.860	0.051	-31.822
N+3.15	B65	ENVOLVENTE MIN	2.142	0.000	0.020	0.051	-32.561
N+3.15	B65	ENVOLVENTE MIN	2.499	0.000	3.450	0.051	-35.422
N+3.15	B65	ENVOLVENTE MIN	2.856	0.000	6.100	0.051	-43.190
N+3.15	B65	ENVOLVENTE MIN	3.213	0.000	7.970	0.051	-55.779
N+3.15	B65	ENVOLVENTE MIN	3.570	0.000	9.050	0.051	-70.213
N+6.35	B66	ENVOLVENTE MAX	0.000	0.000	6.700	2.250	26.763
N+6.35	B66	ENVOLVENTE MAX	0.357	0.000	9.440	2.250	23.882
N+6.35	B66	ENVOLVENTE MAX	0.714	0.000	12.190	2.250	20.021
N+6.35	B66	ENVOLVENTE MAX	1.071	0.000	14.930	2.250	15.180
N+6.35	B66	ENVOLVENTE MAX	1.428	0.000	17.680	2.250	10.055
N+6.35	B66	ENVOLVENTE MAX	1.785	0.000	20.470	2.250	4.102
N+6.35	B66	ENVOLVENTE MAX	2.142	0.000	25.400	2.250	9.641
N+6.35	B66	ENVOLVENTE MAX	2.499	0.000	30.330	2.250	14.265
N+6.35	B66	ENVOLVENTE MAX	2.856	0.000	35.260	2.250	18.569
N+6.35	B66	ENVOLVENTE MAX	3.213	0.000	40.200	2.250	21.894
N+6.35	B66	ENVOLVENTE MAX	3.570	0.000	45.130	2.250	24.239
N+6.35	B66	ENVOLVENTE MIN	0.000	0.000	-43.530	0.592	-51.911
N+6.35	B66	ENVOLVENTE MIN	0.357	0.000	-38.600	0.592	-37.250
N+6.35	B66	ENVOLVENTE MIN	0.714	0.000	-33.670	0.592	-24.351
N+6.35	B66	ENVOLVENTE MIN	1.071	0.000	-28.740	0.592	-13.212
N+6.35	B66	ENVOLVENTE MIN	1.428	0.000	-23.800	0.592	-4.529
N+6.35	B66	ENVOLVENTE MIN	1.785	0.000	-18.920	0.592	2.550
N+6.35	B66	ENVOLVENTE MIN	2.142	0.000	-16.180	0.592	-5.221
N+6.35	B66	ENVOLVENTE MIN	2.499	0.000	-13.430	0.592	-14.508
N+6.35	B66	ENVOLVENTE MIN	2.856	0.000	-10.690	0.592	-26.218
N+6.35	B66	ENVOLVENTE MIN	3.213	0.000	-7.940	0.592	-39.687
N+6.35	B66	ENVOLVENTE MIN	3.570	0.000	-5.200	0.592	-54.917
N+3.15	B66	ENVOLVENTE MAX	0.000	0.000	13.080	-3.583	18.157
N+3.15	B66	ENVOLVENTE MAX	0.357	0.000	15.030	-3.583	13.162
N+3.15	B66	ENVOLVENTE MAX	0.714	0.000	17.770	-3.583	7.330
N+3.15	B66	ENVOLVENTE MAX	1.071	0.000	21.280	-3.583	0.382
N+3.15	B66	ENVOLVENTE MAX	1.428	0.000	25.580	-3.583	-7.960
N+3.15	B66	ENVOLVENTE MAX	1.785	0.000	30.660	-3.583	-17.516
N+3.15	B66	ENVOLVENTE MAX	2.142	0.000	37.930	-3.583	-2.402
N+3.15	B66	ENVOLVENTE MAX	2.499	0.000	48.120	-3.583	11.088
N+3.15	B66	ENVOLVENTE MAX	2.856	0.000	55.990	-3.583	23.183
N+3.15	B66	ENVOLVENTE MAX	3.213	0.000	61.550	-3.583	34.162
N+3.15	B66	ENVOLVENTE MAX	3.570	0.000	64.790	-3.583	44.305
N+3.15	B66	ENVOLVENTE MIN	0.000	0.000	-89.690	-8.636	-154.668
N+3.15	B66	ENVOLVENTE MIN	0.357	0.000	-86.450	-8.636	-123.157
N+3.15	B66	ENVOLVENTE MIN	0.714	0.000	-80.900	-8.636	-93.216
N+3.15	B66	ENVOLVENTE MIN	1.071	0.000	-73.020	-8.636	-65.674
N+3.15	B66	ENVOLVENTE MIN	1.428	0.000	-62.830	-8.636	-41.356
N+3.15	B66	ENVOLVENTE MIN	1.785	0.000	-50.320	-8.636	-27.644
N+3.15	B66	ENVOLVENTE MIN	2.142	0.000	-40.000	-8.636	-32.875
N+3.15	B66	ENVOLVENTE MIN	2.499	0.000	-35.700	-8.636	-48.303
N+3.15	B66	ENVOLVENTE MIN	2.856	0.000	-32.190	-8.636	-66.955
N+3.15	B66	ENVOLVENTE MIN	3.213	0.000	-29.450	-8.636	-88.005
N+3.15	B66	ENVOLVENTE MIN	3.570	0.000	-27.500	-8.636	-110.625
N+3.15	B67	ENVOLVENTE MAX	0.000	0.000	-13.340	0.053	-21.692
N+3.15	B67	ENVOLVENTE MAX	0.357	0.000	-12.260	0.053	-17.098
N+3.15	B67	ENVOLVENTE MAX	0.714	0.000	-10.390	0.053	-13.032
N+3.15	B67	ENVOLVENTE MAX	1.071	0.000	-7.740	0.053	-9.769

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B67	ENVOLVENTE MAX	1.428	0.000	-4.310	0.053	0.252
N+3.15	B67	ENVOLVENTE MAX	1.785	0.000	-0.100	0.053	5.951
N+3.15	B67	ENVOLVENTE MAX	2.142	0.000	8.400	0.053	6.189
N+3.15	B67	ENVOLVENTE MAX	2.499	0.000	18.180	0.053	3.820
N+3.15	B67	ENVOLVENTE MAX	2.856	0.000	26.810	0.053	0.560
N+3.15	B67	ENVOLVENTE MAX	3.213	0.000	32.360	0.053	-0.156
N+3.15	B67	ENVOLVENTE MAX	3.570	0.000	34.830	0.053	-1.399
N+3.15	B67	ENVOLVENTE MIN	0.000	0.000	-51.460	-0.064	-58.853
N+3.15	B67	ENVOLVENTE MIN	0.357	0.000	-48.990	-0.064	-41.250
N+3.15	B67	ENVOLVENTE MIN	0.714	0.000	-43.440	-0.064	-26.389
N+3.15	B67	ENVOLVENTE MIN	1.071	0.000	-34.810	-0.064	-17.549
N+3.15	B67	ENVOLVENTE MIN	1.428	0.000	-23.480	-0.064	-11.616
N+3.15	B67	ENVOLVENTE MIN	1.785	0.000	-12.130	-0.064	-7.805
N+3.15	B67	ENVOLVENTE MIN	2.142	0.000	-5.070	-0.064	-7.530
N+3.15	B67	ENVOLVENTE MIN	2.499	0.000	-1.640	-0.064	-9.632
N+3.15	B67	ENVOLVENTE MIN	2.856	0.000	1.010	-0.064	-13.773
N+3.15	B67	ENVOLVENTE MIN	3.213	0.000	2.870	-0.064	-23.249
N+3.15	B67	ENVOLVENTE MIN	3.570	0.000	3.960	-0.064	-33.882
N+6.35	B68	ENVOLVENTE MAX	0.000	0.000	2.850	-0.345	21.878
N+6.35	B68	ENVOLVENTE MAX	0.357	0.000	5.430	-0.345	20.412
N+6.35	B68	ENVOLVENTE MAX	0.714	0.000	8.420	-0.345	17.951
N+6.35	B68	ENVOLVENTE MAX	1.071	0.000	11.810	-0.345	14.677
N+6.35	B68	ENVOLVENTE MAX	1.428	0.000	15.600	-0.345	11.717
N+6.35	B68	ENVOLVENTE MAX	1.785	0.000	19.800	-0.345	10.362
N+6.35	B68	ENVOLVENTE MAX	2.142	0.000	26.110	-0.345	17.955
N+6.35	B68	ENVOLVENTE MAX	2.499	0.000	32.600	-0.345	23.101
N+6.35	B68	ENVOLVENTE MAX	2.856	0.000	38.330	-0.345	26.553
N+6.35	B68	ENVOLVENTE MAX	3.213	0.000	43.290	-0.345	30.530
N+6.35	B68	ENVOLVENTE MAX	3.570	0.000	47.480	-0.345	33.512
N+6.35	B68	ENVOLVENTE MIN	0.000	0.000	-53.600	-1.786	-62.624
N+6.35	B68	ENVOLVENTE MIN	0.357	0.000	-49.410	-1.786	-44.215
N+6.35	B68	ENVOLVENTE MIN	0.714	0.000	-44.450	-1.786	-27.439
N+6.35	B68	ENVOLVENTE MIN	1.071	0.000	-38.720	-1.786	-12.896
N+6.35	B68	ENVOLVENTE MIN	1.428	0.000	-32.230	-1.786	-2.128
N+6.35	B68	ENVOLVENTE MIN	1.785	0.000	-24.980	-1.786	3.155
N+6.35	B68	ENVOLVENTE MIN	2.142	0.000	-19.850	-1.786	-4.666
N+6.35	B68	ENVOLVENTE MIN	2.499	0.000	-16.060	-1.786	-13.919
N+6.35	B68	ENVOLVENTE MIN	2.856	0.000	-12.670	-1.786	-24.940
N+6.35	B68	ENVOLVENTE MIN	3.213	0.000	-9.680	-1.786	-39.531
N+6.35	B68	ENVOLVENTE MIN	3.570	0.000	-7.090	-1.786	-55.755
N+3.15	B68	ENVOLVENTE MAX	0.000	0.000	-42.140	8.163	4.251
N+3.15	B68	ENVOLVENTE MAX	0.357	0.000	-28.400	8.163	16.855
N+3.15	B68	ENVOLVENTE MAX	0.714	0.000	-14.260	8.163	24.480
N+3.15	B68	ENVOLVENTE MAX	1.071	0.000	0.270	8.163	33.499
N+3.15	B68	ENVOLVENTE MAX	1.428	0.000	15.190	8.163	41.160
N+3.15	B68	ENVOLVENTE MAX	1.785	0.000	30.500	8.163	50.991
N+3.15	B68	ENVOLVENTE MAX	2.142	0.000	52.950	8.163	62.115
N+3.15	B68	ENVOLVENTE MAX	2.499	0.000	81.750	8.163	69.066
N+3.15	B68	ENVOLVENTE MAX	2.856	0.000	109.400	8.163	65.942
N+3.15	B68	ENVOLVENTE MAX	3.213	0.000	135.880	8.163	60.205
N+3.15	B68	ENVOLVENTE MAX	3.570	0.000	161.200	8.163	56.853
N+3.15	B68	ENVOLVENTE MIN	0.000	0.000	-202.130	3.558	-197.089
N+3.15	B68	ENVOLVENTE MIN	0.357	0.000	-176.810	3.558	-129.414
N+3.15	B68	ENVOLVENTE MIN	0.714	0.000	-150.320	3.558	-70.986
N+3.15	B68	ENVOLVENTE MIN	1.071	0.000	-122.680	3.558	-28.731
N+3.15	B68	ENVOLVENTE MIN	1.428	0.000	-93.880	3.558	-0.449
N+3.15	B68	ENVOLVENTE MIN	1.785	0.000	-63.930	3.558	16.087
N+3.15	B68	ENVOLVENTE MIN	2.142	0.000	-41.110	3.558	2.458
N+3.15	B68	ENVOLVENTE MIN	2.499	0.000	-26.190	3.558	-16.572
N+3.15	B68	ENVOLVENTE MIN	2.856	0.000	-11.660	3.558	-40.860
N+3.15	B68	ENVOLVENTE MIN	3.213	0.000	2.480	3.558	-77.313
N+3.15	B68	ENVOLVENTE MIN	3.570	0.000	16.230	3.558	-130.377
N+6.35	B69	ENVOLVENTE MAX	0.000	0.000	9.800	1.247	34.252
N+6.35	B69	ENVOLVENTE MAX	0.357	0.000	11.570	1.247	30.449
N+6.35	B69	ENVOLVENTE MAX	0.714	0.000	13.730	1.247	26.313
N+6.35	B69	ENVOLVENTE MAX	1.071	0.000	16.300	1.247	22.843
N+6.35	B69	ENVOLVENTE MAX	1.428	0.000	19.270	1.247	17.810
N+6.35	B69	ENVOLVENTE MAX	1.785	0.000	22.640	1.247	12.164
N+6.35	B69	ENVOLVENTE MAX	2.142	0.000	27.590	1.247	19.501
N+6.35	B69	ENVOLVENTE MAX	2.499	0.000	32.350	1.247	25.995
N+6.35	B69	ENVOLVENTE MAX	2.856	0.000	36.350	1.247	30.925
N+6.35	B69	ENVOLVENTE MAX	3.213	0.000	39.580	1.247	34.897
N+6.35	B69	ENVOLVENTE MAX	3.570	0.000	42.040	1.247	39.755
N+6.35	B69	ENVOLVENTE MIN	0.000	0.000	-46.140	0.043	-56.196
N+6.35	B69	ENVOLVENTE MIN	0.357	0.000	-43.670	0.043	-40.143
N+6.35	B69	ENVOLVENTE MIN	0.714	0.000	-40.440	0.043	-25.475
N+6.35	B69	ENVOLVENTE MIN	1.071	0.000	-36.450	0.043	-13.606
N+6.35	B69	ENVOLVENTE MIN	1.428	0.000	-31.680	0.043	-2.726
N+6.35	B69	ENVOLVENTE MIN	1.785	0.000	-26.160	0.043	6.790
N+6.35	B69	ENVOLVENTE MIN	2.142	0.000	-22.220	0.043	-1.902
N+6.35	B69	ENVOLVENTE MIN	2.499	0.000	-19.250	0.043	-11.728
N+6.35	B69	ENVOLVENTE MIN	2.856	0.000	-16.690	0.043	-22.542
N+6.35	B69	ENVOLVENTE MIN	3.213	0.000	-14.520	0.043	-34.533
N+6.35	B69	ENVOLVENTE MIN	3.570	0.000	-12.760	0.043	-49.125
N+3.15	B69	ENVOLVENTE MAX	0.000	0.000	39.190	0.564	79.391
N+3.15	B69	ENVOLVENTE MAX	0.357	0.000	40.760	0.564	65.120
N+3.15	B69	ENVOLVENTE MAX	0.714	0.000	42.320	0.564	50.291
N+3.15	B69	ENVOLVENTE MAX	1.071	0.000	43.880	0.564	34.905
N+3.15	B69	ENVOLVENTE MAX	1.428	0.000	45.440	0.564	19.404
N+3.15	B69	ENVOLVENTE MAX	1.785	0.000	47.000	0.564	4.023
N+3.15	B69	ENVOLVENTE MAX	2.142	0.000	48.560	0.564	21.697
N+3.15	B69	ENVOLVENTE MAX	2.499	0.000	50.240	0.564	39.075

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B69	ENVOLVENTE MAX	2.856	0.000	52.330	0.564	55.710
N+3.15	B69	ENVOLVENTE MAX	3.213	0.000	54.410	0.564	71.601
N+3.15	B69	ENVOLVENTE MAX	3.570	0.000	56.490	0.564	86.749
N+3.15	B69	ENVOLVENTE MIN	0.000	0.000	-62.210	-1.548	-98.178
N+3.15	B69	ENVOLVENTE MIN	0.357	0.000	-60.130	-1.548	-76.340
N+3.15	B69	ENVOLVENTE MIN	0.714	0.000	-58.050	-1.548	-55.246
N+3.15	B69	ENVOLVENTE MIN	1.071	0.000	-55.960	-1.548	-34.895
N+3.15	B69	ENVOLVENTE MIN	1.428	0.000	-53.880	-1.548	-15.730
N+3.15	B69	ENVOLVENTE MIN	1.785	0.000	-51.800	-1.548	2.459
N+3.15	B69	ENVOLVENTE MIN	2.142	0.000	-49.720	-1.548	-14.599
N+3.15	B69	ENVOLVENTE MIN	2.499	0.000	-47.750	-1.548	-32.215
N+3.15	B69	ENVOLVENTE MIN	2.856	0.000	-46.190	-1.548	-50.388
N+3.15	B69	ENVOLVENTE MIN	3.213	0.000	-44.630	-1.548	-69.119
N+3.15	B69	ENVOLVENTE MIN	3.570	0.000	-43.070	-1.548	-88.408
N+6.35	B70	ENVOLVENTE MAX	0.000	0.000	-14.460	0.458	-2.619
N+6.35	B70	ENVOLVENTE MAX	0.894	0.000	-10.550	0.458	8.563
N+6.35	B70	ENVOLVENTE MAX	1.788	0.000	-6.640	0.458	16.250
N+6.35	B70	ENVOLVENTE MAX	2.682	0.000	-2.730	0.458	22.224
N+6.35	B70	ENVOLVENTE MAX	3.576	0.000	1.180	0.458	25.098
N+6.35	B70	ENVOLVENTE MAX	4.470	0.000	5.090	0.458	26.884
N+6.35	B70	ENVOLVENTE MAX	5.364	0.000	9.820	0.458	23.926
N+6.35	B70	ENVOLVENTE MAX	6.258	0.000	15.030	0.458	21.231
N+6.35	B70	ENVOLVENTE MAX	7.152	0.000	20.250	0.458	14.250
N+6.35	B70	ENVOLVENTE MAX	8.046	0.000	25.460	0.458	5.233
N+6.35	B70	ENVOLVENTE MAX	8.940	0.000	30.680	0.458	-6.257
N+6.35	B70	ENVOLVENTE MIN	0.000	0.000	-31.300	-1.925	-60.422
N+6.35	B70	ENVOLVENTE MIN	0.894	0.000	-26.080	-1.925	-34.774
N+6.35	B70	ENVOLVENTE MIN	1.788	0.000	-20.870	-1.925	-13.788
N+6.35	B70	ENVOLVENTE MIN	2.682	0.000	-15.650	-1.925	0.755
N+6.35	B70	ENVOLVENTE MIN	3.576	0.000	-10.440	-1.925	10.239
N+6.35	B70	ENVOLVENTE MIN	4.470	0.000	-5.230	-1.925	16.209
N+6.35	B70	ENVOLVENTE MIN	5.364	0.000	-0.830	-1.925	12.032
N+6.35	B70	ENVOLVENTE MIN	6.258	0.000	3.080	-1.925	2.242
N+6.35	B70	ENVOLVENTE MIN	7.152	0.000	6.990	-1.925	-11.046
N+6.35	B70	ENVOLVENTE MIN	8.046	0.000	10.900	-1.925	-30.455
N+6.35	B70	ENVOLVENTE MIN	8.940	0.000	14.810	-1.925	-55.548
N+3.15	B70	ENVOLVENTE MAX	0.000	0.000	-28.870	11.802	-12.203
N+3.15	B70	ENVOLVENTE MAX	0.894	0.000	-23.740	11.802	12.032
N+3.15	B70	ENVOLVENTE MAX	1.788	0.000	-16.150	11.802	35.326
N+3.15	B70	ENVOLVENTE MAX	2.682	0.000	-7.340	11.802	69.222
N+3.15	B70	ENVOLVENTE MAX	3.576	0.000	0.240	11.802	92.974
N+3.15	B70	ENVOLVENTE MAX	4.470	0.000	5.380	11.802	110.561
N+3.15	B70	ENVOLVENTE MAX	4.470	0.000	32.550	-2.734	110.572
N+3.15	B70	ENVOLVENTE MAX	5.364	0.000	41.400	-2.734	81.758
N+3.15	B70	ENVOLVENTE MAX	6.258	0.000	57.770	-2.734	45.609
N+3.15	B70	ENVOLVENTE MAX	7.152	0.000	82.270	-2.734	12.482
N+3.15	B70	ENVOLVENTE MAX	8.046	0.000	101.980	-2.734	-9.707
N+3.15	B70	ENVOLVENTE MAX	8.940	0.000	112.020	-2.734	-37.531
N+3.15	B70	ENVOLVENTE MIN	0.000	0.000	-99.470	-6.425	-160.765
N+3.15	B70	ENVOLVENTE MIN	0.894	0.000	-89.420	-6.425	-83.745
N+3.15	B70	ENVOLVENTE MIN	1.788	0.000	-69.710	-6.425	-22.628
N+3.15	B70	ENVOLVENTE MIN	2.682	0.000	-45.890	-6.425	3.820
N+3.15	B70	ENVOLVENTE MIN	3.576	0.000	-29.780	-6.425	22.351
N+3.15	B70	ENVOLVENTE MIN	4.470	0.000	-20.940	-6.425	32.466
N+3.15	B70	ENVOLVENTE MIN	4.470	0.000	-0.850	-16.349	32.381
N+3.15	B70	ENVOLVENTE MIN	5.364	0.000	4.290	-16.349	21.116
N+3.15	B70	ENVOLVENTE MIN	6.258	0.000	11.880	-16.349	-1.429
N+3.15	B70	ENVOLVENTE MIN	7.152	0.000	20.680	-16.349	-43.086
N+3.15	B70	ENVOLVENTE MIN	8.046	0.000	28.270	-16.349	-119.748
N+3.15	B70	ENVOLVENTE MIN	8.940	0.000	33.410	-16.349	-207.618
N+6.35	B71	ENVOLVENTE MAX	0.000	0.000	-8.270	-0.386	3.486
N+6.35	B71	ENVOLVENTE MAX	0.690	0.000	-5.250	-0.386	8.153
N+6.35	B71	ENVOLVENTE MAX	1.380	0.000	-2.240	-0.386	10.738
N+6.35	B71	ENVOLVENTE MAX	2.070	0.000	0.780	-0.386	11.935
N+6.35	B71	ENVOLVENTE MAX	2.760	0.000	3.800	-0.386	11.052
N+6.35	B71	ENVOLVENTE MAX	3.450	0.000	7.310	-0.386	9.040
N+6.35	B71	ENVOLVENTE MAX	4.140	0.000	11.340	-0.386	10.053
N+6.35	B71	ENVOLVENTE MAX	4.830	0.000	15.360	-0.386	10.985
N+6.35	B71	ENVOLVENTE MAX	5.520	0.000	19.390	-0.386	10.540
N+6.35	B71	ENVOLVENTE MAX	6.210	0.000	23.410	-0.386	8.013
N+6.35	B71	ENVOLVENTE MAX	6.900	0.000	27.440	-0.386	3.404
N+6.35	B71	ENVOLVENTE MIN	0.000	0.000	-26.520	-2.364	-49.776
N+6.35	B71	ENVOLVENTE MIN	0.690	0.000	-22.500	-2.364	-32.863
N+6.35	B71	ENVOLVENTE MIN	1.380	0.000	-18.480	-2.364	-18.727
N+6.35	B71	ENVOLVENTE MIN	2.070	0.000	-14.450	-2.364	-8.061
N+6.35	B71	ENVOLVENTE MIN	2.760	0.000	-10.430	-2.364	-0.176
N+6.35	B71	ENVOLVENTE MIN	3.450	0.000	-6.900	-2.364	5.617
N+6.35	B71	ENVOLVENTE MIN	4.140	0.000	-3.880	-2.364	0.251
N+6.35	B71	ENVOLVENTE MIN	4.830	0.000	-0.860	-2.364	-8.255
N+6.35	B71	ENVOLVENTE MIN	5.520	0.000	2.150	-2.364	-20.244
N+6.35	B71	ENVOLVENTE MIN	6.210	0.000	5.170	-2.364	-35.009
N+6.35	B71	ENVOLVENTE MIN	6.900	0.000	8.190	-2.364	-52.551
N+3.15	B71	ENVOLVENTE MAX	0.000	0.000	-54.250	-4.468	-44.416
N+3.15	B71	ENVOLVENTE MAX	0.690	0.000	-49.340	-4.468	-8.459
N+3.15	B71	ENVOLVENTE MAX	1.380	0.000	-40.660	-4.468	22.815
N+3.15	B71	ENVOLVENTE MAX	2.070	0.000	-29.150	-4.468	69.474
N+3.15	B71	ENVOLVENTE MAX	2.760	0.000	-20.470	-4.468	115.463
N+3.15	B71	ENVOLVENTE MAX	3.450	0.000	-15.570	-4.468	162.067
N+3.15	B71	ENVOLVENTE MAX	3.450	0.000	72.630	22.640	162.852
N+3.15	B71	ENVOLVENTE MAX	4.140	0.000	80.840	22.640	112.901
N+3.15	B71	ENVOLVENTE MAX	4.830	0.000	97.430	22.640	62.948
N+3.15	B71	ENVOLVENTE MAX	5.520	0.000	124.770	22.640	15.467

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B71	ENVOLVENTE MAX	6.210	0.000	144.350	22.640	-17.951
N+3.15	B71	ENVOLVENTE MAX	6.900	0.000	153.550	22.640	-56.053
N+3.15	B71	ENVOLVENTE MIN	0.000	0.000	-148.700	-29.677	-217.975
N+3.15	B71	ENVOLVENTE MIN	0.690	0.000	-139.490	-29.677	-124.012
N+3.15	B71	ENVOLVENTE MIN	1.380	0.000	-119.920	-29.677	-38.600
N+3.15	B71	ENVOLVENTE MIN	2.070	0.000	-92.580	-29.677	10.164
N+3.15	B71	ENVOLVENTE MIN	2.760	0.000	-75.390	-29.677	45.001
N+3.15	B71	ENVOLVENTE MIN	3.450	0.000	-67.190	-29.677	74.140
N+3.15	B71	ENVOLVENTE MIN	3.450	0.000	18.680	2.600	74.452
N+3.15	B71	ENVOLVENTE MIN	4.140	0.000	23.580	2.600	43.659
N+3.15	B71	ENVOLVENTE MIN	4.830	0.000	32.260	2.600	5.887
N+3.15	B71	ENVOLVENTE MIN	5.520	0.000	43.770	2.600	-47.958
N+3.15	B71	ENVOLVENTE MIN	6.210	0.000	52.450	2.600	-137.129
N+3.15	B71	ENVOLVENTE MIN	6.900	0.000	57.350	2.600	-234.849
N+6.35	B72	ENVOLVENTE MAX	0.000	0.000	-10.190	0.781	4.889
N+6.35	B72	ENVOLVENTE MAX	0.750	0.000	-6.910	0.781	11.300
N+6.35	B72	ENVOLVENTE MAX	1.500	0.000	-3.630	0.781	17.274
N+6.35	B72	ENVOLVENTE MAX	2.250	0.000	-0.350	0.781	20.598
N+6.35	B72	ENVOLVENTE MAX	3.000	0.000	2.930	0.781	20.641
N+6.35	B72	ENVOLVENTE MAX	3.750	0.000	6.500	0.781	19.198
N+6.35	B72	ENVOLVENTE MAX	4.500	0.000	10.880	0.781	19.444
N+6.35	B72	ENVOLVENTE MAX	5.250	0.000	15.250	0.781	18.205
N+6.35	B72	ENVOLVENTE MAX	6.000	0.000	19.630	0.781	13.685
N+6.35	B72	ENVOLVENTE MAX	6.750	0.000	24.000	0.781	8.255
N+6.35	B72	ENVOLVENTE MAX	7.500	0.000	28.370	0.781	1.082
N+6.35	B72	ENVOLVENTE MIN	0.000	0.000	-26.780	-0.221	-42.011
N+6.35	B72	ENVOLVENTE MIN	0.750	0.000	-22.400	-0.221	-23.567
N+6.35	B72	ENVOLVENTE MIN	1.500	0.000	-18.030	-0.221	-10.427
N+6.35	B72	ENVOLVENTE MIN	2.250	0.000	-13.660	-0.221	-0.377
N+6.35	B72	ENVOLVENTE MIN	3.000	0.000	-9.280	-0.221	7.212
N+6.35	B72	ENVOLVENTE MIN	3.750	0.000	-5.200	-0.221	12.294
N+6.35	B72	ENVOLVENTE MIN	4.500	0.000	-1.920	-0.221	6.451
N+6.35	B72	ENVOLVENTE MIN	5.250	0.000	1.360	-0.221	-1.900
N+6.35	B72	ENVOLVENTE MIN	6.000	0.000	4.640	-0.221	-12.711
N+6.35	B72	ENVOLVENTE MIN	6.750	0.000	7.920	-0.221	-28.353
N+6.35	B72	ENVOLVENTE MIN	7.500	0.000	11.200	-0.221	-47.993
N+3.15	B72	ENVOLVENTE MAX	0.000	0.000	-55.570	-1.077	-55.960
N+3.15	B72	ENVOLVENTE MAX	0.750	0.000	-50.060	-1.077	-16.065
N+3.15	B72	ENVOLVENTE MAX	1.500	0.000	-40.090	-1.077	18.029
N+3.15	B72	ENVOLVENTE MAX	2.250	0.000	-28.670	-1.077	65.994
N+3.15	B72	ENVOLVENTE MAX	2.830	0.000	-22.980	-1.077	101.700
N+3.15	B72	ENVOLVENTE MAX	2.830	0.000	11.780	49.242	113.277
N+3.15	B72	ENVOLVENTE MAX	3.000	0.000	12.950	49.242	114.904
N+3.15	B72	ENVOLVENTE MAX	3.750	0.000	17.100	49.242	117.752
N+3.15	B72	ENVOLVENTE MAX	3.750	0.000	42.710	7.511	117.961
N+3.15	B72	ENVOLVENTE MAX	4.500	0.000	49.640	7.511	87.872
N+3.15	B72	ENVOLVENTE MAX	5.250	0.000	61.680	7.511	57.681
N+3.15	B72	ENVOLVENTE MAX	6.000	0.000	102.950	7.511	19.251
N+3.15	B72	ENVOLVENTE MAX	6.750	0.000	147.810	7.511	-13.296
N+3.15	B72	ENVOLVENTE MAX	7.500	0.000	185.860	7.511	-59.705
N+3.15	B72	ENVOLVENTE MIN	0.000	0.000	-145.170	-19.524	-225.148
N+3.15	B72	ENVOLVENTE MIN	0.750	0.000	-134.670	-19.524	-126.325
N+3.15	B72	ENVOLVENTE MIN	1.500	0.000	-111.930	-19.524	-38.200
N+3.15	B72	ENVOLVENTE MIN	2.250	0.000	-83.830	-19.524	10.657
N+3.15	B72	ENVOLVENTE MIN	2.830	0.000	-72.300	-19.524	38.665
N+3.15	B72	ENVOLVENTE MIN	2.830	0.000	-16.820	24.422	46.091
N+3.15	B72	ENVOLVENTE MIN	3.000	0.000	-14.530	24.422	47.549
N+3.15	B72	ENVOLVENTE MIN	3.750	0.000	-7.600	24.422	49.768
N+3.15	B72	ENVOLVENTE MIN	3.750	0.000	5.620	-5.085	49.893
N+3.15	B72	ENVOLVENTE MIN	4.500	0.000	9.760	-5.085	29.750
N+3.15	B72	ENVOLVENTE MIN	5.250	0.000	15.630	-5.085	3.523
N+3.15	B72	ENVOLVENTE MIN	6.000	0.000	33.550	-5.085	-34.028
N+3.15	B72	ENVOLVENTE MIN	6.750	0.000	52.910	-5.085	-121.992
N+3.15	B72	ENVOLVENTE MIN	7.500	0.000	70.540	-5.085	-236.328
N+6.35	B73	ENVOLVENTE MAX	0.000	0.000	-9.410	2.190	2.036
N+6.35	B73	ENVOLVENTE MAX	0.705	0.000	-6.320	2.190	7.581
N+6.35	B73	ENVOLVENTE MAX	1.410	0.000	-3.240	2.190	10.952
N+6.35	B73	ENVOLVENTE MAX	2.115	0.000	-0.160	2.190	12.202
N+6.35	B73	ENVOLVENTE MAX	2.820	0.000	2.930	2.190	12.662
N+6.35	B73	ENVOLVENTE MAX	3.525	0.000	6.010	2.190	12.587
N+6.35	B73	ENVOLVENTE MAX	4.230	0.000	9.630	2.190	14.197
N+6.35	B73	ENVOLVENTE MAX	4.935	0.000	13.740	2.190	15.129
N+6.35	B73	ENVOLVENTE MAX	5.640	0.000	17.850	2.190	13.170
N+6.35	B73	ENVOLVENTE MAX	6.345	0.000	21.960	2.190	10.490
N+6.35	B73	ENVOLVENTE MAX	7.050	0.000	26.070	2.190	5.637
N+6.35	B73	ENVOLVENTE MIN	0.000	0.000	-28.050	0.616	-52.265
N+6.35	B73	ENVOLVENTE MIN	0.705	0.000	-23.940	0.616	-33.942
N+6.35	B73	ENVOLVENTE MIN	1.410	0.000	-19.820	0.616	-18.517
N+6.35	B73	ENVOLVENTE MIN	2.115	0.000	-15.710	0.616	-6.044
N+6.35	B73	ENVOLVENTE MIN	2.820	0.000	-11.600	0.616	2.146
N+6.35	B73	ENVOLVENTE MIN	3.525	0.000	-7.490	0.616	8.018
N+6.35	B73	ENVOLVENTE MIN	4.230	0.000	-3.910	0.616	2.695
N+6.35	B73	ENVOLVENTE MIN	4.935	0.000	-0.830	0.616	-4.804
N+6.35	B73	ENVOLVENTE MIN	5.640	0.000	2.260	0.616	-14.485
N+6.35	B73	ENVOLVENTE MIN	6.345	0.000	5.340	0.616	-28.519
N+6.35	B73	ENVOLVENTE MIN	7.050	0.000	8.430	0.616	-45.451
N+3.15	B73	ENVOLVENTE MAX	0.000	0.000	-56.530	-5.180	-53.753
N+3.15	B73	ENVOLVENTE MAX	0.705	0.000	-51.470	-5.180	-15.448
N+3.15	B73	ENVOLVENTE MAX	1.410	0.000	-42.480	-5.180	17.907
N+3.15	B73	ENVOLVENTE MAX	2.115	0.000	-30.550	-5.180	66.116
N+3.15	B73	ENVOLVENTE MAX	2.820	0.000	-21.580	-5.180	114.690
N+3.15	B73	ENVOLVENTE MAX	3.520	0.000	-16.580	-5.180	161.939

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B73	ENVOLVENTE MAX	3.520	0.000	70.430	19.924	162.708
N+3.15	B73	ENVOLVENTE MAX	4.230	0.000	79.000	19.924	112.119
N+3.15	B73	ENVOLVENTE MAX	4.935	0.000	97.400	19.924	60.915
N+3.15	B73	ENVOLVENTE MAX	5.640	0.000	125.890	19.924	13.125
N+3.15	B73	ENVOLVENTE MAX	6.345	0.000	146.230	19.924	-21.654
N+3.15	B73	ENVOLVENTE MAX	7.050	0.000	155.760	19.924	-61.382
N+3.15	B73	ENVOLVENTE MIN	0.000	0.000	-151.640	-25.309	-228.849
N+3.15	B73	ENVOLVENTE MIN	0.705	0.000	-142.120	-25.309	-131.349
N+3.15	B73	ENVOLVENTE MIN	1.410	0.000	-121.780	-25.309	-42.906
N+3.15	B73	ENVOLVENTE MIN	2.115	0.000	-93.360	-25.309	8.123
N+3.15	B73	ENVOLVENTE MIN	2.820	0.000	-75.250	-25.309	43.887
N+3.15	B73	ENVOLVENTE MIN	3.520	0.000	-66.860	-25.309	73.555
N+3.15	B73	ENVOLVENTE MIN	3.520	0.000	18.410	3.256	73.888
N+3.15	B73	ENVOLVENTE MIN	4.230	0.000	23.520	3.256	42.910
N+3.15	B73	ENVOLVENTE MIN	4.935	0.000	32.540	3.256	5.431
N+3.15	B73	ENVOLVENTE MIN	5.640	0.000	44.500	3.256	-50.197
N+3.15	B73	ENVOLVENTE MIN	6.345	0.000	53.490	3.256	-141.414
N+3.15	B73	ENVOLVENTE MIN	7.050	0.000	58.550	3.256	-241.687
N+6.35	B74	ENVOLVENTE MAX	0.000	0.000	-8.460	0.561	6.633
N+6.35	B74	ENVOLVENTE MAX	0.718	0.000	-5.320	0.561	11.580
N+6.35	B74	ENVOLVENTE MAX	1.436	0.000	-2.180	0.561	14.995
N+6.35	B74	ENVOLVENTE MAX	2.154	0.000	0.960	0.561	16.881
N+6.35	B74	ENVOLVENTE MAX	2.872	0.000	4.100	0.561	15.761
N+6.35	B74	ENVOLVENTE MAX	3.590	0.000	7.840	0.561	13.802
N+6.35	B74	ENVOLVENTE MAX	4.308	0.000	12.030	0.561	13.763
N+6.35	B74	ENVOLVENTE MAX	5.026	0.000	16.220	0.561	12.776
N+6.35	B74	ENVOLVENTE MAX	5.744	0.000	20.400	0.561	10.639
N+6.35	B74	ENVOLVENTE MAX	6.462	0.000	24.590	0.561	6.700
N+6.35	B74	ENVOLVENTE MAX	7.180	0.000	28.780	0.561	0.506
N+6.35	B74	ENVOLVENTE MIN	0.000	0.000	-25.840	-0.454	-43.452
N+6.35	B74	ENVOLVENTE MIN	0.718	0.000	-21.660	-0.454	-26.400
N+6.35	B74	ENVOLVENTE MIN	1.436	0.000	-17.470	-0.454	-13.078
N+6.35	B74	ENVOLVENTE MIN	2.154	0.000	-13.280	-0.454	-3.488
N+6.35	B74	ENVOLVENTE MIN	2.872	0.000	-9.090	-0.454	3.847
N+6.35	B74	ENVOLVENTE MIN	3.590	0.000	-5.510	-0.454	8.811
N+6.35	B74	ENVOLVENTE MIN	4.308	0.000	-2.360	-0.454	2.490
N+6.35	B74	ENVOLVENTE MIN	5.026	0.000	0.780	-0.454	-6.092
N+6.35	B74	ENVOLVENTE MIN	5.744	0.000	3.920	-0.454	-18.787
N+6.35	B74	ENVOLVENTE MIN	6.462	0.000	7.060	-0.454	-34.940
N+6.35	B74	ENVOLVENTE MIN	7.180	0.000	10.200	-0.454	-54.100
N+3.15	B74	ENVOLVENTE MAX	0.000	0.000	-61.100	-4.119	-64.900
N+3.15	B74	ENVOLVENTE MAX	0.718	0.000	-55.920	-4.119	-22.644
N+3.15	B74	ENVOLVENTE MAX	1.436	0.000	-46.650	-4.119	14.424
N+3.15	B74	ENVOLVENTE MAX	2.154	0.000	-34.310	-4.119	66.765
N+3.15	B74	ENVOLVENTE MAX	2.872	0.000	-25.040	-4.119	121.869
N+3.15	B74	ENVOLVENTE MAX	3.590	0.000	-19.860	-4.119	174.369
N+3.15	B74	ENVOLVENTE MAX	3.590	0.000	65.570	28.520	173.360
N+3.15	B74	ENVOLVENTE MAX	4.308	0.000	74.290	28.520	125.659
N+3.15	B74	ENVOLVENTE MAX	5.026	0.000	93.290	28.520	74.814
N+3.15	B74	ENVOLVENTE MAX	5.744	0.000	122.730	28.520	21.796
N+3.15	B74	ENVOLVENTE MAX	6.462	0.000	143.750	28.520	-12.845
N+3.15	B74	ENVOLVENTE MAX	7.180	0.000	153.550	28.520	-52.673
N+3.15	B74	ENVOLVENTE MIN	0.000	0.000	-160.230	-21.284	-246.221
N+3.15	B74	ENVOLVENTE MIN	0.718	0.000	-150.440	-21.284	-141.741
N+3.15	B74	ENVOLVENTE MIN	1.436	0.000	-129.410	-21.284	-46.772
N+3.15	B74	ENVOLVENTE MIN	2.154	0.000	-99.980	-21.284	9.181
N+3.15	B74	ENVOLVENTE MIN	2.872	0.000	-80.290	-21.284	47.863
N+3.15	B74	ENVOLVENTE MIN	3.590	0.000	-71.580	-21.284	79.594
N+3.15	B74	ENVOLVENTE MIN	3.590	0.000	16.480	7.939	79.281
N+3.15	B74	ENVOLVENTE MIN	4.308	0.000	21.660	7.939	49.416
N+3.15	B74	ENVOLVENTE MIN	5.026	0.000	30.930	7.939	13.292
N+3.15	B74	ENVOLVENTE MIN	5.744	0.000	43.260	7.939	-35.244
N+3.15	B74	ENVOLVENTE MIN	6.462	0.000	52.540	7.939	-125.902
N+3.15	B74	ENVOLVENTE MIN	7.180	0.000	57.720	7.939	-226.070
N+6.35	B75	ENVOLVENTE MAX	0.000	0.000	-7.960	1.720	9.024
N+6.35	B75	ENVOLVENTE MAX	0.707	0.000	-4.870	1.720	13.843
N+6.35	B75	ENVOLVENTE MAX	1.414	0.000	-1.780	1.720	17.878
N+6.35	B75	ENVOLVENTE MAX	2.121	0.000	1.310	1.720	18.998
N+6.35	B75	ENVOLVENTE MAX	2.828	0.000	4.600	1.720	17.204
N+6.35	B75	ENVOLVENTE MAX	3.535	0.000	8.720	1.720	14.464
N+6.35	B75	ENVOLVENTE MAX	4.242	0.000	12.850	1.720	12.558
N+6.35	B75	ENVOLVENTE MAX	4.949	0.000	16.970	1.720	11.343
N+6.35	B75	ENVOLVENTE MAX	5.656	0.000	21.090	1.720	9.359
N+6.35	B75	ENVOLVENTE MAX	6.363	0.000	25.220	1.720	5.188
N+6.35	B75	ENVOLVENTE MAX	7.070	0.000	29.340	1.720	-1.168
N+6.35	B75	ENVOLVENTE MIN	0.000	0.000	-24.320	-0.064	-38.120
N+6.35	B75	ENVOLVENTE MIN	0.707	0.000	-20.190	-0.064	-22.667
N+6.35	B75	ENVOLVENTE MIN	1.414	0.000	-16.070	-0.064	-11.533
N+6.35	B75	ENVOLVENTE MIN	2.121	0.000	-11.950	-0.064	-2.586
N+6.35	B75	ENVOLVENTE MIN	2.828	0.000	-8.020	-0.064	4.176
N+6.35	B75	ENVOLVENTE MIN	3.535	0.000	-4.920	-0.064	8.746
N+6.35	B75	ENVOLVENTE MIN	4.242	0.000	-1.830	-0.064	3.450
N+6.35	B75	ENVOLVENTE MIN	4.949	0.000	1.260	-0.064	-5.673
N+6.35	B75	ENVOLVENTE MIN	5.656	0.000	4.350	-0.064	-19.128
N+6.35	B75	ENVOLVENTE MIN	6.363	0.000	7.440	-0.064	-35.499
N+6.35	B75	ENVOLVENTE MIN	7.070	0.000	10.540	-0.064	-54.784
N+3.15	B75	ENVOLVENTE MAX	0.000	0.000	-26.660	23.122	-14.521
N+3.15	B75	ENVOLVENTE MAX	0.707	0.000	-21.560	23.122	2.643
N+3.15	B75	ENVOLVENTE MAX	1.414	0.000	-14.930	23.122	15.676
N+3.15	B75	ENVOLVENTE MAX	2.121	0.000	-7.140	23.122	31.272
N+3.15	B75	ENVOLVENTE MAX	2.828	0.000	-0.500	23.122	46.745
N+3.15	B75	ENVOLVENTE MAX	3.540	0.000	4.640	23.122	65.596

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B75	ENVOLVENTE MAX	3.540	0.000	19.610	5.071	65.592
N+3.15	B75	ENVOLVENTE MAX	4.242	0.000	27.590	5.071	55.642
N+3.15	B75	ENVOLVENTE MAX	4.949	0.000	40.150	5.071	46.950
N+3.15	B75	ENVOLVENTE MAX	5.656	0.000	56.130	5.071	30.528
N+3.15	B75	ENVOLVENTE MAX	6.363	0.000	68.720	5.071	19.514
N+3.15	B75	ENVOLVENTE MAX	7.070	0.000	76.820	5.071	7.121
N+3.15	B75	ENVOLVENTE MIN	0.000	0.000	-91.320	6.441	-159.318
N+3.15	B75	ENVOLVENTE MIN	0.707	0.000	-82.520	6.441	-99.405
N+3.15	B75	ENVOLVENTE MIN	1.414	0.000	-67.780	6.441	-46.806
N+3.15	B75	ENVOLVENTE MIN	2.121	0.000	-51.770	6.441	-12.334
N+3.15	B75	ENVOLVENTE MIN	2.828	0.000	-39.140	6.441	6.672
N+3.15	B75	ENVOLVENTE MIN	3.540	0.000	-31.020	6.441	19.399
N+3.15	B75	ENVOLVENTE MIN	3.540	0.000	-11.390	-10.789	19.426
N+3.15	B75	ENVOLVENTE MIN	4.242	0.000	-6.330	-10.789	13.080
N+3.15	B75	ENVOLVENTE MIN	4.949	0.000	0.290	-10.789	-1.826
N+3.15	B75	ENVOLVENTE MIN	5.656	0.000	8.060	-10.789	-22.387
N+3.15	B75	ENVOLVENTE MIN	6.363	0.000	14.700	-10.789	-63.913
N+3.15	B75	ENVOLVENTE MIN	7.070	0.000	19.800	-10.789	-115.504
N+6.35	B76	ENVOLVENTE MAX	0.000	0.000	-6.850	1.027	14.430
N+6.35	B76	ENVOLVENTE MAX	0.492	0.000	-4.310	1.027	17.207
N+6.35	B76	ENVOLVENTE MAX	0.984	0.000	-1.020	1.027	20.908
N+6.35	B76	ENVOLVENTE MAX	1.476	0.000	3.040	1.027	24.002
N+6.35	B76	ENVOLVENTE MAX	1.968	0.000	7.820	1.027	23.547
N+6.35	B76	ENVOLVENTE MAX	2.460	0.000	13.080	1.027	23.661
N+6.35	B76	ENVOLVENTE MAX	2.952	0.000	21.230	1.027	27.192
N+6.35	B76	ENVOLVENTE MAX	3.444	0.000	29.080	1.027	27.831
N+6.35	B76	ENVOLVENTE MAX	3.936	0.000	35.590	1.027	24.919
N+6.35	B76	ENVOLVENTE MAX	4.428	0.000	40.640	1.027	22.765
N+6.35	B76	ENVOLVENTE MAX	4.920	0.000	44.230	1.027	20.512
N+6.35	B76	ENVOLVENTE MIN	0.000	0.000	-44.600	-0.247	-54.910
N+6.35	B76	ENVOLVENTE MIN	0.492	0.000	-41.010	-0.247	-33.791
N+6.35	B76	ENVOLVENTE MIN	0.984	0.000	-35.960	-0.247	-17.158
N+6.35	B76	ENVOLVENTE MIN	1.476	0.000	-29.450	-0.247	-4.569
N+6.35	B76	ENVOLVENTE MIN	1.968	0.000	-21.600	-0.247	5.836
N+6.35	B76	ENVOLVENTE MIN	2.460	0.000	-13.800	-0.247	10.366
N+6.35	B76	ENVOLVENTE MIN	2.952	0.000	-8.880	-0.247	2.896
N+6.35	B76	ENVOLVENTE MIN	3.444	0.000	-4.110	-0.247	-6.987
N+6.35	B76	ENVOLVENTE MIN	3.936	0.000	-0.050	-0.247	-19.052
N+6.35	B76	ENVOLVENTE MIN	4.428	0.000	3.250	-0.247	-36.527
N+6.35	B76	ENVOLVENTE MIN	4.920	0.000	5.780	-0.247	-57.464
N+3.15	B76	ENVOLVENTE MAX	0.000	0.000	14.610	-0.422	48.692
N+3.15	B76	ENVOLVENTE MAX	0.492	0.000	16.760	-0.422	40.975
N+3.15	B76	ENVOLVENTE MAX	0.984	0.000	18.910	-0.422	32.199
N+3.15	B76	ENVOLVENTE MAX	1.476	0.000	21.070	-0.422	22.364
N+3.15	B76	ENVOLVENTE MAX	1.968	0.000	23.220	-0.422	11.472
N+3.15	B76	ENVOLVENTE MAX	2.460	0.000	25.370	-0.422	5.012
N+3.15	B76	ENVOLVENTE MAX	2.952	0.000	27.520	-0.422	17.951
N+3.15	B76	ENVOLVENTE MAX	3.444	0.000	29.670	-0.422	29.838
N+3.15	B76	ENVOLVENTE MAX	3.936	0.000	32.370	-0.422	40.666
N+3.15	B76	ENVOLVENTE MAX	4.428	0.000	35.230	-0.422	50.435
N+3.15	B76	ENVOLVENTE MAX	4.920	0.000	38.100	-0.422	59.145
N+3.15	B76	ENVOLVENTE MIN	0.000	0.000	-43.350	-3.658	-85.568
N+3.15	B76	ENVOLVENTE MIN	0.492	0.000	-40.480	-3.658	-64.947
N+3.15	B76	ENVOLVENTE MIN	0.984	0.000	-37.610	-3.658	-45.737
N+3.15	B76	ENVOLVENTE MIN	1.476	0.000	-34.740	-3.658	-27.940
N+3.15	B76	ENVOLVENTE MIN	1.968	0.000	-31.870	-3.658	-11.555
N+3.15	B76	ENVOLVENTE MIN	2.460	0.000	-29.000	-3.658	-2.073
N+3.15	B76	ENVOLVENTE MIN	2.952	0.000	-26.130	-3.658	-14.462
N+3.15	B76	ENVOLVENTE MIN	3.444	0.000	-23.260	-3.658	-28.267
N+3.15	B76	ENVOLVENTE MIN	3.936	0.000	-20.930	-3.658	-43.485
N+3.15	B76	ENVOLVENTE MIN	4.428	0.000	-18.780	-3.658	-60.114
N+3.15	B76	ENVOLVENTE MIN	4.920	0.000	-16.630	-3.658	-78.155
N+3.15	B77	ENVOLVENTE MAX	0.000	0.000	-44.950	1.016	-49.016
N+3.15	B77	ENVOLVENTE MAX	0.437	0.000	-43.170	1.016	-29.692
N+3.15	B77	ENVOLVENTE MAX	0.874	0.000	-39.540	1.016	-11.551
N+3.15	B77	ENVOLVENTE MAX	1.311	0.000	-34.050	1.016	4.596
N+3.15	B77	ENVOLVENTE MAX	1.748	0.000	-26.710	1.016	26.327
N+3.15	B77	ENVOLVENTE MAX	2.185	0.000	-18.530	1.016	44.783
N+3.15	B77	ENVOLVENTE MAX	2.622	0.000	-10.350	1.016	58.312
N+3.15	B77	ENVOLVENTE MAX	3.059	0.000	-3.010	1.016	65.197
N+3.15	B77	ENVOLVENTE MAX	3.496	0.000	3.330	1.016	66.741
N+3.15	B77	ENVOLVENTE MAX	3.933	0.000	9.330	1.016	64.558
N+3.15	B77	ENVOLVENTE MAX	4.370	0.000	12.080	1.016	60.265
N+3.15	B77	ENVOLVENTE MIN	0.000	0.000	-88.650	-0.016	-109.389
N+3.15	B77	ENVOLVENTE MIN	0.437	0.000	-85.670	-0.016	-71.165
N+3.15	B77	ENVOLVENTE MIN	0.874	0.000	-78.990	-0.016	-37.324
N+3.15	B77	ENVOLVENTE MIN	1.311	0.000	-68.620	-0.016	-7.367
N+3.15	B77	ENVOLVENTE MIN	1.748	0.000	-54.550	-0.016	9.460
N+3.15	B77	ENVOLVENTE MIN	2.185	0.000	-38.820	-0.016	21.532
N+3.15	B77	ENVOLVENTE MIN	2.622	0.000	-23.370	-0.016	30.029
N+3.15	B77	ENVOLVENTE MIN	3.059	0.000	-10.900	-0.016	35.062
N+3.15	B77	ENVOLVENTE MIN	3.496	0.000	-2.530	-0.016	36.943
N+3.15	B77	ENVOLVENTE MIN	3.933	0.000	1.110	-0.016	35.072
N+3.15	B77	ENVOLVENTE MIN	4.370	0.000	2.880	-0.016	31.950
N+3.15	B78	ENVOLVENTE MAX	0.000	0.000	-33.730	-0.296	-29.855
N+3.15	B78	ENVOLVENTE MAX	0.447	0.000	-30.750	-0.296	-15.375
N+3.15	B78	ENVOLVENTE MAX	0.894	0.000	-26.580	-0.296	-2.480
N+3.15	B78	ENVOLVENTE MAX	1.340	0.000	-21.220	-0.296	10.628
N+3.15	B78	ENVOLVENTE MAX	1.787	0.000	-15.380	-0.296	23.823
N+3.15	B78	ENVOLVENTE MAX	2.234	0.000	-9.440	-0.296	32.920
N+3.15	B78	ENVOLVENTE MAX	2.681	0.000	-3.580	-0.296	38.591
N+3.15	B78	ENVOLVENTE MAX	3.128	0.000	1.890	-0.296	40.328

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B78	ENVOLVENTE MAX	3.574	0.000	8.480	-0.296	38.553
N+3.15	B78	ENVOLVENTE MAX	4.021	0.000	13.710	-0.296	34.436
N+3.15	B78	ENVOLVENTE MAX	4.468	0.000	17.560	-0.296	28.871
N+3.15	B78	ENVOLVENTE MIN	0.000	0.000	-59.000	-1.121	-62.758
N+3.15	B78	ENVOLVENTE MIN	0.447	0.000	-54.630	-1.121	-38.407
N+3.15	B78	ENVOLVENTE MIN	0.894	0.000	-47.880	-1.121	-16.416
N+3.15	B78	ENVOLVENTE MIN	1.340	0.000	-38.780	-1.121	-0.056
N+3.15	B78	ENVOLVENTE MIN	1.787	0.000	-28.710	-1.121	9.685
N+3.15	B78	ENVOLVENTE MIN	2.234	0.000	-19.020	-1.121	16.737
N+3.15	B78	ENVOLVENTE MIN	2.681	0.000	-9.780	-1.121	20.943
N+3.15	B78	ENVOLVENTE MIN	3.128	0.000	-2.150	-1.121	22.444
N+3.15	B78	ENVOLVENTE MIN	3.574	0.000	2.190	-1.121	21.405
N+3.15	B78	ENVOLVENTE MIN	4.021	0.000	5.740	-1.121	18.254
N+3.15	B78	ENVOLVENTE MIN	4.468	0.000	8.510	-1.121	13.570
N+3.15	B79	ENVOLVENTE MAX	0.000	0.000	-45.100	1.023	-49.477
N+3.15	B79	ENVOLVENTE MAX	0.437	0.000	-43.320	1.023	-30.090
N+3.15	B79	ENVOLVENTE MAX	0.874	0.000	-39.690	1.023	-11.886
N+3.15	B79	ENVOLVENTE MAX	1.311	0.000	-34.200	1.023	4.325
N+3.15	B79	ENVOLVENTE MAX	1.748	0.000	-26.850	1.023	26.690
N+3.15	B79	ENVOLVENTE MAX	2.185	0.000	-18.510	1.023	45.769
N+3.15	B79	ENVOLVENTE MAX	2.622	0.000	-10.180	1.023	58.682
N+3.15	B79	ENVOLVENTE MAX	3.059	0.000	-2.830	1.023	64.881
N+3.15	B79	ENVOLVENTE MAX	3.496	0.000	4.140	1.023	65.738
N+3.15	B79	ENVOLVENTE MAX	3.933	0.000	10.130	1.023	62.868
N+3.15	B79	ENVOLVENTE MAX	4.370	0.000	12.880	1.023	57.888
N+3.15	B79	ENVOLVENTE MIN	0.000	0.000	-87.720	-0.069	-106.299
N+3.15	B79	ENVOLVENTE MIN	0.437	0.000	-84.740	-0.069	-68.481
N+3.15	B79	ENVOLVENTE MIN	0.874	0.000	-78.060	-0.069	-34.022
N+3.15	B79	ENVOLVENTE MIN	1.311	0.000	-67.690	-0.069	-4.637
N+3.15	B79	ENVOLVENTE MIN	1.748	0.000	-53.610	-0.069	11.048
N+3.15	B79	ENVOLVENTE MIN	2.185	0.000	-37.570	-0.069	22.682
N+3.15	B79	ENVOLVENTE MIN	2.622	0.000	-21.530	-0.069	30.671
N+3.15	B79	ENVOLVENTE MIN	3.059	0.000	-9.030	-0.069	35.160
N+3.15	B79	ENVOLVENTE MIN	3.496	0.000	-1.280	-0.069	36.502
N+3.15	B79	ENVOLVENTE MIN	3.933	0.000	2.350	-0.069	34.606
N+3.15	B79	ENVOLVENTE MIN	4.370	0.000	4.130	-0.069	31.424
N+3.15	B80	ENVOLVENTE MAX	0.000	0.000	-46.470	0.018	-51.745
N+3.15	B80	ENVOLVENTE MAX	0.437	0.000	-44.690	0.018	-31.757
N+3.15	B80	ENVOLVENTE MAX	0.874	0.000	-41.060	0.018	-12.952
N+3.15	B80	ENVOLVENTE MAX	1.311	0.000	-35.570	0.018	3.860
N+3.15	B80	ENVOLVENTE MAX	1.748	0.000	-28.220	0.018	27.196
N+3.15	B80	ENVOLVENTE MAX	2.185	0.000	-19.760	0.018	47.573
N+3.15	B80	ENVOLVENTE MAX	2.622	0.000	-11.300	0.018	61.407
N+3.15	B80	ENVOLVENTE MAX	3.059	0.000	-3.950	0.018	68.475
N+3.15	B80	ENVOLVENTE MAX	3.496	0.000	2.320	0.018	70.200
N+3.15	B80	ENVOLVENTE MAX	3.933	0.000	8.310	0.018	68.200
N+3.15	B80	ENVOLVENTE MAX	4.370	0.000	11.060	0.018	64.089
N+3.15	B80	ENVOLVENTE MIN	0.000	0.000	-90.220	-1.043	-109.905
N+3.15	B80	ENVOLVENTE MIN	0.437	0.000	-87.240	-1.043	-70.995
N+3.15	B80	ENVOLVENTE MIN	0.874	0.000	-80.560	-1.043	-35.277
N+3.15	B80	ENVOLVENTE MIN	1.311	0.000	-70.190	-1.043	-4.933
N+3.15	B80	ENVOLVENTE MIN	1.748	0.000	-56.110	-1.043	11.341
N+3.15	B80	ENVOLVENTE MIN	2.185	0.000	-39.820	-1.043	23.517
N+3.15	B80	ENVOLVENTE MIN	2.622	0.000	-23.520	-1.043	31.988
N+3.15	B80	ENVOLVENTE MIN	3.059	0.000	-10.780	-1.043	36.932
N+3.15	B80	ENVOLVENTE MIN	3.496	0.000	-2.330	-1.043	38.712
N+3.15	B80	ENVOLVENTE MIN	3.933	0.000	1.300	-1.043	37.289
N+3.15	B80	ENVOLVENTE MIN	4.370	0.000	3.080	-1.043	34.600
N+6.35	B81	ENVOLVENTE MAX	0.000	0.000	-19.720	1.063	-7.352
N+6.35	B81	ENVOLVENTE MAX	0.825	0.000	-14.230	1.063	6.655
N+6.35	B81	ENVOLVENTE MAX	1.650	0.000	-8.740	1.063	17.005
N+6.35	B81	ENVOLVENTE MAX	2.475	0.000	-3.250	1.063	28.325
N+6.35	B81	ENVOLVENTE MAX	3.300	0.000	2.240	1.063	32.433
N+6.35	B81	ENVOLVENTE MAX	4.125	0.000	8.140	1.063	34.842
N+6.35	B81	ENVOLVENTE MAX	4.950	0.000	16.890	1.063	35.520
N+6.35	B81	ENVOLVENTE MAX	5.775	0.000	25.640	1.063	29.911
N+6.35	B81	ENVOLVENTE MAX	6.600	0.000	34.380	1.063	18.238
N+6.35	B81	ENVOLVENTE MAX	7.425	0.000	43.130	1.063	7.932
N+6.35	B81	ENVOLVENTE MAX	8.250	0.000	51.870	1.063	-6.904
N+6.35	B81	ENVOLVENTE MIN	0.000	0.000	-50.050	-0.548	-82.355
N+6.35	B81	ENVOLVENTE MIN	0.825	0.000	-41.300	-0.548	-44.673
N+6.35	B81	ENVOLVENTE MIN	1.650	0.000	-32.560	-0.548	-15.079
N+6.35	B81	ENVOLVENTE MIN	2.475	0.000	-23.810	-0.548	1.799
N+6.35	B81	ENVOLVENTE MIN	3.300	0.000	-15.070	-0.548	14.142
N+6.35	B81	ENVOLVENTE MIN	4.125	0.000	-6.730	-0.548	17.360
N+6.35	B81	ENVOLVENTE MIN	4.950	0.000	-1.240	-0.548	8.722
N+6.35	B81	ENVOLVENTE MIN	5.775	0.000	4.250	-0.548	-4.455
N+6.35	B81	ENVOLVENTE MIN	6.600	0.000	9.750	-0.548	-23.313
N+6.35	B81	ENVOLVENTE MIN	7.425	0.000	15.240	-0.548	-55.285
N+6.35	B81	ENVOLVENTE MIN	8.250	0.000	20.730	-0.548	-94.472
N+3.15	B81	ENVOLVENTE MAX	0.000	0.000	-58.320	33.859	-54.174
N+3.15	B81	ENVOLVENTE MAX	0.825	0.000	-49.870	33.859	-9.311
N+3.15	B81	ENVOLVENTE MAX	1.650	0.000	-38.120	33.859	27.225
N+3.15	B81	ENVOLVENTE MAX	2.475	0.000	-24.420	33.859	71.910
N+3.15	B81	ENVOLVENTE MAX	3.300	0.000	-11.750	33.859	103.229
N+3.15	B81	ENVOLVENTE MAX	4.125	0.000	-2.320	33.859	133.419
N+3.15	B81	ENVOLVENTE MAX	4.370	0.000	-0.160	33.859	140.389
N+3.15	B81	ENVOLVENTE MAX	4.370	0.000	51.790	-7.080	140.290
N+3.15	B81	ENVOLVENTE MAX	4.950	0.000	59.580	-7.080	118.348
N+3.15	B81	ENVOLVENTE MAX	5.775	0.000	75.590	-7.080	84.694
N+3.15	B81	ENVOLVENTE MAX	6.600	0.000	96.250	-7.080	36.136
N+3.15	B81	ENVOLVENTE MAX	7.425	0.000	113.970	-7.080	-1.859

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B81	ENVOLVENTE MAX	8.250	0.000	125.910	-7.080	-48.177
N+3.15	B81	ENVOLVENTE MIN	0.000	0.000	-123.460	13.123	-214.347
N+3.15	B81	ENVOLVENTE MIN	0.825	0.000	-111.510	13.123	-117.032
N+3.15	B81	ENVOLVENTE MIN	1.650	0.000	-93.800	13.123	-31.958
N+3.15	B81	ENVOLVENTE MIN	2.475	0.000	-72.700	13.123	17.846
N+3.15	B81	ENVOLVENTE MIN	3.300	0.000	-53.390	13.123	54.230
N+3.15	B81	ENVOLVENTE MIN	4.125	0.000	-39.730	13.123	72.601
N+3.15	B81	ENVOLVENTE MIN	4.370	0.000	-36.790	13.123	73.375
N+3.15	B81	ENVOLVENTE MIN	4.370	0.000	10.050	-29.471	73.986
N+3.15	B81	ENVOLVENTE MIN	4.950	0.000	15.650	-29.471	51.616
N+3.15	B81	ENVOLVENTE MIN	5.775	0.000	26.420	-29.471	12.785
N+3.15	B81	ENVOLVENTE MIN	6.600	0.000	39.870	-29.471	-36.689
N+3.15	B81	ENVOLVENTE MIN	7.425	0.000	51.620	-29.471	-123.775
N+3.15	B81	ENVOLVENTE MIN	8.250	0.000	60.070	-29.471	-223.107
N+6.35	B82	ENVOLVENTE MAX	0.000	0.000	-33.670	14.477	-33.894
N+6.35	B82	ENVOLVENTE MAX	0.825	0.000	-27.310	14.477	-8.734
N+6.35	B82	ENVOLVENTE MAX	1.650	0.000	-20.950	14.477	11.649
N+6.35	B82	ENVOLVENTE MAX	2.475	0.000	-14.590	14.477	40.568
N+6.35	B82	ENVOLVENTE MAX	3.300	0.000	-8.230	14.477	65.473
N+6.35	B82	ENVOLVENTE MAX	4.125	0.000	-1.870	14.477	82.548
N+6.35	B82	ENVOLVENTE MAX	4.370	0.000	0.020	14.477	85.516
N+6.35	B82	ENVOLVENTE MAX	4.370	0.000	23.940	-2.436	83.469
N+6.35	B82	ENVOLVENTE MAX	4.950	0.000	31.100	-2.436	69.542
N+6.35	B82	ENVOLVENTE MAX	5.775	0.000	44.760	-2.436	48.031
N+6.35	B82	ENVOLVENTE MAX	6.600	0.000	61.610	-2.436	15.867
N+6.35	B82	ENVOLVENTE MAX	7.425	0.000	78.100	-2.436	-8.845
N+6.35	B82	ENVOLVENTE MAX	8.250	0.000	90.110	-2.436	-39.838
N+6.35	B82	ENVOLVENTE MIN	0.000	0.000	-80.240	6.129	-124.266
N+6.35	B82	ENVOLVENTE MIN	0.825	0.000	-67.010	6.129	-65.484
N+6.35	B82	ENVOLVENTE MIN	1.650	0.000	-54.080	6.129	-16.620
N+6.35	B82	ENVOLVENTE MIN	2.475	0.000	-42.630	6.129	9.013
N+6.35	B82	ENVOLVENTE MIN	3.300	0.000	-31.180	6.129	29.319
N+6.35	B82	ENVOLVENTE MIN	4.125	0.000	-19.730	6.129	39.092
N+6.35	B82	ENVOLVENTE MIN	4.370	0.000	-16.330	6.129	39.513
N+6.35	B82	ENVOLVENTE MIN	4.370	0.000	3.830	-10.988	38.928
N+6.35	B82	ENVOLVENTE MIN	4.950	0.000	8.230	-10.988	28.291
N+6.35	B82	ENVOLVENTE MIN	5.775	0.000	16.300	-10.988	8.035
N+6.35	B82	ENVOLVENTE MIN	6.600	0.000	25.540	-10.988	-20.609
N+6.35	B82	ENVOLVENTE MIN	7.425	0.000	34.100	-10.988	-76.853
N+6.35	B82	ENVOLVENTE MIN	8.250	0.000	40.670	-10.988	-143.651
N+3.15	B82	ENVOLVENTE MAX	0.000	0.000	-82.120	1.171	-102.164
N+3.15	B82	ENVOLVENTE MAX	0.825	0.000	-75.210	1.171	-36.805
N+3.15	B82	ENVOLVENTE MAX	1.650	0.000	-61.690	1.171	20.123
N+3.15	B82	ENVOLVENTE MAX	2.475	0.000	-44.700	1.171	94.010
N+3.15	B82	ENVOLVENTE MAX	3.300	0.000	-29.390	1.171	159.450
N+3.15	B82	ENVOLVENTE MAX	4.125	0.000	-20.510	1.171	213.975
N+3.15	B82	ENVOLVENTE MAX	4.370	0.000	-19.150	1.171	228.290
N+3.15	B82	ENVOLVENTE MAX	4.370	0.000	85.370	11.276	228.199
N+3.15	B82	ENVOLVENTE MAX	4.950	0.000	91.610	11.276	178.979
N+3.15	B82	ENVOLVENTE MAX	5.775	0.000	110.300	11.276	110.492
N+3.15	B82	ENVOLVENTE MAX	6.600	0.000	138.970	11.276	29.238
N+3.15	B82	ENVOLVENTE MAX	7.425	0.000	163.070	11.276	-30.273
N+3.15	B82	ENVOLVENTE MAX	8.250	0.000	174.470	11.276	-98.182
N+3.15	B82	ENVOLVENTE MIN	0.000	0.000	-170.370	-12.145	-285.775
N+3.15	B82	ENVOLVENTE MIN	0.825	0.000	-158.970	-12.145	-153.264
N+3.15	B82	ENVOLVENTE MIN	1.650	0.000	-134.420	-12.145	-34.248
N+3.15	B82	ENVOLVENTE MIN	2.475	0.000	-104.110	-12.145	33.341
N+3.15	B82	ENVOLVENTE MIN	3.300	0.000	-78.890	-12.145	82.588
N+3.15	B82	ENVOLVENTE MIN	4.125	0.000	-64.880	-12.145	114.089
N+3.15	B82	ENVOLVENTE MIN	4.370	0.000	-62.940	-12.145	119.032
N+3.15	B82	ENVOLVENTE MIN	4.370	0.000	33.210	-5.046	119.884
N+3.15	B82	ENVOLVENTE MIN	4.950	0.000	37.380	-5.046	86.421
N+3.15	B82	ENVOLVENTE MIN	5.775	0.000	48.940	-5.046	32.186
N+3.15	B82	ENVOLVENTE MIN	6.600	0.000	64.990	-5.046	-35.392
N+3.15	B82	ENVOLVENTE MIN	7.425	0.000	78.280	-5.046	-157.866
N+3.15	B82	ENVOLVENTE MIN	8.250	0.000	85.200	-5.046	-293.794
N+6.35	B83	ENVOLVENTE MAX	0.000	0.000	-30.980	-4.857	-29.161
N+6.35	B83	ENVOLVENTE MAX	0.825	0.000	-24.600	-4.857	-6.228
N+6.35	B83	ENVOLVENTE MAX	1.650	0.000	-18.220	-4.857	13.772
N+6.35	B83	ENVOLVENTE MAX	2.475	0.000	-11.840	-4.857	37.802
N+6.35	B83	ENVOLVENTE MAX	3.300	0.000	-5.460	-4.857	56.947
N+6.35	B83	ENVOLVENTE MAX	4.125	0.000	0.910	-4.857	67.407
N+6.35	B83	ENVOLVENTE MAX	4.370	0.000	3.090	-4.857	68.399
N+6.35	B83	ENVOLVENTE MAX	4.370	0.000	22.910	17.240	66.494
N+6.35	B83	ENVOLVENTE MAX	4.950	0.000	29.090	17.240	54.299
N+6.35	B83	ENVOLVENTE MAX	5.775	0.000	37.890	17.240	35.616
N+6.35	B83	ENVOLVENTE MAX	6.600	0.000	46.690	17.240	12.282
N+6.35	B83	ENVOLVENTE MAX	7.425	0.000	55.610	17.240	-6.011
N+6.35	B83	ENVOLVENTE MAX	8.250	0.000	65.290	17.240	-28.835
N+6.35	B83	ENVOLVENTE MIN	0.000	0.000	-72.550	-13.419	-106.823
N+6.35	B83	ENVOLVENTE MIN	0.825	0.000	-59.250	-13.419	-53.999
N+6.35	B83	ENVOLVENTE MIN	1.650	0.000	-46.780	-13.419	-12.994
N+6.35	B83	ENVOLVENTE MIN	2.475	0.000	-35.280	-13.419	9.226
N+6.35	B83	ENVOLVENTE MIN	3.300	0.000	-23.770	-13.419	25.934
N+6.35	B83	ENVOLVENTE MIN	4.125	0.000	-12.270	-13.419	32.429
N+6.35	B83	ENVOLVENTE MIN	4.370	0.000	-9.140	-13.419	32.107
N+6.35	B83	ENVOLVENTE MIN	4.370	0.000	4.480	4.897	31.177
N+6.35	B83	ENVOLVENTE MIN	4.950	0.000	8.350	4.897	21.607
N+6.35	B83	ENVOLVENTE MIN	5.775	0.000	13.860	4.897	3.494
N+6.35	B83	ENVOLVENTE MIN	6.600	0.000	19.370	4.897	-21.773
N+6.35	B83	ENVOLVENTE MIN	7.425	0.000	24.880	4.897	-63.885
N+6.35	B83	ENVOLVENTE MIN	8.250	0.000	30.390	4.897	-113.272

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B83	ENVOLVENTE MAX	0.000	0.000	-73.210	16.705	-88.599
N+3.15	B83	ENVOLVENTE MAX	0.825	0.000	-64.760	16.705	-31.453
N+3.15	B83	ENVOLVENTE MAX	1.650	0.000	-53.010	16.705	17.361
N+3.15	B83	ENVOLVENTE MAX	2.475	0.000	-39.190	16.705	77.650
N+3.15	B83	ENVOLVENTE MAX	3.300	0.000	-26.490	16.705	130.678
N+3.15	B83	ENVOLVENTE MAX	4.125	0.000	-17.060	16.705	177.756
N+3.15	B83	ENVOLVENTE MAX	4.370	0.000	-14.900	16.705	189.741
N+3.15	B83	ENVOLVENTE MAX	4.370	0.000	70.690	9.666	189.217
N+3.15	B83	ENVOLVENTE MAX	4.950	0.000	78.480	9.666	148.297
N+3.15	B83	ENVOLVENTE MAX	5.775	0.000	94.490	9.666	93.316
N+3.15	B83	ENVOLVENTE MAX	6.600	0.000	115.270	9.666	25.711
N+3.15	B83	ENVOLVENTE MAX	7.425	0.000	133.190	9.666	-26.244
N+3.15	B83	ENVOLVENTE MAX	8.250	0.000	145.540	9.666	-86.526
N+3.15	B83	ENVOLVENTE MIN	0.000	0.000	-139.930	-0.215	-240.127
N+3.15	B83	ENVOLVENTE MIN	0.825	0.000	-127.570	-0.215	-129.568
N+3.15	B83	ENVOLVENTE MIN	1.650	0.000	-109.850	-0.215	-31.246
N+3.15	B83	ENVOLVENTE MIN	2.475	0.000	-88.530	-0.215	28.354
N+3.15	B83	ENVOLVENTE MIN	3.300	0.000	-69.170	-0.215	72.166
N+3.15	B83	ENVOLVENTE MIN	4.125	0.000	-55.510	-0.215	99.719
N+3.15	B83	ENVOLVENTE MIN	4.370	0.000	-52.570	-0.215	103.775
N+3.15	B83	ENVOLVENTE MIN	4.370	0.000	26.920	-9.842	104.291
N+3.15	B83	ENVOLVENTE MIN	4.950	0.000	32.510	-9.842	75.595
N+3.15	B83	ENVOLVENTE MIN	5.775	0.000	43.290	-9.842	27.632
N+3.15	B83	ENVOLVENTE MIN	6.600	0.000	56.800	-9.842	-32.356
N+3.15	B83	ENVOLVENTE MIN	7.425	0.000	68.560	-9.842	-135.141
N+3.15	B83	ENVOLVENTE MIN	8.250	0.000	77.000	-9.842	-250.168
N+6.35	B84	ENVOLVENTE MAX	0.000	0.000	-25.640	0.546	-21.068
N+6.35	B84	ENVOLVENTE MAX	0.825	0.000	-19.300	0.546	-2.526
N+6.35	B84	ENVOLVENTE MAX	1.650	0.000	-12.960	0.546	11.122
N+6.35	B84	ENVOLVENTE MAX	2.475	0.000	-6.620	0.546	29.319
N+6.35	B84	ENVOLVENTE MAX	3.300	0.000	-0.280	0.546	41.485
N+6.35	B84	ENVOLVENTE MAX	4.125	0.000	6.420	0.546	46.039
N+6.35	B84	ENVOLVENTE MAX	4.950	0.000	17.810	0.546	40.210
N+6.35	B84	ENVOLVENTE MAX	5.775	0.000	29.200	0.546	29.828
N+6.35	B84	ENVOLVENTE MAX	6.600	0.000	40.590	0.546	11.487
N+6.35	B84	ENVOLVENTE MAX	7.425	0.000	53.660	0.546	-2.814
N+6.35	B84	ENVOLVENTE MAX	8.250	0.000	66.810	0.546	-22.346
N+6.35	B84	ENVOLVENTE MIN	0.000	0.000	-64.700	-0.476	-94.823
N+6.35	B84	ENVOLVENTE MIN	0.825	0.000	-51.550	-0.476	-48.828
N+6.35	B84	ENVOLVENTE MIN	1.650	0.000	-38.670	-0.476	-12.567
N+6.35	B84	ENVOLVENTE MIN	2.475	0.000	-27.280	-0.476	4.519
N+6.35	B84	ENVOLVENTE MIN	3.300	0.000	-15.890	-0.476	16.371
N+6.35	B84	ENVOLVENTE MIN	4.125	0.000	-4.860	-0.476	19.318
N+6.35	B84	ENVOLVENTE MIN	4.950	0.000	1.480	-0.476	11.709
N+6.35	B84	ENVOLVENTE MIN	5.775	0.000	7.820	-0.476	-1.137
N+6.35	B84	ENVOLVENTE MIN	6.600	0.000	14.160	-0.476	-20.651
N+6.35	B84	ENVOLVENTE MIN	7.425	0.000	20.500	-0.476	-58.833
N+6.35	B84	ENVOLVENTE MIN	8.250	0.000	26.850	-0.476	-106.412
N+3.15	B84	ENVOLVENTE MAX	0.000	0.000	-89.740	7.542	-119.869
N+3.15	B84	ENVOLVENTE MAX	0.825	0.000	-82.830	7.542	-48.230
N+3.15	B84	ENVOLVENTE MAX	1.650	0.000	-69.290	7.542	14.974
N+3.15	B84	ENVOLVENTE MAX	2.475	0.000	-51.490	7.542	97.948
N+3.15	B84	ENVOLVENTE MAX	3.300	0.000	-36.060	7.542	175.802
N+3.15	B84	ENVOLVENTE MAX	4.125	0.000	-27.180	7.542	238.919
N+3.15	B84	ENVOLVENTE MAX	4.370	0.000	-25.820	7.542	255.787
N+3.15	B84	ENVOLVENTE MAX	4.370	0.000	95.580	5.487	256.260
N+3.15	B84	ENVOLVENTE MAX	4.950	0.000	102.220	5.487	199.213
N+3.15	B84	ENVOLVENTE MAX	5.775	0.000	122.880	5.487	114.673
N+3.15	B84	ENVOLVENTE MAX	6.600	0.000	154.600	5.487	22.686
N+3.15	B84	ENVOLVENTE MAX	7.425	0.000	179.170	5.487	-44.732
N+3.15	B84	ENVOLVENTE MAX	8.250	0.000	190.570	5.487	-120.585
N+3.15	B84	ENVOLVENTE MIN	0.000	0.000	-182.670	-5.181	-297.842
N+3.15	B84	ENVOLVENTE MIN	0.825	0.000	-171.270	-5.181	-158.087
N+3.15	B84	ENVOLVENTE MIN	1.650	0.000	-146.700	-5.181	-31.826
N+3.15	B84	ENVOLVENTE MIN	2.475	0.000	-113.620	-5.181	39.252
N+3.15	B84	ENVOLVENTE MIN	3.300	0.000	-86.010	-5.181	91.093
N+3.15	B84	ENVOLVENTE MIN	4.125	0.000	-72.000	-5.181	126.144
N+3.15	B84	ENVOLVENTE MIN	4.370	0.000	-70.060	-5.181	132.627
N+3.15	B84	ENVOLVENTE MIN	4.370	0.000	41.550	-8.120	133.956
N+3.15	B84	ENVOLVENTE MIN	4.950	0.000	45.720	-8.120	97.755
N+3.15	B84	ENVOLVENTE MIN	5.775	0.000	57.290	-8.120	39.993
N+3.15	B84	ENVOLVENTE MIN	6.600	0.000	74.400	-8.120	-32.381
N+3.15	B84	ENVOLVENTE MIN	7.425	0.000	87.930	-8.120	-164.501
N+3.15	B84	ENVOLVENTE MIN	8.250	0.000	94.850	-8.120	-310.115
N+6.35	B85	ENVOLVENTE MAX	0.000	0.000	-22.010	0.908	-16.199
N+6.35	B85	ENVOLVENTE MAX	0.825	0.000	-16.480	0.908	-0.323
N+6.35	B85	ENVOLVENTE MAX	1.650	0.000	-10.960	0.908	11.034
N+6.35	B85	ENVOLVENTE MAX	2.475	0.000	-5.430	0.908	24.512
N+6.35	B85	ENVOLVENTE MAX	3.300	0.000	0.090	0.908	30.924
N+6.35	B85	ENVOLVENTE MAX	4.125	0.000	5.780	0.908	34.611
N+6.35	B85	ENVOLVENTE MAX	4.950	0.000	14.630	0.908	33.608
N+6.35	B85	ENVOLVENTE MAX	5.775	0.000	23.470	0.908	26.879
N+6.35	B85	ENVOLVENTE MAX	6.600	0.000	32.320	0.908	13.631
N+6.35	B85	ENVOLVENTE MAX	7.425	0.000	41.170	0.908	2.036
N+6.35	B85	ENVOLVENTE MAX	8.250	0.000	50.010	0.908	-14.118
N+6.35	B85	ENVOLVENTE MIN	0.000	0.000	-49.350	-0.911	-79.294
N+6.35	B85	ENVOLVENTE MIN	0.825	0.000	-40.500	-0.911	-42.232
N+6.35	B85	ENVOLVENTE MIN	1.650	0.000	-31.650	-0.911	-12.506
N+6.35	B85	ENVOLVENTE MIN	2.475	0.000	-22.810	-0.911	3.242
N+6.35	B85	ENVOLVENTE MIN	3.300	0.000	-13.960	-0.911	14.430
N+6.35	B85	ENVOLVENTE MIN	4.125	0.000	-5.280	-0.911	17.594
N+6.35	B85	ENVOLVENTE MIN	4.950	0.000	0.240	-0.911	10.691

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B85	ENVOLVENTE MIN	5.775	0.000	5.770	-0.911	-0.776
N+6.35	B85	ENVOLVENTE MIN	6.600	0.000	11.290	-0.911	-17.582
N+6.35	B85	ENVOLVENTE MIN	7.425	0.000	16.820	-0.911	-47.895
N+6.35	B85	ENVOLVENTE MIN	8.250	0.000	22.340	-0.911	-85.507
N+3.15	B85	ENVOLVENTE MAX	0.000	0.000	-62.710	-14.230	-68.988
N+3.15	B85	ENVOLVENTE MAX	0.825	0.000	-54.260	-14.230	-20.502
N+3.15	B85	ENVOLVENTE MAX	1.650	0.000	-42.510	-14.230	19.657
N+3.15	B85	ENVOLVENTE MAX	2.475	0.000	-28.570	-14.230	68.188
N+3.15	B85	ENVOLVENTE MAX	3.300	0.000	-15.850	-14.230	105.619
N+3.15	B85	ENVOLVENTE MAX	4.125	0.000	-6.420	-14.230	137.330
N+3.15	B85	ENVOLVENTE MAX	4.370	0.000	-4.260	-14.230	144.752
N+3.15	B85	ENVOLVENTE MAX	4.370	0.000	49.180	33.166	144.392
N+3.15	B85	ENVOLVENTE MAX	4.950	0.000	56.970	33.166	118.275
N+3.15	B85	ENVOLVENTE MAX	5.775	0.000	72.970	33.166	81.006
N+3.15	B85	ENVOLVENTE MAX	6.600	0.000	93.860	33.166	28.347
N+3.15	B85	ENVOLVENTE MAX	7.425	0.000	111.570	33.166	-13.354
N+3.15	B85	ENVOLVENTE MAX	8.250	0.000	123.520	33.166	-63.124
N+3.15	B85	ENVOLVENTE MIN	0.000	0.000	-122.520	-34.271	-206.619
N+3.15	B85	ENVOLVENTE MIN	0.825	0.000	-110.580	-34.271	-110.078
N+3.15	B85	ENVOLVENTE MIN	1.650	0.000	-92.860	-34.271	-25.779
N+3.15	B85	ENVOLVENTE MIN	2.475	0.000	-71.330	-34.271	22.787
N+3.15	B85	ENVOLVENTE MIN	3.300	0.000	-51.940	-34.271	57.453
N+3.15	B85	ENVOLVENTE MIN	4.125	0.000	-38.290	-34.271	75.664
N+3.15	B85	ENVOLVENTE MIN	4.370	0.000	-35.340	-34.271	77.108
N+3.15	B85	ENVOLVENTE MIN	4.370	0.000	14.120	9.283	77.524
N+3.15	B85	ENVOLVENTE MIN	4.950	0.000	19.710	9.283	56.813
N+3.15	B85	ENVOLVENTE MIN	5.775	0.000	30.480	9.283	20.400
N+3.15	B85	ENVOLVENTE MIN	6.600	0.000	44.050	9.283	-26.268
N+3.15	B85	ENVOLVENTE MIN	7.425	0.000	55.810	9.283	-111.123
N+3.15	B85	ENVOLVENTE MIN	8.250	0.000	64.260	9.283	-208.477
N+3.15	B86	ENVOLVENTE MAX	0.000	0.000	-33.960	0.562	-20.558
N+3.15	B86	ENVOLVENTE MAX	0.690	0.000	-30.310	0.562	1.883
N+3.15	B86	ENVOLVENTE MAX	1.380	0.000	-22.030	0.562	29.156
N+3.15	B86	ENVOLVENTE MAX	2.070	0.000	-10.270	0.562	50.912
N+3.15	B86	ENVOLVENTE MAX	2.760	0.000	-1.990	0.562	62.613
N+3.15	B86	ENVOLVENTE MAX	3.450	0.000	1.670	0.562	66.719
N+3.15	B86	ENVOLVENTE MAX	3.450	0.000	12.570	0.737	64.904
N+3.15	B86	ENVOLVENTE MAX	4.140	0.000	18.390	0.737	55.259
N+3.15	B86	ENVOLVENTE MAX	4.830	0.000	33.560	0.737	38.019
N+3.15	B86	ENVOLVENTE MAX	5.520	0.000	56.090	0.737	10.856
N+3.15	B86	ENVOLVENTE MAX	6.210	0.000	71.700	0.737	-14.265
N+3.15	B86	ENVOLVENTE MAX	6.900	0.000	78.100	0.737	-40.441
N+3.15	B86	ENVOLVENTE MIN	0.000	0.000	-70.070	-0.678	-62.795
N+3.15	B86	ENVOLVENTE MIN	0.690	0.000	-63.670	-0.678	-19.618
N+3.15	B86	ENVOLVENTE MIN	1.380	0.000	-48.060	-0.678	7.805
N+3.15	B86	ENVOLVENTE MIN	2.070	0.000	-25.530	-0.678	22.662
N+3.15	B86	ENVOLVENTE MIN	2.760	0.000	-11.240	-0.678	30.334
N+3.15	B86	ENVOLVENTE MIN	3.450	0.000	-5.410	-0.678	33.751
N+3.15	B86	ENVOLVENTE MIN	3.450	0.000	3.750	-0.119	33.193
N+3.15	B86	ENVOLVENTE MIN	4.140	0.000	7.400	-0.119	26.634
N+3.15	B86	ENVOLVENTE MIN	4.830	0.000	15.680	-0.119	15.755
N+3.15	B86	ENVOLVENTE MIN	5.520	0.000	27.440	-0.119	-2.315
N+3.15	B86	ENVOLVENTE MIN	6.210	0.000	35.720	-0.119	-40.562
N+3.15	B86	ENVOLVENTE MIN	6.900	0.000	39.380	-0.119	-89.737
N+6.35	B87	ENVOLVENTE MAX	0.000	0.000	-15.780	2.451	-8.755
N+6.35	B87	ENVOLVENTE MAX	0.750	0.000	-13.440	2.451	2.341
N+6.35	B87	ENVOLVENTE MAX	1.500	0.000	-9.320	2.451	16.841
N+6.35	B87	ENVOLVENTE MAX	2.250	0.000	-4.860	2.451	26.198
N+6.35	B87	ENVOLVENTE MAX	2.830	0.000	-2.240	2.451	30.428
N+6.35	B87	ENVOLVENTE MAX	2.830	0.000	-2.240	2.451	30.428
N+6.35	B87	ENVOLVENTE MAX	3.000	0.000	-1.600	2.451	31.179
N+6.35	B87	ENVOLVENTE MAX	3.750	0.000	0.470	2.451	32.668
N+6.35	B87	ENVOLVENTE MAX	3.750	0.000	0.460	2.451	32.668
N+6.35	B87	ENVOLVENTE MAX	3.760	0.000	0.480	2.451	32.674
N+6.35	B87	ENVOLVENTE MAX	3.760	0.000	12.370	-0.392	36.474
N+6.35	B87	ENVOLVENTE MAX	4.500	0.000	14.280	-0.392	26.753
N+6.35	B87	ENVOLVENTE MAX	5.250	0.000	16.230	-0.392	15.923
N+6.35	B87	ENVOLVENTE MAX	6.000	0.000	18.170	-0.392	5.682
N+6.35	B87	ENVOLVENTE MAX	6.750	0.000	20.120	-0.392	-1.923
N+6.35	B87	ENVOLVENTE MAX	7.500	0.000	22.060	-0.392	-9.913
N+6.35	B87	ENVOLVENTE MIN	0.000	0.000	-30.390	0.433	-25.275
N+6.35	B87	ENVOLVENTE MIN	0.750	0.000	-26.450	0.433	-5.227
N+6.35	B87	ENVOLVENTE MIN	1.500	0.000	-18.530	0.433	5.002
N+6.35	B87	ENVOLVENTE MIN	2.250	0.000	-10.020	0.433	11.604
N+6.35	B87	ENVOLVENTE MIN	2.830	0.000	-5.660	0.433	14.655
N+6.35	B87	ENVOLVENTE MIN	2.830	0.000	-5.660	0.433	14.655
N+6.35	B87	ENVOLVENTE MIN	3.000	0.000	-4.640	0.433	15.259
N+6.35	B87	ENVOLVENTE MIN	3.750	0.000	-1.530	0.433	16.619
N+6.35	B87	ENVOLVENTE MIN	3.750	0.000	-1.530	0.433	16.619
N+6.35	B87	ENVOLVENTE MIN	3.760	0.000	-1.500	0.433	16.627
N+6.35	B87	ENVOLVENTE MIN	3.760	0.000	4.100	-2.303	18.602
N+6.35	B87	ENVOLVENTE MIN	4.500	0.000	5.540	-2.303	14.473
N+6.35	B87	ENVOLVENTE MIN	5.250	0.000	7.000	-2.303	7.402
N+6.35	B87	ENVOLVENTE MIN	6.000	0.000	8.450	-2.303	-1.052
N+6.35	B87	ENVOLVENTE MIN	6.750	0.000	9.910	-2.303	-14.693
N+6.35	B87	ENVOLVENTE MIN	7.500	0.000	11.370	-2.303	-30.501
N+3.15	B87	ENVOLVENTE MAX	0.000	0.000	-33.600	0.966	-39.224
N+3.15	B87	ENVOLVENTE MAX	0.750	0.000	-29.400	0.966	-14.854
N+3.15	B87	ENVOLVENTE MAX	1.500	0.000	-19.750	0.966	5.503
N+3.15	B87	ENVOLVENTE MAX	2.250	0.000	-8.260	0.966	22.349
N+3.15	B87	ENVOLVENTE MAX	3.000	0.000	0.230	0.966	27.089
N+3.15	B87	ENVOLVENTE MAX	3.750	0.000	6.320	0.966	25.006

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B87	ENVOLVENTE MAX	3.760	0.000	6.340	0.966	24.956
N+3.15	B87	ENVOLVENTE MAX	3.760	0.000	27.510	0.441	41.456
N+3.15	B87	ENVOLVENTE MAX	4.500	0.000	29.430	0.441	21.190
N+3.15	B87	ENVOLVENTE MAX	5.250	0.000	31.370	0.441	3.107
N+3.15	B87	ENVOLVENTE MAX	6.000	0.000	33.320	0.441	-8.120
N+3.15	B87	ENVOLVENTE MAX	6.750	0.000	35.260	0.441	-20.440
N+3.15	B87	ENVOLVENTE MAX	7.500	0.000	37.200	0.441	-33.854
N+3.15	B87	ENVOLVENTE MIN	0.000	0.000	-61.510	-0.566	-76.270
N+3.15	B87	ENVOLVENTE MIN	0.750	0.000	-54.120	-0.566	-33.226
N+3.15	B87	ENVOLVENTE MIN	1.500	0.000	-35.840	-0.566	-3.553
N+3.15	B87	ENVOLVENTE MIN	2.250	0.000	-13.920	-0.566	6.804
N+3.15	B87	ENVOLVENTE MIN	3.000	0.000	-1.540	-0.566	9.957
N+3.15	B87	ENVOLVENTE MIN	3.750	0.000	2.230	-0.566	8.935
N+3.15	B87	ENVOLVENTE MIN	3.760	0.000	2.250	-0.566	8.907
N+3.15	B87	ENVOLVENTE MIN	3.760	0.000	11.340	-1.034	22.166
N+3.15	B87	ENVOLVENTE MIN	4.500	0.000	12.780	-1.034	13.239
N+3.15	B87	ENVOLVENTE MIN	5.250	0.000	14.240	-1.034	-2.746
N+3.15	B87	ENVOLVENTE MIN	6.000	0.000	15.700	-1.034	-27.004
N+3.15	B87	ENVOLVENTE MIN	6.750	0.000	17.160	-1.034	-52.721
N+3.15	B87	ENVOLVENTE MIN	7.500	0.000	18.610	-1.034	-79.895
N+3.15	B88	ENVOLVENTE MAX	0.000	0.000	-39.160	0.321	-42.477
N+3.15	B88	ENVOLVENTE MAX	0.705	0.000	-35.370	0.321	-15.920
N+3.15	B88	ENVOLVENTE MAX	1.410	0.000	-26.760	0.321	7.901
N+3.15	B88	ENVOLVENTE MAX	2.115	0.000	-14.530	0.321	34.749
N+3.15	B88	ENVOLVENTE MAX	2.820	0.000	-5.950	0.321	50.338
N+3.15	B88	ENVOLVENTE MAX	3.520	0.000	-2.210	0.321	57.862
N+3.15	B88	ENVOLVENTE MAX	3.520	0.000	10.550	0.723	55.817
N+3.15	B88	ENVOLVENTE MAX	4.230	0.000	16.930	0.723	46.761
N+3.15	B88	ENVOLVENTE MAX	4.935	0.000	33.260	0.723	29.637
N+3.15	B88	ENVOLVENTE MAX	5.640	0.000	56.770	0.723	1.931
N+3.15	B88	ENVOLVENTE MAX	6.345	0.000	73.030	0.723	-21.272
N+3.15	B88	ENVOLVENTE MAX	7.050	0.000	79.670	0.723	-48.846
N+3.15	B88	ENVOLVENTE MIN	0.000	0.000	-77.350	-0.647	-92.819
N+3.15	B88	ENVOLVENTE MIN	0.705	0.000	-70.720	-0.647	-40.154
N+3.15	B88	ENVOLVENTE MIN	1.410	0.000	-54.450	-0.647	-1.237
N+3.15	B88	ENVOLVENTE MIN	2.115	0.000	-31.010	-0.647	15.355
N+3.15	B88	ENVOLVENTE MIN	2.820	0.000	-14.820	-0.647	24.330
N+3.15	B88	ENVOLVENTE MIN	3.520	0.000	-8.440	-0.647	28.905
N+3.15	B88	ENVOLVENTE MIN	3.520	0.000	3.460	-0.033	28.509
N+3.15	B88	ENVOLVENTE MIN	4.230	0.000	7.290	-0.033	22.769
N+3.15	B88	ENVOLVENTE MIN	4.935	0.000	15.940	-0.033	12.573
N+3.15	B88	ENVOLVENTE MIN	5.640	0.000	28.200	-0.033	-5.761
N+3.15	B88	ENVOLVENTE MIN	6.345	0.000	36.820	-0.033	-48.422
N+3.15	B88	ENVOLVENTE MIN	7.050	0.000	40.600	-0.033	-102.813
N+3.15	B89	ENVOLVENTE MAX	0.000	0.000	-42.500	0.144	-49.997
N+3.15	B89	ENVOLVENTE MAX	0.718	0.000	-38.600	0.144	-20.584
N+3.15	B89	ENVOLVENTE MAX	1.436	0.000	-29.680	0.144	5.103
N+3.15	B89	ENVOLVENTE MAX	2.154	0.000	-17.010	0.144	36.238
N+3.15	B89	ENVOLVENTE MAX	2.872	0.000	-8.100	0.144	55.339
N+3.15	B89	ENVOLVENTE MAX	3.590	0.000	-4.200	0.144	65.938
N+3.15	B89	ENVOLVENTE MAX	3.590	0.000	2.990	0.431	67.896
N+3.15	B89	ENVOLVENTE MAX	4.308	0.000	9.220	0.431	65.169
N+3.15	B89	ENVOLVENTE MAX	5.026	0.000	24.890	0.431	53.941
N+3.15	B89	ENVOLVENTE MAX	5.744	0.000	49.200	0.431	30.649
N+3.15	B89	ENVOLVENTE MAX	6.462	0.000	66.040	0.431	0.830
N+3.15	B89	ENVOLVENTE MAX	7.180	0.000	72.890	0.431	-23.883
N+3.15	B89	ENVOLVENTE MIN	0.000	0.000	-83.850	-0.645	-106.415
N+3.15	B89	ENVOLVENTE MIN	0.718	0.000	-77.000	-0.645	-48.100
N+3.15	B89	ENVOLVENTE MIN	1.436	0.000	-60.170	-0.645	-3.306
N+3.15	B89	ENVOLVENTE MIN	2.154	0.000	-35.850	-0.645	16.272
N+3.15	B89	ENVOLVENTE MIN	2.872	0.000	-19.020	-0.645	27.797
N+3.15	B89	ENVOLVENTE MIN	3.590	0.000	-12.650	-0.645	33.795
N+3.15	B89	ENVOLVENTE MIN	3.590	0.000	-2.350	-0.615	33.865
N+3.15	B89	ENVOLVENTE MIN	4.308	0.000	1.560	-0.615	31.195
N+3.15	B89	ENVOLVENTE MIN	5.026	0.000	10.470	-0.615	23.916
N+3.15	B89	ENVOLVENTE MIN	5.744	0.000	23.140	-0.615	8.588
N+3.15	B89	ENVOLVENTE MIN	6.462	0.000	32.050	-0.615	-20.441
N+3.15	B89	ENVOLVENTE MIN	7.180	0.000	35.950	-0.615	-66.789
N+3.15	B90	ENVOLVENTE MAX	0.000	0.000	1.140	0.035	60.093
N+3.15	B90	ENVOLVENTE MAX	0.388	0.000	2.630	0.035	61.285
N+3.15	B90	ENVOLVENTE MAX	0.776	0.000	6.580	0.035	60.956
N+3.15	B90	ENVOLVENTE MAX	1.164	0.000	13.960	0.035	58.835
N+3.15	B90	ENVOLVENTE MAX	1.552	0.000	23.910	0.035	53.779
N+3.15	B90	ENVOLVENTE MAX	1.940	0.000	36.950	0.035	44.399
N+3.15	B90	ENVOLVENTE MAX	2.328	0.000	50.620	0.035	30.254
N+3.15	B90	ENVOLVENTE MAX	2.716	0.000	61.830	0.035	11.785
N+3.15	B90	ENVOLVENTE MAX	3.104	0.000	70.120	0.035	-0.891
N+3.15	B90	ENVOLVENTE MAX	3.492	0.000	75.500	0.035	-14.970
N+3.15	B90	ENVOLVENTE MAX	3.880	0.000	77.960	0.035	-29.909
N+3.15	B90	ENVOLVENTE MIN	0.000	0.000	-6.240	-1.437	30.563
N+3.15	B90	ENVOLVENTE MIN	0.388	0.000	-3.960	-1.437	29.884
N+3.15	B90	ENVOLVENTE MIN	0.776	0.000	-0.120	-1.437	28.343
N+3.15	B90	ENVOLVENTE MIN	1.164	0.000	4.290	-1.437	25.372
N+3.15	B90	ENVOLVENTE MIN	1.552	0.000	10.170	-1.437	20.405
N+3.15	B90	ENVOLVENTE MIN	1.940	0.000	17.290	-1.437	12.889
N+3.15	B90	ENVOLVENTE MIN	2.328	0.000	24.400	-1.437	2.573
N+3.15	B90	ENVOLVENTE MIN	2.716	0.000	30.280	-1.437	-10.290
N+3.15	B90	ENVOLVENTE MIN	3.104	0.000	34.690	-1.437	-34.306
N+3.15	B90	ENVOLVENTE MIN	3.492	0.000	37.640	-1.437	-60.718
N+3.15	B90	ENVOLVENTE MIN	3.880	0.000	39.120	-1.437	-88.511
N+6.35	B91	ENVOLVENTE MAX	0.000	0.000	-3.740	2.190	-0.292
N+6.35	B91	ENVOLVENTE MAX	0.419	0.000	-3.130	2.190	1.178

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B91	ENVOLVENTE MAX	0.838	0.000	-2.520	2.190	2.394
N+6.35	B91	ENVOLVENTE MAX	1.257	0.000	-1.910	2.190	3.357
N+6.35	B91	ENVOLVENTE MAX	1.677	0.000	-1.300	2.190	4.302
N+6.35	B91	ENVOLVENTE MAX	2.096	0.000	-0.690	2.190	5.249
N+6.35	B91	ENVOLVENTE MAX	2.515	0.000	-0.080	2.190	5.867
N+6.35	B91	ENVOLVENTE MAX	2.934	0.000	0.530	2.190	6.166
N+6.35	B91	ENVOLVENTE MAX	3.353	0.000	1.140	2.190	6.170
N+6.35	B91	ENVOLVENTE MAX	3.772	0.000	1.760	2.190	5.918
N+6.35	B91	ENVOLVENTE MAX	4.165	0.000	2.330	2.190	5.716
N+6.35	B91	ENVOLVENTE MAX	4.165	0.000	2.330	2.174	5.723
N+6.35	B91	ENVOLVENTE MAX	4.191	0.000	2.360	2.174	5.706
N+6.35	B91	ENVOLVENTE MIN	0.000	0.000	-8.410	0.638	-13.591
N+6.35	B91	ENVOLVENTE MIN	0.419	0.000	-7.600	0.638	-10.265
N+6.35	B91	ENVOLVENTE MIN	0.838	0.000	-6.780	0.638	-7.283
N+6.35	B91	ENVOLVENTE MIN	1.257	0.000	-5.970	0.638	-4.645
N+6.35	B91	ENVOLVENTE MIN	1.677	0.000	-5.150	0.638	-2.587
N+6.35	B91	ENVOLVENTE MIN	2.096	0.000	-4.340	0.638	-1.128
N+6.35	B91	ENVOLVENTE MIN	2.515	0.000	-3.520	0.638	0.061
N+6.35	B91	ENVOLVENTE MIN	2.934	0.000	-2.710	0.638	0.972
N+6.35	B91	ENVOLVENTE MIN	3.353	0.000	-1.890	0.638	1.581
N+6.35	B91	ENVOLVENTE MIN	3.772	0.000	-1.080	0.638	1.848
N+6.35	B91	ENVOLVENTE MIN	4.165	0.000	-0.310	0.638	1.520
N+6.35	B91	ENVOLVENTE MIN	4.165	0.000	-0.310	0.620	1.526
N+6.35	B91	ENVOLVENTE MIN	4.191	0.000	-0.260	0.620	1.490
N+3.15	B91	ENVOLVENTE MAX	0.000	0.000	-19.910	2.022	-11.151
N+3.15	B91	ENVOLVENTE MAX	0.419	0.000	-18.660	2.022	-2.880
N+3.15	B91	ENVOLVENTE MAX	0.838	0.000	-16.140	2.022	4.623
N+3.15	B91	ENVOLVENTE MAX	1.257	0.000	-12.820	2.022	13.393
N+3.15	B91	ENVOLVENTE MAX	1.677	0.000	-9.320	2.022	21.724
N+3.15	B91	ENVOLVENTE MAX	2.096	0.000	-5.700	2.022	27.605
N+3.15	B91	ENVOLVENTE MAX	2.515	0.000	-2.510	2.022	31.164
N+3.15	B91	ENVOLVENTE MAX	2.934	0.000	0.110	2.022	32.851
N+3.15	B91	ENVOLVENTE MAX	3.353	0.000	2.620	2.022	33.214
N+3.15	B91	ENVOLVENTE MAX	3.772	0.000	4.940	2.022	33.169
N+3.15	B91	ENVOLVENTE MAX	4.191	0.000	6.250	2.022	32.601
N+3.15	B91	ENVOLVENTE MIN	0.000	0.000	-40.570	-0.096	-45.398
N+3.15	B91	ENVOLVENTE MIN	0.419	0.000	-38.490	-0.096	-29.242
N+3.15	B91	ENVOLVENTE MIN	0.838	0.000	-33.880	-0.096	-14.378
N+3.15	B91	ENVOLVENTE MIN	1.257	0.000	-28.050	-0.096	-4.141
N+3.15	B91	ENVOLVENTE MIN	1.677	0.000	-22.200	-0.096	2.711
N+3.15	B91	ENVOLVENTE MIN	2.096	0.000	-16.140	-0.096	8.006
N+3.15	B91	ENVOLVENTE MIN	2.515	0.000	-10.820	-0.096	11.761
N+3.15	B91	ENVOLVENTE MIN	2.934	0.000	-6.500	-0.096	14.152
N+3.15	B91	ENVOLVENTE MIN	3.353	0.000	-3.650	-0.096	15.290
N+3.15	B91	ENVOLVENTE MIN	3.772	0.000	-2.180	-0.096	14.920
N+3.15	B91	ENVOLVENTE MIN	4.191	0.000	-1.280	-0.096	13.814
N+3.15	B92	ENVOLVENTE MAX	0.000	0.000	-0.410	-0.072	57.569
N+3.15	B92	ENVOLVENTE MAX	0.388	0.000	1.080	-0.072	59.470
N+3.15	B92	ENVOLVENTE MAX	0.776	0.000	4.360	-0.072	59.851
N+3.15	B92	ENVOLVENTE MAX	1.164	0.000	11.740	-0.072	57.579
N+3.15	B92	ENVOLVENTE MAX	1.552	0.000	21.690	-0.072	52.445
N+3.15	B92	ENVOLVENTE MAX	1.940	0.000	35.270	-0.072	43.443
N+3.15	B92	ENVOLVENTE MAX	2.328	0.000	49.080	-0.072	29.605
N+3.15	B92	ENVOLVENTE MAX	2.716	0.000	60.290	-0.072	11.429
N+3.15	B92	ENVOLVENTE MAX	3.104	0.000	68.580	-0.072	-1.910
N+3.15	B92	ENVOLVENTE MAX	3.492	0.000	73.960	-0.072	-15.913
N+3.15	B92	ENVOLVENTE MAX	3.880	0.000	76.420	-0.072	-30.777
N+3.15	B92	ENVOLVENTE MIN	0.000	0.000	-7.250	-1.547	30.137
N+3.15	B92	ENVOLVENTE MIN	0.388	0.000	-4.960	-1.547	30.071
N+3.15	B92	ENVOLVENTE MIN	0.776	0.000	-0.460	-1.547	29.132
N+3.15	B92	ENVOLVENTE MIN	1.164	0.000	3.960	-1.547	26.763
N+3.15	B92	ENVOLVENTE MIN	1.552	0.000	9.830	-1.547	22.398
N+3.15	B92	ENVOLVENTE MIN	1.940	0.000	17.020	-1.547	15.477
N+3.15	B92	ENVOLVENTE MIN	2.328	0.000	24.200	-1.547	5.714
N+3.15	B92	ENVOLVENTE MIN	2.716	0.000	30.080	-1.547	-6.603
N+3.15	B92	ENVOLVENTE MIN	3.104	0.000	34.490	-1.547	-29.116
N+3.15	B92	ENVOLVENTE MIN	3.492	0.000	37.440	-1.547	-54.763
N+3.15	B92	ENVOLVENTE MIN	3.880	0.000	38.930	-1.547	-81.791
N+3.15	B93	ENVOLVENTE MAX	0.000	0.000	1.140	1.454	64.289
N+3.15	B93	ENVOLVENTE MAX	0.388	0.000	2.630	1.454	64.985
N+3.15	B93	ENVOLVENTE MAX	0.776	0.000	7.060	1.454	64.159
N+3.15	B93	ENVOLVENTE MAX	1.164	0.000	14.450	1.454	60.681
N+3.15	B93	ENVOLVENTE MAX	1.552	0.000	24.560	1.454	54.083
N+3.15	B93	ENVOLVENTE MAX	1.940	0.000	38.480	1.454	44.004
N+3.15	B93	ENVOLVENTE MAX	2.328	0.000	52.390	1.454	29.034
N+3.15	B93	ENVOLVENTE MAX	2.716	0.000	63.600	1.454	9.720
N+3.15	B93	ENVOLVENTE MAX	3.104	0.000	71.890	1.454	-3.578
N+3.15	B93	ENVOLVENTE MAX	3.492	0.000	77.270	1.454	-18.242
N+3.15	B93	ENVOLVENTE MAX	3.880	0.000	79.730	1.454	-33.767
N+3.15	B93	ENVOLVENTE MIN	0.000	0.000	-4.490	0.062	33.549
N+3.15	B93	ENVOLVENTE MIN	0.388	0.000	-2.210	0.062	32.872
N+3.15	B93	ENVOLVENTE MIN	0.776	0.000	1.150	0.062	31.331
N+3.15	B93	ENVOLVENTE MIN	1.164	0.000	5.560	0.062	28.361
N+3.15	B93	ENVOLVENTE MIN	1.552	0.000	11.440	0.062	23.395
N+3.15	B93	ENVOLVENTE MIN	1.940	0.000	18.670	0.062	15.869
N+3.15	B93	ENVOLVENTE MIN	2.328	0.000	25.910	0.062	5.470
N+3.15	B93	ENVOLVENTE MIN	2.716	0.000	31.780	0.062	-7.488
N+3.15	B93	ENVOLVENTE MIN	3.104	0.000	36.200	0.062	-31.820
N+3.15	B93	ENVOLVENTE MIN	3.492	0.000	39.150	0.062	-58.586
N+3.15	B93	ENVOLVENTE MIN	3.880	0.000	40.630	0.062	-86.732
N+6.35	B94	ENVOLVENTE MAX	0.000	0.000	-4.070	2.371	16.053
N+6.35	B94	ENVOLVENTE MAX	0.690	0.000	-1.060	2.371	17.823

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B94	ENVOLVENTE MAX	1.380	0.000	1.960	2.371	17.510
N+6.35	B94	ENVOLVENTE MAX	2.070	0.000	4.980	2.371	15.115
N+6.35	B94	ENVOLVENTE MAX	2.760	0.000	8.700	2.371	10.639
N+6.35	B94	ENVOLVENTE MAX	3.450	0.000	12.720	2.371	5.794
N+6.35	B94	ENVOLVENTE MAX	4.140	0.000	16.750	2.371	6.270
N+6.35	B94	ENVOLVENTE MAX	4.830	0.000	20.770	2.371	7.076
N+6.35	B94	ENVOLVENTE MAX	5.520	0.000	24.790	2.371	5.802
N+6.35	B94	ENVOLVENTE MAX	6.210	0.000	28.820	2.371	2.445
N+6.35	B94	ENVOLVENTE MAX	6.900	0.000	32.840	2.371	-2.994
N+6.35	B94	ENVOLVENTE MIN	0.000	0.000	-24.110	-0.024	-46.483
N+6.35	B94	ENVOLVENTE MIN	0.690	0.000	-20.090	-0.024	-31.232
N+6.35	B94	ENVOLVENTE MIN	1.380	0.000	-16.070	-0.024	-18.758
N+6.35	B94	ENVOLVENTE MIN	2.070	0.000	-12.040	-0.024	-9.062
N+6.35	B94	ENVOLVENTE MIN	2.760	0.000	-8.720	-0.024	-2.143
N+6.35	B94	ENVOLVENTE MIN	3.450	0.000	-5.700	-0.024	0.790
N+6.35	B94	ENVOLVENTE MIN	4.140	0.000	-2.680	-0.024	-7.465
N+6.35	B94	ENVOLVENTE MIN	4.830	0.000	0.340	-0.024	-20.405
N+6.35	B94	ENVOLVENTE MIN	5.520	0.000	3.360	-0.024	-36.124
N+6.35	B94	ENVOLVENTE MIN	6.210	0.000	6.370	-0.024	-54.620
N+6.35	B94	ENVOLVENTE MIN	6.900	0.000	9.390	-0.024	-75.892
N+3.15	B94	ENVOLVENTE MAX	0.000	0.000	-61.060	33.389	-32.772
N+3.15	B94	ENVOLVENTE MAX	0.690	0.000	-53.070	33.389	6.896
N+3.15	B94	ENVOLVENTE MAX	1.380	0.000	-41.290	33.389	43.687
N+3.15	B94	ENVOLVENTE MAX	2.070	0.000	-27.750	33.389	88.136
N+3.15	B94	ENVOLVENTE MAX	2.760	0.000	-15.980	33.389	118.896
N+3.15	B94	ENVOLVENTE MAX	3.450	0.000	-7.980	33.389	151.858
N+3.15	B94	ENVOLVENTE MAX	3.450	0.000	69.070	-8.775	152.472
N+3.15	B94	ENVOLVENTE MAX	4.140	0.000	80.680	-8.775	108.594
N+3.15	B94	ENVOLVENTE MAX	4.830	0.000	98.890	-8.775	69.312
N+3.15	B94	ENVOLVENTE MAX	5.520	0.000	120.180	-8.775	22.437
N+3.15	B94	ENVOLVENTE MAX	6.210	0.000	138.390	-8.775	-14.999
N+3.15	B94	ENVOLVENTE MAX	6.900	0.000	150.000	-8.775	-59.364
N+3.15	B94	ENVOLVENTE MIN	0.000	0.000	-135.680	9.988	-191.521
N+3.15	B94	ENVOLVENTE MIN	0.690	0.000	-124.070	9.988	-101.470
N+3.15	B94	ENVOLVENTE MIN	1.380	0.000	-105.860	9.988	-25.997
N+3.15	B94	ENVOLVENTE MIN	2.070	0.000	-84.570	9.988	19.071
N+3.15	B94	ENVOLVENTE MIN	2.760	0.000	-66.360	9.988	55.083
N+3.15	B94	ENVOLVENTE MIN	3.450	0.000	-54.750	9.988	80.960
N+3.15	B94	ENVOLVENTE MIN	3.450	0.000	14.790	-24.929	81.249
N+3.15	B94	ENVOLVENTE MIN	4.140	0.000	22.790	-24.929	52.129
N+3.15	B94	ENVOLVENTE MIN	4.830	0.000	34.560	-24.929	9.528
N+3.15	B94	ENVOLVENTE MIN	5.520	0.000	48.100	-24.929	-47.695
N+3.15	B94	ENVOLVENTE MIN	6.210	0.000	59.880	-24.929	-137.102
N+3.15	B94	ENVOLVENTE MIN	6.900	0.000	67.870	-24.929	-237.035
N+6.35	B95	ENVOLVENTE MAX	0.000	0.000	-28.710	8.304	-42.409
N+6.35	B95	ENVOLVENTE MAX	0.217	0.000	-27.610	8.304	-36.279
N+6.35	B95	ENVOLVENTE MAX	0.435	0.000	-26.210	8.304	-30.421
N+6.35	B95	ENVOLVENTE MAX	0.652	0.000	-24.520	8.304	-24.899
N+6.35	B95	ENVOLVENTE MAX	0.870	0.000	-22.530	8.304	-19.779
N+6.35	B95	ENVOLVENTE MAX	1.087	0.000	-20.380	8.304	-15.111
N+6.35	B95	ENVOLVENTE MAX	1.305	0.000	-18.170	8.304	-10.919
N+6.35	B95	ENVOLVENTE MAX	1.522	0.000	-16.090	8.304	-7.199
N+6.35	B95	ENVOLVENTE MAX	1.740	0.000	-14.340	8.304	-3.896
N+6.35	B95	ENVOLVENTE MAX	1.957	0.000	-12.910	8.304	-0.938
N+6.35	B95	ENVOLVENTE MAX	2.175	0.000	-11.800	8.304	2.479
N+6.35	B95	ENVOLVENTE MIN	0.000	0.000	-56.120	0.351	-88.617
N+6.35	B95	ENVOLVENTE MIN	0.217	0.000	-54.510	0.351	-76.575
N+6.35	B95	ENVOLVENTE MIN	0.435	0.000	-52.240	0.351	-64.955
N+6.35	B95	ENVOLVENTE MIN	0.652	0.000	-49.300	0.351	-53.902
N+6.35	B95	ENVOLVENTE MIN	0.870	0.000	-45.710	0.351	-43.767
N+6.35	B95	ENVOLVENTE MIN	1.087	0.000	-41.740	0.351	-34.627
N+6.35	B95	ENVOLVENTE MIN	1.305	0.000	-37.630	0.351	-26.276
N+6.35	B95	ENVOLVENTE MIN	1.522	0.000	-33.850	0.351	-18.707
N+6.35	B95	ENVOLVENTE MIN	1.740	0.000	-30.780	0.351	-11.812
N+6.35	B95	ENVOLVENTE MIN	1.957	0.000	-28.430	0.351	-5.459
N+6.35	B95	ENVOLVENTE MIN	2.175	0.000	-26.800	0.351	-0.250
N+3.15	B95	ENVOLVENTE MAX	0.000	0.000	-51.350	28.908	-80.510
N+3.15	B95	ENVOLVENTE MAX	0.217	0.000	-49.320	28.908	-69.556
N+3.15	B95	ENVOLVENTE MAX	0.435	0.000	-46.840	28.908	-59.090
N+3.15	B95	ENVOLVENTE MAX	0.652	0.000	-43.900	28.908	-49.214
N+3.15	B95	ENVOLVENTE MAX	0.870	0.000	-40.520	28.908	-40.027
N+3.15	B95	ENVOLVENTE MAX	1.087	0.000	-36.880	28.908	-31.608
N+3.15	B95	ENVOLVENTE MAX	1.305	0.000	-33.140	28.908	-23.993
N+3.15	B95	ENVOLVENTE MAX	1.522	0.000	-29.620	28.908	-17.177
N+3.15	B95	ENVOLVENTE MAX	1.740	0.000	-26.600	28.908	-11.072
N+3.15	B95	ENVOLVENTE MAX	1.957	0.000	-24.060	28.908	-5.572
N+3.15	B95	ENVOLVENTE MAX	2.175	0.000	-22.030	28.908	-0.566
N+3.15	B95	ENVOLVENTE MIN	0.000	0.000	-95.690	8.386	-163.057
N+3.15	B95	ENVOLVENTE MIN	0.217	0.000	-92.840	8.386	-142.906
N+3.15	B95	ENVOLVENTE MIN	0.435	0.000	-89.080	8.386	-123.449
N+3.15	B95	ENVOLVENTE MIN	0.652	0.000	-84.400	8.386	-104.860
N+3.15	B95	ENVOLVENTE MIN	0.870	0.000	-78.840	8.386	-87.314
N+3.15	B95	ENVOLVENTE MIN	1.087	0.000	-72.770	8.386	-70.947
N+3.15	B95	ENVOLVENTE MIN	1.305	0.000	-66.650	8.386	-55.822
N+3.15	B95	ENVOLVENTE MIN	1.522	0.000	-61.240	8.386	-41.933
N+3.15	B95	ENVOLVENTE MIN	1.740	0.000	-56.700	8.386	-29.125
N+3.15	B95	ENVOLVENTE MIN	1.957	0.000	-53.020	8.386	-17.212
N+3.15	B95	ENVOLVENTE MIN	2.175	0.000	-50.200	8.386	-6.008
N+6.35	B96	ENVOLVENTE MAX	0.000	0.000	-8.490	-0.781	7.141
N+6.35	B96	ENVOLVENTE MAX	0.705	0.000	-5.400	-0.781	12.038
N+6.35	B96	ENVOLVENTE MAX	1.410	0.000	-2.320	-0.781	14.762
N+6.35	B96	ENVOLVENTE MAX	2.115	0.000	0.760	-0.781	15.364

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B96	ENVOLVENTE MAX	2.820	0.000	3.850	-0.781	15.229
N+6.35	B96	ENVOLVENTE MAX	3.525	0.000	6.930	-0.781	13.360
N+6.35	B96	ENVOLVENTE MAX	4.230	0.000	10.470	-0.781	13.850
N+6.35	B96	ENVOLVENTE MAX	4.935	0.000	14.580	-0.781	15.199
N+6.35	B96	ENVOLVENTE MAX	5.640	0.000	18.690	-0.781	13.650
N+6.35	B96	ENVOLVENTE MAX	6.345	0.000	22.810	-0.781	11.085
N+6.35	B96	ENVOLVENTE MAX	7.050	0.000	26.920	-0.781	6.598
N+6.35	B96	ENVOLVENTE MIN	0.000	0.000	-28.640	-2.650	-55.128
N+6.35	B96	ENVOLVENTE MIN	0.705	0.000	-24.530	-2.650	-36.385
N+6.35	B96	ENVOLVENTE MIN	1.410	0.000	-20.420	-2.650	-20.542
N+6.35	B96	ENVOLVENTE MIN	2.115	0.000	-16.310	-2.650	-7.650
N+6.35	B96	ENVOLVENTE MIN	2.820	0.000	-12.190	-2.650	0.906
N+6.35	B96	ENVOLVENTE MIN	3.525	0.000	-8.080	-2.650	7.284
N+6.35	B96	ENVOLVENTE MIN	4.230	0.000	-4.430	-2.650	3.911
N+6.35	B96	ENVOLVENTE MIN	4.935	0.000	-1.350	-2.650	-4.234
N+6.35	B96	ENVOLVENTE MIN	5.640	0.000	1.740	-2.650	-14.555
N+6.35	B96	ENVOLVENTE MIN	6.345	0.000	4.820	-2.650	-28.931
N+6.35	B96	ENVOLVENTE MIN	7.050	0.000	7.910	-2.650	-46.458
N+3.15	B96	ENVOLVENTE MAX	0.000	0.000	-62.090	30.312	-37.393
N+3.15	B96	ENVOLVENTE MAX	0.705	0.000	-53.870	30.312	3.792
N+3.15	B96	ENVOLVENTE MAX	1.410	0.000	-41.750	30.312	41.507
N+3.15	B96	ENVOLVENTE MAX	2.115	0.000	-27.810	30.312	86.278
N+3.15	B96	ENVOLVENTE MAX	2.820	0.000	-15.710	30.312	116.599
N+3.15	B96	ENVOLVENTE MAX	3.520	0.000	-7.570	30.312	146.194
N+3.15	B96	ENVOLVENTE MAX	3.520	0.000	67.850	-9.154	147.217
N+3.15	B96	ENVOLVENTE MAX	4.230	0.000	79.920	-9.154	101.190
N+3.15	B96	ENVOLVENTE MAX	4.935	0.000	98.710	-9.154	56.607
N+3.15	B96	ENVOLVENTE MAX	5.640	0.000	120.680	-9.154	10.374
N+3.15	B96	ENVOLVENTE MAX	6.345	0.000	139.430	-9.154	-30.534
N+3.15	B96	ENVOLVENTE MAX	7.050	0.000	151.390	-9.154	-78.732
N+3.15	B96	ENVOLVENTE MIN	0.000	0.000	-132.380	10.041	-189.243
N+3.15	B96	ENVOLVENTE MIN	0.705	0.000	-120.430	10.041	-99.658
N+3.15	B96	ENVOLVENTE MIN	1.410	0.000	-101.670	10.041	-24.972
N+3.15	B96	ENVOLVENTE MIN	2.115	0.000	-79.740	10.041	18.721
N+3.15	B96	ENVOLVENTE MIN	2.820	0.000	-61.020	10.041	52.952
N+3.15	B96	ENVOLVENTE MIN	3.520	0.000	-49.180	10.041	78.502
N+3.15	B96	ENVOLVENTE MIN	3.520	0.000	17.320	-25.104	78.110
N+3.15	B96	ENVOLVENTE MIN	4.230	0.000	25.610	-25.104	50.963
N+3.15	B96	ENVOLVENTE MIN	4.935	0.000	37.750	-25.104	8.445
N+3.15	B96	ENVOLVENTE MIN	5.640	0.000	51.710	-25.104	-54.193
N+3.15	B96	ENVOLVENTE MIN	6.345	0.000	63.820	-25.104	-146.102
N+3.15	B96	ENVOLVENTE MIN	7.050	0.000	72.040	-25.104	-249.089
N+6.35	B97	ENVOLVENTE MAX	0.000	0.000	-7.590	1.375	8.554
N+6.35	B97	ENVOLVENTE MAX	0.718	0.000	-4.450	1.375	12.876
N+6.35	B97	ENVOLVENTE MAX	1.436	0.000	-1.310	1.375	16.170
N+6.35	B97	ENVOLVENTE MAX	2.154	0.000	1.830	1.375	17.144
N+6.35	B97	ENVOLVENTE MAX	2.872	0.000	4.970	1.375	15.112
N+6.35	B97	ENVOLVENTE MAX	3.590	0.000	9.110	1.375	14.171
N+6.35	B97	ENVOLVENTE MAX	4.308	0.000	13.300	1.375	15.286
N+6.35	B97	ENVOLVENTE MAX	5.026	0.000	17.490	1.375	14.975
N+6.35	B97	ENVOLVENTE MAX	5.744	0.000	21.680	1.375	13.775
N+6.35	B97	ENVOLVENTE MAX	6.462	0.000	25.860	1.375	10.320
N+6.35	B97	ENVOLVENTE MAX	7.180	0.000	30.050	1.375	4.610
N+6.35	B97	ENVOLVENTE MIN	0.000	0.000	-26.120	0.083	-43.114
N+6.35	B97	ENVOLVENTE MIN	0.718	0.000	-21.930	0.083	-25.865
N+6.35	B97	ENVOLVENTE MIN	1.436	0.000	-17.740	0.083	-12.851
N+6.35	B97	ENVOLVENTE MIN	2.154	0.000	-13.560	0.083	-2.776
N+6.35	B97	ENVOLVENTE MIN	2.872	0.000	-9.370	0.083	5.042
N+6.35	B97	ENVOLVENTE MIN	3.590	0.000	-6.180	0.083	7.604
N+6.35	B97	ENVOLVENTE MIN	4.308	0.000	-3.040	0.083	0.656
N+6.35	B97	ENVOLVENTE MIN	5.026	0.000	0.100	0.083	-9.030
N+6.35	B97	ENVOLVENTE MIN	5.744	0.000	3.240	0.083	-23.090
N+6.35	B97	ENVOLVENTE MIN	6.462	0.000	6.380	0.083	-40.156
N+6.35	B97	ENVOLVENTE MIN	7.180	0.000	9.520	0.083	-60.228
N+3.15	B97	ENVOLVENTE MAX	0.000	0.000	-74.320	26.687	-81.075
N+3.15	B97	ENVOLVENTE MAX	0.718	0.000	-65.900	26.687	-30.417
N+3.15	B97	ENVOLVENTE MAX	1.436	0.000	-53.490	26.687	12.629
N+3.15	B97	ENVOLVENTE MAX	2.154	0.000	-39.180	26.687	63.190
N+3.15	B97	ENVOLVENTE MAX	2.872	0.000	-26.760	26.687	109.965
N+3.15	B97	ENVOLVENTE MAX	3.590	0.000	-18.350	26.687	156.583
N+3.15	B97	ENVOLVENTE MAX	3.590	0.000	52.540	-12.703	155.923
N+3.15	B97	ENVOLVENTE MAX	4.308	0.000	64.790	-12.703	121.437
N+3.15	B97	ENVOLVENTE MAX	5.026	0.000	84.020	-12.703	88.023
N+3.15	B97	ENVOLVENTE MAX	5.744	0.000	106.550	-12.703	39.463
N+3.15	B97	ENVOLVENTE MAX	6.462	0.000	125.780	-12.703	-0.020
N+3.15	B97	ENVOLVENTE MAX	7.180	0.000	138.040	-12.703	-44.104
N+3.15	B97	ENVOLVENTE MIN	0.000	0.000	-152.260	9.603	-248.085
N+3.15	B97	ENVOLVENTE MIN	0.718	0.000	-140.000	9.603	-142.659
N+3.15	B97	ENVOLVENTE MIN	1.436	0.000	-120.770	9.603	-48.804
N+3.15	B97	ENVOLVENTE MIN	2.154	0.000	-98.240	9.603	12.529
N+3.15	B97	ENVOLVENTE MIN	2.872	0.000	-79.010	9.603	55.398
N+3.15	B97	ENVOLVENTE MIN	3.590	0.000	-66.760	9.603	83.087
N+3.15	B97	ENVOLVENTE MIN	3.590	0.000	9.190	-32.603	83.501
N+3.15	B97	ENVOLVENTE MIN	4.308	0.000	17.600	-32.603	57.101
N+3.15	B97	ENVOLVENTE MIN	5.026	0.000	30.020	-32.603	20.417
N+3.15	B97	ENVOLVENTE MIN	5.744	0.000	44.330	-32.603	-26.128
N+3.15	B97	ENVOLVENTE MIN	6.462	0.000	56.740	-32.603	-106.759
N+3.15	B97	ENVOLVENTE MIN	7.180	0.000	65.160	-32.603	-201.970
N+6.35	B98	ENVOLVENTE MAX	0.000	0.000	-12.840	10.226	-12.042
N+6.35	B98	ENVOLVENTE MAX	0.158	0.000	-11.790	10.226	-10.096
N+6.35	B98	ENVOLVENTE MAX	0.316	0.000	-10.740	10.226	-8.317
N+6.35	B98	ENVOLVENTE MAX	0.474	0.000	-9.690	10.226	-6.703

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B98	ENVOLVENTE MAX	0.632	0.000	-8.630	10.226	-5.256
N+6.35	B98	ENVOLVENTE MAX	0.790	0.000	-7.580	10.226	-3.975
N+6.35	B98	ENVOLVENTE MAX	0.948	0.000	-6.530	10.226	-2.860
N+6.35	B98	ENVOLVENTE MAX	1.106	0.000	-5.480	10.226	-1.911
N+6.35	B98	ENVOLVENTE MAX	1.264	0.000	-4.430	10.226	-1.128
N+6.35	B98	ENVOLVENTE MAX	1.422	0.000	-3.380	10.226	-0.510
N+6.35	B98	ENVOLVENTE MAX	1.580	0.000	-2.320	10.226	0.082
N+6.35	B98	ENVOLVENTE MIN	0.000	0.000	-23.550	-2.488	-23.921
N+6.35	B98	ENVOLVENTE MIN	0.158	0.000	-21.870	-2.488	-20.333
N+6.35	B98	ENVOLVENTE MIN	0.316	0.000	-20.200	-2.488	-17.009
N+6.35	B98	ENVOLVENTE MIN	0.474	0.000	-18.520	-2.488	-13.950
N+6.35	B98	ENVOLVENTE MIN	0.632	0.000	-16.850	-2.488	-11.155
N+6.35	B98	ENVOLVENTE MIN	0.790	0.000	-15.170	-2.488	-8.626
N+6.35	B98	ENVOLVENTE MIN	0.948	0.000	-13.500	-2.488	-6.360
N+6.35	B98	ENVOLVENTE MIN	1.106	0.000	-11.820	-2.488	-4.360
N+6.35	B98	ENVOLVENTE MIN	1.264	0.000	-10.150	-2.488	-2.625
N+6.35	B98	ENVOLVENTE MIN	1.422	0.000	-8.470	-2.488	-1.155
N+6.35	B98	ENVOLVENTE MIN	1.580	0.000	-6.800	-2.488	-0.090
N+3.15	B98	ENVOLVENTE MAX	0.000	0.000	-24.240	19.420	-24.496
N+3.15	B98	ENVOLVENTE MAX	0.158	0.000	-22.880	19.420	-20.771
N+3.15	B98	ENVOLVENTE MAX	0.316	0.000	-21.400	19.420	-17.271
N+3.15	B98	ENVOLVENTE MAX	0.474	0.000	-19.790	19.420	-14.014
N+3.15	B98	ENVOLVENTE MAX	0.632	0.000	-18.070	19.420	-11.020
N+3.15	B98	ENVOLVENTE MAX	0.790	0.000	-16.220	19.420	-8.309
N+3.15	B98	ENVOLVENTE MAX	0.948	0.000	-14.370	19.420	-5.891
N+3.15	B98	ENVOLVENTE MAX	1.106	0.000	-12.650	19.420	-3.755
N+3.15	B98	ENVOLVENTE MAX	1.264	0.000	-11.040	19.420	-1.880
N+3.15	B98	ENVOLVENTE MAX	1.422	0.000	-9.560	19.420	-0.239
N+3.15	B98	ENVOLVENTE MAX	1.580	0.000	-8.200	19.420	1.971
N+3.15	B98	ENVOLVENTE MIN	0.000	0.000	-44.730	-6.414	-51.207
N+3.15	B98	ENVOLVENTE MIN	0.158	0.000	-42.890	-6.414	-44.282
N+3.15	B98	ENVOLVENTE MIN	0.316	0.000	-40.840	-6.414	-37.665
N+3.15	B98	ENVOLVENTE MIN	0.474	0.000	-38.580	-6.414	-31.389
N+3.15	B98	ENVOLVENTE MIN	0.632	0.000	-36.100	-6.414	-25.488
N+3.15	B98	ENVOLVENTE MIN	0.790	0.000	-33.410	-6.414	-19.994
N+3.15	B98	ENVOLVENTE MIN	0.948	0.000	-30.730	-6.414	-14.932
N+3.15	B98	ENVOLVENTE MIN	1.106	0.000	-28.250	-6.414	-10.278
N+3.15	B98	ENVOLVENTE MIN	1.264	0.000	-25.990	-6.414	-6.002
N+3.15	B98	ENVOLVENTE MIN	1.422	0.000	-23.930	-6.414	-2.075
N+3.15	B98	ENVOLVENTE MIN	1.580	0.000	-22.090	-6.414	0.749
N+3.15	B99	ENVOLVENTE MAX	0.000	0.000	-10.610	0.513	-11.086
N+3.15	B99	ENVOLVENTE MAX	0.158	0.000	-10.180	0.513	-9.441
N+3.15	B99	ENVOLVENTE MAX	0.316	0.000	-9.510	0.513	-7.882
N+3.15	B99	ENVOLVENTE MAX	0.474	0.000	-8.590	0.513	-6.449
N+3.15	B99	ENVOLVENTE MAX	0.632	0.000	-7.440	0.513	-5.179
N+3.15	B99	ENVOLVENTE MAX	0.790	0.000	-6.040	0.513	-4.110
N+3.15	B99	ENVOLVENTE MAX	0.948	0.000	-4.640	0.513	-3.270
N+3.15	B99	ENVOLVENTE MAX	1.106	0.000	-3.480	0.513	-2.630
N+3.15	B99	ENVOLVENTE MAX	1.264	0.000	-2.570	0.513	-2.154
N+3.15	B99	ENVOLVENTE MAX	1.422	0.000	-1.900	0.513	-1.802
N+3.15	B99	ENVOLVENTE MAX	1.580	0.000	-1.470	0.513	-1.532
N+3.15	B99	ENVOLVENTE MIN	0.000	0.000	-24.410	-1.122	-30.253
N+3.15	B99	ENVOLVENTE MIN	0.158	0.000	-23.760	-1.122	-26.459
N+3.15	B99	ENVOLVENTE MIN	0.316	0.000	-22.620	-1.122	-22.796
N+3.15	B99	ENVOLVENTE MIN	0.474	0.000	-21.160	-1.122	-19.332
N+3.15	B99	ENVOLVENTE MIN	0.632	0.000	-19.260	-1.122	-16.134
N+3.15	B99	ENVOLVENTE MIN	0.790	0.000	-16.950	-1.122	-13.267
N+3.15	B99	ENVOLVENTE MIN	0.948	0.000	-14.640	-1.122	-10.778
N+3.15	B99	ENVOLVENTE MIN	1.106	0.000	-12.740	-1.122	-8.621
N+3.15	B99	ENVOLVENTE MIN	1.264	0.000	-11.280	-1.122	-6.731
N+3.15	B99	ENVOLVENTE MIN	1.422	0.000	-10.230	-1.122	-5.039
N+3.15	B99	ENVOLVENTE MIN	1.580	0.000	-9.610	-1.122	-3.484
N+6.35	B100	ENVOLVENTE MAX	0.000	0.000	-21.730	1.721	-23.507
N+6.35	B100	ENVOLVENTE MAX	0.158	0.000	-20.640	1.721	-20.158
N+6.35	B100	ENVOLVENTE MAX	0.316	0.000	-19.470	1.721	-16.987
N+6.35	B100	ENVOLVENTE MAX	0.474	0.000	-18.220	1.721	-14.007
N+6.35	B100	ENVOLVENTE MAX	0.632	0.000	-16.900	1.721	-11.231
N+6.35	B100	ENVOLVENTE MAX	0.790	0.000	-15.490	1.721	-8.670
N+6.35	B100	ENVOLVENTE MAX	0.948	0.000	-14.090	1.721	-6.319
N+6.35	B100	ENVOLVENTE MAX	1.106	0.000	-12.760	1.721	-4.175
N+6.35	B100	ENVOLVENTE MAX	1.264	0.000	-11.510	1.721	-2.231
N+6.35	B100	ENVOLVENTE MAX	1.422	0.000	-10.340	1.721	-0.462
N+6.35	B100	ENVOLVENTE MAX	1.580	0.000	-9.250	1.721	2.034
N+6.35	B100	ENVOLVENTE MIN	0.000	0.000	-42.480	-7.488	-47.833
N+6.35	B100	ENVOLVENTE MIN	0.158	0.000	-40.560	-7.488	-41.370
N+6.35	B100	ENVOLVENTE MIN	0.316	0.000	-38.450	-7.488	-35.196
N+6.35	B100	ENVOLVENTE MIN	0.474	0.000	-36.170	-7.488	-29.335
N+6.35	B100	ENVOLVENTE MIN	0.632	0.000	-33.870	-7.488	-23.809
N+6.35	B100	ENVOLVENTE MIN	0.790	0.000	-31.520	-7.488	-18.643
N+6.35	B100	ENVOLVENTE MIN	0.948	0.000	-29.170	-7.488	-13.866
N+6.35	B100	ENVOLVENTE MIN	1.106	0.000	-26.970	-7.488	-9.458
N+6.35	B100	ENVOLVENTE MIN	1.264	0.000	-24.920	-7.488	-5.389
N+6.35	B100	ENVOLVENTE MIN	1.422	0.000	-23.020	-7.488	-1.648
N+6.35	B100	ENVOLVENTE MIN	1.580	0.000	-21.270	-7.488	0.899
N+3.15	B100	ENVOLVENTE MAX	0.000	0.000	-28.190	1.595	-30.901
N+3.15	B100	ENVOLVENTE MAX	0.158	0.000	-27.380	1.595	-26.507
N+3.15	B100	ENVOLVENTE MAX	0.316	0.000	-26.330	1.595	-22.260
N+3.15	B100	ENVOLVENTE MAX	0.474	0.000	-25.030	1.595	-18.198
N+3.15	B100	ENVOLVENTE MAX	0.632	0.000	-23.490	1.595	-14.360
N+3.15	B100	ENVOLVENTE MAX	0.790	0.000	-21.710	1.595	-10.784
N+3.15	B100	ENVOLVENTE MAX	0.948	0.000	-19.920	1.595	-7.494
N+3.15	B100	ENVOLVENTE MAX	1.106	0.000	-18.380	1.595	-4.464

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B100	ENVOLVENTE MAX	1.264	0.000	-17.080	1.595	-1.651
N+3.15	B100	ENVOLVENTE MAX	1.422	0.000	-16.030	1.595	1.072
N+3.15	B100	ENVOLVENTE MAX	1.580	0.000	-15.220	1.595	5.992
N+3.15	B100	ENVOLVENTE MIN	0.000	0.000	-58.990	-17.724	-72.041
N+3.15	B100	ENVOLVENTE MIN	0.158	0.000	-57.860	-17.724	-62.805
N+3.15	B100	ENVOLVENTE MIN	0.316	0.000	-56.310	-17.724	-53.781
N+3.15	B100	ENVOLVENTE MIN	0.474	0.000	-54.330	-17.724	-45.037
N+3.15	B100	ENVOLVENTE MIN	0.632	0.000	-51.920	-17.724	-36.640
N+3.15	B100	ENVOLVENTE MIN	0.790	0.000	-49.100	-17.724	-28.657
N+3.15	B100	ENVOLVENTE MIN	0.948	0.000	-46.270	-17.724	-21.133
N+3.15	B100	ENVOLVENTE MIN	1.106	0.000	-43.870	-17.724	-14.025
N+3.15	B100	ENVOLVENTE MIN	1.264	0.000	-41.890	-17.724	-7.271
N+3.15	B100	ENVOLVENTE MIN	1.422	0.000	-40.330	-17.724	-0.891
N+3.15	B100	ENVOLVENTE MIN	1.580	0.000	-39.200	-17.724	2.930
N+6.35	B101	ENVOLVENTE MAX	0.000	0.000	-0.500	-0.732	-1.316
N+6.35	B101	ENVOLVENTE MAX	0.172	0.000	-0.180	-0.732	-0.912
N+6.35	B101	ENVOLVENTE MAX	0.344	0.000	0.280	-0.732	-0.520
N+6.35	B101	ENVOLVENTE MAX	0.515	0.000	0.890	-0.732	-0.200
N+6.35	B101	ENVOLVENTE MAX	0.687	0.000	1.540	-0.732	0.038
N+6.35	B101	ENVOLVENTE MAX	0.859	0.000	2.520	-0.732	0.180
N+6.35	B101	ENVOLVENTE MAX	1.031	0.000	3.380	-0.732	0.227
N+6.35	B101	ENVOLVENTE MAX	1.203	0.000	4.120	-0.732	0.191
N+6.35	B101	ENVOLVENTE MAX	1.374	0.000	4.750	-0.732	0.080
N+6.35	B101	ENVOLVENTE MAX	1.546	0.000	5.260	-0.732	-0.094
N+6.35	B101	ENVOLVENTE MAX	1.718	0.000	5.650	-0.732	-0.322
N+6.35	B101	ENVOLVENTE MIN	0.000	0.000	-4.460	-1.670	-2.891
N+6.35	B101	ENVOLVENTE MIN	0.172	0.000	-3.990	-1.670	-2.506
N+6.35	B101	ENVOLVENTE MIN	0.344	0.000	-3.250	-1.670	-2.279
N+6.35	B101	ENVOLVENTE MIN	0.515	0.000	-2.250	-1.670	-2.222
N+6.35	B101	ENVOLVENTE MIN	0.687	0.000	-1.160	-1.670	-2.378
N+6.35	B101	ENVOLVENTE MIN	0.859	0.000	-0.570	-1.670	-2.723
N+6.35	B101	ENVOLVENTE MIN	1.031	0.000	-0.040	-1.670	-3.227
N+6.35	B101	ENVOLVENTE MIN	1.203	0.000	0.420	-1.670	-3.871
N+6.35	B101	ENVOLVENTE MIN	1.374	0.000	0.830	-1.670	-4.632
N+6.35	B101	ENVOLVENTE MIN	1.546	0.000	1.170	-1.670	-5.492
N+6.35	B101	ENVOLVENTE MIN	1.718	0.000	1.450	-1.670	-6.430
N+3.15	B101	ENVOLVENTE MAX	0.000	0.000	1.860	-1.912	-3.283
N+3.15	B101	ENVOLVENTE MAX	0.172	0.000	2.210	-1.912	-2.869
N+3.15	B101	ENVOLVENTE MAX	0.344	0.000	2.860	-1.912	-2.434
N+3.15	B101	ENVOLVENTE MAX	0.515	0.000	4.150	-1.912	-2.083
N+3.15	B101	ENVOLVENTE MAX	0.687	0.000	5.550	-1.912	-1.832
N+3.15	B101	ENVOLVENTE MAX	0.859	0.000	6.800	-1.912	-1.718
N+3.15	B101	ENVOLVENTE MAX	1.031	0.000	7.870	-1.912	-1.727
N+3.15	B101	ENVOLVENTE MAX	1.203	0.000	8.790	-1.912	-1.843
N+3.15	B101	ENVOLVENTE MAX	1.374	0.000	9.530	-1.912	-2.050
N+3.15	B101	ENVOLVENTE MAX	1.546	0.000	10.120	-1.912	-2.332
N+3.15	B101	ENVOLVENTE MAX	1.718	0.000	10.530	-1.912	-2.673
N+3.15	B101	ENVOLVENTE MIN	0.000	0.000	-4.100	-3.875	-6.459
N+3.15	B101	ENVOLVENTE MIN	0.172	0.000	-3.580	-3.875	-6.488
N+3.15	B101	ENVOLVENTE MIN	0.344	0.000	-2.750	-3.875	-6.808
N+3.15	B101	ENVOLVENTE MIN	0.515	0.000	-1.960	-3.875	-7.348
N+3.15	B101	ENVOLVENTE MIN	0.687	0.000	-1.090	-3.875	-8.174
N+3.15	B101	ENVOLVENTE MIN	0.859	0.000	-0.320	-3.875	-9.232
N+3.15	B101	ENVOLVENTE MIN	1.031	0.000	0.360	-3.875	-10.490
N+3.15	B101	ENVOLVENTE MIN	1.203	0.000	0.940	-3.875	-11.921
N+3.15	B101	ENVOLVENTE MIN	1.374	0.000	1.430	-3.875	-13.495
N+3.15	B101	ENVOLVENTE MIN	1.546	0.000	1.820	-3.875	-15.184
N+3.15	B101	ENVOLVENTE MIN	1.718	0.000	2.120	-3.875	-16.958
N+6.35	B102	ENVOLVENTE MAX	0.000	0.000	-14.390	13.011	-14.550
N+6.35	B102	ENVOLVENTE MAX	0.158	0.000	-13.330	13.011	-12.360
N+6.35	B102	ENVOLVENTE MAX	0.316	0.000	-12.280	13.011	-10.337
N+6.35	B102	ENVOLVENTE MAX	0.474	0.000	-11.220	13.011	-8.481
N+6.35	B102	ENVOLVENTE MAX	0.632	0.000	-10.170	13.011	-6.791
N+6.35	B102	ENVOLVENTE MAX	0.790	0.000	-9.110	13.011	-5.268
N+6.35	B102	ENVOLVENTE MAX	0.948	0.000	-8.060	13.011	-3.911
N+6.35	B102	ENVOLVENTE MAX	1.106	0.000	-7.000	13.011	-2.721
N+6.35	B102	ENVOLVENTE MAX	1.264	0.000	-5.950	13.011	-1.698
N+6.35	B102	ENVOLVENTE MAX	1.422	0.000	-4.890	13.011	-0.841
N+6.35	B102	ENVOLVENTE MAX	1.580	0.000	-3.840	13.011	-0.097
N+6.35	B102	ENVOLVENTE MIN	0.000	0.000	-25.540	0.326	-26.454
N+6.35	B102	ENVOLVENTE MIN	0.158	0.000	-23.690	0.326	-22.630
N+6.35	B102	ENVOLVENTE MIN	0.316	0.000	-21.840	0.326	-19.072
N+6.35	B102	ENVOLVENTE MIN	0.474	0.000	-19.990	0.326	-15.781
N+6.35	B102	ENVOLVENTE MIN	0.632	0.000	-18.300	0.326	-12.756
N+6.35	B102	ENVOLVENTE MIN	0.790	0.000	-16.620	0.326	-9.997
N+6.35	B102	ENVOLVENTE MIN	0.948	0.000	-14.930	0.326	-7.505
N+6.35	B102	ENVOLVENTE MIN	1.106	0.000	-13.250	0.326	-5.279
N+6.35	B102	ENVOLVENTE MIN	1.264	0.000	-11.560	0.326	-3.319
N+6.35	B102	ENVOLVENTE MIN	1.422	0.000	-9.880	0.326	-1.625
N+6.35	B102	ENVOLVENTE MIN	1.580	0.000	-8.190	0.326	-0.253
N+3.15	B102	ENVOLVENTE MAX	0.000	0.000	-25.140	19.327	-26.029
N+3.15	B102	ENVOLVENTE MAX	0.158	0.000	-23.780	19.327	-22.162
N+3.15	B102	ENVOLVENTE MAX	0.316	0.000	-22.300	19.327	-18.520
N+3.15	B102	ENVOLVENTE MAX	0.474	0.000	-20.690	19.327	-15.122
N+3.15	B102	ENVOLVENTE MAX	0.632	0.000	-18.970	19.327	-11.986
N+3.15	B102	ENVOLVENTE MAX	0.790	0.000	-17.120	19.327	-9.132
N+3.15	B102	ENVOLVENTE MAX	0.948	0.000	-15.270	19.327	-6.573
N+3.15	B102	ENVOLVENTE MAX	1.106	0.000	-13.550	19.327	-4.295
N+3.15	B102	ENVOLVENTE MAX	1.264	0.000	-11.940	19.327	-2.277
N+3.15	B102	ENVOLVENTE MAX	1.422	0.000	-10.460	19.327	-0.492
N+3.15	B102	ENVOLVENTE MAX	1.580	0.000	-9.100	19.327	1.853
N+3.15	B102	ENVOLVENTE MIN	0.000	0.000	-44.200	-4.453	-50.377

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B102	ENVOLVENTE MIN	0.158	0.000	-42.360	-4.453	-43.536
N+3.15	B102	ENVOLVENTE MIN	0.316	0.000	-40.310	-4.453	-37.003
N+3.15	B102	ENVOLVENTE MIN	0.474	0.000	-38.040	-4.453	-30.811
N+3.15	B102	ENVOLVENTE MIN	0.632	0.000	-35.570	-4.453	-24.994
N+3.15	B102	ENVOLVENTE MIN	0.790	0.000	-32.880	-4.453	-19.585
N+3.15	B102	ENVOLVENTE MIN	0.948	0.000	-30.190	-4.453	-14.607
N+3.15	B102	ENVOLVENTE MIN	1.106	0.000	-27.720	-4.453	-10.038
N+3.15	B102	ENVOLVENTE MIN	1.264	0.000	-25.450	-4.453	-5.846
N+3.15	B102	ENVOLVENTE MIN	1.422	0.000	-23.400	-4.453	-2.006
N+3.15	B102	ENVOLVENTE MIN	1.580	0.000	-21.560	-4.453	0.742
N+3.15	B103	ENVOLVENTE MAX	0.000	0.000	-10.200	0.688	-10.763
N+3.15	B103	ENVOLVENTE MAX	0.158	0.000	-9.780	0.688	-9.181
N+3.15	B103	ENVOLVENTE MAX	0.316	0.000	-9.110	0.688	-7.686
N+3.15	B103	ENVOLVENTE MAX	0.474	0.000	-8.190	0.688	-6.316
N+3.15	B103	ENVOLVENTE MAX	0.632	0.000	-7.030	0.688	-5.106
N+3.15	B103	ENVOLVENTE MAX	0.790	0.000	-5.640	0.688	-4.097
N+3.15	B103	ENVOLVENTE MAX	0.948	0.000	-4.240	0.688	-3.315
N+3.15	B103	ENVOLVENTE MAX	1.106	0.000	-3.080	0.688	-2.734
N+3.15	B103	ENVOLVENTE MAX	1.264	0.000	-2.170	0.688	-2.317
N+3.15	B103	ENVOLVENTE MAX	1.422	0.000	-1.500	0.688	-2.022
N+3.15	B103	ENVOLVENTE MAX	1.580	0.000	-1.070	0.688	-1.806
N+3.15	B103	ENVOLVENTE MIN	0.000	0.000	-22.740	-0.954	-27.195
N+3.15	B103	ENVOLVENTE MIN	0.158	0.000	-22.080	-0.954	-23.733
N+3.15	B103	ENVOLVENTE MIN	0.316	0.000	-20.950	-0.954	-20.402
N+3.15	B103	ENVOLVENTE MIN	0.474	0.000	-19.330	-0.954	-17.270
N+3.15	B103	ENVOLVENTE MIN	0.632	0.000	-17.230	-0.954	-14.407
N+3.15	B103	ENVOLVENTE MIN	0.790	0.000	-14.850	-0.954	-11.878
N+3.15	B103	ENVOLVENTE MIN	0.948	0.000	-12.530	-0.954	-9.725
N+3.15	B103	ENVOLVENTE MIN	1.106	0.000	-10.640	-0.954	-7.905
N+3.15	B103	ENVOLVENTE MIN	1.264	0.000	-9.180	-0.954	-6.352
N+3.15	B103	ENVOLVENTE MIN	1.422	0.000	-8.130	-0.954	-4.998
N+3.15	B103	ENVOLVENTE MIN	1.580	0.000	-7.510	-0.954	-3.815
N+6.35	B104	ENVOLVENTE MAX	0.000	0.000	-22.520	7.491	-25.746
N+6.35	B104	ENVOLVENTE MAX	0.158	0.000	-21.310	7.491	-22.284
N+6.35	B104	ENVOLVENTE MAX	0.316	0.000	-20.090	7.491	-19.013
N+6.35	B104	ENVOLVENTE MAX	0.474	0.000	-18.880	7.491	-15.935
N+6.35	B104	ENVOLVENTE MAX	0.632	0.000	-17.660	7.491	-13.048
N+6.35	B104	ENVOLVENTE MAX	0.790	0.000	-16.450	7.491	-10.353
N+6.35	B104	ENVOLVENTE MAX	0.948	0.000	-15.240	7.491	-7.850
N+6.35	B104	ENVOLVENTE MAX	1.106	0.000	-14.020	7.491	-5.539
N+6.35	B104	ENVOLVENTE MAX	1.264	0.000	-12.810	7.491	-3.419
N+6.35	B104	ENVOLVENTE MAX	1.422	0.000	-11.590	7.491	-1.492
N+6.35	B104	ENVOLVENTE MAX	1.580	0.000	-10.380	7.491	0.369
N+6.35	B104	ENVOLVENTE MIN	0.000	0.000	-38.600	-7.671	-40.760
N+6.35	B104	ENVOLVENTE MIN	0.158	0.000	-36.080	-7.671	-34.861
N+6.35	B104	ENVOLVENTE MIN	0.316	0.000	-33.560	-7.671	-29.631
N+6.35	B104	ENVOLVENTE MIN	0.474	0.000	-31.040	-7.671	-24.837
N+6.35	B104	ENVOLVENTE MIN	0.632	0.000	-28.520	-7.671	-20.341
N+6.35	B104	ENVOLVENTE MIN	0.790	0.000	-26.000	-7.671	-16.143
N+6.35	B104	ENVOLVENTE MIN	0.948	0.000	-23.730	-7.671	-12.243
N+6.35	B104	ENVOLVENTE MIN	1.106	0.000	-21.850	-7.671	-8.643
N+6.35	B104	ENVOLVENTE MIN	1.264	0.000	-19.960	-7.671	-5.340
N+6.35	B104	ENVOLVENTE MIN	1.422	0.000	-18.070	-7.671	-2.336
N+6.35	B104	ENVOLVENTE MIN	1.580	0.000	-16.180	-7.671	0.231
N+3.15	B104	ENVOLVENTE MAX	0.000	0.000	-43.900	13.720	-56.504
N+3.15	B104	ENVOLVENTE MAX	0.158	0.000	-43.090	13.720	-49.628
N+3.15	B104	ENVOLVENTE MAX	0.316	0.000	-42.030	13.720	-42.901
N+3.15	B104	ENVOLVENTE MAX	0.474	0.000	-40.730	13.720	-36.359
N+3.15	B104	ENVOLVENTE MAX	0.632	0.000	-39.190	13.720	-30.042
N+3.15	B104	ENVOLVENTE MAX	0.790	0.000	-37.410	13.720	-23.987
N+3.15	B104	ENVOLVENTE MAX	0.948	0.000	-35.630	13.720	-18.220
N+3.15	B104	ENVOLVENTE MAX	1.106	0.000	-34.090	13.720	-12.716
N+3.15	B104	ENVOLVENTE MAX	1.264	0.000	-32.790	13.720	-7.436
N+3.15	B104	ENVOLVENTE MAX	1.422	0.000	-31.730	13.720	-2.341
N+3.15	B104	ENVOLVENTE MAX	1.580	0.000	-30.920	13.720	4.119
N+3.15	B104	ENVOLVENTE MIN	0.000	0.000	-78.540	-14.435	-103.151
N+3.15	B104	ENVOLVENTE MIN	0.158	0.000	-77.380	-14.435	-90.827
N+3.15	B104	ENVOLVENTE MIN	0.316	0.000	-75.730	-14.435	-78.725
N+3.15	B104	ENVOLVENTE MIN	0.474	0.000	-73.600	-14.435	-66.921
N+3.15	B104	ENVOLVENTE MIN	0.632	0.000	-70.990	-14.435	-55.492
N+3.15	B104	ENVOLVENTE MIN	0.790	0.000	-67.890	-14.435	-44.514
N+3.15	B104	ENVOLVENTE MIN	0.948	0.000	-64.800	-14.435	-34.038
N+3.15	B104	ENVOLVENTE MIN	1.106	0.000	-62.180	-14.435	-24.013
N+3.15	B104	ENVOLVENTE MIN	1.264	0.000	-60.050	-14.435	-14.363
N+3.15	B104	ENVOLVENTE MIN	1.422	0.000	-58.410	-14.435	-5.169
N+3.15	B104	ENVOLVENTE MIN	1.580	0.000	-57.240	-14.435	2.083
N+3.15	B105	ENVOLVENTE MAX	0.000	0.000	-10.260	1.164	-11.006
N+3.15	B105	ENVOLVENTE MAX	0.158	0.000	-9.830	1.164	-9.415
N+3.15	B105	ENVOLVENTE MAX	0.316	0.000	-9.160	1.164	-7.911
N+3.15	B105	ENVOLVENTE MAX	0.474	0.000	-8.250	1.164	-6.532
N+3.15	B105	ENVOLVENTE MAX	0.632	0.000	-7.090	1.164	-5.316
N+3.15	B105	ENVOLVENTE MAX	0.790	0.000	-5.690	1.164	-4.302
N+3.15	B105	ENVOLVENTE MAX	0.948	0.000	-4.290	1.164	-3.516
N+3.15	B105	ENVOLVENTE MAX	1.106	0.000	-3.140	1.164	-2.930
N+3.15	B105	ENVOLVENTE MAX	1.264	0.000	-2.220	1.164	-2.508
N+3.15	B105	ENVOLVENTE MAX	1.422	0.000	-1.550	1.164	-2.209
N+3.15	B105	ENVOLVENTE MAX	1.580	0.000	-1.120	1.164	-1.990
N+3.15	B105	ENVOLVENTE MIN	0.000	0.000	-23.000	-0.502	-27.897
N+3.15	B105	ENVOLVENTE MIN	0.158	0.000	-22.350	-0.502	-24.392
N+3.15	B105	ENVOLVENTE MIN	0.316	0.000	-21.210	-0.502	-21.018
N+3.15	B105	ENVOLVENTE MIN	0.474	0.000	-19.600	-0.502	-17.843
N+3.15	B105	ENVOLVENTE MIN	0.632	0.000	-17.500	-0.502	-14.934

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B105	ENVOLVENTE MIN	0.790	0.000	-15.120	-0.502	-12.356
N+3.15	B105	ENVOLVENTE MIN	0.948	0.000	-12.810	-0.502	-10.156
N+3.15	B105	ENVOLVENTE MIN	1.106	0.000	-10.920	-0.502	-8.289
N+3.15	B105	ENVOLVENTE MIN	1.264	0.000	-9.450	-0.502	-6.688
N+3.15	B105	ENVOLVENTE MIN	1.422	0.000	-8.400	-0.502	-5.287
N+3.15	B105	ENVOLVENTE MIN	1.580	0.000	-7.780	-0.502	-4.118
N+6.35	B106	ENVOLVENTE MAX	0.000	0.000	-14.560	-0.527	-14.748
N+6.35	B106	ENVOLVENTE MAX	0.158	0.000	-13.500	-0.527	-12.531
N+6.35	B106	ENVOLVENTE MAX	0.316	0.000	-12.450	-0.527	-10.481
N+6.35	B106	ENVOLVENTE MAX	0.474	0.000	-11.390	-0.527	-8.598
N+6.35	B106	ENVOLVENTE MAX	0.632	0.000	-10.330	-0.527	-6.882
N+6.35	B106	ENVOLVENTE MAX	0.790	0.000	-9.270	-0.527	-5.334
N+6.35	B106	ENVOLVENTE MAX	0.948	0.000	-8.210	-0.527	-3.952
N+6.35	B106	ENVOLVENTE MAX	1.106	0.000	-7.160	-0.527	-2.738
N+6.35	B106	ENVOLVENTE MAX	1.264	0.000	-6.100	-0.527	-1.691
N+6.35	B106	ENVOLVENTE MAX	1.422	0.000	-5.040	-0.527	-0.810
N+6.35	B106	ENVOLVENTE MAX	1.580	0.000	-3.980	-0.527	-0.048
N+6.35	B106	ENVOLVENTE MIN	0.000	0.000	-25.880	-13.707	-26.795
N+6.35	B106	ENVOLVENTE MIN	0.158	0.000	-24.010	-13.707	-22.922
N+6.35	B106	ENVOLVENTE MIN	0.316	0.000	-22.150	-13.707	-19.317
N+6.35	B106	ENVOLVENTE MIN	0.474	0.000	-20.280	-13.707	-15.979
N+6.35	B106	ENVOLVENTE MIN	0.632	0.000	-18.580	-13.707	-12.909
N+6.35	B106	ENVOLVENTE MIN	0.790	0.000	-16.890	-13.707	-10.107
N+6.35	B106	ENVOLVENTE MIN	0.948	0.000	-15.190	-13.707	-7.572
N+6.35	B106	ENVOLVENTE MIN	1.106	0.000	-13.500	-13.707	-5.305
N+6.35	B106	ENVOLVENTE MIN	1.264	0.000	-11.810	-13.707	-3.306
N+6.35	B106	ENVOLVENTE MIN	1.422	0.000	-10.110	-13.707	-1.576
N+6.35	B106	ENVOLVENTE MIN	1.580	0.000	-8.420	-13.707	-0.161
N+3.15	B106	ENVOLVENTE MAX	0.000	0.000	-25.870	3.419	-27.048
N+3.15	B106	ENVOLVENTE MAX	0.158	0.000	-24.510	3.419	-23.066
N+3.15	B106	ENVOLVENTE MAX	0.316	0.000	-23.030	3.419	-19.308
N+3.15	B106	ENVOLVENTE MAX	0.474	0.000	-21.420	3.419	-15.794
N+3.15	B106	ENVOLVENTE MAX	0.632	0.000	-19.700	3.419	-12.544
N+3.15	B106	ENVOLVENTE MAX	0.790	0.000	-17.850	3.419	-9.575
N+3.15	B106	ENVOLVENTE MAX	0.948	0.000	-16.000	3.419	-6.901
N+3.15	B106	ENVOLVENTE MAX	1.106	0.000	-14.280	3.419	-4.508
N+3.15	B106	ENVOLVENTE MAX	1.264	0.000	-12.670	3.419	-2.376
N+3.15	B106	ENVOLVENTE MAX	1.422	0.000	-11.190	3.419	-0.480
N+3.15	B106	ENVOLVENTE MAX	1.580	0.000	-9.830	3.419	2.018
N+3.15	B106	ENVOLVENTE MIN	0.000	0.000	-44.620	-19.751	-50.781
N+3.15	B106	ENVOLVENTE MIN	0.158	0.000	-42.760	-19.751	-43.881
N+3.15	B106	ENVOLVENTE MIN	0.316	0.000	-40.680	-19.751	-37.288
N+3.15	B106	ENVOLVENTE MIN	0.474	0.000	-38.420	-19.751	-31.037
N+3.15	B106	ENVOLVENTE MIN	0.632	0.000	-35.940	-19.751	-25.160
N+3.15	B106	ENVOLVENTE MIN	0.790	0.000	-33.260	-19.751	-19.691
N+3.15	B106	ENVOLVENTE MIN	0.948	0.000	-30.570	-19.751	-14.653
N+3.15	B106	ENVOLVENTE MIN	1.106	0.000	-28.090	-19.751	-10.023
N+3.15	B106	ENVOLVENTE MIN	1.264	0.000	-25.830	-19.751	-5.770
N+3.15	B106	ENVOLVENTE MIN	1.422	0.000	-23.780	-19.751	-1.867
N+3.15	B106	ENVOLVENTE MIN	1.580	0.000	-21.940	-19.751	0.916
N+3.15	B107	ENVOLVENTE MAX	0.000	0.000	-8.200	1.971	6.414
N+3.15	B107	ENVOLVENTE MAX	0.345	0.000	-7.410	1.971	9.141
N+3.15	B107	ENVOLVENTE MAX	0.690	0.000	-6.040	1.971	13.225
N+3.15	B107	ENVOLVENTE MAX	1.035	0.000	-4.230	1.971	16.768
N+3.15	B107	ENVOLVENTE MAX	1.380	0.000	-2.410	1.971	19.293
N+3.15	B107	ENVOLVENTE MAX	1.725	0.000	-0.580	1.971	20.803
N+3.15	B107	ENVOLVENTE MAX	2.070	0.000	1.250	1.971	21.308
N+3.15	B107	ENVOLVENTE MAX	2.415	0.000	3.230	1.971	20.828
N+3.15	B107	ENVOLVENTE MAX	2.760	0.000	6.170	1.971	19.699
N+3.15	B107	ENVOLVENTE MAX	3.105	0.000	8.350	1.971	18.036
N+3.15	B107	ENVOLVENTE MAX	3.450	0.000	9.530	1.971	16.321
N+3.15	B107	ENVOLVENTE MIN	0.000	0.000	-22.090	0.749	-19.420
N+3.15	B107	ENVOLVENTE MIN	0.345	0.000	-20.920	0.749	-11.989
N+3.15	B107	ENVOLVENTE MIN	0.690	0.000	-18.730	0.749	-6.869
N+3.15	B107	ENVOLVENTE MIN	1.035	0.000	-15.790	0.749	-2.676
N+3.15	B107	ENVOLVENTE MIN	1.380	0.000	-12.810	0.749	0.879
N+3.15	B107	ENVOLVENTE MIN	1.725	0.000	-9.830	0.749	3.789
N+3.15	B107	ENVOLVENTE MIN	2.070	0.000	-6.850	0.749	6.045
N+3.15	B107	ENVOLVENTE MIN	2.415	0.000	-4.020	0.749	7.627
N+3.15	B107	ENVOLVENTE MIN	2.760	0.000	-2.210	0.749	8.200
N+3.15	B107	ENVOLVENTE MIN	3.105	0.000	-0.840	0.749	7.841
N+3.15	B107	ENVOLVENTE MIN	3.450	0.000	-0.050	0.749	6.580
N+6.35	B108	ENVOLVENTE MAX	0.000	0.000	-2.320	0.082	2.488
N+6.35	B108	ENVOLVENTE MAX	0.690	0.000	-1.320	0.082	3.744
N+6.35	B108	ENVOLVENTE MAX	1.380	0.000	-0.310	0.082	4.330
N+6.35	B108	ENVOLVENTE MAX	2.070	0.000	0.690	0.082	4.325
N+6.35	B108	ENVOLVENTE MAX	2.760	0.000	2.020	0.082	3.451
N+6.35	B108	ENVOLVENTE MAX	3.450	0.000	3.360	0.082	2.939
N+6.35	B108	ENVOLVENTE MAX	4.140	0.000	4.700	0.082	2.120
N+6.35	B108	ENVOLVENTE MAX	4.830	0.000	6.040	0.082	1.594
N+6.35	B108	ENVOLVENTE MAX	5.520	0.000	7.380	0.082	0.374
N+6.35	B108	ENVOLVENTE MAX	6.210	0.000	8.730	0.082	-1.540
N+6.35	B108	ENVOLVENTE MAX	6.900	0.000	10.070	0.082	-4.148
N+6.35	B108	ENVOLVENTE MIN	0.000	0.000	-6.800	-0.090	-10.226
N+6.35	B108	ENVOLVENTE MIN	0.690	0.000	-5.460	-0.090	-5.997
N+6.35	B108	ENVOLVENTE MIN	1.380	0.000	-4.120	-0.090	-2.718
N+6.35	B108	ENVOLVENTE MIN	2.070	0.000	-2.780	-0.090	-0.467
N+6.35	B108	ENVOLVENTE MIN	2.760	0.000	-1.750	-0.090	1.090
N+6.35	B108	ENVOLVENTE MIN	3.450	0.000	-0.750	-0.090	1.050
N+6.35	B108	ENVOLVENTE MIN	4.140	0.000	0.260	-0.090	-1.243
N+6.35	B108	ENVOLVENTE MIN	4.830	0.000	1.270	-0.090	-4.950
N+6.35	B108	ENVOLVENTE MIN	5.520	0.000	2.270	-0.090	-9.583

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B108	ENVOLVENTE MIN	6.210	0.000	3.280	-0.090	-15.141
N+6.35	B108	ENVOLVENTE MIN	6.900	0.000	4.280	-0.090	-21.625
N+3.15	B109	ENVOLVENTE MAX	0.000	0.000	2.700	-0.698	16.537
N+3.15	B109	ENVOLVENTE MAX	0.345	0.000	3.490	-0.698	16.969
N+3.15	B109	ENVOLVENTE MAX	0.690	0.000	5.380	-0.698	17.326
N+3.15	B109	ENVOLVENTE MAX	1.035	0.000	8.320	-0.698	16.944
N+3.15	B109	ENVOLVENTE MAX	1.380	0.000	11.300	-0.698	15.614
N+3.15	B109	ENVOLVENTE MAX	1.725	0.000	14.280	-0.698	13.293
N+3.15	B109	ENVOLVENTE MAX	2.070	0.000	17.270	-0.698	9.965
N+3.15	B109	ENVOLVENTE MAX	2.415	0.000	20.250	-0.698	6.337
N+3.15	B109	ENVOLVENTE MAX	2.760	0.000	23.190	-0.698	3.333
N+3.15	B109	ENVOLVENTE MAX	3.105	0.000	25.370	-0.698	-0.226
N+3.15	B109	ENVOLVENTE MAX	3.450	0.000	26.550	-0.698	-4.154
N+3.15	B109	ENVOLVENTE MIN	0.000	0.000	-4.300	-1.598	6.973
N+3.15	B109	ENVOLVENTE MIN	0.345	0.000	-3.130	-1.598	6.801
N+3.15	B109	ENVOLVENTE MIN	0.690	0.000	-1.460	-1.598	5.750
N+3.15	B109	ENVOLVENTE MIN	1.035	0.000	0.340	-1.598	3.972
N+3.15	B109	ENVOLVENTE MIN	1.380	0.000	2.170	-1.598	1.483
N+3.15	B109	ENVOLVENTE MIN	1.725	0.000	4.000	-1.598	-1.674
N+3.15	B109	ENVOLVENTE MIN	2.070	0.000	5.830	-1.598	-5.482
N+3.15	B109	ENVOLVENTE MIN	2.415	0.000	7.650	-1.598	-10.651
N+3.15	B109	ENVOLVENTE MIN	2.760	0.000	9.460	-1.598	-18.100
N+3.15	B109	ENVOLVENTE MIN	3.105	0.000	10.830	-1.598	-26.462
N+3.15	B109	ENVOLVENTE MIN	3.450	0.000	11.620	-1.598	-35.407
N+6.35	B110	ENVOLVENTE MAX	0.000	0.000	-4.790	2.015	-5.693
N+6.35	B110	ENVOLVENTE MAX	0.150	0.000	-4.530	2.015	-4.991
N+6.35	B110	ENVOLVENTE MAX	0.300	0.000	-4.210	2.015	-4.333
N+6.35	B110	ENVOLVENTE MAX	0.450	0.000	-3.810	2.015	-3.717
N+6.35	B110	ENVOLVENTE MAX	0.600	0.000	-3.350	2.015	-3.159
N+6.35	B110	ENVOLVENTE MAX	0.750	0.000	-2.810	2.015	-2.676
N+6.35	B110	ENVOLVENTE MAX	0.900	0.000	-2.220	2.015	-2.275
N+6.35	B110	ENVOLVENTE MAX	1.050	0.000	-1.640	2.015	-1.958
N+6.35	B110	ENVOLVENTE MAX	1.200	0.000	-1.150	2.015	-1.711
N+6.35	B110	ENVOLVENTE MAX	1.350	0.000	-0.770	2.015	-1.493
N+6.35	B110	ENVOLVENTE MAX	1.500	0.000	-0.500	2.015	-1.195
N+6.35	B110	ENVOLVENTE MIN	0.000	0.000	-11.380	0.910	-14.314
N+6.35	B110	ENVOLVENTE MIN	0.150	0.000	-11.020	0.910	-12.634
N+6.35	B110	ENVOLVENTE MIN	0.300	0.000	-10.520	0.910	-11.018
N+6.35	B110	ENVOLVENTE MIN	0.450	0.000	-9.890	0.910	-9.498
N+6.35	B110	ENVOLVENTE MIN	0.600	0.000	-9.130	0.910	-8.090
N+6.35	B110	ENVOLVENTE MIN	0.750	0.000	-8.230	0.910	-6.807
N+6.35	B110	ENVOLVENTE MIN	0.900	0.000	-7.230	0.910	-5.671
N+6.35	B110	ENVOLVENTE MIN	1.050	0.000	-6.250	0.910	-4.689
N+6.35	B110	ENVOLVENTE MIN	1.200	0.000	-5.450	0.910	-3.853
N+6.35	B110	ENVOLVENTE MIN	1.350	0.000	-4.850	0.910	-3.158
N+6.35	B110	ENVOLVENTE MIN	1.500	0.000	-4.460	0.910	-2.666
N+3.15	B110	ENVOLVENTE MAX	0.000	0.000	-3.570	4.421	-5.230
N+3.15	B110	ENVOLVENTE MAX	0.150	0.000	-3.300	4.421	-4.712
N+3.15	B110	ENVOLVENTE MAX	0.300	0.000	-2.920	4.421	-4.243
N+3.15	B110	ENVOLVENTE MAX	0.450	0.000	-2.420	4.421	-3.839
N+3.15	B110	ENVOLVENTE MAX	0.600	0.000	-1.820	4.421	-3.516
N+3.15	B110	ENVOLVENTE MAX	0.750	0.000	-1.110	4.421	-3.290
N+3.15	B110	ENVOLVENTE MAX	0.900	0.000	-0.320	4.421	-3.175
N+3.15	B110	ENVOLVENTE MAX	1.050	0.000	0.450	4.421	-3.137
N+3.15	B110	ENVOLVENTE MAX	1.200	0.000	1.090	4.421	-3.178
N+3.15	B110	ENVOLVENTE MAX	1.350	0.000	1.550	4.421	-3.243
N+3.15	B110	ENVOLVENTE MAX	1.500	0.000	1.860	4.421	-3.061
N+3.15	B110	ENVOLVENTE MIN	0.000	0.000	-12.670	2.227	-18.202
N+3.15	B110	ENVOLVENTE MIN	0.150	0.000	-12.290	2.227	-16.329
N+3.15	B110	ENVOLVENTE MIN	0.300	0.000	-11.710	2.227	-14.529
N+3.15	B110	ENVOLVENTE MIN	0.450	0.000	-10.940	2.227	-12.830
N+3.15	B110	ENVOLVENTE MIN	0.600	0.000	-9.980	2.227	-11.262
N+3.15	B110	ENVOLVENTE MIN	0.750	0.000	-8.830	2.227	-9.853
N+3.15	B110	ENVOLVENTE MIN	0.900	0.000	-7.540	2.227	-8.632
N+3.15	B110	ENVOLVENTE MIN	1.050	0.000	-6.280	2.227	-7.647
N+3.15	B110	ENVOLVENTE MIN	1.200	0.000	-5.260	2.227	-6.862
N+3.15	B110	ENVOLVENTE MIN	1.350	0.000	-4.540	2.227	-6.333
N+3.15	B110	ENVOLVENTE MIN	1.500	0.000	-4.100	2.227	-6.093
N+3.15	B111	ENVOLVENTE MAX	0.000	0.000	-9.100	1.853	4.453
N+3.15	B111	ENVOLVENTE MAX	0.352	0.000	-8.280	1.853	7.547
N+3.15	B111	ENVOLVENTE MAX	0.704	0.000	-6.870	1.853	11.748
N+3.15	B111	ENVOLVENTE MAX	1.056	0.000	-5.020	1.853	15.637
N+3.15	B111	ENVOLVENTE MAX	1.408	0.000	-3.150	1.853	18.463
N+3.15	B111	ENVOLVENTE MAX	1.760	0.000	-1.290	1.853	20.229
N+3.15	B111	ENVOLVENTE MAX	2.112	0.000	0.570	1.853	20.941
N+3.15	B111	ENVOLVENTE MAX	2.464	0.000	2.720	1.853	20.610
N+3.15	B111	ENVOLVENTE MAX	2.816	0.000	5.730	1.853	19.434
N+3.15	B111	ENVOLVENTE MAX	3.168	0.000	7.990	1.853	17.498
N+3.15	B111	ENVOLVENTE MAX	3.520	0.000	9.200	1.853	15.125
N+3.15	B111	ENVOLVENTE MIN	0.000	0.000	-21.560	0.742	-19.327
N+3.15	B111	ENVOLVENTE MIN	0.352	0.000	-20.350	0.742	-11.937
N+3.15	B111	ENVOLVENTE MIN	0.704	0.000	-18.090	0.742	-6.658
N+3.15	B111	ENVOLVENTE MIN	1.056	0.000	-15.080	0.742	-2.610
N+3.15	B111	ENVOLVENTE MIN	1.408	0.000	-12.040	0.742	0.776
N+3.15	B111	ENVOLVENTE MIN	1.760	0.000	-9.000	0.742	3.494
N+3.15	B111	ENVOLVENTE MIN	2.112	0.000	-5.950	0.742	5.539
N+3.15	B111	ENVOLVENTE MIN	2.464	0.000	-3.190	0.742	6.899
N+3.15	B111	ENVOLVENTE MIN	2.816	0.000	-1.340	0.742	7.379
N+3.15	B111	ENVOLVENTE MIN	3.168	0.000	0.080	0.742	7.074
N+3.15	B111	ENVOLVENTE MIN	3.520	0.000	0.890	0.742	6.205
N+6.35	B112	ENVOLVENTE MAX	0.000	0.000	-3.840	-0.097	-0.326
N+6.35	B112	ENVOLVENTE MAX	0.705	0.000	-2.810	-0.097	2.017

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+6.35	B112	ENVOLVENTE MAX	1.410	0.000	-1.780	-0.097	3.635
N+6.35	B112	ENVOLVENTE MAX	2.115	0.000	-0.750	-0.097	4.896
N+6.35	B112	ENVOLVENTE MAX	2.820	0.000	0.270	-0.097	5.517
N+6.35	B112	ENVOLVENTE MAX	3.525	0.000	1.300	-0.097	5.365
N+6.35	B112	ENVOLVENTE MAX	4.230	0.000	2.550	-0.097	4.752
N+6.35	B112	ENVOLVENTE MAX	4.935	0.000	3.920	-0.097	3.745
N+6.35	B112	ENVOLVENTE MAX	5.640	0.000	5.290	-0.097	2.273
N+6.35	B112	ENVOLVENTE MAX	6.345	0.000	6.660	-0.097	0.377
N+6.35	B112	ENVOLVENTE MAX	7.050	0.000	8.070	-0.097	-2.029
N+6.35	B112	ENVOLVENTE MIN	0.000	0.000	-8.190	-0.253	-13.011
N+6.35	B112	ENVOLVENTE MIN	0.705	0.000	-6.820	-0.253	-7.719
N+6.35	B112	ENVOLVENTE MIN	1.410	0.000	-5.450	-0.253	-3.393
N+6.35	B112	ENVOLVENTE MIN	2.115	0.000	-4.080	-0.253	-0.401
N+6.35	B112	ENVOLVENTE MIN	2.820	0.000	-2.710	-0.253	1.540
N+6.35	B112	ENVOLVENTE MIN	3.525	0.000	-1.340	-0.253	2.756
N+6.35	B112	ENVOLVENTE MIN	4.230	0.000	-0.180	-0.253	2.857
N+6.35	B112	ENVOLVENTE MIN	4.935	0.000	0.840	-0.253	0.854
N+6.35	B112	ENVOLVENTE MIN	5.640	0.000	1.870	-0.253	-1.875
N+6.35	B112	ENVOLVENTE MIN	6.345	0.000	2.900	-0.253	-5.872
N+6.35	B112	ENVOLVENTE MIN	7.050	0.000	3.930	-0.253	-11.048
N+3.15	B113	ENVOLVENTE MAX	0.000	0.000	3.050	-1.018	14.946
N+3.15	B113	ENVOLVENTE MAX	0.353	0.000	4.270	-1.018	13.984
N+3.15	B113	ENVOLVENTE MAX	0.706	0.000	6.540	-1.018	13.044
N+3.15	B113	ENVOLVENTE MAX	1.059	0.000	9.560	-1.018	11.461
N+3.15	B113	ENVOLVENTE MAX	1.412	0.000	12.610	-1.018	8.933
N+3.15	B113	ENVOLVENTE MAX	1.765	0.000	15.660	-1.018	5.389
N+3.15	B113	ENVOLVENTE MAX	2.118	0.000	18.710	-1.018	1.927
N+3.15	B113	ENVOLVENTE MAX	2.471	0.000	21.760	-1.018	-1.389
N+3.15	B113	ENVOLVENTE MAX	2.824	0.000	24.790	-1.018	-5.355
N+3.15	B113	ENVOLVENTE MAX	3.177	0.000	27.220	-1.018	-9.910
N+3.15	B113	ENVOLVENTE MAX	3.530	0.000	28.510	-1.018	-14.856
N+3.15	B113	ENVOLVENTE MIN	0.000	0.000	-1.540	-2.019	6.650
N+3.15	B113	ENVOLVENTE MIN	0.353	0.000	-0.720	-2.019	6.769
N+3.15	B113	ENVOLVENTE MIN	0.706	0.000	0.700	-2.019	5.855
N+3.15	B113	ENVOLVENTE MIN	1.059	0.000	2.550	-2.019	4.029
N+3.15	B113	ENVOLVENTE MIN	1.412	0.000	4.420	-2.019	1.413
N+3.15	B113	ENVOLVENTE MIN	1.765	0.000	6.290	-2.019	-1.924
N+3.15	B113	ENVOLVENTE MIN	2.118	0.000	8.160	-2.019	-7.081
N+3.15	B113	ENVOLVENTE MIN	2.471	0.000	10.030	-2.019	-14.120
N+3.15	B113	ENVOLVENTE MIN	2.824	0.000	11.880	-2.019	-22.244
N+3.15	B113	ENVOLVENTE MIN	3.177	0.000	13.310	-2.019	-31.335
N+3.15	B113	ENVOLVENTE MIN	3.530	0.000	14.130	-2.019	-41.046
N+3.15	B114	ENVOLVENTE MAX	0.000	0.000	-14.130	2.100	-13.890
N+3.15	B114	ENVOLVENTE MAX	0.359	0.000	-13.290	2.100	-8.938
N+3.15	B114	ENVOLVENTE MAX	0.718	0.000	-11.830	2.100	-4.396
N+3.15	B114	ENVOLVENTE MAX	1.077	0.000	-9.940	2.100	-0.467
N+3.15	B114	ENVOLVENTE MAX	1.436	0.000	-8.040	2.100	2.788
N+3.15	B114	ENVOLVENTE MAX	1.795	0.000	-6.140	2.100	6.663
N+3.15	B114	ENVOLVENTE MAX	2.154	0.000	-4.230	2.100	10.104
N+3.15	B114	ENVOLVENTE MAX	2.513	0.000	-2.330	2.100	12.603
N+3.15	B114	ENVOLVENTE MAX	2.872	0.000	-0.440	2.100	14.294
N+3.15	B114	ENVOLVENTE MAX	3.231	0.000	1.020	2.100	15.290
N+3.15	B114	ENVOLVENTE MAX	3.590	0.000	1.920	2.100	15.915
N+3.15	B114	ENVOLVENTE MIN	0.000	0.000	-28.730	1.013	-41.296
N+3.15	B114	ENVOLVENTE MIN	0.359	0.000	-27.410	1.013	-31.215
N+3.15	B114	ENVOLVENTE MIN	0.718	0.000	-25.060	1.013	-21.780
N+3.15	B114	ENVOLVENTE MIN	1.077	0.000	-21.980	1.013	-13.352
N+3.15	B114	ENVOLVENTE MIN	1.436	0.000	-18.880	1.013	-6.046
N+3.15	B114	ENVOLVENTE MIN	1.795	0.000	-15.770	1.013	-1.157
N+3.15	B114	ENVOLVENTE MIN	2.154	0.000	-12.670	1.013	2.370
N+3.15	B114	ENVOLVENTE MIN	2.513	0.000	-9.570	1.013	5.041
N+3.15	B114	ENVOLVENTE MIN	2.872	0.000	-6.490	1.013	6.726
N+3.15	B114	ENVOLVENTE MIN	3.231	0.000	-4.150	1.013	7.484
N+3.15	B114	ENVOLVENTE MIN	3.590	0.000	-2.970	1.013	7.559
N+6.35	B115	ENVOLVENTE MAX	0.000	0.000	-3.940	0.161	-1.866
N+6.35	B115	ENVOLVENTE MAX	0.718	0.000	-2.900	0.161	0.591
N+6.35	B115	ENVOLVENTE MAX	1.436	0.000	-1.850	0.161	2.575
N+6.35	B115	ENVOLVENTE MAX	2.154	0.000	-0.800	0.161	4.048
N+6.35	B115	ENVOLVENTE MAX	2.872	0.000	0.240	0.161	5.092
N+6.35	B115	ENVOLVENTE MAX	3.590	0.000	1.440	0.161	5.656
N+6.35	B115	ENVOLVENTE MAX	4.308	0.000	2.830	0.161	5.749
N+6.35	B115	ENVOLVENTE MAX	5.026	0.000	4.230	0.161	5.038
N+6.35	B115	ENVOLVENTE MAX	5.744	0.000	5.630	0.161	3.687
N+6.35	B115	ENVOLVENTE MAX	6.462	0.000	7.020	0.161	1.956
N+6.35	B115	ENVOLVENTE MAX	7.180	0.000	8.420	0.161	-0.527
N+6.35	B115	ENVOLVENTE MIN	0.000	0.000	-8.110	0.048	-11.031
N+6.35	B115	ENVOLVENTE MIN	0.718	0.000	-6.690	0.048	-5.729
N+6.35	B115	ENVOLVENTE MIN	1.436	0.000	-5.290	0.048	-1.709
N+6.35	B115	ENVOLVENTE MIN	2.154	0.000	-3.890	0.048	1.069
N+6.35	B115	ENVOLVENTE MIN	2.872	0.000	-2.500	0.048	3.093
N+6.35	B115	ENVOLVENTE MIN	3.590	0.000	-1.250	0.048	2.899
N+6.35	B115	ENVOLVENTE MIN	4.308	0.000	-0.210	0.048	1.598
N+6.35	B115	ENVOLVENTE MIN	5.026	0.000	0.840	0.048	-0.456
N+6.35	B115	ENVOLVENTE MIN	5.744	0.000	1.890	0.048	-3.624
N+6.35	B115	ENVOLVENTE MIN	6.462	0.000	2.930	0.048	-8.164
N+6.35	B115	ENVOLVENTE MIN	7.180	0.000	3.980	0.048	-13.707
N+3.15	B116	ENVOLVENTE MAX	0.000	0.000	-1.150	-0.916	15.896
N+3.15	B116	ENVOLVENTE MAX	0.359	0.000	-0.310	-0.916	18.442
N+3.15	B116	ENVOLVENTE MAX	0.718	0.000	1.150	-0.916	20.563
N+3.15	B116	ENVOLVENTE MAX	1.077	0.000	3.040	-0.916	21.750
N+3.15	B116	ENVOLVENTE MAX	1.436	0.000	5.960	-0.916	21.861
N+3.15	B116	ENVOLVENTE MAX	1.795	0.000	9.070	-0.916	20.878

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN VIGAS

BEAM FORCES
UNID: kN-m

Story	Beam	Load	Loc	P	V2	T	M3
N+3.15	B116	ENVOLVENTE MAX	2.154	0.000	12.170	-0.916	18.794
N+3.15	B116	ENVOLVENTE MAX	2.513	0.000	15.270	-0.916	15.605
N+3.15	B116	ENVOLVENTE MAX	2.872	0.000	18.350	-0.916	11.308
N+3.15	B116	ENVOLVENTE MAX	3.231	0.000	20.690	-0.916	6.864
N+3.15	B116	ENVOLVENTE MAX	3.590	0.000	21.940	-0.916	3.419
N+3.15	B116	ENVOLVENTE MIN	0.000	0.000	-8.810	-2.018	6.916
N+3.15	B116	ENVOLVENTE MIN	0.359	0.000	-7.560	-2.018	7.623
N+3.15	B116	ENVOLVENTE MIN	0.718	0.000	-5.230	-2.018	7.699
N+3.15	B116	ENVOLVENTE MIN	1.077	0.000	-2.150	-2.018	7.088
N+3.15	B116	ENVOLVENTE MIN	1.436	0.000	-0.070	-2.018	5.758
N+3.15	B116	ENVOLVENTE MIN	1.795	0.000	1.840	-2.018	3.724
N+3.15	B116	ENVOLVENTE MIN	2.154	0.000	3.740	-2.018	0.995
N+3.15	B116	ENVOLVENTE MIN	2.513	0.000	5.640	-2.018	-2.425
N+3.15	B116	ENVOLVENTE MIN	2.872	0.000	7.530	-2.018	-6.533
N+3.15	B116	ENVOLVENTE MIN	3.231	0.000	8.990	-2.018	-12.115
N+3.15	B116	ENVOLVENTE MIN	3.590	0.000	9.830	-2.018	-19.751

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C1	ENVOLVENTE MAX	0.000	-59.470	-6.040	-5.920	0.903	-28.098	-33.955
N+6.35	C1	ENVOLVENTE MAX	0.320	-58.070	-6.040	-5.920	0.903	-25.376	-31.736
N+6.35	C1	ENVOLVENTE MAX	0.640	-56.670	-6.040	-5.920	0.903	-21.505	-29.188
N+6.35	C1	ENVOLVENTE MAX	0.960	-55.270	-6.040	-5.920	0.903	-14.836	-25.149
N+6.35	C1	ENVOLVENTE MAX	1.280	-53.870	-6.040	-5.920	0.903	-6.454	-16.640
N+6.35	C1	ENVOLVENTE MAX	1.600	-52.470	-6.040	-5.920	0.903	3.071	-5.519
N+6.35	C1	ENVOLVENTE MAX	1.920	-51.080	-6.040	-5.920	0.903	13.592	6.416
N+6.35	C1	ENVOLVENTE MAX	2.240	-49.680	-6.040	-5.920	0.903	28.186	18.605
N+6.35	C1	ENVOLVENTE MAX	2.560	-48.280	-6.040	-5.920	0.903	42.924	30.897
N+6.35	C1	ENVOLVENTE MAX	2.880	-46.880	-6.040	-5.920	0.903	57.744	43.691
N+6.35	C1	ENVOLVENTE MAX	3.200	-45.480	-6.040	-5.920	0.903	72.615	59.380
N+6.35	C1	ENVOLVENTE MIN	0.000	-111.840	-49.240	-46.910	-1.139	-80.491	-99.320
N+6.35	C1	ENVOLVENTE MIN	0.320	-109.970	-49.240	-46.910	-1.139	-66.306	-83.851
N+6.35	C1	ENVOLVENTE MIN	0.640	-108.110	-49.240	-46.910	-1.139	-53.270	-68.710
N+6.35	C1	ENVOLVENTE MIN	0.960	-106.240	-49.240	-46.910	-1.139	-43.032	-55.420
N+6.35	C1	ENVOLVENTE MIN	1.280	-104.380	-49.240	-46.910	-1.139	-34.506	-45.880
N+6.35	C1	ENVOLVENTE MIN	1.600	-102.510	-49.240	-46.910	-1.139	-27.123	-39.313
N+6.35	C1	ENVOLVENTE MIN	1.920	-100.640	-49.240	-46.910	-1.139	-20.737	-33.559
N+6.35	C1	ENVOLVENTE MIN	2.240	-98.780	-49.240	-46.910	-1.139	-18.424	-28.059
N+6.35	C1	ENVOLVENTE MIN	2.560	-96.910	-49.240	-46.910	-1.139	-16.255	-22.662
N+6.35	C1	ENVOLVENTE MIN	2.880	-95.040	-49.240	-46.910	-1.139	-14.168	-17.767
N+6.35	C1	ENVOLVENTE MIN	3.200	-93.180	-49.240	-46.910	-1.139	-12.132	-15.767
N+3.15	C1	ENVOLVENTE MAX	0.000	-229.270	23.940	36.970	1.121	98.396	74.119
N+3.15	C1	ENVOLVENTE MAX	0.320	-227.870	23.940	36.970	1.121	86.575	66.465
N+3.15	C1	ENVOLVENTE MAX	0.640	-226.470	23.940	36.970	1.121	74.760	58.815
N+3.15	C1	ENVOLVENTE MAX	0.960	-225.070	23.940	36.970	1.121	62.953	51.173
N+3.15	C1	ENVOLVENTE MAX	1.280	-223.670	23.940	36.970	1.121	54.131	47.968
N+3.15	C1	ENVOLVENTE MAX	1.600	-222.270	23.940	36.970	1.121	45.800	45.499
N+3.15	C1	ENVOLVENTE MAX	1.920	-220.870	23.940	36.970	1.121	37.800	43.489
N+3.15	C1	ENVOLVENTE MAX	2.240	-219.470	23.940	36.970	1.121	45.119	61.201
N+3.15	C1	ENVOLVENTE MAX	2.560	-218.070	23.940	36.970	1.121	71.834	89.743
N+3.15	C1	ENVOLVENTE MAX	2.880	-216.670	23.940	36.970	1.121	99.010	118.460
N+3.15	C1	ENVOLVENTE MAX	3.200	-215.270	23.940	36.970	1.121	126.252	147.209
N+3.15	C1	ENVOLVENTE MIN	0.000	-426.480	-89.930	-85.280	-1.220	-146.822	-140.680
N+3.15	C1	ENVOLVENTE MIN	0.320	-424.610	-89.930	-85.280	-1.220	-119.544	-111.911
N+3.15	C1	ENVOLVENTE MIN	0.640	-422.750	-89.930	-85.280	-1.220	-92.270	-83.146
N+3.15	C1	ENVOLVENTE MIN	0.960	-420.880	-89.930	-85.280	-1.220	-65.005	-54.387
N+3.15	C1	ENVOLVENTE MIN	1.280	-419.020	-89.930	-85.280	-1.220	-40.726	-30.067
N+3.15	C1	ENVOLVENTE MIN	1.600	-417.150	-89.930	-85.280	-1.220	-16.937	-6.482
N+3.15	C1	ENVOLVENTE MIN	1.920	-415.280	-89.930	-85.280	-1.220	6.521	16.644
N+3.15	C1	ENVOLVENTE MIN	2.240	-413.420	-89.930	-85.280	-1.220	14.659	20.047
N+3.15	C1	ENVOLVENTE MIN	2.560	-411.550	-89.930	-85.280	-1.220	3.403	12.621
N+3.15	C1	ENVOLVENTE MIN	2.880	-409.680	-89.930	-85.280	-1.220	-8.316	5.020
N+3.15	C1	ENVOLVENTE MIN	3.200	-407.820	-89.930	-85.280	-1.220	-20.100	-2.614
N+6.35	C2	ENVOLVENTE MAX	0.000	-120.540	24.360	-31.050	0.903	-68.913	41.608
N+6.35	C2	ENVOLVENTE MAX	0.320	-119.150	24.360	-31.050	0.903	-58.312	33.851
N+6.35	C2	ENVOLVENTE MAX	0.640	-117.750	24.360	-31.050	0.903	-46.707	28.285
N+6.35	C2	ENVOLVENTE MAX	0.960	-116.350	24.360	-31.050	0.903	-33.373	24.867
N+6.35	C2	ENVOLVENTE MAX	1.280	-114.950	24.360	-31.050	0.903	-18.168	23.284
N+6.35	C2	ENVOLVENTE MAX	1.600	-113.550	24.360	-31.050	0.903	3.487	30.525
N+6.35	C2	ENVOLVENTE MAX	1.920	-112.150	24.360	-31.050	0.903	34.803	43.141
N+6.35	C2	ENVOLVENTE MAX	2.240	-110.750	24.360	-31.050	0.903	66.408	56.321
N+6.35	C2	ENVOLVENTE MAX	2.560	-109.350	24.360	-31.050	0.903	100.192	69.563
N+6.35	C2	ENVOLVENTE MAX	2.880	-107.950	24.360	-31.050	0.903	134.166	82.827
N+6.35	C2	ENVOLVENTE MAX	3.200	-106.550	24.360	-31.050	0.903	168.141	96.103
N+6.35	C2	ENVOLVENTE MIN	0.000	-315.630	-41.550	-106.170	-1.139	-171.606	-37.081
N+6.35	C2	ENVOLVENTE MIN	0.320	-313.760	-41.550	-106.170	-1.139	-137.631	-23.823
N+6.35	C2	ENVOLVENTE MIN	0.640	-311.900	-41.550	-106.170	-1.139	-103.656	-12.758
N+6.35	C2	ENVOLVENTE MIN	0.960	-310.030	-41.550	-106.170	-1.139	-70.685	-3.839
N+6.35	C2	ENVOLVENTE MIN	1.280	-308.160	-41.550	-106.170	-1.139	-43.929	4.280
N+6.35	C2	ENVOLVENTE MIN	1.600	-306.300	-41.550	-106.170	-1.139	-23.623	1.776
N+6.35	C2	ENVOLVENTE MIN	1.920	-304.430	-41.550	-106.170	-1.139	-12.977	-5.613
N+6.35	C2	ENVOLVENTE MIN	2.240	-302.560	-41.550	-106.170	-1.139	-2.621	-13.292
N+6.35	C2	ENVOLVENTE MIN	2.560	-300.700	-41.550	-106.170	-1.139	7.587	-21.034
N+6.35	C2	ENVOLVENTE MIN	2.880	-298.830	-41.550	-106.170	-1.139	17.712	-28.798
N+6.35	C2	ENVOLVENTE MIN	3.200	-296.970	-41.550	-106.170	-1.139	27.785	-36.574
N+3.15	C2	ENVOLVENTE MAX	0.000	-397.180	71.350	17.730	1.121	71.880	123.804
N+3.15	C2	ENVOLVENTE MAX	0.320	-395.780	71.350	17.730	1.121	66.216	100.975
N+3.15	C2	ENVOLVENTE MAX	0.640	-394.380	71.350	17.730	1.121	60.556	78.149
N+3.15	C2	ENVOLVENTE MAX	0.960	-392.980	71.350	17.730	1.121	54.905	55.327
N+3.15	C2	ENVOLVENTE MAX	1.280	-391.580	71.350	17.730	1.121	53.968	33.716
N+3.15	C2	ENVOLVENTE MAX	1.600	-390.180	71.350	17.730	1.121	54.232	13.231
N+3.15	C2	ENVOLVENTE MAX	1.920	-388.780	71.350	17.730	1.121	54.826	-2.843
N+3.15	C2	ENVOLVENTE MAX	2.240	-387.380	71.350	17.730	1.121	70.451	12.413
N+3.15	C2	ENVOLVENTE MAX	2.560	-385.980	71.350	17.730	1.121	102.468	28.401
N+3.15	C2	ENVOLVENTE MAX	2.880	-384.580	71.350	17.730	1.121	134.851	44.422
N+3.15	C2	ENVOLVENTE MAX	3.200	-383.180	71.350	17.730	1.121	167.289	60.451
N+3.15	C2	ENVOLVENTE MIN	0.000	-820.600	-50.120	-101.500	-1.220	-157.659	-99.982
N+3.15	C2	ENVOLVENTE MIN	0.320	-818.730	-50.120	-101.500	-1.220	-125.190	-83.948
N+3.15	C2	ENVOLVENTE MIN	0.640	-816.870	-50.120	-101.500	-1.220	-92.725	-67.915
N+3.15	C2	ENVOLVENTE MIN	0.960	-815.000	-50.120	-101.500	-1.220	-60.269	-51.887
N+3.15	C2	ENVOLVENTE MIN	1.280	-813.130	-50.120	-101.500	-1.220	-32.526	-37.071
N+3.15	C2	ENVOLVENTE MIN	1.600	-811.270	-50.120	-101.500	-1.220	-5.985	-23.379
N+3.15	C2	ENVOLVENTE MIN	1.920	-809.400	-50.120	-101.500	-1.220	20.227	-14.100
N+3.15	C2	ENVOLVENTE MIN	2.240	-807.530	-50.120	-101.500	-1.220	31.407	-36.150
N+3.15	C2	ENVOLVENTE MIN	2.560	-805.670	-50.120	-101.500	-1.220	26.196	-58.932
N+3.15	C2	ENVOLVENTE MIN	2.880	-803.800	-50.120	-101.500	-1.220	20.618	-81.747
N+3.15	C2	ENVOLVENTE MIN	3.200	-801.940	-50.120	-101.500	-1.220	14.985	-104.570
N+6.35	C3	ENVOLVENTE MAX	0.000	-124.630	41.710	-31.910	0.903	-70.241	39.123
N+6.35	C3	ENVOLVENTE MAX	0.320	-123.230	41.710	-31.910	0.903	-59.467	25.823
N+6.35	C3	ENVOLVENTE MAX	0.640	-121.830	41.710	-31.910	0.903	-48.058	13.725
N+6.35	C3	ENVOLVENTE MAX	0.960	-120.430	41.710	-31.910	0.903	-35.015	4.902

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C3	ENVOLVENTE MAX	1.280	-119.030	41.710	-31.910	0.903	-19.933	-2.873
N+6.35	C3	ENVOLVENTE MAX	1.600	-117.630	41.710	-31.910	0.903	1.403	-0.378
N+6.35	C3	ENVOLVENTE MAX	1.920	-116.230	41.710	-31.910	0.903	32.841	6.042
N+6.35	C3	ENVOLVENTE MAX	2.240	-114.830	41.710	-31.910	0.903	65.934	12.770
N+6.35	C3	ENVOLVENTE MAX	2.560	-113.430	41.710	-31.910	0.903	100.203	19.569
N+6.35	C3	ENVOLVENTE MAX	2.880	-112.030	41.710	-31.910	0.903	134.472	26.395
N+6.35	C3	ENVOLVENTE MAX	3.200	-110.630	41.710	-31.910	0.903	168.740	33.234
N+6.35	C3	ENVOLVENTE MIN	0.000	-318.540	-21.450	-107.090	-1.139	-173.947	-35.674
N+6.35	C3	ENVOLVENTE MIN	0.320	-316.670	-21.450	-107.090	-1.139	-139.678	-28.859
N+6.35	C3	ENVOLVENTE MIN	0.640	-314.800	-21.450	-107.090	-1.139	-105.409	-23.246
N+6.35	C3	ENVOLVENTE MIN	0.960	-312.940	-21.450	-107.090	-1.139	-71.141	-20.908
N+6.35	C3	ENVOLVENTE MIN	1.280	-311.070	-21.450	-107.090	-1.139	-43.779	-20.704
N+6.35	C3	ENVOLVENTE MIN	1.600	-309.210	-21.450	-107.090	-1.139	-22.828	-28.599
N+6.35	C3	ENVOLVENTE MIN	1.920	-307.340	-21.450	-107.090	-1.139	-11.980	-41.503
N+6.35	C3	ENVOLVENTE MIN	2.240	-305.470	-21.450	-107.090	-1.139	-1.404	-54.717
N+6.35	C3	ENVOLVENTE MIN	2.560	-303.610	-21.450	-107.090	-1.139	9.039	-68.001
N+6.35	C3	ENVOLVENTE MIN	2.880	-301.740	-21.450	-107.090	-1.139	19.410	-81.312
N+6.35	C3	ENVOLVENTE MIN	3.200	-299.870	-21.450	-107.090	-1.139	29.737	-94.636
N+3.15	C3	ENVOLVENTE MAX	0.000	-401.380	51.740	11.190	1.121	58.098	102.949
N+3.15	C3	ENVOLVENTE MAX	0.320	-399.980	51.740	11.190	1.121	54.525	86.395
N+3.15	C3	ENVOLVENTE MAX	0.640	-398.580	51.740	11.190	1.121	50.956	69.843
N+3.15	C3	ENVOLVENTE MAX	0.960	-397.180	51.740	11.190	1.121	47.394	53.437
N+3.15	C3	ENVOLVENTE MAX	1.280	-395.780	51.740	11.190	1.121	48.490	38.551
N+3.15	C3	ENVOLVENTE MAX	1.600	-394.380	51.740	11.190	1.121	50.958	23.711
N+3.15	C3	ENVOLVENTE MAX	1.920	-392.980	51.740	11.190	1.121	53.755	11.973
N+3.15	C3	ENVOLVENTE MAX	2.240	-391.590	51.740	11.190	1.121	70.543	31.948
N+3.15	C3	ENVOLVENTE MAX	2.560	-390.190	51.740	11.190	1.121	100.996	52.979
N+3.15	C3	ENVOLVENTE MAX	2.880	-388.790	51.740	11.190	1.121	131.754	74.046
N+3.15	C3	ENVOLVENTE MAX	3.200	-387.390	51.740	11.190	1.121	162.560	95.122
N+3.15	C3	ENVOLVENTE MIN	0.000	-812.850	-65.900	-96.380	-1.220	-146.009	-115.795
N+3.15	C3	ENVOLVENTE MIN	0.320	-810.990	-65.900	-96.380	-1.220	-115.176	-94.712
N+3.15	C3	ENVOLVENTE MIN	0.640	-809.120	-65.900	-96.380	-1.220	-84.346	-73.632
N+3.15	C3	ENVOLVENTE MIN	0.960	-807.250	-65.900	-96.380	-1.220	-53.524	-52.697
N+3.15	C3	ENVOLVENTE MIN	1.280	-805.390	-65.900	-96.380	-1.220	-27.360	-33.283
N+3.15	C3	ENVOLVENTE MIN	1.600	-803.520	-65.900	-96.380	-1.220	-2.567	-13.913
N+3.15	C3	ENVOLVENTE MIN	1.920	-801.660	-65.900	-96.380	-1.220	21.896	2.352
N+3.15	C3	ENVOLVENTE MIN	2.240	-799.790	-65.900	-96.380	-1.220	32.369	-13.094
N+3.15	C3	ENVOLVENTE MIN	2.560	-797.920	-65.900	-96.380	-1.220	29.177	-29.596
N+3.15	C3	ENVOLVENTE MIN	2.880	-796.060	-65.900	-96.380	-1.220	25.679	-46.134
N+3.15	C3	ENVOLVENTE MIN	3.200	-794.190	-65.900	-96.380	-1.220	22.133	-62.683
N+6.35	C4	ENVOLVENTE MAX	0.000	-92.680	28.210	-15.030	0.903	-48.356	38.235
N+6.35	C4	ENVOLVENTE MAX	0.320	-91.280	28.210	-15.030	0.903	-43.015	29.250
N+6.35	C4	ENVOLVENTE MAX	0.640	-89.880	28.210	-15.030	0.903	-37.127	20.410
N+6.35	C4	ENVOLVENTE MAX	0.960	-88.480	28.210	-15.030	0.903	-29.508	12.181
N+6.35	C4	ENVOLVENTE MAX	1.280	-87.080	28.210	-15.030	0.903	-20.213	5.187
N+6.35	C4	ENVOLVENTE MAX	1.600	-85.680	28.210	-15.030	0.903	-9.781	11.226
N+6.35	C4	ENVOLVENTE MAX	1.920	-84.280	28.210	-15.030	0.903	1.216	20.899
N+6.35	C4	ENVOLVENTE MAX	2.240	-82.880	28.210	-15.030	0.903	17.147	30.795
N+6.35	C4	ENVOLVENTE MAX	2.560	-81.480	28.210	-15.030	0.903	35.354	40.744
N+6.35	C4	ENVOLVENTE MAX	2.880	-80.080	28.210	-15.030	0.903	53.632	50.713
N+6.35	C4	ENVOLVENTE MAX	3.200	-78.680	28.210	-15.030	0.903	71.953	60.692
N+6.35	C4	ENVOLVENTE MIN	0.000	-156.890	-31.240	-57.600	-1.139	-116.826	-39.509
N+6.35	C4	ENVOLVENTE MIN	0.320	-155.020	-31.240	-57.600	-1.139	-99.344	-29.551
N+6.35	C4	ENVOLVENTE MIN	0.640	-153.160	-31.240	-57.600	-1.139	-81.861	-19.740
N+6.35	C4	ENVOLVENTE MIN	0.960	-151.290	-31.240	-57.600	-1.139	-64.378	-10.540
N+6.35	C4	ENVOLVENTE MIN	1.280	-149.420	-31.240	-57.600	-1.139	-49.659	-2.573
N+6.35	C4	ENVOLVENTE MIN	1.600	-147.560	-31.240	-57.600	-1.139	-36.848	-7.640
N+6.35	C4	ENVOLVENTE MIN	1.920	-145.690	-31.240	-57.600	-1.139	-24.602	-16.341
N+6.35	C4	ENVOLVENTE MIN	2.240	-143.820	-31.240	-57.600	-1.139	-17.290	-25.266
N+6.35	C4	ENVOLVENTE MIN	2.560	-141.960	-31.240	-57.600	-1.139	-12.254	-34.243
N+6.35	C4	ENVOLVENTE MIN	2.880	-140.090	-31.240	-57.600	-1.139	-7.289	-43.240
N+6.35	C4	ENVOLVENTE MIN	3.200	-138.230	-31.240	-57.600	-1.139	-2.366	-52.247
N+3.15	C4	ENVOLVENTE MAX	0.000	-404.310	59.080	13.180	1.121	57.863	111.081
N+3.15	C4	ENVOLVENTE MAX	0.320	-402.910	59.080	13.180	1.121	53.655	92.181
N+3.15	C4	ENVOLVENTE MAX	0.640	-401.510	59.080	13.180	1.121	49.449	73.283
N+3.15	C4	ENVOLVENTE MAX	0.960	-400.110	59.080	13.180	1.121	45.251	54.390
N+3.15	C4	ENVOLVENTE MAX	1.280	-398.710	59.080	13.180	1.121	45.652	35.508
N+3.15	C4	ENVOLVENTE MAX	1.600	-397.310	59.080	13.180	1.121	47.581	16.897
N+3.15	C4	ENVOLVENTE MAX	1.920	-395.910	59.080	13.180	1.121	49.813	2.481
N+3.15	C4	ENVOLVENTE MAX	2.240	-394.510	59.080	13.180	1.121	65.399	19.497
N+3.15	C4	ENVOLVENTE MAX	2.560	-393.110	59.080	13.180	1.121	94.073	37.361
N+3.15	C4	ENVOLVENTE MAX	2.880	-391.710	59.080	13.180	1.121	123.035	55.261
N+3.15	C4	ENVOLVENTE MAX	3.200	-390.310	59.080	13.180	1.121	152.041	73.170
N+3.15	C4	ENVOLVENTE MIN	0.000	-719.200	-56.000	-90.750	-1.220	-138.502	-106.070
N+3.15	C4	ENVOLVENTE MIN	0.320	-717.330	-56.000	-90.750	-1.220	-109.469	-88.156
N+3.15	C4	ENVOLVENTE MIN	0.640	-715.470	-56.000	-90.750	-1.220	-80.440	-70.243
N+3.15	C4	ENVOLVENTE MIN	0.960	-713.600	-56.000	-90.750	-1.220	-51.419	-52.335
N+3.15	C4	ENVOLVENTE MIN	1.280	-711.730	-56.000	-90.750	-1.220	-26.996	-34.439
N+3.15	C4	ENVOLVENTE MIN	1.600	-709.870	-56.000	-90.750	-1.220	-4.101	-16.813
N+3.15	C4	ENVOLVENTE MIN	1.920	-708.000	-56.000	-90.750	-1.220	18.491	-3.382
N+3.15	C4	ENVOLVENTE MIN	2.240	-706.130	-56.000	-90.750	-1.220	27.728	-21.383
N+3.15	C4	ENVOLVENTE MIN	2.560	-704.270	-56.000	-90.750	-1.220	23.878	-40.233
N+3.15	C4	ENVOLVENTE MIN	2.880	-702.400	-56.000	-90.750	-1.220	19.740	-59.118
N+3.15	C4	ENVOLVENTE MIN	3.200	-700.540	-56.000	-90.750	-1.220	15.556	-78.012
N+6.35	C5	ENVOLVENTE MAX	0.000	-94.820	29.400	-14.660	0.903	-48.581	37.543
N+6.35	C5	ENVOLVENTE MAX	0.320	-93.420	29.400	-14.660	0.903	-43.384	28.204
N+6.35	C5	ENVOLVENTE MAX	0.640	-92.020	29.400	-14.660	0.903	-37.520	18.896
N+6.35	C5	ENVOLVENTE MAX	0.960	-90.620	29.400	-14.660	0.903	-29.779	9.690
N+6.35	C5	ENVOLVENTE MAX	1.280	-89.220	29.400	-14.660	0.903	-20.493	1.432
N+6.35	C5	ENVOLVENTE MAX	1.600	-87.820	29.400	-14.660	0.903	-10.115	6.200
N+6.35	C5	ENVOLVENTE MAX	1.920	-86.420	29.400	-14.660	0.903	0.801	15.375
N+6.35	C5	ENVOLVENTE MAX	2.240	-85.020	29.400	-14.660	0.903	14.169	24.770

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C5	ENVOLVENTE MAX	2.560	-83.620	29.400	-14.660	0.903	31.800	34.214
N+6.35	C5	ENVOLVENTE MAX	2.880	-82.220	29.400	-14.660	0.903	49.497	43.677
N+6.35	C5	ENVOLVENTE MAX	3.200	-80.820	29.400	-14.660	0.903	67.235	53.148
N+6.35	C5	ENVOLVENTE MIN	0.000	-166.300	-29.650	-55.760	-1.139	-115.379	-43.310
N+6.35	C5	ENVOLVENTE MIN	0.320	-164.440	-29.650	-55.760	-1.139	-98.747	-33.890
N+6.35	C5	ENVOLVENTE MIN	0.640	-162.570	-29.650	-55.760	-1.139	-82.115	-24.502
N+6.35	C5	ENVOLVENTE MIN	0.960	-160.700	-29.650	-55.760	-1.139	-65.483	-15.215
N+6.35	C5	ENVOLVENTE MIN	1.280	-158.840	-29.650	-55.760	-1.139	-51.117	-6.876
N+6.35	C5	ENVOLVENTE MIN	1.600	-156.970	-29.650	-55.760	-1.139	-38.963	-11.564
N+6.35	C5	ENVOLVENTE MIN	1.920	-155.100	-29.650	-55.760	-1.139	-27.347	-20.658
N+6.35	C5	ENVOLVENTE MIN	2.240	-153.240	-29.650	-55.760	-1.139	-18.184	-29.973
N+6.35	C5	ENVOLVENTE MIN	2.560	-151.370	-29.650	-55.760	-1.139	-13.283	-39.336
N+6.35	C5	ENVOLVENTE MIN	2.880	-149.510	-29.650	-55.760	-1.139	-8.448	-48.718
N+6.35	C5	ENVOLVENTE MIN	3.200	-147.640	-29.650	-55.760	-1.139	-3.654	-58.109
N+3.15	C5	ENVOLVENTE MAX	0.000	-415.120	56.170	13.390	1.121	58.237	107.531
N+3.15	C5	ENVOLVENTE MAX	0.320	-413.720	56.170	13.390	1.121	53.960	89.574
N+3.15	C5	ENVOLVENTE MAX	0.640	-412.320	56.170	13.390	1.121	49.686	71.841
N+3.15	C5	ENVOLVENTE MAX	0.960	-410.920	56.170	13.390	1.121	45.419	54.112
N+3.15	C5	ENVOLVENTE MAX	1.280	-409.520	56.170	13.390	1.121	45.735	36.395
N+3.15	C5	ENVOLVENTE MAX	1.600	-408.120	56.170	13.390	1.121	47.753	18.726
N+3.15	C5	ENVOLVENTE MAX	1.920	-406.720	56.170	13.390	1.121	50.060	6.014
N+3.15	C5	ENVOLVENTE MAX	2.240	-405.320	56.170	13.390	1.121	65.845	24.395
N+3.15	C5	ENVOLVENTE MAX	2.560	-403.920	56.170	13.390	1.121	94.879	43.428
N+3.15	C5	ENVOLVENTE MAX	2.880	-402.520	56.170	13.390	1.121	124.183	62.492
N+3.15	C5	ENVOLVENTE MAX	3.200	-401.120	56.170	13.390	1.121	153.529	81.565
N+3.15	C5	ENVOLVENTE MIN	0.000	-742.490	-59.630	-91.810	-1.220	-140.377	-109.304
N+3.15	C5	ENVOLVENTE MIN	0.320	-740.620	-59.630	-91.810	-1.220	-111.007	-90.237
N+3.15	C5	ENVOLVENTE MIN	0.640	-738.750	-59.630	-91.810	-1.220	-81.641	-71.395
N+3.15	C5	ENVOLVENTE MIN	0.960	-736.890	-59.630	-91.810	-1.220	-52.281	-52.557
N+3.15	C5	ENVOLVENTE MIN	1.280	-735.020	-59.630	-91.810	-1.220	-27.504	-33.730
N+3.15	C5	ENVOLVENTE MIN	1.600	-733.160	-59.630	-91.810	-1.220	-4.429	-14.952
N+3.15	C5	ENVOLVENTE MIN	1.920	-731.290	-59.630	-91.810	-1.220	18.357	-1.131
N+3.15	C5	ENVOLVENTE MIN	2.240	-729.420	-59.630	-91.810	-1.220	27.665	-18.403
N+3.15	C5	ENVOLVENTE MIN	2.560	-727.560	-59.630	-91.810	-1.220	23.723	-36.327
N+3.15	C5	ENVOLVENTE MIN	2.880	-725.690	-59.630	-91.810	-1.220	19.512	-54.282
N+3.15	C5	ENVOLVENTE MIN	3.200	-723.820	-59.630	-91.810	-1.220	15.259	-72.246
N+6.35	C6	ENVOLVENTE MAX	0.000	-64.110	54.760	-10.490	0.903	-33.813	105.505
N+6.35	C6	ENVOLVENTE MAX	0.320	-62.710	54.760	-10.490	0.903	-29.767	88.312
N+6.35	C6	ENVOLVENTE MAX	0.640	-61.310	54.760	-10.490	0.903	-24.779	71.488
N+6.35	C6	ENVOLVENTE MAX	0.960	-59.910	54.760	-10.490	0.903	-17.809	56.249
N+6.35	C6	ENVOLVENTE MAX	1.280	-58.510	54.760	-10.490	0.903	-9.786	45.100
N+6.35	C6	ENVOLVENTE MAX	1.600	-57.110	54.760	-10.490	0.903	-1.028	36.272
N+6.35	C6	ENVOLVENTE MAX	1.920	-55.710	54.760	-10.490	0.903	8.138	28.207
N+6.35	C6	ENVOLVENTE MAX	2.240	-54.310	54.760	-10.490	0.903	19.983	20.399
N+6.35	C6	ENVOLVENTE MAX	2.560	-52.910	54.760	-10.490	0.903	33.527	15.243
N+6.35	C6	ENVOLVENTE MAX	2.880	-51.510	54.760	-10.490	0.903	47.139	11.971
N+6.35	C6	ENVOLVENTE MAX	3.200	-50.110	54.760	-10.490	0.903	60.794	8.730
N+6.35	C6	ENVOLVENTE MIN	0.000	-119.420	9.890	-43.060	-1.139	-79.568	39.086
N+6.35	C6	ENVOLVENTE MIN	0.320	-117.550	9.890	-43.060	-1.139	-66.478	35.589
N+6.35	C6	ENVOLVENTE MIN	0.640	-115.680	9.890	-43.060	-1.139	-54.330	31.723
N+6.35	C6	ENVOLVENTE MIN	0.960	-113.820	9.890	-43.060	-1.139	-44.164	26.273
N+6.35	C6	ENVOLVENTE MIN	1.280	-111.950	9.890	-43.060	-1.139	-35.051	16.733
N+6.35	C6	ENVOLVENTE MIN	1.600	-110.080	9.890	-43.060	-1.139	-26.673	4.871
N+6.35	C6	ENVOLVENTE MIN	1.920	-108.220	9.890	-43.060	-1.139	-18.703	-7.754
N+6.35	C6	ENVOLVENTE MIN	2.240	-106.350	9.890	-43.060	-1.139	-13.412	-20.636
N+6.35	C6	ENVOLVENTE MIN	2.560	-104.490	9.890	-43.060	-1.139	-9.819	-36.170
N+6.35	C6	ENVOLVENTE MIN	2.880	-102.620	9.890	-43.060	-1.139	-6.296	-53.587
N+6.35	C6	ENVOLVENTE MIN	3.200	-100.750	9.890	-43.060	-1.139	-2.815	-71.036
N+3.15	C6	ENVOLVENTE MAX	0.000	-236.740	92.140	22.790	1.121	68.374	145.323
N+3.15	C6	ENVOLVENTE MAX	0.320	-235.340	92.140	22.790	1.121	61.089	115.847
N+3.15	C6	ENVOLVENTE MAX	0.640	-233.940	92.140	22.790	1.121	53.807	86.375
N+3.15	C6	ENVOLVENTE MAX	0.960	-232.540	92.140	22.790	1.121	46.533	56.910
N+3.15	C6	ENVOLVENTE MAX	1.280	-231.140	92.140	22.790	1.121	41.752	31.021
N+3.15	C6	ENVOLVENTE MAX	1.600	-229.740	92.140	22.790	1.121	38.197	7.000
N+3.15	C6	ENVOLVENTE MAX	1.920	-228.340	92.140	22.790	1.121	34.885	-16.595
N+3.15	C6	ENVOLVENTE MAX	2.240	-226.940	92.140	22.790	1.121	43.068	-21.187
N+3.15	C6	ENVOLVENTE MAX	2.560	-225.540	92.140	22.790	1.121	66.155	-14.436
N+3.15	C6	ENVOLVENTE MAX	2.880	-224.140	92.140	22.790	1.121	89.617	-7.492
N+3.15	C6	ENVOLVENTE MAX	3.200	-222.740	92.140	22.790	1.121	113.131	-0.512
N+3.15	C6	ENVOLVENTE MIN	0.000	-433.860	-21.900	-73.600	-1.220	-122.523	-70.717
N+3.15	C6	ENVOLVENTE MIN	0.320	-431.990	-21.900	-73.600	-1.220	-98.980	-63.717
N+3.15	C6	ENVOLVENTE MIN	0.640	-430.130	-21.900	-73.600	-1.220	-75.441	-56.721
N+3.15	C6	ENVOLVENTE MIN	0.960	-428.260	-21.900	-73.600	-1.220	-51.908	-49.732
N+3.15	C6	ENVOLVENTE MIN	1.280	-426.390	-21.900	-73.600	-1.220	-30.870	-46.319
N+3.15	C6	ENVOLVENTE MIN	1.600	-424.530	-21.900	-73.600	-1.220	-11.056	-44.774
N+3.15	C6	ENVOLVENTE MIN	1.920	-422.660	-21.900	-73.600	-1.220	8.513	-43.654
N+3.15	C6	ENVOLVENTE MIN	2.240	-420.790	-21.900	-73.600	-1.220	16.589	-61.539
N+3.15	C6	ENVOLVENTE MIN	2.560	-418.930	-21.900	-73.600	-1.220	9.760	-90.766
N+3.15	C6	ENVOLVENTE MIN	2.880	-417.060	-21.900	-73.600	-1.220	2.556	-120.186
N+3.15	C6	ENVOLVENTE MIN	3.200	-415.200	-21.900	-73.600	-1.220	-4.700	-149.641
N+6.35	C7	ENVOLVENTE MAX	0.000	-9.330	-8.980	32.120	0.903	40.564	-21.163
N+6.35	C7	ENVOLVENTE MAX	0.320	-7.940	-8.980	32.120	0.903	30.368	-16.839
N+6.35	C7	ENVOLVENTE MAX	0.640	-6.540	-8.980	32.120	0.903	20.251	-11.728
N+6.35	C7	ENVOLVENTE MAX	0.960	-5.140	-8.980	32.120	0.903	10.416	-5.731
N+6.35	C7	ENVOLVENTE MAX	1.280	-3.740	-8.980	32.120	0.903	4.071	1.108
N+6.35	C7	ENVOLVENTE MAX	1.600	-2.340	-8.980	32.120	0.903	12.239	8.552
N+6.35	C7	ENVOLVENTE MAX	1.920	-0.940	-8.980	32.120	0.903	23.066	16.362
N+6.35	C7	ENVOLVENTE MAX	2.240	0.460	-8.980	32.120	0.903	34.191	24.384
N+6.35	C7	ENVOLVENTE MAX	2.560	1.860	-8.980	32.120	0.903	45.712	36.041
N+6.35	C7	ENVOLVENTE MAX	2.880	3.260	-8.980	32.120	0.903	57.293	48.633
N+6.35	C7	ENVOLVENTE MAX	3.200	4.660	-8.980	32.120	0.903	68.891	61.276
N+6.35	C7	ENVOLVENTE MIN	0.000	-98.220	-40.030	-36.350	-1.139	-47.836	-74.745

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C7	ENVOLVENTE MIN	0.320	-96.360	-40.030	-36.350	-1.139	-36.286	-63.237
N+6.35	C7	ENVOLVENTE MIN	0.640	-94.490	-40.030	-36.350	-1.139	-24.815	-51.728
N+6.35	C7	ENVOLVENTE MIN	0.960	-92.620	-40.030	-36.350	-1.139	-13.626	-40.219
N+6.35	C7	ENVOLVENTE MIN	1.280	-90.760	-40.030	-36.350	-1.139	-5.927	-31.045
N+6.35	C7	ENVOLVENTE MIN	1.600	-88.890	-40.030	-36.350	-1.139	-12.741	-22.807
N+6.35	C7	ENVOLVENTE MIN	1.920	-87.030	-40.030	-36.350	-1.139	-22.214	-14.936
N+6.35	C7	ENVOLVENTE MIN	2.240	-85.160	-40.030	-36.350	-1.139	-31.985	-7.276
N+6.35	C7	ENVOLVENTE MIN	2.560	-83.290	-40.030	-36.350	-1.139	-42.153	-3.252
N+6.35	C7	ENVOLVENTE MIN	2.880	-81.430	-40.030	-36.350	-1.139	-52.380	-0.161
N+6.35	C7	ENVOLVENTE MIN	3.200	-79.560	-40.030	-36.350	-1.139	-62.624	2.877
N+3.15	C7	ENVOLVENTE MAX	0.000	-0.640	29.940	74.400	1.121	145.874	76.645
N+3.15	C7	ENVOLVENTE MAX	0.320	0.760	29.940	74.400	1.121	122.073	67.077
N+3.15	C7	ENVOLVENTE MAX	0.640	2.160	29.940	74.400	1.121	98.274	57.513
N+3.15	C7	ENVOLVENTE MAX	0.960	3.560	29.940	74.400	1.121	74.881	47.958
N+3.15	C7	ENVOLVENTE MAX	1.280	4.960	29.940	74.400	1.121	51.733	42.730
N+3.15	C7	ENVOLVENTE MAX	1.600	6.360	29.940	74.400	1.121	28.647	37.995
N+3.15	C7	ENVOLVENTE MAX	1.920	7.760	29.940	74.400	1.121	7.131	33.523
N+3.15	C7	ENVOLVENTE MAX	2.240	9.160	29.940	74.400	1.121	27.532	40.611
N+3.15	C7	ENVOLVENTE MAX	2.560	10.560	29.940	74.400	1.121	52.314	57.715
N+3.15	C7	ENVOLVENTE MAX	2.880	11.960	29.940	74.400	1.121	77.171	78.678
N+3.15	C7	ENVOLVENTE MAX	3.200	13.360	29.940	74.400	1.121	102.046	99.718
N+3.15	C7	ENVOLVENTE MIN	0.000	-292.040	-65.910	-77.790	-1.220	-146.969	-111.396
N+3.15	C7	ENVOLVENTE MIN	0.320	-290.170	-65.910	-77.790	-1.220	-122.083	-90.314
N+3.15	C7	ENVOLVENTE MIN	0.640	-288.310	-65.910	-77.790	-1.220	-97.200	-69.237
N+3.15	C7	ENVOLVENTE MIN	0.960	-286.440	-65.910	-77.790	-1.220	-72.723	-48.168
N+3.15	C7	ENVOLVENTE MIN	1.280	-284.570	-65.910	-77.790	-1.220	-48.490	-31.427
N+3.15	C7	ENVOLVENTE MIN	1.600	-282.710	-65.910	-77.790	-1.220	-24.320	-15.178
N+3.15	C7	ENVOLVENTE MIN	1.920	-280.840	-65.910	-77.790	-1.220	-1.719	0.807
N+3.15	C7	ENVOLVENTE MIN	2.240	-278.980	-65.910	-77.790	-1.220	-21.037	8.323
N+3.15	C7	ENVOLVENTE MIN	2.560	-277.110	-65.910	-77.790	-1.220	-44.734	-0.358
N+3.15	C7	ENVOLVENTE MIN	2.880	-275.240	-65.910	-77.790	-1.220	-68.506	-9.808
N+3.15	C7	ENVOLVENTE MIN	3.200	-273.380	-65.910	-77.790	-1.220	-92.297	-19.335
N+6.35	C8	ENVOLVENTE MAX	0.000	-69.920	23.050	74.700	0.903	122.948	19.603
N+6.35	C8	ENVOLVENTE MAX	0.320	-68.520	23.050	74.700	0.903	99.064	12.613
N+6.35	C8	ENVOLVENTE MAX	0.640	-67.120	23.050	74.700	0.903	75.196	5.692
N+6.35	C8	ENVOLVENTE MAX	0.960	-65.720	23.050	74.700	0.903	51.380	-0.972
N+6.35	C8	ENVOLVENTE MAX	1.280	-64.320	23.050	74.700	0.903	27.939	-5.115
N+6.35	C8	ENVOLVENTE MAX	1.600	-62.920	23.050	74.700	0.903	19.914	-0.053
N+6.35	C8	ENVOLVENTE MAX	1.920	-61.520	23.050	74.700	0.903	22.900	7.085
N+6.35	C8	ENVOLVENTE MAX	2.240	-60.120	23.050	74.700	0.903	29.084	14.449
N+6.35	C8	ENVOLVENTE MAX	2.560	-58.720	23.050	74.700	0.903	35.308	21.876
N+6.35	C8	ENVOLVENTE MAX	2.880	-57.320	23.050	74.700	0.903	41.547	29.329
N+6.35	C8	ENVOLVENTE MAX	3.200	-55.920	23.050	74.700	0.903	47.792	36.796
N+6.35	C8	ENVOLVENTE MIN	0.000	-147.190	-23.420	-19.550	-1.139	-14.900	-40.519
N+6.35	C8	ENVOLVENTE MIN	0.320	-145.320	-23.420	-19.550	-1.139	-8.663	-33.411
N+6.35	C8	ENVOLVENTE MIN	0.640	-143.460	-23.420	-19.550	-1.139	-2.443	-26.372
N+6.35	C8	ENVOLVENTE MIN	0.960	-141.590	-23.420	-19.550	-1.139	3.726	-19.589
N+6.35	C8	ENVOLVENTE MIN	1.280	-139.720	-23.420	-19.550	-1.139	9.519	-15.327
N+6.35	C8	ENVOLVENTE MIN	1.600	-137.860	-23.420	-19.550	-1.139	-0.103	-20.271
N+6.35	C8	ENVOLVENTE MIN	1.920	-135.990	-23.420	-19.550	-1.139	-20.737	-27.291
N+6.35	C8	ENVOLVENTE MIN	2.240	-134.130	-23.420	-19.550	-1.139	-44.568	-34.536
N+6.35	C8	ENVOLVENTE MIN	2.560	-132.260	-23.420	-19.550	-1.139	-68.440	-41.845
N+6.35	C8	ENVOLVENTE MIN	2.880	-130.390	-23.420	-19.550	-1.139	-92.326	-49.180
N+6.35	C8	ENVOLVENTE MIN	3.200	-128.530	-23.420	-19.550	-1.139	-116.219	-56.528
N+3.15	C8	ENVOLVENTE MAX	0.000	-240.090	42.400	99.730	1.121	163.844	89.585
N+3.15	C8	ENVOLVENTE MAX	0.320	-238.690	42.400	99.730	1.121	131.934	76.024
N+3.15	C8	ENVOLVENTE MAX	0.640	-237.290	42.400	99.730	1.121	100.026	62.465
N+3.15	C8	ENVOLVENTE MAX	0.960	-235.900	42.400	99.730	1.121	68.121	49.433
N+3.15	C8	ENVOLVENTE MAX	1.280	-234.500	42.400	99.730	1.121	37.777	36.607
N+3.15	C8	ENVOLVENTE MAX	1.600	-233.100	42.400	99.730	1.121	8.465	23.832
N+3.15	C8	ENVOLVENTE MAX	1.920	-231.700	42.400	99.730	1.121	-9.710	12.619
N+3.15	C8	ENVOLVENTE MAX	2.240	-230.300	42.400	99.730	1.121	7.609	28.641
N+3.15	C8	ENVOLVENTE MAX	2.560	-228.900	42.400	99.730	1.121	25.217	47.571
N+3.15	C8	ENVOLVENTE MAX	2.880	-227.500	42.400	99.730	1.121	42.847	66.563
N+3.15	C8	ENVOLVENTE MAX	3.200	-226.100	42.400	99.730	1.121	60.484	85.569
N+3.15	C8	ENVOLVENTE MIN	0.000	-576.230	-59.440	-55.140	-1.220	-116.001	-104.714
N+3.15	C8	ENVOLVENTE MIN	0.320	-574.360	-59.440	-55.140	-1.220	-98.360	-85.698
N+3.15	C8	ENVOLVENTE MIN	0.640	-572.500	-59.440	-55.140	-1.220	-80.721	-66.685
N+3.15	C8	ENVOLVENTE MIN	0.960	-570.630	-59.440	-55.140	-1.220	-63.087	-48.198
N+3.15	C8	ENVOLVENTE MIN	1.280	-568.770	-59.440	-55.140	-1.220	-47.012	-29.919
N+3.15	C8	ENVOLVENTE MIN	1.600	-566.900	-59.440	-55.140	-1.220	-31.969	-11.689
N+3.15	C8	ENVOLVENTE MIN	1.920	-565.030	-59.440	-55.140	-1.220	-28.064	4.978
N+3.15	C8	ENVOLVENTE MIN	2.240	-563.170	-59.440	-55.140	-1.220	-59.652	-5.589
N+3.15	C8	ENVOLVENTE MIN	2.560	-561.300	-59.440	-55.140	-1.220	-91.530	-19.065
N+3.15	C8	ENVOLVENTE MIN	2.880	-559.430	-59.440	-55.140	-1.220	-123.430	-32.603
N+3.15	C8	ENVOLVENTE MIN	3.200	-557.570	-59.440	-55.140	-1.220	-155.336	-46.155
N+6.35	C9	ENVOLVENTE MAX	0.000	-119.570	13.490	114.890	0.903	183.339	19.747
N+6.35	C9	ENVOLVENTE MAX	0.320	-118.170	13.490	114.890	0.903	146.594	15.483
N+6.35	C9	ENVOLVENTE MAX	0.640	-116.770	13.490	114.890	0.903	109.865	11.268
N+6.35	C9	ENVOLVENTE MAX	0.960	-115.370	13.490	114.890	0.903	73.181	7.229
N+6.35	C9	ENVOLVENTE MAX	1.280	-113.970	13.490	114.890	0.903	36.837	9.537
N+6.35	C9	ENVOLVENTE MAX	1.600	-112.570	13.490	114.890	0.903	17.554	23.189
N+6.35	C9	ENVOLVENTE MAX	1.920	-111.170	13.490	114.890	0.903	16.238	39.342
N+6.35	C9	ENVOLVENTE MAX	2.240	-109.770	13.490	114.890	0.903	15.142	55.723
N+6.35	C9	ENVOLVENTE MAX	2.560	-108.370	13.490	114.890	0.903	14.084	72.162
N+6.35	C9	ENVOLVENTE MAX	2.880	-106.970	13.490	114.890	0.903	13.039	88.625
N+6.35	C9	ENVOLVENTE MAX	3.200	-105.570	13.490	114.890	0.903	12.000	105.099
N+6.35	C9	ENVOLVENTE MIN	0.000	-342.280	-51.550	3.210	-1.139	22.165	-60.150
N+6.35	C9	ENVOLVENTE MIN	0.320	-340.420	-51.550	3.210	-1.139	21.119	-43.705
N+6.35	C9	ENVOLVENTE MIN	0.640	-338.550	-51.550	3.210	-1.139	20.057	-27.310
N+6.35	C9	ENVOLVENTE MIN	0.960	-336.680	-51.550	3.210	-1.139	18.949	-11.091
N+6.35	C9	ENVOLVENTE MIN	1.280	-334.820	-51.550	3.210	-1.139	17.503	-1.218

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C9	ENVOLVENTE MIN	1.600	-332.950	-51.550	3.210	-1.139	-1.006	-2.690
N+6.35	C9	ENVOLVENTE MIN	1.920	-331.080	-51.550	3.210	-1.139	-37.481	-6.662
N+6.35	C9	ENVOLVENTE MIN	2.240	-329.220	-51.550	3.210	-1.139	-74.176	-10.862
N+6.35	C9	ENVOLVENTE MIN	2.560	-327.350	-51.550	3.210	-1.139	-110.909	-15.121
N+6.35	C9	ENVOLVENTE MIN	2.880	-325.490	-51.550	3.210	-1.139	-147.655	-19.403
N+6.35	C9	ENVOLVENTE MIN	3.200	-323.620	-51.550	3.210	-1.139	-184.408	-23.696
N+3.15	C9	ENVOLVENTE MAX	0.000	-363.290	51.280	110.080	1.121	167.855	99.484
N+3.15	C9	ENVOLVENTE MAX	0.320	-361.890	51.280	110.080	1.121	132.634	83.080
N+3.15	C9	ENVOLVENTE MAX	0.640	-360.490	51.280	110.080	1.121	97.414	66.678
N+3.15	C9	ENVOLVENTE MAX	0.960	-359.090	51.280	110.080	1.121	62.198	50.281
N+3.15	C9	ENVOLVENTE MAX	1.280	-357.690	51.280	110.080	1.121	30.365	33.896
N+3.15	C9	ENVOLVENTE MAX	1.600	-356.290	51.280	110.080	1.121	-0.042	17.556
N+3.15	C9	ENVOLVENTE MAX	1.920	-354.890	51.280	110.080	1.121	-19.956	3.164
N+3.15	C9	ENVOLVENTE MAX	2.240	-353.490	51.280	110.080	1.121	-8.499	17.685
N+3.15	C9	ENVOLVENTE MAX	2.560	-352.090	51.280	110.080	1.121	3.211	33.924
N+3.15	C9	ENVOLVENTE MAX	2.880	-350.690	51.280	110.080	1.121	14.940	50.208
N+3.15	C9	ENVOLVENTE MAX	3.200	-349.290	51.280	110.080	1.121	26.675	66.504
N+3.15	C9	ENVOLVENTE MIN	0.000	-910.400	-50.960	-36.690	-1.220	-90.780	-96.619
N+3.15	C9	ENVOLVENTE MIN	0.320	-908.540	-50.960	-36.690	-1.220	-79.042	-80.317
N+3.15	C9	ENVOLVENTE MIN	0.640	-906.670	-50.960	-36.690	-1.220	-67.305	-64.018
N+3.15	C9	ENVOLVENTE MIN	0.960	-904.800	-50.960	-36.690	-1.220	-55.572	-47.722
N+3.15	C9	ENVOLVENTE MIN	1.280	-902.940	-50.960	-36.690	-1.220	-47.222	-31.439
N+3.15	C9	ENVOLVENTE MIN	1.600	-901.070	-50.960	-36.690	-1.220	-40.298	-15.201
N+3.15	C9	ENVOLVENTE MIN	1.920	-899.210	-50.960	-36.690	-1.220	-43.867	-0.911
N+3.15	C9	ENVOLVENTE MIN	2.240	-897.340	-50.960	-36.690	-1.220	-78.807	-15.533
N+3.15	C9	ENVOLVENTE MIN	2.560	-895.470	-50.960	-36.690	-1.220	-113.999	-31.875
N+3.15	C9	ENVOLVENTE MIN	2.880	-893.610	-50.960	-36.690	-1.220	-149.211	-48.261
N+3.15	C9	ENVOLVENTE MIN	3.200	-891.740	-50.960	-36.690	-1.220	-184.429	-64.658
N+6.35	C10	ENVOLVENTE MAX	0.000	-124.520	53.400	108.220	0.903	173.156	63.195
N+6.35	C10	ENVOLVENTE MAX	0.320	-123.120	53.400	108.220	0.903	138.544	46.164
N+6.35	C10	ENVOLVENTE MAX	0.640	-121.720	53.400	108.220	0.903	103.945	29.187
N+6.35	C10	ENVOLVENTE MAX	0.960	-120.320	53.400	108.220	0.903	69.390	12.406
N+6.35	C10	ENVOLVENTE MAX	1.280	-118.920	53.400	108.220	0.903	35.145	2.200
N+6.35	C10	ENVOLVENTE MAX	1.600	-117.530	53.400	108.220	0.903	16.355	3.243
N+6.35	C10	ENVOLVENTE MAX	1.920	-116.130	53.400	108.220	0.903	13.932	6.583
N+6.35	C10	ENVOLVENTE MAX	2.240	-114.730	53.400	108.220	0.903	11.719	10.150
N+6.35	C10	ENVOLVENTE MAX	2.560	-113.330	53.400	108.220	0.903	9.541	13.778
N+6.35	C10	ENVOLVENTE MAX	2.880	-111.930	53.400	108.220	0.903	7.376	17.430
N+6.35	C10	ENVOLVENTE MAX	3.200	-110.530	53.400	108.220	0.903	5.217	21.094
N+6.35	C10	ENVOLVENTE MIN	0.000	-346.340	-11.530	6.720	-1.139	26.602	-16.087
N+6.35	C10	ENVOLVENTE MIN	0.320	-344.470	-11.530	6.720	-1.139	24.436	-12.457
N+6.35	C10	ENVOLVENTE MIN	0.640	-342.610	-11.530	6.720	-1.139	22.255	-8.881
N+6.35	C10	ENVOLVENTE MIN	0.960	-340.740	-11.530	6.720	-1.139	20.032	-5.501
N+6.35	C10	ENVOLVENTE MIN	1.280	-338.880	-11.530	6.720	-1.139	17.498	-8.695
N+6.35	C10	ENVOLVENTE MIN	1.600	-337.010	-11.530	6.720	-1.139	-0.491	-23.140
N+6.35	C10	ENVOLVENTE MIN	1.920	-335.140	-11.530	6.720	-1.139	-34.847	-39.880
N+6.35	C10	ENVOLVENTE MIN	2.240	-333.280	-11.530	6.720	-1.139	-69.413	-56.849
N+6.35	C10	ENVOLVENTE MIN	2.560	-331.410	-11.530	6.720	-1.139	-104.014	-73.877
N+6.35	C10	ENVOLVENTE MIN	2.880	-329.540	-11.530	6.720	-1.139	-138.628	-90.930
N+6.35	C10	ENVOLVENTE MIN	3.200	-327.680	-11.530	6.720	-1.139	-173.247	-107.995
N+3.15	C10	ENVOLVENTE MAX	0.000	-374.930	52.800	100.480	1.121	150.754	101.061
N+3.15	C10	ENVOLVENTE MAX	0.320	-373.530	52.800	100.480	1.121	118.603	84.170
N+3.15	C10	ENVOLVENTE MAX	0.640	-372.130	52.800	100.480	1.121	86.455	67.281
N+3.15	C10	ENVOLVENTE MAX	0.960	-370.730	52.800	100.480	1.121	54.309	50.397
N+3.15	C10	ENVOLVENTE MAX	1.280	-369.330	52.800	100.480	1.121	25.560	33.525
N+3.15	C10	ENVOLVENTE MAX	1.600	-367.930	52.800	100.480	1.121	-1.952	16.699
N+3.15	C10	ENVOLVENTE MAX	1.920	-366.530	52.800	100.480	1.121	-20.234	1.582
N+3.15	C10	ENVOLVENTE MAX	2.240	-365.130	52.800	100.480	1.121	-11.201	14.842
N+3.15	C10	ENVOLVENTE MAX	2.560	-363.730	52.800	100.480	1.121	-1.934	30.135
N+3.15	C10	ENVOLVENTE MAX	2.880	-362.330	52.800	100.480	1.121	7.352	45.476
N+3.15	C10	ENVOLVENTE MAX	3.200	-360.930	52.800	100.480	1.121	16.643	60.843
N+3.15	C10	ENVOLVENTE MIN	0.000	-921.310	-48.340	-29.050	-1.220	-76.367	-93.906
N+3.15	C10	ENVOLVENTE MIN	0.320	-919.450	-48.340	-29.050	-1.220	-67.073	-78.442
N+3.15	C10	ENVOLVENTE MIN	0.640	-917.580	-48.340	-29.050	-1.220	-57.780	-62.980
N+3.15	C10	ENVOLVENTE MIN	0.960	-915.720	-48.340	-29.050	-1.220	-48.491	-47.523
N+3.15	C10	ENVOLVENTE MIN	1.280	-913.850	-48.340	-29.050	-1.220	-42.598	-32.077
N+3.15	C10	ENVOLVENTE MIN	1.600	-911.980	-48.340	-29.050	-1.220	-37.942	-16.677
N+3.15	C10	ENVOLVENTE MIN	1.920	-910.120	-48.340	-29.050	-1.220	-42.515	-2.988
N+3.15	C10	ENVOLVENTE MIN	2.240	-908.250	-48.340	-29.050	-1.220	-74.405	-17.674
N+3.15	C10	ENVOLVENTE MIN	2.560	-906.380	-48.340	-29.050	-1.220	-106.528	-34.394
N+3.15	C10	ENVOLVENTE MIN	2.880	-904.520	-48.340	-29.050	-1.220	-138.670	-51.161
N+3.15	C10	ENVOLVENTE MIN	3.200	-902.650	-48.340	-29.050	-1.220	-170.817	-67.955
N+6.35	C11	ENVOLVENTE MAX	0.000	-74.130	23.490	81.710	0.903	148.674	30.538
N+6.35	C11	ENVOLVENTE MAX	0.320	-72.730	23.490	81.710	0.903	122.543	23.075
N+6.35	C11	ENVOLVENTE MAX	0.640	-71.330	23.490	81.710	0.903	96.425	15.662
N+6.35	C11	ENVOLVENTE MAX	0.960	-69.930	23.490	81.710	0.903	70.348	8.428
N+6.35	C11	ENVOLVENTE MAX	1.280	-68.530	23.490	81.710	0.903	44.564	3.336
N+6.35	C11	ENVOLVENTE MAX	1.600	-67.130	23.490	81.710	0.903	29.946	8.881
N+6.35	C11	ENVOLVENTE MAX	1.920	-65.730	23.490	81.710	0.903	23.482	16.864
N+6.35	C11	ENVOLVENTE MAX	2.240	-64.330	23.490	81.710	0.903	22.724	25.072
N+6.35	C11	ENVOLVENTE MAX	2.560	-62.930	23.490	81.710	0.903	23.060	33.337
N+6.35	C11	ENVOLVENTE MAX	2.880	-61.530	23.490	81.710	0.903	23.408	41.625
N+6.35	C11	ENVOLVENTE MAX	3.200	-60.130	23.490	81.710	0.903	23.762	49.924
N+6.35	C11	ENVOLVENTE MIN	0.000	-149.990	-26.010	-1.130	-1.139	20.031	-33.578
N+6.35	C11	ENVOLVENTE MIN	0.320	-148.130	-26.010	-1.130	-1.139	20.377	-25.308
N+6.35	C11	ENVOLVENTE MIN	0.640	-146.260	-26.010	-1.130	-1.139	20.711	-17.089
N+6.35	C11	ENVOLVENTE MIN	0.960	-144.390	-26.010	-1.130	-1.139	21.004	-9.048
N+6.35	C11	ENVOLVENTE MIN	1.280	-142.530	-26.010	-1.130	-1.139	21.004	-3.149
N+6.35	C11	ENVOLVENTE MIN	1.600	-140.660	-26.010	-1.130	-1.139	9.837	-7.888
N+6.35	C11	ENVOLVENTE MIN	1.920	-138.800	-26.010	-1.130	-1.139	-9.483	-15.064
N+6.35	C11	ENVOLVENTE MIN	2.240	-136.930	-26.010	-1.130	-1.139	-34.509	-22.465
N+6.35	C11	ENVOLVENTE MIN	2.560	-135.060	-26.010	-1.130	-1.139	-60.630	-29.923

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C11	ENVOLVENTE MIN	2.880	-133.200	-26.010	-1.130	-1.139	-86.762	-37.405
N+6.35	C11	ENVOLVENTE MIN	3.200	-131.330	-26.010	-1.130	-1.139	-112.900	-44.898
N+3.15	C11	ENVOLVENTE MAX	0.000	-314.960	51.300	101.290	1.121	149.159	99.505
N+3.15	C11	ENVOLVENTE MAX	0.320	-313.560	51.300	101.290	1.121	116.751	83.094
N+3.15	C11	ENVOLVENTE MAX	0.640	-312.160	51.300	101.290	1.121	84.344	66.686
N+3.15	C11	ENVOLVENTE MAX	0.960	-310.770	51.300	101.290	1.121	51.940	50.283
N+3.15	C11	ENVOLVENTE MAX	1.280	-309.370	51.300	101.290	1.121	23.649	33.891
N+3.15	C11	ENVOLVENTE MAX	1.600	-307.970	51.300	101.290	1.121	-3.360	17.545
N+3.15	C11	ENVOLVENTE MAX	1.920	-306.570	51.300	101.290	1.121	-21.490	3.125
N+3.15	C11	ENVOLVENTE MAX	2.240	-305.170	51.300	101.290	1.121	-13.544	17.350
N+3.15	C11	ENVOLVENTE MAX	2.560	-303.770	51.300	101.290	1.121	-5.378	33.315
N+3.15	C11	ENVOLVENTE MAX	2.880	-302.370	51.300	101.290	1.121	2.805	49.381
N+3.15	C11	ENVOLVENTE MAX	3.200	-300.970	51.300	101.290	1.121	10.994	65.532
N+3.15	C11	ENVOLVENTE MIN	0.000	-702.010	-50.510	-25.610	-1.220	-70.984	-96.153
N+3.15	C11	ENVOLVENTE MIN	0.320	-700.140	-50.510	-25.610	-1.220	-62.792	-79.995
N+3.15	C11	ENVOLVENTE MIN	0.640	-698.270	-50.510	-25.610	-1.220	-54.603	-63.839
N+3.15	C11	ENVOLVENTE MIN	0.960	-696.410	-50.510	-25.610	-1.220	-46.416	-47.688
N+3.15	C11	ENVOLVENTE MIN	1.280	-694.540	-50.510	-25.610	-1.220	-42.342	-31.548
N+3.15	C11	ENVOLVENTE MIN	1.600	-692.680	-50.510	-25.610	-1.220	-39.549	-15.455
N+3.15	C11	ENVOLVENTE MIN	1.920	-690.810	-50.510	-25.610	-1.220	-45.636	-1.287
N+3.15	C11	ENVOLVENTE MIN	2.240	-688.940	-50.510	-25.610	-1.220	-77.799	-15.764
N+3.15	C11	ENVOLVENTE MIN	2.560	-687.080	-50.510	-25.610	-1.220	-110.182	-31.982
N+3.15	C11	ENVOLVENTE MIN	2.880	-685.210	-50.510	-25.610	-1.220	-142.582	-48.300
N+3.15	C11	ENVOLVENTE MIN	3.200	-683.340	-50.510	-25.610	-1.220	-174.987	-64.703
N+6.35	C12	ENVOLVENTE MAX	0.000	-73.710	25.580	79.720	0.903	145.075	32.002
N+6.35	C12	ENVOLVENTE MAX	0.320	-72.310	25.580	79.720	0.903	119.578	23.871
N+6.35	C12	ENVOLVENTE MAX	0.640	-70.910	25.580	79.720	0.903	94.093	15.932
N+6.35	C12	ENVOLVENTE MAX	0.960	-69.510	25.580	79.720	0.903	68.647	8.296
N+6.35	C12	ENVOLVENTE MAX	1.280	-68.110	25.580	79.720	0.903	43.470	2.558
N+6.35	C12	ENVOLVENTE MAX	1.600	-66.710	25.580	79.720	0.903	29.617	7.008
N+6.35	C12	ENVOLVENTE MAX	1.920	-65.310	25.580	79.720	0.903	23.919	13.940
N+6.35	C12	ENVOLVENTE MAX	2.240	-63.910	25.580	79.720	0.903	22.953	21.101
N+6.35	C12	ENVOLVENTE MAX	2.560	-62.510	25.580	79.720	0.903	23.622	28.322
N+6.35	C12	ENVOLVENTE MAX	2.880	-61.110	25.580	79.720	0.903	24.302	35.567
N+6.35	C12	ENVOLVENTE MAX	3.200	-59.710	25.580	79.720	0.903	24.987	42.824
N+6.35	C12	ENVOLVENTE MIN	0.000	-151.680	-22.750	-2.170	-1.139	17.951	-30.267
N+6.35	C12	ENVOLVENTE MIN	0.320	-149.810	-22.750	-2.170	-1.139	18.630	-23.042
N+6.35	C12	ENVOLVENTE MIN	0.640	-147.950	-22.750	-2.170	-1.139	19.297	-16.009
N+6.35	C12	ENVOLVENTE MIN	0.960	-146.080	-22.750	-2.170	-1.139	19.926	-9.279
N+6.35	C12	ENVOLVENTE MIN	1.280	-144.210	-22.750	-2.170	-1.139	20.286	-4.446
N+6.35	C12	ENVOLVENTE MIN	1.600	-142.350	-22.750	-2.170	-1.139	9.321	-9.803
N+6.35	C12	ENVOLVENTE MIN	1.920	-140.480	-22.750	-2.170	-1.139	-9.799	-17.640
N+6.35	C12	ENVOLVENTE MIN	2.240	-138.610	-22.750	-2.170	-1.139	-33.650	-25.707
N+6.35	C12	ENVOLVENTE MIN	2.560	-136.750	-22.750	-2.170	-1.139	-59.137	-33.834
N+6.35	C12	ENVOLVENTE MIN	2.880	-134.880	-22.750	-2.170	-1.139	-84.635	-41.984
N+6.35	C12	ENVOLVENTE MIN	3.200	-133.020	-22.750	-2.170	-1.139	-110.138	-50.147
N+3.15	C12	ENVOLVENTE MAX	0.000	-329.830	50.720	100.610	1.121	148.470	98.908
N+3.15	C12	ENVOLVENTE MAX	0.320	-328.430	50.720	100.610	1.121	116.279	82.682
N+3.15	C12	ENVOLVENTE MAX	0.640	-327.030	50.720	100.610	1.121	84.089	66.458
N+3.15	C12	ENVOLVENTE MAX	0.960	-325.630	50.720	100.610	1.121	51.902	50.239
N+3.15	C12	ENVOLVENTE MAX	1.280	-324.230	50.720	100.610	1.121	23.858	34.031
N+3.15	C12	ENVOLVENTE MAX	1.600	-322.830	50.720	100.610	1.121	-3.077	17.868
N+3.15	C12	ENVOLVENTE MAX	1.920	-321.430	50.720	100.610	1.121	-20.954	3.605
N+3.15	C12	ENVOLVENTE MAX	2.240	-320.030	50.720	100.610	1.121	-12.553	17.894
N+3.15	C12	ENVOLVENTE MAX	2.560	-318.630	50.720	100.610	1.121	-3.950	34.004
N+3.15	C12	ENVOLVENTE MAX	2.880	-317.230	50.720	100.610	1.121	4.669	50.159
N+3.15	C12	ENVOLVENTE MAX	3.200	-315.830	50.720	100.610	1.121	13.294	66.326
N+3.15	C12	ENVOLVENTE MIN	0.000	-736.950	-50.620	-26.970	-1.220	-73.039	-96.265
N+3.15	C12	ENVOLVENTE MIN	0.320	-735.090	-50.620	-26.970	-1.220	-64.412	-80.073
N+3.15	C12	ENVOLVENTE MIN	0.640	-733.220	-50.620	-26.970	-1.220	-55.786	-63.882
N+3.15	C12	ENVOLVENTE MIN	0.960	-731.350	-50.620	-26.970	-1.220	-47.163	-47.696
N+3.15	C12	ENVOLVENTE MIN	1.280	-729.490	-50.620	-26.970	-1.220	-42.684	-31.522
N+3.15	C12	ENVOLVENTE MIN	1.600	-727.620	-50.620	-26.970	-1.220	-39.312	-15.393
N+3.15	C12	ENVOLVENTE MIN	1.920	-725.750	-50.620	-26.970	-1.220	-44.999	-1.163
N+3.15	C12	ENVOLVENTE MIN	2.240	-723.890	-50.620	-26.970	-1.220	-76.963	-15.485
N+3.15	C12	ENVOLVENTE MIN	2.560	-722.020	-50.620	-26.970	-1.220	-109.130	-31.629
N+3.15	C12	ENVOLVENTE MIN	2.880	-720.160	-50.620	-26.970	-1.220	-141.314	-47.817
N+3.15	C12	ENVOLVENTE MIN	3.200	-718.290	-50.620	-26.970	-1.220	-173.503	-64.017
N+6.35	C13	ENVOLVENTE MAX	0.000	-76.570	54.510	50.660	0.903	80.588	103.293
N+6.35	C13	ENVOLVENTE MAX	0.320	-75.170	54.510	50.660	0.903	64.392	85.879
N+6.35	C13	ENVOLVENTE MAX	0.640	-73.770	54.510	50.660	0.903	48.208	68.491
N+6.35	C13	ENVOLVENTE MAX	0.960	-72.370	54.510	50.660	0.903	32.064	51.191
N+6.35	C13	ENVOLVENTE MAX	1.280	-70.970	54.510	50.660	0.903	16.227	37.173
N+6.35	C13	ENVOLVENTE MAX	1.600	-69.570	54.510	50.660	0.903	12.699	30.559
N+6.35	C13	ENVOLVENTE MAX	1.920	-68.170	54.510	50.660	0.903	17.451	30.706
N+6.35	C13	ENVOLVENTE MAX	2.240	-66.770	54.510	50.660	0.903	23.274	31.049
N+6.35	C13	ENVOLVENTE MAX	2.560	-65.370	54.510	50.660	0.903	29.126	31.436
N+6.35	C13	ENVOLVENTE MAX	2.880	-63.970	54.510	50.660	0.903	34.988	35.568
N+6.35	C13	ENVOLVENTE MAX	3.200	-62.570	54.510	50.660	0.903	40.855	39.712
N+6.35	C13	ENVOLVENTE MIN	0.000	-162.240	-13.000	-18.360	-1.139	-17.993	-2.046
N+6.35	C13	ENVOLVENTE MIN	0.320	-160.370	-13.000	-18.360	-1.139	-12.132	2.083
N+6.35	C13	ENVOLVENTE MIN	0.640	-158.510	-13.000	-18.360	-1.139	-6.284	6.187
N+6.35	C13	ENVOLVENTE MIN	0.960	-156.640	-13.000	-18.360	-1.139	-0.476	10.202
N+6.35	C13	ENVOLVENTE MIN	1.280	-154.770	-13.000	-18.360	-1.139	5.026	13.318
N+6.35	C13	ENVOLVENTE MIN	1.600	-152.910	-13.000	-18.360	-1.139	-1.782	4.265
N+6.35	C13	ENVOLVENTE MIN	1.920	-151.040	-13.000	-18.360	-1.139	-16.870	-9.167
N+6.35	C13	ENVOLVENTE MIN	2.240	-149.180	-13.000	-18.360	-1.139	-33.029	-22.795
N+6.35	C13	ENVOLVENTE MIN	2.560	-147.310	-13.000	-18.360	-1.139	-49.216	-36.466
N+6.35	C13	ENVOLVENTE MIN	2.880	-145.440	-13.000	-18.360	-1.139	-65.414	-53.883
N+6.35	C13	ENVOLVENTE MIN	3.200	-143.580	-13.000	-18.360	-1.139	-81.617	-71.312
N+3.15	C13	ENVOLVENTE MAX	0.000	-296.370	87.560	71.040	1.121	118.094	137.092
N+3.15	C13	ENVOLVENTE MAX	0.320	-294.970	87.560	71.040	1.121	95.363	109.076

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+3.15	C13	ENVOLVENTE MAX	0.640	-293.570	87.560	71.040	1.121	72.633	81.061
N+3.15	C13	ENVOLVENTE MAX	0.960	-292.170	87.560	71.040	1.121	49.941	53.050
N+3.15	C13	ENVOLVENTE MAX	1.280	-290.770	87.560	71.040	1.121	28.385	28.318
N+3.15	C13	ENVOLVENTE MAX	1.600	-289.370	87.560	71.040	1.121	6.872	5.563
N+3.15	C13	ENVOLVENTE MAX	1.920	-287.970	87.560	71.040	1.121	-6.145	-12.371
N+3.15	C13	ENVOLVENTE MAX	2.240	-286.570	87.560	71.040	1.121	7.881	-1.869
N+3.15	C13	ENVOLVENTE MAX	2.560	-285.170	87.560	71.040	1.121	22.147	9.206
N+3.15	C13	ENVOLVENTE MAX	2.880	-283.770	87.560	71.040	1.121	36.431	20.310
N+3.15	C13	ENVOLVENTE MAX	3.200	-282.370	87.560	71.040	1.121	50.720	31.422
N+3.15	C13	ENVOLVENTE MIN	0.000	-655.430	-34.750	-44.670	-1.220	-92.264	-79.828
N+3.15	C13	ENVOLVENTE MIN	0.320	-653.560	-34.750	-44.670	-1.220	-77.972	-68.712
N+3.15	C13	ENVOLVENTE MIN	0.640	-651.690	-34.750	-44.670	-1.220	-63.682	-57.597
N+3.15	C13	ENVOLVENTE MIN	0.960	-649.830	-34.750	-44.670	-1.220	-49.428	-46.486
N+3.15	C13	ENVOLVENTE MIN	1.280	-647.960	-34.750	-44.670	-1.220	-36.311	-38.654
N+3.15	C13	ENVOLVENTE MIN	1.600	-646.100	-34.750	-44.670	-1.220	-23.237	-32.799
N+3.15	C13	ENVOLVENTE MIN	1.920	-644.230	-34.750	-44.670	-1.220	-18.659	-34.053
N+3.15	C13	ENVOLVENTE MIN	2.240	-642.360	-34.750	-44.670	-1.220	-41.124	-59.167
N+3.15	C13	ENVOLVENTE MIN	2.560	-640.500	-34.750	-44.670	-1.220	-63.829	-87.142
N+3.15	C13	ENVOLVENTE MIN	2.880	-638.630	-34.750	-44.670	-1.220	-86.551	-115.146
N+3.15	C13	ENVOLVENTE MIN	3.200	-636.760	-34.750	-44.670	-1.220	-109.279	-143.158
N+6.35	C14	ENVOLVENTE MAX	0.000	-20.470	26.700	18.550	0.903	23.226	26.210
N+6.35	C14	ENVOLVENTE MAX	0.320	-19.070	26.700	18.550	0.903	17.353	17.901
N+6.35	C14	ENVOLVENTE MAX	0.640	-17.670	26.700	18.550	0.903	11.541	10.246
N+6.35	C14	ENVOLVENTE MAX	0.960	-16.270	26.700	18.550	0.903	5.956	4.511
N+6.35	C14	ENVOLVENTE MAX	1.280	-14.870	26.700	18.550	0.903	3.620	3.121
N+6.35	C14	ENVOLVENTE MAX	1.600	-13.470	26.700	18.550	0.903	10.721	4.873
N+6.35	C14	ENVOLVENTE MAX	1.920	-12.070	26.700	18.550	0.903	19.363	7.446
N+6.35	C14	ENVOLVENTE MAX	2.240	-10.670	26.700	18.550	0.903	28.202	10.254
N+6.35	C14	ENVOLVENTE MAX	2.560	-9.270	26.700	18.550	0.903	37.097	13.153
N+6.35	C14	ENVOLVENTE MAX	2.880	-7.870	26.700	18.550	0.903	46.016	16.096
N+6.35	C14	ENVOLVENTE MAX	3.200	-6.470	26.700	18.550	0.903	54.946	19.064
N+6.35	C14	ENVOLVENTE MIN	0.000	-102.170	-9.460	-27.980	-1.139	-34.909	-12.133
N+6.35	C14	ENVOLVENTE MIN	0.320	-100.310	-9.460	-27.980	-1.139	-26.017	-9.341
N+6.35	C14	ENVOLVENTE MIN	0.640	-98.440	-9.460	-27.980	-1.139	-17.186	-7.203
N+6.35	C14	ENVOLVENTE MIN	0.960	-96.580	-9.460	-27.980	-1.139	-8.581	-6.984
N+6.35	C14	ENVOLVENTE MIN	1.280	-94.710	-9.460	-27.980	-1.139	-3.225	-11.111
N+6.35	C14	ENVOLVENTE MIN	1.600	-92.840	-9.460	-27.980	-1.139	-7.307	-18.381
N+6.35	C14	ENVOLVENTE MIN	1.920	-90.980	-9.460	-27.980	-1.139	-12.929	-26.470
N+6.35	C14	ENVOLVENTE MIN	2.240	-89.110	-9.460	-27.980	-1.139	-18.749	-34.795
N+6.35	C14	ENVOLVENTE MIN	2.560	-87.240	-9.460	-27.980	-1.139	-24.625	-43.210
N+6.35	C14	ENVOLVENTE MIN	2.880	-85.380	-9.460	-27.980	-1.139	-30.524	-51.671
N+6.35	C14	ENVOLVENTE MIN	3.200	-83.510	-9.460	-27.980	-1.139	-36.434	-60.156
N+3.15	C14	ENVOLVENTE MAX	0.000	6.640	44.910	50.180	1.121	97.219	92.179
N+3.15	C14	ENVOLVENTE MAX	0.320	8.040	44.910	50.180	1.121	81.168	77.816
N+3.15	C14	ENVOLVENTE MAX	0.640	9.440	44.910	50.180	1.121	65.119	63.664
N+3.15	C14	ENVOLVENTE MAX	0.960	10.840	44.910	50.180	1.121	49.075	49.701
N+3.15	C14	ENVOLVENTE MAX	1.280	12.240	44.910	50.180	1.121	33.043	35.752
N+3.15	C14	ENVOLVENTE MAX	1.600	13.640	44.910	50.180	1.121	17.053	21.851
N+3.15	C14	ENVOLVENTE MAX	1.920	15.040	44.910	50.180	1.121	2.003	8.426
N+3.15	C14	ENVOLVENTE MAX	2.240	16.440	44.910	50.180	1.121	14.763	13.977
N+3.15	C14	ENVOLVENTE MAX	2.560	17.840	44.910	50.180	1.121	30.980	28.844
N+3.15	C14	ENVOLVENTE MAX	2.880	19.240	44.910	50.180	1.121	47.276	43.863
N+3.15	C14	ENVOLVENTE MAX	3.200	20.640	44.910	50.180	1.121	63.639	58.910
N+3.15	C14	ENVOLVENTE MIN	0.000	-195.870	-47.100	-51.180	-1.220	-100.187	-91.917
N+3.15	C14	ENVOLVENTE MIN	0.320	-194.000	-47.100	-51.180	-1.220	-83.816	-76.852
N+3.15	C14	ENVOLVENTE MIN	0.640	-192.130	-47.100	-51.180	-1.220	-67.447	-61.998
N+3.15	C14	ENVOLVENTE MIN	0.960	-190.270	-47.100	-51.180	-1.220	-51.082	-47.333
N+3.15	C14	ENVOLVENTE MIN	1.280	-188.400	-47.100	-51.180	-1.220	-34.730	-32.683
N+3.15	C14	ENVOLVENTE MIN	1.600	-186.530	-47.100	-51.180	-1.220	-18.420	-18.080
N+3.15	C14	ENVOLVENTE MIN	1.920	-184.670	-47.100	-51.180	-1.220	-3.050	-3.953
N+3.15	C14	ENVOLVENTE MIN	2.240	-182.800	-47.100	-51.180	-1.220	-15.489	-8.803
N+3.15	C14	ENVOLVENTE MIN	2.560	-180.940	-47.100	-51.180	-1.220	-31.387	-22.968
N+3.15	C14	ENVOLVENTE MIN	2.880	-179.070	-47.100	-51.180	-1.220	-47.363	-37.285
N+3.15	C14	ENVOLVENTE MIN	3.200	-177.200	-47.100	-51.180	-1.220	-63.406	-51.631
N+6.35	C15	ENVOLVENTE MAX	0.000	-10.160	-8.890	42.740	0.903	58.077	-21.222
N+6.35	C15	ENVOLVENTE MAX	0.320	-8.760	-8.890	42.740	0.903	44.482	-16.951
N+6.35	C15	ENVOLVENTE MAX	0.640	-7.360	-8.890	42.740	0.903	30.965	-11.758
N+6.35	C15	ENVOLVENTE MAX	0.960	-5.960	-8.890	42.740	0.903	17.730	-5.629
N+6.35	C15	ENVOLVENTE MAX	1.280	-4.560	-8.890	42.740	0.903	7.988	1.257
N+6.35	C15	ENVOLVENTE MAX	1.600	-3.160	-8.890	42.740	0.903	12.756	8.670
N+6.35	C15	ENVOLVENTE MAX	1.920	-1.760	-8.890	42.740	0.903	20.793	16.409
N+6.35	C15	ENVOLVENTE MAX	2.240	-0.360	-8.890	42.740	0.903	29.955	24.345
N+6.35	C15	ENVOLVENTE MAX	2.560	1.040	-8.890	42.740	0.903	39.198	35.575
N+6.35	C15	ENVOLVENTE MAX	2.880	2.430	-8.890	42.740	0.903	48.474	48.003
N+6.35	C15	ENVOLVENTE MAX	3.200	3.830	-8.890	42.740	0.903	57.767	60.484
N+6.35	C15	ENVOLVENTE MIN	0.000	-105.270	-39.540	-29.140	-1.139	-35.912	-74.209
N+6.35	C15	ENVOLVENTE MIN	0.320	-103.400	-39.540	-29.140	-1.139	-26.667	-62.857
N+6.35	C15	ENVOLVENTE MIN	0.640	-101.530	-39.540	-29.140	-1.139	-17.501	-51.506
N+6.35	C15	ENVOLVENTE MIN	0.960	-99.670	-39.540	-29.140	-1.139	-8.617	-40.154
N+6.35	C15	ENVOLVENTE MIN	1.280	-97.800	-39.540	-29.140	-1.139	-3.226	-31.253
N+6.35	C15	ENVOLVENTE MIN	1.600	-95.940	-39.540	-29.140	-1.139	-12.345	-23.169
N+6.35	C15	ENVOLVENTE MIN	1.920	-94.070	-39.540	-29.140	-1.139	-24.732	-15.412
N+6.35	C15	ENVOLVENTE MIN	2.240	-92.200	-39.540	-29.140	-1.139	-38.245	-7.851
N+6.35	C15	ENVOLVENTE MIN	2.560	-90.340	-39.540	-29.140	-1.139	-51.839	-3.584
N+6.35	C15	ENVOLVENTE MIN	2.880	-88.470	-39.540	-29.140	-1.139	-65.466	-0.516
N+6.35	C15	ENVOLVENTE MIN	3.200	-86.600	-39.540	-29.140	-1.139	-79.110	2.500
N+3.15	C15	ENVOLVENTE MAX	0.000	-0.920	29.650	79.370	1.121	151.574	76.541
N+3.15	C15	ENVOLVENTE MAX	0.320	0.480	29.650	79.370	1.121	126.182	67.063
N+3.15	C15	ENVOLVENTE MAX	0.640	1.880	29.650	79.370	1.121	100.792	57.590
N+3.15	C15	ENVOLVENTE MAX	0.960	3.280	29.650	79.370	1.121	75.410	48.125
N+3.15	C15	ENVOLVENTE MAX	1.280	4.680	29.650	79.370	1.121	50.044	43.071
N+3.15	C15	ENVOLVENTE MAX	1.600	6.080	29.650	79.370	1.121	25.423	38.444

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+3.15	C15	ENVOLVENTE MAX	1.920	7.480	29.650	79.370	1.121	2.385	34.064
N+3.15	C15	ENVOLVENTE MAX	2.240	8.880	29.650	79.370	1.121	21.263	40.920
N+3.15	C15	ENVOLVENTE MAX	2.560	10.280	29.650	79.370	1.121	44.523	57.499
N+3.15	C15	ENVOLVENTE MAX	2.880	11.680	29.650	79.370	1.121	67.859	78.369
N+3.15	C15	ENVOLVENTE MAX	3.200	13.080	29.650	79.370	1.121	91.213	99.325
N+3.15	C15	ENVOLVENTE MIN	0.000	-308.540	-65.670	-73.040	-1.220	-142.592	-111.016
N+3.15	C15	ENVOLVENTE MIN	0.320	-306.670	-65.670	-73.040	-1.220	-119.227	-90.013
N+3.15	C15	ENVOLVENTE MIN	0.640	-304.810	-65.670	-73.040	-1.220	-95.865	-69.015
N+3.15	C15	ENVOLVENTE MIN	0.960	-302.940	-65.670	-73.040	-1.220	-72.510	-48.025
N+3.15	C15	ENVOLVENTE MIN	1.280	-301.070	-65.670	-73.040	-1.220	-49.171	-31.446
N+3.15	C15	ENVOLVENTE MIN	1.600	-299.210	-65.670	-73.040	-1.220	-26.577	-15.294
N+3.15	C15	ENVOLVENTE MIN	1.920	-297.340	-65.670	-73.040	-1.220	-5.567	0.611
N+3.15	C15	ENVOLVENTE MIN	2.240	-295.470	-65.670	-73.040	-1.220	-26.472	8.657
N+3.15	C15	ENVOLVENTE MIN	2.560	-293.610	-65.670	-73.040	-1.220	-51.760	0.226
N+3.15	C15	ENVOLVENTE MIN	2.880	-291.740	-65.670	-73.040	-1.220	-77.123	-9.119
N+3.15	C15	ENVOLVENTE MIN	3.200	-289.880	-65.670	-73.040	-1.220	-102.504	-18.551
N+6.35	C16	ENVOLVENTE MAX	0.000	-71.200	21.910	21.180	0.903	17.041	19.497
N+6.35	C16	ENVOLVENTE MAX	0.320	-69.800	21.910	21.180	0.903	10.286	12.547
N+6.35	C16	ENVOLVENTE MAX	0.640	-68.400	21.910	21.180	0.903	3.549	5.657
N+6.35	C16	ENVOLVENTE MAX	0.960	-67.000	21.910	21.180	0.903	-3.132	-1.013
N+6.35	C16	ENVOLVENTE MAX	1.280	-65.600	21.910	21.180	0.903	-9.390	-5.230
N+6.35	C16	ENVOLVENTE MAX	1.600	-64.200	21.910	21.180	0.903	-0.159	-0.170
N+6.35	C16	ENVOLVENTE MAX	1.920	-62.800	21.910	21.180	0.903	18.982	7.193
N+6.35	C16	ENVOLVENTE MAX	2.240	-61.400	21.910	21.180	0.903	40.542	14.781
N+6.35	C16	ENVOLVENTE MAX	2.560	-60.000	21.910	21.180	0.903	62.738	22.429
N+6.35	C16	ENVOLVENTE MAX	2.880	-58.600	21.910	21.180	0.903	84.948	30.103
N+6.35	C16	ENVOLVENTE MAX	3.200	-57.200	21.910	21.180	0.903	107.165	37.788
N+6.35	C16	ENVOLVENTE MIN	0.000	-153.160	-24.220	-69.470	-1.139	-115.263	-42.703
N+6.35	C16	ENVOLVENTE MIN	0.320	-151.300	-24.220	-69.470	-1.139	-93.055	-35.016
N+6.35	C16	ENVOLVENTE MIN	0.640	-149.430	-24.220	-69.470	-1.139	-70.865	-27.388
N+6.35	C16	ENVOLVENTE MIN	0.960	-147.570	-24.220	-69.470	-1.139	-48.731	-19.981
N+6.35	C16	ENVOLVENTE MIN	1.280	-145.700	-24.220	-69.470	-1.139	-27.020	-15.027
N+6.35	C16	ENVOLVENTE MIN	1.600	-143.830	-24.220	-69.470	-1.139	-20.798	-19.350
N+6.35	C16	ENVOLVENTE MIN	1.920	-141.970	-24.220	-69.470	-1.139	-24.486	-25.976
N+6.35	C16	ENVOLVENTE MIN	2.240	-140.100	-24.220	-69.470	-1.139	-30.593	-32.827
N+6.35	C16	ENVOLVENTE MIN	2.560	-138.230	-24.220	-69.470	-1.139	-37.336	-39.738
N+6.35	C16	ENVOLVENTE MIN	2.880	-136.370	-24.220	-69.470	-1.139	-44.093	-46.674
N+6.35	C16	ENVOLVENTE MIN	3.200	-134.500	-24.220	-69.470	-1.139	-50.857	-53.623
N+3.15	C16	ENVOLVENTE MAX	0.000	-243.600	42.400	55.630	1.121	117.767	89.782
N+3.15	C16	ENVOLVENTE MAX	0.320	-242.210	42.400	55.630	1.121	99.969	76.218
N+3.15	C16	ENVOLVENTE MAX	0.640	-240.810	42.400	55.630	1.121	82.173	62.657
N+3.15	C16	ENVOLVENTE MAX	0.960	-239.410	42.400	55.630	1.121	64.381	49.694
N+3.15	C16	ENVOLVENTE MAX	1.280	-238.010	42.400	55.630	1.121	48.923	36.853
N+3.15	C16	ENVOLVENTE MAX	1.600	-236.610	42.400	55.630	1.121	33.751	24.061
N+3.15	C16	ENVOLVENTE MAX	1.920	-235.210	42.400	55.630	1.121	29.381	12.879
N+3.15	C16	ENVOLVENTE MAX	2.240	-233.810	42.400	55.630	1.121	60.687	29.189
N+3.15	C16	ENVOLVENTE MAX	2.560	-232.410	42.400	55.630	1.121	92.303	48.246
N+3.15	C16	ENVOLVENTE MAX	2.880	-231.010	42.400	55.630	1.121	123.943	67.358
N+3.15	C16	ENVOLVENTE MAX	3.200	-229.610	42.400	55.630	1.121	155.590	86.483
N+3.15	C16	ENVOLVENTE MIN	0.000	-591.810	-59.810	-98.920	-1.220	-160.994	-104.973
N+3.15	C16	ENVOLVENTE MIN	0.320	-589.950	-59.810	-98.920	-1.220	-129.343	-85.839
N+3.15	C16	ENVOLVENTE MIN	0.640	-588.080	-59.810	-98.920	-1.220	-97.695	-66.708
N+3.15	C16	ENVOLVENTE MIN	0.960	-586.210	-59.810	-98.920	-1.220	-66.050	-48.174
N+3.15	C16	ENVOLVENTE MIN	1.280	-584.350	-59.810	-98.920	-1.220	-36.741	-29.763
N+3.15	C16	ENVOLVENTE MIN	1.600	-582.480	-59.810	-98.920	-1.220	-7.717	-11.400
N+3.15	C16	ENVOLVENTE MIN	1.920	-580.620	-59.810	-98.920	-1.220	10.506	5.352
N+3.15	C16	ENVOLVENTE MIN	2.240	-578.750	-59.810	-98.920	-1.220	-6.948	-5.388
N+3.15	C16	ENVOLVENTE MIN	2.560	-576.880	-59.810	-98.920	-1.220	-24.712	-18.874
N+3.15	C16	ENVOLVENTE MIN	2.880	-575.020	-59.810	-98.920	-1.220	-42.500	-32.416
N+3.15	C16	ENVOLVENTE MIN	3.200	-573.150	-59.810	-98.920	-1.220	-60.295	-45.972
N+6.35	C17	ENVOLVENTE MAX	0.000	-80.940	22.700	3.190	0.903	-13.327	33.268
N+6.35	C17	ENVOLVENTE MAX	0.320	-79.540	22.700	3.190	0.903	-14.330	26.514
N+6.35	C17	ENVOLVENTE MAX	0.640	-78.140	22.700	3.190	0.903	-15.319	19.811
N+6.35	C17	ENVOLVENTE MAX	0.960	-76.740	22.700	3.190	0.903	-16.263	13.295
N+6.35	C17	ENVOLVENTE MAX	1.280	-75.340	22.700	3.190	0.903	-16.886	8.811
N+6.35	C17	ENVOLVENTE MAX	1.600	-73.940	22.700	3.190	0.903	-4.051	14.897
N+6.35	C17	ENVOLVENTE MAX	1.920	-72.540	22.700	3.190	0.903	21.844	23.246
N+6.35	C17	ENVOLVENTE MAX	2.240	-71.140	22.700	3.190	0.903	51.421	31.807
N+6.35	C17	ENVOLVENTE MAX	2.560	-69.740	22.700	3.190	0.903	81.036	40.424
N+6.35	C17	ENVOLVENTE MAX	2.880	-68.340	22.700	3.190	0.903	110.664	49.064
N+6.35	C17	ENVOLVENTE MAX	3.200	-66.940	22.700	3.190	0.903	140.298	57.714
N+6.35	C17	ENVOLVENTE MIN	0.000	-163.540	-27.100	-92.640	-1.139	-156.262	-29.846
N+6.35	C17	ENVOLVENTE MIN	0.320	-161.670	-27.100	-92.640	-1.139	-126.635	-21.683
N+6.35	C17	ENVOLVENTE MIN	0.640	-159.810	-27.100	-92.640	-1.139	-97.023	-13.573
N+6.35	C17	ENVOLVENTE MIN	0.960	-157.940	-27.100	-92.640	-1.139	-67.456	-5.649
N+6.35	C17	ENVOLVENTE MIN	1.280	-156.080	-27.100	-92.640	-1.139	-38.210	0.243
N+6.35	C17	ENVOLVENTE MIN	1.600	-154.210	-27.100	-92.640	-1.139	-22.422	-4.435
N+6.35	C17	ENVOLVENTE MIN	1.920	-152.340	-27.100	-92.640	-1.139	-19.694	-11.376
N+6.35	C17	ENVOLVENTE MIN	2.240	-150.480	-27.100	-92.640	-1.139	-20.648	-18.529
N+6.35	C17	ENVOLVENTE MIN	2.560	-148.610	-27.100	-92.640	-1.139	-21.639	-25.738
N+6.35	C17	ENVOLVENTE MIN	2.880	-146.740	-27.100	-92.640	-1.139	-22.644	-32.970
N+6.35	C17	ENVOLVENTE MIN	3.200	-144.880	-27.100	-92.640	-1.139	-23.655	-40.213
N+3.15	C17	ENVOLVENTE MAX	0.000	-309.520	55.680	38.870	1.121	93.818	104.304
N+3.15	C17	ENVOLVENTE MAX	0.320	-308.120	55.680	38.870	1.121	81.383	86.491
N+3.15	C17	ENVOLVENTE MAX	0.640	-306.720	55.680	38.870	1.121	68.951	68.681
N+3.15	C17	ENVOLVENTE MAX	0.960	-305.320	55.680	38.870	1.121	56.522	50.875
N+3.15	C17	ENVOLVENTE MAX	1.280	-303.920	55.680	38.870	1.121	47.827	33.080
N+3.15	C17	ENVOLVENTE MAX	1.600	-302.520	55.680	38.870	1.121	40.029	15.822
N+3.15	C17	ENVOLVENTE MAX	1.920	-301.120	55.680	38.870	1.121	42.780	0.436
N+3.15	C17	ENVOLVENTE MAX	2.240	-299.720	55.680	38.870	1.121	76.874	13.631
N+3.15	C17	ENVOLVENTE MAX	2.560	-298.320	55.680	38.870	1.121	111.214	28.775
N+3.15	C17	ENVOLVENTE MAX	2.880	-296.920	55.680	38.870	1.121	145.574	43.965

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+3.15	C17	ENVOLVENTE MAX	3.200	-295.520	55.680	38.870	1.121	179.941	59.166
N+3.15	C17	ENVOLVENTE MIN	0.000	-696.440	-47.540	-107.420	-1.220	-163.825	-93.022
N+3.15	C17	ENVOLVENTE MIN	0.320	-694.580	-47.540	-107.420	-1.220	-129.456	-77.814
N+3.15	C17	ENVOLVENTE MIN	0.640	-692.710	-47.540	-107.420	-1.220	-95.088	-62.608
N+3.15	C17	ENVOLVENTE MIN	0.960	-690.850	-47.540	-107.420	-1.220	-60.724	-47.406
N+3.15	C17	ENVOLVENTE MIN	1.280	-688.980	-47.540	-107.420	-1.220	-30.095	-32.216
N+3.15	C17	ENVOLVENTE MIN	1.600	-687.110	-47.540	-107.420	-1.220	-0.361	-17.561
N+3.15	C17	ENVOLVENTE MIN	1.920	-685.250	-47.540	-107.420	-1.220	18.823	-4.780
N+3.15	C17	ENVOLVENTE MIN	2.240	-683.380	-47.540	-107.420	-1.220	6.664	-20.580
N+3.15	C17	ENVOLVENTE MIN	2.560	-681.510	-47.540	-107.420	-1.220	-5.741	-38.327
N+3.15	C17	ENVOLVENTE MIN	2.880	-679.650	-47.540	-107.420	-1.220	-18.167	-56.121
N+3.15	C17	ENVOLVENTE MIN	3.200	-677.780	-47.540	-107.420	-1.220	-30.598	-73.927
N+6.35	C18	ENVOLVENTE MAX	0.000	-80.660	30.340	2.760	0.903	-11.639	35.388
N+6.35	C18	ENVOLVENTE MAX	0.320	-79.260	30.340	2.760	0.903	-12.504	25.736
N+6.35	C18	ENVOLVENTE MAX	0.640	-77.860	30.340	2.760	0.903	-13.354	16.137
N+6.35	C18	ENVOLVENTE MAX	0.960	-76.460	30.340	2.760	0.903	-14.159	7.207
N+6.35	C18	ENVOLVENTE MAX	1.280	-75.060	30.340	2.760	0.903	-14.635	0.991
N+6.35	C18	ENVOLVENTE MAX	1.600	-73.670	30.340	2.760	0.903	-3.220	5.100
N+6.35	C18	ENVOLVENTE MAX	1.920	-72.270	30.340	2.760	0.903	20.240	11.384
N+6.35	C18	ENVOLVENTE MAX	2.240	-70.870	30.340	2.760	0.903	45.629	17.880
N+6.35	C18	ENVOLVENTE MAX	2.560	-69.470	30.340	2.760	0.903	71.054	24.432
N+6.35	C18	ENVOLVENTE MAX	2.880	-68.070	30.340	2.760	0.903	96.491	31.008
N+6.35	C18	ENVOLVENTE MAX	3.200	-66.670	30.340	2.760	0.903	121.934	37.595
N+6.35	C18	ENVOLVENTE MIN	0.000	-155.970	-20.660	-79.540	-1.139	-132.707	-28.794
N+6.35	C18	ENVOLVENTE MIN	0.320	-154.100	-20.660	-79.540	-1.139	-107.272	-22.240
N+6.35	C18	ENVOLVENTE MIN	0.640	-152.240	-20.660	-79.540	-1.139	-81.850	-15.740
N+6.35	C18	ENVOLVENTE MIN	0.960	-150.370	-20.660	-79.540	-1.139	-56.474	-9.909
N+6.35	C18	ENVOLVENTE MIN	1.280	-148.510	-20.660	-79.540	-1.139	-31.427	-6.792
N+6.35	C18	ENVOLVENTE MIN	1.600	-146.640	-20.660	-79.540	-1.139	-18.270	-14.000
N+6.35	C18	ENVOLVENTE MIN	1.920	-144.770	-20.660	-79.540	-1.139	-17.159	-23.382
N+6.35	C18	ENVOLVENTE MIN	2.240	-142.910	-20.660	-79.540	-1.139	-17.977	-32.977
N+6.35	C18	ENVOLVENTE MIN	2.560	-141.040	-20.660	-79.540	-1.139	-18.830	-42.628
N+6.35	C18	ENVOLVENTE MIN	2.880	-139.170	-20.660	-79.540	-1.139	-19.696	-52.302
N+6.35	C18	ENVOLVENTE MIN	3.200	-137.310	-20.660	-79.540	-1.139	-20.568	-61.988
N+3.15	C18	ENVOLVENTE MAX	0.000	-312.790	49.410	33.950	1.121	81.714	97.603
N+3.15	C18	ENVOLVENTE MAX	0.320	-311.390	49.410	33.950	1.121	70.852	81.859
N+3.15	C18	ENVOLVENTE MAX	0.640	-309.990	49.410	33.950	1.121	59.991	66.118
N+3.15	C18	ENVOLVENTE MAX	0.960	-308.590	49.410	33.950	1.121	49.134	50.381
N+3.15	C18	ENVOLVENTE MAX	1.280	-307.190	49.410	33.950	1.121	40.962	34.656
N+3.15	C18	ENVOLVENTE MAX	1.600	-305.790	49.410	33.950	1.121	33.544	18.976
N+3.15	C18	ENVOLVENTE MAX	1.920	-304.390	49.410	33.950	1.121	35.081	4.845
N+3.15	C18	ENVOLVENTE MAX	2.240	-302.990	49.410	33.950	1.121	64.093	19.051
N+3.15	C18	ENVOLVENTE MAX	2.560	-301.590	49.410	33.950	1.121	93.348	35.430
N+3.15	C18	ENVOLVENTE MAX	2.880	-300.190	49.410	33.950	1.121	122.622	51.857
N+3.15	C18	ENVOLVENTE MAX	3.200	-298.790	49.410	33.950	1.121	151.903	68.296
N+3.15	C18	ENVOLVENTE MIN	0.000	-690.900	-51.410	-91.520	-1.220	-141.001	-96.821
N+3.15	C18	ENVOLVENTE MIN	0.320	-689.030	-51.410	-91.520	-1.220	-111.717	-80.439
N+3.15	C18	ENVOLVENTE MIN	0.640	-687.160	-51.410	-91.520	-1.220	-82.435	-64.060
N+3.15	C18	ENVOLVENTE MIN	0.960	-685.300	-51.410	-91.520	-1.220	-53.157	-47.686
N+3.15	C18	ENVOLVENTE MIN	1.280	-683.430	-51.410	-91.520	-1.220	-26.563	-31.323
N+3.15	C18	ENVOLVENTE MIN	1.600	-681.570	-51.410	-91.520	-1.220	-0.724	-15.005
N+3.15	C18	ENVOLVENTE MIN	1.920	-679.700	-51.410	-91.520	-1.220	16.160	-0.235
N+3.15	C18	ENVOLVENTE MIN	2.240	-677.830	-51.410	-91.520	-1.220	5.571	-13.804
N+3.15	C18	ENVOLVENTE MIN	2.560	-675.970	-51.410	-91.520	-1.220	-5.263	-29.545
N+3.15	C18	ENVOLVENTE MIN	2.880	-674.100	-51.410	-91.520	-1.220	-16.116	-45.334
N+3.15	C18	ENVOLVENTE MIN	3.200	-672.230	-51.410	-91.520	-1.220	-26.975	-61.135
N+6.35	C19	ENVOLVENTE MAX	0.000	-74.080	24.130	-0.900	0.903	-23.909	30.564
N+6.35	C19	ENVOLVENTE MAX	0.320	-72.680	24.130	-0.900	0.903	-23.605	22.893
N+6.35	C19	ENVOLVENTE MAX	0.640	-71.280	24.130	-0.900	0.903	-23.288	15.268
N+6.35	C19	ENVOLVENTE MAX	0.960	-69.880	24.130	-0.900	0.903	-22.929	7.810
N+6.35	C19	ENVOLVENTE MAX	1.280	-68.480	24.130	-0.900	0.903	-22.269	2.102
N+6.35	C19	ENVOLVENTE MAX	1.600	-67.080	24.130	-0.900	0.903	-10.428	6.994
N+6.35	C19	ENVOLVENTE MAX	1.920	-65.680	24.130	-0.900	0.903	9.470	14.437
N+6.35	C19	ENVOLVENTE MAX	2.240	-64.280	24.130	-0.900	0.903	34.169	22.098
N+6.35	C19	ENVOLVENTE MAX	2.560	-62.880	24.130	-0.900	0.903	60.706	29.814
N+6.35	C19	ENVOLVENTE MAX	2.880	-61.480	24.130	-0.900	0.903	87.254	37.553
N+6.35	C19	ENVOLVENTE MAX	3.200	-60.080	24.130	-0.900	0.903	113.808	45.302
N+6.35	C19	ENVOLVENTE MIN	0.000	-151.720	-24.660	-83.010	-1.139	-151.929	-33.961
N+6.35	C19	ENVOLVENTE MIN	0.320	-149.860	-24.660	-83.010	-1.139	-125.382	-26.119
N+6.35	C19	ENVOLVENTE MIN	0.640	-147.990	-24.660	-83.010	-1.139	-98.849	-18.324
N+6.35	C19	ENVOLVENTE MIN	0.960	-146.120	-24.660	-83.010	-1.139	-72.357	-10.695
N+6.35	C19	ENVOLVENTE MIN	1.280	-144.260	-24.660	-83.010	-1.139	-46.165	-4.817
N+6.35	C19	ENVOLVENTE MIN	1.600	-142.390	-24.660	-83.010	-1.139	-31.156	-9.538
N+6.35	C19	ENVOLVENTE MIN	1.920	-140.520	-24.660	-83.010	-1.139	-24.203	-16.810
N+6.35	C19	ENVOLVENTE MIN	2.240	-138.660	-24.660	-83.010	-1.139	-22.051	-24.301
N+6.35	C19	ENVOLVENTE MIN	2.560	-136.790	-24.660	-83.010	-1.139	-21.736	-31.846
N+6.35	C19	ENVOLVENTE MIN	2.880	-134.930	-24.660	-83.010	-1.139	-21.434	-39.415
N+6.35	C19	ENVOLVENTE MIN	3.200	-133.060	-24.660	-83.010	-1.139	-21.136	-46.994
N+3.15	C19	ENVOLVENTE MAX	0.000	-321.570	50.260	24.480	1.121	69.600	98.296
N+3.15	C19	ENVOLVENTE MAX	0.320	-320.170	50.260	24.480	1.121	61.770	82.339
N+3.15	C19	ENVOLVENTE MAX	0.640	-318.770	50.260	24.480	1.121	53.942	66.383
N+3.15	C19	ENVOLVENTE MAX	0.960	-317.370	50.260	24.480	1.121	46.117	50.433
N+3.15	C19	ENVOLVENTE MAX	1.280	-315.970	50.260	24.480	1.121	42.562	34.493
N+3.15	C19	ENVOLVENTE MAX	1.600	-314.570	50.260	24.480	1.121	40.433	18.598
N+3.15	C19	ENVOLVENTE MAX	1.920	-313.170	50.260	24.480	1.121	47.062	4.599
N+3.15	C19	ENVOLVENTE MAX	2.240	-311.770	50.260	24.480	1.121	79.837	19.417
N+3.15	C19	ENVOLVENTE MAX	2.560	-310.370	50.260	24.480	1.121	112.836	35.903
N+3.15	C19	ENVOLVENTE MAX	2.880	-308.970	50.260	24.480	1.121	145.853	52.433
N+3.15	C19	ENVOLVENTE MAX	3.200	-307.570	50.260	24.480	1.121	178.876	68.973
N+3.15	C19	ENVOLVENTE MIN	0.000	-717.230	-51.720	-103.210	-1.220	-151.443	-96.966
N+3.15	C19	ENVOLVENTE MIN	0.320	-715.370	-51.720	-103.210	-1.220	-118.417	-80.540
N+3.15	C19	ENVOLVENTE MIN	0.640	-713.500	-51.720	-103.210	-1.220	-85.393	-64.116

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+3.15	C19	ENVOLVENTE MIN	0.960	-711.640	-51.720	-103.210	-1.220	-52.373	-47.696
N+3.15	C19	ENVOLVENTE MIN	1.280	-709.770	-51.720	-103.210	-1.220	-23.623	-31.288
N+3.15	C19	ENVOLVENTE MIN	1.600	-707.900	-51.720	-103.210	-1.220	3.702	-14.925
N+3.15	C19	ENVOLVENTE MIN	1.920	-706.040	-51.720	-103.210	-1.220	22.268	-0.457
N+3.15	C19	ENVOLVENTE MIN	2.240	-704.170	-51.720	-103.210	-1.220	14.689	-14.806
N+3.15	C19	ENVOLVENTE MIN	2.560	-702.300	-51.720	-103.210	-1.220	6.885	-30.824
N+3.15	C19	ENVOLVENTE MIN	2.880	-700.440	-51.720	-103.210	-1.220	-0.936	-46.885
N+3.15	C19	ENVOLVENTE MIN	3.200	-698.570	-51.720	-103.210	-1.220	-8.763	-62.956
N+6.35	C20	ENVOLVENTE MAX	0.000	-72.450	42.230	8.700	0.903	-2.115	73.336
N+6.35	C20	ENVOLVENTE MAX	0.320	-71.050	42.230	8.700	0.903	-4.882	59.886
N+6.35	C20	ENVOLVENTE MAX	0.640	-69.660	42.230	8.700	0.903	-7.635	46.497
N+6.35	C20	ENVOLVENTE MAX	0.960	-68.260	42.230	8.700	0.903	-10.346	33.333
N+6.35	C20	ENVOLVENTE MAX	1.280	-66.860	42.230	8.700	0.903	-12.747	22.486
N+6.35	C20	ENVOLVENTE MAX	1.600	-65.460	42.230	8.700	0.903	-3.655	21.356
N+6.35	C20	ENVOLVENTE MAX	1.920	-64.060	42.230	8.700	0.903	13.014	22.380
N+6.35	C20	ENVOLVENTE MAX	2.240	-62.660	42.230	8.700	0.903	32.473	23.626
N+6.35	C20	ENVOLVENTE MAX	2.560	-61.260	42.230	8.700	0.903	52.745	27.089
N+6.35	C20	ENVOLVENTE MAX	2.880	-59.860	42.230	8.700	0.903	73.029	30.928
N+6.35	C20	ENVOLVENTE MAX	3.200	-58.460	42.230	8.700	0.903	93.318	34.780
N+6.35	C20	ENVOLVENTE MIN	0.000	-142.740	-12.120	-63.430	-1.139	-109.772	-4.309
N+6.35	C20	ENVOLVENTE MIN	0.320	-140.880	-12.120	-63.430	-1.139	-89.490	-0.496
N+6.35	C20	ENVOLVENTE MIN	0.640	-139.010	-12.120	-63.430	-1.139	-69.221	3.256
N+6.35	C20	ENVOLVENTE MIN	0.960	-137.150	-12.120	-63.430	-1.139	-48.995	6.783
N+6.35	C20	ENVOLVENTE MIN	1.280	-135.280	-12.120	-63.430	-1.139	-29.079	7.993
N+6.35	C20	ENVOLVENTE MIN	1.600	-133.410	-12.120	-63.430	-1.139	-20.655	-0.514
N+6.35	C20	ENVOLVENTE MIN	1.920	-131.550	-12.120	-63.430	-1.139	-19.809	-11.175
N+6.35	C20	ENVOLVENTE MIN	2.240	-129.680	-12.120	-63.430	-1.139	-21.753	-22.058
N+6.35	C20	ENVOLVENTE MIN	2.560	-127.820	-12.120	-63.430	-1.139	-24.510	-35.158
N+6.35	C20	ENVOLVENTE MIN	2.880	-125.950	-12.120	-63.430	-1.139	-27.278	-48.634
N+6.35	C20	ENVOLVENTE MIN	3.200	-124.080	-12.120	-63.430	-1.139	-30.052	-62.123
N+3.15	C20	ENVOLVENTE MAX	0.000	-247.380	71.890	35.560	1.121	81.231	121.104
N+3.15	C20	ENVOLVENTE MAX	0.320	-245.980	71.890	35.560	1.121	69.856	98.103
N+3.15	C20	ENVOLVENTE MAX	0.640	-244.580	71.890	35.560	1.121	58.483	75.105
N+3.15	C20	ENVOLVENTE MAX	0.960	-243.180	71.890	35.560	1.121	47.113	52.112
N+3.15	C20	ENVOLVENTE MAX	1.280	-241.790	71.890	35.560	1.121	37.820	30.586
N+3.15	C20	ENVOLVENTE MAX	1.600	-240.390	71.890	35.560	1.121	29.445	10.560
N+3.15	C20	ENVOLVENTE MAX	1.920	-238.990	71.890	35.560	1.121	29.450	-8.026
N+3.15	C20	ENVOLVENTE MAX	2.240	-237.590	71.890	35.560	1.121	56.123	1.308
N+3.15	C20	ENVOLVENTE MAX	2.560	-236.190	71.890	35.560	1.121	83.026	13.163
N+3.15	C20	ENVOLVENTE MAX	2.880	-234.790	71.890	35.560	1.121	109.947	25.071
N+3.15	C20	ENVOLVENTE MAX	3.200	-233.390	71.890	35.560	1.121	136.873	36.991
N+3.15	C20	ENVOLVENTE MIN	0.000	-556.190	-37.290	-84.160	-1.220	-132.483	-82.398
N+3.15	C20	ENVOLVENTE MIN	0.320	-554.320	-37.290	-84.160	-1.220	-105.553	-70.470
N+3.15	C20	ENVOLVENTE MIN	0.640	-552.460	-37.290	-84.160	-1.220	-78.625	-58.545
N+3.15	C20	ENVOLVENTE MIN	0.960	-550.590	-37.290	-84.160	-1.220	-51.701	-46.624
N+3.15	C20	ENVOLVENTE MIN	1.280	-548.720	-37.290	-84.160	-1.220	-26.853	-36.171
N+3.15	C20	ENVOLVENTE MIN	1.600	-546.860	-37.290	-84.160	-1.220	-2.923	-27.218
N+3.15	C20	ENVOLVENTE MIN	1.920	-544.990	-37.290	-84.160	-1.220	12.627	-19.824
N+3.15	C20	ENVOLVENTE MIN	2.240	-543.120	-37.290	-84.160	-1.220	1.508	-40.112
N+3.15	C20	ENVOLVENTE MIN	2.560	-541.260	-37.290	-84.160	-1.220	-9.840	-63.040
N+3.15	C20	ENVOLVENTE MIN	2.880	-539.390	-37.290	-84.160	-1.220	-21.207	-86.020
N+3.15	C20	ENVOLVENTE MIN	3.200	-537.530	-37.290	-84.160	-1.220	-32.579	-109.013
N+6.35	C21	ENVOLVENTE MAX	0.000	-42.170	39.040	33.850	0.903	52.642	64.714
N+6.35	C21	ENVOLVENTE MAX	0.320	-40.770	39.040	33.850	0.903	41.878	52.250
N+6.35	C21	ENVOLVENTE MAX	0.640	-39.370	39.040	33.850	0.903	31.180	39.812
N+6.35	C21	ENVOLVENTE MAX	0.960	-37.970	39.040	33.850	0.903	20.716	27.462
N+6.35	C21	ENVOLVENTE MAX	1.280	-36.570	39.040	33.850	0.903	13.109	16.161
N+6.35	C21	ENVOLVENTE MAX	1.600	-35.170	39.040	33.850	0.903	13.948	17.238
N+6.35	C21	ENVOLVENTE MAX	1.920	-33.770	39.040	33.850	0.903	16.480	22.473
N+6.35	C21	ENVOLVENTE MAX	2.240	-32.370	39.040	33.850	0.903	19.893	27.895
N+6.35	C21	ENVOLVENTE MAX	2.560	-30.970	39.040	33.850	0.903	24.788	33.360
N+6.35	C21	ENVOLVENTE MAX	2.880	-29.570	39.040	33.850	0.903	29.709	39.892
N+6.35	C21	ENVOLVENTE MAX	3.200	-28.170	39.040	33.850	0.903	34.643	47.042
N+6.35	C21	ENVOLVENTE MIN	0.000	-122.210	-22.390	-15.500	-1.139	-15.311	-24.757
N+6.35	C21	ENVOLVENTE MIN	0.320	-120.340	-22.390	-15.500	-1.139	-10.417	-17.623
N+6.35	C21	ENVOLVENTE MIN	0.640	-118.470	-22.390	-15.500	-1.139	-5.588	-10.515
N+6.35	C21	ENVOLVENTE MIN	0.960	-116.610	-22.390	-15.500	-1.139	-0.994	-3.495
N+6.35	C21	ENVOLVENTE MIN	1.280	-114.740	-22.390	-15.500	-1.139	0.743	2.592
N+6.35	C21	ENVOLVENTE MIN	1.600	-112.880	-22.390	-15.500	-1.139	-5.967	-3.931
N+6.35	C21	ENVOLVENTE MIN	1.920	-111.010	-22.390	-15.500	-1.139	-14.368	-14.495
N+6.35	C21	ENVOLVENTE MIN	2.240	-109.140	-22.390	-15.500	-1.139	-23.651	-25.248
N+6.35	C21	ENVOLVENTE MIN	2.560	-107.280	-22.390	-15.500	-1.139	-34.415	-36.042
N+6.35	C21	ENVOLVENTE MIN	2.880	-105.410	-22.390	-15.500	-1.139	-45.207	-47.904
N+6.35	C21	ENVOLVENTE MIN	3.200	-103.540	-22.390	-15.500	-1.139	-56.011	-60.383
N+3.15	C21	ENVOLVENTE MAX	0.000	-110.820	67.430	61.290	1.121	107.974	116.484
N+3.15	C21	ENVOLVENTE MAX	0.320	-109.420	67.430	61.290	1.121	88.367	94.910
N+3.15	C21	ENVOLVENTE MAX	0.640	-108.020	67.430	61.290	1.121	68.762	73.339
N+3.15	C21	ENVOLVENTE MAX	0.960	-106.620	67.430	61.290	1.121	49.162	51.772
N+3.15	C21	ENVOLVENTE MAX	1.280	-105.220	67.430	61.290	1.121	31.397	31.399
N+3.15	C21	ENVOLVENTE MAX	1.600	-103.820	67.430	61.290	1.121	13.839	12.441
N+3.15	C21	ENVOLVENTE MAX	1.920	-102.420	67.430	61.290	1.121	-2.776	-2.088
N+3.15	C21	ENVOLVENTE MAX	2.240	-101.020	67.430	61.290	1.121	7.787	12.018
N+3.15	C21	ENVOLVENTE MAX	2.560	-99.620	67.430	61.290	1.121	21.943	26.768
N+3.15	C21	ENVOLVENTE MAX	2.880	-98.220	67.430	61.290	1.121	36.155	41.547
N+3.15	C21	ENVOLVENTE MAX	3.200	-96.820	67.430	61.290	1.121	50.382	56.335
N+3.15	C21	ENVOLVENTE MIN	0.000	-388.960	-46.240	-44.500	-1.220	-92.074	-91.677
N+3.15	C21	ENVOLVENTE MIN	0.320	-387.090	-46.240	-44.500	-1.220	-77.839	-76.884
N+3.15	C21	ENVOLVENTE MIN	0.640	-385.220	-46.240	-44.500	-1.220	-63.607	-62.094
N+3.15	C21	ENVOLVENTE MIN	0.960	-383.360	-46.240	-44.500	-1.220	-49.380	-47.307
N+3.15	C21	ENVOLVENTE MIN	1.280	-381.490	-46.240	-44.500	-1.220	-36.989	-33.715
N+3.15	C21	ENVOLVENTE MIN	1.600	-379.630	-46.240	-44.500	-1.220	-24.804	-21.538
N+3.15	C21	ENVOLVENTE MIN	1.920	-377.760	-46.240	-44.500	-1.220	-13.561	-13.897

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+3.15	C21	ENVOLVENTE MIN	2.240	-375.890	-46.240	-44.500	-1.220	-29.498	-34.676
N+3.15	C21	ENVOLVENTE MIN	2.560	-374.030	-46.240	-44.500	-1.220	-49.026	-56.207
N+3.15	C21	ENVOLVENTE MIN	2.880	-372.160	-46.240	-44.500	-1.220	-68.612	-77.767
N+3.15	C21	ENVOLVENTE MIN	3.200	-370.290	-46.240	-44.500	-1.220	-88.211	-99.336
N+6.35	C22	ENVOLVENTE MAX	0.000	-16.000	27.050	24.290	0.903	29.526	29.055
N+6.35	C22	ENVOLVENTE MAX	0.320	-14.600	27.050	24.290	0.903	21.820	20.626
N+6.35	C22	ENVOLVENTE MAX	0.640	-13.200	27.050	24.290	0.903	14.182	12.456
N+6.35	C22	ENVOLVENTE MAX	0.960	-11.800	27.050	24.290	0.903	6.791	5.906
N+6.35	C22	ENVOLVENTE MAX	1.280	-10.400	27.050	24.290	0.903	2.835	4.410
N+6.35	C22	ENVOLVENTE MAX	1.600	-9.000	27.050	24.290	0.903	7.614	6.151
N+6.35	C22	ENVOLVENTE MAX	1.920	-7.600	27.050	24.290	0.903	13.870	8.699
N+6.35	C22	ENVOLVENTE MAX	2.240	-6.200	27.050	24.290	0.903	20.328	11.476
N+6.35	C22	ENVOLVENTE MAX	2.560	-4.800	27.050	24.290	0.903	26.846	14.342
N+6.35	C22	ENVOLVENTE MAX	2.880	-3.400	27.050	24.290	0.903	33.388	17.252
N+6.35	C22	ENVOLVENTE MAX	3.200	-2.000	27.050	24.290	0.903	39.943	20.185
N+6.35	C22	ENVOLVENTE MIN	0.000	-95.960	-9.340	-20.560	-1.139	-26.194	-10.623
N+6.35	C22	ENVOLVENTE MIN	0.320	-94.100	-9.340	-20.560	-1.139	-19.681	-7.861
N+6.35	C22	ENVOLVENTE MIN	0.640	-92.230	-9.340	-20.560	-1.139	-13.234	-5.359
N+6.35	C22	ENVOLVENTE MIN	0.960	-90.370	-9.340	-20.560	-1.139	-7.036	-4.476
N+6.35	C22	ENVOLVENTE MIN	1.280	-88.500	-9.340	-20.560	-1.139	-4.272	-8.647
N+6.35	C22	ENVOLVENTE MIN	1.600	-86.630	-9.340	-20.560	-1.139	-10.243	-16.055
N+6.35	C22	ENVOLVENTE MIN	1.920	-84.770	-9.340	-20.560	-1.139	-17.691	-24.271
N+6.35	C22	ENVOLVENTE MIN	2.240	-82.900	-9.340	-20.560	-1.139	-25.342	-32.715
N+6.35	C22	ENVOLVENTE MIN	2.560	-81.030	-9.340	-20.560	-1.139	-33.052	-41.249
N+6.35	C22	ENVOLVENTE MIN	2.880	-79.170	-9.340	-20.560	-1.139	-40.787	-49.826
N+6.35	C22	ENVOLVENTE MIN	3.200	-77.300	-9.340	-20.560	-1.139	-48.533	-58.426
N+3.15	C22	ENVOLVENTE MAX	0.000	11.880	46.140	50.450	1.121	97.500	94.035
N+3.15	C22	ENVOLVENTE MAX	0.320	13.280	46.140	50.450	1.121	81.362	79.392
N+3.15	C22	ENVOLVENTE MAX	0.640	14.680	46.140	50.450	1.121	65.226	64.752
N+3.15	C22	ENVOLVENTE MAX	0.960	16.080	46.140	50.450	1.121	49.096	50.118
N+3.15	C22	ENVOLVENTE MAX	1.280	17.480	46.140	50.450	1.121	32.977	35.499
N+3.15	C22	ENVOLVENTE MAX	1.600	18.880	46.140	50.450	1.121	16.900	20.925
N+3.15	C22	ENVOLVENTE MAX	1.920	20.280	46.140	50.450	1.121	1.683	6.780
N+3.15	C22	ENVOLVENTE MAX	2.240	21.670	46.140	50.450	1.121	13.839	11.571
N+3.15	C22	ENVOLVENTE MAX	2.560	23.070	46.140	50.450	1.121	29.807	25.773
N+3.15	C22	ENVOLVENTE MAX	2.880	24.470	46.140	50.450	1.121	45.835	40.123
N+3.15	C22	ENVOLVENTE MAX	3.200	25.870	46.140	50.450	1.121	61.877	54.501
N+3.15	C22	ENVOLVENTE MIN	0.000	-191.390	-45.010	-50.230	-1.220	-99.202	-90.018
N+3.15	C22	ENVOLVENTE MIN	0.320	-189.530	-45.010	-50.230	-1.220	-83.135	-75.736
N+3.15	C22	ENVOLVENTE MIN	0.640	-187.660	-45.010	-50.230	-1.220	-67.070	-61.457
N+3.15	C22	ENVOLVENTE MIN	0.960	-185.790	-45.010	-50.230	-1.220	-51.010	-47.184
N+3.15	C22	ENVOLVENTE MIN	1.280	-183.930	-45.010	-50.230	-1.220	-34.961	-32.926
N+3.15	C22	ENVOLVENTE MIN	1.600	-182.060	-45.010	-50.230	-1.220	-18.955	-18.714
N+3.15	C22	ENVOLVENTE MIN	1.920	-180.190	-45.010	-50.230	-1.220	-3.809	-4.930
N+3.15	C22	ENVOLVENTE MIN	2.240	-178.330	-45.010	-50.230	-1.220	-16.035	-10.082
N+3.15	C22	ENVOLVENTE MIN	2.560	-176.460	-45.010	-50.230	-1.220	-32.074	-24.644
N+3.15	C22	ENVOLVENTE MIN	2.880	-174.600	-45.010	-50.230	-1.220	-48.172	-39.355
N+3.15	C22	ENVOLVENTE MIN	3.200	-172.730	-45.010	-50.230	-1.220	-64.285	-54.095
N+6.35	C23	ENVOLVENTE MAX	0.000	-58.200	-3.870	50.750	0.903	89.990	-31.121
N+6.35	C23	ENVOLVENTE MAX	0.320	-56.800	-3.870	50.750	0.903	74.618	-29.672
N+6.35	C23	ENVOLVENTE MAX	0.640	-55.400	-3.870	50.750	0.903	60.364	-27.986
N+6.35	C23	ENVOLVENTE MAX	0.960	-54.000	-3.870	50.750	0.903	48.838	-25.369
N+6.35	C23	ENVOLVENTE MAX	1.280	-52.600	-3.870	50.750	0.903	38.923	-17.879
N+6.35	C23	ENVOLVENTE MAX	1.600	-51.200	-3.870	50.750	0.903	30.064	-7.140
N+6.35	C23	ENVOLVENTE MAX	1.920	-49.800	-3.870	50.750	0.903	21.762	4.402
N+6.35	C23	ENVOLVENTE MAX	2.240	-48.400	-3.870	50.750	0.903	17.235	16.165
N+6.35	C23	ENVOLVENTE MAX	2.560	-47.000	-3.870	50.750	0.903	14.048	28.013
N+6.35	C23	ENVOLVENTE MAX	2.880	-45.600	-3.870	50.750	0.903	10.949	41.898
N+6.35	C23	ENVOLVENTE MAX	3.200	-44.200	-3.870	50.750	0.903	7.904	57.229
N+6.35	C23	ENVOLVENTE MIN	0.000	-111.640	-48.070	9.040	-1.139	33.570	-97.455
N+6.35	C23	ENVOLVENTE MIN	0.320	-109.770	-48.070	9.040	-1.139	29.811	-82.281
N+6.35	C23	ENVOLVENTE MIN	0.640	-107.900	-48.070	9.040	-1.139	24.933	-67.344
N+6.35	C23	ENVOLVENTE MIN	0.960	-106.040	-48.070	9.040	-1.139	17.326	-53.702
N+6.35	C23	ENVOLVENTE MIN	1.280	-104.170	-48.070	9.040	-1.139	8.110	-44.205
N+6.35	C23	ENVOLVENTE MIN	1.600	-102.310	-48.070	9.040	-1.139	-2.164	-38.322
N+6.35	C23	ENVOLVENTE MIN	1.920	-100.440	-48.070	9.040	-1.139	-12.993	-33.241
N+6.35	C23	ENVOLVENTE MIN	2.240	-98.570	-48.070	9.040	-1.139	-27.598	-28.381
N+6.35	C23	ENVOLVENTE MIN	2.560	-96.710	-48.070	9.040	-1.139	-43.544	-23.607
N+6.35	C23	ENVOLVENTE MIN	2.880	-94.840	-48.070	9.040	-1.139	-59.577	-20.869
N+6.35	C23	ENVOLVENTE MIN	3.200	-92.970	-48.070	9.040	-1.139	-75.664	-19.577
N+3.15	C23	ENVOLVENTE MAX	0.000	-227.830	22.970	88.600	1.121	152.267	72.507
N+3.15	C23	ENVOLVENTE MAX	0.320	-226.430	22.970	88.600	1.121	123.928	65.165
N+3.15	C23	ENVOLVENTE MAX	0.640	-225.030	22.970	88.600	1.121	95.593	57.826
N+3.15	C23	ENVOLVENTE MAX	0.960	-223.630	22.970	88.600	1.121	67.267	50.493
N+3.15	C23	ENVOLVENTE MAX	1.280	-222.230	22.970	88.600	1.121	41.478	47.846
N+3.15	C23	ENVOLVENTE MAX	1.600	-220.830	22.970	88.600	1.121	17.027	45.501
N+3.15	C23	ENVOLVENTE MAX	1.920	-219.430	22.970	88.600	1.121	-7.101	43.568
N+3.15	C23	ENVOLVENTE MAX	2.240	-218.030	22.970	88.600	1.121	-16.330	61.704
N+3.15	C23	ENVOLVENTE MAX	2.560	-216.630	22.970	88.600	1.121	-5.894	89.817
N+3.15	C23	ENVOLVENTE MAX	2.880	-215.230	22.970	88.600	1.121	5.032	118.072
N+3.15	C23	ENVOLVENTE MAX	3.200	-213.830	22.970	88.600	1.121	16.026	146.355
N+3.15	C23	ENVOLVENTE MIN	0.000	-426.380	-88.460	-34.510	-1.220	-94.585	-136.803
N+3.15	C23	ENVOLVENTE MIN	0.320	-424.510	-88.460	-34.510	-1.220	-83.553	-108.504
N+3.15	C23	ENVOLVENTE MIN	0.640	-422.650	-88.460	-34.510	-1.220	-72.526	-80.208
N+3.15	C23	ENVOLVENTE MIN	0.960	-420.780	-88.460	-34.510	-1.220	-61.508	-51.917
N+3.15	C23	ENVOLVENTE MIN	1.280	-418.910	-88.460	-34.510	-1.220	-53.027	-28.314
N+3.15	C23	ENVOLVENTE MIN	1.600	-417.050	-88.460	-34.510	-1.220	-45.884	-5.012
N+3.15	C23	ENVOLVENTE MIN	1.920	-415.180	-88.460	-34.510	-1.220	-39.064	17.879
N+3.15	C23	ENVOLVENTE MIN	2.240	-413.310	-88.460	-34.510	-1.220	-47.142	20.700
N+3.15	C23	ENVOLVENTE MIN	2.560	-411.450	-88.460	-34.510	-1.220	-74.886	13.544
N+3.15	C23	ENVOLVENTE MIN	2.880	-409.580	-88.460	-34.510	-1.220	-103.120	6.246
N+3.15	C23	ENVOLVENTE MIN	3.200	-407.720	-88.460	-34.510	-1.220	-131.422	-1.080

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C24	ENVOLVENTE MAX	0.000	-122.380	15.820	74.360	0.903	133.443	34.547
N+6.35	C24	ENVOLVENTE MAX	0.320	-120.980	15.820	74.360	0.903	111.390	30.951
N+6.35	C24	ENVOLVENTE MAX	0.640	-119.580	15.820	74.360	0.903	89.338	27.481
N+6.35	C24	ENVOLVENTE MAX	0.960	-118.180	15.820	74.360	0.903	67.450	24.509
N+6.35	C24	ENVOLVENTE MAX	1.280	-116.780	15.820	74.360	0.903	49.366	25.890
N+6.35	C24	ENVOLVENTE MAX	1.600	-115.380	15.820	74.360	0.903	32.897	33.463
N+6.35	C24	ENVOLVENTE MAX	1.920	-113.980	15.820	74.360	0.903	17.764	42.151
N+6.35	C24	ENVOLVENTE MAX	2.240	-112.580	15.820	74.360	0.903	10.396	51.056
N+6.35	C24	ENVOLVENTE MAX	2.560	-111.180	15.820	74.360	0.903	3.164	60.033
N+6.35	C24	ENVOLVENTE MAX	2.880	-109.780	15.820	74.360	0.903	-3.994	69.042
N+6.35	C24	ENVOLVENTE MAX	3.200	-108.390	15.820	74.360	0.903	-11.109	78.068
N+6.35	C24	ENVOLVENTE MIN	0.000	-232.350	-28.320	21.880	-1.139	56.728	-16.677
N+6.35	C24	ENVOLVENTE MIN	0.320	-230.480	-28.320	21.880	-1.139	48.756	-9.082
N+6.35	C24	ENVOLVENTE MIN	0.640	-228.610	-28.320	21.880	-1.139	40.071	-1.613
N+6.35	C24	ENVOLVENTE MIN	0.960	-226.750	-28.320	21.880	-1.139	29.667	5.358
N+6.35	C24	ENVOLVENTE MIN	1.280	-224.880	-28.320	21.880	-1.139	16.955	7.977
N+6.35	C24	ENVOLVENTE MIN	1.600	-223.020	-28.320	21.880	-1.139	2.627	4.402
N+6.35	C24	ENVOLVENTE MIN	1.920	-221.150	-28.320	21.880	-1.139	-13.036	-0.287
N+6.35	C24	ENVOLVENTE MIN	2.240	-219.280	-28.320	21.880	-1.139	-36.465	-5.193
N+6.35	C24	ENVOLVENTE MIN	2.560	-217.420	-28.320	21.880	-1.139	-60.030	-10.171
N+6.35	C24	ENVOLVENTE MIN	2.880	-215.550	-28.320	21.880	-1.139	-83.668	-15.181
N+6.35	C24	ENVOLVENTE MIN	3.200	-213.680	-28.320	21.880	-1.139	-107.350	-20.207
N+3.15	C24	ENVOLVENTE MAX	0.000	-383.910	67.670	99.740	1.121	157.108	119.759
N+3.15	C24	ENVOLVENTE MAX	0.320	-382.510	67.670	99.740	1.121	125.201	98.110
N+3.15	C24	ENVOLVENTE MAX	0.640	-381.110	67.670	99.740	1.121	93.299	76.463
N+3.15	C24	ENVOLVENTE MAX	0.960	-379.710	67.670	99.740	1.121	61.405	54.822
N+3.15	C24	ENVOLVENTE MAX	1.280	-378.310	67.670	99.740	1.121	33.856	34.069
N+3.15	C24	ENVOLVENTE MAX	1.600	-376.910	67.670	99.740	1.121	8.038	14.840
N+3.15	C24	ENVOLVENTE MAX	1.920	-375.510	67.670	99.740	1.121	-17.388	-3.797
N+3.15	C24	ENVOLVENTE MAX	2.240	-374.110	67.670	99.740	1.121	-27.339	1.795
N+3.15	C24	ENVOLVENTE MAX	2.560	-372.710	67.670	99.740	1.121	-21.242	14.312
N+3.15	C24	ENVOLVENTE MAX	2.880	-371.310	67.670	99.740	1.121	-14.794	26.923
N+3.15	C24	ENVOLVENTE MAX	3.200	-369.910	67.670	99.740	1.121	-8.290	39.555
N+3.15	C24	ENVOLVENTE MIN	0.000	-724.120	-39.530	-20.460	-1.220	-73.917	-87.023
N+3.15	C24	ENVOLVENTE MIN	0.320	-722.260	-39.530	-20.460	-1.220	-67.381	-74.380
N+3.15	C24	ENVOLVENTE MIN	0.640	-720.390	-39.530	-20.460	-1.220	-60.851	-61.739
N+3.15	C24	ENVOLVENTE MIN	0.960	-718.530	-39.530	-20.460	-1.220	-54.329	-49.104
N+3.15	C24	ENVOLVENTE MIN	1.280	-716.660	-39.530	-20.460	-1.220	-52.151	-37.356
N+3.15	C24	ENVOLVENTE MIN	1.600	-714.790	-39.530	-20.460	-1.220	-51.705	-27.133
N+3.15	C24	ENVOLVENTE MIN	1.920	-712.930	-39.530	-20.460	-1.220	-51.651	-17.502
N+3.15	C24	ENVOLVENTE MIN	2.240	-711.060	-39.530	-20.460	-1.220	-67.071	-32.100
N+3.15	C24	ENVOLVENTE MIN	2.560	-709.190	-39.530	-20.460	-1.220	-98.540	-53.623
N+3.15	C24	ENVOLVENTE MIN	2.880	-707.330	-39.530	-20.460	-1.220	-130.360	-75.239
N+3.15	C24	ENVOLVENTE MIN	3.200	-705.460	-39.530	-20.460	-1.220	-162.235	-96.877
N+6.35	C25	ENVOLVENTE MAX	0.000	-72.340	-2.660	60.510	0.903	109.208	-26.664
N+6.35	C25	ENVOLVENTE MAX	0.320	-70.940	-2.660	60.510	0.903	90.630	-25.570
N+6.35	C25	ENVOLVENTE MAX	0.640	-69.540	-2.660	60.510	0.903	72.758	-24.194
N+6.35	C25	ENVOLVENTE MAX	0.960	-68.140	-2.660	60.510	0.903	56.388	-21.690
N+6.35	C25	ENVOLVENTE MAX	1.280	-66.740	-2.660	60.510	0.903	41.640	-14.237
N+6.35	C25	ENVOLVENTE MAX	1.600	-65.340	-2.660	60.510	0.903	27.947	-4.004
N+6.35	C25	ENVOLVENTE MAX	1.920	-63.940	-2.660	60.510	0.903	15.527	6.957
N+6.35	C25	ENVOLVENTE MAX	2.240	-62.540	-2.660	60.510	0.903	8.944	18.135
N+6.35	C25	ENVOLVENTE MAX	2.560	-61.140	-2.660	60.510	0.903	2.503	29.399
N+6.35	C25	ENVOLVENTE MAX	2.880	-59.740	-2.660	60.510	0.903	-3.856	43.789
N+6.35	C25	ENVOLVENTE MAX	3.200	-58.340	-2.660	60.510	0.903	-10.163	58.300
N+6.35	C25	ENVOLVENTE MIN	0.000	-131.560	-45.530	19.240	-1.139	48.325	-88.328
N+6.35	C25	ENVOLVENTE MIN	0.320	-129.700	-45.530	19.240	-1.139	41.383	-74.004
N+6.35	C25	ENVOLVENTE MIN	0.640	-127.830	-45.530	19.240	-1.139	33.734	-59.962
N+6.35	C25	ENVOLVENTE MIN	0.960	-125.960	-45.530	19.240	-1.139	24.583	-47.048
N+6.35	C25	ENVOLVENTE MIN	1.280	-124.100	-45.530	19.240	-1.139	13.811	-39.084
N+6.35	C25	ENVOLVENTE MIN	1.600	-122.230	-45.530	19.240	-1.139	1.984	-33.899
N+6.35	C25	ENVOLVENTE MIN	1.920	-120.360	-45.530	19.240	-1.139	-11.117	-29.443
N+6.35	C25	ENVOLVENTE MIN	2.240	-118.500	-45.530	19.240	-1.139	-30.054	-25.202
N+6.35	C25	ENVOLVENTE MIN	2.560	-116.630	-45.530	19.240	-1.139	-49.133	-21.049
N+6.35	C25	ENVOLVENTE MIN	2.880	-114.770	-45.530	19.240	-1.139	-68.295	-20.020
N+6.35	C25	ENVOLVENTE MIN	3.200	-112.900	-45.530	19.240	-1.139	-87.509	-19.114
N+3.15	C25	ENVOLVENTE MAX	0.000	-258.760	25.680	83.800	1.121	133.435	75.324
N+3.15	C25	ENVOLVENTE MAX	0.320	-257.360	25.680	83.800	1.121	106.629	67.112
N+3.15	C25	ENVOLVENTE MAX	0.640	-255.960	25.680	83.800	1.121	79.826	58.903
N+3.15	C25	ENVOLVENTE MAX	0.960	-254.560	25.680	83.800	1.121	53.032	50.700
N+3.15	C25	ENVOLVENTE MAX	1.280	-253.160	25.680	83.800	1.121	29.672	46.653
N+3.15	C25	ENVOLVENTE MAX	1.600	-251.760	25.680	83.800	1.121	7.564	42.741
N+3.15	C25	ENVOLVENTE MAX	1.920	-250.360	25.680	83.800	1.121	-14.249	39.206
N+3.15	C25	ENVOLVENTE MAX	2.240	-248.960	25.680	83.800	1.121	-24.260	54.673
N+3.15	C25	ENVOLVENTE MAX	2.560	-247.560	25.680	83.800	1.121	-19.239	80.887
N+3.15	C25	ENVOLVENTE MAX	2.880	-246.160	25.680	83.800	1.121	-13.752	107.261
N+3.15	C25	ENVOLVENTE MAX	3.200	-244.760	25.680	83.800	1.121	-8.200	133.665
N+3.15	C25	ENVOLVENTE MIN	0.000	-468.630	-82.590	-17.490	-1.220	-64.349	-130.721
N+3.15	C25	ENVOLVENTE MIN	0.320	-466.760	-82.590	-17.490	-1.220	-58.761	-104.300
N+3.15	C25	ENVOLVENTE MIN	0.640	-464.890	-82.590	-17.490	-1.220	-53.179	-77.882
N+3.15	C25	ENVOLVENTE MIN	0.960	-463.030	-82.590	-17.490	-1.220	-47.604	-51.470
N+3.15	C25	ENVOLVENTE MIN	1.280	-461.160	-82.590	-17.490	-1.220	-45.464	-29.214
N+3.15	C25	ENVOLVENTE MIN	1.600	-459.290	-82.590	-17.490	-1.220	-44.574	-7.092
N+3.15	C25	ENVOLVENTE MIN	1.920	-457.430	-82.590	-17.490	-1.220	-43.981	14.652
N+3.15	C25	ENVOLVENTE MIN	2.240	-455.560	-82.590	-17.490	-1.220	-55.190	17.394
N+3.15	C25	ENVOLVENTE MIN	2.560	-453.700	-82.590	-17.490	-1.220	-81.430	9.390
N+3.15	C25	ENVOLVENTE MIN	2.880	-451.830	-82.590	-17.490	-1.220	-108.136	1.225
N+3.15	C25	ENVOLVENTE MIN	3.200	-449.960	-82.590	-17.490	-1.220	-134.907	-6.970
N+6.35	C26	ENVOLVENTE MAX	0.000	-93.310	31.540	58.550	0.903	121.901	41.807
N+6.35	C26	ENVOLVENTE MAX	0.320	-91.910	31.540	58.550	0.903	104.120	31.739
N+6.35	C26	ENVOLVENTE MAX	0.640	-90.510	31.540	58.550	0.903	86.339	21.821
N+6.35	C26	ENVOLVENTE MAX	0.960	-89.110	31.540	58.550	0.903	68.558	12.003

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
FUERZAS EN COLUMNAS

COLUMN FORCES
UNID: kN-m

Story	Column	Load	Loc	P	V2	V3	T	M2	M3
N+6.35	C26	ENVOLVENTE MAX	1.280	-87.710	31.540	58.550	0.903	52.743	2.813
N+6.35	C26	ENVOLVENTE MAX	1.600	-86.310	31.540	58.550	0.903	39.559	6.826
N+6.35	C26	ENVOLVENTE MAX	1.920	-84.910	31.540	58.550	0.903	26.928	16.031
N+6.35	C26	ENVOLVENTE MAX	2.240	-83.510	31.540	58.550	0.903	17.434	25.411
N+6.35	C26	ENVOLVENTE MAX	2.560	-82.110	31.540	58.550	0.903	12.037	34.827
N+6.35	C26	ENVOLVENTE MAX	2.880	-80.710	31.540	58.550	0.903	6.712	44.257
N+6.35	C26	ENVOLVENTE MAX	3.200	-79.310	31.540	58.550	0.903	1.429	53.694
N+6.35	C26	ENVOLVENTE MIN	0.000	-162.040	-29.530	16.150	-1.139	50.934	-40.928
N+6.35	C26	ENVOLVENTE MIN	0.320	-160.170	-29.530	16.150	-1.139	45.211	-31.503
N+6.35	C26	ENVOLVENTE MIN	0.640	-158.310	-29.530	16.150	-1.139	38.867	-22.228
N+6.35	C26	ENVOLVENTE MIN	0.960	-156.440	-29.530	16.150	-1.139	30.822	-13.053
N+6.35	C26	ENVOLVENTE MIN	1.280	-154.580	-29.530	16.150	-1.139	21.199	-4.505
N+6.35	C26	ENVOLVENTE MIN	1.600	-152.710	-29.530	16.150	-1.139	10.478	-9.162
N+6.35	C26	ENVOLVENTE MIN	1.920	-150.840	-29.530	16.150	-1.139	-0.796	-19.009
N+6.35	C26	ENVOLVENTE MIN	2.240	-148.980	-29.530	16.150	-1.139	-15.207	-29.032
N+6.35	C26	ENVOLVENTE MIN	2.560	-147.110	-29.530	16.150	-1.139	-33.715	-39.091
N+6.35	C26	ENVOLVENTE MIN	2.880	-145.240	-29.530	16.150	-1.139	-52.295	-49.164
N+6.35	C26	ENVOLVENTE MIN	3.200	-143.380	-29.530	16.150	-1.139	-70.917	-59.243
N+3.15	C26	ENVOLVENTE MAX	0.000	-420.680	56.390	93.250	1.121	140.800	108.085
N+3.15	C26	ENVOLVENTE MAX	0.320	-419.280	56.390	93.250	1.121	110.970	90.042
N+3.15	C26	ENVOLVENTE MAX	0.640	-417.880	56.390	93.250	1.121	81.143	72.001
N+3.15	C26	ENVOLVENTE MAX	0.960	-416.480	56.390	93.250	1.121	51.324	53.964
N+3.15	C26	ENVOLVENTE MAX	1.280	-415.080	56.390	93.250	1.121	26.419	35.936
N+3.15	C26	ENVOLVENTE MAX	1.600	-413.680	56.390	93.250	1.121	3.046	17.950
N+3.15	C26	ENVOLVENTE MAX	1.920	-412.280	56.390	93.250	1.121	-20.027	5.523
N+3.15	C26	ENVOLVENTE MAX	2.240	-410.880	56.390	93.250	1.121	-30.054	23.142
N+3.15	C26	ENVOLVENTE MAX	2.560	-409.480	56.390	93.250	1.121	-26.781	41.231
N+3.15	C26	ENVOLVENTE MAX	2.880	-408.080	56.390	93.250	1.121	-23.211	59.346
N+3.15	C26	ENVOLVENTE MAX	3.200	-406.690	56.390	93.250	1.121	-19.594	77.468
N+3.15	C26	ENVOLVENTE MIN	0.000	-750.330	-56.660	-11.410	-1.220	-56.243	-104.784
N+3.15	C26	ENVOLVENTE MIN	0.320	-748.460	-56.660	-11.410	-1.220	-52.600	-86.658
N+3.15	C26	ENVOLVENTE MIN	0.640	-746.600	-56.660	-11.410	-1.220	-48.961	-68.533
N+3.15	C26	ENVOLVENTE MIN	0.960	-744.730	-56.660	-11.410	-1.220	-45.329	-50.412
N+3.15	C26	ENVOLVENTE MIN	1.280	-742.860	-56.660	-11.410	-1.220	-46.612	-32.301
N+3.15	C26	ENVOLVENTE MIN	1.600	-741.000	-56.660	-11.410	-1.220	-49.427	-14.231
N+3.15	C26	ENVOLVENTE MIN	1.920	-739.130	-56.660	-11.410	-1.220	-52.541	-1.721
N+3.15	C26	ENVOLVENTE MIN	2.240	-737.270	-56.660	-11.410	-1.220	-68.702	-19.256
N+3.15	C26	ENVOLVENTE MIN	2.560	-735.400	-56.660	-11.410	-1.220	-98.162	-37.262
N+3.15	C26	ENVOLVENTE MIN	2.880	-733.530	-56.660	-11.410	-1.220	-127.921	-55.294
N+3.15	C26	ENVOLVENTE MIN	3.200	-731.670	-56.660	-11.410	-1.220	-157.725	-73.332
N+6.35	C27	ENVOLVENTE MAX	0.000	-64.130	57.360	44.050	0.903	83.479	109.824
N+6.35	C27	ENVOLVENTE MAX	0.320	-62.730	57.360	44.050	0.903	70.160	91.748
N+6.35	C27	ENVOLVENTE MAX	0.640	-61.330	57.360	44.050	0.903	57.696	73.995
N+6.35	C27	ENVOLVENTE MAX	0.960	-59.940	57.360	44.050	0.903	47.052	58.363
N+6.35	C27	ENVOLVENTE MAX	1.280	-58.540	57.360	44.050	0.903	37.524	45.606
N+6.35	C27	ENVOLVENTE MAX	1.600	-57.140	57.360	44.050	0.903	28.784	35.796
N+6.35	C27	ENVOLVENTE MAX	1.920	-55.740	57.360	44.050	0.903	20.474	26.700
N+6.35	C27	ENVOLVENTE MAX	2.240	-54.340	57.360	44.050	0.903	14.411	17.832
N+6.35	C27	ENVOLVENTE MAX	2.560	-52.940	57.360	44.050	0.903	10.738	12.843
N+6.35	C27	ENVOLVENTE MAX	2.880	-51.540	57.360	44.050	0.903	7.134	8.886
N+6.35	C27	ENVOLVENTE MAX	3.200	-50.140	57.360	44.050	0.903	3.574	4.955
N+6.35	C27	ENVOLVENTE MIN	0.000	-120.370	12.080	10.730	-1.139	35.203	42.546
N+6.35	C27	ENVOLVENTE MIN	0.320	-118.510	12.080	10.730	-1.139	30.992	38.400
N+6.35	C27	ENVOLVENTE MIN	0.640	-116.640	12.080	10.730	-1.139	25.926	33.931
N+6.35	C27	ENVOLVENTE MIN	0.960	-114.780	12.080	10.730	-1.139	19.039	28.014
N+6.35	C27	ENVOLVENTE MIN	1.280	-112.910	12.080	10.730	-1.139	11.036	17.876
N+6.35	C27	ENVOLVENTE MIN	1.600	-111.040	12.080	10.730	-1.139	2.245	5.464
N+6.35	C27	ENVOLVENTE MIN	1.920	-109.180	12.080	10.730	-1.139	-6.975	-7.662
N+6.35	C27	ENVOLVENTE MIN	2.240	-107.310	12.080	10.730	-1.139	-18.444	-21.016
N+6.35	C27	ENVOLVENTE MIN	2.560	-105.440	12.080	10.730	-1.139	-32.300	-38.249
N+6.35	C27	ENVOLVENTE MIN	2.880	-103.580	12.080	10.730	-1.139	-46.227	-56.514
N+6.35	C27	ENVOLVENTE MIN	3.200	-101.710	12.080	10.730	-1.139	-60.198	-74.805
N+3.15	C27	ENVOLVENTE MAX	0.000	-239.040	91.710	75.530	1.121	122.447	144.659
N+3.15	C27	ENVOLVENTE MAX	0.320	-237.640	91.710	75.530	1.121	98.288	115.321
N+3.15	C27	ENVOLVENTE MAX	0.640	-236.240	91.710	75.530	1.121	74.133	85.985
N+3.15	C27	ENVOLVENTE MAX	0.960	-234.840	91.710	75.530	1.121	49.985	56.655
N+3.15	C27	ENVOLVENTE MAX	1.280	-233.440	91.710	75.530	1.121	29.024	30.585
N+3.15	C27	ENVOLVENTE MAX	1.600	-232.040	91.710	75.530	1.121	8.872	6.779
N+3.15	C27	ENVOLVENTE MAX	1.920	-230.640	91.710	75.530	1.121	-11.024	-16.670
N+3.15	C27	ENVOLVENTE MAX	2.240	-229.240	91.710	75.530	1.121	-19.855	-22.076
N+3.15	C27	ENVOLVENTE MAX	2.560	-227.840	91.710	75.530	1.121	-13.862	-16.035
N+3.15	C27	ENVOLVENTE MAX	2.880	-226.440	91.710	75.530	1.121	-7.465	-9.825
N+3.15	C27	ENVOLVENTE MAX	3.200	-225.040	91.710	75.530	1.121	-1.012	-3.584
N+3.15	C27	ENVOLVENTE MIN	0.000	-439.540	-19.580	-20.290	-1.220	-66.085	-66.345
N+3.15	C27	ENVOLVENTE MIN	0.320	-437.680	-19.580	-20.290	-1.220	-59.602	-60.087
N+3.15	C27	ENVOLVENTE MIN	0.640	-435.810	-19.580	-20.290	-1.220	-53.122	-53.831
N+3.15	C27	ENVOLVENTE MIN	0.960	-433.940	-19.580	-20.290	-1.220	-46.650	-47.581
N+3.15	C27	ENVOLVENTE MIN	1.280	-432.080	-19.580	-20.290	-1.220	-43.365	-44.591
N+3.15	C27	ENVOLVENTE MIN	1.600	-430.210	-19.580	-20.290	-1.220	-40.889	-43.865
N+3.15	C27	ENVOLVENTE MIN	1.920	-428.350	-19.580	-20.290	-1.220	-38.669	-43.496
N+3.15	C27	ENVOLVENTE MIN	2.240	-426.480	-19.580	-20.290	-1.220	-47.513	-61.170
N+3.15	C27	ENVOLVENTE MIN	2.560	-424.610	-19.580	-20.290	-1.220	-71.182	-90.291
N+3.15	C27	ENVOLVENTE MIN	2.880	-422.750	-19.580	-20.290	-1.220	-95.255	-119.581
N+3.15	C27	ENVOLVENTE MIN	3.200	-420.880	-19.580	-20.290	-1.220	-119.383	-148.902

9. VERIFICACIONES

VERIFICACIONES

VERIFICACIONES DE CORTANTE PARA VIGAS

C.21.3.3.1 (a)

C.21.3.3.1 (b)

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ $_{Cortante}$ **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey

COMDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)

COMDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+3.15	B1	0.000	3.450	V-15X45	0.15	0.40	-6.461	-1.434	8.182	8.693	-8.182	-8.693	7.475	10.072	8.302	10.900	7.418	8.197	10.177	10.957	4.102	6.700	4.930	7.528	4.045	4.825	6.805	7.584
	B1	3.450					11.938	2.720	1.879	1.695	-1.879	-1.695	17.425	16.828	17.263	16.667	17.404	17.225	16.866	16.687	11.123	10.527	10.962	10.365	11.103	10.924	10.565	10.386
N+6.35	B2	0.000	6.900	V-15X45	0.15	0.40	-4.581	1.430	4.547	4.046	-4.547	-4.046	3.153	4.596	3.538	4.982	3.208	3.642	4.493	4.926	3.208	4.652	3.594	5.037	3.264	3.697	4.549	4.982
	B2	6.900					-7.753	-4.554	4.314	3.870	-4.314	-3.870	12.989	14.358	13.357	14.727	13.038	13.449	14.266	14.677	6.109	7.478	6.477	7.847	6.158	6.569	7.387	7.797
N+3.15	B3	0.000	3.450	V-15X45	0.15	0.40	12.625	2.932	1.473	1.750	-1.473	-1.750	18.399	17.932	18.232	17.765	18.430	18.290	17.874	17.734	11.680	11.212	11.513	11.045	11.710	11.570	11.155	11.015
	B3	3.450					-12.029	-1.592	7.807	6.291	-7.807	-6.291	14.488	16.966	15.087	17.566	14.656	15.400	16.654	17.397	9.287	11.766	9.886	12.365	9.456	10.199	11.453	12.196
N+3.15	B4	0.000	3.520	V-15X45	0.15	0.40	-12.179	-1.792	6.663	7.007	-6.663	-7.007	15.016	17.131	15.683	17.798	14.977	15.612	17.202	17.836	9.570	11.685	10.237	12.352	9.532	10.166	11.756	12.391
	B4	3.520					8.162	1.437	1.347	1.399	-1.347	-1.399	11.512	11.084	11.379	10.951	11.518	11.389	11.073	10.945	7.626	7.199	7.493	7.065	7.632	7.504	7.188	7.060
N+6.35	B5	0.000	7.050	V-15X45	0.15	0.40	-7.825	-4.719	3.931	3.540	-3.931	-3.540	13.316	14.564	13.654	14.902	13.360	13.734	14.484	14.858	6.250	7.498	6.587	7.835	6.293	6.668	7.417	7.792
	B5	7.050					-5.788	2.271	3.110	2.808	-3.110	-2.808	4.047	5.035	4.315	5.302	4.081	4.377	4.972	5.268	4.582	5.569	4.849	5.837	4.615	4.912	5.507	5.803
N+3.15	B6	0.000	3.530	V-15X45	0.15	0.40	8.034	1.455	1.076	1.579	-1.076	-1.579	11.342	11.000	11.191	10.850	11.398	11.295	10.896	10.794	7.477	7.135	7.326	6.985	7.532	7.430	7.031	6.929
	B6	3.530					-19.697	-4.686	5.990	4.506	-5.990	-4.506	27.157	29.059	27.586	29.488	27.322	27.892	28.752	29.323	16.562	18.464	16.991	18.893	16.727	17.297	18.157	18.728
N+3.15	B7	0.000	3.590	V-15X45	0.15	0.40	-19.226	-4.332	4.563	5.339	-4.563	-5.339	26.425	27.873	26.933	28.382	26.338	26.773	28.033	28.468	16.325	17.773	16.833	18.282	16.239	16.673	17.934	18.368
	B7	3.590					7.195	0.866	1.347	1.383	-1.347	-1.383	9.780	9.352	9.648	9.220	9.784	9.655	9.345	9.216	6.755	6.328	6.623	6.196	6.759	6.631	6.320	6.192
N+6.35	B8	0.000	7.180	V-15X45	0.15	0.40	-6.423	0.893	2.490	2.262	-2.490	-2.262	6.312	7.102	6.527	7.318	6.337	6.574	7.055	7.292	5.278	6.068	5.493	6.284	5.303	5.540	6.021	6.258
	B8	7.180					-6.838	-0.044	2.475	2.247	-2.475	-2.247	7.750	8.535	7.964	8.749	7.775	8.011	8.488	8.724	5.654	6.440	5.868	6.654	5.680	5.915	6.393	6.629
N+3.15	B9	0.000	3.590	V-15X45	0.15	0.40	7.182	0.876	1.045	1.565	-1.045	-1.565	9.735	9.403	9.586	9.254	9.793	9.693	9.296	9.196	6.704	6.372	6.555	6.223	6.762	6.662	6.265	6.166
	B9	3.590					-21.022	-4.593	5.400	4.123	-5.400	-4.123	28.766	30.480	29.159	30.873	28.908	29.422	30.217	30.731	17.866	19.581	18.259	19.973	18.008	18.522	19.317	19.831
N+3.15	B10	0.000	3.540	V-15X45	0.15	0.40	-22.434	-5.035	5.397	5.942	-5.397	-5.942	30.816	32.530	31.382	33.095	30.756	31.270	32.642	33.156	19.051	20.764	19.617	21.330	18.990	19.504	20.877	21.391
	B10	3.540					9.922	1.721	1.048	1.613	-1.048	-1.613	13.871	13.538	13.717	13.384	13.933	13.834	13.421	13.321	9.173	8.840	9.019	8.687	9.236	9.136	8.724	8.624
N+6.35	B11	0.000	7.070	V-15X45	0.15	0.40	-6.703	0.056	3.181	2.882	-3.181	-2.882	7.345	8.355	7.620	8.630	7.379	7.682	8.294	8.597	5.391	6.400	5.665	6.675	5.424	5.727	6.339	6.642
	B11	7.070					-5.967	-0.507	4.209	3.799	-4.209	-3.799	6.818	8.155	7.180	8.516	6.864	7.265	8.070	8.471	4.521	5.857	4.883	6.219	4.567	4.968	5.773	6.174
N+3.15	B12	0.000	3.530	V-15X45	0.15	0.40	9.678	1.615	1.114	1.928	-1.114	-1.928	13.497	13.144	13.314	12.960	13.588	13.482	12.976	12.870	8.979	8.625	8.795	8.442	9.069	8.963	8.457	8.351
	B12	3.530					-6.494	-1.045	8.613	7.253	-8.613	-7.253	7.125	9.860	7.816	10.550	7.276	8.097	9.579	10.399	4.132	6.866	4.823	7.557	4.283	5.103	6.586	7.406
N+6.35	B13	0.000	1.640	V-45X45	0.45	0.40	0.115	0.240	0.041	0.034	-0.041	-0.034	0.386	0.373	0.383	0.370	0.385	0.381	0.375	0.371	0.112	0.099	0.108	0.095	0.111	0.107	0.100	0.096
	B13	1.640					-18.244	-0.658	2.079	1.870	-2.079	-1.870	22.132	22.792	22.310	22.970	22.155	22.353	22.749	22.947	16.001	16.661	16.179	16.839	16.024	16.222	16.617	16.815
N+3.15	B13	0.000	1.640	V-45X45	0.45	0.40	1.140	0.286	0.174	0.211	-0.174	-0.211	1.692	1.636	1.672	1.616	1.696	1.679	1.629	1.612	1.064	1.008	1.044	0.988	1.068	1.051	1.001	0.984
	B13	1.640					-37.021	-6.328	3.503	4.677	-3.503	-4.677	49.974	51.087	50.420	51.532	49.844	50.178	51.329	51.662	32.540	33.652	32.986	34.098	32.410	32.743	33.894	34.228
N+3.15	B14	0.000	1.640	V-20X45	0.20	0.40	-1.894	-0.501	0.239	0.343	-0.239	-0.343	2.720	2.795	2.752	2.828	2.708	2.731	2.817	2.840	1.650	1.726	1.683	1.759	1.639	1.662	1.748	1.770
	B14	1.640					-18.553	-5.655	2.627	3.461	-2.627	-3.461	27.337	28.171	27.666	28.500	27.244	27.494	28.343	28.593	16.116	16.950	16.446	17.279	16.023	16.273	17.122	17.372
N+6.35	B15	0.000	1.640	V-45X45	0.45	0.40	-0.115	-0.240	0.041	0.034	-0.041	-0.034	0.370	0.383	0.373	0.386	0.371	0.375	0.381	0.385	0.095	0.108	0.099	0.112	0.096	0.100	0.107	0.111
	B15	1.640					-19.982	-3.982	2.079	1.870	-2.079	-1.870	27.541	28.201	27.719	28.379	27.565	27.763	28.158	28.356	17.565	18.225	17.743	18.403	17.588	17.786	18.182	18.380
N+3.15	B15	0.000	1.640	V-45X45	0.45	0.40	0.754	0.215	0.084	0.145	-0.084	-0.145	1.140	1.113	1.126	1.100	1.147	1.139	1.101	1.093	0.699	0.672	0.685	0.658	0.706	0.698	0.660	0.652
	B15	1.640					-34.611	-6.575	4.088	2.762	-4.088	-2.762	47.328	48.626	47.591	48.889	47.475	47.864	48.352	48.741	30.369	31.667	30.633	31.930	30.517	30.906	31.394	31.783
N+6.35	B16	0.000	1.640	V-45X45	0.45	0.40	-0.248	-0.232	0.028	0.029	-0.028	-0.029	0.524	0.533	0.527	0.535	0.524	0.526	0.533	0.536	0.217	0.226	0.220	0.229	0.217	0.220	0.226	0.229
	B16	1.640					-20.065	-4.229	1.631	1.487	-1.631	-1.487	27.977	28.495	28.119	28.637	27.993	28.149	28.465	28.621	17.729	18.247	17.870	18.388	17.745	17.900	18.217	18.372
N+3.15	B16	0.000	1.640	V-45X45	0.45	0.40	0.881	0.268	0.155	0.150	-0.155	-0.150	1.357	1.308	1.343	1.293	1.356	1.342	1.309	1.294	0.825	0.775	0.810	0.761	0.824	0.809	0.776	0.762
	B16	1.640					-32.589	-5.970	2.801	3.703	-2.801	-3.703	44.456	45.345	44.809	45.698	44.356	44.622	45.531	45.798	28.709	29.598	29.062	29.951	28.609	28.876	29.784	30.051
N+3.15	B17	0.000	1.640	V-20X45	0.20	0.40	-2.204	-0.580	0.224	0.216	-0.224	-0.216	3.179	3.250	3.200	3.271	3.180	3.201	3.248	3.270	1.938	2.009	1.958	2.029	1.939	1.960	2.007	2.029
	B17	1.640					-17.712	-5.703	1.995	3.057	-1.995	-3.057	26.495	27.128	26.786	27.420	26.377	26.567	27.348	27.538	15.479	16.112	15.770	16.403	15.361	15.551	16.331	16.521
N+6.35	B18	0.000	1.640	V-45X45	0.45	0.40	0.227	0.194	0.026	0.025	-0.026	-0.025	0.472	0.463	0.469	0.461	0.472	0.469	0.464	0.461	0.210	0.201	0.207	0.199	0.210	0.207	0.202	0.199
	B18	1.640					-29.592	-2.750	0.478	0.422	-0.478	-0.422	38.164	38.316	38.205	38.356	38.171	38.216	38.305	38.350	26.537	26.689	26.577	26.729	26.543	26.589	26.677	26.723
N+3.15	B18	0.000	1.640	V-45X45	0.45	0.40	2.688	0.669	0.166	0.205	-0.166	-0.205	3.931	3.878	3.911	3.858	3.935	3.919	3.870	3.854	2.455	2.403	2.436	2.383	2.460	2.444	2.395	2.379
	B18	1.640					-64.112	-14.134	2.445	2.866	-2.445	-2.866	90.544	91.320	90.817	91.593	90.497	90.730	91.407	91.640	57.176	57.952	57.449	58.225	57.129	57.362	58.039	58.272
N+3.15	B19	0.000	1.640	V-20X45	0.20	0.40	-2.771	-0.712	0.166	0.206	-0.166	-0.206	4.001	4.054	4.021	4.073	3.997	4.012	4.062	4.078	2.458	2.510	2.477	2.530	2.453	2.469	2.519	2.535
	B19	1.640					-16.330	-5.494	2.230	2.908	-2.230	-2.908	24.598	25.305	24.875	25.582	24.522	24.735	25.445	25.658	14.205	14.912	14.482	15.189	14.129	14.342	15.052	15.265
N+6.35	B20	0.000	1.640	V-45X45	0.45	0.40	0.141	0.033	0.030	0.027	-0.030	-0.027	0.208	0.199	0.206	0.196	0.208	0.205	0.199	0.196	0.133	0.123	0.130	0.121	0.133	0.130	0.124	0.121
	B20	1.640					-30.543	-4.842	0.550	0.493	-0.550	-0.493	41.383	41.557	41.430	41.604	41.389	41.442	41.546	41.598	27.378	27.553	27.425	27.599	27.384	27.437	27.541	27.593
N+3.15	B20	0.000	1.640	V-45X45	0.45	0.40	2.634	0.644	0.163	0.204	-0.163	-0.204	3.840	3.789	3.821	3.769	3.845	3.829	3.780	3.765	2.406	2.354	2.387	2.335	2.411	2.395	2.346	2.330
	B20	1.640					-67.136	-14.573	2.007	3.211	-2.007	-3.211	94.665	95.302	94.971	95.608	94.531	94.722	95.550	95.741	59.951	60.588	60.257	60.894	59.817	60.008	60.837	61.028
N+3.15	B21	0.000	1.640	V-20X45	0.20	0.40	-2.400	-0.608	0.166	0.262	-0.166	-0.262	3.449	3.502	3.474	3.527	3.439	3.454	3.522	3.537	2.121	2.174	2.146	2.199	2.111	2.126	2.194	2.209
	B21	1.640					-17.864	-5.750	2.427	2.782	-2.427	-2.782	26.669	27.440	26.934	27.705	26.630	26.861	27.513	27.744	15.560	16.330	15.825	16.595	15.520	15.752	16.404	16.635
N+6.35	B22	0.000	1.640	V-45X45	0.45	0.40	-0.120	0.005	0.031	0.030	-0.031	-0.030	0.133	0.142	0.136	0.145	0.133	0.136	0.142	0.145	0.102	0.111	0.105	0.114	0.102	0.105	0.111	0.114
	B22	1.640					-19.324	-2.502	1.703	1.558	-1.703	-1.558	25.346	25.887	25.495	26.035	25.362	25.525	25.857	26.019	17.047	17.588	17.195	17.736	17.063	17.225	17.558	17.720
N+3.15	B22	0.000	1.640	V-45X45	0.45	0.40	1.172	0.319	0.099	0.165	-0.099	-0.165	1.749	1.718	1.733	1.702	1.756	1.747	1.704	1.694	1.078	1.047	1.063	1.031	1.086	1.076	1.033	1.024
	B22	1.640					-36.153	-5.664	3.949	2.984	-3.949	-2.984	48.279	49.532	48.563	49.817	48.386	48.762	49.333	49.709	31.769	33.022	32.053	33.307	31.876	32.252	32.823	33.199
N+6.35	B23	0.000	6.900	V-45X45	0.45	0.40	-18.169	2.079	23.173	20.264	-23.173	-20.264	15.081	22.437	17.010	24.367	15.404	17.611	21.837	24.044	11.709	19.065	13.639	20.995	12.032	14.239	18.465	20.672
	B23	6.900					-27.159	-13.561	22.315	19.617	-22.315	-19.617	41.676	48.760	43.544	50.628	41.975	44.101	48.203	50.328	19.967	27.051	21.835	28.919	20.267	22.392	26.494	28.620
N+3.15	B23	0.000	6.900	V-45X45	0.45	0.40	-98.449	-22.676	43.225	36.479	-43.225	-36.479	132.217	145.939	135.691	149.413	132.966	137.083	144.547	148.663	80.006	93.728	83.480	97.202	80.755	84.872	92.336	96.453
	B23	6.900					-130.653	-27.250	38.622	37.651	-38.622	-37.651	176.110	188.371	179.696	191.957	176.218	179.896	188.171	191.849	109.664	121.925	113.250	125.511	109.772	113.450	121.725	125.403
N+6.35	B24	0.000	7.500	V-25X45	0.25	0.40	-47.819	-50.269	11.370	10.036	-11.370	-10.036	105.369	108.979	106.325	109.934	105.517	106.600	108.703	109.786	40.754	44.364	41.710	45.320	40.903	41.986	44.089	45.172
	B24	7.500					-49.438	-50.729	11.507	10.136	-11.507	-10.136	107.745	111.398	108.711	112.364	107.898	108.994	111.116	112.211	42.185	45.838	43.150	46.803	42.337	43.433	45.555	46.651
N+3.15	B24	0.000	7.500	V-25X45	0.25	0.40	-116.775	-25.152	33.989	29.314	-33.989	-29.314	158.491	169.281	161.283	172.073	159.010	162.248	168.316	171.554	98.307	109.097	101.098	111.888	98.826	102.063	108.132	111.369
	B24	7.500					-116.389	-25.188	33.567	31.547	-33.567	-31.547	158.024	168.681	161.029	171.685	158.249	161.446	168.264	171.461	97.920	108.576	100.924	111.580	98.144	101.341	108.159	111.356
N+6.35	B25	0.000	7.050	V-45X45	0.45	0.40	-27.481	-14.478	20.683	18.187	-20.683	-18.187	43.306	49.872	45.038	51.604	43.583	45.553	49.357	51.327	20.584	27.150	22.316	28.882	20.861	22.831	26.635	28.605
	B25	7.050					-18.106	4.924	19.322	16.999	-19.322	-16.999	12.927	19.061	14.546	20.680	13.185	15.025	18.581	20.422	12.419	18.553	14.038	20.172	12.677	14.517	18.074	19.914
N+3.15	B25	0.000	7.050	V-45X45	0.45	0.40	-121.789	-25.151	36.780	30.881	-36.780	-30.881	163.989	175.665	166.930	178.606	164.645	168.147	174.448	177.951	102.301	113.978	105.243	116.919	102.957	106.460	112.760	116.263
	B25	7.050					-131.685	-31.594	35.360	34.261	-35.360	-34.261	182.372	193.597	185.635	196.860	182.494	185.862	193.370	196.738	111.272	122.498	114.535	125.761	111.394	114.762	122.271	125.639

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ $_{Cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
22.116	7.217	7.797	7.410	7.990	7.195	7.369	7.839	8.013	4.413	4.993	4.606	5.186	4.391	4.565	5.035	5.209
5.456																
4.764	2.339	2.747	2.449	2.856	2.355	2.477	2.719	2.841	1.350	1.758	1.460	1.867	1.366	1.488	1.730	1.852
8.652																
6.820	9.533	10.115	9.658	10.241	9.590	9.765	10.008	10.183	6.077	6.660	6.203	6.786	6.135	6.310	6.553	6.728
14.548																
22.540	7.536	8.016	7.688	8.167	7.527	7.671	8.033	8.177	4.885	5.365	5.037	5.516	4.876	5.020	5.382	5.526
5.740																
8.784	2.463	2.780	2.549	2.866	2.474	2.569	2.760	2.855	1.536	1.853	1.622	1.939	1.547	1.642	1.833	1.928
4.920																
1.968	10.906	11.348	10.985	11.427	10.969	11.101	11.232	11.365	6.810	7.252	6.889	7.331	6.872	7.005	7.136	7.268
26.400																
25.632	10.085	10.369	10.190	10.474	10.062	10.147	10.412	10.497	6.429	6.713	6.534	6.818	6.406	6.491	6.756	6.841
3.328																
6.704	1.958	2.178	2.018	2.238	1.965	2.031	2.165	2.231	1.523	1.742	1.582	1.802	1.530	1.595	1.729	1.795
7.252																
2.616	10.724	11.110	10.792	11.177	10.780	10.896	11.006	11.122	6.844	7.229	6.912	7.297	6.900	7.015	7.126	7.242
26.360																
28.260	12.623	13.013	12.740	13.130	12.624	12.741	13.012	13.129	7.973	8.363	8.089	8.479	7.973	8.090	8.362	8.479
0.212																
6.868	2.003	2.335	2.093	2.425	2.015	2.114	2.315	2.414	1.402	1.734	1.492	1.824	1.413	1.513	1.713	1.813
6.872																
7.488	5.842	6.516	5.986	6.660	5.911	6.113	6.389	6.592	3.714	4.389	3.858	4.532	3.783	3.985	4.261	4.464
20.896																
4.764	13.730	14.125	13.837	14.232	13.744	13.862	14.100	14.218	9.824	10.219	9.931	10.326	9.838	9.957	10.194	10.312
23.848																
22.116	31.504	32.148	31.763	32.407	31.427	31.620	32.291	32.485	20.490	21.135	20.749	21.394	20.413	20.606	21.278	21.471
46.644																
1.336	18.327	18.882	18.548	19.103	18.263	18.430	19.000	19.166	10.833	11.388	11.054	11.609	10.770	10.936	11.506	11.672
26.116																
8.652	17.019	17.429	17.130	17.540	17.034	17.157	17.402	17.525	10.768	11.179	10.879	11.289	10.783	10.906	11.152	11.275
27.736																
14.548	29.554	30.329	29.706	30.481	29.648	29.880	30.154	30.387	18.944	19.719	19.096	19.871	19.038	19.271	19.545	19.777
40.816																
8.784	17.379	17.700	17.467	17.788	17.388	17.485	17.682	17.778	10.943	11.264	11.031	11.352	10.952	11.049	11.246	11.342
28.012																
22.540	27.935	28.447	28.141	28.653	27.873	28.027	28.561	28.715	18.008	18.521	18.215	18.727	17.947	18.101	18.635	18.788
38.620																
7.708	18.094	18.524	18.284	18.714	18.023	18.151	18.656	18.785	10.620	11.049	10.810	11.239	10.548	10.677	11.182	11.311
24.984																
11.624	23.559	23.646	23.582	23.669	23.562	23.589	23.639	23.665	16.309	16.396	16.332	16.419	16.313	16.339	16.389	16.416
37.752																
52.032	57.606	58.048	57.761	58.202	57.581	57.713	58.096	58.228	36.361	36.802	36.515	36.956	36.335	36.467	36.850	36.982
74.612																
5.956	17.438	17.902	17.619	18.083	17.390	17.529	17.992	18.131	10.160	10.624	10.341	10.805	10.111	10.250	10.714	10.853
23.220																
14.120	25.360	25.461	25.387	25.488	25.364	25.394	25.454	25.484	16.775	16.876	16.802	16.903	16.779	16.809	16.869	16.899
40.276																
54.604	60.064	60.421	60.239	60.596	59.985	60.092	60.567	60.674	38.023	38.380	38.197	38.554	37.944	38.051	38.526	38.633
77.184																
7.700	18.365	18.867	18.542	19.043	18.334	18.485	18.923	19.074	10.781	11.283	10.958	11.460	10.751	10.901	11.340	11.490
24.964																
6.872	15.536	15.872	15.628	15.964	15.546	15.647	15.853	15.954	10.457	10.792	10.549	10.884	10.466	10.567	10.774	10.875
26.128																
20.896	30.505	31.250	30.668	31.414	30.575	30.798	31.120	31.344	20.029	20.774	20.192	20.938	20.099	20.322	20.644	20.868
45.408																
14.920	8.226	10.318	8.776	10.869	8.316	8.944	10.151	10.779	4.591	6.684	5.141	7.234	4.681	5.309	6.516	7.144
25.316																
133.088	44.685	48.451	45.708	49.474	44.809	45.939	48.220	49.350	27.488	31.254	28.512	32.277	27.613	28.742	31.023	32.153
146.112																
97.604	28.415	29.384	28.671	29.640	28.455	28.746	29.309	29.600	11.059	12.027	11.315	12.283	11.099	11.389	11.953	12.243
98.328																
116.096	42.202	45.062	42.975	45.834	42.301	43.159	44.877	45.735	26.164	29.023	26.936	29.796	26.263	27.121	28.839	29.697
115.980																
26.552	7.976	9.778	8.452	10.253	8.052	8.593	9.637	10.177	4.681	6.483	5.157	6.958	4.757	5.298	6.342	6.882
14.560																
139.240	49.129	52.378	50.009	53.258	49.240	50.214	52.173	53.147	30.294	33.543	31.174	34.423	30.404	31.379	33.338	34.312
145.500																

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

Vu **= Vm + Vg**																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18							
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
29.333	29.913	29.526	30.106	29.311	29.485	29.955	30.129	26.529	27.109	26.722	27.302	26.507	26.681	27.151	27.325		30.1	**0.10**	178.92	34.45	213.37	**OK**
5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456							
7.103	7.511	7.213	7.620	7.119	7.241	7.483	7.605	6.114	6.522	6.224	6.631	6.130	6.252	6.494	6.616		8.7	**0.10**	178.92	34.45	213.37	**OK**
8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652	8.652							
16.353	16.935	16.478	17.061	16.410	16.585	16.828	17.003	12.897	13.480	13.023	13.606	12.955	13.130	13.373	13.548		17.1	**0.10**	178.92	34.45	213.37	**OK**
14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548	14.548							
30.076	30.556	30.228	30.707	30.067	30.211	30.573	30.717	27.425	27.905	27.577	28.056	27.416	27.560	27.922	28.066		30.7	**0.10**	178.92	34.45	213.37	**OK**
5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740	5.740							
11.247	11.564	11.333	11.650	11.258	11.353	11.544	11.639	10.320	10.637	10.406	10.723	10.331	10.426	10.617	10.712		11.6	**0.10**	178.92	34.45	213.37	**OK**
4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920	4.920							
12.874	13.316	12.953	13.395	12.937	13.069	13.200	13.333	8.778	9.220	8.857	9.299	8.840	8.973	9.104	9.236		26.4	**0.10**	178.92	34.45	213.37	**OK**
26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400	26.400							
35.717	36.001	35.822	36.106	35.694	35.779	36.044	36.129	32.061	32.345	32.166	32.450	32.038	32.123	32.388	32.473		36.1	**0.10**	178.92	34.45	213.37	**OK**
3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328	3.328							
8.662	8.882	8.722	8.942	8.669	8.735	8.869	8.935	8.227	8.446	8.286	8.506	8.234	8.299	8.433	8.499		8.9	**0.10**	178.92	34.45	213.37	**OK**
7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252							
13.340	13.726	13.408	13.793	13.396	13.512	13.622	13.738	9.460	9.845	9.528	9.913	9.516	9.631	9.742	9.858		26.4	**0.10**	178.92	34.45	213.37	**OK**
26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360	26.360							
40.883	41.273	41.000	41.390	40.884	41.001	41.272	41.389	36.233	36.623	36.349	36.739	36.233	36.350	36.622	36.739		41.4	**0.10**	178.92	34.45	213.37	**OK**
0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212	0.212							
8.871	9.203	8.961	9.293	8.883	8.982	9.183	9.282	8.270	8.602	8.360	8.692	8.281	8.381	8.581	8.681		9.3	**0.10**	178.92	34.45	213.37	**OK**
6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872							
13.330	14.004	13.474	14.148	13.399	13.601	13.877	14.080	11.202	11.877	11.346	12.020	11.271	11.473	11.749	11.952		20.9	**0.10**	178.92	34.45	213.37	**OK**
20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896	20.896							
18.494	18.889	18.601	18.996	18.508	18.626	18.864	18.982	14.588	14.983	14.695	15.090	14.602	14.721	14.958	15.076		23.8	**0.10**	178.92	103.35	282.27	**OK**
23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848	23.848							
53.620	54.264	53.879	54.523	53.543	53.736	54.407	54.601	42.606	43.251	42.865	43.510	42.529	42.722	43.394	43.587		54.6	**0.10**	178.92	103.35	282.27	**OK**
46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644	46.644							
19.663	20.218	19.884	20.439	19.599	19.766	20.336	20.502	12.169	12.724	12.390	12.945	12.106	12.272	12.842	13.008		26.1	**0.10**	178.92	45.93	224.85	**OK**
26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116	26.116							
25.671	26.081	25.782	26.192	25.686	25.809	26.054	26.177	19.420	19.831	19.531	19.941	19.435	19.558	19.804	19.927		27.7	**0.10**	178.92	103.35	282.27	**OK**
27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736	27.736							
44.102	44.877	44.254	45.029	44.196	44.428	44.702	44.935	33.492	34.267	33.644	34.419	33.586	33.819	34.093	34.325		45.0	**0.10**	178.92	103.35	282.27	**OK**
40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816	40.816							
26.163	26.484	26.251	26.572	26.172	26.269	26.466	26.562	19.727	20.048	19.815	20.136	19.736	19.833	20.030	20.126		28.0	**0.10**	178.92	103.35	282.27	**OK**
28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012	28.012							
50.475	50.987	50.681	51.193	50.413	50.567	51.101	51.255	40.548	41.061	40.755	41.267	40.487	40.641	41.175	41.328		51.3	**0.10**	178.92	103.35	282.27	**OK**
38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620	38.620							
25.802	26.232	25.992	26.422	25.731	25.859	26.364	26.493	18.328	18.757	18.518	18.947	18.256	18.385	18.890	19.019		26.5	**0.10**	178.92	45.93	224.85	**OK**
24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984	24.984							
35.183	35.270	35.206	35.293	35.186	35.213	35.263	35.289	27.933	28.020	27.956	28.043	27.937	27.963	28.013	28.040		37.8	**0.10**	178.92	103.35	282.27	**OK**
37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752	37.752							
109.638	110.080	109.793	110.234	109.613	109.745	110.128	110.260	88.393	88.834	88.547	88.988	88.367	88.499	88.882	89.014		110.3	**0.10**	178.92	103.35	282.27	**OK**
74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612	74.612							
23.394	23.858	23.575	24.039	23.346	23.485	23.948	24.087	16.116	16.580	16.297	16.761	16.067	16.206	16.670	16.809		24.1	**0.10**	178.92	45.93	224.85	**OK**
23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220	23.220							
39.480	39.581	39.507	39.608	39.484	39.514	39.574	39.604	30.895	30.996	30.922	31.023	30.899	30.929	30.989	31.019		40.3	**0.10**	178.92	103.35	282.27	**OK**
40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276	40.276							
114.668	115.025	114.843	115.200	114.589	114.696	115.171	115.278	92.627	92.984	92.801	93.158	92.548	92.655	93.130	93.237		115.3	**0.10**	178.92	103.35	282.27	**OK**
77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184	77.184							
26.065	26.567	26.242	26.743	26.034	26.185	26.623	26.774	18.481	18.983	18.658	19.160	18.451	18.601	19.040	19.190		26.8	**0.10**	178.92	45.93	224.85	**OK**
24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964	24.964							
22.408	22.744	22.500	22.836	22.418	22.519	22.725	22.826	17.329	17.664	17.421	17.756	17.338	17.439	17.646	17.747		26.1	**0.10**	178.92	103.35	282.27	**OK**
26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128	26.128							
51.401	52.146	51.564	52.310	51.471	51.694	52.016	52.240	40.925	41.670	41.088	41.834	40.995	41.218	41.540	41.764		52.3	**0.10**	178.92	103.35	282.27	**OK**
45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408	45.408							
23.146	25.238	23.696	25.789	23.236	23.864	25.071	25.699	19.511	21.604	20.061	22.154	19.601	20.229	21.436	22.064		25.8	**0.10**	178.92	103.35	282.27	**OK**
25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316	25.316							
177.773	181.539	178.796	182.562	177.897	179.027	181.308	182.438	160.576	164.342	161.600	165.365	160.701	161.830	164.111	165.241		182.6	**0.10**	178.92	103.35	282.27	**OK**
146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112	146.112							
126.019	126.988	126.275	127.244	126.059	126.350	126.913	127.204	108.663	109.631	108.919	109.887	108.703	108.993	109.557	109.847		127.2	**0.10**	178.92	57.42	236.34	**OK**
98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328	98.328							
158.298	161.158	159.071	161.930	158.397	159.255	160.973	161.831	142.260	145.119	143.032	145.892	142.359	143.217	144.935	145.793		161.9	**0.10**	178.92	57.42	236.34	**OK**
115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980	115.980							
34.528	36.330	35.004	36.805	34.604	35.145	36.189	36.729	31.233	33.035	31.709	33.510	31.309	31.850	32.894	33.434		36.8	**0.10**	178.92	103.35	282.27	**OK**
14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560	14.560							
188.369	191.618	189.249	192.498	188.480	189.454	191.413	192.387	169.534	172.783	170.414	173.663	169.644	170.619	172.578	173.552		192.5	**0.10**	178.92	103.35	282.27	**OK**
145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500	145.500							

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ $_{Cortante}$ **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMBDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMBDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMBDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMBDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMBDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMBDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey
COMBDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMBDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMBDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMBDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMBDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMBDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)
COMBDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMBDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMBDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMBDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+6.35	B26	0.000	7.180	V-45X45	0.45	0.40	-19.479	1.913	17.795	15.665	-17.795	-15.665	17.891	23.540	19.383	25.032	18.128	19.823	23.101	24.796	13.961	19.610	15.452	21.102	14.197	15.892	19.170	20.865
	B26	7.180					-20.802	-0.325	17.786	15.657	-17.786	-15.657	21.719	27.365	23.210	28.856	21.955	23.649	26.926	28.620	15.153	20.799	16.644	22.291	15.390	17.084	20.360	22.054
N+3.15	B26	0.000	7.180	V-45X45	0.45	0.40	-130.411	-30.755	36.069	30.349	-36.069	-30.349	180.078	191.528	182.968	194.419	180.713	184.148	190.348	193.783	110.199	121.650	113.090	124.540	110.835	114.270	120.470	123.905
	B26	7.180					-134.894	-31.215	33.522	32.389	-33.522	-32.389	186.225	196.866	189.309	199.951	186.350	189.543	196.633	199.825	114.541	125.183	117.626	128.268	114.667	117.860	124.949	128.142
N+6.35	B27	0.000	7.070	V-45X45	0.45	0.40	-18.999	0.819	19.874	17.494	-19.874	-17.494	17.992	24.301	19.658	25.967	18.257	20.149	23.810	25.703	13.111	19.421	14.778	21.087	13.376	15.269	18.930	20.822
	B27	7.070					-22.854	-2.440	22.006	19.369	-22.006	-19.369	25.449	32.435	27.294	34.280	25.742	27.838	31.891	33.987	16.153	23.139	17.998	24.984	16.446	18.542	22.595	24.691
N+3.15	B27	0.000	7.070	V-45X45	0.45	0.40	-139.693	-32.282	39.861	33.973	-39.861	-33.973	191.969	204.623	195.204	207.859	192.623	196.419	203.408	207.204	117.779	130.433	121.014	133.669	118.433	122.229	129.218	133.014
	B27	7.070					-103.205	-23.133	40.295	37.983	-40.295	-37.983	138.774	151.566	142.392	155.184	139.031	142.869	151.089	154.927	84.680	97.472	88.297	101.089	84.937	88.774	96.995	100.832
N+3.15	B28	0.000	4.050	V-20X45	0.20	0.40	-48.327	-14.848	8.701	11.909	-8.701	-11.909	70.892	73.654	72.026	74.789	70.536	71.364	74.316	75.145	41.546	44.308	42.680	45.443	41.190	42.018	44.970	45.799
	B28	4.050					36.754	8.526	1.567	1.908	-1.567	-1.908	52.970	52.473	52.789	52.291	53.008	52.859	52.403	52.253	33.418	32.921	33.236	32.739	33.456	33.307	32.850	32.701
N+3.15	B29	0.000	4.050	V-20X45	0.20	0.40	-45.384	-15.239	6.692	9.003	-6.692	-9.003	68.209	70.333	69.066	71.191	67.952	68.589	70.810	71.448	39.355	41.479	40.212	42.337	39.098	39.735	41.956	42.593
	B29	4.050					43.799	11.363	1.268	1.710	-1.268	-1.710	64.204	63.802	64.042	63.639	64.254	64.133	63.711	63.590	39.702	39.299	39.539	39.136	39.751	39.630	39.208	39.087
N+3.15	B30	0.000	4.050	V-20X45	0.20	0.40	-47.737	-15.114	6.949	9.236	-6.949	-9.236	70.856	73.062	71.735	73.941	70.601	71.263	73.534	74.195	41.420	43.627	42.300	44.506	41.166	41.828	44.098	44.760
	B30	4.050					37.678	9.392	1.155	1.522	-1.155	-1.522	54.861	54.495	54.716	54.350	54.902	54.792	54.419	54.309	34.166	33.799	34.021	33.654	34.207	34.097	33.724	33.614
N+3.15	B31	0.000	4.050	V-20X45	0.20	0.40	-48.909	-15.484	7.096	9.166	-7.096	-9.166	72.612	74.865	73.485	75.738	72.382	73.058	75.292	75.968	42.455	44.708	43.328	45.581	42.225	42.901	45.135	45.811
	B31	4.050					38.914	10.202	1.191	1.526	-1.191	-1.526	57.161	56.782	57.015	56.637	57.198	57.084	56.713	56.600	35.284	34.906	35.139	34.761	35.322	35.208	34.837	34.724
N+3.15	B32	0.000	4.050	V-20X45	0.20	0.40	-50.261	-15.611	7.342	9.362	-7.342	-9.362	74.313	76.644	75.205	77.535	74.089	74.788	77.061	77.760	43.624	45.954	44.515	46.846	43.399	44.098	46.371	47.071
	B32	4.050					37.518	9.132	1.176	1.735	-1.176	-1.735	54.423	54.050	54.258	53.884	54.485	54.373	53.934	53.822	34.035	33.662	33.870	33.497	34.098	33.986	33.547	33.435
N+3.15	B33	0.000	6.900	V-20X45	0.20	0.40	-33.038	-11.883	7.709	6.752	-7.709	-6.752	49.983	52.431	50.626	53.074	50.090	50.824	52.233	52.967	28.189	30.636	28.832	31.279	28.295	29.030	30.439	31.173
	B33	6.900					-59.806	-18.536	5.686	4.572	-5.686	-4.572	89.183	90.988	89.618	91.423	89.307	89.848	90.758	91.300	52.705	54.510	53.141	54.946	52.829	53.370	54.280	54.822
N+3.15	B34	0.000	7.500	V-20X45	0.20	0.40	-64.439	-20.716	4.438	3.910	-4.438	-3.910	97.152	98.561	97.525	98.933	97.211	97.633	98.452	98.875	57.104	58.513	57.477	58.886	57.163	57.586	58.404	58.827
	B34	7.500					-64.455	-21.062	4.759	3.935	-4.759	-3.935	97.465	98.976	97.840	99.351	97.557	98.010	98.806	99.259	57.067	58.578	57.441	58.952	57.158	57.612	58.407	58.861
N+3.15	B35	0.000	7.050	V-20X45	0.20	0.40	-58.915	-18.827	5.000	4.454	-5.000	-4.454	88.519	90.107	88.943	90.531	88.580	89.056	89.994	90.470	52.018	53.605	52.442	54.029	52.078	52.555	53.492	53.969
	B35	7.050					-58.111	-18.535	5.083	4.089	-5.083	-4.089	87.267	88.880	87.656	89.270	87.377	87.861	88.675	89.159	51.298	52.912	51.688	53.301	51.409	51.893	52.707	53.191
N+3.15	B36	0.000	7.180	V-20X45	0.20	0.40	-58.661	-18.838	4.674	4.203	-4.674	-4.203	88.289	89.773	88.689	90.173	88.341	88.787	89.676	90.121	51.853	53.337	52.253	53.737	51.905	52.350	53.239	53.685
	B36	7.180					-60.900	-19.264	4.765	3.848	-4.765	-3.848	91.404	92.917	91.771	93.284	91.506	91.960	92.728	93.182	53.870	55.383	54.237	55.750	53.972	54.426	55.194	55.648
N+3.15	B37	0.000	7.070	V-20X45	0.20	0.40	-61.664	-19.435	5.220	4.659	-5.220	-4.659	92.381	94.039	92.825	94.482	92.444	92.941	93.923	94.420	54.447	56.104	54.891	56.548	54.510	55.007	55.989	56.486
	B37	7.070					-35.134	-11.918	7.519	6.318	-7.519	-6.318	52.584	54.971	53.186	55.573	52.718	53.434	54.724	55.440	30.126	32.513	30.728	33.115	30.260	30.976	32.265	32.982
N+6.35	B38	0.000	8.150	V-45X45	0.45	0.40	-40.404	-6.994	19.164	26.599	-19.164	-26.599	51.170	57.254	53.704	59.787	50.344	52.169	58.788	60.613	32.055	38.139	34.588	40.672	31.229	33.054	39.673	41.498
	B38	8.150					-39.373	-9.843	16.359	22.883	-16.359	-22.883	53.404	58.598	55.584	60.777	52.679	54.237	59.944	61.502	31.749	36.943	33.929	39.122	31.024	32.582	38.289	39.847
N+3.15	B38	0.000	8.150	V-45X45	0.45	0.40	-111.856	-21.725	35.334	46.897	-35.334	-46.897	148.110	159.328	152.577	163.794	146.826	150.191	161.714	165.079	92.829	104.046	97.295	108.512	91.544	94.909	106.432	109.797
	B38	8.150					-114.917	-25.162	29.711	42.666	-29.711	-42.666	156.315	165.747	160.378	169.810	154.875	157.705	168.420	171.250	96.678	106.110	100.741	110.173	95.238	98.068	108.783	111.612
N+6.35	B39	0.000	8.150	V-45X45	0.45	0.40	-84.501	-65.862	17.444	24.458	-17.444	-24.458	163.330	168.867	165.659	171.197	162.550	164.212	170.315	171.976	72.117	77.655	74.447	79.984	71.338	72.999	79.102	80.764
	B39	8.150					-84.761	-74.763	14.893	20.635	-14.893	-20.635	173.130	177.858	175.095	179.823	172.492	173.910	179.042	180.461	72.938	77.666	74.904	79.631	72.300	73.719	78.851	80.269
N+3.15	B39	0.000	8.150	V-45X45	0.45	0.40	-169.824	-50.000	30.431	42.231	-30.431	-42.231	246.947	256.608	250.969	260.630	245.636	248.535	259.043	261.941	146.000	155.661	150.022	159.683	144.689	147.587	158.096	160.994
	B39	8.150					-176.036	-52.801	27.234	36.694	-27.234	-36.694	257.974	266.620	261.469	270.114	256.923	259.517	268.572	271.166	152.362	161.008	155.857	164.503	151.311	153.905	162.960	165.554
N+6.35	B40	0.000	8.150	V-45X45	0.45	0.40	-85.529	-66.294	15.563	20.885	-15.563	-20.885	165.464	170.405	167.453	172.394	164.873	166.355	171.503	172.985	73.511	78.452	75.500	80.441	72.920	74.402	79.550	81.032
	B40	8.150					-84.338	-74.733	13.228	17.836	-13.228	-17.836	172.990	177.189	174.688	178.888	172.478	173.737	178.140	179.400	72.955	77.155	74.654	78.853	72.443	73.703	78.105	79.365
N+3.15	B40	0.000	8.150	V-45X45	0.45	0.40	-167.865	-49.496	27.539	36.050	-27.539	-36.050	244.846	253.589	248.279	257.022	243.900	246.523	255.345	257.968	144.991	153.733	148.424	157.166	144.045	146.668	155.489	158.112
	B40	8.150					-174.545	-52.664	24.058	31.963	-24.058	-31.963	256.777	264.415	259.821	267.459	255.899	258.190	266.046	268.337	151.750	159.387	154.794	162.431	150.871	153.163	161.018	163.310
N+6.35	B41	0.000	8.150	V-45X45	0.45	0.40	-51.619	-17.270	15.012	20.131	-15.012	-20.131	75.871	80.637	77.789	82.554	75.303	76.732	81.693	83.123	43.116	47.881	45.033	49.799	42.547	43.977	48.938	50.367
	B41	8.150					-44.456	-18.908	12.788	17.058	-12.788	-17.058	69.413	73.473	71.038	75.097	68.939	70.157	74.354	75.572	37.168	41.228	38.793	42.853	36.694	37.912	42.109	43.327
N+3.15	B41	0.000	8.150	V-45X45	0.45	0.40	-168.889	-47.641	26.290	34.324	-26.290	-34.324	244.500	252.846	247.769	256.115	243.608	246.111	254.504	257.008	146.193	154.539	149.462	157.808	145.300	147.804	156.196	158.700
	B41	8.150					-167.706	-50.175	23.469	30.480	-23.469	-30.480	246.246	253.696	249.148	256.599	245.467	247.702	255.143	257.378	145.759	153.209	148.662	156.112	144.980	147.215	154.656	156.891
N+6.35	B42	0.000	8.150	V-45X45	0.45	0.40	-52.960	-18.874	15.283	20.109	-15.283	-20.109	79.043	83.894	80.958	85.809	78.506	79.962	84.890	86.346	44.281	49.132	46.196	51.047	43.744	45.200	50.128	51.584
	B42	8.150					-43.442	-18.535	12.997	17.071	-12.997	-17.071	67.789	71.916	69.415	73.541	67.337	68.575	72.756	73.994	36.222	40.348	37.848	41.974	35.769	37.007	41.189	42.426
N+3.15	B42	0.000	8.150	V-45X45	0.45	0.40	-173.524	-48.698	27.087	34.390	-27.087	-34.390	250.990	259.589	254.265	262.864	250.178	252.758	261.096	263.675	150.234	158.834	153.510	162.109	149.423	152.003	160.340	162.920
	B42	8.150					-172.411	-51.780	23.708	30.709	-23.708	-30.709	253.448	260.974	256.372	263.899	252.670	254.928	262.419	264.677	149.944	157.471	152.869	160.395	149.167	151.424	158.915	161.173
N+6.35	B43	0.000	8.150	V-45X45	0.45	0.40	-44.304	-9.679	15.158	20.080	-15.158	-20.080	59.482	64.294	61.394	66.206	58.935	60.378	65.309	66.753	36.511	41.323	38.424	43.236	35.964	37.408	42.339	43.783
	B43	8.150					-36.593	-8.733	12.984	16.911	-12.984	-16.911	49.778	53.900	51.389	55.511	49.342	50.579	54.711	55.947	30.067	34.189	31.678	35.800	29.631	30.868	35.000	36.236
N+3.15	B43	0.000	8.150	V-45X45	0.45	0.40	-113.165	-21.590	27.293	36.528	-27.293	-36.528	151.316	159.981	154.795	163.460	150.290	152.890	161.886	164.486	95.777	104.441	99.256	107.920	94.751	97.350	106.347	108.946
	B43	8.150					-120.906	-27.038	25.624	30.916	-25.624	-30.916	166.586	174.720	169.530	177.665	165.998	168.438	175.812	178.253	103.276	111.411	106.220	114.355	102.688	105.128	112.503	114.943
N+3.15	B44	0.000	4.100	V-20X45	0.20	0.40	37.602	8.470	1.031	1.082	-1.031	-1.082	53.808	53.480	53.705	53.377	53.813	53.715	53.470	53.372	34.057	33.730	33.954	33.627	34.063	33.964	33.719	33.621
	B44	4.100					-61.322	-18.976	5.205	6.709	-5.205	-6.709	91.417	93.069	92.056	93.708	91.250	91.745	93.379	93.875	54.044	55.697	54.683	56.335	53.877	54.373	56.007	56.503
N+3.15	B45	0.000	4.100	V-20X45	0.20	0.40	43.853	10.860	0.767	1.044	-0.767	-1.044	63.655	63.412	63.556	63.312	63.686	63.613	63.354	63.281	39.639	39.396	39.540	39.296	39.670	39.597	39.339	39.265
	B45	4.100					-62.373	-19.138	4.293	5.821	-4.293	-5.821	93.027	94.390	93.581	94.944	92.857	93.266	94.705	95.114	55.177	56.540	55.731	57.094	55.007	55.416	56.855	57.264
N+3.15	B46	0.000	4.100	V-20X45	0.20	0.40	38.336	9.230	0.700	0.927	-0.700	-0.927	55.388	55.166	55.300	55.078	55.414	55.347	55.119	55.053	34.658	34.435	34.569	34.347	34.683	34.616	34.389	34.322
	B46	4.100					-60.145	-18.776	4.087	5.361	-4.087	-5.361	90.046	91.343	90.557	91.854	89.904	90.294	91.606	91.996	53.226	54.524	53.737	55.035	53.085	53.474	54.787	55.176
N+3.15	B47	0.000	4.100	V-20X45	0.20	0.40	39.493	9.961	0.735	0.931	-0.735	-0.931	57.514	57.280	57.425	57.192	57.535	57.465	57.240	57.170	35.705	35.471	35.616	35.383	35.726	35.656	35.431	35.361
	B47	4.100					-61.187	-19.290	4.118	5.301	-4.118	-5.301	91.808	93.116	92.313	93.620	91.677	92.069	93.360	93.752	54.162	55.470	54.667	55.974	54.031	54.423	55.714	56.106
N+3.15	B48	0.000	4.100	V-20X45	0.20	0.40	37.979	8.797	0.715	1.193	-0.715	-1.193	54.542	54.315	54.428	54.201	54.595	54.527	54.216	54.148	34.351	34.124	34.238	34.011	34.405	34.336	34.026	33.958
	B48	4.100					-59.160	-17.888	3.993	5.655	-3.993	-5.655	87.977	89.245	88.515	89.783	87.792	88.173	89.587	89.968	52.341	53.609	52.879	54.147	52.156	52.537	53.951	54.332

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
$\Phi_{cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
20.216	5.517	7.090	5.932	7.505	5.583	6.055	6.967	7.439	4.055	5.628	4.470	6.043	4.121	4.593	5.506	5.978
21.652																
143.636	51.017	54.094	51.849	54.926	51.123	52.046	53.897	54.820	31.301	34.378	32.133	35.210	31.407	32.330	34.181	35.104
145.368																
19.220	6.144	8.025	6.641	8.522	6.223	6.787	7.879	8.443	4.139	6.020	4.636	6.516	4.218	4.782	5.873	6.438
22.012																
151.444	46.781	50.380	47.750	51.350	46.910	47.990	50.141	51.221	28.636	32.235	29.606	33.205	28.765	29.845	31.996	33.076
134.820																
78.512	30.583	31.143	30.819	31.378	30.505	30.672	31.289	31.456	18.510	19.069	18.745	19.304	18.431	18.599	19.215	19.383
9.624																
81.656	32.695	33.120	32.866	33.291	32.643	32.771	33.215	33.343	19.520	19.945	19.692	20.117	19.469	19.596	20.041	20.168
7.800																
79.264	31.041	31.495	31.223	31.677	30.989	31.125	31.593	31.729	18.663	19.117	18.845	19.299	18.611	18.747	19.215	19.352
9.276																
80.608	32.043	32.505	32.222	32.685	31.995	32.134	32.594	32.733	19.195	19.658	19.375	19.837	19.147	19.286	19.746	19.885
8.260																
80.084	31.787	32.270	31.966	32.449	31.747	31.892	32.344	32.489	19.175	19.658	19.354	19.838	19.135	19.280	19.733	19.878
8.524																
68.112	20.169	20.785	20.325	20.942	20.202	20.387	20.723	20.908	11.724	12.340	11.880	12.496	11.757	11.942	12.278	12.463
79.924																
83.048	25.949	26.338	26.049	26.438	25.969	26.086	26.301	26.418	15.223	15.612	15.322	15.712	15.243	15.360	15.575	15.692
83.220																
76.820	24.934	25.388	25.050	25.504	24.958	25.095	25.343	25.479	14.655	15.109	14.770	15.224	14.679	14.815	15.064	15.200
76.448																
77.604	25.027	25.444	25.134	25.551	25.048	25.174	25.404	25.530	14.725	15.142	14.831	15.249	14.746	14.871	15.102	15.227
78.512																
83.020	20.504	21.076	20.652	21.224	20.532	20.704	21.025	21.197	11.962	12.534	12.110	12.682	11.990	12.162	12.483	12.654
71.172																
47.012	12.831	14.215	13.409	14.793	12.641	13.056	14.568	14.983	7.829	9.212	8.407	9.791	7.638	8.054	9.566	9.981
47.820																
117.088	37.353	39.886	38.399	40.933	37.019	37.779	40.507	41.267	23.252	25.786	24.299	26.833	22.918	23.678	26.407	27.167
118.984																
146.328	41.283	42.543	41.810	43.070	41.109	41.487	42.866	43.244	17.798	19.058	18.325	19.585	17.624	18.002	19.381	19.759
149.888																
183.268	61.954	64.200	62.876	65.122	61.664	62.338	64.738	65.412	36.609	38.855	37.531	39.777	36.319	36.993	39.393	40.067
185.556																
146.988	41.528	42.650	41.981	43.102	41.393	41.729	42.901	43.237	17.971	19.093	18.424	19.545	17.836	18.172	19.344	19.681
149.952																
181.828	61.549	63.559	62.344	64.353	61.325	61.928	63.974	64.577	36.410	38.420	37.205	39.214	36.186	36.789	38.835	39.438
184.484																
65.696	17.826	18.909	18.261	19.344	17.698	18.023	19.147	19.472	9.851	10.934	10.285	11.368	9.723	10.048	11.171	11.496
64.224																
179.892	60.214	62.152	60.971	62.910	60.009	60.591	62.533	63.115	35.822	37.760	36.580	38.518	35.617	36.199	38.141	38.723
179.856																
66.472	18.016	19.118	18.451	19.552	17.895	18.225	19.343	19.674	9.878	10.979	10.312	11.414	9.756	10.087	11.205	11.535
63.536																
183.532	61.894	63.873	62.655	64.633	61.699	62.293	64.235	64.828	36.832	38.810	37.592	39.571	36.637	37.230	39.172	39.766
183.748																
49.140	13.406	14.502	13.838	14.935	13.285	13.614	14.726	15.055	8.169	9.265	8.601	9.698	8.049	8.377	9.489	9.818
46.504																
117.708	39.006	41.068	39.795	41.856	38.808	39.427	41.435	42.054	24.424	26.485	25.212	27.273	24.226	24.844	26.853	27.471
121.892																
5.304	35.421	35.744	35.551	35.874	35.381	35.478	35.817	35.914	21.488	21.811	21.619	21.942	21.449	21.546	21.884	21.981
84.640																
2.908	38.215	38.488	38.326	38.599	38.181	38.263	38.551	38.633	23.126	23.399	23.237	23.510	23.092	23.174	23.462	23.544
88.488																
5.448	35.472	35.734	35.575	35.837	35.443	35.522	35.787	35.865	21.435	21.697	21.538	21.800	21.407	21.485	21.750	21.829
84.940																
4.476	36.420	36.682	36.521	36.783	36.393	36.472	36.732	36.810	21.919	22.181	22.020	22.282	21.892	21.971	22.230	22.309
86.252																
6.384	34.761	35.015	34.864	35.118	34.729	34.805	35.074	35.150	21.144	21.398	21.248	21.502	21.112	21.189	21.458	21.534
84.056																

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

***Vu* = Vm + Vg**																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18						
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
25.733	27.306	26.148	27.721	25.799	26.271	27.183	27.655	24.271	25.844	24.686	26.259	24.337	24.809	25.722	26.194		27.7	**0.10**	178.92	103.35	282.27	**OK**
21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652	21.652							
194.653	197.730	195.485	198.562	194.759	195.682	197.533	198.456	174.937	178.014	175.769	178.846	175.043	175.966	177.817	178.740		198.6	**0.10**	178.92	103.35	282.27	**OK**
145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368	145.368							
25.364	27.245	25.861	27.742	25.443	26.007	27.099	27.663	23.359	25.240	23.856	25.736	23.438	24.002	25.093	25.658		27.7	**0.10**	178.92	103.35	282.27	**OK**
22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012	22.012							
198.225	201.824	199.194	202.794	198.354	199.434	201.585	202.665	180.080	183.679	181.050	184.649	180.209	181.289	183.440	184.520		202.8	**0.10**	178.92	103.35	282.27	**OK**
134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820	134.820							
109.095	109.655	109.331	109.890	109.017	109.184	109.801	109.968	97.022	97.581	97.257	97.816	96.943	97.111	97.727	97.895		110.0	**0.10**	178.92	45.93	224.85	**OK**
9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624	9.624							
114.351	114.776	114.522	114.947	114.299	114.427	114.871	114.999	101.176	101.601	101.348	101.773	101.125	101.252	101.697	101.824		115.0	**0.10**	178.92	45.93	224.85	**OK**
7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800	7.800							
110.305	110.759	110.487	110.941	110.253	110.389	110.857	110.993	97.927	98.381	98.109	98.563	97.875	98.011	98.479	98.616		111.0	**0.10**	178.92	45.93	224.85	**OK**
9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276	9.276							
112.651	113.113	112.830	113.293	112.603	112.742	113.202	113.341	99.803	100.266	99.983	100.445	99.755	99.894	100.354	100.493		113.3	**0.10**	178.92	45.93	224.85	**OK**
8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260	8.260							
111.871	112.354	112.050	112.533	111.831	111.976	112.428	112.573	99.259	99.742	99.438	99.922	99.219	99.364	99.817	99.962		112.6	**0.10**	178.92	45.93	224.85	**OK**
8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524	8.524							
88.281	88.897	88.437	89.054	88.314	88.499	88.835	89.020	79.836	80.452	79.992	80.608	79.869	80.054	80.390	80.575		89.1	**0.10**	178.92	45.93	224.85	**OK**
79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924	79.924							
108.997	109.386	109.097	109.486	109.017	109.134	109.349	109.466	98.271	98.660	98.370	98.760	98.291	98.408	98.623	98.740		109.5	**0.10**	178.92	45.93	224.85	**OK**
83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220	83.220							
101.754	102.208	101.870	102.324	101.778	101.915	102.163	102.299	91.475	91.929	91.590	92.044	91.499	91.635	91.884	92.020		102.3	**0.10**	178.92	45.93	224.85	**OK**
76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448	76.448							
102.631	103.048	102.738	103.155	102.652	102.778	103.008	103.134	92.329	92.746	92.435	92.853	92.350	92.475	92.706	92.831		103.2	**0.10**	178.92	45.93	224.85	**OK**
78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512	78.512							
103.524	104.096	103.672	104.244	103.552	103.724	104.045	104.217	94.982	95.554	95.130	95.702	95.010	95.182	95.503	95.674		104.2	**0.10**	178.92	45.93	224.85	**OK**
71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172	71.172							
59.843	61.227	60.421	61.805	59.653	60.068	61.580	61.995	54.841	56.224	55.419	56.803	54.650	55.066	56.578	56.993		62.0	**0.10**	178.92	103.35	282.27	**OK**
47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820	47.820							
154.441	156.974	155.487	158.021	154.107	154.867	157.595	158.355	140.340	142.874	141.387	143.921	140.006	140.766	143.495	144.255		158.4	**0.10**	178.92	103.35	282.27	**OK**
118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984	118.984							
187.611	188.871	188.138	189.398	187.437	187.815	189.194	189.572	164.126	165.386	164.653	165.913	163.952	164.330	165.709	166.087		189.6	**0.10**	178.92	103.35	282.27	**OK**
149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888	149.888							
245.222	247.468	246.144	248.390	244.932	245.606	248.006	248.680	219.877	222.123	220.799	223.045	219.587	220.261	222.661	223.335		248.7	**0.10**	178.92	103.35	282.27	**OK**
185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556	185.556							
188.516	189.638	188.969	190.090	188.381	188.717	189.889	190.225	164.959	166.081	165.412	166.533	164.824	165.160	166.332	166.669		190.2	**0.10**	178.92	103.35	282.27	**OK**
149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952	149.952							
243.377	245.387	244.172	246.181	243.153	243.756	245.802	246.405	218.238	220.248	219.033	221.042	218.014	218.617	220.663	221.266		246.4	**0.10**	178.92	103.35	282.27	**OK**
184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484	184.484							
83.522	84.605	83.957	85.040	83.394	83.719	84.843	85.168	75.547	76.630	75.981	77.064	75.419	75.744	76.867	77.192		85.2	**0.10**	178.92	103.35	282.27	**OK**
64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224	64.224							
240.106	242.044	240.863	242.802	239.901	240.483	242.425	243.007	215.714	217.652	216.472	218.410	215.509	216.091	218.033	218.615		243.0	**0.10**	178.92	103.35	282.27	**OK**
179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856	179.856							
84.488	85.590	84.923	86.024	84.367	84.697	85.815	86.146	76.350	77.451	76.784	77.886	76.228	76.559	77.677	78.007		86.1	**0.10**	178.92	103.35	282.27	**OK**
63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536	63.536							
245.426	247.405	246.187	248.165	245.231	245.825	247.767	248.360	220.364	222.342	221.124	223.103	220.169	220.762	222.704	223.298		248.4	**0.10**	178.92	103.35	282.27	**OK**
183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748	183.748							
62.546	63.642	62.978	64.075	62.425	62.754	63.866	64.195	57.309	58.405	57.741	58.838	57.189	57.517	58.629	58.958		64.2	**0.10**	178.92	103.35	282.27	**OK**
46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504	46.504							
156.714	158.776	157.503	159.564	156.516	157.135	159.143	159.762	142.132	144.193	142.920	144.981	141.934	142.552	144.561	145.179		159.8	**0.10**	178.92	103.35	282.27	**OK**
121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892	121.892							
40.725	41.048	40.855	41.178	40.685	40.782	41.121	41.218	26.792	27.115	26.923	27.246	26.753	26.850	27.188	27.285		84.6	**0.10**	178.92	45.93	224.85	**OK**
84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640	84.640							
41.123	41.396	41.234	41.507	41.089	41.171	41.459	41.541	26.034	26.307	26.145	26.418	26.000	26.082	26.370	26.452		88.5	**0.10**	178.92	45.93	224.85	**OK**
88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488	88.488							
40.920	41.182	41.023	41.285	40.891	40.970	41.235	41.313	26.883	27.145	26.986	27.248	26.855	26.933	27.198	27.277		84.9	**0.10**	178.92	45.93	224.85	**OK**
84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940	84.940							
40.896	41.158	40.997	41.259	40.869	40.948	41.208	41.286	26.395	26.657	26.496	26.758	26.368	26.447	26.706	26.785		86.3	**0.10**	178.92	45.93	224.85	**OK**
86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252	86.252							
41.145	41.399	41.248	41.502	41.113	41.189	41.458	41.534	27.528	27.782	27.632	27.886	27.496	27.573	27.842	27.918		84.1	**0.10**	178.92	45.93	224.85	**OK**
84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056	84.056							

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ Cortante = 0.75
Estribos Φ = 9.5 mm
Av = 71 mm²
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey
COMDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)
COMDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+6.35	B49	0.000	8.940	V-45X45	0.45	0.40	-28.803	-3.610	18.513	14.551	-18.513	-14.551	34.542	40.419	35.928	41.805	34.982	36.745	39.602	41.365	22.291	28.168	23.677	29.554	22.731	24.495	27.351	29.114
	B49	8.940					-29.727	2.559	16.728	13.338	-16.728	-13.338	29.823	35.133	31.093	36.404	30.200	31.793	34.434	36.027	23.464	28.774	24.734	30.045	23.841	25.434	28.075	29.668
N+3.15	B49	0.000	8.940	V-45X45	0.45	0.40	-60.382	-46.035	36.027	26.441	-36.027	-26.441	111.516	122.953	114.034	125.471	112.581	116.012	120.975	124.406	47.366	58.803	49.884	61.321	48.431	51.862	56.825	60.256
	B49	8.940					-87.033	-60.438	31.239	29.371	-31.239	-29.371	158.520	168.438	161.318	171.235	158.728	161.703	168.052	171.027	71.973	81.890	74.770	84.687	72.180	75.155	81.504	84.479
N+6.35	B50	0.000	6.900	V-45X45	0.45	0.40	-20.840	5.116	19.207	15.378	-19.207	-15.378	16.111	22.208	17.576	23.673	16.536	18.366	21.418	23.248	14.975	21.072	16.440	22.537	15.400	17.230	20.282	22.112
	B50	6.900					-27.538	-13.295	19.124	15.253	-19.124	-15.253	42.579	48.650	44.031	50.102	43.009	44.830	47.851	49.672	21.022	27.093	22.475	28.546	21.452	23.274	26.295	28.116
N+3.15	B50	0.000	6.900	V-45X45	0.45	0.40	-96.812	-52.095	36.965	28.615	-36.965	-28.615	161.039	172.774	163.765	175.499	161.967	165.488	171.051	174.572	79.901	91.636	82.626	94.361	80.828	84.349	89.913	93.433
	B50	6.900					-114.095	-51.104	36.302	30.340	-36.302	-30.340	180.811	192.335	183.701	195.225	181.473	184.931	191.105	194.563	95.479	107.003	98.368	109.892	96.141	99.598	105.773	109.230
N+6.35	B51	0.000	7.500	V-45X45	0.45	0.40	-54.245	-47.803	17.689	14.056	-17.689	-14.056	109.420	115.035	110.759	116.374	109.824	111.508	114.286	115.970	45.343	50.959	46.682	52.298	45.747	47.432	50.209	51.894
	B51	7.500					-57.599	-48.090	17.722	14.092	-17.722	-14.092	113.725	119.351	115.067	120.693	114.128	115.816	118.602	120.290	48.355	53.981	49.697	55.323	48.758	50.446	53.232	54.920
N+3.15	B51	0.000	7.500	V-45X45	0.45	0.40	-128.557	-63.107	33.790	26.502	-33.790	-26.502	210.750	221.477	213.274	224.001	211.560	214.778	219.973	223.191	109.076	119.803	111.600	122.327	109.886	113.104	118.299	121.517
	B51	7.500					-130.682	-64.333	33.067	27.859	-33.067	-27.859	214.576	225.074	217.229	227.727	215.155	218.304	223.999	227.148	111.038	121.536	113.692	124.189	111.617	114.766	120.461	123.610
N+6.35	B52	0.000	7.050	V-45X45	0.45	0.40	-28.476	-12.719	18.701	14.878	-18.701	-14.878	43.213	49.150	44.630	50.567	43.638	45.419	48.361	50.142	21.952	27.888	23.368	29.305	22.376	24.157	27.099	28.881
	B52	7.050					-17.802	4.517	18.597	14.791	-18.597	-14.791	13.189	19.093	14.598	20.502	13.612	15.383	18.308	20.079	12.366	18.269	13.774	19.678	12.788	14.560	17.484	19.255
N+3.15	B52	0.000	7.050	V-45X45	0.45	0.40	-111.282	-52.547	35.925	28.417	-35.925	-28.417	179.030	190.435	181.736	193.141	179.864	183.285	188.885	192.307	93.098	104.503	95.805	107.209	93.932	97.354	102.954	106.375
	B52	7.050					-113.749	-55.753	35.050	29.211	-35.050	-29.211	185.297	196.424	188.079	199.206	185.946	189.284	195.219	198.558	95.420	106.547	98.202	109.329	96.068	99.406	105.342	108.680
N+6.35	B53	0.000	7.180	V-45X45	0.45	0.40	-19.188	1.329	18.275	14.518	-18.275	-14.518	18.104	23.906	19.487	25.289	18.522	20.262	23.131	24.871	13.677	19.479	15.060	20.861	14.095	15.835	18.703	20.444
	B53	7.180					-21.622	-0.286	18.354	14.571	-18.354	-14.571	22.625	28.452	24.013	29.840	23.046	24.794	27.671	29.419	15.853	21.679	17.240	23.067	16.273	18.021	20.899	22.647
N+3.15	B53	0.000	7.180	V-45X45	0.45	0.40	-114.660	-56.543	35.117	27.897	-35.117	-27.897	187.232	198.381	189.889	201.038	188.035	191.379	196.891	200.235	96.291	107.440	98.948	110.097	97.094	100.438	105.950	109.294
	B53	7.180					-119.579	-57.905	34.337	28.622	-34.337	-28.622	194.587	205.487	197.312	208.213	195.222	198.492	204.308	207.578	100.808	111.708	103.534	114.434	101.443	104.713	110.529	113.799
N+6.35	B54	0.000	7.070	V-45X45	0.45	0.40	-17.793	1.485	18.110	14.401	-18.110	-14.401	16.306	22.055	17.678	23.427	16.718	18.443	21.290	23.015	12.453	18.203	13.825	19.574	12.865	14.590	17.437	19.162
	B54	7.070					-25.160	-3.465	17.343	13.844	-17.343	-13.844	30.245	35.751	31.563	37.069	30.634	32.285	35.029	36.680	19.232	24.738	20.550	26.056	19.621	21.272	24.016	25.667
N+3.15	B54	0.000	7.070	V-45X45	0.45	0.40	-124.209	-59.591	35.584	27.926	-35.584	-27.926	201.664	212.960	204.323	215.620	202.515	205.904	211.380	214.769	104.810	116.107	107.470	118.766	105.661	109.050	114.526	117.915
	B54	7.070					-99.099	-46.522	32.320	27.192	-32.320	-27.192	159.016	169.276	161.605	171.866	159.586	162.664	168.218	171.296	82.764	93.024	85.354	95.614	83.334	86.412	91.966	95.044
N+6.35	B55	0.000	4.920	V-45X45	0.45	0.40	-13.105	-0.480	25.158	19.938	-25.158	-19.938	11.263	19.250	13.162	21.149	11.843	14.239	18.173	20.569	6.852	14.838	8.751	16.737	7.432	9.828	13.761	16.157
	B55	4.920					-17.701	-5.209	27.777	21.904	-27.777	-21.904	20.998	29.816	23.084	31.902	21.651	24.296	28.604	31.250	10.479	19.297	12.565	21.383	11.131	13.777	18.085	20.730
N+3.15	B55	0.000	4.920	V-45X45	0.45	0.40	-30.822	-10.971	49.708	40.158	-49.708	-40.158	38.155	53.935	41.980	57.760	39.216	43.950	51.965	56.699	17.937	33.718	21.762	37.542	18.998	23.733	31.747	36.481
	B55	4.920					-4.079	2.752	54.217	43.898	-54.217	-43.898	8.553	8.658	4.373	12.839	7.407	2.243	6.529	11.692	7.025	10.187	2.844	14.367	5.879	0.715	8.057	13.221
N+6.35	B56	0.000	3.570	V-45X45	0.45	0.40	-3.691	-0.412	37.187	53.088	-37.187	-53.088	3.589	8.216	1.467	13.272	5.356	1.815	11.497	15.039	5.109	6.697	0.053	11.753	6.876	3.334	9.978	13.519
	B56	3.570					-8.944	-4.029	37.193	53.086	-37.193	-53.086	6.330	18.138	11.386	23.193	4.564	8.107	21.417	24.959	0.382	11.425	4.674	16.481	2.148	1.394	14.705	18.247
N+3.15	B56	0.000	3.570	V-45X45	0.45	0.40	-4.642	-2.833	73.923	104.471	-73.923	-104.471	8.305	15.162	1.644	25.112	11.699	4.659	21.466	28.506	12.531	10.937	2.581	20.886	15.925	8.885	17.240	24.281
	B56	3.570					-10.628	-5.762	73.919	104.475	-73.919	-104.475	1.807	25.274	11.757	35.224	1.588	5.452	31.579	38.619	7.143	16.323	2.807	26.273	10.538	3.498	22.629	29.668
N+3.15	B57	0.000	3.570	V-20X45	0.20	0.40	-7.799	-6.532	6.621	9.239	-6.621	-9.239	14.400	16.502	15.280	17.382	14.109	14.740	17.042	17.673	5.528	7.630	6.408	8.510	5.237	5.868	8.170	8.801
	B57	3.570					-8.414	-6.789	6.597	9.273	-6.597	-9.273	15.397	17.491	16.280	18.375	15.100	15.728	18.044	18.672	6.084	8.178	6.967	9.061	5.787	6.415	8.730	9.359
N+6.35	B58	0.000	3.570	V-45X45	0.45	0.40	-11.225	-5.195	27.506	38.595	-27.506	-38.595	12.461	21.193	16.137	24.869	11.229	13.849	23.481	26.101	3.899	12.631	7.574	16.306	2.667	5.286	14.919	17.539
	B58	3.570					-13.572	-6.082	27.618	38.580	-27.618	-38.580	16.147	24.915	19.822	28.589	14.929	17.560	27.177	29.807	5.994	14.761	9.668	18.436	4.776	7.406	17.023	19.654
N+3.15	B58	0.000	3.570	V-45X45	0.45	0.40	-31.151	-12.582	54.026	74.539	-54.026	-74.539	37.838	54.989	44.937	62.088	35.559	40.704	59.222	64.367	15.911	33.062	23.010	40.161	13.632	18.777	37.295	42.440
	B58	3.570					-35.732	-15.029	53.829	74.805	-53.829	-74.805	45.801	62.890	52.925	70.014	43.470	48.597	67.218	72.344	20.052	37.141	27.177	44.265	17.722	22.848	41.469	46.596
N+3.15	B59	0.000	3.570	V-20X45	0.20	0.40	-37.014	-15.254	4.800	6.710	-4.800	-6.710	58.589	60.113	59.228	60.752	58.377	58.834	60.507	60.964	32.231	33.755	32.870	34.394	32.019	32.476	34.149	34.606
	B59	3.570					-37.669	-16.324	4.854	6.582	-4.854	-6.582	60.443	61.984	61.070	62.611	60.251	60.713	62.340	62.803	32.818	34.359	33.445	34.986	32.626	33.088	34.716	35.178
N+6.35	B60	0.000	3.570	V-45X45	0.45	0.40	-22.179	-27.286	24.845	34.262	-24.845	-34.262	48.326	56.213	51.589	59.476	47.279	49.645	58.156	60.522	14.386	22.273	17.649	25.536	13.340	15.706	24.216	26.583
	B60	3.570					-16.428	-3.805	24.698	34.382	-24.698	-34.382	17.961	25.802	21.236	29.076	16.885	19.237	27.800	30.152	9.228	17.068	12.502	20.343	8.152	10.504	19.067	21.419
N+3.15	B60	0.000	3.570	V-45X45	0.45	0.40	-44.639	-14.098	48.291	65.601	-48.291	-65.601	56.876	72.206	63.123	78.454	54.952	59.552	75.778	80.377	29.386	44.716	35.634	50.964	27.463	32.062	48.288	52.888
	B60	3.570					-45.161	-20.011	48.466	65.515	-48.466	-65.515	63.391	78.777	69.631	85.017	61.497	66.113	82.296	86.911	29.832	45.218	36.072	51.458	27.938	32.554	48.736	53.352
N+3.15	B61	0.000	3.570	V-20X45	0.20	0.40	-38.493	-15.552	3.974	5.282	-3.974	-5.282	60.861	62.123	61.364	62.626	60.716	61.094	62.393	62.771	33.761	35.023	34.264	35.526	33.616	33.995	35.293	35.671
	B61	3.570					-27.041	-11.037	4.565	6.036	-4.565	-6.036	42.474	43.923	43.049	44.498	42.311	42.745	44.227	44.662	23.325	24.774	23.900	25.349	23.161	23.596	25.078	25.512
N+6.35	B62	0.000	3.570	V-45X45	0.45	0.40	-23.380	-27.962	22.166	29.844	-22.166	-29.844	51.078	58.115	53.921	60.958	50.225	52.336	59.700	61.811	16.102	23.139	18.945	25.982	15.249	17.360	24.724	26.835
	B62	3.570					-14.040	-2.890	22.296	29.703	-22.296	-29.703	14.785	21.863	17.613	24.691	13.962	16.085	23.391	25.514	7.683	14.761	10.511	17.589	6.860	8.983	16.289	18.412
N+3.15	B62	0.000	3.570	V-45X45	0.45	0.40	-48.191	-16.076	43.117	57.103	-43.117	-57.103	64.342	78.030	69.780	83.468	62.788	66.894	80.916	85.022	33.809	47.497	39.247	52.935	32.255	36.361	50.383	54.489
	B62	3.570					-36.740	-15.215	43.302	57.213	-43.302	-57.213	49.705	63.452	55.154	68.901	48.160	52.284	66.322	70.446	23.468	37.215	28.917	42.664	21.923	26.047	40.085	44.209
N+3.15	B63	0.000	3.570	V-20X45	0.20	0.40	-38.661	-15.891	3.721	4.889	-3.721	-4.889	61.461	62.642	61.926	63.108	61.331	61.685	62.883	63.237	33.971	35.153	34.437	35.618	33.842	34.196	35.394	35.748
	B63	3.570					-38.439	-16.438	3.715	4.840	-3.715	-4.840	61.745	62.924	62.206	63.385	61.620	61.973	63.156	63.510	33.775	34.954	34.236	35.415	33.650	34.004	35.186	35.540
N+6.35	B64	0.000	3.570	V-45X45	0.45	0.40	-10.983	-6.846	21.422	28.407	-21.422	-28.407	15.273	22.073	17.978	24.779	14.496	16.537	23.515	25.555	5.132	11.932	7.837	14.638	4.356	6.396	13.374	15.414
	B64	3.570					-9.317	-6.354	21.458	28.437	-21.458	-28.437	12.774	19.586	15.483	22.295	11.999	14.042	21.026	23.070	3.625	10.437	6.333	13.145	2.850	4.893	11.877	13.921
N+3.15	B64	0.000	3.570	V-45X45	0.45	0.40	-46.037	-18.317	41.662	54.267	-41.662	-54.267	64.364	77.590	69.533	82.759	62.964	66.931	80.191	84.159	32.236	45.462	37.404	50.630	30.836	34.803	48.063	52.031
	B64	3.570					-47.861	-19.837	41.685	54.334	-41.685	-54.334	68.066	81.300	73.241	86.474	66.661	70.631	83.910	87.880	33.871	47.104	39.046	52.279	32.465	36.435	49.714	53.684
N+3.15	B65	0.000	3.570	V-20X45	0.20	0.40	-40.760	-17.197	3.765	4.838	-3.765	-4.838	65.281	66.476	65.742	66.937	65.162	65.520	66.698	67.056	35.856	37.051	36.317	37.512	35.737	36.095	37.273	37.631
	B65	3.570					-37.426	-15.814	3.696	4.891	-3.696	-4.891	59.906	61.079	60.371	61.545	59.773	60.125	61.326	61.678	32.864	34.037	33.330	34.503	32.731	33.083	34.284	34.636
N+6.35	B66	0.000	3.570	V-45X45	0.45	0.40	-9.191	-5.847	21.702	28.524	-21.702	-28.524	12.073	18.963	14.790	21.679	11.315	13.382	20.370	22.437	3.469	10.358	6.185	13.075	2.711	4.778	11.766	13.833
	B66	3.570					-12.168	-5.125	21.759	28.663	-21.759	-28.663	14.908	21.816	17.638	24.545	14.141	16.213	23.240	25.312	6.132	13.040	8.862	15.770	5.365	7.438	14.465	16.537
N+3.15	B66	0.000	3.570	V-45X45	0.45	0.40	-54.708	-21.623	42.670	54.594	-42.670	-54.594	77.900	91.446	83.099	96.645	76.575	80.639	93.906	97.970	39.864	53.411	45.064	58.610	38.540	42.603	55.871	59.935
	B66	3.570					-26.110	-11.488	43.044	54.891	-43.044	-54.891	33.374	47.039	38.601	52.266	32.057	36.157	49.483	53.583	14.053	27.718	19.280	32.945	12.736	16.836	30.162	34.262
N+3.15	B67	0.000	3.570	V-20X45	0.20	0.40	-31.242	-13.351	4.205	5.165	-4.205	-5.165	49.928	51.263	50.420	51.755	49.821	50.222	51.461	51.861	27.204	28.539	27.696	29.031	27.098	27.498	28.737	29.138
	B67	3.570					-12.630	-8.758	6.348	8.064	-6.348	-8.064	22.522	24.538	23.290	25.306	22.332	22.936	24.892	25.496	9.975	11.991	10.743	12.759	9.785	10.389	12.345	12.949
N+6.35	B68	0.000	3.570	V-45X45	0.45	0.40	-16.912	-5.232	23.186	30.143	-23.186	-30.143	20.411	27.771	23.281	30.642	19.638	21.846	29.207	31.415	10.105	17.466	12.976	20.336	9.332	11.540	18.901	21.109
	B68	3.570					-8.491	-4.413	25.626	33.465	-25.626	-33.465	8.941	17.076	12.128	20.263	8.070	10.511	18.694	21.134	1.981	10.116	5.168	13.303	1.110	3.550	11.734	14.174

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
$\Phi_{cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
27.048	7.200	8.451	7.497	8.748	7.291	7.666	8.281	8.657	5.118	6.369	5.415	6.667	5.209	5.585	6.200	6.575
25.092																
99.268	30.205	32.594	30.800	33.189	30.348	31.064	32.330	33.046	13.349	15.737	13.943	16.332	13.491	14.208	15.473	16.190
111.572																
14.688	8.506	10.269	8.929	10.692	8.630	9.159	10.039	10.568	5.217	6.981	5.640	7.403	5.341	5.870	6.750	7.279
25.560																
145.520	49.544	52.914	50.357	53.728	49.774	50.785	52.486	53.498	25.417	28.788	26.231	29.602	25.648	26.659	28.360	29.371
151.316																
107.096	29.753	31.251	30.110	31.609	29.860	30.310	31.052	31.501	12.493	13.992	12.851	14.349	12.601	13.050	13.792	14.242
108.276																
166.488	56.710	59.540	57.400	60.230	56.895	57.744	59.196	60.045	29.349	32.178	30.039	32.869	29.534	30.383	31.835	32.684
167.640																
26.284	8.000	9.680	8.401	10.081	8.121	8.624	9.457	9.960	4.868	6.547	5.268	6.948	4.988	5.492	6.324	6.828
14.840																
151.028	51.678	54.874	52.456	55.652	51.888	52.847	54.483	55.442	26.740	29.936	27.519	30.715	26.950	27.909	29.545	30.504
153.256																
20.180	5.673	7.292	6.059	7.678	5.789	6.275	7.075	7.561	4.113	5.732	4.499	6.118	4.229	4.715	5.516	6.001
21.700																
155.484	53.178	56.249	53.928	56.999	53.378	54.300	55.877	56.799	27.451	30.522	28.201	31.272	27.651	28.573	30.150	31.072
157.800																
18.248	6.584	8.176	6.965	8.557	6.698	7.175	7.966	8.443	4.482	6.074	4.862	6.454	4.595	5.073	5.863	6.341
22.984																
163.708	51.015	54.065	51.758	54.807	51.216	52.131	53.691	54.606	26.531	29.580	27.273	30.323	26.732	27.647	29.207	30.122
149.052																
31.524	6.557	9.973	7.367	10.783	6.808	7.832	9.508	10.532	3.522	6.938	4.332	7.748	3.773	4.798	6.473	7.498
36.828																
25.332	9.494	12.722	9.421	14.349	9.476	9.389	11.889	13.901	5.074	8.924	5.001	10.551	5.056	4.969	8.090	10.102
3.360																
19.528	2.779	7.382	3.600	10.214	2.779	2.779	9.220	11.204	1.538	5.076	1.324	7.909	2.528	1.324	6.914	8.898
26.288																
26.356	2.833	11.327	3.754	16.901	3.722	2.832	14.859	18.803	5.511	7.636	1.509	13.210	7.413	3.469	11.168	15.112
33.000																
42.824	8.346	9.522	8.840	10.016	8.182	8.534	9.828	10.181	3.253	4.428	3.747	4.922	3.088	3.441	4.734	5.087
43.468																
28.948	8.014	12.915	10.072	14.974	7.327	8.798	14.190	15.661	2.771	7.673	4.830	9.732	2.085	3.555	8.947	10.418
31.332																
46.272	23.428	33.019	27.412	37.003	22.137	25.014	35.417	38.295	10.074	19.665	14.058	23.649	8.782	11.660	22.063	24.940
51.548																
42.400	33.342	34.201	33.697	34.555	33.229	33.487	34.411	34.669	18.221	19.080	18.576	19.434	18.108	18.365	19.290	19.547
43.804																
41.080	18.568	22.973	20.399	24.805	17.973	19.295	24.077	25.399	6.614	11.020	8.446	12.851	6.020	7.342	12.124	13.446
16.176																
46.088	33.688	42.292	37.186	45.790	32.619	35.200	44.278	46.860	16.588	25.192	20.086	28.690	15.518	18.100	27.178	29.759
51.732																
49.024	28.946	29.705	29.247	30.007	28.859	29.087	29.865	30.093	15.991	16.750	16.292	17.052	15.904	16.132	16.911	17.138
37.284																
43.172	18.449	22.403	20.038	23.991	17.980	19.166	23.275	24.461	6.662	10.616	8.251	12.205	6.193	7.379	11.488	12.674
14.416																
53.160	31.946	39.631	34.996	42.680	31.078	33.383	41.243	43.549	16.044	23.729	19.094	26.778	15.176	17.481	25.341	27.647
44.688																
42.972	34.511	35.173	34.771	35.432	34.440	34.638	35.305	35.503	18.977	19.638	19.236	19.897	18.905	19.104	19.770	19.969
43.308																
29.236	7.856	11.669	9.373	13.186	7.422	8.566	12.476	13.620	2.453	6.266	3.969	7.782	2.018	3.162	7.073	8.217
27.672																
47.624	37.095	44.507	39.993	47.404	36.309	38.533	45.967	48.190	18.517	25.929	21.415	28.826	17.731	19.955	27.389	29.612
50.224																
44.892	35.066	35.730	35.326	35.989	34.996	35.195	35.861	36.060	19.249	19.913	19.509	20.172	19.179	19.378	20.044	20.243
41.400																
27.800	7.558	11.422	9.083	12.948	7.131	8.290	12.216	13.375	2.689	6.554	4.215	8.080	2.262	3.422	7.348	8.507
29.152																
63.080	31.169	38.791	34.090	41.712	30.429	32.716	40.165	42.452	15.103	22.725	18.024	25.646	14.363	16.650	24.099	26.386
34.768																
51.468	20.294	21.233	20.647	21.586	20.211	20.492	21.387	21.669	10.415	11.353	10.767	11.706	10.331	10.613	11.508	11.789
34.824																
35.428	8.222	12.562	9.919	14.259	7.761	9.063	13.418	14.720	3.385	7.726	5.082	9.423	2.925	4.227	8.581	9.883
29.028																

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

***Vu* = Vm + Vg**																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18						
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
34.248	35.499	34.545	35.796	34.339	34.714	35.329	35.705	32.166	33.417	32.463	33.715	32.257	32.633	33.248	33.623		35.8	**0.10**	178.92	103.35	282.27	**OK**
25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092	25.092							
129.473	131.862	130.068	132.457	129.616	130.332	131.598	132.314	112.617	115.005	113.211	115.600	112.759	113.476	114.741	115.458		132.5	**0.10**	178.92	103.35	282.27	**OK**
111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572	111.572							
23.194	24.957	23.617	25.380	23.318	23.847	24.727	25.256	19.905	21.669	20.328	22.091	20.029	20.558	21.438	21.967		25.6	**0.10**	178.92	103.35	282.27	**OK**
25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560	25.560							
195.064	198.434	195.877	199.248	195.294	196.305	198.006	199.018	170.937	174.308	171.751	175.122	171.168	172.179	173.880	174.891		199.2	**0.10**	178.92	103.35	282.27	**OK**
151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316	151.316							
136.849	138.347	137.206	138.705	136.956	137.406	138.148	138.597	119.589	121.088	119.947	121.445	119.697	120.146	120.888	121.338		138.7	**0.10**	178.92	103.35	282.27	**OK**
108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276	108.276							
223.198	226.028	223.888	226.718	223.383	224.232	225.684	226.533	195.837	198.666	196.527	199.357	196.022	196.871	198.323	199.172		226.7	**0.10**	178.92	103.35	282.27	**OK**
167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640	167.640							
34.284	35.964	34.685	36.365	34.405	34.908	35.741	36.244	31.152	32.831	31.552	33.232	31.272	31.776	32.608	33.112		36.4	**0.10**	178.92	103.35	282.27	**OK**
14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840	14.840							
202.706	205.902	203.484	206.680	202.916	203.875	205.511	206.470	177.768	180.964	178.547	181.743	177.978	178.937	180.573	181.532		206.7	**0.10**	178.92	103.35	282.27	**OK**
153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256	153.256							
25.853	27.472	26.239	27.858	25.969	26.455	27.255	27.741	24.293	25.912	24.679	26.298	24.409	24.895	25.696	26.181		27.9	**0.10**	178.92	103.35	282.27	**OK**
21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700	21.700							
208.662	211.733	209.412	212.483	208.862	209.784	211.361	212.283	182.935	186.006	183.685	186.756	183.135	184.057	185.634	186.556		212.5	**0.10**	178.92	103.35	282.27	**OK**
157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800	157.800							
24.832	26.424	25.213	26.805	24.946	25.423	26.214	26.691	22.730	24.322	23.110	24.702	22.843	23.321	24.111	24.589		26.8	**0.10**	178.92	103.35	282.27	**OK**
22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984	22.984							
214.723	217.773	215.466	218.515	214.924	215.839	217.399	218.314	190.239	193.288	190.981	194.031	190.440	191.355	192.915	193.830		218.5	**0.10**	178.92	103.35	282.27	**OK**
149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052	149.052							
38.081	41.497	38.891	42.307	38.332	39.356	41.032	42.056	35.046	38.462	35.856	39.272	35.297	36.322	37.997	39.022		42.3	**0.10**	178.92	103.35	282.27	**OK**
36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828	36.828							
34.826	38.054	34.753	39.681	34.808	34.721	37.221	39.233	30.406	34.256	30.333	35.883	30.388	30.301	33.422	35.434		39.7	**0.10**	178.92	103.35	282.27	**OK**
3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360	3.360							
22.307	26.910	23.128	29.742	22.307	22.307	28.748	30.732	21.066	24.604	20.852	27.437	22.056	20.852	26.442	28.426		30.7	**0.10**	178.92	103.35	282.27	**OK**
26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288	26.288							
29.189	37.683	30.110	43.257	30.078	29.188	41.215	45.159	31.867	33.992	27.865	39.566	33.769	29.825	37.524	41.468		45.2	**0.10**	178.92	103.35	282.27	**OK**
33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000	33.000							
51.170	52.346	51.664	52.840	51.006	51.358	52.652	53.005	46.077	47.252	46.571	47.746	45.912	46.265	47.558	47.911		53.0	**0.10**	178.92	45.93	224.85	**OK**
43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468	43.468							
36.962	41.863	39.020	43.922	36.275	37.746	43.138	44.609	31.719	36.621	33.778	38.680	31.033	32.503	37.895	39.366		44.6	**0.10**	178.92	103.35	282.27	**OK**
31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332	31.332							
69.700	79.291	73.684	83.275	68.409	71.286	81.689	84.567	56.346	65.937	60.330	69.921	55.054	57.932	68.335	71.212		84.6	**0.10**	178.92	103.35	282.27	**OK**
51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548	51.548							
75.742	76.601	76.097	76.955	75.629	75.887	76.811	77.069	60.621	61.480	60.976	61.834	60.508	60.765	61.690	61.947		77.1	**0.10**	178.92	45.93	224.85	**OK**
43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804	43.804							
59.648	64.053	61.479	65.885	59.053	60.375	65.157	66.479	47.694	52.100	49.526	53.931	47.100	48.422	53.204	54.526		66.5	**0.10**	178.92	103.35	282.27	**OK**
16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176	16.176							
79.776	88.380	83.274	91.878	78.707	81.288	90.366	92.948	62.676	71.280	66.174	74.778	61.606	64.188	73.266	75.847		92.9	**0.10**	178.92	103.35	282.27	**OK**
51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732	51.732							
77.970	78.729	78.271	79.031	77.883	78.111	78.889	79.117	65.015	65.774	65.316	66.076	64.928	65.156	65.935	66.162		79.1	**0.10**	178.92	45.93	224.85	**OK**
37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284	37.284							
61.621	65.575	63.210	67.163	61.152	62.338	66.447	67.633	49.834	53.788	51.423	55.377	49.365	50.551	54.660	55.846		67.6	**0.10**	178.92	103.35	282.27	**OK**
14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416	14.416							
85.106	92.791	88.156	95.840	84.238	86.543	94.403	96.709	69.204	76.889	72.254	79.938	68.336	70.641	78.501	80.807		96.7	**0.10**	178.92	103.35	282.27	**OK**
44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688	44.688							
77.483	78.145	77.743	78.404	77.412	77.610	78.277	78.475	61.949	62.610	62.208	62.869	61.877	62.076	62.742	62.941		78.5	**0.10**	178.92	45.93	224.85	**OK**
43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308	43.308							
37.092	40.905	38.609	42.422	36.658	37.802	41.712	42.856	31.689	35.502	33.205	37.018	31.254	32.398	36.309	37.453		42.9	**0.10**	178.92	103.35	282.27	**OK**
27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672	27.672							
84.719	92.131	87.617	95.028	83.933	86.157	93.591	95.814	66.141	73.553	69.039	76.450	65.355	67.579	75.013	77.236		95.8	**0.10**	178.92	103.35	282.27	**OK**
50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224	50.224							
79.958	80.622	80.218	80.881	79.888	80.087	80.753	80.952	64.141	64.805	64.401	65.064	64.071	64.270	64.936	65.135		81.0	**0.10**	178.92	45.93	224.85	**OK**
41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400	41.400							
35.358	39.222	36.883	40.748	34.931	36.090	40.016	41.175	30.489	34.354	32.015	35.880	30.062	31.222	35.148	36.307		41.2	**0.10**	178.92	103.35	282.27	**OK**
29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152	29.152							
94.249	101.871	97.170	104.792	93.509	95.796	103.245	105.532	78.183	85.805	81.104	88.726	77.443	79.730	87.179	89.466		105.5	**0.10**	178.92	103.35	282.27	**OK**
34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768	34.768							
71.762	72.701	72.115	73.054	71.679	71.960	72.855	73.137	61.883	62.821	62.235	63.174	61.799	62.081	62.976	63.257		73.1	**0.10**	178.92	45.93	224.85	**OK**
34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824	34.824							
43.650	47.990	45.347	49.687	43.189	44.491	48.846	50.148	38.813	43.154	40.510	44.851	38.353	39.655	44.009	45.311		50.1	**0.10**	178.92	103.35	282.27	**OK**
29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028	29.028							

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ $_{Cortante}$ **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMBDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMBDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMBDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMBDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMBDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMBDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey
COMBDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMBDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMBDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMBDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMBDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMBDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)
COMBDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMBDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMBDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMBDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+3.15	B68	0.000	3.570	V-45X45	0.45	0.40	-77.949	-29.144	47.004	60.304	-47.004	-60.304	112.350	127.272	118.093	133.015	110.872	115.349	130.017	134.493	59.822	74.743	65.565	80.487	58.344	62.820	77.488	81.964
	B68	3.570					-26.552	-17.764	51.218	65.385	-51.218	-65.385	38.383	54.643	44.610	60.870	36.809	41.687	57.566	62.444	12.653	28.913	18.881	35.140	11.079	15.957	31.836	36.714
N+6.35	B69	0.000	3.570	V-45X45	0.45	0.40	-9.639	-1.703	26.752	34.901	-26.752	-34.901	7.361	15.854	10.685	19.178	6.456	9.004	17.536	20.084	2.767	11.259	6.091	14.583	1.861	4.409	12.941	15.489
	B69	3.570					-3.781	-1.431	26.884	35.092	-26.884	-35.092	0.030	8.564	3.372	11.907	0.882	1.678	10.258	12.819	2.535	5.999	0.807	9.341	3.447	0.887	7.693	10.253
N+3.15	B69	0.000	3.570	V-45X45	0.45	0.40	-8.712	-0.491	55.515	70.578	-55.515	-70.578	1.227	16.396	5.494	23.118	2.901	2.386	19.505	24.792	4.332	13.292	2.390	20.014	6.006	0.718	16.400	21.687
	B69	3.570					-1.026	0.496	55.685	70.778	-55.685	-70.778	11.474	6.204	4.733	12.944	13.151	7.848	9.318	14.621	11.286	6.392	4.545	13.133	12.963	7.660	9.506	14.810
N+6.35	B70	0.000	8.940	V-45X45	0.45	0.40	-28.498	-3.196	18.688	14.467	-18.688	-14.467	33.738	39.671	35.116	41.049	34.207	35.987	38.800	40.580	21.993	27.926	23.371	29.303	22.462	24.242	27.055	28.834
	B70	8.940					-30.204	1.624	16.998	13.097	-16.998	-13.097	31.299	36.695	32.546	37.943	31.732	33.351	35.890	37.509	23.862	29.258	25.109	30.505	24.295	25.914	28.453	30.072
N+3.15	B70	0.000	8.940	V-45X45	0.45	0.40	-60.398	-46.132	33.380	29.250	-33.380	-29.250	111.918	122.515	114.704	125.301	112.377	115.556	121.663	124.842	47.667	58.264	50.453	61.049	48.126	51.305	57.412	60.591
	B70	8.940					-87.882	-60.597	34.181	24.605	-34.181	-24.605	159.458	170.309	161.802	172.653	160.522	163.778	168.333	171.589	72.497	83.348	74.840	85.691	73.561	76.816	81.372	84.627
N+6.35	B71	0.000	6.900	V-45X45	0.45	0.40	-22.625	1.223	19.354	14.982	-19.354	-14.982	22.142	28.286	23.568	29.712	22.627	24.471	27.383	29.227	16.577	22.721	18.004	24.148	17.063	18.906	21.819	23.662
	B71	6.900					-22.306	-2.305	19.039	14.800	-19.039	-14.800	25.345	31.390	26.755	32.799	25.816	27.630	30.515	32.328	16.349	22.393	17.758	23.802	16.820	18.633	21.518	23.331
N+3.15	B71	0.000	6.900	V-45X45	0.45	0.40	-99.687	-53.048	36.298	30.015	-36.298	-30.015	165.482	177.005	168.340	179.863	166.180	169.637	175.708	179.165	82.527	94.051	85.386	96.909	83.226	86.682	92.754	96.211
	B71	6.900					-113.422	-52.715	37.327	29.001	-37.327	-29.001	181.515	193.365	184.277	196.127	182.441	185.996	191.647	195.202	94.774	106.624	97.536	109.386	95.699	99.254	104.906	108.461
N+6.35	B72	0.000	7.500	V-45X45	0.45	0.40	-18.344	1.401	17.347	13.504	-17.347	-13.504	17.215	22.722	18.501	24.008	17.642	19.294	21.929	23.581	13.113	18.620	14.399	19.906	13.540	15.192	17.827	19.479
	B72	7.500					-22.574	0.494	17.359	13.465	-17.359	-13.465	23.198	28.709	24.481	29.991	23.631	25.284	27.905	29.559	16.920	22.431	18.202	23.713	17.353	19.006	21.627	23.281
N+3.15	B72	0.000	7.500	V-45X45	0.45	0.40	-108.943	-52.327	33.761	27.758	-33.761	-27.758	176.378	187.096	179.022	189.739	177.045	180.260	185.857	189.072	91.368	102.086	94.012	104.729	92.035	95.250	100.847	104.062
	B72	7.500					-112.998	-58.736	34.145	26.161	-34.145	-26.161	187.668	198.508	190.160	200.999	188.555	191.807	196.860	200.112	95.033	105.872	97.524	108.364	95.920	99.172	104.225	107.477
N+6.35	B73	0.000	7.050	V-45X45	0.45	0.40	-23.125	-1.667	18.541	14.357	-18.541	-14.357	25.790	31.676	27.158	33.044	26.255	28.021	30.813	32.579	17.186	23.072	18.553	24.439	17.651	19.417	22.208	23.974
	B73	7.050					-19.283	0.680	18.652	14.467	-18.652	-14.467	18.810	24.731	20.188	26.109	19.275	21.051	23.868	25.644	13.705	19.626	15.083	21.004	14.170	15.947	18.763	20.539
N+3.15	B73	0.000	7.050	V-45X45	0.45	0.40	-108.858	-54.000	35.516	29.011	-35.516	-29.011	177.611	188.886	180.374	191.649	178.333	181.716	187.543	190.926	90.953	102.228	93.716	104.991	91.676	95.059	100.886	104.268
	B73	7.050					-117.515	-56.288	35.984	27.991	-35.984	-27.991	190.261	201.685	192.927	204.351	191.149	194.577	200.035	203.463	98.719	110.142	101.385	112.808	99.607	103.034	108.493	111.920
N+6.35	B74	0.000	7.180	V-45X45	0.45	0.40	-17.995	0.969	18.508	14.400	-18.508	-14.400	17.002	22.877	18.373	24.248	17.458	19.221	22.029	23.792	12.572	18.448	13.943	19.819	13.028	14.791	17.600	19.363
	B74	7.180					-24.924	-1.253	18.593	14.480	-18.593	-14.480	27.521	33.424	28.900	34.803	27.978	29.749	32.575	34.346	18.791	24.693	20.170	26.072	19.248	21.019	23.845	25.615
N+3.15	B74	0.000	7.180	V-45X45	0.45	0.40	-120.559	-57.946	35.065	28.462	-35.065	-28.462	195.696	206.827	198.406	209.538	196.429	199.769	205.465	208.804	101.582	112.714	104.293	115.424	102.316	105.655	111.351	114.691
	B74	7.180					-107.218	-53.584	35.601	27.409	-35.601	-27.409	175.289	186.591	177.900	189.202	176.200	179.590	184.901	188.292	89.540	100.842	92.150	103.452	90.450	93.841	99.152	102.542
N+6.35	B75	0.000	7.070	V-45X45	0.45	0.40	-14.980	2.362	18.229	14.257	-18.229	-14.257	12.042	17.829	13.399	19.186	12.483	14.219	17.009	18.745	9.910	15.697	11.267	17.054	10.351	12.087	14.877	16.613
	B75	7.070					-25.089	-3.265	17.354	13.528	-17.354	-13.528	29.973	35.482	31.261	36.771	30.398	32.051	34.693	36.345	19.181	24.691	20.470	25.979	19.606	21.259	23.901	25.554
N+3.15	B75	0.000	7.070	V-45X45	0.45	0.40	-64.219	-38.980	34.406	29.565	-34.406	-29.565	109.174	120.096	111.989	122.912	109.712	112.988	119.097	122.374	50.928	61.851	53.744	64.666	51.466	54.743	60.852	64.128
	B75	7.070					-39.449	-25.539	34.857	25.895	-34.857	-25.895	66.112	77.178	68.578	79.644	67.108	70.427	75.328	78.648	28.738	39.804	31.204	42.270	29.734	33.054	37.955	41.274
N+6.35	B76	0.000	4.920	V-45X45	0.45	0.40	-18.311	-2.028	25.088	19.407	-25.088	-19.407	19.095	27.059	20.943	28.908	19.726	22.115	25.887	28.276	11.574	19.538	13.422	21.386	12.205	14.594	18.366	20.755
	B76	4.920					-15.403	-4.606	27.889	21.617	-27.889	-21.617	17.633	26.487	19.692	28.546	18.330	20.986	25.193	27.849	8.406	17.260	10.465	19.319	9.103	11.759	15.966	18.622
N+3.15	B76	0.000	4.920	V-45X45	0.45	0.40	-14.952	-5.476	50.066	40.276	-50.066	-40.276	13.554	29.447	17.389	33.283	14.641	19.409	27.427	32.196	3.592	19.486	7.428	23.322	4.680	9.448	17.466	22.234
	B76	4.920					-9.435	0.802	54.560	43.589	-54.560	-43.589	0.216	17.105	3.935	21.256	1.003	6.199	14.841	20.037	2.244	15.076	1.907	19.227	1.025	4.171	12.812	18.008
N+3.15	B77	0.000	4.370	V-20X45	0.20	0.40	-64.035	-20.342	5.034	7.105	-5.034	-7.105	96.047	97.645	96.723	98.321	95.817	96.296	98.072	98.551	56.494	58.092	57.171	58.769	56.264	56.743	58.520	58.999
	B77	4.370					38.097	9.093	1.270	1.956	-1.270	-1.956	55.104	54.701	54.918	54.515	55.180	55.059	54.559	54.438	34.582	34.179	34.396	33.993	34.658	34.537	34.037	33.916
N+3.15	B78	0.000	4.468	V-15X45	0.15	0.40	-40.415	-7.740	3.959	5.331	-3.959	-5.331	55.356	56.613	55.863	57.120	55.203	55.580	56.896	57.273	35.491	36.748	35.999	37.256	35.339	35.716	37.031	37.408
	B78	4.468					18.817	2.924	2.804	1.871	-2.804	-1.871	26.039	25.148	25.860	24.970	25.935	25.668	25.341	25.074	17.469	16.579	17.291	16.401	17.366	17.099	16.772	16.505
N+3.15	B79	0.000	4.370	V-20X45	0.20	0.40	-62.514	-19.552	4.166	5.535	-4.166	-5.535	93.644	94.966	94.171	95.494	93.492	93.889	95.249	95.646	55.338	56.660	55.865	57.187	55.186	55.582	56.943	57.340
	B79	4.370					36.954	8.465	1.239	1.463	-1.239	-1.463	53.076	52.683	52.937	52.543	53.101	52.983	52.637	52.519	33.525	33.132	33.386	32.992	33.550	33.432	33.085	32.967
N+3.15	B80	0.000	4.370	V-20X45	0.20	0.40	-64.874	-20.035	4.456	5.305	-4.456	-5.305	96.924	98.338	97.429	98.844	96.830	97.254	98.514	98.938	57.427	58.841	57.932	59.347	57.332	57.757	59.016	59.441
	B80	4.370					40.466	9.706	1.353	1.414	-1.353	-1.414	58.547	58.118	58.413	57.983	58.554	58.425	58.105	57.976	36.701	36.272	36.567	36.137	36.708	36.579	36.259	36.131
N+6.35	B81	0.000	8.250	V-45X45	0.45	0.40	-38.767	-8.296	16.155	22.692	-16.155	-22.692	51.172	56.300	53.333	58.461	50.445	51.984	57.649	59.188	31.245	36.374	33.407	38.535	30.519	32.058	37.723	39.261
	B81	8.250					-43.376	-10.287	18.675	26.532	-18.675	-26.532	58.110	64.039	60.637	66.566	57.237	59.016	65.660	67.439	34.811	40.739	37.338	43.266	33.938	35.716	42.361	44.139
N+3.15	B81	0.000	8.250	V-45X45	0.45	0.40	-116.043	-24.830	30.796	41.026	-30.796	-41.026	157.240	167.016	161.147	170.923	156.103	159.036	169.127	172.060	97.597	107.373	101.504	111.281	96.460	99.393	109.484	112.417
	B81	8.250					-117.962	-23.563	33.206	48.027	-33.206	-48.027	157.560	168.101	162.134	172.675	155.913	159.075	171.159	174.322	98.608	109.150	103.182	113.724	96.961	100.124	112.208	115.370
N+6.35	B82	0.000	8.250	V-45X45	0.45	0.40	-65.305	-21.018	15.302	20.291	-15.302	-20.291	95.989	100.847	97.921	102.779	95.435	96.892	101.876	103.333	55.379	60.237	57.312	62.170	54.825	56.282	61.267	62.724
	B82	8.250					-75.389	-25.173	16.798	22.972	-16.798	-22.972	111.880	117.212	114.067	119.400	111.194	112.793	118.486	120.086	64.090	69.423	66.278	71.610	63.404	65.004	70.697	72.296
N+3.15	B82	0.000	8.250	V-45X45	0.45	0.40	-162.471	-46.750	25.909	36.287	-25.909	-36.287	235.875	244.100	239.331	247.556	234.722	237.189	246.241	248.709	140.383	148.608	143.839	152.064	139.230	141.698	150.750	153.218
	B82	8.250					-165.486	-44.456	32.310	41.062	-32.310	-41.062	235.955	246.212	239.866	250.123	234.983	238.060	248.018	251.096	141.853	152.111	145.764	156.021	140.881	143.958	153.917	156.994
N+6.35	B83	0.000	8.250	V-45X45	0.45	0.40	-56.904	-16.485	12.628	18.265	-12.628	-18.265	81.896	85.904	83.635	87.644	81.269	82.472	87.068	88.270	48.339	52.348	50.079	54.088	47.713	48.916	53.511	54.714
	B83	8.250					-59.632	-16.879	15.630	20.145	-15.630	-20.145	84.997	89.959	86.916	91.878	84.495	85.984	90.891	92.379	50.229	55.190	52.147	57.109	49.727	51.215	56.122	57.611
N+3.15	B83	0.000	8.250	V-45X45	0.45	0.40	-141.771	-31.006	23.305	32.004	-23.305	-32.004	195.908	203.306	198.956	206.354	194.941	197.161	205.101	207.321	122.371	129.769	125.419	132.817	121.404	123.624	131.564	133.784
	B83	8.250					-146.264	-29.540	28.396	36.593	-28.396	-36.593	198.807	207.822	202.292	211.307	197.896	200.601	209.513	212.217	125.388	134.402	128.873	137.887	124.477	127.181	136.094	138.798
N+6.35	B84	0.000	8.250	V-45X45	0.45	0.40	-46.389	-18.473	12.673	16.881	-12.673	-16.881	71.324	75.348	72.932	76.955	70.857	72.064	76.216	77.423	38.935	42.958	40.542	44.566	38.467	39.674	43.826	45.033
	B84	8.250					-51.893	-19.782	14.864	19.899	-14.864	-19.899	78.747	83.465	80.642	85.361	78.187	79.603	84.504	85.920	43.397	48.115	45.292	50.011	42.837	44.253	49.154	50.570
N+3.15	B84	0.000	8.250	V-45X45	0.45	0.40	-174.324	-51.631	23.237	30.051	-23.237	-30.051	255.700	263.077	258.562	265.939	254.943	257.156	264.483	266.696	151.772	159.149	154.634	162.011	151.015	153.228	160.555	162.768
	B84	8.250					-180.668	-51.298	26.134	34.176	-26.134	-34.176	262.324	270.620	265.579	273.875	261.430	263.919	272.280	274.769	156.826	165.122	160.080	168.377	155.932	158.421	166.781	169.270
N+6.35	B85	0.000	8.250	V-45X45	0.45	0.40	-41.042	-9.305	12.856	16.882	-12.856	-16.882	55.711	59.792	57.319	61.400	55.264	56.488	60.623	61.847	34.093	38.175	35.701	39.782	33.646	34.870	39.005	40.230
	B85	8.250					-42.580	-10.205	15.092	19.677	-15.092	-19.677	57.968	62.760	59.842	64.634	57.459	58.896	63.706	65.143	34.989	39.781	36.863	41.655	34.480	35.917	40.727	42.164
N+3.15	B85	0.000	8.250	V-45X45	0.45	0.40	-118.999	-25.709	23.119	31.175	-23.119	-31.175	163.354	170.693	166.323	173.662	162.458	164.660	172.355	174.557	101.945	109.284	104.914	112.253	101.050	103.252	110.947	113.148
	B85	8.250					-118.131	-23.525	28.464	34.655	-28.464	-34.655	159.114	168.150	162.414	171.451	158.426	161.137	169.428	172.138	100.150	109.186	103.450	112.486	99.462	102.173	110.463	113.174
N+3.15	B86	0.000	6.900	V-20X45	0.20	0.40	-33.860	-12.247	8.034	6.273	-8.034	-6.273	51.305	53.856	51.902	54.453	51.501	52.266	53.492	54.257	28.900	31.451	29.497	32.048	29.096	29.861	31.087	31.852
	B86	6.900					-54.099	-15.511	6.649	5.333	-6.649	-5.333	79.120	81.231	79.628	81.739	79.267	79.900	80.960	81.593	47.380	49.491	47.888	49.998	47.526	48.159	49.219	49.852
N+6.35	B87	0.000	7.500	V-20X45	0.20	0.40	-14.574	-3.424	3.611	2.504	-3.611	-2.504	20.220	21.367	20.459	21.605	20.343	20.687	21.138	21.482	12.424	13.571	12.663	13.809	12.547	12.891	13.342	13.686
	B87	7.500					-17.344	-3.990	4.566	3.772	-4.566	-3.772	23.898	25.348	24.258	25.707	23.987	24.421	25.184	25.619	14.705	16.155	15.064	16.514	14.793	15.228	15.991	16.426
N+3.15	B87	0.000	7.500	V-20X45	0.20	0.40	-47.590	-11.976	2.905	2.336	-2.905	-2.336	68.512	69.434	68.734	69.656	68.575	68.852	69.316	69.593	42.259	43.181	42.481	43.403	42.322	42.599	43.063	43.340
	B87	7.500					-47.869	-13.224	7.488	5.799	-7.488	-5.799	69.202	71.579	69.754	72.132	69.390	70.103	71.231	71.944	41.617	43.995	42.170	44.547	41.805	42.518	43.646	44.359

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
$\Phi_{cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
185.392	42.222	50.957	45.575	54.310	41.367	43.988	52.544	55.164	20.301	29.035	23.654	32.388	19.446	22.067	30.623	33.243
140.640																
23.784	2.070	6.840	3.938	8.707	2.056	2.992	7.785	9.216	1.485	4.834	1.932	6.702	1.487	1.484	5.780	7.211
19.608																
13.444	3.558	6.331	2.865	10.102	4.496	2.867	8.074	11.040	4.375	5.514	1.943	9.285	5.313	2.347	7.257	10.223
7.376																
26.700	7.275	8.542	7.569	8.836	7.376	7.756	8.355	8.735	5.129	6.396	5.423	6.690	5.230	5.610	6.209	6.589
25.440																
99.476	30.355	32.754	30.929	33.328	30.526	31.245	32.438	33.158	13.441	15.840	14.015	16.414	13.611	14.331	15.524	16.244
112.024																
19.356	6.882	8.649	7.293	9.060	7.021	7.551	8.391	8.921	4.772	6.538	5.183	6.949	4.910	5.440	6.281	6.811
20.880																
148.696	50.289	53.677	51.104	54.491	50.525	51.541	53.240	54.256	25.696	29.083	26.510	29.898	25.931	26.947	28.646	29.663
153.556																
21.000	5.388	6.858	5.731	7.200	5.503	5.944	6.645	7.085	4.004	5.473	4.347	5.816	4.119	4.560	5.261	5.701
22.740																
145.168	48.539	51.414	49.224	52.098	48.747	49.609	51.029	51.891	24.853	27.728	25.538	28.412	25.061	25.923	27.343	28.205
185.864																
21.744	6.326	8.001	6.716	8.390	6.458	6.961	7.756	8.259	4.382	6.056	4.771	6.446	4.514	5.016	5.812	6.314
19.380																
151.636	52.180	55.400	52.950	56.170	52.409	53.375	54.976	55.942	26.904	30.123	27.674	30.894	27.132	28.098	29.699	30.665
155.752																
19.280	6.201	7.841	6.584	8.224	6.328	6.820	7.605	8.097	4.368	6.008	4.751	6.392	4.495	4.987	5.772	6.264
22.588																
160.232	51.669	54.794	52.410	55.535	51.898	52.836	54.368	55.306	26.619	29.743	27.360	30.484	26.848	27.785	29.318	30.255
153.552																
17.620	5.943	7.540	6.317	7.915	6.065	6.545	7.313	7.792	4.115	5.712	4.489	6.087	4.237	4.717	5.485	5.964
23.612																
91.308	24.793	27.903	25.540	28.650	25.010	25.943	27.500	28.433	11.268	14.378	12.015	15.125	11.485	12.418	13.975	14.908
76.828																
34.036	7.465	10.883	8.259	11.678	7.735	8.761	10.382	11.408	4.061	7.479	4.855	8.273	4.331	5.356	6.978	8.003
34.300																
17.744	2.799	9.462	4.334	11.085	3.180	5.205	8.591	10.616	1.186	7.025	1.897	8.648	1.160	2.768	6.154	8.179
10.948																
88.652	34.588	34.862	34.700	34.974	34.553	34.635	34.927	35.009	20.841	21.115	20.953	21.227	20.806	20.888	21.180	21.262
11.012																
59.004	18.217	18.299	18.291	18.373	18.160	18.184	18.406	18.430	11.853	11.935	11.927	12.009	11.796	11.821	12.042	12.066
16.852																
87.720	33.574	33.787	33.663	33.876	33.545	33.609	33.841	33.905	20.335	20.547	20.423	20.636	20.306	20.369	20.601	20.665
12.584																
90.216	35.577	35.802	35.662	35.887	35.557	35.625	35.840	35.907	21.540	21.765	21.624	21.850	21.520	21.587	21.802	21.870
10.588																
46.932	13.246	14.587	13.815	15.155	13.052	13.455	14.947	15.349	8.007	9.347	8.575	9.915	7.813	8.215	9.707	10.109
49.060																
119.152	38.157	40.620	39.186	41.648	37.820	38.559	41.247	41.986	23.782	26.245	24.810	27.273	23.445	24.184	26.872	27.611
121.660																
80.236	25.196	26.431	25.696	26.931	25.046	25.416	26.711	27.081	14.481	15.716	14.981	16.216	14.331	14.701	15.996	16.366
90.108																
170.372	57.192	59.432	58.084	60.325	56.934	57.606	59.910	60.582	34.211	36.451	35.103	37.344	33.953	34.625	36.929	37.601
174.464																
72.540	20.229	21.317	20.673	21.760	20.093	20.419	21.571	21.897	11.948	13.035	12.391	13.478	11.811	12.137	13.289	13.615
65.284																
139.924	47.844	49.834	48.636	50.626	47.617	48.214	50.256	50.853	30.031	32.021	30.823	32.813	29.804	30.401	32.443	33.040
145.532																
64.704	18.190	19.250	18.615	19.675	18.066	18.384	19.481	19.799	9.980	11.039	10.404	11.464	9.855	10.173	11.270	11.588
66.796																
182.676	62.791	64.691	63.532	65.432	62.591	63.161	65.062	65.632	37.406	39.306	38.147	40.047	37.206	37.776	39.677	40.247
190.568																
48.280	13.779	14.855	14.201	15.277	13.663	13.986	15.070	15.393	8.374	9.449	8.796	9.871	8.258	8.580	9.664	9.987
49.072																
121.568	39.087	41.072	39.847	41.832	38.895	39.491	41.428	42.024	24.496	26.481	25.256	27.241	24.304	24.900	26.838	27.433
122.876																
70.076	18.902	19.578	19.062	19.738	18.952	19.154	19.486	19.688	11.055	11.731	11.215	11.891	11.105	11.307	11.639	11.841
78.108																
30.404	5.883	6.229	5.962	6.308	5.911	6.015	6.176	6.280	3.617	3.963	3.697	4.043	3.645	3.749	3.911	4.015
21.872																
61.504	18.362	18.802	18.465	18.905	18.395	18.527	18.740	18.872	11.183	11.623	11.287	11.727	11.217	11.349	11.561	11.693
36.944																

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ Cortante = 0.75
Estribos Φ = 9.5 mm
Av = 71 mm²
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

Vu = Vm + Vg																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18						
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
227.614	236.349	230.967	239.702	226.759	229.380	237.936	240.556	205.693	214.427	209.046	217.780	204.838	207.459	216.015	218.635						
140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	140.640	240.6	**0.10**	178.92	103.35	282.27	**OK**
25.854	30.624	27.722	32.491	25.840	26.776	31.569	33.000	25.269	28.618	25.716	30.486	25.271	25.268	29.564	30.995						
19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	19.608	33.0	**0.10**	178.92	103.35	282.27	**OK**
17.002	19.775	16.309	23.546	17.940	16.311	21.518	24.484	17.819	18.958	15.387	22.729	18.757	15.791	20.701	23.667						
7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	7.376	24.5	**0.10**	178.92	103.35	282.27	**OK**
33.975	35.242	34.269	35.536	34.076	34.456	35.055	35.435	31.829	33.096	32.123	33.390	31.930	32.310	32.909	33.289						
25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	25.440	35.5	**0.10**	178.92	103.35	282.27	**OK**
129.831	132.230	130.405	132.804	130.002	130.721	131.914	132.634	112.917	115.316	113.491	115.890	113.087	113.807	115.000	115.720						
112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	112.024	132.8	**0.10**	178.92	103.35	282.27	**OK**
26.238	28.005	26.649	28.416	26.377	26.907	27.747	28.277	24.128	25.894	24.539	26.305	24.266	24.796	25.637	26.167						
20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	20.880	28.4	**0.10**	178.92	103.35	282.27	**OK**
198.985	202.373	199.800	203.187	199.221	200.237	201.936	202.952	174.392	177.779	175.206	178.594	174.627	175.643	177.342	178.359						
153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	153.556	203.2	**0.10**	178.92	103.35	282.27	**OK**
26.388	27.858	26.731	28.200	26.503	26.944	27.645	28.085	25.004	26.473	25.347	26.816	25.119	25.560	26.261	26.701						
22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	22.740	28.2	**0.10**	178.92	103.35	282.27	**OK**
193.707	196.582	194.392	197.266	193.915	194.777	196.197	197.059	170.021	172.896	170.706	173.580	170.229	171.091	172.511	173.373						
185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	185.864	197.3	**0.10**	178.92	103.35	282.27	**OK**
28.070	29.745	28.460	30.134	28.202	28.705	29.500	30.003	26.126	27.800	26.515	28.190	26.258	26.760	27.556	28.058						
19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	19.380	30.1	**0.10**	178.92	103.35	282.27	**OK**
203.816	207.036	204.586	207.806	204.045	205.011	206.612	207.578	178.540	181.759	179.310	182.530	178.768	179.734	181.335	182.301						
155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	155.752	207.8	**0.10**	178.92	103.35	282.27	**OK**
25.481	27.121	25.864	27.504	25.608	26.100	26.885	27.377	23.648	25.288	24.031	25.672	23.775	24.267	25.052	25.544						
22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	22.588	27.5	**0.10**	178.92	103.35	282.27	**OK**
211.901	215.026	212.642	215.767	212.130	213.068	214.600	215.538	186.851	189.975	187.592	190.716	187.080	188.017	189.550	190.487						
153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	153.552	215.8	**0.10**	178.92	103.35	282.27	**OK**
23.563	25.160	23.937	25.535	23.685	24.165	24.933	25.412	21.735	23.332	22.109	23.707	21.857	22.337	23.105	23.584						
23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	23.612	25.5	**0.10**	178.92	103.35	282.27	**OK**
116.101	119.211	116.848	119.958	116.318	117.251	118.808	119.741	102.576	105.686	103.323	106.433	102.793	103.726	105.283	106.216						
76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	76.828	120.0	**0.10**	178.92	103.35	282.27	**OK**
41.501	44.919	42.295	45.714	41.771	42.797	44.418	45.444	38.097	41.515	38.891	42.309	38.367	39.392	41.014	42.039						
34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	34.300	45.7	**0.10**	178.92	103.35	282.27	**OK**
20.543	27.206	22.078	28.829	20.924	22.949	26.335	28.360	18.930	24.769	19.641	26.392	18.904	20.512	23.898	25.923						
10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	10.948	28.8	**0.10**	178.92	103.35	282.27	**OK**
123.240	123.514	123.352	123.626	123.205	123.287	123.579	123.661	109.493	109.767	109.605	109.879	109.458	109.540	109.832	109.914						
11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	11.012	123.7	**0.10**	178.92	45.93	224.85	**OK**
77.221	77.303	77.295	77.377	77.164	77.188	77.410	77.434	70.857	70.939	70.931	71.013	70.800	70.825	71.046	71.070						
16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	16.852	77.4	**0.10**	178.92	34.45	213.37	**OK**
121.294	121.507	121.383	121.596	121.265	121.329	121.561	121.625	108.055	108.267	108.143	108.356	108.026	108.089	108.321	108.385						
12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	12.584	121.6	**0.10**	178.92	45.93	224.85	**OK**
125.793	126.018	125.878	126.103	125.773	125.841	126.056	126.123	111.756	111.981	111.840	112.066	111.736	111.803	112.018	112.086						
10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	10.588	126.1	**0.10**	178.92	45.93	224.85	**OK**
60.178	61.519	60.747	62.087	59.984	60.387	61.879	62.281	54.939	56.279	55.507	56.847	54.745	55.147	56.639	57.041						
49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	49.060	62.3	**0.10**	178.92	103.35	282.27	**OK**
157.309	159.772	158.338	160.800	156.972	157.711	160.399	161.138	142.934	145.397	143.962	146.425	142.597	143.336	146.024	146.763						
121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	121.660	161.1	**0.10**	178.92	103.35	282.27	**OK**
105.432	106.667	105.932	107.167	105.282	105.652	106.947	107.317	94.717	95.952	95.217	96.452	94.567	94.937	96.232	96.602						
90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	90.108	107.3	**0.10**	178.92	103.35	282.27	**OK**
227.564	229.804	228.456	230.697	227.306	227.978	230.282	230.954	204.583	206.823	205.475	207.716	204.325	204.997	207.301	207.973						
174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	174.464	231.0	**0.10**	178.92	103.35	282.27	**OK**
92.769	93.857	93.213	94.300	92.633	92.959	94.111	94.437	84.488	85.575	84.931	86.018	84.351	84.677	85.829	86.155						
65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	65.284	94.4	**0.10**	178.92	103.35	282.27	**OK**
187.768	189.758	188.560	190.550	187.541	188.138	190.180	190.777	169.955	171.945	170.747	172.737	169.728	170.325	172.367	172.964						
145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	145.532	190.8	**0.10**	178.92	103.35	282.27	**OK**
82.894	83.954	83.319	84.379	82.770	83.088	84.185	84.503	74.684	75.743	75.108	76.168	74.559	74.877	75.974	76.292						
66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	66.796	84.5	**0.10**	178.92	103.35	282.27	**OK**
245.467	247.367	246.208	248.108	245.267	245.837	247.738	248.308	220.082	221.982	220.823	222.723	219.882	220.452	222.353	222.923						
190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	190.568	248.3	**0.10**	178.92	103.35	282.27	**OK**
62.059	63.135	62.481	63.557	61.943	62.266	63.350	63.673	56.654	57.729	57.076	58.151	56.538	56.860	57.944	58.267						
49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	49.072	63.7	**0.10**	178.92	103.35	282.27	**OK**
160.655	162.640	161.415	163.400	160.463	161.059	162.996	163.592	146.064	148.049	146.824	148.809	145.872	146.468	148.406	149.001						
122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	122.876	163.6	**0.10**	178.92	103.35	282.27	**OK**
88.978	89.654	89.138	89.814	89.028	89.230	89.562	89.764	81.131	81.807	81.291	81.967	81.181	81.383	81.715	81.917						
78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	78.108	89.8	**0.10**	178.92	45.93	224.85	**OK**
36.287	36.633	36.366	36.712	36.315	36.419	36.580	36.684	34.021	34.367	34.101	34.447	34.049	34.153	34.315	34.419						
21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	21.872	36.7	**0.10**	178.92	45.93	224.85	**OK**
79.866	80.306	79.969	80.409	79.899	80.031	80.244	80.376	72.687	73.127	72.791	73.231	72.721	72.853	73.065	73.197						
36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	36.944	80.4	**0.10**	178.92	45.93	224.85	**OK**

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = 21.1 MPa
fy = 420 MPa
Φ $_{Cortante}$ **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey
COMDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)
COMDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+3.15	B88	0.000	7.050	V-20X45	0.20	0.40	-53.633	-17.787	4.687	3.683	-4.687	-3.683	81.227	82.715	81.578	83.066	81.339	81.785	82.508	82.954	47.350	48.838	47.701	49.189	47.462	47.908	48.631	49.077
	B88	7.050					-60.834	-18.633	4.732	3.908	-4.732	-3.908	90.697	92.199	91.069	92.571	90.788	91.239	92.029	92.479	53.813	55.316	54.186	55.688	53.905	54.356	55.146	55.596
N+3.15	B89	0.000	7.180	V-20X45	0.20	0.40	-62.865	-19.361	5.358	4.082	-5.358	-4.082	93.754	95.455	94.143	95.844	93.896	94.406	95.192	95.702	55.534	57.235	55.922	57.623	55.675	56.186	56.971	57.482
	B89	7.180					-37.027	-12.915	7.620	6.071	-7.620	-6.071	55.849	58.268	56.427	58.846	56.021	56.747	57.948	58.674	31.826	34.245	32.404	34.823	31.998	32.724	33.925	34.651
N+3.15	B90	0.000	3.880	V-20X45	0.20	0.40	37.633	9.333	1.848	2.752	-1.848	-2.752	54.917	54.330	54.655	54.068	55.017	54.841	54.144	53.968	34.294	33.707	34.032	33.445	34.395	34.219	33.521	33.345
	B90	3.880					-49.165	-15.175	8.675	11.736	-8.675	-11.736	72.237	74.991	73.355	76.109	71.897	72.723	75.623	76.449	42.313	45.067	43.430	46.184	41.973	42.799	45.698	46.524
N+6.35	B91	0.000	4.191	V-15X45	0.15	0.40	-6.293	-0.667	2.770	4.541	-2.770	-4.541	7.563	8.442	7.995	8.875	7.366	7.630	8.807	9.071	5.008	5.887	5.440	6.320	4.811	5.075	6.253	6.516
	B91	4.191					2.966	0.967	0.972	0.693	-0.972	-0.693	4.713	4.405	4.647	4.339	4.682	4.590	4.462	4.370	2.857	2.548	2.791	2.482	2.826	2.733	2.606	2.513
N+3.15	B91	0.000	4.191	V-15X45	0.15	0.40	-24.243	-5.639	5.564	8.999	-5.564	-8.999	33.419	35.185	34.276	36.042	33.037	33.567	35.894	36.424	20.507	22.273	21.364	23.130	20.125	20.655	22.982	23.512
	B91	4.191					20.458	3.453	3.830	2.562	-3.830	-2.562	28.733	27.517	28.489	27.273	28.592	28.227	27.778	27.414	19.142	17.926	18.898	17.682	19.001	18.636	18.188	17.823
N+3.15	B92	0.000	3.880	V-20X45	0.20	0.40	36.349	8.719	1.749	2.052	-1.749	-2.052	52.713	52.158	52.518	51.962	52.747	52.580	52.095	51.929	33.089	32.534	32.894	32.339	33.123	32.957	32.472	32.305
	B92	3.880					-46.688	-14.523	6.795	9.204	-6.795	-9.204	69.032	71.189	69.908	72.065	68.764	69.411	71.686	72.333	40.502	42.659	41.379	43.536	40.235	40.882	43.157	43.804
N+3.15	B93	0.000	3.880	V-20X45	0.20	0.40	40.139	10.077	1.778	2.043	-1.778	-2.043	58.623	58.059	58.429	57.864	58.653	58.483	58.004	57.835	36.505	35.940	36.310	35.746	36.534	36.365	35.885	35.716
	B93	3.880					-49.908	-15.693	6.949	9.065	-6.949	-9.065	74.048	76.254	74.911	77.117	73.813	74.475	76.691	77.352	43.383	45.589	44.246	46.452	43.147	43.809	46.025	46.687
N+6.35	B94	0.000	6.900	V-45X45	0.45	0.40	-14.592	0.213	23.734	18.174	-23.734	-18.174	12.665	20.199	14.396	21.930	13.282	15.543	19.052	21.312	8.500	16.035	10.231	17.766	9.118	11.378	14.887	17.148
	B94	6.900					-34.977	-5.434	23.213	17.575	-23.213	-17.575	42.885	50.254	44.559	51.928	43.511	45.722	49.091	51.301	26.958	34.327	28.632	36.001	27.584	29.795	33.164	35.374
N+3.15	B94	0.000	6.900	V-45X45	0.45	0.40	-96.506	-21.632	43.349	35.779	-43.349	-35.779	128.855	142.616	132.262	146.024	129.696	133.824	141.054	145.183	78.271	92.032	81.678	95.440	79.112	83.240	90.470	94.599
	B94	6.900					-127.576	-28.489	45.338	33.721	-45.338	-33.721	172.778	187.171	175.989	190.382	174.069	178.387	184.774	189.092	106.016	120.409	109.228	123.621	107.307	111.625	118.012	122.330
N+6.35	B95	0.000	2.175	V-45X45	0.45	0.40	-54.596	-14.439	4.199	5.468	-4.199	-5.468	79.027	80.360	79.548	80.881	78.886	79.286	80.622	81.022	48.210	49.543	48.730	50.063	48.069	48.468	49.804	50.204
	B95	2.175					0.830	0.486	0.581	0.823	-0.581	-0.823	1.613	1.429	1.535	1.351	1.640	1.585	1.379	1.324	0.878	0.694	0.800	0.616	0.905	0.850	0.644	0.589
N+3.15	B95	0.000	2.175	V-45X45	0.45	0.40	-105.376	-22.277	9.157	11.581	-9.157	-11.581	146.723	149.630	147.826	150.733	146.454	147.326	150.130	151.003	92.833	95.740	93.936	96.843	92.564	93.436	96.241	97.113
	B95	2.175					-2.848	-0.592	1.189	1.641	-1.189	-1.641	3.743	4.120	3.899	4.276	3.693	3.806	4.213	4.327	2.296	2.674	2.453	2.830	2.246	2.359	2.767	2.880
N+6.35	B96	0.000	7.050	V-45X45	0.45	0.40	-21.791	-2.224	21.736	16.724	-21.736	-16.724	24.127	31.027	25.719	32.620	24.684	26.754	29.993	32.063	15.365	22.266	16.958	23.858	15.922	17.992	21.231	23.302
	B96	7.050					-19.511	1.113	19.619	15.131	-19.619	-15.131	18.466	24.694	19.907	26.135	18.964	20.833	23.768	25.636	13.725	19.954	15.166	21.395	14.224	16.092	19.027	20.896
N+3.15	B96	0.000	7.050	V-45X45	0.45	0.40	-97.678	-21.513	40.443	33.582	-40.443	-33.582	130.708	143.547	133.906	146.745	131.470	135.322	142.131	145.983	79.892	92.731	83.090	95.929	80.654	84.506	91.315	95.167
	B96	7.050					-140.638	-32.482	39.140	29.005	-39.140	-29.005	193.654	206.079	196.416	208.841	194.780	198.507	203.988	207.715	118.980	131.406	121.743	134.168	120.106	123.834	129.314	133.042
N+6.35	B97	0.000	7.180	V-45X45	0.45	0.40	-17.339	1.852	19.630	15.095	-19.630	-15.095	15.120	21.352	16.558	22.789	15.624	17.494	20.416	22.286	11.770	18.002	13.208	19.440	12.274	14.144	17.066	18.936
	B97	7.180					-25.053	-3.008	22.084	16.909	-22.084	-16.909	28.761	35.772	30.371	37.382	29.336	31.439	34.704	36.807	18.237	25.248	19.847	26.858	18.812	20.915	24.180	26.283
N+3.15	B97	0.000	7.180	V-45X45	0.45	0.40	-141.248	-32.540	36.752	30.986	-36.752	-30.986	194.728	206.396	197.679	209.347	195.369	198.869	205.206	208.706	119.814	131.481	122.765	134.432	120.455	123.955	130.292	133.792
	B97	7.180					-105.846	-23.798	41.761	31.321	-41.761	-31.321	142.693	155.950	145.676	158.933	143.853	147.830	153.796	157.773	87.141	100.399	90.124	103.382	88.301	92.278	98.244	102.222
N+6.35	B98	0.000	1.580	V-45X45	0.45	0.40	-16.353	-1.622	2.176	1.665	-2.176	-1.665	20.821	21.512	20.979	21.670	20.878	21.085	21.406	21.614	14.293	14.984	14.452	15.142	14.350	14.557	14.878	15.086
	B98	1.580					-0.010	0.014	0.057	0.063	-0.057	-0.063	0.014	0.004	0.008	0.010	0.015	0.009	0.005	0.011	0.003	0.015	0.003	0.021	0.004	0.002	0.016	0.022
N+3.15	B98	0.000	1.580	V-45X45	0.45	0.40	-33.555	-5.237	4.717	3.291	-4.717	-3.291	44.598	46.095	44.911	46.408	44.756	45.205	45.801	46.250	29.294	30.792	29.607	31.105	29.453	29.902	30.497	30.947
	B98	1.580					1.149	0.308	0.150	0.240	-0.150	-0.240	1.722	1.674	1.699	1.652	1.732	1.718	1.656	1.642	1.069	1.022	1.046	0.999	1.079	1.065	1.003	0.989
N+3.15	B99	0.000	1.580	V-20X45	0.20	0.40	-17.096	-5.437	2.459	3.562	-2.459	-3.562	25.392	26.173	25.732	26.512	25.270	25.504	26.401	26.635	14.826	15.607	15.166	15.946	14.704	14.938	15.835	16.069
	B99	1.580					-2.127	-0.549	0.269	0.302	-0.269	-0.302	3.044	3.130	3.073	3.158	3.041	3.066	3.137	3.162	1.857	1.943	1.886	1.971	1.854	1.879	1.949	1.975
N+6.35	B100	0.000	1.580	V-45X45	0.45	0.40	-30.995	-6.251	3.414	3.248	-3.414	-3.248	42.748	43.832	43.058	44.142	42.767	43.092	43.798	44.123	27.199	28.283	27.508	28.592	27.217	27.543	28.248	28.574
	B100	1.580					1.287	0.230	0.213	0.155	-0.213	-0.155	1.816	1.748	1.801	1.733	1.809	1.789	1.760	1.740	1.199	1.132	1.185	1.117	1.193	1.173	1.144	1.124
N+3.15	B100	0.000	1.580	V-45X45	0.45	0.40	-44.637	-9.205	6.191	7.415	-6.191	-7.415	61.434	63.399	62.140	64.105	61.298	61.887	63.652	64.241	38.838	40.803	39.544	41.509	38.702	39.291	41.055	41.645
	B100	1.580					3.840	0.859	0.425	0.336	-0.425	-0.336	5.550	5.416	5.518	5.384	5.541	5.500	5.434	5.393	3.539	3.405	3.507	3.373	3.530	3.489	3.423	3.382
N+6.35	B101	0.000	1.718	V-15X45	0.15	0.40	-1.832	-0.359	0.241	0.261	-0.241	-0.261	2.507	2.583	2.532	2.608	2.504	2.527	2.587	2.610	1.598	1.675	1.623	1.699	1.596	1.619	1.679	1.702
	B101	1.718					-3.010	-0.431	1.470	1.946	-1.470	-1.946	3.717	4.184	3.902	4.369	3.664	3.804	4.282	4.422	2.383	2.850	2.568	3.035	2.330	2.470	2.948	3.088
N+3.15	B101	0.000	1.718	V-15X45	0.15	0.40	-4.177	-0.904	0.348	0.372	-0.348	-0.372	5.843	5.954	5.879	5.989	5.841	5.874	5.959	5.992	3.686	3.797	3.722	3.832	3.684	3.717	3.802	3.835
	B101	1.718					-8.382	-2.029	2.908	3.998	-2.908	-3.998	11.435	12.359	11.816	12.739	11.314	11.591	12.584	12.860	6.892	7.815	7.273	8.196	6.771	7.048	8.040	8.317
N+6.35	B102	0.000	1.580	V-45X45	0.45	0.40	-18.363	-2.441	1.604	1.242	-1.604	-1.242	24.163	24.672	24.281	24.790	24.203	24.356	24.597	24.750	16.213	16.722	16.331	16.840	16.253	16.406	16.647	16.800
	B102	1.580					-0.159	-0.016	0.028	0.038	-0.028	-0.038	0.201	0.209	0.204	0.213	0.199	0.202	0.211	0.214	0.137	0.146	0.140	0.149	0.136	0.138	0.148	0.150
N+3.15	B102	0.000	1.580	V-45X45	0.45	0.40	-33.902	-5.212	3.733	2.499	-3.733	-2.499	45.183	46.368	45.421	46.606	45.320	45.675	46.113	46.469	29.800	30.985	30.038	31.223	29.937	30.293	30.731	31.086
	B102	1.580					1.091	0.304	0.119	0.204	-0.119	-0.204	1.642	1.604	1.622	1.585	1.651	1.640	1.586	1.575	1.011	0.973	0.991	0.953	1.020	1.009	0.955	0.944
N+3.15	B103	0.000	1.580	V-20X45	0.20	0.40	-15.637	-5.120	2.233	2.640	-2.233	-2.640	23.404	24.113	23.656	24.365	23.359	23.572	24.197	24.410	13.593	14.302	13.845	14.553	13.548	13.761	14.386	14.599
	B103	1.580					-2.376	-0.602	0.168	0.281	-0.168	-0.281	3.413	3.466	3.440	3.493	3.401	3.417	3.490	3.506	2.098	2.152	2.125	2.178	2.086	2.102	2.175	2.191
N+6.35	B104	0.000	1.580	V-45X45	0.45	0.40	-28.654	-3.984	0.035	0.026	-0.035	-0.026	38.362	38.373	38.364	38.376	38.363	38.366	38.371	38.375	25.782	25.793	25.784	25.795	25.783	25.786	25.791	25.794
	B104	1.580					0.264	0.005	0.005	0.004	-0.005	-0.004	0.323	0.321	0.322	0.321	0.323	0.322	0.321	0.321	0.239	0.237	0.238	0.237	0.238	0.238	0.237	0.237
N+3.15	B104	0.000	1.580	V-45X45	0.45	0.40	-66.591	-14.526	2.108	2.796	-2.108	-2.796	93.967	94.637	94.234	94.903	93.891	94.092	94.779	94.979	59.464	60.133	59.730	60.400	59.388	59.588	60.275	60.476
	B104	1.580					2.605	0.621	0.164	0.212	-0.164	-0.212	3.783	3.731	3.763	3.711	3.788	3.773	3.721	3.706	2.381	2.329	2.360	2.308	2.386	2.370	2.319	2.303
N+3.15	B105	0.000	1.580	V-20X45	0.20	0.40	-16.004	-5.295	1.919	2.821	-1.919	-2.821	24.061	24.670	24.330	24.939	23.961	24.143	24.856	25.039	13.965	14.574	14.233	14.843	13.864	14.047	14.760	14.943
	B105	1.580					-2.549	-0.662	0.233	0.234	-0.233	-0.234	3.673	3.747	3.695	3.769	3.673	3.695	3.747	3.769	2.246	2.320	2.268	2.342	2.246	2.268	2.320	2.342
N+6.35	B106	0.000	1.580	V-45X45	0.45	0.40	-18.613	-2.456	1.630	1.245	-1.630	-1.245	24.474	24.991	24.592	25.110	24.516	24.672	24.912	25.067	16.434	16.951	16.552	17.070	16.476	16.632	16.872	17.027
	B106	1.580					-0.105	0.011	0.026	0.039	-0.026	-0.039	0.109	0.117	0.113	0.121	0.108	0.110	0.120	0.122	0.089	0.097	0.092	0.100	0.087	0.090	0.099	0.102
N+3.15	B106	0.000	1.580	V-45X45	0.45	0.40	-34.504	-5.371	2.822	3.159	-2.822	-3.159	46.177	47.073	46.478	47.374	46.140	46.409	47.143	47.412	30.455	31.351	30.756	31.652	30.418	30.687	31.421	31.689
	B106	1.580					1.229	0.340	0.148	0.140	-0.148	-0.140	1.845	1.798	1.832	1.785	1.844	1.830	1.800	1.786	1.136	1.089	1.123	1.076	1.135	1.121	1.091	1.077
N+3.15	B107	0.000	3.450	V-15X45	0.15	0.40	-5.752	-0.926	9.523	6.893	-9.523	-6.893	5.989	9.012	6.645	9.668	6.281	7.188	8.469	9.376	3.337	6.360	3.993	7.017	3.629	4.536	5.817	6.724
	B107	3.450					10.058	1.779	1.318	2.077	-1.318	-2.077	14.157	13.738	13.959	13.540	14.241	14.116	13.582	13.456	9.360	8.942	9.163	8.744	9.445	9.319	8.785	8.660
N+6.35	B108	0.000	6.900	V-15X45	0.15	0.40	-3.785	0.211	4.791	3.679	-4.791	-3.679	3.395	4.916	3.746	5.267	3.519	3.975	4.687	5.143	2.471	3.992	2.821	4.342	2.594	3.051	3.762	4.219
	B108	6.900					-11.298	-2.047	4.893	3.758	-4.893	-3.758	14.649	16.202	15.007	16.560	14.775	15.241	15.968	16.434	9.213	10.766	9.570	11.124	9.339	9.805	10.532	10.998
N+3.15	B109	0.000	3.450	V-15X45	0.15	0.40	10.304	1.872	1.530	1.841	-1.530	-1.841	14.567	14.082	14.392	13.906	14.602	14.456	14.017	13.872	9.604	9.118	9.429	8.943	9.639	9.493	9.054	8.909
	B109	3.450					-17.145	-3.557	8.907	7.896	-8.907	-7.896	22.341	25.169	23.093	25.921	22.454	23.302	24.960	25.808	13.641	16.468	14.393	17.220	13.753	14.601	16.260	17.108
N+6.35	B110	0.000	1.500	V-15X45	0.15	0.40	-8.442	-2.278	1.422	1.479	-1.422	-1.479	12.112	12.564	12.253	12.705	12.106	12.241	12.575	12.711	7.302	7.753	7.443	7.894	7.295	7.431	7.765	7.900
	B110	1.500					-1.675	-0.344	0.188	0.256	-0.188	-0.256	2.312	2.372	2.336	2.396	2.304	2.322	2.386	2.404	1.465	1.525	1.490	1.550	1.458	1.476	1.539	1.557

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ $_{Cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
77.360	24.386	24.810	24.489	24.913	24.415	24.542	24.757	24.884	14.349	14.774	14.452	14.876	14.378	14.506	14.720	14.847
79.664																
83.856	20.836	21.410	20.971	21.545	20.880	21.052	21.329	21.501	12.167	12.741	12.302	12.876	12.211	12.383	12.660	12.832
72.884																
4.060	32.772	33.330	32.992	33.551	32.710	32.877	33.445	33.613	19.744	20.303	19.965	20.523	19.682	19.850	20.417	20.585
77.956																
7.344	2.929	3.065	3.017	3.153	2.875	2.916	3.166	3.207	1.877	2.013	1.964	2.100	1.822	1.863	2.114	2.155
0.804																
40.580	14.830	14.961	14.976	15.107	14.705	14.744	15.193	15.232	9.461	9.592	9.607	9.738	9.336	9.375	9.823	9.863
4.064																
5.880	31.378	31.790	31.553	31.966	31.317	31.441	31.902	32.026	18.967	19.380	19.143	19.555	18.907	19.031	19.492	19.616
76.408																
2.772	34.194	34.617	34.366	34.789	34.141	34.268	34.715	34.842	20.589	21.013	20.762	21.185	20.536	20.663	21.111	21.238
79.740																
15.260	8.051	10.211	8.544	10.704	8.231	8.879	9.876	10.524	5.139	7.299	5.632	7.792	5.319	5.967	6.964	7.612
24.976																
131.124	43.715	47.795	44.674	48.755	44.024	45.248	47.221	48.446	26.708	30.789	27.668	31.748	27.017	28.241	30.215	31.439
145.296																
56.116	37.076	37.604	37.280	37.808	37.024	37.182	37.702	37.860	22.569	23.097	22.773	23.301	22.517	22.675	23.195	23.353
26.800																
95.684	69.180	70.690	69.759	71.269	69.033	69.486	70.963	71.416	43.738	45.248	44.317	45.827	43.591	44.044	45.521	45.974
49.080																
21.704	6.041	7.904	6.472	8.334	6.191	6.750	7.626	8.184	4.126	5.989	4.557	6.419	4.276	4.835	5.710	6.269
19.420																
129.360	46.009	49.592	46.854	50.438	46.277	47.352	49.095	50.170	28.209	31.792	29.054	32.638	28.477	29.552	31.295	32.370
149.168																
18.556	6.112	7.956	6.536	8.380	6.262	6.815	7.677	8.230	4.179	6.024	4.604	6.448	4.330	4.883	5.745	6.298
23.312																
151.340	46.995	50.466	47.821	51.293	47.245	48.287	50.000	51.042	28.824	32.295	29.650	33.122	29.075	30.116	31.830	32.871
135.432																
23.268	13.187	13.618	13.283	13.722	13.223	13.351	13.552	13.686	9.048	9.493	9.148	9.597	9.084	9.214	9.427	9.562
4.872																
43.664	29.316	30.234	29.500	30.418	29.423	29.698	30.036	30.311	19.217	20.135	19.401	20.319	19.324	19.599	19.937	20.212
20.284																
24.404	17.998	18.546	18.231	18.779	17.918	18.082	18.694	18.859	10.559	11.107	10.792	11.340	10.479	10.644	11.256	11.420
8.240																
42.492	28.205	28.848	28.392	29.035	28.213	28.406	28.834	29.027	17.974	18.617	18.160	18.803	17.981	18.174	18.603	18.796
19.688																
57.660	42.395	43.554	42.822	43.980	42.303	42.650	43.725	44.073	26.821	27.979	27.248	28.406	26.729	27.076	28.151	28.498
36.356																
3.500	3.623	3.939	3.745	4.061	3.591	3.685	3.998	4.093	2.317	2.633	2.440	2.756	2.285	2.380	2.693	2.788
4.644																
1.400	10.058	10.659	10.300	10.901	9.986	10.166	10.793	10.974	6.157	6.759	6.400	7.001	6.085	6.266	6.893	7.073
8.500																
25.544	15.420	15.748	15.497	15.825	15.445	15.543	15.702	15.800	10.348	10.676	10.425	10.753	10.373	10.471	10.630	10.728
7.016																
43.864	29.636	30.362	29.774	30.500	29.729	29.946	30.190	30.408	19.500	20.227	19.639	20.365	19.593	19.811	20.054	20.272
20.468																
22.740	16.973	17.455	17.149	17.632	16.936	17.081	17.523	17.668	9.931	10.414	10.107	10.590	9.895	10.039	10.482	10.626
6.560																
38.604	24.484	24.490	24.485	24.491	24.485	24.486	24.489	24.491	16.469	16.475	16.470	16.476	16.469	16.471	16.474	16.475
13.408																
78.528	61.867	62.258	62.023	62.414	61.822	61.940	62.342	62.459	39.142	39.533	39.298	39.689	39.097	39.214	39.616	39.734
57.252																
22.996	17.553	17.985	17.737	18.169	17.489	17.619	18.103	18.233	10.260	10.692	10.444	10.876	10.196	10.326	10.810	10.940
6.816																
25.876	15.559	15.891	15.636	15.969	15.585	15.685	15.843	15.943	10.457	10.790	10.534	10.867	10.483	10.583	10.741	10.841
7.232																
44.620	30.394	30.931	30.576	31.113	30.370	30.531	30.976	31.137	19.995	20.532	20.177	20.714	19.970	20.132	20.577	20.738
21.224																
20.284	5.839	6.594	5.972	6.727	5.948	6.175	6.392	6.618	3.680	4.435	3.813	4.568	3.790	4.016	4.233	4.459
6.780																
4.872	2.615	3.061	2.718	3.163	2.651	2.785	2.993	3.127	1.693	2.139	1.796	2.241	1.729	1.863	2.072	2.205
8.544																
1.460	10.698	11.377	10.865	11.544	10.741	10.944	11.298	11.502	6.738	7.416	6.905	7.584	6.780	6.984	7.337	7.541
25.592																
11.144	9.616	9.957	9.726	10.067	9.607	9.709	9.974	10.076	5.845	6.185	5.955	6.296	5.835	5.938	6.203	6.305
3.500																

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

***Vu* = Vm + Vg**																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18						
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
101.746	102.170	101.849	102.273	101.775	101.902	102.117	102.244	91.709	92.134	91.812	92.236	91.738	91.866	92.080	92.207						
79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664	79.664						
104.692	105.266	104.827	105.401	104.736	104.908	105.185	105.357	96.023	96.597	96.158	96.732	96.067	96.239	96.516	96.688	105.4	**0.10**	178.92	45.93	224.85	**OK**
72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884	72.884						
36.832	37.390	37.052	37.611	36.770	36.937	37.505	37.673	23.804	24.363	24.025	24.583	23.742	23.910	24.477	24.645	78.0	**0.10**	178.92	45.93	224.85	**OK**
77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956	77.956						
10.273	10.409	10.361	10.497	10.219	10.260	10.510	10.551	9.221	9.357	9.308	9.444	9.166	9.207	9.458	9.499	10.6	**0.10**	178.92	34.45	213.37	**OK**
0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804	0.804						
55.410	55.541	55.556	55.687	55.285	55.324	55.773	55.812	50.041	50.172	50.187	50.318	49.916	49.955	50.403	50.443	55.8	**0.10**	178.92	34.45	213.37	**OK**
4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064	4.064						
37.258	37.670	37.433	37.846	37.197	37.321	37.782	37.906	24.847	25.260	25.023	25.435	24.787	24.911	25.372	25.496	76.4	**0.10**	178.92	45.93	224.85	**OK**
76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408	76.408						
36.966	37.389	37.138	37.561	36.913	37.040	37.487	37.614	23.361	23.785	23.534	23.957	23.308	23.435	23.883	24.010	79.7	**0.10**	178.92	45.93	224.85	**OK**
79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740	79.740						
23.311	25.471	23.804	25.964	23.491	24.139	25.136	25.784	20.399	22.559	20.892	23.052	20.579	21.227	22.224	22.872	26.0	**0.10**	178.92	103.35	282.27	**OK**
24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976	24.976						
174.839	178.919	175.798	179.879	175.148	176.372	178.345	179.570	157.832	161.913	158.792	162.872	158.141	159.365	161.339	162.563	179.9	**0.10**	178.92	103.35	282.27	**OK**
145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296	145.296						
93.192	93.720	93.396	93.924	93.140	93.298	93.818	93.976	78.685	79.213	78.889	79.417	78.633	78.791	79.311	79.469	94.0	**0.10**	178.92	103.35	282.27	**OK**
26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800						
164.864	166.374	165.443	166.953	164.717	165.170	166.647	167.100	139.422	140.932	140.001	141.511	139.275	139.728	141.205	141.658	167.1	**0.10**	178.92	103.35	282.27	**OK**
49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080	49.080						
27.745	29.608	28.176	30.038	27.895	28.454	29.330	29.888	25.830	27.693	26.261	28.123	25.980	26.539	27.414	27.973	30.0	**0.10**	178.92	103.35	282.27	**OK**
19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420	19.420						
175.369	178.952	176.214	179.798	175.637	176.712	178.455	179.530	157.569	161.152	158.414	161.998	157.837	158.912	160.655	161.730	179.8	**0.10**	178.92	103.35	282.27	**OK**
149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168	149.168						
24.668	26.512	25.092	26.936	24.818	25.371	26.233	26.786	22.735	24.580	23.160	25.004	22.886	23.439	24.301	24.854	26.9	**0.10**	178.92	103.35	282.27	**OK**
23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312	23.312						
198.335	201.806	199.161	202.633	198.585	199.627	201.340	202.382	180.164	183.635	180.990	184.462	180.415	181.456	183.170	184.211	202.6	**0.10**	178.92	103.35	282.27	**OK**
135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432	135.432						
36.455	36.886	36.551	36.990	36.491	36.619	36.820	36.954	32.316	32.761	32.416	32.865	32.352	32.482	32.695	32.830	37.0	**0.10**	178.92	103.35	282.27	**OK**
4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872	4.872						
72.980	73.898	73.164	74.082	73.087	73.362	73.700	73.975	62.881	63.799	63.065	63.983	62.988	63.263	63.601	63.876	74.1	**0.10**	178.92	103.35	282.27	**OK**
20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284	20.284						
42.402	42.950	42.635	43.183	42.322	42.486	43.098	43.263	34.963	35.511	35.196	35.744	34.883	35.048	35.660	35.824	43.3	**0.10**	178.92	45.93	224.85	**OK**
8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240	8.240						
70.697	71.340	70.884	71.527	70.705	70.898	71.326	71.519	60.466	61.109	60.652	61.295	60.473	60.666	61.095	61.288	71.5	**0.10**	178.92	103.35	282.27	**OK**
19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688	19.688						
100.055	101.214	100.482	101.640	99.963	100.310	101.385	101.733	84.481	85.639	84.908	86.066	84.389	84.736	85.811	86.158	101.7	**0.10**	178.92	103.35	282.27	**OK**
36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356	36.356						
7.123	7.439	7.245	7.561	7.091	7.185	7.498	7.593	5.817	6.133	5.940	6.256	5.785	5.880	6.193	6.288	7.6	**0.10**	178.92	34.45	213.37	**OK**
4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644	4.644						
11.458	12.059	11.700	12.301	11.386	11.566	12.193	12.374	7.557	8.159	7.800	8.401	7.485	7.666	8.293	8.473	12.4	**0.10**	178.92	34.45	213.37	**OK**
8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500	8.500						
40.964	41.292	41.041	41.369	40.989	41.087	41.246	41.344	35.892	36.220	35.969	36.297	35.917	36.015	36.174	36.272	41.4	**0.10**	178.92	103.35	282.27	**OK**
7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016	7.016						
73.500	74.226	73.638	74.364	73.593	73.810	74.054	74.272	63.364	64.091	63.503	64.229	63.457	63.675	63.918	64.136	74.4	**0.10**	178.92	103.35	282.27	**OK**
20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468	20.468						
39.713	40.195	39.889	40.372	39.676	39.821	40.263	40.408	32.671	33.154	32.847	33.330	32.635	32.779	33.222	33.366	40.4	**0.10**	178.92	45.93	224.85	**OK**
6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560	6.560						
63.088	63.094	63.089	63.095	63.089	63.090	63.093	63.095	55.073	55.079	55.074	55.080	55.073	55.075	55.078	55.079	63.1	**0.10**	178.92	103.35	282.27	**OK**
13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408	13.408						
140.395	140.786	140.551	140.942	140.350	140.468	140.870	140.987	117.670	118.061	117.826	118.217	117.625	117.742	118.144	118.262	141.0	**0.10**	178.92	103.35	282.27	**OK**
57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252	57.252						
40.549	40.981	40.733	41.165	40.485	40.615	41.099	41.229	33.256	33.688	33.440	33.872	33.192	33.322	33.806	33.936	41.2	**0.10**	178.92	45.93	224.85	**OK**
6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816	6.816						
41.435	41.767	41.512	41.845	41.461	41.561	41.719	41.819	36.333	36.666	36.410	36.743	36.359	36.459	36.617	36.717	41.8	**0.10**	178.92	103.35	282.27	**OK**
7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232						
75.014	75.551	75.196	75.733	74.990	75.151	75.596	75.757	64.615	65.152	64.797	65.334	64.590	64.752	65.197	65.358	75.8	**0.10**	178.92	103.35	282.27	**OK**
21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224						
26.123	26.878	26.256	27.011	26.232	26.459	26.676	26.902	23.964	24.719	24.097	24.852	24.074	24.300	24.517	24.743	27.0	**0.10**	178.92	34.45	213.37	**OK**
6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780	6.780						
7.487	7.933	7.590	8.035	7.523	7.657	7.865	7.999	6.565	7.011	6.668	7.113	6.601	6.735	6.944	7.077	8.5	**0.10**	178.92	34.45	213.37	**OK**
8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544	8.544						
12.158	12.837	12.325	13.004	12.201	12.404	12.758	12.962	8.198	8.876	8.365	9.044	8.240	8.444	8.797	9.001	25.6	**0.10**	178.92	34.45	213.37	**OK**
25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592	25.592						
20.760	21.101	20.870	21.211	20.751	20.853	21.118	21.220	16.989	17.329	17.099	17.440	16.979	17.082	17.347	17.449	21.2	**0.10**	178.92	34.45	213.37	**OK**
3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500						

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

COMDIS3 = 1.2C.M.+1.0C.V.+1.0Ex+0.3Ey
COMDIS4 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3Ey
COMDIS5 = 1.2C.M.+1.0C.V.+1.0Ex+0.3(-Ey)
COMDIS6 = 1.2C.M.+1.0C.V.+1.0(-Ex)+0.3(-Ey)
COMDIS7 = 1.2C.M.+1.0C.V.+0.3Ex+1.0Ey
COMDIS8 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0Ey
COMDIS9 = 1.2C.M.+1.0C.V.+0.3Ex+1.0(-Ey)
COMDIS10 = 1.2C.M.+1.0C.V.+0.3(-Ex)+1.0(-Ey)
COMDIS11 = 0.9C.M.+1.0Ex+0.3Ey
COMDIS12 = 0.9C.M.+1.0(-Ex)+0.3Ey
COMDIS13 = 0.9C.M.+1.0Ex+0.3(-Ey)
COMDIS14 = 0.9C.M.+1.0(-Ex)+0.3(-Ey)
COMDIS15 = 0.9C.M.+0.3Ex+1.0Ey
COMDIS16 = 0.9C.M.+0.3(-Ex)+1.0Ey
COMDIS17 = 0.9C.M.+0.3Ex+1.0(-Ey)
COMDIS18 = 0.9C.M.+0.3(-Ex)+1.0(-Ey)

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			M3						Mn (kN.m)															
	ELEMENTO												Combinaciones para resistencias nominales a momento															
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
N+3.15	B110	0.000	1.500	V-15X45	0.15	0.40	-10.162	-2.092	2.664	3.117	-2.664	-3.117	13.715	14.561	14.012	14.858	13.665	13.918	14.654	14.908	8.575	9.420	8.871	9.717	8.524	8.778	9.514	9.767
	B110	1.500					-3.936	-0.856	0.274	0.399	-0.274	-0.399	5.517	5.604	5.555	5.642	5.503	5.529	5.629	5.656	3.480	3.567	3.518	3.605	3.466	3.492	3.593	3.619
N+3.15	B111	0.000	3.520	V-15X45	0.15	0.40	-6.604	-1.005	8.557	6.133	-8.557	-6.133	7.279	9.996	7.864	10.580	7.549	8.364	9.496	10.311	4.293	7.010	4.877	7.594	4.563	5.378	6.510	7.325
	B111	3.520					9.445	1.496	1.127	1.957	-1.127	-1.957	13.102	12.744	12.916	12.558	13.194	13.087	12.573	12.466	8.773	8.415	8.586	8.228	8.865	8.757	8.244	8.136
N+6.35	B112	0.000	7.050	V-15X45	0.15	0.40	-6.055	-0.622	4.161	3.208	-4.161	-3.208	7.075	8.396	7.380	8.701	7.181	7.577	8.199	8.595	4.636	5.957	4.942	6.263	4.742	5.138	5.761	6.157
	B112	7.050					-6.410	0.384	3.034	2.353	-3.034	-2.353	6.714	7.678	6.938	7.902	6.790	7.079	7.537	7.826	5.175	6.139	5.399	6.363	5.251	5.540	5.998	6.287
N+3.15	B113	0.000	3.530	V-15X45	0.15	0.40	9.532	1.578	1.020	1.623	-1.020	-1.623	13.256	12.932	13.101	12.777	13.323	13.225	12.807	12.710	8.818	8.494	8.663	8.340	8.885	8.788	8.370	8.273
	B113	3.530					-24.010	-5.481	5.220	5.108	-5.220	-5.108	33.221	34.878	33.708	35.365	33.234	33.731	34.855	35.352	20.537	22.194	21.024	22.681	20.550	21.047	22.171	22.668
N+3.15	B114	0.000	3.590	V-15X45	0.15	0.40	-23.748	-5.316	6.217	4.217	-6.217	-4.217	32.626	34.600	33.028	35.001	32.848	33.440	34.187	34.779	20.186	22.159	20.587	22.561	20.408	21.000	21.747	22.339
	B114	3.590					10.355	1.728	1.310	1.368	-1.310	-1.368	14.427	14.011	14.297	13.881	14.434	14.309	13.999	13.874	9.593	9.177	9.462	9.046	9.599	9.474	9.165	9.040
N+6.35	B115	0.000	7.180	V-15X45	0.15	0.40	-6.325	0.386	3.112	2.383	-3.112	-2.383	6.597	7.584	6.824	7.811	6.678	6.974	7.434	7.730	5.085	6.073	5.312	6.300	5.166	5.462	5.923	6.219
	B115	7.180					-6.474	-0.639	4.312	3.289	-4.312	-3.289	7.567	8.936	7.880	9.249	7.680	8.091	8.725	9.135	4.986	6.354	5.299	6.668	5.099	5.510	6.143	6.554
N+3.15	B116	0.000	3.590	V-15X45	0.15	0.40	10.093	1.618	1.765	1.342	-1.765	-1.342	14.074	13.513	13.946	13.386	14.027	13.859	13.601	13.433	9.428	8.867	9.300	8.740	9.381	9.213	8.955	8.787
	B116	3.590					-7.217	-1.176	7.835	6.930	-7.835	-6.930	8.263	10.750	8.923	11.410	8.363	9.109	10.563	11.309	4.922	7.409	5.582	8.069	5.022	5.768	7.222	7.968

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
$\Phi_{Cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

V_g	$V_m = M_{nl} + M_{nr} / l_n$															
	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18
(kN)	(kN)															
10.780	12.821	13.443	13.044	13.666	12.778	12.965	13.523	13.709	8.036	8.658	8.260	8.881	7.993	8.180	8.738	8.924
1.400																
20.468	5.790	6.460	5.903	6.573	5.893	6.094	6.270	6.471	3.712	4.382	3.825	4.495	3.815	4.016	4.191	4.392
7.252																
7.016	1.956	2.280	2.031	2.355	1.982	2.079	2.232	2.329	1.392	1.716	1.467	1.791	1.417	1.515	1.668	1.765
6.688																
0.704	13.166	13.544	13.260	13.638	13.189	13.302	13.502	13.615	8.316	8.694	8.410	8.788	8.338	8.452	8.652	8.765
28.508																
28.728	13.107	13.541	13.182	13.616	13.170	13.301	13.422	13.553	8.295	8.729	8.370	8.804	8.358	8.489	8.610	8.741
0.344																
6.736	1.973	2.301	2.048	2.376	2.000	2.098	2.251	2.349	1.403	1.731	1.478	1.806	1.430	1.528	1.680	1.779
7.232																
7.160	6.222	6.759	6.370	6.907	6.237	6.398	6.731	6.892	3.997	4.534	4.145	4.682	4.012	4.173	4.506	4.667
21.224																

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (a)

f'c = **21.1** MPa
fy = **420** MPa
Φ Cortante = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

Mn = Momentos nominales de la viga en cada extremo restringido de la luz libre.
Vg = Cortante calculado para cargas gravitacionales mayoradas.
Vm = Cortante debido a flexion en curvatura inversa.
Vu = Vm + Vg

***Vu* = Vm + Vg**																	Vu_{max}	S	ΦVs	ΦVc	ΦVn	ΦVn > Vu_{max}
COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18						
(kN)																	(kN)	(m)	(kN)	(kN)	(kN)	
23.601	24.223	23.824	24.446	23.558	23.745	24.303	24.489	18.816	19.438	19.040	19.661	18.773	18.960	19.518	19.704						
1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	24.5	**0.10**	178.92	34.45	213.37	OK
26.258	26.928	26.371	27.041	26.361	26.562	26.738	26.939	24.180	24.850	24.293	24.963	24.283	24.484	24.659	24.860						
7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	7.252	27.0	**0.10**	178.92	34.45	213.37	OK
8.972	9.296	9.047	9.371	8.998	9.095	9.248	9.345	8.408	8.732	8.483	8.807	8.433	8.531	8.684	8.781						
6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	6.688	9.4	**0.10**	178.92	34.45	213.37	OK
13.870	14.248	13.964	14.342	13.893	14.006	14.206	14.319	9.020	9.398	9.114	9.492	9.042	9.156	9.356	9.469						
28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.508	28.5	**0.10**	178.92	34.45	213.37	OK
41.835	42.269	41.910	42.344	41.898	42.029	42.150	42.281	37.023	37.457	37.098	37.532	37.086	37.217	37.338	37.469						
0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	42.3	**0.10**	178.92	34.45	213.37	OK
8.709	9.037	8.784	9.112	8.736	8.834	8.987	9.085	8.139	8.467	8.214	8.542	8.166	8.264	8.416	8.515						
7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	7.232	9.1	**0.10**	178.92	34.45	213.37	OK
13.382	13.919	13.530	14.067	13.397	13.558	13.891	14.052	11.157	11.694	11.305	11.842	11.172	11.333	11.666	11.827						
21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.224	21.2	**0.10**	178.92	34.45	213.37	OK

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (b)

f'c = 21.0 MPa
fy = 420 MPa
Φ Cortante = 0.75
Estribos Φ = 9.5 mm
Av = 71 mm²
R= 6.30

2VE = Cortante maximo obtenido de las combinaciones de carga de diseño que incluyan E, considerando E, como el doble del prescrito por el reglamento general legalmente adoptado para diseño sismico vigente.

COMDIS3 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS4 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS5 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS6 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS7 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS8 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS9 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS10 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))
COMDIS11 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS12 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS13 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS14 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS15 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS16 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS17 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS17 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			V2						$2V_E$														$2V_{E\,max}$	S	ΦVs	ΦVc	ΦVn	ΦVn > $2V_{Emax}$
	ELEMENTO			SECCION	b	d	C.M.	C.V.	SISMO X	SISMO Y	-SISMO X	-SISMO Y	Combinaciones de carga de diseño para el doble del cortante donde se incluya E																			
	No.	(m)	(m)		(m)	(m)	(KN.m)	(KN.m)	(KN.m)	(KN.m)	(KN.m)	(KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18	(kN)	(m)	(kN)	(kN)	(kN)	
N+3.15	B1	0	3.45	V-15X45	0.15	0.40	-13.95	-3.36	4.26	5.5	-4.26	-5.5	19.162	20.514	19.686	21.038	19.024	19.430	20.770	21.176	11.617	12.969	12.141	13.493	11.479	11.885	13.225	13.631	21.2	0.10	178.92	34.37	213.29	OK
	B1	3.45					3.28	0.95	4.26	5.5	-4.26	-5.5	5.824	4.472	5.300	3.948	5.962	5.556	4.216	3.810	3.890	2.538	3.366	2.014	4.028	3.622	2.282	1.876						
N+6.35	B2	0	6.9	V-15X45	0.15	0.40	-5.13	0.87	2.56	2.3	-2.56	-2.3	4.770	5.583	4.989	5.802	4.799	5.043	5.529	5.773	4.101	4.914	4.320	5.133	4.130	4.374	4.860	5.104	8.6	0.10	178.92	34.37	213.29	OK
	B2	6.9					6.05	0.87	2.56	2.3	-2.56	-2.3	8.646	7.833	8.427	7.614	8.617	8.373	7.887	7.643	5.961	5.148	5.742	4.929	5.932	5.688	5.202	4.958						
N+3.15	B3	0	3.45	V-15X45	0.15	0.40	4.07	1.21	4.98	3.42	-4.98	-3.42	7.047	5.466	6.722	5.141	6.874	6.400	5.788	5.314	4.616	3.035	4.291	2.710	4.443	3.969	3.357	2.883	14.6	0.10	178.92	34.37	213.29	OK
	B3	3.45					10.23	1.42	4.98	3.42	-4.98	-3.42	14.649	13.068	14.324	12.743	14.476	14.002	13.390	12.916	10.160	8.579	9.835	8.254	9.987	9.513	8.901	8.427						
N+3.15	B4	0	3.52	V-15X45	0.15	0.40	-14.61	-3.13	3.46	4.4	-3.46	-4.4	19.903	21.002	20.322	21.421	19.799	20.128	21.196	21.525	12.390	13.489	12.809	13.908	12.286	12.615	13.683	14.012	21.5	0.10	178.92	34.37	213.29	OK
	B4	3.52					3.05	1.3	3.46	4.4	-3.46	-4.4	5.719	4.620	5.300	4.201	5.823	5.494	4.426	4.097	3.504	2.405	3.085	1.986	3.608	3.279	2.211	1.882						
N+6.35	B5	0	7.05	V-15X45	0.15	0.40	-6	-0.99	2	1.8	-2	-1.8	7.787	8.422	7.958	8.593	7.809	8.000	8.380	8.571	4.997	5.632	5.168	5.803	5.019	5.210	5.590	5.781	8.6	0.10	178.92	34.37	213.29	OK
	B5	7.05					5.42	-0.99	2	1.8	-2	-1.8	5.917	5.282	5.746	5.111	5.895	5.704	5.324	5.133	5.281	4.646	5.110	4.475	5.259	5.068	4.688	4.497						
N+3.15	B6	0	3.53	V-15X45	0.15	0.40	-1	-0.48	3.7	2.48	-3.7	-2.48	0.975	2.149	1.211	2.385	1.110	1.463	1.897	2.250	0.195	1.369	0.431	1.605	0.330	0.683	1.117	1.470	24.7	0.10	178.92	34.37	213.29	OK
	B6	3.53					16.72	3.96	3.7	2.48	-3.7	-2.48	24.729	23.555	24.493	23.319	24.594	24.241	23.807	23.454	15.753	14.579	15.517	14.343	15.618	15.265	14.831	14.478						
N+3.15	B7	0	3.59	V-15X45	0.15	0.40	-16.4	-3.72	2.28	3.34	-2.28	-3.34	22.879	23.603	23.197	23.921	22.761	22.978	23.822	24.039	14.239	14.963	14.557	15.281	14.121	14.338	15.182	15.399	24.0	0.10	178.92	34.37	213.29	OK
	B7	3.59					1.68	0.82	2.28	3.34	-2.28	-3.34	3.357	2.633	3.039	2.315	3.475	3.258	2.414	2.197	2.033	1.309	1.715	0.991	2.151	1.934	1.090	0.873						
N+6.35	B8	0	7.18	V-15X45	0.15	0.40	-5.76	0.13	1.38	1.26	-1.38	-1.26	6.503	6.941	6.623	7.061	6.516	6.648	6.916	7.048	4.905	5.343	5.025	5.463	4.918	5.050	5.318	5.450	7.5	0.10	178.92	34.37	213.29	OK
	B8	7.18					5.87	0.13	1.38	1.26	-1.38	-1.26	7.453	7.015	7.333	6.895	7.440	7.308	7.040	6.908	5.562	5.124	5.442	5.004	5.549	5.417	5.149	5.017						
N+3.15	B9	0	3.59	V-15X45	0.15	0.40	-1.18	-0.75	3.3	2.3	-3.3	-2.3	1.533	2.580	1.752	2.799	1.644	1.958	2.374	2.688	0.429	1.476	0.648	1.695	0.540	0.854	1.270	1.584	24.7	0.10	178.92	34.37	213.29	OK
	B9	3.59					16.9	3.8	3.3	2.3	-3.3	-2.3	24.713	23.666	24.494	23.447	24.602	24.288	23.872	23.558	15.843	14.796	15.624	14.577	15.732	15.418	15.002	14.688						
N+3.15	B10	0	3.54	V-15X45	0.15	0.40	-18.03	-4.14	3.04	3.92	-3.04	-3.92	25.107	26.072	25.480	26.445	25.009	25.299	26.253	26.543	15.558	16.523	15.931	16.896	15.460	15.750	16.704	16.994	26.5	0.10	178.92	34.37	213.29	OK
	B10	3.54					-0.25	0.32	3.04	3.92	-3.04	-3.92	0.689	0.276	0.316	0.649	0.787	0.497	0.457	0.747	0.444	0.521	0.071	0.894	0.542	0.252	0.702	0.992						
N+6.35	B11	0	7.07	V-15X45	0.15	0.40	-5.83	0.08	2.1	1.88	-2.1	-1.88	6.493	7.160	6.672	7.339	6.518	6.718	7.114	7.314	4.824	5.491	5.003	5.670	4.849	5.049	5.445	5.645	7.3	0.10	178.92	34.37	213.29	OK
	B11	7.07					5.62	0.08	2.1	1.88	-2.1	-1.88	7.247	6.580	7.068	6.401	7.222	7.022	6.626	6.426	5.481	4.814	5.302	4.635	5.456	5.256	4.860	4.660						
N+3.15	B12	0	3.53	V-15X45	0.15	0.40	-4.28	-1.47	4.78	3.64	-4.78	-3.64	5.674	7.191	6.021	7.538	5.801	6.256	6.956	7.411	2.920	4.437	3.267	4.784	3.047	3.502	4.202	4.657	20.0	0.10	178.92	34.37	213.29	OK
	B12	3.53					13.44	2.98	4.78	3.64	-4.78	-3.64	20.040	18.523	19.693	18.176	19.913	19.458	18.758	18.303	13.028	11.511	12.681	11.164	12.901	12.446	11.746	11.291						
N+6.35	B13	0	1.64	V-45X45	0.45	0.40	5.13	-0.87	2.56	2.3	-2.56	-2.3	5.802	4.989	5.583	4.770	5.773	5.529	5.043	4.799	5.133	4.320	4.914	4.101	5.104	4.860	4.374	4.130	23.2	0.10	178.92	103.11	282.03	OK
	B13	1.64					17.26	1.96	2.56	2.3	-2.56	-2.3	23.188	22.375	22.969	22.156	23.159	22.915	22.429	22.185	16.050	15.237	15.831	15.018	16.021	15.777	15.291	15.047						
N+3.15	B13	0	1.64	V-45X45	0.45	0.40	13.95	3.36	4.26	5.5	-4.26	-5.5	21.038	19.686	20.514	19.162	21.176	20.770	19.430	19.024	13.493	12.141	12.969	11.617	13.631	13.225	11.885	11.479	44.9	0.10	178.92	103.11	282.03	OK
	B13	1.64					32.59	4.71	4.26	5.5	-4.26	-5.5	44.756	43.404	44.232	42.880	44.894	44.488	43.148	42.742	30.269	28.917	29.745	28.393	30.407	30.001	28.661	28.255						
N+3.15	B14	0	1.64	V-20X45	0.20	0.40	-0.78	-0.25	2.92	3.8	-2.92	-3.8	0.542	1.469	0.903	1.830	0.444	0.722	1.650	1.928	0.058	0.985	0.419	1.346	0.040	0.238	1.166	1.444	24.1	0.10	178.92	45.83	224.75	OK
	B14	1.64					15.71	4.54	2.92	3.8	-2.92	-3.8	24.036	23.109	23.675	22.748	24.134	23.856	22.928	22.650	14.783	13.856	14.422	13.495	14.881	14.603	13.675	13.397						
N+6.35	B15	0	1.64	V-45X45	0.45	0.40	6.05	0.87	2.56	2.3	-2.56	-2.3	8.646	7.833	8.427	7.614	8.617	8.373	7.887	7.643	5.961	5.148	5.742	4.929	5.932	5.688	5.202	4.958	26.0	0.10	178.92	103.11	282.03	OK
	B15	1.64					18.18	3.7	2.56	2.3	-2.56	-2.3	26.032	25.219	25.813	25.000	26.003	25.759	25.273	25.029	16.878	16.065	16.659	15.846	16.849	16.605	16.119	15.875						
N+3.15	B15	0	1.64	V-45X45	0.45	0.40	10.23	1.42	4.98	3.42	-4.98	-3.42	14.649	13.068	14.324	12.743	14.476	14.002	13.390	12.916	10.160	8.579	9.835	8.254	9.987	9.513	8.901	8.427	38.8	0.10	178.92	103.11	282.03	OK
	B15	1.64					27.52	4.87	4.98	3.42	-4.98	-3.42	38.847	37.266	38.522	36.941	38.674	38.200	37.588	37.114	25.721	24.140	25.396	23.815	25.548	25.074	24.462	23.988						
N+6.35	B16	0	1.64	V-45X45	0.45	0.40	6	0.99	2	1.8	-2	-1.8	8.593	7.958	8.422	7.787	8.571	8.380	8.000	7.809	5.803	5.168	5.632	4.997	5.781	5.590	5.210	5.019	26.1	0.10	178.92	103.11	282.03	OK
	B16	1.64					18.17	3.88	2	1.8	-2	-1.8	26.087	25.452	25.916	25.281	26.065	25.874	25.494	25.303	16.756	16.121	16.585	15.950	16.734	16.543	16.163	15.972						
N+3.15	B16	0	1.64	V-45X45	0.45	0.40	14.61	3.13	3.46	4.4	-3.46	-4.4	21.421	20.322	21.002	19.903	21.525	21.196	20.128	19.799	13.908	12.809	13.489	12.390	14.012	13.683	12.615	12.286	36.8	0.10	178.92	103.11	282.03	OK
	B16	1.64					26.21	4.48	3.46	4.4	-3.46	-4.4	36.691	35.592	36.272	35.173	36.795	36.466	35.398	35.069	24.348	23.249	23.929	22.830	24.452	24.123	23.055	22.726						
N+3.15	B17	0	1.64	V-20X45	0.20	0.40	4.05	1.78	2.22	3.52	-2.22	-3.52	7.160	6.455	6.825	6.120	7.304	7.093	6.187	5.976	4.165	3.460	3.830	3.125	4.309	4.098	3.192	2.981	23.0	0.10	178.92	45.83	224.75	OK
	B17	1.64					14.86	4.47	2.22	3.52	-2.22	-3.52	22.822	22.117	22.487	21.782	22.966	22.755	21.849	21.638	13.894	13.189	13.559	12.854	14.038	13.827	12.921	12.710						
N+6.35	B18	0	1.64	V-45X45	0.45	0.40	11.18	-1.12	0.62	0.54	-0.62	-0.54	12.420	12.223	12.369	12.172	12.411	12.352	12.240	12.181	10.186	9.989	10.135	9.938	10.177	10.118	10.006	9.947	35.1	0.10	178.92	103.11	282.03	OK
	B18	1.64					25.18	4.71	0.62	0.54	-0.62	-0.54	35.050	34.853	34.999	34.802	35.041	34.982	34.870	34.811	22.786	22.589	22.735	22.538	22.777	22.718	22.606	22.547						
N+3.15	B18	0	1.64	V-45X45	0.45	0.40	33.12	7.68	2.78	3.24	-2.78	-3.24	48.020	47.137	47.711	46.828	48.071	47.806	47.042	46.777	30.404	29.521	30.095	29.212	30.455	30.190	29.426	29.161	69.0	0.10	178.92	103.11	282.03	OK
	B18	1.64					48.35	10.37	2.78	3.24	-2.78	-3.24	68.986	68.103	68.677	67.794	69.037	68.772	68.008	67.743	44.111	43.228	43.802	42.919	44.162	43.897	43.133	42.868						
N+3.15	B19	0	1.64	V-20X45	0.20	0.40	2.87	1.57	2.52	3.3	-2.52	-3.3	5.571	4.771	5.257	4.457	5.658	5.418	4.610	4.370	3.140	2.340	2.826	2.026	3.227	2.987	2.179	1.939	21.3	0.10	178.92	45.83	224.75	OK
	B19	1.64					13.67	4.26	2.52	3.3	-2.52	-3.3	21.221	20.421	20.907	20.107	21.308	21.068	20.260	20.020	12.860	12.060	12.546	11.746	12.947	12.707	11.899	11.659						
N+6.35	B20	0	1.64	V-45X45	0.45	0.40	11.7	0.05	0.7	0.64	-0.7	-0.64	14.232	14.009	14.171	13.948	14.225	14.158	14.022	13.955	10.672	10.449	10.611	10.388	10.665	10.598	10.462	10.395	36.9	0.10	178.92	103.11	282.03	OK
	B20	1.64					25.71	5.89	0.7	0.64	-0.7	-0.64	36.884	36.661	36.823	36.600	36.877	36.810	36.674	36.607	23.281	23.058	23.220	22.997	23.274	23.207	23.071	23.004						
N+3.15	B20	0	1.64	V-45X45	0.45	0.40	34.93	7.93	2.26	3.68	-2.26	-3.68	50.380	49.663	50.029	49.312	50.538	50.323	49.369	49.154	31.971	31.254	31.620	30.903	32.129	31.914	30.960	30.745	71.5	0.10	178.92	103.11	282.03	OK
	B20	1.64					50.16	10.62	2.26	3.68	-2.26	-3.68	71.346	70.629	70.995	70.278	71.504	71.289	70.335	70.120	45.678	44.961	45.327	44.610	45.836	45.621	44.667	44.452						
N+3.15	B21	0	1.64	V-20X45	0.20	0.40	4.03	1.79	2.78	3.08	-2.78	-3.08	7.214	6.331	6.921	6.038	7.247	6.983	6.269	6.005	4.215	3.332	3.922	3.039	4.248	3.984	3.270	3.006	22.9	0.10	178.92	45.83	224.75	OK
	B21	1.64					14.83	4.48	2.78	3.08	-2.78	-3.08	22.864	21.981	22.571	21.688	22.897	22.633	21.919	21.655	13.935	13.052	13.642	12.759	13.968	13.704	12.990	12.726						
N+6.35	B22	0	1.64	V-45X45	0.45	0.40	5.62	0.08	2.1	1.88	-2.1	-1.88	7.247	6.580	7.068	6.401	7.222	7.022	6.626	6.426	5.481	4.814	5.302	4.635	5.456	5.256	4.860	4.660	24.8	0.10	178.92	103.11	282.03	OK
	B22	1.64					17.8	2.98	2.1	1.88	-2.1	-1.88	24.763	24.096	24.584	23.917	24.738	24.538	24.142	23.942	16.443	15.776	16.264	15.597	16.418	16.218	15.822	15.622						
N+3.15	B22	0	1.64	V-45X45	0.45	0.40	13.44	2.98	4.78	3.64	-4.78	-3.64	20.040	18.523	19.693	18.176	19.913	19.458	18.758	18.303	13.028	11.511	12.681	11.164	12.901	12.446	11.746	11.291	43.7	0.10	178.92	103.11	282.03	OK
	B22	1.64					32.08	4.32	4.78	3.64	-4.78	-3.64	43.748	42.231	43.401	41.884	43.621	43.166	42.466	42.011	29.804	28.287	29.457	27.940	29.677	29.222	28.522	28.067						
N+6.35	B23	0	6.9	V-45X45	0.45	0.40	-15.46	2.27	13.18	11.56	-13.18	-11.56	13.639	17.824	14.740	18.925	13.819	15.075	17.489	18.745	11.271	15.456	12.372	16.557	11.451	12.707	15.121	16.377	26.6	0.10	178.92	103.11	282.03	OK
	B23	6.9					18.07	2.27	13.18	11.56	-13.18	-11.56	26.597	22.412	25.496	21.311	26.417	25.161	22.747	21.491	18.906	14.721	17.805	13.620	18.726	17.470	15.056	13.800						
N+3.15	B23	0	6.9	V-45X45	0.45	0.40	-85.92	-18.74	24.84	19.4	-24.84	-19.4	116.977	124.863	118.825	126.711	117.582	119.947	123.741	126.106	72.461	80.347	74.309	82.195	73.066	75.431	79.225	81.590	139.1	0.10	178.92	103.11	282.03	OK
	B23	6.9					95.08	20.01	23.4	24.44	-23.4	-24.44	138.984	131.556	136.656	129.228	139.100	136.871	131.341	129.112	90.450	83.022	88.122	80.694	90.566	88.337	82.807	80.578						
N+6.35	B24	0	7.5	V-25X45	0.25	0.40	-34.55	-35.09	6.1	5.38	-6.1	-5.38	75.326	77.262	75.838	77.774	75.406	75.987	77.113	77.694	29.871	31.807	30.383	32.319	29.951	30.532	31.658	32.239	78.4	0.10	178.92	57.28	236.20	OK
	B24	7.5					34.98	35.22	6.1	5.38	-6.1	-5.38	78.420	76.484	77.908	75.972	78.340	77.759	76.633	76.052	32.706	30.770	32.194	30.258	32.626	32.045	30.919	30.338						
N+3.15	B24	0	7.5	V-25X45	0.25	0.40	-77.56	-14.39	18.54	15.38	-18.54	-15.38	103.787	109.672	105.252	111.137	104.138	105.904	109.020	110.786	66.129	72.014	67.594	73.479	66.480	68.246	71.362	73.128	111.1	0.10	178.92	57.28	236.20	OK
	B24	7.5					77.45	14.4	17.74	17.36	-17.74	-17.36	110.983	105.351	109.329	103.697	110.940	109.251	105.429	103.740	73.348	67.716	71.694	66.062	73.305	71.616	67.794	66.105						
N+6.35	B25	0	7.05	V-45X45	0.45	0.40	-18.46	-2.75	11.34	9.98	-11.34	-9.98	22.627	26.227	23.577	27.177	22.778	23.858	25.946	27.026	14.339	17.939	15.289	18.889	14.490	15.570	17.658	18.738	27.2	0.10	178.92	103.11	282.03	OK
	B25	7.05					15.8	-2.75	11.34	9.98	-11.34	-9.98	18.485	14.885	17.535	13.935	18.334	17.254	15.166	14.086	16.495	12.895	15.545	11.945	16.344	15.264	13.176	12.096						
N+3.15	B25	0	7.05	V-45X45	0.45	0.40	-90.66	-19.03	21.5	16.86	-21.5	-16.86	123.606	130.432	125.212	132.038	124.122	126.170	129.474	131.522	77.378	84.204	78.984	85.810	77.894	79.942	83.246	85.294	137.3	0.10	178.92	103.11	282.03	OK
	B25	7.05					93.45	20.85	20.16	20.92	-20.16	-20.92	137.186	130.786	135.194	128.794	137.271	135.351	130.629	128.709	88.301	81.901	86.309	79.909	88.386	86.466	81.744	79.824						
N+6.35	B26	0	7.18	V-45X45	0.45	0.40	-17.26	0.31	9.92	8.72	-9.92	-8.72	18.412	21.561	19.243	22.392	18.545	19.490	21.314	22.259	13.544	16.693	14.375	17.524	13.677	14.622	16.446	17.391	23.5	0.10	178.92	103.11	282.03	OK
	B26	7.18					17.63	0.31	9.92	8.72	-9.92	-8.72	23.456	20.307	22.625	19.476	23.323	22.378	20.554	19.609	17.857	14.708	17.026	13.877	17.724	16.779	14.955	14.010						
N+3.15	B26	0	7.18	V-45X45	0.45	0.40	-92.67	-20.27	21.02	16.64	-21.02	-16.64	127.345	134.018	128.930	135.603	127.832	129.834	133.114	135.116	79.274	85.947	80.859	87.532	79.761	81.763	85.043	87.045	137.0	0.10	178.92	103.11	282.03	OK
	B26	7.18					93.94	20.4	18.48	19.14	-18.48	-19.14	136.973	131.106	135.150	129.283	137.046	135.286	130.970	129.210	88.391	82.524	86.568	80.701	88.464	86.704	82.388	80.628						
N+6.35	B27	0	7.07	V-45X45	0.45	0.40	-16.63	0.46	11.84	10.42	-11.84	-10.42	17.120	20.879	18.113	21.872	17.278	18.406	20.586	21.714	12.591	16.350	13.584	17.343	12.749	13.877	16.057	17.185	24.1	0.10	178.92	103.11	282.03	OK
	B27	7.07					17.73	0.46	11.84	10.42	-11.84	-10.42	24.112	20.353	23.119	19.360	23.954	22.826	20.646	19.518	18.333	14.574	17.340	13.581	18.175	17.047	14.867	13.739						
N+3.15	B27	0	7.07	V-45X45	0.45	0.40	-97.75	-21.34	24.82	20.26	-24.82	-20.26	133.736	141.615	135.665	143.544	134.242	136.606	140.674	143.038	83.071	90.950	85.000	92.879	83.577	85.941	90.009	92.373	143.5	0.10	178.92	103.11	282.03	OK

Diseños & Estructuras

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (b)

f'c = 21.0 MPa
fy = 420 MPa
Φ $_{Cortante}$ **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

2VE = Cortante maximo obtenido de las combinaciones de carga de diseño que incluyan E, considerando E, como el doble del prescrito por el reglamento general legalmente adoptado para diseño sismico vigente.

COMDIS3 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS4 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3Ey)))
COMDIS5 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS6 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS7 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS8 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS9 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS10 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))
COMDIS11 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS12 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS13 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS14 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS15 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS16 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS17 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS17 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			V2						$2V_E$														$2V_{E\,max}$	S	ΦVs	ΦVc	ΦVn	ΦVn > $2V_{Emax}$
	ELEMENTO												Combinaciones de carga de diseño para el doble del cortante donde se incluya E																			
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18	(kN)	(m)	(kN)	(kN)	(kN)	
N+3.15	B27	7.07	7.07	V-20X45	0.45	0.40	87.39	18.72	21.22	21.2	-21.22	-21.2	127.966	121.229	125.947	119.210	127.964	125.943	121.233	119.212	83.029	76.292	81.010	74.273	83.027	81.006	76.296	74.275	71.2	0.10	178.92	45.83	224.75	OK
	B28	0					-47.04	-13.79	3.54	4.94	-3.54	-4.94	69.441	70.565	69.911	71.035	69.285	69.622	70.854	71.191	41.539	42.663	42.009	43.133	41.383	41.720	42.952	43.289						
	B28	4.05					5.02	2.25	3.54	4.94	-3.54	-4.94	9.071	7.947	8.601	7.477	9.227	8.890	7.658	7.321	5.315	4.191	4.845	3.721	5.471	5.134	3.902	3.565						
N+3.15	B29	0	4.05	V-20X45	0.20	0.40	-48.42	-14.72	2.68	3.6	-2.68	-3.6	72.227	73.078	72.570	73.421	72.125	72.380	73.268	73.523	42.981	43.832	43.324	44.175	42.879	43.134	44.022	44.277	73.5	0.10	178.92	45.83	224.75	OK
	B29	4.05					4.38	1.59	2.68	3.6	-2.68	-3.6	7.443	6.592	7.100	6.249	7.545	7.290	6.402	6.147	4.539	3.688	4.196	3.345	4.641	4.386	3.498	3.243						
N+3.15	B30	0	4.05	V-20X45	0.20	0.40	-47.24	-14.11	2.86	3.8	-2.86	-3.8	70.163	71.071	70.525	71.433	70.059	70.331	71.265	71.537	41.881	42.789	42.243	43.151	41.777	42.049	42.983	43.255	71.5	0.10	178.92	45.83	224.75	OK
	B30	4.05					5.05	2.01	2.86	3.8	-2.86	-3.8	8.705	7.797	8.343	7.435	8.809	8.537	7.603	7.331	5.180	4.272	4.818	3.910	5.284	5.012	4.078	3.806						
N+3.15	B31	0	4.05	V-20X45	0.20	0.40	-47.92	-14.44	2.92	3.78	-2.92	-3.78	71.301	72.227	71.661	72.587	71.205	71.483	72.405	72.683	42.485	43.411	42.845	43.771	42.389	42.667	43.589	43.867	72.7	0.10	178.92	45.83	224.75	OK
	B31	4.05					4.55	1.75	2.92	3.78	-2.92	-3.78	7.853	6.927	7.493	6.567	7.949	7.671	6.749	6.471	4.738	3.812	4.378	3.452	4.834	4.556	3.634	3.356						
N+3.15	B32	0	4.05	V-20X45	0.20	0.40	-47.83	-14.18	3.06	3.78	-3.06	-3.78	70.910	71.882	71.270	72.242	70.830	71.122	72.030	72.322	42.381	43.353	42.741	43.713	42.301	42.593	43.501	43.793	72.3	0.10	178.92	45.83	224.75	OK
	B32	4.05					4.49	1.96	3.06	3.78	-3.06	-3.78	8.014	7.042	7.654	6.682	8.094	7.802	6.894	6.602	4.707	3.735	4.347	3.375	4.787	4.495	3.587	3.295						
N+3.15	B33	0	6.9	V-20X45	0.20	0.40	-39.6	-12.87	3.86	3.58	-3.86	-3.58	59.607	60.832	59.948	61.173	59.638	60.006	60.774	61.142	34.857	36.082	35.198	36.423	34.888	35.256	36.024	36.392	71.8	0.10	178.92	45.83	224.75	OK
	B33	6.9					47.03	14.68	3.54	2.66	-3.54	-2.66	71.805	70.681	71.551	70.427	71.707	71.370	70.862	70.525	43.016	41.892	42.762	41.638	42.918	42.581	42.073	41.736						
N+3.15	B34	0	7.5	V-20X45	0.20	0.40	-48.78	-15.32	2.22	2	-2.22	-2	73.408	74.113	73.599	74.304	73.433	73.644	74.068	74.279	43.454	44.159	43.645	44.350	43.479	43.690	44.114	44.325	74.4	0.10	178.92	45.83	224.75	OK
	B34	7.5					48.79	15.42	2.32	1.88	-2.32	-1.88	74.426	73.689	74.247	73.510	74.377	74.156	73.780	73.559	44.369	43.632	44.190	43.453	44.320	44.099	43.723	43.502						
N+3.15	B35	0	7.05	V-20X45	0.20	0.40	-45.11	-14.18	2.58	2.46	-2.58	-2.46	67.785	68.604	68.020	68.839	67.799	68.044	68.580	68.825	40.072	40.891	40.307	41.126	40.086	40.331	40.867	41.112	68.8	0.10	178.92	45.83	224.75	OK
	B35	7.05					44.92	14.09	2.78	2.1	-2.78	-2.1	68.535	67.653	68.335	67.453	68.460	68.195	67.793	67.528	40.969	40.087	40.769	39.887	40.894	40.629	40.227	39.962						
N+3.15	B36	0	7.18	V-20X45	0.20	0.40	-45.63	-14.28	2.32	2.22	-2.32	-2.22	68.562	69.299	68.773	69.510	68.573	68.794	69.278	69.499	40.593	41.330	40.804	41.541	40.604	40.825	41.309	41.530	70.4	0.10	178.92	45.83	224.75	OK
	B36	7.18					46.24	14.39	2.58	1.98	-2.58	-1.98	70.382	69.563	70.193	69.374	70.315	70.069	69.687	69.441	42.120	41.301	41.931	41.112	42.053	41.807	41.425	41.179						
N+3.15	B37	0	7.07	V-20X45	0.20	0.40	-48.73	-15.34	2.96	2.76	-2.96	-2.76	73.215	74.154	73.478	74.417	73.237	73.519	74.113	74.395	43.256	44.195	43.519	44.458	43.278	43.560	44.154	44.436	74.4	0.10	178.92	45.83	224.75	OK
	B37	7.07					41.51	13.35	3.88	3.14	-3.88	-3.14	63.927	62.696	63.628	62.397	63.845	63.476	62.848	62.479	38.124	36.893	37.825	36.594	38.042	37.673	37.045	36.676						
N+6.35	B38	0	8.15	V-45X45	0.45	0.40	-30.27	-6.68	8.72	12.14	-8.72	-12.14	41.042	43.810	42.198	44.966	40.662	41.492	44.516	45.346	25.281	28.049	26.437	29.205	24.901	25.731	28.755	29.585	45.7	0.10	178.92	103.11	282.03	OK
	B38	8.15					30.01	7.38	8.72	12.14	-8.72	-12.14	45.354	42.586	44.198	41.430	45.734	44.904	41.880	41.050	28.971	26.203	27.815	25.047	29.351	28.521	25.497	24.667						
N+3.15	B38	0	8.15	V-45X45	0.45	0.40	-78.72	-14.14	16.62	21.04	-16.62	-21.04	104.964	110.240	106.968	112.244	104.473	106.056	111.152	112.735	67.208	72.484	69.212	74.488	66.717	68.300	73.396	74.979	114.4	0.10	178.92	103.11	282.03	OK
	B38	8.15					79.22	14.95	15.64	23.22	-15.64	-23.22	113.602	108.637	111.391	106.426	114.444	112.955	107.073	105.584	74.886	69.921	72.675	67.710	75.728	74.239	68.357	66.868						
N+6.35	B39	0	8.15	V-45X45	0.45	0.40	-59.02	-47.19	7.94	11.06	-7.94	-11.06	116.227	118.748	117.280	119.801	115.880	116.637	119.391	120.148	51.331	53.852	52.384	54.905	50.984	51.741	54.495	55.252	122.4	0.10	178.92	103.11	282.03	OK
	B39	8.15					59.08	49.37	7.94	11.06	-7.94	-11.06	122.053	119.532	121.000	118.479	122.400	121.643	118.889	118.132	54.959	52.438	53.906	51.385	55.306	54.549	51.795	51.038						
N+3.15	B39	0	8.15	V-45X45	0.45	0.40	-111.35	-31.03	13.86	19.5	-13.86	-19.5	161.521	165.921	163.379	167.779	160.895	162.215	167.085	168.405	97.086	101.486	98.944	103.344	96.460	97.780	102.650	103.970	170.4	0.10	178.92	103.11	282.03	OK
	B39	8.15					112.39	31.68	14.72	19.62	-14.72	-19.62	169.819	165.146	167.950	163.277	170.363	168.961	164.135	162.733	104.422	99.749	102.553	97.880	104.966	103.564	98.738	97.336						
N+6.35	B40	0	8.15	V-45X45	0.45	0.40	-59.29	-47.4	7.06	9.5	-7.06	-9.5	116.975	119.216	117.880	120.121	116.704	117.376	119.720	120.392	51.788	54.029	52.693	54.934	51.517	52.189	54.533	55.205	122.1	0.10	178.92	103.11	282.03	OK
	B40	8.15					59	49.47	7.06	9.5	-7.06	-9.5	121.843	119.602	120.938	118.697	122.114	121.442	119.098	118.426	54.673	52.432	53.768	51.527	54.944	54.272	51.928	51.256						
N+3.15	B40	0	8.15	V-45X45	0.45	0.40	-110.43	-30.82	12.68	16.52	-12.68	-16.52	160.537	164.562	162.110	166.135	160.110	161.318	165.354	166.562	96.588	100.613	98.161	102.186	96.161	97.369	101.405	102.613	168.9	0.10	178.92	103.11	282.03	OK
	B40	8.15					111.63	31.58	12.88	17.16	-12.88	-17.16	168.398	164.309	166.763	162.674	168.873	167.646	163.426	162.199	103.329	99.240	101.694	97.605	103.804	102.577	98.357	97.130						
N+6.35	B41	0	8.15	V-45X45	0.45	0.40	-35.68	-14.3	6.82	9.12	-6.82	-9.12	55.599	57.764	56.468	58.633	55.344	55.993	58.239	58.888	30.595	32.760	31.464	33.629	30.340	30.989	33.235	33.884	58.9	0.10	178.92	103.11	282.03	OK
	B41	8.15					33.92	14.7	6.82	9.12	-6.82	-9.12	56.921	54.756	56.052	53.887	57.176	56.527	54.281	53.632	32.045	29.880	31.176	29.011	32.300	31.651	29.405	28.756						
N+3.15	B41	0	8.15	V-45X45	0.45	0.40	-109.59	-30.24	12	15.7	-12	-15.7	159.096	162.905	160.591	164.400	158.685	159.827	163.669	164.811	95.979	99.788	97.474	101.283	95.568	96.710	100.552	101.694	164.8	0.10	178.92	103.11	282.03	OK
	B41	8.15					108.8	30.81	12.64	16.4	-12.64	-16.4	164.157	160.145	162.595	158.583	164.575	163.371	159.369	158.165	100.707	96.695	99.145	95.133	101.125	99.921	95.919	94.715						
N+6.35	B42	0	8.15	V-45X45	0.45	0.40	-35.98	-14.56	6.94	9.12	-6.94	-9.12	56.200	58.403	57.069	59.272	55.958	56.619	58.853	59.514	30.846	33.049	31.715	33.918	30.604	31.265	33.499	34.160	59.5	0.10	178.92	103.11	282.03	OK
	B42	8.15					33.64	14.48	6.94	9.12	-6.94	-9.12	56.384	54.181	55.515	53.312	56.626	55.965	53.731	53.070	31.812	29.609	30.943	28.740	32.054	31.393	29.159	28.498						
N+3.15	B42	0	8.15	V-45X45	0.45	0.40	-111.81	-30.85	12.48	15.66	-12.48	-15.66	162.295	166.257	163.787	167.749	161.942	163.131	166.913	168.102	97.902	101.864	99.394	103.356	97.549	98.738	102.520	103.709	168.1	0.10	178.92	103.11	282.03	OK
	B42	8.15					111.03	31.57	12.7	16.56	-12.7	-16.56	167.610	163.579	166.033	162.002	168.039	166.830	162.782	161.573	102.731	98.700	101.154	97.123	103.160	101.951	97.903	96.694						
N+6.35	B43	0	8.15	V-45X45	0.45	0.40	-31.19	-7.32	6.9	9.08	-6.9	-9.08	43.220	45.411	44.085	46.276	42.978	43.635	45.861	46.518	26.543	28.734	27.408	29.599	26.301	26.958	29.184	29.841	46.5	0.10	178.92	103.11	282.03	OK
	B43	8.15					29.3	7.09	6.9	9.08	-6.9	-9.08	43.778	41.587	42.913	40.722	44.020	43.363	41.137	40.480	27.898	25.707	27.033	24.842	28.140	27.483	25.257	24.600						
N+3.15	B43	0	8.15	V-45X45	0.45	0.40	-79.21	-14.16	12.06	17.04	-12.06	-17.04	106.486	110.315	108.109	111.938	105.933	107.082	111.342	112.491	68.563	72.392	70.186	74.015	68.010	69.159	73.419	74.568	115.9	0.10	178.92	103.11	282.03	OK
	B43	8.15					80.91	15.5	14.2	16.32	-14.2	-16.32	115.623	111.115	114.069	109.561	115.859	114.506	110.678	109.325	75.850	71.342	74.296	69.788	76.086	74.733	70.905	69.552						
N+3.15	B44	0	4.1	V-20X45	0.20	0.40	-2.42	-1.5	3.04	3.8	-3.04	-3.8	3.741	4.706	4.102	5.067	3.656	3.946	4.862	5.152	1.515	2.480	1.876	2.841	1.430	1.720	2.636	2.926	76.5	0.10	178.92	45.83	224.75	OK
	B44	4.1					50.68	14.89	3.04	3.8	-3.04	-3.8	76.369	75.404	76.008	75.043	76.454	76.164	75.248	74.958	46.275	45.310	45.914	44.949	46.360	46.070	45.154	44.864						
N+3.15	B45	0	4.1	V-20X45	0.20	0.40	-1.05	-1.03	2.46	3.34	-2.46	-3.34	1.740	2.521	2.059	2.840	1.643	1.877	2.703	2.937	0.395	1.176	0.714	1.495	0.298	0.532	1.358	1.592	79.7	0.10	178.92	45.83	224.75	OK
	B45	4.1					52.86	15.66	2.46	3.34	-2.46	-3.34	79.642	78.861	79.323	78.542	79.739	79.505	78.679	78.445	48.124	47.343	47.805	47.024	48.221	47.987	47.161	46.927						
N+3.15	B46	0	4.1	V-20X45	0.20	0.40	-2.66	-1.41	2.34	3.06	-2.34	-3.06	4.085	4.828	4.376	5.119	4.005	4.228	4.976	5.199	1.877	2.620	2.168	2.911	1.797	2.020	2.768	2.991	76.5	0.10	178.92	45.83	224.75	OK
	B46	4.1					50.69	15.07	2.34	3.06	-2.34	-3.06	76.415	75.672	76.124	75.381	76.495	76.272	75.524	75.301	46.138	45.395	45.847	45.104	46.218	45.995	45.247	45.024						
N+3.15	B47	0	4.1	V-20X45	0.20	0.40	-2.21	-1.14	2.36	3.04	-2.36	-3.04	3.273	4.022	3.562	4.311	3.197	3.422	4.162	4.387	1.470	2.219	1.759	2.508	1.394	1.619	2.359	2.584	77.6	0.10	178.92	45.83	224.75	OK
	B47	4.1					51.33	15.41	2.36	3.04	-2.36	-3.04	77.525	76.776	77.236	76.487	77.601	77.376	76.636	76.411	46.716	45.967	46.427	45.678	46.792	46.567	45.827	45.602						
N+3.15	B48	0	4.1	V-20X45	0.20	0.40	-3	-1.74	2.28	3.34	-2.28	-3.34	4.819	5.543	5.137	5.861	4.701	4.918	5.762	5.979	2.179	2.903	2.497	3.221	2.061	2.278	3.122	3.339	75.8	0.10	178.92	45.83	224.75	OK
	B48	4.1					50.38	14.75	2.28	3.34	-2.28	-3.34	75.727	75.003	75.409	74.685	75.845	75.628	74.784	74.567	45.863	45.139	45.545	44.821	45.981	45.764	44.920	44.703						
N+6.35	B49	0	8.94	V-45X45	0.45	0.40	-21.62	-0.69	7.88	6.24	-7.88	-6.24	25.086	27.588	25.680	28.182	25.268	26.019	27.249	28.000	17.910	20.412	18.504	21.006	18.092	18.843	20.073	20.824	28.2	0.10	178.92	103.11	282.03	OK
	B49	8.94					21.83	-0.69	7.88	6.24	-7.88	-6.24	27.054	24.552	26.460	23.958	26.872	26.121	24.891	24.140	21.195	18.693	20.601	18.099	21.013	20.262	19.032	18.281						
N+3.15	B49	0	8.94	V-45X45	0.45	0.40	-42.35	-30.28	16.58	11.16	-16.58	-11.16	77.937	83.200	79.000	84.263	78.539	80.118	82.082	83.661	34.952	40.215	36.015	41.278	35.554	37.133	39.097	40.676	94.6	0.10	178.92	103.11	282.03	OK
	B49	8.94					48.31	33.5	14.56	15.64	-14.56	-15.64	94.528	89.906	93.038	88.416	94.648	93.261	89.683	88.296	46.535	41.913	45.045	40.423	46.655	45.268	41.690	40.303						
N+6.35	B50	0	6.9	V-45X45	0.45	0.40	-15.8	2.67	11.12	8.88	-11.12	-8.88	14.102	17.632	14.948	18.478	14.351	15.410	17.170	18.229	12.032	15.562	12.878	16.408	12.281	13.340	15.100	16.159	26.1	0.10	178.92	103.11	282.03	OK
	B50	6.9					17.74	2.67	11.12	8.88	-11.12	-8.88	26.146	22.616	25.300	21.770	25.897	24.838	23.078	22.019	18.154	14.624	17.308	13.778	17.905	16.846	15.086	14.027						
N+3.15	B50	0	6.9	V-45X45	0.45	0.40	-73	-36.2	21.46	16.14	-21.46	-16.14	119.625	126.438	121.162	127.975	120.216	122.260	125.340	127.384	61.525	68.338	63.062	69.875	62.116	64.160	67.240	69.284	134.0	0.10	178.92	103.11	282.03	OK
	B50	6.9					78.15	35.96	21.24	18.28	-21.24	-18.28	133.982	127.239	132.241	125.498	133.653	131.630	127.850	125.827	74.577	67.834	72.836	66.093	74.248	72.225	68.445	66.422						
N+6.35	B51	0	7.5	V-45X45	0.45	0.40	-42.42	-35.12	9.44	7.5	-9.44	-7.5	84.168	87.165	84.883	87.880	84.384	85.283	86.765	87.664	36.322	39.319	37.037	40.034	36.538	37.437	38.919	39.818	89.0	0.10	178.92	103.11	282.03	OK
	B51	7.5					43.31	35.19	9.44	7.5	-9.44	-7.5	89.018	86.021	88.303	85.306	88.802	87.903	86.421	85.522	40.835	37.838	40.120	37.123	40.619	39.720	38.238	37.339						
N+3.15	B51	0	7.5	V-45X45	0.45	0.40	-84.3	-40.83	18.4	13.94	-18.4	-13.94	138.406	144.247	139.733	145.574	138.901	140.653	143.327	145.079	72.286	78.127	73.613	79.454	72.781	74.533	77.207	78.959	146.4	0.10	178.92	103.11	282.03	OK
	B51	7.5					84.82	41.16	17.48	15.3	-17.48	-15.3	146.447	140.898	144.990	139.441	146.205	144.540	141.348	139.683	79.841	74.292	78.384	72.835	79.599	77.934	74.742	73.077						
N+6.35	B52	0	7.05	V-45X45	0.45	0.40	-18.65	-2.44	10.58	8.42	-10.58	-8.42	22.740	26.098	23.542	26.900	22.980	23.987	25.653	26.660	14.705	18.063	15.507	18.865	14.945	15.952	17.618	18.625	26.9	0.10	178.92	103.11	282.03	OK
	B52	7.05					15.62	-2.44	10.58	8.42	-10.58	-8.42	18.384	15.026	17.582	14.224	18.144	17.137	15.471	14.464	16.138	12.780	15.336	11.978	15.898	14.891	13.225	12.218						
N+3.15	B52	0	7.05	V-45X45	0.45	0.40	-76.91	-36.71	20.68	15.96	-20.68	-15.96	124.959	131.525	126.479	133.045	125.484	127.453	130.551	132.520	65.176	71.742	66.696	73.262	65.701	67.670	70.768	72.737	134.6	0.10	178.92	103.11	282.03	OK
	B52	7.05					77.54	37.63	19.82	16.96	-19.82	-16.96	134.632	128.340	133.016	126.724	134.314	132.426	128.930	127.042	73.740	67.448	72.124	65.832	73.422	71.534	68.038	66.150						
N+6.35	B53	0	7.18	V-45X45	0.45	0.40	-17.11	0.22	10.2	8.1	-10.2	-8.1	18.307	21.545	19.079	22.317	18.541	19.512	21.112	22.083	13.394	16.632	14.166	17.404	13.628	14.599	16.199	17.170	23.6	0.10	178.92	103.11	282.03	OK
	B53	7.18					17.79	0.22	10.2	8.1	-10.2	-8.1	23.573	20.335	22.801	19.563	23.339	22.368	20.768	19.797	18.016	14.778	17.244	14.006	17.782	16.811	15.211	14.240						
N+3.15	B53	0	7.18	V-45X45	0.45	0.40	-78.61	-38.22	19.9	15.48	-19.9	-15.48	128.656	134.974	130.130	136.448	129.147	131.042	134.062	135.957	66.853	73.171	68.327	74.645	67.344	69.239	72.259	74.154	138.4	0.10	178.92	103.11	282.03	OK

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (b)

f'c = 21.0 MPa
fy = 420 MPa
Φ Cortante **=** 0.75
Estribos Φ = 9.5 mm
Av = 71 mm²
R= 6.30

2VE = Cortante maximo obtenido de las combinaciones de carga de diseño que incluyan E, considerando E, como el doble del prescrito por el reglamento general legalmente adoptado para diseño sismico vigente.

COMDIS3 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS4 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3Ey)))
COMDIS5 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS6 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS7 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS8 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS9 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS10 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))
COMDIS11 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS12 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS13 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS14 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS15 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS16 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS17 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS17 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			V2						$2V_E$														$2V_{Emax}$	S	ΦVs	ΦVc	ΦVn	ΦVn > $2V_{Emax}$
	ELEMENTO												Combinaciones de carga de diseño para el doble del cortante donde se incluya E																			
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18	(kN)	(m)	(kN)	(kN)	(kN)	
N+9.15	B53	7.18	7.18	V-45X45	0.45	0.40	80.02	38.61	19	16.22	-19	-16.22	138.422	132.391	136.877	130.846	138.113	136.304	132.964	131.155	75.806	69.775	74.261	68.230	75.497	73.688	70.348	68.539	138.4	0.10	178.92	103.11	282.03	OK
N+6.35	B54	0	7.07	V-45X45	0.45	0.40	-16.14	0.7	10.02	8	-10.02	-8	16.697	19.878	17.458	20.639	16.921	17.875	19.461	20.415	12.555	15.736	13.316	16.497	12.779	13.733	15.319	16.273	24.5	0.10	178.92	103.11	282.03	OK
	B54	7.07					18.22	0.7	10.02	8	-10.02	-8	24.535	21.354	23.774	20.593	24.311	23.357	21.771	20.817	18.369	15.188	17.608	14.427	18.145	17.191	15.605	14.651						
N+3.15	B54	0	7.07	V-45X45	0.45	0.40	-83.45	-39.73	20.62	15.66	-20.62	-15.66	135.851	142.397	137.343	143.889	136.402	138.366	141.374	143.338	71.086	77.632	72.578	79.124	71.637	73.601	76.609	78.573	143.9	0.10	178.92	103.11	282.03	OK
	B54	7.07					76.25	35.97	18.18	16.02	-18.18	-16.02	131.119	125.347	129.593	123.821	130.879	129.147	125.793	124.061	72.274	66.502	70.748	64.976	72.034	70.302	66.948	65.216						
N+6.35	B55	0	4.92	V-45X45	0.45	0.40	-20.83	-4.08	21.52	17	-21.52	-17	24.851	31.682	26.470	33.301	25.353	27.402	30.750	32.799	14.522	21.353	16.141	22.972	15.024	17.073	20.421	22.470	37.5	0.10	178.92	103.11	282.03	OK
	B55	4.92					22.69	6	21.52	17	-21.52	-17	37.453	30.622	35.834	29.003	36.951	34.902	31.554	29.505	24.646	17.815	23.027	16.196	24.144	22.095	18.747	16.698						
N+3.15	B55	0	4.92	V-45X45	0.45	0.40	-17.39	-2.79	42.24	34.16	-42.24	-34.16	15.327	28.736	18.580	31.989	16.224	20.247	27.069	31.092	7.320	20.729	10.573	23.982	8.217	12.240	19.062	23.085	32.0	0.10	178.92	103.11	282.03	OK
	B55	4.92					6.52	-2.79	42.24	34.16	-42.24	-34.16	13.365	0.044	10.112	3.297	12.468	8.445	1.623	2.400	14.199	0.790	10.946	2.463	13.302	9.279	2.457	1.566						
N+6.35	B56	0	3.57	V-45X45	0.45	0.40	-12.3	-2.98	41.66	59.48	-41.66	-59.48	8.295	21.520	13.960	27.185	6.315	10.283	25.197	29.165	1.625	14.850	7.290	20.515	0.355	3.613	18.527	22.495	34.7	0.10	178.92	103.11	282.03	OK
	B56	3.57					15.24	5	41.66	59.48	-41.66	-59.48	32.733	19.508	27.068	13.843	34.713	30.745	15.831	11.863	23.161	9.936	17.496	4.271	25.141	21.173	6.259	2.291						
N+3.15	B56	0	3.57	V-45X45	0.45	0.40	-12.43	-7.15	82.82	117.06	-82.82	-117.06	3.346	29.638	14.494	40.786	0.459	7.429	36.703	44.591	7.533	18.759	3.615	29.907	11.338	3.450	25.824	33.712	50.3	0.10	178.92	103.11	282.03	OK
	B56	3.57					15.78	8.79	82.82	117.06	-82.82	-117.06	46.446	20.154	35.298	9.006	50.251	42.363	13.089	5.201	32.922	6.630	21.774	4.518	36.727	28.839	0.435	8.323						
N+3.15	B57	0	3.57	V-20X45	0.20	0.40	-14.54	-15.86	7.4	10.38	-7.4	-10.38	31.639	33.988	32.628	34.977	31.308	32.013	34.603	35.308	11.417	13.766	12.406	14.755	11.086	11.791	14.381	15.086	35.9	0.10	178.92	45.83	224.75	OK
	B57	3.57					14.89	16	7.4	10.38	-7.4	-10.38	35.537	33.188	34.548	32.199	35.868	35.163	32.573	31.868	15.070	12.721	14.081	11.732	15.401	14.696	12.106	11.401						
N+6.35	B58	0	3.57	V-45X45	0.45	0.40	-15.03	-6.82	30.88	43.24	-30.88	-43.24	17.895	27.699	22.013	31.817	16.522	19.463	30.249	33.190	6.566	16.370	10.684	20.488	5.193	8.134	18.920	21.861	35.3	0.10	178.92	103.11	282.03	OK
	B58	3.57					16.35	7.32	30.88	43.24	-30.88	-43.24	33.901	24.097	29.783	19.979	35.274	32.333	21.547	18.606	21.676	11.872	17.558	7.754	23.049	20.108	9.322	6.381						
N+3.15	B58	0	3.57	V-45X45	0.45	0.40	-18.24	-15.24	60.42	83.66	-60.42	-83.66	23.554	42.735	31.521	50.702	20.971	26.726	47.530	53.285	2.842	22.023	10.809	29.990	0.259	6.014	26.818	32.573	57.7	0.10	178.92	103.11	282.03	OK
	B58	3.57					20.81	16.61	60.42	83.66	-60.42	-83.66	55.156	35.975	47.189	28.008	57.739	51.984	31.180	25.425	32.303	13.122	24.336	5.155	34.886	29.131	8.327	2.572						
N+3.15	B59	0	3.57	V-20X45	0.20	0.40	-14.52	-15.61	5.4	7.44	-5.4	-7.44	31.823	33.537	32.531	34.245	31.596	32.110	33.958	34.472	11.857	13.571	12.565	14.279	11.630	12.144	13.992	14.506	35.5	0.10	178.92	45.83	224.75	OK
	B59	3.57					14.89	16.21	5.4	7.44	-5.4	-7.44	35.289	33.575	34.581	32.867	35.516	35.002	33.154	32.640	14.612	12.898	13.904	12.190	14.839	14.325	12.477	11.963						
N+6.35	B60	0	3.57	V-45X45	0.45	0.40	-16.9	-13	27.76	38.46	-27.76	-38.46	27.042	35.855	30.705	39.518	25.853	28.497	38.063	40.707	8.972	17.785	12.635	21.448	7.783	10.427	19.993	22.637	40.7	0.10	178.92	103.11	282.03	OK
	B60	3.57					13.68	-0.15	27.76	38.46	-27.76	-38.46	22.504	13.691	18.841	10.028	23.693	21.049	11.483	8.839	18.550	9.737	14.887	6.074	19.739	17.095	7.529	4.885						
N+3.15	B60	0	3.57	V-45X45	0.45	0.40	-19.38	-14.27	54.2	73.46	-54.2	-73.46	25.425	42.631	32.421	49.627	23.285	28.447	46.605	51.767	5.341	22.547	12.337	29.543	3.201	8.363	26.521	31.683	55.4	0.10	178.92	103.11	282.03	OK
	B60	3.57					19.67	17.58	54.2	73.46	-54.2	-73.46	53.285	36.079	46.289	29.083	55.425	50.263	32.105	26.943	29.804	12.598	22.808	5.602	31.944	26.782	8.624	3.462						
N+3.15	B61	0	3.57	V-20X45	0.20	0.40	-17.92	-17.2	4.78	6.34	-4.78	-6.34	37.643	39.161	38.247	39.765	37.470	37.925	39.483	39.938	15.067	16.585	15.671	17.189	14.894	15.349	16.907	17.362	39.9	0.10	178.92	45.83	224.75	OK
	B61	3.57					11.51	14.67	4.78	6.34	-4.78	-6.34	29.543	28.025	28.939	27.421	29.716	29.261	27.703	27.248	11.420	9.902	10.816	9.298	11.593	11.138	9.580	9.125						
N+6.35	B62	0	3.57	V-45X45	0.45	0.40	-17.95	-13.52	24.9	33.36	-24.9	-33.36	29.519	37.424	32.696	40.601	28.579	30.950	39.170	41.541	10.614	18.519	13.791	21.696	9.674	12.045	20.265	22.636	41.5	0.10	178.92	103.11	282.03	OK
	B62	3.57					12.72	-0.53	24.9	33.36	-24.9	-33.36	20.275	12.370	17.098	9.193	21.215	18.844	10.624	8.253	16.989	9.084	13.812	5.907	17.929	15.558	7.338	4.967						
N+3.15	B62	0	3.57	V-45X45	0.45	0.40	-22.74	-16.17	48.42	64.04	-48.42	-64.04	32.723	48.094	38.822	54.193	30.987	35.599	51.317	55.929	9.731	25.102	15.830	31.201	7.995	12.607	28.325	32.937	55.9	0.10	178.92	103.11	282.03	OK
	B62	3.57					16.32	15.69	48.42	64.04	-48.42	-64.04	46.009	30.638	39.910	24.539	47.745	43.133	27.415	22.803	25.423	10.052	19.324	3.953	27.159	22.547	6.829	2.217						
N+3.15	B63	0	3.57	V-20X45	0.20	0.40	-14.77	-15.78	4.16	5.46	-4.16	-5.46	32.584	33.904	33.104	34.424	32.439	32.835	34.173	34.569	12.373	13.693	12.893	14.213	12.228	12.624	13.962	14.358	34.7	0.10	178.92	45.83	224.75	OK
	B63	3.57					14.65	16.08	4.16	5.46	-4.16	-5.46	34.580	33.260	34.060	32.740	34.725	34.329	32.991	32.595	14.105	12.785	13.585	12.265	14.250	13.854	12.516	12.120						
N+6.35	B64	0	3.57	V-45X45	0.45	0.40	-15.71	-6.49	24.02	31.84	-24.02	-31.84	20.013	27.639	23.045	30.671	19.144	21.432	29.252	31.540	8.810	16.436	11.842	19.468	7.941	10.229	18.049	20.337	31.5	0.10	178.92	103.11	282.03	OK
	B64	3.57					14.78	6.21	24.02	31.84	-24.02	-31.84	29.275	21.649	26.243	18.617	30.144	27.856	20.036	17.748	18.631	11.005	15.599	7.973	19.500	17.212	9.392	7.104						
N+3.15	B64	0	3.57	V-45X45	0.45	0.40	-19.02	-15.5	46.7	60.84	-46.7	-60.84	28.014	42.840	33.808	48.634	26.443	30.891	45.757	50.205	6.808	21.634	12.602	27.428	5.237	9.685	24.551	28.999	52.3	0.10	178.92	103.11	282.03	OK
	B64	3.57					20.04	16.36	46.7	60.84	-46.7	-60.84	50.718	35.892	44.924	30.098	52.289	47.841	32.975	28.527	28.346	13.520	22.552	7.726	29.917	25.469	10.603	6.155						
N+3.15	B65	0	3.57	V-20X45	0.20	0.40	-15.65	-16.32	4.18	5.46	-4.18	-5.46	34.177	35.503	34.697	36.023	34.034	34.432	35.768	36.166	13.162	14.488	13.682	15.008	13.019	13.417	14.753	15.151	36.2	0.10	178.92	45.83	224.75	OK
	B65	3.57					13.78	15.54	4.18	5.46	-4.18	-5.46	32.999	31.673	32.479	31.153	33.142	32.744	31.408	31.010	13.325	11.999	12.805	11.479	13.468	13.070	11.734	11.336						
N+6.35	B66	0	3.57	V-45X45	0.45	0.40	-14.42	-6.56	24.34	32.04	-24.34	-32.04	18.475	26.202	21.526	29.253	17.619	19.937	27.791	30.109	7.589	15.316	10.640	18.367	6.733	9.051	16.905	19.223	31.7	0.10	178.92	103.11	282.03	OK
	B66	3.57					16.08	6.16	24.34	32.04	-24.34	-32.04	30.845	23.118	27.794	20.067	31.701	29.383	21.529	19.211	19.861	12.134	16.810	9.083	20.717	18.399	10.545	8.227						
N+3.15	B66	0	3.57	V-45X45	0.45	0.40	-27.54	-18.77	48.02	61.34	-48.02	-61.34	41.275	56.519	47.117	62.361	39.795	44.368	59.268	63.841	14.243	29.487	20.085	35.329	12.763	17.336	32.236	36.809	63.8	0.10	178.92	103.11	282.03	OK
	B66	3.57					11.52	13.09	48.02	61.34	-48.02	-61.34	37.457	22.213	31.615	16.371	38.937	34.364	19.464	14.891	20.911	5.667	15.069	0.175	22.391	17.818	2.918	1.655						
N+3.15	B67	0	3.57	V-20X45	0.20	0.40	-19.93	-17.22	5.92	7.42	-5.92	-7.42	39.843	41.722	40.550	42.429	39.676	40.240	42.032	42.596	16.644	18.523	17.351	19.230	16.477	17.041	18.833	19.397	42.6	0.10	178.92	45.83	224.75	OK
	B67	3.57					9.5	14.64	5.92	7.42	-5.92	-7.42	27.333	25.454	26.626	24.747	27.500	26.936	25.144	24.580	9.843	7.964	9.136	7.257	10.010	9.446	7.654	7.090						
N+6.35	B68	0	3.57	V-45X45	0.45	0.40	-21.19	-6.25	27.34	35.64	-27.34	-35.64	25.641	34.321	29.035	37.715	24.719	27.323	36.033	38.637	13.034	21.714	16.428	25.108	12.112	14.716	23.426	26.030	38.6	0.10	178.92	103.11	282.03	OK
	B68	3.57					16.47	5.79	27.34	35.64	-27.34	-35.64	31.591	22.911	28.197	19.517	32.513	29.909	21.199	18.595	20.860	12.180	17.466	8.786	21.782	19.178	10.468	7.864						
N+3.15	B68	0	3.57	V-45X45	0.45	0.40	-95.12	-44.53	55.02	70.42	-55.02	-70.42	146.587	164.054	153.294	170.761	144.876	150.116	167.232	172.472	73.521	90.988	80.228	97.695	71.810	77.050	94.166	99.406	172.5	0.10	178.92	103.11	282.03	OK
	B68	3.57					66.32	38.16	55.02	70.42	-55.02	-70.42	129.831	112.364	123.124	105.657	131.542	126.302	109.186	103.946	71.775	54.308	65.068	47.601	73.486	68.246	51.130	45.890						
N+6.35	B69	0	3.57	V-45X45	0.45	0.40	-15.9	-2.94	30.04	39.22	-30.04	-39.22	15.384	24.921	19.119	28.656	14.364	17.225	26.815	29.676	7.674	17.211	11.409	20.946	6.654	9.515	19.105	21.966	29.7	0.10	178.92	103.11	282.03	OK
	B69	3.57					12.62	2.79	30.04	39.22	-30.04	-39.22	24.570	15.033	20.835	11.298	25.590	22.729	13.139	10.278	17.994	8.457	14.259	4.722	19.014	16.153	6.563	3.702						
N+3.15	B69	0	3.57	V-45X45	0.45	0.40	-10.83	-0.28	62.3	79.2	-62.3	-79.2	0.384	19.393	7.159	26.936	2.262	3.671	22.881	28.814	3.913	15.864	3.630	23.407	5.791	0.142	19.352	25.285	28.8	0.10	178.92	103.11	282.03	OK
	B69	3.57					6.52	-0.28	62.3	79.2	-62.3	-79.2	21.204	1.427	13.661	6.116	23.082	17.149	2.061	7.994	19.528	0.249	11.985	7.792	21.406	15.473	3.737	9.670						
N+6.35	B70	0	8.94	V-45X45	0.45	0.40	-21.53	-0.54	7.98	6.16	-7.98	-6.16	24.816	27.349	25.403	27.936	25.018	25.778	26.974	27.734	17.817	20.350	18.404	20.937	18.019	18.779	19.975	20.735	27.9	0.10	178.92	103.11	282.03	OK
	B70	8.94					21.92	-0.54	7.98	6.16	-7.98	-6.16	27.324	24.791	26.737	24.204	27.122	26.362	25.166	24.406	21.288	18.755	20.701	18.168	21.086	20.326	19.130	18.370						
N+3.15	B70	0	8.94	V-45X45	0.45	0.40	-42.43	-30.35	14.12	14.38	-14.12	-14.38	78.340	82.823	79.709	84.192	78.311	79.656	82.876	84.221	35.261	39.744	36.630	41.113	35.232	36.577	39.797	41.142	95.1	0.10	178.92	103.11	282.03	OK
	B70	8.94					48.58	33.58	17.14	11.58	-17.14	-11.58	95.148	89.707	94.045	88.604	94.530	92.898	90.854	89.222	46.994	41.553	45.891	40.450	46.376	44.744	42.700	41.068						
N+6.35	B71	0	6.9	V-45X45	0.45	0.40	-16.81	0.51	11.12	8.64	-11.12	-8.64	17.485	21.016	18.308	21.839	17.761	18.820	20.504	21.563	12.952	16.483	13.775	17.306	13.228	14.287	15.971	17.030	22.8	0.10	178.92	103.11	282.03	OK
	B71	6.9					16.72	0.51	11.12	8.64	-11.12	-8.64	22.751	19.220	21.928	18.397	22.475	21.416	19.732	18.673	17.225	13.694	16.402	12.871	16.949	15.890	14.206	13.147						
N+3.15	B71	0	6.9	V-45X45	0.45	0.40	-74.74	-36.88	20.76	17.6	-20.76	-17.6	122.435	129.025	124.111	130.701	122.786	124.763	128.373	130.350	63.133	69.723	64.809	71.399	63.484	65.461	69.071	71.048	135.8	0.10	178.92	103.11	282.03	OK
	B71	6.9					78.83	36.85	22.14	16.84	-22.14	-16.84	135.762	128.734	134.158	127.130	135.173	133.065	129.827	127.719	75.263	68.235	73.659	66.631	74.674	72.566	69.328	67.220						
N+6.35	B72	0	7.5	V-45X45	0.45	0.40	-17.66	0.12	9.26	7.2	-9.26	-7.2	19.259	22.199	19.945	22.885	19.488	20.370	21.774	22.656	14.081	17.021	14.767	17.707	14.310	15.192	16.596	17.478	24.5	0.10	178.92	103.11	282.03	OK
	B72	7.5					18.79	0.12	9.26	7.2	-9.26	-7.2	24.481	21.541	23.795	20.855	24.252	23.370	21.966	21.084	18.724	15.784	18.038	15.098	18.495	17.613	16.209	15.327						
N+3.15	B72	0	7.5	V-45X45	0.45	0.40	-74.4	-34.93	18.14	15.48	-18.14	-15.48	120.593	126.352	122.068	127.827	120.889	122.617	125.803	127.531	63.343	69.102	64.818	70.577	63.639	65.367	68.553	70.281	160.6	0.10	178.92	103.11	282.03	OK
	B72	7.5					90.9	47.99	18.46	13.58	-18.46	-13.58	160.647	154.787	159.353	153.493	160.105	158.347	155.793	154.035	85.387	79.527	84.093	78.233	84.845	83.087	80.533	78.775						
N+6.35	B73	0	7.05	V-45X45	0.45	0.40	-17.68	-0.33	10.56	8.18	-10.56	-8.18	19.480	22.833	20.259	23.612	19.745	20.750	22.342	23.347	13.846	17.199	14.625	17.978	14.111	15.116	16.708	17.713	23.6	0.10	178.92	103.11	282.03	OK
	B73	7.05					16.59	-0.33	10.56	8.18	-10.56	-8.18	21.644	18.291	20.865	17.512	21.379	20.374	18.782	17.777	16.997	13.644	16.218	12.865	16.732	15.727	14.135	13.130						
N+3.15	B73	0	7.05	V-45X45	0.45	0.40	-76.71	-37.24	20	16.74	-20	-16.74	125.320	131.669	126.915	133.264	125.682	127.587	130.997	132.902	65.067	71.416	66.662	73.011	65.429	67.334	70.744	72.649	137.0	0.10	178.92	103.11	282.03	OK
	B73	7.05					79.22	37.93	20.76	15.8	-20.76	-15.8	137.042	130.451	135.537	128.946	136.491	134.513	131.475	129.497	75.346	68.755	73.841	67.250	74.795	72.817	69.779	67.801						
N+6.35	B74	0	7.18	V-45X45	0.45	0.40	-16.48	0.31	10.34	8.04	-10.34	-8.04	17.442	20.724	18.208	21.490	17.697	18.682	20.250	21.235	12.808	16.090	13.574	16.856	13.063	14.048	15.616	16.601	24.4	0.10	178.92	103.11	282.03	OK
	B74	7.18					18.41	0.31	10.34	8.04	-10.34	-8.04	24.426	21.144	23.660	20.378	24.171	23.186	21.618	20.633	18.593	15.311	17.827	14.545	18.338	17.353	15.785	14.800						
N+3.15	B74	0	7.18	V-45X45	0.45	0.40	-81.54	-38.99	19.68	16.32	-19.68	-16.32	132.937	139.185	134.491	140.739	133.310	135.185	138.491	140.366	69.485	75.733	71.039	77.287	69.858	71.733	75.039	76.914	140.7	0.10	178.92	103.11	282.03	OK
	B74	7.18					77.68	37.71	19.88	14.98	-19.88	-14.98	134.795	128.484	133.368	127.057	134.250	132.357	129.495	127.602	73.781	67.470	72.354	66.043	73.236	71.343	68.481	66.588						
N+6.35	B75	0	7.07	V-45X45	0.45	0.40	-15.75	0.8	10.06	7.86	-10.06	-7.86	16.129	19.323	16.877	20.071	16.373	17.331	18.869	19.827	12.204	15.398	12.952	16.146	12.448	13.406	14.944	15.902	25.1	0.10	178.92	103.11	282.03	OK

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (b)

f'c = **21.0** MPa
fy = **420** MPa
$\Phi_{Cortante}$ = **0.75**
Estribos Φ = **9.5** mm
Av = **71** mm^2
R= **6.30**

2VE = Cortante maximo obtenido de las combinaciones de carga de diseño que incluyan E, considerando E, como el doble del prescrito por el reglamento general legalmente adoptado para diseño sismico vigente.

COMDIS3 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS4 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3Ey)))
COMDIS5 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS6 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS7 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS8 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS9 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS10 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))
COMDIS11 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS12 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS13 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS14 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS15 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS16 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS17 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS17 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			V2						$2V_E$ — Combinaciones de carga de diseño para el doble del cortante donde se incluya E																$2V_{E\,max}$	S	ΦVs	ΦVc	ΦVn	ΦVn > $2V_{Emax}$
	ELEMENTO No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18	(kN)	(m)	(kN)	(kN)	(kN)	
N+6.35	B75	7.07	7.07	V-45X45	0.45	0.40	18.61	0.8	10.06	7.86	-10.06	-7.86	25.103	21.909	24.355	21.161	24.859	23.901	22.363	21.405	18.720	15.526	17.972	14.778	18.476	17.518	15.980	15.022	25.1	0.10	178.92	103.11	282.03	OK
N+3.15	B75	0	7.07	V-45X45	0.45	0.40	-42.97	-24.84	18.76	17.58	-18.76	-17.58	72.589	78.545	74.263	80.219	72.720	74.507	78.301	80.088	34.858	40.814	36.532	42.488	34.989	36.776	40.570	42.357	80.2	0.10	178.92	103.11	282.03	OK
	B75	7.07					35.97	21.04	20.8	14.48	-20.8	-14.48	68.195	61.592	66.816	60.213	67.493	65.512	62.896	60.915	36.364	29.761	34.985	28.382	35.662	33.681	31.065	29.084						
N+6.35	B76	0	4.92	V-45X45	0.45	0.40	-22.35	-4.51	21.54	16.68	-21.54	-16.68	27.117	33.955	28.705	35.543	27.657	29.708	32.952	35.003	15.902	22.740	17.490	24.328	16.442	18.493	21.737	23.788	35.5	0.10	178.92	103.11	282.03	OK
	B76	4.92					21.17	5.56	21.54	16.68	-21.54	-16.68	35.177	28.339	33.589	26.751	34.637	32.586	29.342	27.291	23.266	16.428	21.678	14.840	22.726	20.675	17.431	15.380						
N+3.15	B76	0	4.92	V-45X45	0.45	0.40	-13.08	-1.28	42.54	34.1	-42.54	-34.1	8.600	22.105	11.847	25.352	9.538	13.589	20.363	24.414	3.396	16.901	6.643	20.148	4.334	8.385	15.159	19.210	25.4	0.10	178.92	103.11	282.03	OK
	B76	4.92					10.83	-1.28	42.54	34.1	-42.54	-34.1	20.092	6.587	16.845	3.340	19.154	15.103	8.329	4.278	18.123	4.618	14.876	1.371	17.185	13.134	6.360	2.309						
N+3.15	B77	0	4.37	V-20X45	0.20	0.40	-52.73	-15.86	2.88	4.14	-2.88	-4.14	78.482	79.396	78.876	79.790	78.342	78.616	79.656	79.930	46.803	47.717	47.197	48.111	46.663	46.937	47.977	48.251	79.9	0.10	178.92	45.83	224.75	OK
	B77	4.37					5.99	2.39	2.88	4.14	-2.88	-4.14	10.232	9.318	9.838	8.924	10.372	10.098	9.058	8.784	6.045	5.131	5.651	4.737	6.185	5.911	4.871	4.597						
N+3.15	B78	0	4.468	V-15X45	0.15	0.40	-39.53	-7.23	2.82	2.86	-2.82	-2.86	54.082	54.977	54.355	55.250	54.078	54.346	54.986	55.254	34.993	35.888	35.266	36.161	34.989	35.257	35.897	36.165	55.3	0.10	178.92	34.37	213.29	OK
	B78	4.468					11.51	1.9	2.82	2.86	-2.82	-2.86	16.296	15.401	16.023	15.128	16.300	16.032	15.392	15.124	10.943	10.048	10.670	9.775	10.947	10.679	10.039	9.771						
N+3.15	B79	0	4.37	V-20X45	0.20	0.40	-52.3	-15.6	2.46	3.2	-2.46	-3.2	77.817	78.598	78.122	78.903	77.735	77.969	78.751	78.985	46.527	47.308	46.832	47.613	46.445	46.679	47.461	47.695	79.0	0.10	178.92	45.83	224.75	OK
	B79	4.37					6.78	2.78	2.46	3.2	-2.46	-3.2	11.459	10.678	11.154	10.373	11.541	11.307	10.525	10.291	6.645	5.864	6.340	5.559	6.727	6.493	5.711	5.477						
N+3.15	B80	0	4.37	V-20X45	0.20	0.40	-53.78	-16.05	2.66	3.08	-2.66	-3.08	80.017	80.862	80.310	81.155	79.970	80.224	80.948	81.202	47.833	48.678	48.126	48.971	47.786	48.040	48.764	49.018	81.2	0.10	178.92	45.83	224.75	OK
	B80	4.37					5.57	2.44	2.66	3.08	-2.66	-3.08	9.693	8.848	9.400	8.555	9.740	9.486	8.762	8.508	5.582	4.737	5.289	4.444	5.629	5.375	4.651	4.397						
N+6.35	B81	0	8.25	V-45X45	0.45	0.40	-29.95	-6.87	8.44	11.94	-8.44	-11.94	40.902	43.581	42.039	44.718	40.513	41.317	44.303	45.107	25.047	27.726	26.184	28.863	24.658	25.462	28.448	29.252	46.9	0.10	178.92	103.11	282.03	OK
	B81	8.25					31.07	7.36	8.44	11.94	-8.44	-11.94	46.552	43.873	45.415	42.736	46.941	46.137	43.151	42.347	29.871	27.192	28.734	26.055	30.260	29.456	26.470	25.666						
N+3.15	B81	0	8.25	V-45X45	0.45	0.40	-79.48	-14.86	16.68	21.44	-16.68	-21.44	106.567	111.863	108.609	113.905	106.039	107.627	112.845	114.433	67.863	73.159	69.905	75.201	67.335	68.923	74.141	75.729	116.9	0.10	178.92	103.11	282.03	OK
	B81	8.25					81.45	14.95	14.58	22.1	-14.58	-22.1	116.057	111.428	113.952	109.323	116.892	115.504	109.876	108.488	76.672	72.043	74.567	69.938	77.507	76.119	70.491	69.103						
N+6.35	B82	0	8.25	V-45X45	0.45	0.40	-44.81	-16.54	8.46	10.78	-8.46	-10.78	68.456	71.142	69.482	72.168	68.198	69.004	71.620	72.426	38.473	41.159	39.499	42.185	38.215	39.021	41.637	42.443	81.8	0.10	178.92	103.11	282.03	OK
	B82	8.25					52.13	17.22	7.28	10.32	-7.28	-10.32	81.423	79.112	80.440	78.129	81.761	81.067	78.485	77.791	48.564	46.253	47.581	45.270	48.902	48.208	45.626	44.932						
N+3.15	B82	0	8.25	V-45X45	0.45	0.40	-104.15	-28.37	13.32	19.22	-13.32	-19.22	150.320	154.549	152.151	156.380	149.665	150.933	155.767	157.035	90.705	94.934	92.536	96.765	90.050	91.318	96.152	97.420	161.2	0.10	178.92	103.11	282.03	OK
	B82	8.25					107.6	28.34	15.54	18.62	-15.54	-18.62	160.813	155.880	159.040	154.107	161.156	159.676	155.244	153.764	100.193	95.260	98.420	93.487	100.536	99.056	94.624	93.144						
N+6.35	B83	0	8.25	V-45X45	0.45	0.40	-41.05	-14.55	6.54	9.98	-6.54	-9.98	62.297	64.373	63.247	65.323	61.914	62.537	65.083	65.706	35.432	37.508	36.382	38.458	35.049	35.672	38.218	38.841	65.7	0.10	178.92	103.11	282.03	OK
	B83	8.25					39.91	10.87	7.62	8.78	-7.62	-8.78	60.390	57.971	59.553	57.134	60.519	59.793	57.731	57.005	37.547	35.128	36.710	34.291	37.676	36.950	34.888	34.162						
N+3.15	B83	0	8.25	V-45X45	0.45	0.40	-92.79	-17.86	12.04	16.98	-12.04	-16.98	126.488	130.311	128.105	131.928	125.939	127.086	131.330	132.477	80.791	84.614	82.408	86.231	80.242	81.389	85.633	86.780	137.9	0.10	178.92	103.11	282.03	OK
	B83	8.25					97.01	18.2	13.54	16.56	-13.54	-16.56	137.550	133.251	135.973	131.674	137.885	136.596	132.628	131.339	90.247	85.948	88.670	84.371	90.582	89.293	85.325	84.036						
N+6.35	B84	0	8.25	V-45X45	0.45	0.40	-34.56	-14.52	6.68	8.92	-6.68	-8.92	54.507	56.628	55.356	57.477	54.258	54.894	57.090	57.726	29.619	31.740	30.468	32.589	29.370	30.006	32.202	32.838	59.6	0.10	178.92	103.11	282.03	OK
	B84	8.25					35.89	14.83	6.68	8.92	-6.68	-8.92	59.383	57.262	58.534	56.413	59.632	58.996	56.800	56.164	33.786	31.665	32.937	30.816	34.035	33.399	31.203	30.567						
N+3.15	B84	0	8.25	V-45X45	0.45	0.40	-110.59	-31.23	12.36	15.88	-12.36	-15.88	161.220	165.144	162.732	166.656	160.829	162.006	165.870	167.047	96.813	100.737	98.325	102.249	96.422	97.599	101.463	102.640	174.3	0.10	178.92	103.11	282.03	OK
	B84	8.25					115.98	32.12	11.78	15.54	-11.78	-15.54	173.906	170.166	172.426	168.686	174.324	173.202	169.390	168.268	106.992	103.252	105.512	101.772	107.410	106.288	102.476	101.354						
N+6.35	B85	0	8.25	V-45X45	0.45	0.40	-30.5	-7.3	6.78	8.86	-6.78	-8.86	42.402	44.554	43.246	45.398	42.171	42.817	44.983	45.629	25.952	28.104	26.796	28.948	25.721	26.367	28.533	29.179	46.3	0.10	178.92	103.11	282.03	OK
	B85	8.25					30.88	7.51	6.78	8.86	-6.78	-8.86	46.064	43.912	45.220	43.068	46.295	45.649	43.483	42.837	29.290	27.138	28.446	26.294	29.521	28.875	26.709	26.063						
N+3.15	B85	0	8.25	V-45X45	0.45	0.40	-80.92	-15.29	11.88	16.68	-11.88	-16.68	109.714	113.485	111.303	115.074	109.181	110.312	114.476	115.607	70.148	73.919	71.737	75.508	69.615	70.746	74.910	76.041	116.9	0.10	178.92	103.11	282.03	OK
	B85	8.25					82.21	15.14	13.5	15.42	-13.5	-15.42	116.669	112.383	115.201	110.915	116.882	115.597	111.987	110.702	76.866	72.580	75.398	71.112	77.079	75.794	72.184	70.899						
N+3.15	B86	0	6.9	V-20X45	0.20	0.40	-40.73	-13.25	4.4	3.32	-4.4	-3.32	61.269	62.666	61.586	62.983	61.389	61.809	62.443	62.863	35.800	37.197	36.117	37.514	35.920	36.340	36.974	37.394	70.4	0.10	178.92	45.83	224.75	OK
	B86	6.9					46.33	14.07	3.7	3.1	-3.7	-3.1	70.401	69.226	70.106	68.931	70.334	69.982	69.350	68.998	42.432	41.257	42.137	40.962	42.365	42.013	41.381	41.029						
N+6.35	B87	0	7.5	V-20X45	0.20	0.40	-18.59	-5.06	1.58	1.02	-1.58	-1.02	27.069	27.570	27.166	27.667	27.131	27.281	27.455	27.605	16.432	16.933	16.529	17.030	16.494	16.644	16.818	16.968	27.7	0.10	178.92	45.83	224.75	OK
	B87	7.5					14.64	2.69	2.82	2.6	-2.82	-2.6	20.829	19.934	20.582	19.687	20.805	20.536	19.980	19.711	13.747	12.852	13.500	12.605	13.723	13.454	12.898	12.629						
N+3.15	B87	0	7.5	V-20X45	0.20	0.40	-37.68	-10.18	0.5	0.48	-0.5	-0.48	55.294	55.453	55.339	55.498	55.296	55.344	55.448	55.496	33.810	33.969	33.855	34.014	33.812	33.860	33.964	34.012	55.5	0.10	178.92	45.83	224.75	OK
	B87	7.5					24.24	4.91	5.2	4.04	-5.2	-4.04	35.016	33.365	34.631	32.980	34.887	34.392	33.604	33.109	22.834	21.183	22.449	20.798	22.705	22.210	21.422	20.927						
N+3.15	B88	0	7.05	V-20X45	0.20	0.40	-45.12	-14.51	2.36	1.78	-2.36	-1.78	68.195	68.944	68.364	69.113	68.259	68.484	68.824	69.049	40.149	40.898	40.318	41.067	40.213	40.438	40.778	41.003	71.4	0.10	178.92	45.83	224.75	OK
	B88	7.05					46.92	14.6	2.6	2.22	-2.6	-2.22	71.422	70.597	71.211	70.386	71.380	71.133	70.675	70.428	42.746	41.921	42.535	41.710	42.704	42.457	41.999	41.752						
N+3.15	B89	0	7.18	V-20X45	0.20	0.40	-49.4	-15.36	3.2	2.38	-3.2	-2.38	74.019	75.035	74.245	75.261	74.110	74.415	74.865	75.170	43.839	44.855	44.065	45.081	43.930	44.235	44.685	44.990	75.3	0.10	178.92	45.83	224.75	OK
	B89	7.18					42.47	13.7	3.66	2.98	-3.66	-2.98	65.387	64.225	65.103	63.941	65.311	64.963	64.365	64.017	38.946	37.784	38.662	37.500	38.870	38.522	37.924	37.576						
N+3.15	B90	0	3.88	V-20X45	0.20	0.40	-1.89	-1.12	3.54	4.64	-3.54	-4.64	2.605	3.729	3.047	4.171	2.483	2.820	3.956	4.293	0.918	2.042	1.360	2.484	0.796	1.133	2.269	2.606	70.6	0.10	178.92	45.83	224.75	OK
	B90	3.88					46.63	13.75	3.54	4.64	-3.54	-4.64	70.489	69.365	70.047	68.923	70.611	70.274	69.138	68.801	42.750	41.626	42.308	41.184	42.872	42.535	41.399	41.062						
N+6.35	B91	0	4.191	V-15X45	0.15	0.40	-5.6	-0.39	1.52	2.14	-1.52	-2.14	6.767	7.249	6.971	7.453	6.698	6.843	7.377	7.522	4.697	5.179	4.901	5.383	4.628	4.773	5.307	5.452	7.5	0.10	178.92	34.37	213.29	OK
	B91	4.191					1.19	-0.39	1.52	2.14	-1.52	-2.14	1.381	0.899	1.177	0.695	1.450	1.305	0.771	0.626	1.414	0.932	1.210	0.728	1.483	1.338	0.804	0.659						
N+3.15	B91	0	4.191	V-15X45	0.15	0.40	-25.35	-6.35	3.82	4.66	-3.82	-4.66	35.942	37.154	36.386	37.598	35.848	36.212	37.328	37.692	21.987	23.199	22.431	23.643	21.893	22.257	23.373	23.737	37.7	0.10	178.92	34.37	213.29	OK
	B91	4.191					1.8	1.19	3.82	4.66	-3.82	-4.66	4.178	2.966	3.734	2.522	4.272	3.908	2.792	2.428	2.448	1.236	2.004	0.792	2.542	2.178	1.062	0.698						
N+3.15	B92	0	3.88	V-20X45	0.20	0.40	-2.94	-1.47	2.62	3.7	-2.62	-3.7	4.406	5.238	4.758	5.590	4.286	4.535	5.461	5.710	2.054	2.886	2.406	3.238	1.934	2.183	3.109	3.358	69.1	0.10	178.92	45.83	224.75	OK
	B92	3.88					45.74	13.45	2.62	3.7	-2.62	-3.7	68.930	68.098	68.578	67.746	69.050	68.801	67.875	67.626	41.758	40.926	41.406	40.574	41.878	41.629	40.703	40.454						
N+3.15	B93	0	3.88	V-20X45	0.20	0.40	-1.19	-0.84	2.68	3.62	-2.68	-3.62	1.670	2.521	2.015	2.866	1.566	1.821	2.715	2.970	0.473	1.324	0.818	1.669	0.369	0.624	1.518	1.773	72.0	0.10	178.92	45.83	224.75	OK
	B93	3.88					47.61	14.13	2.68	3.62	-2.68	-3.62	71.860	71.009	71.515	70.664	71.964	71.709	70.815	70.560	43.447	42.596	43.102	42.251	43.551	43.296	42.402	42.147						
N+6.35	B94	0	6.9	V-45X45	0.45	0.40	-13.81	0.82	13.6	10.36	-13.6	-10.36	13.100	17.417	14.087	18.404	13.460	14.755	16.749	18.044	9.777	14.094	10.764	15.081	10.137	11.432	13.426	14.721	27.1	0.10	178.92	103.11	282.03	OK
	B94	6.9					19.72	0.82	13.6	10.36	-13.6	-10.36	27.136	22.819	26.149	21.832	26.776	25.481	23.487	22.192	20.400	16.083	19.413	15.096	20.040	18.745	16.751	15.456						
N+3.15	B94	0	6.9	V-45X45	0.45	0.40	-85.03	-18.18	24.48	21.46	-24.48	-21.46	115.308	123.080	117.352	125.124	115.644	117.975	122.457	124.788	71.619	79.391	73.663	81.435	71.955	74.286	78.768	81.099	138.5	0.10	178.92	103.11	282.03	OK
	B94	6.9					94.12	20.22	27.72	19.86	-27.72	-19.86	138.510	129.710	136.618	127.818	137.636	134.996	131.332	128.692	90.054	81.254	88.162	79.362	89.180	86.540	82.876	80.236						
N+6.35	B95	0	2.175	V-45X45	0.45	0.40	-34.83	-8.95	3.34	4.28	-3.34	-4.28	50.012	51.072	50.420	51.480	49.908	50.226	51.266	51.584	30.613	31.673	31.021	32.081	30.509	30.827	31.867	32.185	51.6	0.10	178.92	103.11	282.03	OK
	B95	2.175					-16.04	-4.72	3.34	4.28	-3.34	-4.28	23.234	24.294	23.642	24.702	23.130	23.448	24.488	24.806	13.702	14.762	14.110	15.170	13.598	13.916	14.956	15.274						
N+3.15	B95	0	2.175	V-45X45	0.45	0.40	-63.35	-12.29	7.34	9.14	-7.34	-9.14	86.710	89.040	87.580	89.910	86.510	87.209	89.411	90.110	55.415	57.745	56.285	58.615	55.215	55.914	58.116	58.815	90.1	0.10	178.92	103.11	282.03	OK
	B95	2.175					-30.78	-7.59	7.34	9.14	-7.34	-9.14	42.926	45.256	43.796	46.126	42.726	43.425	45.627	46.326	26.102	28.432	26.972	29.302	25.902	26.601	28.803	29.502						
N+6.35	B96	0	7.05	V-45X45	0.45	0.40	-17.46	-0.47	11.74	9.04	-11.74	-9.04	19.128	22.855	19.989	23.716	19.428	20.546	22.298	23.416	13.420	17.147	14.281	18.008	13.720	14.838	16.590	17.708	23.7	0.10	178.92	103.11	282.03	OK
	B96	7.05					16.81	-0.47	11.74	9.04	-11.74	-9.04	21.996	18.269	21.135	17.408	21.696	20.578	18.826	17.708	17.423	13.696	16.562	12.835	17.123	16.005	14.253	13.135						
N+3.15	B96	0	7.05	V-45X45	0.45	0.40	-84.16	-17.73	21.56	19.18	-21.56	-19.18	114.386	121.231	116.213	123.058	114.651	116.704	120.740	122.793	71.408	78.253	73.235	80.080	71.673	73.726	77.762	79.815	141.3	0.10	178.92	103.11	282.03	OK
	B96	7.05					96.44	20.9	24.34	17.26	-24.34	-17.26	141.313	133.586	139.670	131.943	140.527	138.209	135.047	132.729	91.481	83.754	89.838	82.111	90.695	88.377	85.215	82.897						
N+6.35	B97	0	7.18	V-45X45	0.45	0.40	-16.37	0.68	11.62	8.92	-11.62	-8.92	16.695	20.384	17.544	21.233	16.995	18.101	19.827	20.933	12.464	16.153	13.313	17.002	12.764	13.870	15.596	16.702	25.2	0.10	178.92	103.11	282.03	OK
	B97	7.18					18.52	0.68	11.62	8.92	-11.62	-8.92	25.173	21.484	24.324	20.635	24.873	23.767	22.041	20.935	18.937	15.248	18.088	14.399	18.637	17.531	15.805	14.699						
N+3.15	B97	0	7.18	V-45X45	0.45	0.40	-97.77	-21.26	21.56	19.3	-21.56	-19.3	134.243	141.087	136.081	142.925	134.494	136.547	140.621	142.674	83.652	90.496	85.490	92.334	83.903	85.956	90.030	92.083	142.9	0.10	178.92	103.11	282.03	OK
	B97	7.18					87.82	18.78	22.88	16.24	-22.88	-16.24	128.569	121.306	127.022	119.759	127.831	125.652	122.676	120.497	83.443	76.180	81.896	74.633	82.705	80.526	77.550	75.371						
N+6.35	B98	0	1.58	V-45X45	0.45	0.40	-16.19	-2.4	2.8	2.16	-2.8	-2.16	21.281	22.170	21.486	22.375	21.352	21.618	22.038	22.304	14.024	14.913	14.229	15.118	14.095	14.361	14.781	15.047	22.4	0.10	178.92	103.11	282.03	OK
	B98	1.58					-4.5	0.33	2.8	2.16	-2.8	-2.16	4.523	5.412	4.728	5.617	4.594	4.860	5.280	5.546	3.503	4.392	3.708	4.597	3.574	3.840	4.260	4.526						
N+3.15	B98	0	1.58	V-45X45	0.45	0.40	-30.88	-4.13	5.88	4.08	-5.88	-4.08	40.058	41.925	40.447	42.314	40.258	40.818	41.554	42.114	26.664	28.531	27.053	28.920	26.864	27.424	28.160	28.720	42.3	0.10	178.92	103.11	282.03	OK

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA VIGAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.1 (b)

f'c = 21.0 MPa
fy = 420 MPa
Φ Cortante = 0.75
Estribos Φ = 9.5 mm
Av = 71 mm^2
R= 6.30

2VE = Cortante maximo obtenido de las combinaciones de carga de diseño que incluyan E, considerando E, como el doble del prescrito por el reglamento general legalmente adoptado para diseño sismico vigente.

COMDIS3 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS4 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3Ey)))
COMDIS5 = 1.2C.M.+1.0C.V.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS6 = 1.2C.M.+1.0C.V.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS7 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS8 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS9 = 1.2C.M.+1.0C.V.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS10 = 1.2C.M.+1.0C.V.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))
COMDIS11 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3Ey))
COMDIS12 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3Ey))
COMDIS13 = 0.9C.M.+(2*(1.0Ex))+(2*(0.3(-Ey)))
COMDIS14 = 0.9C.M.+(2*(1.0(-Ex)))+(2*(0.3(-Ey)))
COMDIS15 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0Ey))
COMDIS16 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0Ey))
COMDIS17 = 0.9C.M.+(2*(0.3Ex))+(2*(1.0(-Ey)))
COMDIS17 = 0.9C.M.+(2*(0.3(-Ex)))+(2*(1.0(-Ey)))

NIVEL	VIGA	LOC.	LONG.	PROPIEDADES DEL ELEMENTO			V2						$2V_E$														$2V_{Emax}$	S	ΦVs	ΦVc	ΦVn	ΦVn > $2V_{Emax}$
	ELEMENTO												Combinaciones de carga de diseño para el doble del cortante donde se incluya E																			
	No.	(m)	(m)	SECCION	b (m)	d (m)	C.M. (KN.m)	C.V. (KN.m)	SISMO X (KN.m)	SISMO Y (KN.m)	-SISMO X (KN.m)	-SISMO Y (KN.m)	COMBDIS3	COMBDIS4	COMBDIS5	COMBDIS6	COMBDIS7	COMBDIS8	COMBDIS9	COMBDIS10	COMBDIS11	COMBDIS12	COMBDIS13	COMBDIS14	COMBDIS15	COMBDIS16	COMBDIS17	COMBDIS18	(kN)	(m)	(kN)	(kN)	(kN)	
N+3.15	B98	1.58	1.58	V-45X45	0.45	0.40	-13.05	-2.89	5.88	4.08	-5.88	-4.08	17.422	19.289	17.811	19.678	17.622	18.182	18.918	19.478	10.617	12.484	11.006	12.873	10.817	11.377	12.113	12.673	42.5	0.10	178.92	203.11	282.03	OK
N+3.15	B99	0	1.58	V-20X45	0.20	0.40	-14.55	-4.34	2.8	4.14	-2.8	-4.14	21.158	22.047	21.553	22.442	21.010	21.276	22.324	22.590	12.453	13.342	12.848	13.737	12.305	12.571	13.619	13.885	22.6	0.10	178.92	45.83	224.75	OK
	B99	1.58					-4.4	-1.85	2.8	4.14	-2.8	-4.14	6.488	7.377	6.883	7.772	6.340	6.606	7.654	7.920	3.318	4.207	3.713	4.602	3.170	3.436	4.484	4.750						
N+6.35	B100	0	1.58	V-45X45	0.45	0.40	-27.37	-6.03	4.54	4.16	-4.54	-4.16	37.955	39.397	38.351	39.793	37.997	38.430	39.318	39.751	23.714	25.156	24.110	25.552	23.756	24.189	25.077	25.510	39.8	0.10	178.92	103.11	282.03	OK
	B100	1.58					-13.5	-2.18	4.54	4.16	-4.54	-4.16	17.461	18.903	17.857	19.299	17.503	17.936	18.824	19.257	11.231	12.673	11.627	13.069	11.273	11.706	12.594	13.027						
N+3.15	B100	0	1.58	V-45X45	0.45	0.40	-37.89	-7.62	8.18	9.36	-8.18	-9.36	51.344	53.941	52.235	54.832	51.213	51.992	54.184	54.963	32.357	34.954	33.248	35.845	32.226	33.005	35.197	35.976	55.0	0.10	178.92	103.11	282.03	OK
	B100	1.58					-23.47	-5.12	8.18	9.36	-8.18	-9.36	31.540	34.137	32.431	35.028	31.409	32.188	34.380	35.159	19.379	21.976	20.270	22.867	19.248	20.027	22.219	22.998						
N+6.35	B101	0	1.718	V-15X45	0.15	0.40	-2.05	-0.65	1.82	2.14	-1.82	-2.14	2.719	3.297	2.923	3.501	2.684	2.857	3.363	3.536	1.454	2.032	1.658	2.236	1.419	1.592	2.098	2.271	4.7	0.10	178.92	34.37	213.29	OK
	B101	1.718					3.11	0.57	1.82	2.14	-1.82	-2.14	4.693	4.115	4.489	3.911	4.728	4.555	4.049	3.876	3.190	2.612	2.986	2.408	3.225	3.052	2.546	2.373						
N+3.15	B101	0	1.718	V-15X45	0.15	0.40	-1.02	-0.11	3.52	4.48	-3.52	-4.48	0.562	1.679	0.989	2.106	0.455	0.791	1.877	2.213	0.146	1.263	0.573	1.690	0.039	0.375	1.461	1.797	8.6	0.10	178.92	34.37	213.29	OK
	B101	1.718					5.43	1.24	3.52	4.48	-3.52	-4.48	8.528	7.411	8.101	6.984	8.635	8.299	7.213	6.877	5.659	4.542	5.232	4.115	5.766	5.430	4.344	4.008						
N+6.35	B102	0	1.58	V-45X45	0.45	0.40	-17.38	-2.93	2.04	1.58	-2.04	-1.58	23.387	24.035	23.537	24.185	23.438	23.632	23.940	24.134	15.243	15.891	15.393	16.041	15.294	15.488	15.796	15.990	24.2	0.10	178.92	103.11	282.03	OK
	B102	1.58					-5.66	-0.14	2.04	1.58	-2.04	-1.58	6.533	7.181	6.683	7.331	6.584	6.778	7.086	7.280	4.695	5.343	4.845	5.493	4.746	4.940	5.248	5.442						
N+3.15	B102	0	1.58	V-45X45	0.45	0.40	-31.06	-4.12	4.68	3.12	-4.68	-3.12	40.501	41.986	40.798	42.283	40.674	41.120	41.664	42.110	27.063	28.548	27.360	28.845	27.236	27.682	28.226	28.672	42.3	0.10	178.92	103.11	282.03	OK
	B102	1.58					-13.23	-2.87	4.68	3.12	-4.68	-3.12	17.855	19.340	18.152	19.637	18.028	18.474	19.018	19.464	11.016	12.501	11.313	12.798	11.189	11.635	12.179	12.625						
N+3.15	B103	0	1.58	V-20X45	0.20	0.40	-13.47	-4.11	2.68	3.04	-2.68	-3.04	19.704	20.555	19.993	20.844	19.664	19.919	20.629	20.884	11.553	12.404	11.842	12.693	11.513	11.768	12.478	12.733	20.9	0.10	178.92	45.83	224.75	OK
	B103	1.58					-3.32	-1.61	2.68	3.04	-2.68	-3.04	5.024	5.875	5.313	6.164	4.984	5.239	5.949	6.204	2.418	3.269	2.707	3.558	2.378	2.633	3.343	3.598						
N+6.35	B104	0	1.58	V-45X45	0.45	0.40	-25.05	-5.34	0.04	0.02	-0.04	-0.02	35.393	35.405	35.395	35.407	35.395	35.399	35.401	35.405	22.538	22.550	22.540	22.552	22.540	22.544	22.546	22.550	35.4	0.10	178.92	103.11	282.03	OK
	B104	1.58					-11.56	0.29	0.04	0.02	-0.04	-0.02	13.575	13.587	13.577	13.589	13.577	13.581	13.583	13.587	10.397	10.409	10.399	10.411	10.399	10.403	10.405	10.409						
N+3.15	B104	0	1.58	V-45X45	0.45	0.40	-51	-10.83	2.46	3.28	-2.46	-3.28	71.483	72.264	71.796	72.577	71.392	71.627	72.433	72.668	45.353	46.134	45.666	46.447	45.262	45.497	46.303	46.538	72.7	0.10	178.92	103.11	282.03	OK
	B104	1.58					-36.59	-8.34	2.46	3.28	-2.46	-3.28	51.701	52.482	52.014	52.795	51.610	51.845	52.651	52.886	32.384	33.165	32.697	33.478	32.293	32.528	33.334	33.569						
N+3.15	B105	0	1.58	V-20X45	0.20	0.40	-13.59	-4.18	2.16	3.3	-2.16	-3.3	19.988	20.674	20.302	20.988	19.861	20.067	20.909	21.115	11.731	12.417	12.045	12.731	11.604	11.810	12.652	12.858	21.1	0.10	178.92	45.83	224.75	OK
	B105	1.58					-3.44	-1.68	2.16	3.3	-2.16	-3.3	5.308	5.994	5.622	6.308	5.181	5.387	6.229	6.435	2.596	3.282	2.910	3.596	2.469	2.675	3.517	3.723						
N+6.35	B106	0	1.58	V-45X45	0.45	0.40	-17.59	-2.98	2.06	1.58	-2.06	-1.58	23.686	24.340	23.836	24.490	23.739	23.935	24.241	24.437	15.429	16.083	15.579	16.233	15.482	15.678	15.984	16.180	24.5	0.10	178.92	103.11	282.03	OK
	B106	1.58					-5.84	-0.14	2.06	1.58	-2.06	-1.58	6.746	7.400	6.896	7.550	6.799	6.995	7.301	7.497	4.854	5.508	5.004	5.658	4.907	5.103	5.409	5.605						
N+3.15	B106	0	1.58	V-45X45	0.45	0.40	-31.53	-4.24	3.64	3.92	-3.64	-3.92	41.312	42.467	41.685	42.840	41.280	41.627	42.525	42.872	27.613	28.768	27.986	29.141	27.581	27.928	28.826	29.173	42.9	0.10	178.92	103.11	282.03	OK
	B106	1.58					-13.7	-2.99	3.64	3.92	-3.64	-3.92	18.666	19.821	19.039	20.194	18.634	18.981	19.879	20.226	11.566	12.721	11.939	13.094	11.534	11.881	12.779	13.126						
N+3.15	B107	0	3.45	V-15X45	0.15	0.40	-13.05	-2.89	5.88	4.08	-5.88	-4.08	17.422	19.289	17.811	19.678	17.622	18.182	18.918	19.478	10.617	12.484	11.006	12.873	10.817	11.377	12.113	12.673	19.7	0.10	178.92	34.37	213.29	OK
	B107	3.45					3.89	1.32	5.88	4.08	-5.88	-4.08	7.116	5.249	6.727	4.860	6.916	6.356	5.620	5.060	4.629	2.762	4.240	2.373	4.429	3.869	3.133	2.573						
N+6.35	B108	0	6.9	V-15X45	0.15	0.40	-4.5	0.33	2.8	2.16	-2.8	-2.16	4.523	5.412	4.728	5.617	4.594	4.860	5.280	5.546	3.503	4.392	3.708	4.597	3.574	3.840	4.260	4.526	8.9	0.10	178.92	34.37	213.29	OK
	B108	6.9					6.68	0.33	2.8	2.16	-2.8	-2.16	8.893	8.004	8.688	7.799	8.822	8.556	8.136	7.870	6.559	5.670	6.354	5.465	6.488	6.222	5.802	5.536						
N+3.15	B109	0	3.45	V-15X45	0.15	0.40	-0.51	-0.53	4.7	4.92	-4.7	-4.92	0.162	1.654	0.630	2.122	0.137	0.585	1.699	2.147	0.521	0.971	0.053	1.439	0.546	0.098	1.016	1.464	24.4	0.10	178.92	34.37	213.29	OK
	B109	3.45					16.42	3.68	4.7	4.92	-4.7	-4.92	24.364	22.872	23.896	22.404	24.389	23.941	22.827	22.379	15.758	14.266	15.290	13.798	15.783	15.335	14.221	13.773						
N+6.35	B110	0	1.5	V-15X45	0.15	0.40	-6.82	-1.85	1.82	2.14	-1.82	-2.14	9.643	10.221	9.847	10.425	9.608	9.781	10.287	10.460	5.747	6.325	5.951	6.529	5.712	5.885	6.391	6.564	10.5	0.10	178.92	34.37	213.29	OK
	B110	1.5					-2.05	-0.65	1.82	2.14	-1.82	-2.14	2.719	3.297	2.923	3.501	2.684	2.857	3.363	3.536	1.454	2.032	1.658	2.236	1.419	1.592	2.098	2.271						
N+3.15	B110	0	1.5	V-15X45	0.15	0.40	-7.05	-1.45	3.52	4.48	-3.52	-4.48	9.138	10.255	9.565	10.682	9.031	9.367	10.453	10.789	5.573	6.690	6.000	7.117	5.466	5.802	6.888	7.224	10.8	0.10	178.92	34.37	213.29	OK
	B110	1.5					-1.02	-0.11	3.52	4.48	-3.52	-4.48	0.562	1.679	0.989	2.106	0.455	0.791	1.877	2.213	0.146	1.263	0.573	1.690	0.039	0.375	1.461	1.797						
N+3.15	B111	0	3.52	V-15X45	0.15	0.40	-13.23	-2.87	4.68	3.12	-4.68	-3.12	17.855	19.340	18.152	19.637	18.028	18.474	19.018	19.464	11.016	12.501	11.313	12.798	11.189	11.635	12.179	12.625	19.6	0.10	178.92	34.37	213.29	OK
	B111	3.52					4.11	1.45	4.68	3.12	-4.68	-3.12	7.273	5.788	6.976	5.491	7.100	6.654	6.110	5.664	4.590	3.105	4.293	2.808	4.417	3.971	3.427	2.981						
N+6.35	B112	0	7.05	V-15X45	0.15	0.40	-5.66	-0.14	2.04	1.58	-2.04	-1.58	6.533	7.181	6.683	7.331	6.584	6.778	7.086	7.280	4.695	5.343	4.845	5.493	4.746	4.940	5.248	5.442	7.3	0.10	178.92	34.37	213.29	OK
	B112	7.05					5.76	-0.14	2.04	1.58	-2.04	-1.58	7.171	6.523	7.021	6.373	7.120	6.926	6.618	6.424	5.583	4.935	5.433	4.785	5.532	5.338	5.030	4.836						
N+3.15	B113	0	3.53	V-15X45	0.15	0.40	0.8	-0.16	3.04	3.62	-3.04	-3.62	1.455	0.490	1.110	0.145	1.519	1.230	0.370	0.081	1.375	0.410	1.030	0.065	1.439	1.150	0.290	0.001	26.7	0.10	178.92	34.37	213.29	OK
	B113	3.53					18.21	4.16	3.04	3.62	-3.04	-3.62	26.667	25.702	26.322	25.357	26.731	26.442	25.582	25.293	17.044	16.079	16.699	15.734	17.108	16.819	15.959	15.670						
N+3.15	B114	0	3.59	V-15X45	0.15	0.40	-18.38	-4.17	4.04	2.62	-4.04	-2.62	25.460	26.743	25.709	26.992	25.618	26.003	26.449	26.834	15.776	17.059	16.025	17.308	15.934	16.319	16.765	17.150	27.0	0.10	178.92	34.37	213.29	OK
	B114	3.59					-0.62	0.25	4.04	2.62	-4.04	-2.62	0.272	1.011	0.023	1.260	0.114	0.271	0.717	1.102	0.208	1.075	0.041	1.324	0.050	0.335	0.781	1.166						
N+6.35	B115	0	7.18	V-15X45	0.15	0.40	-5.8	0.14	2.06	1.58	-2.06	-1.58	6.418	7.072	6.568	7.222	6.471	6.667	6.973	7.169	4.818	5.472	4.968	5.622	4.871	5.067	5.373	5.569	7.6	0.10	178.92	34.37	213.29	OK
	B115	7.18					5.84	0.14	2.06	1.58	-2.06	-1.58	7.550	6.896	7.400	6.746	7.497	7.301	6.995	6.799	5.658	5.004	5.508	4.854	5.605	5.409	5.103	4.907						
N+3.15	B116	0	3.59	V-15X45	0.15	0.40	-4.06	-1.43	3.64	3.92	-3.64	-3.92	5.538	6.693	5.911	7.066	5.506	5.853	6.751	7.098	2.890	4.045	3.263	4.418	2.858	3.205	4.103	4.450	20.2	0.10	178.92	34.37	213.29	OK
	B116	3.59					13.7	2.99	3.64	3.92	-3.64	-3.92	20.194	19.039	19.821	18.666	20.226	19.879	18.981	18.634	13.094	11.939	12.721	11.566	13.126	12.779	11.881	11.534						

VERIFICACIONES DE CORTANTE PARA VIGAS

C.21.3.3.1 (a)

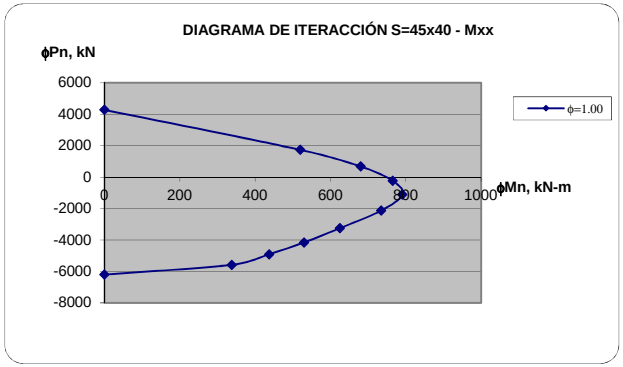
C.21.3.3.1 (b)

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA COLUMNAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.2 (a) - COLUMNA S=45X45 (16/#8 (4.0%))

f'c =	**21.1**	MPa	**Estribos Φ =**	**9.5**	mm
fy =	**420**	MPa	**Av =**	**71**	mm^2
$\Phi_{Cortante}$ =	**0.75**		**Cantidad de ramas =**	**5**	
bx =	**0.45**	m	**S =**	**0.10**	m
by =	**0.45**	m	**Recub. =**	**0.05**	m
Lcol =	**6.35**	m			

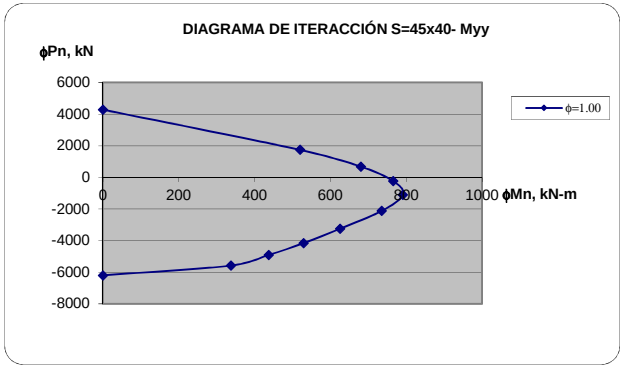
C.21.3.3.2(a) El cortante ΦVn no debe ser menor que la suma del cortante debido a flexión en curvatura inversa asociado con el desarrollo de los momentos nominales de la columna en cada extremo restringido de la longitud libre.

DATOS PARA LOS DIAGRAMAS DE ITERACCIÓN			
No.	**Curve 1**	**0. degrees**	
	P	**M3**	**M2**
1	-6200.00	0.00	0.00
2	-5582.00	338.01	0.00
3	-4906.00	437.39	0.00
4	-4157.00	529.62	0.00
5	-3250.00	625.16	0.00
6	-2129.00	734.79	0.00
7	-1108.00	791.21	0.00
8	-239.84	765.48	0.00
9	676.89	680.29	0.00
10	1735.94	520.16	0.00
11	4281.28	0.00	0.00



P_{ua} =	824.88	**kN**
P_{ub} =	806.22	**kN**
ΦM_{na} =	542.54	**kN-m**
ΦM_{nb} =	539.71	**kN-m**
$V_{umáx}$ =	170.43	**kN**
ΦV_s =	447.30	**kN**
ΦV_c =	103.35	**kN**
ΦV_n =	550.65	**kN**
$\Phi V_n > V_{umáx}$ =	OK	

DATOS PARA LOS DIAGRAMAS DE ITERACCIÓN			
No.	**Curve 7**	**90. degrees**	
	P	**M3**	**M2**
1	-6200.00	0.00	0.00
2	-5582.00	0.00	338.01
3	-4906.00	0.00	437.39
4	-4157.00	0.00	529.62
5	-3250.00	0.00	625.16
6	-2129.00	0.00	734.79
7	-1108.00	0.00	791.21
8	-239.84	0.00	765.48
9	676.89	0.00	680.29
10	1735.94	0.00	520.16
11	4281.28	0.00	0.00



P_{ua} =	830.14	**kN**
P_{ub} =	811.47	**kN**
ΦM_{na} =	543.33	**kN-m**
ΦM_{nb} =	540.51	**kN-m**
$V_{umáx}$ =	170.68	**kN**
ΦV_s =	447.30	**kN**
ΦV_c =	103.35	**kN**
ΦV_n =	550.65	**kN**
$\Phi V_n > V_{umáx}$ =	OK	

PROYECTO: I.E. SEMINARIO IPIALES NARIÑO
RESISTENCIA A CORTANTE PARA COLUMNAS
CHEQUEO PARA LA CONDICIÓN DESCRITA EN C.21.3.3.2 (b)

f'c =	**21.1**	MPa	**Estribos Φ =**	**9.5**	mm
fy =	**420**	MPa	**Av =**	**71**	mm^2
$\Phi_{Cortante}$ =	**0.75**		**Cantidad de ramas =**	**5**	
bx =	**0.35**	m	**S =**	**0.10**	m
by =	**0.35**	m	**Ω_o=**	**3.00**	
			Recub. =	**0.05**	m

C.21.3.3.2(b) El cortante ΦVn no debe ser menor que el cortante maximo obtenido de la que incluyan E, con E incrementado por medio de Ωo.

Para cortante V2

Ω_o*$V_{umáx}$ =	193.63	**kN**
ΦV_s =	335.48	**kN**
ΦV_c =	60.29	**kN**
ΦV_n =	395.76	**kN**
$\Phi V_n > \Omega_o * V_{umáx}$ =	OK	

Para cortante V3

Ω_o*$V_{umáx}$ =	246.70	**kN**
ΦV_s =	335.48	**kN**
ΦV_c =	60.29	**kN**
ΦV_n =	395.76	**kN**
$\Phi V_n > \Omega_o * V_{umáx}$ =	OK	