CONSORCIO INTERCONSULTA 2023
NIT: 901.720.639-3

9. AQ-148-GRA3D-DES_CAM_TIPO_17-V.1
10. AQ-148-GRA3D-DES_CAM_TIPO_18-V.1
11. AQ-148-GRA3D-DES_CAM_TIPO_19-V.1
12. AQ-148-GRA3D-DES_CAM_TIPO_20-V.1
13. AQ-148-GRA3D-DES_CAM_TIPO_21-V.1
14. AQ-148-GRA3D-DES_CDD_TIPO_01-V.1

Una vez efectuada la respectiva revisión técnica por parte del equipo de profesionales de la interventoría, se certifica que los productos que a continuación se detallan fueron presentados por la consultoría en su totalidad, con la precisión y especificaciones según los lineamientos establecidos en el pliego de condiciones del CONCURSO DE MÉRITOS -ABIERTO No. CM-OAP-002-2023.

Por consiguiente, esta interventoría imparte la **APROBACIÓN** de los productos correspondientes a los **INFORME DE DISEÑOS ESTRUCTURALES DE POZOS Y SUMIDEROS TIPO , CÁMARAS TIPO Y OBRAS DE PROTECCIÓN DEL SUBPROYECTO DE ALCANTARILLADO PLUVIAL ZONA NOROCCIDENTAL GRA3D DEL MUNICIPIO DE GRANADA – META SECTOR EL PARAÍSO** en su versión inicial, con sus respectivos Planos y memorias.

Sin otro particular,

JOSÉ ALEJANDRO BALLÉN SUÁREZ
C.C. 80037996
REPRESENTANTE LEGAL
CONSORCIO INTERCONSULTA 2023

Revisó:	Camilo Andrés Rodríguez Parrado	Especialista estructural	
Aprobó:	José Alejandro Ballén Suárez	Director de interventoría	Firma:

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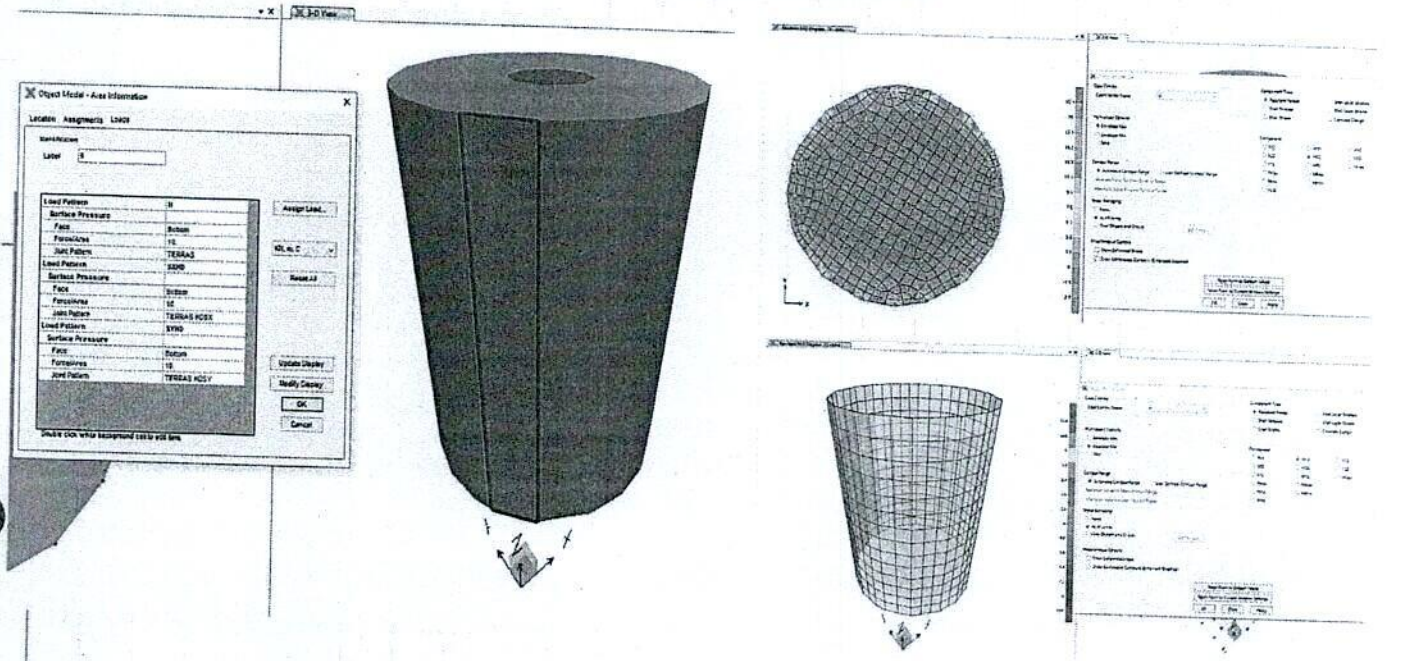
Cel. 3104290102 – Cr 4 este # 15-148

EMPRESA DE SERVICIOS PUBLICOS DEL META S.A. E.S.P.
EDESA S.A. E.S.P.



ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN, AMPLIACIÓN Y OPTIMIZACIÓN DE OBRAS DE REDES E INFRAESTRUCTURA DE AGUA POTABLE Y SANEAMIENTO BÁSICO EN LOS MUNICIPIOS DEL DEPARTAMENTO DEL META

CONTRATO No. 081 DE 2023.

SUBPROYECTO: ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN DE LA RED DE ACUEDUCTO, ALCANTARILLADO SANITARIO Y ALCANTARILLADO PLUVIAL SECTOR EL PARAÍSO DEL MUNICIPIO DE GRANADA, META.

INFORME DE DISEÑO ESTRUCTURAL
POZO DE INSPECCIÓN DE 1.80M HASTA 3M SIN CÁMARA DE CAÍDA

AQ-148-GRA3D-DES_POZO_1.80_3M_SIN_CC-V1

Julio de 2024

AQUADATOS S.A.
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PROYECTO:		
ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN, AMPLIACIÓN Y OPTIMIZACIÓN DE OBRAS DE REDES E INFRAESTRUCTURA DE AGUA POTABLE Y SANEAMIENTO BÁSICO EN LOS MUNICIPIOS DEL DEPARTAMENTO DEL META.		
DIRECTOR DE PROYECTO: Mauricio Cruz Gómez	**CLIENTE:** EDESA S.A. E.S.P.	**CONTRATO No:** 081 de 2023

TITULO DEL DOCUMENTO:	**INFORME DE DISEÑO ESTRUCTURAL POZO DE INSPECCIÓN DE 1.80M HASTA 3M SIN CÁMARA DE CAÍDA -** SUBPROYECTO: ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN DE LA RED DE ACUEDUCTO, ALCANTARILLADO SANITARIO Y ALCANTARILLADO PLUVIAL SECTOR EL PARAÍSO DEL MUNICIPIO DE GRANADA, META.
CÓDIGO:	**AQ-148-GRA3D-DES_POZO_1.80_3M_SIN_CC-V1**

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FECHA: 23/07/2024	**FECHA**: 25/07/2024	**FECHA**: 29/07/2024

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FECHA: 05/08/2024	**FECHA**: 08/08/2024

CUADRO DE CONTROL

Versión	Descripción Modificación
1	Emisión del documento

	Versión					
	1					
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Fecha:	23/07/2024					
Revisó:	Sergio Andrés Camargo Guarín (Coordinador)					
Fecha:	25/07/2024					
Aprobó:	Mauricio Cruz Gómez (Director de Proyecto)					
Fecha:	29/07/2024					

SISTEMA DE GESTIÓN DE CALIDAD DE AQUADATOS	
VERSIÓN DE LA PLANTILLA	FECHA DE VIGENCIA DE LA PLANTILLA
1	14/05/2021

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1 INTRODUCCIÓN

Diseño y calculo estructural de un pozo de inspección de diámetro interno 1.80 metros hasta tres metros de profundidad sin cámara de caída en concreto reforzado, localizado en la zona de expansión de la urbanización del Paraíso del casco urbano del municipio de Granada – Dpto. del Meta zona de amenaza sísmica Alta con los siguientes parámetros sísmicos.

Perfil de Suelo=D (verificar estudio de suelos)
Aa= 0.20
Av=0.25
Fa=1.15
Fv=1.80
I=1.50 (Coeficiente de Importancia)

EL sistema estructural utilizado para resistir tanto las cargas verticales y laterales consiste en una sección rectangular en planta conformada por muros de perímetro (muros de concreto reforzado), estos a su vez funcionan monolíticamente con una placa superior y una inferior apoyada directamente sobre el terreno, la cual le trasmite las presiones dentro de la capacidad admisible según estudio de suelos.

Se siguieron los lineamientos de los Títulos A, B, C y D de la Norma Colombiana de Diseño y Construcción SismoResistente NSR-10 (sus decretos reglamentarios 926 del 19 de marzo de 2010, 2525 del 13 de Julio de 2010, 092 del 17 de enero de 2011, 340 del 13 de febrero de 2012 y 945 del 05 de junio de 2017) y AIS 180-13 Recomendaciones para requisitos sísmicos de Estructuras diferentes de edificaciones.

2 MATERIALES Y COEFICIENTES DE SEGURIDAD

MATERIALES

Concretos:

- Concreto de limpieza: f'c=11MPa.
- Concreto para Muros y losas f'c=28Mpa.

Aceros:

- Acero para barras de refuerzo $\phi \geq 3/8''$ fy=420MPa.
- Acero para barras de refuerzo $\phi \leq 3/8''$ fy=240MPa.

Módulo de elasticidad para el concreto: E =24,870MPa.
Módulo de elasticidad para el acero: E = 200,000MPa.

COEFICIENTES DE SEGURIDAD PARA DISEÑO DE CONCRETO

- Secciones controladas por tracción $\phi = 0.90$
- Secciones controladas por compresión
  - Elementos con refuerzo en espiral según C.10.9.3 $\phi = 0.75$
  - Otros elementos reforzados $\phi = 0.65$
- Cortante y torsión $\phi = 0.75$
- Aplastamiento en el concreto (excepto para anclajes de postensado y modelos puntal – tensor) $\phi = 0.65$

COEFICIENTES DE SEGURIDAD PARA DISEÑO DE ACERO

- Fluencia por tensión sobre el área bruta $\phi t = 0.90$
- Rotura por tensión sobre el área neta $\phi t = 0.75$
- Rotura por cortante sobre el área neta efectiva $\phi t = 0.75$
- Flexión $\phi b = 0.90$
- Cortante $\phi v = 0.75$
- Torsión $\phi t = 0.75$

3 CASOS DE CARGA

La estructura se diseñará para resistir las cargas que estarán presentes a lo largo de su vida útil, para esto se considera 1 caso:

1) Estructura considerando el empuje lateral del terreno.

3.1 CARGAS

D = Carga muerta.
L = Carga viva.
H = Carga estática por empuje de tierras.
SX (Tierras) = Fuerzas sismicas por tierras en X
SY (Tierras) = Fuerzas sismicas por tierras en Y

4 PARÁMETROS SÍSMICOS Y DATOS GEOTECNICOS

MUNICIPIO: GRANADA, META

ZONA DE AMENAZA SÍSMICA: ALTA

COEFICIENTE DE IMPORTANCIA: I=1.50

Aa = 0.20 (Coeficiente de aceleración pico efectiva)

Av = 0.25 (Coeficiente de velocidad pico efectiva)

Fa = 1.15 (Coeficiente de aceleracion periodos cortos)

Fv = 1.80 (Coeficiente de aceleración periodos intermedios)

Perfil de Suelo: D

σ = 120 kN/m2 (Presión admisible)

ϕ suelo = 33 (Angulo de fricción)

γ = 19.96 kN/m^3 (Peso unitario del terreno) (promedio)

5 EVALUACIÓN DE CARGAS

CÁLCULO DE PRESION DE TIERRAS

PROPIEDADES DE LOS MATERIALES/DATOS INICIALES

f'c=	28000	kN/m2	
fy=	420000	kN/m2	
ϕsuelo=	33	°	(Angulo de friccion del terreno)
Ka=	0.295		
γ=	19.96	kN/m3	
Es=sobrecarga=	5.00	kN/m2	(Sobrecarga)
Aa=	0.35		(Aceleracion pico del terreno)
K=	3.39		(Coeficiente de presion pasiva)
Kv=	0.00		(Coeficiente de aceleracion sismica vertical)
Kh=	0.175		(Coeficiente de aceleracion sismica horizontal)
δ=	16.50	°	(Angulo de friccion en la interfase entre muro y relleno)
i=	10.00	°	(Angulo de la pendiente del relleno)
β=	0.00	°	(Inclinacion de la superficie del terreno detras de la cara del muro)
θ=	9.93	°	(Inclinacion del muro respecto a la horizontal)
KAE=	0.46		(Coeficiente sismico de presion activa)

PROPIEDADES GEOMETRICAS

H expuesta del muro a tierras (Crítica)=	2.76	m
Espesor losa fondo =	0.20	m
H Libre Muro (Crítica)=	2.56	m
Espesor Muro=	0.20	m

EMPUJES Y MOMENTOS

Empuje Estatico			
Ea=	22.41 kN		
Mvol1=	20.62 kN-m		
Empuje Por Sobrecarga			
hs=	0.25		
Es=	4.07 kN		
Mvol2=	5.61 kN-m		
Empuje Dinamico - (Mononobe Okabe)			
h Muro=	2.56 m		
e muro=	0.20 m		
i=	10	0.1745	rad
δ=	16.5	0.2880	rad
Ø=	33	0.576	rad
Aa=	0.35		
Kh=	0.18		
Kv=	0.00		
θ=	9.93	0.1732	rad
β=	0.00	0.0000	rad
Cos2(Ø-θ-β)=	0.85		
Cos(δ+β+θ)=	0.90		
Sen(Ø+δ)=	0.76		
Sen(Ø-θ-i)=	0.23		
Cos(i-β)=	0.98		
Cos(θ)=	0.99		
Cos2(β)=	1.00		

5.1 CÁLCULO DE PRESIÓN DE TIERRAS

$$\sqrt{\frac{Sen(phi+delta)*Sen(Ø-θ-i)}{Cos(δ+β+θ)*Cos(i-β)}}$$ 0.442

Ψ=	2.08	
KAE=	0.462	
EAE=	35.10	
ΔEe=	12.69	**kN**
Mvol3=	23.34	**kN-m**

ANALISIS DE CARGAS

E suelo=	19.28	kN
M suelo=	16.45	kN-m
E sobrecarga=	3.77	kN
M sobrecarga=	4.83	kN-m
E dinamico=	10.92	kN
M dinamico=	18.61	kN-m
Σ Empujes=	**33.97**	kN

MÁXIMA PRESIÓN ESTÁTICA DE TIERRAS			DATOS PARA SAP2000	
h max (m)	Pw (kN/m2)	Ew (kN/m)	C=	-0.59
2.76	16.24	22.4	D=	1.62

MÁXIMA PRESIÓN DINÁMICA DE TIERRAS			DATOS PARA SAP2000	
h max (m)	Pw (kN/m2)	Ew (kN/m)	C=	-0.33
2.76	9.19	12.69	D=	0.92

pw = Presión de tierras

Ew = Fuerza resultante

ɣt =	19.96	kN/m3
Ka=	0.295	
KAE=	0.462	Coeficiente de empuje TOTAL (Dinámico + Estático)
KAE - Ka=	0.167	Coeficiente de empuje dinámico

6 COMBINACIONES DE CARGA

COMBINACIONES DE CARGA BÁSICAS PARA DISEÑO DE ELEMENTOS

	D		L	F	H		S.X (HD)		S.Y. (HD)	
COMB1	1.40									
COMB2	1.20	+	1.60		+	1.60				
COMB3	1.20	+	1.00							
COMB4	1.20	+	1.00		+	1.60	+	1.00		
COMB5	1.20	+	1.00		+	1.60			+	1.00
COMB6	0.90				+	1.60				
COMB7	0.90				+	1.60	+	1.00		
COMB8	0.90				+	1.60			+	1.00

D	=	*Carga Muerta*
L	=	*Carga Viva*
H	=	*Carga estatica de Tierras*
F	=	*Carga estatica de Fluido*
S.X. (HD)	=	*Fuerzas Sismicas por Tierras en X*
S.Y. (HD)	=	*Fuerzas Sismicas por Tierras en Y*

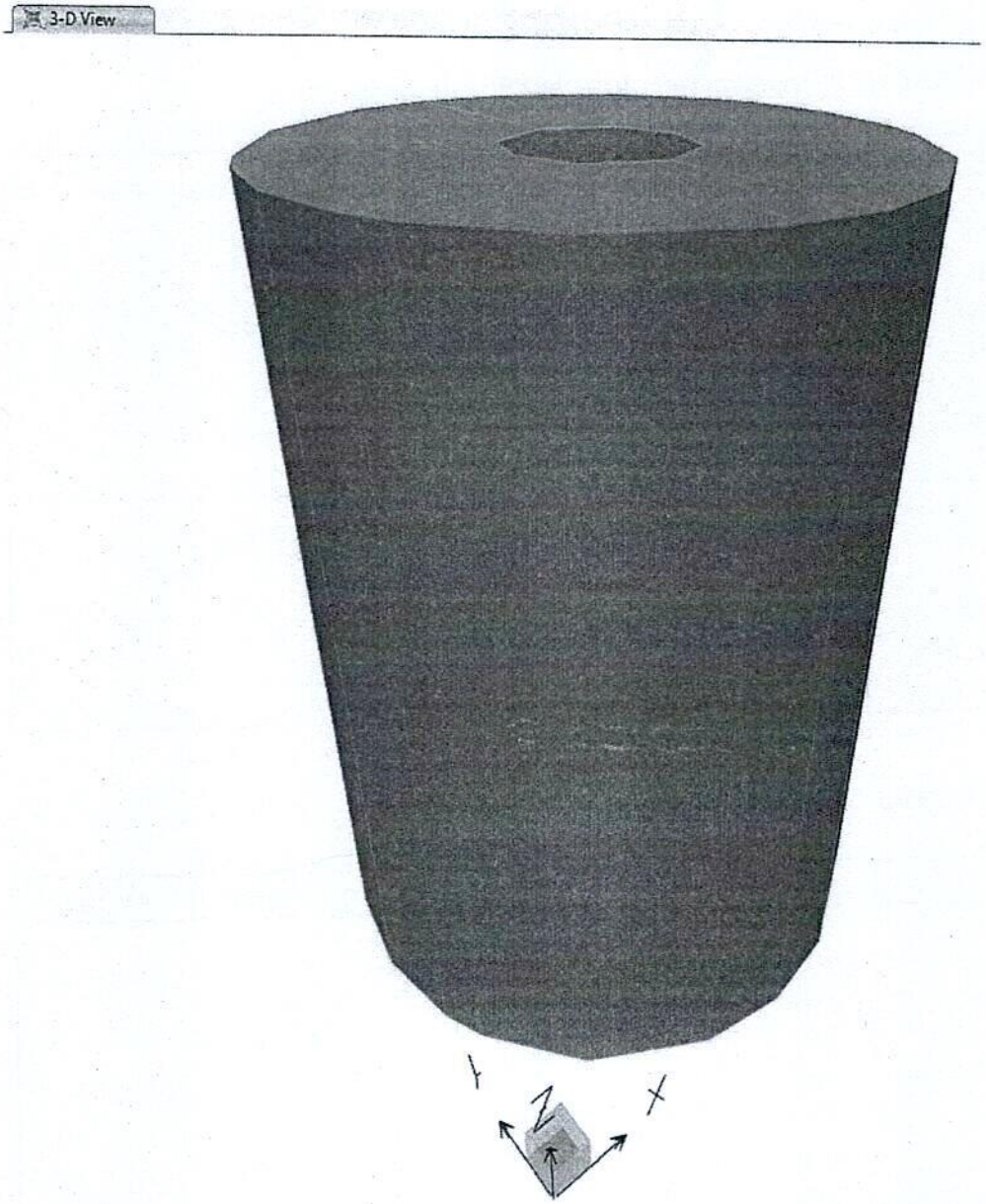
COMBINACIONES DE CARGA DE SERVICIO

	D		L	F	H		S.X (HD)		S.Y. (HD)	
SERV1	1.00	+	1.00		+	1.00				
SERV2	1.00				+	1.00				
SERV3	1.00		0.75							
SERV4	1.00				+	1.00	+	0.70		
SERV5	1.00				+	1.00			+	0.70
SERV6	1.00	+	0.75		+	1.00				
SERV7	1.00	+	0.75		+	1.00	+	0.53		
SERV8	1.00	+	0.75		+	1.00			+	0.53
SERV9	0.60				+	1.00				
SERV10	0.60				+	1.00	+	0.70		
SERV11	0.60				+	1.00			+	0.70

D	=	*Carga Muerta*
L	=	*Carga Viva*
H	=	*Carga estatica de Tierras*
F	=	*Carga estatica de Fluido*
S.X. (HD)	=	*Fuerzas Sismicas por Tierras en X*
S.Y. (HD)	=	*Fuerzas Sismicas por Tierras en Y*

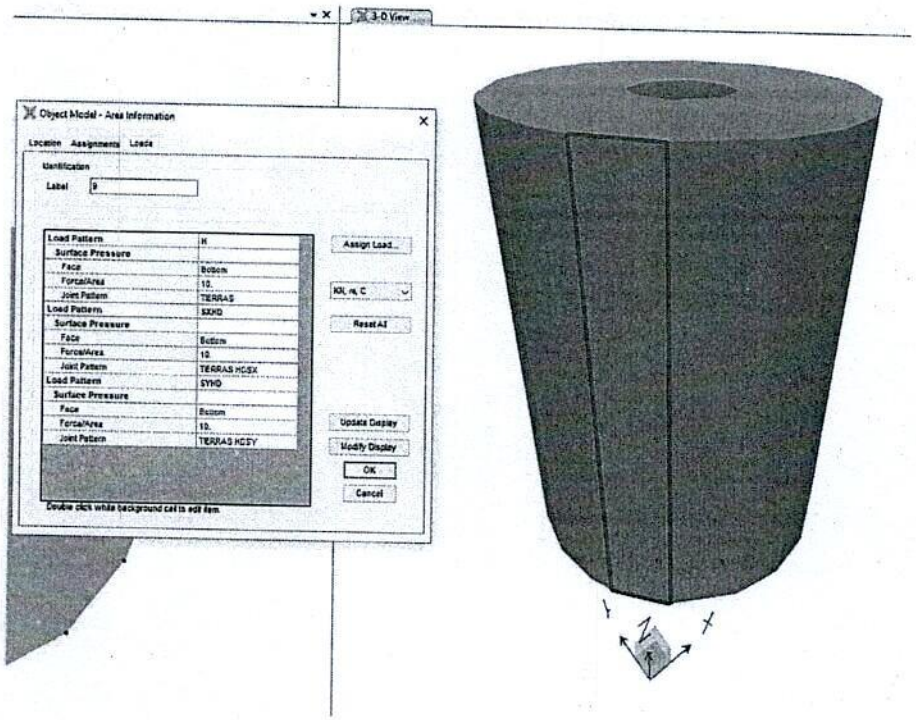
7 MODELO MATEMÁTICO

(Los datos de entrada y de salida del modelo matemático se encuentran al final del documento)

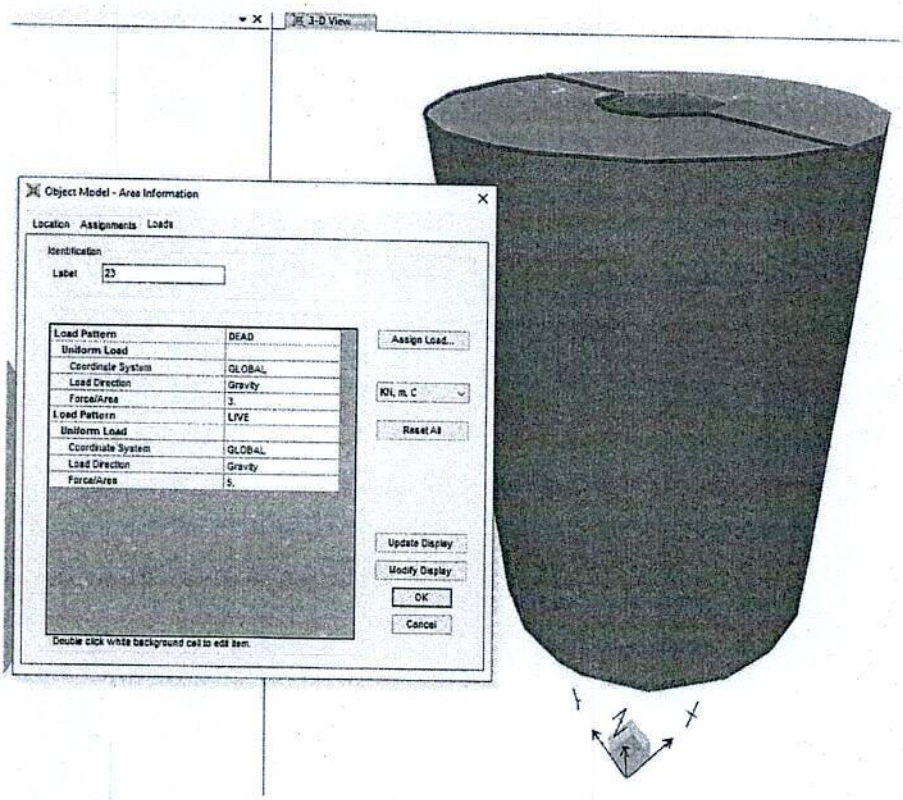


7.1 VISTA 3D

406



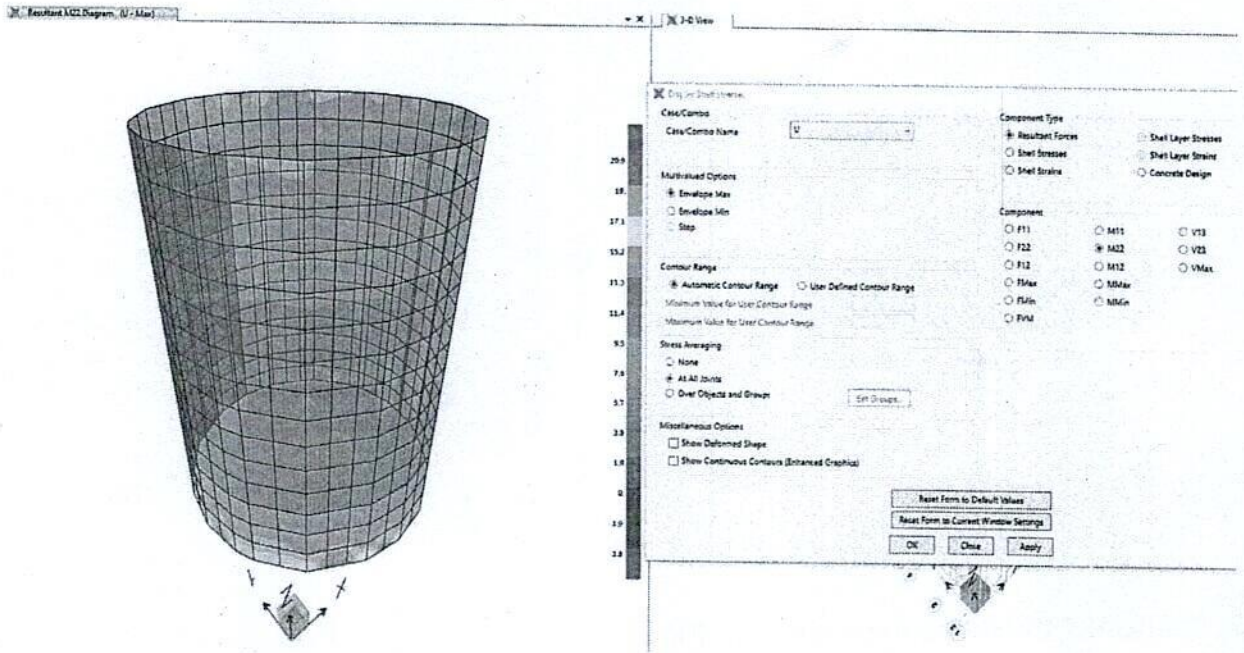
7.2 CARGAS DE TIERRAS APLICADAS A MUROS



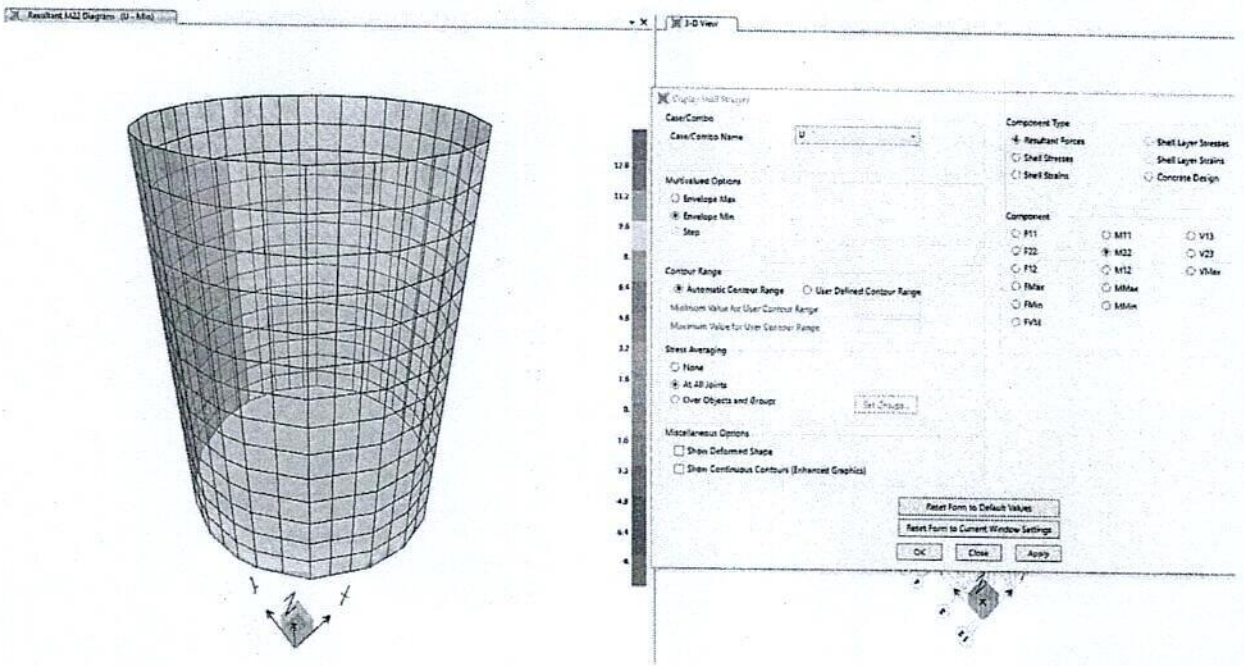
7.3 CARGAS APLICADAS A LAS LOSAS

8 DISEÑO DE MUROS

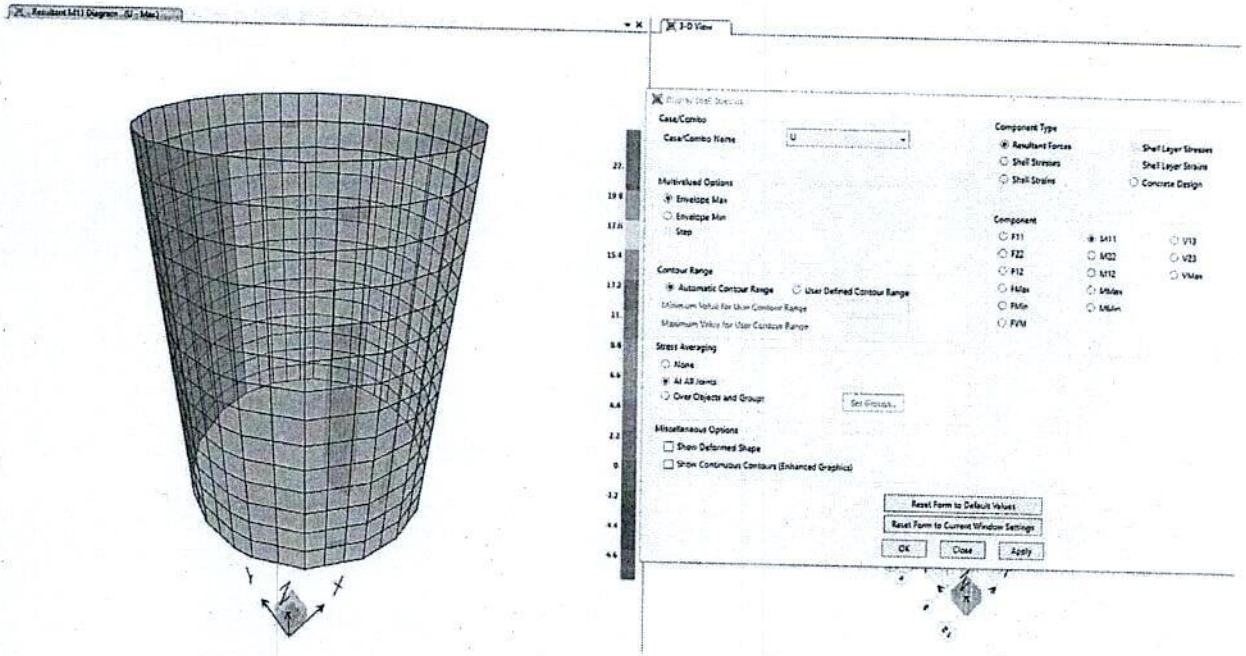
8.1 MURO TIPICO



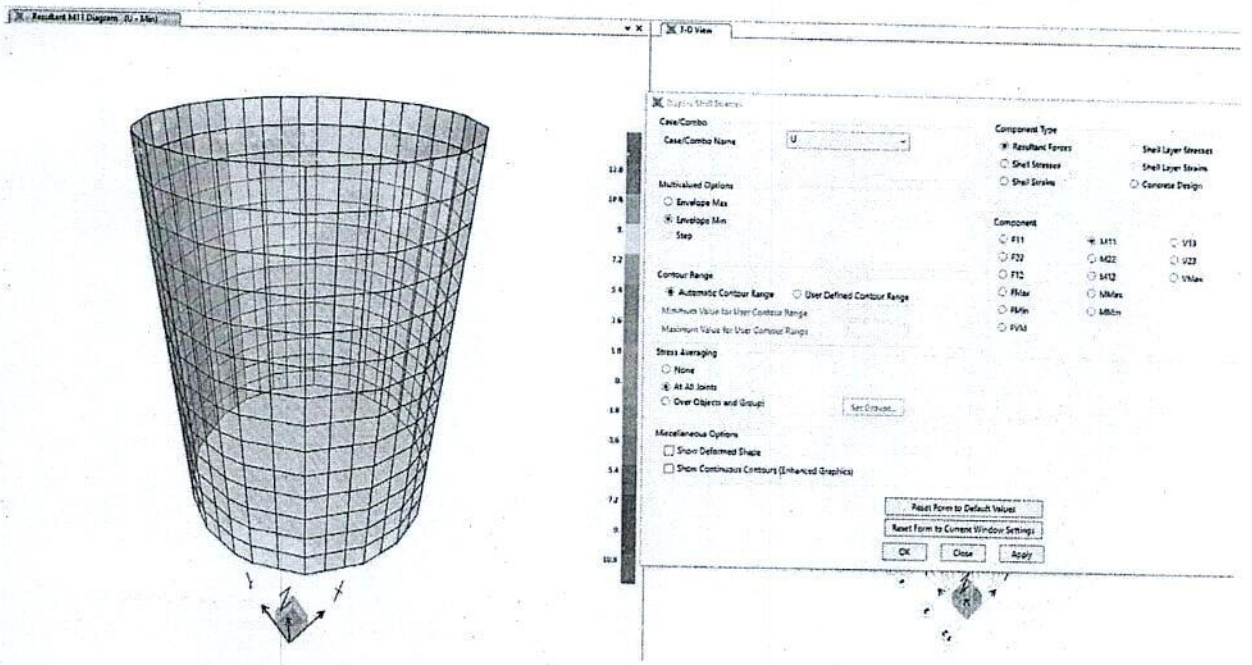
MOMENTOS (M22) MAX. COMB. ENVOLVENTE



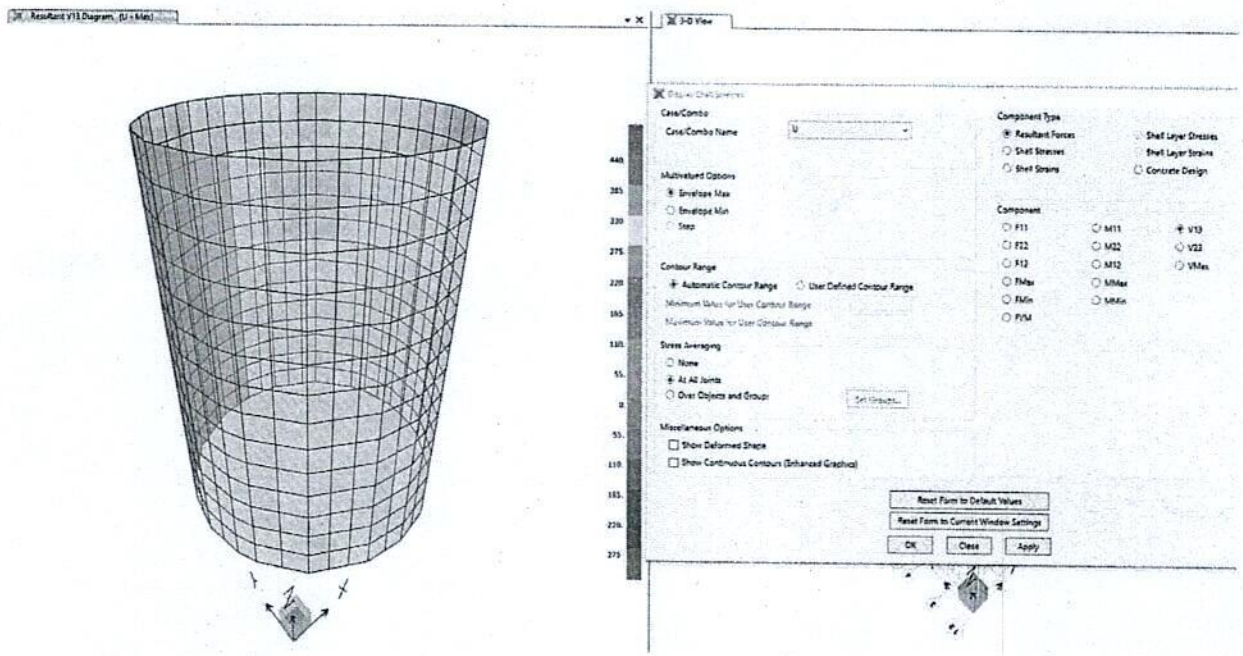
MOMENTOS (M22) MIN. COMB. ENVOLVENTE



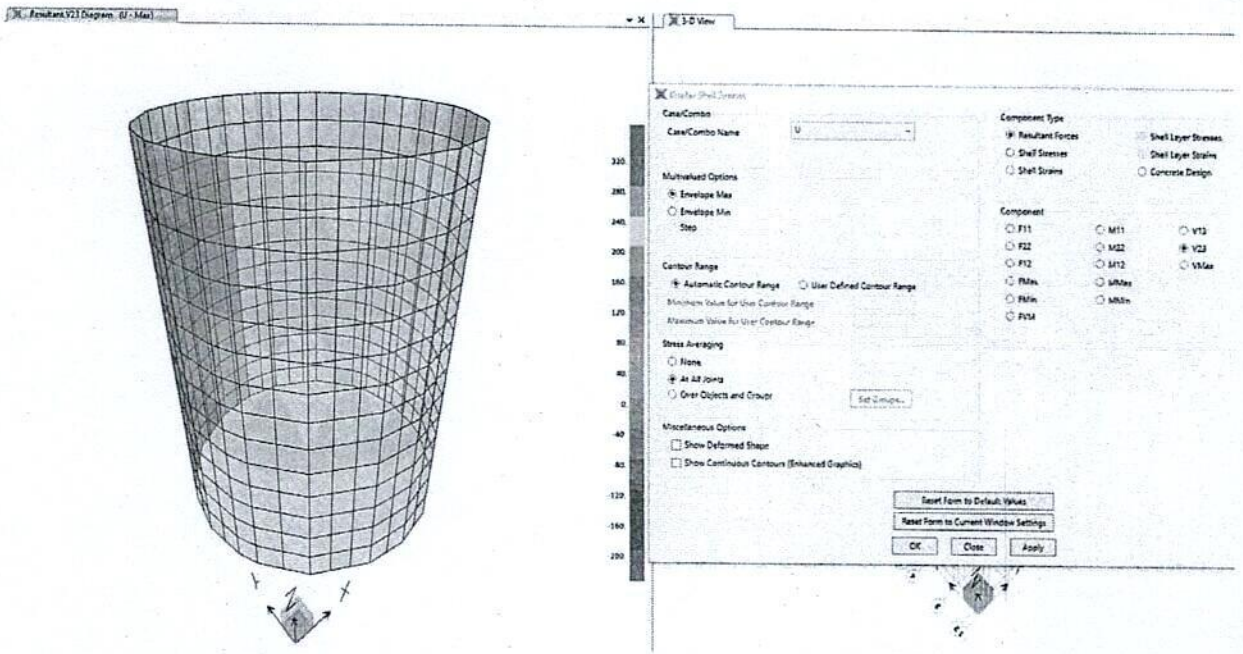
MOMENTOS (M11) MAX. COMB. ENVOLVENTE



MOMENTOS (M11) MIN. COMB. ENVOLVENTE



CORTANTES (V13) MAX ABS. COMB. ENVOLVENTE



CORTANTES (V23) MAX. ABS. COMB. ENVOLVENTE

RESUMEN DE SOLICITACIONES DEL MODELADO MUROS

MUROS TIPO e=20cm

MOMENTOS	Momento 22 Ref. vertical (KN.m)		Momento 11 Ref. Horizontal (KN.m)	
COMB.	Interior (-)	Exterior (+)	Interior (-)	Exterior (+)
U	2.35	13.20	0.55	1.23
U (Sin E)	2.25	12.70	0.37	1.15
S (Sin E)	1.78	10.10	0.25	0.95

CORTANTES		
COMB.	V13 MAX ABS	V23 MAX ABS
U	9.35	70.00

FACTOR DE DURABILIDAD AMBIENTAL (MUROS)(REF. VERTICAL INTERIOR)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Muro
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	2 kN.m	(Momento de servicio)
Mu =	2 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0015	(Cuantía de acero para Mu)
As =	154mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	820mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.142$$

$$j = 1 - \frac{k}{3} = 0.95252$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 115.21 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{50.9\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{41.5\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	51	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**115 MPa**	**<**	**120 MPa**	**OK**

Acero por control de agrietamiento	**θ =**	**1/2**	**cada**	**820mm**

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.26404$ $\Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 = \mathbf{2.60}$$

FACTOR DE DURABILIDAD AMBIENTAL (MUROS)(REF. VERTICAL EXTERIOR)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Muro
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	10.1 kN.m	(Momento de servicio)
Mu =	12.7 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0060	(Cuantía de acero para Mu)
As =	633mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	200mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.267$$

$$j = 1 - \frac{k}{3} = 0.91109$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 166.69 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{179.0\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{146.0\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	179	<	250.0	
fs, max def =	179 MPa				

fs < fs,max	**=**	**167 MPa**	**<**	**179 MPa**	**OK**

Acero por control de agrietamiento	**θ =**	**1/2**	**cada**	**200mm**

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.25743$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \mathbf{1.80}$$

FACTOR DE DURABILIDAD AMBIENTAL (MUROS) (REF. HORIZONTAL INTERIOR)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Muro
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	0.3 kN.m	(Momento de servicio)
Mu =	0.4 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0003	(Cuantía de acero para Mu)
As =	36mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	3500mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.072$$

$$j = 1 - \frac{k}{3} = 0.97609$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 67.40 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{12.1\ MPa}$$
en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{9.8\ MPa}$$
En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	12	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**67 MPa**	**<**	**120 MPa**	**OK**

Acero por control de agrietamiento	**θ =**	**1/2**	**cada**	**3500mm**

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.48$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 3.79$$

FACTOR DE DURABILIDAD AMBIENTAL (MUROS) (REF. HORIZONTAL EXTERIOR)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Muro
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	1.0 kN.m	(Momento de servicio)
Mu =	1.2 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0008	(Cuantía de acero para Mu)
As =	79mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	1600mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.104$$

$$j = 1 - \frac{k}{3} = 0.96526$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 118.39 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{26.3\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{21.5\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

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fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	26	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**118 MPa**	**<**	**120 MPa**	**OK**

Acero por control de agrietamiento	**θ =**	**1/2**	**cada**	**1600mm**

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.21053$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 2.64$$

DISEÑO DE MUROS DE CONCRETO REFORZADO

DISEÑO DE MUROS

F'C = 28.0 MPa
Fy = 420 MPa
E = 24870.1 Mpa

Recubrimiento interior: 0.075 m
Recubrimiento exterior: 0.075 m

b = 1.00 e = 0.20

d (interior)= 0.11 m
d (exterior)= 0.11 m

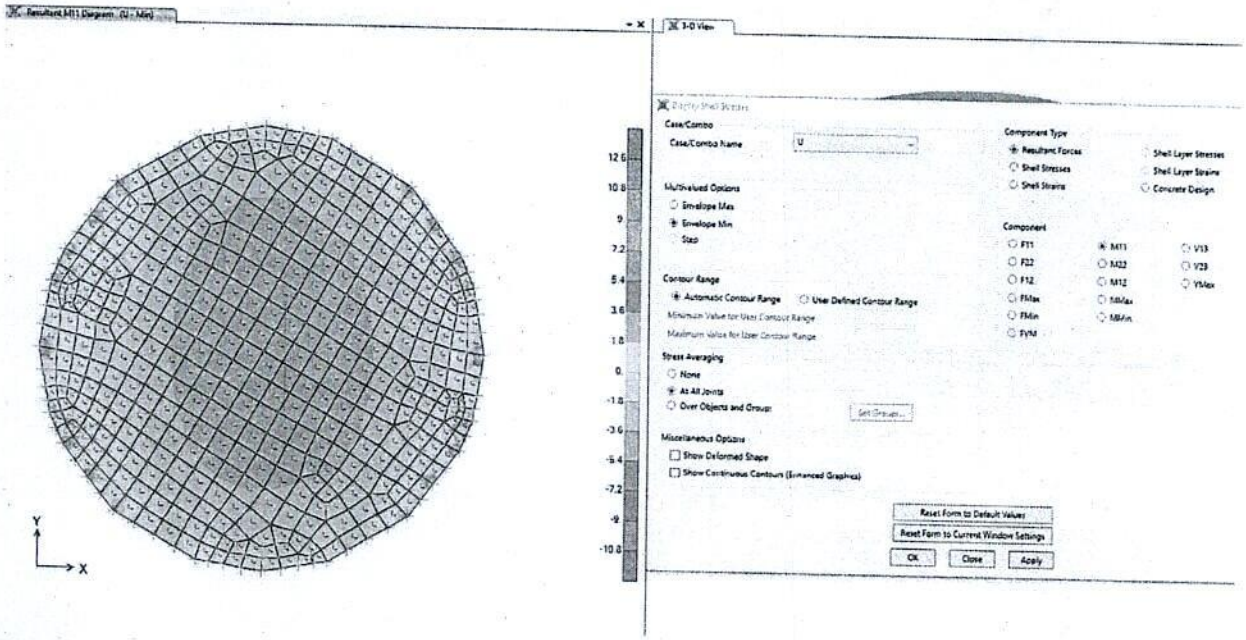
DISEÑO A FLEXIÓN

	Refuerzo vertical			Refuerzo Transversal		
	Interior		**Exterior**	**Interior**		**Exterior**
Mu (Sin E) =	1.8		10.1	0.3		1.0
Sd =	2.60		1.80	3.79		2.64
Mu (Sin E) * Sd=	**4.62**		**18.21**	**0.95**		**2.51**
Mu =	2.35		13.20	0.55		1.23
Mdef =	**4.62**		**18.21**	**0.95**		**2.51**
K =	419.079		1652.2	85.9		227.3
Ro=	0.0011		0.0046	0.0002		0.0006
Ro (Fisuración)=	0.0015		0.0060	0.0003		0.0008
Rmin=	0.0030		0.0030	0.0030		0.0030
As (cm2) =	1.54		6.33	0.36		0.79
As (min) =	1.58		1.58	1.58		1.58
As (Def) =	1.58		6.33	1.58		1.58
Refuerzo =	#4		#4	#4		#4
Separación Req.	Cda./0.82		Cda./0.20	Cda./0.82		Cda./0.82
Separación Def.	**Cda./0.20**		**Cda./0.20**	**Cda./0.20**		**Cda./0.20**

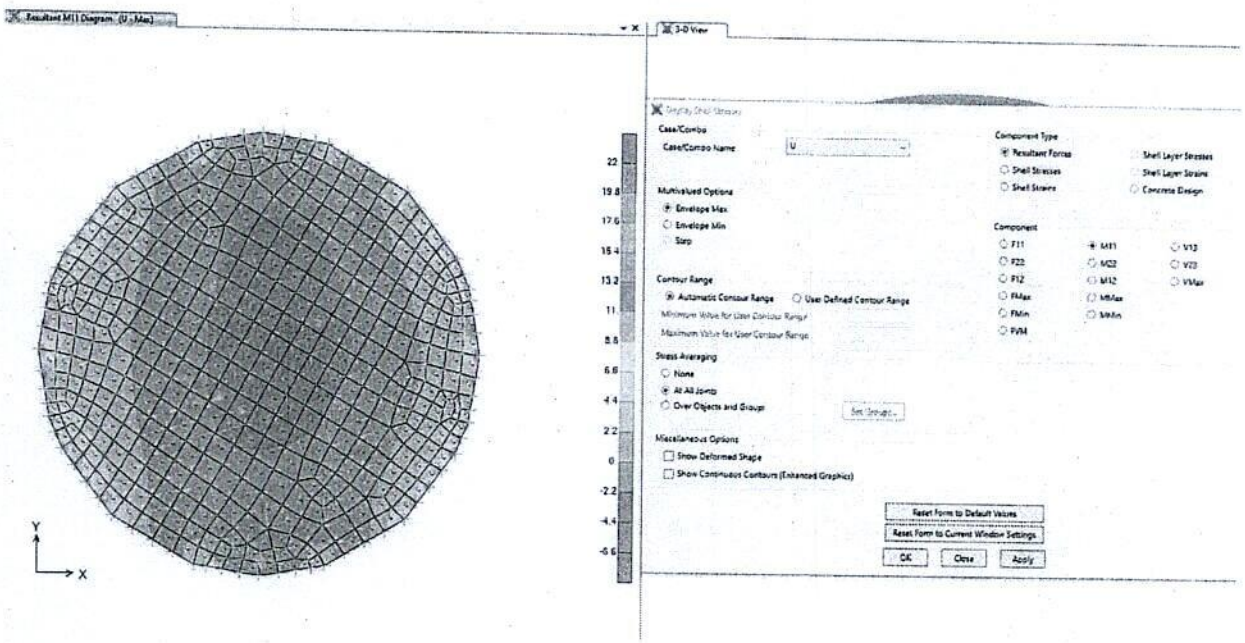
DISEÑO A CORTANTE

Vu (KN/m)=	**70.00**
VC (KN/m)=	94.45
θVN (KN/m2) =	70.8
Vu < θVc	OK

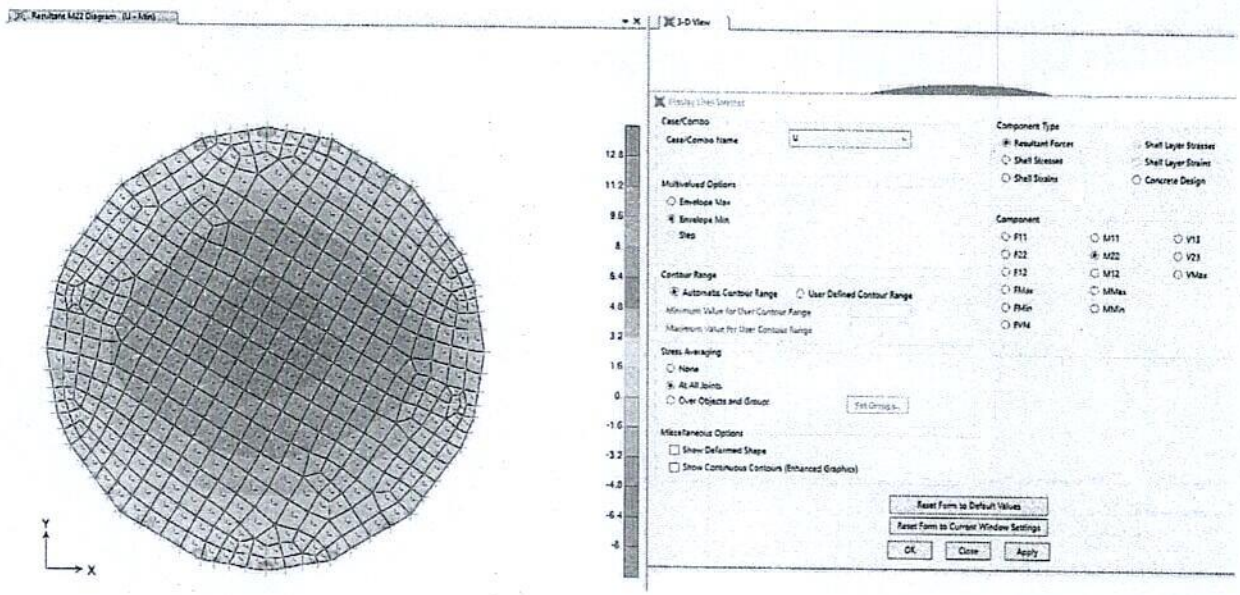
9 DISEÑO DE LOSA INFERIOR e=20cm



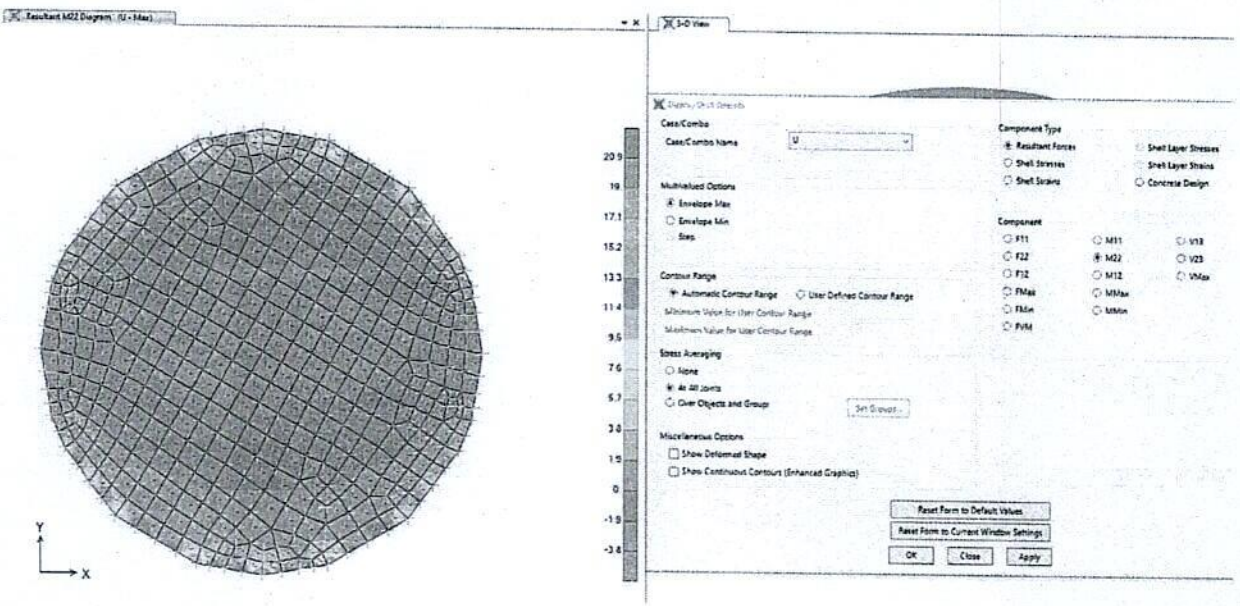
MOMENTOS (M11) MIN. COMB. ENVOLVENTE



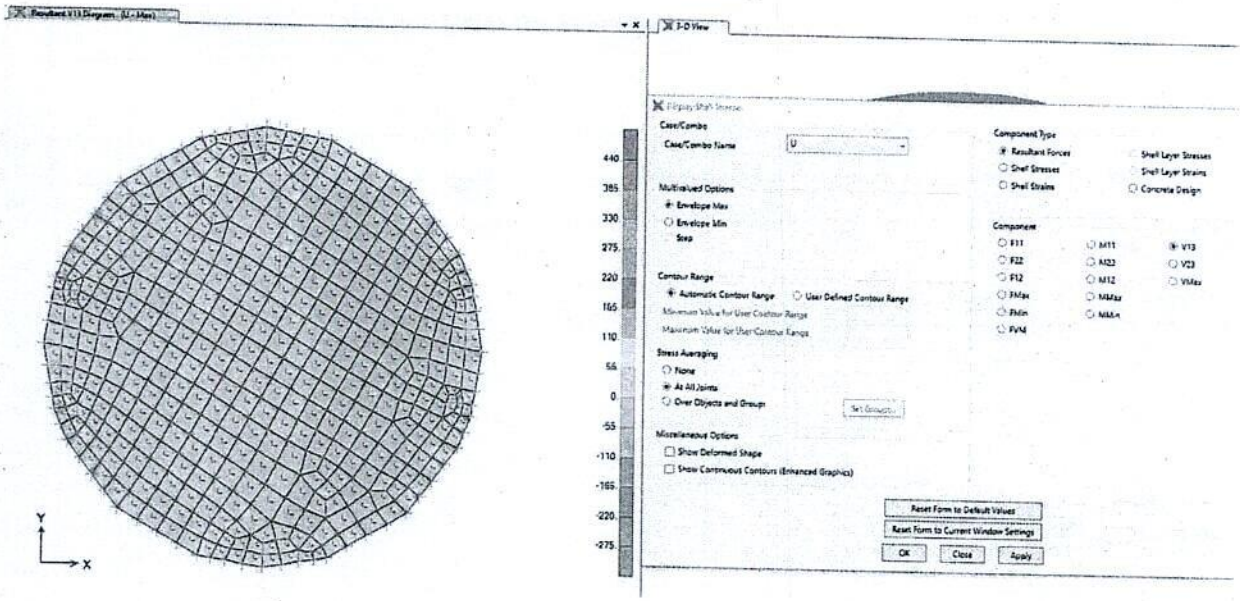
MOMENTOS (M11) MAX. COMB. ENVOLVENTE



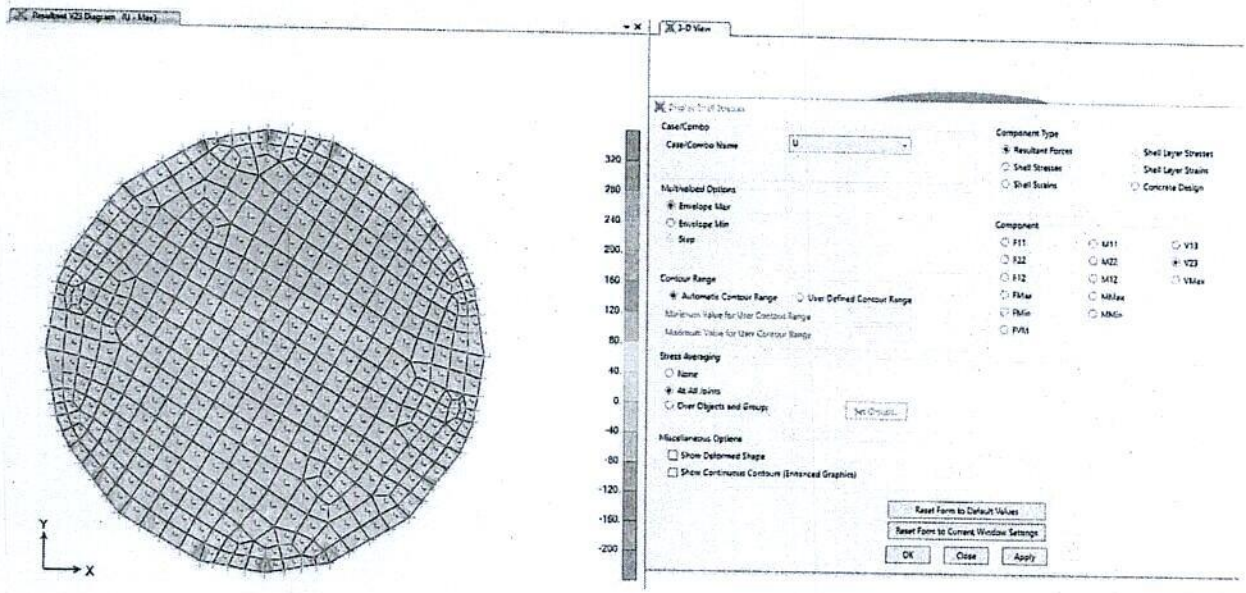
MOMENTOS (M22) MIN. COMB. ENVOLVENTE



MOMENTOS (M22) MAX. COMB. ENVOLVENTE



CORTANTES (V13) MAX. ABS. COMB. ENVOLVENTE



CORTANTES (V23) MAX. ABS. COMB. ENVOLVENTE

RESUMEN DE SOLICITACIONES DEL MODELADO EN LOSAS

LOSA

MOMENTOS	Momento 22 Ref. Y (KN.m)		Momento 11 Ref. X (KN.m)	
COMB.	ARRIBA (22-)	ABAJO (22+)	ARRIBA (11-)	ABAJO (11+)
U	13.6	21.5	3.8	22
U (Sin E)	13.6	21	13.67	21.8
S (Sin E)	9.1	16.7	9.4	17.4

CORTANTES		
COMB.	V13 MAX ABS	V23 MAX ABS
U	70	60

FACTOR DE DURABILIDAD AMBIENTAL (REF X ARRIBA)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Losa
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	9.4 kN.m	(Momento de servicio)
Mu =	13.7 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0056	(Cuantía de acero para Mu)
As =	589mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	215mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.259$$

$$j = 1 - \frac{k}{3} = 0.91378$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 166.28 \text{ MPa}$$

$$f_{s,max} = \frac{57000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{169.8\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{138.5\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	170	<	250.0	
fs, max def =	170 MPa				

fs < fs,max	**=**	**166 MPa**	**<**	**170 MPa**	OK

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.45426$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 1.56$$

FACTOR DE DURABILIDAD AMBIENTAL (REF X ABAJO)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Losa
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	17.4 kN.m	(Momento de servicio)
Mu =	21.8 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0083	(Cuantía de acero para Mu)
As =	874mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	145mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) \quad = \quad 0.305$$

$$j = 1 - \frac{k}{3} \quad = \quad 0.89834$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} \quad = \quad 211.15 \text{ MPa}$$

$$f_{s,max} = \frac{57000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{220.5\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{179.9\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	221	<	250.0	
fs, max def =	221 MPa				

fs < fs,max	**=**	**211 MPa**	**<**	**221 MPa**	OK

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.25287$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 = 1.43$$

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FACTOR DE DURABILIDAD AMBIENTAL (REF Y ARRIBA)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Losa
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	9.1 kN.m	(Momento de servicio)
Mu =	13.6 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0055	(Cuantía de acero para Mu)
As =	576mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	220mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) \quad = \quad 0.256$$

$$j = 1 - \frac{k}{3} \quad = \quad 0.91462$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} \quad = \quad 164.56 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \textbf{166.9 MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \textbf{136.1 MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs = 140 MPa Tracción directa en exposición ambiental Normal
fs = 120 MPa Tracción directa en exposición ambiental Severa
120 MPa < 167 < 250.0
fs, max def = 167 MPa

fs < fs,max = 165 MPa < 167 MPa OK

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.49451$ $\Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 = 1.54$$

FACTOR DE DURABILIDAD AMBIENTAL (REF Y ABAJO)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Losa
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms = 16.7 kN.m (Momento de servicio)
Mu = 21.0 kN.m (Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0080	(Cuantía de acero para Mu)
As =	845mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	150mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.301$$

$$j = 1 - \frac{k}{3} = 0.89975$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 209.31 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{216.2\ MPa}$$
en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{176.4\ MPa}$$
En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs = 140 MPa Tracción directa en exposición ambiental Normal
fs = 120 MPa Tracción directa en exposición ambiental Severa
120 MPa < 216 < 250.0
fs, max def = 216 MPa

fs < fs,max = 209 MPa < 216 MPa OK

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.25749$ $\Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 = 1.44$$

DISEÑO DE LOSAS

DISEÑO DE LOSA

F'C = **28.0 MPa** Recubrimiento interior: 0.075 m

Fy = **420 MPa** Recubrimiento exterior: 0.075 m

E = 24870.1 Mpa

b = 1.00 e = 0.20 d (interior)= 0.11 m

d (exterior)= 0.11 m

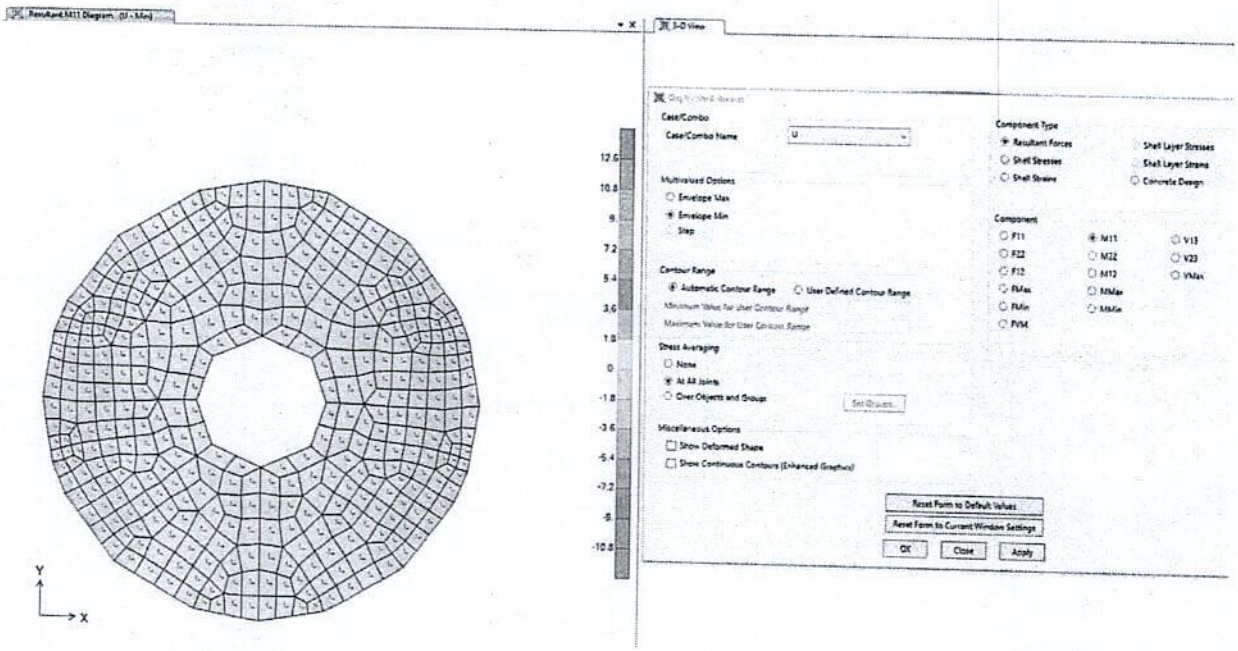
DISEÑO A FLEXIÓN

	Refuerzo Y			Refuerzo X		
	ARRIBA		**ABAJO**	**ARRIBA**		**ABAJO**
Mu (Sin E) =	13.60		21.00	13.67		21.80
Sd =	1.54		1.44	1.56		1.43
Mu (Sin E) * Sd=	**20.90**		**30.16**	**21.37**		**31.15**
Mu =	13.60		21.50	3.80		22.00
Mdef =	**20.90**		**30.16**	**21.37**		**31.15**
K =	1895.910		2735.5	1938.22		2825.4
Ro=	0.0053		0.0078	0.0054		0.0080
Ro (Fisuración)=	0.0055		0.0080	0.0056		0.0083
Rmin=	0.0025		0.0025	0.0025		0.0025
As (cm2) =	5.76		8.45	5.89		8.74
As (min) =	2.63		2.63	2.63		2.63
As (Def) =	5.76		8.45	5.89		8.74
Refuerzo =	*#4*		*#4*	*#4*		*#4*
Separación Req.	Cda./0.22		Cda./0.15	Cda./0.22		Cda./0.15
Separación Def.	**Cda./0.20**		**Cda./0.20**	**Cda./0.20**		**Cda./0.20**

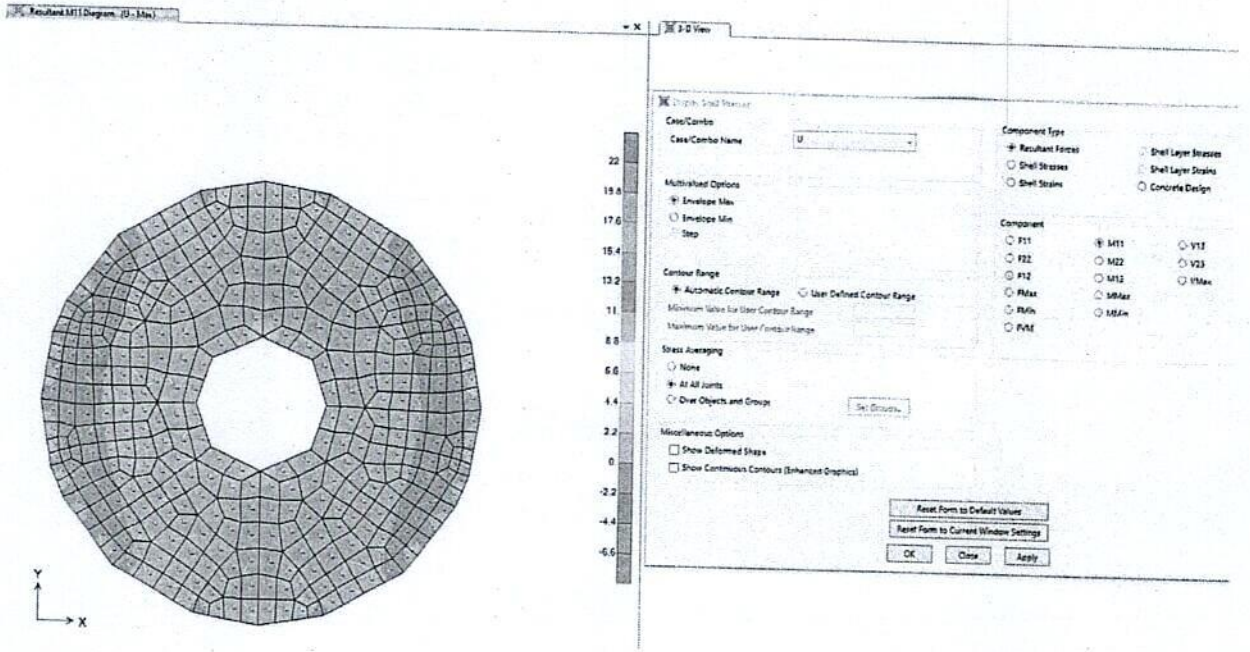
DISEÑO A CORTANTE

Vu (KN/m)=	**70.00**
VC (KN/m)=	94.45
θVN (KN/m) =	70.8
Vu < θVc	OK

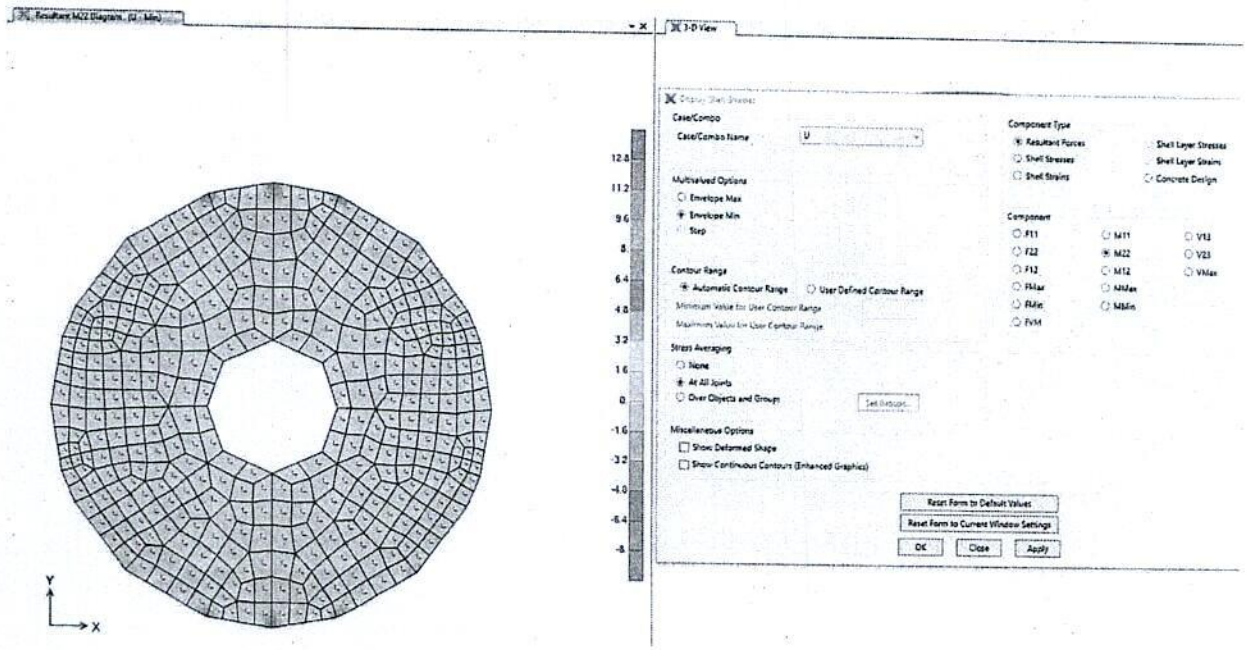
10 DISEÑO DE LOSA SUPERIOR e=20cm



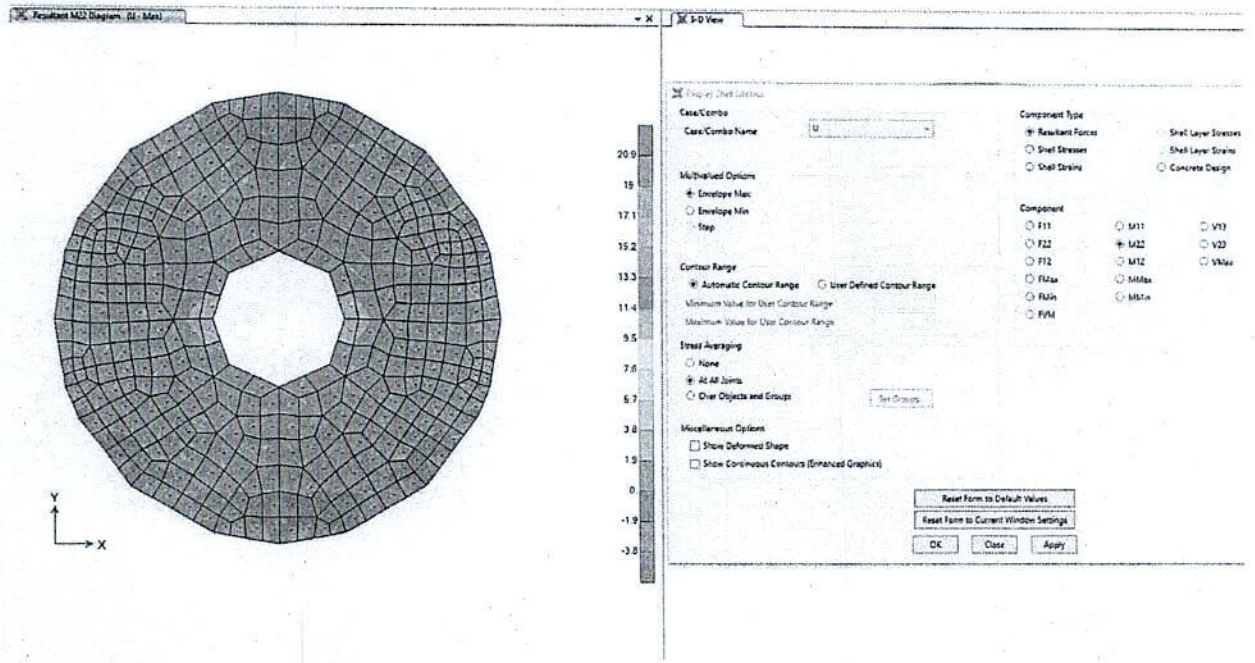
MOMENTOS (M11) MIN. COMB. ENVOLVENTE



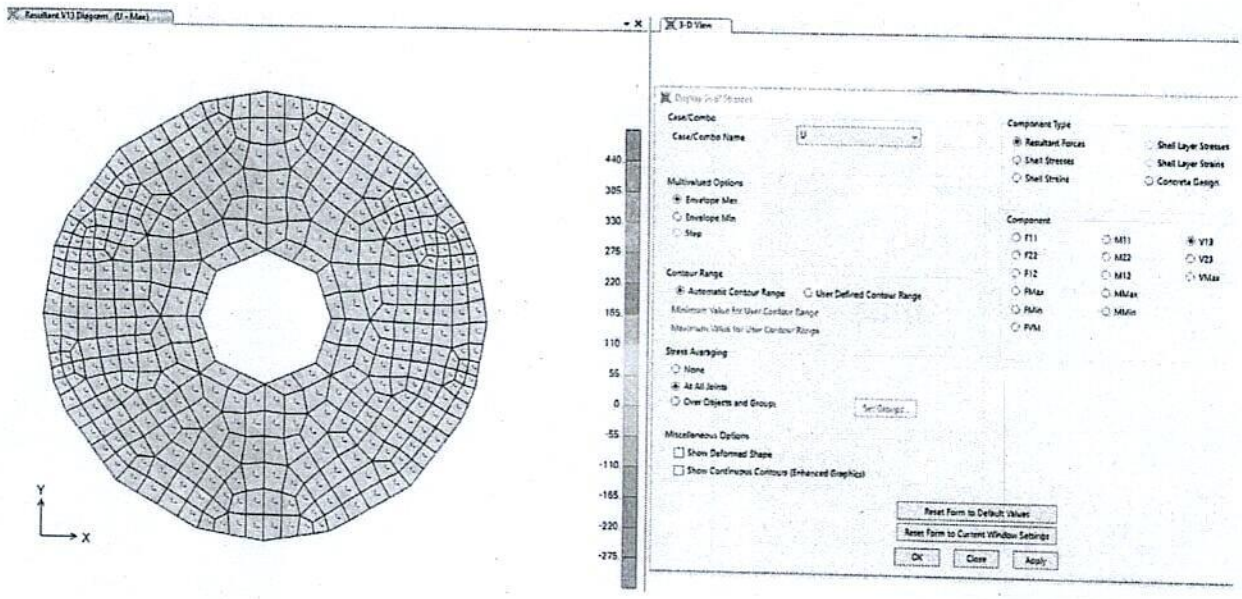
MOMENTOS (M11) MAX. COMB. ENVOLVENTE



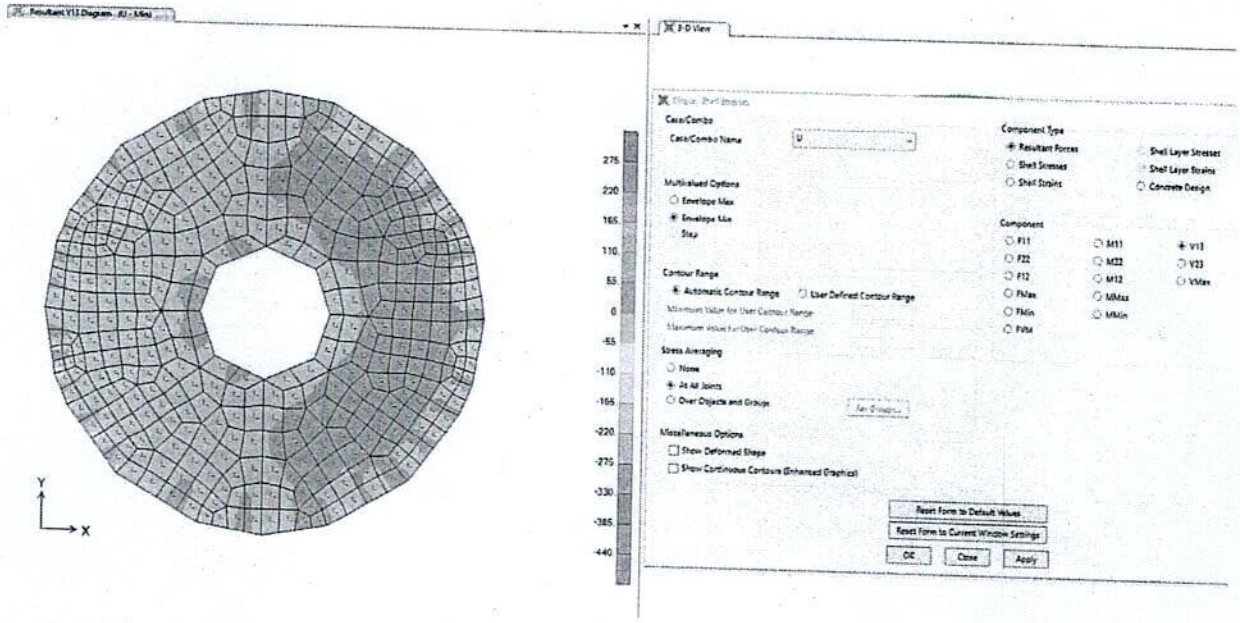
MOMENTOS (M22) MIN. COMB. ENVOLVENTE



MOMENTOS (M22) MAX. COMB. ENVOLVENTE



CORTANTES (V13) MAX. ABS. COMB. ENVOLVENTE



CORTANTES (V23) MAX. ABS. COMB. ENVOLVENTE

RESUMEN DE SOLICITACIONES DEL MODELADO EN LOSAS

LOSA				
MOMENTOS	Momento 22 Ref. Y (KN.m)		Momento 11 Ref. X (KN.m)	
COMB.	**ARRIBA (22-)**	**ABAJO (22+)**	**ARRIBA (11-)**	**ABAJO (11+)**
U	2.6	1.12	3.2	1
U (Sin E)	2.6	1.12	3.2	0.9
S (Sin E)	1.9	0.82	2.4	0.8

CORTANTES		
COMB.	**V13 MAX ABS**	**V23 MAX ABS**
U	41	50

FACTOR DE DURABILIDAD AMBIENTAL (REF X ARRIBA)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Losa
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	2.4 kN.m	(Momento de servicio)
Mu =	3.2 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0020	(Cuantía de acero para Mu)
As =	211mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	600mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) \quad = \quad 0.164$$

$$j = 1 - \frac{k}{3} \quad = \quad 0.9452$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} \quad = \quad 114.54 \text{ MPa}$$

$$f_{s,max} = \frac{57000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{68.9} \ \mathbf{MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{56.2} \ \mathbf{MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	69	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**115 MPa**	**<**	**120 MPa**	**OK**

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.33333$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 2.48$$

FACTOR DE DURABILIDAD AMBIENTAL (REF X ABAJO)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Losa
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	0.8 kN.m	(Momento de servicio)
Mu =	0.9 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0007	(Cuantía de acero para Mu)
As =	70mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	1800mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.099$$

$$j = 1 - \frac{k}{3} = 0.96714$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 111.94 \text{ MPa}$$

$$f_{s,max} = \frac{57000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{23.4\ MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{19.1\ MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	23	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**112 MPa**	**<**	**120 MPa**	**OK**

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.125$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 3.00$$

FACTOR DE DURABILIDAD AMBIENTAL (REF Y ARRIBA)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e= 200	Espesor Losa
fy =	420	MPa		
Ec =	24870.1	MPa		
Es =	200000	MPa		

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	1.9 kN.m	(Momento de servicio)
Mu =	2.6 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0016	(Cuantía de acero para Mu)
As =	169mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	750mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) = 0.148$$

$$j = 1 - \frac{k}{3} = 0.95052$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} = 112.71 \text{ MPa}$$

$$f_{s,max} = \frac{57000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{55.5\ MPa}$$
en zonas con exposición normal

$$f_{s,max} = \frac{46500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} = \mathbf{45.3\ MPa}$$
En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	56	<	250.0	
fs, max def =	120 MPa				

fs < fs,max = 113 MPa < 120 MPa OK

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.36842$ $\Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 = 2.45$$

FACTOR DE DURABILIDAD AMBIENTAL (REF Y ABAJO)

Según C.23-C.9.2.6 El cálculo del coeficiente ambiental no se requiere para las combinaciones de carga que incluyan fuerza sismica E.

f'c =	28	MPa	e=	200	Espesor Losa
fy =	420	MPa			
Ec =	24870.1	MPa			
Es =	200000	MPa			

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \qquad \text{donde } \gamma = \frac{\text{carga mayorada}}{\text{carga no mayorada}}$$

fs = Esfuerzo permisible de tracción en el refuerzo

Ms =	0.8 kN.m	(Momento de servicio)
Mu =	1.1 kN.m	(Momento Ultimo, por envolvente sin fuerzas E)

Calculo de fs =

n =	8.0	
d =	105mm	Altura afectiva
ro =	0.0007	(Cuantía de acero para Mu)
As =	70mm2	(Area de acero para Suministrada)
db =	12.7mm	(Diametro de la barra de refuerzo)
S =	1800mm	(Separación del refuerzo)

$$k = \sqrt{(n\cdot\rho)^2 + (2\cdot n\cdot\rho)} - (n\cdot\rho) \quad = \quad 0.099$$

$$j = 1 - \frac{k}{3} \quad = \quad 0.96714$$

$$f_s = \frac{M_s}{A_s \cdot j \cdot d} \quad = \quad 114.74 \text{ MPa}$$

$$f_{s,max} = \frac{57\,000}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{23.4} \ \mathbf{MPa}$$

en zonas con exposición normal

$$f_{s,max} = \frac{46\,500}{\beta\sqrt{s^2 + 4(50 + d_b/2)^2}} \quad = \quad \mathbf{19.1} \ \mathbf{MPa}$$

En zonas con exposición severa

B = 1.35

4*(50 + db / 2)^2 = 15625

fs =	140 MPa	Tracción directa en exposición ambiental Normal			
fs =	120 MPa	Tracción directa en exposición ambiental Severa			
120 MPa	<	23	<	250.0	
fs, max def =	120 MPa				

fs < fs,max	**=**	**115 MPa**	**<**	**120 MPa**	**OK**

Debido a que no cumple con el refuezo suministrado por resistencia ultima, se repite el analisis utilizando una cuantia de acero mayor.

CÁLCULO DEL COEFICIENTE DE DURABILIDAD AMBIENTAL

Debido a que los momentos son directamente proporcionales a las cargas que los producen podemos decir que:

$\gamma = \frac{Mu}{Ms} = 1.36585$ $\quad \Phi = 0.9$

$$S_d = \frac{\phi f_y}{\gamma f_s} \geq 1.0 \quad = \quad 2.41$$

DISEÑO DE LOSAS

DISEÑO DE LOSA

F'C =	28.0 MPa	Recubrimiento interior:	0.075 m
Fy =	420 MPa	Recubrimiento exterior:	0.075 m
E =	24870.1 Mpa		

b = 1.00 e = 0.20 d (interior)= 0.11 m d (exterior)= 0.11 m

DISEÑO A FLEXIÓN

	Refuerzo Y			Refuerzo X		
	ARRIBA		ABAJO	ARRIBA		ABAJO
Mu (Sin E) =	2.60		1.12	3.20		0.90
Sd =	2.45		2.41	2.48		3.00
Mu (Sin E) * Sd=	**6.37**		**2.70**	**7.92**		**2.70**
Mu =	2.60		1.12	3.20		1.00
Mdef =	**6.37**		**2.70**	**7.92**		**2.70**
K =	577.965		245.0	718.41		245.0
Ro=	0.0016		0.0007	0.0019		0.0007
Ro (Fisuración)=	0.0016		0.0007	0.0020		0.0007
Rmin=	0.0025		0.0025	0.0025		0.0025
As (cm2) =	1.69		0.70	2.11		0.70
As (min) =	2.63		2.63	2.63		2.63
As (Def) =	2.63		2.63	2.63		2.63
Refuerzo =	#4		#4	#4		#4
Separación Req.	Cda./0.49		Cda./0.49	Cda./0.49		Cda./0.49
Separación Def.	**Cda./0.20**		**Cda./0.20**	**Cda./0.20**		**Cda./0.20**

DISEÑO A CORTANTE

Vu (KN/m)=	**50.00**
VC (KN/m)=	94.45
θVN (KN/m) =	70.8
Vu < θVc	OK

11 DATOS DE ENTRADA

Table: Area Auto Mesh Assignments

Area Auto Mesh Assignments, Part 1 of 2

Area	MeshType	MeshGroup	Max1 m	Max2 m	LocalEdge
2	Maximum Size	ALL	0.2	0.2	No
3	Maximum Size	ALL	0.2	0.2	No
4	Maximum Size	ALL	0.2	0.2	No
5	Maximum Size	ALL	0.2	0.2	No
6	Maximum Size	ALL	0.2	0.2	No
7	Maximum Size	ALL	0.2	0.2	No
8	Maximum Size	ALL	0.2	0.2	No
9	Maximum Size	ALL	0.2	0.2	No
10	Maximum Size	ALL	0.2	0.2	No
11	Maximum Size	ALL	0.2	0.2	No
12	Maximum Size	ALL	0.2	0.2	No
13	Maximum Size	ALL	0.2	0.2	No
14	Maximum Size	ALL	0.2	0.2	No
15	Maximum Size	ALL	0.2	0.2	No
16	Maximum Size	ALL	0.2	0.2	No
17	Maximum Size	ALL	0.2	0.2	No
18	Maximum Size	ALL	0.2	0.2	No
19	Maximum Size	ALL	0.2	0.2	No
20	Maximum Size	ALL	0.2	0.2	No
21	Maximum Size	ALL	0.2	0.2	No

Table: Area Auto Mesh Assignments

Area Auto Mesh Assignments, Part 2 of 2

Area	LocalFace	SuppEdge	SuppFace	SubMesh
2	No	No	No	No
3	No	No	No	No
4	No	No	No	No
5	No	No	No	No
6	No	No	No	No
7	No	No	No	No
8	No	No	No	No
9	No	No	No	No
10	No	No	No	No
11	No	No	No	No
12	No	No	No	No
13	No	No	No	No
14	No	No	No	No
15	No	No	No	No
16	No	No	No	No
17	No	No	No	No
18	No	No	No	No
19	No	No	No	No
20	No	No	No	No
21	No	No	No	No

Table: Area Loads - Surface Pressure

Area Loads - Surface Pressure

Area	LoadPat	Face	Pressure KN/m2	JtPattern
2	H	Bottom	10.	TIERRAS
2	SXHD	Bottom	10.	TIERRAS HDSX
3	H	Bottom	10.	TIERRAS
3	SXHD	Bottom	10.	TIERRAS HDSX
4	H	Bottom	10.	TIERRAS
4	SXHD	Bottom	10.	TIERRAS HDSX
5	H	Bottom	10.	TIERRAS
5	SXHD	Bottom	10.	TIERRAS HDSX
6	H	Bottom	10.	TIERRAS
6	SXHD	Bottom	10.	TIERRAS HDSX
7	H	Bottom	10.	TIERRAS

Area Loads - Surface Pressure

Area	LoadPat	Face	Pressure KN/m2	JtPattern
7	SXHD	Bottom	10.	TIERRAS HDSX
7	SYHD	Bottom	10.	TIERRAS HDSY
8	H	Bottom	10.	TIERRAS
8	SXHD	Bottom	10.	TIERRAS HDSX
8	SYHD	Bottom	10.	TIERRAS HDSY
9	H	Bottom	10.	TIERRAS
9	SXHD	Bottom	10.	TIERRAS HDSX
9	SYHD	Bottom	10.	TIERRAS HDSY
10	H	Bottom	10.	TIERRAS
10	SXHD	Bottom	10.	TIERRAS HDSX
10	SYHD	Bottom	10.	TIERRAS HDSY
11	H	Bottom	10.	TIERRAS
11	SXHD	Bottom	10.	TIERRAS HDSX
11	SYHD	Bottom	10.	TIERRAS HDSY
12	H	Bottom	10.	TIERRAS
12	SYHD	Bottom	10.	TIERRAS HDSY
13	H	Bottom	10.	TIERRAS
13	SYHD	Bottom	10.	TIERRAS HDSY
14	H	Bottom	10.	TIERRAS
14	SYHD	Bottom	10.	TIERRAS HDSY
15	H	Bottom	10.	TIERRAS
15	SYHD	Bottom	10.	TIERRAS HDSY
16	H	Bottom	10.	TIERRAS
16	SYHD	Bottom	10.	TIERRAS HDSY
17	H	Bottom	10.	TIERRAS
18	H	Bottom	10.	TIERRAS
19	H	Bottom	10.	TIERRAS
20	H	Bottom	10.	TIERRAS
21	H	Bottom	10.	TIERRAS

Table: Area Loads - Uniform

Area Loads - Uniform

Area	LoadPat	CoordSys	Dir	UnifLoad KN/m2
22	LIVE	GLOBAL	Gravity	5.
22	DEAD	GLOBAL	Gravity	3.
23	LIVE	GLOBAL	Gravity	5.
23	DEAD	GLOBAL	Gravity	3.

Table: Area Section Assignments

Area Section Assignments

Area	Section	MatProp
1	L20	Default
2	M20	Default
3	M20	Default
4	M20	Default
5	M20	Default
6	M20	Default
7	M20	Default
8	M20	Default
9	M20	Default
10	M20	Default
11	M20	Default
12	M20	Default
13	M20	Default
14	M20	Default
15	M20	Default
16	M20	Default
17	M20	Default
18	M20	Default
19	M20	Default
20	M20	Default
21	M20	Default

Area Section Assignments

Area	Section	MatProp
22	L20	Default
23	L20	Default

Table: Area Section Properties

Area Section Properties, Part 1 of 5

Section	Material	MatAngle Degrees	AreaType	Type	DrillDOF	Thickness m
L20	4000Psi	0.	Shell	Shell-Thin	Yes	0.2
L25	4000Psi	0.	Shell	Shell-Thin	Yes	0.25
L30	4000Psi	0.	Shell	Shell-Thin	Yes	0.3
L35	4000Psi	0.	Shell	Shell-Thin	Yes	0.35
M20	4000Psi	0.	Shell	Shell-Thin	Yes	0.2
M25	4000Psi	0.	Shell	Shell-Thin	Yes	0.25
M30	4000Psi	0.	Shell	Shell-Thin	Yes	0.3
M35	4000Psi	0.	Shell	Shell-Thin	Yes	0.35

Table: Area Section Properties

Area Section Properties, Part 2 of 5

Section	BendThick m	Arc Degrees	InComp	CoordSys	Color	TotalWt KN
L20	0.2				Cyan	27.835
L25	0.25				12615808	0.
L30	0.3				8421631	0.
L35	0.35				16744576	0.
M20	0.2				Gray8Dark	81.374
M25	0.25				12615680	0.
M30	0.3				4227327	0.
M35	0.35				16744448	0.

Table: Area Section Properties

Area Section Properties, Part 3 of 5

Section	TotalMass KN-s2/m	F11Mod	F22Mod	F12Mod	M11Mod	M22Mod
L20	2.84	1.	1.	1.	1.	1.
L25	0.	1.	1.	1.	1.	1.
L30	0.	1.	1.	1.	1.	1.
L35	0.	1.	1.	1.	1.	1.
M20	8.3	1.	1.	1.	1.	1.
M25	0.	1.	1.	1.	1.	1.
M30	0.	1.	1.	1.	1.	1.
M35	0.	1.	1.	1.	1.	1.

Table: Area Section Properties

Area Section Properties, Part 4 of 5

Section	M12Mod	V13Mod	V23Mod	MMod	WMod	GUID
L20	1.	1.	1.	1.	1.	
L25	1.	1.	1.	1.	1.	
L30	1.	1.	1.	1.	1.	
L35	1.	1.	1.	1.	1.	
M20	1.	1.	1.	1.	1.	
M25	1.	1.	1.	1.	1.	
M30	1.	1.	1.	1.	1.	
M35	1.	1.	1.	1.	1.	

Table: Area Section Properties

Area Section Properties, Part 5 of 5

Section	Notes
L20	Added 1/05/2018 12:08:29 a. m.
L25	Added 1/05/2018 1:50:59 a. m.
L30	Added 1/05/2018 12:08:54 a. m.
L35	Added 1/05/2018 12:31:22 a. m.
M20	Added 1/05/2018 12:06:29 a. m.
M25	Added 1/05/2018 12:07:38 a. m.
M30	Added 1/05/2018 12:07:49 a. m.
M35	Added 1/05/2018 12:31:45 a. m.

Table: Area Spring Assignments

Area Spring Assignments, Part 1 of 2

Area	Type	Stiffness KN/m/m2	SimpleType	Face	Dir1Type
1	Simple	50000.	Tension and Compression	Bottom	Normal To Face
1	Simple	80000.	Tension and Compression	Bottom	Object Axes
1	Simple	80000.	Tension and Compression	Bottom	Object Axes

Table: Area Spring Assignments

Area Spring Assignments, Part 2 of 2

Area	Face	Dir1Type	Dir	NormalDir
1	Bottom	Normal To Face		Inward
1	Bottom	Object Axes	1	
1	Bottom	Object Axes	2	

Table: Combination Definitions

Combination Definitions, Part 1 of 4

ComboName	ComboType	AutoDesign	CaseType	CaseName	ScaleFactor
COMB1	Linear Add	No	Linear Static	DEAD	1.4
COMB2	Linear Add	No	Linear Static	DEAD	1.2
COMB2			Linear Static	LIVE	1.6
COMB3	Linear Add	No	Linear Static	H	1.6
COMB3			Linear Static	DEAD	1.2
COMB4	Linear Add	No	Linear Static	LIVE	1.
COMB4			Linear Static	DEAD	1.2
COMB4			Linear Static	LIVE	1.
COMB5	Linear Add	No	Linear Static	H	1.6
COMB5			Linear Static	SXHD	1.
COMB5			Linear Static	DEAD	1.2
COMB6	Linear Add	No	Linear Static	LIVE	1.
COMB6			Linear Static	H	1.6
COMB7	Linear Add	No	Linear Static	SYHD	1.
COMB7			Linear Static	DEAD	0.9
COMB7			Linear Static	H	1.6
COMB8	Linear Add	No	Linear Static	DEAD	0.9
COMB8			Linear Static	H	1.6
SERV1	Linear Add	No	Linear Static	SXHD	1.
SERV1			Linear Static	DEAD	0.9
SERV1			Linear Static	H	1.6
SERV2	Linear Add	No	Linear Static	SYHD	1.
			Linear Static	DEAD	1.
			Linear Static	LIVE	1.
			Linear Static	H	1.
			Linear Static	DEAD	1.

Combination Definitions, Part 1 of 4

ComboName	ComboType	AutoDesign	CaseType	CaseName	ScaleFactor
SERV2			Linear Static	H	1.
SERV3	Linear Add	No	Linear Static	DEAD	1.
SERV3			Linear Static	LIVE	0.75
SERV4	Linear Add	No	Linear Static	DEAD	1.
SERV4			Linear Static	H	1.
SERV4			Linear Static	SXHD	0.7
SERV5	Linear Add	No	Linear Static	DEAD	1.
SERV5			Linear Static	H	1.
SERV5			Linear Static	SYHD	0.7
SERV6	Linear Add	No	Linear Static	DEAD	1.
SERV6			Linear Static	LIVE	0.75
SERV6			Linear Static	H	1.
SERV7	Linear Add	No	Linear Static	DEAD	1.
SERV7			Linear Static	LIVE	0.75
SERV7			Linear Static	H	1.
SERV7			Linear Static	SXHD	0.53
SERV8	Linear Add	No	Linear Static	DEAD	1.
SERV8			Linear Static	LIVE	0.75
SERV8			Linear Static	H	1.
SERV8			Linear Static	SYHD	0.53
SERV9	Linear Add	No	Linear Static	DEAD	0.6
SERV9			Linear Static	H	1.
SERV10	Linear Add	No	Linear Static	DEAD	0.6
SERV10			Linear Static	H	1.
SERV10			Linear Static	SXHD	0.7
SERV11	Linear Add	No	Linear Static	DEAD	0.6
SERV11			Linear Static	H	1.
SERV11			Linear Static	SYHD	0.7
U	Envelope	No	Response Combo	COMB1	1.
U			Response Combo	COMB2	1.
U			Response Combo	COMB3	1.
U			Response Combo	COMB4	1.
U			Response Combo	COMB5	1.
U			Response Combo	COMB6	1.
U			Response Combo	COMB7	1.
U			Response Combo	COMB8	1.
U (SIN E)	Envelope	No	Response Combo	COMB1	1.
U (SIN E)			Response Combo	COMB2	1.
U (SIN E)			Response Combo	COMB3	1.
U (SIN E)			Response Combo	COMB6	1.
S (SIN E)	Envelope	No	Response Combo	SERV1	1.
S (SIN E)			Response Combo	SERV2	1.
S (SIN E)			Response Combo	SERV3	1.
S (SIN E)			Response Combo	SERV6	1.
S (SIN E)			Response Combo	SERV9	1.

Table: Combination Definitions

Combination Definitions, Part 2 of 4

ComboName	CaseName	SteelDesign	ConcDesign	AlumDesign
COMB1	DEAD	None	None	None
COMB2	DEAD	None	None	None
COMB2	LIVE			
COMB2	H			
COMB3	DEAD	None	None	None
COMB3	LIVE			
COMB4	DEAD	None	None	None
COMB4	LIVE			
COMB4	H			
COMB4	SXHD			
COMB5	DEAD	None	None	None
COMB5	LIVE			
COMB5	H			
COMB5	SYHD			
COMB6	DEAD	None	None	None
COMB6	H			
COMB7	DEAD	None	None	None
COMB7	H			
COMB7	SXHD			
COMB8	DEAD	None	None	None

Combination Definitions, Part 2 of 4

ComboName	CaseName	SteelDesign	ConcDesign	AlumDesign
COMB8	H			
COMB8	SYHD			
SERV1	DEAD	None	None	None
SERV1	LIVE			
SERV1	H			
SERV2	DEAD	None	None	None
SERV2	H			
SERV3	DEAD	None	None	None
SERV3	LIVE			
SERV4	DEAD	None	None	None
SERV4	H			
SERV4	SXHD			
SERV5	DEAD	None	None	None
SERV5	H			
SERV5	SYHD			
SERV6	DEAD	None	None	None
SERV6	LIVE			
SERV6	H			
SERV7	DEAD	None	None	None
SERV7	LIVE			
SERV7	H			
SERV7	SXHD			
SERV8	DEAD	None	None	None
SERV8	LIVE			
SERV8	H			
SERV8	SYHD			
SERV9	DEAD	None	None	None
SERV9	H			
SERV10	DEAD	None	None	None
SERV10	H			
SERV10	SXHD			
SERV11	DEAD	None	None	None
SERV11	H			
SERV11	SYHD			
U	COMB1	None	None	None
U	COMB2			
U	COMB3			
U	COMB4			
U	COMB5			
U	COMB6			
U	COMB7			
U	COMB8			
U (SIN E)	COMB1	None	None	None
U (SIN E)	COMB2			
U (SIN E)	COMB3			
U (SIN E)	COMB6			
S (SIN E)	SERV1	None	None	None
S (SIN E)	SERV2			
S (SIN E)	SERV3			
S (SIN E)	SERV6			
S (SIN E)	SERV9			

Table: Combination Definitions

Combination Definitions, Part 3 of 4

ComboName	AlumDesign	ColdDesign	GUID
COMB1	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB2	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB2			
COMB2			
COMB3	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB3			
COMB4	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB4			
COMB4			
COMB4			

Combination Definitions, Part 3 of 4

ComboName	AlumDesign	ColdDesign	GUID
COMB5	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB5			
COMB5			
COMB5			
COMB6	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB6			
COMB7	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB7			
COMB7			
COMB8	None	None	90ef74c1-5727-450f-8cce-b05f4668d0f3
COMB8			
COMB8			
SERV1	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV1			
SERV1			
SERV2	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV2			
SERV3	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV3			
SERV4	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV4			
SERV4			
SERV5	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV5			
SERV5			
SERV6	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV6			
SERV6			
SERV7	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV7			
SERV7			
SERV7			
SERV8	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV8			
SERV8			
SERV8			
SERV9	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV9			
SERV10	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV10			
SERV10			
SERV11	None	None	04170669-8486-4f2c-968c-448abc553a34
SERV11			
SERV11			
U	None	None	5de89b2b-aa56-447d-9cb8-ef4c16398b75
U			
U			
U			
U			
U			
U			
U			
U (SIN E)	None	None	5de89b2b-aa56-447d-9cb8-ef4c16398b75
U (SIN E)			
U (SIN E)			
U (SIN E)			

Combination Definitions, Part 3 of 4

ComboName	AlumDesign	ColdDesign	GUID
S (SIN E)	None	None	2384b6aa-8863-4233-8f71-c3dad258587a
S (SIN E)			
S (SIN E)			
S (SIN E)			
S (SIN E)			

Table: Combination Definitions

Combination Definitions, Part 4 of 4

ComboName	AlumDesign	Notes
COMB1	None	
COMB2	None	
COMB2		
COMB2		
COMB3	None	
COMB3		
COMB4	None	
COMB4		
COMB4		
COMB4		
COMB5	None	
COMB5		
COMB5		
COMB5		
COMB6	None	
COMB6		
COMB7	None	
COMB7		
COMB7		
COMB8	None	
COMB8		
COMB8		
SERV1	None	
SERV1		
SERV1		
SERV2	None	
SERV2		
SERV3	None	
SERV3		
SERV4	None	
SERV4		
SERV4		
SERV5	None	
SERV5		
SERV5		
SERV6	None	
SERV6		
SERV6		
SERV7	None	
SERV7		
SERV7		
SERV7		
SERV8	None	
SERV8		
SERV8		
SERV8		
SERV9	None	
SERV9		
SERV10	None	
SERV10		
SERV10		
SERV11	None	
SERV11		
SERV11		
U	None	
U		
U		
U		
U		

Combination Definitions, Part 4 of 4

ComboName	AlumDesign	Notes
U		
U		
U		
U (SIN E)	None	
U (SIN E)		
U (SIN E)		
U (SIN E)		
S (SIN E)	None	
S (SIN E)		
S (SIN E)		
S (SIN E)		
S (SIN E)		

Table: Load Case Definitions

Load Case Definitions, Part 1 of 3

Case	Type	InitialCond	ModalCase	BaseCase	MassSource	DesTypeOpt
DEAD	LinStatic	Zero				Prog Det
MODAL	LinModal	Zero				Prog Det
LIVE	LinStatic	Zero				Prog Det
H	LinStatic	Zero				Prog Det
SXHD	LinStatic	Zero				Prog Det
SYHD	LinStatic	Zero				Prog Det

Table: Load Case Definitions

Load Case Definitions, Part 2 of 3

Case	DesignType	DesActOpt	DesignAct	AutoType	RunCase	CaseStatus
DEAD	Dead	Prog Det	Non-Composite	None	Yes	Finished
MODAL	Other	Prog Det	Other	None	Yes	Finished
LIVE	Live	Prog Det	Short-Term Composite	None	Yes	Finished
H	Other	Prog Det	Other	None	Yes	Finished
SXHD	Other	Prog Det	Other	None	Yes	Finished
SYHD	Other	Prog Det	Other	None	Yes	Finished

Table: Load Case Definitions

Load Case Definitions, Part 3 of 3

Case	GUID	Notes
DEAD	36c11ee1-3052-4225-b5bd-faf725a891c1	
MODAL	0f4b0a9c-6172-4b8b-8d40-2600910c370b	
LIVE	ed29532b-3ac2-47f3-90d8-d52b9f8a2922	
H	c2de1063-eef3-4a6a-ad15-1a0620c60e4a	
SXHD	ff499036-cb0c-4751-95a4-42ff32e61f2a	
SYHD	dbdd4243-dfd7-4075-a6cd-c1f950818d51	

Table: Load Pattern Definitions

Load Pattern Definitions, Part 1 of 2

LoadPat	DesignType	SelfWtMult	AutoLoad	GUID

Table: Load Pattern Definitions

Load Pattern Definitions, Part 1 of 2

LoadPat	DesignType	SelfWtMult	AutoLoad	GUID
DEAD	Dead	1.		9d14ec55-ef81-4c2b-bae6-922028277a16
LIVE	Live	0.		f17c766e-879a-419a-b2d8-88586384ac54
H	Other	0.		821ee04d-79d5-40dc-9923-05ad6f231084
SXHD	Other	0.		cc74b4cc-cb81-4afe-8718-8e292405cb15
SYHD	Other	0.		b37caeef-722e-4dda-a6e3-a7b586fa4215

Table: Load Pattern Definitions

Load Pattern Definitions, Part 2 of 2

LoadPat	Notes
DEAD	
LIVE	
H	
SXHD	
SYHD	

Table: Material Properties 01 - General

Material Properties 01 - General, Part 1 of 2

Material	Type	SymType	TempDepend	Color	GUID
4000Psi	Concrete	Isotropic	No	Green	
A416Gr270	Tendon	Uniaxial	No	Cyan	
A992Fy50	Steel	Isotropic	No	Blue	

Table: Material Properties 01 - General

Material Properties 01 - General, Part 2 of 2

Material	Notes
4000Psi	Customary f'c 4000 psi 1/05/2018 12:00:20 a. m.
A416Gr270	ASTM A416 Grade 270 1/05/2018 12:54:42 a. m.
A992Fy50	ASTM A992 Grade 50 1/05/2018 12:00:20 a. m.

Table: Material Properties 03b - Concrete Data

Material Properties 03b - Concrete Data, Part 1 of 2

Material	Fc KN/m2	eFc KN/m2	LtWtConc	SSCurveOpt	SSHysType	SFc
4000Psi	27579.03	27579.03	No	Mander	Takeda	0.002219

Table: Material Properties 03b - Concrete Data

Material Properties 03b - Concrete Data, Part 2 of 2

Material	SCap	FinalSlope	FAngle Degrees	DAngle Degrees
4000Psi	0.005	-0.1	0.	0.

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Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 1 of 10

Area	AreaElem	ShellType	Joint	OutputCase	CaseType	StepType
10	10-1	Shell-Thin	9	U	Combination	Max
10	10-1	Shell-Thin	~628	U	Combination	Max
10	10-1	Shell-Thin	~654	U	Combination	Max
10	10-1	Shell-Thin	~655	U	Combination	Max
10	10-1	Shell-Thin	9	U	Combination	Min
10	10-1	Shell-Thin	~628	U	Combination	Min
10	10-1	Shell-Thin	~654	U	Combination	Min
10	10-1	Shell-Thin	~655	U	Combination	Min
10	10-2	Shell-Thin	~655	U	Combination	Max
10	10-2	Shell-Thin	~654	U	Combination	Max
10	10-2	Shell-Thin	~656	U	Combination	Max
10	10-2	Shell-Thin	~657	U	Combination	Max
10	10-2	Shell-Thin	~655	U	Combination	Min
10	10-2	Shell-Thin	~654	U	Combination	Min
10	10-2	Shell-Thin	~656	U	Combination	Min
10	10-2	Shell-Thin	~657	U	Combination	Min
10	10-3	Shell-Thin	~657	U	Combination	Max
10	10-3	Shell-Thin	~656	U	Combination	Max
10	10-3	Shell-Thin	~658	U	Combination	Max
10	10-3	Shell-Thin	10	U	Combination	Max
10	10-3	Shell-Thin	~657	U	Combination	Min
10	10-3	Shell-Thin	~656	U	Combination	Min
10	10-3	Shell-Thin	~658	U	Combination	Min
10	10-3	Shell-Thin	10	U	Combination	Min
10	10-4	Shell-Thin	~628	U	Combination	Max
10	10-4	Shell-Thin	~630	U	Combination	Max
10	10-4	Shell-Thin	~659	U	Combination	Max
10	10-4	Shell-Thin	~654	U	Combination	Max
10	10-4	Shell-Thin	~628	U	Combination	Min
10	10-4	Shell-Thin	~630	U	Combination	Min
10	10-4	Shell-Thin	~659	U	Combination	Min
10	10-4	Shell-Thin	~654	U	Combination	Min
10	10-5	Shell-Thin	~654	U	Combination	Max
10	10-5	Shell-Thin	~659	U	Combination	Max
10	10-5	Shell-Thin	~660	U	Combination	Max
10	10-5	Shell-Thin	~656	U	Combination	Max
10	10-5	Shell-Thin	~654	U	Combination	Min
10	10-5	Shell-Thin	~659	U	Combination	Min
10	10-5	Shell-Thin	~660	U	Combination	Min
10	10-5	Shell-Thin	~656	U	Combination	Min
10	10-6	Shell-Thin	~656	U	Combination	Max
10	10-6	Shell-Thin	~660	U	Combination	Max
10	10-6	Shell-Thin	~661	U	Combination	Max
10	10-6	Shell-Thin	~658	U	Combination	Max
10	10-6	Shell-Thin	~656	U	Combination	Min
10	10-6	Shell-Thin	~660	U	Combination	Min
10	10-6	Shell-Thin	~661	U	Combination	Min
10	10-6	Shell-Thin	~658	U	Combination	Min
10	10-7	Shell-Thin	~630	U	Combination	Max
10	10-7	Shell-Thin	~632	U	Combination	Max
10	10-7	Shell-Thin	~662	U	Combination	Max
10	10-7	Shell-Thin	~659	U	Combination	Max
10	10-7	Shell-Thin	~630	U	Combination	Min
10	10-7	Shell-Thin	~632	U	Combination	Min
10	10-7	Shell-Thin	~662	U	Combination	Min
10	10-7	Shell-Thin	~659	U	Combination	Min
10	10-8	Shell-Thin	~659	U	Combination	Max
10	10-8	Shell-Thin	~662	U	Combination	Max
10	10-8	Shell-Thin	~663	U	Combination	Max
10	10-8	Shell-Thin	~660	U	Combination	Max
10	10-8	Shell-Thin	~659	U	Combination	Min
10	10-8	Shell-Thin	~662	U	Combination	Min
10	10-8	Shell-Thin	~663	U	Combination	Min
10	10-8	Shell-Thin	~660	U	Combination	Min
10	10-9	Shell-Thin	~660	U	Combination	Max
10	10-9	Shell-Thin	~663	U	Combination	Max
10	10-9	Shell-Thin	~664	U	Combination	Max
10	10-9	Shell-Thin	~661	U	Combination	Max
10	10-9	Shell-Thin	~660	U	Combination	Min
10	10-9	Shell-Thin	~663	U	Combination	Min
10	10-9	Shell-Thin	~664	U	Combination	Min

Element Forces - Area Shells, Part 1 of 10

Area	AreaElem	ShellType	Joint	OutputCase	CaseType	StepType
10	10-9	Shell-Thin	~661	U	Combination	Min
10	10-10	Shell-Thin	~632	U	Combination	Max
10	10-10	Shell-Thin	~634	U	Combination	Max
10	10-10	Shell-Thin	~665	U	Combination	Max
10	10-10	Shell-Thin	~662	U	Combination	Max
10	10-10	Shell-Thin	~632	U	Combination	Min
10	10-10	Shell-Thin	~634	U	Combination	Min
10	10-10	Shell-Thin	~665	U	Combination	Min
10	10-10	Shell-Thin	~662	U	Combination	Min
10	10-11	Shell-Thin	~662	U	Combination	Max
10	10-11	Shell-Thin	~665	U	Combination	Max
10	10-11	Shell-Thin	~666	U	Combination	Max
10	10-11	Shell-Thin	~663	U	Combination	Max
10	10-11	Shell-Thin	~662	U	Combination	Min
10	10-11	Shell-Thin	~665	U	Combination	Min
10	10-11	Shell-Thin	~666	U	Combination	Min
10	10-11	Shell-Thin	~663	U	Combination	Min
10	10-12	Shell-Thin	~663	U	Combination	Max
10	10-12	Shell-Thin	~666	U	Combination	Max
10	10-12	Shell-Thin	~667	U	Combination	Max
10	10-12	Shell-Thin	~664	U	Combination	Max
10	10-12	Shell-Thin	~663	U	Combination	Min
10	10-12	Shell-Thin	~666	U	Combination	Min
10	10-12	Shell-Thin	~667	U	Combination	Min
10	10-12	Shell-Thin	~664	U	Combination	Min
10	10-13	Shell-Thin	~634	U	Combination	Max
10	10-13	Shell-Thin	~636	U	Combination	Max
10	10-13	Shell-Thin	~668	U	Combination	Max
10	10-13	Shell-Thin	~665	U	Combination	Max
10	10-13	Shell-Thin	~634	U	Combination	Min
10	10-13	Shell-Thin	~636	U	Combination	Min
10	10-13	Shell-Thin	~668	U	Combination	Min
10	10-13	Shell-Thin	~665	U	Combination	Min
10	10-14	Shell-Thin	~665	U	Combination	Max
10	10-14	Shell-Thin	~668	U	Combination	Max
10	10-14	Shell-Thin	~669	U	Combination	Max
10	10-14	Shell-Thin	~666	U	Combination	Max
10	10-14	Shell-Thin	~665	U	Combination	Min
10	10-14	Shell-Thin	~668	U	Combination	Min
10	10-14	Shell-Thin	~669	U	Combination	Min
10	10-14	Shell-Thin	~666	U	Combination	Min
10	10-15	Shell-Thin	~666	U	Combination	Max
10	10-15	Shell-Thin	~669	U	Combination	Max
10	10-15	Shell-Thin	~670	U	Combination	Max
10	10-15	Shell-Thin	~667	U	Combination	Max
10	10-15	Shell-Thin	~666	U	Combination	Min
10	10-15	Shell-Thin	~669	U	Combination	Min
10	10-15	Shell-Thin	~670	U	Combination	Min
10	10-15	Shell-Thin	~667	U	Combination	Min
10	10-16	Shell-Thin	~636	U	Combination	Max
10	10-16	Shell-Thin	~638	U	Combination	Max
10	10-16	Shell-Thin	~671	U	Combination	Max
10	10-16	Shell-Thin	~668	U	Combination	Max
10	10-16	Shell-Thin	~636	U	Combination	Min
10	10-16	Shell-Thin	~638	U	Combination	Min
10	10-16	Shell-Thin	~671	U	Combination	Min
10	10-16	Shell-Thin	~668	U	Combination	Min
10	10-17	Shell-Thin	~668	U	Combination	Max
10	10-17	Shell-Thin	~671	U	Combination	Max
10	10-17	Shell-Thin	~672	U	Combination	Max
10	10-17	Shell-Thin	~669	U	Combination	Max
10	10-17	Shell-Thin	~668	U	Combination	Min
10	10-17	Shell-Thin	~671	U	Combination	Min
10	10-17	Shell-Thin	~672	U	Combination	Min
10	10-17	Shell-Thin	~669	U	Combination	Min
10	10-18	Shell-Thin	~669	U	Combination	Max
10	10-18	Shell-Thin	~672	U	Combination	Max
10	10-18	Shell-Thin	~673	U	Combination	Max
10	10-18	Shell-Thin	~670	U	Combination	Max
10	10-18	Shell-Thin	~669	U	Combination	Min
10	10-18	Shell-Thin	~672	U	Combination	Min
10	10-18	Shell-Thin	~673	U	Combination	Min
10	10-18	Shell-Thin	~670	U	Combination	Min

Element Forces - Area Shells, Part 1 of 10

Area	AreaElem	ShellType	Joint	OutputCase	CaseType	StepType
10	10-19	Shell-Thin	~638	U	Combination	Max
10	10-19	Shell-Thin	~640	U	Combination	Max
10	10-19	Shell-Thin	~674	U	Combination	Max
10	10-19	Shell-Thin	~671	U	Combination	Max
10	10-19	Shell-Thin	~638	U	Combination	Min
10	10-19	Shell-Thin	~640	U	Combination	Min
10	10-19	Shell-Thin	~674	U	Combination	Min
10	10-19	Shell-Thin	~671	U	Combination	Min
10	10-20	Shell-Thin	~671	U	Combination	Max
10	10-20	Shell-Thin	~674	U	Combination	Max
10	10-20	Shell-Thin	~675	U	Combination	Max
10	10-20	Shell-Thin	~672	U	Combination	Max
10	10-20	Shell-Thin	~671	U	Combination	Min
10	10-20	Shell-Thin	~674	U	Combination	Min
10	10-20	Shell-Thin	~675	U	Combination	Min
10	10-20	Shell-Thin	~672	U	Combination	Min
10	10-21	Shell-Thin	~672	U	Combination	Max
10	10-21	Shell-Thin	~675	U	Combination	Max
10	10-21	Shell-Thin	~676	U	Combination	Max
10	10-21	Shell-Thin	~673	U	Combination	Max
10	10-21	Shell-Thin	~672	U	Combination	Min
10	10-21	Shell-Thin	~675	U	Combination	Min
10	10-21	Shell-Thin	~676	U	Combination	Min
10	10-21	Shell-Thin	~673	U	Combination	Min
10	10-22	Shell-Thin	~640	U	Combination	Max
10	10-22	Shell-Thin	~642	U	Combination	Max
10	10-22	Shell-Thin	~677	U	Combination	Max
10	10-22	Shell-Thin	~674	U	Combination	Max
10	10-22	Shell-Thin	~640	U	Combination	Min
10	10-22	Shell-Thin	~642	U	Combination	Min
10	10-22	Shell-Thin	~677	U	Combination	Min
10	10-22	Shell-Thin	~674	U	Combination	Min
10	10-23	Shell-Thin	~674	U	Combination	Max
10	10-23	Shell-Thin	~677	U	Combination	Max
10	10-23	Shell-Thin	~678	U	Combination	Max
10	10-23	Shell-Thin	~675	U	Combination	Max
10	10-23	Shell-Thin	~674	U	Combination	Min
10	10-23	Shell-Thin	~677	U	Combination	Min
10	10-23	Shell-Thin	~678	U	Combination	Min
10	10-23	Shell-Thin	~675	U	Combination	Min
10	10-24	Shell-Thin	~675	U	Combination	Max
10	10-24	Shell-Thin	~678	U	Combination	Max
10	10-24	Shell-Thin	~679	U	Combination	Max
10	10-24	Shell-Thin	~676	U	Combination	Max
10	10-24	Shell-Thin	~675	U	Combination	Min
10	10-24	Shell-Thin	~678	U	Combination	Min
10	10-24	Shell-Thin	~679	U	Combination	Min
10	10-24	Shell-Thin	~676	U	Combination	Min
10	10-25	Shell-Thin	~642	U	Combination	Max
10	10-25	Shell-Thin	~644	U	Combination	Max
10	10-25	Shell-Thin	~680	U	Combination	Max
10	10-25	Shell-Thin	~677	U	Combination	Max
10	10-25	Shell-Thin	~642	U	Combination	Min
10	10-25	Shell-Thin	~644	U	Combination	Min
10	10-25	Shell-Thin	~680	U	Combination	Min
10	10-25	Shell-Thin	~677	U	Combination	Min
10	10-26	Shell-Thin	~677	U	Combination	Max
10	10-26	Shell-Thin	~680	U	Combination	Max
10	10-26	Shell-Thin	~681	U	Combination	Max
10	10-26	Shell-Thin	~678	U	Combination	Max
10	10-26	Shell-Thin	~677	U	Combination	Min
10	10-26	Shell-Thin	~680	U	Combination	Min
10	10-26	Shell-Thin	~681	U	Combination	Min
10	10-26	Shell-Thin	~678	U	Combination	Min
10	10-27	Shell-Thin	~678	U	Combination	Max
10	10-27	Shell-Thin	~681	U	Combination	Max
10	10-27	Shell-Thin	~682	U	Combination	Max
10	10-27	Shell-Thin	~679	U	Combination	Max
10	10-27	Shell-Thin	~678	U	Combination	Min
10	10-27	Shell-Thin	~681	U	Combination	Min
10	10-27	Shell-Thin	~682	U	Combination	Min
10	10-27	Shell-Thin	~679	U	Combination	Min
10	10-28	Shell-Thin	~644	U	Combination	Max

Element Forces - Area Shells, Part 1 of 10

Area	AreaElem	ShellType	Joint	OutputCase	CaseType	StepType
10	10-28	Shell-Thin	~646	U	Combination	Max
10	10-28	Shell-Thin	~683	U	Combination	Max
10	10-28	Shell-Thin	~680	U	Combination	Max
10	10-28	Shell-Thin	~644	U	Combination	Min
10	10-28	Shell-Thin	~646	U	Combination	Min
10	10-28	Shell-Thin	~683	U	Combination	Min
10	10-28	Shell-Thin	~680	U	Combination	Min
10	10-29	Shell-Thin	~680	U	Combination	Max
10	10-29	Shell-Thin	~683	U	Combination	Max
10	10-29	Shell-Thin	~684	U	Combination	Max
10	10-29	Shell-Thin	~681	U	Combination	Max
10	10-29	Shell-Thin	~680	U	Combination	Min
10	10-29	Shell-Thin	~683	U	Combination	Min
10	10-29	Shell-Thin	~684	U	Combination	Min
10	10-29	Shell-Thin	~681	U	Combination	Min
10	10-30	Shell-Thin	~681	U	Combination	Max
10	10-30	Shell-Thin	~684	U	Combination	Max
10	10-30	Shell-Thin	~685	U	Combination	Max
10	10-30	Shell-Thin	~682	U	Combination	Max
10	10-30	Shell-Thin	~681	U	Combination	Min
10	10-30	Shell-Thin	~684	U	Combination	Min
10	10-30	Shell-Thin	~685	U	Combination	Min
10	10-30	Shell-Thin	~682	U	Combination	Min
10	10-31	Shell-Thin	~646	U	Combination	Max
10	10-31	Shell-Thin	~648	U	Combination	Max
10	10-31	Shell-Thin	~686	U	Combination	Max
10	10-31	Shell-Thin	~683	U	Combination	Max
10	10-31	Shell-Thin	~646	U	Combination	Min
10	10-31	Shell-Thin	~648	U	Combination	Min
10	10-31	Shell-Thin	~686	U	Combination	Min
10	10-31	Shell-Thin	~683	U	Combination	Min
10	10-32	Shell-Thin	~683	U	Combination	Max
10	10-32	Shell-Thin	~686	U	Combination	Max
10	10-32	Shell-Thin	~687	U	Combination	Max
10	10-32	Shell-Thin	~684	U	Combination	Max
10	10-32	Shell-Thin	~683	U	Combination	Min
10	10-32	Shell-Thin	~686	U	Combination	Min
10	10-32	Shell-Thin	~687	U	Combination	Min
10	10-32	Shell-Thin	~684	U	Combination	Min
10	10-33	Shell-Thin	~684	U	Combination	Max
10	10-33	Shell-Thin	~687	U	Combination	Max
10	10-33	Shell-Thin	~688	U	Combination	Max
10	10-33	Shell-Thin	~685	U	Combination	Max
10	10-33	Shell-Thin	~684	U	Combination	Min
10	10-33	Shell-Thin	~687	U	Combination	Min
10	10-33	Shell-Thin	~688	U	Combination	Min
10	10-33	Shell-Thin	~685	U	Combination	Min
10	10-34	Shell-Thin	~648	U	Combination	Max
10	10-34	Shell-Thin	~650	U	Combination	Max
10	10-34	Shell-Thin	~689	U	Combination	Max
10	10-34	Shell-Thin	~686	U	Combination	Max
10	10-34	Shell-Thin	~648	U	Combination	Min
10	10-34	Shell-Thin	~650	U	Combination	Min
10	10-34	Shell-Thin	~689	U	Combination	Min
10	10-34	Shell-Thin	~686	U	Combination	Min
10	10-35	Shell-Thin	~686	U	Combination	Max
10	10-35	Shell-Thin	~689	U	Combination	Max
10	10-35	Shell-Thin	~690	U	Combination	Max
10	10-35	Shell-Thin	~687	U	Combination	Max
10	10-35	Shell-Thin	~686	U	Combination	Min
10	10-35	Shell-Thin	~689	U	Combination	Min
10	10-35	Shell-Thin	~690	U	Combination	Min
10	10-35	Shell-Thin	~687	U	Combination	Min
10	10-36	Shell-Thin	~687	U	Combination	Max
10	10-36	Shell-Thin	~690	U	Combination	Max
10	10-36	Shell-Thin	~691	U	Combination	Max
10	10-36	Shell-Thin	~688	U	Combination	Max
10	10-36	Shell-Thin	~687	U	Combination	Min
10	10-36	Shell-Thin	~690	U	Combination	Min
10	10-36	Shell-Thin	~691	U	Combination	Min
10	10-36	Shell-Thin	~688	U	Combination	Min
10	10-37	Shell-Thin	~650	U	Combination	Max
10	10-37	Shell-Thin	~652	U	Combination	Max

Element Forces - Area Shells, Part 1 of 10

Area	AreaElem	ShellType	Joint	OutputCase	CaseType	StepType
10	10-37	Shell-Thin	~692	U	Combination	Max
10	10-37	Shell-Thin	~689	U	Combination	Max
10	10-37	Shell-Thin	~650	U	Combination	Min
10	10-37	Shell-Thin	~652	U	Combination	Min
10	10-37	Shell-Thin	~692	U	Combination	Min
10	10-37	Shell-Thin	~689	U	Combination	Min
10	10-38	Shell-Thin	~689	U	Combination	Max
10	10-38	Shell-Thin	~692	U	Combination	Max
10	10-38	Shell-Thin	~693	U	Combination	Max
10	10-38	Shell-Thin	~690	U	Combination	Max
10	10-38	Shell-Thin	~689	U	Combination	Min
10	10-38	Shell-Thin	~692	U	Combination	Min
10	10-38	Shell-Thin	~693	U	Combination	Min
10	10-38	Shell-Thin	~690	U	Combination	Min
10	10-39	Shell-Thin	~690	U	Combination	Max
10	10-39	Shell-Thin	~693	U	Combination	Max
10	10-39	Shell-Thin	~694	U	Combination	Max
10	10-39	Shell-Thin	~691	U	Combination	Max
10	10-39	Shell-Thin	~690	U	Combination	Min
10	10-39	Shell-Thin	~693	U	Combination	Min
10	10-39	Shell-Thin	~694	U	Combination	Min
10	10-39	Shell-Thin	~691	U	Combination	Min
10	10-40	Shell-Thin	~652	U	Combination	Max
10	10-40	Shell-Thin	45	U	Combination	Max
10	10-40	Shell-Thin	~695	U	Combination	Max
10	10-40	Shell-Thin	~692	U	Combination	Max
10	10-40	Shell-Thin	~652	U	Combination	Min
10	10-40	Shell-Thin	45	U	Combination	Min
10	10-40	Shell-Thin	~695	U	Combination	Min
10	10-40	Shell-Thin	~692	U	Combination	Min
10	10-41	Shell-Thin	~692	U	Combination	Max
10	10-41	Shell-Thin	~695	U	Combination	Max
10	10-41	Shell-Thin	~696	U	Combination	Max
10	10-41	Shell-Thin	~693	U	Combination	Max
10	10-41	Shell-Thin	~692	U	Combination	Min
10	10-41	Shell-Thin	~695	U	Combination	Min
10	10-41	Shell-Thin	~696	U	Combination	Min
10	10-42	Shell-Thin	~693	U	Combination	Min
10	10-42	Shell-Thin	~693	U	Combination	Max
10	10-42	Shell-Thin	~696	U	Combination	Max
10	10-42	Shell-Thin	46	U	Combination	Max
10	10-42	Shell-Thin	~694	U	Combination	Max
10	10-42	Shell-Thin	~693	U	Combination	Min
10	10-42	Shell-Thin	~696	U	Combination	Min
10	10-42	Shell-Thin	46	U	Combination	Min
10	10-42	Shell-Thin	~694	U	Combination	Min

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-1	9	U	Max	-6.748E-02	-9.45
10	10-1	~628	U	Max	16.66	-7.44
10	10-1	~654	U	Max	21.57	-1.16
10	10-1	~655	U	Max	1.75	-1.49
10	10-1	9	U	Min	-25.74	-33.19
10	10-1	~628	U	Min	-4.49	-27.11
10	10-1	~654	U	Min	-2.67	-2.8
10	10-1	~655	U	Min	-20.69	-8.67
10	10-2	~655	U	Max	6.67	-0.47
10	10-2	~654	U	Max	6.23	-2.89
10	10-2	~656	U	Max	6.24	-2.95
10	10-2	~657	U	Max	6.68	-0.66
10	10-2	~655	U	Min	-5.749E-02	-4.14
10	10-2	~654	U	Min	-8.9	-4.98
10	10-2	~656	U	Min	-8.91	-4.96
10	10-2	~657	U	Min	-5.923E-02	-4.1
10	10-3	~657	U	Max	6.83	-0.44
10	10-3	~656	U	Max	21.78	-1.08

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-3	~658	U	Max	13.16	-13.9
10	10-3	10	U	Max	4.57	-11.78
10	10-3	~657	U	Min	-17.29	-6.96
10	10-3	~656	U	Min	-3.76	-2.95
10	10-3	~658	U	Min	-6.03	-45.98
10	10-3	10	U	Min	-24.52	-50.07
10	10-4	~628	U	Max	18.57	-7.64
10	10-4	~630	U	Max	15.1	-9.71
10	10-4	~659	U	Max	14.54	-8.65
10	10-4	~654	U	Max	18.	-6.32
10	10-4	~628	U	Min	-3.73	-17.35
10	10-4	~630	U	Min	-14.59	-19.17
10	10-4	~659	U	Min	-14.24	-20.15
10	10-4	~654	U	Min	-3.6	-19.
10	10-5	~654	U	Max	2.67	-7.51
10	10-5	~659	U	Max	18.44	-8.58
10	10-5	~660	U	Max	18.17	-7.1
10	10-5	~656	U	Max	2.4	-6.02
10	10-5	~654	U	Min	-10.83	-22.06
10	10-5	~659	U	Min	-13.93	-19.41
10	10-5	~660	U	Min	-13.63	-20.64
10	10-5	~656	U	Min	-10.98	-23.41
10	10-6	~656	U	Max	17.94	-5.23
10	10-6	~660	U	Max	12.89	-7.51
10	10-6	~661	U	Max	14.06	-7.46
10	10-6	~658	U	Max	19.1	-5.18
10	10-6	~656	U	Min	-4.3	-20.31
10	10-6	~660	U	Min	-15.69	-21.69
10	10-6	~661	U	Min	-15.68	-17.52
10	10-6	~658	U	Min	-4.26	-15.37
10	10-7	~630	U	Max	14.6	-10.87
10	10-7	~632	U	Max	12.23	-11.91
10	10-7	~662	U	Max	12.17	-8.47
10	10-7	~659	U	Max	14.54	-7.25
10	10-7	~630	U	Min	-14.72	-21.11
10	10-7	~632	U	Min	-20.8	-21.97
10	10-7	~662	U	Min	-20.04	-20.49
10	10-7	~659	U	Min	-13.99	-19.66
10	10-8	~659	U	Max	18.44	-7.19
10	10-8	~662	U	Max	9.9	-8.82
10	10-8	~663	U	Max	9.98	-8.
10	10-8	~660	U	Max	18.52	-6.37
10	10-8	~659	U	Min	-13.65	-18.89
10	10-8	~662	U	Min	-21.79	-20.99
10	10-8	~663	U	Min	-21.62	-20.52
10	10-8	~660	U	Min	-13.48	-18.48
10	10-9	~660	U	Max	13.25	-6.78
10	10-9	~663	U	Max	11.37	-7.99
10	10-9	~664	U	Max	11.48	-9.58
10	10-9	~661	U	Max	13.36	-8.38
10	10-9	~660	U	Min	-15.54	-19.53
10	10-9	~663	U	Min	-21.57	-20.23
10	10-9	~664	U	Min	-21.89	-21.24
10	10-9	~661	U	Min	-15.86	-20.48
10	10-10	~632	U	Max	12.48	-11.18
10	10-10	~634	U	Max	4.9	-11.92
10	10-10	~665	U	Max	5.06	-8.8
10	10-10	~662	U	Max	12.64	-8.1
10	10-10	~632	U	Min	-20.6	-20.35
10	10-10	~634	U	Min	-24.1	-21.74
10	10-10	~665	U	Min	-23.47	-19.88
10	10-10	~662	U	Min	-19.97	-18.49
10	10-11	~662	U	Max	10.37	-8.45
10	10-11	~665	U	Max	5.46	-8.95
10	10-11	~666	U	Max	5.52	-8.03
10	10-11	~663	U	Max	10.43	-7.53
10	10-11	~662	U	Min	-21.72	-18.99
10	10-11	~665	U	Min	-24.18	-19.82
10	10-11	~666	U	Min	-24.	-19.48
10	10-11	~663	U	Min	-21.53	-18.65
10	10-12	~663	U	Max	11.82	-7.52
10	10-12	~666	U	Max	4.57	-8.16

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-12	~667	U	Max	4.6	-9.58
10	10-12	~664	U	Max	11.85	-8.94
10	10-12	~663	U	Min	-21.48	-18.36
10	10-12	~666	U	Min	-24.7	-19.67
10	10-12	~667	U	Min	-24.98	-20.57
10	10-12	~664	U	Min	-21.76	-19.26
10	10-13	~634	U	Max	5.29	-11.01
10	10-13	~636	U	Max	1.24	-10.95
10	10-13	~668	U	Max	1.54	-8.63
10	10-13	~665	U	Max	5.6	-8.7
10	10-13	~634	U	Min	-23.91	-19.85
10	10-13	~636	U	Min	-23.58	-20.26
10	10-13	~668	U	Min	-23.12	-18.31
10	10-13	~665	U	Min	-23.45	-17.9
10	10-14	~665	U	Max	6.	-8.84
10	10-14	~668	U	Max	0.99	-8.79
10	10-14	~669	U	Max	1.04	-8.15
10	10-14	~666	U	Max	6.05	-8.2
10	10-14	~665	U	Min	-24.16	-17.85
10	10-14	~668	U	Min	-23.92	-18.44
10	10-14	~669	U	Min	-23.79	-18.19
10	10-14	~666	U	Min	-24.03	-17.6
10	10-15	~666	U	Max	5.1	-8.34
10	10-15	~669	U	Max	1.38	-8.18
10	10-15	~670	U	Max	1.16	-9.26
10	10-15	~667	U	Max	4.89	-9.41
10	10-15	~666	U	Min	-24.73	-17.79
10	10-15	~669	U	Min	-23.97	-18.12
10	10-15	~670	U	Min	-24.19	-19.71
10	10-15	~667	U	Min	-24.94	-19.38
10	10-16	~636	U	Max	1.71	-10.29
10	10-16	~638	U	Max	-0.91	-9.88
10	10-16	~671	U	Max	-0.7	-8.54
10	10-16	~668	U	Max	1.92	-8.95
10	10-16	~636	U	Min	-23.45	-18.31
10	10-16	~638	U	Min	-21.72	-18.36
10	10-16	~671	U	Min	-21.39	-17.25
10	10-16	~668	U	Min	-23.18	-17.2
10	10-17	~668	U	Max	1.37	-9.11
10	10-17	~671	U	Max	-0.62	-8.63
10	10-17	~672	U	Max	-0.59	-8.18
10	10-17	~669	U	Max	1.4	-8.67
10	10-17	~668	U	Min	-23.98	-17.33
10	10-17	~671	U	Min	-21.79	-17.24
10	10-17	~672	U	Min	-21.69	-17.15
10	10-17	~669	U	Min	-23.89	-17.25
10	10-18	~669	U	Max	1.73	-8.7
10	10-18	~672	U	Max	-0.75	-8.25
10	10-18	~673	U	Max	-0.87	-8.67
10	10-18	~670	U	Max	1.61	-9.12
10	10-18	~669	U	Min	-24.08	-17.18
10	10-18	~672	U	Min	-22.07	-17.19
10	10-18	~673	U	Min	-22.2	-18.01
10	10-18	~670	U	Min	-24.16	-18.
10	10-19	~638	U	Max	-0.53	-9.55
10	10-19	~640	U	Max	-1.18	-8.96
10	10-19	~674	U	Max	-1.04	-8.26
10	10-19	~671	U	Max	-0.39	-8.85
10	10-19	~638	U	Min	-21.57	-17.04
10	10-19	~640	U	Min	-18.78	-16.7
10	10-19	~674	U	Min	-18.59	-16.08
10	10-19	~671	U	Min	-21.38	-16.43
10	10-20	~671	U	Max	-0.31	-8.94
10	10-20	~674	U	Max	-1.22	-8.34
10	10-20	~675	U	Max	-1.2	-8.02
10	10-20	~672	U	Max	-0.28	-8.61
10	10-20	~671	U	Min	-21.78	-16.42
10	10-20	~674	U	Min	-19.08	-16.13
10	10-20	~675	U	Min	-19.	-16.07
10	10-20	~672	U	Min	-21.71	-16.36
10	10-21	~672	U	Max	-0.44	-8.68
10	10-21	~675	U	Max	-1.05	-8.05

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-21	~676	U	Max	-1.15	-8.19
10	10-21	~673	U	Max	-0.55	-8.82
10	10-21	~672	U	Min	-22.09	-16.4
10	10-21	~675	U	Min	-19.13	-16.04
10	10-21	~676	U	Min	-19.19	-16.65
10	10-21	~673	U	Min	-22.15	-17.01
10	10-22	~640	U	Max	-0.86	-8.81
10	10-22	~642	U	Max	-0.94	-8.21
10	10-22	~677	U	Max	-0.86	-7.82
10	10-22	~674	U	Max	-0.78	-8.43
10	10-22	~640	U	Min	-18.68	-15.74
10	10-22	~642	U	Min	-15.62	-15.31
10	10-22	~677	U	Min	-15.51	-15.
10	10-22	~674	U	Min	-18.57	-15.43
10	10-23	~674	U	Max	-0.96	-8.51
10	10-23	~677	U	Max	-0.8	-7.87
10	10-23	~678	U	Max	-0.78	-7.66
10	10-23	~675	U	Max	-0.95	-8.3
10	10-23	~674	U	Min	-19.06	-15.47
10	10-23	~677	U	Min	-15.74	-14.99
10	10-23	~678	U	Min	-15.69	-14.99
10	10-23	~675	U	Min	-19.01	-15.48
10	10-24	~675	U	Max	-0.8	-8.34
10	10-24	~678	U	Max	-0.85	-7.71
10	10-24	~679	U	Max	-0.9	-7.69
10	10-24	~676	U	Max	-0.84	-8.32
10	10-24	~675	U	Min	-19.13	-15.45
10	10-24	~678	U	Min	-15.96	-15.01
10	10-24	~679	U	Min	-15.98	-15.32
10	10-24	~676	U	Min	-19.15	-15.75
10	10-25	~642	U	Max	-0.69	-8.1
10	10-25	~644	U	Max	7.267E-02	-7.49
10	10-25	~680	U	Max	0.14	-7.21
10	10-25	~677	U	Max	-0.64	-7.85
10	10-25	~642	U	Min	-15.56	-14.68
10	10-25	~644	U	Min	-12.12	-14.08
10	10-25	~680	U	Min	-12.07	-13.8
10	10-25	~677	U	Min	-15.47	-14.39
10	10-26	~677	U	Max	-0.58	-7.9
10	10-26	~680	U	Max	-3.708E-02	-7.27
10	10-26	~681	U	Max	-2.020E-02	-7.12
10	10-26	~678	U	Max	-0.57	-7.74
10	10-26	~677	U	Min	-15.7	-14.38
10	10-26	~680	U	Min	-12.37	-13.84
10	10-26	~681	U	Min	-12.34	-13.83
10	10-26	~678	U	Min	-15.66	-14.37
10	10-27	~678	U	Max	-0.63	-7.79
10	10-27	~681	U	Max	9.815E-02	-7.15
10	10-27	~682	U	Max	5.815E-02	-7.15
10	10-27	~679	U	Max	-0.66	-7.8
10	10-27	~678	U	Min	-15.93	-14.39
10	10-27	~681	U	Min	-12.46	-13.81
10	10-27	~682	U	Min	-12.46	-14.09
10	10-27	~679	U	Min	-15.95	-14.67
10	10-28	~644	U	Max	0.25	-7.38
10	10-28	~646	U	Max	1.35	-6.78
10	10-28	~683	U	Max	1.43	-6.51
10	10-28	~680	U	Max	0.33	-7.14
10	10-28	~644	U	Min	-12.11	-13.66
10	10-28	~646	U	Min	-8.94	-13.
10	10-28	~683	U	Min	-8.89	-12.61
10	10-28	~680	U	Min	-12.05	-13.27
10	10-29	~680	U	Max	0.15	-7.2
10	10-29	~683	U	Max	1.56	-6.53
10	10-29	~684	U	Max	1.58	-6.42
10	10-29	~681	U	Max	0.17	-7.09
10	10-29	~680	U	Min	-12.35	-13.31
10	10-29	~683	U	Min	-9.	-12.58
10	10-29	~684	U	Min	-8.98	-12.55
10	10-29	~681	U	Min	-12.33	-13.28
10	10-30	~681	U	Max	0.29	-7.11
10	10-30	~684	U	Max	1.3	-6.47

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-30	~685	U	Max	1.25	-6.56
10	10-30	~682	U	Max	0.24	-7.2
10	10-30	~681	U	Min	-12.45	-13.25
10	10-30	~684	U	Min	-9.25	-12.62
10	10-30	~685	U	Min	-9.27	-12.96
10	10-30	~682	U	Min	-12.47	-13.59
10	10-31	~646	U	Max	1.54	-6.5
10	10-31	~648	U	Max	3.58	-5.88
10	10-31	~686	U	Max	3.61	-5.74
10	10-31	~683	U	Max	1.58	-6.44
10	10-31	~646	U	Min	-8.91	-12.47
10	10-31	~648	U	Min	-5.37	-11.59
10	10-31	~686	U	Min	-5.34	-11.43
10	10-31	~683	U	Min	-8.88	-12.31
10	10-32	~683	U	Max	1.71	-6.47
10	10-32	~686	U	Max	2.98	-5.82
10	10-32	~687	U	Max	3.	-5.74
10	10-32	~684	U	Max	1.73	-6.38
10	10-32	~683	U	Min	-8.99	-12.28
10	10-32	~686	U	Min	-5.78	-11.59
10	10-32	~687	U	Min	-5.76	-11.52
10	10-32	~684	U	Min	-8.97	-12.22
10	10-33	~684	U	Max	1.45	-6.43
10	10-33	~687	U	Max	3.36	-5.72
10	10-33	~688	U	Max	3.38	-5.68
10	10-33	~685	U	Max	1.47	-6.39
10	10-33	~684	U	Min	-9.24	-12.29
10	10-33	~687	U	Min	-5.68	-11.43
10	10-33	~688	U	Min	-5.68	-11.38
10	10-33	~685	U	Min	-9.24	-12.23
10	10-34	~648	U	Max	3.82	-5.41
10	10-34	~650	U	Max	4.24	-4.98
10	10-34	~689	U	Max	4.2	-5.04
10	10-34	~686	U	Max	3.78	-5.57
10	10-34	~648	U	Min	-5.29	-10.75
10	10-34	~650	U	Min	-2.59	-10.26
10	10-34	~689	U	Min	-2.6	-10.54
10	10-34	~686	U	Min	-5.3	-11.03
10	10-35	~686	U	Max	3.14	-5.63
10	10-35	~689	U	Max	5.32	-4.95
10	10-35	~690	U	Max	5.34	-4.87
10	10-35	~687	U	Max	3.17	-5.59
10	10-35	~686	U	Min	-5.74	-11.19
10	10-35	~689	U	Min	-2.13	-10.27
10	10-35	~690	U	Min	-2.11	-10.17
10	10-35	~687	U	Min	-5.73	-11.09
10	10-36	~687	U	Max	3.53	-5.58
10	10-36	~690	U	Max	3.84	-5.03
10	10-36	~691	U	Max	3.9	-4.89
10	10-36	~688	U	Max	3.59	-5.44
10	10-36	~687	U	Min	-5.65	-11.
10	10-36	~690	U	Min	-2.92	-10.53
10	10-36	~691	U	Min	-2.89	-10.22
10	10-36	~688	U	Min	-5.63	-10.68
10	10-37	~650	U	Max	4.7	-3.92
10	10-37	~652	U	Max	5.17	-3.47
10	10-37	~692	U	Max	4.99	-3.97
10	10-37	~689	U	Max	4.51	-4.47
10	10-37	~650	U	Min	-2.39	-8.06
10	10-37	~652	U	Min	0.26	-7.56
10	10-37	~692	U	Min	0.16	-8.78
10	10-37	~689	U	Min	-2.49	-9.28
10	10-38	~689	U	Max	5.63	-4.35
10	10-38	~692	U	Max	0.68	-4.4
10	10-38	~693	U	Max	0.59	-4.61
10	10-38	~690	U	Max	5.54	-4.57
10	10-38	~689	U	Min	-2.02	-9.
10	10-38	~692	U	Min	-1.98	-9.83
10	10-38	~693	U	Min	-2.02	-10.37
10	10-38	~690	U	Min	-2.06	-9.55
10	10-39	~690	U	Max	4.04	-4.71
10	10-39	~693	U	Max	5.05	-4.17

Element Forces - Area Shells, Part 2 of 10

Area	AreaElem	Joint	OutputCase	StepType	F11 KN/m	F22 KN/m
10	10-39	~694	U	Max	5.4	-3.27
10	10-39	~691	U	Max	4.39	-3.83
10	10-39	~690	U	Min	-2.87	-9.91
10	10-39	~693	U	Min	0.13	-9.29
10	10-39	~694	U	Min	0.31	-7.13
10	10-39	~691	U	Min	-2.69	-7.75
10	10-40	~652	U	Max	5.	-3.88
10	10-40	45	U	Max	-3.46	-4.63
10	10-40	~695	U	Max	-2.85	-1.62
10	10-40	~692	U	Max	6.31	-0.82
10	10-40	~652	U	Min	0.17	-9.14
10	10-40	45	U	Min	-8.12	-11.64
10	10-40	~695	U	Min	-6.55	-3.81
10	10-40	~692	U	Min	0.78	-1.31
10	10-41	~692	U	Max	2.01	-1.25
10	10-41	~695	U	Max	1.59	-0.94
10	10-41	~696	U	Max	1.59	-0.96
10	10-41	~693	U	Max	2.01	-1.28
10	10-41	~692	U	Min	-1.36	-2.35
10	10-41	~695	U	Min	0.46	-2.18
10	10-41	~696	U	Min	0.45	-2.22
10	10-41	~693	U	Min	-1.37	-2.39
10	10-42	~693	U	Max	6.46	-0.84
10	10-42	~696	U	Max	-1.15	-1.33
10	10-42	46	U	Max	-2.32	-7.21
10	10-42	~694	U	Max	4.02	-6.74
10	10-42	~693	U	Min	0.79	-1.31
10	10-42	~696	U	Min	-3.13	-3.16
10	10-42	46	U	Min	-6.08	-17.89
10	10-42	~694	U	Min	-0.39	-16.03

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-1	U	Max	-9.45	13.22	0.
10	10-1	U	Max	-7.44	10.25	0.
10	10-1	U	Max	-1.16	16.	0.
10	10-1	U	Max	-1.49	22.42	0.
10	10-1	U	Min	-33.19	1.13	0.
10	10-1	U	Min	-27.11	-2.35	0.
10	10-1	U	Min	-2.8	3.14	0.
10	10-1	U	Min	-8.67	6.61	0.
10	10-2	U	Max	-0.47	12.37	0.
10	10-2	U	Max	-2.89	8.05	0.
10	10-2	U	Max	-2.95	-0.27	0.
10	10-2	U	Max	-0.66	1.56	0.
10	10-2	U	Min	-4.14	2.04	0.
10	10-2	U	Min	-4.96	-0.62	0.
10	10-2	U	Min	-4.96	-11.53	0.
10	10-2	U	Min	-4.1	-7.55	0.
10	10-3	U	Max	-0.44	-7.87	0.
10	10-3	U	Max	-1.08	-1.04	0.
10	10-3	U	Max	-13.9	7.61	0.
10	10-3	U	Max	-11.78	-0.37	0.
10	10-3	U	Min	-6.96	-28.22	0.
10	10-3	U	Min	-2.95	-13.67	0.
10	10-3	U	Min	-45.98	-4.34	0.
10	10-3	U	Min	-50.07	-16.38	0.
10	10-4	U	Max	-7.64	11.27	0.
10	10-4	U	Max	-9.71	6.35	0.
10	10-4	U	Max	-8.65	4.55	0.
10	10-4	U	Max	-6.32	8.75	0.
10	10-4	U	Min	-17.35	0.8	0.
10	10-4	U	Min	-19.17	-2.73	0.
10	10-4	U	Min	-20.15	-7.8	0.
10	10-4	U	Min	-19.	-3.55	0.
10	10-5	U	Max	-7.51	3.57	0.

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-5	U	Max	-8.58	4.48	0.
10	10-5	U	Max	-7.1	7.64	0.
10	10-5	U	Max	-6.02	6.24	0.
10	10-5	U	Min	-22.06	-8.14	0.
10	10-5	U	Min	-19.41	-7.21	0.
10	10-5	U	Min	-20.64	-4.02	0.
10	10-5	U	Min	-23.41	-4.45	0.
10	10-6	U	Max	-5.23	4.76	0.
10	10-6	U	Max	-7.51	7.34	0.
10	10-6	U	Max	-7.46	1.81	0.
10	10-6	U	Max	-5.18	0.56	0.
10	10-6	U	Min	-20.31	-5.89	0.
10	10-6	U	Min	-21.69	-3.9	0.
10	10-6	U	Min	-17.52	-5.95	0.
10	10-6	U	Min	-15.37	-9.25	0.
10	10-7	U	Max	-10.87	4.47	0.
10	10-7	U	Max	-11.91	4.71	0.
10	10-7	U	Max	-8.47	6.27	0.
10	10-7	U	Max	-7.25	5.76	0.
10	10-7	U	Min	-21.11	-4.99	0.
10	10-7	U	Min	-21.97	-3.76	0.
10	10-7	U	Min	-20.49	-3.15	0.
10	10-7	U	Min	-19.66	-4.12	0.
10	10-8	U	Max	-7.19	6.07	0.
10	10-8	U	Max	-8.82	5.09	0.
10	10-8	U	Max	-8.	2.69	0.
10	10-8	U	Max	-6.37	3.47	0.
10	10-8	U	Min	-18.89	-3.91	0.
10	10-8	U	Min	-20.99	-3.49	0.
10	10-8	U	Min	-20.52	-5.73	0.
10	10-8	U	Min	-18.48	-5.93	0.
10	10-9	U	Max	-6.78	3.06	0.
10	10-9	U	Max	-7.99	2.24	0.
10	10-9	U	Max	-9.58	3.21	0.
10	10-9	U	Max	-8.38	4.47	0.
10	10-9	U	Min	-19.53	-5.71	0.
10	10-9	U	Min	-20.23	-6.75	0.
10	10-9	U	Min	-21.24	-5.15	0.
10	10-10	U	Min	-20.48	-4.54	0.
10	10-10	U	Max	-11.18	4.85	0.
10	10-10	U	Max	-11.92	3.59	0.
10	10-10	U	Max	-8.8	3.19	0.
10	10-10	U	Max	-8.1	4.18	0.
10	10-10	U	Min	-20.35	-2.8	0.
10	10-10	U	Min	-21.74	-2.86	0.
10	10-10	U	Min	-19.88	-4.45	0.
10	10-11	U	Min	-18.49	-4.12	0.
10	10-11	U	Max	-8.45	3.14	0.
10	10-11	U	Max	-8.95	2.85	0.
10	10-11	U	Max	-8.03	3.35	0.
10	10-11	U	Max	-7.53	3.66	0.
10	10-11	U	Min	-18.99	-4.61	0.
10	10-11	U	Min	-19.82	-4.43	0.
10	10-11	U	Min	-19.48	-3.84	0.
10	10-12	U	Min	-18.65	-4.04	0.
10	10-12	U	Max	-7.52	3.09	0.
10	10-12	U	Max	-8.16	3.12	0.
10	10-12	U	Max	-9.58	1.46	0.
10	10-12	U	Max	-8.94	1.6	0.
10	10-12	U	Min	-18.36	-4.95	0.
10	10-12	U	Min	-19.67	-4.01	0.
10	10-12	U	Min	-20.57	-4.26	0.
10	10-13	U	Min	-19.26	-5.37	0.
10	10-13	U	Max	-11.01	2.88	0.
10	10-13	U	Max	-10.95	2.6	0.
10	10-13	U	Max	-8.63	3.1	0.
10	10-13	U	Max	-8.7	3.27	0.
10	10-13	U	Min	-19.85	-3.2	0.
10	10-13	U	Min	-20.26	-2.69	0.
10	10-13	U	Min	-18.31	-2.83	0.
10	10-14	U	Min	-17.9	-3.24	0.
			Max	-8.84	3.04	0.

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-14	U	Max	-8.79	2.64	0.
10	10-14	U	Max	-8.15	1.76	0.
10	10-14	U	Max	-8.2	2.12	0.
10	10-14	U	Min	-17.85	-3.32	0.
10	10-14	U	Min	-18.44	-2.88	0.
10	10-14	U	Min	-18.19	-3.6	0.
10	10-14	U	Min	-17.6	-4.01	0.
10	10-15	U	Max	-8.34	1.81	0.
10	10-15	U	Max	-8.18	1.44	0.
10	10-15	U	Max	-9.26	1.35	0.
10	10-15	U	Max	-9.41	1.88	0.
10	10-15	U	Min	-17.79	-4.11	0.
10	10-15	U	Min	-18.12	-4.09	0.
10	10-15	U	Min	-19.71	-3.54	0.
10	10-15	U	Min	-19.38	-3.7	0.
10	10-16	U	Max	-10.29	2.53	0.
10	10-16	U	Max	-9.88	2.05	0.
10	10-16	U	Max	-8.54	1.92	0.
10	10-16	U	Max	-8.95	2.33	0.
10	10-16	U	Min	-18.31	-2.23	0.
10	10-16	U	Min	-18.36	-1.99	0.
10	10-16	U	Min	-17.25	-2.66	0.
10	10-16	U	Min	-17.2	-2.84	0.
10	10-17	U	Max	-9.11	1.91	0.
10	10-17	U	Max	-8.63	1.67	0.
10	10-17	U	Max	-8.18	1.63	0.
10	10-17	U	Max	-8.67	1.88	0.
10	10-17	U	Min	-17.33	-2.94	0.
10	10-17	U	Min	-17.24	-2.7	0.
10	10-17	U	Min	-17.15	-2.62	0.
10	10-17	U	Min	-17.25	-2.86	0.
10	10-18	U	Max	-8.7	1.51	0.
10	10-18	U	Max	-8.25	1.46	0.
10	10-18	U	Max	-8.67	0.84	0.
10	10-18	U	Max	-9.12	0.95	0.
10	10-18	U	Min	-17.18	-3.3	0.
10	10-18	U	Min	-17.19	-2.76	0.
10	10-18	U	Min	-18.01	-2.75	0.
10	10-18	U	Min	-18.	-3.35	0.
10	10-19	U	Max	-9.55	1.64	0.
10	10-19	U	Max	-8.96	1.39	0.
10	10-19	U	Max	-8.26	1.6	0.
10	10-19	U	Max	-8.85	1.83	0.
10	10-19	U	Min	-17.04	-2.01	0.
10	10-19	U	Min	-16.7	-1.77	0.
10	10-19	U	Min	-16.08	-1.92	0.
10	10-19	U	Min	-16.43	-2.14	0.
10	10-20	U	Max	-8.94	1.6	0.
10	10-20	U	Max	-8.34	1.41	0.
10	10-20	U	Max	-8.02	1.03	0.
10	10-20	U	Max	-8.61	1.22	0.
10	10-20	U	Min	-16.42	-2.2	0.
10	10-20	U	Min	-16.13	-1.9	0.
10	10-20	U	Min	-16.07	-2.16	0.
10	10-20	U	Min	-16.36	-2.46	0.
10	10-21	U	Max	-8.68	1.04	0.
10	10-21	U	Max	-8.05	0.89	0.
10	10-21	U	Max	-8.19	0.74	0.
10	10-21	U	Max	-8.82	0.92	0.
10	10-21	U	Min	-16.4	-2.59	0.
10	10-21	U	Min	-16.04	-2.35	0.
10	10-21	U	Min	-16.65	-2.08	0.
10	10-21	U	Min	-17.01	-2.35	0.
10	10-22	U	Max	-8.81	1.29	0.
10	10-22	U	Max	-8.21	1.05	0.
10	10-22	U	Max	-7.82	0.98	0.
10	10-22	U	Max	-8.43	1.22	0.
10	10-22	U	Min	-15.74	-1.52	0.
10	10-22	U	Min	-15.31	-1.31	0.
10	10-22	U	Min	-15.	-1.64	0.
10	10-22	U	Min	-15.43	-1.84	0.
10	10-23	U	Max	-8.51	1.03	0.

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-23	U	Max	-7.87	0.86	0.
10	10-23	U	Max	-7.66	0.86	0.
10	10-23	U	Max	-8.3	1.03	0.
10	10-23	U	Min	-15.47	-1.83	0.
10	10-23	U	Min	-14.99	-1.64	0.
10	10-23	U	Min	-14.99	-1.57	0.
10	10-23	U	Min	-15.48	-1.75	0.
10	10-24	U	Max	-8.34	0.87	0.
10	10-24	U	Max	-7.71	0.78	0.
10	10-24	U	Max	-7.69	0.5	0.
10	10-24	U	Max	-8.32	0.6	0.
10	10-24	U	Min	-15.45	-1.93	0.
10	10-24	U	Min	-15.01	-1.63	0.
10	10-24	U	Min	-15.32	-1.57	0.
10	10-24	U	Min	-15.75	-1.88	0.
10	10-25	U	Max	-8.1	0.78	0.
10	10-25	U	Max	-7.49	0.58	0.
10	10-25	U	Max	-7.21	0.72	0.
10	10-25	U	Max	-7.85	0.95	0.
10	10-25	U	Min	-14.68	-1.29	0.
10	10-25	U	Min	-14.08	-1.17	0.
10	10-25	U	Min	-13.8	-1.19	0.
10	10-25	U	Min	-14.39	-1.33	0.
10	10-26	U	Max	-7.9	0.82	0.
10	10-26	U	Max	-7.27	0.68	0.
10	10-26	U	Max	-7.12	0.47	0.
10	10-26	U	Max	-7.74	0.61	0.
10	10-26	U	Min	-14.38	-1.33	0.
10	10-26	U	Min	-13.84	-1.14	0.
10	10-26	U	Min	-13.83	-1.28	0.
10	10-26	U	Min	-14.37	-1.47	0.
10	10-27	U	Max	-7.79	0.53	0.
10	10-27	U	Max	-7.15	0.43	0.
10	10-27	U	Max	-7.15	0.45	0.
10	10-27	U	Max	-7.8	0.53	0.
10	10-27	U	Min	-14.39	-1.53	0.
10	10-27	U	Min	-13.81	-1.31	0.
10	10-27	U	Min	-14.09	-1.09	0.
10	10-28	U	Min	-14.67	-1.3	0.
10	10-28	U	Max	-7.38	0.55	0.
10	10-28	U	Max	-6.78	0.48	0.
10	10-28	U	Max	-6.51	0.33	0.
10	10-28	U	Max	-7.14	0.43	0.
10	10-28	U	Min	-13.66	-0.93	0.
10	10-28	U	Min	-13.	-0.74	0.
10	10-28	U	Min	-12.61	-1.01	0.
10	10-29	U	Min	-13.27	-1.25	0.
10	10-29	U	Max	-7.2	0.38	0.
10	10-29	U	Max	-6.53	0.24	0.
10	10-29	U	Max	-6.42	0.37	0.
10	10-29	U	Max	-7.09	0.52	0.
10	10-29	U	Min	-13.31	-1.17	0.
10	10-29	U	Min	-12.58	-1.08	0.
10	10-29	U	Min	-12.55	-0.85	0.
10	10-29	U	Min	-13.28	-0.96	0.
10	10-30	U	Max	-7.11	0.5	0.
10	10-30	U	Max	-6.47	0.29	0.
10	10-30	U	Max	-6.56	0.1	0.
10	10-30	U	Max	-7.2	0.25	0.
10	10-30	U	Min	-13.25	-1.	0.
10	10-30	U	Min	-12.62	-0.89	0.
10	10-30	U	Min	-12.96	-1.	0.
10	10-31	U	Min	-13.59	-1.05	0.
10	10-31	U	Max	-6.5	0.19	0.
10	10-31	U	Max	-5.88	-7.399E-02	0.
10	10-31	U	Max	-5.74	0.11	0.
10	10-31	U	Max	-6.44	0.49	0.
10	10-31	U	Min	-12.47	-0.82	0.
10	10-31	U	Min	-11.59	-1.04	0.
10	10-31	U	Min	-11.43	-0.77	0.
10	10-32	U	Min	-12.31	-0.67	0.
			Max	-6.47	0.36	0.

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-32	U	Max	-5.82	0.25	0.
10	10-32	U	Max	-5.74	-6.902E-02	0.
10	10-32	U	Max	-6.38	2.956E-02	0.
10	10-32	U	Min	-12.28	-0.69	0.
10	10-32	U	Min	-11.59	-0.58	0.
10	10-32	U	Min	-11.52	-1.	0.
10	10-32	U	Min	-12.22	-1.1	0.
10	10-33	U	Max	-6.43	-2.359E-02	0.
10	10-33	U	Max	-5.72	-3.768E-02	0.
10	10-33	U	Max	-5.68	0.21	0.
10	10-33	U	Max	-6.39	0.16	0.
10	10-33	U	Min	-12.29	-1.17	0.
10	10-33	U	Min	-11.43	-0.92	0.
10	10-33	U	Min	-11.38	-0.49	0.
10	10-33	U	Min	-12.23	-0.67	0.
10	10-34	U	Max	-5.41	-5.433E-03	0.
10	10-34	U	Max	-4.98	0.22	0.
10	10-34	U	Max	-5.04	-0.25	0.
10	10-34	U	Max	-5.57	-0.34	0.
10	10-34	U	Min	-10.75	-0.67	0.
10	10-34	U	Min	-10.26	-0.33	0.
10	10-34	U	Min	-10.54	-0.96	0.
10	10-34	U	Min	-11.03	-1.41	0.
10	10-35	U	Max	-5.63	-0.26	0.
10	10-35	U	Max	-4.95	-0.42	0.
10	10-35	U	Max	-4.87	5.766E-02	0.
10	10-35	U	Max	-5.59	0.29	0.
10	10-35	U	Min	-11.19	-1.17	0.
10	10-35	U	Min	-10.27	-1.29	0.
10	10-35	U	Min	-10.17	-0.42	0.
10	10-35	U	Min	-11.09	-0.4	0.
10	10-36	U	Max	-5.58	0.37	0.
10	10-36	U	Max	-5.03	-5.062E-02	0.
10	10-36	U	Max	-4.89	-0.44	0.
10	10-36	U	Max	-5.44	-0.18	0.
10	10-36	U	Min	-11.	-0.36	0.
10	10-36	U	Min	-10.53	-0.51	0.
10	10-36	U	Min	-10.22	-1.22	0.
10	10-36	U	Min	-10.68	-0.9	0.
10	10-37	U	Max	-3.92	-0.44	0.
10	10-37	U	Max	-3.47	-1.51	0.
10	10-37	U	Max	-3.97	-0.85	0.
10	10-37	U	Max	-4.47	0.61	0.
10	10-37	U	Min	-8.06	-1.13	0.
10	10-37	U	Min	-7.56	-3.68	0.
10	10-37	U	Min	-8.78	-2.03	0.
10	10-37	U	Min	-9.28	-0.12	0.
10	10-38	U	Max	-4.35	0.28	0.
10	10-38	U	Max	-4.4	0.74	0.
10	10-38	U	Max	-4.61	-0.54	0.
10	10-38	U	Max	-4.57	-0.76	0.
10	10-38	U	Min	-9.	-0.27	0.
10	10-38	U	Min	-9.83	4.997E-02	0.
10	10-38	U	Min	-10.37	-1.3	0.
10	10-38	U	Min	-9.55	-1.89	0.
10	10-39	U	Max	-4.71	-0.82	0.
10	10-39	U	Max	-4.17	-0.23	0.
10	10-39	U	Max	-3.27	1.66	0.
10	10-39	U	Max	-3.83	0.24	0.
10	10-39	U	Min	-9.91	-2.03	0.
10	10-39	U	Min	-9.29	-0.6	0.
10	10-39	U	Min	-7.13	0.5	0.
10	10-39	U	Min	-7.75	-0.17	0.
10	10-40	U	Max	-3.88	-1.16	0.
10	10-40	U	Max	-4.63	-1.96	0.
10	10-40	U	Max	-1.62	-3.05	0.
10	10-40	U	Max	-0.82	-2.25	0.
10	10-40	U	Min	-9.14	-2.68	0.
10	10-40	U	Min	-11.64	-4.72	0.
10	10-40	U	Min	-3.81	-7.52	0.
10	10-40	U	Min	-1.31	-5.49	0.
10	10-41	U	Max	-1.25	-1.13	0.

Element Forces - Area Shells, Part 3 of 10

Area	AreaElem	OutputCase	StepType	F22 KN/m	F12 KN/m	FMax KN/m
10	10-41	U	Max	-0.94	-1.78	0.
10	10-41	U	Max	-0.96	1.4	0.
10	10-41	U	Max	-1.28	2.95	0.
10	10-41	U	Min	-2.35	-2.74	0.
10	10-41	U	Min	-2.18	-4.28	0.
10	10-41	U	Min	-2.22	0.45	0.
10	10-41	U	Min	-2.39	1.07	0.
10	10-42	U	Max	-0.84	3.71	0.
10	10-42	U	Max	-1.33	9.7	0.
10	10-42	U	Max	-7.21	4.56	0.
10	10-42	U	Max	-6.74	-0.62	0.
10	10-42	U	Min	-1.31	1.38	0.
10	10-42	U	Min	-3.16	3.88	0.
10	10-42	U	Min	-17.89	1.74	0.
10	10-42	U	Min	-16.03	-1.43	0.

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 4 of 10

Area	AreaElem	StepType	F22 KN/m	FMax KN/m	FMin KN/m	FAngle Degrees
10	10-1	Max	-9.45	0.	0.	0.
10	10-1	Max	-7.44	0.	0.	0.
10	10-1	Max	-1.16	0.	0.	0.
10	10-1	Max	-1.49	0.	0.	0.
10	10-1	Min	-33.19	0.	0.	0.
10	10-1	Min	-27.11	0.	0.	0.
10	10-1	Min	-2.8	0.	0.	0.
10	10-1	Min	-8.67	0.	0.	0.
10	10-2	Max	-0.47	0.	0.	0.
10	10-2	Max	-2.89	0.	0.	0.
10	10-2	Max	-2.95	0.	0.	0.
10	10-2	Max	-0.66	0.	0.	0.
10	10-2	Min	-4.14	0.	0.	0.
10	10-2	Min	-4.98	0.	0.	0.
10	10-2	Min	-4.96	0.	0.	0.
10	10-2	Min	-4.1	0.	0.	0.
10	10-3	Max	-0.44	0.	0.	0.
10	10-3	Max	-1.08	0.	0.	0.
10	10-3	Max	-13.9	0.	0.	0.
10	10-3	Max	-11.78	0.	0.	0.
10	10-3	Min	-6.96	0.	0.	0.
10	10-3	Min	-2.95	0.	0.	0.
10	10-3	Min	-45.98	0.	0.	0.
10	10-3	Min	-50.07	0.	0.	0.
10	10-4	Max	-7.64	0.	0.	0.
10	10-4	Max	-9.71	0.	0.	0.
10	10-4	Max	-8.65	0.	0.	0.
10	10-4	Max	-6.32	0.	0.	0.
10	10-4	Min	-17.35	0.	0.	0.
10	10-4	Min	-19.17	0.	0.	0.
10	10-4	Min	-20.15	0.	0.	0.
10	10-4	Min	-19.	0.	0.	0.
10	10-5	Max	-7.51	0.	0.	0.
10	10-5	Max	-8.58	0.	0.	0.
10	10-5	Max	-7.1	0.	0.	0.
10	10-5	Max	-6.02	0.	0.	0.
10	10-5	Min	-22.06	0.	0.	0.
10	10-5	Min	-19.41	0.	0.	0.
10	10-5	Min	-20.64	0.	0.	0.
10	10-5	Min	-23.41	0.	0.	0.
10	10-6	Max	-5.23	0.	0.	0.
10	10-6	Max	-7.51	0.	0.	0.
10	10-6	Max	-7.46	0.	0.	0.
10	10-6	Max	-5.18	0.	0.	0.
10	10-6	Min	-20.31	0.	0.	0.
10	10-6	Min	-21.69	0.	0.	0.
10	10-6	Min	-17.52	0.	0.	0.
10	10-6	Min	-15.37	0.	0.	0.

Element Forces - Area Shells, Part 4 of 10

Area	AreaElem	StepType	F22 KN/m	FMax KN/m	FMin KN/m	FAngle Degrees
10	10-7	Max	-10.87	0.	0.	0.
10	10-7	Max	-11.91	0.	0.	0.
10	10-7	Max	-8.47	0.	0.	0.
10	10-7	Max	-7.25	0.	0.	0.
10	10-7	Min	-21.11	0.	0.	0.
10	10-7	Min	-21.97	0.	0.	0.
10	10-7	Min	-20.49	0.	0.	0.
10	10-7	Min	-19.66	0.	0.	0.
10	10-8	Max	-7.19	0.	0.	0.
10	10-8	Max	-8.82	0.	0.	0.
10	10-8	Max	-8.	0.	0.	0.
10	10-8	Max	-6.37	0.	0.	0.
10	10-8	Min	-18.89	0.	0.	0.
10	10-8	Min	-20.99	0.	0.	0.
10	10-8	Min	-20.52	0.	0.	0.
10	10-8	Min	-18.48	0.	0.	0.
10	10-9	Max	-6.78	0.	0.	0.
10	10-9	Max	-7.99	0.	0.	0.
10	10-9	Max	-9.58	0.	0.	0.
10	10-9	Max	-8.38	0.	0.	0.
10	10-9	Min	-19.53	0.	0.	0.
10	10-9	Min	-20.23	0.	0.	0.
10	10-9	Min	-21.24	0.	0.	0.
10	10-9	Min	-20.48	0.	0.	0.
10	10-10	Max	-11.18	0.	0.	0.
10	10-10	Max	-11.92	0.	0.	0.
10	10-10	Max	-8.8	0.	0.	0.
10	10-10	Max	-8.1	0.	0.	0.
10	10-10	Min	-20.35	0.	0.	0.
10	10-10	Min	-21.74	0.	0.	0.
10	10-10	Min	-19.88	0.	0.	0.
10	10-10	Min	-18.49	0.	0.	0.
10	10-11	Max	-8.45	0.	0.	0.
10	10-11	Max	-8.95	0.	0.	0.
10	10-11	Max	-8.03	0.	0.	0.
10	10-11	Max	-7.53	0.	0.	0.
10	10-11	Min	-18.99	0.	0.	0.
10	10-11	Min	-19.82	0.	0.	0.
10	10-11	Min	-19.48	0.	0.	0.
10	10-11	Min	-18.65	0.	0.	0.
10	10-12	Max	-7.52	0.	0.	0.
10	10-12	Max	-8.16	0.	0.	0.
10	10-12	Max	-9.58	0.	0.	0.
10	10-12	Max	-8.94	0.	0.	0.
10	10-12	Min	-18.36	0.	0.	0.
10	10-12	Min	-19.67	0.	0.	0.
10	10-12	Min	-20.57	0.	0.	0.
10	10-12	Min	-19.26	0.	0.	0.
10	10-13	Max	-11.01	0.	0.	0.
10	10-13	Max	-10.95	0.	0.	0.
10	10-13	Max	-8.63	0.	0.	0.
10	10-13	Max	-8.7	0.	0.	0.
10	10-13	Min	-19.85	0.	0.	0.
10	10-13	Min	-20.26	0.	0.	0.
10	10-13	Min	-18.31	0.	0.	0.
10	10-13	Min	-17.9	0.	0.	0.
10	10-14	Max	-8.84	0.	0.	0.
10	10-14	Max	-8.79	0.	0.	0.
10	10-14	Max	-8.15	0.	0.	0.
10	10-14	Max	-8.2	0.	0.	0.
10	10-14	Min	-17.85	0.	0.	0.
10	10-14	Min	-18.44	0.	0.	0.
10	10-14	Min	-18.19	0.	0.	0.
10	10-14	Min	-17.6	0.	0.	0.
10	10-15	Max	-8.34	0.	0.	0.
10	10-15	Max	-8.18	0.	0.	0.
10	10-15	Max	-9.26	0.	0.	0.
10	10-15	Max	-9.41	0.	0.	0.
10	10-15	Min	-17.79	0.	0.	0.
10	10-15	Min	-18.12	0.	0.	0.
10	10-15	Min	-19.71	0.	0.	0.
10	10-15	Min	-19.38	0.	0.	0.

Element Forces - Area Shells, Part 4 of 10

Area	AreaElem	StepType	F22 KN/m	FMax KN/m	FMin KN/m	FAngle Degrees
10	10-16	Max	-10.29	0.	0.	0.
10	10-16	Max	-9.88	0.	0.	0.
10	10-16	Max	-8.54	0.	0.	0.
10	10-16	Max	-8.95	0.	0.	0.
10	10-16	Min	-18.31	0.	0.	0.
10	10-16	Min	-18.36	0.	0.	0.
10	10-16	Min	-17.25	0.	0.	0.
10	10-16	Min	-17.2	0.	0.	0.
10	10-17	Max	-9.11	0.	0.	0.
10	10-17	Max	-8.63	0.	0.	0.
10	10-17	Max	-8.18	0.	0.	0.
10	10-17	Max	-8.67	0.	0.	0.
10	10-17	Min	-17.33	0.	0.	0.
10	10-17	Min	-17.24	0.	0.	0.
10	10-17	Min	-17.15	0.	0.	0.
10	10-17	Min	-17.25	0.	0.	0.
10	10-18	Max	-8.7	0.	0.	0.
10	10-18	Max	-8.25	0.	0.	0.
10	10-18	Max	-8.67	0.	0.	0.
10	10-18	Max	-9.12	0.	0.	0.
10	10-18	Min	-17.18	0.	0.	0.
10	10-18	Min	-17.19	0.	0.	0.
10	10-18	Min	-18.01	0.	0.	0.
10	10-18	Min	-18.	0.	0.	0.
10	10-19	Max	-9.55	0.	0.	0.
10	10-19	Max	-8.96	0.	0.	0.
10	10-19	Max	-8.26	0.	0.	0.
10	10-19	Max	-8.85	0.	0.	0.
10	10-19	Min	-17.04	0.	0.	0.
10	10-19	Min	-16.7	0.	0.	0.
10	10-19	Min	-16.08	0.	0.	0.
10	10-19	Min	-16.43	0.	0.	0.
10	10-20	Max	-8.94	0.	0.	0.
10	10-20	Max	-8.34	0.	0.	0.
10	10-20	Max	-8.02	0.	0.	0.
10	10-20	Max	-8.61	0.	0.	0.
10	10-20	Min	-16.42	0.	0.	0.
10	10-20	Min	-16.13	0.	0.	0.
10	10-20	Min	-16.07	0.	0.	0.
10	10-20	Min	-16.36	0.	0.	0.
10	10-21	Max	-8.68	0.	0.	0.
10	10-21	Max	-8.05	0.	0.	0.
10	10-21	Max	-8.19	0.	0.	0.
10	10-21	Max	-8.82	0.	0.	0.
10	10-21	Min	-16.4	0.	0.	0.
10	10-21	Min	-16.04	0.	0.	0.
10	10-21	Min	-16.65	0.	0.	0.
10	10-21	Min	-17.01	0.	0.	0.
10	10-22	Max	-8.81	0.	0.	0.
10	10-22	Max	-8.21	0.	0.	0.
10	10-22	Max	-7.82	0.	0.	0.
10	10-22	Max	-8.43	0.	0.	0.
10	10-22	Min	-15.74	0.	0.	0.
10	10-22	Min	-15.31	0.	0.	0.
10	10-22	Min	-15.	0.	0.	0.
10	10-22	Min	-15.43	0.	0.	0.
10	10-23	Max	-8.51	0.	0.	0.
10	10-23	Max	-7.87	0.	0.	0.
10	10-23	Max	-7.66	0.	0.	0.
10	10-23	Max	-8.3	0.	0.	0.
10	10-23	Min	-15.47	0.	0.	0.
10	10-23	Min	-14.99	0.	0.	0.
10	10-23	Min	-14.99	0.	0.	0.
10	10-23	Min	-15.48	0.	0.	0.
10	10-24	Max	-8.34	0.	0.	0.
10	10-24	Max	-7.71	0.	0.	0.
10	10-24	Max	-7.69	0.	0.	0.
10	10-24	Max	-8.32	0.	0.	0.
10	10-24	Min	-15.45	0.	0.	0.
10	10-24	Min	-15.01	0.	0.	0.
10	10-24	Min	-15.32	0.	0.	0.
10	10-24	Min	-15.75	0.	0.	0.

Element Forces - Area Shells, Part 4 of 10

Area	AreaElem	StepType	F22 KN/m	FMax KN/m	FMin KN/m	FAngle Degrees
10	10-25	Max	-8.1	0.	0.	0.
10	10-25	Max	-7.49	0.	0.	0.
10	10-25	Max	-7.21	0.	0.	0.
10	10-25	Max	-7.85	0.	0.	0.
10	10-25	Min	-14.68	0.	0.	0.
10	10-25	Min	-14.08	0.	0.	0.
10	10-25	Min	-13.8	0.	0.	0.
10	10-25	Min	-14.39	0.	0.	0.
10	10-26	Max	-7.9	0.	0.	0.
10	10-26	Max	-7.27	0.	0.	0.
10	10-26	Max	-7.12	0.	0.	0.
10	10-26	Max	-7.74	0.	0.	0.
10	10-26	Min	-14.38	0.	0.	0.
10	10-26	Min	-13.84	0.	0.	0.
10	10-26	Min	-13.83	0.	0.	0.
10	10-26	Min	-14.37	0.	0.	0.
10	10-27	Max	-7.79	0.	0.	0.
10	10-27	Max	-7.15	0.	0.	0.
10	10-27	Max	-7.15	0.	0.	0.
10	10-27	Max	-7.8	0.	0.	0.
10	10-27	Min	-14.39	0.	0.	0.
10	10-27	Min	-13.81	0.	0.	0.
10	10-27	Min	-14.09	0.	0.	0.
10	10-27	Min	-14.67	0.	0.	0.
10	10-28	Max	-7.38	0.	0.	0.
10	10-28	Max	-6.78	0.	0.	0.
10	10-28	Max	-6.51	0.	0.	0.
10	10-28	Max	-7.14	0.	0.	0.
10	10-28	Min	-13.66	0.	0.	0.
10	10-28	Min	-13.	0.	0.	0.
10	10-28	Min	-12.61	0.	0.	0.
10	10-28	Min	-13.27	0.	0.	0.
10	10-29	Max	-7.2	0.	0.	0.
10	10-29	Max	-6.53	0.	0.	0.
10	10-29	Max	-6.42	0.	0.	0.
10	10-29	Max	-7.09	0.	0.	0.
10	10-29	Min	-13.31	0.	0.	0.
10	10-29	Min	-12.58	0.	0.	0.
10	10-29	Min	-12.55	0.	0.	0.
10	10-29	Min	-13.28	0.	0.	0.
10	10-30	Max	-7.11	0.	0.	0.
10	10-30	Max	-6.47	0.	0.	0.
10	10-30	Max	-6.56	0.	0.	0.
10	10-30	Max	-7.2	0.	0.	0.
10	10-30	Min	-13.25	0.	0.	0.
10	10-30	Min	-12.62	0.	0.	0.
10	10-30	Min	-12.96	0.	0.	0.
10	10-30	Min	-13.59	0.	0.	0.
10	10-31	Max	-6.5	0.	0.	0.
10	10-31	Max	-5.88	0.	0.	0.
10	10-31	Max	-5.74	0.	0.	0.
10	10-31	Max	-6.44	0.	0.	0.
10	10-31	Min	-12.47	0.	0.	0.
10	10-31	Min	-11.59	0.	0.	0.
10	10-31	Min	-11.43	0.	0.	0.
10	10-31	Min	-12.31	0.	0.	0.
10	10-32	Max	-6.47	0.	0.	0.
10	10-32	Max	-5.82	0.	0.	0.
10	10-32	Max	-5.74	0.	0.	0.
10	10-32	Max	-6.38	0.	0.	0.
10	10-32	Min	-12.28	0.	0.	0.
10	10-32	Min	-11.59	0.	0.	0.
10	10-32	Min	-11.52	0.	0.	0.
10	10-32	Min	-12.22	0.	0.	0.
10	10-33	Max	-6.43	0.	0.	0.
10	10-33	Max	-5.72	0.	0.	0.
10	10-33	Max	-5.68	0.	0.	0.
10	10-33	Max	-6.39	0.	0.	0.
10	10-33	Min	-12.29	0.	0.	0.
10	10-33	Min	-11.43	0.	0.	0.
10	10-33	Min	-11.38	0.	0.	0.
10	10-33	Min	-12.23	0.	0.	0.

Element Forces - Area Shells, Part 4 of 10

Area	AreaElem	StepType	F22 KN/m	FMax KN/m	FMin KN/m	FAngle Degrees
10	10-34	Max	-5.41	0.	0.	0.
10	10-34	Max	-4.98	0.	0.	0.
10	10-34	Max	-5.04	0.	0.	0.
10	10-34	Max	-5.57	0.	0.	0.
10	10-34	Min	-10.75	0.	0.	0.
10	10-34	Min	-10.26	0.	0.	0.
10	10-34	Min	-10.54	0.	0.	0.
10	10-34	Min	-11.03	0.	0.	0.
10	10-35	Max	-5.63	0.	0.	0.
10	10-35	Max	-4.95	0.	0.	0.
10	10-35	Max	-4.87	0.	0.	0.
10	10-35	Max	-5.59	0.	0.	0.
10	10-35	Min	-11.19	0.	0.	0.
10	10-35	Min	-10.27	0.	0.	0.
10	10-35	Min	-10.17	0.	0.	0.
10	10-35	Min	-11.09	0.	0.	0.
10	10-36	Max	-5.58	0.	0.	0.
10	10-36	Max	-5.03	0.	0.	0.
10	10-36	Max	-4.89	0.	0.	0.
10	10-36	Max	-5.44	0.	0.	0.
10	10-36	Min	-11.	0.	0.	0.
10	10-36	Min	-10.53	0.	0.	0.
10	10-36	Min	-10.22	0.	0.	0.
10	10-36	Min	-10.68	0.	0.	0.
10	10-37	Max	-3.92	0.	0.	0.
10	10-37	Max	-3.47	0.	0.	0.
10	10-37	Max	-3.97	0.	0.	0.
10	10-37	Max	-4.47	0.	0.	0.
10	10-37	Min	-8.06	0.	0.	0.
10	10-37	Min	-7.56	0.	0.	0.
10	10-37	Min	-8.78	0.	0.	0.
10	10-37	Min	-9.28	0.	0.	0.
10	10-38	Max	-4.35	0.	0.	0.
10	10-38	Max	-4.4	0.	0.	0.
10	10-38	Max	-4.61	0.	0.	0.
10	10-38	Max	-4.57	0.	0.	0.
10	10-38	Min	-9.	0.	0.	0.
10	10-38	Min	-9.83	0.	0.	0.
10	10-38	Min	-10.37	0.	0.	0.
10	10-38	Min	-9.55	0.	0.	0.
10	10-39	Max	-4.71	0.	0.	0.
10	10-39	Max	-4.17	0.	0.	0.
10	10-39	Max	-3.27	0.	0.	0.
10	10-39	Max	-3.83	0.	0.	0.
10	10-39	Min	-9.91	0.	0.	0.
10	10-39	Min	-9.29	0.	0.	0.
10	10-39	Min	-7.13	0.	0.	0.
10	10-39	Min	-7.75	0.	0.	0.
10	10-40	Max	-3.88	0.	0.	0.
10	10-40	Max	-4.63	0.	0.	0.
10	10-40	Max	-1.62	0.	0.	0.
10	10-40	Max	-0.82	0.	0.	0.
10	10-40	Min	-9.14	0.	0.	0.
10	10-40	Min	-11.64	0.	0.	0.
10	10-40	Min	-3.81	0.	0.	0.
10	10-40	Min	-1.31	0.	0.	0.
10	10-41	Max	-1.25	0.	0.	0.
10	10-41	Max	-0.94	0.	0.	0.
10	10-41	Max	-0.96	0.	0.	0.
10	10-41	Max	-1.28	0.	0.	0.
10	10-41	Min	-2.35	0.	0.	0.
10	10-41	Min	-2.18	0.	0.	0.
10	10-41	Min	-2.22	0.	0.	0.
10	10-41	Min	-2.39	0.	0.	0.
10	10-42	Max	-0.84	0.	0.	0.
10	10-42	Max	-1.33	0.	0.	0.
10	10-42	Max	-7.21	0.	0.	0.
10	10-42	Max	-6.74	0.	0.	0.
10	10-42	Min	-1.31	0.	0.	0.
10	10-42	Min	-3.16	0.	0.	0.
10	10-42	Min	-17.89	0.	0.	0.
10	10-42	Min	-16.03	0.	0.	0.

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 5 of 10

Area	AreaElem	F22 KN/m	FMax KN/m	FAngle Degrees	FVM KN/m	M11 KN-m/m
10	10-1	-9.45	0.	0.	0.	1.2055
10	10-1	-7.44	0.	0.	0.	0.7109
10	10-1	-1.16	0.	0.	0.	-0.0826
10	10-1	-1.49	0.	0.	0.	0.9872
10	10-1	-33.19	0.	0.	0.	0.549
10	10-1	-27.11	0.	0.	0.	0.3722
10	10-1	-2.8	0.	0.	0.	-0.5473
10	10-1	-8.67	0.	0.	0.	-0.0574
10	10-2	-0.47	0.	0.	0.	0.8688
10	10-2	-2.89	0.	0.	0.	0.0018
10	10-2	-2.95	0.	0.	0.	0.0788
10	10-2	-0.66	0.	0.	0.	0.6858
10	10-2	-4.14	0.	0.	0.	-0.1083
10	10-2	-4.98	0.	0.	0.	-0.48
10	10-2	-4.96	0.	0.	0.	-0.3896
10	10-2	-4.1	0.	0.	0.	-0.183
10	10-3	-0.44	0.	0.	0.	0.8571
10	10-3	-1.08	0.	0.	0.	-0.0477
10	10-3	-13.9	0.	0.	0.	0.482
10	10-3	-11.78	0.	0.	0.	1.0685
10	10-3	-6.96	0.	0.	0.	-0.11
10	10-3	-2.95	0.	0.	0.	-0.4676
10	10-3	-45.98	0.	0.	0.	0.1964
10	10-3	-50.07	0.	0.	0.	0.2273
10	10-4	-7.64	0.	0.	0.	0.9231
10	10-4	-9.71	0.	0.	0.	0.0714
10	10-4	-8.65	0.	0.	0.	0.2019
10	10-4	-6.32	0.	0.	0.	-0.1519
10	10-4	-17.35	0.	0.	0.	0.4433
10	10-4	-19.17	0.	0.	0.	-0.0047
10	10-4	-20.15	0.	0.	0.	-0.3868
10	10-4	-19.	0.	0.	0.	-0.5949
10	10-5	-7.51	0.	0.	0.	-0.0676
10	10-5	-8.58	0.	0.	0.	0.1652
10	10-5	-7.1	0.	0.	0.	0.087
10	10-5	-6.02	0.	0.	0.	-0.1117
10	10-5	-22.06	0.	0.	0.	-0.5272
10	10-5	-19.41	0.	0.	0.	-0.4063
10	10-5	-20.64	0.	0.	0.	-0.4568
10	10-5	-23.41	0.	0.	0.	-0.5758
10	10-6	-5.23	0.	0.	0.	-0.2345
10	10-6	-7.51	0.	0.	0.	0.1418
10	10-6	-7.46	0.	0.	0.	-0.0517
10	10-6	-5.18	0.	0.	0.	0.931
10	10-6	-20.31	0.	0.	0.	-0.6782
10	10-6	-21.69	0.	0.	0.	-0.4251
10	10-6	-17.52	0.	0.	0.	-0.3002
10	10-6	-15.37	0.	0.	0.	0.4656
10	10-7	-10.87	0.	0.	0.	0.0631
10	10-7	-11.91	0.	0.	0.	0.0692
10	10-7	-8.47	0.	0.	0.	0.0761
10	10-7	-7.25	0.	0.	0.	0.2034
10	10-7	-21.11	0.	0.	0.	-0.0515
10	10-7	-21.97	0.	0.	0.	-0.0612
10	10-7	-20.49	0.	0.	0.	-0.4724
10	10-7	-19.66	0.	0.	0.	-0.3693
10	10-8	-7.19	0.	0.	0.	0.1667
10	10-8	-8.82	0.	0.	0.	0.0853
10	10-8	-8.	0.	0.	0.	0.0266
10	10-8	-6.37	0.	0.	0.	0.108
10	10-8	-18.89	0.	0.	0.	-0.3888
10	10-8	-20.99	0.	0.	0.	-0.4666
10	10-8	-20.52	0.	0.	0.	-0.5082
10	10-8	-18.48	0.	0.	0.	-0.4592
10	10-9	-6.78	0.	0.	0.	0.1628
10	10-9	-7.99	0.	0.	0.	0.0128
10	10-9	-9.58	0.	0.	0.	0.067
10	10-9	-8.38	0.	0.	0.	-0.107
10	10-9	-19.53	0.	0.	0.	-0.4275
10	10-9	-20.23	0.	0.	0.	-0.517

Element Forces - Area Shells, Part 5 of 10

Area	AreaElem	F22 KN/m	FMax KN/m	FAngle Degrees	FVM KN/m	M11 KN-m/m
10	10-9	-21.24	0.	0.	0.	-0.2298
10	10-9	-20.48	0.	0.	0.	-0.3052
10	10-10	-11.18	0.	0.	0.	0.0904
10	10-10	-11.92	0.	0.	0.	0.08
10	10-10	-8.8	0.	0.	0.	0.0139
10	10-10	-8.1	0.	0.	0.	0.072
10	10-10	-20.35	0.	0.	0.	-0.0327
10	10-10	-21.74	0.	0.	0.	-0.0646
10	10-10	-19.88	0.	0.	0.	-0.4788
10	10-10	-18.49	0.	0.	0.	-0.4613
10	10-11	-8.45	0.	0.	0.	0.0811
10	10-11	-8.95	0.	0.	0.	0.0114
10	10-11	-8.03	0.	0.	0.	-0.0236
10	10-11	-7.53	0.	0.	0.	0.0266
10	10-11	-18.99	0.	0.	0.	-0.4555
10	10-11	-19.82	0.	0.	0.	-0.4798
10	10-11	-19.48	0.	0.	0.	-0.5198
10	10-11	-18.65	0.	0.	0.	-0.5227
10	10-12	-7.52	0.	0.	0.	0.0129
10	10-12	-8.16	0.	0.	0.	-0.0205
10	10-12	-9.58	0.	0.	0.	0.142
10	10-12	-8.94	0.	0.	0.	0.0581
10	10-12	-18.36	0.	0.	0.	-0.5315
10	10-12	-19.67	0.	0.	0.	-0.5171
10	10-12	-20.57	0.	0.	0.	-0.169
10	10-12	-19.26	0.	0.	0.	-0.1774
10	10-13	-11.01	0.	0.	0.	0.08
10	10-13	-10.95	0.	0.	0.	0.0935
10	10-13	-8.63	0.	0.	0.	-0.0215
10	10-13	-8.7	0.	0.	0.	0.0145
10	10-13	-19.85	0.	0.	0.	-0.0734
10	10-13	-20.26	0.	0.	0.	-0.0362
10	10-13	-18.31	0.	0.	0.	-0.4623
10	10-13	-17.9	0.	0.	0.	-0.4677
10	10-14	-8.84	0.	0.	0.	0.0121
10	10-14	-8.79	0.	0.	0.	-0.0206
10	10-14	-8.15	0.	0.	0.	-0.0432
10	10-14	-8.2	0.	0.	0.	-0.0225
10	10-14	-17.85	0.	0.	0.	-0.4687
10	10-14	-18.44	0.	0.	0.	-0.4615
10	10-14	-18.19	0.	0.	0.	-0.4926
10	10-14	-17.6	0.	0.	0.	-0.5317
10	10-15	-8.34	0.	0.	0.	-0.0194
10	10-15	-8.18	0.	0.	0.	-0.0443
10	10-15	-9.26	0.	0.	0.	0.1849
10	10-15	-9.41	0.	0.	0.	0.1275
10	10-15	-17.79	0.	0.	0.	-0.529
10	10-15	-18.12	0.	0.	0.	-0.4938
10	10-15	-19.71	0.	0.	0.	-0.1084
10	10-15	-19.38	0.	0.	0.	-0.1642
10	10-16	-10.29	0.	0.	0.	0.0983
10	10-16	-9.88	0.	0.	0.	0.0966
10	10-16	-8.54	0.	0.	0.	-0.0288
10	10-16	-8.95	0.	0.	0.	-0.0221
10	10-16	-18.31	0.	0.	0.	-0.0296
10	10-16	-18.36	0.	0.	0.	-0.0094
10	10-16	-17.25	0.	0.	0.	-0.421
10	10-16	-17.2	0.	0.	0.	-0.4539
10	10-17	-9.11	0.	0.	0.	-0.0212
10	10-17	-8.63	0.	0.	0.	-0.0288
10	10-17	-8.18	0.	0.	0.	-0.0455
10	10-17	-8.67	0.	0.	0.	-0.0435
10	10-17	-17.33	0.	0.	0.	-0.4531
10	10-17	-17.24	0.	0.	0.	-0.421
10	10-17	-17.15	0.	0.	0.	-0.4461
10	10-17	-17.25	0.	0.	0.	-0.5023
10	10-18	-8.7	0.	0.	0.	-0.0446
10	10-18	-8.25	0.	0.	0.	-0.0456
10	10-18	-8.67	0.	0.	0.	0.1942
10	10-18	-9.12	0.	0.	0.	0.1776
10	10-18	-17.18	0.	0.	0.	-0.5035
10	10-18	-17.19	0.	0.	0.	-0.4462

Element Forces - Area Shells, Part 5 of 10

Area	AreaElem	F22 KN/m	FMax KN/m	FAngle Degrees	FVM KN/m	M11 KN-m/m
10	10-18	-18.01	0.	0.	0.	-0.0721
10	10-18	-18.	0.	0.	0.	-0.0974
10	10-19	-9.55	0.	0.	0.	0.0935
10	10-19	-8.96	0.	0.	0.	0.0889
10	10-19	-8.26	0.	0.	0.	-0.026
10	10-19	-8.85	0.	0.	0.	-0.0282
10	10-19	-17.04	0.	0.	0.	-0.0137
10	10-19	-16.7	0.	0.	0.	0.0026
10	10-19	-16.08	0.	0.	0.	-0.3721
10	10-19	-16.43	0.	0.	0.	-0.4135
10	10-20	-8.94	0.	0.	0.	-0.0282
10	10-20	-8.34	0.	0.	0.	-0.0259
10	10-20	-8.02	0.	0.	0.	-0.0387
10	10-20	-8.61	0.	0.	0.	-0.0455
10	10-20	-16.42	0.	0.	0.	-0.4135
10	10-20	-16.13	0.	0.	0.	-0.372
10	10-20	-16.07	0.	0.	0.	-0.3925
10	10-20	-16.36	0.	0.	0.	-0.4538
10	10-21	-8.68	0.	0.	0.	-0.0456
10	10-21	-8.05	0.	0.	0.	-0.039
10	10-21	-8.19	0.	0.	0.	0.1797
10	10-21	-8.82	0.	0.	0.	0.1865
10	10-21	-16.4	0.	0.	0.	-0.4539
10	10-21	-16.04	0.	0.	0.	-0.3927
10	10-21	-16.65	0.	0.	0.	-0.0567
10	10-21	-17.01	0.	0.	0.	-0.0611
10	10-22	-8.81	0.	0.	0.	0.089
10	10-22	-8.21	0.	0.	0.	0.0716
10	10-22	-7.82	0.	0.	0.	-0.0196
10	10-22	-8.43	0.	0.	0.	-0.0261
10	10-22	-15.74	0.	0.	0.	0.0039
10	10-22	-15.31	0.	0.	0.	0.0014
10	10-22	-15.	0.	0.	0.	-0.3202
10	10-22	-15.43	0.	0.	0.	-0.3664
10	10-23	-8.51	0.	0.	0.	-0.0259
10	10-23	-7.87	0.	0.	0.	-0.0196
10	10-23	-7.66	0.	0.	0.	-0.0306
10	10-23	-8.3	0.	0.	0.	-0.039
10	10-23	-15.47	0.	0.	0.	-0.3663
10	10-23	-14.99	0.	0.	0.	-0.3203
10	10-23	-14.99	0.	0.	0.	-0.3388
10	10-23	-15.48	0.	0.	0.	-0.3982
10	10-24	-8.34	0.	0.	0.	-0.0392
10	10-24	-7.71	0.	0.	0.	-0.0306
10	10-24	-7.69	0.	0.	0.	0.1512
10	10-24	-8.32	0.	0.	0.	0.1745
10	10-24	-15.45	0.	0.	0.	-0.3984
10	10-24	-15.01	0.	0.	0.	-0.3388
10	10-24	-15.32	0.	0.	0.	-0.0584
10	10-24	-15.75	0.	0.	0.	-0.0399
10	10-25	-8.1	0.	0.	0.	0.0693
10	10-25	-7.49	0.	0.	0.	0.054
10	10-25	-7.21	0.	0.	0.	-0.0127
10	10-25	-7.85	0.	0.	0.	-0.0194
10	10-25	-14.68	0.	0.	0.	7.215E-04
10	10-25	-14.08	0.	0.	0.	-0.0051
10	10-25	-13.8	0.	0.	0.	-0.2666
10	10-25	-14.39	0.	0.	0.	-0.3157
10	10-26	-7.9	0.	0.	0.	-0.0194
10	10-26	-7.27	0.	0.	0.	-0.0125
10	10-26	-7.12	0.	0.	0.	-0.0227
10	10-26	-7.74	0.	0.	0.	-0.0307
10	10-26	-14.38	0.	0.	0.	-0.3157
10	10-26	-13.84	0.	0.	0.	-0.2663
10	10-26	-13.83	0.	0.	0.	-0.2839
10	10-26	-14.37	0.	0.	0.	-0.3432
10	10-27	-7.79	0.	0.	0.	-0.0307
10	10-27	-7.15	0.	0.	0.	-0.023
10	10-27	-7.15	0.	0.	0.	0.1168
10	10-27	-7.8	0.	0.	0.	0.147
10	10-27	-14.39	0.	0.	0.	-0.3432
10	10-27	-13.81	0.	0.	0.	-0.2843

Element Forces - Area Shells, Part 5 of 10

Area	AreaElem	F22 KN/m	FMax KN/m	FAngle Degrees	FVM KN/m	M11 KN-m/m
10	10-27	-14.09	0.	0.	0.	-0.0665
10	10-27	-14.67	0.	0.	0.	-0.0452
10	10-28	-7.38	0.	0.	0.	0.0514
10	10-28	-6.78	0.	0.	0.	0.0344
10	10-28	-6.51	0.	0.	0.	0.0011
10	10-28	-7.14	0.	0.	0.	-0.0126
10	10-28	-13.66	0.	0.	0.	-0.0064
10	10-28	-13.	0.	0.	0.	-0.0191
10	10-28	-12.61	0.	0.	0.	-0.205
10	10-28	-13.27	0.	0.	0.	-0.2628
10	10-29	-7.2	0.	0.	0.	-0.0124
10	10-29	-6.53	0.	0.	0.	3.336E-04
10	10-29	-6.42	0.	0.	0.	-0.0128
10	10-29	-7.09	0.	0.	0.	-0.0228
10	10-29	-13.31	0.	0.	0.	-0.2626
10	10-29	-12.58	0.	0.	0.	-0.2054
10	10-29	-12.55	0.	0.	0.	-0.2237
10	10-29	-13.28	0.	0.	0.	-0.287
10	10-30	-7.11	0.	0.	0.	-0.0231
10	10-30	-6.47	0.	0.	0.	-0.012
10	10-30	-6.56	0.	0.	0.	0.0783
10	10-30	-7.2	0.	0.	0.	0.1135
10	10-30	-13.25	0.	0.	0.	-0.2874
10	10-30	-12.62	0.	0.	0.	-0.2227
10	10-30	-12.96	0.	0.	0.	-0.0827
10	10-30	-13.59	0.	0.	0.	-0.0588
10	10-31	-6.5	0.	0.	0.	0.0327
10	10-31	-5.88	0.	0.	0.	0.0281
10	10-31	-5.74	0.	0.	0.	0.0213
10	10-31	-6.44	0.	0.	0.	0.0011
10	10-31	-12.47	0.	0.	0.	-0.0191
10	10-31	-11.59	0.	0.	0.	-0.0083
10	10-31	-11.43	0.	0.	0.	-0.1448
10	10-31	-12.31	0.	0.	0.	-0.2024
10	10-32	-6.47	0.	0.	0.	2.906E-04
10	10-32	-5.82	0.	0.	0.	0.0241
10	10-32	-5.74	0.	0.	0.	0.0053
10	10-32	-6.38	0.	0.	0.	-0.0131
10	10-32	-12.28	0.	0.	0.	-0.2028
10	10-32	-11.59	0.	0.	0.	-0.1433
10	10-32	-11.52	0.	0.	0.	-0.158
10	10-32	-12.22	0.	0.	0.	-0.2263
10	10-33	-6.43	0.	0.	0.	-0.0123
10	10-33	-5.72	0.	0.	0.	0.0011
10	10-33	-5.68	0.	0.	0.	0.0484
10	10-33	-6.39	0.	0.	0.	0.0776
10	10-33	-12.29	0.	0.	0.	-0.2252
10	10-33	-11.43	0.	0.	0.	-0.1602
10	10-33	-11.38	0.	0.	0.	-0.0812
10	10-33	-12.23	0.	0.	0.	-0.074
10	10-34	-5.41	0.	0.	0.	0.022
10	10-34	-4.98	0.	0.	0.	0.0201
10	10-34	-5.04	0.	0.	0.	0.063
10	10-34	-5.57	0.	0.	0.	0.0224
10	10-34	-10.75	0.	0.	0.	-0.0186
10	10-34	-10.26	0.	0.	0.	-0.003
10	10-34	-10.54	0.	0.	0.	-0.073
10	10-34	-11.03	0.	0.	0.	-0.1423
10	10-35	-5.63	0.	0.	0.	0.0253
10	10-35	-4.95	0.	0.	0.	0.0517
10	10-35	-4.87	0.	0.	0.	0.0344
10	10-35	-5.59	0.	0.	0.	0.0052
10	10-35	-11.19	0.	0.	0.	-0.1408
10	10-35	-10.27	0.	0.	0.	-0.079
10	10-35	-10.17	0.	0.	0.	-0.0918
10	10-35	-11.09	0.	0.	0.	-0.1595
10	10-36	-5.58	0.	0.	0.	9.860E-04
10	10-36	-5.03	0.	0.	0.	0.0514
10	10-36	-4.89	0.	0.	0.	0.0065
10	10-36	-5.44	0.	0.	0.	0.0459
10	10-36	-11.	0.	0.	0.	-0.1617
10	10-36	-10.53	0.	0.	0.	-0.0829

Element Forces - Area Shells, Part 5 of 10

Area	AreaElem	F22 KN/m	FMax KN/m	FAngle Degrees	FVM KN/m	M11 KN-m/m
10	10-36	-10.22	0.	0.	0.	-0.1057
10	10-36	-10.68	0.	0.	0.	-0.0808
10	10-37	-3.92	0.	0.	0.	0.0211
10	10-37	-3.47	0.	0.	0.	0.3296
10	10-37	-3.97	0.	0.	0.	-0.0352
10	10-37	-4.47	0.	0.	0.	0.0627
10	10-37	-8.06	0.	0.	0.	-0.0014
10	10-37	-7.56	0.	0.	0.	0.1391
10	10-37	-8.78	0.	0.	0.	-0.1083
10	10-37	-9.28	0.	0.	0.	-0.0719
10	10-38	-4.35	0.	0.	0.	0.0514
10	10-38	-4.4	0.	0.	0.	-0.0147
10	10-38	-4.61	0.	0.	0.	-0.0258
10	10-38	-4.57	0.	0.	0.	0.0279
10	10-38	-9.	0.	0.	0.	-0.0779
10	10-38	-9.83	0.	0.	0.	-0.0806
10	10-38	-10.37	0.	0.	0.	-0.0979
10	10-38	-9.55	0.	0.	0.	-0.0963
10	10-39	-4.71	0.	0.	0.	0.0448
10	10-39	-4.17	0.	0.	0.	-0.0559
10	10-39	-3.27	0.	0.	0.	0.3523
10	10-39	-3.83	0.	0.	0.	0.0167
10	10-39	-9.91	0.	0.	0.	-0.0874
10	10-39	-9.29	0.	0.	0.	-0.1389
10	10-39	-7.13	0.	0.	0.	0.135
10	10-39	-7.75	0.	0.	0.	-0.0822
10	10-40	-3.88	0.	0.	0.	0.2547
10	10-40	-4.63	0.	0.	0.	0.2213
10	10-40	-1.62	0.	0.	0.	0.3573
10	10-40	-0.82	0.	0.	0.	-0.019
10	10-40	-9.14	0.	0.	0.	0.1047
10	10-40	-11.64	0.	0.	0.	0.0985
10	10-40	-3.81	0.	0.	0.	0.1212
10	10-40	-1.31	0.	0.	0.	-0.0848
10	10-41	-1.25	0.	0.	0.	0.0025
10	10-41	-0.94	0.	0.	0.	0.3119
10	10-41	-0.96	0.	0.	0.	0.2461
10	10-41	-1.28	0.	0.	0.	0.0262
10	10-41	-2.35	0.	0.	0.	-0.0586
10	10-41	-2.18	0.	0.	0.	0.1021
10	10-41	-2.22	0.	0.	0.	0.0714
10	10-41	-2.39	0.	0.	0.	-0.0505
10	10-42	-0.84	0.	0.	0.	-0.0109
10	10-42	-1.33	0.	0.	0.	0.3122
10	10-42	-7.21	0.	0.	0.	0.0903
10	10-42	-6.74	0.	0.	0.	0.1958
10	10-42	-1.31	0.	0.	0.	-0.0776
10	10-42	-3.16	0.	0.	0.	0.0991
10	10-42	-17.89	0.	0.	0.	0.0409
10	10-42	-16.03	0.	0.	0.	0.0696

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-1	0.	0.	1.2055	8.0261	-0.9968
10	10-1	0.	0.	0.7109	1.0454	0.3136
10	10-1	0.	0.	-0.0826	2.3926	0.3785
10	10-1	0.	0.	0.9872	-0.6352	-0.9502
10	10-1	0.	0.	0.549	4.8857	-1.927
10	10-1	0.	0.	0.3722	-0.1534	0.1348
10	10-1	0.	0.	-0.5473	0.8633	0.191
10	10-1	0.	0.	-0.0574	-1.1053	-1.8682
10	10-2	0.	0.	0.8688	-0.6453	-0.1894
10	10-2	0.	0.	0.0018	2.4103	-0.0689
10	10-2	0.	0.	0.0788	2.8389	0.1928
10	10-2	0.	0.	0.6858	-1.2426	0.0288
10	10-2	0.	0.	-0.1083	-1.1267	-0.4978

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-2	0.	0.	-0.48	0.8713	-0.3307
10	10-2	0.	0.	-0.3896	1.0245	0.0164
10	10-2	0.	0.	-0.183	-2.1988	-0.0941
10	10-3	0.	0.	0.8571	-1.2289	1.8099
10	10-3	0.	0.	-0.0477	2.8132	-0.6234
10	10-3	0.	0.	0.482	-1.1449	-0.6574
10	10-3	0.	0.	1.0685	11.9233	1.6951
10	10-3	0.	0.	-0.11	-2.1672	0.9067
10	10-3	0.	0.	-0.4676	1.0135	-0.9904
10	10-3	0.	0.	0.1964	-1.9866	-1.0982
10	10-4	0.	0.	0.2273	6.8648	0.8703
10	10-4	0.	0.	0.9231	2.0549	0.2656
10	10-4	0.	0.	0.0714	0.6811	0.1422
10	10-4	0.	0.	0.2019	0.7261	0.1345
10	10-4	0.	0.	-0.1519	2.03	0.2579
10	10-4	0.	0.	0.4433	0.4356	0.1481
10	10-4	0.	0.	-0.0047	-0.3217	0.0698
10	10-4	0.	0.	-0.3868	-0.303	0.0663
10	10-5	0.	0.	-0.5949	0.602	0.1411
10	10-5	0.	0.	-0.0676	2.0476	0.0492
10	10-5	0.	0.	0.1652	0.7188	0.1008
10	10-5	0.	0.	0.087	0.5773	-0.003
10	10-5	0.	0.	-0.1117	1.8609	-0.0358
10	10-5	0.	0.	-0.5272	0.6091	-0.0258
10	10-5	0.	0.	-0.4063	-0.3069	0.0474
10	10-5	0.	0.	-0.4568	-0.4123	-0.0822
10	10-6	0.	0.	-0.5758	0.5114	-0.173
10	10-6	0.	0.	-0.2345	1.8352	-0.1923
10	10-6	0.	0.	0.1418	0.5883	0.0222
10	10-6	0.	0.	-0.0517	0.7137	0.0766
10	10-6	0.	0.	0.931	0.9658	-0.1379
10	10-6	0.	0.	-0.6782	0.5004	-0.4011
10	10-6	0.	0.	-0.4251	-0.4067	-0.1196
10	10-6	0.	0.	-0.3002	-0.1988	-0.0581
10	10-7	0.	0.	0.4656	-0.2665	-0.3392
10	10-7	0.	0.	0.0631	0.599	0.106
10	10-7	0.	0.	0.0692	-0.0755	0.0695
10	10-7	0.	0.	0.0761	0.0365	0.0586
10	10-7	0.	0.	0.2034	0.7335	0.0898
10	10-7	0.	0.	-0.0515	-0.355	0.0616
10	10-7	0.	0.	-0.0612	-0.5969	0.0251
10	10-7	0.	0.	-0.4724	-0.5277	0.0203
10	10-8	0.	0.	-0.3693	-0.321	0.0543
10	10-8	0.	0.	0.1667	0.7262	0.0651
10	10-8	0.	0.	0.0853	0.0384	0.0762
10	10-8	0.	0.	0.0266	0.0144	0.0722
10	10-8	0.	0.	0.108	0.6823	0.061
10	10-8	0.	0.	-0.3888	-0.3246	0.0322
10	10-8	0.	0.	-0.4666	-0.5265	0.0387
10	10-8	0.	0.	-0.5082	-0.5166	0.0333
10	10-9	0.	0.	-0.4592	-0.3059	0.0268
10	10-9	0.	0.	0.1628	0.6932	0.0566
10	10-9	0.	0.	0.0128	0.0117	0.0901
10	10-9	0.	0.	0.067	-0.0447	0.0629
10	10-9	0.	0.	-0.107	0.3632	0.0463
10	10-9	0.	0.	-0.4275	-0.3003	-0.0125
10	10-9	0.	0.	-0.517	-0.5182	0.0481
10	10-9	0.	0.	-0.2298	-0.5278	0.0304
10	10-10	0.	0.	-0.3052	-0.4244	-0.037
10	10-10	0.	0.	0.0904	0.0627	0.0517
10	10-10	0.	0.	0.08	-0.2257	0.0616
10	10-10	0.	0.	0.0139	-0.1956	0.0638
10	10-10	0.	0.	0.072	0.0157	0.0539
10	10-10	0.	0.	-0.0327	-0.4677	0.0135
10	10-10	0.	0.	-0.0646	-0.5121	0.017
10	10-10	0.	0.	-0.4788	-0.5267	0.0203
10	10-11	0.	0.	-0.4613	-0.5387	0.0169
10	10-11	0.	0.	0.0811	0.0175	0.0706
10	10-11	0.	0.	0.0114	-0.1961	0.0595
10	10-11	0.	0.	-0.0236	-0.1924	0.0643
10	10-11	0.	0.	0.0266	0.0146	0.0754
10	10-11	0.	0.	-0.4555	-0.5376	0.0297

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-11	0.	0.	-0.4798	-0.5271	0.0197
10	10-11	0.	0.	-0.5198	-0.4778	0.0257
10	10-11	0.	0.	-0.5227	-0.5236	0.0357
10	10-12	0.	0.	0.0129	0.0119	0.0776
10	10-12	0.	0.	-0.0205	-0.1918	0.0573
10	10-12	0.	0.	0.142	-0.2071	0.0444
10	10-12	0.	0.	0.0581	0.0243	0.0647
10	10-12	0.	0.	-0.5315	-0.5253	0.0401
10	10-12	0.	0.	-0.5171	-0.4774	0.0241
10	10-12	0.	0.	-0.169	-0.4971	0.0164
10	10-12	0.	0.	-0.1774	-0.4088	0.0324
10	10-13	0.	0.	0.08	-0.2657	0.0455
10	10-13	0.	0.	0.0935	-0.1303	0.0303
10	10-13	0.	0.	-0.0215	-0.2031	0.0332
10	10-13	0.	0.	0.0145	-0.1926	0.0484
10	10-13	0.	0.	-0.0734	-0.5195	0.0124
10	10-13	0.	0.	-0.0362	-0.3451	0.0032
10	10-13	0.	0.	-0.4623	-0.3871	0.006
10	10-13	0.	0.	-0.4677	-0.5072	0.0152
10	10-14	0.	0.	0.0121	-0.1931	0.0502
10	10-14	0.	0.	-0.0206	-0.2029	0.0373
10	10-14	0.	0.	-0.0432	-0.198	0.0379
10	10-14	0.	0.	-0.0225	-0.1869	0.0508
10	10-14	0.	0.	-0.4687	-0.5076	0.014
10	10-14	0.	0.	-0.4615	-0.387	0.0093
10	10-14	0.	0.	-0.4926	-0.3353	0.0085
10	10-14	0.	0.	-0.5317	-0.5182	0.0131
10	10-15	0.	0.	-0.0194	-0.1862	0.0447
10	10-15	0.	0.	-0.0443	-0.1982	0.0488
10	10-15	0.	0.	0.1849	-0.1073	0.0446
10	10-15	0.	0.	0.1275	-0.24	0.0398
10	10-15	0.	0.	-0.529	-0.5176	0.0151
10	10-15	0.	0.	-0.4938	-0.3356	0.0022
10	10-15	0.	0.	-0.1084	-0.3393	-7.705E-04
10	10-15	0.	0.	-0.1642	-0.4026	0.0122
10	10-16	0.	0.	0.0983	-0.1269	0.0234
10	10-16	0.	0.	0.0966	-0.0278	0.0258
10	10-16	0.	0.	-0.0288	-0.1266	0.0276
10	10-16	0.	0.	-0.0221	-0.206	0.0252
10	10-16	0.	0.	-0.0296	-0.3091	0.008
10	10-16	0.	0.	-0.0094	-0.1794	0.0117
10	10-16	0.	0.	-0.421	-0.243	0.0123
10	10-16	0.	0.	-0.4539	-0.3599	0.0085
10	10-17	0.	0.	-0.0212	-0.2059	0.0293
10	10-17	0.	0.	-0.0288	-0.1266	0.0185
10	10-17	0.	0.	-0.0455	-0.122	0.024
10	10-17	0.	0.	-0.0435	-0.1993	0.0299
10	10-17	0.	0.	-0.4531	-0.3598	0.0068
10	10-17	0.	0.	-0.421	-0.243	0.0043
10	10-17	0.	0.	-0.4461	-0.2041	-0.0024
10	10-17	0.	0.	-0.5023	-0.3834	8.189E-05
10	10-18	0.	0.	-0.0446	-0.1995	0.0375
10	10-18	0.	0.	-0.0456	-0.122	0.0242
10	10-18	0.	0.	0.1942	-0.009	0.0227
10	10-18	0.	0.	0.1776	-0.1225	0.036
10	10-18	0.	0.	-0.5035	-0.3837	-0.0041
10	10-18	0.	0.	-0.4462	-0.2042	-0.0123
10	10-18	0.	0.	-0.0721	-0.1991	-0.0163
10	10-18	0.	0.	-0.0974	-0.201	-0.0081
10	10-19	0.	0.	0.0935	-0.0448	0.0193
10	10-19	0.	0.	0.0889	0.0158	0.0165
10	10-19	0.	0.	-0.026	-0.0716	0.0147
10	10-19	0.	0.	-0.0282	-0.1244	0.0189
10	10-19	0.	0.	-0.0137	-0.1902	0.0112
10	10-19	0.	0.	0.0026	-0.0944	0.0054
10	10-19	0.	0.	-0.3721	-0.1572	0.0068
10	10-19	0.	0.	-0.4135	-0.2104	0.0125
10	10-20	0.	0.	-0.0282	-0.1244	0.0154
10	10-20	0.	0.	-0.0259	-0.0716	0.0119
10	10-20	0.	0.	-0.0387	-0.0681	0.0141
10	10-20	0.	0.	-0.0455	-0.1223	0.0177
10	10-20	0.	0.	-0.4135	-0.2104	0.0042

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-20	0.	0.	-0.372	-0.1572	0.0029
10	10-20	0.	0.	-0.3925	-0.128	-0.0069
10	10-20	0.	0.	-0.4538	-0.2425	-0.007
10	10-21	0.	0.	-0.0456	-0.1223	0.0185
10	10-21	0.	0.	-0.039	-0.0682	0.0159
10	10-21	0.	0.	0.1797	0.0303	0.015
10	10-21	0.	0.	0.1865	-0.042	0.0177
10	10-21	0.	0.	-0.4539	-0.2425	-0.0146
10	10-21	0.	0.	-0.3927	-0.1281	-0.0208
10	10-21	0.	0.	-0.0567	-0.1124	-0.026
10	10-22	0.	0.	-0.0611	-0.1331	-0.0198
10	10-22	0.	0.	0.089	0.0057	0.0214
10	10-22	0.	0.	0.0716	0.0165	0.0222
10	10-22	0.	0.	-0.0196	-0.0441	0.0181
10	10-22	0.	0.	-0.0261	-0.0703	0.0172
10	10-22	0.	0.	0.0039	-0.0941	0.006
10	10-22	0.	0.	0.0014	-0.0712	0.0067
10	10-22	0.	0.	-0.3202	-0.1243	0.0065
10	10-23	0.	0.	-0.3664	-0.1288	0.0066
10	10-23	0.	0.	-0.0259	-0.0703	0.0099
10	10-23	0.	0.	-0.0196	-0.0441	0.0071
10	10-23	0.	0.	-0.0306	-0.0418	0.0068
10	10-23	0.	0.	-0.039	-0.0695	0.0096
10	10-23	0.	0.	-0.3663	-0.1288	-5.216E-04
10	10-23	0.	0.	-0.3203	-0.1243	-0.0047
10	10-23	0.	0.	-0.3388	-0.1027	-0.0151
10	10-24	0.	0.	-0.3982	-0.1568	-0.0109
10	10-24	0.	0.	-0.0392	-0.0695	0.0102
10	10-24	0.	0.	-0.0306	-0.0418	0.0049
10	10-24	0.	0.	0.1512	0.0272	0.0043
10	10-24	0.	0.	0.1745	0.0044	0.0097
10	10-24	0.	0.	-0.3984	-0.1568	-0.0212
10	10-24	0.	0.	-0.3388	-0.1027	-0.0238
10	10-24	0.	0.	-0.0584	-0.0895	-0.03
10	10-25	0.	0.	-0.0399	-0.0582	-0.0274
10	10-25	0.	0.	0.0693	0.0018	0.0243
10	10-25	0.	0.	0.054	0.0031	0.025
10	10-25	0.	0.	-0.0127	-0.0431	0.019
10	10-25	0.	0.	-0.0194	-0.0432	0.0182
10	10-25	0.	0.	7.215E-04	-0.0783	0.0053
10	10-25	0.	0.	-0.0051	-0.0716	0.0047
10	10-25	0.	0.	-0.2666	-0.1248	0.0019
10	10-26	0.	0.	-0.3157	-0.1015	0.0022
10	10-26	0.	0.	-0.0194	-0.0432	0.0058
10	10-26	0.	0.	-0.0125	-0.043	0.0047
10	10-26	0.	0.	-0.0227	-0.0408	0.0014
10	10-26	0.	0.	-0.0307	-0.0423	0.0036
10	10-26	0.	0.	-0.3157	-0.1015	-0.0069
10	10-26	0.	0.	-0.2663	-0.1247	-0.0107
10	10-26	0.	0.	-0.2839	-0.1075	-0.0231
10	10-27	0.	0.	-0.3432	-0.1247	-0.0191
10	10-27	0.	0.	-0.0307	-0.0423	0.0021
10	10-27	0.	0.	-0.023	-0.0408	-0.001
10	10-27	0.	0.	0.1168	0.009	-0.0015
10	10-27	0.	0.	0.147	0.0064	0.0016
10	10-27	0.	0.	-0.3432	-0.1247	-0.0286
10	10-27	0.	0.	-0.2843	-0.1076	-0.0332
10	10-27	0.	0.	-0.0665	-0.0864	-0.0372
10	10-28	0.	0.	-0.0452	-0.047	-0.0317
10	10-28	0.	0.	0.0514	-0.0162	0.0267
10	10-28	0.	0.	0.0344	-0.0166	0.0237
10	10-28	0.	0.	0.0011	-0.0356	0.0171
10	10-28	0.	0.	-0.0126	-0.0423	0.0199
10	10-28	0.	0.	-0.0064	-0.0881	0.0036
10	10-28	0.	0.	-0.0191	-0.0867	-0.0013
10	10-28	0.	0.	-0.205	-0.1079	-0.0054
10	10-29	0.	0.	-0.2628	-0.1062	-5.112E-04
10	10-29	0.	0.	-0.0124	-0.0422	0.0041
10	10-29	0.	0.	3.336E-04	-0.0357	0.0039
10	10-29	0.	0.	-0.0128	-0.034	-0.003
10	10-29	0.	0.	-0.0228	-0.0412	-9.855E-04
10	10-29	0.	0.	-0.2626	-0.1062	-0.0134

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-29	0.	0.	-0.2054	-0.108	-0.0168
10	10-29	0.	0.	-0.2237	-0.0953	-0.0295
10	10-29	0.	0.	-0.287	-0.123	-0.0262
10	10-30	0.	0.	-0.0231	-0.0412	-0.0044
10	10-30	0.	0.	-0.012	-0.0339	-0.0041
10	10-30	0.	0.	0.0783	-0.0143	-0.0041
10	10-30	0.	0.	0.1135	-0.0075	-0.0044
10	10-30	0.	0.	-0.2874	-0.1231	-0.0383
10	10-30	0.	0.	-0.2227	-0.0951	-0.0372
10	10-30	0.	0.	-0.0827	-0.1005	-0.0381
10	10-30	0.	0.	-0.0588	-0.0524	-0.0392
10	10-31	0.	0.	0.0327	-0.0261	0.023
10	10-31	0.	0.	0.0281	0.043	0.0246
10	10-31	0.	0.	0.0213	0.014	0.0179
10	10-31	0.	0.	0.0011	-0.0355	0.0163
10	10-31	0.	0.	-0.0191	-0.088	-0.0072
10	10-31	0.	0.	-0.0083	0.0054	-0.0036
10	10-31	0.	0.	-0.1448	-0.0344	-0.0075
10	10-31	0.	0.	-0.2024	-0.0949	-0.0111
10	10-32	0.	0.	2.906E-04	-0.0357	0.003
10	10-32	0.	0.	0.0241	0.0146	0.003
10	10-32	0.	0.	0.0053	0.0135	-0.006
10	10-32	0.	0.	-0.0131	-0.0354	-0.0046
10	10-32	0.	0.	-0.2028	-0.0951	-0.0195
10	10-32	0.	0.	-0.1433	-0.0341	-0.0216
10	10-32	0.	0.	-0.158	-0.0273	-0.0334
10	10-32	0.	0.	-0.2263	-0.1082	-0.0314
10	10-33	0.	0.	-0.0123	-0.0353	-0.0045
10	10-33	0.	0.	0.0011	0.0127	-0.0079
10	10-33	0.	0.	0.0484	0.0225	-0.0062
10	10-33	0.	0.	0.0776	-0.017	-0.0028
10	10-33	0.	0.	-0.2252	-0.108	-0.0381
10	10-33	0.	0.	-0.1602	-0.0278	-0.0423
10	10-33	0.	0.	-0.0812	-0.0159	-0.0404
10	10-33	0.	0.	-0.074	-0.06	-0.0356
10	10-34	0.	0.	0.022	-0.004	0.023
10	10-34	0.	0.	0.0201	0.2451	0.0159
10	10-34	0.	0.	0.063	0.2674	0.0113
10	10-34	0.	0.	0.0224	0.0198	0.0184
10	10-34	0.	0.	-0.0186	-0.0326	-0.0094
10	10-34	0.	0.	-0.003	0.0991	-0.0227
10	10-34	0.	0.	-0.073	0.0913	-0.0223
10	10-34	0.	0.	-0.1423	-0.0217	-0.009
10	10-35	0.	0.	0.0253	0.0203	0.0019
10	10-35	0.	0.	0.0517	0.2646	0.0049
10	10-35	0.	0.	0.0344	0.2479	1.455E-05
10	10-35	0.	0.	0.0052	0.0129	-0.0032
10	10-35	0.	0.	-0.1408	-0.0214	-0.024
10	10-35	0.	0.	-0.079	0.0901	-0.0193
10	10-35	0.	0.	-0.0918	0.0871	-0.0246
10	10-35	0.	0.	-0.1595	-0.0351	-0.0292
10	10-36	0.	0.	9.860E-04	0.0121	-0.0085
10	10-36	0.	0.	0.0514	0.2521	0.0074
10	10-36	0.	0.	0.0065	0.1451	0.0131
10	10-36	0.	0.	0.0459	0.0059	-0.0044
10	10-36	0.	0.	-0.1617	-0.0355	-0.043
10	10-36	0.	0.	-0.0829	0.0889	-0.0239
10	10-36	0.	0.	-0.1057	0.0471	-0.021
10	10-36	0.	0.	-0.0808	-0.0084	-0.037
10	10-37	0.	0.	0.0211	0.2596	0.0115
10	10-37	0.	0.	0.3296	0.7588	-0.0032
10	10-37	0.	0.	-0.0352	0.7568	-0.0091
10	10-37	0.	0.	0.0627	0.2682	0.0057
10	10-37	0.	0.	-0.0014	0.0987	-0.0322
10	10-37	0.	0.	0.1391	0.316	-0.0538
10	10-37	0.	0.	-0.1083	0.3111	-0.0559
10	10-37	0.	0.	-0.0719	0.0969	-0.0342
10	10-38	0.	0.	0.0514	0.2654	0.0016
10	10-38	0.	0.	-0.0147	0.7635	0.0232
10	10-38	0.	0.	-0.0258	0.7044	0.0708
10	10-38	0.	0.	0.0279	0.2057	0.039
10	10-38	0.	0.	-0.0779	0.0957	-0.0241

Element Forces - Area Shells, Part 6 of 10

Area	AreaElem	FMax KN/m	FAngle Degrees	M11 KN-m/m	M22 KN-m/m	M12 KN-m/m
10	10-38	0.	0.	-0.0806	0.3139	-0.0031
10	10-38	0.	0.	-0.0979	0.2911	0.0114
10	10-38	0.	0.	-0.0963	0.0646	-0.0029
10	10-39	0.	0.	0.0448	0.2099	0.0416
10	10-39	0.	0.	-0.0559	0.6946	0.1499
10	10-39	0.	0.	0.3523	0.3378	0.1234
10	10-39	0.	0.	0.0167	0.2739	0.0192
10	10-39	0.	0.	-0.0874	0.0664	-0.0064
10	10-39	0.	0.	-0.1389	0.2871	0.0415
10	10-39	0.	0.	0.135	0.1315	0.0311
10	10-39	0.	0.	-0.0822	0.1124	-0.0168
10	10-40	0.	0.	0.2547	0.3843	-0.0043
10	10-40	0.	0.	0.2213	2.8361	0.7341
10	10-40	0.	0.	0.3573	-0.1602	0.7122
10	10-40	0.	0.	-0.019	0.8924	-0.0191
10	10-40	0.	0.	0.1047	0.1503	-0.0459
10	10-40	0.	0.	0.0985	1.1819	0.3064
10	10-40	0.	0.	0.1212	-0.3829	0.2941
10	10-41	0.	0.	-0.0848	0.3689	-0.0665
10	10-41	0.	0.	0.0025	0.8991	0.1324
10	10-41	0.	0.	0.3119	-0.164	0.1967
10	10-41	0.	0.	0.2461	-0.329	0.0155
10	10-41	0.	0.	0.0262	1.0702	-0.0186
10	10-41	0.	0.	-0.0586	0.3717	0.044
10	10-41	0.	0.	0.1021	-0.392	0.0709
10	10-41	0.	0.	0.0714	-0.7924	-0.0087
10	10-42	0.	0.	-0.0505	0.4419	-0.0568
10	10-42	0.	0.	-0.0109	1.0603	0.3445
10	10-42	0.	0.	0.3122	-0.3235	-0.2861
10	10-42	0.	0.	0.0903	4.2985	-0.2664
10	10-42	0.	0.	0.1958	-0.1827	0.3941
10	10-42	0.	0.	-0.0776	0.4378	0.1257
10	10-42	0.	0.	0.0991	-0.7792	-0.6893
10	10-42	0.	0.	0.0409	1.7852	-0.6397
10	10-42	0.	0.	0.0696	-0.4445	0.1471

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-1	0.	1.2055	-0.9968	0.	0.
10	10-1	0.	0.7109	0.3136	0.	0.
10	10-1	0.	-0.0826	0.3785	0.	0.
10	10-1	0.	0.9872	-0.9502	0.	0.
10	10-1	0.	0.549	-1.927	0.	0.
10	10-1	0.	0.3722	0.1348	0.	0.
10	10-1	0.	-0.5473	0.191	0.	0.
10	10-1	0.	-0.0574	-1.8682	0.	0.
10	10-2	0.	0.8688	-0.1894	0.	0.
10	10-2	0.	0.0018	-0.0689	0.	0.
10	10-2	0.	0.0788	0.1928	0.	0.
10	10-2	0.	0.6858	0.0288	0.	0.
10	10-2	0.	-0.1083	-0.4978	0.	0.
10	10-2	0.	-0.48	-0.3307	0.	0.
10	10-2	0.	-0.3896	0.0164	0.	0.
10	10-3	0.	-0.183	-0.0941	0.	0.
10	10-3	0.	0.8571	1.8099	0.	0.
10	10-3	0.	-0.0477	-0.6234	0.	0.
10	10-3	0.	0.482	-0.6574	0.	0.
10	10-3	0.	1.0685	1.6951	0.	0.
10	10-3	0.	-0.11	0.9067	0.	0.
10	10-3	0.	-0.4676	-0.9904	0.	0.
10	10-3	0.	0.1964	-1.0982	0.	0.
10	10-4	0.	0.2273	0.8703	0.	0.
10	10-4	0.	0.9231	0.2656	0.	0.
10	10-4	0.	0.0714	0.1422	0.	0.
10	10-4	0.	0.2019	0.1345	0.	0.
10	10-4	0.	-0.1519	0.2579	0.	0.

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-4	0.	0.4433	0.1481	0.	0.
10	10-4	0.	-0.0047	0.0698	0.	0.
10	10-4	0.	-0.3868	0.0663	0.	0.
10	10-4	0.	-0.5949	0.1411	0.	0.
10	10-5	0.	-0.0676	0.0492	0.	0.
10	10-5	0.	0.1652	0.1008	0.	0.
10	10-5	0.	0.087	-0.003	0.	0.
10	10-5	0.	-0.1117	-0.0358	0.	0.
10	10-5	0.	-0.5272	-0.0258	0.	0.
10	10-5	0.	-0.4063	0.0474	0.	0.
10	10-5	0.	-0.4568	-0.0822	0.	0.
10	10-5	0.	-0.5758	-0.173	0.	0.
10	10-6	0.	-0.2345	-0.1923	0.	0.
10	10-6	0.	0.1418	0.0222	0.	0.
10	10-6	0.	-0.0517	0.0766	0.	0.
10	10-6	0.	0.931	-0.1379	0.	0.
10	10-6	0.	-0.6782	-0.4011	0.	0.
10	10-6	0.	-0.4251	-0.1196	0.	0.
10	10-6	0.	-0.3002	-0.0581	0.	0.
10	10-6	0.	0.4656	-0.3392	0.	0.
10	10-7	0.	0.0631	0.106	0.	0.
10	10-7	0.	0.0692	0.0695	0.	0.
10	10-7	0.	0.0761	0.0586	0.	0.
10	10-7	0.	0.2034	0.0898	0.	0.
10	10-7	0.	-0.0515	0.0616	0.	0.
10	10-7	0.	-0.0612	0.0251	0.	0.
10	10-7	0.	-0.4724	0.0203	0.	0.
10	10-7	0.	-0.3693	0.0543	0.	0.
10	10-8	0.	0.1667	0.0651	0.	0.
10	10-8	0.	0.0853	0.0762	0.	0.
10	10-8	0.	0.0266	0.0722	0.	0.
10	10-8	0.	0.108	0.061	0.	0.
10	10-8	0.	-0.3888	0.0322	0.	0.
10	10-8	0.	-0.4666	0.0387	0.	0.
10	10-8	0.	-0.5082	0.0333	0.	0.
10	10-8	0.	-0.4592	0.0268	0.	0.
10	10-9	0.	0.1628	0.0566	0.	0.
10	10-9	0.	0.0128	0.0901	0.	0.
10	10-9	0.	0.067	0.0629	0.	0.
10	10-9	0.	-0.107	0.0463	0.	0.
10	10-9	0.	-0.4275	-0.0125	0.	0.
10	10-9	0.	-0.517	0.0481	0.	0.
10	10-9	0.	-0.2298	0.0304	0.	0.
10	10-9	0.	-0.3052	-0.037	0.	0.
10	10-10	0.	0.0904	0.0517	0.	0.
10	10-10	0.	0.08	0.0616	0.	0.
10	10-10	0.	0.0139	0.0638	0.	0.
10	10-10	0.	0.072	0.0539	0.	0.
10	10-10	0.	-0.0327	0.0135	0.	0.
10	10-10	0.	-0.0646	0.017	0.	0.
10	10-10	0.	-0.4788	0.0203	0.	0.
10	10-10	0.	-0.4613	0.0169	0.	0.
10	10-11	0.	0.0811	0.0706	0.	0.
10	10-11	0.	0.0114	0.0595	0.	0.
10	10-11	0.	-0.0236	0.0643	0.	0.
10	10-11	0.	0.0266	0.0754	0.	0.
10	10-11	0.	-0.4555	0.0297	0.	0.
10	10-11	0.	-0.4798	0.0197	0.	0.
10	10-11	0.	-0.5198	0.0257	0.	0.
10	10-11	0.	-0.5227	0.0357	0.	0.
10	10-12	0.	0.0129	0.0776	0.	0.
10	10-12	0.	-0.0205	0.0573	0.	0.
10	10-12	0.	0.142	0.0444	0.	0.
10	10-12	0.	0.0581	0.0647	0.	0.
10	10-12	0.	-0.5315	0.0401	0.	0.
10	10-12	0.	-0.5171	0.0241	0.	0.
10	10-12	0.	-0.169	0.0164	0.	0.
10	10-12	0.	-0.1774	0.0324	0.	0.
10	10-13	0.	0.08	0.0455	0.	0.
10	10-13	0.	0.0935	0.0303	0.	0.
10	10-13	0.	-0.0215	0.0332	0.	0.
10	10-13	0.	0.0145	0.0484	0.	0.

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-13	0.	-0.0734	0.0124	0.	0.
10	10-13	0.	-0.0362	0.0032	0.	0.
10	10-13	0.	-0.4623	0.006	0.	0.
10	10-13	0.	-0.4677	0.0152	0.	0.
10	10-14	0.	0.0121	0.0502	0.	0.
10	10-14	0.	-0.0206	0.0373	0.	0.
10	10-14	0.	-0.0432	0.0379	0.	0.
10	10-14	0.	-0.0225	0.0508	0.	0.
10	10-14	0.	-0.4687	0.014	0.	0.
10	10-14	0.	-0.4615	0.0093	0.	0.
10	10-14	0.	-0.4926	0.0085	0.	0.
10	10-14	0.	-0.5317	0.0131	0.	0.
10	10-15	0.	-0.0194	0.0447	0.	0.
10	10-15	0.	-0.0443	0.0488	0.	0.
10	10-15	0.	0.1849	0.0446	0.	0.
10	10-15	0.	0.1275	0.0398	0.	0.
10	10-15	0.	-0.529	0.0151	0.	0.
10	10-15	0.	-0.4938	0.0022	0.	0.
10	10-15	0.	-0.1084	-7.705E-04	0.	0.
10	10-15	0.	-0.1642	0.0122	0.	0.
10	10-16	0.	0.0983	0.0234	0.	0.
10	10-16	0.	0.0966	0.0258	0.	0.
10	10-16	0.	-0.0288	0.0276	0.	0.
10	10-16	0.	-0.0221	0.0252	0.	0.
10	10-16	0.	-0.0296	0.008	0.	0.
10	10-16	0.	-0.0094	0.0117	0.	0.
10	10-16	0.	-0.421	0.0123	0.	0.
10	10-16	0.	-0.4539	0.0085	0.	0.
10	10-17	0.	-0.0212	0.0293	0.	0.
10	10-17	0.	-0.0288	0.0185	0.	0.
10	10-17	0.	-0.0455	0.024	0.	0.
10	10-17	0.	-0.0435	0.0299	0.	0.
10	10-17	0.	-0.4531	0.0068	0.	0.
10	10-17	0.	-0.421	0.0043	0.	0.
10	10-17	0.	-0.4461	-0.0024	0.	0.
10	10-17	0.	-0.5023	8.189E-05	0.	0.
10	10-18	0.	-0.0446	0.0375	0.	0.
10	10-18	0.	-0.0456	0.0242	0.	0.
10	10-18	0.	0.1942	0.0227	0.	0.
10	10-18	0.	0.1776	0.036	0.	0.
10	10-18	0.	-0.5035	-0.0041	0.	0.
10	10-18	0.	-0.4462	-0.0123	0.	0.
10	10-18	0.	-0.0721	-0.0163	0.	0.
10	10-18	0.	-0.0974	-0.0081	0.	0.
10	10-19	0.	0.0935	0.0193	0.	0.
10	10-19	0.	0.0889	0.0165	0.	0.
10	10-19	0.	-0.026	0.0147	0.	0.
10	10-19	0.	-0.0282	0.0189	0.	0.
10	10-19	0.	-0.0137	0.0112	0.	0.
10	10-19	0.	0.0026	0.0054	0.	0.
10	10-19	0.	-0.3721	0.0068	0.	0.
10	10-19	0.	-0.4135	0.0125	0.	0.
10	10-20	0.	-0.0282	0.0154	0.	0.
10	10-20	0.	-0.0259	0.0119	0.	0.
10	10-20	0.	-0.0387	0.0141	0.	0.
10	10-20	0.	-0.0455	0.0177	0.	0.
10	10-20	0.	-0.4135	0.0042	0.	0.
10	10-20	0.	-0.372	0.0029	0.	0.
10	10-20	0.	-0.3925	-0.0069	0.	0.
10	10-20	0.	-0.4538	-0.007	0.	0.
10	10-21	0.	-0.0456	0.0185	0.	0.
10	10-21	0.	-0.039	0.0159	0.	0.
10	10-21	0.	0.1797	0.015	0.	0.
10	10-21	0.	0.1865	0.0177	0.	0.
10	10-21	0.	-0.4539	-0.0146	0.	0.
10	10-21	0.	-0.3927	-0.0208	0.	0.
10	10-21	0.	-0.0567	-0.026	0.	0.
10	10-21	0.	-0.0611	-0.0198	0.	0.
10	10-22	0.	0.089	0.0214	0.	0.
10	10-22	0.	0.0716	0.0222	0.	0.
10	10-22	0.	-0.0196	0.0181	0.	0.
10	10-22	0.	-0.0261	0.0172	0.	0.

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-22	0.	0.0039	0.006	0.	0.
10	10-22	0.	0.0014	0.0067	0.	0.
10	10-22	0.	-0.3202	0.0065	0.	0.
10	10-22	0.	-0.3664	0.0066	0.	0.
10	10-23	0.	-0.0259	0.0099	0.	0.
10	10-23	0.	-0.0196	0.0071	0.	0.
10	10-23	0.	-0.0306	0.0068	0.	0.
10	10-23	0.	-0.039	0.0096	0.	0.
10	10-23	0.	-0.3663	-5.216E-04	0.	0.
10	10-23	0.	-0.3203	-0.0047	0.	0.
10	10-23	0.	-0.3388	-0.0151	0.	0.
10	10-23	0.	-0.3982	-0.0109	0.	0.
10	10-24	0.	-0.0392	0.0102	0.	0.
10	10-24	0.	-0.0306	0.0049	0.	0.
10	10-24	0.	0.1512	0.0043	0.	0.
10	10-24	0.	0.1745	0.0097	0.	0.
10	10-24	0.	-0.3984	-0.0212	0.	0.
10	10-24	0.	-0.3388	-0.0238	0.	0.
10	10-24	0.	-0.0584	-0.03	0.	0.
10	10-24	0.	-0.0399	-0.0274	0.	0.
10	10-25	0.	0.0693	0.0243	0.	0.
10	10-25	0.	0.054	0.025	0.	0.
10	10-25	0.	-0.0127	0.019	0.	0.
10	10-25	0.	-0.0194	0.0182	0.	0.
10	10-25	0.	7.215E-04	0.0053	0.	0.
10	10-25	0.	-0.0051	0.0047	0.	0.
10	10-25	0.	-0.2666	0.0019	0.	0.
10	10-25	0.	-0.3157	0.0022	0.	0.
10	10-26	0.	-0.0194	0.0058	0.	0.
10	10-26	0.	-0.0125	0.0047	0.	0.
10	10-26	0.	-0.0227	0.0014	0.	0.
10	10-26	0.	-0.0307	0.0036	0.	0.
10	10-26	0.	-0.3157	-0.0069	0.	0.
10	10-26	0.	-0.2663	-0.0107	0.	0.
10	10-26	0.	-0.2839	-0.0231	0.	0.
10	10-26	0.	-0.3432	-0.0191	0.	0.
10	10-27	0.	-0.0307	0.0021	0.	0.
10	10-27	0.	-0.023	-0.001	0.	0.
10	10-27	0.	0.1168	-0.0015	0.	0.
10	10-27	0.	0.147	0.0016	0.	0.
10	10-27	0.	-0.3432	-0.0286	0.	0.
10	10-27	0.	-0.2843	-0.0332	0.	0.
10	10-27	0.	-0.0665	-0.0372	0.	0.
10	10-27	0.	-0.0452	-0.0317	0.	0.
10	10-28	0.	0.0514	0.0267	0.	0.
10	10-28	0.	0.0344	0.0237	0.	0.
10	10-28	0.	0.0011	0.0171	0.	0.
10	10-28	0.	-0.0126	0.0199	0.	0.
10	10-28	0.	-0.0064	0.0036	0.	0.
10	10-28	0.	-0.0191	-0.0013	0.	0.
10	10-28	0.	-0.205	-0.0054	0.	0.
10	10-28	0.	-0.2628	-5.112E-04	0.	0.
10	10-29	0.	-0.0124	0.0041	0.	0.
10	10-29	0.	3.336E-04	0.0039	0.	0.
10	10-29	0.	-0.0128	-0.003	0.	0.
10	10-29	0.	-0.0228	-9.855E-04	0.	0.
10	10-29	0.	-0.2626	-0.0134	0.	0.
10	10-29	0.	-0.2054	-0.0168	0.	0.
10	10-29	0.	-0.2237	-0.0295	0.	0.
10	10-29	0.	-0.287	-0.0262	0.	0.
10	10-30	0.	-0.0231	-0.0044	0.	0.
10	10-30	0.	-0.012	-0.0041	0.	0.
10	10-30	0.	0.0783	-0.0041	0.	0.
10	10-30	0.	0.1135	-0.0044	0.	0.
10	10-30	0.	-0.2874	-0.0383	0.	0.
10	10-30	0.	-0.2227	-0.0372	0.	0.
10	10-30	0.	-0.0827	-0.0381	0.	0.
10	10-30	0.	-0.0588	-0.0392	0.	0.
10	10-31	0.	0.0327	0.023	0.	0.
10	10-31	0.	0.0281	0.0246	0.	0.
10	10-31	0.	0.0213	0.0179	0.	0.
10	10-31	0.	0.0011	0.0163	0.	0.

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-31	0.	-0.0191	-0.0072	0.	0.
10	10-31	0.	-0.0083	-0.0036	0.	0.
10	10-31	0.	-0.1448	-0.0075	0.	0.
10	10-31	0.	-0.2024	-0.0111	0.	0.
10	10-32	0.	2.906E-04	0.003	0.	0.
10	10-32	0.	0.0241	0.003	0.	0.
10	10-32	0.	0.0053	-0.006	0.	0.
10	10-32	0.	-0.0131	-0.0046	0.	0.
10	10-32	0.	-0.2028	-0.0195	0.	0.
10	10-32	0.	-0.1433	-0.0216	0.	0.
10	10-32	0.	-0.158	-0.0334	0.	0.
10	10-32	0.	-0.2263	-0.0314	0.	0.
10	10-33	0.	-0.0123	-0.0045	0.	0.
10	10-33	0.	0.0011	-0.0079	0.	0.
10	10-33	0.	0.0484	-0.0062	0.	0.
10	10-33	0.	0.0776	-0.0028	0.	0.
10	10-33	0.	-0.2252	-0.0381	0.	0.
10	10-33	0.	-0.1602	-0.0423	0.	0.
10	10-33	0.	-0.0812	-0.0404	0.	0.
10	10-33	0.	-0.074	-0.0356	0.	0.
10	10-34	0.	0.022	0.023	0.	0.
10	10-34	0.	0.0201	0.0159	0.	0.
10	10-34	0.	0.063	0.0113	0.	0.
10	10-34	0.	0.0224	0.0184	0.	0.
10	10-34	0.	-0.0186	-0.0094	0.	0.
10	10-34	0.	-0.003	-0.0227	0.	0.
10	10-34	0.	-0.073	-0.0223	0.	0.
10	10-34	0.	-0.1423	-0.009	0.	0.
10	10-35	0.	0.0253	0.0019	0.	0.
10	10-35	0.	0.0517	0.0049	0.	0.
10	10-35	0.	0.0344	1.455E-05	0.	0.
10	10-35	0.	0.0052	-0.0032	0.	0.
10	10-35	0.	-0.1408	-0.024	0.	0.
10	10-35	0.	-0.079	-0.0193	0.	0.
10	10-35	0.	-0.0918	-0.0246	0.	0.
10	10-36	0.	-0.1595	-0.0292	0.	0.
10	10-36	0.	9.860E-04	-0.0085	0.	0.
10	10-36	0.	0.0514	0.0074	0.	0.
10	10-36	0.	0.0065	0.0131	0.	0.
10	10-36	0.	0.0459	-0.0044	0.	0.
10	10-36	0.	-0.1617	-0.043	0.	0.
10	10-36	0.	-0.0829	-0.0239	0.	0.
10	10-36	0.	-0.1057	-0.021	0.	0.
10	10-37	0.	-0.0808	-0.037	0.	0.
10	10-37	0.	0.0211	0.0115	0.	0.
10	10-37	0.	0.3296	-0.0032	0.	0.
10	10-37	0.	-0.0352	-0.0091	0.	0.
10	10-37	0.	0.0627	0.0057	0.	0.
10	10-37	0.	-0.0014	-0.0322	0.	0.
10	10-37	0.	0.1391	-0.0538	0.	0.
10	10-37	0.	-0.1083	-0.0559	0.	0.
10	10-38	0.	-0.0719	-0.0342	0.	0.
10	10-38	0.	0.0514	0.0016	0.	0.
10	10-38	0.	-0.0147	0.0232	0.	0.
10	10-38	0.	-0.0258	0.0708	0.	0.
10	10-38	0.	0.0279	0.039	0.	0.
10	10-38	0.	-0.0779	-0.0241	0.	0.
10	10-38	0.	-0.0806	-0.0031	0.	0.
10	10-39	0.	-0.0979	0.0114	0.	0.
10	10-39	0.	-0.0963	-0.0029	0.	0.
10	10-39	0.	0.0448	0.0416	0.	0.
10	10-39	0.	-0.0559	0.1499	0.	0.
10	10-39	0.	0.3523	0.1234	0.	0.
10	10-39	0.	0.0167	0.0192	0.	0.
10	10-39	0.	-0.0874	-0.0064	0.	0.
10	10-39	0.	-0.1389	0.0415	0.	0.
10	10-39	0.	0.135	0.0311	0.	0.
10	10-40	0.	-0.0822	-0.0168	0.	0.
10	10-40	0.	0.2547	-0.0043	0.	0.
10	10-40	0.	0.2213	0.7341	0.	0.
10	10-40	0.	0.3573	0.7122	0.	0.
10	10-40	0.	-0.019	-0.0191	0.	0.

Element Forces - Area Shells, Part 7 of 10

Area	AreaElem	FAngle Degrees	M11 KN-m/m	M12 KN-m/m	MMax KN-m/m	MMin KN-m/m
10	10-40	0.	0.1047	-0.0459	0.	0.
10	10-40	0.	0.0985	0.3064	0.	0.
10	10-40	0.	0.1212	0.2941	0.	0.
10	10-40	0.	-0.0848	-0.0665	0.	0.
10	10-41	0.	0.0025	0.1324	0.	0.
10	10-41	0.	0.3119	0.1967	0.	0.
10	10-41	0.	0.2461	0.0155	0.	0.
10	10-41	0.	0.0262	-0.0186	0.	0.
10	10-41	0.	-0.0586	0.044	0.	0.
10	10-41	0.	0.1021	0.0709	0.	0.
10	10-41	0.	0.0714	-0.0087	0.	0.
10	10-41	0.	-0.0505	-0.0568	0.	0.
10	10-42	0.	-0.0109	0.3445	0.	0.
10	10-42	0.	0.3122	-0.2861	0.	0.
10	10-42	0.	0.0903	-0.2664	0.	0.
10	10-42	0.	0.1958	0.3941	0.	0.
10	10-42	0.	-0.0776	0.1257	0.	0.
10	10-42	0.	0.0991	-0.6893	0.	0.
10	10-42	0.	0.0409	-0.6397	0.	0.
10	10-42	0.	0.0696	0.1471	0.	0.

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-1	1.2055	-0.9968	0.	0.	-7.24
10	10-1	0.7109	0.3136	0.	0.	-12.17
10	10-1	-0.0826	0.3785	0.	0.	-12.17
10	10-1	0.9872	-0.9502	0.	0.	-7.24
10	10-1	0.549	-1.927	0.	0.	-16.34
10	10-1	0.3722	0.1348	0.	0.	-18.46
10	10-1	-0.5473	0.191	0.	0.	-18.46
10	10-1	-0.0574	-1.8682	0.	0.	-16.34
10	10-2	0.8688	-0.1894	0.	0.	-1.14
10	10-2	0.0018	-0.0689	0.	0.	2.647E-02
10	10-2	0.0788	0.1928	0.	0.	2.647E-02
10	10-2	0.6858	0.0288	0.	0.	-1.14
10	10-2	-0.1083	-0.4978	0.	0.	-2.2
10	10-2	-0.48	-0.3307	0.	0.	-0.3
10	10-2	-0.3896	0.0164	0.	0.	-0.3
10	10-2	-0.183	-0.0941	0.	0.	-2.2
10	10-3	0.8571	1.8099	0.	0.	19.92
10	10-3	-0.0477	-0.6234	0.	0.	19.85
10	10-3	0.482	-0.6574	0.	0.	19.85
10	10-3	1.0685	1.6951	0.	0.	19.92
10	10-3	-0.11	0.9067	0.	0.	8.89
10	10-3	-0.4676	-0.9904	0.	0.	12.47
10	10-3	0.1964	-1.0982	0.	0.	12.47
10	10-3	0.2273	0.8703	0.	0.	8.89
10	10-4	0.9231	0.2656	0.	0.	-6.43
10	10-4	0.0714	0.1422	0.	0.	1.72
10	10-4	0.2019	0.1345	0.	0.	1.72
10	10-4	-0.1519	0.2579	0.	0.	-6.43
10	10-4	0.4433	0.1481	0.	0.	-9.24
10	10-4	-0.0047	0.0698	0.	0.	-2.24
10	10-4	-0.3868	0.0663	0.	0.	-2.24
10	10-4	-0.5949	0.1411	0.	0.	-9.24
10	10-5	-0.0676	0.0492	0.	0.	-0.31
10	10-5	0.1652	0.1008	0.	0.	-0.52
10	10-5	0.087	-0.003	0.	0.	-0.52
10	10-5	-0.1117	-0.0358	0.	0.	-0.31
10	10-5	-0.5272	-0.0258	0.	0.	-0.77
10	10-5	-0.4063	0.0474	0.	0.	-1.08
10	10-5	-0.4568	-0.0822	0.	0.	-1.08
10	10-5	-0.5758	-0.173	0.	0.	-0.77
10	10-6	-0.2345	-0.1923	0.	0.	8.91
10	10-6	0.1418	0.0222	0.	0.	0.93
10	10-6	-0.0517	0.0766	0.	0.	0.93

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-6	0.931	-0.1379	0.	0.	8.91
10	10-6	-0.6782	-0.4011	0.	0.	5.71
10	10-6	-0.4251	-0.1196	0.	0.	-3.85
10	10-6	-0.3002	-0.0581	0.	0.	-3.85
10	10-6	0.4656	-0.3392	0.	0.	5.71
10	10-7	0.0631	0.106	0.	0.	1.85
10	10-7	0.0692	0.0695	0.	0.	1.23
10	10-7	0.0761	0.0586	0.	0.	1.23
10	10-7	0.2034	0.0898	0.	0.	1.85
10	10-7	-0.0515	0.0616	0.	0.	-2.51
10	10-7	-0.0612	0.0251	0.	0.	-3.35
10	10-7	-0.4724	0.0203	0.	0.	-3.35
10	10-7	-0.3693	0.0543	0.	0.	-2.51
10	10-8	0.1667	0.0651	0.	0.	-0.16
10	10-8	0.0853	0.0762	0.	0.	-0.17
10	10-8	0.0266	0.0722	0.	0.	-0.17
10	10-8	0.108	0.061	0.	0.	-0.16
10	10-8	-0.3888	0.0322	0.	0.	-0.62
10	10-8	-0.4666	0.0387	0.	0.	-0.49
10	10-8	-0.5082	0.0333	0.	0.	-0.49
10	10-8	-0.4592	0.0268	0.	0.	-0.62
10	10-9	0.1628	0.0566	0.	0.	1.5
10	10-9	0.0128	0.0901	0.	0.	3.11
10	10-9	0.067	0.0629	0.	0.	3.11
10	10-9	-0.107	0.0463	0.	0.	1.5
10	10-9	-0.4275	-0.0125	0.	0.	-3.55
10	10-9	-0.517	0.0481	0.	0.	-1.82
10	10-9	-0.2298	0.0304	0.	0.	-1.82
10	10-9	-0.3052	-0.037	0.	0.	-3.55
10	10-10	0.0904	0.0517	0.	0.	0.66
10	10-10	0.08	0.0616	0.	0.	0.48
10	10-10	0.0139	0.0638	0.	0.	0.48
10	10-10	0.072	0.0539	0.	0.	0.66
10	10-10	-0.0327	0.0135	0.	0.	-3.32
10	10-10	-0.0646	0.017	0.	0.	-3.7
10	10-10	-0.4788	0.0203	0.	0.	-3.7
10	10-10	-0.4613	0.0169	0.	0.	-3.32
10	10-11	0.0811	0.0706	0.	0.	6.246E-02
10	10-11	0.0114	0.0595	0.	0.	0.12
10	10-11	-0.0236	0.0643	0.	0.	0.12
10	10-11	0.0266	0.0754	0.	0.	6.246E-02
10	10-11	-0.4555	0.0297	0.	0.	-0.54
10	10-11	-0.4798	0.0197	0.	0.	-0.24
10	10-11	-0.5198	0.0257	0.	0.	-0.24
10	10-11	-0.5227	0.0357	0.	0.	-0.54
10	10-12	0.0129	0.0776	0.	0.	3.23
10	10-12	-0.0205	0.0573	0.	0.	3.66
10	10-12	0.142	0.0444	0.	0.	3.66
10	10-12	0.0581	0.0647	0.	0.	3.23
10	10-12	-0.5315	0.0401	0.	0.	-1.25
10	10-12	-0.5171	0.0241	0.	0.	-0.86
10	10-12	-0.169	0.0164	0.	0.	-0.86
10	10-12	-0.1774	0.0324	0.	0.	-1.25
10	10-13	0.08	0.0455	0.	0.	0.73
10	10-13	0.0935	0.0303	0.	0.	0.21
10	10-13	-0.0215	0.0332	0.	0.	0.21
10	10-13	0.0145	0.0484	0.	0.	0.73
10	10-13	-0.0734	0.0124	0.	0.	-3.31
10	10-13	-0.0362	0.0032	0.	0.	-3.55
10	10-13	-0.4623	0.006	0.	0.	-3.55
10	10-13	-0.4677	0.0152	0.	0.	-3.31
10	10-14	0.0121	0.0502	0.	0.	0.24
10	10-14	-0.0206	0.0373	0.	0.	0.23
10	10-14	-0.0432	0.0379	0.	0.	0.23
10	10-14	-0.0225	0.0508	0.	0.	0.24
10	10-14	-0.4687	0.014	0.	0.	-0.43
10	10-14	-0.4615	0.0093	0.	0.	-0.19
10	10-14	-0.4926	0.0085	0.	0.	-0.19
10	10-14	-0.5317	0.0131	0.	0.	-0.43
10	10-15	-0.0194	0.0447	0.	0.	3.47
10	10-15	-0.0443	0.0488	0.	0.	3.63
10	10-15	0.1849	0.0446	0.	0.	3.63

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-15	0.1275	0.0398	0.	0.	3.47
10	10-15	-0.529	0.0151	0.	0.	-1.06
10	10-15	-0.4938	0.0022	0.	0.	-0.44
10	10-15	-0.1084	-7.705E-04	0.	0.	-0.44
10	10-15	-0.1642	0.0122	0.	0.	-1.06
10	10-16	0.0983	0.0234	0.	0.	2.038E-02
10	10-16	0.0966	0.0258	0.	0.	-0.17
10	10-16	-0.0288	0.0276	0.	0.	-0.17
10	10-16	-0.0221	0.0252	0.	0.	2.038E-02
10	10-16	-0.0296	0.008	0.	0.	-3.39
10	10-16	-0.0094	0.0117	0.	0.	-3.35
10	10-16	-0.421	0.0123	0.	0.	-3.35
10	10-16	-0.4539	0.0085	0.	0.	-3.39
10	10-17	-0.0212	0.0293	0.	0.	0.3
10	10-17	-0.0288	0.0185	0.	0.	0.27
10	10-17	-0.0455	0.024	0.	0.	0.27
10	10-17	-0.0435	0.0299	0.	0.	0.3
10	10-17	-0.4531	0.0068	0.	0.	-0.32
10	10-17	-0.421	0.0043	0.	0.	-0.15
10	10-17	-0.4461	-0.0024	0.	0.	-0.15
10	10-17	-0.5023	8.189E-05	0.	0.	-0.32
10	10-18	-0.0446	0.0375	0.	0.	3.58
10	10-18	-0.0456	0.0242	0.	0.	3.39
10	10-18	0.1942	0.0227	0.	0.	3.39
10	10-18	0.1776	0.036	0.	0.	3.58
10	10-18	-0.5035	-0.0041	0.	0.	-0.3
10	10-18	-0.4462	-0.0123	0.	0.	-2.884E-02
10	10-18	-0.0721	-0.0163	0.	0.	-2.884E-02
10	10-18	-0.0974	-0.0081	0.	0.	-0.3
10	10-19	0.0935	0.0193	0.	0.	-7.198E-02
10	10-19	0.0889	0.0165	0.	0.	-0.17
10	10-19	-0.026	0.0147	0.	0.	-0.17
10	10-19	-0.0282	0.0189	0.	0.	-7.198E-02
10	10-19	-0.0137	0.0112	0.	0.	-3.09
10	10-19	0.0026	0.0054	0.	0.	-2.91
10	10-19	-0.3721	0.0068	0.	0.	-2.91
10	10-19	-0.4135	0.0125	0.	0.	-3.09
10	10-20	-0.0282	0.0154	0.	0.	0.31
10	10-20	-0.0259	0.0119	0.	0.	0.26
10	10-20	-0.0387	0.0141	0.	0.	0.26
10	10-20	-0.0455	0.0177	0.	0.	0.31
10	10-20	-0.4135	0.0042	0.	0.	-0.28
10	10-20	-0.372	0.0029	0.	0.	-0.14
10	10-20	-0.3925	-0.0069	0.	0.	-0.14
10	10-20	-0.4538	-0.007	0.	0.	-0.28
10	10-21	-0.0456	0.0185	0.	0.	3.28
10	10-21	-0.039	0.0159	0.	0.	2.96
10	10-21	0.1797	0.015	0.	0.	2.96
10	10-21	0.1865	0.0177	0.	0.	3.28
10	10-21	-0.4539	-0.0146	0.	0.	-9.369E-02
10	10-21	-0.3927	-0.0208	0.	0.	3.158E-02
10	10-21	-0.0567	-0.026	0.	0.	3.158E-02
10	10-21	-0.0611	-0.0198	0.	0.	-9.369E-02
10	10-22	0.089	0.0214	0.	0.	-0.22
10	10-22	0.0716	0.0222	0.	0.	-0.16
10	10-22	-0.0196	0.0181	0.	0.	-0.16
10	10-22	-0.0261	0.0172	0.	0.	-0.22
10	10-22	0.0039	0.006	0.	0.	-2.76
10	10-22	0.0014	0.0067	0.	0.	-2.43
10	10-22	-0.3202	0.0065	0.	0.	-2.43
10	10-22	-0.3664	0.0066	0.	0.	-2.76
10	10-23	-0.0259	0.0099	0.	0.	0.3
10	10-23	-0.0196	0.0071	0.	0.	0.24
10	10-23	-0.0306	0.0068	0.	0.	0.24
10	10-23	-0.039	0.0096	0.	0.	0.3
10	10-23	-0.3663	-5.216E-04	0.	0.	-0.22
10	10-23	-0.3203	-0.0047	0.	0.	-0.13
10	10-23	-0.3388	-0.0151	0.	0.	-0.13
10	10-23	-0.3982	-0.0109	0.	0.	-0.22
10	10-24	-0.0392	0.0102	0.	0.	2.91
10	10-24	-0.0306	0.0049	0.	0.	2.48
10	10-24	0.1512	0.0043	0.	0.	2.48

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-24	0.1745	0.0097	0.	0.	2.91
10	10-24	-0.3984	-0.0212	0.	0.	5.807E-02
10	10-24	-0.3388	-0.0238	0.	0.	2.180E-02
10	10-24	-0.0584	-0.03	0.	0.	2.180E-02
10	10-24	-0.0399	-0.0274	0.	0.	5.807E-02
10	10-25	0.0693	0.0243	0.	0.	-0.14
10	10-25	0.054	0.025	0.	0.	-5.711E-02
10	10-25	-0.0127	0.019	0.	0.	-5.711E-02
10	10-25	-0.0194	0.0182	0.	0.	-0.14
10	10-25	7.215E-04	0.0053	0.	0.	-2.3
10	10-25	-0.0051	0.0047	0.	0.	-1.94
10	10-25	-0.2666	0.0019	0.	0.	-1.94
10	10-25	-0.3157	0.0022	0.	0.	-2.3
10	10-26	-0.0194	0.0058	0.	0.	0.26
10	10-26	-0.0125	0.0047	0.	0.	0.2
10	10-26	-0.0227	0.0014	0.	0.	0.2
10	10-26	-0.0307	0.0036	0.	0.	0.26
10	10-26	-0.3157	-0.0069	0.	0.	-0.19
10	10-26	-0.2663	-0.0107	0.	0.	-0.12
10	10-26	-0.2839	-0.0231	0.	0.	-0.12
10	10-26	-0.3432	-0.0191	0.	0.	-0.19
10	10-27	-0.0307	0.0021	0.	0.	2.43
10	10-27	-0.023	-0.001	0.	0.	1.99
10	10-27	0.1168	-0.0015	0.	0.	1.99
10	10-27	0.147	0.0016	0.	0.	2.43
10	10-27	-0.3432	-0.0286	0.	0.	1.714E-02
10	10-27	-0.2843	-0.0332	0.	0.	-8.107E-02
10	10-27	-0.0665	-0.0372	0.	0.	-8.107E-02
10	10-27	-0.0452	-0.0317	0.	0.	1.714E-02
10	10-28	0.0514	0.0267	0.	0.	-2.215E-02
10	10-28	0.0344	0.0237	0.	0.	0.17
10	10-28	0.0011	0.0171	0.	0.	0.17
10	10-28	-0.0126	0.0199	0.	0.	-2.215E-02
10	10-28	-0.0064	0.0036	0.	0.	-1.8
10	10-28	-0.0191	-0.0013	0.	0.	-1.42
10	10-28	-0.205	-0.0054	0.	0.	-1.42
10	10-28	-0.2628	-5.112E-04	0.	0.	-1.8
10	10-29	-0.0124	0.0041	0.	0.	0.21
10	10-29	3.336E-04	0.0039	0.	0.	0.15
10	10-29	-0.0128	-0.003	0.	0.	0.15
10	10-29	-0.0228	-9.855E-04	0.	0.	0.21
10	10-29	-0.2626	-0.0134	0.	0.	-0.17
10	10-29	-0.2054	-0.0168	0.	0.	-0.13
10	10-29	-0.2237	-0.0295	0.	0.	-0.13
10	10-29	-0.287	-0.0262	0.	0.	-0.17
10	10-30	-0.0231	-0.0044	0.	0.	1.94
10	10-30	-0.012	-0.0041	0.	0.	1.45
10	10-30	0.0783	-0.0041	0.	0.	1.45
10	10-30	0.1135	-0.0044	0.	0.	1.94
10	10-30	-0.2874	-0.0383	0.	0.	-0.11
10	10-30	-0.2227	-0.0372	0.	0.	-0.32
10	10-30	-0.0827	-0.0381	0.	0.	-0.32
10	10-30	-0.0588	-0.0392	0.	0.	-0.11
10	10-31	0.0327	0.023	0.	0.	0.12
10	10-31	0.0281	0.0246	0.	0.	0.19
10	10-31	0.0213	0.0179	0.	0.	0.19
10	10-31	0.0011	0.0163	0.	0.	0.12
10	10-31	-0.0191	-0.0072	0.	0.	-1.37
10	10-31	-0.0083	-0.0036	0.	0.	-1.03
10	10-31	-0.1448	-0.0075	0.	0.	-1.03
10	10-32	-0.2024	-0.0111	0.	0.	-1.37
10	10-32	2.906E-04	0.003	0.	0.	0.15
10	10-32	0.0241	0.003	0.	0.	7.879E-02
10	10-32	0.0053	-0.006	0.	0.	7.879E-02
10	10-32	-0.0131	-0.0046	0.	0.	0.15
10	10-32	-0.2028	-0.0195	0.	0.	-0.17
10	10-32	-0.1433	-0.0216	0.	0.	-0.16
10	10-32	-0.158	-0.0334	0.	0.	-0.16
10	10-32	-0.2263	-0.0314	0.	0.	-0.17
10	10-33	-0.0123	-0.0045	0.	0.	1.45
10	10-33	0.0011	-0.0079	0.	0.	0.99
10	10-33	0.0484	-0.0062	0.	0.	0.99

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-33	0.0776	-0.0028	0.	0.	1.45
10	10-33	-0.2252	-0.0381	0.	0.	-0.27
10	10-33	-0.1602	-0.0423	0.	0.	-0.4
10	10-33	-0.0812	-0.0404	0.	0.	-0.4
10	10-33	-0.074	-0.0356	0.	0.	-0.27
10	10-34	0.022	0.023	0.	0.	0.34
10	10-34	0.0201	0.0159	0.	0.	0.54
10	10-34	0.063	0.0113	0.	0.	0.54
10	10-34	0.0224	0.0184	0.	0.	0.34
10	10-34	-0.0186	-0.0094	0.	0.	-0.89
10	10-34	-0.003	-0.0227	0.	0.	-0.49
10	10-34	-0.073	-0.0223	0.	0.	-0.49
10	10-34	-0.1423	-0.009	0.	0.	-0.89
10	10-35	0.0253	0.0019	0.	0.	6.026E-02
10	10-35	0.0517	0.0049	0.	0.	1.726E-02
10	10-35	0.0344	1.455E-05	0.	0.	1.726E-02
10	10-35	0.0052	-0.0032	0.	0.	6.026E-02
10	10-35	-0.1408	-0.024	0.	0.	-0.23
10	10-35	-0.079	-0.0193	0.	0.	-0.16
10	10-35	-0.0918	-0.0246	0.	0.	-0.18
10	10-35	-0.1595	-0.0292	0.	0.	-0.23
10	10-36	9.860E-04	-0.0085	0.	0.	0.91
10	10-36	0.0514	0.0074	0.	0.	0.24
10	10-36	0.0065	0.0131	0.	0.	0.24
10	10-36	0.0459	-0.0044	0.	0.	0.91
10	10-36	-0.1617	-0.043	0.	0.	-0.55
10	10-36	-0.0829	-0.0239	0.	0.	-1.08
10	10-36	-0.1057	-0.021	0.	0.	-1.08
10	10-36	-0.0808	-0.037	0.	0.	-0.55
10	10-37	0.0211	0.0115	0.	0.	0.53
10	10-37	0.3296	-0.0032	0.	0.	-1.31
10	10-37	-0.0352	-0.0091	0.	0.	-1.31
10	10-37	0.0627	0.0057	0.	0.	0.53
10	10-37	-0.0014	-0.0322	0.	0.	-0.42
10	10-37	0.1391	-0.0538	0.	0.	-2.79
10	10-37	-0.1083	-0.0559	0.	0.	-2.79
10	10-37	-0.0719	-0.0342	0.	0.	-0.42
10	10-38	0.0514	0.0016	0.	0.	-6.635E-02
10	10-38	-0.0147	0.0232	0.	0.	-7.643E-02
10	10-38	-0.0258	0.0708	0.	0.	-7.643E-02
10	10-38	0.0279	0.039	0.	0.	-6.635E-02
10	10-38	-0.0779	-0.0241	0.	0.	-0.36
10	10-38	-0.0806	-0.0031	0.	0.	-0.28
10	10-38	-0.0979	0.0114	0.	0.	-0.28
10	10-38	-0.0963	-0.0029	0.	0.	-0.36
10	10-39	0.0448	0.0416	0.	0.	0.15
10	10-39	-0.0559	0.1499	0.	0.	2.77
10	10-39	0.3523	0.1234	0.	0.	2.77
10	10-39	0.0167	0.0192	0.	0.	0.15
10	10-39	-0.0874	-0.0064	0.	0.	-1.22
10	10-39	-0.1389	0.0415	0.	0.	1.3
10	10-39	0.135	0.0311	0.	0.	1.3
10	10-39	-0.0822	-0.0168	0.	0.	-1.22
10	10-40	0.2547	-0.0043	0.	0.	-2.69
10	10-40	0.2213	0.7341	0.	0.	-1.34
10	10-40	0.3573	0.7122	0.	0.	-1.34
10	10-40	-0.019	-0.0191	0.	0.	-2.69
10	10-40	0.1047	-0.0459	0.	0.	-6.13
10	10-40	0.0985	0.3064	0.	0.	-2.97
10	10-40	0.1212	0.2941	0.	0.	-2.97
10	10-40	-0.0848	-0.0665	0.	0.	-6.13
10	10-41	0.0025	0.1324	0.	0.	-9.659E-03
10	10-41	0.3119	0.1967	0.	0.	-0.32
10	10-41	0.2461	0.0155	0.	0.	-0.32
10	10-41	0.0262	-0.0186	0.	0.	-9.659E-03
10	10-41	-0.0586	0.044	0.	0.	-0.13
10	10-41	0.1021	0.0709	0.	0.	-0.79
10	10-41	0.0714	-0.0087	0.	0.	-0.79
10	10-41	-0.0505	-0.0568	0.	0.	-0.13
10	10-42	-0.0109	0.3445	0.	0.	6.94
10	10-42	0.3122	-0.2861	0.	0.	3.67
10	10-42	0.0903	-0.2664	0.	0.	3.67

Element Forces - Area Shells, Part 8 of 10

Area	AreaElem	M11 KN-m/m	M12 KN-m/m	MMin KN-m/m	MAngle Degrees	V13 KN/m
10	10-42	0.1958	0.3941	0.	0.	6.94
10	10-42	-0.0776	0.1257	0.	0.	3.04
10	10-42	0.0991	-0.6893	0.	0.	1.61
10	10-42	0.0409	-0.6397	0.	0.	1.61
10	10-42	0.0696	0.1471	0.	0.	3.04

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 9 of 10

Area	AreaElem	M12 KN-m/m	MMin KN-m/m	V13 KN/m	V23 KN/m	VMax KN/m
10	10-1	-0.9968	0.	-7.24	37.72	0.
10	10-1	0.3136	0.	-12.17	37.72	0.
10	10-1	0.3785	0.	-12.17	-7.27	0.
10	10-1	-0.9502	0.	-7.24	-7.27	0.
10	10-1	-1.927	0.	-16.34	24.69	0.
10	10-1	0.1348	0.	-18.46	24.69	0.
10	10-1	0.191	0.	-18.46	-16.91	0.
10	10-1	-1.8682	0.	-16.34	-16.91	0.
10	10-2	-0.1894	0.	-1.14	-6.16	0.
10	10-2	-0.0689	0.	2.647E-02	-6.16	0.
10	10-2	0.1928	0.	2.647E-02	-10.15	0.
10	10-2	0.0288	0.	-1.14	-10.15	0.
10	10-2	-0.4978	0.	-2.2	-14.21	0.
10	10-2	-0.3307	0.	-0.3	-14.21	0.
10	10-2	0.0164	0.	-0.3	-21.59	0.
10	10-2	-0.0941	0.	-2.2	-21.59	0.
10	10-3	1.8099	0.	19.92	-11.63	0.
10	10-3	-0.6234	0.	19.85	-11.63	0.
10	10-3	-0.6574	0.	19.85	68.37	0.
10	10-3	1.6951	0.	19.92	68.37	0.
10	10-3	0.9067	0.	8.89	-25.48	0.
10	10-3	-0.9904	0.	12.47	-25.48	0.
10	10-3	-1.0982	0.	12.47	41.48	0.
10	10-3	0.8703	0.	8.89	41.48	0.
10	10-4	0.2656	0.	-6.43	7.05	0.
10	10-4	0.1422	0.	1.72	7.05	0.
10	10-4	0.1345	0.	1.72	7.29	0.
10	10-4	0.2579	0.	-6.43	7.29	0.
10	10-4	0.1481	0.	-9.24	2.64	0.
10	10-4	0.0698	0.	-2.24	2.64	0.
10	10-4	0.0663	0.	-2.24	4.35	0.
10	10-4	0.1411	0.	-9.24	4.35	0.
10	10-5	0.0492	0.	-0.31	6.53	0.
10	10-5	0.1008	0.	-0.52	6.53	0.
10	10-5	-0.003	0.	-0.52	6.05	0.
10	10-5	-0.0358	0.	-0.31	6.05	0.
10	10-5	-0.0258	0.	-0.77	3.83	0.
10	10-5	0.0474	0.	-1.08	3.83	0.
10	10-5	-0.0822	0.	-1.08	3.85	0.
10	10-5	-0.173	0.	-0.77	3.85	0.
10	10-6	-0.1923	0.	8.91	7.37	0.
10	10-6	0.0222	0.	0.93	7.37	0.
10	10-6	0.0766	0.	0.93	2.05	0.
10	10-6	-0.1379	0.	8.91	2.05	0.
10	10-6	-0.4011	0.	5.71	4.74	0.
10	10-6	-0.1196	0.	-3.85	4.74	0.
10	10-6	-0.0581	0.	-3.85	-0.39	0.
10	10-6	-0.3392	0.	5.71	-0.39	0.
10	10-7	0.106	0.	1.85	3.42	0.
10	10-7	0.0695	0.	1.23	3.42	0.
10	10-7	0.0586	0.	1.23	3.42	0.
10	10-7	0.0898	0.	1.85	3.42	0.
10	10-7	0.0616	0.	-2.51	-6.290E-02	0.
10	10-7	0.0251	0.	-3.35	-6.290E-02	0.
10	10-7	0.0203	0.	-3.35	0.7	0.
10	10-7	0.0543	0.	-2.51	0.7	0.
10	10-8	0.0651	0.	-0.16	3.37	0.
10	10-8	0.0762	0.	-0.17	3.37	0.

Element Forces - Area Shells, Part 9 of 10

Area	AreaElem	M12 KN-m/m	MMin KN-m/m	V13 KN/m	V23 KN/m	VMax KN/m
10	10-8	0.0722	0.	-0.17	3.27	0.
10	10-8	0.061	0.	-0.16	3.27	0.
10	10-8	0.0322	0.	-0.62	0.72	0.
10	10-8	0.0387	0.	-0.49	0.72	0.
10	10-8	0.0333	0.	-0.49	0.82	0.
10	10-8	0.0268	0.	-0.62	0.82	0.
10	10-9	0.0566	0.	1.5	3.28	0.
10	10-9	0.0901	0.	3.11	3.28	0.
10	10-9	0.0629	0.	3.11	2.55	0.
10	10-9	0.0463	0.	1.5	2.55	0.
10	10-9	-0.0125	0.	-3.55	0.75	0.
10	10-9	0.0481	0.	-1.82	0.75	0.
10	10-9	0.0304	0.	-1.82	-0.44	0.
10	10-9	-0.037	0.	-3.55	-0.44	0.
10	10-10	0.0517	0.	0.66	1.51	0.
10	10-10	0.0616	0.	0.48	1.51	0.
10	10-10	0.0638	0.	0.48	1.11	0.
10	10-10	0.0539	0.	0.66	1.11	0.
10	10-10	0.0135	0.	-3.32	-1.04	0.
10	10-10	0.017	0.	-3.7	-1.04	0.
10	10-10	0.0203	0.	-3.7	-0.71	0.
10	10-10	0.0169	0.	-3.32	-0.71	0.
10	10-11	0.0706	0.	6.246E-02	1.17	0.
10	10-11	0.0595	0.	0.12	1.17	0.
10	10-11	0.0643	0.	0.12	1.13	0.
10	10-11	0.0754	0.	6.246E-02	1.13	0.
10	10-11	0.0297	0.	-0.54	-0.7	0.
10	10-11	0.0197	0.	-0.24	-0.7	0.
10	10-11	0.0257	0.	-0.24	-0.6	0.
10	10-11	0.0357	0.	-0.54	-0.6	0.
10	10-12	0.0776	0.	3.23	1.	0.
10	10-12	0.0573	0.	3.66	1.	0.
10	10-12	0.0444	0.	3.66	1.14	0.
10	10-12	0.0647	0.	3.23	1.14	0.
10	10-12	0.0401	0.	-1.25	-0.69	0.
10	10-12	0.0241	0.	-0.86	-0.69	0.
10	10-12	0.0164	0.	-0.86	-0.88	0.
10	10-12	0.0324	0.	-1.25	-0.88	0.
10	10-13	0.0455	0.	0.73	4.440E-03	0.
10	10-13	0.0303	0.	0.21	4.440E-03	0.
10	10-13	0.0332	0.	0.21	6.077E-02	0.
10	10-13	0.0484	0.	0.73	6.077E-02	0.
10	10-13	0.0124	0.	-3.31	-1.59	0.
10	10-13	0.0032	0.	-3.55	-1.59	0.
10	10-13	0.006	0.	-3.55	-0.96	0.
10	10-13	0.0152	0.	-3.31	-0.96	0.
10	10-14	0.0502	0.	0.24	0.1	0.
10	10-14	0.0373	0.	0.23	0.1	0.
10	10-14	0.0379	0.	0.23	0.11	0.
10	10-14	0.0508	0.	0.24	0.11	0.
10	10-14	0.014	0.	-0.43	-0.99	0.
10	10-14	0.0093	0.	-0.19	-0.99	0.
10	10-14	0.0085	0.	-0.19	-0.95	0.
10	10-14	0.0131	0.	-0.43	-0.95	0.
10	10-15	0.0447	0.	3.47	3.330E-02	0.
10	10-15	0.0488	0.	3.63	3.330E-02	0.
10	10-15	0.0446	0.	3.63	0.16	0.
10	10-15	0.0398	0.	3.47	0.16	0.
10	10-15	0.0151	0.	-1.06	-0.97	0.
10	10-15	0.0022	0.	-0.44	-0.97	0.
10	10-15	-7.705E-04	0.	-0.44	-1.21	0.
10	10-15	0.0122	0.	-1.06	-1.21	0.
10	10-16	0.0234	0.	2.038E-02	5.736E-02	0.
10	10-16	0.0258	0.	-0.17	5.736E-02	0.
10	10-16	0.0276	0.	-0.17	-0.35	0.
10	10-16	0.0252	0.	2.038E-02	-0.35	0.
10	10-16	0.008	0.	-3.39	-1.2	0.
10	10-16	0.0117	0.	-3.35	-1.2	0.
10	10-16	0.0123	0.	-3.35	-0.89	0.
10	10-16	0.0085	0.	-3.39	-0.89	0.
10	10-17	0.0293	0.	0.3	-0.33	0.
10	10-17	0.0185	0.	0.27	-0.33	0.

Element Forces - Area Shells, Part 9 of 10

Area	AreaElem	M12 KN-m/m	MMin KN-m/m	V13 KN/m	V23 KN/m	VMax KN/m
10	10-17	0.024	0.	0.27	-0.32	0.
10	10-17	0.0299	0.	0.3	-0.32	0.
10	10-17	0.0068	0.	-0.32	-0.93	0.
10	10-17	0.0043	0.	-0.15	-0.93	0.
10	10-17	-0.0024	0.	-0.15	-0.94	0.
10	10-17	8.189E-05	0.	-0.32	-0.94	0.
10	10-18	0.0375	0.	3.58	-0.37	0.
10	10-18	0.0242	0.	3.39	-0.37	0.
10	10-18	0.0227	0.	3.39	0.12	0.
10	10-18	0.036	0.	3.58	0.12	0.
10	10-18	-0.0041	0.	-0.3	-0.94	0.
10	10-18	-0.0123	0.	-2.884E-02	-0.94	0.
10	10-18	-0.0163	0.	-2.884E-02	-0.79	0.
10	10-18	-0.0081	0.	-0.3	-0.79	0.
10	10-19	0.0193	0.	-7.198E-02	0.11	0.
10	10-19	0.0165	0.	-0.17	0.11	0.
10	10-19	0.0147	0.	-0.17	-0.18	0.
10	10-19	0.0189	0.	-7.198E-02	-0.18	0.
10	10-19	0.0112	0.	-3.09	-0.93	0.
10	10-19	0.0054	0.	-2.91	-0.93	0.
10	10-19	0.0068	0.	-2.91	-0.53	0.
10	10-19	0.0125	0.	-3.09	-0.53	0.
10	10-20	0.0154	0.	0.31	-0.25	0.
10	10-20	0.0119	0.	0.26	-0.25	0.
10	10-20	0.0141	0.	0.26	-0.27	0.
10	10-20	0.0177	0.	0.31	-0.27	0.
10	10-20	0.0042	0.	-0.28	-0.58	0.
10	10-20	0.0029	0.	-0.14	-0.58	0.
10	10-20	-0.0069	0.	-0.14	-0.66	0.
10	10-20	-0.007	0.	-0.28	-0.66	0.
10	10-21	0.0185	0.	3.28	-0.24	0.
10	10-21	0.0159	0.	2.96	-0.24	0.
10	10-21	0.015	0.	2.96	0.2	0.
10	10-21	0.0177	0.	3.28	0.2	0.
10	10-21	-0.0146	0.	-9.369E-02	-0.62	0.
10	10-21	-0.0208	0.	3.158E-02	-0.62	0.
10	10-21	-0.026	0.	3.158E-02	-0.5	0.
10	10-21	-0.0198	0.	-9.369E-02	-0.5	0.
10	10-22	0.0214	0.	-0.22	0.25	0.
10	10-22	0.0222	0.	-0.16	0.25	0.
10	10-22	0.0181	0.	-0.16	-3.237E-02	0.
10	10-22	0.0172	0.	-0.22	-3.237E-02	0.
10	10-22	0.006	0.	-2.76	-0.47	0.
10	10-22	0.0067	0.	-2.43	-0.47	0.
10	10-22	0.0065	0.	-2.43	-0.24	0.
10	10-22	0.0066	0.	-2.76	-0.24	0.
10	10-23	0.0099	0.	0.3	-9.921E-02	0.
10	10-23	0.0071	0.	0.24	-9.921E-02	0.
10	10-23	0.0068	0.	0.24	-0.11	0.
10	10-23	0.0096	0.	0.3	-0.11	0.
10	10-23	-5.216E-04	0.	-0.22	-0.29	0.
10	10-23	-0.0047	0.	-0.13	-0.29	0.
10	10-23	-0.0151	0.	-0.13	-0.37	0.
10	10-23	-0.0109	0.	-0.22	-0.37	0.
10	10-24	0.0102	0.	2.91	-4.599E-02	0.
10	10-24	0.0049	0.	2.48	-4.599E-02	0.
10	10-24	0.0043	0.	2.48	0.27	0.
10	10-24	0.0097	0.	2.91	0.27	0.
10	10-24	-0.0212	0.	5.807E-02	-0.32	0.
10	10-24	-0.0238	0.	2.180E-02	-0.32	0.
10	10-24	-0.03	0.	2.180E-02	-0.12	0.
10	10-24	-0.0274	0.	5.807E-02	-0.12	0.
10	10-25	0.0243	0.	-0.14	0.22	0.
10	10-25	0.025	0.	-5.711E-02	0.22	0.
10	10-25	0.019	0.	-5.711E-02	7.535E-02	0.
10	10-25	0.0182	0.	-0.14	7.535E-02	0.
10	10-25	0.0053	0.	-2.3	-0.33	0.
10	10-25	0.0047	0.	-1.94	-0.33	0.
10	10-25	0.0019	0.	-1.94	-7.917E-02	0.
10	10-25	0.0022	0.	-2.3	-7.917E-02	0.
10	10-26	0.0058	0.	0.26	1.443E-02	0.
10	10-26	0.0047	0.	0.2	1.443E-02	0.

Element Forces - Area Shells, Part 9 of 10

Area	AreaElem	M12 KN-m/m	MMin KN-m/m	V13 KN/m	V23 KN/m	VMax KN/m
10	10-26	0.0014	0.	0.2	7.230E-03	0.
10	10-26	0.0036	0.	0.26	7.230E-03	0.
10	10-26	-0.0069	0.	-0.19	-0.13	0.
10	10-26	-0.0107	0.	-0.12	-0.13	0.
10	10-26	-0.0231	0.	-0.12	-0.23	0.
10	10-26	-0.0191	0.	-0.19	-0.23	0.
10	10-27	0.0021	0.	2.43	7.939E-02	0.
10	10-27	-0.001	0.	1.99	7.939E-02	0.
10	10-27	-0.0015	0.	1.99	0.27	0.
10	10-27	0.0016	0.	2.43	0.27	0.
10	10-27	-0.0286	0.	1.714E-02	-0.17	0.
10	10-27	-0.0332	0.	-8.107E-02	-0.17	0.
10	10-27	-0.0372	0.	-8.107E-02	-1.871E-02	0.
10	10-27	-0.0317	0.	1.714E-02	-1.871E-02	0.
10	10-28	0.0267	0.	-2.215E-02	0.16	0.
10	10-28	0.0237	0.	0.17	0.16	0.
10	10-28	0.0171	0.	0.17	-2.230E-02	0.
10	10-28	0.0199	0.	-2.215E-02	-2.230E-02	0.
10	10-28	0.0036	0.	-1.8	-0.24	0.
10	10-28	-0.0013	0.	-1.42	-0.24	0.
10	10-28	-0.0054	0.	-1.42	-0.12	0.
10	10-28	-5.112E-04	0.	-1.8	-0.12	0.
10	10-29	0.0041	0.	0.21	-5.265E-02	0.
10	10-29	0.0039	0.	0.15	-5.265E-02	0.
10	10-29	-0.003	0.	0.15	-5.587E-02	0.
10	10-29	-9.855E-04	0.	0.21	-5.587E-02	0.
10	10-29	-0.0134	0.	-0.17	-0.17	0.
10	10-29	-0.0168	0.	-0.13	-0.17	0.
10	10-29	-0.0295	0.	-0.13	-0.26	0.
10	10-29	-0.0262	0.	-0.17	-0.26	0.
10	10-30	-0.0044	0.	1.94	-2.926E-03	0.
10	10-30	-0.0041	0.	1.45	-2.926E-03	0.
10	10-30	-0.0041	0.	1.45	0.22	0.
10	10-30	-0.0044	0.	1.94	0.22	0.
10	10-30	-0.0383	0.	-0.11	-0.19	0.
10	10-30	-0.0372	0.	-0.32	-0.19	0.
10	10-30	-0.0381	0.	-0.32	3.358E-02	0.
10	10-30	-0.0392	0.	-0.11	3.358E-02	0.
10	10-31	0.023	0.	0.12	-0.2	0.
10	10-31	0.0246	0.	0.19	-0.2	0.
10	10-31	0.0179	0.	0.19	-0.18	0.
10	10-31	0.0163	0.	0.12	-0.18	0.
10	10-31	-0.0072	0.	-1.37	-0.69	0.
10	10-31	-0.0036	0.	-1.03	-0.69	0.
10	10-31	-0.0075	0.	-1.03	-0.42	0.
10	10-31	-0.0111	0.	-1.37	-0.42	0.
10	10-32	0.003	0.	0.15	-0.23	0.
10	10-32	0.003	0.	7.879E-02	-0.23	0.
10	10-32	-0.006	0.	7.879E-02	-0.25	0.
10	10-32	-0.0046	0.	0.15	-0.25	0.
10	10-32	-0.0195	0.	-0.17	-0.49	0.
10	10-32	-0.0216	0.	-0.16	-0.49	0.
10	10-32	-0.0334	0.	-0.16	-0.56	0.
10	10-32	-0.0314	0.	-0.17	-0.56	0.
10	10-33	-0.0045	0.	1.45	-0.17	0.
10	10-33	-0.0079	0.	0.99	-0.17	0.
10	10-33	-0.0062	0.	0.99	-0.1	0.
10	10-33	-0.0028	0.	1.45	-0.1	0.
10	10-33	-0.0381	0.	-0.27	-0.47	0.
10	10-33	-0.0423	0.	-0.4	-0.47	0.
10	10-33	-0.0404	0.	-0.4	-0.38	0.
10	10-33	-0.0356	0.	-0.27	-0.38	0.
10	10-34	0.023	0.	0.34	-0.56	0.
10	10-34	0.0159	0.	0.54	-0.56	0.
10	10-34	0.0113	0.	0.54	-0.54	0.
10	10-34	0.0184	0.	0.34	-0.54	0.
10	10-34	-0.0094	0.	-0.89	-1.3	0.
10	10-34	-0.0227	0.	-0.49	-1.3	0.
10	10-34	-0.0223	0.	-0.49	-1.29	0.
10	10-34	-0.009	0.	-0.89	-1.29	0.
10	10-35	0.0019	0.	6.026E-02	-0.57	0.
10	10-35	0.0049	0.	1.726E-02	-0.57	0.

Element Forces - Area Shells, Part 9 of 10

Area	AreaElem	M12 KN-m/m	MMin KN-m/m	V13 KN/m	V23 KN/m	VMax KN/m
10	10-35	1.455E-05	0.	1.726E-02	-0.58	0.
10	10-35	-0.0032	0.	6.026E-02	-0.58	0.
10	10-35	-0.024	0.	-0.23	-1.31	0.
10	10-35	-0.0193	0.	-0.18	-1.31	0.
10	10-35	-0.0246	0.	-0.18	-1.29	0.
10	10-35	-0.0292	0.	-0.23	-1.29	0.
10	10-36	-0.0085	0.	0.91	-0.55	0.
10	10-36	0.0074	0.	0.24	-0.55	0.
10	10-36	0.0131	0.	0.24	-0.28	0.
10	10-36	-0.0044	0.	0.91	-0.28	0.
10	10-36	-0.043	0.	-0.55	-1.26	0.
10	10-36	-0.0239	0.	-1.08	-1.26	0.
10	10-36	-0.021	0.	-1.08	-0.69	0.
10	10-36	-0.037	0.	-0.55	-0.69	0.
10	10-37	0.0115	0.	0.53	-1.07	0.
10	10-37	-0.0032	0.	-1.31	-1.07	0.
10	10-37	-0.0091	0.	-1.31	-1.05	0.
10	10-37	0.0057	0.	0.53	-1.05	0.
10	10-37	-0.0322	0.	-0.42	-2.53	0.
10	10-37	-0.0538	0.	-2.79	-2.53	0.
10	10-37	-0.0559	0.	-2.79	-2.48	0.
10	10-37	-0.0342	0.	-0.42	-2.48	0.
10	10-38	0.0016	0.	-6.635E-02	-0.95	0.
10	10-38	0.0232	0.	-7.643E-02	-0.95	0.
10	10-38	0.0708	0.	-7.643E-02	-0.96	0.
10	10-38	0.039	0.	-6.635E-02	-0.96	0.
10	10-38	-0.0241	0.	-0.36	-2.19	0.
10	10-38	-0.0031	0.	-0.28	-2.19	0.
10	10-38	0.0114	0.	-0.28	-2.19	0.
10	10-38	-0.0029	0.	-0.36	-2.19	0.
10	10-39	0.0416	0.	0.15	-1.13	0.
10	10-39	0.1499	0.	2.77	-1.13	0.
10	10-39	0.1234	0.	2.77	-0.19	0.
10	10-39	0.0192	0.	0.15	-0.19	0.
10	10-39	-0.0064	0.	-1.22	-2.65	0.
10	10-39	0.0415	0.	1.3	-2.65	0.
10	10-39	0.0311	0.	1.3	-0.51	0.
10	10-39	-0.0168	0.	-1.22	-0.51	0.
10	10-40	-0.0043	0.	-2.69	-5.28	0.
10	10-40	0.7341	0.	-1.34	-5.28	0.
10	10-40	0.7122	0.	-1.34	6.31	0.
10	10-40	-0.0191	0.	-2.69	6.31	0.
10	10-40	-0.0459	0.	-6.13	-12.59	0.
10	10-40	0.3064	0.	-2.97	-12.59	0.
10	10-40	0.2941	0.	-2.97	2.61	0.
10	10-40	-0.0665	0.	-6.13	2.61	0.
10	10-41	0.1324	0.	-9.659E-03	5.27	0.
10	10-41	0.1967	0.	-0.32	5.27	0.
10	10-41	0.0155	0.	-0.32	8.17	0.
10	10-41	-0.0186	0.	-9.659E-03	8.17	0.
10	10-41	0.044	0.	-0.13	2.17	0.
10	10-41	0.0709	0.	-0.79	2.17	0.
10	10-41	-0.0087	0.	-0.79	3.37	0.
10	10-41	-0.0568	0.	-0.13	3.37	0.
10	10-42	0.3445	0.	6.94	9.68	0.
10	10-42	-0.2861	0.	3.67	9.68	0.
10	10-42	-0.2664	0.	3.67	-9.84	0.
10	10-42	0.3941	0.	6.94	-9.84	0.
10	10-42	0.1257	0.	3.04	4.	0.
10	10-42	-0.6893	0.	1.61	4.	0.
10	10-42	-0.6397	0.	1.61	-23.71	0.
10	10-42	0.1471	0.	3.04	-23.71	0.

Table: Element Forces - Area Shells

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-1	0.	-7.24	0.	0.

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-1	0.	-12.17	0.	0.
10	10-1	0.	-12.17	0.	0.
10	10-1	0.	-7.24	0.	0.
10	10-1	0.	-16.34	0.	0.
10	10-1	0.	-18.46	0.	0.
10	10-1	0.	-18.46	0.	0.
10	10-1	0.	-16.34	0.	0.
10	10-2	0.	-1.14	0.	0.
10	10-2	0.	2.647E-02	0.	0.
10	10-2	0.	2.647E-02	0.	0.
10	10-2	0.	-1.14	0.	0.
10	10-2	0.	-2.2	0.	0.
10	10-2	0.	-0.3	0.	0.
10	10-2	0.	-0.3	0.	0.
10	10-2	0.	-2.2	0.	0.
10	10-3	0.	19.92	0.	0.
10	10-3	0.	19.85	0.	0.
10	10-3	0.	19.85	0.	0.
10	10-3	0.	19.92	0.	0.
10	10-3	0.	8.89	0.	0.
10	10-3	0.	12.47	0.	0.
10	10-3	0.	12.47	0.	0.
10	10-3	0.	8.89	0.	0.
10	10-4	0.	-6.43	0.	0.
10	10-4	0.	1.72	0.	0.
10	10-4	0.	1.72	0.	0.
10	10-4	0.	-6.43	0.	0.
10	10-4	0.	-9.24	0.	0.
10	10-4	0.	-2.24	0.	0.
10	10-4	0.	-2.24	0.	0.
10	10-4	0.	-9.24	0.	0.
10	10-5	0.	-0.31	0.	0.
10	10-5	0.	-0.52	0.	0.
10	10-5	0.	-0.52	0.	0.
10	10-5	0.	-0.31	0.	0.
10	10-5	0.	-0.77	0.	0.
10	10-5	0.	-1.08	0.	0.
10	10-5	0.	-1.08	0.	0.
10	10-5	0.	-0.77	0.	0.
10	10-6	0.	8.91	0.	0.
10	10-6	0.	0.93	0.	0.
10	10-6	0.	0.93	0.	0.
10	10-6	0.	8.91	0.	0.
10	10-6	0.	5.71	0.	0.
10	10-6	0.	-3.85	0.	0.
10	10-6	0.	-3.85	0.	0.
10	10-6	0.	5.71	0.	0.
10	10-7	0.	1.85	0.	0.
10	10-7	0.	1.23	0.	0.
10	10-7	0.	1.23	0.	0.
10	10-7	0.	1.85	0.	0.
10	10-7	0.	-2.51	0.	0.
10	10-7	0.	-3.35	0.	0.
10	10-7	0.	-3.35	0.	0.
10	10-7	0.	-2.51	0.	0.
10	10-8	0.	-0.16	0.	0.
10	10-8	0.	-0.17	0.	0.
10	10-8	0.	-0.17	0.	0.
10	10-8	0.	-0.16	0.	0.
10	10-8	0.	-0.62	0.	0.
10	10-8	0.	-0.49	0.	0.
10	10-8	0.	-0.49	0.	0.
10	10-8	0.	-0.62	0.	0.
10	10-9	0.	1.5	0.	0.
10	10-9	0.	3.11	0.	0.
10	10-9	0.	3.11	0.	0.
10	10-9	0.	1.5	0.	0.
10	10-9	0.	-3.55	0.	0.
10	10-9	0.	-1.82	0.	0.
10	10-9	0.	-1.82	0.	0.
10	10-9	0.	-3.55	0.	0.
10	10-10	0.	0.66	0.	0.

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-10	0.	0.48	0.	0.
10	10-10	0.	0.48	0.	0.
10	10-10	0.	0.66	0.	0.
10	10-10	0.	-3.32	0.	0.
10	10-10	0.	-3.7	0.	0.
10	10-10	0.	-3.7	0.	0.
10	10-10	0.	-3.32	0.	0.
10	10-11	0.	6.246E-02	0.	0.
10	10-11	0.	0.12	0.	0.
10	10-11	0.	0.12	0.	0.
10	10-11	0.	6.246E-02	0.	0.
10	10-11	0.	-0.54	0.	0.
10	10-11	0.	-0.24	0.	0.
10	10-11	0.	-0.24	0.	0.
10	10-11	0.	-0.54	0.	0.
10	10-12	0.	3.23	0.	0.
10	10-12	0.	3.66	0.	0.
10	10-12	0.	3.66	0.	0.
10	10-12	0.	3.23	0.	0.
10	10-12	0.	-1.25	0.	0.
10	10-12	0.	-0.86	0.	0.
10	10-12	0.	-0.86	0.	0.
10	10-12	0.	-1.25	0.	0.
10	10-13	0.	0.73	0.	0.
10	10-13	0.	0.21	0.	0.
10	10-13	0.	0.21	0.	0.
10	10-13	0.	0.73	0.	0.
10	10-13	0.	-3.31	0.	0.
10	10-13	0.	-3.55	0.	0.
10	10-13	0.	-3.55	0.	0.
10	10-13	0.	-3.31	0.	0.
10	10-14	0.	0.24	0.	0.
10	10-14	0.	0.23	0.	0.
10	10-14	0.	0.23	0.	0.
10	10-14	0.	0.24	0.	0.
10	10-14	0.	-0.43	0.	0.
10	10-14	0.	-0.19	0.	0.
10	10-14	0.	-0.19	0.	0.
10	10-14	0.	-0.43	0.	0.
10	10-15	0.	3.47	0.	0.
10	10-15	0.	3.63	0.	0.
10	10-15	0.	3.63	0.	0.
10	10-15	0.	3.47	0.	0.
10	10-15	0.	-1.06	0.	0.
10	10-15	0.	-0.44	0.	0.
10	10-15	0.	-0.44	0.	0.
10	10-15	0.	-1.06	0.	0.
10	10-16	0.	2.038E-02	0.	0.
10	10-16	0.	-0.17	0.	0.
10	10-16	0.	-0.17	0.	0.
10	10-16	0.	2.038E-02	0.	0.
10	10-16	0.	-3.39	0.	0.
10	10-16	0.	-3.35	0.	0.
10	10-16	0.	-3.35	0.	0.
10	10-16	0.	-3.39	0.	0.
10	10-17	0.	0.3	0.	0.
10	10-17	0.	0.27	0.	0.
10	10-17	0.	0.27	0.	0.
10	10-17	0.	0.3	0.	0.
10	10-17	0.	-0.32	0.	0.
10	10-17	0.	-0.15	0.	0.
10	10-17	0.	-0.15	0.	0.
10	10-17	0.	-0.32	0.	0.
10	10-18	0.	3.58	0.	0.
10	10-18	0.	3.39	0.	0.
10	10-18	0.	3.39	0.	0.
10	10-18	0.	3.58	0.	0.
10	10-18	0.	-0.3	0.	0.
10	10-18	0.	-2.884E-02	0.	0.
10	10-18	0.	-2.884E-02	0.	0.
10	10-18	0.	-0.3	0.	0.
10	10-19	0.	-7.198E-02	0.	0.

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-19	0.	-0.17	0.	0.
10	10-19	0.	-0.17	0.	0.
10	10-19	0.	-7.198E-02	0.	0.
10	10-19	0.	-3.09	0.	0.
10	10-19	0.	-2.91	0.	0.
10	10-19	0.	-2.91	0.	0.
10	10-19	0.	-3.09	0.	0.
10	10-20	0.	0.31	0.	0.
10	10-20	0.	0.26	0.	0.
10	10-20	0.	0.26	0.	0.
10	10-20	0.	0.31	0.	0.
10	10-20	0.	-0.28	0.	0.
10	10-20	0.	-0.14	0.	0.
10	10-20	0.	-0.14	0.	0.
10	10-20	0.	-0.28	0.	0.
10	10-21	0.	3.28	0.	0.
10	10-21	0.	2.96	0.	0.
10	10-21	0.	2.96	0.	0.
10	10-21	0.	3.28	0.	0.
10	10-21	0.	-9.369E-02	0.	0.
10	10-21	0.	3.158E-02	0.	0.
10	10-21	0.	3.158E-02	0.	0.
10	10-21	0.	-9.369E-02	0.	0.
10	10-22	0.	-0.22	0.	0.
10	10-22	0.	-0.16	0.	0.
10	10-22	0.	-0.16	0.	0.
10	10-22	0.	-0.22	0.	0.
10	10-22	0.	-2.76	0.	0.
10	10-22	0.	-2.43	0.	0.
10	10-22	0.	-2.43	0.	0.
10	10-22	0.	-2.76	0.	0.
10	10-23	0.	0.3	0.	0.
10	10-23	0.	0.24	0.	0.
10	10-23	0.	0.24	0.	0.
10	10-23	0.	0.3	0.	0.
10	10-23	0.	-0.22	0.	0.
10	10-23	0.	-0.13	0.	0.
10	10-23	0.	-0.13	0.	0.
10	10-23	0.	-0.22	0.	0.
10	10-24	0.	2.91	0.	0.
10	10-24	0.	2.48	0.	0.
10	10-24	0.	2.48	0.	0.
10	10-24	0.	2.91	0.	0.
10	10-24	0.	5.807E-02	0.	0.
10	10-24	0.	2.180E-02	0.	0.
10	10-24	0.	2.180E-02	0.	0.
10	10-24	0.	5.807E-02	0.	0.
10	10-25	0.	-0.14	0.	0.
10	10-25	0.	-5.711E-02	0.	0.
10	10-25	0.	-5.711E-02	0.	0.
10	10-25	0.	-0.14	0.	0.
10	10-25	0.	-2.3	0.	0.
10	10-25	0.	-1.94	0.	0.
10	10-25	0.	-1.94	0.	0.
10	10-25	0.	-2.3	0.	0.
10	10-26	0.	0.26	0.	0.
10	10-26	0.	0.2	0.	0.
10	10-26	0.	0.2	0.	0.
10	10-26	0.	0.26	0.	0.
10	10-26	0.	-0.19	0.	0.
10	10-26	0.	-0.12	0.	0.
10	10-26	0.	-0.12	0.	0.
10	10-26	0.	-0.19	0.	0.
10	10-27	0.	2.43	0.	0.
10	10-27	0.	1.99	0.	0.
10	10-27	0.	1.99	0.	0.
10	10-27	0.	2.43	0.	0.
10	10-27	0.	1.714E-02	0.	0.
10	10-27	0.	-8.107E-02	0.	0.
10	10-27	0.	-8.107E-02	0.	0.
10	10-27	0.	1.714E-02	0.	0.
10	10-28	0.	-2.215E-02	0.	0.

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-28	0.	0.17	0.	0.
10	10-28	0.	0.17	0.	0.
10	10-28	0.	-2.215E-02	0.	0.
10	10-28	0.	-1.8	0.	0.
10	10-28	0.	-1.42	0.	0.
10	10-28	0.	-1.42	0.	0.
10	10-28	0.	-1.8	0.	0.
10	10-29	0.	0.21	0.	0.
10	10-29	0.	0.15	0.	0.
10	10-29	0.	0.15	0.	0.
10	10-29	0.	0.21	0.	0.
10	10-29	0.	-0.17	0.	0.
10	10-29	0.	-0.13	0.	0.
10	10-29	0.	-0.13	0.	0.
10	10-29	0.	-0.17	0.	0.
10	10-30	0.	1.94	0.	0.
10	10-30	0.	1.45	0.	0.
10	10-30	0.	1.45	0.	0.
10	10-30	0.	1.94	0.	0.
10	10-30	0.	-0.11	0.	0.
10	10-30	0.	-0.32	0.	0.
10	10-30	0.	-0.32	0.	0.
10	10-30	0.	-0.11	0.	0.
10	10-31	0.	0.12	0.	0.
10	10-31	0.	0.19	0.	0.
10	10-31	0.	0.19	0.	0.
10	10-31	0.	0.12	0.	0.
10	10-31	0.	-1.37	0.	0.
10	10-31	0.	-1.03	0.	0.
10	10-31	0.	-1.03	0.	0.
10	10-31	0.	-1.37	0.	0.
10	10-32	0.	0.15	0.	0.
10	10-32	0.	7.879E-02	0.	0.
10	10-32	0.	7.879E-02	0.	0.
10	10-32	0.	0.15	0.	0.
10	10-32	0.	-0.17	0.	0.
10	10-32	0.	-0.16	0.	0.
10	10-32	0.	-0.16	0.	0.
10	10-32	0.	-0.17	0.	0.
10	10-33	0.	1.45	0.	0.
10	10-33	0.	0.99	0.	0
10	10-33	0.	0.99	0.	0.
10	10-33	0.	1.45	0.	0.
10	10-33	0.	-0.27	0.	0.
10	10-33	0.	-0.4	0.	0.
10	10-33	0.	-0.4	0.	0.
10	10-33	0.	-0.27	0.	0.
10	10-34	0.	0.34	0.	0.
10	10-34	0.	0.54	0.	0.
10	10-34	0.	0.54	0.	0.
10	10-34	0.	0.34	0.	0.
10	10-34	0.	-0.89	0.	0.
10	10-34	0.	-0.49	0.	0.
10	10-34	0.	-0.49	0.	0.
10	10-34	0.	-0.89	0.	0.
10	10-35	0.	6.026E-02	0.	0.
10	10-35	0.	1.726E-02	0.	0.
10	10-35	0.	1.726E-02	0.	0.
10	10-35	0.	6.026E-02	0.	0.
10	10-35	0.	-0.23	0.	0.
10	10-35	0.	-0.18	0.	0.
10	10-35	0.	-0.18	0.	0.
10	10-35	0.	-0.23	0.	0.
10	10-36	0.	0.91	0.	0.
10	10-36	0.	0.24	0.	0.
10	10-36	0.	0.24	0.	0.
10	10-36	0.	0.91	0.	0.
10	10-36	0.	-0.55	0.	0.
10	10-36	0.	-1.08	0.	0.
10	10-36	0.	-1.08	0.	0.
10	10-36	0.	-0.55	0.	0.
10	10-37	0.	0.53	0.	0.

Element Forces - Area Shells, Part 10 of 10

Area	AreaElem	MMin KN-m/m	V13 KN/m	VMax KN/m	VAngle Degrees
10	10-37	0.	-1.31	0.	0.
10	10-37	0.	-1.31	0.	0.
10	10-37	0.	0.53	0.	0.
10	10-37	0.	-0.42	0.	0.
10	10-37	0.	-2.79	0.	0.
10	10-37	0.	-2.79	0.	0.
10	10-37	0.	-0.42	0.	0.
10	10-38	0.	-6.635E-02	0.	0.
10	10-38	0.	-7.643E-02	0.	0.
10	10-38	0.	-7.643E-02	0.	0.
10	10-38	0.	-6.635E-02	0.	0.
10	10-38	0.	-0.36	0.	0.
10	10-38	0.	-0.28	0.	0.
10	10-38	0.	-0.28	0.	0.
10	10-38	0.	-0.36	0.	0.
10	10-39	0.	0.15	0.	0.
10	10-39	0.	2.77	0.	0.
10	10-39	0.	2.77	0.	0.
10	10-39	0.	0.15	0.	0.
10	10-39	0.	-1.22	0.	0.
10	10-39	0.	1.3	0.	0.
10	10-39	0.	1.3	0.	0.
10	10-40	0.	-1.22	0.	0.
10	10-40	0.	-2.69	0.	0.
10	10-40	0.	-1.34	0.	0.
10	10-40	0.	-1.34	0.	0.
10	10-40	0.	-2.69	0.	0.
10	10-40	0.	-6.13	0.	0.
10	10-40	0.	-2.97	0.	0.
10	10-40	0.	-2.97	0.	0.
10	10-41	0.	-6.13	0.	0.
10	10-41	0.	-9.659E-03	0.	0.
10	10-41	0.	-0.32	0.	0.
10	10-41	0.	-0.32	0.	0.
10	10-41	0.	-9.659E-03	0.	0.
10	10-41	0.	-0.13	0.	0.
10	10-41	0.	-0.79	0.	0.
10	10-41	0.	-0.79	0.	0.
10	10-42	0.	-0.13	0.	0.
10	10-42	0.	6.94	0.	0.
10	10-42	0.	3.67	0.	0.
10	10-42	0.	3.67	0.	0.
10	10-42	0.	6.94	0.	0.
10	10-42	0.	3.04	0.	0.
10	10-42	0.	1.61	0.	0.
10	10-42	0.	1.61	0.	0.
10	10-42	0.	3.04	0.	0.

13 ANEXOS

- **ANEXO 1. MEMORIAS DE CALCULO DE CANTIDADES (VÉASE EN MEDIO DIGITAL Y FISÍCO)**
- **ANEXO 2. PLANOS ESTRUCTURALES (VÉASE EN MEDIO DIGITAL Y FISÍCO)**

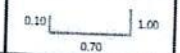
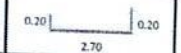
ANEXO 1. MEMORIAS DE CALCULO DE CANTIDADES

(VÉASE EN MEDIO DIGITAL Y FISÍCO)

AQUADATOS

CANTIDADES DE CONCRETO					
LOCALIZACION	CANTIDAD	AREA	LONG	VOL	TOTAL
PLACA INFERIOR	1.0	4.15	0.20	0.83	0.83
PLACA SUPERIOR	1.0	3.52	0.20	0.70	0.70
MUROS	1.0	1.26	2.60	3.28	3.28
VOLUMEN TOTAL DE CONCRETO					4.81 m3
VOLUMEN TOTAL DE CONCRETO + AJUSTE 5%					5.05 m3

CANTIDADES DE ACEROS DE REFUERZO

LOCALIZACION	NUMERACION EN PLANOS	ESQUEMA	DIAMETRO	CANTIDAD	LONG	PESO UNIT	PESO TOTAL	OBSERVACIONES
PLACA INF	1		4.00	2	4.05	0.994	8.05	
PLACA INF	2		4.00	2	4.10	0.994	8.15	
PLACA INF	10		4.00	56	2.20	0.994	122.46	FIGURAR EN OBRA
PLACA SUP	3		4.00	2	1.90	0.994	3.78	
PLACA SUP	3A		4.00	2	1.80	0.994	3.58	
PLACA SUP	4		4.00	2	1.85	0.994	3.68	
PLACA SUP	4A		4.00	2	1.75	0.994	3.48	
PLACA SUP	5		4.00	2	3.00	0.994	5.96	
PLACA SUP	6		4.00	2	3.05	0.994	6.06	
PLACA SUP	7		4.00	2	4.15	0.994	8.25	
PLACA SUP	7A		4.00	2	3.30	0.994	6.56	
PLACA SUP	8		4.00	2	4.05	0.994	8.05	
PLACA SUP	8A		4.00	2	3.40	0.994	6.76	
PLACA SUP	-		3.00	40	1.80	0.560	40.32	
MUROS	9		4.00	32	3.10	0.994	98.60	
MUROS	-		4.00	32	4.15	0.994	132.00	
PESO TOTAL ACEROS DE REFUERZO							465.75 Kg	

APROBACIÓN INTERVENTORÍA

AQUADATOS

CONSORCIO INTERCONSULTA 2023
NIT: 901.720.639-3

Villavicencio (Meta), 08 de agosto de 2024

APROB-081-23-154

Señores
AQUADATOS S.A.S
Atn. Mauricio Cruz Gómez, Director de Consultoría
admonvillavicencio@aquadatos.com
La ciudad

REF: Contrato de consultoría N° 081 de 2023 que tiene por objeto "ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN, AMPLIACIÓN Y OPTIMIZACIÓN DE OBRAS DE REDES E INFRAESTRUCTURA DE AGUA POTABLE y SANEAMIENTO BÁSICO EN LOS MUNICIPIOS DEL DEPARTAMENTO DEL META"

Asunto: **Aprobación productos: informe de diseños estructurales de pozos y sumideros tipo , cámaras tipo y obras de protección del subproyecto de alcantarillado pluvial zona noroccidental GRA3D del municipio de Granada – Meta sector El Paraíso**
Respuesta a su oficio TEC-148-24-092 de fecha 29 de julio de 2024.

Cordial saludo,

Teniendo en cuenta el oficio según asunto, mediante el cual nos radican para revisión y aprobación por parte de la interventoría los productos: **informes de diseños estructurales de pozos y sumideros tipo, cámaras tipo y diseños estructurales y obras de protección para los cabezales de descarga del subproyecto de alcantarillado pluvial zona noroccidental GRA3D para el subproyecto "ESTUDIOS Y DISEÑOS PARA LA CONSTRUCCIÓN DE LA RED DE ACUEDUCTO, ALCANTARILLADO SANITARIO Y ALCANTARILLADO PLUVIAL SECTOR EL PARAÍSO DEL MUNICIPIO DE GRANADA, META.", objeto de obra "ONSTRUCCIÓN DE LA RED DE ALCANTARILLADO PLUVIAL ZONA NOROCCIDENTAL DEL SECTOR PARAÍSO DEL MUNICIPIO DE GRANADA, META:**

1. AQ-148-GRA3D-DES_POZO_1.20_3M_SIN_CC-V.1
2. AQ-148-GRA3D-DES_POZO_1.50_3M_SIN_CC-V.1
3. AQ-148-GRA3D-DES_POZO_1.80_3M_SIN_CC-V.1
4. AQ-148-GRA3D-DES_POZO_1.20_3M_CON_CC-V.1
5. AQ-148-GRA3D-DES_SUM_COMP-V.1
6. AQ-148-GRA3D-DES_CAM_TIPO_6-V.1
7. AQ-148-GRA3D-DES_CAM_TIPO_9-V.1
8. AQ-148-GRA3D-DES_CAM_TIPO_12-V.1

AQ DATOS RECIBIDO
NOMBRE: Juan
FECHA: 8-08-2024
HORA: 2:30pm

Consorciointerconsulta2023@gmail.com
Cel. 3104290102 – Cr 4 este # 15-148

9. AQ-148-GRA3D-DES_CAM_TIPO_17-V.1
10. AQ-148-GRA3D-DES_CAM_TIPO_18-V.1
11. AQ-148-GRA3D-DES_CAM_TIPO_19-V.1
12. AQ-148-GRA3D-DES_CAM_TIPO_20-V.1
13. AQ-148-GRA3D-DES_CAM_TIPO_21-V.1
14. AQ-148-GRA3D-DES_CDD_TIPO_01-V.1

Una vez efectuada la respectiva revisión técnica por parte del equipo de profesionales de la interventoría, se certifica que los productos que a continuación se detallan fueron presentados por la consultoría en su totalidad, con la precisión y especificaciones según los lineamientos establecidos en el pliego de condiciones del CONCURSO DE MÉRITOS -ABIERTO No. CM-OAP-002-2023.

Por consiguiente, esta interventoría imparte la **APROBACIÓN de los productos** correspondientes a los **INFORME DE DISEÑOS ESTRUCTURALES DE POZOS Y SUMIDEROS TIPO , CÁMARAS TIPO Y OBRAS DE PROTECCIÓN DEL SUBPROYECTO DE ALCANTARILLADO PLUVIAL ZONA NOROCCIDENTAL GRA3D DEL MUNICIPIO DE GRANADA – META SECTOR EL PARAÍSO** en su versión inicial, con sus respectivos Planos y memorias.

Sin otro particular,

JOSÉ ALEJANDRO BALLÉN SUÁREZ
C.C. 80037996
REPRESENTANTE LEGAL
CONSORCIO INTERCONSULTA 2023

Revisó:	Camilo Andrés Rodríguez Parrado	Especialista estructural	
Aprobó:	José Alejandro Ballén Suárez	Director de interventoría	Firma: