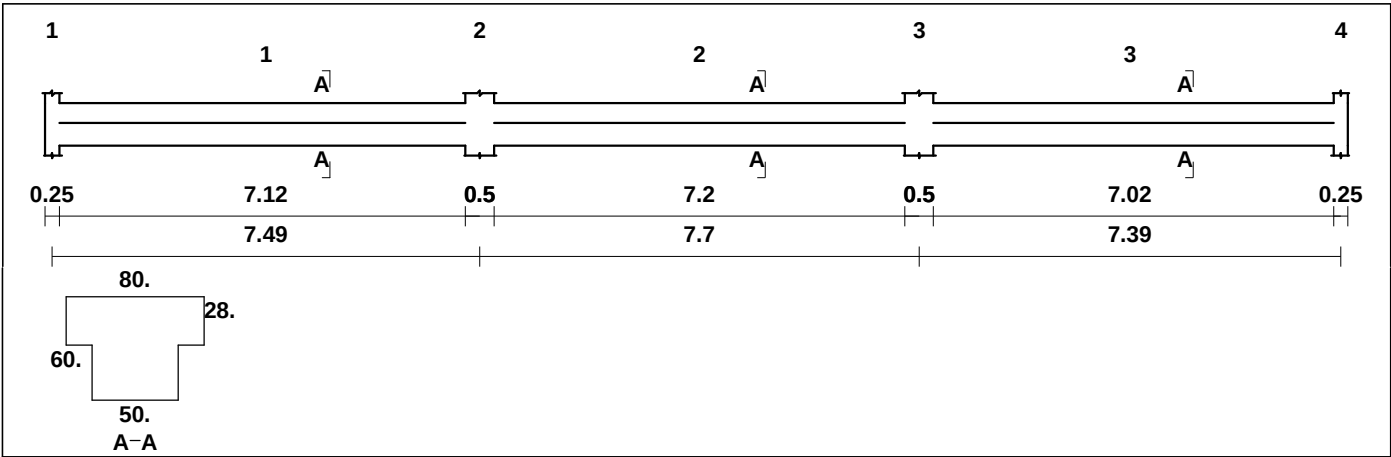
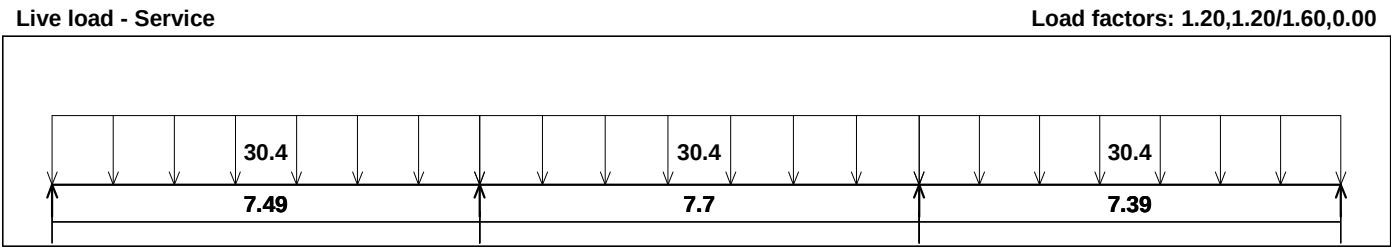
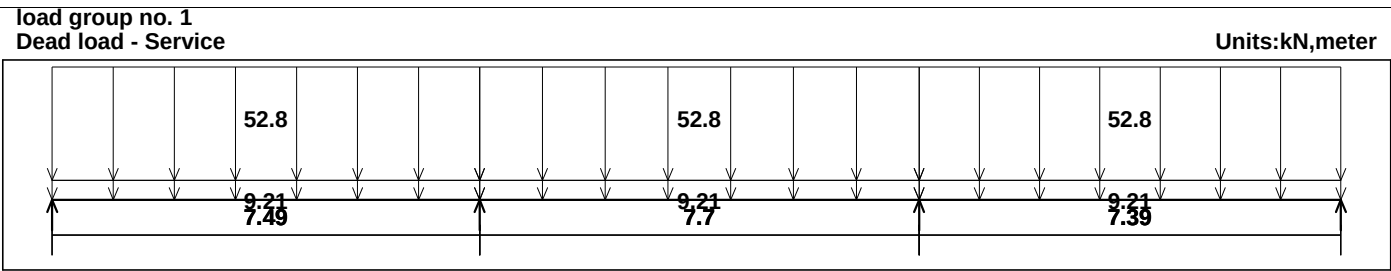


Beam 3	Code: ACI318-02
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Geometry Units: meter, cm



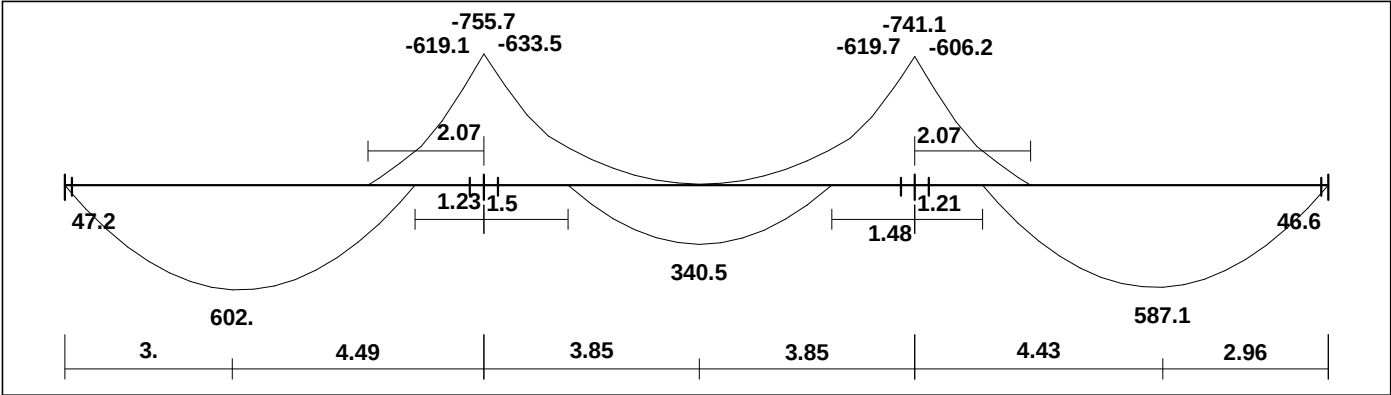
Loading



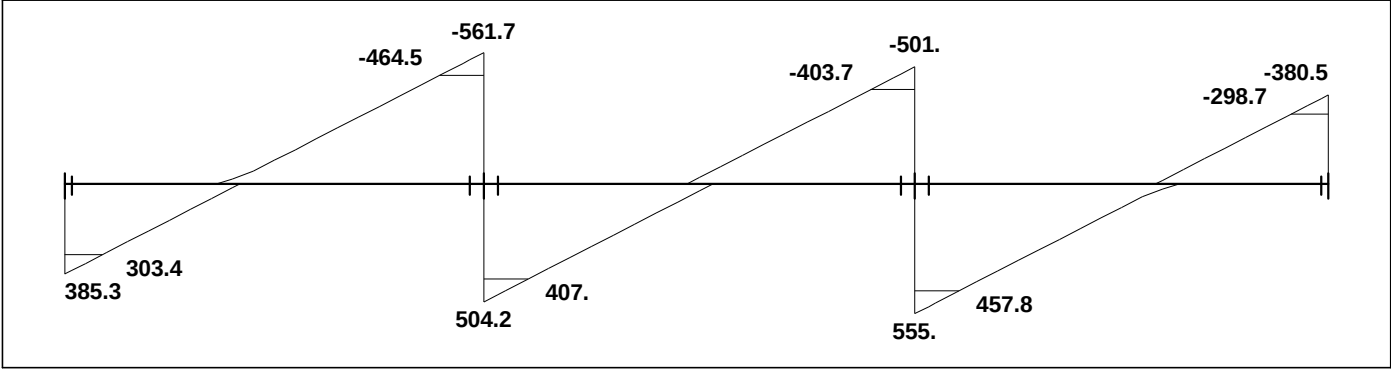
Loads (kN, meter)			
1	2	3	
Self. Wt. 9.22	Self. Wt. 9.22	Self. Wt. 9.22	Self. Wt. 9.22
Uni D 52.80	Uni D 52.80	Uni D 52.80	Uni D 52.80
L 30.40	L 30.40	L 30.40	L 30.40

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	221.24	623.96	617.1	218.09
LiveR	164.03	442.	438.85	162.41
Max R	385.28	1065.96	1055.95	380.49
Min R	201.81	796.3	788.88	198.22
Service				
DeadR	184.37	519.96	514.25	181.74
LiveR	102.52	276.25	274.28	101.5
Max R	286.89	796.21	788.53	283.24
Min R	172.23	627.68	621.61	169.32

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Reinforcement (cm 2)

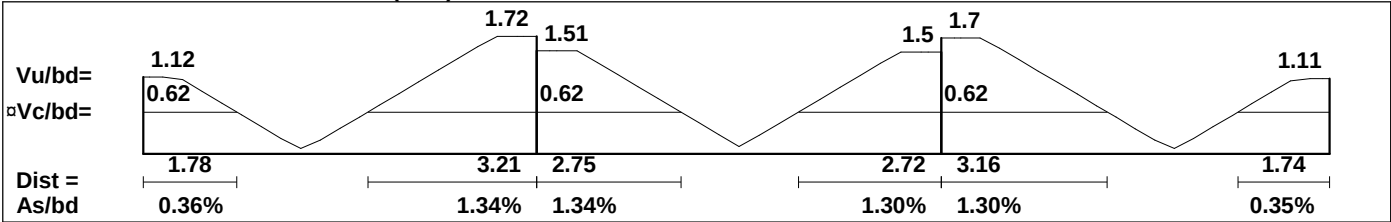
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420

Top Cover	6.		6.		6.		6.
As top = *=minimum		36.09		9.04		35.16	
As bot =	9.60	32.02		17.45		31.16	9.34
Bot Cover	6.		6.		6.		6.
a/d	1%	15%	28%	8%	27%	15%	1%
As/bd	0.00%	1.19%	1.34%	0.65%	1.30%	1.15%	0.00%

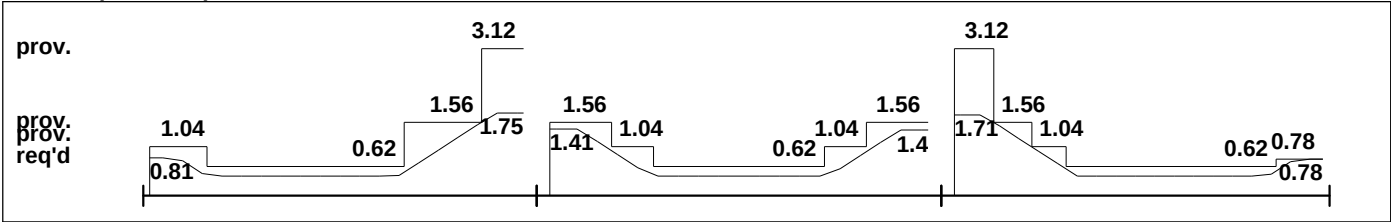
Shear

Shear design: Stirrups only
Stirrups fy = 420
Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Spacing: Min. =5. Incr. = 5.
Legs: 2/4
Max no. of groups: 5
Max. =Code
Inverted T/L shear area: Web

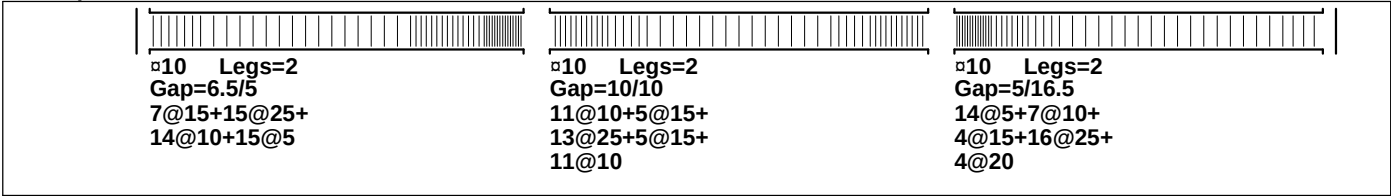
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 3	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 9.04	3 0.
As fr = 3	32.02 Es= 209	17.45 Ec = 23	31.16
Ig(m^4)=	0.01123	0.01123	0.01123
Icr(m^4)=	0.00522	0.00324	0.00511
Mcr =	103.25	103.25	103.25
Mmax,d =	274.04	105.13	266.27
Mmax,d+l =	444.76	239.07	433.51
Mmax,sust =	178.13	68.33	173.08
Ie,d (m^4)=	0.00554	0.01081	0.00547
Ie,d+l (m^4)=	0.00529	0.00388	0.00519
Ie,sust (m^4)=	0.00639	0.01123	0.00641
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	10.010	0.793	9.582
ai,l =	8.064	9.215	7.917
at,sust =	6.774	0.511	6.379
ai,l =	L/ 928	L/ 835	L/ 933
(ai+at),t2-t1	L/ 408	L/ 769	L/ 418

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	303.44	152.33	0.	0.	0.81	0.00	100	-
125	47.20	24.65	303.44	152.33	0.	2.33	0.81	0.01	-	-
375	135.83	70.45	303.44	152.33	0.	6.78	0.81	0.03	-	-
749	254.05	130.28	293.10	146.07	0.	12.87	0.75	0.06	-	-
1124	355.32	179.83	246.96	118.17	0.	18.25	0.47	0.09	-	-
1498	439.07	218.82	200.93	90.33	0.	22.81	0.42	0.11	-	-
1873	505.77	247.46	154.79	62.43	0.	26.52	0.42	0.13	-	-
2247	555.05	265.61	108.76	34.59	0.	29.32	0.42	0.14	-	-
2622	587.19	273.35	62.62	6.69	0.	31.16	0.42	0.15	-	-
2996	602.00	270.64	16.59	-21.14	0.	32.02	0.42	0.15	-	-
3371	599.57	257.48	-29.56	-54.87	0.	31.88	0.42	0.15	-	-
3745	579.91	233.93	-71.00	-100.89	0.	30.74	0.42	0.15	100	-
4120	542.91	199.87	-98.91	-147.04	0.	28.63	0.42	0.14	-	-
4494	488.78	155.47	-126.74	-193.06	0.	25.57	0.42	0.12	-	-
4869	417.22	100.50	-154.65	-239.21	0.	21.61	0.43	0.10	-	-
5243	328.61	35.26	-182.48	-285.23	0.	16.82	0.70	0.08	-	-
5618	222.49	-40.61	-210.39	-331.38	2.01	11.23	0.97	0.05	-	-
5992	99.41	-126.70	-238.22	-377.41	6.38	4.94	1.24	0.05	-	-
6367	-41.27	-223.47	-266.13	-423.55	11.48	0.	1.51	0.09	-	-
6741	-198.82	-369.45	-290.91	-464.53	19.62	0.	1.75	0.15	-	-
7116	-374.08	-554.20	-290.91	-464.53	30.86	0.	1.75	0.24	-	-
7240	-435.83	-619.09	-290.91	-464.53	35.12	0.	1.75	0.27	-	-
7490	-531.80	-755.68	-290.91	-464.53	35.12	0.	1.75	0.27	100	-

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Detailed results - at 1/20 of span, support faces, etc.

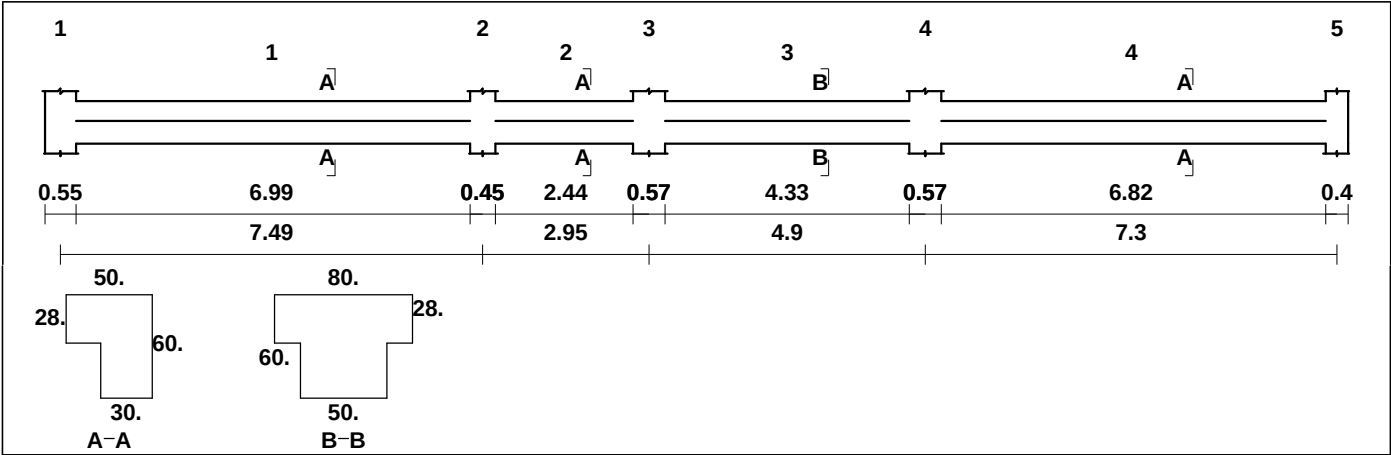
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-531.80	-755.68	406.99	230.02	36.09	0.	1.41	0.28	100	-
250	-424.00	-633.48	406.99	230.02	36.09	0.	1.41	0.28	-	-
385	-368.98	-570.68	406.99	230.02	31.92	0.	1.41	0.24	-	-
770	-224.41	-403.92	406.99	230.02	21.63	0.	1.41	0.16	-	-
1155	-98.07	-282.16	362.07	202.86	14.68	0.	1.15	0.11	-	-
1540	10.03	-209.57	314.70	174.21	10.73	0.49	0.87	0.08	-	-
1925	110.30	-148.02	267.32	145.55	7.48	5.49	0.59	0.06	-	-
2310	192.82	-97.50	219.94	116.90	4.88	9.69	0.42	0.05	-	-
2695	257.09	-58.00	172.56	88.25	2.88	13.03	0.42	0.06	-	-
3080	303.12	-29.54	125.19	59.60	1.45	15.46	0.42	0.07	-	-
3465	330.91	-12.11	77.81	20.20	0.59	16.94	0.42	0.08	-	-
3850	340.46	-5.71	30.43	-27.18	0.28	17.45	0.42	0.08	100	-
4235	331.77	-10.34	-16.95	-74.56	0.50	16.99	0.42	0.08	-	-
4620	304.85	-26.01	-55.01	-121.94	1.28	15.55	0.42	0.07	-	-
5005	259.68	-52.70	-83.66	-169.31	2.61	13.17	0.42	0.06	-	-
5390	196.26	-90.42	-112.31	-216.69	4.52	9.87	0.42	0.05	-	-
5775	114.61	-139.17	-140.96	-264.07	7.02	5.70	0.57	0.05	-	-
6160	15.46	-198.96	-169.61	-311.45	10.17	0.76	0.85	0.08	-	-
6545	-91.39	-269.78	-198.26	-358.83	14.00	0.	1.13	0.11	-	-
6930	-216.47	-391.84	-225.43	-403.74	20.92	0.	1.40	0.16	-	-
7315	-359.80	-557.35	-225.43	-403.74	31.06	0.	1.40	0.24	-	-
7450	-414.38	-619.71	-225.43	-403.74	35.16	0.	1.40	0.27	-	-
7700	-521.37	-741.10	-225.43	-403.74	35.16	0.	1.40	0.27	100	-
Span=3										
0	-521.37	-741.10	457.77	286.74	34.26	0.	1.71	0.26	100	-
250	-420.02	-606.20	457.77	286.74	34.26	0.	1.71	0.26	-	-
370	-361.13	-544.18	457.77	286.74	30.22	0.	1.71	0.23	-	-
739	-191.14	-364.57	457.77	286.74	19.34	0.	1.71	0.15	-	-
1109	-37.52	-222.93	418.52	263.00	11.45	0.	1.48	0.09	-	-
1478	98.92	-128.66	373.11	235.54	6.48	4.91	1.22	0.05	-	-
1848	218.89	-44.31	327.57	208.00	2.19	11.04	0.95	0.05	-	-
2217	321.77	29.67	282.17	180.54	0.	16.45	0.68	0.08	-	-
2587	408.10	93.67	236.63	153.01	0.	21.11	0.42	0.10	-	-
2956	477.42	147.35	191.23	125.55	0.	24.94	0.42	0.12	-	-
3326	530.10	191.01	145.69	98.01	0.	27.90	0.42	0.13	-	-
3695	565.86	224.40	100.28	70.55	0.	29.94	0.42	0.14	100	-
4065	584.90	247.71	54.75	28.68	0.	31.03	0.42	0.15	-	-
4434	587.10	260.80	21.76	-16.73	0.	31.16	0.42	0.15	-	-
4804	572.49	263.76	-5.77	-62.26	0.	30.32	0.42	0.14	-	-
5173	541.13	256.57	-33.23	-107.67	0.	28.53	0.42	0.14	-	-
5543	492.87	239.18	-60.77	-153.20	0.	25.80	0.42	0.12	-	-
5912	427.96	211.69	-88.23	-198.61	0.	22.20	0.42	0.11	-	-
6282	346.05	173.95	-115.76	-244.14	0.	17.75	0.46	0.08	-	-
6651	247.58	126.16	-143.22	-289.55	0.	12.54	0.72	0.06	-	-
7021	132.02	68.08	-148.73	-298.66	0.	6.59	0.78	0.03	-	-
7265	46.60	24.20	-148.73	-298.66	0.	2.30	0.78	0.01	-	-
7390	0.00	0.00	-148.73	-298.66	0.	0.	0.78	0.00	100	-

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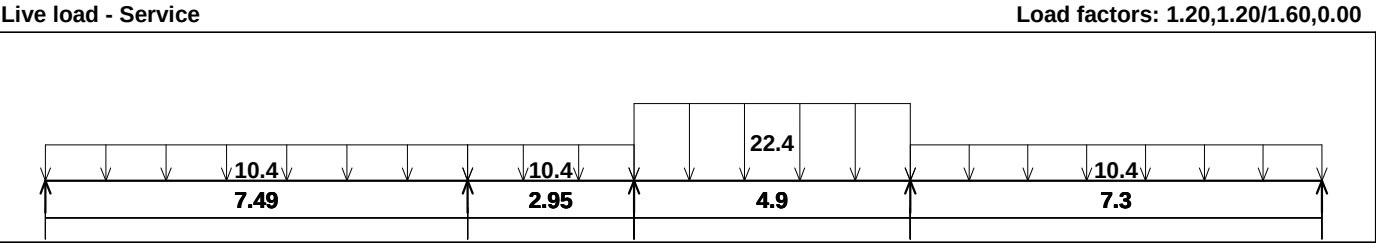
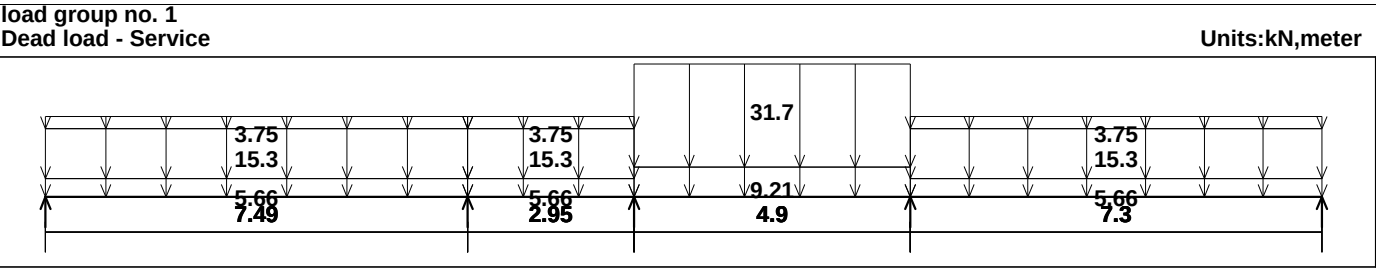
	Moment / Shear		Envelope (Factored)		Units:kN,meter	
	1	2	3	4		
	1	2	3	4		
	-----	-----	-----	-----		
Min M	0.0	-755.7	-741.1	0.0		
Max M	0.0	-531.8	-521.4	0.0		
MspMn		-619.1	-619.7	24.2		
MspMx		-435.8	-414.4	46.6		
M Max			340.5	587.1		
M Min			-5.7	263.8		
Mmn=0 @	0.0	2.1	0.0	7.7	2.1	7.4
Mmx=0 @	0.0	1.2	1.5	1.5	1.2	7.4
mx -M @			1.5	1.2		
mx +M @			3.8	4.4		
V max		-349.7	-284.2	-198.2		
V min		-561.7	-501.0	-380.5		
DReac		624.0	617.1	218.1		
LReac		442.0	438.9	162.4		
Max R		1066.0	1055.9	380.5		
Min R		796.3	788.9	198.2		

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Geometry Units: meter, cm



Loading



Loads (kN, meter)

1				2				3				4			
Self. Wt.				Self. Wt.				Self. Wt.				Self. Wt.			
Uni D	15.36	L	10.40	Uni D	15.36	L	10.40	Uni D	31.77	L	22.40	Uni D	15.36	L	10.40
Uni D	3.75	L	0.000	Uni D	3.75	L	0.000					Uni D	3.75	L	0.000

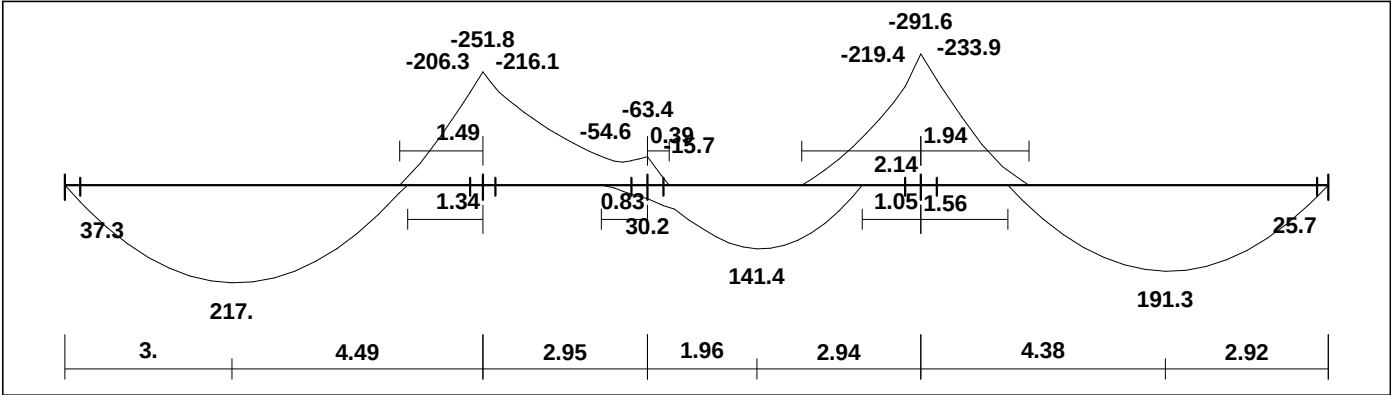
Beam 4

Project: BAEMS
Designed by: bayan

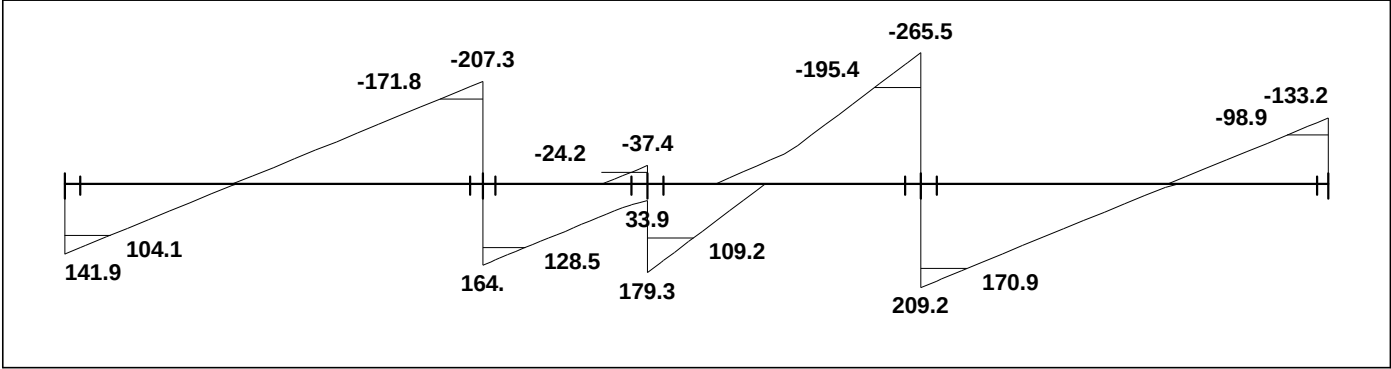
Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	90.24	228.06	76.36	290.23	83.49
LiveR	51.66	143.19	140.34	184.46	49.71
Max R	141.9	371.25	216.7	474.69	133.2
Min R	89.32	231.41	32.78	373.95	79.76
Service					
DeadR	75.2	190.05	63.63	241.86	69.58
LiveR	32.29	89.5	87.72	115.29	31.07
Max R	107.49	279.55	151.35	357.15	100.65
Min R	74.62	192.15	36.4	294.18	67.24

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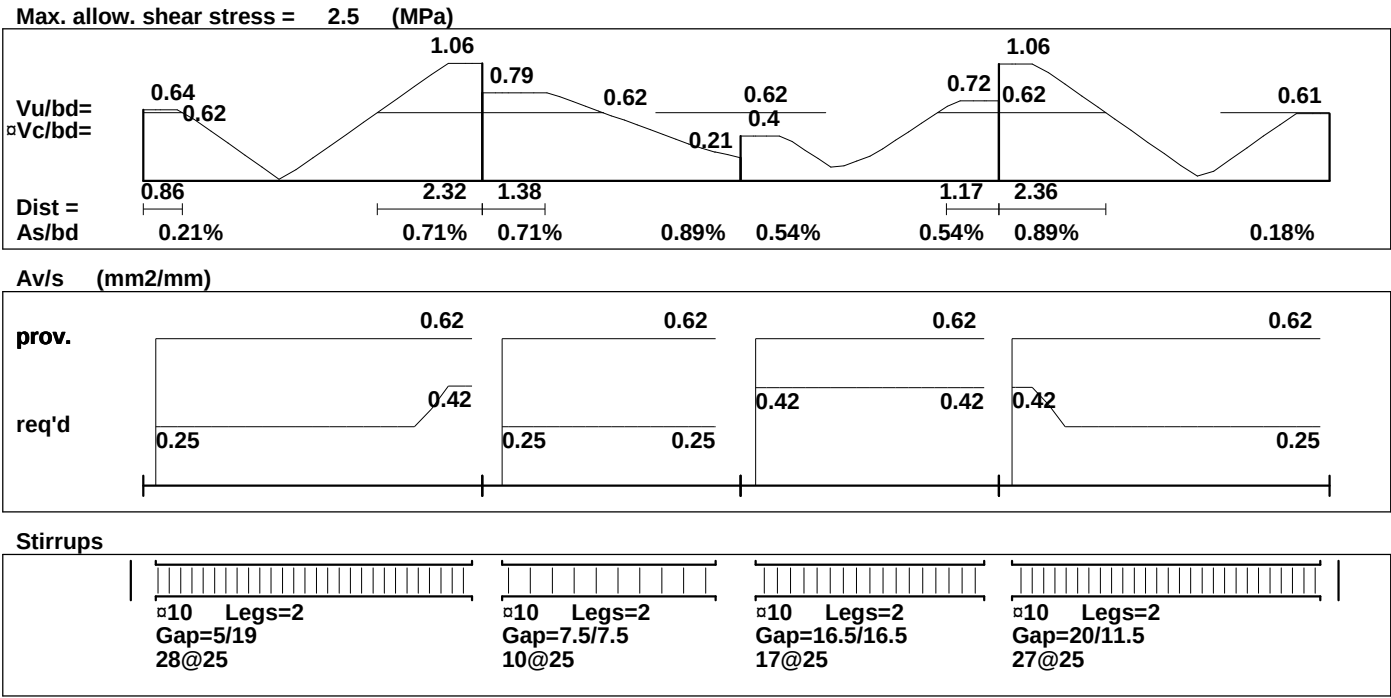
Reinforcement (cm 2)

Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face

Top Cover	6.		6.		6.		6.	
As top = *=minimum	11.45		5.42	14.47*	14.47*			
As bot =	3.34	11.13	5.42*	14.47	9.04*	9.76		2.92
Bot Cover	6.		6.		6.		6.	
a/d	1%	8%	15%	7%	3%	3%	16%	7%
As/bd	0.00%	0.69%	0.71%	0.34%	0.54%	0.34%	0.54%	0.60%
	0.00%							0.00%

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 5.42	3 0.	4 0.
As fr = 3	11.13 Es= 209	5.42 Ec = 23	9.04	9.76
Ig(m^4)=	0.00686	0.00686	0.01123	0.00686
Icr(m^4)=	0.00204	0.00104	0.00183	0.00183
Mcr =	62.52	80.64	103.25	62.52
Mmax,d =	114.12	131.64	55.86	97.55
Mmax,d+l =	164.18	181.54	102.03	143.93
Mmax,sust =	74.18	85.57	36.31	63.41
Ie,d (m^4)=	0.00283	0.00238	0.01123	0.00315
Ie,d+l (m^4)=	0.00230	0.00155	0.01123	0.00224
Ie,sust (m^4)=	0.00492	0.00591	0.01123	0.00665
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80	2.00/0.80
ai,d =	8.415	-0.938	0.306	5.649
ai,l =	6.598	-1.494	0.425	6.467
at,sust =	3.775	-0.252	0.239	2.089
ai,l =	L/ 1135	L/ 1974	L/11538	L/ 1128
(ai+at),t2-t1	L/ 562	L/ 1421	L/ 6354	L/ 693

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	104.11	65.09	0.	0.	0.25	0.00	100	-
275	37.27	23.44	104.11	65.09	0.	1.84	0.25	0.01	-	-
375	49.95	31.40	104.11	65.09	0.	2.47	0.25	0.02	-	-
749	93.28	58.56	104.11	65.09	0.	4.66	0.25	0.04	-	-
1124	130.21	81.61	89.78	55.90	0.	6.56	0.25	0.05	-	-
1498	160.54	100.44	72.44	44.78	0.	8.14	0.25	0.06	-	-
1873	184.45	115.14	55.05	33.63	0.	9.40	0.25	0.07	-	-
2247	201.80	125.64	37.71	22.51	0.	10.32	0.25	0.08	-	-
2622	212.68	131.99	20.32	11.37	0.	10.90	0.25	0.08	-	-
2996	217.04	134.17	2.98	0.25	0.	11.13	0.25	0.08	-	-
3371	214.89	132.17	-9.56	-16.28	0.	11.02	0.25	0.08	-	-
3745	206.26	126.01	-20.68	-33.62	0.	10.56	0.25	0.08	100	-
4120	191.10	115.67	-31.82	-51.01	0.	9.75	0.25	0.07	-	-
4494	169.47	101.18	-42.94	-68.35	0.	8.61	0.25	0.07	-	-
4869	141.28	82.48	-54.09	-85.74	0.	7.13	0.25	0.05	-	-
5243	106.68	59.67	-65.21	-103.08	0.	5.35	0.25	0.04	-	-
5618	65.46	32.62	-76.36	-120.47	0.	3.25	0.25	0.02	-	-
5992	17.86	1.49	-87.48	-137.81	0.	0.88	0.25	0.01	-	-
6367	-25.36	-48.28	-98.62	-155.20	2.40	0.	0.33	0.03	-	-
6741	-64.33	-109.56	-109.27	-171.80	5.58	0.	0.42	0.07	-	-
7116	-107.57	-177.52	-109.27	-171.80	9.26	0.	0.42	0.12	-	-
7265	-125.91	-206.34	-109.27	-171.80	10.89	0.	0.42	0.14	-	-
7490	-154.86	-251.80	-109.27	-171.80	10.89	0.	0.42	0.14	100	-

Beam 4	Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-154.86	-251.80	128.51	63.93	11.45	0.	0.25	0.15	100	-
148	-140.66	-228.04	128.51	63.93	11.45	0.	0.25	0.15	-	-
225	-133.67	-216.08	128.51	63.93	11.45	0.	0.25	0.15	-	-
295	-127.56	-206.23	128.51	63.93	10.88	0.	0.25	0.14	-	-
443	-113.23	-190.49	128.51	63.93	9.99	0.	0.25	0.13	-	-
590	-98.09	-176.08	128.51	63.93	9.18	0.	0.25	0.12	-	-
738	-83.86	-162.22	128.51	63.93	8.42	0.	0.25	0.11	-	-
885	-70.73	-149.10	122.95	58.37	7.70	0.	0.25	0.10	-	-
1033	-58.53	-136.54	116.08	51.50	7.02	0.	0.25	0.09	-	-
1180	-47.41	-124.71	109.27	44.69	6.38	0.	0.25	0.08	-	-
1328	-37.22	-113.45	102.41	37.82	5.78	0.	0.25	0.07	-	-
1475	-28.12	-102.91	95.59	31.01	5.23	0.	0.25	0.07	100	-
1623	-19.96	-92.94	88.73	24.15	4.70	0.	0.25	0.06	-	-
1770	-12.86	-83.69	81.91	17.33	4.22	0.	0.25	0.05	-	-
1918	-6.73	-75.03	75.05	10.47	3.77	0.	0.25	0.05	-	-
2065	-1.64	-67.06	68.23	3.65	3.36	0.	0.25	0.04	-	-
2213	2.47	-59.69	61.37	-3.21	2.99	0.12	0.25	0.04	-	-
2360	6.07	-53.02	54.55	-10.03	2.64	0.29	0.25	0.03	-	-
2508	13.64	-51.39	47.69	-16.89	2.56	0.67	0.25	0.03	-	-
2655	20.15	-54.38	42.70	-23.71	2.71	0.99	0.25	0.03	-	-
2665	20.56	-54.62	42.40	-24.17	2.73	1.01	0.25	0.03	-	-
2803	25.69	-58.39	38.30	-24.17	2.73	1.01	0.25	0.03	-	-
2950	30.19	-63.39	33.93	-24.17	2.73	1.01	0.25	0.03	100	-
Span=3										
0	30.19	-63.39	109.17	19.40	0.77	2.23	0.42	0.01	100	-
245	43.41	-22.01	109.17	19.40	0.77	2.23	0.42	0.01	-	-
285	45.29	-15.73	109.17	19.40	0.77	2.23	0.42	0.01	-	-
490	53.67	14.27	109.17	19.40	0.	2.65	0.42	0.01	-	-
735	76.73	42.45	109.17	19.40	0.	3.80	0.42	0.02	-	-
980	95.89	48.09	96.00	11.78	0.	4.76	0.42	0.02	-	-
1225	114.39	50.79	75.16	-0.27	0.	5.69	0.42	0.03	-	-
1470	128.49	50.52	54.33	-12.32	0.	6.41	0.42	0.03	-	-
1715	137.50	47.31	33.50	-24.37	0.	6.86	0.42	0.03	-	-
1960	141.39	41.15	12.67	-36.42	0.	7.06	0.42	0.03	-	-
2205	140.19	32.03	-8.16	-48.47	0.	7.00	0.42	0.03	-	-
2450	133.88	19.96	-28.99	-60.52	0.	6.68	0.42	0.03	100	-
2695	122.47	4.94	-49.82	-78.02	0.	6.10	0.42	0.03	-	-
2940	105.95	-13.04	-70.65	-98.85	0.64	5.27	0.42	0.03	-	-
3185	84.34	-33.97	-91.44	-119.68	1.67	4.18	0.42	0.02	-	-
3430	57.61	-57.84	-103.49	-140.51	2.87	2.85	0.42	0.02	-	-
3675	25.79	-84.68	-115.54	-161.34	4.22	1.27	0.42	0.03	-	-
3920	-11.14	-114.46	-127.59	-182.17	5.75	0.	0.42	0.04	-	-
4165	-53.18	-147.19	-135.21	-195.35	7.44	0.	0.42	0.06	-	-
4410	-99.36	-183.57	-135.21	-195.35	9.35	0.	0.42	0.07	-	-
4615	-141.26	-219.39	-135.21	-195.35	11.26	0.	0.42	0.09	-	-
4655	-149.85	-229.11	-135.21	-195.35	11.26	0.	0.42	0.09	-	-
4900	-205.43	-291.61	-135.21	-195.35	11.26	0.	0.42	0.09	100	-

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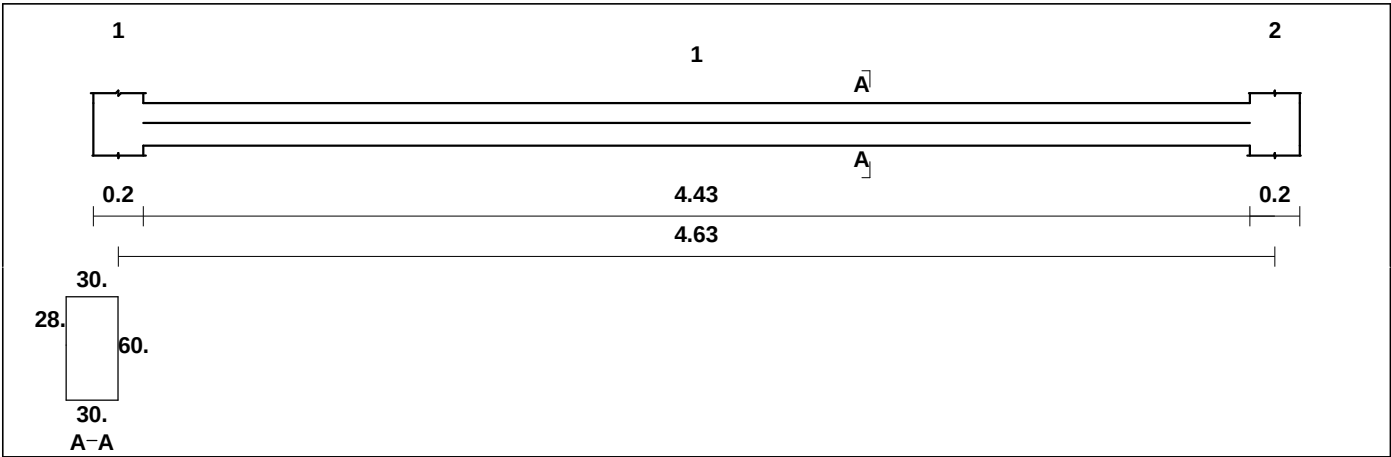
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-205.43	-291.61	170.94	112.13	12.48	0.	0.42	0.16	100	-
285	-167.69	-233.87	170.94	112.13	12.48	0.	0.42	0.16	-	-
365	-157.53	-218.34	170.94	112.13	11.58	0.	0.42	0.15	-	-
730	-113.60	-151.25	170.94	112.13	7.82	0.	0.42	0.10	-	-
1095	-66.12	-90.34	158.42	104.10	4.57	0.	0.34	0.06	-	-
1460	-12.81	-41.18	141.49	93.25	2.05	0.	0.25	0.03	-	-
1825	34.32	-8.90	124.57	82.40	0.43	1.69	0.25	0.01	-	-
2190	75.27	19.42	107.64	71.55	0.	3.75	0.25	0.03	-	-
2555	110.05	43.78	90.72	60.69	0.	5.52	0.25	0.04	-	-
2920	138.65	64.17	73.80	49.84	0.	6.99	0.25	0.05	-	-
3285	161.07	80.61	56.87	38.99	0.	8.16	0.25	0.06	-	-
3650	177.32	93.08	39.95	28.14	0.	9.02	0.25	0.07	100	-
4015	187.38	101.60	23.02	17.29	0.	9.55	0.25	0.07	-	-
4380	191.27	106.15	7.05	2.19	0.	9.76	0.25	0.07	-	-
4745	188.99	106.75	-3.80	-14.73	0.	9.64	0.25	0.07	-	-
5110	180.52	103.38	-14.65	-31.66	0.	9.19	0.25	0.07	-	-
5475	165.88	96.05	-25.50	-48.58	0.	8.42	0.25	0.06	-	-
5840	145.06	84.76	-36.35	-65.50	0.	7.33	0.25	0.06	-	-
6205	118.06	69.51	-47.20	-82.43	0.	5.93	0.25	0.05	-	-
6570	84.88	50.30	-57.76	-98.89	0.	4.23	0.25	0.03	-	-
6935	45.53	27.13	-57.76	-98.89	0.	2.25	0.25	0.02	-	-
7100	25.71	15.36	-57.76	-98.89	0.	1.26	0.25	0.01	-	-
7300	0.00	0.00	-57.76	-98.89	0.	0.	0.25	0.00	100	-

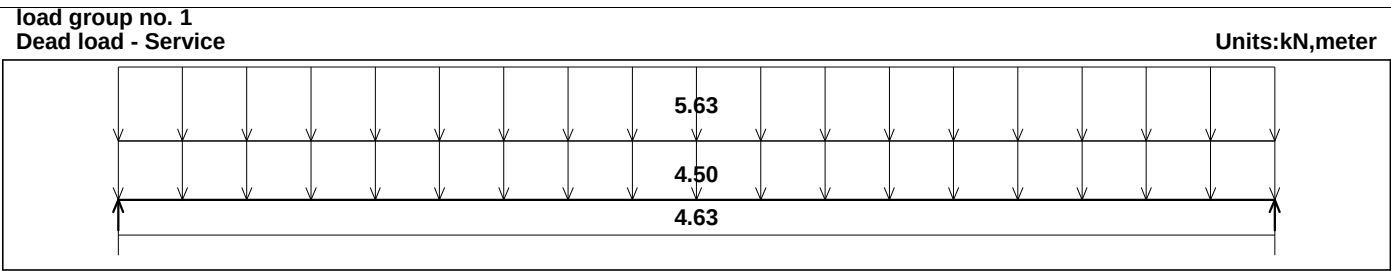
Moment / Shear Envelope (Factored) Units:kN,meter										
	1	2	3	4	5					
	1		2		3		4		5	
	1		2		3		4		5	
Min M	0.0	-251.8		-63.4	-63.4	-291.6				0.0
Max M	0.0	-154.9		30.2		-205.4				0.0
MspMn		-206.3		-54.6	-15.7	-219.4				15.4
MspMx		-125.9		20.6		-141.3				25.7
M Max			-28.1		141.4		191.3			
M Min			-51.4		50.8		106.7			
Mmn=0 @	0.0	1.5	0.0	3.0	0.4	2.1	1.9			7.3
Mmx=0 @	0.0	1.3	2.1	0.8	3.8	1.1	1.6			7.3
mx -M @			2.1		3.8		1.6			
mx +M @			3.0		2.0		4.4			
V max		-132.0		33.9		-175.8				-79.8
V min		-207.3		-37.4		-265.5				-133.2
DReac		228.1		76.4		290.2				83.5
LReac		143.2		140.3		184.5				49.7
Max R		371.3		216.7		474.7				133.2
Min R		231.4		32.8		373.9				79.8

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Geometry Units: meter, cm



Loading



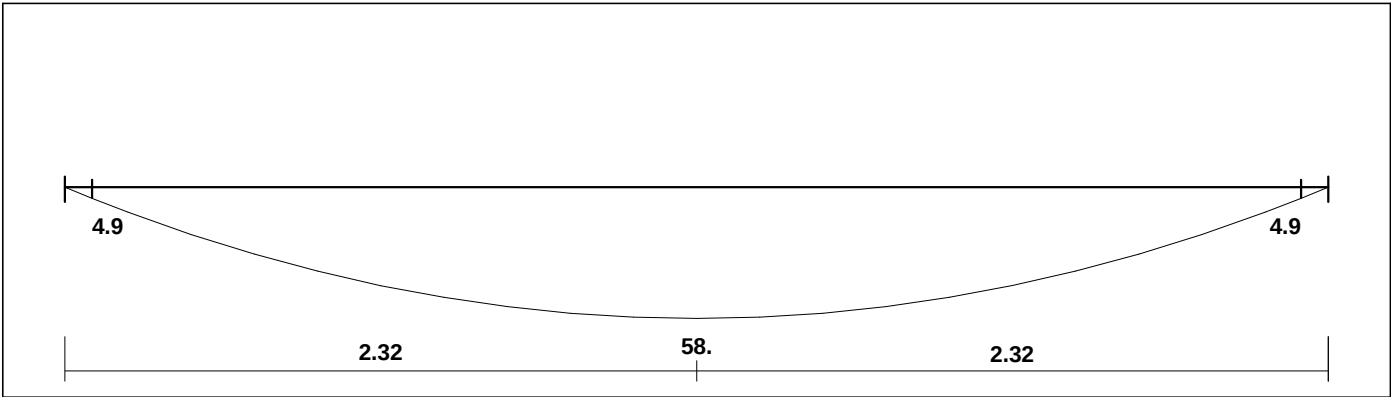
Loads (kN, meter)	
1	
Self. Wt.	4.50
Uni D	5.63
L	5.94

Beam 5
Project: BAEMS
Designed by: bayan

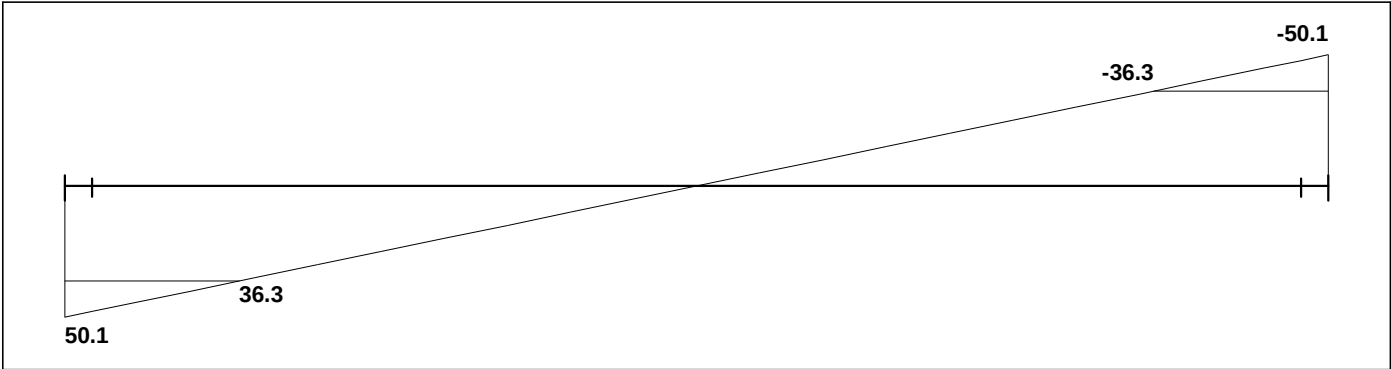
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	28.14	28.14
LiveR	22.	22.
Max R	50.14	50.14
Min R	50.14	50.14
Service		
DeadR	23.45	23.45
LiveR	13.75	13.75
Max R	37.2	37.2
Min R	37.2	37.2

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Reinforcement (cm 2)

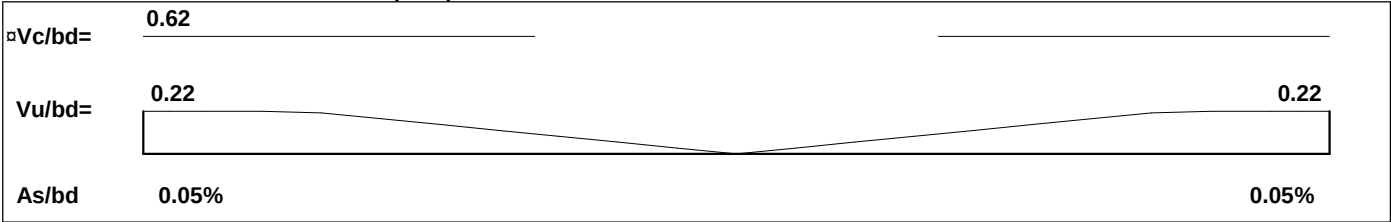
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420



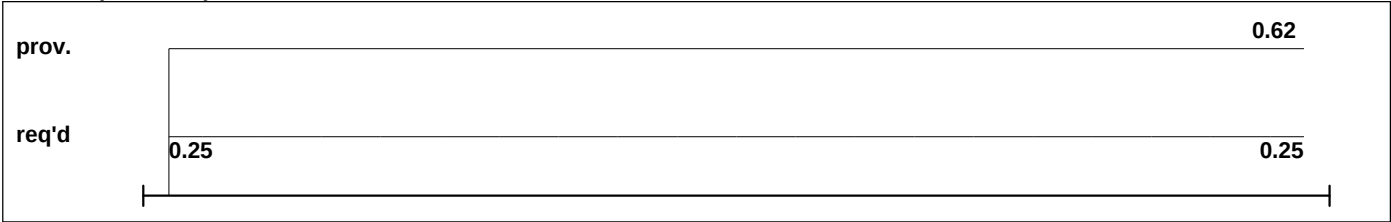
Shear

Shear design: Stirrups only
Stirrups fy = 420
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Legs: 2/4
Max no. of groups: 5
Max. =Code
Inverted T/L shear area: Web
Shear reduction: Yes
Spacing: Min. =5. Incr. = 5.

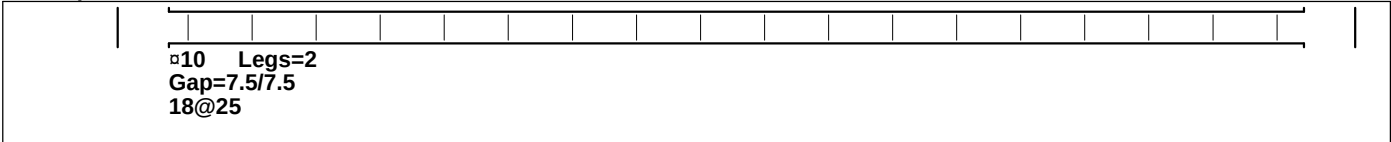
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	5.42	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00540
Icr(m^4)= 0.00103

Mcr = 55.45
Mmax,d = 27.14
Mmax,d+l = 43.06
Mmax,sust = 17.64

Ie,d (m^4)= 0.00540
Ie,d+l (m^4)= 0.00540
Ie,sust (m^4)= 0.00540

e/1+50r = 2.00/0.80
ai,d = 0.478
ai,l = 0.280
at,sust = 0.373
ai,l = L/16530
(ai+at),t2-t1 L/ 5645

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	36.28	36.28	0.	0.	0.25	0.00	100	-
100	4.91	4.91	36.28	36.28	0.	0.24	0.25	0.00	-	-
232	11.05	11.05	36.28	36.28	0.	0.54	0.25	0.01	-	-
463	20.89	20.89	36.28	36.28	0.	1.03	0.25	0.01	-	-
695	29.62	29.62	35.09	35.09	0.	1.46	0.25	0.02	-	-
926	37.15	37.15	30.09	30.09	0.	1.84	0.25	0.02	-	-
1158	43.54	43.54	25.06	25.06	0.	2.16	0.25	0.03	-	-
1389	48.75	48.75	20.06	20.06	0.	2.43	0.25	0.03	-	-
1621	52.82	52.82	15.03	15.03	0.	2.64	0.25	0.03	-	-
1852	55.72	55.72	10.03	10.03	0.	2.78	0.25	0.04	-	-
2084	57.46	57.46	5.00	5.00	0.	2.87	0.25	0.04	-	-
2315	58.04	58.04	0.00	0.00	0.	2.90	0.25	0.04	100	-
2547	57.46	57.46	-5.03	-5.03	0.	2.87	0.25	0.04	-	-
2778	55.72	55.72	-10.03	-10.03	0.	2.78	0.25	0.04	-	-
3010	52.81	52.81	-15.05	-15.05	0.	2.63	0.25	0.03	-	-
3241	48.75	48.75	-20.06	-20.06	0.	2.43	0.25	0.03	-	-
3473	43.52	43.52	-25.08	-25.08	0.	2.16	0.25	0.03	-	-
3704	37.15	37.15	-30.09	-30.09	0.	1.84	0.25	0.02	-	-
3936	29.58	29.58	-35.11	-35.11	0.	1.46	0.25	0.02	-	-
4167	20.89	20.89	-36.28	-36.28	0.	1.03	0.25	0.01	-	-
4399	11.01	11.01	-36.28	-36.28	0.	0.54	0.25	0.01	-	-
4530	4.91	4.91	-36.28	-36.28	0.	0.24	0.25	0.00	-	-
4630	0.00	0.00	-36.28	-36.28	0.	0.	0.25	0.00	100	-

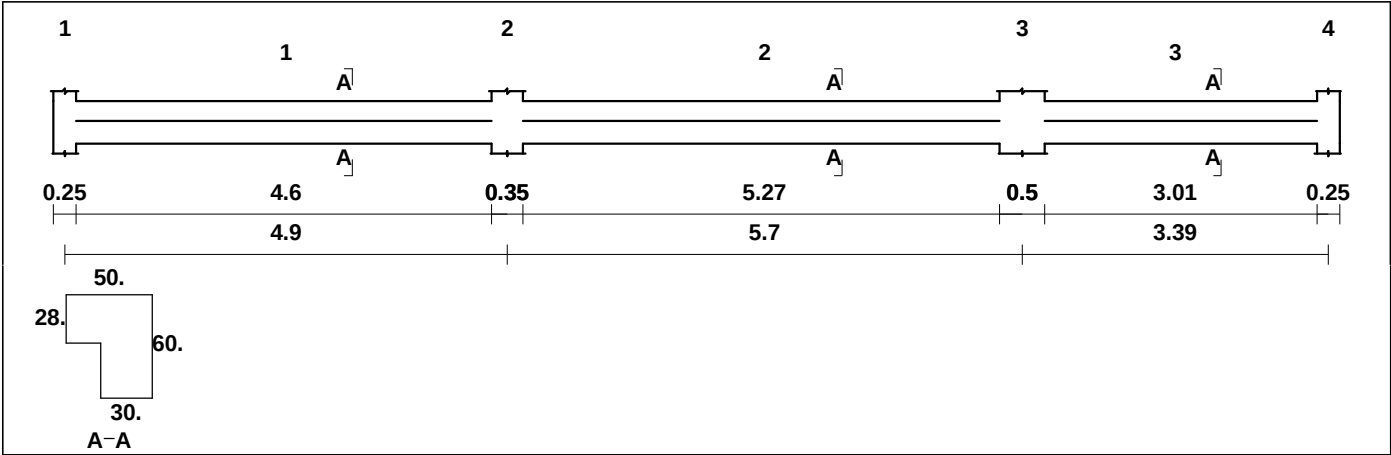
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M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

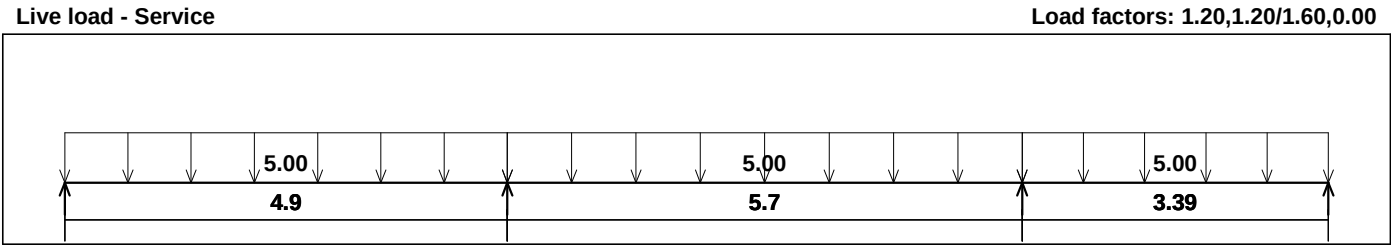
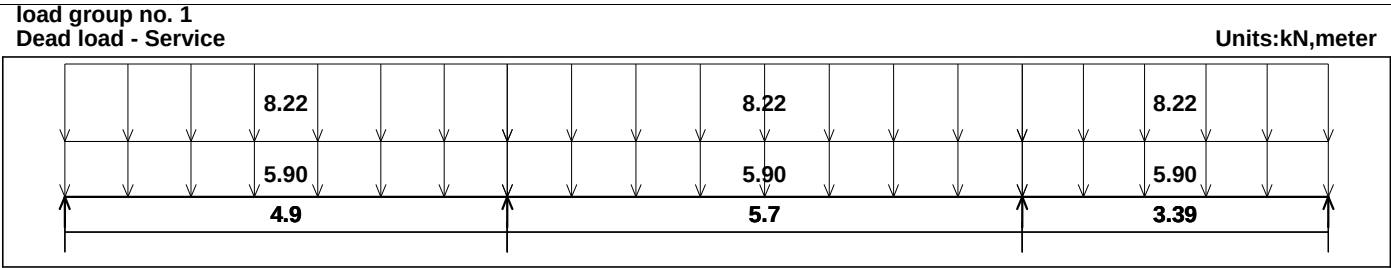
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	4.9	4.9	
MspMx	4.9	4.9	
M Max			
M Min			
Mmn=0 @	0.0	4.6	
Mmx=0 @	0.0	4.6	
mx -M @			
mx +M @			
V max		-50.1	
V min		-50.1	
DReac		28.1	
LReac		22.0	
Max R		50.1	
Min R		50.1	

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Geometry Units: meter, cm



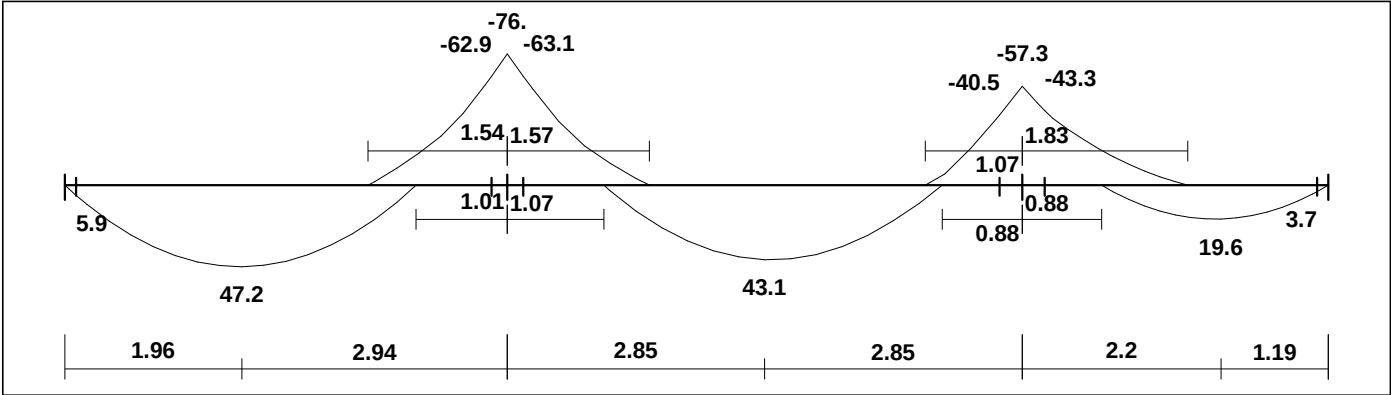
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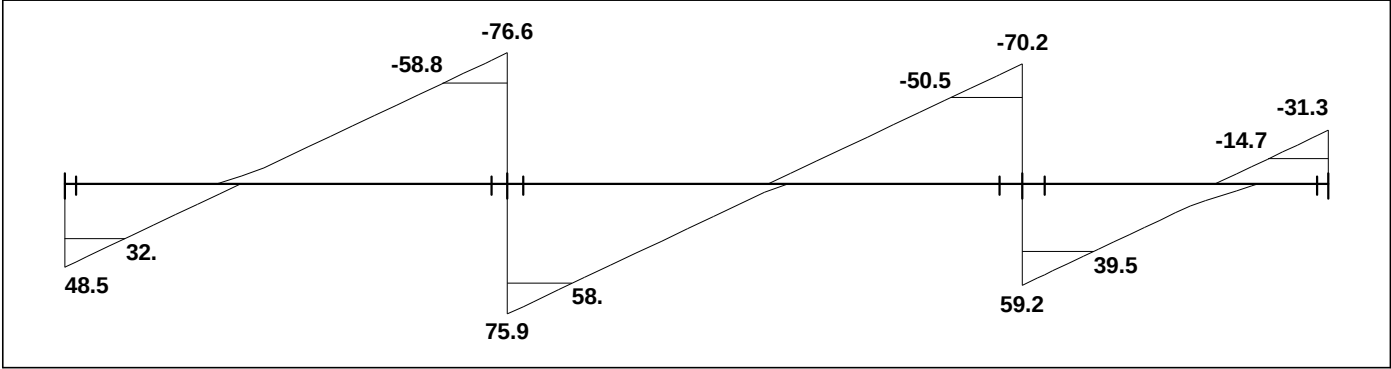
Loads (kN,meter)											
1			2			3					
Self.Wt.			5.90	Self.Wt.		5.90	Self.Wt.		5.90		
Uni D	8.22	L	5.00	Uni D	8.22	L	5.00	Uni D	8.22	L	5.00

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored				
DeadR	31.16	102.69	85.19	18.01
LiveR	17.38	49.78	44.14	13.3
Max R	48.54	152.47	129.33	31.31
Min R	28.48	126.26	97.26	13.21
Service				
DeadR	25.96	85.58	70.99	15.01
LiveR	10.86	31.11	27.59	8.31
Max R	36.83	116.69	98.58	23.32
Min R	24.29	100.31	78.54	12.01

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Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420

Top Cover	6.	6.	6.
As top = *=minimum	9.04*	9.04*	
As bot =	0.70	5.42*	5.42*
Bot Cover	6.	6.	6.
a/d	0%	2%	3%
As/bd	0.00%	0.34%	0.56%
			0.34%
			0.00%

Shear

Shear design: Stirrups only
Stirrups fy = 420
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Legs: 2/4
Max no. of groups: 5
Max. =Code
Inverted T/L shear area: Web

Max. allow. shear stress = 2.5 (MPa)

∅Vc/bd=	0.62	0.62	0.62
Vu/bd=	0.2	0.36	0.31
As/bd	0.04%	0.56%	0.56%
			0.56%
			0.02%

Av/s (mm2/mm)

prov.	0.62	0.62	0.62
req'd	0.25	0.25	0.25
			0.25

Stirrups

∅10 Legs=2 Gap=5/5 19@25	∅10 Legs=2 Gap=13.7/13.7 21@25	∅10 Legs=2 Gap=12.5/12.5 12@25

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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 0.	3 0.09
As	5.42	5.42	5.42
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00686	0.00686	0.00686
Icr(m^4)=	0.00110	0.00110	0.00110
Mcr =	62.52	62.52	62.52
Mmax,d =	23.77	21.10	7.96
Mmax,d+l =	35.46	32.20	14.21
Mmax,sust =	15.45	13.71	5.17
Ie,d (m^4)=	0.00686	0.00686	0.00686
Ie,d+l (m^4)=	0.00686	0.00686	0.00686
Ie,sust (m^4)=	0.00686	0.00686	0.00686
e/1+50r =	2.00/0.80	2.00/0.80	1.99/0.80
ai,d =	0.272	0.287	0.024
ai,l =	0.169	0.194	0.047
at,sust =	0.212	0.224	0.019
ai,l =	L/29043	L/29343	L/*****
(ai+at),t2-t1	L/10287	L/11000	L/*****

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	31.95	17.22	0.	0.	0.25	0.00	100	-
125	5.87	3.43	31.95	17.22	0.	0.28	0.25	0.00	-	-
245	11.14	6.47	31.95	17.22	0.	0.54	0.25	0.00	-	-
490	20.79	11.92	31.95	17.22	0.	1.02	0.25	0.01	-	-
735	28.94	16.36	30.21	16.03	0.	1.42	0.25	0.01	-	-
980	35.59	19.78	24.09	11.88	0.	1.76	0.25	0.01	-	-
1225	40.75	22.18	17.98	7.73	0.	2.01	0.25	0.02	-	-
1470	44.40	23.56	11.87	3.58	0.	2.20	0.25	0.02	-	-
1715	46.56	23.93	5.76	-0.58	0.	2.30	0.25	0.02	-	-
1960	47.23	23.28	-0.35	-4.73	0.	2.34	0.25	0.02	-	-
2205	46.39	21.61	-6.46	-9.39	0.	2.29	0.25	0.02	-	-
2450	44.06	18.93	-12.57	-15.50	0.	2.18	0.25	0.02	100	-
2695	40.23	15.23	-16.92	-21.61	0.	1.99	0.25	0.02	-	-
2940	34.90	10.51	-21.08	-27.73	0.	1.72	0.25	0.01	-	-
3185	28.08	4.78	-25.23	-33.84	0.	1.38	0.25	0.01	-	-
3430	19.76	-1.97	-29.38	-39.95	0.09	0.97	0.25	0.01	-	-
3675	9.94	-9.74	-33.53	-46.06	0.48	0.48	0.25	0.01	-	-
3920	-1.37	-18.53	-37.68	-52.17	0.91	0.	0.25	0.01	-	-
4165	-14.19	-28.33	-41.83	-58.28	1.40	0.	0.25	0.02	-	-
4410	-28.50	-41.42	-42.17	-58.78	2.06	0.	0.25	0.03	-	-
4655	-44.30	-57.94	-42.17	-58.78	2.90	0.	0.25	0.04	-	-
4725	-49.10	-62.94	-42.17	-58.78	3.15	0.	0.25	0.04	-	-
4900	-61.61	-75.96	-42.17	-58.78	3.15	0.	0.25	0.04	100	-

Beam 6,7
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Designed by: bayan

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Detailed results - at 1/20 of span, support faces, etc.

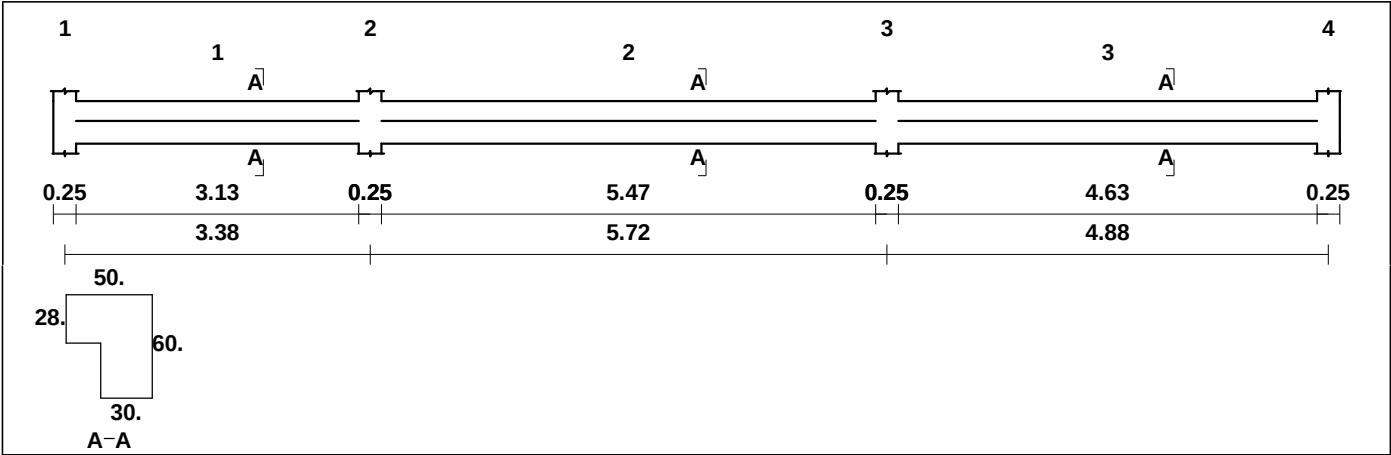
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-61.61	-75.96	58.02	40.46	3.16	0.	0.25	0.04	100	-
175	-50.36	-63.07	58.02	40.46	3.16	0.	0.25	0.04	-	-
285	-43.07	-55.36	58.02	40.46	2.76	0.	0.25	0.04	-	-
570	-25.58	-36.78	58.02	40.46	1.82	0.	0.25	0.02	-	-
855	-10.12	-22.85	54.53	38.09	1.13	0.	0.25	0.01	-	-
1140	3.31	-12.69	47.42	33.26	0.62	0.16	0.25	0.01	-	-
1425	14.95	-3.90	40.31	28.43	0.19	0.73	0.25	0.01	-	-
1710	24.63	3.52	33.20	23.60	0.	1.21	0.25	0.01	-	-
1995	32.28	9.56	26.10	18.77	0.	1.59	0.25	0.01	-	-
2280	37.91	14.22	18.99	13.94	0.	1.87	0.25	0.01	-	-
2565	41.51	17.50	11.88	8.04	0.	2.05	0.25	0.02	-	-
2850	43.09	19.41	4.77	0.93	0.	2.13	0.25	0.02	100	-
3135	42.64	19.94	-0.55	-6.18	0.	2.11	0.25	0.02	-	-
3420	40.16	19.10	-5.38	-13.28	0.	1.98	0.25	0.02	-	-
3705	35.66	16.88	-10.20	-20.39	0.	1.76	0.25	0.01	-	-
3990	29.13	13.28	-15.03	-27.50	0.	1.43	0.25	0.01	-	-
4275	20.58	8.31	-19.86	-34.61	0.	1.01	0.25	0.01	-	-
4560	10.61	1.96	-24.69	-41.72	0.	0.52	0.25	0.00	-	-
4845	-1.20	-6.40	-29.52	-48.83	0.31	0.	0.25	0.00	-	-
5130	-14.87	-21.33	-30.62	-50.45	1.05	0.	0.25	0.01	-	-
5415	-25.34	-38.28	-30.62	-50.45	1.90	0.	0.25	0.02	-	-
5450	-26.73	-40.50	-30.62	-50.45	2.01	0.	0.25	0.03	-	-
5700	-37.20	-57.26	-30.62	-50.45	2.01	0.	0.25	0.03	100	-
Span=3										
0	-37.20	-57.26	39.47	29.72	2.15	0.	0.25	0.03	100	-
169	-28.55	-47.62	39.47	29.72	2.15	0.	0.25	0.03	-	-
250	-24.66	-43.25	39.47	29.72	2.15	0.	0.25	0.03	-	-
339	-20.58	-38.64	39.47	29.72	1.92	0.	0.25	0.02	-	-
508	-13.36	-32.30	39.47	29.72	1.60	0.	0.25	0.02	-	-
678	-6.83	-26.49	39.47	29.72	1.31	0.	0.25	0.02	-	-
847	-1.04	-21.20	38.04	28.76	1.04	0.	0.25	0.01	-	-
1017	4.06	-16.36	33.80	25.88	0.80	0.19	0.25	0.01	-	-
1186	8.42	-12.04	29.59	23.02	0.59	0.41	0.25	0.01	-	-
1356	12.08	-8.18	25.35	19.43	0.40	0.59	0.25	0.01	-	-
1525	15.01	-4.83	21.13	15.21	0.23	0.73	0.25	0.01	-	-
1695	17.23	-1.95	16.89	10.97	0.09	0.84	0.25	0.01	100	-
1864	18.73	0.43	12.68	6.76	0.	0.92	0.25	0.01	-	-
2034	19.52	2.33	9.77	2.52	0.	0.96	0.25	0.01	-	-
2203	19.59	3.74	6.90	-1.70	0.	0.96	0.25	0.01	-	-
2373	18.94	4.67	4.02	-5.94	0.	0.93	0.25	0.01	-	-
2542	17.58	5.11	1.16	-10.15	0.	0.86	0.25	0.01	-	-
2712	15.49	5.06	-1.72	-14.40	0.	0.76	0.25	0.01	-	-
2881	12.70	4.53	-1.94	-14.72	0.	0.62	0.25	0.00	-	-
3051	9.18	3.50	-1.94	-14.72	0.	0.45	0.25	0.00	-	-
3220	4.96	2.00	-1.94	-14.72	0.	0.24	0.25	0.00	-	-
3265	3.72	1.52	-1.94	-14.72	0.	0.18	0.25	0.00	-	-
3390	0.00	0.00	-1.94	-14.72	0.	0.	0.25	0.00	100	-

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Moment / Shear Envelope (Factored) Units:kN,meter						
	1	2	3	4		
	1	2	3	4		
Min M	0.0	-76.0	-76.0	-57.3	-57.3	0.0
Max M	0.0	-61.6	-61.6	-37.2	-37.2	0.0
MspMn	3.4	-62.9	-63.1	-40.5	-43.3	1.5
MspMx	5.9	-49.1	-50.4	-26.7	-24.7	3.7
M Max			43.1		19.6	
M Min			19.9		5.1	
Mmn=0 @	0.0	1.5	1.6	1.1	1.8	3.4
Mmx=0 @	0.0	1.0	1.1	0.9	0.9	3.4
mx -M @			1.1		0.9	
mx +M @			2.8		2.2	
V max		-54.3		-44.0		-13.2
V min		-76.6		-70.2		-31.3
DReac		102.7		85.2		18.0
LReac		49.8		44.1		13.3
Max R		152.5		129.3		31.3
Min R		126.3		97.3		13.2

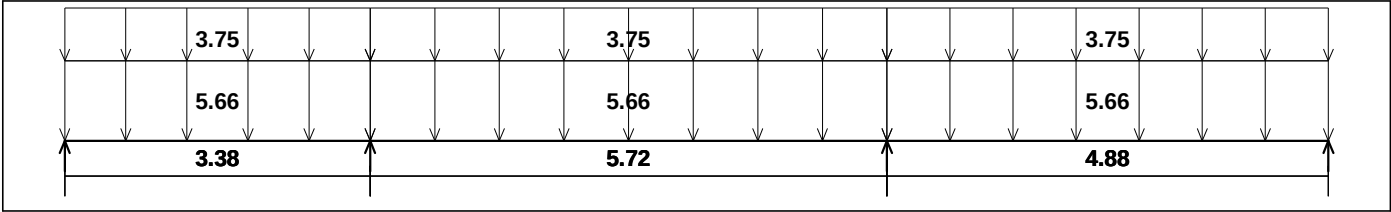
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Geometry Units:meter,cm

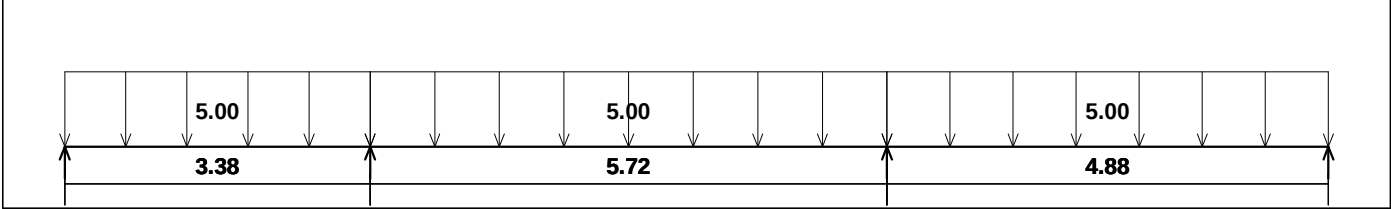


Loading

load group no. 1
Dead load - Service Units:kN,meter



Live load - Service Load factors: 1.20,1.20/1.60,0.00



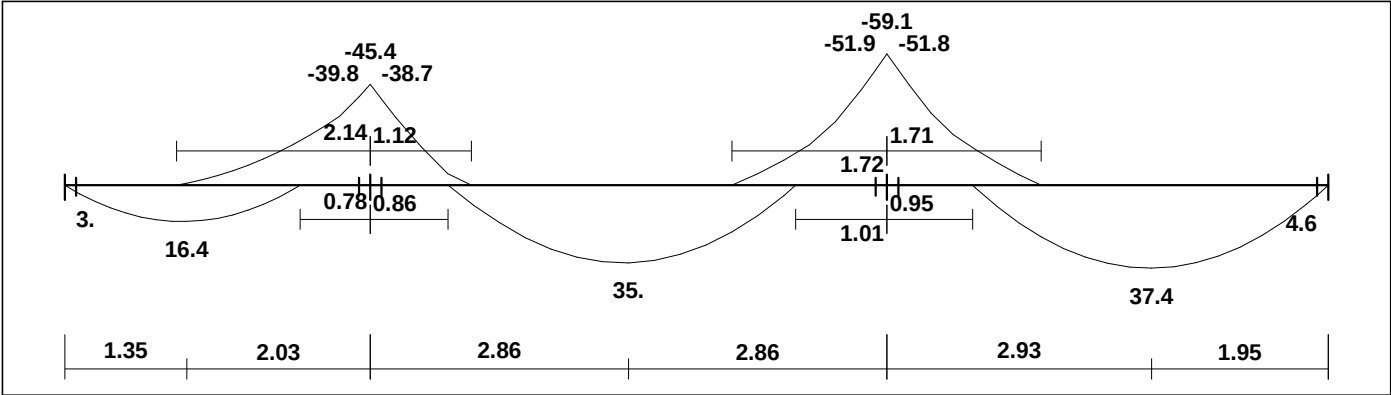
Loads (kN,meter)											
1			2			3					
Self.Wt.		5.66	Self.Wt.		5.66	Self.Wt.		5.66			
Uni D	3.75	L	5.00	Uni D	3.75	L	5.00	Uni D	3.75	L	5.00

Beam 6,7.C
Project: BAEMS
Designed by: bayan

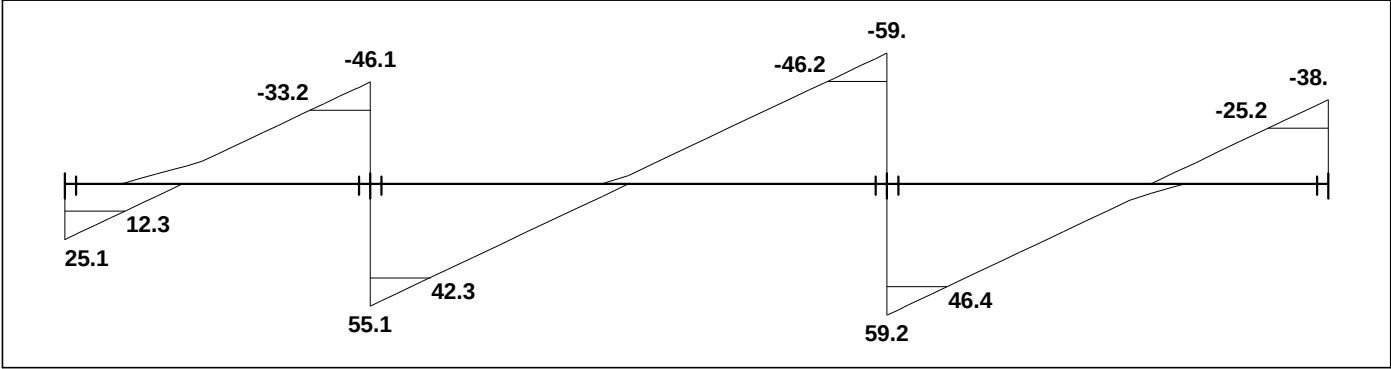
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

	1	2	3	4
DeadR	11.87	56.96	68.48	20.65
LiveR	13.26	44.21	49.78	17.33
Max R	25.14	101.18	118.26	37.99
Min R	7.02	69.01	91.95	17.95
Service				
DeadR	9.9	47.47	57.07	17.21
LiveR	8.29	27.63	31.11	10.83
Max R	18.19	75.1	88.18	28.05
Min R	6.86	55.	71.74	15.52

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Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.	6.
As top = *=minimum	0.21	9.04*	9.04*
As bot =	0.24	5.42*	5.42*
Bot Cover	6.	6.	6.
a/d	0%	1%	3%
As/bd	0.00%	0.34%	0.56%

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. =5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

Max. allow. shear stress = 2.5 (MPa)			
∅Vc/bd=	0.62	0.62	0.62
Vu/bd=	0.08	0.21	0.26
As/bd	0.01%	0.56%	0.56%

Av/s (mm2/mm)			
prov.	0.62	0.62	0.62
req'd	0.25	0.25	0.25

Stirrups			
∅10 Legs=2 Gap=6.5/6.5 13@25	∅10 Legs=2 Gap=10/10 22@25	∅10 Legs=2 Gap=6.7/6.7 19@25	

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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 5.42	2 0.	3 0.
As	0.21	5.42	5.42
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00686	0.00686	0.00686
Icr(m^4)=	0.00110	0.00110	0.00110
Mcr =	62.52	62.52	62.52
Mmax,d =	5.19	14.24	15.67
Mmax,d+l =	11.43	25.42	27.28
Mmax,sust =	3.38	9.26	10.18
Ie,d (m^4)=	0.00686	0.00686	0.00686
Ie,d+l (m^4)=	0.00686	0.00686	0.00686
Ie,sust (m^4)=	0.00686	0.00686	0.00686
e/1+50r =	1.99/0.79	2.00/0.80	2.00/0.80
ai,d =	0.015	0.196	0.177
ai,l =	0.047	0.197	0.167
at,sust =	0.012	0.153	0.138
ai,l =	L/*****	L/29104	L/29277
(ai+at),t2-t1	L/*****	L/13681	L/13295

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	12.31	5.61	0.	0.	0.25	0.00	100	-
125	2.99	0.79	12.31	5.61	0.	0.14	0.25	0.00	-	-
169	3.97	1.03	12.31	5.11	0.	0.19	0.25	0.00	-	-
338	7.39	1.73	12.31	3.20	0.	0.36	0.25	0.00	-	-
507	10.27	2.11	12.31	1.29	0.	0.50	0.25	0.00	-	-
676	12.59	2.16	12.09	-0.62	0.	0.61	0.25	0.00	-	-
845	14.35	1.90	8.83	-2.53	0.	0.70	0.25	0.01	-	-
1014	15.57	1.31	5.57	-4.44	0.	0.76	0.25	0.01	-	-
1183	16.24	0.40	2.31	-6.34	0.	0.80	0.25	0.01	-	-
1352	16.35	-0.83	-0.95	-8.25	0.04	0.80	0.25	0.01	-	-
1521	15.92	-2.39	-4.21	-10.18	0.11	0.78	0.25	0.01	-	-
1690	14.93	-4.27	-7.47	-13.44	0.21	0.73	0.25	0.01	100	-
1859	13.39	-6.47	-10.73	-16.70	0.31	0.65	0.25	0.01	-	-
2028	11.30	-8.99	-13.99	-19.97	0.44	0.55	0.25	0.01	-	-
2197	8.66	-11.84	-16.68	-23.23	0.58	0.42	0.25	0.01	-	-
2366	5.47	-15.01	-18.59	-26.49	0.74	0.26	0.25	0.01	-	-
2535	1.73	-18.50	-20.50	-29.75	0.91	0.08	0.25	0.01	-	-
2704	-2.57	-22.32	-22.41	-33.01	1.10	0.	0.25	0.01	-	-
2873	-7.41	-26.45	-22.53	-33.22	1.31	0.	0.25	0.02	-	-
3042	-12.81	-30.97	-22.53	-33.22	1.53	0.	0.25	0.02	-	-
3211	-18.76	-37.93	-22.53	-33.22	1.88	0.	0.25	0.02	-	-
3255	-20.40	-39.83	-22.53	-33.22	1.98	0.	0.25	0.03	-	-
3380	-25.26	-45.44	-22.53	-33.22	1.98	0.	0.25	0.03	100	-

Beam 6,7.C

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Detailed results - at 1/20 of span, support faces, etc.

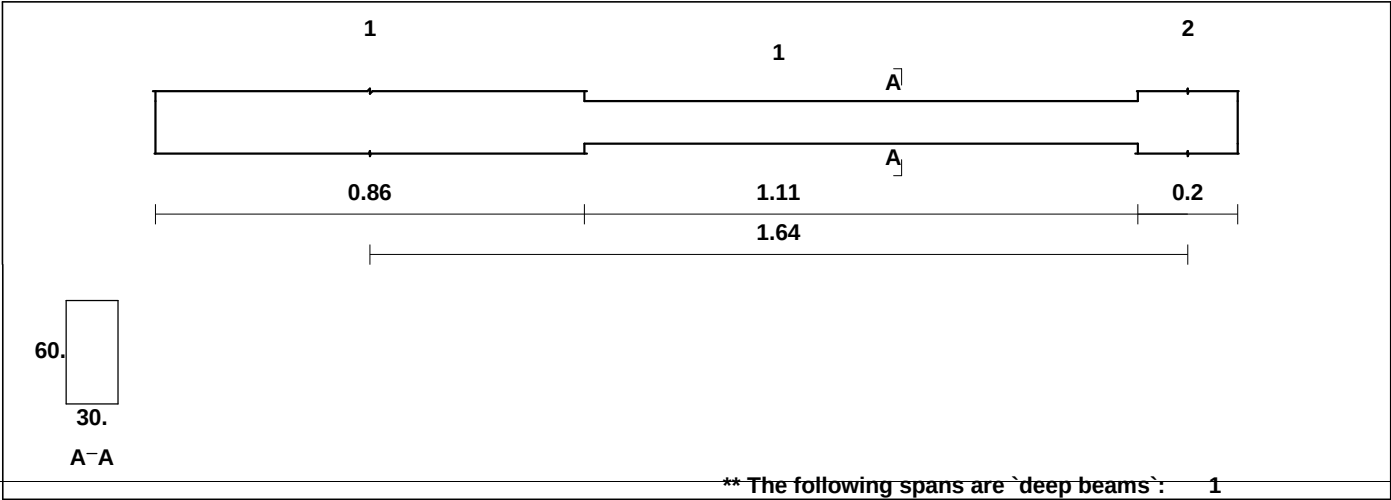
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-25.26	-45.44	42.29	21.41	1.92	0.	0.25	0.02	100	-
125	-21.73	-38.70	42.29	21.41	1.92	0.	0.25	0.02	-	-
286	-17.45	-30.46	42.29	21.41	1.51	0.	0.25	0.02	-	-
572	-10.56	-17.07	42.29	21.41	0.84	0.	0.25	0.01	-	-
858	-0.09	-5.25	38.56	19.23	0.25	0.	0.25	0.00	-	-
1144	9.07	0.44	33.04	16.00	0.	0.44	0.25	0.00	-	-
1430	16.82	4.56	27.53	12.77	0.	0.82	0.25	0.01	-	-
1716	23.61	7.75	22.01	9.54	0.	1.16	0.25	0.01	-	-
2002	28.82	10.01	16.49	6.31	0.	1.42	0.25	0.01	-	-
2288	32.45	11.36	10.97	3.08	0.	1.60	0.25	0.01	-	-
2574	34.50	11.77	5.45	-0.15	0.	1.70	0.25	0.01	-	-
2860	34.98	11.27	-0.07	-3.86	0.	1.73	0.25	0.01	100	-
3146	33.88	9.84	-5.59	-9.37	0.	1.67	0.25	0.01	-	-
3432	31.19	7.48	-9.85	-14.89	0.	1.54	0.25	0.01	-	-
3718	26.93	4.21	-13.08	-20.41	0.	1.33	0.25	0.01	-	-
4004	21.10	0.01	-16.31	-25.93	0.	1.04	0.25	0.01	-	-
4290	13.68	-5.12	-19.54	-31.45	0.25	0.67	0.25	0.01	-	-
4576	4.76	-11.17	-22.77	-36.97	0.55	0.23	0.25	0.01	-	-
4862	-5.52	-18.14	-26.00	-42.49	0.89	0.	0.25	0.01	-	-
5148	-17.38	-28.47	-28.18	-46.21	1.41	0.	0.25	0.02	-	-
5434	-30.82	-42.99	-28.18	-46.21	2.14	0.	0.25	0.03	-	-
5595	-39.07	-51.85	-28.18	-46.21	2.59	0.	0.25	0.03	-	-
5720	-44.61	-59.08	-28.18	-46.21	2.59	0.	0.25	0.03	100	-
Span=3										
0	-44.61	-59.08	46.39	29.46	2.58	0.	0.25	0.03	100	-
125	-37.73	-51.83	46.39	29.46	2.58	0.	0.25	0.03	-	-
244	-31.46	-45.21	46.39	29.46	2.25	0.	0.25	0.03	-	-
488	-19.46	-32.48	46.39	29.46	1.61	0.	0.25	0.02	-	-
733	-8.56	-22.83	45.08	28.69	1.12	0.	0.25	0.01	-	-
977	1.14	-16.10	40.37	25.93	0.79	0.05	0.25	0.01	-	-
1221	9.69	-10.05	35.66	23.18	0.49	0.47	0.25	0.01	-	-
1465	17.10	-4.67	30.95	20.42	0.22	0.84	0.25	0.01	-	-
1709	23.35	0.04	26.24	17.66	0.	1.15	0.25	0.01	-	-
1954	28.48	4.09	21.51	14.90	0.	1.40	0.25	0.01	-	-
2198	32.43	7.46	16.81	12.14	0.	1.60	0.25	0.01	-	-
2442	35.23	10.14	12.10	9.13	0.	1.74	0.25	0.01	100	-
2686	36.89	12.16	7.39	4.43	0.	1.82	0.25	0.01	-	-
2930	37.39	13.50	4.13	-0.28	0.	1.85	0.25	0.01	-	-
3175	36.74	14.17	1.36	-5.01	0.	1.81	0.25	0.01	-	-
3419	34.95	14.17	-1.40	-9.72	0.	1.72	0.25	0.01	-	-
3663	32.00	13.49	-4.15	-14.43	0.	1.58	0.25	0.01	-	-
3907	27.91	12.14	-6.91	-19.14	0.	1.37	0.25	0.01	-	-
4151	22.66	10.12	-9.67	-23.84	0.	1.11	0.25	0.01	-	-
4396	16.24	7.41	-10.43	-25.16	0.	0.80	0.25	0.01	-	-
4640	8.69	4.04	-10.43	-25.16	0.	0.42	0.25	0.00	-	-
4759	4.60	2.16	-10.43	-25.16	0.	0.22	0.25	0.00	-	-
4884	0.00	0.00	-10.43	-25.16	0.	0.	0.25	0.00	100	-

Beam 6,7.C	Code: ACI318-02
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Moment / Shear Envelope (Factored) Units:kN,meter						
	1	2	3	4		
	1	2	2	3	3	4
Min M	0.0	-45.4	-45.4	-59.1	-59.1	0.0
Max M	0.0	-25.3	-25.3	-44.6	-44.6	0.0
MspMn	0.8	-39.8	-38.7	-51.9	-51.8	2.2
MspMx	3.0	-20.4	-21.7	-39.1	-37.7	4.6
M Max			35.0		37.4	
M Min			11.8		14.2	
Mmn=0 @	0.0	2.1	1.1	1.7	1.7	4.9
Mmx=0 @	0.0	0.8	0.9	1.0	0.9	4.9
mx -M @			0.9		0.9	
mx +M @			2.9		2.9	
V max		-30.0		-35.7		-17.9
V min	7.0	-46.1		-59.0		-38.0
DReac		57.0		68.5		20.7
LReac		44.2		49.8		17.3
Max R		101.2		118.3		38.0
Min R	7.0	69.0		91.9		17.9

Beam 8,9	Code: ACI318-02
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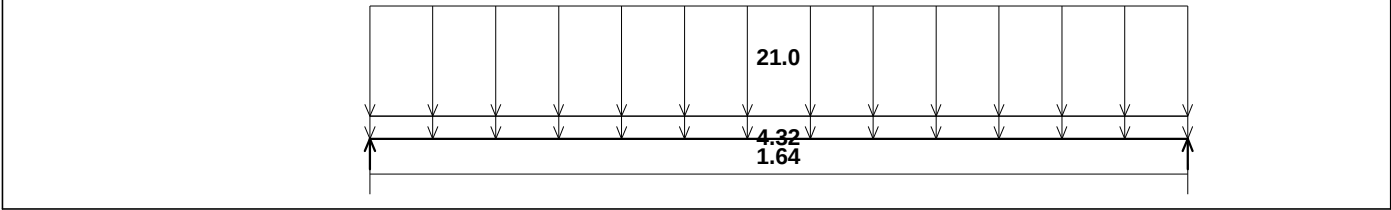
Geometry Units: meter, cm



**** The following spans are `deep beams`:** 1
Loading

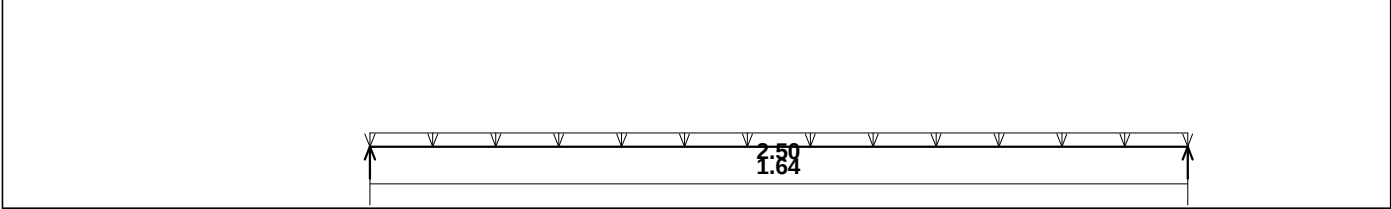
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

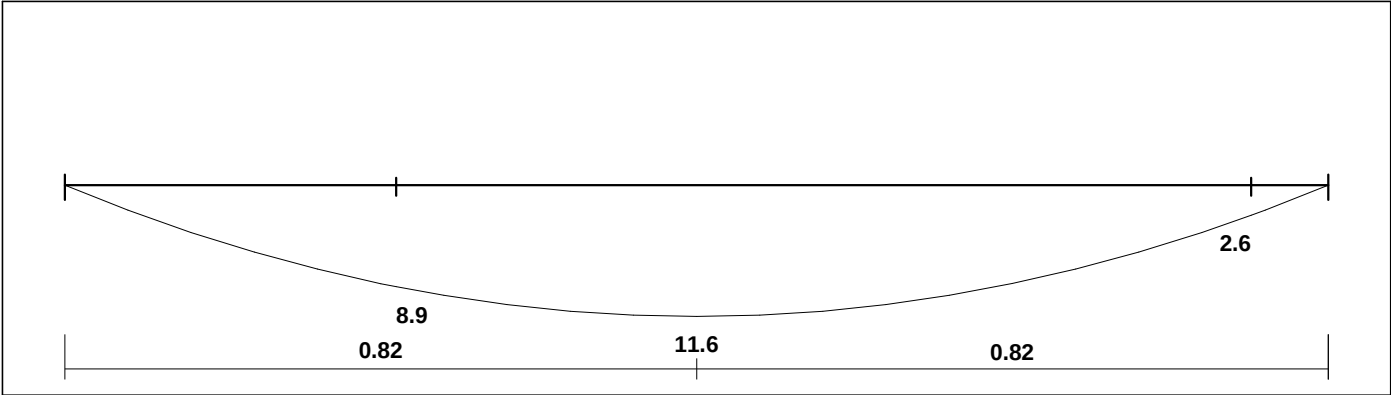
Load factors: 1.20, 1.20/1.60, 0.00



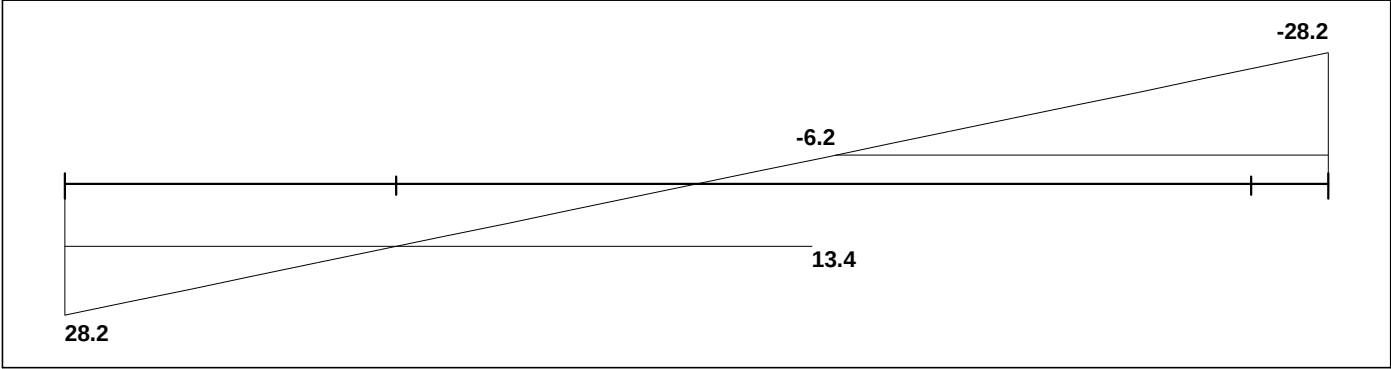
Loads (kN, meter)	
1	
Self. Wt.	4.32
Uni D 21.00 L 2.50	

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	24.91		24.91
LiveR	3.28		3.28
Max R	28.19		28.19
Min R	28.19		28.19
Service			
DeadR	20.76		20.76
LiveR	2.05		2.05
Max R	22.81		22.81
Min R	22.81		22.81

Beam 8,9	Code: ACI318-02
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Reinforcement (cm 2)

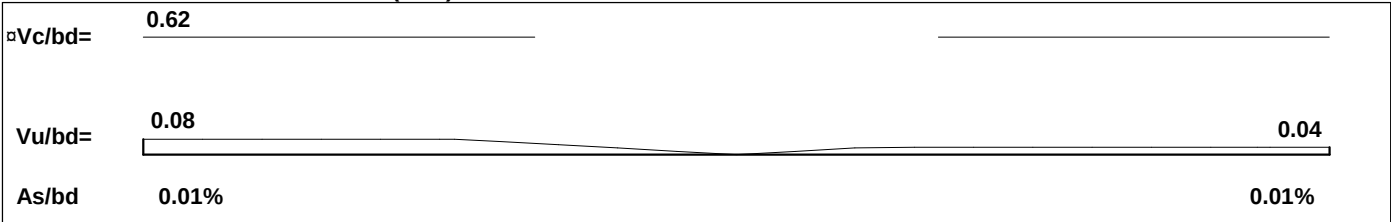
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



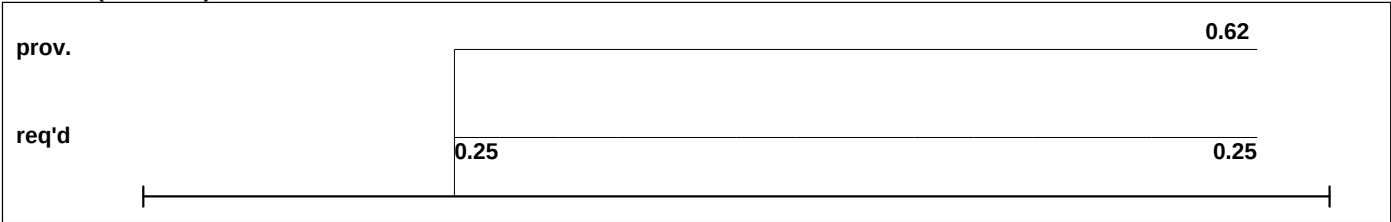
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code

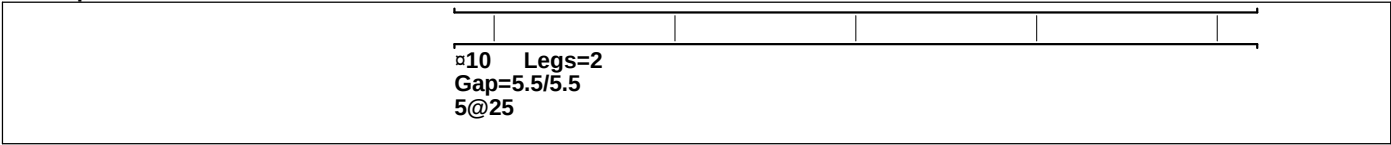
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Beam 8,9	Code: ACI318-02
Project: BAEMS	Page: 239
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	
	5.42	
As	0.	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00540
Icr(m^4)= 0.00103

Mcr = 55.45
Mmax,d = 8.51
Mmax,d+l = 9.35
Mmax,sust = 5.53

Ie,d (m^4)= 0.00540
Ie,d+l (m^4)= 0.00540
Ie,sust (m^4)= 0.00540

e/1+50r = 2.00/0.80
ai,d = 0.019
ai,l = 0.002
at,sust = 0.015
ai,l = L/*****
(ai+at),t2-t1 L/*****

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	13.41	13.41	0.	0.	0.25	0.00	100	-
82	2.20	2.20	13.41	13.41	0.	0.10	0.25	0.00	-	-
164	4.16	4.16	13.41	13.41	0.	0.20	0.25	0.00	-	-
246	5.90	5.90	13.41	13.41	0.	0.29	0.25	0.00	-	-
328	7.40	7.40	13.41	13.41	0.	0.36	0.25	0.00	-	-
410	8.67	8.67	13.41	13.41	0.	0.42	0.25	0.01	-	-
430	8.94	8.94	13.41	13.41	0.	0.44	0.25	0.01	-	-
492	9.71	9.71	11.28	11.28	0.	0.47	0.25	0.01	-	-
574	10.52	10.52	8.46	8.46	0.	0.51	0.25	0.01	-	-
656	11.10	11.10	5.64	5.64	0.	0.54	0.25	0.01	-	-
738	11.44	11.44	2.82	2.82	0.	0.56	0.25	0.01	-	-
820	11.56	11.56	0.00	0.00	0.	0.57	0.25	0.01	100	-
902	11.44	11.44	-2.82	-2.82	0.	0.56	0.25	0.01	-	-
984	11.10	11.10	-5.64	-5.64	0.	0.54	0.25	0.01	-	-
1066	10.52	10.52	-6.19	-6.19	0.	0.51	0.25	0.01	-	-
1148	9.71	9.71	-6.19	-6.19	0.	0.47	0.25	0.01	-	-
1230	8.67	8.67	-6.19	-6.19	0.	0.42	0.25	0.01	-	-
1312	7.40	7.40	-6.19	-6.19	0.	0.36	0.25	0.00	-	-
1394	5.90	5.90	-6.19	-6.19	0.	0.29	0.25	0.00	-	-
1476	4.16	4.16	-6.19	-6.19	0.	0.20	0.25	0.00	-	-
1540	2.65	2.65	-6.19	-6.19	0.	0.13	0.25	0.00	-	-
1558	2.20	2.20	-6.19	-6.19	0.	0.10	0.25	0.00	-	-
1640	0.00	0.00	-6.19	-6.19	0.	0.	0.25	0.00	100	-

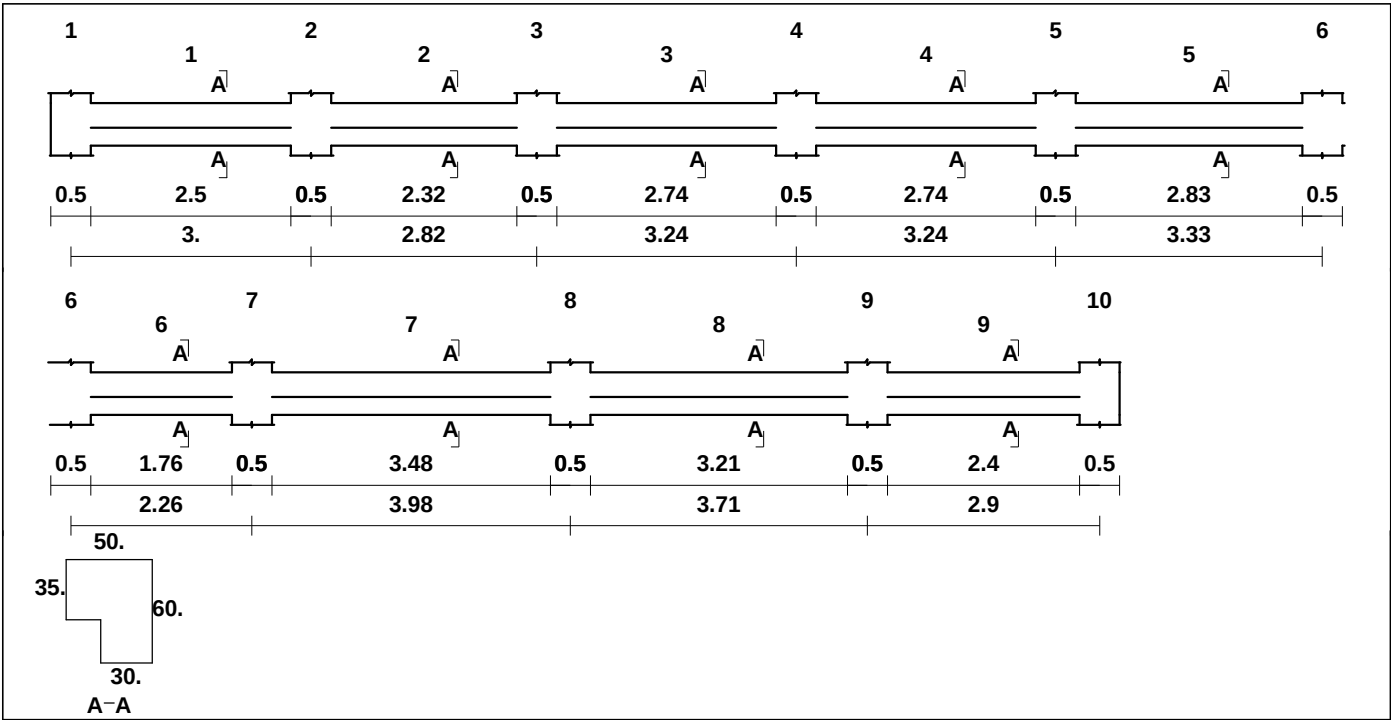
Beam 8,9	Code: ACI318-02
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M o m e n t / S h e a r		E n v e l o p e (Factored)	Units:kN,meter
1	2		
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	8.9	2.6	
MspMx	8.9	2.6	
M Max			
M Min			
Mmn=0 @	0.0	1.6	
Mmx=0 @	0.0	1.6	
mx -M @			
mx +M @			
V max		-28.2	
V min		-28.2	
DReac		24.9	
LReac	3.3	3.3	
Max R		28.2	
Min R		28.2	

Beam 10,11
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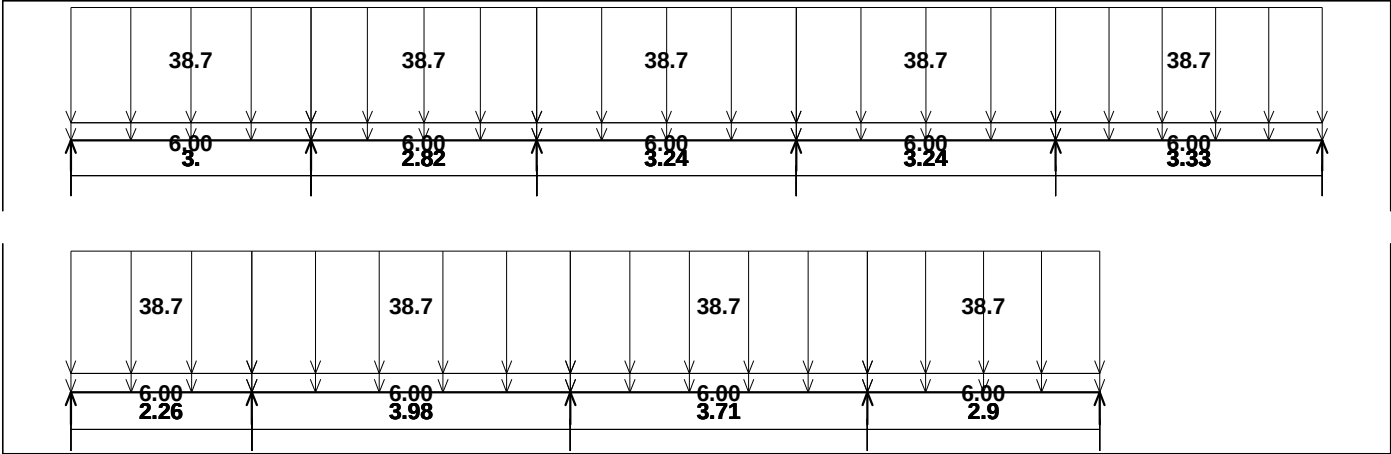
Geometry Units: meter, cm



Loading

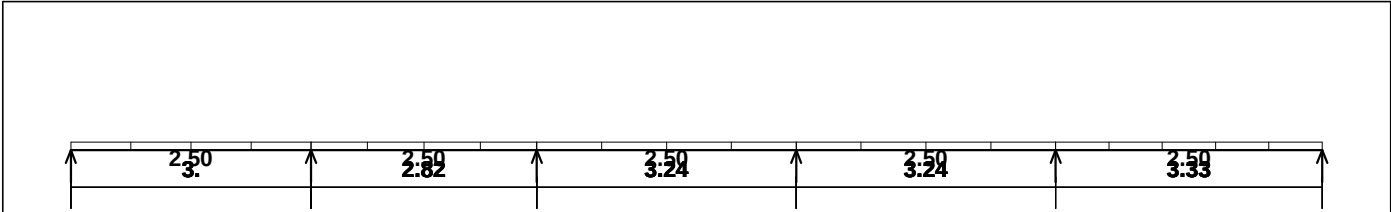
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

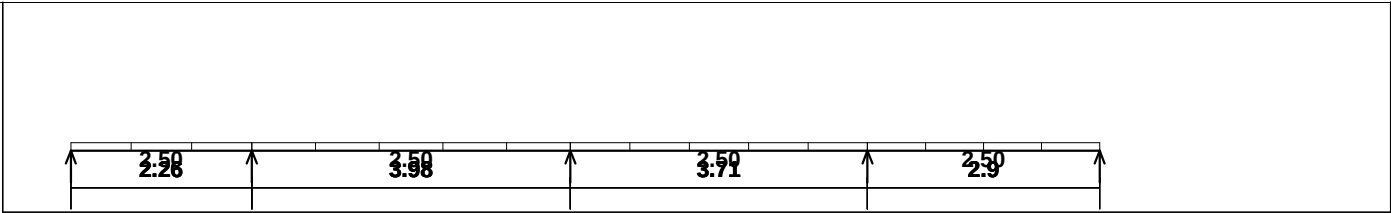
Load factors: 1.20, 1.20/1.60, 0.00



Beam 10,11
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Loading



Loads (kN,meter)

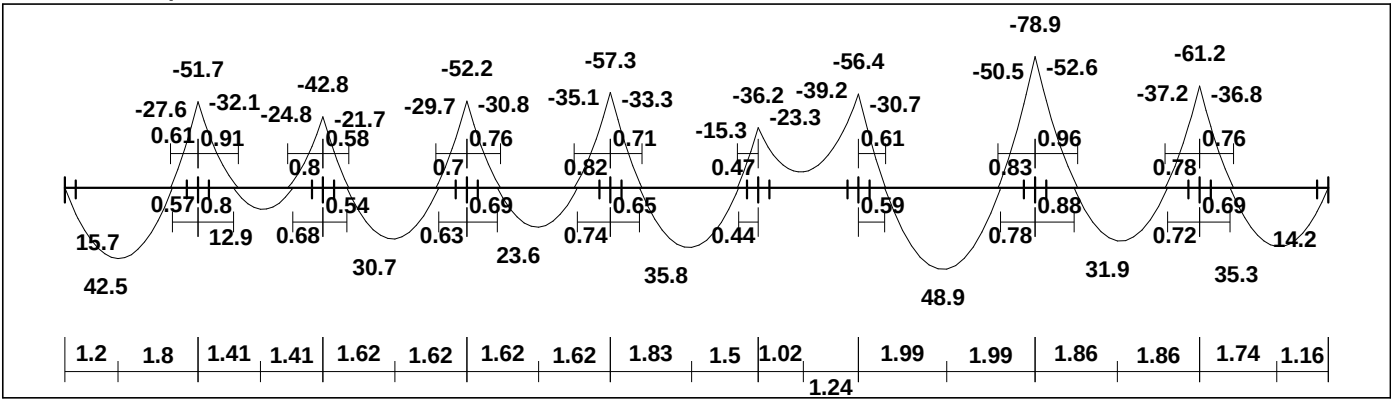
1		2		3		4	
Self.Wt.		Self.Wt.		Self.Wt.		Self.Wt.	
Uni D	38.70 L	Uni D	38.70 L	Uni D	38.70 L	Uni D	38.70 L
5	2.50	6	2.50	7	2.50	8	2.50

Self.Wt.		Self.Wt.		Self.Wt.		Self.Wt.	
Uni D	38.70 L	Uni D	38.70 L	Uni D	38.70 L	Uni D	38.70 L
9	2.50						

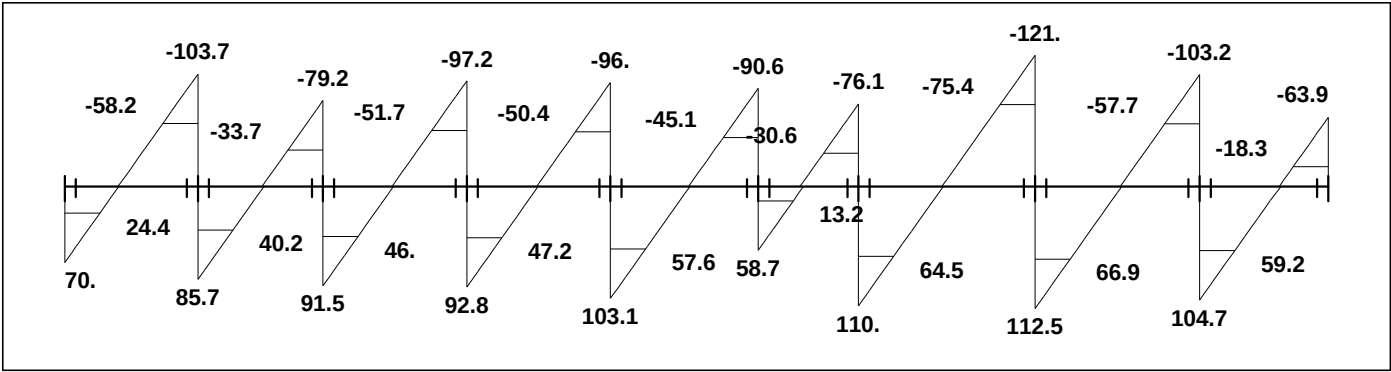
Self.Wt.		Self.Wt.	
Uni D	38.70 L	Uni D	38.70 L
	2.50		

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 9



Shear



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Moment/Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	64.6	175.12	156.6	175.04	183.83	135.42	170.33	216.14	192.16	58.42
LiveR	5.38	14.28	14.14	14.95	15.23	13.92	15.76	17.3	15.74	5.44
Max R	69.98	189.39	170.74	189.99	199.07	149.34	186.08	233.45	207.91	63.86
Min R	64.04	179.94	160.74	180.54	189.83	136.74	172.17	223.48	197.83	57.34
Service										
DeadR	53.83	145.93	130.5	145.87	153.2	112.85	141.94	180.12	160.14	48.69
LiveR	3.36	8.92	8.84	9.35	9.52	8.7	9.85	10.81	9.84	3.4
Max R	57.2	154.85	139.34	155.21	162.72	121.55	151.79	190.93	169.98	52.09
Min R	53.48	148.94	133.09	149.3	156.94	113.68	143.09	184.7	163.68	48.01

Reinforcement (cm 2)

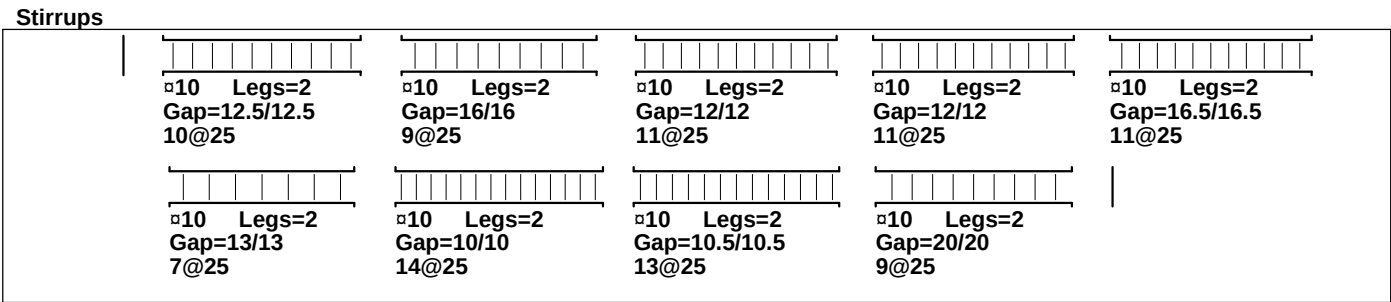
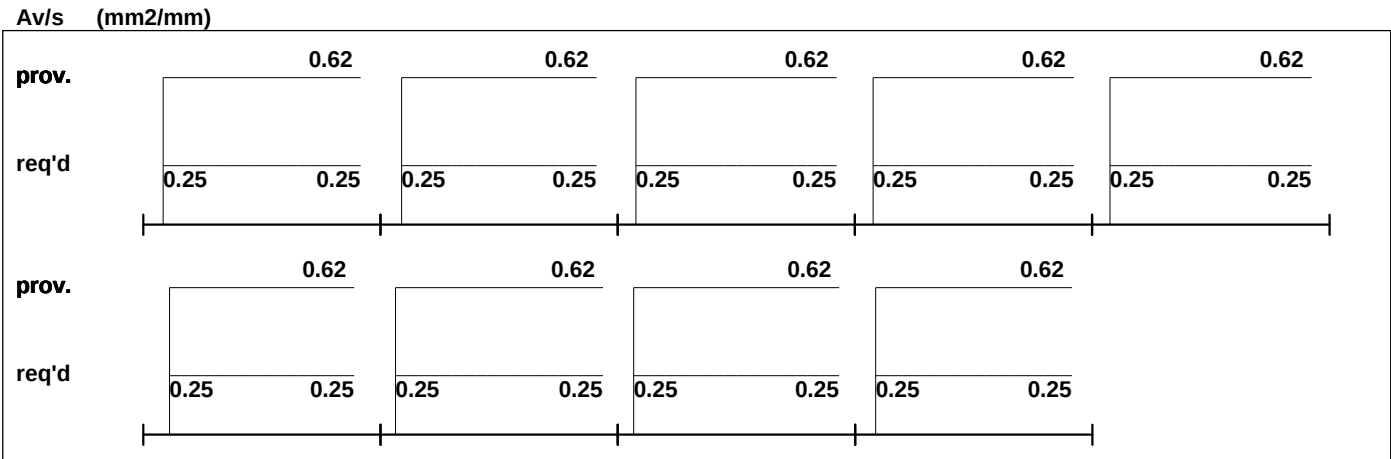
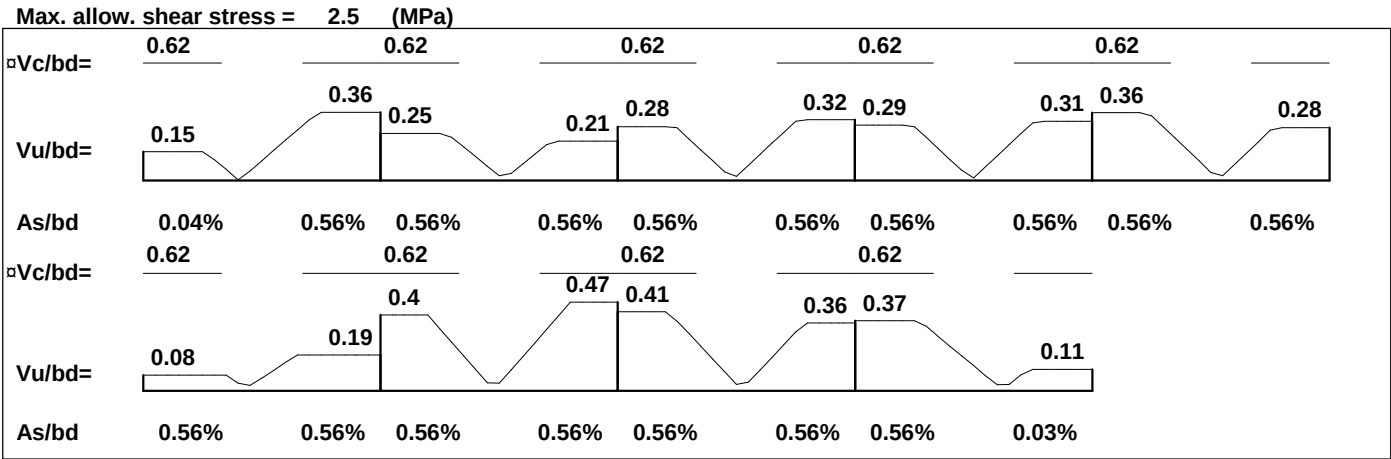
Concrete: B300
Moment redistribution: No
Support moment at: Face

Top Cover	6.		6.		6.		6.		6.		6.
As top =		9.04*		9.04*		9.04*		9.04*		9.04*	
As bot =	0.63	5.42*		5.42*		5.42*		5.42*		5.42*	
Bot Cover	6.		6.		6.		6.		6.		
a/d	1%	2%	2%	0%	2%	1%	2%	1%	2%	1%	1%
As/bd	0.00%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%
Top Cover	6.		6.		6.		6.				
As top =	9.04*	5.42	9.04*		9.04*		9.04*				
As bot =		5.42*		5.42*		5.42*		5.42*	0.52		
a/d	1%	6.	2%	6.	3%	6.	2%	6.		1%	
As/bd	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.00%		

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Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



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Deflections (mm)

Long-term deflection:				
- sustained loads :	65%	of dead;	0%	of live
- duration of load 60 months ; attachment of element at	2 months (t1)			
Apply	35% of dead load after attachment (t1)			
A's	1 0.	2 5.42	3 0.	4 0.
As	5.42	0.	5.42	5.42
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00690	0.00690	0.00690	0.00690
Icr(m^4)=	0.00110	0.00000	0.00110	0.00110
Mcr =	63.47	80.23	63.47	63.47
Mmax,d =	32.42	39.65	22.72	16.94
Mmax,d+l =	34.65	40.81	24.88	19.01
Mmax,sust =	21.07	25.77	14.77	11.01
Ie,d (m^4)=	0.00690	0.00690	0.00690	0.00690
Ie,d+l (m^4)=	0.00690	0.00690	0.00690	0.00690
Ie,sust (m^4)=	0.00690	0.00690	0.00690	0.00690
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80	2.00/0.80
ai,d =	0.155	-0.011	0.104	0.057
ai,l =	0.012	-0.004	0.013	0.012
at,sust =	0.121	-0.007	0.081	0.044
ai,l =	L/*****	L/*****	L/*****	L/*****
(ai+at),t2-t1	L/15996	L/*****	L/24895	L/*****

Long-term deflection:				
- sustained loads :	65%	of dead;	0%	of live
- duration of load 60 months ; attachment of element at	2 months (t1)			
Apply	35% of dead load after attachment (t1)			
A's	5 0.	6 5.42	7 0.	8 0.
As	5.42	5.42	5.42	5.42
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00690	0.00690	0.00690	0.00690
Icr(m^4)=	0.00110	0.00104	0.00110	0.00110
Mcr =	63.47	80.23	63.47	63.47
Mmax,d =	26.91	42.61	36.92	23.22
Mmax,d+l =	29.13	44.97	39.78	25.74
Mmax,sust =	17.49	27.70	24.00	15.09
Ie,d (m^4)=	0.00690	0.00690	0.00690	0.00690
Ie,d+l (m^4)=	0.00690	0.00690	0.00690	0.00690
Ie,sust (m^4)=	0.00690	0.00690	0.00690	0.00690
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80	2.00/0.80
ai,d =	0.139	-0.044	0.268	0.108
ai,l =	0.014	-0.007	0.025	0.019
at,sust =	0.108	-0.030	0.209	0.084
ai,l =	L/*****	L/*****	L/*****	L/*****
(ai+at),t2-t1	L/19468	L/*****	L/12138	L/26242

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Long-term deflection:

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Deflections (mm)				
- sustained loads	:	65%	of dead;	0% of live
- duration of load	60 months ;	attachment of element at 2 months (t1)		
Apply 35% of dead load after attachment (t1)				

9				
A's	0.			
As	5.42			
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00690			
Icr(m^4)=	0.00110			
Mcr =	63.47			
Mmax,d =	26.40			
Mmax,d+l =	28.66			
Mmax,sust =	17.16			
Ie,d (m^4)=	0.00690			
Ie,d+l (m^4)=	0.00690			
Ie,sust (m^4)=	0.00690			
e/1+50r =	2.00/0.80			
ai,d =	0.105			
ai,l =	0.012			
at,sust =	0.082			
ai,l =	L/*****			
(ai+at),t2-t1	L/22155			

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	24.45	21.66	0.	0.	0.25	0.00	100	-
150	9.85	9.00	24.45	21.66	0.	0.48	0.25	0.00	-	-
250	15.69	14.33	24.45	21.66	0.	0.77	0.25	0.01	-	-
300	18.40	16.80	24.45	21.66	0.	0.90	0.25	0.01	-	-
450	25.66	23.38	24.45	21.66	0.	1.26	0.25	0.01	-	-
600	31.61	28.77	24.45	21.66	0.	1.56	0.25	0.01	-	-
750	36.28	32.94	24.45	21.66	0.	1.79	0.25	0.01	-	-
900	39.64	35.91	18.11	15.76	0.	1.96	0.25	0.01	-	-
1050	41.71	37.67	9.46	7.71	0.	2.06	0.25	0.02	-	-
1200	42.48	38.22	0.82	-0.33	0.	2.10	0.25	0.02	-	-
1350	41.95	37.57	-7.83	-8.58	0.	2.07	0.25	0.02	-	-
1500	40.13	35.71	-16.17	-17.23	0.	1.98	0.25	0.02	100	-
1650	37.01	32.64	-24.22	-25.88	0.	1.83	0.25	0.01	-	-
1800	32.59	28.37	-32.26	-34.52	0.	1.61	0.25	0.01	-	-
1950	26.88	22.89	-40.31	-43.17	0.	1.32	0.25	0.01	-	-
2100	19.87	16.20	-48.35	-51.81	0.	0.98	0.25	0.01	-	-
2250	11.56	8.30	-54.25	-58.15	0.	0.56	0.25	0.00	-	-
2400	1.96	-0.80	-54.25	-58.15	0.03	0.09	0.25	0.00	-	-
2550	-8.94	-11.11	-54.25	-58.15	0.54	0.	0.25	0.01	-	-
2700	-21.14	-23.18	-54.25	-58.15	1.14	0.	0.25	0.01	-	-
2750	-25.50	-27.57	-54.25	-58.15	1.36	0.	0.25	0.02	-	-
2850	-34.62	-36.79	-54.25	-58.15	1.36	0.	0.25	0.02	-	-
3000	-48.51	-51.69	-54.25	-58.15	1.36	0.	0.25	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-48.51	-51.69	40.17	36.39	1.59	0.	0.25	0.02	100	-
141	-37.33	-40.18	40.17	36.39	1.59	0.	0.25	0.02	-	-
250	-29.48	-32.07	40.17	36.39	1.59	0.	0.25	0.02	-	-
282	-27.31	-29.82	40.17	36.39	1.47	0.	0.25	0.02	-	-
423	-18.42	-20.95	40.17	36.39	1.03	0.	0.25	0.01	-	-
564	-10.67	-13.53	40.17	36.39	0.66	0.	0.25	0.01	-	-
705	-3.88	-7.23	40.17	36.39	0.35	0.	0.25	0.00	-	-
846	1.76	-1.99	36.94	33.39	0.09	0.08	0.25	0.00	-	-
987	6.25	2.19	28.81	25.83	0.	0.30	0.25	0.00	-	-
1128	9.60	5.30	20.69	18.26	0.	0.47	0.25	0.00	-	-
1269	11.80	7.34	12.56	10.16	0.	0.58	0.25	0.00	-	-
1410	12.86	8.32	4.43	2.04	0.	0.63	0.25	0.00	100	-
1551	12.77	8.22	-3.70	-6.09	0.	0.62	0.25	0.00	-	-
1692	11.53	7.07	-11.63	-14.22	0.	0.56	0.25	0.00	-	-
1833	9.15	4.84	-19.19	-22.35	0.	0.45	0.25	0.00	-	-
1974	5.62	1.55	-26.75	-30.47	0.	0.27	0.25	0.00	-	-
2115	0.95	-2.80	-29.76	-33.70	0.13	0.04	0.25	0.00	-	-
2256	-4.87	-8.23	-29.76	-33.70	0.40	0.	0.25	0.01	-	-
2397	-11.83	-14.71	-29.76	-33.70	0.72	0.	0.25	0.01	-	-
2538	-19.82	-22.71	-29.76	-33.70	1.12	0.	0.25	0.01	-	-
2570	-21.79	-24.76	-29.76	-33.70	1.22	0.	0.25	0.02	-	-
2679	-28.93	-32.17	-29.76	-33.70	1.22	0.	0.25	0.02	-	-
2820	-39.20	-42.76	-29.76	-33.70	1.22	0.	0.25	0.02	100	-
Span=3										
0	-39.20	-42.76	45.97	41.47	1.07	0.	0.25	0.01	100	-
162	-26.01	-28.70	45.97	41.47	1.07	0.	0.25	0.01	-	-
250	-19.17	-21.69	45.97	41.47	1.07	0.	0.25	0.01	-	-
324	-13.77	-16.14	45.97	41.47	0.79	0.	0.25	0.01	-	-
486	-3.05	-5.19	45.97	41.47	0.25	0.	0.25	0.00	-	-
648	6.17	3.47	45.97	41.47	0.	0.30	0.25	0.00	-	-
810	13.97	10.72	44.82	40.40	0.	0.68	0.25	0.01	-	-
972	20.35	16.56	35.48	31.71	0.	1.00	0.25	0.01	-	-
1134	25.21	20.99	26.14	23.02	0.	1.24	0.25	0.01	-	-
1296	28.56	24.02	16.81	14.33	0.	1.41	0.25	0.01	-	-
1458	30.39	25.64	7.47	5.51	0.	1.50	0.25	0.01	-	-
1620	30.71	25.85	-1.87	-3.83	0.	1.51	0.25	0.01	100	-
1782	29.52	24.65	-11.21	-13.17	0.	1.45	0.25	0.01	-	-
1944	26.82	22.04	-20.37	-22.51	0.	1.32	0.25	0.01	-	-
2106	22.60	18.03	-29.06	-31.84	0.	1.11	0.25	0.01	-	-
2268	16.87	12.61	-37.75	-41.18	0.	0.83	0.25	0.01	-	-
2430	9.63	5.78	-46.44	-50.52	0.	0.47	0.25	0.00	-	-
2592	0.88	-2.46	-47.52	-51.67	0.12	0.04	0.25	0.00	-	-
2754	-9.34	-12.10	-47.52	-51.67	0.59	0.	0.25	0.01	-	-
2916	-20.98	-23.70	-47.52	-51.67	1.17	0.	0.25	0.01	-	-
2990	-26.81	-29.67	-47.52	-51.67	1.47	0.	0.25	0.02	-	-
3078	-34.14	-37.18	-47.52	-51.67	1.47	0.	0.25	0.02	-	-
3240	-48.82	-52.17	-47.52	-51.67	1.47	0.	0.25	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-48.82	-52.17	47.25	42.92	1.52	0.	0.25	0.02	100	-
162	-34.95	-37.90	47.25	42.92	1.52	0.	0.25	0.02	-	-
250	-28.00	-30.78	47.25	42.92	1.52	0.	0.25	0.02	-	-
324	-22.51	-25.14	47.25	42.92	1.24	0.	0.25	0.02	-	-
486	-11.58	-14.14	47.25	42.92	0.69	0.	0.25	0.01	-	-
648	-2.08	-5.25	47.25	42.92	0.25	0.	0.25	0.00	-	-
810	5.99	2.24	46.09	41.85	0.	0.29	0.25	0.00	-	-
972	12.54	8.32	36.76	33.16	0.	0.61	0.25	0.00	-	-
1134	17.58	12.99	27.42	24.47	0.	0.86	0.25	0.01	-	-
1296	21.11	16.25	18.08	15.78	0.	1.04	0.25	0.01	-	-
1458	23.13	18.10	8.74	6.76	0.	1.14	0.25	0.01	-	-
1620	23.63	18.55	-0.59	-2.58	0.	1.16	0.25	0.01	100	-
1782	22.62	17.59	-9.93	-11.92	0.	1.11	0.25	0.01	-	-
1944	20.10	15.22	-18.97	-21.25	0.	0.99	0.25	0.01	-	-
2106	16.07	11.44	-27.66	-30.59	0.	0.79	0.25	0.01	-	-
2268	10.52	6.26	-36.35	-39.93	0.	0.51	0.25	0.00	-	-
2430	3.46	-0.33	-45.04	-49.27	0.01	0.17	0.25	0.00	-	-
2592	-5.11	-8.33	-46.11	-50.42	0.41	0.	0.25	0.01	-	-
2754	-15.19	-17.74	-46.11	-50.42	0.87	0.	0.25	0.01	-	-
2916	-26.68	-29.19	-46.11	-50.42	1.44	0.	0.25	0.02	-	-
2990	-32.41	-35.07	-46.11	-50.42	1.74	0.	0.25	0.02	-	-
3078	-39.63	-42.47	-46.11	-50.42	1.74	0.	0.25	0.02	-	-
3240	-54.01	-57.25	-46.11	-50.42	1.74	0.	0.25	0.02	100	-
Span=5										
0	-54.01	-57.25	57.58	53.52	1.65	0.	0.25	0.02	100	-
166	-37.98	-40.93	57.58	53.52	1.65	0.	0.25	0.02	-	-
250	-30.47	-33.28	57.58	53.52	1.65	0.	0.25	0.02	-	-
333	-23.46	-26.11	57.58	53.52	1.29	0.	0.25	0.02	-	-
499	-10.62	-13.35	57.58	53.52	0.65	0.	0.25	0.01	-	-
666	0.78	-2.55	57.58	53.52	0.12	0.03	0.25	0.00	-	-
832	10.55	6.70	55.15	51.27	0.	0.51	0.25	0.00	-	-
999	18.79	14.51	45.53	42.31	0.	0.92	0.25	0.01	-	-
1165	25.37	20.80	35.96	33.41	0.	1.25	0.25	0.01	-	-
1332	30.40	25.63	26.33	24.45	0.	1.50	0.25	0.01	-	-
1498	33.80	28.95	16.77	14.99	0.	1.67	0.25	0.01	-	-
1665	35.62	30.79	7.14	5.36	0.	1.76	0.25	0.01	100	-
1831	35.84	31.15	-2.16	-4.21	0.	1.77	0.25	0.01	-	-
1998	34.46	30.01	-11.12	-13.83	0.	1.70	0.25	0.01	-	-
2164	31.49	27.40	-20.03	-23.40	0.	1.55	0.25	0.01	-	-
2331	26.90	23.29	-28.98	-33.03	0.	1.32	0.25	0.01	-	-
2497	20.74	17.71	-37.89	-42.60	0.	1.02	0.25	0.01	-	-
2664	12.94	10.61	-40.19	-45.07	0.	0.63	0.25	0.00	-	-
2830	3.73	1.95	-40.19	-45.07	0.	0.18	0.25	0.00	-	-
2997	-7.09	-9.18	-40.19	-45.07	0.45	0.	0.25	0.01	-	-
3080	-12.69	-15.30	-40.19	-45.07	0.75	0.	0.25	0.01	-	-
3163	-18.61	-21.83	-40.19	-45.07	0.75	0.	0.25	0.01	-	-
3330	-31.65	-36.15	-40.19	-45.07	0.75	0.	0.25	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=6										
0	-31.65	-36.15	13.20	8.64	1.15	0.	0.25	0.01	100	-
113	-25.90	-29.88	13.20	8.64	1.15	0.	0.25	0.01	-	-
226	-20.88	-24.35	13.20	8.64	1.15	0.	0.25	0.01	-	-
250	-19.91	-23.27	13.20	8.64	1.15	0.	0.25	0.01	-	-
339	-16.60	-19.78	13.20	8.64	0.97	0.	0.25	0.01	-	-
452	-12.75	-16.37	13.20	8.64	0.80	0.	0.25	0.01	-	-
565	-9.63	-13.64	13.20	8.64	0.67	0.	0.25	0.01	-	-
678	-7.25	-11.60	13.20	8.64	0.57	0.	0.25	0.01	-	-
791	-5.60	-10.24	13.14	8.58	0.50	0.	0.25	0.01	-	-
904	-4.69	-9.57	6.62	2.07	0.47	0.	0.25	0.01	-	-
1017	-4.51	-9.58	0.11	-4.44	0.47	0.	0.25	0.01	-	-
1130	-5.07	-10.28	-6.40	-10.96	0.50	0.	0.25	0.01	100	-
1243	-6.37	-11.66	-12.92	-17.47	0.57	0.	0.25	0.01	-	-
1356	-8.40	-13.72	-19.43	-23.98	0.67	0.	0.25	0.01	-	-
1469	-11.17	-16.47	-25.94	-30.50	0.81	0.	0.25	0.01	-	-
1582	-14.68	-19.91	-26.00	-30.56	0.98	0.	0.25	0.01	-	-
1695	-18.92	-24.03	-26.00	-30.56	1.18	0.	0.25	0.02	-	-
1808	-23.90	-28.84	-26.00	-30.56	1.43	0.	0.25	0.02	-	-
1921	-29.61	-34.33	-26.00	-30.56	1.70	0.	0.25	0.02	-	-
2010	-34.54	-39.20	-26.00	-30.56	1.95	0.	0.25	0.02	-	-
2034	-35.93	-40.69	-26.00	-30.56	1.95	0.	0.25	0.02	-	-
2147	-42.91	-48.19	-26.00	-30.56	1.95	0.	0.25	0.02	-	-
2260	-50.62	-56.42	-26.00	-30.56	1.95	0.	0.25	0.02	100	-
Span=7										
0	-50.62	-56.42	64.46	58.26	1.52	0.	0.25	0.02	100	-
199	-31.66	-35.67	64.46	58.26	1.52	0.	0.25	0.02	-	-
250	-27.14	-30.72	64.46	58.26	1.52	0.	0.25	0.02	-	-
398	-14.82	-17.21	64.46	58.26	0.85	0.	0.25	0.01	-	-
597	0.49	-1.02	64.46	58.26	0.05	0.02	0.25	0.00	-	-
796	14.08	11.99	64.11	57.93	0.	0.69	0.25	0.01	-	-
995	25.52	22.47	52.64	47.26	0.	1.25	0.25	0.01	-	-
1194	34.76	30.82	41.17	36.59	0.	1.71	0.25	0.01	-	-
1393	41.71	37.05	29.70	25.91	0.	2.06	0.25	0.02	-	-
1592	46.38	41.15	18.23	15.24	0.	2.29	0.25	0.02	-	-
1791	48.77	43.13	6.76	4.56	0.	2.41	0.25	0.02	-	-
1990	48.88	42.99	-4.71	-6.26	0.	2.42	0.25	0.02	100	-
2189	46.70	40.72	-16.18	-17.73	0.	2.31	0.25	0.02	-	-
2388	42.25	36.33	-27.41	-29.20	0.	2.09	0.25	0.02	-	-
2587	35.50	29.81	-38.08	-40.67	0.	1.75	0.25	0.01	-	-
2786	26.48	21.17	-48.76	-52.14	0.	1.30	0.25	0.01	-	-
2985	15.18	10.41	-59.43	-63.61	0.	0.74	0.25	0.01	-	-
3184	1.62	-2.48	-70.10	-75.08	0.12	0.07	0.25	0.00	-	-
3383	-14.15	-17.49	-70.43	-75.43	0.86	0.	0.25	0.01	-	-
3582	-32.21	-35.31	-70.43	-75.43	1.75	0.	0.25	0.02	-	-
3730	-47.12	-50.45	-70.43	-75.43	2.51	0.	0.25	0.03	-	-
3781	-52.55	-55.96	-70.43	-75.43	2.51	0.	0.25	0.03	-	-
3980	-74.95	-78.89	-70.43	-75.43	2.51	0.	0.25	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=8										
0	-74.95	-78.89	66.95	61.95	2.62	0.	0.25	0.03	100	-
186	-55.37	-58.97	66.95	61.95	2.62	0.	0.25	0.03	-	-
250	-49.09	-52.57	66.95	61.95	2.62	0.	0.25	0.03	-	-
371	-37.87	-41.13	66.95	61.95	2.04	0.	0.25	0.03	-	-
557	-22.26	-25.73	66.95	61.95	1.27	0.	0.25	0.02	-	-
742	-8.61	-12.84	66.95	61.95	0.63	0.	0.25	0.01	-	-
928	3.13	-1.74	58.99	54.55	0.08	0.15	0.25	0.00	-	-
1113	12.83	7.46	48.33	44.62	0.	0.63	0.25	0.00	-	-
1299	20.59	14.86	37.61	34.65	0.	1.01	0.25	0.01	-	-
1484	26.33	20.37	26.94	24.72	0.	1.30	0.25	0.01	-	-
1670	30.11	24.07	16.22	14.37	0.	1.48	0.25	0.01	-	-
1855	31.89	25.91	5.56	3.70	0.	1.57	0.25	0.01	100	-
2041	31.70	25.90	-5.01	-7.02	0.	1.56	0.25	0.01	-	-
2226	29.53	24.06	-14.93	-17.68	0.	1.45	0.25	0.01	-	-
2412	25.36	20.35	-24.91	-28.40	0.	1.25	0.25	0.01	-	-
2597	19.23	14.83	-34.83	-39.07	0.	0.94	0.25	0.01	-	-
2783	11.08	7.42	-44.81	-49.79	0.	0.54	0.25	0.00	-	-
2968	1.08	-1.80	-52.16	-57.68	0.08	0.05	0.25	0.00	-	-
3154	-10.81	-12.94	-52.16	-57.68	0.63	0.	0.25	0.01	-	-
3339	-24.62	-26.89	-52.16	-57.68	1.33	0.	0.25	0.02	-	-
3460	-34.72	-37.21	-52.16	-57.68	1.85	0.	0.25	0.02	-	-
3525	-40.50	-43.10	-52.16	-57.68	1.85	0.	0.25	0.02	-	-
3710	-57.17	-61.21	-52.16	-57.68	1.85	0.	0.25	0.02	100	-
Span=9										
0	-57.17	-61.21	59.15	55.49	1.83	0.	0.25	0.02	100	-
145	-42.80	-46.64	59.15	55.49	1.83	0.	0.25	0.02	-	-
250	-33.15	-36.84	59.15	55.49	1.83	0.	0.25	0.02	-	-
290	-29.64	-33.28	59.15	55.49	1.65	0.	0.25	0.02	-	-
435	-17.69	-21.63	59.15	55.49	1.06	0.	0.25	0.01	-	-
580	-6.96	-11.33	59.15	55.49	0.55	0.	0.25	0.01	-	-
725	2.57	-2.17	59.15	55.49	0.10	0.12	0.25	0.00	-	-
870	10.88	5.87	54.54	51.20	0.	0.53	0.25	0.00	-	-
1015	17.98	12.78	46.18	43.42	0.	0.88	0.25	0.01	-	-
1160	23.87	18.57	37.82	35.65	0.	1.17	0.25	0.01	-	-
1305	28.55	23.22	29.47	27.87	0.	1.41	0.25	0.01	-	-
1450	32.01	26.75	21.11	19.71	0.	1.58	0.25	0.01	100	-
1595	34.26	29.15	12.75	11.36	0.	1.69	0.25	0.01	-	-
1740	35.30	30.42	4.88	3.00	0.	1.74	0.25	0.01	-	-
1885	35.13	30.57	-2.89	-5.36	0.	1.73	0.25	0.01	-	-
2030	33.75	29.58	-10.67	-13.72	0.	1.66	0.25	0.01	-	-
2175	31.15	27.47	-14.96	-18.33	0.	1.53	0.25	0.01	-	-
2320	27.35	24.23	-14.96	-18.33	0.	1.35	0.25	0.01	-	-
2465	22.33	19.87	-14.96	-18.33	0.	1.10	0.25	0.01	-	-
2610	16.10	14.37	-14.96	-18.33	0.	0.79	0.25	0.01	-	-
2650	14.16	12.66	-14.96	-18.33	0.	0.69	0.25	0.01	-	-
2755	8.65	7.75	-14.96	-18.33	0.	0.42	0.25	0.00	-	-
2900	0.00	0.00	-14.96	-18.33	0.	0.	0.25	0.00	100	-

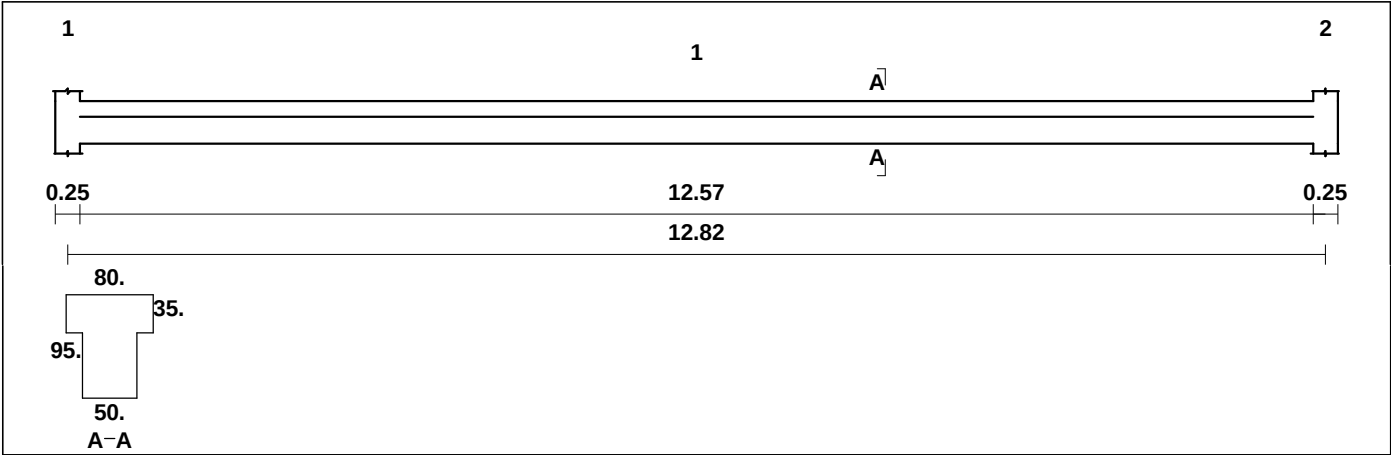
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Moment / Shear Envelope (Factored) Units:kN,meter									
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-51.7	-51.7	-42.8	-42.8	-52.2	-52.2	-57.3	
Max M	0.0	-48.5	-48.5	-39.2	-39.2	-48.8	-48.8	-54.0	
MspMn		-27.6	-32.1	-24.8	-21.7	-29.7	-30.8	-35.1	
MspMx		-25.5	-29.5	-21.8	-19.2	-26.8	-28.0	-32.4	
M Max			12.9		30.7		23.6		
M Min			8.3		25.8		18.6		
Mmn=0 @	0.0	0.6	0.9	0.8	0.6	0.7	0.8	0.8	
Mmx=0 @	0.0	0.6	0.8	0.7	0.5	0.6	0.7	0.7	
mx -M @			0.8		0.5		0.7		
mx +M @			1.4		1.6		1.6		
V max		-96.6	-72.1		-89.9		-88.5		
V min		-103.7	-79.2		-97.2		-96.0		
DReac		175.1	156.6		175.0		183.8		
LReac	5.4	14.3	14.1		15.0		15.2		
Max R		189.4	170.7		190.0		199.1		
Min R		179.9	160.7		180.5		189.8		
	5	6	7	8	9				
Min M	-57.3	-36.2	-36.2	-56.4	-56.4	-78.9	-78.9	-61.2	
Max M	-54.0	-31.7	-31.7	-50.6	-50.6	-74.9	-74.9	-57.2	
MspMn	-33.3	-15.3	-23.3	-39.2	-30.7	-50.5	-52.6	-37.2	
MspMx	-30.5	-12.7	-19.9	-34.5	-27.1	-47.1	-49.1	-34.7	
M Max			-4.5		48.9		31.9		
M Min			-9.6		43.1		25.9		
Mmn=0 @	0.7	0.5	0.0	2.3	0.6	0.8	1.0	0.8	
Mmx=0 @	0.7	0.4	0.0	2.3	0.6	0.8	0.9	0.7	
mx -M @			0.0		0.6		0.9		
mx +M @			1.0		2.0		1.9		
V max		-82.6	-69.7		-112.8		-94.5		
V min		-90.6	-76.1		-121.0		-103.2		
DReac		135.4	170.3		216.1		192.2		
LReac		13.9	15.8		17.3		15.7		
Max R		149.3	186.1		233.4		207.9		
Min R		136.7	172.2		223.5		197.8		
	9	10							
Min M	-61.2	0.0							
Max M	-57.2	0.0							
MspMn	-36.8	12.7							
MspMx	-33.1	14.2							
M Max									
M Min									
Mmn=0 @	0.8	2.9							
Mmx=0 @	0.7	2.9							
mx -M @									
mx +M @									
V max		-57.3							
V min		-63.9							
DReac		58.4							
LReac		5.4							
Max R		63.9							
Min R		57.3							

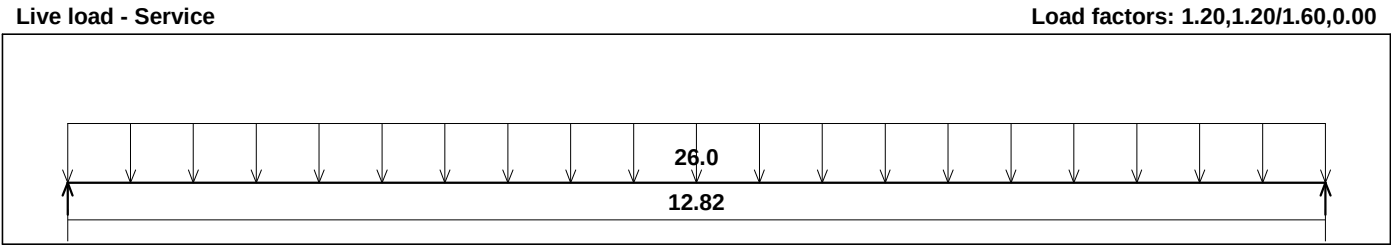
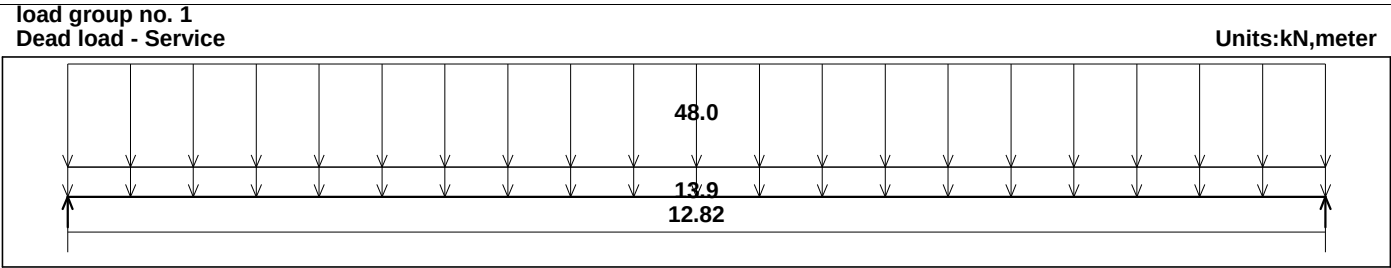
Beam 12T	Code: ACI318-02
Project: BAEMS	Page: 250
Designed by: bayan	Date: 4/ 7/14

Geometry

Units:meter,cm



Loading

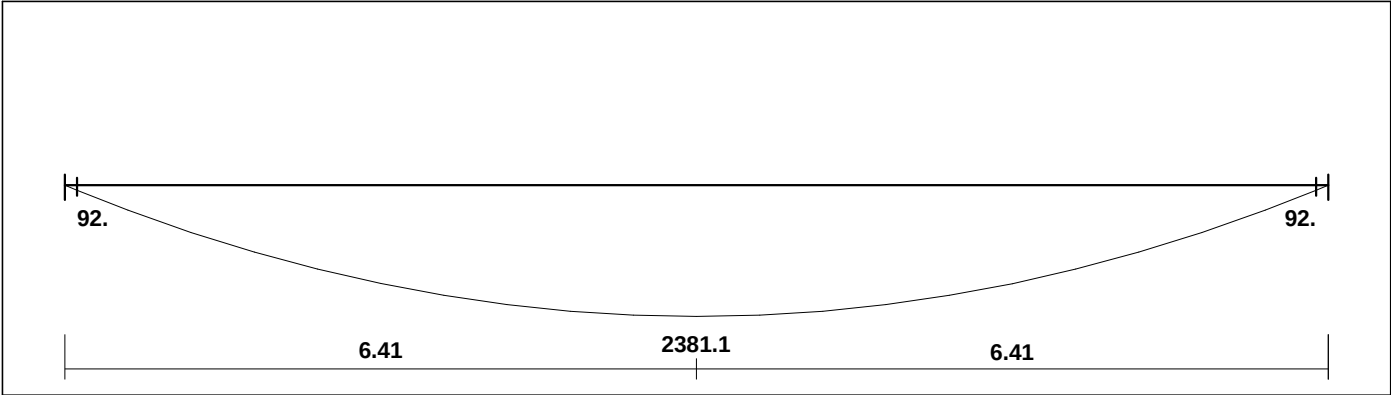


Loads	(kN,meter)
1	
Self.Wt.	13.92
Uni D	48.00
L	26.00

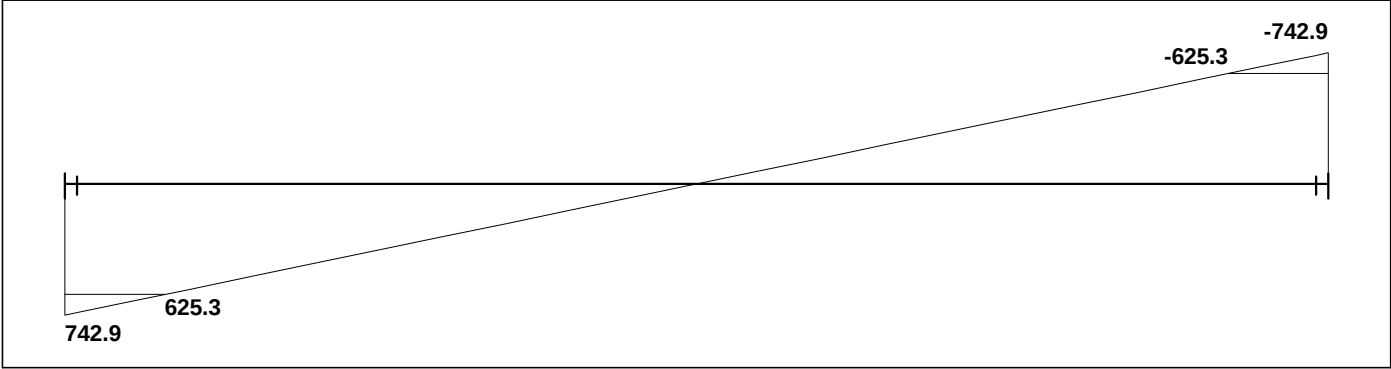
Beam 12T	Code: ACI318-02
Project: BAEMS	Page: 251
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	476.29	476.29
LiveR	266.66	266.66
Max R	742.94	742.94
Min R	742.94	742.94
Service		
DeadR	396.91	396.91
LiveR	166.66	166.66
Max R	563.57	563.57
Min R	563.57	563.57

Beam 12T	Code: ACI318-02
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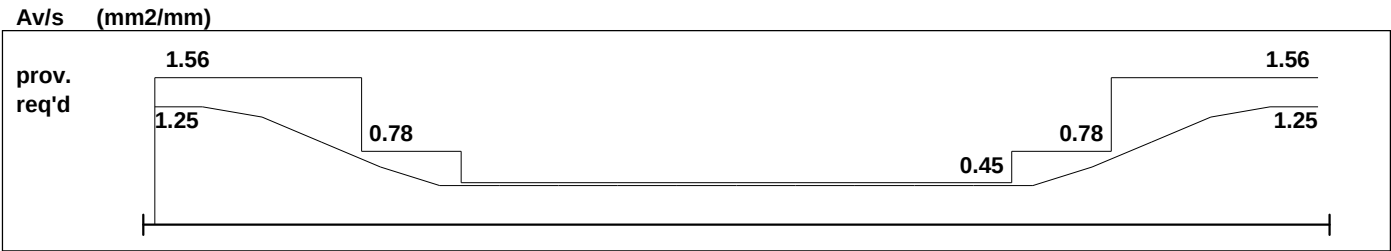
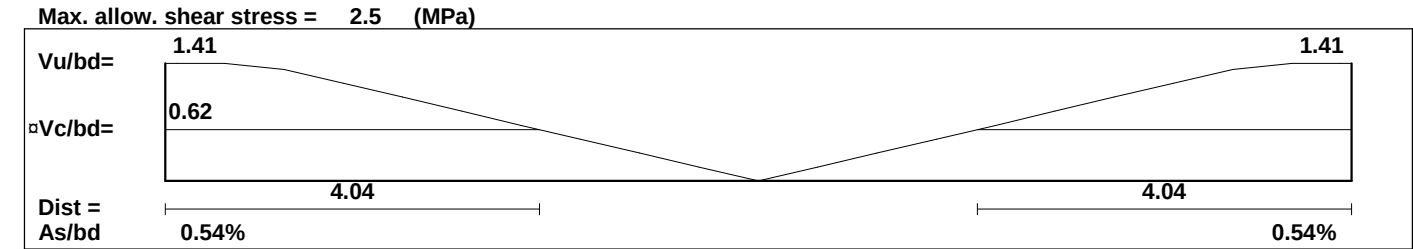
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

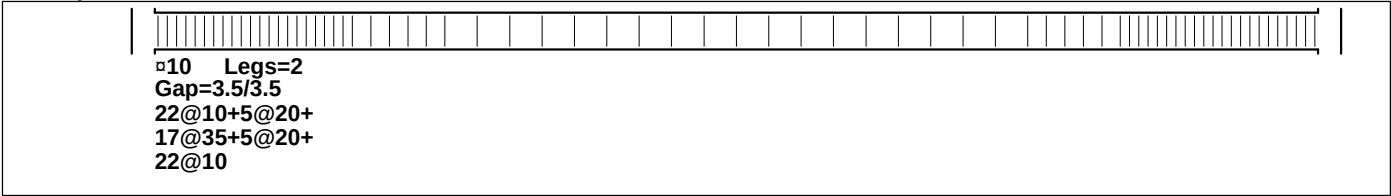
Top Cover	6.		
As top = *=minimum			
As bot =	24.09	80.31	24.09
Bot Cover	6.		
a/d	1%	23%	1%
As/bd	0.00%	1.80%	0.00%

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Legs: 2/4
Max no. of groups: 5
Max. =Code
Inverted T/L shear area: Web



Stirrups



Beam 12T	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	80.31	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.03203

Mcr = 259.18
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 826.86

Ie,d (m^4)= 0.03214
Ie,d+l (m^4)= 0.03207
Ie,sust (m^4)= 0.03242

e/1+50r = 2.00/0.80
ai,d = 28.833
ai,l = 12.195
at,sust = 22.311
ai,l = L/ 1051
(ai+at),t2-t1 L/ 287

—

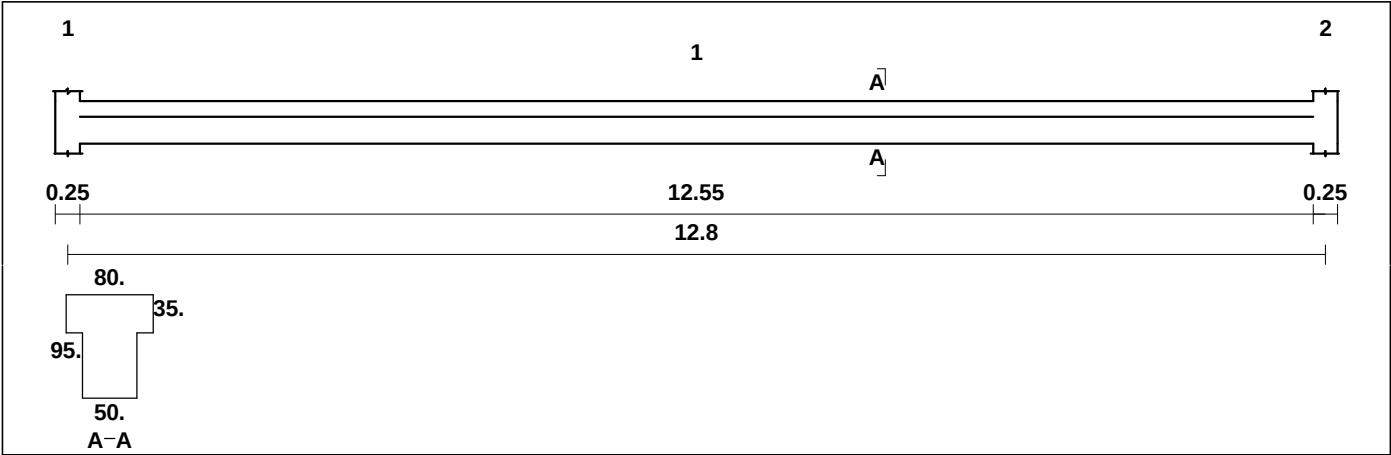
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	625.30	625.30	0.	0.	1.25	0.00	100	-
125	91.96	91.96	625.30	625.30	0.	2.75	1.25	0.01	-	-
641	452.42	452.42	625.30	625.30	0.	13.76	1.25	0.04	-	-
1282	857.21	857.21	594.36	594.36	0.	26.57	1.14	0.08	-	-
1923	1214.4	1214.4	520.06	520.06	0.	38.33	0.88	0.11	-	-
2564	1523.9	1523.9	445.77	445.77	0.	48.89	0.61	0.14	-	-
3205	1785.9	1785.9	371.47	371.47	0.	58.12	0.42	0.17	-	-
3846	2000.2	2000.2	297.18	297.18	0.	65.91	0.42	0.19	-	-
4487	2166.8	2166.8	222.88	222.88	0.	72.12	0.42	0.21	-	-
5128	2285.9	2285.9	148.59	148.59	0.	76.64	0.42	0.22	-	-
5769	2357.3	2357.3	74.29	74.29	0.	79.39	0.42	0.23	-	-
6410	2381.1	2381.1	0.00	0.00	0.	80.31	0.42	0.23	100	-
7051	2357.3	2357.3	-74.29	-74.29	0.	79.39	0.42	0.23	-	-
7692	2285.9	2285.9	-148.59	-148.59	0.	76.64	0.42	0.22	-	-
8333	2166.8	2166.8	-222.88	-222.88	0.	72.12	0.42	0.21	-	-
8974	2000.2	2000.2	-297.18	-297.18	0.	65.91	0.42	0.19	-	-
9615	1785.9	1785.9	-371.47	-371.47	0.	58.12	0.42	0.17	-	-
1025	1523.9	1523.9	-445.77	-445.77	0.	48.89	0.61	0.14	-	-
1089	1214.4	1214.4	-520.06	-520.06	0.	38.33	0.88	0.11	-	-
1153	857.21	857.21	-594.36	-594.36	0.	26.57	1.14	0.08	-	-
1217	452.42	452.42	-625.30	-625.30	0.	13.76	1.25	0.04	-	-
1269	91.96	91.96	-625.30	-625.30	0.	2.75	1.25	0.01	-	-
1282	0.00	0.00	-625.30	-625.30	0.	0.	1.25	0.00	100	-

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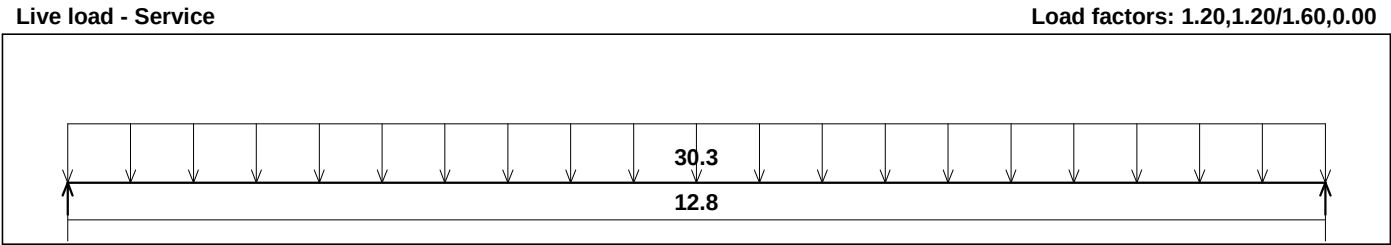
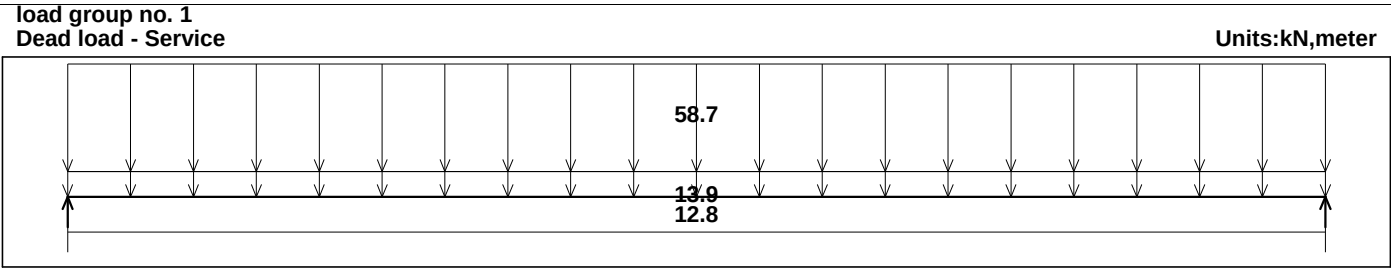
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		92.0
MspMx		92.0
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-742.9
V min		-742.9
DReac		476.3
LReac		266.7
Max R		742.9
Min R		742.9

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Geometry Units:meter,cm



Loading

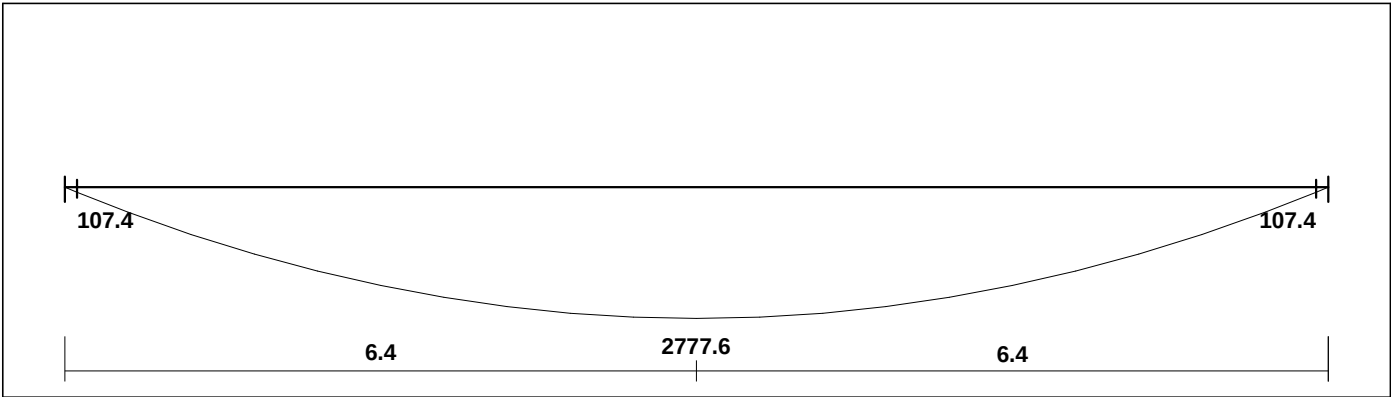


Loads	(kN,meter)
1	
Self.Wt.	13.92
Uni D	58.70
L	30.30

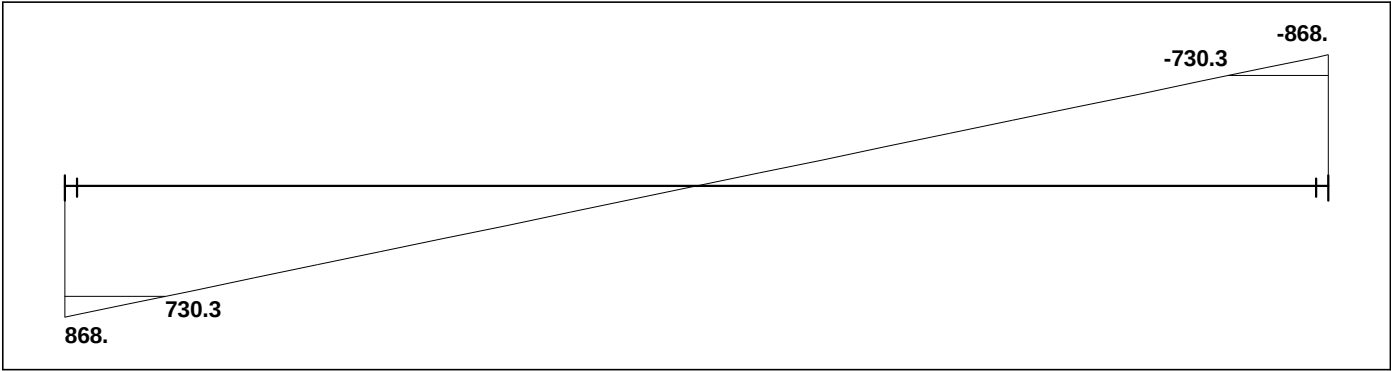
Beam 13	Code: ACI318-02
Project: BAEMS	Page: 255
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	557.72	557.72
LiveR	310.27	310.27
Max R	867.99	867.99
Min R	867.99	867.99
Service		
DeadR	464.77	464.77
LiveR	193.92	193.92
Max R	658.69	658.69
Min R	658.69	658.69

Beam 13	Code: ACI318-02
Project: BAEMS	Page: 256
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Reinforcement (cm 2)

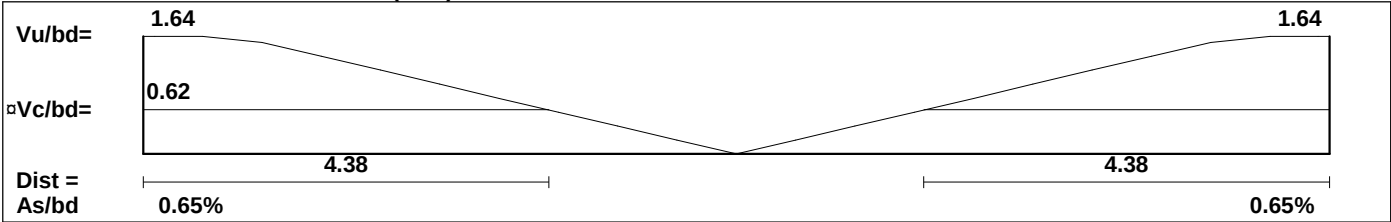
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

Top Cover	6.		
As top = *=minimum			
As bot =	28.85	96.18	28.85
Bot Cover	6.		
a/d	1%	28%	1%
As/bd	0.00%	2.16%	0.00%

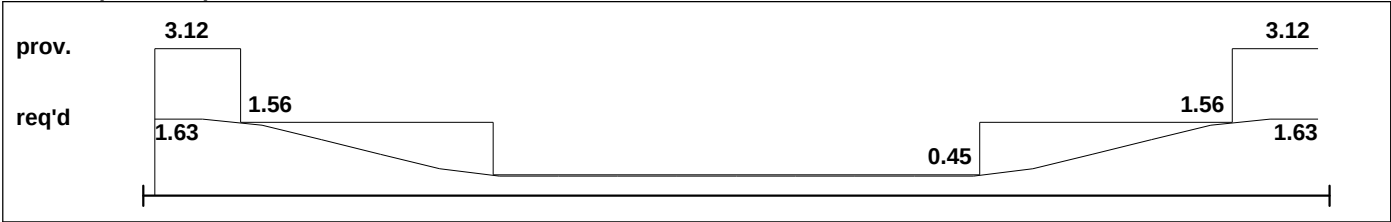
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

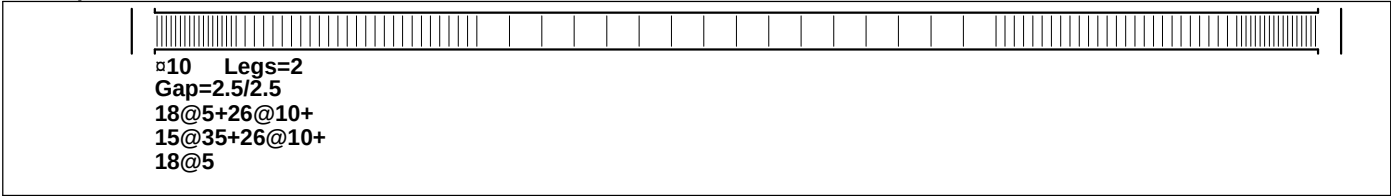
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	96.18	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.03645

Mcr = 259.18
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 966.72

Ie,d (m^4)= 0.03650
Ie,d+l (m^4)= 0.03647
Ie,sust (m^4)= 0.03661

e/1+50r = 2.00/0.80
ai,d = 29.593
ai,l = 12.379
at,sust = 23.027
ai,l = L/ 1033
(ai+at),t2-t1 L/ 279

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	730.34	730.34	0.	0.	1.63	0.00	100	-
125	107.44	107.44	730.34	730.34	0.	3.21	1.63	0.01	-	-
640	527.74	527.74	730.34	730.34	0.	16.10	1.63	0.05	-	-
1280	999.9	999.9	694.40	694.40	0.	31.22	1.50	0.09	-	-
1920	1416.6	1416.6	607.60	607.60	0.	45.18	1.19	0.13	-	-
2560	1777.7	1777.7	520.80	520.80	0.	57.83	0.88	0.17	-	-
3200	2083.2	2083.2	434.00	434.00	0.	68.98	0.57	0.20	-	-
3840	2333.2	2333.2	347.20	347.20	0.	78.46	0.42	0.23	-	-
4480	2527.6	2527.6	260.40	260.40	0.	86.06	0.42	0.25	-	-
5120	2666.5	2666.5	173.60	173.60	0.	91.64	0.42	0.26	-	-
5760	2749.8	2749.8	86.80	86.80	0.	95.04	0.42	0.27	-	-
6400	2777.6	2777.6	0.00	0.00	0.	96.18	0.42	0.28	100	-
7040	2749.8	2749.8	-86.80	-86.80	0.	95.04	0.42	0.27	-	-
7680	2666.5	2666.5	-173.60	-173.60	0.	91.64	0.42	0.26	-	-
8320	2527.6	2527.6	-260.40	-260.40	0.	86.06	0.42	0.25	-	-
8960	2333.2	2333.2	-347.20	-347.20	0.	78.46	0.42	0.23	-	-
9600	2083.2	2083.2	-434.00	-434.00	0.	68.98	0.57	0.20	-	-
1024	1777.7	1777.7	-520.80	-520.80	0.	57.83	0.88	0.17	-	-
1088	1416.6	1416.6	-607.60	-607.60	0.	45.18	1.19	0.13	-	-
1152	999.9	999.9	-694.39	-694.39	0.	31.22	1.50	0.09	-	-
1216	527.74	527.74	-730.34	-730.34	0.	16.10	1.63	0.05	-	-
1267	107.44	107.44	-730.34	-730.34	0.	3.21	1.63	0.01	-	-
1280	0.00	0.00	-730.34	-730.34	0.	0.	1.63	0.00	100	-

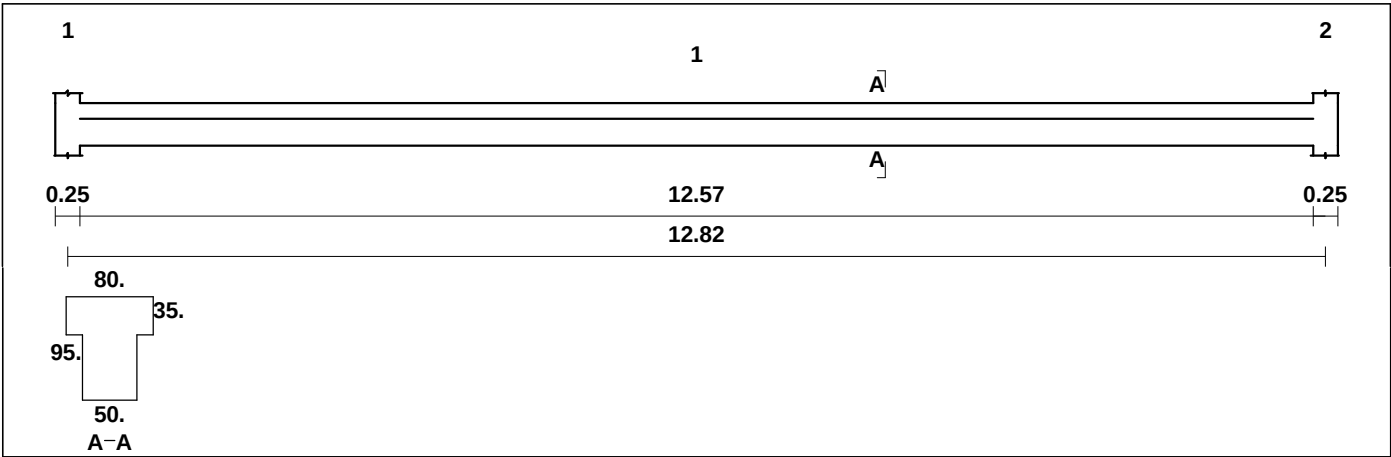
Beam 13	Code: ACI318-02
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M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)		Units:kN,meter
	1 2	
	1	

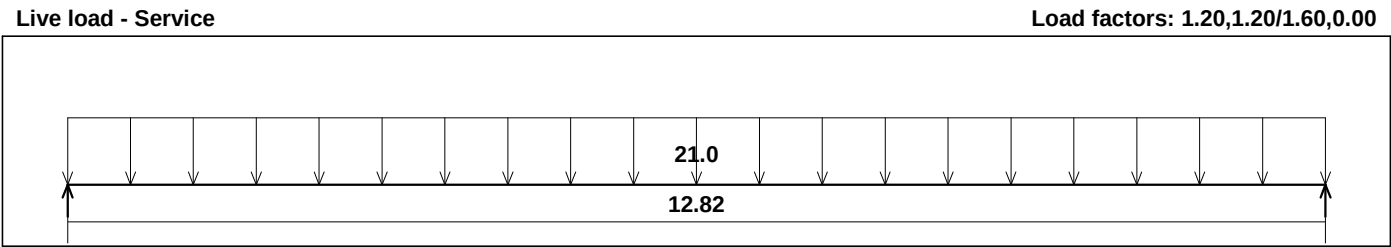
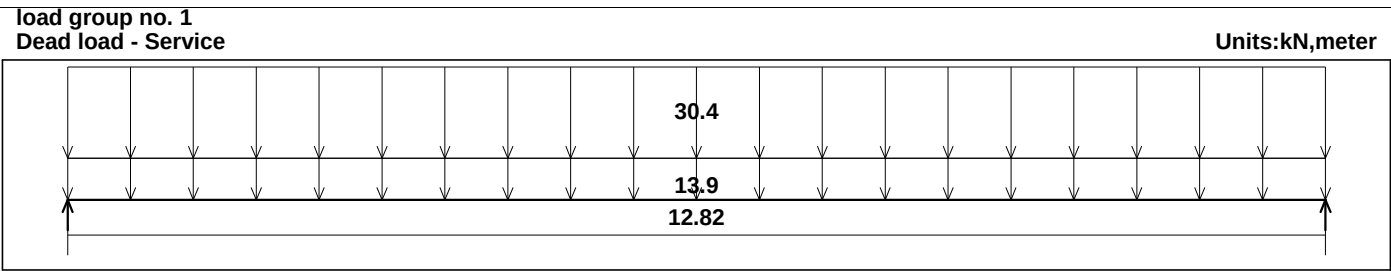
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		107.4
MspMx		107.4
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-868.0
V min		-868.0
DReac		557.7
LReac		310.3
Max R		868.0
Min R		868.0

Beam 14	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

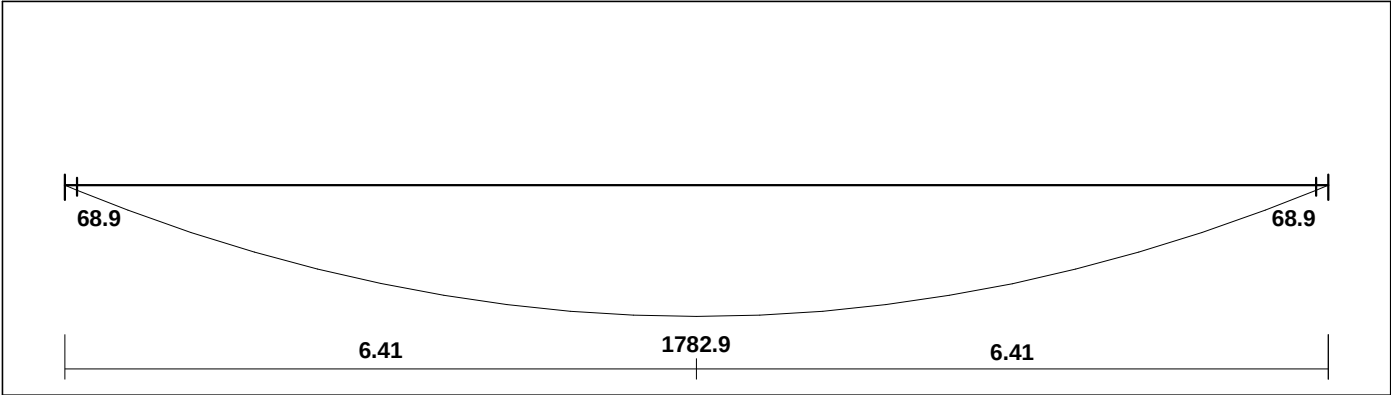


Loads	(kN,meter)
1	
Self.Wt.	13.92
Uni D	30.40
L	21.00

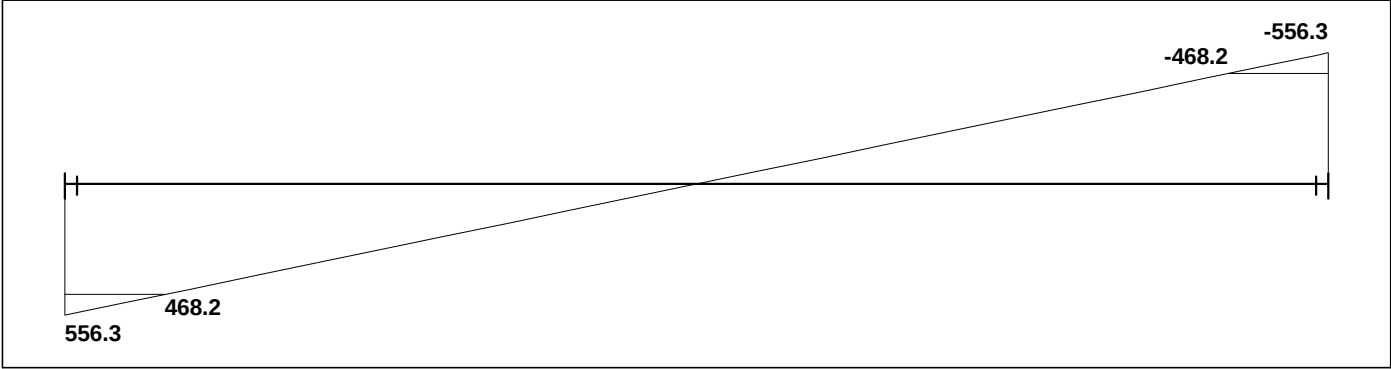
Beam 14	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

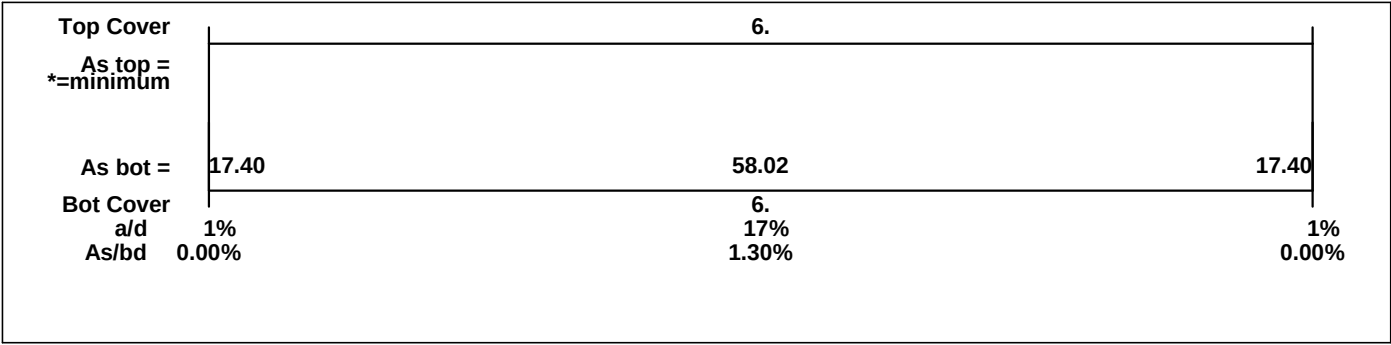
Factored

DeadR	340.91	340.91
LiveR	215.38	215.38
Max R	556.29	556.29
Min R	556.29	556.29
Service		
DeadR	284.09	284.09
LiveR	134.61	134.61
Max R	418.7	418.7
Min R	418.7	418.7

Beam 14	Code: ACI318-02
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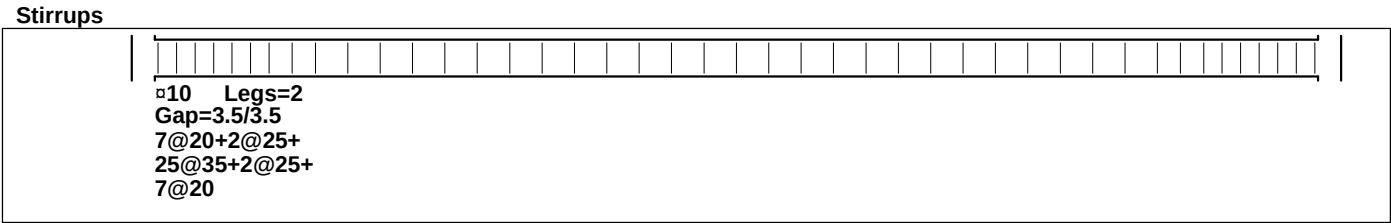
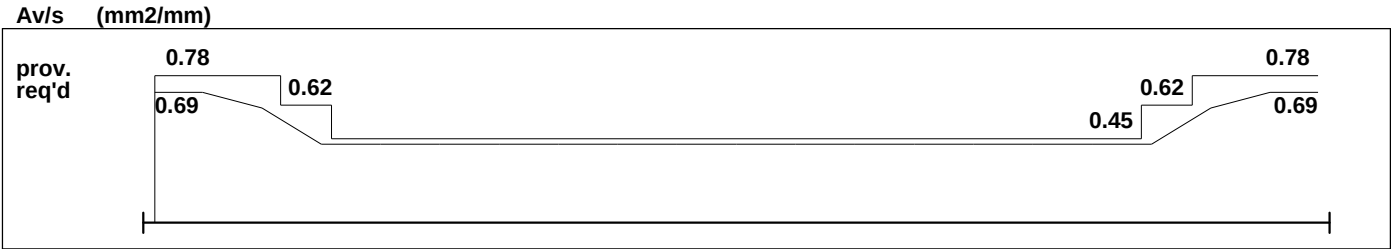
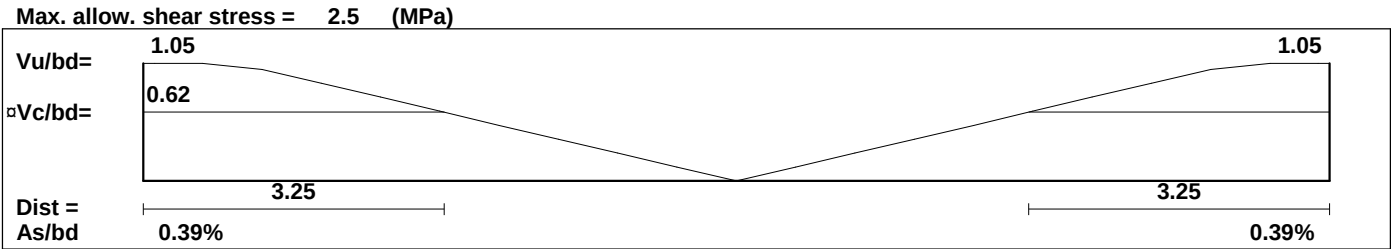
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 14	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	58.02	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.02513

Mcr = 259.18
Mmax,d = 910.51
Mmax,d+l = *****
Mmax,sust = 591.83

Ie,d (m^4)= 0.02557
Ie,d+l (m^4)= 0.02527
Ie,sust (m^4)= 0.02676

e/1+50r = 2.00/0.80
ai,d = 25.934
ai,l = 12.754
at,sust = 19.348
ai,l = L/ 1005
(ai+at),t2-t1 L/ 311

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	468.20	468.20	0.	0.	0.69	0.00	100	-
125	68.86	68.86	468.20	468.20	0.	2.05	0.69	0.01	-	-
641	338.75	338.75	468.20	468.20	0.	10.25	0.69	0.03	-	-
1282	641.84	641.84	445.03	445.03	0.	19.69	0.61	0.06	-	-
1923	909.28	909.28	389.40	389.40	0.	28.26	0.42	0.08	-	-
2564	1141.1	1141.1	333.77	333.77	0.	35.88	0.42	0.10	-	-
3205	1337.2	1337.2	278.14	278.14	0.	42.47	0.42	0.12	-	-
3846	1497.6	1497.6	222.51	222.51	0.	47.97	0.42	0.14	-	-
4487	1622.4	1622.4	166.89	166.89	0.	52.33	0.42	0.15	-	-
5128	1711.6	1711.6	111.26	111.26	0.	55.47	0.42	0.16	-	-
5769	1765.1	1765.1	55.63	55.63	0.	57.38	0.42	0.17	-	-
6410	1782.9	1782.9	0.00	0.00	0.	58.02	0.42	0.17	100	-
7051	1765.1	1765.1	-55.63	-55.63	0.	57.38	0.42	0.17	-	-
7692	1711.6	1711.6	-111.26	-111.26	0.	55.47	0.42	0.16	-	-
8333	1622.4	1622.4	-166.89	-166.89	0.	52.33	0.42	0.15	-	-
8974	1497.6	1497.6	-222.51	-222.51	0.	47.97	0.42	0.14	-	-
9615	1337.2	1337.2	-278.14	-278.14	0.	42.47	0.42	0.12	-	-
1025	1141.1	1141.1	-333.77	-333.77	0.	35.88	0.42	0.10	-	-
1089	909.28	909.28	-389.40	-389.40	0.	28.26	0.42	0.08	-	-
1153	641.84	641.84	-445.03	-445.03	0.	19.69	0.61	0.06	-	-
1217	338.75	338.75	-468.20	-468.20	0.	10.25	0.69	0.03	-	-
1269	68.86	68.86	-468.20	-468.20	0.	2.05	0.69	0.01	-	-
1282	0.00	0.00	-468.20	-468.20	0.	0.	0.69	0.00	100	-

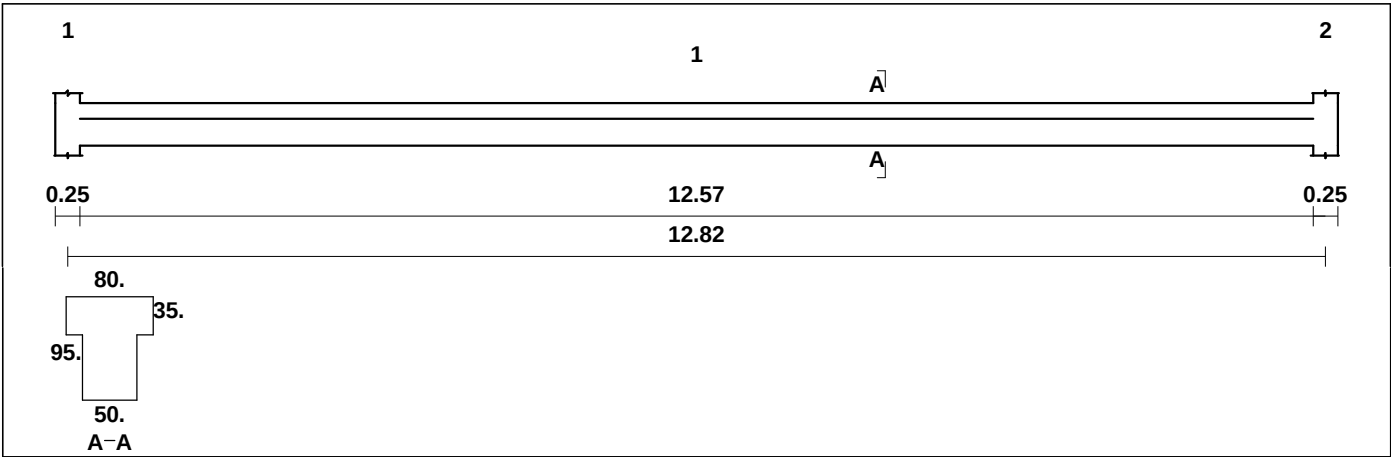
Beam 14	Code: ACI318-02
Project: BAEMS	Page: 262
Designed by: bayan	Date: 4/ 7/14

M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)		Units:kN,meter
	1 2	
	1	

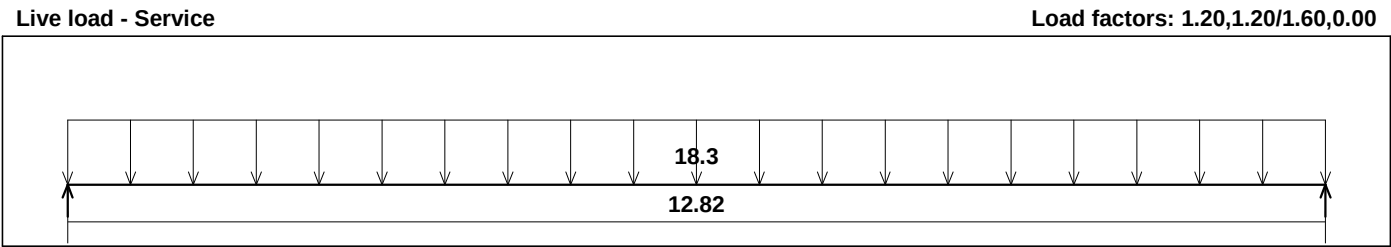
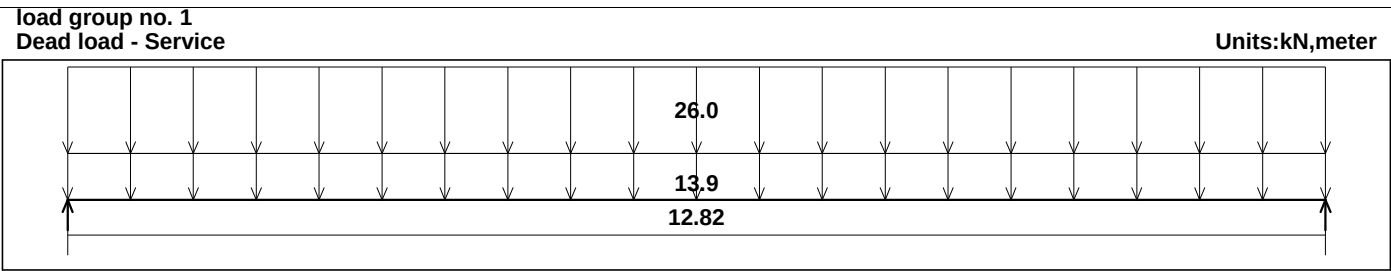
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		68.9
MspMx		68.9
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-556.3
V min		-556.3
DReac		340.9
LReac		215.4
Max R		556.3
Min R		556.3

Beam 15	Code: ACI318-02
Project: BAEMS	Page: 262
Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

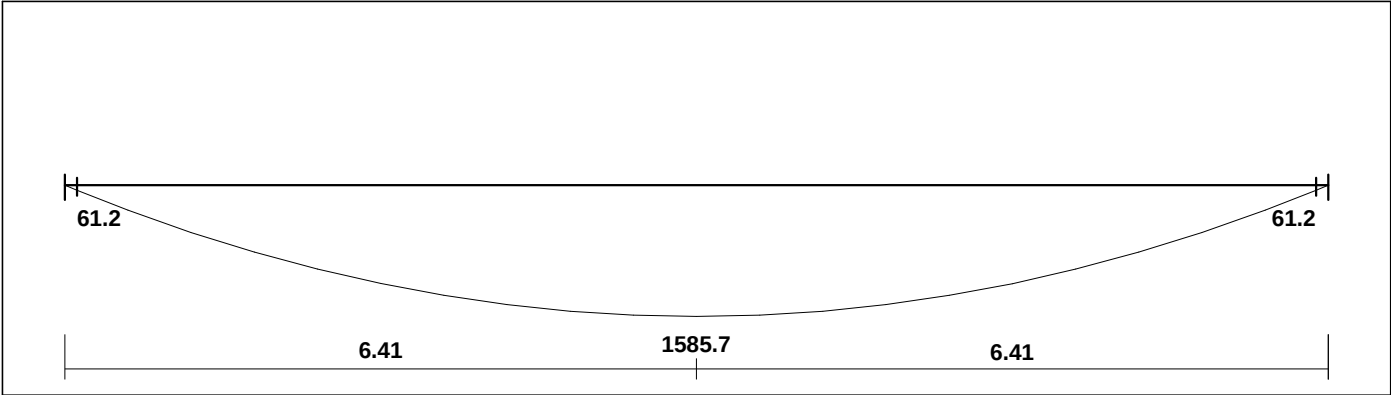


Loads	(kN,meter)
1	
Self.Wt.	13.92
Uni D	26.00
L	18.30

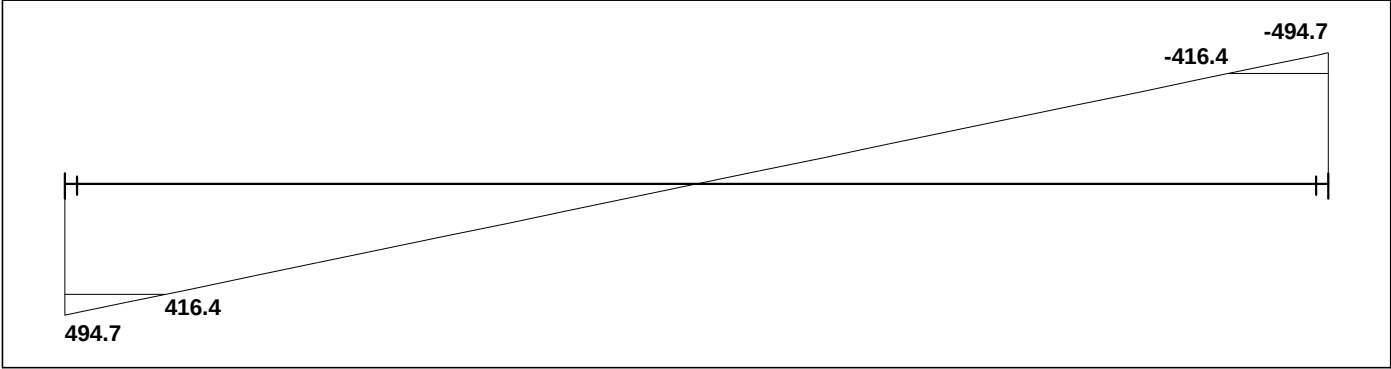
Beam 15	Code: ACI318-02
Project: BAEMS	Page: 263
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	307.06		307.06
LiveR	187.68		187.68
Max R	494.75		494.75
Min R	494.75		494.75
Service			
DeadR	255.89		255.89
LiveR	117.3		117.3
Max R	373.19		373.19
Min R	373.19		373.19

Beam 15	Code: ACI318-02
Project: BAEMS	Page: 264
Designed by: bayan	Date: 4/ 7/14

Reinforcement (cm 2)

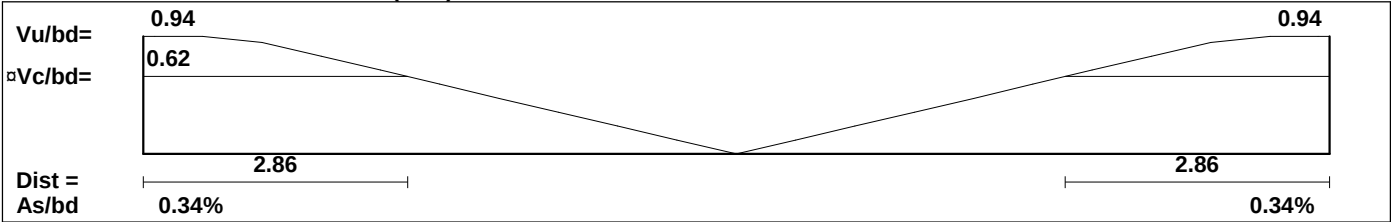
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

Top Cover	6.		
As top = *=minimum			
As bot =	15.31	51.04	15.31
Bot Cover	6.		
a/d	1%	15%	1%
As/bd	0.00%	1.15%	0.00%

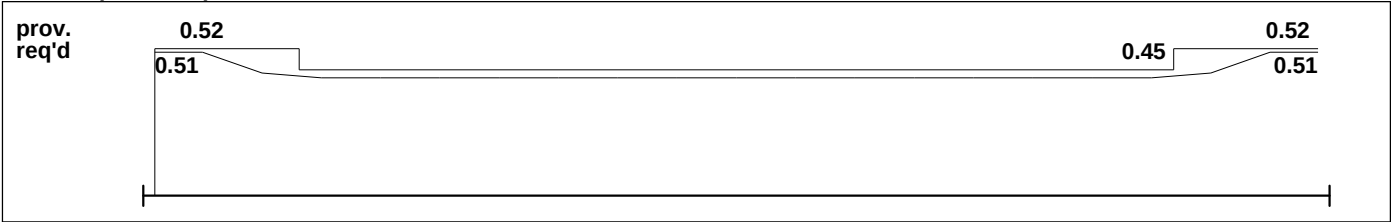
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

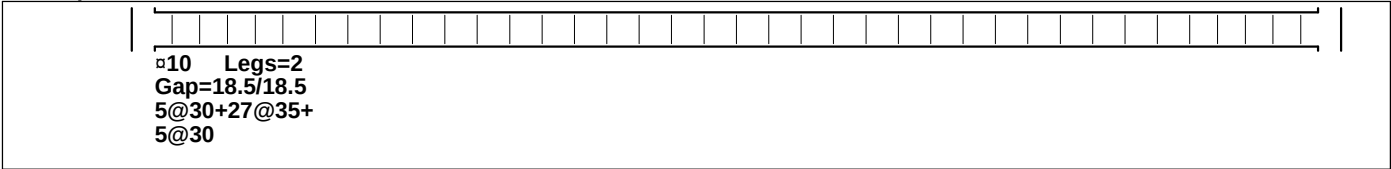
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 15	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	51.04	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.02276

Mcr = 259.18
Mmax,d = 820.12
Mmax,d+l = *****
Mmax,sust = 533.08

Ie,d (m^4)= 0.02345
Ie,d+l (m^4)= 0.02298
Ie,sust (m^4)= 0.02526

e/1+50r = 2.00/0.80
ai,d = 25.478
ai,l = 12.433
at,sust = 18.457
ai,l = L/ 1031
(ai+at),t2-t1 L/ 322

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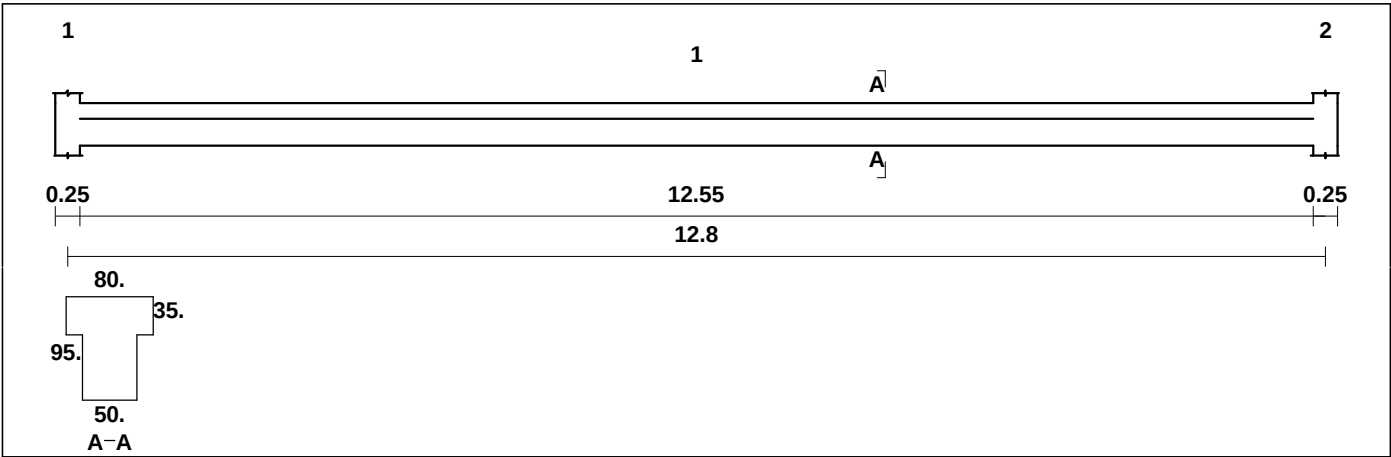
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	416.41	416.41	0.	0.	0.51	0.00	100	-
125	61.24	61.24	416.41	416.41	0.	1.83	0.51	0.01	-	-
641	301.28	301.28	416.41	416.41	0.	9.10	0.51	0.03	-	-
1282	570.84	570.84	395.80	395.80	0.	17.46	0.43	0.05	-	-
1923	808.69	808.69	346.32	346.32	0.	25.01	0.42	0.07	-	-
2564	1014.8	1014.8	296.85	296.85	0.	31.71	0.42	0.09	-	-
3205	1189.3	1189.3	247.37	247.37	0.	37.48	0.42	0.11	-	-
3846	1332.0	1332.0	197.90	197.90	0.	42.29	0.42	0.12	-	-
4487	1443.0	1443.0	148.42	148.42	0.	46.09	0.42	0.13	-	-
5128	1522.2	1522.2	98.95	98.95	0.	48.83	0.42	0.14	-	-
5769	1569.8	1569.8	49.47	49.47	0.	50.48	0.42	0.15	-	-
6410	1585.7	1585.7	0.00	0.00	0.	51.04	0.42	0.15	100	-
7051	1569.8	1569.8	-49.47	-49.47	0.	50.48	0.42	0.15	-	-
7692	1522.2	1522.2	-98.95	-98.95	0.	48.83	0.42	0.14	-	-
8333	1443.0	1443.0	-148.42	-148.42	0.	46.09	0.42	0.13	-	-
8974	1332.0	1332.0	-197.90	-197.90	0.	42.29	0.42	0.12	-	-
9615	1189.3	1189.3	-247.37	-247.37	0.	37.48	0.42	0.11	-	-
1025	1014.8	1014.8	-296.85	-296.85	0.	31.71	0.42	0.09	-	-
1089	808.69	808.69	-346.32	-346.32	0.	25.01	0.42	0.07	-	-
1153	570.84	570.84	-395.80	-395.80	0.	17.46	0.43	0.05	-	-
1217	301.28	301.28	-416.41	-416.41	0.	9.10	0.51	0.03	-	-
1269	61.24	61.24	-416.41	-416.41	0.	1.83	0.51	0.01	-	-
1282	0.00	0.00	-416.41	-416.41	0.	0.	0.51	0.00	100	-

Beam 15	Code: ACI318-02
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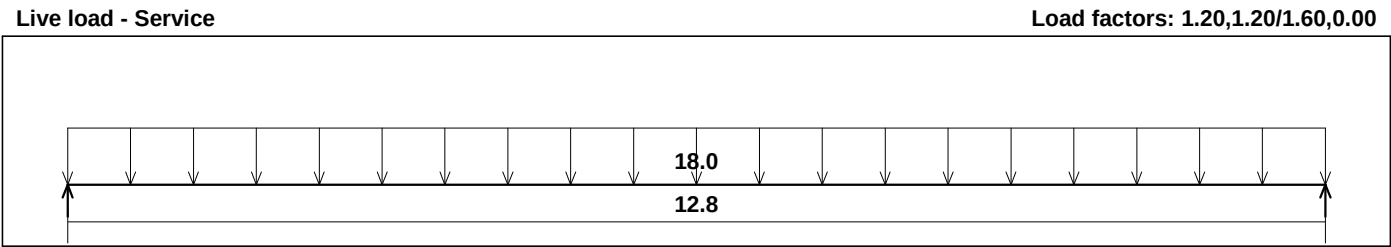
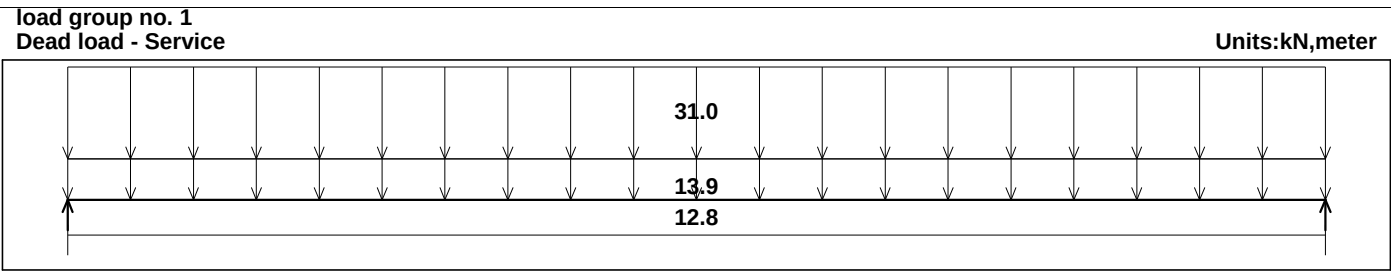
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		61.2
MspMx		61.2
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-494.7
V min		-494.7
DReac		307.1
LReac		187.7
Max R		494.7
Min R		494.7

Beam 16	Code: ACI318-02
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Geometry Units:meter,cm



Loading

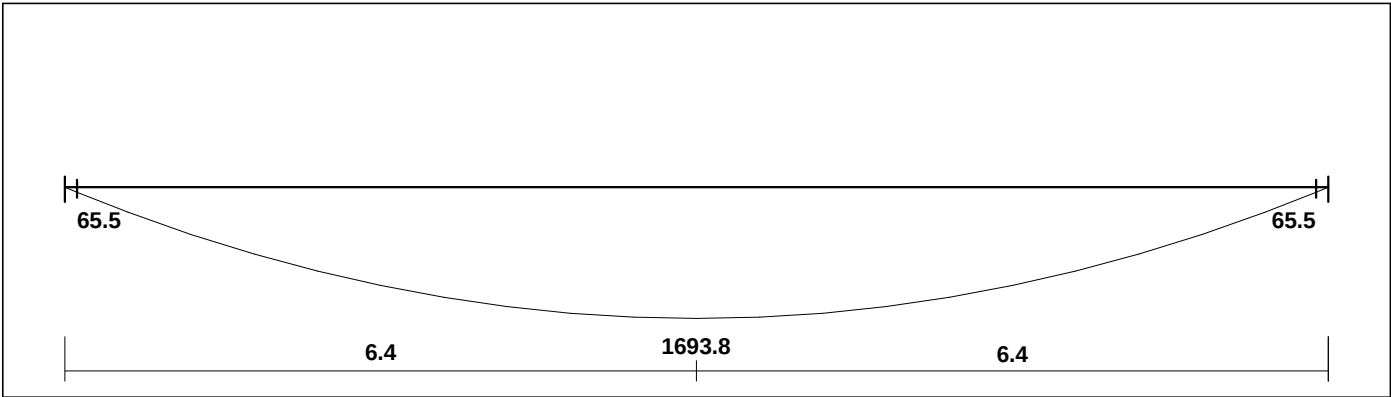


Loads (kN,meter)	
1	
Self.Wt.	13.92
Uni D	31.00
L	18.00

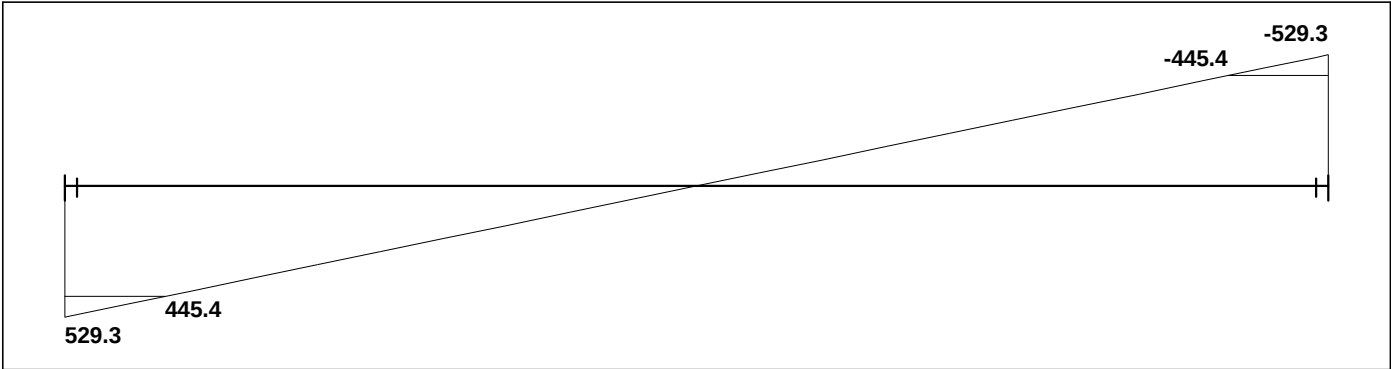
Beam 16	Code: ACI318-02
Project: BAEMS	Page: 267
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

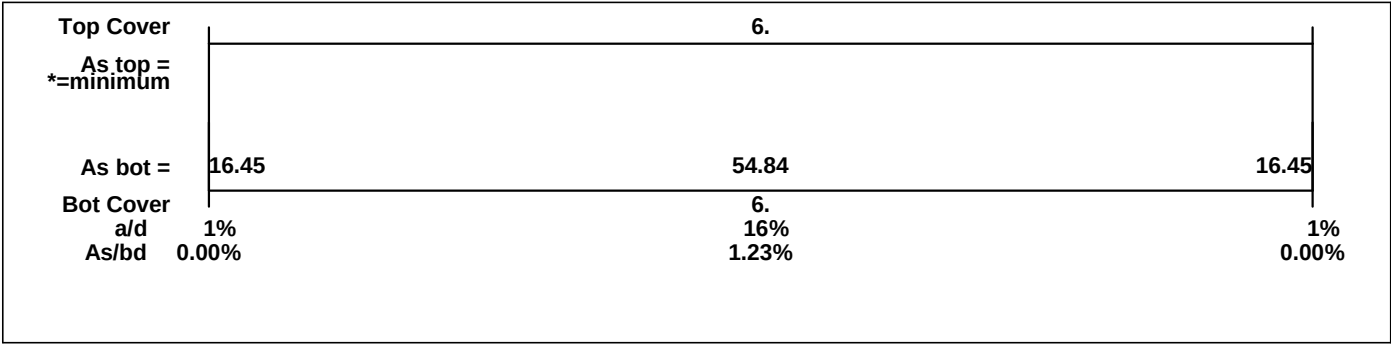
Factored

DeadR	344.99	344.99
LiveR	184.32	184.32
Max R	529.31	529.31
Min R	529.31	529.31
Service		
DeadR	287.49	287.49
LiveR	115.2	115.2
Max R	402.69	402.69
Min R	402.69	402.69

Beam 16	Code: ACI318-02
Project: BAEMS	Page: 268
Designed by: bayan	Date: 4/ 7/14

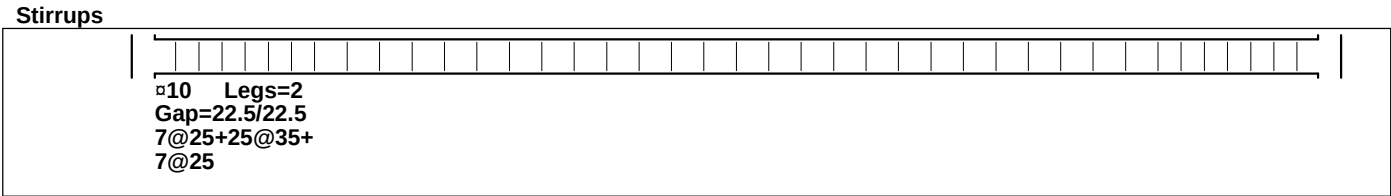
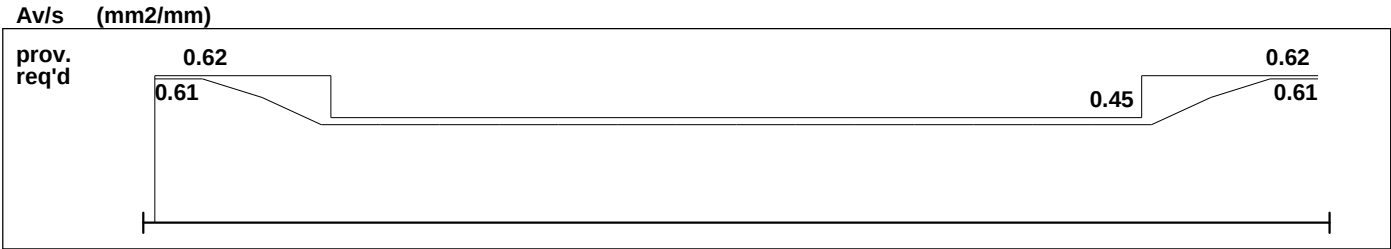
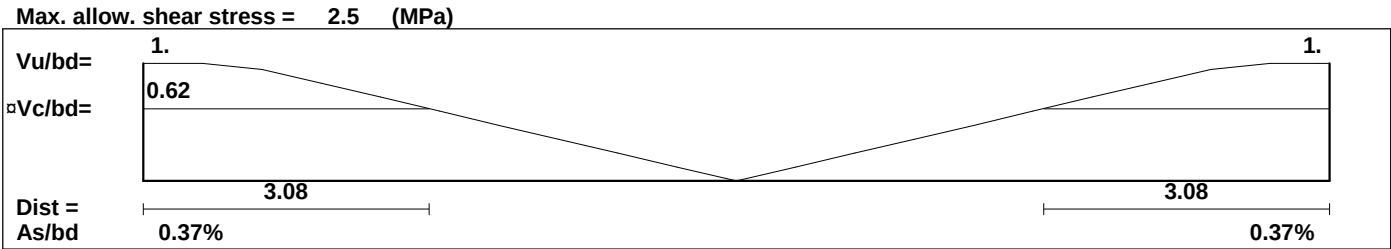
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 16	Code: ACI318-02
Project: BAEMS	Page: 269
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	54.84	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.02406

Mcr = 259.18
Mmax,d = 919.96
Mmax,d+l = *****
Mmax,sust = 597.98

Ie,d (m^4)= 0.02452
Ie,d+l (m^4)= 0.02423
Ie,sust (m^4)= 0.02573

e/1+50r = 2.00/0.80
ai,d = 27.243
ai,l = 11.375
at,sust = 20.265
ai,l = L/ 1125
(ai+at),t2-t1 L/ 310

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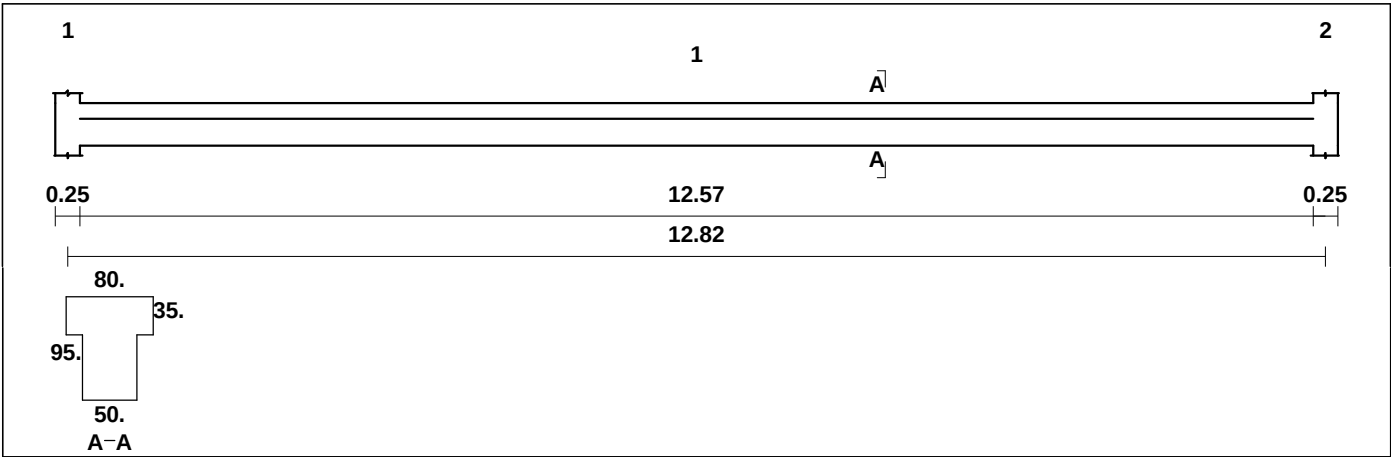
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	445.36	445.36	0.	0.	0.61	0.00	100	-
125	65.52	65.52	445.36	445.36	0.	1.95	0.61	0.01	-	-
640	321.82	321.82	445.36	445.36	0.	9.73	0.61	0.03	-	-
1280	609.76	609.76	423.44	423.44	0.	18.68	0.53	0.05	-	-
1920	863.83	863.83	370.51	370.51	0.	26.79	0.42	0.08	-	-
2560	1084.0	1084.0	317.58	317.58	0.	33.98	0.42	0.10	-	-
3200	1270.3	1270.3	264.65	264.65	0.	40.21	0.42	0.12	-	-
3840	1422.8	1422.8	211.72	211.72	0.	45.39	0.42	0.13	-	-
4480	1541.3	1541.3	158.79	158.79	0.	49.49	0.42	0.14	-	-
5120	1626.0	1626.0	105.86	105.86	0.	52.45	0.42	0.15	-	-
5760	1676.8	1676.8	52.93	52.93	0.	54.24	0.42	0.16	-	-
6400	1693.8	1693.8	0.00	0.00	0.	54.84	0.42	0.16	100	-
7040	1676.8	1676.8	-52.93	-52.93	0.	54.24	0.42	0.16	-	-
7680	1626.0	1626.0	-105.86	-105.86	0.	52.45	0.42	0.15	-	-
8320	1541.3	1541.3	-158.79	-158.79	0.	49.49	0.42	0.14	-	-
8960	1422.8	1422.8	-211.72	-211.72	0.	45.39	0.42	0.13	-	-
9600	1270.3	1270.3	-264.65	-264.65	0.	40.21	0.42	0.12	-	-
1024	1084.0	1084.0	-317.58	-317.58	0.	33.98	0.42	0.10	-	-
1088	863.83	863.83	-370.51	-370.51	0.	26.79	0.42	0.08	-	-
1152	609.76	609.76	-423.44	-423.44	0.	18.68	0.53	0.05	-	-
1216	321.82	321.82	-445.36	-445.36	0.	9.73	0.61	0.03	-	-
1267	65.52	65.52	-445.36	-445.36	0.	1.95	0.61	0.01	-	-
1280	0.00	0.00	-445.36	-445.36	0.	0.	0.61	0.00	100	-

Beam 16	Code: ACI318-02
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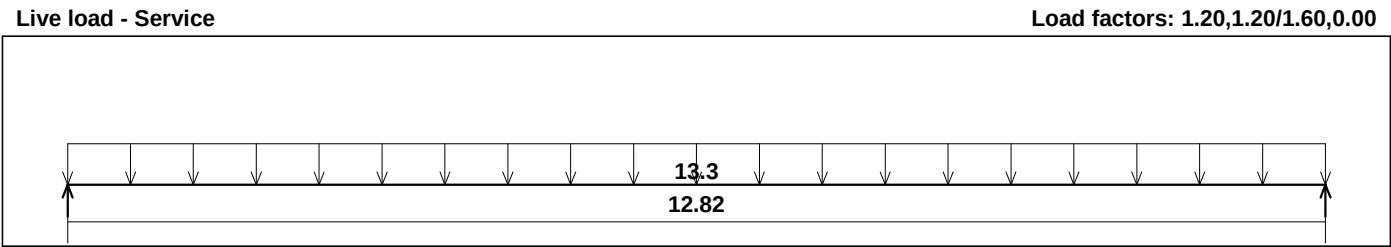
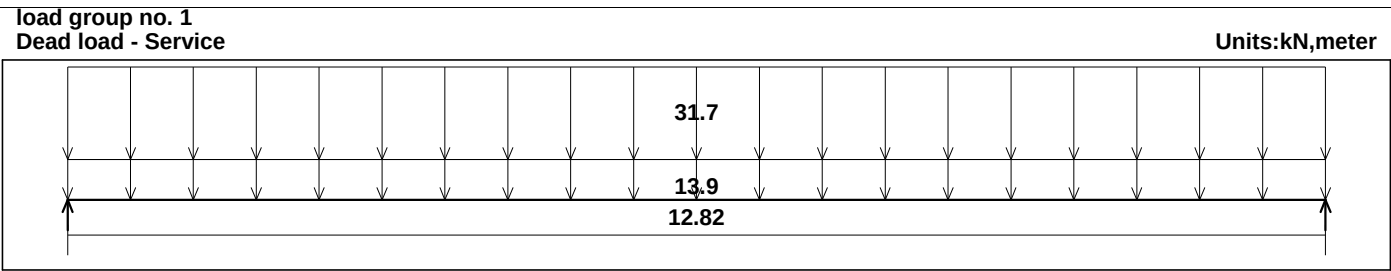
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		65.5
MspMx		65.5
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-529.3
V min		-529.3
DReac		345.0
LReac		184.3
Max R		529.3
Min R		529.3

Beam 17	Code: ACI318-02
Project: BAEMS	Page: 270
Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

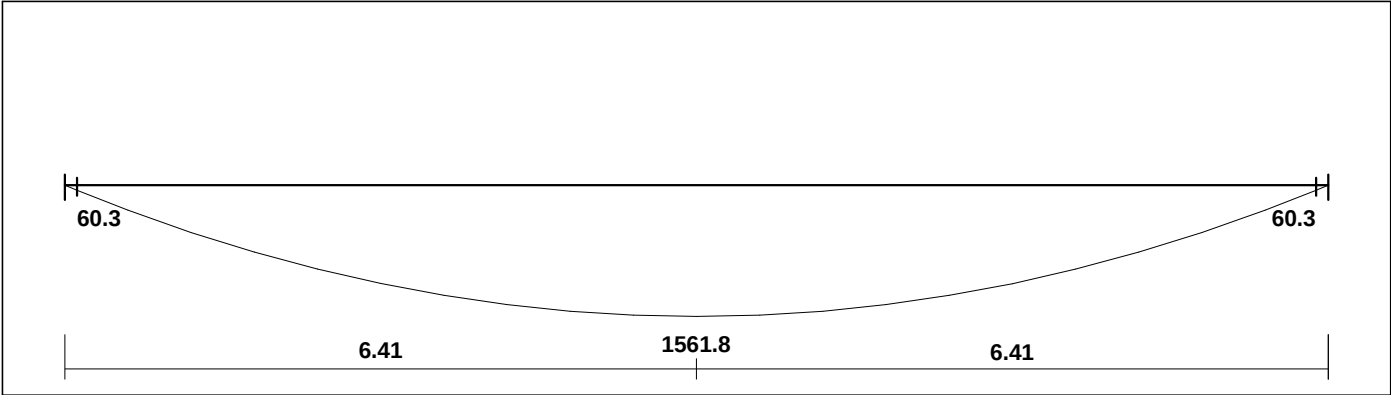


Loads (kN,meter)	
1	
Self.Wt.	13.92
Uni D	31.70 L 13.30

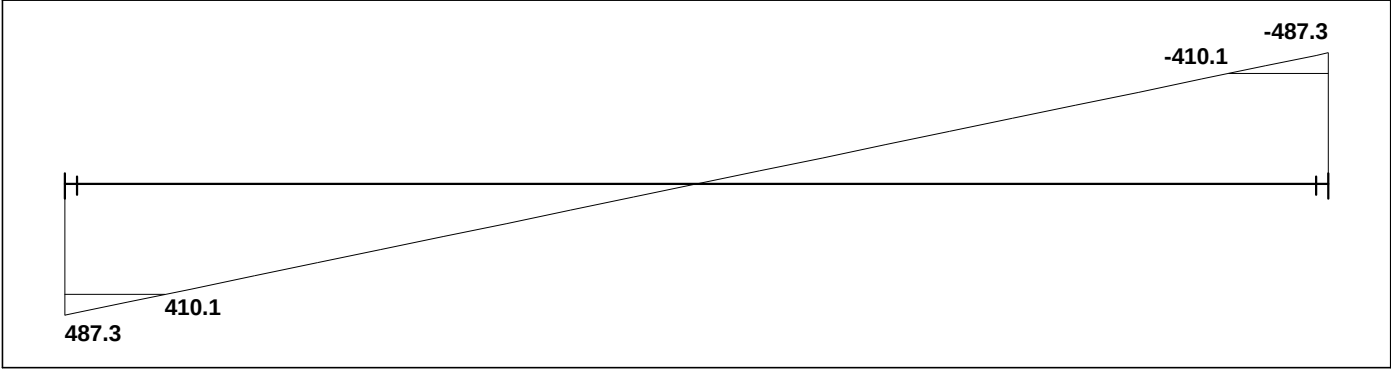
Beam 17	Code: ACI318-02
Project: BAEMS	Page: 271
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

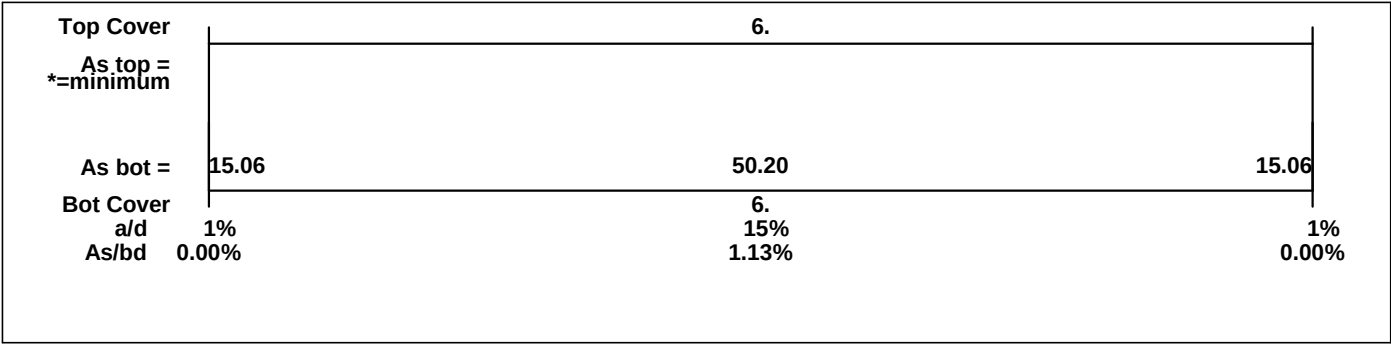
Factored

DeadR	350.91	350.91
LiveR	136.4	136.4
Max R	487.31	487.31
Min R	487.31	487.31
Service		
DeadR	292.42	292.42
LiveR	85.25	85.25
Max R	377.68	377.68
Min R	377.68	377.68

Beam 17	Code: ACI318-02
Project: BAEMS	Page: 272
Designed by: bayan	Date: 4/ 7/14

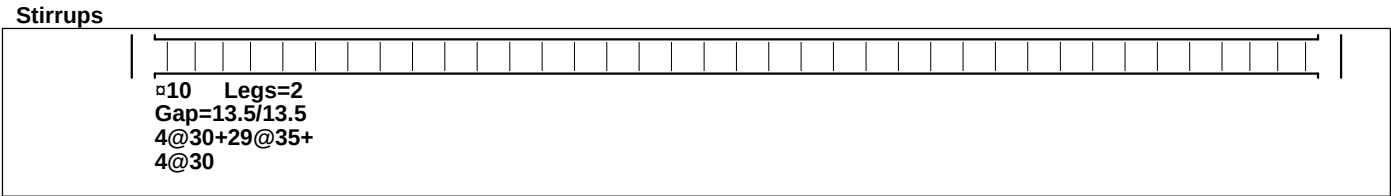
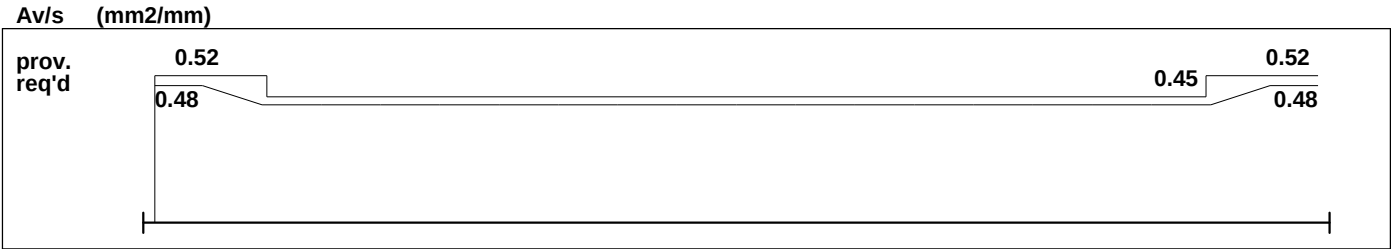
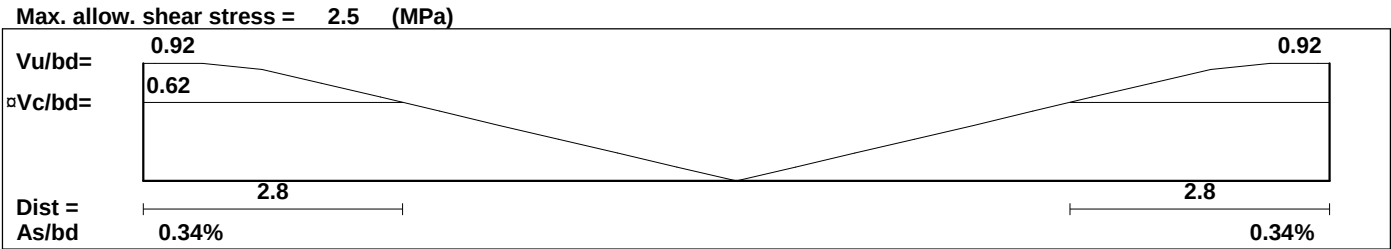
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 17	Code: ACI318-02
Project: BAEMS	Page: 273
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	50.20	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.02247

Mcr = 259.18
Mmax,d = 937.22
Mmax,d+l = *****
Mmax,sust = 609.19

Ie,d (m^4)= 0.02294
Ie,d+l (m^4)= 0.02269
Ie,sust (m^4)= 0.02417

e/1+50r = 2.00/0.80
ai,d = 29.764
ai,l = 9.101
at,sust = 22.047
ai,l = L/ 1408
(ai+at),t2-t1 L/ 308

—

Detailed results - at 1/20 of span, support faces, etc.

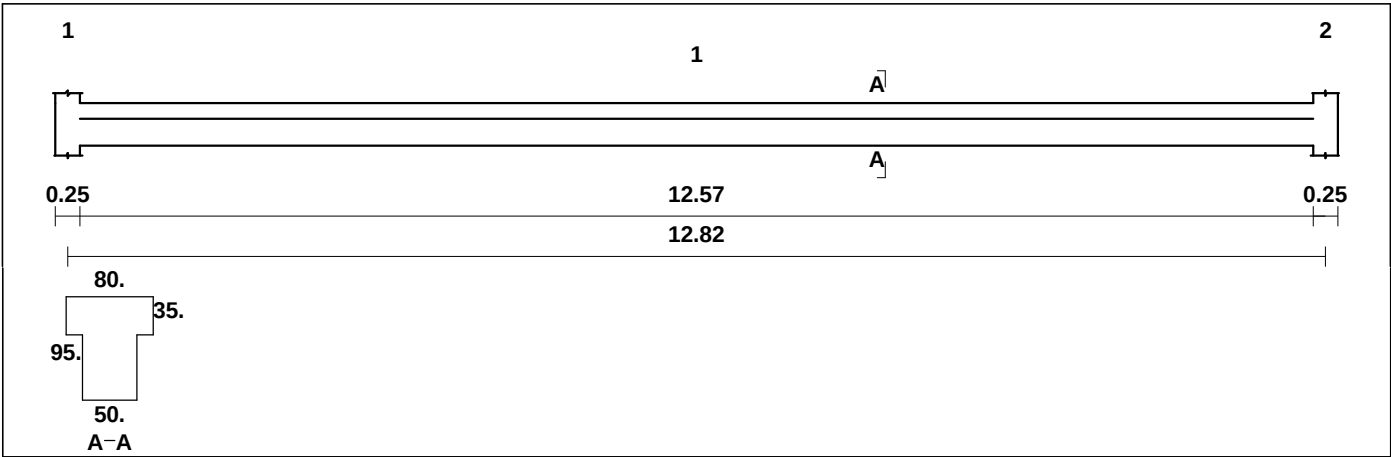
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	410.15	410.15	0.	0.	0.48	0.00	100	-
125	60.32	60.32	410.15	410.15	0.	1.80	0.48	0.01	-	-
641	296.75	296.75	410.15	410.15	0.	8.96	0.48	0.03	-	-
1282	562.26	562.26	389.85	389.85	0.	17.19	0.42	0.05	-	-
1923	796.54	796.54	341.12	341.12	0.	24.62	0.42	0.07	-	-
2564	999.58	999.58	292.39	292.39	0.	31.21	0.42	0.09	-	-
3205	1171.4	1171.4	243.66	243.66	0.	36.89	0.42	0.11	-	-
3846	1311.9	1311.9	194.93	194.93	0.	41.61	0.42	0.12	-	-
4487	1421.3	1421.3	146.19	146.19	0.	45.34	0.42	0.13	-	-
5128	1499.4	1499.4	97.46	97.46	0.	48.03	0.42	0.14	-	-
5769	1546.2	1546.2	48.73	48.73	0.	49.66	0.42	0.14	-	-
6410	1561.8	1561.8	0.00	0.00	0.	50.20	0.42	0.15	100	-
7051	1546.2	1546.2	-48.73	-48.73	0.	49.66	0.42	0.14	-	-
7692	1499.4	1499.4	-97.46	-97.46	0.	48.03	0.42	0.14	-	-
8333	1421.3	1421.3	-146.19	-146.19	0.	45.34	0.42	0.13	-	-
8974	1311.9	1311.9	-194.93	-194.93	0.	41.61	0.42	0.12	-	-
9615	1171.4	1171.4	-243.66	-243.66	0.	36.89	0.42	0.11	-	-
1025	999.58	999.58	-292.39	-292.39	0.	31.21	0.42	0.09	-	-
1089	796.54	796.54	-341.12	-341.12	0.	24.62	0.42	0.07	-	-
1153	562.26	562.26	-389.85	-389.85	0.	17.19	0.42	0.05	-	-
1217	296.75	296.75	-410.15	-410.15	0.	8.96	0.48	0.03	-	-
1269	60.32	60.32	-410.15	-410.15	0.	1.80	0.48	0.01	-	-
1282	0.00	0.00	-410.15	-410.15	0.	0.	0.48	0.00	100	-

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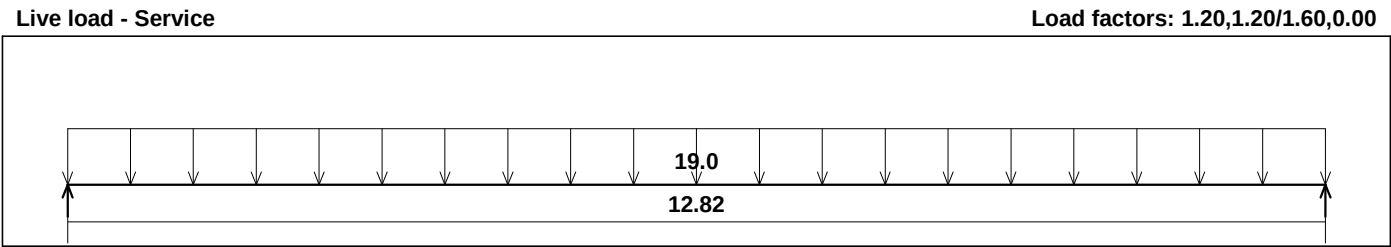
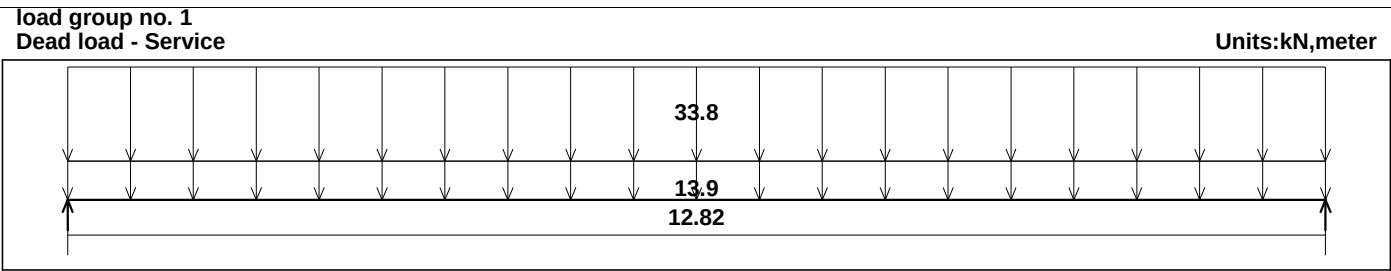
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		60.3
MspMx		60.3
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-487.3
V min		-487.3
DReac		350.9
LReac		136.4
Max R		487.3
Min R		487.3

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Geometry Units:meter,cm



Loading



Loads (kN,meter)	
1	
Self.Wt.	13.92
Uni D	33.80
L	19.00

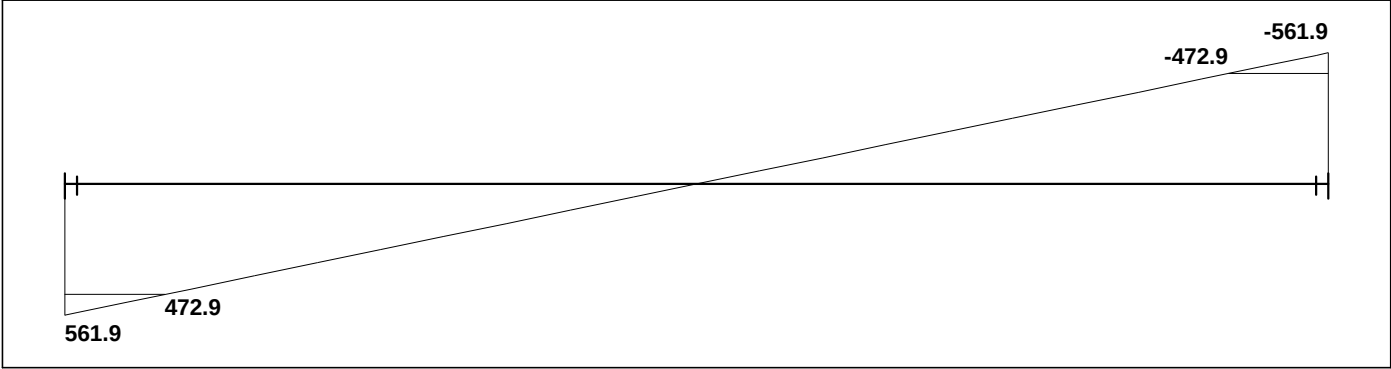
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

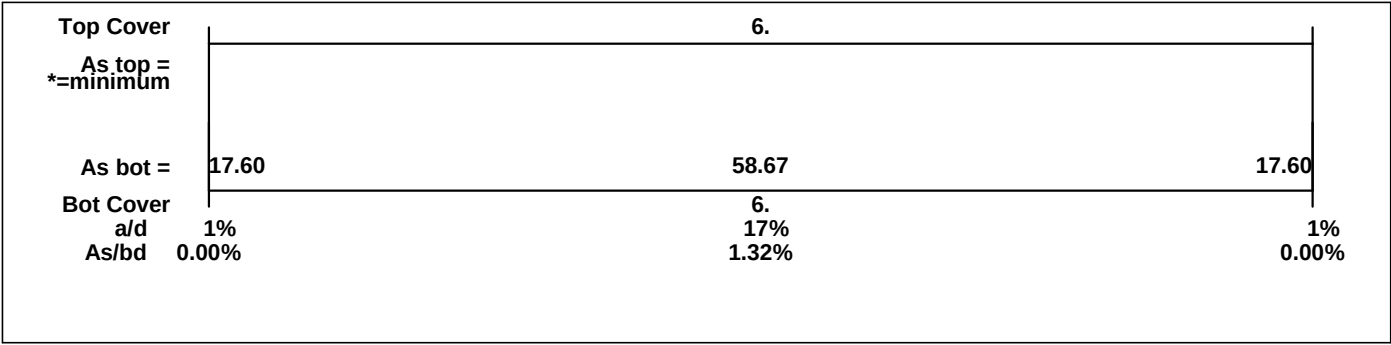
Factored

DeadR	367.06	367.06
LiveR	194.86	194.86
Max R	561.93	561.93
Min R	561.93	561.93
Service		
DeadR	305.89	305.89
LiveR	121.79	121.79
Max R	427.68	427.68
Min R	427.68	427.68

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Reinforcement (cm 2)

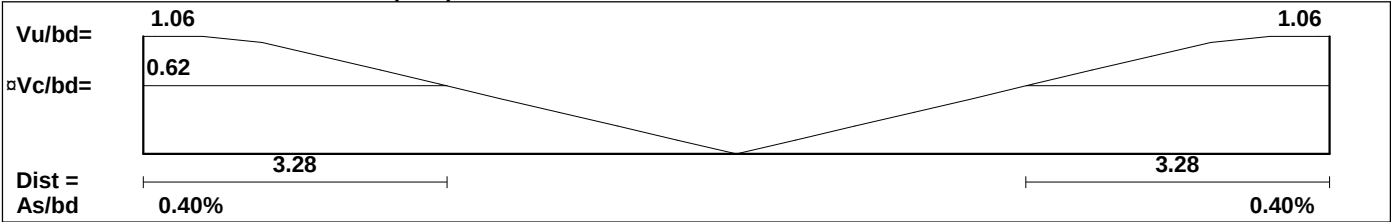
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



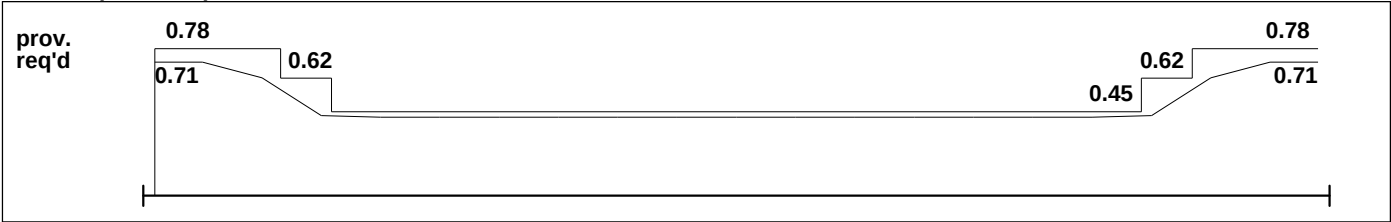
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

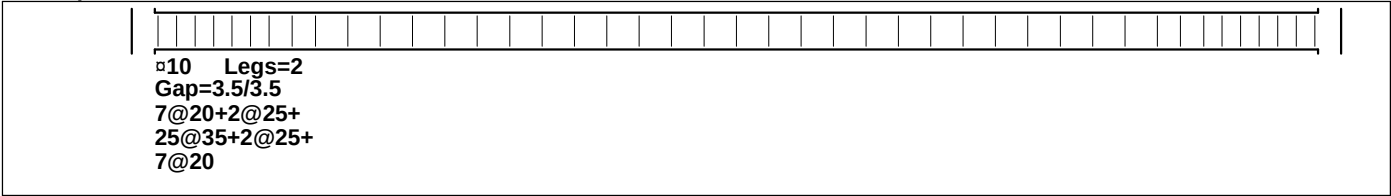
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	58.67	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.04454
Icr(m^4)= 0.02534

Mcr = 259.18
Mmax,d = 980.36
Mmax,d+l = *****
Mmax,sust = 637.24

Ie,d (m^4)= 0.02570
Ie,d+l (m^4)= 0.02547
Ie,sust (m^4)= 0.02663

e/1+50r = 2.00/0.80
ai,d = 27.792
ai,l = 11.409
at,sust = 20.929
ai,l = L/ 1123
(ai+at),t2-t1 L/ 304

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	472.95	472.95	0.	0.	0.71	0.00	100	-
125	69.56	69.56	472.95	472.95	0.	2.08	0.71	0.01	-	-
641	342.19	342.19	472.95	472.95	0.	10.35	0.71	0.03	-	-
1282	648.35	648.35	449.54	449.54	0.	19.90	0.63	0.06	-	-
1923	918.50	918.50	393.35	393.35	0.	28.56	0.43	0.08	-	-
2564	1152.6	1152.6	337.16	337.16	0.	36.26	0.42	0.10	-	-
3205	1350.7	1350.7	280.96	280.96	0.	42.93	0.42	0.12	-	-
3846	1512.8	1512.8	224.77	224.77	0.	48.50	0.42	0.14	-	-
4487	1638.9	1638.9	168.58	168.58	0.	52.90	0.42	0.15	-	-
5128	1728.9	1728.9	112.39	112.39	0.	56.09	0.42	0.16	-	-
5769	1783.0	1783.0	56.19	56.19	0.	58.02	0.42	0.17	-	-
6410	1801.0	1801.0	0.00	0.00	0.	58.67	0.42	0.17	100	-
7051	1783.0	1783.0	-56.19	-56.19	0.	58.02	0.42	0.17	-	-
7692	1728.9	1728.9	-112.39	-112.39	0.	56.09	0.42	0.16	-	-
8333	1638.9	1638.9	-168.58	-168.58	0.	52.90	0.42	0.15	-	-
8974	1512.8	1512.8	-224.77	-224.77	0.	48.50	0.42	0.14	-	-
9615	1350.7	1350.7	-280.96	-280.96	0.	42.93	0.42	0.12	-	-
1025	1152.6	1152.6	-337.16	-337.16	0.	36.26	0.42	0.10	-	-
1089	918.50	918.50	-393.35	-393.35	0.	28.56	0.43	0.08	-	-
1153	648.35	648.35	-449.54	-449.54	0.	19.90	0.63	0.06	-	-
1217	342.19	342.19	-472.95	-472.95	0.	10.35	0.71	0.03	-	-
1269	69.56	69.56	-472.95	-472.95	0.	2.08	0.71	0.01	-	-
1282	0.00	0.00	-472.95	-472.95	0.	0.	0.71	0.00	100	-

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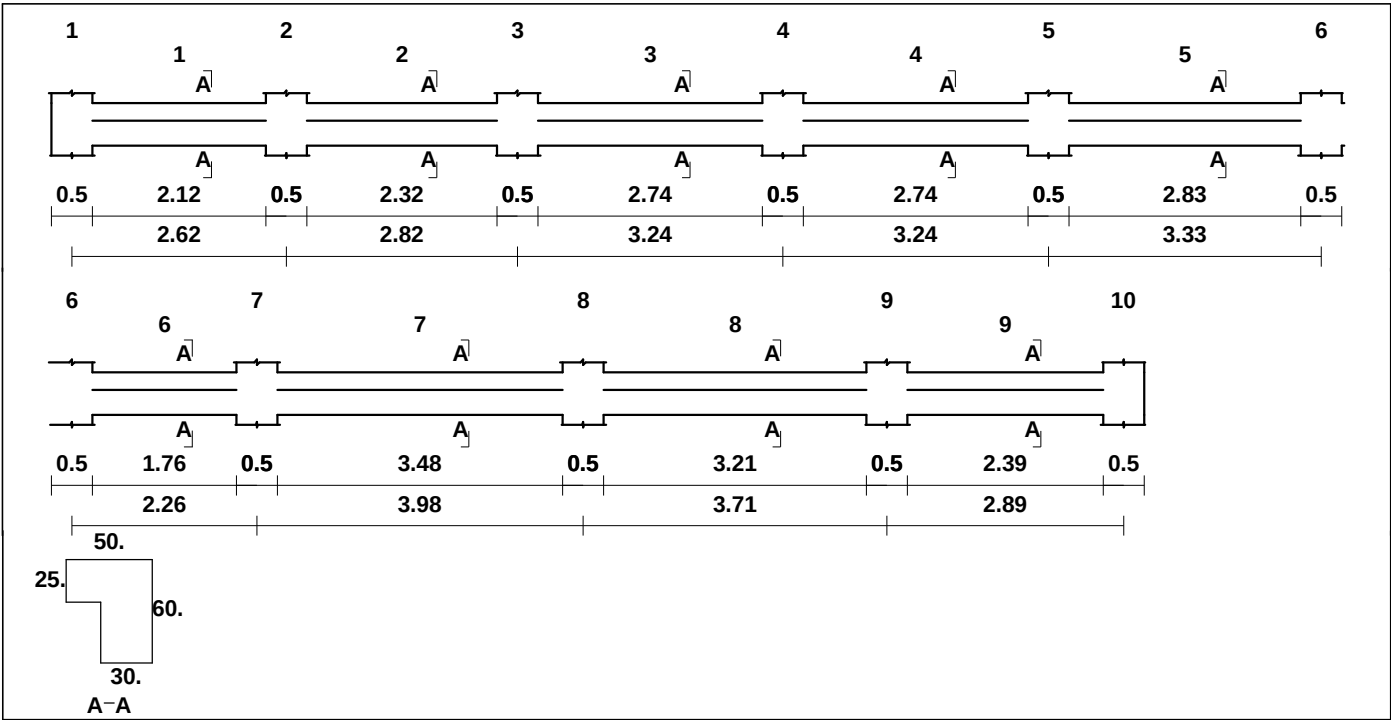
M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		69.6	
MspMx		69.6	
M Max			
M Min			
Mmn=0 @	0.0	12.8	
Mmx=0 @	0.0	12.8	
mx -M @			
mx +M @			
V max		-561.9	
V min		-561.9	
DReac		367.1	
LReac		194.9	
Max R		561.9	
Min R		561.9	

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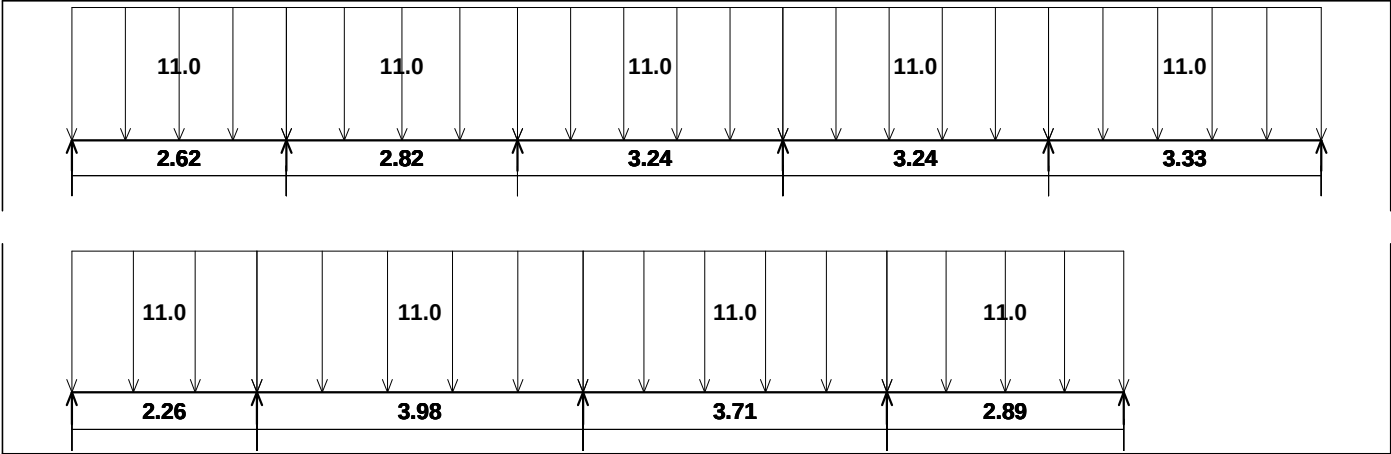
Geometry Units: meter, cm



Loading

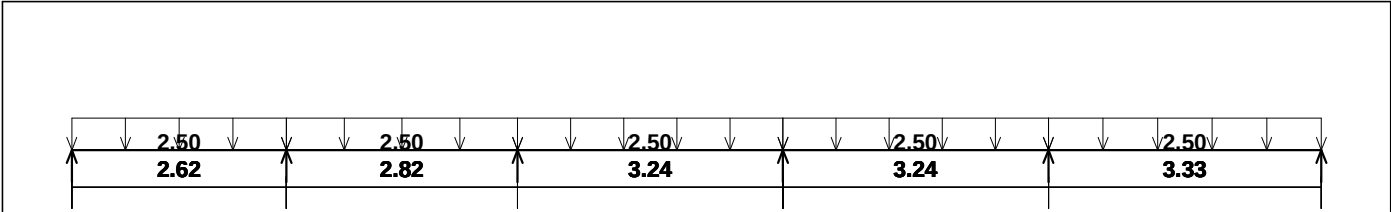
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

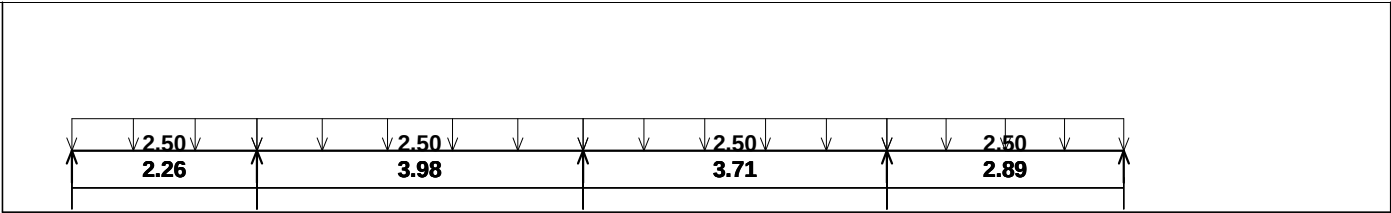
Load factors: 1.20, 1.20/1.60, 0.00



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Loading

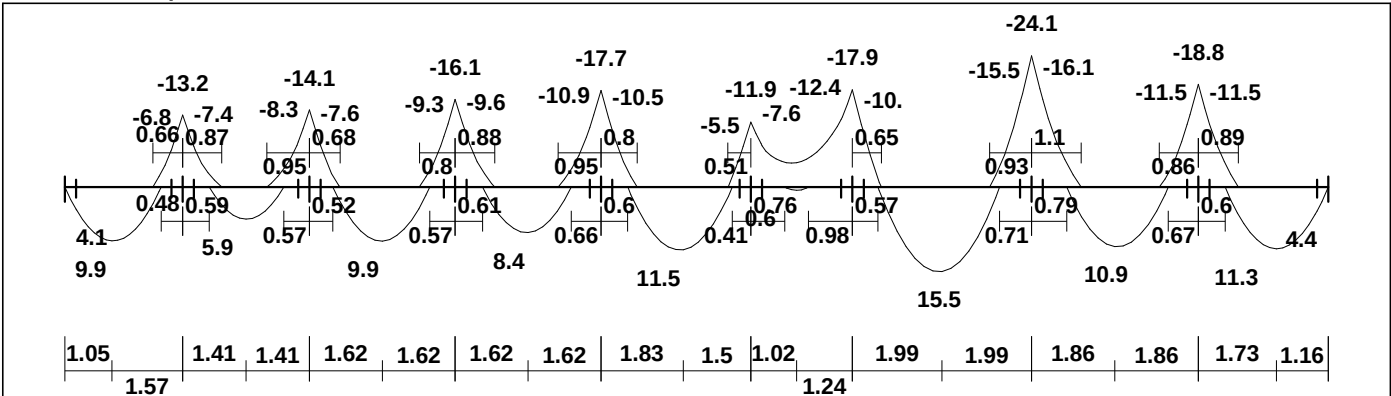


Loads (kN,meter)

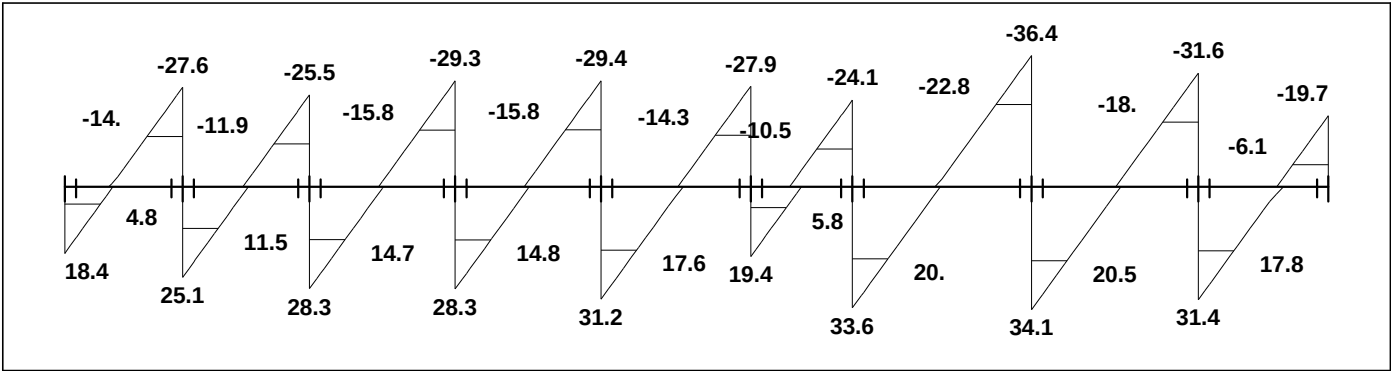
1			2			3			4		
Uni D	11.00	L	2.50	Uni D	11.00	L	2.50	Uni D	11.00	L	2.50
5				6				7			
9				8				9			
Uni D			11.00	L			2.50	Uni D			11.00
L			2.50	Uni D			11.00	L			2.50
Uni D			11.00	L			2.50	Uni D			11.00
L			2.50	Uni D			11.00	L			2.50

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 9



Shear



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Moment / Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	13.61	39.46	39.65	42.82	45.31	33.31	41.92	53.21	47.21	14.31
LiveR	4.82	13.24	14.1	14.86	15.25	13.92	15.76	17.3	15.72	5.43
Max R	18.42	52.7	53.75	57.68	60.56	47.23	57.67	70.51	62.93	19.74
Min R	12.91	44.38	44.1	48.33	51.3	34.63	43.76	60.55	52.84	13.22
Service										
DeadR	11.34	32.88	33.04	35.68	37.76	27.76	34.93	44.34	39.34	11.93
LiveR	3.01	8.27	8.81	9.29	9.53	8.7	9.85	10.81	9.83	3.39
Max R	14.35	41.16	41.85	44.97	47.29	36.46	44.78	55.15	49.17	15.32
Min R	10.9	35.96	35.82	39.13	41.5	28.58	36.08	48.93	42.86	11.24

Reinforcement (cm 2)

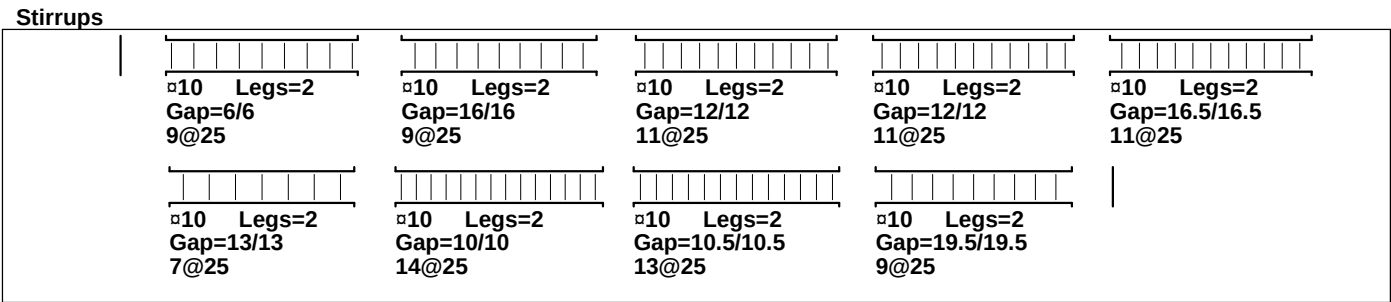
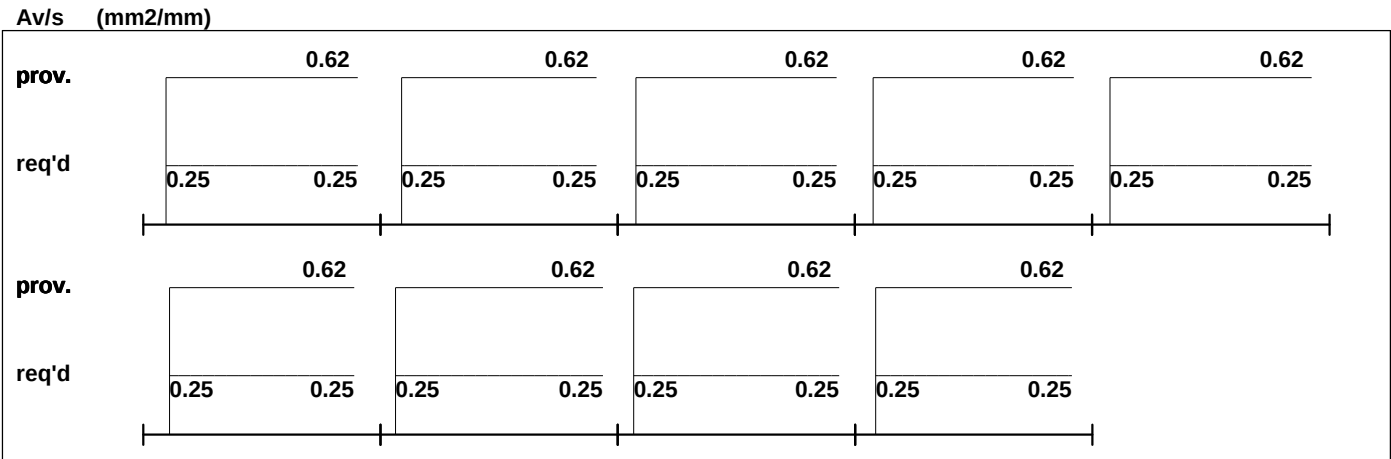
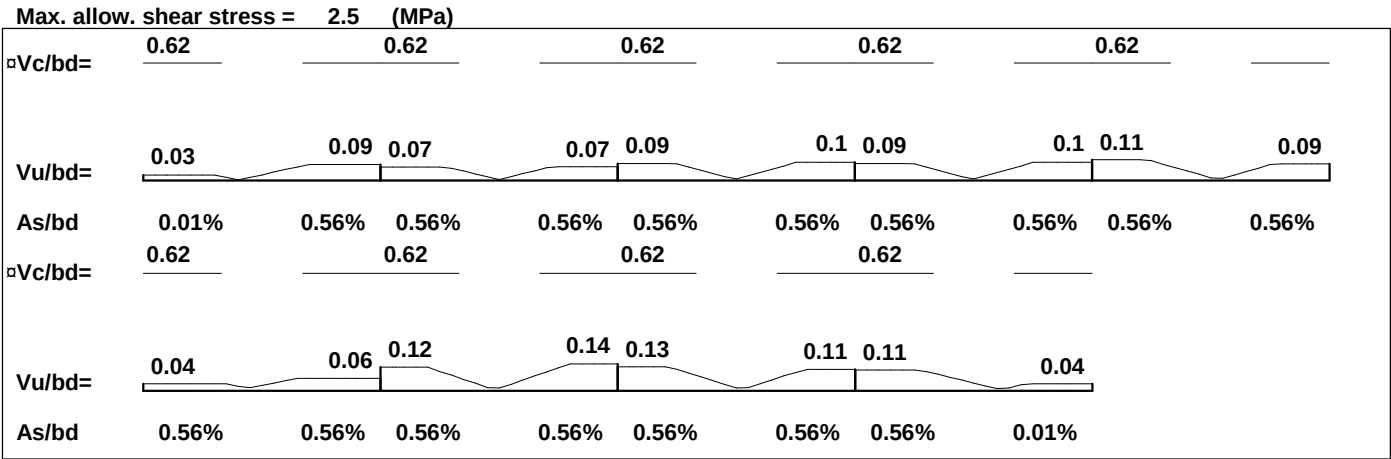
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420

Top Cover	6.		6.		6.		6.		6.		6.
As top = *=minimum		9.04*		9.04*		9.04*		9.04*		9.04*	
As bottom =	0.14	5.42*		5.42*		5.42*		5.42*		5.42*	
Bot Cover	6.		6.		6.		6.		6.		
a/d	0%	0%	0%	0%	1%	0%	1%	0%	1%	0%	0%
As/bd	0.00%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%
Top Cover	6.		6.		6.		6.				
As top = *=minimum	9.04*	5.42	9.04*		9.04*		9.04*				
		5.42*		5.42*		5.42*		5.42*	0.16		
a/d	0%	6.	1%	6.	1%	6.	1%	6.		0%	
As/bd	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%		0.00%	

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Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. =5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



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Deflections (mm)				
Long-term deflection:				
- sustained loads : 65% of dead; 0% of live				
- duration of load 60 months ; attachment of element at 2 months (t1)				
Apply 35% of dead load after attachment (t1)				
A's	1	2	3	4
	5.42	5.42	5.42	5.42
As	0.	0.	0.	0.
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00686	0.00686	0.00686	0.00686
Icr(m^4)=	0.00110	0.00110	0.00110	0.00110
Mcr =	62.50	62.50	62.50	62.50
Mmax,d =	5.84	2.73	5.43	4.21
Mmax,d+l =	7.62	4.36	7.55	6.27
Mmax,sust =	3.80	1.78	3.53	2.74
Ie,d (m^4)=	0.00686	0.00686	0.00686	0.00686
Ie,d+l (m^4)=	0.00686	0.00686	0.00686	0.00686
Ie,sust (m^4)=	0.00686	0.00686	0.00686	0.00686
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80	2.00/0.80
ai,d =	0.021	0.005	0.024	0.014
ai,l =	0.008	0.007	0.013	0.012
at,sust =	0.016	0.004	0.019	0.011
ai,l =	L/*****	L/*****	L/*****	L/*****
(ai+at),t2-t1	L/*****	L/*****	L/*****	L/*****

Long-term deflection:				
- sustained loads : 65% of dead; 0% of live				
- duration of load 60 months ; attachment of element at 2 months (t1)				
Apply 35% of dead load after attachment (t1)				
A's	5	6	7	8
	0.	5.42	0.	5.42
As	5.42	5.42	5.42	0.
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00686	0.00686	0.00686	0.00686
Icr(m^4)=	0.00110	0.00104	0.00110	0.00110
Mcr =	62.50	80.66	62.50	62.50
Mmax,d =	6.61	10.48	9.08	5.73
Mmax,d+l =	8.83	12.85	11.95	8.25
Mmax,sust =	4.30	6.81	5.90	3.72
Ie,d (m^4)=	0.00686	0.00686	0.00686	0.00686
Ie,d+l (m^4)=	0.00686	0.00686	0.00686	0.00686
Ie,sust (m^4)=	0.00686	0.00686	0.00686	0.00686
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80	2.00/0.80
ai,d =	0.034	-0.011	0.066	0.027
ai,l =	0.014	-0.007	0.025	0.019
at,sust =	0.027	-0.007	0.052	0.021
ai,l =	L/*****	L/*****	L/*****	L/*****
(ai+at),t2-t1	L/*****	L/*****	L/39794	L/*****

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Long-term deflection:

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Deflections (mm)			
- sustained loads : 65% of dead; 0% of live			
- duration of load 60 months ; attachment of element at 2 months (t1)			
Apply 35% of dead load after attachment (t1)			
9			
A's	5.42		
As	0.		
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00686		
Icr(m^4)=	0.00110		
Mcr =	62.50		
Mmax,d =	6.44		
Mmax,d+l =	8.69		
Mmax,sust =	4.18		
Ie,d (m^4)=	0.00686		
Ie,d+l (m^4)=	0.00686		
Ie,sust (m^4)=	0.00686		
e/1+50r =	2.00/0.80		
ai,d =	0.026		
ai,l =	0.012		
at,sust =	0.020		
ai,l =	L/*****		
(ai+at),t2-t1	L/*****		

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	4.84	2.48	0.	0.	0.25	0.00	100	-
131	2.27	1.58	4.84	2.48	0.	0.11	0.25	0.00	-	-
250	4.07	2.81	4.84	2.48	0.	0.20	0.25	0.00	-	-
262	4.24	2.93	4.84	2.48	0.	0.20	0.25	0.00	-	-
393	5.91	4.05	4.84	2.48	0.	0.29	0.25	0.00	-	-
524	7.29	4.95	4.84	2.48	0.	0.35	0.25	0.00	-	-
655	8.38	5.62	4.84	2.48	0.	0.41	0.25	0.00	-	-
786	9.17	6.07	4.84	2.48	0.	0.45	0.25	0.00	-	-
917	9.66	6.29	2.65	0.81	0.	0.47	0.25	0.00	-	-
1048	9.86	6.28	0.40	-0.92	0.	0.48	0.25	0.00	-	-
1179	9.77	6.05	-1.85	-2.78	0.	0.48	0.25	0.00	-	-
1310	9.38	5.59	-4.07	-5.04	0.	0.46	0.25	0.00	100	-
1441	8.69	4.90	-5.80	-7.29	0.	0.42	0.25	0.00	-	-
1572	7.71	3.98	-7.53	-9.54	0.	0.37	0.25	0.00	-	-
1703	6.43	2.84	-9.26	-11.80	0.	0.31	0.25	0.00	-	-
1834	4.86	1.48	-10.93	-13.98	0.	0.23	0.25	0.00	-	-
1965	3.00	-0.12	-10.93	-13.98	0.00	0.14	0.25	0.00	-	-
2096	0.84	-1.94	-10.93	-13.98	0.09	0.04	0.25	0.00	-	-
2227	-1.62	-3.98	-10.93	-13.98	0.19	0.	0.25	0.00	-	-
2358	-4.37	-6.56	-10.93	-13.98	0.32	0.	0.25	0.00	-	-
2370	-4.64	-6.84	-10.93	-13.98	0.33	0.	0.25	0.00	-	-
2489	-7.42	-9.73	-10.93	-13.98	0.33	0.	0.25	0.00	-	-
2620	-10.66	-13.19	-10.93	-13.98	0.33	0.	0.25	0.00	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-10.66	-13.19	11.54	7.69	0.36	0.	0.25	0.00	100	-
141	-7.58	-9.82	11.54	7.69	0.36	0.	0.25	0.00	-	-
250	-5.44	-7.45	11.54	7.69	0.36	0.	0.25	0.00	-	-
282	-4.85	-6.79	11.54	7.69	0.33	0.	0.25	0.00	-	-
423	-2.46	-4.34	11.54	7.69	0.21	0.	0.25	0.00	-	-
564	-0.41	-2.65	11.54	7.69	0.13	0.	0.25	0.00	-	-
705	1.48	-1.27	11.54	7.69	0.06	0.07	0.25	0.00	-	-
846	3.04	-0.15	10.58	6.96	0.00	0.14	0.25	0.00	-	-
987	4.27	0.69	8.15	5.09	0.	0.20	0.25	0.00	-	-
1128	5.15	1.28	5.73	3.23	0.	0.25	0.25	0.00	-	-
1269	5.69	1.61	3.30	1.20	0.	0.27	0.25	0.00	-	-
1410	5.88	1.67	0.88	-1.23	0.	0.28	0.25	0.00	100	-
1551	5.74	1.47	-1.55	-3.65	0.	0.28	0.25	0.00	-	-
1692	5.25	1.01	-3.84	-6.08	0.	0.25	0.25	0.00	-	-
1833	4.43	0.28	-5.70	-8.50	0.	0.21	0.25	0.00	-	-
1974	3.26	-0.71	-7.56	-10.93	0.03	0.16	0.25	0.00	-	-
2115	1.74	-1.96	-8.30	-11.89	0.09	0.08	0.25	0.00	-	-
2256	-0.11	-3.47	-8.30	-11.89	0.17	0.	0.25	0.00	-	-
2397	-2.31	-5.24	-8.30	-11.89	0.25	0.	0.25	0.00	-	-
2538	-4.81	-7.62	-8.30	-11.89	0.37	0.	0.25	0.00	-	-
2570	-5.41	-8.29	-8.30	-11.89	0.40	0.	0.25	0.01	-	-
2679	-7.59	-10.70	-8.30	-11.89	0.40	0.	0.25	0.01	-	-
2820	-10.72	-14.12	-8.30	-11.89	0.40	0.	0.25	0.01	100	-
Span=3										
0	-10.72	-14.12	14.68	10.18	0.37	0.	0.25	0.00	100	-
162	-7.27	-9.77	14.68	10.18	0.37	0.	0.25	0.00	-	-
250	-5.26	-7.59	14.68	10.18	0.37	0.	0.25	0.00	-	-
324	-3.67	-5.86	14.68	10.18	0.28	0.	0.25	0.00	-	-
486	-0.52	-2.49	14.68	10.18	0.12	0.	0.25	0.00	-	-
648	2.17	-0.36	14.68	10.18	0.01	0.10	0.25	0.00	-	-
810	4.52	1.41	14.34	9.91	0.	0.22	0.25	0.00	-	-
972	6.50	2.85	11.55	7.78	0.	0.31	0.25	0.00	-	-
1134	8.03	3.93	8.77	5.64	0.	0.39	0.25	0.00	-	-
1296	9.10	4.67	5.98	3.50	0.	0.44	0.25	0.00	-	-
1458	9.73	5.07	3.19	1.31	0.	0.47	0.25	0.00	-	-
1620	9.90	5.12	0.41	-1.48	0.	0.48	0.25	0.00	100	-
1782	9.62	4.82	-2.38	-4.26	0.	0.47	0.25	0.00	-	-
1944	8.89	4.17	-4.93	-7.05	0.	0.43	0.25	0.00	-	-
2106	7.71	3.18	-7.07	-9.84	0.	0.37	0.25	0.00	-	-
2268	6.08	1.84	-9.21	-12.62	0.	0.29	0.25	0.00	-	-
2430	4.00	0.15	-11.35	-15.41	0.	0.19	0.25	0.00	-	-
2592	1.46	-1.88	-11.61	-15.75	0.09	0.07	0.25	0.00	-	-
2754	-1.49	-4.25	-11.61	-15.75	0.20	0.	0.25	0.00	-	-
2916	-4.81	-7.50	-11.61	-15.75	0.36	0.	0.25	0.00	-	-
2990	-6.47	-9.30	-11.61	-15.75	0.45	0.	0.25	0.01	-	-
3078	-8.58	-11.57	-11.61	-15.75	0.45	0.	0.25	0.01	-	-
3240	-12.80	-16.10	-11.61	-15.75	0.45	0.	0.25	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-12.80	-16.10	14.75	10.44	0.47	0.	0.25	0.01	100	-
162	-8.79	-11.74	14.75	10.44	0.47	0.	0.25	0.01	-	-
250	-6.79	-9.55	14.75	10.44	0.47	0.	0.25	0.01	-	-
324	-5.20	-7.82	14.75	10.44	0.38	0.	0.25	0.00	-	-
486	-2.06	-4.61	14.75	10.44	0.22	0.	0.25	0.00	-	-
648	0.68	-2.44	14.75	10.44	0.12	0.03	0.25	0.00	-	-
810	3.08	-0.62	14.41	10.17	0.03	0.15	0.25	0.00	-	-
972	5.04	0.85	11.62	8.04	0.	0.24	0.25	0.00	-	-
1134	6.55	1.98	8.83	5.90	0.	0.32	0.25	0.00	-	-
1296	7.60	2.76	6.05	3.76	0.	0.37	0.25	0.00	-	-
1458	8.20	3.20	3.26	1.28	0.	0.40	0.25	0.00	-	-
1620	8.35	3.29	0.48	-1.50	0.	0.41	0.25	0.00	100	-
1782	8.05	3.03	-2.31	-4.29	0.	0.39	0.25	0.00	-	-
1944	7.30	2.43	-4.79	-7.08	0.	0.35	0.25	0.00	-	-
2106	6.09	1.48	-6.93	-9.86	0.	0.29	0.25	0.00	-	-
2268	4.44	0.18	-9.06	-12.65	0.	0.21	0.25	0.00	-	-
2430	2.33	-1.46	-11.20	-15.44	0.07	0.11	0.25	0.00	-	-
2592	-0.23	-3.45	-11.47	-15.78	0.16	0.	0.25	0.00	-	-
2754	-3.24	-5.79	-11.47	-15.78	0.28	0.	0.25	0.00	-	-
2916	-6.59	-9.10	-11.47	-15.78	0.44	0.	0.25	0.01	-	-
2990	-8.25	-10.91	-11.47	-15.78	0.53	0.	0.25	0.01	-	-
3078	-10.35	-13.18	-11.47	-15.78	0.53	0.	0.25	0.01	-	-
3240	-14.45	-17.71	-11.47	-15.78	0.53	0.	0.25	0.01	100	-
Span=5										
0	-14.45	-17.71	17.60	13.55	0.51	0.	0.25	0.01	100	-
166	-9.81	-12.77	17.60	13.55	0.51	0.	0.25	0.01	-	-
250	-7.64	-10.45	17.60	13.55	0.51	0.	0.25	0.01	-	-
333	-5.62	-8.28	17.60	13.55	0.40	0.	0.25	0.01	-	-
499	-1.92	-4.65	17.60	13.55	0.22	0.	0.25	0.00	-	-
666	1.39	-1.93	17.60	13.55	0.09	0.06	0.25	0.00	-	-
832	4.25	0.40	16.88	12.99	0.	0.20	0.25	0.00	-	-
999	6.66	2.39	14.01	10.79	0.	0.32	0.25	0.00	-	-
1165	8.57	4.00	11.15	8.60	0.	0.42	0.25	0.00	-	-
1332	10.02	5.25	8.28	6.39	0.	0.49	0.25	0.00	-	-
1498	10.98	6.13	5.42	3.64	0.	0.54	0.25	0.00	-	-
1665	11.47	6.65	2.55	0.77	0.	0.56	0.25	0.00	100	-
1831	11.48	6.79	-0.04	-2.09	0.	0.56	0.25	0.00	-	-
1998	11.02	6.58	-2.24	-4.96	0.	0.54	0.25	0.00	-	-
2164	10.08	6.00	-4.43	-7.81	0.	0.49	0.25	0.00	-	-
2331	8.65	5.05	-6.64	-10.69	0.	0.42	0.25	0.00	-	-
2497	6.76	3.74	-8.83	-13.54	0.	0.33	0.25	0.00	-	-
2664	4.39	2.05	-9.40	-14.28	0.	0.21	0.25	0.00	-	-
2830	1.68	-0.11	-9.40	-14.28	0.00	0.08	0.25	0.00	-	-
2997	-1.48	-3.57	-9.40	-14.28	0.17	0.	0.25	0.00	-	-
3080	-2.85	-5.47	-9.40	-14.28	0.26	0.	0.25	0.00	-	-
3163	-4.26	-7.48	-9.40	-14.28	0.26	0.	0.25	0.00	-	-
3330	-7.39	-11.90	-9.40	-14.28	0.26	0.	0.25	0.00	100	-

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Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=6										
0	-7.39	-11.90	5.77	1.21	0.37	0.	0.25	0.00	100	-
113	-5.83	-9.82	5.77	1.21	0.37	0.	0.25	0.00	-	-
226	-4.48	-7.96	5.77	1.21	0.37	0.	0.25	0.00	-	-
250	-4.23	-7.59	5.77	1.21	0.37	0.	0.25	0.00	-	-
339	-3.36	-6.55	5.77	1.21	0.32	0.	0.25	0.00	-	-
452	-2.16	-5.78	5.77	1.21	0.28	0.	0.25	0.00	-	-
565	-1.16	-5.17	5.77	1.21	0.25	0.	0.25	0.00	-	-
678	-0.39	-4.74	5.77	1.21	0.23	0.	0.25	0.00	-	-
791	0.16	-4.47	5.75	1.20	0.22	0.00	0.25	0.00	-	-
904	0.50	-4.38	3.81	-0.75	0.21	0.02	0.25	0.00	-	-
1017	0.61	-4.45	1.87	-2.69	0.21	0.03	0.25	0.00	-	-
1130	0.51	-4.69	-0.08	-4.64	0.23	0.02	0.25	0.00	100	-
1243	0.19	-5.10	-2.02	-6.58	0.25	0.00	0.25	0.00	-	-
1356	-0.36	-5.67	-3.96	-8.52	0.27	0.	0.25	0.00	-	-
1469	-1.12	-6.42	-5.91	-10.47	0.31	0.	0.25	0.00	-	-
1582	-2.10	-7.33	-5.93	-10.48	0.36	0.	0.25	0.00	-	-
1695	-3.31	-8.42	-5.93	-10.48	0.41	0.	0.25	0.01	-	-
1808	-4.73	-9.67	-5.93	-10.48	0.47	0.	0.25	0.01	-	-
1921	-6.37	-11.09	-5.93	-10.48	0.54	0.	0.25	0.01	-	-
2010	-7.73	-12.39	-5.93	-10.48	0.61	0.	0.25	0.01	-	-
2034	-8.10	-12.87	-5.93	-10.48	0.61	0.	0.25	0.01	-	-
2147	-9.98	-15.26	-5.93	-10.48	0.61	0.	0.25	0.01	-	-
2260	-12.07	-17.87	-5.93	-10.48	0.61	0.	0.25	0.01	100	-
Span=7										
0	-12.07	-17.87	20.01	13.81	0.49	0.	0.25	0.01	100	-
199	-7.51	-11.52	20.01	13.81	0.49	0.	0.25	0.01	-	-
250	-6.42	-10.00	20.01	13.81	0.49	0.	0.25	0.01	-	-
398	-3.47	-5.86	20.01	13.81	0.28	0.	0.25	0.00	-	-
597	0.64	-0.87	20.01	13.81	0.04	0.03	0.25	0.00	-	-
796	4.64	2.54	19.91	13.73	0.	0.22	0.25	0.00	-	-
995	8.08	5.03	16.49	11.11	0.	0.39	0.25	0.00	-	-
1194	10.92	6.99	13.06	8.48	0.	0.53	0.25	0.00	-	-
1393	13.08	8.42	9.64	5.85	0.	0.64	0.25	0.00	-	-
1592	14.57	9.34	6.22	3.23	0.	0.71	0.25	0.01	-	-
1791	15.37	9.73	2.80	0.60	0.	0.75	0.25	0.01	-	-
1990	15.49	9.60	-0.63	-2.17	0.	0.76	0.25	0.01	100	-
2189	14.92	8.95	-4.05	-5.60	0.	0.73	0.25	0.01	-	-
2388	13.68	7.77	-7.22	-9.02	0.	0.67	0.25	0.01	-	-
2587	11.76	6.07	-9.85	-12.44	0.	0.57	0.25	0.00	-	-
2786	9.15	3.85	-12.48	-15.86	0.	0.45	0.25	0.00	-	-
2985	5.87	1.11	-15.10	-19.29	0.	0.28	0.25	0.00	-	-
3184	1.93	-2.16	-17.73	-22.71	0.10	0.09	0.25	0.00	-	-
3383	-2.62	-5.95	-17.81	-22.81	0.29	0.	0.25	0.00	-	-
3582	-7.85	-10.95	-17.81	-22.81	0.53	0.	0.25	0.01	-	-
3730	-12.19	-15.51	-17.81	-22.81	0.76	0.	0.25	0.01	-	-
3781	-13.77	-17.17	-17.81	-22.81	0.76	0.	0.25	0.01	-	-
3980	-20.14	-24.07	-17.81	-22.81	0.76	0.	0.25	0.01	100	-

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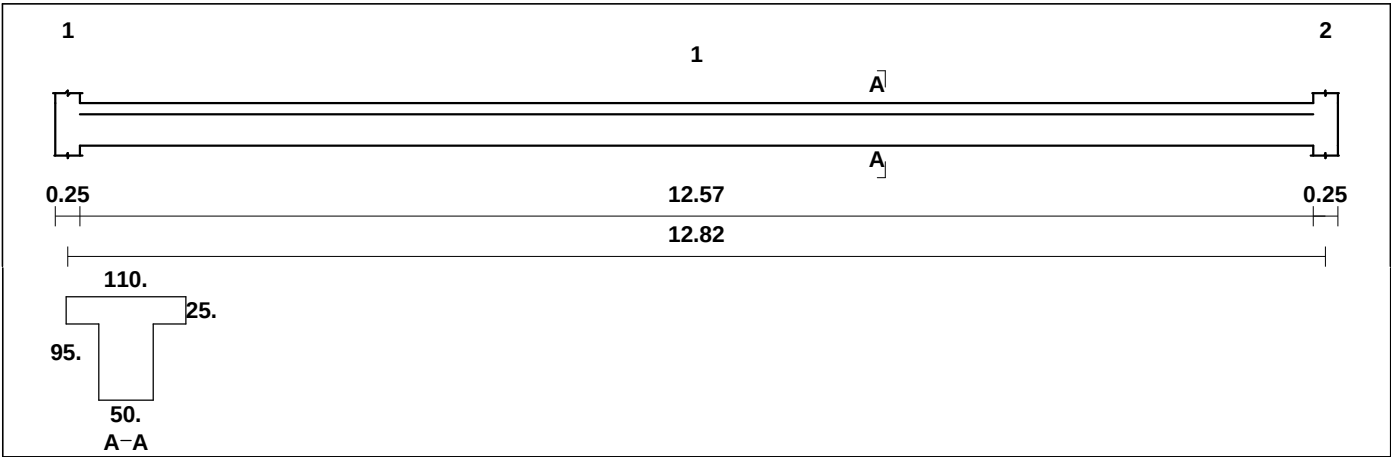
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=8										
0	-20.14	-24.07	20.52	15.53	0.79	0.	0.25	0.01	100	-
186	-14.43	-18.03	20.52	15.53	0.79	0.	0.25	0.01	-	-
250	-12.61	-16.09	20.52	15.53	0.79	0.	0.25	0.01	-	-
371	-9.35	-12.60	20.52	15.53	0.62	0.	0.25	0.01	-	-
557	-4.82	-8.29	20.52	15.53	0.40	0.	0.25	0.01	-	-
742	-0.81	-5.05	20.52	15.53	0.24	0.	0.25	0.00	-	-
928	2.63	-2.24	18.15	13.71	0.11	0.12	0.25	0.00	-	-
1113	5.46	0.09	14.97	11.27	0.	0.26	0.25	0.00	-	-
1299	7.72	1.99	11.77	8.81	0.	0.37	0.25	0.00	-	-
1484	9.37	3.42	8.58	6.37	0.	0.46	0.25	0.00	-	-
1670	10.43	4.40	5.38	3.53	0.	0.51	0.25	0.00	-	-
1855	10.90	4.93	2.20	0.35	0.	0.53	0.25	0.00	100	-
2041	10.78	5.00	-0.84	-2.85	0.	0.53	0.25	0.00	-	-
2226	10.07	4.62	-3.28	-6.03	0.	0.49	0.25	0.00	-	-
2412	8.77	3.78	-5.74	-9.23	0.	0.43	0.25	0.00	-	-
2597	6.88	2.49	-8.18	-12.41	0.	0.33	0.25	0.00	-	-
2783	4.38	0.74	-10.63	-15.61	0.	0.21	0.25	0.00	-	-
2968	1.40	-1.46	-12.44	-17.97	0.07	0.06	0.25	0.00	-	-
3154	-2.05	-4.15	-12.44	-17.97	0.20	0.	0.25	0.00	-	-
3339	-6.07	-8.31	-12.44	-17.97	0.40	0.	0.25	0.01	-	-
3460	-9.01	-11.49	-12.44	-17.97	0.56	0.	0.25	0.01	-	-
3525	-10.70	-13.29	-12.44	-17.97	0.56	0.	0.25	0.01	-	-
3710	-14.79	-18.84	-12.44	-17.97	0.56	0.	0.25	0.01	100	-
Span=9										
0	-14.79	-18.84	17.78	14.15	0.56	0.	0.25	0.01	100	-
144	-10.65	-14.50	17.78	14.15	0.56	0.	0.25	0.01	-	-
250	-7.83	-11.53	17.78	14.15	0.56	0.	0.25	0.01	-	-
289	-6.84	-10.49	17.78	14.15	0.51	0.	0.25	0.01	-	-
433	-3.42	-7.36	17.78	14.15	0.36	0.	0.25	0.00	-	-
578	-0.34	-4.72	17.78	14.15	0.23	0.	0.25	0.00	-	-
722	2.37	-2.36	17.78	14.15	0.11	0.11	0.25	0.00	-	-
867	4.73	-0.27	16.46	13.13	0.01	0.23	0.25	0.00	-	-
1011	6.72	1.54	13.98	11.23	0.	0.33	0.25	0.00	-	-
1156	8.37	3.08	11.49	9.32	0.	0.41	0.25	0.00	-	-
1300	9.64	4.33	9.01	7.42	0.	0.47	0.25	0.00	-	-
1445	10.56	5.32	6.52	5.12	0.	0.52	0.25	0.00	100	-
1589	11.12	6.03	4.04	2.64	0.	0.54	0.25	0.00	-	-
1734	11.32	6.46	2.04	0.15	0.	0.55	0.25	0.00	-	-
1878	11.17	6.62	0.14	-2.33	0.	0.54	0.25	0.00	-	-
2023	10.65	6.50	-1.78	-4.82	0.	0.52	0.25	0.00	-	-
2167	9.77	6.11	-2.79	-6.15	0.	0.48	0.25	0.00	-	-
2312	8.53	5.44	-2.79	-6.15	0.	0.42	0.25	0.00	-	-
2456	6.95	4.49	-2.79	-6.15	0.	0.34	0.25	0.00	-	-
2601	4.99	3.27	-2.79	-6.15	0.	0.24	0.25	0.00	-	-
2640	4.40	2.89	-2.79	-6.15	0.	0.21	0.25	0.00	-	-
2745	2.68	1.78	-2.79	-6.15	0.	0.13	0.25	0.00	-	-
2890	0.00	0.00	-2.79	-6.15	0.	0.	0.25	0.00	100	-

Beam 19,20	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

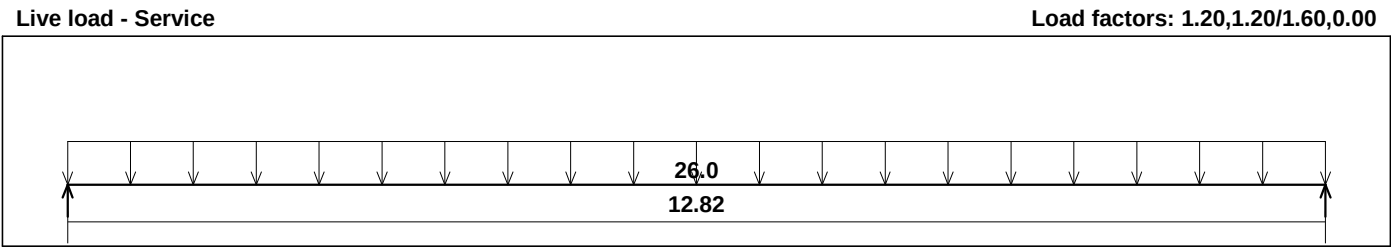
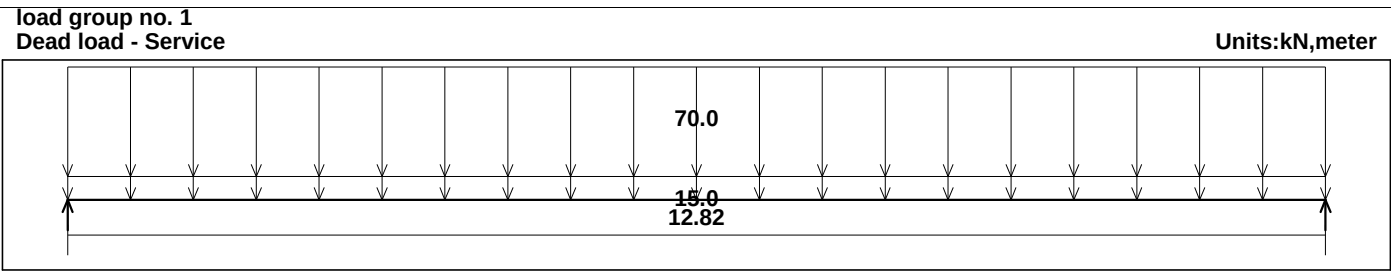
	Moment / Shear Envelope (Factored)				Units:kN,meter			
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-13.2	-13.2	-14.1	-14.1	-16.1	-16.1	-17.7
Max M	0.0	-10.7	-10.7	-10.7	-10.7	-12.8	-12.8	-14.5
MspMn	2.8	-6.8	-7.4	-8.3	-7.6	-9.3	-9.6	-10.9
MspMx	4.1	-4.6	-5.4	-5.4	-5.3	-6.5	-6.8	-8.3
M Max			5.9		9.9		8.4	
M Min			1.7		5.1		3.3	
Mmn=0 @	0.0	0.7	0.9	0.9	0.7	0.8	0.9	1.0
Mmx=0 @	0.0	0.5	0.6	0.6	0.5	0.6	0.6	0.7
mx -M @			0.6		0.5		0.6	
mx +M @			1.4		1.6		1.6	
V max		-21.4	-18.7		-22.0		-21.9	
V min		-27.6	-25.5		-29.3		-29.4	
DReac		39.5	39.6		42.8		45.3	
LReac	4.8	13.2	14.1		14.9		15.3	
Max R		52.7	53.8		57.7		60.6	
Min R		44.4	44.1		48.3		51.3	
	5	6	7	8	9			
	5	6	7	8				
Min M	-17.7	-11.9	-11.9	-17.9	-17.9	-24.1	-24.1	-18.8
Max M	-14.5	-7.4	-7.4	-12.1	-12.1	-20.1	-20.1	-14.8
MspMn	-10.5	-5.5	-7.6	-12.4	-10.0	-15.5	-16.1	-11.5
MspMx	-7.6	-2.8	-4.2	-7.7	-6.4	-12.2	-12.6	-9.0
M Max			0.6		15.5		10.9	
M Min			-4.4		9.7		5.0	
Mmn=0 @	0.8	0.5	0.0	2.3	0.6	0.9	1.1	0.9
Mmx=0 @	0.6	0.4	0.8	1.0	0.6	0.7	0.8	0.7
mx -M @			0.8		0.6		0.8	
mx +M @			1.0		2.0		1.9	
V max		-19.8	-17.7		-28.2		-22.9	
V min		-27.9	-24.1		-36.4		-31.6	
DReac		33.3	41.9		53.2		47.2	
LReac		13.9	15.8		17.3		15.7	
Max R		47.2	57.7		70.5		62.9	
Min R		34.6	43.8		60.5		52.8	
	9	10						
	9							
Min M	-18.8	0.0						
Max M	-14.8	0.0						
MspMn	-11.5	2.9						
MspMx	-7.8	4.4						
M Max								
M Min								
Mmn=0 @	0.9	2.9						
Mmx=0 @	0.6	2.9						
mx -M @								
mx +M @								
V max		-13.2						
V min		-19.7						
DReac		14.3						
LReac		5.4						
Max R		19.7						
Min R		13.2						

Beam 21	Code: ACI318-02
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Geometry Units:meter,cm



Loading

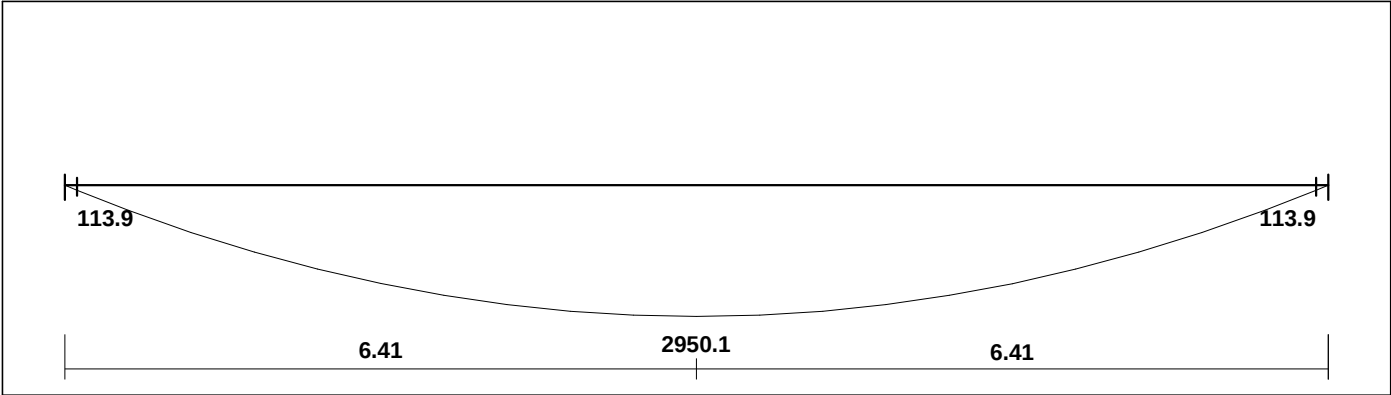


Loads (kN,meter)	
1	
Self.Wt.	15.00
Uni D	70.00
L	26.00

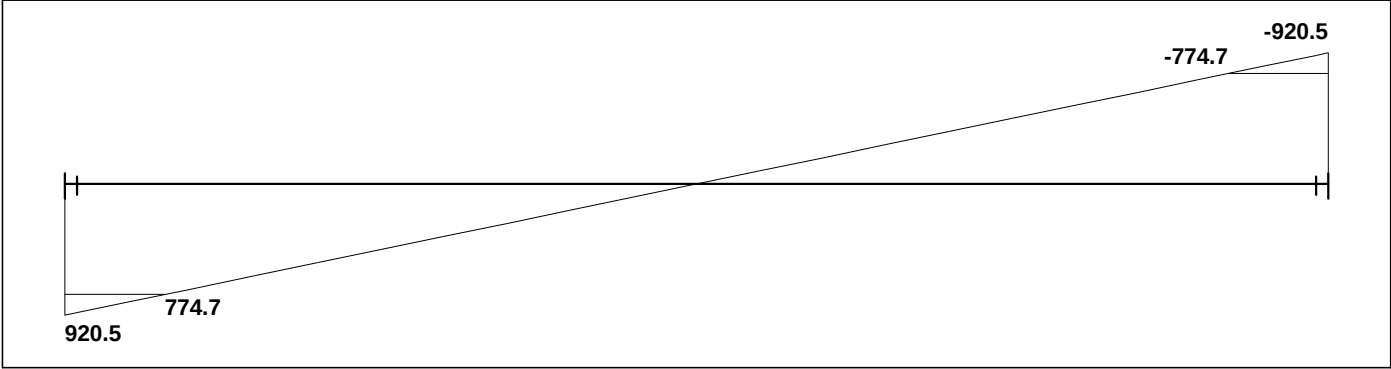
Beam 21	Code: ACI318-02
Project: BAEMS	Page: 289
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	653.82	653.82
LiveR	266.66	266.66
Max R	920.48	920.48
Min R	920.48	920.48
Service		
DeadR	544.85	544.85
LiveR	166.66	166.66
Max R	711.51	711.51
Min R	711.51	711.51

Beam 21	Code: ACI318-02
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Reinforcement (cm 2)

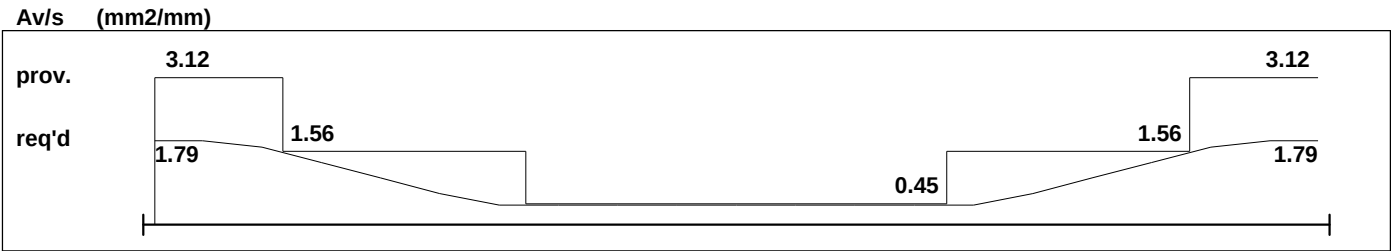
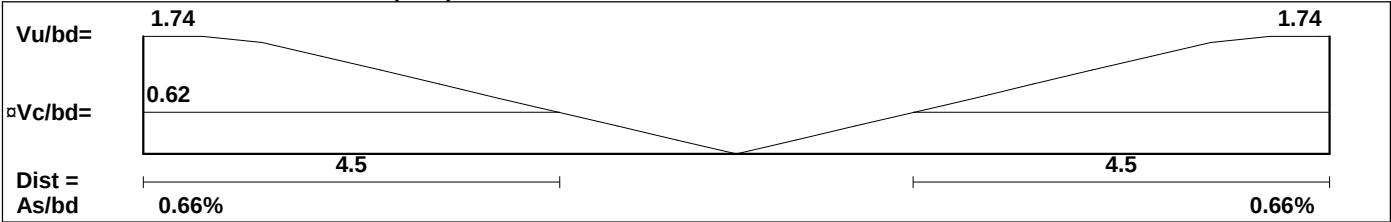
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

Top Cover	6.		
As top = *=minimum			
As bot =	29.42	98.06	29.42
Bot Cover	6.		
a/d	1%	21%	1%
As/bd	0.00%	2.20%	0.00%

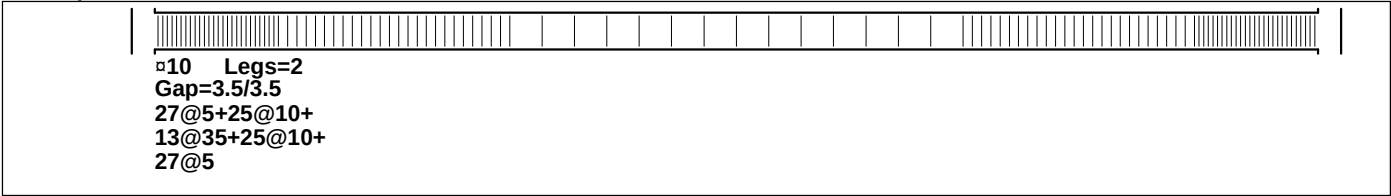
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Legs: 2/4
Max no. of groups: 5
Max. =Code
Inverted T/L shear area: Web
Shear reduction: Yes
Spacing: Min. =5. Incr. = 5.

Max. allow. shear stress = 2.5 (MPa)



Stirrups



Beam 21	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	98.06	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.04033

Mcr	=	278.13
Mmax,d	=	*****
Mmax,d+l	=	*****
Mmax,sust	=	*****

Ie,d (m^4)= 0.04037
Ie,d+l (m^4)= 0.04035
Ie,sust (m^4)= 0.04048

e/1+50r = 2.00/0.80
ai,d = 31.511
ai,l = 9.662
at,sust = 24.529
ai,l = L/ 1326
(ai+at),t2-t1 L/ 283

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	774.72	774.72	0.	0.	1.79	0.00	100	-
125	113.94	113.94	774.72	774.72	0.	3.40	1.79	0.01	-	-
641	560.52	560.52	774.72	774.72	0.	17.01	1.79	0.04	-	-
1282	1062.0	1062.0	736.38	736.38	0.	32.79	1.65	0.07	-	-
1923	1504.6	1504.6	644.33	644.33	0.	47.19	1.32	0.10	-	-
2564	1888.1	1888.1	552.29	552.29	0.	60.08	0.99	0.13	-	-
3205	2212.6	2212.6	460.24	460.24	0.	71.31	0.66	0.15	-	-
3846	2478.1	2478.1	368.19	368.19	0.	80.73	0.42	0.17	-	-
4487	2684.6	2684.6	276.14	276.14	0.	88.22	0.42	0.19	-	-
5128	2832.1	2832.1	184.10	184.10	0.	93.66	0.42	0.20	-	-
5769	2920.6	2920.6	92.05	92.05	0.	96.96	0.42	0.20	-	-
6410	2950.1	2950.1	0.00	0.00	0.	98.06	0.42	0.21	100	-
7051	2920.6	2920.6	-92.05	-92.05	0.	96.96	0.42	0.20	-	-
7692	2832.1	2832.1	-184.10	-184.10	0.	93.66	0.42	0.20	-	-
8333	2684.6	2684.6	-276.14	-276.14	0.	88.22	0.42	0.19	-	-
8974	2478.1	2478.1	-368.19	-368.19	0.	80.73	0.42	0.17	-	-
9615	2212.6	2212.6	-460.24	-460.24	0.	71.31	0.66	0.15	-	-
1025	1888.1	1888.1	-552.29	-552.29	0.	60.08	0.99	0.13	-	-
1089	1504.6	1504.6	-644.33	-644.33	0.	47.2	1.32	0.10	-	-
1153	1062.0	1062.0	-736.38	-736.38	0.	32.79	1.65	0.07	-	-
1217	560.53	560.53	-774.72	-774.72	0.	17.01	1.79	0.04	-	-
1269	113.94	113.94	-774.72	-774.72	0.	3.40	1.79	0.01	-	-
1282	0.00	0.00	-774.72	-774.72	0.	0.	1.79	0.00	100	-

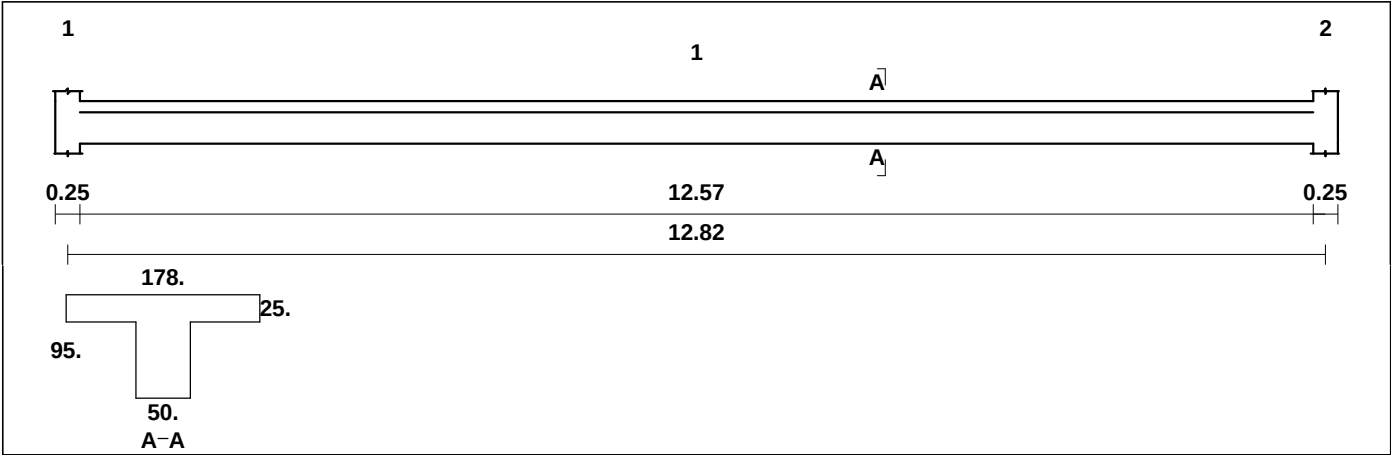
Beam 21	Code: ACI318-02
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M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

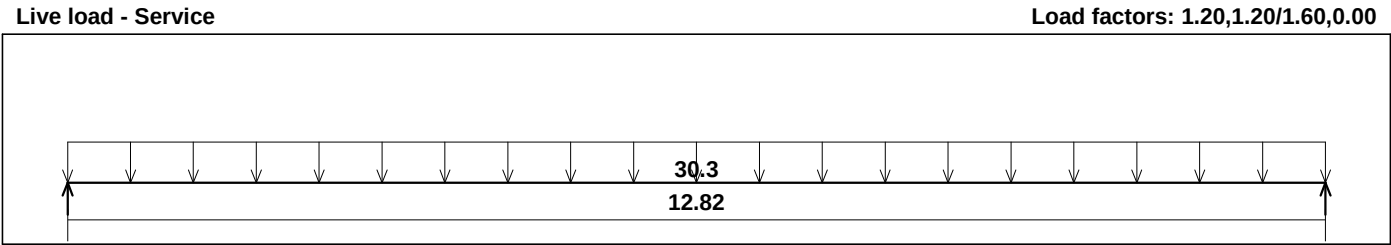
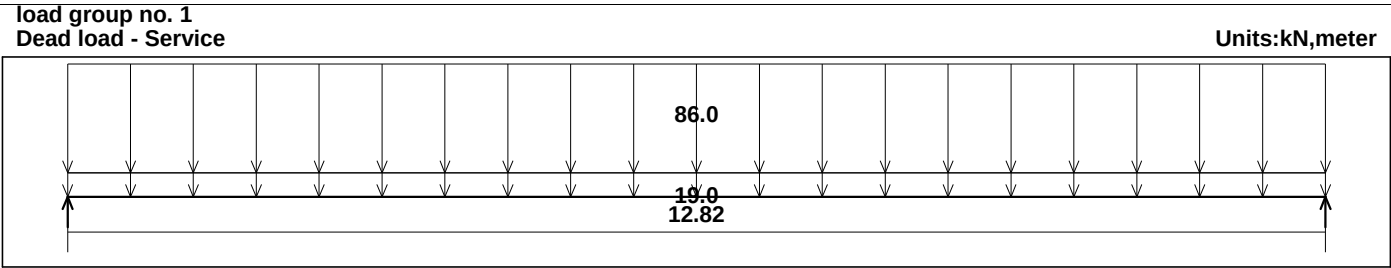
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		113.9	
MspMx		113.9	
M Max			
M Min			
Mmn=0 @	0.0	12.8	
Mmx=0 @	0.0	12.8	
mx -M @			
mx +M @			
V max		-920.5	
V min		-920.5	
DReac		653.8	
LReac		266.7	
Max R		920.5	
Min R		920.5	

Beam 22	Code: ACI318-02
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Geometry Units:meter,cm



Loading

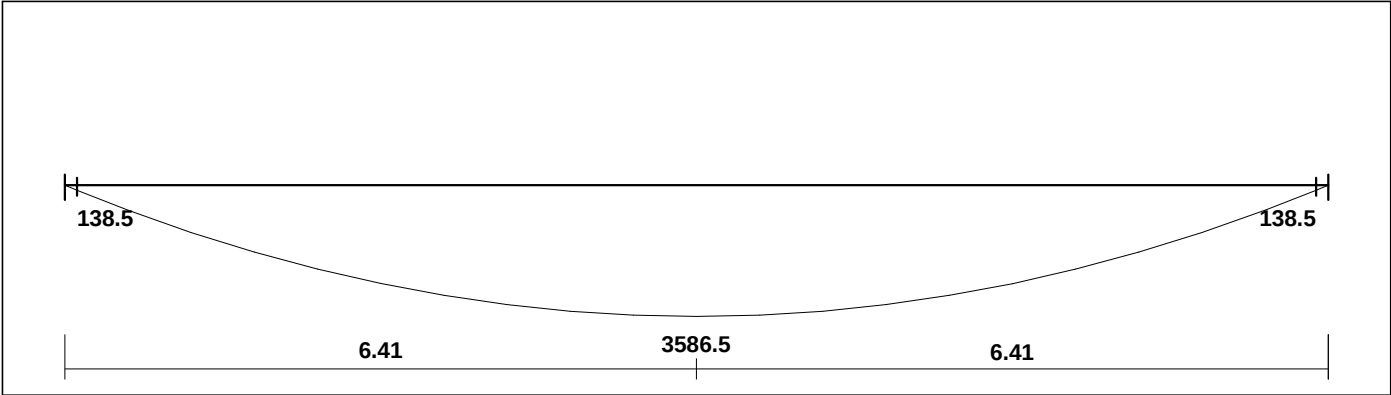


Loads	(kN,meter)
1	
Self.Wt.	19.08
Uni D	86.00
L	30.30

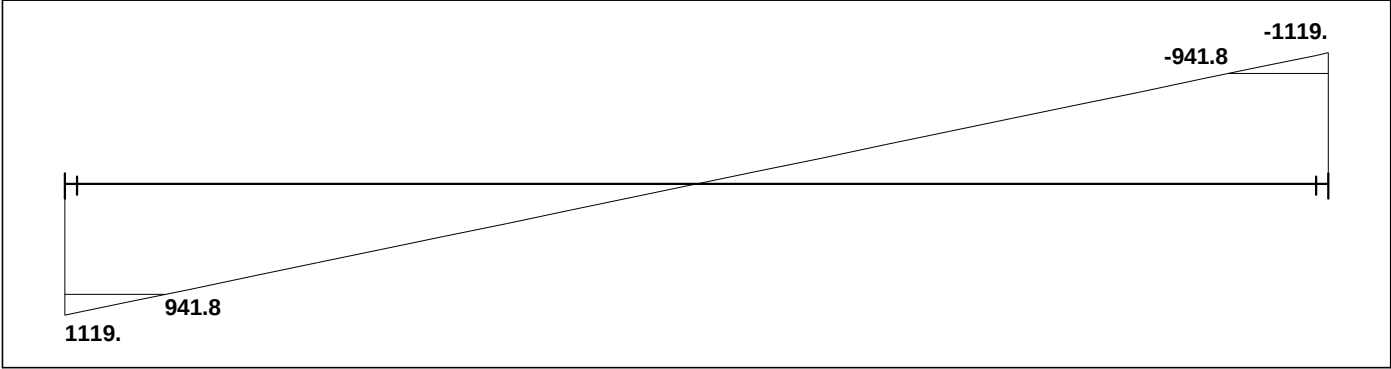
Beam 22	Code: ACI318-02
Project: BAEMS	Page: 293
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

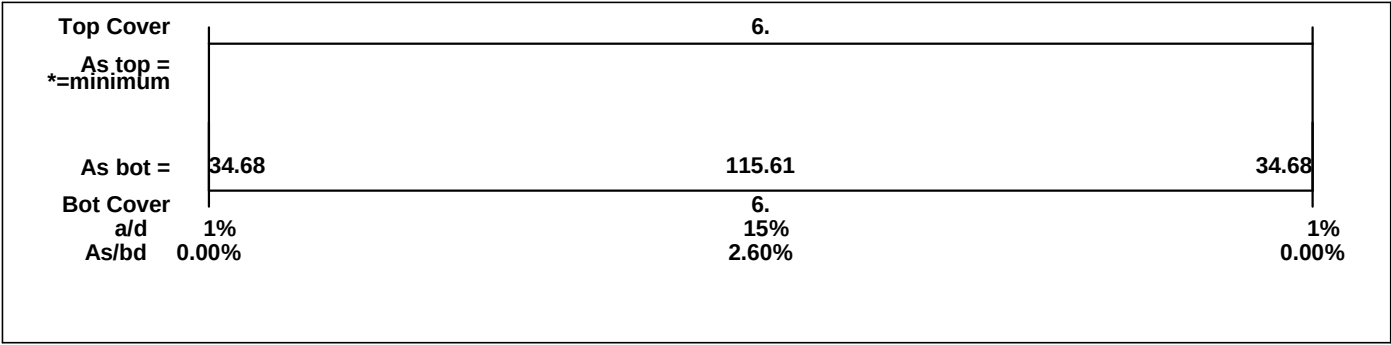
Factored

DeadR	808.28	808.28
LiveR	310.76	310.76
Max R	1119.03	1119.03
Min R	1119.03	1119.03
Service		
DeadR	673.56	673.56
LiveR	194.22	194.22
Max R	867.79	867.79
Min R	867.79	867.79

Beam 22	Code: ACI318-02
Project: BAEMS	Page: 294
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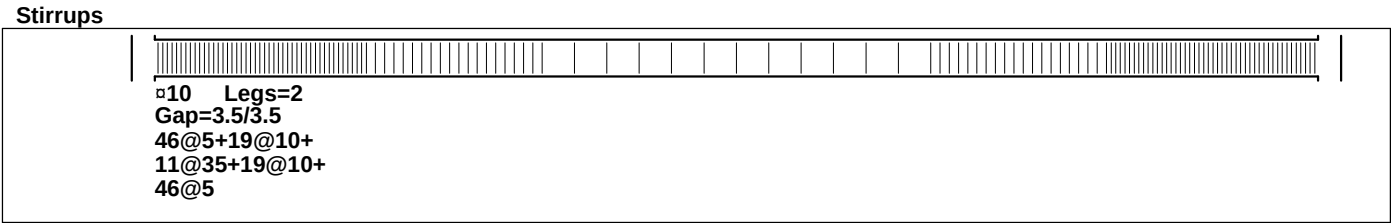
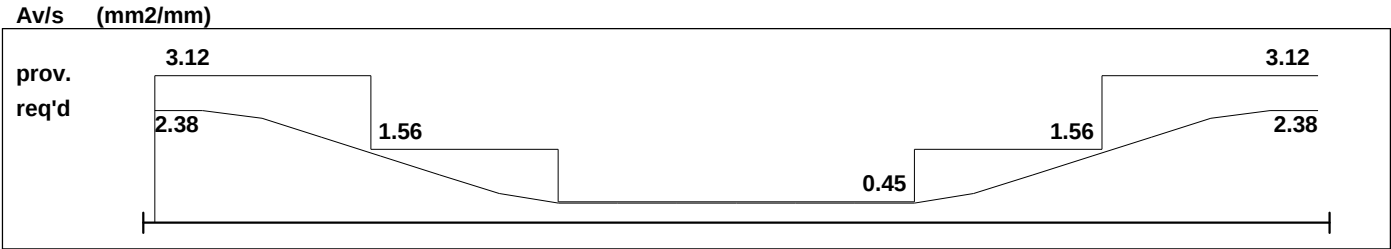
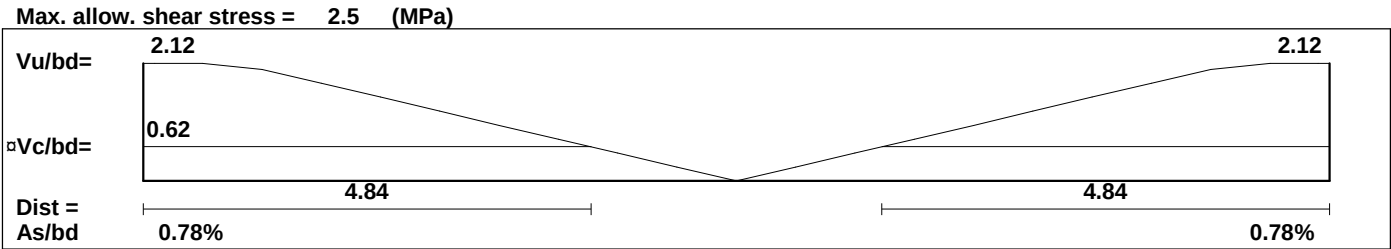
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 22	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	115.61	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.06081
Icr(m^4)= 0.05135

Mcr	=	304.17
Mmax,d	=	*****
Mmax,d+l	=	*****
Mmax,sust	=	*****

Ie,d (m^4)= 0.05137
Ie,d+l (m^4)= 0.05136
Ie,sust (m^4)= 0.05144

e/1+50r = 2.00/0.80
ai,d = 30.610
ai,l = 8.837
at,sust = 23.859
ai,l = L/ 1450
(ai+at),t2-t1 L/ 295

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	941.84	941.84	0.	0.	2.38	0.00	100	-
125	138.52	138.52	941.84	941.84	0.	4.14	2.38	0.01	-	-
641	681.43	681.43	941.84	941.84	0.	20.59	2.38	0.03	-	-
1282	1291.1	1291.1	895.23	895.23	0.	39.50	2.22	0.05	-	-
1923	1829.1	1829.1	783.32	783.32	0.	56.61	1.82	0.07	-	-
2564	2295.4	2295.4	671.42	671.42	0.	71.78	1.42	0.09	-	-
3205	2689.9	2689.9	559.52	559.52	0.	84.87	1.02	0.11	-	-
3846	3012.7	3012.7	447.61	447.61	0.	95.78	0.62	0.12	-	-
4487	3263.7	3263.7	335.71	335.71	0.	104.3	0.42	0.14	-	-
5128	3443.0	3443.0	223.81	223.81	0.	110.6	0.42	0.14	-	-
5769	3550.6	3550.6	111.90	111.90	0.	114.3	0.42	0.15	-	-
6410	3586.5	3586.5	0.00	0.00	0.	115.6	0.42	0.15	100	-
7051	3550.6	3550.6	-111.90	-111.90	0.	114.3	0.42	0.15	-	-
7692	3443.0	3443.0	-223.81	-223.81	0.	110.6	0.42	0.14	-	-
8333	3263.7	3263.7	-335.71	-335.71	0.	104.3	0.42	0.14	-	-
8974	3012.7	3012.7	-447.61	-447.61	0.	95.78	0.62	0.12	-	-
9615	2689.9	2689.9	-559.52	-559.52	0.	84.87	1.02	0.11	-	-
1025	2295.4	2295.4	-671.42	-671.42	0.	71.78	1.42	0.09	-	-
1089	1829.1	1829.1	-783.32	-783.32	0.	56.61	1.82	0.07	-	-
1153	1291.1	1291.1	-895.23	-895.23	0.	39.50	2.22	0.05	-	-
1217	681.44	681.44	-941.84	-941.84	0.	20.59	2.38	0.03	-	-
1269	138.52	138.52	-941.84	-941.84	0.	4.14	2.38	0.01	-	-
1282	0.00	0.00	-941.84	-941.84	0.	0.	2.38	0.00	100	-

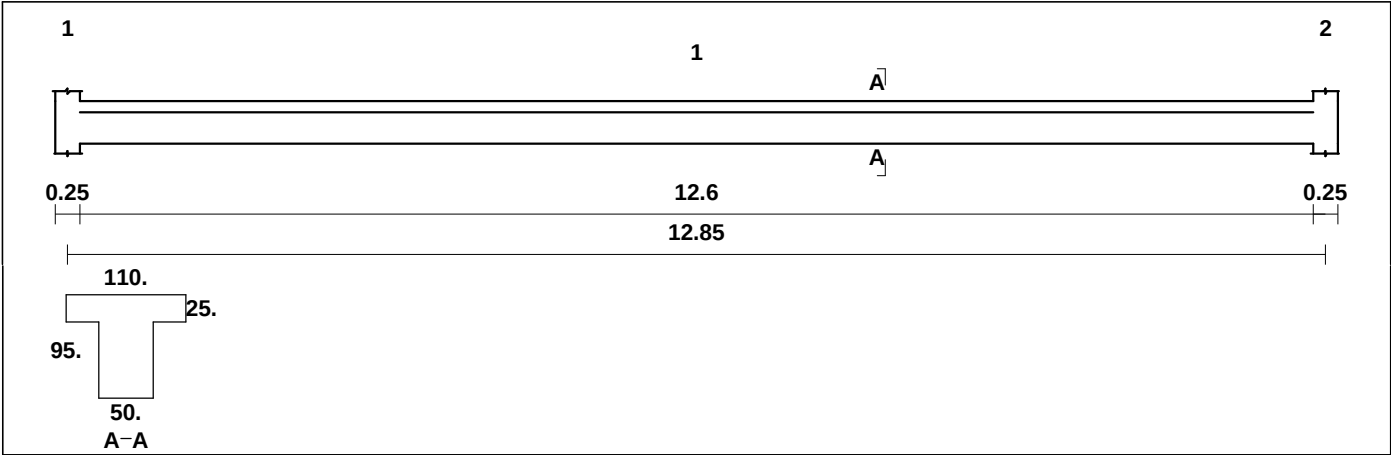
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Designed by: bayan	Date: 4/ 7/14

M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)		Units:kN,meter
1	2	
	1	

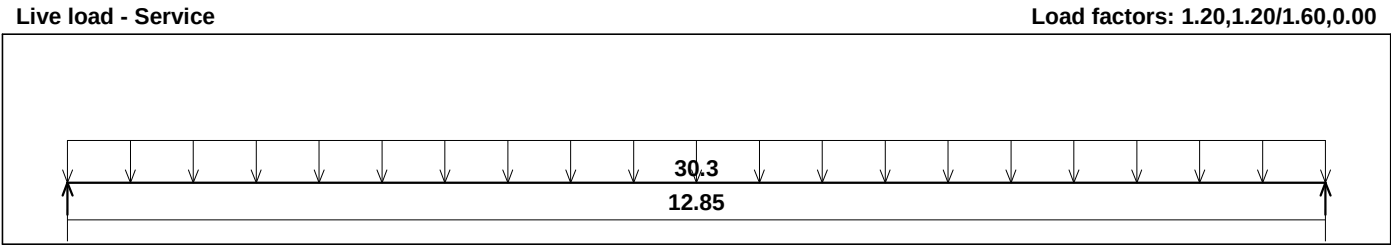
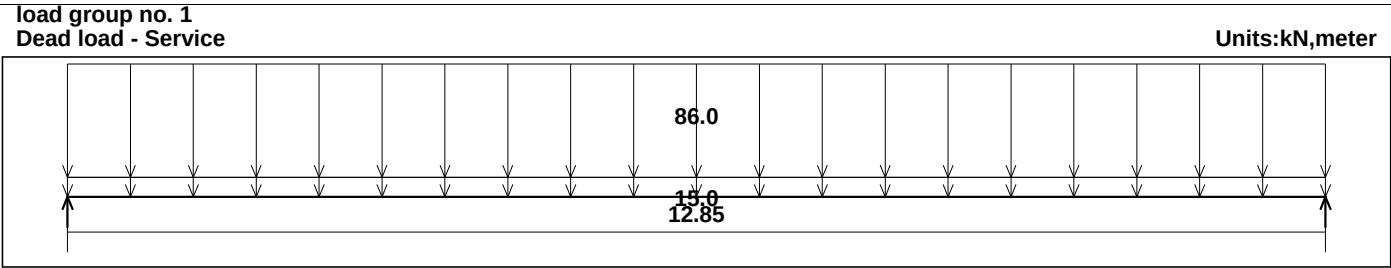
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		138.5
MspMx		138.5
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-1119.0
V min		-1119.0
DReac		808.3
LReac		310.8
Max R		1119.0
Min R		1119.0

Beam 22.A	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

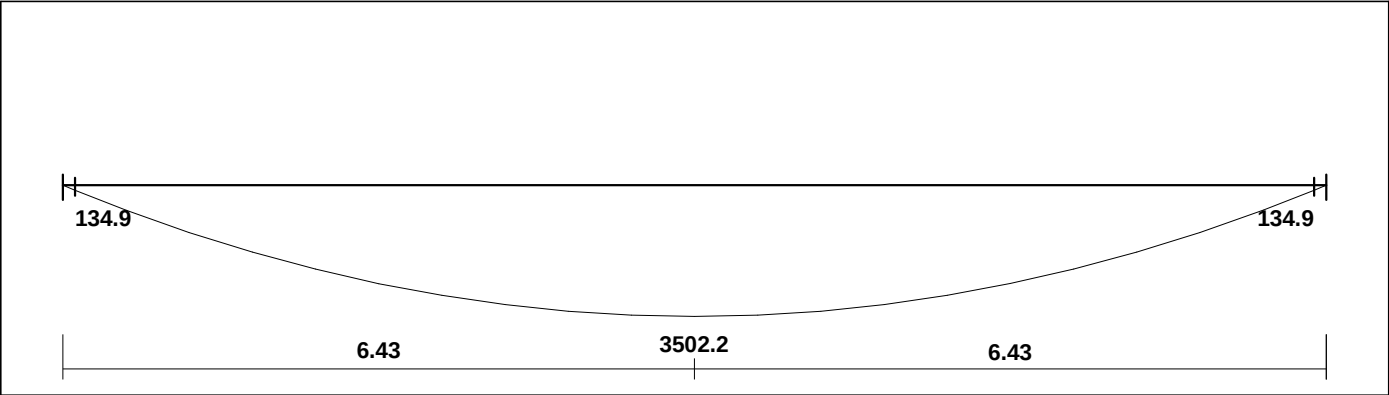


Loads	(kN,meter)
1	
Self.Wt.	15.00
Uni D	86.00
L	30.30

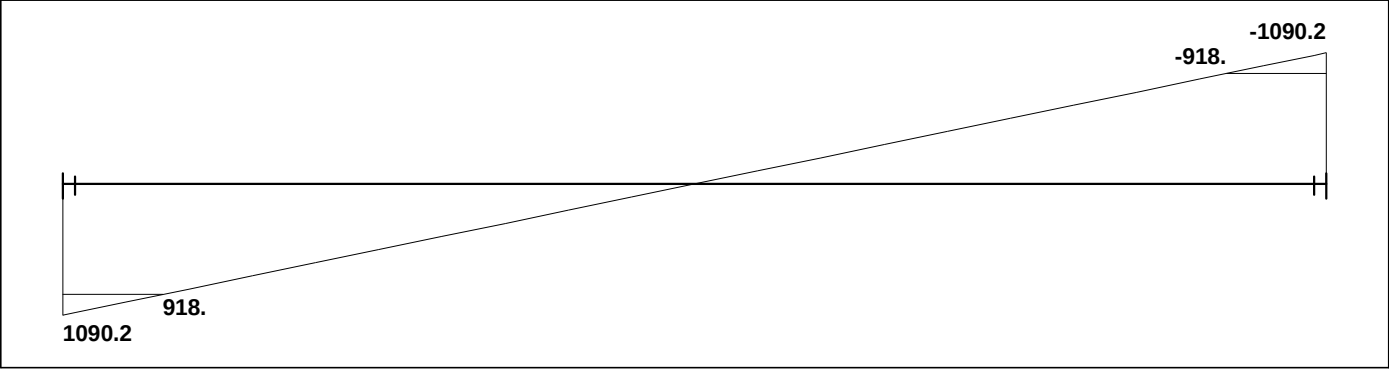
Beam 22.A	Code: ACI318-02
Project: BAEMS	Page: 326
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

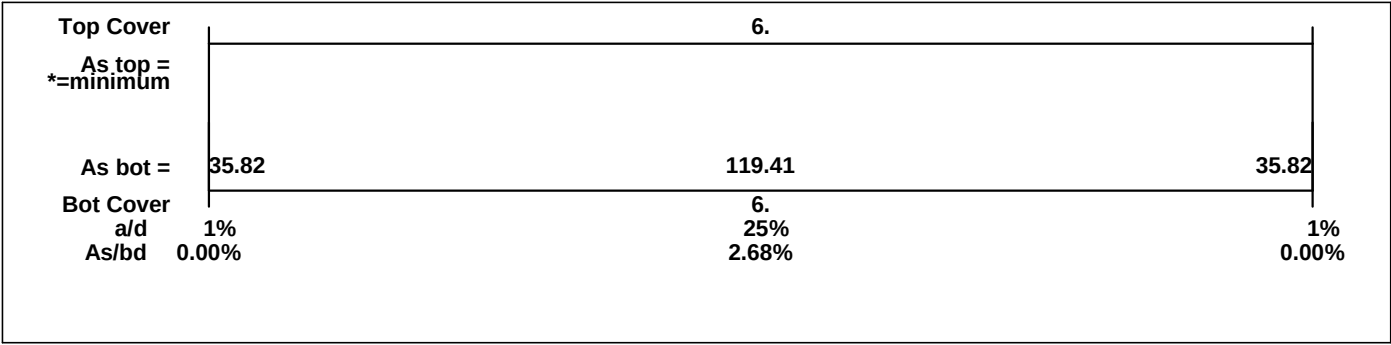
Factored

DeadR	778.71	778.71
LiveR	311.48	311.48
Max R	1090.19	1090.19
Min R	1090.19	1090.19
Service		
DeadR	648.93	648.93
LiveR	194.68	194.68
Max R	843.6	843.6
Min R	843.6	843.6

Beam 22.A	Code: ACI318-02
Project: BAEMS	Page: 327
Designed by: bayan	Date: 4/ 7/14

Reinforcement (cm 2)

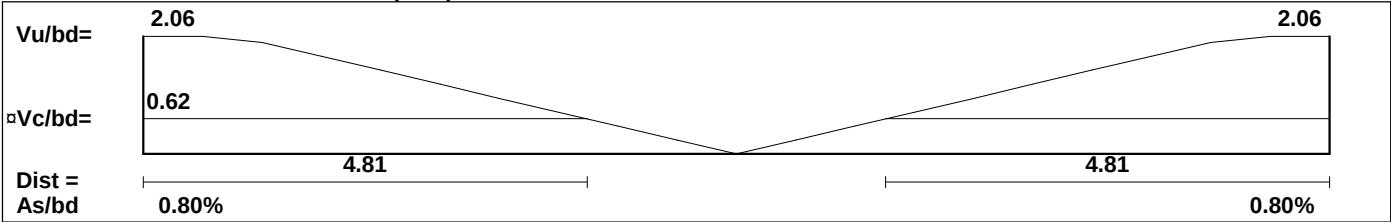
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



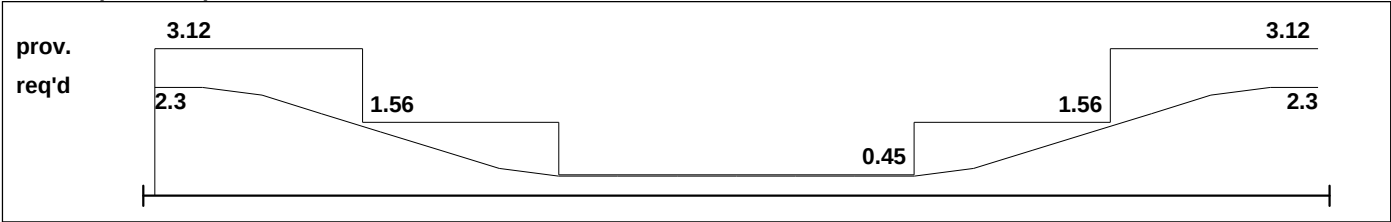
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

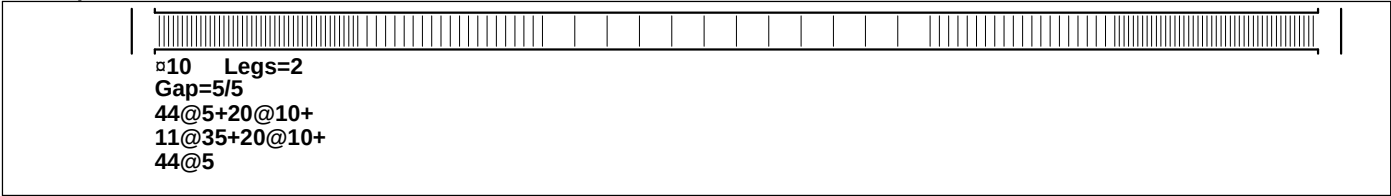
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm2/mm)



Stirrups



Beam 22.A	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	119.41	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.04650

Mcr	=	278.13
Mmax,d	=	*****
Mmax,d+l	=	*****
Mmax,sust	=	*****

Ie,d (m^4)= 0.04650
Ie,d+l (m^4)= 0.04650
Ie,sust (m^4)= 0.04653

e/1+50r = 2.00/0.80
ai,d = 32.807
ai,l = 9.847
at,sust = 25.593
ai,l = L/ 1304
(ai+at),t2-t1 L/ 273

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	917.97	917.97	0.	0.	2.30	0.00	100	-
125	134.95	134.95	917.97	917.97	0.	4.04	2.30	0.01	-	-
643	665.92	665.92	917.97	917.97	0.	20.28	2.30	0.04	-	-
1285	1260.8	1260.8	872.16	872.16	0.	39.20	2.13	0.08	-	-
1928	1786.5	1786.5	763.05	763.05	0.	56.63	1.74	0.12	-	-
2570	2241.4	2241.4	654.12	654.12	0.	72.32	1.36	0.15	-	-
3213	2627.0	2627.0	545.01	545.01	0.	86.11	0.97	0.18	-	-
3855	2941.9	2941.9	436.08	436.08	0.	97.75	0.58	0.21	-	-
4498	3187.2	3187.2	326.97	326.97	0.	107.0	0.42	0.23	-	-
5140	3362.2	3362.2	218.04	218.04	0.	113.8	0.42	0.24	-	-
5783	3467.3	3467.3	108.93	108.93	0.	118.0	0.42	0.25	-	-
6425	3502.2	3502.2	0.00	0.00	0.	119.4	0.42	0.25	100	-
7068	3467.2	3467.2	-109.10	-109.10	0.	118.0	0.42	0.25	-	-
7710	3362.2	3362.2	-218.04	-218.04	0.	113.8	0.42	0.24	-	-
8353	3186.9	3186.9	-327.14	-327.14	0.	107.0	0.42	0.23	-	-
8995	2941.9	2941.9	-436.08	-436.08	0.	97.75	0.58	0.21	-	-
9638	2626.4	2626.4	-545.18	-545.18	0.	86.09	0.97	0.18	-	-
1028	2241.4	2241.4	-654.12	-654.12	0.	72.32	1.36	0.15	-	-
1092	1785.8	1785.8	-763.22	-763.22	0.	56.61	1.74	0.12	-	-
1156	1260.8	1260.8	-872.16	-872.16	0.	39.20	2.13	0.08	-	-
1220	664.94	664.94	-917.97	-917.97	0.	20.25	2.30	0.04	-	-
1272	134.95	134.95	-917.97	-917.97	0.	4.04	2.30	0.01	-	-
1285	0.00	0.00	-917.97	-917.97	0.	0.	2.30	0.00	100	-

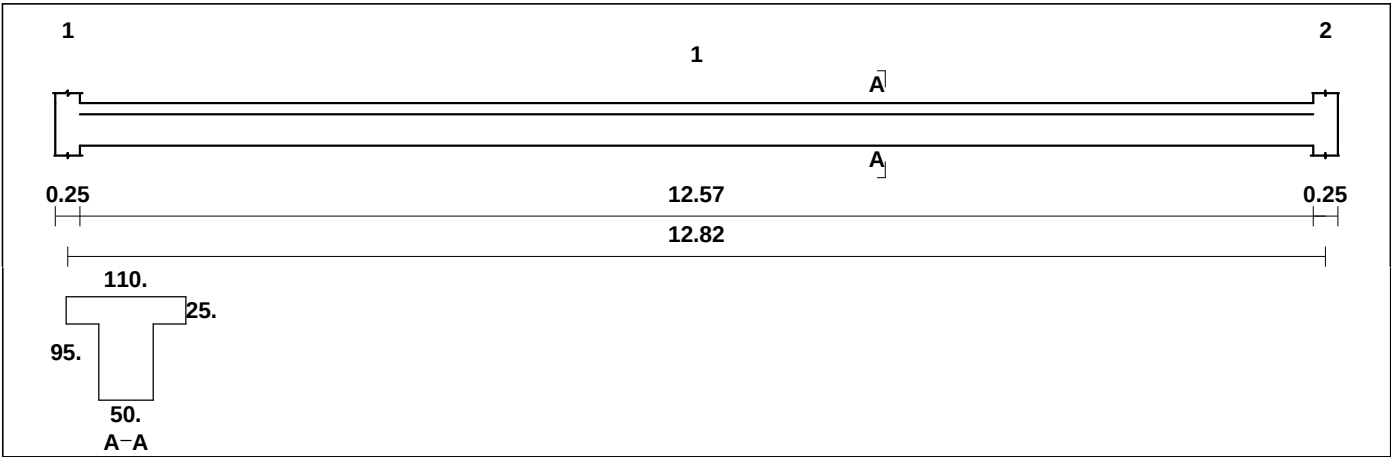
Beam 22.A	Code: ACI318-02
Project: BAEMS	Page: 329
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Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		

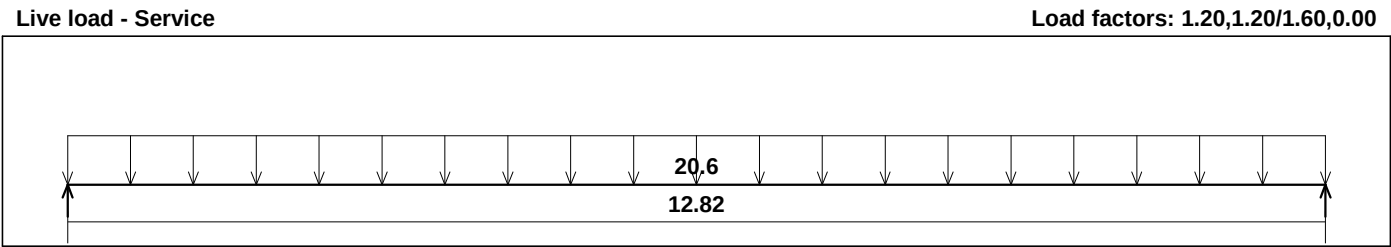
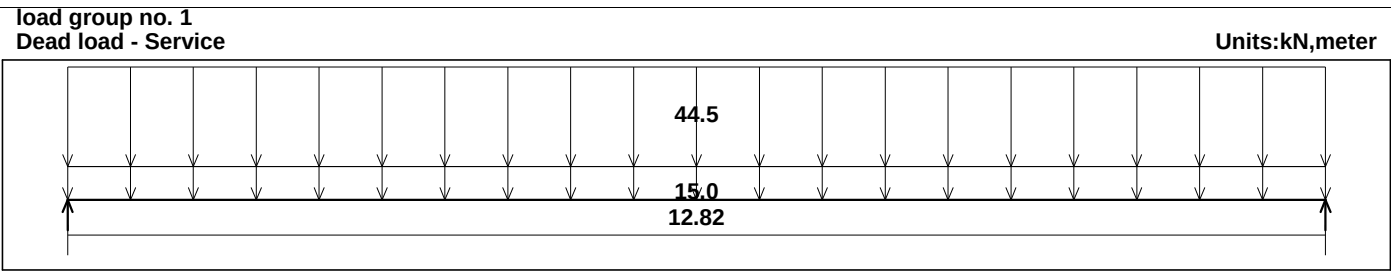
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		134.9	
MspMx		134.9	
M Max			
M Min			
Mmn=0 @	0.0	12.9	
Mmx=0 @	0.0	12.9	
mx -M @			
mx +M @			
V max		-1090.2	
V min		-1090.2	
DReac		778.7	
LReac		311.5	
Max R		1090.2	
Min R		1090.2	

Beam 23.A	Code: ACI318-02
Project: BAEMS	Page: 329
Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

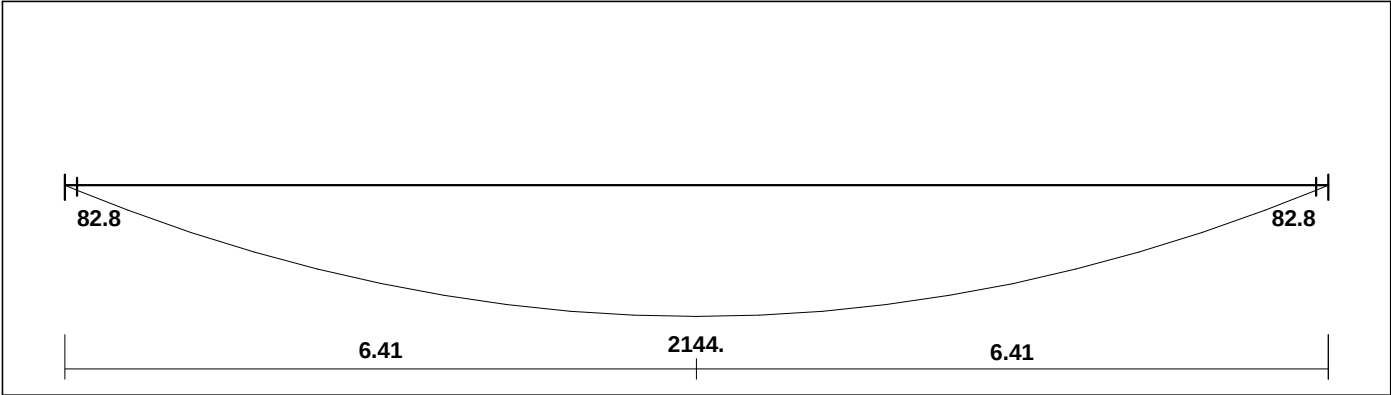


Loads	(kN,meter)
1	
Self.Wt.	15.00
Uni D	44.50
L	20.60

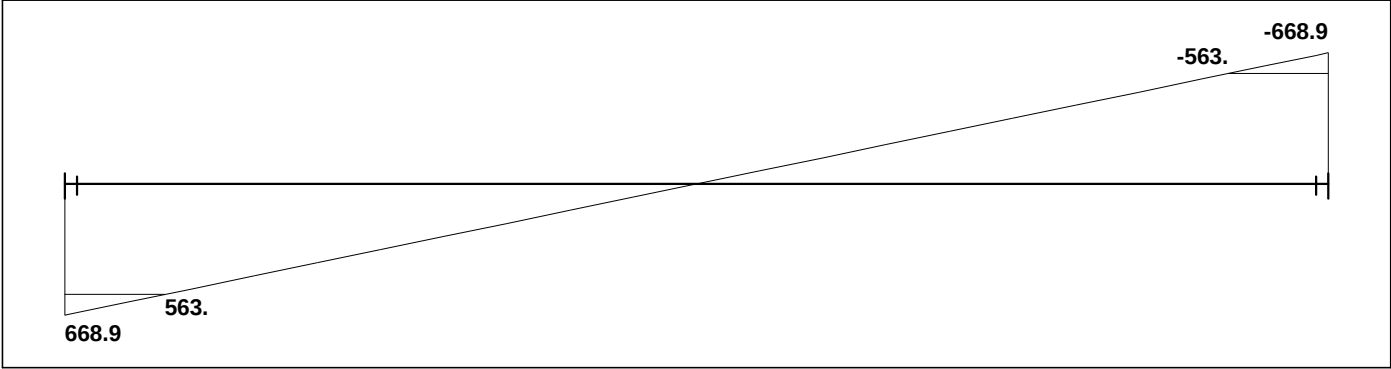
Beam 23.A	Code: ACI318-02
Project: BAEMS	Page: 330
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

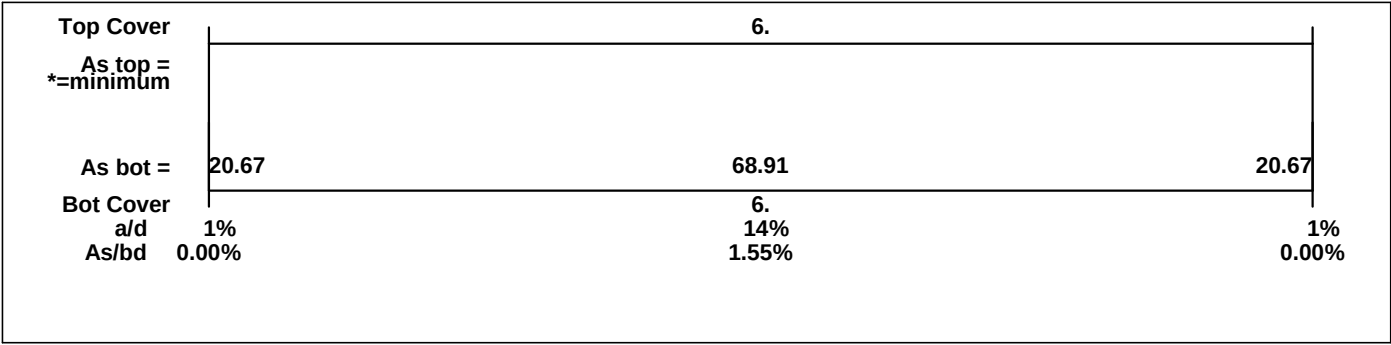
Factored

DeadR	457.67	457.67
LiveR	211.27	211.27
Max R	668.95	668.95
Min R	668.95	668.95
Service		
DeadR	381.39	381.39
LiveR	132.05	132.05
Max R	513.44	513.44
Min R	513.44	513.44

Beam 23.A	Code: ACI318-02
Project: BAEMS	Page: 331
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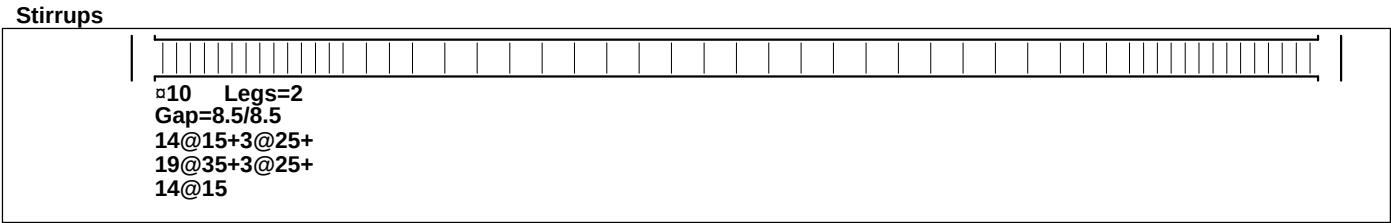
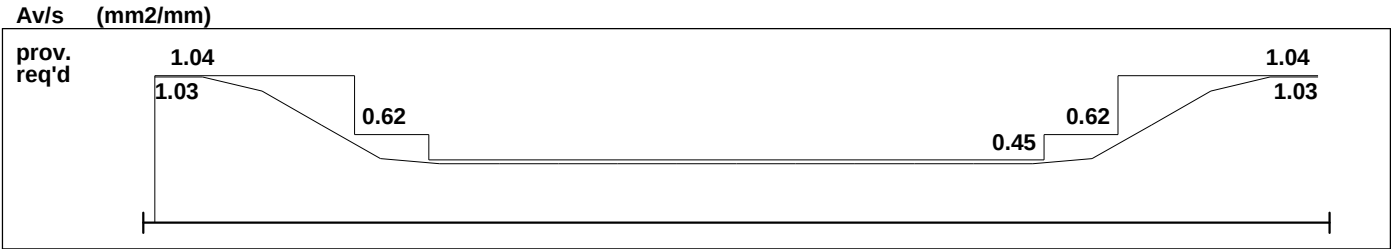
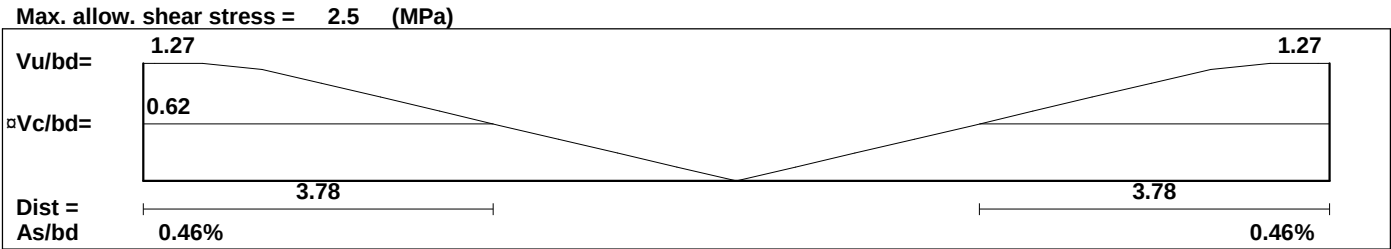
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. =5. Incr. = 5.
 Legs: 2/4 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Beam 23.A	Code: ACI318-02
Project: BAEMS	Page: 332
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	68.91	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.03085

Mcr = 278.13
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 794.54

Ie,d (m^4)= 0.03108
Ie,d+l (m^4)= 0.03095
Ie,sust (m^4)= 0.03169

e/1+50r = 2.00/0.80
ai,d = 28.645
ai,l = 10.087
at,sust = 21.928
ai,l = L/ 1270
(ai+at),t2-t1 L/ 304

—

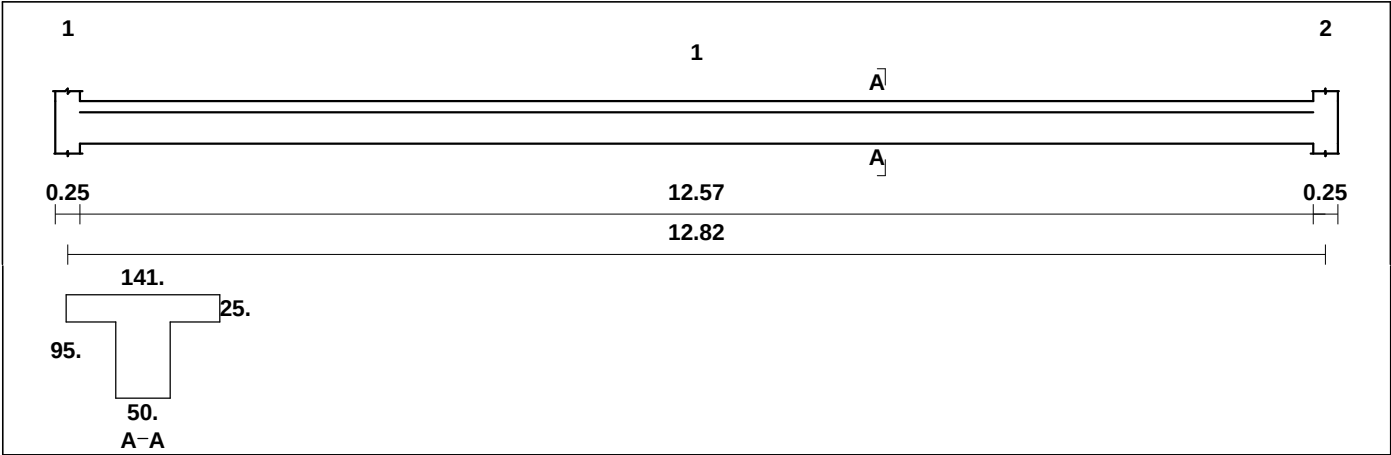
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	563.02	563.02	0.	0.	1.03	0.00	100	-
125	82.80	82.80	563.02	563.02	0.	2.47	1.03	0.01	-	-
641	407.36	407.36	563.02	563.02	0.	12.30	1.03	0.03	-	-
1282	771.83	771.83	535.16	535.16	0.	23.59	0.93	0.05	-	-
1923	1093.4	1093.4	468.26	468.26	0.	33.80	0.69	0.07	-	-
2564	1372.1	1372.1	401.37	401.37	0.	42.83	0.45	0.09	-	-
3205	1608.0	1608.0	334.47	334.47	0.	50.63	0.42	0.11	-	-
3846	1800.9	1800.9	267.58	267.58	0.	57.12	0.42	0.12	-	-
4487	1951.0	1951.0	200.68	200.68	0.	62.24	0.42	0.13	-	-
5128	2058.2	2058.2	133.79	133.79	0.	65.93	0.42	0.14	-	-
5769	2122.5	2122.5	66.89	66.89	0.	68.16	0.42	0.14	-	-
6410	2144.0	2144.0	0.00	0.00	0.	68.91	0.42	0.14	100	-
7051	2122.5	2122.5	-66.89	-66.89	0.	68.16	0.42	0.14	-	-
7692	2058.2	2058.2	-133.79	-133.79	0.	65.93	0.42	0.14	-	-
8333	1951.0	1951.0	-200.68	-200.68	0.	62.24	0.42	0.13	-	-
8974	1800.9	1800.9	-267.58	-267.58	0.	57.12	0.42	0.12	-	-
9615	1608.0	1608.0	-334.47	-334.47	0.	50.63	0.42	0.11	-	-
1025	1372.1	1372.1	-401.37	-401.37	0.	42.83	0.45	0.09	-	-
1089	1093.4	1093.4	-468.26	-468.26	0.	33.80	0.69	0.07	-	-
1153	771.83	771.83	-535.16	-535.16	0.	23.59	0.93	0.05	-	-
1217	407.36	407.36	-563.02	-563.02	0.	12.30	1.03	0.03	-	-
1269	82.80	82.80	-563.02	-563.02	0.	2.47	1.03	0.01	-	-
1282	0.00	0.00	-563.02	-563.02	0.	0.	1.03	0.00	100	-

Beam 23.A	Code: ACI318-02
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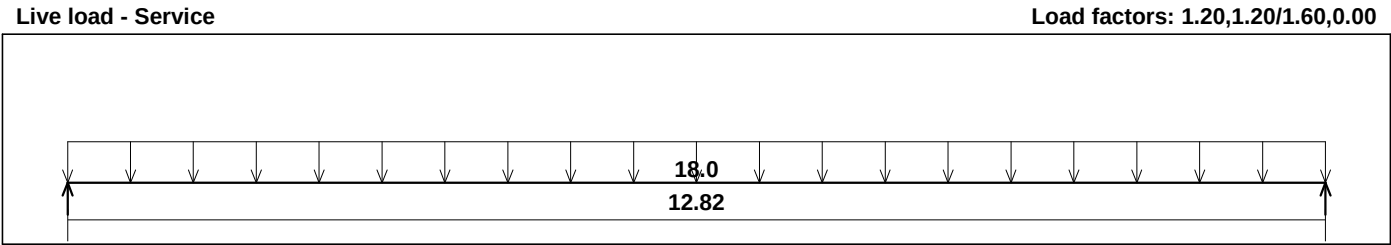
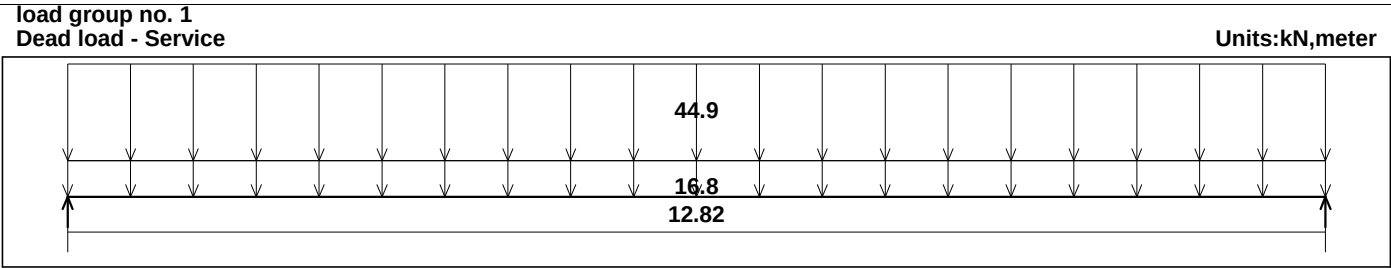
M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		82.8
MspMx		82.8
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-668.9
V min		-668.9
DReac		457.7
LReac		211.3
Max R		668.9
Min R		668.9

Beam 24	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading



Loads (kN,meter)	
1	
Self.Wt.	16.86
Uni D	44.90
L	18.00

Beam 24

Project: BAEMS

Designed by: bayan

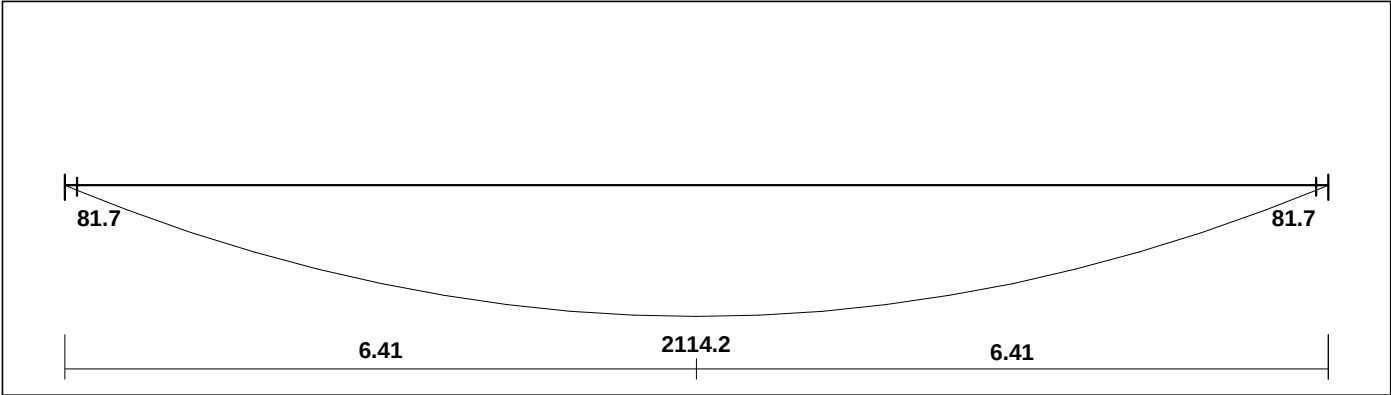
Code: ACI318-02

Page: 305

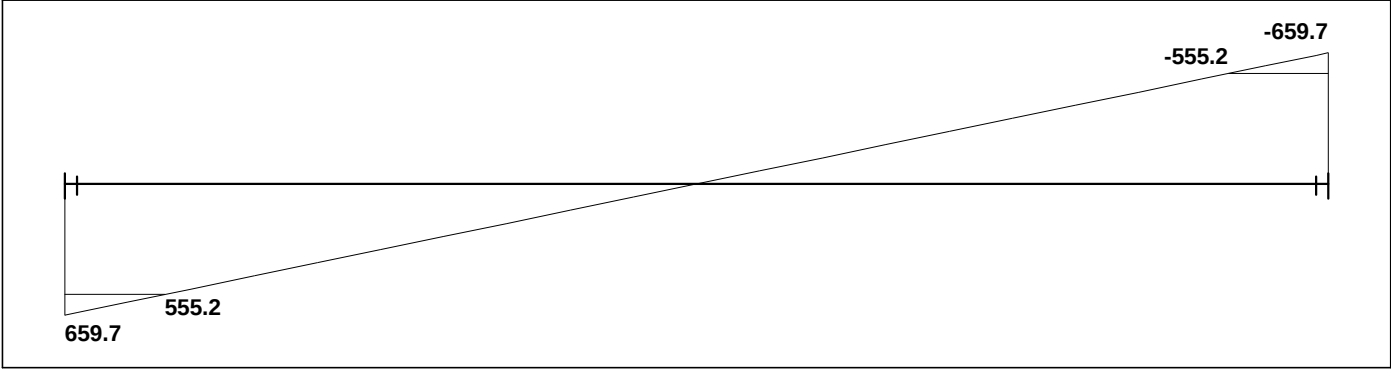
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

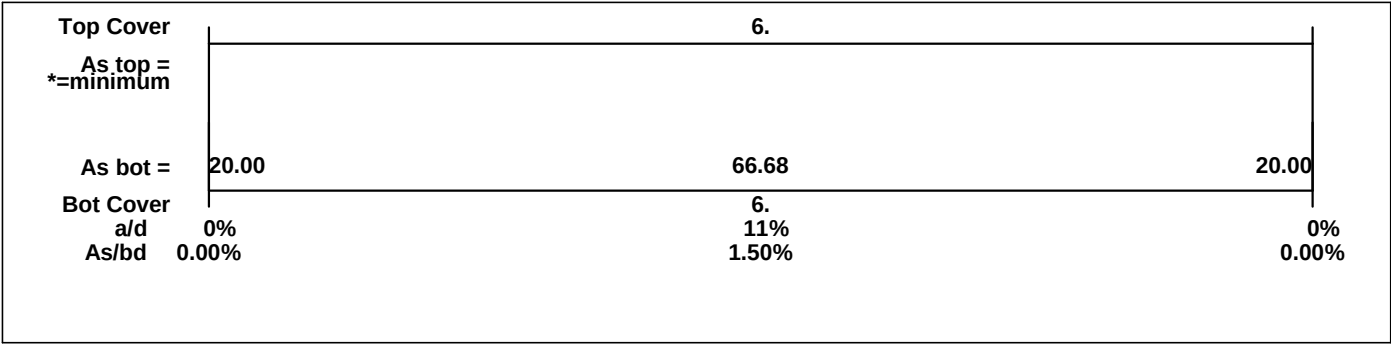
Factored

DeadR	475.06	475.06
LiveR	184.61	184.61
Max R	659.67	659.67
Min R	659.67	659.67
Service		
DeadR	395.88	395.88
LiveR	115.38	115.38
Max R	511.26	511.26
Min R	511.26	511.26

Beam 24	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Reinforcement (cm 2)

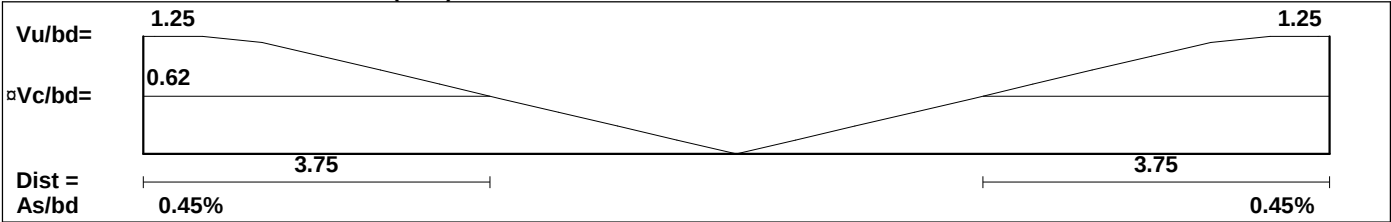
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



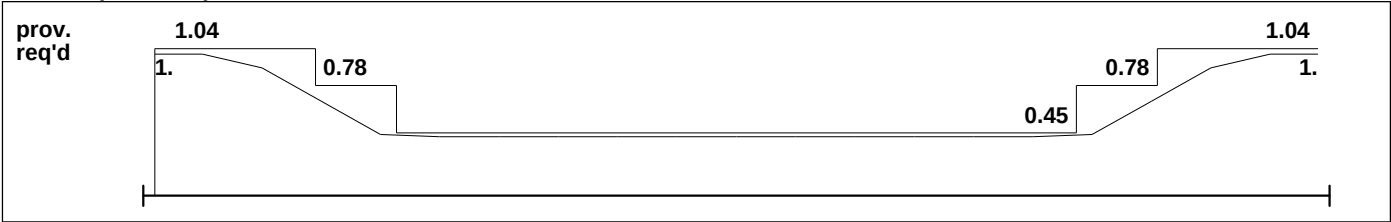
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

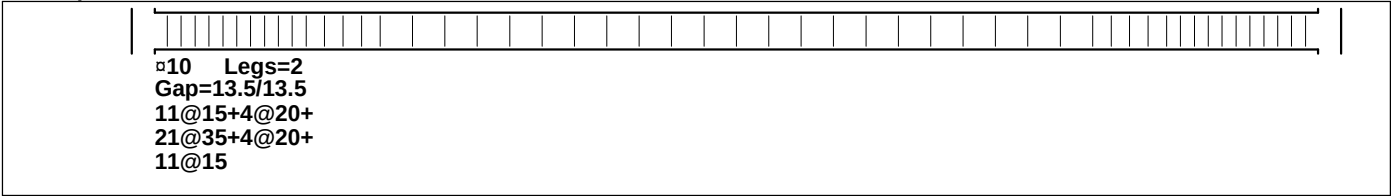
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Beam 24	Code: ACI318-02
Project: BAEMS	Page: 307
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	66.68	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05575
Icr(m^4)= 0.03164

Mcr = 291.91
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 824.72

Ie,d (m^4)= 0.03193
Ie,d+l (m^4)= 0.03177
Ie,sust (m^4)= 0.03271

e/1+50r = 2.00/0.80
ai,d = 28.945
ai,l = 8.621
at,sust = 22.057
ai,l = L/ 1487
(ai+at),t2-t1 L/ 314

—

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	555.21	555.21	0.	0.	1.00	0.00	100	-
125	81.65	81.65	555.21	555.21	0.	2.43	1.00	0.00	-	-
641	401.70	401.70	555.21	555.21	0.	12.09	1.00	0.02	-	-
1282	761.12	761.12	527.73	527.73	0.	23.13	0.90	0.04	-	-
1923	1078.3	1078.3	461.77	461.77	0.	33.04	0.67	0.05	-	-
2564	1353.1	1353.1	395.80	395.80	0.	41.77	0.43	0.07	-	-
3205	1585.7	1585.7	329.83	329.83	0.	49.26	0.42	0.08	-	-
3846	1776.0	1776.0	263.87	263.87	0.	55.47	0.42	0.09	-	-
4487	1923.9	1923.9	197.90	197.90	0.	60.34	0.42	0.10	-	-
5128	2029.7	2029.7	131.93	131.93	0.	63.85	0.42	0.10	-	-
5769	2093.1	2093.1	65.97	65.97	0.	65.97	0.42	0.11	-	-
6410	2114.2	2114.2	0.00	0.00	0.	66.68	0.42	0.11	100	-
7051	2093.1	2093.1	-65.97	-65.97	0.	65.97	0.42	0.11	-	-
7692	2029.7	2029.7	-131.93	-131.93	0.	63.85	0.42	0.10	-	-
8333	1923.9	1923.9	-197.90	-197.90	0.	60.34	0.42	0.10	-	-
8974	1776.0	1776.0	-263.87	-263.87	0.	55.47	0.42	0.09	-	-
9615	1585.7	1585.7	-329.83	-329.83	0.	49.26	0.42	0.08	-	-
1025	1353.1	1353.1	-395.80	-395.80	0.	41.77	0.43	0.07	-	-
1089	1078.3	1078.3	-461.77	-461.77	0.	33.04	0.67	0.05	-	-
1153	761.12	761.12	-527.73	-527.73	0.	23.13	0.90	0.04	-	-
1217	401.70	401.70	-555.21	-555.21	0.	12.09	1.00	0.02	-	-
1269	81.66	81.66	-555.21	-555.21	0.	2.43	1.00	0.00	-	-
1282	0.00	0.00	-555.21	-555.21	0.	0.	1.00	0.00	100	-

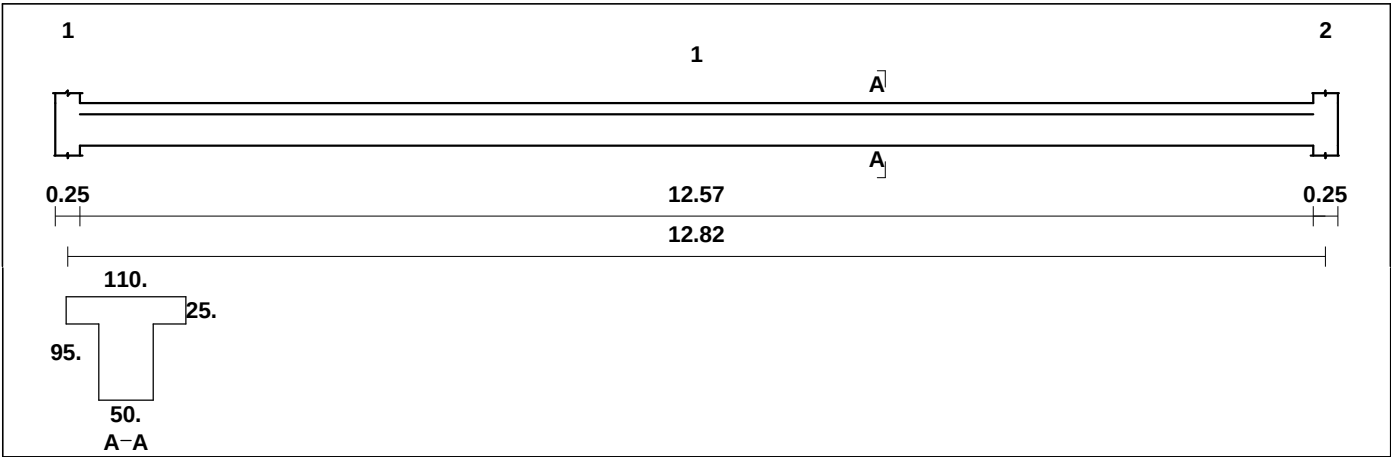
Beam 24	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

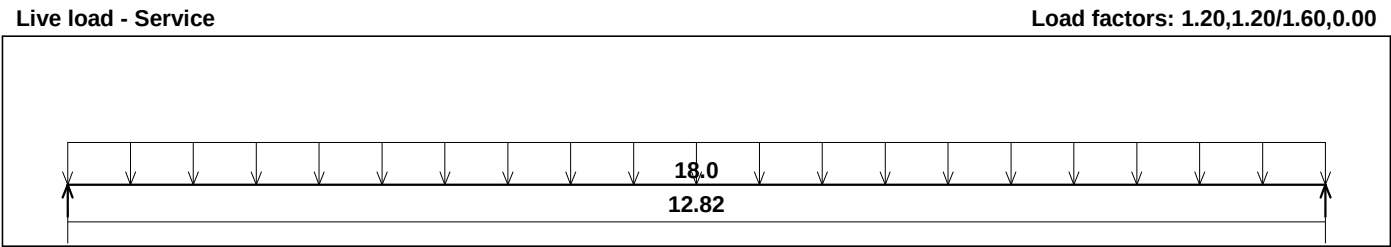
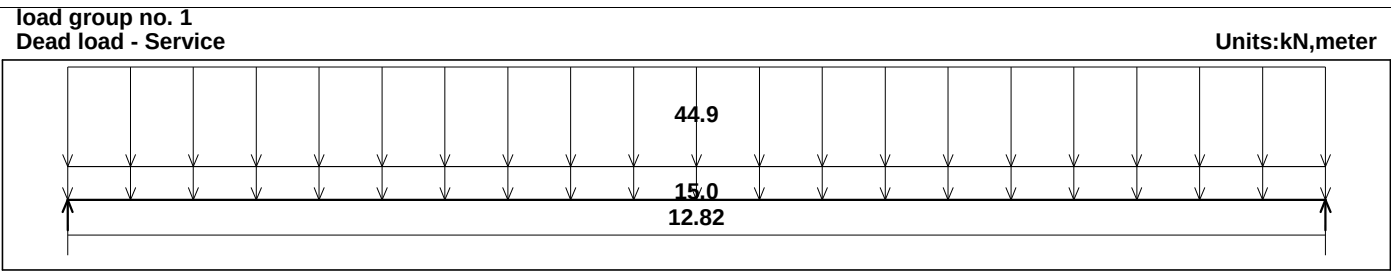
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		81.7	
MspMx		81.7	
M Max			
M Min			
Mmn=0 @	0.0	12.8	
Mmx=0 @	0.0	12.8	
mx -M @			
mx +M @			
V max		-659.7	
V min		-659.7	
DReac		475.1	
LReac		184.6	
Max R		659.7	
Min R		659.7	

Beam 24.A	Code: ACI318-02
Project: BAEMS	Page: 333
Designed by: bayan	Date: 4/ 7/14

Geometry Units:meter,cm



Loading

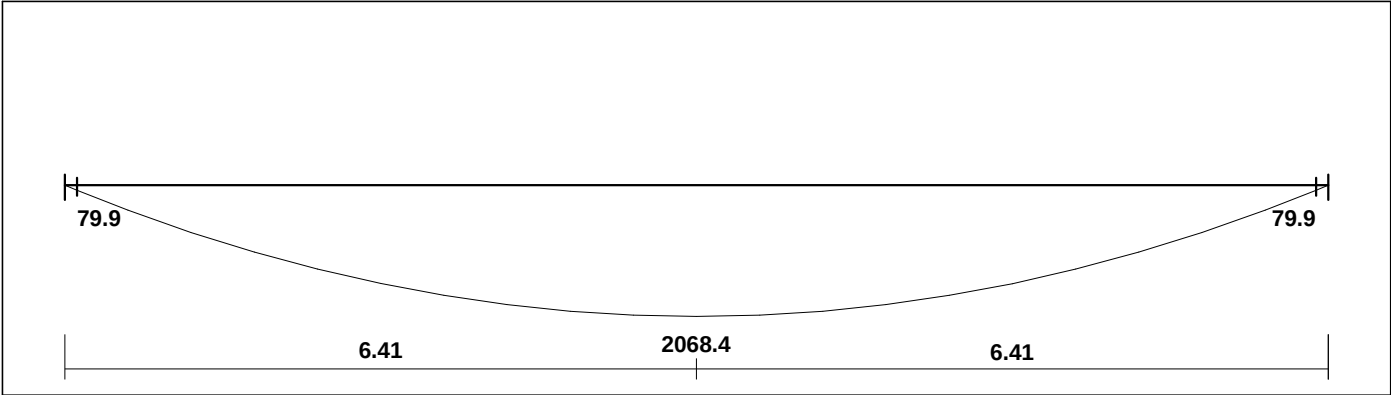


Loads (kN,meter)	
1	
Self.Wt.	15.00
Uni D	44.90 L 18.00

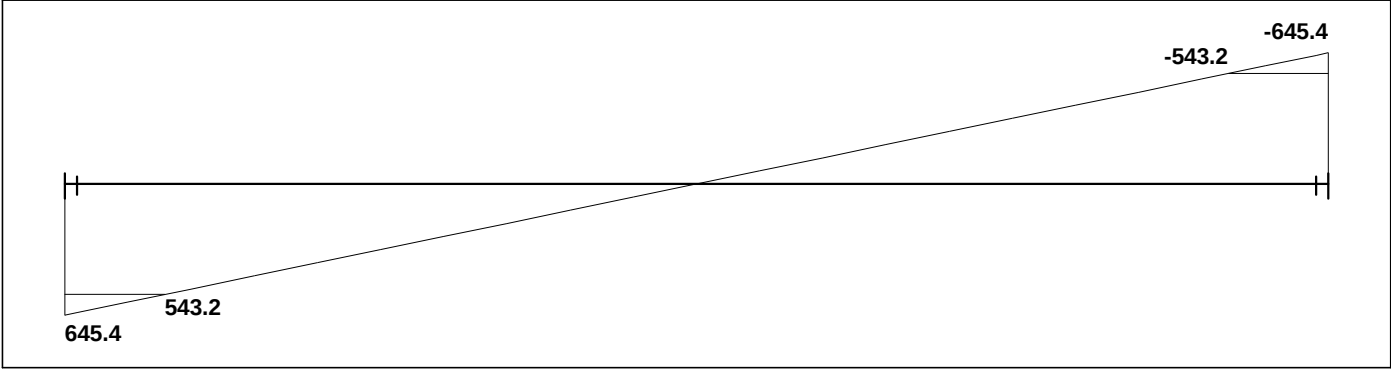
Beam 24.A	Code: ACI318-02
Project: BAEMS	Page: 334
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

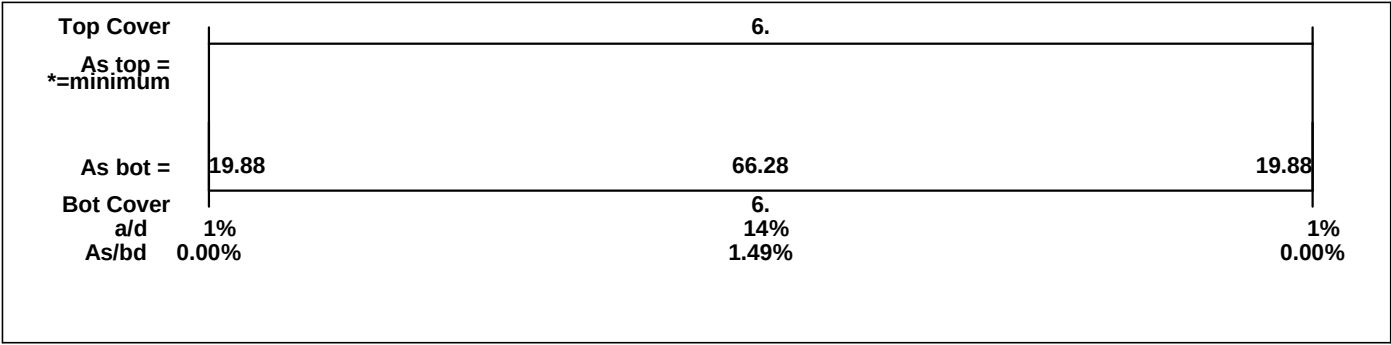
Factored

DeadR	460.75	460.75
LiveR	184.61	184.61
Max R	645.36	645.36
Min R	645.36	645.36
Service		
DeadR	383.96	383.96
LiveR	115.38	115.38
Max R	499.34	499.34
Min R	499.34	499.34

Beam 24.A	Code: ACI318-02
Project: BAEMS	Page: 335
Designed by: bayan	Date: 4/ 7/14

Reinforcement (cm 2)

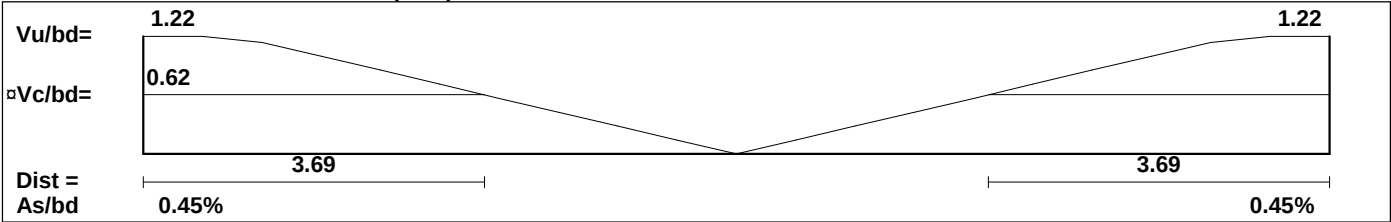
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



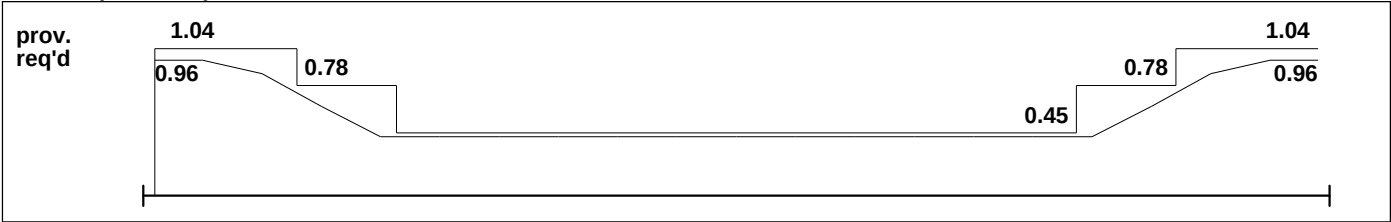
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

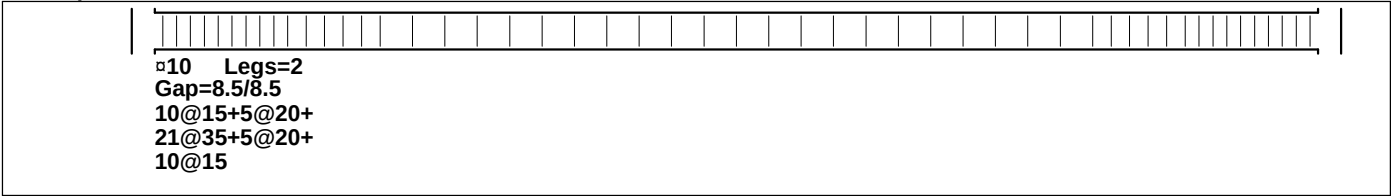
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 24.A	Code: ACI318-02
Project: BAEMS	Page: 336
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	66.28	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.02993

Mcr = 278.13
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 799.88

Ie,d (m^4)= 0.03017
Ie,d+l (m^4)= 0.03004
Ie,sust (m^4)= 0.03079

e/1+50r = 2.00/0.80
ai,d = 29.715
ai,l = 9.096
at,sust = 22.721
ai,l = L/ 1409
(ai+at),t2-t1 L/ 303

—

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	543.17	543.17	0.	0.	0.96	0.00	100	-
125	79.88	79.88	543.17	543.17	0.	2.38	0.96	0.01	-	-
641	392.99	392.99	543.17	543.17	0.	11.86	0.96	0.02	-	-
1282	744.62	744.62	516.29	516.29	0.	22.74	0.86	0.05	-	-
1923	1054.9	1054.9	451.75	451.75	0.	32.56	0.63	0.07	-	-
2564	1323.8	1323.8	387.22	387.22	0.	41.25	0.42	0.09	-	-
3205	1551.3	1551.3	322.68	322.68	0.	48.74	0.42	0.10	-	-
3846	1737.4	1737.4	258.14	258.14	0.	54.97	0.42	0.12	-	-
4487	1882.2	1882.2	193.61	193.61	0.	59.88	0.42	0.13	-	-
5128	1985.6	1985.6	129.07	129.07	0.	63.43	0.42	0.13	-	-
5769	2047.7	2047.7	64.54	64.54	0.	65.57	0.42	0.14	-	-
6410	2068.4	2068.4	0.00	0.00	0.	66.28	0.42	0.14	100	-
7051	2047.7	2047.7	-64.54	-64.54	0.	65.57	0.42	0.14	-	-
7692	1985.6	1985.6	-129.07	-129.07	0.	63.43	0.42	0.13	-	-
8333	1882.2	1882.2	-193.61	-193.61	0.	59.88	0.42	0.13	-	-
8974	1737.4	1737.4	-258.14	-258.14	0.	54.97	0.42	0.12	-	-
9615	1551.3	1551.3	-322.68	-322.68	0.	48.74	0.42	0.10	-	-
1025	1323.8	1323.8	-387.22	-387.22	0.	41.25	0.42	0.09	-	-
1089	1054.9	1054.9	-451.75	-451.75	0.	32.56	0.63	0.07	-	-
1153	744.62	744.62	-516.29	-516.29	0.	22.74	0.86	0.05	-	-
1217	392.99	392.99	-543.17	-543.17	0.	11.86	0.96	0.02	-	-
1269	79.88	79.88	-543.17	-543.17	0.	2.38	0.96	0.01	-	-
1282	0.00	0.00	-543.17	-543.17	0.	0.	0.96	0.00	100	-

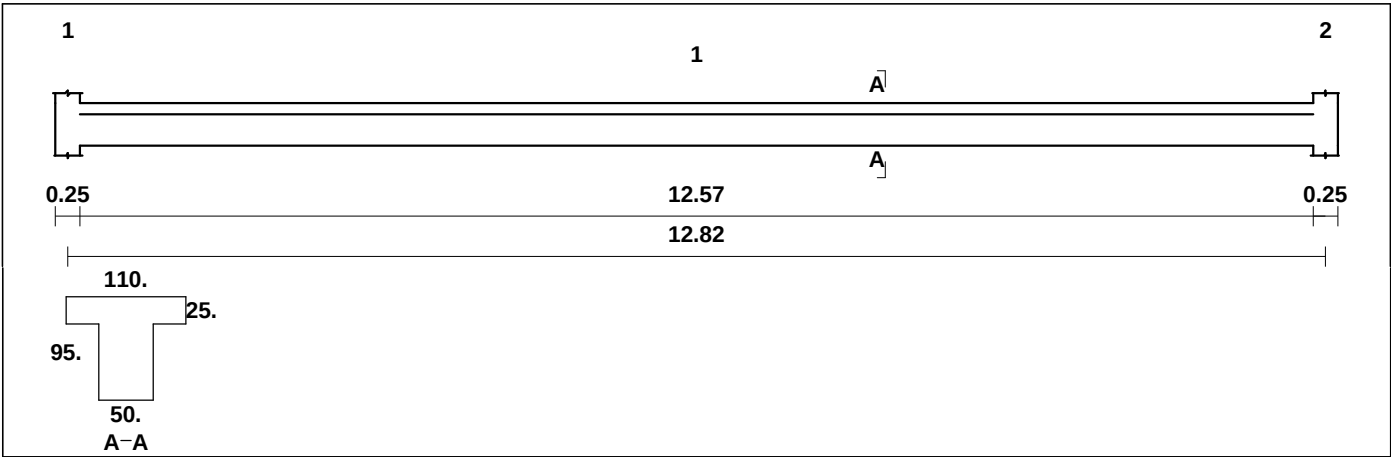
Beam 24.A	Code: ACI318-02
Project: BAEMS	Page: 337
Designed by: bayan	Date: 4/ 7/14

M o m e n t / S h e a r		E n v e l o p e (Factored)	Units:kN,meter
1	2		
	1		

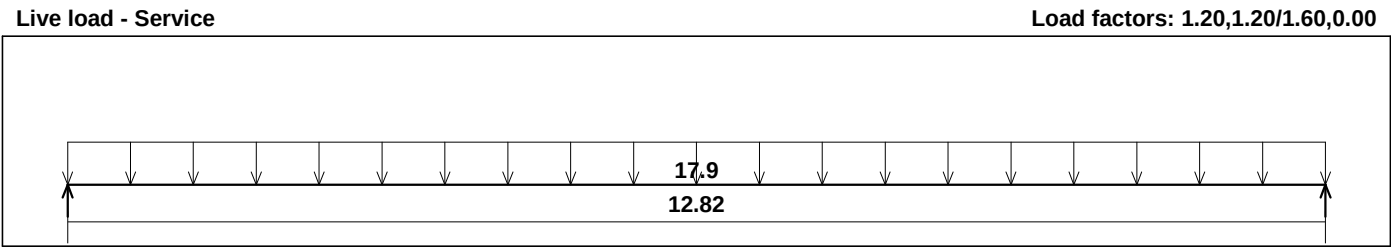
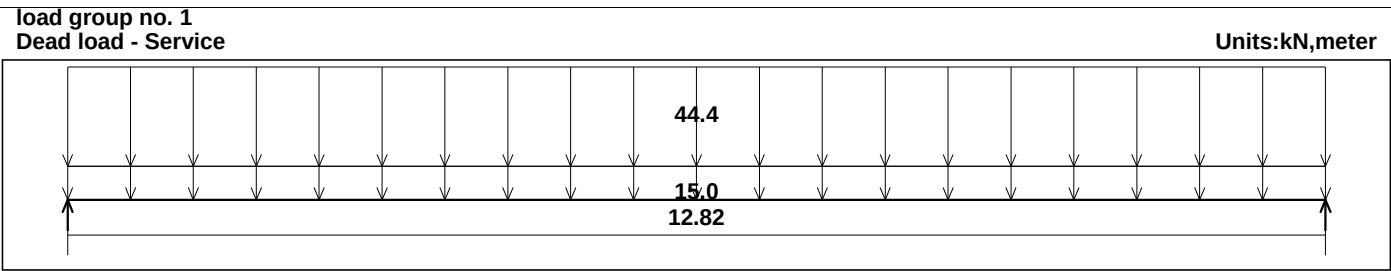
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		79.9	
MspMx		79.9	
M Max			
M Min			
Mmn=0 @	0.0	12.8	
Mmx=0 @	0.0	12.8	
mx -M @			
mx +M @			
V max		-645.4	
V min		-645.4	
DReac		460.8	
LReac		184.6	
Max R		645.4	
Min R		645.4	

Beam 25	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Geometry Units: meter, cm



Loading



Loads (kN, meter)	
1	
Self. Wt.	15.00
Uni D	44.40
L	17.90

Beam 25

Project: BAEMS

Designed by: bayan

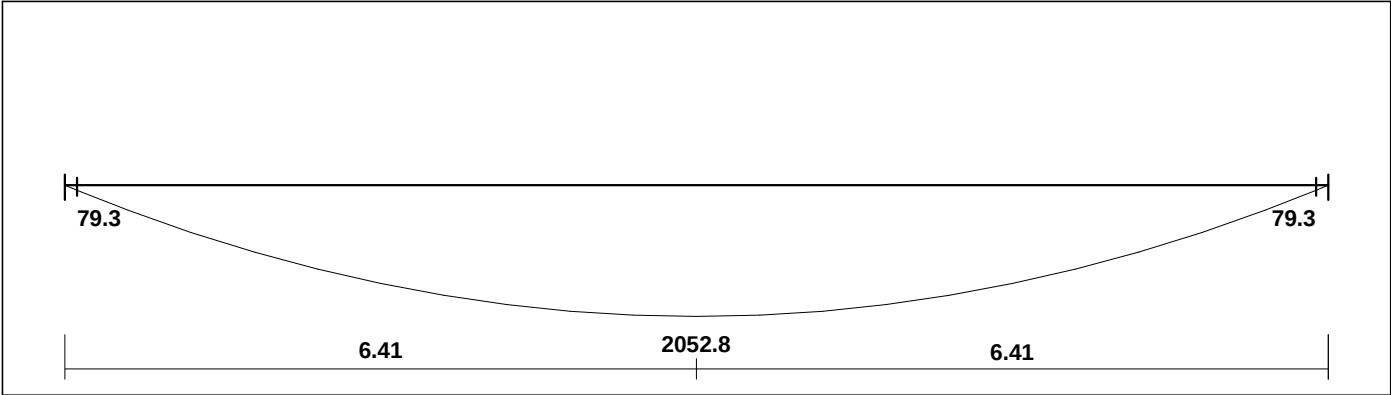
Code: ACI318-02

Page: 313

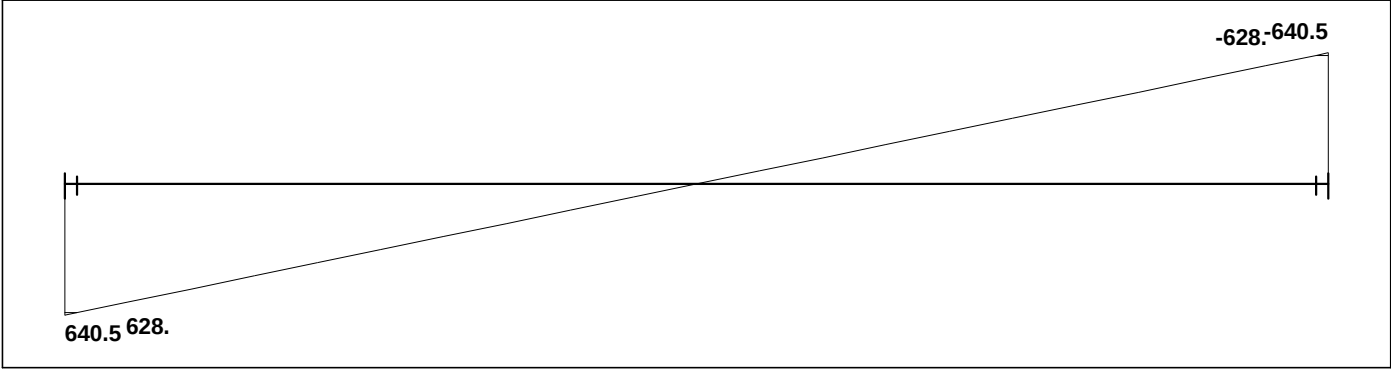
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	456.9	456.9
LiveR	183.58	183.58
Max R	640.49	640.49
Min R	640.49	640.49
Service		
DeadR	380.75	380.75
LiveR	114.74	114.74
Max R	495.49	495.49
Min R	495.49	495.49

Beam 25	Code: ACI318-02
Project: BAEMS	Page: 314
Designed by: bayan	Date: 4/ 7/14

Reinforcement (cm 2)

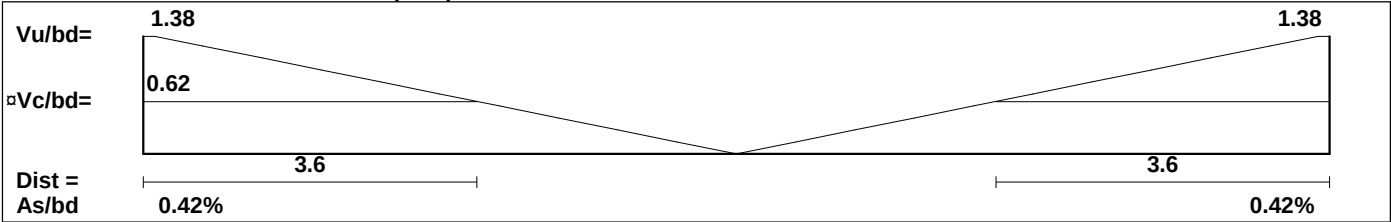
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

Top Cover	4.		
As top = *=minimum			
As bot =	19.22	64.07	19.22
Bot Cover	4.		
a/d	0%	13%	0%
As/bd	0.00%	1.41%	0.00%

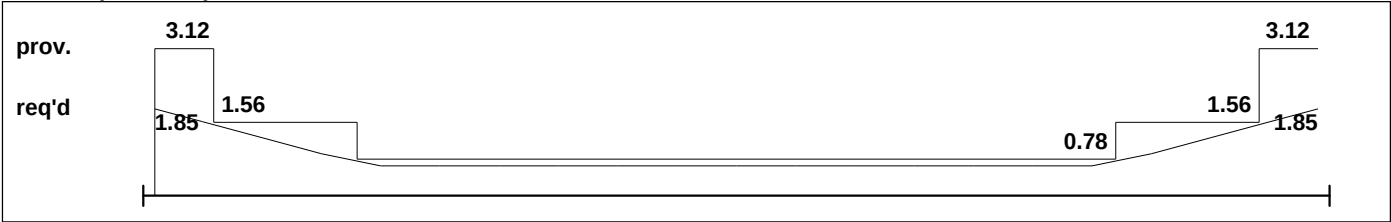
Shear

Shear design: Stirrups only
Stirrups $f_y = 276$
Shear reduction: No
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

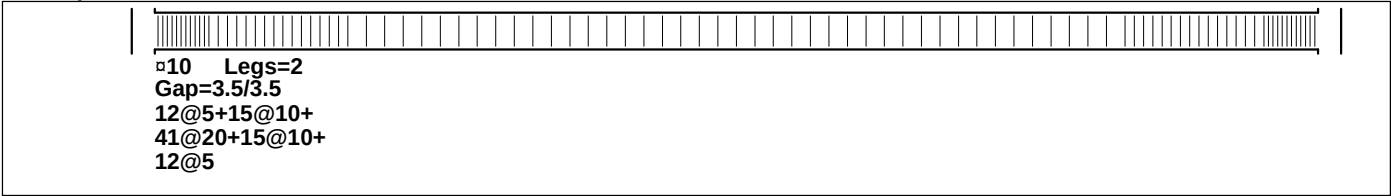
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Beam 25	Code: ACI318-02
Project: BAEMS	Page: 315
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	64.07	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.03061

Mcr = 278.13
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 793.21

Ie,d (m^4)= 0.03085
Ie,d+l (m^4)= 0.03072
Ie,sust (m^4)= 0.03147

e/1+50r = 2.00/0.80
ai,d = 28.817
ai,l = 8.841
at,sust = 22.049
ai,l = L/ 1450
(ai+at),t2-t1 L/ 312

—

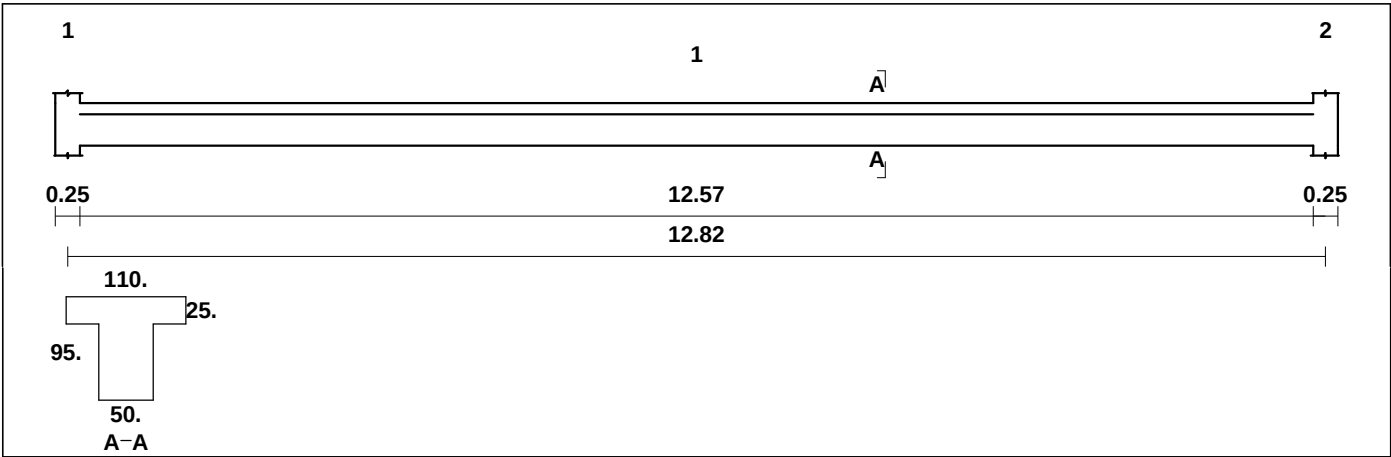
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	628.00	628.00	0.	0.	1.85	0.00	100	-
125	79.28	79.28	628.00	628.00	0.	2.31	1.85	0.00	-	-
641	390.02	390.02	576.44	576.44	0.	11.50	1.57	0.02	-	-
1282	738.99	738.99	512.39	512.39	0.	22.04	1.23	0.05	-	-
1923	1046.9	1046.9	448.34	448.34	0.	31.55	0.89	0.06	-	-
2564	1313.8	1313.8	384.29	384.29	0.	39.94	0.63	0.08	-	-
3205	1539.6	1539.6	320.24	320.24	0.	47.18	0.63	0.10	-	-
3846	1724.3	1724.3	256.19	256.19	0.	53.18	0.63	0.11	-	-
4487	1868.0	1868.0	192.15	192.15	0.	57.91	0.63	0.12	-	-
5128	1970.7	1970.7	128.10	128.10	0.	61.33	0.63	0.13	-	-
5769	2032.2	2032.2	64.05	64.05	0.	63.39	0.63	0.13	-	-
6410	2052.8	2052.8	0.00	0.00	0.	64.07	0.63	0.13	100	-
7051	2032.2	2032.2	-64.05	-64.05	0.	63.39	0.63	0.13	-	-
7692	1970.7	1970.7	-128.10	-128.10	0.	61.33	0.63	0.13	-	-
8333	1868.0	1868.0	-192.15	-192.15	0.	57.91	0.63	0.12	-	-
8974	1724.3	1724.3	-256.19	-256.19	0.	53.18	0.63	0.11	-	-
9615	1539.6	1539.6	-320.24	-320.24	0.	47.18	0.63	0.10	-	-
1025	1313.8	1313.8	-384.29	-384.29	0.	39.94	0.63	0.08	-	-
1089	1046.9	1046.9	-448.34	-448.34	0.	31.55	0.89	0.06	-	-
1153	738.99	738.99	-512.39	-512.39	0.	22.04	1.23	0.05	-	-
1217	390.02	390.02	-576.44	-576.44	0.	11.50	1.57	0.02	-	-
1269	79.28	79.28	-628.00	-628.00	0.	2.31	1.85	0.00	-	-
1282	0.00	0.00	-628.00	-628.00	0.	0.	1.85	0.00	100	-

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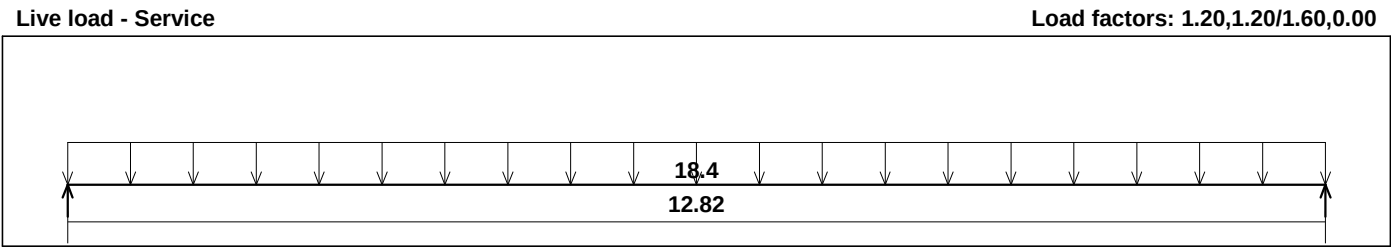
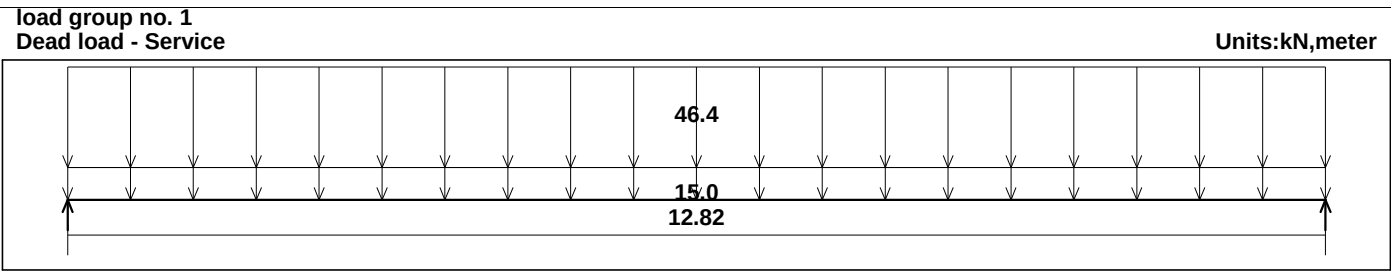
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		79.3
MspMx		79.3
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-640.5
V min		-640.5
DReac		456.9
LReac		183.6
Max R		640.5
Min R		640.5

Beam 26	Code: ACI318-02
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Designed by: bayan	Date: 4/ 7/14

Geometry Units: meter, cm



Loading

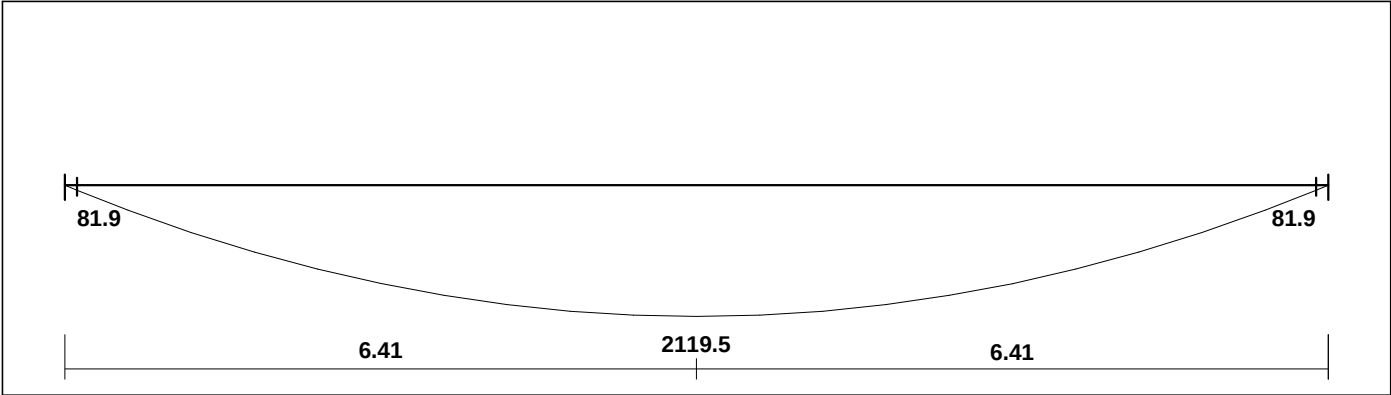


Loads (kN, meter)	
1	
Self. Wt.	15.00
Uni D	46.44
L	18.40

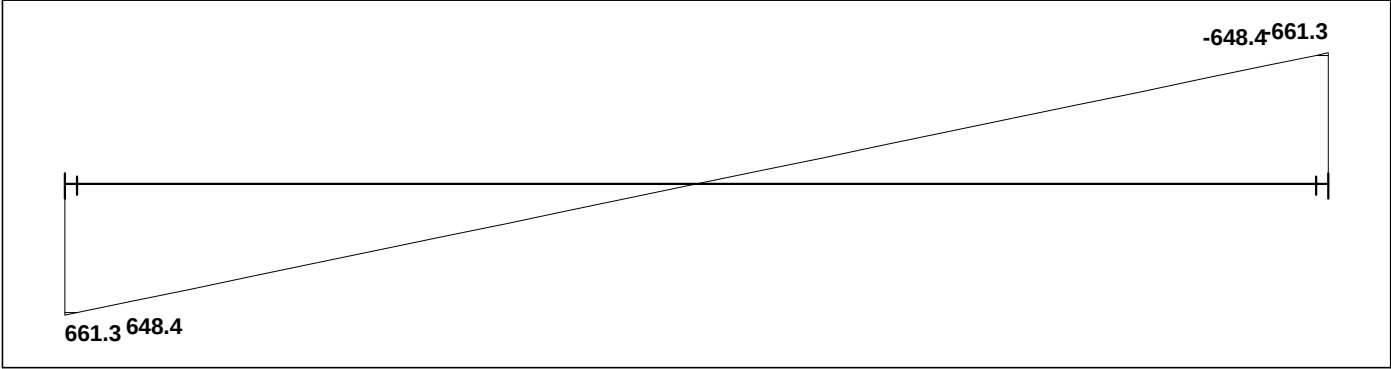
Beam 26	Code: ACI318-02
Project: BAEMS	Page: 317
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

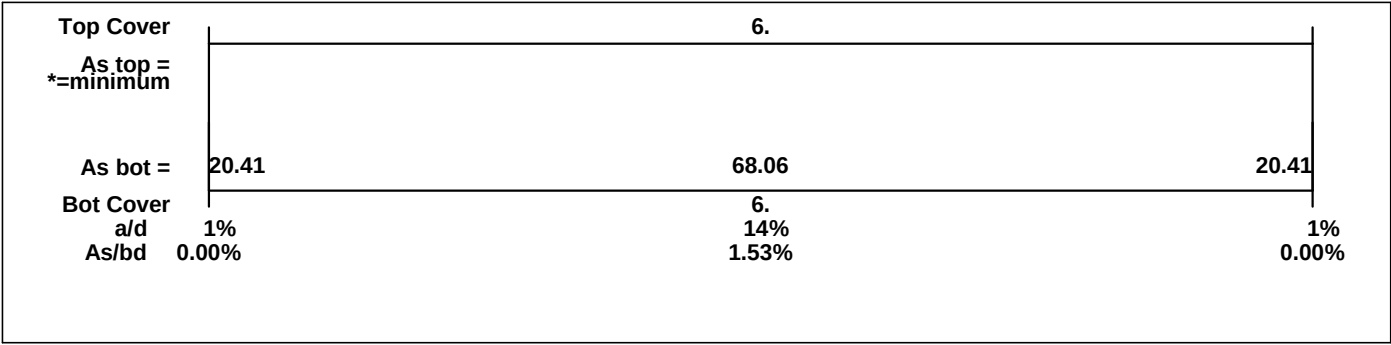
Factored

DeadR	472.6	472.6
LiveR	188.71	188.71
Max R	661.31	661.31
Min R	661.31	661.31
Service		
DeadR	393.83	393.83
LiveR	117.94	117.94
Max R	511.77	511.77
Min R	511.77	511.77

Beam 26	Code: ACI318-02
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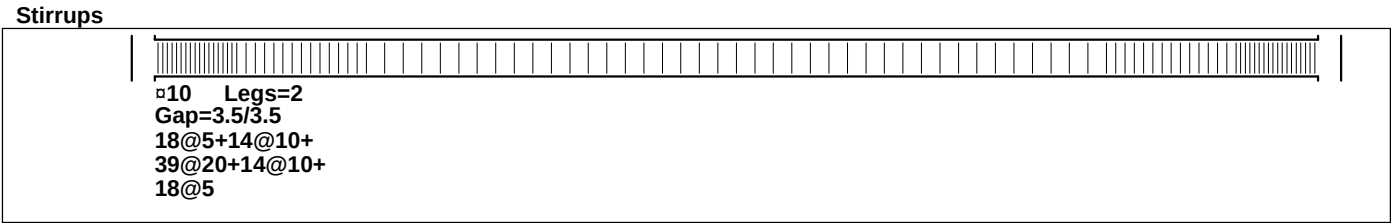
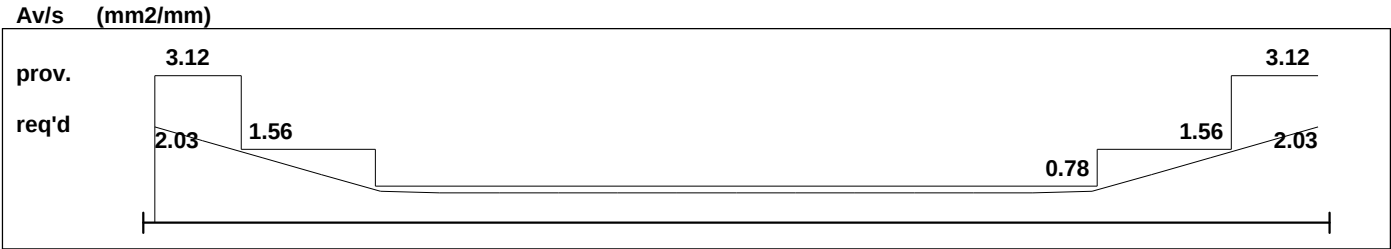
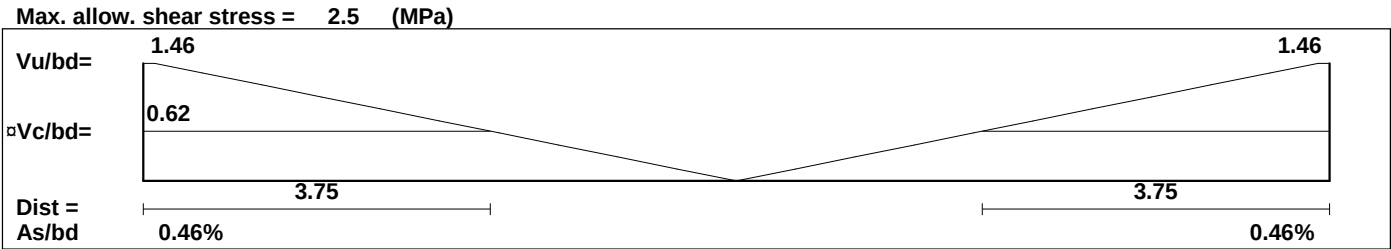
Reinforcement (cm 2)

Concrete: B300 Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face



Shear

Shear design: Stirrups only
Stirrups $f_y = 276$ Shear reduction: No
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 26	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	68.06	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.03055

Mcr = 278.13
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 820.45

Ie,d (m^4)= 0.03077
Ie,d+l (m^4)= 0.03065
Ie,sust (m^4)= 0.03133

e/1+50r = 2.00/0.80
ai,d = 29.884
ai,l = 9.096
at,sust = 22.906
ai,l = L/ 1409
(ai+at),t2-t1 L/ 301

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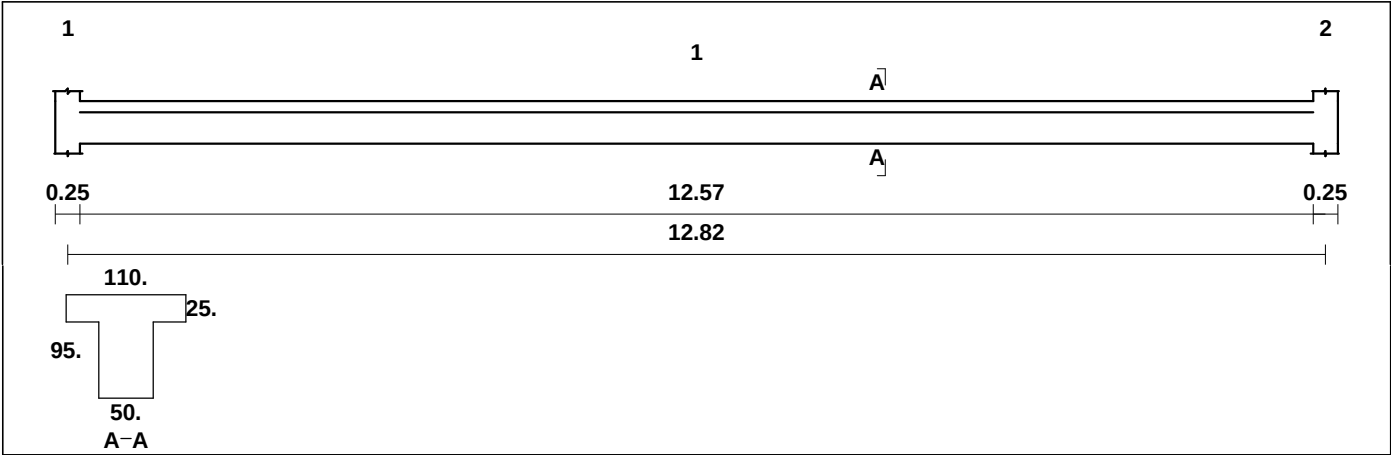
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	648.41	648.41	0.	0.	2.03	0.00	100	-
125	81.86	81.86	648.41	648.41	0.	2.44	2.03	0.01	-	-
641	402.70	402.70	595.18	595.18	0.	12.16	1.74	0.03	-	-
1282	763.02	763.02	529.05	529.05	0.	23.32	1.38	0.05	-	-
1923	1080.9	1080.9	462.91	462.91	0.	33.4	1.02	0.07	-	-
2564	1356.5	1356.5	396.78	396.78	0.	42.32	0.67	0.09	-	-
3205	1589.6	1589.6	330.65	330.65	0.	50.02	0.63	0.11	-	-
3846	1780.4	1780.4	264.52	264.52	0.	56.42	0.63	0.12	-	-
4487	1928.7	1928.7	198.39	198.39	0.	61.47	0.63	0.13	-	-
5128	2034.7	2034.7	132.26	132.26	0.	65.12	0.63	0.14	-	-
5769	2098.3	2098.3	66.13	66.13	0.	67.32	0.63	0.14	-	-
6410	2119.5	2119.5	0.00	0.00	0.	68.06	0.63	0.14	100	-
7051	2098.3	2098.3	-66.13	-66.13	0.	67.32	0.63	0.14	-	-
7692	2034.7	2034.7	-132.26	-132.26	0.	65.12	0.63	0.14	-	-
8333	1928.7	1928.7	-198.39	-198.39	0.	61.47	0.63	0.13	-	-
8974	1780.4	1780.4	-264.52	-264.52	0.	56.42	0.63	0.12	-	-
9615	1589.6	1589.6	-330.65	-330.65	0.	50.02	0.63	0.11	-	-
1025	1356.5	1356.5	-396.78	-396.78	0.	42.32	0.67	0.09	-	-
1089	1080.9	1080.9	-462.91	-462.91	0.	33.4	1.02	0.07	-	-
1153	763.02	763.02	-529.05	-529.05	0.	23.32	1.38	0.05	-	-
1217	402.70	402.70	-595.18	-595.18	0.	12.16	1.74	0.03	-	-
1269	81.86	81.86	-648.41	-648.41	0.	2.44	2.03	0.01	-	-
1282	0.00	0.00	-648.41	-648.41	0.	0.	2.03	0.00	100	-

Beam 26	Code: ACI318-02
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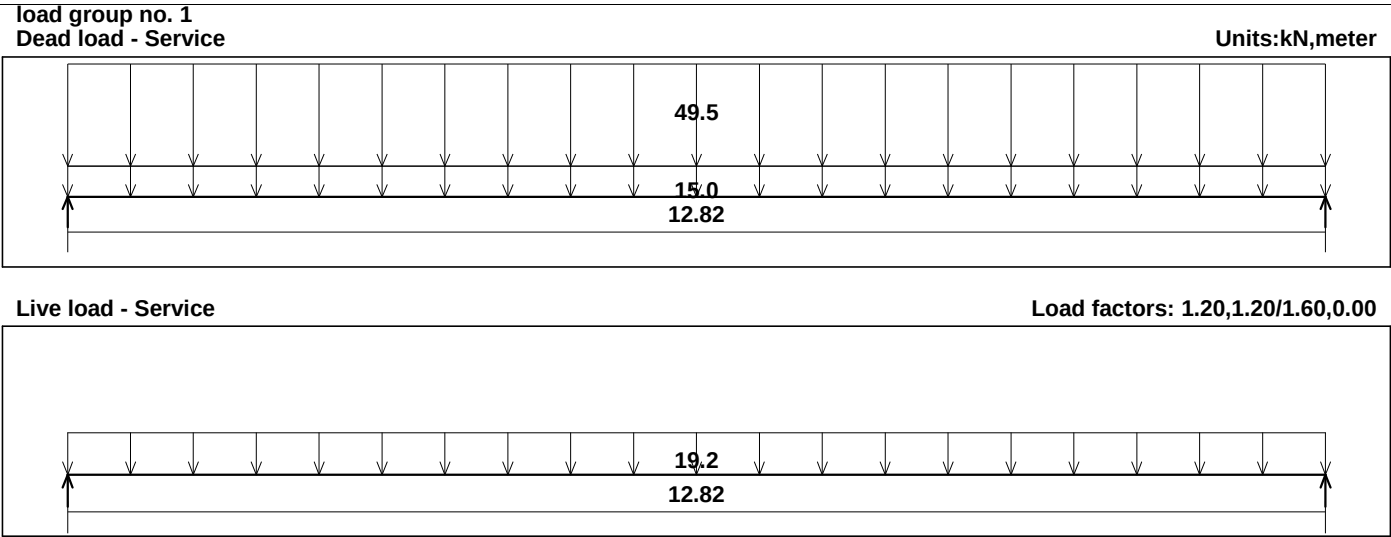
Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
1		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn		81.9
MspMx		81.9
M Max		
M Min		
Mmn=0 @	0.0	12.8
Mmx=0 @	0.0	12.8
mx -M @		
mx +M @		
V max		-661.3
V min		-661.3
DReac		472.6
LReac		188.7
Max R		661.3
Min R		661.3

Beam 27	Code: ACI318-02
Project: BAEMS	Page: 337
Designed by: bayan	Date: 4/ 7/14

Geometry Units: meter, cm



Loading

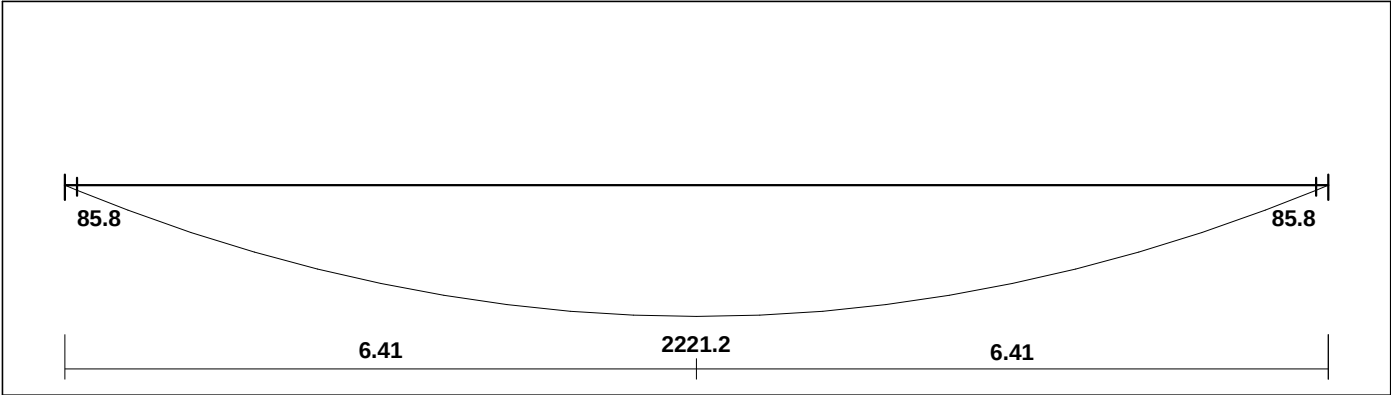


Loads (kN, meter)	
1	
Self. Wt.	15.00
Uni D	49.50
L	19.20

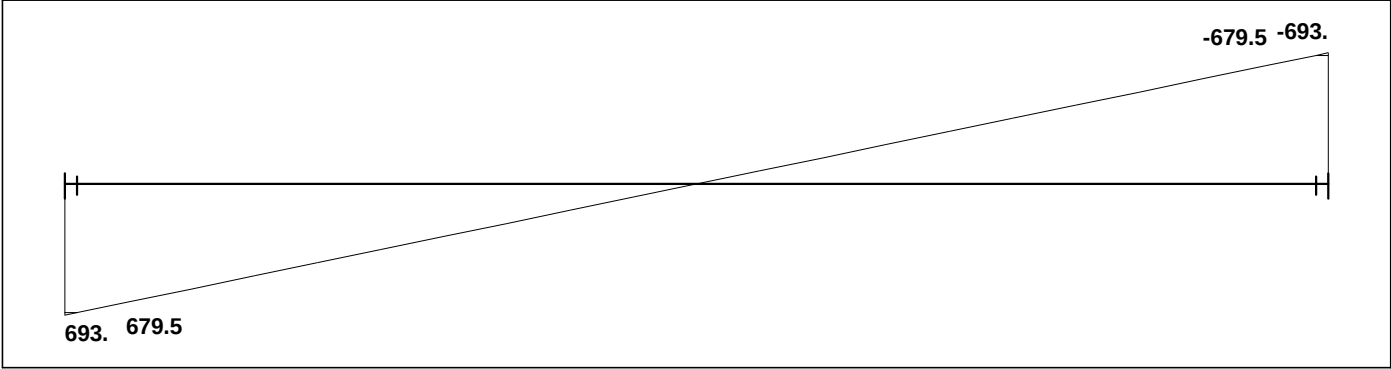
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

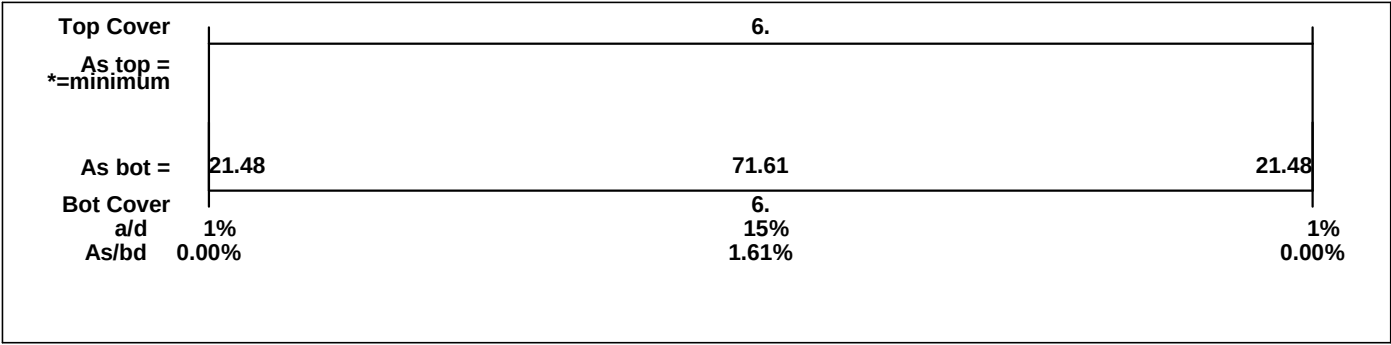
Factored

DeadR	496.13	496.13
LiveR	196.92	196.92
Max R	693.05	693.05
Min R	693.05	693.05
Service		
DeadR	413.45	413.44
LiveR	123.07	123.07
Max R	536.52	536.52
Min R	536.52	536.52

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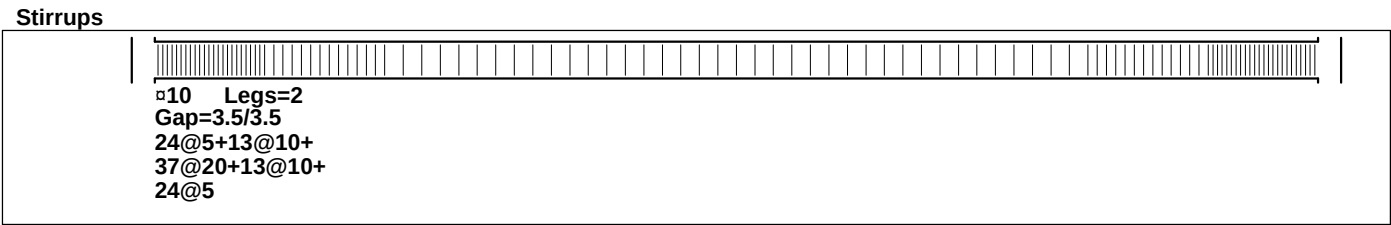
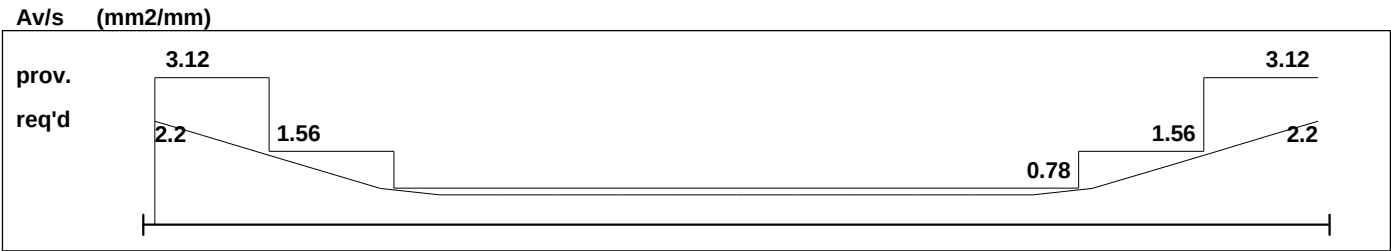
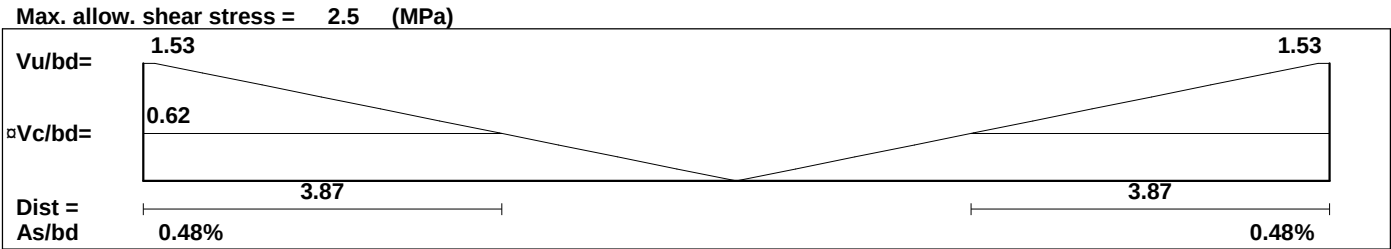
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 276$ Shear reduction: No
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 27	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	71.61	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.05047
Icr(m^4)= 0.03179

Mcr = 278.13
Mmax,d = *****
Mmax,d+l = *****
Mmax,sust = 861.31

Ie,d (m^4)= 0.03196
Ie,d+l (m^4)= 0.03187
Ie,sust (m^4)= 0.03242

e/1+50r = 2.00/0.80
ai,d = 30.199
ai,l = 9.105
at,sust = 23.239
ai,l = L/ 1408
(ai+at),t2-t1 L/ 298

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	679.53	679.53	0.	0.	2.20	0.00	100	-
125	85.79	85.79	679.53	679.53	0.	2.56	2.20	0.01	-	-
641	422.03	422.03	623.74	623.74	0.	12.75	1.90	0.03	-	-
1282	799.64	799.64	554.44	554.44	0.	24.47	1.52	0.05	-	-
1923	1132.8	1132.8	485.13	485.13	0.	35.06	1.14	0.07	-	-
2564	1421.6	1421.6	415.83	415.83	0.	44.46	0.77	0.09	-	-
3205	1665.9	1665.9	346.52	346.52	0.	52.57	0.63	0.11	-	-
3846	1865.8	1865.8	277.22	277.22	0.	59.32	0.63	0.12	-	-
4487	2021.3	2021.3	207.91	207.91	0.	64.65	0.63	0.14	-	-
5128	2132.4	2132.4	138.61	138.61	0.	68.51	0.63	0.14	-	-
5769	2199.0	2199.0	69.30	69.30	0.	70.83	0.63	0.15	-	-
6410	2221.2	2221.2	0.00	0.00	0.	71.61	0.63	0.15	100	-
7051	2199.0	2199.0	-69.30	-69.30	0.	70.83	0.63	0.15	-	-
7692	2132.4	2132.4	-138.61	-138.61	0.	68.51	0.63	0.14	-	-
8333	2021.3	2021.3	-207.91	-207.91	0.	64.65	0.63	0.14	-	-
8974	1865.8	1865.8	-277.22	-277.22	0.	59.32	0.63	0.12	-	-
9615	1665.9	1665.9	-346.52	-346.52	0.	52.57	0.63	0.11	-	-
1025	1421.6	1421.6	-415.83	-415.83	0.	44.46	0.77	0.09	-	-
1089	1132.8	1132.8	-485.13	-485.13	0.	35.06	1.14	0.07	-	-
1153	799.64	799.64	-554.44	-554.44	0.	24.47	1.52	0.05	-	-
1217	422.03	422.03	-623.74	-623.74	0.	12.75	1.90	0.03	-	-
1269	85.79	85.79	-679.53	-679.53	0.	2.56	2.20	0.01	-	-
1282	0.00	0.00	-679.53	-679.53	0.	0.	2.20	0.00	100	-

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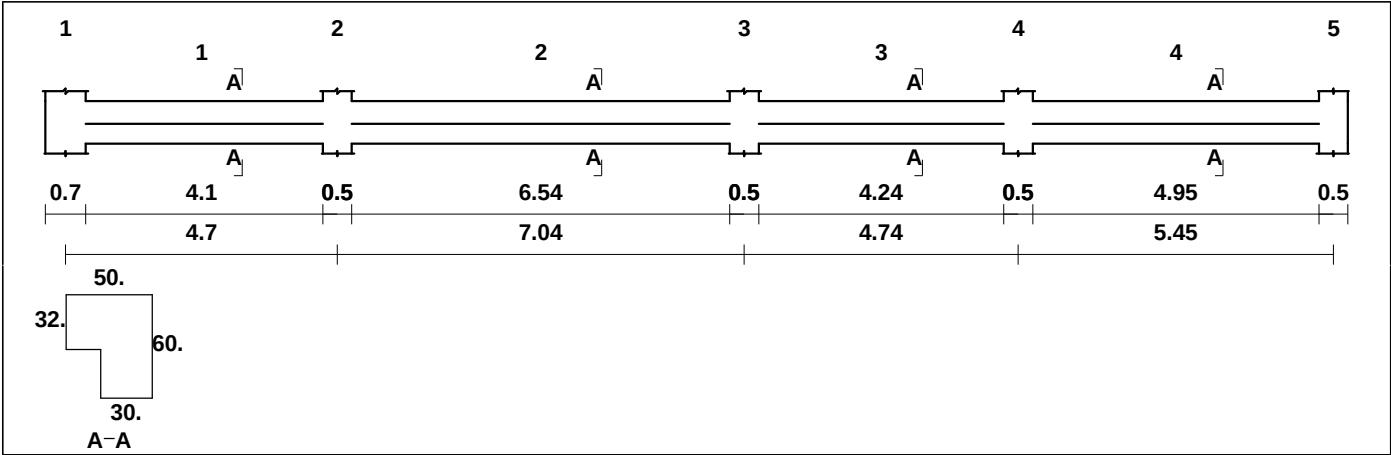
M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		85.8	
MspMx		85.8	
M Max			
M Min			
Mmn=0 @	0.0	12.8	
Mmx=0 @	0.0	12.8	
mx -M @			
mx +M @			
V max		-693.0	
V min		-693.0	
DReac		496.1	
LReac		196.9	
Max R		693.0	
Min R		693.0	

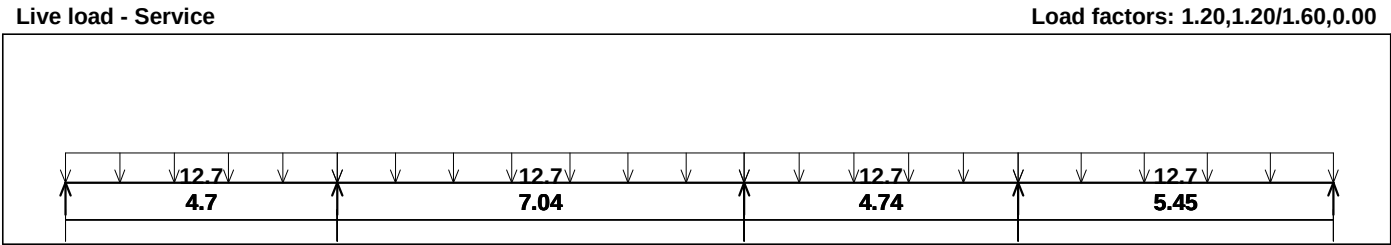
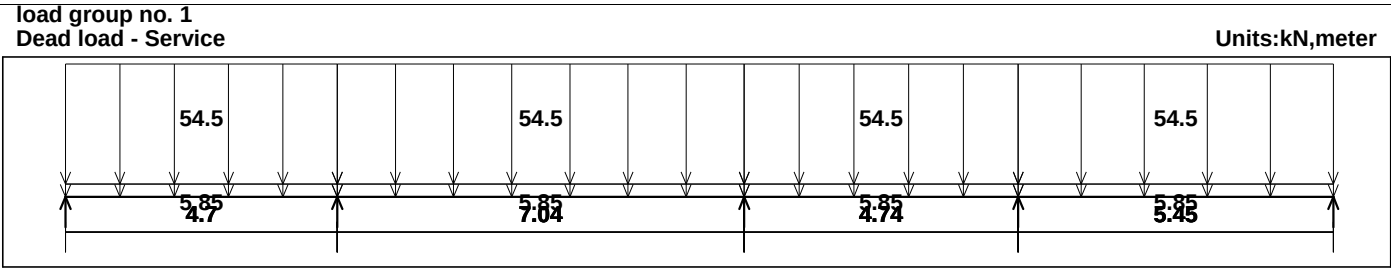
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Geometry

Units:meter,cm



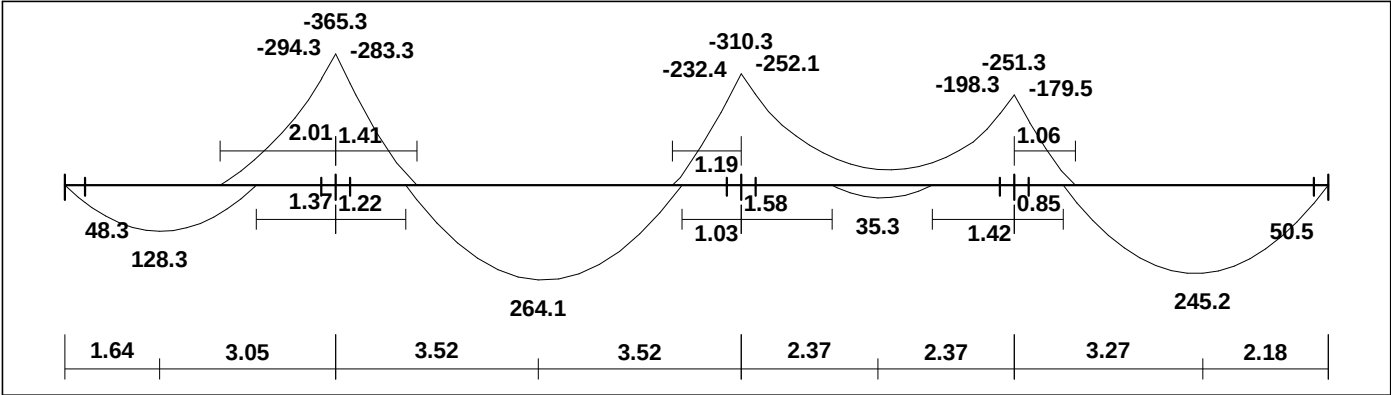
Loading



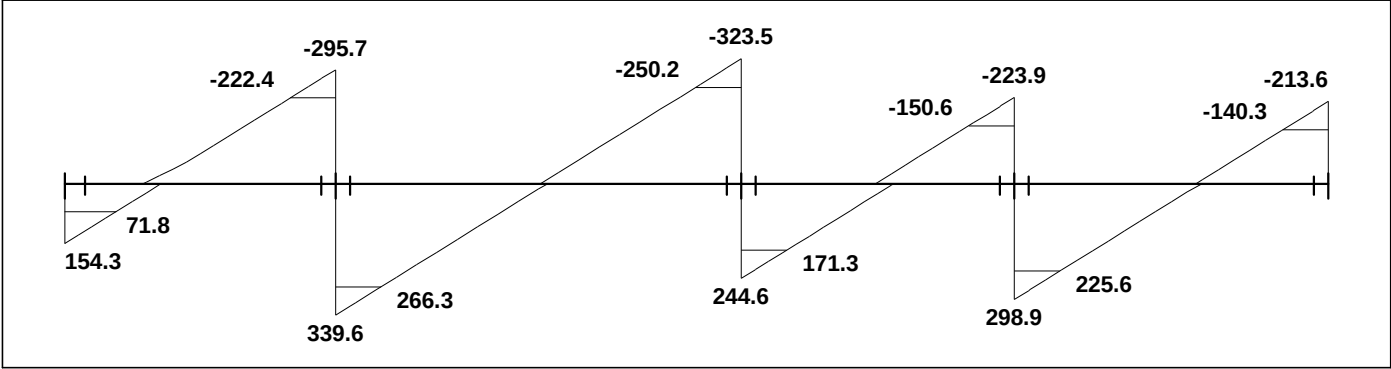
Loads (kN,meter)			
1	2	3	4
Self.Wt. 5.86	Self.Wt. 5.86	Self.Wt. 5.86	Self.Wt. 5.86
Uni D 54.50	Uni D 54.50	Uni D 54.50	Uni D 54.50
L 12.70	L 12.70	L 12.70	L 12.70

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	110.52	492.15	428.5	393.77	163.38
LiveR	43.78	143.15	139.56	128.94	50.17
Max R	154.3	635.3	568.06	522.71	213.55
Min R	97.75	544.74	460.79	427.76	159.05
Service					
DeadR	92.1	410.13	357.08	328.14	136.15
LiveR	27.36	89.47	87.22	80.59	31.36
Max R	119.47	499.59	444.3	408.73	167.51
Min R	84.12	442.99	377.26	349.39	133.45

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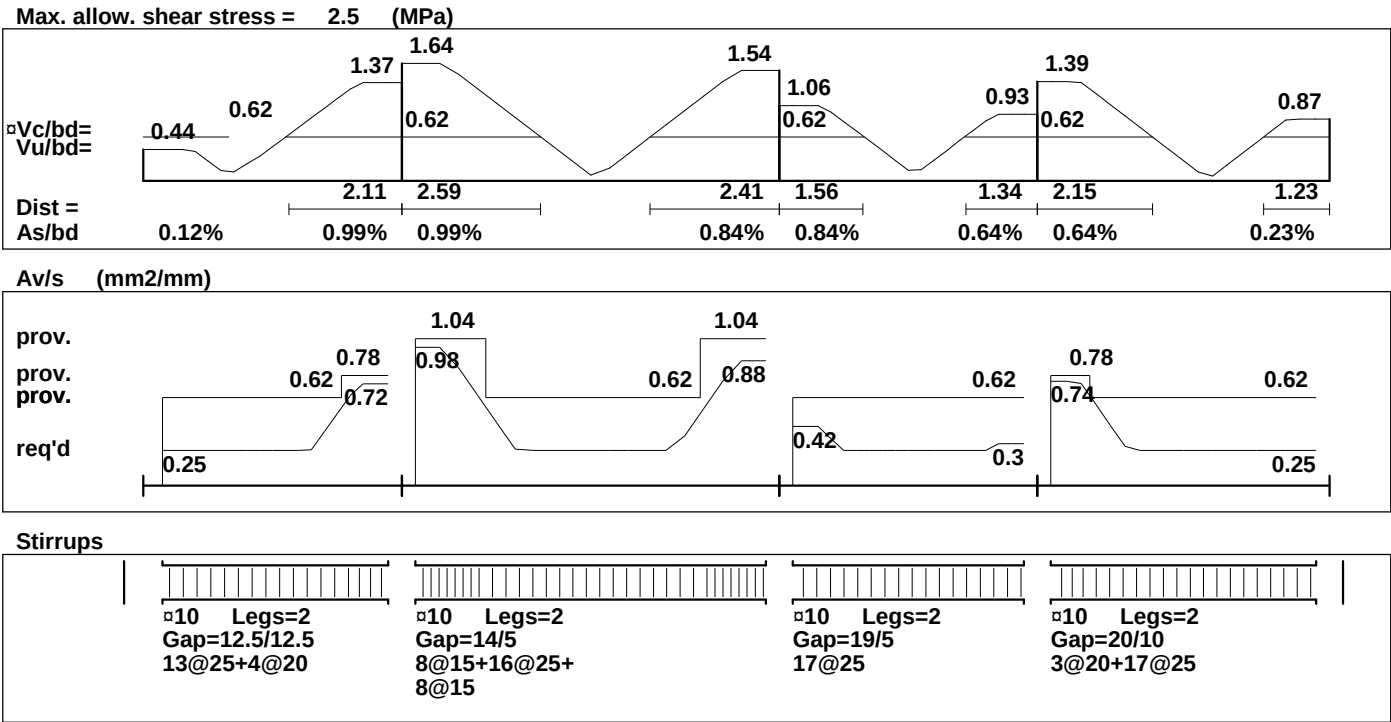
Reinforcement (cm 2)

Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face

Top Cover	6.		6.		6.		6.		
As top = *=minimum	16.10		13.55		5.42		10.43		
As bot =	1.93	6.46	13.69		5.42*		12.66		3.80
Bot Cover	6.		6.		6.		6.		
a/d	2%	5%	20%	10%	17%	3%	13%	10%	2%
As/bd	0.00%	0.40%	0.99%	0.85%	0.84%	0.34%	0.64%	0.78%	0.00%

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



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Deflections (mm)				
Long-term deflection:				
- sustained loads : 65% of dead; 0% of live				
- duration of load 60 months ; attachment of element at 2 months (t1)				
Apply 35% of dead load after attachment (t1)				
	1	2	3	4
A's	0.	0.	5.42	0.
As	6.46	13.69	5.42	12.66
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00687	0.00687	0.00687	0.00687
Icr(m^4)=	0.00128	0.00241	0.00104	0.00227
Mcr =	62.86	62.86	80.40	62.86
Mmax,d =	69.87	161.66	190.77	153.39
Mmax,d+l =	97.68	205.46	223.02	191.57
Mmax,sust =	45.42	105.08	124.00	99.71
Ie,d (m^4)=	0.00535	0.00267	0.00148	0.00258
Ie,d+l (m^4)=	0.00277	0.00254	0.00132	0.00243
Ie,sust (m^4)=	0.00687	0.00337	0.00263	0.00342
e/1+50r =	2.00/0.80	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	0.615	9.711	-2.672	6.752
ai,l =	1.491	3.685	-2.558	2.401
at,sust =	0.374	6.021	-1.004	3.979
ai,l =	L/ 3152	L/ 1910	L/ 1852	L/ 2269
(ai+at),t2-t1	L/ 2259	L/ 537	L/ 1053	L/ 623

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	71.76	33.29	0.	0.	0.25	0.00	100	-
235	33.70	20.97	71.76	33.29	0.	1.66	0.25	0.01	-	-
350	48.33	29.78	71.76	33.29	0.	2.39	0.25	0.02	-	-
470	62.28	37.95	71.76	33.29	0.	3.09	0.25	0.02	-	-
705	85.73	50.92	71.76	33.29	0.	4.28	0.25	0.03	-	-
940	104.07	59.89	67.12	29.67	0.	5.21	0.25	0.04	-	-
1175	117.28	64.86	45.33	12.65	0.	5.89	0.25	0.04	-	-
1410	125.37	65.84	23.53	-4.37	0.	6.31	0.25	0.05	-	-
1645	128.34	62.81	1.73	-21.39	0.	6.46	0.25	0.05	-	-
1880	126.19	55.79	-20.06	-38.41	0.	6.35	0.25	0.05	-	-
2115	118.91	44.76	-41.86	-55.93	0.	5.97	0.25	0.05	-	-
2350	106.51	29.73	-63.65	-77.72	0.	5.34	0.25	0.04	100	-
2585	89.00	10.71	-85.45	-99.52	0.	4.44	0.25	0.03	-	-
2820	66.35	-12.32	-104.59	-121.32	0.60	3.30	0.25	0.03	-	-
3055	38.59	-39.34	-121.61	-143.11	1.95	1.91	0.25	0.02	-	-
3290	5.71	-70.37	-138.63	-164.91	3.53	0.28	0.38	0.04	-	-
3525	-32.30	-105.39	-155.65	-186.70	5.36	0.	0.51	0.07	-	-
3760	-75.43	-144.42	-172.67	-208.50	7.44	0.	0.64	0.09	-	-
3995	-123.68	-187.44	-183.53	-222.41	9.82	0.	0.72	0.12	-	-
4230	-177.06	-236.58	-183.53	-222.41	12.64	0.	0.72	0.16	-	-
4450	-231.66	-294.28	-183.53	-222.41	16.10	0.	0.72	0.20	-	-
4465	-235.55	-298.38	-183.53	-222.41	16.10	0.	0.72	0.20	-	-
4700	-299.17	-365.30	-183.53	-222.41	16.10	0.	0.72	0.20	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-299.17	-365.30	266.35	205.91	15.43	0.	0.98	0.20	100	-
250	-235.65	-283.30	266.35	205.91	15.43	0.	0.98	0.20	-	-
352	-211.03	-251.51	266.35	205.91	13.52	0.	0.98	0.17	-	-
704	-122.60	-149.20	266.35	205.91	7.70	0.	0.98	0.10	-	-
1056	-35.35	-62.67	241.68	186.64	3.14	0.	0.83	0.04	-	-
1408	40.41	-0.85	209.03	161.15	0.04	2.00	0.64	0.02	-	-
1760	105.43	51.76	176.38	135.65	0.	5.28	0.45	0.04	-	-
2112	160.14	95.02	143.74	110.16	0.	8.12	0.26	0.06	-	-
2464	203.36	129.31	111.09	84.67	0.	10.40	0.25	0.08	-	-
2816	235.09	154.63	78.44	59.17	0.	12.11	0.25	0.09	-	-
3168	255.33	170.97	45.79	33.68	0.	13.21	0.25	0.10	-	-
3520	264.07	178.34	13.15	3.02	0.	13.69	0.25	0.10	100	-
3872	261.32	176.73	-15.58	-29.63	0.	13.54	0.25	0.10	-	-
4224	247.09	166.15	-41.07	-62.28	0.	12.76	0.25	0.10	-	-
4576	221.36	146.60	-66.56	-94.92	0.	11.37	0.25	0.09	-	-
4928	184.13	118.07	-92.06	-127.57	0.	9.38	0.25	0.07	-	-
5280	135.42	80.56	-117.55	-160.22	0.	6.83	0.36	0.05	-	-
5632	76.48	34.09	-143.05	-192.86	0.	3.81	0.55	0.03	-	-
5984	6.41	-21.36	-168.54	-225.51	1.05	0.31	0.74	0.01	-	-
6336	-75.15	-105.60	-187.81	-250.18	5.37	0.	0.88	0.07	-	-
6688	-150.40	-202.22	-187.81	-250.18	10.65	0.	0.88	0.14	-	-
6790	-173.17	-232.36	-187.81	-250.18	12.39	0.	0.88	0.16	-	-
7040	-232.16	-310.33	-187.81	-250.18	12.39	0.	0.88	0.16	100	-
Span=3										
0	-232.16	-310.33	171.33	126.54	13.55	0.	0.42	0.17	100	-
237	-183.63	-254.96	171.33	126.54	13.55	0.	0.42	0.17	-	-
250	-181.12	-252.07	171.33	126.54	13.55	0.	0.42	0.17	-	-
474	-140.31	-204.80	171.33	126.54	10.80	0.	0.42	0.14	-	-
711	-102.19	-166.74	171.33	126.54	8.67	0.	0.42	0.11	-	-
948	-68.30	-136.95	156.68	115.10	7.04	0.	0.33	0.09	-	-
1185	-38.01	-111.22	134.70	97.93	5.66	0.	0.25	0.07	-	-
1422	-12.93	-89.57	112.72	80.77	4.53	0.	0.25	0.06	-	-
1659	6.94	-71.98	90.74	61.90	3.62	0.34	0.25	0.05	-	-
1896	21.60	-58.46	68.75	39.92	2.92	1.06	0.25	0.04	-	-
2133	31.05	-49.01	46.77	17.93	2.44	1.53	0.25	0.03	-	-
2370	35.29	-43.63	24.79	-4.05	2.17	1.74	0.25	0.03	100	-
2607	34.33	-42.31	2.81	-26.03	2.10	1.69	0.25	0.03	-	-
2844	28.15	-45.06	-19.17	-48.01	2.24	1.39	0.25	0.03	-	-
3081	16.76	-51.89	-37.37	-69.99	2.59	0.82	0.25	0.03	-	-
3318	0.17	-62.78	-54.53	-91.97	3.14	0.00	0.25	0.04	-	-
3555	-21.64	-77.73	-71.70	-113.95	3.91	0.	0.25	0.05	-	-
3792	-48.65	-96.76	-88.86	-135.93	4.90	0.	0.25	0.06	-	-
4029	-77.59	-120.23	-100.31	-150.59	6.14	0.	0.30	0.08	-	-
4266	-110.79	-155.65	-100.31	-150.59	8.06	0.	0.30	0.10	-	-
4490	-146.95	-198.27	-100.31	-150.59	10.43	0.	0.30	0.13	-	-
4503	-149.20	-200.89	-100.31	-150.59	10.43	0.	0.30	0.13	-	-
4740	-192.81	-251.34	-100.31	-150.59	10.43	0.	0.30	0.13	100	-

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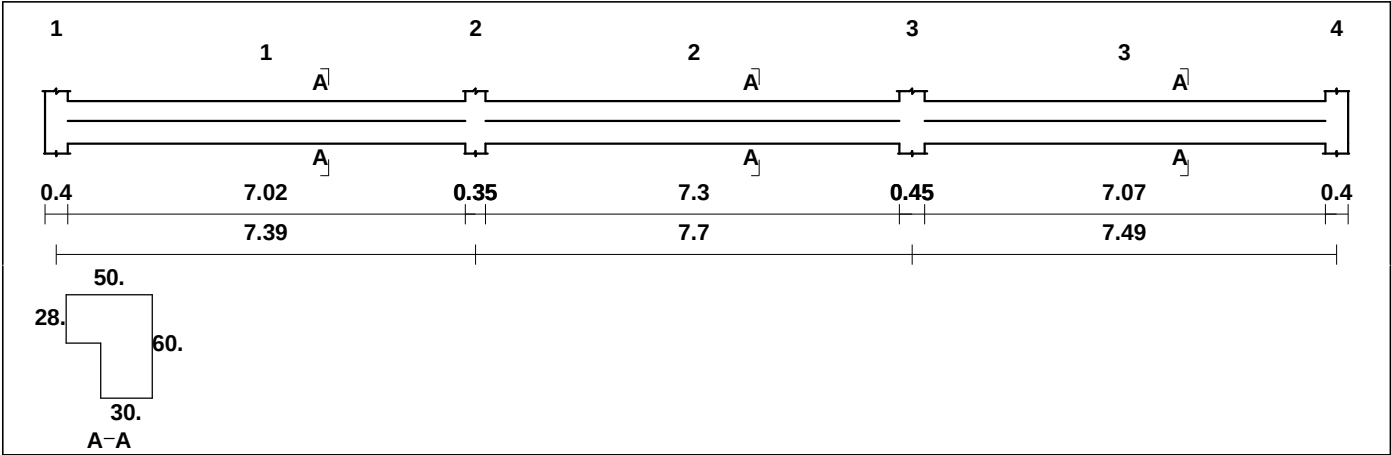
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-192.81	-251.34	225.58	175.52	9.38	0.	0.74	0.12	100	-
250	-136.89	-179.53	225.58	175.52	9.38	0.	0.74	0.12	-	-
273	-131.97	-173.21	225.58	175.52	9.02	0.	0.74	0.11	-	-
545	-68.23	-102.24	225.58	175.52	5.19	0.	0.74	0.07	-	-
818	-5.79	-40.25	222.99	173.50	2.00	0.	0.72	0.03	-	-
1090	49.55	5.06	197.76	153.80	0.	2.45	0.58	0.02	-	-
1363	98.19	45.15	172.44	134.02	0.	4.91	0.43	0.04	-	-
1635	139.77	79.72	147.21	114.32	0.	7.05	0.28	0.05	-	-
1908	174.61	109.03	121.89	94.55	0.	8.88	0.25	0.07	-	-
2180	202.45	132.87	96.66	74.85	0.	10.35	0.25	0.08	-	-
2453	223.49	151.41	71.34	55.08	0.	11.48	0.25	0.09	-	-
2725	237.58	164.51	46.12	35.38	0.	12.24	0.25	0.09	100	-
2998	244.82	172.27	20.80	13.86	0.	12.63	0.25	0.10	-	-
3270	245.16	174.63	-1.16	-11.36	0.	12.65	0.25	0.10	-	-
3543	238.60	171.62	-20.93	-36.68	0.	12.30	0.25	0.09	-	-
3815	225.19	163.24	-40.63	-61.91	0.	11.57	0.25	0.09	-	-
4088	204.83	149.45	-60.41	-87.23	0.	10.48	0.25	0.08	-	-
4360	177.68	130.34	-80.11	-112.46	0.	9.04	0.25	0.07	-	-
4633	143.52	105.77	-99.88	-137.78	0.	7.25	0.25	0.06	-	-
4905	102.61	75.93	-101.83	-140.28	0.	5.14	0.25	0.04	-	-
5178	54.66	40.58	-101.83	-140.28	0.	2.71	0.25	0.02	-	-
5200	50.49	37.50	-101.83	-140.28	0.	2.50	0.25	0.02	-	-
5450	0.00	0.00	-101.83	-140.28	0.	0.	0.25	0.00	100	-

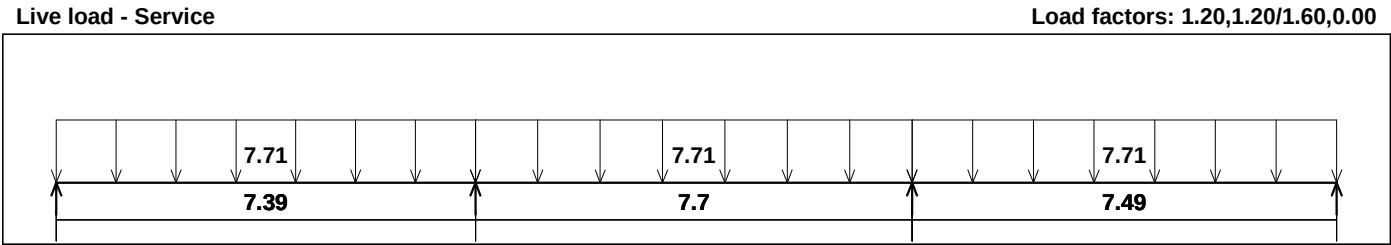
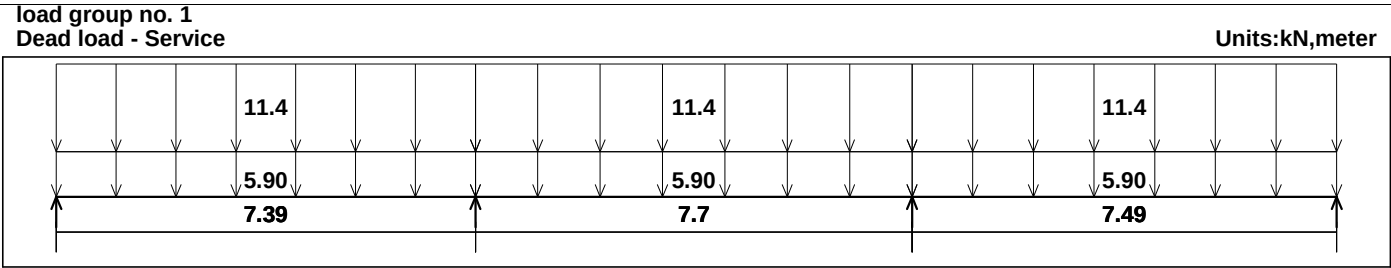
Moment / Shear Envelope (Factored) Units:kN,meter										
	1	2	3	4	5					
	1		2		3		4		5	
	1		2		3		4		5	
Min M	0.0	-365.3		-310.3		-251.3		0.0		
Max M	0.0	-299.2		-232.2		-192.8		0.0		
MspMn		-294.3		-232.4		-198.3		37.5		
MspMx		-231.7		-173.2		-147.0		50.5		
M Max			264.1		35.3		245.2			
M Min			178.3		-42.3		174.6			
Mmn=0 @	0.0	2.0	1.4	1.2	0.0	4.7	1.1	5.5		
Mmx=0 @	0.0	1.4	1.2	1.0	1.6	1.4	0.8	5.5		
mx -M @			1.2		1.6		0.8			
mx +M @			3.5		2.4		3.3			
V max		-240.8		-245.0		-157.5		-159.1		
V min		-295.7		-323.5		-223.9		-213.6		
DReac		492.2		428.5		393.8		163.4		
LReac		143.1		139.6		128.9		50.2		
Max R		635.3		568.1		522.7		213.6		
Min R		544.7		460.8		427.8		159.1		

Beam 1	Code: ACI318-02
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Geometry Units: meter, cm



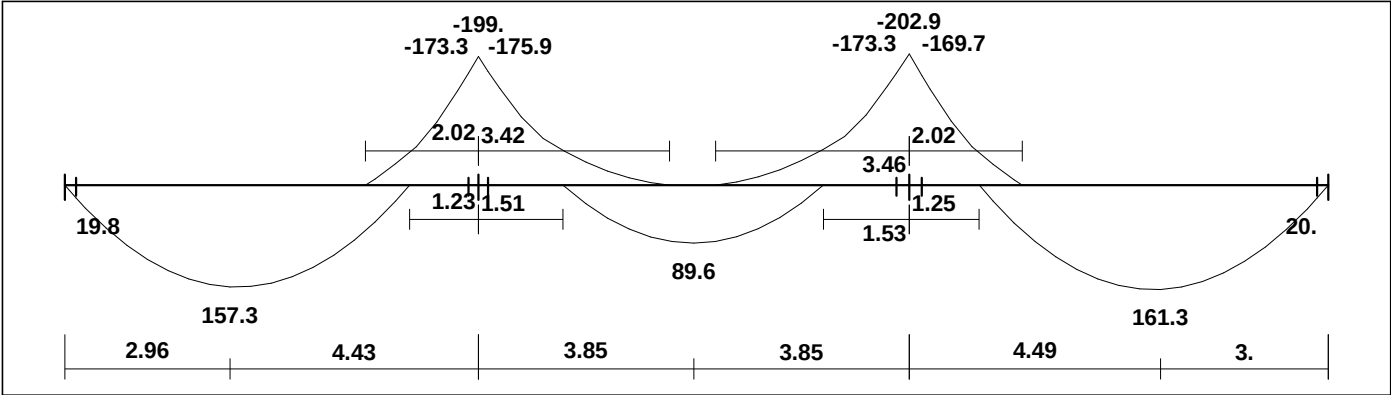
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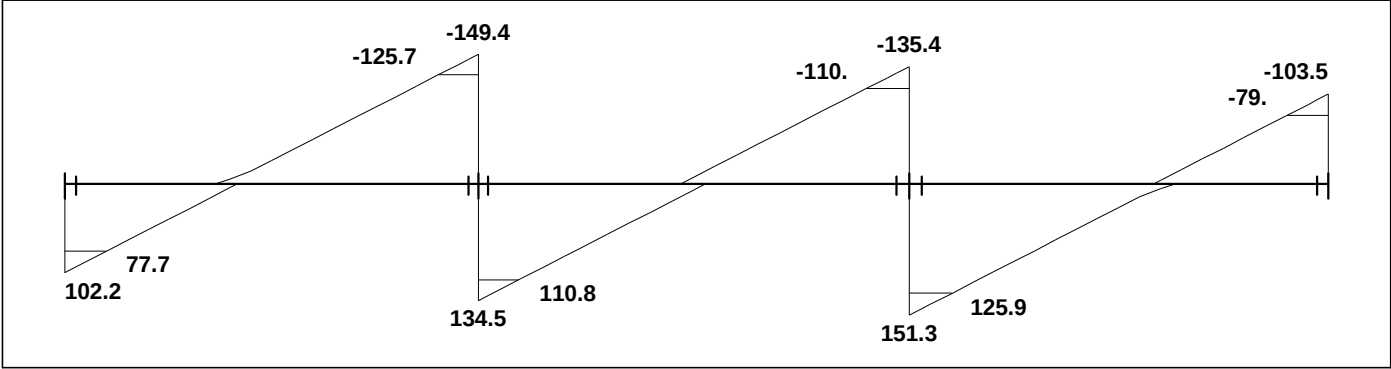
Loads (kN, meter)											
1				2				3			
Self. Wt.	5.90	Self. Wt.	5.90	Self. Wt.	5.90	Self. Wt.	5.90	Self. Wt.	5.90	Self. Wt.	5.90
Uni D	0.000	L	7.71	Uni D	0.000	L	7.71	Uni D	0.000	L	7.71
Uni D	11.45	L	0.000	Uni D	11.45	L	0.000	Uni D	11.45	L	0.000

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored				
DeadR	61.01	172.64	174.56	61.9
LiveR	41.19	111.3	112.1	41.6
Max R	102.2	283.94	286.66	103.5
Min R	55.97	216.21	218.27	56.97
Service				
DeadR	50.84	143.87	145.47	51.58
LiveR	25.74	69.56	70.06	26.
Max R	76.59	213.43	215.53	77.58
Min R	47.7	171.1	172.79	48.5

Beam 1	Code: ACI318-02
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Reinforcement (cm 2)

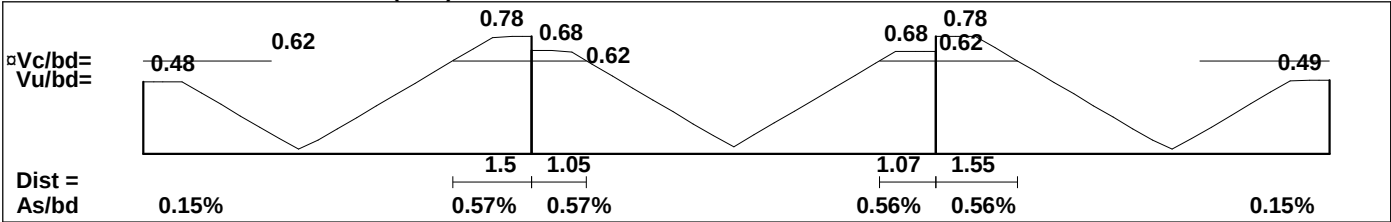
Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.	6.
As top = *=minimum	9.17	9.04*	
As bot =	2.39	7.96	5.42*
Bot Cover	6.	6.	6.
a/d	1%	6%	12%
As/bd	0.00%	0.49%	0.57%
		3%	11%
		0.34%	0.56%
			6%
			0.50%
			1%
			0.00%

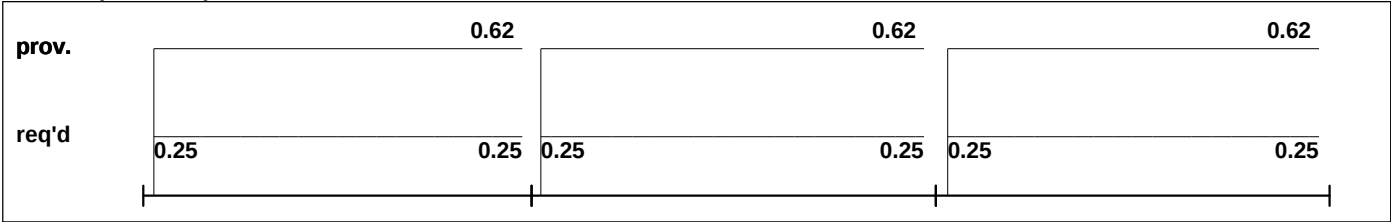
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

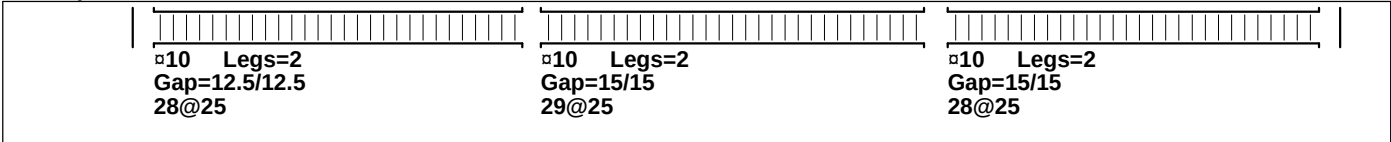
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 1	Code: ACI318-02
Project: BAEMS	Page: 201
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 0.	3 0.
As	7.96	5.42	8.17
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00686	0.00686	0.00686
Icr(m^4)=	0.00154	0.00110	0.00157
Mcr =	62.52	62.52	62.52
Mmax,d =	74.49	29.41	76.67
Mmax,d+l =	116.91	63.38	119.96
Mmax,sust =	48.42	19.12	49.83
Ie,d (m^4)=	0.00468	0.00686	0.00444
Ie,d+l (m^4)=	0.00235	0.00663	0.00232
Ie,sust (m^4)=	0.00686	0.00686	0.00686
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80
ai,d =	3.129	0.350	3.495
ai,l =	7.254	1.171	7.587
at,sust =	1.667	0.273	1.765
ai,l =	L/ 1018	L/ 6573	L/ 987
(ai+at),t2-t1	L/ 737	L/ 4913	L/ 708

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	77.67	40.57	0.	0.	0.25	0.00	100	-
200	19.78	10.78	77.67	40.57	0.	0.97	0.25	0.01	-	-
370	35.55	19.29	77.67	40.57	0.	1.75	0.25	0.01	-	-
739	66.47	35.68	77.67	40.57	0.	3.30	0.25	0.03	-	-
1109	92.95	49.27	65.43	32.89	0.	4.65	0.25	0.04	-	-
1478	114.84	59.99	53.20	25.20	0.	5.77	0.25	0.04	-	-
1848	132.26	67.89	40.93	17.50	0.	6.66	0.25	0.05	-	-
2217	145.10	72.93	28.70	9.82	0.	7.33	0.25	0.06	-	-
2587	153.45	75.14	16.43	2.11	0.	7.77	0.25	0.06	-	-
2956	157.25	74.50	4.19	-5.57	0.	7.96	0.25	0.06	-	-
3326	156.54	71.01	-8.07	-14.69	0.	7.93	0.25	0.06	-	-
3695	151.30	64.70	-19.38	-26.92	0.	7.65	0.25	0.06	100	-
4065	141.52	55.52	-27.08	-39.19	0.	7.14	0.25	0.05	-	-
4434	127.24	43.53	-34.77	-51.42	0.	6.40	0.25	0.05	-	-
4804	108.39	28.66	-42.47	-63.69	0.	5.43	0.25	0.04	-	-
5173	85.07	10.99	-50.15	-75.93	0.	4.24	0.25	0.03	-	-
5543	57.15	-9.58	-57.86	-88.19	0.47	2.83	0.25	0.02	-	-
5912	24.79	-32.92	-65.54	-100.43	1.63	1.22	0.25	0.02	-	-
6282	-12.19	-59.18	-73.24	-112.70	2.96	0.	0.25	0.04	-	-
6651	-53.59	-97.57	-80.92	-124.93	4.95	0.	0.25	0.06	-	-
7021	-99.64	-146.07	-81.42	-125.73	7.53	0.	0.25	0.10	-	-
7215	-125.59	-173.31	-81.42	-125.73	9.03	0.	0.25	0.11	-	-
7390	-143.22	-198.95	-81.42	-125.73	9.03	0.	0.25	0.11	100	-

Beam 1	Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-143.22	-198.95	110.80	64.65	9.17	0.	0.25	0.12	100	-
175	-122.75	-175.92	110.80	64.65	9.17	0.	0.25	0.12	-	-
385	-99.52	-149.62	110.80	64.65	7.73	0.	0.25	0.10	-	-
770	-60.73	-105.21	108.98	63.51	5.35	0.	0.25	0.07	-	-
1155	-26.85	-72.10	96.22	55.49	3.62	0.	0.25	0.05	-	-
1540	2.11	-52.28	83.45	47.48	2.61	0.10	0.25	0.03	-	-
1925	28.83	-35.54	70.69	39.46	1.76	1.42	0.25	0.02	-	-
2310	50.82	-21.89	57.92	31.45	1.08	2.52	0.25	0.02	-	-
2695	67.90	-11.33	45.16	23.43	0.55	3.37	0.25	0.03	-	-
3080	80.06	-3.85	32.39	15.42	0.18	3.99	0.25	0.03	-	-
3465	87.31	0.54	19.63	5.01	0.	4.36	0.25	0.03	-	-
3850	89.65	1.85	6.86	-7.75	0.	4.48	0.25	0.03	100	-
4235	87.07	0.07	-5.91	-20.52	0.	4.35	0.25	0.03	-	-
4620	79.57	-4.80	-16.65	-33.28	0.23	3.97	0.25	0.03	-	-
5005	67.16	-12.75	-24.66	-46.05	0.62	3.34	0.25	0.03	-	-
5390	49.84	-23.79	-32.68	-58.81	1.17	2.47	0.25	0.02	-	-
5775	27.60	-37.91	-40.69	-71.58	1.88	1.36	0.25	0.02	-	-
6160	0.57	-55.12	-48.71	-84.34	2.75	0.02	0.25	0.04	-	-
6545	-28.73	-75.42	-56.73	-97.11	3.79	0.	0.25	0.05	-	-
6930	-62.95	-108.48	-64.74	-109.87	5.52	0.	0.25	0.07	-	-
7315	-102.08	-153.24	-64.85	-110.04	7.92	0.	0.25	0.10	-	-
7475	-119.79	-173.28	-64.85	-110.04	9.03	0.	0.25	0.11	-	-
7700	-146.13	-202.91	-64.85	-110.04	9.03	0.	0.25	0.11	100	-
Span=3										
0	-146.13	-202.91	125.90	81.55	8.83	0.	0.25	0.11	100	-
225	-123.08	-169.71	125.90	81.55	8.83	0.	0.25	0.11	-	-
375	-102.84	-148.52	125.90	81.55	7.67	0.	0.25	0.10	-	-
749	-55.64	-98.91	125.90	81.55	5.02	0.	0.25	0.06	-	-
1124	-12.97	-59.21	113.99	74.08	2.96	0.	0.25	0.04	-	-
1498	24.94	-32.40	101.59	66.29	1.60	1.23	0.25	0.02	-	-
1873	58.30	-8.45	89.16	58.48	0.41	2.89	0.25	0.02	-	-
2247	86.93	12.53	76.76	50.70	0.	4.34	0.25	0.03	-	-
2622	110.97	30.64	64.32	42.89	0.	5.57	0.25	0.04	-	-
2996	130.31	45.78	51.92	35.10	0.	6.56	0.25	0.05	-	-
3371	145.04	58.04	39.49	27.30	0.	7.33	0.25	0.06	-	-
3745	155.09	67.35	27.09	19.51	0.	7.85	0.25	0.06	100	-
4120	160.51	73.76	14.66	8.24	0.	8.13	0.25	0.06	-	-
4494	161.28	77.24	5.41	-4.16	0.	8.17	0.25	0.06	-	-
4869	157.38	77.80	-2.40	-16.60	0.	7.97	0.25	0.06	-	-
5243	148.86	75.45	-10.19	-29.00	0.	7.53	0.25	0.06	-	-
5618	135.65	70.17	-17.99	-41.43	0.	6.84	0.25	0.05	-	-
5992	117.84	61.98	-25.78	-53.83	0.	5.92	0.25	0.05	-	-
6367	95.32	50.85	-33.59	-66.26	0.	4.77	0.25	0.04	-	-
6741	68.22	36.83	-41.37	-78.66	0.	3.39	0.25	0.03	-	-
7116	36.39	19.85	-41.56	-78.96	0.	1.80	0.25	0.01	-	-
7290	20.04	10.98	-41.56	-78.96	0.	0.98	0.25	0.01	-	-
7490	0.00	0.00	-41.56	-78.96	0.	0.	0.25	0.00	100	-

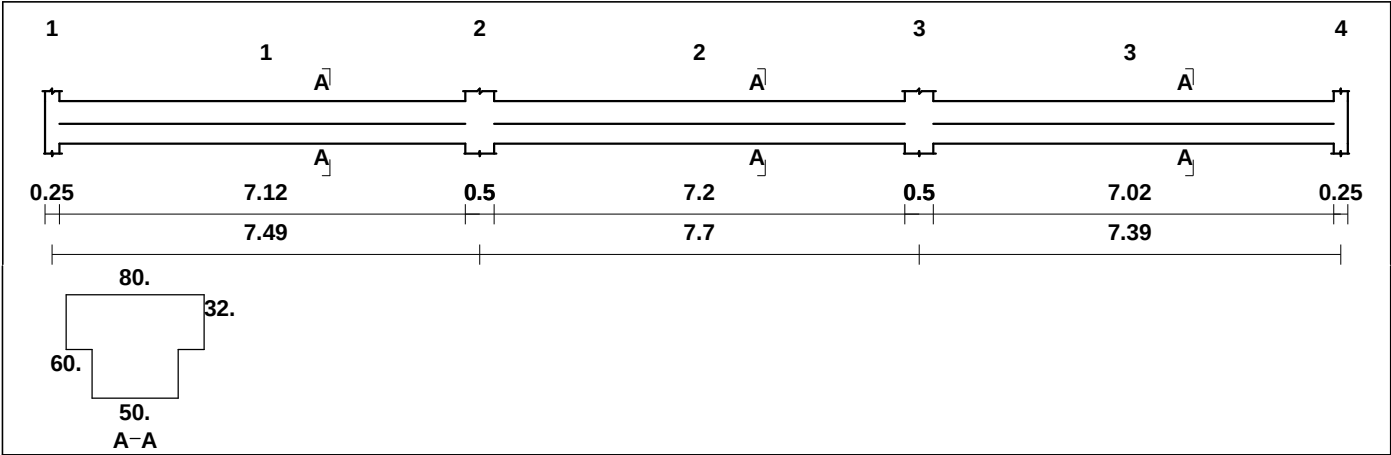
Beam 1	Code: ACI318-02
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	Moment / Shear		Envelope (Factored)		Units:kN,meter	
	1	2	3	4		
	1		2		3	
Min M	0.0	-199.0	-202.9		0.0	
Max M	0.0	-143.2	-146.1		0.0	
MspMn		-173.3	-173.3		11.0	
MspMx		-125.6	-119.8		20.0	
M Max			89.6		161.3	
M Min			1.8		77.8	
Mmn=0 @	0.0	2.0	3.4	3.5	2.0	7.5
Mmx=0 @	0.0	1.2	1.5	1.5	1.3	7.5
mx -M @			1.5		1.3	
mx +M @			3.8		4.5	
V max		-96.3	-80.8		-57.0	
V min		-149.4	-135.4		-103.5	
DReac		172.6	174.6		61.9	
LReac		111.3	112.1		41.6	
Max R		283.9	286.7		103.5	
Min R		216.2	218.3		57.0	

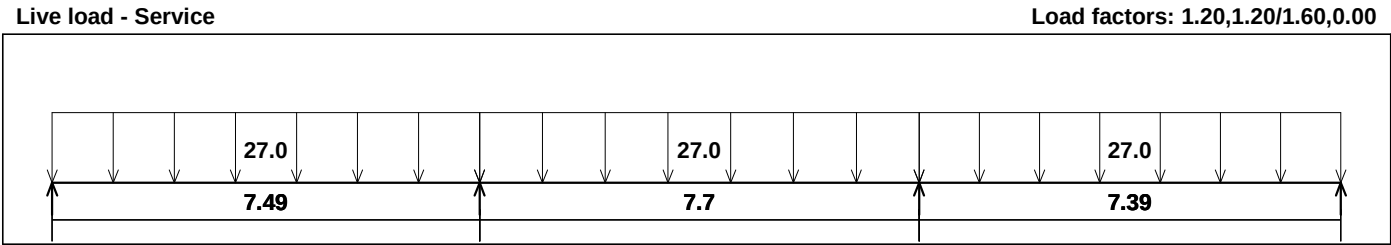
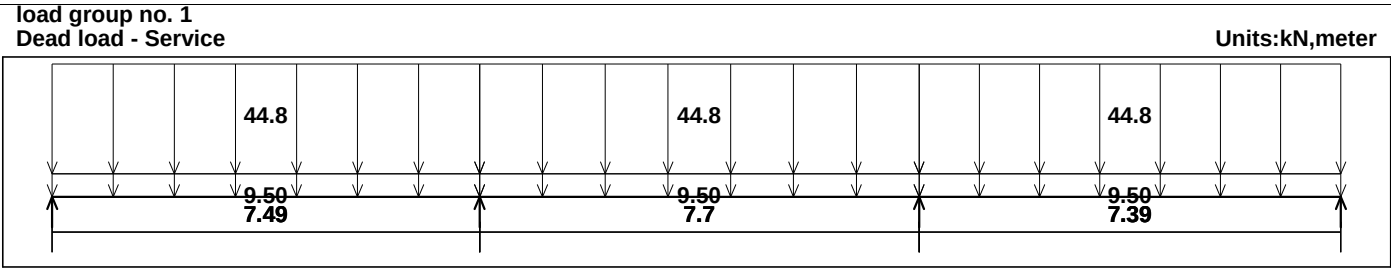
Beam 2	Code: ACI318-02
Project: BAEMS	Page: 203
Designed by: bayan	Date: 4/ 7/14

Geometry

Units:meter,cm



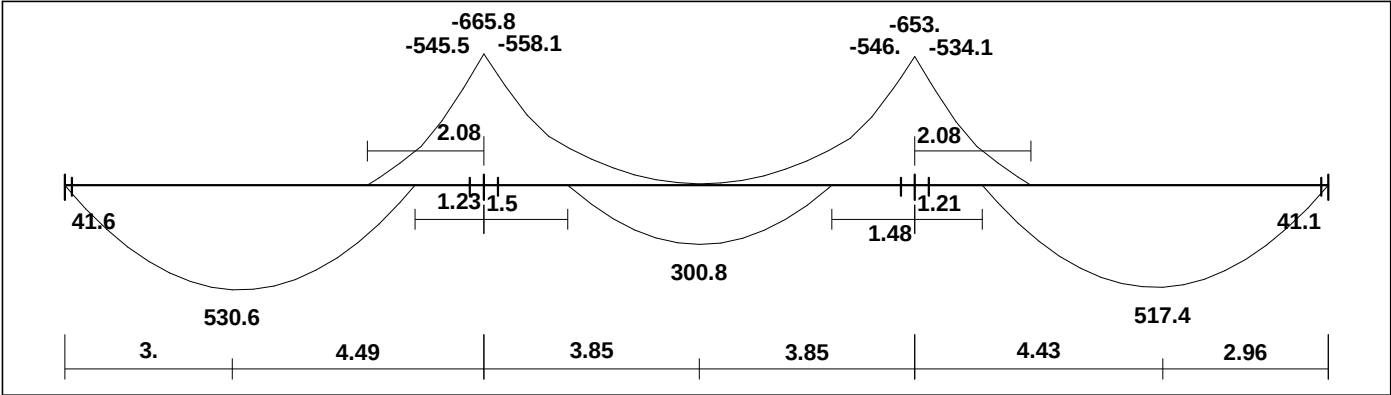
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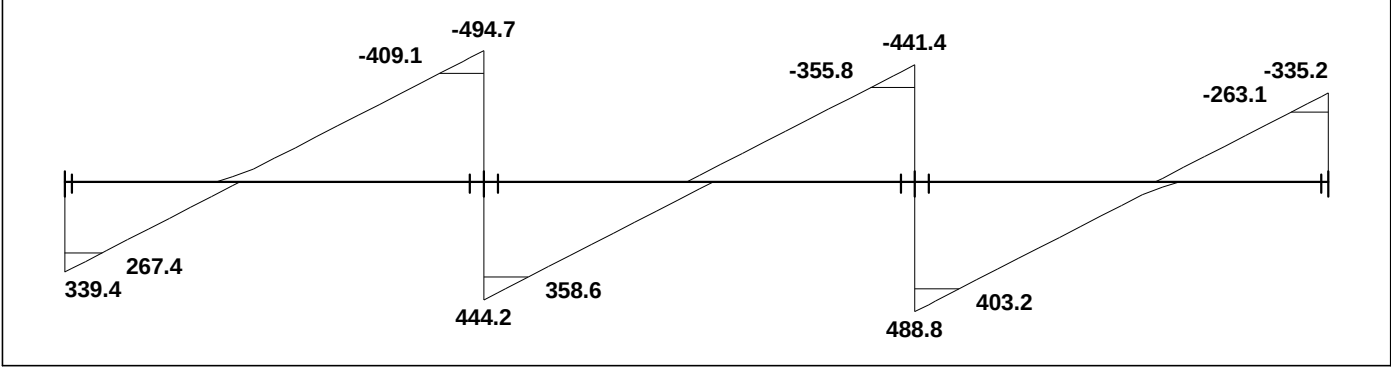
Loads (kN,meter)											
1				2				3			
Self.Wt.	9.50	Self.Wt.	9.50	Self.Wt.	9.50	Self.Wt.	9.50	Self.Wt.	9.50	Self.Wt.	9.50
Uni D	44.80	L	27.00	Uni D	44.80	L	27.00	Uni D	44.80	L	27.00

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	193.73	546.37	540.36	190.97
LiveR	145.69	392.57	389.77	144.24
Max R	339.42	938.93	930.13	335.21
Min R	176.48	699.43	692.93	173.32
Service				
DeadR	161.44	455.3	450.3	159.14
LiveR	91.05	245.35	243.61	90.15
Max R	252.5	700.66	693.9	249.29
Min R	150.66	550.97	545.65	148.11

Beam 2	Code: ACI318-02
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Reinforcement (cm 2)

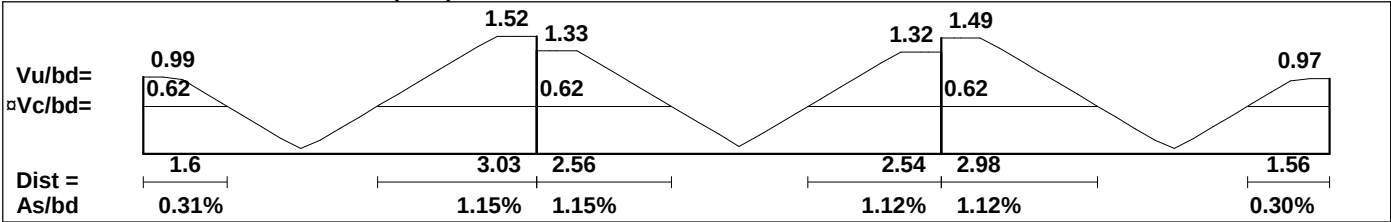
Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face

Top Cover	6.		6.		6.
As top = *=minimum		31.11	9.04	30.33	
As bot =	8.37	27.92	15.34	27.18	8.15
Bot Cover	6.		6.		6.
a/d	1%	13%	24%	23%	1%
As/bd	0.00%	1.03%	1.15%	1.12%	0.00%

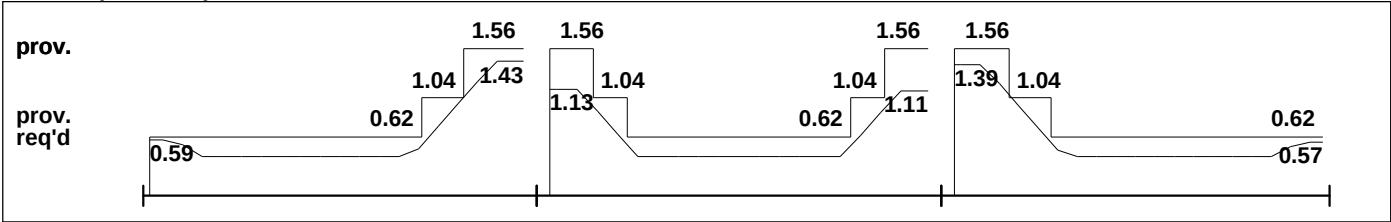
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

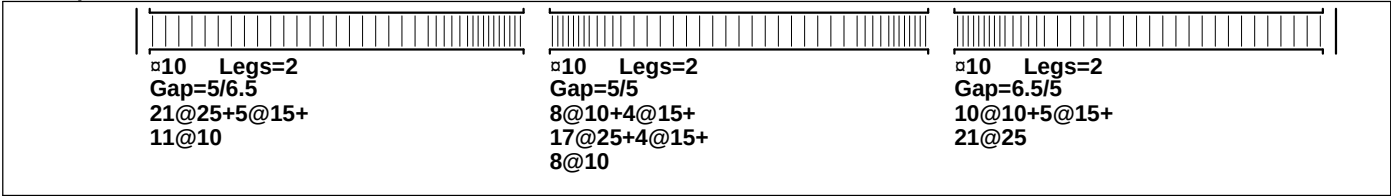
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 2	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 9.04	3 0.
As fr = 3	27.92 Es= 209	15.34 Ec = 23	27.18
Ig(m^4)=	0.01124	0.01124	0.01124
Icr(m^4)=	0.00469	0.00291	0.00459
Mcr =	103.73	103.73	103.73
Mmax,d =	239.96	92.05	233.16
Mmax,d+l =	391.59	211.02	381.69
Mmax,sust =	155.98	59.83	151.56
Ie,d (m^4)=	0.00522	0.01124	0.00518
Ie,d+l (m^4)=	0.00481	0.00390	0.00472
Ie,sust (m^4)=	0.00662	0.01124	0.00672
e/1+50r =	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	9.305	0.668	8.860
ai,l =	8.214	8.165	8.083
at,sust =	5.727	0.446	5.324
ai,l =	L/ 911	L/ 943	L/ 914
(ai+at),t2-t1	L/ 435	L/ 870	L/ 447

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	267.36	133.14	0.	0.	0.59	0.00	100	-
125	41.58	21.55	267.36	133.14	0.	2.05	0.59	0.01	-	-
375	119.66	61.60	267.36	133.14	0.	5.96	0.59	0.03	-	-
749	223.83	113.90	258.25	127.67	0.	11.30	0.54	0.05	-	-
1124	313.05	157.19	217.62	103.23	0.	15.99	0.42	0.08	-	-
1498	386.86	191.24	177.09	78.86	0.	19.95	0.42	0.10	-	-
1873	445.65	216.23	136.45	54.42	0.	23.17	0.42	0.11	-	-
2247	489.10	232.03	95.92	30.05	0.	25.59	0.42	0.12	-	-
2622	517.46	238.72	55.29	5.61	0.	27.18	0.42	0.13	-	-
2996	530.55	236.26	14.76	-18.76	0.	27.92	0.42	0.13	-	-
3371	528.47	224.64	-25.88	-48.36	0.	27.81	0.42	0.13	-	-
3745	511.21	203.93	-62.34	-88.89	0.	26.83	0.42	0.13	100	-
4120	478.69	174.01	-86.78	-129.53	0.	25.01	0.42	0.12	-	-
4494	431.07	135.04	-111.15	-170.05	0.	22.37	0.42	0.11	-	-
4869	368.11	86.82	-135.59	-210.69	0.	18.94	0.42	0.09	-	-
5243	290.15	29.60	-159.96	-251.22	0.	14.77	0.50	0.07	-	-
5618	196.75	-36.93	-184.40	-291.86	1.82	9.90	0.74	0.05	-	-
5992	88.42	-112.40	-208.77	-332.38	5.64	4.39	0.98	0.04	-	-
6367	-35.41	-197.23	-233.20	-373.02	10.07	0.	1.21	0.08	-	-
6741	-174.09	-325.64	-254.90	-409.11	17.11	0.	1.43	0.13	-	-
7116	-328.36	-488.34	-254.90	-409.11	26.71	0.	1.43	0.20	-	-
7240	-382.73	-545.49	-254.90	-409.11	30.30	0.	1.43	0.23	-	-
7490	-466.94	-665.78	-254.90	-409.11	30.30	0.	1.43	0.23	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-466.94	-665.78	358.61	201.43	31.11	0.	1.13	0.24	100	-
250	-372.07	-558.11	358.61	201.43	31.11	0.	1.13	0.24	-	-
385	-323.65	-502.79	358.61	201.43	27.61	0.	1.13	0.21	-	-
770	-196.42	-355.86	358.61	201.43	18.83	0.	1.13	0.14	-	-
1155	-85.25	-248.75	319.05	177.64	12.85	0.	0.90	0.10	-	-
1540	9.85	-185.19	277.33	152.56	9.43	0.48	0.65	0.07	-	-
1925	98.14	-131.29	235.61	127.47	6.61	4.87	0.42	0.05	-	-
2310	170.80	-87.04	193.89	102.38	4.34	8.56	0.42	0.04	-	-
2695	227.40	-52.46	152.17	77.29	2.60	11.48	0.42	0.05	-	-
3080	267.93	-27.53	110.45	52.20	1.35	13.60	0.42	0.06	-	-
3465	292.40	-12.26	68.73	17.56	0.60	14.89	0.42	0.07	-	-
3850	300.81	-6.65	27.01	-24.16	0.32	15.34	0.42	0.07	100	-
4235	293.15	-10.70	-14.71	-65.88	0.52	14.93	0.42	0.07	-	-
4620	269.44	-24.41	-48.15	-107.60	1.20	13.68	0.42	0.07	-	-
5005	229.66	-47.78	-73.24	-149.32	2.36	11.60	0.42	0.06	-	-
5390	173.82	-80.81	-98.33	-191.04	4.03	8.72	0.42	0.04	-	-
5775	101.91	-123.49	-123.42	-232.76	6.21	5.06	0.42	0.05	-	-
6160	14.60	-175.84	-148.51	-274.48	8.94	0.71	0.64	0.07	-	-
6545	-79.41	-237.84	-173.59	-316.20	12.26	0.	0.88	0.09	-	-
6930	-189.47	-345.23	-197.38	-355.75	18.23	0.	1.11	0.14	-	-
7315	-315.61	-491.06	-197.38	-355.75	26.88	0.	1.11	0.21	-	-
7450	-363.64	-546.00	-197.38	-355.75	30.33	0.	1.11	0.23	-	-
7700	-457.80	-652.95	-197.38	-355.75	30.33	0.	1.11	0.23	100	-
Span=3										
0	-457.80	-652.95	403.16	251.25	29.58	0.	1.39	0.23	100	-
250	-368.80	-534.15	403.16	251.25	29.58	0.	1.39	0.23	-	-
370	-316.95	-479.53	403.16	251.25	26.17	0.	1.39	0.20	-	-
739	-167.32	-321.35	403.16	251.25	16.87	0.	1.39	0.13	-	-
1109	-32.09	-196.77	368.59	230.46	10.05	0.	1.19	0.08	-	-
1478	87.99	-114.13	328.60	206.42	5.73	4.36	0.95	0.04	-	-
1848	193.59	-40.18	288.51	182.31	1.98	9.73	0.72	0.05	-	-
2217	284.13	24.69	248.52	158.26	0.	14.45	0.48	0.07	-	-
2587	360.09	80.83	208.42	134.15	0.	18.51	0.42	0.09	-	-
2956	421.08	127.93	168.44	110.11	0.	21.82	0.42	0.10	-	-
3326	467.41	166.25	128.34	85.99	0.	24.38	0.42	0.12	-	-
3695	498.85	195.58	88.36	61.95	0.	26.14	0.42	0.12	100	-
4065	515.55	216.08	48.26	25.10	0.	27.08	0.42	0.13	-	-
4434	517.44	227.64	19.31	-14.88	0.	27.18	0.42	0.13	-	-
4804	504.51	230.32	-4.81	-54.98	0.	26.45	0.42	0.13	-	-
5173	476.85	224.11	-28.85	-94.97	0.	24.91	0.42	0.12	-	-
5543	434.29	208.97	-52.96	-135.06	0.	22.55	0.42	0.11	-	-
5912	377.08	184.99	-77.01	-175.05	0.	19.42	0.42	0.09	-	-
6282	304.90	152.04	-101.12	-215.14	0.	15.55	0.42	0.07	-	-
6651	218.13	110.29	-125.17	-255.13	0.	11.00	0.52	0.05	-	-
7021	116.32	59.52	-129.99	-263.15	0.	5.79	0.57	0.03	-	-
7265	41.05	21.16	-129.99	-263.15	0.	2.02	0.57	0.01	-	-
7390	0.00	0.00	-129.99	-263.15	0.	0.	0.57	0.00	100	-

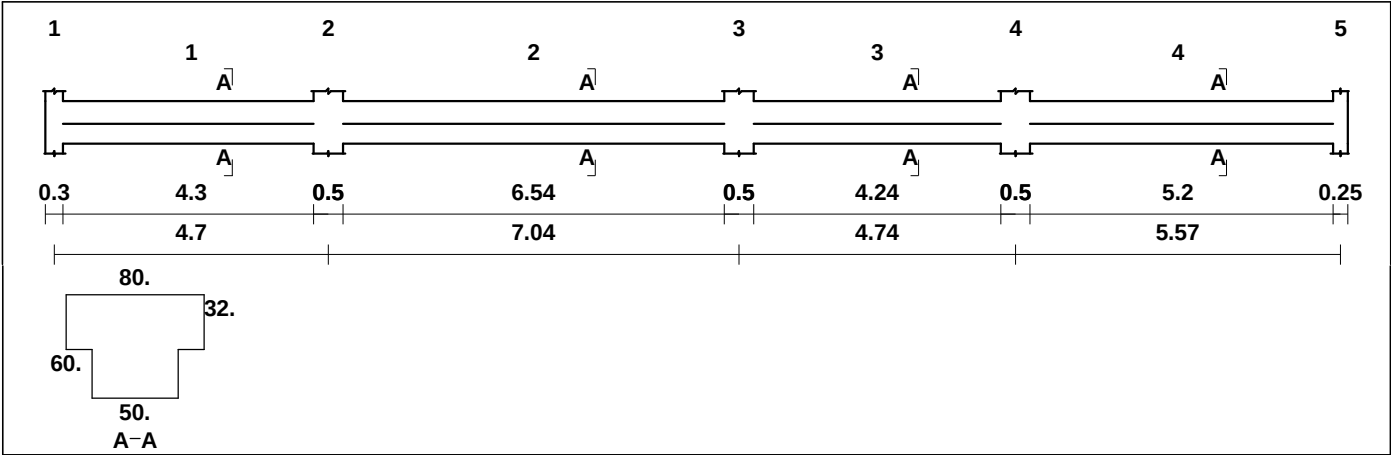
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	Moment / Shear		Envelope (Factored)		Units:kN,meter	
	1	2	3	4		
	1		2		3	
	1		2		3	
Min M	0.0	-665.8	-653.0		0.0	
Max M	0.0	-466.9	-457.8		0.0	
MspMn		-545.5	-546.0		21.2	
MspMx		-382.7	-363.6		41.1	
M Max			300.8		517.4	
M Min			-6.7		230.3	
Mmn=0 @	0.0	2.1	0.0	7.7	2.1	7.4
Mmx=0 @	0.0	1.2	1.5	1.5	1.2	7.4
mx -M @			1.5		1.2	
mx +M @			3.8		4.4	
V max		-306.4	-248.9		-173.3	
V min		-494.7	-441.4		-335.2	
DReac		546.4	540.4		191.0	
LReac		392.6	389.8		144.2	
Max R		938.9	930.1		335.2	
Min R		699.4	692.9		173.3	

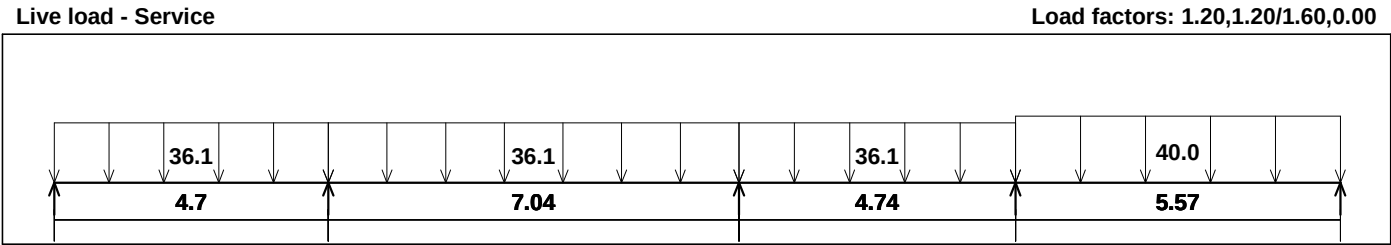
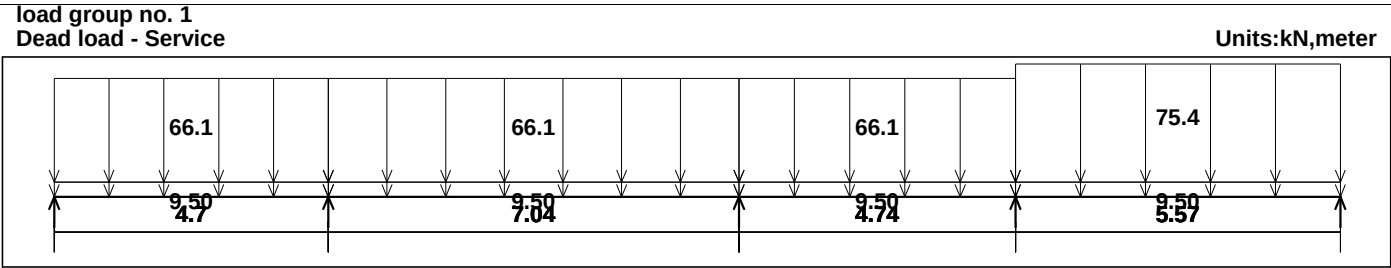
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Geometry

Units:meter,cm



Loading



Loads (kN,meter)			
1		2	
3		4	
Self.Wt.	9.50	Self.Wt.	9.50
Self.Wt.	9.50	Self.Wt.	9.50
Uni D	66.15	Uni D	66.15
L	36.10	L	36.10
Uni D	66.15	Uni D	66.15
L	36.10	Uni D	75.42
Uni D	75.42	L	40.00

Beam 29

Project: BAEMS

Designed by: bayan

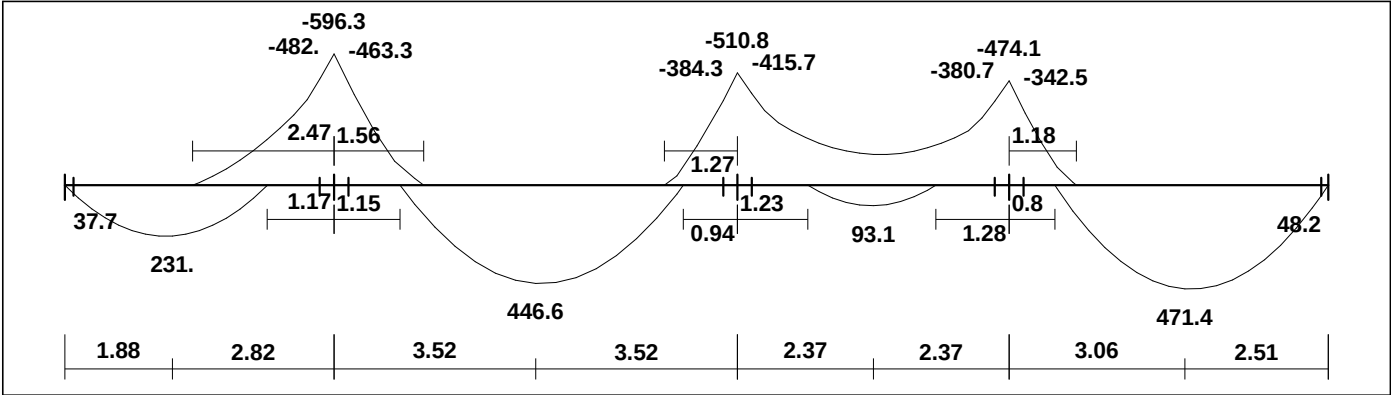
Code: ACI318-02

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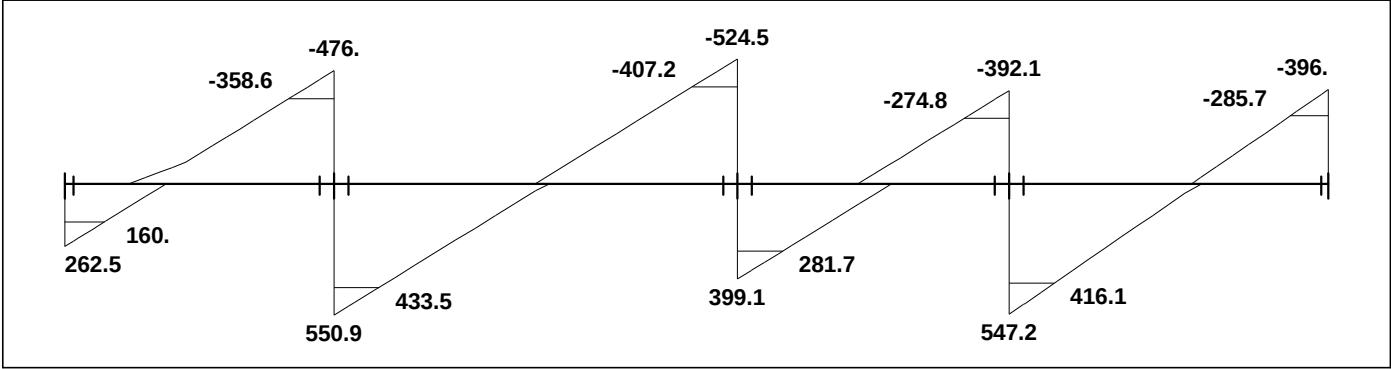
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	138.05	618.78	526.85	544.12	235.97
LiveR	124.45	408.04	396.77	395.15	160.03
Max R	262.51	1026.82	923.62	939.27	396.
Min R	101.46	768.21	612.81	640.53	224.07
Service					
DeadR	115.04	515.65	439.04	453.43	196.64
LiveR	77.78	255.02	247.98	246.97	100.02
Max R	192.83	770.67	687.02	700.4	296.66
Min R	92.17	609.04	492.77	513.69	189.2

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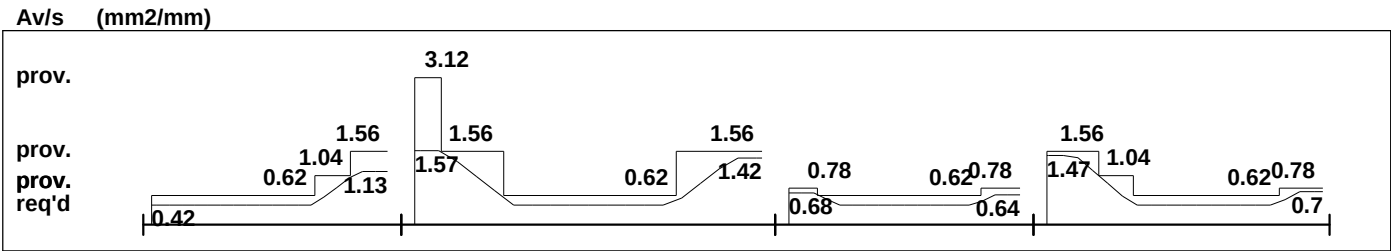
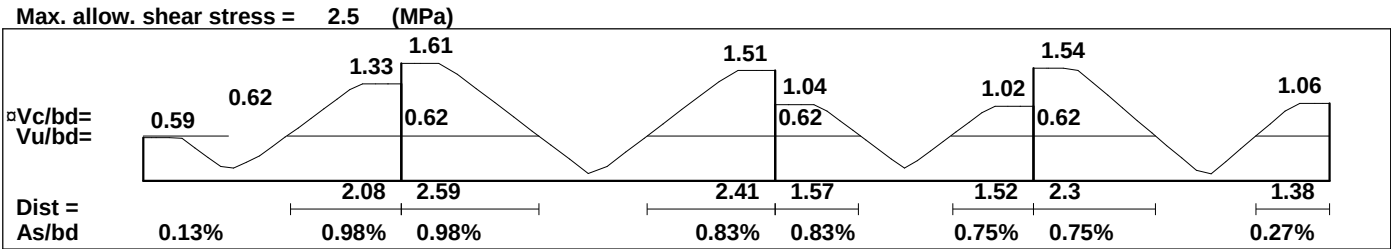
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

Top Cover	6.		6.		6.		6.	
As top = *=minimum	0.60	26.32		22.32	9.04	20.27		
As bot =	3.50	11.67		23.23	9.04*		24.60	7.38
Bot Cover	6.		6.		6.		6.	
a/d	1%	6%	20%	11%	17%	5%	15%	12%
As/bd	0.00%	0.43%	0.98%	0.86%	0.83%	0.34%	0.75%	0.91%
								1%
								0.00%

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.60	2 0.	3 9.04	4 0.
As	11.67	23.23	9.04	24.60
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.01124	0.01124	0.01124	0.01124
Icr(m^4)=	0.00228	0.00405	0.00174	0.00424
Mcr =	103.73	103.73	130.19	103.73
Mmax,d =	87.01	204.85	232.79	227.33
Mmax,d+l =	166.00	330.36	321.58	351.16
Mmax,sust =	56.56	133.15	151.32	147.77
Ie,d (m^4)=	0.01124	0.00498	0.00340	0.00491
Ie,d+l (m^4)=	0.00447	0.00427	0.00237	0.00442
Ie,sust (m^4)=	0.01124	0.00745	0.00779	0.00666
e/1+50r =	1.98/0.79	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	0.359	6.652	-1.802	5.533
ai,l =	2.201	6.531	-4.637	4.238
at,sust =	0.277	3.473	-0.526	3.180
ai,l =	L/ 2135	L/ 1077	L/ 1022	L/ 1314
(ai+at),t2-t1	L/ 1805	L/ 570	L/ 818	L/ 595

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	160.01	38.82	0.	0.	0.42	0.00	100	-
150	37.70	14.20	160.01	38.82	0.	1.86	0.42	0.01	-	-
235	57.59	21.34	160.01	38.82	0.	2.84	0.42	0.01	-	-
470	106.97	37.66	160.01	38.82	0.	5.32	0.42	0.03	-	-
705	148.15	48.97	157.78	37.46	0.	7.41	0.42	0.04	-	-
940	181.13	55.26	122.87	16.12	0.	9.09	0.42	0.04	-	-
1175	205.90	56.55	87.97	-5.21	0.	10.37	0.42	0.05	-	-
1410	222.47	52.81	53.06	-26.55	0.	11.23	0.42	0.05	-	-
1645	230.84	44.07	18.15	-47.88	0.	11.66	0.42	0.06	-	-
1880	231.00	30.31	-16.76	-69.21	0.	11.67	0.42	0.06	-	-
2115	222.97	11.54	-51.67	-91.97	0.	11.25	0.42	0.05	-	-
2350	206.72	-12.25	-86.57	-126.88	0.60	10.41	0.42	0.05	100	-
2585	182.28	-41.05	-121.48	-161.79	2.03	9.15	0.42	0.04	-	-
2820	149.63	-74.86	-148.85	-196.69	3.73	7.48	0.42	0.04	-	-
3055	108.77	-113.69	-170.18	-231.60	5.71	5.41	0.42	0.04	-	-
3290	59.72	-157.53	-191.52	-266.51	7.98	2.95	0.59	0.06	-	-
3525	2.46	-206.38	-212.85	-301.42	10.56	0.12	0.79	0.08	-	-
3760	-63.01	-260.25	-234.19	-336.33	13.48	0.	1.00	0.10	-	-
3995	-136.67	-319.13	-247.81	-358.61	16.75	0.	1.13	0.13	-	-
4230	-218.54	-389.03	-247.81	-358.61	20.75	0.	1.13	0.16	-	-
4450	-302.62	-481.98	-247.81	-358.61	26.32	0.	1.13	0.20	-	-
4465	-308.62	-488.57	-247.81	-358.61	26.32	0.	1.13	0.20	-	-
4700	-406.89	-596.32	-247.81	-358.61	26.32	0.	1.13	0.20	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-406.89	-596.32	433.51	260.83	25.18	0.	1.57	0.19	100	-
250	-326.59	-463.25	433.51	260.83	25.18	0.	1.57	0.19	-	-
352	-295.46	-411.62	433.51	260.83	22.08	0.	1.57	0.17	-	-
704	-168.93	-245.33	433.51	260.83	12.66	0.	1.57	0.10	-	-
1056	-31.48	-109.61	394.00	236.68	5.50	0.	1.34	0.04	-	-
1408	87.57	-29.89	341.71	204.73	1.47	4.34	1.03	0.02	-	-
1760	190.46	37.79	289.42	172.77	0.	9.57	0.72	0.05	-	-
2112	278.50	92.98	237.13	140.82	0.	14.16	0.42	0.07	-	-
2464	348.14	136.92	184.85	108.86	0.	17.86	0.42	0.09	-	-
2816	399.38	169.62	132.56	76.90	0.	20.64	0.42	0.10	-	-
3168	432.21	191.06	80.27	44.95	0.	22.43	0.42	0.11	-	-
3520	446.64	201.26	27.98	-1.67	0.	23.23	0.42	0.11	100	-
3872	442.66	200.21	-13.20	-53.96	0.	23.01	0.42	0.11	-	-
4224	420.27	187.91	-45.16	-106.24	0.	21.78	0.42	0.10	-	-
4576	379.48	164.36	-77.11	-158.53	0.	19.55	0.42	0.09	-	-
4928	320.28	129.56	-109.07	-210.82	0.	16.37	0.42	0.08	-	-
5280	242.68	83.52	-141.03	-263.11	0.	12.28	0.57	0.06	-	-
5632	150.24	26.22	-172.98	-315.39	0.	7.51	0.88	0.04	-	-
5984	40.46	-42.32	-204.94	-367.68	2.09	1.99	1.18	0.02	-	-
6336	-87.73	-178.32	-229.09	-407.19	9.07	0.	1.42	0.07	-	-
6688	-183.97	-335.35	-229.09	-407.19	17.66	0.	1.42	0.13	-	-
6790	-211.86	-384.30	-229.09	-407.19	20.48	0.	1.42	0.16	-	-
7040	-284.23	-510.79	-229.09	-407.19	20.48	0.	1.42	0.16	100	-
Span=3										
0	-284.23	-510.79	281.73	148.99	22.32	0.	0.68	0.17	100	-
237	-214.45	-420.38	281.73	148.99	22.32	0.	0.68	0.17	-	-
250	-210.87	-415.66	281.73	148.99	22.32	0.	0.68	0.17	-	-
474	-153.03	-338.32	281.73	148.99	17.83	0.	0.68	0.14	-	-
711	-99.94	-283.35	281.73	148.99	14.75	0.	0.68	0.11	-	-
948	-51.92	-247.54	258.26	134.64	12.78	0.	0.54	0.10	-	-
1185	-6.90	-216.82	223.05	113.13	11.12	0.	0.42	0.08	-	-
1422	29.78	-191.20	187.84	91.61	9.75	1.46	0.42	0.07	-	-
1659	58.12	-170.68	152.64	65.56	8.67	2.87	0.42	0.07	-	-
1896	78.11	-155.26	117.43	30.36	7.86	3.87	0.42	0.06	-	-
2133	89.75	-144.94	82.23	-4.85	7.32	4.45	0.42	0.06	-	-
2370	93.06	-139.71	47.02	-40.05	7.05	4.62	0.42	0.05	100	-
2607	88.02	-139.59	11.82	-75.26	7.04	4.37	0.42	0.05	-	-
2844	74.64	-144.57	-23.39	-110.46	7.30	3.7	0.42	0.06	-	-
3081	52.91	-154.64	-53.27	-145.67	7.83	2.61	0.42	0.06	-	-
3318	22.84	-169.82	-74.79	-180.87	8.62	1.12	0.42	0.07	-	-
3555	-15.58	-190.09	-96.30	-216.08	9.69	0.	0.42	0.07	-	-
3792	-62.33	-215.47	-117.82	-251.28	11.05	0.	0.50	0.08	-	-
4029	-108.57	-246.94	-132.16	-274.75	12.75	0.	0.64	0.10	-	-
4266	-160.00	-304.90	-132.16	-274.75	15.95	0.	0.64	0.12	-	-
4490	-216.28	-380.68	-132.16	-274.75	20.27	0.	0.64	0.15	-	-
4503	-219.78	-385.31	-132.16	-274.75	20.27	0.	0.64	0.15	-	-
4740	-287.90	-474.07	-132.16	-274.75	20.27	0.	0.64	0.15	100	-

Beam 29	Code: ACI318-02
Project: BAEMS	Page: 351
Designed by: bayan	Date: 4/ 7/14

Detailed results - at 1/20 of span, support faces, etc.

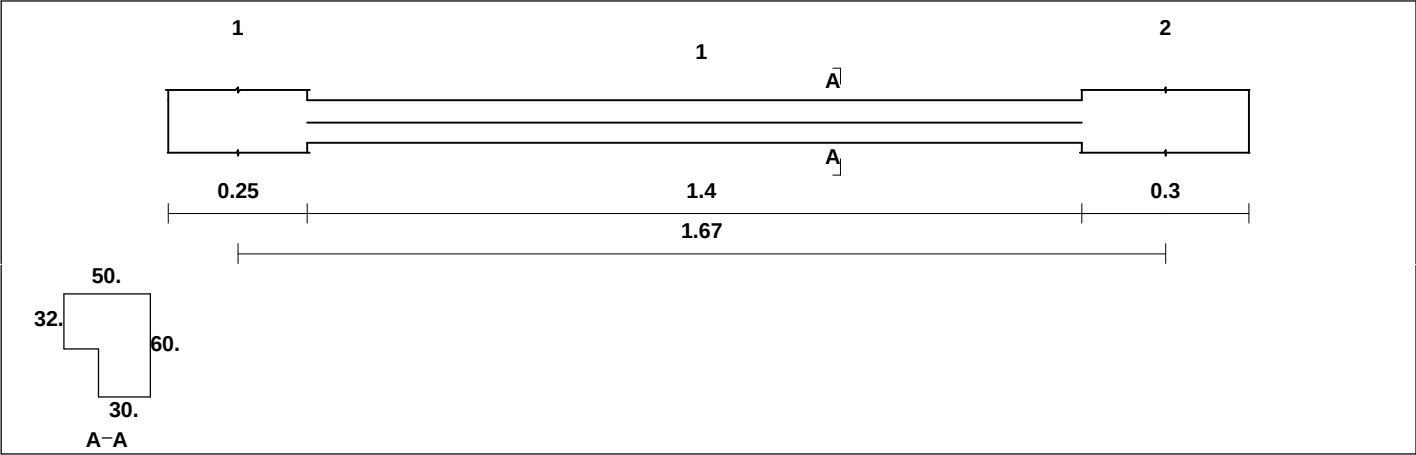
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-287.90	-474.07	416.10	254.99	18.07	0.	1.47	0.14	100	-
250	-207.20	-342.46	416.10	254.99	18.07	0.	1.47	0.14	-	-
279	-198.26	-327.86	416.10	254.99	17.24	0.	1.47	0.13	-	-
557	-99.53	-195.03	416.10	254.99	9.96	0.	1.47	0.08	-	-
836	15.57	-81.19	408.47	250.31	4.05	0.76	1.42	0.03	-	-
1114	117.42	-13.30	362.34	221.98	0.65	5.85	1.15	0.03	-	-
1393	206.74	46.91	316.06	193.54	0.	10.41	0.88	0.05	-	-
1671	282.90	99.02	269.93	165.21	0.	14.39	0.61	0.07	-	-
1950	346.44	143.40	223.64	136.78	0.	17.77	0.42	0.08	-	-
2228	396.90	179.73	177.52	108.45	0.	20.50	0.42	0.10	-	-
2507	434.66	208.27	131.23	80.02	0.	22.57	0.42	0.11	-	-
2785	459.44	228.81	85.11	51.69	0.	23.94	0.42	0.11	100	-
3064	471.41	241.52	38.82	19.77	0.	24.60	0.42	0.12	-	-
3342	470.49	246.29	2.99	-26.35	0.	24.55	0.42	0.12	-	-
3621	456.69	243.15	-25.45	-72.64	0.	23.78	0.42	0.11	-	-
3899	430.08	232.14	-53.78	-118.76	0.	22.32	0.42	0.11	-	-
4178	390.49	213.17	-82.21	-165.05	0.	20.15	0.42	0.10	-	-
4456	338.19	186.38	-110.54	-211.17	0.	17.33	0.42	0.08	-	-
4735	272.82	151.57	-138.97	-257.46	0.	13.86	0.54	0.07	-	-
5013	194.83	109.00	-156.30	-285.67	0.	9.80	0.70	0.05	-	-
5292	103.68	58.35	-156.30	-285.67	0.	5.15	0.70	0.02	-	-
5445	48.20	27.21	-156.30	-285.67	0.	2.38	0.70	0.01	-	-
5570	0.00	0.00	-156.30	-285.67	0.	0.	0.70	0.00	100	-

Moment / Shear Envelope (Factored)					Units:kN,meter				
1	2	3	4	5					
1	2	3	4	5					
Min M	0.0	-596.3	-510.8	-474.1	0.0				
Max M	0.0	-406.9	-284.2	-287.9	0.0				
MspMn		-482.0	-384.3	-380.7	27.2				
MspMx		-302.6	-211.9	-216.3	48.2				
M Max			446.6	93.1	471.4				
M Min			201.3	-139.6	246.3				
Mmn=0 @	0.0	2.5	1.6	1.3	0.0	4.7	1.2	5.6	
Mmx=0 @	0.0	1.2	1.1	0.9	1.2	1.3	0.8	5.6	
mx -M @			1.1	1.2			0.8		
mx +M @			3.5	2.4			3.1		
V max		-319.5	-300.8	-203.9	-224.1				
V min		-476.0	-524.5	-392.1	-396.0				
DReac		618.8	526.8	544.1	236.0				
LReac		408.0	396.8	395.2	160.0				
Max R		1026.8	923.6	939.3	396.0				
Min R		768.2	612.8	640.5	224.1				

Beam 30	Code: ACI318-02
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Geometry

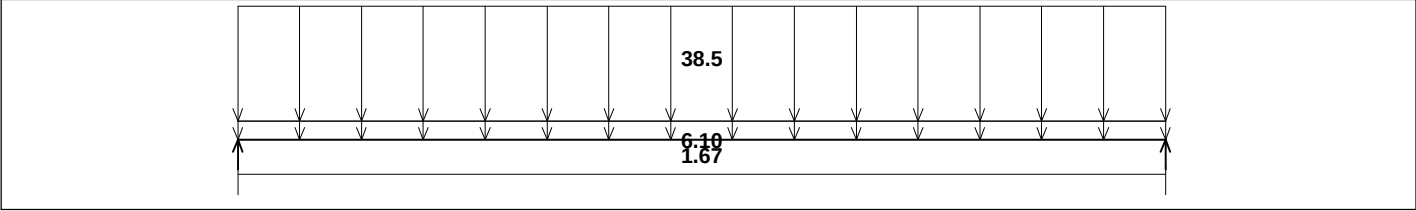
Units:meter,cm



Loading

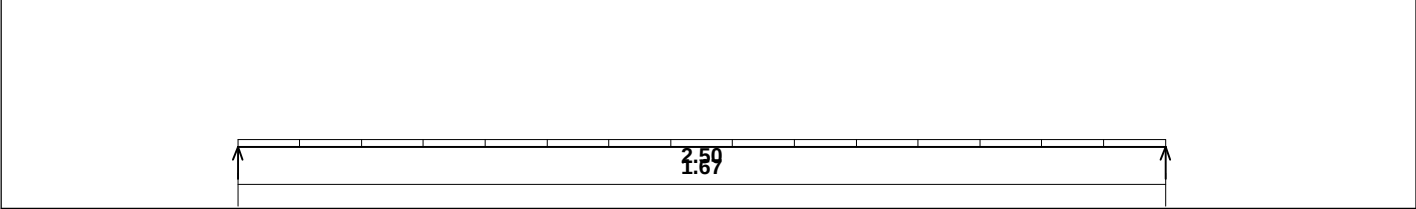
load group no. 1
Dead load - Service

Units:kN,meter



Live load - Service

Load factors: 1.20,1.20/1.60,0.00

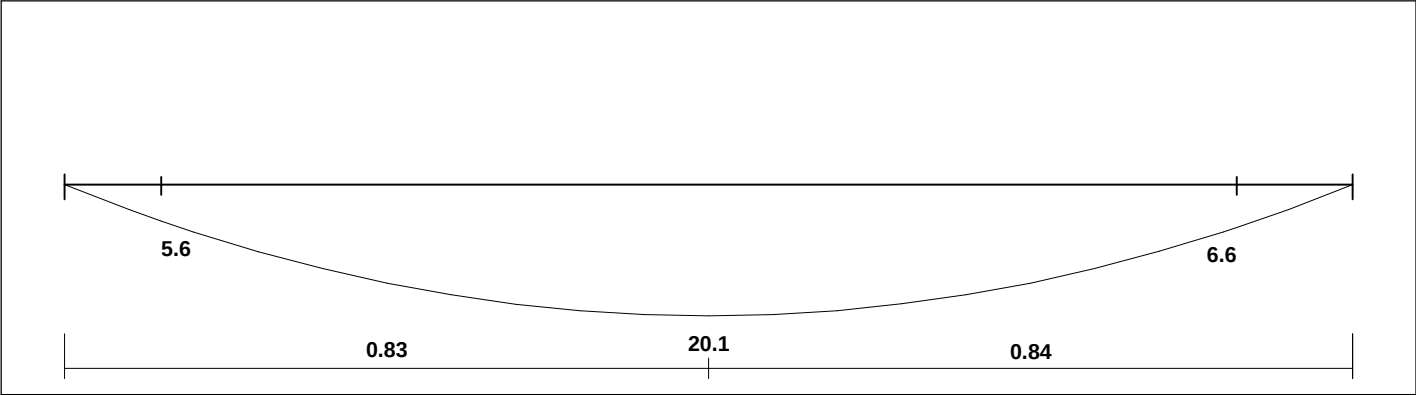


Loads (kN,meter)	
1	
Self.Wt.	6.10
Uni D	38.53 L 0.000
Uni D	0.000 L 2.50

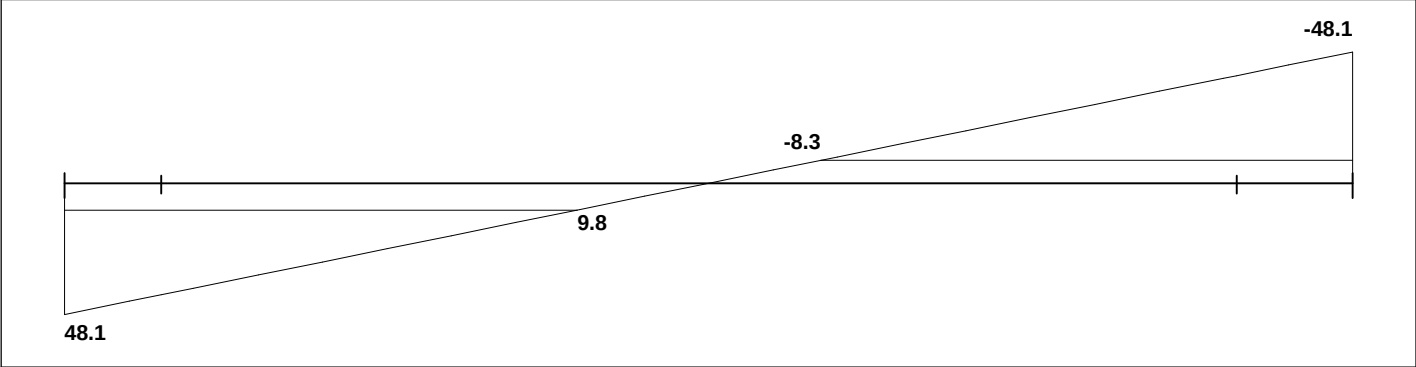
Beam 30	Code: ACI318-02
Project: 1	Page: 285
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

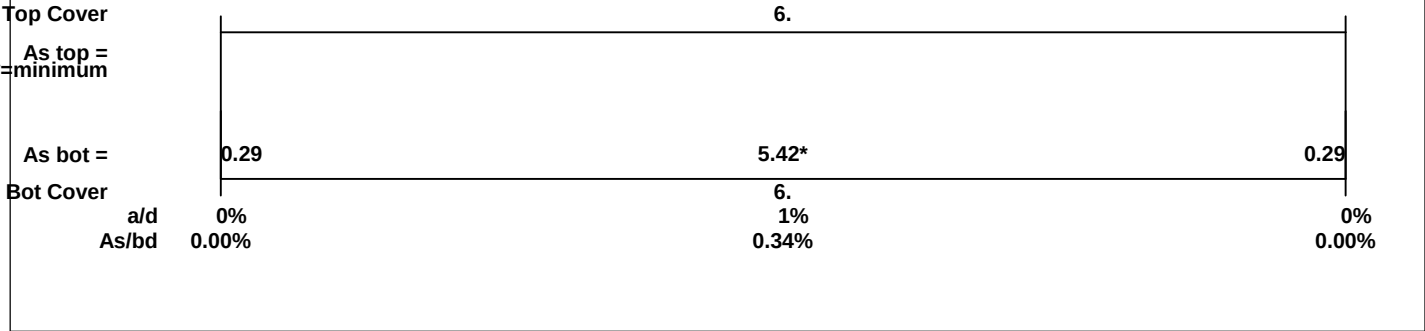


Reactions

Factored			
DeadR	44.72		44.72
LiveR	3.34		3.34
Max R	48.06		48.06
Min R	48.06		48.06
Service			
DeadR	37.27		37.27
LiveR	2.09		2.09
Max R	39.35		39.35
Min R	39.35		39.35

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

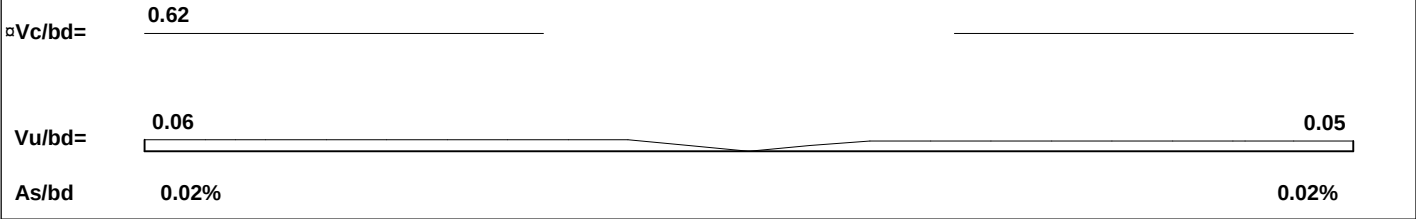


Beam 30	Code: ACI318-02
Project: 1	Page: 286
Designed by:	Date: 04/07/14

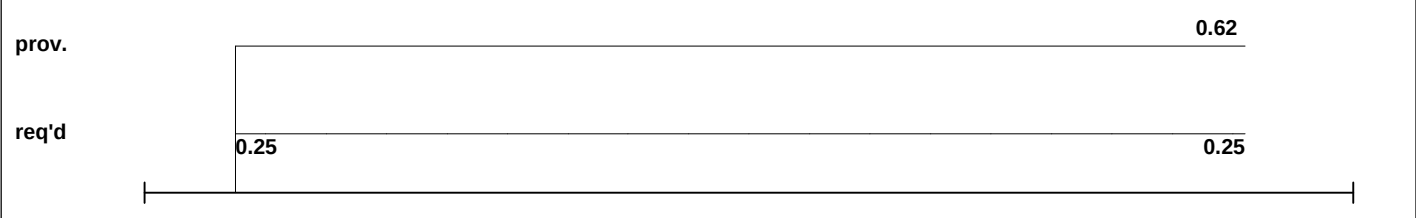
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

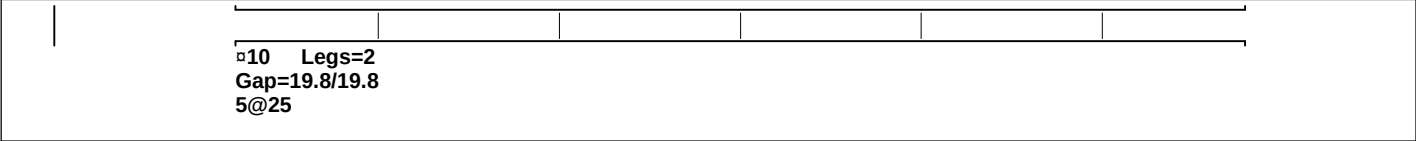
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	0.
As	5.42	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 15.56
Mmax,d+l = 16.43
Mmax,sust = 15.56

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00
ai,d = 0.028
ai,l = 0.002
at,sust = 0.056
ai,l = L/*****
(ai+at),t2-t1 L/*****

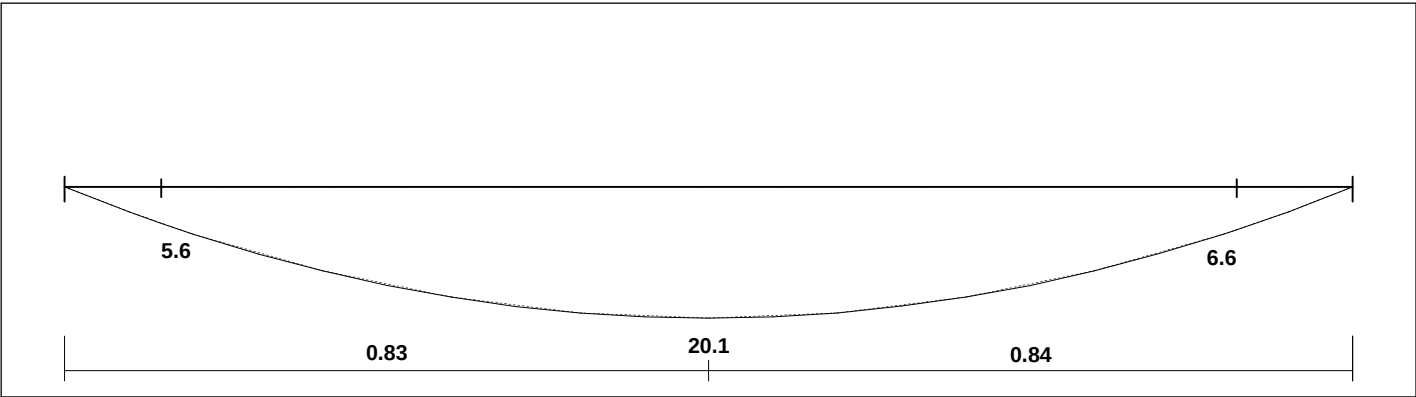
Beam 30	Code: ACI318-02
Project: 1	Page: 287
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

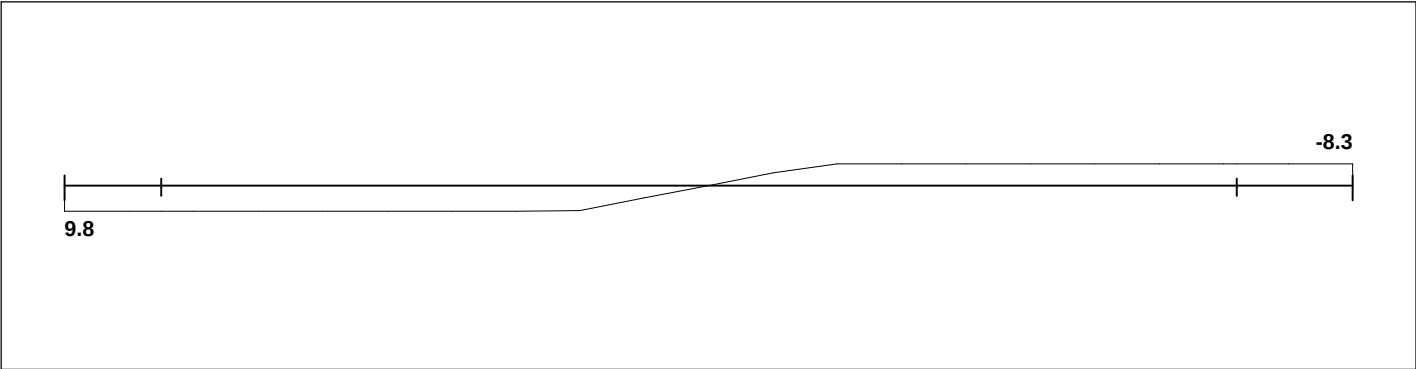
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	9.78	9.78	0.	0.	0.25	0.00	100	-
84	3.83	3.83	9.78	9.78	0.	0.18	0.25	0.00	-	-
125	5.56	5.56	9.78	9.78	0.	0.27	0.25	0.00	-	-
167	7.22	7.22	9.78	9.78	0.	0.35	0.25	0.00	-	-
251	10.25	10.25	9.78	9.78	0.	0.50	0.25	0.00	-	-
334	12.84	12.84	9.78	9.78	0.	0.63	0.25	0.00	-	-
418	15.06	15.06	9.78	9.78	0.	0.74	0.25	0.01	-	-
501	16.85	16.85	9.78	9.78	0.	0.83	0.25	0.01	-	-
585	18.27	18.27	9.78	9.78	0.	0.90	0.25	0.01	-	-
668	19.26	19.26	9.61	9.61	0.	0.94	0.25	0.01	-	-
752	19.87	19.87	4.78	4.78	0.	0.97	0.25	0.01	-	-
835	20.06	20.06	0.00	0.00	0.	0.98	0.25	0.01	100	-
919	19.86	19.86	-4.83	-4.83	0.	0.97	0.25	0.01	-	-
1002	19.26	19.26	-8.35	-8.35	0.	0.94	0.25	0.01	-	-
1086	18.25	18.25	-8.35	-8.35	0.	0.89	0.25	0.01	-	-
1169	16.85	16.85	-8.35	-8.35	0.	0.83	0.25	0.01	-	-
1253	15.04	15.04	-8.35	-8.35	0.	0.74	0.25	0.01	-	-
1336	12.84	12.84	-8.35	-8.35	0.	0.63	0.25	0.00	-	-
1420	10.22	10.22	-8.35	-8.35	0.	0.50	0.25	0.00	-	-
1503	7.22	7.22	-8.35	-8.35	0.	0.35	0.25	0.00	-	-
1520	6.56	6.56	-8.35	-8.35	0.	0.32	0.25	0.00	-	-
1587	3.79	3.79	-8.35	-8.35	0.	0.18	0.25	0.00	-	-
1670	0.00	0.00	-8.35	-8.35	0.	0.	0.25	0.00	100	-

Moment / Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



Beam 30	Code: ACI318-02
Project: 1	Page: 288
Designed by:	Date: 04/07/14

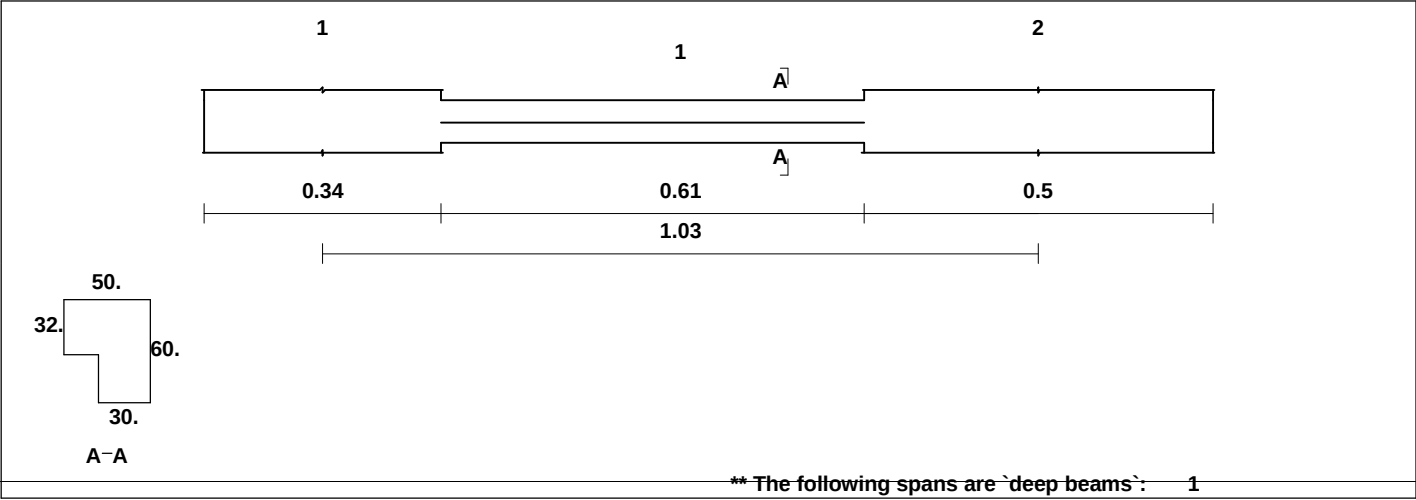
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	5.6	6.6	
MspMx	5.6	6.6	
M Max			
M Min			
Mmn=0 @	0.0	1.7	
Mmx=0 @	0.0	1.7	
mx -M @			
mx +M @			
V max	48.1	-48.1	
V min	48.1	-48.1	
DReac	44.7	44.7	
LReac	3.3	3.3	
Max R	48.1	48.1	
Min R	48.1	48.1	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.7	
mx +M			
V max	48.1	-48.1	

Beam 32	Code: ACI318-02
Project: 1	Page: 288
Designed by:	Date: 04/07/14

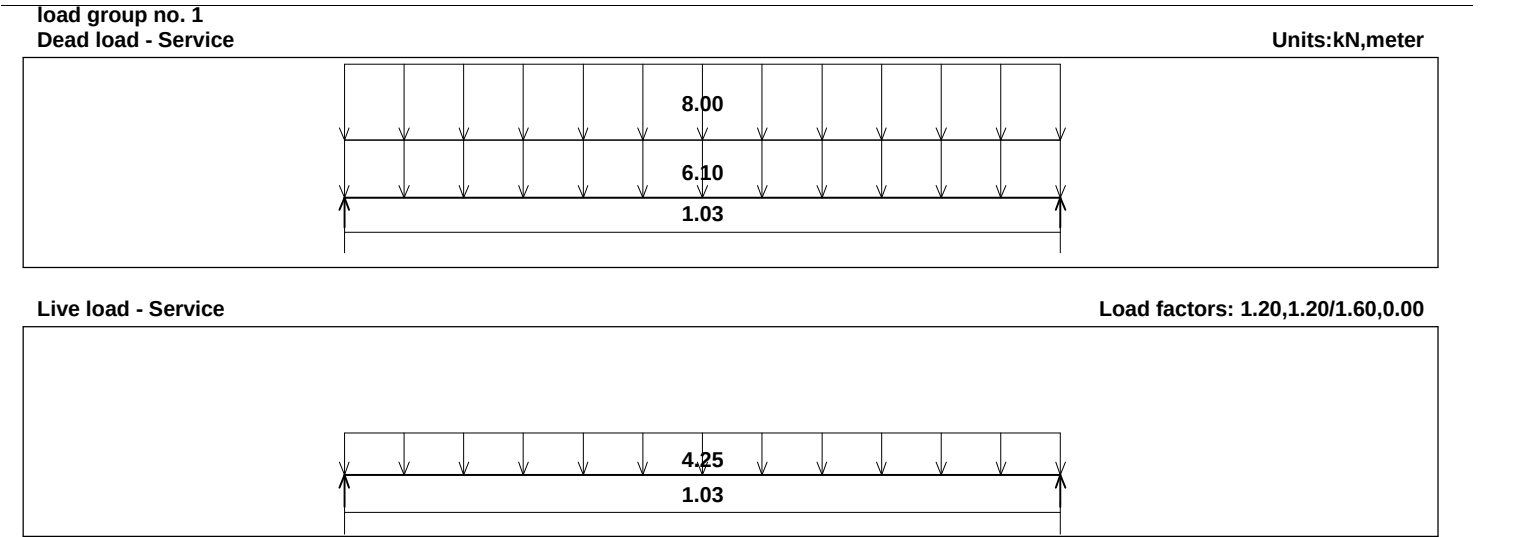
Geometry

Units: meter, cm



** The following spans are `deep beams`: 1

Loading

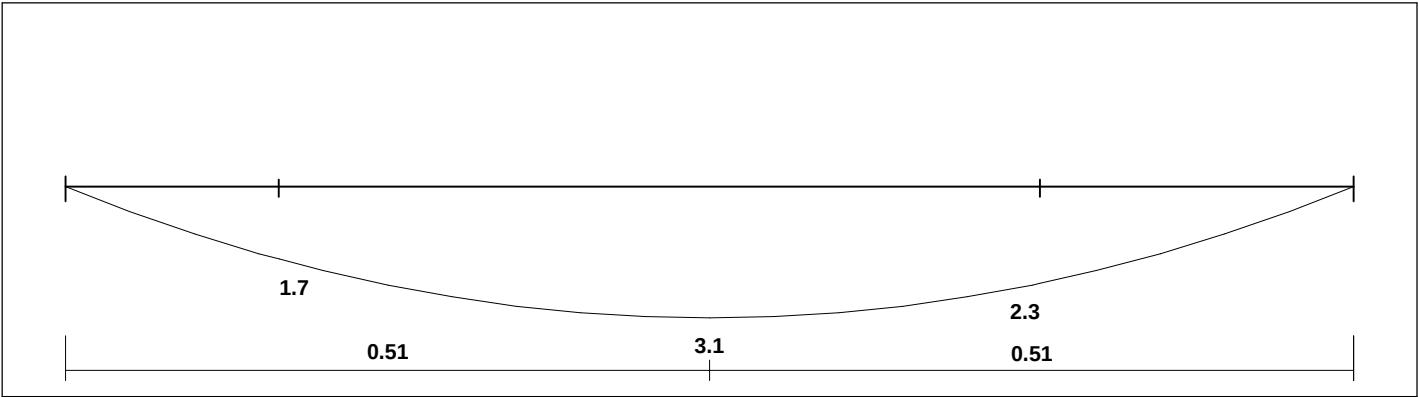


Loads (kN, meter)	
1	
Self. Wt.	6.10
Uni D	8.00
L	4.25

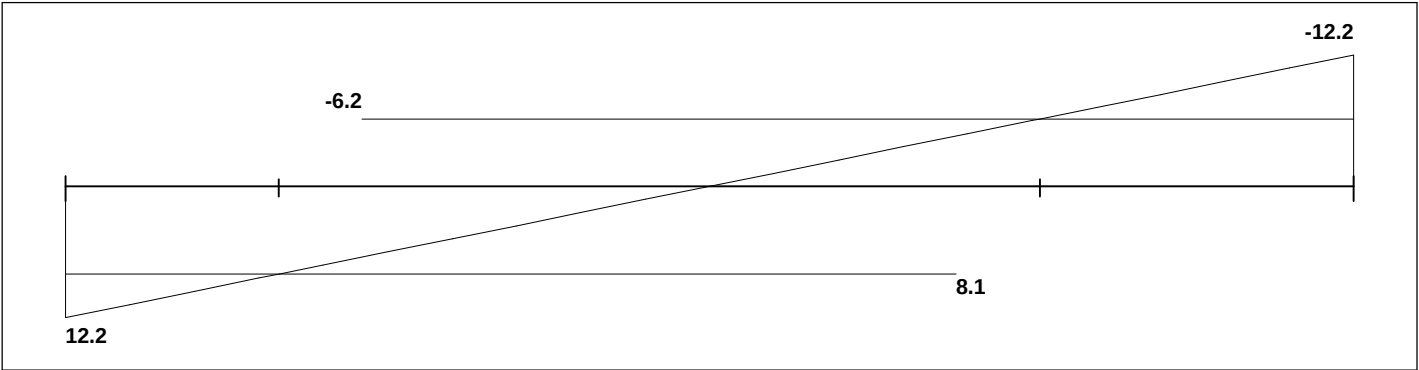
Beam 32	Code: ACI318-02
Project: 1	Page: 289
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

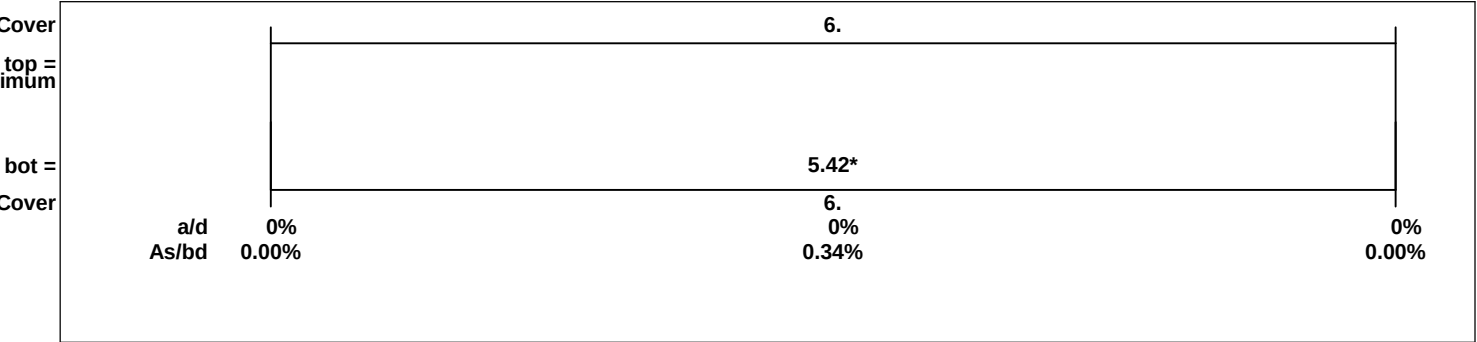


Reactions

Factored			
DeadR	8.68		8.68
LiveR	3.49		3.49
Max R	12.17		12.17
Min R	12.17		12.17
Service			
DeadR	7.23		7.23
LiveR	2.18		2.18
Max R	9.41		9.41
Min R	9.41		9.41

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Beam 32	Code: ACI318-02
Project: 1	Page: 290
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

Max. allow. shear stress = 2.5 (MPa)

□Vc/bd=	0.62	
Vu/bd=	0.05	0.04
As/bd	0.00%	0.00%

Av/s (mm2/mm)

prov.		0.62
req'd	0.25	0.25

Stirrups

	□10	Legs=2	
		Gap=5.3/5.3	
	3@25		

Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	
	5.42	
As	0.	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 1.86
Mmax,d+l = 2.41
Mmax,sust = 1.86

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00
ai,d = 0.001
ai,l = 0.000
at,sust = 0.003
ai,l = L/*****
(ai+at),t2-t1 L/*****

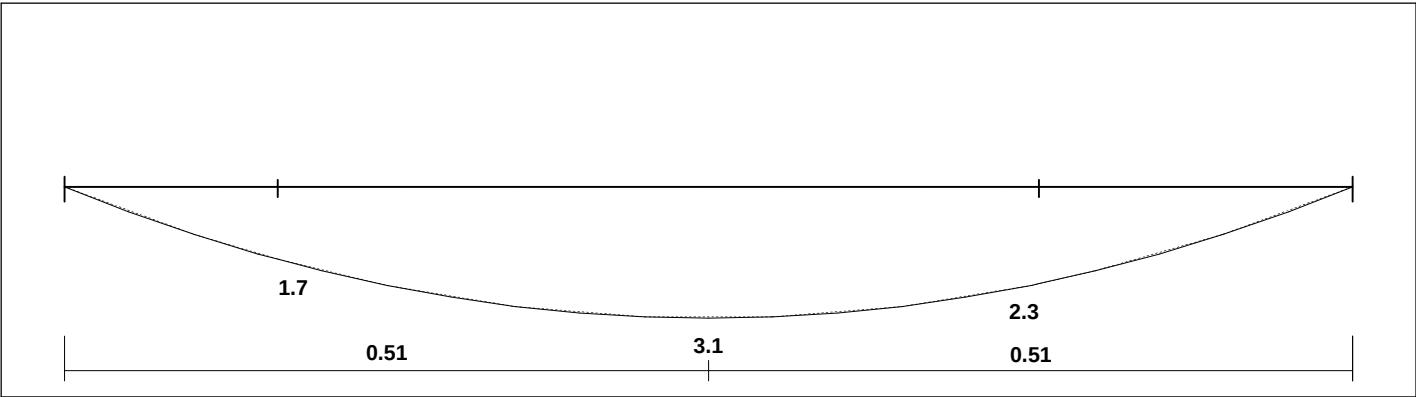
Beam 32	Code: ACI318-02
Project: 1	Page: 291
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

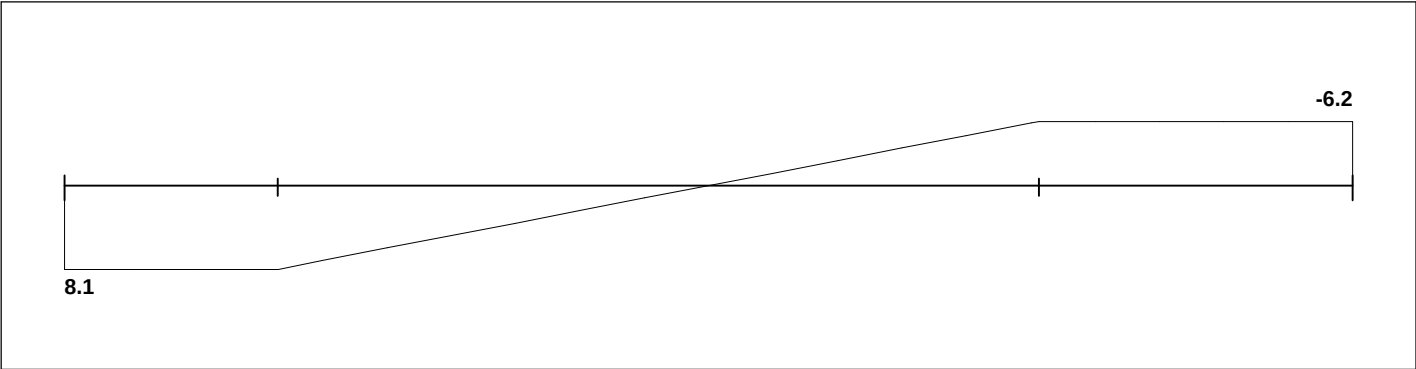
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	8.15	8.15	0.	0.	0.25	0.00	100	-
51	0.59	0.59	8.15	8.15	0.	0.02	0.25	0.00	-	-
103	1.13	1.13	8.15	8.15	0.	0.05	0.25	0.00	-	-
154	1.59	1.59	8.15	8.15	0.	0.07	0.25	0.00	-	-
170	1.73	1.73	8.14	8.14	0.	0.08	0.25	0.00	-	-
205	2.00	2.00	7.31	7.31	0.	0.09	0.25	0.00	-	-
257	2.34	2.34	6.07	6.07	0.	0.11	0.25	0.00	-	-
308	2.62	2.62	4.86	4.86	0.	0.12	0.25	0.00	-	-
359	2.84	2.84	3.65	3.65	0.	0.13	0.25	0.00	-	-
410	3.00	3.00	2.44	2.44	0.	0.14	0.25	0.00	-	-
462	3.09	3.09	1.21	1.21	0.	0.15	0.25	0.00	-	-
513	3.12	3.12	0.00	0.00	0.	0.15	0.25	0.00	100	-
564	3.09	3.09	-1.21	-1.21	0.	0.15	0.25	0.00	-	-
616	3.00	3.00	-2.44	-2.44	0.	0.14	0.25	0.00	-	-
667	2.84	2.84	-3.65	-3.65	0.	0.13	0.25	0.00	-	-
718	2.62	2.62	-4.86	-4.86	0.	0.12	0.25	0.00	-	-
770	2.34	2.34	-6.10	-6.10	0.	0.11	0.25	0.00	-	-
776	2.30	2.30	-6.24	-6.24	0.	0.11	0.25	0.00	-	-
821	2.00	2.00	-6.24	-6.24	0.	0.09	0.25	0.00	-	-
872	1.59	1.59	-6.24	-6.24	0.	0.07	0.25	0.00	-	-
923	1.13	1.13	-6.24	-6.24	0.	0.05	0.25	0.00	-	-
975	0.59	0.59	-6.24	-6.24	0.	0.02	0.25	0.00	-	-
1026	0.00	0.00	-6.24	-6.24	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

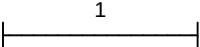
Moments: spans 1 to 1 Load pattern: XX

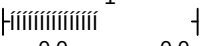


Shear



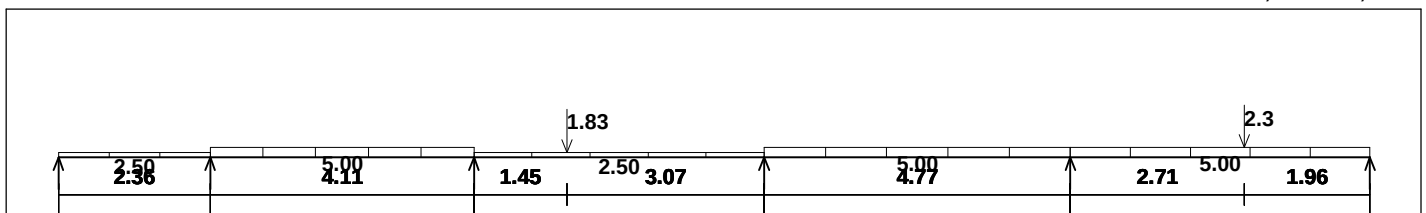
Beam 32	Code: ACI318-02
Project: 1	Page: 292
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	1.7	2.3	
MspMx	1.7	2.3	
M Max			
M Min			
Mmn=0 @	0.0	1.0	
Mmx=0 @	0.0	1.0	
mx -M @			
mx +M @			
V max	12.2	-12.2	
V min	12.2	-12.2	
DReac	8.7	8.7	
LReac	3.5	3.5	
Max R	12.2	12.2	
Min R	12.2	12.2	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.0	
mx +M			
V max	12.2	-12.2	

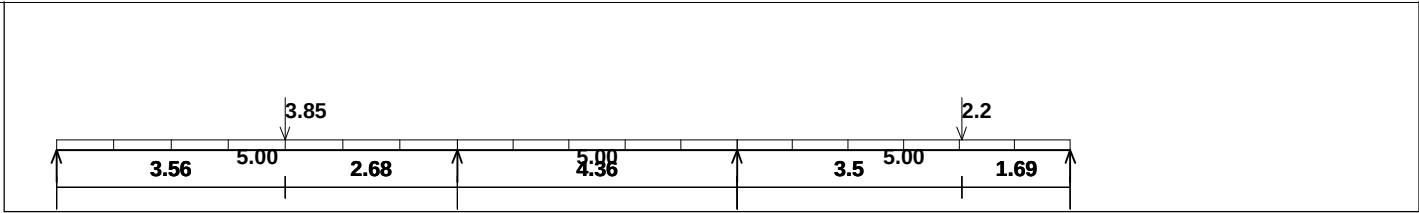
Units: meter, cm

Loading



Beam 33 new	Code: ACI318-02
Project: 1	Page: 542
Designed by:	Date: 04/08/14

Loading

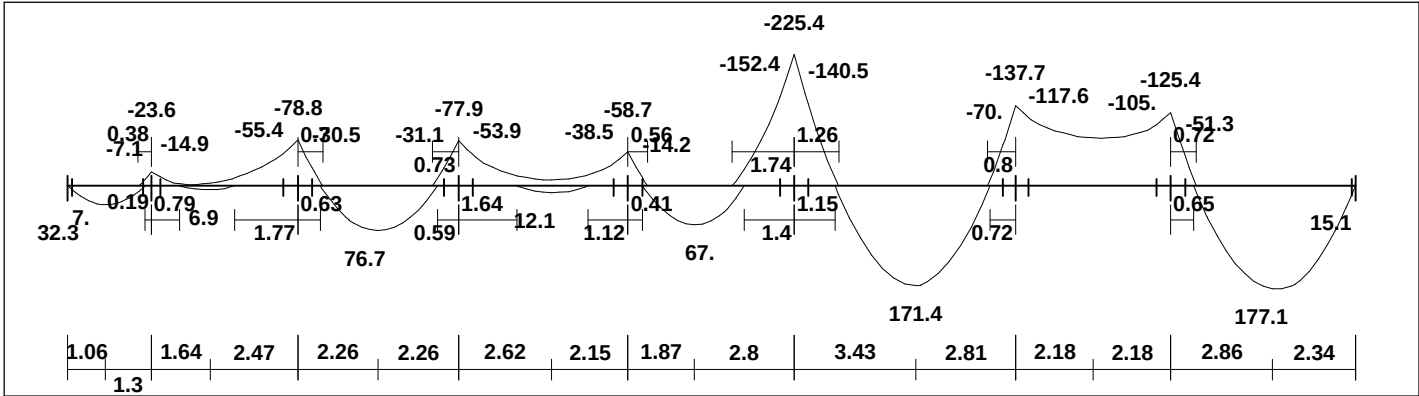


Loads (kN,meter)

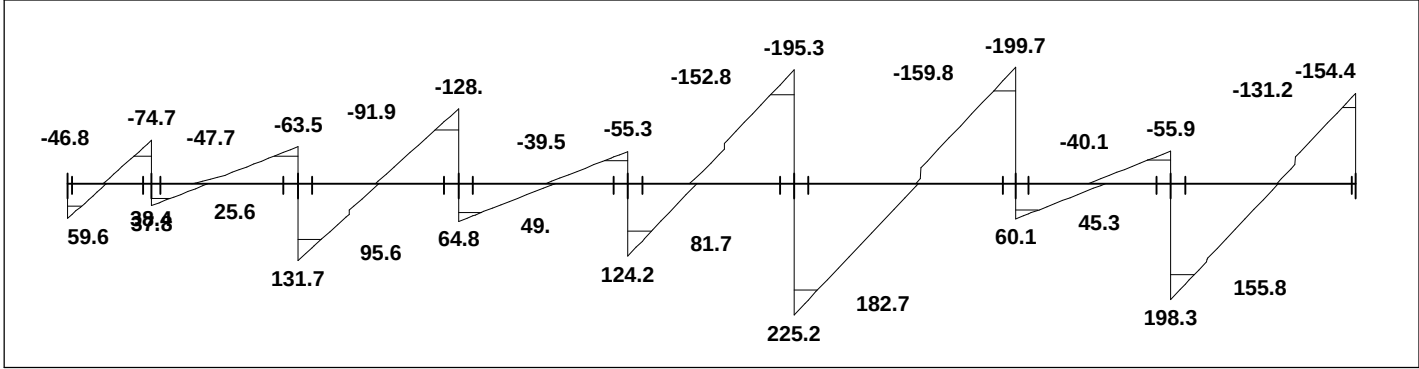
1		2		3		4	
Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84
Uni D 4.79 L 2.50	Uni D 9.42 L 5.00	Uni D 4.71 L 2.50	Uni D 9.42 L 5.00				
Uni D 33.75 L 0.000		Uni D 33.75 L 0.000					
		Pt. D 3.20 L 1.83					
		x 1.45					
5		6		7		8	
Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84
Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00	Uni D 9.42 L 5.00
Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000	Uni D 33.75 L 0.000
Pt. D 4.94 L 2.30	Pt. D 10.15 L 3.85			Pt. D 7.23 L 2.20			
x 2.71	x 3.56			x 3.50			
				Pt. D 3.13 L 0.000			
				x 1.01			

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8



Shear



Beam 33 new	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

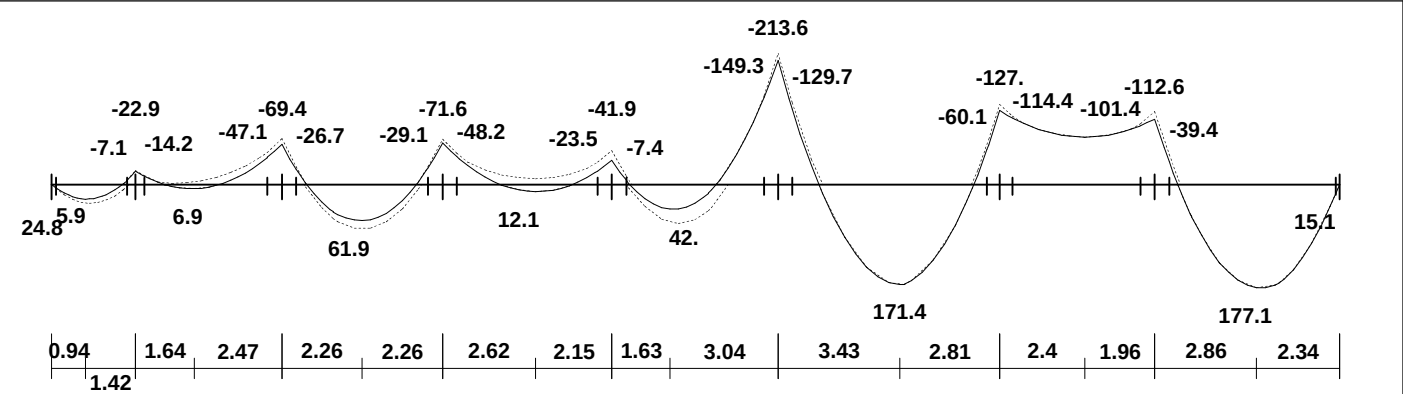
Reactions

Factored

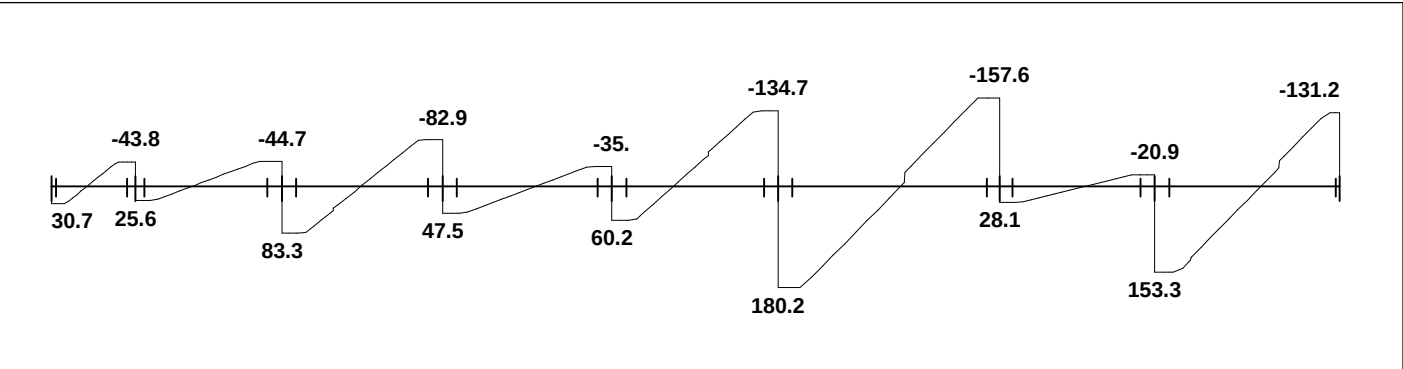
DeadR	54.41	85.4	163.94	157.91	133.74	363.55	205.53	204.74	133.53
LiveR	5.15	27.09	31.28	34.85	45.79	56.94	54.35	49.47	20.87
Max R	59.56	112.49	195.21	192.76	179.53	420.49	259.87	254.2	154.4
Min R	50.28	87.89	172.39	165.05	147.17	381.96	216.78	216.16	132.04
Service									
DeadR	45.34	71.17	136.61	131.59	111.45	302.96	171.27	170.61	111.28
LiveR	3.22	16.93	19.55	21.78	28.62	35.59	33.97	30.92	13.05
Max R	48.56	88.1	156.16	153.37	140.07	338.55	205.24	201.53	124.32
Min R	42.76	72.72	141.9	136.05	119.84	314.46	178.3	177.75	110.34

Moment/Shear Envelope (Factored) Units:kN,meter

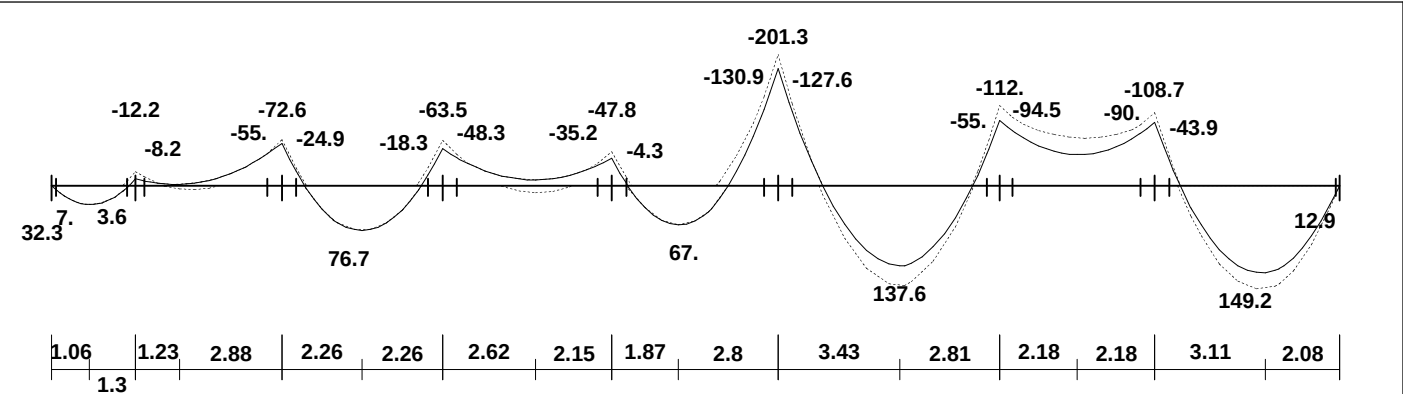
Moments: spans 1 to 8 Load pattern: xxXXxxXXxxXXxxXX



Shear



Moments: spans 1 to 8 Load pattern: XXxxXXxxXXxxXXxx

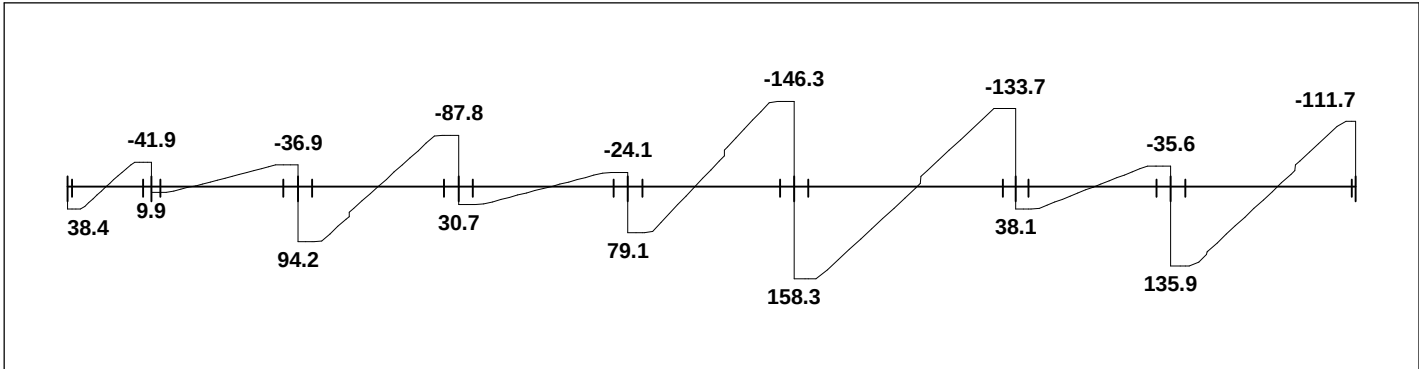


Beam 33 new
Project: 1
Designed by:

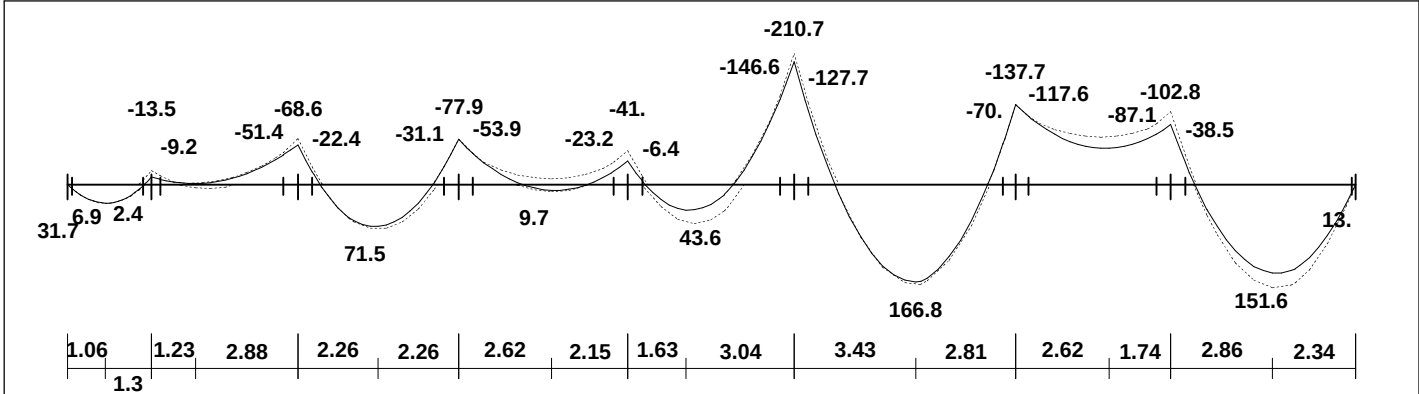
Code: ACI318-02
Page: 544
Date: 04/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

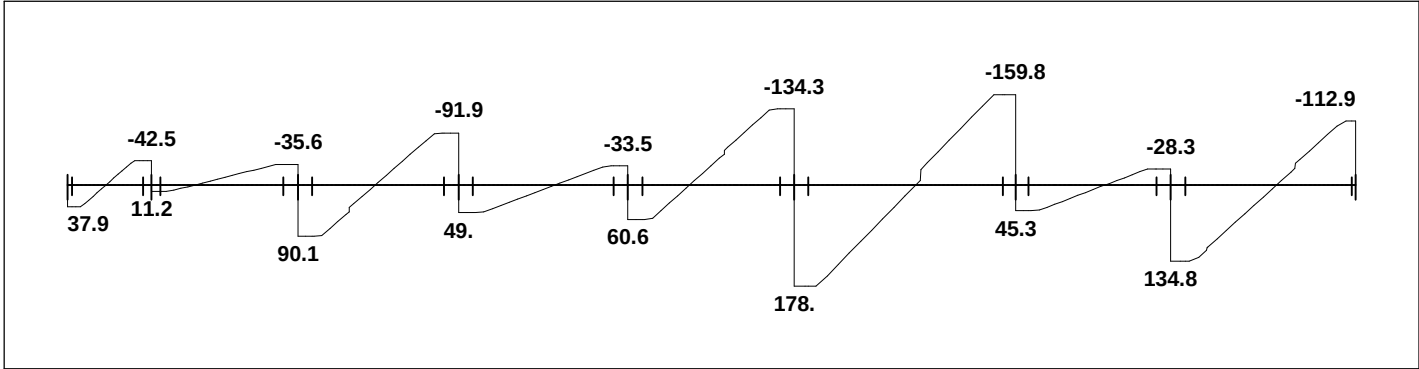
Shear



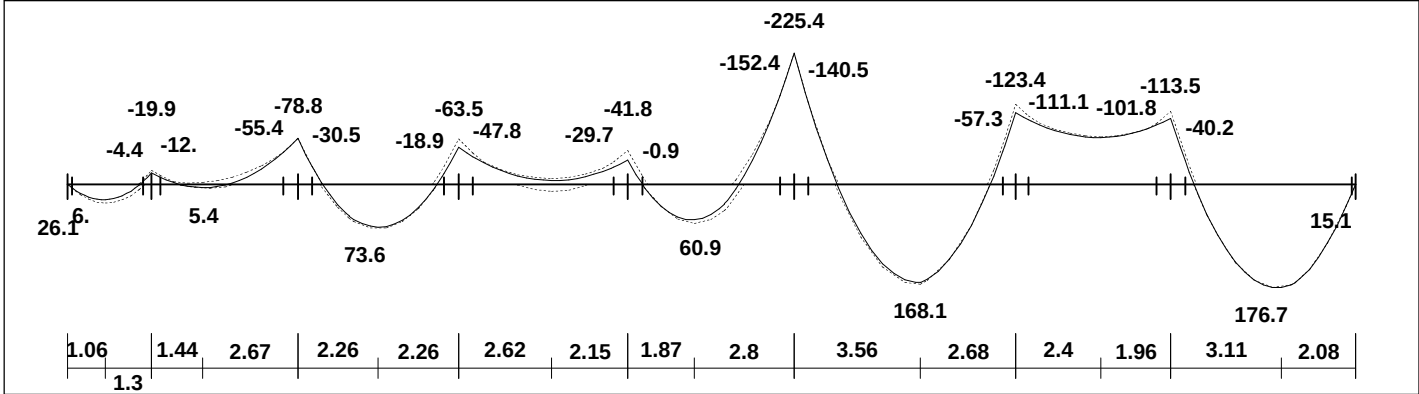
Moments: spans 1 to 8 Load pattern: XXXXXXXXXX



Shear



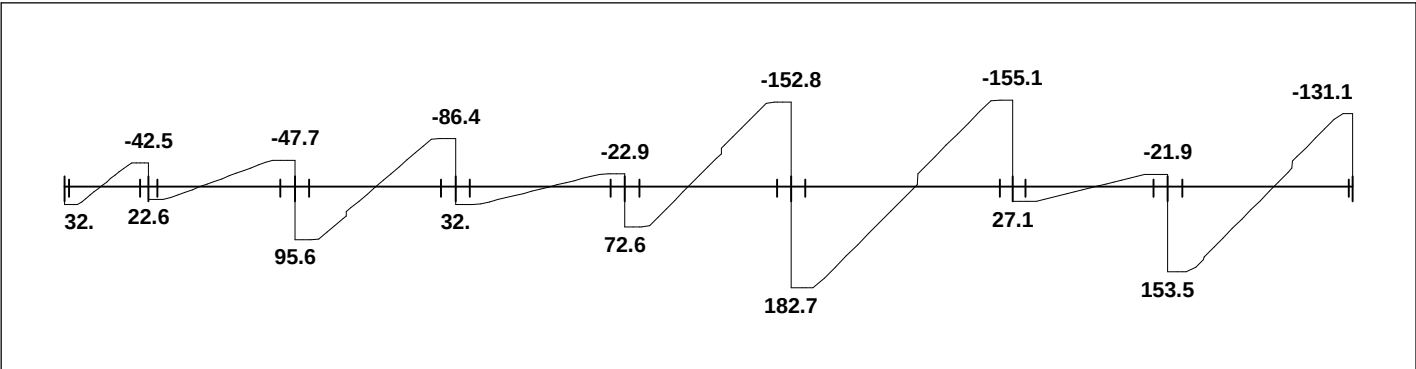
Moments: spans 1 to 8 Load pattern: xxxxxxxxxx



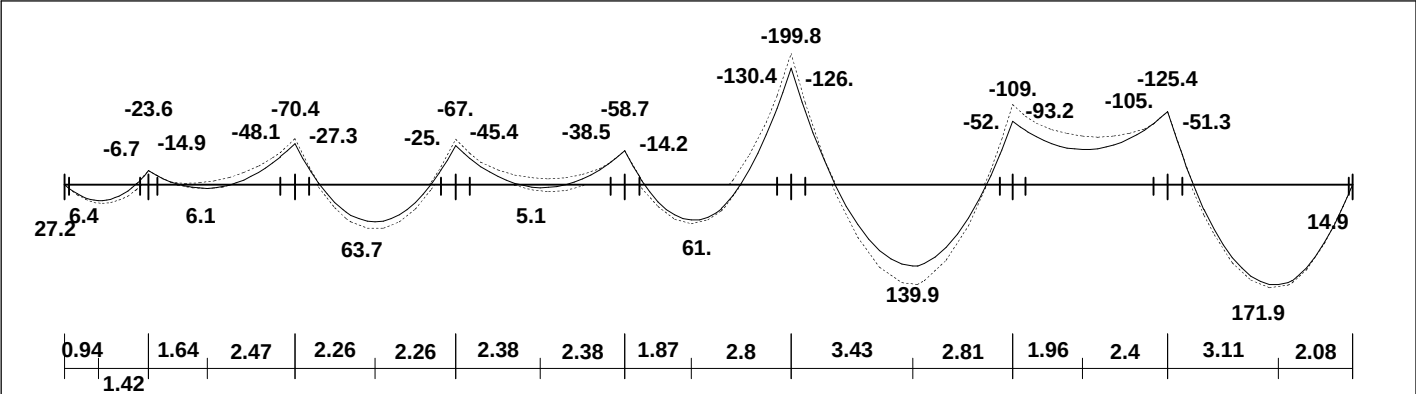
Beam 33 new	Code: ACI318-02
Project: 1	Page: 545
Designed by:	Date: 04/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

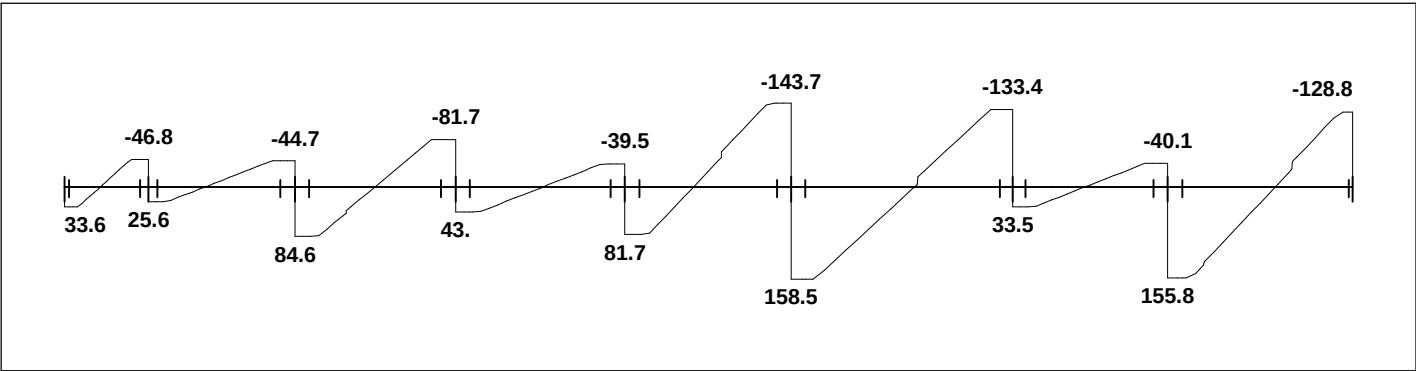
Shear



Moments: spans 1 to 8 Load pattern: XXXXxxXXXXxxXXXX



Shear



Moment/Shear Envelope (Factored) Units:kN,meter								
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-23.6	-78.8	-77.9	-58.7			
Max M	0.0	-12.2	-68.6	-63.5	-41.0			
MspMn	5.9	-7.1	-55.4	-31.1	-38.5			
MspMx	7.0	3.6	-47.1	-18.3	-23.2			
M Max			6.9	76.7	12.1			
M Min			-2.1	61.9	-10.0			
Mmn=0 @	0.0	0.4	4.1	0.7	4.8			
Mmx=0 @	0.0	0.2	1.8	0.6	1.1			
mx -M @			0.8	0.6	1.6			
mx +M @			1.6	2.3	2.6			
V max	59.6	-68.5	37.8	-115.2	64.8	-33.4		
V min	50.3	-74.7	18.0	-128.0	41.2	-55.3		
DReac	54.4	85.4	163.9	157.9	133.7			
LReac	5.1	27.1	31.3	34.8	45.8			
Max R	59.6	112.5	195.2	192.8	179.5			
Min R	50.3	87.9	172.4	165.0	147.2			
	5	6	7	8	9			
	5	6	7	8	9			

Beam 33 new	Code: ACI318-02
Project: 1	Page: 546
Designed by:	Date: 04/08/14

Moment / Shear Envelope (Factored)						Units:kN,meter		
Min M	-58.7	-225.4	-225.4	-137.7	-137.7	-125.4	-125.4	0.0
Max M	-41.0	-199.8	-199.8	-109.0	-109.0	-102.8	-102.8	0.0
MspMn	-14.2	-152.4	-140.5	-70.0	-117.6	-105.0	-51.3	12.9
MspMx	-0.9	-130.4	-126.0	-52.0	-93.2	-87.1	-38.5	15.1
M Max			171.4		-53.5		177.1	
M Min			137.6		-81.7		149.2	
Mmn=0 @	0.6	1.7	1.3	0.8	0.0	4.4	0.7	5.2
Mmx=0 @	0.4	1.4	1.2	0.7	0.0	4.4	0.6	5.2
mx -M @			1.2		0.0		0.6	
mx +M @			3.4		2.2		2.9	
V max		-171.5		-168.4	60.1	-31.4		-132.0
V min	97.4	-195.3		-199.7	37.0	-55.9		-154.4
DReac		363.5		205.5		204.7		133.5
LReac	45.8	56.9		54.3		49.5		20.9
Max R		420.5		259.9		254.2		154.4
Min R		382.0		216.8		216.2		132.0

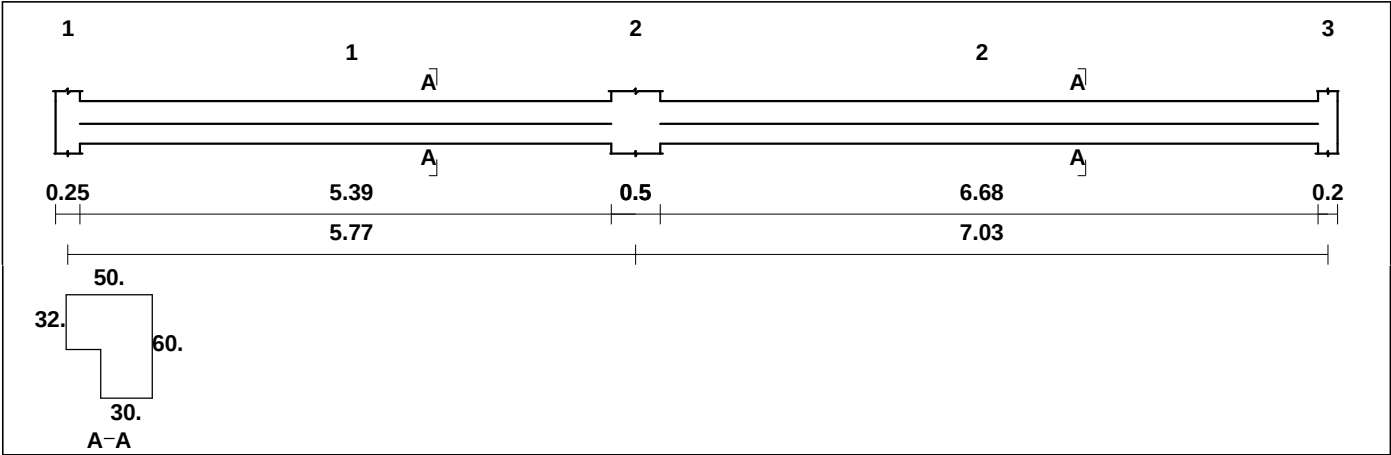
Individual load cases - factored					Units:kN,meter			
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-22.9	-22.9	-69.4	-69.4	-71.6	-71.6	-41.9
M Max			6.9		61.9		12.1	
Mmx=0 @	0.0	0.4	0.8	1.8	0.7	0.7	1.6	1.1
mx +M			1.6		2.3		2.6	
V max	50.3	-69.7	37.8	-60.4		-116.4	63.2	-50.8
	5	6	7	8	9			
Min M	-41.9	-213.6	-213.6	-127.0	-127.0	-112.6	-112.6	0.0
M Max			171.4		-81.7		177.1	
Mmx=0 @	0.5	1.7	1.2	0.7	0.0	4.4	0.6	5.2
mx +M			3.4		2.4		2.9	
V max	97.4	-171.9		-197.6	38.0	-31.4		-154.4
	1	2	3	4	5			
Min M	0.0	-12.2	-12.2	-72.6	-72.6	-63.5	-63.5	-47.8
M Max			-2.1		76.7		-10.0	
Mmx=0 @	0.0	0.2	0.0	4.1	0.6	0.6	0.0	4.8
mx +M			1.2		2.3		2.6	
V max	59.6	-69.9	18.0	-47.4		-123.9	41.2	-34.7
	5	6	7	8	9			
Min M	-47.8	-201.3	-201.3	-112.0	-112.0	-108.7	-108.7	0.0
M Max			137.6		-53.5		149.2	
Mmx=0 @	0.4	1.4	1.3	0.8	0.0	4.4	0.7	5.2
mx +M			3.4		2.2		3.1	
V max		-188.8		-168.7	52.9	-51.4		-132.0
	1	2	3	4	5			
Min M	0.0	-13.5	-13.5	-68.6	-68.6	-77.9	-77.9	-41.0
M Max			-1.8		71.5		9.7	
Mmx=0 @	0.0	0.2	0.0	4.1	0.6	0.7	1.8	1.2
mx +M			1.2		2.3		2.6	
V max	59.0	-70.4	19.3	-46.1		-128.0	64.8	-49.3
	5	6	7	8	9			
Min M	-41.0	-210.7	-210.7	-137.7	-137.7	-102.8	-102.8	0.0
M Max			166.8		-62.2		151.6	
Mmx=0 @	0.5	1.7	1.2	0.8	0.0	4.4	0.7	5.2
mx +M			3.4		2.6		2.9	
V max	97.9	-171.5		-199.7	60.1	-44.1		-133.2
	1	2	3	4	5			
	1	2	3	4				

Beam 33 new	Code: ACI318-02
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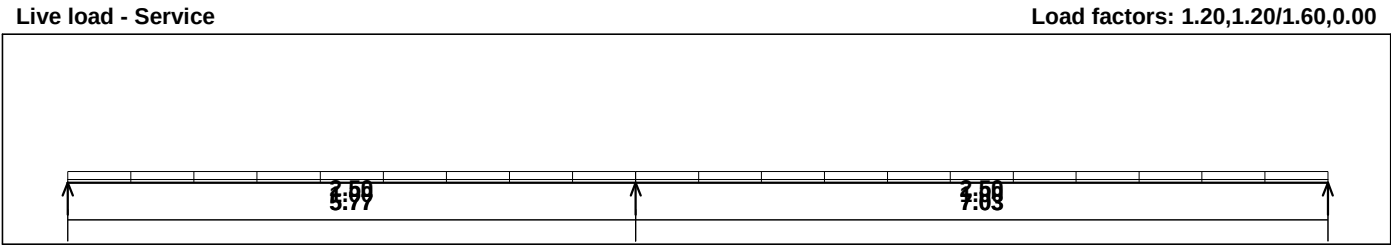
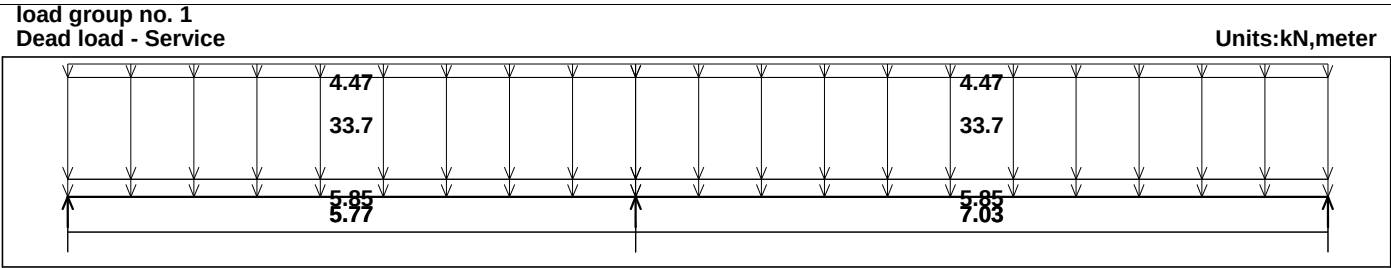
Individual load cases - factored					Units:kN,meter				
Min M	0.0	-19.9	-19.9	-78.8	-78.8	-63.5	-63.5	-41.8	
M Max			5.4		73.6		-6.8		
Mmx=0 @	0.0	0.3	0.8	2.0	0.7	0.6	0.0	4.8	
mx +M			1.4		2.3		2.6		
V max	51.6	-68.5	34.8	-63.5		-122.5	42.5	-33.4	
	5	6	7	8	9				
	5	6	7	8					
Min M	-41.8	-225.4	-225.4	-123.4	-123.4	-113.5	-113.5	0.0	
M Max			168.1		-80.5		176.7		
Mmx=0 @	0.4	1.6	1.2	0.7	0.0	4.4	0.7	5.2	
mx +M			3.6		2.4		3.1		
V max	-195.3		-195.1	37.0		-32.4		-154.2	
	1	2	3	4	5				
	1	2	3	4					
Min M	0.0	-23.6	-23.6	-70.4	-70.4	-67.0	-67.0	-58.7	
M Max			6.1		63.7		5.1		
Mmx=0 @	0.0	0.4	0.9	1.8	0.7	0.7	1.8	1.7	
mx +M			1.6		2.3		2.4		
V max	54.7	-74.7	37.8	-60.5		-115.2	58.8	-55.3	
	5	6	7	8	9				
	5	6	7	8					
Min M	-58.7	-199.8	-199.8	-109.0	-109.0	-125.4	-125.4	0.0	
M Max			139.9		-60.1		171.9		
Mmx=0 @	0.6	1.4	1.2	0.7	0.0	4.4	0.7	5.2	
mx +M			3.4		2.0		3.1		
V max	-186.2		-168.4	48.4		-55.9		-151.9	

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Geometry Units: meter, cm



Loading



Loads (kN, meter)					
1			2		
Self. Wt.	5.86	Self. Wt.	5.86		
Uni D	33.75	L	1.00	Uni D	33.75
Uni D	4.47	L	2.50	Uni D	4.47
				L	2.50

Beam 34

Project: BAEMS

Designed by: bayan

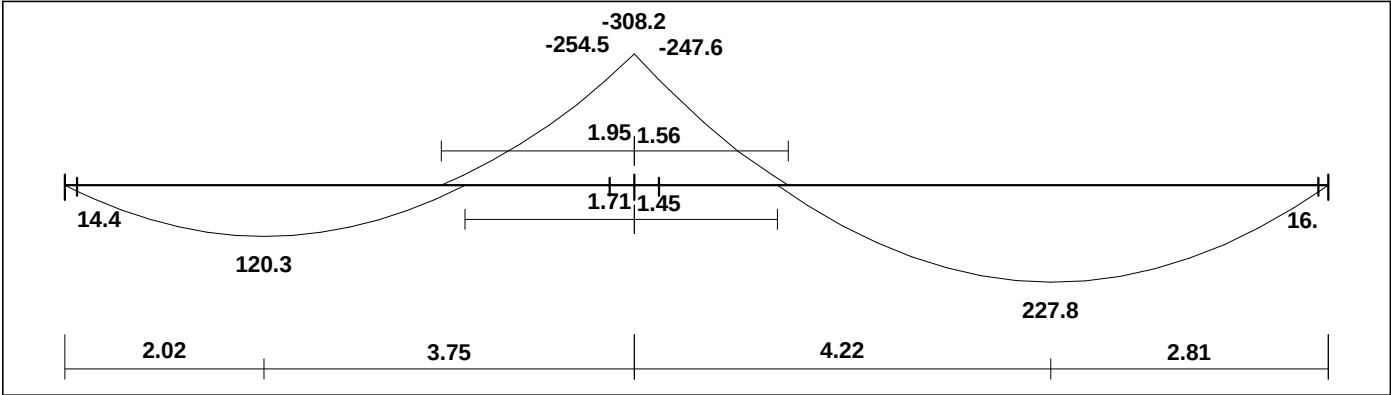
Code: ACI318-02

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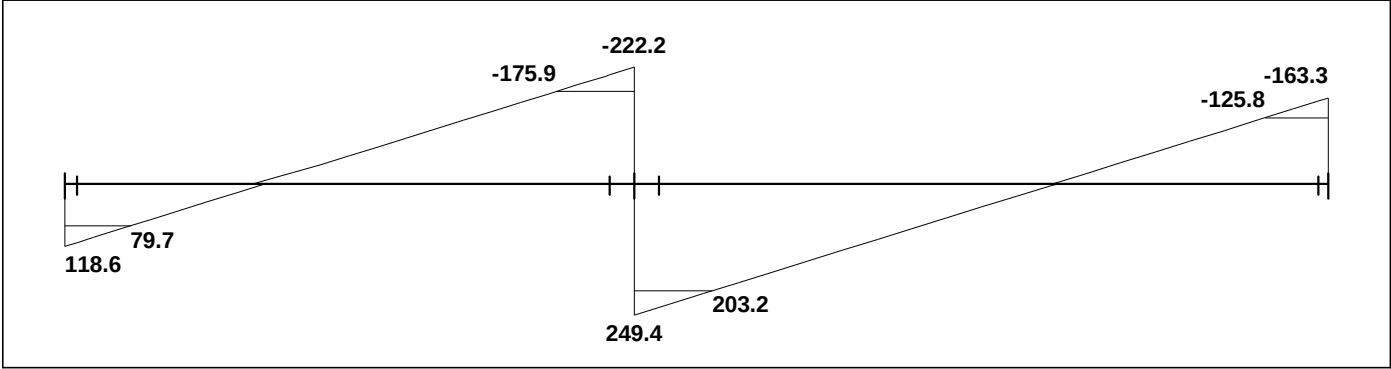
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

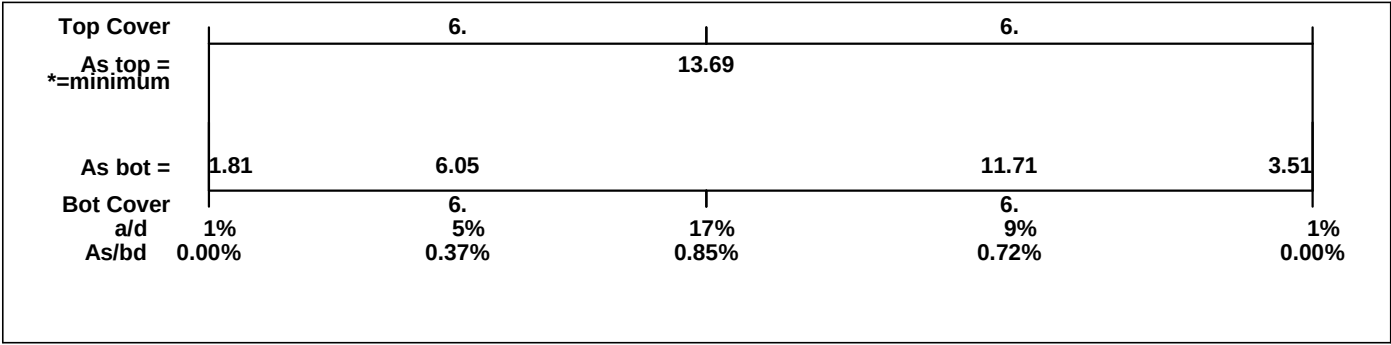
Factored

DeadR	104.29	426.44	146.27
LiveR	14.34	45.15	16.98
Max R	118.63	471.59	163.25
Min R	101.	445.91	144.78
Service			
DeadR	86.91	355.37	121.89
LiveR	8.96	28.22	10.61
Max R	95.87	383.59	132.51
Min R	84.85	367.54	120.96

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Reinforcement (cm 2)

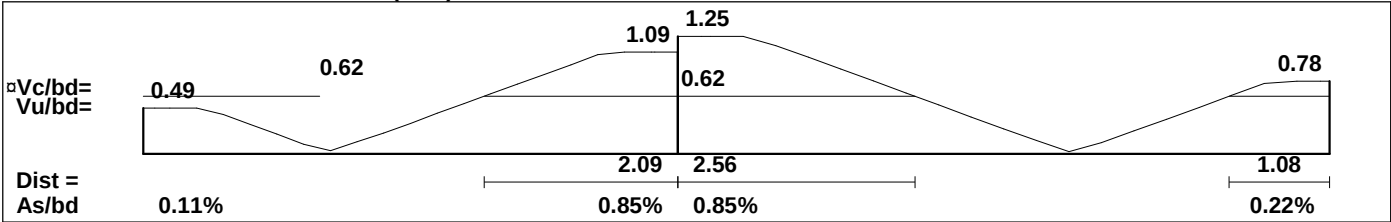
Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



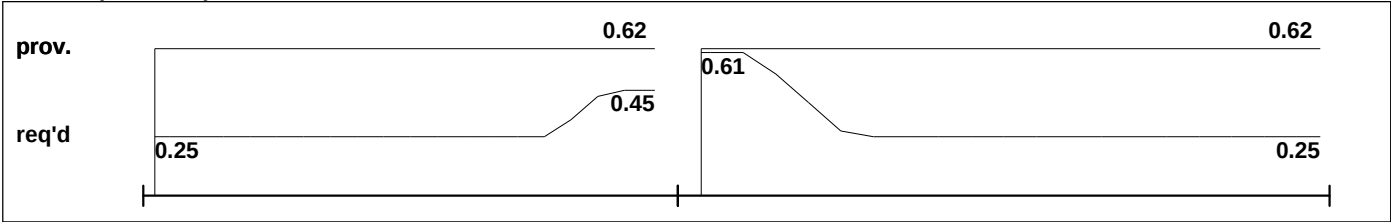
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

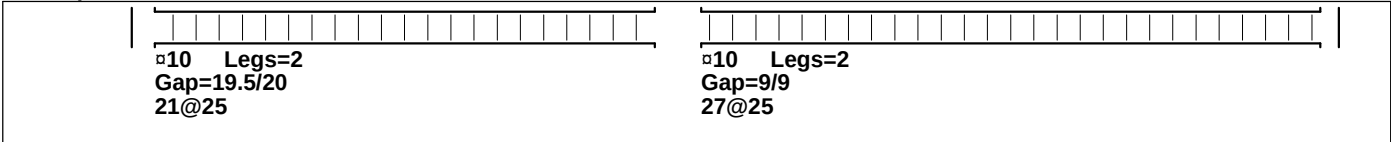
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 0.
As fr = 3	6.05 Es= 209	11.71 Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00121	0.00212
Mcr =	62.86	62.86
Mmax,d =	85.64	168.50
Mmax,d+l =	96.60	184.51
Mmax,sust =	55.67	109.53
Ie,d (m^4)=	0.00345	0.00237
Ie,d+l (m^4)=	0.00277	0.00231
Ie,sust (m^4)=	0.00687	0.00302
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	2.111	12.489
ai,l =	1.066	1.693
at,sust =	0.827	7.648
ai,l =	L/ 5410	L/ 4153
(ai+at),t2-t1	L/ 2191	L/ 512

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	79.73	65.83	0.	0.	0.25	0.00	100	-
125	14.37	12.21	79.73	65.83	0.	0.70	0.25	0.01	-	-
288	31.74	26.89	79.73	65.83	0.	1.56	0.25	0.01	-	-
577	58.71	49.47	79.73	65.83	0.	2.91	0.25	0.02	-	-
865	80.73	67.58	68.03	55.25	0.	4.02	0.25	0.03	-	-
1154	97.95	81.34	51.13	39.96	0.	4.90	0.25	0.04	-	-
1442	110.25	90.65	34.28	24.73	0.	5.53	0.25	0.04	-	-
1731	117.72	95.59	17.38	9.45	0.	5.91	0.25	0.05	-	-
2019	120.30	96.12	0.54	-5.79	0.	6.05	0.25	0.05	-	-
2308	118.01	92.24	-16.37	-21.07	0.	5.93	0.25	0.05	-	-
2596	110.87	83.98	-33.21	-36.51	0.	5.56	0.25	0.04	-	-
2885	98.83	71.28	-50.12	-53.41	0.	4.94	0.25	0.04	100	-
3173	81.97	54.22	-66.82	-70.26	0.	4.09	0.25	0.03	-	-
3462	60.17	32.70	-82.11	-87.16	0.	2.99	0.25	0.02	-	-
3750	33.59	6.86	-97.34	-104.01	0.	1.66	0.25	0.01	-	-
4039	2.04	-23.48	-112.63	-120.91	1.16	0.10	0.25	0.01	-	-
4327	-34.26	-58.11	-127.86	-137.76	2.90	0.	0.25	0.04	-	-
4616	-75.56	-97.27	-143.14	-154.66	4.93	0.	0.32	0.06	-	-
4904	-121.58	-140.69	-158.38	-171.50	7.24	0.	0.42	0.09	-	-
5193	-172.63	-189.73	-162.40	-175.95	9.95	0.	0.45	0.13	-	-
5481	-228.37	-246.42	-162.40	-175.95	13.21	0.	0.45	0.17	-	-
5520	-236.29	-254.47	-162.40	-175.95	13.69	0.	0.45	0.17	-	-
5770	-289.18	-308.18	-162.40	-175.95	13.69	0.	0.45	0.17	100	-

Beam 34	Code: ACI318-02
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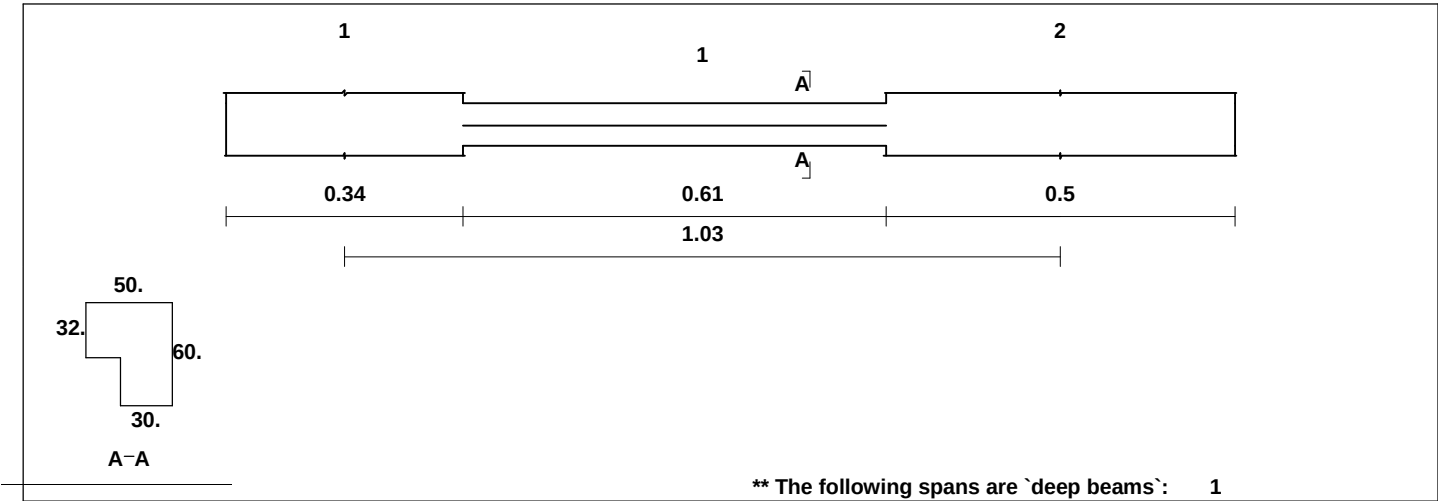
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-289.18	-308.18	203.23	185.26	13.29	0.	0.61	0.17	100	-
250	-234.07	-247.65	203.23	185.26	13.29	0.	0.61	0.17	-	-
352	-212.54	-224.00	203.23	185.26	11.90	0.	0.61	0.15	-	-
703	-137.83	-147.28	203.23	185.26	7.60	0.	0.61	0.10	-	-
1055	-68.65	-79.08	187.73	171.25	3.98	0.	0.52	0.05	-	-
1406	-6.89	-22.23	167.20	152.68	1.1	0.	0.40	0.01	-	-
1758	47.82	28.24	146.61	134.07	0.	2.37	0.28	0.02	-	-
2109	95.15	72.04	126.08	115.50	0.	4.76	0.25	0.04	-	-
2461	135.38	109.42	105.49	96.88	0.	6.83	0.25	0.05	-	-
2812	168.28	140.16	84.96	78.32	0.	8.54	0.25	0.07	-	-
3164	194.03	164.45	64.37	59.70	0.	9.90	0.25	0.08	-	-
3515	212.50	182.15	43.84	41.14	0.	10.89	0.25	0.08	100	-
3867	223.78	193.35	23.25	21.75	0.	11.5	0.25	0.09	-	-
4218	227.81	198.00	3.95	1.22	0.	11.71	0.25	0.09	-	-
4570	224.62	196.11	-14.66	-19.36	0.	11.54	0.25	0.09	-	-
4921	214.22	187.71	-33.23	-39.90	0.	10.98	0.25	0.08	-	-
5273	196.55	172.73	-51.85	-60.48	0.	10.04	0.25	0.08	-	-
5624	171.72	151.28	-70.41	-81.01	0.	8.72	0.25	0.07	-	-
5976	139.58	123.22	-89.03	-101.60	0.	7.04	0.25	0.05	-	-
6327	100.31	88.71	-107.59	-122.13	0.	5.02	0.25	0.04	-	-
6679	53.70	47.56	-110.93	-125.82	0.	2.66	0.25	0.02	-	-
6930	16.03	14.21	-110.93	-125.82	0.	0.79	0.25	0.01	-	-
7030	0.00	0.00	-110.93	-125.82	0.	0.	0.25	0.00	100	-

Moment / Shear Envelope (Factored)				Units:kN,meter
1	2	3		
	1	2		
Min M	0.0	-308.2	0.0	
Max M	0.0	-289.2	0.0	
MspMn		-254.5	14.2	
MspMx		-236.3	16.0	
M Max			227.8	
M Min			198.0	
Mmn=0 @	0.0	2.0	1.6	7.0
Mmx=0 @	0.0	1.7	1.5	7.0
mx -M @			1.5	
mx +M @			4.2	
V max		-204.2	-144.8	
V min		-222.2	-163.3	
DReac		426.4	146.3	
LReac		45.2	17.0	
Max R		471.6	163.3	
Min R		445.9	144.8	

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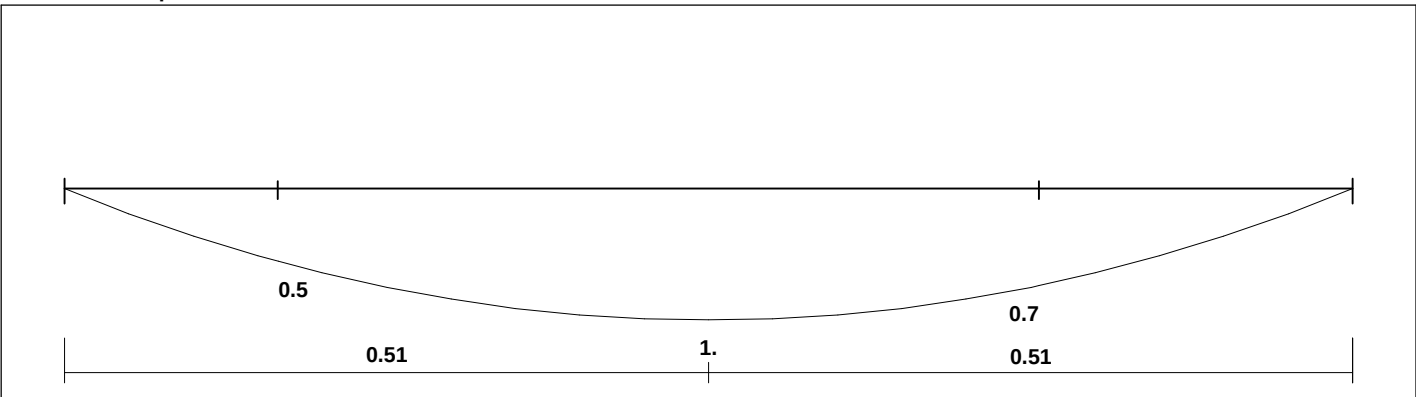
Geometry Units: meter,cm



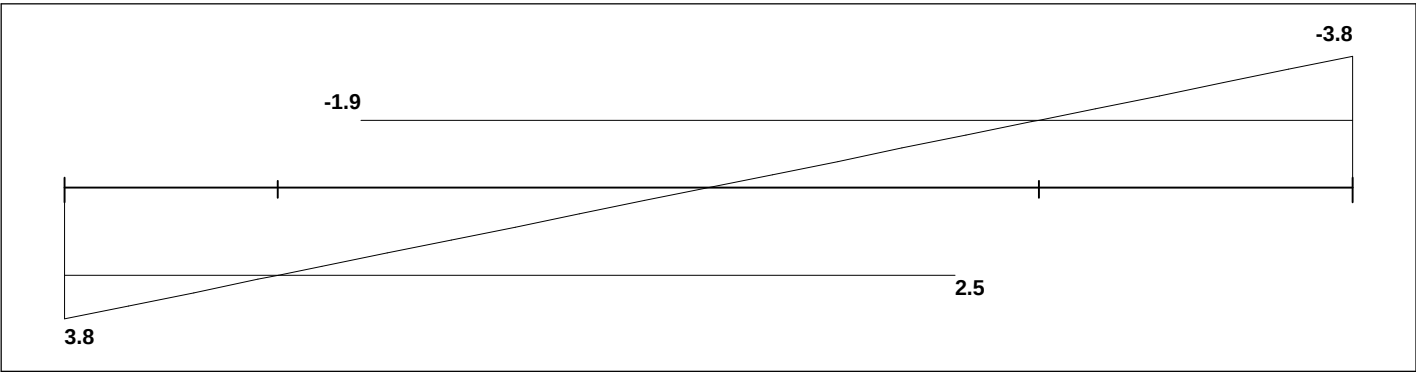
Loads (kN,meter)	1
Self.Wt.	6.10

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Beam 35	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

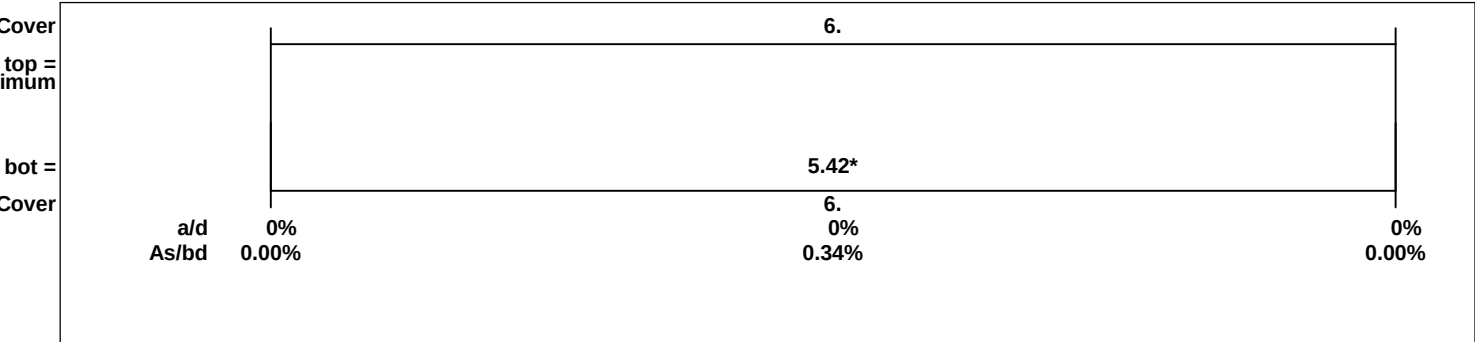
Reactions

Factored

DeadR	3.76	3.76
LiveR	0.	0.
Max R	3.76	3.76
Min R	3.76	3.76
Service		
DeadR	3.13	3.13
LiveR	0.	0.
Max R	3.13	3.13
Min R	3.13	3.13

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

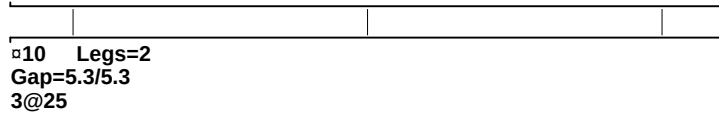
Max. allow. shear stress = 2.5 (MPa)

$\phi V_c/bd =$	0.62	
$V_u/bd =$	0.02	0.01
As/bd	0.00%	0.00%

Av/s (mm2/mm)

prov.	0.62
req'd	0.25 0.25

Stirrups



- sustained loads : 100% of dead; 0% of live
 - duration of load 60 months ; attachment of element at 0 months (t1)
 Apply 0% of dead load after attachment (t1)

A's $\frac{1}{5.42}$

As $\frac{0}{209}$

fr = 3 Es = 209 Ec = 23

lg(m^4)=	0.00687
lcr(m^4)=	0.00110

Mcr	=	62.86
Mmax,d	=	0.80
Mmax,d+l	=	0.80
Mmax,sust	=	0.80

le,d (m^4)=	0.00687
le,d+l (m^4)=	0.00687
le,sust (m^4)=	0.00687

e/1+50r	=	2.00
ai,d	=	0.001
ai,l	=	0.000
at,sust	=	0.001
ai,l	=	L/*****
(ai+at),t2-t1	=	L/*****

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	2.51	2.51	0.	0.	0.25	0.00	100	-
51	0.18	0.18	2.51	2.51	0.	0.00	0.25	0.00	-	-
103	0.35	0.35	2.51	2.51	0.	0.01	0.25	0.00	-	-
154	0.49	0.49	2.51	2.51	0.	0.02	0.25	0.00	-	-
170	0.53	0.53	2.51	2.51	0.	0.02	0.25	0.00	-	-
205	0.62	0.62	2.25	2.25	0.	0.03	0.25	0.00	-	-
257	0.72	0.72	1.87	1.87	0.	0.03	0.25	0.00	-	-
308	0.81	0.81	1.50	1.50	0.	0.03	0.25	0.00	-	-
359	0.88	0.88	1.13	1.13	0.	0.04	0.25	0.00	-	-
410	0.92	0.92	0.75	0.75	0.	0.04	0.25	0.00	-	-
462	0.95	0.95	0.37	0.37	0.	0.04	0.25	0.00	-	-
513	0.96	0.96	0.00	0.00	0.	0.04	0.25	0.00	100	-
564	0.95	0.95	-0.37	-0.37	0.	0.04	0.25	0.00	-	-
616	0.92	0.92	-0.75	-0.75	0.	0.04	0.25	0.00	-	-
667	0.88	0.88	-1.13	-1.13	0.	0.04	0.25	0.00	-	-
718	0.81	0.81	-1.50	-1.50	0.	0.03	0.25	0.00	-	-
770	0.72	0.72	-1.88	-1.88	0.	0.03	0.25	0.00	-	-
776	0.71	0.71	-1.93	-1.93	0.	0.03	0.25	0.00	-	-
821	0.62	0.62	-1.93	-1.93	0.	0.03	0.25	0.00	-	-
872	0.49	0.49	-1.93	-1.93	0.	0.02	0.25	0.00	-	-
923	0.35	0.35	-1.93	-1.93	0.	0.01	0.25	0.00	-	-
975	0.18	0.18	-1.93	-1.93	0.	0.00	0.25	0.00	-	-

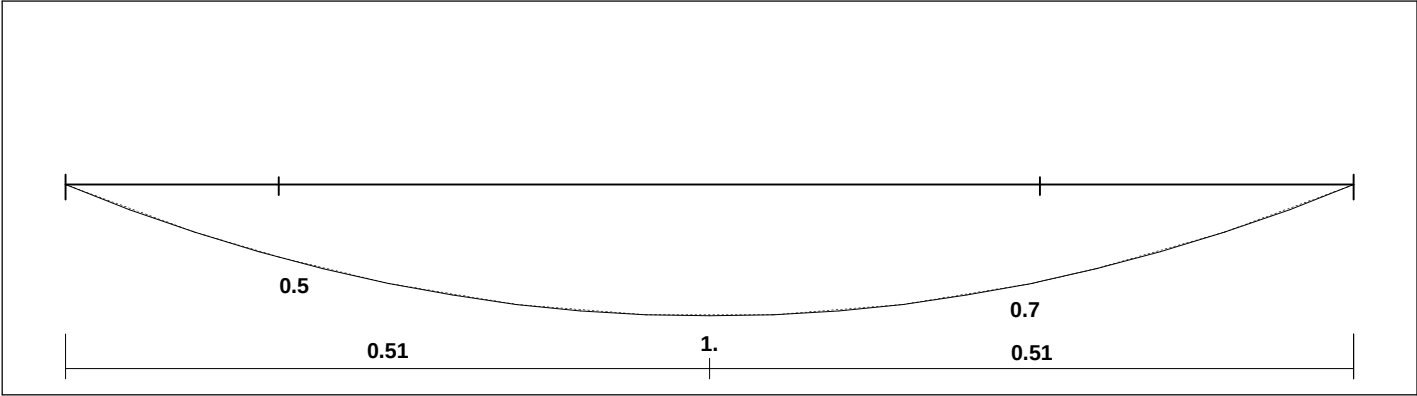
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Detailed results - at 1/20 of span, support faces, etc.

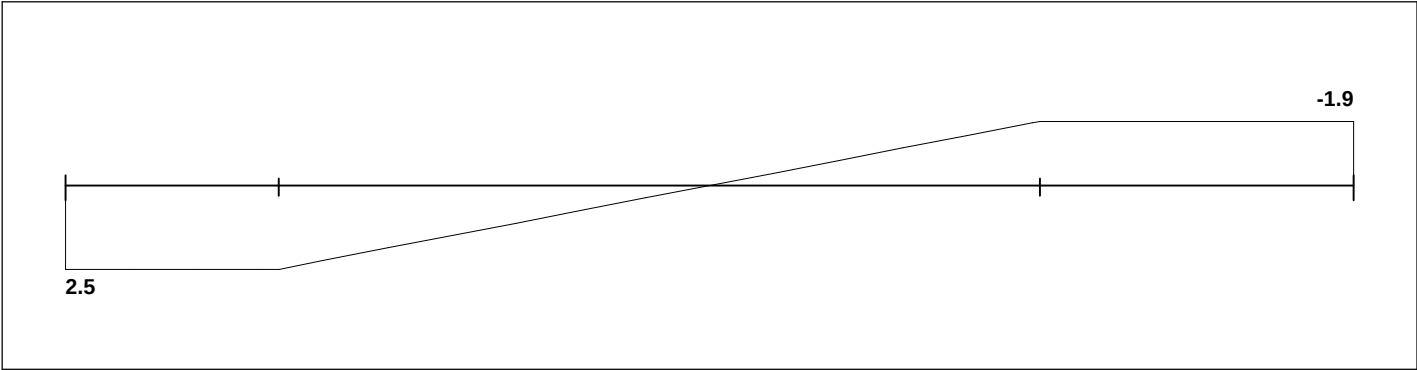
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
1026	0.00	0.00	-1.93	-1.93	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



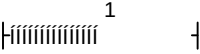
Shear



Moment/Shear Envelope (Factored) Units:kN,meter

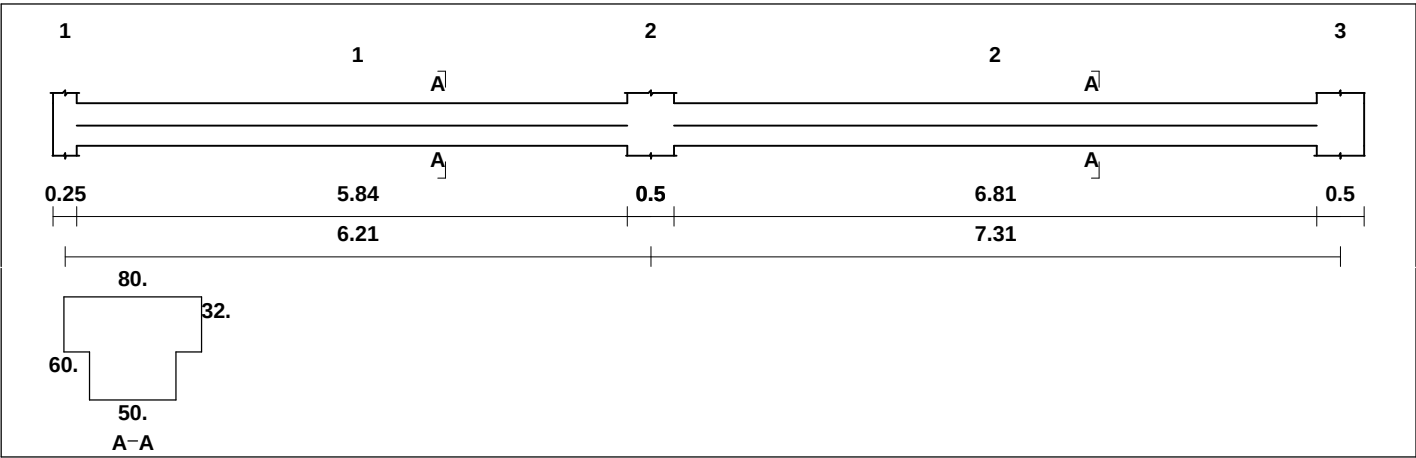
	1	2
	1	
Min M	0.0	0.0
Max M	0.0	0.0
MspMn	0.5	0.7
MspMx	0.5	0.7
M Max		
M Min		
Mmn=0 @	0.0	1.0
Mmx=0 @	0.0	1.0
mx -M @		
mx +M @		
V max	3.8	-3.8
V min	3.8	-3.8
DReac	3.8	3.8
LReac	0.0	0.0
Max R	3.8	3.8
Min R	3.8	3.8

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Individual load cases - factored		Units:kN,meter
1	2	
		
Min M	0.0	0.0
M Max		
Mmx=0 @	0.0	1.0
mx +M		
V max	3.8	-3.8

Beam 36	Code: ACI318-02
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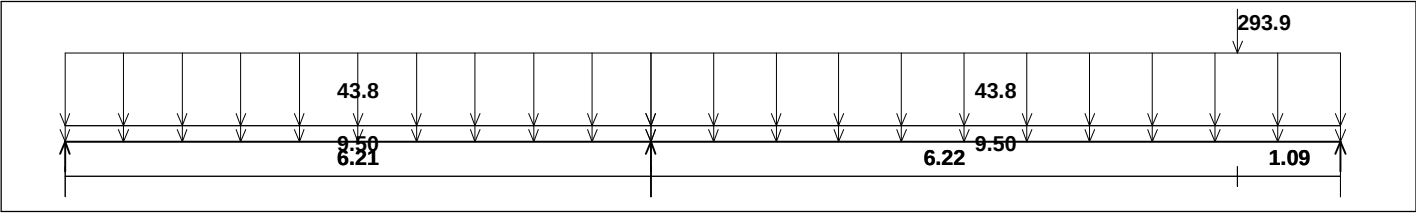
Geometry Units: meter, cm



Loading

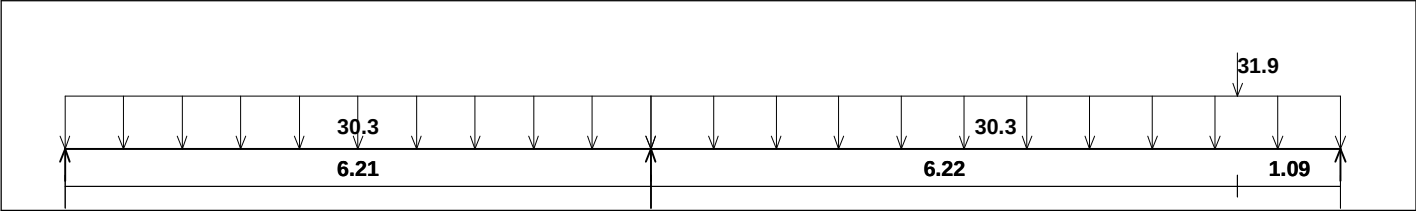
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

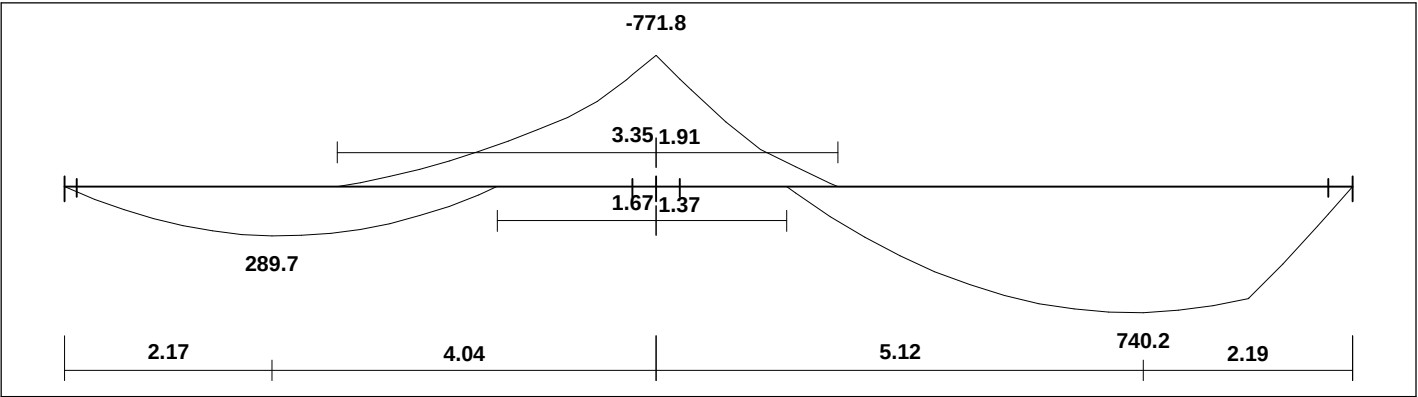


Loads (kN, meter)					
1			2		
Self. Wt.	9.50	Self. Wt.	9.50		
Uni D	43.80	L	30.30	Uni D	43.83
				L	30.35
				Pt. D	293.9
				L	31.90
				x	6.22

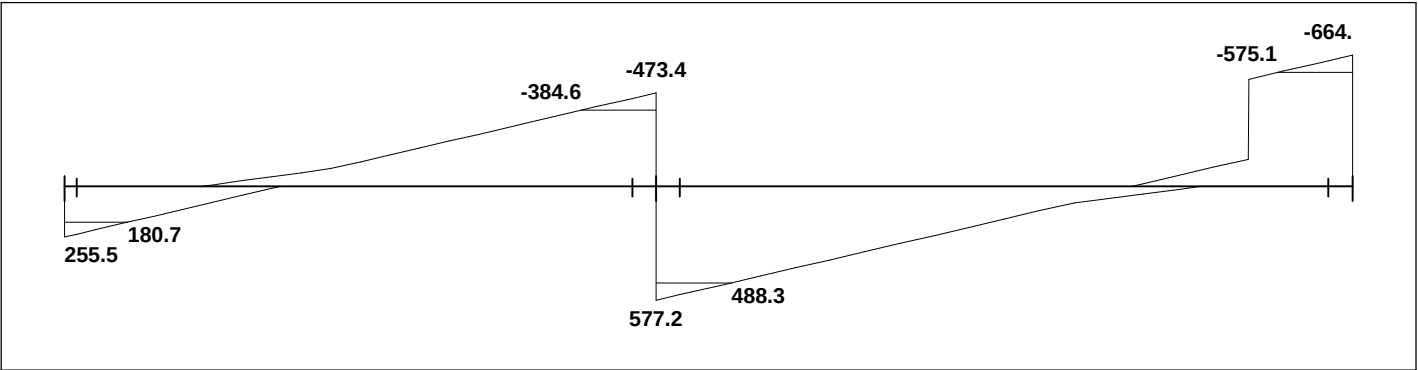
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Project: 1	Page: 297
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	122.22	626.4	469.09
LiveR	133.25	424.21	194.91
Max R	255.47	1050.61	664.
Min R	91.61	808.9	454.41
Service			
DeadR	101.85	522.	390.91
LiveR	83.28	265.13	121.82
Max R	185.13	787.13	512.73
Min R	82.72	636.06	381.73

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Center

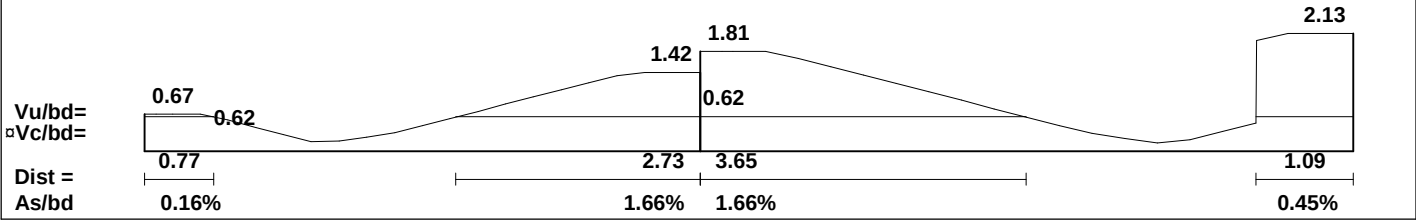
Top Cover	6.	6.
As top = *=minimum	1.17	44.80
As bot =	4.42	14.75
Bot Cover	6.	6.
a/d	1%	7%
As/bd	0.00%	0.55%
Comp As	3.00	3.00

Beam 36	Code: ACI318-02
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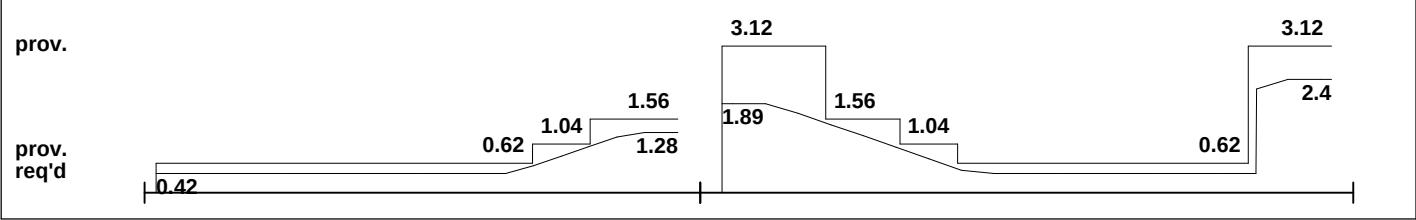
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

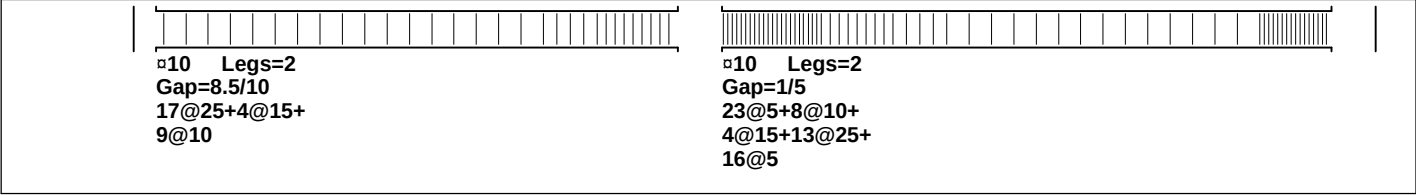
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

		1	2
A's		1.17	0.
As		14.75	40.23
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.01124	0.01124	
Icr(m^4)=	0.00279	0.00621	
Mcr =	103.73	103.73	
Mmax,d =	97.25	408.60	
Mmax,d+l =	204.91	563.86	
Mmax,sust =	63.21	265.59	
Ie,d (m^4)=	0.01124	0.00629	
Ie,d+l (m^4)=	0.00388	0.00624	
Ie,sust (m^4)=	0.01124	0.00651	
e/1+50r =	1.96/0.78	2.00/0.80	
ai,d =	0.541	11.908	
ai,l =	5.368	5.834	
at,sust =	0.413	8.984	
ai,l =	L/ 1156	L/ 1253	
(ai+at),t2-t1	L/ 1040	L/ 385	

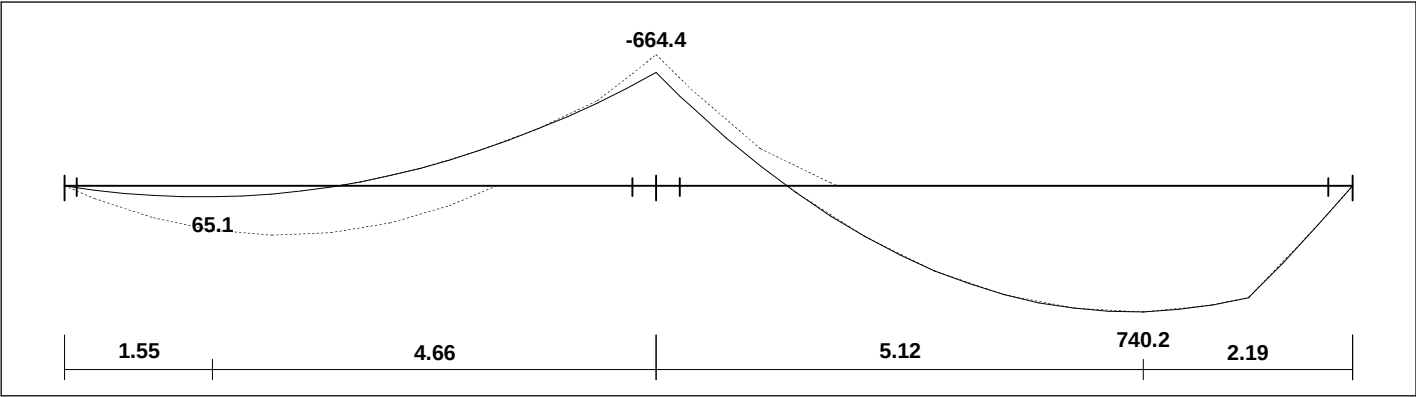
Beam 36	Code: ACI318-02
Project: 1	Page: 299
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	180.69	49.08	0.	0.	0.42	0.00	100	-
125	31.05	10.95	180.69	49.08	0.	1.53	0.42	0.01	-	-
311	74.01	25.40	180.69	49.08	0.	3.66	0.42	0.02	-	-
621	136.96	44.56	180.69	49.08	0.	6.84	0.42	0.03	-	-
932	189.26	57.60	150.67	32.00	0.	9.51	0.42	0.05	-	-
1242	230.56	64.45	115.81	12.17	0.	11.65	0.42	0.06	-	-
1553	261.14	65.14	80.84	-7.72	0.	13.25	0.42	0.06	-	-
1863	280.80	59.67	45.98	-27.55	0.	14.28	0.42	0.07	-	-
2174	289.66	48.01	11.01	-47.45	0.	14.75	0.42	0.07	-	-
2484	287.68	30.23	-23.85	-67.27	0.	14.64	0.42	0.07	-	-
2795	274.82	6.21	-58.82	-89.42	0.	13.96	0.42	0.07	-	-
3105	251.19	-23.88	-93.67	-124.28	1.17	12.72	0.42	0.06	100	-
3416	216.62	-60.25	-126.89	-159.25	2.99	10.92	0.42	0.05	-	-
3726	171.33	-102.66	-146.72	-194.11	5.14	8.59	0.42	0.04	-	-
4037	115.05	-151.38	-166.61	-229.08	7.66	5.73	0.42	0.06	-	-
4347	48.12	-206.11	-186.44	-263.94	10.55	2.37	0.57	0.08	-	-
4658	-29.89	-267.18	-206.33	-298.91	13.86	0.	0.78	0.11	-	-
4968	-118.46	-334.22	-226.16	-333.77	17.60	0.	0.98	0.13	-	-
5279	-218.18	-407.65	-246.06	-368.74	21.85	0.	1.19	0.17	-	-
5589	-328.41	-499.48	-255.08	-384.59	27.40	0.	1.28	0.21	-	-
5900	-449.84	-630.43	-255.08	-384.59	35.88	0.	1.28	0.27	-	-
5960	-474.52	-656.95	-255.08	-384.59	37.7	0.	1.28	0.29	-	-
6210	-581.71	-771.79	-255.08	-384.59	44.80	3.00	1.28	0.32	100	-
Span=2										
0	-581.71	-771.79	488.26	315.52	44.80	3.00	1.89	0.32	100	-
250	-492.19	-631.01	488.26	315.52	35.92	0.	1.89	0.27	-	-
366	-452.01	-568.08	488.26	315.52	31.76	0.	1.89	0.24	-	-
731	-283.34	-379.94	488.26	315.52	20.23	0.	1.89	0.15	-	-
1097	-115.12	-218.63	453.70	295.87	11.22	0.	1.69	0.09	-	-
1462	37.63	-114.90	412.62	272.51	5.77	1.85	1.45	0.04	-	-
1828	175.73	-19.44	371.42	249.09	0.95	8.82	1.21	0.04	-	-
2193	298.45	67.21	330.34	225.73	0.	15.21	0.96	0.07	-	-
2559	406.44	145.54	289.14	202.31	0.	21.02	0.72	0.10	-	-
2924	499.11	215.12	248.06	178.95	0.	26.15	0.48	0.12	-	-
3290	576.99	276.33	206.86	155.52	0.	30.58	0.42	0.15	-	-
3655	639.64	328.83	165.77	132.16	0.	34.22	0.42	0.16	100	-
4021	687.39	372.91	124.58	108.74	0.	37.04	0.42	0.18	-	-
4386	720.01	408.34	85.38	68.81	0.	39.00	0.42	0.19	-	-
4752	737.65	435.30	61.95	27.61	0.	40.07	0.42	0.19	-	-
5117	740.23	453.65	38.59	-13.47	0.	40.23	0.42	0.19	-	-
5483	727.76	463.49	15.17	-54.67	0.	39.47	0.42	0.19	-	-
5848	700.31	464.76	-8.19	-95.76	0.	37.82	0.42	0.18	-	-
6219	657.04	457.32	-31.94	-137.52	0.	35.24	0.42	0.17	-	-
6225	654.19	455.36	-384.97	-541.88	0.	35.07	2.21	0.17	-	-
6579	455.31	315.07	-403.85	-575.08	0.	23.71	2.40	0.11	-	-
6945	234.86	161.60	-403.85	-575.08	0.	11.87	2.40	0.06	-	-
7060	162.48	111.60	-403.85	-575.08	0.	8.14	2.40	0.04	-	-
7310	0.00	0.00	-403.85	-575.08	0.	0.	2.40	0.00	100	-

Moment / Shear Envelope (Factored) Units:kN,meter

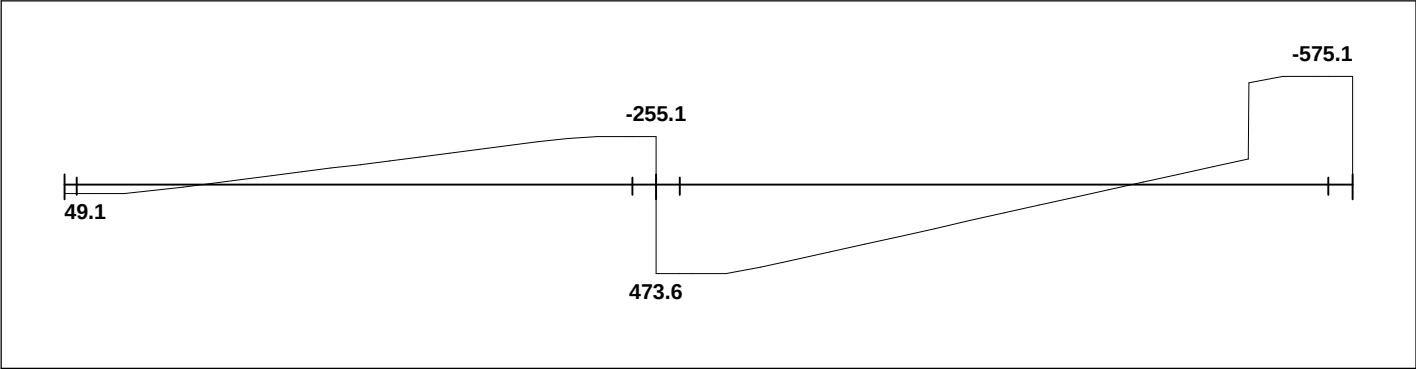
Moments: spans 1 to 2 Load pattern: xxXX



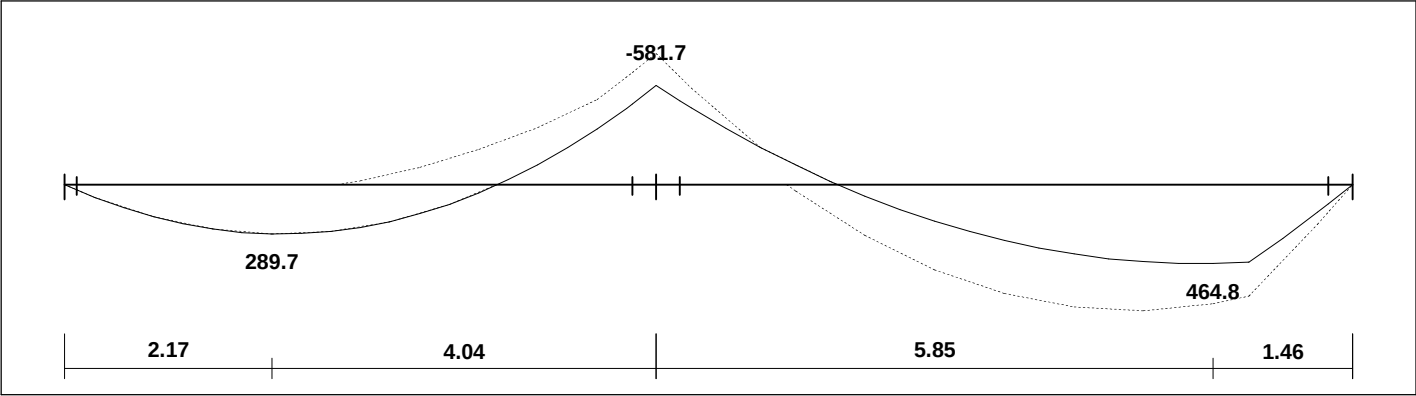
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Moment/Shear Envelope (Factored) Units:kN,meter

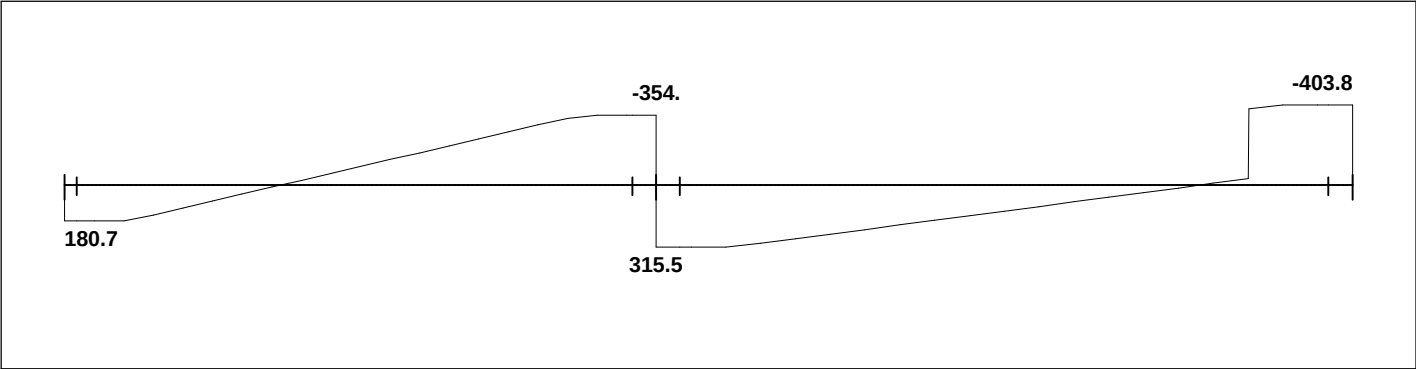
Shear



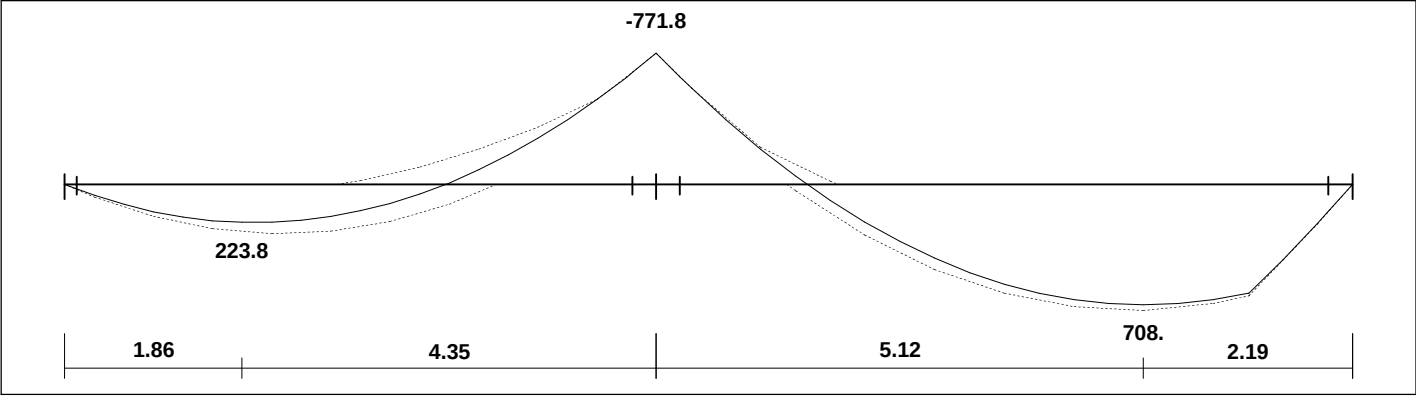
Moments: spans 1 to 2 Load pattern: XXxx



Shear

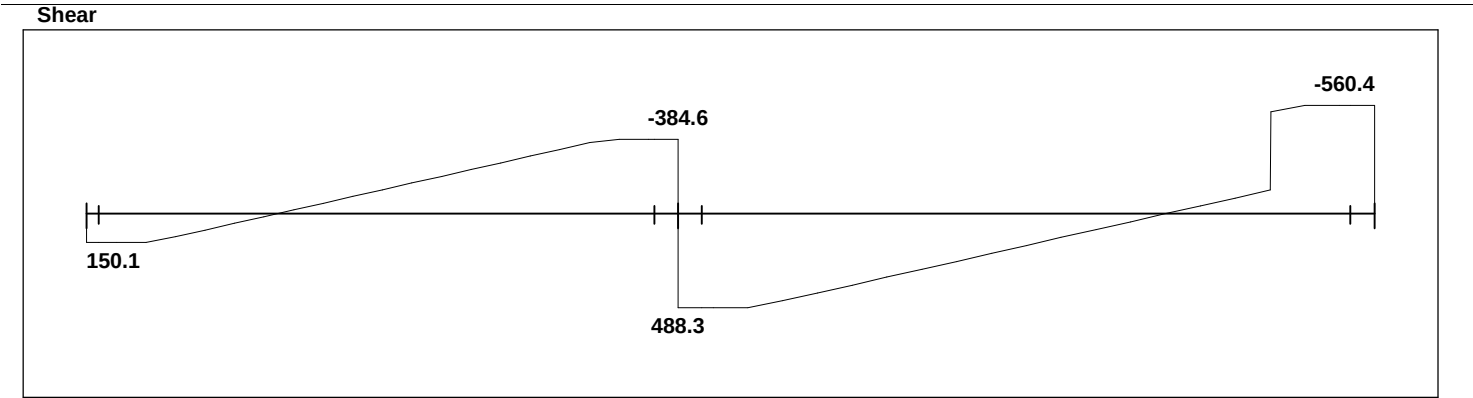


Moments: spans 1 to 2 Load pattern: XXXX



Beam 36	Code: ACI318-02
Project: 1	Page: 301
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

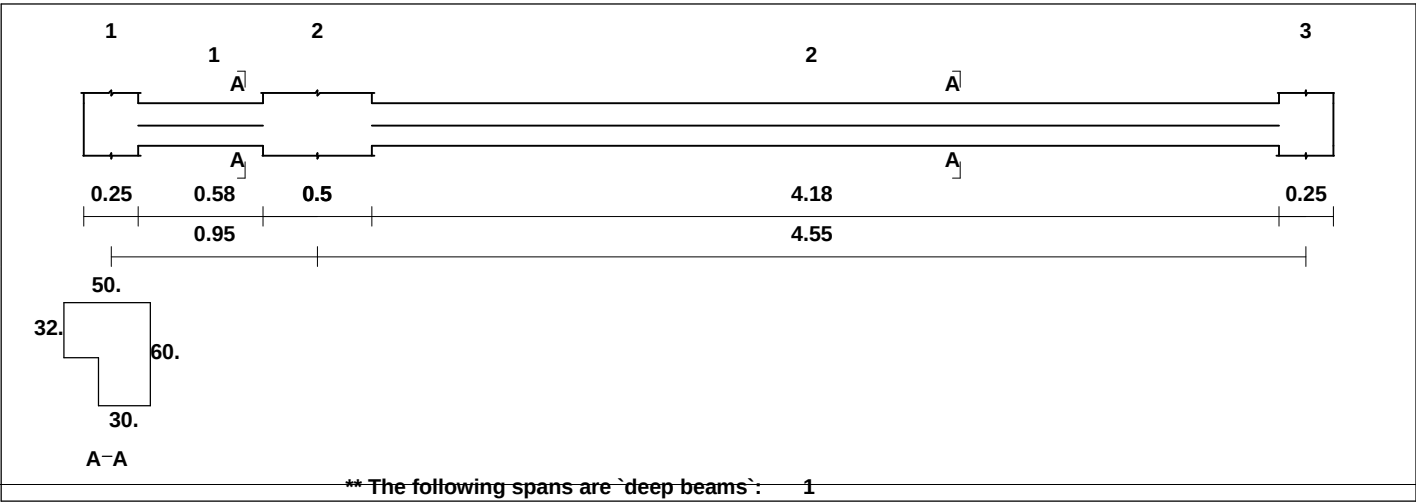


Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	2	3
		1	2	
Min M	0.0	-771.8	-771.8	0.0
Max M	0.0	-581.7	-581.7	0.0
MspMn	11.0	-656.9	-631.0	111.6
MspMx	31.1	-474.5	-492.2	162.5
M Max			740.2	
M Min			464.8	
Mmn=0 @	0.0	3.4	1.9	7.3
Mmx=0 @	0.0	1.7	1.4	7.3
mx -M @			1.4	
mx +M @			5.1	
V max		-305.6		-454.4
V min	91.6	-473.4		-664.0
DReac		626.4		469.1
LReac		424.2		194.9
Max R		1050.6		664.0
Min R	91.6	808.9		454.4

Individual load cases - factored Units:kN,meter				
	1	2	2	3
		1	2	
Min M	0.0	-664.4	-664.4	0.0
M Max			740.2	
Mmx=0 @	0.0	3.4	1.4	7.3
mx +M			5.1	
V max	91.6	-305.6		-664.0
	1	2	3	
		1	2	
Min M	0.0	-581.7	-581.7	0.0
M Max			464.8	
Mmx=0 @	0.0	1.7	1.9	7.3
mx +M			5.8	
V max		-442.8		-454.4
	1	2	3	
		1	2	
Min M	0.0	-771.8	-771.8	0.0
M Max			708.0	
Mmx=0 @	0.0	2.2	1.6	7.3
mx +M			5.1	
V max		-473.4		-649.3

Beam 37	Code: ACI318-02
Project: 1	Page: 301
Designed by:	Date: 04/07/14

Geometry Units: meter, cm

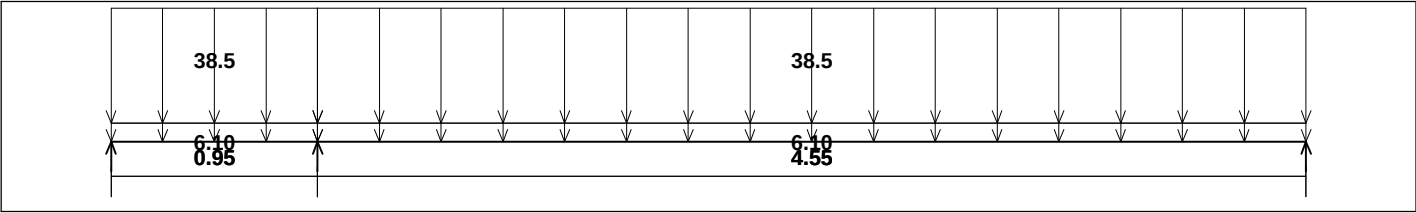


** The following spans are `deep beams`:

1 Loading

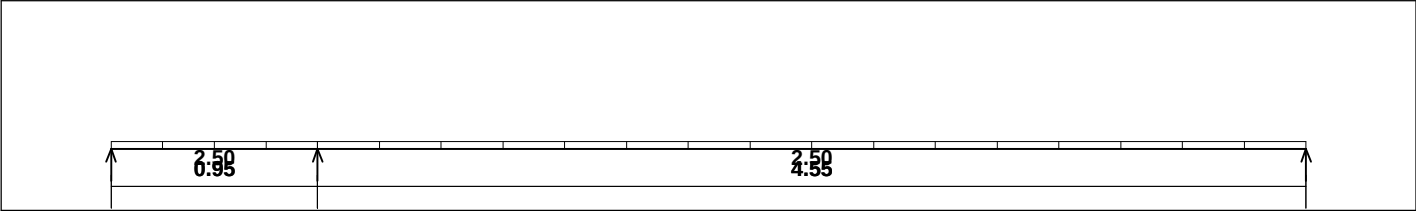
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

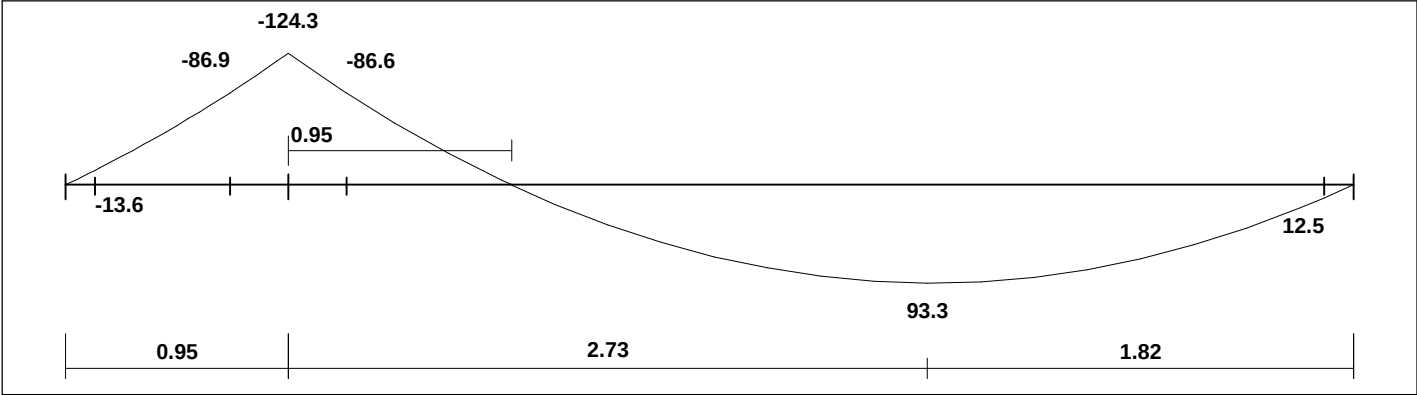


Loads (kN, meter)					
1			2		
Self. Wt.	6.10	Self. Wt.	6.10		
Uni D	38.53	L	2.50	Uni D	38.53
				L	2.50

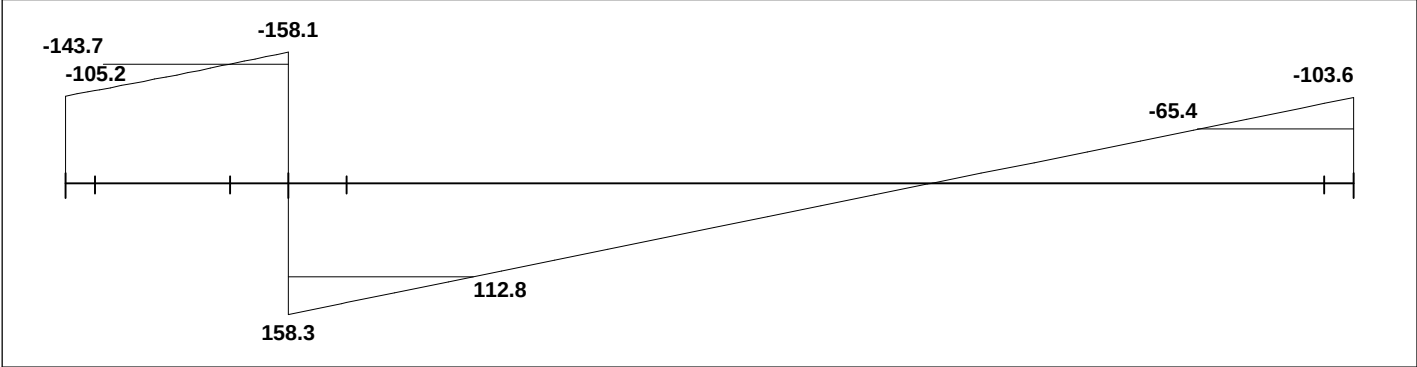
Beam 37	Code: ACI318-02
Project: 1	Page: 302
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	-96.17	294.37	96.42
LiveR	-9.	21.99	7.22
Max R	-94.35	316.36	103.63
Min R	-105.18	296.37	96.4
Service			
DeadR	-80.15	245.31	80.35
LiveR	-5.63	13.74	4.51
Max R	-79.01	259.05	84.86
Min R	-85.77	246.56	80.34

Reinforcement (cm 2)

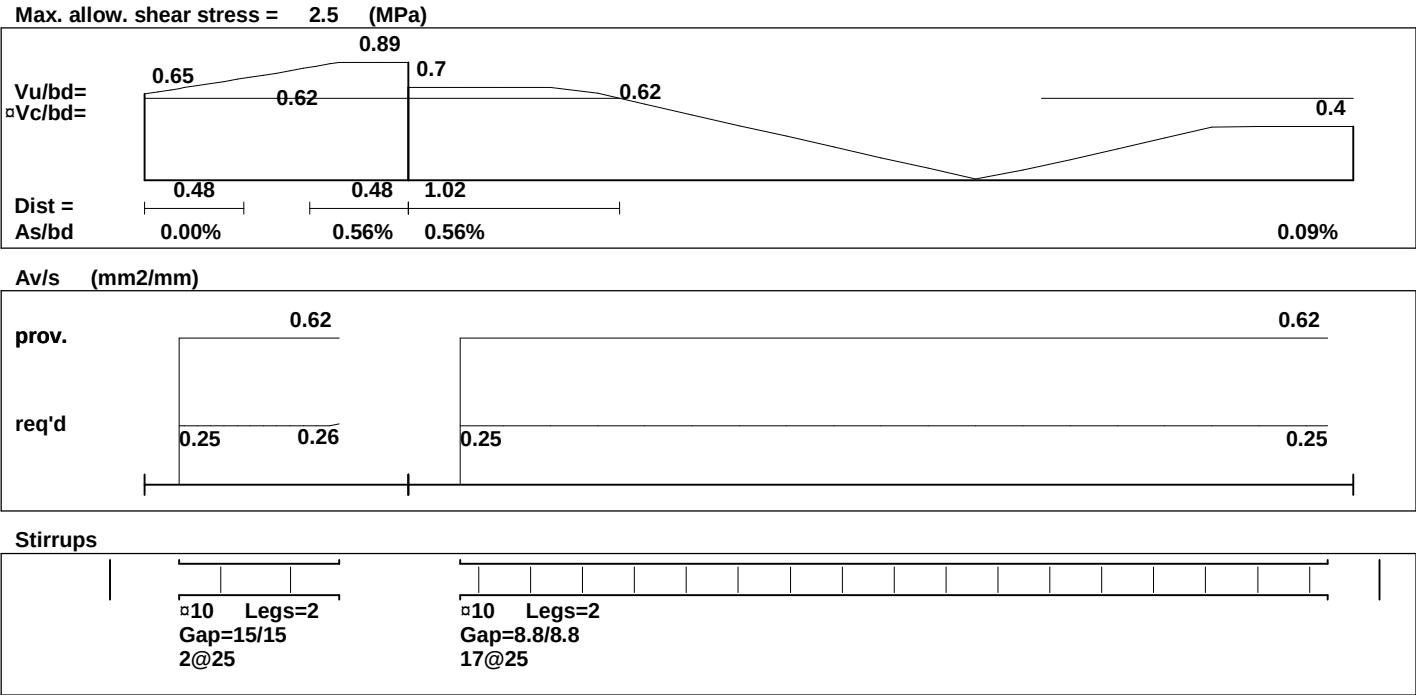
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.
As top =	5.42	9.04*
*=minimum		
As bot =	5.42*	5.42*
Bot Cover	6.	6.
a/d	1%	4%
As/bd	0.00%	0.34%

Beam 37	Code: ACI318-02
Project: 1	Page: 303
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00104	0.00110
Mcr =	80.40	62.86
Mmax,d =	96.40	72.31
Mmax,d+l =	101.75	76.38
Mmax,sust =	96.40	72.31
Ie,d (m^4)=	0.00442	0.00489
Ie,d+l (m^4)=	0.00392	0.00432
Ie,sust (m^4)=	0.00442	0.00489
e/1+50r =	1.71	2.00
ai,d =	-0.050	1.098
ai,l =	-0.010	0.216
at,sust =	-0.085	2.196
ai,l =	L/*****	L/21037
(ai+at),t2-t1	L/*****	L/ 1886

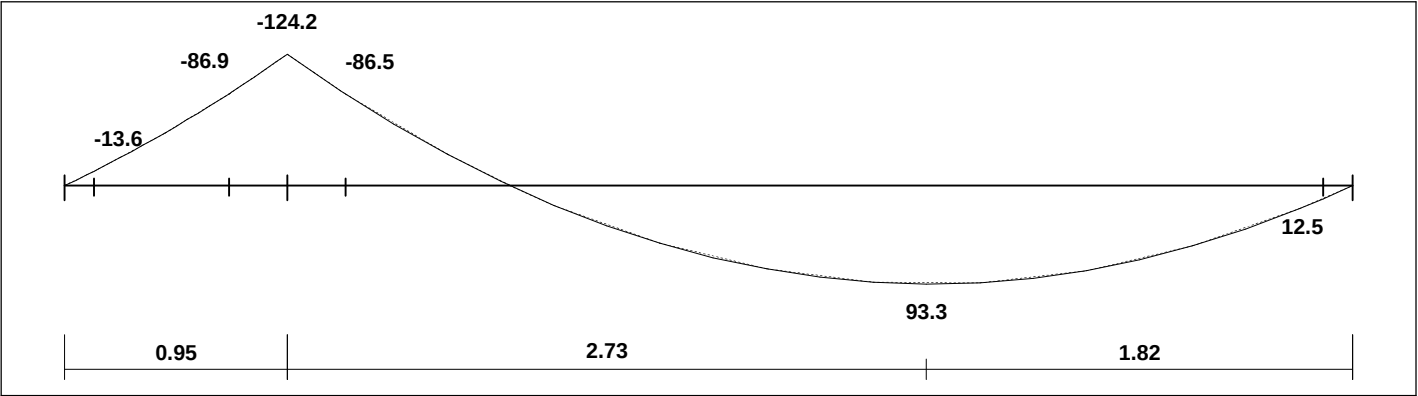
Beam 37	Code: ACI318-02
Project: 1	Page: 304
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-94.35	-105.18	0.	0.	0.25	0.00	100	-
48	-4.60	-5.11	-97.12	-107.75	0.25	0.	0.25	0.00	-	-
95	-9.22	-10.23	-99.82	-110.27	0.50	0.	0.25	0.01	-	-
125	-12.24	-13.57	-101.55	-111.87	0.66	0.	0.25	0.01	-	-
143	-14.08	-15.59	-102.59	-112.84	0.76	0.	0.25	0.01	-	-
190	-18.97	-20.95	-105.29	-115.35	1.03	0.	0.25	0.01	-	-
238	-24.09	-26.55	-108.05	-117.92	1.31	0.	0.25	0.02	-	-
285	-29.23	-32.15	-110.76	-120.44	1.59	0.	0.25	0.02	-	-
333	-34.61	-37.99	-113.52	-123.01	1.88	0.	0.25	0.02	-	-
380	-40.01	-43.83	-116.23	-125.53	2.18	0.	0.25	0.03	-	-
428	-45.66	-49.92	-118.99	-128.10	2.49	0.	0.25	0.03	-	-
475	-51.31	-56.00	-121.69	-130.70	2.80	0.	0.25	0.04	100	-
523	-57.22	-62.33	-124.46	-133.46	3.12	0.	0.25	0.04	-	-
571	-63.26	-68.79	-127.22	-136.22	3.45	0.	0.25	0.04	-	-
618	-69.30	-75.23	-129.92	-138.93	3.78	0.	0.25	0.05	-	-
666	-75.60	-81.93	-132.69	-141.69	4.13	0.	0.25	0.05	-	-
701	-80.28	-86.89	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
713	-81.90	-88.60	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
761	-88.47	-95.55	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
808	-95.03	-102.47	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
856	-101.85	-109.65	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
903	-108.67	-116.81	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
951	-115.76	-124.32	-134.70	-143.70	4.39	0.	0.26	0.06	100	-
Span=2										
0	-115.76	-124.32	112.79	104.97	4.37	0.	0.25	0.06	100	-
228	-83.57	-89.73	112.79	104.97	4.37	0.	0.25	0.06	-	-
250	-80.61	-86.55	112.79	104.97	4.37	0.	0.25	0.06	-	-
455	-54.29	-58.27	112.79	104.97	2.91	0.	0.25	0.04	-	-
683	-27.66	-29.65	112.79	104.97	1.47	0.	0.25	0.02	-	-
910	-3.91	-4.13	105.89	98.55	0.20	0.	0.25	0.00	-	-
1138	18.57	17.17	92.76	86.33	0.	0.91	0.25	0.01	-	-
1365	38.14	35.39	79.70	74.18	0.	1.88	0.25	0.01	-	-
1593	54.82	50.91	66.58	61.97	0.	2.72	0.25	0.02	-	-
1820	68.44	63.59	53.51	49.81	0.	3.40	0.25	0.03	-	-
2048	79.14	73.56	40.39	37.60	0.	3.94	0.25	0.03	-	-
2275	86.82	80.71	27.32	25.44	0.	4.33	0.25	0.03	100	-
2503	91.55	85.12	14.20	13.23	0.	4.57	0.25	0.03	-	-
2730	93.29	86.75	1.14	1.07	0.	4.66	0.25	0.04	-	-
2958	92.05	85.60	-11.14	-12.00	0.	4.60	0.25	0.04	-	-
3185	87.84	81.69	-23.29	-25.07	0.	4.38	0.25	0.03	-	-
3413	80.63	74.99	-35.51	-38.19	0.	4.02	0.25	0.03	-	-
3640	70.48	65.55	-47.66	-51.26	0.	3.51	0.25	0.03	-	-
3868	57.29	53.29	-59.87	-64.38	0.	2.84	0.25	0.02	-	-
4095	41.20	38.32	-60.78	-65.36	0.	2.04	0.25	0.02	-	-
4323	22.04	20.50	-60.78	-65.36	0.	1.08	0.25	0.01	-	-
4425	12.50	11.63	-60.78	-65.36	0.	0.61	0.25	0.00	-	-
4550	0.00	0.00	-60.78	-65.36	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

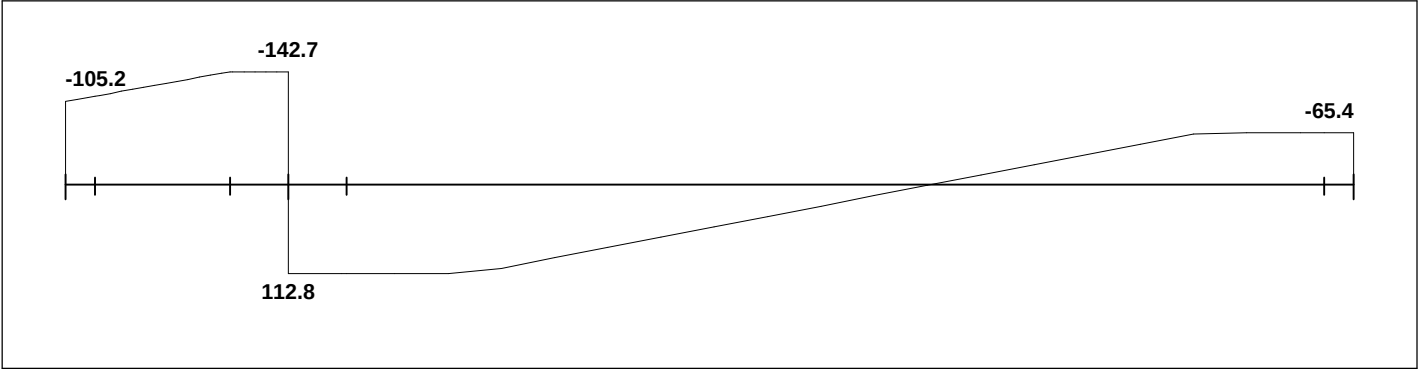
Moments: spans 1 to 2 Load pattern: xxXX



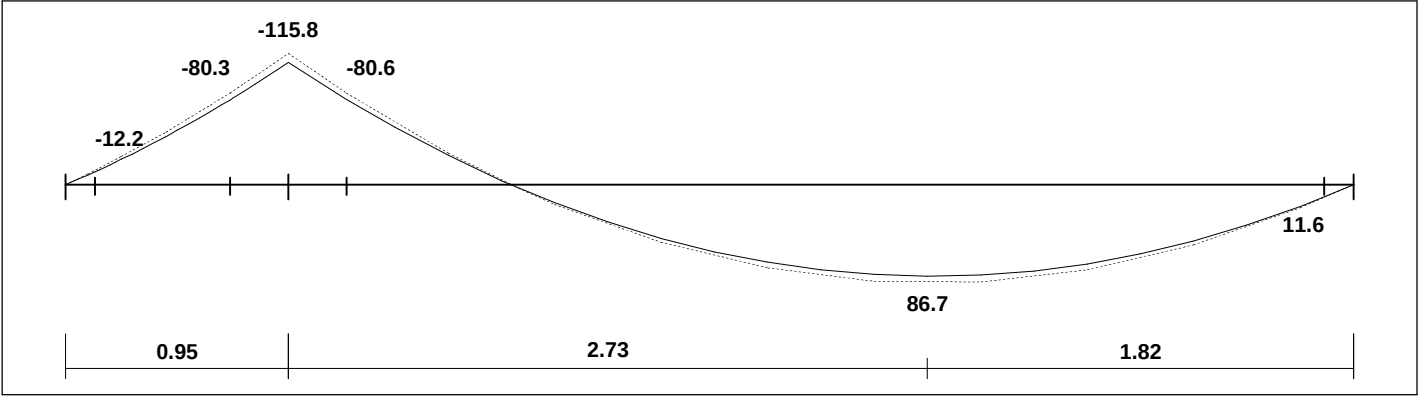
Beam 37	Code: ACI318-02
Project: 1	Page: 305
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

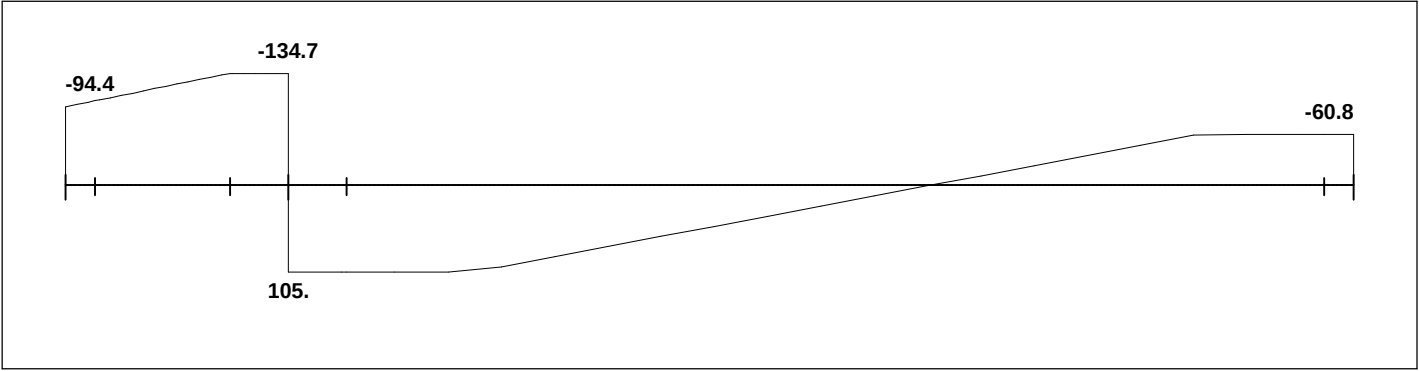
Shear



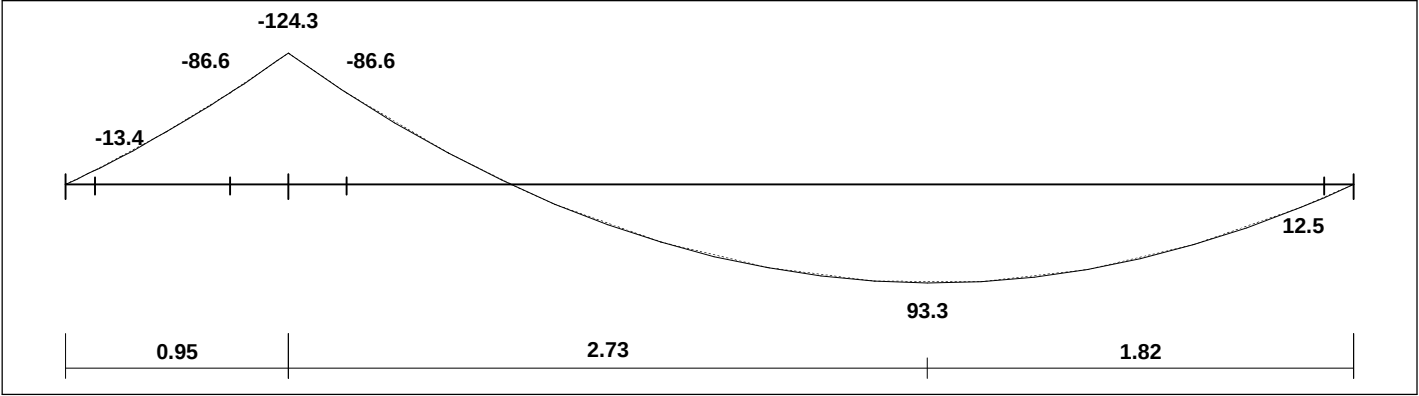
Moments: spans 1 to 2 Load pattern: XXxx



Shear



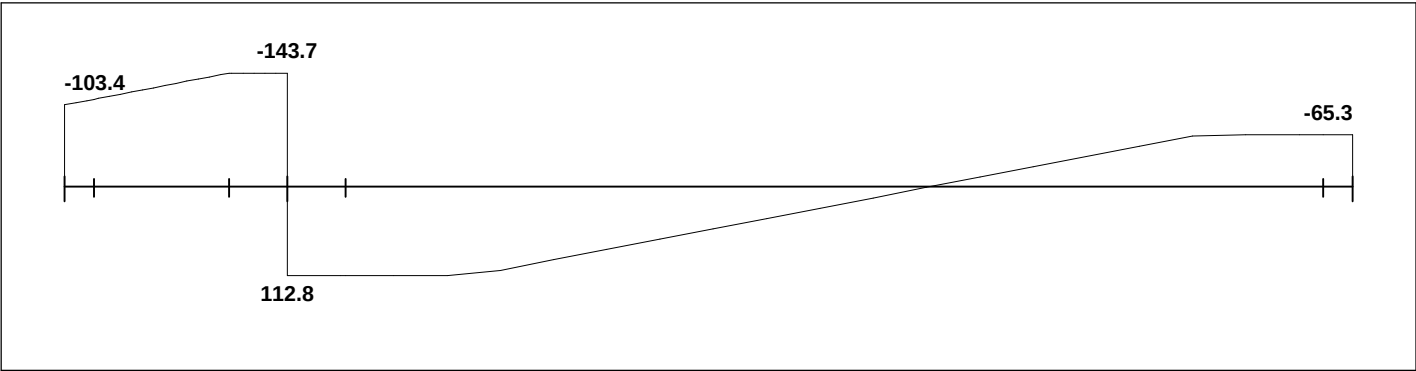
Moments: spans 1 to 2 Load pattern: XXXX



Beam 37	Code: ACI318-02
Project: 1	Page: 306
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

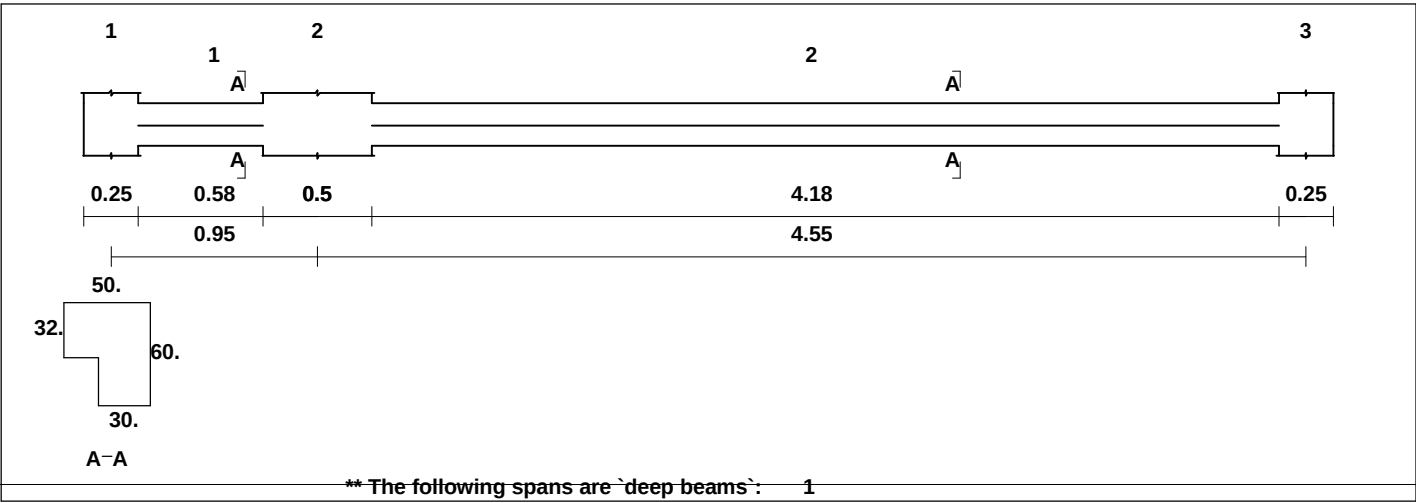
	1	2	3
Min M	0.0	-124.3	0.0
Max M	0.0	-115.8	0.0
MspMn	-13.6	-86.9	11.6
MspMx	-12.2	-80.3	12.5
M Max		93.3	
M Min		86.7	
Mmn=0 @	0.0	1.0	4.6
Mmx=0 @	0.0	1.0	4.6
mx -M @		0.9	
mx +M @		2.7	
V max	-94.4	-149.1	-96.4
V min	-105.2	-158.1	-103.6
DReac	-96.2	294.4	96.4
LReac	-9.0	22.0	7.2
Max R	-94.4	316.4	103.6
Min R	-105.2	296.4	96.4

Individual load cases - factored Units:kN,meter

	1	2	3
Min M	0.0	-124.2	0.0
M Max		93.3	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-105.2	-156.1	-103.6
Min M	0.0	-115.8	0.0
M Max		86.7	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-94.4	-149.1	-96.4
Min M	0.0	-124.3	0.0
M Max		93.3	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-103.4	-158.1	-103.6

Beam 37	Code: ACI318-02
Project: 1	Page: 301
Designed by:	Date: 04/07/14

Geometry Units: meter, cm

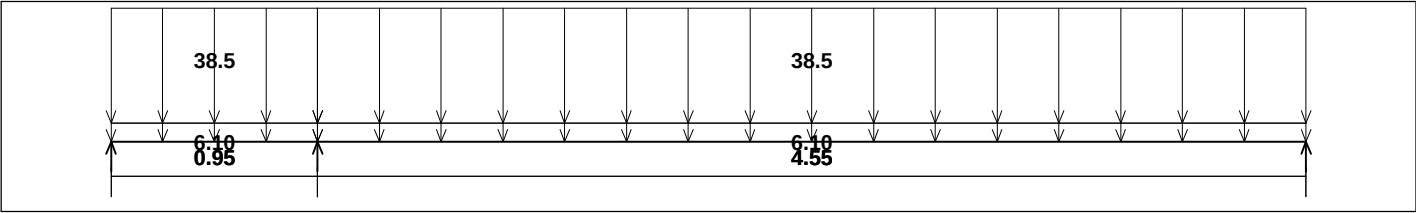


** The following spans are `deep beams`:

1 Loading

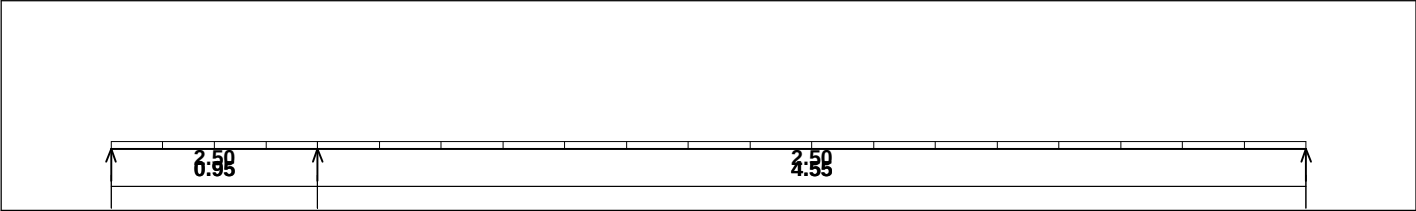
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

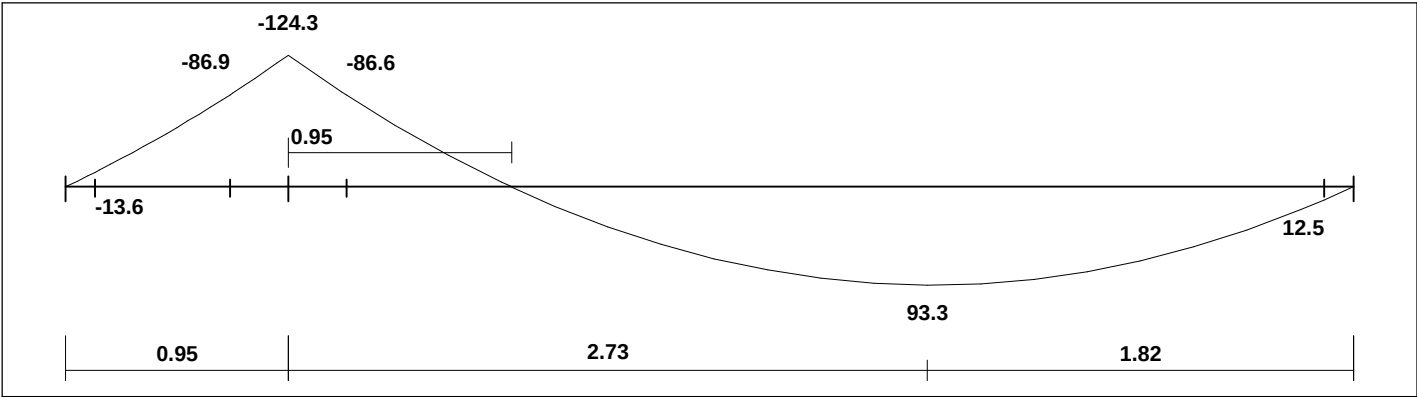


Loads (kN, meter)					
1			2		
Self. Wt.	6.10	Self. Wt.	6.10		
Uni D	38.53	L	2.50	Uni D	38.53
				L	2.50

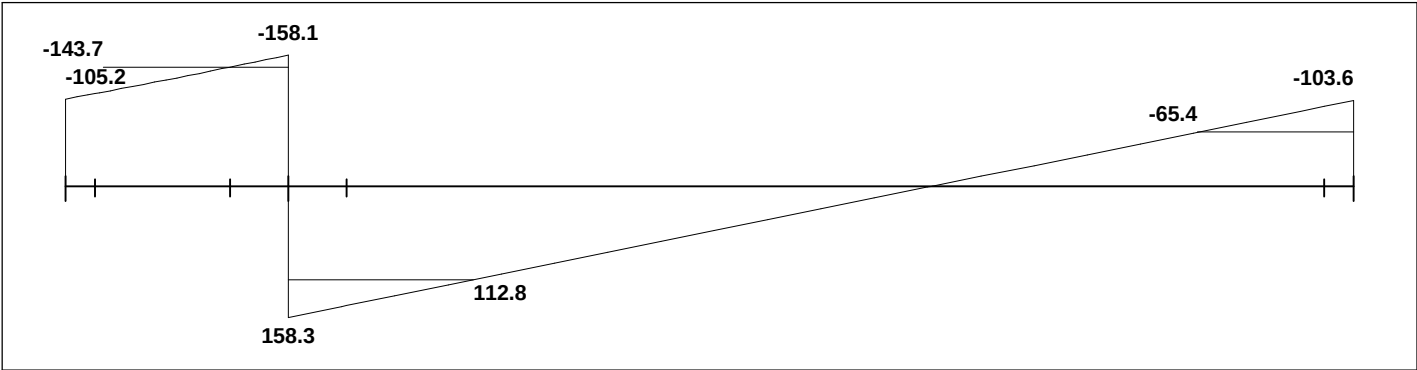
Beam 37	Code: ACI318-02
Project: 1	Page: 302
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



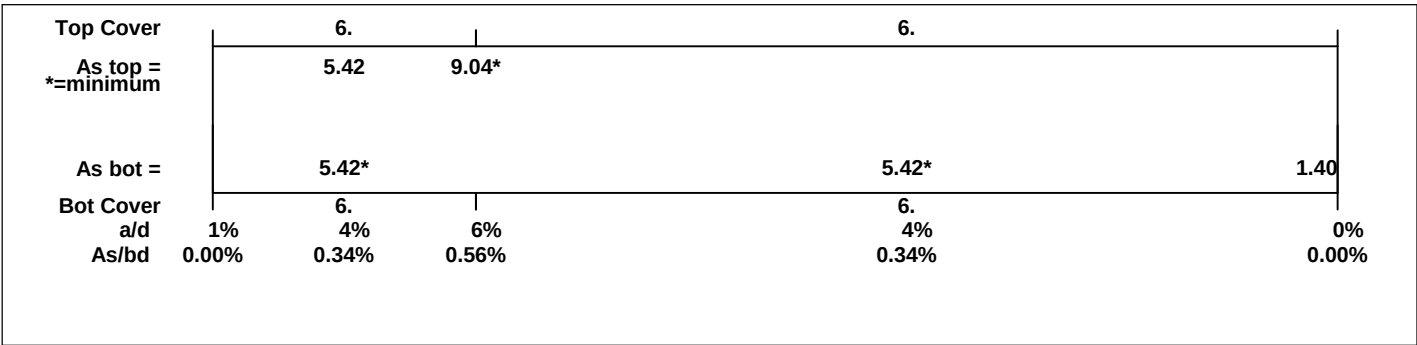
Reactions

Factored

DeadR	-96.17	294.37		96.42
LiveR	-9.	21.99		7.22
Max R	-94.35	316.36		103.63
Min R	-105.18	296.37		96.4
Service				
DeadR	-80.15	245.31		80.35
LiveR	-5.63	13.74		4.51
Max R	-79.01	259.05		84.86
Min R	-85.77	246.56		80.34

Reinforcement (cm 2)

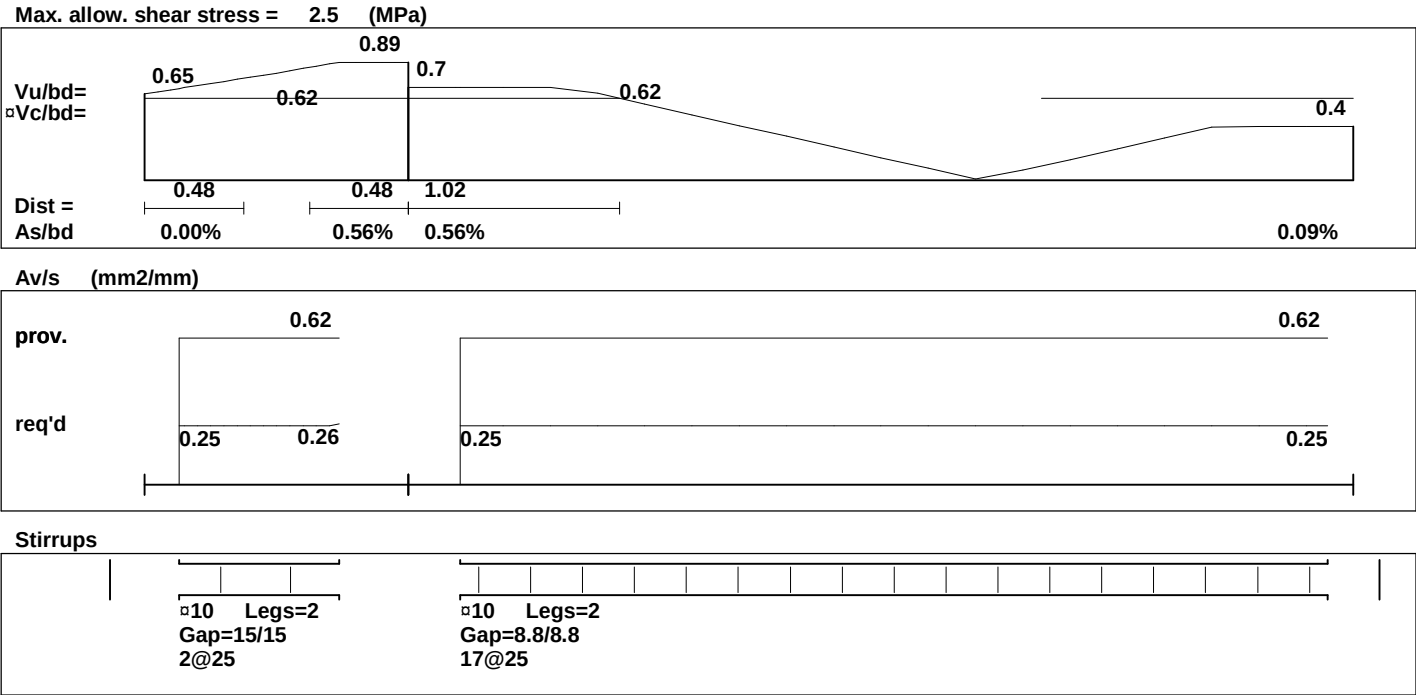
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Beam 37	Code: ACI318-02
Project: 1	Page: 303
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00104	0.00110
Mcr =	80.40	62.86
Mmax,d =	96.40	72.31
Mmax,d+l =	101.75	76.38
Mmax,sust =	96.40	72.31
Ie,d (m^4)=	0.00442	0.00489
Ie,d+l (m^4)=	0.00392	0.00432
Ie,sust (m^4)=	0.00442	0.00489
e/1+50r =	1.71	2.00
ai,d =	-0.050	1.098
ai,l =	-0.010	0.216
at,sust =	-0.085	2.196
ai,l =	L/*****	L/21037
(ai+at),t2-t1	L/*****	L/ 1886

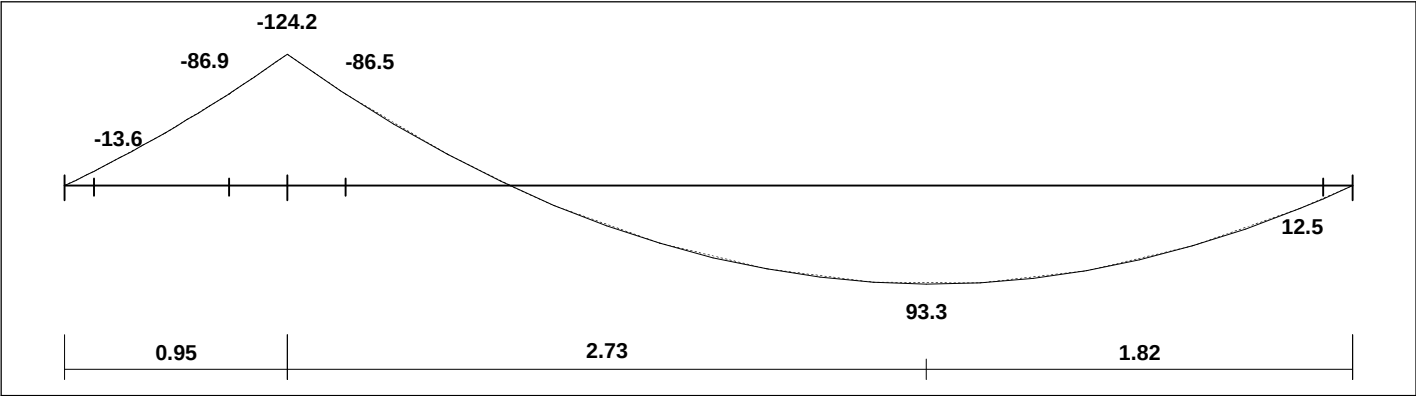
Beam 37	Code: ACI318-02
Project: 1	Page: 304
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-94.35	-105.18	0.	0.	0.25	0.00	100	-
48	-4.60	-5.11	-97.12	-107.75	0.25	0.	0.25	0.00	-	-
95	-9.22	-10.23	-99.82	-110.27	0.50	0.	0.25	0.01	-	-
125	-12.24	-13.57	-101.55	-111.87	0.66	0.	0.25	0.01	-	-
143	-14.08	-15.59	-102.59	-112.84	0.76	0.	0.25	0.01	-	-
190	-18.97	-20.95	-105.29	-115.35	1.03	0.	0.25	0.01	-	-
238	-24.09	-26.55	-108.05	-117.92	1.31	0.	0.25	0.02	-	-
285	-29.23	-32.15	-110.76	-120.44	1.59	0.	0.25	0.02	-	-
333	-34.61	-37.99	-113.52	-123.01	1.88	0.	0.25	0.02	-	-
380	-40.01	-43.83	-116.23	-125.53	2.18	0.	0.25	0.03	-	-
428	-45.66	-49.92	-118.99	-128.10	2.49	0.	0.25	0.03	-	-
475	-51.31	-56.00	-121.69	-130.70	2.80	0.	0.25	0.04	100	-
523	-57.22	-62.33	-124.46	-133.46	3.12	0.	0.25	0.04	-	-
571	-63.26	-68.79	-127.22	-136.22	3.45	0.	0.25	0.04	-	-
618	-69.30	-75.23	-129.92	-138.93	3.78	0.	0.25	0.05	-	-
666	-75.60	-81.93	-132.69	-141.69	4.13	0.	0.25	0.05	-	-
701	-80.28	-86.89	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
713	-81.90	-88.60	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
761	-88.47	-95.55	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
808	-95.03	-102.47	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
856	-101.85	-109.65	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
903	-108.67	-116.81	-134.70	-143.70	4.39	0.	0.26	0.06	-	-
951	-115.76	-124.32	-134.70	-143.70	4.39	0.	0.26	0.06	100	-
Span=2										
0	-115.76	-124.32	112.79	104.97	4.37	0.	0.25	0.06	100	-
228	-83.57	-89.73	112.79	104.97	4.37	0.	0.25	0.06	-	-
250	-80.61	-86.55	112.79	104.97	4.37	0.	0.25	0.06	-	-
455	-54.29	-58.27	112.79	104.97	2.91	0.	0.25	0.04	-	-
683	-27.66	-29.65	112.79	104.97	1.47	0.	0.25	0.02	-	-
910	-3.91	-4.13	105.89	98.55	0.20	0.	0.25	0.00	-	-
1138	18.57	17.17	92.76	86.33	0.	0.91	0.25	0.01	-	-
1365	38.14	35.39	79.70	74.18	0.	1.88	0.25	0.01	-	-
1593	54.82	50.91	66.58	61.97	0.	2.72	0.25	0.02	-	-
1820	68.44	63.59	53.51	49.81	0.	3.40	0.25	0.03	-	-
2048	79.14	73.56	40.39	37.60	0.	3.94	0.25	0.03	-	-
2275	86.82	80.71	27.32	25.44	0.	4.33	0.25	0.03	100	-
2503	91.55	85.12	14.20	13.23	0.	4.57	0.25	0.03	-	-
2730	93.29	86.75	1.14	1.07	0.	4.66	0.25	0.04	-	-
2958	92.05	85.60	-11.14	-12.00	0.	4.60	0.25	0.04	-	-
3185	87.84	81.69	-23.29	-25.07	0.	4.38	0.25	0.03	-	-
3413	80.63	74.99	-35.51	-38.19	0.	4.02	0.25	0.03	-	-
3640	70.48	65.55	-47.66	-51.26	0.	3.51	0.25	0.03	-	-
3868	57.29	53.29	-59.87	-64.38	0.	2.84	0.25	0.02	-	-
4095	41.20	38.32	-60.78	-65.36	0.	2.04	0.25	0.02	-	-
4323	22.04	20.50	-60.78	-65.36	0.	1.08	0.25	0.01	-	-
4425	12.50	11.63	-60.78	-65.36	0.	0.61	0.25	0.00	-	-
4550	0.00	0.00	-60.78	-65.36	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

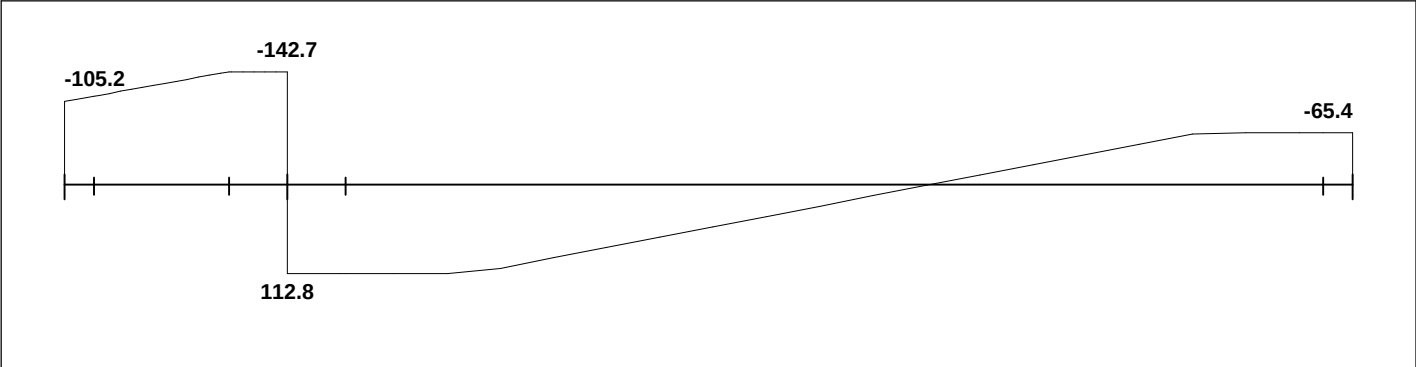
Moments: spans 1 to 2 Load pattern: xxXX



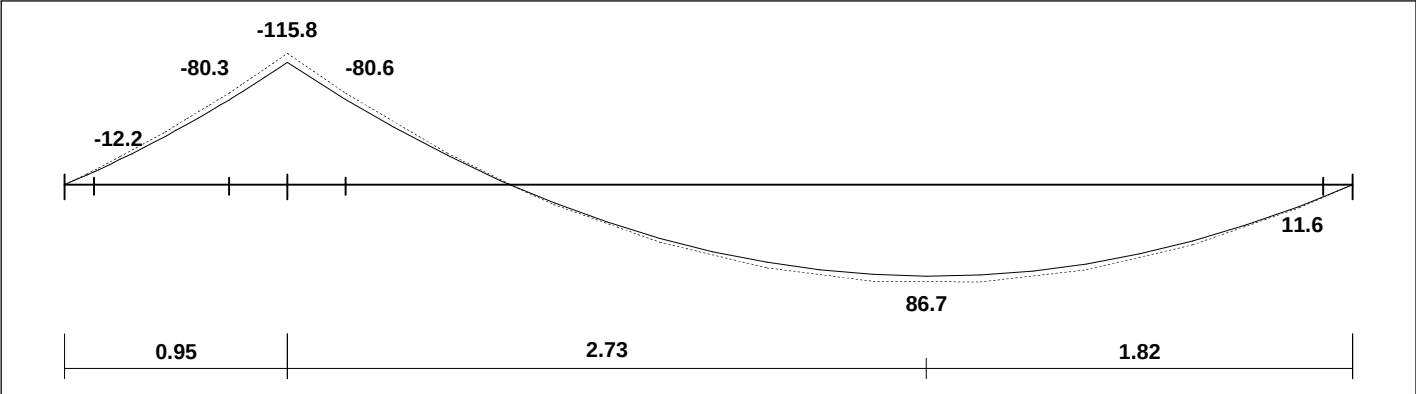
Beam 37	Code: ACI318-02
Project: 1	Page: 305
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

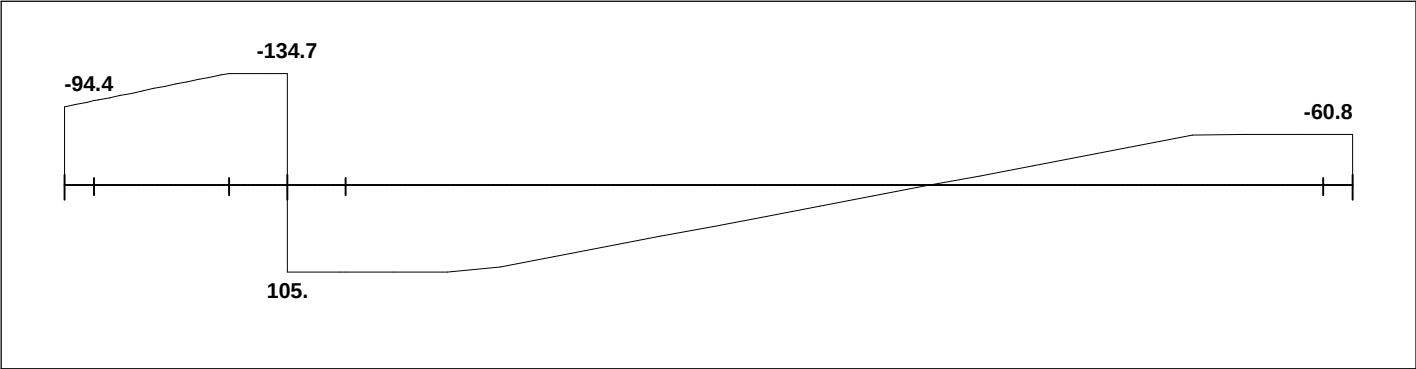
Shear



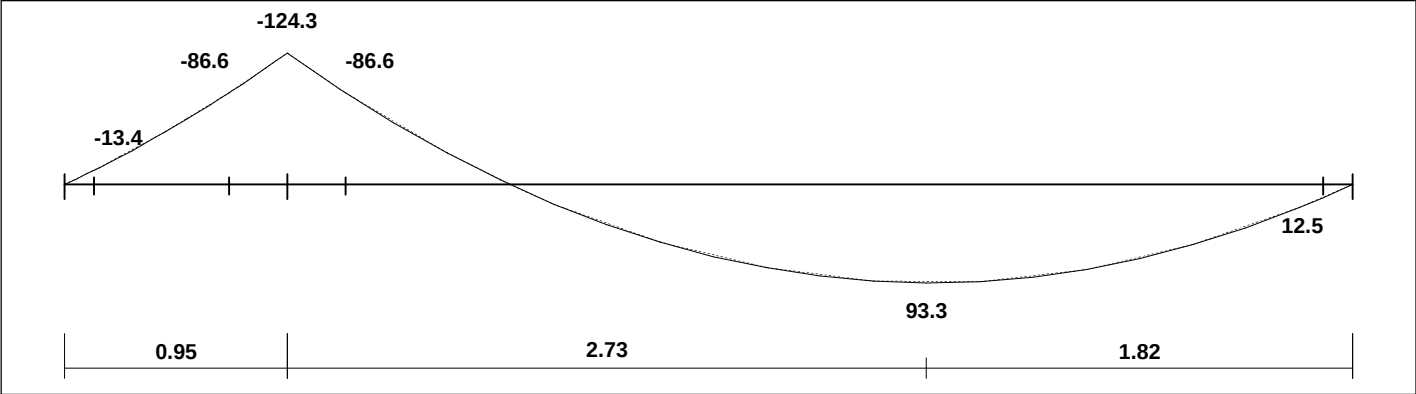
Moments: spans 1 to 2 Load pattern: XXxx



Shear



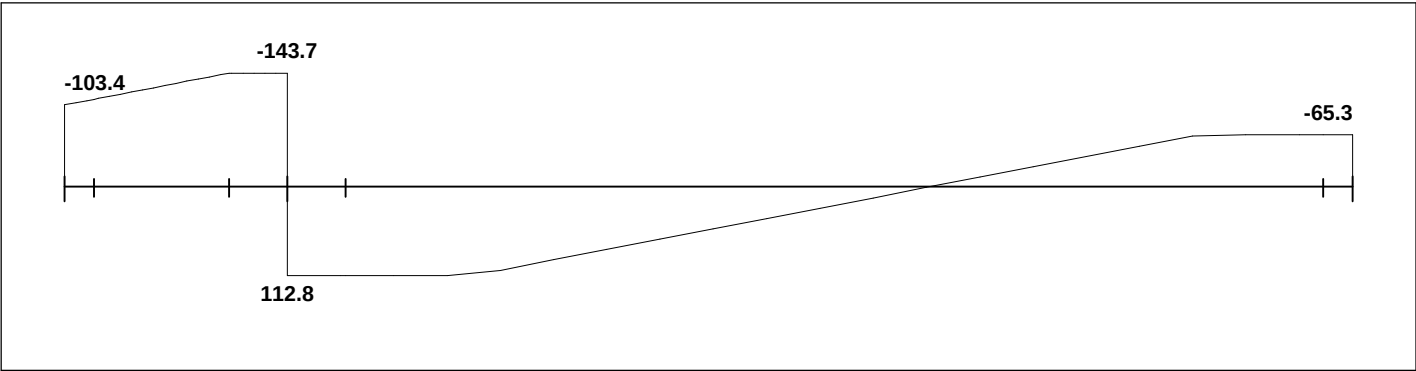
Moments: spans 1 to 2 Load pattern: XXXX



Beam 37	Code: ACI318-02
Project: 1	Page: 306
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

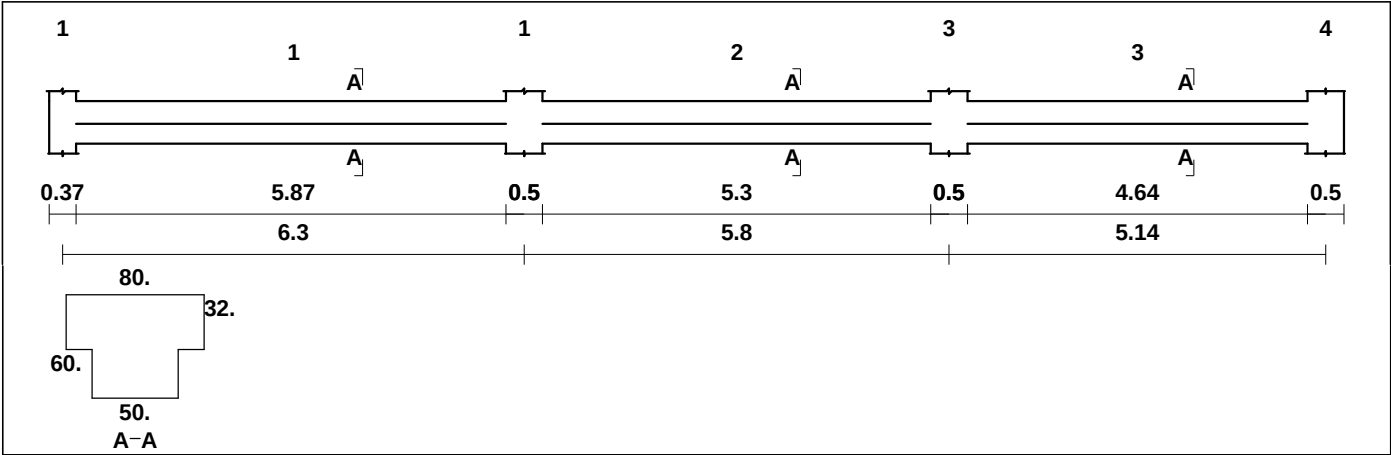
	1	2	3
Min M	0.0	-124.3	-124.3
Max M	0.0	-115.8	-115.8
MspMn	-13.6	-86.9	-86.6
MspMx	-12.2	-80.3	-80.6
M Max		93.3	
M Min		86.7	
Mmn=0 @	0.0	1.0	4.6
Mmx=0 @	0.0	1.0	4.6
mx -M @		0.9	
mx +M @		2.7	
V max	-94.4	-149.1	-96.4
V min	-105.2	-158.1	-103.6
DReac	-96.2	294.4	96.4
LReac	-9.0	22.0	7.2
Max R	-94.4	316.4	103.6
Min R	-105.2	296.4	96.4

Individual load cases - factored Units:kN,meter

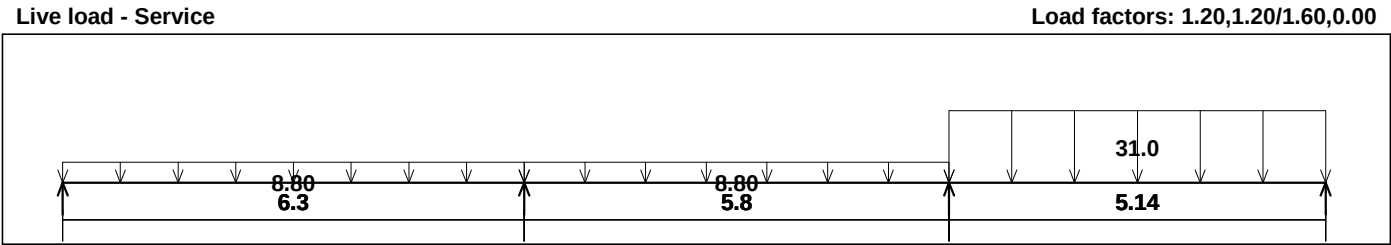
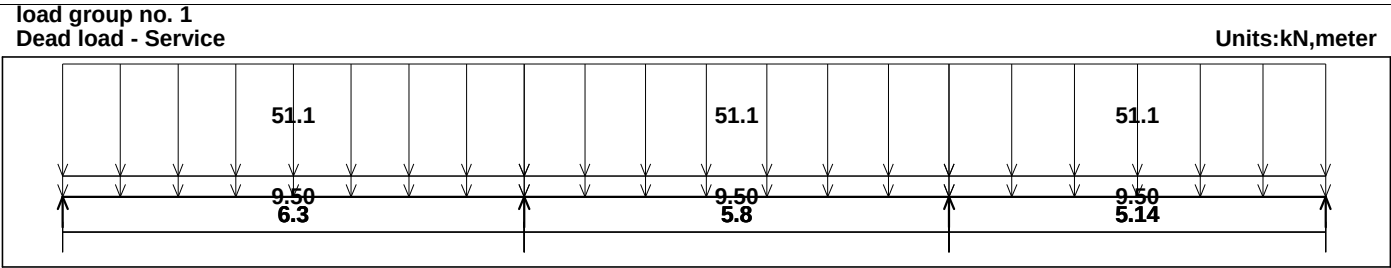
	1	2	3
Min M	0.0	-124.2	-124.2
M Max		93.3	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-105.2	-156.1	-103.6
Min M	0.0	-115.8	-115.8
M Max		86.7	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-94.4	-149.1	-96.4
Min M	0.0	-124.3	-124.3
M Max		93.3	
Mmx=0 @	0.0	1.0	4.6
mx +M		2.7	
V max	-103.4	-158.1	-103.6

Beam 38	Code: ACI318-02
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Designed by: bayan	Date: 4/ 9/14

Geometry Units: meter, cm

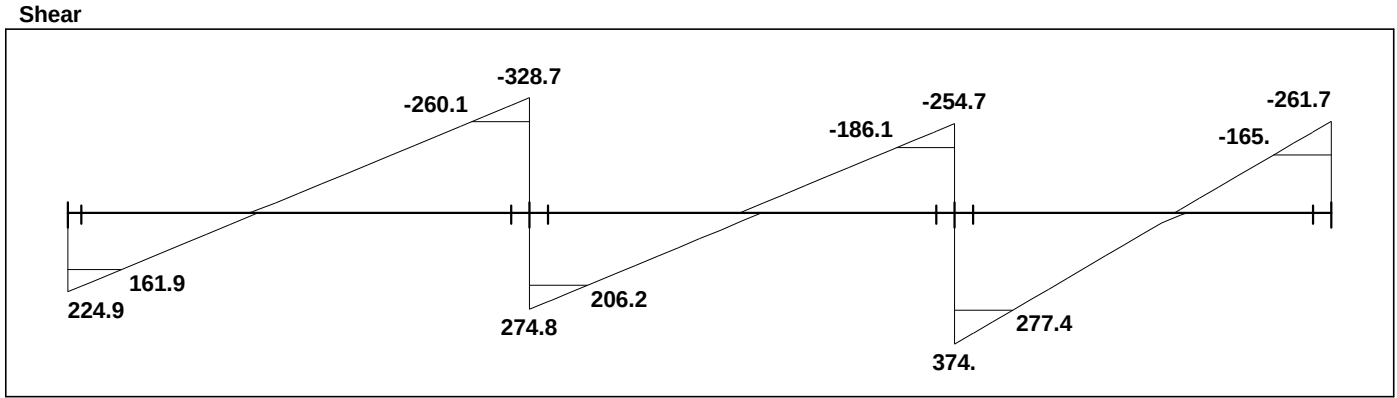


Loading



Loads (kN, meter)			
1	2	3	
Self. Wt.	9.50 Self. Wt.	9.50 Self. Wt.	9.50
Uni D 0.000 L 8.80	Uni D 51.10 L 8.80	Uni D 51.10 L 31.00	
Uni D 51.10 L 0.000			

Moments: spans 1 to 3

**Factored**

DeadR	183.57	500.64	421.37	148.2
LiveR	41.31	102.8	207.37	113.49
Max R	224.88	603.44	628.74	261.68
Min R	180.03	523.76	457.24	143.24
Service				
DeadR	152.97	417.2	351.14	123.5
LiveR	25.82	64.25	129.61	70.93
Max R	178.79	481.45	480.75	194.43
Min R	150.76	431.65	373.56	120.4

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Reinforcement (cm 2)

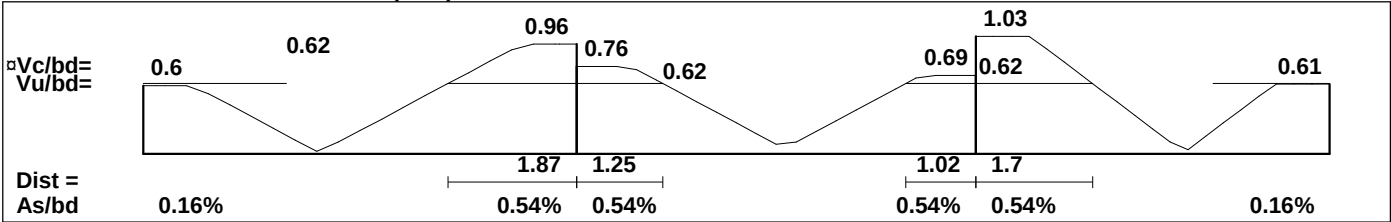
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.	6.
As top = *minimum	14.67	14.47*	
As bot =	4.44	14.82	9.04*
Bot Cover	6.	6.	6.
a/d	1%	7%	11%
As/bd	0.00%	0.55%	0.54%
		2%	10%
			7%
			1%
			0.00%

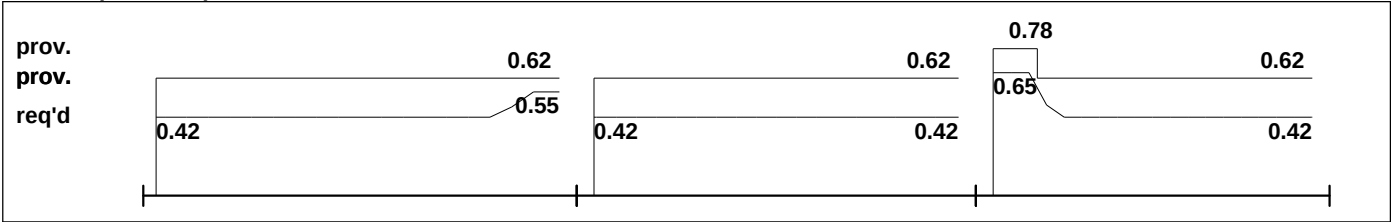
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. =5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

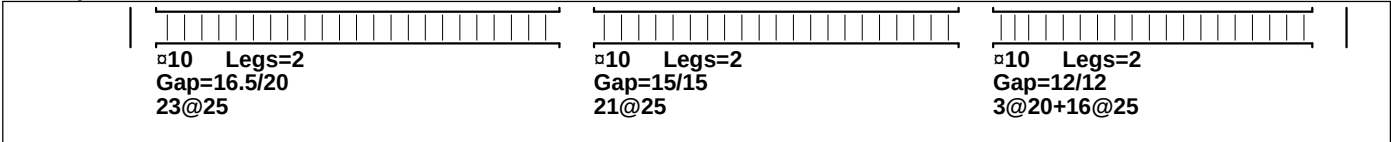
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 9.04	3 0.
As	14.82	0.	14.21
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.01124	0.01124	0.01124
Icr(m^4)=	0.00280	0.00183	0.00270
Mcr =	103.73	103.73	103.73
Mmax,d =	193.06	238.97	125.82
Mmax,d+l =	230.19	75.18	206.13
Mmax,sust =	125.49	155.33	81.78
Ie,d (m^4)=	0.00411	0.00260	0.00749
Ie,d+l (m^4)=	0.00357	0.01124	0.00379
Ie,sust (m^4)=	0.00757	0.00463	0.01124
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80
ai,d =	6.827	-0.710	1.598
ai,l =	2.815	1.116	3.888
at,sust =	2.891	-0.311	0.830
ai,l =	L/ 2238	L/ 5196	L/ 1322
(ai+at),t2-t1	L/ 778	L/10422	L/ 973

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	161.95	127.30	0.	0.	0.42	0.00	100	-
185	40.12	32.06	161.95	127.30	0.	1.98	0.42	0.01	-	-
315	66.53	53.10	161.95	127.30	0.	3.29	0.42	0.02	-	-
630	124.45	98.99	161.95	127.30	0.	6.20	0.42	0.03	-	-
945	173.75	137.66	142.85	111.31	0.	8.71	0.42	0.04	-	-
1260	214.44	169.11	115.51	88.40	0.	10.81	0.42	0.05	-	-
1575	246.52	193.35	88.16	65.49	0.	12.48	0.42	0.06	-	-
1890	269.98	210.37	60.82	42.58	0.	13.71	0.42	0.07	-	-
2205	284.84	220.17	33.47	19.67	0.	14.49	0.42	0.07	-	-
2520	291.07	222.76	6.13	-3.24	0.	14.82	0.42	0.07	-	-
2835	288.70	218.13	-21.21	-27.87	0.	14.70	0.42	0.07	-	-
3150	277.71	206.29	-45.93	-55.22	0.	14.12	0.42	0.07	100	-
3465	258.11	187.23	-68.83	-82.56	0.	13.09	0.42	0.06	-	-
3780	229.89	160.95	-91.74	-109.90	0.	11.61	0.42	0.06	-	-
4095	193.06	127.46	-114.65	-137.25	0.	9.71	0.42	0.05	-	-
4410	147.62	86.75	-137.56	-164.59	0.	7.38	0.42	0.04	-	-
4725	93.57	38.83	-160.47	-191.94	0.	4.64	0.42	0.02	-	-
5040	30.90	-16.31	-183.38	-219.28	0.80	1.52	0.42	0.01	-	-
5355	-40.38	-78.67	-206.28	-246.62	3.92	0.	0.47	0.03	-	-
5670	-120.27	-158.05	-217.56	-260.08	8.01	0.	0.55	0.06	-	-
5985	-206.32	-248.65	-217.56	-260.08	12.84	0.	0.55	0.10	-	-
6050	-222.86	-268.42	-217.56	-260.08	13.92	0.	0.55	0.11	-	-
6300	-289.34	-347.87	-217.56	-260.08	13.92	0.	0.55	0.11	100	-

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Detailed results - at 1/20 of span, support faces, etc.

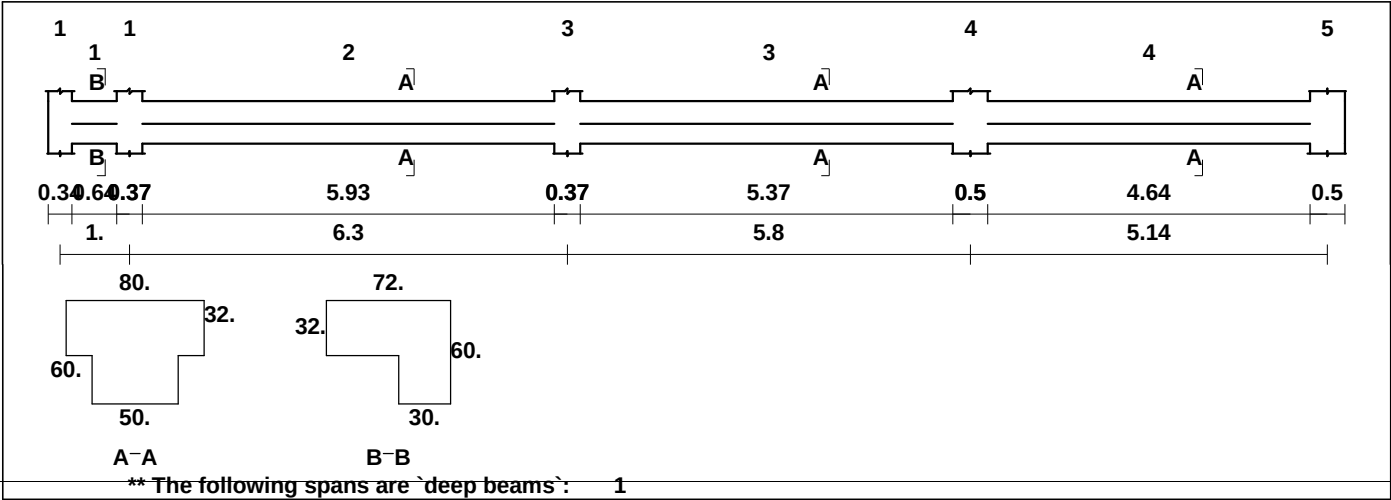
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-289.34	-347.87	206.21	159.49	14.67	0.	0.42	0.11	100	-
250	-229.86	-281.89	206.21	159.49	14.67	0.	0.42	0.11	-	-
290	-220.85	-271.83	206.21	159.49	14.11	0.	0.42	0.11	-	-
580	-159.66	-203.09	206.21	159.49	10.39	0.	0.42	0.08	-	-
870	-105.77	-144.68	199.27	153.68	7.31	0.	0.42	0.06	-	-
1160	-58.50	-103.17	174.10	132.59	5.17	0.	0.42	0.04	-	-
1450	-14.12	-67.78	148.92	111.50	3.37	0.	0.42	0.03	-	-
1740	22.96	-38.50	123.75	90.41	1.90	1.13	0.42	0.01	-	-
2030	52.74	-15.34	98.58	69.32	0.75	2.60	0.42	0.01	-	-
2320	75.22	1.70	73.40	47.37	0.	3.72	0.42	0.02	-	-
2610	90.40	12.63	48.23	22.19	0.	4.49	0.42	0.02	-	-
2900	98.28	17.44	23.06	-2.98	0.	4.88	0.42	0.02	100	-
3190	98.86	16.13	-2.12	-28.15	0.	4.91	0.42	0.02	-	-
3480	92.14	8.71	-27.29	-53.33	0.	4.57	0.42	0.02	-	-
3770	78.12	-4.83	-52.46	-78.50	0.23	3.87	0.42	0.02	-	-
4060	56.80	-24.48	-77.64	-103.67	1.20	2.80	0.42	0.01	-	-
4350	28.17	-50.25	-99.41	-128.85	2.49	1.38	0.42	0.02	-	-
4640	-7.28	-82.13	-120.50	-154.02	4.1	0.	0.42	0.03	-	-
4930	-48.05	-120.14	-141.59	-179.19	6.04	0.	0.42	0.05	-	-
5220	-96.11	-173.49	-147.40	-186.14	8.82	0.	0.42	0.07	-	-
5510	-151.48	-236.40	-147.40	-186.14	12.18	0.	0.42	0.09	-	-
5550	-159.69	-245.65	-147.40	-186.14	12.68	0.	0.42	0.10	-	-
5800	-214.14	-306.62	-147.40	-186.14	12.68	0.	0.42	0.10	100	-
Span=3										
0	-214.14	-306.62	277.39	171.11	11.13	0.	0.65	0.08	100	-
250	-159.28	-216.94	277.39	171.11	11.13	0.	0.65	0.08	-	-
257	-157.80	-214.53	277.39	171.11	11.00	0.	0.65	0.08	-	-
514	-98.33	-130.53	277.39	171.11	6.57	0.	0.65	0.05	-	-
771	-24.19	-68.29	277.39	171.11	3.39	0.	0.65	0.03	-	-
1028	41.87	-25.84	248.28	153.80	1.27	2.06	0.48	0.01	-	-
1285	99.85	11.80	216.84	135.11	0.	4.96	0.42	0.02	-	-
1542	149.75	44.64	185.40	116.42	0.	7.49	0.42	0.04	-	-
1799	191.57	72.67	153.97	97.73	0.	9.63	0.42	0.05	-	-
2056	225.31	95.90	122.53	79.04	0.	11.38	0.42	0.05	-	-
2313	250.97	114.33	91.09	60.35	0.	12.71	0.42	0.06	-	-
2570	268.55	127.95	59.65	41.66	0.	13.63	0.42	0.07	100	-
2827	278.05	136.77	28.22	21.25	0.	14.13	0.42	0.07	-	-
3084	279.48	140.79	6.28	-10.18	0.	14.21	0.42	0.07	-	-
3341	272.82	140.00	-12.41	-41.62	0.	13.86	0.42	0.07	-	-
3598	258.08	134.41	-31.10	-73.06	0.	13.09	0.42	0.06	-	-
3855	235.27	124.02	-49.79	-104.49	0.	11.89	0.42	0.06	-	-
4112	204.37	108.82	-68.48	-135.93	0.	10.29	0.42	0.05	-	-
4369	165.40	88.82	-85.78	-165.05	0.	8.29	0.42	0.04	-	-
4626	118.35	64.02	-85.78	-165.05	0.	5.89	0.42	0.03	-	-
4883	63.21	34.41	-85.78	-165.05	0.	3.12	0.42	0.01	-	-
4890	61.60	33.54	-85.78	-165.05	0.	3.04	0.42	0.01	-	-
5140	0.00	0.00	-85.78	-165.05	0.	0.	0.42	0.00	100	-

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Designed by: bayan	Date: 4/ 9/14

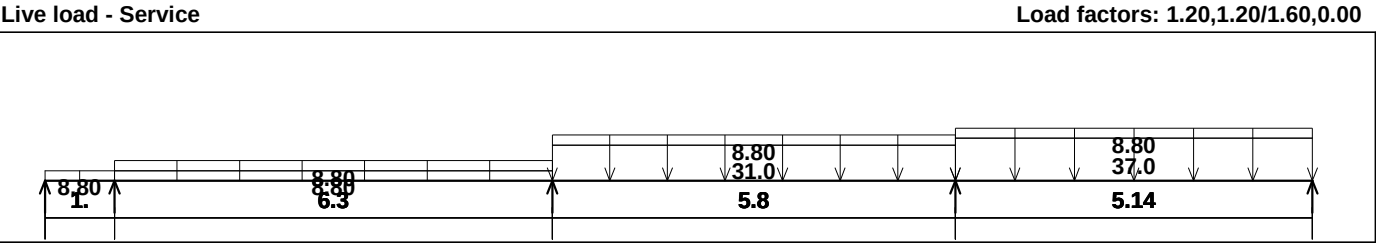
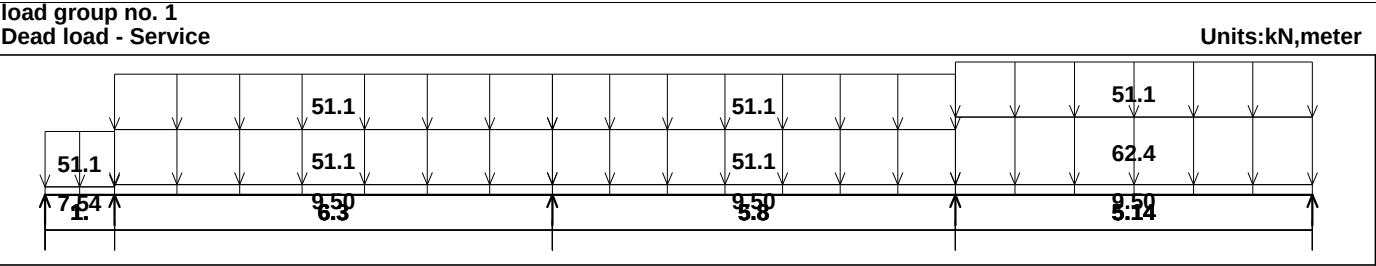
Moment / Shear		Envelope (Factored)		Units:kN,meter	
1	1	1	2	3	4
	1		2	3	
Min M	0.0	-347.9	-306.6		0.0
Max M	0.0	-289.3	-214.1		0.0
MspMn		-268.4	-245.7		33.5
MspMx		-222.9	-159.7		61.6
M Max			98.9	279.5	
M Min			17.4	140.8	
Mmn=0 @	0.0	1.4	2.3	2.1	5.1
Mmx=0 @	0.0	1.1	1.6	1.2	5.1
mx -M @			1.6	0.9	
mx +M @			3.2	3.1	
V max		-275.0	-204.9		-143.2
V min		-328.7	-254.7		-261.7
DReac		500.6	421.4		148.2
LReac		102.8	207.4		113.5
Max R		603.4	628.7		261.7
Min R		523.8	457.2		143.2

Beam 38	Code: ACI318-02
Project: BAEMS	Page: 544
Designed by: bayan	Date: 4/ 8/14

Geometry Units: meter, cm



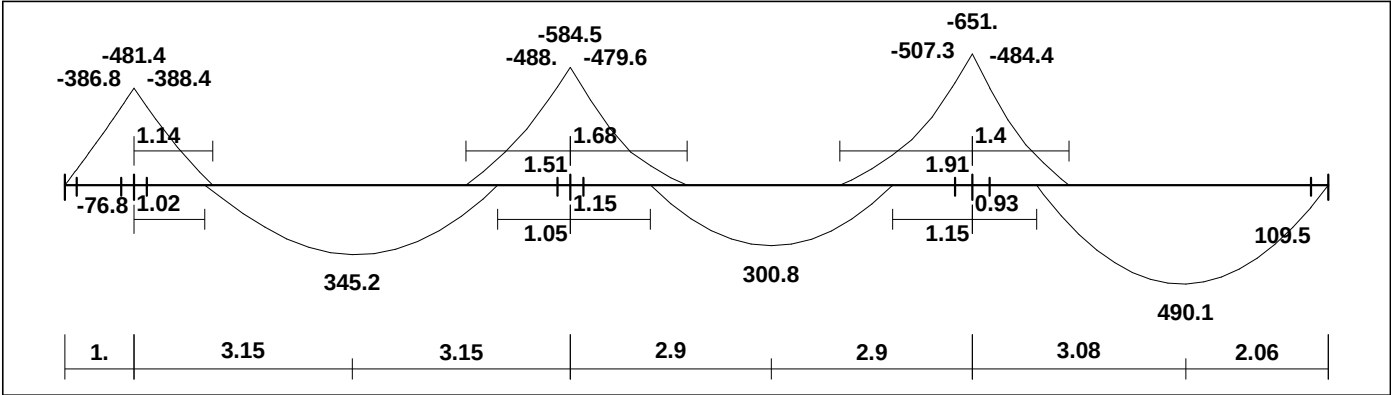
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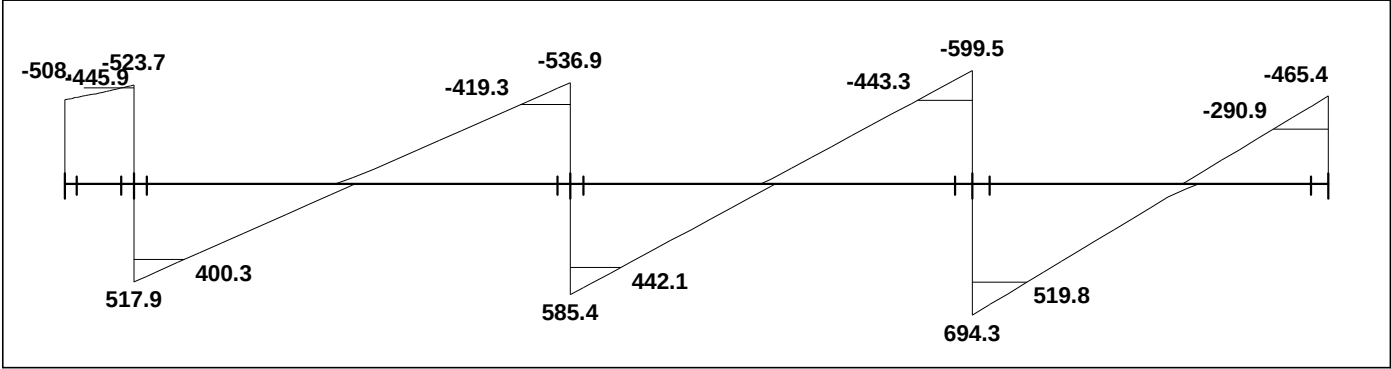
Loads (kN, meter)											
1			2			3			4		
Self. Wt.	7.55	Self. Wt.	9.50	Self. Wt.	9.50	Self. Wt.	9.50	Self. Wt.	9.50	Self. Wt.	9.50
Uni D	51.10	L	8.80	Uni D	51.10	L	8.80	Uni D	51.10	L	37.00
			Uni D	51.10	L	8.80	Uni D	51.10	L	8.80	

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



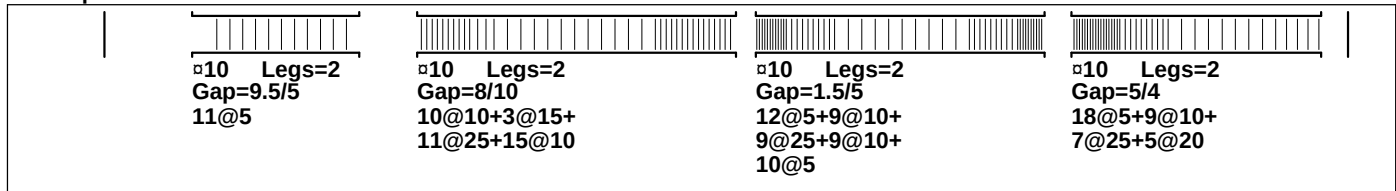
Shear



Reactions

Factored

DeadR	-339.28	824.82		818.45		848.76		298.26	
LiveR	-106.62	216.71		303.84		445.05		167.19	
Max R	-286.08	1041.53		1122.28		1293.81		465.45	
Min R	-445.9	760.34		877.66		1040.91		276.5	
Service									
DeadR	-282.74	687.35		682.04		707.3		248.55	
LiveR	-66.63	135.44		189.9		278.16		104.49	
Max R	-249.48	822.79		871.94		985.46		353.04	
Min R	-349.37	647.05		719.05		827.4		234.95	



Beam 38	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 5.42	2 0.	3 0.	4 0.
As	12.35	17.70	15.34	25.65
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00806	0.01124	0.01124	0.01124
Icr(m^4)=	0.00205	0.00324	0.00288	0.00438
Mcr =	103.32	103.73	103.73	103.73
Mmax,d =	312.06	223.55	121.45	251.04
Mmax,d+l =	378.69	271.63	218.36	369.07
Mmax,sust =	312.06	223.55	121.45	251.04
Ie,d (m^4)=	0.00227	0.00404	0.00809	0.00487
Ie,d+l (m^4)=	0.00218	0.00369	0.00377	0.00454
Ie,sust (m^4)=	0.00227	0.00404	0.00809	0.00487
e/1+50r =	1.71	2.00	2.00	2.00
ai,d =	-0.362	6.788	0.925	4.838
ai,l =	-0.100	2.562	4.318	3.201
at,sust =	-0.620	13.575	1.851	9.677
ai,l =	L/*****	L/ 2459	L/ 1343	L/ 1605
(ai+at),t2-t1	L/ 1390	L/ 390	L/ 940	L/ 399

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-286.08	-445.90	0.	0.	2.03	0.00	100	-
50	-14.41	-22.38	-290.30	-449.42	1.10	0.	2.06	0.01	-	-
100	-29.03	-44.94	-294.53	-452.94	2.24	0.	2.08	0.03	-	-
150	-43.86	-67.68	-298.75	-456.45	3.39	0.	2.10	0.04	-	-
170	-49.85	-76.82	-300.44	-457.86	3.86	0.	2.10	0.05	-	-
200	-58.91	-90.59	-302.97	-459.97	4.58	0.	2.12	0.06	-	-
250	-74.16	-113.67	-307.19	-463.49	5.79	0.	2.14	0.07	-	-
300	-89.62	-136.94	-311.42	-467.01	7.04	0.	2.16	0.09	-	-
350	-105.30	-160.37	-315.64	-470.53	8.32	0.	2.18	0.11	-	-
400	-121.19	-183.99	-319.86	-474.05	9.63	0.	2.20	0.12	-	-
450	-137.29	-207.78	-324.08	-477.57	10.97	0.	2.22	0.14	-	-
500	-153.60	-231.75	-328.31	-481.45	12.35	0.	2.24	0.16	100	-
550	-170.12	-255.89	-332.53	-485.67	13.78	0.	2.27	0.18	-	-
600	-186.85	-280.21	-336.75	-489.89	15.24	0.	2.29	0.19	-	-
650	-203.79	-304.70	-340.98	-494.11	16.75	0.	2.32	0.21	-	-
700	-220.95	-329.37	-345.20	-498.34	18.31	0.	2.34	0.23	-	-
750	-238.31	-354.22	-349.42	-502.56	19.92	0.	2.37	0.25	-	-
800	-255.89	-379.24	-353.64	-506.78	21.59	0.	2.39	0.27	-	-
815	-261.20	-386.78	-354.91	-508.05	22.11	0.	2.40	0.28	-	-
850	-273.68	-404.44	-354.91	-508.05	22.11	0.	2.40	0.28	-	-
900	-291.68	-429.81	-354.91	-508.05	22.11	0.	2.40	0.28	-	-
950	-309.89	-455.37	-354.91	-508.05	22.11	0.	2.40	0.28	-	-
1000	-328.31	-481.45	-354.91	-508.05	22.11	0.	2.40	0.28	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-328.31	-481.45	400.26	292.63	20.72	0.	1.38	0.16	100	-
185	-258.49	-388.42	400.26	292.63	20.72	0.	1.38	0.16	-	-
315	-212.17	-326.37	400.26	292.63	17.16	0.	1.38	0.13	-	-
630	-109.33	-187.39	400.26	292.63	9.55	0.	1.38	0.07	-	-
945	-19.79	-64.50	364.57	263.14	3.20	0.	1.17	0.02	-	-
1260	61.23	42.30	313.48	220.91	0.	3.03	0.86	0.01	-	-
1575	141.59	117.51	262.38	178.69	0.	7.07	0.56	0.03	-	-
1890	207.82	169.02	211.29	136.46	0.	10.47	0.42	0.05	-	-
2205	266.31	205.36	160.19	94.24	0.	13.52	0.42	0.06	-	-
2520	308.70	228.39	109.10	52.02	0.	15.76	0.42	0.08	-	-
2835	334.99	238.13	58.01	9.79	0.	17.16	0.42	0.08	-	-
3150	345.19	234.56	6.91	-32.43	0.	17.70	0.42	0.08	100	-
3465	339.30	217.70	-44.18	-77.03	0.	17.39	0.42	0.08	-	-
3780	317.31	187.53	-95.28	-128.12	0.	16.21	0.42	0.08	-	-
4095	279.23	144.06	-146.37	-179.22	0.	14.20	0.42	0.07	-	-
4410	225.05	87.29	-193.98	-230.31	0.	11.36	0.42	0.05	-	-
4725	154.78	17.22	-236.21	-281.41	0.	7.74	0.68	0.04	-	-
5040	68.42	-66.15	-278.43	-332.50	3.29	3.38	0.98	0.03	-	-
5355	-34.02	-162.82	-320.66	-383.59	8.26	0.	1.28	0.06	-	-
5670	-152.55	-278.46	-350.15	-419.28	14.48	0.	1.49	0.11	-	-
5985	-287.18	-423.43	-350.15	-419.28	22.78	0.	1.49	0.17	-	-
6115	-347.43	-487.96	-350.15	-419.28	26.69	0.	1.49	0.20	-	-
6300	-437.90	-584.50	-350.15	-419.28	26.69	0.	1.49	0.20	100	-
Span=3										
0	-437.90	-584.50	442.06	276.45	26.17	0.	1.62	0.20	100	-
185	-371.08	-479.59	442.06	276.45	26.17	0.	1.62	0.20	-	-
290	-335.19	-423.05	442.06	276.45	22.76	0.	1.62	0.17	-	-
580	-215.60	-278.22	442.06	276.45	14.47	0.	1.62	0.11	-	-
870	-98.45	-163.66	413.39	257.01	8.30	0.	1.45	0.06	-	-
1160	2.08	-94.75	356.04	218.14	4.74	0.10	1.12	0.04	-	-
1450	91.95	-37.12	298.70	179.27	1.83	4.56	0.78	0.02	-	-
1740	166.97	9.23	241.36	140.39	0.	8.37	0.44	0.04	-	-
2030	225.37	44.32	184.02	101.52	0.	11.38	0.42	0.05	-	-
2320	267.15	68.13	126.68	62.65	0.	13.56	0.42	0.06	-	-
2610	292.29	80.67	69.34	23.77	0.	14.89	0.42	0.07	-	-
2900	300.80	81.93	12.00	-26.08	0.	15.34	0.42	0.07	100	-
3190	292.69	71.92	-45.34	-83.42	0.	14.91	0.42	0.07	-	-
3480	267.95	50.64	-92.82	-140.76	0.	13.60	0.42	0.06	-	-
3770	226.57	18.08	-131.70	-198.10	0.	11.44	0.42	0.05	-	-
4060	168.57	-25.74	-170.57	-255.44	1.27	8.45	0.52	0.04	-	-
4350	93.94	-80.85	-209.44	-312.78	4.03	4.66	0.86	0.03	-	-
4640	3.31	-147.22	-248.32	-370.12	7.44	0.16	1.20	0.06	-	-
4930	-101.29	-224.88	-287.19	-427.46	11.55	0.	1.53	0.09	-	-
5220	-222.53	-336.60	-297.91	-443.28	17.73	0.	1.63	0.14	-	-
5510	-360.39	-485.50	-297.91	-443.28	26.54	0.	1.63	0.20	-	-
5550	-380.71	-507.35	-297.91	-443.28	27.89	0.	1.63	0.21	-	-
5800	-514.88	-651.04	-297.91	-443.28	27.89	0.	1.63	0.21	100	-

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Detailed results - at 1/20 of span, support faces, etc.

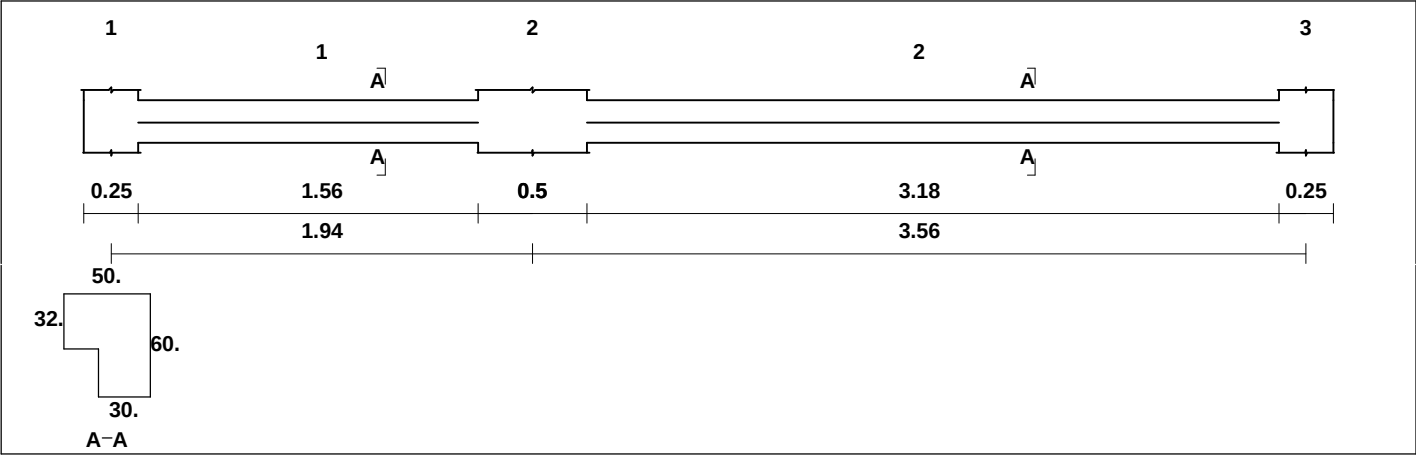
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-514.88	-651.04	519.84	362.91	26.47	0.	2.08	0.20	100	-
250	-364.88	-484.36	519.84	362.91	26.47	0.	2.08	0.20	-	-
257	-360.58	-479.89	519.84	362.91	26.19	0.	2.08	0.20	-	-
514	-210.30	-323.33	519.84	362.91	16.98	0.	2.08	0.13	-	-
771	-74.61	-200.73	519.84	362.91	10.26	0.	2.08	0.08	-	-
1028	46.49	-110.93	467.27	327.78	5.56	2.29	1.77	0.04	-	-
1285	153.01	-30.88	410.50	289.84	1.52	7.65	1.44	0.04	-	-
1542	244.93	39.42	353.73	251.91	0.	12.40	1.10	0.06	-	-
1799	322.27	99.98	296.96	213.97	0.	16.48	0.77	0.08	-	-
2056	385.01	150.78	240.20	176.04	0.	19.85	0.43	0.09	-	-
2313	433.17	191.84	183.43	138.11	0.	22.49	0.42	0.11	-	-
2570	466.74	223.14	126.66	100.17	0.	24.34	0.42	0.12	100	-
2827	485.71	244.70	69.89	45.46	0.	25.40	0.42	0.12	-	-
3084	490.10	256.51	26.98	-11.31	0.	25.65	0.42	0.12	-	-
3341	479.90	258.57	-10.96	-68.07	0.	25.08	0.42	0.12	-	-
3598	455.11	250.88	-48.89	-124.84	0.	23.70	0.42	0.11	-	-
3855	415.73	233.44	-86.83	-181.61	0.	21.53	0.42	0.10	-	-
4112	361.76	206.25	-124.76	-238.38	0.	18.60	0.42	0.09	-	-
4369	293.21	169.31	-159.89	-290.95	0.	14.93	0.73	0.07	-	-
4626	210.06	122.62	-159.89	-290.95	0.	10.58	0.73	0.05	-	-
4883	112.32	66.19	-159.89	-290.95	0.	5.59	0.73	0.03	-	-
4890	109.46	64.51	-159.89	-290.95	0.	5.44	0.73	0.03	-	-
5140	0.00	0.00	-159.89	-290.95	0.	0.	0.73	0.00	100	-

Moment / Shear Envelope (Factored) Units:kN,meter										
	1	1	1	2	3	3	4	4	5	
	1		2		3		4		5	
Min M	0.0	-481.4		-584.5		-651.0			0.0	
Max M	0.0	-328.3		-437.9		-514.9			0.0	
MspMn	-76.8	-386.8		-488.0		-507.3			64.5	
MspMx	-49.9	-261.2		-347.4		-380.7			109.5	
M Max			345.2		300.8		490.1			
M Min			238.1		81.9		258.6			
Mmn=0 @	0.0	1.0	1.1	1.5	1.7	1.9	1.4		5.1	
Mmx=0 @	0.0	1.0	1.0	1.0	1.2	1.2	0.9		5.1	
mx -M @			1.0		1.2		0.9			
mx +M @			3.2		2.9		3.1			
V max		-370.5		-447.3		-403.8			-276.5	
V min		-523.7		-536.9		-599.5			-465.4	
DReac		824.8		818.4		848.8			298.3	
LReac		216.7		303.8		445.1			167.2	
Max R		1041.5		1122.3		1293.8			465.4	
Min R		760.3		877.7		1040.9			276.5	

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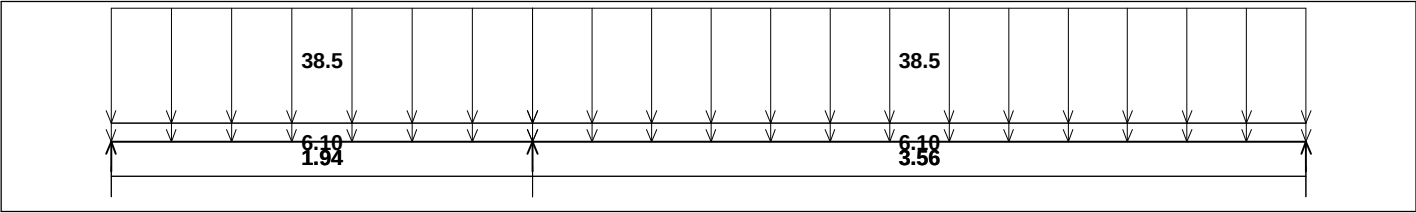
Geometry

Units:meter,cm



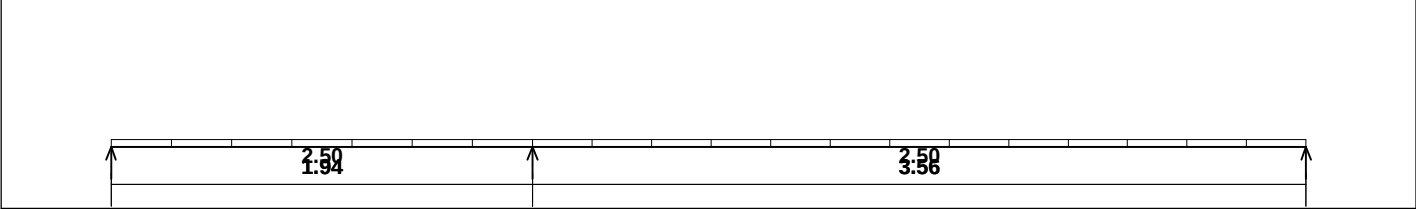
Loading

load group no. 1
Dead load - Service



Live load - Service

Load factors: 1.20,1.20/1.60,0.00

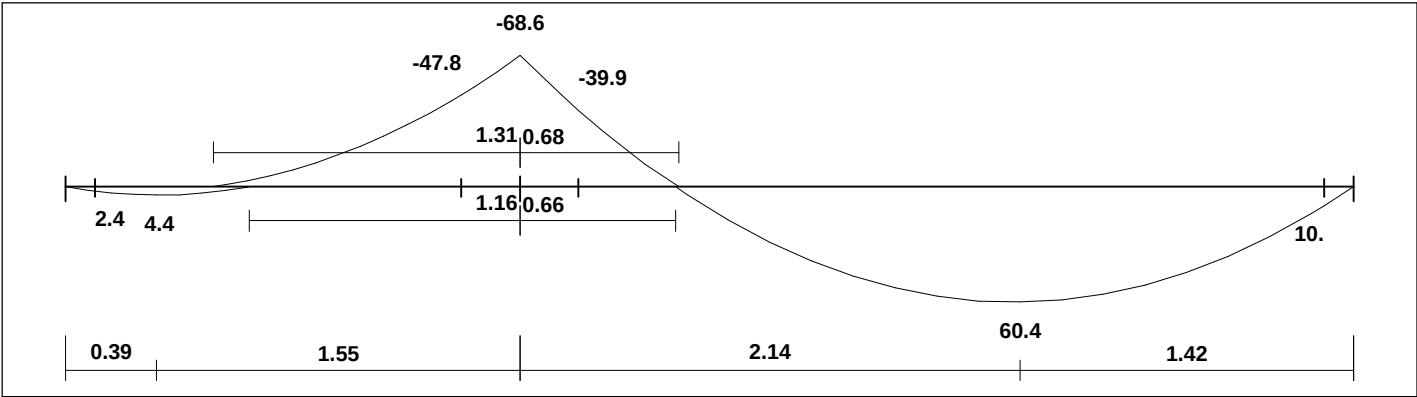


Loads (kN,meter)					
1			2		
Self.Wt.	6.10	Self.Wt.	6.10		
Uni D	38.53	L	2.50	Uni D	38.53
				L	2.50

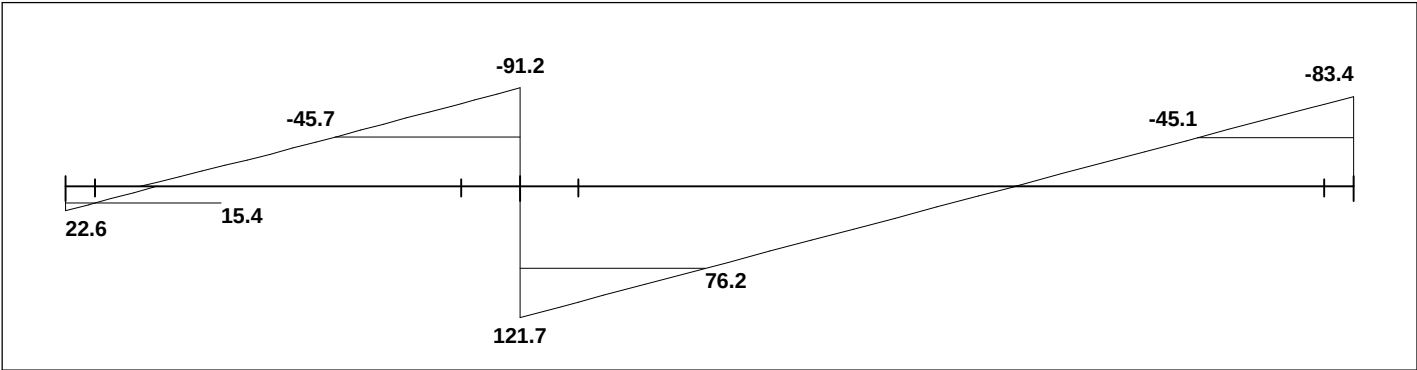
Beam 42	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	19.06	198.09	77.41
LiveR	3.54	14.79	5.97
Max R	22.6	212.89	83.38
Min R	16.95	202.5	77.22
Service			
DeadR	15.88	165.08	64.51
LiveR	2.21	9.25	3.73
Max R	18.1	174.32	68.24
Min R	14.56	167.83	64.39

Reinforcement (cm 2)

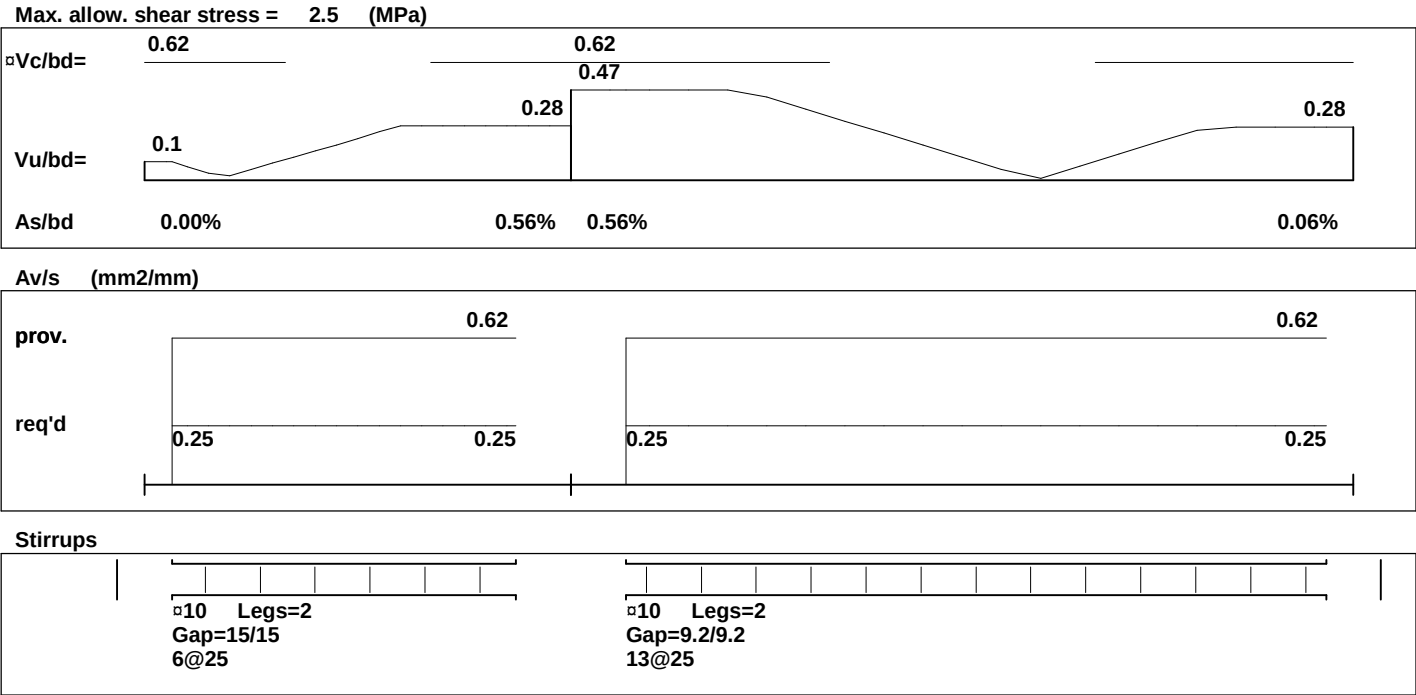
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.
As top = *=minimum	0.43	9.04*
As bot =	5.42*	5.42*
Bot Cover	6.	6.
a/d	0%	0%
As/bd	0.00%	0.34%

Beam 42	Code: ACI318-02
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Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	0.43	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00011	0.00110
Mcr =	80.40	62.86
Mmax,d =	53.17	46.61
Mmax,d+l =	55.73	49.38
Mmax,sust =	53.17	46.61
Ie,d (m^4)=	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687
Ie,sust (m^4)=	0.00687	0.00687
e/1+50r =	1.71	2.00
ai,d =	-0.033	0.321
ai,l =	-0.004	0.020
at,sust =	-0.056	0.641
ai,l =	L/*****	L/*****
(ai+at),t2-t1	L/*****	L/ 5385

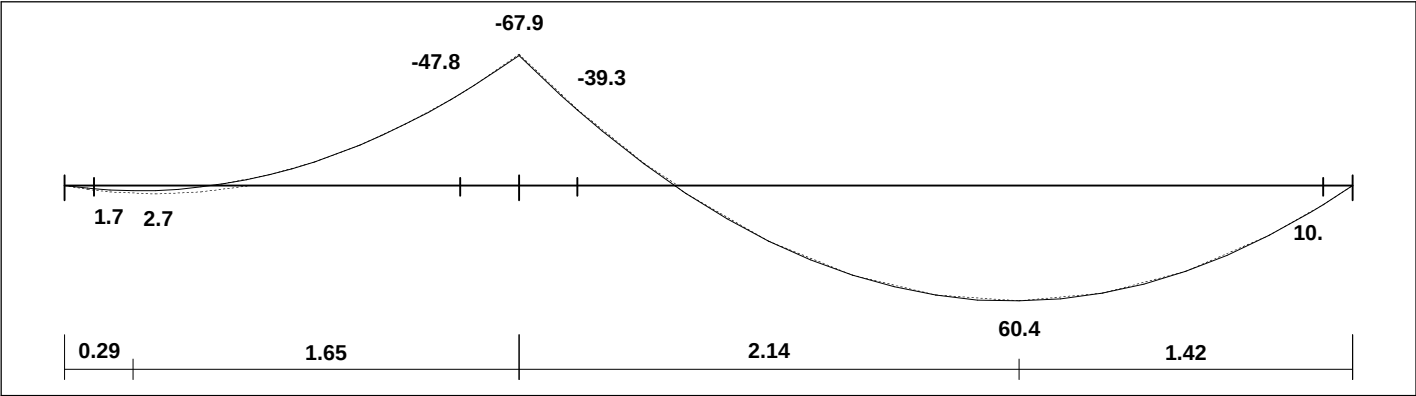
Beam 42	Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	15.40	10.25	0.	0.	0.25	0.00	100	-
97	1.92	1.39	15.40	10.25	0.	0.09	0.25	0.00	-	-
125	2.38	1.70	15.40	10.25	0.	0.11	0.25	0.00	-	-
194	3.30	2.28	11.43	6.56	0.	0.16	0.25	0.00	-	-
291	4.14	2.66	5.85	1.36	0.	0.20	0.25	0.00	-	-
388	4.44	2.54	0.27	-3.83	0.	0.21	0.25	0.00	-	-
485	4.19	1.92	-5.32	-9.03	0.	0.20	0.25	0.00	-	-
582	3.40	0.79	-10.90	-14.22	0.	0.16	0.25	0.00	-	-
679	2.08	-0.84	-16.48	-19.42	0.04	0.10	0.25	0.00	-	-
776	0.21	-2.97	-22.06	-24.61	0.14	0.01	0.25	0.00	-	-
873	-2.20	-5.61	-27.65	-29.81	0.27	0.	0.25	0.00	-	-
970	-5.16	-8.76	-33.23	-35.35	0.43	0.	0.25	0.01	100	-
1067	-8.65	-12.40	-38.81	-40.93	0.61	0.	0.25	0.01	-	-
1164	-12.69	-16.56	-43.59	-45.71	0.81	0.	0.25	0.01	-	-
1261	-17.26	-21.21	-43.59	-45.71	1.04	0.	0.25	0.01	-	-
1358	-22.38	-26.37	-43.59	-45.71	1.30	0.	0.25	0.02	-	-
1455	-28.04	-32.03	-43.59	-45.71	1.59	0.	0.25	0.02	-	-
1552	-34.24	-38.20	-43.59	-45.71	1.9	0.	0.25	0.02	-	-
1649	-40.99	-44.87	-43.59	-45.71	2.23	0.	0.25	0.03	-	-
1690	-44.00	-47.84	-43.59	-45.71	2.38	0.	0.25	0.03	-	-
1746	-48.27	-52.04	-43.59	-45.71	2.38	0.	0.25	0.03	-	-
1843	-56.10	-60.00	-43.59	-45.71	2.38	0.	0.25	0.03	-	-
1940	-64.47	-68.57	-43.59	-45.71	2.38	0.	0.25	0.03	100	-
Span=2										
0	-64.47	-68.57	76.24	71.13	1.98	0.	0.25	0.03	100	-
178	-45.12	-47.82	76.24	71.13	1.98	0.	0.25	0.03	-	-
250	-37.78	-39.94	76.24	71.13	1.98	0.	0.25	0.03	-	-
356	-27.48	-28.89	76.24	71.13	1.43	0.	0.25	0.02	-	-
534	-11.22	-11.78	76.24	71.13	0.58	0.	0.25	0.01	-	-
712	4.03	2.73	76.24	71.13	0.	0.19	0.25	0.00	-	-
890	17.46	15.28	70.49	65.77	0.	0.86	0.25	0.01	-	-
1068	29.06	26.14	60.24	56.24	0.	1.43	0.25	0.01	-	-
1246	38.84	35.30	50.00	46.71	0.	1.92	0.25	0.01	-	-
1424	46.79	42.77	39.75	37.17	0.	2.31	0.25	0.02	-	-
1602	52.92	48.54	29.51	27.64	0.	2.62	0.25	0.02	-	-
1780	57.23	52.61	19.26	18.11	0.	2.84	0.25	0.02	100	-
1958	59.71	54.98	9.02	8.58	0.	2.96	0.25	0.02	-	-
2136	60.37	55.66	-0.96	-1.42	0.	3.00	0.25	0.02	-	-
2314	59.21	54.64	-10.49	-11.66	0.	2.94	0.25	0.02	-	-
2492	56.22	51.93	-20.02	-21.91	0.	2.79	0.25	0.02	-	-
2670	51.41	47.52	-29.56	-32.15	0.	2.55	0.25	0.02	-	-
2848	44.77	41.41	-39.09	-42.40	0.	2.21	0.25	0.02	-	-
3026	36.32	33.60	-41.61	-45.10	0.	1.79	0.25	0.01	-	-
3204	26.03	24.10	-41.61	-45.10	0.	1.28	0.25	0.01	-	-
3382	13.93	12.90	-41.61	-45.10	0.	0.68	0.25	0.01	-	-
3435	9.97	9.23	-41.61	-45.10	0.	0.49	0.25	0.00	-	-
3560	0.00	0.00	-41.61	-45.10	0.	0.	0.25	0.00	100	-

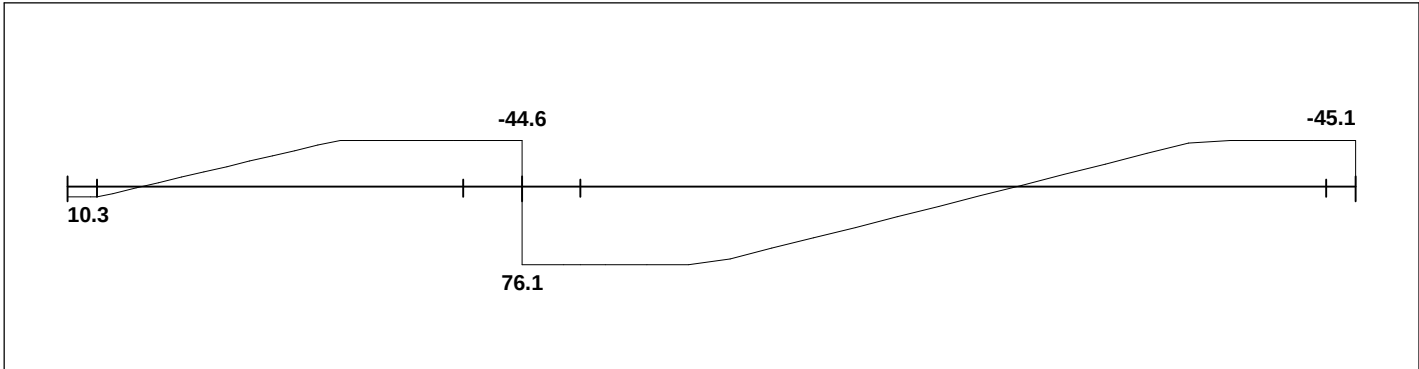
Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2 Load pattern: xxXX

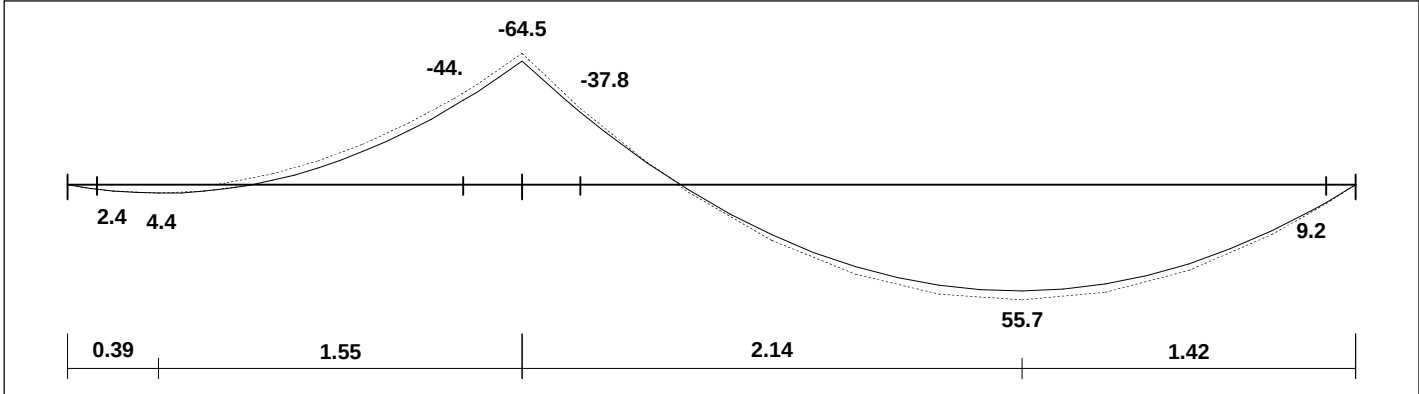


Moment/Shear Envelope (Factored) Units:kN,meter

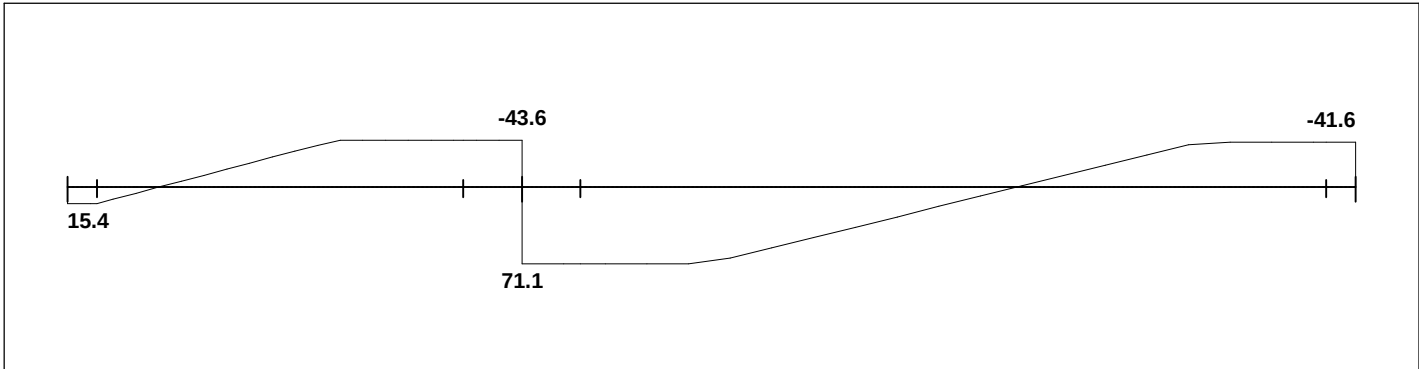
Shear



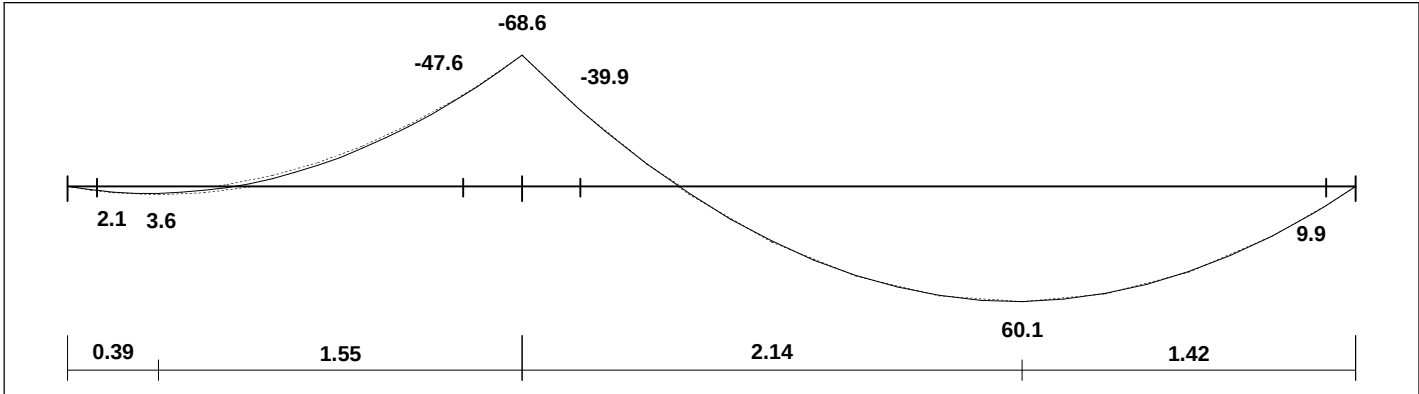
Moments: spans 1 to 2 Load pattern: XXxx



Shear



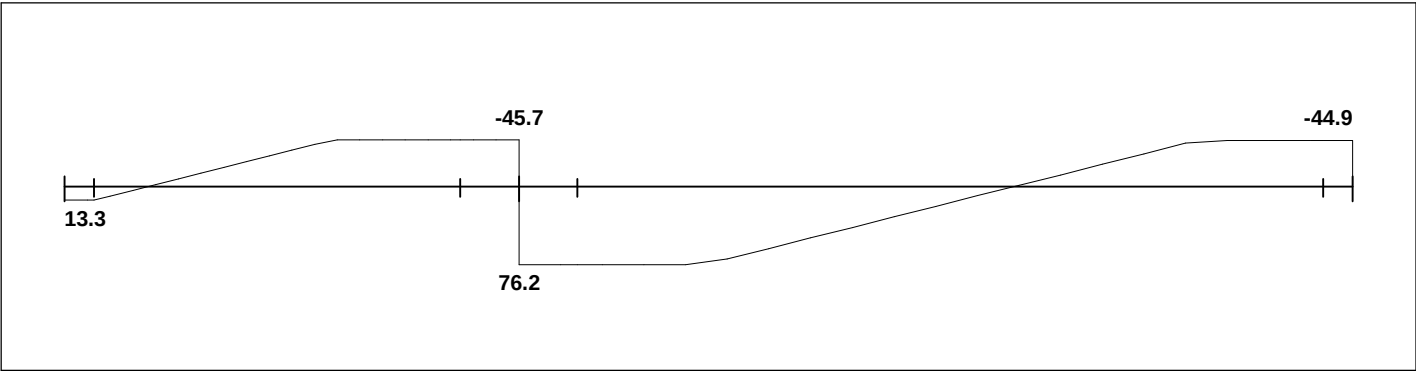
Moments: spans 1 to 2 Load pattern: XXXX



Beam 42	Code: ACI318-02
Project: 1	Page: 319
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-68.6	0.0
Max M	0.0	-64.5	0.0
MspMn	1.7	-47.8	9.2
MspMx	2.4	-44.0	10.0
M Max		60.4	
M Min		55.7	
Mmn=0 @	0.0	1.3	3.6
Mmx=0 @	0.0	1.2	3.6
mx -M @		0.7	
mx +M @		2.1	
V max	22.6	-87.0	-77.2
V min	16.9	-91.2	-83.4
DReac	19.1	198.1	77.4
LReac	3.5	14.8	6.0
Max R	22.6	212.9	83.4
Min R	16.9	202.5	77.2

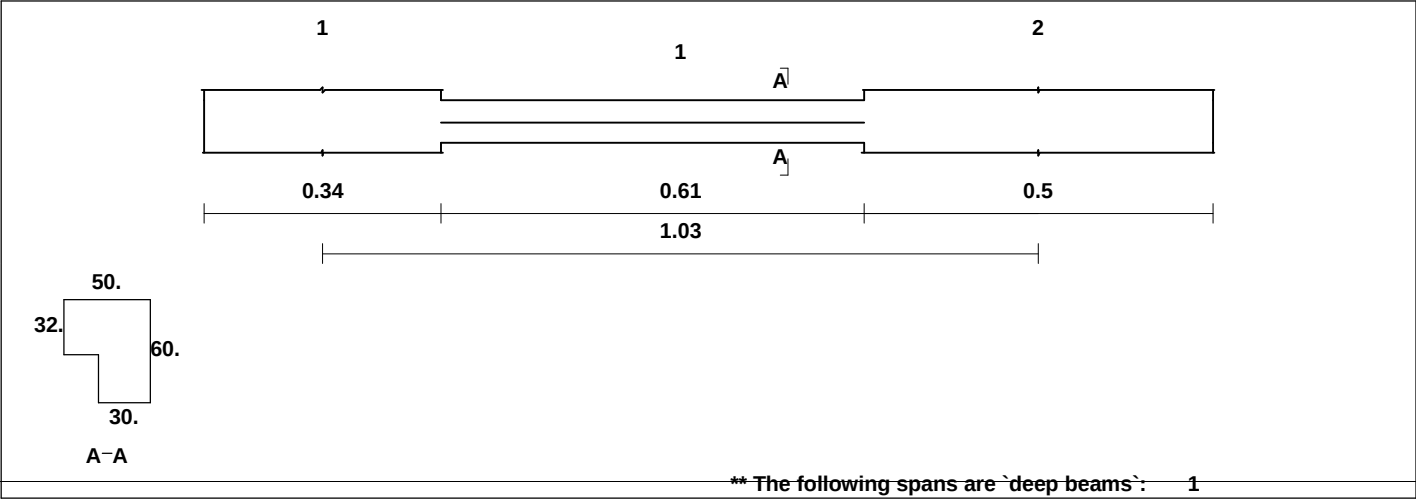
Individual load cases - factored Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-67.9	0.0
M Max		60.4	
Mmx=0 @	0.0	1.3	3.6
mx +M		2.1	
V max	16.9	-87.0	-83.4
Min M	0.0	-64.5	0.0
M Max		55.7	
Mmx=0 @	0.0	1.2	3.6
mx +M		2.1	
V max	22.6	-89.1	-77.2
Min M	0.0	-68.6	0.0
M Max		60.1	
Mmx=0 @	0.0	1.2	3.6
mx +M		2.1	
V max	20.5	-91.2	-83.2

Beam 43	Code: ACI318-02
Project: 1	Page: 319
Designed by:	Date: 04/07/14

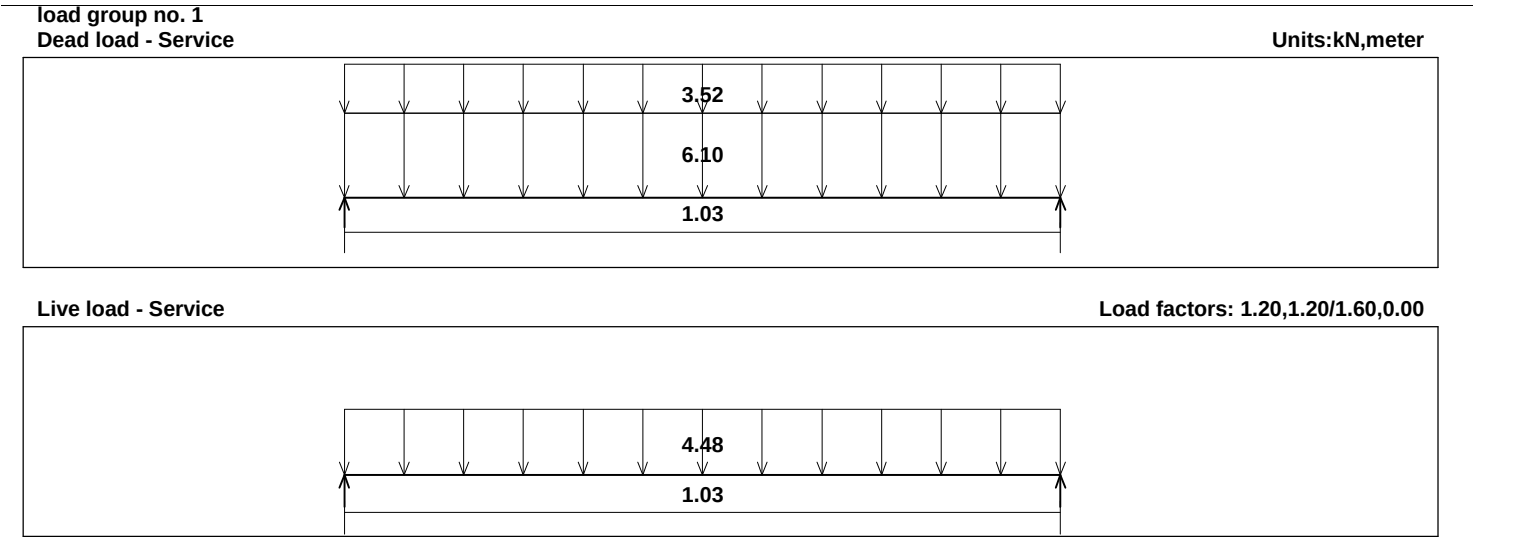
Geometry

Units: meter, cm



** The following spans are `deep beams`: 1

Loading

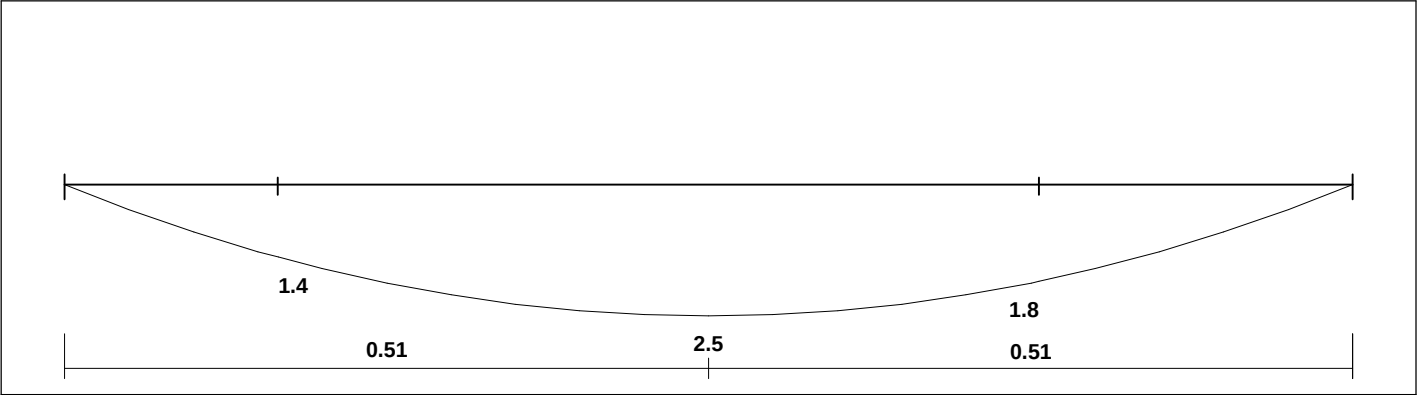


Loads (kN, meter)	
1	
Self. Wt.	6.10
Uni D	3.52
L	4.48

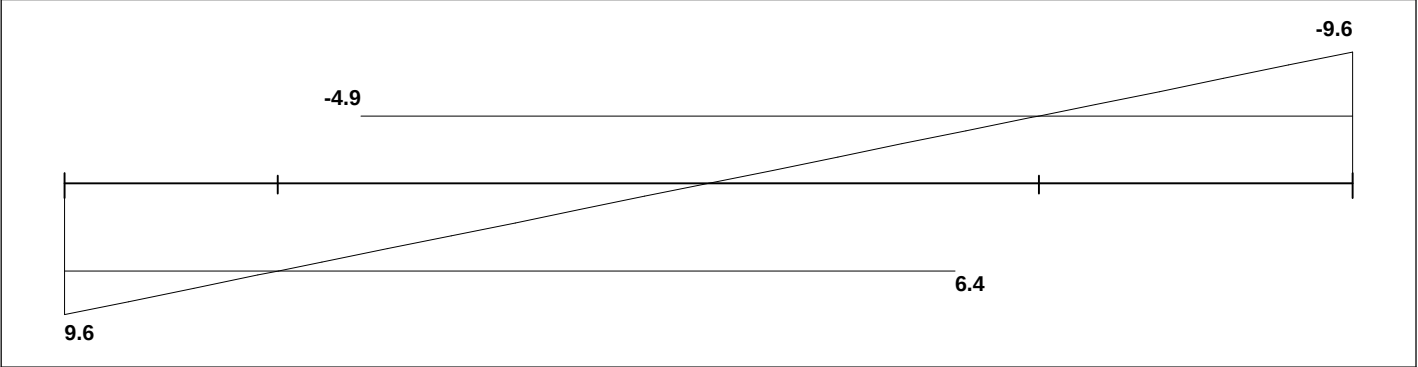
Beam 43	Code: ACI318-02
Project: 1	Page: 320
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

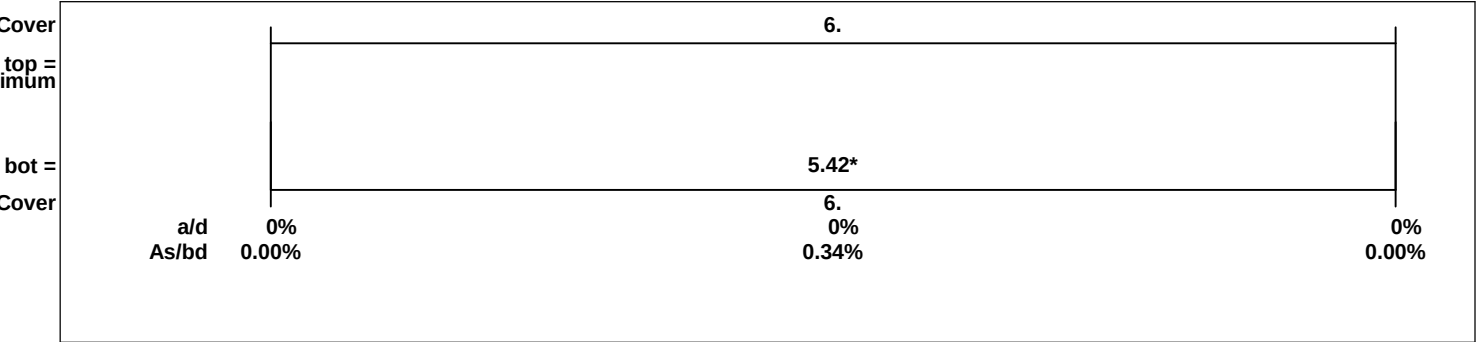
Factored			
DeadR	5.92		5.92
LiveR	3.68		3.68
Max R	9.6		9.6
Min R	9.6		9.6
Service			
DeadR	4.94		4.94
LiveR	2.3		2.3
Max R	7.23		7.23
Min R	7.23		7.23

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420

Moment redistribution: No

Support moment at: Face



Beam 43	Code: ACI318-02
Project: 1	Page: 321
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

Max. allow. shear stress = 2.5 (MPa)

□Vc/bd=	0.62	
Vu/bd=	0.04	0.03
As/bd	0.00%	0.00%

Av/s (mm2/mm)

prov.		0.62
req'd	0.25	0.25

Stirrups

□10 Legs=2 Gap=5.3/5.3 3@25

Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 5.42
As	0.
fr = 3	Es= 209 Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 1.27
Mmax,d+l = 1.86
Mmax,sust = 1.27

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00
ai,d = 0.001
ai,l = 0.000
at,sust = 0.002
ai,l = L/*****
(ai+at),t2-t1 L/*****

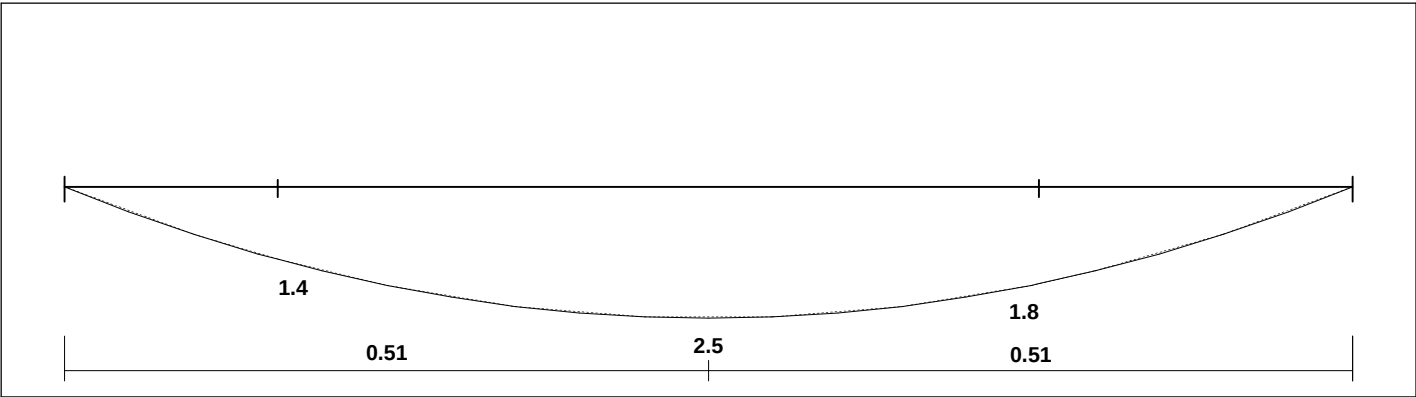
Beam 43	Code: ACI318-02
Project: 1	Page: 322
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

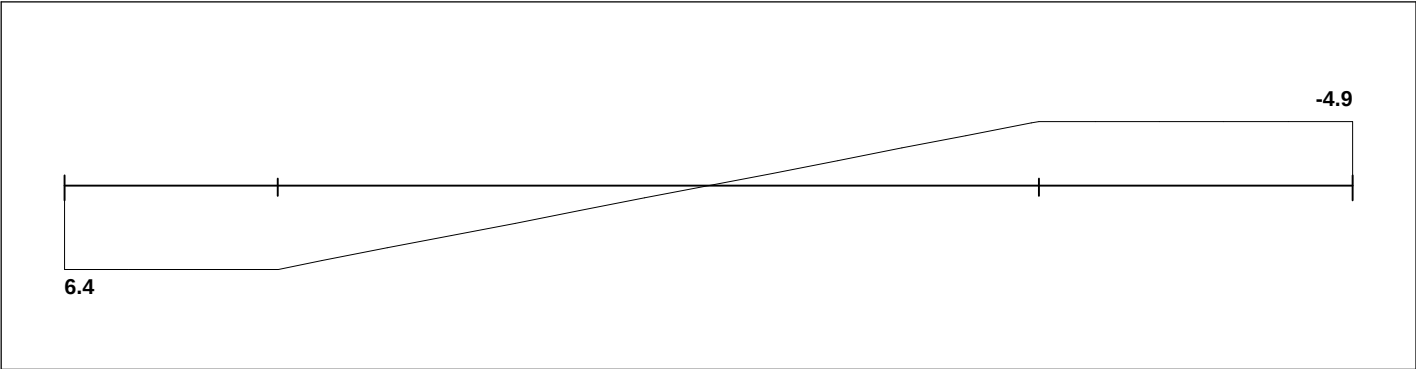
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	6.43	6.43	0.	0.	0.25	0.00	100	-
51	0.47	0.47	6.43	6.43	0.	0.02	0.25	0.00	-	-
103	0.89	0.89	6.43	6.43	0.	0.04	0.25	0.00	-	-
154	1.26	1.26	6.43	6.43	0.	0.06	0.25	0.00	-	-
170	1.36	1.36	6.42	6.42	0.	0.06	0.25	0.00	-	-
205	1.57	1.57	5.76	5.76	0.	0.07	0.25	0.00	-	-
257	1.85	1.85	4.79	4.79	0.	0.09	0.25	0.00	-	-
308	2.07	2.07	3.84	3.84	0.	0.10	0.25	0.00	-	-
359	2.24	2.24	2.88	2.88	0.	0.11	0.25	0.00	-	-
410	2.36	2.36	1.93	1.93	0.	0.11	0.25	0.00	-	-
462	2.44	2.44	0.95	0.95	0.	0.11	0.25	0.00	-	-
513	2.46	2.46	0.00	0.00	0.	0.12	0.25	0.00	100	-
564	2.44	2.44	-0.95	-0.95	0.	0.11	0.25	0.00	-	-
616	2.36	2.36	-1.93	-1.93	0.	0.11	0.25	0.00	-	-
667	2.24	2.24	-2.88	-2.88	0.	0.11	0.25	0.00	-	-
718	2.07	2.07	-3.84	-3.84	0.	0.10	0.25	0.00	-	-
770	1.84	1.84	-4.81	-4.81	0.	0.09	0.25	0.00	-	-
776	1.82	1.82	-4.92	-4.92	0.	0.08	0.25	0.00	-	-
821	1.57	1.57	-4.92	-4.92	0.	0.07	0.25	0.00	-	-
872	1.26	1.26	-4.92	-4.92	0.	0.06	0.25	0.00	-	-
923	0.89	0.89	-4.92	-4.92	0.	0.04	0.25	0.00	-	-
975	0.47	0.47	-4.92	-4.92	0.	0.02	0.25	0.00	-	-
1026	0.00	0.00	-4.92	-4.92	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

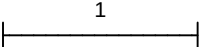
Moments: spans 1 to 1 Load pattern: XX

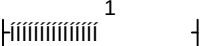


Shear



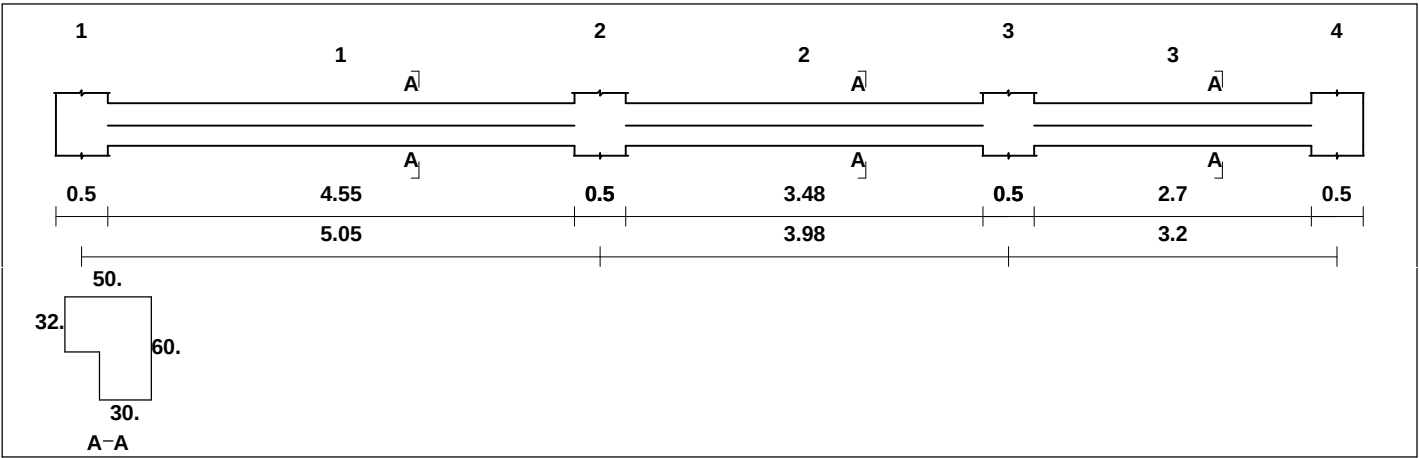
Beam 43	Code: ACI318-02
Project: 1	Page: 323
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Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	1.4	1.8	
MspMx	1.4	1.8	
M Max			
M Min			
Mmn=0 @	0.0	1.0	
Mmx=0 @	0.0	1.0	
mx -M @			
mx +M @			
V max	9.6	-9.6	
V min	9.6	-9.6	
DReac	5.9	5.9	
LReac	3.7	3.7	
Max R	9.6	9.6	
Min R	9.6	9.6	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.0	
mx +M			
V max	9.6	-9.6	

Beam 44	Code: ACI318-02
Project: 1	Page: 323
Designed by:	Date: 04/07/14

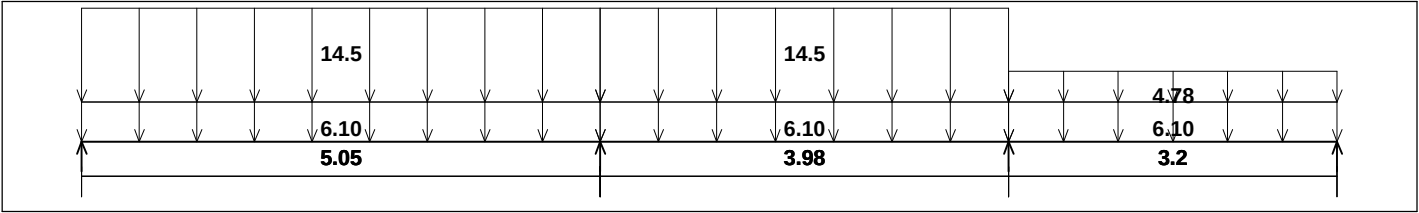
Geometry Units: meter, cm



Loading

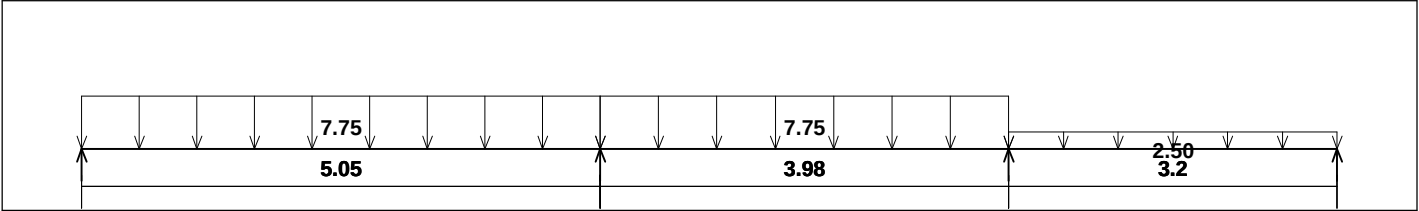
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

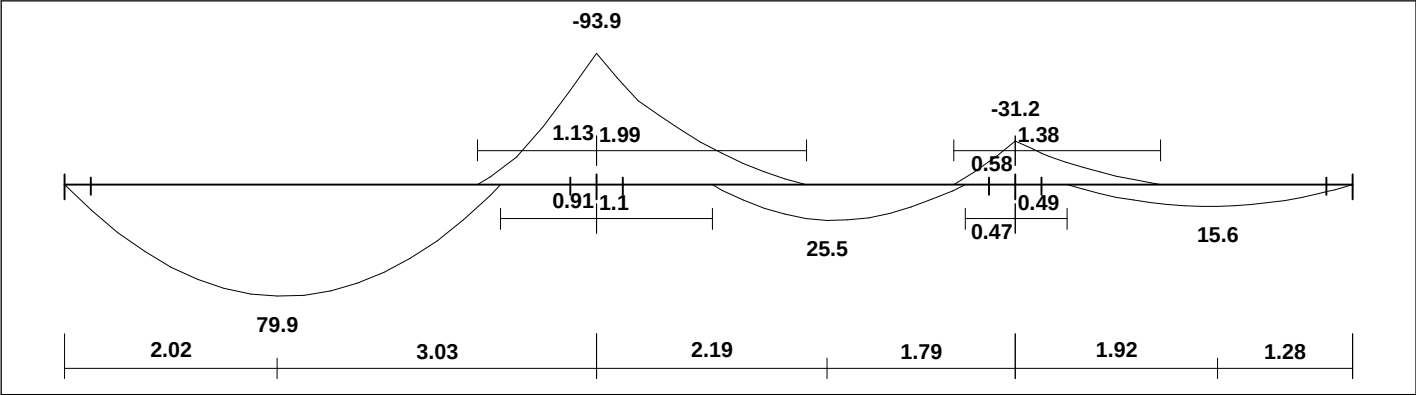


Loads (kN, meter)					
1	2	3	4	5	6
Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10
Uni D	14.59	L	7.75	Uni D	14.59
L	7.75	Uni D	14.59	L	7.75
		Uni D	4.79	L	2.50

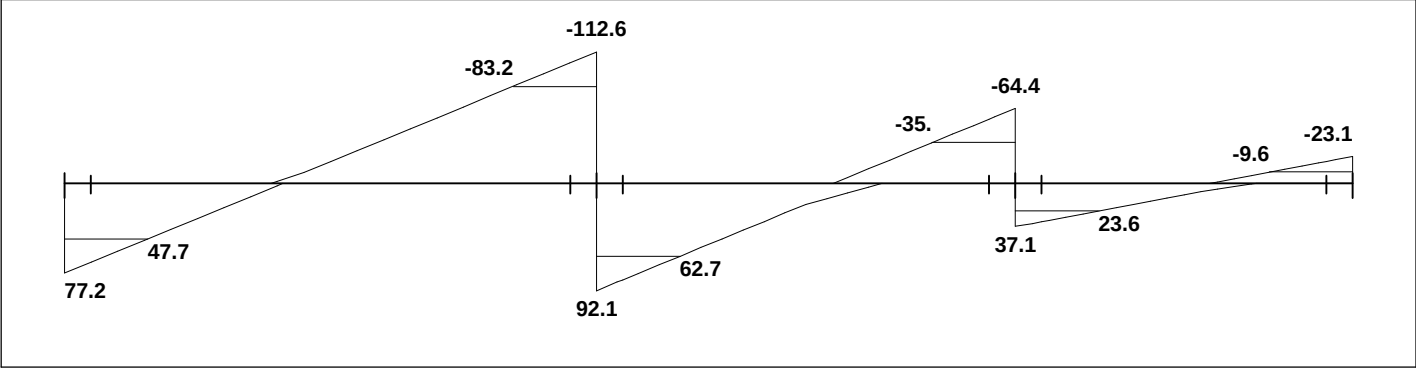
Beam 44	Code: ACI318-02
Project: 1	Page: 324
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



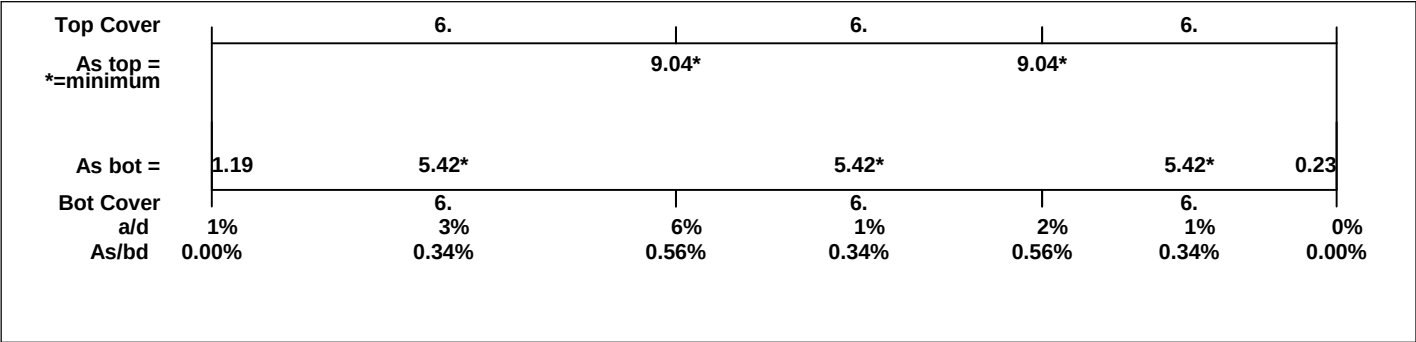
Reactions

Factored

DeadR	50.4	135.59	64.58	15.44
LiveR	26.75	69.11	36.86	7.68
Max R	77.15	204.7	101.44	23.12
Min R	48.75	160.32	62.89	11.9
Service				
DeadR	42.	112.99	53.82	12.86
LiveR	16.72	43.19	23.04	4.8
Max R	58.72	156.18	76.85	17.66
Min R	40.97	128.45	52.76	10.66

Reinforcement (cm 2)

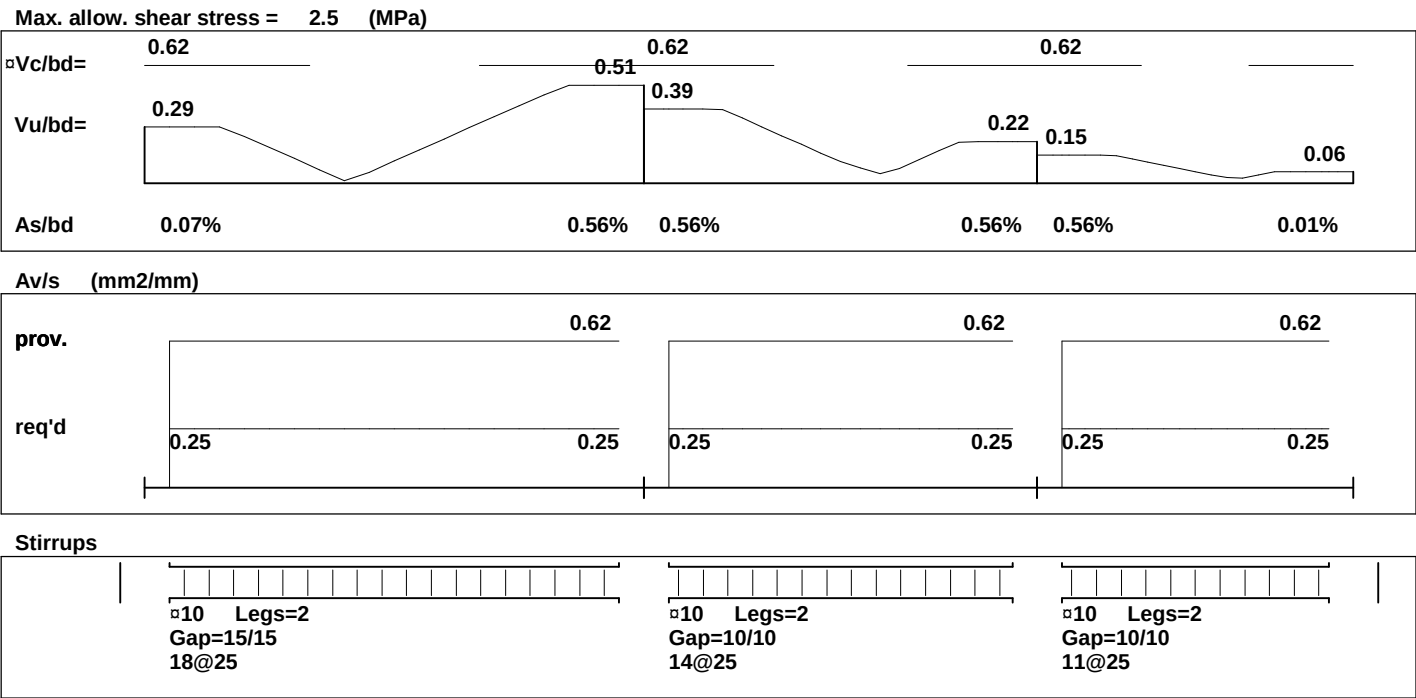
Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Center



Beam 44	Code: ACI318-02
Project: 1	Page: 325
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 0.	2 5.42	3 0.
As	5.42	0.00	5.42
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00687	0.00687	0.00687
Icr(m^4)=	0.00110	0.00002	0.00110
Mcr =	62.86	80.40	62.86
Mmax,d =	42.63	51.73	7.58
Mmax,d+l =	60.59	66.11	11.64
Mmax,sust =	42.63	51.73	7.58
Ie,d (m^4)=	0.00687	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687	0.00687
Ie,sust (m^4)=	0.00687	0.00687	0.00687
e/1+50r =	2.00	1.71	2.00
ai,d =	0.581	-0.043	0.036
ai,l =	0.265	-0.061	0.030
at,sust =	1.163	-0.073	0.071
ai,l =	L/19049	L/*****	L/*****
(ai+at),t2-t1	L/ 3537	L/29594	L/31448

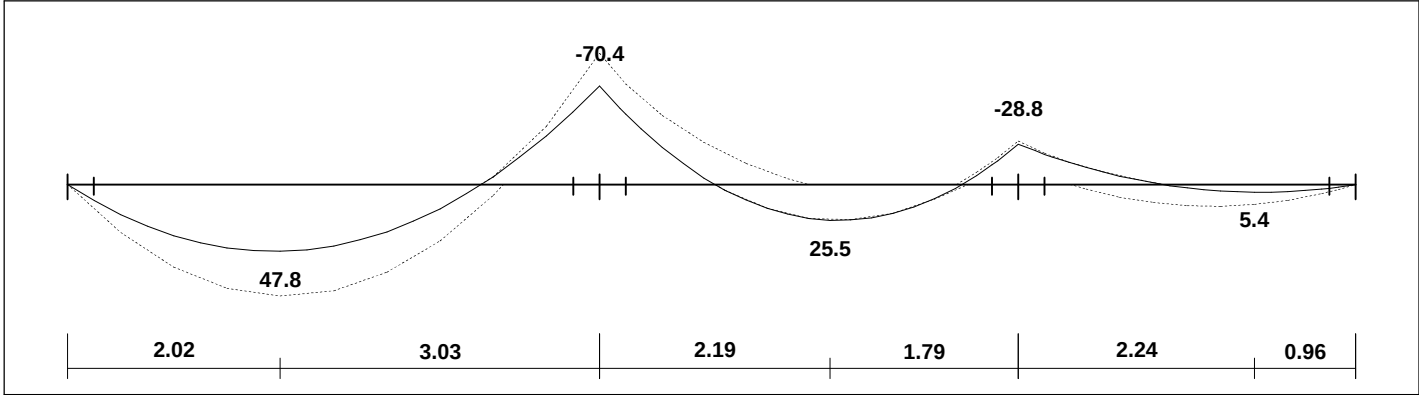
Beam 44	Code: ACI318-02
Project: 1	Page: 326
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	47.74	29.13	0.	0.	0.25	0.00	100	-
253	18.33	11.54	47.74	29.13	0.	0.90	0.25	0.01	-	-
505	34.22	21.45	47.74	29.13	0.	1.69	0.25	0.01	-	-
758	47.79	29.82	47.74	29.13	0.	2.36	0.25	0.02	-	-
1010	58.94	36.57	39.55	23.67	0.	2.92	0.25	0.02	-	-
1263	67.75	41.77	30.13	17.39	0.	3.37	0.25	0.03	-	-
1515	74.16	45.36	20.75	11.13	0.	3.69	0.25	0.03	-	-
1768	78.22	47.38	11.33	4.85	0.	3.90	0.25	0.03	-	-
2020	79.90	47.82	1.95	-1.40	0.	3.98	0.25	0.03	-	-
2273	79.20	46.67	-7.47	-9.22	0.	3.95	0.25	0.03	-	-
2525	76.13	43.94	-13.84	-18.60	0.	3.79	0.25	0.03	100	-
2778	70.68	39.62	-20.12	-28.02	0.	3.52	0.25	0.03	-	-
3030	62.88	33.74	-26.37	-37.40	0.	3.12	0.25	0.02	-	-
3283	52.67	26.24	-32.66	-46.82	0.	2.61	0.25	0.02	-	-
3535	40.13	17.20	-38.91	-56.20	0.	1.98	0.25	0.02	-	-
3788	25.16	6.53	-45.19	-65.62	0.	1.24	0.25	0.01	-	-
4040	7.89	-5.67	-51.45	-75.00	0.27	0.38	0.25	0.00	-	-
4293	-11.84	-19.51	-56.91	-83.19	0.96	0.	0.25	0.01	-	-
4545	-33.85	-41.83	-56.91	-83.19	2.08	0.	0.25	0.03	-	-
4798	-51.37	-66.76	-56.91	-83.19	3.35	0.	0.25	0.04	-	-
5050	-69.87	-93.95	-56.91	-83.19	4.76	0.	0.25	0.06	100	-
Span=2										
0	-69.87	-93.95	62.68	47.80	4.76	0.	0.25	0.06	100	-
199	-53.93	-76.36	62.68	47.80	3.84	0.	0.25	0.05	-	-
250	-50.08	-72.09	62.68	47.80	3.62	0.	0.25	0.05	-	-
398	-39.47	-60.25	62.68	47.80	3.01	0.	0.25	0.04	-	-
597	-26.48	-49.26	62.68	47.80	2.45	0.	0.25	0.03	-	-
796	-14.91	-39.28	62.46	47.65	1.95	0.	0.25	0.02	-	-
995	-4.72	-30.29	55.05	42.71	1.50	0.	0.25	0.02	-	-
1194	4.00	-22.28	47.64	37.77	1.10	0.19	0.25	0.01	-	-
1393	11.24	-15.26	40.23	31.93	0.75	0.55	0.25	0.01	-	-
1592	17.00	-9.22	32.83	24.52	0.45	0.83	0.25	0.01	-	-
1791	21.29	-4.16	25.42	17.12	0.20	1.05	0.25	0.01	-	-
1990	24.11	-0.08	18.01	9.71	0.00	1.19	0.25	0.01	100	-
2189	25.45	3.01	13.07	2.30	0.	1.25	0.25	0.01	-	-
2388	25.32	5.12	8.13	-5.11	0.	1.25	0.25	0.01	-	-
2587	23.72	6.24	3.19	-12.52	0.	1.17	0.25	0.01	-	-
2786	20.64	6.39	-1.75	-19.93	0.	1.01	0.25	0.01	-	-
2985	16.08	5.55	-6.69	-27.33	0.	0.79	0.25	0.01	-	-
3184	10.57	3.72	-11.64	-34.74	0.	0.52	0.25	0.00	-	-
3383	4.57	0.57	-11.78	-34.97	0.	0.22	0.25	0.00	-	-
3582	-2.87	-8.56	-11.78	-34.97	0.42	0.	0.25	0.01	-	-
3730	-6.33	-16.30	-11.78	-34.97	0.80	0.	0.25	0.01	-	-
3781	-7.65	-19.16	-11.78	-34.97	0.94	0.	0.25	0.01	-	-
3980	-13.40	-31.23	-11.78	-34.97	1.54	0.	0.25	0.02	100	-
Span=3										
0	-13.40	-31.23	23.58	17.54	1.54	0.	0.25	0.02	100	-
160	-8.58	-25.52	23.58	17.54	1.26	0.	0.25	0.02	-	-
250	-6.06	-22.50	23.58	17.54	1.11	0.	0.25	0.01	-	-
320	-4.20	-20.24	23.58	17.54	1.00	0.	0.25	0.01	-	-
480	-0.25	-15.95	23.58	17.54	0.78	0.	0.25	0.01	-	-
640	3.26	-12.34	23.58	17.54	0.60	0.16	0.25	0.01	-	-
800	6.33	-9.06	23.41	17.41	0.44	0.31	0.25	0.01	-	-
960	8.97	-6.11	20.68	15.11	0.30	0.44	0.25	0.00	-	-
1120	11.16	-3.50	17.95	12.38	0.17	0.54	0.25	0.00	-	-
1280	12.93	-1.23	15.22	9.65	0.06	0.63	0.25	0.00	-	-
1440	14.25	0.72	12.49	6.92	0.	0.70	0.25	0.01	-	-
1600	15.14	2.32	9.76	4.19	0.	0.74	0.25	0.01	100	-
1760	15.59	3.60	7.03	1.46	0.	0.76	0.25	0.01	-	-
1920	15.61	4.53	4.82	-1.27	0.	0.76	0.25	0.01	-	-
2080	15.19	5.14	2.73	-4.00	0.	0.74	0.25	0.01	-	-
2240	14.33	5.41	0.64	-6.73	0.	0.70	0.25	0.01	-	-
2400	13.03	5.34	-1.45	-9.46	0.	0.64	0.25	0.00	-	-
2560	11.30	4.94	-1.58	-9.63	0.	0.55	0.25	0.00	-	-
2720	9.13	4.21	-1.58	-9.63	0.	0.44	0.25	0.00	-	-
2880	6.52	3.14	-1.58	-9.63	0.	0.32	0.25	0.00	-	-
2950	5.25	2.57	-1.58	-9.63	0.	0.25	0.25	0.00	-	-
3040	3.48	1.74	-1.58	-9.63	0.	0.17	0.25	0.00	-	-

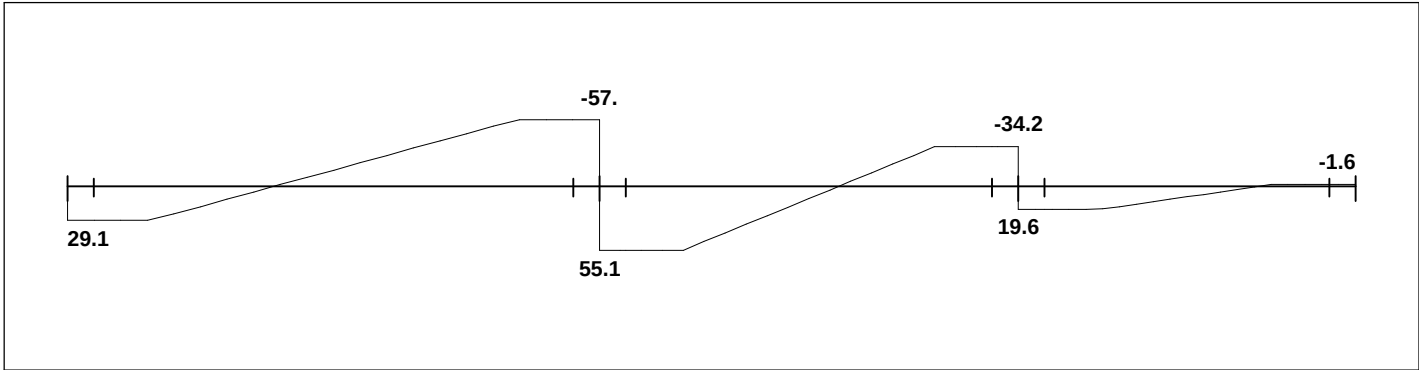
Beam 44										Code: ACI318-02	
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3200	0.00	0.00	-1.58	-9.63	0.	0.	0.25	0.00	100	-	

Moment/Shear Envelope (Factored) Units:kN,meter

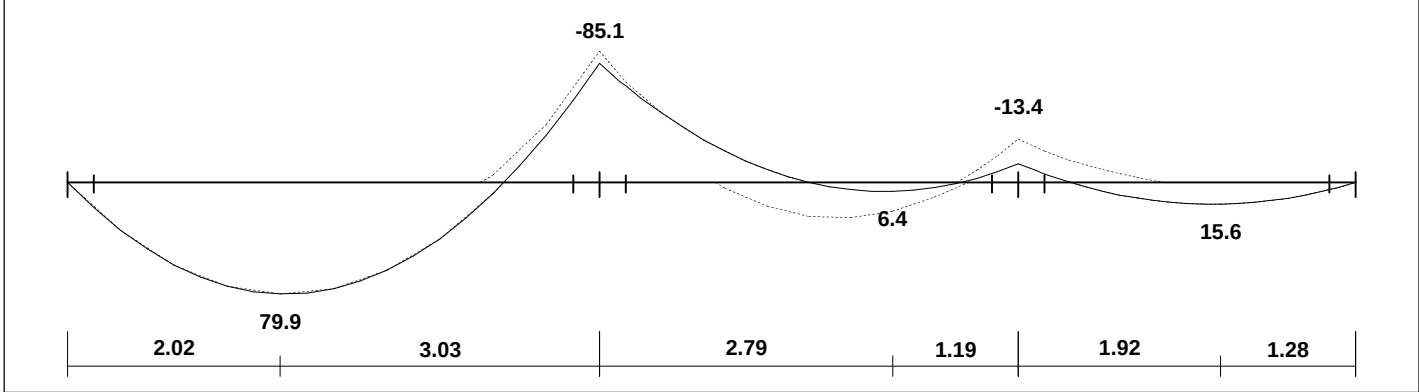
Moments: spans 1 to 3 Load pattern: xxXXxx



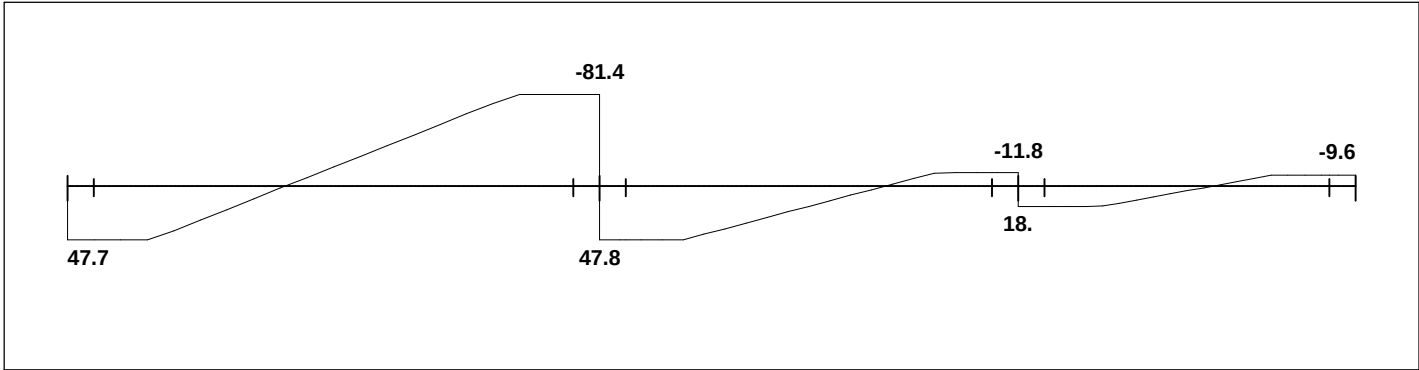
Shear



Moments: spans 1 to 3 Load pattern: XXxxXX

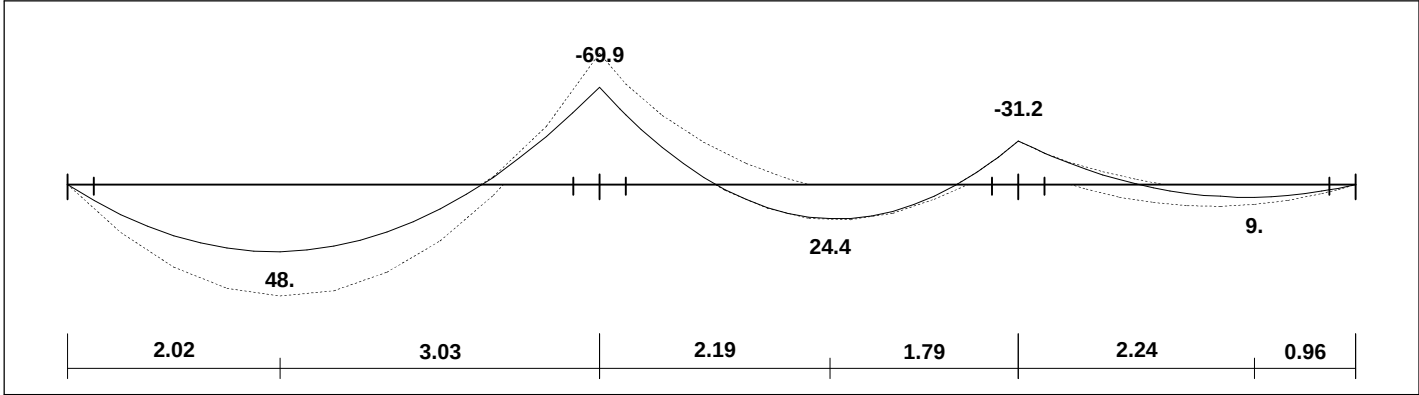


Shear

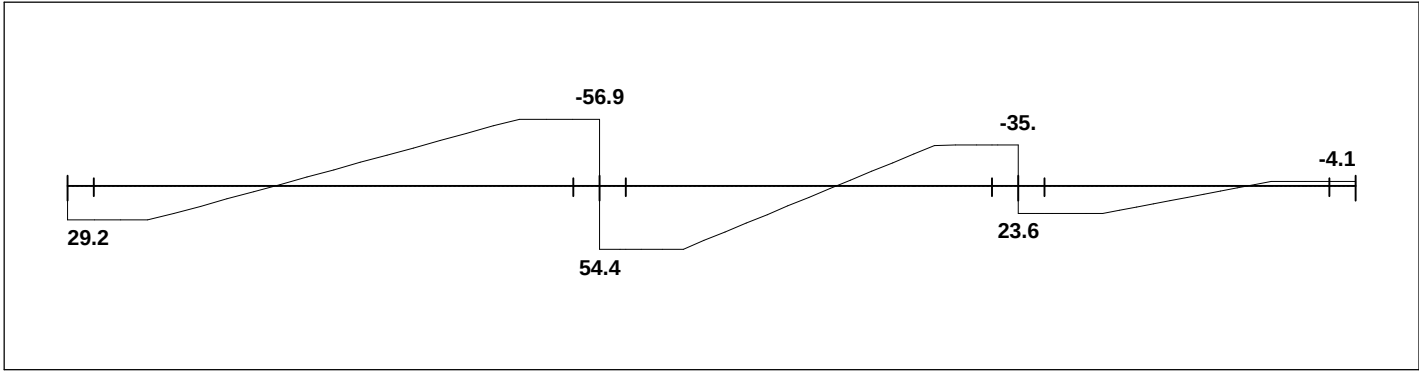


Moment/Shear Envelope (Factored) Units:kN,meter

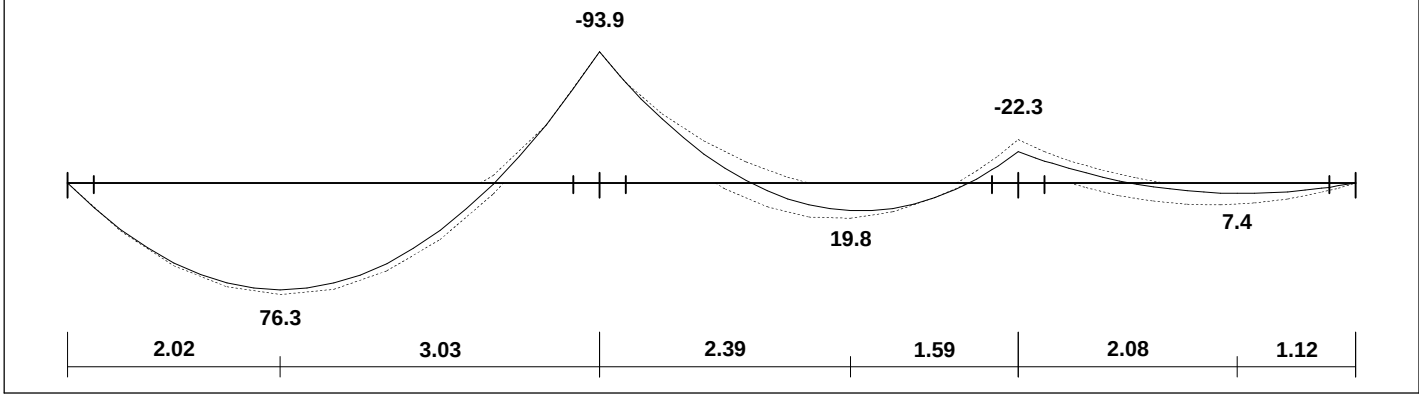
Moments: spans 1 to 3 Load pattern: xxXXXX



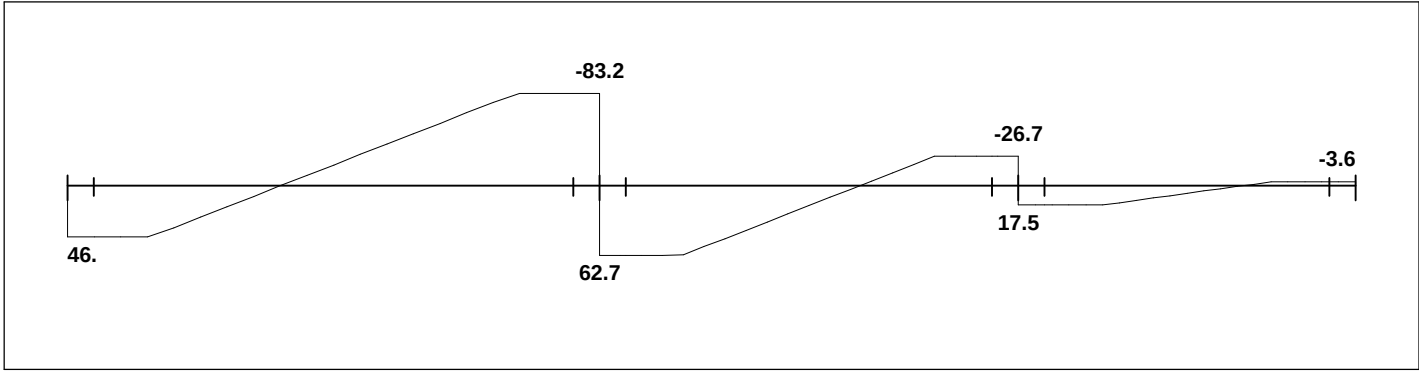
Shear



Moments: spans 1 to 3 Load pattern: XXXXxx



Shear



Beam 44	Code: ACI318-02
Project: 1	Page: 330
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)						Units:kN,meter
	1	2	3	3	4	
	1	2	2	3	3	4
	-----	-----	-----	-----	-----	
Min M	0.0	-93.9	-93.9	-31.2	-31.2	0.0
Max M	0.0	-69.9	-69.9	-13.4	-13.4	0.0
MspMn	11.5	-66.8	-72.1	-16.3	-22.5	2.6
MspMx	18.3	-51.4	-50.1	-6.3	-6.1	5.2
M Max			25.5		15.6	
M Min			6.4		5.4	
Mmn=0 @	0.0	1.1	2.0	0.6	1.4	3.2
Mmx=0 @	0.0	0.9	1.1	0.5	0.5	3.2
mx -M @			1.1		0.5	
mx +M @			2.2		1.9	
V max	77.2	-76.5	92.1	-31.4	37.1	-11.9
V min	48.7	-112.6	67.4	-64.4	27.9	-23.1
DReac	50.4	135.6		64.6		15.4
LReac	26.8	69.1		36.9		7.7
Max R	77.2	204.7		101.4		23.1
Min R	48.7	160.3		62.9		11.9

Individual load cases - factored						Units:kN,meter
	1	2	3	3	4	
	1	2	2	3	3	4
	-----	-----	-----	-----	-----	
Min M	0.0	-70.4	-70.4	-28.8	-28.8	0.0
M Max			25.5		5.4	
Mmx=0 @	0.0	1.1	1.1	0.5	1.4	3.2
mx +M			2.2		2.2	
V max	48.7	-76.6	84.5	-63.6	29.9	-11.9
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-85.1	-85.1	-13.4	-13.4	0.0
M Max			6.4		15.6	
Mmx=0 @	0.0	0.9	2.0	0.5	0.5	3.2
mx +M			2.8		1.9	
V max	77.2	-110.8	67.4	-31.4	31.5	-23.1
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-69.9	-69.9	-31.2	-31.2	0.0
M Max			24.4		9.0	
Mmx=0 @	0.0	1.1	1.1	0.6	1.1	3.2
mx +M			2.2		2.2	
V max	48.9	-76.5	83.8	-64.4	37.1	-17.5
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-93.9	-93.9	-22.3	-22.3	0.0
M Max			19.8		7.4	
Mmx=0 @	0.0	1.0	1.4	0.5	1.1	3.2
mx +M			2.4		2.1	
V max	75.4	-112.6	92.1	-56.1	27.9	-13.9

Technical drawing of a mechanical part showing a front view and a cross-section A-A.

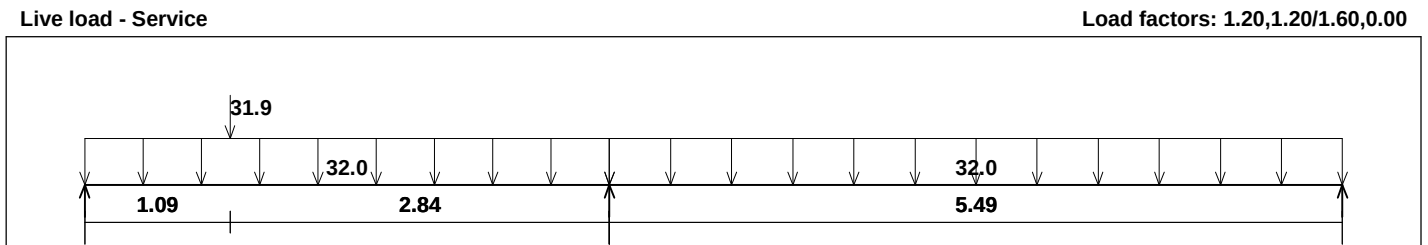
Front View Dimensions (inches):

- Segment lengths: 0.25, 3.56, 0.5, 5.12, 0.25
- Cumulative distances: 3.93, 5.49
- Section line labels: 1, 2, 3, A-A

Cross-section A-A Dimensions (inches):

- Top flange width: 80.
- Top flange height: 32.
- Stem width: 50.
- Stem height: 60.

load group no. 1	
Dead load - Service	Units:kN,meter

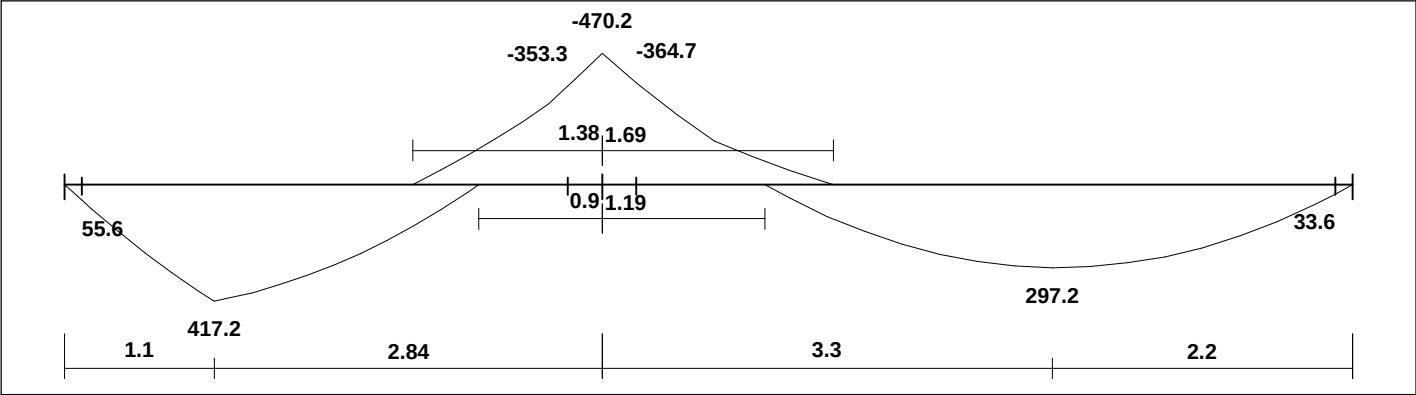


Loads (kN, meter)							
1				2			
Self.Wt.			9.90	Self.Wt.			9.90
Uni D	54.40	L	32.00	Uni D	54.42	L	32.00
Pt. D	293.9	L	31.90				
x	1.09						

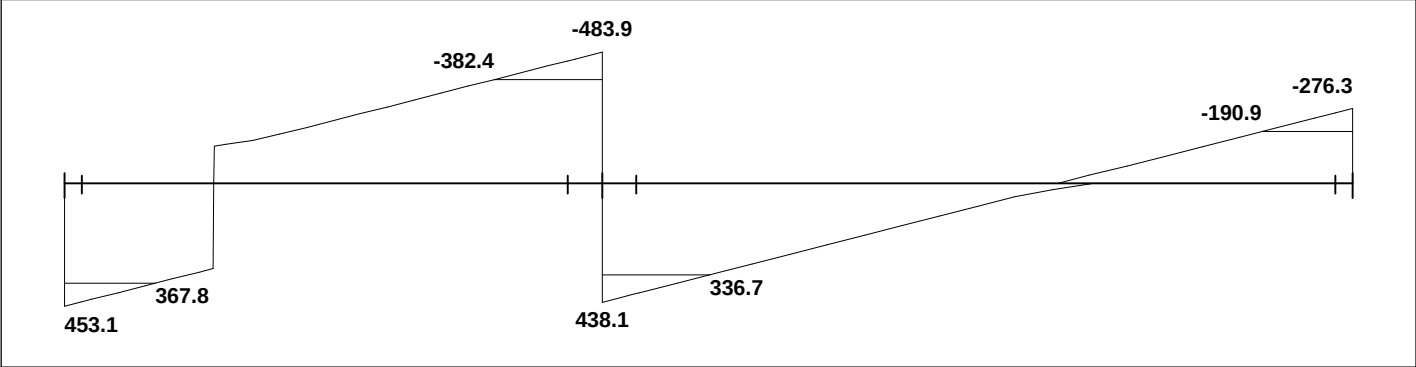
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



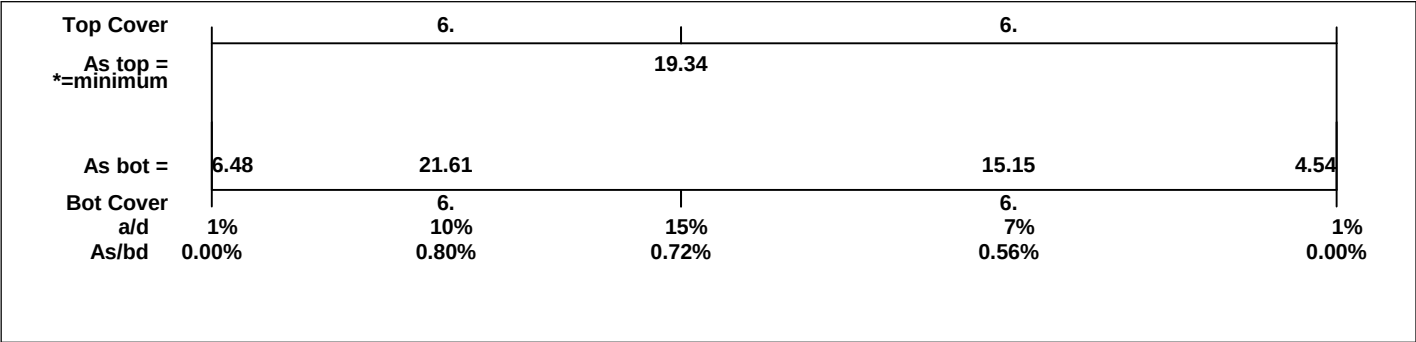
Reactions

Factored

DeadR	328.82	594.82	156.22
LiveR	124.32	327.15	120.09
Max R	453.14	921.97	276.31
Min R	300.22	732.32	146.75
Service			
DeadR	274.01	495.68	130.18
LiveR	77.7	204.47	75.06
Max R	351.72	700.15	205.24
Min R	256.14	581.62	124.26

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

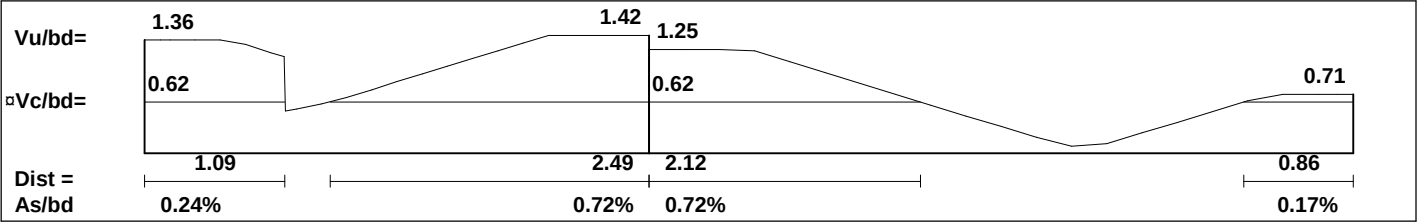


Beam 45	Code: ACI318-02
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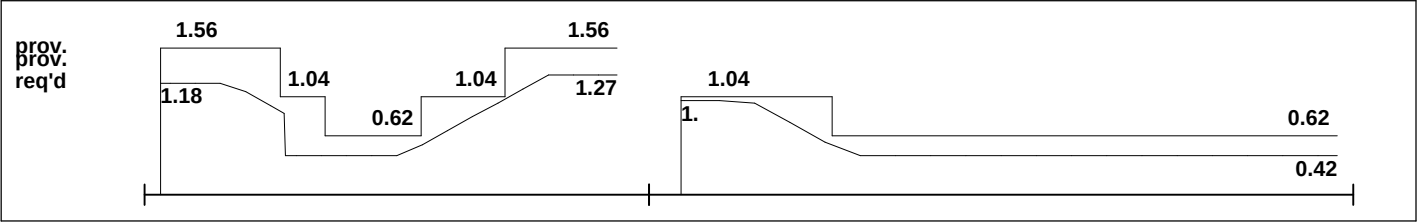
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

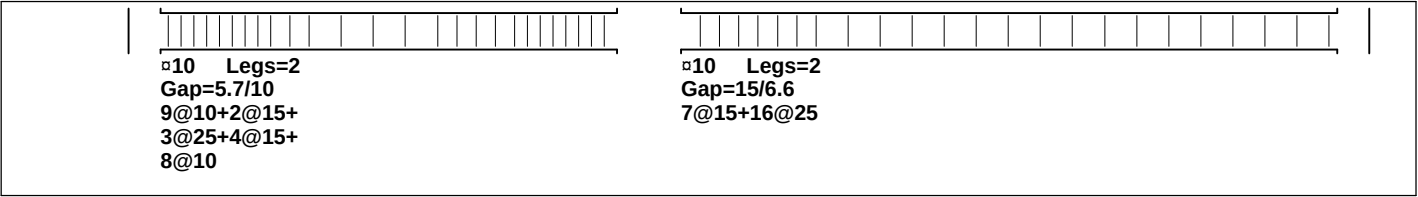
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	2
As	0.	0.
fr = 3	21.61	15.15
Es= 209	Ec = 23	
Ig(m^4)=	0.01124	0.01124
Icr(m^4)=	0.00382	0.00285
Mcr =	103.73	103.73
Mmax,d =	260.03	131.42
Mmax,d+l =	325.77	218.47
Mmax,sust =	169.02	85.42
Ie,d (m^4)=	0.00429	0.00698
Ie,d+l (m^4)=	0.00406	0.00375
Ie,sust (m^4)=	0.00554	0.01124
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	2.465	1.788
ai,l =	1.157	4.323
at,sust =	1.491	0.866
ai,l =	L/ 3397	L/ 1270
(ai+at),t2-t1	L/ 1119	L/ 944

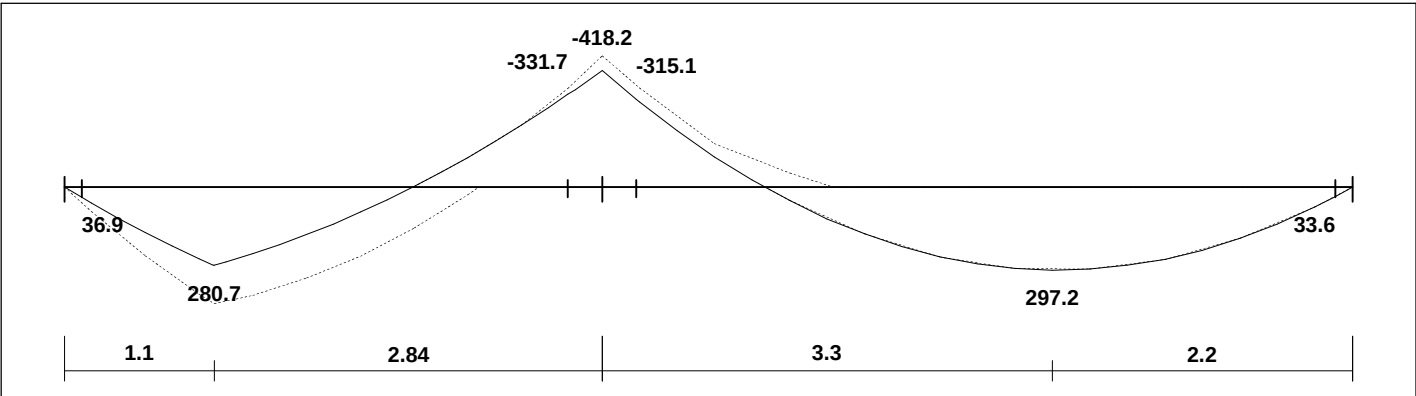
Beam 45	Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	367.78	248.91	0.	0.	1.18	0.00	100	-
125	55.64	36.92	367.78	248.91	0.	2.75	1.18	0.01	-	-
197	86.78	57.65	367.78	248.91	0.	4.30	1.18	0.02	-	-
393	168.17	112.03	367.78	248.91	0.	8.43	1.18	0.04	-	-
590	245.01	163.70	367.78	248.91	0.	12.40	1.18	0.06	-	-
786	316.52	212.14	352.25	239.57	0.	16.17	1.09	0.08	-	-
983	383.42	257.83	326.96	224.37	0.	19.77	0.94	0.09	-	-
1085	416.10	280.32	313.87	216.50	0.	21.55	0.87	0.10	-	-
1095	417.22	280.72	-91.10	-136.92	0.	21.61	0.42	0.10	-	-
1180	409.01	268.80	-102.01	-143.47	0.	21.16	0.42	0.10	-	-
1376	386.55	239.20	-127.17	-158.60	0.	19.94	0.42	0.10	-	-
1573	359.01	206.46	-152.45	-181.05	0.	18.45	0.42	0.09	-	-
1769	326.66	170.91	-177.61	-206.21	0.	16.71	0.42	0.08	-	-
1966	289.18	132.19	-202.90	-231.50	0.	14.72	0.42	0.07	100	-
2163	246.72	90.49	-219.32	-256.78	0.	12.49	0.53	0.06	-	-
2359	199.53	46.02	-234.45	-281.94	0.	10.04	0.68	0.05	-	-
2556	147.13	-1.67	-249.65	-307.23	0.08	7.35	0.83	0.04	-	-
2752	90.06	-52.08	-264.77	-332.39	2.58	4.47	0.98	0.02	-	-
2949	27.72	-105.74	-279.97	-357.67	5.30	1.36	1.12	0.04	-	-
3146	-39.60	-162.39	-294.86	-382.45	8.23	0.	1.27	0.06	-	-
3342	-111.52	-221.72	-294.86	-382.45	11.39	0.	1.27	0.09	-	-
3539	-188.78	-289.99	-294.86	-382.45	15.12	0.	1.27	0.12	-	-
3682	-247.98	-353.28	-294.86	-382.45	18.69	0.	1.27	0.14	-	-
3735	-270.59	-377.40	-294.86	-382.45	18.69	0.	1.27	0.14	-	-
3932	-357.78	-470.23	-294.86	-382.45	18.69	0.	1.27	0.14	100	-
Span=2										
0	-357.78	-470.23	336.70	216.09	19.34	0.	1.00	0.15	100	-
250	-290.92	-364.71	336.70	216.09	19.34	0.	1.00	0.15	-	-
275	-284.50	-354.60	336.70	216.09	18.76	0.	1.00	0.14	-	-
549	-202.25	-249.05	336.70	216.09	12.86	0.	1.00	0.10	-	-
824	-108.61	-155.68	332.33	213.47	7.88	0.	0.98	0.06	-	-
1098	-24.96	-100.08	297.15	192.32	5.01	0.	0.77	0.04	-	-
1373	49.30	-50.12	261.85	171.10	2.48	2.43	0.56	0.02	-	-
1647	113.63	-6.13	226.67	149.95	0.30	5.65	0.42	0.03	-	-
1922	168.51	32.18	191.37	128.72	0.	8.45	0.42	0.04	-	-
2196	213.53	64.56	156.19	107.57	0.	10.76	0.42	0.05	-	-
2471	249.02	91.22	120.88	86.35	0.	12.61	0.42	0.06	-	-
2746	274.80	112.05	85.58	65.12	0.	13.96	0.42	0.07	100	-
3020	290.84	126.99	50.40	40.93	0.	14.81	0.42	0.07	-	-
3295	297.24	136.17	22.75	5.62	0.	15.15	0.42	0.07	-	-
3569	293.96	139.50	1.60	-29.55	0.	14.97	0.42	0.07	-	-
3844	280.98	137.02	-19.63	-64.86	0.	14.29	0.42	0.07	-	-
4118	258.39	128.75	-40.77	-100.04	0.	13.10	0.42	0.06	-	-
4393	226.02	114.62	-62.00	-135.34	0.	11.41	0.42	0.05	-	-
4667	184.12	94.73	-83.15	-170.52	0.	9.25	0.42	0.04	-	-
4942	132.37	68.95	-95.43	-190.94	0.	6.60	0.42	0.03	-	-
5217	70.92	37.33	-95.43	-190.94	0.	3.51	0.42	0.02	-	-
5366	33.56	17.76	-95.43	-190.94	0.	1.65	0.42	0.01	-	-
5491	0.03	0.01	-95.43	-190.94	0.	0.00	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

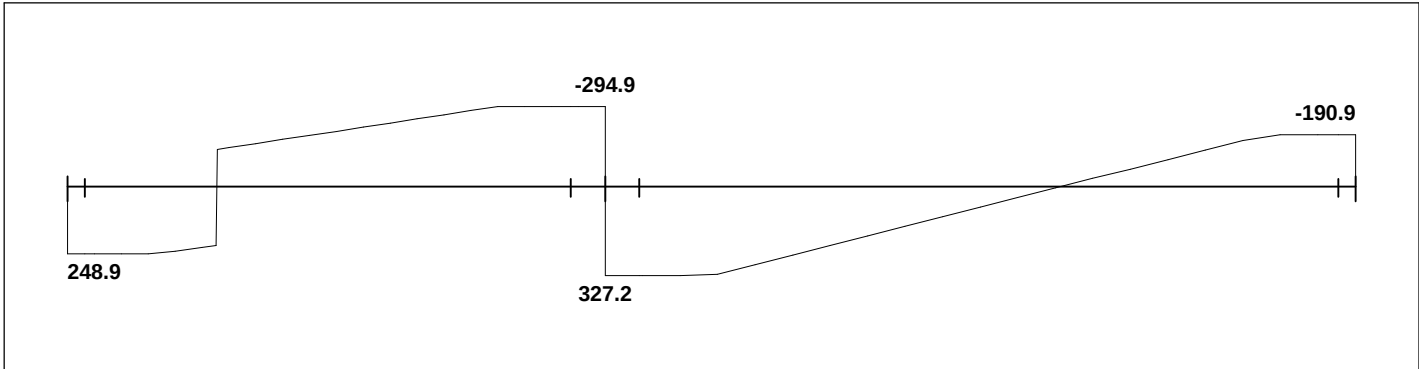
Moments: spans 1 to 2 Load pattern: xxXX



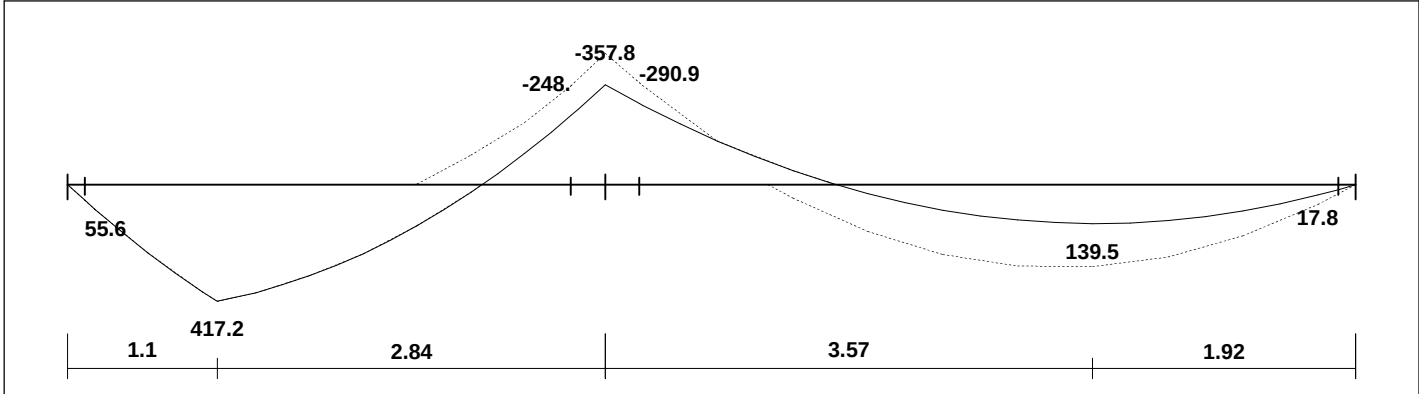
Beam 45	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

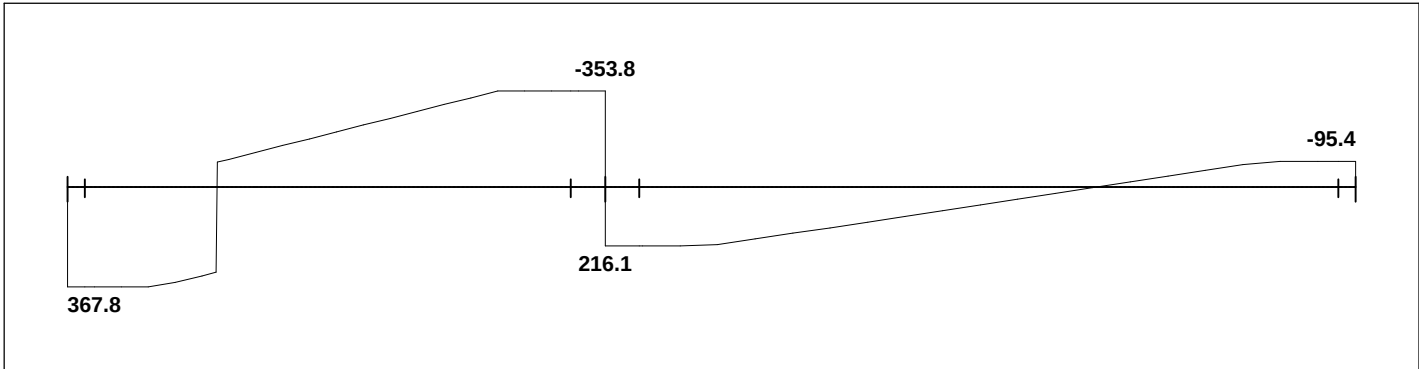
Shear



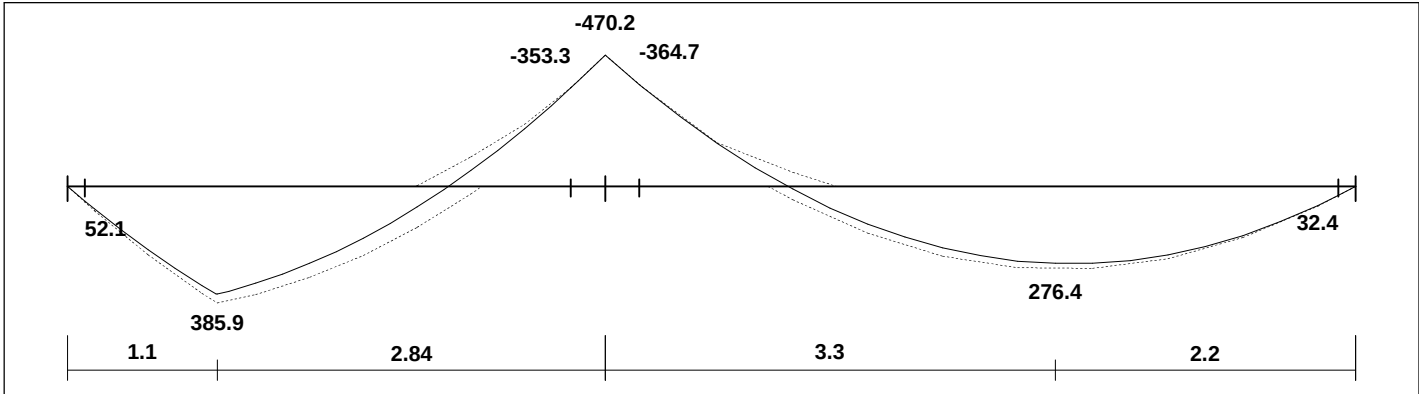
Moments: spans 1 to 2 Load pattern: XXxx



Shear

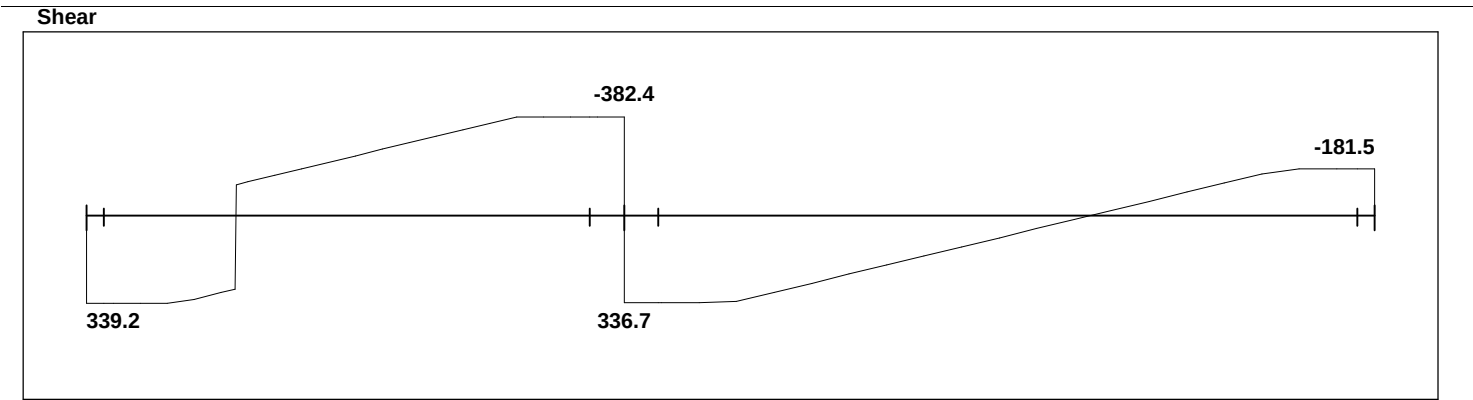


Moments: spans 1 to 2 Load pattern: XXXX



Beam 45	Code: ACI318-02
Project: 1	Page: 335
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Moment / Shear Envelope (Factored) Units:kN,meter

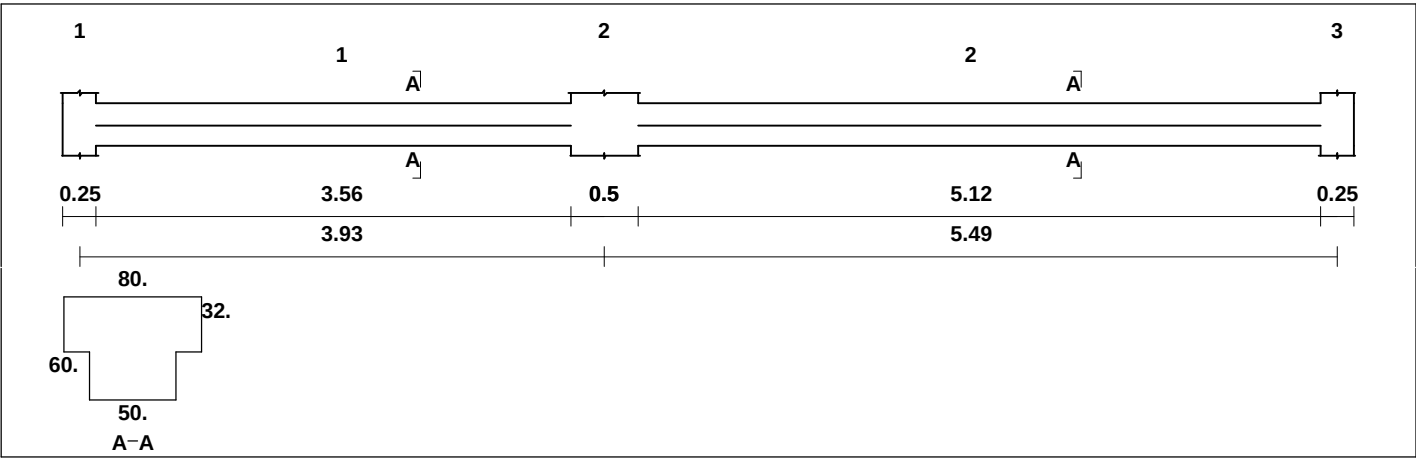


Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	3	
	1	2	2	3
	1	2	2	3
Min M	0.0	-470.2	-470.2	0.0
Max M	0.0	-357.8	-357.8	0.0
MspMn	36.9	-353.3	-364.7	17.8
MspMx	55.6	-248.0	-290.9	33.6
M Max			297.2	
M Min			139.5	
Mmn=0 @	0.0	1.4	1.7	3.8
Mmx=0 @	0.0	0.9	1.2	4.3
mx -M @			1.2	
mx +M @			3.3	
V max		-355.8		-146.7
V min		-483.9		-276.3
DReac		594.8		156.2
LReac		327.2		120.1
Max R		922.0		276.3
Min R		732.3		146.7

Individual load cases - factored Units:kN,meter				
	1	2	3	
	1	2	2	3
	1	2	2	3
Min M	0.0	-418.2	-418.2	0.0
M Max			297.2	
Mmx=0 @	0.0	1.4	1.2	4.3
mx +M			3.3	
V max		-355.8		-276.3
	1	2	3	
	1	2	2	3
Min M	0.0	-357.8	-357.8	0.0
M Max			139.5	
Mmx=0 @	0.0	0.9	1.7	3.8
mx +M			3.6	
V max		-455.3		-146.7
	1	2	3	
	1	2	2	3
Min M	0.0	-470.2	-470.2	0.0
M Max			276.4	
Mmx=0 @	0.0	1.1	1.3	4.2
mx +M			3.3	
V max		-483.9		-266.8

Beam 45	Code: ACI318-02
Project: 1	Page: 554
Designed by:	Date: 04/09/14

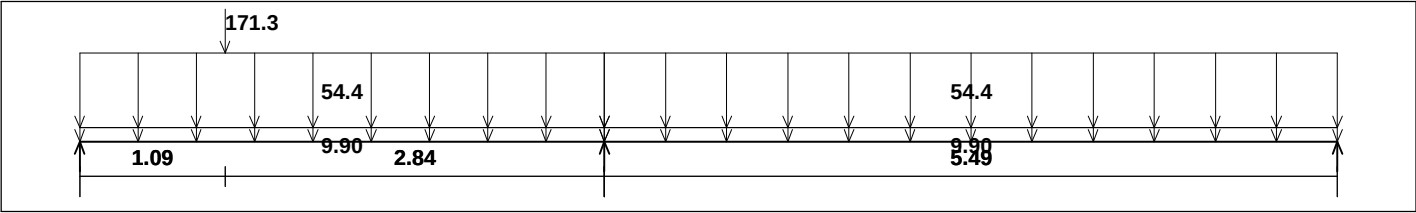
Geometry Units: meter, cm



Loading

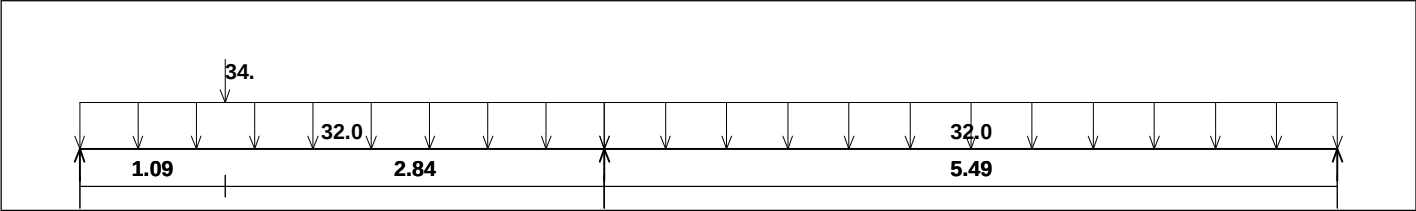
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

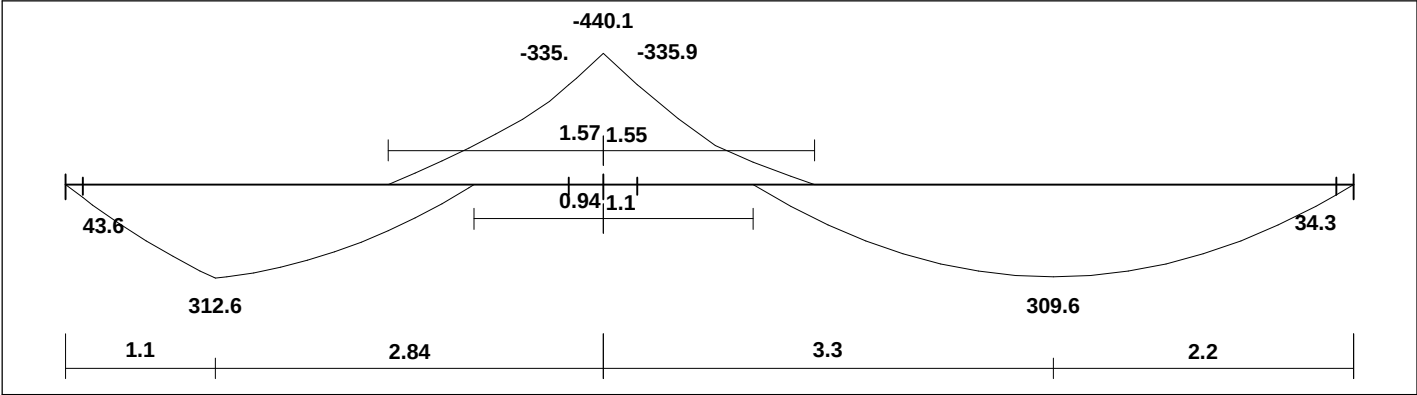


Loads (kN, meter)					
1			2		
Self. Wt.	9.90	Self. Wt.	9.90		
Uni D	54.40	L 32.00	Uni D	54.42	L 32.00
Pt. D	171.3	L 34.00			
x	1.09				

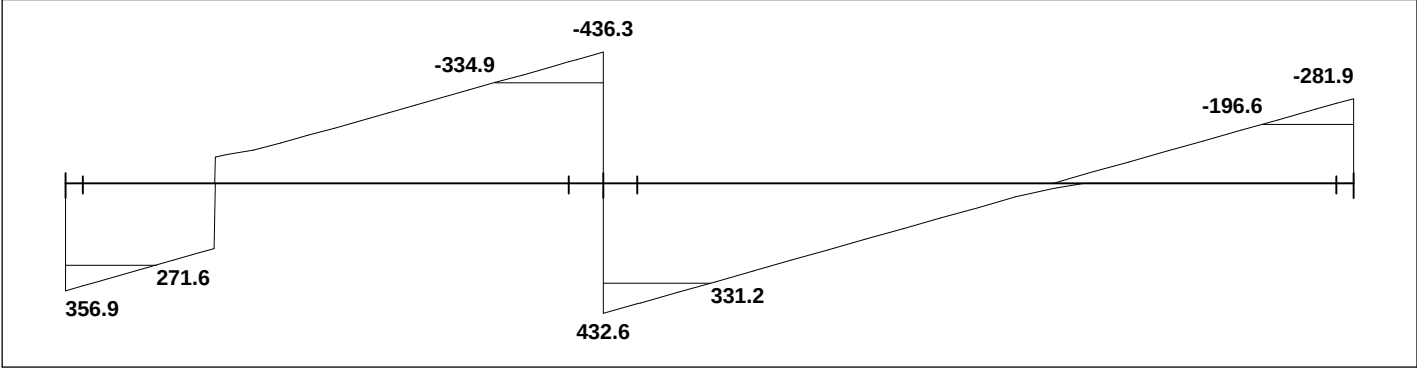
Beam 45	Code: ACI318-02
Project: 1	Page: 555
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	230.34	540.56	161.84
LiveR	126.57	328.39	120.09
Max R	356.91	868.95	281.93
Min R	201.74	679.3	152.24
Service			
DeadR	191.95	450.46	134.87
LiveR	79.11	205.25	75.06
Max R	271.05	655.71	209.92
Min R	174.07	537.18	128.87

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

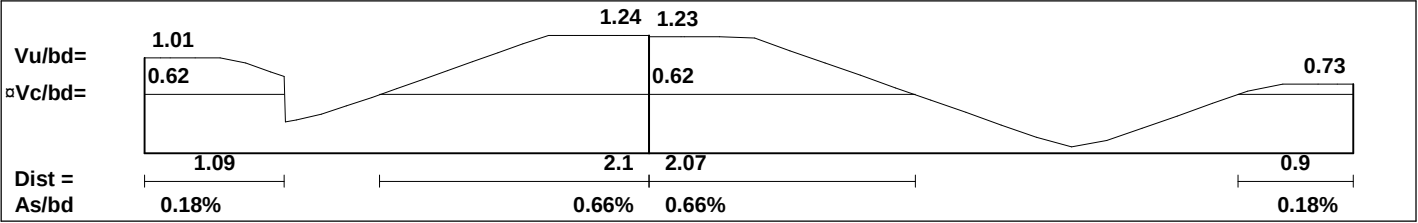


Beam 45	Code: ACI318-02
Project: 1	Page: 556
Designed by:	Date: 04/09/14

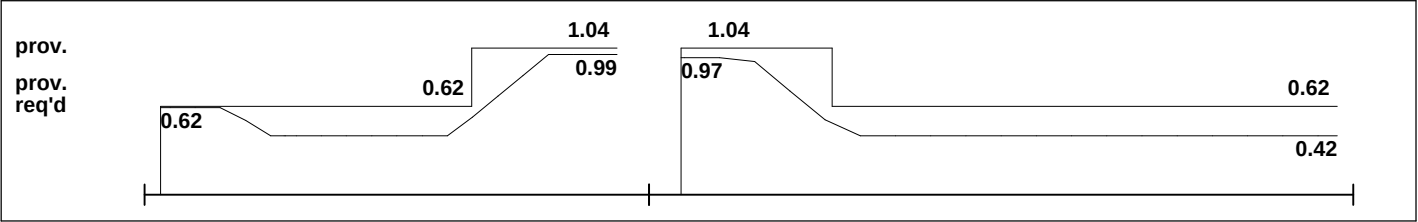
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

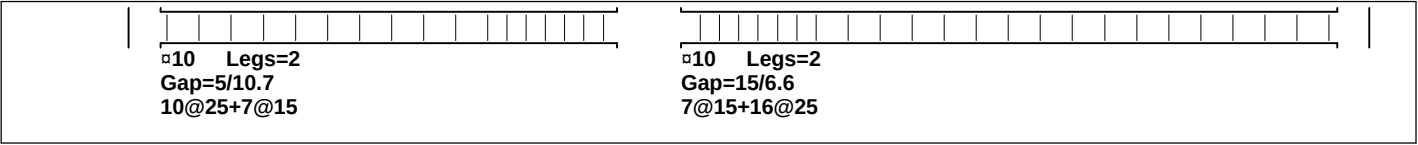
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	0.	0.
As	15.96	15.80
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.01124	0.01124
Icr(m ⁴)=	0.00297	0.00295
Mcr =	103.73	103.73
Mmax,d =	170.78	141.10
Mmax,d+l =	238.05	228.77
Mmax,sust =	111.00	91.71
Ie,d (m ⁴)=	0.00483	0.00625
Ie,d+l (m ⁴)=	0.00366	0.00372
Ie,sust (m ⁴)=	0.00972	0.01124
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	1.361	2.300
ai,l =	1.581	4.381
at,sust =	0.527	0.997
ai,l =	L/ 2487	L/ 1253
(ai+at),t2-t1	L/ 1521	L/ 888

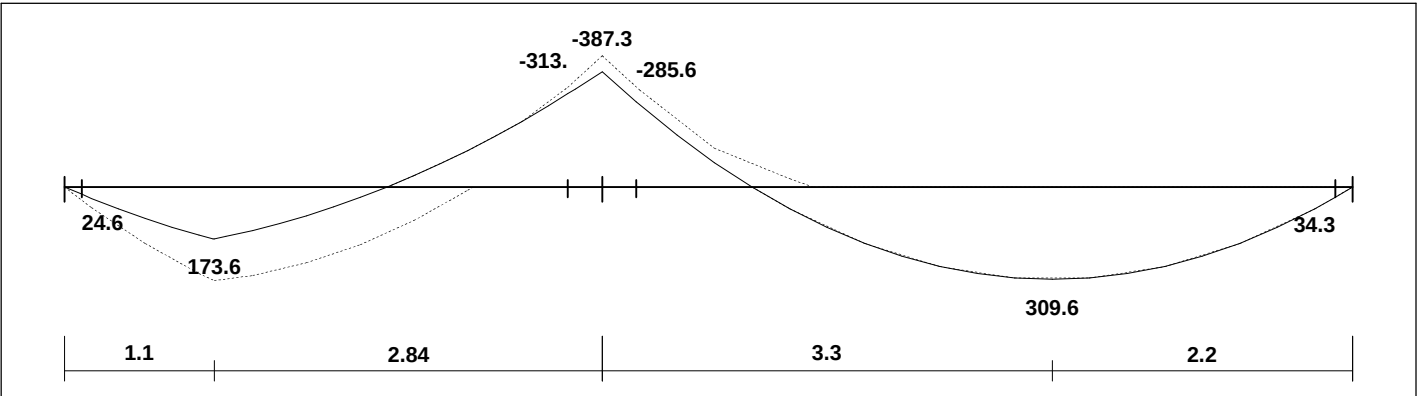
Beam 45	Code: ACI318-02
Project: 1	Page: 557
Designed by:	Date: 04/09/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	271.55	150.43	0.	0.	0.62	0.00	100	-
125	43.61	24.61	271.55	150.43	0.	2.15	0.62	0.01	-	-
197	67.82	38.24	271.55	150.43	0.	3.35	0.62	0.02	-	-
393	130.35	73.32	271.55	150.43	0.	6.50	0.62	0.03	-	-
590	188.24	105.59	271.55	150.43	0.	9.46	0.62	0.05	-	-
786	240.88	134.73	256.02	141.09	0.	12.19	0.53	0.06	-	-
983	288.83	161.03	230.73	125.89	0.	14.70	0.42	0.07	-	-
1085	311.69	173.47	217.64	118.02	0.	15.92	0.42	0.08	-	-
1095	312.56	173.62	-43.57	-88.28	0.	15.96	0.42	0.08	-	-
1180	308.40	165.83	-54.48	-94.84	0.	15.74	0.42	0.08	-	-
1376	295.25	145.76	-79.64	-109.96	0.	15.04	0.42	0.07	-	-
1573	277.07	122.60	-104.92	-133.52	0.	14.08	0.42	0.07	-	-
1769	254.04	96.59	-130.08	-158.68	0.	12.87	0.42	0.06	-	-
1966	225.92	67.46	-155.37	-183.97	0.	11.41	0.42	0.05	100	-
2163	192.83	35.33	-170.68	-209.26	0.	9.69	0.42	0.05	-	-
2359	154.95	0.39	-185.81	-234.41	0.	7.75	0.42	0.04	-	-
2556	111.92	-37.71	-201.01	-259.70	1.86	5.57	0.55	0.03	-	-
2752	64.15	-78.59	-216.13	-284.86	3.92	3.17	0.70	0.03	-	-
2949	11.18	-122.66	-231.33	-310.15	6.17	0.55	0.85	0.05	-	-
3146	-46.78	-169.73	-246.22	-334.92	8.62	0.	0.99	0.07	-	-
3342	-109.38	-219.53	-246.22	-334.92	11.27	0.	0.99	0.09	-	-
3539	-177.28	-278.49	-246.22	-334.92	14.48	0.	0.99	0.11	-	-
3682	-229.68	-334.98	-246.22	-334.92	17.64	0.	0.99	0.13	-	-
3735	-249.77	-356.58	-246.22	-334.92	17.64	0.	0.99	0.13	-	-
3932	-327.60	-440.05	-246.22	-334.92	17.64	0.	0.99	0.13	100	-
Span=2										
0	-327.60	-440.05	331.20	210.60	17.7	0.	0.97	0.13	100	-
250	-262.12	-335.91	331.20	210.60	17.7	0.	0.97	0.13	-	-
275	-255.84	-325.93	331.20	210.60	17.13	0.	0.97	0.13	-	-
549	-174.45	-221.89	331.20	210.60	11.39	0.	0.97	0.09	-	-
824	-82.35	-130.03	326.84	207.97	6.55	0.	0.94	0.05	-	-
1098	-0.25	-75.94	291.66	186.82	3.78	0.	0.74	0.03	-	-
1373	72.46	-27.48	256.35	165.60	1.35	3.59	0.53	0.02	-	-
1647	135.25	15.00	221.18	144.45	0.	6.75	0.42	0.03	-	-
1922	188.58	51.80	185.87	123.22	0.	9.48	0.42	0.05	-	-
2196	232.06	82.67	150.69	102.08	0.	11.73	0.42	0.06	-	-
2471	266.01	107.82	115.39	80.85	0.	13.50	0.42	0.06	-	-
2746	290.24	127.14	80.08	59.63	0.	14.78	0.42	0.07	100	-
3020	304.74	140.58	44.90	35.30	0.	15.55	0.42	0.07	-	-
3295	309.59	148.24	17.25	0.00	0.	15.80	0.42	0.08	-	-
3569	304.77	150.07	-3.90	-35.18	0.	15.55	0.42	0.07	-	-
3844	290.24	146.08	-25.12	-70.48	0.	14.78	0.42	0.07	-	-
4118	266.11	136.30	-46.27	-105.66	0.	13.51	0.42	0.06	-	-
4393	232.20	120.65	-67.50	-140.97	0.	11.73	0.42	0.06	-	-
4667	188.76	99.26	-88.65	-176.14	0.	9.48	0.42	0.05	-	-
4942	135.46	71.97	-100.93	-196.57	0.	6.76	0.42	0.03	-	-
5217	72.46	38.83	-100.93	-196.57	0.	3.59	0.42	0.02	-	-
5366	34.27	18.44	-100.93	-196.57	0.	1.69	0.42	0.01	-	-
5491	0.03	0.02	-100.93	-196.57	0.	0.00	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

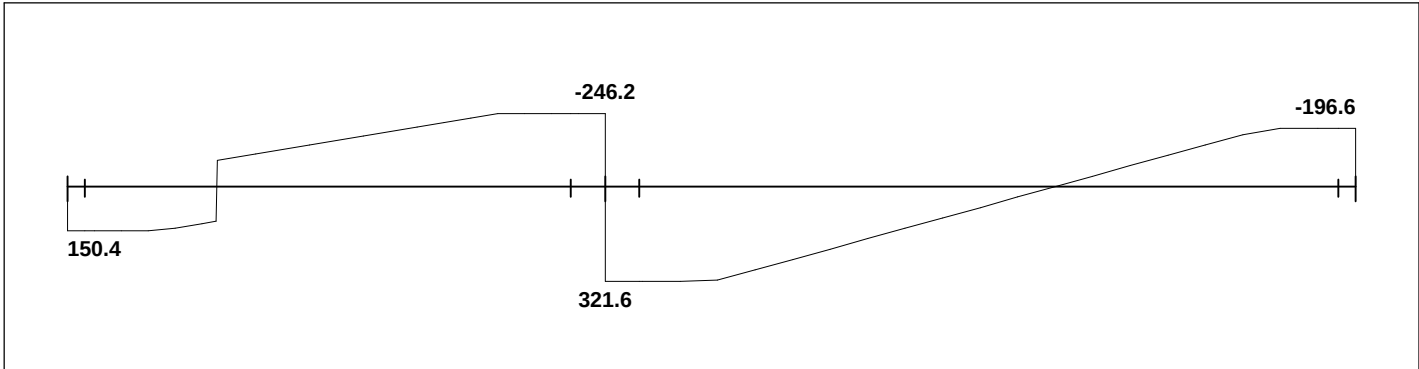
Moments: spans 1 to 2 Load pattern: xxXX



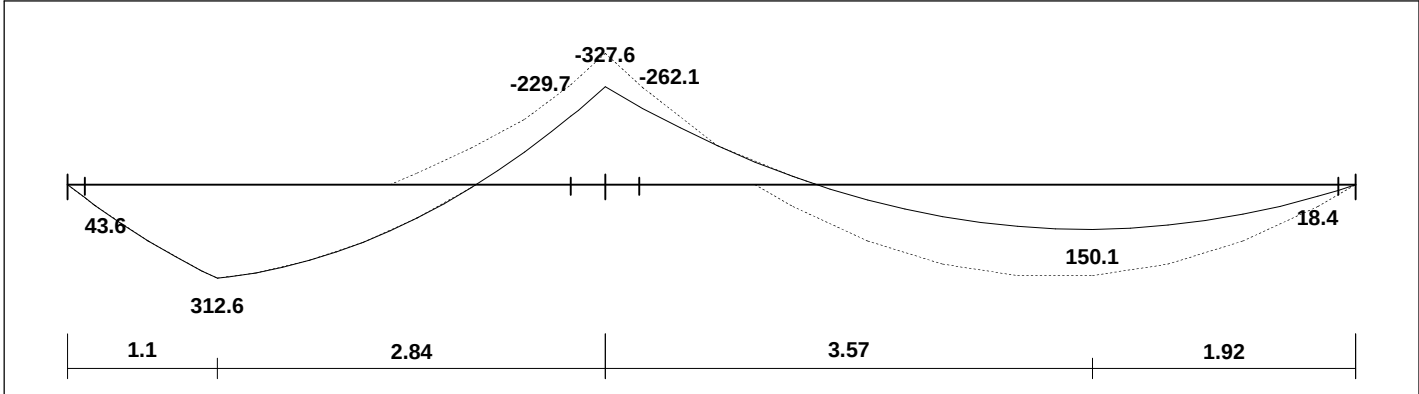
Beam 45	Code: ACI318-02
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Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

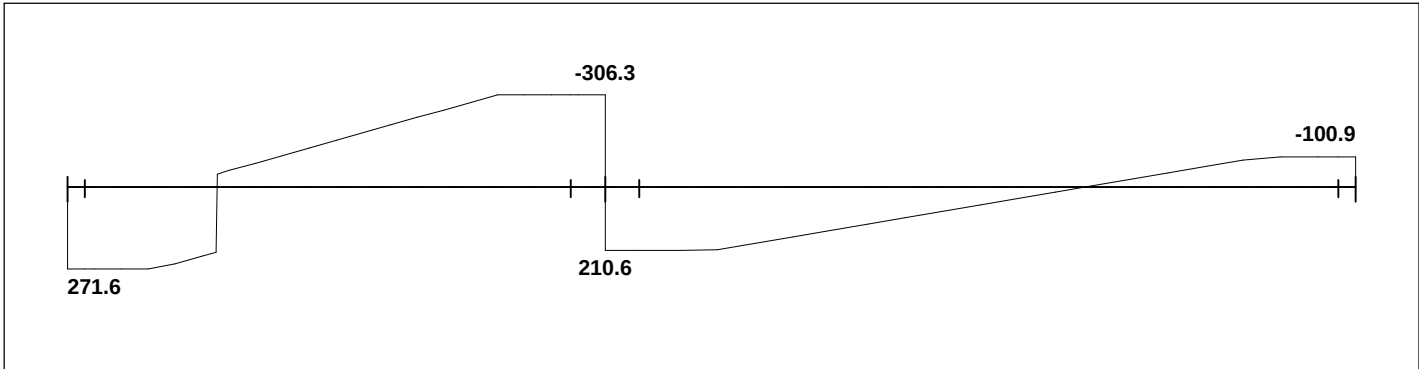
Shear



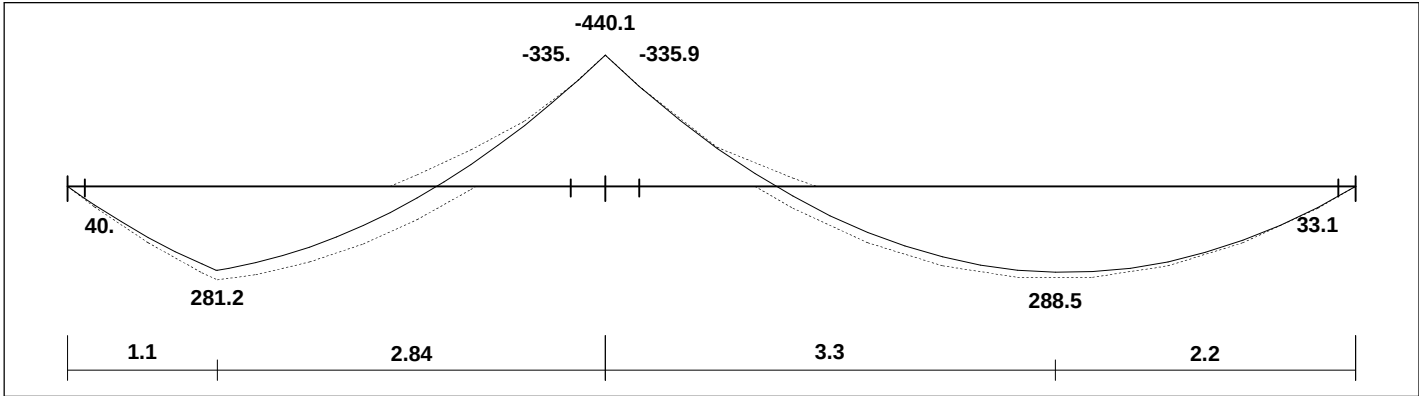
Moments: spans 1 to 2 Load pattern: XXxx



Shear



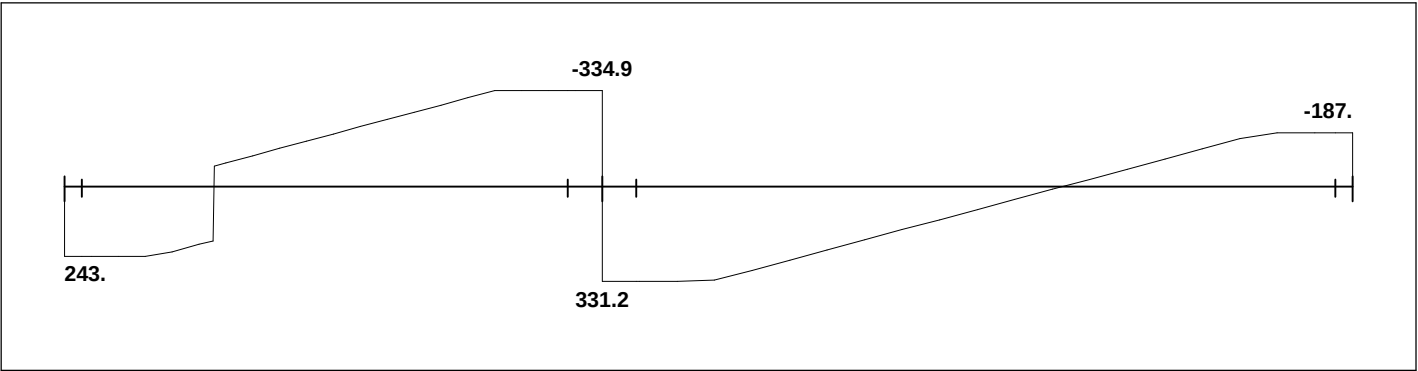
Moments: spans 1 to 2 Load pattern: XXXX



Beam 45	Code: ACI318-02
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Designed by:	Date: 04/09/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

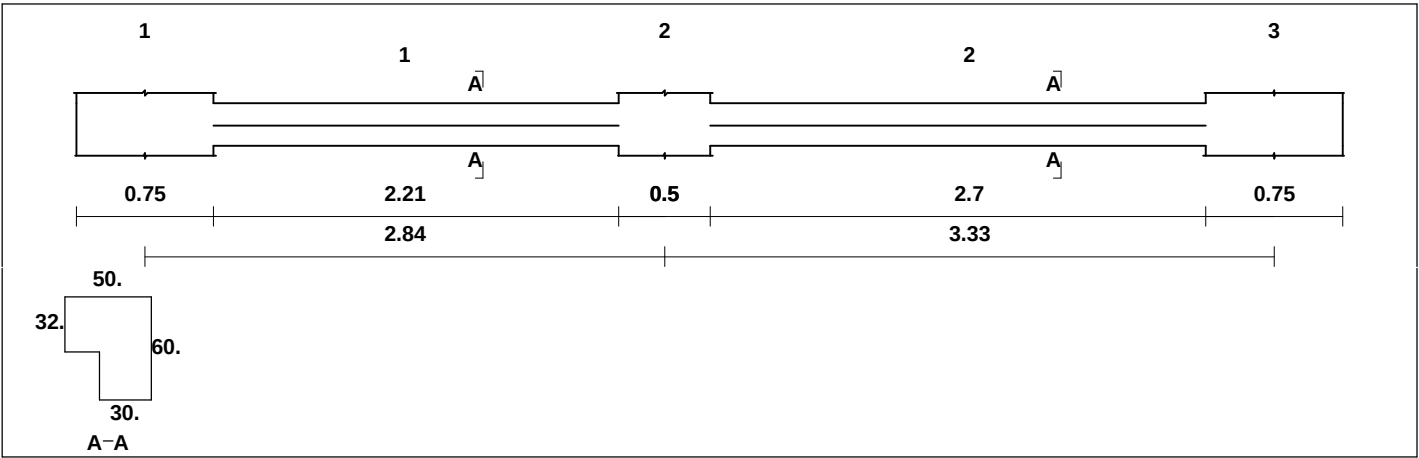
	1	2	3
Min M	0.0	-440.1	0.0
Max M	0.0	-327.6	0.0
MspMn	24.6	-335.0	18.4
MspMx	43.6	-229.7	34.3
M Max		309.6	
M Min		150.1	
Mmn=0 @	0.0	1.6	3.9
Mmx=0 @	0.0	0.9	4.4
mx -M @		1.1	
mx +M @		3.3	
V max		-307.2	-152.2
V min		-436.3	-281.9
DReac		540.6	161.8
LReac		328.4	120.1
Max R		868.9	281.9
Min R		679.3	152.2

Individual load cases - factored Units:kN,meter

	1	2	3
Min M	0.0	-387.3	0.0
M Max		309.6	
Mmx=0 @	0.0	1.6	4.4
mx +M		3.3	
V max		-307.2	-281.9
Min M	0.0	-327.6	0.0
M Max		150.1	
Mmx=0 @	0.0	0.9	3.9
mx +M		3.6	
V max		-407.7	-152.2
Min M	0.0	-440.1	0.0
M Max		288.5	
Mmx=0 @	0.0	1.2	4.2
mx +M		3.3	
V max		-436.3	-272.3

Beam 46	Code: ACI318-02
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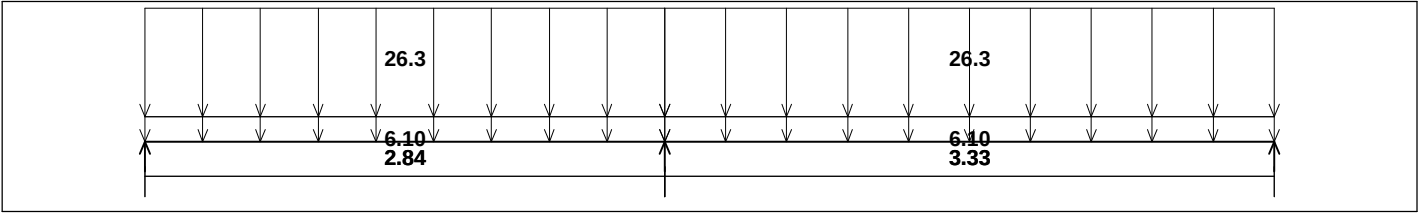
Geometry Units: meter, cm



Loading

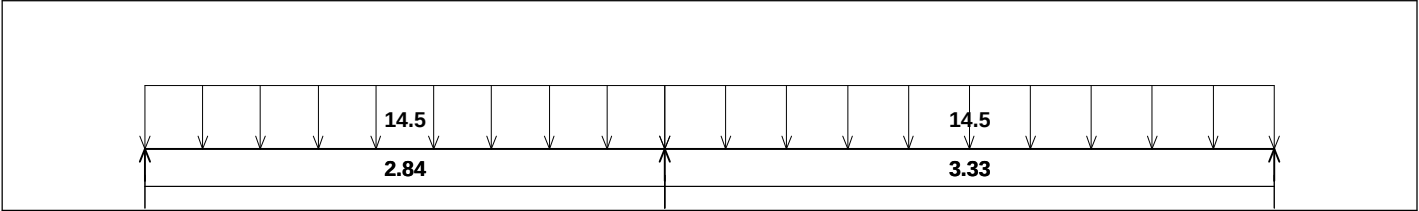
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

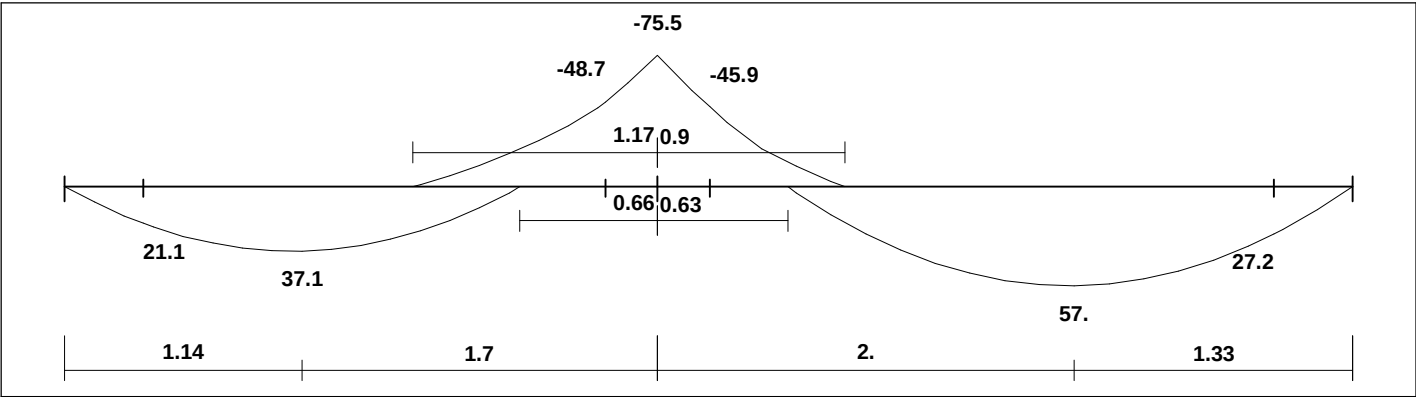


Loads (kN, meter)							
1				2			
Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10
Uni D	26.38	L	14.58	Uni D	26.38	L	14.58

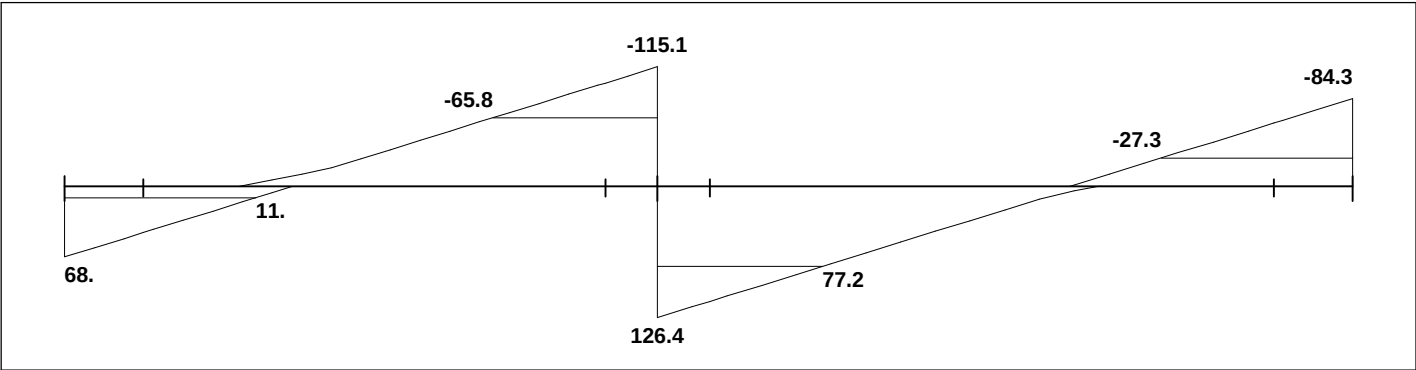
Beam 46	Code: ACI318-02
Project: 1	Page: 335
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



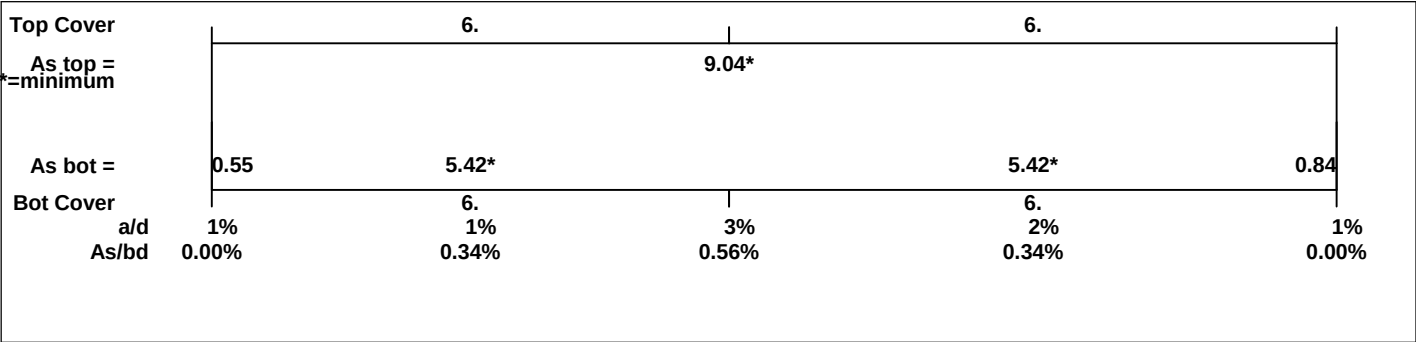
Reactions

Factored

DeadR	38.71	151.06	50.71
LiveR	29.31	90.42	33.6
Max R	68.02	241.48	84.31
Min R	32.57	191.25	47.46
Service			
DeadR	32.26	125.89	42.26
LiveR	18.32	56.51	21.
Max R	50.58	182.4	63.26
Min R	28.42	151.	40.22

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420

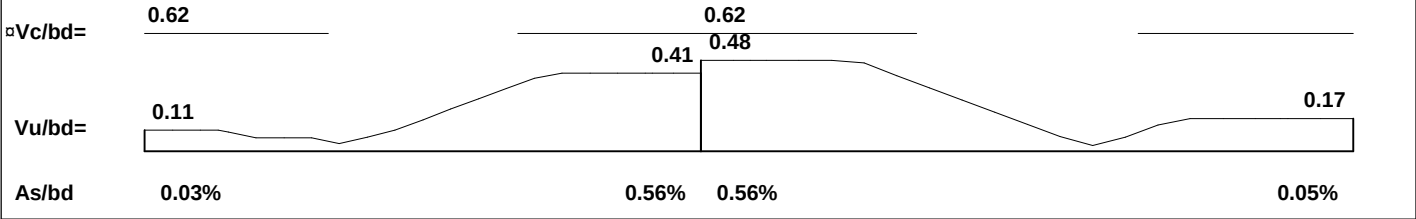


Beam 46	Code: ACI318-02
Project: 1	Page: 336
Designed by:	Date: 04/07/14

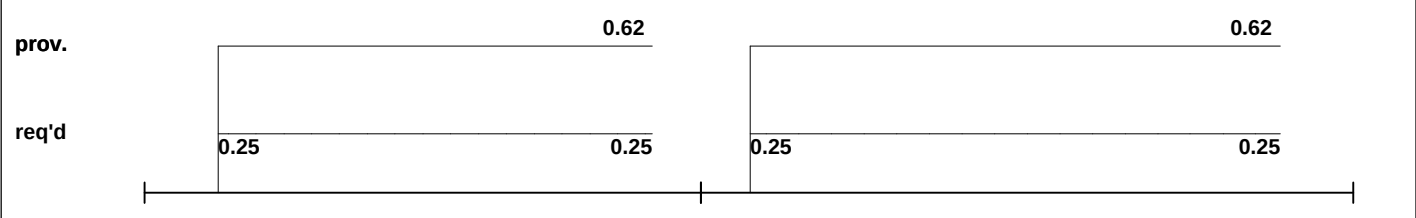
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

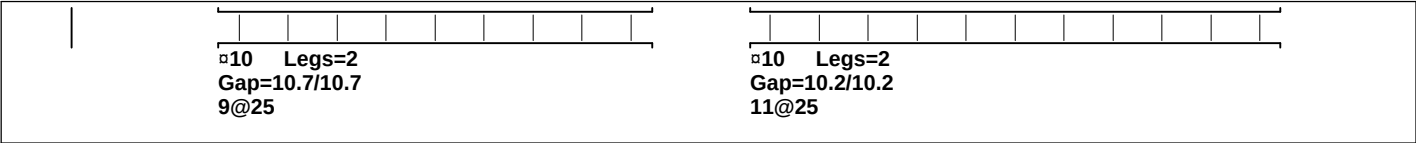
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	0.	0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.00687	0.00687
Icr(m ⁴)=	0.00110	0.00110
Mcr =	62.86	62.86
Mmax,d =	16.02	27.47
Mmax,d+l =	27.09	42.51
Mmax,sust =	10.41	17.86
Ie,d (m ⁴)=	0.00687	0.00687
Ie,d+l (m ⁴)=	0.00687	0.00687
Ie,sust (m ⁴)=	0.00687	0.00687
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	0.052	0.156
ai,l =	0.054	0.098
at,sust =	0.040	0.122
ai,l =	L/*****	L/*****
(ai+at),t2-t1	L/25292	L/12150

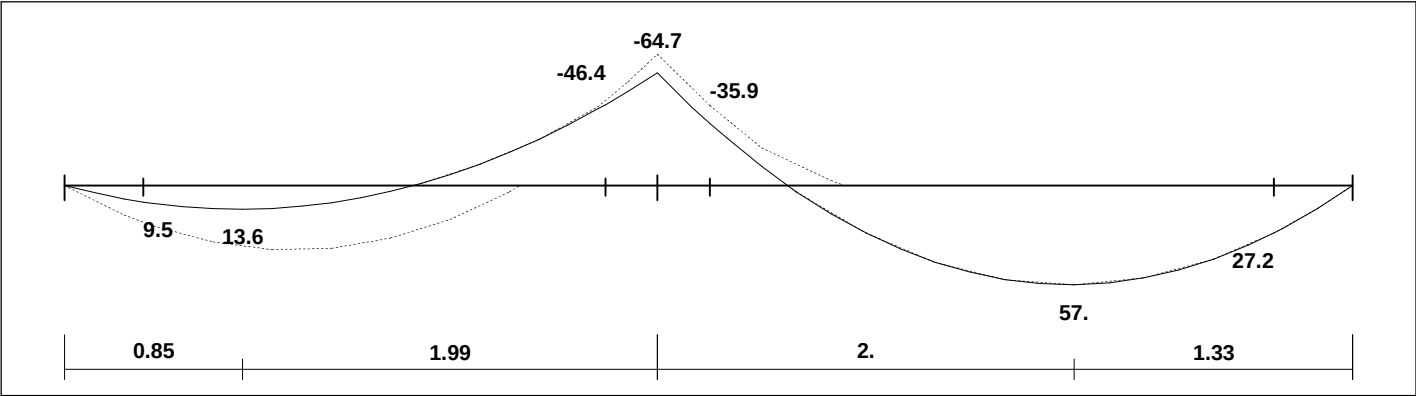
Beam 46	Code: ACI318-02
Project: 1	Page: 337
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	11.02	17.95	0.	0.	0.25	0.00	100	-
142	9.03	4.23	11.02	17.95	0.	0.44	0.25	0.00	-	-
284	16.81	7.68	11.02	17.95	0.	0.82	0.25	0.01	-	-
375	21.13	9.47	11.02	17.95	0.	1.04	0.25	0.01	-	-
426	23.32	10.34	11.02	15.96	0.	1.15	0.25	0.01	-	-
568	28.59	12.21	11.02	10.43	0.	1.41	0.25	0.01	-	-
710	32.59	13.30	11.02	4.89	0.	1.61	0.25	0.01	-	-
852	35.34	13.60	11.02	-0.64	0.	1.74	0.25	0.01	-	-
994	36.84	13.12	6.09	-6.18	0.	1.82	0.25	0.01	-	-
1136	37.07	11.85	-2.75	-11.71	0.	1.83	0.25	0.01	-	-
1278	36.05	9.79	-11.60	-17.75	0.	1.78	0.25	0.01	-	-
1420	33.78	6.95	-20.45	-26.59	0.	1.67	0.25	0.01	100	-
1562	30.25	3.32	-28.32	-35.44	0.	1.49	0.25	0.01	-	-
1704	25.46	-1.09	-33.85	-44.29	0.05	1.25	0.25	0.01	-	-
1846	19.42	-6.29	-39.38	-53.13	0.30	0.95	0.25	0.01	-	-
1988	12.11	-12.28	-44.92	-61.98	0.60	0.59	0.25	0.01	-	-
2130	3.56	-19.05	-47.34	-65.84	0.94	0.17	0.25	0.01	-	-
2272	-6.26	-26.61	-47.34	-65.84	1.31	0.	0.25	0.02	-	-
2414	-17.32	-34.95	-47.34	-65.84	1.73	0.	0.25	0.02	-	-
2556	-29.65	-45.36	-47.34	-65.84	2.26	0.	0.25	0.03	-	-
2590	-32.79	-48.70	-47.34	-65.84	2.43	0.	0.25	0.03	-	-
2698	-43.23	-59.81	-47.34	-65.84	2.43	0.	0.25	0.03	-	-
2840	-58.07	-75.52	-47.34	-65.84	2.43	0.	0.25	0.03	100	-
Span=2										
0	-58.07	-75.52	77.20	51.54	2.28	0.	0.25	0.03	100	-
166	-44.94	-55.40	77.20	51.54	2.28	0.	0.25	0.03	-	-
250	-35.85	-45.87	77.20	51.54	2.28	0.	0.25	0.03	-	-
333	-27.14	-36.88	77.20	51.54	1.83	0.	0.25	0.02	-	-
499	-10.99	-21.84	77.20	51.54	1.08	0.	0.25	0.01	-	-
666	3.51	-11.88	77.20	51.54	0.58	0.17	0.25	0.01	-	-
832	16.21	-3.06	74.58	49.91	0.15	0.79	0.25	0.01	-	-
999	27.25	4.73	64.17	43.40	0.	1.34	0.25	0.01	-	-
1165	36.51	11.40	53.83	36.93	0.	1.80	0.25	0.01	-	-
1332	44.09	17.02	43.43	30.42	0.	2.18	0.25	0.02	-	-
1498	49.90	21.53	33.08	23.95	0.	2.47	0.25	0.02	-	-
1665	54.01	24.99	22.68	17.44	0.	2.68	0.25	0.02	100	-
1831	56.38	27.35	12.34	9.09	0.	2.80	0.25	0.02	-	-
1998	57.03	28.64	4.46	-1.32	0.	2.83	0.25	0.02	-	-
2164	55.95	28.84	-2.01	-11.66	0.	2.77	0.25	0.02	-	-
2331	53.13	27.96	-8.52	-22.07	0.	2.63	0.25	0.02	-	-
2497	48.61	26.01	-11.79	-27.30	0.	2.41	0.25	0.02	-	-
2664	42.33	22.96	-11.79	-27.30	0.	2.09	0.25	0.02	-	-
2830	34.37	18.86	-11.79	-27.30	0.	1.69	0.25	0.01	-	-
2955	27.23	15.06	-11.79	-27.30	0.	1.34	0.25	0.01	-	-
2997	24.62	13.64	-11.79	-27.30	0.	1.21	0.25	0.01	-	-
3163	13.21	7.38	-11.79	-27.30	0.	0.65	0.25	0.00	-	-
3330	0.00	0.00	-11.79	-27.30	0.	0.	0.25	0.00	100	-

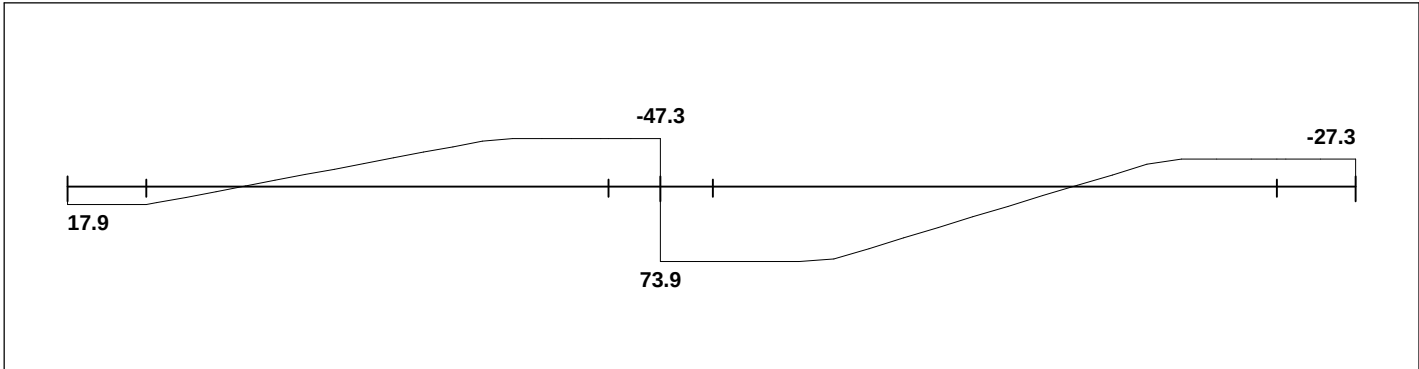
Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2 Load pattern: xxXX

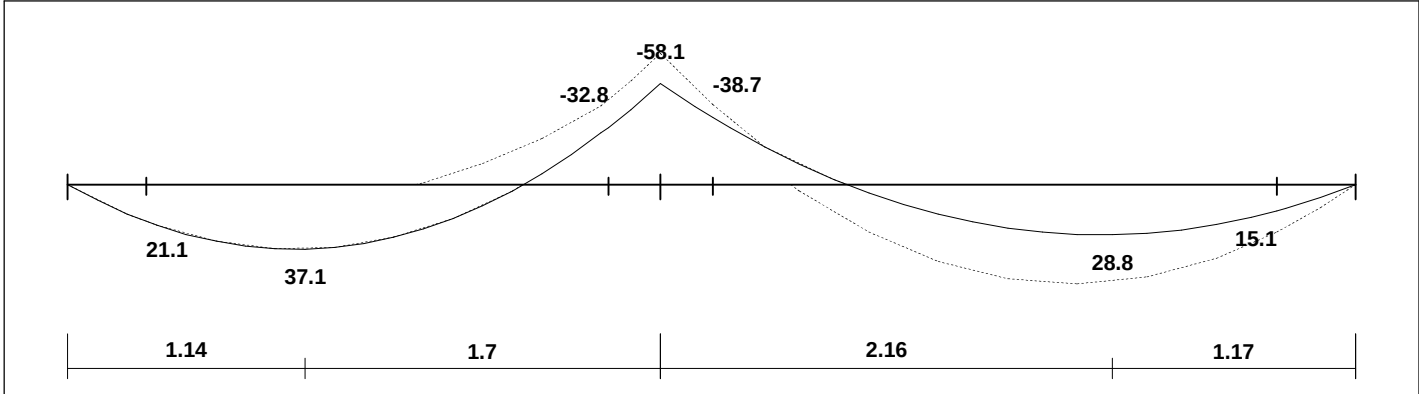


Moment/Shear Envelope (Factored) Units:kN,meter

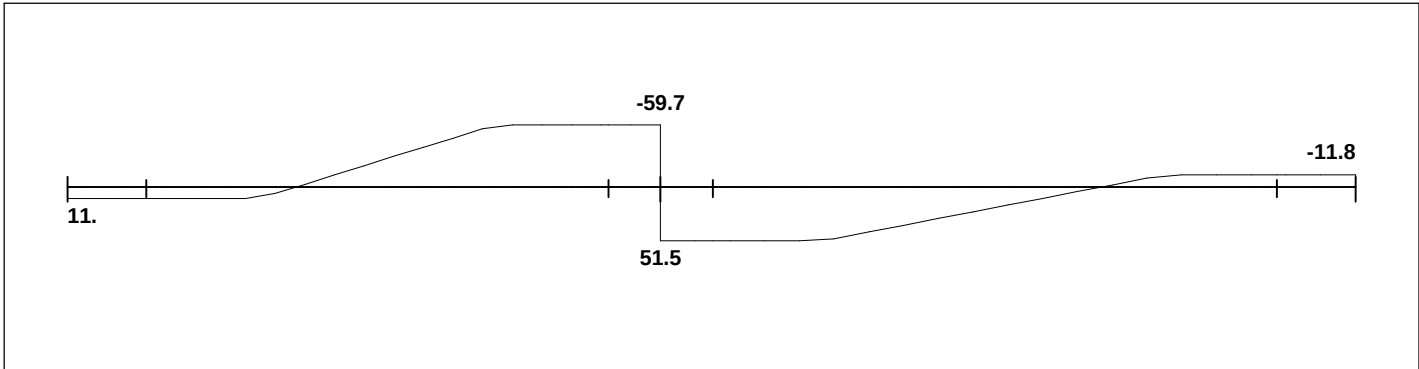
Shear



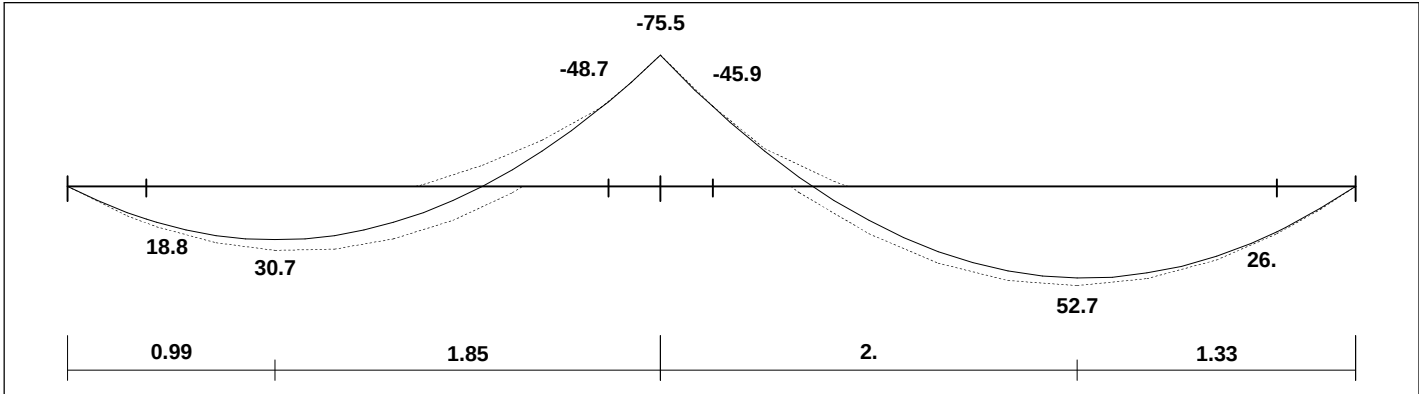
Moments: spans 1 to 2 Load pattern: XXxx



Shear



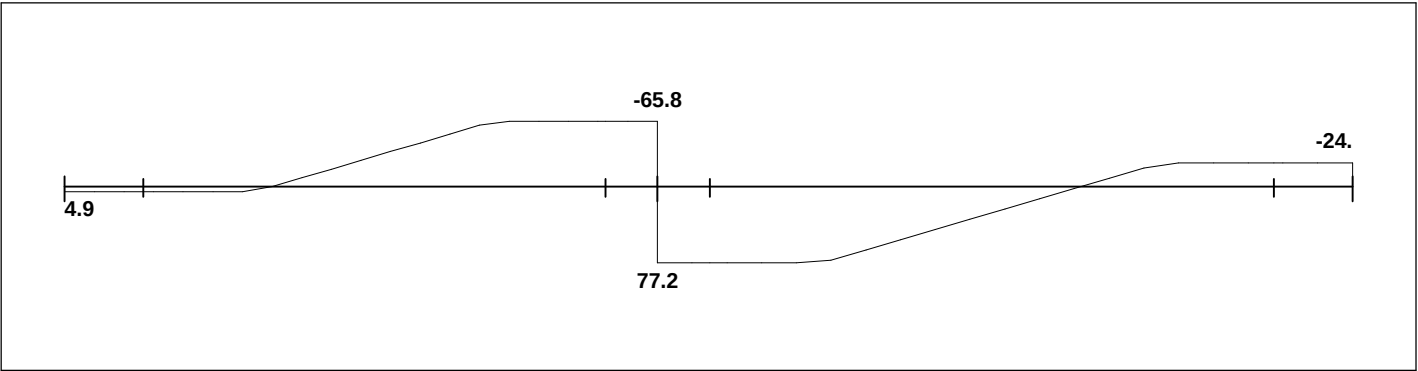
Moments: spans 1 to 2 Load pattern: XXXX



Beam 46	Code: ACI318-02
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Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

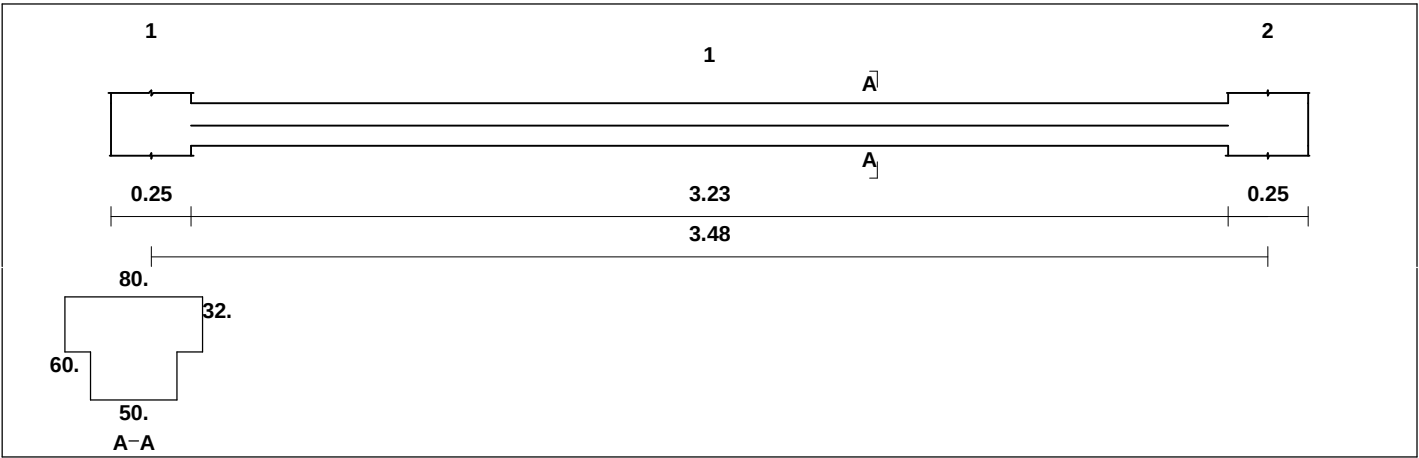
	1	2	3
	1	2	3
Min M	0.0	-75.5	0.0
Max M	0.0	-58.1	0.0
MspMn	9.5	-48.7	15.1
MspMx	21.1	-32.8	27.2
M Max		57.0	
M Min		28.8	
Mmn=0 @	0.0	1.2	3.3
Mmx=0 @	0.0	0.7	3.3
mx -M @		0.6	
mx +M @		2.0	
V max	68.0	-78.1	-47.5
V min	32.6	-115.1	-84.3
DReac	38.7	151.1	50.7
LReac	29.3	90.4	33.6
Max R	68.0	241.5	84.3
Min R	32.6	191.3	47.5

Individual load cases - factored Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-64.7	0.0
M Max		57.0	
Mmx=0 @	0.0	1.2	3.3
mx +M		2.0	
V max	32.6	-78.1	-84.3
Min M	0.0	-58.1	0.0
M Max		28.8	
Mmx=0 @	0.0	0.7	3.3
mx +M		2.2	
V max	68.0	-108.9	-47.5
Min M	0.0	-75.5	0.0
M Max		52.7	
Mmx=0 @	0.0	0.9	3.3
mx +M		2.0	
V max	61.9	-115.1	-81.1

Beam 47	Code: ACI318-02
Project: 1	Page: 339
Designed by:	Date: 04/07/14

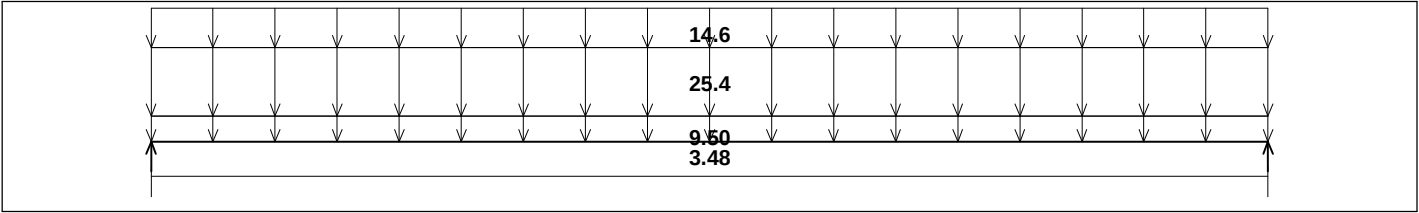
GeometryUnits: meter, cm



Loading

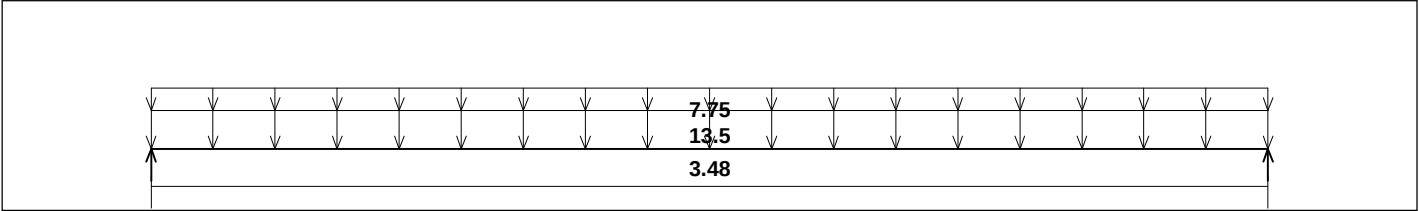
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

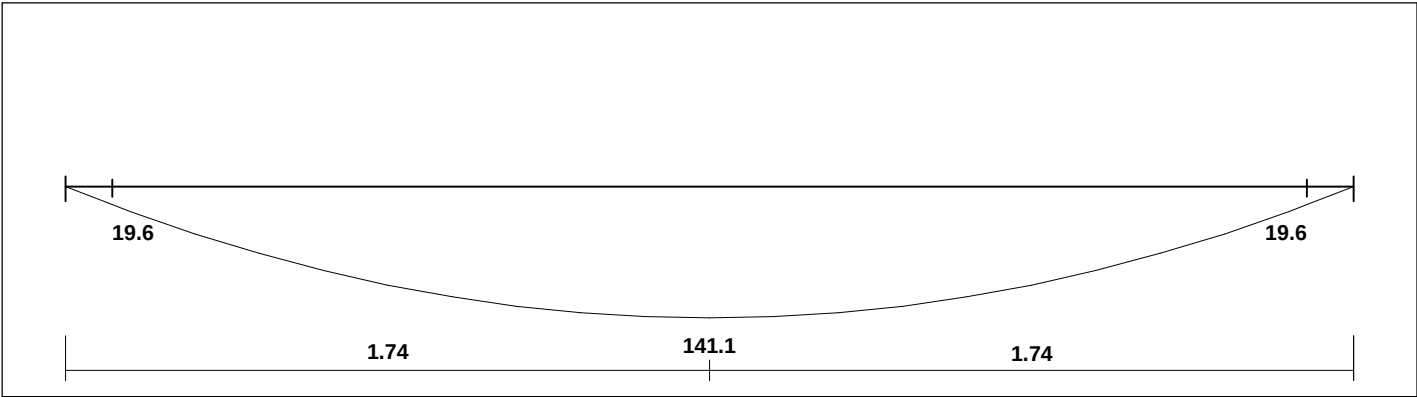


Loads (kN, meter)	
1	
Self. Wt.	9.50
Uni D 25.44 L	13.50
Uni D 14.60 L	7.75

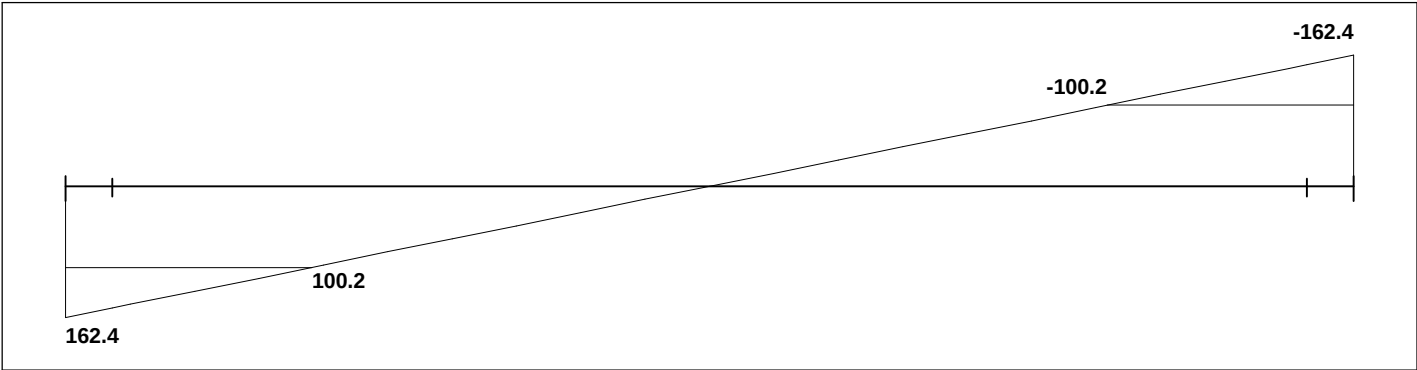
Beam 47	Code: ACI318-02
Project: 1	Page: 340
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	103.3		103.3
LiveR	59.08		59.07
Max R	162.37		162.37
Min R	162.37		162.37
Service			
DeadR	86.08		86.08
LiveR	36.92		36.92
Max R	123.		123.
Min R	123.		123.

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

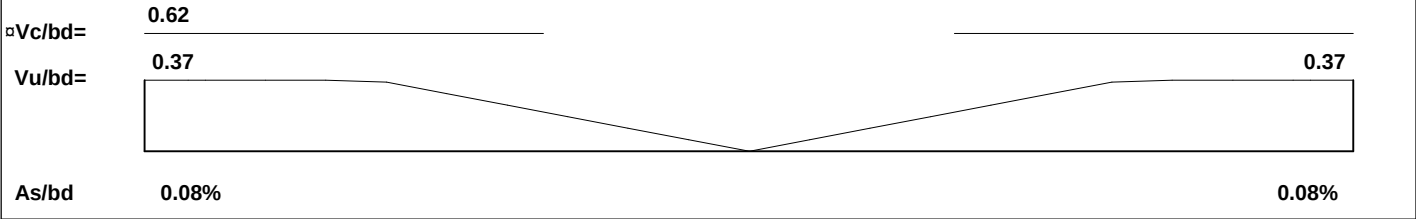


Beam 47	Code: ACI318-02
Project: 1	Page: 341
Designed by:	Date: 04/07/14

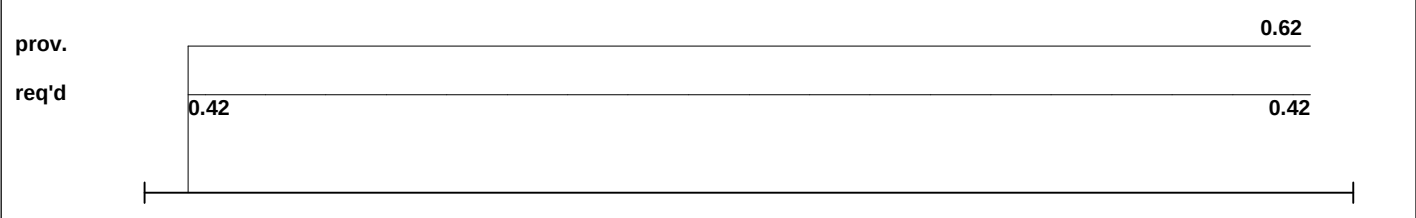
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

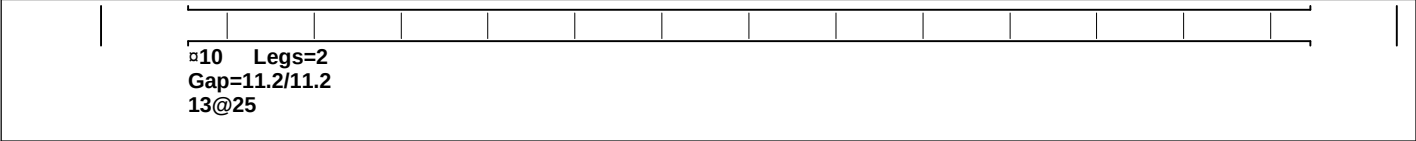
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	9.04	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.01124
Icr(m^4)= 0.00183

Mcr = 103.73

Mmax,d = 74.78
Mmax,d+l = 106.86
Mmax,sust = 48.61

Ie,d (m^4)= 0.01124
Ie,d+l (m^4)= 0.01044
Ie,sust (m^4)= 0.01124

e/1+50r = 2.00/0.80
ai,d = 0.356
ai,l = 0.192
at,sust = 0.278
ai,l = L/18113
(ai+at),t2-t1 L/ 5847

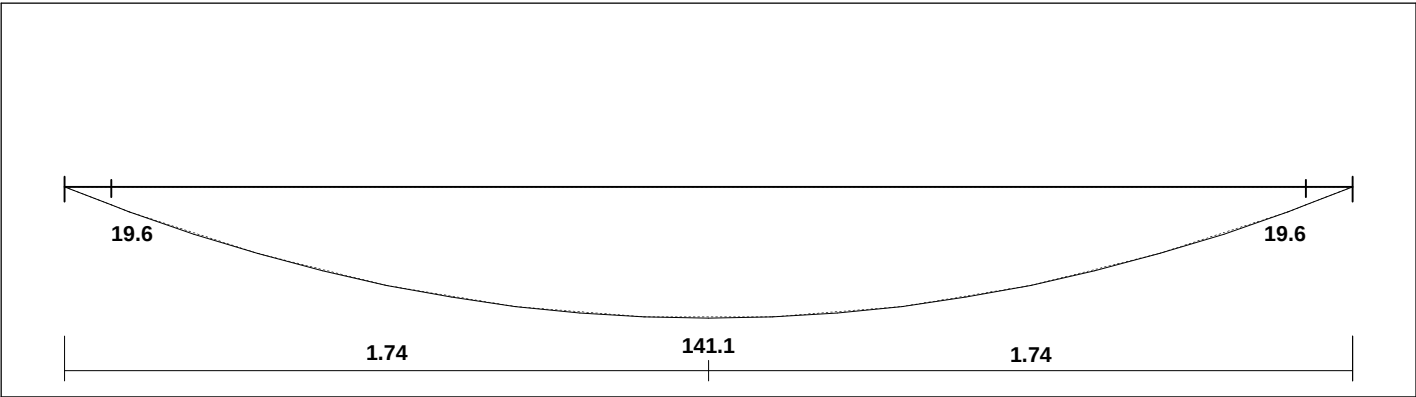
Beam 47	Code: ACI318-02
Project: 1	Page: 342
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

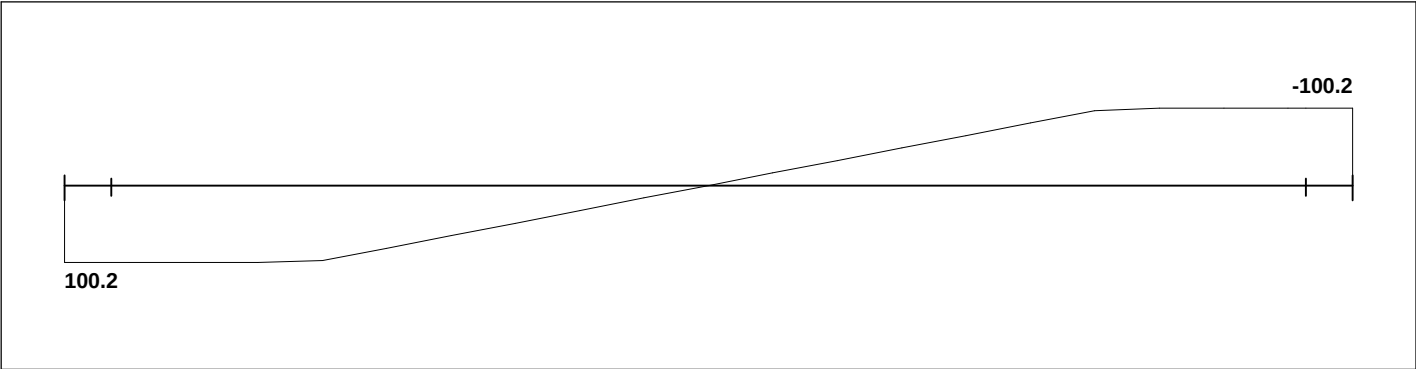
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	100.23	100.23	0.	0.	0.42	0.00	100	-
125	19.57	19.57	100.23	100.23	0.	0.96	0.42	0.00	-	-
174	26.84	26.84	100.23	100.23	0.	1.32	0.42	0.01	-	-
348	50.85	50.85	100.23	100.23	0.	2.51	0.42	0.01	-	-
521	71.91	71.91	100.23	100.23	0.	3.56	0.42	0.02	-	-
695	90.28	90.28	97.42	97.42	0.	4.48	0.42	0.02	-	-
869	105.82	105.82	81.16	81.16	0.	5.26	0.42	0.03	-	-
1043	118.53	118.53	64.90	64.90	0.	5.90	0.42	0.03	-	-
1216	128.35	128.35	48.74	48.74	0.	6.40	0.42	0.03	-	-
1390	135.42	135.42	32.47	32.47	0.	6.76	0.42	0.03	-	-
1564	139.66	139.66	16.21	16.21	0.	6.97	0.42	0.03	-	-
1738	141.06	141.06	-0.05	-0.05	0.	7.04	0.42	0.03	100	-
1911	139.66	139.66	-16.21	-16.21	0.	6.97	0.42	0.03	-	-
2085	135.42	135.42	-32.47	-32.47	0.	6.76	0.42	0.03	-	-
2259	128.35	128.35	-48.74	-48.74	0.	6.40	0.42	0.03	-	-
2433	118.46	118.46	-65.00	-65.00	0.	5.90	0.42	0.03	-	-
2606	105.82	105.82	-81.16	-81.16	0.	5.26	0.42	0.03	-	-
2780	90.28	90.28	-97.42	-97.42	0.	4.48	0.42	0.02	-	-
2954	71.91	71.91	-100.23	-100.23	0.	3.56	0.42	0.02	-	-
3128	50.72	50.72	-100.23	-100.23	0.	2.50	0.42	0.01	-	-
3301	26.84	26.84	-100.23	-100.23	0.	1.32	0.42	0.01	-	-
3350	19.57	19.57	-100.23	-100.23	0.	0.96	0.42	0.00	-	-
3475	0.00	0.00	-100.23	-100.23	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



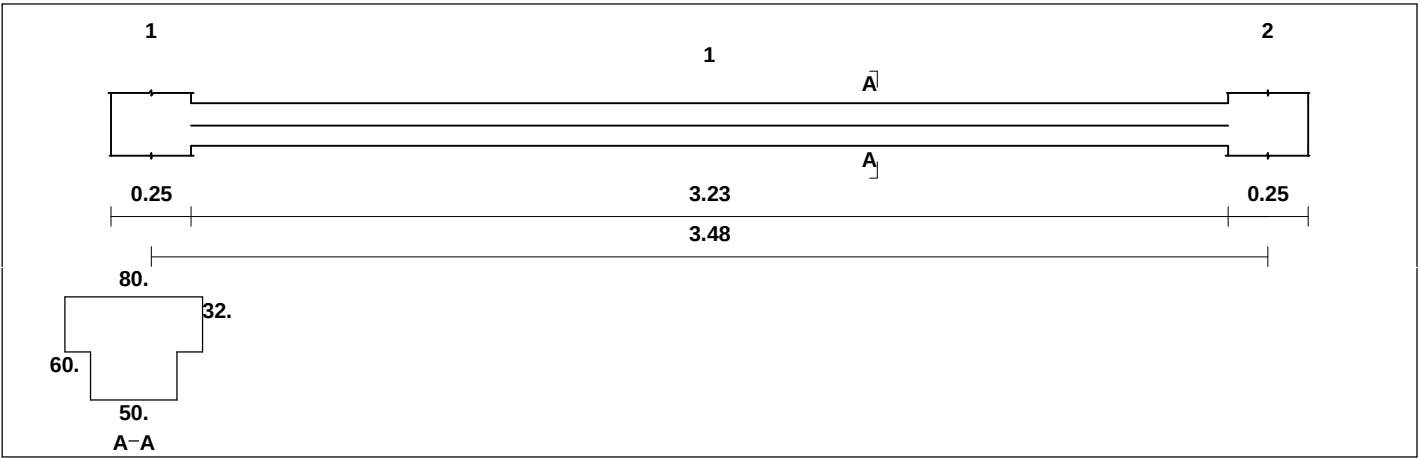
Beam 47	Code: ACI318-02
Project: 1	Page: 343
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	19.6	19.6	
MspMx	19.6	19.6	
M Max			
M Min			
Mmn=0 @	0.0	3.5	
Mmx=0 @	0.0	3.5	
mx -M @			
mx +M @			
V max		-162.4	
V min		-162.4	
DReac		103.3	
LReac	59.1	59.1	
Max R		162.4	
Min R		162.4	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	3.5	
mx +M			
V max		-162.4	

Beam 47	Code: ACI318-02
Project: 1	Page: 339
Designed by:	Date: 04/07/14

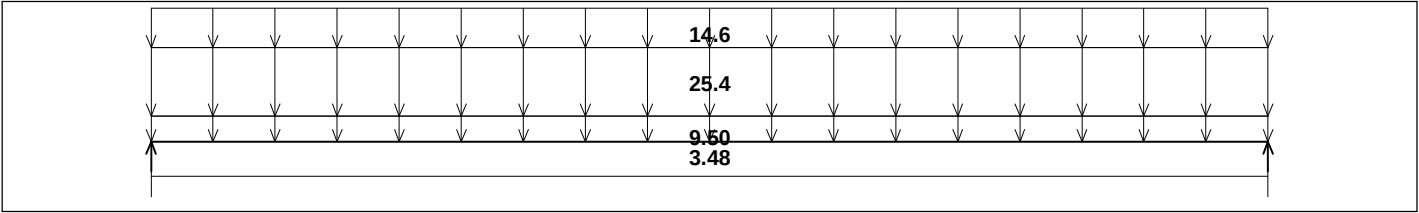
Geometry Units: meter, cm



Loading

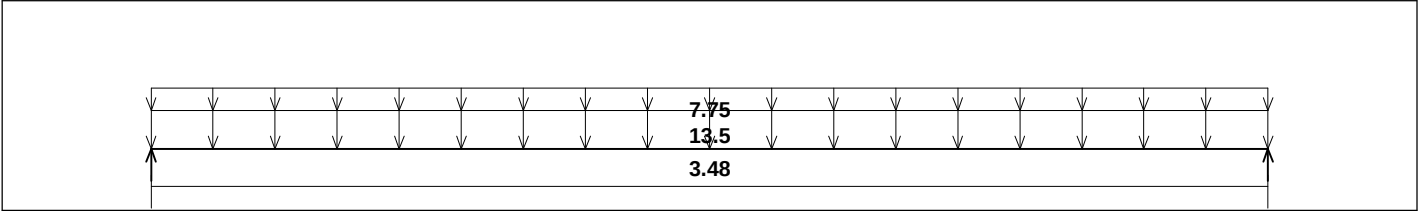
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

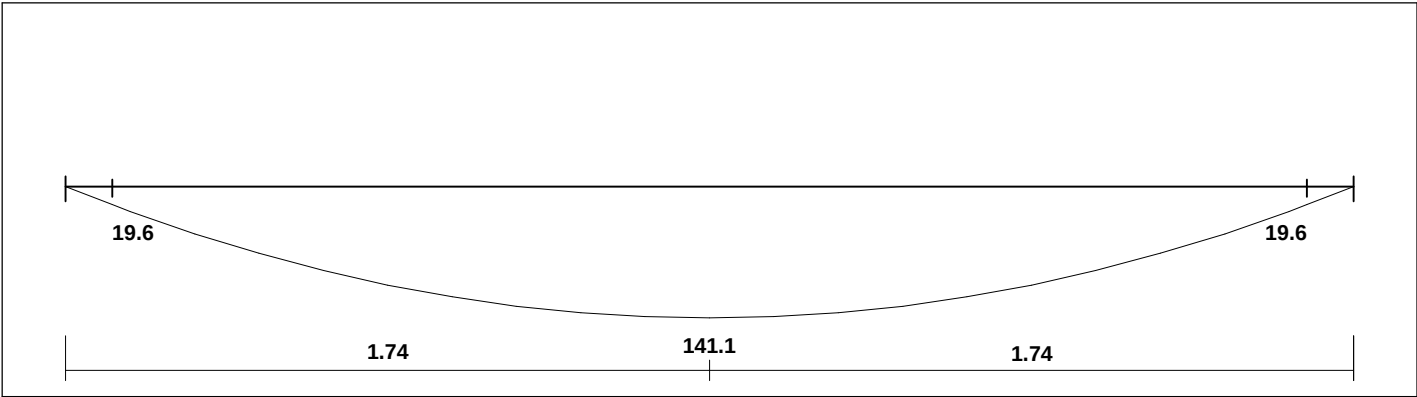


Loads (kN, meter)	
1	
Self.Wt.	9.50
Uni D 25.44 L	13.50
Uni D 14.60 L	7.75

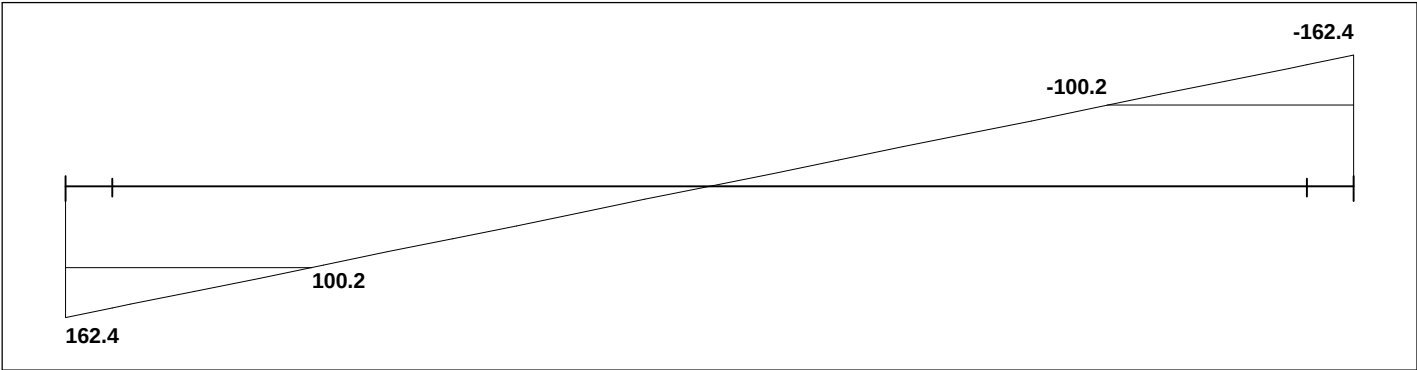
Beam 47	Code: ACI318-02
Project: 1	Page: 340
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	103.3	103.3
LiveR	59.08	59.07
Max R	162.37	162.37
Min R	162.37	162.37
Service		
DeadR	86.08	86.08
LiveR	36.92	36.92
Max R	123.	123.
Min R	123.	123.

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

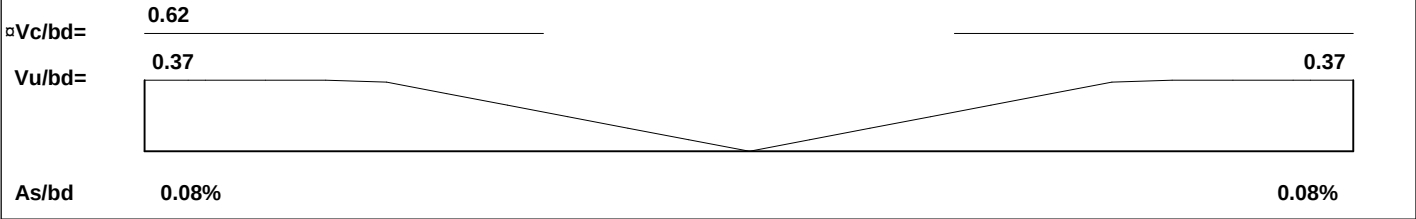


Beam 47	Code: ACI318-02
Project: 1	Page: 341
Designed by:	Date: 04/07/14

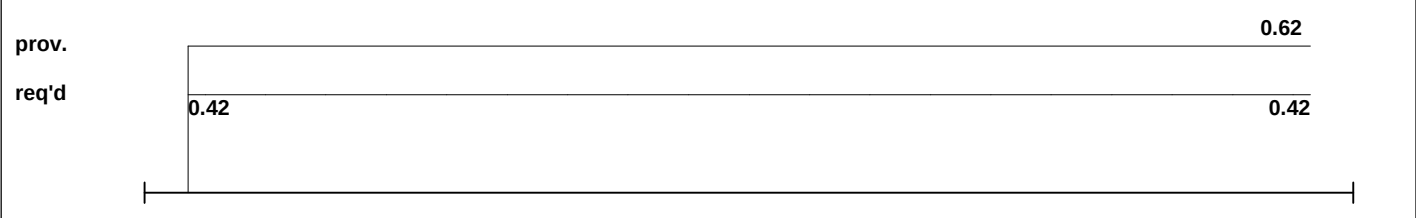
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

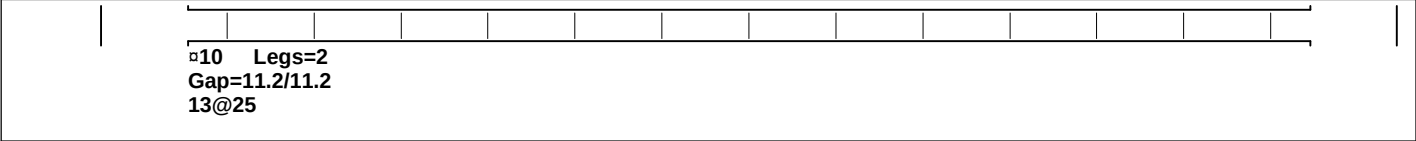
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	9.04	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.01124
Icr(m^4)= 0.00183

Mcr = 103.73
Mmax,d = 74.78
Mmax,d+l = 106.86
Mmax,sust = 48.61

Ie,d (m^4)= 0.01124
Ie,d+l (m^4)= 0.01044
Ie,sust (m^4)= 0.01124

e/1+50r = 2.00/0.80
ai,d = 0.356
ai,l = 0.192
at,sust = 0.278
ai,l = L/18113
(ai+at),t2-t1 L/ 5847

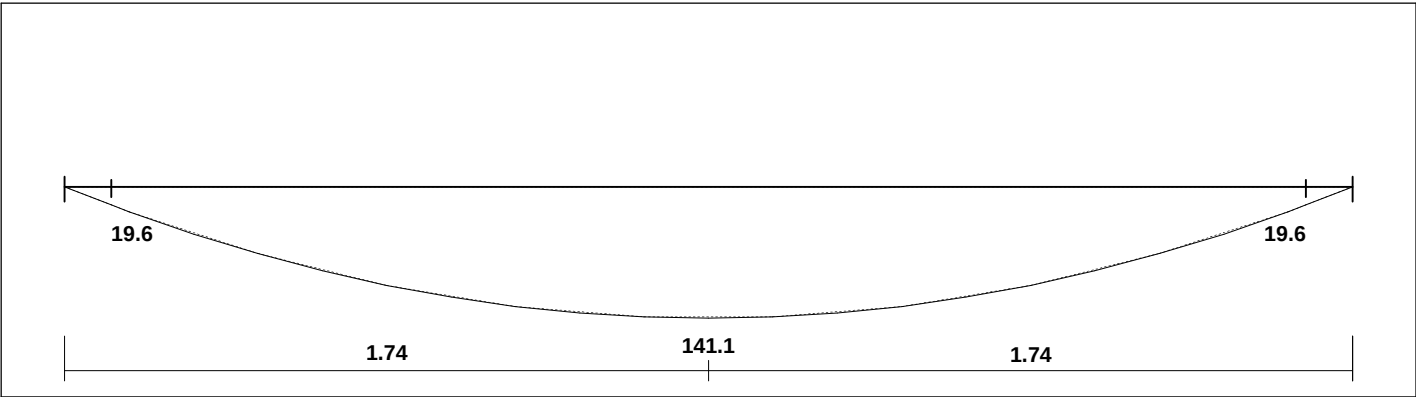
Beam 47	Code: ACI318-02
Project: 1	Page: 342
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

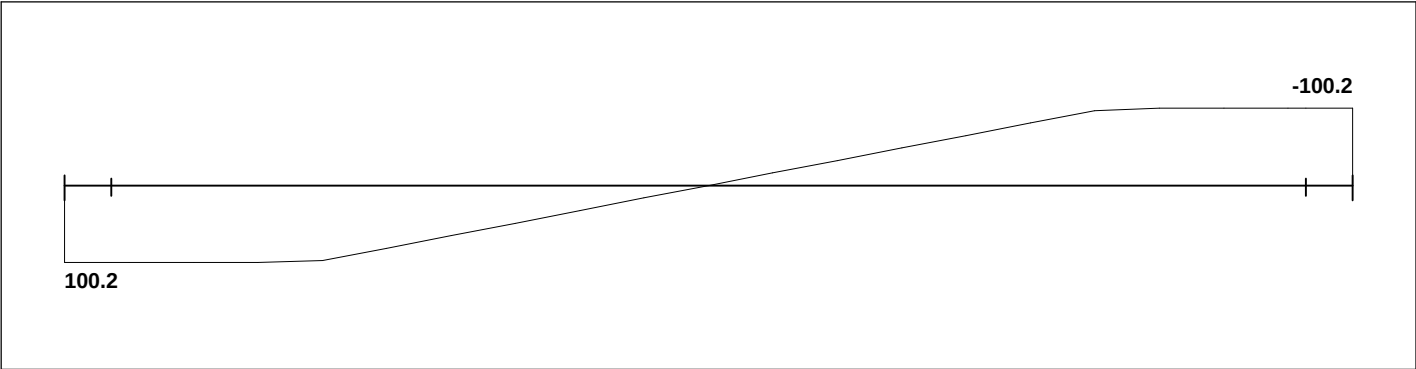
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	100.23	100.23	0.	0.	0.42	0.00	100	-
125	19.57	19.57	100.23	100.23	0.	0.96	0.42	0.00	-	-
174	26.84	26.84	100.23	100.23	0.	1.32	0.42	0.01	-	-
348	50.85	50.85	100.23	100.23	0.	2.51	0.42	0.01	-	-
521	71.91	71.91	100.23	100.23	0.	3.56	0.42	0.02	-	-
695	90.28	90.28	97.42	97.42	0.	4.48	0.42	0.02	-	-
869	105.82	105.82	81.16	81.16	0.	5.26	0.42	0.03	-	-
1043	118.53	118.53	64.90	64.90	0.	5.90	0.42	0.03	-	-
1216	128.35	128.35	48.74	48.74	0.	6.40	0.42	0.03	-	-
1390	135.42	135.42	32.47	32.47	0.	6.76	0.42	0.03	-	-
1564	139.66	139.66	16.21	16.21	0.	6.97	0.42	0.03	-	-
1738	141.06	141.06	-0.05	-0.05	0.	7.04	0.42	0.03	100	-
1911	139.66	139.66	-16.21	-16.21	0.	6.97	0.42	0.03	-	-
2085	135.42	135.42	-32.47	-32.47	0.	6.76	0.42	0.03	-	-
2259	128.35	128.35	-48.74	-48.74	0.	6.40	0.42	0.03	-	-
2433	118.46	118.46	-65.00	-65.00	0.	5.90	0.42	0.03	-	-
2606	105.82	105.82	-81.16	-81.16	0.	5.26	0.42	0.03	-	-
2780	90.28	90.28	-97.42	-97.42	0.	4.48	0.42	0.02	-	-
2954	71.91	71.91	-100.23	-100.23	0.	3.56	0.42	0.02	-	-
3128	50.72	50.72	-100.23	-100.23	0.	2.50	0.42	0.01	-	-
3301	26.84	26.84	-100.23	-100.23	0.	1.32	0.42	0.01	-	-
3350	19.57	19.57	-100.23	-100.23	0.	0.96	0.42	0.00	-	-
3475	0.00	0.00	-100.23	-100.23	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



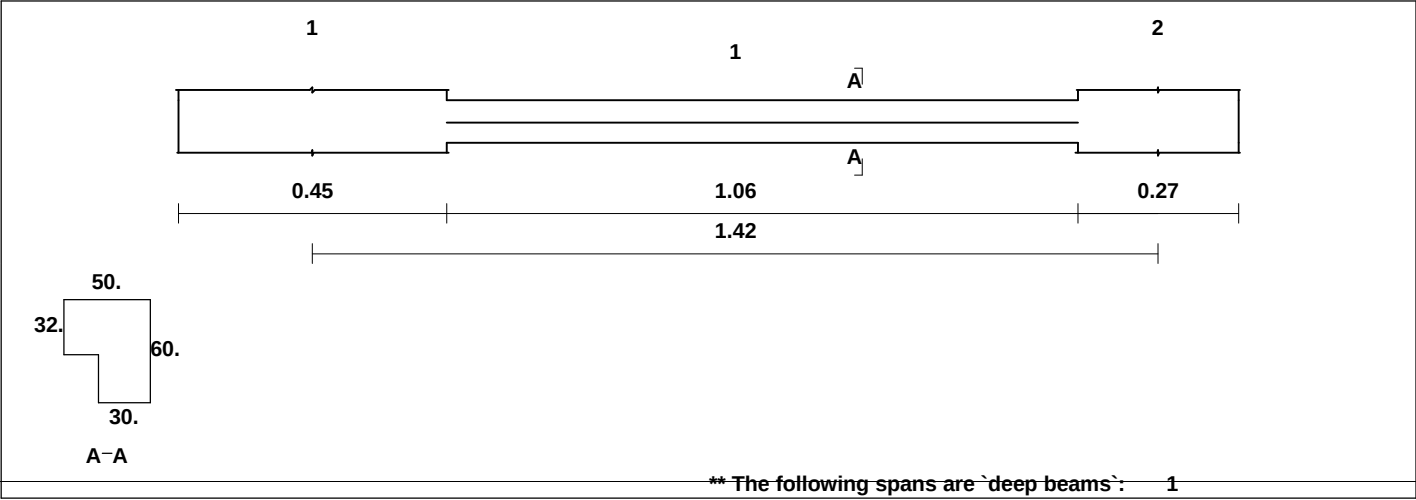
Beam 47	Code: ACI318-02
Project: 1	Page: 343
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	19.6	19.6	
MspMx	19.6	19.6	
M Max			
M Min			
Mmn=0 @	0.0	3.5	
Mmx=0 @	0.0	3.5	
mx -M @			
mx +M @			
V max		-162.4	
V min		-162.4	
DReac		103.3	
LReac	59.1	59.1	
Max R		162.4	
Min R		162.4	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	3.5	
mx +M			
V max		-162.4	

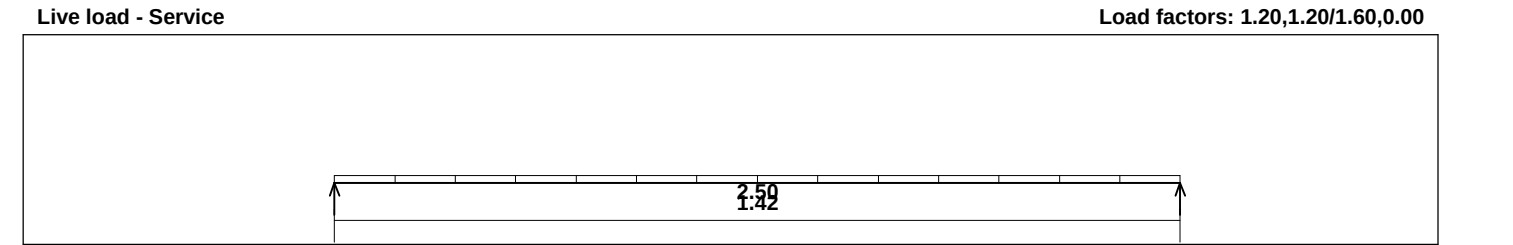
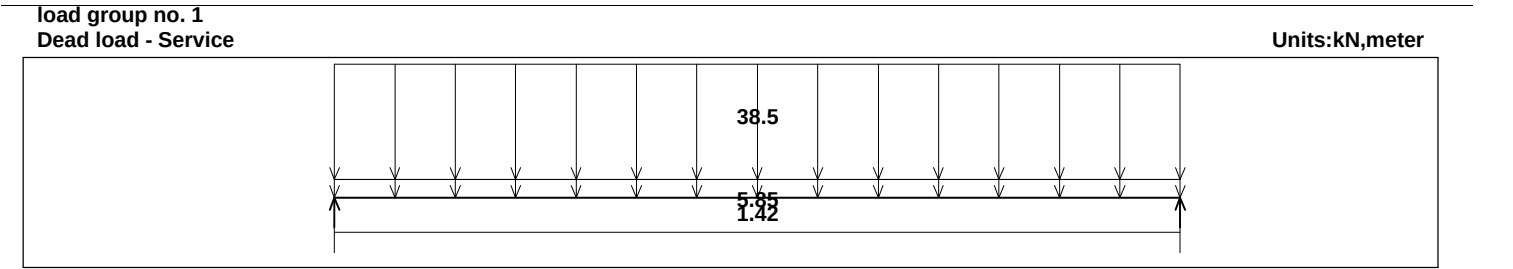
Beam 48	Code: ACI318-02
Project: 1	Page: 343
Designed by:	Date: 04/07/14

Geometry	Units: meter, cm



** The following spans are `deep beams`: 1

Loading



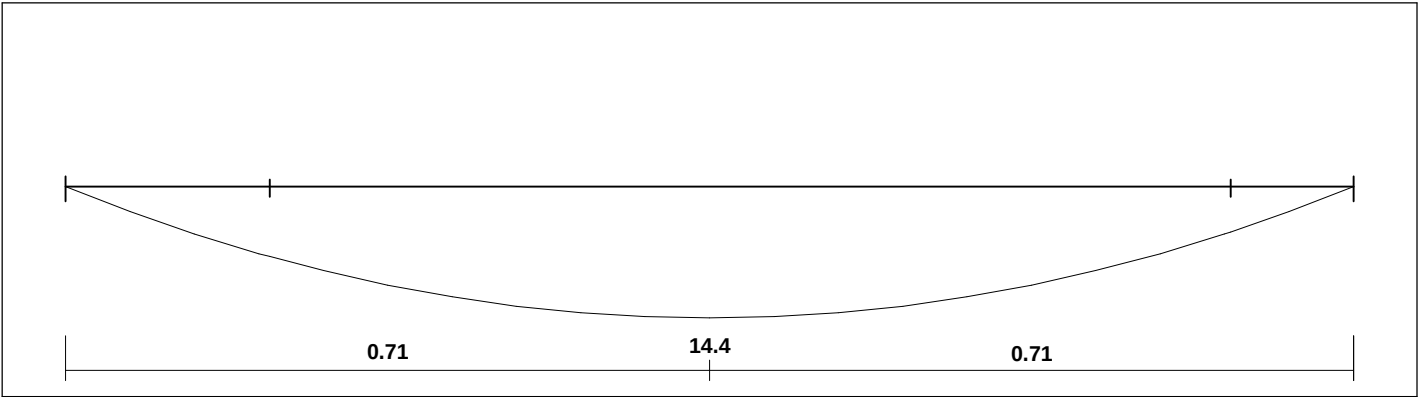
Loads	(kN, meter)
1	

Self. Wt.	5.86
Uni D	38.54
L	2.50

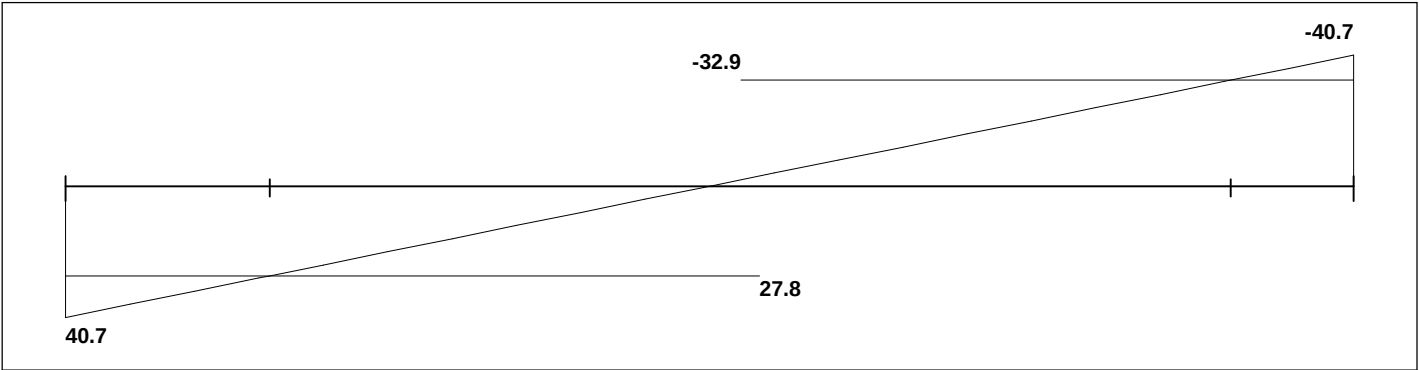
Beam 48	Code: ACI318-02
Project: 1	Page: 344
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

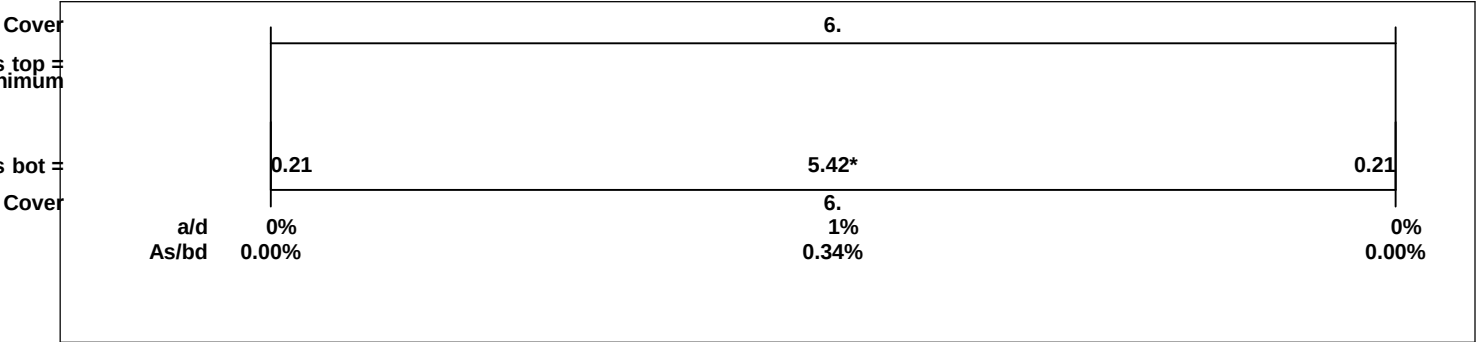


Reactions

Factored			
DeadR	37.83		37.83
LiveR	2.84		2.84
Max R	40.67		40.67
Min R	40.67		40.67
Service			
DeadR	31.52		31.52
LiveR	1.77		1.77
Max R	33.3		33.3
Min R	33.3		33.3

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Center

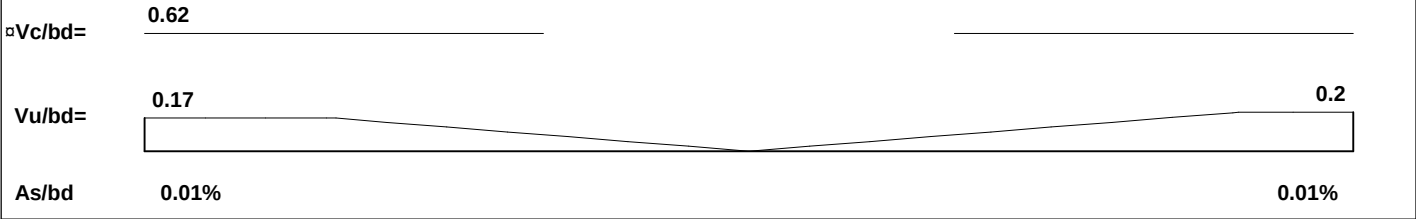


Beam 48	Code: ACI318-02
Project: 1	Page: 345
Designed by:	Date: 04/07/14

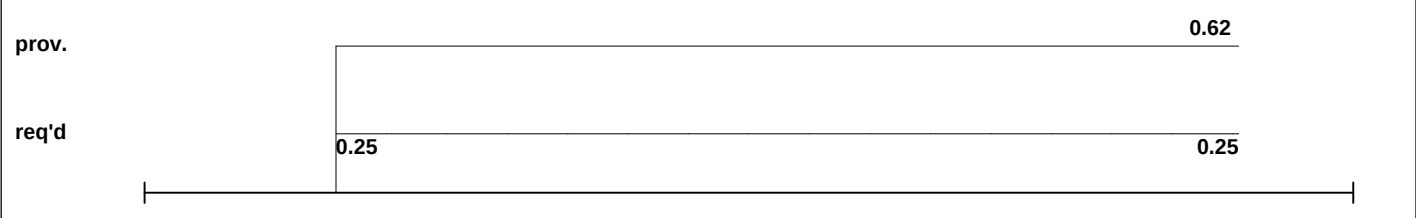
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

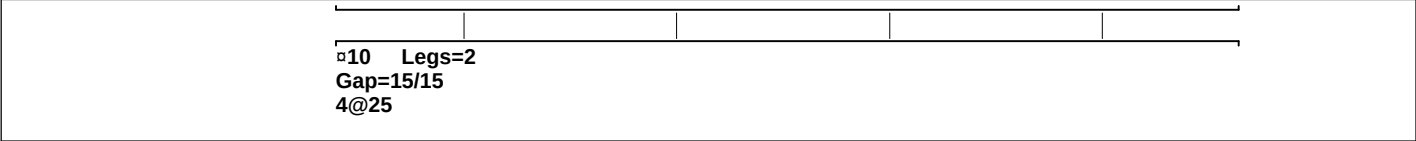
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	5.42
As	0.	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 11.19
Mmax,d+l = 11.82
Mmax,sust = 7.27

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00/0.80
ai,d = 0.015
ai,l = 0.001
at,sust = 0.011
ai,l = L/*****
(ai+at),t2-t1 L/*****

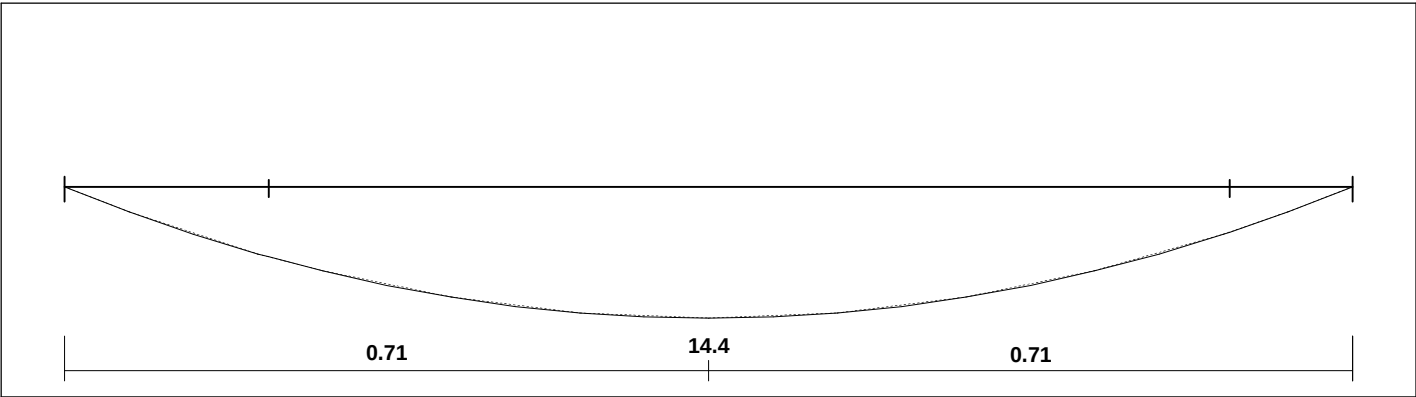
Beam 48	Code: ACI318-02
Project: 1	Page: 346
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

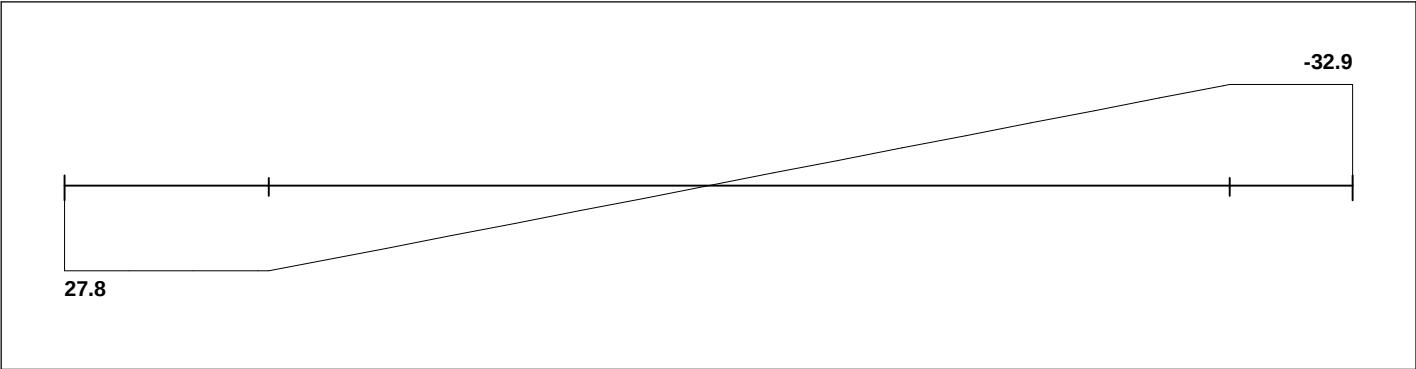
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	27.78	27.78	0.	0.	0.25	0.00	100	-
71	2.74	2.74	27.78	27.78	0.	0.13	0.25	0.00	-	-
142	5.20	5.20	27.78	27.78	0.	0.25	0.25	0.00	-	-
213	7.36	7.36	27.78	27.78	0.	0.36	0.25	0.00	-	-
225	7.70	7.70	27.78	27.78	0.	0.37	0.25	0.00	-	-
284	9.24	9.24	24.40	24.40	0.	0.45	0.25	0.00	-	-
355	10.83	10.83	20.33	20.33	0.	0.53	0.25	0.00	-	-
426	12.13	12.13	16.27	16.27	0.	0.59	0.25	0.00	-	-
497	13.14	13.14	12.20	12.20	0.	0.64	0.25	0.00	-	-
568	13.86	13.86	8.13	8.13	0.	0.68	0.25	0.01	-	-
639	14.29	14.29	4.07	4.07	0.	0.70	0.25	0.01	-	-
710	14.44	14.44	0.00	0.00	0.	0.71	0.25	0.01	100	-
781	14.29	14.29	-4.07	-4.07	0.	0.70	0.25	0.01	-	-
852	13.86	13.86	-8.13	-8.13	0.	0.68	0.25	0.01	-	-
923	13.14	13.14	-12.20	-12.20	0.	0.64	0.25	0.00	-	-
994	12.13	12.13	-16.27	-16.27	0.	0.59	0.25	0.00	-	-
1065	10.83	10.83	-20.33	-20.33	0.	0.53	0.25	0.00	-	-
1136	9.24	9.24	-24.40	-24.40	0.	0.45	0.25	0.00	-	-
1207	7.36	7.36	-28.47	-28.47	0.	0.36	0.25	0.00	-	-
1278	5.20	5.20	-32.53	-32.53	0.	0.25	0.25	0.00	-	-
1285	4.97	4.97	-32.93	-32.93	0.	0.24	0.25	0.00	-	-
1349	2.74	2.74	-32.93	-32.93	0.	0.13	0.25	0.00	-	-
1420	0.00	0.00	-32.93	-32.93	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



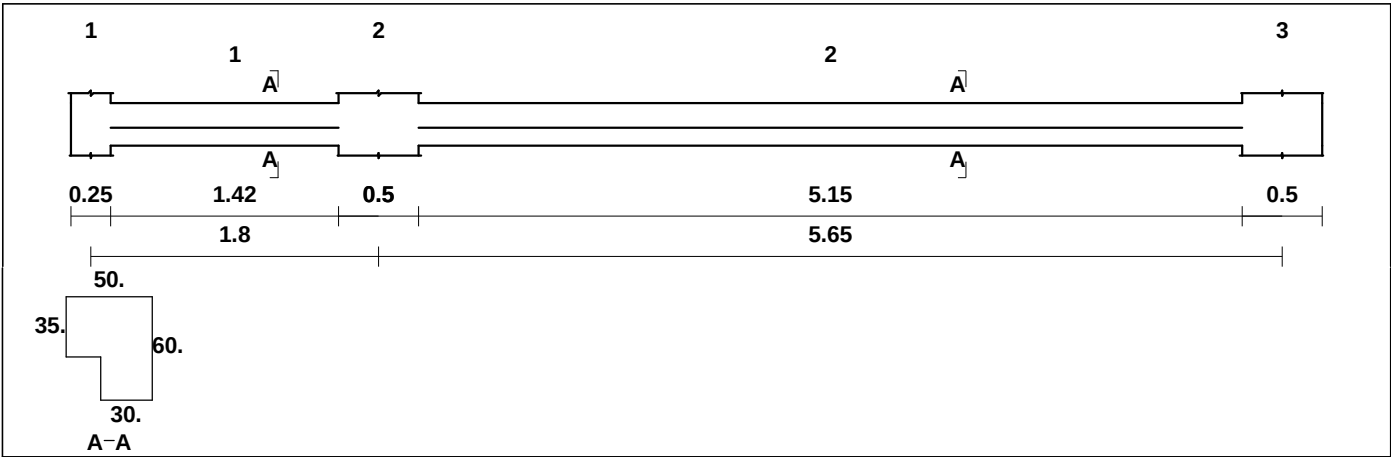
Beam 48	Code: ACI318-02
Project: 1	Page: 347
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	7.7	5.0	
MspMx	7.7	5.0	
M Max			
M Min			
Mmn=0 @	0.0	1.4	
Mmx=0 @	0.0	1.4	
mx -M @			
mx +M @			
V max	40.7	-40.7	
V min	40.7	-40.7	
DReac	37.8	37.8	
LReac	2.8	2.8	
Max R	40.7	40.7	
Min R	40.7	40.7	

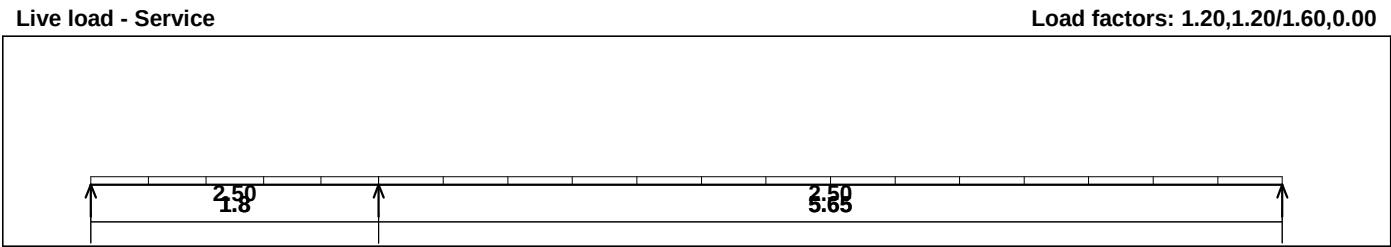
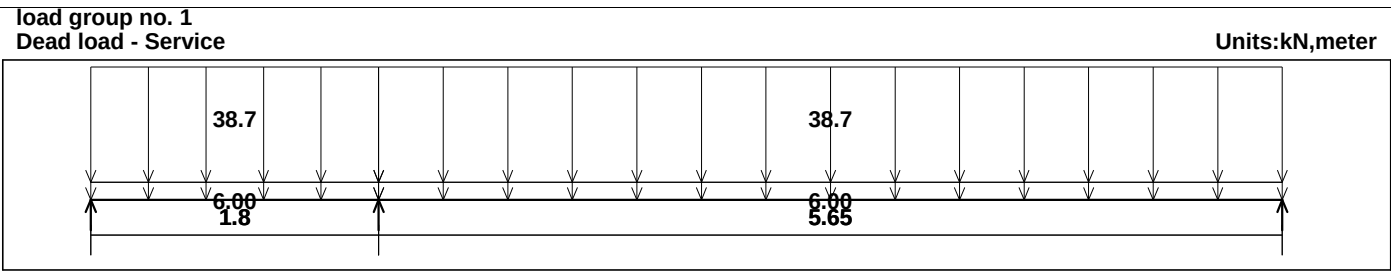
Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.4	
mx +M			
V max	40.7	-40.7	

Beam 49	Code: ACI318-02
Project: BAEMS	Page: 213
Designed by: bayan	Date: 4/ 7/14

Geometry Units: meter, cm



Loading



Loads (kN, meter)					
1			2		
Self. Wt.	6.00	Self. Wt.	6.00	Self. Wt.	6.00
Uni D	38.70	L	2.50	Uni D	38.70
			L		2.50

Beam 49

Project: BAEMS

Designed by: bayan

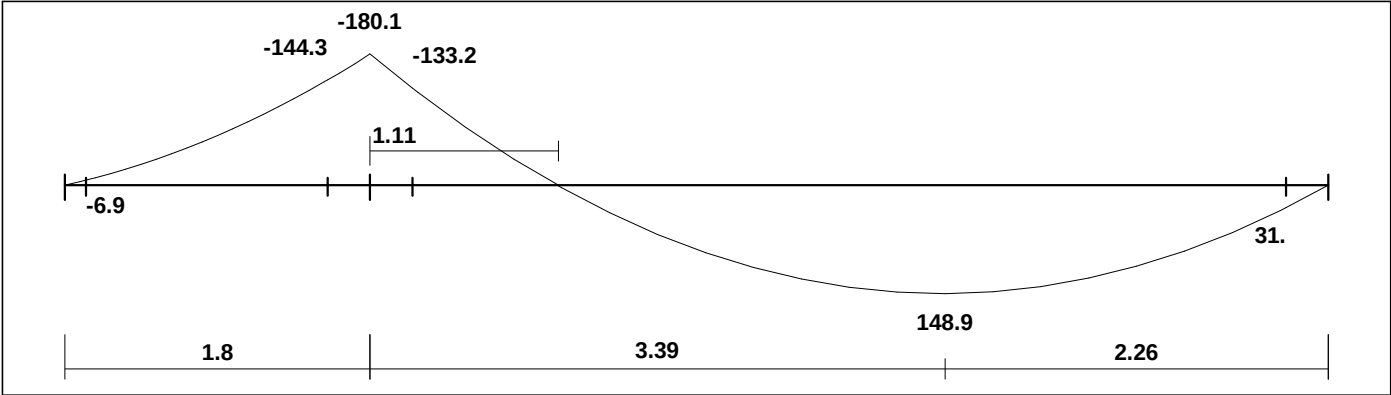
Code: ACI318-02

Page: 214

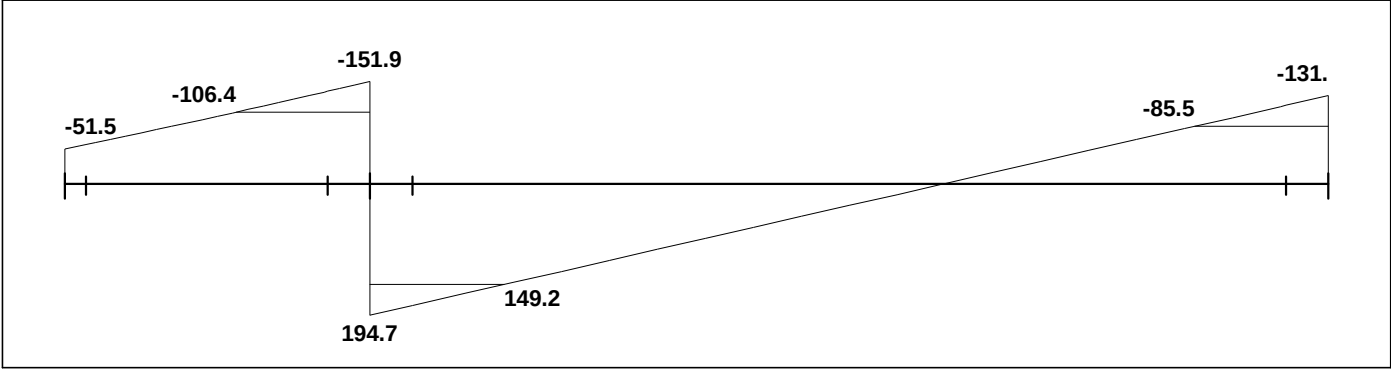
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

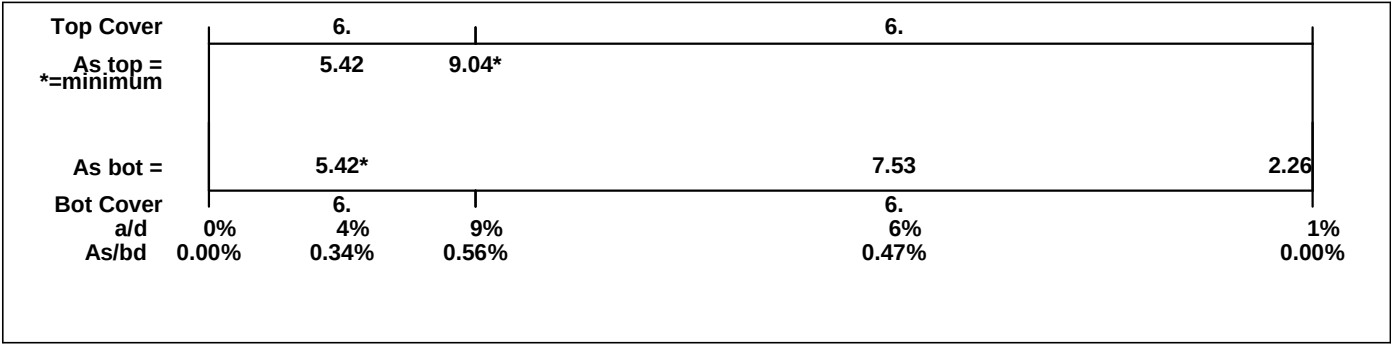
Factored

DeadR	-44.82	322.57	121.87
LiveR	-6.72	24.05	9.16
Max R	-41.44	346.62	131.03
Min R	-51.55	326.45	121.8
Service			
DeadR	-37.35	268.8	101.56
LiveR	-4.2	15.03	5.72
Max R	-35.24	283.84	107.28
Min R	-41.55	271.23	101.52

Beam 49	Code: ACI318-02
Project: BAEMS	Page: 215
Designed by: bayan	Date: 4/ 7/14

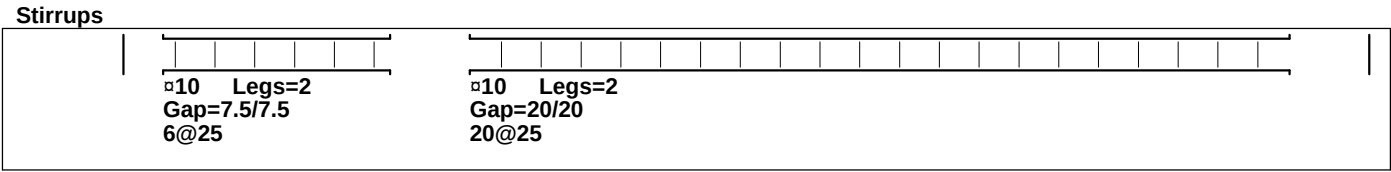
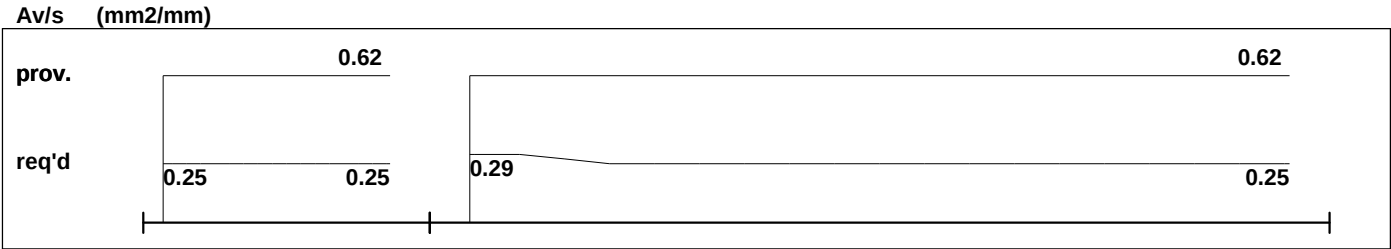
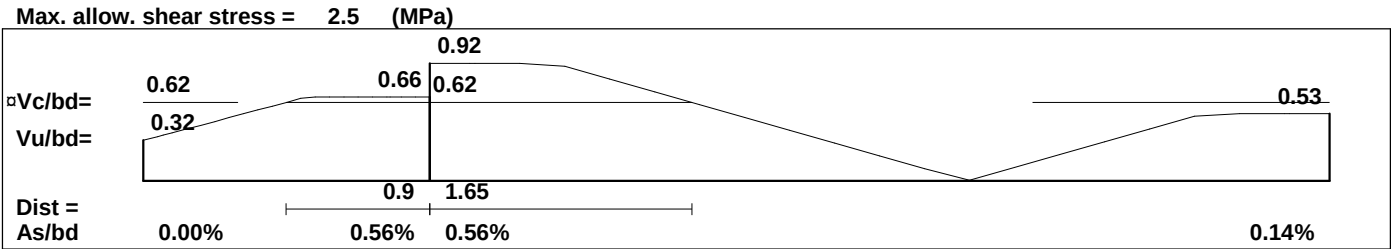
Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$



Shear

Shear design: Stirrups only
Stirrups $f_y = 420$
Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14
Spacing: Min. = 5. Incr. = 5.
Legs: 2/4
Max no. of groups: 5
Max. = Code
Inverted T/L shear area: Web



Beam 49	Code: ACI318-02
Project: BAEMS	Page: 216
Designed by: bayan	Date: 4/ 7/14

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	5.42	7.53
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00690	0.00690
Icr(m^4)=	0.00104	0.00147
Mcr =	80.23	63.47
Mmax,d =	139.65	115.37
Mmax,d+l =	147.21	121.92
Mmax,sust =	90.77	74.99
Ie,d (m^4)=	0.00215	0.00237
Ie,d+l (m^4)=	0.00199	0.00223
Ie,sust (m^4)=	0.00509	0.00476
e/1+50r =	1.71/0.68	2.00/0.80
ai,d =	-0.459	5.714
ai,l =	-0.071	0.702
at,sust =	-0.130	2.220
ai,l =	L/*****	L/ 8047
(ai+at),t2-t1	L/ 4974	L/ 1147

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-41.44	-51.55	0.	0.	0.25	0.00	100	-
90	-3.96	-4.86	-46.63	-56.37	0.23	0.	0.25	0.00	-	-
125	-5.63	-6.86	-48.64	-58.25	0.33	0.	0.25	0.00	-	-
180	-8.39	-10.15	-51.81	-61.20	0.50	0.	0.25	0.01	-	-
270	-13.29	-15.87	-57.00	-66.03	0.78	0.	0.25	0.01	-	-
360	-18.65	-22.03	-62.19	-70.86	1.09	0.	0.25	0.01	-	-
450	-24.48	-28.63	-67.38	-75.68	1.41	0.	0.25	0.02	-	-
540	-30.78	-35.66	-72.56	-80.51	1.77	0.	0.25	0.02	-	-
630	-37.54	-43.12	-77.75	-85.34	2.14	0.	0.25	0.03	-	-
720	-44.78	-51.02	-82.94	-90.17	2.54	0.	0.25	0.03	-	-
810	-52.47	-59.35	-88.13	-94.99	2.97	0.	0.25	0.04	-	-
900	-60.64	-68.12	-93.31	-100.04	3.42	0.	0.25	0.04	100	-
990	-69.27	-77.32	-98.50	-105.23	3.89	0.	0.25	0.05	-	-
1080	-78.37	-86.95	-99.65	-106.38	4.39	0.	0.25	0.06	-	-
1170	-87.93	-97.02	-99.65	-106.38	4.92	0.	0.25	0.06	-	-
1260	-97.97	-107.53	-99.65	-106.38	5.47	0.	0.25	0.07	-	-
1350	-108.47	-118.47	-99.65	-106.38	6.05	0.	0.25	0.08	-	-
1440	-119.43	-129.84	-99.65	-106.38	6.66	0.	0.25	0.08	-	-
1530	-130.87	-141.65	-99.65	-106.38	7.29	0.	0.25	0.09	-	-
1550	-133.47	-144.33	-99.65	-106.38	7.44	0.	0.25	0.09	-	-
1620	-142.77	-153.89	-99.65	-106.38	7.44	0.	0.25	0.09	-	-
1710	-155.13	-166.63	-99.65	-106.38	7.44	0.	0.25	0.09	-	-
1800	-167.97	-180.07	-99.65	-106.38	7.44	0.	0.25	0.09	100	-

Beam 49	Code: ACI318-02
Project: BAEMS	Page: 217
Designed by: bayan	Date: 4/ 7/14

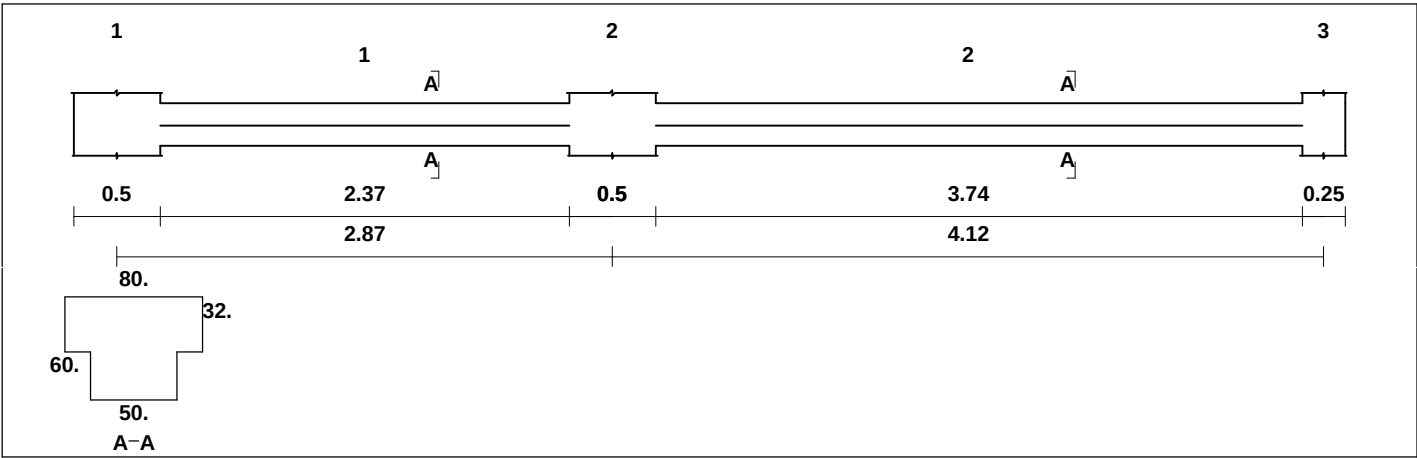
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-167.97	-180.07	149.17	138.89	6.84	0.	0.29	0.09	100	-
250	-124.33	-133.20	149.17	138.89	6.84	0.	0.29	0.09	-	-
283	-118.82	-127.28	149.17	138.89	6.52	0.	0.29	0.08	-	-
565	-74.12	-79.26	149.17	138.89	3.99	0.	0.29	0.05	-	-
848	-33.54	-35.69	145.83	135.77	1.77	0.	0.27	0.02	-	-
1130	3.46	2.61	129.57	120.65	0.	0.17	0.25	0.00	-	-
1413	37.80	34.61	113.26	105.47	0.	1.87	0.25	0.01	-	-
1695	67.43	62.22	97.00	90.34	0.	3.35	0.25	0.03	-	-
1978	92.55	85.64	80.69	75.16	0.	4.62	0.25	0.04	-	-
2260	112.99	104.70	64.44	60.04	0.	5.67	0.25	0.04	-	-
2543	128.90	119.54	48.13	44.86	0.	6.49	0.25	0.05	-	-
2825	140.16	130.06	31.87	29.73	0.	7.07	0.25	0.05	100	-
3108	146.85	136.32	15.56	14.55	0.	7.42	0.25	0.06	-	-
3390	148.93	138.29	-0.58	-0.76	0.	7.53	0.25	0.06	-	-
3673	146.41	135.98	-15.76	-17.08	0.	7.40	0.25	0.06	-	-
3955	139.30	129.40	-30.88	-33.33	0.	7.03	0.25	0.05	-	-
4238	127.56	118.52	-46.06	-49.64	0.	6.42	0.25	0.05	-	-
4520	111.27	103.39	-61.19	-65.90	0.	5.58	0.25	0.04	-	-
4803	90.31	83.93	-76.37	-82.21	0.	4.51	0.25	0.03	-	-
5085	64.83	60.26	-79.43	-85.50	0.	3.22	0.25	0.02	-	-
5368	34.66	32.22	-79.43	-85.50	0.	1.71	0.25	0.01	-	-
5400	30.96	28.77	-79.43	-85.50	0.	1.53	0.25	0.01	-	-
5650	0.00	0.00	-79.43	-85.50	0.	0.	0.25	0.00	100	-

Moment / Shear Envelope (Factored)				Units:kN,meter
1	2	3		
	1	2		
Min M	0.0	-180.1	0.0	
Max M	0.0	-168.0	0.0	
MspMn	-6.9	-144.3	28.8	
MspMx	-5.6	-133.5	31.0	
M Max			148.9	
M Min			138.3	
Mmn=0 @	0.0	1.8	1.1	5.7
Mmx=0 @	0.0	1.8	1.1	5.7
mx -M @			1.1	
mx +M @			3.4	
V max	-41.4	-145.2	-121.8	
V min	-51.5	-151.9	-131.0	
DReac	-44.8	322.6	121.9	
LReac	-6.7	24.1	9.2	
Max R	-41.4	346.6	131.0	
Min R	-51.5	326.5	121.8	

Beam 51	Code: ACI318-02
Project: 1	Page: 360
Designed by:	Date: 04/07/14

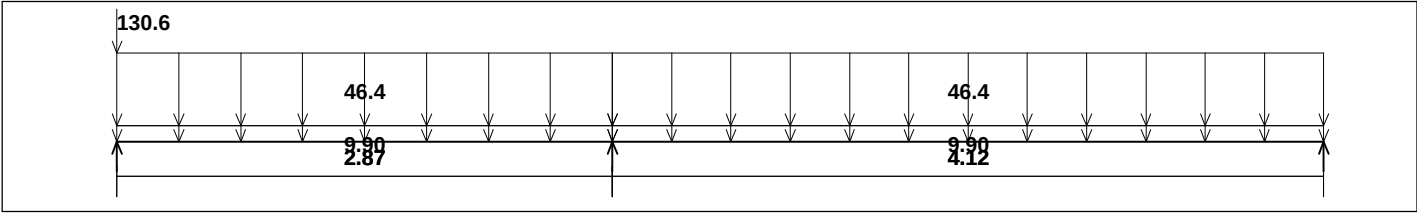
Geometry Units: meter, cm



Loading

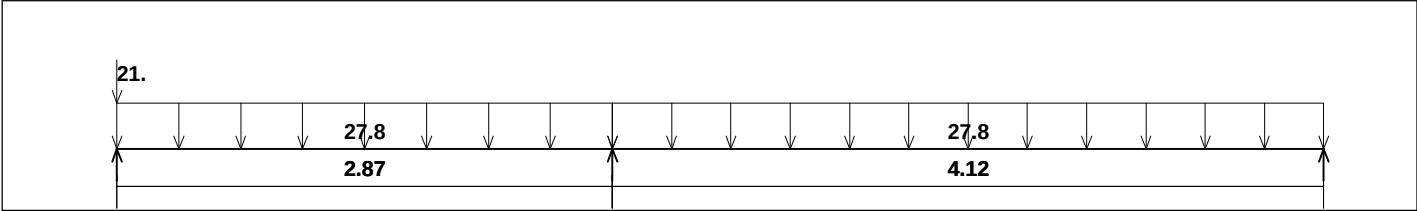
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

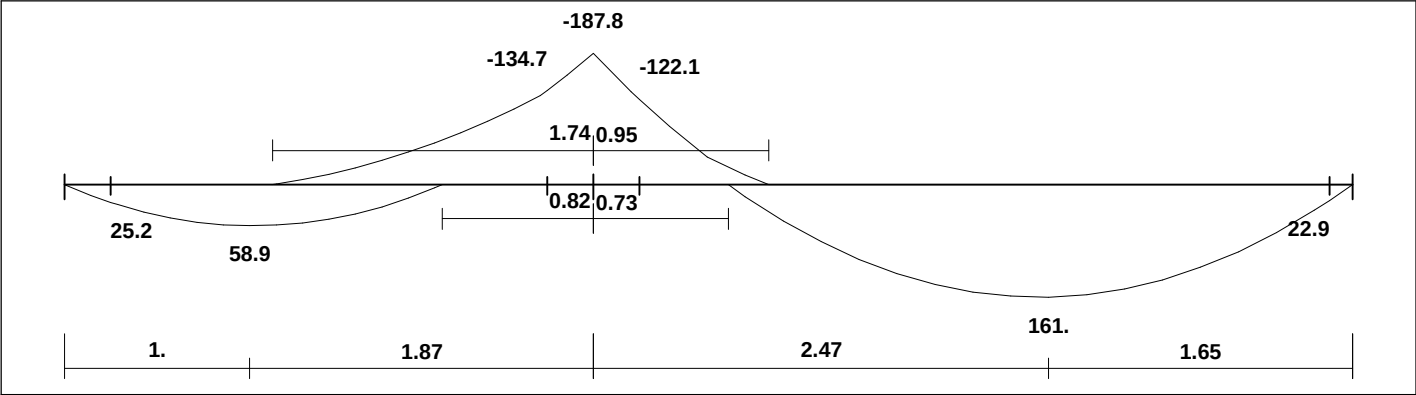


Loads (kN, meter)					
1			2		
Self. Wt.	9.90	Self. Wt.	9.90		
Uni D	46.44	L 27.87	Uni D	46.44	L 27.87
Pt. D	130.6	L 20.98			
x	0.000				

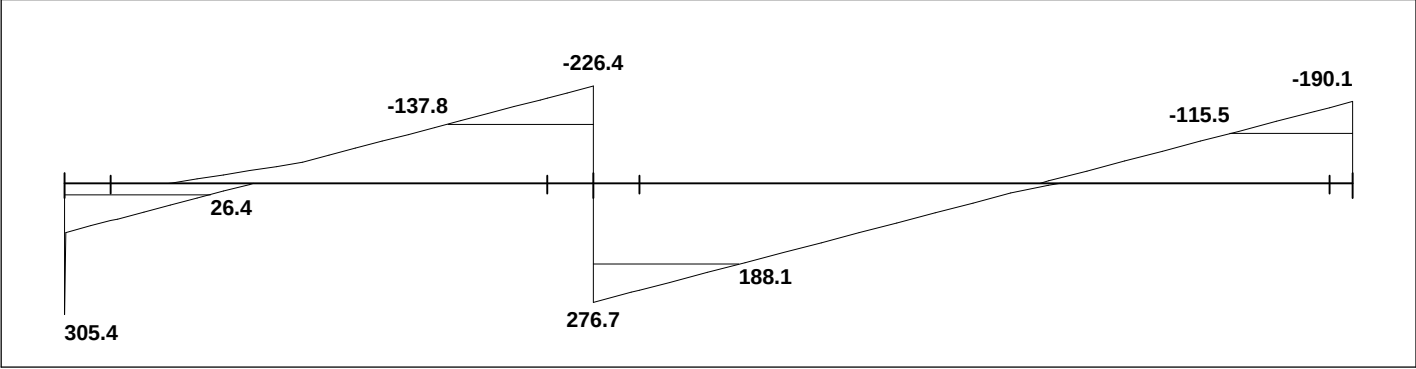
Beam 51	Code: ACI318-02
Project: 1	Page: 361
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	214.29	303.17	111.81
LiveR	90.99	199.96	78.32
Max R	305.28	503.13	190.14
Min R	194.86	378.3	107.24
Service			
DeadR	178.58	252.64	93.18
LiveR	56.87	124.97	48.95
Max R	235.45	377.62	142.13
Min R	166.43	299.6	90.32

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

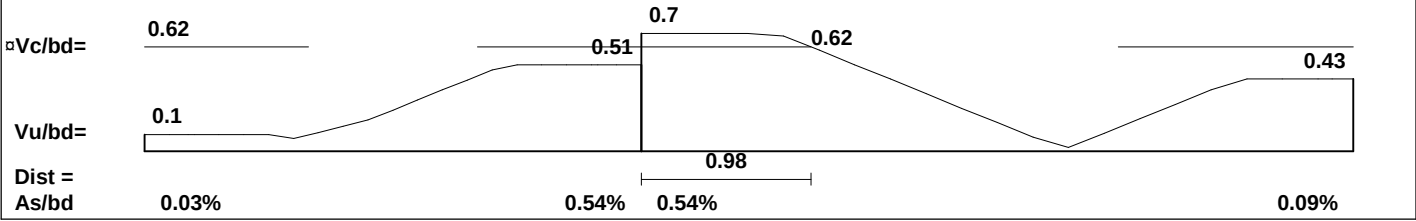
Top Cover	6.	6.
As top =	0.73	14.47*
As bot =	0.87	9.04*
Bot Cover	6.	6.
a/d	1%	1%
As/bd	0.00%	0.34%

Beam 51	Code: ACI318-02
Project: 1	Page: 362
Designed by:	Date: 04/07/14

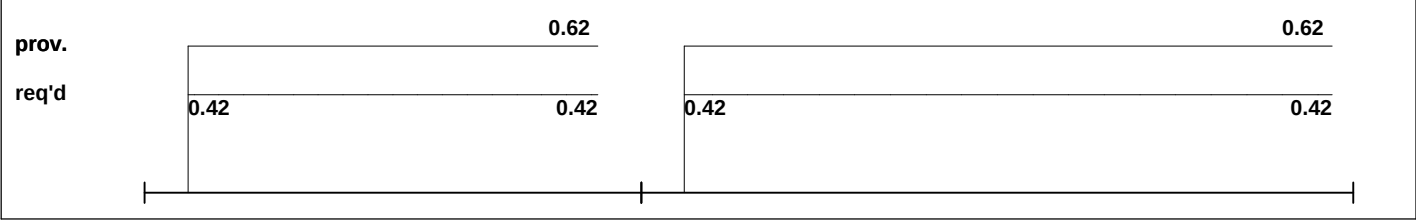
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

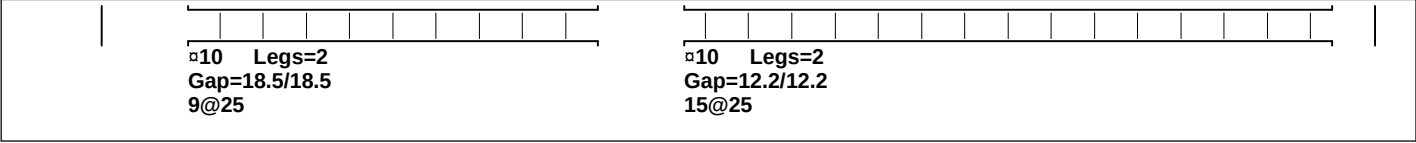
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1 9.04	2 0.
As	0.73	9.04
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.01124	0.01124
Icr(m ⁴)=	0.00018	0.00183
Mcr =	130.19	103.73
Mmax,d =	94.28	77.05
Mmax,d+l =	129.13	119.88
Mmax,sust =	61.28	50.08
Ie,d (m ⁴)=	0.01124	0.01124
Ie,d+l (m ⁴)=	0.01124	0.00793
Ie,sust (m ⁴)=	0.01124	0.01124
e/1+50r =	1.71/0.68	2.00/0.80
ai,d =	-0.030	0.427
ai,l =	-0.058	0.542
at,sust =	-0.020	0.333
ai,l =	L/*****	L/ 7598
(ai+at),t2-t1	L/*****	L/ 4021

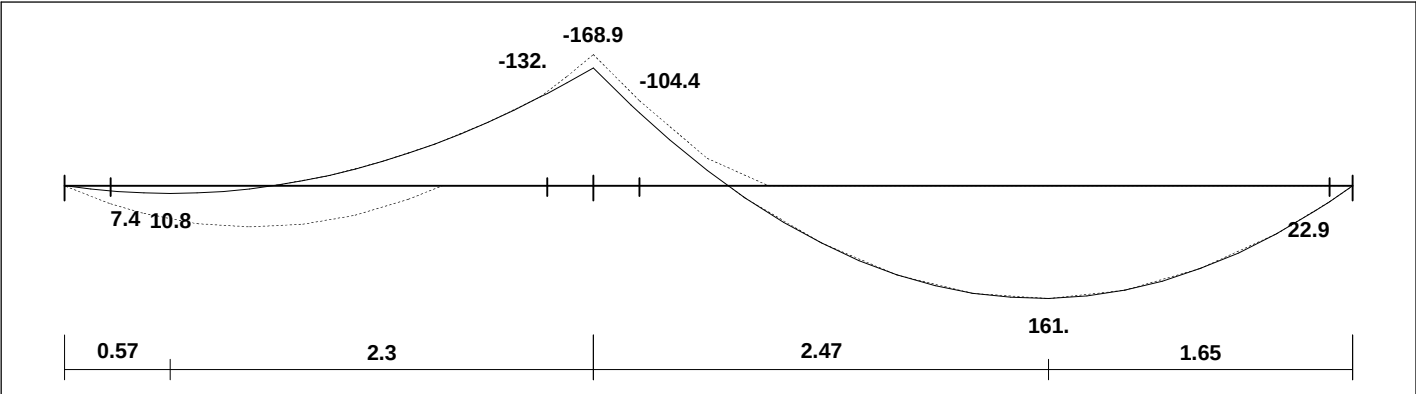
Beam 51	Code: ACI318-02
Project: 1	Page: 363
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
-1	-0.19	-0.31	26.38	21.27	0.01	0.	0.42	0.00	100	-
5	0.57	0.19	26.38	21.27	0.	0.02	0.42	0.00	-	-
143	15.30	4.77	26.38	21.27	0.	0.75	0.42	0.00	-	-
250	25.25	7.43	26.38	21.27	0.	1.24	0.42	0.01	-	-
287	28.39	8.17	26.38	18.76	0.	1.39	0.42	0.01	-	-
430	39.09	10.16	26.38	9.10	0.	1.92	0.42	0.01	-	-
574	47.54	10.77	26.38	-0.64	0.	2.34	0.42	0.01	-	-
717	53.63	9.99	26.38	-10.31	0.	2.65	0.42	0.01	-	-
861	57.44	7.80	18.42	-20.04	0.	2.84	0.42	0.01	-	-
1004	58.93	4.24	2.37	-29.71	0.	2.91	0.42	0.01	-	-
1148	58.11	-0.73	-13.79	-39.45	0.03	2.87	0.42	0.01	-	-
1291	54.99	-7.07	-29.83	-49.26	0.34	2.71	0.42	0.01	-	-
1435	49.53	-14.84	-45.99	-65.42	0.73	2.44	0.42	0.01	100	-
1578	41.81	-23.95	-62.03	-81.46	1.18	2.06	0.42	0.01	-	-
1722	31.71	-34.51	-78.19	-97.62	1.70	1.56	0.42	0.01	-	-
1865	19.38	-46.40	-87.92	-113.66	2.3	0.95	0.42	0.02	-	-
2009	4.65	-59.76	-97.66	-129.82	2.97	0.22	0.42	0.02	-	-
2152	-12.28	-74.41	-102.46	-137.79	3.70	0.	0.42	0.03	-	-
2296	-31.65	-90.57	-102.46	-137.79	4.52	0.	0.42	0.03	-	-
2439	-53.19	-108.00	-102.46	-137.79	5.41	0.	0.42	0.04	-	-
2583	-77.20	-127.39	-102.46	-137.79	6.41	0.	0.42	0.05	-	-
2620	-83.74	-134.65	-102.46	-137.79	6.79	0.	0.42	0.05	-	-
2726	-103.34	-156.31	-102.46	-137.79	6.79	0.	0.42	0.05	-	-
2870	-131.98	-187.75	-102.46	-137.79	6.79	0.	0.42	0.05	100	-
Span=2										
0	-131.98	-187.75	188.06	117.90	6.14	0.	0.42	0.05	100	-
206	-98.13	-133.13	188.06	117.90	6.14	0.	0.42	0.05	-	-
250	-91.27	-122.08	188.06	117.90	6.14	0.	0.42	0.05	-	-
412	-66.31	-83.27	188.06	117.90	4.15	0.	0.42	0.03	-	-
618	-22.15	-39.03	188.06	117.90	1.93	0.	0.42	0.01	-	-
824	17.24	-13.78	184.25	115.60	0.67	0.84	0.42	0.01	-	-
1030	51.87	8.60	161.14	101.67	0.	2.56	0.42	0.01	-	-
1236	81.75	28.11	138.02	87.74	0.	4.05	0.42	0.02	-	-
1442	106.85	44.75	114.91	73.82	0.	5.31	0.42	0.03	-	-
1648	127.20	58.52	91.80	59.89	0.	6.34	0.42	0.03	-	-
1854	142.79	69.43	68.68	45.96	0.	7.13	0.42	0.03	-	-
2060	153.62	77.46	45.57	32.03	0.	7.68	0.42	0.04	100	-
2266	159.68	82.62	22.46	17.88	0.	7.99	0.42	0.04	-	-
2472	160.98	84.92	4.18	-5.23	0.	8.06	0.42	0.04	-	-
2678	157.52	84.35	-9.75	-28.34	0.	7.88	0.42	0.04	-	-
2884	149.31	80.90	-23.67	-51.46	0.	7.46	0.42	0.04	-	-
3090	136.32	74.59	-37.60	-74.57	0.	6.80	0.42	0.03	-	-
3296	118.58	65.41	-51.53	-97.68	0.	5.91	0.42	0.03	-	-
3502	96.08	53.36	-62.28	-115.52	0.	4.77	0.42	0.02	-	-
3708	68.81	38.44	-62.28	-115.52	0.	3.40	0.42	0.02	-	-
3914	36.79	20.66	-62.28	-115.52	0.	1.81	0.42	0.01	-	-
3995	22.89	12.88	-62.28	-115.52	0.	1.12	0.42	0.01	-	-
4120	0.00	0.00	-62.28	-115.52	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

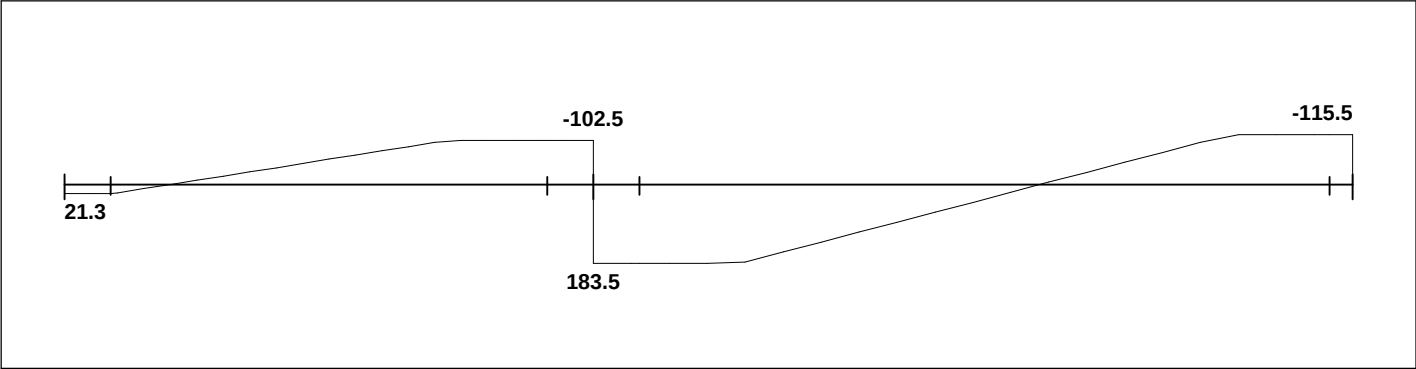
Moments: spans 1 to 2 Load pattern: xxXX



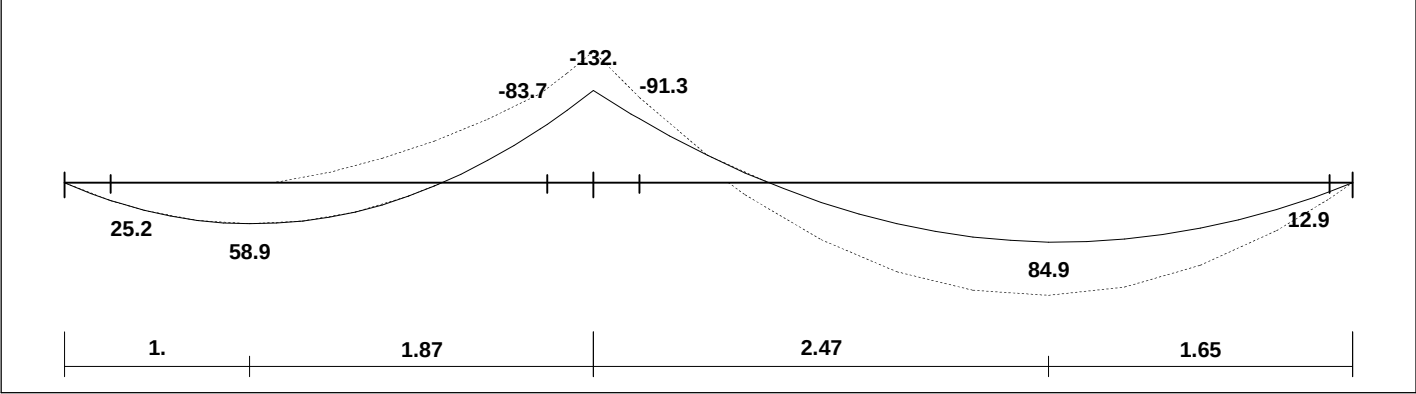
Beam 51	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

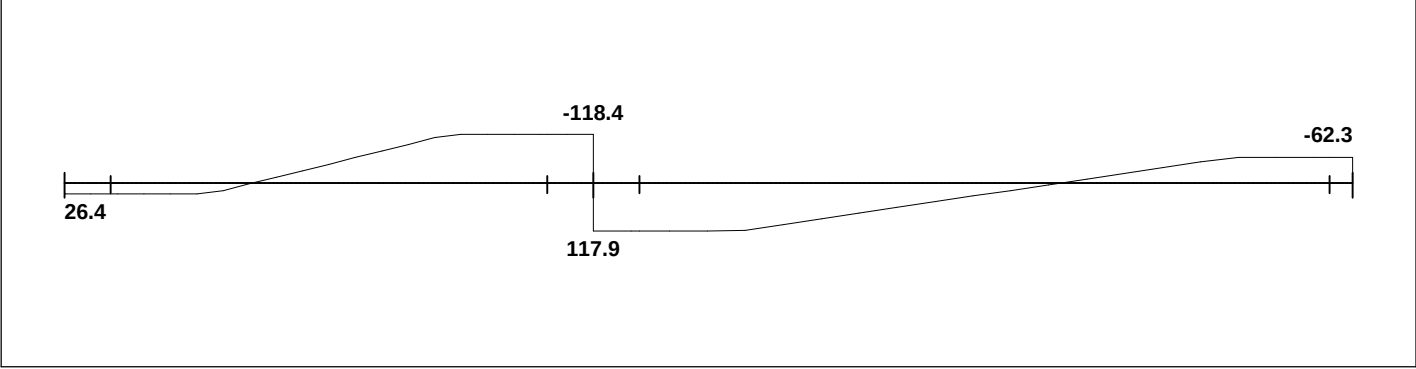
Shear



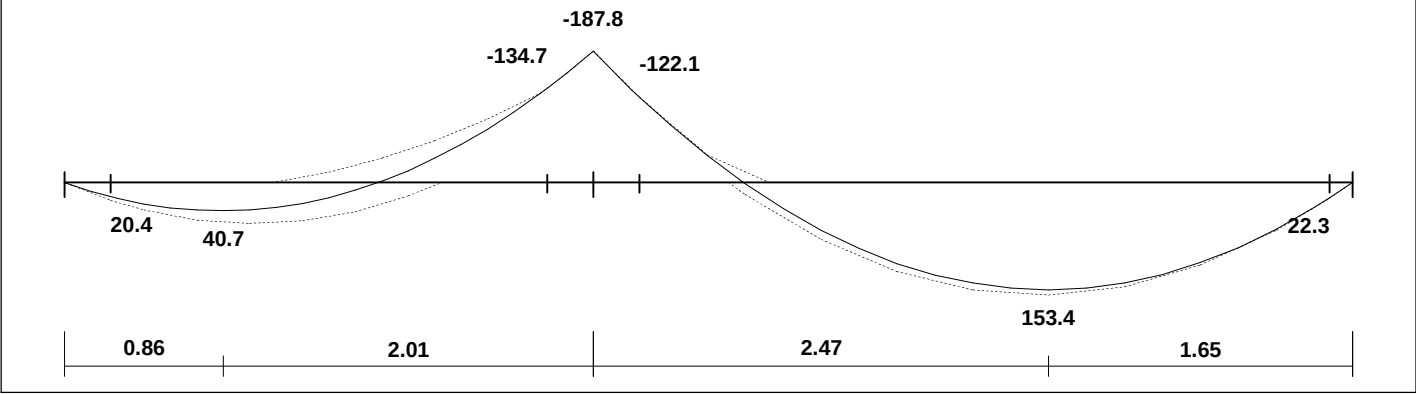
Moments: spans 1 to 2 Load pattern: XXXx



Shear

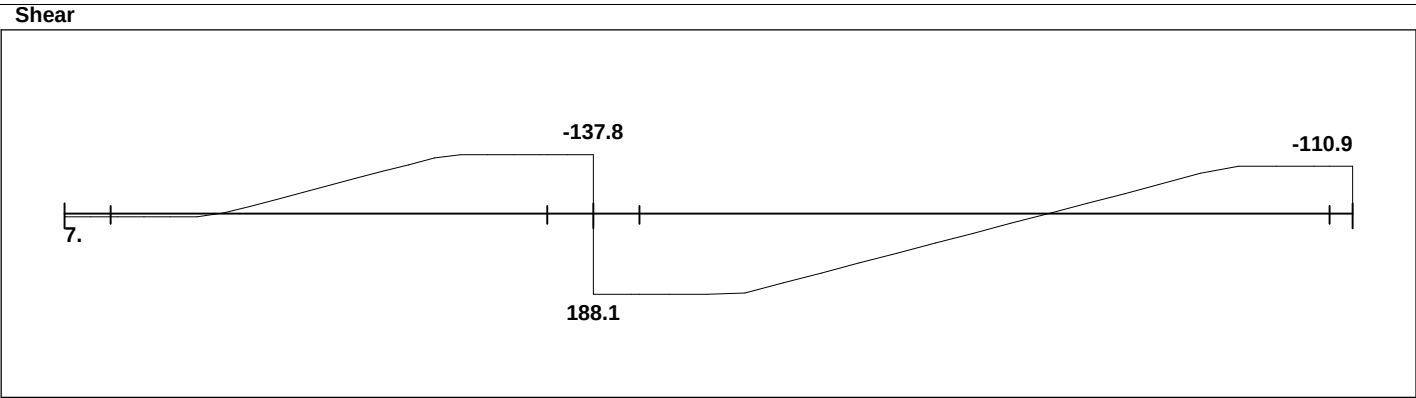


Moments: spans 1 to 2 Load pattern: XXXX



Beam 51	Code: ACI318-02
Project: 1	Page: 365
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

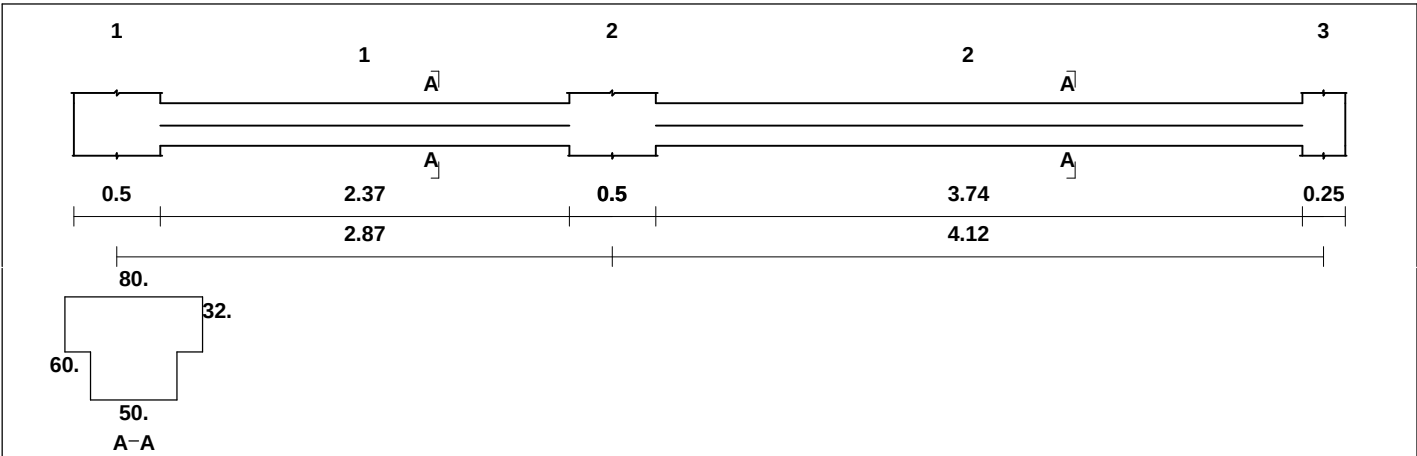


Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	2	3
		1	2	
Min M	-0.3	-187.8	-187.8	0.0
Max M	-0.2	-132.0	-132.0	0.0
MspMn	7.4	-134.7	-122.1	12.9
MspMx	25.2	-83.7	-91.3	22.9
M Max			161.0	
M Min			84.9	
Mmn=0 @	0.0	1.7	1.0	4.1
Mmx=0 @	0.0	0.8	0.7	4.1
mx -M @			0.7	
mx +M @			2.5	
V max		-155.9		-107.2
V min		-226.4		-190.1
DReac		303.2		111.8
LReac	91.0	200.0		78.3
Max R		503.1		190.1
Min R		378.3		107.2

Individual load cases - factored Units:kN,meter				
	1	2	2	3
		1	2	
Min M	-0.2	-168.9	-168.9	0.0
M Max			161.0	
Mmx=0 @	0.0	1.7	0.7	4.1
mx +M			2.5	
V max		-155.9		-190.1
	1	2		3
		1	2	
Min M	-0.3	-132.0	-132.0	0.0
M Max			84.9	
Mmx=0 @	0.0	0.8	1.0	4.1
mx +M			2.5	
V max		-207.0		-107.2
	1	2		3
		1	2	
Min M	-0.3	-187.8	-187.8	0.0
M Max			153.4	
Mmx=0 @	0.0	1.2	0.8	4.1
mx +M			2.5	
V max		-226.4		-185.6

Beam 51	Code: ACI318-02
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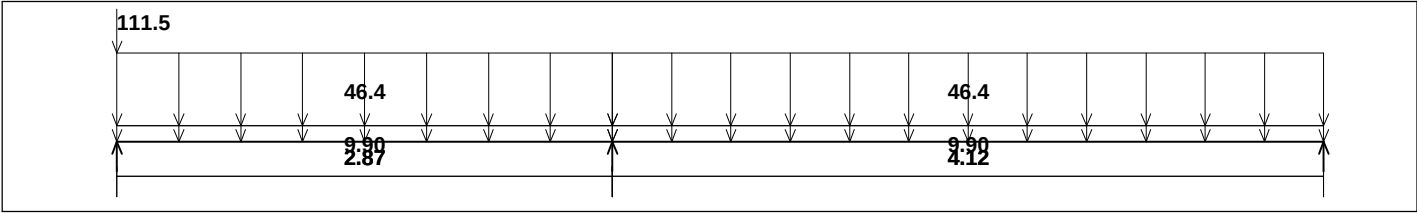
Geometry Units: meter, cm



Loading

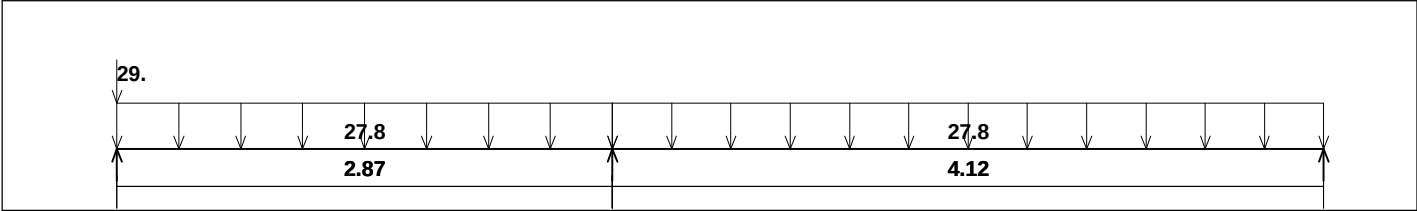
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

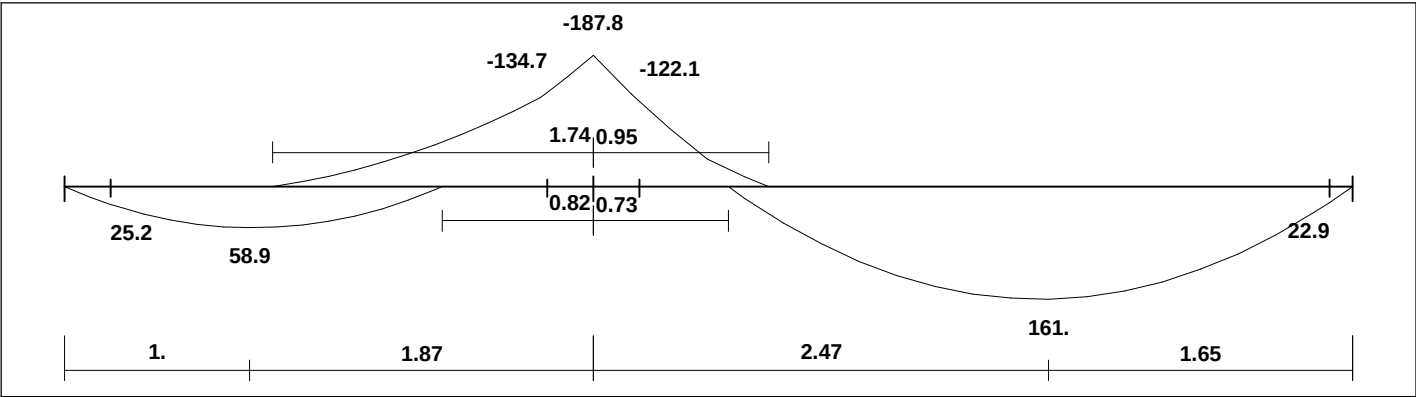


Loads (kN, meter)					
1			2		
Self. Wt.	9.90	Self. Wt.	9.90		
Uni D	46.44	L 27.87	Uni D	46.44	L 27.87
Pt. D	111.5	L 29.00			
x	0.000				

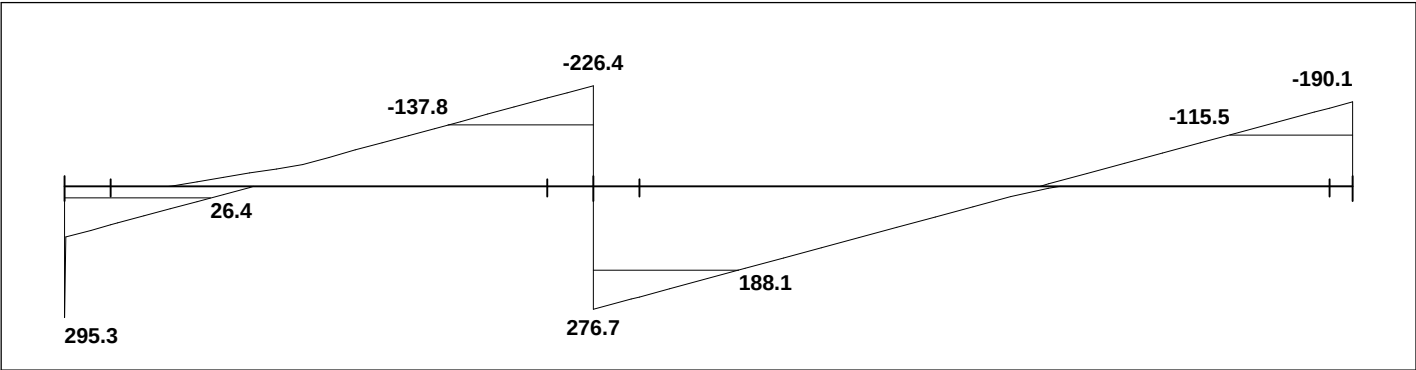
Beam 51	Code: ACI318-02
Project: 1	Page: 565
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



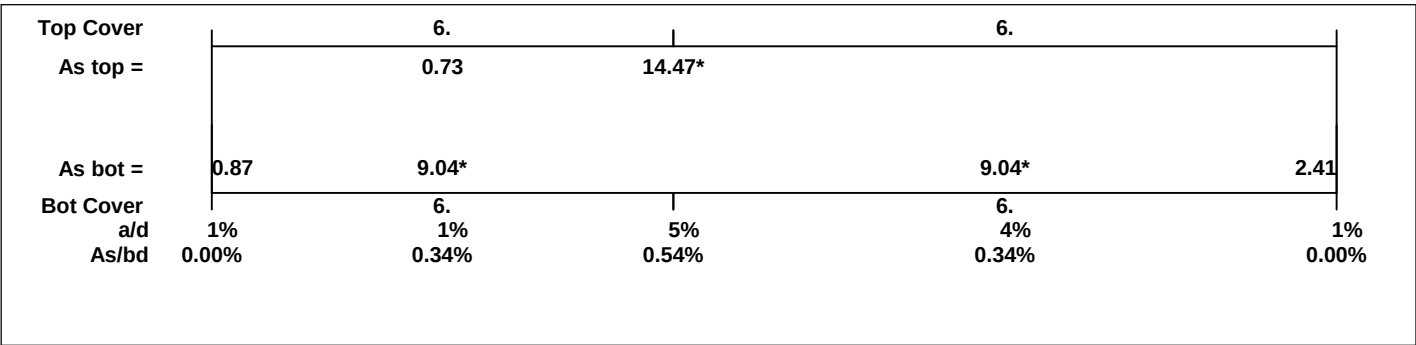
Reactions

Factored

DeadR	191.34	303.17	111.81
LiveR	103.82	199.96	78.32
Max R	295.16	503.13	190.14
Min R	171.91	378.3	107.24
Service			
DeadR	159.45	252.64	93.18
LiveR	64.89	124.97	48.95
Max R	224.34	377.62	142.13
Min R	147.3	299.6	90.32

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

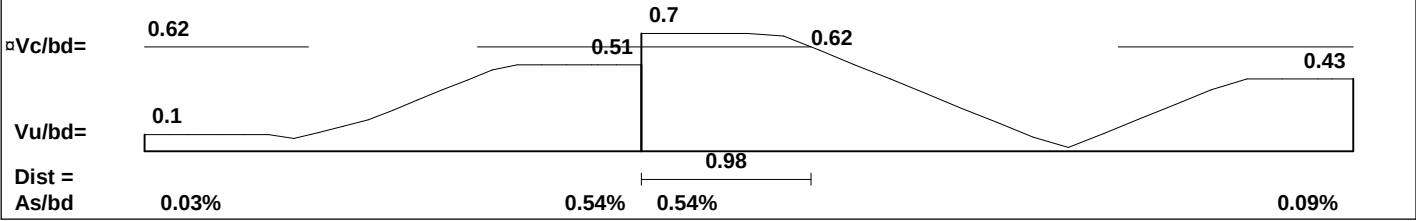


Beam 51	Code: ACI318-02
Project: 1	Page: 566
Designed by:	Date: 04/09/14

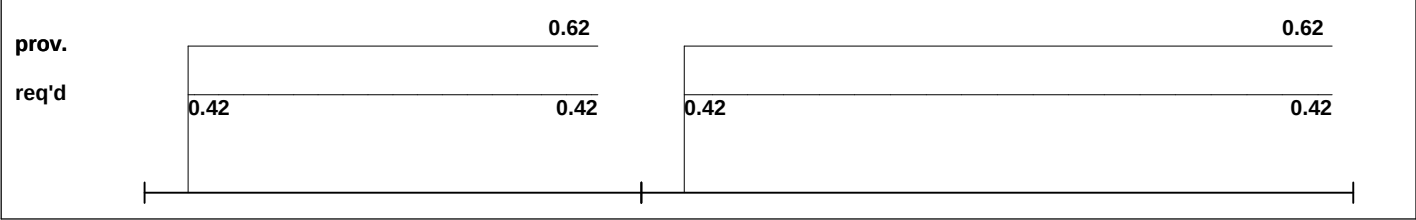
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

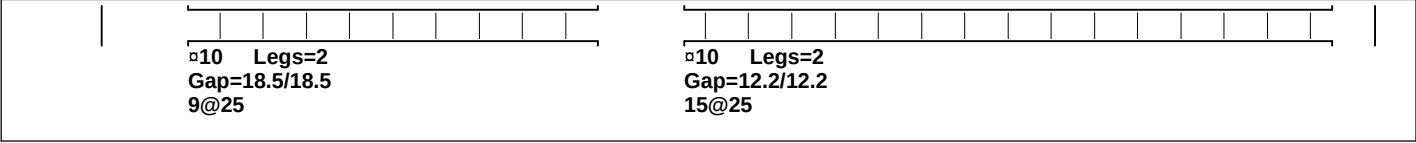
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 9.04	2 0.
As	0.73	9.04
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.01124	0.01124
Icr(m ⁴)=	0.00018	0.00183
Mcr =	130.19	103.73
Mmax,d =	94.28	77.05
Mmax,d+l =	129.13	119.88
Mmax,sust =	61.28	50.08
Ie,d (m ⁴)=	0.01124	0.01124
Ie,d+l (m ⁴)=	0.01124	0.00793
Ie,sust (m ⁴)=	0.01124	0.01124
e/1+50r =	1.71/0.68	2.00/0.80
ai,d =	-0.030	0.427
ai,l =	-0.058	0.542
at,sust =	-0.020	0.333
ai,l =	L/*****	L/ 7598
(ai+at),t2-t1	L/*****	L/ 4021

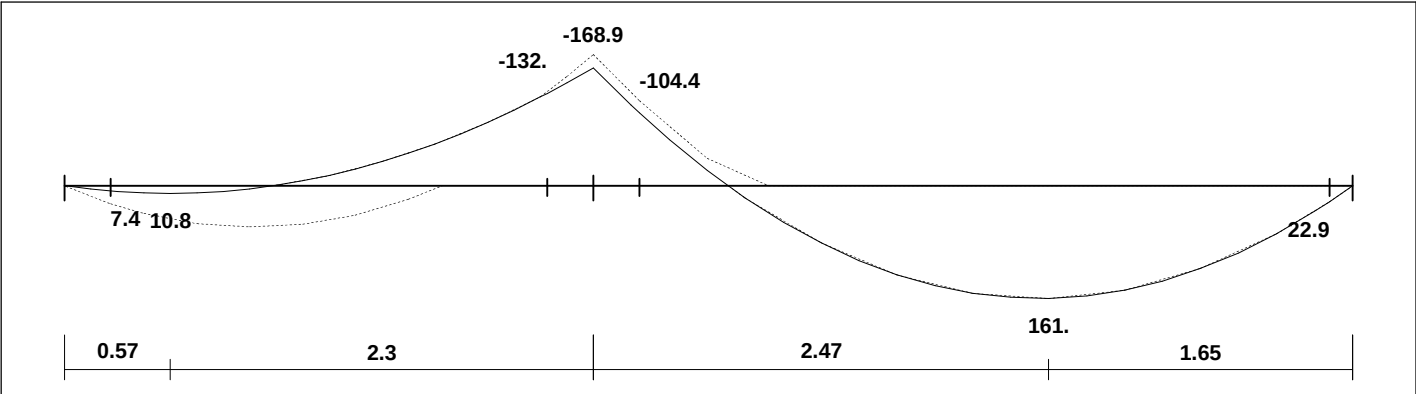
Beam 51	Code: ACI318-02
Project: 1	Page: 567
Designed by:	Date: 04/09/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
-1	-0.17	-0.30	26.38	21.27	0.01	0.	0.42	0.00	100	-
5	0.57	0.19	26.38	21.27	0.	0.02	0.42	0.00	-	-
143	15.30	4.77	26.38	21.27	0.	0.75	0.42	0.00	-	-
250	25.25	7.43	26.38	21.27	0.	1.24	0.42	0.01	-	-
287	28.39	8.17	26.38	18.76	0.	1.39	0.42	0.01	-	-
430	39.09	10.16	26.38	9.10	0.	1.92	0.42	0.01	-	-
574	47.54	10.77	26.38	-0.64	0.	2.34	0.42	0.01	-	-
717	53.63	9.99	26.38	-10.31	0.	2.65	0.42	0.01	-	-
861	57.44	7.80	18.42	-20.04	0.	2.84	0.42	0.01	-	-
1004	58.93	4.24	2.37	-29.71	0.	2.91	0.42	0.01	-	-
1148	58.11	-0.73	-13.79	-39.45	0.03	2.87	0.42	0.01	-	-
1291	54.99	-7.07	-29.83	-49.26	0.34	2.71	0.42	0.01	-	-
1435	49.53	-14.84	-45.99	-65.42	0.73	2.44	0.42	0.01	100	-
1578	41.81	-23.95	-62.03	-81.46	1.18	2.06	0.42	0.01	-	-
1722	31.71	-34.51	-78.19	-97.62	1.70	1.56	0.42	0.01	-	-
1865	19.38	-46.40	-87.92	-113.66	2.3	0.95	0.42	0.02	-	-
2009	4.65	-59.76	-97.66	-129.82	2.97	0.22	0.42	0.02	-	-
2152	-12.28	-74.41	-102.46	-137.79	3.70	0.	0.42	0.03	-	-
2296	-31.65	-90.57	-102.46	-137.79	4.52	0.	0.42	0.03	-	-
2439	-53.19	-108.00	-102.46	-137.79	5.41	0.	0.42	0.04	-	-
2583	-77.20	-127.39	-102.46	-137.79	6.41	0.	0.42	0.05	-	-
2620	-83.74	-134.65	-102.46	-137.79	6.79	0.	0.42	0.05	-	-
2726	-103.34	-156.31	-102.46	-137.79	6.79	0.	0.42	0.05	-	-
2870	-131.98	-187.75	-102.46	-137.79	6.79	0.	0.42	0.05	100	-
Span=2										
0	-131.98	-187.75	188.06	117.90	6.14	0.	0.42	0.05	100	-
206	-98.13	-133.13	188.06	117.90	6.14	0.	0.42	0.05	-	-
250	-91.27	-122.08	188.06	117.90	6.14	0.	0.42	0.05	-	-
412	-66.31	-83.27	188.06	117.90	4.15	0.	0.42	0.03	-	-
618	-22.15	-39.03	188.06	117.90	1.93	0.	0.42	0.01	-	-
824	17.24	-13.78	184.25	115.60	0.67	0.84	0.42	0.01	-	-
1030	51.87	8.60	161.14	101.67	0.	2.56	0.42	0.01	-	-
1236	81.75	28.11	138.02	87.74	0.	4.05	0.42	0.02	-	-
1442	106.85	44.75	114.91	73.82	0.	5.31	0.42	0.03	-	-
1648	127.20	58.52	91.80	59.89	0.	6.34	0.42	0.03	-	-
1854	142.79	69.43	68.68	45.96	0.	7.13	0.42	0.03	-	-
2060	153.62	77.46	45.57	32.03	0.	7.68	0.42	0.04	100	-
2266	159.68	82.62	22.46	17.88	0.	7.99	0.42	0.04	-	-
2472	160.98	84.92	4.18	-5.23	0.	8.06	0.42	0.04	-	-
2678	157.52	84.35	-9.75	-28.34	0.	7.88	0.42	0.04	-	-
2884	149.31	80.90	-23.67	-51.46	0.	7.46	0.42	0.04	-	-
3090	136.32	74.59	-37.60	-74.57	0.	6.80	0.42	0.03	-	-
3296	118.58	65.41	-51.53	-97.68	0.	5.91	0.42	0.03	-	-
3502	96.08	53.36	-62.28	-115.52	0.	4.77	0.42	0.02	-	-
3708	68.81	38.44	-62.28	-115.52	0.	3.40	0.42	0.02	-	-
3914	36.79	20.66	-62.28	-115.52	0.	1.81	0.42	0.01	-	-
3995	22.89	12.88	-62.28	-115.52	0.	1.12	0.42	0.01	-	-
4120	0.00	0.00	-62.28	-115.52	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

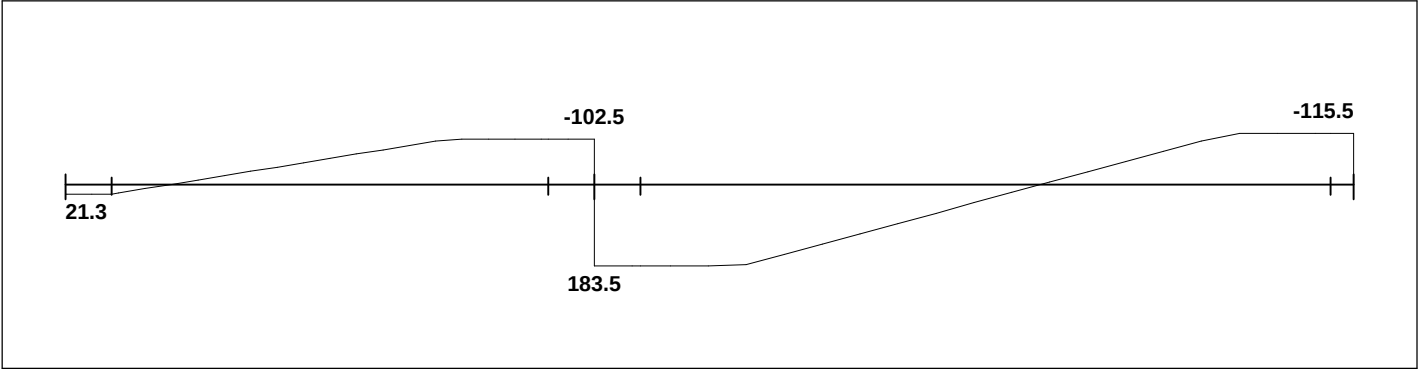
Moments: spans 1 to 2 Load pattern: xxXX



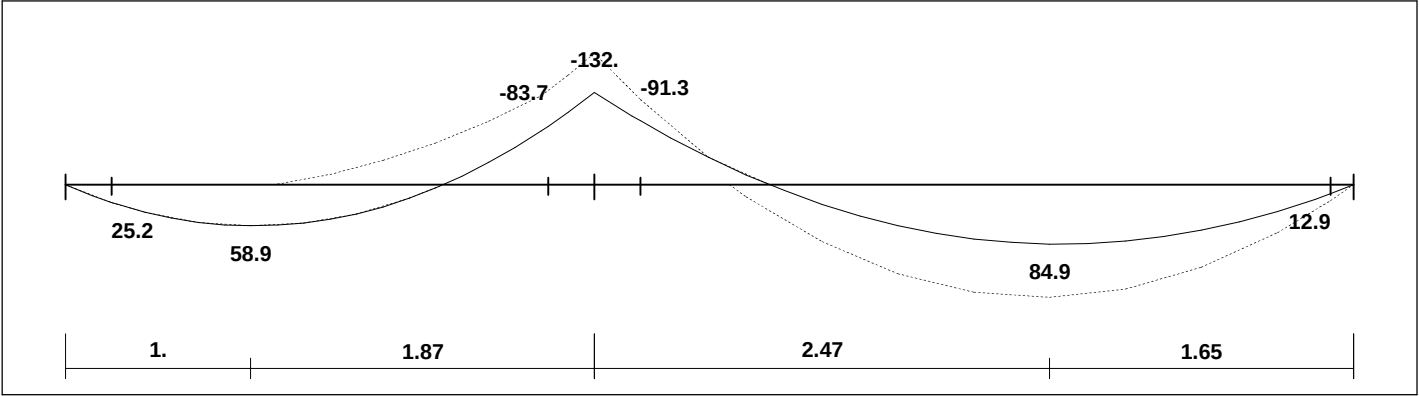
Beam 51	Code: ACI318-02
Project: 1	Page: 568
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

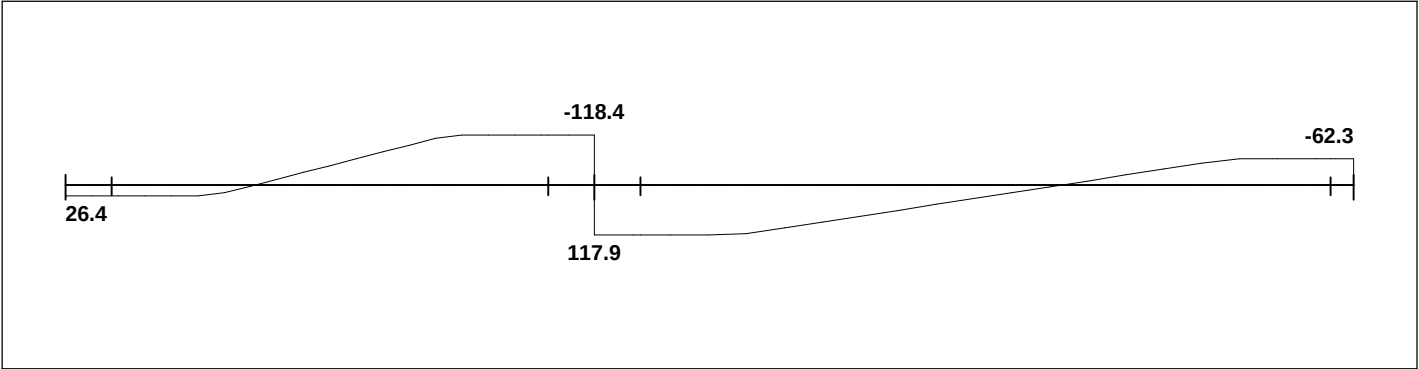
Shear



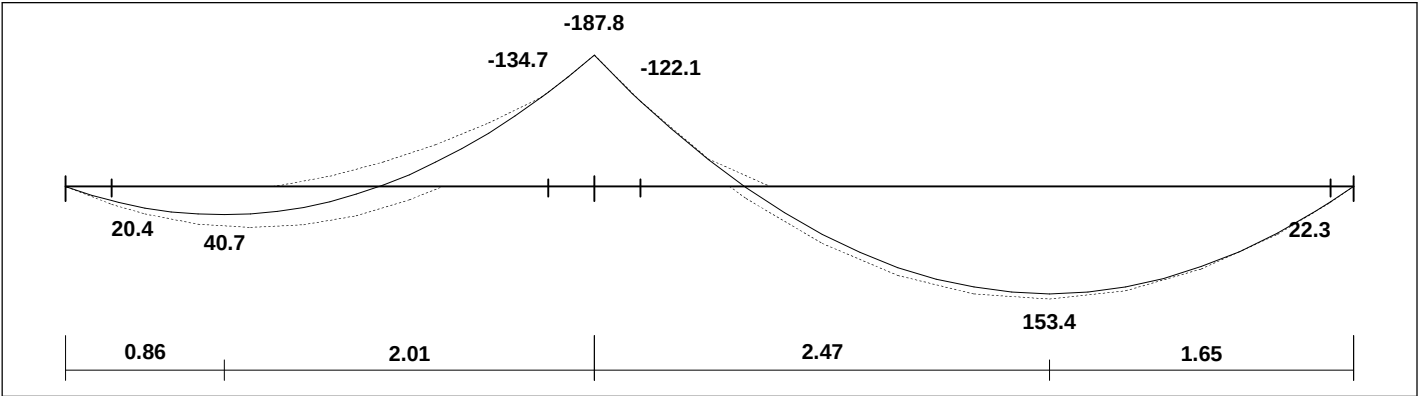
Moments: spans 1 to 2 Load pattern: XXXx



Shear



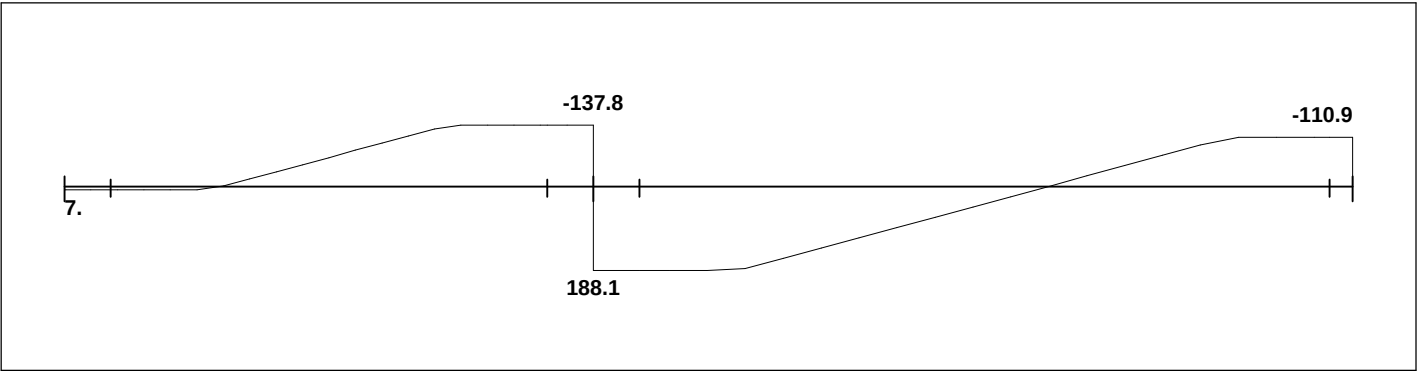
Moments: spans 1 to 2 Load pattern: XXXX



Beam 51	Code: ACI318-02
Project: 1	Page: 569
Designed by:	Date: 04/09/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

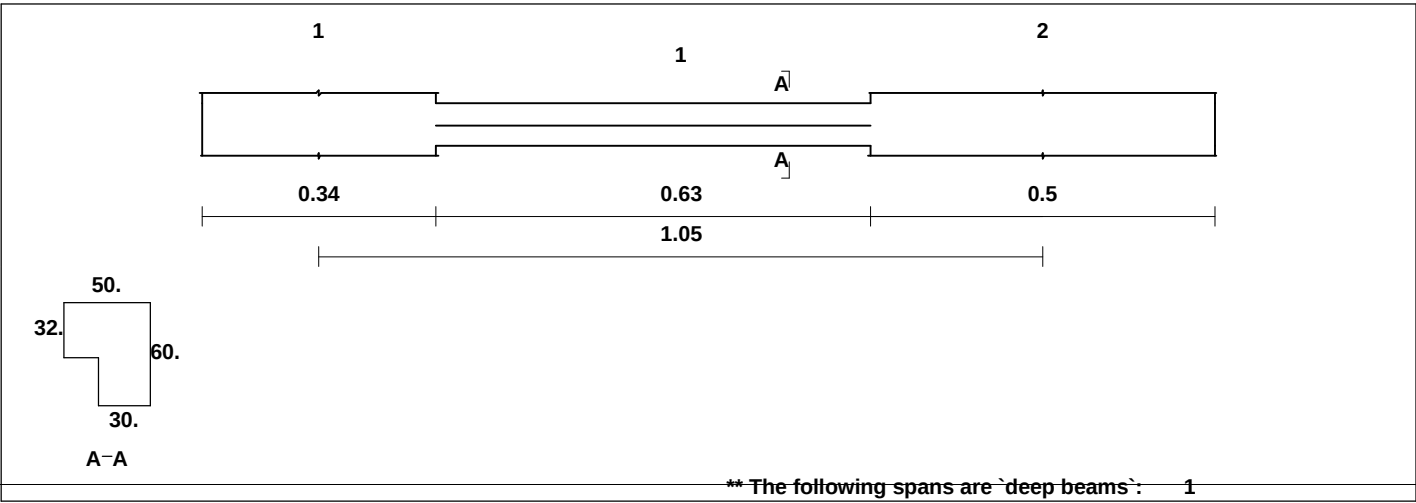
	1	2	3
Min M	-0.3	-187.8	0.0
Max M	-0.2	-132.0	0.0
MspMn	7.4	-134.7	12.9
MspMx	25.2	-83.7	22.9
M Max		161.0	
M Min		84.9	
Mmn=0 @	0.0	1.7	4.1
Mmx=0 @	0.0	0.8	4.1
mx -M @		0.7	
mx +M @		2.5	
V max		-155.9	-107.2
V min		-226.4	-190.1
DReac		303.2	111.8
LReac		200.0	78.3
Max R		503.1	190.1
Min R		378.3	107.2

Individual load cases - factored Units:kN,meter

	1	2	3
Min M	-0.2	-168.9	0.0
M Max		161.0	
Mmx=0 @	0.0	1.7	4.1
mx +M		2.5	
V max		-155.9	-190.1
Min M	-0.3	-132.0	0.0
M Max		84.9	
Mmx=0 @	0.0	0.8	4.1
mx +M		2.5	
V max		-207.0	-107.2
Min M	-0.3	-187.8	0.0
M Max		153.4	
Mmx=0 @	0.0	1.2	4.1
mx +M		2.5	
V max		-226.4	-185.6

Beam 52	Code: ACI318-02
Project: 1	Page: 369
Designed by:	Date: 04/07/14

Geometry Units: meter, cm

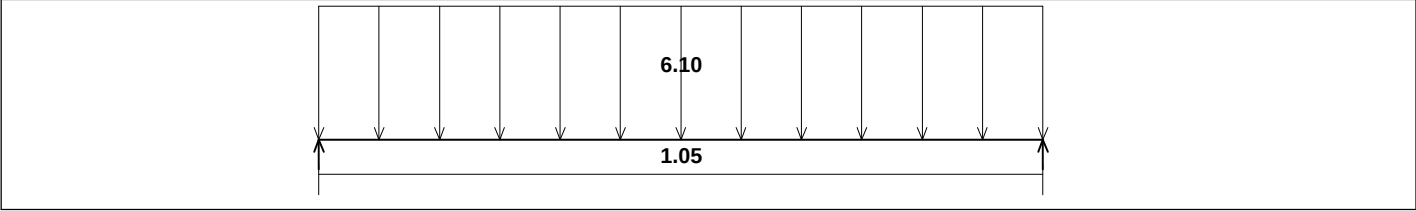


** The following spans are `deep beams`: 1

Loading

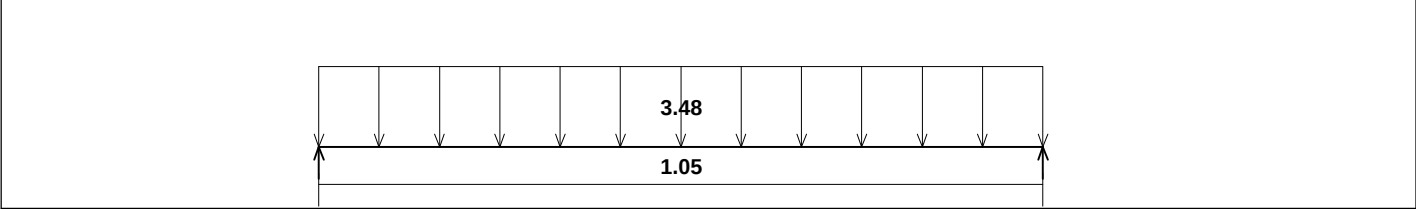
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

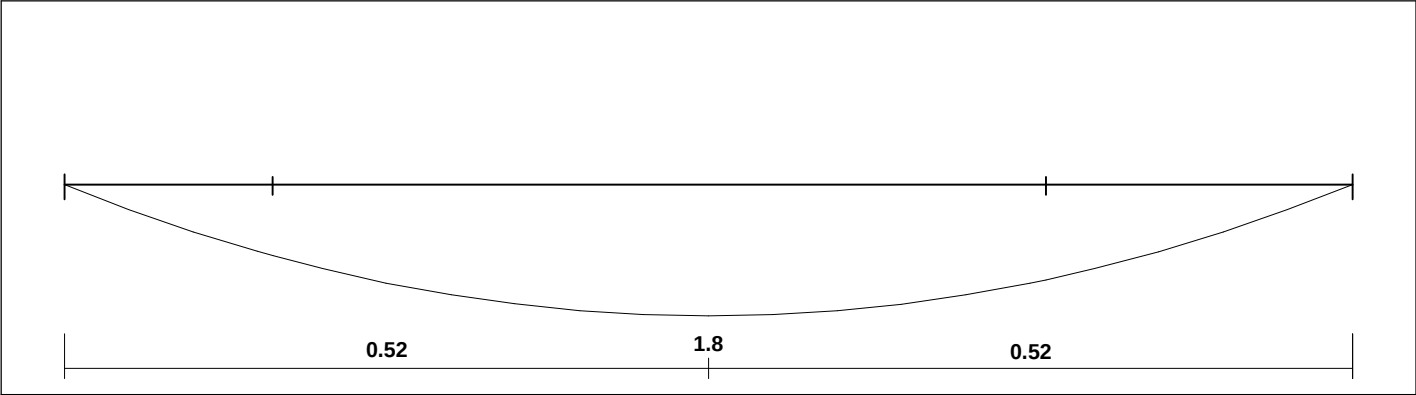


Loads (kN, meter)	
1	
Self. Wt.	6.10
Uni D	0.000 L 3.48

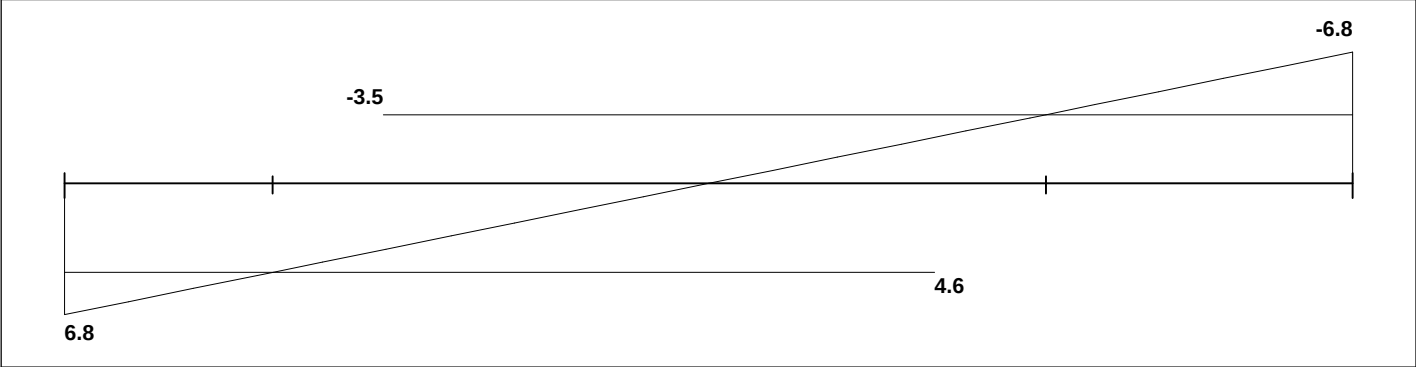
Beam 52	Code: ACI318-02
Project: 1	Page: 370
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

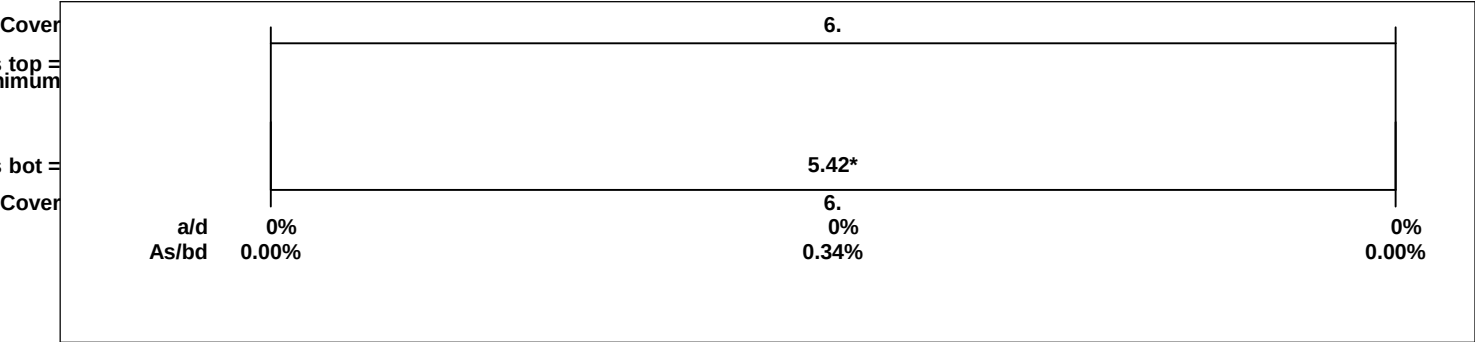


Reactions

Factored			
DeadR	3.84		3.84
LiveR	2.92		2.92
Max R	6.77		6.77
Min R	6.77		6.77
Service			
DeadR	3.2		3.2
LiveR	1.83		1.83
Max R	5.03		5.03
Min R	5.03		5.03

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Center



Beam 52	Code: ACI318-02
Project: 1	Page: 371
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

Max. allow. shear stress = 2.5 (MPa)

□Vc/bd=	0.62	
Vu/bd=	0.03	0.02
As/bd	0.00%	0.00%

Av/s (mm2/mm)

prov.		0.62
req'd	0.25	0.25

Stirrups

□10 Legs=2 Gap=6.5/6.5 3@25

Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 5.42
As	0.
fr = 3	Es= 209 Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 0.84
Mmax,d+l = 1.32
Mmax,sust = 0.55

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00/0.80
ai,d = 0.001
ai,l = 0.000
at,sust = 0.000
ai,l = L/*****
(ai+at),t2-t1 L/*****

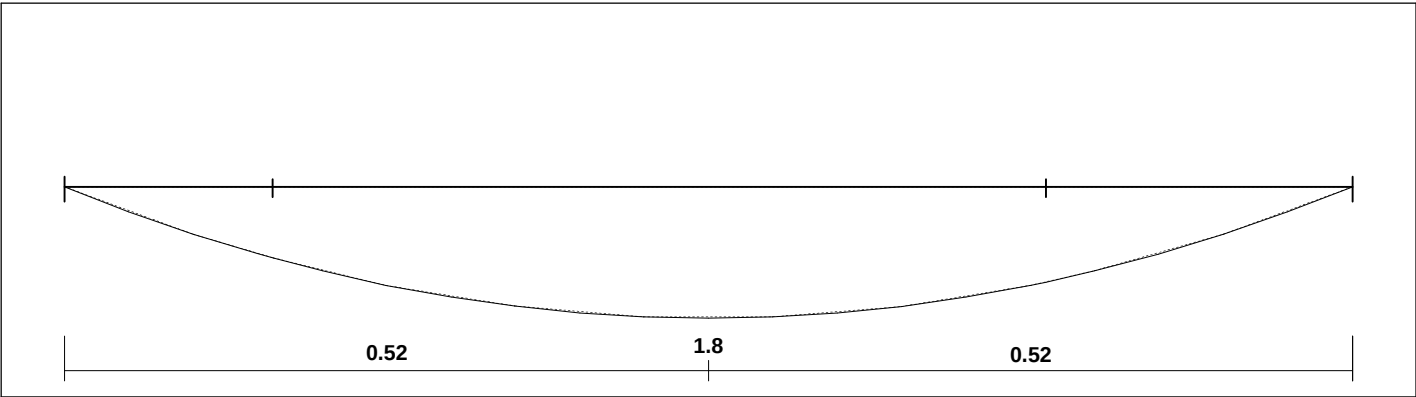
Beam 52	Code: ACI318-02
Project: 1	Page: 372
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

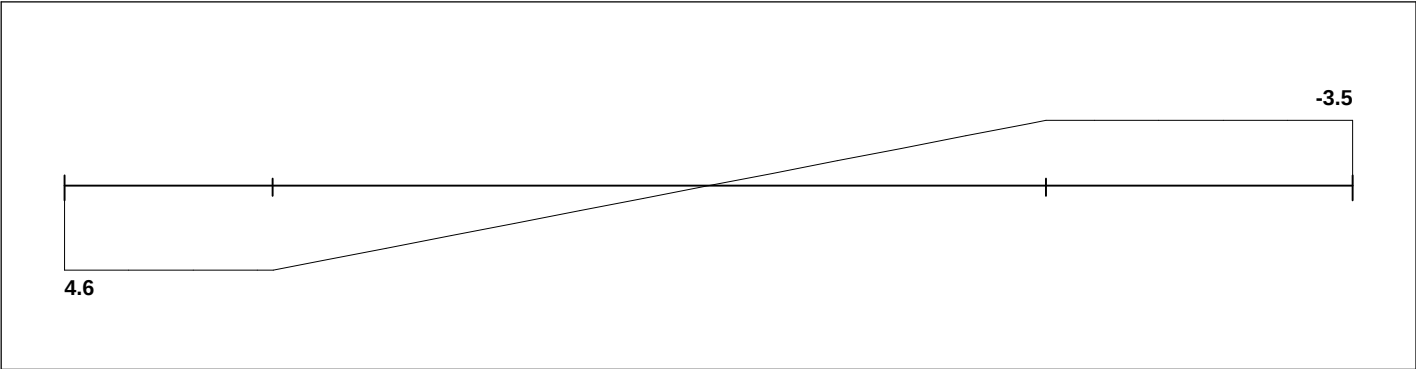
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	4.58	4.58	0.	0.	0.25	0.00	100	-
52	0.33	0.33	4.58	4.58	0.	0.01	0.25	0.00	-	-
105	0.64	0.64	4.58	4.58	0.	0.03	0.25	0.00	-	-
157	0.90	0.90	4.58	4.58	0.	0.04	0.25	0.00	-	-
170	0.96	0.96	4.58	4.58	0.	0.04	0.25	0.00	-	-
210	1.14	1.14	4.06	4.06	0.	0.05	0.25	0.00	-	-
262	1.33	1.33	3.39	3.39	0.	0.06	0.25	0.00	-	-
315	1.49	1.49	2.71	2.71	0.	0.07	0.25	0.00	-	-
367	1.62	1.62	2.04	2.04	0.	0.07	0.25	0.00	-	-
420	1.71	1.71	1.35	1.35	0.	0.08	0.25	0.00	-	-
472	1.76	1.76	0.68	0.68	0.	0.08	0.25	0.00	-	-
525	1.78	1.78	0.00	0.00	0.	0.08	0.25	0.00	100	-
577	1.76	1.76	-0.67	-0.67	0.	0.08	0.25	0.00	-	-
630	1.71	1.71	-1.35	-1.35	0.	0.08	0.25	0.00	-	-
682	1.62	1.62	-2.02	-2.02	0.	0.07	0.25	0.00	-	-
735	1.49	1.49	-2.71	-2.71	0.	0.07	0.25	0.00	-	-
787	1.33	1.33	-3.38	-3.38	0.	0.06	0.25	0.00	-	-
800	1.29	1.29	-3.54	-3.54	0.	0.06	0.25	0.00	-	-
840	1.14	1.14	-3.54	-3.54	0.	0.05	0.25	0.00	-	-
892	0.91	0.91	-3.54	-3.54	0.	0.04	0.25	0.00	-	-
945	0.64	0.64	-3.54	-3.54	0.	0.03	0.25	0.00	-	-
997	0.34	0.34	-3.54	-3.54	0.	0.01	0.25	0.00	-	-
1050	0.00	0.00	-3.54	-3.54	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

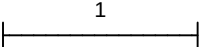
Moments: spans 1 to 1 Load pattern: XX

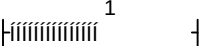


Shear



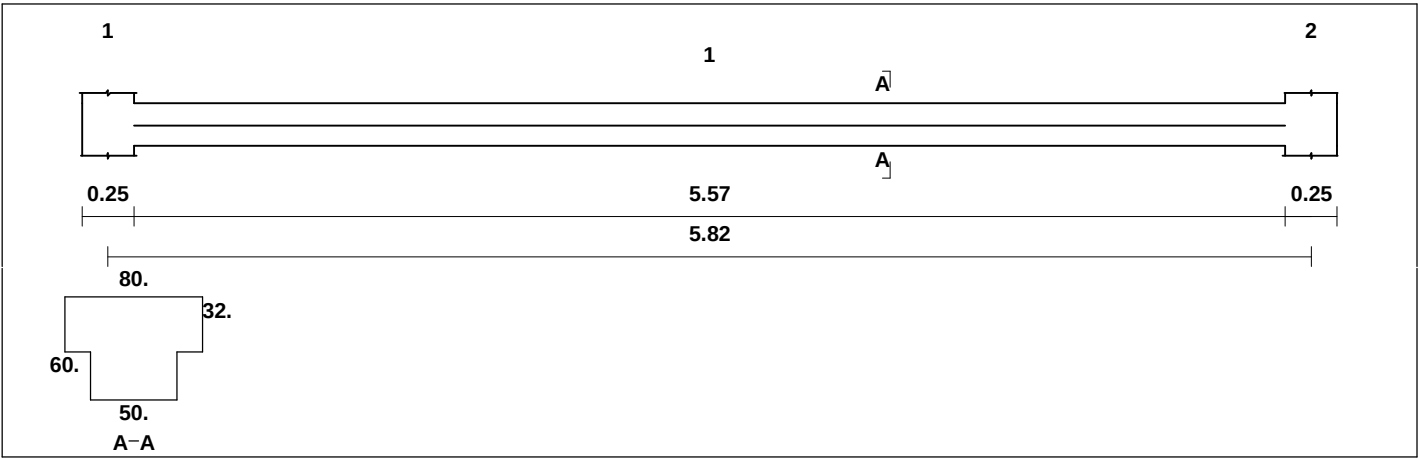
Beam 52	Code: ACI318-02
Project: 1	Page: 373
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	1.0	1.3	
MspMx	1.0	1.3	
M Max			
M Min			
Mmn=0 @	0.0	1.0	
Mmx=0 @	0.0	1.0	
mx -M @			
mx +M @			
V max	6.8	-6.8	
V min	6.8	-6.8	
DReac	3.8	3.8	
LReac	2.9	2.9	
Max R	6.8	6.8	
Min R	6.8	6.8	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.0	
mx +M			
V max	6.8	-6.8	

Beam 57	Code: ACI318-02
Project: 1	Page: 574
Designed by:	Date: 04/09/14

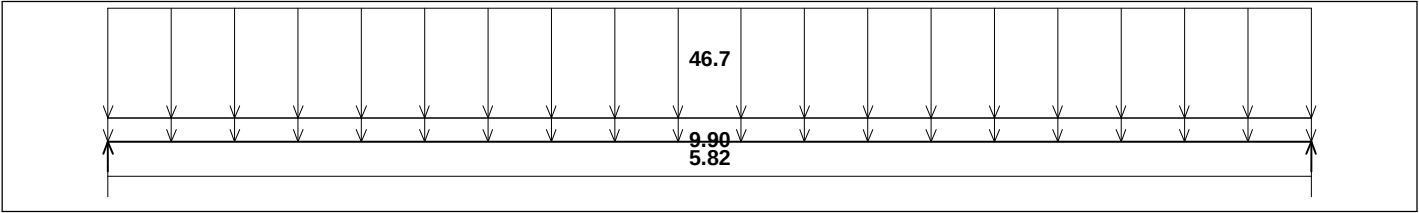
Geometry Units: meter, cm



Loading

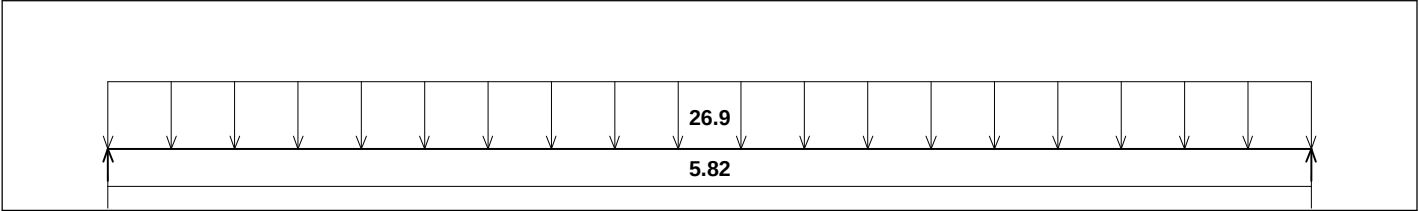
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

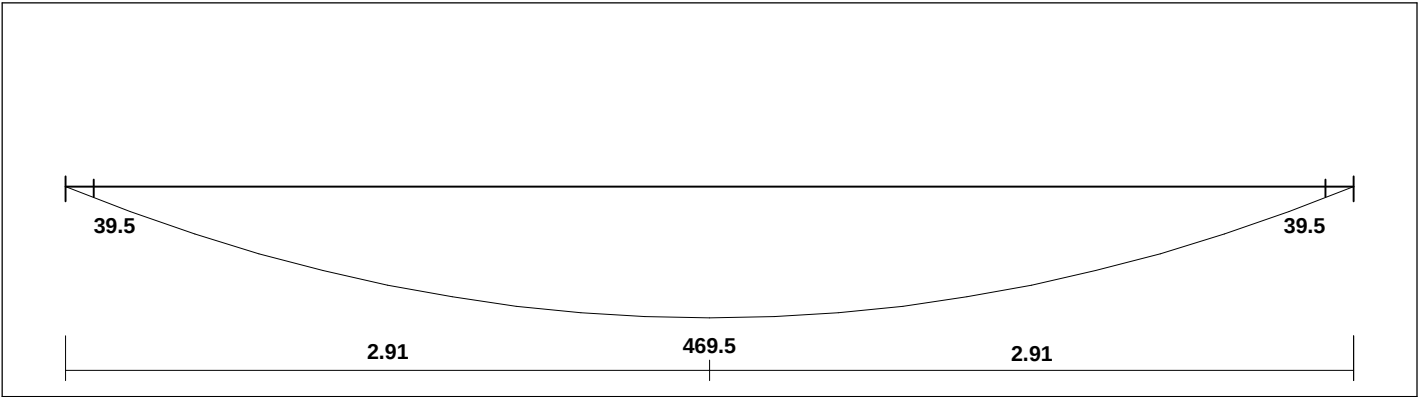


Loads (kN, meter)	
1	
Self.Wt.	9.90
Uni D	46.77
L	26.90

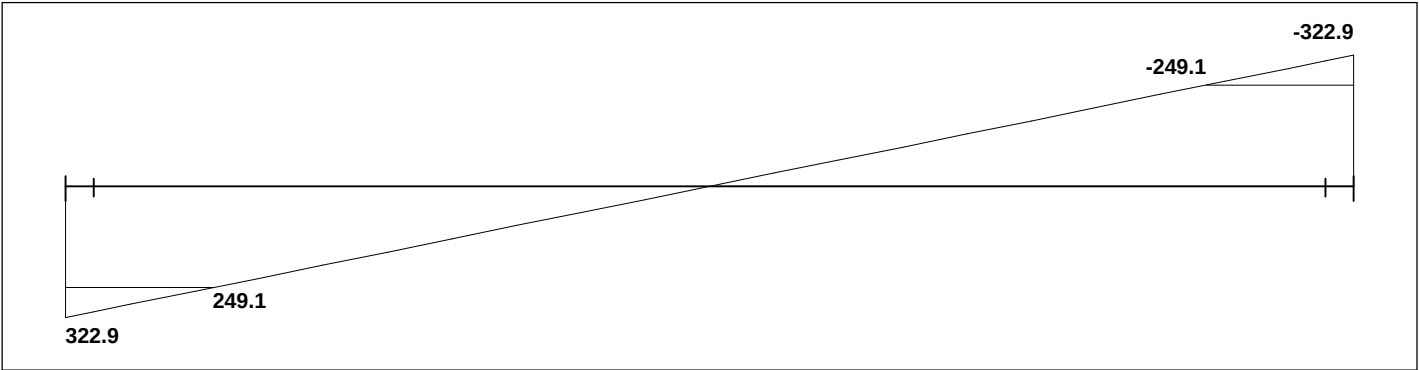
Beam 57	Code: ACI318-02
Project: 1	Page: 575
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



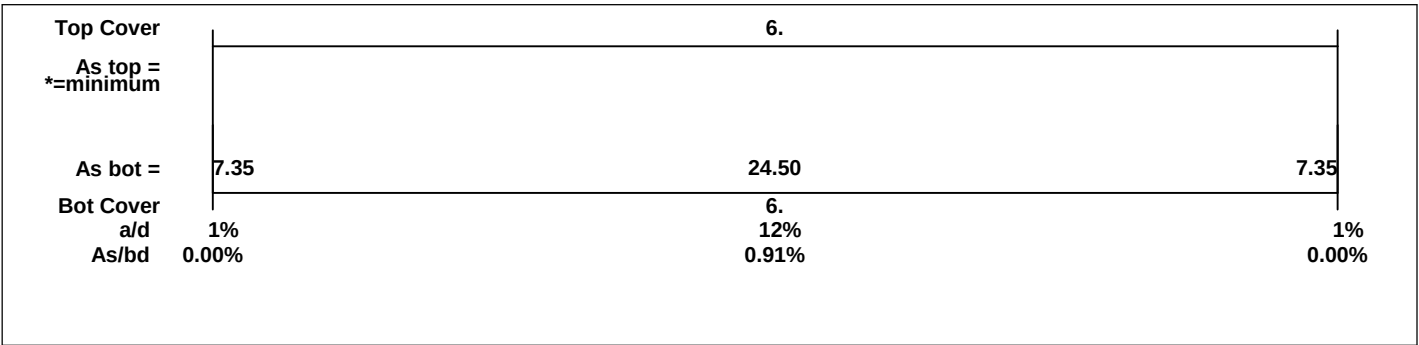
Reactions

Factored

DeadR	197.76	197.76
LiveR	125.16	125.16
Max R	322.92	322.92
Min R	322.92	322.92
Service		
DeadR	164.8	164.8
LiveR	78.23	78.23
Max R	243.02	243.02
Min R	243.02	243.02

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

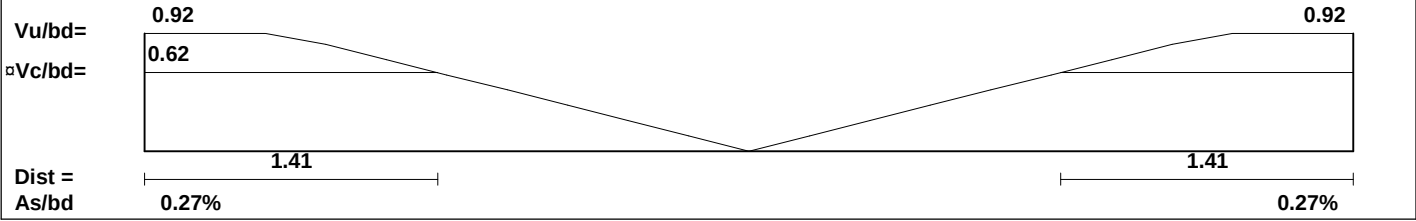


Beam 57	Code: ACI318-02
Project: 1	Page: 576
Designed by:	Date: 04/09/14

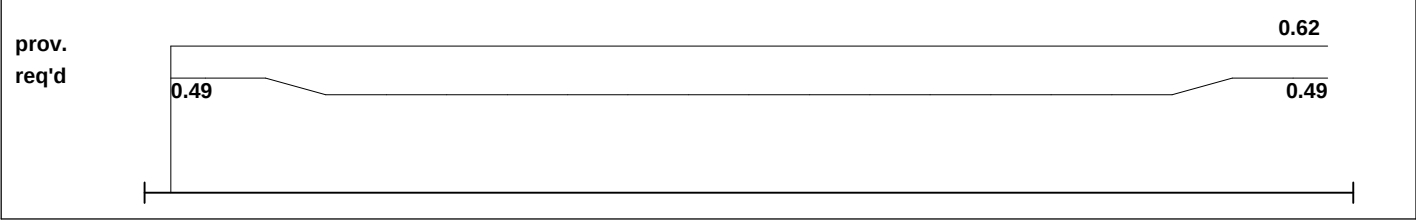
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

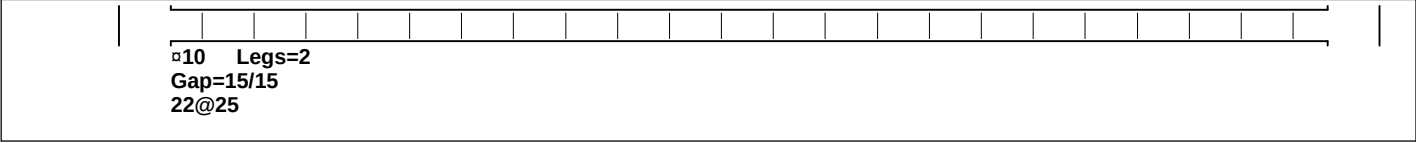
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	0.
As	24.50	
fr = 3	Es= 209	Ec = 23

$I_g(m^4) = 0.01124$
 $I_{cr}(m^4) = 0.00423$

$M_{cr} = 103.73$
 $M_{max,d} = 239.61$
 $M_{max,d+l} = 353.35$
 $M_{max,sust} = 155.75$

$I_{e,d}(m^4) = 0.00479$
 $I_{e,d+l}(m^4) = 0.00440$
 $I_{e,sust}(m^4) = 0.00630$

$e/1+50r = 2.00/0.80$
 $a_{i,d} = 7.493$
 $a_{i,l} = 4.540$
 $a_{t,sust} = 4.452$
 $a_{i,l} = L/ 1280$
 $(a_i+a_t), t_2-t_1 = L/ 500$

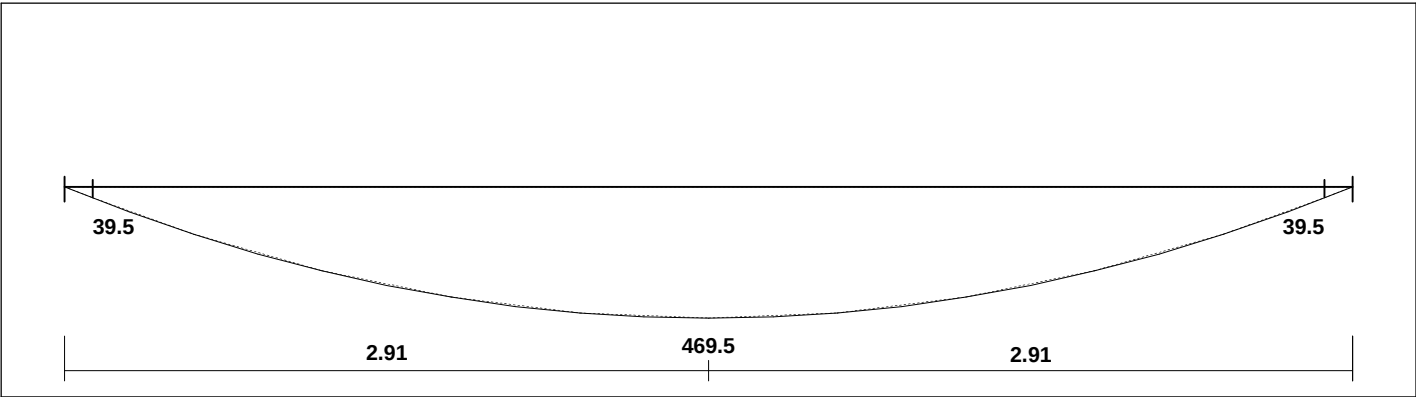
Beam 57	Code: ACI318-02
Project: 1	Page: 577
Designed by:	Date: 04/09/14

Detailed results - at 1/20 of span, support faces, etc.

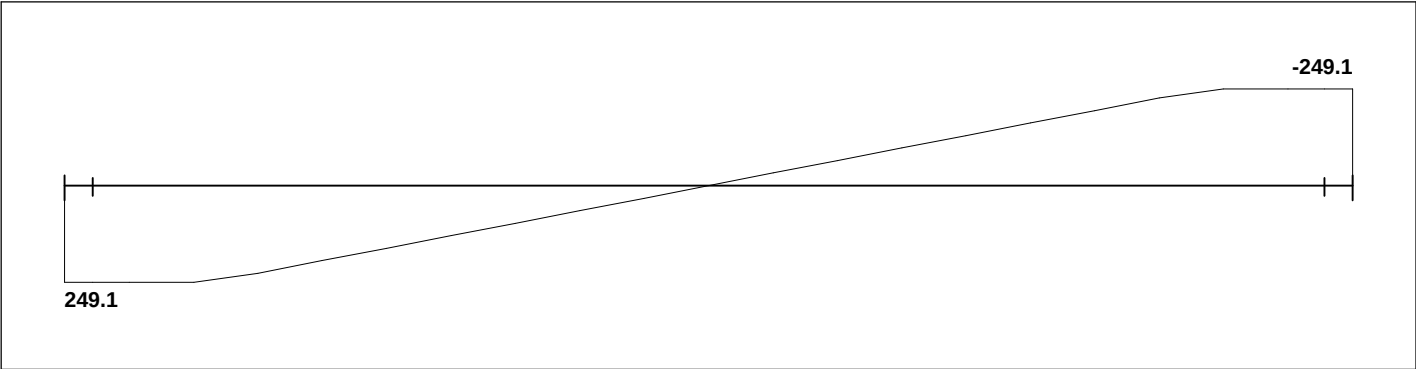
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	249.07	249.07	0.	0.	0.49	0.00	100	-
125	39.50	39.50	249.07	249.07	0.	1.94	0.49	0.01	-	-
291	89.27	89.27	249.07	249.07	0.	4.43	0.49	0.02	-	-
582	169.13	169.13	249.07	249.07	0.	8.48	0.49	0.04	-	-
872	239.36	239.36	226.09	226.09	0.	12.11	0.42	0.06	-	-
1163	300.45	300.45	193.77	193.77	0.	15.32	0.42	0.07	-	-
1454	352.14	352.14	161.46	161.46	0.	18.08	0.42	0.09	-	-
1745	394.42	394.42	129.14	129.14	0.	20.37	0.42	0.10	-	-
2036	427.30	427.30	96.83	96.83	0.	22.16	0.42	0.11	-	-
2326	450.71	450.71	64.63	64.63	0.	23.45	0.42	0.11	-	-
2617	464.82	464.82	32.31	32.31	0.	24.24	0.42	0.12	-	-
2908	469.52	469.52	0.00	0.00	0.	24.50	0.42	0.12	100	-
3199	464.82	464.82	-32.31	-32.31	0.	24.24	0.42	0.12	-	-
3490	450.71	450.71	-64.63	-64.63	0.	23.45	0.42	0.11	-	-
3780	427.30	427.30	-96.83	-96.83	0.	22.16	0.42	0.11	-	-
4071	394.42	394.42	-129.14	-129.14	0.	20.37	0.42	0.10	-	-
4362	352.14	352.14	-161.46	-161.46	0.	18.08	0.42	0.09	-	-
4653	300.45	300.45	-193.77	-193.77	0.	15.32	0.42	0.07	-	-
4944	239.36	239.36	-226.09	-226.09	0.	12.11	0.42	0.06	-	-
5234	169.13	169.13	-249.07	-249.07	0.	8.48	0.49	0.04	-	-
5525	89.27	89.27	-249.07	-249.07	0.	4.43	0.49	0.02	-	-
5691	39.50	39.50	-249.07	-249.07	0.	1.94	0.49	0.01	-	-
5816	0.00	0.00	-249.07	-249.07	0.	0.	0.49	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



Beam 57	Code: ACI318-02
Project: 1	Page: 578
Designed by:	Date: 04/09/14

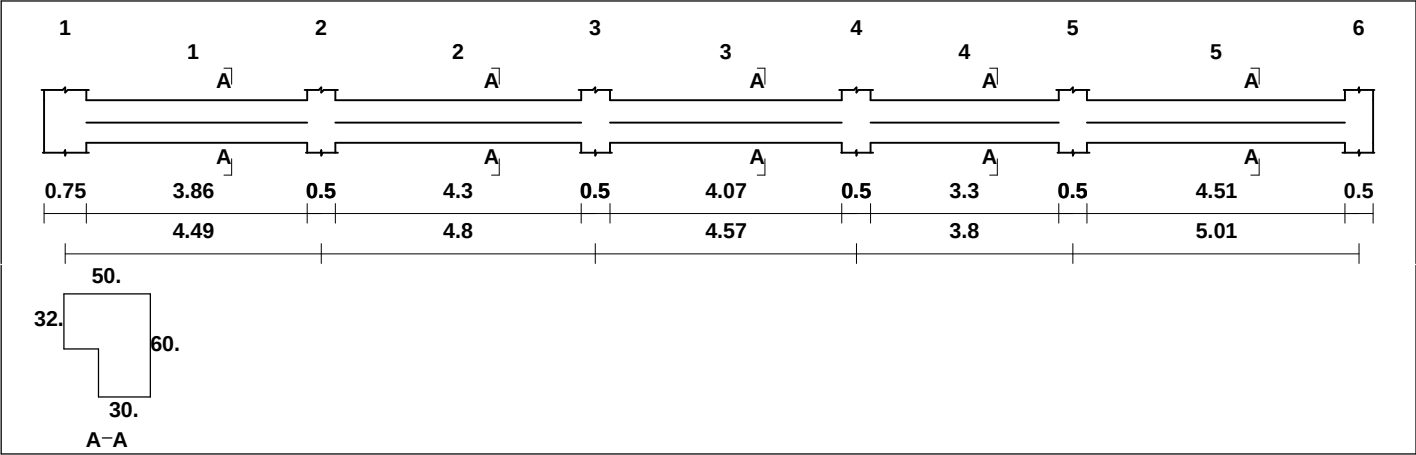
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	39.5	39.5	
MspMx	39.5	39.5	
M Max			
M Min			
Mmn=0 @	0.0	5.8	
Mmx=0 @	0.0	5.8	
mx -M @			
mx +M @			
V max		-322.9	
V min		-322.9	
DReac		197.8	
LReac		125.2	
Max R		322.9	
Min R		322.9	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	5.8	
mx +M			
V max		-322.9	

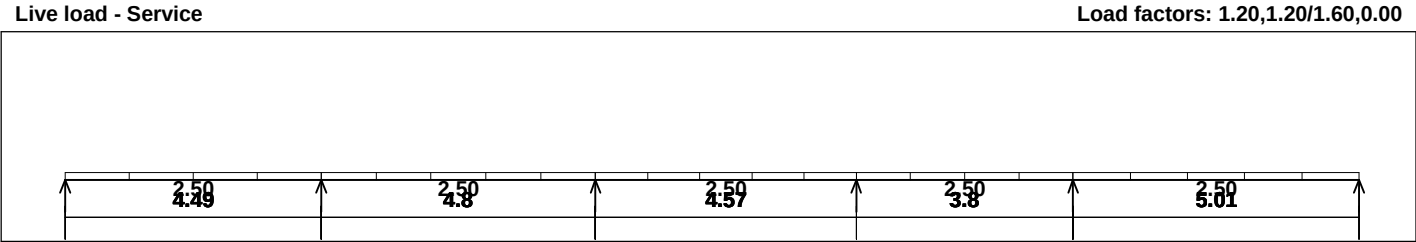
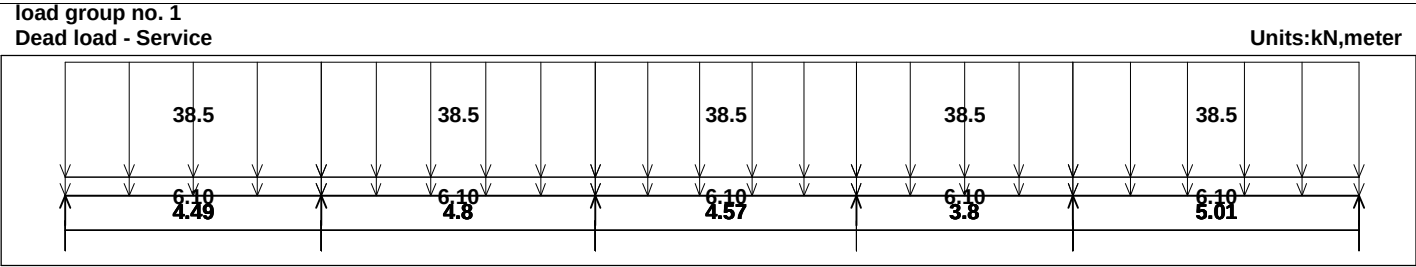
Beam 58	Code: ACI318-02
Project: 1	Page: 391
Designed by:	Date: 04/07/14

Geometry

Units: meter, cm



Loading

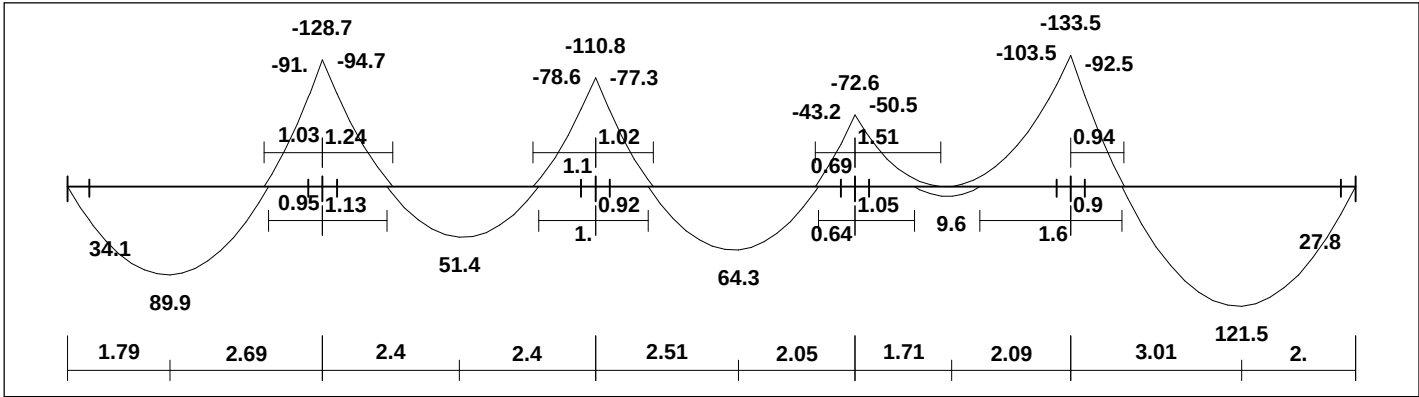


Loads (kN,meter)											
1				2				3			
Self.Wt.				Self.Wt.				Self.Wt.			
Uni D	38.54	L	2.50	Uni D	38.54	L	2.50	Uni D	38.54	L	2.50
5											
Self.Wt.				Self.Wt.				Self.Wt.			
Uni D	38.54	L	2.50								

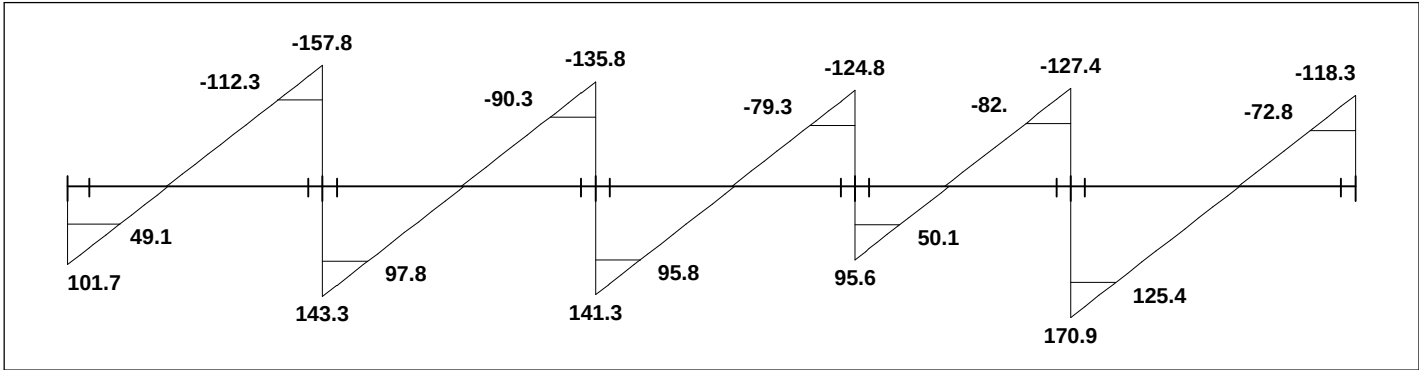
Beam 58	Code: ACI318-02
Project: 1	Page: 392
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 5



Shear



Reactions

Factored

DeadR	93.65	278.88	255.22	200.51	275.97	109.57
LiveR	8.07	22.17	21.86	19.85	22.34	8.74
Max R	101.73	301.04	277.08	220.35	298.31	118.31
Min R	92.57	287.93	262.52	204.68	282.05	109.02
Service						
DeadR	78.04	232.4	212.68	167.09	229.97	91.31
LiveR	5.05	13.85	13.66	12.4	13.96	5.46
Max R	83.09	246.25	226.35	179.49	243.94	96.77
Min R	77.37	238.06	217.25	169.7	233.77	90.96

Reinforcement (cm 2)

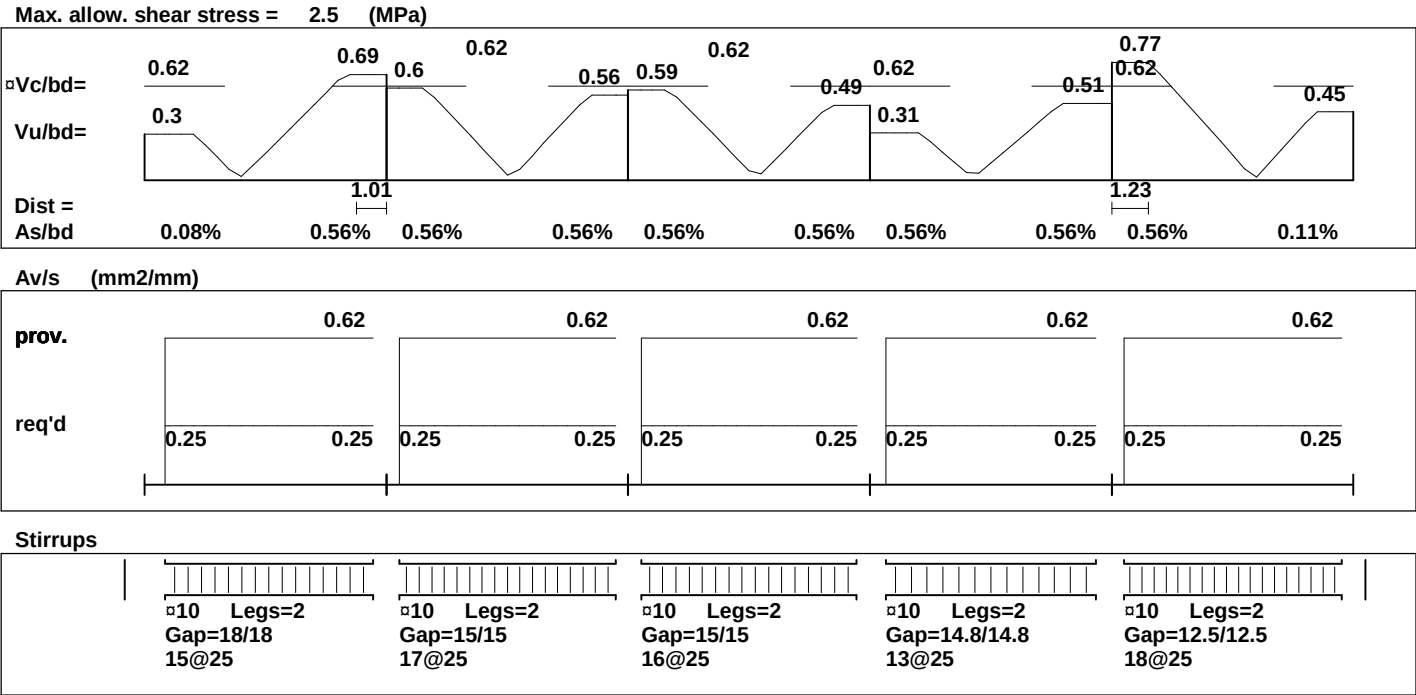
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.	6.	6.	6.	6.
As top = *=minimum	9.04*	9.04*	9.04*	0.11	9.04*	
As bot =	1.34	5.42*	5.42*	5.42*	5.42*	6.11
Bot Cover	1%	3%	6%	2%	5%	6%
a/d	1%	3%	6%	2%	5%	6%
As/bd	0.00%	0.34%	0.56%	0.34%	0.56%	0.38%

Beam 58	Code: ACI318-02
Project: 1	Page: 393
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

	1	2	3	4
A's	0.	0.	0.	5.42
As	5.42	5.42	5.42	0.11
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00687	0.00687	0.00687	0.00687
Icr(m^4)=	0.00110	0.00110	0.00110	0.00004
Mcr =	62.86	62.86	62.86	80.40
Mmax,d =	68.18	37.05	47.76	102.74
Mmax,d+l =	73.20	41.39	52.15	106.76
Mmax,sust =	44.31	24.08	31.05	66.78
Ie,d (m^4)=	0.00563	0.00687	0.00687	0.00331
Ie,d+l (m^4)=	0.00476	0.00687	0.00687	0.00296
Ie,sust (m^4)=	0.00687	0.00687	0.00687	0.00687
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80	1.71/0.68
ai,d =	0.854	0.272	0.448	-0.330
ai,l =	0.245	0.056	0.054	-0.109
at,sust =	0.546	0.212	0.350	-0.106
ai,l =	L/18277	L/*****	L/*****	L/34758
(ai+at),t2-t1	L/ 4115	L/13212	L/ 8147	L/11472

Long-term deflection:
- sustained loads : 65% of dead; 0% of live

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- duration of load 60 months ; attachment of element at 2 months (t1)

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Deflections (mm)									
Apply 35% of dead load after attachment (t1)									
A's		5 0.							
As		6.11							
fr = 3		Es= 209		Ec =		23			
Ig(m^4)=		0.00687							
Icr(m^4)=		0.00122							
Mcr =		62.86							
Mmax,d =		93.35							
Mmax,d+l =		99.28							
Mmax,sust =		60.68							
Ie,d (m^4)=		0.00295							
Ie,d+l (m^4)=		0.00266							
Ie,sust (m^4)=		0.00687							
e/1+50r =		2.00/0.80							
ai,d =		2.986							
ai,l =		0.554							
at,sust =		1.000							
ai,l =		L/ 9036							
(ai+at),t2-t1		L/ 1927							

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	49.05	43.56	0.	0.	0.25	0.00	100	-
224	21.34	19.39	49.05	43.56	0.	1.05	0.25	0.01	-	-
375	34.10	30.95	49.05	43.56	0.	1.68	0.25	0.01	-	-
449	39.87	36.17	49.05	43.56	0.	1.97	0.25	0.02	-	-
673	55.42	50.17	49.05	43.56	0.	2.75	0.25	0.02	-	-
897	68.09	61.49	49.05	43.56	0.	3.38	0.25	0.03	-	-
1121	77.86	70.12	37.19	32.52	0.	3.88	0.25	0.03	-	-
1346	84.78	76.08	24.24	20.47	0.	4.23	0.25	0.03	-	-
1570	88.76	79.32	11.34	8.47	0.	4.43	0.25	0.03	-	-
1794	89.86	79.87	-1.55	-3.53	0.	4.49	0.25	0.03	-	-
2018	88.07	77.74	-14.45	-15.77	0.	4.40	0.25	0.03	-	-
2243	83.36	72.89	-27.27	-28.72	0.	4.16	0.25	0.03	100	-
2467	75.78	65.37	-39.27	-41.62	0.	3.77	0.25	0.03	-	-
2691	65.31	55.16	-51.27	-54.51	0.	3.24	0.25	0.02	-	-
2915	51.95	42.26	-63.26	-67.41	0.	2.57	0.25	0.02	-	-
3140	35.62	26.60	-75.32	-80.36	0.	1.76	0.25	0.01	-	-
3364	16.47	8.31	-87.32	-93.25	0.	0.81	0.25	0.01	-	-
3588	-5.56	-12.66	-99.32	-106.15	0.62	0.	0.25	0.01	-	-
3812	-30.49	-36.32	-105.05	-112.31	1.80	0.	0.25	0.02	-	-
4037	-58.43	-63.77	-105.05	-112.31	3.19	0.	0.25	0.04	-	-
4235	-85.44	-91.04	-105.05	-112.31	4.60	0.	0.25	0.06	-	-
4261	-89.15	-94.78	-105.05	-112.31	4.60	0.	0.25	0.06	-	-
4485	-122.17	-128.68	-105.05	-112.31	4.60	0.	0.25	0.06	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=2										
0	-122.17	-128.68	97.78	90.12	4.79	0.	0.25	0.06	100	-
240	-90.09	-95.96	97.78	90.12	4.79	0.	0.25	0.06	-	-
250	-88.83	-94.67	97.78	90.12	4.79	0.	0.25	0.06	-	-
480	-61.33	-66.55	97.78	90.12	3.34	0.	0.25	0.04	-	-
720	-35.89	-41.37	97.78	90.12	2.05	0.	0.25	0.03	-	-
960	-13.76	-20.30	87.99	81.02	1.00	0.	0.25	0.01	-	-
1200	5.36	-2.39	74.17	68.16	0.11	0.26	0.25	0.00	-	-
1440	21.20	12.42	60.36	55.30	0.	1.04	0.25	0.01	-	-
1680	33.73	24.15	46.54	42.45	0.	1.66	0.25	0.01	-	-
1920	42.93	32.80	32.72	29.59	0.	2.12	0.25	0.02	-	-
2160	48.83	38.35	18.91	16.22	0.	2.42	0.25	0.02	-	-
2401	51.41	40.83	5.03	2.34	0.	2.55	0.25	0.02	100	-
2641	50.65	40.21	-8.71	-11.47	0.	2.51	0.25	0.02	-	-
2881	46.59	36.50	-21.56	-25.29	0.	2.30	0.25	0.02	-	-
3121	39.20	29.70	-34.42	-39.10	0.	1.94	0.25	0.01	-	-
3361	28.50	19.82	-47.28	-52.92	0.	1.40	0.25	0.01	-	-
3601	14.48	6.85	-60.13	-66.74	0.	0.71	0.25	0.01	-	-
3841	-2.85	-9.20	-72.99	-80.55	0.45	0.	0.25	0.01	-	-
4081	-23.45	-28.34	-82.10	-90.34	1.40	0.	0.25	0.02	-	-
4321	-47.11	-52.22	-82.10	-90.34	2.60	0.	0.25	0.03	-	-
4551	-72.90	-78.62	-82.10	-90.34	3.96	0.	0.25	0.05	-	-
4561	-74.09	-79.84	-82.10	-90.34	3.96	0.	0.25	0.05	-	-
4801	-103.03	-110.78	-82.10	-90.34	3.96	0.	0.25	0.05	100	-
Span=3										
0	-103.03	-110.78	95.78	88.62	3.89	0.	0.25	0.05	100	-
228	-73.03	-80.07	95.78	88.62	3.89	0.	0.25	0.05	-	-
250	-70.30	-77.26	95.78	88.62	3.89	0.	0.25	0.05	-	-
457	-45.92	-52.23	95.78	88.62	2.61	0.	0.25	0.03	-	-
685	-21.93	-28.21	95.78	88.62	1.39	0.	0.25	0.02	-	-
913	-0.92	-8.12	88.70	82.03	0.39	0.	0.25	0.01	-	-
1142	17.42	9.26	75.52	69.77	0.	0.85	0.25	0.01	-	-
1370	32.72	23.78	62.39	57.55	0.	1.61	0.25	0.01	-	-
1598	45.03	35.51	49.27	45.34	0.	2.23	0.25	0.02	-	-
1827	54.38	44.49	36.08	32.93	0.	2.70	0.25	0.02	-	-
2055	60.70	50.63	22.96	19.81	0.	3.01	0.25	0.02	-	-
2283	64.02	54.00	9.83	6.68	0.	3.18	0.25	0.02	100	-
2512	64.34	54.57	-3.35	-6.50	0.	3.20	0.25	0.02	-	-
2740	61.66	52.35	-15.73	-19.63	0.	3.06	0.25	0.02	-	-
2968	55.99	47.35	-27.95	-32.75	0.	2.78	0.25	0.02	-	-
3197	47.28	39.52	-40.21	-45.93	0.	2.34	0.25	0.02	-	-
3425	35.61	28.94	-52.43	-59.06	0.	1.76	0.25	0.01	-	-
3653	21.14	15.57	-64.64	-72.18	0.	1.04	0.25	0.01	-	-
3882	3.82	-0.66	-71.27	-79.31	0.03	0.18	0.25	0.00	-	-
4110	-16.42	-21.61	-71.27	-79.31	1.06	0.	0.25	0.01	-	-
4317	-37.39	-43.23	-71.27	-79.31	2.15	0.	0.25	0.03	-	-
4338	-39.66	-45.56	-71.27	-79.31	2.15	0.	0.25	0.03	-	-
4567	-64.55	-72.63	-71.27	-79.31	2.15	0.	0.25	0.03	100	-

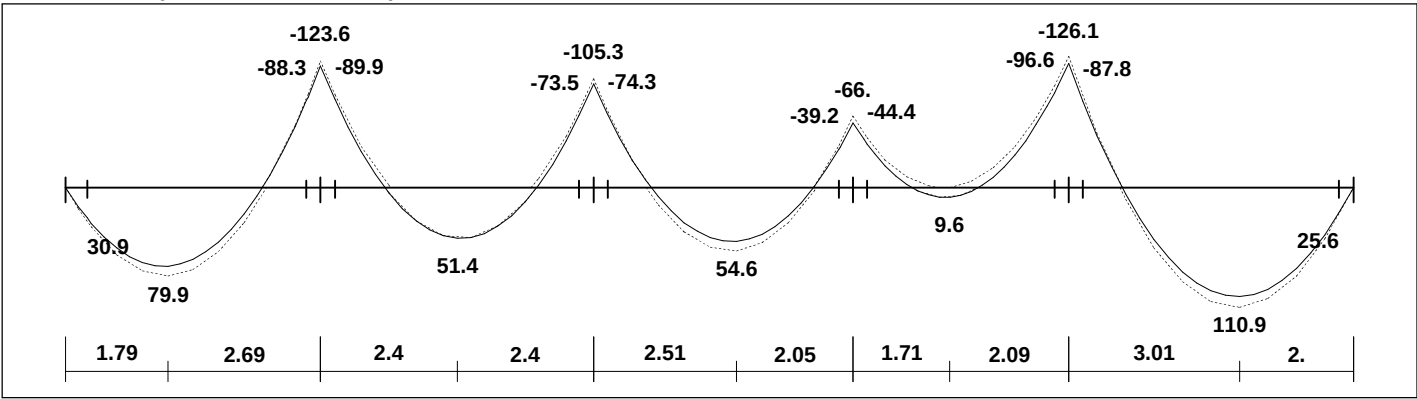
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=4										
0	-64.55	-72.63	50.07	42.46	2.52	0.	0.25	0.03	100	-
190	-48.25	-55.48	50.07	42.46	2.52	0.	0.25	0.03	-	-
250	-43.54	-50.51	50.07	42.46	2.52	0.	0.25	0.03	-	-
380	-34.06	-40.44	50.07	42.46	2.01	0.	0.25	0.03	-	-
569	-22.01	-27.93	50.07	42.46	1.38	0.	0.25	0.02	-	-
759	-11.62	-18.47	50.07	42.46	0.91	0.	0.25	0.01	-	-
949	-3.21	-10.94	40.92	33.94	0.53	0.	0.25	0.01	-	-
1139	3.12	-5.35	29.98	23.76	0.26	0.15	0.25	0.00	-	-
1329	7.37	-1.68	19.04	13.58	0.08	0.36	0.25	0.00	-	-
1518	9.54	0.04	8.16	3.46	0.	0.46	0.25	0.00	-	-
1708	9.65	-0.16	-2.77	-7.24	0.00	0.47	0.25	0.00	-	-
1898	7.68	-2.29	-13.71	-18.18	0.11	0.37	0.25	0.00	100	-
2088	3.63	-6.35	-24.65	-29.12	0.31	0.17	0.25	0.00	-	-
2278	-2.50	-12.35	-35.59	-40.06	0.60	0.	0.25	0.01	-	-
2468	-10.70	-20.28	-46.53	-50.99	1.00	0.	0.25	0.01	-	-
2657	-20.93	-30.09	-56.96	-61.88	1.49	0.	0.25	0.02	-	-
2847	-33.28	-41.88	-67.14	-72.81	2.08	0.	0.25	0.03	-	-
3037	-47.71	-55.60	-75.66	-81.98	2.78	0.	0.25	0.04	-	-
3227	-64.00	-71.32	-75.66	-81.98	3.58	0.	0.25	0.05	-	-
3417	-82.18	-89.36	-75.66	-81.98	4.52	0.	0.25	0.06	-	-
3546	-95.71	-103.47	-75.66	-81.98	5.26	0.	0.25	0.07	-	-
3606	-102.32	-110.36	-75.66	-81.98	5.26	0.	0.25	0.07	-	-
3796	-124.65	-133.53	-75.66	-81.98	5.26	0.	0.25	0.07	100	-
Span=5										
0	-124.65	-133.53	125.39	116.75	4.68	0.	0.25	0.06	100	-
251	-86.44	-92.48	125.39	116.75	4.68	0.	0.25	0.06	-	-
501	-51.70	-55.18	125.39	116.75	2.75	0.	0.25	0.04	-	-
752	-18.09	-21.42	125.39	116.75	1.05	0.	0.25	0.01	-	-
1002	11.81	6.68	113.18	105.40	0.	0.58	0.25	0.00	-	-
1253	38.21	31.52	98.73	91.95	0.	1.89	0.25	0.01	-	-
1503	60.91	52.90	84.34	78.56	0.	3.02	0.25	0.02	-	-
1754	80.07	71.01	69.89	65.11	0.	3.99	0.25	0.03	-	-
2004	95.55	85.68	55.50	51.72	0.	4.78	0.25	0.04	-	-
2255	107.48	97.05	41.05	38.28	0.	5.39	0.25	0.04	-	-
2505	115.75	105.02	26.66	24.89	0.	5.81	0.25	0.04	100	-
2756	120.44	109.65	12.21	11.44	0.	6.05	0.25	0.05	-	-
3006	121.50	110.90	-1.67	-2.95	0.	6.11	0.25	0.05	-	-
3257	118.95	108.80	-15.11	-17.40	0.	5.98	0.25	0.05	-	-
3507	112.80	103.35	-28.50	-31.79	0.	5.66	0.25	0.04	-	-
3758	103.01	94.50	-41.95	-46.24	0.	5.16	0.25	0.04	-	-
4008	89.65	82.34	-55.34	-60.63	0.	4.48	0.25	0.03	-	-
4259	72.62	66.77	-66.70	-72.83	0.	3.61	0.25	0.03	-	-
4509	52.05	47.89	-66.70	-72.83	0.	2.58	0.25	0.02	-	-
4760	27.78	25.58	-66.70	-72.83	0.	1.37	0.25	0.01	-	-
5010	0.00	0.00	-66.70	-72.83	0.	0.	0.25	0.00	100	-

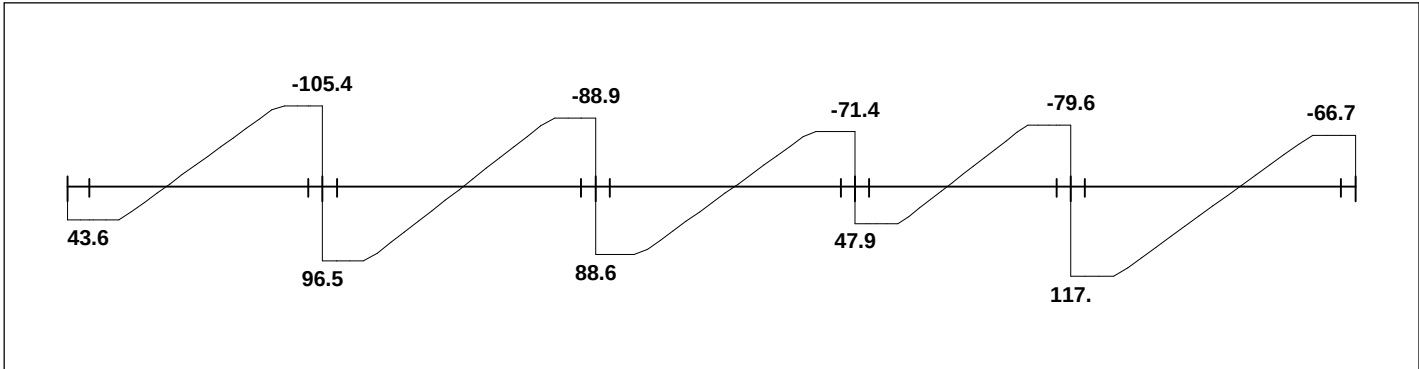
Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 5 Load pattern: xxxXxxXxx

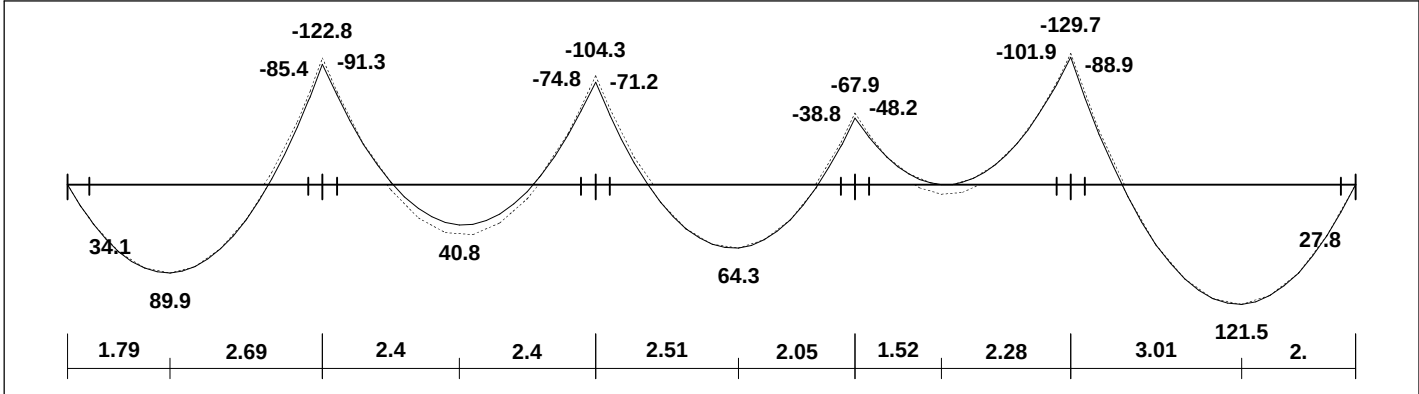


Moment/Shear Envelope (Factored) Units:kN,meter

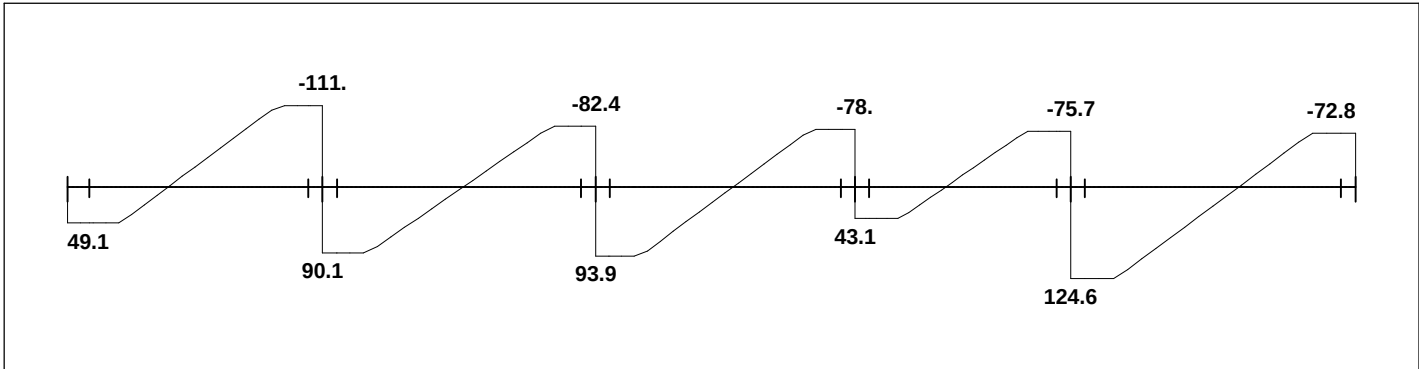
Shear



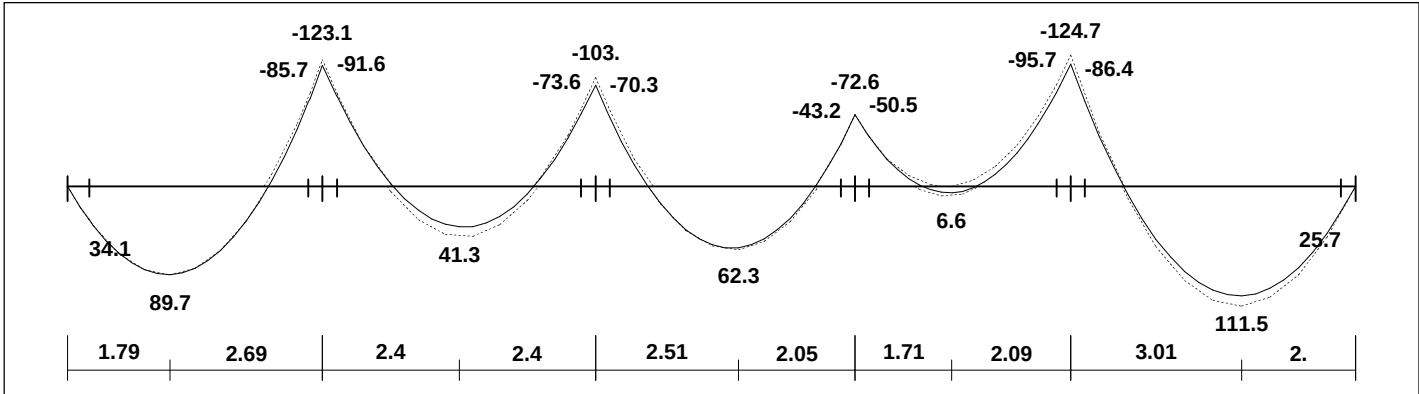
Moments: spans 1 to 5 Load pattern: XXxxXXxxXX



Shear

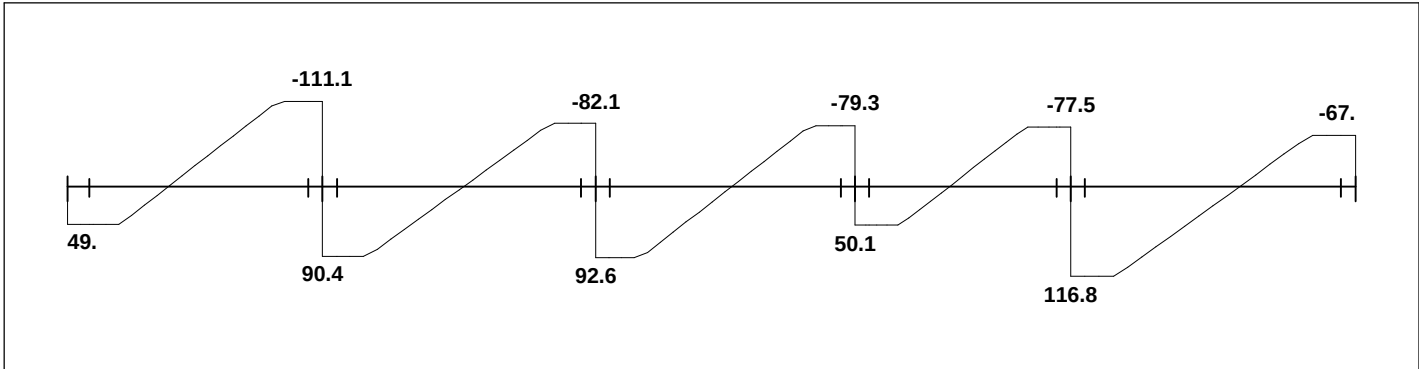


Moments: spans 1 to 5 Load pattern: XXxxXXXXxx

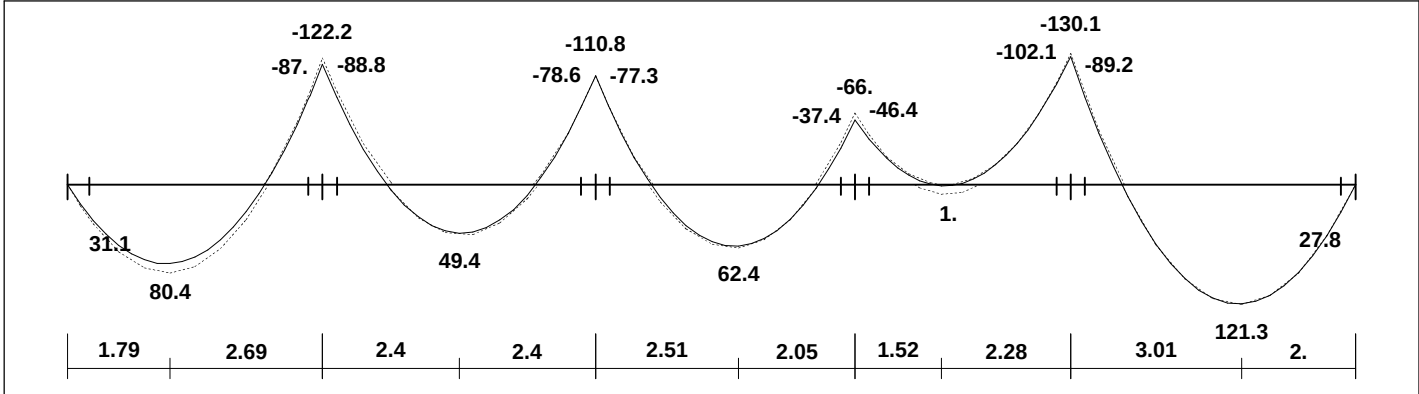


Moment/Shear Envelope (Factored) Units:kN,meter

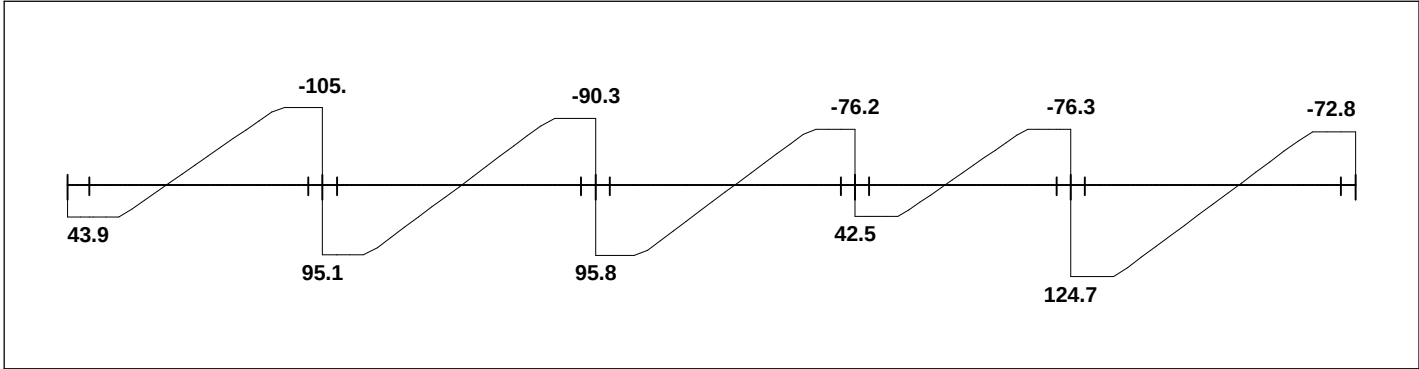
Shear



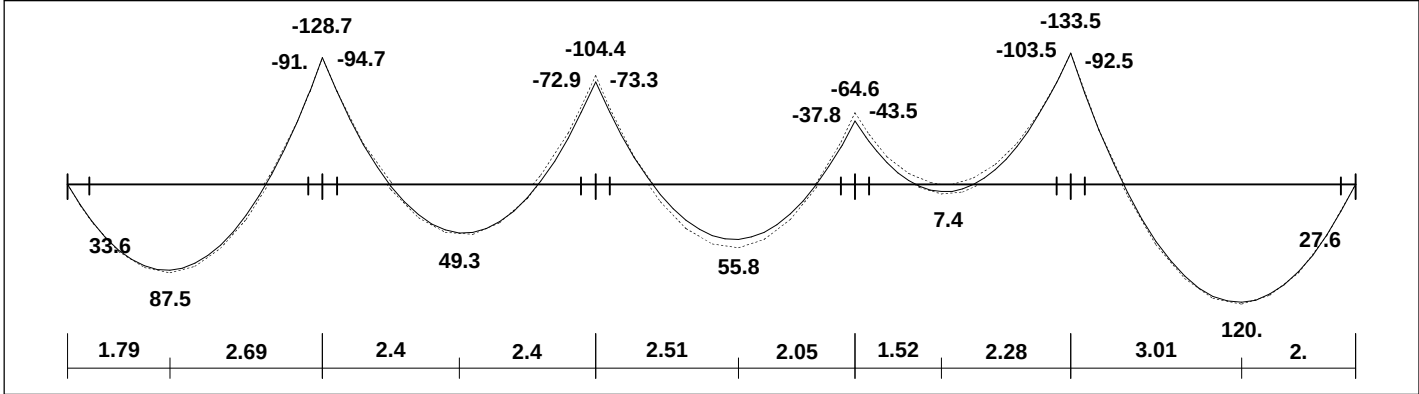
Moments: spans 1 to 5 Load pattern: xxXXXXxxXX



Shear

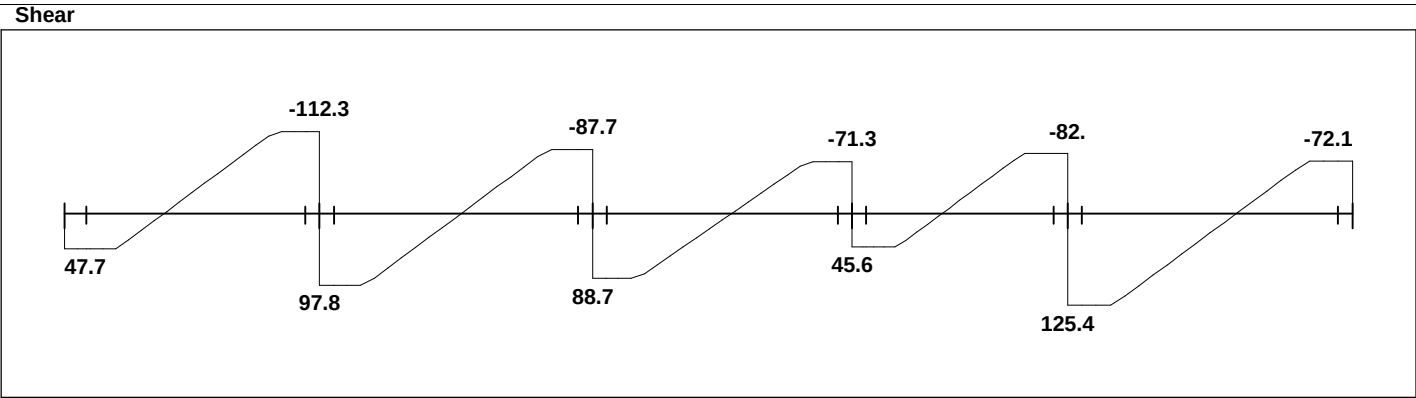


Moments: spans 1 to 5 Load pattern: XXXXxxXXXX



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Moment / Shear Envelope (Factored) Units:kN,meter



Moment / Shear Envelope (Factored) Units:kN,meter									
	1	2		3		4		5	
		1	2	2	3	3	4	4	5
Min M	0.0	-128.7	-128.7	-110.8	-110.8	-72.6	-72.6	-133.5	
Max M	0.0	-122.2	-122.2	-103.0	-103.0	-64.6	-64.6	-124.7	
MspMn	30.9	-91.0	-94.7	-78.6	-77.3	-43.2	-50.5	-103.5	
MspMx	34.1	-85.4	-88.8	-72.9	-70.3	-37.4	-43.5	-95.7	
M Max				51.4		64.3		9.6	
M Min				40.8		54.6		0.0	
Mmn=0 @	0.0	1.0	1.2	1.1	1.0	0.7	1.5	2.2	
Mmx=0 @	0.0	1.0	1.1	1.0	0.9	0.6	1.0	1.6	
mx -M @			1.1		0.9		1.0		
mx +M @			2.4		2.5		1.7		
V max		-147.4		-124.4		-113.6	95.6	-118.0	
V min	92.6	-157.8		-135.8		-124.8	84.8	-127.4	
DReac	93.7	278.9		255.2		200.5		276.0	
LReac	8.1	22.2		21.9		19.8		22.3	
Max R		301.0		277.1		220.4		298.3	
Min R	92.6	287.9		262.5		204.7		282.1	
5		6							
		5							
Min M	-133.5	0.0							
Max M	-124.7	0.0							
MspMn	-92.5	25.6							
MspMx	-86.4	27.8							
M Max									
M Min									
Mmn=0 @	0.9	5.0							
Mmx=0 @	0.9	5.0							
mx -M @									
mx +M @									
V max		-109.0							
V min		-118.3							
DReac		109.6							
LReac	22.3	8.7							
Max R		118.3							
Min R		109.0							

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Individual load cases - factored					Units:kN,meter				
	1	2	3	4	5				
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-123.6	-123.6	-105.3	-105.3	-66.0	-66.0	-126.1	
M Max			51.4		54.6		9.6		
Mmx=0 @	0.0	1.0	1.1	1.0	1.0	0.7	1.0	1.6	
mx +M			2.4		2.5		1.7		
V max	92.6	-147.7	-134.4	-113.7	93.4	-125.1			
	5	6							
	5								
Min M	-126.1	0.0							
M Max									
Mmx=0 @	0.9	5.0							
mx +M									
V max		-109.0							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-122.8	-122.8	-104.3	-104.3	-67.9	-67.9	-129.7	
M Max			40.8		64.3		0.0		
Mmx=0 @	0.0	1.0	1.2	1.1	0.9	0.6	1.5	2.2	
mx +M			2.4		2.5		1.5		
V max		-156.5	-124.7	-123.5	85.4	-118.0			
	5	6							
	5								
Min M	-129.7	0.0							
M Max									
Mmx=0 @	0.9	5.0							
mx +M									
V max		-118.3							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-123.1	-123.1	-103.0	-103.0	-72.6	-72.6	-124.7	
M Max			41.3		62.3		6.6		
Mmx=0 @	0.0	1.0	1.2	1.1	0.9	0.7	1.2	1.7	
mx +M			2.4		2.5		1.7		
V max		-156.5	-124.4	-124.8	95.6	-123.0			
	5	6							
	5								
Min M	-124.7	0.0							
M Max									
Mmx=0 @	0.9	5.0							
mx +M									
V max		-109.3							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-122.2	-122.2	-110.8	-110.8	-66.0	-66.0	-130.1	
M Max			49.4		62.4		1.0		
Mmx=0 @	0.0	1.0	1.1	1.1	1.0	0.6	1.4	2.0	
mx +M			2.4		2.5		1.5		
V max	92.9	-147.4	-135.8	-121.7	84.8	-118.6			
	5	6							
	5								
Min M	-130.1	0.0							
M Max									
Mmx=0 @	0.9	5.0							
mx +M									
V max		-118.2							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-128.7	-128.7	-104.4	-104.4	-64.6	-64.6	-133.5	
M Max			49.3		55.8		7.4		
Mmx=0 @	0.0	1.0	1.2	1.0	1.0	0.7	1.1	1.7	

Beam 58						Code: ACI318-02
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Designed by:						Date: 04/07/14

mx +M		2.4		2.5		1.5
V max	-157.8		-133.1		-113.6	91.1 -127.4

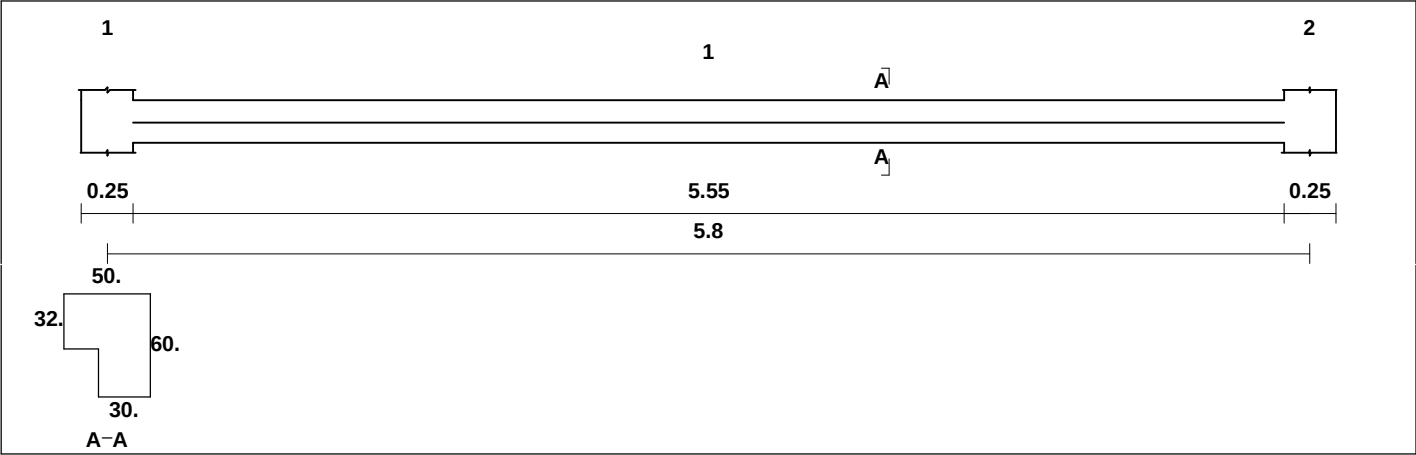
Beam 58	Code: ACI318-02
Project: 1	Page: 403
Designed by:	Date: 04/07/14

Individual load cases - factored		Units:kN,meter
5	6	
	5	
		
Min M	-133.5	0.0
M Max		
Mmx=0 @	0.9	5.0
mx +M		
V max	-117.5	

Beam 60	Code: ACI318-02
Project: 1	Page: 405
Designed by:	Date: 04/07/14

Geometry

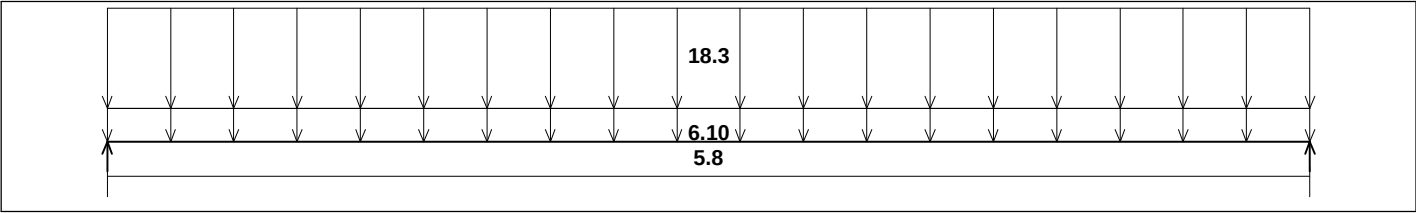
Units: meter, cm



Loading

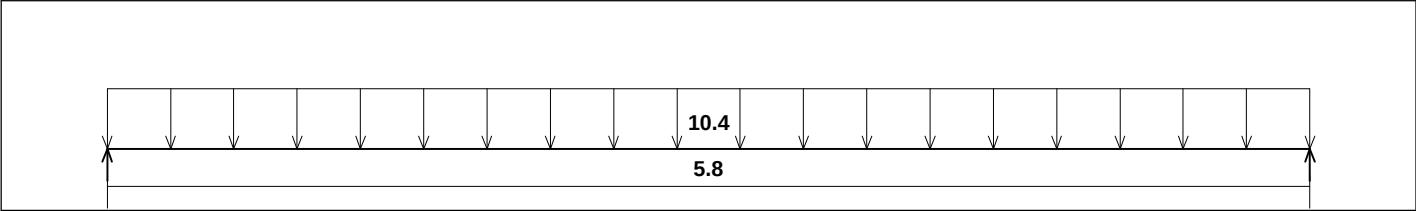
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

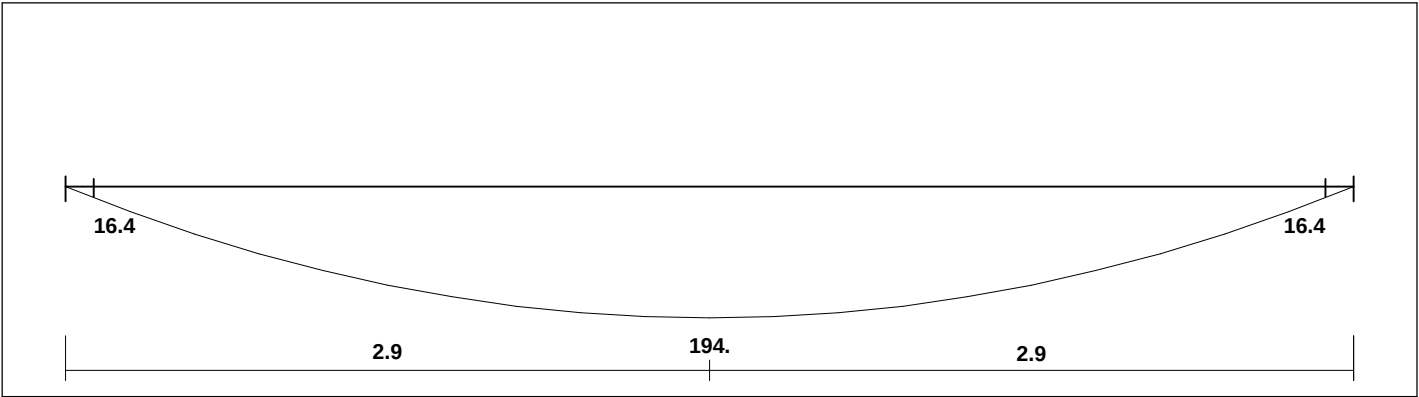


Loads (kN, meter)	
1	
Self. Wt.	6.10
Uni D	18.35 L 10.48

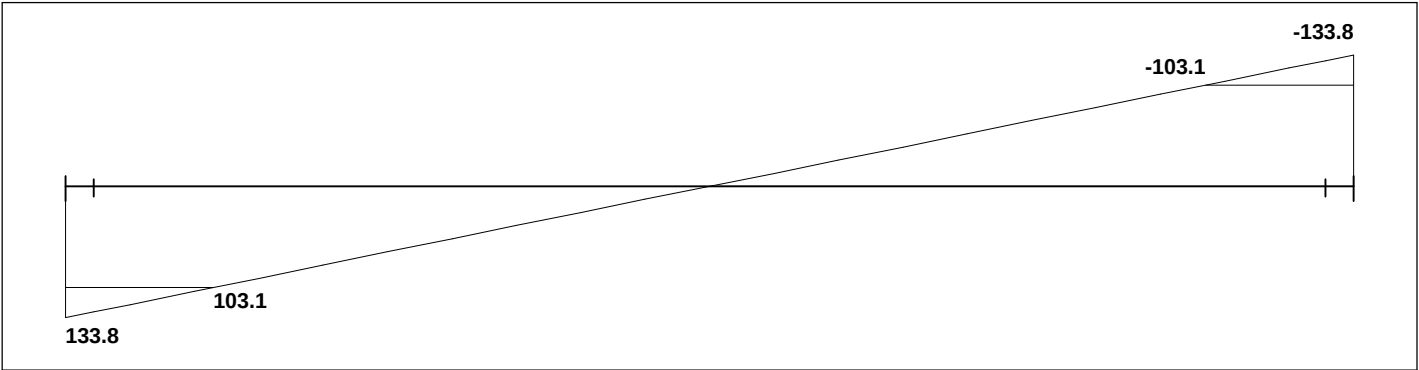
Beam 60	Code: ACI318-02
Project: 1	Page: 406
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored			
DeadR	85.12		85.12
LiveR	48.64		48.64
Max R	133.76		133.76
Min R	133.76		133.76
Service			
DeadR	70.93		70.93
LiveR	30.4		30.4
Max R	101.33		101.33
Min R	101.33		101.33

Reinforcement (cm 2)

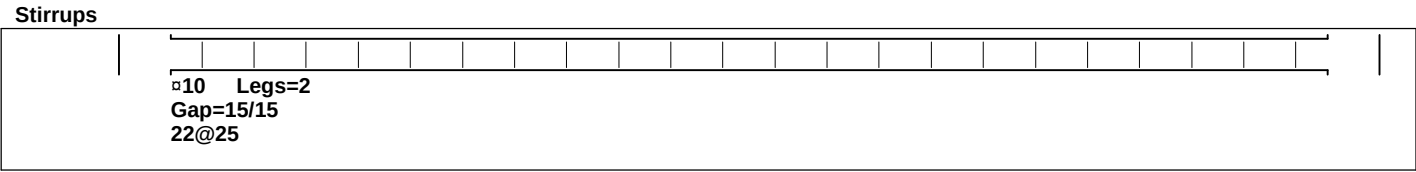
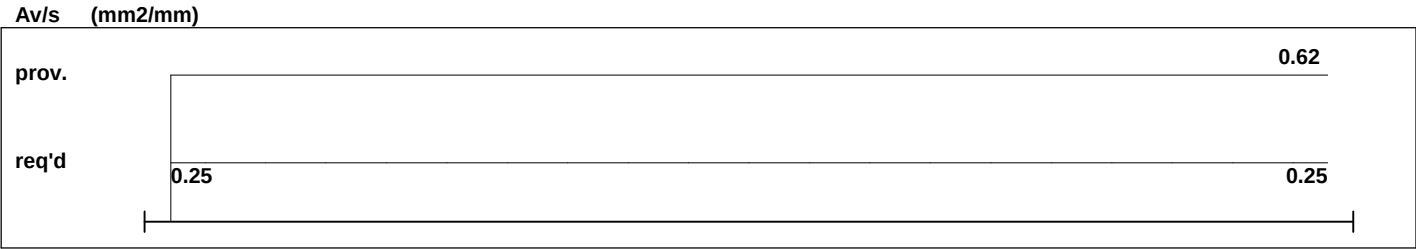
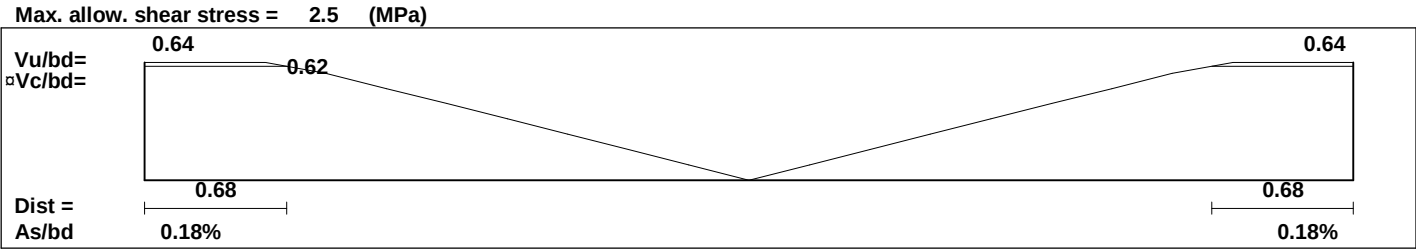
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Beam 60	Code: ACI318-02
Project: 1	Page: 407
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	9.90	
fr = 3	Es= 209	Ec = 23

Ig(m⁴)= 0.00687
Icr(m⁴)= 0.00185

Mcr = 62.86
Mmax,d = 102.88
Mmax,d+l = 146.98
Mmax,sust = 66.87

Ie,d (m⁴)= 0.00299
Ie,d+l (m⁴)= 0.00224
Ie,sust (m⁴)= 0.00602

e/1+50r = 2.00/0.80
ai,d = 5.128
ai,l = 4.659
at,sust = 1.990
ai,l = L/ 1245
(ai+at),t2-t1 L/ 687

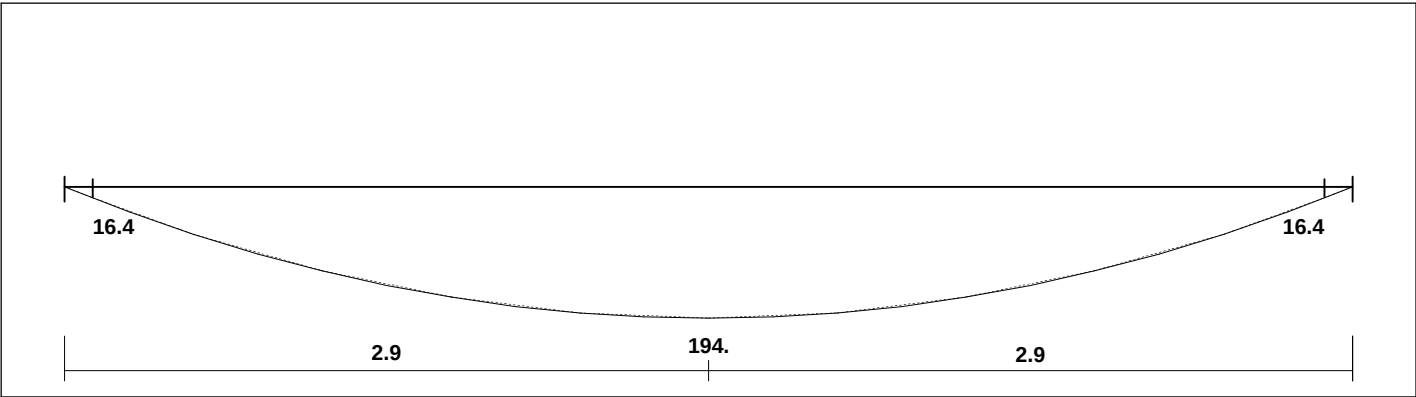
Beam 60	Code: ACI318-02
Project: 1	Page: 408
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

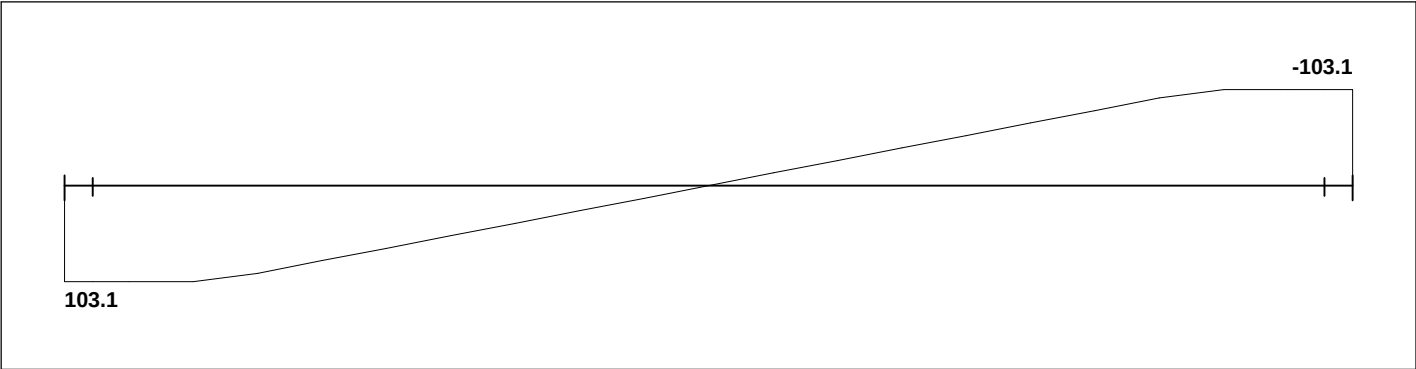
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	103.10	103.10	0.	0.	0.25	0.00	100	-
125	16.36	16.36	103.10	103.10	0.	0.80	0.25	0.01	-	-
290	36.85	36.85	103.10	103.10	0.	1.82	0.25	0.01	-	-
580	69.83	69.83	103.10	103.10	0.	3.47	0.25	0.03	-	-
870	98.92	98.92	93.65	93.65	0.	4.95	0.25	0.04	-	-
1160	124.14	124.14	80.27	80.27	0.	6.24	0.25	0.05	-	-
1451	145.55	145.55	66.86	66.86	0.	7.35	0.25	0.06	-	-
1741	163.00	163.00	53.49	53.49	0.	8.27	0.25	0.06	-	-
2031	176.57	176.57	40.11	40.11	0.	8.98	0.25	0.07	-	-
2321	186.26	186.26	26.74	26.74	0.	9.49	0.25	0.07	-	-
2611	192.08	192.08	13.37	13.37	0.	9.80	0.25	0.07	-	-
2901	194.02	194.02	0.00	0.00	0.	9.90	0.25	0.08	100	-
3191	192.08	192.08	-13.37	-13.37	0.	9.80	0.25	0.07	-	-
3481	186.26	186.26	-26.74	-26.74	0.	9.49	0.25	0.07	-	-
3771	176.57	176.57	-40.11	-40.11	0.	8.98	0.25	0.07	-	-
4061	163.00	163.00	-53.49	-53.49	0.	8.27	0.25	0.06	-	-
4352	145.48	145.48	-66.90	-66.90	0.	7.35	0.25	0.06	-	-
4642	124.14	124.14	-80.27	-80.27	0.	6.24	0.25	0.05	-	-
4932	98.92	98.92	-93.65	-93.65	0.	4.95	0.25	0.04	-	-
5222	69.83	69.83	-103.10	-103.10	0.	3.47	0.25	0.03	-	-
5512	36.85	36.85	-103.10	-103.10	0.	1.82	0.25	0.01	-	-
5677	16.36	16.36	-103.10	-103.10	0.	0.80	0.25	0.01	-	-
5802	0.00	0.00	-103.10	-103.10	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



Beam 60	Code: ACI318-02
Project: 1	Page: 409
Designed by:	Date: 04/07/14

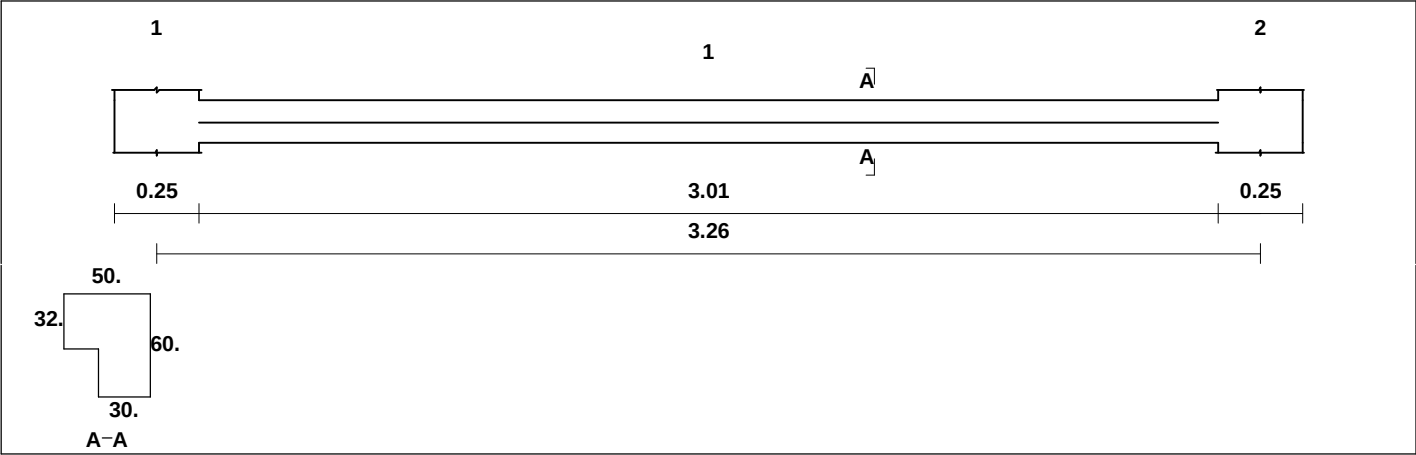
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	16.4	16.4	
MspMx	16.4	16.4	
M Max			
M Min			
Mmn=0 @	0.0	5.8	
Mmx=0 @	0.0	5.8	
mx -M @			
mx +M @			
V max		-133.8	
V min		-133.8	
DReac	85.1	85.1	
LReac	48.6	48.6	
Max R		133.8	
Min R		133.8	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	5.8	
mx +M			
V max		-133.8	

Beam 61	Code: ACI318-02
Project: 1	Page: 409
Designed by:	Date: 04/07/14

Geometry

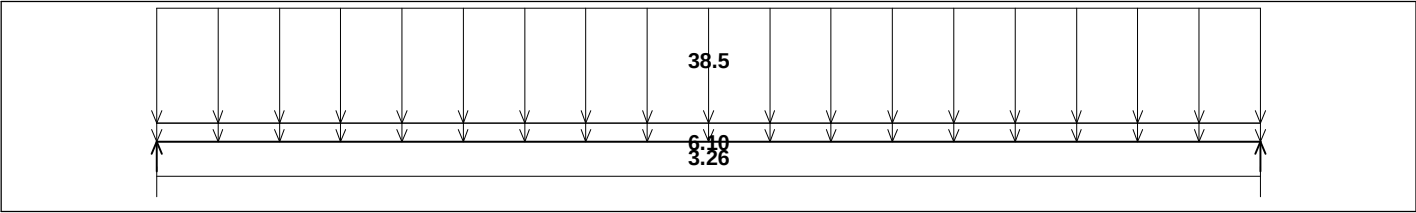
Units: meter, cm



Loading

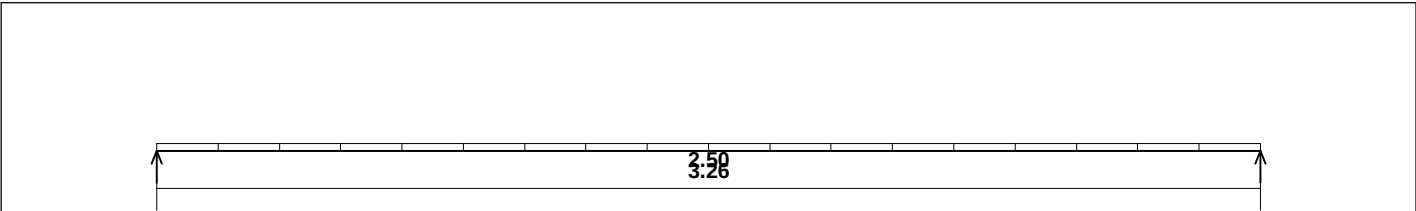
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

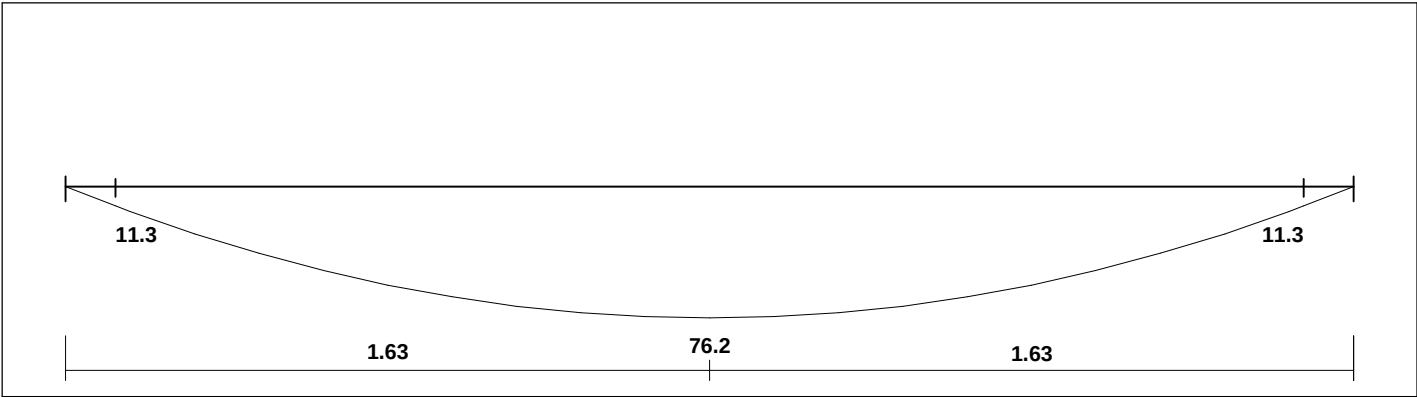


Loads (kN, meter)	
1	
Self. Wt.	6.10
Uni D	38.53 L 2.50

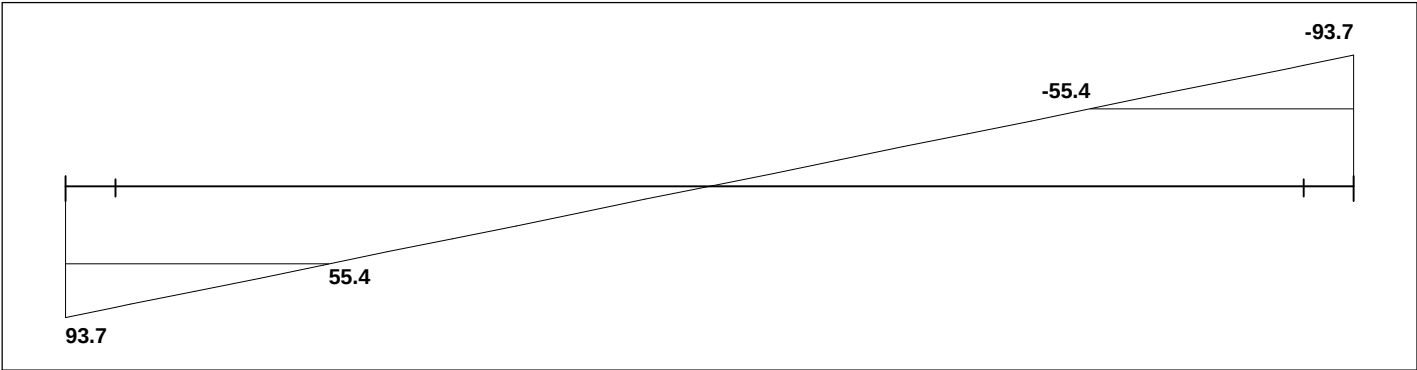
Beam 61	Code: ACI318-02
Project: 1	Page: 410
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



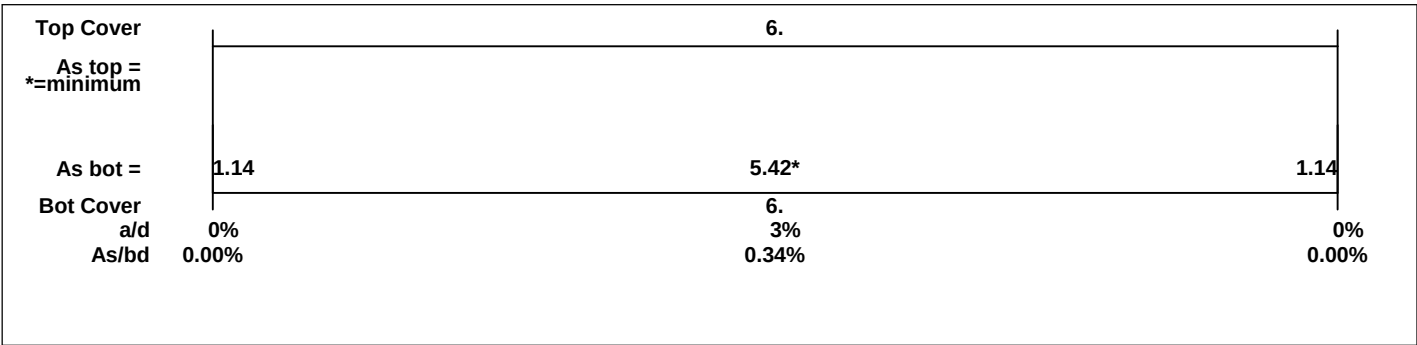
Reactions

Factored

DeadR	87.16		87.16
LiveR	6.51		6.51
Max R	93.67		93.67
Min R	93.67		93.67
Service			
DeadR	72.64		72.64
LiveR	4.07		4.07
Max R	76.7		76.7
Min R	76.7		76.7

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

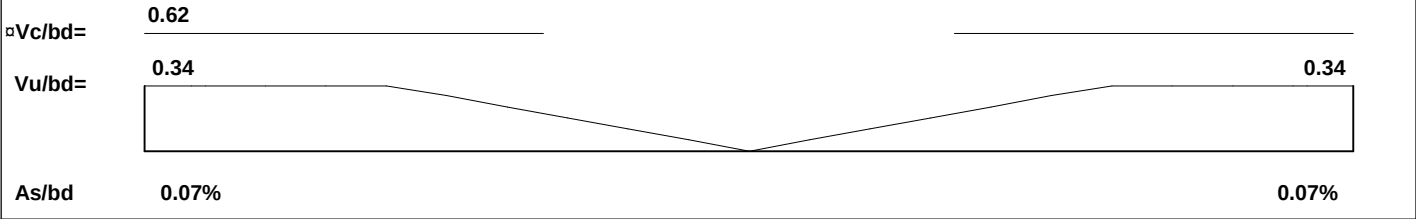


Beam 61	Code: ACI318-02
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Designed by:	Date: 04/07/14

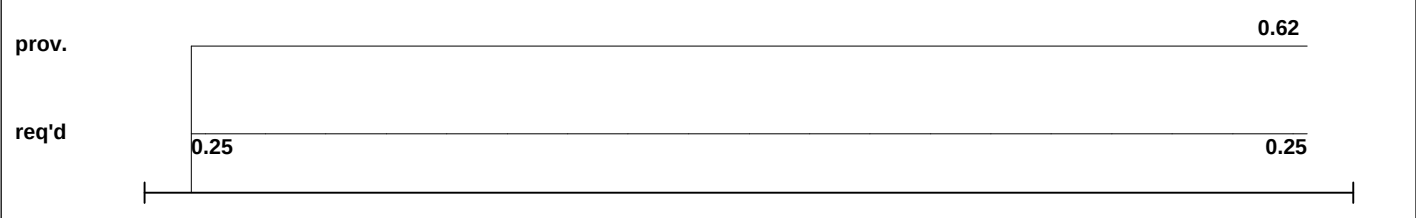
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

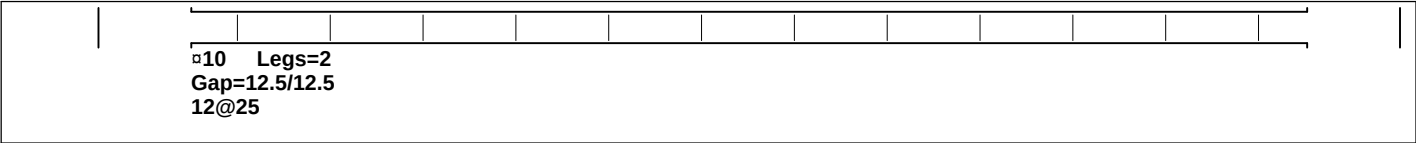
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1
As	0.
fr = 3	5.42
Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 59.11
Mmax,d+l = 62.42
Mmax,sust = 38.42

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 2.00/0.80
ai,d = 0.404
ai,l = 0.023
at,sust = 0.315
ai,l = L/*****
(ai+at),t2-t1 L/ 6791

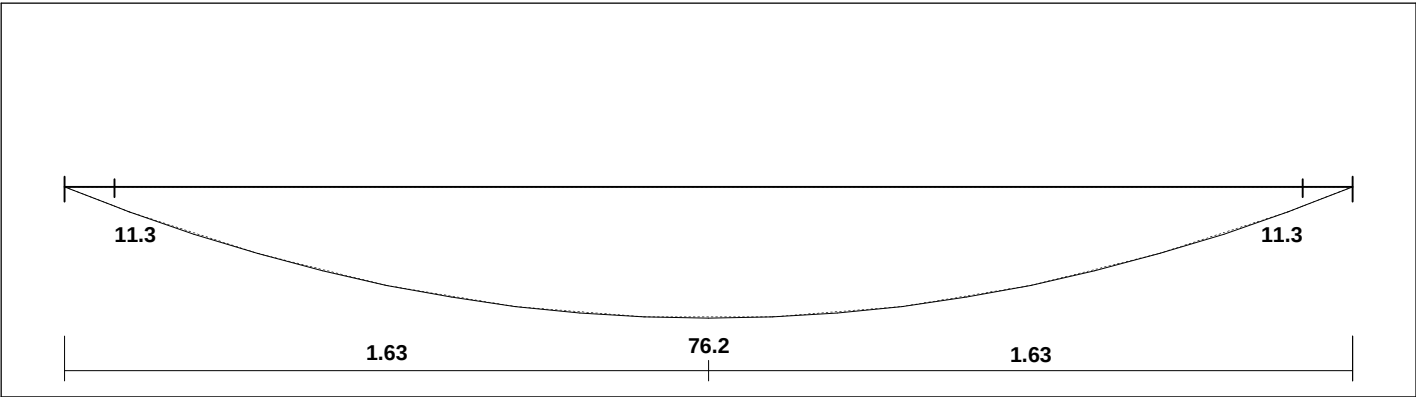
Beam 61	Code: ACI318-02
Project: 1	Page: 412
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

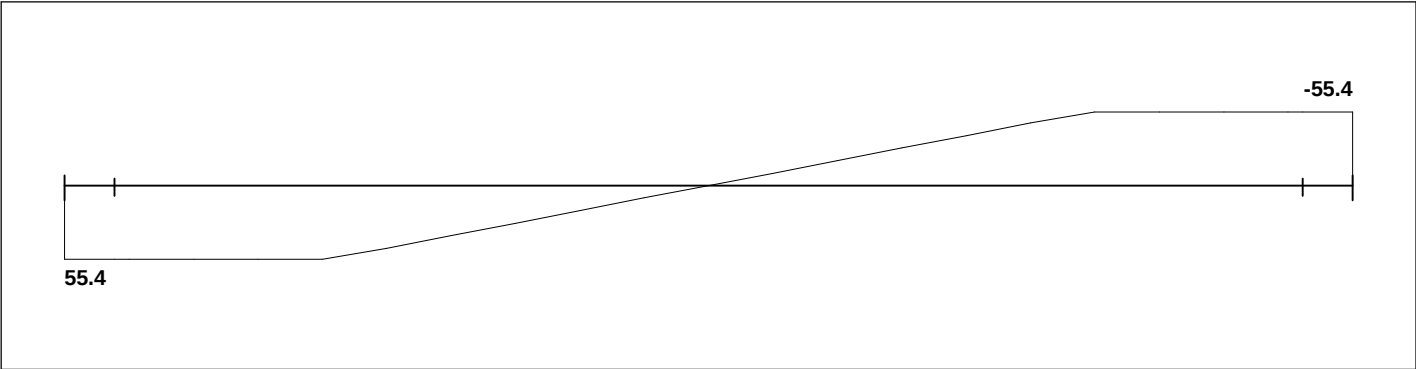
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	55.40	55.40	0.	0.	0.25	0.00	100	-
125	11.26	11.26	55.40	55.40	0.	0.55	0.25	0.00	-	-
163	14.50	14.50	55.40	55.40	0.	0.71	0.25	0.01	-	-
326	27.48	27.48	55.40	55.40	0.	1.35	0.25	0.01	-	-
488	38.86	38.86	55.40	55.40	0.	1.92	0.25	0.01	-	-
651	48.78	48.78	55.40	55.40	0.	2.41	0.25	0.02	-	-
814	57.18	57.18	46.82	46.82	0.	2.84	0.25	0.02	-	-
977	64.05	64.05	37.44	37.44	0.	3.18	0.25	0.02	-	-
1139	69.36	69.36	28.12	28.12	0.	3.45	0.25	0.03	-	-
1302	73.18	73.18	18.73	18.73	0.	3.64	0.25	0.03	-	-
1465	75.47	75.47	9.35	9.35	0.	3.76	0.25	0.03	-	-
1628	76.23	76.23	-0.03	-0.03	0.	3.80	0.25	0.03	100	-
1790	75.47	75.47	-9.35	-9.35	0.	3.76	0.25	0.03	-	-
1953	73.18	73.18	-18.73	-18.73	0.	3.64	0.25	0.03	-	-
2116	69.36	69.36	-28.12	-28.12	0.	3.45	0.25	0.03	-	-
2279	64.01	64.01	-37.50	-37.50	0.	3.18	0.25	0.02	-	-
2441	57.18	57.18	-46.82	-46.82	0.	2.84	0.25	0.02	-	-
2604	48.78	48.78	-55.40	-55.40	0.	2.41	0.25	0.02	-	-
2767	38.86	38.86	-55.40	-55.40	0.	1.92	0.25	0.01	-	-
2930	27.40	27.40	-55.40	-55.40	0.	1.35	0.25	0.01	-	-
3092	14.50	14.50	-55.40	-55.40	0.	0.71	0.25	0.01	-	-
3130	11.26	11.26	-55.40	-55.40	0.	0.55	0.25	0.00	-	-
3255	0.00	0.00	-55.40	-55.40	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



Beam 61	Code: ACI318-02
Project: 1	Page: 413
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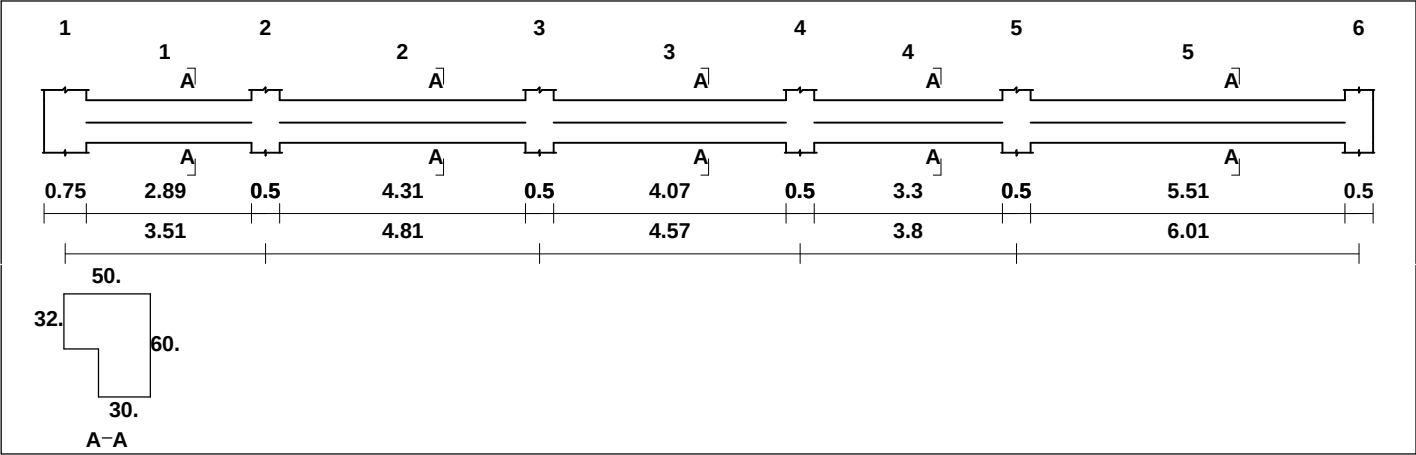
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	11.3	11.3	
MspMx	11.3	11.3	
M Max			
M Min			
Mmn=0 @	0.0	3.3	
Mmx=0 @	0.0	3.3	
mx -M @			
mx +M @			
V max	93.7	-93.7	
V min	93.7	-93.7	
DReac	87.2	87.2	
LReac	6.5	6.5	
Max R	93.7	93.7	
Min R	93.7	93.7	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	3.3	
mx +M			
V max	93.7	-93.7	

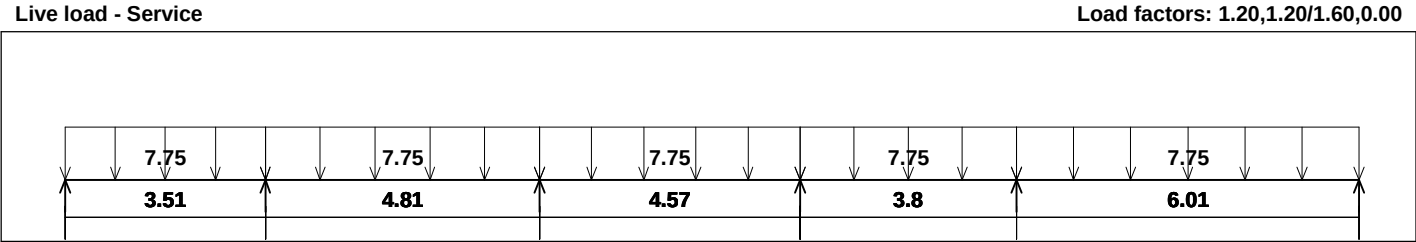
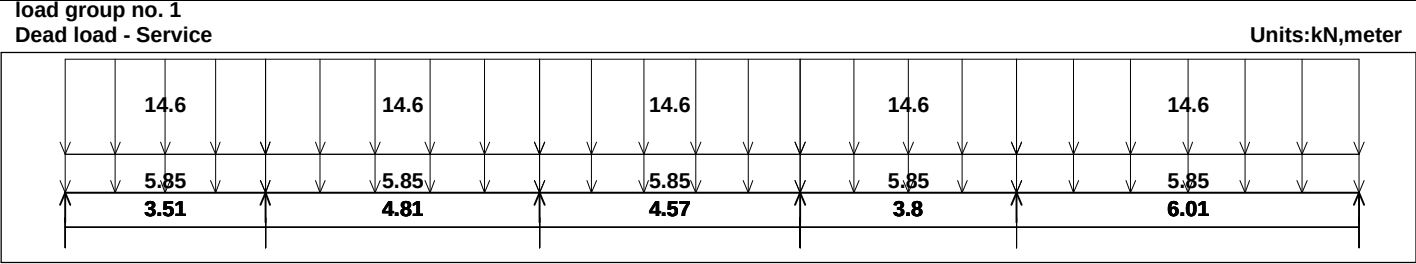
Beam 62	Code: ACI318-02
Project: 1	Page: 413
Designed by:	Date: 04/07/14

Geometry

Units: meter, cm



Loading



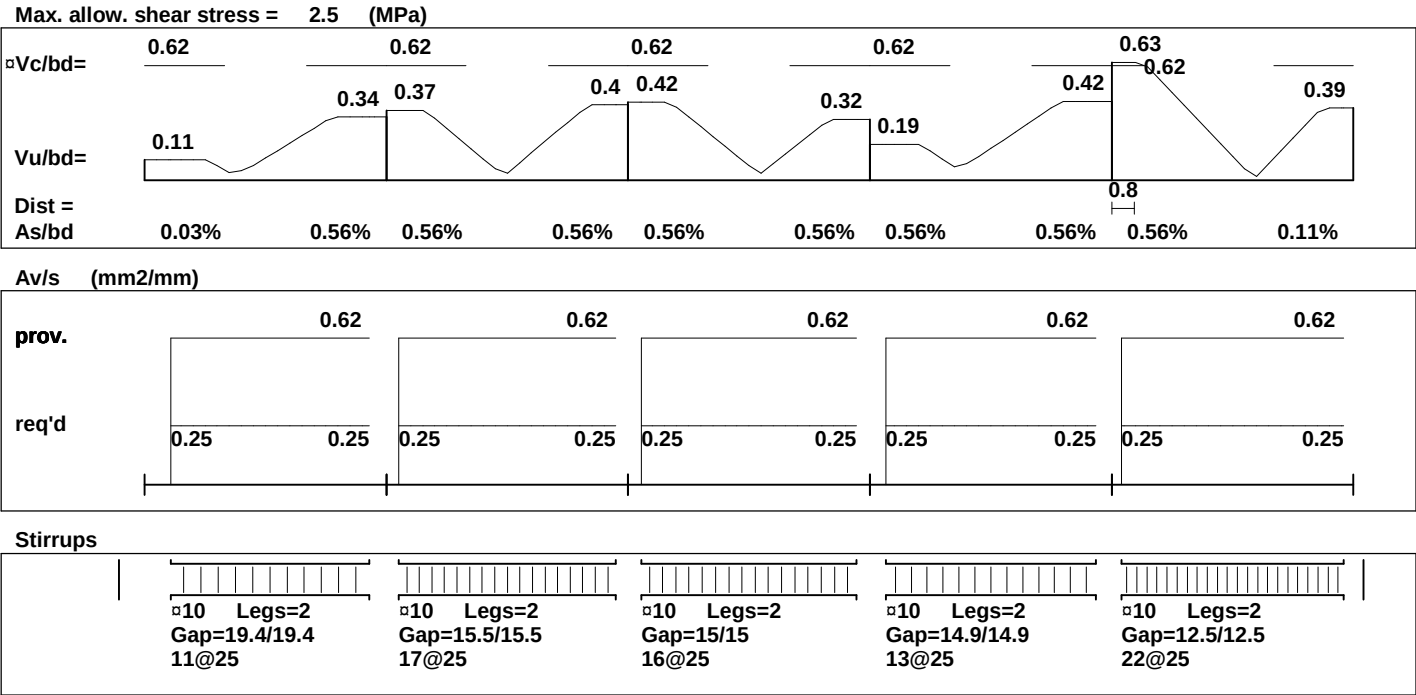
Loads (kN, meter)											
1			2			3			4		
Self. Wt.	5.86	Self. Wt.	5.86	Self. Wt.	5.86	Self. Wt.	5.86	Self. Wt.	5.86	Self. Wt.	5.86
Uni D	14.60	L	7.75	Uni D	14.60	L	7.75	Uni D	14.60	L	7.75
5											
Self. Wt.	5.86										
Uni D	14.60	L	7.75								

Top Cover As top = *=minimum											
	6.		6.		6.		6.		6.		6.
		9.04*		9.04*		9.04*		5.42		9.04*	
	0.53	5.42*		5.42*		5.42*		5.42*		5.76	1.72
Bot Cover As bot =											
	1%	6.		6.		6.		6.		6.	
		1%		2%		2%		1%		4%	
As/bd	0.00%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.34%	0.56%	0.36%	0.00%

Beam 62	Code: ACI318-02
Project: 1	Page: 415
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 0.	3 0.	4 5.42
As	5.42	5.42	5.42	5.42
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00687	0.00687	0.00687	0.00687
Icr(m^4)=	0.00110	0.00110	0.00110	0.00104
Mcr =	62.86	62.86	62.86	80.40
Mmax,d =	16.42	20.22	23.20	67.20
Mmax,d+l =	26.65	33.30	37.29	87.84
Mmax,sust =	10.67	13.14	15.08	43.68
Ie,d (m^4)=	0.00687	0.00687	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687	0.00687	0.00551
Ie,sust (m^4)=	0.00687	0.00687	0.00687	0.00687
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80	1.71/0.68
ai,d =	0.088	0.183	0.221	-0.157
ai,l =	0.080	0.167	0.172	-0.208
at,sust =	0.069	0.143	0.173	-0.105
ai,l =	L/****	L/28846	L/26638	L/18237
(ai+at),t2-t1	L/19489	L/12886	L/10832	L/10303

Long-term deflection:
- sustained loads : 65% of dead; 0% of live

Beam 62	Code: ACI318-02
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Designed by:	Date: 04/07/14

- duration of load 60 months ; attachment of element at 2 months (t1)

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Deflections (mm)				
Apply 35% of dead load after attachment (t1)				
A's	5 0.			
As	5.76			
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00687			
Icr(m^4)=	0.00116			
Mcr =	62.86			
Mmax,d =	61.78			
Mmax,d+l =	87.12			
Mmax,sust =	40.16			
le,d (m^4)=	0.00687			
le,d+l (m^4)=	0.00331			
le,sust (m^4)=	0.00687			
e/1+50r =	2.00/0.80			
ai,d =	1.224			
ai,l =	2.417			
at,sust =	0.955			
ai,l =	L/ 2486			
(ai+at),t2-t1	L/ 1581			

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	17.87	3.82	0.	0.	0.25	0.00	100	-
176	8.52	4.24	17.87	3.82	0.	0.41	0.25	0.00	-	-
351	15.86	7.71	17.87	3.82	0.	0.78	0.25	0.01	-	-
375	16.78	8.13	17.87	3.82	0.	0.82	0.25	0.01	-	-
527	22.10	10.44	17.87	3.82	0.	1.09	0.25	0.01	-	-
703	27.20	12.41	17.87	3.82	0.	1.34	0.25	0.01	-	-
878	31.13	13.61	17.87	3.82	0.	1.53	0.25	0.01	-	-
1054	33.95	14.06	12.74	0.40	0.	1.67	0.25	0.01	-	-
1230	35.62	13.75	6.23	-3.92	0.	1.76	0.25	0.01	-	-
1406	36.14	12.68	-0.27	-8.24	0.	1.78	0.25	0.01	-	-
1581	35.53	10.86	-6.74	-12.66	0.	1.75	0.25	0.01	-	-
1757	33.77	8.28	-13.24	-19.16	0.	1.67	0.25	0.01	100	-
1933	30.87	4.93	-19.70	-25.66	0.	1.52	0.25	0.01	-	-
2108	26.85	0.85	-24.00	-32.13	0.	1.32	0.25	0.01	-	-
2284	21.66	-4.01	-28.32	-38.63	0.19	1.06	0.25	0.01	-	-
2460	15.33	-9.64	-32.64	-45.14	0.47	0.75	0.25	0.01	-	-
2635	7.91	-15.98	-36.93	-51.60	0.78	0.38	0.25	0.01	-	-
2811	-0.71	-23.12	-39.12	-54.89	1.14	0.	0.25	0.01	-	-
2987	-10.46	-31.02	-39.12	-54.89	1.53	0.	0.25	0.02	-	-
3163	-21.36	-40.10	-39.12	-54.89	1.99	0.	0.25	0.03	-	-
3264	-28.13	-47.47	-39.12	-54.89	2.36	0.	0.25	0.03	-	-
3338	-33.33	-53.11	-39.12	-54.89	2.36	0.	0.25	0.03	-	-
3514	-46.52	-67.33	-39.12	-54.89	2.36	0.	0.25	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=2										
0	-46.52	-67.33	60.37	35.95	2.29	0.	0.25	0.03	100	-
241	-33.89	-46.82	60.37	35.95	2.29	0.	0.25	0.03	-	-
250	-33.45	-46.10	60.37	35.95	2.29	0.	0.25	0.03	-	-
481	-18.38	-28.53	60.37	35.95	1.41	0.	0.25	0.02	-	-
722	-3.72	-13.42	60.37	35.95	0.66	0.	0.25	0.01	-	-
962	8.75	-4.79	54.01	31.72	0.23	0.43	0.25	0.00	-	-
1203	19.72	2.29	45.11	25.81	0.	0.97	0.25	0.01	-	-
1443	29.07	7.78	36.24	19.92	0.	1.43	0.25	0.01	-	-
1684	36.32	11.87	27.34	14.00	0.	1.79	0.25	0.01	-	-
1924	41.41	14.52	18.47	8.11	0.	2.05	0.25	0.02	-	-
2165	44.38	15.76	9.56	2.19	0.	2.19	0.25	0.02	-	-
2405	45.20	15.58	0.70	-5.81	0.	2.24	0.25	0.02	100	-
2646	43.88	13.98	-8.21	-14.71	0.	2.17	0.25	0.02	-	-
2886	40.44	10.96	-14.23	-23.58	0.	2.00	0.25	0.02	-	-
3127	34.84	6.51	-20.15	-32.49	0.	1.72	0.25	0.01	-	-
3367	27.13	0.66	-26.04	-41.35	0.	1.33	0.25	0.01	-	-
3608	17.25	-6.63	-31.96	-50.26	0.32	0.85	0.25	0.01	-	-
3848	5.27	-15.31	-37.85	-59.12	0.75	0.25	0.25	0.01	-	-
4089	-8.89	-25.45	-42.07	-65.48	1.26	0.	0.25	0.02	-	-
4329	-25.13	-40.73	-42.07	-65.48	2.02	0.	0.25	0.03	-	-
4560	-42.77	-59.48	-42.07	-65.48	2.97	0.	0.25	0.04	-	-
4570	-43.58	-60.34	-42.07	-65.48	2.97	0.	0.25	0.04	-	-
4810	-59.55	-81.99	-42.07	-65.48	2.97	0.	0.25	0.04	100	-
Span=3										
0	-59.55	-81.99	67.85	44.66	2.94	0.	0.25	0.04	100	-
229	-40.58	-60.74	67.85	44.66	2.94	0.	0.25	0.04	-	-
250	-38.94	-58.89	67.85	44.66	2.94	0.	0.25	0.04	-	-
457	-23.62	-41.51	67.85	44.66	2.06	0.	0.25	0.03	-	-
686	-8.52	-25.92	67.85	44.66	1.28	0.	0.25	0.02	-	-
914	4.59	-15.79	63.27	41.62	0.77	0.22	0.25	0.01	-	-
1143	16.78	-6.91	54.81	36.00	0.34	0.82	0.25	0.01	-	-
1371	27.18	0.66	46.38	30.40	0.	1.34	0.25	0.01	-	-
1600	35.70	6.98	37.92	24.78	0.	1.76	0.25	0.01	-	-
1828	42.25	11.99	29.50	19.18	0.	2.09	0.25	0.02	-	-
2057	46.90	15.74	21.04	11.07	0.	2.32	0.25	0.02	-	-
2285	49.60	18.20	12.61	2.64	0.	2.46	0.25	0.02	100	-
2514	50.38	19.38	4.15	-5.82	0.	2.49	0.25	0.02	-	-
2742	49.23	19.27	-1.50	-14.24	0.	2.44	0.25	0.02	-	-
2971	46.14	17.89	-7.12	-22.70	0.	2.28	0.25	0.02	-	-
3199	41.14	15.22	-12.72	-31.13	0.	2.03	0.25	0.02	-	-
3428	34.19	11.27	-18.34	-39.59	0.	1.69	0.25	0.01	-	-
3656	25.84	6.05	-23.94	-48.01	0.	1.27	0.25	0.01	-	-
3885	16.16	-0.48	-26.98	-52.59	0.02	0.79	0.25	0.01	-	-
4113	4.60	-13.96	-26.98	-52.59	0.68	0.22	0.25	0.01	-	-
4320	-7.56	-28.18	-26.98	-52.59	1.39	0.	0.25	0.02	-	-
4342	-8.95	-29.79	-26.98	-52.59	1.39	0.	0.25	0.02	-	-
4570	-19.57	-47.47	-26.98	-52.59	1.39	0.	0.25	0.02	100	-

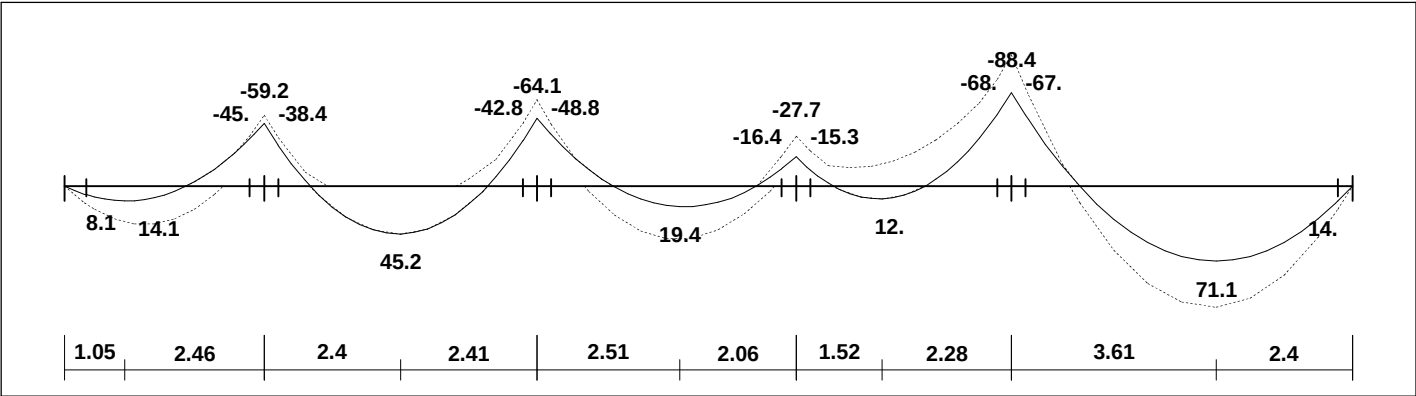
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=4										
0	-19.57	-47.47	31.22	3.45	1.66	0.	0.25	0.02	100	-
190	-12.14	-36.66	31.22	3.45	1.66	0.	0.25	0.02	-	-
250	-10.07	-33.52	31.22	3.45	1.66	0.	0.25	0.02	-	-
380	-6.05	-27.18	31.22	3.45	1.34	0.	0.25	0.02	-	-
570	-1.29	-19.47	31.22	3.45	0.96	0.	0.25	0.01	-	-
760	2.83	-17.93	31.22	3.45	0.88	0.13	0.25	0.01	-	-
949	7.10	-17.28	25.35	-0.45	0.85	0.34	0.25	0.01	-	-
1139	10.07	-17.51	18.33	-5.12	0.86	0.49	0.25	0.01	-	-
1329	11.70	-18.62	11.31	-9.78	0.92	0.57	0.25	0.01	-	-
1519	12.00	-20.62	4.29	-14.44	1.01	0.59	0.25	0.01	-	-
1709	10.97	-23.51	-2.73	-20.54	1.16	0.54	0.25	0.01	-	-
1899	8.60	-27.28	-9.75	-27.56	1.35	0.42	0.25	0.02	100	-
2089	4.90	-31.93	-16.77	-34.58	1.58	0.24	0.25	0.02	-	-
2279	-0.14	-37.48	-23.79	-41.60	1.86	0.	0.25	0.02	-	-
2469	-6.50	-43.91	-30.81	-48.62	2.18	0.	0.25	0.03	-	-
2659	-14.21	-51.23	-37.83	-55.64	2.55	0.	0.25	0.03	-	-
2848	-23.19	-59.38	-44.82	-62.62	2.97	0.	0.25	0.04	-	-
3038	-33.56	-68.47	-49.30	-68.53	3.43	0.	0.25	0.04	-	-
3228	-44.97	-78.51	-49.30	-68.53	3.95	0.	0.25	0.05	-	-
3418	-56.82	-89.76	-49.30	-68.53	4.54	0.	0.25	0.06	-	-
3548	-65.69	-100.95	-49.30	-68.53	5.12	0.	0.25	0.07	-	-
3608	-70.00	-106.33	-49.30	-68.53	5.12	0.	0.25	0.07	-	-
3798	-84.52	-124.23	-49.30	-68.53	5.12	0.	0.25	0.07	100	-
Span=5										
0	-84.52	-124.23	102.51	68.44	4.68	0.	0.25	0.06	100	-
250	-63.33	-92.46	102.51	68.44	4.68	0.	0.25	0.06	-	-
301	-59.20	-86.26	102.51	68.44	4.35	0.	0.25	0.06	-	-
601	-36.17	-51.75	102.51	68.44	2.58	0.	0.25	0.03	-	-
902	-11.49	-20.47	98.37	65.69	1.01	0.	0.25	0.01	-	-
1202	15.83	0.25	87.29	58.32	0.	0.78	0.25	0.01	-	-
1503	39.90	16.89	76.16	50.93	0.	1.97	0.25	0.02	-	-
1803	60.56	31.25	65.08	43.57	0.	3.01	0.25	0.02	-	-
2104	77.95	43.45	53.96	36.18	0.	3.88	0.25	0.03	-	-
2404	91.95	53.39	42.88	28.82	0.	4.59	0.25	0.04	-	-
2705	102.65	61.14	31.75	21.43	0.	5.14	0.25	0.04	-	-
3005	109.98	66.66	20.67	14.06	0.	5.52	0.25	0.04	100	-
3306	114.00	69.97	9.55	6.67	0.	5.72	0.25	0.04	-	-
3606	114.68	71.06	-0.05	-3.29	0.	5.76	0.25	0.04	-	-
3907	112.01	69.93	-7.44	-14.41	0.	5.62	0.25	0.04	-	-
4207	106.03	66.59	-14.81	-25.50	0.	5.31	0.25	0.04	-	-
4508	96.68	61.02	-22.19	-36.62	0.	4.83	0.25	0.04	-	-
4808	84.03	53.26	-29.56	-47.70	0.	4.19	0.25	0.03	-	-
5109	68.00	43.25	-36.95	-58.82	0.	3.38	0.25	0.03	-	-
5409	48.69	31.06	-39.67	-62.93	0.	2.41	0.25	0.02	-	-
5710	25.97	16.61	-39.67	-62.93	0.	1.28	0.25	0.01	-	-
5760	21.87	14.00	-39.67	-62.93	0.	1.07	0.25	0.01	-	-
6010	0.00	0.00	-39.67	-62.93	0.	0.	0.25	0.00	100	-

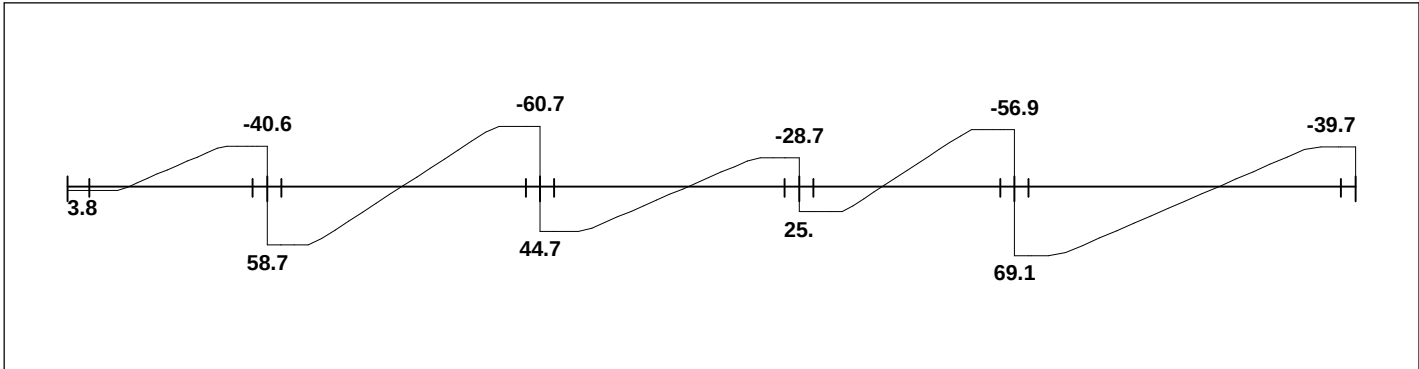
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Moments: spans 1 to 5 Load pattern: xxXXxxXXxx

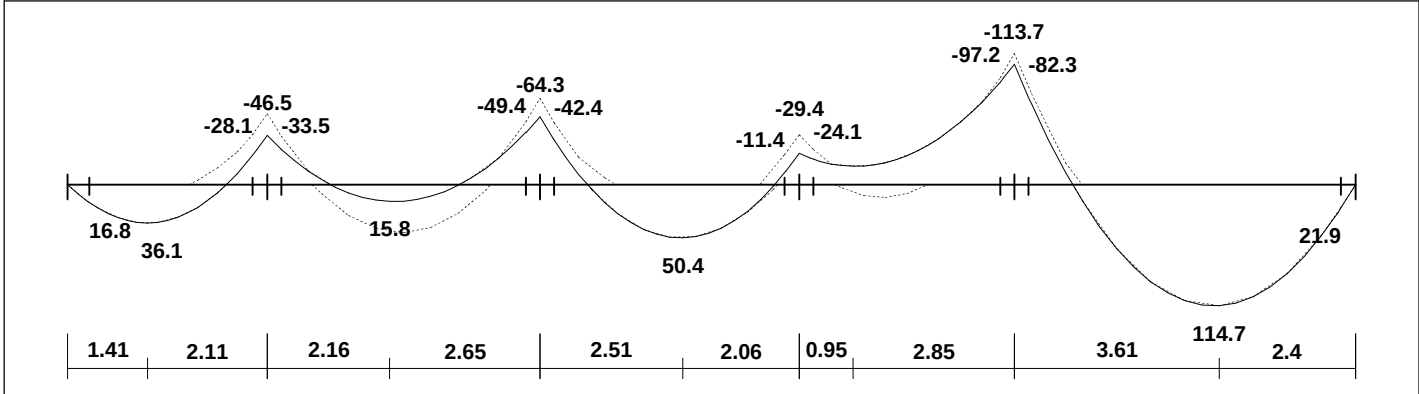


Moment/Shear Envelope (Factored) Units:kN,meter

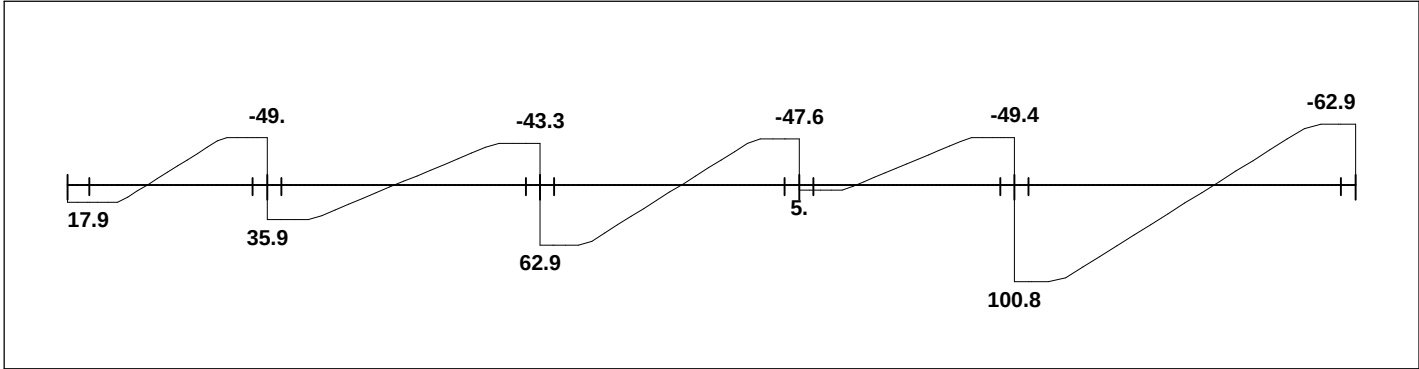
Shear



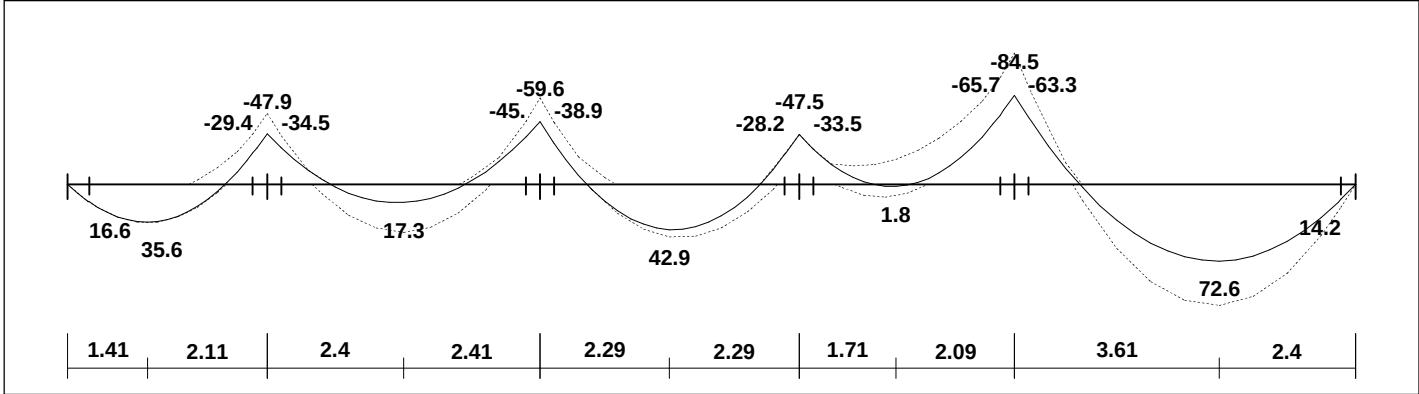
Moments: spans 1 to 5 Load pattern: XXxxXXxxXX



Shear

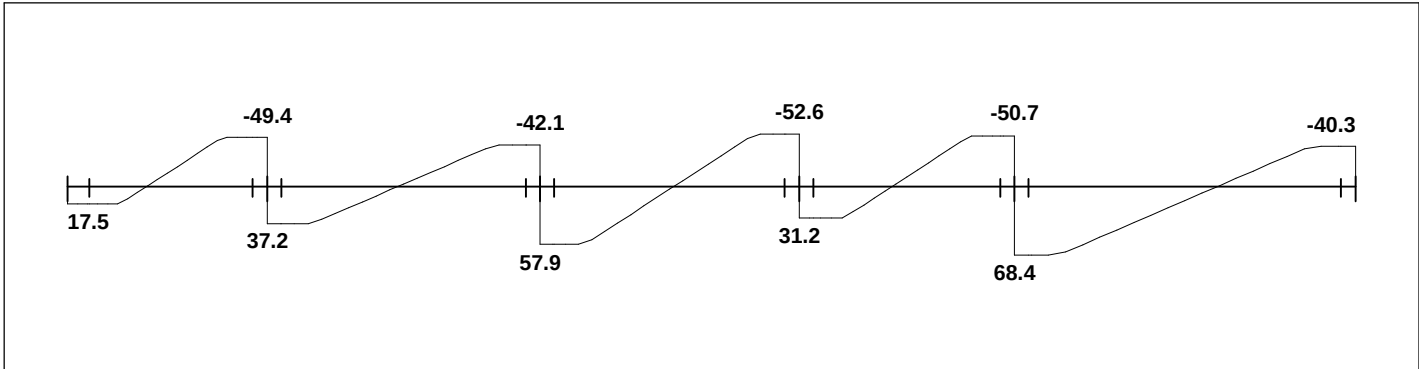


Moments: spans 1 to 5 Load pattern: XXxxXXXXxx

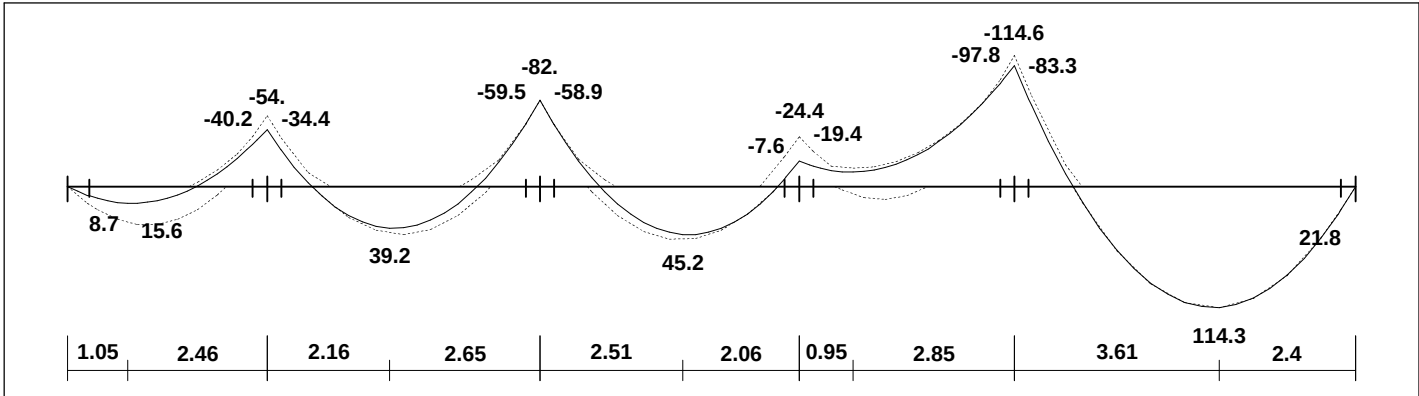


Moment/Shear Envelope (Factored) Units:kN,meter

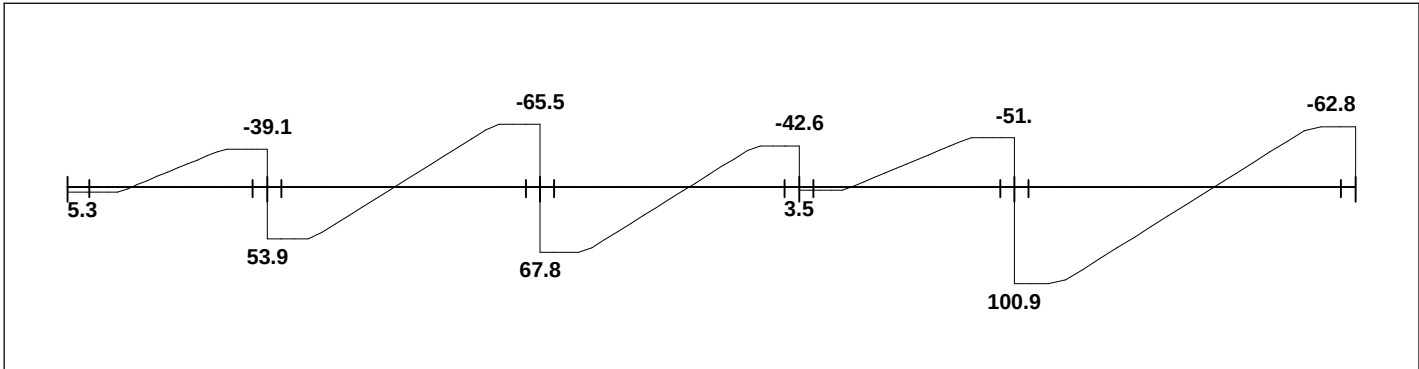
Shear



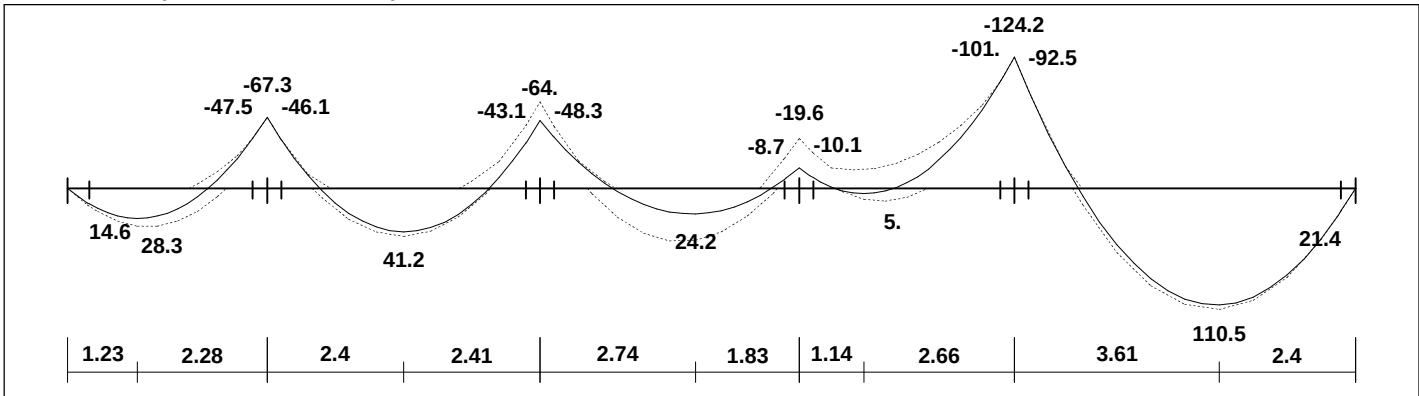
Moments: spans 1 to 5 Load pattern: xxXXXXxxXX



Shear

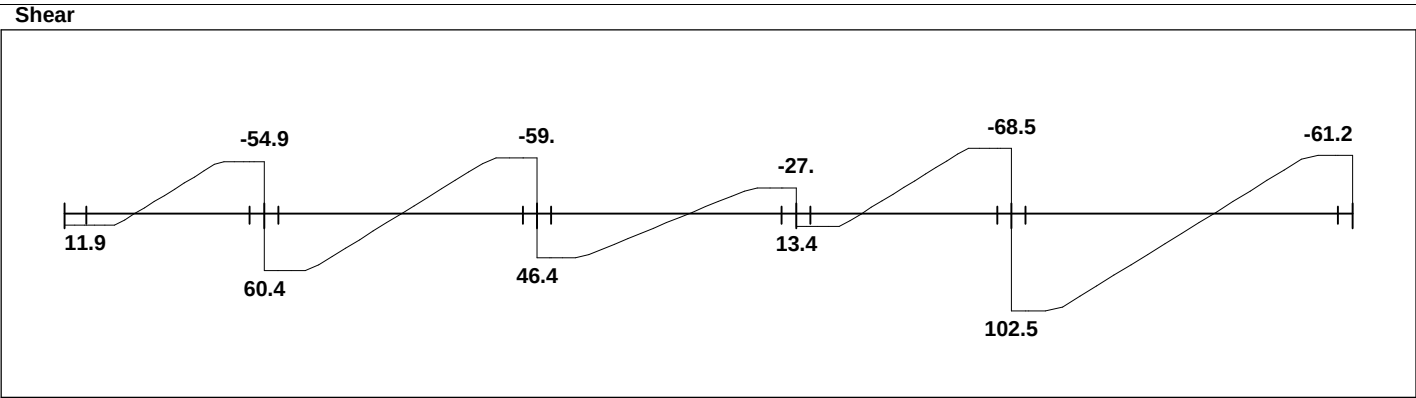


Moments: spans 1 to 5 Load pattern: XXXXxxXXXX



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Moment / Shear Envelope (Factored) Units:kN,meter



Moment / Shear Envelope (Factored) Units:kN,meter								
	1	2	3	4	5			
	1	2	2	3	4	4	5	
Min M	0.0	-67.3	-67.3	-82.0	-82.0	-47.5	-47.5	-124.2
Max M	0.0	-46.5	-46.5	-59.6	-59.6	-19.6	-19.6	-84.5
MspMn	8.1	-47.5	-46.1	-59.5	-58.9	-28.2	-33.5	-101.0
MspMx	16.8	-28.1	-33.5	-42.8	-38.9	-7.6	-10.1	-65.7
M Max			45.2		50.4		12.0	
M Min			15.8		19.4		-17.3	
Mmn=0 @	0.0	1.4	1.1	1.4	1.4	0.7	0.0	3.8
Mmx=0 @	0.0	0.7	0.8	0.9	0.8	0.4	0.6	1.5
mx -M @			0.8		0.8		0.6	
mx +M @			2.4		2.5		1.5	
V max	51.7	-58.5	89.6	-61.5	97.0	-46.4	60.4	-68.8
V min	26.3	-84.1	55.3	-94.7	64.1	-81.8	22.8	-97.7
DReac	31.1	112.3		123.2		81.2		149.0
LReac	20.6	61.3		68.5		60.9		80.4
Max R	51.7	173.6		191.7		142.2		229.4
Min R	26.3	133.5		148.5		89.0		167.7
5	5	6						
		5						
Min M	-124.2	0.0						
Max M	-84.5	0.0						
MspMn	-92.5	14.0						
MspMx	-63.3	21.9						
M Max								
M Min								
Mmn=0 @	1.2	6.0						
Mmx=0 @	1.0	6.0						
mx -M @								
mx +M @								
V max		-59.1						
V min	87.8	-92.1						
DReac		60.3						
LReac	80.4	31.8						
Max R		92.1						
Min R		59.1						

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Individual load cases - factored					Units:kN,meter				
	1	2	3	4	5				
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-59.2	-59.2	-64.1	-64.1	-27.7	-27.7	-88.4	
M Max			45.2		19.4		12.0		
Mmx=0 @	0.0	1.4	0.8	0.9	1.4	0.7	0.7	1.5	
mx +M			2.4		2.5		1.5		
V max	26.3	-60.0	87.8	-89.9	64.1	-48.1	54.2	-86.1	
	5	6							
	5	6							
Min M	-88.4	0.0							
M Max									
Mmx=0 @	1.2	6.0							
mx +M									
V max	88.5	-59.1							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-46.5	-46.5	-64.3	-64.3	-29.4	-29.4	-113.7	
M Max			15.8		50.4		-17.3		
Mmx=0 @	0.0	0.7	1.1	1.4	0.8	0.4	0.0	3.8	
mx +M			2.2		2.5		0.9		
V max	51.7	-78.2	55.3	-62.7	92.1	-76.8	24.4	-68.8	
	5	6							
	5	6							
Min M	-113.7	0.0							
M Max									
Mmx=0 @	1.0	6.0							
mx +M									
V max		-92.1							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-47.9	-47.9	-59.6	-59.6	-47.5	-47.5	-84.5	
M Max			17.3		42.9		1.8		
Mmx=0 @	0.0	0.7	1.1	1.3	0.8	0.7	1.3	1.9	
mx +M			2.4		2.3		1.7		
V max	51.3	-78.5	56.6	-61.5	87.1	-81.8	60.4	-79.9	
	5	6							
	5	6							
Min M	-84.5	0.0							
M Max									
Mmx=0 @	1.1	6.0							
mx +M									
V max	87.8	-59.7							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-54.0	-54.0	-82.0	-82.0	-24.4	-24.4	-114.6	
M Max			39.2		45.2		-13.7		
Mmx=0 @	0.0	1.3	0.8	1.1	1.1	0.4	0.0	3.8	
mx +M			2.2		2.5		0.9		
V max	27.7	-58.5	83.0	-94.7	97.0	-71.8	22.8	-70.4	
	5	6							
	5	6							
Min M	-114.6	0.0							
M Max									
Mmx=0 @	1.0	6.0							
mx +M									
V max		-92.0							
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-67.3	-67.3	-64.0	-64.0	-19.6	-19.6	-124.2	
M Max			41.2		24.2		5.0		
Mmx=0 @	0.0	1.0	0.9	0.9	1.3	0.5	0.6	2.1	

Beam 62	Code: ACI318-02							
Project: 1	Page: 424							
Designed by:	Date: 04/07/14							

mx +M			2.4			2.7		1.1	
V max	45.8	-84.1	89.6	-88.2	65.8	-46.4	42.6	-97.7	

Beam 62	Code: ACI318-02
Project: 1	Page: 425
Designed by:	Date: 04/07/14

Individual load cases - factored		Units:kN,meter
5	6	
	5	
		
Min M	-124.2	0.0
M Max		
Mmx=0 @	1.1	6.0
mx +M		
V max		-90.4

Technical drawing of a stepped shaft. The shaft has four steps, labeled 1, 2, 3, and 4 from left to right. The dimensions are as follows:

- Step 1: 0.5 (width), 3.56 (length), 4.06 (total length from left end)
- Step 2: 0.5 (width), 3.65 (length), 4.15 (total length from left end)
- Step 3: 0.5 (width), 3.81 (length), 4.31 (total length from left end)
- Step 4: 0.5 (width)

The cross-section A-A is shown at the bottom left, with dimensions 50. (total width), 32. (width of the first step), 60. (total height), and 30. (height of the first step). The cross-section is labeled A-A.

load group no. 1

Dead load - Service

Units: kN, meter

The diagram shows a continuous beam with four spans. The spans are labeled with lengths 4.06, 4.15, and 4.31. The loads are labeled with values 14.6 and 5.85. The loads are applied as point loads at the midspan of each span.

Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

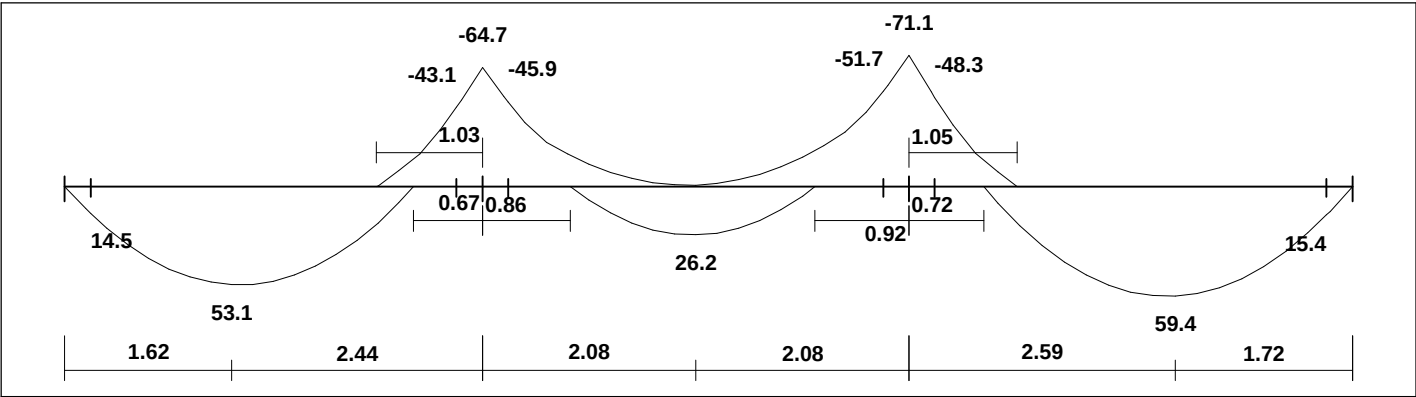
The diagram shows a continuous beam with four spans. The spans are labeled with lengths 4.06, 4.15, and 4.31. The loads are labeled with values 7.75. The loads are applied as point loads at the midspan of each span.

Loads (kN,meter)											
1				2				3			
Self.Wt.		5.86		Self.Wt.		5.86		Self.Wt.		5.86	
Uni D	14.60	L	7.75	Uni D	14.60	L	7.75	Uni D	14.60	L	7.75

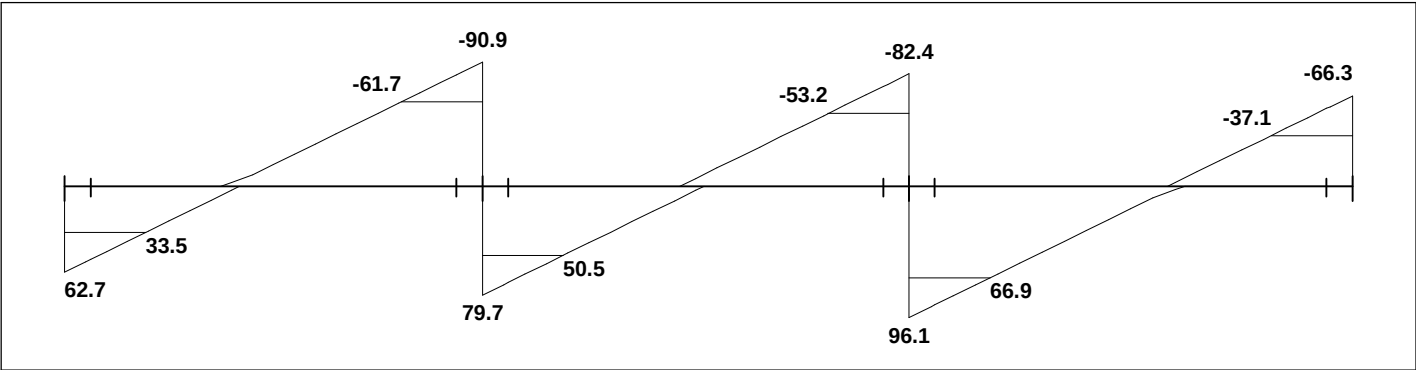
Beam 63	Code: ACI318-02
Project: 1	Page: 424
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



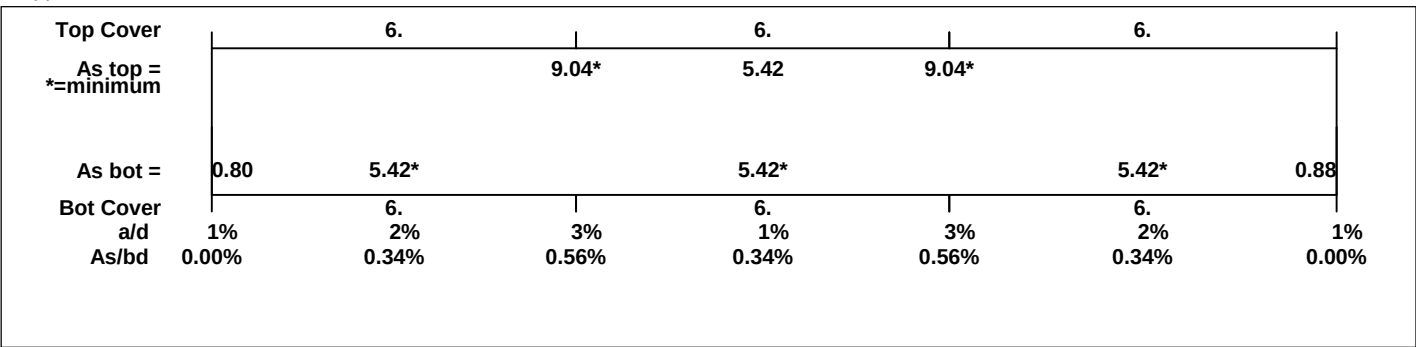
Reactions

Factored

DeadR	39.9	109.56	115.43	42.44
LiveR	22.83	61.04	63.12	23.86
Max R	62.72	170.6	178.55	66.3
Min R	37.22	132.37	138.67	40.02
Service				
DeadR	33.25	91.3	96.19	35.37
LiveR	14.27	38.15	39.45	14.91
Max R	47.51	129.45	135.64	50.28
Min R	31.58	105.56	110.72	33.86

Reinforcement (cm 2)

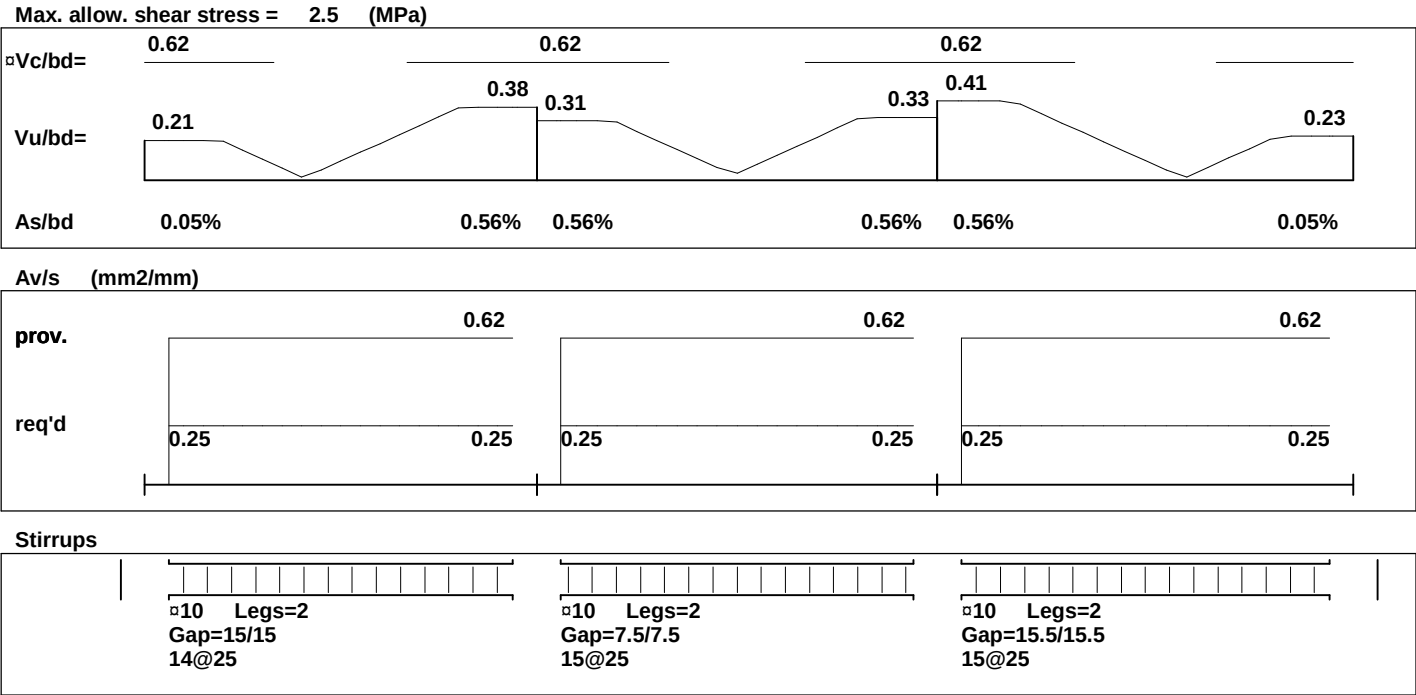
Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Beam 63	Code: ACI318-02
Project: 1	Page: 425
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 12 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 0.	2 5.42	3 0.
As	5.42	5.42	5.42
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00687	0.00687	0.00687
Icr(m^4)=	0.00110	0.00111	0.00110
Mcr =	62.86	62.86	62.86
Mmax,d =	27.02	37.56	30.58
Mmax,d+l =	39.97	18.49	44.77
Mmax,sust =	27.02	37.56	30.58
Ie,d (m^4)=	0.00687	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687	0.00687
Ie,sust (m^4)=	0.00687	0.00687	0.00687
e/1+50r =	2.00	1.71	2.00
ai,d =	0.237	-0.021	0.303
ai,l =	0.131	0.130	0.160
at,sust =	0.474	-0.036	0.606
ai,l =	L/30922	L/31838	L/26974
(ai+at),t2-t1	L/ 6712	L/*****	L/ 5629

Beam 63	Code: ACI318-02
Project: 1	Page: 426
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	33.54	17.83	0.	0.	0.25	0.00	100	-
203	11.97	7.05	33.54	17.83	0.	0.58	0.25	0.00	-	-
250	14.53	8.54	33.54	17.83	0.	0.71	0.25	0.01	-	-
406	22.42	13.09	33.54	17.83	0.	1.10	0.25	0.01	-	-
609	31.35	18.12	33.54	17.83	0.	1.54	0.25	0.01	-	-
812	38.75	22.13	32.72	17.29	0.	1.91	0.25	0.01	-	-
1015	44.63	25.14	25.22	12.31	0.	2.21	0.25	0.02	-	-
1218	48.99	27.13	17.72	7.32	0.	2.42	0.25	0.02	-	-
1421	51.83	28.11	10.22	2.34	0.	2.57	0.25	0.02	-	-
1624	53.14	28.08	2.72	-2.64	0.	2.63	0.25	0.02	-	-
1827	52.93	27.04	-4.78	-8.43	0.	2.62	0.25	0.02	-	-
2030	51.20	24.98	-11.64	-15.93	0.	2.54	0.25	0.02	100	-
2233	47.95	21.92	-16.62	-23.43	0.	2.37	0.25	0.02	-	-
2436	43.17	17.84	-21.60	-30.93	0.	2.13	0.25	0.02	-	-
2639	36.87	12.75	-26.58	-38.43	0.	1.82	0.25	0.01	-	-
2842	29.05	6.65	-31.57	-45.93	0.	1.43	0.25	0.01	-	-
3045	19.71	-0.46	-36.55	-53.43	0.02	0.97	0.25	0.01	-	-
3248	8.84	-8.58	-41.53	-60.93	0.42	0.43	0.25	0.01	-	-
3451	-3.55	-17.72	-42.07	-61.74	0.87	0.	0.25	0.01	-	-
3654	-17.46	-30.79	-42.07	-61.74	1.52	0.	0.25	0.02	-	-
3810	-29.19	-43.08	-42.07	-61.74	2.14	0.	0.25	0.03	-	-
3857	-32.89	-46.96	-42.07	-61.74	2.14	0.	0.25	0.03	-	-
4060	-47.24	-64.66	-42.07	-61.74	2.14	0.	0.25	0.03	100	-
Span=2										
0	-47.24	-64.66	50.48	29.72	2.28	0.	0.25	0.03	100	-
208	-33.29	-48.89	50.48	29.72	2.28	0.	0.25	0.03	-	-
250	-30.67	-45.90	50.48	29.72	2.28	0.	0.25	0.03	-	-
415	-20.99	-34.78	50.48	29.72	1.72	0.	0.25	0.02	-	-
623	-10.23	-24.02	50.48	29.72	1.18	0.	0.25	0.02	-	-
830	-1.11	-17.54	49.00	28.74	0.86	0.	0.25	0.01	-	-
1038	7.41	-12.09	41.32	23.64	0.59	0.36	0.25	0.01	-	-
1245	14.33	-7.73	33.67	18.55	0.38	0.70	0.25	0.01	-	-
1453	19.69	-4.40	25.98	13.45	0.21	0.97	0.25	0.01	-	-
1660	23.44	-2.14	18.34	8.37	0.10	1.15	0.25	0.01	-	-
1868	25.62	-0.93	10.65	1.89	0.04	1.26	0.25	0.01	-	-
2075	26.19	-0.78	3.00	-5.76	0.03	1.29	0.25	0.01	100	-
2283	25.18	-1.69	-4.68	-13.44	0.08	1.24	0.25	0.01	-	-
2490	22.58	-3.65	-12.01	-21.09	0.17	1.11	0.25	0.01	-	-
2698	18.38	-6.68	-17.11	-28.78	0.32	0.90	0.25	0.01	-	-
2905	12.61	-10.75	-22.19	-36.43	0.52	0.62	0.25	0.01	-	-
3113	5.21	-15.89	-27.30	-44.11	0.78	0.25	0.25	0.01	-	-
3320	-3.73	-22.07	-32.38	-51.76	1.09	0.	0.25	0.01	-	-
3528	-13.53	-29.34	-33.36	-53.24	1.45	0.	0.25	0.02	-	-
3735	-24.81	-40.11	-33.36	-53.24	1.99	0.	0.25	0.03	-	-
3900	-34.94	-51.69	-33.36	-53.24	2.58	0.	0.25	0.03	-	-
3943	-37.74	-54.87	-33.36	-53.24	2.58	0.	0.25	0.03	-	-
4150	-52.20	-71.14	-33.36	-53.24	2.58	0.	0.25	0.03	100	-

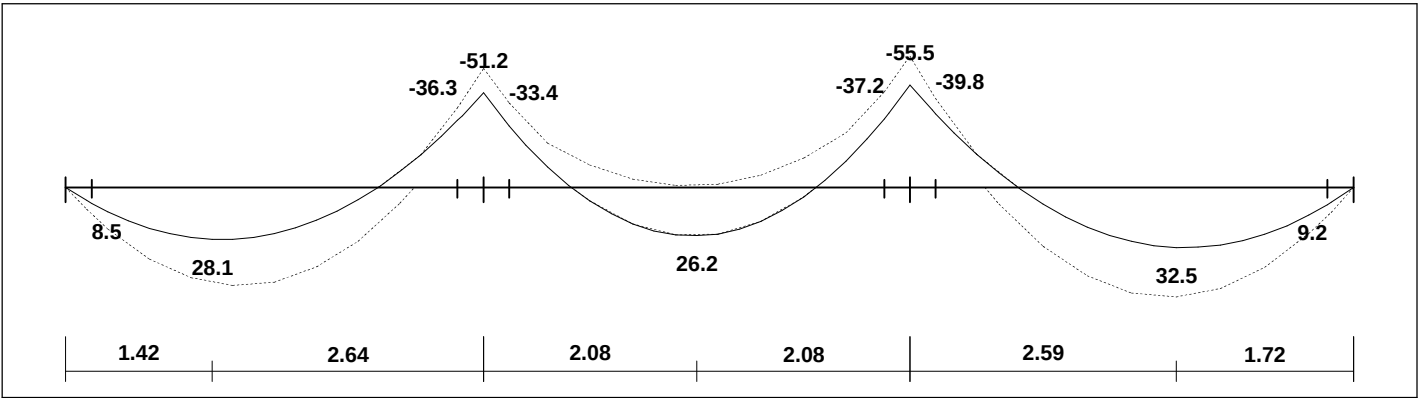
Beam 63	Code: ACI318-02
Project: 1	Page: 427
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

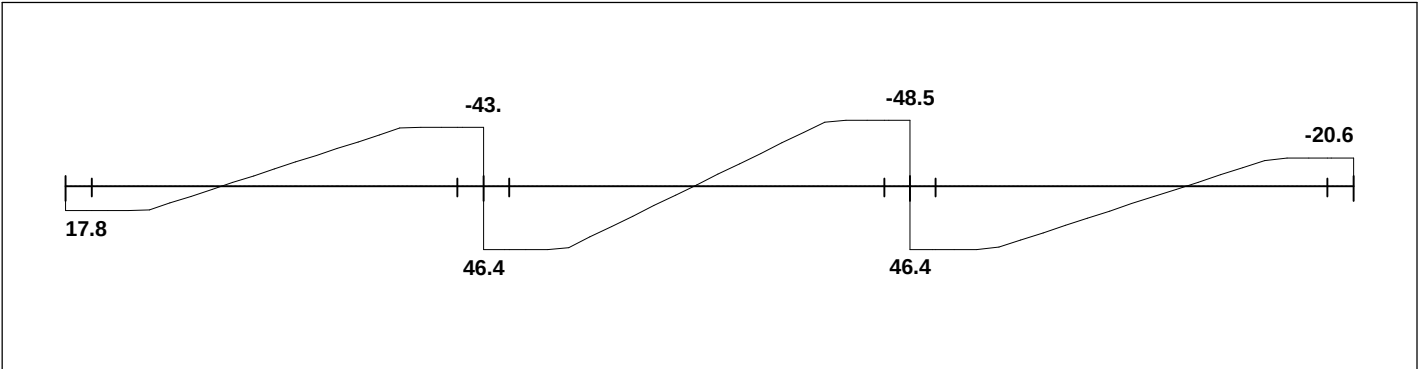
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-52.20	-71.14	66.94	45.62	2.40	0.	0.25	0.03	100	-
216	-38.19	-51.24	66.94	45.62	2.40	0.	0.25	0.03	-	-
250	-35.32	-48.26	66.94	45.62	2.40	0.	0.25	0.03	-	-
431	-20.78	-33.14	66.94	45.62	1.64	0.	0.25	0.02	-	-
647	-5.00	-18.08	66.94	45.62	0.89	0.	0.25	0.01	-	-
862	8.98	-7.92	64.28	43.85	0.39	0.44	0.25	0.00	-	-
1078	21.32	1.14	56.30	38.55	0.	1.05	0.25	0.01	-	-
1293	31.88	9.03	48.35	33.27	0.	1.57	0.25	0.01	-	-
1509	40.78	15.81	40.37	27.97	0.	2.01	0.25	0.02	-	-
1724	47.92	21.42	32.43	22.69	0.	2.37	0.25	0.02	-	-
1940	53.37	25.91	24.45	17.39	0.	2.64	0.25	0.02	-	-
2155	57.09	29.25	16.51	12.11	0.	2.83	0.25	0.02	100	-
2371	59.11	31.46	8.52	5.34	0.	2.93	0.25	0.02	-	-
2586	59.40	32.52	2.30	-2.61	0.	2.95	0.25	0.02	-	-
2802	57.97	32.44	-3.00	-10.59	0.	2.88	0.25	0.02	-	-
3017	54.84	31.23	-8.28	-18.53	0.	2.72	0.25	0.02	-	-
3233	49.98	28.87	-13.58	-26.51	0.	2.47	0.25	0.02	-	-
3448	43.43	25.38	-18.86	-34.45	0.	2.15	0.25	0.02	-	-
3664	35.12	20.73	-20.63	-37.11	0.	1.73	0.25	0.01	-	-
3879	25.14	14.97	-20.63	-37.11	0.	1.24	0.25	0.01	-	-
4060	15.42	9.24	-20.63	-37.11	0.	0.76	0.25	0.01	-	-
4095	13.40	8.04	-20.63	-37.11	0.	0.66	0.25	0.01	-	-
4310	0.00	0.00	-20.63	-37.11	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3 Load pattern: xxXXxx

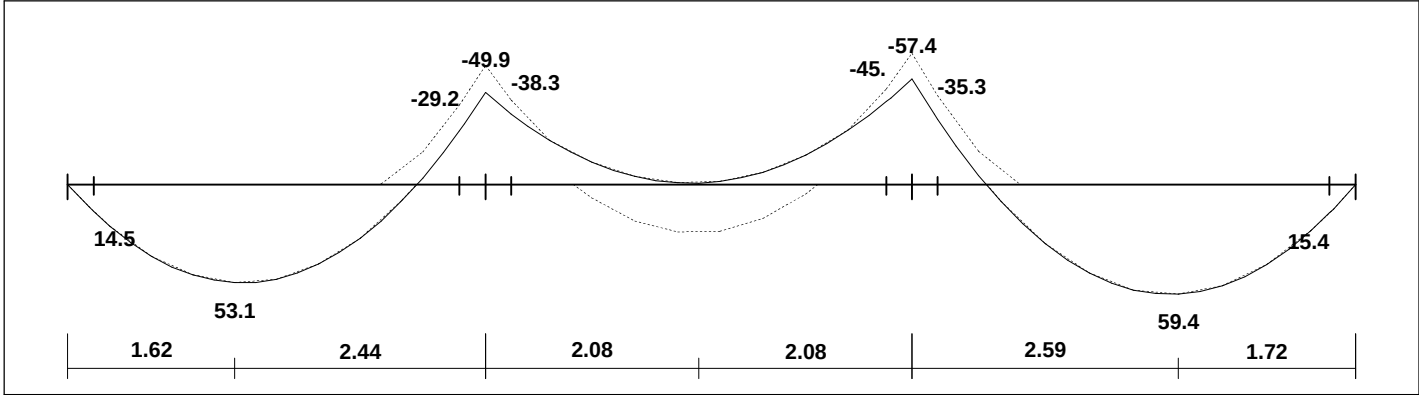


Shear

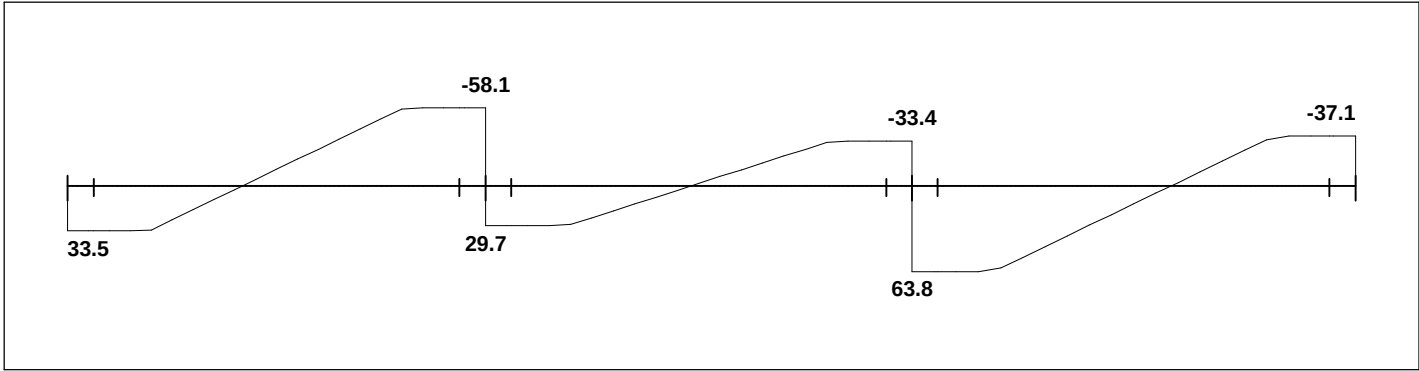


Moment/Shear Envelope (Factored) Units:kN,meter

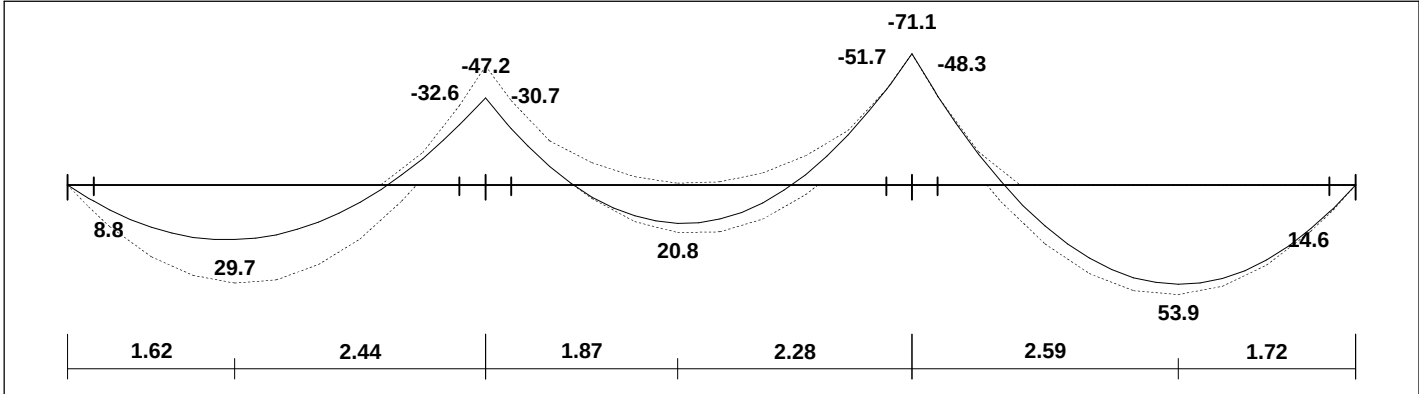
Moments: spans 1 to 3 Load pattern: XXxxxXX



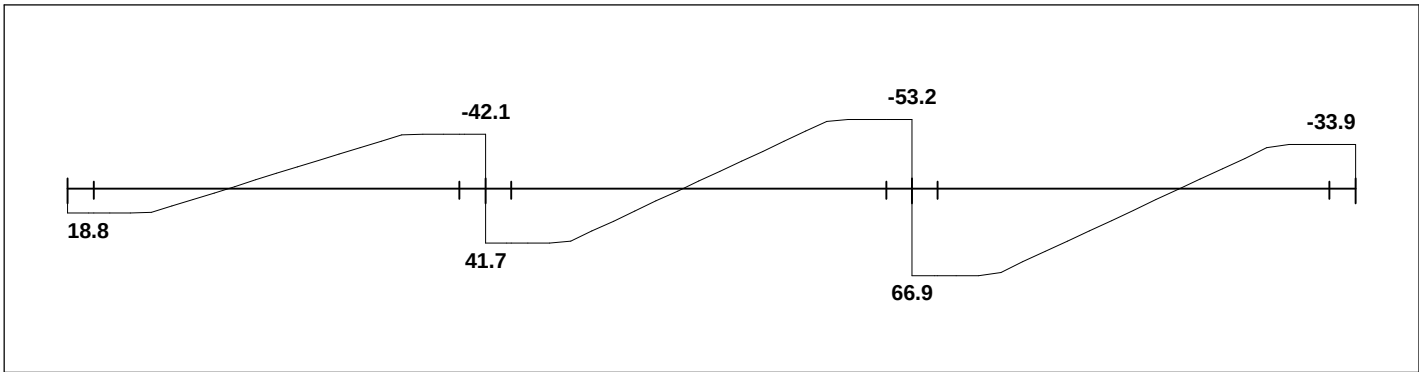
Shear



Moments: spans 1 to 3 Load pattern: xxXXXX



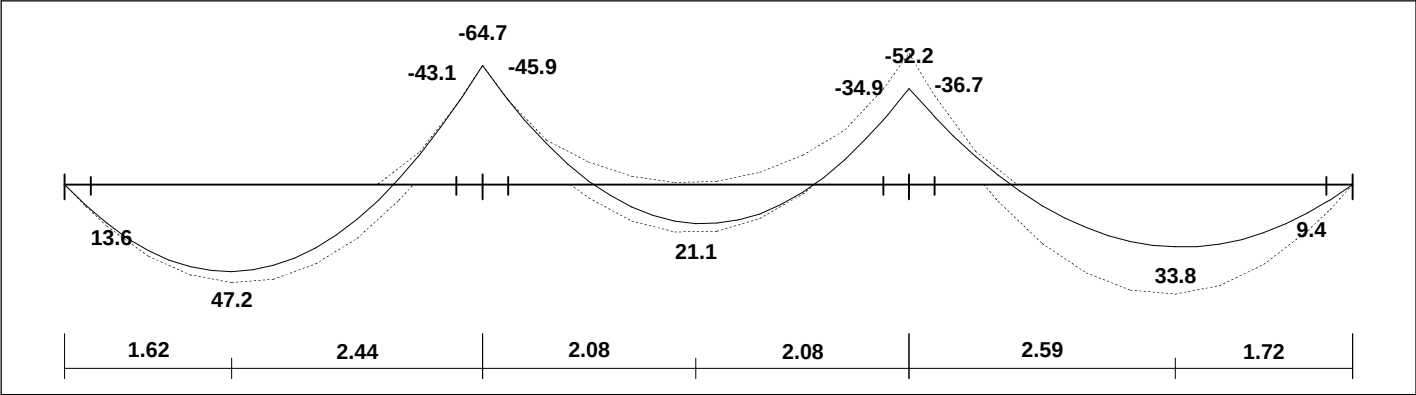
Shear



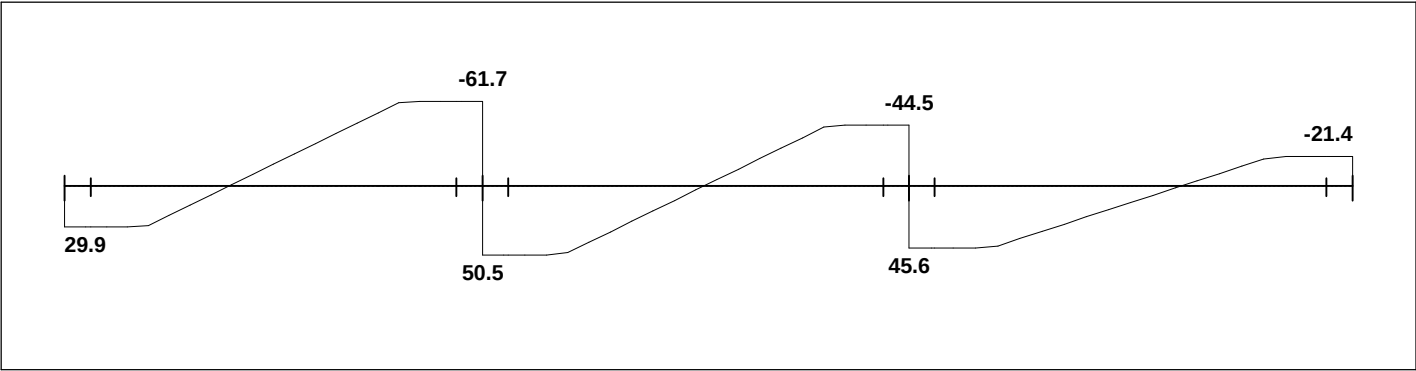
Beam 63	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3 Load pattern: XXXXxx



Shear



Moment/Shear Envelope (Factored) Units:kN,meter

	1	2	3	4
	1	2	3	4
Min M	0.0	-64.7	-71.1	0.0
Max M	0.0	-47.2	-52.2	0.0
MspMn	8.5	-43.1	-51.7	9.2
MspMx	14.5	-29.2	-35.3	15.4
M Max		26.2	59.4	
M Min		-0.8	32.5	
Mmn=0 @	0.0	1.0	4.2	4.3
Mmx=0 @	0.0	0.7	0.9	4.3
mx -M @		0.9	0.7	
mx +M @		2.1	2.6	
V max	62.7	-61.5	-52.8	-40.0
V min	37.2	-90.9	-82.4	-66.3
DReac	39.9	109.6	115.4	42.4
LReac	22.8	61.0	63.1	23.9
Max R	62.7	170.6	178.6	66.3
Min R	37.2	132.4	138.7	40.0

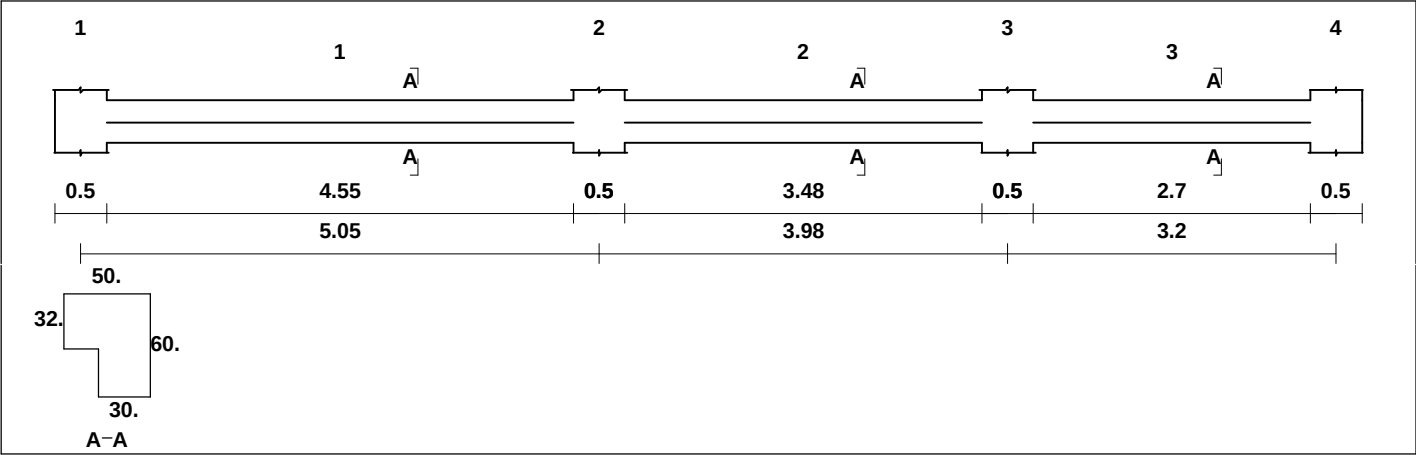
Beam 63	Code: ACI318-02
Project: 1	Page: 430
Designed by:	Date: 04/07/14

Individual load cases - factored				Units:kN,meter			
	1	2	3	4			
	1	2	2	3	4		
	1	2	3	4			
Min M	0.0	-51.2	-51.2	-55.5	-55.5	0.0	
M Max			26.2		32.5		
Mmx=0 @	0.0	1.0	0.9	0.9	1.1	4.3	
mx +M			2.1		2.6		
V max	37.2	-62.4	75.6	-77.7	65.8	-40.0	
	1	2	3	4			
	1	2	3	4			
Min M	0.0	-49.9	-49.9	-57.4	-57.4	0.0	
M Max			-0.8		59.4		
Mmx=0 @	0.0	0.7	0.0	4.2	0.7	4.3	
mx +M			2.1		2.6		
V max	62.7	-87.3	49.1	-52.8	92.9	-66.3	
	1	2	3	4			
	1	2	3	4			
Min M	0.0	-47.2	-47.2	-71.1	-71.1	0.0	
M Max			20.8		53.9		
Mmx=0 @	0.0	1.0	0.9	1.2	0.9	4.3	
mx +M			1.9		2.6		
V max	38.2	-61.5	70.9	-82.4	96.1	-63.1	
	1	2	3	4			
	1	2	3	4			
Min M	0.0	-64.7	-64.7	-52.2	-52.2	0.0	
M Max			21.1		33.8		
Mmx=0 @	0.0	0.9	1.1	0.9	1.0	4.3	
mx +M			2.1		2.6		
V max	59.1	-90.9	79.7	-73.7	65.0	-40.8	

Beam 44	Code: ACI318-02
Project: 1	Page: 491
Designed by:	Date: 04/08/14

Geometry

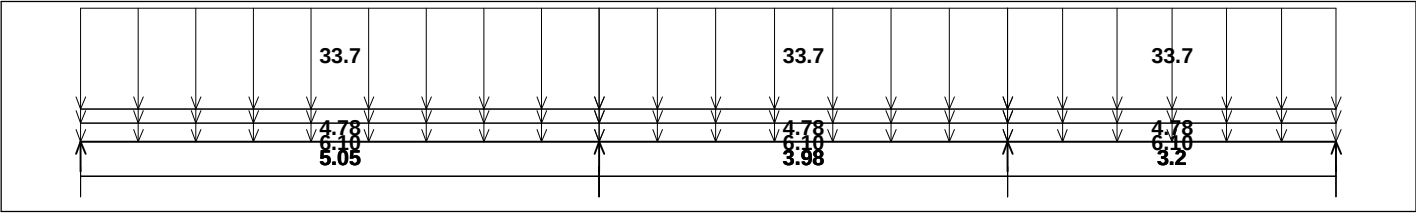
Units: meter, cm



Loading

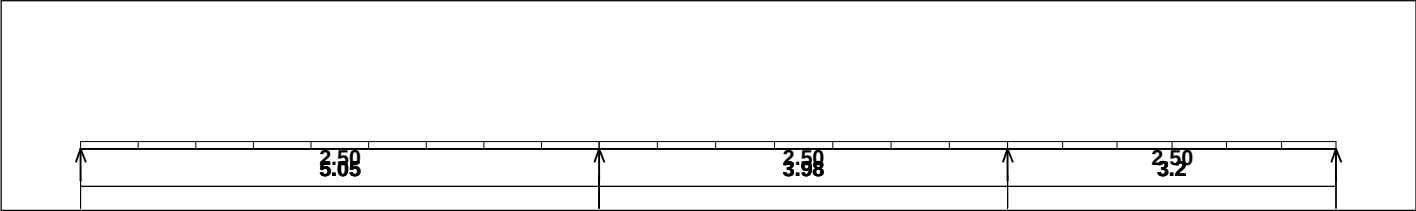
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

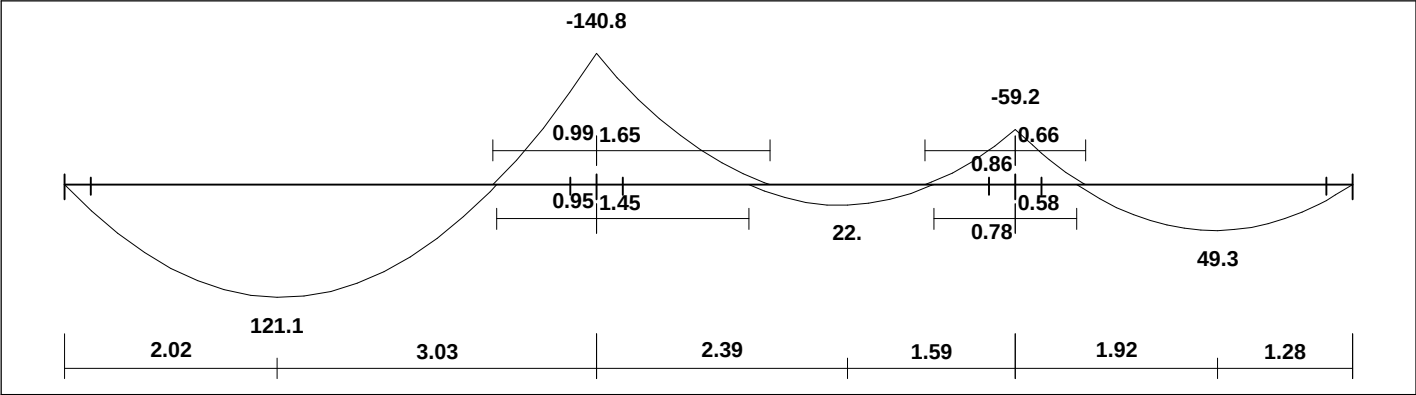


Loads (kN, meter)											
1				2				3			
Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10	Self. Wt.	6.10
Uni D	4.78	L	2.50	Uni D	4.78	L	2.50	Uni D	4.79	L	2.50
Uni D	33.75	L	0.000	Uni D	33.75	L	0.000	Uni D	33.75	L	0.000

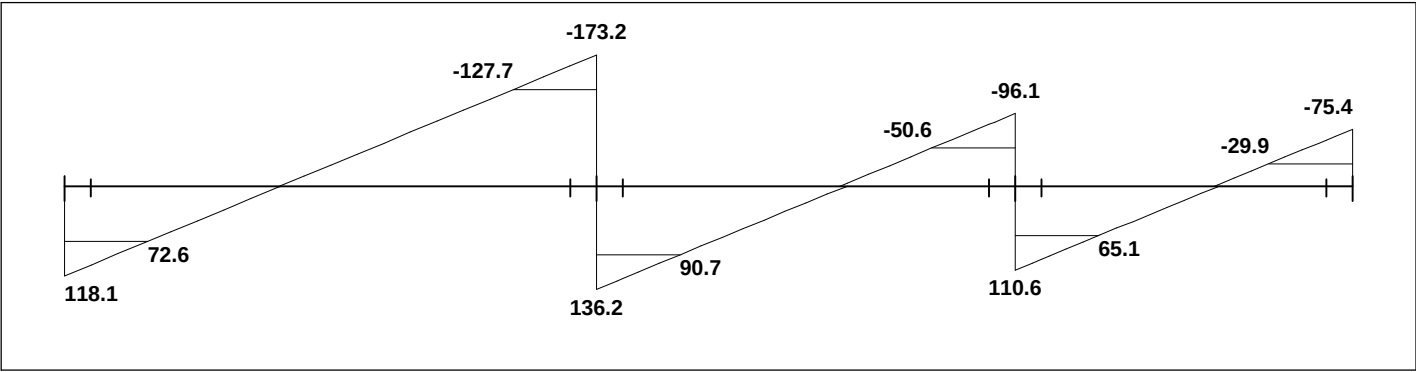
Beam 44	Code: ACI318-02
Project: 1	Page: 492
Designed by:	Date: 04/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	109.39	287.08	189.47	69.09
LiveR	8.7	22.29	17.24	6.3
Max R	118.09	309.37	206.71	75.39
Min R	108.86	294.48	194.28	67.95
Service				
DeadR	91.16	239.23	157.89	57.57
LiveR	5.44	13.93	10.78	3.94
Max R	96.59	253.16	168.67	61.51
Min R	90.82	243.86	160.9	56.86

Reinforcement (cm 2)

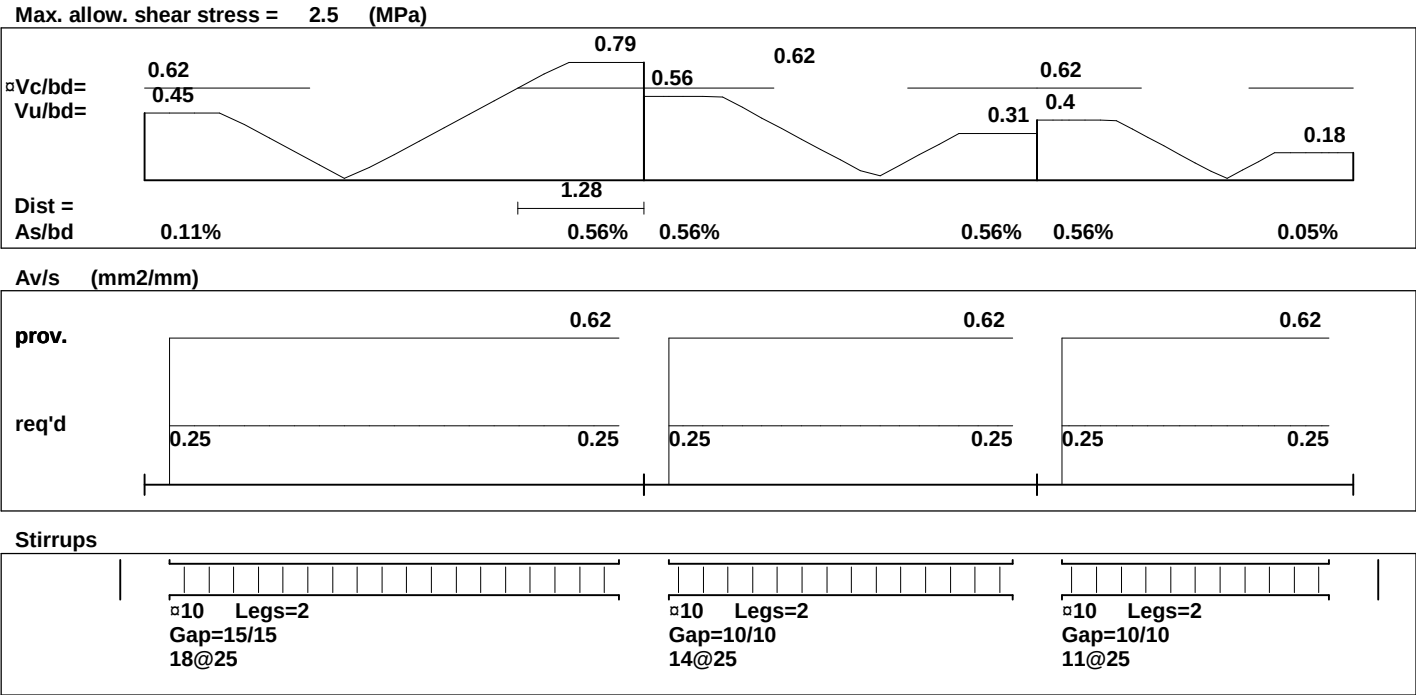
Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Center



Beam 44	Code: ACI318-02
Project: 1	Page: 493
Designed by:	Date: 04/08/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 0.	2 5.42	3 0.
As	6.09	0.00	5.42
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00687	0.00687	0.00687
Icr(m^4)=	0.00122	0.00002	0.00110
Mcr =	62.86	80.40	62.86
Mmax,d =	93.08	108.75	37.13
Mmax,d+l =	98.97	113.16	40.12
Mmax,sust =	93.08	108.75	37.13
Ie,d (m^4)=	0.00296	0.00279	0.00687
Ie,d+l (m^4)=	0.00267	0.00247	0.00687
Ie,sust (m^4)=	0.00296	0.00279	0.00687
e/1+50r =	2.00	1.71	2.00
ai,d =	2.973	-0.289	0.204
ai,l =	0.552	-0.096	0.020
at,sust =	5.945	-0.496	0.408
ai,l =	L/ 9153	L/*****	L/*****
(ai+at),t2-t1	L/ 777	L/ 6724	L/ 7467

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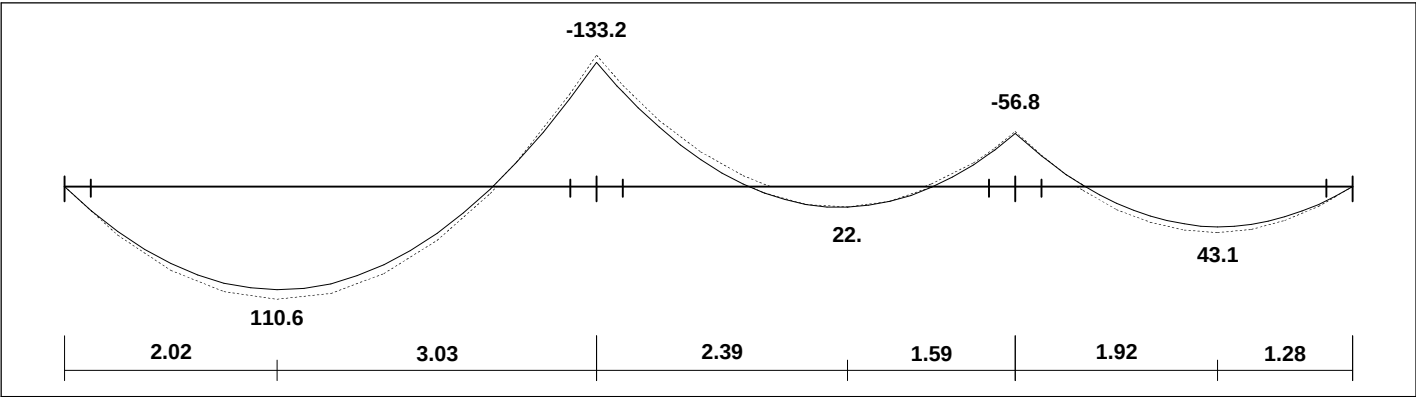
Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	72.62	66.55	0.	0.	0.25	0.00	100	-
253	28.03	25.83	72.62	66.55	0.	1.38	0.25	0.01	-	-
505	52.30	48.14	72.62	66.55	0.	2.59	0.25	0.02	-	-
758	72.98	67.13	72.62	66.55	0.	3.63	0.25	0.03	-	-
1010	89.91	82.63	59.96	54.76	0.	4.49	0.25	0.03	-	-
1263	103.24	94.77	45.40	41.21	0.	5.17	0.25	0.04	-	-
1515	112.85	103.45	30.89	27.72	0.	5.66	0.25	0.04	-	-
1768	118.83	108.75	16.33	14.17	0.	5.97	0.25	0.05	-	-
2020	121.11	110.62	1.83	0.67	0.	6.09	0.25	0.05	-	-
2273	119.73	109.08	-12.74	-13.37	0.	6.02	0.25	0.05	-	-
2525	114.70	104.13	-26.27	-27.88	0.	5.76	0.25	0.04	100	-
2778	105.96	95.75	-39.82	-42.44	0.	5.31	0.25	0.04	-	-
3030	93.60	83.99	-53.31	-56.94	0.	4.68	0.25	0.04	-	-
3283	77.52	68.76	-66.86	-71.51	0.	3.86	0.25	0.03	-	-
3535	57.83	50.18	-80.36	-86.01	0.	2.87	0.25	0.02	-	-
3788	34.39	28.11	-93.91	-100.57	0.	1.70	0.25	0.01	-	-
4040	7.38	2.72	-107.41	-115.08	0.	0.36	0.25	0.00	-	-
4293	-23.42	-26.20	-119.19	-127.74	1.29	0.	0.25	0.02	-	-
4545	-57.75	-60.65	-119.19	-127.74	3.03	0.	0.25	0.04	-	-
4798	-93.66	-98.96	-119.19	-127.74	5.02	0.	0.25	0.06	-	-
5050	-132.65	-140.78	-119.19	-127.74	7.25	0.	0.25	0.09	100	-
Span=2										
0	-132.65	-140.78	90.69	85.39	7.25	0.	0.25	0.09	100	-
199	-107.33	-114.83	90.69	85.39	5.86	0.	0.25	0.07	-	-
250	-101.21	-108.54	90.69	85.39	5.52	0.	0.25	0.07	-	-
398	-84.28	-91.15	90.69	85.39	4.61	0.	0.25	0.06	-	-
597	-63.52	-70.87	90.69	85.39	3.56	0.	0.25	0.05	-	-
796	-44.98	-52.88	90.35	85.07	2.64	0.	0.25	0.03	-	-
995	-28.62	-37.01	78.89	74.41	1.84	0.	0.25	0.02	-	-
1194	-14.55	-23.26	67.44	63.75	1.15	0.	0.25	0.01	-	-
1393	-2.75	-11.64	55.99	52.80	0.57	0.	0.25	0.01	-	-
1592	6.77	-2.13	44.53	41.35	0.10	0.33	0.25	0.00	-	-
1791	14.00	5.25	33.08	29.90	0.	0.68	0.25	0.01	-	-
1990	18.96	10.52	21.63	18.44	0.	0.93	0.25	0.01	100	-
2189	21.64	13.66	10.46	6.99	0.	1.06	0.25	0.01	-	-
2388	22.04	14.68	-0.19	-4.46	0.	1.08	0.25	0.01	-	-
2587	20.16	13.58	-10.85	-15.92	0.	0.99	0.25	0.01	-	-
2786	16.00	10.36	-21.51	-27.37	0.	0.78	0.25	0.01	-	-
2985	9.56	5.02	-32.17	-38.82	0.	0.47	0.25	0.00	-	-
3184	1.01	-2.44	-42.82	-50.28	0.12	0.04	0.25	0.00	-	-
3383	-9.50	-12.14	-43.15	-50.62	0.59	0.	0.25	0.01	-	-
3582	-22.29	-25.56	-43.15	-50.62	1.26	0.	0.25	0.02	-	-
3730	-33.28	-37.02	-43.15	-50.62	1.84	0.	0.25	0.02	-	-
3781	-37.36	-41.26	-43.15	-50.62	2.05	0.	0.25	0.03	-	-
3980	-53.50	-59.25	-43.15	-50.62	2.96	0.	0.25	0.04	100	-
Span=3										
0	-53.50	-59.25	65.14	60.49	2.96	0.	0.25	0.04	100	-
160	-36.82	-42.28	65.14	60.49	2.10	0.	0.25	0.03	-	-
250	-28.09	-33.39	65.14	60.49	1.65	0.	0.25	0.02	-	-
320	-21.62	-26.80	65.14	60.49	1.32	0.	0.25	0.02	-	-
480	-7.89	-13.33	65.14	60.49	0.65	0.	0.25	0.01	-	-
640	4.36	-1.57	65.14	60.49	0.07	0.21	0.25	0.00	-	-
800	15.14	8.81	64.57	59.95	0.	0.74	0.25	0.01	-	-
960	24.45	17.82	55.36	51.38	0.	1.20	0.25	0.01	-	-
1120	32.28	25.46	46.15	42.81	0.	1.59	0.25	0.01	-	-
1280	38.64	31.73	36.94	34.24	0.	1.91	0.25	0.01	-	-
1440	43.52	36.63	27.72	25.67	0.	2.15	0.25	0.02	-	-
1600	46.94	40.16	18.51	16.72	0.	2.32	0.25	0.02	100	-
1760	48.87	42.31	9.30	7.51	0.	2.42	0.25	0.02	-	-
1920	49.34	43.10	0.61	-1.70	0.	2.44	0.25	0.02	-	-
2080	48.33	42.51	-7.96	-10.91	0.	2.39	0.25	0.02	-	-
2240	45.85	40.55	-16.53	-20.12	0.	2.27	0.25	0.02	-	-
2400	41.89	37.22	-25.10	-29.34	0.	2.07	0.25	0.02	-	-
2560	36.46	32.52	-25.63	-29.91	0.	1.80	0.25	0.01	-	-
2720	29.55	26.45	-25.63	-29.91	0.	1.46	0.25	0.01	-	-
2880	21.18	19.00	-25.63	-29.91	0.	1.04	0.25	0.01	-	-
2950	17.05	15.31	-25.63	-29.91	0.	0.84	0.25	0.01	-	-
3040	11.33	10.19	-25.63	-29.91	0.	0.55	0.25	0.00	-	-

Beam 44										Code: ACI318-02
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3200	0.00	0.00	-25.63	-29.91	0.	0.	0.25	0.00	100	-

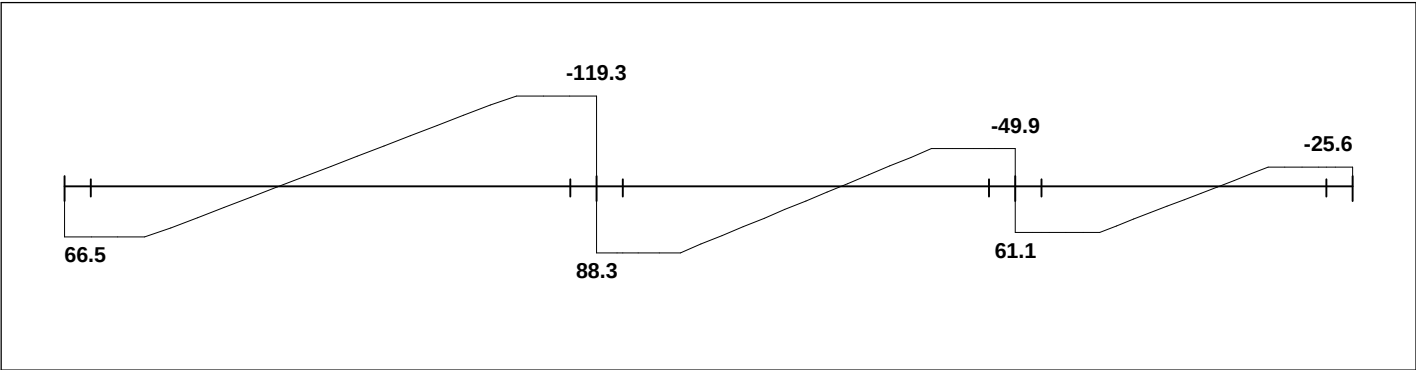
Beam 44	Code: ACI318-02
Project: 1	Page: 496
Designed by:	Date: 04/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

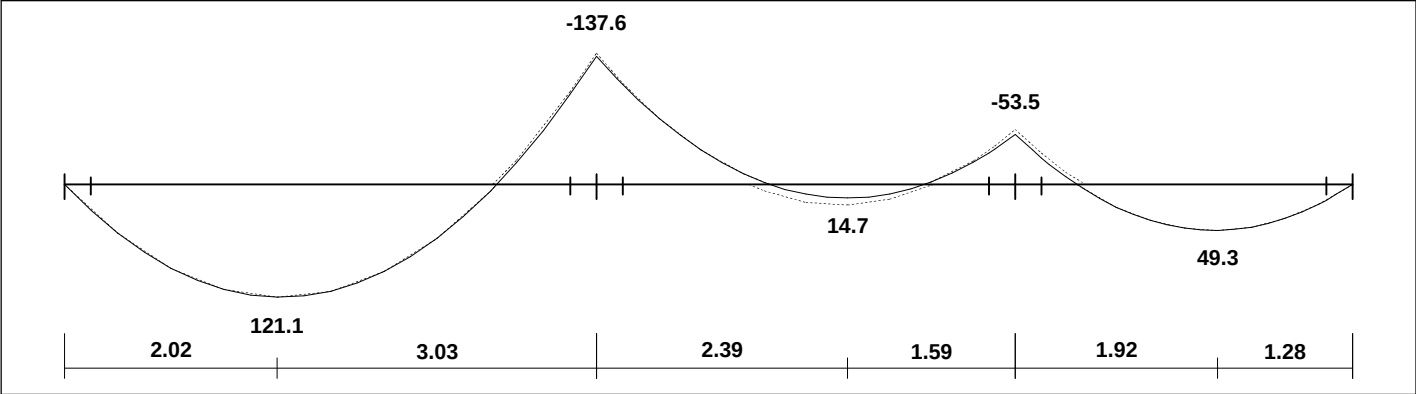
Moments: spans 1 to 3 Load pattern: xxXXxx



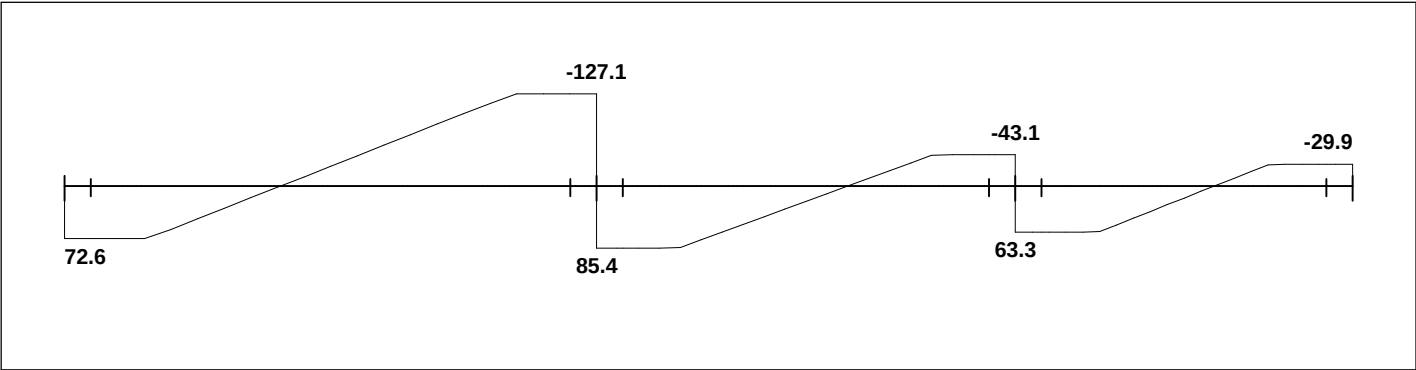
Shear



Moments: spans 1 to 3 Load pattern: XXxxXX



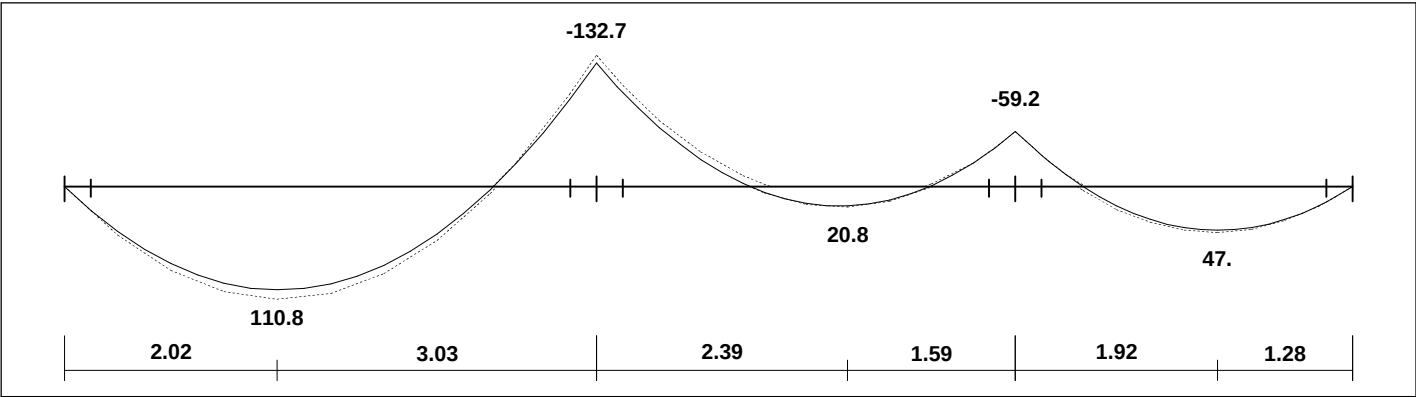
Shear



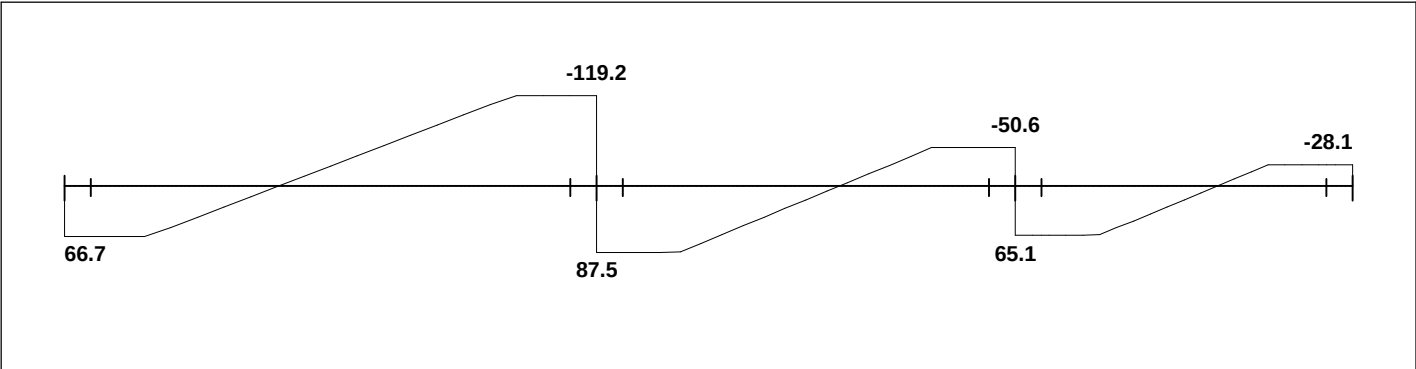
Beam 44	Code: ACI318-02
Project: 1	Page: 497
Designed by:	Date: 04/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

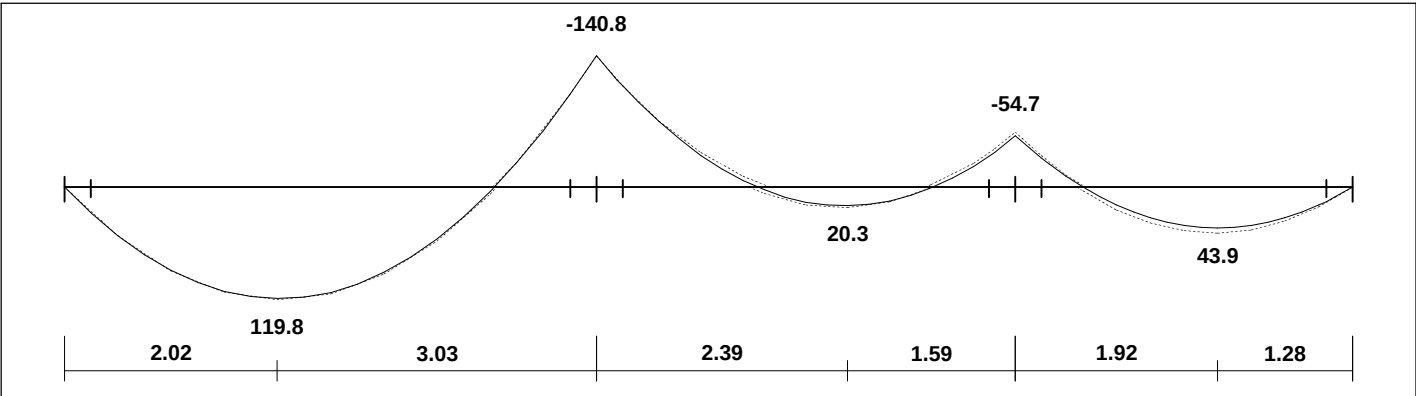
Moments: spans 1 to 3 Load pattern: xxXXXX



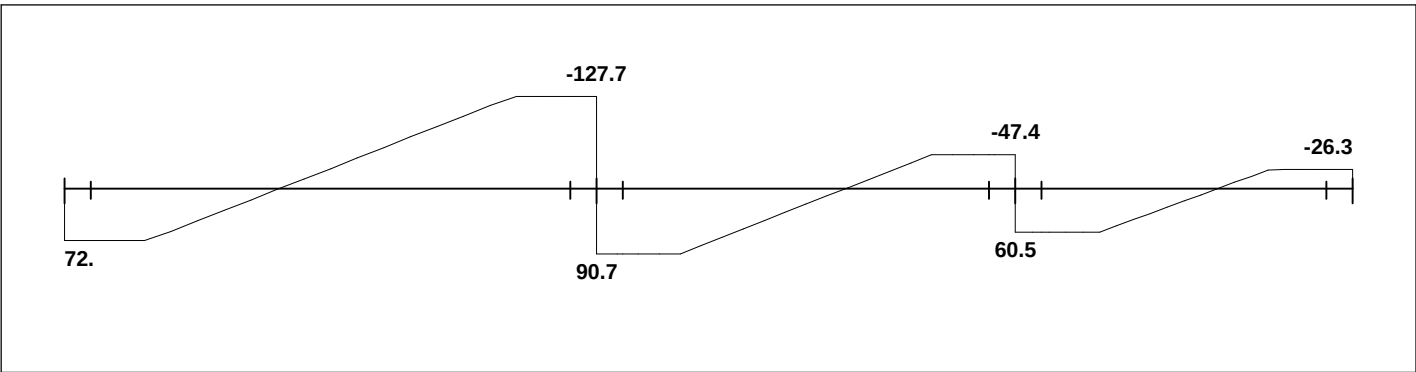
Shear



Moments: spans 1 to 3 Load pattern: XXXXxx



Shear



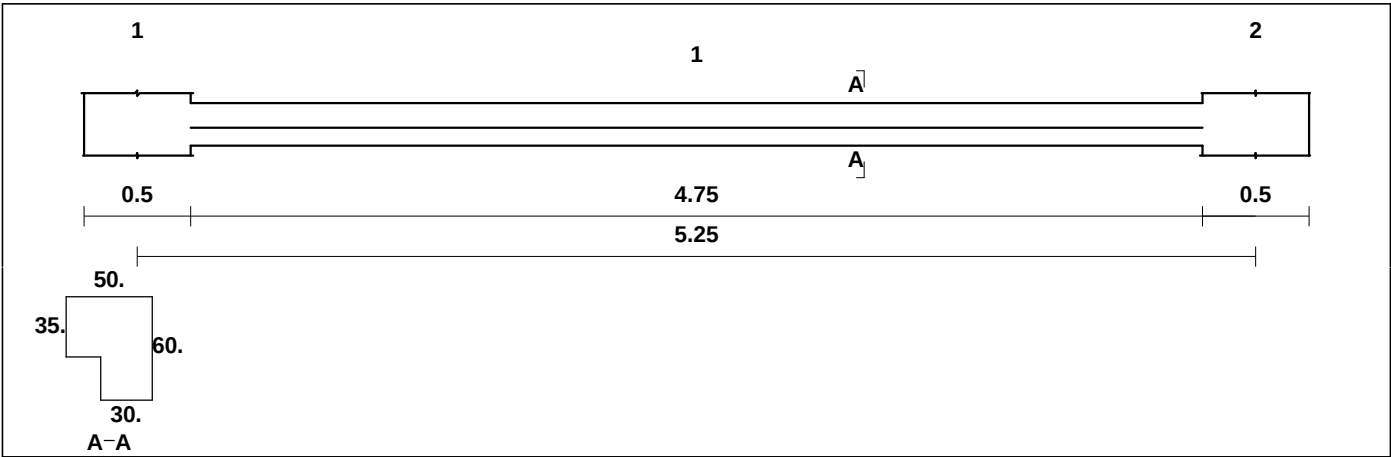
Beam 44	Code: ACI318-02
Project: 1	Page: 498
Designed by:	Date: 04/08/14

Moment / Shear Envelope (Factored)						Units:kN,meter
	1	2	3	3	4	
	1	2	2	3	3	4
	-----	-----	-----	-----	-----	
Min M	0.0	-140.8	-140.8	-59.2	-59.2	0.0
Max M	0.0	-132.7	-132.7	-53.5	-53.5	0.0
MspMn	25.8	-99.0	-108.5	-37.0	-33.4	15.3
MspMx	28.0	-93.7	-101.2	-33.3	-28.1	17.0
M Max			22.0		49.3	
M Min			14.7		43.1	
Mmn=0 @	0.0	1.0	1.6	0.9	0.7	3.2
Mmx=0 @	0.0	0.9	1.5	0.8	0.6	3.2
mx -M @			1.5		0.6	
mx +M @			2.4		1.9	
V max		-161.5		-85.5		-68.0
V min		-173.2		-96.1		-75.4
DReac		287.1		189.5		69.1
LReac	8.7	22.3		17.2		6.3
Max R		309.4		206.7		75.4
Min R		294.5		194.3		68.0

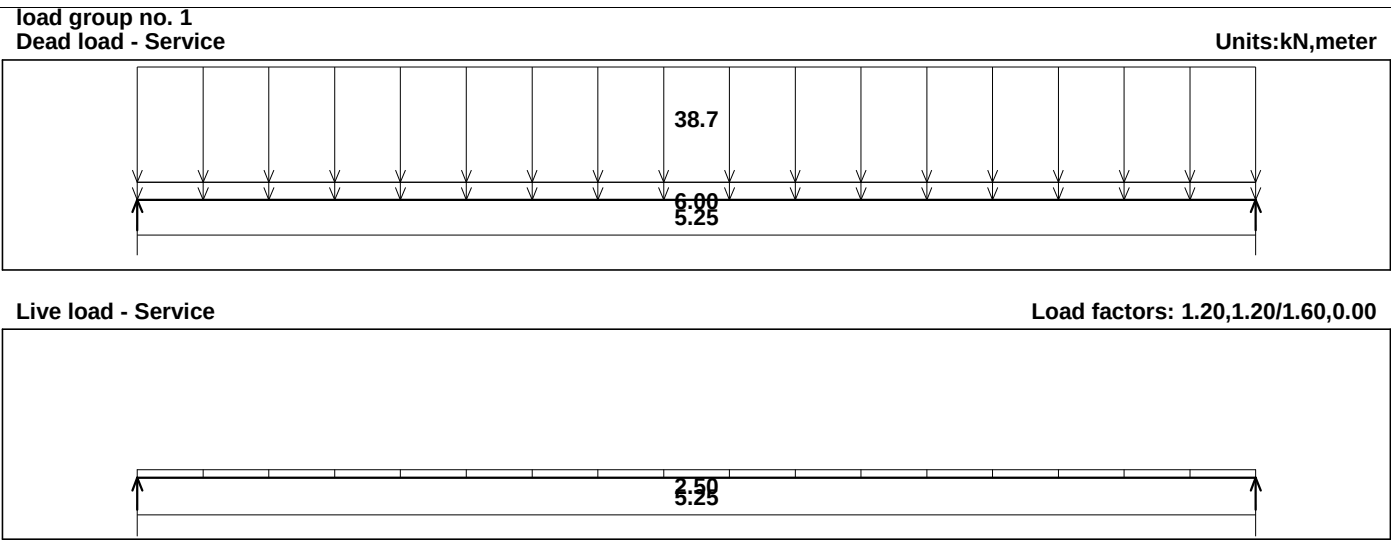
Individual load cases - factored						Units:kN,meter
	1	2	3	3	4	
	1	2	2	3	3	4
	-----	-----	-----	-----	-----	
Min M	0.0	-133.2	-133.2	-56.8	-56.8	0.0
M Max			22.0		43.1	
Mmx=0 @	0.0	1.0	1.5	0.8	0.7	3.2
mx +M			2.4		1.9	
V max		-161.6		-95.3		-68.0
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-137.6	-137.6	-53.5	-53.5	0.0
M Max			14.7		49.3	
Mmx=0 @	0.0	0.9	1.6	0.9	0.6	3.2
mx +M			2.4		1.9	
V max		-172.6		-85.5		-75.4
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-132.7	-132.7	-59.2	-59.2	0.0
M Max			20.8		47.0	
Mmx=0 @	0.0	1.0	1.5	0.8	0.6	3.2
mx +M			2.4		1.9	
V max		-161.5		-96.1		-73.6
	1	2	3	3	4	
	-----	-----	-----	-----	-----	
Min M	0.0	-140.8	-140.8	-54.7	-54.7	0.0
M Max			20.3		43.9	
Mmx=0 @	0.0	1.0	1.5	0.8	0.6	3.2
mx +M			2.4		1.9	
V max		-173.2		-92.9		-68.6

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Geometry Units: meter, cm



Loading

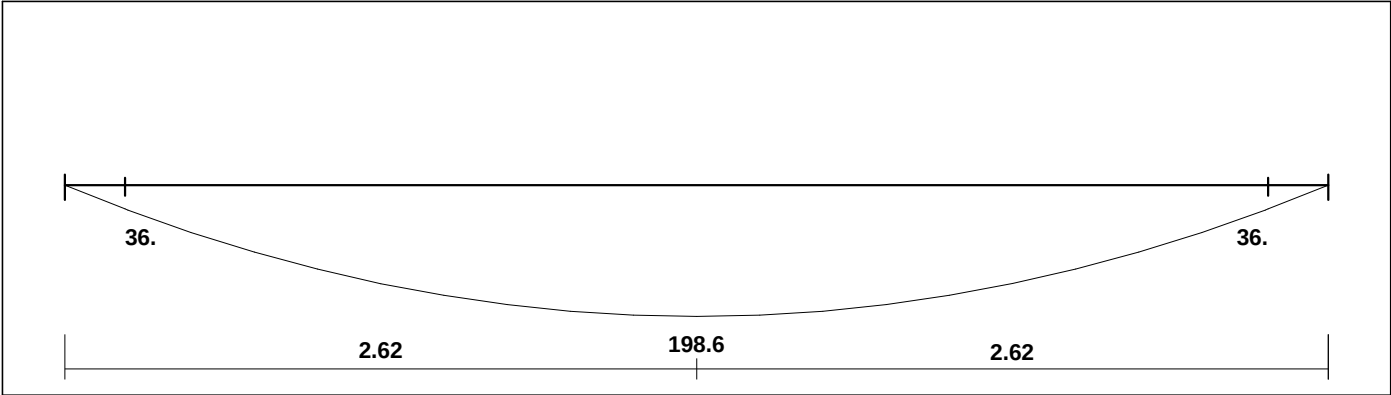


Loads (kN, meter)	
1	
Self. Wt.	6.00
Uni D	38.70
L	2.50

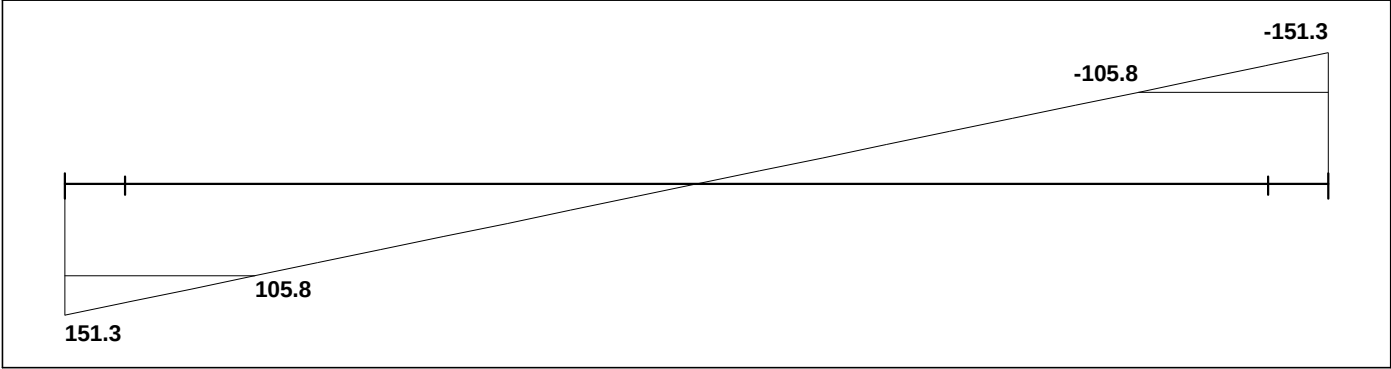
Beam 86	Code: ACI318-02
Project: BAEMS	Page: 361
Designed by: bayan	Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	140.81	140.81
LiveR	10.5	10.5
Max R	151.31	151.31
Min R	151.31	151.31
Service		
DeadR	117.34	117.34
LiveR	6.56	6.56
Max R	123.9	123.9
Min R	123.9	123.9

Beam 86	Code: ACI318-02
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Reinforcement (cm 2)

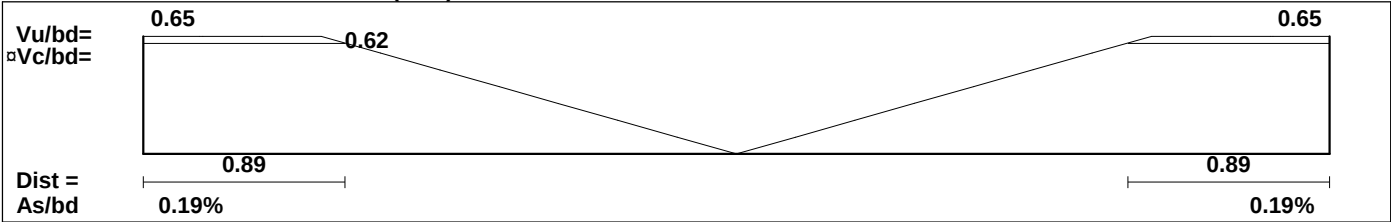
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.		
As top = *=minimum			
As bot =	3.04	10.15	3.04
Bot Cover	6.		
a/d	1%	8%	1%
As/bd	0.00%	0.63%	0.00%

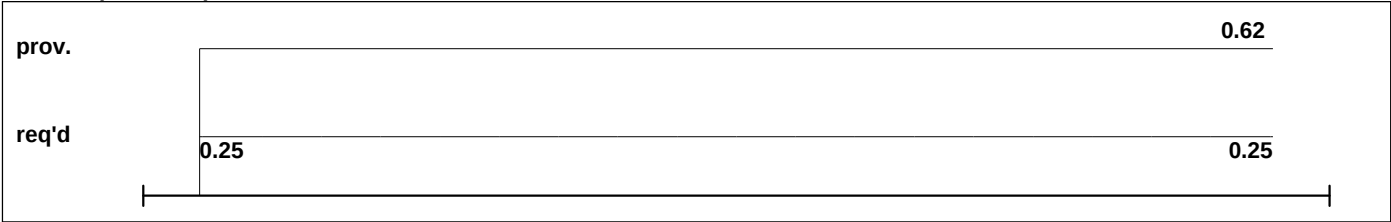
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. =5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

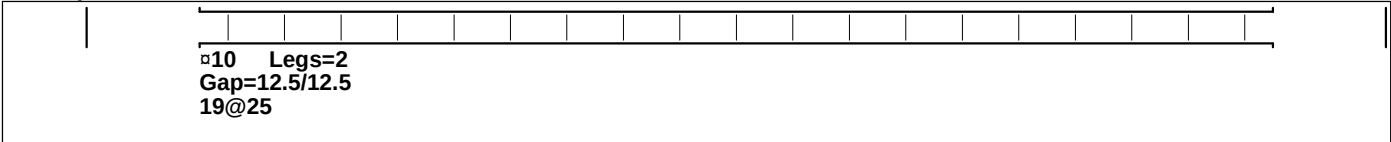
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Beam 86	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	10.15	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00690
Icr(m^4)= 0.00189

Mcr = 63.47
Mmax,d = 154.01
Mmax,d+l = 162.62
Mmax,sust = 100.10

Ie,d (m^4)= 0.00224
Ie,d+l (m^4)= 0.00218
Ie,sust (m^4)= 0.00316

e/1+50r = 2.00/0.80
ai,d = 8.409
ai,l = 0.685
at,sust = 4.640
ai,l = L/ 7660
(ai+at),t2-t1 L/ 634

—

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	105.77	105.77	0.	0.	0.25	0.00	100	-
250	36.03	36.03	105.77	105.77	0.	1.78	0.25	0.01	-	-
263	37.80	37.80	105.77	105.77	0.	1.87	0.25	0.01	-	-
525	71.49	71.49	105.77	105.77	0.	3.56	0.25	0.03	-	-
788	101.33	101.33	105.77	105.77	0.	5.07	0.25	0.04	-	-
1050	127.10	127.10	90.78	90.78	0.	6.40	0.25	0.05	-	-
1313	148.98	148.98	75.62	75.62	0.	7.53	0.25	0.06	-	-
1575	166.81	166.81	60.52	60.52	0.	8.47	0.25	0.06	-	-
1838	180.74	180.74	45.36	45.36	0.	9.20	0.25	0.07	-	-
2100	190.64	190.64	30.26	30.26	0.	9.72	0.25	0.07	-	-
2363	196.61	196.61	15.10	15.10	0.	10.04	0.25	0.08	-	-
2625	198.59	198.59	0.00	0.00	0.	10.15	0.25	0.08	100	-
2888	196.59	196.59	-15.16	-15.16	0.	10.04	0.25	0.08	-	-
3150	190.64	190.64	-30.26	-30.26	0.	9.72	0.25	0.07	-	-
3413	180.69	180.69	-45.42	-45.42	0.	9.20	0.25	0.07	-	-
3675	166.81	166.81	-60.52	-60.52	0.	8.47	0.25	0.06	-	-
3938	148.90	148.90	-75.68	-75.68	0.	7.53	0.25	0.06	-	-
4200	127.10	127.10	-90.78	-90.78	0.	6.40	0.25	0.05	-	-
4463	101.23	101.23	-105.77	-105.77	0.	5.07	0.25	0.04	-	-
4725	71.49	71.49	-105.77	-105.77	0.	3.56	0.25	0.03	-	-
4988	37.66	37.66	-105.77	-105.77	0.	1.86	0.25	0.01	-	-
5000	36.03	36.03	-105.77	-105.77	0.	1.78	0.25	0.01	-	-
5250	0.00	0.00	-105.77	-105.77	0.	0.	0.25	0.00	100	-

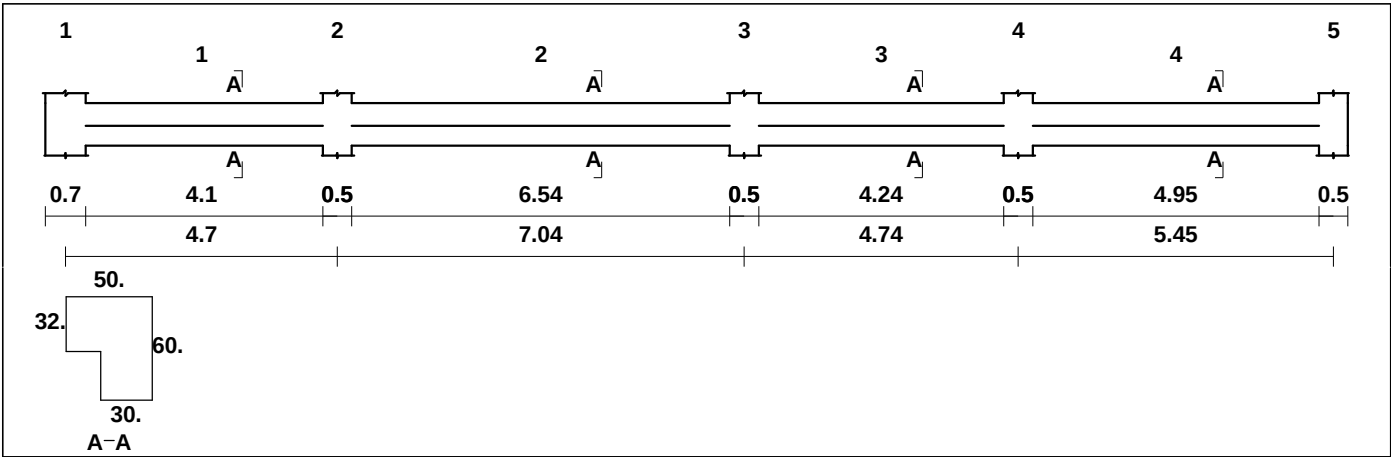
Beam 86	Code: ACI318-02
Project: BAEMS	Page: 364
Designed by: bayan	Date: 4/ 7/14

M o m e n t / S h e a r		E n v e l o p e (Factored)	Units:kN,meter
1	2		
	1		

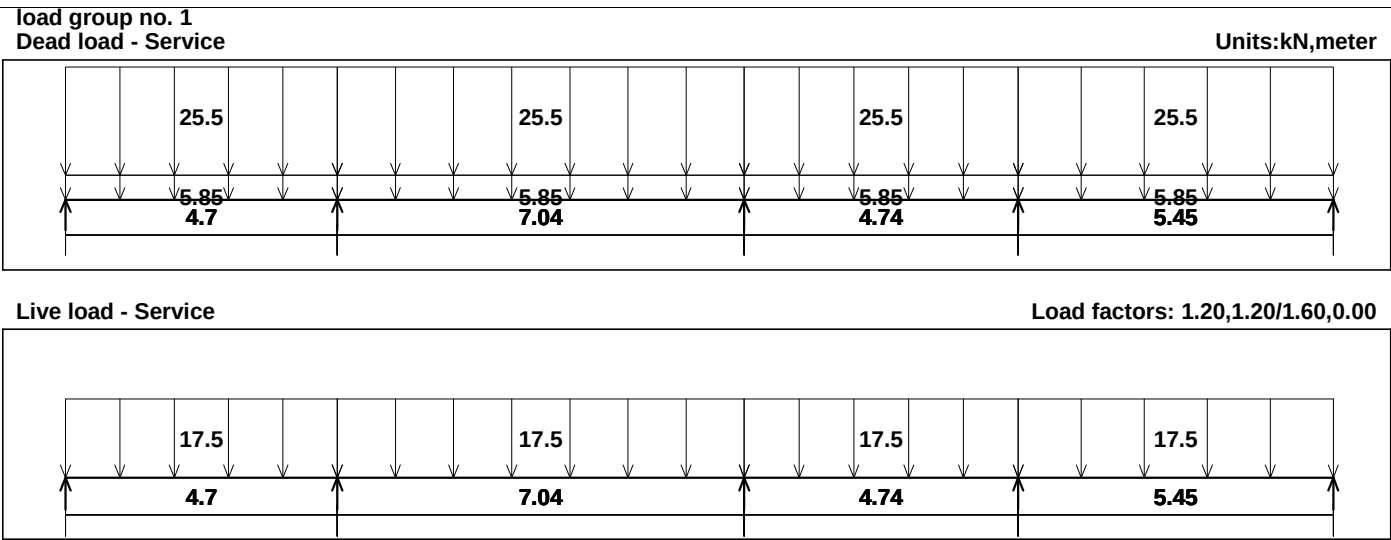
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		36.0	
MspMx		36.0	
M Max			
M Min			
Mmn=0 @	0.0	5.2	
Mmx=0 @	0.0	5.2	
mx -M @			
mx +M @			
V max		-151.3	
V min		-151.3	
DReac		140.8	
LReac		10.5	
Max R		151.3	
Min R		151.3	

Beam 105	Code: ACI318-02
Project: BAEMS	Page: 364
Designed by: bayan	Date: 4/ 7/14

Geometry Units: meter, cm



Loading



Loads (kN, meter)

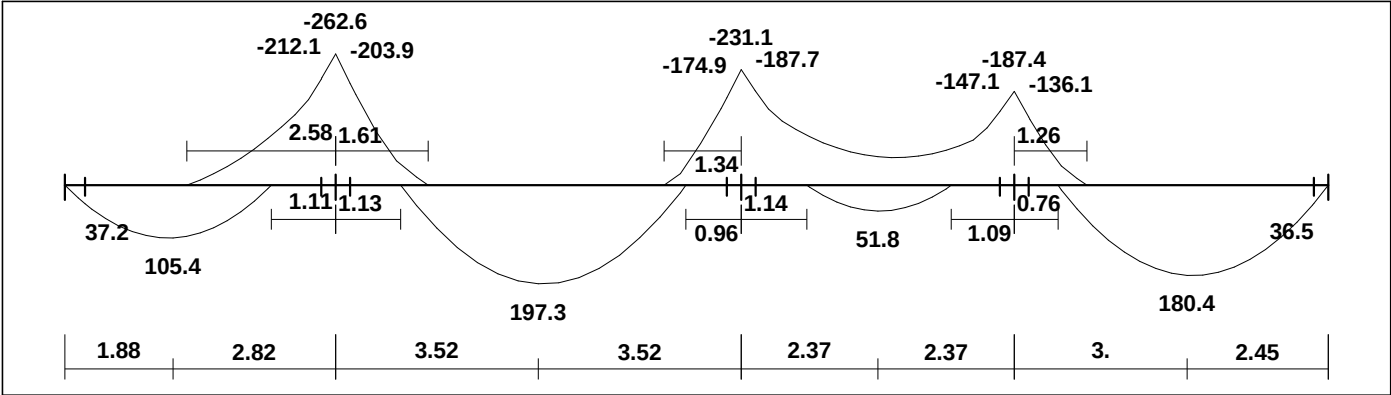
1	2	3	4
Self. Wt.	5.86 Self. Wt.	5.86 Self. Wt.	5.86 Self. Wt.
Uni D 25.50 L 17.50	Uni D 25.50 L 17.50	Uni D 25.50 L 17.50	Uni D 25.50 L 17.50

Beam 105
Project: BAEMS
Designed by: bayan

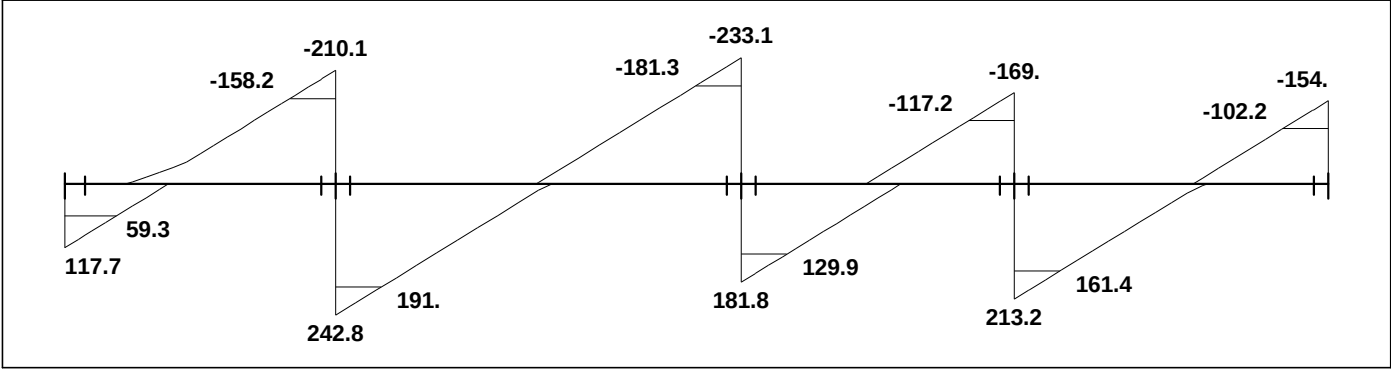
Code: ACI318-02
Page: 365
Date: 4/ 7/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	57.42	255.68	222.61	204.57	84.88
LiveR	60.32	197.25	192.3	177.67	69.13
Max R	117.74	452.93	414.92	382.24	154.01
Min R	39.82	328.14	267.11	251.41	78.91
Service					
DeadR	47.85	213.07	185.51	170.48	70.73
LiveR	37.7	123.28	120.19	111.05	43.21
Max R	85.55	336.35	305.7	281.52	113.94
Min R	36.85	258.35	213.32	199.75	67.

Beam 105	Code: ACI318-02
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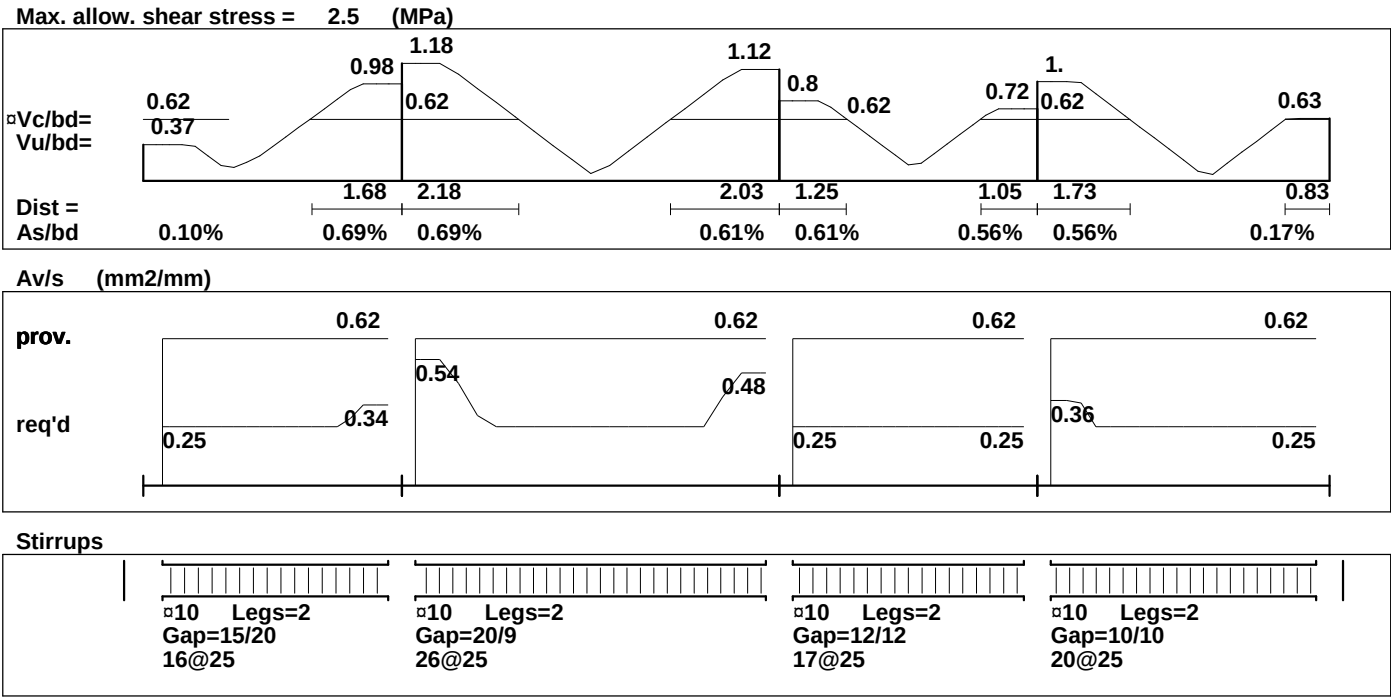
Reinforcement (cm 2)

Concrete: B300
Main reinforcement $f_y = 420$
Moment redistribution: No
Support moment at: Face

Top Cover	6.								
As top = *=minimum	0.50	11.22		9.83	5.42	9.04*			
As bot =	1.58	5.42*		10.08		5.42*		9.18	2.75
Bot Cover	6.								
a/d	1%	4%	14%	8%	13%	4%	10%	7%	1%
As/bd	0.00%	0.34%	0.69%	0.62%	0.61%	0.34%	0.56%	0.57%	0.00%

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/4 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Beam 105	Code: ACI318-02
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Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.50	2 0.	3 5.42	4 0.
As	5.42	10.08	5.42	9.18
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00687	0.00687	0.00687	0.00687
Icr(m^4)=	0.00110	0.00188	0.00104	0.00173
Mcr =	62.86	62.86	80.40	62.86
Mmax,d =	36.30	83.98	99.11	79.69
Mmax,d+l =	74.63	144.34	143.54	132.52
Mmax,sust =	23.59	54.59	64.42	51.80
Ie,d (m^4)=	0.00687	0.00397	0.00415	0.00426
Ie,d+l (m^4)=	0.00455	0.00229	0.00207	0.00228
Ie,sust (m^4)=	0.00687	0.00687	0.00687	0.00687
e/1+50r =	1.97/0.79	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	0.249	3.399	-0.494	2.128
ai,l =	0.919	7.349	-2.480	4.731
at,sust =	0.191	1.533	-0.200	1.029
ai,l =	L/ 5117	L/ 957	L/ 1911	L/ 1151
(ai+at),t2-t1	L/ 3927	L/ 698	L/ 1661	L/ 837

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	59.34	6.33	0.	0.	0.25	0.00	100	-
235	25.86	8.32	59.34	6.33	0.	1.27	0.25	0.01	-	-
350	37.19	11.63	59.34	6.33	0.	1.84	0.25	0.01	-	-
470	48.09	14.56	59.34	6.33	0.	2.38	0.25	0.02	-	-
705	66.70	18.72	59.34	6.33	0.	3.31	0.25	0.03	-	-
940	81.69	20.81	56.05	4.45	0.	4.07	0.25	0.03	-	-
1175	93.05	20.82	40.63	-4.39	0.	4.65	0.25	0.04	-	-
1410	100.78	18.75	25.21	-13.23	0.	5.04	0.25	0.04	-	-
1645	104.90	14.60	9.79	-22.07	0.	5.25	0.25	0.04	-	-
1880	105.38	8.37	-5.63	-30.92	0.	5.28	0.25	0.04	-	-
2115	102.25	0.07	-21.06	-40.45	0.	5.12	0.25	0.04	-	-
2350	95.49	-10.31	-36.48	-55.87	0.50	4.77	0.25	0.04	100	-
2585	85.10	-22.77	-51.90	-71.29	1.12	4.25	0.25	0.03	-	-
2820	71.09	-37.31	-63.67	-86.71	1.85	3.54	0.25	0.03	-	-
3055	53.46	-53.93	-72.51	-102.14	2.69	2.65	0.25	0.03	-	-
3290	32.20	-72.62	-81.35	-117.56	3.65	1.59	0.25	0.05	-	-
3525	7.32	-93.40	-90.19	-132.98	4.73	0.36	0.25	0.06	-	-
3760	-21.19	-116.25	-99.04	-148.40	5.93	0.	0.29	0.08	-	-
3995	-53.32	-141.17	-104.68	-158.25	7.27	0.	0.34	0.09	-	-
4230	-89.07	-171.09	-104.68	-158.25	8.91	0.	0.34	0.11	-	-
4450	-125.83	-212.12	-104.68	-158.25	11.22	0.	0.34	0.14	-	-
4465	-128.45	-215.03	-104.68	-158.25	11.22	0.	0.34	0.14	-	-
4700	-171.45	-262.59	-104.68	-158.25	11.22	0.	0.34	0.14	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=2										
0	-171.45	-262.59	190.99	107.71	10.75	0.	0.54	0.14	100	-
250	-138.27	-203.93	190.99	107.71	10.75	0.	0.54	0.14	-	-
352	-125.41	-181.18	190.99	107.71	9.47	0.	0.54	0.12	-	-
704	-71.24	-107.89	190.99	107.71	5.49	0.	0.54	0.07	-	-
1056	-11.01	-48.66	173.53	97.70	2.42	0.	0.43	0.03	-	-
1408	41.10	-15.76	150.43	84.46	0.77	2.03	0.30	0.02	-	-
1760	86.11	12.16	127.33	71.21	0.	4.30	0.25	0.03	-	-
2112	124.62	34.89	104.23	57.97	0.	6.27	0.25	0.05	-	-
2464	155.00	52.96	81.13	44.72	0.	7.85	0.25	0.06	-	-
2816	177.25	66.38	58.03	31.48	0.	9.01	0.25	0.07	-	-
3168	191.36	75.12	34.93	18.23	0.	9.76	0.25	0.07	-	-
3520	197.35	79.21	11.83	-2.13	0.	10.08	0.25	0.08	100	-
3872	195.20	78.64	-5.87	-25.23	0.	9.97	0.25	0.08	-	-
4224	184.93	73.40	-19.11	-48.33	0.	9.42	0.25	0.07	-	-
4576	166.52	63.50	-32.35	-71.43	0.	8.45	0.25	0.06	-	-
4928	139.98	48.94	-45.60	-94.53	0.	7.06	0.25	0.05	-	-
5280	105.30	29.71	-58.84	-117.63	0.	5.28	0.25	0.04	-	-
5632	64.24	5.83	-72.09	-140.73	0.	3.19	0.25	0.02	-	-
5984	15.55	-22.72	-85.33	-163.83	1.12	0.76	0.38	0.01	-	-
6336	-41.28	-83.23	-95.34	-181.29	4.20	0.	0.48	0.05	-	-
6688	-81.69	-153.10	-95.34	-181.29	7.92	0.	0.48	0.10	-	-
6790	-93.30	-174.86	-95.34	-181.29	9.12	0.	0.48	0.12	-	-
7040	-123.39	-231.10	-95.34	-181.29	9.12	0.	0.48	0.12	100	-
Span=3										
0	-123.39	-231.10	129.93	68.22	9.83	0.	0.25	0.13	100	-
237	-91.57	-189.86	129.93	68.22	9.83	0.	0.25	0.13	-	-
250	-89.93	-187.70	129.93	68.22	9.83	0.	0.25	0.13	-	-
474	-63.43	-152.31	129.93	68.22	7.87	0.	0.25	0.10	-	-
711	-38.98	-127.92	129.93	68.22	6.55	0.	0.25	0.08	-	-
948	-16.86	-111.45	119.56	62.27	5.68	0.	0.25	0.07	-	-
1185	3.79	-97.08	104.01	53.35	4.92	0.18	0.25	0.06	-	-
1422	20.76	-84.84	88.46	44.44	4.28	1.02	0.25	0.05	-	-
1659	34.04	-74.70	72.90	33.17	3.76	1.68	0.25	0.05	-	-
1896	43.64	-66.68	57.35	17.61	3.34	2.16	0.25	0.04	-	-
2133	49.55	-60.77	41.80	2.06	3.04	2.45	0.25	0.04	-	-
2370	51.77	-56.98	26.24	-13.50	2.85	2.56	0.25	0.04	100	-
2607	50.31	-55.30	10.69	-29.05	2.76	2.49	0.25	0.04	-	-
2844	45.16	-55.73	-4.86	-44.60	2.78	2.23	0.25	0.04	-	-
3081	36.32	-58.28	-15.20	-60.16	2.91	1.79	0.25	0.04	-	-
3318	23.80	-62.94	-24.12	-75.71	3.15	1.17	0.25	0.04	-	-
3555	7.59	-69.71	-33.04	-91.26	3.50	0.37	0.25	0.04	-	-
3792	-12.30	-78.60	-41.96	-106.82	3.96	0.	0.25	0.05	-	-
4029	-31.36	-90.11	-47.90	-117.19	4.55	0.	0.25	0.06	-	-
4266	-52.79	-114.61	-47.90	-117.19	5.84	0.	0.25	0.07	-	-
4490	-76.43	-147.15	-47.90	-117.19	7.59	0.	0.25	0.10	-	-
4503	-77.90	-149.14	-47.90	-117.19	7.59	0.	0.25	0.10	-	-
4740	-106.70	-187.36	-47.90	-117.19	7.59	0.	0.25	0.10	100	-

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Detailed results - at 1/20 of span, support faces, etc.

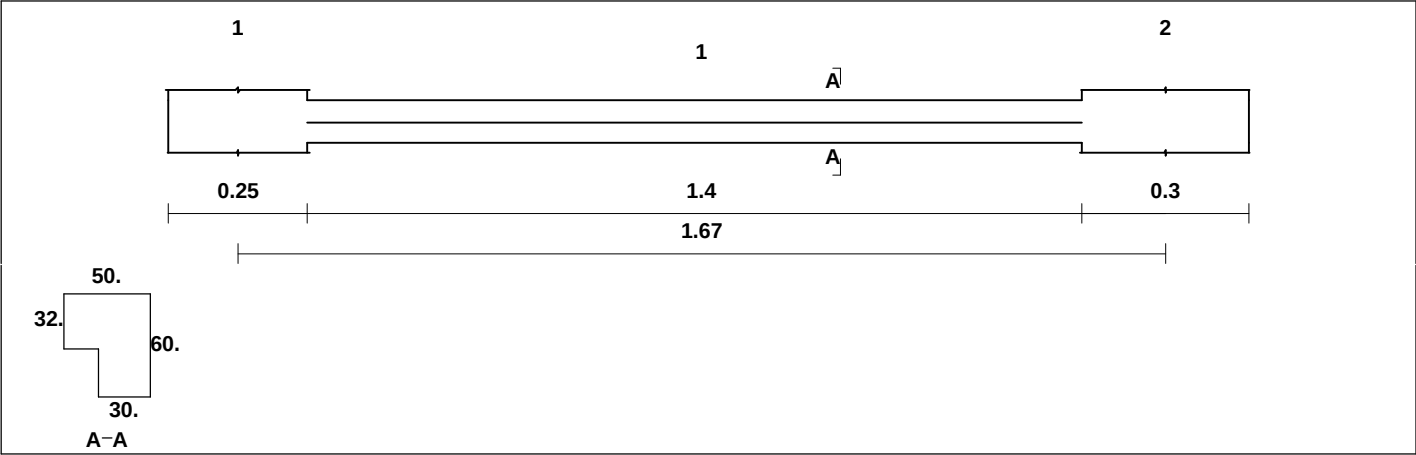
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=4										
0	-106.70	-187.36	161.37	92.39	6.99	0.	0.36	0.09	100	-
250	-77.35	-136.10	161.37	92.39	6.99	0.	0.36	0.09	-	-
273	-74.77	-131.60	161.37	92.39	6.75	0.	0.36	0.09	-	-
545	-34.03	-80.90	161.37	92.39	4.08	0.	0.36	0.05	-	-
818	9.36	-38.14	159.53	91.33	1.89	0.46	0.35	0.02	-	-
1090	47.72	-13.58	141.68	81.10	0.67	2.36	0.25	0.02	-	-
1363	81.34	8.26	123.76	70.83	0.	4.05	0.25	0.03	-	-
1635	109.98	27.23	105.91	60.59	0.	5.52	0.25	0.04	-	-
1908	133.84	43.47	87.99	50.32	0.	6.75	0.25	0.05	-	-
2180	152.75	56.87	70.14	40.09	0.	7.73	0.25	0.06	-	-
2453	166.84	67.51	52.23	29.81	0.	8.47	0.25	0.06	-	-
2725	176.02	75.33	34.38	19.58	0.	8.95	0.25	0.07	100	-
2998	180.35	80.38	16.46	6.91	0.	9.18	0.25	0.07	-	-
3270	179.80	82.62	3.12	-10.95	0.	9.15	0.25	0.07	-	-
3543	174.37	82.07	-7.16	-28.86	0.	8.86	0.25	0.07	-	-
3815	164.09	78.73	-17.39	-46.71	0.	8.32	0.25	0.06	-	-
4088	148.89	72.58	-27.66	-64.63	0.	7.53	0.25	0.06	-	-
4360	128.89	63.66	-37.90	-82.48	0.	6.49	0.25	0.05	-	-
4633	103.93	51.91	-48.17	-100.39	0.	5.21	0.25	0.04	-	-
4905	74.19	37.42	-49.19	-102.17	0.	3.69	0.25	0.03	-	-
5178	39.46	20.07	-49.19	-102.17	0.	1.95	0.25	0.01	-	-
5200	36.45	18.55	-49.19	-102.17	0.	1.80	0.25	0.01	-	-
5450	0.00	0.00	-49.19	-102.17	0.	0.	0.25	0.00	100	-

Moment / Shear Envelope (Factored) Units:kN,meter										
	1	2	3	4	5					
	1		2		3		4		5	
	1		2		3		4		5	
Min M	0.0	-262.6		-231.1		-187.4			0.0	
Max M	0.0	-171.5		-123.4		-106.7			0.0	
MspMn		-212.1		-174.9		-147.1			18.6	
MspMx		-125.8		-93.3	-89.9	-76.4	-77.4		36.5	
M Max			197.3		51.8		180.4			
M Min			79.2		-55.3		82.6			
Mmn=0 @	0.0	2.6	1.6	1.3	0.0	4.7	1.3		5.5	
Mmx=0 @	0.0	1.1	1.1	1.0	1.1	1.1	0.8		5.5	
mx -M @			1.1		1.1		0.8			
mx +M @			3.5		2.4		3.0			
V max		-134.4		-125.1		-77.6			-78.9	
V min		-210.1		-233.1		-169.0			-154.0	
DReac		255.7		222.6		204.6			84.9	
LReac		197.2		192.3		177.7			69.1	
Max R		452.9		414.9		382.2			154.0	
Min R		328.1		267.1		251.4			78.9	

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Geometry

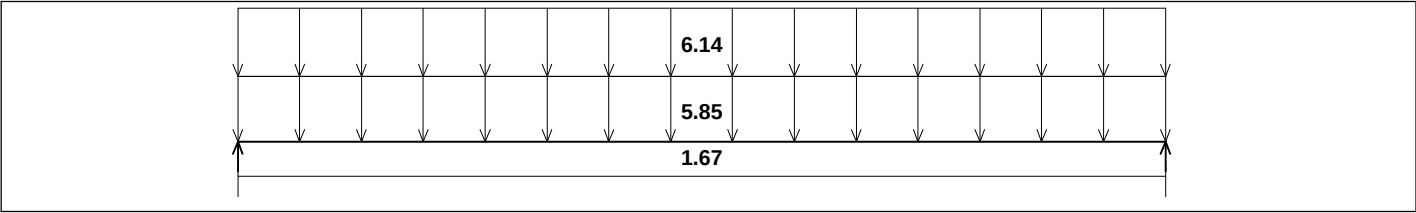
Units:meter,cm



Loading

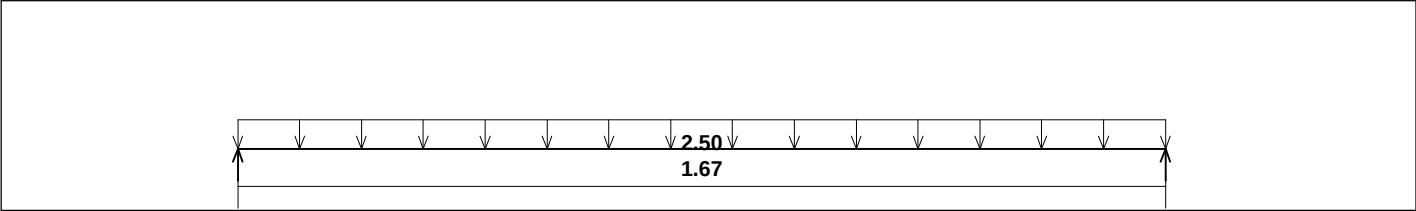
load group no. 1
Dead load - Service

Units:kN,meter



Live load - Service

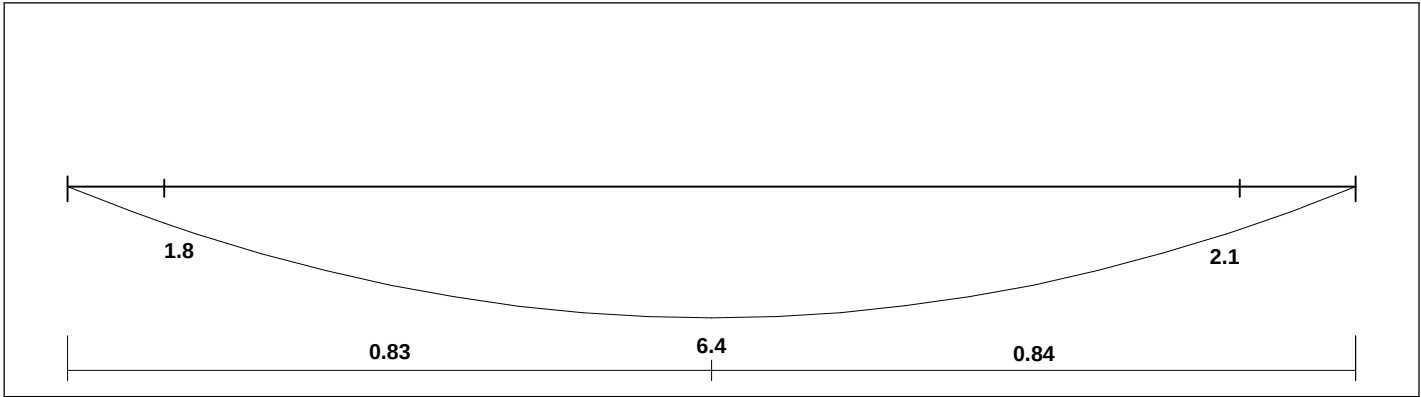
Load factors: 1.20,1.20/1.60,0.00



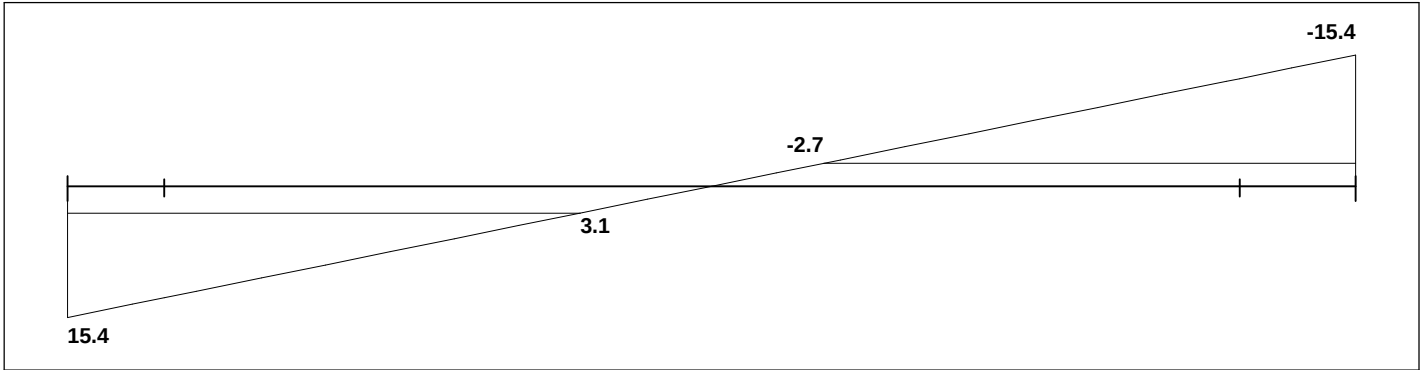
Loads (kN,meter)	
1	
Self.Wt.	5.86
Uni D	6.14
L	2.50

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

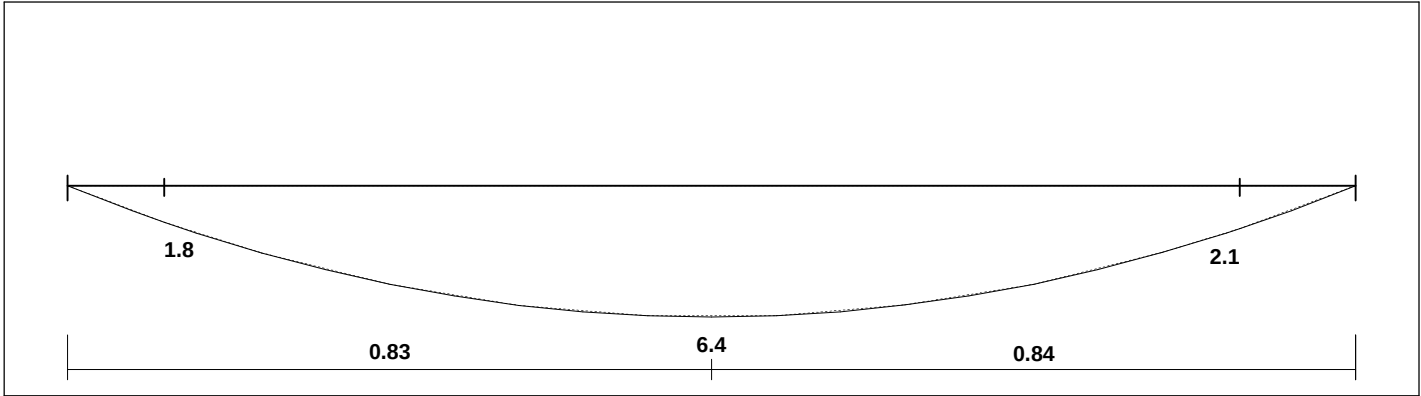


Reactions

Factored			
DeadR	12.02		12.02
LiveR	3.34		3.34
Max R	15.36		15.36
Min R	15.36		15.36
Service			
DeadR	10.02		10.02
LiveR	2.09		2.09
Max R	12.11		12.11
Min R	12.11		12.11

Moment/Shear Envelope (Factored) Units:kN,meter

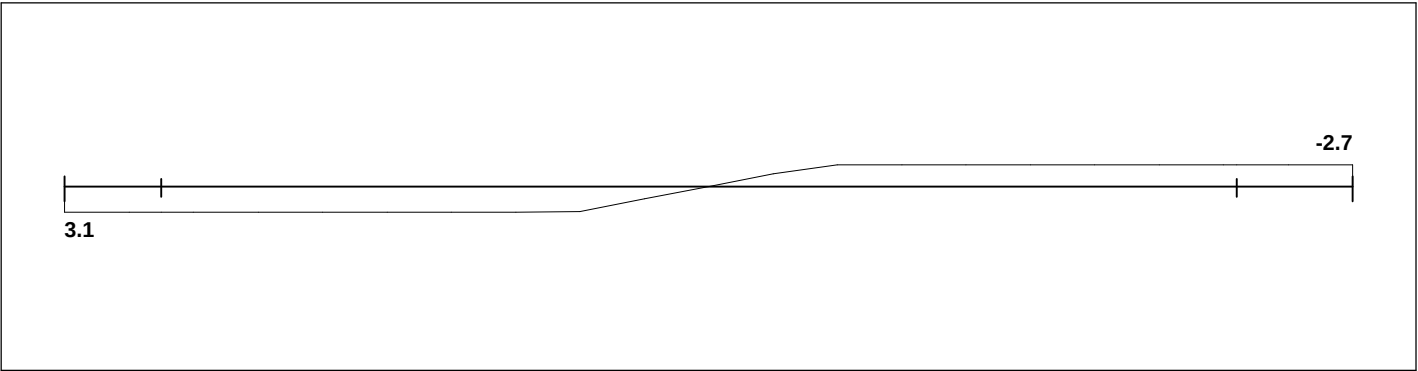
Moments: spans 1 to 1 Load pattern: XX



Beam 107	Code: ACI318-02
Project: 1	Page: 192
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Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

	1	2
	1	
Min M	0.0	0.0
Max M	0.0	0.0
MspMn	1.8	2.1
MspMx	1.8	2.1
M Max		
M Min		
Mmn=0 @	0.0	1.7
Mmx=0 @	0.0	1.7
mx -M @		
mx +M @		
V max	15.4	-15.4
V min	15.4	-15.4
DReac	12.0	12.0
LReac	3.3	3.3
Max R	15.4	15.4
Min R	15.4	15.4

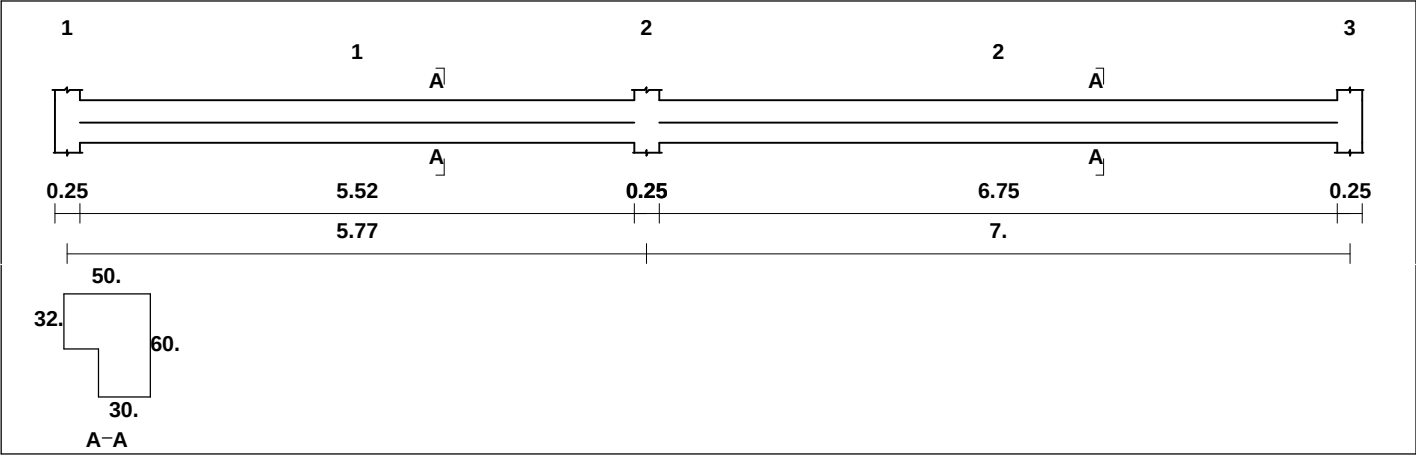
Individual load cases - factored Units:kN,meter

	1	2
	1	
Min M	0.0	0.0
M Max		
Mmx=0 @	0.0	1.7
mx +M		
V max	15.4	-15.4

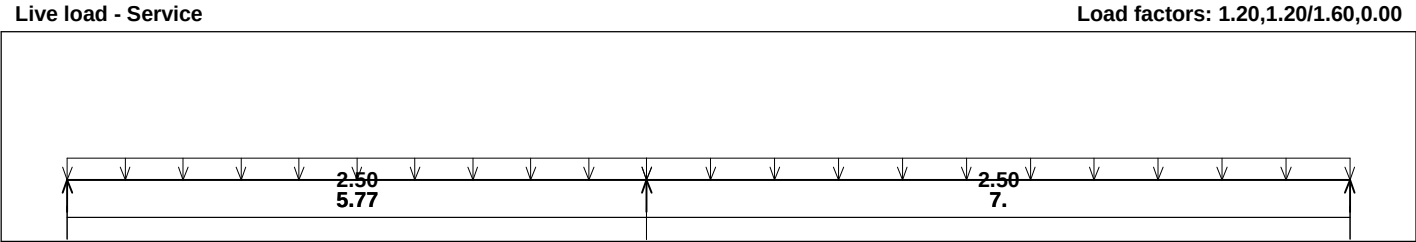
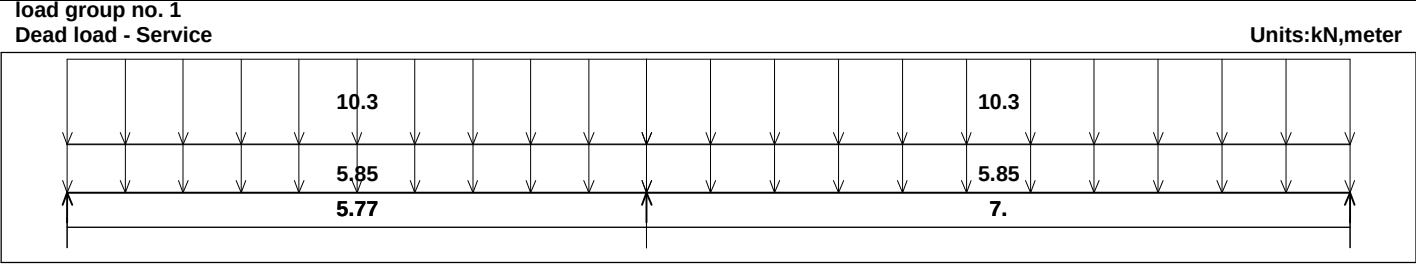
Beam 108	Code: ACI318-02
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Designed by:	Date: 04/07/14

Geometry

Units: meter, cm



Loading

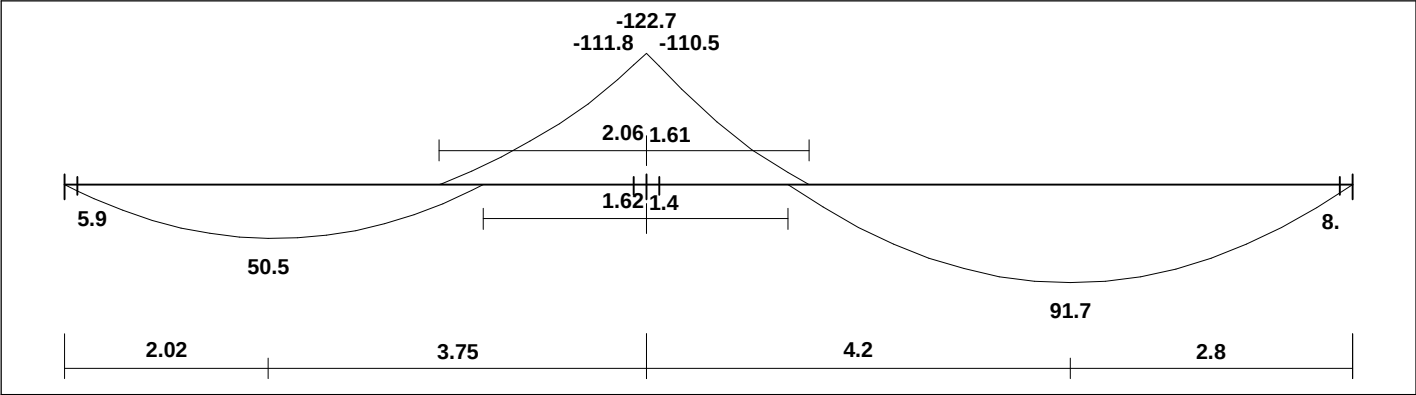


Loads (kN, meter)					
1			2		
Self. Wt.	5.86	Self. Wt.	5.86		
Uni D	10.33	L	2.50	Uni D	10.33
			L		2.50

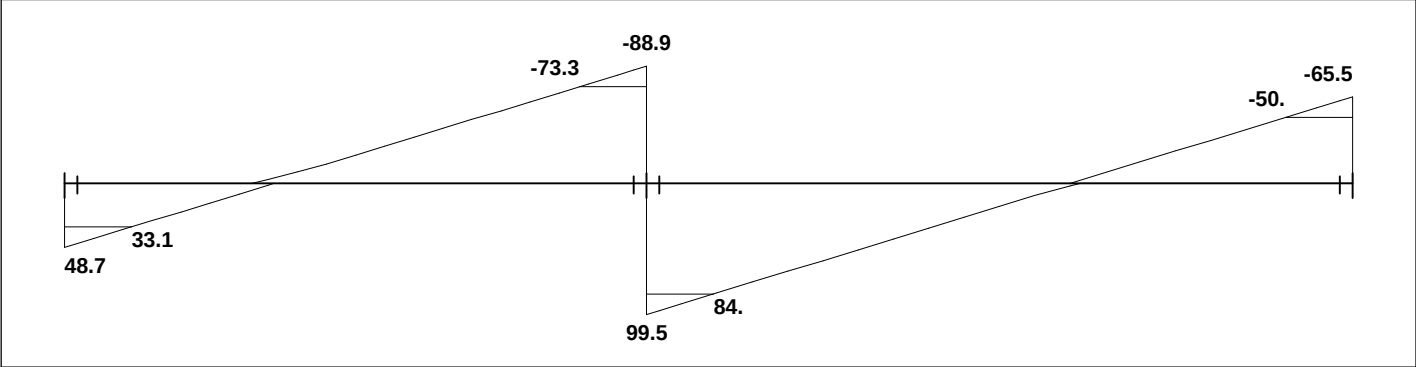
Beam 108	Code: ACI318-02
Project: 1	Page: 193
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



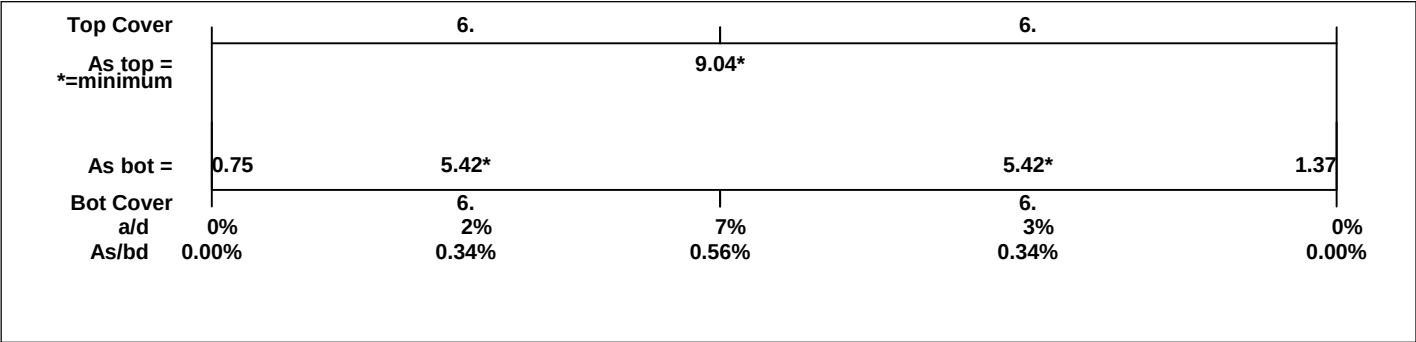
Reactions

Factored

DeadR	38.42	156.23	53.46
LiveR	10.24	32.16	12.08
Max R	48.65	188.4	65.55
Min R	36.09	170.15	52.39
Service			
DeadR	32.01	130.19	44.55
LiveR	6.4	20.1	7.55
Max R	38.41	150.3	52.1
Min R	30.56	138.89	43.88

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement $f_y = 420$

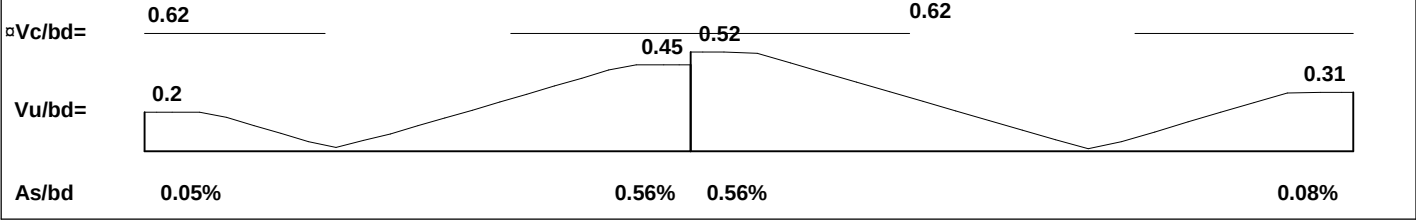


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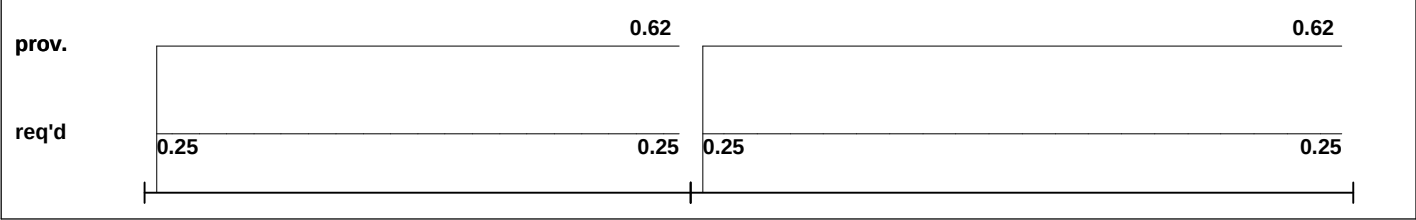
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

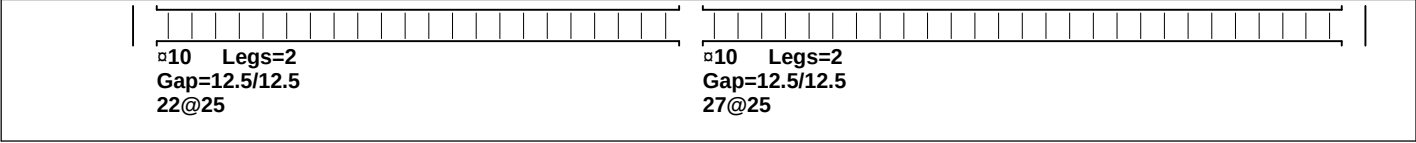
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	2
	0.	0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00110	0.00110
Mcr =	62.86	62.86
Mmax,d =	31.63	61.28
Mmax,d+l =	39.46	72.62
Mmax,sust =	20.56	39.83
Ie,d (m^4)=	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00484
Ie,sust (m^4)=	0.00687	0.00687
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	0.395	1.552
ai,l =	0.158	1.111
at,sust =	0.309	1.211
ai,l =	L/36448	L/ 6300
(ai+at),t2-t1	L/ 9534	L/ 2442

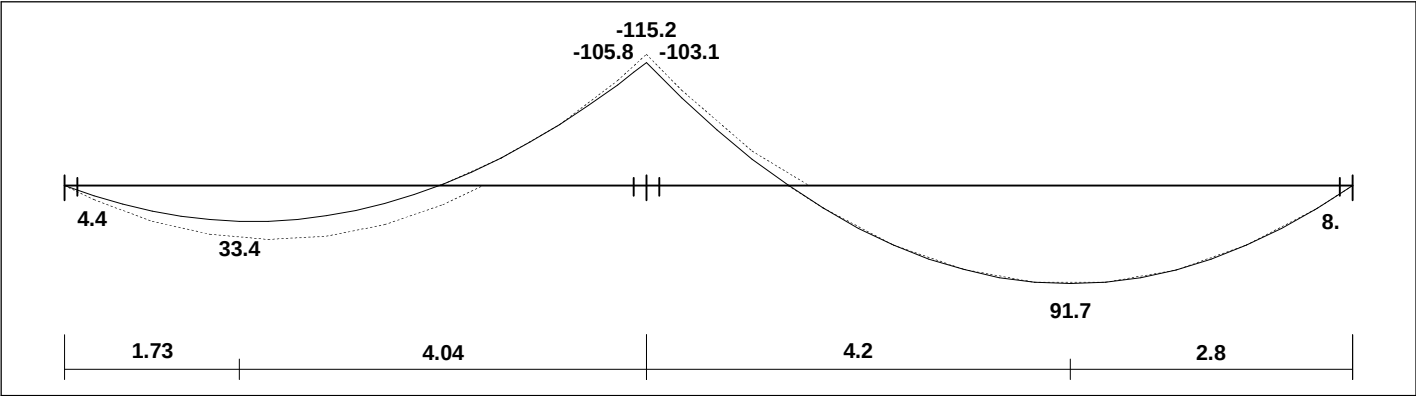
Beam 108	Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	33.07	23.17	0.	0.	0.25	0.00	100	-
125	5.90	4.36	33.07	23.17	0.	0.29	0.25	0.00	-	-
288	13.04	9.59	33.07	23.17	0.	0.64	0.25	0.00	-	-
577	24.17	17.59	33.07	23.17	0.	1.19	0.25	0.01	-	-
865	33.32	23.95	28.39	19.28	0.	1.64	0.25	0.01	-	-
1154	40.54	28.71	21.62	13.67	0.	2.00	0.25	0.02	-	-
1442	45.80	31.84	14.87	8.07	0.	2.27	0.25	0.02	-	-
1731	49.12	33.36	8.10	2.46	0.	2.43	0.25	0.02	-	-
2019	50.48	33.26	1.35	-3.14	0.	2.50	0.25	0.02	-	-
2308	49.89	31.54	-5.42	-8.75	0.	2.47	0.25	0.02	-	-
2596	47.35	28.22	-12.17	-14.50	0.	2.34	0.25	0.02	-	-
2885	42.86	23.26	-18.94	-21.27	0.	2.12	0.25	0.02	100	-
3173	36.43	16.70	-25.56	-28.02	0.	1.80	0.25	0.01	-	-
3462	28.03	8.50	-31.18	-34.79	0.	1.38	0.25	0.01	-	-
3750	17.71	-1.28	-36.77	-41.53	0.06	0.87	0.25	0.01	-	-
4039	5.40	-12.72	-42.39	-48.31	0.62	0.26	0.25	0.01	-	-
4327	-8.81	-25.73	-47.98	-55.05	1.27	0.	0.25	0.02	-	-
4616	-25.03	-40.41	-53.60	-61.82	2.01	0.	0.25	0.03	-	-
4904	-43.14	-56.65	-59.19	-68.57	2.83	0.	0.25	0.04	-	-
5193	-63.26	-75.35	-63.10	-73.28	3.79	0.	0.25	0.05	-	-
5481	-85.26	-98.02	-63.10	-73.28	4.97	0.	0.25	0.06	-	-
5645	-98.66	-111.79	-63.10	-73.28	5.69	0.	0.25	0.07	-	-
5770	-109.29	-122.72	-63.10	-73.28	5.69	0.	0.25	0.07	100	-
Span=2										
0	-109.29	-122.72	83.95	70.69	5.62	0.	0.25	0.07	100	-
125	-98.99	-110.46	83.95	70.69	5.62	0.	0.25	0.07	-	-
350	-81.21	-89.32	83.95	70.69	4.51	0.	0.25	0.06	-	-
700	-52.02	-58.79	83.13	70.01	2.94	0.	0.25	0.04	-	-
1050	-24.73	-32.20	74.93	63.21	1.59	0.	0.25	0.02	-	-
1400	-0.32	-11.27	66.73	56.41	0.55	0.	0.25	0.01	-	-
1750	21.23	7.29	58.53	49.61	0.	1.04	0.25	0.01	-	-
2100	39.91	23.46	50.33	42.81	0.	1.97	0.25	0.02	-	-
2450	55.71	37.26	42.13	36.01	0.	2.76	0.25	0.02	-	-
2800	68.65	48.67	33.93	29.21	0.	3.41	0.25	0.03	-	-
3150	78.71	57.70	25.73	22.41	0.	3.92	0.25	0.03	-	-
3500	85.91	64.36	17.53	15.61	0.	4.29	0.25	0.03	100	-
3850	90.23	68.63	9.33	8.26	0.	4.51	0.25	0.03	-	-
4200	91.68	70.53	2.01	0.06	0.	4.58	0.25	0.03	-	-
4550	90.27	70.04	-4.79	-8.14	0.	4.51	0.25	0.03	-	-
4900	85.98	67.18	-11.59	-16.34	0.	4.29	0.25	0.03	-	-
5250	78.83	61.93	-18.39	-24.54	0.	3.93	0.25	0.03	-	-
5600	68.80	54.30	-25.19	-32.74	0.	3.42	0.25	0.03	-	-
5950	55.91	44.30	-31.99	-40.94	0.	2.77	0.25	0.02	-	-
6300	40.14	31.91	-38.79	-49.14	0.	1.98	0.25	0.02	-	-
6650	21.51	17.15	-39.47	-49.97	0.	1.06	0.25	0.01	-	-
6875	8.01	6.40	-39.47	-49.97	0.	0.39	0.25	0.00	-	-
7000	0.00	0.00	-39.47	-49.97	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

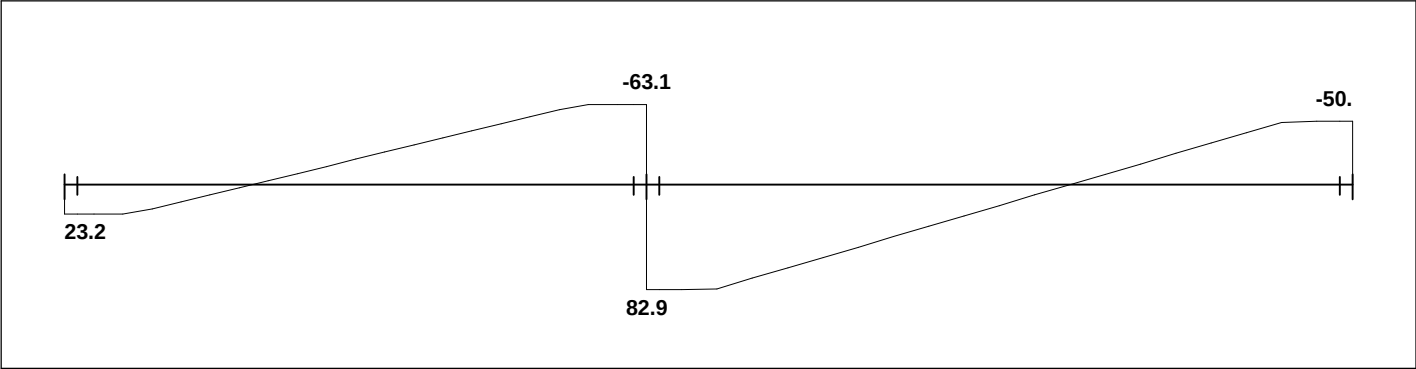
Moments: spans 1 to 2 Load pattern: xxXX



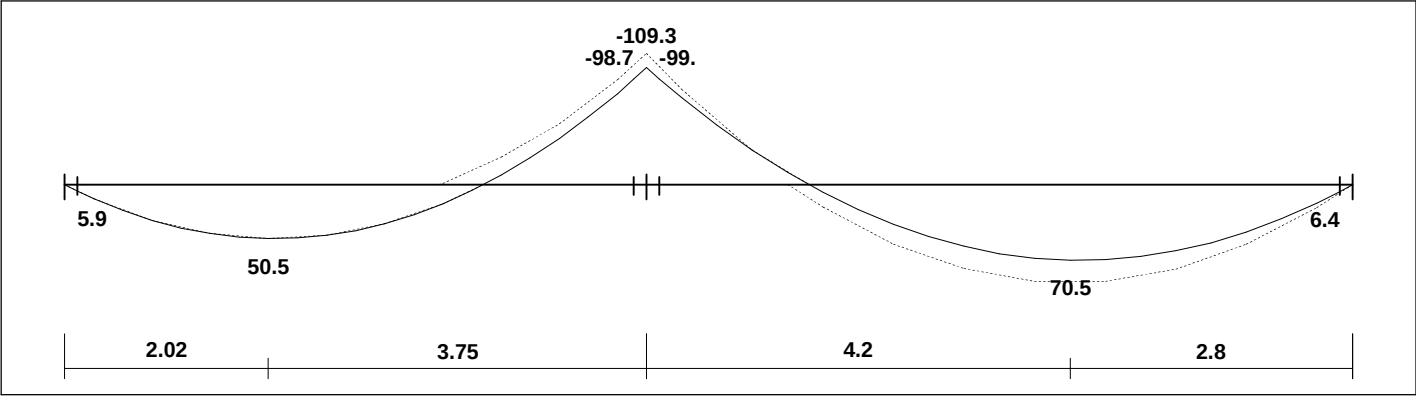
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Moment/Shear Envelope (Factored) Units:kN,meter

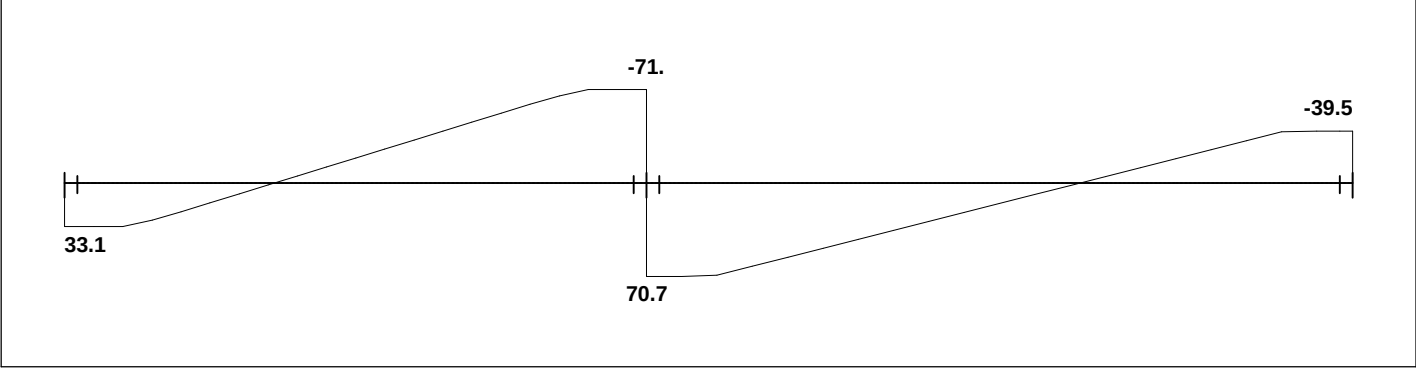
Shear



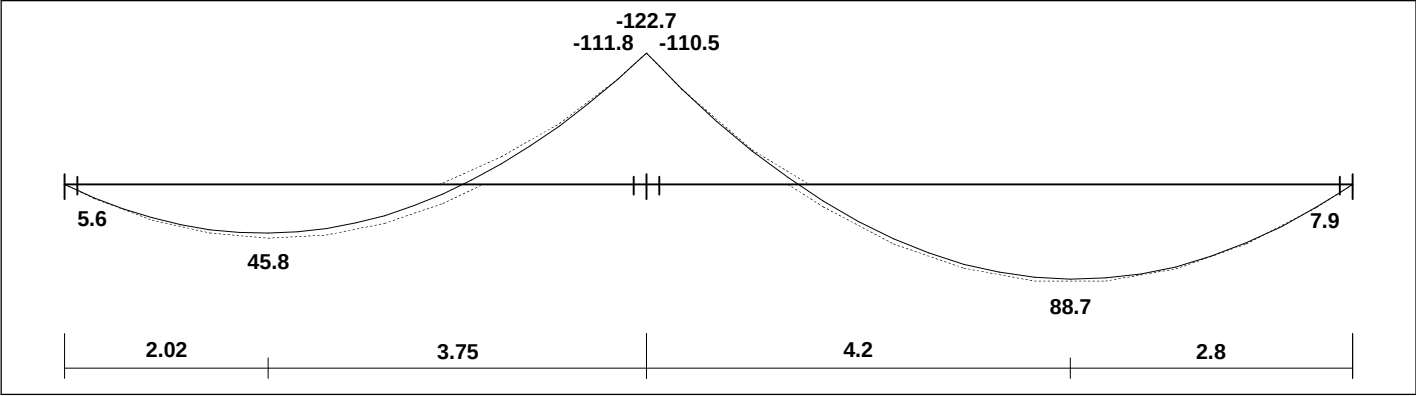
Moments: spans 1 to 2 Load pattern: XXxx



Shear

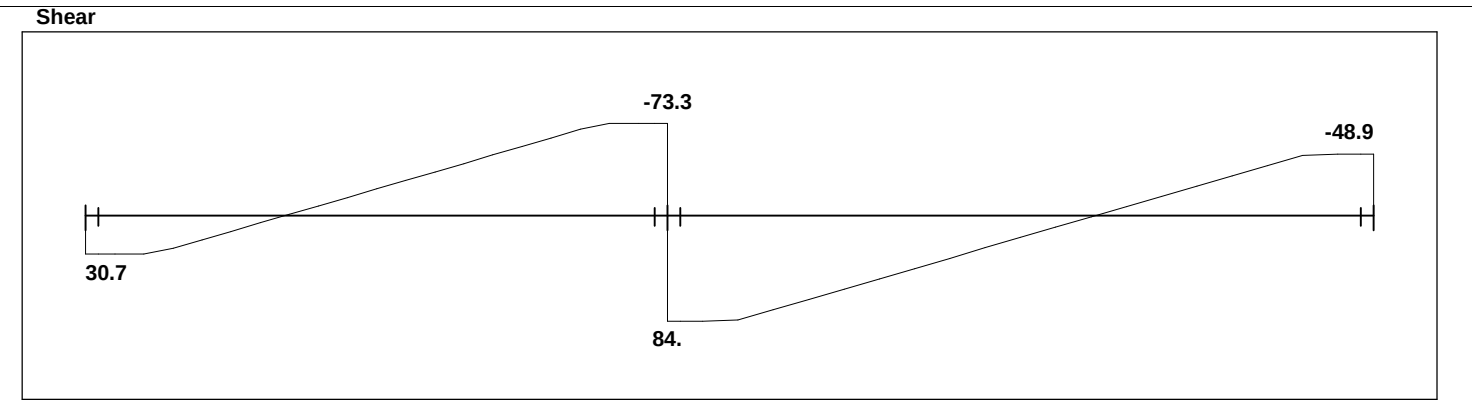


Moments: spans 1 to 2 Load pattern: XXXX



Beam 108	Code: ACI318-02
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Moment / Shear Envelope (Factored) Units:kN,meter



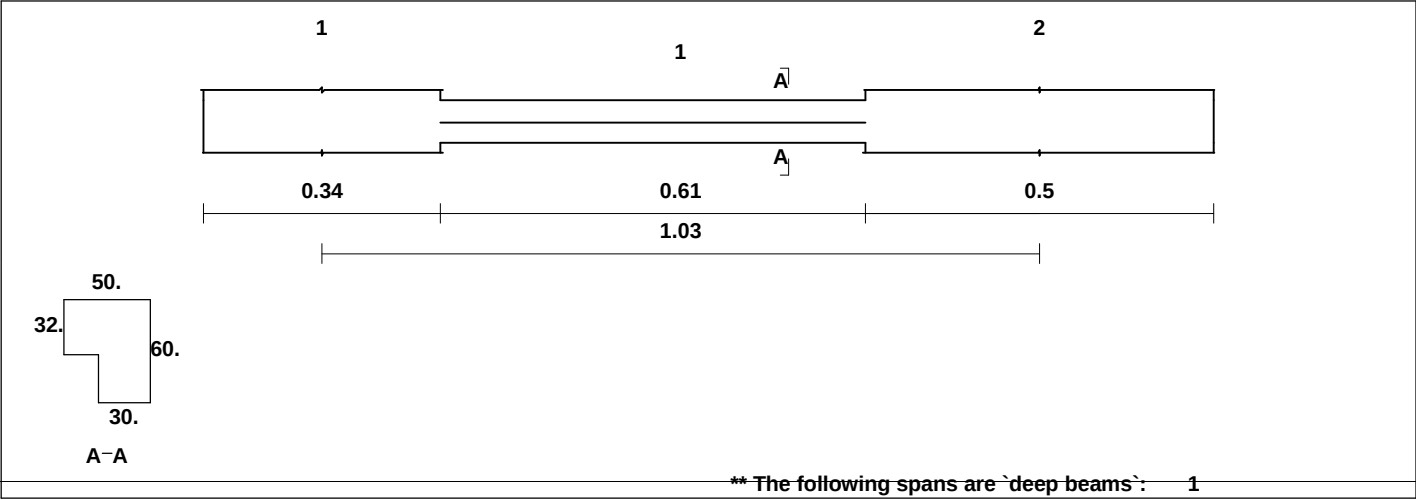
Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	3	
	1	2	2	3
Min M	0.0	-122.7	-122.7	0.0
Max M	0.0	-109.3	-109.3	0.0
MspMn	4.4	-111.8	-110.5	6.4
MspMx	5.9	-98.7	-99.0	8.0
M Max			91.7	
M Min			70.5	
Mmn=0 @	0.0	2.1	1.6	7.0
Mmx=0 @	0.0	1.6	1.4	7.0
mx -M @			1.4	
mx +M @			4.2	
V max	48.7	-76.0	99.5	-52.4
V min	36.1	-88.9	83.6	-65.5
DReac	38.4	156.2		53.5
LReac	10.2	32.2		12.1
Max R	48.7	188.4		65.5
Min R	36.1	170.1		52.4

Individual load cases - factored Units:kN,meter				
	1	2	3	
	1	2	2	3
Min M	0.0	-115.2	-115.2	0.0
M Max			91.7	
Mmx=0 @	0.0	2.1	1.4	7.0
mx +M			4.2	
V max	36.1	-76.0	98.5	-65.5
	1	2	3	
Min M	0.0	-109.3	-109.3	0.0
M Max			70.5	
Mmx=0 @	0.0	1.6	1.6	7.0
mx +M			4.2	
V max	48.7	-86.5	83.6	-52.4
	1	2	3	
Min M	0.0	-122.7	-122.7	0.0
M Max			88.7	
Mmx=0 @	0.0	1.8	1.5	7.0
mx +M			4.2	
V max	46.3	-88.9	99.5	-64.5

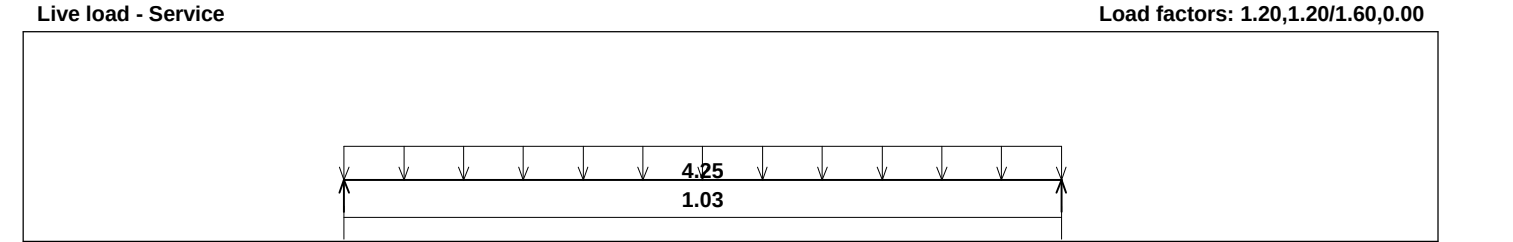
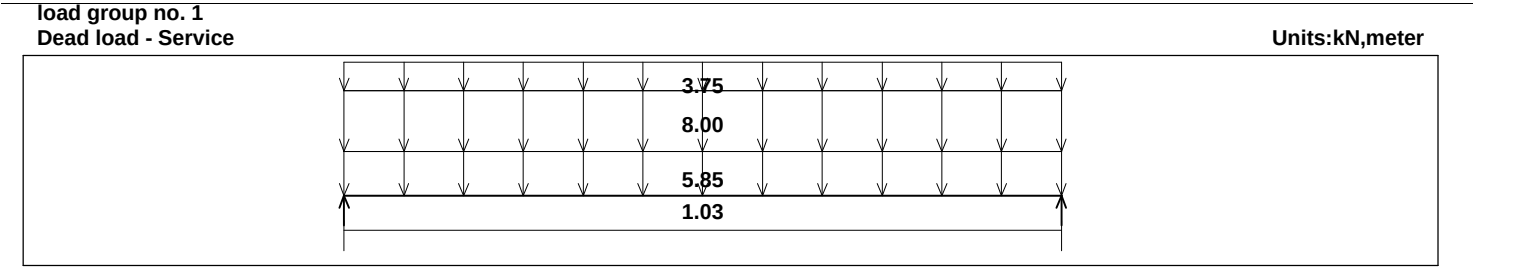
Beam 110	Code: ACI318-02
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Geometry

Units: meter, cm



Loading

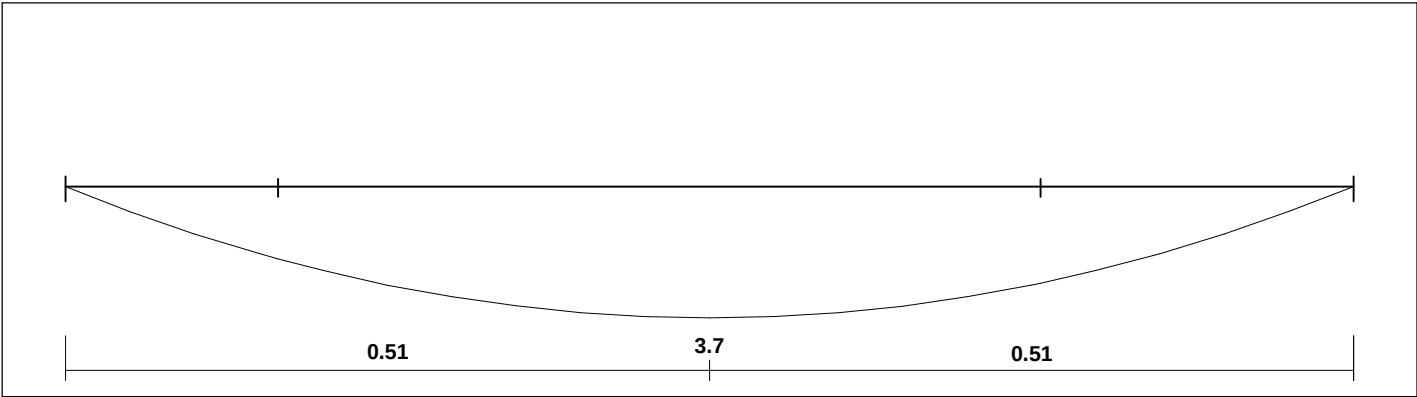


Loads (kN, meter)			
1			
Self. Wt.			5.86
Uni D	8.00	L	4.25
Uni D	3.75	L	0.000

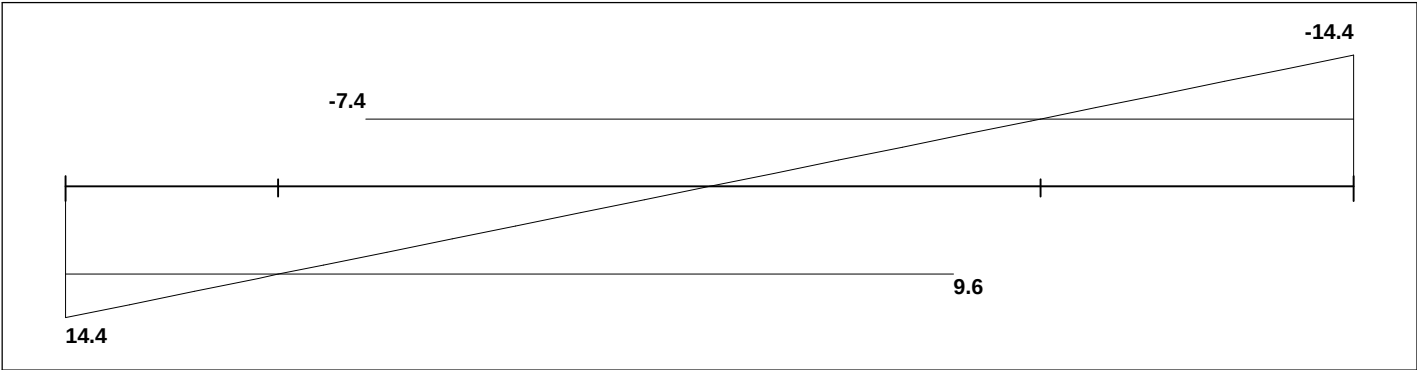
Beam 110	Code: ACI318-02
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Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear

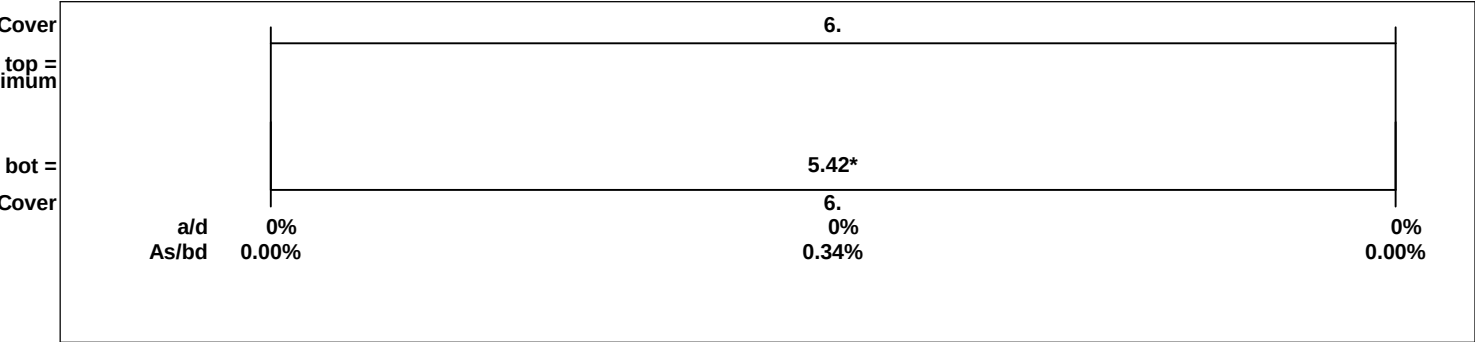


Reactions

Factored			
DeadR	10.88		10.88
LiveR	3.5		3.5
Max R	14.38		14.38
Min R	14.38		14.38
Service			
DeadR	9.07		9.07
LiveR	2.19		2.19
Max R	11.26		11.26
Min R	11.26		11.26

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Center

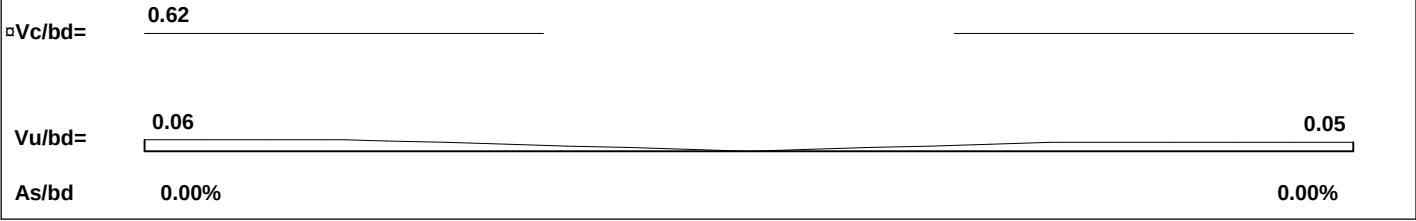


Beam 110	Code: ACI318-02
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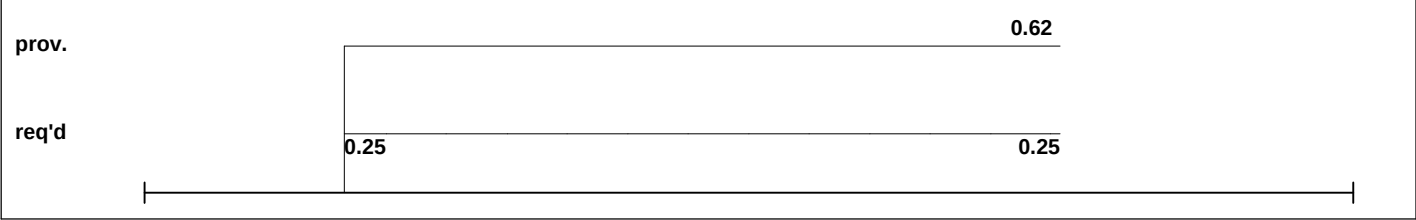
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

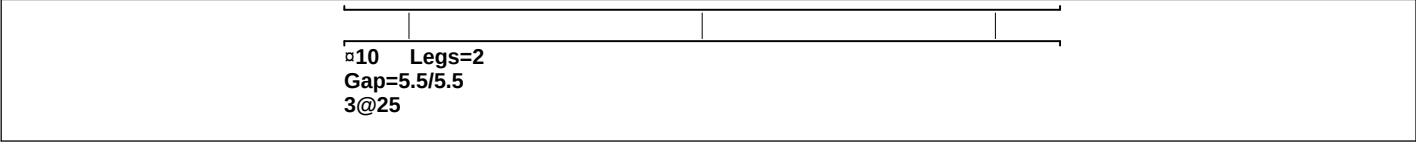
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	5.42
As	0.	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00110

Mcr = 62.86
Mmax,d = 2.33
Mmax,d+l = 2.90
Mmax,sust = 1.52

le,d (m^4)= 0.00687
le,d+l (m^4)= 0.00687
le,sust (m^4)= 0.00687

e/1+50r = 2.00/0.80
ai,d = 0.002
ai,l = 0.000
at,sust = 0.001
ai,l = L/*****
(ai+at),t2-t1 L/*****

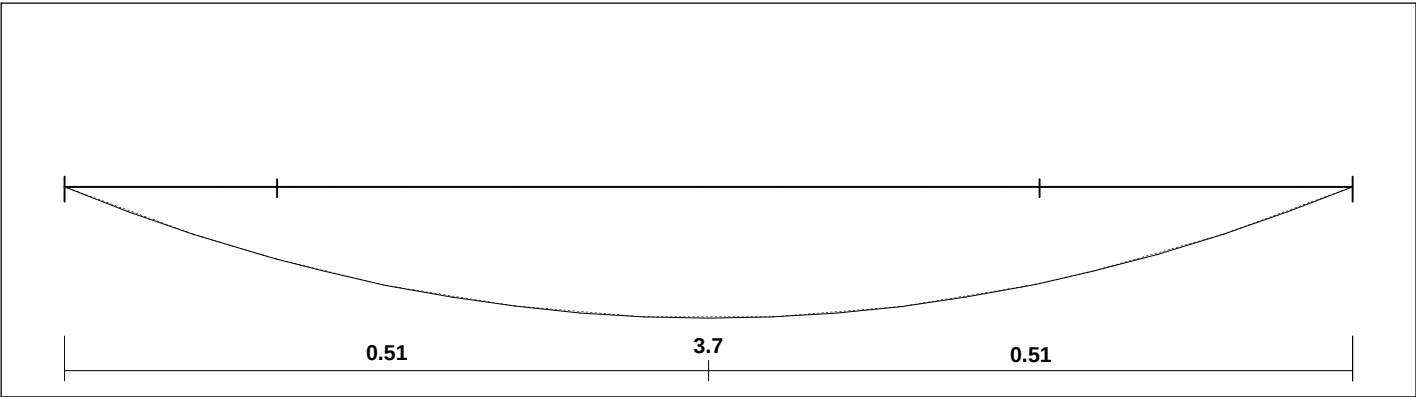
Beam 110	Code: ACI318-02
Project: 1	Page: 200
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

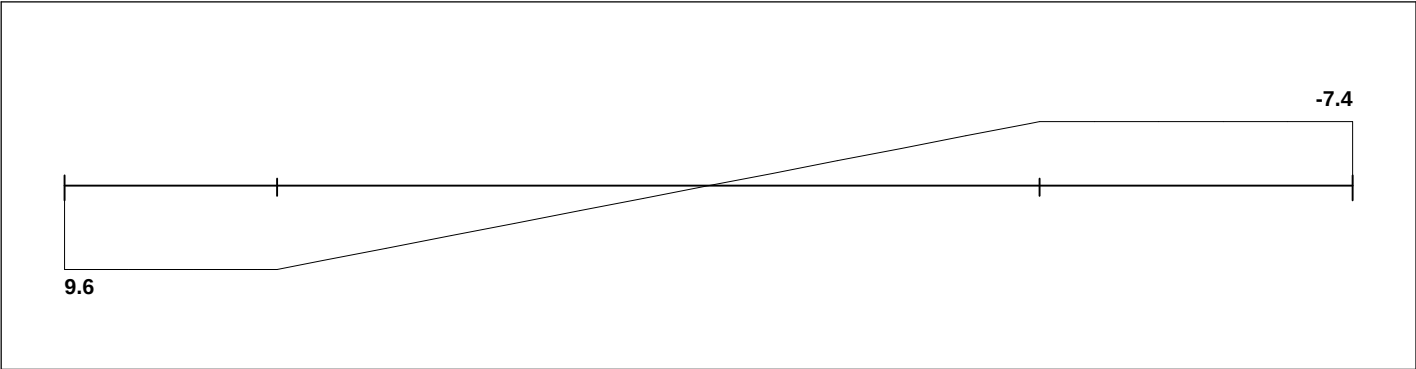
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	9.63	9.63	0.	0.	0.25	0.00	100	-
51	0.70	0.70	9.63	9.63	0.	0.03	0.25	0.00	-	-
103	1.33	1.33	9.63	9.63	0.	0.06	0.25	0.00	-	-
154	1.88	1.88	9.63	9.63	0.	0.09	0.25	0.00	-	-
170	2.04	2.04	9.63	9.63	0.	0.10	0.25	0.00	-	-
206	2.37	2.37	8.63	8.63	0.	0.11	0.25	0.00	-	-
257	2.77	2.77	7.21	7.21	0.	0.13	0.25	0.00	-	-
309	3.11	3.11	5.75	5.75	0.	0.15	0.25	0.00	-	-
360	3.37	3.37	4.33	4.33	0.	0.16	0.25	0.00	-	-
412	3.56	3.56	2.88	2.88	0.	0.17	0.25	0.00	-	-
463	3.67	3.67	1.45	1.45	0.	0.18	0.25	0.00	-	-
515	3.70	3.70	0.00	0.00	0.	0.18	0.25	0.00	100	-
566	3.67	3.67	-1.42	-1.42	0.	0.18	0.25	0.00	-	-
618	3.56	3.56	-2.88	-2.88	0.	0.17	0.25	0.00	-	-
669	3.37	3.37	-4.30	-4.30	0.	0.16	0.25	0.00	-	-
721	3.11	3.11	-5.75	-5.75	0.	0.15	0.25	0.00	-	-
772	2.78	2.78	-7.18	-7.18	0.	0.13	0.25	0.00	-	-
780	2.72	2.72	-7.40	-7.40	0.	0.13	0.25	0.00	-	-
824	2.37	2.37	-7.40	-7.40	0.	0.11	0.25	0.00	-	-
875	1.89	1.89	-7.40	-7.40	0.	0.09	0.25	0.00	-	-
927	1.33	1.33	-7.40	-7.40	0.	0.06	0.25	0.00	-	-
978	0.71	0.71	-7.40	-7.40	0.	0.03	0.25	0.00	-	-
1030	0.00	0.00	-7.40	-7.40	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1 Load pattern: XX



Shear



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Project: 1	Page: 201
Designed by:	Date: 04/07/14

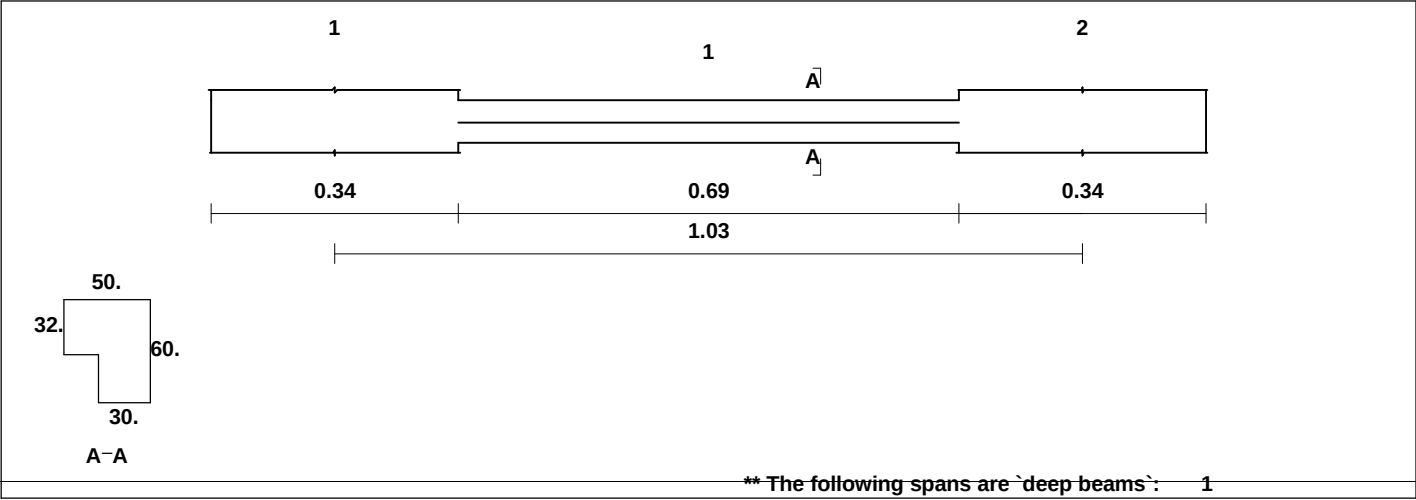
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	2.0	2.7	
MspMx	2.0	2.7	
M Max			
M Min			
Mmn=0 @	0.0	1.0	
Mmx=0 @	0.0	1.0	
mx -M @			
mx +M @			
V max	14.4	-14.4	
V min	14.4	-14.4	
DReac	10.9	10.9	
LReac	3.5	3.5	
Max R	14.4	14.4	
Min R	14.4	14.4	

Individual load cases - factored			Units:kN,meter
	1	2	
	1		
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.0	
mx +M			
V max	14.4	-14.4	

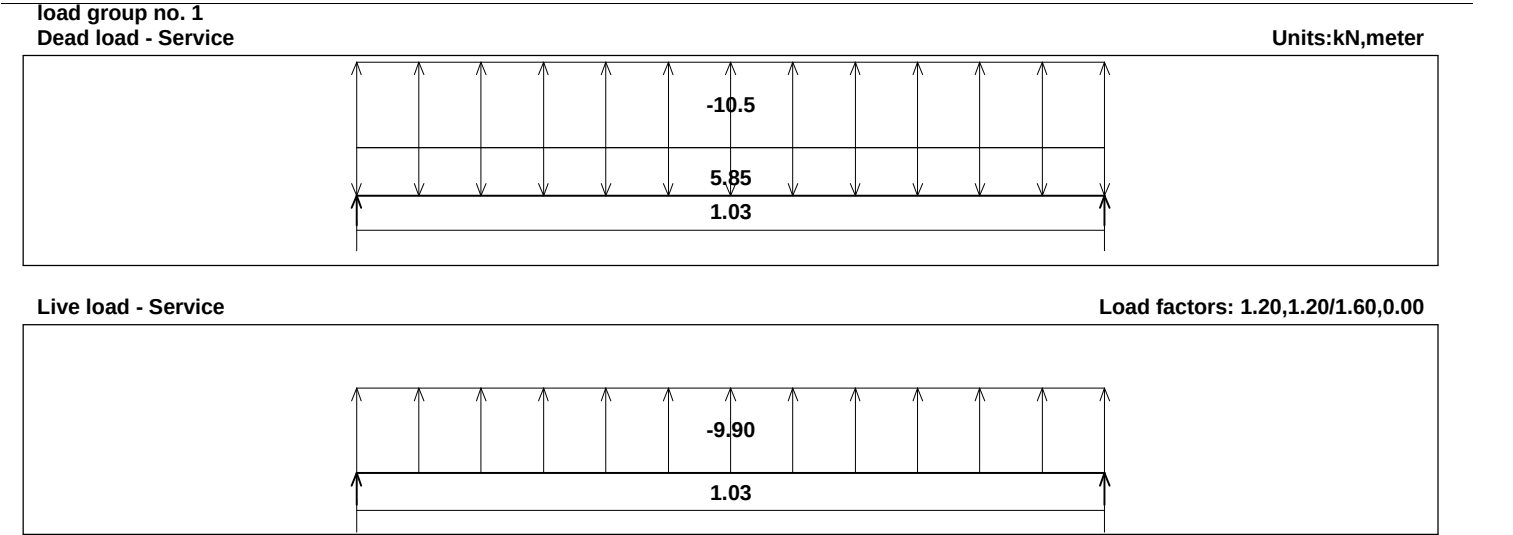
Beam 111	Code: ACI318-02
Project: 1	Page: 201
Designed by:	Date: 04/07/14

Geometry

Units: meter, cm



Loading



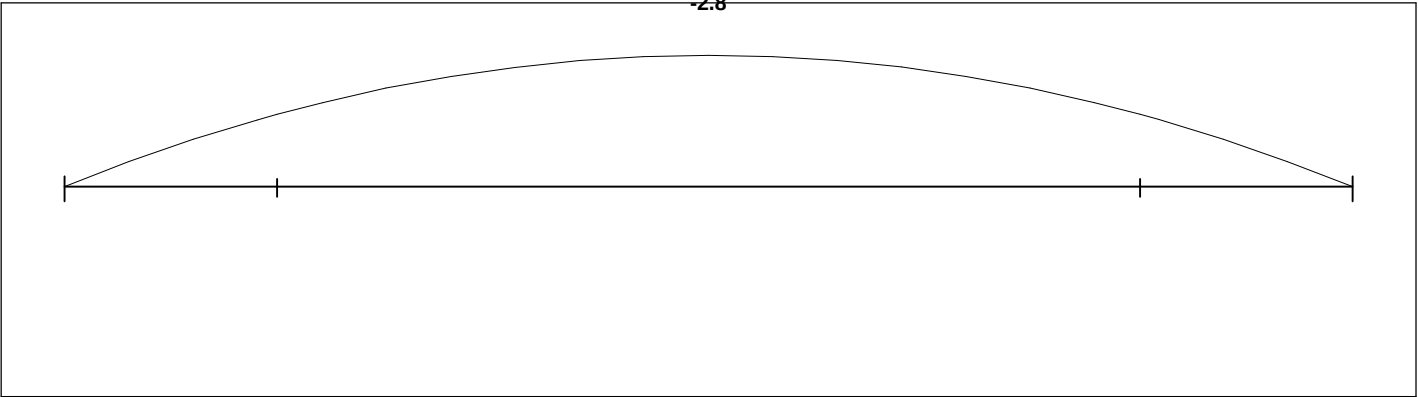
Loads	(kN, meter)
1	

Self. Wt.	5.86
Uni D	-10.5
L	-9.90

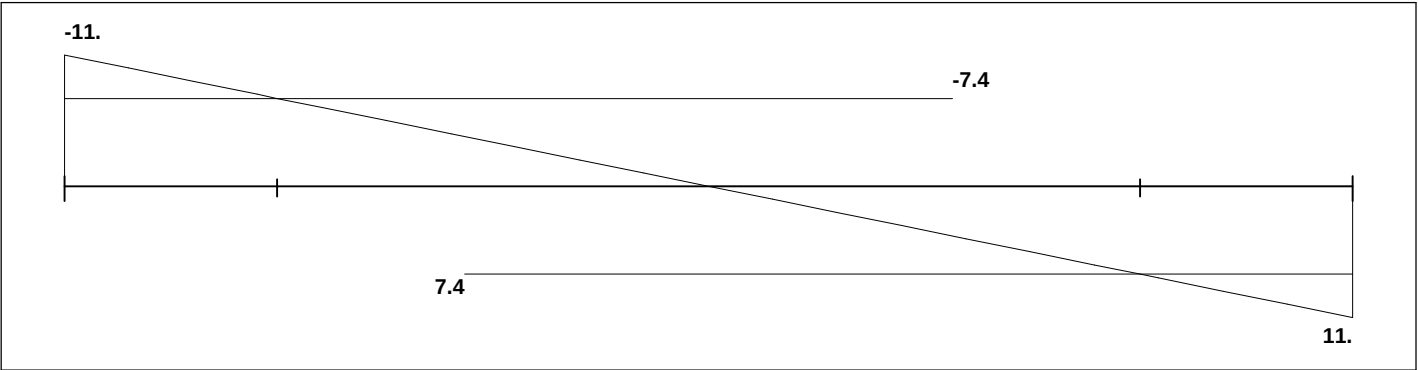
Beam 111	Code: ACI318-02
Project: 1	Page: 202
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



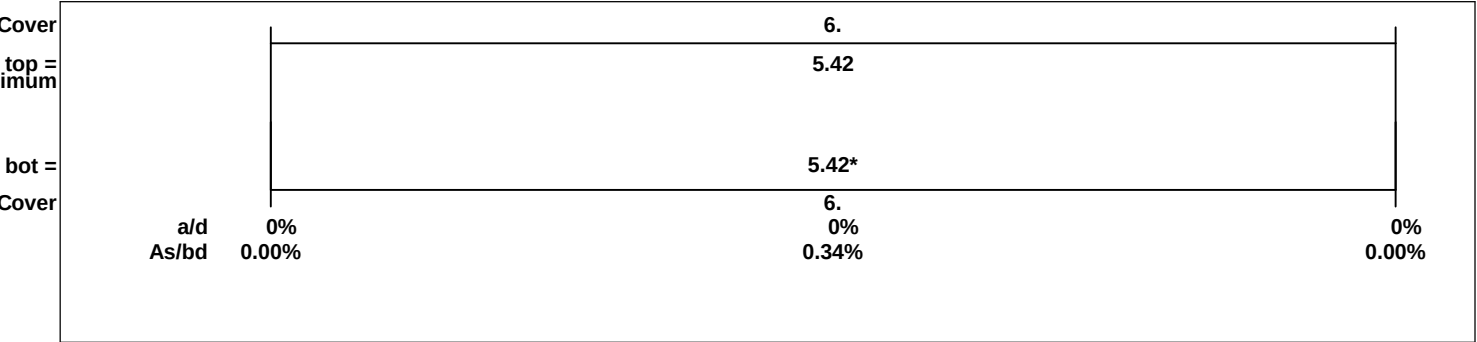
Reactions

Factored

DeadR	-2.87		-2.87
LiveR	-8.16		-8.16
Max R	-11.03		-11.03
Min R	-11.03		-11.03
Service			
DeadR	-2.39		-2.39
LiveR	-5.1		-5.1
Max R	-7.49		-7.49
Min R	-7.49		-7.49

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Center
Main reinforcement fy = 420

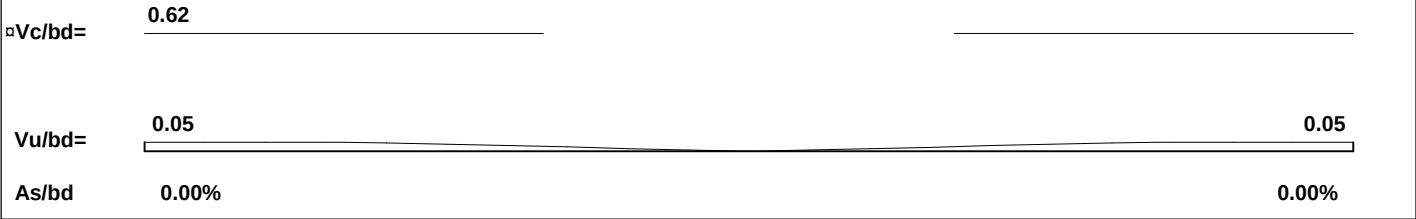


Beam 111	Code: ACI318-02
Project: 1	Page: 203
Designed by:	Date: 04/07/14

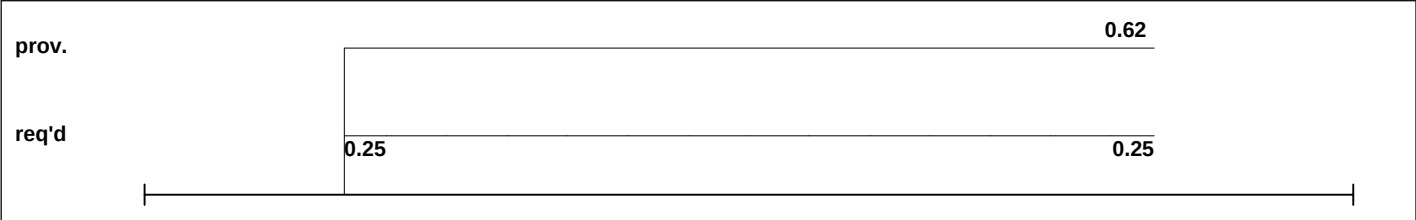
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

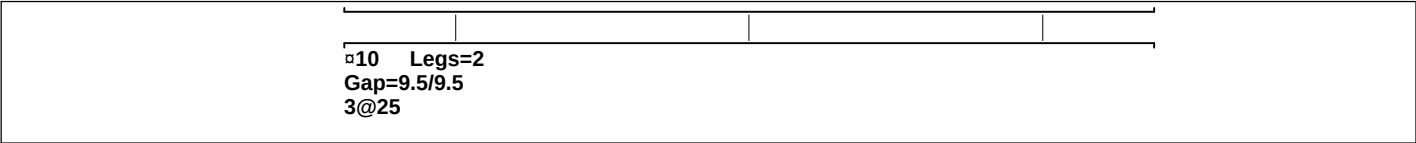
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	5.42
As	5.42	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00687
Icr(m^4)= 0.00104

Mcr = 80.40
Mmax,d = 0.62
Mmax,d+l = 1.93
Mmax,sust = 0.40

Ie,d (m^4)= 0.00687
Ie,d+l (m^4)= 0.00687
Ie,sust (m^4)= 0.00687

e/1+50r = 1.71/0.68
ai,d = 0.000
ai,l = -0.001
at,sust = 0.000
ai,l = L/*****
(ai+at),t2-t1 L/*****

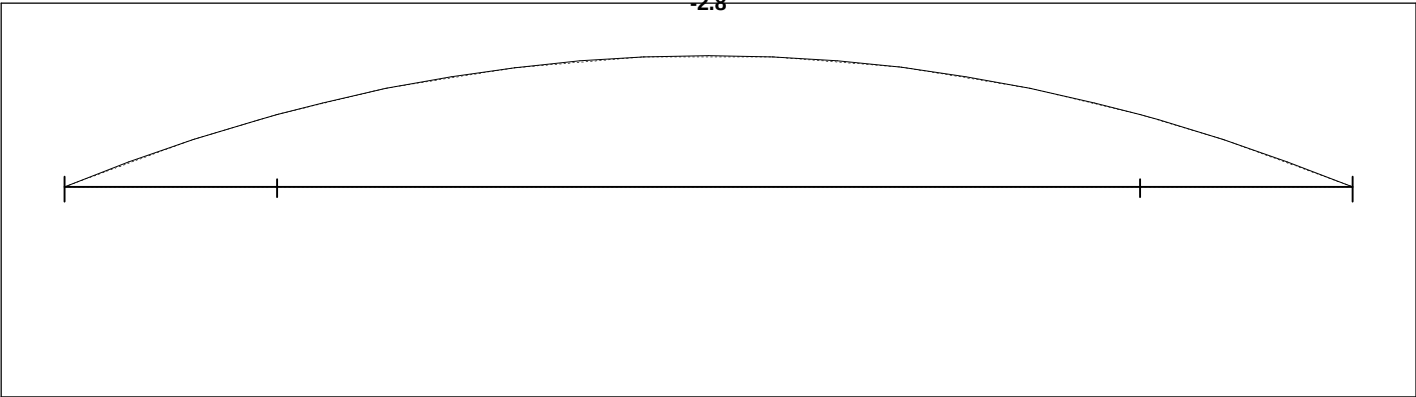
Beam 111	Code: ACI318-02
Project: 1	Page: 204
Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

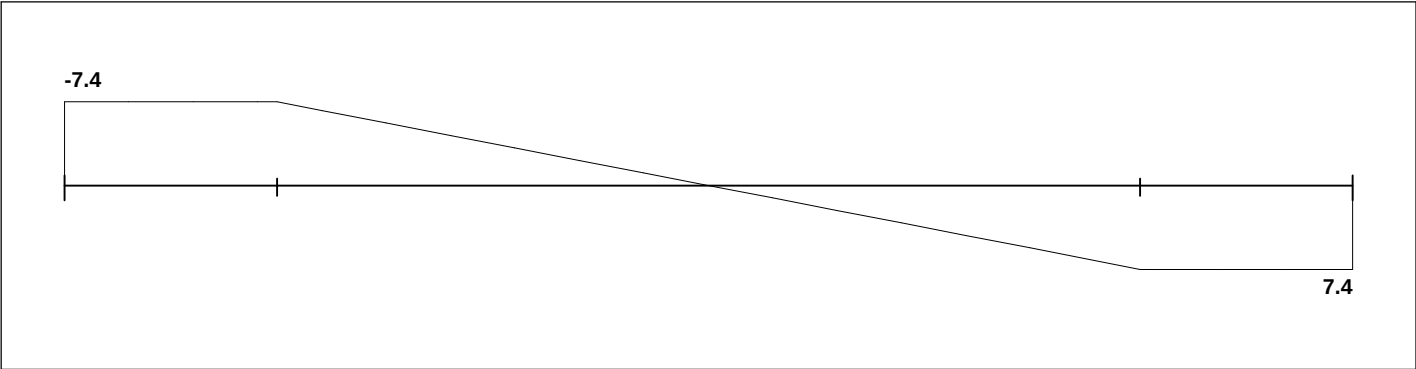
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-7.39	-7.39	0.	0.	0.25	0.00	100	-
51	-0.53	-0.53	-7.39	-7.39	0.02	0.	0.25	0.00	-	-
103	-1.02	-1.02	-7.39	-7.39	0.05	0.	0.25	0.00	-	-
154	-1.44	-1.44	-7.39	-7.39	0.07	0.	0.25	0.00	-	-
170	-1.57	-1.57	-7.39	-7.39	0.07	0.	0.25	0.00	-	-
206	-1.82	-1.82	-6.62	-6.62	0.08	0.	0.25	0.00	-	-
257	-2.13	-2.13	-5.52	-5.52	0.10	0.	0.25	0.00	-	-
309	-2.39	-2.39	-4.41	-4.41	0.11	0.	0.25	0.00	-	-
360	-2.58	-2.58	-3.32	-3.32	0.12	0.	0.25	0.00	-	-
412	-2.73	-2.73	-2.21	-2.21	0.13	0.	0.25	0.00	-	-
463	-2.81	-2.81	-1.11	-1.11	0.13	0.	0.25	0.00	-	-
515	-2.84	-2.84	0.00	0.00	0.13	0.	0.25	0.00	100	-
566	-2.81	-2.81	1.09	1.09	0.13	0.	0.25	0.00	-	-
618	-2.73	-2.73	2.21	2.21	0.13	0.	0.25	0.00	-	-
669	-2.59	-2.59	3.30	3.30	0.12	0.	0.25	0.00	-	-
721	-2.39	-2.39	4.41	4.41	0.11	0.	0.25	0.00	-	-
772	-2.13	-2.13	5.50	5.50	0.10	0.	0.25	0.00	-	-
824	-1.82	-1.82	6.62	6.62	0.08	0.	0.25	0.00	-	-
860	-1.57	-1.57	7.39	7.39	0.07	0.	0.25	0.00	-	-
875	-1.45	-1.45	7.39	7.39	0.07	0.	0.25	0.00	-	-
927	-1.02	-1.02	7.39	7.39	0.05	0.	0.25	0.00	-	-
978	-0.54	-0.54	7.39	7.39	0.02	0.	0.25	0.00	-	-
1030	0.00	0.00	7.39	7.39	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

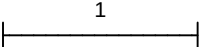
Moments: spans 1 to 1 Load pattern: XX

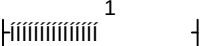


Shear



Beam 111	Code: ACI318-02
Project: 1	Page: 205
Designed by:	Date: 04/07/14

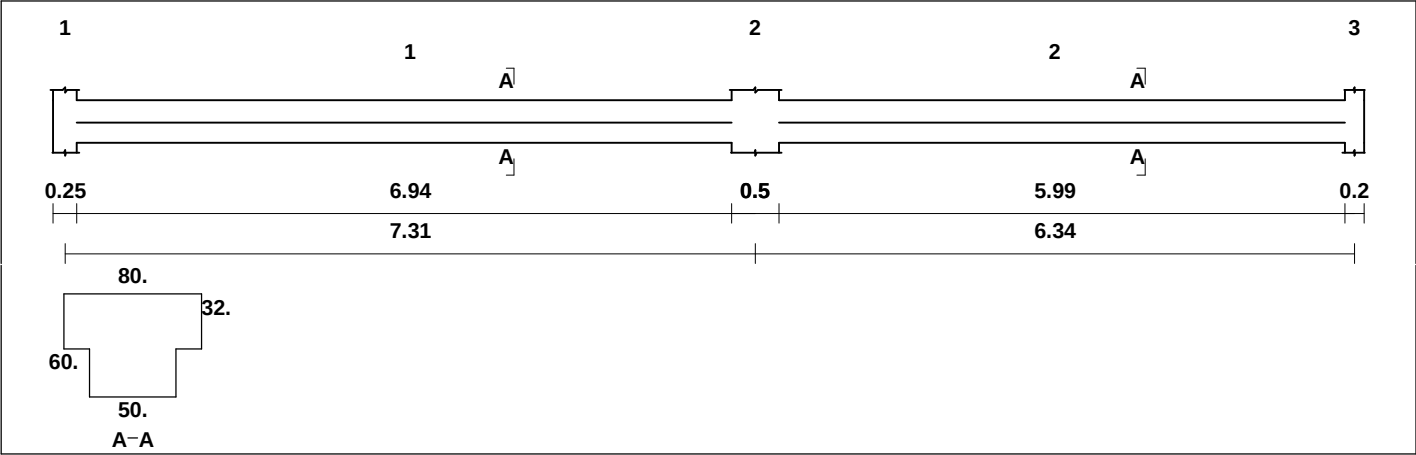
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	-1.6	-1.6	
MspMx	-1.6	-1.6	
M Max			
M Min			
Mmn=0 @	0.0	1.0	
Mmx=0 @	0.0	1.0	
mx -M @			
mx +M @			
V max	-11.0	11.0	
V min	-11.0	11.0	
DReac	-2.9	-2.9	
LReac	-8.2	-8.2	
Max R	-11.0	-11.0	
Min R	-11.0	-11.0	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.0	
mx +M			
V max	-11.0	11.0	

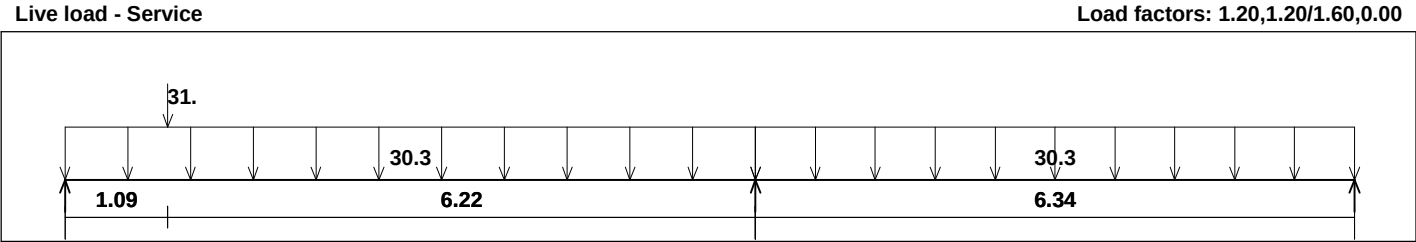
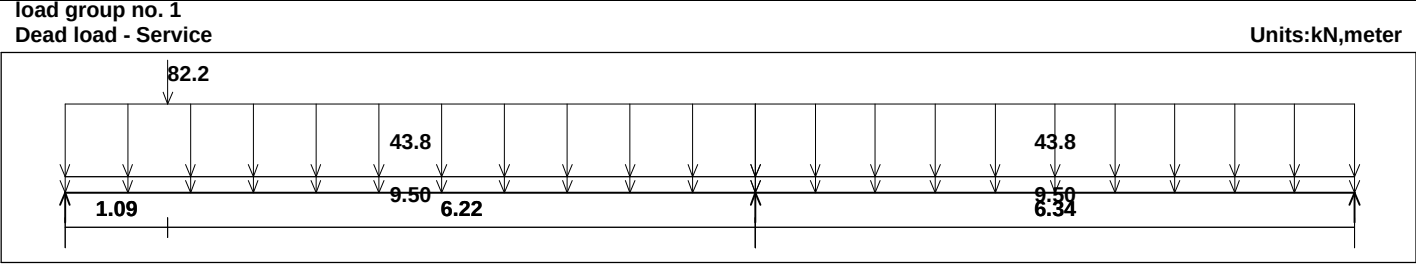
Beam 112	Code: ACI318-02
Project: 1	Page: 578
Designed by:	Date: 04/09/14

Geometry

Units:meter,cm



Loading



Loads (kN,meter)					
1			2		
Self.Wt.	9.50		Self.Wt.	9.50	
Uni D	43.85	L 30.35	Uni D	43.85	L 30.35
Pt. D	82.25	L 31.00			
x	1.09				

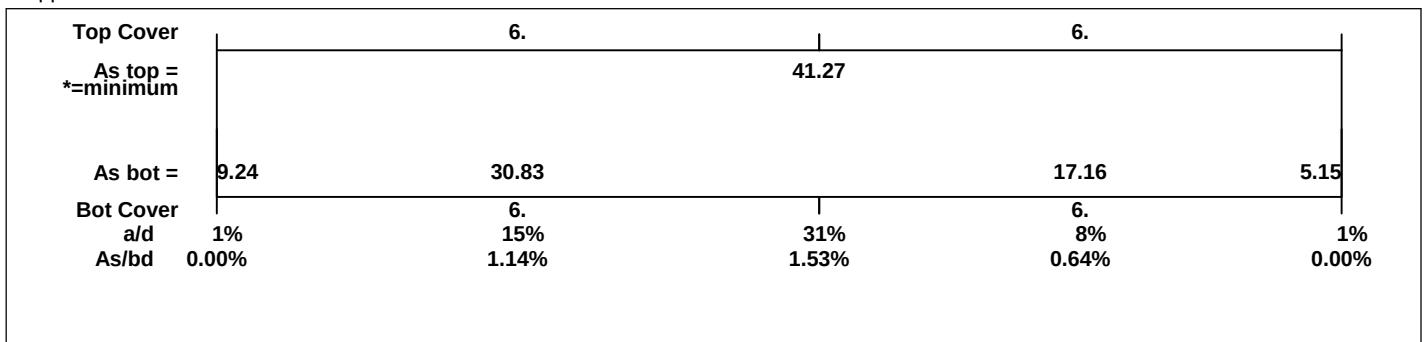
Moments: spans 1 to 2



DeadR	262.37	571.44	138.83
LiveR	193.99	427.52	136.06
Max R	456.36	998.97	274.89
Min R	246.87	758.75	109.19
Service			
DeadR	218.64	476.2	115.69
LiveR	121.25	267.2	85.04
Max R	339.89	743.4	200.73
Min R	208.95	593.27	97.17

Concrete: B300
 Moment redistribution: No
 Support moment at: Center

Main reinforcement $f_y = 420$

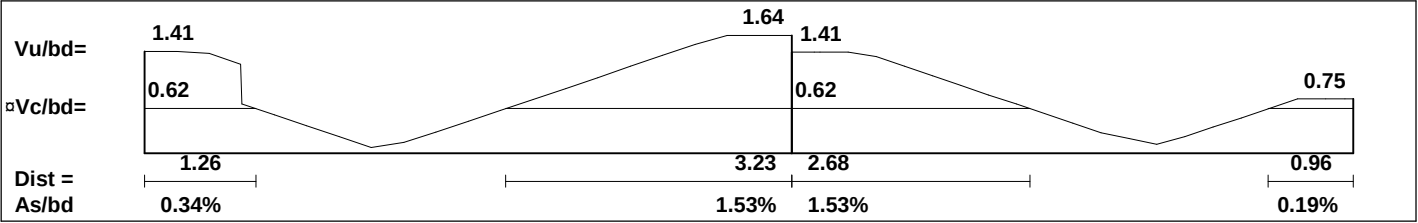


Beam 112	Code: ACI318-02
Project: 1	Page: 580
Designed by:	Date: 04/09/14

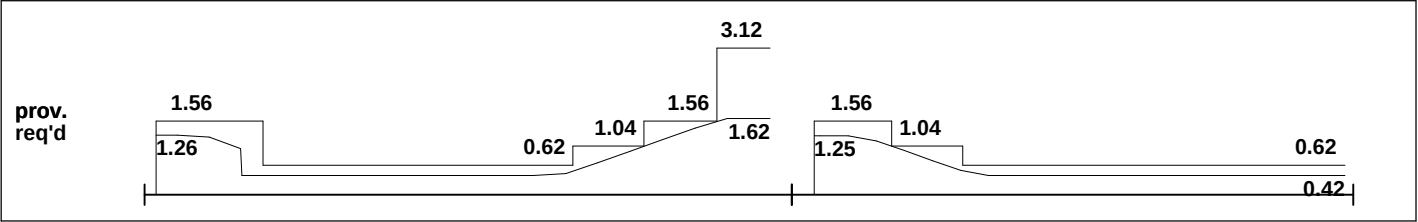
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

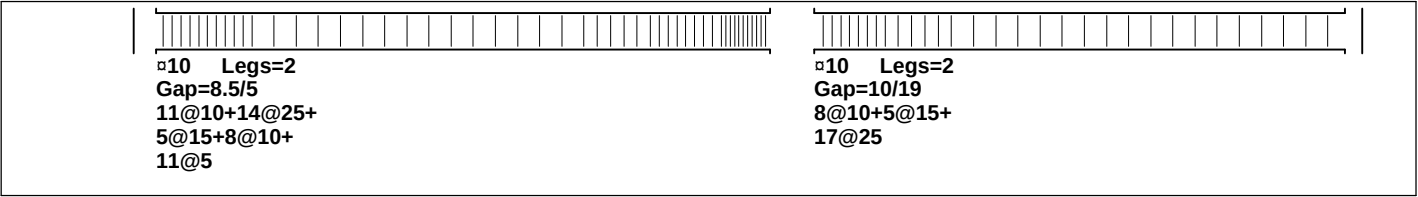
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	0.	0.
As	30.83	17.16
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.01124	0.01124
Icr(m ⁴)=	0.00507	0.00316
Mcr =	103.73	103.73
Mmax,d =	263.99	125.36
Mmax,d+l =	429.34	239.88
Mmax,sust =	171.59	81.48
Ie,d (m ⁴)=	0.00544	0.00774
Ie,d+l (m ⁴)=	0.00515	0.00381
Ie,sust (m ⁴)=	0.00643	0.01124
e/1+50r =	2.00/0.80	2.00/0.80
ai,d =	9.151	1.667
ai,l =	7.532	6.715
at,sust =	6.043	0.896
ai,l =	L/ 970	L/ 944
(ai+at),t2-t1	L/ 435	L/ 773

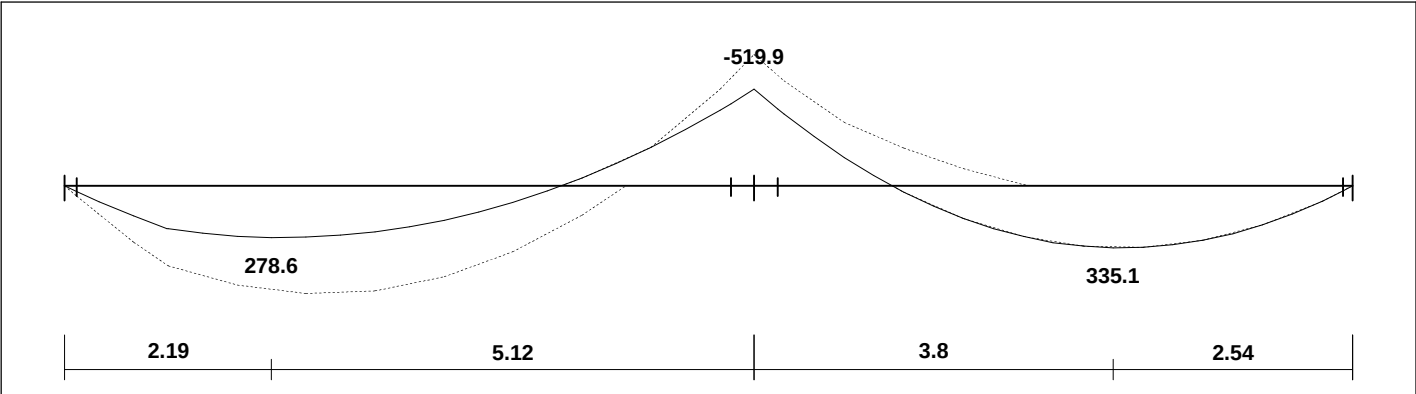
Beam 112	Code: ACI318-02
Project: 1	Page: 581
Designed by:	Date: 04/09/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	381.49	204.29	0.	0.	1.26	0.00	100	-
125	56.17	30.36	381.49	204.29	0.	2.77	1.26	0.01	-	-
366	159.49	86.07	381.49	204.29	0.	7.98	1.26	0.04	-	-
731	303.52	163.35	374.06	200.07	0.	15.48	1.22	0.07	-	-
1085	428.88	230.17	334.21	177.40	0.	22.25	0.99	0.11	-	-
1097	431.85	231.60	184.56	77.93	0.	22.41	0.42	0.11	-	-
1462	491.71	255.78	143.46	54.56	0.	25.74	0.42	0.12	-	-
1828	536.68	271.46	102.26	31.13	0.	28.27	0.42	0.13	-	-
2193	566.50	278.56	61.16	7.76	0.	29.97	0.42	0.14	-	-
2559	581.35	277.11	19.96	-15.67	0.	30.83	0.42	0.15	-	-
2924	581.13	267.13	-21.14	-39.04	0.	30.81	0.42	0.15	-	-
3290	565.86	248.55	-62.34	-77.84	0.	29.94	0.42	0.14	-	-
3655	535.60	221.48	-85.84	-118.94	0.	28.21	0.42	0.13	100	-
4021	490.21	185.78	-109.28	-160.14	0.	25.65	0.42	0.12	-	-
4386	429.91	141.62	-132.64	-201.24	0.	22.31	0.42	0.11	-	-
4752	354.39	88.79	-156.08	-242.44	0.	18.20	0.45	0.09	-	-
5117	264.06	27.56	-179.45	-283.54	0.	13.40	0.69	0.06	-	-
5483	158.42	-42.41	-202.88	-324.74	2.10	7.93	0.93	0.04	-	-
5848	38.05	-120.73	-226.25	-365.84	6.07	1.87	1.17	0.05	-	-
6214	-97.71	-207.82	-249.68	-407.04	10.64	0.	1.41	0.08	-	-
6579	-248.13	-350.12	-269.27	-441.49	18.51	0.	1.62	0.14	-	-
6945	-407.45	-521.68	-269.27	-441.49	28.79	0.	1.62	0.22	-	-
7060	-441.97	-578.70	-269.27	-441.49	32.45	0.	1.62	0.25	-	-
7310	-519.93	-707.79	-269.27	-441.49	41.27	0.	1.62	0.31	100	-
Span=2										
0	-519.93	-707.79	379.59	246.14	41.27	0.	1.25	0.31	100	-
250	-413.72	-594.17	379.59	246.14	33.46	0.	1.25	0.26	-	-
317	-386.45	-564.92	379.59	246.14	31.55	0.	1.25	0.24	-	-
634	-264.29	-433.36	379.59	246.14	23.37	0.	1.25	0.18	-	-
951	-153.44	-341.23	361.46	235.83	18.00	0.	1.15	0.14	-	-
1268	-53.91	-269.69	325.77	215.54	13.99	0.	0.94	0.11	-	-
1585	34.31	-204.58	290.09	195.24	10.47	1.69	0.73	0.08	-	-
1902	111.22	-145.90	254.40	174.95	7.37	5.53	0.52	0.06	-	-
2219	176.81	-93.66	218.71	154.65	4.68	8.87	0.42	0.04	-	-
2536	231.09	-47.86	183.02	134.36	2.37	11.68	0.42	0.06	-	-
2853	274.06	-8.48	147.33	114.06	0.41	13.92	0.42	0.07	-	-
3170	305.71	24.46	111.64	82.01	0.	15.60	0.42	0.07	100	-
3487	326.05	50.96	75.95	46.32	0.	16.68	0.42	0.08	-	-
3804	335.08	71.04	53.17	10.63	0.	17.16	0.42	0.08	-	-
4121	332.79	84.68	32.88	-25.06	0.	17.04	0.42	0.08	-	-
4438	319.19	91.88	12.58	-60.75	0.	16.31	0.42	0.08	-	-
4755	294.28	92.65	-7.72	-96.44	0.	14.99	0.42	0.07	-	-
5072	258.05	86.99	-28.01	-132.13	0.	13.08	0.42	0.06	-	-
5389	210.51	74.89	-48.31	-167.82	0.	10.61	0.42	0.05	-	-
5706	151.65	56.36	-68.22	-202.83	0.	7.58	0.42	0.04	-	-
6023	81.48	31.40	-68.22	-202.83	0.	4.04	0.42	0.02	-	-
6240	26.93	10.60	-68.22	-202.83	0.	1.32	0.42	0.01	-	-
6340	0.00	0.00	-68.22	-202.83	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

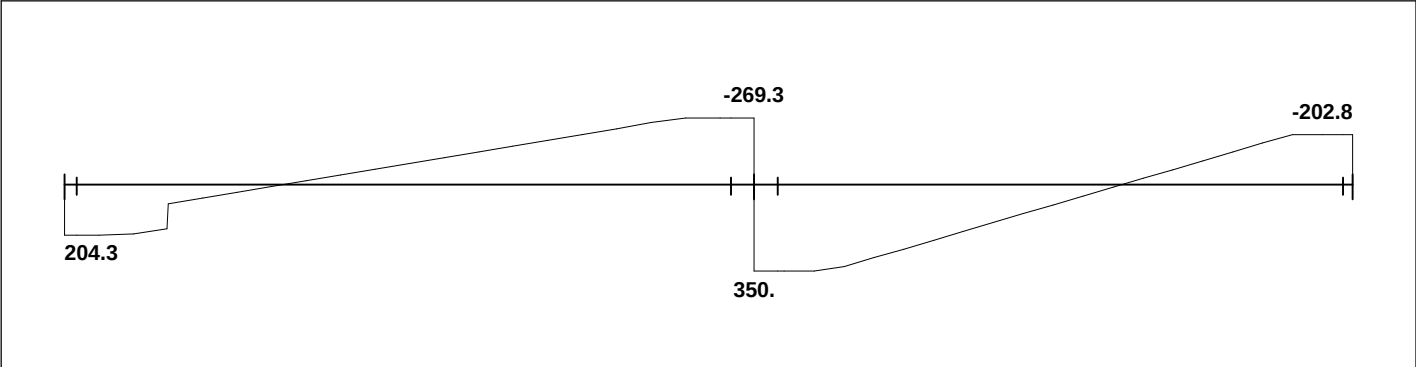
Moments: spans 1 to 2 Load pattern: xxXX



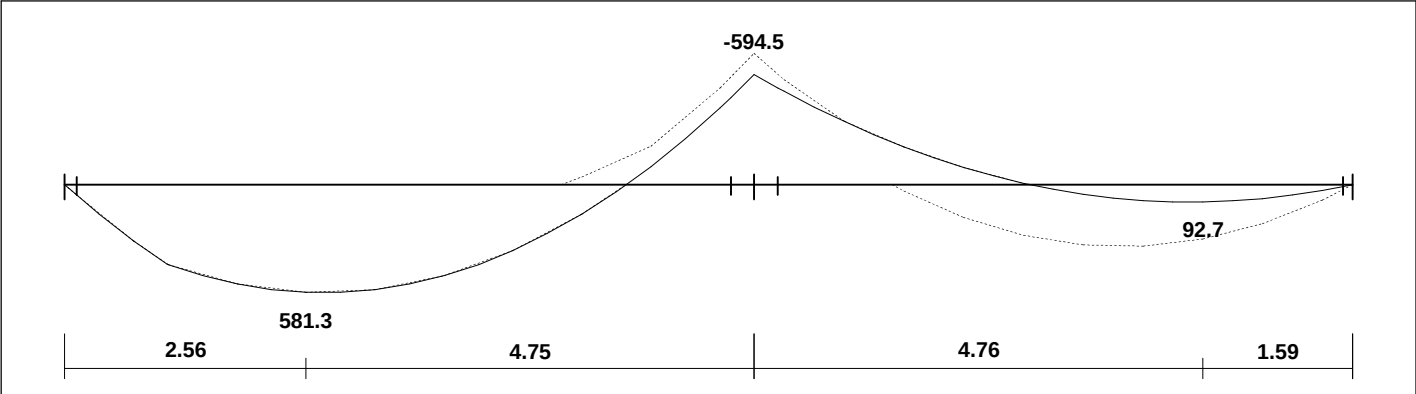
Beam 112	Code: ACI318-02
Project: 1	Page: 582
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

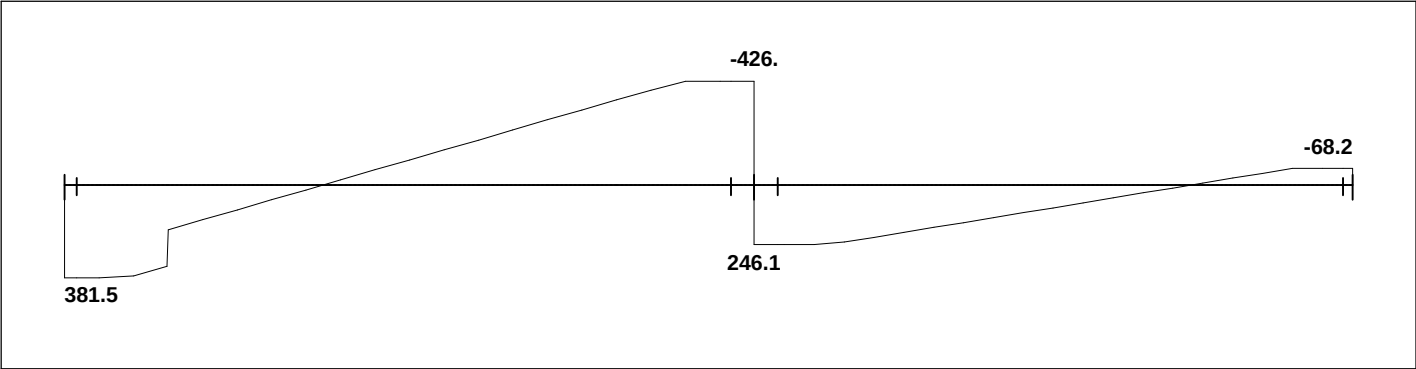
Shear



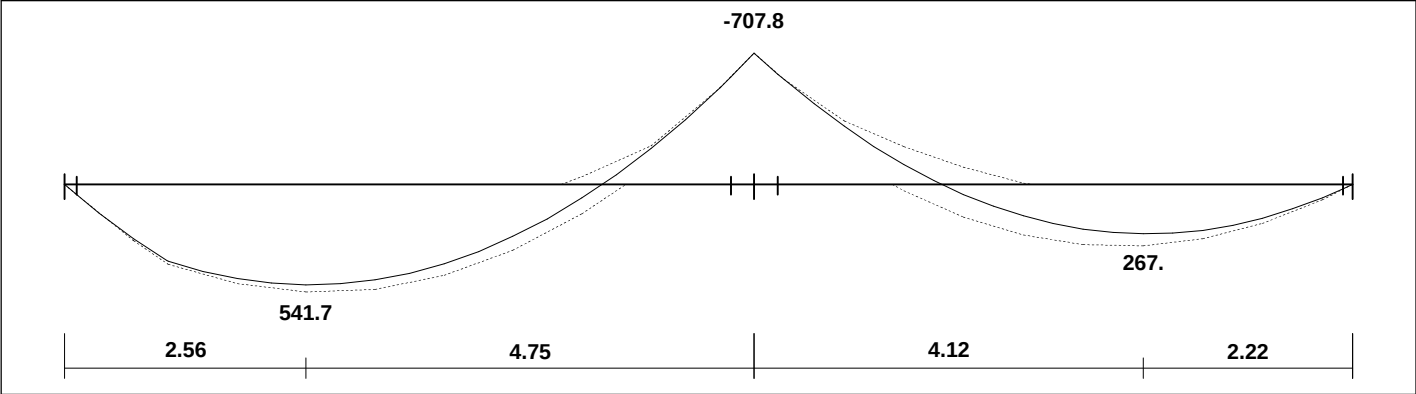
Moments: spans 1 to 2 Load pattern: XXxx



Shear



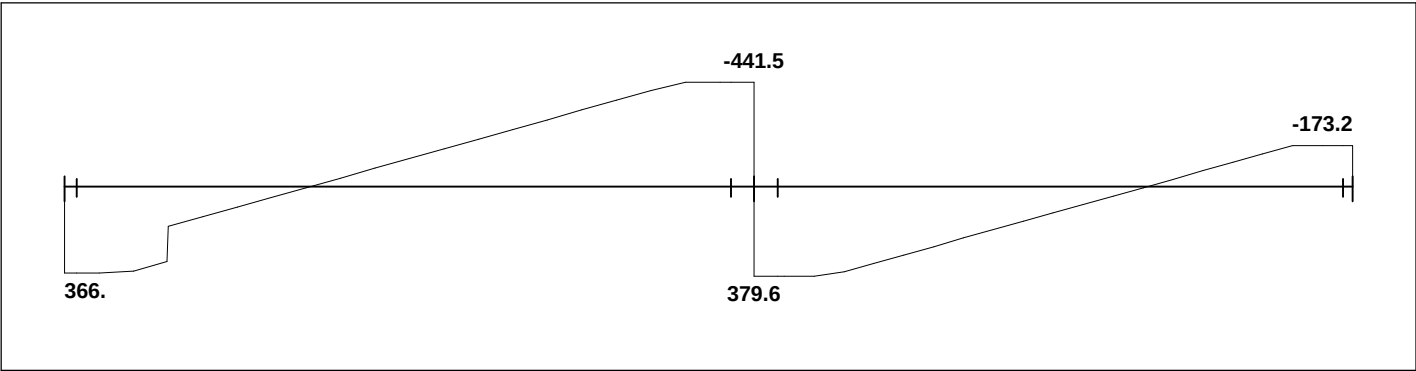
Moments: spans 1 to 2 Load pattern: XXXX



Beam 112	Code: ACI318-02
Project: 1	Page: 583
Designed by:	Date: 04/09/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

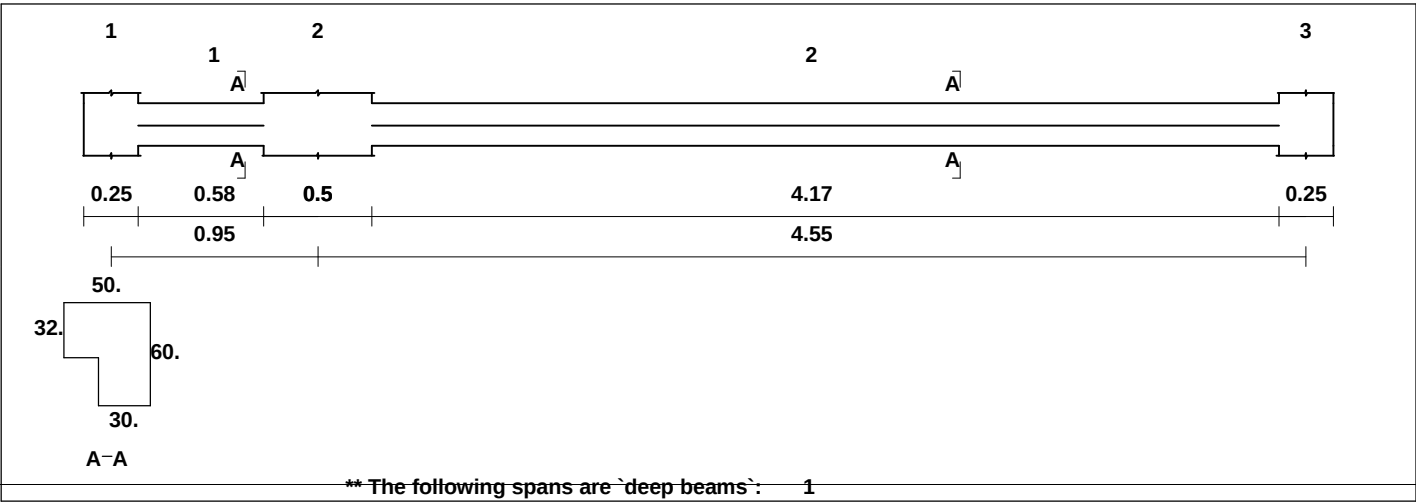
	1	2	3
Min M	0.0	-707.8	-707.8
Max M	0.0	-519.9	-519.9
MspMn	30.4	-578.7	-594.2
MspMx	56.2	-442.0	-413.7
M Max			335.1
M Min			92.7
Mmn=0 @	0.0	2.0	2.9
Mmx=0 @	0.0	1.4	1.5
mx -M @			1.5
mx +M @			3.8
V max		-319.9	-109.2
V min		-530.4	-274.9
DReac		571.4	138.8
LReac		427.5	136.1
Max R		999.0	274.9
Min R		758.8	109.2

Individual load cases - factored Units:kN,meter

	1	2	3
Min M	0.0	-519.9	-519.9
M Max			335.1
Mmx=0 @	0.0	2.0	1.5
mx +M			3.8
V max		-319.9	-274.9
Min M	0.0	-594.5	-594.5
M Max			92.7
Mmx=0 @	0.0	1.4	2.9
mx +M			4.8
V max		-514.9	-109.2
Min M	0.0	-707.8	-707.8
M Max			267.0
Mmx=0 @	0.0	1.6	2.0
mx +M			4.1
V max		-530.4	-245.3

Beam 113	Code: ACI318-02
Project: 1	Page: 205
Designed by:	Date: 04/07/14

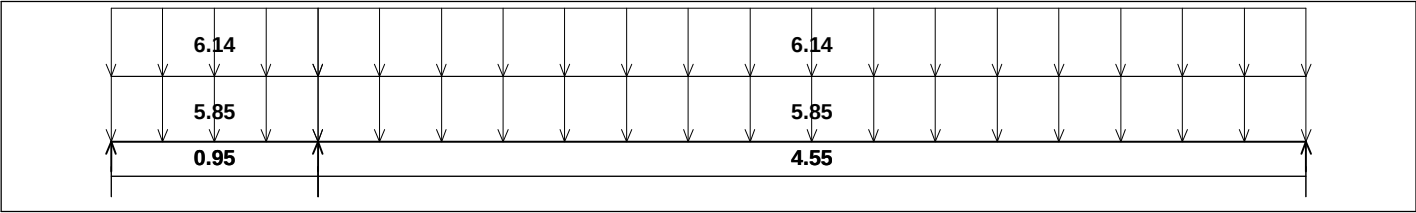
Geometry Units: meter, cm



**** The following spans are `deep beams`:** 1
Loading

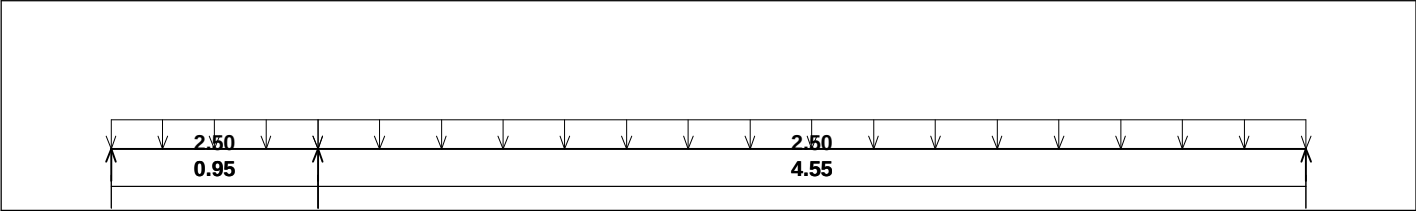
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

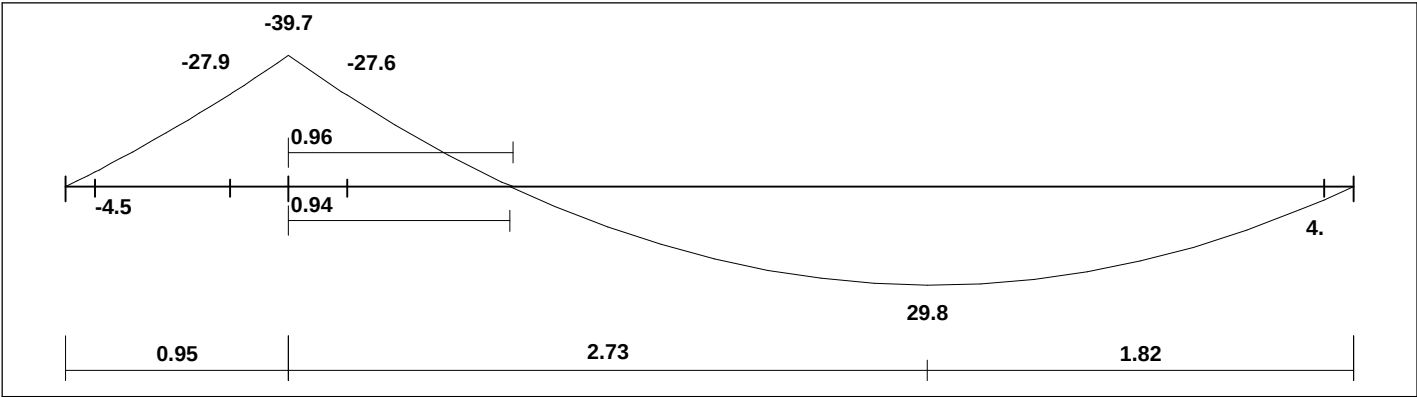


Loads (kN, meter)					
1			2		
Self. Wt.	5.86	Self. Wt.	5.86		
Uni D	6.14	L	2.50	Uni D	6.14
				L	2.50

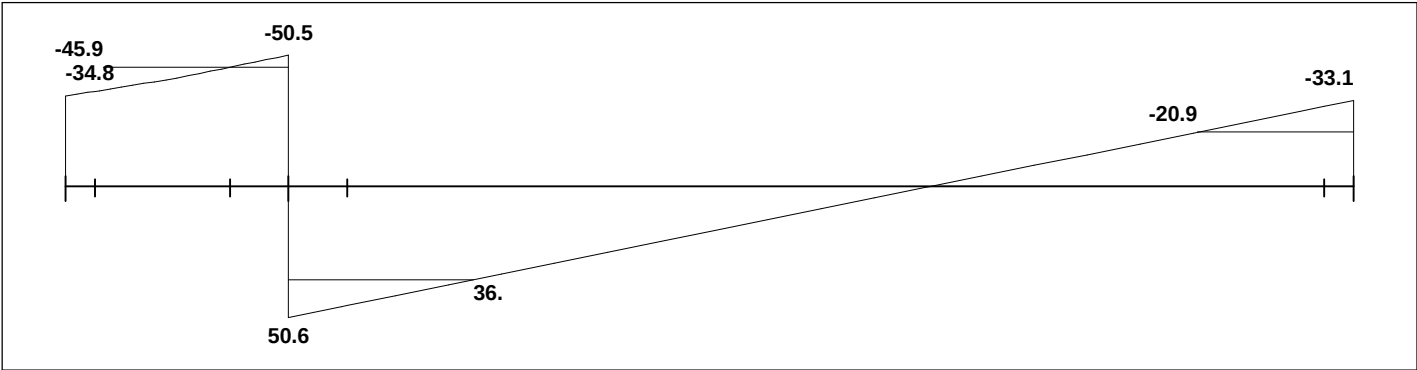
Beam 113	Code: ACI318-02
Project: 1	Page: 206
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	-25.81	79.08	25.91
LiveR	-8.99	21.97	7.21
Max R	-23.99	101.04	33.12
Min R	-34.8	81.08	25.89
Service			
DeadR	-21.51	65.9	21.59
LiveR	-5.62	13.73	4.51
Max R	-20.37	79.63	26.1
Min R	-27.13	67.15	21.58

Reinforcement (cm 2)

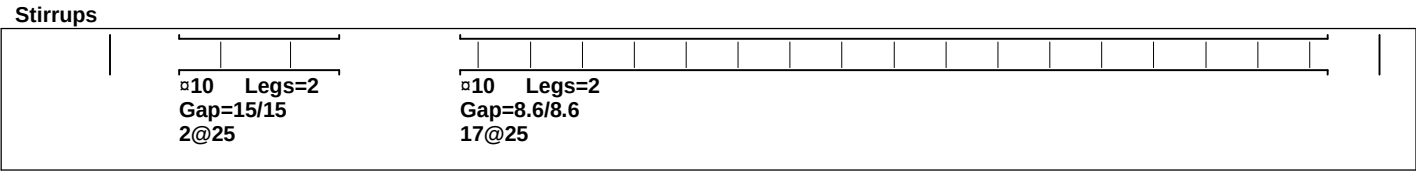
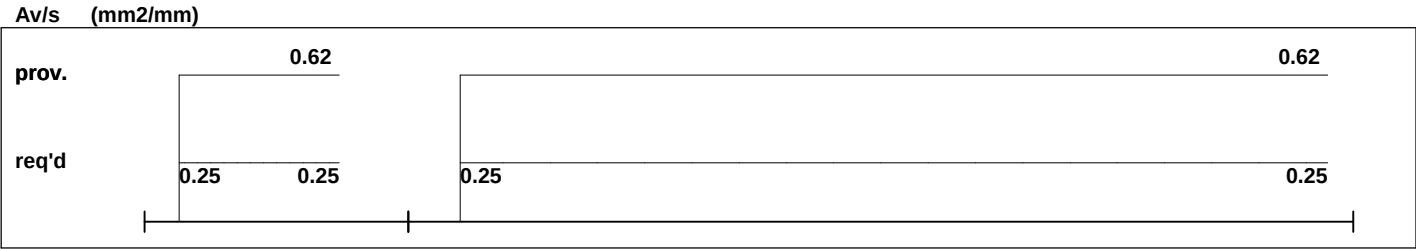
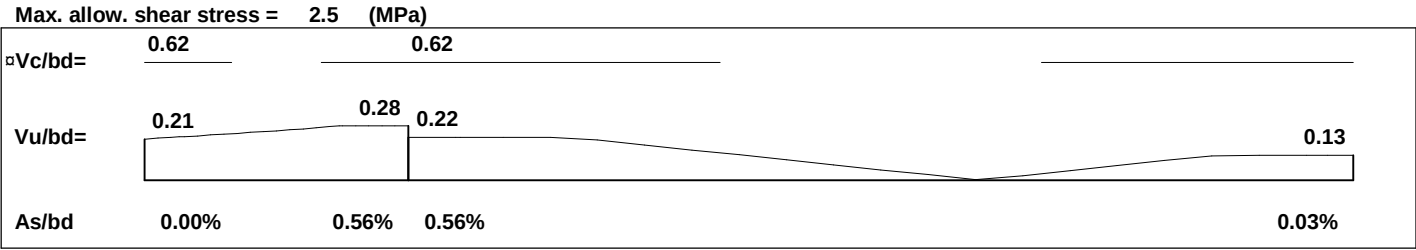
Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.
As top =	5.42	9.04*
*=minimum		
As bot =	5.42*	5.42*
Bot Cover	6.	6.
a/d	0%	0%
As/bd	0.00%	0.00%

Beam 113	Code: ACI318-02
Project: 1	Page: 207
Designed by:	Date: 04/07/14

Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00104	0.00110
Mcr =	80.40	62.86
Mmax,d =	25.88	19.42
Mmax,d+l =	31.23	23.48
Mmax,sust =	16.82	12.62
Ie,d (m^4)=	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687
Ie,sust (m^4)=	0.00687	0.00687
e/1+50r =	1.71/0.68	2.00/0.80
ai,d =	-0.009	0.210
ai,l =	-0.002	0.044
at,sust =	-0.006	0.164
ai,l =	L/*****	L/*****
(ai+at),t2-t1	L/*****	L/16176

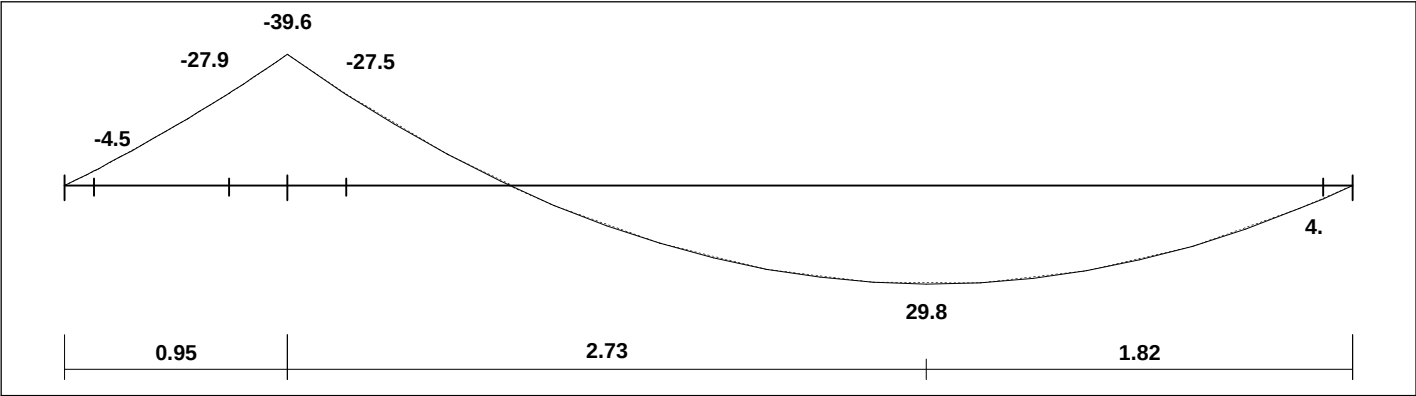
Beam 113	Code: ACI318-02
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Designed by:	Date: 04/07/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-23.99	-34.80	0.	0.	0.25	0.00	100	-
48	-1.17	-1.69	-24.88	-35.49	0.08	0.	0.25	0.00	-	-
95	-2.36	-3.37	-25.74	-36.17	0.16	0.	0.25	0.00	-	-
125	-3.14	-4.46	-26.29	-36.60	0.21	0.	0.25	0.00	-	-
143	-3.62	-5.12	-26.62	-36.86	0.25	0.	0.25	0.00	-	-
190	-4.89	-6.87	-27.49	-37.54	0.33	0.	0.25	0.00	-	-
238	-6.23	-8.69	-28.37	-38.23	0.42	0.	0.25	0.01	-	-
285	-7.59	-10.50	-29.24	-38.91	0.51	0.	0.25	0.01	-	-
333	-9.01	-12.39	-30.12	-39.60	0.61	0.	0.25	0.01	-	-
380	-10.45	-14.26	-30.99	-40.27	0.70	0.	0.25	0.01	-	-
428	-11.95	-16.21	-31.87	-40.97	0.80	0.	0.25	0.01	-	-
475	-13.47	-18.16	-32.73	-41.72	0.89	0.	0.25	0.01	100	-
523	-15.06	-20.17	-33.62	-42.61	0.99	0.	0.25	0.01	-	-
571	-16.70	-22.22	-34.50	-43.49	1.09	0.	0.25	0.01	-	-
618	-18.34	-24.26	-35.36	-44.35	1.20	0.	0.25	0.02	-	-
666	-20.06	-26.37	-36.25	-45.24	1.30	0.	0.25	0.02	-	-
701	-21.34	-27.93	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
713	-21.78	-28.47	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
761	-23.59	-30.65	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
808	-25.39	-32.82	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
856	-27.28	-35.07	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
903	-29.17	-37.30	-36.89	-45.88	1.38	0.	0.25	0.02	-	-
951	-31.14	-39.69	-36.89	-45.88	1.38	0.	0.25	0.02	100	-
Span=2										
0	-31.14	-39.69	36.02	28.21	1.36	0.	0.25	0.02	100	-
227	-22.52	-28.68	36.02	28.21	1.36	0.	0.25	0.02	-	-
250	-21.69	-27.62	36.02	28.21	1.36	0.	0.25	0.02	-	-
455	-14.62	-18.59	36.02	28.21	0.91	0.	0.25	0.01	-	-
682	-7.49	-9.48	36.02	28.21	0.46	0.	0.25	0.01	-	-
909	-1.10	-1.33	33.84	26.50	0.06	0.	0.25	0.00	-	-
1137	5.97	4.56	29.64	23.21	0.	0.29	0.25	0.00	-	-
1364	12.22	9.46	25.46	19.94	0.	0.60	0.25	0.00	-	-
1591	17.52	13.62	21.29	16.68	0.	0.86	0.25	0.01	-	-
1819	21.89	17.05	17.09	13.39	0.	1.08	0.25	0.01	-	-
2046	25.29	19.72	12.91	10.12	0.	1.24	0.25	0.01	-	-
2273	27.74	21.64	8.74	6.86	0.	1.37	0.25	0.01	100	-
2501	29.25	22.83	4.54	3.57	0.	1.44	0.25	0.01	-	-
2728	29.81	23.27	0.37	0.30	0.	1.47	0.25	0.01	-	-
2956	29.41	22.97	-2.98	-3.85	0.	1.45	0.25	0.01	-	-
3183	28.06	21.92	-6.25	-8.02	0.	1.38	0.25	0.01	-	-
3410	25.77	20.13	-9.52	-12.20	0.	1.27	0.25	0.01	-	-
3638	22.51	17.59	-12.80	-16.40	0.	1.11	0.25	0.01	-	-
3865	18.31	14.31	-16.07	-20.57	0.	0.90	0.25	0.01	-	-
4092	13.17	10.29	-16.31	-20.89	0.	0.64	0.25	0.00	-	-
4320	7.04	5.51	-16.31	-20.89	0.	0.34	0.25	0.00	-	-
4422	4.00	3.12	-16.31	-20.89	0.	0.19	0.25	0.00	-	-
4547	0.00	0.00	-16.31	-20.89	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

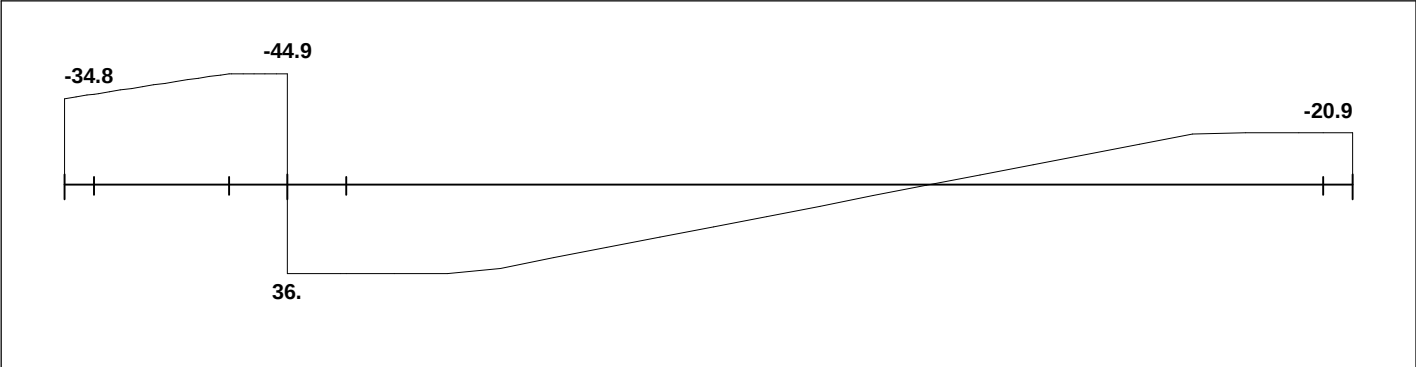
Moments: spans 1 to 2 Load pattern: xxXX



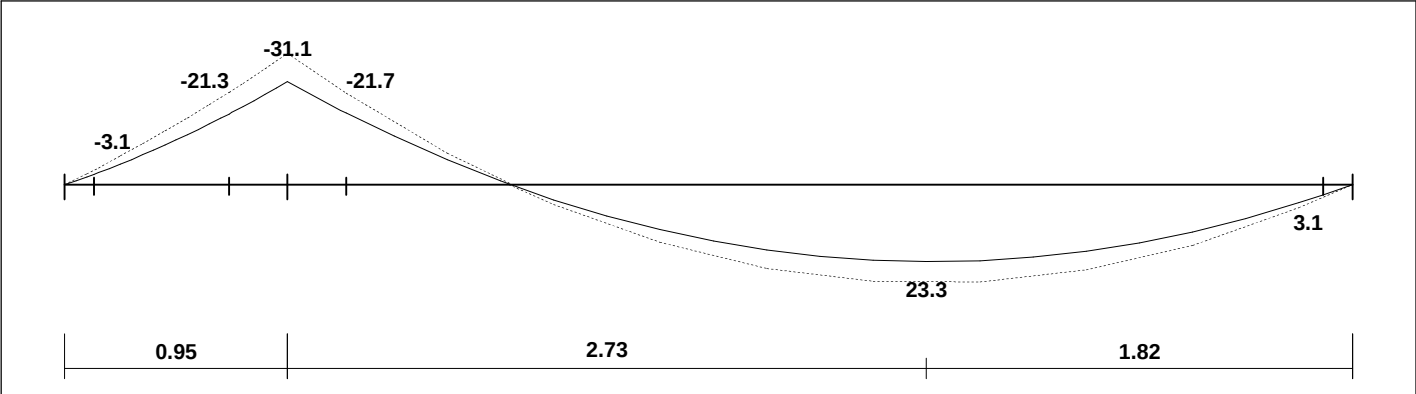
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Moment/Shear Envelope (Factored) Units:kN,meter

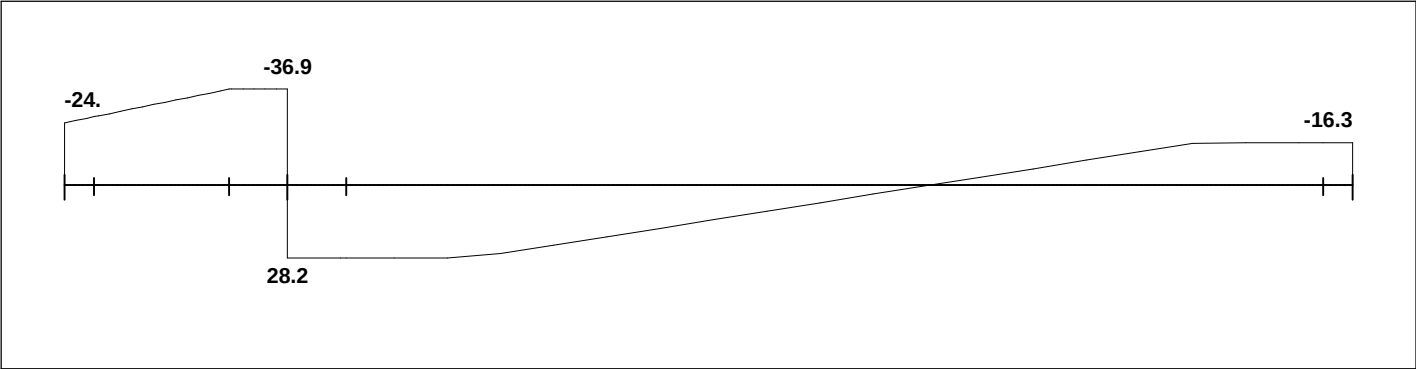
Shear



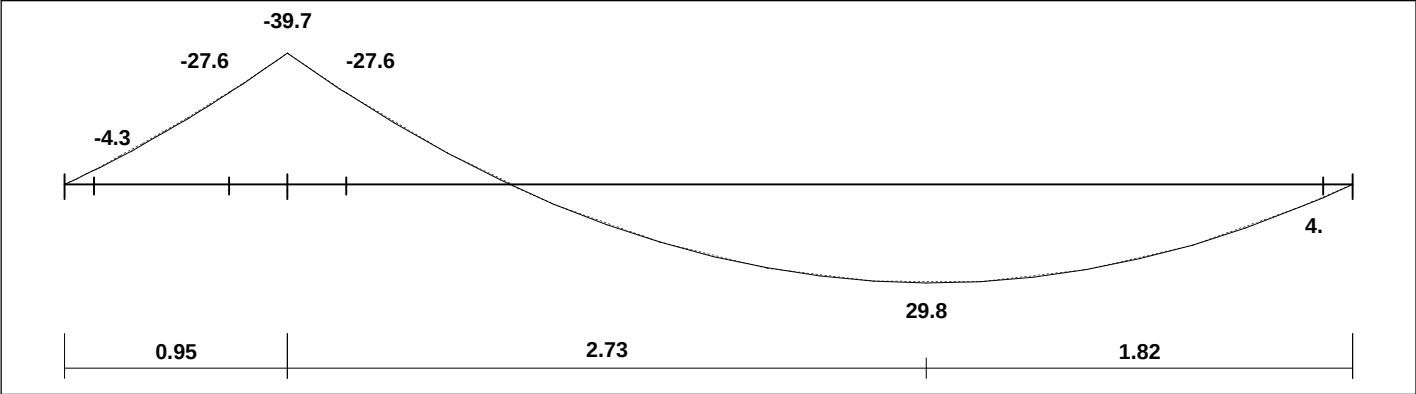
Moments: spans 1 to 2 Load pattern: XXxx



Shear



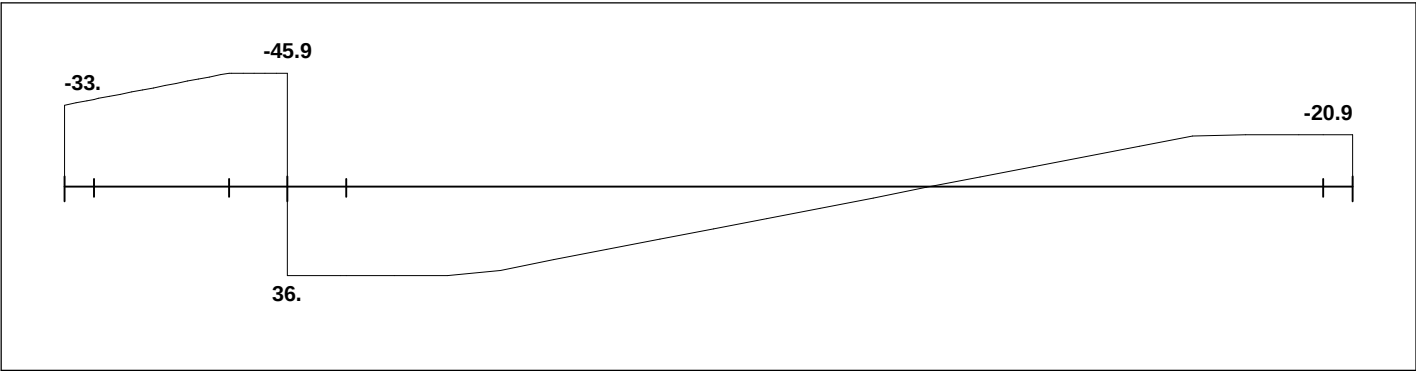
Moments: spans 1 to 2 Load pattern: XXXX



Beam 113	Code: ACI318-02
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Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter

Shear



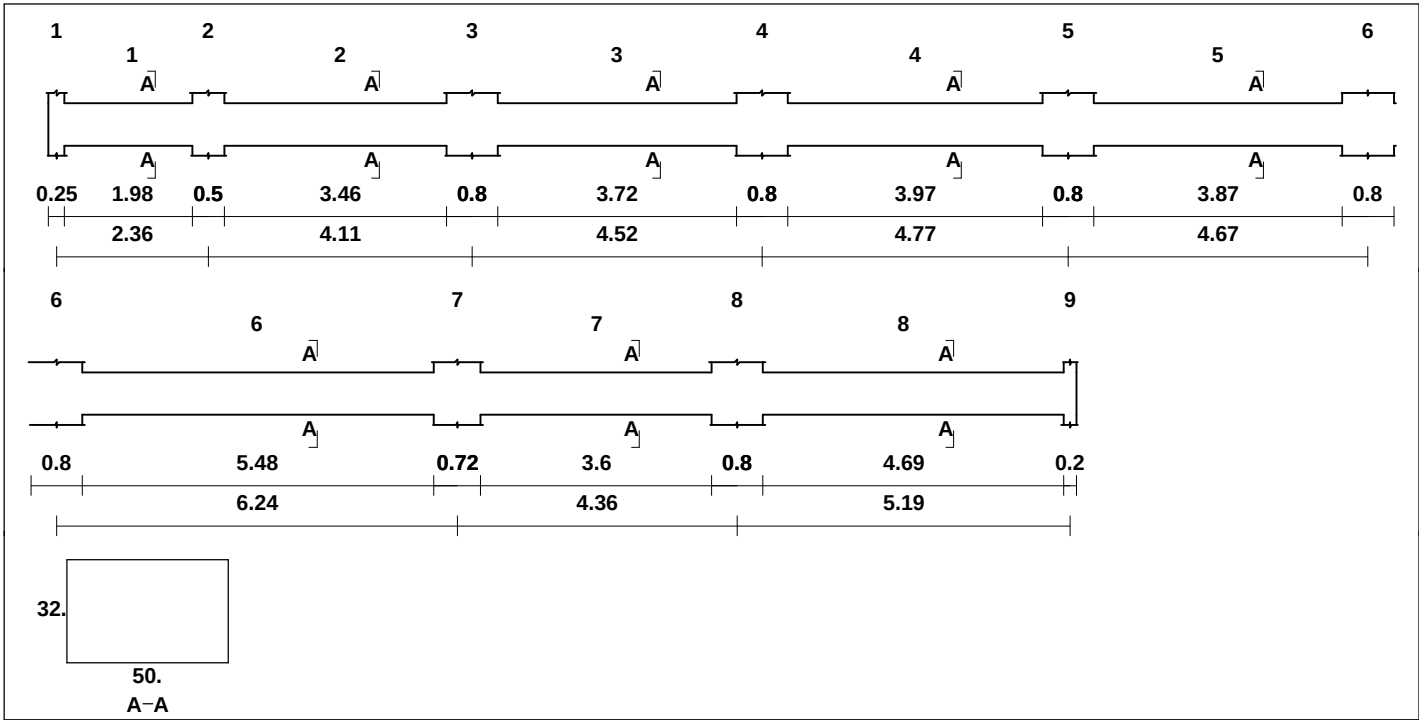
Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	3	
	1	2	2	3
	1	2	2	3
Min M	0.0	-39.7	-39.7	0.0
Max M	0.0	-31.1	-31.1	0.0
MspMn	-4.5	-27.9	-27.6	3.1
MspMx	-3.1	-21.3	-21.7	4.0
M Max			29.8	
M Min			23.3	
Mmn=0 @	0.0	1.0	1.0	4.5
Mmx=0 @	0.0	1.0	0.9	4.5
mx -M @			0.9	
mx +M @			2.7	
V max	-24.0	-41.5	50.6	-25.9
V min	-34.8	-50.5	39.6	-33.1
DReac	-25.8	79.1		25.9
LReac	-9.0	22.0		7.2
Max R	-24.0	101.0		33.1
Min R	-34.8	81.1		25.9

Individual load cases - factored Units:kN,meter				
	1	2	3	
	1	2	2	3
	1	2	2	3
Min M	0.0	-39.6	-39.6	0.0
M Max			29.8	
Mmx=0 @	0.0	1.0	0.9	4.5
mx +M			2.7	
V max	-34.8	-48.5	50.5	-33.1
	1	2	3	
	1	2	2	3
Min M	0.0	-31.1	-31.1	0.0
M Max			23.3	
Mmx=0 @	0.0	1.0	1.0	4.5
mx +M			2.7	
V max	-24.0	-41.5	39.6	-25.9
	1	2	3	
	1	2	2	3
Min M	0.0	-39.7	-39.7	0.0
M Max			29.8	
Mmx=0 @	0.0	1.0	1.0	4.5
mx +M			2.7	
V max	-33.0	-50.5	50.6	-33.1

Beam 33 new
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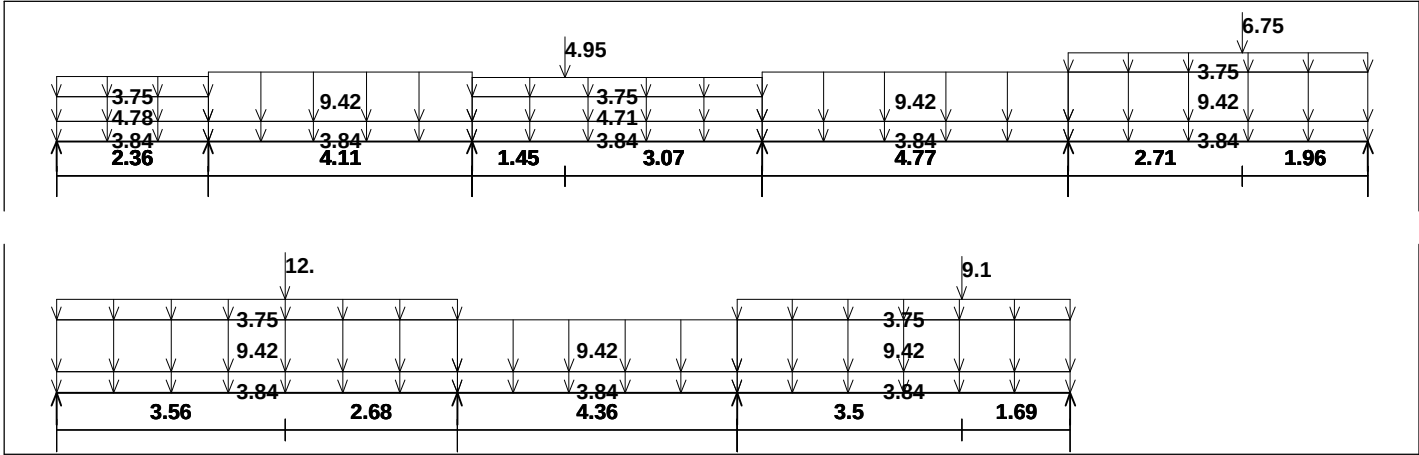
Geometry Units: meter, cm



Loading

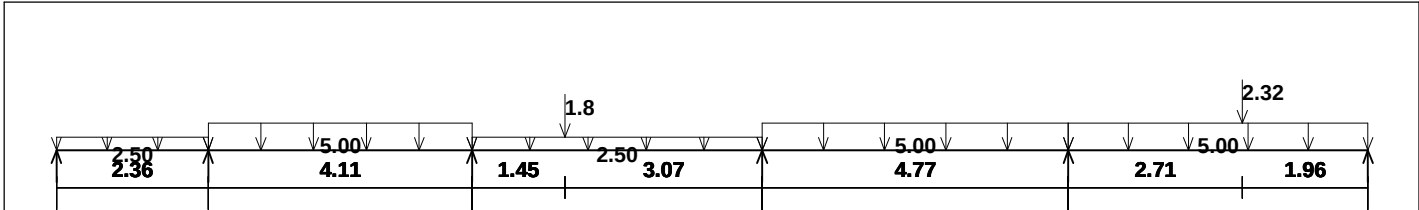
load group no. 1
Dead load - Service

Units: kN, meter



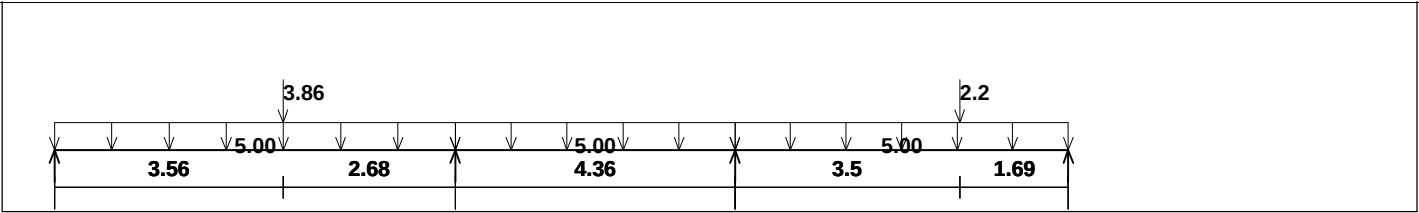
Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00



Beam 33 new	Code: ACI318-02
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Loading

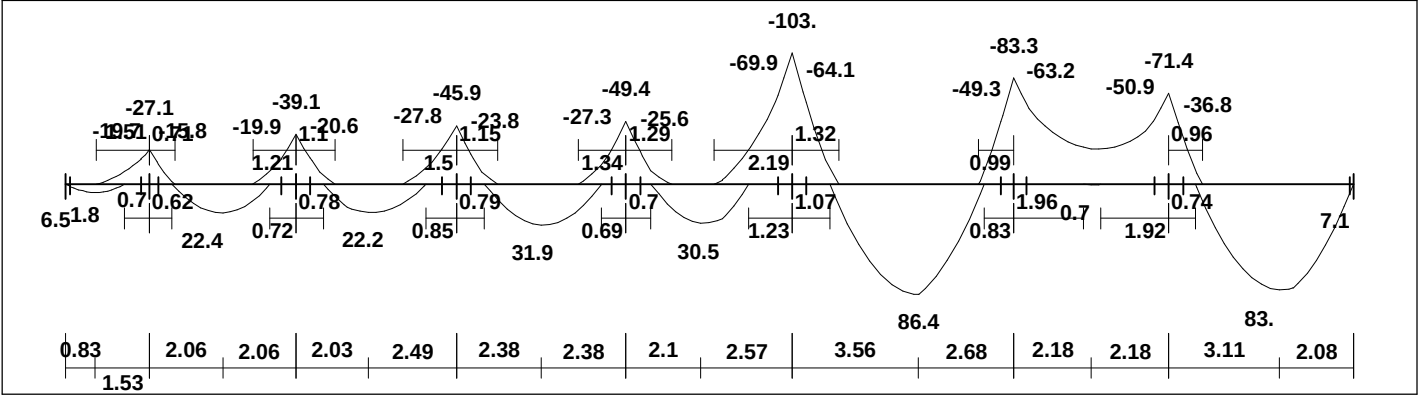


Loads (kN,meter)

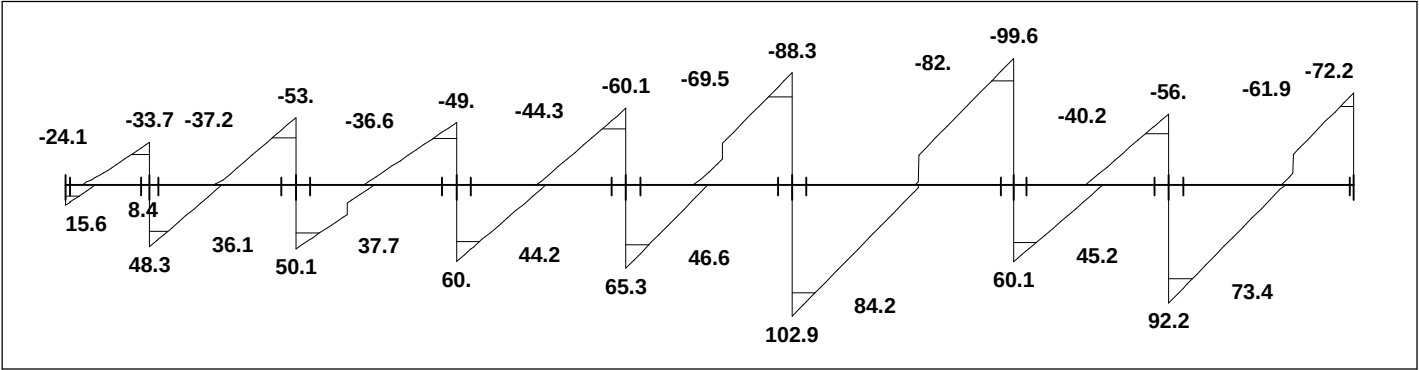
1		2		3		4	
Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84
Uni D	4.79	L	2.50	Uni D	9.42	L	5.00
Uni D	3.75	L	0.000	Uni D	4.71	L	2.50
				Uni D	3.75	L	0.000
				Pt. D	4.95	L	1.80
				x	1.45		
5		6		7		8	
Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84	Self.Wt.	3.84
Uni D	9.42	L	5.00	Uni D	9.42	L	5.00
Uni D	3.75	L	0.000	Uni D	9.42	L	5.00
Pt. D	6.75	L	2.32	Pt. D	12.00	L	3.86
x	2.71	x	3.56			Pt. D	9.10
						L	2.20
						x	3.50

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8



Shear



Reactions

	100%		100%		100%		100%		
DeadR	10.46	54.88	71.81	74.15	79.59	134.26	105.28	98.7	51.3
LiveR	5.15	27.09	31.24	34.83	45.81	56.97	54.36	49.47	20.87
Max R	15.61	81.98	103.05	108.98	125.39	191.23	159.64	148.17	72.18
Min R	6.34	57.38	80.22	81.27	93.01	152.68	116.53	110.12	49.81
Service									
DeadR	8.72	45.74	59.84	61.79	66.32	111.88	87.74	82.25	42.75
LiveR	3.22	16.93	19.52	21.77	28.63	35.61	33.97	30.92	13.05
Max R	11.94	62.67	79.37	83.56	94.95	147.49	121.71	113.17	55.8
Min R	6.14	47.3	65.1	66.24	74.71	123.4	94.76	89.39	41.82

Concrete: B300
 Moment redistribution: No
 Support moment at: Face

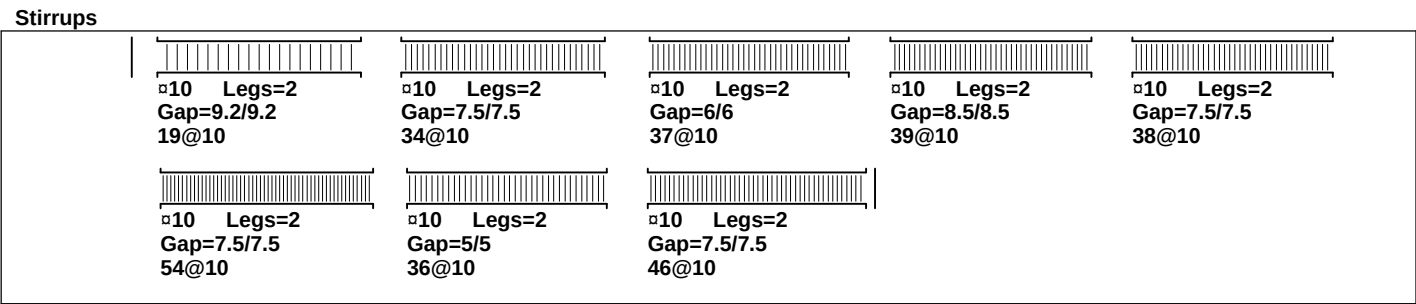
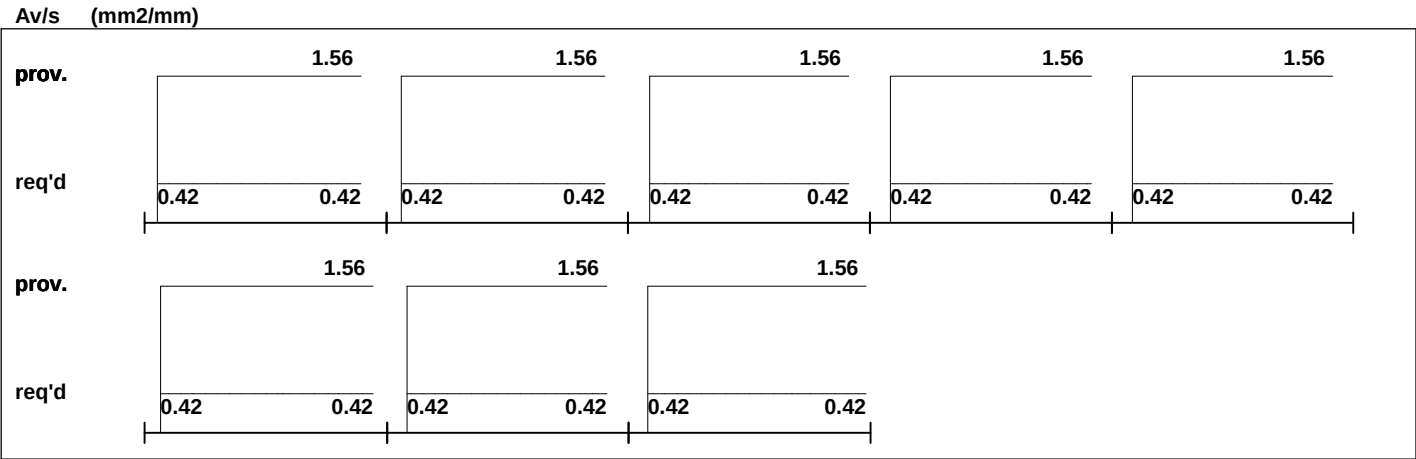
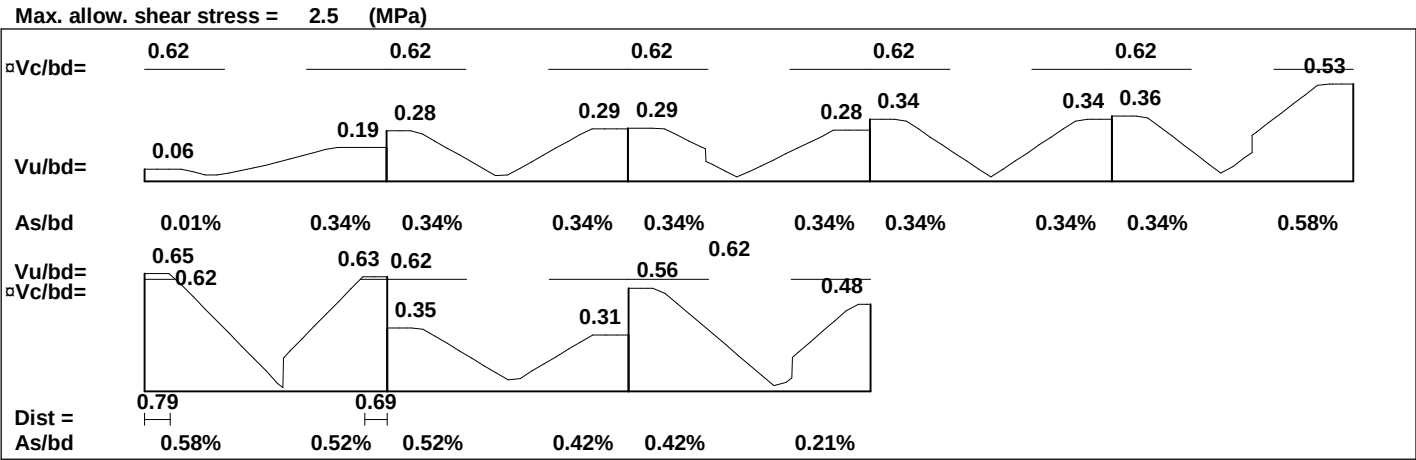
Main reinforcement $f_y = 420$

Shear

Shear design: Stirrups only
 Stirrups fy = 420 Shear reduction: Yes
 Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
 Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. = Code

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Shear



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

	1	2	3	4
A's	4.35	0.	0.	0.
As	0.29	4.35	4.35	4.35
fr = 3	Es= 209	Ec = 23		
Ig(m ⁴)=	0.00137	0.00137	0.00137	0.00137
Icr(m ⁴)=	0.00002	0.00019	0.00019	0.00019
Mcr =	26.29	26.29	26.29	26.29
Mmax,d =	13.90	10.11	11.74	13.48
Mmax,d+l =	19.98	16.51	16.80	23.33
Mmax,sust =	9.03	6.57	7.63	8.76

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Deflections (mm)				
le,d (m^4)=	0.00137	0.00137	0.00137	0.00137
le,d+l (m^4)=	0.00137	0.00137	0.00137	0.00137
le,sust (m^4)=	0.00137	0.00137	0.00137	0.00137
e/1+50r =	1.71/0.68	2.00/0.80	2.00/0.80	2.00/0.80
ai,d =	-0.024	0.347	0.458	0.629
ai,l =	-0.057	0.311	0.310	0.662
at,sust =	-0.016	0.271	0.358	0.491
ai,l =	L/*****	L/13232	L/14581	L/ 7205
(ai+at),t2-t1	L/*****	L/ 5843	L/ 5459	L/ 3472

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	5 4.35	6 0.	7 4.35	8 0.
As	0.	9.54	4.35	9.13
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00137	0.00137	0.00137	0.00137
Icr(m^4)=	0.00019	0.00036	0.00019	0.00035
Mcr =	26.29	26.29	26.29	26.29
Mmax,d =	59.45	48.49	44.65	48.59
Mmax,d+l =	22.06	66.14	56.55	64.05
Mmax,sust =	38.64	31.52	29.02	31.58
le,d (m^4)=	0.00029	0.00052	0.00043	0.00051
le,d+l (m^4)=	0.00137	0.00042	0.00031	0.00042
le,sust (m^4)=	0.00056	0.00094	0.00106	0.00094
e/1+50r =	2.00/0.80	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	-1.308	11.484	-3.697	9.856
ai,l =	2.146	8.484	-4.614	6.214
at,sust =	-0.533	4.950	-1.001	4.196
ai,l =	L/ 2176	L/ 735	L/ 944	L/ 835
(ai+at),t2-t1	L/ 4041	L/ 357	L/ 631	L/ 374

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+

Beam 33 new	Code: ACI318-02
Project: 1	Page: 533
Designed by:	Date: 04/08/14

Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	8.35	0.62	0.	0.	0.42	0.00	100	-
118	1.71	0.64	8.35	0.62	0.	0.17	0.42	0.00	-	-
125	1.80	0.68	8.35	0.62	0.	0.18	0.42	0.00	-	-
236	3.16	1.08	8.35	0.62	0.	0.32	0.42	0.01	-	-
354	4.34	1.31	8.35	0.62	0.	0.44	0.42	0.01	-	-
472	5.27	1.34	6.71	-0.67	0.	0.53	0.42	0.01	-	-
590	5.93	1.15	4.49	-2.43	0.	0.60	0.42	0.01	-	-
708	6.33	0.76	2.26	-4.18	0.	0.64	0.42	0.01	-	-
826	6.46	0.17	0.04	-5.93	0.	0.66	0.42	0.01	-	-
944	6.33	-0.64	-2.19	-7.68	0.06	0.64	0.42	0.01	-	-
1062	5.94	-1.65	-4.41	-9.44	0.16	0.60	0.42	0.01	-	-
1180	5.29	-2.86	-6.64	-11.48	0.29	0.54	0.42	0.01	100	-
1298	4.38	-4.29	-8.86	-13.71	0.43	0.44	0.42	0.01	-	-
1416	3.20	-5.92	-11.09	-15.93	0.60	0.32	0.42	0.01	-	-
1534	1.76	-7.75	-13.31	-18.15	0.79	0.18	0.42	0.01	-	-
1652	0.06	-9.80	-15.54	-20.38	1.00	0.00	0.42	0.02	-	-
1770	-1.91	-12.05	-17.76	-22.60	1.24	0.	0.42	0.02	-	-
1888	-4.13	-14.51	-19.27	-24.11	1.49	0.	0.42	0.02	-	-
2006	-6.62	-17.17	-19.27	-24.11	1.77	0.	0.42	0.03	-	-
2110	-9.03	-19.69	-19.27	-24.11	2.04	0.	0.42	0.03	-	-
2124	-9.37	-20.04	-19.27	-24.11	2.04	0.	0.42	0.03	-	-
2242	-12.39	-23.25	-19.27	-24.11	2.04	0.	0.42	0.03	-	-
2360	-15.67	-27.09	-19.27	-24.11	2.04	0.	0.42	0.03	100	-
Span=2										
0	-15.67	-27.09	36.14	20.38	1.63	0.	0.42	0.03	100	-
206	-10.13	-17.66	36.14	20.38	1.63	0.	0.42	0.03	-	-
250	-9.04	-15.78	36.14	20.38	1.63	0.	0.42	0.03	-	-
411	-5.30	-9.28	36.14	20.38	0.95	0.	0.42	0.02	-	-
617	-0.01	-1.88	33.58	18.68	0.19	0.	0.42	0.00	-	-
822	5.75	2.16	28.68	15.41	0.	0.59	0.42	0.01	-	-
1028	10.65	5.22	23.75	12.14	0.	1.09	0.42	0.02	-	-
1233	15.01	7.37	18.85	8.87	0.	1.55	0.42	0.02	-	-
1439	18.39	8.86	13.92	5.60	0.	1.90	0.42	0.03	-	-
1644	20.74	9.68	9.02	2.34	0.	2.15	0.42	0.03	-	-
1850	22.09	9.82	4.10	-0.94	0.	2.29	0.42	0.04	-	-
2055	22.43	9.29	-0.81	-4.20	0.	2.33	0.42	0.04	100	-
2261	21.76	8.09	-5.73	-8.75	0.	2.26	0.42	0.04	-	-
2466	20.08	6.22	-9.44	-13.65	0.	2.08	0.42	0.03	-	-
2672	17.38	3.67	-12.71	-18.58	0.	1.79	0.42	0.03	-	-
2877	13.69	0.46	-15.98	-23.48	0.	1.41	0.42	0.02	-	-
3083	8.97	-3.44	-19.25	-28.41	0.35	0.92	0.42	0.01	-	-
3288	3.26	-7.99	-22.52	-33.31	0.82	0.33	0.42	0.01	-	-
3494	-3.49	-13.23	-25.09	-37.18	1.36	0.	0.42	0.02	-	-
3699	-11.21	-19.39	-25.09	-37.18	2.01	0.	0.42	0.03	-	-
3710	-11.65	-19.87	-25.09	-37.18	2.06	0.	0.42	0.03	-	-
3905	-19.98	-28.78	-25.09	-37.18	2.06	0.	0.42	0.03	-	-
4110	-28.87	-39.14	-25.09	-37.18	2.06	0.	0.42	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-28.87	-39.14	37.70	25.48	2.13	0.	0.42	0.03	100	-
226	-19.26	-28.30	37.70	25.48	2.13	0.	0.42	0.03	-	-
400	-12.51	-20.61	37.70	25.48	2.13	0.	0.42	0.03	-	-
452	-10.61	-18.42	37.70	25.48	1.90	0.	0.42	0.03	-	-
678	-2.92	-9.49	37.36	25.21	0.97	0.	0.42	0.02	-	-
904	3.81	-3.91	33.12	21.88	0.40	0.39	0.42	0.01	-	-
1130	10.13	0.66	28.88	18.54	0.	1.04	0.42	0.02	-	-
1356	15.87	4.47	24.64	15.20	0.	1.64	0.42	0.03	-	-
1445	17.87	5.76	22.97	13.89	0.	1.85	0.42	0.03	-	-
1455	18.04	5.87	13.97	7.80	0.	1.86	0.42	0.03	-	-
1582	19.49	6.74	11.58	5.93	0.	2.02	0.42	0.03	-	-
1808	21.32	7.71	7.35	1.89	0.	2.21	0.42	0.04	-	-
2034	22.19	7.92	3.11	-2.35	0.	2.30	0.42	0.04	-	-
2260	22.11	7.37	-1.13	-6.59	0.	2.29	0.42	0.04	100	-
2486	21.06	6.07	-5.37	-10.83	0.	2.18	0.42	0.03	-	-
2712	19.06	4.02	-9.51	-15.07	0.	1.97	0.42	0.03	-	-
2938	16.10	1.21	-12.84	-19.31	0.	1.66	0.42	0.03	-	-
3164	12.18	-2.35	-16.18	-23.55	0.24	1.25	0.42	0.02	-	-
3390	7.31	-6.66	-19.52	-27.79	0.68	0.75	0.42	0.01	-	-
3616	1.47	-11.73	-22.85	-32.03	1.20	0.15	0.42	0.02	-	-
3842	-5.32	-17.55	-26.19	-36.27	1.81	0.	0.42	0.03	-	-
4068	-13.07	-25.63	-26.45	-36.61	2.67	0.	0.42	0.04	-	-
4120	-14.99	-27.76	-26.45	-36.61	2.90	0.	0.42	0.05	-	-
4294	-21.78	-35.27	-26.45	-36.61	2.90	0.	0.42	0.05	-	-
4520	-31.45	-45.86	-26.45	-36.61	2.90	0.	0.42	0.05	100	-
Span=4										
0	-31.45	-45.86	44.22	25.98	2.47	0.	0.42	0.04	100	-
238	-22.79	-32.26	44.22	25.98	2.47	0.	0.42	0.04	-	-
400	-15.28	-23.77	44.22	25.98	2.47	0.	0.42	0.04	-	-
477	-11.93	-19.96	44.22	25.98	2.07	0.	0.42	0.03	-	-
715	-2.47	-9.43	42.90	25.10	0.97	0.	0.42	0.02	-	-
954	5.67	-3.89	37.19	21.30	0.39	0.58	0.42	0.01	-	-
1192	13.19	0.73	31.49	17.51	0.	1.36	0.42	0.02	-	-
1431	19.67	4.46	25.78	13.71	0.	2.04	0.42	0.03	-	-
1669	24.77	7.27	20.09	9.92	0.	2.58	0.42	0.04	-	-
1908	28.53	9.19	14.37	6.12	0.	2.98	0.42	0.05	-	-
2146	30.91	10.20	8.68	2.33	0.	3.23	0.42	0.05	-	-
2385	31.94	10.30	2.97	-3.03	0.	3.34	0.42	0.05	100	-
2623	31.61	9.50	-2.72	-8.72	0.	3.31	0.42	0.05	-	-
2862	29.92	7.79	-7.80	-14.44	0.	3.13	0.42	0.05	-	-
3100	26.87	5.18	-11.59	-20.13	0.	2.80	0.42	0.04	-	-
3339	22.45	1.66	-15.39	-25.85	0.	2.33	0.42	0.04	-	-
3577	16.69	-2.76	-19.18	-31.54	0.28	1.72	0.42	0.03	-	-
3816	9.54	-8.10	-22.98	-37.25	0.83	0.98	0.42	0.02	-	-
4054	1.07	-14.31	-26.77	-42.94	1.47	0.10	0.42	0.02	-	-
4293	-8.64	-23.51	-27.66	-44.28	2.44	0.	0.42	0.04	-	-
4370	-11.99	-27.32	-27.66	-44.28	2.85	0.	0.42	0.05	-	-
4531	-19.47	-35.77	-27.66	-44.28	2.85	0.	0.42	0.05	-	-
4770	-31.71	-49.44	-27.66	-44.28	2.85	0.	0.42	0.05	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=5										
0	-31.71	-49.44	46.57	25.05	2.66	0.	0.42	0.04	100	-
234	-20.10	-34.93	46.57	25.05	2.66	0.	0.42	0.04	-	-
400	-12.27	-25.58	46.57	25.05	2.66	0.	0.42	0.04	-	-
467	-9.33	-22.03	46.57	25.05	2.28	0.	0.42	0.04	-	-
701	-0.06	-10.62	45.41	24.21	1.09	0.	0.42	0.02	-	-
934	7.67	-5.51	38.79	19.46	0.56	0.78	0.42	0.01	-	-
1168	15.34	-1.52	32.14	14.68	0.15	1.58	0.42	0.03	-	-
1401	21.44	1.35	25.52	9.93	0.	2.22	0.42	0.04	-	-
1635	26.01	3.11	18.87	5.15	0.	2.71	0.42	0.04	-	-
1868	29.01	3.76	12.25	0.39	0.	3.03	0.42	0.05	-	-
2102	30.48	3.29	5.60	-4.38	0.	3.19	0.42	0.05	-	-
2335	30.39	1.71	-1.02	-10.14	0.	3.18	0.42	0.05	100	-
2569	28.75	-0.98	-7.66	-16.79	0.10	3.00	0.42	0.05	-	-
2705	27.08	-3.06	-11.53	-20.65	0.31	2.82	0.42	0.04	-	-
2715	26.88	-3.27	-23.62	-32.75	0.33	2.80	0.42	0.04	-	-
2802	24.49	-5.52	-26.10	-35.22	0.56	2.55	0.42	0.04	-	-
3036	16.98	-12.35	-31.12	-41.87	1.27	1.75	0.42	0.03	-	-
3269	7.95	-20.25	-35.88	-48.49	2.10	0.81	0.42	0.03	-	-
3503	-2.66	-29.31	-40.66	-55.14	3.06	0.	0.42	0.05	-	-
3736	-14.77	-39.43	-45.41	-61.76	4.16	0.	0.42	0.07	-	-
3970	-28.49	-50.72	-50.19	-68.40	5.40	0.	0.42	0.09	-	-
4203	-43.46	-64.84	-51.00	-69.54	7.00	0.	0.42	0.11	-	-
4270	-47.94	-69.93	-51.00	-69.54	7.59	0.	0.42	0.12	-	-
4437	-59.65	-83.18	-51.00	-69.54	7.59	0.	0.42	0.12	-	-
4670	-77.33	-102.98	-51.00	-69.54	7.59	0.	0.42	0.12	100	-
Span=6										
0	-77.33	-102.98	84.18	59.80	6.91	0.	0.42	0.11	100	-
312	-55.39	-72.25	84.18	59.80	6.91	0.	0.42	0.11	-	-
400	-49.56	-64.08	84.18	59.80	6.91	0.	0.42	0.11	-	-
624	-32.48	-44.28	84.18	59.80	4.69	0.	0.42	0.07	-	-
936	-8.74	-19.18	76.34	54.16	1.98	0.	0.42	0.03	-	-
1248	12.25	-3.27	67.47	47.80	0.33	1.26	0.42	0.02	-	-
1560	30.99	10.65	58.61	41.43	0.	3.24	0.42	0.05	-	-
1872	47.12	22.58	49.75	35.06	0.	5.00	0.42	0.08	-	-
2184	60.48	32.52	40.88	28.69	0.	6.50	0.42	0.10	-	-
2496	71.08	40.48	32.02	22.32	0.	7.72	0.42	0.12	-	-
2808	78.91	46.45	23.15	15.95	0.	8.64	0.42	0.14	-	-
3120	83.97	50.44	14.29	9.58	0.	9.24	0.42	0.15	100	-
3432	86.28	52.43	5.42	0.77	0.	9.52	0.42	0.15	-	-
3555	86.42	52.67	1.93	-2.73	0.	9.54	0.42	0.15	-	-
3565	86.31	52.61	-13.65	-23.59	0.	9.52	0.42	0.15	-	-
3744	82.02	49.79	-17.31	-28.67	0.	9.01	0.42	0.14	-	-
4056	72.37	43.32	-23.68	-37.54	0.	7.87	0.42	0.12	-	-
4368	59.96	34.87	-30.05	-46.40	0.	6.44	0.42	0.10	-	-
4680	44.78	24.42	-36.41	-55.27	0.	4.74	0.42	0.08	-	-
4992	27.38	11.99	-42.78	-64.13	0.	2.85	0.42	0.05	-	-
5304	7.44	-2.54	-49.15	-72.99	0.25	0.76	0.42	0.01	-	-
5616	-15.26	-26.70	-55.52	-81.86	2.78	0.	0.42	0.04	-	-
5880	-31.34	-49.30	-55.60	-81.97	5.24	0.	0.42	0.08	-	-
5928	-34.29	-53.62	-55.60	-81.97	5.24	0.	0.42	0.08	-	-
6240	-54.59	-83.31	-55.60	-81.97	5.24	0.	0.42	0.08	100	-

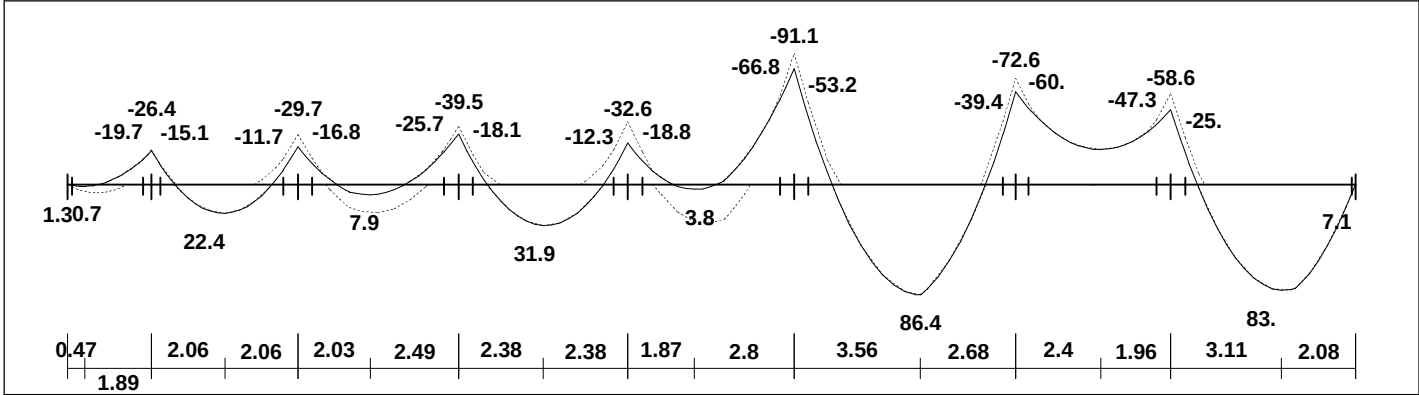
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Detailed results - at 1/20 of span, support faces, etc.

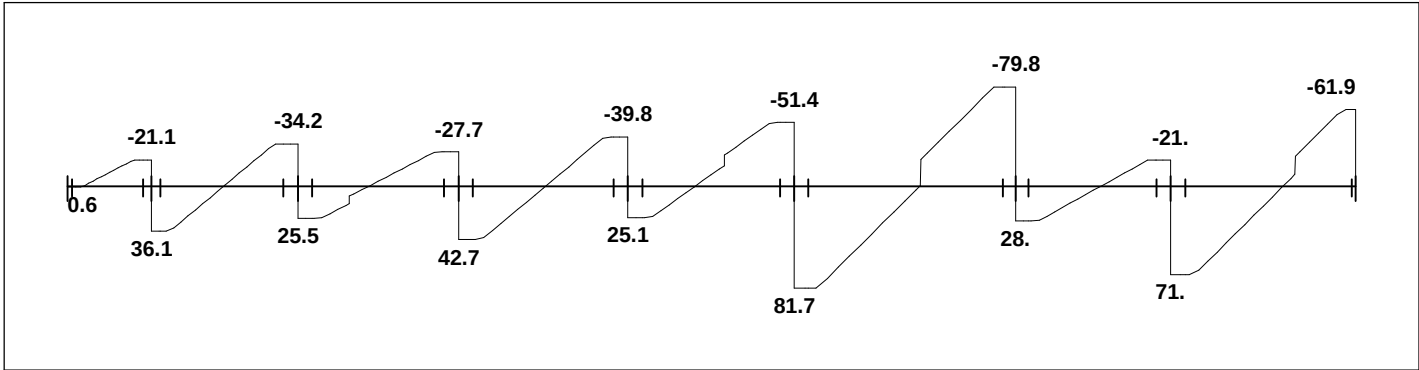
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=7										
0	-54.59	-83.31	45.23	27.01	6.82	0.	0.42	0.11	100	-
218	-44.63	-70.79	45.23	27.01	6.82	0.	0.42	0.11	-	-
360	-38.76	-63.24	45.23	27.01	6.82	0.	0.42	0.11	-	-
436	-35.81	-59.40	45.23	27.01	6.38	0.	0.42	0.10	-	-
654	-28.13	-51.24	44.41	26.47	5.46	0.	0.42	0.09	-	-
872	-20.64	-45.62	39.20	23.00	4.84	0.	0.42	0.08	-	-
1090	-14.24	-40.76	33.99	19.53	4.30	0.	0.42	0.07	-	-
1308	-8.98	-36.66	28.78	16.06	3.85	0.	0.42	0.06	-	-
1526	-4.85	-33.31	23.56	11.78	3.49	0.	0.42	0.06	-	-
1744	-1.86	-30.72	18.35	6.57	3.21	0.	0.42	0.05	-	-
1962	-0.01	-28.88	13.14	1.36	3.01	0.	0.42	0.05	-	-
2180	0.71	-27.80	7.92	-3.85	2.90	0.07	0.42	0.05	100	-
2398	0.29	-27.48	2.71	-9.07	2.86	0.02	0.42	0.05	-	-
2616	-1.27	-27.91	-2.50	-14.28	2.91	0.	0.42	0.05	-	-
2834	-3.96	-29.10	-7.19	-19.49	3.04	0.	0.42	0.05	-	-
3052	-7.79	-31.05	-10.66	-24.71	3.25	0.	0.42	0.05	-	-
3270	-12.75	-33.75	-14.13	-29.92	3.54	0.	0.42	0.06	-	-
3488	-18.86	-37.21	-17.60	-35.13	3.91	0.	0.42	0.06	-	-
3706	-24.96	-41.58	-20.97	-40.20	4.39	0.	0.42	0.07	-	-
3924	-31.76	-49.26	-20.97	-40.20	5.24	0.	0.42	0.08	-	-
3960	-32.99	-50.92	-20.97	-40.20	5.42	0.	0.42	0.09	-	-
4142	-39.69	-59.76	-20.97	-40.20	5.42	0.	0.42	0.09	-	-
4360	-48.76	-71.40	-20.97	-40.20	5.42	0.	0.42	0.09	100	-
Span=8										
0	-48.76	-71.40	73.44	52.45	3.87	0.	0.42	0.06	100	-
260	-32.31	-48.39	73.44	52.45	3.87	0.	0.42	0.06	-	-
400	-24.02	-36.79	73.44	52.45	3.87	0.	0.42	0.06	-	-
519	-15.86	-27.38	73.44	52.45	2.85	0.	0.42	0.05	-	-
779	2.67	-8.59	70.05	50.02	0.88	0.27	0.42	0.01	-	-
1038	19.22	3.98	62.70	44.73	0.	1.99	0.42	0.03	-	-
1298	33.92	15.21	55.31	39.42	0.	3.56	0.42	0.06	-	-
1557	46.66	25.03	47.95	34.14	0.	4.95	0.42	0.08	-	-
1817	57.52	33.51	40.56	28.83	0.	6.17	0.42	0.10	-	-
2076	66.44	40.58	33.20	23.54	0.	7.18	0.42	0.11	-	-
2336	73.47	46.31	25.82	18.24	0.	8.00	0.42	0.13	-	-
2595	78.56	50.64	18.46	12.95	0.	8.60	0.42	0.14	100	-
2855	81.76	53.61	11.07	7.64	0.	8.98	0.42	0.14	-	-
3114	83.04	55.20	3.71	1.25	0.	9.13	0.42	0.14	-	-
3374	82.40	55.42	-1.82	-6.14	0.	9.05	0.42	0.14	-	-
3495	81.45	55.05	-4.29	-9.58	0.	8.94	0.42	0.14	-	-
3505	81.28	54.95	-15.41	-24.30	0.	8.92	0.42	0.14	-	-
3633	77.94	52.81	-18.03	-27.94	0.	8.53	0.42	0.14	-	-
3893	69.71	47.43	-23.33	-35.33	0.	7.56	0.42	0.12	-	-
4152	59.61	40.70	-28.62	-42.68	0.	6.40	0.42	0.10	-	-
4412	47.55	32.57	-33.93	-50.07	0.	5.05	0.42	0.08	-	-
4671	33.63	23.10	-39.21	-57.43	0.	3.53	0.42	0.06	-	-
4931	17.74	12.22	-42.46	-61.95	0.	1.83	0.42	0.03	-	-
5090	7.08	4.88	-42.46	-61.95	0.	0.72	0.42	0.01	-	-
5190	0.00	0.00	-42.46	-61.95	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

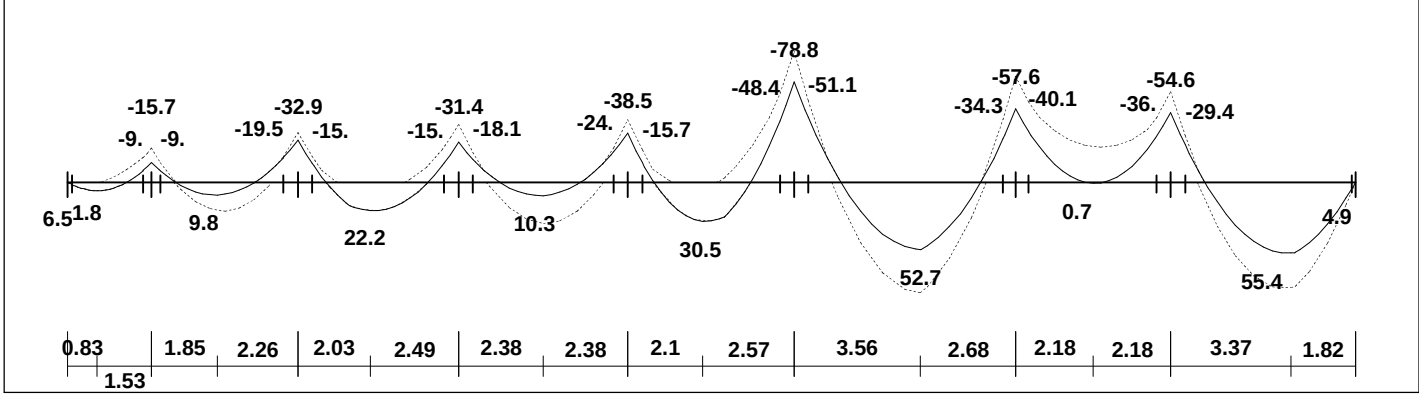
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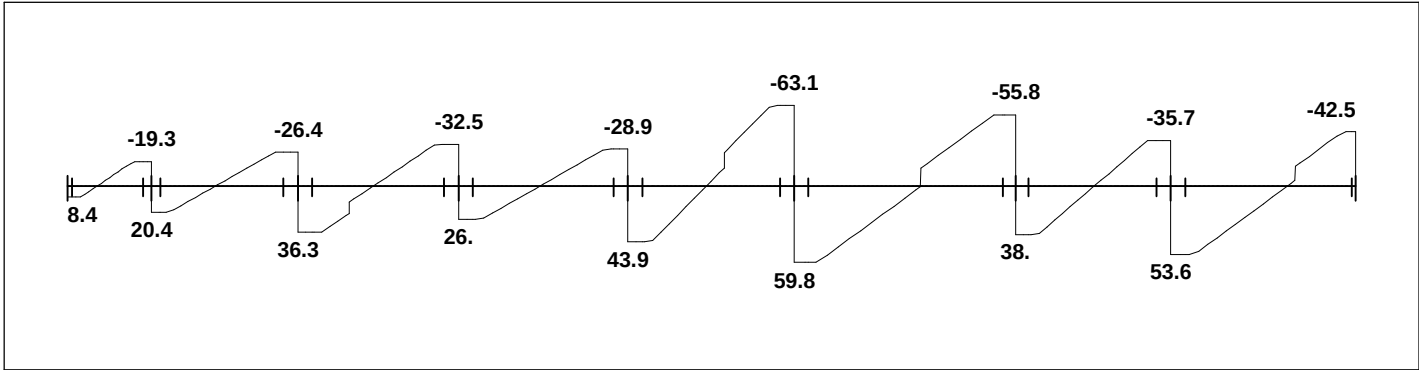
Shear



Moments: spans 1 to 8 Load pattern: XXxxXXxxXXxxXXxx



Shear

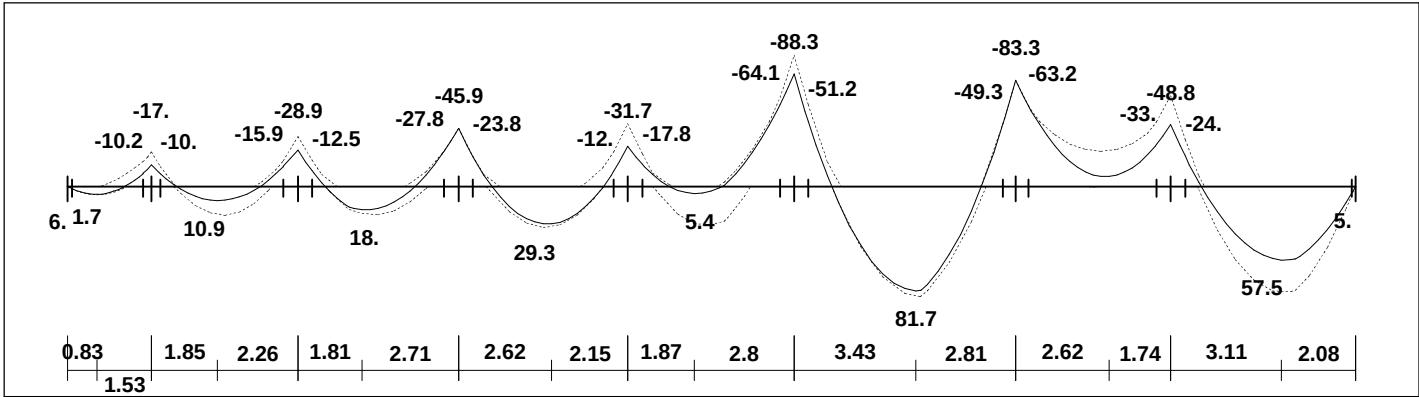


Beam 33 new
Project: 1
Designed by:

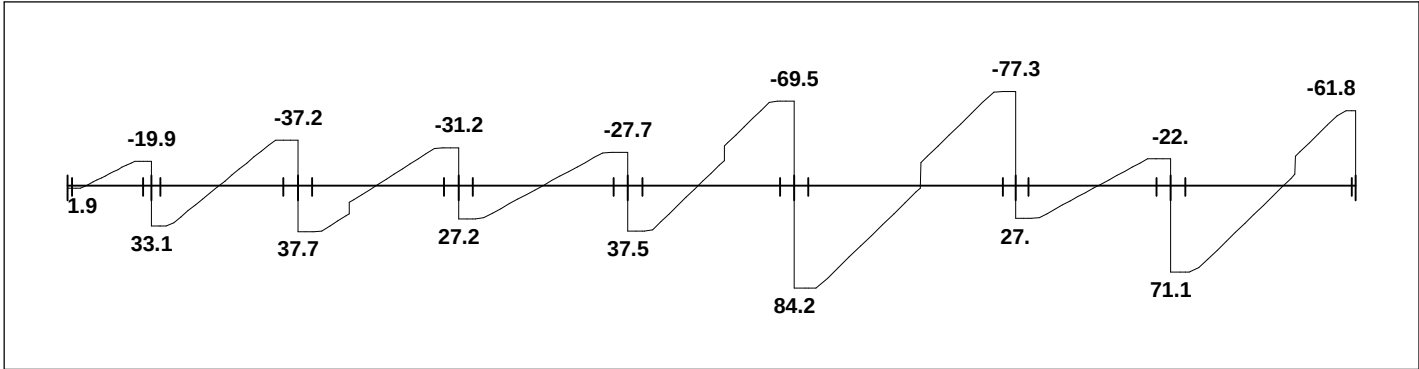
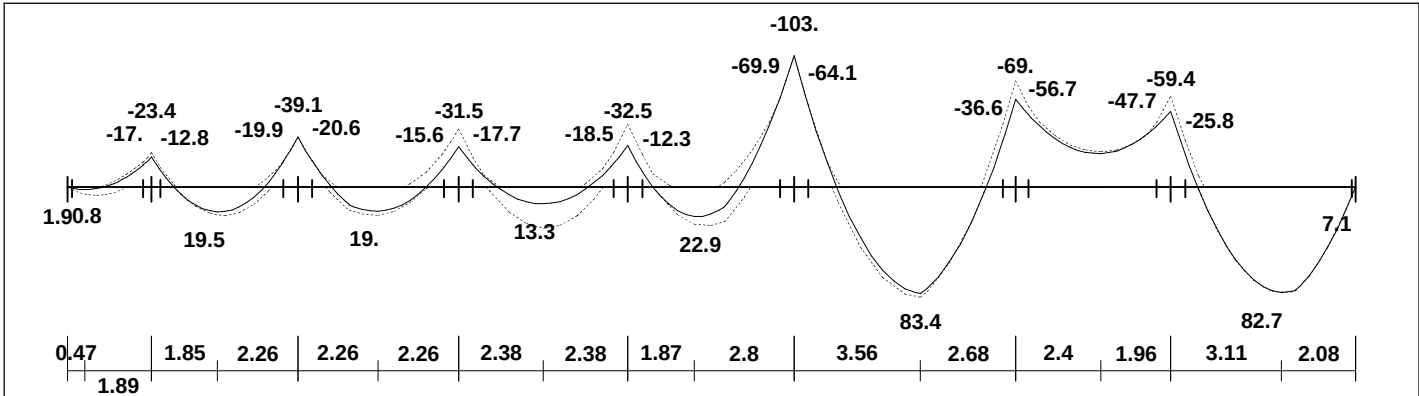
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8 Load pattern: XXxxXXXXxxXXXXxx



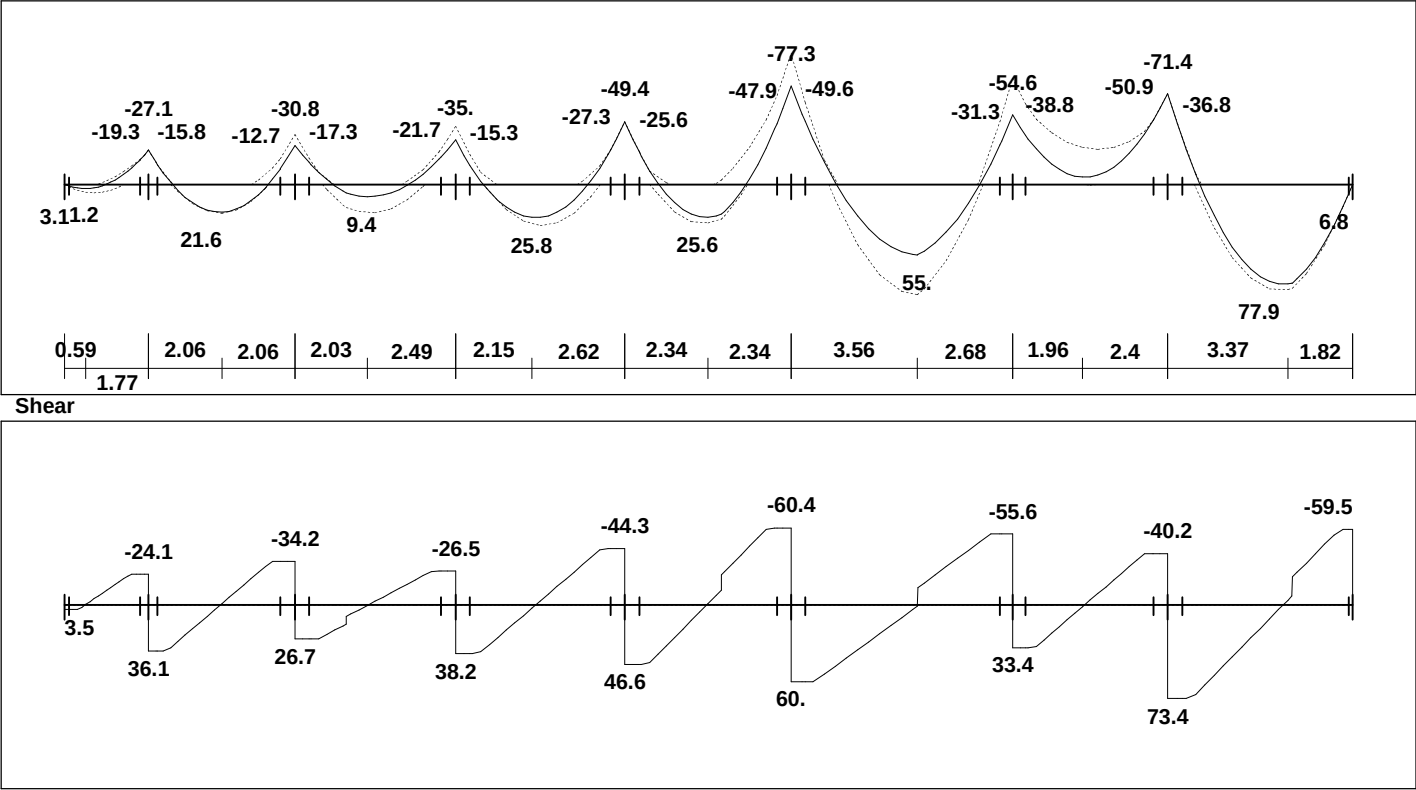
Moments: spans 1 to 8 Load pattern: xxXXXXxxXXXXxxXX



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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8 Load pattern: XXXXxxXXXXxxXXXX



	Moment/Shear Envelope (Factored)								Units:kN,meter
	1	2		3		4		5	
	1		2		3		4		
Min M	0.0	-27.1	-27.1	-39.1	-39.1	-45.9	-45.9	-49.4	
Max M	0.0	-15.7	-15.7	-28.9	-28.9	-31.4	-31.4	-31.7	
MspMn	0.7	-19.7	-15.8	-19.9	-20.6	-27.8	-23.8	-27.3	
MspMx	1.8	-9.0	-9.0	-11.7	-12.5	-15.0	-15.3	-12.0	
M Max				22.4		22.2		31.9	
M Min				9.8		7.9		10.3	
Mmn=0 @	0.0	1.5	0.7	1.2	1.1	1.5	1.2	1.3	
Mmx=0 @	0.0	0.7	0.6	0.7	0.8	0.9	0.8	0.7	
mx -M @			0.6		0.8		0.8		
mx +M @			2.1		2.0		2.4		
V max	15.6	-27.4	48.3	-35.6	50.1	-36.2	60.0	-38.2	
V min	6.3	-33.7	28.5	-53.0	35.2	-49.0	36.5	-60.1	
DReac	10.5	54.9		71.8		74.2		79.6	
LReac	5.1	27.1		31.2		34.8		45.8	
Max R	15.6	82.0		103.0		109.0		125.4	
Min R	6.3	57.4		80.2		81.3		93.0	
	5	6		7		8		9	
	5		6		7		8		
Min M	-49.4	-103.0	-103.0	-83.3	-83.3	-71.4	-71.4	0.0	
Max M	-31.7	-77.3	-77.3	-54.6	-54.6	-48.8	-48.8	0.0	
MspMn	-25.6	-69.9	-64.1	-49.3	-63.2	-50.9	-36.8	4.9	
MspMx	-12.3	-47.9	-49.6	-31.3	-38.8	-33.0	-24.0	7.1	
M Max			86.4		0.7		83.0		
M Min			52.7		-27.5		55.4		
Mmn=0 @	1.3	2.2	1.3	1.0	0.0	4.4	1.0	5.2	
Mmx=0 @	0.7	1.2	1.1	0.8	2.0	1.9	0.7	5.2	
mx -M @			1.1		2.0		0.7		
mx +M @			3.6		2.2		3.1		
V max	65.3	-64.5		-68.3	60.1	-31.5	92.2	-49.8	
V min	38.5	-88.3	73.3	-99.6	36.9	-56.0	65.9	-72.2	
DReac	79.6	134.3		105.3		98.7		51.3	
LReac	45.8	57.0		54.4		49.5		20.9	

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Moment / Shear Envelope (Factored)		Units:kN,meter		
Max R	191.2	159.6	148.2	72.2
Min R	93.0	152.7	110.1	49.8

Individual load cases - factored					Units:kN,meter				
	1	2		3		4		5	
	1		2		3		4		
	-----		-----		-----		-----		
Min M	0.0	-26.4	-26.4	-29.7	-29.7	-39.5	-39.5	-32.6	
M Max			22.4		7.9		31.9		
Mmx=0 @	0.0	1.5	0.7	0.7	1.1	1.5	0.8	0.7	
mx +M			2.1		2.0		2.4		
V max	6.3	-28.7	48.3	-49.9	35.2	-37.4	58.5	-55.6	
	5	6		7		8		9	
	5		6		7		8		
	-----		-----		-----		-----		
Min M	-32.6	-91.1	-91.1	-72.6	-72.6	-58.6	-58.6	0.0	
M Max			86.4		-27.5		83.0		
Mmx=0 @	1.3	2.2	1.1	0.9	0.0	4.4	0.7	5.2	
mx +M			3.6		2.4		3.1		
V max	38.5	-64.9		-97.4	37.9	-31.5	89.7	-72.2	
	1	2		3		4		5	
	1		2		3		4		
	-----		-----		-----		-----		
Min M	0.0	-15.7	-15.7	-32.9	-32.9	-31.4	-31.4	-38.5	
M Max			9.8		22.2		10.3		
Mmx=0 @	0.0	0.7	0.7	1.2	0.8	0.9	1.2	1.3	
mx +M			1.9		2.0		2.4		
V max	15.6	-28.9	28.5	-36.9	48.7	-44.9	36.5	-39.4	
	5	6		7		8		9	
	5		6		7		8		
	-----		-----		-----		-----		
Min M	-38.5	-78.8	-78.8	-57.6	-57.6	-54.6	-54.6	0.0	
M Max			52.7		0.7		55.4		
Mmx=0 @	0.7	1.2	1.3	1.0	2.0	1.9	1.0	5.2	
mx +M			3.6		2.2		3.4		
V max	62.7	-81.8	73.3	-68.5	52.8	-51.4	67.1	-49.8	
	1	2		3		4		5	
	1		2		3		4		
	-----		-----		-----		-----		
Min M	0.0	-17.0	-17.0	-28.9	-28.9	-45.9	-45.9	-31.7	
M Max			10.9		18.0		29.3		
Mmx=0 @	0.0	0.8	0.7	1.1	0.8	1.2	0.9	0.7	
mx +M			1.9		1.8		2.6		
V max	15.1	-29.4	29.8	-35.6	44.6	-49.0	60.0	-54.1	
	5	6		7		8		9	
	5		6		7		8		
	-----		-----		-----		-----		
Min M	-31.7	-88.3	-88.3	-83.3	-83.3	-48.8	-48.8	0.0	
M Max			81.7		-8.0		57.5		
Mmx=0 @	1.2	2.0	1.1	1.0	0.0	4.4	0.9	5.2	
mx +M			3.4		2.6		3.1		
V max	38.9	-64.5	98.3	-99.6	60.1	-44.2	65.9	-50.9	
	1	2		3		4		5	
	1		2		3		4		
	-----		-----		-----		-----		
Min M	0.0	-23.4	-23.4	-39.1	-39.1	-31.5	-31.5	-32.5	
M Max			19.5		19.0		13.3		
Mmx=0 @	0.0	1.3	0.6	0.9	1.0	0.9	1.1	1.1	
mx +M			1.9		2.3		2.4		
V max	7.6	-27.4	45.3	-53.0	50.1	-43.5	37.7	-38.2	
	5	6		7		8		9	
	5		6		7		8		
	-----		-----		-----		-----		
Min M	-32.5	-103.0	-103.0	-69.0	-69.0	-59.4	-59.4	0.0	
M Max			83.4		-26.3		82.7		
Mmx=0 @	0.7	1.6	1.2	0.8	0.0	4.4	0.8	5.2	
mx +M			3.6		2.4		3.1		
V max	56.2	-88.3		-94.9	36.9	-32.5	89.9	-72.0	
	1	2		3		4		5	

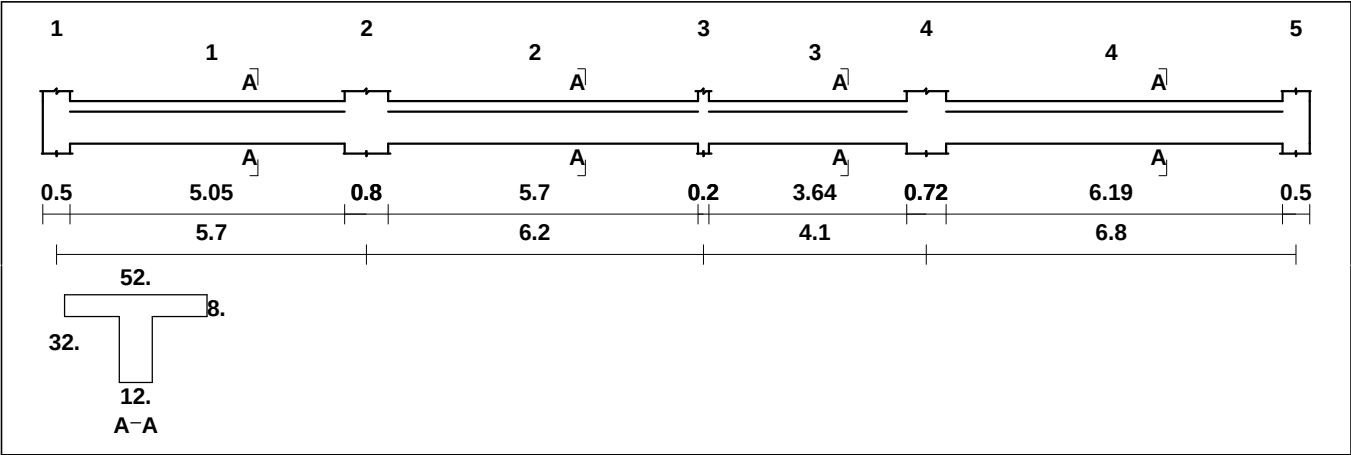
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Individual load cases - factored									
Units:kN,meter									
	1	2	3	4					
Min M									
M Max	0.0	-27.1	-27.1	-30.8	-30.8	-35.0	-35.0	-49.4	
Mmx=0 @	0.0	1.2	0.7	21.6	0.8	1.1	1.3	0.8	1.0
mx +M				2.1		2.0		2.1	
V max	10.8	-33.7	48.2	-50.0	36.5	-36.2	54.0	-60.1	
	5	6	7	8	9				
Min M									
M Max	-49.4	-77.3	-77.3	-54.6	-54.6	-71.4	-71.4	0.0	
Mmx=0 @	1.0	1.3	1.3	55.0	0.9	0.0	4.4	0.9	5.2
mx +M				3.6		2.0		3.4	
V max	65.3	-79.2	73.5	-68.3	48.3	-56.0	92.2	-69.7	

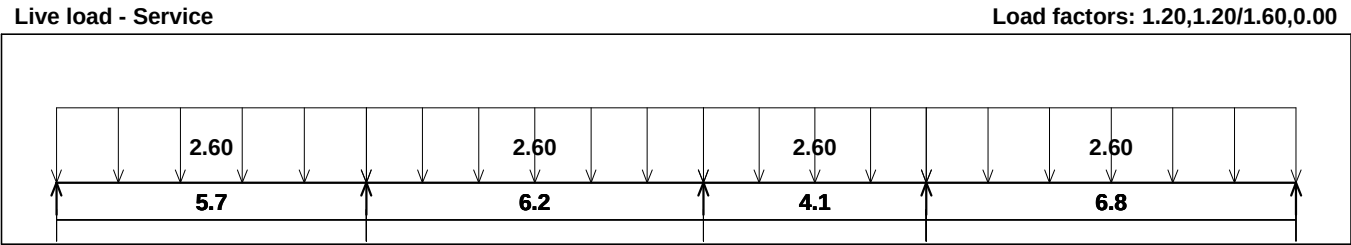
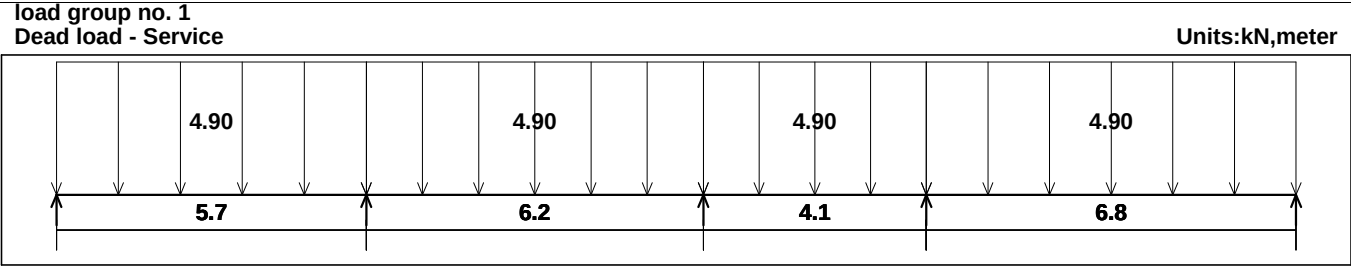
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Geometry

Units: meter, cm

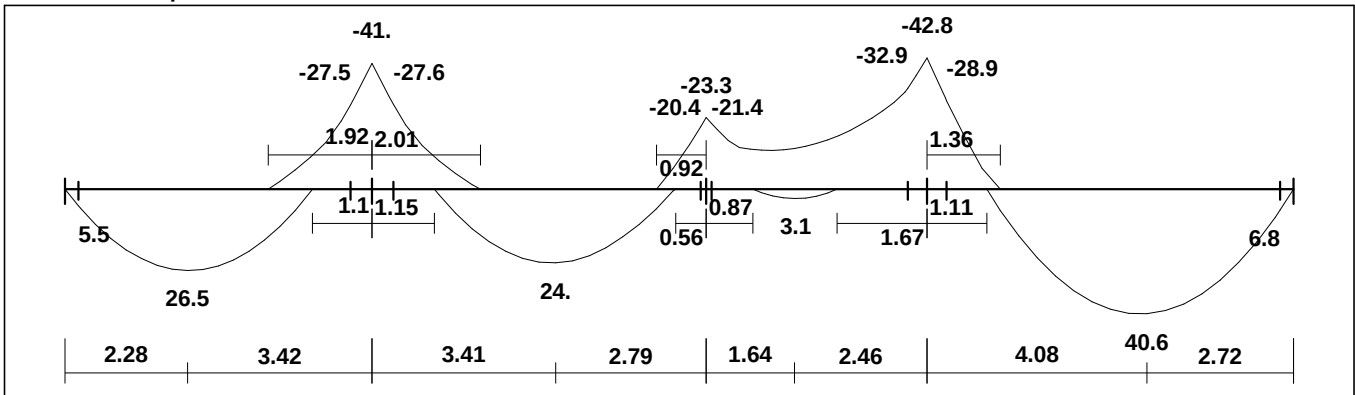


Loading



Loads (kN, meter)											
1			2			3			4		
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60

Moments: spans 1 to 4



Shear force diagram

Figure 1.10

Factored

	1000	2000	3000	4000	5000
DeadR	12.63	41.29	24.73	38.95	16.47
LiveR	10.46	30.	25.48	30.75	12.12
Max R	23.09	71.29	50.21	69.71	28.59
Min R	11.11	54.39	26.04	44.56	16.
Service					
DeadR	10.52	34.4	20.6	32.46	13.72
LiveR	6.54	18.75	15.92	19.22	7.58
Max R	17.06	53.16	36.53	51.68	21.3
Min R	9.57	42.59	21.43	35.97	13.43

Concrete: B300
Moment redistribution: No
Support moment at: Face

Top Cover	4.	4.	4.	4.
As top = *=minimum	2.87	2.25*	1.47	3.48
As bot =	0.76	2.56	2.31	1.12*
Bot Cover	1%	4.	4.	4.
a/d	1%	4%	3%	8%
As/bd	0.00%	0.76%	0.69%	0.44%

rib11
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Designed by:

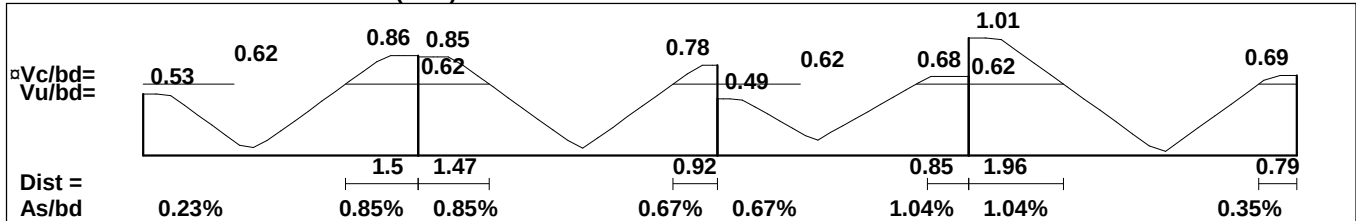
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Shear

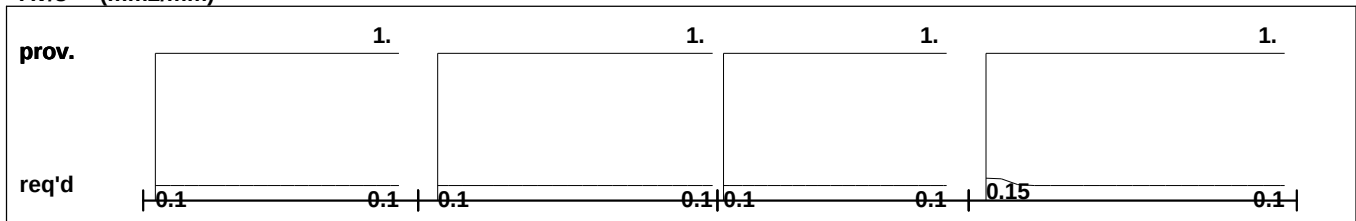
Shear design: Stirrups only

Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

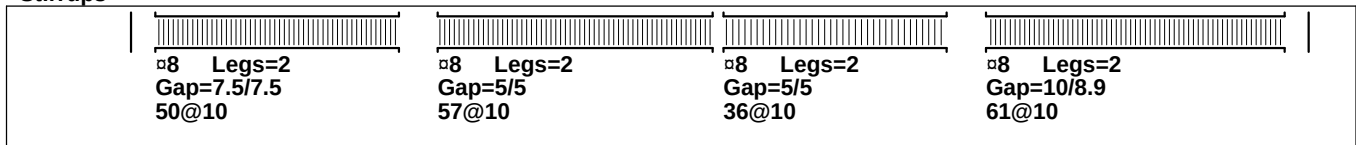
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

	1	2	3	4
A's	0.	0.	1.12	0.
As	2.56	2.31	1.47	3.96
fr = 3	Es= 209	Ec = 23		
Ig(m ⁴)=	0.00060	0.00060	0.00060	0.00060
Icr(m ⁴)=	0.00014	0.00013	0.00007	0.00021
Mcr =	8.56	8.56	17.41	8.56
Mmax,d =	11.26	9.87	19.96	19.20
Mmax,d+l =	19.40	17.50	28.55	30.20
Mmax,sust =	7.32	6.41	12.98	12.48
Ie,d (m ⁴)=	0.00034	0.00043	0.00042	0.00024
Ie,d+l (m ⁴)=	0.00018	0.00018	0.00019	0.00022
Ie,sust (m ⁴)=	0.00060	0.00060	0.00060	0.00033
e/1+50r =	2.00/0.80	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	3.528	2.663	-1.248	13.939
ai,l =	9.132	9.740	-4.463	11.002
at,sust =	1.578	1.514	-0.588	7.914
ai,l =	L/ 624	L/ 636	L/ 918	L/ 618
(ai+at),t2-t1	L/ 477	L/ 508	L/ 747	L/ 285

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	17.76	7.99	0.	0.	0.10	0.00	100	-
250	5.46	2.59	17.76	7.99	0.	0.51	0.10	0.01	-	-
285	6.17	2.93	17.76	7.99	0.	0.58	0.10	0.01	-	-
570	11.53	5.38	17.36	7.76	0.	1.10	0.10	0.02	-	-
855	16.07	7.35	14.50	6.08	0.	1.53	0.10	0.02	-	-
1140	19.79	8.84	11.64	4.40	0.	1.90	0.10	0.03	-	-
1425	22.70	9.86	8.78	2.73	0.	2.18	0.10	0.03	-	-
1710	24.80	10.40	5.92	1.05	0.	2.39	0.10	0.03	-	-
1995	26.08	10.46	3.06	-0.62	0.	2.51	0.10	0.04	-	-
2280	26.54	10.04	0.19	-2.30	0.	2.56	0.10	0.04	-	-
2565	26.19	9.15	-2.67	-4.33	0.	2.52	0.10	0.04	-	-
2850	25.02	7.78	-5.35	-7.20	0.	2.41	0.10	0.03	100	-
3135	23.04	5.93	-7.03	-10.06	0.	2.21	0.10	0.03	-	-
3420	20.24	3.60	-8.70	-12.92	0.	1.94	0.10	0.03	-	-
3705	16.62	0.80	-10.38	-15.78	0.	1.59	0.10	0.02	-	-
3990	12.19	-2.49	-12.05	-18.64	0.23	1.16	0.10	0.02	-	-
4275	6.95	-6.24	-13.73	-21.50	0.60	0.66	0.10	0.04	-	-
4560	0.89	-10.48	-15.40	-24.36	1.02	0.08	0.10	0.06	-	-
4845	-5.99	-15.20	-17.08	-27.23	1.51	0.	0.10	0.09	-	-
5130	-13.68	-22.24	-18.11	-28.98	2.26	0.	0.10	0.14	-	-
5300	-18.66	-27.50	-18.11	-28.98	2.85	0.	0.10	0.17	-	-
5415	-22.19	-31.22	-18.11	-28.98	2.85	0.	0.10	0.17	-	-
5700	-30.49	-41.02	-18.11	-28.98	2.85	0.	0.10	0.17	100	-
Span=2										
0	-30.49	-41.02	28.65	17.62	2.87	0.	0.10	0.18	100	-
310	-20.97	-30.50	28.65	17.62	2.87	0.	0.10	0.18	-	-
400	-18.39	-27.63	28.65	17.62	2.87	0.	0.10	0.18	-	-
620	-12.41	-20.95	28.65	17.62	2.12	0.	0.10	0.13	-	-
930	-4.82	-14.19	26.14	16.15	1.40	0.	0.10	0.09	-	-
1240	1.81	-9.26	23.03	14.32	0.90	0.17	0.10	0.06	-	-
1550	7.84	-5.07	19.92	12.50	0.48	0.74	0.10	0.03	-	-
1860	12.95	-1.48	16.81	10.68	0.14	1.23	0.10	0.02	-	-
2170	17.10	1.55	13.69	8.86	0.	1.63	0.10	0.02	-	-
2480	20.28	4.01	10.58	7.03	0.	1.94	0.10	0.03	-	-
2790	22.50	5.91	7.47	4.27	0.	2.16	0.10	0.03	-	-
3100	23.76	7.24	4.36	1.16	0.	2.28	0.10	0.03	100	-
3410	24.05	8.01	2.25	-1.96	0.	2.31	0.10	0.03	-	-
3720	23.37	8.21	0.43	-5.07	0.	2.25	0.10	0.03	-	-
4030	21.73	7.85	-1.40	-8.18	0.	2.09	0.10	0.03	-	-
4340	19.13	6.92	-3.22	-11.29	0.	1.83	0.10	0.03	-	-
4650	15.56	5.43	-5.04	-14.41	0.	1.49	0.10	0.02	-	-
4960	11.47	3.37	-6.86	-17.52	0.	1.09	0.10	0.02	-	-
5270	6.55	0.20	-8.69	-20.63	0.	0.62	0.10	0.01	-	-
5580	0.66	-6.68	-10.51	-23.74	0.64	0.06	0.10	0.04	-	-
5890	-3.03	-14.52	-11.92	-26.15	1.44	0.	0.10	0.09	-	-
6100	-5.75	-20.39	-11.92	-26.15	2.06	0.	0.10	0.13	-	-
6200	-7.14	-23.33	-11.92	-26.15	2.06	0.	0.10	0.13	100	-

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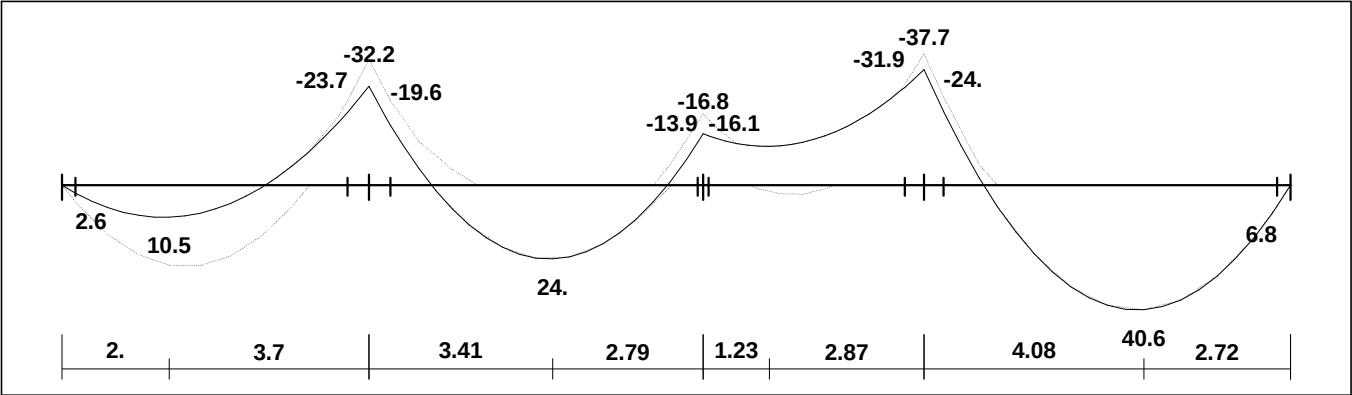
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-7.14	-23.33	16.42	3.91	2.16	0.	0.10	0.13	100	-
100	-6.00	-21.36	16.42	3.91	2.16	0.	0.10	0.13	-	-
205	-4.91	-19.40	16.42	3.91	1.95	0.	0.10	0.12	-	-
410	-3.11	-15.88	16.12	3.74	1.58	0.	0.10	0.10	-	-
615	-1.73	-13.60	14.06	2.53	1.34	0.	0.10	0.08	-	-
820	-0.34	-13.04	12.00	1.33	1.28	0.	0.10	0.08	-	-
1025	1.15	-12.73	9.95	0.12	1.25	0.10	0.10	0.08	-	-
1230	2.21	-12.66	7.89	-1.08	1.24	0.21	0.10	0.08	-	-
1435	2.86	-12.85	5.83	-2.52	1.26	0.27	0.10	0.08	-	-
1640	3.08	-13.27	3.77	-4.58	1.31	0.29	0.10	0.08	-	-
1845	2.88	-13.95	1.71	-6.64	1.38	0.27	0.10	0.08	-	-
2050	2.26	-14.87	-0.35	-8.70	1.47	0.21	0.10	0.09	100	-
2255	1.22	-16.04	-2.40	-10.76	1.59	0.11	0.10	0.10	-	-
2460	-0.25	-17.46	-4.46	-12.81	1.74	0.	0.10	0.11	-	-
2665	-2.14	-19.13	-6.52	-14.87	1.92	0.	0.10	0.12	-	-
2870	-4.45	-21.04	-8.58	-16.93	2.13	0.	0.10	0.13	-	-
3075	-7.18	-23.20	-10.64	-18.99	2.37	0.	0.10	0.15	-	-
3280	-10.33	-25.60	-12.34	-21.05	2.63	0.	0.10	0.16	-	-
3485	-13.78	-28.28	-13.39	-22.84	2.94	0.	0.10	0.18	-	-
3690	-17.01	-31.64	-13.39	-22.84	3.33	0.	0.10	0.20	-	-
3739	-17.85	-32.88	-13.39	-22.84	3.48	0.	0.10	0.21	-	-
3895	-20.67	-37.00	-13.39	-22.84	3.48	0.	0.10	0.21	-	-
4100	-24.75	-42.80	-13.39	-22.84	3.48	0.	0.10	0.21	100	-
Span=4										
0	-24.75	-42.80	33.99	19.86	3.01	0.	0.15	0.18	100	-
340	-17.05	-29.63	33.99	19.86	3.01	0.	0.15	0.18	-	-
361	-16.60	-28.86	33.99	19.86	3.01	0.	0.15	0.18	-	-
680	-10.04	-17.63	33.60	19.63	1.76	0.	0.15	0.11	-	-
1020	-2.45	-6.78	30.19	17.63	0.65	0.	0.11	0.04	-	-
1360	6.98	0.02	26.78	15.63	0.	0.66	0.10	0.01	-	-
1700	15.25	5.12	23.36	13.64	0.	1.46	0.10	0.02	-	-
2040	22.36	9.54	19.95	11.64	0.	2.15	0.10	0.03	-	-
2380	28.30	13.27	16.53	9.64	0.	2.73	0.10	0.04	-	-
2720	33.09	16.33	13.12	7.64	0.	3.20	0.10	0.05	-	-
3060	36.72	18.71	9.71	5.64	0.	3.56	0.10	0.05	-	-
3400	39.18	20.41	6.29	3.64	0.	3.81	0.10	0.05	100	-
3740	40.49	21.42	2.88	1.64	0.	3.94	0.10	0.06	-	-
4080	40.63	21.76	0.00	-1.28	0.	3.96	0.10	0.06	-	-
4420	39.61	21.42	-2.00	-4.70	0.	3.85	0.10	0.05	-	-
4760	37.44	20.40	-4.00	-8.11	0.	3.64	0.10	0.05	-	-
5100	34.10	18.70	-6.00	-11.52	0.	3.30	0.10	0.05	-	-
5440	29.60	16.32	-8.00	-14.94	0.	2.86	0.10	0.04	-	-
5780	23.94	13.26	-10.00	-18.35	0.	2.30	0.10	0.03	-	-
6120	17.12	9.52	-12.00	-21.76	0.	1.64	0.10	0.02	-	-
6460	9.14	5.10	-12.88	-23.27	0.	0.87	0.10	0.01	-	-
6550	6.83	3.82	-12.88	-23.27	0.	0.65	0.10	0.01	-	-
6800	0.00	0.00	-12.88	-23.27	0.	0.	0.10	0.00	100	-

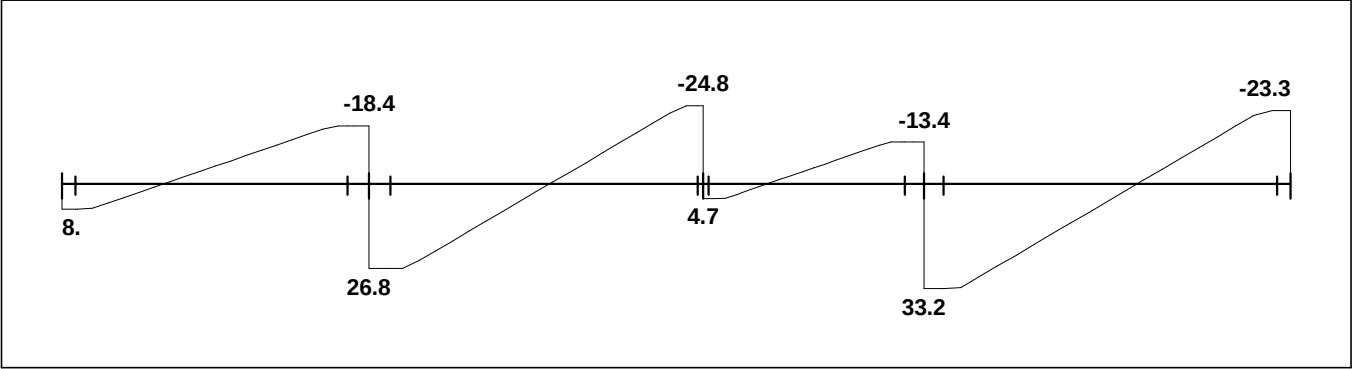
Moment/Shear Envelope (Factored) Units:kN,meter

Moment/Shear Envelope (Factored) Units:kN,meter

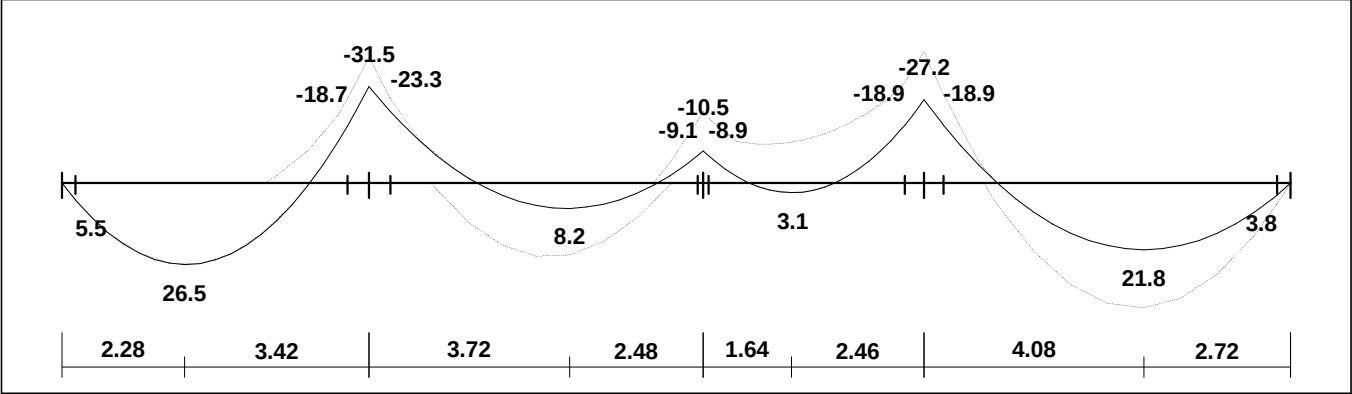
Moments: spans 1 to 4 Load pattern: xxXXxxXX



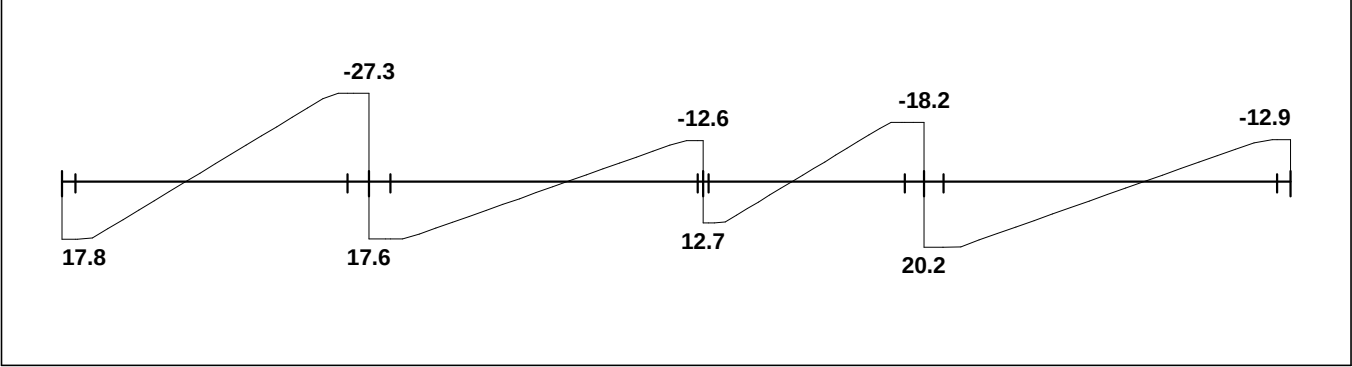
Shear

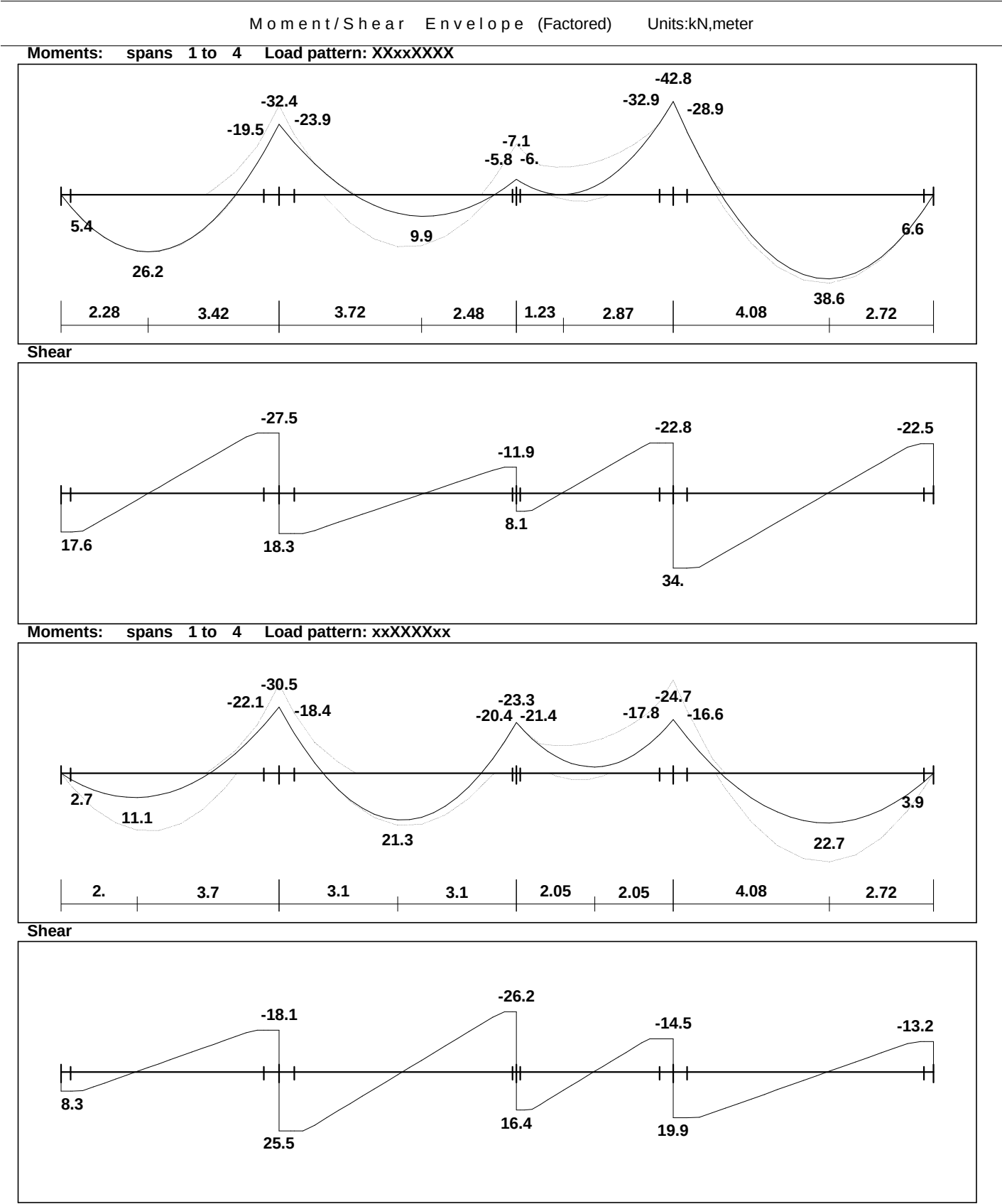


Moments: spans 1 to 4 Load pattern: XXxxXXxx



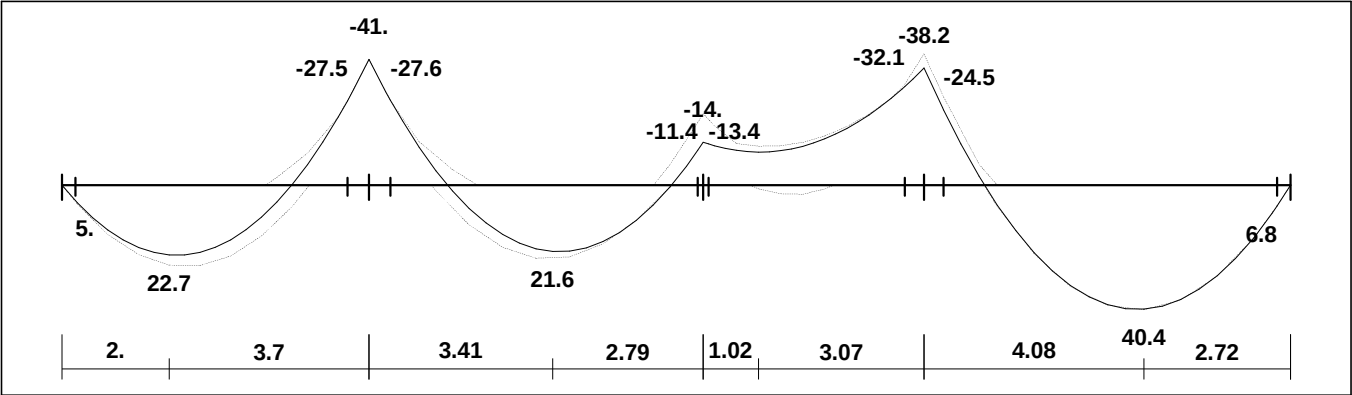
Shear



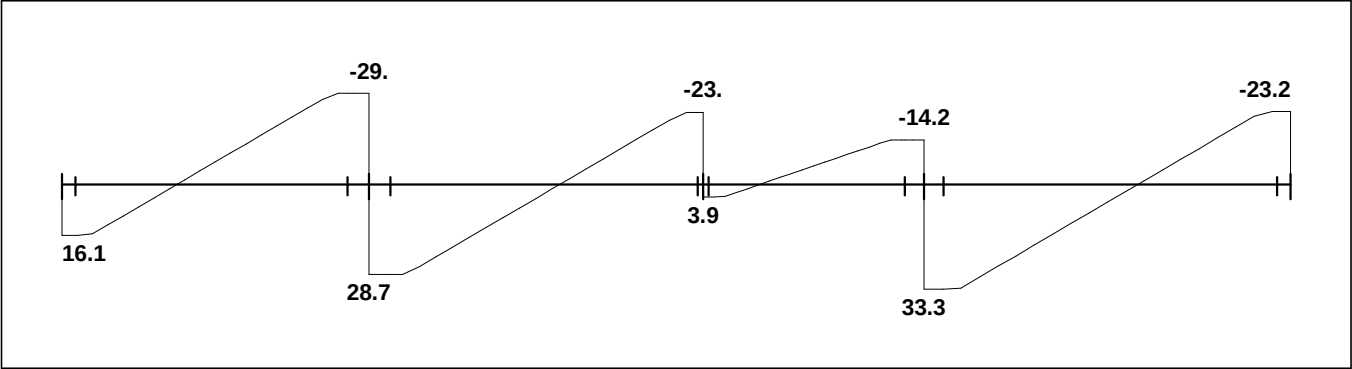


Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4 Load pattern: XXXXxxXX



Shear



Moment/Shear Envelope (Factored) Units:kN,meter

	1	1	2	2	3	3	4	4	5
Min M	0.0	-41.0	-41.0	-23.3	-23.3	-42.8	-42.8	0.0	
Max M	0.0	-30.5	-30.5	-7.1	-7.1	-24.7	-24.7	0.0	
MspMn	2.6	-27.5	-27.6	-20.4	-21.4	-32.9	-28.9	3.8	
MspMx	5.5	-18.7	-18.4	-5.8	-6.0	-17.8	-16.6	6.8	
M Max			24.0		3.1		40.6		
M Min			8.2		-12.7		21.8		
Mmn=0 @	0.0	1.9	2.0	0.9	0.0	4.1	1.4	6.8	
Mmx=0 @	0.0	1.1	1.2	0.6	0.9	1.7	1.1	6.8	
mx -M @			1.2		0.9		1.1		
mx +M @			3.4		1.6		4.1		
V max		-22.1		-14.2		-17.2		-16.0	
V min		-35.8		-30.0	6.1	-29.3		-28.6	
DReac		41.3		24.7		39.0		16.5	
LReac		30.0		25.5		30.8		12.1	
Max R		71.3		50.2		69.7		28.6	
Min R		54.4		26.0		44.6		16.0	

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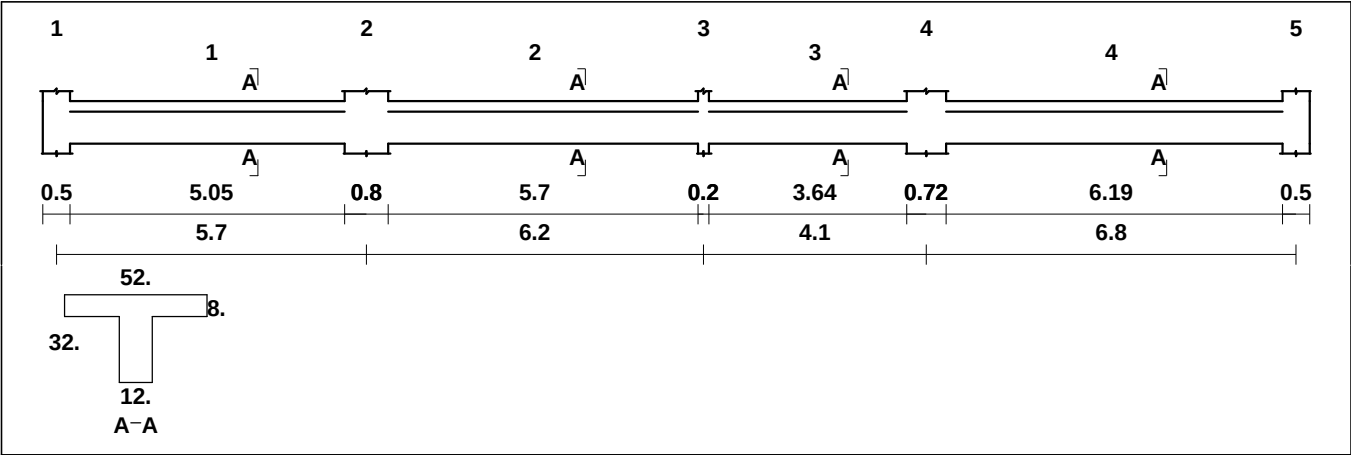
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Individual load cases - factored									
Units:kN,meter									
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-32.2	-32.2	-16.8	-16.8	-37.7	-37.7	0.0	
M Max			24.0		-12.7		40.6		
Mmx=0 @	0.0	1.9	1.2	0.7	0.0	4.1	1.1	6.8	
mx +M			3.4		1.2		4.1		
V max		-22.4	-28.6	6.9	-17.2		-28.6		
	1	2	3	4	5				
Min M	0.0	-31.5	-31.5	-10.5	-10.5	-27.2	-27.2	0.0	
M Max			8.2		3.1		21.8		
Mmx=0 @	0.0	1.1	2.0	0.9	0.9	1.7	1.4	6.8	
mx +M			3.7		1.6		4.1		
V max		-34.1	-14.8		-24.6		-16.0		
	1	2	3	4	5				
Min M	0.0	-32.4	-32.4	-7.1	-7.1	-42.8	-42.8	0.0	
M Max			9.9		-0.1		38.6		
Mmx=0 @	0.0	1.1	2.0	0.6	0.0	4.1	1.3	6.8	
mx +M			3.7		1.2		4.1		
V max		-34.3	-14.2		-29.3		-27.8		
	1	2	3	4	5				
Min M	0.0	-30.5	-30.5	-23.3	-23.3	-24.7	-24.7	0.0	
M Max			21.3		-2.9		22.7		
Mmx=0 @	0.0	1.8	1.2	0.9	0.0	4.1	1.2	6.8	
mx +M			3.1		2.0		4.1		
V max		-22.1	-30.0		-20.9		-16.4		
	1	2	3	4	5				
Min M	0.0	-41.0	-41.0	-14.0	-14.0	-38.2	-38.2	0.0	
M Max			21.6		-10.8		40.4		
Mmx=0 @	0.0	1.4	1.5	0.6	0.0	4.1	1.1	6.8	
mx +M			3.4		1.0		4.1		
V max		-35.8	-26.8	6.1	-18.0		-28.5		

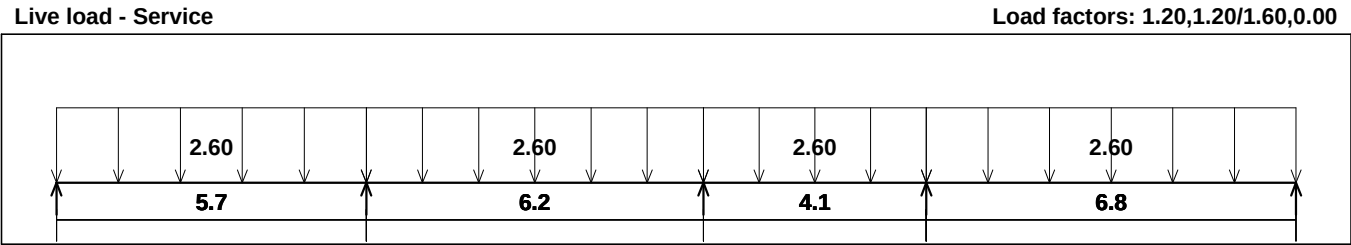
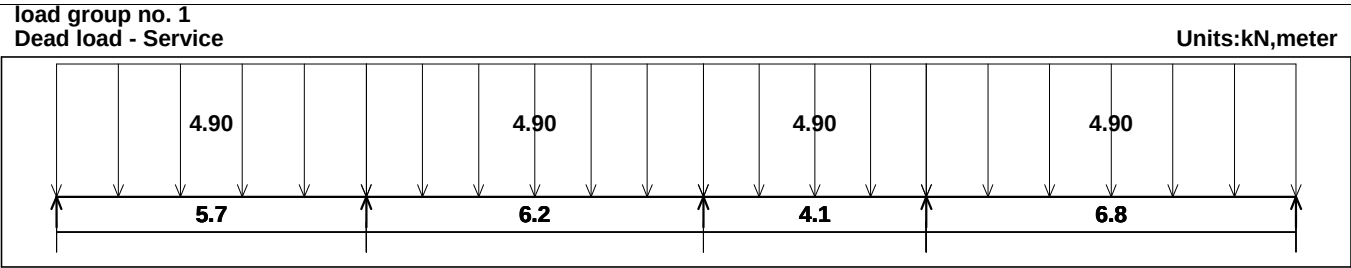
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Geometry

Units: meter, cm



Loading

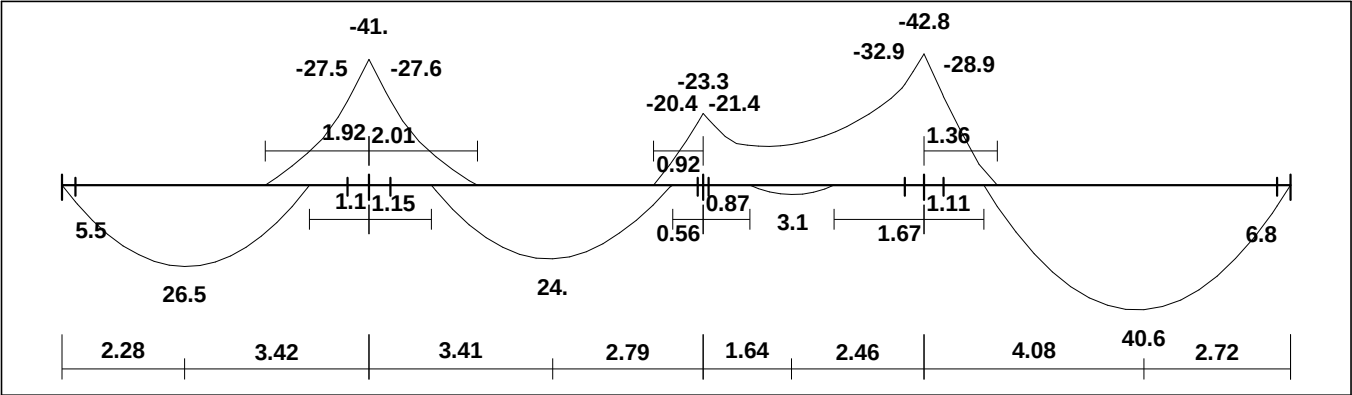


Loads (kN, meter)											
1			2			3			4		
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60

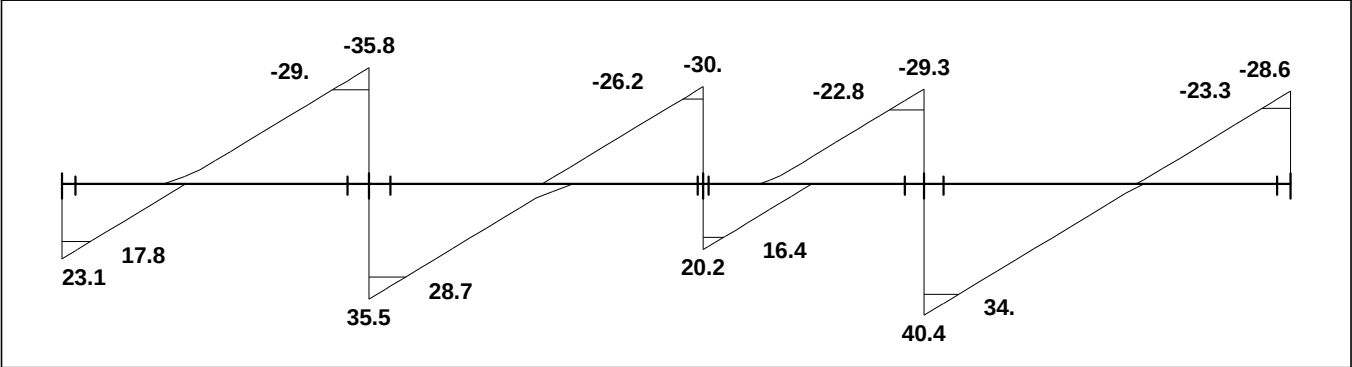
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	12.63	41.29	24.73	38.95	16.47
LiveR	10.46	30.	25.48	30.75	12.12
Max R	23.09	71.29	50.21	69.71	28.59
Min R	11.11	54.39	26.04	44.56	16.
Service					
DeadR	10.52	34.4	20.6	32.46	13.72
LiveR	6.54	18.75	15.92	19.22	7.58
Max R	17.06	53.16	36.53	51.68	21.3
Min R	9.57	42.59	21.43	35.97	13.43

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

Main reinforcement $f_y = 420$

Top Cover	4.	4.	4.	4.	
As top = *=minimum	2.87	2.25*	1.47	3.48	
As bot =	0.76	2.56	2.31	1.12*	3.96
Bot Cover	4.	4.	4.	4.	1.18
a/d	1%	4%	18%	8%	6%
As/bd	0.00%	0.76%	0.85%	0.44%	1.18%

rib11
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Designed by:

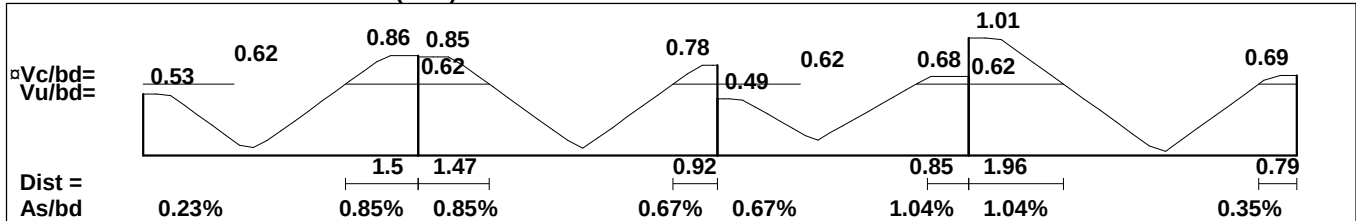
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Shear

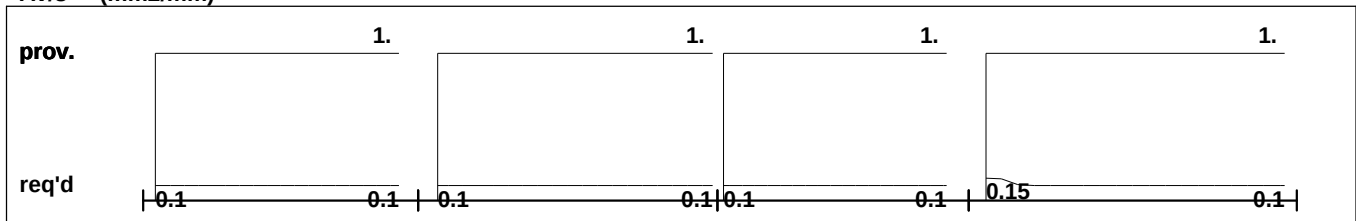
Shear design: Stirrups only

Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

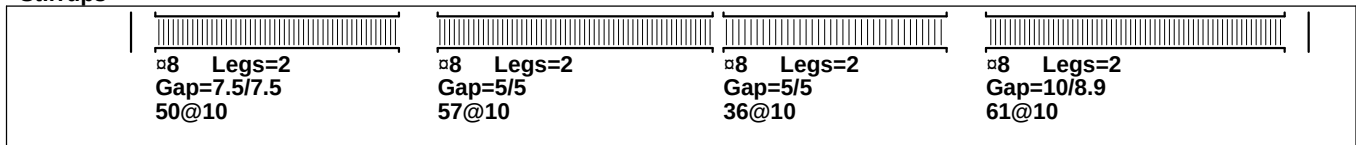
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

	1	2	3	4
A's	0.	0.	1.12	0.
As	2.56	2.31	1.47	3.96
fr = 3	Es= 209	Ec = 23		
Ig(m ⁴)=	0.00060	0.00060	0.00060	0.00060
Icr(m ⁴)=	0.00014	0.00013	0.00007	0.00021
Mcr =	8.56	8.56	17.41	8.56
Mmax,d =	11.26	9.87	19.96	19.20
Mmax,d+l =	19.40	17.50	28.55	30.20
Mmax,sust =	7.32	6.41	12.98	12.48
Ie,d (m ⁴)=	0.00034	0.00043	0.00042	0.00024
Ie,d+l (m ⁴)=	0.00018	0.00018	0.00019	0.00022
Ie,sust (m ⁴)=	0.00060	0.00060	0.00060	0.00033
e/1+50r =	2.00/0.80	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	3.528	2.663	-1.248	13.939
ai,l =	9.132	9.740	-4.463	11.002
at,sust =	1.578	1.514	-0.588	7.914
ai,l =	L/ 624	L/ 636	L/ 918	L/ 618
(ai+at),t2-t1	L/ 477	L/ 508	L/ 747	L/ 285

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	17.76	7.99	0.	0.	0.10	0.00	100	-
250	5.46	2.59	17.76	7.99	0.	0.51	0.10	0.01	-	-
285	6.17	2.93	17.76	7.99	0.	0.58	0.10	0.01	-	-
570	11.53	5.38	17.36	7.76	0.	1.10	0.10	0.02	-	-
855	16.07	7.35	14.50	6.08	0.	1.53	0.10	0.02	-	-
1140	19.79	8.84	11.64	4.40	0.	1.90	0.10	0.03	-	-
1425	22.70	9.86	8.78	2.73	0.	2.18	0.10	0.03	-	-
1710	24.80	10.40	5.92	1.05	0.	2.39	0.10	0.03	-	-
1995	26.08	10.46	3.06	-0.62	0.	2.51	0.10	0.04	-	-
2280	26.54	10.04	0.19	-2.30	0.	2.56	0.10	0.04	-	-
2565	26.19	9.15	-2.67	-4.33	0.	2.52	0.10	0.04	-	-
2850	25.02	7.78	-5.35	-7.20	0.	2.41	0.10	0.03	100	-
3135	23.04	5.93	-7.03	-10.06	0.	2.21	0.10	0.03	-	-
3420	20.24	3.60	-8.70	-12.92	0.	1.94	0.10	0.03	-	-
3705	16.62	0.80	-10.38	-15.78	0.	1.59	0.10	0.02	-	-
3990	12.19	-2.49	-12.05	-18.64	0.23	1.16	0.10	0.02	-	-
4275	6.95	-6.24	-13.73	-21.50	0.60	0.66	0.10	0.04	-	-
4560	0.89	-10.48	-15.40	-24.36	1.02	0.08	0.10	0.06	-	-
4845	-5.99	-15.20	-17.08	-27.23	1.51	0.	0.10	0.09	-	-
5130	-13.68	-22.24	-18.11	-28.98	2.26	0.	0.10	0.14	-	-
5300	-18.66	-27.50	-18.11	-28.98	2.85	0.	0.10	0.17	-	-
5415	-22.19	-31.22	-18.11	-28.98	2.85	0.	0.10	0.17	-	-
5700	-30.49	-41.02	-18.11	-28.98	2.85	0.	0.10	0.17	100	-
Span=2										
0	-30.49	-41.02	28.65	17.62	2.87	0.	0.10	0.18	100	-
310	-20.97	-30.50	28.65	17.62	2.87	0.	0.10	0.18	-	-
400	-18.39	-27.63	28.65	17.62	2.87	0.	0.10	0.18	-	-
620	-12.41	-20.95	28.65	17.62	2.12	0.	0.10	0.13	-	-
930	-4.82	-14.19	26.14	16.15	1.40	0.	0.10	0.09	-	-
1240	1.81	-9.26	23.03	14.32	0.90	0.17	0.10	0.06	-	-
1550	7.84	-5.07	19.92	12.50	0.48	0.74	0.10	0.03	-	-
1860	12.95	-1.48	16.81	10.68	0.14	1.23	0.10	0.02	-	-
2170	17.10	1.55	13.69	8.86	0.	1.63	0.10	0.02	-	-
2480	20.28	4.01	10.58	7.03	0.	1.94	0.10	0.03	-	-
2790	22.50	5.91	7.47	4.27	0.	2.16	0.10	0.03	-	-
3100	23.76	7.24	4.36	1.16	0.	2.28	0.10	0.03	100	-
3410	24.05	8.01	2.25	-1.96	0.	2.31	0.10	0.03	-	-
3720	23.37	8.21	0.43	-5.07	0.	2.25	0.10	0.03	-	-
4030	21.73	7.85	-1.40	-8.18	0.	2.09	0.10	0.03	-	-
4340	19.13	6.92	-3.22	-11.29	0.	1.83	0.10	0.03	-	-
4650	15.56	5.43	-5.04	-14.41	0.	1.49	0.10	0.02	-	-
4960	11.47	3.37	-6.86	-17.52	0.	1.09	0.10	0.02	-	-
5270	6.55	0.20	-8.69	-20.63	0.	0.62	0.10	0.01	-	-
5580	0.66	-6.68	-10.51	-23.74	0.64	0.06	0.10	0.04	-	-
5890	-3.03	-14.52	-11.92	-26.15	1.44	0.	0.10	0.09	-	-
6100	-5.75	-20.39	-11.92	-26.15	2.06	0.	0.10	0.13	-	-
6200	-7.14	-23.33	-11.92	-26.15	2.06	0.	0.10	0.13	100	-

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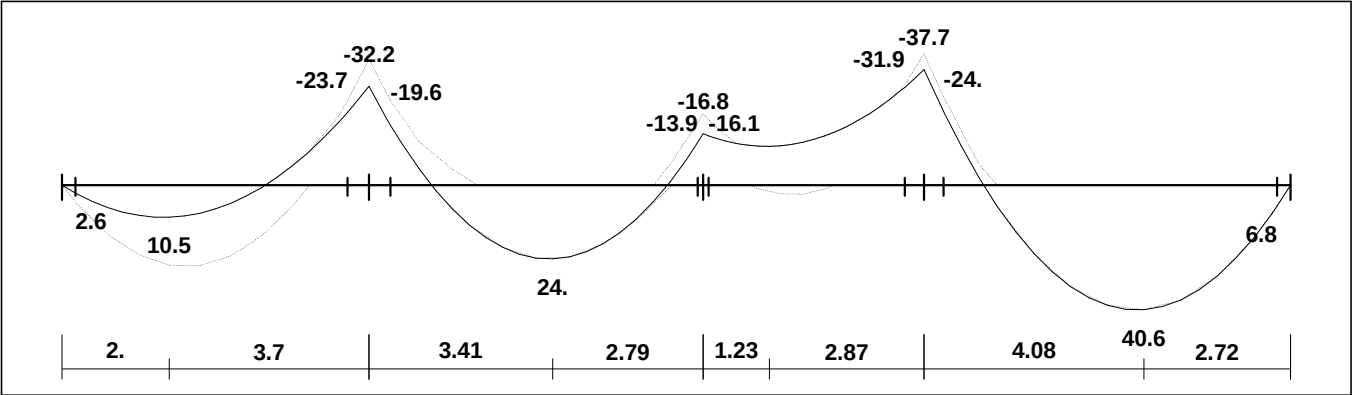
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-7.14	-23.33	16.42	3.91	2.16	0.	0.10	0.13	100	-
100	-6.00	-21.36	16.42	3.91	2.16	0.	0.10	0.13	-	-
205	-4.91	-19.40	16.42	3.91	1.95	0.	0.10	0.12	-	-
410	-3.11	-15.88	16.12	3.74	1.58	0.	0.10	0.10	-	-
615	-1.73	-13.60	14.06	2.53	1.34	0.	0.10	0.08	-	-
820	-0.34	-13.04	12.00	1.33	1.28	0.	0.10	0.08	-	-
1025	1.15	-12.73	9.95	0.12	1.25	0.10	0.10	0.08	-	-
1230	2.21	-12.66	7.89	-1.08	1.24	0.21	0.10	0.08	-	-
1435	2.86	-12.85	5.83	-2.52	1.26	0.27	0.10	0.08	-	-
1640	3.08	-13.27	3.77	-4.58	1.31	0.29	0.10	0.08	-	-
1845	2.88	-13.95	1.71	-6.64	1.38	0.27	0.10	0.08	-	-
2050	2.26	-14.87	-0.35	-8.70	1.47	0.21	0.10	0.09	100	-
2255	1.22	-16.04	-2.40	-10.76	1.59	0.11	0.10	0.10	-	-
2460	-0.25	-17.46	-4.46	-12.81	1.74	0.	0.10	0.11	-	-
2665	-2.14	-19.13	-6.52	-14.87	1.92	0.	0.10	0.12	-	-
2870	-4.45	-21.04	-8.58	-16.93	2.13	0.	0.10	0.13	-	-
3075	-7.18	-23.20	-10.64	-18.99	2.37	0.	0.10	0.15	-	-
3280	-10.33	-25.60	-12.34	-21.05	2.63	0.	0.10	0.16	-	-
3485	-13.78	-28.28	-13.39	-22.84	2.94	0.	0.10	0.18	-	-
3690	-17.01	-31.64	-13.39	-22.84	3.33	0.	0.10	0.20	-	-
3739	-17.85	-32.88	-13.39	-22.84	3.48	0.	0.10	0.21	-	-
3895	-20.67	-37.00	-13.39	-22.84	3.48	0.	0.10	0.21	-	-
4100	-24.75	-42.80	-13.39	-22.84	3.48	0.	0.10	0.21	100	-
Span=4										
0	-24.75	-42.80	33.99	19.86	3.01	0.	0.15	0.18	100	-
340	-17.05	-29.63	33.99	19.86	3.01	0.	0.15	0.18	-	-
361	-16.60	-28.86	33.99	19.86	3.01	0.	0.15	0.18	-	-
680	-10.04	-17.63	33.60	19.63	1.76	0.	0.15	0.11	-	-
1020	-2.45	-6.78	30.19	17.63	0.65	0.	0.11	0.04	-	-
1360	6.98	0.02	26.78	15.63	0.	0.66	0.10	0.01	-	-
1700	15.25	5.12	23.36	13.64	0.	1.46	0.10	0.02	-	-
2040	22.36	9.54	19.95	11.64	0.	2.15	0.10	0.03	-	-
2380	28.30	13.27	16.53	9.64	0.	2.73	0.10	0.04	-	-
2720	33.09	16.33	13.12	7.64	0.	3.20	0.10	0.05	-	-
3060	36.72	18.71	9.71	5.64	0.	3.56	0.10	0.05	-	-
3400	39.18	20.41	6.29	3.64	0.	3.81	0.10	0.05	100	-
3740	40.49	21.42	2.88	1.64	0.	3.94	0.10	0.06	-	-
4080	40.63	21.76	0.00	-1.28	0.	3.96	0.10	0.06	-	-
4420	39.61	21.42	-2.00	-4.70	0.	3.85	0.10	0.05	-	-
4760	37.44	20.40	-4.00	-8.11	0.	3.64	0.10	0.05	-	-
5100	34.10	18.70	-6.00	-11.52	0.	3.30	0.10	0.05	-	-
5440	29.60	16.32	-8.00	-14.94	0.	2.86	0.10	0.04	-	-
5780	23.94	13.26	-10.00	-18.35	0.	2.30	0.10	0.03	-	-
6120	17.12	9.52	-12.00	-21.76	0.	1.64	0.10	0.02	-	-
6460	9.14	5.10	-12.88	-23.27	0.	0.87	0.10	0.01	-	-
6550	6.83	3.82	-12.88	-23.27	0.	0.65	0.10	0.01	-	-
6800	0.00	0.00	-12.88	-23.27	0.	0.	0.10	0.00	100	-

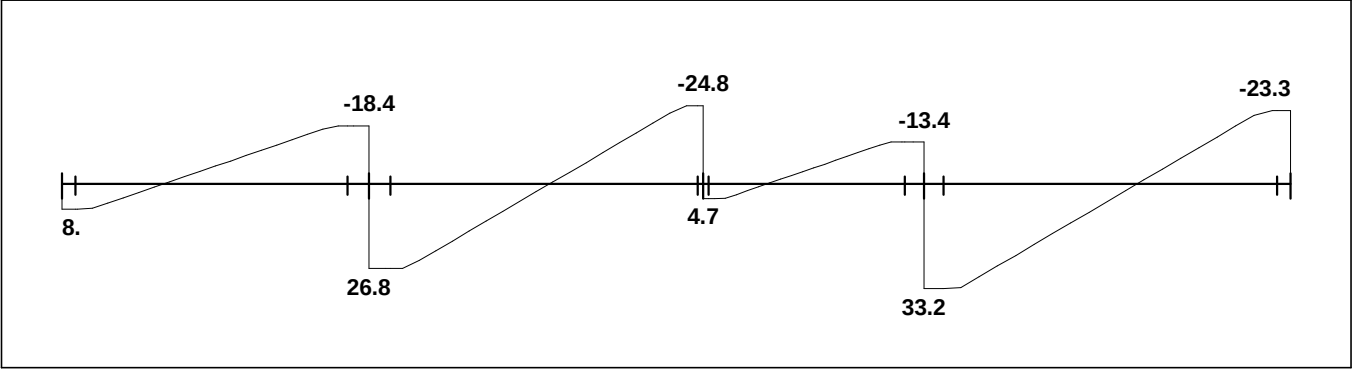
Moment/Shear Envelope (Factored) Units:kN,meter

Moment/Shear Envelope (Factored) Units:kN,meter

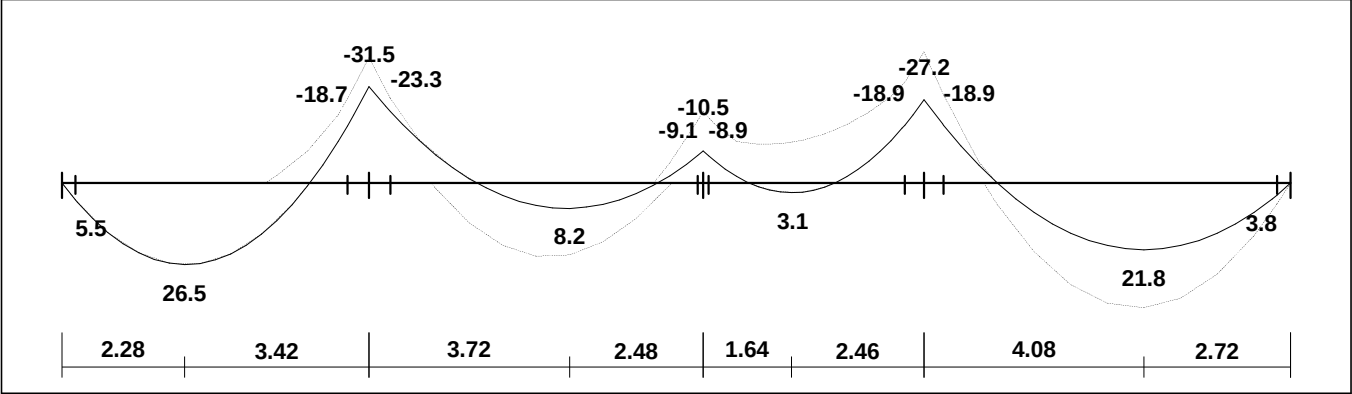
Moments: spans 1 to 4 Load pattern: xxXXxxXX



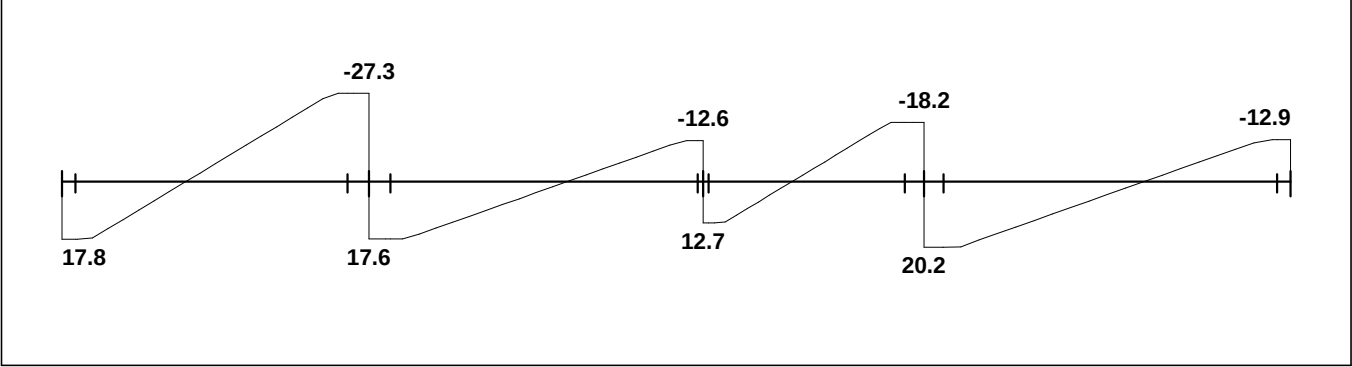
Shear

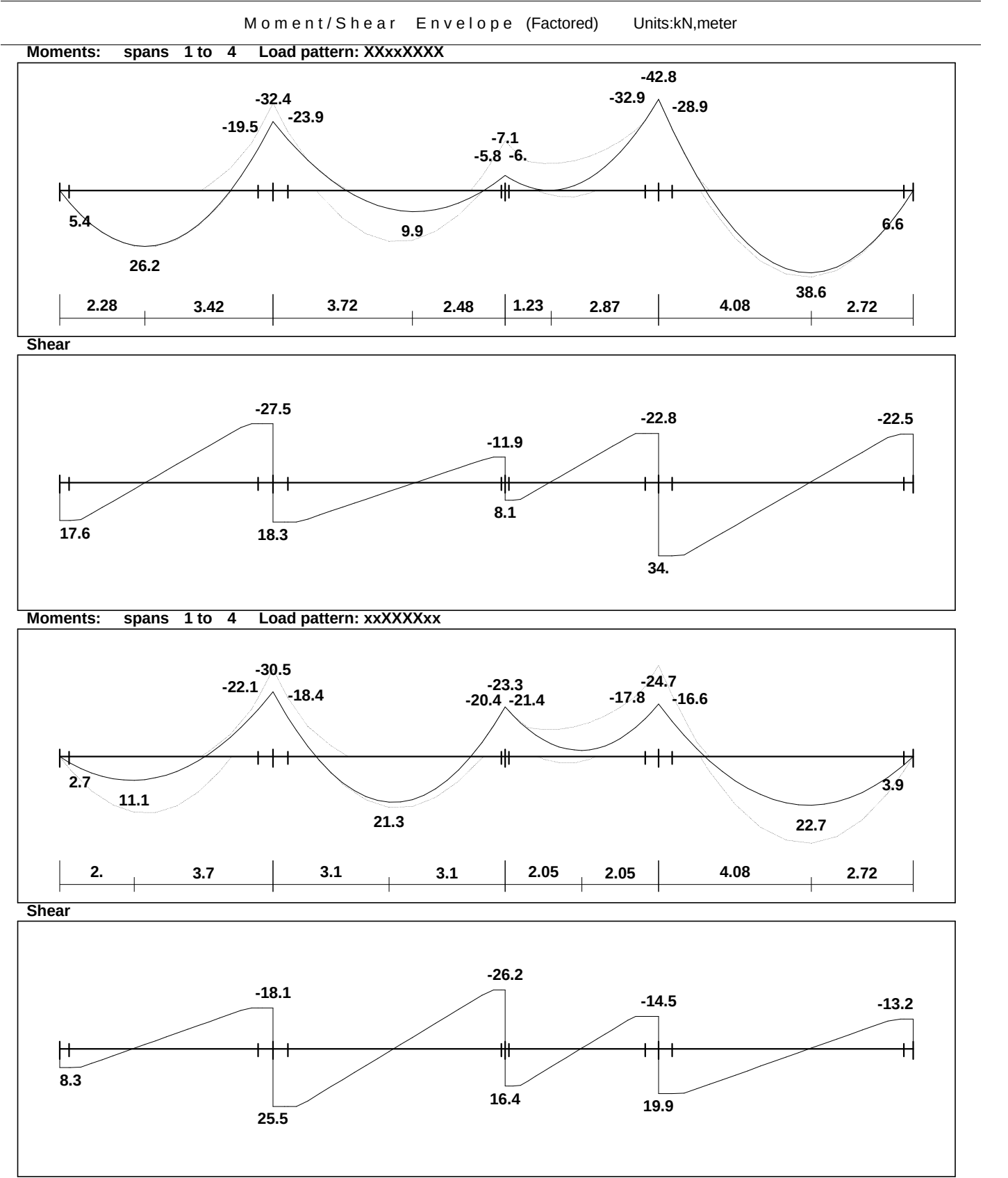


Moments: spans 1 to 4 Load pattern: XXxxXXxx



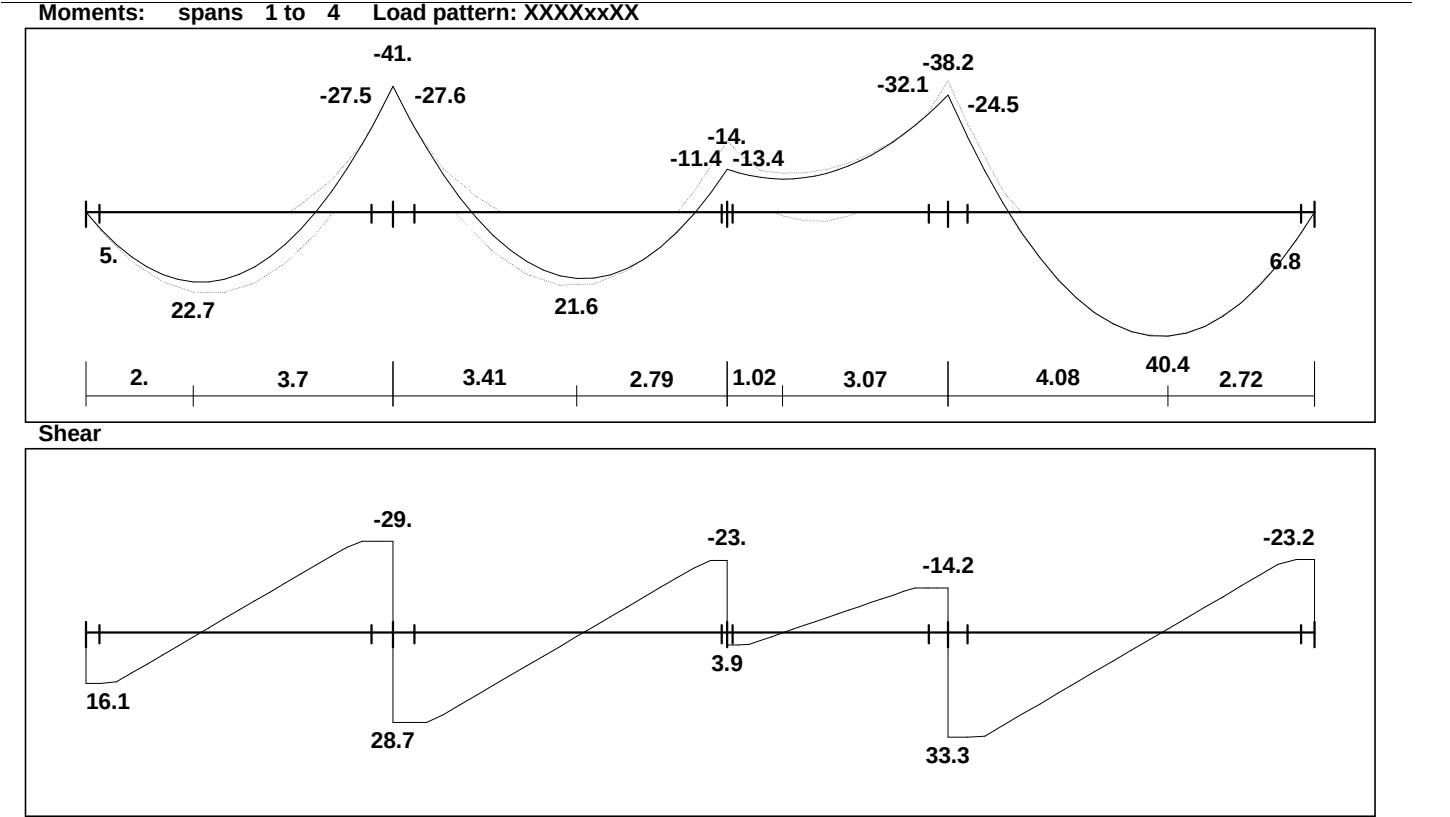
Shear





Moment/Shear Envelope (Factored)

Units:kN,meter



	Moment/Shear Envelope (Factored)								Units:kN,meter
	1	2		3		4		5	
	1	2	3	4	5	6	7	8	
Min M	0.0	-41.0	-41.0	-23.3	-23.3	-42.8	-42.8	0.0	
Max M	0.0	-30.5	-30.5	-7.1	-7.1	-24.7	-24.7	0.0	
MspMn	2.6	-27.5	-27.6	-20.4	-21.4	-32.9	-28.9	3.8	
MspMx	5.5	-18.7	-18.4	-5.8	-6.0	-17.8	-16.6	6.8	
M Max			24.0		3.1		40.6		
M Min			8.2		-12.7		21.8		
Mmn=0 @	0.0	1.9	2.0	0.9	0.0	4.1	1.4	6.8	
Mmx=0 @	0.0	1.1	1.2	0.6	0.9	1.7	1.1	6.8	
mx -M @			1.2		0.9		1.1		
mx +M @			3.4		1.6		4.1		
V max		-22.1		-14.2		-17.2		-16.0	
V min		-35.8		-30.0	6.1	-29.3		-28.6	
DReac		41.3		24.7		39.0		16.5	
LReac		30.0		25.5		30.8		12.1	
Max R		71.3		50.2		69.7		28.6	
Min R		54.4		26.0		44.6		16.0	

rib11
Project: Rib11
Designed by:

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Individual load cases - factored										Units:kN,meter	
	1	2	3	4	5						
	1	2	3	4	5						
	1	2	3	4	5						
Min M	0.0	-32.2	-32.2	-16.8	-16.8	-37.7	-37.7	0.0			
M Max			24.0		-12.7		40.6				
Mmx=0 @	0.0	1.9	1.2	0.7	0.0	4.1	1.1	6.8			
mx +M			3.4		1.2		4.1				
V max		-22.4	-28.6	6.9	-17.2		-28.6				
	1	2	3	4	5						
	1	2	3	4	5						
Min M	0.0	-31.5	-31.5	-10.5	-10.5	-27.2	-27.2	0.0			
M Max			8.2		3.1		21.8				
Mmx=0 @	0.0	1.1	2.0	0.9	0.9	1.7	1.4	6.8			
mx +M			3.7		1.6		4.1				
V max		-34.1	-14.8		-24.6		-16.0				
	1	2	3	4	5						
	1	2	3	4	5						
Min M	0.0	-32.4	-32.4	-7.1	-7.1	-42.8	-42.8	0.0			
M Max			9.9		-0.1		38.6				
Mmx=0 @	0.0	1.1	2.0	0.6	0.0	4.1	1.3	6.8			
mx +M			3.7		1.2		4.1				
V max		-34.3	-14.2		-29.3		-27.8				
	1	2	3	4	5						
	1	2	3	4	5						
Min M	0.0	-30.5	-30.5	-23.3	-23.3	-24.7	-24.7	0.0			
M Max			21.3		-2.9		22.7				
Mmx=0 @	0.0	1.8	1.2	0.9	0.0	4.1	1.2	6.8			
mx +M			3.1		2.0		4.1				
V max		-22.1	-30.0		-20.9		-16.4				
	1	2	3	4	5						
	1	2	3	4	5						
Min M	0.0	-41.0	-41.0	-14.0	-14.0	-38.2	-38.2	0.0			
M Max			21.6		-10.8		40.4				
Mmx=0 @	0.0	1.4	1.5	0.6	0.0	4.1	1.1	6.8			
mx +M			3.4		1.0		4.1				
V max		-35.8	-26.8	6.1	-18.0		-28.5				

R1
Project: R1
Designed by: bayan

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Date: 3/ 8/14

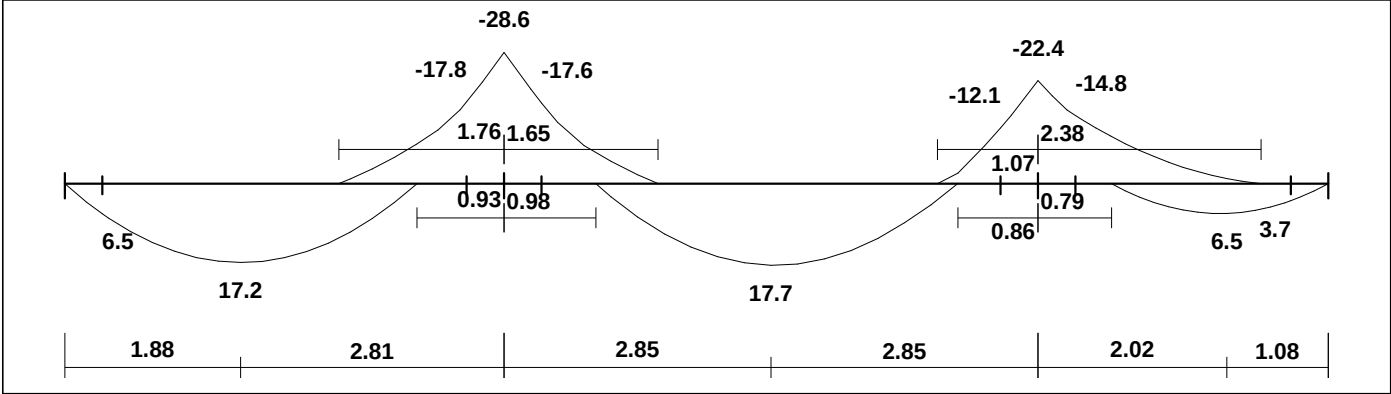
BEAMD

Reinforced Concrete Beam Design

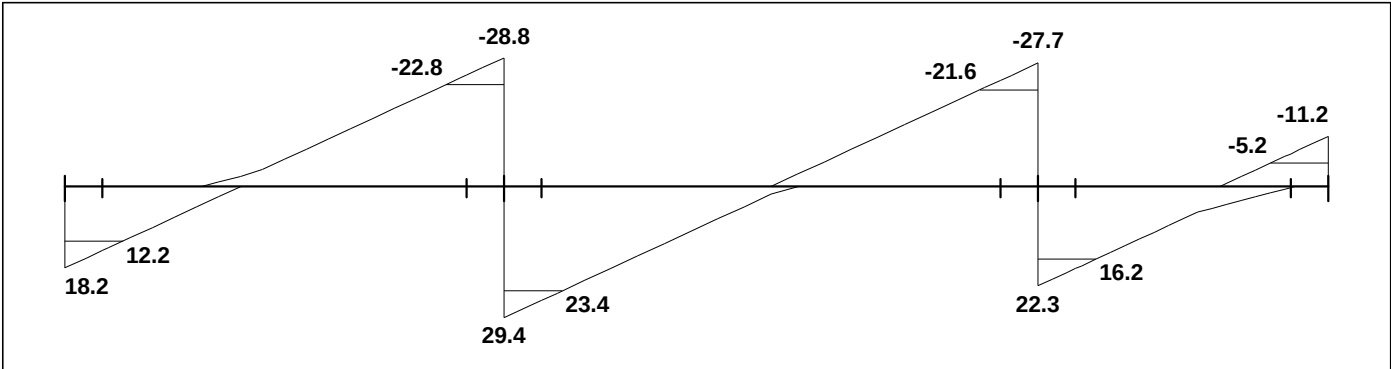


Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	9.59	32.96	27.43	4.8			
LiveR	8.66	25.28	22.49	6.42			
Max R	18.25	58.24	49.93	11.22			
Min R	8.12	44.7	33.03	1.99			
Service							
DeadR	7.99	27.47	22.86	4.			
LiveR	5.41	15.8	14.06	4.01			
Max R	13.4	43.27	36.92	8.01			
Min R	7.07	34.8	26.36	2.25			

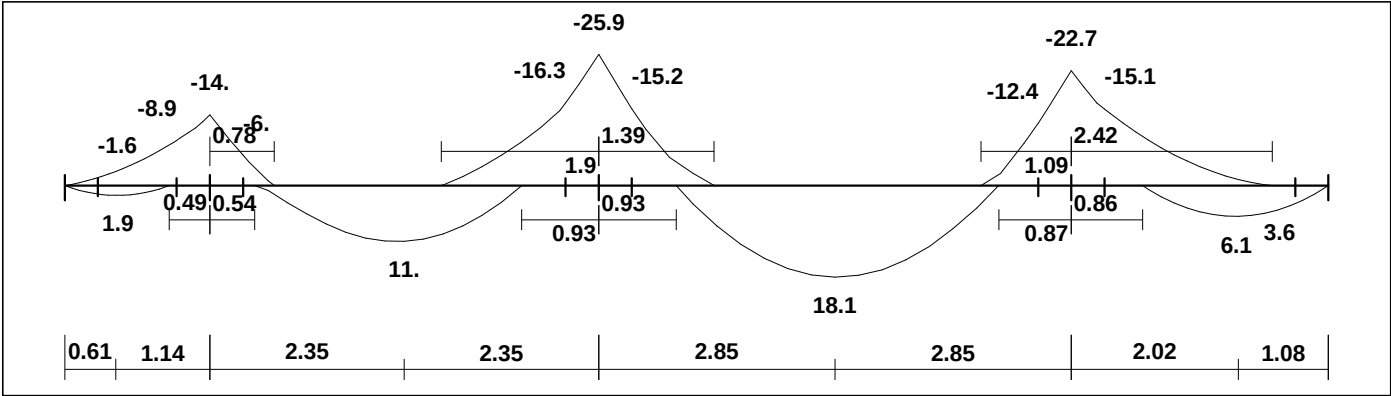
R1		Code: ACI318-02
Project:	R1	Page: 2
Designed by:	bayan	Date: 3/ 8/14

	Moment / Shear Envelope (Factored)				Units:kN,meter	
	1	2	3	4		
	1	2	3	3	4	
Min M	0.0	-28.6	-28.6	-22.4	-22.4	0.0
Max M	0.0	-21.1	-21.1	-11.8	-11.8	0.0
MspMn	2.8	-17.8	-17.6	-12.1	-14.8	0.4
MspMx	6.5	-11.0	-12.1	-6.6	-5.1	3.7
M Max			17.7		6.5	
M Min			6.3		-3.6	
Mmn=0 @	0.0	1.8	1.6	1.1	2.4	3.1
Mmx=0 @	0.0	0.9	1.0	0.9	0.8	3.1
mx -M @			1.0		0.8	
mx +M @			2.8		2.0	
V max		-17.8	-14.2			-2.0
V min	8.1	-28.8	-27.7			-11.2
DReac	9.6	33.0	27.4			4.8
LReac	8.7	25.3	22.5			6.4
Max R		58.2	49.9			11.2
Min R	8.1	44.7	33.0			2.0

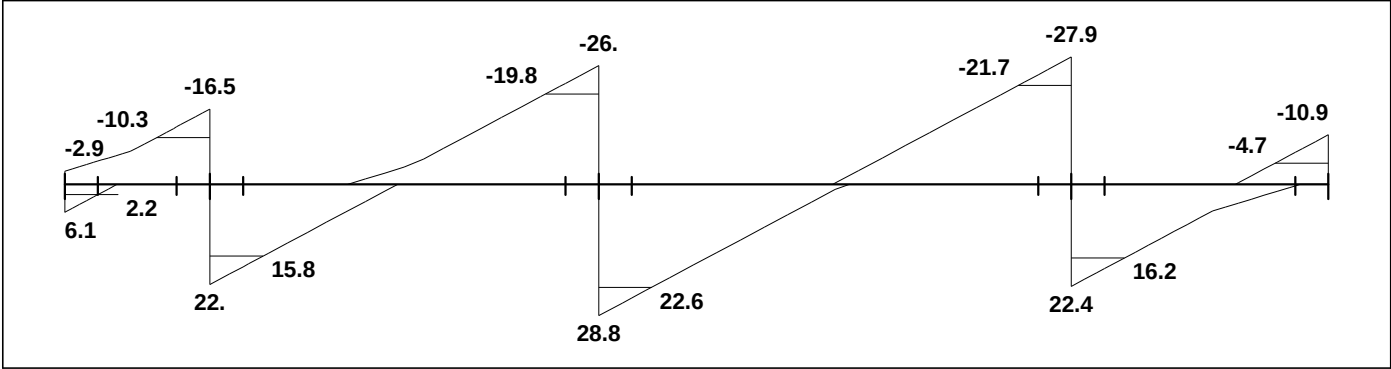
R2	Code: ACI318-02
Project: R2	Page: 2
Designed by: bayan	Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 4



Shear



Reactions

Factored

DeadR	1.18	19.82	30.88	27.97	4.64				
LiveR	4.94	18.64	23.94	22.32	6.23				
Max R	6.12	38.46	54.83	50.29	10.87				
Min R	-2.88	20.09	40.17	34.16	1.89				
Service									
DeadR	0.98	16.52	25.74	23.31	3.87				
LiveR	3.09	11.65	14.96	13.95	3.9				
Max R	4.07	28.17	40.7	37.26	7.76				
Min R	-1.55	16.68	31.54	27.18	2.14				

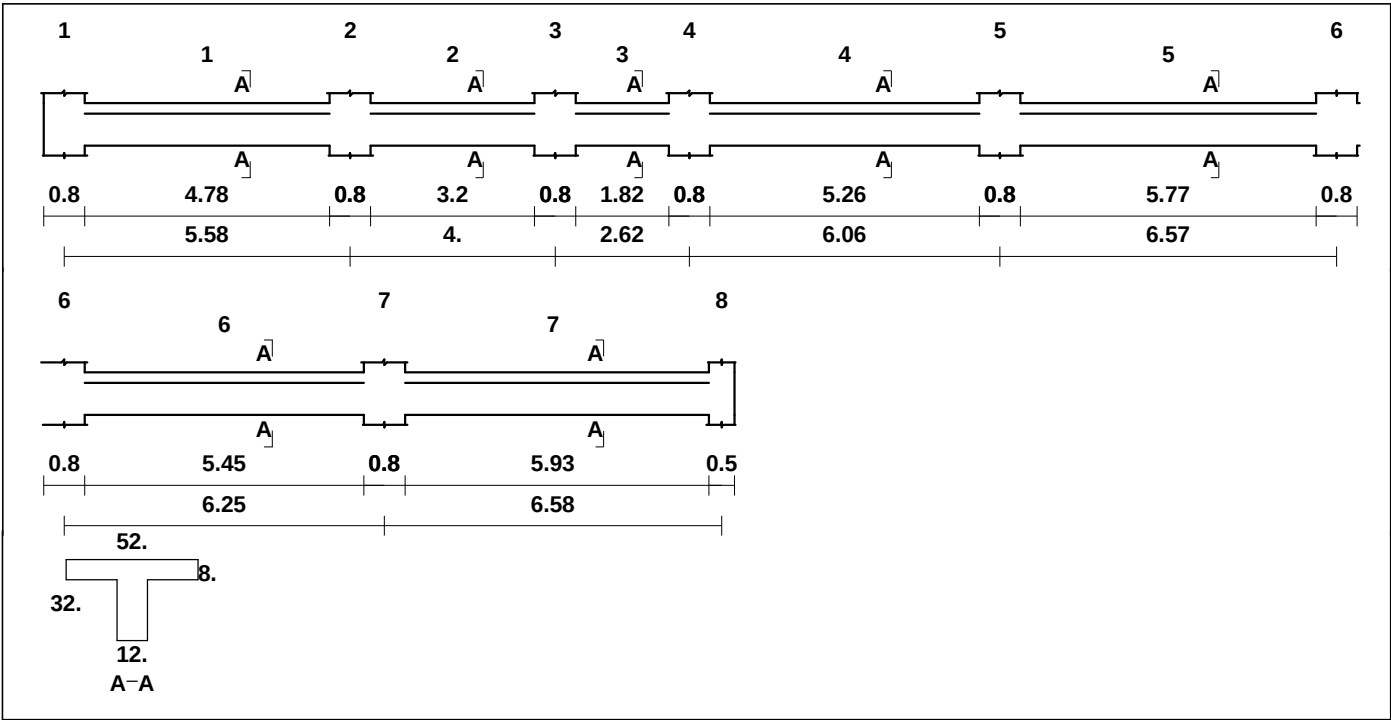
R2	Code: ACI318-02
Project: R2	Page: 3
Designed by: bayan	Date: 3/ 8/14

	Moment / Shear		Envelope (Factored)		Units:kN,meter			
	1	2	3	3	4	4	5	
	1	2	2	3	3	4	5	
Min M	0.0	-14.0	-14.0	-25.9	-25.9	-22.7	-22.7	0.0
Max M	0.0	-4.2	-4.2	-17.7	-17.7	-12.9	-12.9	0.0
MspMn	-1.6	-8.9	-6.0	-16.3	-15.2	-12.4	-15.1	0.3
MspMx	1.7	-0.6	-0.9	-9.0	-11.1	-7.4	-6.0	3.6
M Max			11.0		18.1		6.1	
M Min			3.5		7.2		-3.7	
Mmn=0 @	0.0	1.8	0.8	1.9	1.4	1.1	2.4	3.1
Mmx=0 @	0.0	0.5	0.5	0.9	0.9	0.9	0.9	3.1
mx -M @			0.5		0.9		0.9	
mx +M @			2.3		2.8		2.0	
V max	6.1	-10.9		-16.6		-14.9		-1.9
V min	-2.9	-16.5	9.2	-26.0		-27.9		-10.9
DReac	1.2	19.8		30.9		28.0		4.6
LReac	4.9	18.6		23.9		22.3		6.2
Max R	6.1	38.5		54.8		50.3		10.9
Min R	-2.9	20.1		40.2		34.2		1.9

b.sh.g.7
Project: BAEMS
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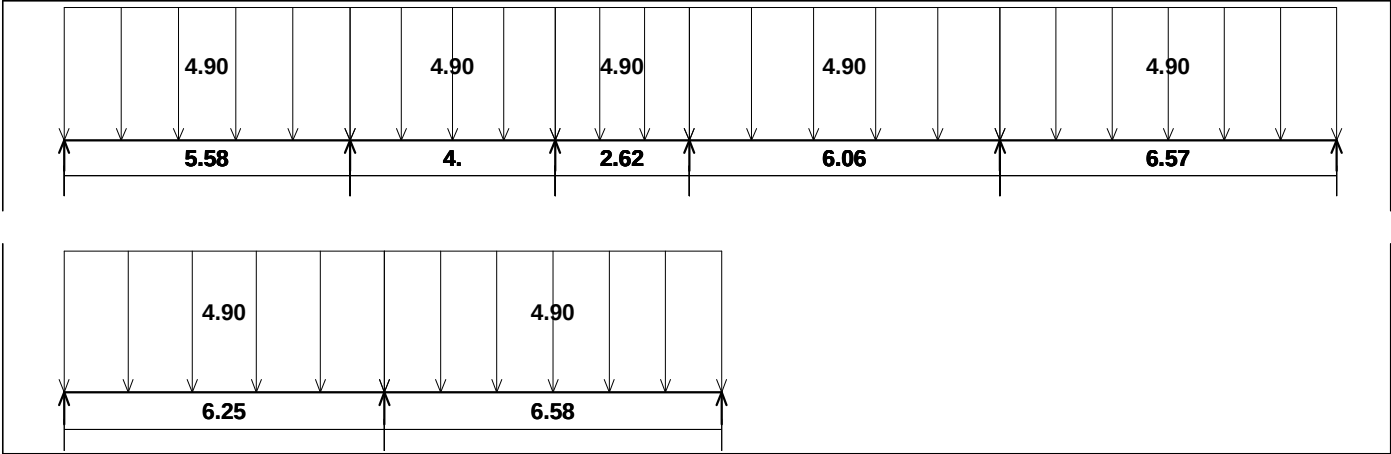
Geometry Units: meter, cm



Loading

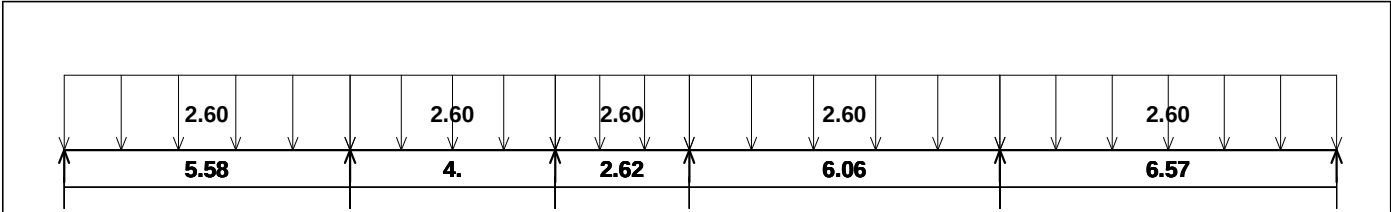
load group no. 1
Dead load - Service

Units: kN, meter

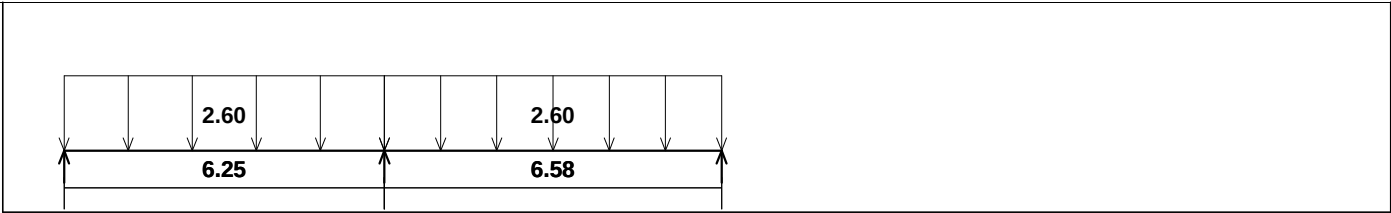


Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00



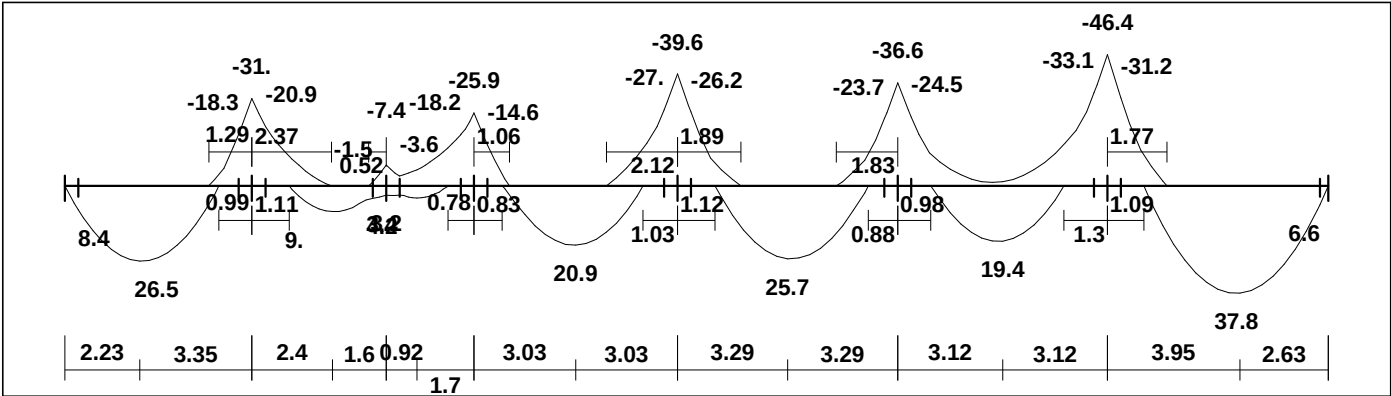
Loading



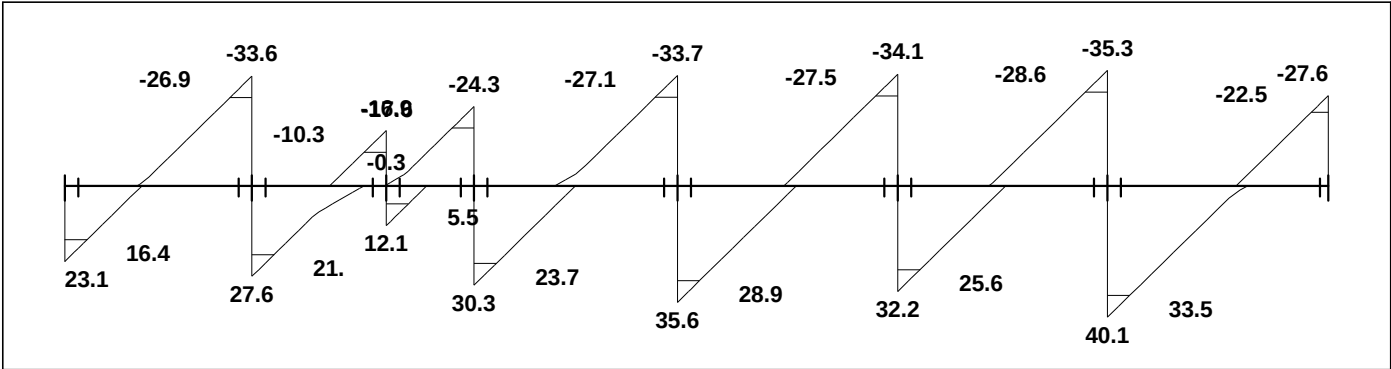
Loads (kN,meter)													
1				2				3				4	
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90
	5				6				7			L	2.60
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60		

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 7



Shear



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Moment/Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	13.18	35.6	10.87	28.42	39.1	36.02	42.83	15.42
LiveR	9.88	25.56	18.16	26.16	30.16	30.3	32.53	12.17
Max R	23.06	61.16	29.03	54.57	69.26	66.32	75.35	27.59
Min R	12.63	43.28	5.92	28.85	50.29	46.09	54.64	14.16
Service								
DeadR	10.98	29.67	9.06	23.68	32.59	30.01	35.69	12.85
LiveR	6.17	15.98	11.35	16.35	18.85	18.94	20.33	7.6
Max R	17.16	45.64	20.41	40.03	51.43	48.95	56.02	20.45
Min R	10.64	34.46	5.96	23.95	39.58	36.31	43.07	12.07

Reinforcement (cm 2)

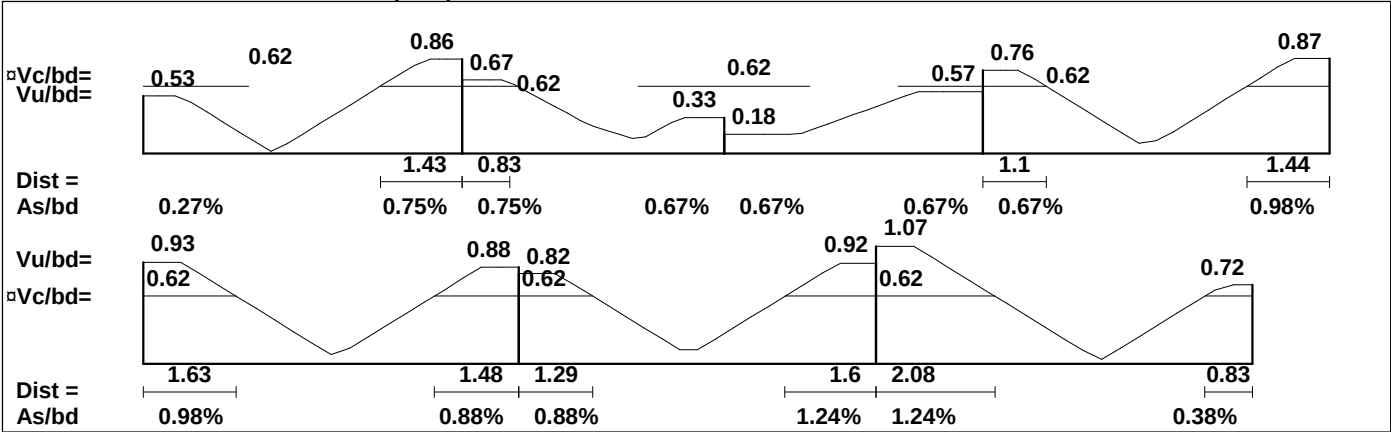
Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	6.	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum		2.33	0.19	2.09*	1.04	2.09*		3.06
As bot =	0.82	2.75		1.04*	2.09	1.04*		2.16
Bot Cover	6.	6.	6.	6.	6.	6.	6.	6.
a/d	1%	4%	15%	1%	2%	4%	13%	3%
As/bd	0.00%	0.88%	0.75%	0.34%	0.67%	0.34%	0.67%	0.70%
Top Cover	6.	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum	3.06	2.74	1.04	3.87				
		2.67		2.01		3.98		1.19
a/d	20%	6.	18%	6.	26%	6.	6.	1%
As/bd	0.98%	0.86%	0.88%	0.65%	1.24%	1.28%		0.00%

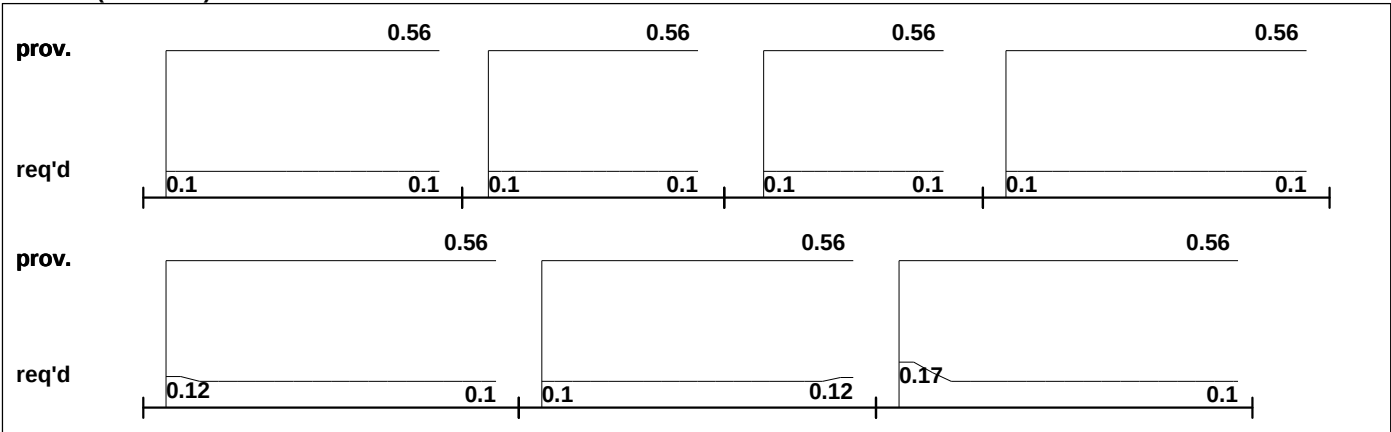
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 6 Max. = 10 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

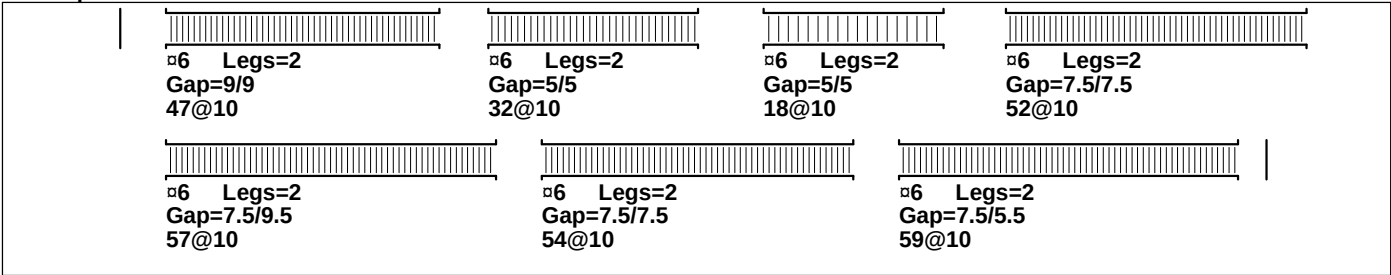
Max. allow. shear stress = 2.5 (MPa)



$\frac{A_v}{s}$ (mm²/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	2	3	4
	0.	1.04	1.04	0.
As	2.75	0.19	1.04	2.16
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00060	0.00060	0.00060	0.00060
Icr(m^4)=	0.00013	0.00001	0.00005	0.00010
Mcr =	8.56	17.41	17.41	8.56
Mmax,d =	12.31	15.00	10.53	8.36
Mmax,d+l =	19.61	21.02	17.67	15.12
Mmax,sust =	12.31	15.00	10.53	8.36
Ie,d (m^4)=	0.00029	0.00060	0.00060	0.00060
Ie,d+l (m^4)=	0.00017	0.00034	0.00057	0.00019
Ie,sust (m^4)=	0.00029	0.00060	0.00060	0.00060
e/1+50r =	2.00	1.71	1.71	2.00
ai,d =	4.914	-0.169	-0.157	1.459
ai,l =	8.795	-0.706	-0.270	7.911
at,sust =	9.829	-0.289	-0.269	2.919
ai,l =	L/ 634	L/ 5668	L/ 9685	L/ 766
(ai+at),t2-t1	L/ 299	L/ 4020	L/ 4859	L/ 559

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5	6	7
	0.	1.04	0.
As	2.67	2.01	3.98
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00060	0.00060	0.00060
Icr(m^4)=	0.00013	0.00010	0.00018
Mcr =	8.56	8.56	8.56
Mmax,d =	9.75	5.56	16.85
Mmax,d+l =	18.48	13.51	27.86
Mmax,sust =	9.75	5.56	16.85
Ie,d (m^4)=	0.00044	0.00060	0.00023
Ie,d+l (m^4)=	0.00017	0.00022	0.00019
Ie,sust (m^4)=	0.00044	0.00060	0.00023
e/1+50r =	2.00	1.71	2.00
ai,d =	2.731	0.517	11.371
ai,l =	12.746	6.250	12.939
at,sust =	5.462	0.886	22.742
ai,l =	L/ 515	L/ 999	L/ 508
(ai+at),t2-t1	L/ 360	L/ 875	L/ 184

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	16.43	8.75	0.	0.	0.10	0.00	100	-
279	6.04	3.29	16.43	8.75	0.	0.61	0.10	0.01	-	-
400	8.42	4.58	16.43	8.75	0.	0.86	0.10	0.01	-	-
558	11.30	6.13	16.43	8.75	0.	1.16	0.10	0.02	-	-
837	15.78	8.51	14.65	7.70	0.	1.63	0.10	0.02	-	-
1116	19.48	10.43	11.85	6.06	0.	2.01	0.10	0.03	-	-
1395	22.40	11.89	9.05	4.42	0.	2.32	0.10	0.04	-	-
1674	24.53	12.90	6.25	2.78	0.	2.55	0.10	0.04	-	-
1953	25.89	13.44	3.45	1.14	0.	2.69	0.10	0.04	-	-
2232	26.46	13.53	0.65	-0.50	0.	2.75	0.10	0.04	-	-
2511	26.25	13.17	-1.97	-2.75	0.	2.73	0.10	0.04	-	-
2790	25.26	12.34	-3.61	-5.55	0.	2.63	0.10	0.04	100	-
3069	23.48	11.06	-5.25	-8.35	0.	2.44	0.10	0.04	-	-
3348	20.93	9.32	-6.89	-11.15	0.	2.17	0.10	0.03	-	-
3627	17.59	7.12	-8.53	-13.95	0.	1.82	0.10	0.03	-	-
3906	13.48	4.46	-10.17	-16.75	0.	1.39	0.10	0.02	-	-
4185	8.58	1.35	-11.82	-19.55	0.	0.88	0.10	0.01	-	-
4464	2.90	-2.22	-13.46	-22.36	0.22	0.29	0.10	0.02	-	-
4743	-3.56	-6.39	-15.10	-25.16	0.66	0.	0.10	0.04	-	-
5022	-9.90	-13.80	-16.14	-26.93	1.48	0.	0.10	0.10	-	-
5180	-12.62	-18.34	-16.14	-26.93	2.00	0.	0.10	0.13	-	-
5301	-14.80	-21.99	-16.14	-26.93	2.00	0.	0.10	0.13	-	-
5580	-20.16	-30.96	-16.14	-26.93	2.00	0.	0.10	0.13	100	-
Span=2										
0	-20.16	-30.96	20.98	14.75	2.31	0.	0.10	0.15	100	-
200	-15.71	-25.64	20.98	14.75	2.31	0.	0.10	0.15	-	-
400	-11.66	-20.95	20.98	14.75	2.31	0.	0.10	0.15	-	-
600	-8.01	-17.61	20.98	14.75	1.91	0.	0.10	0.13	-	-
800	-4.62	-14.62	19.57	13.93	1.57	0.	0.10	0.10	-	-
1000	-1.51	-11.95	17.56	12.75	1.27	0.	0.10	0.08	-	-
1200	1.21	-9.51	15.55	11.21	1.00	0.12	0.10	0.07	-	-
1400	3.52	-7.32	13.55	9.20	0.76	0.35	0.10	0.05	-	-
1600	5.42	-5.36	11.54	7.19	0.55	0.55	0.10	0.04	-	-
1800	6.93	-3.63	9.53	5.19	0.37	0.71	0.10	0.02	-	-
2000	8.04	-2.14	7.88	3.18	0.21	0.82	0.10	0.01	100	-
2200	8.74	-0.88	6.70	1.17	0.09	0.89	0.10	0.01	-	-
2400	9.04	0.14	5.53	-0.84	0.	0.92	0.10	0.01	-	-
2600	8.94	0.93	4.35	-2.85	0.	0.91	0.10	0.01	-	-
2800	8.44	1.48	3.17	-4.85	0.	0.86	0.10	0.01	-	-
3000	7.54	1.79	2.00	-6.86	0.	0.77	0.10	0.01	-	-
3200	6.24	1.88	0.82	-8.87	0.	0.63	0.10	0.01	-	-
3400	4.86	0.89	-0.35	-10.28	0.	0.49	0.10	0.01	-	-
3600	4.26	-1.49	-1.53	-10.28	0.15	0.43	0.10	0.01	-	-
3800	3.84	-4.27	-2.71	-10.28	0.15	0.43	0.10	0.01	-	-
4000	3.18	-7.45	-3.88	-10.28	0.15	0.43	0.10	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	3.18	-7.45	5.50	-0.34	0.37	0.32	0.10	0.02	100	-
131	3.36	-5.94	5.50	-1.11	0.37	0.32	0.10	0.02	-	-
262	3.37	-4.61	5.50	-1.88	0.37	0.32	0.10	0.02	-	-
393	3.20	-3.58	5.50	-2.65	0.37	0.32	0.10	0.02	-	-
400	3.19	-3.60	5.50	-2.69	0.37	0.32	0.10	0.02	-	-
524	3.36	-3.98	5.50	-3.42	0.41	0.34	0.10	0.03	-	-
655	3.80	-4.48	5.50	-4.54	0.46	0.38	0.10	0.03	-	-
786	4.08	-5.08	4.24	-5.86	0.52	0.41	0.10	0.03	-	-
917	4.18	-5.78	2.92	-7.17	0.60	0.42	0.10	0.04	-	-
1048	4.11	-6.58	1.61	-8.49	0.68	0.42	0.10	0.05	-	-
1179	3.87	-7.48	0.29	-9.80	0.78	0.39	0.10	0.05	-	-
1310	3.46	-8.48	-1.02	-11.12	0.89	0.35	0.10	0.06	100	-
1441	2.87	-9.59	-2.34	-12.43	1.01	0.29	0.10	0.07	-	-
1572	2.11	-10.79	-3.65	-13.75	1.14	0.21	0.10	0.08	-	-
1703	1.18	-12.10	-4.97	-15.06	1.28	0.12	0.10	0.09	-	-
1834	0.08	-13.50	-6.28	-16.38	1.44	0.00	0.10	0.10	-	-
1965	-1.20	-15.01	-7.55	-17.64	1.61	0.	0.10	0.11	-	-
2096	-2.65	-16.62	-7.55	-17.64	1.80	0.	0.10	0.12	-	-
2220	-4.18	-18.23	-7.55	-17.64	1.99	0.	0.10	0.13	-	-
2227	-4.27	-18.33	-7.55	-17.64	1.99	0.	0.10	0.13	-	-
2358	-6.06	-20.14	-7.55	-17.64	1.99	0.	0.10	0.13	-	-
2489	-8.03	-22.86	-7.55	-17.64	1.99	0.	0.10	0.13	-	-
2620	-10.13	-25.95	-7.55	-17.64	1.99	0.	0.10	0.13	100	-
Span=4										
0	-10.13	-25.95	23.68	10.29	1.57	0.	0.10	0.10	100	-
303	-5.95	-17.23	23.68	10.29	1.57	0.	0.10	0.10	-	-
400	-4.73	-14.63	23.68	10.29	1.57	0.	0.10	0.10	-	-
606	-2.32	-9.43	23.68	10.29	0.99	0.	0.10	0.07	-	-
909	0.79	-2.55	21.18	8.83	0.26	0.08	0.10	0.02	-	-
1212	5.78	2.69	18.13	7.04	0.	0.59	0.10	0.01	-	-
1515	9.94	4.56	15.09	5.26	0.	1.02	0.10	0.02	-	-
1818	13.98	5.88	12.05	3.48	0.	1.44	0.10	0.02	-	-
2121	17.09	6.67	9.01	1.70	0.	1.76	0.10	0.03	-	-
2424	19.28	6.91	5.97	-0.08	0.	1.99	0.10	0.03	-	-
2727	20.55	6.62	2.92	-1.86	0.	2.13	0.10	0.03	-	-
3030	20.90	5.78	-0.12	-3.64	0.	2.16	0.10	0.03	100	-
3333	20.33	4.41	-3.16	-6.33	0.	2.10	0.10	0.03	-	-
3636	18.83	2.50	-6.20	-9.37	0.	1.95	0.10	0.03	-	-
3939	16.41	0.04	-8.49	-12.41	0.	1.69	0.10	0.03	-	-
4242	13.08	-2.95	-10.27	-15.45	0.30	1.34	0.10	0.02	-	-
4545	8.81	-6.49	-12.05	-18.50	0.67	0.90	0.10	0.04	-	-
4848	3.63	-10.56	-13.84	-21.54	1.11	0.37	0.10	0.07	-	-
5151	-2.47	-15.17	-15.62	-24.58	1.63	0.	0.10	0.11	-	-
5454	-9.50	-21.06	-17.08	-27.08	2.32	0.	0.10	0.15	-	-
5660	-14.80	-26.96	-17.08	-27.08	3.06	0.	0.10	0.20	-	-
5757	-17.45	-29.89	-17.08	-27.08	3.06	0.	0.10	0.20	-	-
6060	-26.31	-39.64	-17.08	-27.08	3.06	0.	0.10	0.20	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-26.31	-39.64	28.93	15.62	2.96	0.	0.12	0.20	100	-
329	-19.25	-28.49	28.93	15.62	2.96	0.	0.12	0.20	-	-
400	-17.25	-26.23	28.93	15.62	2.96	0.	0.12	0.20	-	-
657	-10.43	-18.45	28.93	15.62	2.01	0.	0.12	0.13	-	-
986	-2.66	-9.95	25.65	13.70	1.05	0.	0.10	0.07	-	-
1314	4.00	-5.77	22.36	11.77	0.60	0.41	0.10	0.04	-	-
1643	10.26	-2.21	19.06	9.84	0.22	1.05	0.10	0.02	-	-
1971	15.50	0.70	15.76	7.91	0.	1.60	0.10	0.02	-	-
2300	19.67	2.98	12.46	5.98	0.	2.03	0.10	0.03	-	-
2628	22.75	4.63	9.17	4.05	0.	2.36	0.10	0.04	-	-
2957	24.75	5.64	5.86	2.11	0.	2.57	0.10	0.04	-	-
3285	25.66	6.02	2.57	-1.12	0.	2.67	0.10	0.04	100	-
3614	25.50	5.76	-0.73	-4.42	0.	2.65	0.10	0.04	-	-
3942	24.25	4.87	-3.16	-7.72	0.	2.52	0.10	0.04	-	-
4271	21.91	3.34	-5.09	-11.02	0.	2.27	0.10	0.03	-	-
4599	18.49	1.18	-7.02	-14.31	0.	1.91	0.10	0.03	-	-
4928	13.99	-1.62	-8.95	-17.62	0.16	1.44	0.10	0.02	-	-
5256	8.54	-5.04	-10.88	-20.91	0.52	0.87	0.10	0.03	-	-
5585	2.33	-9.11	-12.82	-24.21	0.96	0.23	0.10	0.06	-	-
5913	-4.94	-16.31	-14.73	-27.48	1.76	0.	0.10	0.12	-	-
6170	-11.39	-23.71	-14.73	-27.48	2.65	0.	0.10	0.18	-	-
6242	-13.32	-25.91	-14.73	-27.48	2.65	0.	0.10	0.18	-	-
6570	-22.02	-36.55	-14.73	-27.48	2.65	0.	0.10	0.18	100	-
Span=6										
0	-22.02	-36.55	25.59	12.32	2.74	0.	0.10	0.18	100	-
313	-13.91	-26.96	25.59	12.32	2.74	0.	0.10	0.18	-	-
400	-11.83	-24.47	25.59	12.32	2.74	0.	0.10	0.18	-	-
625	-6.81	-18.38	25.59	12.32	2.00	0.	0.10	0.13	-	-
938	-0.66	-11.77	22.80	10.69	1.25	0.	0.10	0.08	-	-
1250	4.48	-8.60	19.67	8.85	0.90	0.45	0.10	0.06	-	-
1563	9.42	-5.99	16.52	7.01	0.62	0.96	0.10	0.04	-	-
1875	13.38	-3.96	13.39	5.18	0.41	1.37	0.10	0.03	-	-
2188	16.37	-2.50	10.25	3.34	0.25	1.69	0.10	0.03	-	-
2500	18.36	-1.62	7.12	1.50	0.16	1.90	0.10	0.03	-	-
2813	19.39	-1.32	3.97	-0.77	0.13	2.00	0.10	0.03	-	-
3125	19.43	-1.58	0.84	-3.90	0.16	2.01	0.10	0.03	100	-
3438	18.49	-2.42	-2.30	-7.04	0.24	1.91	0.10	0.03	-	-
3750	16.57	-3.84	-5.43	-10.17	0.39	1.71	0.10	0.03	-	-
4063	13.66	-5.83	-7.28	-13.32	0.60	1.40	0.10	0.04	-	-
4375	9.79	-8.39	-9.12	-16.45	0.88	1.00	0.10	0.06	-	-
4688	4.92	-11.53	-10.96	-19.59	1.22	0.50	0.10	0.08	-	-
5000	-0.92	-15.24	-12.79	-22.72	1.64	0.	0.10	0.11	-	-
5313	-7.10	-19.64	-14.63	-25.87	2.15	0.	0.10	0.14	-	-
5625	-14.18	-26.30	-16.26	-28.65	2.97	0.	0.12	0.20	-	-
5850	-19.89	-33.08	-16.26	-28.65	3.87	0.	0.12	0.26	-	-
5938	-22.26	-35.87	-16.26	-28.65	3.87	0.	0.12	0.26	-	-
6250	-31.30	-46.39	-16.26	-28.65	3.87	0.	0.12	0.26	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-31.30	-46.39	33.45	20.22	3.60	0.	0.17	0.24	100	-
329	-23.69	-33.74	33.45	20.22	3.60	0.	0.17	0.24	-	-
400	-21.23	-31.16	33.45	20.22	3.60	0.	0.17	0.24	-	-
658	-12.68	-22.19	33.45	20.22	2.46	0.	0.17	0.16	-	-
987	-2.74	-12.74	30.17	18.30	1.36	0.	0.13	0.09	-	-
1316	6.12	-6.90	26.87	16.36	0.72	0.62	0.10	0.05	-	-
1645	13.89	-1.70	23.57	14.43	0.17	1.43	0.10	0.02	-	-
1974	20.57	2.87	20.26	12.49	0.	2.13	0.10	0.03	-	-
2303	26.16	6.80	16.96	10.56	0.	2.72	0.10	0.04	-	-
2632	30.67	10.10	13.66	8.63	0.	3.20	0.10	0.05	-	-
2961	34.09	12.76	10.35	6.69	0.	3.57	0.10	0.05	-	-
3290	36.43	14.78	7.05	4.76	0.	3.82	0.10	0.06	100	-
3619	37.67	16.17	3.75	2.14	0.	3.96	0.10	0.06	-	-
3948	37.83	16.92	1.31	-1.16	0.	3.98	0.10	0.06	-	-
4277	36.91	17.03	-0.62	-4.47	0.	3.88	0.10	0.06	-	-
4606	34.90	16.51	-2.56	-7.77	0.	3.66	0.10	0.06	-	-
4935	31.80	15.35	-4.49	-11.07	0.	3.32	0.10	0.05	-	-
5264	27.61	13.55	-6.43	-14.37	0.	2.88	0.10	0.04	-	-
5593	22.34	11.12	-8.36	-17.68	0.	2.32	0.10	0.04	-	-
5922	15.98	8.05	-10.30	-20.98	0.	1.65	0.10	0.03	-	-
6251	8.53	4.34	-11.17	-22.47	0.	0.87	0.10	0.01	-	-
6330	6.58	3.36	-11.17	-22.47	0.	0.67	0.10	0.01	-	-
6580	0.00	0.00	-11.17	-22.47	0.	0.	0.10	0.00	100	-

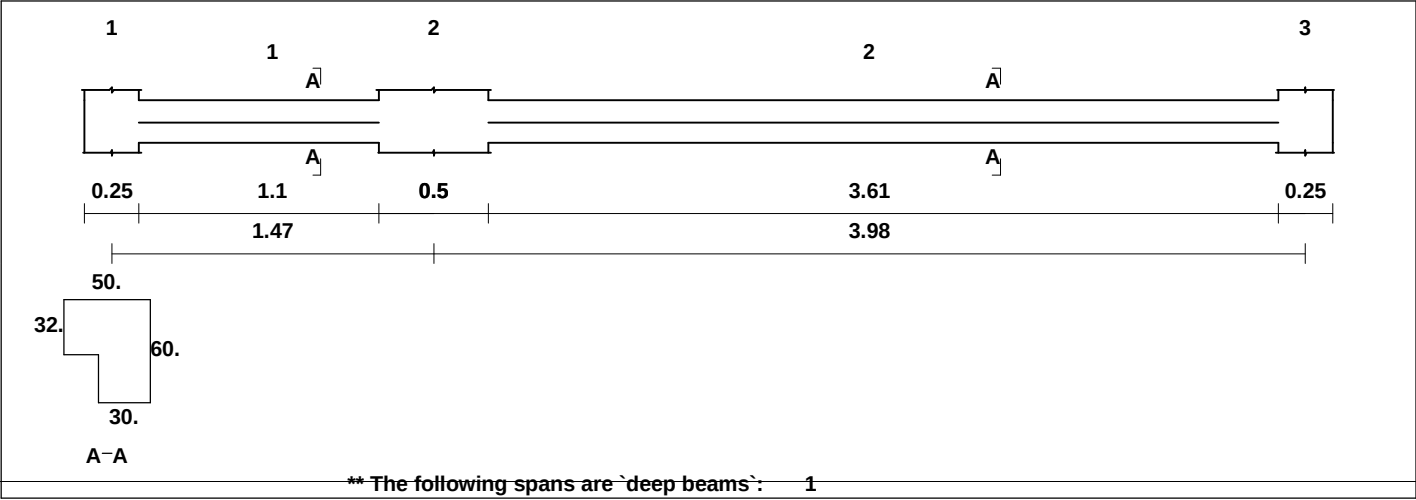
Moment / Shear Envelope (Factored) Units:kN,meter									
1		2		3		4		5	
1		2		3		4		5	
Min M	0.0	-31.0	-31.0	-7.4	-7.4	-25.9	-25.9	-39.6	
Max M	0.0	-20.2	-20.2	3.2	3.2	-10.1	-10.1	-26.3	
MspMn	4.6	-18.3	-20.9	-1.5	-3.6	-18.2	-14.6	-27.0	
MspMx	8.4	-12.6	-11.7	4.3	3.2	-4.2	-4.7	-14.8	
M Max			9.0		4.2		20.9		
M Min			1.9		-8.5		6.9		
Mmn=0 @	0.0	1.3	2.4	0.5	0.0	2.6	1.1	2.1	
Mmx=0 @	0.0	1.0	1.1	2.9	1.8	0.8	0.8	1.0	
mx -M @			1.1		1.8		0.8		
mx +M @			2.4		0.9		3.0		
V max		-20.0		-3.9		-14.2		-21.0	
V min		-33.6		-16.9	-0.3	-24.3		-33.7	
DReac		35.6		10.9		28.4		39.1	
LReac	9.9	25.6		18.2		26.2		30.2	
Max R		61.2		29.0		54.6		69.3	
Min R		43.3		5.9		28.8		50.3	
5		6		7		8			
5		6		7		7			
Min M	-39.6	-36.6	-36.6	-46.4	-46.4	0.0			
Max M	-26.3	-22.0	-22.0	-31.3	-31.3	0.0			
MspMn	-26.2	-23.7	-24.5	-33.1	-31.2	3.4			
MspMx	-17.3	-11.4	-11.8	-19.9	-21.2	6.6			
M Max			19.4		37.8				
M Min			-1.3		17.0				
Mmn=0 @	1.9	1.8	0.0	6.2	1.8	6.6			
Mmx=0 @	1.1	0.9	1.0	1.3	1.1	6.6			
mx -M @			1.0		1.1				
mx +M @			3.1		3.9				
V max		-18.6		-20.1		-14.2			
V min		-34.1		-35.3		-27.6			

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	M o m e n t / S h e a r	E n v e l o p e (Factored)	Units:kN,meter
DReac	36.0	42.8	15.4
LReac	30.3	32.5	12.2
Max R	66.3	75.4	27.6
Min R	46.1	54.6	14.2

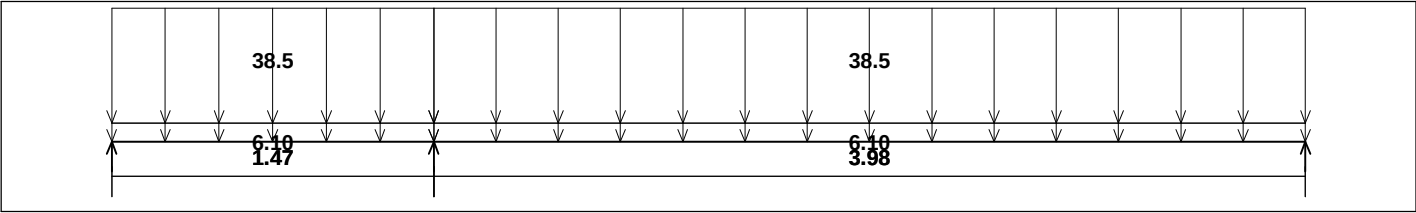
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Geometry	Units: meter, cm

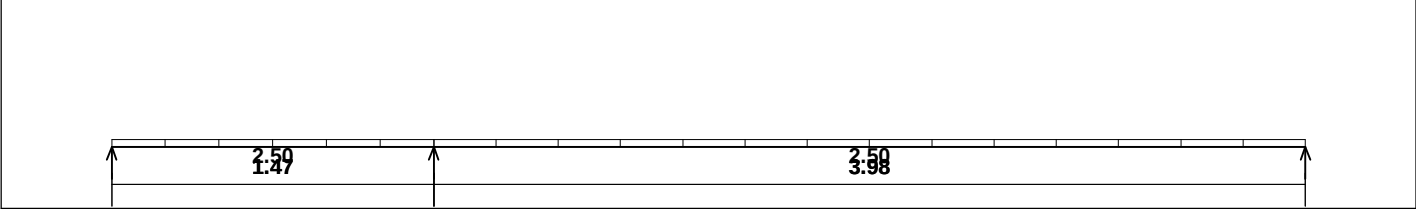


Loading

load group no. 1	Units: kN, meter
Dead load - Service	



Live load - Service	Load factors: 1.20, 1.20/1.60, 0.00



Loads (kN, meter)					
1			2		
Self. Wt.	6.10	Self. Wt.	6.10		
Uni D	38.54	L	2.50	Uni D	38.54
				L	2.50

Moments: spans 1 to 2

Diagram showing the bending moment distribution for spans 1 to 2. The diagram is a continuous curve with the following values and dimensions:

- Left end: -2.9
- First support: -87.4
- Point between first and second support: -64.2
- Point between first and second support: -55.1
- Second support: 74.6
- Third support: 11.1
- Span lengths: 1.47, 2.39, 1.59
- Horizontal dimension between first and second support: 0.77

Shear Force Diagram

kN

-19.9

-56.4

-101.8

136.5

91.1

-54.4

-92.7

Factored			
DeadR	-15.98	221.76	86.16
LiveR	-3.93	16.56	6.51
Max R	-13.23	238.32	92.66
Min R	-19.91	224.97	86.08
Service			
DeadR	-13.31	184.8	71.8
LiveR	-2.46	10.35	4.07
Max R	-11.6	195.15	75.86
Min R	-15.77	186.81	71.75

Concrete: B300
 Moment redistribution: No
 Support moment at: Face

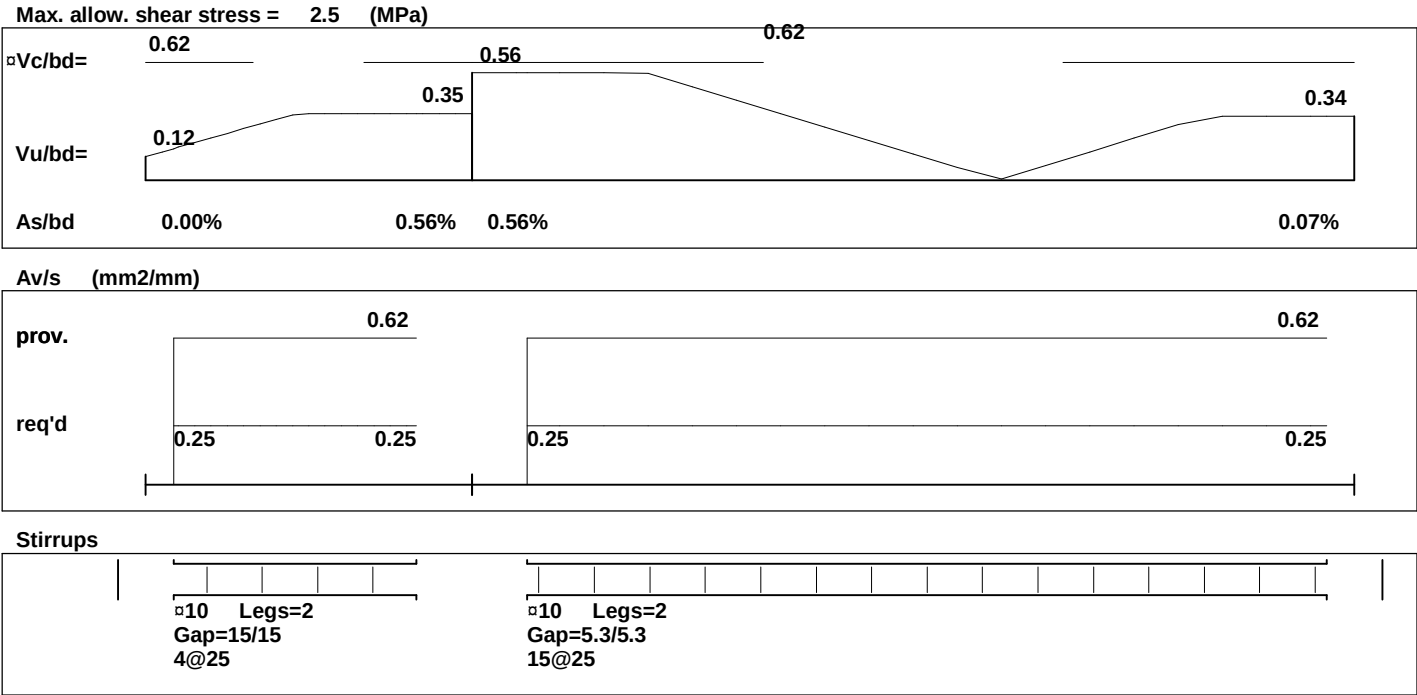
Main reinforcement $f_y = 420$

Top Cover		6.		6.	
As top =	5.42	9.04*			
*=minimum					
As bot =	5.42*		5.42*		1.11
Bot Cover	6.		6.		
a/d	0%	2%	3%		0%
As/bd	0.00%	0.34%	0.56%	0.34%	0.00%

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Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 5.42	2 0.
As	5.42	5.42
fr = 3	Es= 209	Ec = 23
Ig(m^4)=	0.00687	0.00687
Icr(m^4)=	0.00104	0.00110
Mcr =	80.40	62.86
Mmax,d =	67.80	57.73
Mmax,d+l =	71.42	61.04
Mmax,sust =	44.07	37.53
Ie,d (m^4)=	0.00687	0.00687
Ie,d+l (m^4)=	0.00687	0.00687
Ie,sust (m^4)=	0.00687	0.00687
e/1+50r =	1.71/0.68	2.00/0.80
ai,d =	-0.042	0.493
ai,l =	-0.003	0.029
at,sust =	-0.028	0.385
ai,l =	L/*****	L/*****
(ai+at),t2-t1	L/*****	L/ 6791

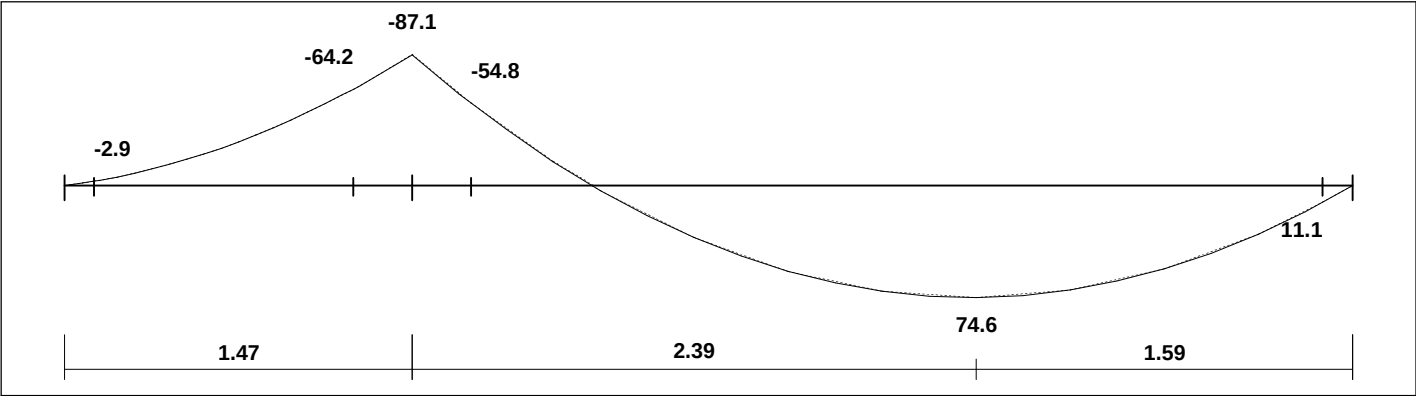
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-13.23	-19.91	0.	0.	0.25	0.00	100	-
74	-1.14	-1.62	-17.49	-23.87	0.07	0.	0.25	0.00	-	-
125	-2.10	-2.91	-20.43	-26.61	0.14	0.	0.25	0.00	-	-
147	-2.57	-3.51	-21.70	-27.78	0.17	0.	0.25	0.00	-	-
221	-4.33	-5.71	-25.96	-31.75	0.28	0.	0.25	0.00	-	-
294	-6.38	-8.17	-30.16	-35.66	0.40	0.	0.25	0.01	-	-
368	-8.77	-10.95	-34.42	-39.62	0.54	0.	0.25	0.01	-	-
441	-11.43	-13.99	-38.62	-43.53	0.69	0.	0.25	0.01	-	-
515	-14.45	-17.36	-42.88	-47.50	0.85	0.	0.25	0.01	-	-
588	-17.73	-20.97	-47.08	-51.41	1.03	0.	0.25	0.01	-	-
662	-21.37	-24.92	-51.34	-55.37	1.23	0.	0.25	0.02	-	-
735	-25.28	-29.10	-52.38	-56.38	1.44	0.	0.25	0.02	100	-
809	-29.54	-33.64	-52.38	-56.38	1.67	0.	0.25	0.02	-	-
882	-34.06	-38.40	-52.38	-56.38	1.90	0.	0.25	0.02	-	-
956	-38.96	-43.51	-52.38	-56.38	2.16	0.	0.25	0.03	-	-
1029	-44.09	-48.85	-52.38	-56.38	2.43	0.	0.25	0.03	-	-
1103	-49.62	-54.55	-52.38	-56.38	2.72	0.	0.25	0.03	-	-
1176	-55.37	-60.46	-52.38	-56.38	3.02	0.	0.25	0.04	-	-
1220	-58.99	-64.16	-52.38	-56.38	3.21	0.	0.25	0.04	-	-
1250	-61.52	-66.74	-52.38	-56.38	3.21	0.	0.25	0.04	-	-
1323	-67.89	-73.22	-52.38	-56.38	3.21	0.	0.25	0.04	-	-
1397	-74.66	-80.16	-52.38	-56.38	3.21	0.	0.25	0.04	-	-
1470	-81.65	-87.44	-52.38	-56.38	3.21	0.	0.25	0.04	100	-
Span=2										
0	-81.65	-87.44	91.05	84.80	2.75	0.	0.25	0.04	100	-
199	-57.42	-61.41	91.05	84.80	2.75	0.	0.25	0.04	-	-
250	-51.55	-55.10	91.05	84.80	2.75	0.	0.25	0.04	-	-
398	-35.30	-37.66	91.05	84.80	1.87	0.	0.25	0.02	-	-
597	-15.31	-16.19	91.05	84.80	0.79	0.	0.25	0.01	-	-
796	3.24	2.56	90.71	84.48	0.	0.15	0.25	0.00	-	-
995	20.13	18.31	79.25	73.82	0.	0.99	0.25	0.01	-	-
1194	34.75	31.94	67.79	63.16	0.	1.71	0.25	0.01	-	-
1393	47.08	43.45	56.34	52.50	0.	2.33	0.25	0.02	-	-
1592	57.14	52.83	44.88	41.84	0.	2.83	0.25	0.02	-	-
1791	64.92	60.10	33.42	31.18	0.	3.22	0.25	0.02	-	-
1990	70.42	65.24	21.97	20.52	0.	3.50	0.25	0.03	100	-
2189	73.63	68.26	10.51	9.86	0.	3.66	0.25	0.03	-	-
2388	74.57	69.16	-0.80	-1.02	0.	3.71	0.25	0.03	-	-
2587	73.23	67.94	-11.46	-12.47	0.	3.64	0.25	0.03	-	-
2786	69.61	64.60	-22.12	-23.93	0.	3.46	0.25	0.03	-	-
2985	63.70	59.14	-32.78	-35.38	0.	3.16	0.25	0.02	-	-
3184	55.52	51.55	-43.44	-46.84	0.	2.75	0.25	0.02	-	-
3383	45.06	41.85	-50.46	-54.38	0.	2.23	0.25	0.02	-	-
3582	32.32	30.02	-50.46	-54.38	0.	1.59	0.25	0.01	-	-
3781	17.30	16.07	-50.46	-54.38	0.	0.85	0.25	0.01	-	-
3855	11.13	10.34	-50.46	-54.38	0.	0.54	0.25	0.00	-	-
3980	0.00	0.00	-50.46	-54.38	0.	0.	0.25	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

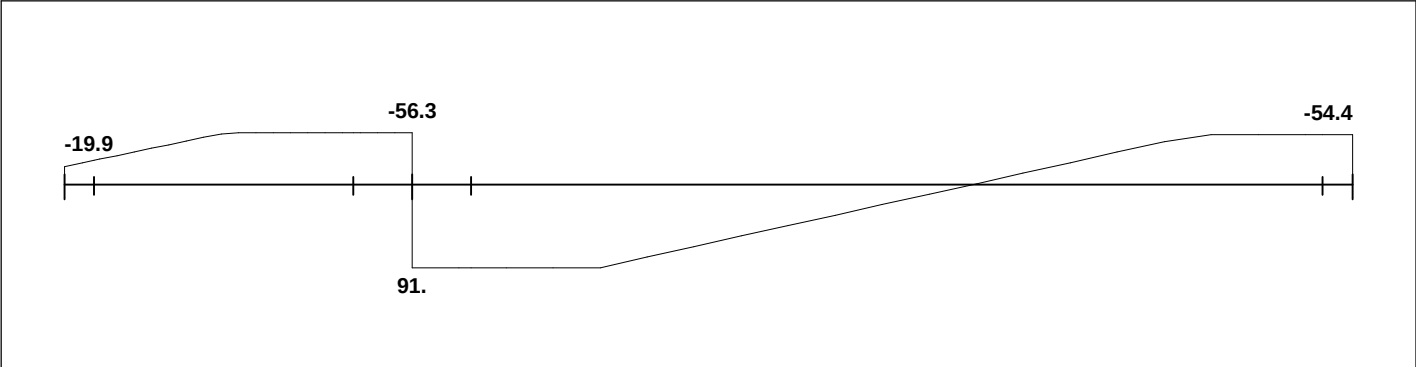
Moments: spans 1 to 2 Load pattern: xxXX



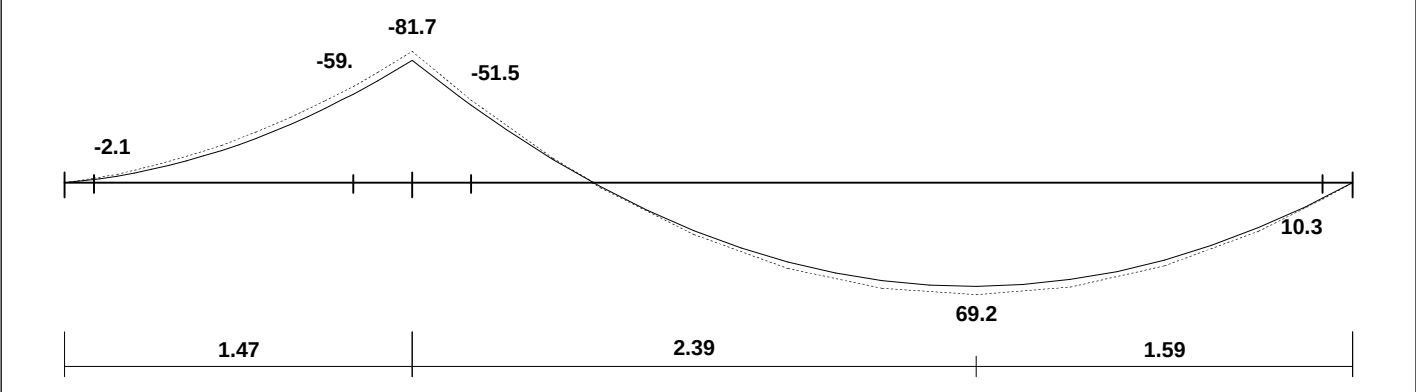
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Moment/Shear Envelope (Factored) Units:kN,meter

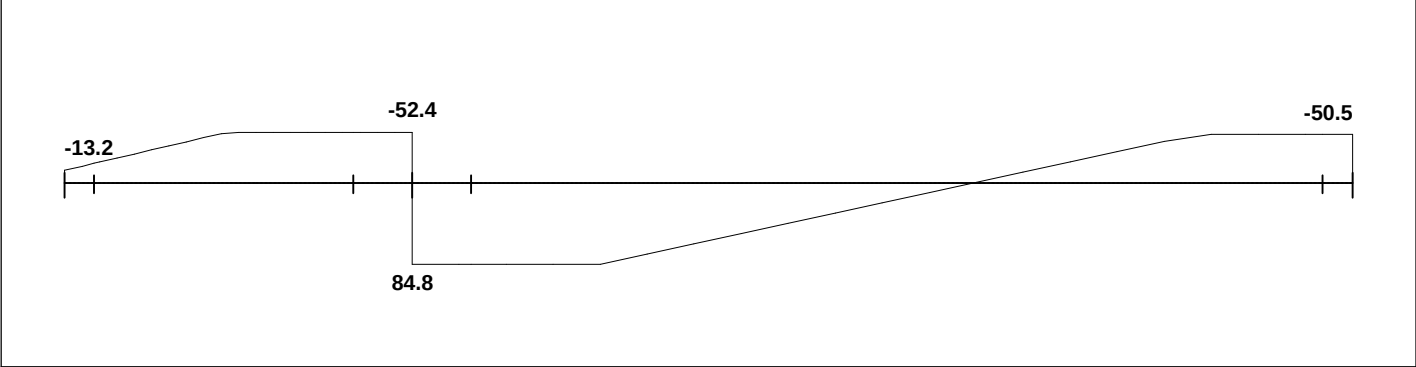
Shear



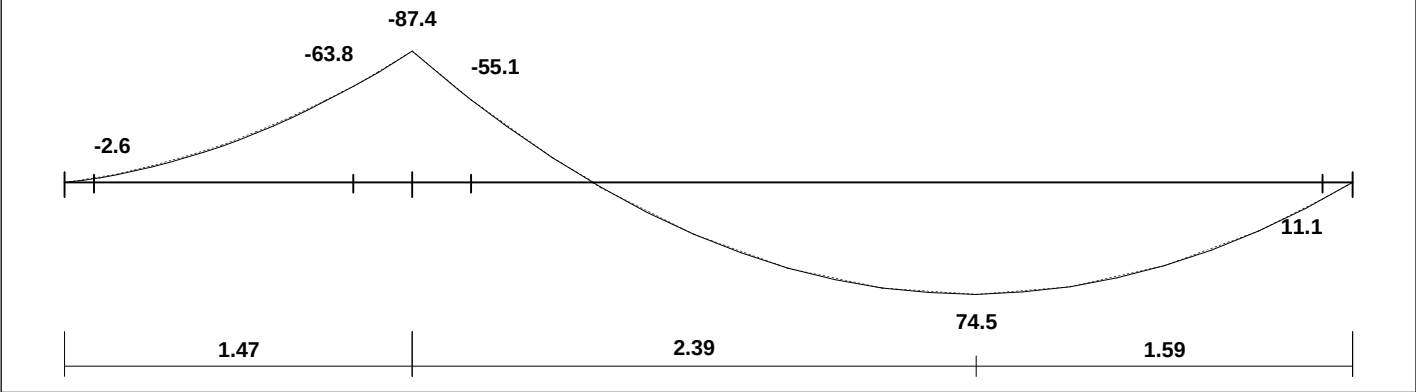
Moments: spans 1 to 2 Load pattern: XXxx



Shear



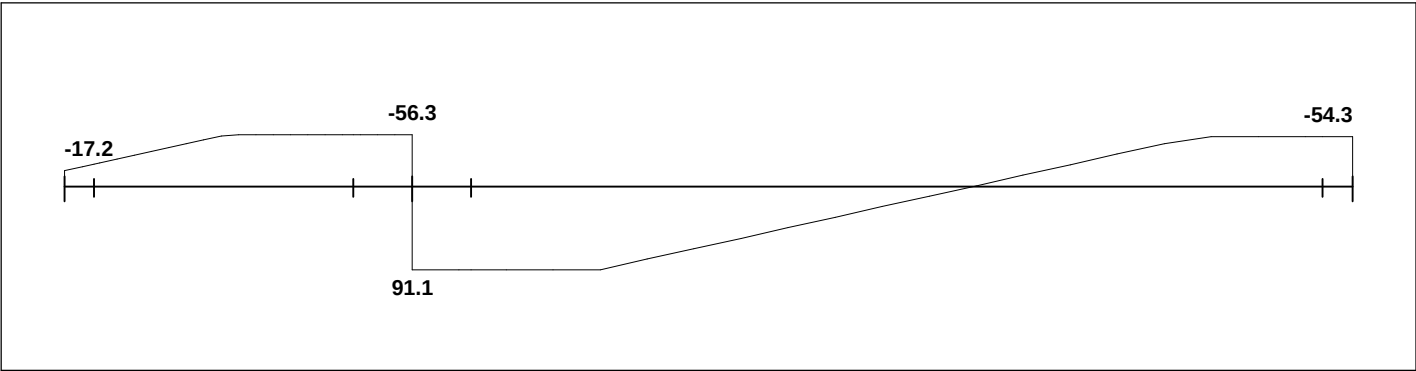
Moments: spans 1 to 2 Load pattern: XXXX



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Moment / Shear Envelope (Factored) Units:kN,meter

Shear



Moment / Shear Envelope (Factored) Units:kN,meter

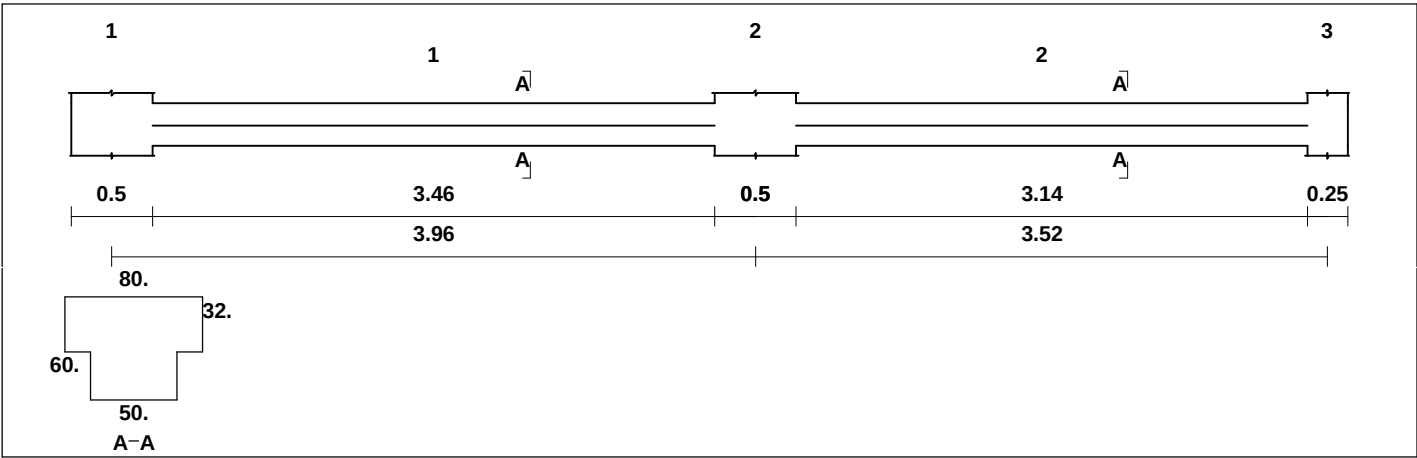
	1	2	3
Min M	0.0	-87.4	-87.4
Max M	0.0	-81.7	-81.7
MspMn	-2.9	-64.2	-55.1
MspMx	-2.1	-59.0	-51.5
M Max			74.6
M Min			69.2
Mmn=0 @	0.0	1.5	0.8
Mmx=0 @	0.0	1.5	0.8
mx -M @			0.8
mx +M @			2.4
V max	-13.2	-97.9	-86.1
V min	-19.9	-101.8	-92.7
DReac	-16.0	221.8	86.2
LReac	-3.9	16.6	6.5
Max R	-13.2	238.3	92.7
Min R	-19.9	225.0	86.1

Individual load cases - factored Units:kN,meter

	1	2	3
Min M	0.0	-87.1	-87.1
M Max			74.6
Mmx=0 @	0.0	1.5	0.8
mx +M			2.4
V max	-19.9	-98.7	-92.7
Min M	0.0	-81.7	-81.7
M Max			69.2
Mmx=0 @	0.0	1.5	0.8
mx +M			2.4
V max	-13.2	-97.9	-86.1
Min M	0.0	-87.4	-87.4
M Max			74.5
Mmx=0 @	0.0	1.5	0.8
mx +M			2.4
V max	-17.2	-101.8	-92.6

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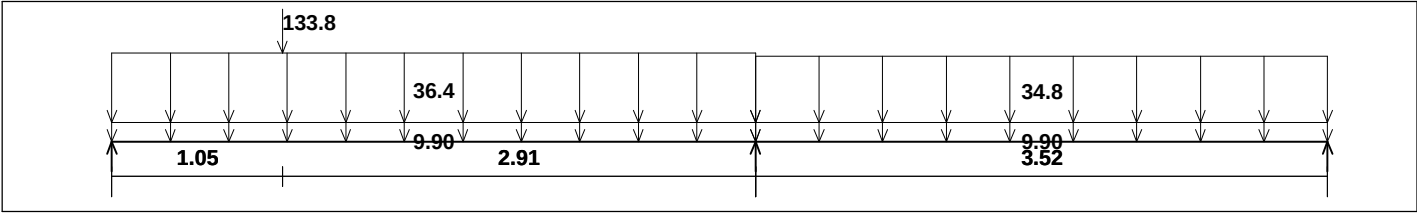
Geometry Units: meter, cm



Loading

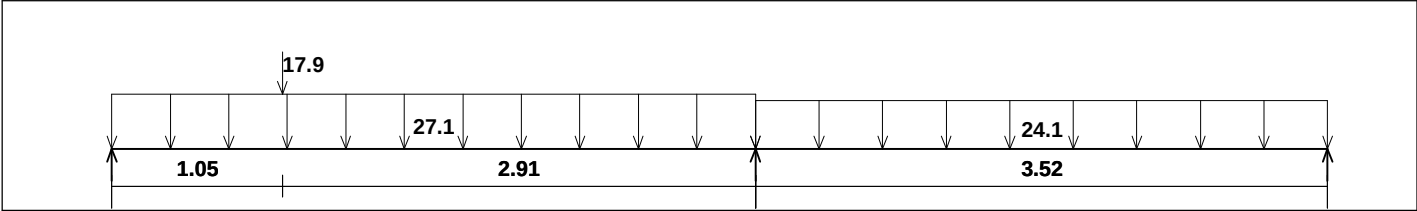
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

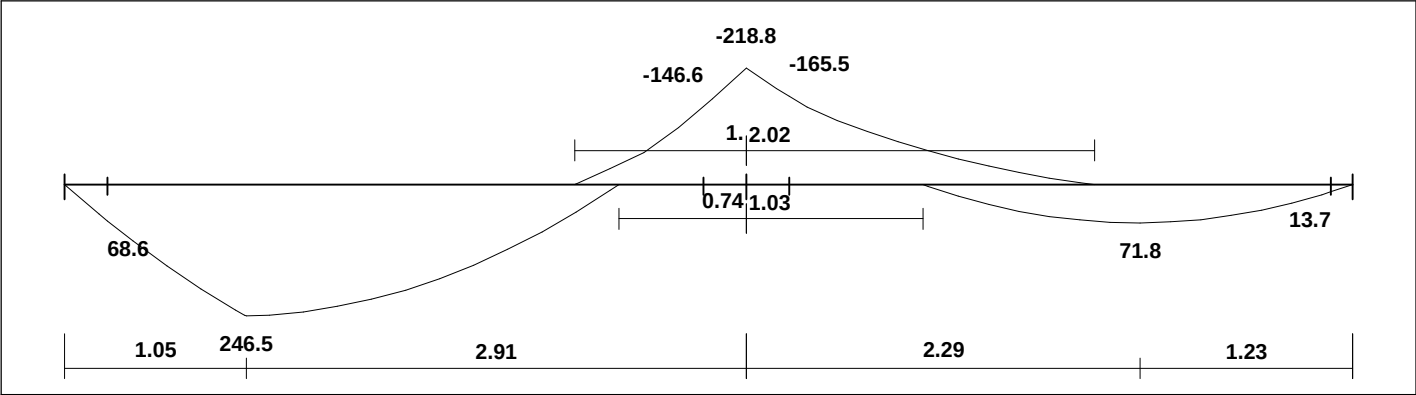


Loads (kN,meter)							
1				2			
Self.Wt.		9.90		Self.Wt.		9.90	
Uni D	36.40	L	27.10	Uni D	34.80	L	24.13
Pt. D	133.8	L	17.90				
x	1.05						

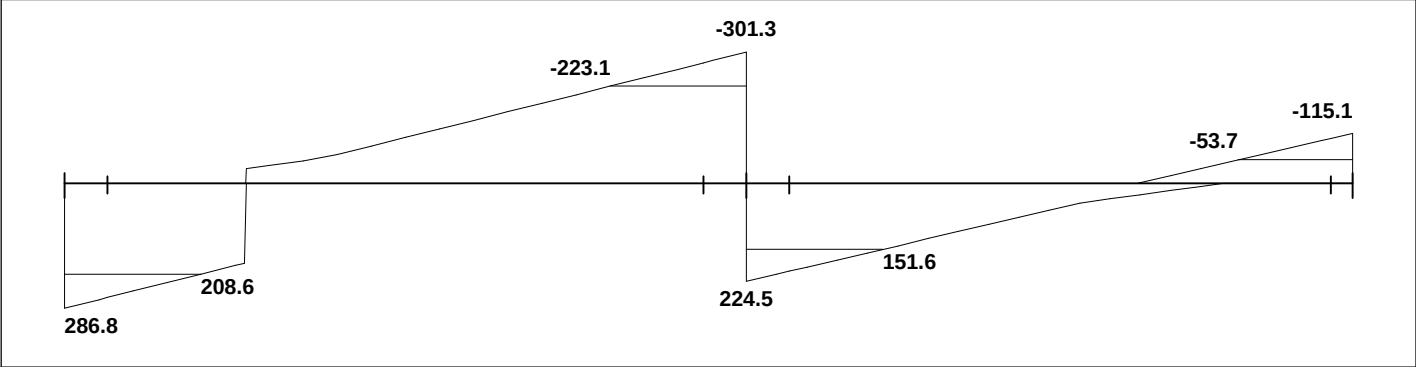
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



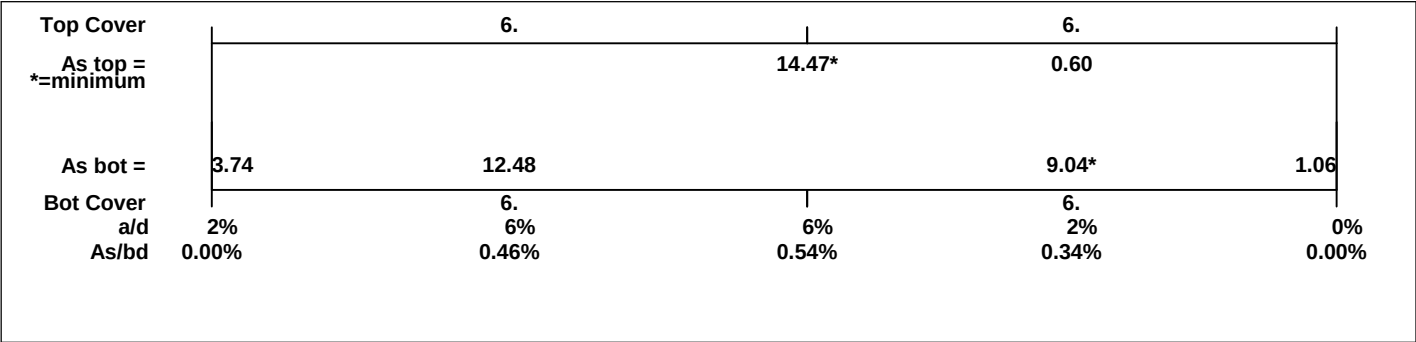
Reactions

Factored

DeadR	193.09	321.17	55.13
LiveR	93.67	204.61	59.96
Max R	286.75	525.78	115.09
Min R	185.98	404.22	40.25
Service			
DeadR	160.91	267.64	45.94
LiveR	58.54	127.88	37.47
Max R	219.45	395.53	83.42
Min R	156.46	319.55	36.64

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

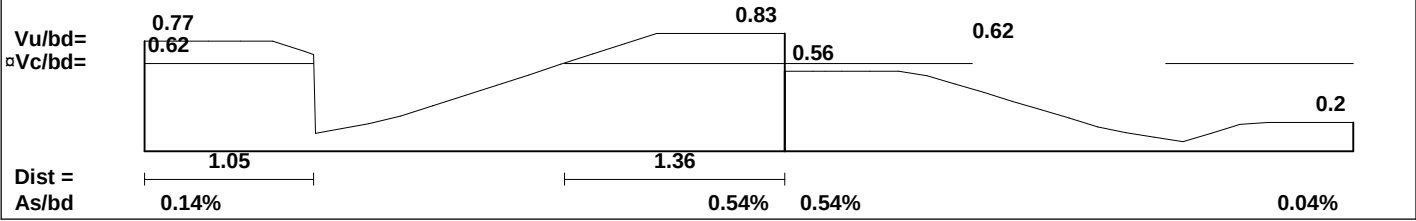


Beam 54	Code: ACI318-02
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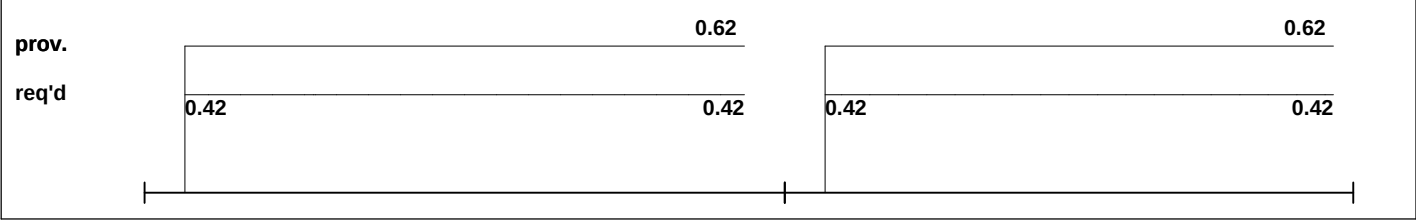
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

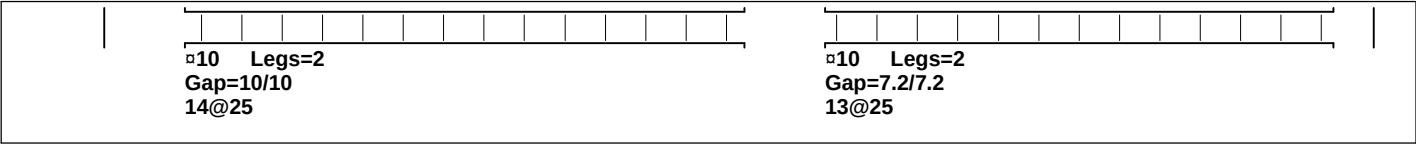
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	0.	9.04
As	12.48	0.60
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.01124	0.01124
Icr(m ⁴)=	0.00242	0.00183
Mcr =	103.73	103.73
Mmax,d =	143.32	115.20
Mmax,d+l =	189.91	50.53
Mmax,sust =	93.16	74.88
Ie,d (m ⁴)=	0.00576	0.00870
Ie,d+l (m ⁴)=	0.00385	0.01124
Ie,sust (m ⁴)=	0.01124	0.01124
e/1+50r =	2.00/0.80	1.98/0.79
ai,d =	1.221	-0.077
ai,l =	1.393	0.223
at,sust =	0.488	-0.046
ai,l =	L/ 2841	L/15810
(ai+at),t2-t1	L/ 1714	L/23482

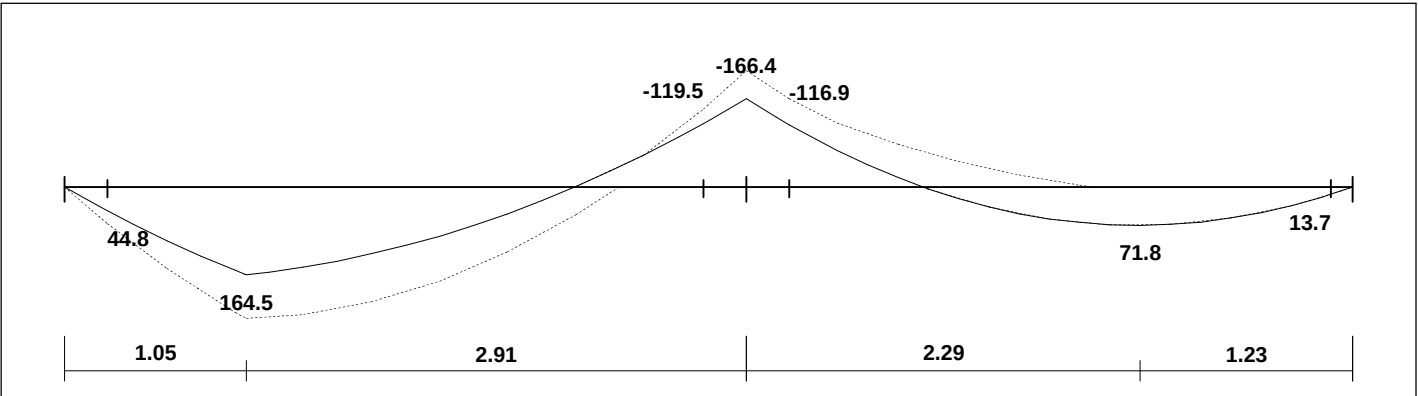
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	208.61	142.09	0.	0.	0.42	0.00	100	-
198	54.84	35.74	208.61	142.09	0.	2.71	0.42	0.01	-	-
250	68.60	44.76	208.61	142.09	0.	3.39	0.42	0.02	-	-
396	105.80	69.29	208.61	142.09	0.	5.26	0.42	0.03	-	-
594	152.88	100.67	208.61	142.09	0.	7.65	0.42	0.04	-	-
792	196.08	129.87	208.41	141.98	0.	9.86	0.42	0.05	-	-
990	235.41	156.89	188.82	130.98	0.	11.90	0.42	0.06	-	-
1045	245.65	164.01	183.38	127.92	0.	12.43	0.42	0.06	-	-
1055	246.53	164.49	-6.81	-33.20	0.	12.48	0.42	0.06	-	-
1188	244.75	159.58	-19.96	-40.58	0.	12.39	0.42	0.06	-	-
1386	238.86	150.46	-39.55	-51.59	0.	12.08	0.42	0.06	-	-
1584	229.09	139.15	-59.14	-66.24	0.	11.57	0.42	0.06	-	-
1782	215.44	125.67	-73.59	-85.83	0.	10.86	0.42	0.05	-	-
1980	197.91	110.01	-84.59	-105.41	0.	9.96	0.42	0.05	100	-
2178	176.51	92.17	-95.59	-125.00	0.	8.86	0.42	0.04	-	-
2376	151.23	72.16	-106.59	-144.59	0.	7.56	0.42	0.04	-	-
2574	122.07	49.97	-117.59	-164.17	0.	6.08	0.42	0.03	-	-
2772	89.03	25.59	-128.59	-183.76	0.	4.42	0.42	0.02	-	-
2970	52.11	-0.96	-139.59	-203.34	0.04	2.57	0.42	0.01	-	-
3168	11.32	-29.69	-150.59	-222.93	1.46	0.55	0.42	0.01	-	-
3366	-33.35	-60.59	-150.70	-223.13	3.01	0.	0.42	0.02	-	-
3564	-81.90	-107.23	-150.70	-223.13	5.37	0.	0.42	0.04	-	-
3710	-119.47	-146.55	-150.70	-223.13	7.41	0.	0.42	0.06	-	-
3762	-128.94	-161.07	-150.70	-223.13	7.41	0.	0.42	0.06	-	-
3960	-166.38	-218.78	-150.70	-223.13	7.41	0.	0.42	0.06	100	-
Span=2										
0	-166.38	-218.78	151.63	106.19	8.40	0.	0.42	0.06	100	-
176	-130.92	-180.69	151.63	106.19	8.40	0.	0.42	0.06	-	-
250	-116.86	-165.53	151.63	106.19	8.40	0.	0.42	0.06	-	-
352	-98.31	-145.47	151.63	106.19	7.35	0.	0.42	0.06	-	-
528	-68.56	-119.67	151.63	106.19	6.01	0.	0.42	0.05	-	-
704	-41.67	-99.34	151.63	106.19	4.97	0.	0.42	0.04	-	-
880	-17.63	-80.67	143.33	101.36	4.02	0.	0.42	0.03	-	-
1056	3.55	-63.66	127.10	91.92	3.16	0.17	0.42	0.02	-	-
1232	21.87	-48.31	110.86	82.48	2.39	1.07	0.42	0.02	-	-
1408	37.33	-34.63	94.62	73.04	1.71	1.84	0.42	0.01	-	-
1584	49.94	-22.60	78.39	63.50	1.11	2.46	0.42	0.01	-	-
1760	59.68	-12.24	62.15	47.27	0.60	2.95	0.42	0.01	100	-
1936	66.57	-3.54	45.92	31.03	0.17	3.29	0.42	0.02	-	-
2112	70.61	3.50	35.28	14.80	0.	3.49	0.42	0.02	-	-
2288	71.78	8.88	25.84	-1.44	0.	3.55	0.42	0.02	-	-
2464	70.10	12.59	16.40	-17.68	0.	3.47	0.42	0.02	-	-
2640	65.56	14.65	6.96	-33.91	0.	3.24	0.42	0.02	-	-
2816	58.16	15.04	-2.48	-50.15	0.	2.87	0.42	0.01	-	-
2992	47.91	13.77	-4.58	-53.74	0.	2.36	0.42	0.01	-	-
3168	34.80	10.84	-4.58	-53.74	0.	1.71	0.42	0.01	-	-
3344	18.83	6.25	-4.58	-53.74	0.	0.92	0.42	0.00	-	-
3395	13.67	4.61	-4.58	-53.74	0.	0.67	0.42	0.00	-	-
3520	0.00	0.00	-4.58	-53.74	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

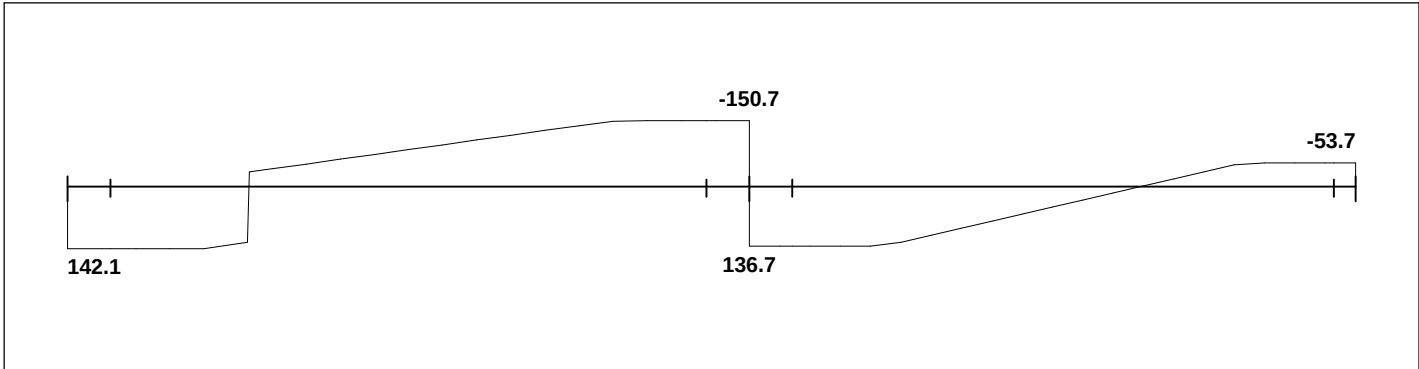
Moments: spans 1 to 2 Load pattern: xxXX



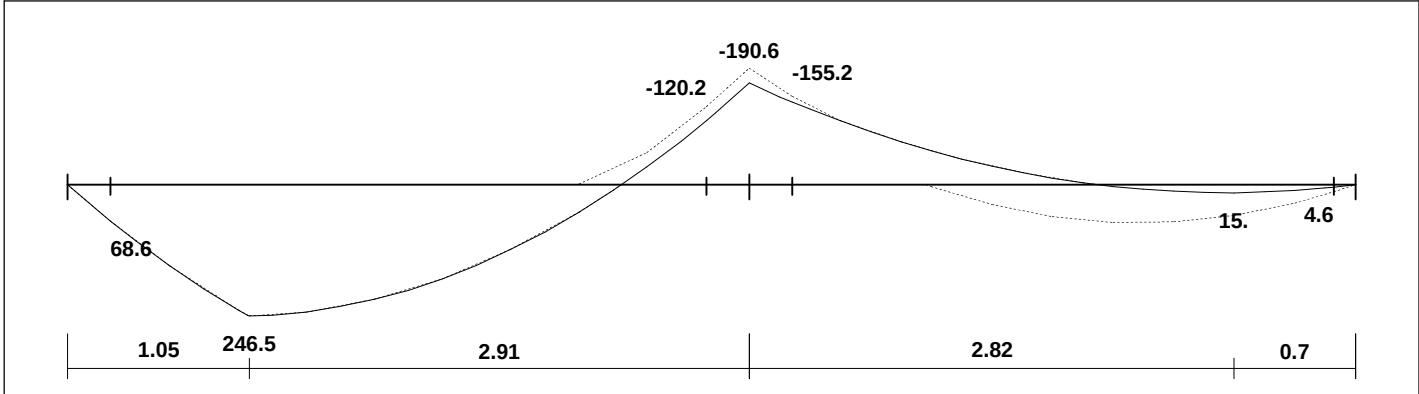
Beam 54	Code: ACI318-02
Project: 1	Page: 382
Designed by:	Date: 04/07/14

Moment/Shear Envelope (Factored) Units:kN,meter

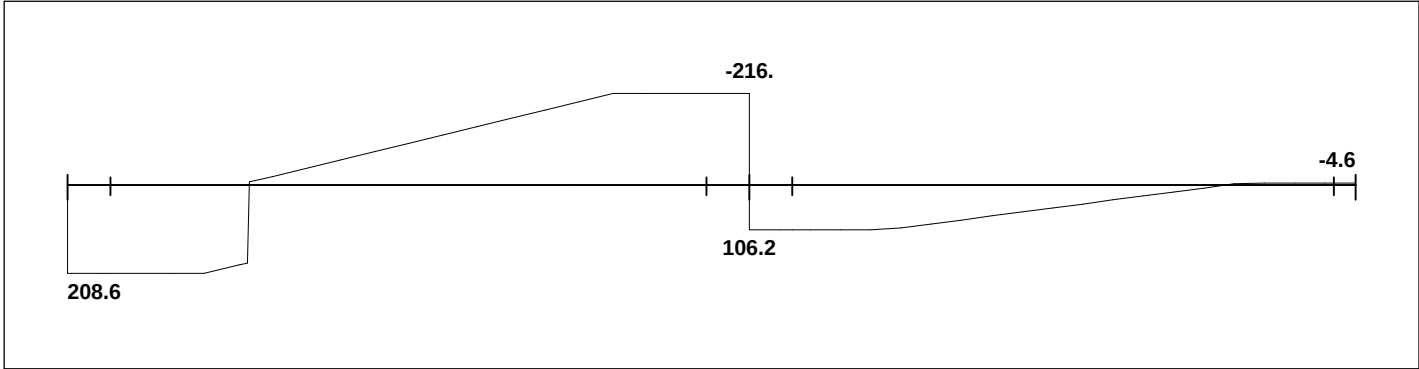
Shear



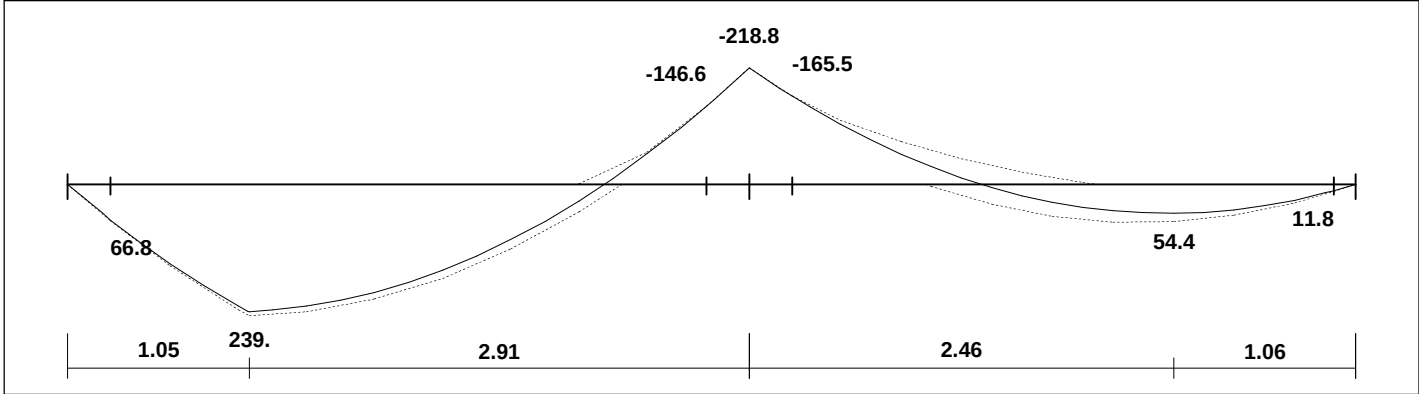
Moments: spans 1 to 2 Load pattern: XXxx



Shear

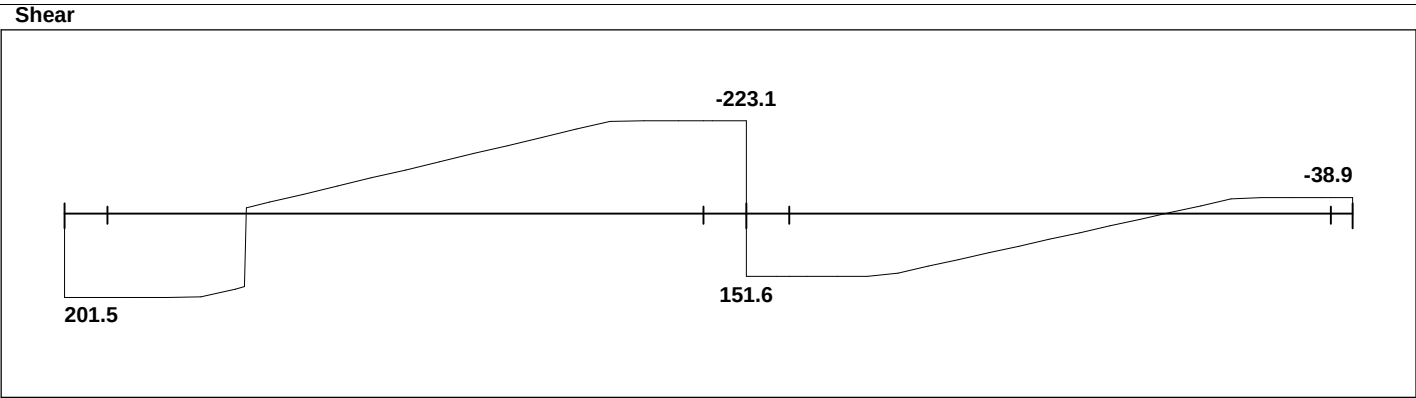


Moments: spans 1 to 2 Load pattern: XXXX



Beam 54	Code: ACI318-02
Project: 1	Page: 384
Designed by:	Date: 04/07/14

Moment / Shear Envelope (Factored) Units:kN,meter



Moment / Shear Envelope (Factored) Units:kN,meter

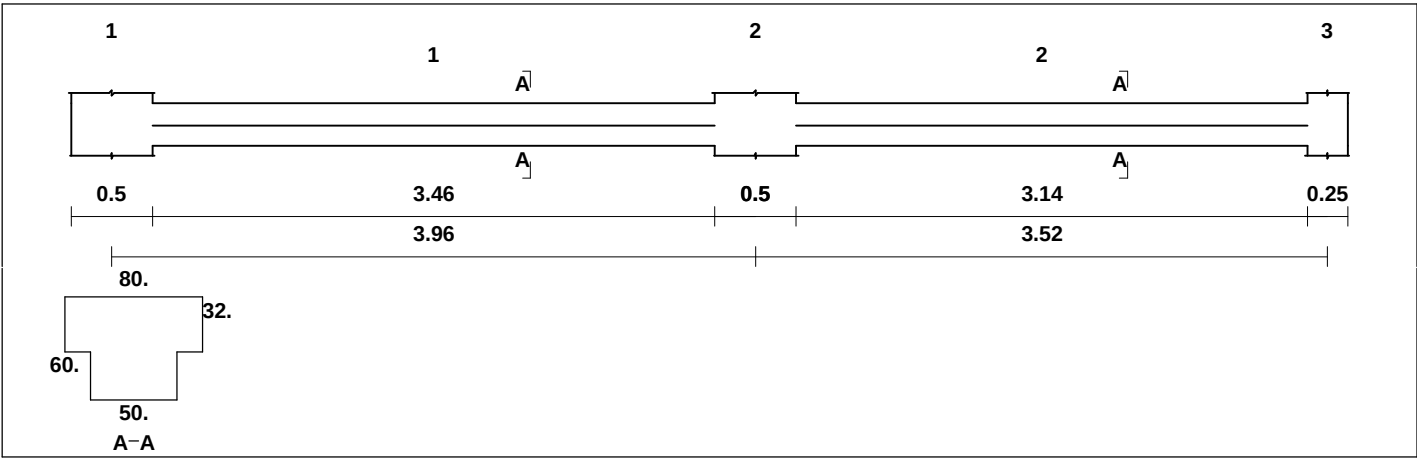
	1	2	3
	1	2	3
Min M	0.0	-218.8	0.0
Max M	0.0	-166.4	0.0
MspMn	44.8	-146.6	4.6
MspMx	68.6	-119.5	13.7
M Max		71.8	
M Min		15.0	
Mmn=0 @	0.0	1.0	3.5
Mmx=0 @	0.0	0.7	3.5
mx -M @		1.0	
mx +M @		2.3	
V max		-194.6	-40.2
V min		-301.3	-115.1
DReac		321.2	55.1
LReac	93.7	204.6	60.0
Max R		525.8	115.1
Min R		404.2	40.2

Individual load cases - factored Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-166.4	0.0
M Max		71.8	
Mmx=0 @	0.0	1.0	3.5
mx +M		2.3	
V max		-194.6	-115.1
Min M	0.0	-190.6	0.0
M Max		15.0	
Mmx=0 @	0.0	0.7	3.5
mx +M		2.8	
V max		-294.2	-40.2
Min M	0.0	-218.8	0.0
M Max		54.4	
Mmx=0 @	0.0	0.8	3.5
mx +M		2.5	
V max		-301.3	-100.2

Beam 54	Code: ACI318-02
Project: 1	Page: 569
Designed by:	Date: 04/09/14

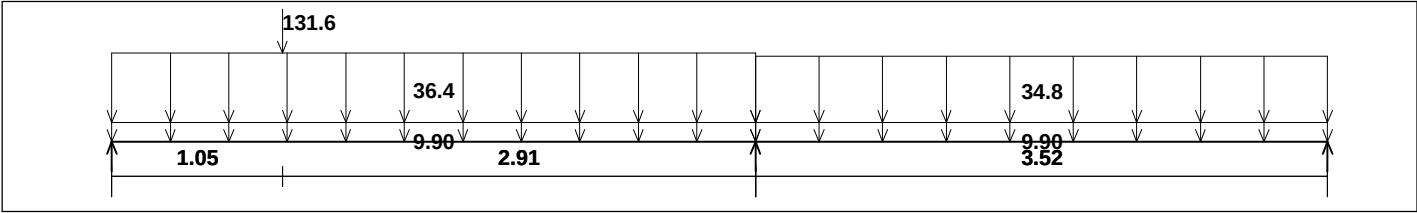
Geometry Units: meter, cm



Loading

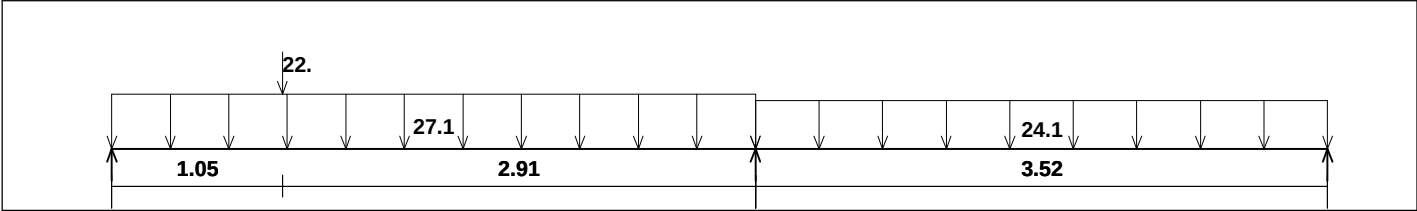
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00

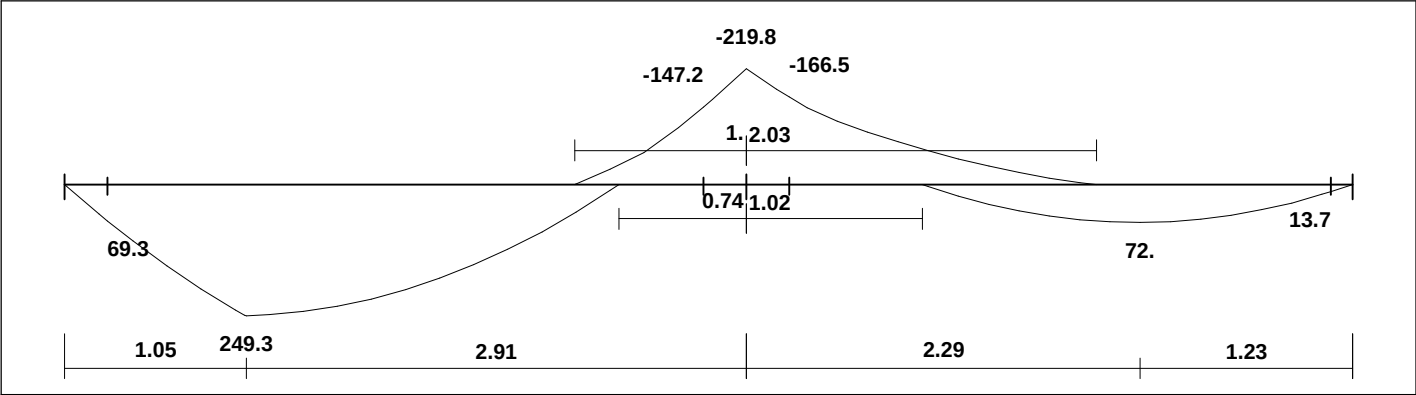


Loads (kN, meter)					
1			2		
Self. Wt.	9.90	Self. Wt.	9.90		
Uni D	36.40	L	27.10	Uni D	34.80
Pt. D	131.6	L	22.00		
x	1.05				

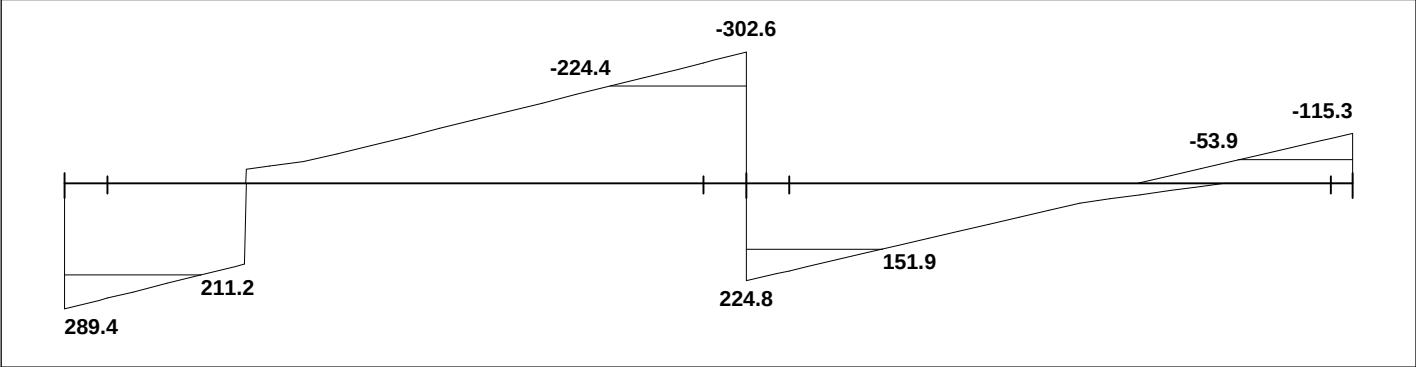
Beam 54	Code: ACI318-02
Project: 1	Page: 570
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



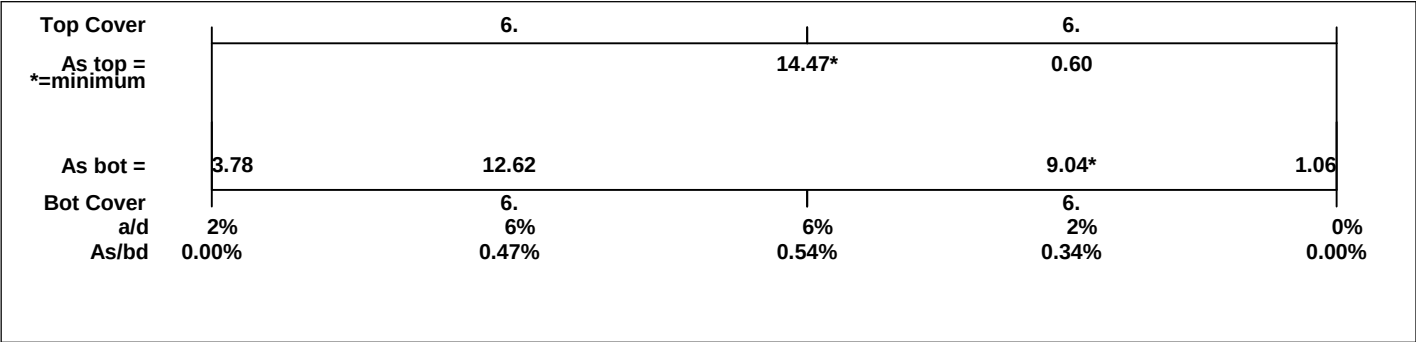
Reactions

Factored

DeadR	191.32	320.1	55.33
LiveR	98.06	207.26	59.96
Max R	289.38	527.37	115.28
Min R	184.21	403.15	39.96
Service			
DeadR	159.43	266.75	46.11
LiveR	61.29	129.54	37.47
Max R	220.72	396.29	83.58
Min R	154.99	318.66	36.5

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

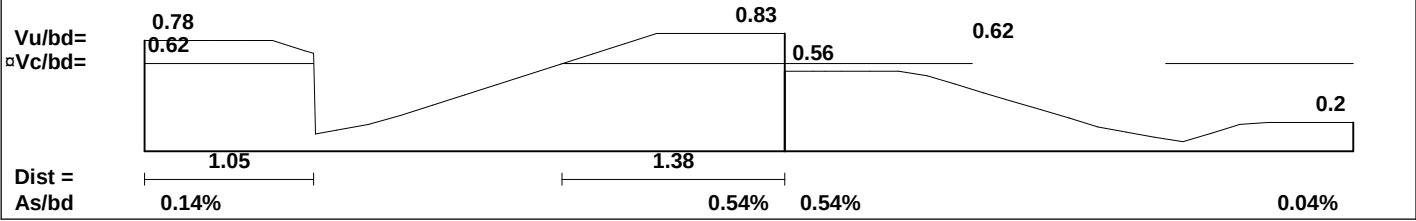


Beam 54	Code: ACI318-02
Project: 1	Page: 571
Designed by:	Date: 04/09/14

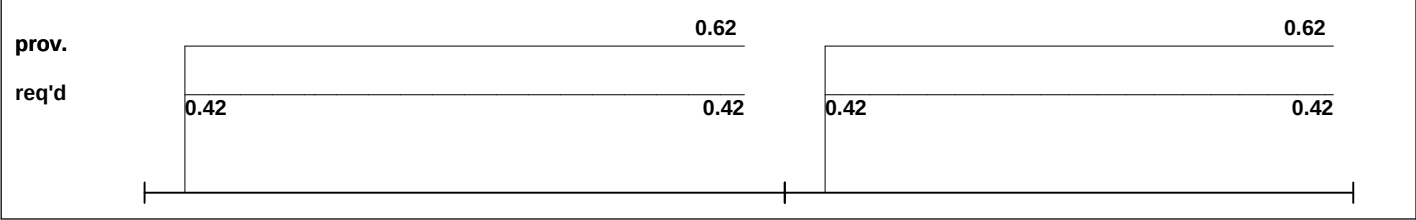
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 10 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

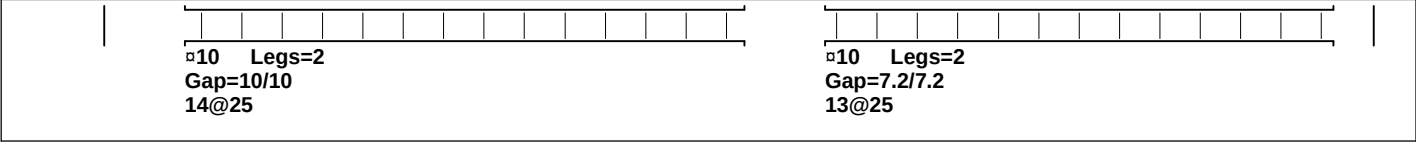
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1 0.	2 9.04
A_s	12.62	0.60
$f_r = 3$	$E_s = 209$	$E_c = 23$
$I_g(m^4) =$	0.01124	0.01124
$I_{cr}(m^4) =$	0.00244	0.00183
$M_{cr} =$	103.73	103.73
$M_{max,d} =$	141.78	114.63
$M_{max,d+l} =$	191.24	50.73
$M_{max,sust} =$	92.15	74.51
$I_{e,d}(m^4) =$	0.00589	0.00881
$I_{e,d+l}(m^4) =$	0.00384	0.01124
$I_{e,sust}(m^4) =$	0.01124	0.01124
$e/1+50r =$	2.00/0.80	1.98/0.79
$a_{i,d} =$	1.184	-0.074
$a_{i,l} =$	1.452	0.222
$a_{t,sust} =$	0.484	-0.045
$a_{i,l} =$	$L/2726$	$L/15884$
$(a_i+a_t), t_2-t_1$	$L/1684$	$L/23351$

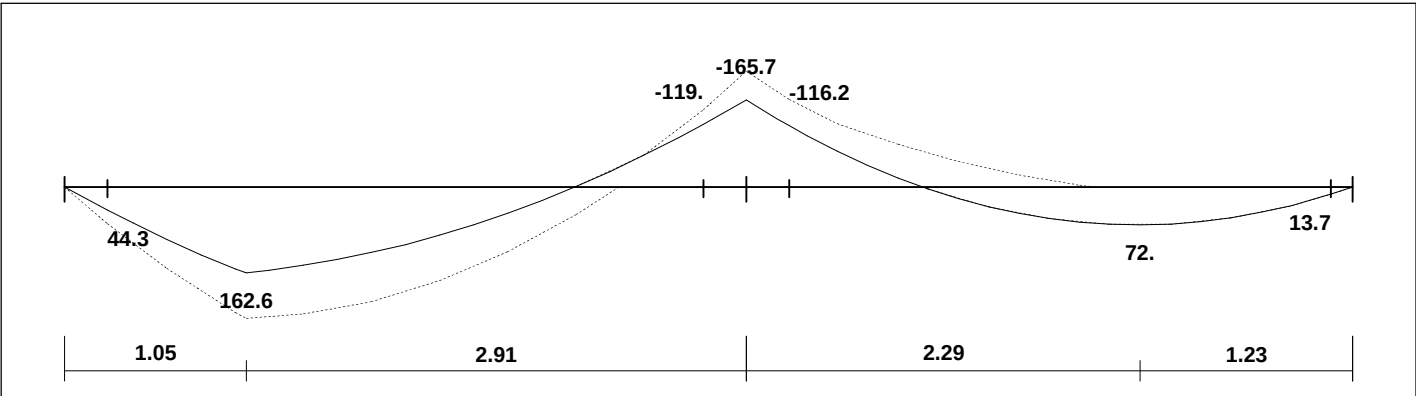
Beam 54	Code: ACI318-02
Project: 1	Page: 572
Designed by:	Date: 04/09/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	211.23	140.32	0.	0.	0.42	0.00	100	-
198	55.36	35.39	211.23	140.32	0.	2.73	0.42	0.01	-	-
250	69.25	44.32	211.23	140.32	0.	3.43	0.42	0.02	-	-
396	106.84	68.59	211.23	140.32	0.	5.31	0.42	0.03	-	-
594	154.44	99.62	211.23	140.32	0.	7.73	0.42	0.04	-	-
792	198.16	128.47	211.03	140.21	0.	9.97	0.42	0.05	-	-
990	238.01	155.14	191.45	129.21	0.	12.04	0.42	0.06	-	-
1045	248.39	162.17	186.01	126.15	0.	12.58	0.42	0.06	-	-
1055	249.28	162.64	-8.10	-32.32	0.	12.62	0.42	0.06	-	-
1188	247.33	157.84	-21.26	-39.71	0.	12.52	0.42	0.06	-	-
1386	241.18	148.89	-40.84	-50.71	0.	12.20	0.42	0.06	-	-
1584	231.15	137.76	-60.43	-67.54	0.	11.68	0.42	0.06	-	-
1782	217.25	124.45	-72.71	-87.12	0.	10.96	0.42	0.05	-	-
1980	199.46	108.97	-83.72	-106.71	0.	10.04	0.42	0.05	100	-
2178	177.80	91.30	-94.72	-126.30	0.	8.92	0.42	0.04	-	-
2376	152.27	71.46	-105.72	-145.88	0.	7.62	0.42	0.04	-	-
2574	122.85	49.44	-116.72	-165.47	0.	6.12	0.42	0.03	-	-
2772	89.55	25.24	-127.72	-185.05	0.	4.44	0.42	0.02	-	-
2970	52.38	-1.14	-138.72	-204.64	0.05	2.58	0.42	0.01	-	-
3168	11.33	-29.69	-149.72	-224.23	1.46	0.55	0.42	0.01	-	-
3366	-33.60	-60.43	-149.83	-224.42	3.00	0.	0.42	0.02	-	-
3564	-82.40	-107.73	-149.83	-224.42	5.40	0.	0.42	0.04	-	-
3710	-119.00	-147.24	-149.83	-224.42	7.44	0.	0.42	0.06	-	-
3762	-128.43	-161.82	-149.83	-224.42	7.44	0.	0.42	0.06	-	-
3960	-165.70	-219.79	-149.83	-224.42	7.44	0.	0.42	0.06	100	-
Span=2										
0	-165.70	-219.79	151.92	106.48	8.45	0.	0.42	0.06	100	-
176	-130.27	-181.66	151.92	106.48	8.45	0.	0.42	0.06	-	-
250	-116.22	-166.47	151.92	106.48	8.45	0.	0.42	0.06	-	-
352	-97.69	-146.38	151.92	106.48	7.40	0.	0.42	0.06	-	-
528	-67.98	-120.53	151.92	106.48	6.06	0.	0.42	0.05	-	-
704	-41.12	-100.15	151.92	106.48	5.01	0.	0.42	0.04	-	-
880	-17.12	-81.43	143.62	101.65	4.06	0.	0.42	0.03	-	-
1056	4.02	-64.37	127.38	92.21	3.20	0.19	0.42	0.02	-	-
1232	22.31	-48.97	111.15	82.77	2.42	1.09	0.42	0.02	-	-
1408	37.74	-35.24	94.91	73.33	1.74	1.86	0.42	0.01	-	-
1584	50.31	-23.16	78.68	63.31	1.14	2.48	0.42	0.01	-	-
1760	60.02	-12.75	62.44	47.07	0.62	2.97	0.42	0.01	100	-
1936	66.88	-4.00	46.21	30.84	0.19	3.31	0.42	0.02	-	-
2112	70.88	3.09	35.57	14.60	0.	3.51	0.42	0.02	-	-
2288	72.02	8.52	26.12	-1.63	0.	3.56	0.42	0.02	-	-
2464	70.30	12.29	16.68	-17.87	0.	3.48	0.42	0.02	-	-
2640	65.73	14.40	7.24	-34.10	0.	3.25	0.42	0.02	-	-
2816	58.30	14.84	-2.20	-50.34	0.	2.88	0.42	0.01	-	-
2992	48.01	13.62	-4.29	-53.94	0.	2.37	0.42	0.01	-	-
3168	34.86	10.74	-4.29	-53.94	0.	1.72	0.42	0.01	-	-
3344	18.86	6.20	-4.29	-53.94	0.	0.92	0.42	0.00	-	-
3395	13.69	4.58	-4.29	-53.94	0.	0.67	0.42	0.00	-	-
3520	0.00	0.00	-4.29	-53.94	0.	0.	0.42	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2 Load pattern: xxxx

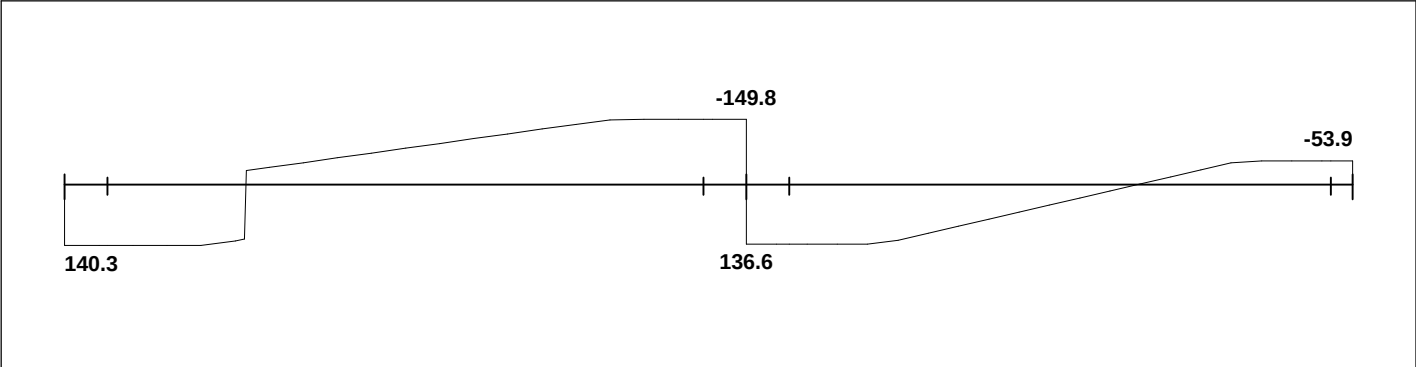


Beam 54	Code: ACI318-02
Project: 1	Page: 573
Designed by:	Date: 04/09/14

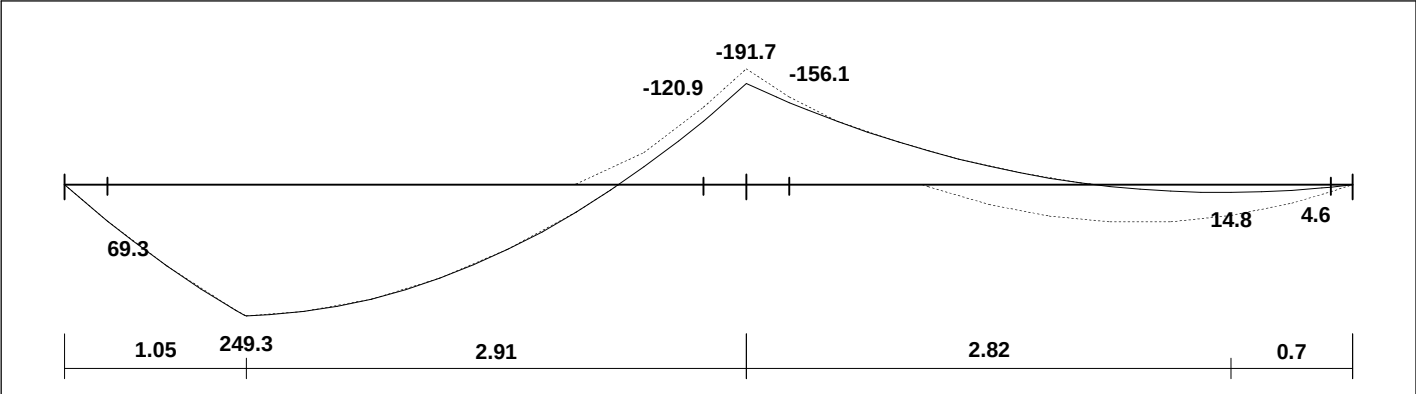
Beam 54	Code: ACI318-02
Project: 1	Page: 574
Designed by:	Date: 04/09/14

Moment/Shear Envelope (Factored) Units:kN,meter

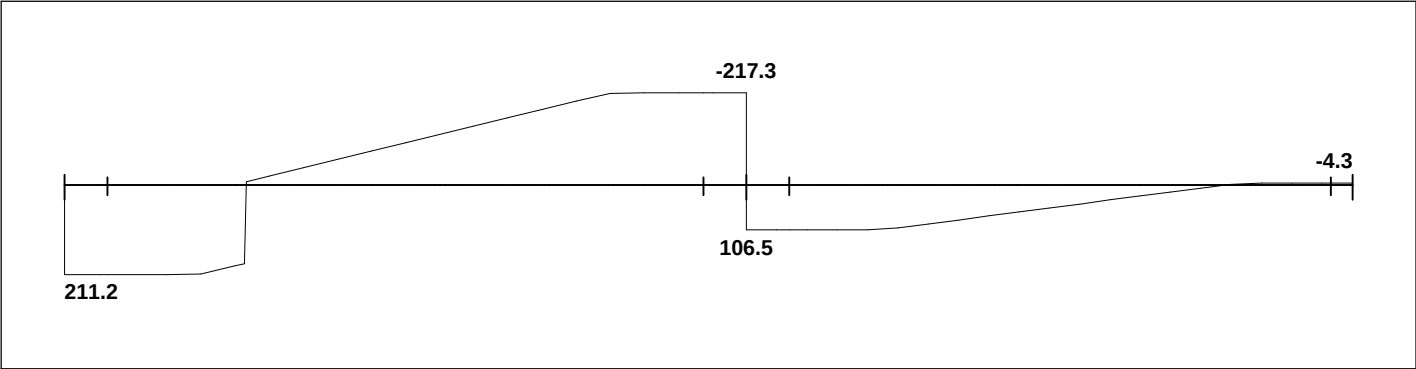
Shear



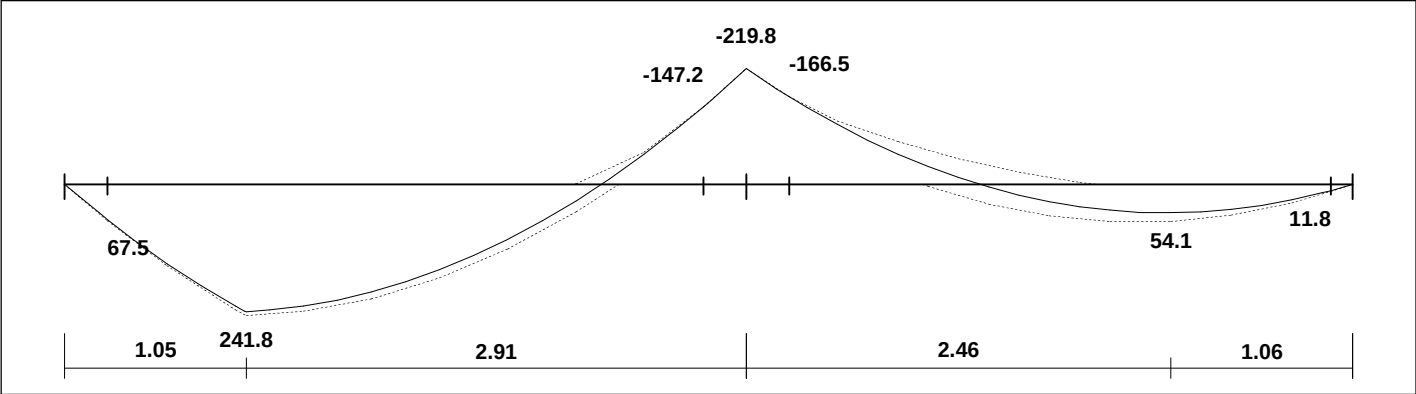
Moments: spans 1 to 2 Load pattern: XXxx



Shear

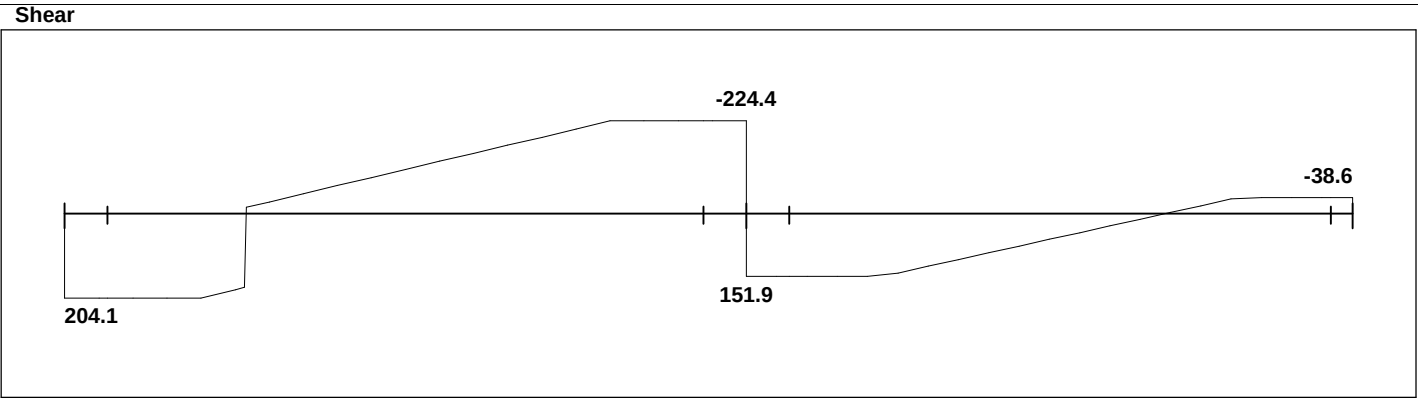


Moments: spans 1 to 2 Load pattern: XXXX



Beam 54	Code: ACI318-02
Project: 1	Page: 575
Designed by:	Date: 04/09/14

Moment / Shear Envelope (Factored) Units:kN,meter



Moment / Shear Envelope (Factored) Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-219.8	0.0
Max M	0.0	-165.7	0.0
MspMn	44.3	-147.2	4.6
MspMx	69.3	-119.0	13.7
M Max		72.0	
M Min		14.8	
Mmn=0 @	0.0	1.0	3.5
Mmx=0 @	0.0	0.7	3.5
mx -M @		1.0	
mx +M @		2.3	
V max		-193.7	-40.0
V min		-302.6	-115.3
DReac		320.1	55.3
LReac	98.1	207.3	60.0
Max R		527.4	115.3
Min R		403.2	40.0

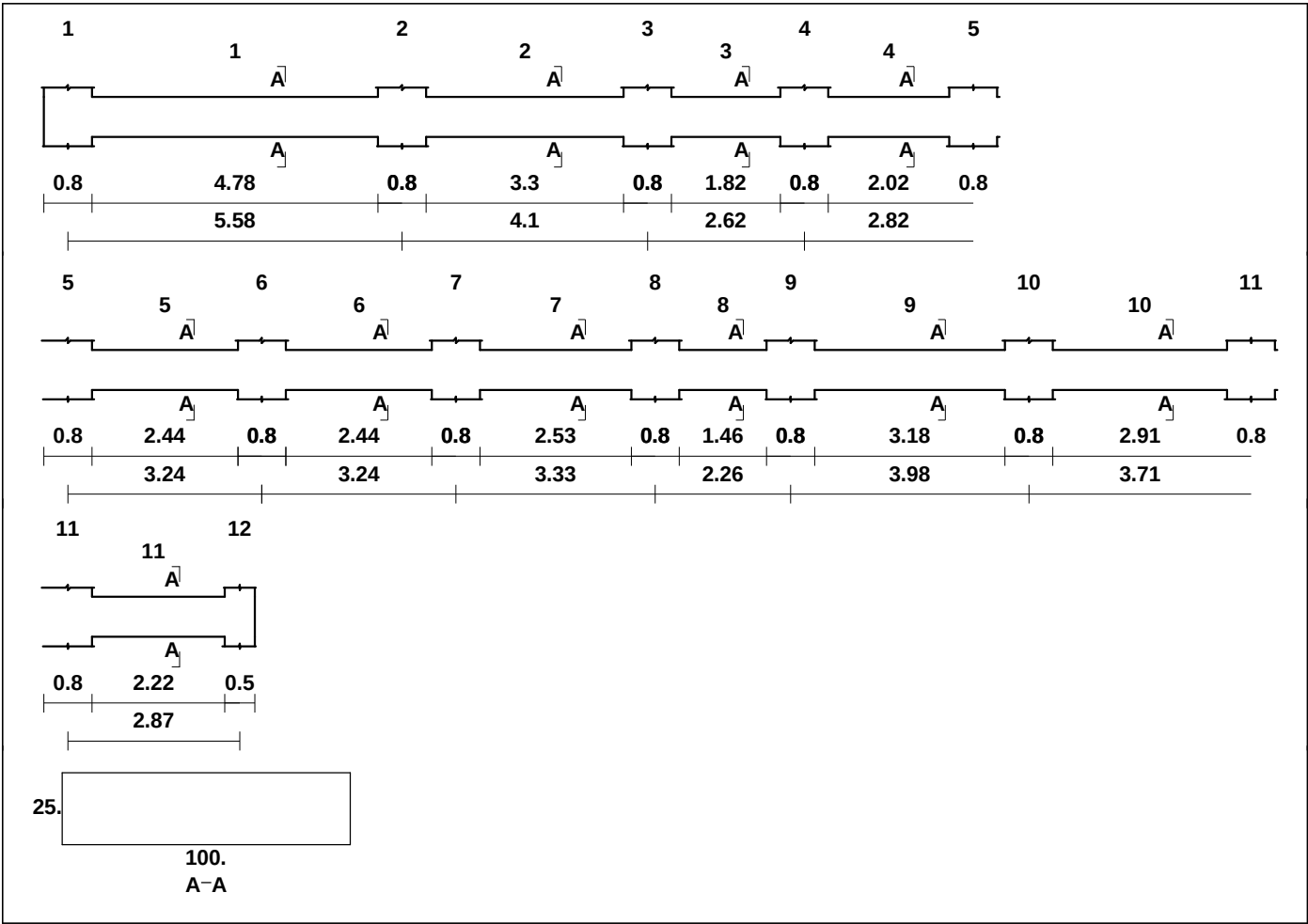
Individual load cases - factored Units:kN,meter

	1	2	3
	1	2	3
Min M	0.0	-165.7	0.0
M Max		72.0	
Mmx=0 @	0.0	1.0	3.5
mx +M		2.3	
V max		-193.7	-115.3
	1	2	3
Min M	0.0	-191.7	0.0
M Max		14.8	
Mmx=0 @	0.0	0.7	3.5
mx +M		2.8	
V max		-295.5	-40.0
	1	2	3
Min M	0.0	-219.8	0.0
M Max		54.1	
Mmx=0 @	0.0	0.8	3.5
mx +M		2.5	
V max		-302.6	-99.9

S13.11
Project: BAEMS
Designed by: bayan

Code: ACI318-02
Page: 126
Date: 3/22/14

Geometry Units: meter, cm



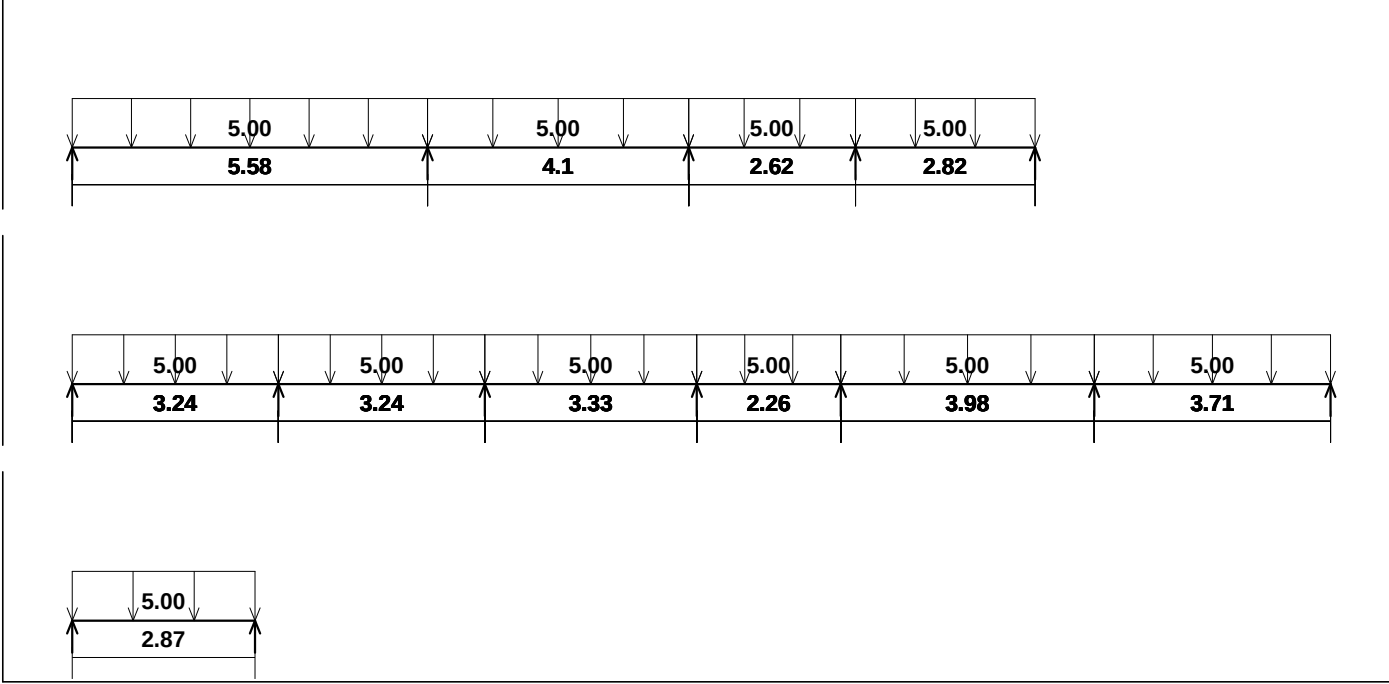
S13.11	Code: ACI318-02
Project: BAEMS	Page: 127
Designed by: bayan	Date: 3/22/14

Loading



Live load - Service

Load factors: 1.20,1.20/1.60,0.00



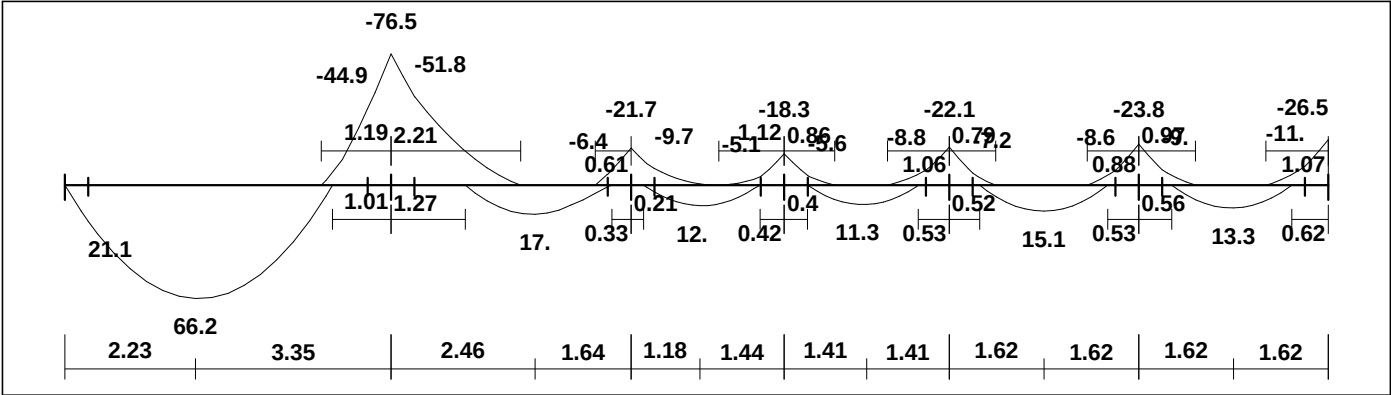
Loads (kN,meter)															
1				2				3				4			
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00
5				6				7				8			
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00
9				10				11							
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00				

S13.11
Project: BAEMS
Designed by: bayan

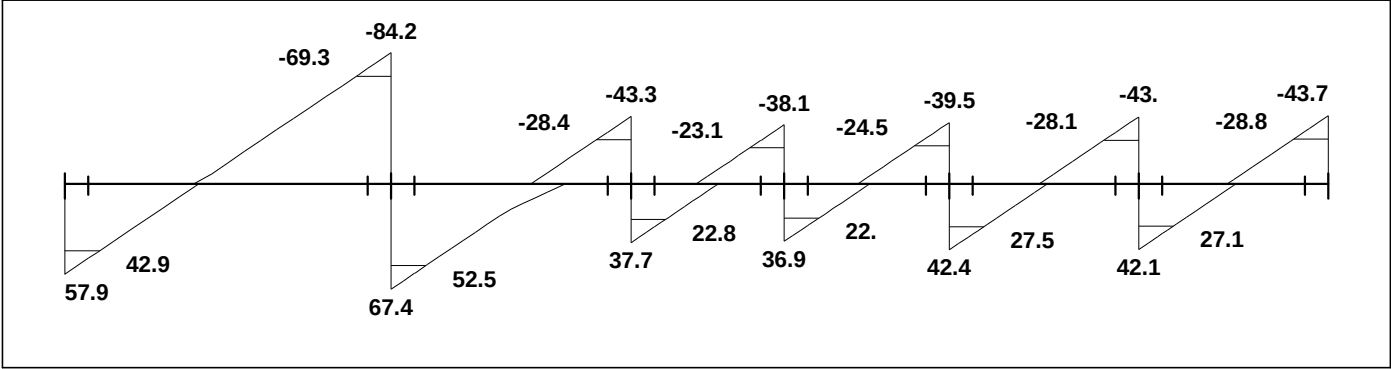
Code: ACI318-02
Page: 128
Date: 3/22/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 6



Shear



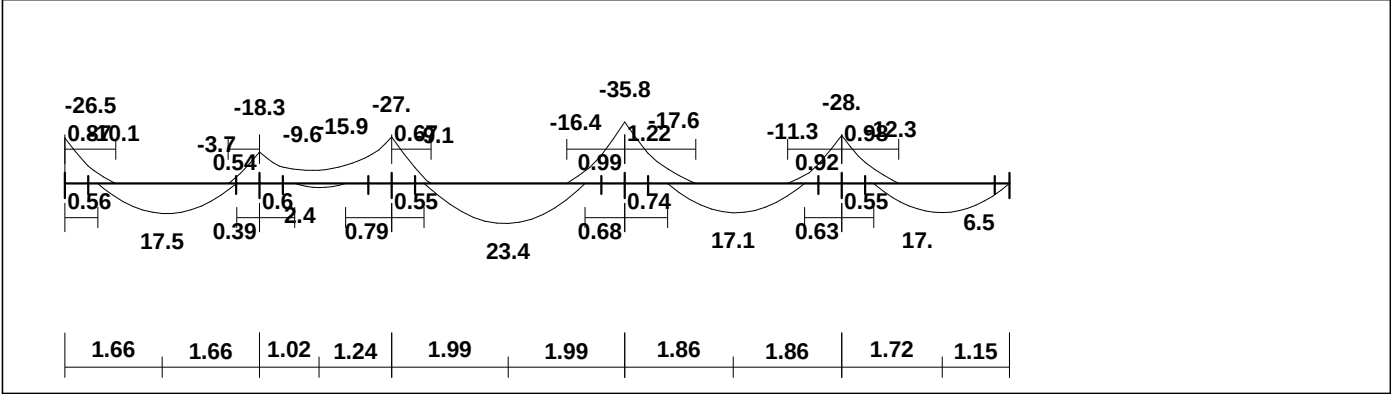
Reactions

Factored

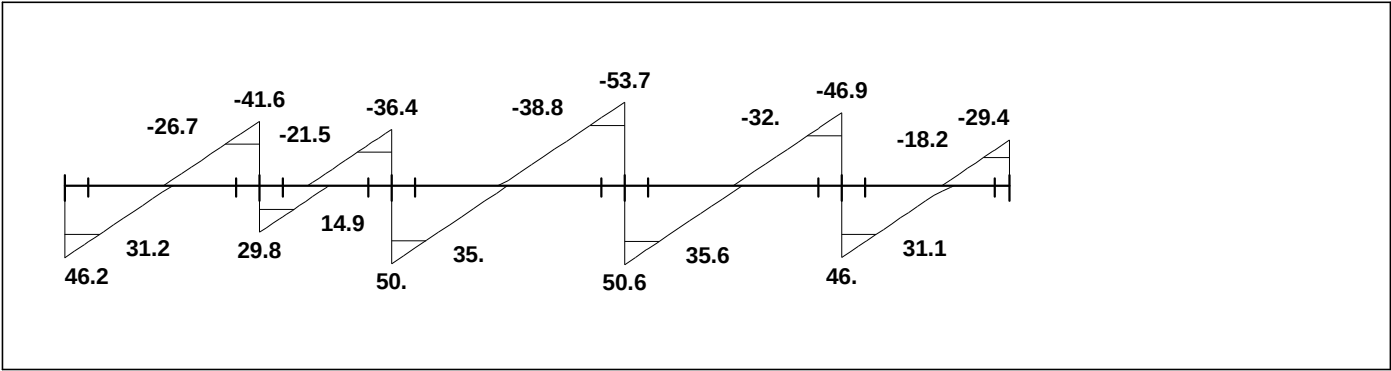
	Span 1	Span 2	Span 3	Span 4	Span 5	Span 6	Span 7
DeadR	38.89	103.17	47.87	45.65	53.31	55.73	59.4
LiveR	18.96	48.49	33.11	29.28	28.56	29.35	30.46
Max R	57.86	151.66	80.98	74.93	81.87	85.08	89.86
Min R	37.93	118.73	47.61	50.28	61.56	66.67	71.4
Service							
DeadR	32.41	85.98	39.89	38.04	44.43	46.44	49.5
LiveR	11.85	30.31	20.7	18.3	17.85	18.34	19.04
Max R	44.26	116.28	60.59	56.34	62.28	64.79	68.54
Min R	31.81	95.7	39.73	40.93	49.58	53.28	57.

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 7 to 11



Shear



Reactions

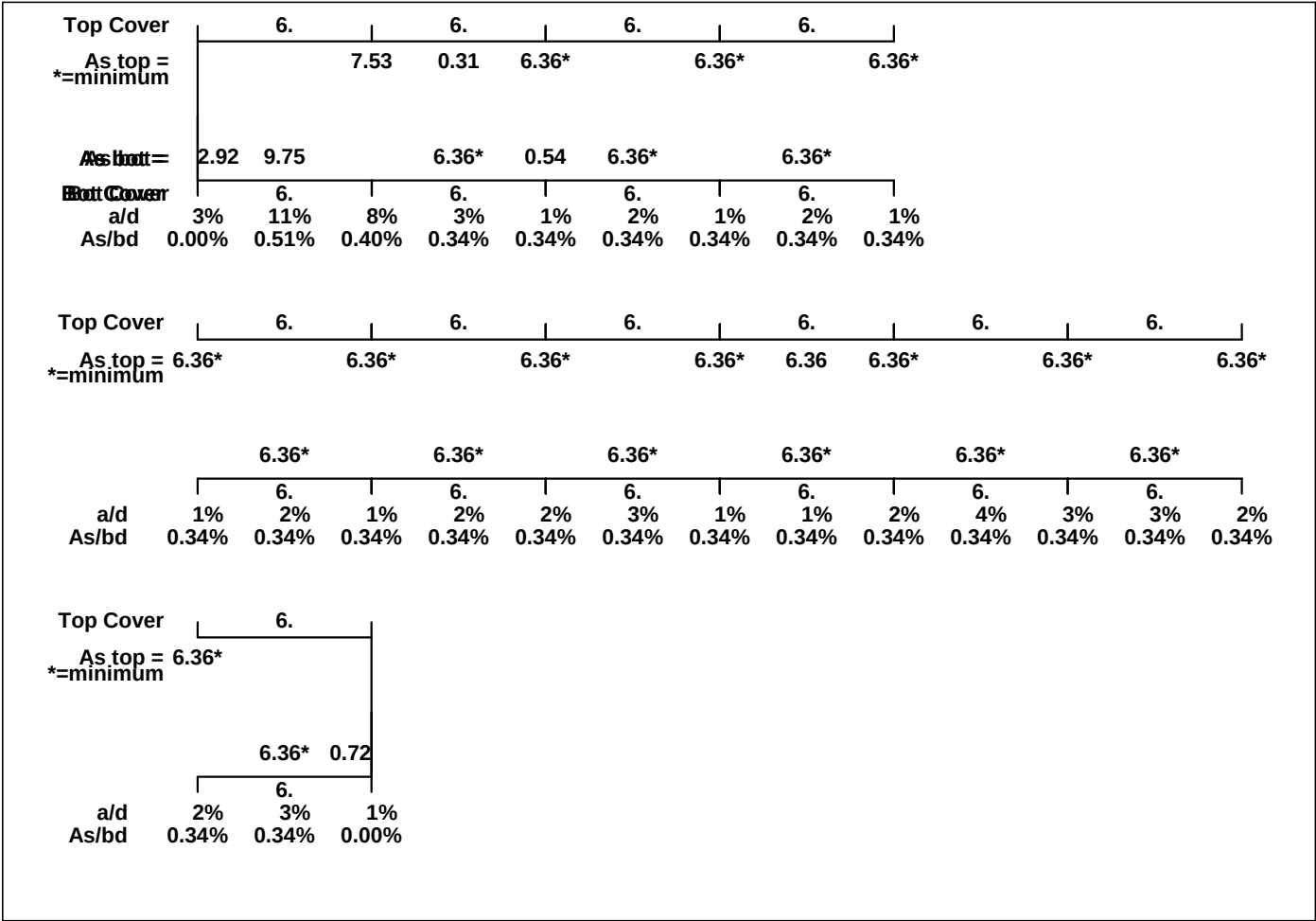
Factored

DeadR	59.4	43.58	54.86	69.7	61.59
LiveR	30.46	27.84	31.51	34.6	31.35
Max R	89.86	71.42	86.38	104.3	92.94
Min R	71.4	46.19	58.54	84.41	72.73
Service					
DeadR	49.5	36.32	45.72	58.09	51.32
LiveR	19.04	17.4	19.7	21.62	19.6
Max R	68.54	53.72	65.42	79.71	70.92
Min R	57.	37.95	48.02	67.28	58.29

S13.11	Code: ACI318-02
Project: BAEMS	Page: 130
Designed by: bayan	Date: 3/22/14

Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

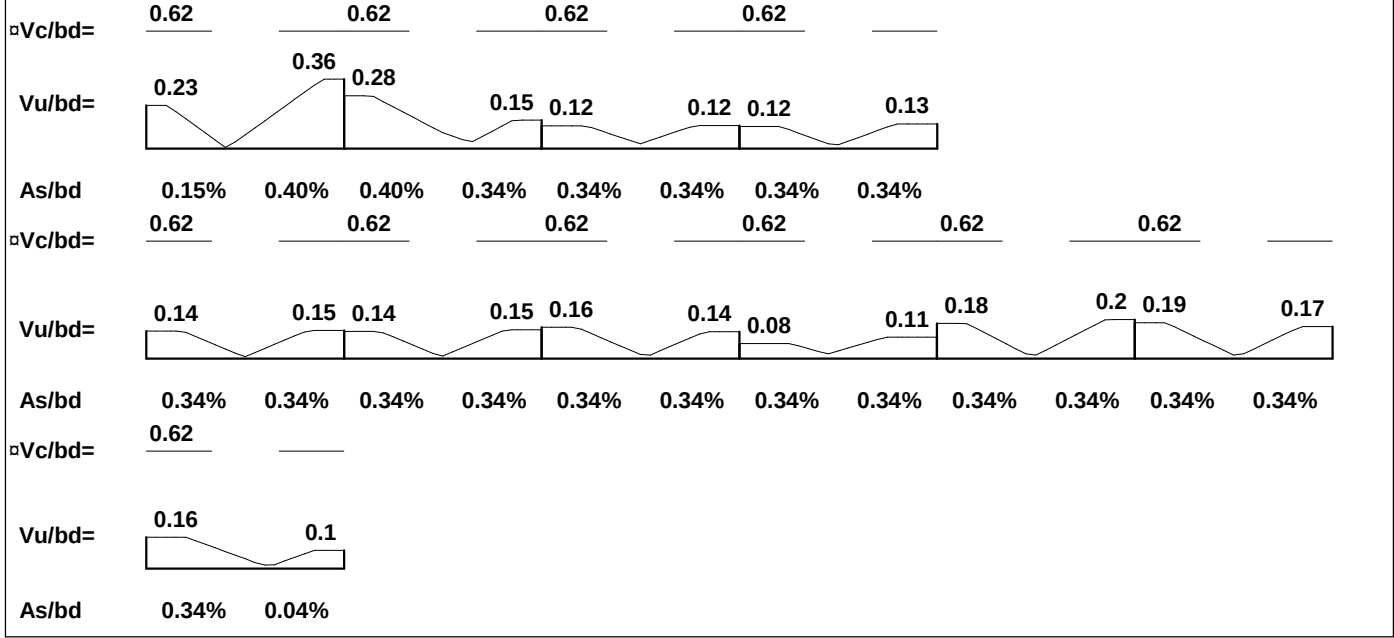


Shear

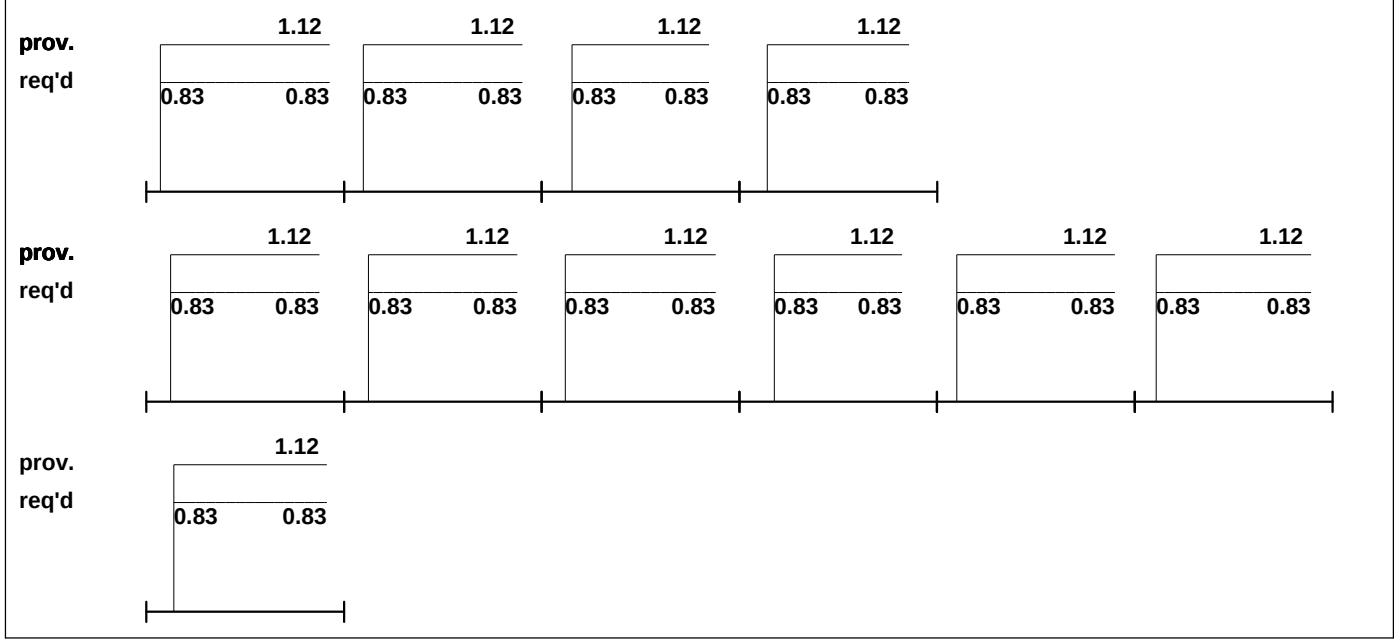
Shear design: Stirrups only
Stirrups fy = 420
Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 6 Max. = 10 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code

Shear

Max. allow. shear stress = 2.5 (MPa)



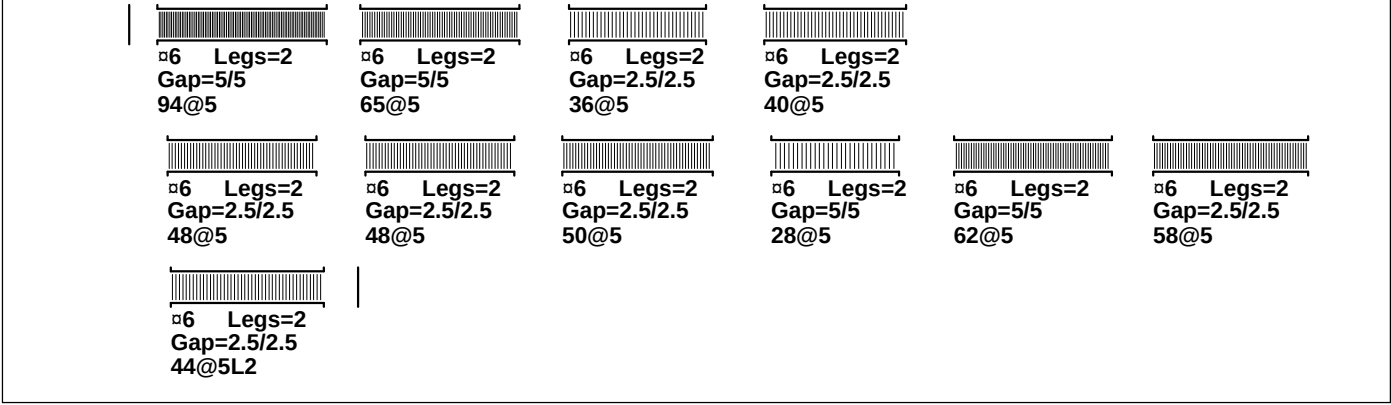
Av/s (mm2/mm)



S13.11	Code: ACI318-02
Project: BAEMS	Page: 132
Designed by: bayan	Date: 3/22/14

Shear

Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 0.	2 6.36	3 0.02	4 0.
As fr = 3	9.75 Es= 209	0.31 Ec = 23	6.36	6.36
Ig(m^4)=	0.00130	0.00130	0.00130	0.00130
Icr(m^4)=	0.00021	0.00002	0.00015	0.00015
Mcr =	32.09	32.09	32.09	32.09
Mmax,d =	36.47	43.34	3.96	4.40
Mmax,d+l =	50.47	55.04	8.45	8.15
Mmax,sust =	36.47	43.34	3.96	4.40
Ie,d (m^4)=	0.00095	0.00054	0.00130	0.00130
Ie,d+l (m^4)=	0.00049	0.00028	0.00130	0.00130
Ie,sust (m^4)=	0.00095	0.00054	0.00130	0.00130
e/1+50r =	2.00	1.71	2.00	2.00
ai,d =	4.394	-0.643	0.052	0.064
ai,l =	7.624	-1.984	0.105	0.095
at,sust =	8.788	-1.101	0.105	0.128
ai,l =	L/ 731	L/ 2066	L/25039	L/*****
(ai+at),t2-t1	L/ 339	L/ 1328	L/12520	L/12642

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5 0.	6 0.	7 0.	8 6.36
As fr = 3	6.36 Es= 209	6.36 Ec = 23	6.36	6.36

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Deflections (mm)				
Ig(m^4)=	0.00130	0.00130	0.00130	0.00130
Icr(m^4)=	0.00015	0.00015	0.00015	0.00015
Mcr =	32.09	32.09	32.09	32.09
Mmax,d =	6.91	5.57	8.65	13.72
Mmax,d+l =	11.20	9.72	13.08	18.44
Mmax,sust =	6.91	5.57	8.65	13.72
Ie,d (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,d+l (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,sust (m^4)=	0.00130	0.00130	0.00130	0.00130
e/1+50r =	2.00	2.00	2.00	1.71
ai,d =	0.160	0.102	0.236	-0.076
ai,l =	0.136	0.131	0.151	-0.075
at,sust =	0.319	0.203	0.472	-0.130
ai,l =	L/23765	L/24764	L/22034	L/*****
(ai+at),t2-t1	L/ 7113	L/ 9701	L/ 5347	L/11050

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	9	10	11
	0.	0.	0.
As	6.36	6.36	6.36
fr = 3	Es= 209	Ec = 23	

Ig(m^4)=	0.00130	0.00130	0.00130
Icr(m^4)=	0.00015	0.00015	0.00015
Mcr =	32.09	32.09	32.09
Mmax,d =	11.88	7.53	8.27
Mmax,d+l =	17.61	12.57	12.72
Mmax,sust =	11.88	7.53	8.27
Ie,d (m^4)=	0.00130	0.00130	0.00130
Ie,d+l (m^4)=	0.00130	0.00130	0.00130
Ie,sust (m^4)=	0.00130	0.00130	0.00130
e/1+50r =	2.00	2.00	2.00
ai,d =	0.456	0.188	0.170
ai,l =	0.263	0.201	0.122
at,sust =	0.913	0.376	0.340
ai,l =	L/15111	L/18412	L/23479
(ai+at),t2-t1	L/ 3384	L/ 6428	L/ 6206

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	42.94	27.74	0.	0.	0.83	0.00	100	-
279	15.16	9.91	42.94	27.74	0.	2.14	0.83	0.02	-	-
400	21.12	13.79	42.94	27.74	0.	2.99	0.83	0.03	-	-
558	28.35	18.48	42.94	27.74	0.	4.04	0.83	0.04	-	-
837	39.57	25.70	36.70	23.47	0.	5.70	0.83	0.06	-	-
1116	48.82	31.57	29.64	18.65	0.	7.09	0.83	0.08	-	-
1395	56.11	36.10	22.59	13.83	0.	8.20	0.83	0.09	-	-
1674	61.43	39.29	15.54	9.00	0.	9.01	0.83	0.10	-	-
1953	64.78	41.12	8.48	4.18	0.	9.54	0.83	0.10	-	-
2232	66.16	41.62	1.43	-0.64	0.	9.75	0.83	0.11	-	-
2511	65.58	40.77	-5.34	-6.66	0.	9.66	0.83	0.10	-	-
2790	63.03	38.57	-10.16	-13.72	0.	9.26	0.83	0.10	100	-
3069	58.51	35.03	-14.98	-20.77	0.	8.56	0.83	0.09	-	-
3348	52.02	30.15	-19.80	-27.82	0.	7.57	0.83	0.08	-	-
3627	43.56	23.92	-24.62	-34.88	0.	6.29	0.83	0.07	-	-
3906	33.14	16.34	-29.44	-41.93	0.	4.75	0.83	0.05	-	-
4185	20.75	7.42	-34.26	-48.98	0.	2.94	0.83	0.03	-	-
4464	6.39	-2.85	-39.08	-56.04	0.39	0.89	0.83	0.01	-	-
4743	-9.94	-14.88	-43.90	-63.09	2.10	0.	0.83	0.02	-	-
5022	-26.80	-33.47	-48.17	-69.33	4.79	0.	0.83	0.05	-	-
5180	-34.71	-44.87	-48.17	-69.33	6.49	0.	0.83	0.07	-	-
5301	-41.06	-54.02	-48.17	-69.33	6.49	0.	0.83	0.07	-	-
5580	-56.67	-76.54	-48.17	-69.33	6.49	0.	0.83	0.07	100	-
Span=2										
0	-56.67	-76.54	52.50	40.90	7.53	0.	0.83	0.08	100	-
205	-44.83	-63.25	52.50	40.90	7.53	0.	0.83	0.08	-	-
400	-34.55	-51.77	52.50	40.90	7.53	0.	0.83	0.08	-	-
410	-34.05	-51.33	52.50	40.90	7.47	0.	0.83	0.08	-	-
615	-24.34	-42.60	51.87	40.47	6.15	0.	0.83	0.07	-	-
820	-15.58	-34.64	46.69	36.93	4.97	0.	0.83	0.05	-	-
1025	-7.79	-27.43	41.50	33.39	3.91	0.	0.83	0.04	-	-
1230	-1.07	-20.95	36.32	29.26	2.97	0.	0.83	0.03	-	-
1435	4.60	-15.19	31.14	24.08	2.14	0.64	0.83	0.02	-	-
1640	9.20	-10.16	25.96	18.90	1.43	1.29	0.83	0.02	-	-
1845	12.74	-5.86	20.77	13.72	0.82	1.79	0.83	0.02	-	-
2050	15.22	-2.29	15.99	8.53	0.31	2.15	0.83	0.02	100	-
2255	16.63	0.56	12.45	3.35	0.	2.35	0.83	0.03	-	-
2460	16.98	2.69	8.91	-1.83	0.	2.40	0.83	0.03	-	-
2665	16.27	4.09	5.36	-7.01	0.	2.30	0.83	0.02	-	-
2870	14.50	4.76	1.82	-12.20	0.	2.04	0.83	0.02	-	-
3075	11.67	4.70	-1.72	-17.38	0.	1.64	0.83	0.02	-	-
3280	8.59	3.92	-5.26	-22.56	0.	1.20	0.83	0.01	-	-
3485	4.88	0.16	-8.81	-27.74	0.	0.68	0.83	0.01	-	-
3690	1.12	-6.06	-9.24	-28.38	0.85	0.15	0.83	0.01	-	-
3700	1.00	-6.39	-9.24	-28.38	0.89	0.13	0.83	0.01	-	-
3895	-1.77	-13.34	-9.24	-28.38	0.89	0.13	0.83	0.01	-	-
4100	-5.39	-21.69	-9.24	-28.38	0.89	0.13	0.83	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-5.39	-21.69	22.78	12.83	1.36	0.54	0.83	0.01	100	-
131	-1.92	-16.97	22.78	12.83	1.36	0.54	0.83	0.01	-	-
262	1.12	-12.68	22.78	12.83	1.36	0.54	0.83	0.01	-	-
393	3.73	-9.84	22.78	12.83	1.36	0.54	0.83	0.01	-	-
400	3.86	-9.72	22.78	12.83	1.36	0.54	0.83	0.01	-	-
524	6.07	-7.57	22.78	12.83	1.06	0.85	0.83	0.01	-	-
655	8.12	-5.60	21.14	11.62	0.78	1.14	0.83	0.01	-	-
786	9.74	-3.92	17.82	8.31	0.54	1.37	0.83	0.01	-	-
917	10.92	-2.53	14.51	5.00	0.35	1.53	0.83	0.02	-	-
1048	11.67	-1.45	11.20	1.69	0.20	1.64	0.83	0.02	-	-
1179	11.99	-0.66	7.89	-1.62	0.09	1.68	0.83	0.02	-	-
1310	11.87	-0.16	4.58	-4.94	0.02	1.67	0.83	0.02	100	-
1441	11.31	0.03	1.27	-8.25	0.	1.59	0.83	0.02	-	-
1572	10.33	-0.07	-1.89	-11.56	0.00	1.45	0.83	0.02	-	-
1703	8.91	-0.46	-4.16	-14.87	0.06	1.25	0.83	0.01	-	-
1834	7.05	-1.16	-6.42	-18.18	0.16	0.98	0.83	0.01	-	-
1965	4.76	-2.14	-8.68	-21.49	0.3	0.66	0.83	0.01	-	-
2096	2.04	-3.43	-9.81	-23.14	0.48	0.28	0.83	0.01	-	-
2220	-0.30	-5.13	-9.81	-23.14	0.71	0.	0.83	0.01	-	-
2227	-0.43	-5.32	-9.81	-23.14	0.71	0.	0.83	0.01	-	-
2358	-3.09	-9.22	-9.81	-23.14	0.71	0.	0.83	0.01	-	-
2489	-6.17	-13.56	-9.81	-23.14	0.71	0.	0.83	0.01	-	-
2620	-9.70	-18.33	-9.81	-23.14	0.71	0.	0.83	0.01	100	-
Span=4										
0	-9.70	-18.33	21.96	11.54	0.78	0.00	0.83	0.01	100	-
141	-6.80	-13.38	21.96	11.54	0.78	0.00	0.83	0.01	-	-
282	-2.95	-8.93	21.96	11.54	0.78	0.00	0.83	0.01	-	-
400	0.04	-5.60	21.96	11.54	0.78	0.00	0.83	0.01	-	-
423	0.58	-5.12	21.96	11.54	0.71	0.08	0.83	0.01	-	-
564	3.62	-3.11	21.96	11.54	0.43	0.50	0.83	0.01	-	-
705	6.15	-1.45	19.05	9.56	0.20	0.86	0.83	0.01	-	-
846	8.18	-0.14	15.49	7.12	0.01	1.15	0.83	0.01	-	-
987	9.71	0.84	11.93	4.68	0.	1.36	0.83	0.01	-	-
1128	10.74	1.47	8.36	2.25	0.	1.51	0.83	0.02	-	-
1269	11.26	1.75	4.80	-0.24	0.	1.58	0.83	0.02	-	-
1410	11.28	1.70	1.23	-3.81	0.	1.58	0.83	0.02	100	-
1551	10.80	1.29	-2.33	-7.37	0.	1.52	0.83	0.02	-	-
1692	9.82	0.55	-5.90	-10.94	0.	1.38	0.83	0.01	-	-
1833	8.33	-0.54	-8.94	-14.50	0.07	1.17	0.83	0.01	-	-
1974	6.34	-1.97	-11.37	-18.07	0.27	0.88	0.83	0.01	-	-
2115	3.85	-3.75	-13.81	-21.63	0.52	0.53	0.83	0.01	-	-
2256	0.85	-5.86	-15.80	-24.54	0.82	0.11	0.83	0.01	-	-
2397	-2.56	-8.33	-15.80	-24.54	1.17	0.	0.83	0.01	-	-
2420	-3.11	-8.76	-15.80	-24.54	1.23	0.	0.83	0.01	-	-
2538	-6.15	-12.01	-15.80	-24.54	1.23	0.	0.83	0.01	-	-
2679	-10.25	-16.82	-15.80	-24.54	1.23	0.	0.83	0.01	-	-
2820	-14.85	-22.13	-15.80	-24.54	1.23	0.	0.83	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-14.85	-22.13	27.50	16.95	1.00	0.	0.83	0.01	100	-
162	-10.68	-15.59	27.50	16.95	1.00	0.	0.83	0.01	-	-
324	-5.83	-9.71	27.50	16.95	1.00	0.	0.83	0.01	-	-
400	-3.48	-7.19	27.50	16.95	1.00	0.	0.83	0.01	-	-
486	-0.93	-4.96	27.50	16.95	0.69	0.	0.83	0.01	-	-
648	3.36	-2.14	26.04	15.95	0.29	0.46	0.83	0.01	-	-
810	6.98	0.24	21.94	13.15	0.	0.97	0.83	0.01	-	-
972	9.94	2.15	17.85	10.35	0.	1.39	0.83	0.02	-	-
1134	12.24	3.62	13.75	7.55	0.	1.72	0.83	0.02	-	-
1296	13.87	4.63	9.65	4.75	0.	1.95	0.83	0.02	-	-
1458	14.84	5.19	5.56	1.96	0.	2.09	0.83	0.02	-	-
1620	15.15	5.29	1.46	-2.08	0.	2.14	0.83	0.02	100	-
1782	14.79	4.94	-2.63	-6.17	0.	2.08	0.83	0.02	-	-
1944	13.77	4.14	-6.36	-10.27	0.	1.94	0.83	0.02	-	-
2106	12.09	2.88	-9.16	-14.36	0.	1.70	0.83	0.02	-	-
2268	9.74	1.17	-11.96	-18.46	0.	1.37	0.83	0.01	-	-
2430	6.73	-0.99	-14.76	-22.55	0.13	0.94	0.83	0.01	-	-
2592	3.05	-3.61	-17.56	-26.65	0.50	0.42	0.83	0.01	-	-
2754	-1.18	-6.68	-18.56	-28.11	0.93	0.	0.83	0.01	-	-
2840	-3.61	-8.64	-18.56	-28.11	1.21	0.	0.83	0.01	-	-
2916	-5.92	-11.21	-18.56	-28.11	1.21	0.	0.83	0.01	-	-
3078	-11.32	-17.19	-18.56	-28.11	1.21	0.	0.83	0.01	-	-
3240	-17.39	-23.83	-18.56	-28.11	1.21	0.	0.83	0.01	100	-
Span=6										
0	-17.39	-23.83	27.14	16.99	1.26	0.	0.83	0.01	100	-
162	-11.73	-17.35	27.14	16.99	1.26	0.	0.83	0.01	-	-
324	-6.54	-11.53	27.14	16.99	1.26	0.	0.83	0.01	-	-
400	-4.33	-9.03	27.14	16.99	1.26	0.	0.83	0.01	-	-
486	-2.00	-7.09	27.14	16.99	0.99	0.	0.83	0.01	-	-
648	2.12	-4.27	25.67	15.99	0.59	0.29	0.83	0.01	-	-
810	5.65	-1.90	21.58	13.19	0.26	0.79	0.83	0.01	-	-
972	8.51	0.01	17.48	10.39	0.	1.19	0.83	0.01	-	-
1134	10.71	1.47	13.39	7.59	0.	1.50	0.83	0.02	-	-
1296	12.25	2.48	9.29	4.79	0.	1.72	0.83	0.02	-	-
1458	13.12	3.03	5.19	1.34	0.	1.85	0.83	0.02	-	-
1620	13.33	3.13	1.10	-2.75	0.	1.88	0.83	0.02	100	-
1782	12.87	2.77	-3.00	-6.85	0.	1.81	0.83	0.02	-	-
1944	11.75	1.97	-6.38	-10.94	0.	1.65	0.83	0.02	-	-
2106	9.97	0.71	-9.18	-15.04	0.	1.40	0.83	0.02	-	-
2268	7.53	-1.01	-11.98	-19.13	0.14	1.05	0.83	0.01	-	-
2430	4.42	-3.18	-14.78	-23.23	0.44	0.61	0.83	0.01	-	-
2592	0.65	-5.80	-17.58	-27.32	0.81	0.09	0.83	0.01	-	-
2754	-3.79	-8.87	-18.58	-28.79	1.24	0.	0.83	0.01	-	-
2840	-6.35	-11.04	-18.58	-28.79	1.55	0.	0.83	0.02	-	-
2916	-8.68	-13.66	-18.58	-28.79	1.55	0.	0.83	0.02	-	-
3078	-14.14	-19.75	-18.58	-28.79	1.55	0.	0.83	0.02	-	-
3240	-20.01	-26.50	-18.58	-28.79	1.55	0.	0.83	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-20.01	-26.50	31.24	21.55	1.41	0.	0.83	0.02	100	-
166	-13.29	-19.18	31.24	21.55	1.41	0.	0.83	0.02	-	-
333	-7.23	-12.53	31.24	21.55	1.41	0.	0.83	0.02	-	-
400	-5.00	-10.06	31.24	21.55	1.41	0.	0.83	0.02	-	-
499	-1.90	-7.39	31.24	21.55	1.03	0.	0.83	0.01	-	-
666	2.92	-3.77	29.32	20.24	0.52	0.40	0.83	0.01	-	-
832	7.09	-0.65	25.12	17.37	0.09	0.99	0.83	0.01	-	-
999	10.58	2.01	20.90	14.48	0.	1.48	0.83	0.02	-	-
1165	13.35	4.18	16.70	11.61	0.	1.88	0.83	0.02	-	-
1332	15.44	5.88	12.48	8.73	0.	2.18	0.83	0.02	-	-
1498	16.81	7.09	8.29	4.73	0.	2.37	0.83	0.03	-	-
1665	17.49	7.83	4.06	0.51	0.	2.47	0.83	0.03	100	-
1831	17.47	8.08	0.43	-3.69	0.	2.47	0.83	0.03	-	-
1998	16.74	7.86	-2.46	-7.91	0.	2.36	0.83	0.03	-	-
2164	15.32	7.16	-5.33	-12.11	0.	2.16	0.83	0.02	-	-
2331	13.19	5.98	-8.21	-16.33	0.	1.86	0.83	0.02	-	-
2497	10.38	4.32	-11.08	-20.52	0.	1.46	0.83	0.02	-	-
2664	6.84	2.18	-13.97	-24.75	0.	0.96	0.83	0.01	-	-
2830	2.89	-0.69	-15.28	-26.67	0.09	0.40	0.83	0.00	-	-
2930	0.23	-3.71	-15.28	-26.67	0.51	0.03	0.83	0.01	-	-
2997	-1.70	-5.87	-15.28	-26.67	0.51	0.03	0.83	0.01	-	-
3163	-5.28	-11.73	-15.28	-26.67	0.51	0.03	0.83	0.01	-	-
3330	-9.29	-18.32	-15.28	-26.67	0.51	0.03	0.83	0.01	100	-
Span=8										
0	-9.29	-18.32	14.92	5.03	1.34	0.	0.83	0.01	100	-
113	-7.11	-15.11	14.92	5.03	1.34	0.	0.83	0.01	-	-
226	-5.26	-12.22	14.92	5.03	1.34	0.	0.83	0.01	-	-
339	-3.72	-10.11	14.92	5.03	1.34	0.	0.83	0.01	-	-
400	-2.72	-9.57	14.92	5.03	1.34	0.	0.83	0.01	-	-
452	-1.92	-9.17	14.92	5.03	1.28	0.	0.83	0.01	-	-
565	-0.41	-8.44	14.92	5.03	1.18	0.	0.83	0.01	-	-
678	0.78	-7.93	12.70	3.51	1.11	0.10	0.83	0.01	-	-
791	1.64	-7.65	9.84	0.72	1.07	0.22	0.83	0.01	-	-
904	2.18	-7.58	6.99	-2.14	1.06	0.30	0.83	0.01	-	-
1017	2.39	-7.74	4.13	-4.99	1.08	0.33	0.83	0.01	-	-
1130	2.29	-8.11	1.27	-7.85	1.14	0.31	0.83	0.01	100	-
1243	1.86	-8.71	-1.58	-10.71	1.22	0.25	0.83	0.01	-	-
1356	1.10	-9.53	-4.44	-13.56	1.34	0.15	0.83	0.01	-	-
1469	0.03	-10.57	-7.30	-16.42	1.48	0.00	0.83	0.02	-	-
1582	-1.37	-11.82	-10.15	-19.28	1.66	0.	0.83	0.02	-	-
1695	-3.09	-13.30	-12.38	-21.50	1.87	0.	0.83	0.02	-	-
1808	-5.13	-15.00	-12.38	-21.50	2.11	0.	0.83	0.02	-	-
1860	-6.18	-15.86	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
1921	-7.50	-16.92	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2034	-9.92	-19.45	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2147	-12.52	-23.08	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2260	-15.44	-27.03	-12.38	-21.50	2.24	0.	0.83	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=9										
0	-15.44	-27.03	35.05	21.05	1.28	0.	0.83	0.01	100	-
199	-9.56	-17.59	35.05	21.05	1.28	0.	0.83	0.01	-	-
398	-4.37	-9.15	35.05	21.05	1.28	0.	0.83	0.01	-	-
597	1.32	-1.71	34.87	20.93	0.23	0.18	0.83	0.00	-	-
796	7.15	2.96	29.84	17.49	0.	1.00	0.83	0.01	-	-
995	12.22	6.12	24.81	14.05	0.	1.72	0.83	0.02	-	-
1194	16.47	8.60	19.78	10.61	0.	2.32	0.83	0.03	-	-
1393	19.71	10.39	14.75	7.18	0.	2.79	0.83	0.03	-	-
1592	21.95	11.50	9.72	3.74	0.	3.11	0.83	0.03	-	-
1791	23.19	11.92	4.69	0.30	0.	3.29	0.83	0.04	-	-
1990	23.43	11.66	-0.35	-3.43	0.	3.33	0.83	0.04	100	-
2189	22.67	10.72	-5.38	-8.46	0.	3.22	0.83	0.03	-	-
2388	20.90	9.09	-9.90	-13.49	0.	2.96	0.83	0.03	-	-
2587	18.14	6.78	-13.34	-18.52	0.	2.56	0.83	0.03	-	-
2786	14.37	3.78	-16.78	-23.55	0.	2.02	0.83	0.02	-	-
2985	9.61	0.10	-20.22	-28.58	0.	1.35	0.83	0.01	-	-
3184	3.91	-4.26	-23.66	-33.61	0.59	0.54	0.83	0.01	-	-
3383	-2.67	-9.31	-27.09	-38.64	1.31	0.	0.83	0.01	-	-
3582	-10.25	-16.42	-27.22	-38.82	2.32	0.	0.83	0.03	-	-
3781	-18.83	-25.61	-27.22	-38.82	2.32	0.	0.83	0.03	-	-
3980	-27.94	-35.80	-27.22	-38.82	2.32	0.	0.83	0.03	100	-
Span=10										
0	-27.94	-35.80	35.65	24.10	2.49	0.	0.83	0.03	100	-
186	-19.66	-26.84	35.65	24.10	2.49	0.	0.83	0.03	-	-
371	-12.29	-18.78	35.65	24.10	2.49	0.	0.83	0.03	-	-
400	-11.21	-17.60	35.65	24.10	2.49	0.	0.83	0.03	-	-
557	-5.72	-12.66	35.65	24.10	1.78	0.	0.83	0.02	-	-
742	0.14	-8.34	31.81	21.47	1.17	0.01	0.83	0.01	-	-
928	5.15	-4.59	27.10	18.25	0.64	0.72	0.83	0.01	-	-
1113	9.27	-1.46	22.43	15.06	0.20	1.30	0.83	0.01	-	-
1299	12.54	1.10	17.73	11.84	0.	1.76	0.83	0.02	-	-
1484	14.92	3.05	13.05	8.65	0.	2.10	0.83	0.02	-	-
1670	16.45	4.41	8.35	4.66	0.	2.32	0.83	0.03	-	-
1855	17.10	5.17	3.67	-0.02	0.	2.41	0.83	0.03	100	-
2041	16.88	5.34	-0.69	-4.72	0.	2.38	0.83	0.03	-	-
2226	15.79	4.92	-3.88	-9.39	0.	2.23	0.83	0.02	-	-
2412	13.83	3.90	-7.10	-14.10	0.	1.95	0.83	0.02	-	-
2597	11.00	2.29	-10.30	-18.77	0.	1.54	0.83	0.02	-	-
2783	7.30	0.08	-13.51	-23.48	0.	1.02	0.83	0.01	-	-
2968	2.92	-2.74	-16.71	-28.15	0.38	0.40	0.83	0.00	-	-
3154	-2.06	-6.20	-19.33	-31.99	0.87	0.	0.83	0.01	-	-
3310	-6.92	-11.26	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3339	-7.89	-12.34	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3525	-14.63	-19.75	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3710	-19.87	-28.00	-19.33	-31.99	1.58	0.	0.83	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=11										
0	-19.87	-28.00	31.12	22.33	1.73	0.	0.83	0.02	100	-
143	-13.95	-21.67	31.12	22.33	1.73	0.	0.83	0.02	-	-
287	-8.51	-15.83	31.12	22.33	1.73	0.	0.83	0.02	-	-
400	-4.61	-12.32	31.12	22.33	1.73	0.	0.83	0.02	-	-
430	-3.63	-11.53	31.12	22.33	1.62	0.	0.83	0.02	-	-
574	0.76	-8.00	31.12	22.33	1.12	0.10	0.83	0.01	-	-
717	4.61	-4.84	27.91	20.14	0.67	0.64	0.83	0.01	-	-
861	7.95	-2.02	24.27	17.65	0.28	1.11	0.83	0.01	-	-
1004	10.76	0.43	20.65	15.18	0.	1.51	0.83	0.02	-	-
1148	13.06	2.54	17.01	12.69	0.	1.84	0.83	0.02	-	-
1291	14.83	4.28	13.40	10.22	0.	2.09	0.83	0.02	-	-
1435	16.09	5.68	9.76	6.92	0.	2.27	0.83	0.02	100	-
1578	16.82	6.71	6.14	3.31	0.	2.38	0.83	0.03	-	-
1722	17.04	7.39	3.48	-0.33	0.	2.41	0.83	0.03	-	-
1865	16.73	7.71	1.01	-3.95	0.	2.36	0.83	0.03	-	-
2009	15.90	7.68	-1.48	-7.59	0.	2.24	0.83	0.02	-	-
2152	14.56	7.29	-3.95	-11.20	0.	2.05	0.83	0.02	-	-
2296	12.68	6.54	-6.44	-14.84	0.	1.78	0.83	0.02	-	-
2439	10.30	5.44	-8.75	-18.23	0.	1.45	0.83	0.02	-	-
2583	7.38	3.98	-8.75	-18.23	0.	1.03	0.83	0.01	-	-
2620	6.55	3.55	-8.75	-18.23	0.	0.91	0.83	0.01	-	-
2726	3.96	2.18	-8.75	-18.23	0.	0.55	0.83	0.01	-	-
2870	0.00	0.00	-8.75	-18.23	0.	0.	0.83	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
Min M	0.0	-76.5	-21.7	-18.3	-22.1
Max M	0.0	-56.7	-5.4	-9.7	-14.9
MspMn		-44.9	-6.4	-5.1	-8.8
MspMx		-34.7	1.0	-0.3	-3.1
M Max			17.0	12.0	11.3
M Min			4.8	0.0	1.8
Mmn=0 @	0.0	1.2	0.6	1.1	1.1
Mmx=0 @	0.0	1.0	0.3	0.4	0.5
mx -M @			1.3	0.2	0.4
mx +M @			2.5	1.2	1.4
V max		-58.4	-19.4	-20.0	-26.0
V min		-84.2	-43.3	-38.1	-39.5
DReac		103.2	47.9	45.6	53.3
LReac		48.5	33.1	29.3	28.6
Max R		151.7	81.0	74.9	81.9
Min R		118.7	47.6	50.3	61.6
	5	6	7	8	9
	5	6	7	8	9
Min M	-22.1	-23.8	-26.5	-18.3	-27.0
Max M	-14.9	-17.4	-20.0	-9.3	-15.4
MspMn	-7.2	-8.6	-11.0	-3.7	-15.9
MspMx	-3.5	-3.6	-6.3	0.2	-6.2
M Max			13.3	17.5	2.4
M Min			3.1	8.1	-7.6
Mmn=0 @	0.8	0.9	1.1	0.5	2.3
Mmx=0 @	0.5	0.5	0.6	0.4	0.8
mx -M @			0.6	0.6	0.6
mx +M @			1.6	1.7	1.0
V max		-28.8	-28.8	-25.5	-23.6
V min		-43.0	-43.7	-41.6	-36.4

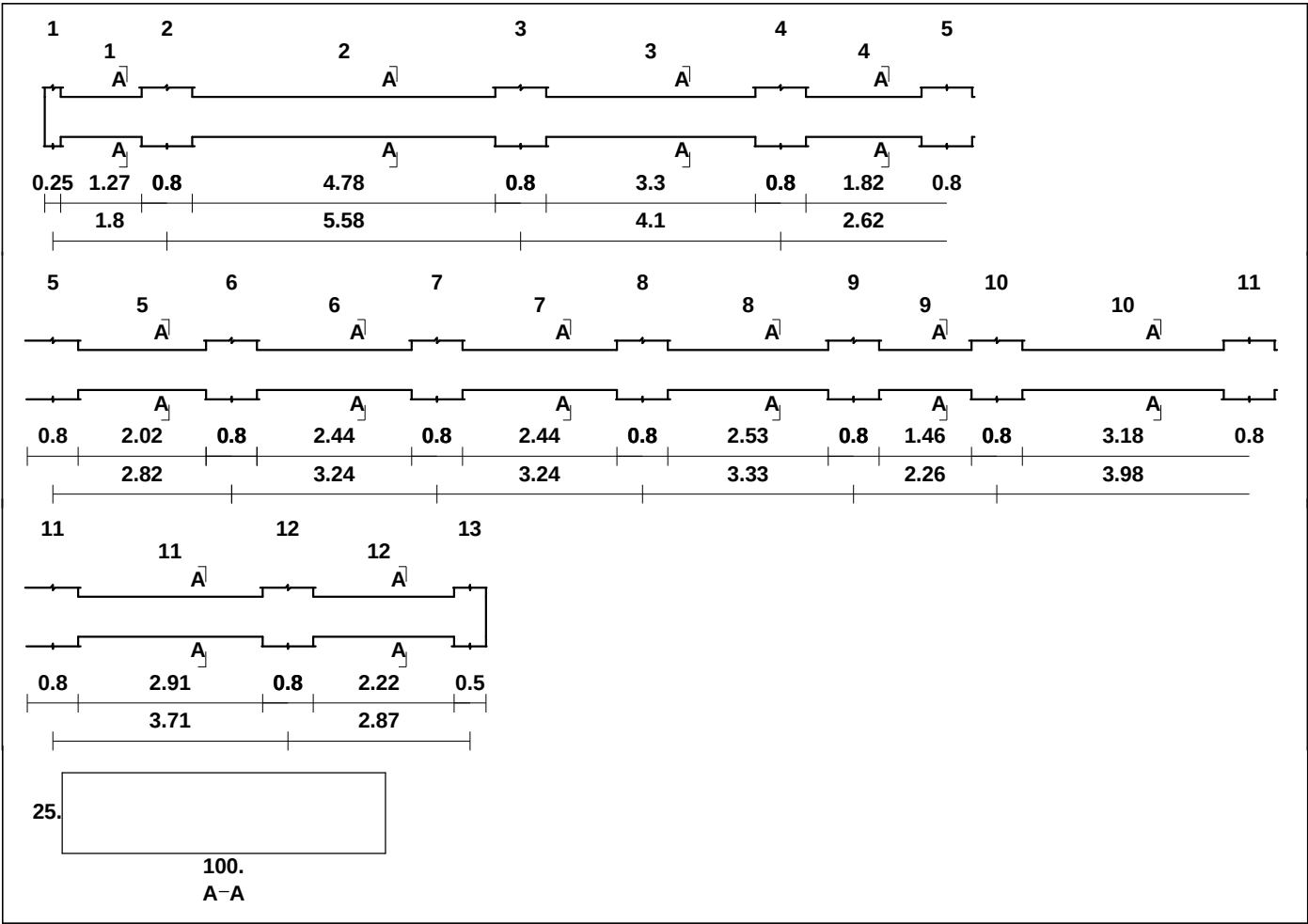
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Moment / Shear Envelope (Factored)		Units:kN,meter	
DReac	55.7	59.4	43.6
LReac	29.4	30.5	27.8
Max R	85.1	89.9	71.4
Min R	66.7	71.4	46.2
9	10	11	12
	9	10	11
Min M	-27.0	-35.8	-35.8
Max M	-15.4	-27.9	-27.9
MspMn	-9.1	-16.4	-17.6
MspMx	-4.4	-10.2	-11.2
M Max		17.1	17.0
M Min		5.3	7.7
Mmn=0 @	0.7	1.0	1.2
Mmx=0 @	0.6	0.7	0.7
mx -M @		0.7	0.5
mx +M @		1.9	1.7
V max	-37.4	-29.5	-16.4
V min	-53.7	-46.9	-29.4
DReac	69.7	61.6	18.6
LReac	34.6	31.4	10.8
Max R	104.3	92.9	29.4
Min R	84.4	72.7	16.4

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Geometry Units: meter, cm



Loading

load group no. 1
Dead load - Service

Units: kN, meter

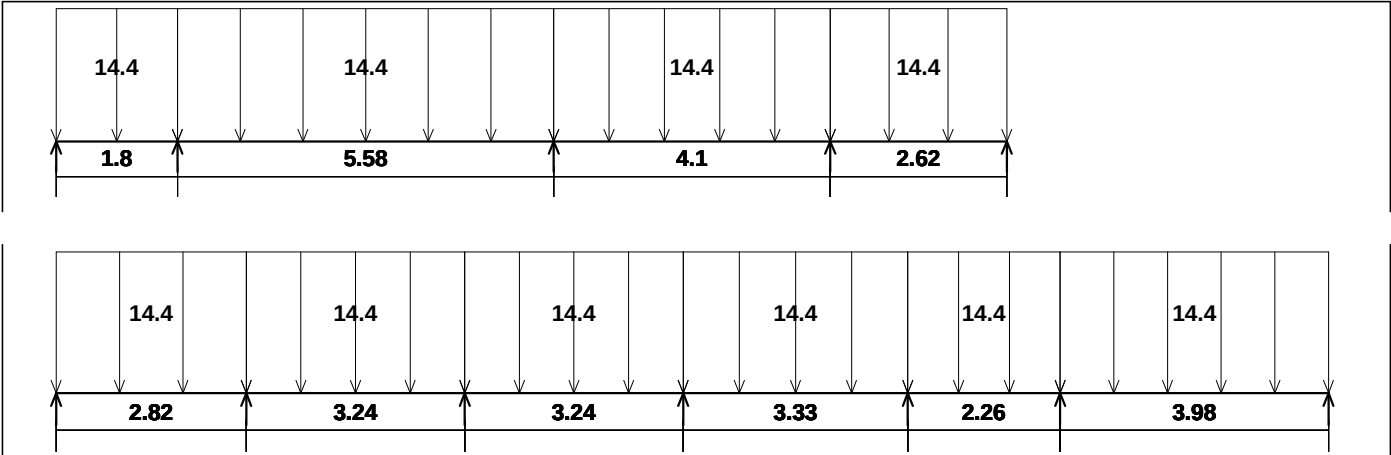
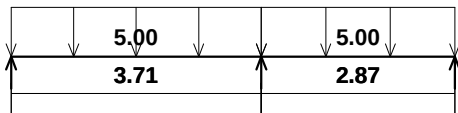


Diagram of a beam with two point loads of 14.4 kN each. The distance between the loads is 3.71 m, and the distance from the right load to the right end is 2.87 m.

Load factors: 1.20,1.20/1.60,0.00



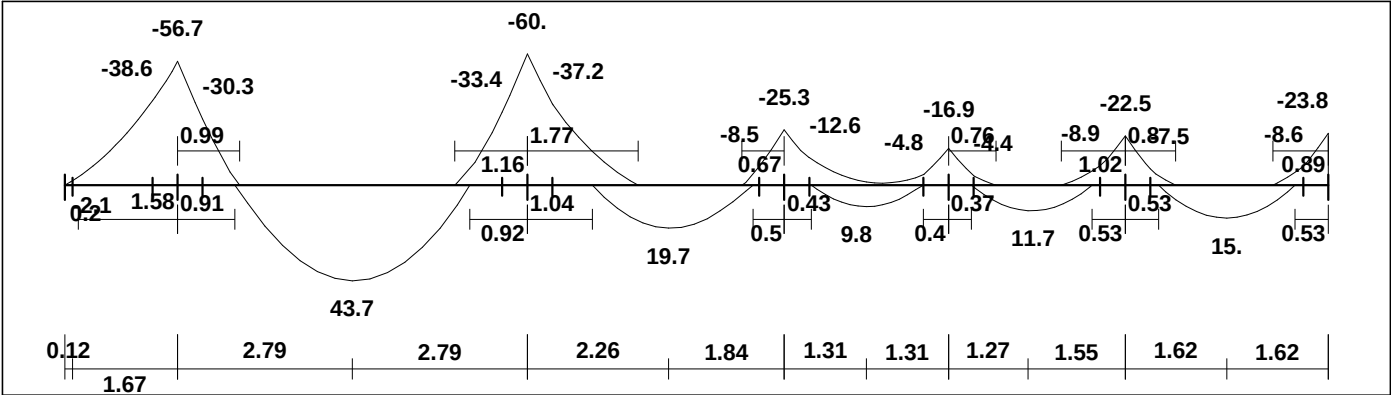
Loads (kN,meter)															
1			2			3			4						
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00
	5				6				7				8		
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00
	9				10				11				12		
Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00	Uni D	14.40	L	5.00

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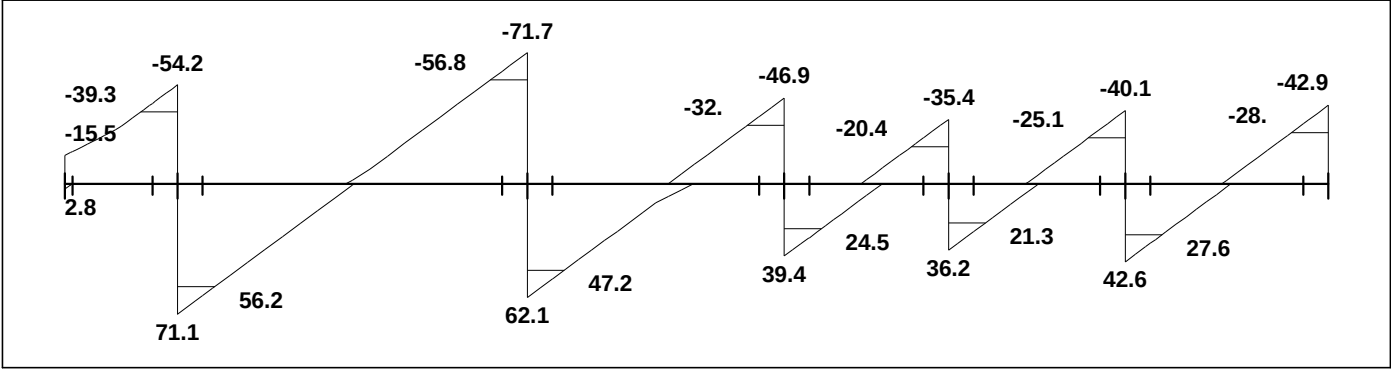
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 6



Shear



Reactions

Factored

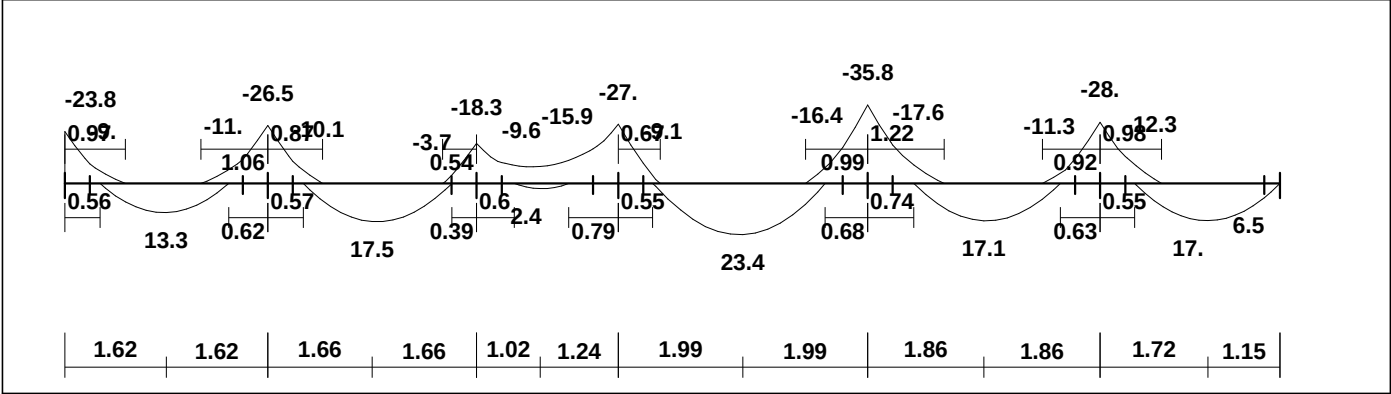
DeadR	-5.14	83.88	90.72	53.36	43.45	53.83	55.61
LiveR	7.98	41.49	43.09	32.95	28.13	28.78	29.36
Max R	2.83	125.37	133.81	86.31	71.58	82.61	84.97
Min R	-15.5	89.02	106.64	55.97	48.14	62.35	66.5
Service							
DeadR	-4.29	69.9	75.6	44.47	36.21	44.86	46.34
LiveR	4.99	25.93	26.93	20.59	17.58	17.99	18.35
Max R	0.7	95.83	102.53	65.06	53.79	62.85	64.69
Min R	-10.76	73.11	85.55	46.1	39.14	50.18	53.15

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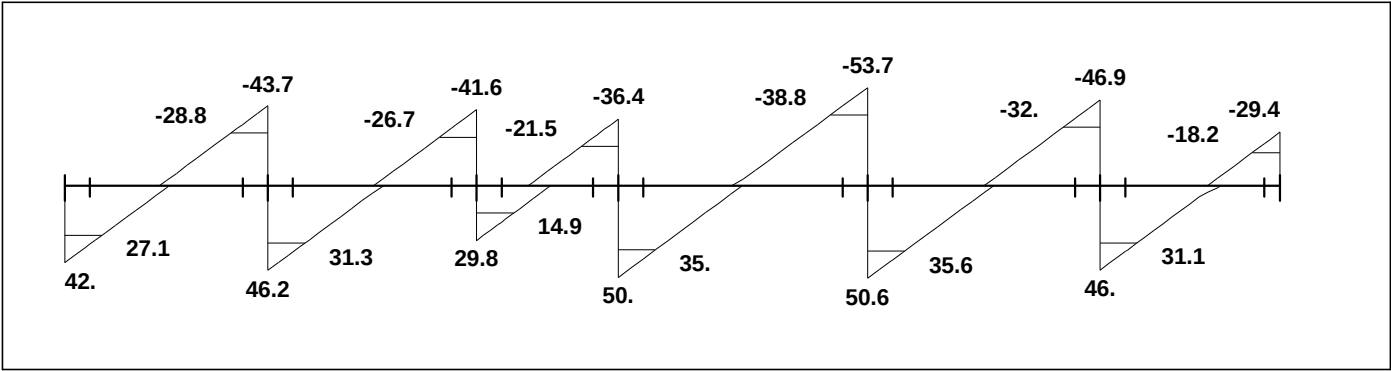
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 7 to 12



Shear



Reactions

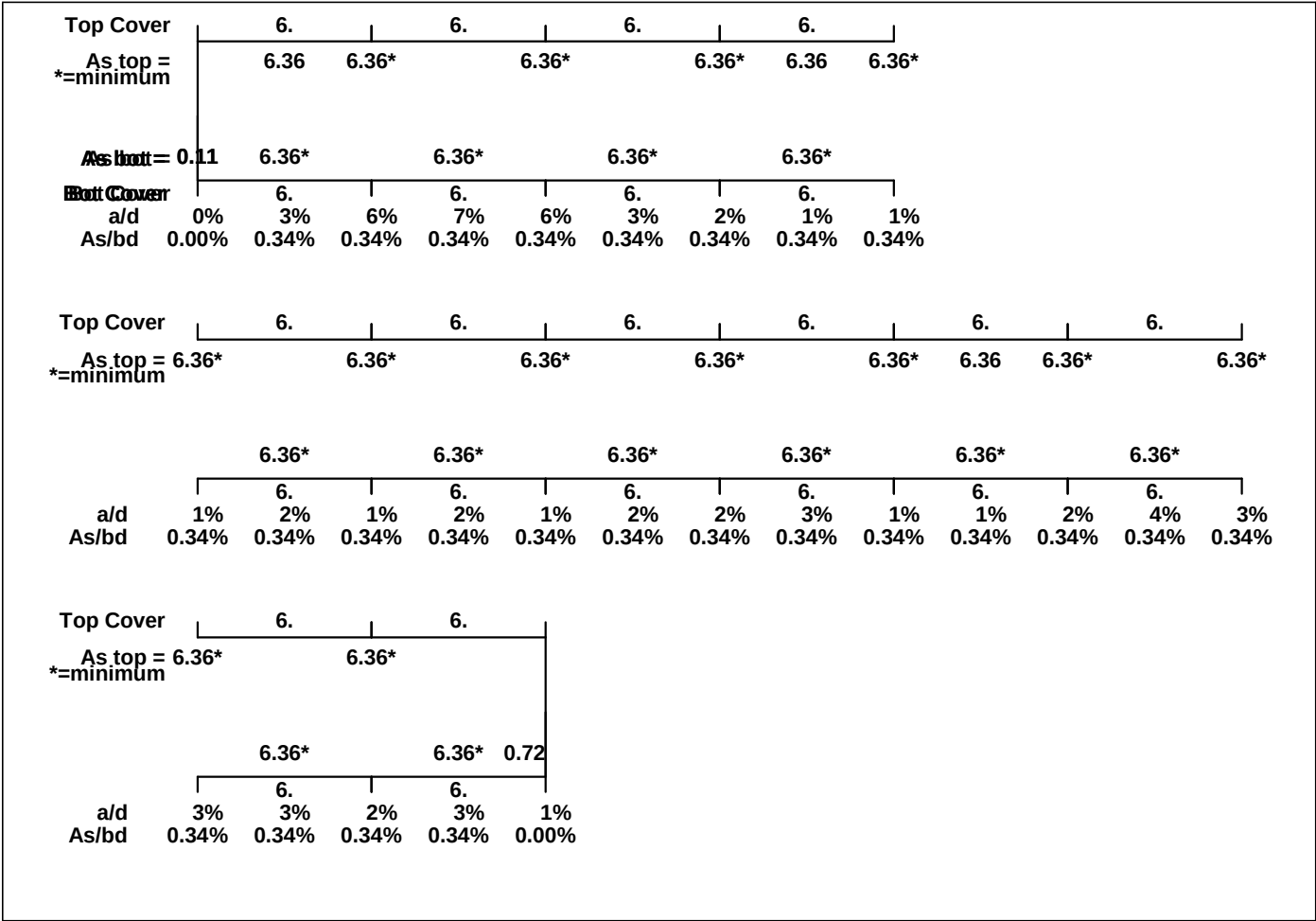
Factored

DeadR	55.61	59.43	43.57	54.87	69.7	61.59	18.56
LiveR	29.36	30.48	27.84	31.51	34.6	31.35	10.8
Max R	84.97	89.91	71.41	86.38	104.3	92.94	29.35
Min R	66.5	71.45	46.18	58.54	84.41	72.73	16.35
Service							
DeadR	46.34	49.52	36.31	45.72	58.09	51.32	15.46
LiveR	18.35	19.05	17.4	19.7	21.62	19.6	6.75
Max R	64.69	68.57	53.71	65.42	79.71	70.92	22.21
Min R	53.15	57.04	37.94	48.02	67.28	58.29	14.09

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Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Shear

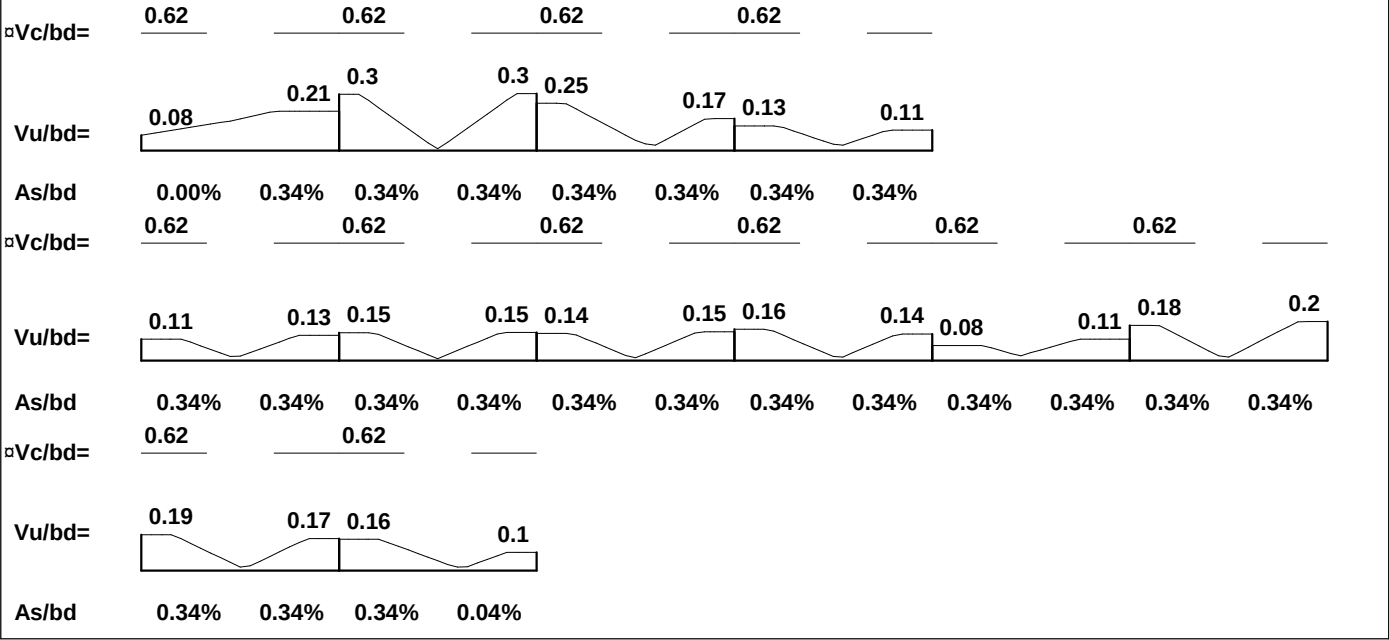
Shear design: Stirrups only
Stirrups fy = 420
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 6 Max. = 10 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code

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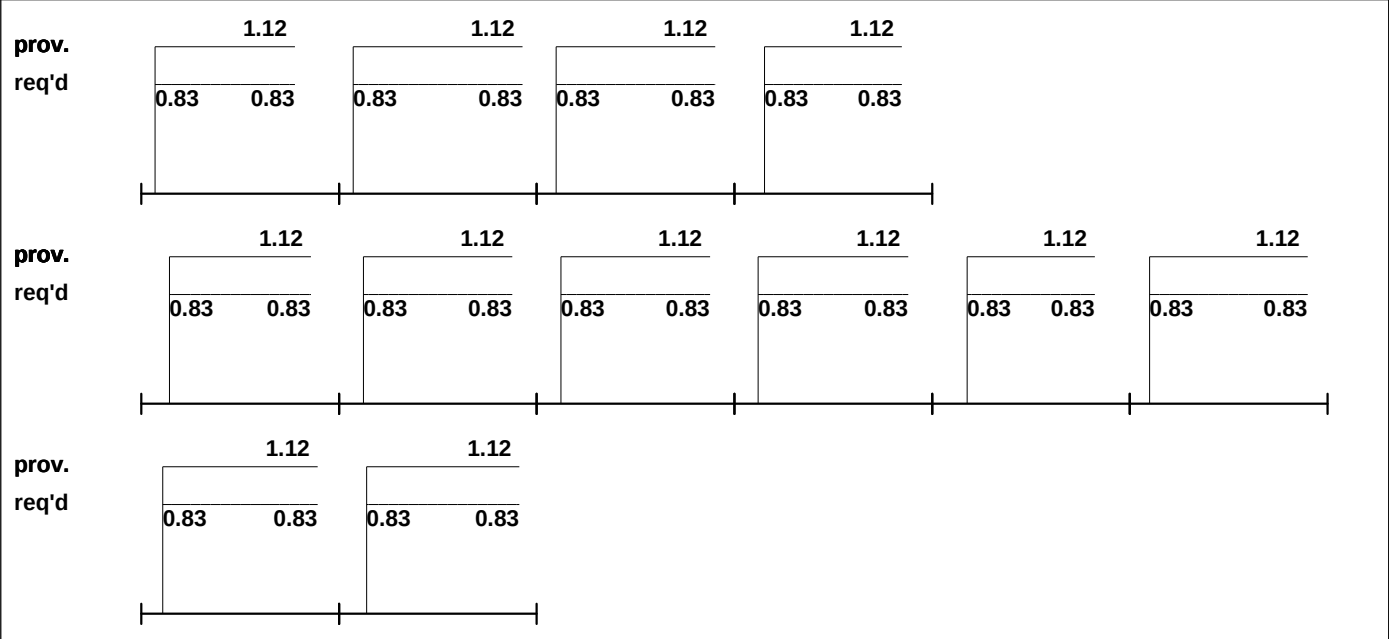
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Shear

Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



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Shear

Stirrups

Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

	1	2	3	4
A's	6.36	0.	0.	6.36
As	6.36	6.36	6.36	6.36
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00130	0.00130	0.00130	0.00130
Icr(m^4)=	0.00015	0.00015	0.00015	0.00015
Mcr =	32.09	32.09	32.09	32.09
Mmax,d =	31.04	23.65	8.65	2.89
Mmax,d+l =	42.70	33.24	14.40	6.83
Mmax,sust =	31.04	23.65	8.65	2.89
Ie,d (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,d+l (m^4)=	0.00064	0.00119	0.00130	0.00130
Ie,sust (m^4)=	0.00130	0.00130	0.00130	0.00130
e/1+50r =	1.71	2.00	2.00	1.71
ai,d =	-0.150	1.805	0.201	0.021
ai,l =	-0.317	1.056	0.285	0.091
at,sust =	-0.257	3.611	0.401	0.036
ai,l =	L/ 5686	L/ 5282	L/14366	L/*****
(ai+at),t2-t1	L/ 3139	L/ 1195	L/ 5972	L/20507

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

	5	6	7	8
A's	0.	0.	0.	0.
As	6.36	6.36	6.36	6.36
fr = 3	Es= 209	Ec = 23		

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Deflections (mm)				
Ig(m^4)=	0.00130	0.00130	0.00130	0.00130
Icr(m^4)=	0.00015	0.00015	0.00015	0.00015
Mcr =	32.09	32.09	32.09	32.09
Mmax,d =	4.75	6.84	5.59	8.64
Mmax,d+l =	8.48	11.10	9.74	13.07
Mmax,sust =	4.75	6.84	5.59	8.64
Ie,d (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,d+l (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,sust (m^4)=	0.00130	0.00130	0.00130	0.00130
e/1+50r =	2.00	2.00	2.00	2.00
ai,d =	0.074	0.156	0.102	0.236
ai,l =	0.094	0.135	0.131	0.151
at,sust =	0.149	0.313	0.205	0.471
ai,l =	L/*****	L/23972	L/24768	L/22048
(ai+at),t2-t1	L/11622	L/ 7232	L/ 9653	L/ 5352

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	9	10	11	12
	6.36	0.	0.	0.
As	6.36	6.36	6.36	6.36
fr = 3	Es= 209	Ec = 23		

Ig(m^4)=	0.00130	0.00130	0.00130	0.00130
Icr(m^4)=	0.00015	0.00015	0.00015	0.00015
Mcr =	32.09	32.09	32.09	32.09
Mmax,d =	13.72	11.88	7.53	8.27
Mmax,d+l =	18.44	17.61	12.57	12.72
Mmax,sust =	13.72	11.88	7.53	8.27
Ie,d (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,d+l (m^4)=	0.00130	0.00130	0.00130	0.00130
Ie,sust (m^4)=	0.00130	0.00130	0.00130	0.00130
e/1+50r =	1.71	2.00	2.00	2.00
ai,d =	-0.076	0.456	0.188	0.170
ai,l =	-0.075	0.263	0.201	0.122
at,sust =	-0.130	0.913	0.376	0.340
ai,l =	L/*****	L/15112	L/18412	L/23479
(ai+at),t2-t1	L/11054	L/ 3384	L/ 6427	L/ 6206

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	2.83	-15.50	0.	0.	0.83	0.00	100	-
90	0.15	-1.47	0.56	-17.06	0.20	0.02	0.83	0.00	-	-
125	0.16	-2.07	-0.33	-17.66	0.28	0.02	0.83	0.00	-	-
180	0.10	-3.07	-1.72	-18.61	0.42	0.01	0.83	0.00	-	-
270	-0.16	-4.82	-3.99	-20.17	0.67	0.	0.83	0.01	-	-
360	-0.62	-6.70	-6.27	-21.72	0.94	0.	0.83	0.01	-	-
450	-1.28	-8.73	-8.54	-23.28	1.22	0.	0.83	0.01	-	-
540	-2.16	-10.89	-10.82	-24.83	1.53	0.	0.83	0.02	-	-
630	-3.23	-13.20	-13.09	-26.39	1.86	0.	0.83	0.02	-	-
720	-4.51	-15.64	-15.37	-27.94	2.21	0.	0.83	0.02	-	-
810	-6.00	-18.23	-17.64	-29.50	2.58	0.	0.83	0.03	-	-
900	-7.69	-20.95	-19.92	-31.50	2.97	0.	0.83	0.03	100	-
990	-9.58	-23.81	-22.19	-33.77	3.38	0.	0.83	0.04	-	-
1080	-11.68	-26.82	-24.47	-36.05	3.82	0.	0.83	0.04	-	-
1170	-13.99	-29.96	-26.74	-38.32	4.28	0.	0.83	0.05	-	-
1260	-16.50	-33.25	-27.76	-39.33	4.76	0.	0.83	0.05	-	-
1350	-19.21	-36.67	-27.76	-39.33	5.27	0.	0.83	0.06	-	-
1400	-20.81	-38.64	-27.76	-39.33	5.56	0.	0.83	0.06	-	-
1440	-22.13	-40.24	-27.76	-39.33	5.56	0.	0.83	0.06	-	-
1530	-25.25	-43.94	-27.76	-39.33	5.56	0.	0.83	0.06	-	-
1620	-28.58	-47.79	-27.76	-39.33	5.56	0.	0.83	0.06	-	-
1710	-32.12	-51.91	-27.76	-39.33	5.56	0.	0.83	0.06	-	-
1800	-35.85	-56.69	-27.76	-39.33	5.56	0.	0.83	0.06	100	-
Span=2										
0	-35.85	-56.69	56.20	36.15	4.32	0.	0.83	0.05	100	-
279	-23.60	-37.84	56.20	36.15	4.32	0.	0.83	0.05	-	-
400	-18.70	-30.27	56.20	36.15	4.32	0.	0.83	0.05	-	-
558	-12.68	-20.95	56.20	36.15	2.97	0.	0.83	0.03	-	-
837	-3.12	-6.02	49.96	31.88	0.84	0.	0.83	0.01	-	-
1116	8.24	5.02	42.91	27.06	0.	1.15	0.83	0.01	-	-
1395	18.73	11.96	35.85	22.24	0.	2.65	0.83	0.03	-	-
1674	27.49	17.51	28.80	17.42	0.	3.92	0.83	0.04	-	-
1953	34.50	21.70	21.75	12.60	0.	4.95	0.83	0.05	-	-
2232	39.54	24.54	14.69	7.77	0.	5.69	0.83	0.06	-	-
2511	42.62	26.04	7.64	2.95	0.	6.15	0.83	0.07	-	-
2790	43.72	26.19	0.59	-1.87	0.	6.32	0.83	0.07	100	-
3069	42.86	25.00	-6.47	-8.24	0.	6.19	0.83	0.07	-	-
3348	40.03	22.46	-11.32	-15.29	0.	5.77	0.83	0.06	-	-
3627	35.24	18.57	-16.14	-22.35	0.	5.05	0.83	0.05	-	-
3906	28.47	13.35	-20.96	-29.40	0.	4.06	0.83	0.04	-	-
4185	19.74	6.77	-25.78	-36.45	0.	2.79	0.83	0.03	-	-
4464	9.04	-1.15	-30.60	-43.51	0.16	1.27	0.83	0.01	-	-
4743	-3.63	-10.41	-35.42	-50.56	1.46	0.	0.83	0.02	-	-
5022	-18.27	-23.94	-39.69	-56.80	3.40	0.	0.83	0.04	-	-
5180	-26.92	-33.36	-39.69	-56.80	4.78	0.	0.83	0.05	-	-
5301	-32.25	-41.00	-39.69	-56.80	4.78	0.	0.83	0.05	-	-
5580	-45.50	-60.03	-39.69	-56.80	4.78	0.	0.83	0.05	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-45.50	-60.03	47.18	35.33	5.35	0.	0.83	0.06	100	-
205	-34.39	-47.83	47.18	35.33	5.35	0.	0.83	0.06	-	-
400	-24.82	-37.21	47.18	35.33	5.35	0.	0.83	0.06	-	-
410	-24.35	-36.69	47.18	35.33	5.27	0.	0.83	0.06	-	-
615	-15.37	-28.71	46.55	34.90	4.10	0.	0.83	0.04	-	-
820	-7.42	-21.92	41.36	31.36	3.11	0.	0.83	0.03	-	-
1025	-0.37	-15.85	36.18	27.82	2.24	0.	0.83	0.02	-	-
1230	5.63	-10.51	31.00	24.27	1.48	0.78	0.83	0.02	-	-
1435	10.56	-5.90	25.82	20.48	0.82	1.48	0.83	0.02	-	-
1640	14.43	-2.01	20.63	15.30	0.28	2.03	0.83	0.02	-	-
1845	17.24	1.15	15.45	10.11	0.	2.43	0.83	0.03	-	-
2050	18.98	3.58	10.34	4.93	0.	2.69	0.83	0.03	100	-
2255	19.66	5.29	6.80	-0.25	0.	2.78	0.83	0.03	-	-
2460	19.28	6.27	3.26	-5.43	0.	2.73	0.83	0.03	-	-
2665	17.84	6.53	-0.29	-10.62	0.	2.52	0.83	0.03	-	-
2870	15.34	6.06	-3.83	-15.80	0.	2.16	0.83	0.02	-	-
3075	11.77	4.86	-7.37	-20.98	0.	1.65	0.83	0.02	-	-
3280	7.65	2.94	-10.91	-26.16	0.	1.07	0.83	0.01	-	-
3485	2.85	-1.22	-14.46	-31.35	0.17	0.39	0.83	0.00	-	-
3690	-2.19	-8.18	-14.89	-31.98	1.14	0.	0.83	0.01	-	-
3700	-2.37	-8.54	-14.89	-31.98	1.20	0.	0.83	0.01	-	-
3895	-6.25	-16.20	-14.89	-31.98	1.20	0.	0.83	0.01	-	-
4100	-11.02	-25.28	-14.89	-31.98	1.20	0.	0.83	0.01	100	-
Span=4										
0	-11.02	-25.28	24.50	15.45	1.77	0.	0.83	0.02	100	-
131	-7.20	-20.33	24.50	15.45	1.77	0.	0.83	0.02	-	-
262	-3.80	-15.82	24.50	15.45	1.77	0.	0.83	0.02	-	-
393	-0.84	-12.73	24.50	15.45	1.77	0.	0.83	0.02	-	-
400	-0.69	-12.59	24.50	15.45	1.77	0.	0.83	0.02	-	-
524	1.92	-10.24	24.50	15.45	1.44	0.26	0.83	0.02	-	-
655	4.32	-8.04	22.86	14.33	1.12	0.60	0.83	0.01	-	-
786	6.28	-6.13	19.55	11.01	0.86	0.88	0.83	0.01	-	-
917	7.81	-4.53	16.24	7.70	0.63	1.09	0.83	0.01	-	-
1048	8.91	-3.22	12.92	4.39	0.45	1.25	0.83	0.01	-	-
1179	9.57	-2.20	9.61	1.08	0.30	1.34	0.83	0.01	-	-
1310	9.80	-1.49	6.30	-2.23	0.20	1.37	0.83	0.01	100	-
1441	9.60	-1.06	2.99	-5.54	0.14	1.35	0.83	0.01	-	-
1572	8.96	-0.94	-0.18	-8.86	0.13	1.26	0.83	0.01	-	-
1703	7.89	-1.11	-2.45	-12.17	0.15	1.10	0.83	0.01	-	-
1834	6.39	-1.58	-4.71	-15.48	0.22	0.89	0.83	0.01	-	-
1965	4.45	-2.35	-6.97	-18.79	0.32	0.62	0.83	0.01	-	-
2096	2.07	-3.41	-8.10	-20.43	0.47	0.29	0.83	0.01	-	-
2220	-0.07	-4.76	-8.10	-20.43	0.66	0.	0.83	0.01	-	-
2227	-0.18	-4.93	-8.10	-20.43	0.66	0.	0.83	0.01	-	-
2358	-2.61	-8.48	-8.10	-20.43	0.66	0.	0.83	0.01	-	-
2489	-5.48	-12.46	-8.10	-20.43	0.66	0.	0.83	0.01	-	-
2620	-8.77	-16.88	-8.10	-20.43	0.66	0.	0.83	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-8.77	-16.88	21.32	11.13	0.61	0.11	0.83	0.01	100	-
141	-5.87	-12.02	21.32	11.13	0.61	0.11	0.83	0.01	-	-
282	-2.15	-7.66	21.32	11.13	0.61	0.11	0.83	0.01	-	-
400	0.80	-4.40	21.32	11.13	0.61	0.11	0.83	0.01	-	-
423	1.33	-3.95	21.32	11.13	0.55	0.18	0.83	0.01	-	-
564	4.31	-2.04	21.32	11.13	0.28	0.60	0.83	0.01	-	-
705	6.78	-0.47	18.41	9.15	0.06	0.95	0.83	0.01	-	-
846	8.76	0.76	14.85	6.71	0.	1.23	0.83	0.01	-	-
987	10.23	1.64	11.28	4.27	0.	1.43	0.83	0.02	-	-
1128	11.20	2.18	7.72	1.84	0.	1.57	0.83	0.02	-	-
1269	11.66	2.38	4.15	-0.85	0.	1.64	0.83	0.02	-	-
1410	11.63	2.23	0.59	-4.41	0.	1.63	0.83	0.02	100	-
1551	11.09	1.74	-2.98	-7.98	0.	1.56	0.83	0.02	-	-
1692	10.04	0.91	-6.54	-11.54	0.	1.41	0.83	0.02	-	-
1833	8.50	-0.27	-9.57	-15.11	0.03	1.19	0.83	0.01	-	-
1974	6.45	-1.79	-12.01	-18.67	0.25	0.90	0.83	0.01	-	-
2115	3.90	-3.66	-14.44	-22.24	0.51	0.54	0.83	0.01	-	-
2256	0.85	-5.86	-16.43	-25.14	0.82	0.11	0.83	0.01	-	-
2397	-2.65	-8.42	-16.43	-25.14	1.18	0.	0.83	0.01	-	-
2420	-3.22	-8.87	-16.43	-25.14	1.24	0.	0.83	0.01	-	-
2538	-6.33	-12.18	-16.43	-25.14	1.24	0.	0.83	0.01	-	-
2679	-10.52	-17.08	-16.43	-25.14	1.24	0.	0.83	0.01	-	-
2820	-15.22	-22.47	-16.43	-25.14	1.24	0.	0.83	0.01	100	-
Span=6										
0	-15.22	-22.47	27.64	17.10	1.04	0.	0.83	0.01	100	-
162	-11.02	-15.91	27.64	17.10	1.04	0.	0.83	0.01	-	-
324	-6.04	-10.01	27.64	17.10	1.04	0.	0.83	0.01	-	-
400	-3.77	-7.47	27.64	17.10	1.04	0.	0.83	0.01	-	-
486	-1.22	-5.15	27.64	17.10	0.72	0.	0.83	0.01	-	-
648	3.09	-2.31	26.17	16.09	0.32	0.43	0.83	0.00	-	-
810	6.73	0.08	22.07	13.30	0.	0.94	0.83	0.01	-	-
972	9.72	2.01	17.98	10.50	0.	1.36	0.83	0.01	-	-
1134	12.04	3.49	13.88	7.70	0.	1.69	0.83	0.02	-	-
1296	13.69	4.51	9.79	4.90	0.	1.93	0.83	0.02	-	-
1458	14.69	5.09	5.69	2.10	0.	2.07	0.83	0.02	-	-
1620	15.02	5.21	1.60	-1.99	0.	2.12	0.83	0.02	100	-
1782	14.68	4.87	-2.50	-6.08	0.	2.07	0.83	0.02	-	-
1944	13.68	4.08	-6.27	-10.18	0.	1.93	0.83	0.02	-	-
2106	12.02	2.84	-9.07	-14.27	0.	1.69	0.83	0.02	-	-
2268	9.70	1.14	-11.87	-18.37	0.	1.36	0.83	0.01	-	-
2430	6.71	-1.01	-14.67	-22.46	0.14	0.94	0.83	0.01	-	-
2592	3.06	-3.61	-17.47	-26.56	0.50	0.42	0.83	0.01	-	-
2754	-1.15	-6.66	-18.47	-28.02	0.93	0.	0.83	0.01	-	-
2840	-3.58	-8.61	-18.47	-28.02	1.21	0.	0.83	0.01	-	-
2916	-5.87	-11.18	-18.47	-28.02	1.21	0.	0.83	0.01	-	-
3078	-11.25	-17.14	-18.47	-28.02	1.21	0.	0.83	0.01	-	-
3240	-17.30	-23.77	-18.47	-28.02	1.21	0.	0.83	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-17.30	-23.77	27.11	16.95	1.26	0.	0.83	0.01	100	-
162	-11.64	-17.29	27.11	16.95	1.26	0.	0.83	0.01	-	-
324	-6.45	-11.48	27.11	16.95	1.26	0.	0.83	0.01	-	-
400	-4.25	-8.98	27.11	16.95	1.26	0.	0.83	0.01	-	-
486	-1.93	-7.01	27.11	16.95	0.98	0.	0.83	0.01	-	-
648	2.17	-4.20	25.65	15.95	0.58	0.30	0.83	0.01	-	-
810	5.69	-1.84	21.55	13.15	0.25	0.79	0.83	0.01	-	-
972	8.55	0.07	17.46	10.35	0.	1.20	0.83	0.01	-	-
1134	10.74	1.52	13.36	7.55	0.	1.51	0.83	0.02	-	-
1296	12.28	2.52	9.27	4.75	0.	1.73	0.83	0.02	-	-
1458	13.14	3.07	5.17	1.31	0.	1.85	0.83	0.02	-	-
1620	13.35	3.16	1.07	-2.79	0.	1.88	0.83	0.02	100	-
1782	12.89	2.80	-3.02	-6.88	0.	1.81	0.83	0.02	-	-
1944	11.77	1.99	-6.42	-10.98	0.	1.65	0.83	0.02	-	-
2106	9.98	0.72	-9.22	-15.07	0.	1.40	0.83	0.02	-	-
2268	7.53	-1.00	-12.02	-19.17	0.13	1.05	0.83	0.01	-	-
2430	4.42	-3.17	-14.82	-23.27	0.44	0.61	0.83	0.01	-	-
2592	0.64	-5.80	-17.62	-27.36	0.81	0.09	0.83	0.01	-	-
2754	-3.79	-8.88	-18.62	-28.83	1.24	0.	0.83	0.01	-	-
2840	-6.36	-11.05	-18.62	-28.83	1.55	0.	0.83	0.02	-	-
2916	-8.69	-13.68	-18.62	-28.83	1.55	0.	0.83	0.02	-	-
3078	-14.16	-19.77	-18.62	-28.83	1.55	0.	0.83	0.02	-	-
3240	-20.04	-26.52	-18.62	-28.83	1.55	0.	0.83	0.02	100	-
Span=8										
0	-20.04	-26.52	31.25	21.56	1.41	0.	0.83	0.02	100	-
166	-13.31	-19.21	31.25	21.56	1.41	0.	0.83	0.02	-	-
333	-7.25	-12.55	31.25	21.56	1.41	0.	0.83	0.02	-	-
400	-5.02	-10.08	31.25	21.56	1.41	0.	0.83	0.02	-	-
499	-1.92	-7.40	31.25	21.56	1.03	0.	0.83	0.01	-	-
666	2.90	-3.78	29.33	20.24	0.52	0.40	0.83	0.01	-	-
832	7.07	-0.66	25.13	17.37	0.09	0.99	0.83	0.01	-	-
999	10.56	2.00	20.91	14.49	0.	1.48	0.83	0.02	-	-
1165	13.34	4.17	16.71	11.62	0.	1.88	0.83	0.02	-	-
1332	15.42	5.87	12.49	8.73	0.	2.17	0.83	0.02	-	-
1498	16.80	7.08	8.30	4.74	0.	2.37	0.83	0.03	-	-
1665	17.48	7.82	4.07	0.52	0.	2.47	0.83	0.03	100	-
1831	17.46	8.08	0.43	-3.68	0.	2.47	0.83	0.03	-	-
1998	16.74	7.86	-2.45	-7.90	0.	2.36	0.83	0.03	-	-
2164	15.32	7.16	-5.32	-12.10	0.	2.16	0.83	0.02	-	-
2331	13.19	5.97	-8.21	-16.32	0.	1.86	0.83	0.02	-	-
2497	10.38	4.32	-11.07	-20.51	0.	1.46	0.83	0.02	-	-
2664	6.84	2.18	-13.96	-24.74	0.	0.96	0.83	0.01	-	-
2830	2.89	-0.68	-15.27	-26.66	0.09	0.40	0.83	0.00	-	-
2930	0.23	-3.70	-15.27	-26.66	0.51	0.03	0.83	0.01	-	-
2997	-1.70	-5.87	-15.27	-26.66	0.51	0.03	0.83	0.01	-	-
3163	-5.28	-11.72	-15.27	-26.66	0.51	0.03	0.83	0.01	-	-
3330	-9.29	-18.31	-15.27	-26.66	0.51	0.03	0.83	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=9										
0	-9.29	-18.31	14.92	5.02	1.34	0.	0.83	0.01	100	-
113	-7.11	-15.10	14.92	5.02	1.34	0.	0.83	0.01	-	-
226	-5.25	-12.21	14.92	5.02	1.34	0.	0.83	0.01	-	-
339	-3.72	-10.11	14.92	5.02	1.34	0.	0.83	0.01	-	-
400	-2.71	-9.57	14.92	5.02	1.34	0.	0.83	0.01	-	-
452	-1.91	-9.16	14.92	5.02	1.28	0.	0.83	0.01	-	-
565	-0.41	-8.43	14.92	5.02	1.18	0.	0.83	0.01	-	-
678	0.78	-7.93	12.70	3.50	1.11	0.10	0.83	0.01	-	-
791	1.64	-7.64	9.84	0.72	1.07	0.22	0.83	0.01	-	-
904	2.18	-7.58	6.98	-2.14	1.06	0.30	0.83	0.01	-	-
1017	2.40	-7.73	4.13	-4.99	1.08	0.33	0.83	0.01	-	-
1130	2.29	-8.11	1.27	-7.85	1.13	0.32	0.83	0.01	100	-
1243	1.86	-8.71	-1.59	-10.71	1.22	0.25	0.83	0.01	-	-
1356	1.11	-9.52	-4.44	-13.56	1.33	0.15	0.83	0.01	-	-
1469	0.03	-10.56	-7.30	-16.42	1.48	0.00	0.83	0.02	-	-
1582	-1.37	-11.82	-10.16	-19.28	1.66	0.	0.83	0.02	-	-
1695	-3.09	-13.30	-12.38	-21.50	1.87	0.	0.83	0.02	-	-
1808	-5.13	-15.00	-12.38	-21.50	2.11	0.	0.83	0.02	-	-
1860	-6.18	-15.86	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
1921	-7.50	-16.92	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2034	-9.92	-19.45	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2147	-12.52	-23.08	-12.38	-21.50	2.24	0.	0.83	0.02	-	-
2260	-15.44	-27.03	-12.38	-21.50	2.24	0.	0.83	0.02	100	-
Span=10										
0	-15.44	-27.03	35.05	21.05	1.28	0.	0.83	0.01	100	-
199	-9.57	-17.59	35.05	21.05	1.28	0.	0.83	0.01	-	-
398	-4.37	-9.15	35.05	21.05	1.28	0.	0.83	0.01	-	-
597	1.32	-1.71	34.87	20.93	0.23	0.18	0.83	0.00	-	-
796	7.15	2.96	29.84	17.49	0.	1.00	0.83	0.01	-	-
995	12.22	6.12	24.81	14.05	0.	1.72	0.83	0.02	-	-
1194	16.47	8.60	19.78	10.61	0.	2.32	0.83	0.03	-	-
1393	19.71	10.39	14.75	7.18	0.	2.79	0.83	0.03	-	-
1592	21.95	11.50	9.72	3.74	0.	3.11	0.83	0.03	-	-
1791	23.19	11.92	4.69	0.30	0.	3.29	0.83	0.04	-	-
1990	23.43	11.66	-0.34	-3.43	0.	3.33	0.83	0.04	100	-
2189	22.67	10.72	-5.38	-8.46	0.	3.22	0.83	0.03	-	-
2388	20.90	9.09	-9.90	-13.49	0.	2.96	0.83	0.03	-	-
2587	18.14	6.78	-13.34	-18.52	0.	2.56	0.83	0.03	-	-
2786	14.37	3.78	-16.78	-23.55	0.	2.02	0.83	0.02	-	-
2985	9.61	0.10	-20.22	-28.58	0.	1.35	0.83	0.01	-	-
3184	3.91	-4.26	-23.66	-33.61	0.59	0.54	0.83	0.01	-	-
3383	-2.67	-9.31	-27.09	-38.64	1.31	0.	0.83	0.01	-	-
3582	-10.25	-16.42	-27.22	-38.82	2.32	0.	0.83	0.03	-	-
3781	-18.82	-25.61	-27.22	-38.82	2.32	0.	0.83	0.03	-	-
3980	-27.94	-35.80	-27.22	-38.82	2.32	0.	0.83	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=11										
0	-27.94	-35.80	35.65	24.10	2.49	0.	0.83	0.03	100	-
186	-19.66	-26.84	35.65	24.10	2.49	0.	0.83	0.03	-	-
371	-12.29	-18.78	35.65	24.10	2.49	0.	0.83	0.03	-	-
400	-11.21	-17.60	35.65	24.10	2.49	0.	0.83	0.03	-	-
557	-5.72	-12.66	35.65	24.10	1.78	0.	0.83	0.02	-	-
742	0.14	-8.34	31.81	21.47	1.17	0.01	0.83	0.01	-	-
928	5.15	-4.59	27.10	18.25	0.64	0.72	0.83	0.01	-	-
1113	9.27	-1.46	22.43	15.06	0.20	1.30	0.83	0.01	-	-
1299	12.54	1.10	17.73	11.84	0.	1.76	0.83	0.02	-	-
1484	14.92	3.05	13.05	8.65	0.	2.10	0.83	0.02	-	-
1670	16.45	4.41	8.35	4.66	0.	2.32	0.83	0.03	-	-
1855	17.10	5.17	3.67	-0.02	0.	2.41	0.83	0.03	100	-
2041	16.88	5.34	-0.69	-4.72	0.	2.38	0.83	0.03	-	-
2226	15.79	4.92	-3.89	-9.39	0.	2.23	0.83	0.02	-	-
2412	13.83	3.90	-7.10	-14.10	0.	1.95	0.83	0.02	-	-
2597	11.00	2.29	-10.30	-18.77	0.	1.54	0.83	0.02	-	-
2783	7.30	0.08	-13.51	-23.48	0.	1.02	0.83	0.01	-	-
2968	2.92	-2.74	-16.71	-28.15	0.38	0.40	0.83	0.00	-	-
3154	-2.06	-6.20	-19.33	-31.99	0.87	0.	0.83	0.01	-	-
3310	-6.92	-11.26	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3339	-7.89	-12.34	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3525	-14.63	-19.75	-19.33	-31.99	1.58	0.	0.83	0.02	-	-
3710	-19.87	-28.00	-19.33	-31.99	1.58	0.	0.83	0.02	100	-
Span=12										
0	-19.87	-28.00	31.12	22.33	1.73	0.	0.83	0.02	100	-
143	-13.95	-21.68	31.12	22.33	1.73	0.	0.83	0.02	-	-
287	-8.51	-15.83	31.12	22.33	1.73	0.	0.83	0.02	-	-
400	-4.61	-12.32	31.12	22.33	1.73	0.	0.83	0.02	-	-
430	-3.63	-11.53	31.12	22.33	1.62	0.	0.83	0.02	-	-
574	0.76	-8.00	31.12	22.33	1.12	0.10	0.83	0.01	-	-
717	4.60	-4.84	27.91	20.14	0.67	0.64	0.83	0.01	-	-
861	7.95	-2.02	24.27	17.65	0.28	1.11	0.83	0.01	-	-
1004	10.76	0.43	20.65	15.18	0.	1.51	0.83	0.02	-	-
1148	13.06	2.54	17.01	12.69	0.	1.84	0.83	0.02	-	-
1291	14.83	4.28	13.40	10.22	0.	2.09	0.83	0.02	-	-
1435	16.09	5.68	9.76	6.92	0.	2.27	0.83	0.02	100	-
1578	16.82	6.71	6.14	3.31	0.	2.38	0.83	0.03	-	-
1722	17.04	7.39	3.48	-0.33	0.	2.41	0.83	0.03	-	-
1865	16.73	7.71	1.01	-3.95	0.	2.36	0.83	0.03	-	-
2009	15.90	7.68	-1.48	-7.59	0.	2.24	0.83	0.02	-	-
2152	14.56	7.29	-3.95	-11.20	0.	2.05	0.83	0.02	-	-
2296	12.68	6.54	-6.44	-14.84	0.	1.78	0.83	0.02	-	-
2439	10.30	5.44	-8.75	-18.23	0.	1.45	0.83	0.02	-	-
2583	7.38	3.98	-8.75	-18.23	0.	1.03	0.83	0.01	-	-
2620	6.55	3.55	-8.75	-18.23	0.	0.91	0.83	0.01	-	-
2726	3.96	2.18	-8.75	-18.23	0.	0.55	0.83	0.01	-	-
2870	0.00	0.00	-8.75	-18.23	0.	0.	0.83	0.00	100	-

S13.12

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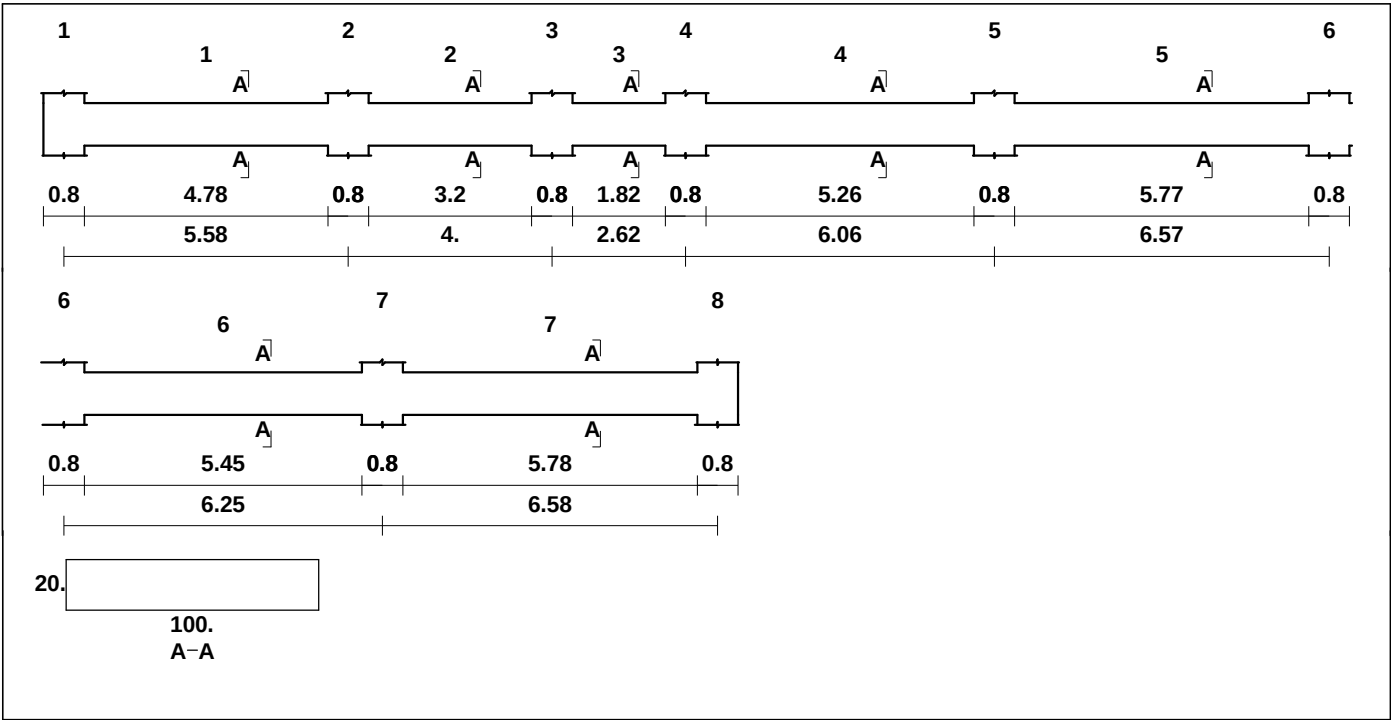
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	Moment/Shear Envelope (Factored)				Units:kN,meter			
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-56.7	-56.7	-60.0	-60.0	-25.3	-25.3	-16.9
Max M	0.0	-35.9	-35.9	-45.5	-45.5	-11.0	-11.0	-8.8
MspMn	-2.1	-38.6	-30.3	-33.4	-37.2	-8.5	-12.6	-4.8
MspMx	0.2	-20.8	-18.7	-26.9	-24.8	-2.4	-0.7	-0.1
M Max			43.7		19.7		9.8	
M Min			26.2		6.5		-0.9	
Mmn=0 @	0.0	1.8	1.0	1.2	1.8	0.7	0.0	2.6
Mmx=0 @	0.0	1.6	0.9	0.9	1.0	0.5	0.4	0.4
mx -M @			0.9		1.0		0.4	
mx +M @			2.8		2.3		1.3	
V max	2.8	-42.7		-49.9		-25.1		-18.3
V min	-15.5	-54.2		-71.7		-46.9		-35.4
DReac	-5.1	83.9		90.7		53.4		43.5
LReac	8.0	41.5		43.1		33.0		28.1
Max R	2.8	125.4		133.8		86.3		71.6
Min R	-15.5	89.0		106.6		56.0		48.1
	5	6	7	8	9			
	5	6	7	8				
Min M	-16.9	-22.5	-22.5	-23.8	-23.8	-26.5	-26.5	-18.3
Max M	-8.8	-15.2	-15.2	-17.3	-17.3	-20.0	-20.0	-9.3
MspMn	-4.4	-8.9	-7.5	-8.6	-9.0	-11.0	-10.1	-3.7
MspMx	0.8	-3.2	-3.8	-3.6	-4.2	-6.4	-5.0	0.2
M Max			15.0		13.3		17.5	
M Min			5.2		3.2		8.1	
Mmn=0 @	0.8	1.0	0.8	0.9	1.0	1.1	0.9	0.5
Mmx=0 @	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.4
mx -M @			0.5		0.6		0.6	
mx +M @			1.6		1.6		1.7	
V max		-26.6		-28.7		-28.8		-25.5
V min		-40.1		-42.9		-43.7		-41.6
DReac		53.8		55.6		59.4		43.6
LReac		28.8		29.4		30.5		27.8
Max R		82.6		85.0		89.9		71.4
Min R		62.3		66.5		71.5		46.2
	9	10	11	12	13			
	9	10	11	12				
Min M	-18.3	-27.0	-27.0	-35.8	-35.8	-28.0	-28.0	0.0
Max M	-9.3	-15.4	-15.4	-27.9	-27.9	-19.9	-19.9	0.0
MspMn	-9.6	-15.9	-9.1	-16.4	-17.6	-11.3	-12.3	3.5
MspMx	-2.7	-6.2	-4.4	-10.2	-11.2	-6.9	-4.6	6.5
M Max			23.4		17.1		17.0	
M Min			11.9		5.3		7.7	
Mmn=0 @	0.0	2.3	0.7	1.0	1.2	0.9	1.0	2.9
Mmx=0 @	0.6	0.8	0.6	0.7	0.7	0.6	0.5	2.9
mx -M @			0.6		0.7		0.5	
mx +M @			2.0		1.9		1.7	
V max		-23.6		-37.4		-29.5		-16.4
V min		-36.4		-53.7		-46.9		-29.4
DReac		54.9		69.7		61.6		18.6
LReac		31.5		34.6		31.4		10.8
Max R		86.4		104.3		92.9		29.4
Min R		58.5		84.4		72.7		16.4

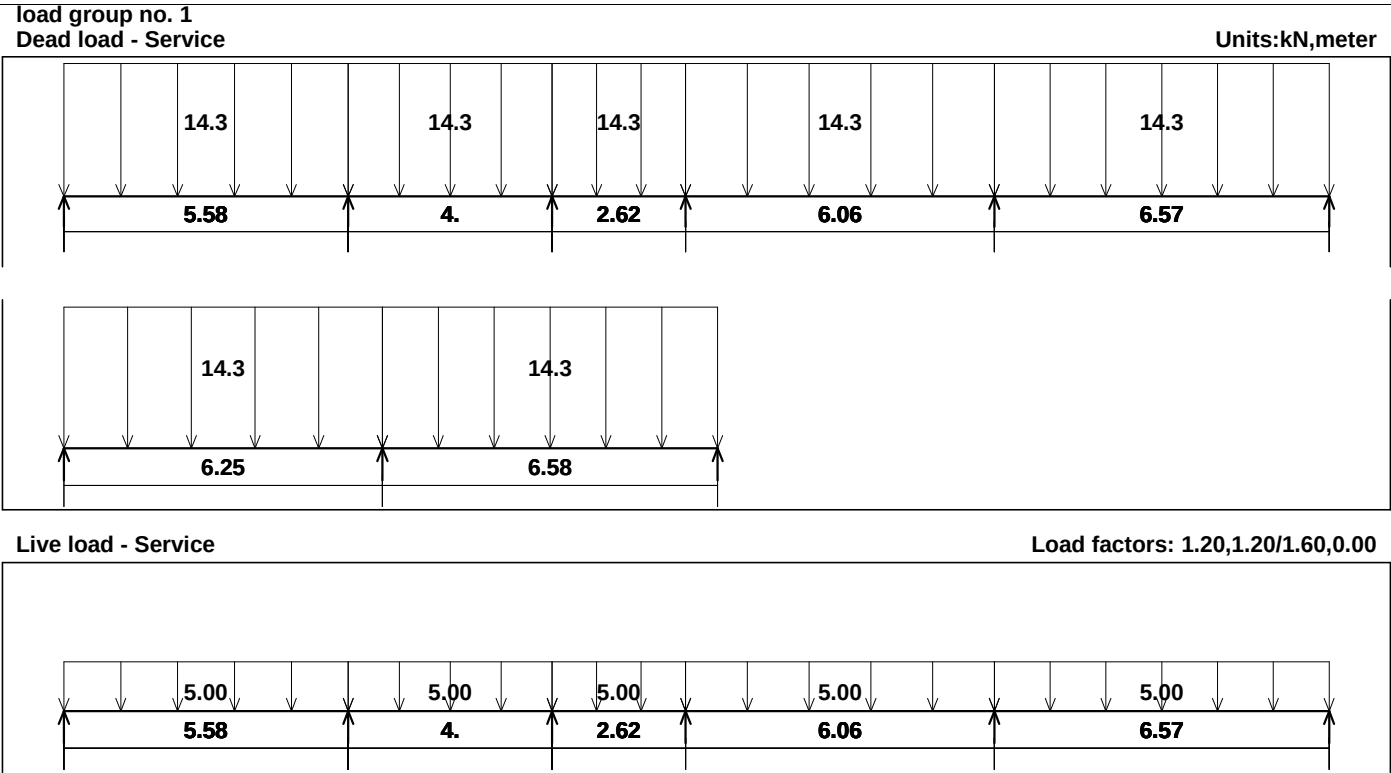
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Geometry Units: meter, cm



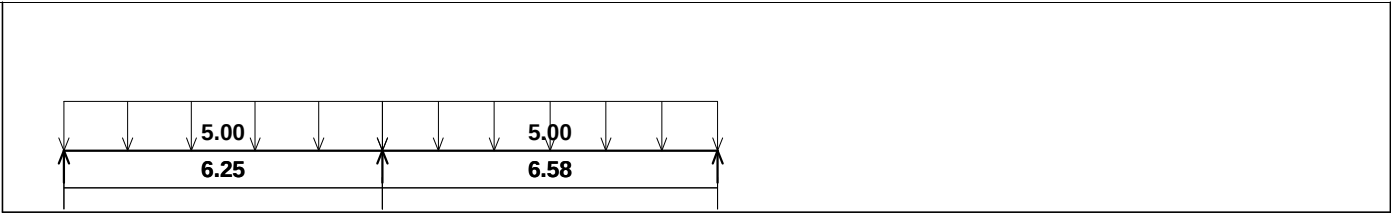
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Loading

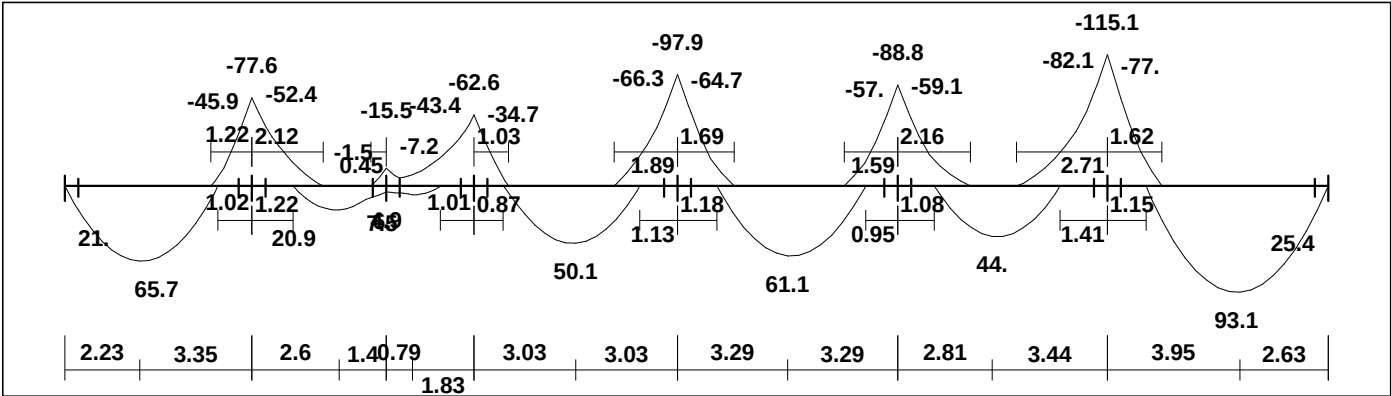


Loads (kN,meter)

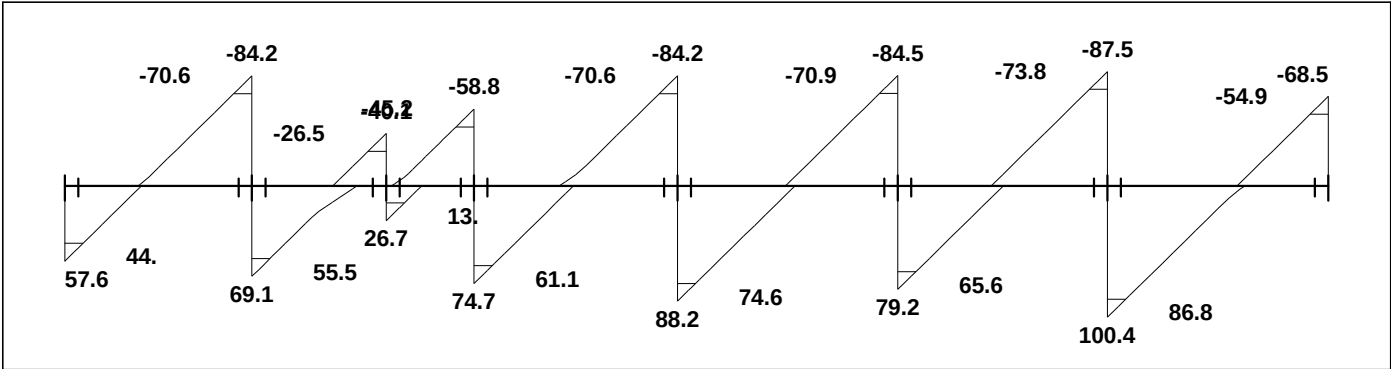
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Uni D	14.34 L 5	Uni D	14.34 L 6	Uni D	14.34 L 7	Uni D	14.34 L 5.00
Uni D	14.34 L 5.00	Uni D	14.34 L 5.00	Uni D	14.34 L 5.00		

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 7



Shear



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Moment/Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	38.57	104.18	31.82	83.16	114.44	105.41	125.34	45.13
LiveR	19.	49.16	34.92	50.3	57.99	58.27	62.55	23.4
Max R	57.57	153.34	66.74	133.46	172.43	163.67	187.89	68.53
Min R	37.51	118.94	22.29	83.99	135.96	124.77	148.05	42.71
Service								
DeadR	32.14	86.82	26.52	69.3	95.37	87.84	104.45	37.61
LiveR	11.87	30.73	21.82	31.44	36.24	36.42	39.09	14.62
Max R	44.02	117.54	48.34	100.74	131.61	124.26	143.54	52.23
Min R	31.48	96.04	20.56	69.82	108.81	99.94	118.64	36.1

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face
Main reinforcement fy = 420

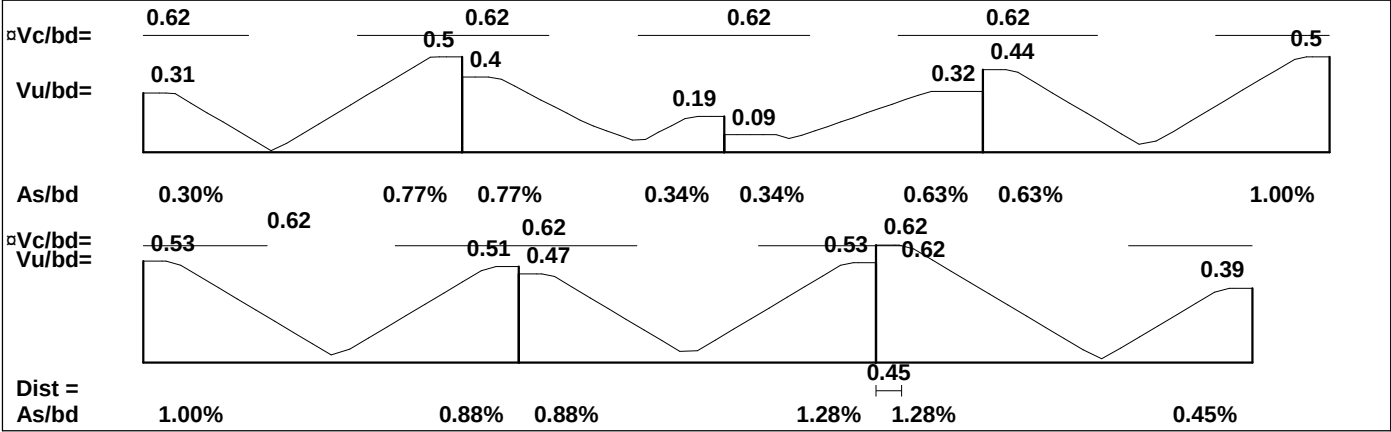
Top Cover	6.	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum		10.78	0.36	4.69*	4.69	8.78		14.00
As bot =	4.15	13.86		4.69*	4.69	4.69*		10.26
Bot Cover	6.	6.	6.	6.	6.	6.	6.	6.
a/d	6%	20%	16%	6%	3%	3%	13%	15%
As/bd	0.00%	0.99%	0.77%	0.34%	0.34%	0.34%	0.63%	0.73%
								21%
1.00%								
Top Cover	6.	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum	14.00		12.31		17.93			
		12.78		8.92		20.82		6.24
a/d	21%	6.	18%	6.	26%	6.	7%	
As/bd	1.00%	0.91%	0.88%	0.64%	1.28%	1.49%	0.00%	

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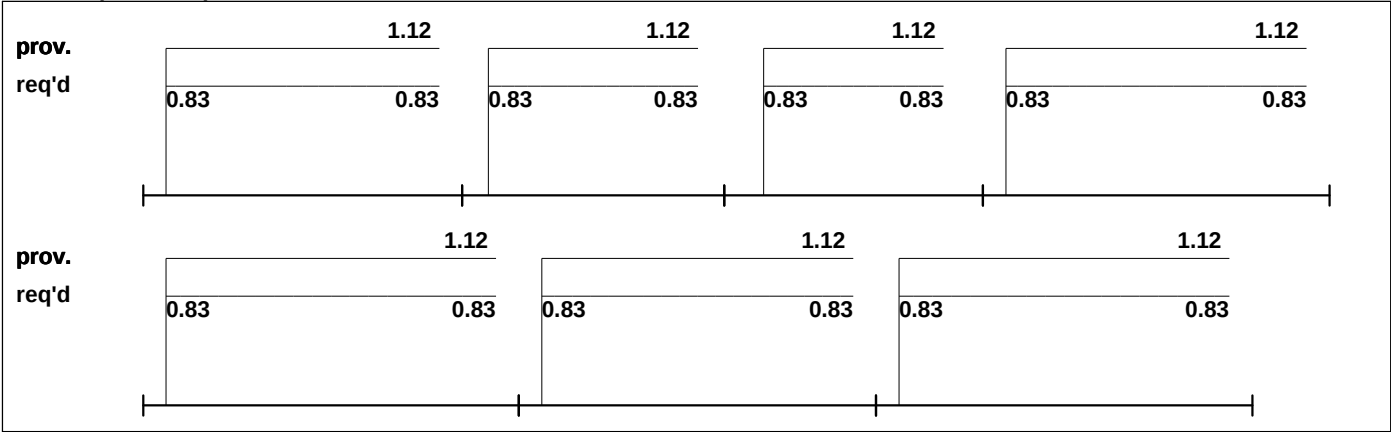
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 6 Max. = 10 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code

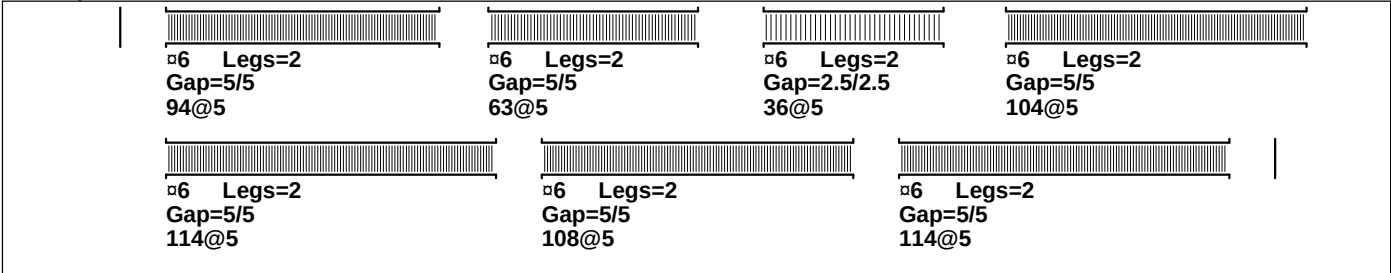
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	2	3	4
	0.	4.69	4.69	0.
As	13.86	0.36	4.69	10.26
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00067	0.00067	0.00067	0.00067
Icr(m^4)=	0.00014	0.00002	0.00006	0.00011
Mcr =	20.54	20.54	20.54	20.54
Mmax,d =	36.02	43.89	30.83	24.47
Mmax,d+l =	50.07	55.48	44.55	37.31
Mmax,sust =	36.02	43.89	30.83	24.47
Ie,d (m^4)=	0.00024	0.00008	0.00024	0.00044
Ie,d+l (m^4)=	0.00018	0.00005	0.00012	0.00021
Ie,sust (m^4)=	0.00024	0.00008	0.00024	0.00044
e/1+50r =	2.00	1.71	1.71	2.00
ai,d =	17.242	-3.539	-1.132	5.786
ai,l =	15.656	-9.934	-3.461	15.473
at,sust =	34.485	-6.062	-1.939	11.572
ai,l =	L/ 356	L/ 402	L/ 756	L/ 391
(ai+at),t2-t1	L/ 111	L/ 250	L/ 485	L/ 224

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5	6	7
	0.	0.	0.
As	12.78	8.92	20.82
fr = 3	Es= 209	Ec = 23	
Ig(m^4)=	0.00067	0.00067	0.00067
Icr(m^4)=	0.00013	0.00010	0.00019
Mcr =	20.54	20.54	20.54
Mmax,d =	28.54	16.28	49.32
Mmax,d+l =	45.32	31.56	70.49
Mmax,sust =	28.54	16.28	49.32
Ie,d (m^4)=	0.00033	0.00067	0.00022
Ie,d+l (m^4)=	0.00018	0.00026	0.00020
Ie,sust (m^4)=	0.00033	0.00067	0.00022
e/1+50r =	2.00	2.00	2.00
ai,d =	10.684	1.353	34.573
ai,l =	24.091	11.219	22.748
at,sust =	21.368	2.706	69.146
ai,l =	L/ 272	L/ 557	L/ 289
(ai+at),t2-t1	L/ 144	L/ 448	L/ 71

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	43.96	28.21	0.	0.	0.83	0.00	100	-
279	15.08	9.79	43.96	28.21	0.	2.92	0.83	0.04	-	-
400	21.01	13.63	43.96	28.21	0.	4.10	0.83	0.06	-	-
558	28.20	18.25	43.50	27.90	0.	5.57	0.83	0.08	-	-
837	39.35	25.36	36.47	23.10	0.	7.92	0.83	0.12	-	-
1116	48.55	31.14	29.44	18.30	0.	9.92	0.83	0.15	-	-
1395	55.78	35.58	22.40	13.50	0.	11.55	0.83	0.17	-	-
1674	61.05	38.67	15.37	8.70	0.	12.77	0.83	0.19	-	-
1953	64.36	40.43	8.34	3.90	0.	13.54	0.83	0.20	-	-
2232	65.70	40.85	1.30	-0.90	0.	13.86	0.83	0.20	-	-
2511	65.09	39.93	-5.38	-6.87	0.	13.72	0.83	0.20	-	-
2790	62.51	37.67	-10.18	-13.91	0.	13.11	0.83	0.19	100	-
3069	57.96	34.07	-14.99	-20.94	0.	12.05	0.83	0.18	-	-
3348	51.46	29.13	-19.79	-27.97	0.	10.57	0.83	0.16	-	-
3627	42.99	22.85	-24.59	-35.01	0.	8.70	0.83	0.13	-	-
3906	32.57	15.23	-29.39	-42.04	0.	6.48	0.83	0.10	-	-
4185	20.18	6.27	-34.19	-49.07	0.	3.93	0.83	0.06	-	-
4464	5.82	-4.03	-38.99	-56.11	0.76	1.11	0.83	0.02	-	-
4743	-10.49	-15.93	-43.79	-63.14	3.08	0.	0.83	0.05	-	-
5022	-27.03	-34.52	-48.59	-70.17	6.89	0.	0.83	0.10	-	-
5180	-34.93	-45.92	-48.90	-70.63	9.34	0.	0.83	0.14	-	-
5301	-41.26	-55.08	-48.90	-70.63	9.34	0.	0.83	0.14	-	-
5580	-56.83	-77.60	-48.90	-70.63	9.34	0.	0.83	0.14	100	-
Span=2										
0	-56.83	-77.60	55.49	42.56	10.78	0.	0.83	0.16	100	-
200	-45.18	-64.29	55.49	42.56	10.78	0.	0.83	0.16	-	-
400	-34.54	-52.41	55.49	42.56	10.78	0.	0.83	0.16	-	-
600	-24.91	-43.37	53.98	41.53	8.78	0.	0.83	0.13	-	-
800	-16.01	-35.23	48.94	38.09	7.04	0.	0.83	0.10	-	-
1000	-7.88	-27.96	43.90	34.64	5.52	0.	0.83	0.08	-	-
1200	-0.76	-21.38	38.86	30.50	4.18	0.	0.83	0.06	-	-
1400	5.35	-15.48	33.81	25.46	3.00	1.02	0.83	0.04	-	-
1600	10.46	-10.27	28.77	20.42	1.97	2.01	0.83	0.03	-	-
1800	14.56	-5.75	23.73	15.38	1.09	2.81	0.83	0.04	-	-
2000	17.64	-1.92	19.37	10.33	0.36	3.43	0.83	0.05	100	-
2200	19.72	1.22	15.93	5.29	0.	3.84	0.83	0.06	-	-
2400	20.79	3.68	12.49	0.25	0.	4.06	0.83	0.06	-	-
2600	20.86	5.44	9.05	-4.79	0.	4.07	0.83	0.06	-	-
2800	19.91	6.52	5.61	-9.83	0.	3.88	0.83	0.06	-	-
3000	17.96	6.91	2.17	-14.87	0.	3.49	0.83	0.05	-	-
3200	15.00	6.61	-1.28	-19.92	0.	2.90	0.83	0.04	-	-
3400	11.65	4.02	-4.72	-24.96	0.	2.24	0.83	0.03	-	-
3600	9.59	-1.47	-5.75	-26.47	0.27	1.84	0.83	0.03	-	-
3800	7.61	-7.98	-5.75	-26.47	0.27	1.84	0.83	0.03	-	-
4000	4.95	-15.49	-5.75	-26.47	0.27	1.84	0.83	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	4.95	-15.49	13.05	2.69	1.38	1.11	0.83	0.02	100	-
131	5.68	-12.21	13.05	0.43	1.38	1.11	0.83	0.02	-	-
262	5.98	-9.37	13.05	-1.82	1.38	1.11	0.83	0.02	-	-
393	5.85	-7.21	13.05	-4.08	1.38	1.11	0.83	0.02	-	-
400	5.83	-7.23	13.05	-4.20	1.38	1.11	0.83	0.02	-	-
524	6.23	-7.89	13.05	-6.33	1.51	1.19	0.83	0.02	-	-
655	7.07	-8.86	10.15	-9.26	1.70	1.35	0.83	0.03	-	-
786	7.48	-10.14	6.84	-12.57	1.94	1.43	0.83	0.03	-	-
917	7.45	-11.70	3.54	-15.87	2.25	1.42	0.83	0.03	-	-
1048	6.99	-13.57	0.24	-19.17	2.62	1.33	0.83	0.04	-	-
1179	6.10	-15.73	-3.06	-22.47	3.04	1.16	0.83	0.04	-	-
1310	4.78	-18.18	-6.36	-25.78	3.53	0.91	0.83	0.05	100	-
1441	3.03	-20.93	-9.67	-29.08	4.08	0.57	0.83	0.06	-	-
1572	0.84	-23.97	-12.97	-32.38	4.70	0.15	0.83	0.07	-	-
1703	-1.78	-27.31	-16.27	-35.68	5.39	0.	0.83	0.08	-	-
1834	-4.83	-30.95	-19.57	-38.99	6.14	0.	0.83	0.09	-	-
1965	-8.32	-34.88	-22.88	-42.29	6.96	0.	0.83	0.10	-	-
2096	-12.23	-39.10	-25.77	-45.19	7.86	0.	0.83	0.12	-	-
2220	-16.34	-43.37	-25.77	-45.19	8.78	0.	0.83	0.13	-	-
2227	-16.58	-43.62	-25.77	-45.19	8.78	0.	0.83	0.13	-	-
2358	-21.37	-48.44	-25.77	-45.19	8.78	0.	0.83	0.13	-	-
2489	-26.58	-55.10	-25.77	-45.19	8.78	0.	0.83	0.13	-	-
2620	-32.17	-62.59	-25.77	-45.19	8.78	0.	0.83	0.13	100	-
Span=4										
0	-32.17	-62.59	61.05	34.35	6.93	0.	0.83	0.10	100	-
303	-19.44	-41.12	61.05	34.35	6.93	0.	0.83	0.10	-	-
400	-15.70	-34.74	61.05	34.35	6.93	0.	0.83	0.10	-	-
606	-8.30	-21.97	59.39	33.21	4.29	0.	0.83	0.06	-	-
909	1.29	-5.13	51.75	28.00	0.97	0.24	0.83	0.01	-	-
1212	13.97	8.03	44.11	22.79	0.	2.70	0.83	0.04	-	-
1515	24.49	14.14	36.47	17.57	0.	4.81	0.83	0.07	-	-
1818	34.24	18.67	28.84	12.36	0.	6.83	0.83	0.10	-	-
2121	41.67	21.63	21.20	7.14	0.	8.41	0.83	0.12	-	-
2424	46.79	23.00	13.56	1.93	0.	9.53	0.83	0.14	-	-
2727	49.59	22.80	5.92	-3.28	0.	10.15	0.83	0.15	-	-
3030	50.08	21.01	-1.72	-8.50	0.	10.26	0.83	0.15	100	-
3333	48.26	17.65	-9.35	-15.45	0.	9.86	0.83	0.15	-	-
3636	44.12	12.70	-16.99	-23.08	0.	8.95	0.83	0.13	-	-
3939	37.66	6.18	-23.18	-30.72	0.	7.55	0.83	0.11	-	-
4242	28.90	-1.93	-28.39	-38.36	0.36	5.71	0.83	0.08	-	-
4545	17.81	-11.61	-33.61	-46.00	2.23	3.46	0.83	0.05	-	-
4848	4.42	-22.87	-38.82	-53.64	4.48	0.84	0.83	0.07	-	-
5151	-11.29	-35.72	-44.04	-61.27	7.14	0.	0.83	0.11	-	-
5454	-29.32	-51.55	-49.25	-68.91	10.59	0.	0.83	0.16	-	-
5660	-42.89	-66.28	-50.39	-70.58	14.00	0.	0.83	0.21	-	-
5757	-49.66	-73.59	-50.39	-70.58	14.00	0.	0.83	0.21	-	-
6060	-72.31	-97.94	-50.39	-70.58	14.00	0.	0.83	0.21	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-72.31	-97.94	74.63	48.08	13.61	0.	0.83	0.20	100	-
329	-52.51	-70.27	74.63	48.08	13.61	0.	0.83	0.20	-	-
400	-47.41	-64.66	74.63	48.08	13.61	0.	0.83	0.20	-	-
657	-29.98	-45.41	71.68	46.07	9.23	0.	0.83	0.14	-	-
986	-10.09	-24.11	63.39	40.41	4.73	0.	0.83	0.07	-	-
1314	7.02	-11.78	55.12	34.76	2.27	1.34	0.83	0.03	-	-
1643	22.71	-1.27	46.83	29.10	0.24	4.44	0.83	0.07	-	-
1971	35.81	7.34	38.56	23.46	0.	7.16	0.83	0.11	-	-
2300	46.23	14.13	30.27	17.79	0.	9.41	0.83	0.14	-	-
2628	53.89	19.04	22.00	12.15	0.	11.12	0.83	0.16	-	-
2957	58.86	22.11	13.70	6.49	0.	12.26	0.83	0.18	-	-
3285	61.10	23.31	5.44	-1.66	0.	12.78	0.83	0.19	100	-
3614	60.61	22.66	-2.86	-9.96	0.	12.66	0.83	0.19	-	-
3942	57.42	20.15	-9.46	-18.23	0.	11.92	0.83	0.18	-	-
4271	51.49	15.78	-15.12	-26.52	0.	10.58	0.83	0.16	-	-
4599	42.86	9.56	-20.76	-34.79	0.	8.67	0.83	0.13	-	-
4928	31.48	1.47	-26.42	-43.08	0.	6.25	0.83	0.09	-	-
5256	17.67	-8.45	-32.07	-51.35	1.62	3.43	0.83	0.05	-	-
5585	1.75	-20.26	-37.73	-59.64	3.95	0.33	0.83	0.06	-	-
5913	-16.84	-38.72	-43.37	-67.91	7.78	0.	0.83	0.11	-	-
6170	-33.30	-57.00	-45.39	-70.86	11.83	0.	0.83	0.17	-	-
6242	-38.21	-62.42	-45.39	-70.86	11.83	0.	0.83	0.17	-	-
6570	-60.83	-88.78	-45.39	-70.86	11.83	0.	0.83	0.17	100	-
Span=6										
0	-60.83	-88.78	65.59	39.12	12.31	0.	0.83	0.18	100	-
313	-40.12	-65.22	65.59	39.12	12.31	0.	0.83	0.18	-	-
400	-34.81	-59.11	65.59	39.12	12.31	0.	0.83	0.18	-	-
625	-21.95	-44.20	63.45	37.66	8.96	0.	0.83	0.13	-	-
938	-6.17	-27.54	55.56	32.27	5.43	0.	0.83	0.08	-	-
1250	7.09	-18.07	47.69	26.90	3.51	1.35	0.83	0.05	-	-
1563	19.39	-10.25	39.80	21.52	1.97	3.78	0.83	0.06	-	-
1875	29.22	-4.13	31.94	16.15	0.78	5.78	0.83	0.09	-	-
2188	36.61	0.32	24.05	10.76	0.	7.33	0.83	0.11	-	-
2500	41.52	3.08	16.18	5.39	0.	8.38	0.83	0.12	-	-
2813	43.98	4.17	8.29	-0.82	0.	8.92	0.83	0.13	-	-
3125	43.97	3.57	0.43	-8.69	0.	8.91	0.83	0.13	100	-
3438	41.50	1.29	-7.46	-16.58	0.	8.38	0.83	0.12	-	-
3750	36.58	-2.66	-15.33	-24.44	0.50	7.32	0.83	0.11	-	-
4063	29.18	-8.30	-20.73	-32.33	1.59	5.77	0.83	0.08	-	-
4375	19.34	-15.61	-26.10	-40.20	3.02	3.77	0.83	0.06	-	-
4688	7.01	-24.62	-31.49	-48.09	4.83	1.34	0.83	0.07	-	-
5000	-7.75	-35.28	-36.86	-55.95	7.05	0.	0.83	0.10	-	-
5313	-23.75	-47.88	-42.24	-63.84	9.77	0.	0.83	0.14	-	-
5625	-42.06	-65.37	-47.61	-71.71	13.78	0.	0.83	0.20	-	-
5850	-56.78	-82.14	-49.07	-73.85	17.93	0.	0.83	0.26	-	-
5938	-62.88	-89.05	-49.07	-73.85	17.93	0.	0.83	0.26	-	-
6250	-86.10	-115.11	-49.07	-73.85	17.93	0.	0.83	0.26	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-86.10	-115.11	86.82	60.41	16.61	0.	0.83	0.24	100	-
329	-64.10	-83.44	86.82	60.41	16.61	0.	0.83	0.24	-	-
400	-57.88	-76.96	86.82	60.41	16.61	0.	0.83	0.24	-	-
658	-36.20	-54.49	83.84	58.38	11.25	0.	0.83	0.17	-	-
987	-11.00	-30.25	75.55	52.72	5.99	0.	0.83	0.09	-	-
1316	11.47	-13.57	67.25	47.05	2.62	2.21	0.83	0.04	-	-
1645	31.22	1.25	58.96	41.39	0.	6.20	0.83	0.09	-	-
1974	48.24	14.21	50.67	35.73	0.	9.85	0.83	0.14	-	-
2303	62.53	25.30	42.37	30.07	0.	13.11	0.83	0.19	-	-
2632	74.09	34.53	34.08	24.41	0.	15.90	0.83	0.23	-	-
2961	82.92	41.90	25.79	18.75	0.	18.13	0.83	0.27	-	-
3290	89.03	47.40	17.49	13.09	0.	19.73	0.83	0.29	100	-
3619	92.40	51.04	9.20	6.11	0.	20.64	0.83	0.30	-	-
3948	93.05	52.82	2.58	-2.18	0.	20.82	0.83	0.31	-	-
4277	90.97	52.74	-3.08	-10.47	0.	20.26	0.83	0.30	-	-
4606	86.16	50.79	-8.75	-18.77	0.	18.97	0.83	0.28	-	-
4935	78.62	46.98	-14.41	-27.06	0.	17.03	0.83	0.25	-	-
5264	68.35	41.31	-20.07	-35.35	0.	14.50	0.83	0.21	-	-
5593	55.36	33.78	-25.73	-43.65	0.	11.45	0.83	0.17	-	-
5922	39.63	24.38	-31.39	-51.94	0.	7.98	0.83	0.12	-	-
6180	25.39	15.71	-33.42	-54.91	0.	4.99	0.83	0.07	-	-
6251	21.18	13.12	-33.42	-54.91	0.	4.14	0.83	0.06	-	-
6580	0.00	0.00	-33.42	-54.91	0.	0.	0.83	0.00	100	-

Moment / Shear Envelope (Factored) Units:kN,meter									
	1	2	3	4	5				
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-77.6	-77.6	-15.5	-15.5	-62.6	-62.6	-97.9	
Max M	0.0	-56.8	-56.8	4.9	4.9	-32.2	-32.2	-72.3	
MspMn		-45.9	-52.4	-1.5	-7.2	-43.4	-34.7	-66.3	
MspMx		-34.9	-34.5	9.6	5.8	-16.3	-15.7	-42.9	
M Max			20.9		7.5			50.1	
M Min			6.9		-18.2			23.0	
Mmn=0 @	0.0	1.2	2.1	0.5	0.0	2.6	1.0	1.9	
Mmx=0 @	0.0	1.0	1.2	2.8	1.6	1.0	0.9	1.1	
mx -M @			1.2		1.6			0.9	
mx +M @			2.6		0.8			3.0	
V max		-58.2		-15.0		-39.4		-59.7	
V min		-84.2		-40.1	2.7	-58.8		-84.2	
DReac		104.2		31.8		83.2		114.4	
LReac		49.2		34.9		50.3		58.0	
Max R		153.3		66.7		133.5		172.4	
Min R		118.9		22.3		84.0		136.0	
	5	6	7	8					
	5	6	7	8					
Min M	-97.9	-88.8	-88.8	-115.1		0.0			
Max M	-72.3	-60.8	-60.8	-86.1	-86.1	0.0			
MspMn	-64.7	-57.0	-59.1	-82.1	-77.0	15.7			
MspMx	-47.4	-33.3	-34.8	-56.8	-57.9	25.4			
M Max			44.0		93.1				
M Min			4.2		52.8				
Mmn=0 @	1.7	1.6	2.2	2.7	1.6	6.6			
Mmx=0 @	1.2	1.0	1.1	1.4	1.1	6.6			
mx -M @			1.1		1.1				
mx +M @			2.8		3.9				
V max		-54.7		-58.4		-42.7			
V min		-84.5		-87.5		-68.5			

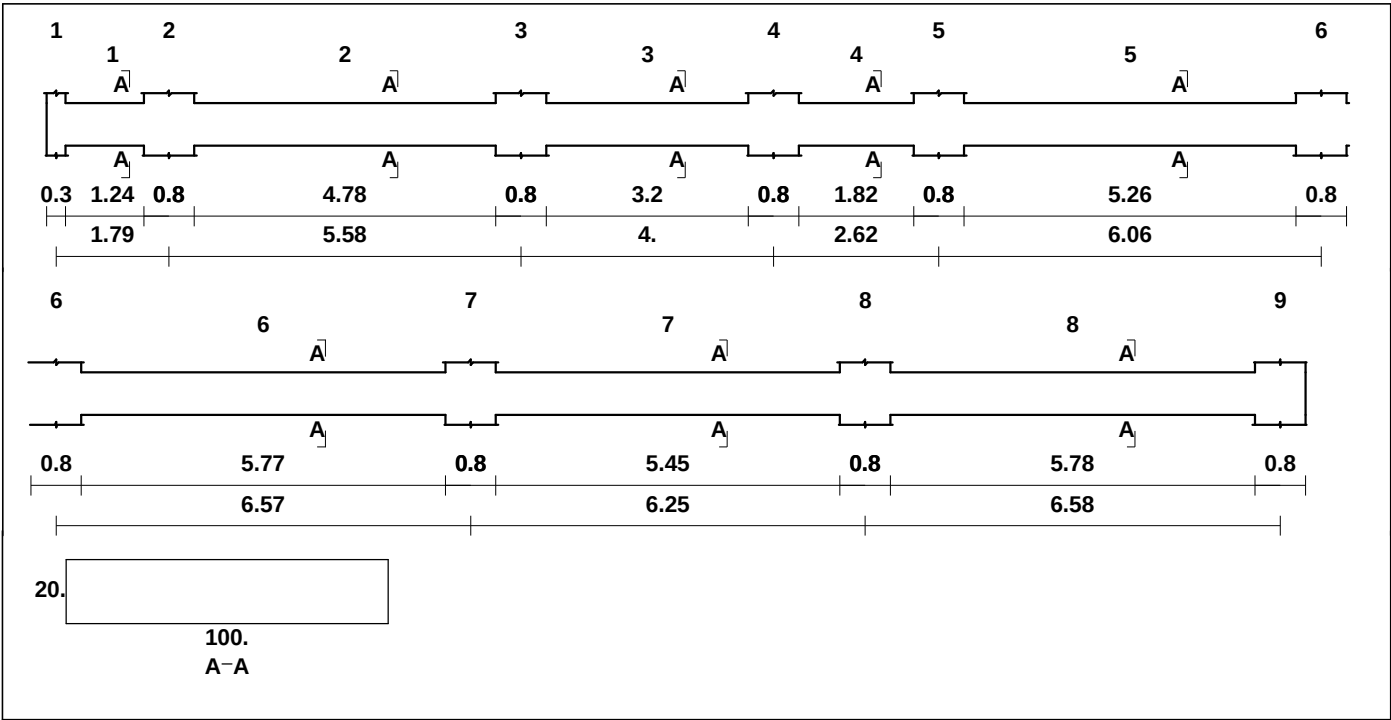
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	M o m e n t / S h e a r	E n v e l o p e (Factored)	Units:kN,meter
DReac	105.4	125.3	45.1
LReac	58.3	62.6	23.4
Max R	163.7	187.9	68.5
Min R	124.8	148.0	42.7

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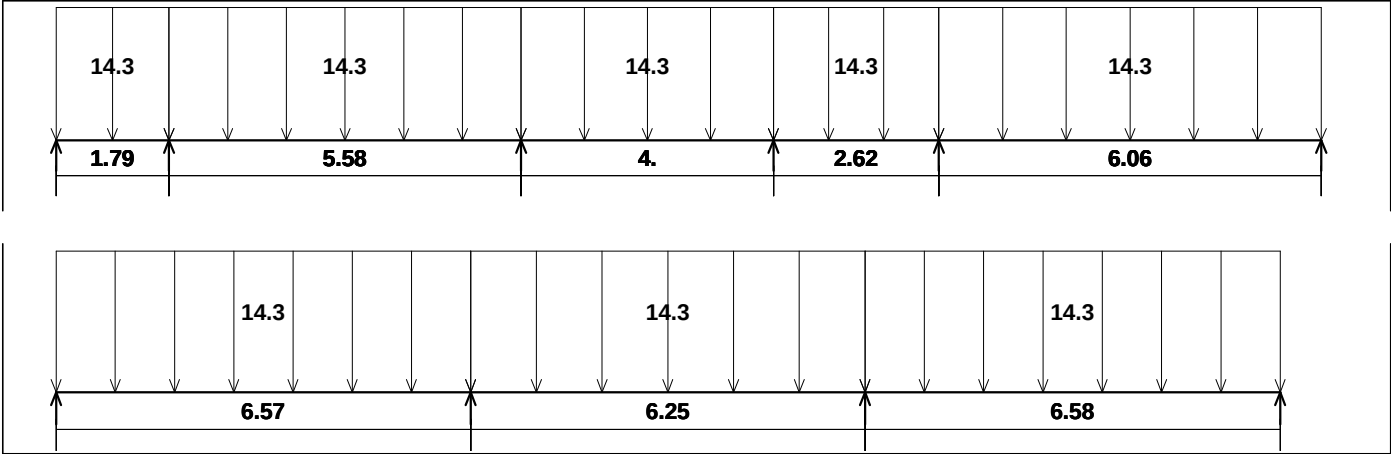
Geometry Units: meter, cm



Loading

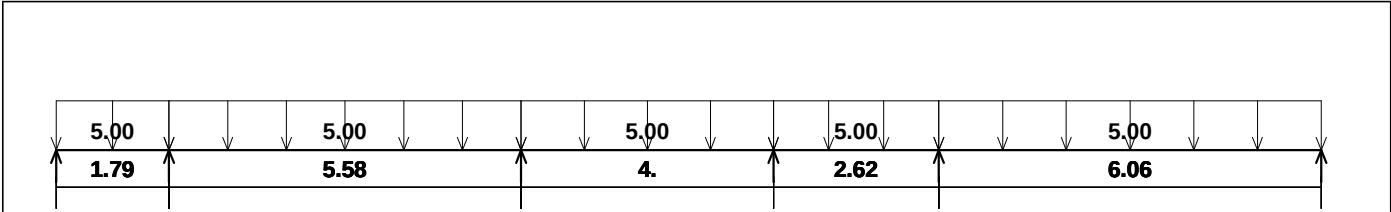
load group no. 1
Dead load - Service

Units: kN, meter



Live load - Service

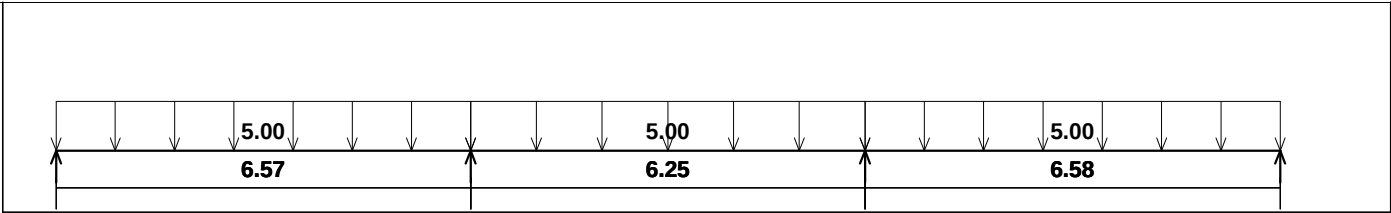
Load factors: 1.20, 1.20/1.60, 0.00



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Loading

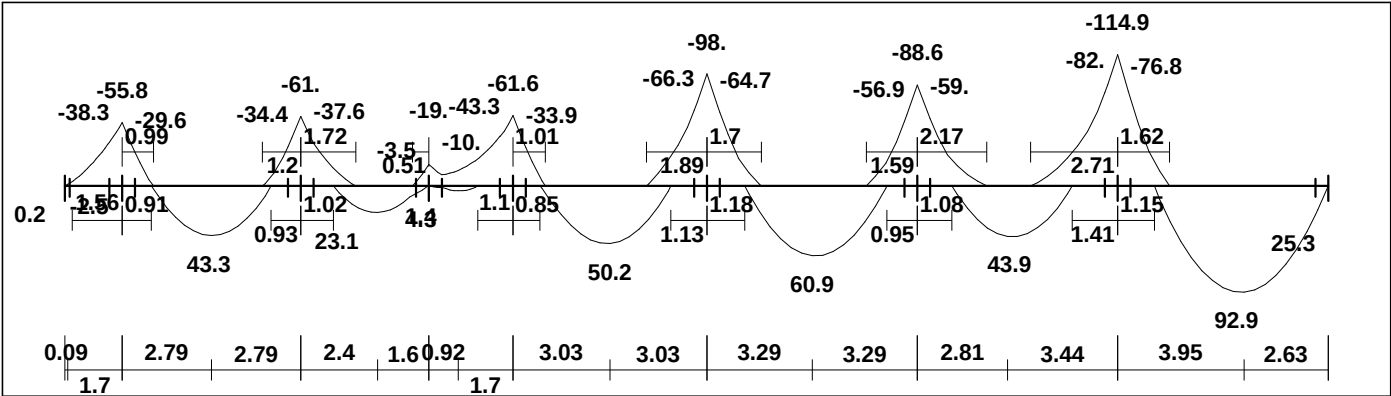


Loads (kN,meter)

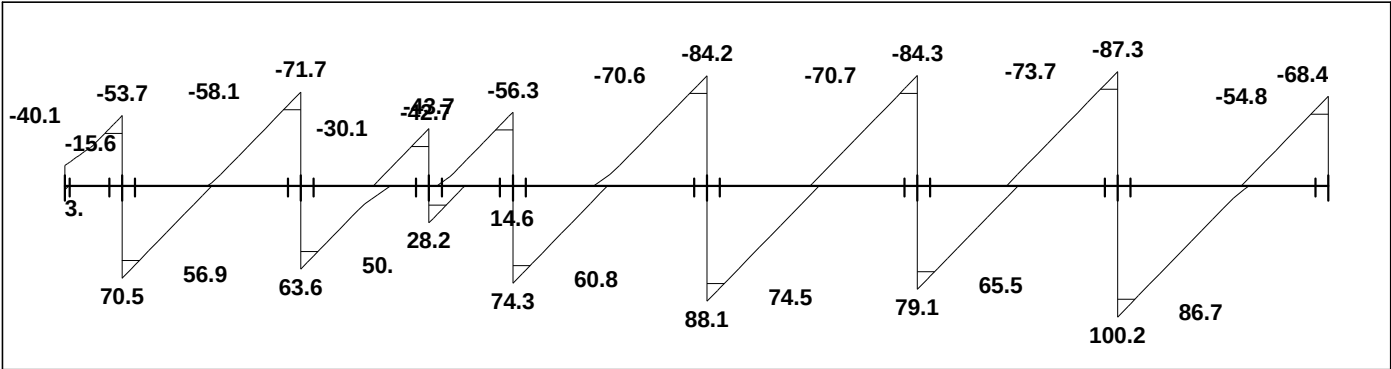
1		2		3		4	
Uni D	14.30	L	5.00	Uni D	14.30	L	5.00
5		6		7		8	
Uni D	14.30	L	5.00	Uni D	14.30	L	5.00

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8



Shear



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Moment/Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	-5.13	82.93	91.52	37.07	81.22	114.27	105.08	125.	45.
LiveR	8.09	41.06	43.76	34.79	49.41	58.06	58.27	62.56	23.4
Max R	2.96	123.99	135.28	71.86	130.63	172.33	163.34	187.55	68.4
Min R	-15.62	87.7	106.59	30.31	82.09	135.78	124.42	147.71	42.59
Service									
DeadR	-4.28	69.11	76.27	30.89	67.68	95.23	87.56	104.17	37.5
LiveR	5.06	25.66	27.35	21.74	30.88	36.29	36.42	39.1	14.62
Max R	0.78	94.77	103.62	52.63	98.56	131.51	123.98	143.26	52.13
Min R	-10.83	72.09	85.68	26.67	68.23	108.67	99.65	118.36	35.99

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

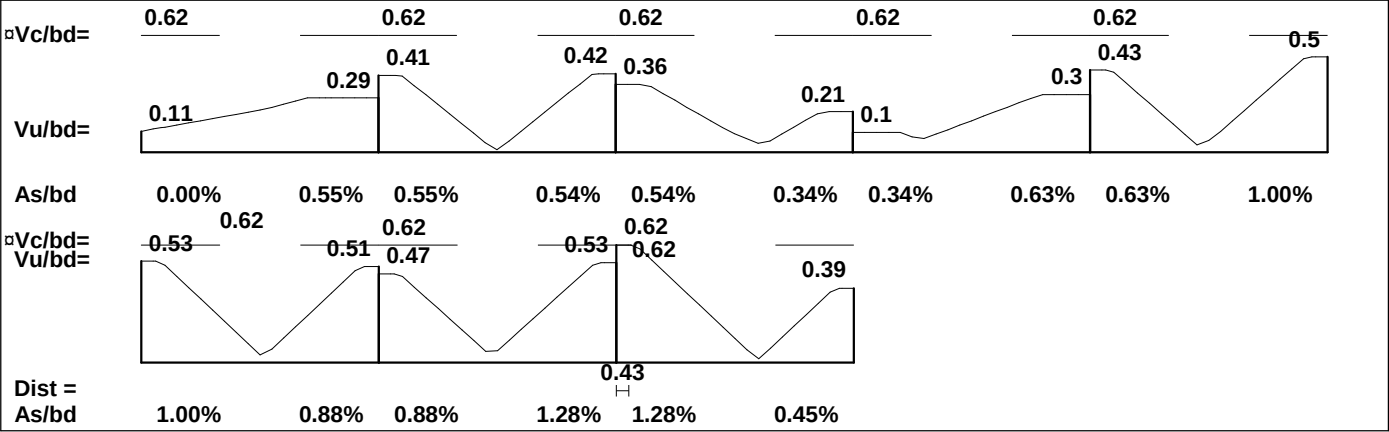
Top Cover	6.		6.		6.		6.		6.	
As top =	4.69	7.69		7.54		4.69*	4.69	8.78		14.01
As bott =	4.69*		8.77		4.69*	1.22	4.69*		10.29	
Bot Cover	6.		6.		6.		6.		6.	
a/d	1%	6%	11%	13%	11%	7%	3%	4%	13%	15%
As/bd	0.00%	0.34%	0.55%	0.63%	0.54%	0.34%	0.34%	0.34%	0.63%	0.74%
Top Cover	6.		6.		6.					
As top =	14.01		12.28		17.89					
		12.73		8.91		20.77	6.23			
a/d	21%	6.		6.		6.				
As/bd	1.00%	0.91%	0.88%	0.64%	1.28%	1.48%	0.00%			

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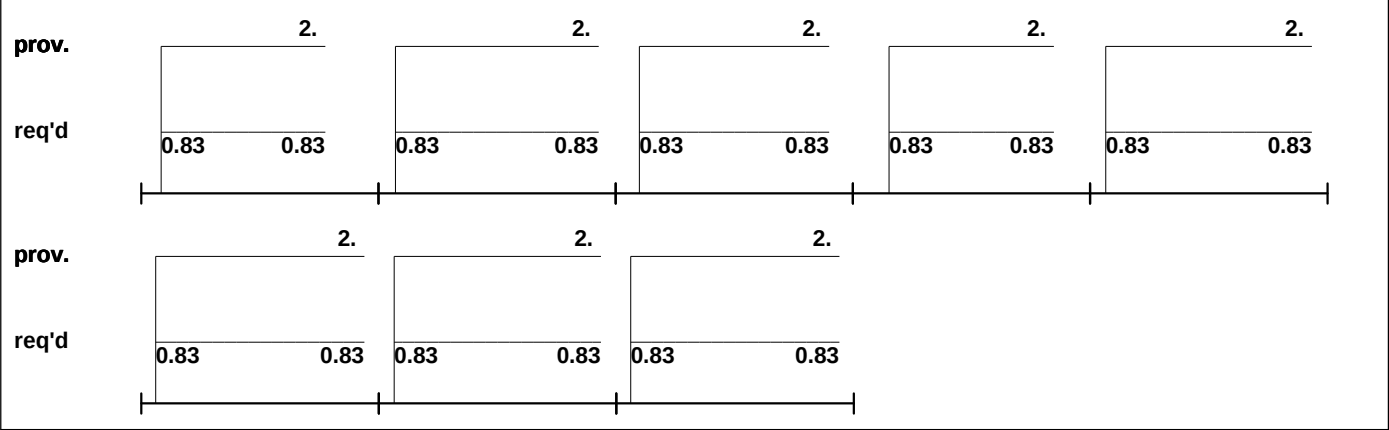
S h e a r

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 10 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code

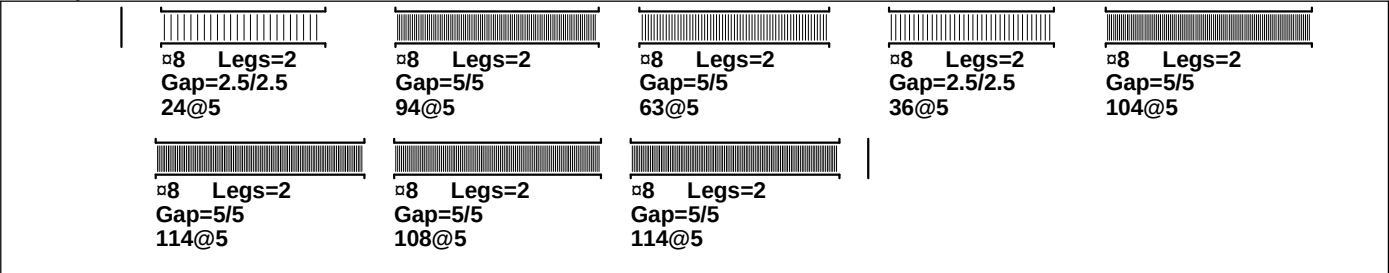
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	2	3	4
	4.69	0.	0.	4.69
As	4.69	8.77	4.69	4.69
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00067	0.00067	0.00067	0.00067
Icr(m^4)=	0.00006	0.00010	0.00006	0.00006
Mcr =	20.54	20.54	20.54	20.54
Mmax,d =	30.57	23.25	10.27	30.25
Mmax,d+l =	42.30	32.88	17.00	43.99
Mmax,sust =	30.57	23.25	10.27	30.25
Ie,d (m^4)=	0.00025	0.00049	0.00067	0.00025
Ie,d+l (m^4)=	0.00013	0.00024	0.00067	0.00012
Ie,sust (m^4)=	0.00025	0.00049	0.00067	0.00025
e/1+50r =	1.71	2.00	2.00	1.71
ai,d =	-0.772	4.679	0.550	-1.223
ai,l =	-1.440	9.390	0.643	-3.586
at,sust =	-1.323	9.358	1.100	-2.095
ai,l =	L/ 1242	L/ 594	L/ 6221	L/ 730
(ai+at),t2-t1	L/ 647	L/ 297	L/ 2295	L/ 461

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5	6	7	8
	0.	0.	0.	0.
As	10.29	12.73	8.91	20.77
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00067	0.00067	0.00067	0.00067
Icr(m^4)=	0.00011	0.00013	0.00010	0.00019
Mcr =	20.54	20.54	20.54	20.54
Mmax,d =	24.62	28.41	16.25	49.18
Mmax,d+l =	37.42	45.18	31.53	70.34
Mmax,sust =	24.62	28.41	16.25	49.18
Ie,d (m^4)=	0.00043	0.00033	0.00067	0.00022
Ie,d+l (m^4)=	0.00020	0.00018	0.00026	0.00020
Ie,sust (m^4)=	0.00043	0.00033	0.00067	0.00022
e/1+50r =	2.00	2.00	2.00	2.00
ai,d =	5.932	10.544	1.354	34.469
ai,l =	15.525	24.062	11.199	22.800
at,sust =	11.863	21.089	2.707	68.937
ai,l =	L/ 390	L/ 273	L/ 558	L/ 288
(ai+at),t2-t1	L/ 221	L/ 145	L/ 449	L/ 71

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	2.96	-15.62	0.	0.	0.83	0.00	100	-
90	0.16	-1.48	0.70	-17.16	0.28	0.03	0.83	0.00	-	-
150	0.16	-2.54	-0.81	-18.19	0.48	0.03	0.83	0.01	-	-
179	0.13	-3.07	-1.54	-18.69	0.58	0.02	0.83	0.01	-	-
269	-0.11	-4.82	-3.81	-20.23	0.92	0.	0.83	0.01	-	-
358	-0.55	-6.69	-6.05	-21.76	1.28	0.	0.83	0.02	-	-
448	-1.20	-8.72	-8.31	-23.31	1.67	0.	0.83	0.02	-	-
537	-2.04	-10.86	-10.55	-24.83	2.09	0.	0.83	0.03	-	-
627	-3.09	-13.17	-12.82	-26.38	2.54	0.	0.83	0.04	-	-
716	-4.33	-15.58	-15.05	-27.90	3.02	0.	0.83	0.04	-	-
806	-5.79	-18.16	-17.32	-29.45	3.53	0.	0.83	0.05	-	-
895	-7.43	-20.85	-19.56	-31.15	4.07	0.	0.83	0.06	100	-
985	-9.29	-23.71	-21.82	-33.41	4.65	0.	0.83	0.07	-	-
1074	-11.33	-26.67	-24.06	-35.65	5.25	0.	0.83	0.08	-	-
1164	-13.60	-29.80	-26.33	-37.92	5.90	0.	0.83	0.09	-	-
1253	-16.04	-33.04	-28.49	-40.08	6.58	0.	0.83	0.10	-	-
1343	-18.72	-36.45	-28.49	-40.08	7.30	0.	0.83	0.11	-	-
1390	-20.19	-38.29	-28.49	-40.08	7.69	0.	0.83	0.11	-	-
1432	-21.56	-39.96	-28.49	-40.08	7.69	0.	0.83	0.11	-	-
1522	-24.64	-43.65	-28.49	-40.08	7.69	0.	0.83	0.11	-	-
1611	-27.88	-47.43	-28.49	-40.08	7.69	0.	0.83	0.11	-	-
1701	-31.36	-51.39	-28.49	-40.08	7.69	0.	0.83	0.11	-	-
1790	-35.01	-55.76	-28.49	-40.08	7.69	0.	0.83	0.11	100	-
Span=2										
0	-35.01	-55.76	56.91	36.36	5.87	0.	0.83	0.09	100	-
279	-22.95	-37.11	56.91	36.36	5.87	0.	0.83	0.09	-	-
400	-18.13	-29.64	56.91	36.36	5.87	0.	0.83	0.09	-	-
558	-12.22	-20.43	56.45	36.05	3.98	0.	0.83	0.06	-	-
837	-2.83	-5.71	49.43	31.26	1.09	0.	0.83	0.02	-	-
1116	8.30	5.02	42.42	26.48	0.	1.59	0.83	0.02	-	-
1395	18.66	11.87	35.40	21.69	0.	3.63	0.83	0.05	-	-
1674	27.31	17.33	28.38	16.90	0.	5.38	0.83	0.08	-	-
1953	34.24	21.37	21.36	12.11	0.	6.83	0.83	0.10	-	-
2232	39.22	24.09	14.34	7.33	0.	7.89	0.83	0.12	-	-
2511	42.24	25.46	7.32	2.54	0.	8.54	0.83	0.13	-	-
2790	43.31	25.50	0.30	-2.25	0.	8.77	0.83	0.13	100	-
3069	42.41	24.21	-6.54	-8.51	0.	8.57	0.83	0.13	-	-
3348	39.55	21.58	-11.32	-15.53	0.	7.96	0.83	0.12	-	-
3627	34.74	17.61	-16.11	-22.55	0.	6.93	0.83	0.10	-	-
3906	27.97	12.31	-20.90	-29.57	0.	5.52	0.83	0.08	-	-
4185	19.24	5.67	-25.69	-36.59	0.	3.74	0.83	0.06	-	-
4464	8.55	-2.31	-30.47	-43.61	0.43	1.64	0.83	0.02	-	-
4743	-4.10	-11.62	-35.26	-50.63	2.23	0.	0.83	0.03	-	-
5022	-18.70	-24.95	-40.05	-57.65	4.90	0.	0.83	0.07	-	-
5180	-27.06	-34.37	-40.36	-58.10	6.86	0.	0.83	0.10	-	-
5301	-32.36	-42.01	-40.36	-58.10	6.86	0.	0.83	0.10	-	-
5580	-45.53	-61.04	-40.36	-58.10	6.86	0.	0.83	0.10	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-45.53	-61.04	50.00	36.79	7.54	0.	0.83	0.11	100	-
200	-34.64	-48.82	50.00	36.79	7.54	0.	0.83	0.11	-	-
400	-24.76	-37.61	50.00	36.79	7.54	0.	0.83	0.11	-	-
600	-15.88	-29.34	48.49	35.76	5.80	0.	0.83	0.09	-	-
800	-7.91	-22.44	43.46	32.33	4.39	0.	0.83	0.06	-	-
1000	-0.51	-16.31	38.43	28.89	3.16	0.	0.83	0.05	-	-
1200	5.88	-10.88	33.40	25.46	2.09	1.12	0.83	0.03	-	-
1400	11.26	-6.13	28.36	21.74	1.17	2.16	0.83	0.03	-	-
1600	15.64	-2.07	23.33	16.71	0.39	3.03	0.83	0.04	-	-
1800	19.01	1.31	18.30	11.67	0.	3.70	0.83	0.05	-	-
2000	21.38	4.00	13.64	6.64	0.	4.17	0.83	0.06	100	-
2200	22.73	6.00	10.21	1.61	0.	4.45	0.83	0.07	-	-
2400	23.09	7.32	6.78	-3.42	0.	4.52	0.83	0.07	-	-
2600	22.43	7.95	3.34	-8.45	0.	4.39	0.83	0.06	-	-
2800	20.77	7.90	-0.09	-13.49	0.	4.05	0.83	0.06	-	-
3000	18.10	7.15	-3.52	-18.52	0.	3.52	0.83	0.05	-	-
3200	14.43	5.73	-6.95	-23.55	0.	2.79	0.83	0.04	-	-
3400	9.75	2.72	-10.38	-28.58	0.	1.87	0.83	0.03	-	-
3600	6.43	-3.50	-11.41	-30.09	0.66	1.22	0.83	0.02	-	-
3800	3.32	-10.73	-11.41	-30.09	0.66	1.22	0.83	0.02	-	-
4000	-0.47	-18.96	-11.41	-30.09	0.66	1.22	0.83	0.02	100	-
Span=4										
0	-0.47	-18.96	14.59	4.17	1.92	0.26	0.83	0.03	100	-
131	0.58	-15.49	14.59	1.93	1.92	0.26	0.83	0.03	-	-
262	1.19	-12.44	14.59	-0.32	1.92	0.26	0.83	0.03	-	-
393	1.37	-10.01	14.59	-2.57	1.92	0.26	0.83	0.03	-	-
400	1.37	-10.03	14.59	-2.69	1.92	0.26	0.83	0.03	-	-
524	2.09	-10.50	14.59	-4.82	2.01	0.39	0.83	0.03	-	-
655	3.25	-11.28	11.70	-7.07	2.17	0.61	0.83	0.03	-	-
786	3.97	-12.35	8.40	-10.14	2.38	0.75	0.83	0.04	-	-
917	4.26	-13.72	5.11	-13.44	2.65	0.81	0.83	0.04	-	-
1048	4.12	-15.38	1.81	-16.73	2.97	0.78	0.83	0.04	-	-
1179	3.55	-17.33	-1.48	-20.03	3.36	0.67	0.83	0.05	-	-
1310	2.55	-19.58	-4.78	-23.33	3.81	0.48	0.83	0.06	100	-
1441	1.11	-22.13	-8.08	-26.62	4.33	0.21	0.83	0.06	-	-
1572	-0.75	-24.97	-11.37	-29.92	4.90	0.	0.83	0.07	-	-
1703	-3.05	-28.10	-14.67	-33.21	5.55	0.	0.83	0.08	-	-
1834	-5.78	-31.53	-17.96	-36.51	6.26	0.	0.83	0.09	-	-
1965	-8.94	-35.26	-21.26	-39.81	7.04	0.	0.83	0.10	-	-
2096	-12.54	-39.27	-24.15	-42.70	7.90	0.	0.83	0.12	-	-
2220	-16.34	-43.35	-24.15	-42.70	8.78	0.	0.83	0.13	-	-
2227	-16.56	-43.59	-24.15	-42.70	8.78	0.	0.83	0.13	-	-
2358	-21.02	-48.19	-24.15	-42.70	8.78	0.	0.83	0.13	-	-
2489	-25.91	-54.43	-24.15	-42.70	8.78	0.	0.83	0.13	-	-
2620	-31.23	-61.58	-24.15	-42.70	8.78	0.	0.83	0.13	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-31.23	-61.58	60.76	34.06	6.75	0.	0.83	0.10	100	-
303	-18.83	-40.21	60.76	34.06	6.75	0.	0.83	0.10	-	-
400	-15.12	-33.86	60.76	34.06	6.75	0.	0.83	0.10	-	-
606	-7.76	-21.15	59.10	32.92	4.13	0.	0.83	0.06	-	-
909	1.98	-4.40	51.47	27.72	0.83	0.37	0.83	0.01	-	-
1212	14.58	8.67	43.85	22.52	0.	2.82	0.83	0.04	-	-
1515	24.87	14.71	36.23	17.33	0.	4.88	0.83	0.07	-	-
1818	34.53	19.17	28.60	12.13	0.	6.89	0.83	0.10	-	-
2121	41.92	22.06	20.98	6.93	0.	8.47	0.83	0.12	-	-
2424	46.99	23.37	13.36	1.73	0.	9.58	0.83	0.14	-	-
2727	49.76	23.11	5.73	-3.47	0.	10.19	0.83	0.15	-	-
3030	50.21	21.27	-1.89	-8.67	0.	10.29	0.83	0.15	100	-
3333	48.36	17.85	-9.51	-15.60	0.	9.88	0.83	0.15	-	-
3636	44.19	12.86	-17.14	-23.22	0.	8.96	0.83	0.13	-	-
3939	37.72	6.29	-23.24	-30.84	0.	7.57	0.83	0.11	-	-
4242	28.93	-1.85	-28.44	-38.47	0.35	5.72	0.83	0.08	-	-
4545	17.84	-11.57	-33.64	-46.09	2.22	3.46	0.83	0.05	-	-
4848	4.44	-22.86	-38.84	-53.71	4.48	0.84	0.83	0.07	-	-
5151	-11.28	-35.73	-44.04	-61.34	7.14	0.	0.83	0.11	-	-
5454	-29.30	-51.58	-49.24	-68.96	10.60	0.	0.83	0.16	-	-
5660	-42.88	-66.32	-50.37	-70.62	14.01	0.	0.83	0.21	-	-
5757	-49.64	-73.63	-50.37	-70.62	14.01	0.	0.83	0.21	-	-
6060	-72.28	-97.99	-50.37	-70.62	14.01	0.	0.83	0.21	100	-
Span=6										
0	-72.28	-97.99	74.54	47.97	13.64	0.	0.83	0.20	100	-
329	-52.53	-70.35	74.54	47.97	13.64	0.	0.83	0.20	-	-
400	-47.43	-64.75	74.54	47.97	13.64	0.	0.83	0.20	-	-
657	-30.02	-45.52	71.59	45.96	9.25	0.	0.83	0.14	-	-
986	-10.17	-24.18	63.32	40.32	4.74	0.	0.83	0.07	-	-
1314	6.91	-11.88	55.06	34.69	2.29	1.32	0.83	0.03	-	-
1643	22.53	-1.40	46.79	29.04	0.26	4.41	0.83	0.06	-	-
1971	35.62	7.21	38.53	23.42	0.	7.12	0.83	0.10	-	-
2300	46.03	13.98	30.26	17.77	0.	9.36	0.83	0.14	-	-
2628	53.70	18.89	22.00	12.14	0.	11.08	0.83	0.16	-	-
2957	58.67	21.95	13.73	6.50	0.	12.21	0.83	0.18	-	-
3285	60.92	23.16	5.47	-1.64	0.	12.73	0.83	0.19	100	-
3614	60.45	22.52	-2.80	-9.92	0.	12.63	0.83	0.19	-	-
3942	57.28	20.03	-9.38	-18.17	0.	11.89	0.83	0.17	-	-
4271	51.37	15.68	-15.03	-26.45	0.	10.55	0.83	0.16	-	-
4599	42.77	9.49	-20.66	-34.70	0.	8.65	0.83	0.13	-	-
4928	31.43	1.43	-26.30	-42.98	0.	6.24	0.83	0.09	-	-
5256	17.67	-8.46	-31.93	-51.23	1.62	3.43	0.83	0.05	-	-
5585	1.79	-20.23	-37.58	-59.51	3.94	0.34	0.83	0.06	-	-
5913	-16.75	-38.64	-43.21	-67.76	7.76	0.	0.83	0.11	-	-
6170	-33.16	-56.88	-45.21	-70.70	11.80	0.	0.83	0.17	-	-
6242	-38.06	-62.29	-45.21	-70.70	11.80	0.	0.83	0.17	-	-
6570	-60.61	-88.58	-45.21	-70.70	11.80	0.	0.83	0.17	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-60.61	-88.58	65.47	38.99	12.28	0.	0.83	0.18	100	-
313	-39.96	-65.07	65.47	38.99	12.28	0.	0.83	0.18	-	-
400	-34.65	-58.98	65.47	38.99	12.28	0.	0.83	0.18	-	-
625	-21.82	-44.09	63.33	37.54	8.94	0.	0.83	0.13	-	-
938	-6.08	-27.45	55.45	32.17	5.41	0.	0.83	0.08	-	-
1250	7.15	-18.01	47.60	26.81	3.50	1.36	0.83	0.05	-	-
1563	19.41	-10.22	39.73	21.44	1.96	3.78	0.83	0.06	-	-
1875	29.21	-4.12	31.88	16.09	0.78	5.78	0.83	0.09	-	-
2188	36.59	0.31	24.00	10.72	0.	7.32	0.83	0.11	-	-
2500	41.49	3.06	16.15	5.36	0.	8.37	0.83	0.12	-	-
2813	43.94	4.14	8.28	-0.84	0.	8.91	0.83	0.13	-	-
3125	43.93	3.54	0.43	-8.69	0.	8.91	0.83	0.13	100	-
3438	41.47	1.26	-7.45	-16.56	0.	8.37	0.83	0.12	-	-
3750	36.55	-2.68	-15.30	-24.41	0.51	7.32	0.83	0.11	-	-
4063	29.16	-8.32	-20.69	-32.29	1.59	5.77	0.83	0.08	-	-
4375	19.34	-15.61	-26.04	-40.14	3.02	3.77	0.83	0.06	-	-
4688	7.03	-24.60	-31.41	-48.01	4.83	1.34	0.83	0.07	-	-
5000	-7.70	-35.24	-36.77	-55.86	7.04	0.	0.83	0.10	-	-
5313	-23.68	-47.81	-42.14	-63.74	9.76	0.	0.83	0.14	-	-
5625	-41.94	-65.26	-47.49	-71.59	13.76	0.	0.83	0.20	-	-
5850	-56.63	-82.00	-48.95	-73.73	17.89	0.	0.83	0.26	-	-
5938	-62.73	-88.90	-48.95	-73.73	17.89	0.	0.83	0.26	-	-
6250	-85.90	-114.92	-48.95	-73.73	17.89	0.	0.83	0.26	100	-
Span=8										
0	-85.90	-114.92	86.65	60.24	16.58	0.	0.83	0.24	100	-
329	-63.96	-83.30	86.65	60.24	16.58	0.	0.83	0.24	-	-
400	-57.75	-76.83	86.65	60.24	16.58	0.	0.83	0.24	-	-
658	-36.12	-54.40	83.69	58.22	11.24	0.	0.83	0.17	-	-
987	-10.97	-30.21	75.41	52.57	5.98	0.	0.83	0.09	-	-
1316	11.46	-13.57	67.13	46.93	2.62	2.20	0.83	0.04	-	-
1645	31.17	1.21	58.85	41.28	0.	6.19	0.83	0.09	-	-
1974	48.16	14.13	50.58	35.64	0.	9.83	0.83	0.14	-	-
2303	62.42	25.19	42.30	29.99	0.	13.09	0.83	0.19	-	-
2632	73.96	34.40	34.02	24.35	0.	15.86	0.83	0.23	-	-
2961	82.77	41.75	25.74	18.70	0.	18.09	0.83	0.27	-	-
3290	88.87	47.24	17.46	13.05	0.	19.69	0.83	0.29	100	-
3619	92.23	50.88	9.19	6.10	0.	20.60	0.83	0.30	-	-
3948	92.88	52.65	2.58	-2.18	0.	20.77	0.83	0.31	-	-
4277	90.80	52.57	-3.07	-10.46	0.	20.21	0.83	0.30	-	-
4606	86.00	50.63	-8.71	-18.73	0.	18.93	0.83	0.28	-	-
4935	78.47	46.84	-14.36	-27.01	0.	16.99	0.83	0.25	-	-
5264	68.23	41.19	-20.00	-35.29	0.	14.47	0.83	0.21	-	-
5593	55.25	33.68	-25.65	-43.57	0.	11.43	0.83	0.17	-	-
5922	39.56	24.31	-31.30	-51.84	0.	7.96	0.83	0.12	-	-
6180	25.35	15.66	-33.32	-54.81	0.	4.98	0.83	0.07	-	-
6251	21.14	13.08	-33.32	-54.81	0.	4.13	0.83	0.06	-	-
6580	0.00	0.00	-33.32	-54.81	0.	0.	0.83	0.00	100	-

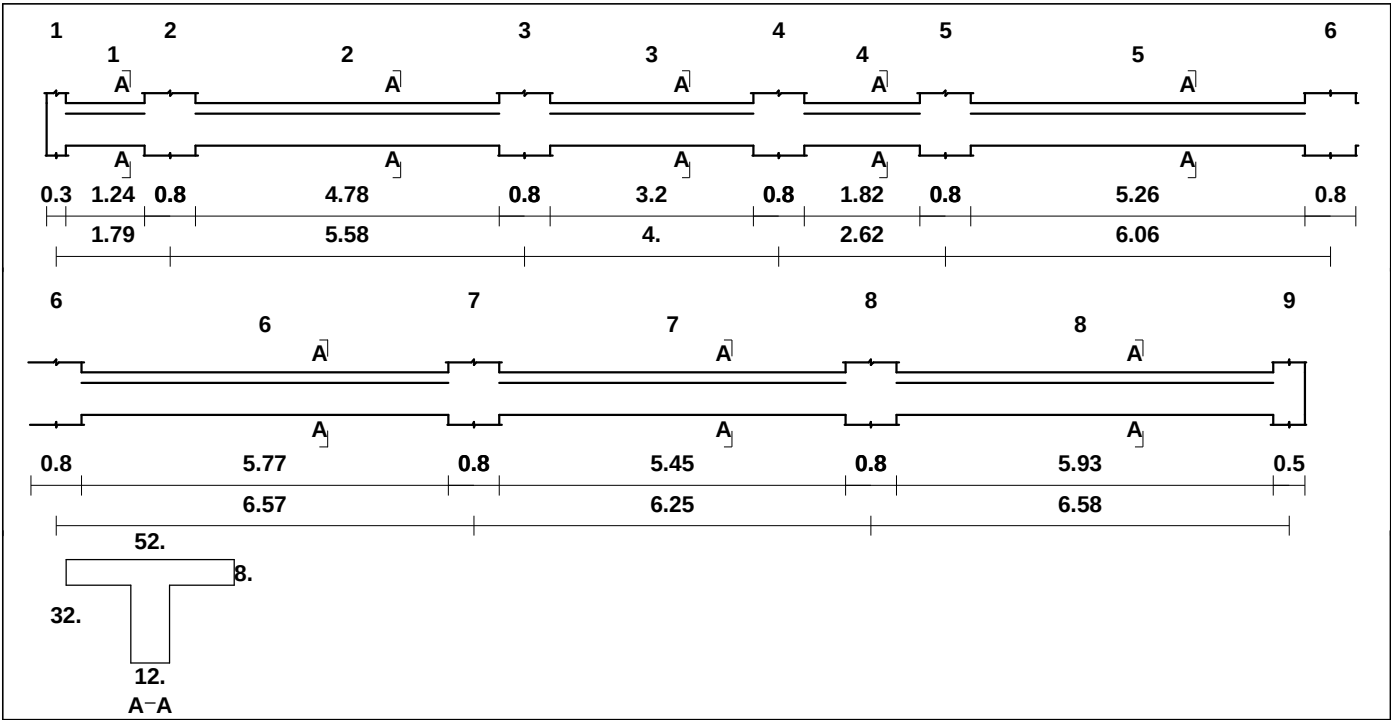
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Moment/Shear Envelope (Factored) Units:kN,meter								
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-55.8	-55.8	-61.0	-61.0	-19.0	-19.0	-61.6
Max M	0.0	-35.0	-35.0	-45.5	-45.5	-0.5	-0.5	-31.2
MspMn	-2.5	-38.3	-29.6	-34.4	-37.6	-3.5	-10.0	-43.3
MspMx	0.2	-20.2	-18.1	-27.1	-24.8	6.4	1.4	-16.3
M Max			43.3		23.1		4.3	
M Min			25.5		8.0		-19.6	
Mmn=0 @	0.0	1.8	1.0	1.2	1.7	0.5	0.0	2.6
Mmx=0 @	0.0	1.6	0.9	0.9	1.0	0.0	0.1	1.1
mx -M @			0.9		1.0		0.1	
mx +M @			2.8		2.4		0.9	
V max	3.0	-42.1		-49.6		-20.7		-37.7
V min	-15.6	-53.7		-71.7		-43.7	4.2	-56.3
DReac	-5.1	82.9		91.5		37.1		81.2
LReac	8.1	41.1		43.8		34.8		49.4
Max R	3.0	124.0		135.3		71.9		130.6
Min R	-15.6	87.7		106.6		30.3		82.1
	5	6	7	8	9			
	5	6	7	8				
Min M	-61.6	-98.0	-98.0	-88.6	-88.6	-114.9		0.0
Max M	-31.2	-72.3	-72.3	-60.6	-60.6	-85.9	-85.9	0.0
MspMn	-33.9	-66.3	-64.7	-56.9	-59.0	-82.0	-76.8	15.7
MspMx	-15.1	-42.9	-47.4	-33.2	-34.7	-56.6	-57.8	25.3
M Max			60.9		43.9		92.9	
M Min			23.2		4.1		52.7	
Mmn=0 @	1.0	1.9	1.7	1.6	2.2	2.7	1.6	6.6
Mmx=0 @	0.8	1.1	1.2	1.0	1.1	1.4	1.1	6.6
mx -M @			1.2		1.1		1.1	
mx +M @			3.3		2.8		3.9	
V max		-59.6		-54.5		-58.2		-42.6
V min		-84.2		-84.3		-87.3		-68.4
DReac		114.3		105.1		125.0		45.0
LReac		58.1		58.3		62.6		23.4
Max R		172.3		163.3		187.6		68.4
Min R		135.8		124.4		147.7		42.6

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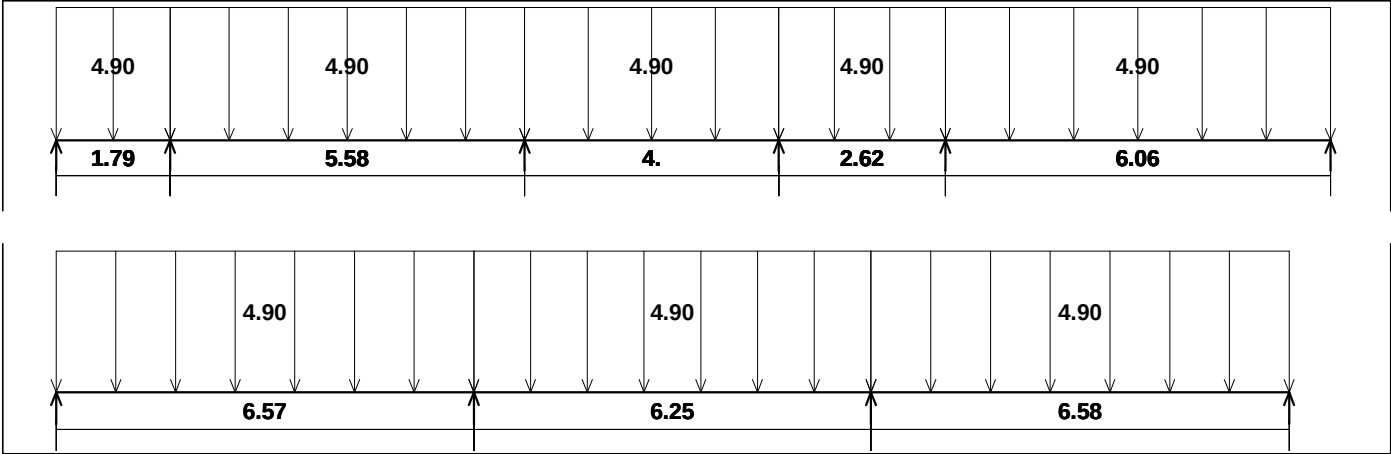
Geometry Units: meter, cm



Loading

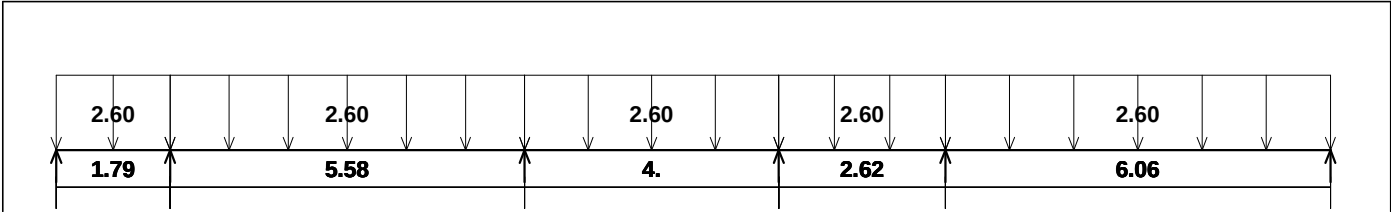
load group no. 1
Dead load - Service

Units: kN, meter



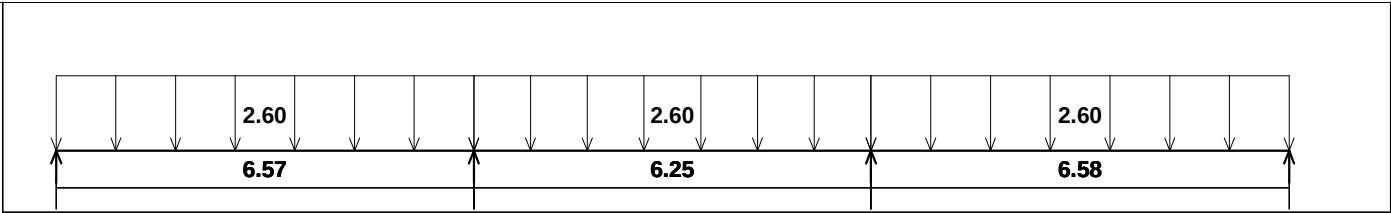
Live load - Service

Load factors: 1.20, 1.20/1.60, 0.00



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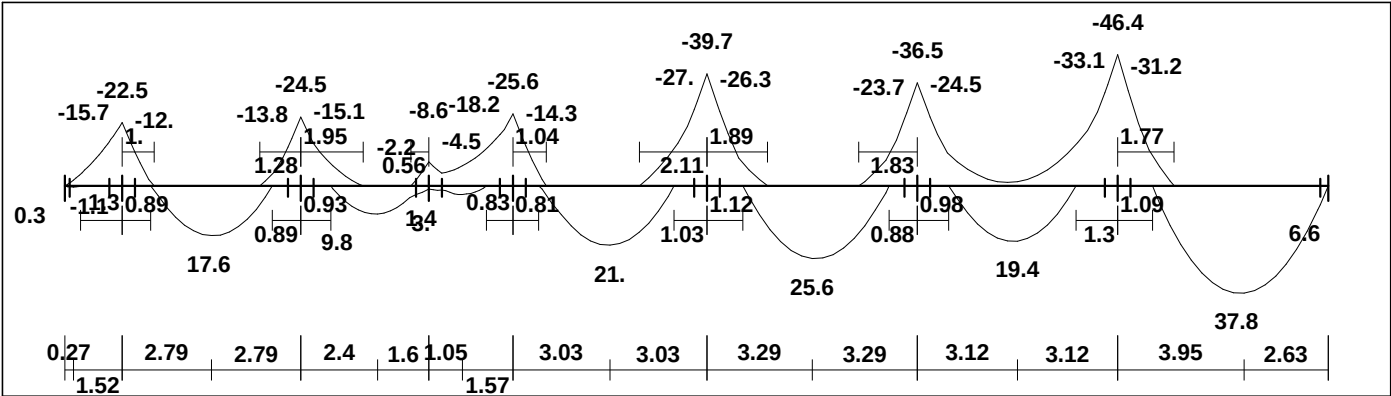
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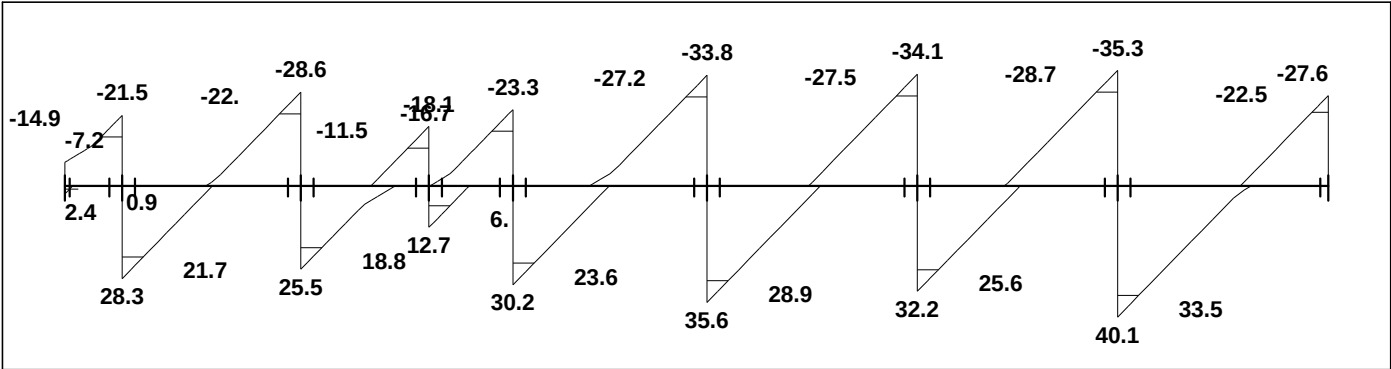
Loads (kN,meter)												
1			2			3			4			
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D
	5				6				7			8
Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D	4.90	L	2.60	Uni D

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 8



Shear



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Moment / Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	-1.76	28.42	31.36	12.7	27.83	39.16	36.	42.83	15.42
LiveR	4.21	21.35	22.75	18.09	25.69	30.19	30.3	32.53	12.17
Max R	2.45	49.77	54.11	30.79	53.52	69.35	66.3	75.36	27.59
Min R	-7.21	30.9	39.2	9.19	28.28	50.34	46.06	54.64	14.16
Service									
DeadR	-1.47	23.68	26.13	10.59	23.19	32.63	30.	35.69	12.85
LiveR	2.63	13.34	14.22	11.31	16.06	18.87	18.94	20.33	7.6
Max R	1.16	37.03	40.35	21.89	39.25	51.5	48.94	56.02	20.45
Min R	-4.87	25.23	31.03	8.39	23.47	39.62	36.29	43.07	12.07

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

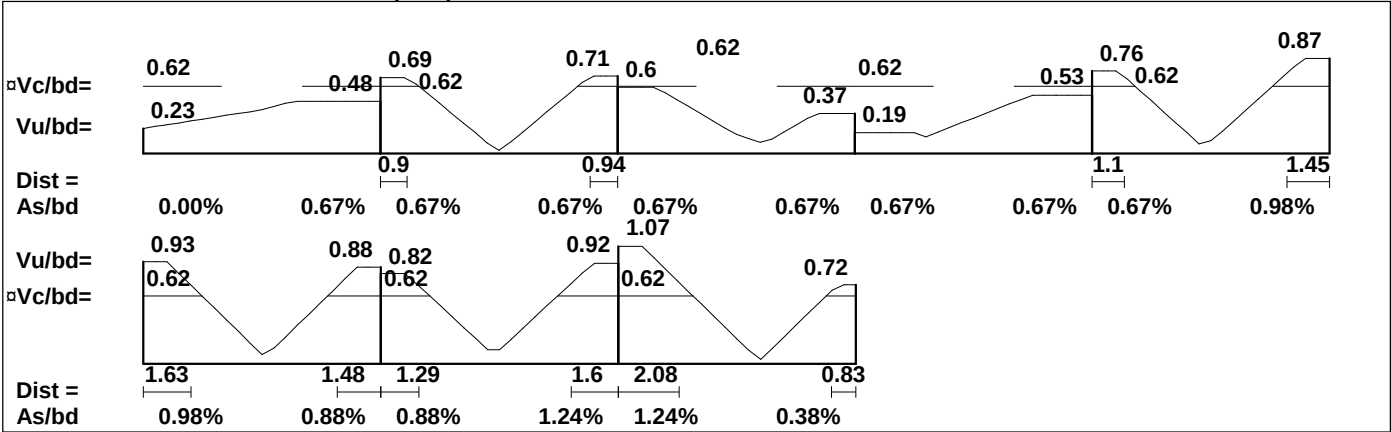
Top Cover	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum	1.04	2.09*	2.09*	2.09*	1.04	2.09*	3.06
As bott =	1.04*	1.81	1.04*	0.27	1.04*	2.17	
Bot Cover	6.	6.	6.	6.	6.	6.	
a/d	1%	6%	11%	3%	11%	2%	3%
As/bd	0.00%	0.34%	0.67%	0.58%	0.67%	0.34%	0.67%
Top Cover	6.	6.	6.	6.	6.	6.	6.
As top = *=minimum	3.06	2.74	1.04	3.87			
	2.67	2.01	3.98	1.19			
a/d	20%	6.	6.	6.	6.	6.	1%
As/bd	0.98%	0.86%	0.88%	0.65%	1.24%	1.28%	0.00%

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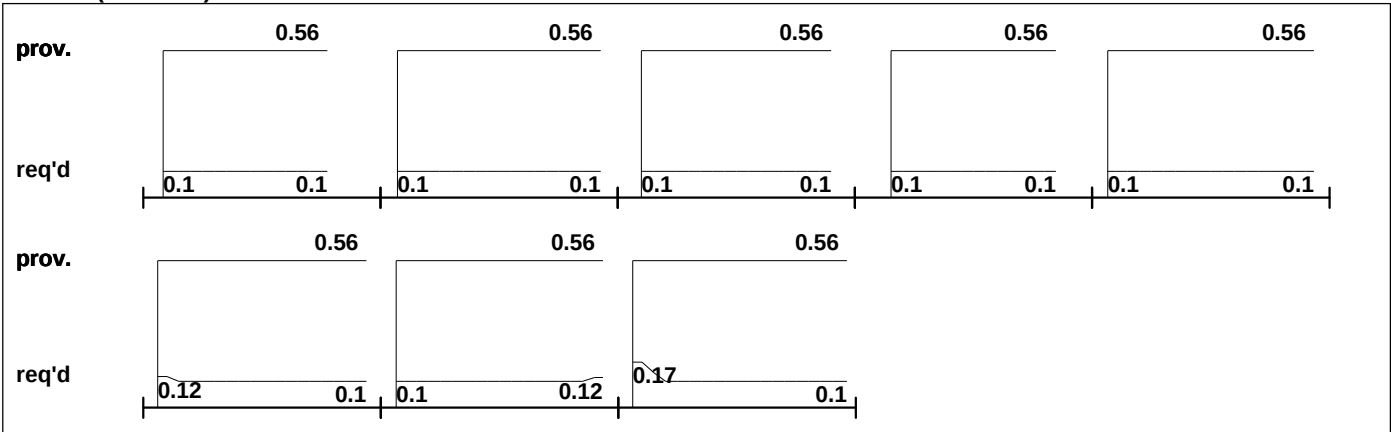
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 6 Max. = 10 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

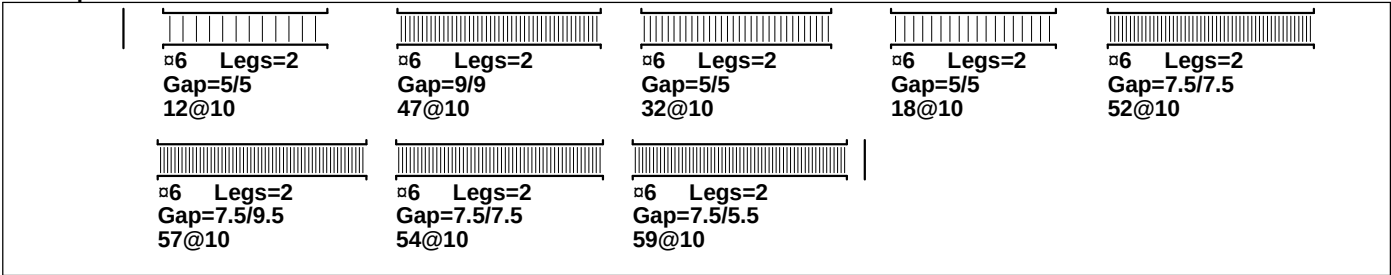
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



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Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1	2	3	4
	1.04	0.	0.	1.04
As	1.04	1.81	1.04	1.04
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00060	0.00060	0.00060	0.00060
Icr(m^4)=	0.00005	0.00009	0.00005	0.00005
Mcr =	17.41	8.56	8.56	17.41
Mmax,d =	10.47	7.97	3.52	10.36
Mmax,d+l =	16.57	12.97	7.02	17.51
Mmax,sust =	10.47	7.97	3.52	10.36
Ie,d (m^4)=	0.00060	0.00060	0.00060	0.00060
Ie,d+l (m^4)=	0.00060	0.00023	0.00060	0.00059
Ie,sust (m^4)=	0.00060	0.00060	0.00060	0.00060
e/1+50r =	1.71	2.00	2.00	1.71
ai,d =	-0.109	1.319	0.211	-0.177
ai,l =	-0.090	4.354	0.377	-0.261
at,sust =	-0.187	2.638	0.421	-0.304
ai,l =	L/*****	L/ 1281	L/10598	L/10025
(ai+at),t2-t1	L/ 6463	L/ 798	L/ 5007	L/ 4636

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5	6	7	8
	0.	0.	1.04	0.
As	2.17	2.67	2.01	3.98
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00060	0.00060	0.00060	0.00060
Icr(m^4)=	0.00011	0.00013	0.00010	0.00018
Mcr =	8.56	8.56	8.56	8.56
Mmax,d =	8.44	9.73	5.57	16.85
Mmax,d+l =	15.18	18.45	13.52	27.86
Mmax,sust =	8.44	9.73	5.57	16.85
Ie,d (m^4)=	0.00060	0.00045	0.00060	0.00023
Ie,d+l (m^4)=	0.00019	0.00017	0.00022	0.00019
Ie,sust (m^4)=	0.00060	0.00045	0.00060	0.00023
e/1+50r =	2.00	2.00	1.71	2.00
ai,d =	1.481	2.713	0.519	11.370
ai,l =	7.988	12.724	6.256	12.939
at,sust =	2.962	5.427	0.889	22.739
ai,l =	L/ 758	L/ 516	L/ 999	L/ 508
(ai+at),t2-t1	L/ 553	L/ 361	L/ 874	L/ 184

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	0.94	-7.21	0.	0.	0.10	0.00	100	-
90	0.18	-0.67	0.94	-7.74	0.06	0.01	0.10	0.00	-	-
150	0.25	-1.15	0.94	-8.09	0.11	0.02	0.10	0.01	-	-
179	0.28	-1.38	0.65	-8.26	0.14	0.02	0.10	0.01	-	-
269	0.30	-2.15	-0.25	-8.79	0.22	0.03	0.10	0.01	-	-
358	0.23	-2.96	-1.15	-9.32	0.30	0.02	0.10	0.02	-	-
448	0.09	-3.82	-2.05	-9.85	0.39	0.00	0.10	0.03	-	-
537	-0.13	-4.72	-2.94	-10.37	0.48	0.	0.10	0.03	-	-
627	-0.44	-5.68	-3.85	-10.90	0.59	0.	0.10	0.04	-	-
716	-0.82	-6.67	-4.74	-11.42	0.69	0.	0.10	0.05	-	-
806	-1.29	-7.72	-5.64	-11.95	0.80	0.	0.10	0.05	-	-
895	-1.83	-8.81	-6.54	-12.56	0.92	0.	0.10	0.06	100	-
985	-2.46	-9.96	-7.44	-13.47	1.05	0.	0.10	0.07	-	-
1074	-3.16	-11.14	-8.33	-14.36	1.18	0.	0.10	0.08	-	-
1164	-3.95	-12.38	-8.90	-14.92	1.32	0.	0.10	0.09	-	-
1253	-4.81	-13.65	-8.90	-14.92	1.46	0.	0.10	0.10	-	-
1343	-5.76	-14.99	-8.90	-14.92	1.61	0.	0.10	0.11	-	-
1390	-6.29	-15.70	-8.90	-14.92	1.69	0.	0.10	0.11	-	-
1432	-6.79	-16.36	-8.90	-14.92	1.69	0.	0.10	0.11	-	-
1522	-7.90	-17.79	-8.90	-14.92	1.69	0.	0.10	0.11	-	-
1611	-9.08	-19.25	-8.90	-14.92	1.69	0.	0.10	0.11	-	-
1701	-10.36	-20.77	-8.90	-14.92	1.69	0.	0.10	0.11	-	-
1790	-11.70	-22.49	-8.90	-14.92	1.69	0.	0.10	0.11	100	-
Span=2										
0	-11.70	-22.49	21.68	11.50	1.27	0.	0.10	0.08	100	-
279	-7.64	-15.01	21.68	11.50	1.27	0.	0.10	0.08	-	-
400	-6.02	-12.00	21.68	11.50	1.27	0.	0.10	0.08	-	-
558	-4.04	-8.30	21.68	11.50	0.87	0.	0.10	0.06	-	-
837	-0.89	-2.39	19.90	10.45	0.24	0.	0.10	0.02	-	-
1116	3.40	1.69	17.10	8.81	0.	0.34	0.10	0.01	-	-
1395	7.52	3.99	14.30	7.17	0.	0.77	0.10	0.01	-	-
1674	10.99	5.80	11.50	5.53	0.	1.13	0.10	0.02	-	-
1953	13.81	7.12	8.70	3.89	0.	1.42	0.10	0.02	-	-
2232	15.84	7.97	5.90	2.25	0.	1.63	0.10	0.02	-	-
2511	17.10	8.37	3.10	0.61	0.	1.76	0.10	0.03	-	-
2790	17.57	8.31	0.29	-1.03	0.	1.81	0.10	0.03	100	-
3069	17.26	7.80	-2.41	-3.44	0.	1.78	0.10	0.03	-	-
3348	16.17	6.82	-4.05	-6.24	0.	1.67	0.10	0.03	-	-
3627	14.30	5.39	-5.69	-9.04	0.	1.47	0.10	0.02	-	-
3906	11.65	3.50	-7.33	-11.84	0.	1.19	0.10	0.02	-	-
4185	8.21	1.16	-8.97	-14.64	0.	0.84	0.10	0.01	-	-
4464	4.00	-1.65	-10.61	-17.44	0.16	0.40	0.10	0.01	-	-
4743	-1.00	-4.91	-12.25	-20.24	0.50	0.	0.10	0.03	-	-
5022	-6.78	-10.03	-13.29	-22.02	1.06	0.	0.10	0.07	-	-
5180	-9.99	-13.80	-13.29	-22.02	1.48	0.	0.10	0.10	-	-
5301	-11.83	-16.85	-13.29	-22.02	1.48	0.	0.10	0.10	-	-
5580	-16.39	-24.45	-13.29	-22.02	1.48	0.	0.10	0.10	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-16.39	-24.45	18.84	12.47	1.62	0.	0.10	0.11	100	-
200	-12.19	-19.56	18.84	12.47	1.62	0.	0.10	0.11	-	-
400	-8.38	-15.07	18.84	12.47	1.62	0.	0.10	0.11	-	-
600	-4.98	-11.98	18.84	12.47	1.27	0.	0.10	0.08	-	-
800	-1.93	-9.48	17.43	11.64	1.00	0.	0.10	0.07	-	-
1000	0.94	-7.27	15.43	10.47	0.76	0.09	0.10	0.05	-	-
1200	3.42	-5.30	13.42	9.29	0.55	0.34	0.10	0.04	-	-
1400	5.49	-3.56	11.41	7.97	0.36	0.56	0.10	0.02	-	-
1600	7.16	-2.05	9.40	5.96	0.21	0.73	0.10	0.01	-	-
1800	8.42	-0.78	7.39	3.95	0.07	0.86	0.10	0.01	-	-
2000	9.29	0.26	5.58	1.94	0.	0.95	0.10	0.01	100	-
2200	9.76	1.06	4.40	-0.07	0.	1.00	0.10	0.02	-	-
2400	9.82	1.62	3.23	-2.07	0.	1.00	0.10	0.02	-	-
2600	9.48	1.95	2.05	-4.08	0.	0.97	0.10	0.01	-	-
2800	8.74	2.04	0.88	-6.09	0.	0.89	0.10	0.01	-	-
3000	7.60	1.90	-0.30	-8.10	0.	0.78	0.10	0.01	-	-
3200	6.05	1.53	-1.48	-10.11	0.	0.62	0.10	0.01	-	-
3400	4.11	0.45	-2.30	-11.51	0.	0.42	0.10	0.01	-	-
3600	2.99	-2.17	-2.30	-11.51	0.22	0.30	0.10	0.01	-	-
3800	2.11	-5.20	-2.30	-11.51	0.22	0.30	0.10	0.01	-	-
4000	0.99	-8.62	-2.30	-11.51	0.22	0.30	0.10	0.01	100	-
Span=4										
0	0.99	-8.62	6.03	0.17	0.47	0.14	0.10	0.03	100	-
131	1.30	-7.05	6.03	-0.60	0.47	0.14	0.10	0.03	-	-
262	1.44	-5.65	6.03	-1.37	0.47	0.14	0.10	0.03	-	-
393	1.40	-4.52	6.03	-2.14	0.47	0.14	0.10	0.03	-	-
400	1.39	-4.54	6.03	-2.18	0.47	0.14	0.10	0.03	-	-
524	1.69	-4.85	6.03	-2.91	0.50	0.17	0.10	0.03	-	-
655	2.27	-5.29	6.03	-3.68	0.54	0.23	0.10	0.04	-	-
786	2.67	-5.82	4.76	-4.88	0.60	0.27	0.10	0.04	-	-
917	2.90	-6.45	3.45	-6.20	0.67	0.29	0.10	0.04	-	-
1048	2.95	-7.19	2.13	-7.51	0.75	0.30	0.10	0.05	-	-
1179	2.84	-8.02	0.82	-8.83	0.84	0.29	0.10	0.06	-	-
1310	2.55	-8.96	-0.50	-10.14	0.94	0.26	0.10	0.06	100	-
1441	2.09	-10.00	-1.82	-11.46	1.05	0.21	0.10	0.07	-	-
1572	1.46	-11.13	-3.13	-12.77	1.18	0.14	0.10	0.08	-	-
1703	0.65	-12.37	-4.45	-14.09	1.32	0.06	0.10	0.09	-	-
1834	-0.32	-13.71	-5.76	-15.40	1.47	0.	0.10	0.10	-	-
1965	-1.47	-15.15	-7.03	-16.67	1.63	0.	0.10	0.11	-	-
2096	-2.79	-16.70	-7.03	-16.67	1.81	0.	0.10	0.12	-	-
2220	-4.20	-18.25	-7.03	-16.67	1.99	0.	0.10	0.13	-	-
2227	-4.29	-18.34	-7.03	-16.67	1.99	0.	0.10	0.13	-	-
2358	-5.95	-20.08	-7.03	-16.67	1.99	0.	0.10	0.13	-	-
2489	-7.79	-22.62	-7.03	-16.67	1.99	0.	0.10	0.13	-	-
2620	-9.80	-25.59	-7.03	-16.67	1.99	0.	0.10	0.13	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-9.80	-25.59	23.60	10.22	1.53	0.	0.10	0.10	100	-
303	-5.77	-16.89	23.60	10.22	1.53	0.	0.10	0.10	-	-
400	-4.55	-14.30	23.60	10.22	1.53	0.	0.10	0.10	-	-
606	-2.15	-9.11	23.60	10.22	0.96	0.	0.10	0.06	-	-
909	1.06	-2.26	21.10	8.75	0.23	0.10	0.10	0.02	-	-
1212	6.04	2.96	18.06	6.97	0.	0.61	0.10	0.01	-	-
1515	10.09	4.81	15.02	5.19	0.	1.03	0.10	0.02	-	-
1818	14.09	6.11	11.97	3.41	0.	1.45	0.10	0.02	-	-
2121	17.20	6.87	8.93	1.63	0.	1.77	0.10	0.03	-	-
2424	19.38	7.09	5.89	-0.16	0.	2.00	0.10	0.03	-	-
2727	20.63	6.78	2.85	-1.94	0.	2.14	0.10	0.03	-	-
3030	20.97	5.92	-0.19	-3.72	0.	2.17	0.10	0.03	100	-
3333	20.38	4.52	-3.24	-6.40	0.	2.11	0.10	0.03	-	-
3636	18.88	2.58	-6.28	-9.44	0.	1.95	0.10	0.03	-	-
3939	16.45	0.11	-8.53	-12.48	0.	1.70	0.10	0.03	-	-
4242	13.10	-2.91	-10.31	-15.52	0.29	1.35	0.10	0.02	-	-
4545	8.83	-6.47	-12.09	-18.57	0.67	0.90	0.10	0.04	-	-
4848	3.63	-10.56	-13.88	-21.61	1.11	0.37	0.10	0.07	-	-
5151	-2.48	-15.20	-15.66	-24.65	1.63	0.	0.10	0.11	-	-
5454	-9.52	-21.10	-17.12	-27.15	2.33	0.	0.10	0.15	-	-
5660	-14.83	-27.02	-17.12	-27.15	3.06	0.	0.10	0.20	-	-
5757	-17.48	-29.96	-17.12	-27.15	3.06	0.	0.10	0.20	-	-
6060	-26.36	-39.73	-17.12	-27.15	3.06	0.	0.10	0.20	100	-
Span=6										
0	-26.36	-39.73	28.94	15.63	2.97	0.	0.12	0.20	100	-
329	-19.30	-28.57	28.94	15.63	2.97	0.	0.12	0.20	-	-
400	-17.30	-26.31	28.94	15.63	2.97	0.	0.12	0.20	-	-
657	-10.47	-18.53	28.94	15.63	2.02	0.	0.12	0.13	-	-
986	-2.70	-9.99	25.67	13.71	1.05	0.	0.10	0.07	-	-
1314	3.97	-5.80	22.38	11.78	0.60	0.40	0.10	0.04	-	-
1643	10.19	-2.25	19.07	9.85	0.23	1.04	0.10	0.02	-	-
1971	15.44	0.67	15.78	7.92	0.	1.59	0.10	0.02	-	-
2300	19.62	2.95	12.48	5.99	0.	2.03	0.10	0.03	-	-
2628	22.70	4.60	9.18	4.06	0.	2.35	0.10	0.04	-	-
2957	24.71	5.62	5.88	2.12	0.	2.57	0.10	0.04	-	-
3285	25.63	6.00	2.59	-1.11	0.	2.67	0.10	0.04	100	-
3614	25.47	5.74	-0.72	-4.41	0.	2.65	0.10	0.04	-	-
3942	24.22	4.86	-3.14	-7.71	0.	2.52	0.10	0.04	-	-
4271	21.89	3.33	-5.07	-11.01	0.	2.27	0.10	0.03	-	-
4599	18.48	1.18	-7.00	-14.30	0.	1.91	0.10	0.03	-	-
4928	13.98	-1.62	-8.94	-17.61	0.16	1.44	0.10	0.02	-	-
5256	8.54	-5.04	-10.86	-20.90	0.52	0.87	0.10	0.03	-	-
5585	2.34	-9.11	-12.80	-24.20	0.96	0.23	0.10	0.06	-	-
5913	-4.92	-16.31	-14.71	-27.47	1.76	0.	0.10	0.12	-	-
6170	-11.37	-23.70	-14.71	-27.47	2.65	0.	0.10	0.17	-	-
6242	-13.30	-25.90	-14.71	-27.47	2.65	0.	0.10	0.17	-	-
6570	-21.99	-36.54	-14.71	-27.47	2.65	0.	0.10	0.17	100	-

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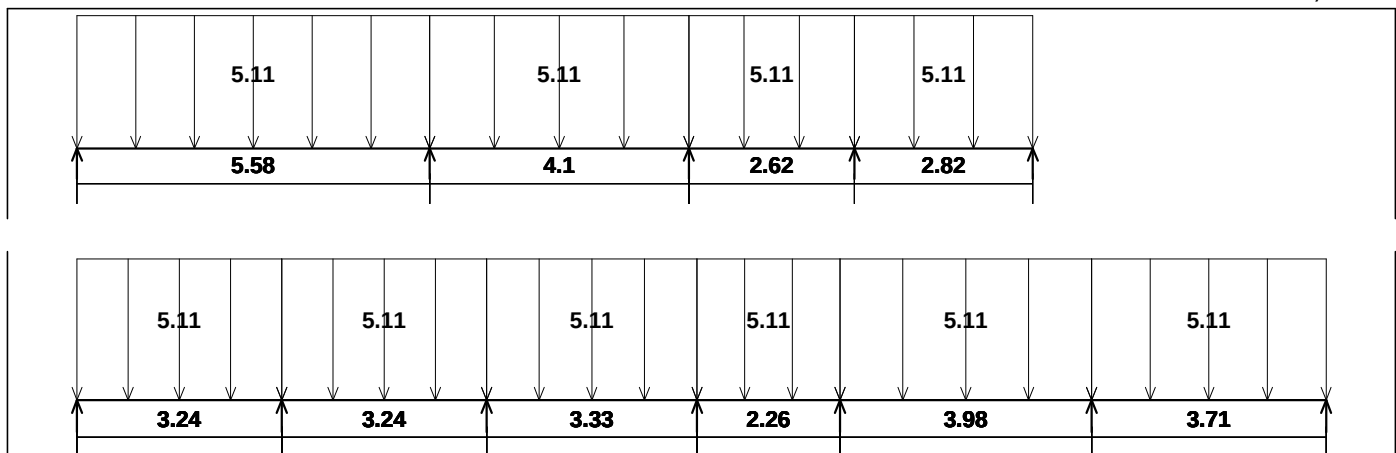
Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-21.99	-36.54	25.59	12.32	2.74	0.	0.10	0.18	100	-
313	-13.89	-26.95	25.59	12.32	2.74	0.	0.10	0.18	-	-
400	-11.81	-24.46	25.59	12.32	2.74	0.	0.10	0.18	-	-
625	-6.79	-18.37	25.59	12.32	2.00	0.	0.10	0.13	-	-
938	-0.64	-11.75	22.80	10.68	1.25	0.	0.10	0.08	-	-
1250	4.50	-8.58	19.66	8.85	0.90	0.46	0.10	0.06	-	-
1563	9.43	-5.97	16.52	7.01	0.62	0.96	0.10	0.04	-	-
1875	13.39	-3.95	13.39	5.18	0.40	1.38	0.10	0.03	-	-
2188	16.37	-2.49	10.25	3.33	0.25	1.69	0.10	0.03	-	-
2500	18.37	-1.61	7.11	1.50	0.16	1.90	0.10	0.03	-	-
2813	19.39	-1.30	3.97	-0.77	0.13	2.00	0.10	0.03	-	-
3125	19.43	-1.57	0.84	-3.90	0.16	2.01	0.10	0.03	100	-
3438	18.49	-2.42	-2.30	-7.05	0.24	1.91	0.10	0.03	-	-
3750	16.57	-3.83	-5.44	-10.18	0.39	1.71	0.10	0.03	-	-
4063	13.66	-5.82	-7.29	-13.32	0.60	1.40	0.10	0.04	-	-
4375	9.79	-8.38	-9.12	-16.45	0.88	1.00	0.10	0.06	-	-
4688	4.92	-11.53	-10.96	-19.60	1.22	0.50	0.10	0.08	-	-
5000	-0.92	-15.24	-12.80	-22.73	1.64	0.	0.10	0.11	-	-
5313	-7.10	-19.64	-14.64	-25.87	2.15	0.	0.10	0.14	-	-
5625	-14.18	-26.30	-16.27	-28.65	2.97	0.	0.12	0.20	-	-
5850	-19.89	-33.08	-16.27	-28.65	3.87	0.	0.12	0.26	-	-
5938	-22.26	-35.87	-16.27	-28.65	3.87	0.	0.12	0.26	-	-
6250	-31.30	-46.39	-16.27	-28.65	3.87	0.	0.12	0.26	100	-
Span=8										
0	-31.30	-46.39	33.46	20.22	3.61	0.	0.17	0.24	100	-
329	-23.69	-33.75	33.46	20.22	3.61	0.	0.17	0.24	-	-
400	-21.24	-31.16	33.46	20.22	3.61	0.	0.17	0.24	-	-
658	-12.68	-22.19	33.46	20.22	2.46	0.	0.17	0.16	-	-
987	-2.74	-12.75	30.17	18.30	1.36	0.	0.13	0.09	-	-
1316	6.11	-6.91	26.87	16.36	0.72	0.62	0.10	0.05	-	-
1645	13.88	-1.70	23.57	14.43	0.17	1.43	0.10	0.02	-	-
1974	20.56	2.87	20.26	12.50	0.	2.13	0.10	0.03	-	-
2303	26.16	6.80	16.96	10.56	0.	2.72	0.10	0.04	-	-
2632	30.67	10.10	13.66	8.63	0.	3.20	0.10	0.05	-	-
2961	34.09	12.76	10.35	6.69	0.	3.57	0.10	0.05	-	-
3290	36.42	14.78	7.05	4.76	0.	3.82	0.10	0.06	100	-
3619	37.67	16.16	3.75	2.14	0.	3.96	0.10	0.06	-	-
3948	37.83	16.91	1.31	-1.16	0.	3.98	0.10	0.06	-	-
4277	36.91	17.03	-0.62	-4.46	0.	3.88	0.10	0.06	-	-
4606	34.89	16.50	-2.56	-7.77	0.	3.66	0.10	0.06	-	-
4935	31.80	15.34	-4.49	-11.07	0.	3.32	0.10	0.05	-	-
5264	27.61	13.55	-6.43	-14.37	0.	2.88	0.10	0.04	-	-
5593	22.34	11.12	-8.36	-17.68	0.	2.32	0.10	0.04	-	-
5922	15.98	8.05	-10.30	-20.98	0.	1.65	0.10	0.03	-	-
6251	8.53	4.34	-11.17	-22.47	0.	0.87	0.10	0.01	-	-
6330	6.58	3.36	-11.17	-22.47	0.	0.67	0.10	0.01	-	-
6580	0.00	0.00	-11.17	-22.47	0.	0.	0.10	0.00	100	-

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	Moment / Shear Envelope (Factored)				Units:kN,meter			
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-22.5	-22.5	-24.5	-24.5	-8.6	-8.6	-25.6
Max M	0.0	-11.7	-11.7	-16.4	-16.4	1.0	1.0	-9.8
MspMn	-1.1	-15.7	-12.0	-13.8	-15.1	-2.2	-4.5	-18.2
MspMx	0.3	-6.3	-6.0	-10.0	-8.4	3.0	1.4	-4.2
M Max			17.6		9.8		3.0	
M Min			8.4		2.0		-9.0	
Mmn=0 @	0.0	1.8	1.0	1.3	1.9	0.6	0.0	2.6
Mmx=0 @	0.0	1.3	0.9	0.9	0.9	3.1	1.8	0.8
mx -M @			0.9		0.9		1.8	
mx +M @			2.8		2.4		1.0	
V max	2.4	-15.5		-17.2		-6.2		-13.7
V min	-7.2	-21.5		-28.6		-18.1	0.2	-23.3
DReac	-1.8	28.4		31.4		12.7		27.8
LReac	4.2	21.4		22.8		18.1		25.7
Max R	2.4	49.8		54.1		30.8		53.5
Min R	-7.2	30.9		39.2		9.2		28.3
	5	6	7	8	9			
	5	6	7	8				
Min M	-25.6	-39.7	-39.7	-36.5	-36.5	-46.4	-46.4	0.0
Max M	-9.8	-26.4	-26.4	-22.0	-22.0	-31.3	-31.3	0.0
MspMn	-14.3	-27.0	-26.3	-23.7	-24.5	-33.1	-31.2	3.4
MspMx	-4.6	-14.8	-17.3	-11.4	-11.8	-19.9	-21.2	6.6
M Max			25.6		19.4		37.8	
M Min			6.0		-1.3		17.0	
Mmn=0 @	1.0	2.1	1.9	1.8	0.0	6.2	1.8	6.6
Mmx=0 @	0.8	1.0	1.1	0.9	1.0	1.3	1.1	6.6
mx -M @			1.1		1.0		1.1	
mx +M @			3.3		3.1		3.9	
V max		-21.0		-18.6		-20.1		-14.2
V min		-33.8		-34.1		-35.3		-27.6
DReac		39.2		36.0		42.8		15.4
LReac		30.2		30.3		32.5		12.2
Max R		69.3		66.3		75.4		27.6
Min R		50.3		46.1		54.6		14.2

Units: meter, cm

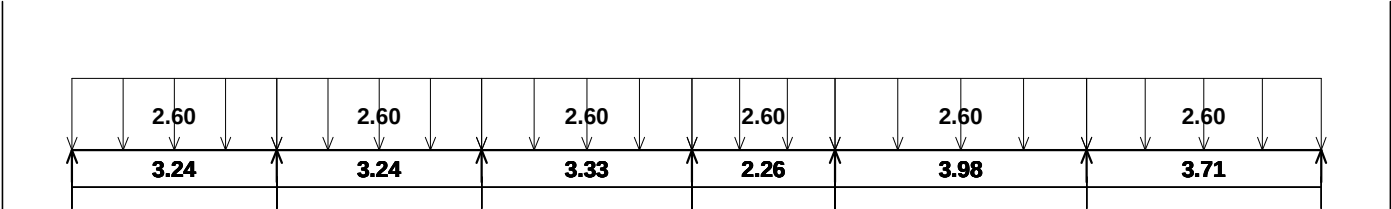


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Loading



Live load - Service Load factors: 1.20,1.20/1.60,0.00



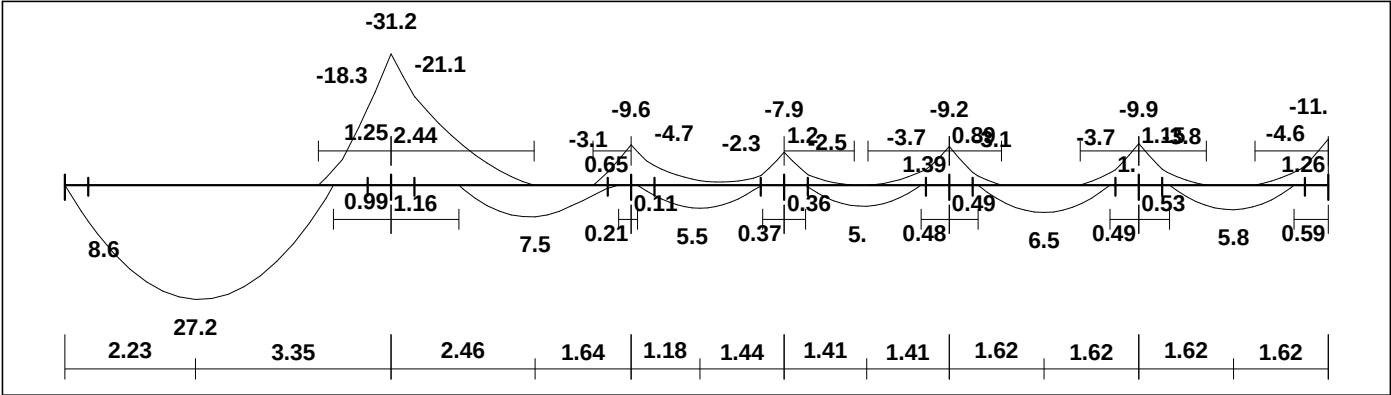
Loads (kN,meter)											
1			2			3			4		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60
	5				6				8		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60
	9				10				11		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60

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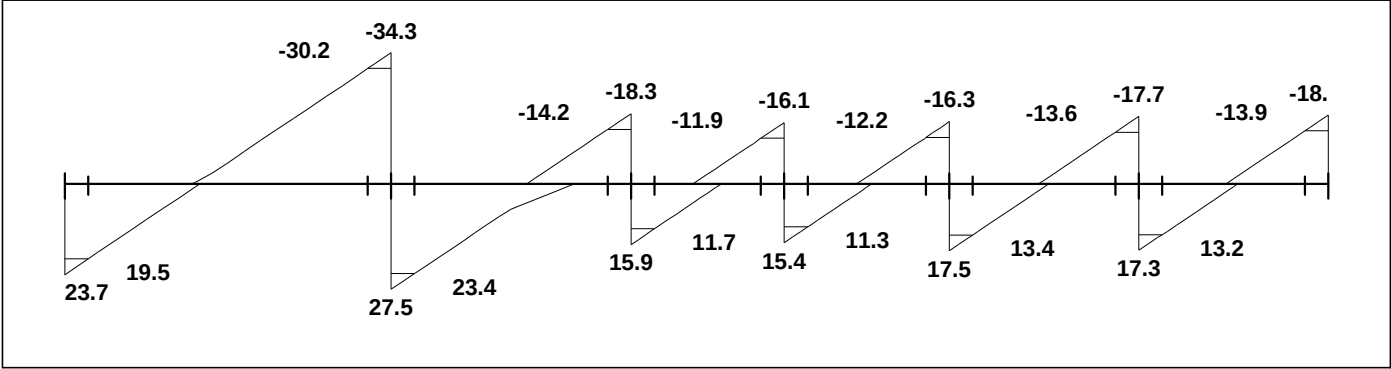
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 6



Shear



Reactions

Factored

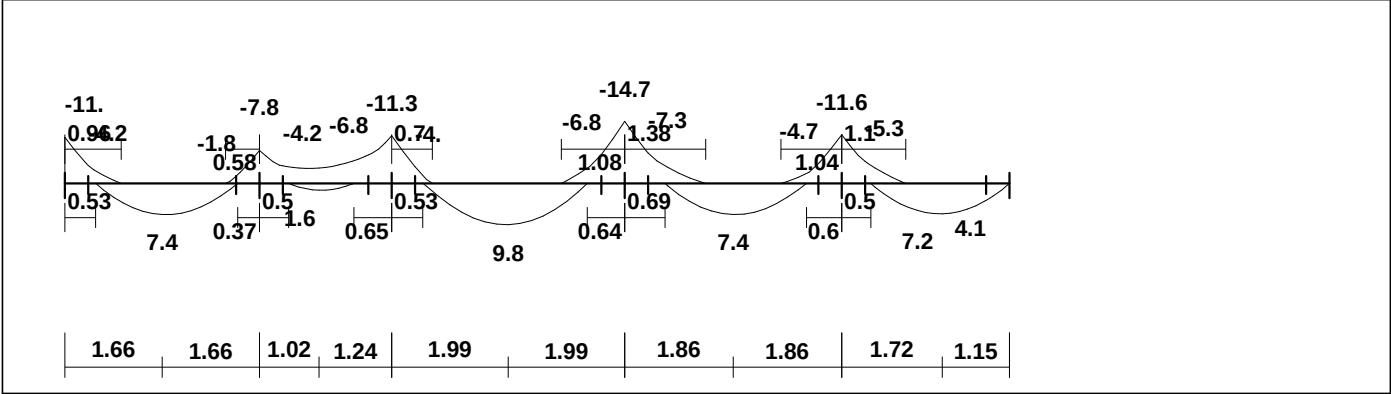
DeadR	13.8	36.61	16.99	16.2	18.92	19.78	21.08
LiveR	9.86	25.22	17.22	15.23	14.85	15.26	15.84
Max R	23.66	61.83	34.21	31.43	33.77	35.04	36.92
Min R	13.3	44.7	16.85	18.61	23.21	25.47	27.32
Service							
DeadR	11.5	30.51	14.16	13.5	15.77	16.48	17.56
LiveR	6.16	15.76	10.76	9.52	9.28	9.54	9.9
Max R	17.66	46.27	24.92	23.02	25.05	26.02	27.47
Min R	11.19	35.56	14.07	15.	18.45	20.04	21.47

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Designed by: bayan

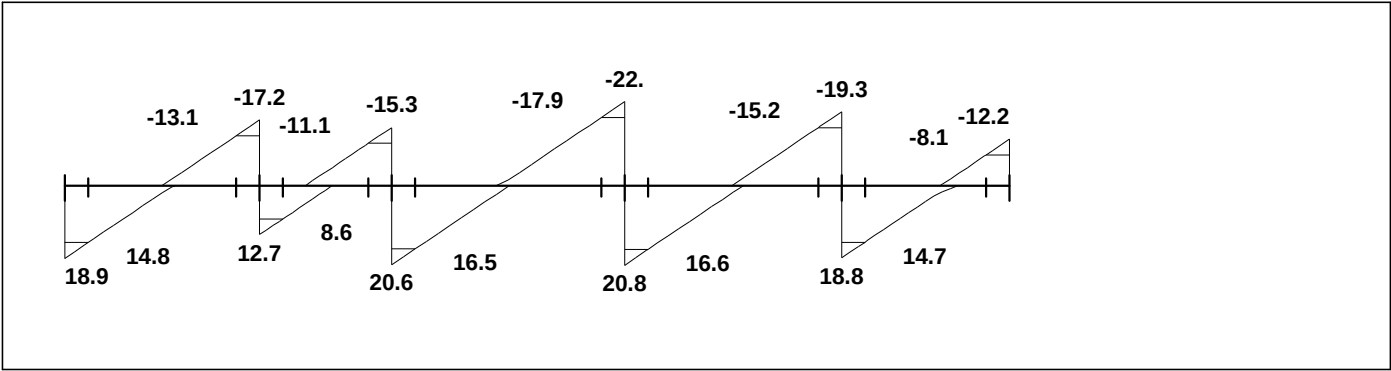
Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 7 to 11



Shear



Reactions

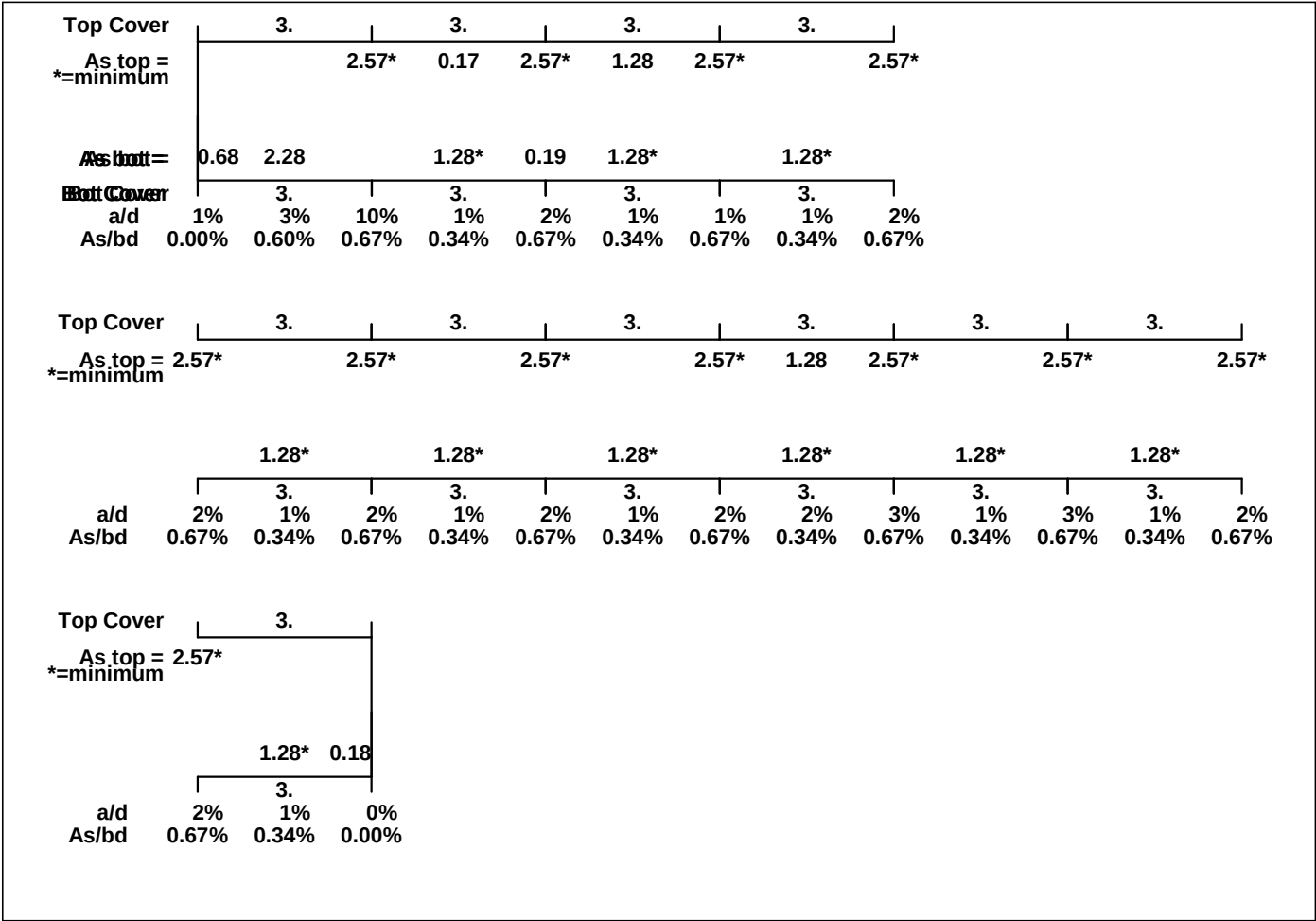
Factored

DeadR	21.08	15.47	19.47	24.74	21.86	6.59
LiveR	15.84	14.48	16.39	17.99	16.3	5.61
Max R	36.92	29.94	35.86	42.73	38.16	12.2
Min R	27.32	16.82	21.38	32.38	27.65	5.44
Service						
DeadR	17.56	12.89	16.22	20.61	18.21	5.49
LiveR	9.9	9.05	10.24	11.24	10.19	3.51
Max R	27.47	21.94	26.47	31.86	28.4	9.
Min R	21.47	13.74	17.42	25.39	21.83	4.77

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Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Shear

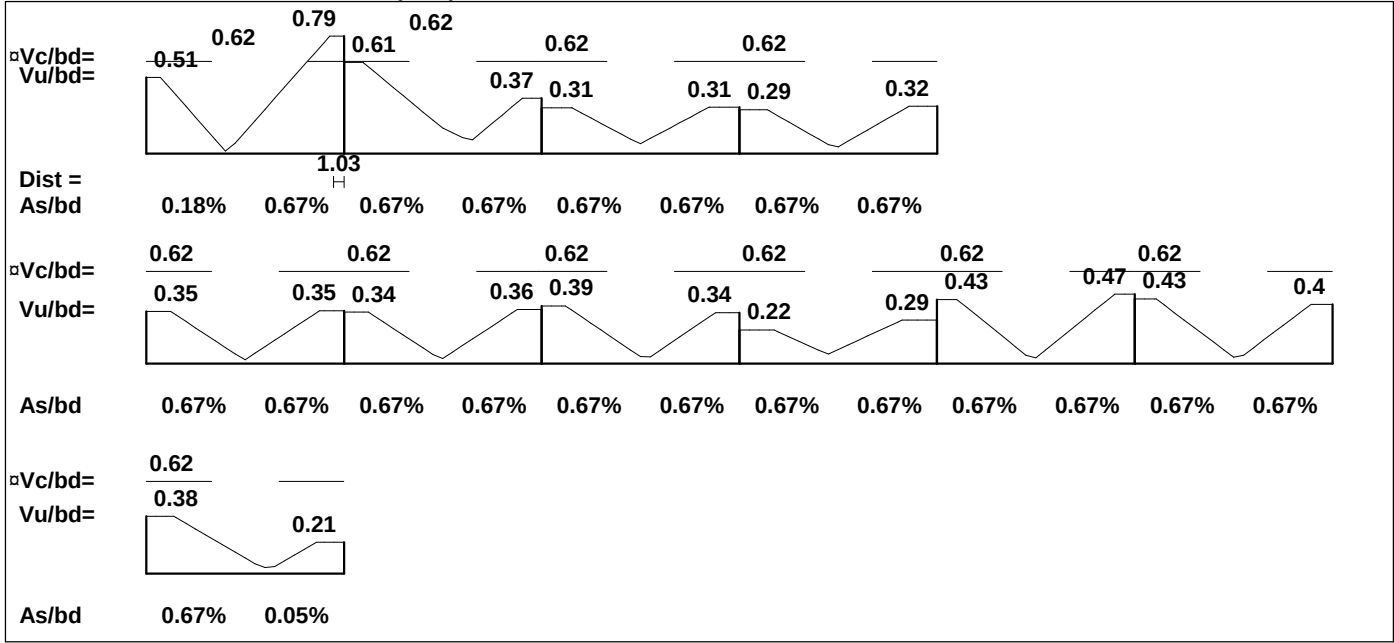
Shear design: Stirrups only
Stirrups fy = 276
Shear reduction: No
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

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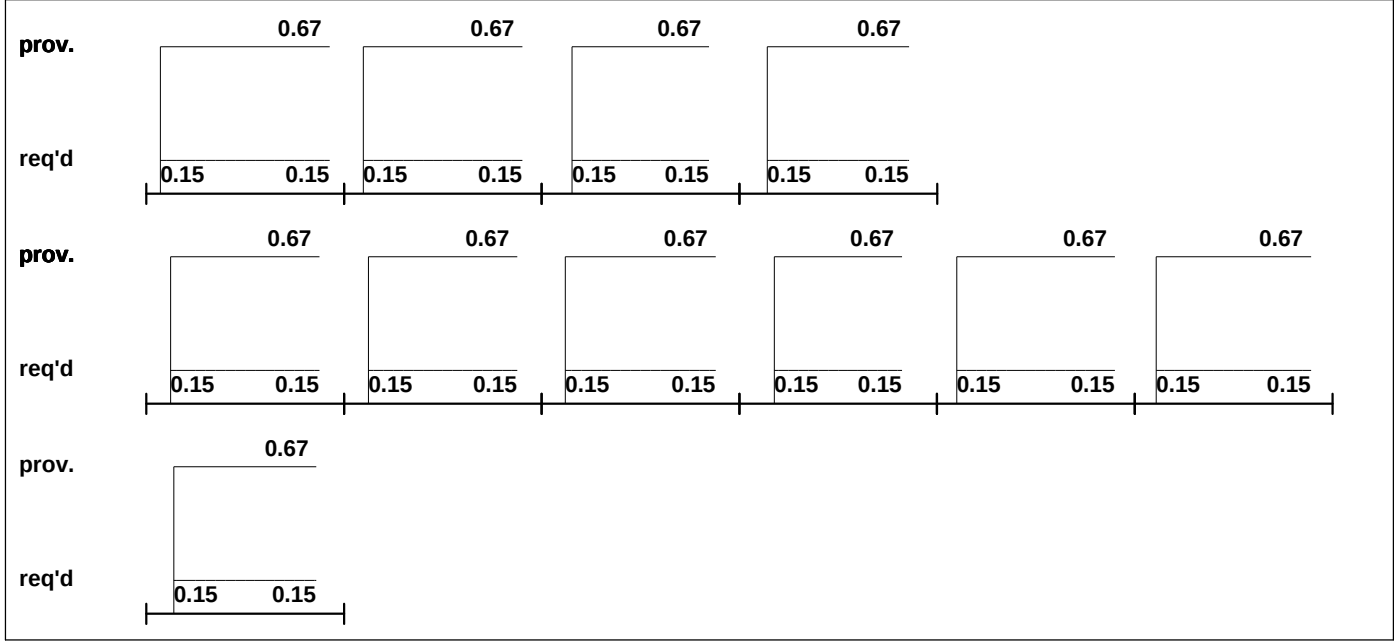
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Shear

Max. allow. shear stress = 2.5 (MPa)



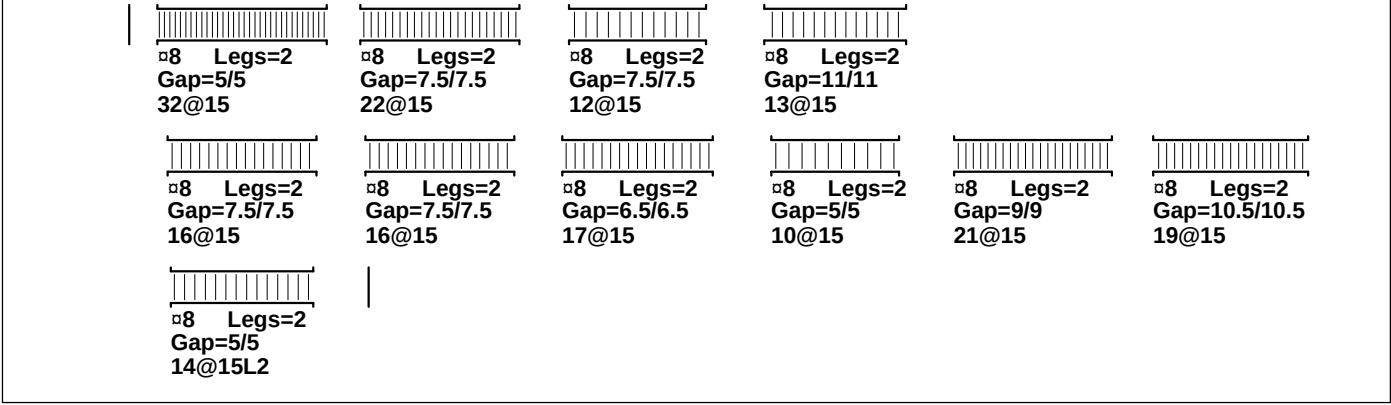
Av/s (mm2/mm)



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Shear

Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	1 0.	2 1.28	3 1.28	4 0.
As	2.28	0.17	1.28	1.28
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00078	0.00078	0.00078	0.00078
Icr(m^4)=	0.00017	0.00001	0.00010	0.00010
Mcr =	10.25	20.52	10.25	10.25
Mmax,d =	12.94	15.38	1.41	1.56
Mmax,d+l =	20.22	21.46	3.76	3.51
Mmax,sust =	12.94	15.38	1.41	1.56
Ie,d (m^4)=	0.00047	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00025	0.00068	0.00078	0.00078
Ie,sust (m^4)=	0.00047	0.00078	0.00078	0.00078
e/1+50r =	2.00	1.71	1.71	2.00
ai,d =	3.155	-0.159	0.031	0.038
ai,l =	6.415	-0.319	0.091	0.083
at,sust =	6.310	-0.273	0.053	0.076
ai,l =	L/ 869	L/12850	L/*****	L/*****
(ai+at),t2-t1	L/ 438	L/ 6925	L/18127	L/17738

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	5 0.	6 0.	7 0.	8 1.28
As	1.28	1.28	1.28	1.28
fr = 3	Es= 209	Ec = 23		

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Deflections (mm)				
Ig(m^4)=	0.00078	0.00078	0.00078	0.00078
Icr(m^4)=	0.00010	0.00010	0.00010	0.00009
Mcr =	10.25	10.25	10.25	20.52
Mmax,d =	2.45	1.98	3.07	4.87
Mmax,d+l =	4.68	4.14	5.38	7.32
Mmax,sust =	2.45	1.98	3.07	4.87
Ie,d (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,sust (m^4)=	0.00078	0.00078	0.00078	0.00078
e/1+50r =	2.00	2.00	2.00	1.71
ai,d =	0.095	0.060	0.140	-0.045
ai,l =	0.119	0.114	0.132	-0.065
at,sust =	0.190	0.121	0.280	-0.077
ai,l =	L/27266	L/28412	L/25262	L/*****
(ai+at),t2-t1	L/10497	L/13794	L/ 8076	L/15862

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	9	10	11
	0.	0.	0.
As	1.28	1.28	1.28
fr = 3	Es= 209	Ec = 23	

Ig(m^4)=	0.00078	0.00078	0.00078
Icr(m^4)=	0.00010	0.00010	0.00010
Mcr =	10.25	10.25	10.25
Mmax,d =	4.22	2.67	2.93
Mmax,d+l =	7.20	5.29	5.25
Mmax,sust =	4.22	2.67	2.93
Ie,d (m^4)=	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00078	0.00078	0.00078
Ie,sust (m^4)=	0.00078	0.00078	0.00078
e/1+50r =	2.00	2.00	2.00
ai,d =	0.271	0.112	0.101
ai,l =	0.230	0.176	0.107
at,sust =	0.543	0.223	0.202
ai,l =	L/17337	L/21120	L/26901
(ai+at),t2-t1	L/ 5152	L/ 9295	L/ 9287

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Detailed results - at 1/20 of span, support faces, etc.										
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	19.55	10.85	0.	0.	0.15	0.00	100	-
279	6.20	3.47	19.55	10.85	0.	0.51	0.15	0.01	-	-
400	8.64	4.83	19.55	10.85	0.	0.71	0.15	0.01	-	-
558	11.60	6.47	17.92	9.88	0.	0.96	0.15	0.01	-	-
837	16.20	8.99	15.05	8.17	0.	1.35	0.15	0.02	-	-
1116	20.00	11.03	12.18	6.46	0.	1.67	0.15	0.02	-	-
1395	23.00	12.59	9.31	4.75	0.	1.92	0.15	0.02	-	-
1674	25.19	13.68	6.43	3.04	0.	2.11	0.15	0.03	-	-
1953	26.59	14.28	3.56	1.33	0.	2.23	0.15	0.03	-	-
2232	27.18	14.42	0.69	-0.38	0.	2.28	0.15	0.03	-	-
2511	26.97	14.07	-2.03	-2.72	0.	2.26	0.15	0.03	-	-
2790	25.96	13.25	-3.74	-5.59	0.	2.18	0.15	0.03	100	-
3069	24.15	11.95	-5.45	-8.47	0.	2.02	0.15	0.03	-	-
3348	21.54	10.17	-7.16	-11.34	0.	1.80	0.15	0.02	-	-
3627	18.13	7.91	-8.87	-14.21	0.	1.51	0.15	0.02	-	-
3906	13.91	5.18	-10.59	-17.08	0.	1.16	0.15	0.01	-	-
4185	8.90	1.97	-12.30	-19.95	0.	0.74	0.15	0.01	-	-
4464	3.08	-1.72	-14.01	-22.82	0.14	0.25	0.15	0.01	-	-
4743	-3.53	-6.10	-15.72	-25.69	0.51	0.	0.15	0.03	-	-
5022	-10.20	-13.67	-17.43	-28.57	1.17	0.	0.15	0.06	-	-
5180	-13.03	-18.31	-18.40	-30.19	1.58	0.	0.15	0.09	-	-
5301	-15.30	-22.04	-18.40	-30.19	1.58	0.	0.15	0.09	-	-
5580	-20.88	-31.21	-18.40	-30.19	1.58	0.	0.15	0.09	100	-
Span=2										
0	-20.88	-31.21	23.40	16.58	1.84	0.	0.15	0.10	100	-
205	-16.21	-25.79	23.40	16.58	1.84	0.	0.15	0.10	-	-
400	-12.17	-21.12	23.40	16.58	1.84	0.	0.15	0.10	-	-
410	-11.97	-20.95	23.30	16.52	1.82	0.	0.15	0.10	-	-
615	-8.16	-17.66	21.19	15.26	1.52	0.	0.15	0.08	-	-
820	-4.74	-14.64	19.08	14.01	1.25	0.	0.15	0.07	-	-
1025	-1.69	-11.90	16.97	12.75	1.01	0.	0.15	0.05	-	-
1230	0.92	-9.42	14.86	11.19	0.79	0.07	0.15	0.04	-	-
1435	3.10	-7.19	12.75	9.08	0.60	0.25	0.15	0.03	-	-
1640	4.85	-5.22	10.64	6.97	0.43	0.40	0.15	0.02	-	-
1845	6.16	-3.51	8.53	4.86	0.29	0.51	0.15	0.02	-	-
2050	7.05	-2.06	6.63	2.75	0.17	0.58	0.15	0.01	100	-
2255	7.50	-0.86	5.37	0.64	0.07	0.62	0.15	0.01	-	-
2460	7.51	0.08	4.11	-1.47	0.	0.62	0.15	0.01	-	-
2665	7.10	0.76	2.86	-3.58	0.	0.59	0.15	0.01	-	-
2870	6.25	1.18	1.60	-5.69	0.	0.51	0.15	0.01	-	-
3075	4.97	1.35	0.34	-7.80	0.	0.41	0.15	0.01	-	-
3280	3.68	1.26	-0.91	-9.91	0.	0.30	0.15	0.00	-	-
3485	2.19	-0.27	-2.17	-12.02	0.02	0.18	0.15	0.00	-	-
3690	0.79	-2.95	-3.43	-14.13	0.24	0.06	0.15	0.01	-	-
3700	0.75	-3.09	-3.49	-14.23	0.25	0.06	0.15	0.01	-	-
3895	-0.04	-6.06	-3.49	-14.23	0.25	0.06	0.15	0.01	-	-
4100	-1.13	-9.61	-3.49	-14.23	0.25	0.06	0.15	0.01	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-1.13	-9.61	11.74	5.82	0.38	0.19	0.15	0.02	100	-
131	0.21	-7.62	11.74	5.82	0.38	0.19	0.15	0.02	-	-
262	1.37	-5.81	11.74	5.82	0.38	0.19	0.15	0.02	-	-
393	2.36	-4.70	11.74	5.82	0.38	0.19	0.15	0.02	-	-
400	2.41	-4.65	11.74	5.82	0.38	0.19	0.15	0.02	-	-
524	3.26	-3.84	10.46	5.06	0.32	0.27	0.15	0.02	-	-
655	4.06	-3.08	9.12	4.17	0.25	0.33	0.15	0.01	-	-
786	4.67	-2.43	7.77	2.82	0.20	0.38	0.15	0.01	-	-
917	5.12	-1.88	6.42	1.47	0.15	0.42	0.15	0.01	-	-
1048	5.38	-1.44	5.07	0.13	0.11	0.44	0.15	0.01	-	-
1179	5.47	-1.10	3.72	-1.22	0.09	0.45	0.15	0.01	-	-
1310	5.39	-0.87	2.38	-2.57	0.07	0.44	0.15	0.01	100	-
1441	5.12	-0.74	1.03	-3.92	0.06	0.42	0.15	0.01	-	-
1572	4.68	-0.72	-0.24	-5.27	0.06	0.38	0.15	0.00	-	-
1703	4.06	-0.81	-1.04	-6.62	0.06	0.33	0.15	0.00	-	-
1834	3.27	-1.00	-1.85	-7.96	0.08	0.27	0.15	0.00	-	-
1965	2.30	-1.29	-2.65	-9.31	0.10	0.19	0.15	0.01	-	-
2096	1.15	-1.69	-3.45	-10.66	0.14	0.09	0.15	0.01	-	-
2220	0.24	-2.27	-4.21	-11.94	0.18	0.01	0.15	0.01	-	-
2227	0.19	-2.36	-4.21	-11.94	0.18	0.01	0.15	0.01	-	-
2358	-0.83	-4.02	-4.21	-11.94	0.18	0.01	0.15	0.01	-	-
2489	-2.02	-5.86	-4.21	-11.94	0.18	0.01	0.15	0.01	-	-
2620	-3.38	-7.87	-4.21	-11.94	0.18	0.01	0.15	0.01	100	-
Span=4										
0	-3.38	-7.87	11.25	5.05	0.21	0.03	0.15	0.01	100	-
141	-2.39	-5.81	11.25	5.05	0.21	0.03	0.15	0.01	-	-
282	-0.84	-3.95	11.25	5.05	0.21	0.03	0.15	0.01	-	-
400	0.39	-2.55	11.25	5.05	0.21	0.03	0.15	0.01	-	-
423	0.61	-2.36	11.02	4.91	0.19	0.05	0.15	0.01	-	-
564	1.85	-1.65	9.57	4.04	0.13	0.15	0.15	0.01	-	-
705	2.88	-1.07	8.12	3.18	0.08	0.23	0.15	0.00	-	-
846	3.72	-0.61	6.66	2.31	0.05	0.30	0.15	0.00	-	-
987	4.34	-0.27	5.21	1.45	0.02	0.36	0.15	0.00	-	-
1128	4.77	-0.06	3.76	0.58	0.00	0.39	0.15	0.00	-	-
1269	4.98	0.04	2.31	-0.31	0.	0.41	0.15	0.01	-	-
1410	5.00	0.01	0.86	-1.76	0.	0.41	0.15	0.01	100	-
1551	4.81	-0.14	-0.59	-3.21	0.01	0.39	0.15	0.00	-	-
1692	4.41	-0.41	-2.04	-4.66	0.03	0.36	0.15	0.00	-	-
1833	3.81	-0.80	-3.22	-6.11	0.06	0.31	0.15	0.00	-	-
1974	3.00	-1.32	-4.09	-7.57	0.10	0.24	0.15	0.01	-	-
2115	1.99	-1.95	-4.95	-9.02	0.16	0.16	0.15	0.01	-	-
2256	0.78	-2.71	-5.81	-10.47	0.22	0.06	0.15	0.01	-	-
2397	-0.59	-3.59	-6.68	-11.92	0.30	0.	0.15	0.02	-	-
2420	-0.81	-3.75	-6.82	-12.16	0.31	0.	0.15	0.02	-	-
2538	-2.01	-5.05	-6.82	-12.16	0.31	0.	0.15	0.02	-	-
2679	-3.63	-7.04	-6.82	-12.16	0.31	0.	0.15	0.02	-	-
2820	-5.45	-9.23	-6.82	-12.16	0.31	0.	0.15	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-5.45	-9.23	13.38	7.10	0.25	0.	0.15	0.01	100	-
162	-3.98	-6.53	13.38	7.10	0.25	0.	0.15	0.01	-	-
324	-2.09	-4.10	13.38	7.10	0.25	0.	0.15	0.01	-	-
400	-1.13	-3.06	13.38	7.10	0.25	0.	0.15	0.01	-	-
486	-0.09	-2.18	12.49	6.58	0.18	0.	0.15	0.01	-	-
648	1.66	-1.19	10.83	5.58	0.09	0.13	0.15	0.01	-	-
810	3.15	-0.36	9.16	4.59	0.03	0.26	0.15	0.00	-	-
972	4.36	0.31	7.49	3.60	0.	0.36	0.15	0.00	-	-
1134	5.30	0.82	5.82	2.60	0.	0.44	0.15	0.01	-	-
1296	5.97	1.17	4.16	1.61	0.	0.49	0.15	0.01	-	-
1458	6.37	1.35	2.49	0.62	0.	0.53	0.15	0.01	-	-
1620	6.51	1.38	0.82	-1.02	0.	0.54	0.15	0.01	100	-
1782	6.37	1.25	-0.84	-2.69	0.	0.52	0.15	0.01	-	-
1944	5.96	0.95	-2.32	-4.35	0.	0.49	0.15	0.01	-	-
2106	5.28	0.49	-3.31	-6.02	0.	0.43	0.15	0.01	-	-
2268	4.33	-0.12	-4.31	-7.69	0.01	0.36	0.15	0.00	-	-
2430	3.11	-0.90	-5.30	-9.35	0.07	0.25	0.15	0.00	-	-
2592	1.63	-1.84	-6.29	-11.02	0.15	0.13	0.15	0.01	-	-
2754	-0.08	-2.94	-7.29	-12.69	0.24	0.	0.15	0.01	-	-
2840	-1.05	-3.66	-7.81	-13.57	0.30	0.	0.15	0.02	-	-
2916	-1.97	-4.73	-7.81	-13.57	0.30	0.	0.15	0.02	-	-
3078	-4.14	-7.19	-7.81	-13.57	0.30	0.	0.15	0.02	-	-
3240	-6.57	-9.92	-7.81	-13.57	0.30	0.	0.15	0.02	100	-
Span=6										
0	-6.57	-9.92	13.23	7.16	0.31	0.	0.15	0.02	100	-
162	-4.32	-7.24	13.23	7.16	0.31	0.	0.15	0.02	-	-
324	-2.24	-4.84	13.23	7.16	0.31	0.	0.15	0.02	-	-
400	-1.36	-3.80	13.23	7.16	0.31	0.	0.15	0.02	-	-
486	-0.43	-3.07	12.35	6.64	0.25	0.	0.15	0.01	-	-
648	1.25	-2.08	10.68	5.64	0.17	0.10	0.15	0.01	-	-
810	2.69	-1.24	9.01	4.65	0.10	0.22	0.15	0.01	-	-
972	3.85	-0.57	7.34	3.66	0.04	0.32	0.15	0.00	-	-
1134	4.75	-0.05	5.68	2.66	0.00	0.39	0.15	0.00	-	-
1296	5.38	0.30	4.01	1.67	0.	0.44	0.15	0.01	-	-
1458	5.74	0.49	2.34	0.34	0.	0.47	0.15	0.01	-	-
1620	5.83	0.52	0.68	-1.33	0.	0.48	0.15	0.01	100	-
1782	5.64	0.39	-0.99	-2.99	0.	0.46	0.15	0.01	-	-
1944	5.19	0.10	-2.29	-4.66	0.	0.43	0.15	0.01	-	-
2106	4.47	-0.35	-3.28	-6.33	0.02	0.37	0.15	0.00	-	-
2268	3.48	-0.96	-4.28	-8.00	0.07	0.28	0.15	0.00	-	-
2430	2.21	-1.73	-5.27	-9.66	0.14	0.18	0.15	0.01	-	-
2592	0.68	-2.67	-6.26	-11.33	0.22	0.05	0.15	0.01	-	-
2754	-1.12	-3.76	-7.26	-13.00	0.31	0.	0.15	0.02	-	-
2840	-2.15	-4.59	-7.79	-13.88	0.38	0.	0.15	0.02	-	-
2916	-3.09	-5.68	-7.79	-13.88	0.38	0.	0.15	0.02	-	-
3078	-5.27	-8.19	-7.79	-13.88	0.38	0.	0.15	0.02	-	-
3240	-7.60	-10.97	-7.79	-13.88	0.38	0.	0.15	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-7.60	-10.97	14.80	8.97	0.35	0.	0.15	0.02	100	-
166	-4.91	-7.97	14.80	8.97	0.35	0.	0.15	0.02	-	-
333	-2.48	-5.24	14.80	8.97	0.35	0.	0.15	0.02	-	-
400	-1.59	-4.23	14.80	8.97	0.35	0.	0.15	0.02	-	-
499	-0.36	-3.21	13.78	8.37	0.26	0.	0.15	0.01	-	-
666	1.57	-1.90	12.06	7.34	0.15	0.13	0.15	0.01	-	-
832	3.25	-0.77	10.36	6.32	0.06	0.27	0.15	0.00	-	-
999	4.66	0.20	8.64	5.30	0.	0.38	0.15	0.00	-	-
1165	5.77	1.00	6.93	4.28	0.	0.47	0.15	0.01	-	-
1332	6.60	1.63	5.21	3.26	0.	0.54	0.15	0.01	-	-
1498	7.14	2.08	3.50	1.65	0.	0.59	0.15	0.01	-	-
1665	7.40	2.37	1.78	-0.07	0.	0.61	0.15	0.01	100	-
1831	7.37	2.49	0.36	-1.77	0.	0.61	0.15	0.01	-	-
1998	7.06	2.44	-0.66	-3.49	0.	0.58	0.15	0.01	-	-
2164	6.46	2.22	-1.68	-5.20	0.	0.53	0.15	0.01	-	-
2331	5.58	1.82	-2.70	-6.92	0.	0.46	0.15	0.01	-	-
2497	4.41	1.26	-3.72	-8.63	0.	0.36	0.15	0.00	-	-
2664	2.95	0.53	-4.74	-10.35	0.	0.24	0.15	0.00	-	-
2830	1.36	-0.50	-5.76	-12.06	0.04	0.11	0.15	0.00	-	-
2930	0.28	-1.76	-6.37	-13.09	0.14	0.02	0.15	0.01	-	-
2997	-0.49	-2.66	-6.37	-13.09	0.14	0.02	0.15	0.01	-	-
3163	-1.74	-5.09	-6.37	-13.09	0.14	0.02	0.15	0.01	-	-
3330	-3.13	-7.82	-6.37	-13.09	0.14	0.02	0.15	0.01	100	-
Span=8										
0	-3.13	-7.82	8.62	2.69	0.34	0.	0.15	0.02	100	-
113	-2.29	-6.44	8.62	2.69	0.34	0.	0.15	0.02	-	-
226	-1.58	-5.20	8.62	2.69	0.34	0.	0.15	0.02	-	-
339	-1.01	-4.33	8.62	2.69	0.34	0.	0.15	0.02	-	-
400	-0.59	-4.15	8.62	2.69	0.34	0.	0.15	0.02	-	-
452	-0.25	-4.02	8.09	2.37	0.33	0.	0.15	0.02	-	-
565	0.38	-3.79	6.92	1.67	0.31	0.03	0.15	0.02	-	-
678	0.88	-3.64	5.76	0.98	0.30	0.07	0.15	0.02	-	-
791	1.25	-3.57	4.60	-0.14	0.29	0.10	0.15	0.02	-	-
904	1.49	-3.58	3.44	-1.31	0.29	0.12	0.15	0.02	-	-
1017	1.60	-3.66	2.27	-2.47	0.30	0.13	0.15	0.02	-	-
1130	1.58	-3.83	1.11	-3.63	0.32	0.13	0.15	0.02	100	-
1243	1.42	-4.07	-0.05	-4.80	0.34	0.11	0.15	0.02	-	-
1356	1.14	-4.39	-1.22	-5.96	0.36	0.09	0.15	0.02	-	-
1469	0.72	-4.79	-2.38	-7.12	0.40	0.05	0.15	0.02	-	-
1582	0.17	-5.26	-3.54	-8.29	0.44	0.01	0.15	0.02	-	-
1695	-0.51	-5.82	-4.71	-9.45	0.48	0.	0.15	0.03	-	-
1808	-1.32	-6.45	-5.83	-10.61	0.54	0.	0.15	0.03	-	-
1860	-1.74	-6.77	-6.14	-11.15	0.57	0.	0.15	0.03	-	-
1921	-2.26	-7.16	-6.14	-11.15	0.57	0.	0.15	0.03	-	-
2034	-3.20	-8.15	-6.14	-11.15	0.57	0.	0.15	0.03	-	-
2147	-4.19	-9.68	-6.14	-11.15	0.57	0.	0.15	0.03	-	-
2260	-5.31	-11.34	-6.14	-11.15	0.57	0.	0.15	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=9										
0	-5.31	-11.34	16.48	8.41	0.33	0.	0.15	0.02	100	-
199	-3.27	-7.44	16.48	8.41	0.33	0.	0.15	0.02	-	-
398	-1.47	-3.96	16.48	8.41	0.33	0.	0.15	0.02	-	-
597	0.70	-0.88	14.45	7.20	0.07	0.05	0.15	0.00	-	-
796	3.05	0.87	12.40	5.98	0.	0.25	0.15	0.00	-	-
995	5.13	1.95	10.35	4.76	0.	0.42	0.15	0.01	-	-
1194	6.88	2.79	8.30	3.54	0.	0.57	0.15	0.01	-	-
1393	8.23	3.38	6.26	2.32	0.	0.68	0.15	0.01	-	-
1592	9.17	3.74	4.21	1.10	0.	0.76	0.15	0.01	-	-
1791	9.70	3.85	2.16	-0.12	0.	0.80	0.15	0.01	-	-
1990	9.83	3.71	0.11	-1.49	0.	0.81	0.15	0.01	100	-
2189	9.55	3.34	-1.94	-3.54	0.	0.79	0.15	0.01	-	-
2388	8.86	2.72	-3.72	-5.59	0.	0.73	0.15	0.01	-	-
2587	7.76	1.85	-4.94	-7.64	0.	0.64	0.15	0.01	-	-
2786	6.26	0.75	-6.16	-9.68	0.	0.52	0.15	0.01	-	-
2985	4.34	-0.60	-7.38	-11.73	0.04	0.36	0.15	0.00	-	-
3184	2.06	-2.19	-8.60	-13.78	0.18	0.17	0.15	0.01	-	-
3383	-0.57	-4.02	-9.82	-15.83	0.33	0.	0.15	0.02	-	-
3582	-3.60	-6.81	-11.03	-17.86	0.57	0.	0.15	0.03	-	-
3781	-7.04	-10.57	-11.03	-17.86	0.57	0.	0.15	0.03	-	-
3980	-10.65	-14.74	-11.03	-17.86	0.57	0.	0.15	0.03	100	-
Span=10										
0	-10.65	-14.74	16.64	9.84	0.61	0.	0.15	0.03	100	-
186	-7.33	-11.06	16.64	9.84	0.61	0.	0.15	0.03	-	-
371	-4.37	-7.75	16.64	9.84	0.61	0.	0.15	0.03	-	-
400	-3.94	-7.26	16.64	9.84	0.61	0.	0.15	0.03	-	-
557	-1.74	-5.35	15.02	8.87	0.44	0.	0.15	0.02	-	-
742	0.62	-3.79	13.12	7.74	0.31	0.05	0.15	0.02	-	-
928	2.64	-2.43	11.20	6.60	0.20	0.21	0.15	0.01	-	-
1113	4.30	-1.28	9.30	5.46	0.10	0.35	0.15	0.01	-	-
1299	5.61	-0.34	7.38	4.32	0.02	0.46	0.15	0.01	-	-
1484	6.55	0.38	5.48	3.19	0.	0.54	0.15	0.01	-	-
1670	7.15	0.89	3.56	1.65	0.	0.59	0.15	0.01	-	-
1855	7.40	1.20	1.66	-0.26	0.	0.61	0.15	0.01	100	-
2041	7.29	1.29	-0.07	-2.17	0.	0.60	0.15	0.01	-	-
2226	6.82	1.17	-1.21	-4.07	0.	0.56	0.15	0.01	-	-
2412	6.00	0.84	-2.35	-5.99	0.	0.49	0.15	0.01	-	-
2597	4.83	0.30	-3.48	-7.89	0.	0.40	0.15	0.00	-	-
2783	3.30	-0.45	-4.62	-9.81	0.03	0.27	0.15	0.00	-	-
2968	1.52	-1.43	-5.76	-11.71	0.11	0.12	0.15	0.01	-	-
3154	-0.48	-2.63	-6.90	-13.63	0.21	0.	0.15	0.01	-	-
3310	-2.43	-4.69	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3339	-2.82	-5.13	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3525	-5.53	-8.20	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3710	-7.38	-11.60	-7.86	-15.23	0.39	0.	0.15	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=11										
0	-7.38	-11.60	14.69	9.34	0.44	0.	0.15	0.02	100	-
143	-5.00	-9.02	14.69	9.34	0.44	0.	0.15	0.02	-	-
287	-2.82	-6.63	14.69	9.34	0.44	0.	0.15	0.02	-	-
400	-1.26	-5.27	14.69	9.34	0.44	0.	0.15	0.02	-	-
430	-0.87	-4.98	14.39	9.15	0.41	0.	0.15	0.02	-	-
574	0.88	-3.67	12.90	8.27	0.30	0.07	0.15	0.02	-	-
717	2.41	-2.50	11.43	7.39	0.20	0.20	0.15	0.01	-	-
861	3.74	-1.45	9.95	6.51	0.12	0.31	0.15	0.01	-	-
1004	4.84	-0.53	8.48	5.63	0.04	0.40	0.15	0.00	-	-
1148	5.75	0.28	7.00	4.75	0.	0.47	0.15	0.01	-	-
1291	6.43	0.94	5.52	3.87	0.	0.53	0.15	0.01	-	-
1435	6.91	1.49	4.04	2.57	0.	0.57	0.15	0.01	100	-
1578	7.17	1.91	2.57	1.10	0.	0.59	0.15	0.01	-	-
1722	7.22	2.20	1.60	-0.38	0.	0.60	0.15	0.01	-	-
1865	7.06	2.37	0.72	-1.86	0.	0.58	0.15	0.01	-	-
2009	6.69	2.41	-0.16	-3.34	0.	0.55	0.15	0.01	-	-
2152	6.11	2.33	-1.04	-4.81	0.	0.50	0.15	0.01	-	-
2296	5.31	2.11	-1.92	-6.29	0.	0.44	0.15	0.01	-	-
2439	4.30	1.77	-2.80	-7.76	0.	0.35	0.15	0.00	-	-
2470	4.06	1.69	-2.99	-8.08	0.	0.33	0.15	0.00	-	-
2583	3.08	1.31	-2.99	-8.08	0.	0.25	0.15	0.00	-	-
2726	1.65	0.72	-2.99	-8.08	0.	0.13	0.15	0.00	-	-
2870	0.00	0.00	-2.99	-8.08	0.	0.	0.15	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

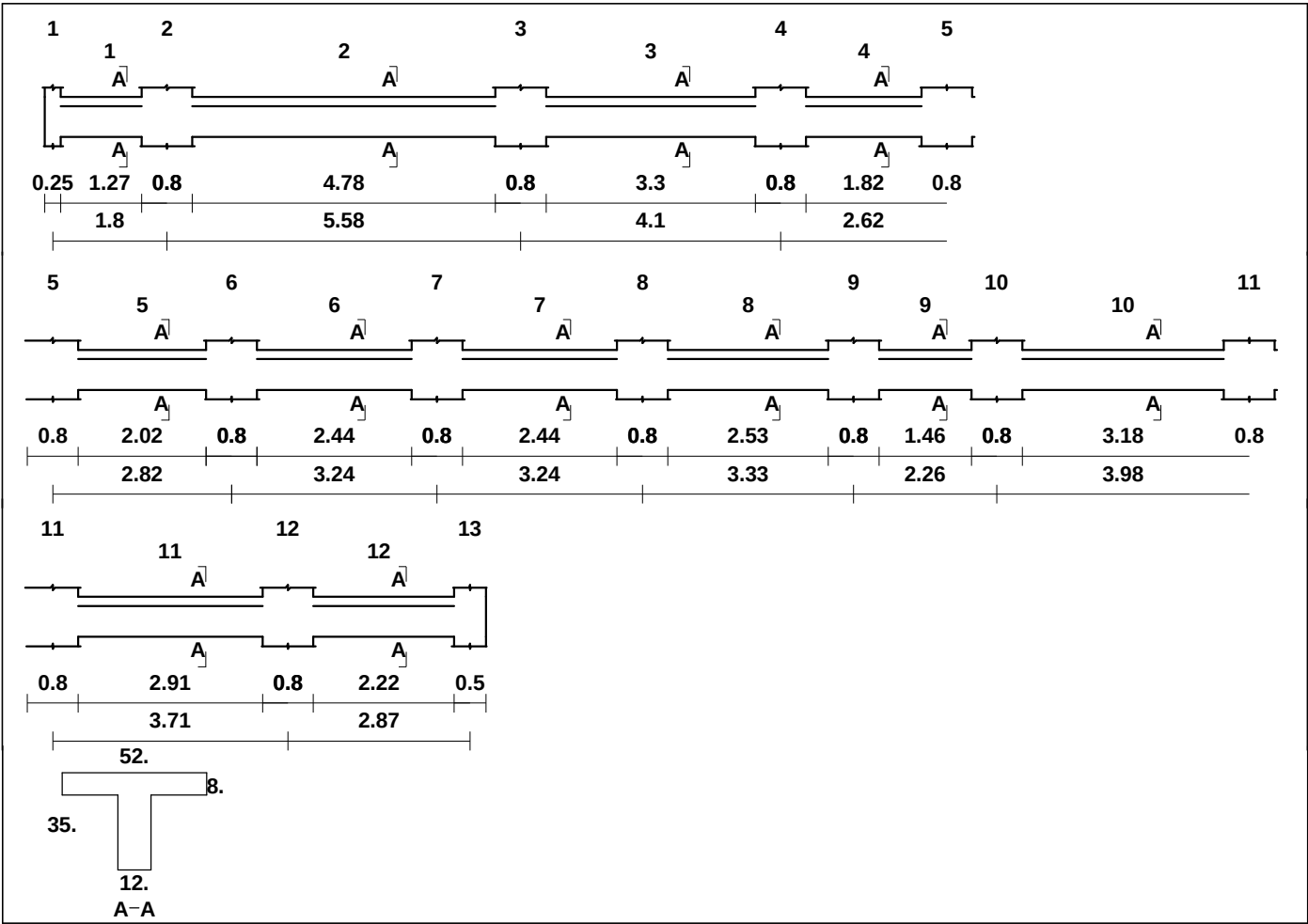
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-31.2	-31.2	-9.6	-9.6	-7.9	-7.9	-9.2
Max M	0.0	-20.9	-20.9	-1.1	-1.1	-3.4	-3.4	-5.4
MspMn	4.8	-18.3	-21.1	-3.1	-4.7	-2.3	-2.5	-3.7
MspMx	8.6	-13.0	-12.2	0.8	2.4	0.2	0.4	-0.8
M Max			7.5		5.5		5.0	
M Min			1.3		-0.7		0.0	
Mmn=0 @	0.0	1.2	2.4	0.6	0.0	2.6	1.2	1.4
Mmx=0 @	0.0	1.0	1.2	0.2	0.1	0.4	0.4	0.5
mx -M @			1.2		0.1		0.4	
mx +M @			2.5		1.2		1.4	
V max		-20.9		-5.9		-6.7		-9.3
V min		-34.3		-18.3	8.3	-16.1	7.5	-16.3
DReac		36.6		17.0		16.2		18.9
LReac	9.9	25.2		17.2		15.2		14.8
Max R		61.8		34.2		31.4		33.8
Min R		44.7		16.9		18.6		23.2
	5	6	7	8	9			
	5	6	7	8	9			
Min M	-9.2	-9.9	-9.9	-11.0	-11.0	-7.8	-7.8	-11.3
Max M	-5.4	-6.6	-6.6	-7.6	-7.6	-3.1	-3.1	-5.3
MspMn	-3.1	-3.7	-3.8	-4.6	-4.2	-1.8	-4.2	-6.8
MspMx	-1.1	-1.1	-1.4	-2.2	-1.6	0.3	-0.6	-1.7
M Max			5.8		7.4		1.6	
M Min			0.5		2.5		-3.6	
Mmn=0 @	0.9	1.0	1.2	1.3	1.0	0.6	0.0	2.3
Mmx=0 @	0.5	0.5	0.5	0.6	0.5	0.4	0.5	0.6
mx -M @			0.5		0.5		0.5	
mx +M @			1.6		1.7		1.0	
V max		-10.3		-10.2		-8.8		-8.6
V min	9.6	-17.7	9.6	-18.0		-17.2	5.1	-15.3

	Moment/Shear		Envelope (Factored)		Units:kN,meter	
DReac		19.8		21.1	15.5	19.5
LReac		15.3		15.8	14.5	16.4
Max R		35.0		36.9	29.9	35.9
Min R		25.5		27.3	16.8	21.4
	9	10		11	12	
	9		10	11		
Min M	-11.3	-14.7	-14.7	-11.6	-11.6	0.0
Max M	-5.3	-10.7	-10.7	-7.4	-7.4	0.0
MspMn	-4.0	-6.8	-7.3	-4.7	-5.3	1.7
MspMx	-1.5	-3.6	-3.9	-2.4	-1.3	4.1
M Max			7.4		7.2	
M Min			1.3		2.4	
Mmn=0 @	0.7	1.1	1.4	1.0	1.1	2.9
Mmx=0 @	0.5	0.6	0.7	0.6	0.5	2.9
mx -M @			0.7		0.5	
mx +M @			1.9		1.7	
V max		-13.5		-10.3		-5.4
V min		-22.0		-19.3		-12.2
DReac		24.7		21.9		6.6
LReac		18.0		16.3		5.6
Max R		42.7		38.2		12.2
Min R		32.4		27.6		5.4

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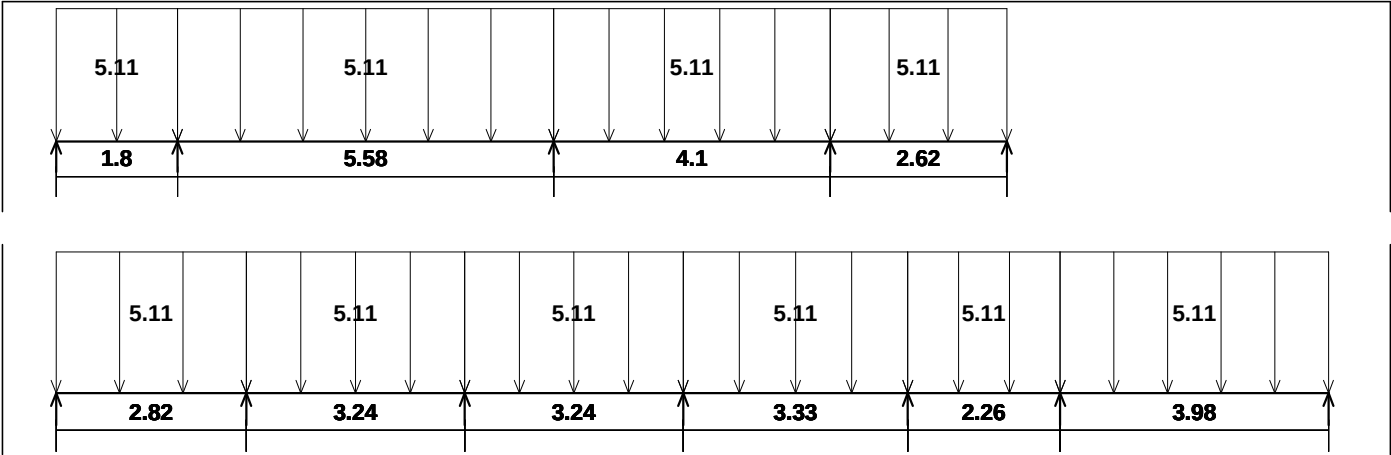
Geometry Units: meter, cm



Loading

load group no. 1
Dead load - Service

Units: kN, meter



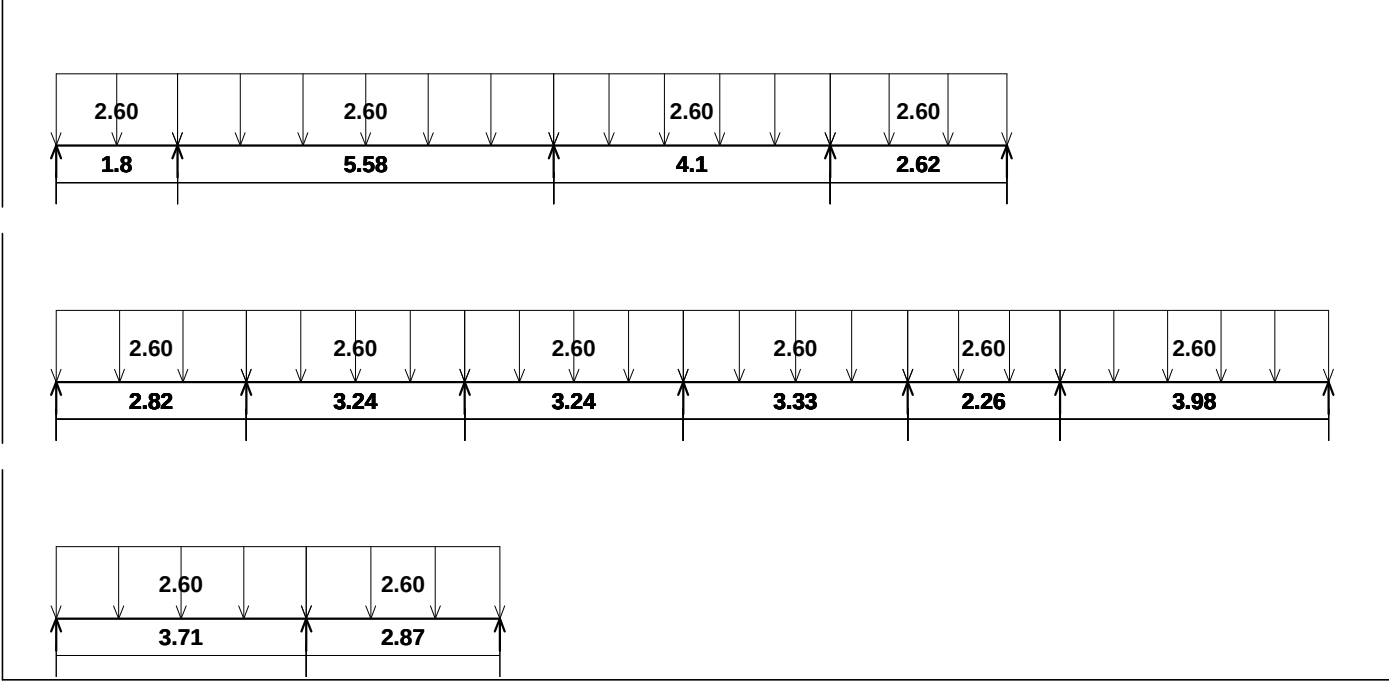
R3.12	Code: ACI318-02
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Loading



Live load - Service

Load factors: 1.20,1.20/1.60,0.00



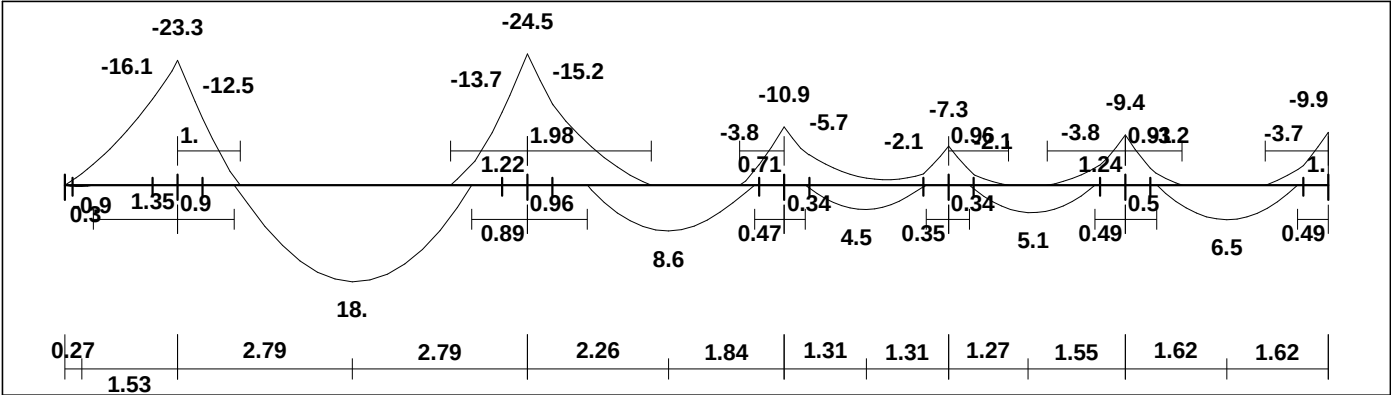
Loads (kN,meter)											
1			2			3			4		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60
5			6			7			8		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60
9			10			11			12		
Uni D	5.11	L	2.60	Uni D	5.11	L	2.60	Uni D	5.11	L	2.60

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Designed by: bayan

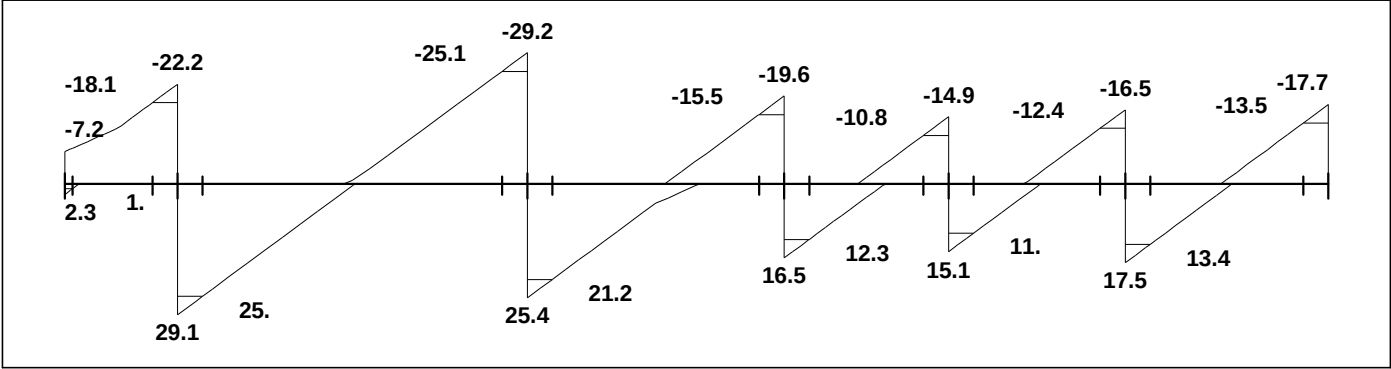
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 6



Shear



Reactions

Factored

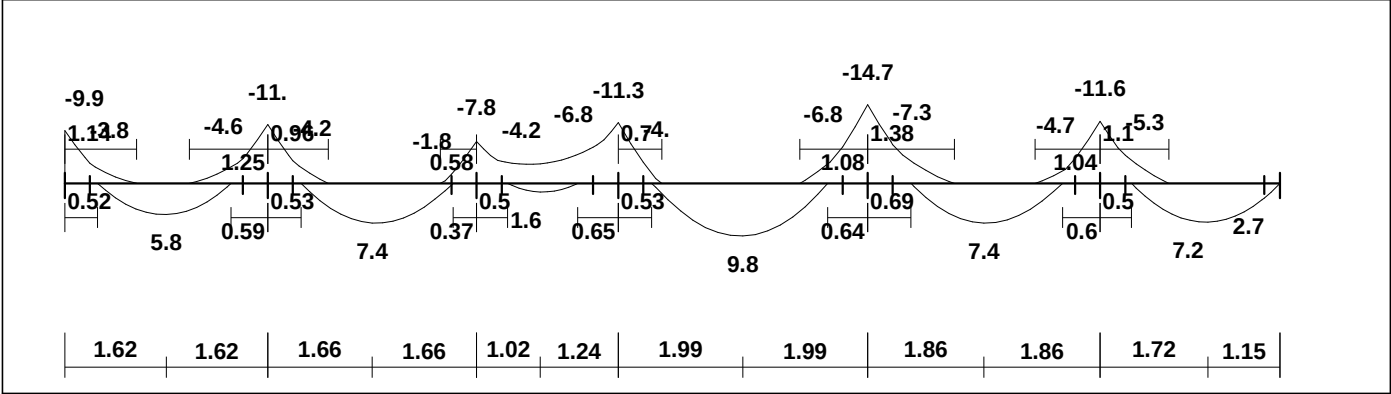
DeadR	-1.83	29.77	32.19	18.93	15.42	19.1	19.73
LiveR	4.15	21.57	22.41	17.13	14.63	14.97	15.26
Max R	2.32	51.34	54.6	36.07	30.05	34.07	35.
Min R	-7.21	32.44	40.47	20.29	17.86	23.53	25.4
Service							
DeadR	-1.52	24.8	26.83	15.78	12.85	15.92	16.45
LiveR	2.59	13.48	14.	10.71	9.14	9.35	9.54
Max R	1.07	38.29	40.83	26.49	21.99	25.27	25.99
Min R	-4.89	26.47	32.	16.63	14.37	18.69	19.99

R3.12
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Designed by: bayan

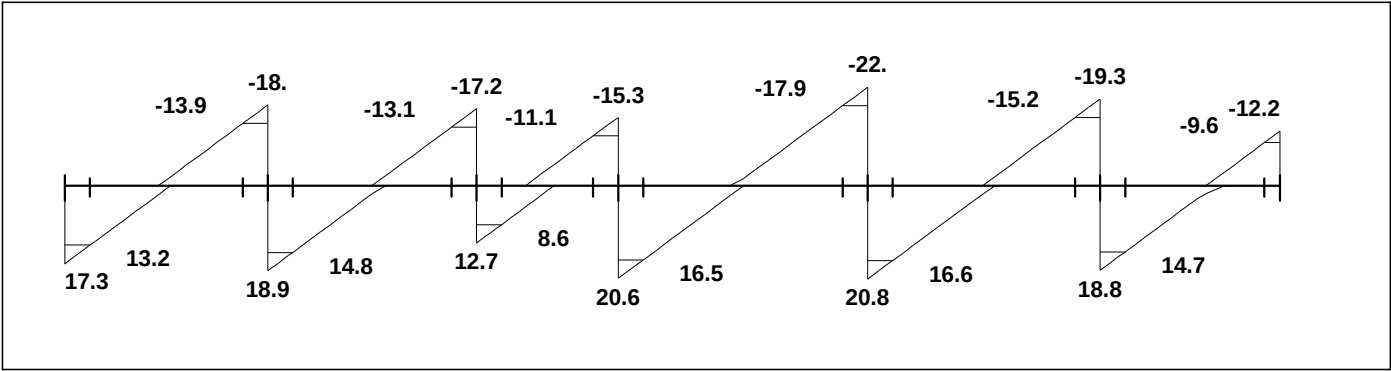
Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 7 to 12



Shear



Reactions

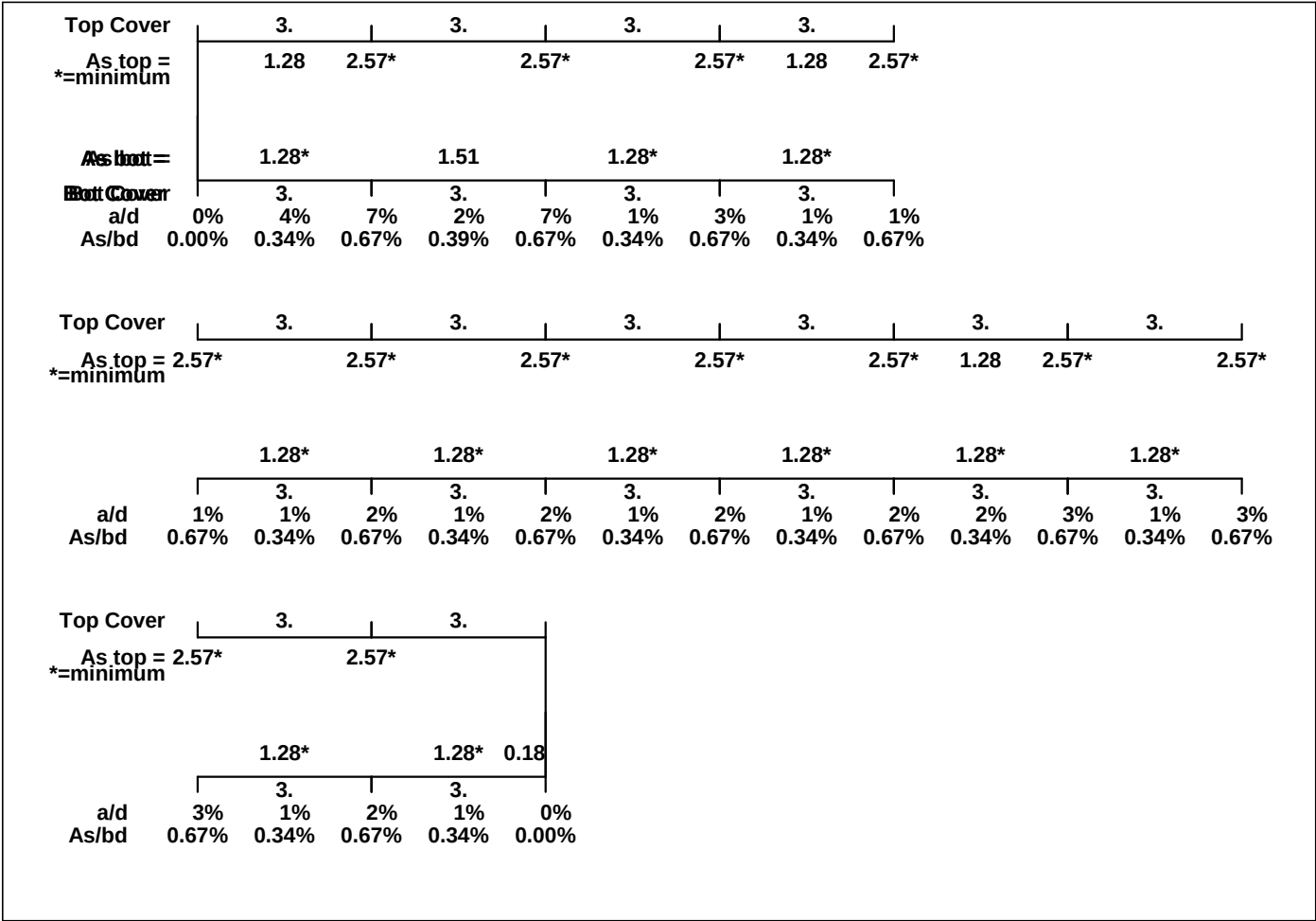
Factored

DeadR	19.73	21.09	15.46	19.47	24.73	21.86	6.59
LiveR	15.26	15.85	14.47	16.39	17.99	16.3	5.61
Max R	35.	36.94	29.94	35.86	42.73	38.16	12.2
Min R	25.4	27.34	16.82	21.38	32.38	27.65	5.44
Service							
DeadR	16.45	17.57	12.89	16.23	20.61	18.21	5.49
LiveR	9.54	9.91	9.05	10.24	11.24	10.19	3.51
Max R	25.99	27.48	21.93	26.47	31.86	28.4	9.
Min R	19.99	21.48	13.73	17.42	25.39	21.83	4.77

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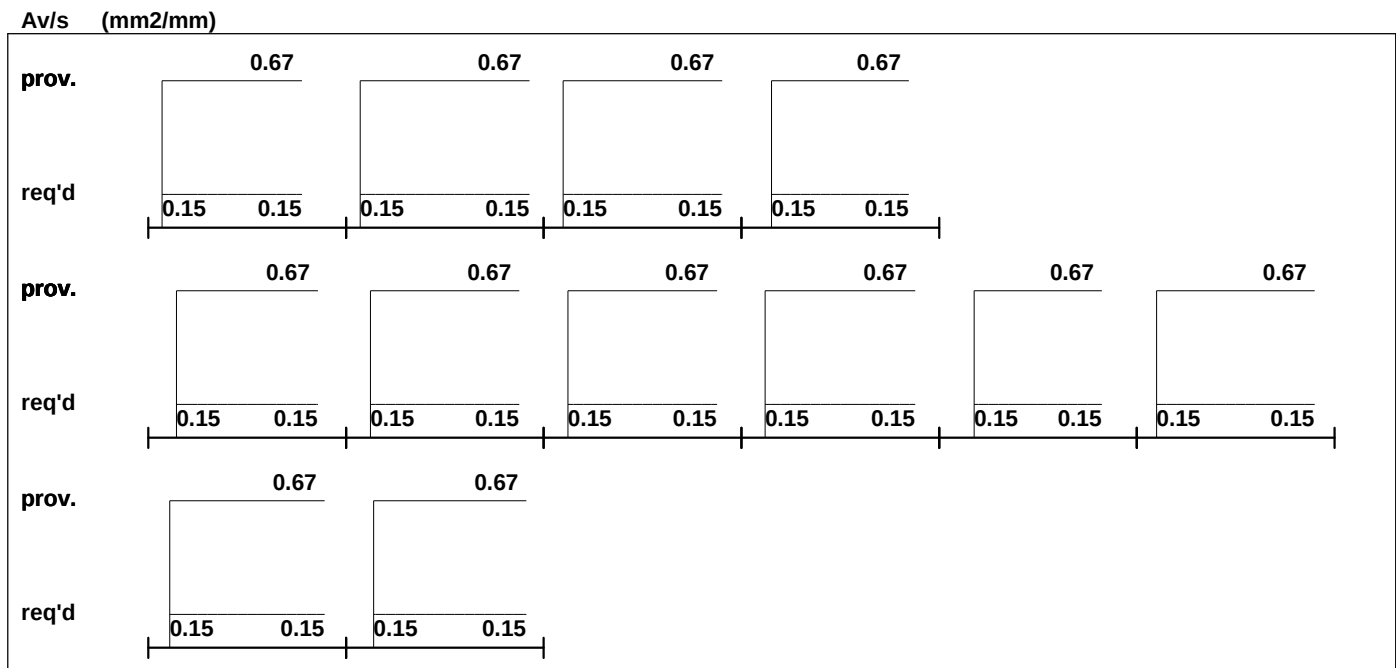
Reinforcement (cm 2)

Concrete: B300
Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face



Shear

Shear design: Stirrups only
Stirrups fy = 276
Shear reduction: No
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 14 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



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Shear

Stirrups

Deflections (mm)

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

	1	2	3	4
A's	1.28	0.	0.	1.28
As	1.28	1.51	1.28	1.28
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00078	0.00078	0.00078	0.00078
Icr(m^4)=	0.00009	0.00012	0.00010	0.00010
Mcr =	20.52	10.25	10.25	10.25
Mmax,d =	11.02	8.39	3.07	1.02
Mmax,d+l =	17.08	13.38	6.09	3.09
Mmax,sust =	11.02	8.39	3.07	1.02
Ie,d (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00078	0.00041	0.00078	0.00078
Ie,sust (m^4)=	0.00078	0.00078	0.00078	0.00078
e/1+50r =	1.71	2.00	2.00	1.71
ai,d =	-0.089	1.074	0.119	0.013
ai,l =	-0.069	2.253	0.251	0.080
at,sust =	-0.153	2.148	0.239	0.022
ai,l =	L/*****	L/ 2476	L/16324	L/*****
(ai+at),t2-t1	L/ 8115	L/ 1267	L/ 8372	L/25785

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

	5	6	7	8
A's	0.	0.	0.	0.
As	1.28	1.28	1.28	1.28
fr = 3	Es= 209	Ec = 23		

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Deflections (mm)				
Ig(m^4)=	0.00078	0.00078	0.00078	0.00078
Icr(m^4)=	0.00010	0.00010	0.00010	0.00010
Mcr =	10.25	10.25	10.25	10.25
Mmax,d =	1.69	2.43	1.98	3.07
Mmax,d+l =	3.62	4.64	4.14	5.38
Mmax,sust =	1.69	2.43	1.98	3.07
Ie,d (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,sust (m^4)=	0.00078	0.00078	0.00078	0.00078
e/1+50r =	2.00	2.00	2.00	2.00
ai,d =	0.044	0.093	0.061	0.140
ai,l =	0.082	0.118	0.114	0.132
at,sust =	0.088	0.186	0.122	0.280
ai,l =	L/*****	L/27503	L/28417	L/25278
(ai+at),t2-t1	L/16535	L/10661	L/13737	L/ 8083

Long-term deflection:
- sustained loads : 100% of dead; 0% of live
- duration of load 60 months ; attachment of element at 0 months (t1)
Apply 0% of dead load after attachment (t1)

A's	9	10	11	12
	1.28	0.	0.	0.
As	1.28	1.28	1.28	1.28
fr = 3	Es= 209	Ec = 23		
Ig(m^4)=	0.00078	0.00078	0.00078	0.00078
Icr(m^4)=	0.00009	0.00010	0.00010	0.00010
Mcr =	20.52	10.25	10.25	10.25
Mmax,d =	4.87	4.22	2.67	2.93
Mmax,d+l =	7.32	7.20	5.29	5.25
Mmax,sust =	4.87	4.22	2.67	2.93
Ie,d (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,d+l (m^4)=	0.00078	0.00078	0.00078	0.00078
Ie,sust (m^4)=	0.00078	0.00078	0.00078	0.00078
e/1+50r =	1.71	2.00	2.00	2.00
ai,d =	-0.045	0.271	0.112	0.101
ai,l =	-0.065	0.230	0.176	0.107
at,sust =	-0.077	0.543	0.223	0.202
ai,l =	L/*****	L/17338	L/21120	L/26901
(ai+at),t2-t1	L/15867	L/ 5152	L/ 9295	L/ 9286

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	1.04	-7.21	0.	0.	0.15	0.00	100	-
90	0.17	-0.67	1.04	-7.76	0.05	0.01	0.15	0.00	-	-
125	0.21	-0.95	1.04	-7.98	0.07	0.01	0.15	0.00	-	-
180	0.25	-1.40	0.47	-8.32	0.11	0.02	0.15	0.01	-	-
270	0.25	-2.17	-0.46	-8.87	0.18	0.02	0.15	0.01	-	-
360	0.17	-2.99	-1.38	-9.42	0.24	0.01	0.15	0.01	-	-
450	0.00	-3.87	-2.31	-9.97	0.32	0.	0.15	0.02	-	-
540	-0.25	-4.79	-3.24	-10.52	0.40	0.	0.15	0.02	-	-
630	-0.58	-5.76	-4.16	-11.07	0.48	0.	0.15	0.03	-	-
720	-1.00	-6.78	-5.09	-11.63	0.57	0.	0.15	0.03	-	-
810	-1.50	-7.85	-6.01	-12.18	0.66	0.	0.15	0.04	-	-
900	-2.08	-8.97	-6.94	-12.96	0.75	0.	0.15	0.04	100	-
990	-2.74	-10.14	-7.87	-13.89	0.86	0.	0.15	0.05	-	-
1080	-3.49	-11.36	-8.79	-14.81	0.96	0.	0.15	0.05	-	-
1170	-4.33	-12.63	-9.72	-15.74	1.07	0.	0.15	0.06	-	-
1260	-5.24	-13.95	-10.65	-16.67	1.19	0.	0.15	0.06	-	-
1350	-6.24	-15.32	-11.57	-17.59	1.31	0.	0.15	0.07	-	-
1400	-6.83	-16.11	-12.09	-18.11	1.38	0.	0.15	0.07	-	-
1440	-7.33	-16.74	-12.09	-18.11	1.38	0.	0.15	0.07	-	-
1530	-8.49	-18.21	-12.09	-18.11	1.38	0.	0.15	0.07	-	-
1620	-9.74	-19.73	-12.09	-18.11	1.38	0.	0.15	0.07	-	-
1710	-11.08	-21.37	-12.09	-18.11	1.38	0.	0.15	0.07	-	-
1800	-12.49	-23.33	-12.09	-18.11	1.38	0.	0.15	0.07	100	-
Span=2										
0	-12.49	-23.33	25.00	13.78	1.06	0.	0.15	0.06	100	-
279	-8.20	-15.61	25.00	13.78	1.06	0.	0.15	0.06	-	-
400	-6.49	-12.51	25.00	13.78	1.06	0.	0.15	0.06	-	-
558	-4.39	-8.69	23.37	12.81	0.73	0.	0.15	0.04	-	-
837	-1.05	-2.56	20.50	11.10	0.21	0.	0.15	0.01	-	-
1116	3.43	1.76	17.63	9.39	0.	0.28	0.15	0.00	-	-
1395	7.70	4.17	14.76	7.68	0.	0.64	0.15	0.01	-	-
1674	11.28	6.09	11.89	5.97	0.	0.94	0.15	0.01	-	-
1953	14.17	7.52	9.02	4.26	0.	1.18	0.15	0.01	-	-
2232	16.26	8.47	6.14	2.55	0.	1.36	0.15	0.02	-	-
2511	17.56	8.94	3.27	0.84	0.	1.46	0.15	0.02	-	-
2790	18.05	8.93	0.40	-0.88	0.	1.51	0.15	0.02	100	-
3069	17.74	8.45	-2.47	-3.39	0.	1.48	0.15	0.02	-	-
3348	16.63	7.49	-4.20	-6.26	0.	1.39	0.15	0.02	-	-
3627	14.71	6.05	-5.91	-9.14	0.	1.22	0.15	0.02	-	-
3906	12.00	4.14	-7.62	-12.01	0.	1.00	0.15	0.01	-	-
4185	8.49	1.74	-9.33	-14.88	0.	0.70	0.15	0.01	-	-
4464	4.17	-1.13	-11.04	-17.75	0.09	0.34	0.15	0.01	-	-
4743	-0.95	-4.47	-12.75	-20.62	0.37	0.	0.15	0.02	-	-
5022	-6.86	-9.82	-14.46	-23.49	0.83	0.	0.15	0.04	-	-
5180	-10.31	-13.66	-15.43	-25.12	1.16	0.	0.15	0.06	-	-
5301	-12.22	-16.77	-15.43	-25.12	1.16	0.	0.15	0.06	-	-
5580	-16.97	-24.53	-15.43	-25.12	1.16	0.	0.15	0.06	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=3										
0	-16.97	-24.53	21.25	14.30	1.30	0.	0.15	0.07	100	-
205	-12.56	-19.55	21.25	14.30	1.30	0.	0.15	0.07	-	-
400	-8.76	-15.21	21.25	14.30	1.30	0.	0.15	0.07	-	-
410	-8.58	-14.99	21.14	14.24	1.28	0.	0.15	0.07	-	-
615	-5.03	-11.96	19.03	12.98	1.01	0.	0.15	0.05	-	-
820	-1.89	-9.43	16.92	11.72	0.79	0.	0.15	0.04	-	-
1025	0.90	-7.16	14.81	10.46	0.60	0.07	0.15	0.03	-	-
1230	3.25	-5.14	12.71	9.21	0.43	0.27	0.15	0.02	-	-
1435	5.18	-3.38	10.60	7.82	0.28	0.43	0.15	0.02	-	-
1640	6.67	-1.88	8.49	5.71	0.15	0.55	0.15	0.01	-	-
1845	7.73	-0.64	6.38	3.60	0.05	0.64	0.15	0.01	-	-
2050	8.36	0.35	4.30	1.49	0.	0.69	0.15	0.01	100	-
2255	8.55	1.08	3.05	-0.62	0.	0.71	0.15	0.01	-	-
2460	8.31	1.55	1.79	-2.73	0.	0.69	0.15	0.01	-	-
2665	7.64	1.76	0.53	-4.84	0.	0.63	0.15	0.01	-	-
2870	6.54	1.72	-0.73	-6.95	0.	0.54	0.15	0.01	-	-
3075	5.00	1.41	-1.98	-9.06	0.	0.41	0.15	0.01	-	-
3280	3.30	0.85	-3.24	-11.17	0.	0.27	0.15	0.00	-	-
3485	1.37	-0.75	-4.50	-13.28	0.06	0.11	0.15	0.00	-	-
3690	-0.58	-3.69	-5.75	-15.39	0.30	0.	0.15	0.02	-	-
3700	-0.64	-3.84	-5.82	-15.49	0.32	0.	0.15	0.02	-	-
3895	-1.89	-7.06	-5.82	-15.49	0.32	0.	0.15	0.02	-	-
4100	-3.45	-10.86	-5.82	-15.49	0.32	0.	0.15	0.02	100	-
Span=4										
0	-3.45	-10.86	12.34	6.85	0.47	0.04	0.15	0.03	100	-
131	-1.96	-8.80	12.34	6.85	0.47	0.04	0.15	0.03	-	-
262	-0.65	-6.90	12.34	6.85	0.47	0.04	0.15	0.03	-	-
393	0.48	-5.71	12.34	6.85	0.47	0.04	0.15	0.03	-	-
400	0.53	-5.65	12.34	6.85	0.47	0.04	0.15	0.03	-	-
524	1.56	-4.77	11.07	6.09	0.39	0.12	0.15	0.02	-	-
655	2.49	-3.93	9.72	5.28	0.32	0.20	0.15	0.02	-	-
786	3.26	-3.20	8.37	3.93	0.26	0.27	0.15	0.01	-	-
917	3.84	-2.57	7.02	2.59	0.21	0.31	0.15	0.01	-	-
1048	4.25	-2.05	5.67	1.24	0.17	0.35	0.15	0.01	-	-
1179	4.48	-1.64	4.33	-0.11	0.13	0.37	0.15	0.01	-	-
1310	4.54	-1.33	2.98	-1.46	0.11	0.37	0.15	0.01	100	-
1441	4.42	-1.13	1.63	-2.81	0.09	0.36	0.15	0.01	-	-
1572	4.12	-1.03	0.35	-4.16	0.08	0.34	0.15	0.00	-	-
1703	3.65	-1.03	-0.45	-5.50	0.08	0.30	0.15	0.00	-	-
1834	3.00	-1.14	-1.25	-6.85	0.09	0.24	0.15	0.01	-	-
1965	2.17	-1.36	-2.06	-8.20	0.11	0.18	0.15	0.01	-	-
2096	1.17	-1.68	-2.86	-9.55	0.14	0.09	0.15	0.01	-	-
2220	0.32	-2.12	-3.62	-10.82	0.17	0.02	0.15	0.01	-	-
2227	0.27	-2.20	-3.62	-10.82	0.17	0.02	0.15	0.01	-	-
2358	-0.66	-3.71	-3.62	-10.82	0.17	0.02	0.15	0.01	-	-
2489	-1.77	-5.41	-3.62	-10.82	0.17	0.02	0.15	0.01	-	-
2620	-3.06	-7.27	-3.62	-10.82	0.17	0.02	0.15	0.01	100	-

R3.12

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=5										
0	-3.06	-7.27	10.99	4.90	0.17	0.05	0.15	0.01	100	-
141	-2.05	-5.25	10.99	4.90	0.17	0.05	0.15	0.01	-	-
282	-0.56	-3.42	10.99	4.90	0.17	0.05	0.15	0.01	-	-
400	0.65	-2.06	10.99	4.90	0.17	0.05	0.15	0.01	-	-
423	0.87	-1.88	10.75	4.76	0.15	0.07	0.15	0.01	-	-
564	2.09	-1.21	9.30	3.90	0.10	0.17	0.15	0.01	-	-
705	3.10	-0.67	7.85	3.03	0.05	0.25	0.15	0.00	-	-
846	3.92	-0.24	6.40	2.17	0.02	0.32	0.15	0.00	-	-
987	4.52	0.06	4.95	1.30	0.	0.37	0.15	0.00	-	-
1128	4.93	0.24	3.50	0.44	0.	0.40	0.15	0.01	-	-
1269	5.12	0.30	2.05	-0.56	0.	0.42	0.15	0.01	-	-
1410	5.12	0.23	0.59	-2.01	0.	0.42	0.15	0.01	100	-
1551	4.90	0.05	-0.86	-3.46	0.	0.40	0.15	0.01	-	-
1692	4.49	-0.26	-2.31	-4.91	0.02	0.37	0.15	0.00	-	-
1833	3.87	-0.69	-3.48	-6.36	0.05	0.32	0.15	0.00	-	-
1974	3.04	-1.24	-4.35	-7.81	0.10	0.25	0.15	0.01	-	-
2115	2.01	-1.92	-5.21	-9.26	0.15	0.16	0.15	0.01	-	-
2256	0.78	-2.71	-6.07	-10.71	0.22	0.06	0.15	0.01	-	-
2397	-0.63	-3.63	-6.94	-12.16	0.30	0.	0.15	0.02	-	-
2420	-0.85	-3.79	-7.08	-12.40	0.31	0.	0.15	0.02	-	-
2538	-2.08	-5.12	-7.08	-12.40	0.31	0.	0.15	0.02	-	-
2679	-3.74	-7.14	-7.08	-12.40	0.31	0.	0.15	0.02	-	-
2820	-5.60	-9.37	-7.08	-12.40	0.31	0.	0.15	0.02	100	-
Span=6										
0	-5.60	-9.37	13.43	7.16	0.26	0.	0.15	0.01	100	-
162	-4.12	-6.66	13.43	7.16	0.26	0.	0.15	0.01	-	-
324	-2.16	-4.23	13.43	7.16	0.26	0.	0.15	0.01	-	-
400	-1.25	-3.17	13.43	7.16	0.26	0.	0.15	0.01	-	-
486	-0.21	-2.25	12.55	6.63	0.18	0.	0.15	0.01	-	-
648	1.55	-1.25	10.88	5.64	0.10	0.12	0.15	0.01	-	-
810	3.05	-0.42	9.21	4.65	0.03	0.25	0.15	0.00	-	-
972	4.27	0.26	7.55	3.65	0.	0.35	0.15	0.00	-	-
1134	5.22	0.77	5.88	2.66	0.	0.43	0.15	0.01	-	-
1296	5.90	1.13	4.21	1.67	0.	0.49	0.15	0.01	-	-
1458	6.31	1.32	2.54	0.67	0.	0.52	0.15	0.01	-	-
1620	6.45	1.35	0.88	-0.99	0.	0.53	0.15	0.01	100	-
1782	6.32	1.22	-0.79	-2.65	0.	0.52	0.15	0.01	-	-
1944	5.92	0.93	-2.29	-4.32	0.	0.49	0.15	0.01	-	-
2106	5.26	0.48	-3.28	-5.99	0.	0.43	0.15	0.01	-	-
2268	4.32	-0.13	-4.28	-7.66	0.01	0.35	0.15	0.00	-	-
2430	3.11	-0.91	-5.27	-9.32	0.07	0.25	0.15	0.00	-	-
2592	1.63	-1.84	-6.26	-10.99	0.15	0.13	0.15	0.01	-	-
2754	-0.07	-2.93	-7.26	-12.66	0.24	0.	0.15	0.01	-	-
2840	-1.04	-3.66	-7.78	-13.54	0.30	0.	0.15	0.02	-	-
2916	-1.95	-4.71	-7.78	-13.54	0.30	0.	0.15	0.02	-	-
3078	-4.11	-7.17	-7.78	-13.54	0.30	0.	0.15	0.02	-	-
3240	-6.53	-9.90	-7.78	-13.54	0.30	0.	0.15	0.02	100	-

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=7										
0	-6.53	-9.90	13.22	7.15	0.31	0.	0.15	0.02	100	-
162	-4.28	-7.22	13.22	7.15	0.31	0.	0.15	0.02	-	-
324	-2.20	-4.82	13.22	7.15	0.31	0.	0.15	0.02	-	-
400	-1.32	-3.78	13.22	7.15	0.31	0.	0.15	0.02	-	-
486	-0.40	-3.04	12.34	6.62	0.25	0.	0.15	0.01	-	-
648	1.26	-2.05	10.67	5.63	0.17	0.10	0.15	0.01	-	-
810	2.70	-1.21	9.00	4.63	0.10	0.22	0.15	0.01	-	-
972	3.87	-0.54	7.34	3.64	0.04	0.32	0.15	0.00	-	-
1134	4.76	-0.03	5.67	2.65	0.00	0.39	0.15	0.00	-	-
1296	5.39	0.32	4.00	1.65	0.	0.44	0.15	0.01	-	-
1458	5.75	0.51	2.33	0.32	0.	0.47	0.15	0.01	-	-
1620	5.83	0.54	0.67	-1.34	0.	0.48	0.15	0.01	100	-
1782	5.65	0.41	-1.00	-3.01	0.	0.46	0.15	0.01	-	-
1944	5.20	0.11	-2.31	-4.68	0.	0.43	0.15	0.01	-	-
2106	4.47	-0.34	-3.30	-6.34	0.02	0.37	0.15	0.00	-	-
2268	3.48	-0.96	-4.29	-8.01	0.07	0.28	0.15	0.00	-	-
2430	2.21	-1.73	-5.29	-9.68	0.14	0.18	0.15	0.01	-	-
2592	0.68	-2.67	-6.28	-11.35	0.22	0.05	0.15	0.01	-	-
2754	-1.12	-3.77	-7.27	-13.01	0.31	0.	0.15	0.02	-	-
2840	-2.16	-4.60	-7.80	-13.90	0.38	0.	0.15	0.02	-	-
2916	-3.09	-5.68	-7.80	-13.90	0.38	0.	0.15	0.02	-	-
3078	-5.28	-8.20	-7.80	-13.90	0.38	0.	0.15	0.02	-	-
3240	-7.61	-10.98	-7.80	-13.90	0.38	0.	0.15	0.02	100	-
Span=8										
0	-7.61	-10.98	14.81	8.97	0.35	0.	0.15	0.02	100	-
166	-4.92	-7.98	14.81	8.97	0.35	0.	0.15	0.02	-	-
333	-2.49	-5.25	14.81	8.97	0.35	0.	0.15	0.02	-	-
400	-1.60	-4.23	14.81	8.97	0.35	0.	0.15	0.02	-	-
499	-0.37	-3.22	13.79	8.37	0.26	0.	0.15	0.01	-	-
666	1.57	-1.91	12.07	7.34	0.15	0.12	0.15	0.01	-	-
832	3.25	-0.77	10.36	6.33	0.06	0.26	0.15	0.00	-	-
999	4.65	0.20	8.64	5.30	0.	0.38	0.15	0.00	-	-
1165	5.76	0.99	6.93	4.28	0.	0.47	0.15	0.01	-	-
1332	6.59	1.62	5.21	3.26	0.	0.54	0.15	0.01	-	-
1498	7.14	2.08	3.51	1.66	0.	0.59	0.15	0.01	-	-
1665	7.39	2.37	1.79	-0.06	0.	0.61	0.15	0.01	100	-
1831	7.37	2.49	0.37	-1.77	0.	0.61	0.15	0.01	-	-
1998	7.06	2.44	-0.66	-3.49	0.	0.58	0.15	0.01	-	-
2164	6.46	2.21	-1.67	-5.20	0.	0.53	0.15	0.01	-	-
2331	5.57	1.82	-2.70	-6.92	0.	0.46	0.15	0.01	-	-
2497	4.41	1.26	-3.72	-8.63	0.	0.36	0.15	0.00	-	-
2664	2.95	0.53	-4.74	-10.34	0.	0.24	0.15	0.00	-	-
2830	1.36	-0.50	-5.76	-12.05	0.04	0.11	0.15	0.00	-	-
2930	0.29	-1.76	-6.37	-13.08	0.14	0.02	0.15	0.01	-	-
2997	-0.49	-2.66	-6.37	-13.08	0.14	0.02	0.15	0.01	-	-
3163	-1.74	-5.09	-6.37	-13.08	0.14	0.02	0.15	0.01	-	-
3330	-3.12	-7.82	-6.37	-13.08	0.14	0.02	0.15	0.01	100	-

R3.12

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=9										
0	-3.12	-7.82	8.62	2.68	0.34	0.	0.15	0.02	100	-
113	-2.29	-6.44	8.62	2.68	0.34	0.	0.15	0.02	-	-
226	-1.58	-5.20	8.62	2.68	0.34	0.	0.15	0.02	-	-
339	-1.00	-4.33	8.62	2.68	0.34	0.	0.15	0.02	-	-
400	-0.59	-4.15	8.62	2.68	0.34	0.	0.15	0.02	-	-
452	-0.25	-4.02	8.09	2.36	0.33	0.	0.15	0.02	-	-
565	0.38	-3.79	6.92	1.67	0.31	0.03	0.15	0.02	-	-
678	0.88	-3.64	5.76	0.98	0.30	0.07	0.15	0.02	-	-
791	1.26	-3.57	4.60	-0.15	0.29	0.10	0.15	0.02	-	-
904	1.50	-3.58	3.43	-1.31	0.29	0.12	0.15	0.02	-	-
1017	1.60	-3.66	2.27	-2.47	0.30	0.13	0.15	0.02	-	-
1130	1.58	-3.83	1.11	-3.63	0.32	0.13	0.15	0.02	100	-
1243	1.43	-4.07	-0.06	-4.80	0.34	0.11	0.15	0.02	-	-
1356	1.14	-4.39	-1.22	-5.96	0.36	0.09	0.15	0.02	-	-
1469	0.72	-4.79	-2.38	-7.12	0.40	0.05	0.15	0.02	-	-
1582	0.17	-5.26	-3.54	-8.29	0.44	0.01	0.15	0.02	-	-
1695	-0.51	-5.82	-4.71	-9.45	0.48	0.	0.15	0.03	-	-
1808	-1.32	-6.45	-5.83	-10.61	0.54	0.	0.15	0.03	-	-
1860	-1.74	-6.77	-6.15	-11.15	0.57	0.	0.15	0.03	-	-
1921	-2.26	-7.16	-6.15	-11.15	0.57	0.	0.15	0.03	-	-
2034	-3.20	-8.15	-6.15	-11.15	0.57	0.	0.15	0.03	-	-
2147	-4.19	-9.68	-6.15	-11.15	0.57	0.	0.15	0.03	-	-
2260	-5.31	-11.34	-6.15	-11.15	0.57	0.	0.15	0.03	100	-
Span=10										
0	-5.31	-11.34	16.48	8.41	0.33	0.	0.15	0.02	100	-
199	-3.27	-7.44	16.48	8.41	0.33	0.	0.15	0.02	-	-
398	-1.47	-3.96	16.48	8.41	0.33	0.	0.15	0.02	-	-
597	0.70	-0.88	14.45	7.20	0.07	0.05	0.15	0.00	-	-
796	3.05	0.87	12.40	5.98	0.	0.25	0.15	0.00	-	-
995	5.13	1.95	10.35	4.76	0.	0.42	0.15	0.01	-	-
1194	6.88	2.79	8.30	3.54	0.	0.57	0.15	0.01	-	-
1393	8.23	3.38	6.26	2.32	0.	0.68	0.15	0.01	-	-
1592	9.17	3.74	4.21	1.10	0.	0.76	0.15	0.01	-	-
1791	9.70	3.85	2.16	-0.12	0.	0.80	0.15	0.01	-	-
1990	9.83	3.71	0.11	-1.49	0.	0.81	0.15	0.01	100	-
2189	9.55	3.34	-1.94	-3.54	0.	0.79	0.15	0.01	-	-
2388	8.86	2.72	-3.72	-5.59	0.	0.73	0.15	0.01	-	-
2587	7.76	1.85	-4.94	-7.64	0.	0.64	0.15	0.01	-	-
2786	6.26	0.75	-6.16	-9.68	0.	0.52	0.15	0.01	-	-
2985	4.34	-0.60	-7.38	-11.73	0.04	0.36	0.15	0.00	-	-
3184	2.06	-2.19	-8.60	-13.78	0.18	0.17	0.15	0.01	-	-
3383	-0.57	-4.02	-9.82	-15.83	0.33	0.	0.15	0.02	-	-
3582	-3.60	-6.81	-11.03	-17.86	0.57	0.	0.15	0.03	-	-
3781	-7.04	-10.57	-11.03	-17.86	0.57	0.	0.15	0.03	-	-
3980	-10.65	-14.74	-11.03	-17.86	0.57	0.	0.15	0.03	100	-

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Detailed results - at 1/20 of span, support faces, etc.

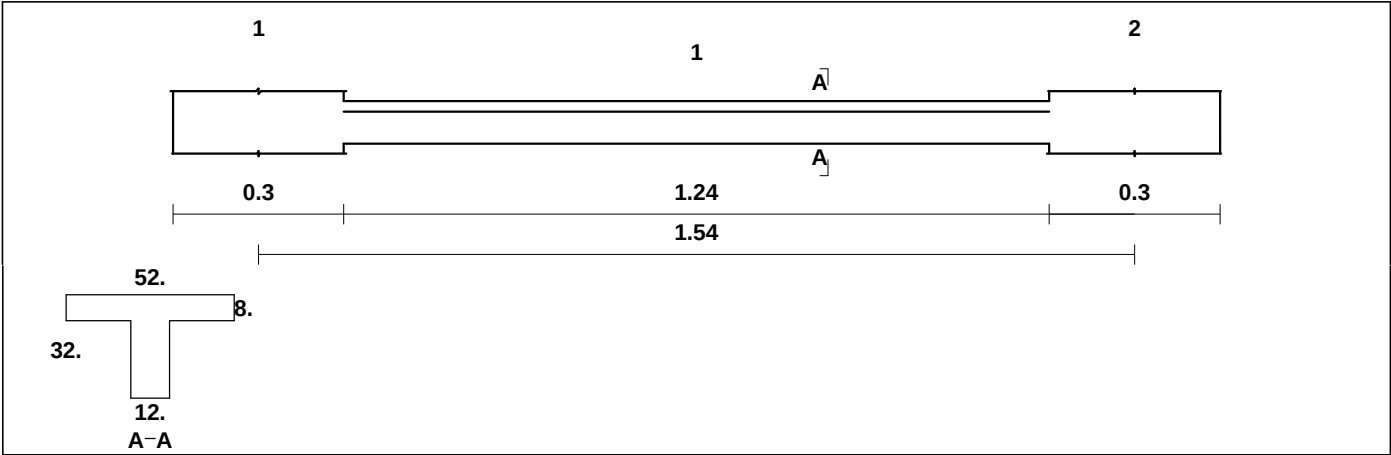
Dis	Mmax	Mmin	Vmax	Vmin	A`s	As	Av/s	a/d	Red	Wid+
Span=11										
0	-10.65	-14.74	16.64	9.84	0.61	0.	0.15	0.03	100	-
186	-7.33	-11.06	16.64	9.84	0.61	0.	0.15	0.03	-	-
371	-4.37	-7.75	16.64	9.84	0.61	0.	0.15	0.03	-	-
400	-3.94	-7.26	16.64	9.84	0.61	0.	0.15	0.03	-	-
557	-1.74	-5.35	15.02	8.87	0.44	0.	0.15	0.02	-	-
742	0.62	-3.79	13.12	7.74	0.31	0.05	0.15	0.02	-	-
928	2.64	-2.43	11.20	6.60	0.20	0.21	0.15	0.01	-	-
1113	4.30	-1.28	9.30	5.46	0.10	0.35	0.15	0.01	-	-
1299	5.61	-0.34	7.38	4.32	0.02	0.46	0.15	0.01	-	-
1484	6.55	0.38	5.48	3.19	0.	0.54	0.15	0.01	-	-
1670	7.15	0.89	3.56	1.65	0.	0.59	0.15	0.01	-	-
1855	7.40	1.20	1.66	-0.26	0.	0.61	0.15	0.01	100	-
2041	7.29	1.29	-0.07	-2.17	0.	0.60	0.15	0.01	-	-
2226	6.82	1.17	-1.21	-4.07	0.	0.56	0.15	0.01	-	-
2412	6.00	0.84	-2.35	-5.99	0.	0.49	0.15	0.01	-	-
2597	4.83	0.30	-3.48	-7.89	0.	0.40	0.15	0.00	-	-
2783	3.30	-0.45	-4.62	-9.81	0.03	0.27	0.15	0.00	-	-
2968	1.52	-1.43	-5.76	-11.71	0.11	0.12	0.15	0.01	-	-
3154	-0.48	-2.63	-6.90	-13.63	0.21	0.	0.15	0.01	-	-
3310	-2.43	-4.69	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3339	-2.82	-5.13	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3525	-5.53	-8.20	-7.86	-15.23	0.39	0.	0.15	0.02	-	-
3710	-7.38	-11.60	-7.86	-15.23	0.39	0.	0.15	0.02	100	-
Span=12										
0	-7.38	-11.60	14.69	9.34	0.44	0.	0.15	0.02	100	-
143	-5.00	-9.02	14.69	9.34	0.44	0.	0.15	0.02	-	-
287	-2.82	-6.63	14.69	9.34	0.44	0.	0.15	0.02	-	-
400	-1.26	-5.27	14.69	9.34	0.44	0.	0.15	0.02	-	-
430	-0.87	-4.98	14.39	9.15	0.41	0.	0.15	0.02	-	-
574	0.88	-3.67	12.90	8.27	0.30	0.07	0.15	0.02	-	-
717	2.41	-2.50	11.43	7.39	0.20	0.20	0.15	0.01	-	-
861	3.74	-1.45	9.95	6.51	0.12	0.31	0.15	0.01	-	-
1004	4.84	-0.53	8.48	5.63	0.04	0.40	0.15	0.00	-	-
1148	5.75	0.28	7.00	4.75	0.	0.47	0.15	0.01	-	-
1291	6.43	0.94	5.52	3.87	0.	0.53	0.15	0.01	-	-
1435	6.91	1.49	4.04	2.57	0.	0.57	0.15	0.01	100	-
1578	7.17	1.91	2.57	1.10	0.	0.59	0.15	0.01	-	-
1722	7.22	2.20	1.60	-0.38	0.	0.60	0.15	0.01	-	-
1865	7.06	2.37	0.72	-1.86	0.	0.58	0.15	0.01	-	-
2009	6.69	2.41	-0.16	-3.34	0.	0.55	0.15	0.01	-	-
2152	6.11	2.33	-1.04	-4.81	0.	0.50	0.15	0.01	-	-
2296	5.31	2.11	-1.92	-6.29	0.	0.44	0.15	0.01	-	-
2439	4.30	1.77	-2.80	-7.76	0.	0.35	0.15	0.00	-	-
2583	3.08	1.31	-3.68	-9.25	0.	0.25	0.15	0.00	-	-
2620	2.73	1.17	-3.91	-9.63	0.	0.22	0.15	0.00	-	-
2726	1.65	0.72	-3.91	-9.63	0.	0.13	0.15	0.00	-	-
2870	0.00	0.00	-3.91	-9.63	0.	0.	0.15	0.00	100	-

R3.12	Code: ACI318-02
Project: BAEMS	Page: 182
Designed by: bayan	Date: 3/22/14

	Moment / Shear Envelope (Factored)				Units:kN,meter			
	1	2	3	4	5			
	1	2	3	4	5			
Min M	0.0	-23.3	-23.3	-24.5	-24.5	-10.9	-10.9	-7.3
Max M	0.0	-12.5	-12.5	-17.0	-17.0	-3.5	-3.5	-3.1
MspMn	-0.9	-16.1	-12.5	-13.7	-15.2	-3.8	-5.7	-2.1
MspMx	0.2	-6.8	-6.5	-10.3	-8.8	-0.6	0.5	0.3
M Max			18.0		8.6		4.5	
M Min			8.9		1.8		-1.0	
Mmn=0 @	0.0	1.8	1.0	1.2	2.0	0.7	0.0	2.6
Mmx=0 @	0.0	1.3	0.9	0.9	1.0	0.5	0.3	0.4
mx -M @			0.9		1.0		0.3	
mx +M @			2.8		2.3		1.3	
V max	2.3	-16.2		-17.9		-8.3		-6.1
V min	-7.2	-22.2		-29.2		-19.6	9.3	-14.9
DReac	-1.8	29.8		32.2		18.9		15.4
LReac	4.1	21.6		22.4		17.1		14.6
Max R	2.3	51.3		54.6		36.1		30.0
Min R	-7.2	32.4		40.5		20.3		17.9
	5	6	7	8	9			
Min M	-7.3	-9.4	-9.4	-9.9	-9.9	-11.0	-11.0	-7.8
Max M	-3.1	-5.6	-5.6	-6.5	-6.5	-7.6	-7.6	-3.1
MspMn	-2.1	-3.8	-3.2	-3.7	-3.8	-4.6	-4.2	-1.8
MspMx	0.6	-0.9	-1.2	-1.0	-1.3	-2.2	-1.6	0.3
M Max			6.5		5.8		7.4	
M Min			1.4		0.5		2.5	
Mmn=0 @	1.0	1.2	0.9	1.0	1.1	1.3	1.0	0.6
Mmx=0 @	0.3	0.5	0.5	0.5	0.5	0.6	0.5	0.4
mx -M @			0.5		0.5		0.5	
mx +M @			1.6		1.6		1.7	
V max		-9.5		-10.2		-10.3		-8.8
V min	7.4	-16.5	9.6	-17.7	9.6	-18.0		-17.2
DReac		19.1		19.7		21.1		15.5
LReac		15.0		15.3		15.8		14.5
Max R		34.1		35.0		36.9		29.9
Min R		23.5		25.4		27.3		16.8
	9	10	11	12	13			
Min M	-7.8	-11.3	-11.3	-14.7	-14.7	-11.6	-11.6	0.0
Max M	-3.1	-5.3	-5.3	-10.7	-10.7	-7.4	-7.4	0.0
MspMn	-4.2	-6.8	-4.0	-6.8	-7.3	-4.7	-5.3	1.2
MspMx	-0.6	-1.7	-1.5	-3.6	-3.9	-2.4	-1.3	2.7
M Max			9.8		7.4		7.2	
M Min			3.8		1.3		2.4	
Mmn=0 @	0.0	2.3	0.7	1.1	1.4	1.0	1.1	2.9
Mmx=0 @	0.5	0.6	0.5	0.6	0.7	0.6	0.5	2.9
mx -M @			0.5		0.7		0.5	
mx +M @			2.0		1.9		1.7	
V max		-8.6		-13.5		-10.3		-5.4
V min	5.1	-15.3		-22.0		-19.3		-12.2
DReac		19.5		24.7		21.9		6.6
LReac		16.4		18.0		16.3		5.6
Max R		35.9		42.7		38.2		12.2
Min R		21.4		32.4		27.6		5.4

R9		Code: ACI318-02
Project:	R2	Page: 24
Designed by:	bayan	Date: 3/ 8/14

Geometry Units:meter,cm

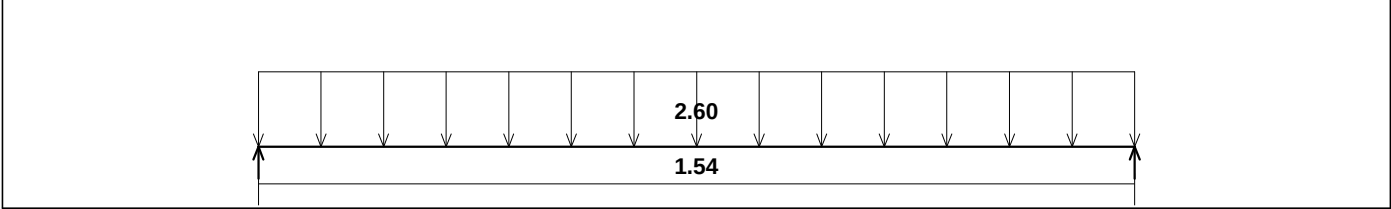


Loading

load group no. 1
Dead load - Service Units:kN,meter



Live load - Service Load factors: 1.20,1.20/1.60,0.00



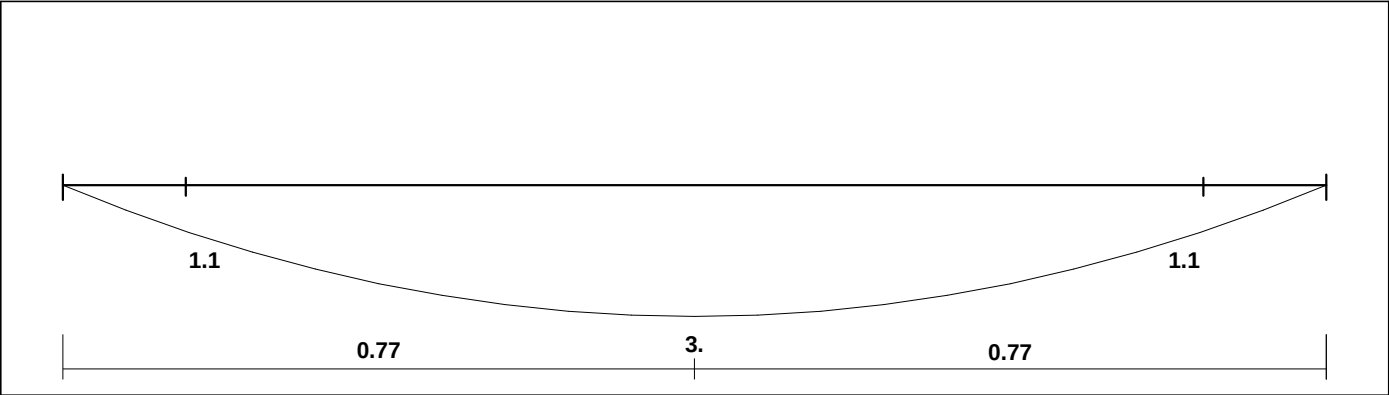
Loads (kN,meter)	
1	
Uni D	4.90 L 2.60

R9
Project: R2
Designed by: bayan

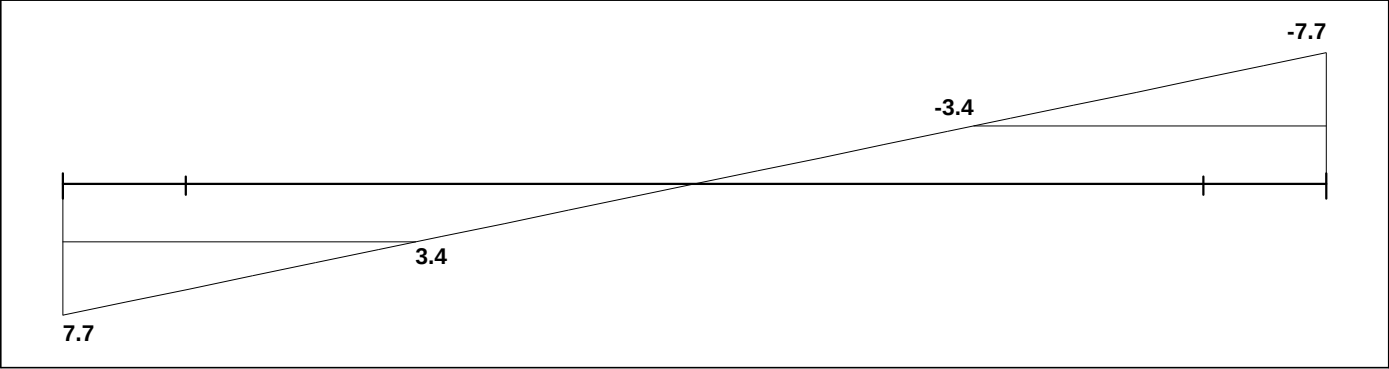
Code: ACI318-02
Page: 25
Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	4.53		4.53
LiveR	3.2		3.2
Max R	7.73		7.73
Min R	7.73		7.73
Service			
DeadR	3.77		3.77
LiveR	2.		2.
Max R	5.77		5.77
Min R	5.77		5.77

R9		Code: ACI318-02
Project:	R2	Page: 26
Designed by:	bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		

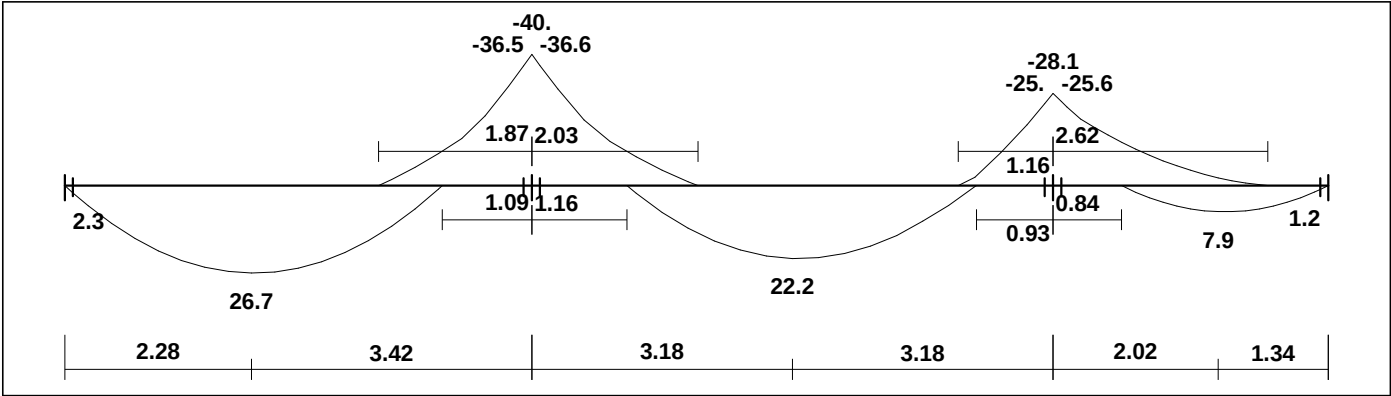
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	1.1	1.1	
MspMx	1.1	1.1	
M Max			
M Min			
Mmn=0 @	0.0	1.5	
Mmx=0 @	0.0	1.5	
mx -M @			
mx +M @			
V max	7.7	-7.7	
V min	7.7	-7.7	
DReac	4.5	4.5	
LReac	3.2	3.2	
Max R	7.7	7.7	
Min R	7.7	7.7	

R12
Project: R2
Designed by: bayan

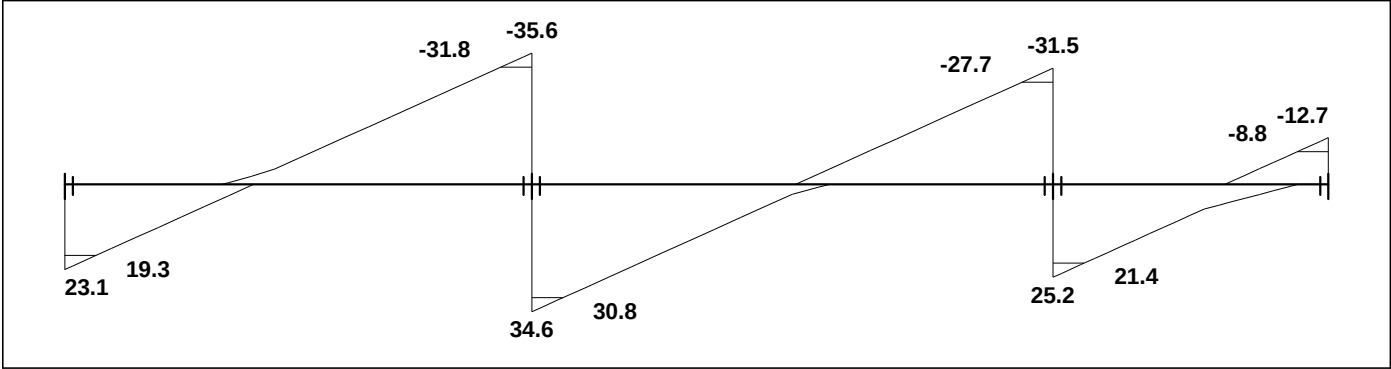
Code: ACI318-02
Page: 3
Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	12.71	40.81	31.67	5.48
LiveR	10.43	29.42	25.08	7.18
Max R	23.14	70.22	56.75	12.66
Min R	11.28	54.47	37.09	2.18
Service				
DeadR	10.59	34.01	26.39	4.57
LiveR	6.52	18.38	15.68	4.49
Max R	17.11	52.39	42.07	9.05
Min R	9.7	42.54	29.78	2.5

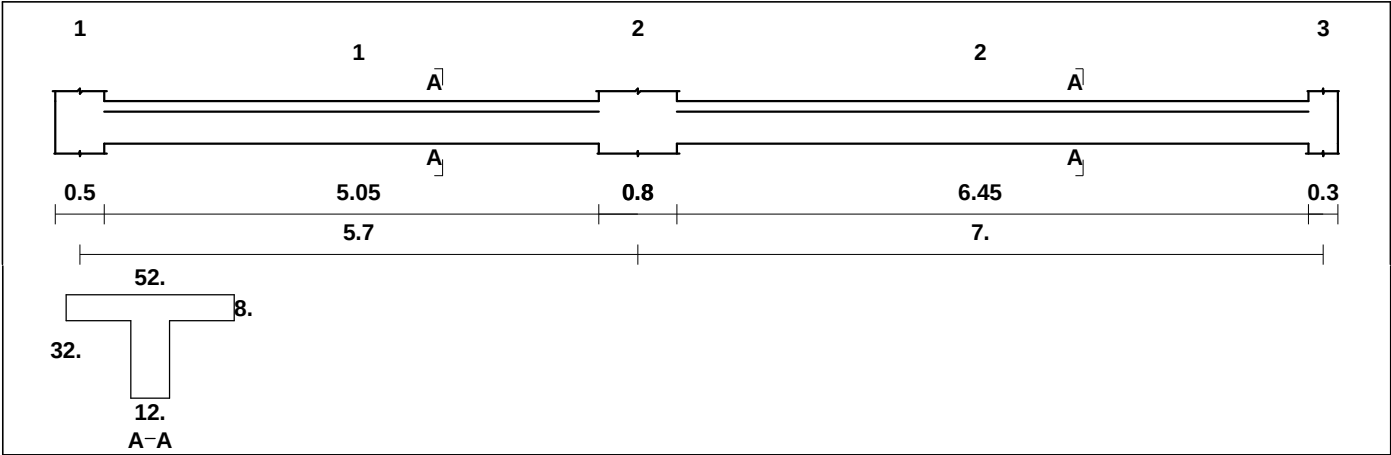
R12	Code: ACI318-02
Project: R2	Page: 4
Designed by: bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored)						Units:kN,meter
1	1	2	2	3	3	4
	-----		-----		-----	
Min M	0.0	-40.0	-40.0	-28.1	-28.1	0.0
Max M	0.0	-30.7	-30.7	-14.1	-14.1	0.0
MspMn	1.1	-36.5	-36.6	-25.0	-25.6	0.2
MspMx	2.3	-27.9	-27.5	-12.6	-12.1	1.2
M Max			22.2		7.9	
M Min			7.6		0.4	
Mmn=0 @	0.0	1.9	2.0	1.2	2.6	3.4
Mmx=0 @	0.0	1.1	1.2	0.9	0.8	3.4
mx -M @			1.2		0.8	
mx +M @			3.2		2.0	
V max		-22.1		-16.0		-2.2
V min		-35.6		-31.5		-12.7
DReac		40.8		31.7		5.5
LReac		29.4		25.1		7.2
Max R		70.2		56.7		12.7
Min R		54.5		37.1		2.2

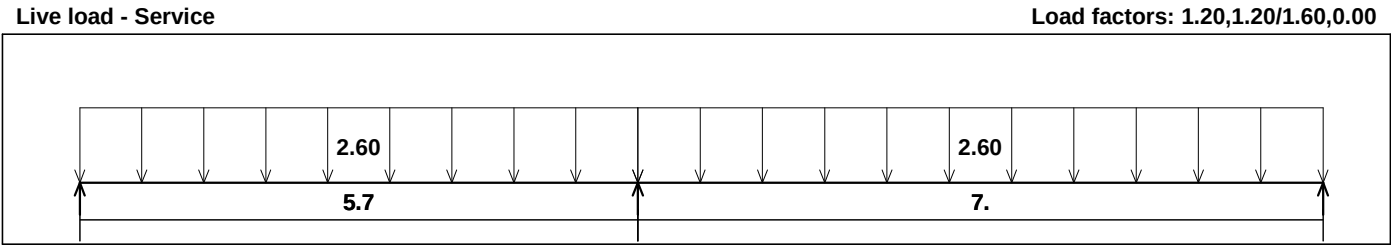
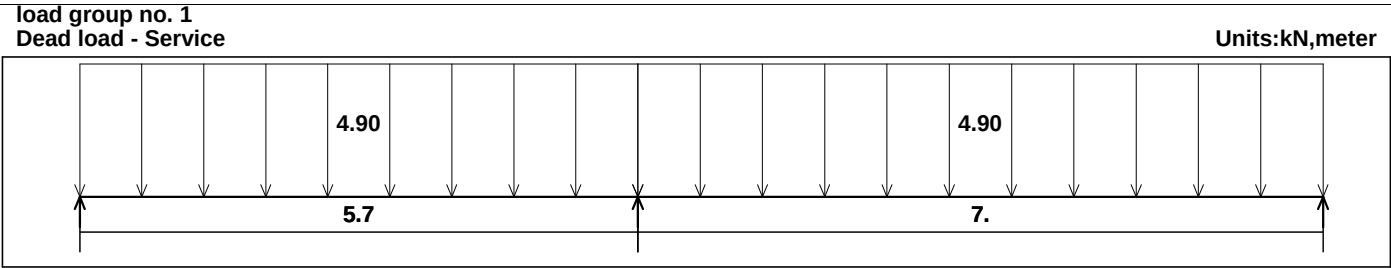
R13	Code: ACI318-02
Project: R2	Page: 4
Designed by: bayan	Date: 3/ 8/14

Geometry

Units:meter,cm



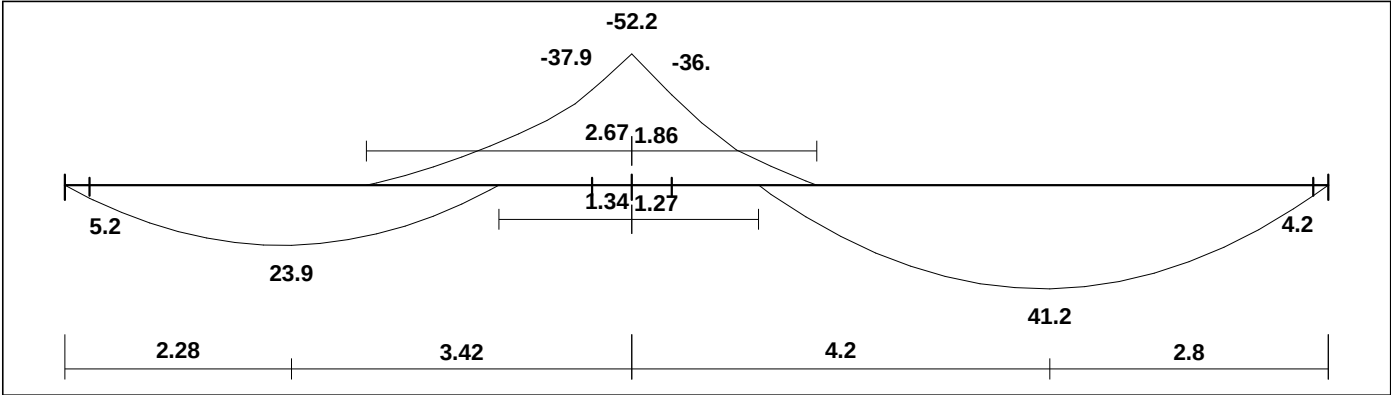
Loading



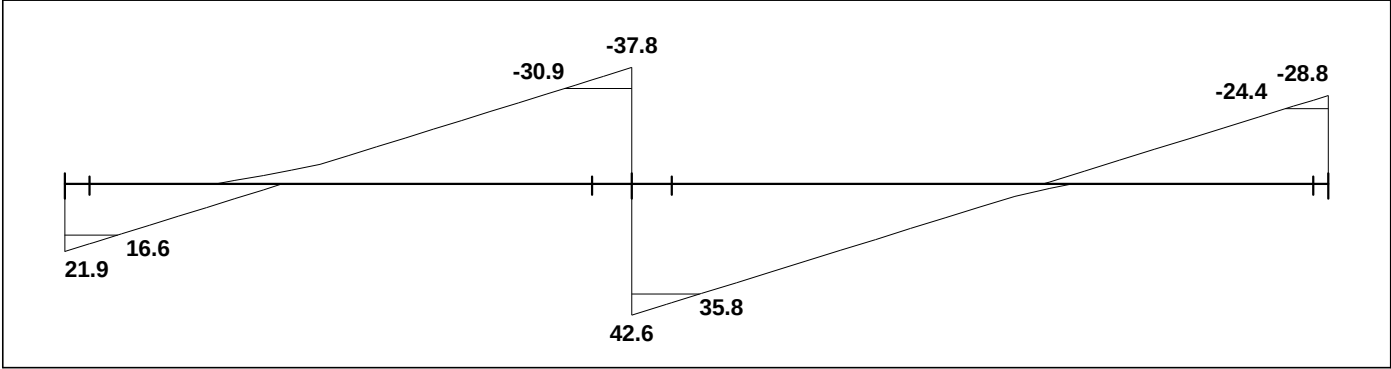
Loads (kN,meter)					
1			2		
Uni D	4.90	L	2.60	Uni D	4.90
				L	2.60

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

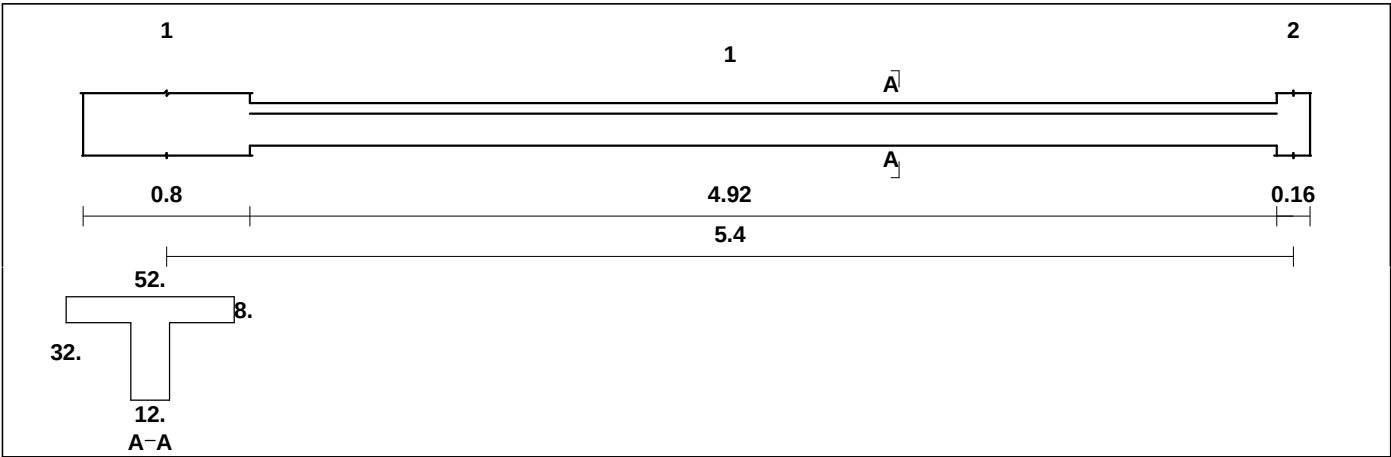
Factored

DeadR	11.4	47.07	16.21
LiveR	10.53	33.3	12.55
Max R	21.92	80.37	28.77
Min R	8.93	61.34	15.13
Service			
DeadR	9.5	39.22	13.51
LiveR	6.58	20.81	7.85
Max R	16.07	60.04	21.36
Min R	7.96	48.14	12.83

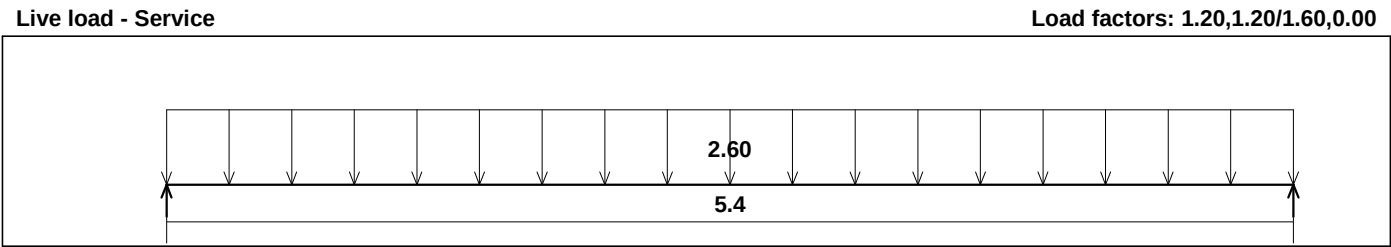
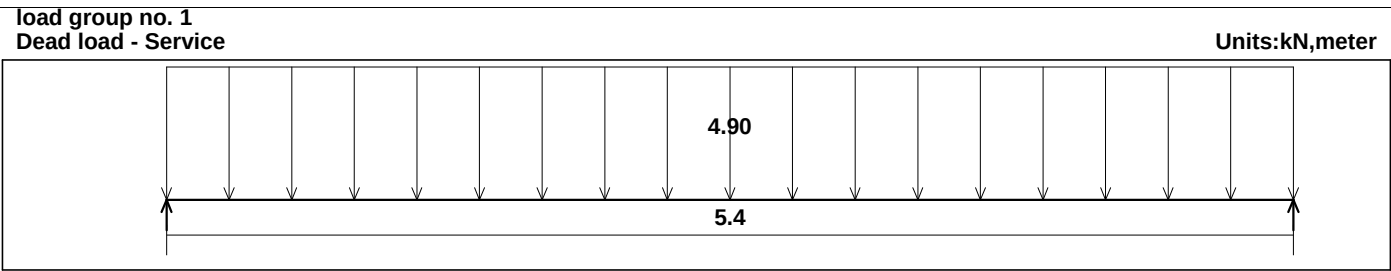
R13		Code: ACI318-02
Project:	R2	Page: 6
Designed by:	bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	3	
	1	2	2	3
Min M	0.0	-52.2	-52.2	0.0
Max M	0.0	-38.2	-38.2	0.0
MspMn	2.0	-37.9	-36.0	2.2
MspMx	5.2	-24.8	-28.2	4.2
M Max			41.2	
M Min			19.4	
Mmn=0 @	0.0	2.7	1.9	7.0
Mmx=0 @	0.0	1.3	1.3	7.0
mx -M @			1.3	
mx +M @			4.2	
V max		-24.6		-15.1
V min	8.9	-37.8		-28.8
DReac		47.1		16.2
LReac		33.3		12.6
Max R		80.4		28.8
Min R	8.9	61.3		15.1

GeometryUnits:meter,cm



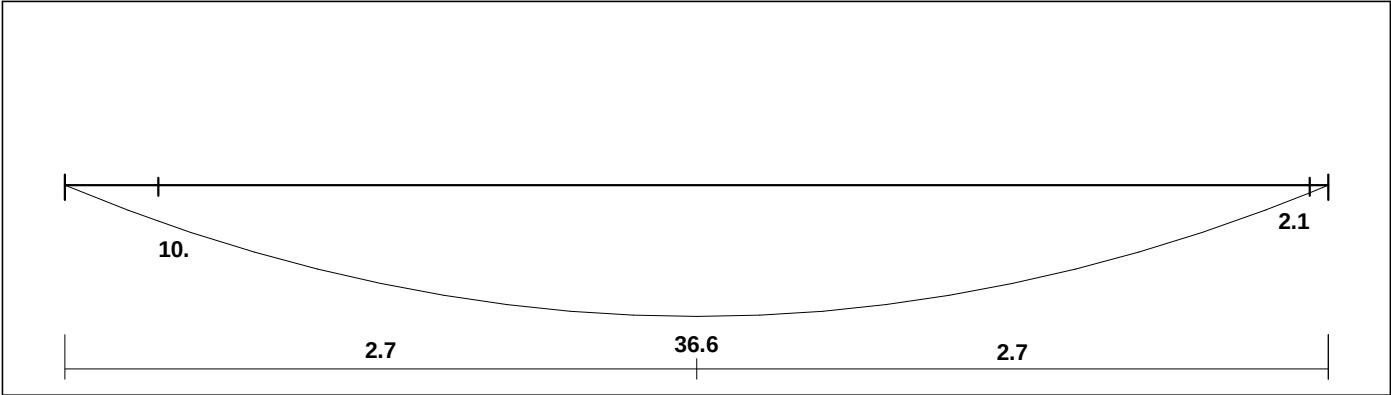
Loading



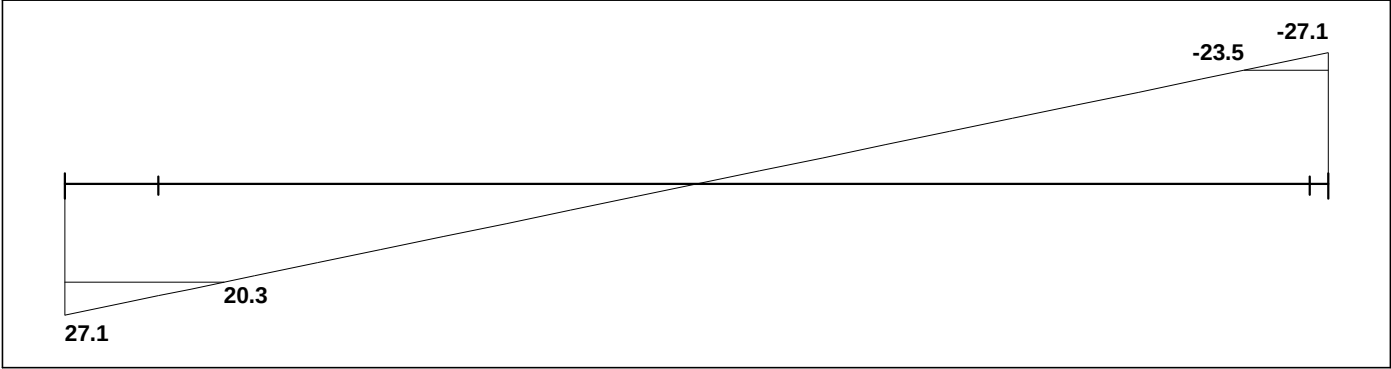
Loads (kN,meter)			
1			
Uni D	4.90	L	2.60

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	15.88		15.88
LiveR	11.23		11.23
Max R	27.11		27.11
Min R	27.11		27.11
Service			
DeadR	13.23		13.23
LiveR	7.02		7.02
Max R	20.25		20.25
Min R	20.25		20.25

R14	Code: ACI318-02
Project: R2	Page: 8
Designed by: bayan	Date: 3/ 8/14

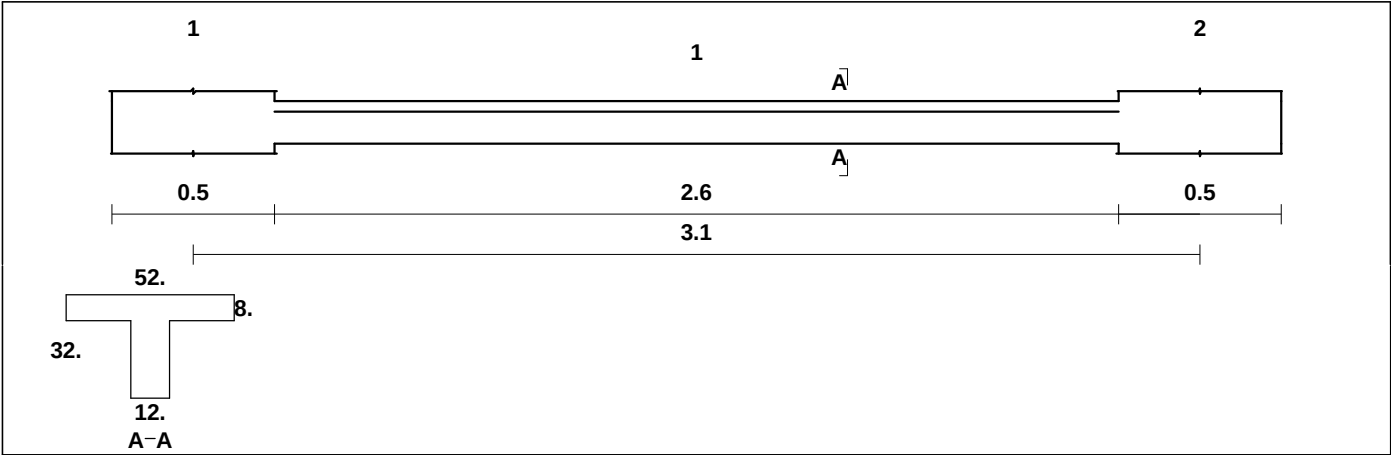
M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn		2.1	
MspMx		2.1	
M Max			
M Min			
Mmn=0 @	0.0	5.4	
Mmx=0 @	0.0	5.4	
mx -M @			
mx +M @			
V max		-27.1	
V min		-27.1	
DReac		15.9	
LReac		11.2	
Max R		27.1	
Min R		27.1	

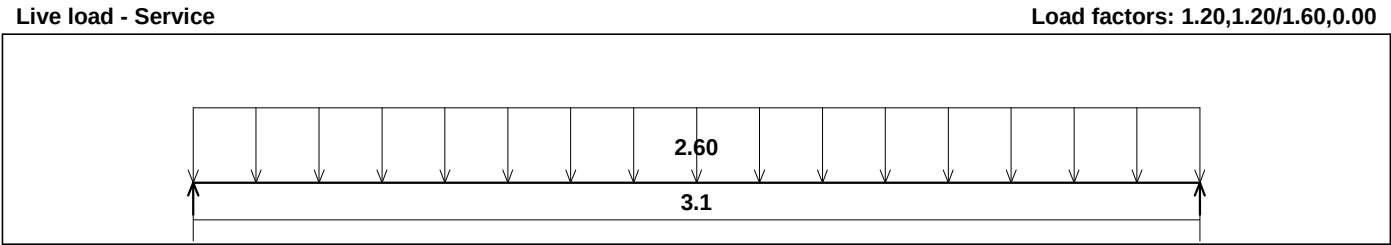
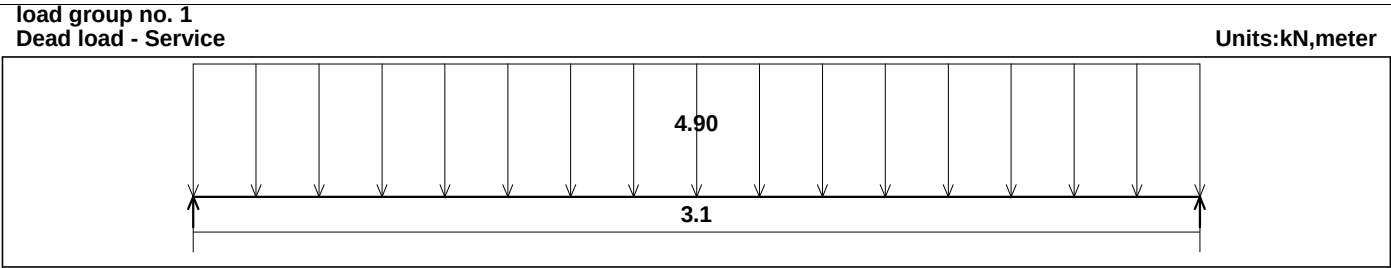
R15	Code: ACI318-02
Project: R2	Page: 8
Designed by: bayan	Date: 3/ 8/14

Geometry

Units:meter,cm



Loading



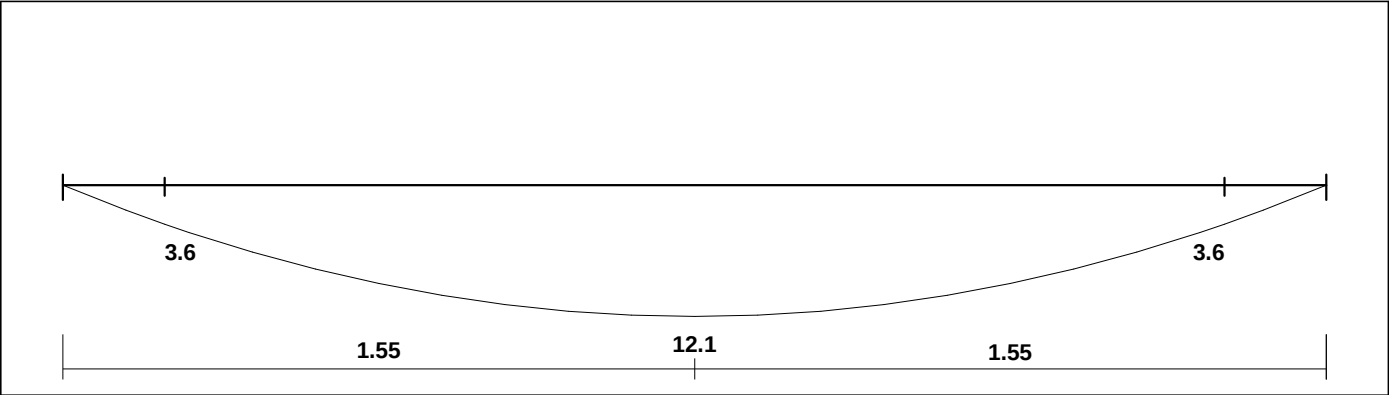
Loads (kN,meter)			
1			
Uni D	4.90	L	2.60

R15
Project: R2
Designed by: bayan

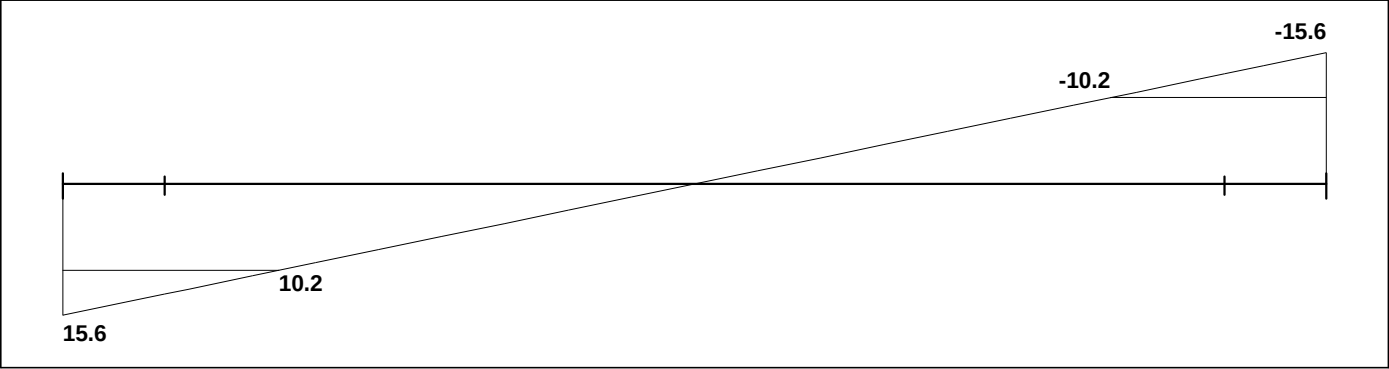
Code: ACI318-02
Page: 9
Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	9.11		9.11
LiveR	6.45		6.45
Max R	15.56		15.56
Min R	15.56		15.56
Service			
DeadR	7.59		7.59
LiveR	4.03		4.03
Max R	11.62		11.62
Min R	11.62		11.62

R15	Code: ACI318-02
Project: R2	Page: 10
Designed by: bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		

Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	3.6	3.6	
MspMx	3.6	3.6	
M Max			
M Min			
Mmn=0 @	0.0	3.1	
Mmx=0 @	0.0	3.1	
mx -M @			
mx +M @			
V max		-15.6	
V min		-15.6	
DReac	9.1	9.1	
LReac	6.4	6.4	
Max R		15.6	
Min R		15.6	

The diagram shows a stepped shaft with the following dimensions and features:

- Shaft Segments and Dimensions:**
 - Segment 1: Length 0.8, Diameter 1
 - Segment 2: Length 2.5, Diameter 1
 - Segment 3: Length 0.8, Diameter 2
 - Segment 4: Length 3.35, Diameter 2
 - Segment 5: Length 0.8, Diameter 3
 - Segment 6: Length 1.99, Diameter 3
 - Segment 7: Length 0.55, Diameter 4
- Keyways:** Indicated by 'A' at the transitions between segments 1/2, 2/3, 3/4, and 5/6.
- Section A-A:** A cross-section of the shaft showing a T-shaped profile with dimensions:
 - Top flange width: 52.
 - Top flange thickness: 8.
 - Stem width: 32.
 - Stem height: 12.

load group no. 1
Dead load - Service Units:kN,meter

4.90 4.90 4.90

3.3 4.15 2.67

Live load - Service Load factors: 1.20,1.20/1.60,0.00

2.60 2.60 2.60

3.3 4.15 2.67

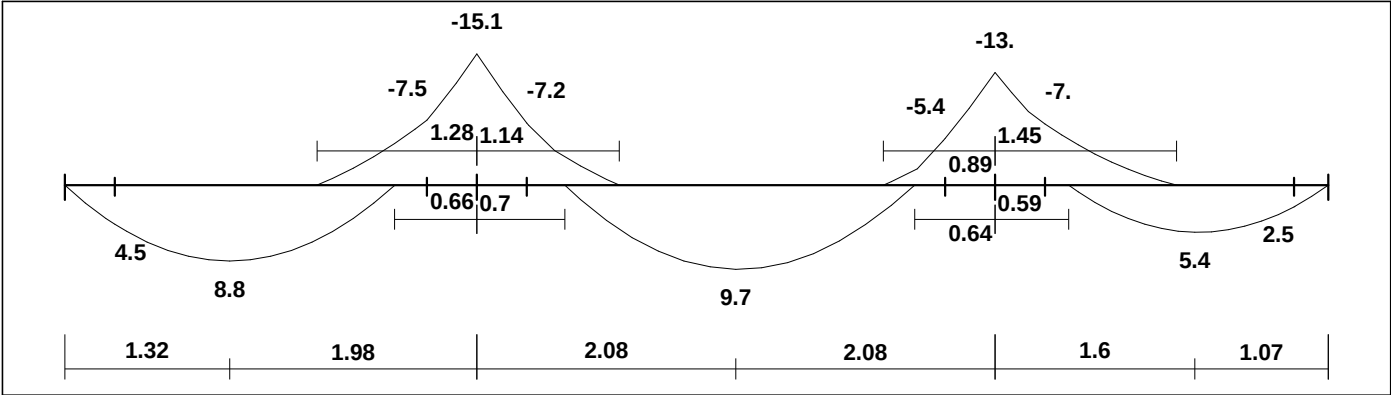
Loads (kN, meter)								
1			2			3		
Uni D	4.90 L	2.60	Uni D	4.90 L	2.60	Uni D	4.90 L	2.60

R16.b
Project: R2
Designed by: bayan

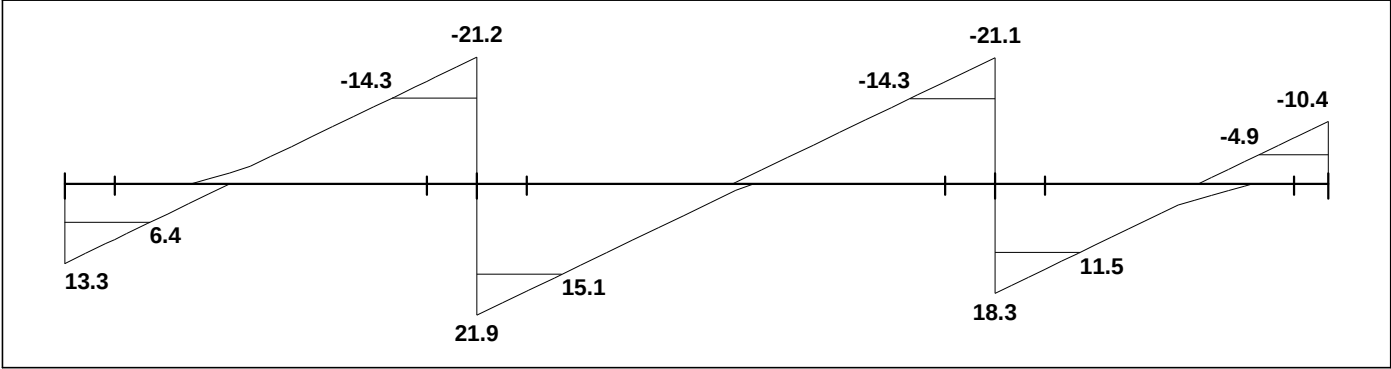
Code: ACI318-02
Page: 15
Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

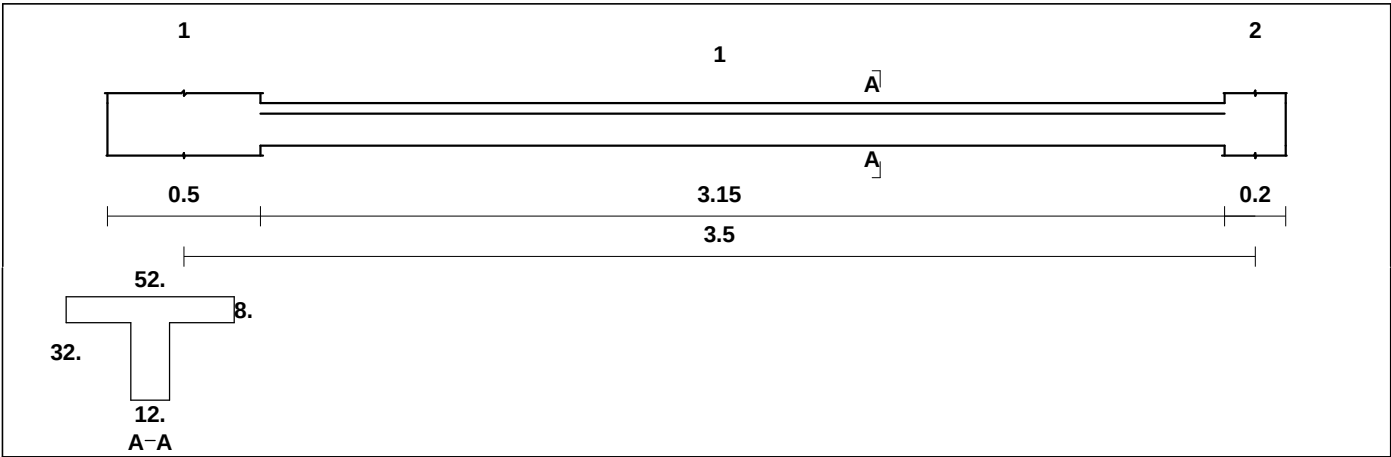
DeadR	7.09		24.87			22.37			5.18
LiveR	6.17		18.22			17.			5.27
Max R	13.26		43.08			39.37			10.45
Min R	5.94		32.8			27.83			3.57
Service									
DeadR	5.91		20.72			18.64			4.31
LiveR	3.85		11.38			10.62			3.3
Max R	9.77		32.11			29.26			7.61
Min R	5.19		25.68			22.05			3.31

R16.b	Code: ACI318-02
Project: R2	Page: 16
Designed by: bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored) Units:kN,meter						
	1	2	3	4		
	1	2	3	4		
Min M	0.0	-15.1	-15.1	-13.0	-13.0	0.0
Max M	0.0	-10.9	-10.9	-7.9	-7.9	0.0
MspMn	1.9	-7.5	-7.2	-5.4	-7.0	0.8
MspMx	4.5	-3.8	-4.5	-3.5	-2.1	2.5
M Max			9.7		5.4	
M Min			3.3		1.1	
Mmn=0 @	0.0	1.3	1.1	0.9	1.5	2.7
Mmx=0 @	0.0	0.7	0.7	0.6	0.6	2.7
mx -M @			0.7		0.6	
mx +M @			2.1		1.6	
V max		-13.3		-11.5		-3.6
V min	5.9	-21.2		-21.1		-10.4
DReac	7.1	24.9		22.4		5.2
LReac	6.2	18.2		17.0		5.3
Max R		43.1		39.4		10.4
Min R	5.9	32.8		27.8		3.6

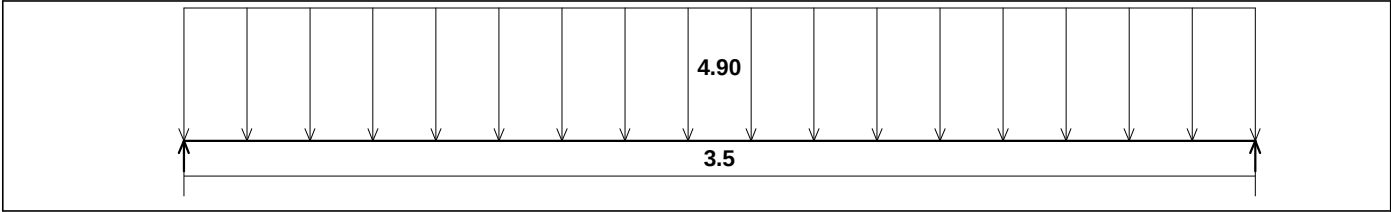
R17.b	Code: ACI318-02
Project: R2	Page: 18
Designed by: bayan	Date: 3/ 8/14

Geometry Units: meter, cm

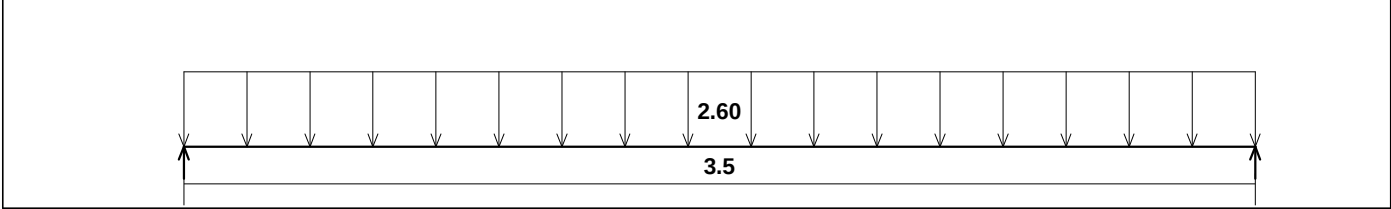


Loading

load group no. 1 Dead load - Service Units: kN, meter



Live load - Service Load factors: 1.20, 1.20/1.60, 0.00



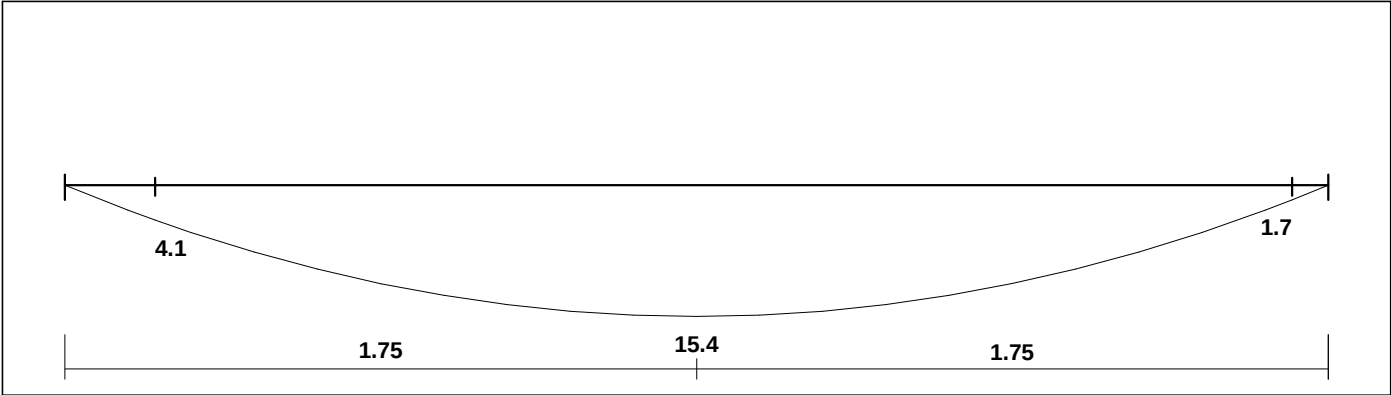
Loads (kN, meter)			
1			
Uni D	4.90	L	2.60

R17.b
Project: R2
Designed by: bayan

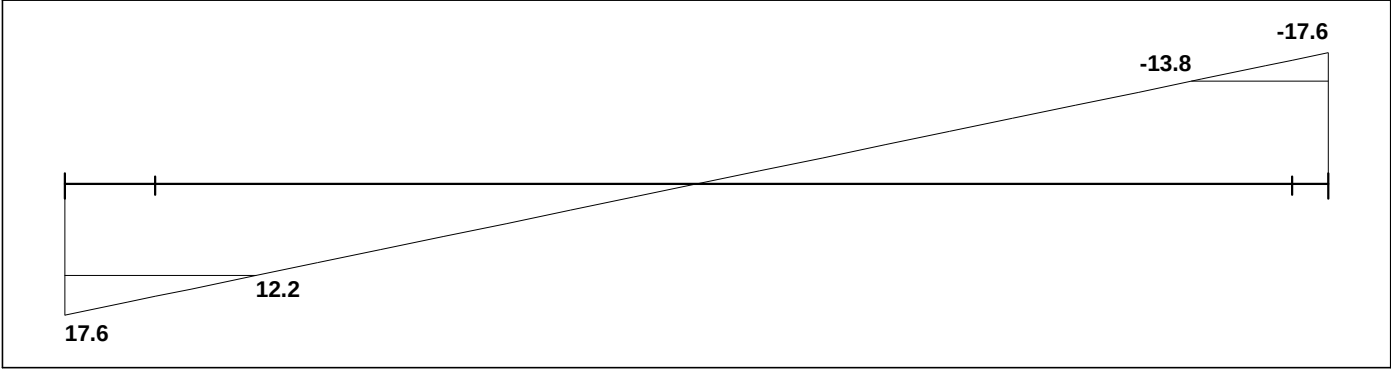
Code: ACI318-02
Page: 19
Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

DeadR	10.29		10.29
LiveR	7.28		7.28
Max R	17.57		17.57
Min R	17.57		17.57
Service			
DeadR	8.57		8.57
LiveR	4.55		4.55
Max R	13.12		13.12
Min R	13.12		13.12

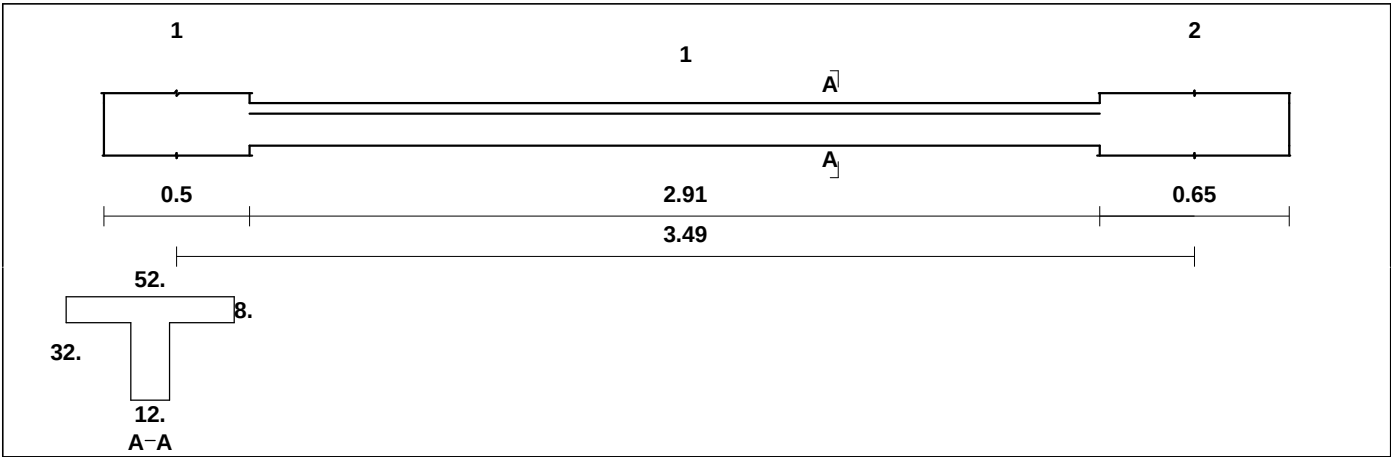
R17.b	Code: ACI318-02
Project: R2	Page: 20
Designed by: bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
	1		

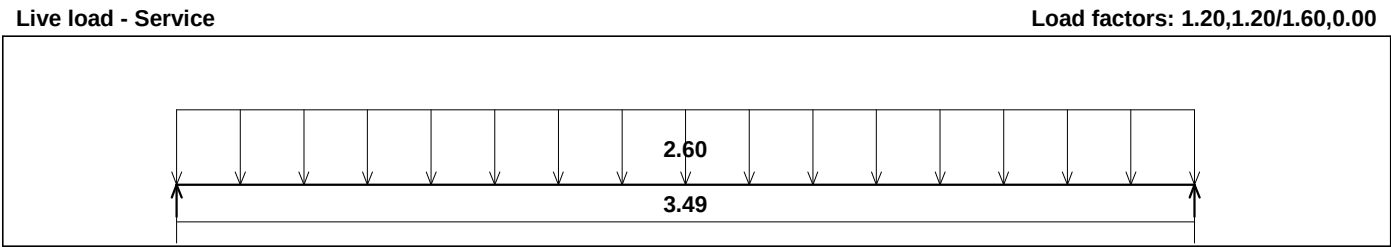
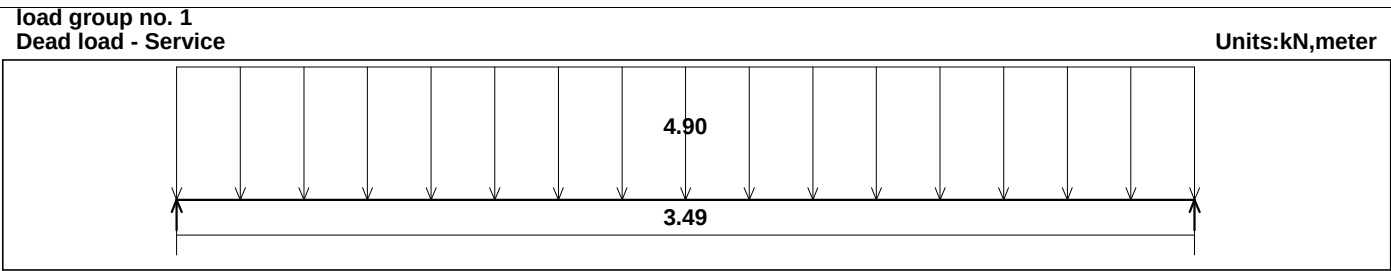
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	4.1	1.7	
MspMx	4.1	1.7	
M Max			
M Min			
Mmn=0 @	0.0	3.5	
Mmx=0 @	0.0	3.5	
mx -M @			
mx +M @			
V max		-17.6	
V min		-17.6	
DReac		10.3	
LReac	7.3	7.3	
Max R		17.6	
Min R		17.6	

R23	Code: ACI318-02
Project: R2	Page: 10
Designed by: bayan	Date: 3/ 8/14

Geometry Units: meter, cm



Loading

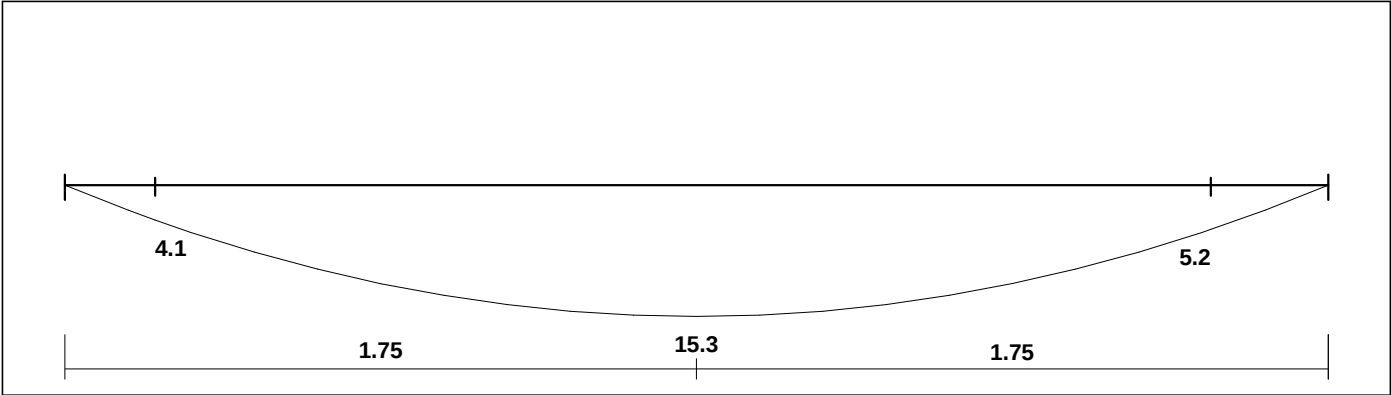


Loads (kN, meter)			
1			
Uni D	4.90	L	2.60

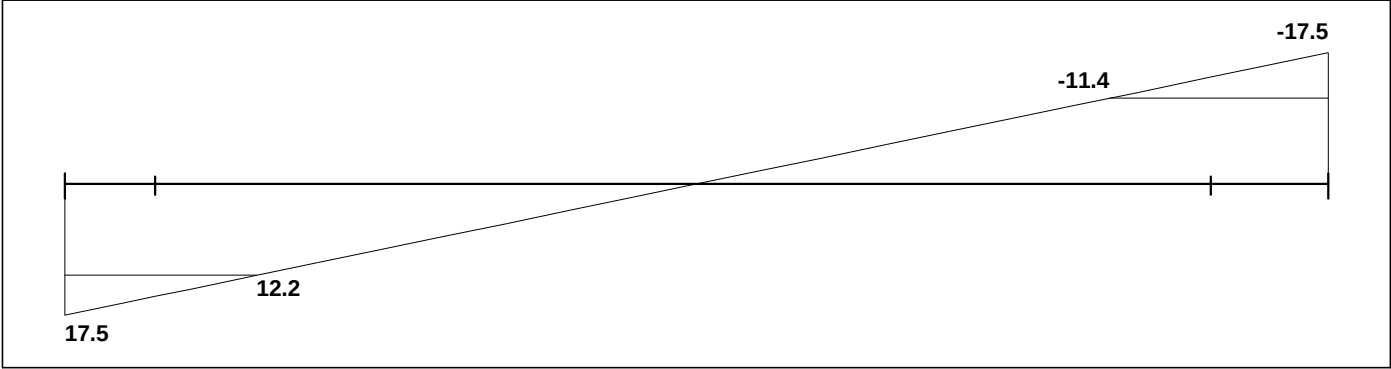
R23	Code: ACI318-02
Project: R2	Page: 11
Designed by: bayan	Date: 3/ 8/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored

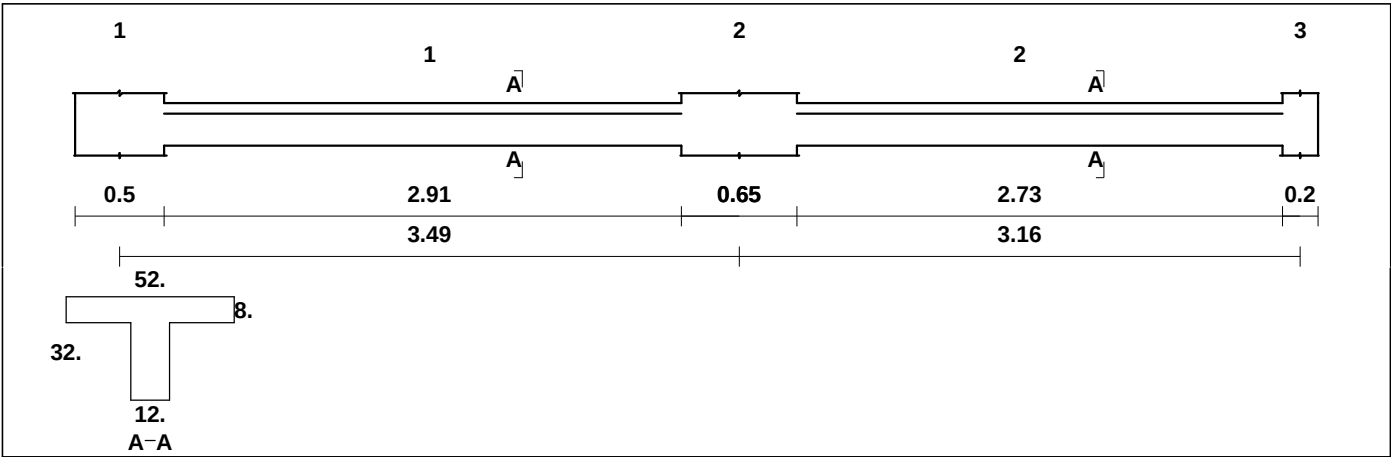
DeadR	10.26		10.26
LiveR	7.26		7.26
Max R	17.52		17.52
Min R	17.52		17.52
Service			
DeadR	8.55		8.55
LiveR	4.54		4.54
Max R	13.09		13.09
Min R	13.09		13.09

R23		Code: ACI318-02
Project:	R2	Page: 12
Designed by:	bayan	Date: 3/ 8/14

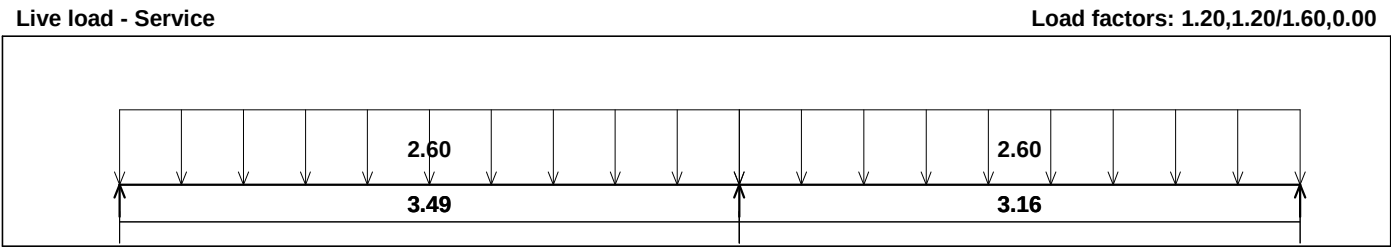
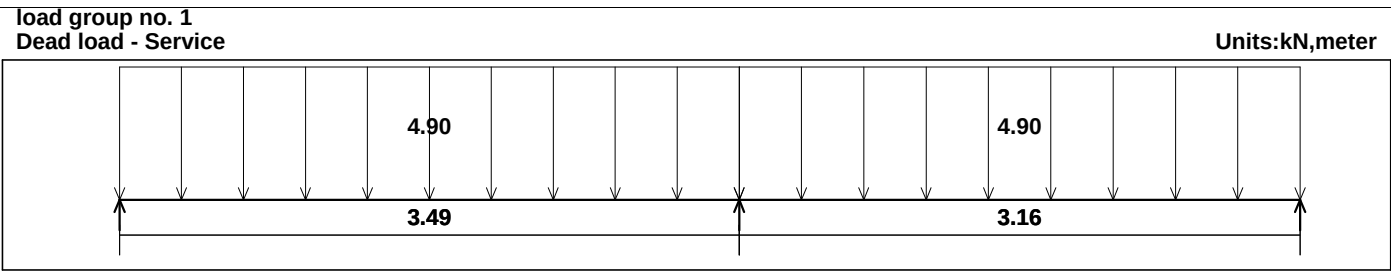
M o m e n t / S h e a r E n v e l o p e (F a c t o r e d)			Units:kN,meter
	1	2	
	1		

Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	4.1	5.2	
MspMx	4.1	5.2	
M Max			
M Min			
Mmn=0 @	0.0	3.5	
Mmx=0 @	0.0	3.5	
mx -M @			
mx +M @			
V max		-17.5	
V min		-17.5	
DReac		10.3	
LReac	7.3	7.3	
Max R		17.5	
Min R		17.5	

Geometry Units: meter, cm



Loading



Loads (kN, meter)					
1			2		
Uni D	4.90	L	2.60	Uni D	4.90
				L	2.60

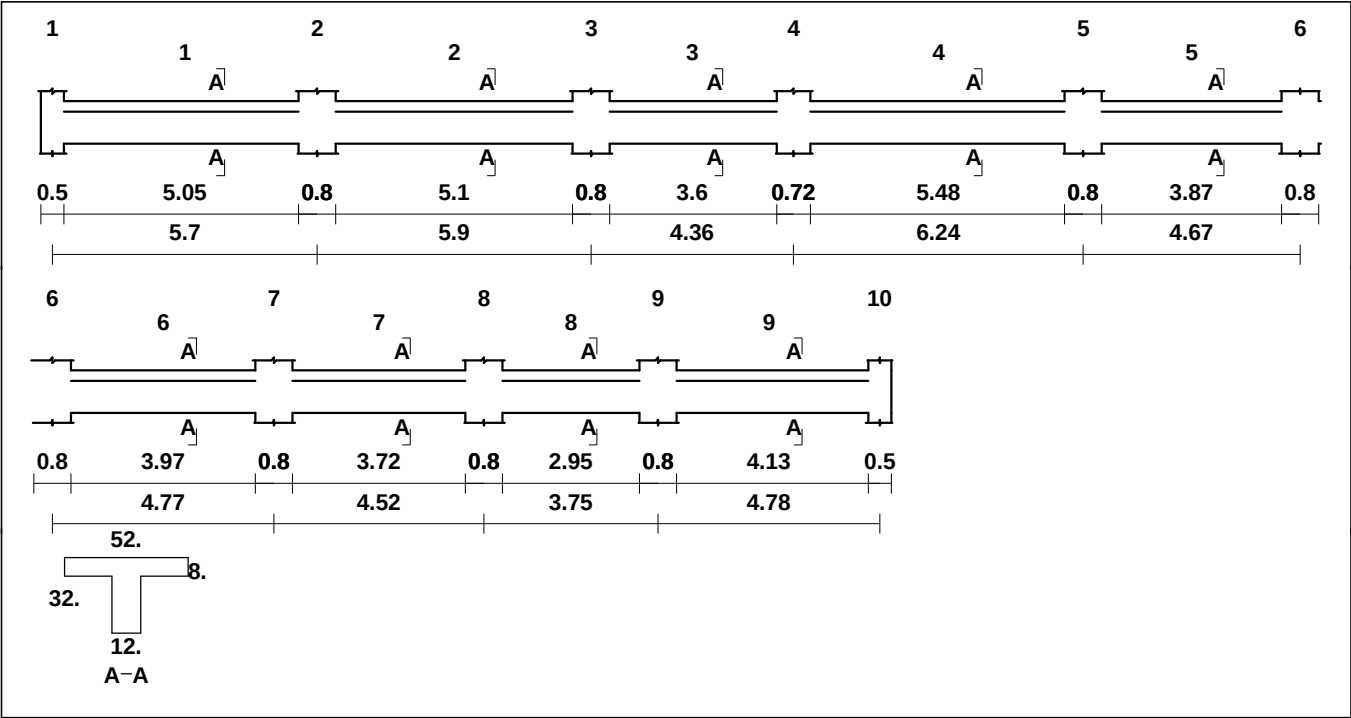
R25		Code: ACI318-02
Project:	R2	Page: 24
Designed by:	bayan	Date: 3/ 8/14

Moment / Shear Envelope (Factored) Units:kN,meter				
	1	2	3	
	1	2	2	3
Min M	0.0	-14.0	-14.0	0.0
Max M	0.0	-10.7	-10.7	0.0
MspMn	1.6	-7.5	-7.9	0.5
MspMx	3.2	-5.3	-4.9	1.2
M Max			7.8	
M Min			2.7	
Mmn=0 @	0.0	1.0	1.2	3.2
Mmx=0 @	0.0	0.7	0.7	3.2
mx -M @			0.7	
mx +M @			1.9	
V max		-13.3		-5.6
V min	7.2	-21.5		-12.5
DReac	7.9	24.5		6.7
LReac	6.3	17.3		5.8
Max R		41.8		12.5
Min R	7.2	32.5		5.6

rib10	Code: ACI318-02
Project: Rib1	Page: 119
Designed by:	Date: 03/09/14

Geometry

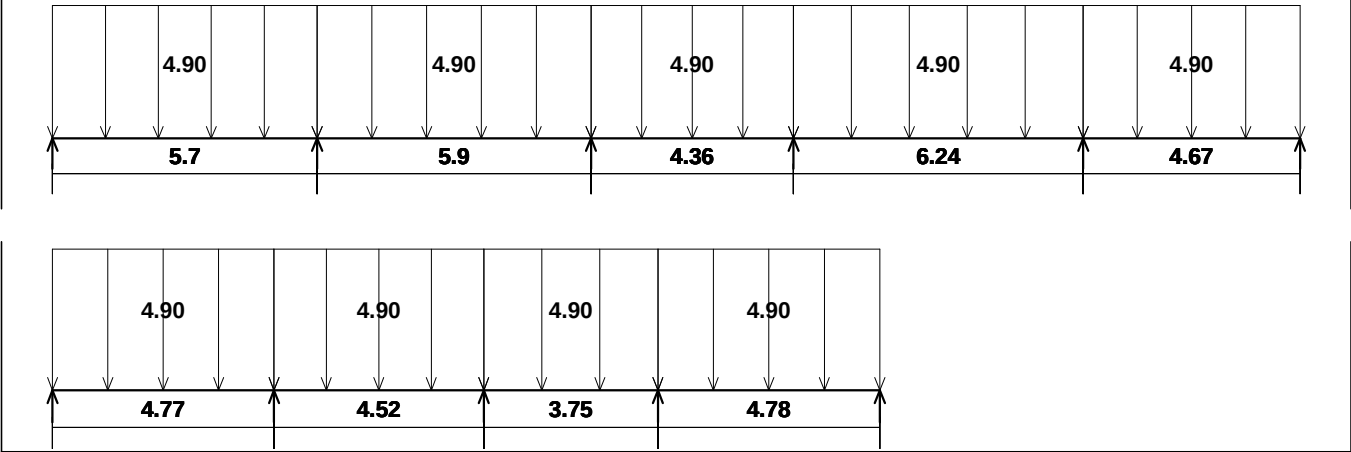
Units: meter, cm



Loading

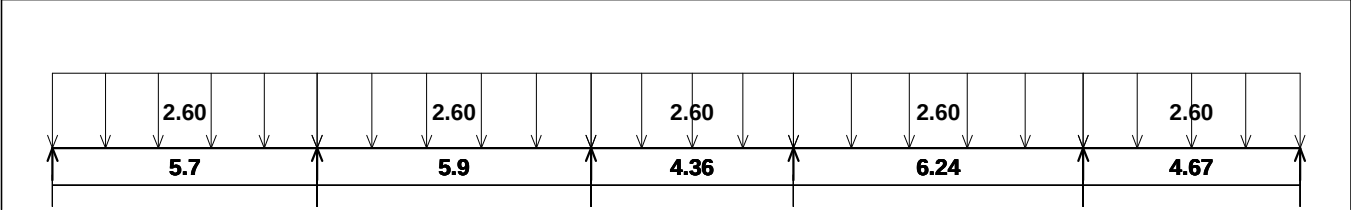
load group no. 1
Dead load - Service

Units: kN, meter



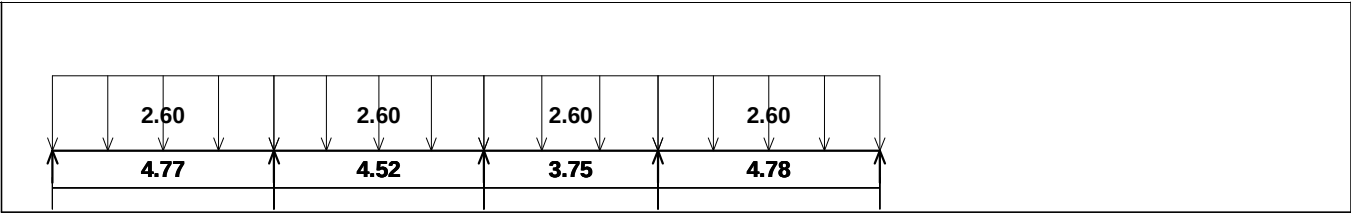
Live load - Service

Load factors: 1.20, 1.20, 1.60, 0.00



rib10	Code: ACI318-02
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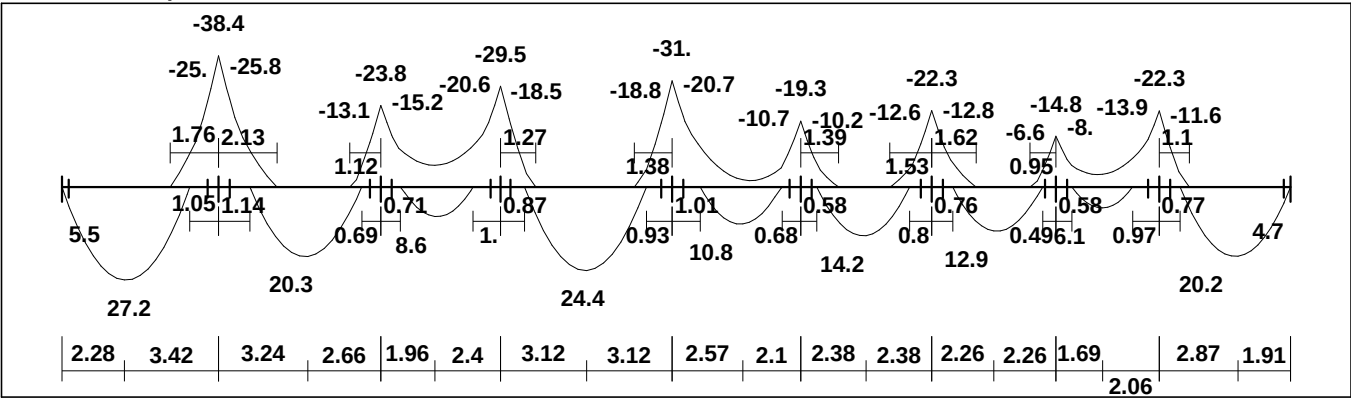
Loading



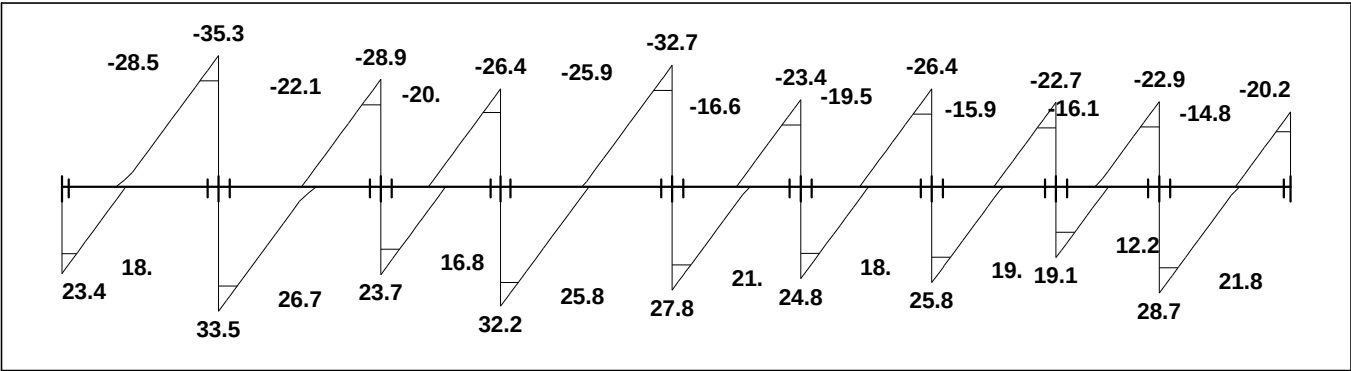
Loads (kN,meter)											
1			2			3			4		
Uni D	4.90	L 2.60	Uni D	4.90	L 2.60	Uni D	4.90	L 2.60	Uni D	4.90	L 2.60
5			6			7			8		
Uni D	4.90	L 2.60	Uni D	4.90	L 2.60	Uni D	4.90	L 2.60	Uni D	4.90	L 2.60
9											
Uni D	4.90	L 2.60									

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 9



Shear



rib10	Code: ACI318-02
Project: Rib1	Page: 121
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Moment/Shear Envelope (Factored) Units:kN,meter

Reactions

Factored

DeadR	12.91	39.79	27.35	31.9	33.96	25.56	28.99	21.7	29.18	11.45
LiveR	10.46	29.08	25.25	26.69	26.6	22.66	23.18	20.09	22.39	8.71
Max R	23.37	68.87	52.6	58.59	60.56	48.22	52.17	41.79	51.57	20.16
Min R	11.59	51.96	31.2	37.92	42.33	32.22	37.56	26.18	35.54	10.83
Service										
DeadR	10.76	33.16	22.79	26.58	28.3	21.3	24.15	18.08	24.32	9.54
LiveR	6.54	18.18	15.78	16.68	16.63	14.16	14.49	12.55	13.99	5.45
Max R	17.3	51.33	38.57	43.26	44.92	35.46	38.64	30.64	38.31	14.99
Min R	9.93	40.76	25.2	30.35	33.53	25.46	29.51	20.88	28.29	9.16

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

Top Cover	4.		4.		4.		4.		4.	
As top =		2.65		2.25*	1.12	2.25*		2.25*	1.12	2.25*
As bot =	0.78	2.62		1.95		1.12*		2.34		1.12*
Bot Cover	4.		4.		4.		4.		4.	
a/d	1%	4%	16%	3%	9%	4%	13%	3%	13%	1%
As/bd	0.00%	0.78%	0.79%	0.58%	0.67%	0.34%	0.67%	0.70%	0.67%	0.34%
Top Cover	4.		4.		4.		4.			
As top =	2.25*		2.27*		2.25*	1.12	2.27*			
As bot =		1.35		1.23		1.12*		1.94	0.58	
a/d	6%	4%	8%	4%	5%	4%	8%	4%	1%	
As/bd	0.67%	0.40%	0.68%	0.37%	0.67%	0.34%	0.68%	0.58%	0.00%	

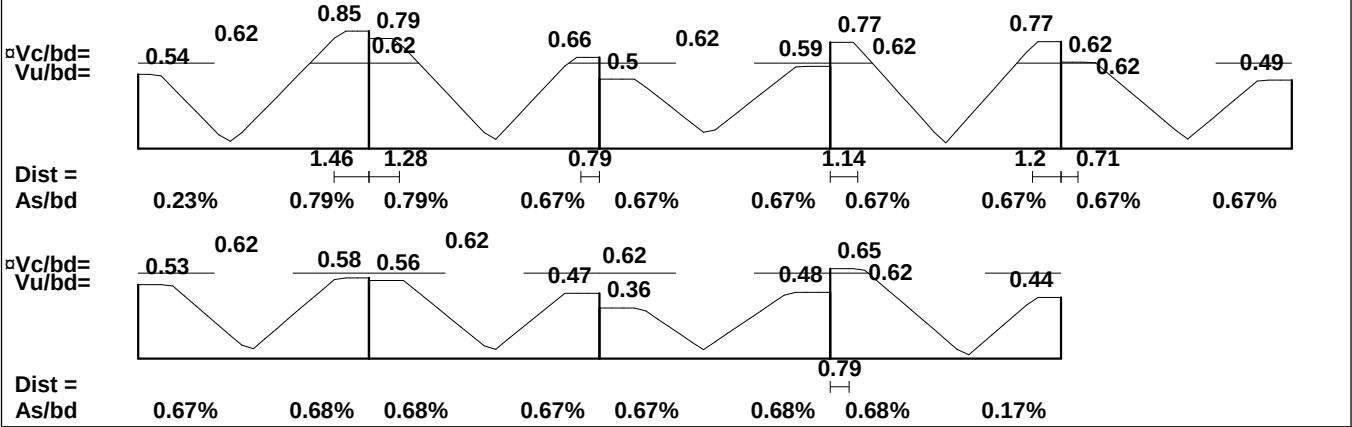
Shear

Shear design: Stirrups only
Stirrups fy = 420
Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. =5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

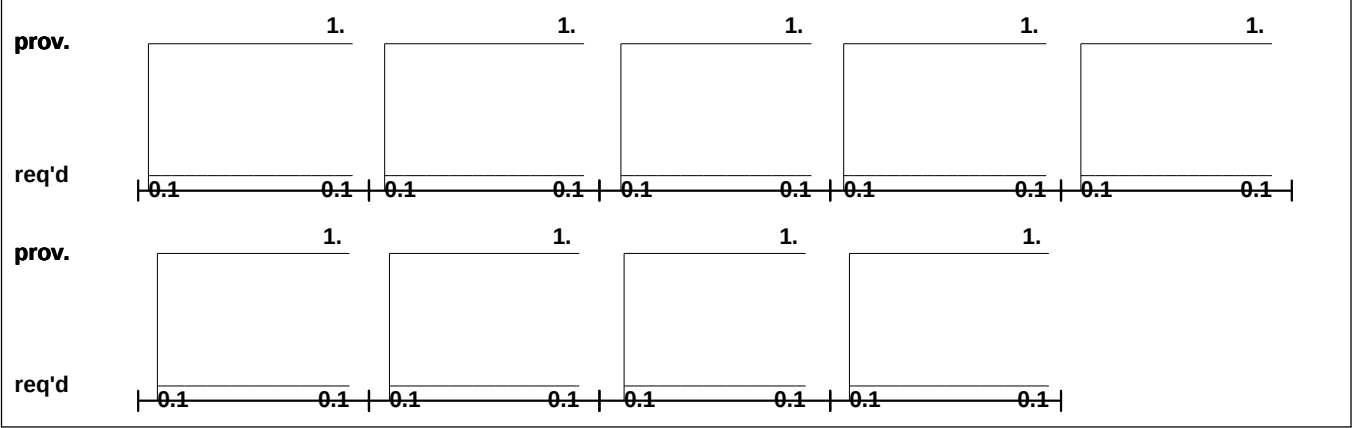
rib10	Code: ACI318-02
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Shear

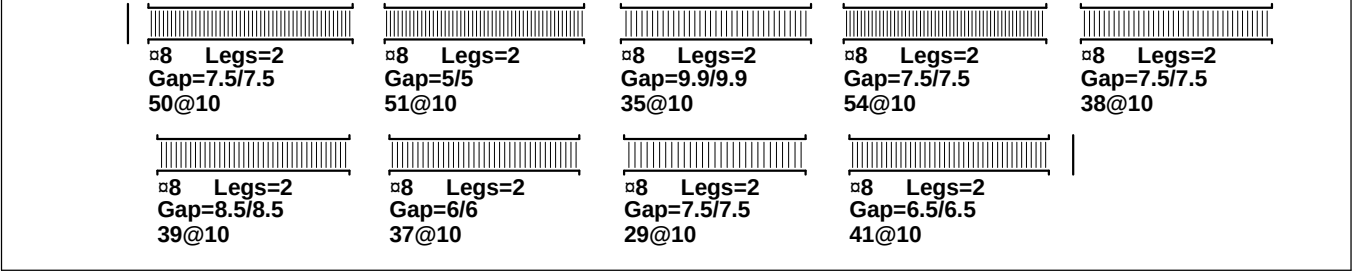
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1 0.	2 0.	3 1.12	4 0.
As	2.62	1.95	1.12	2.34
fr = 3	Es= 209	Ec = 23		
Ig(m ⁴)=	0.00060	0.00060	0.00060	0.00060
Icr(m ⁴)=	0.00015	0.00011	0.00006	0.00013
Mcr =	8.56	8.56	17.41	8.56

rib10					Code: ACI318-02				
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Mmax,d = 11.79 7.80 12.79 10.42

rib10
Project: Rib1
Designed by:

Code: ACI318-02
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Deflections (mm)

Mmax,d+l =	19.94	14.63	17.79	17.84
Mmax,sust =	7.67	5.07	8.31	6.78
le,d (m^4)=	0.00032	0.00060	0.00060	0.00039
le,d+l (m^4)=	0.00018	0.00021	0.00056	0.00018
le,sust (m^4)=	0.00060	0.00060	0.00060	0.00060
e/1+50r =	2.00/0.80	2.00/0.80	1.71/0.68	2.00/0.80
ai,d =	4.141	1.254	-0.272	3.410
ai,l =	9.150	6.734	-0.797	9.831
at,sust =	1.721	0.978	-0.182	1.735
ai,l =	L/ 622	L/ 876	L/ 5469	L/ 634
(ai+at),t2-t1	L/ 462	L/ 723	L/ 4060	L/ 489

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

	5	6	7	8
A's	1.12	0.	0.	1.12
As	1.12	1.35	1.23	1.12
fr = 3	Es= 209	Ec = 23		

Ig(m^4)=	0.00060	0.00060	0.00060	0.00060
Icr(m^4)=	0.00007	0.00008	0.00007	0.00006
Mcr =	8.56	8.56	8.56	17.41
Mmax,d =	14.06	5.15	4.81	10.38
Mmax,d+l =	7.43	10.16	9.23	14.05
Mmax,sust =	9.14	3.35	3.13	6.75
le,d (m^4)=	0.00019	0.00060	0.00060	0.00060
le,d+l (m^4)=	0.00060	0.00039	0.00049	0.00060
le,sust (m^4)=	0.00050	0.00060	0.00060	0.00060
e/1+50r =	1.71/0.68	2.00/0.80	2.00/0.80	1.71/0.68
ai,d =	-0.511	0.568	0.480	-0.154
ai,l =	1.271	1.476	0.849	-0.341
at,sust =	-0.127	0.443	0.374	-0.103
ai,l =	L/ 3673	L/ 3231	L/ 5322	L/10985
(ai+at),t2-t1	L/ 4839	L/ 2251	L/ 3247	L/ 7522

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

	9
A's	0.
As	1.94
fr = 3	Es= 209
	Ec = 23

Ig(m^4)=	0.00060
Icr(m^4)=	0.00011
Mcr =	8.56
Mmax,d =	9.28
Mmax,d+l =	14.94
Mmax,sust =	6.03
le,d (m^4)=	0.00049
le,d+l (m^4)=	0.00020

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Deflections (mm)

le,sust (m^4)= 0.00060

e/1+50r = 2.00/0.80

ai,d = 1.618

ai,l = 4.932

at,sust = 1.040

ai,l = L/ 969

(ai+at),t2-t1 L/ 731

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	18.05	8.47	0.	0.	0.10	0.00	100	-
250	5.53	2.71	18.05	8.47	0.	0.52	0.10	0.01	-	-
285	6.25	3.06	18.05	8.47	0.	0.59	0.10	0.01	-	-
570	11.69	5.65	17.65	8.24	0.	1.11	0.10	0.02	-	-
855	16.31	7.76	14.78	6.56	0.	1.56	0.10	0.02	-	-
1140	20.12	9.39	11.92	4.88	0.	1.93	0.10	0.03	-	-
1425	23.11	10.54	9.06	3.21	0.	2.22	0.10	0.03	-	-
1710	25.28	11.22	6.20	1.53	0.	2.43	0.10	0.03	-	-
1995	26.64	11.42	3.34	-0.14	0.	2.57	0.10	0.04	-	-
2280	27.18	11.14	0.48	-1.82	0.	2.62	0.10	0.04	-	-
2565	26.91	10.38	-2.38	-3.87	0.	2.59	0.10	0.04	-	-
2850	25.83	9.14	-4.89	-6.73	0.	2.49	0.10	0.04	100	-
3135	23.92	7.43	-6.57	-9.59	0.	2.30	0.10	0.03	-	-
3420	21.20	5.24	-8.25	-12.45	0.	2.03	0.10	0.03	-	-
3705	17.67	2.57	-9.92	-15.31	0.	1.69	0.10	0.02	-	-
3990	13.32	-0.57	-11.60	-18.18	0.05	1.27	0.10	0.02	-	-
4275	8.16	-4.19	-13.27	-21.04	0.40	0.77	0.10	0.02	-	-
4560	2.18	-8.29	-14.95	-23.90	0.80	0.20	0.10	0.05	-	-
4845	-4.62	-12.87	-16.62	-26.76	1.26	0.	0.10	0.08	-	-
5130	-12.23	-19.85	-17.65	-28.52	2.00	0.	0.10	0.12	-	-
5300	-17.16	-25.03	-17.65	-28.52	2.57	0.	0.10	0.16	-	-
5415	-20.66	-28.70	-17.65	-28.52	2.57	0.	0.10	0.16	-	-
5700	-27.89	-38.36	-17.65	-28.52	2.57	0.	0.10	0.16	100	-
Span=2										
0	-27.89	-38.36	26.70	16.32	2.65	0.	0.10	0.16	100	-
295	-19.39	-28.91	26.70	16.32	2.65	0.	0.10	0.16	-	-
400	-16.57	-25.76	26.70	16.32	2.65	0.	0.10	0.16	-	-
590	-11.76	-20.33	26.70	16.32	2.05	0.	0.10	0.13	-	-
885	-5.00	-14.39	24.64	15.11	1.42	0.	0.10	0.09	-	-
1180	0.88	-10.03	21.68	13.38	0.98	0.08	0.10	0.06	-	-
1475	6.25	-6.33	18.72	11.64	0.61	0.59	0.10	0.04	-	-
1770	10.78	-3.15	15.76	9.91	0.30	1.02	0.10	0.02	-	-
2065	14.43	-0.49	12.79	8.17	0.04	1.38	0.10	0.02	-	-
2360	17.21	1.67	9.83	6.44	0.	1.64	0.10	0.02	-	-
2655	19.11	3.31	6.87	3.65	0.	1.83	0.10	0.03	-	-
2950	20.14	4.44	3.91	0.69	0.	1.93	0.10	0.03	100	-
3245	20.29	5.06	1.78	-2.27	0.	1.95	0.10	0.03	-	-
3540	19.58	5.17	0.05	-5.23	0.	1.88	0.10	0.03	-	-
3835	17.98	4.77	-1.69	-8.20	0.	1.72	0.10	0.02	-	-
4130	15.52	3.85	-3.42	-11.16	0.	1.48	0.10	0.02	-	-
4425	12.18	2.43	-5.16	-14.12	0.	1.16	0.10	0.02	-	-
4720	8.04	0.49	-6.89	-17.08	0.	0.76	0.10	0.01	-	-
5015	3.52	-2.16	-8.62	-20.04	0.20	0.33	0.10	0.01	-	-
5310	-1.88	-8.51	-9.83	-22.10	0.82	0.	0.10	0.05	-	-
5500	-4.74	-13.06	-9.83	-22.10	1.28	0.	0.10	0.08	-	-
5605	-5.98	-15.73	-9.83	-22.10	1.28	0.	0.10	0.08	-	-
5900	-9.80	-23.83	-9.83	-22.10	1.28	0.	0.10	0.08	100	-

rib10
Project: Rib1
Designed by:

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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-9.80	-23.83	16.84	7.23	1.50	0.	0.10	0.09	100	-
218	-6.25	-18.91	16.84	7.23	1.50	0.	0.10	0.09	-	-
400	-3.66	-15.16	16.84	7.23	1.50	0.	0.10	0.09	-	-
436	-3.18	-14.46	16.84	7.23	1.43	0.	0.10	0.09	-	-
654	-0.59	-11.36	16.84	7.23	1.11	0.	0.10	0.07	-	-
872	1.72	-9.83	14.91	6.10	0.95	0.16	0.10	0.06	-	-
1090	4.05	-8.58	12.72	4.82	0.83	0.38	0.10	0.05	-	-
1308	5.91	-7.60	10.54	3.54	0.73	0.56	0.10	0.05	-	-
1526	7.29	-6.91	8.35	2.05	0.66	0.69	0.10	0.04	-	-
1744	8.19	-6.50	6.16	-0.13	0.62	0.78	0.10	0.04	-	-
1962	8.61	-6.37	3.97	-2.32	0.61	0.82	0.10	0.04	-	-
2180	8.56	-6.51	1.78	-4.51	0.62	0.81	0.10	0.04	100	-
2398	8.03	-6.94	-0.41	-6.70	0.67	0.76	0.10	0.04	-	-
2616	7.02	-7.64	-2.60	-8.89	0.74	0.66	0.10	0.05	-	-
2834	5.54	-8.63	-4.79	-11.08	0.83	0.52	0.10	0.05	-	-
3052	3.58	-9.89	-6.44	-13.27	0.96	0.33	0.10	0.06	-	-
3270	1.14	-11.44	-7.72	-15.46	1.12	0.10	0.10	0.07	-	-
3488	-1.78	-13.26	-9.00	-17.64	1.30	0.	0.10	0.08	-	-
3706	-5.06	-15.36	-10.29	-19.83	1.52	0.	0.10	0.09	-	-
3924	-8.25	-18.92	-10.36	-19.96	1.90	0.	0.10	0.12	-	-
3999	-9.46	-20.60	-10.36	-19.96	2.08	0.	0.10	0.13	-	-
4142	-11.92	-23.96	-10.36	-19.96	2.08	0.	0.10	0.13	-	-
4360	-16.06	-29.48	-10.36	-19.96	2.08	0.	0.10	0.13	100	-
Span=4										
0	-16.06	-29.48	25.75	14.05	1.86	0.	0.10	0.11	100	-
312	-10.79	-19.92	25.75	14.05	1.86	0.	0.10	0.11	-	-
361	-10.01	-18.51	25.75	14.05	1.86	0.	0.10	0.11	-	-
624	-5.52	-11.34	25.75	14.05	1.11	0.	0.10	0.07	-	-
936	1.37	-3.89	22.79	12.31	0.37	0.13	0.10	0.02	-	-
1248	7.47	-0.26	19.66	10.48	0.02	0.71	0.10	0.01	-	-
1560	12.73	2.79	16.53	8.64	0.	1.21	0.10	0.02	-	-
1872	17.02	5.28	13.39	6.81	0.	1.63	0.10	0.02	-	-
2184	20.32	7.19	10.26	4.98	0.	1.95	0.10	0.03	-	-
2496	22.65	8.53	7.13	3.14	0.	2.18	0.10	0.03	-	-
2808	24.01	9.29	4.00	1.31	0.	2.31	0.10	0.03	-	-
3120	24.38	9.49	0.86	-1.41	0.	2.34	0.10	0.03	100	-
3432	23.78	9.11	-2.13	-4.54	0.	2.29	0.10	0.03	-	-
3744	22.20	8.16	-3.96	-7.68	0.	2.13	0.10	0.03	-	-
4056	19.64	6.64	-5.80	-10.81	0.	1.88	0.10	0.03	-	-
4368	16.11	4.54	-7.63	-13.94	0.	1.54	0.10	0.02	-	-
4680	11.60	1.87	-9.47	-17.07	0.	1.10	0.10	0.02	-	-
4992	6.12	-1.37	-11.30	-20.21	0.13	0.58	0.10	0.01	-	-
5304	0.03	-5.18	-13.14	-23.34	0.49	0.00	0.10	0.03	-	-
5616	-7.03	-12.57	-14.64	-25.91	1.23	0.	0.10	0.08	-	-
5840	-12.28	-18.75	-14.64	-25.91	1.88	0.	0.10	0.12	-	-
5928	-13.76	-21.32	-14.64	-25.91	1.88	0.	0.10	0.12	-	-
6240	-19.36	-31.04	-14.64	-25.91	1.88	0.	0.10	0.12	100	-

rib10
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=5										
0	-19.36	-31.04	21.00	12.58	2.09	0.	0.10	0.13	100	-
234	-14.14	-24.81	21.00	12.58	2.09	0.	0.10	0.13	-	-
400	-10.78	-20.72	21.00	12.58	2.09	0.	0.10	0.13	-	-
467	-9.50	-19.14	21.00	12.58	1.92	0.	0.10	0.12	-	-
701	-5.06	-15.36	20.78	12.46	1.52	0.	0.10	0.09	-	-
934	-1.16	-12.59	18.45	11.09	1.23	0.	0.10	0.08	-	-
1168	2.20	-10.12	16.10	9.71	0.98	0.20	0.10	0.06	-	-
1401	4.99	-7.99	13.76	8.34	0.77	0.47	0.10	0.05	-	-
1635	7.26	-6.17	11.41	6.97	0.59	0.69	0.10	0.04	-	-
1868	8.96	-4.68	9.07	4.70	0.44	0.85	0.10	0.03	-	-
2102	10.13	-3.50	6.72	2.35	0.33	0.96	0.10	0.02	-	-
2335	10.74	-2.65	4.38	0.01	0.25	1.02	0.10	0.02	100	-
2569	10.81	-2.11	2.03	-2.34	0.20	1.03	0.10	0.01	-	-
2802	10.33	-1.90	0.23	-4.68	0.18	0.98	0.10	0.01	-	-
3036	9.30	-2.00	-1.15	-7.03	0.19	0.88	0.10	0.01	-	-
3269	7.73	-2.43	-2.52	-9.37	0.23	0.73	0.10	0.01	-	-
3503	5.61	-3.18	-3.89	-11.72	0.30	0.53	0.10	0.02	-	-
3736	2.94	-4.25	-5.26	-14.06	0.40	0.27	0.10	0.02	-	-
3970	0.30	-5.64	-6.64	-16.41	0.54	0.02	0.10	0.03	-	-
4203	-2.78	-9.46	-6.76	-16.61	0.92	0.	0.10	0.06	-	-
4270	-3.77	-10.74	-6.76	-16.61	1.05	0.	0.10	0.06	-	-
4437	-6.42	-14.12	-6.76	-16.61	1.05	0.	0.10	0.06	-	-
4670	-10.59	-19.31	-6.76	-16.61	1.05	0.	0.10	0.06	100	-
Span=6										
0	-10.59	-19.31	17.96	9.16	0.99	0.	0.10	0.06	100	-
238	-5.92	-13.70	17.96	9.16	0.99	0.	0.10	0.06	-	-
400	-2.95	-10.20	17.96	9.16	0.99	0.	0.10	0.06	-	-
477	-1.64	-8.63	17.96	9.16	0.83	0.	0.10	0.05	-	-
715	2.06	-4.97	17.60	8.95	0.47	0.19	0.10	0.03	-	-
954	5.49	-2.89	15.21	7.55	0.27	0.52	0.10	0.02	-	-
1192	8.37	-1.15	12.82	6.15	0.10	0.79	0.10	0.01	-	-
1431	10.68	0.26	10.42	4.74	0.	1.01	0.10	0.01	-	-
1669	12.41	1.33	8.03	3.34	0.	1.18	0.10	0.02	-	-
1908	13.58	2.08	5.63	1.94	0.	1.29	0.10	0.02	-	-
2146	14.17	2.48	3.24	-0.03	0.	1.35	0.10	0.02	-	-
2385	14.20	2.55	0.84	-2.43	0.	1.35	0.10	0.02	100	-
2623	13.65	2.29	-1.55	-4.82	0.	1.30	0.10	0.02	-	-
2862	12.53	1.69	-3.21	-7.22	0.	1.19	0.10	0.02	-	-
3100	10.84	0.76	-4.61	-9.61	0.	1.03	0.10	0.01	-	-
3339	8.57	-0.51	-6.01	-12.01	0.04	0.81	0.10	0.01	-	-
3577	5.75	-2.11	-7.41	-14.40	0.20	0.54	0.10	0.01	-	-
3816	2.34	-4.05	-8.82	-16.80	0.38	0.22	0.10	0.02	-	-
4054	-1.34	-6.32	-10.22	-19.19	0.60	0.	0.10	0.04	-	-
4293	-5.43	-10.91	-10.43	-19.55	1.06	0.	0.10	0.07	-	-
4370	-6.87	-12.60	-10.43	-19.55	1.24	0.	0.10	0.08	-	-
4531	-10.08	-16.33	-10.43	-19.55	1.24	0.	0.10	0.08	-	-
4770	-14.73	-22.35	-10.43	-19.55	1.24	0.	0.10	0.08	100	-

rib10
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=7										
0	-14.73	-22.35	18.96	11.14	1.26	0.	0.10	0.08	100	-
226	-9.87	-16.78	18.96	11.14	1.26	0.	0.10	0.08	-	-
400	-6.45	-12.83	18.96	11.14	1.26	0.	0.10	0.08	-	-
452	-5.44	-11.72	18.96	11.14	1.15	0.	0.10	0.07	-	-
678	-1.35	-8.00	18.96	11.14	0.77	0.	0.10	0.05	-	-
904	2.22	-5.60	16.71	9.82	0.53	0.21	0.10	0.03	-	-
1130	5.27	-3.50	14.45	8.49	0.33	0.50	0.10	0.02	-	-
1356	7.82	-1.70	12.18	7.16	0.16	0.74	0.10	0.01	-	-
1582	9.85	-0.21	9.91	5.83	0.01	0.93	0.10	0.01	-	-
1808	11.37	0.99	7.64	4.50	0.	1.08	0.10	0.02	-	-
2034	12.37	1.89	5.37	2.25	0.	1.18	0.10	0.02	-	-
2260	12.87	2.48	3.10	-0.02	0.	1.23	0.10	0.02	100	-
2486	12.85	2.78	0.83	-2.29	0.	1.22	0.10	0.02	-	-
2712	12.31	2.77	-0.69	-4.56	0.	1.17	0.10	0.02	-	-
2938	11.27	2.47	-2.01	-6.83	0.	1.07	0.10	0.02	-	-
3164	9.71	1.86	-3.34	-9.10	0.	0.92	0.10	0.01	-	-
3390	7.64	0.96	-4.67	-11.37	0.	0.72	0.10	0.01	-	-
3616	5.27	-0.25	-6.00	-13.64	0.02	0.50	0.10	0.01	-	-
3842	2.64	-1.76	-7.32	-15.89	0.16	0.25	0.10	0.01	-	-
4068	-0.51	-5.60	-7.32	-15.89	0.53	0.	0.10	0.03	-	-
4120	-1.30	-6.55	-7.32	-15.89	0.63	0.	0.10	0.04	-	-
4294	-4.16	-9.96	-7.32	-15.89	0.63	0.	0.10	0.04	-	-
4520	-6.97	-14.84	-7.32	-15.89	0.63	0.	0.10	0.04	100	-
Span=8										
0	-6.97	-14.84	12.25	4.24	0.77	0.	0.10	0.05	100	-
188	-4.38	-11.43	12.25	4.24	0.77	0.	0.10	0.05	-	-
375	-2.15	-8.39	12.25	4.24	0.77	0.	0.10	0.05	-	-
400	-1.88	-8.01	12.25	4.24	0.77	0.	0.10	0.05	-	-
563	-0.17	-6.32	12.25	4.24	0.61	0.	0.10	0.04	-	-
750	1.76	-5.38	11.54	3.83	0.51	0.16	0.10	0.03	-	-
938	3.33	-4.63	9.66	2.72	0.44	0.31	0.10	0.03	-	-
1125	4.55	-4.10	7.78	1.62	0.39	0.43	0.10	0.02	-	-
1313	5.42	-3.77	5.89	0.52	0.36	0.51	0.10	0.02	-	-
1500	5.94	-3.65	4.01	-0.58	0.34	0.56	0.10	0.02	-	-
1688	6.10	-3.74	2.13	-2.21	0.35	0.58	0.10	0.02	-	-
1875	5.91	-4.03	0.25	-4.09	0.38	0.56	0.10	0.02	100	-
2063	5.37	-4.53	-1.64	-5.97	0.43	0.51	0.10	0.03	-	-
2250	4.48	-5.24	-3.52	-7.85	0.50	0.42	0.10	0.03	-	-
2438	3.22	-6.15	-5.40	-9.74	0.59	0.30	0.10	0.04	-	-
2625	1.63	-7.27	-6.52	-11.62	0.70	0.15	0.10	0.04	-	-
2813	-0.33	-8.60	-7.63	-13.50	0.83	0.	0.10	0.05	-	-
3000	-2.64	-10.13	-8.73	-15.38	0.98	0.	0.10	0.06	-	-
3188	-5.05	-11.95	-9.14	-16.08	1.17	0.	0.10	0.07	-	-
3350	-7.28	-13.93	-9.14	-16.08	1.37	0.	0.10	0.08	-	-
3375	-7.65	-14.41	-9.14	-16.08	1.37	0.	0.10	0.08	-	-
3563	-10.61	-18.19	-9.14	-16.08	1.37	0.	0.10	0.08	-	-
3750	-13.91	-22.30	-9.14	-16.08	1.37	0.	0.10	0.08	100	-

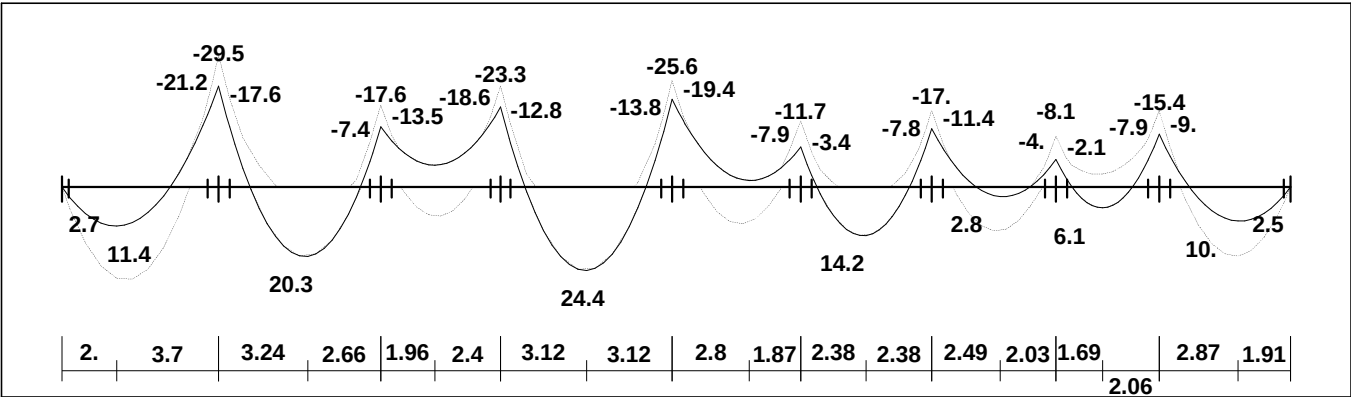
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Detailed results - at 1/20 of span, support faces, etc.

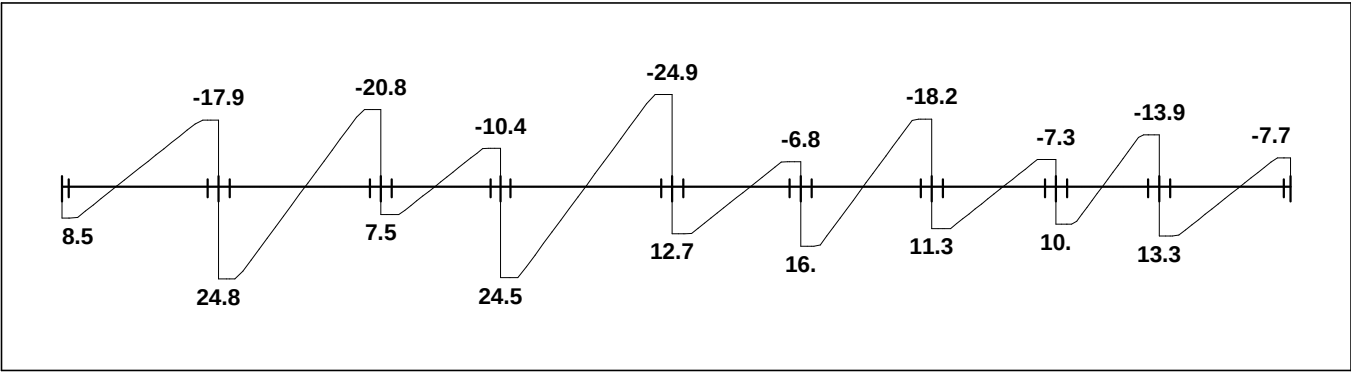
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=9										
0	-13.91	-22.30	21.83	12.96	1.14	0.	0.10	0.07	100	-
239	-10.02	-15.73	21.83	12.96	1.14	0.	0.10	0.07	-	-
400	-7.59	-11.63	21.83	12.96	1.14	0.	0.10	0.07	-	-
478	-6.17	-9.74	21.83	12.96	0.95	0.	0.10	0.06	-	-
717	-0.95	-4.52	21.46	12.75	0.43	0.	0.10	0.03	-	-
956	3.69	-1.57	19.06	11.34	0.14	0.35	0.10	0.01	-	-
1195	7.76	1.05	16.66	9.94	0.	0.73	0.10	0.01	-	-
1434	11.26	3.33	14.26	8.53	0.	1.07	0.10	0.02	-	-
1673	14.18	5.28	11.86	7.13	0.	1.35	0.10	0.02	-	-
1912	16.53	6.89	9.46	5.72	0.	1.58	0.10	0.02	-	-
2151	18.31	8.16	7.06	4.31	0.	1.75	0.10	0.02	-	-
2390	19.51	9.10	4.66	2.91	0.	1.87	0.10	0.03	100	-
2629	20.14	9.70	2.26	1.43	0.	1.93	0.10	0.03	-	-
2868	20.20	9.96	0.41	-0.97	0.	1.94	0.10	0.03	-	-
3107	19.68	9.89	-1.00	-3.37	0.	1.89	0.10	0.03	-	-
3346	18.59	9.49	-2.40	-5.76	0.	1.78	0.10	0.03	-	-
3585	16.92	8.75	-3.81	-8.16	0.	1.62	0.10	0.02	-	-
3824	14.69	7.67	-5.21	-10.56	0.	1.40	0.10	0.02	-	-
4063	11.88	6.26	-6.62	-12.96	0.	1.13	0.10	0.02	-	-
4302	8.49	4.51	-7.72	-14.84	0.	0.80	0.10	0.01	-	-
4530	4.73	2.52	-7.72	-14.84	0.	0.44	0.10	0.01	-	-
4541	4.53	2.42	-7.72	-14.84	0.	0.43	0.10	0.01	-	-
4780	0.00	0.00	-7.72	-14.84	0.	0.	0.10	0.00	100	-

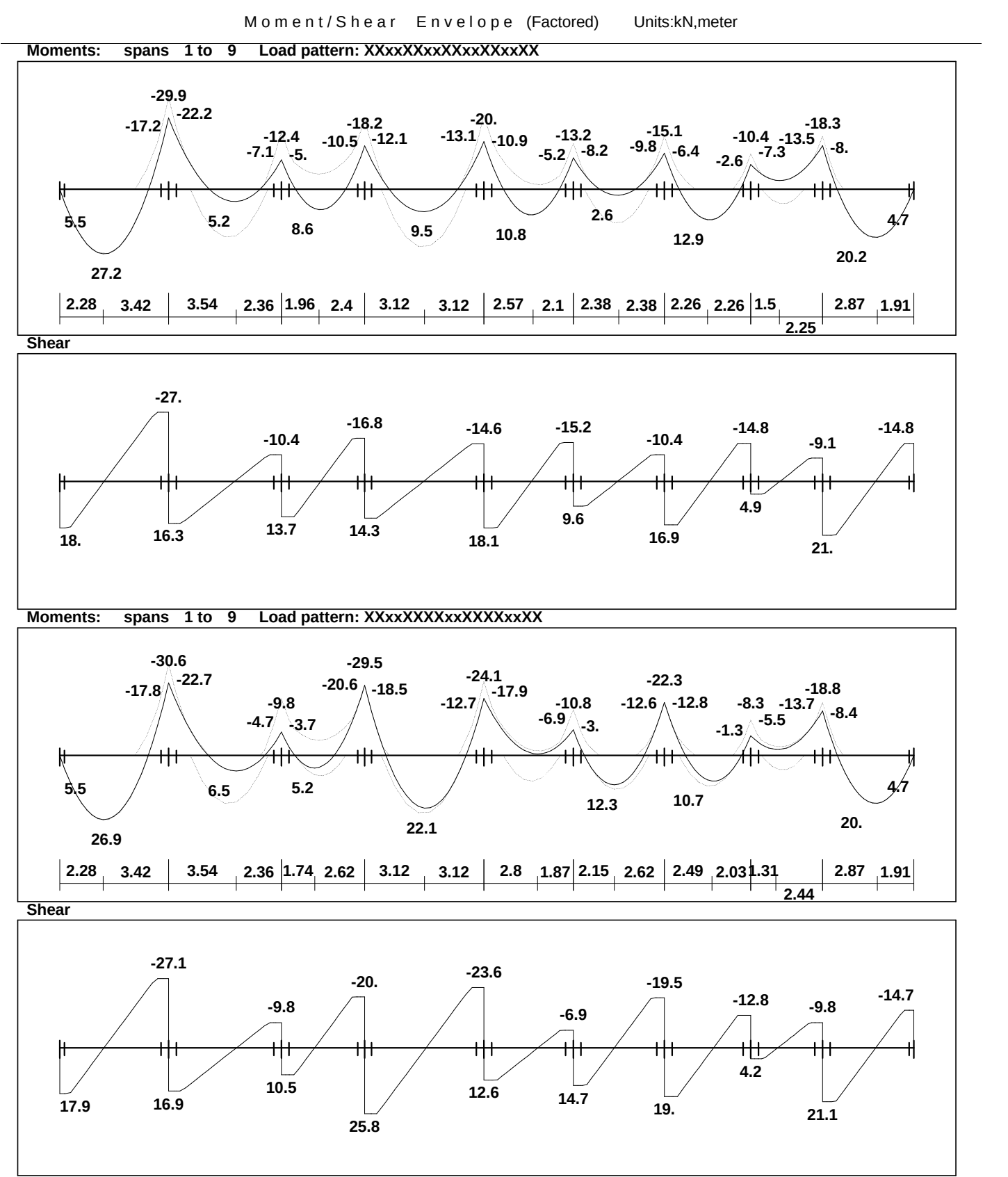
Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 9 Load pattern: xxXXxxXXxxXXxxXXxx

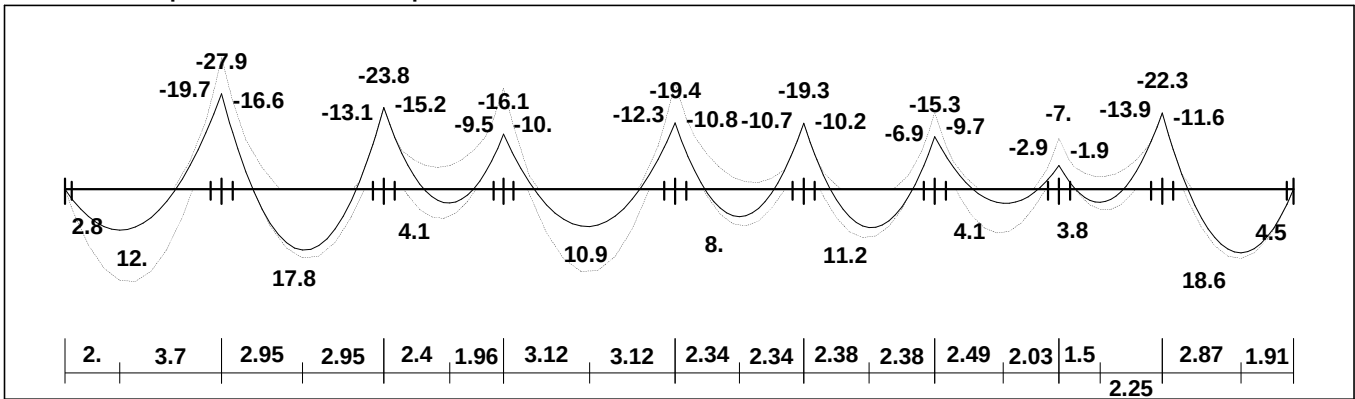


Shear

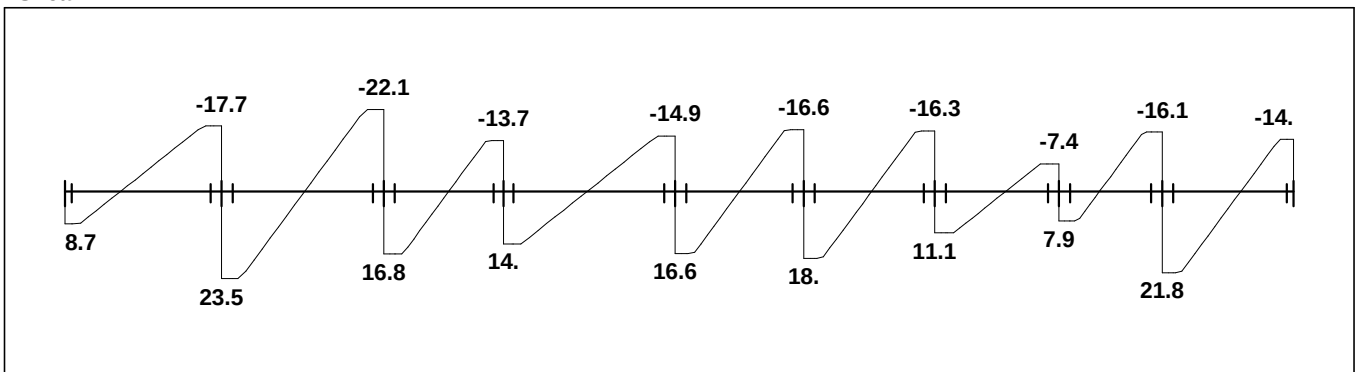




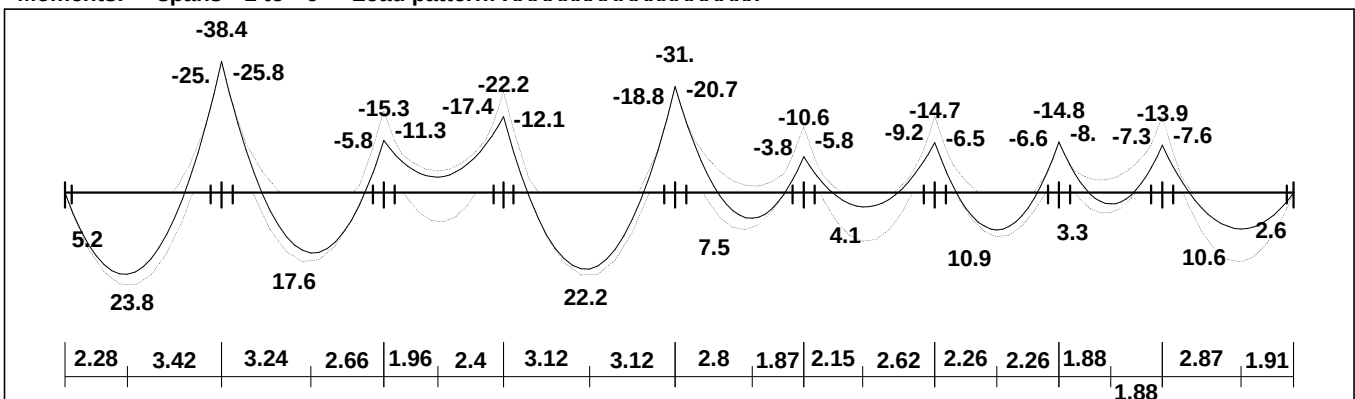
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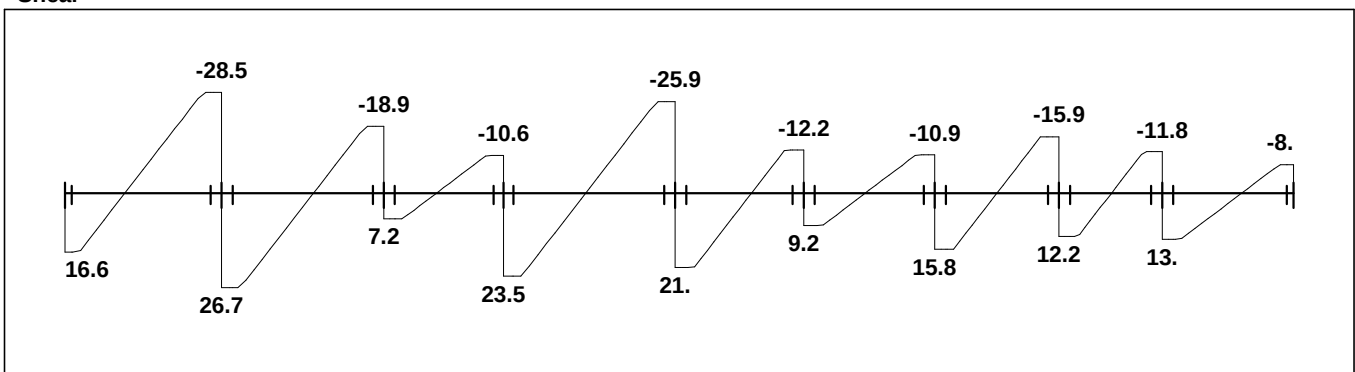
Shear



Moments: spans 1 to 9 Load pattern: XXXXxxXXXXxxXXXXxx



Shear



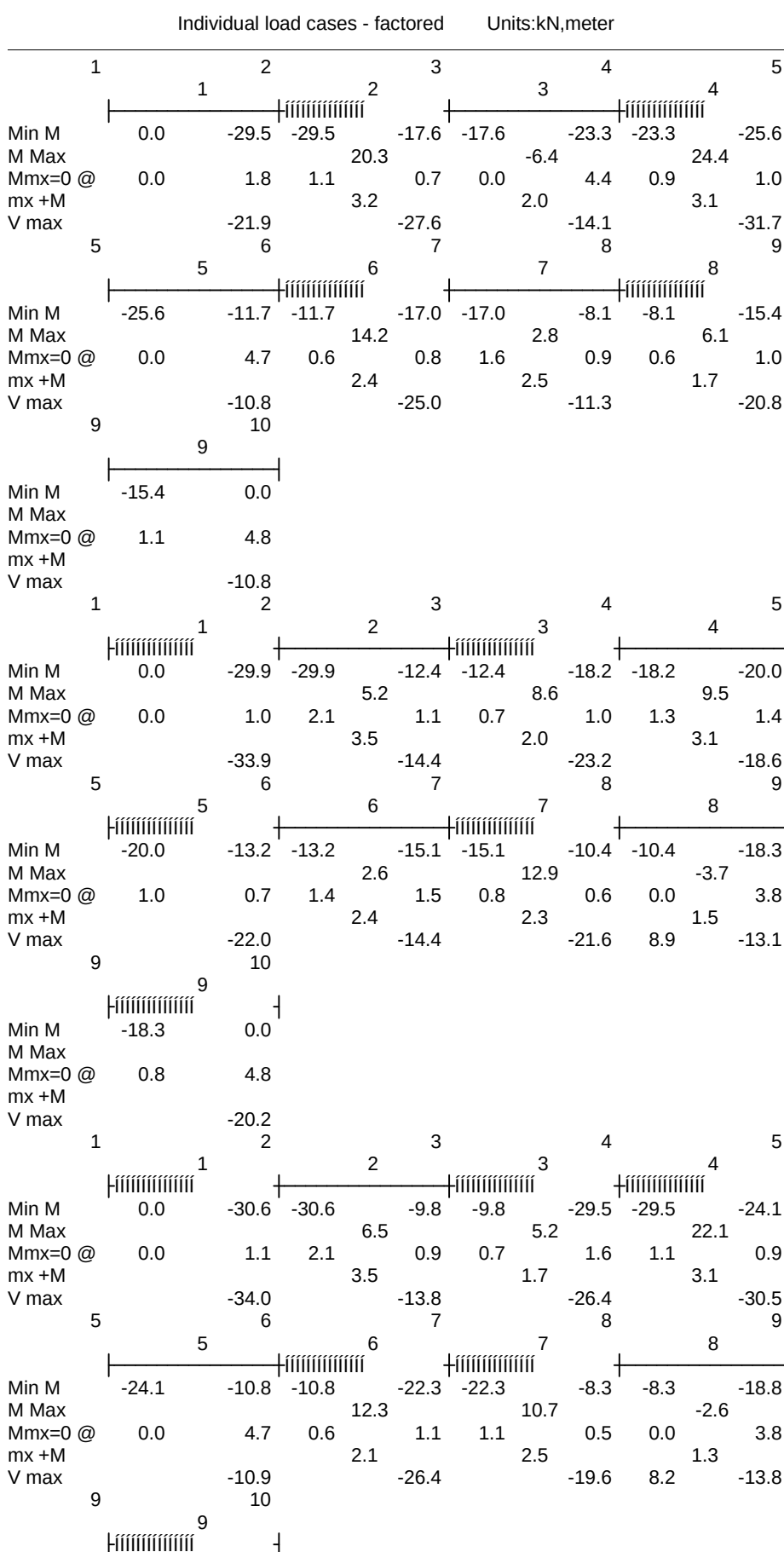
rib10
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Moment/Shear Envelope (Factored) Units:kN,meter									
	1	2	3	4	5				
	1	2	3	4	5				
Min M	0.0	-38.4	-38.4	-23.8	-23.8	-29.5	-29.5	-31.0	
Max M	0.0	-27.9	-27.9	-9.8	-9.8	-16.1	-16.1	-19.4	
MspMn	2.7	-25.0	-25.8	-13.1	-15.2	-20.6	-18.5	-18.8	
MspMx	5.5	-17.2	-16.6	-4.7	-3.7	-9.5	-10.0	-12.3	
M Max			20.3		8.6		24.4		
M Min			5.2		-6.4		9.5		
Mmn=0 @	0.0	1.8	2.1	1.1	0.0	4.4	1.3	1.4	
Mmx=0 @	0.0	1.0	1.1	0.7	0.7	1.0	0.9	0.9	
mx -M @			1.1		0.7		0.9		
mx +M @			3.2		2.0		3.1		
V max		-21.7		-13.8		-14.1		-18.6	
V min		-35.3		-28.9		-26.4		-32.7	
DReac		39.8		27.3		31.9		34.0	
LReac		29.1		25.2		26.7		26.6	
Max R		68.9		52.6		58.6		60.6	
Min R		52.0		31.2		37.9		42.3	
	5	6	7	8	9				
	5	6	7	8					
Min M	-31.0	-19.3	-19.3	-22.3	-22.3	-14.8	-14.8	-22.3	
Max M	-19.4	-10.6	-10.6	-14.7	-14.7	-7.0	-7.0	-13.9	
MspMn	-20.7	-10.7	-10.2	-12.6	-12.8	-6.6	-8.0	-13.9	
MspMx	-10.8	-3.8	-3.0	-6.9	-6.4	-1.3	-1.9	-7.3	
M Max			14.2		12.9		6.1		
M Min			2.6		2.8		-3.7		
Mmn=0 @	0.0	4.7	1.4	1.5	1.6	0.9	0.0	3.8	
Mmx=0 @	1.0	0.7	0.6	0.8	0.8	0.5	0.6	1.0	
mx -M @			0.6		0.8		0.6		
mx +M @			2.4		2.3		1.7		
V max		-10.8		-14.4		-11.3		-13.1	
V min		-23.4		-26.4		-22.7	8.2	-22.9	
DReac		25.6		29.0		21.7		29.2	
LReac		22.7		23.2		20.1		22.4	
Max R		48.2		52.2		41.8		51.6	
Min R		32.2		37.6		26.2		35.5	
	9	10							
	9								
Min M	-22.3	0.0							
Max M	-13.9	0.0							
MspMn	-11.6	2.5							
MspMx	-7.6	4.7							
M Max									
M Min									
Mmn=0 @	1.1	4.8							
Mmx=0 @	0.8	4.8							
mx -M @									
mx +M @									
V max		-10.8							
V min		-20.2							
DReac		11.4							
LReac		8.7							
Max R		20.2							
Min R		10.8							

rib10
Project: Rib1
Designed by:

Code: ACI318-02
Page: 133
Date: 03/09/14



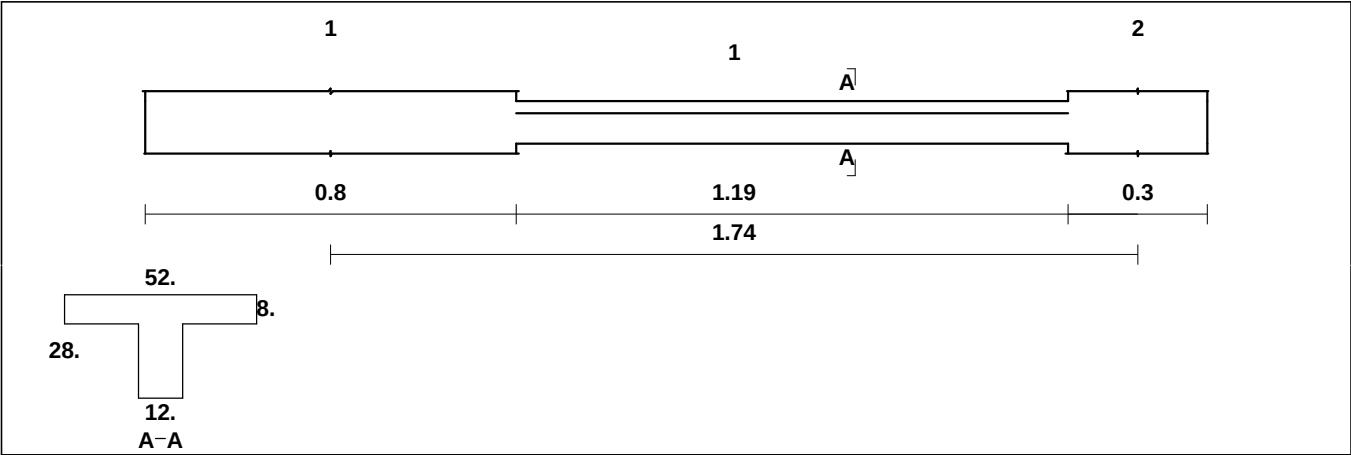
rib10			Code: ACI318-02		
Project: Rib1			Page: 134		
Designed by:			Date: 03/09/14		

Min M	-18.8	0.0
M Max		

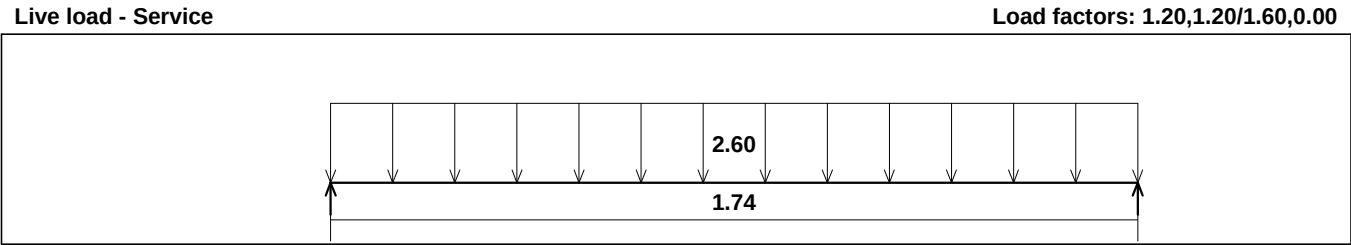
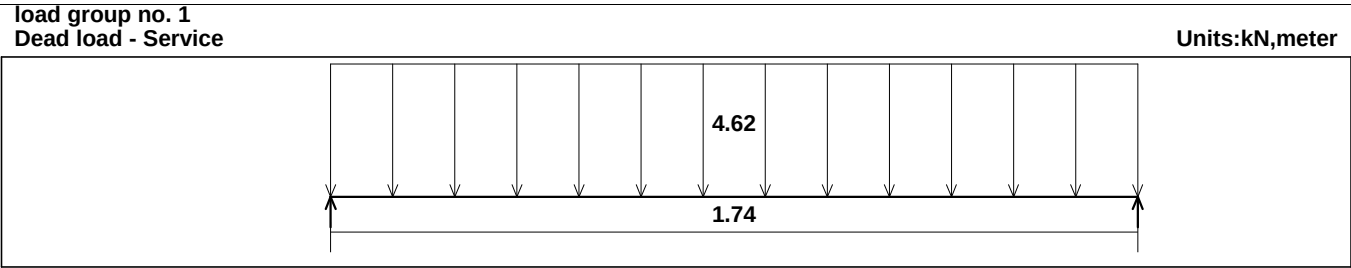
rib2	Code: ACI318-02
Project: Rib1	Page: 73
Designed by:	Date: 03/08/14

Geometry

Units: meter, cm



Loading

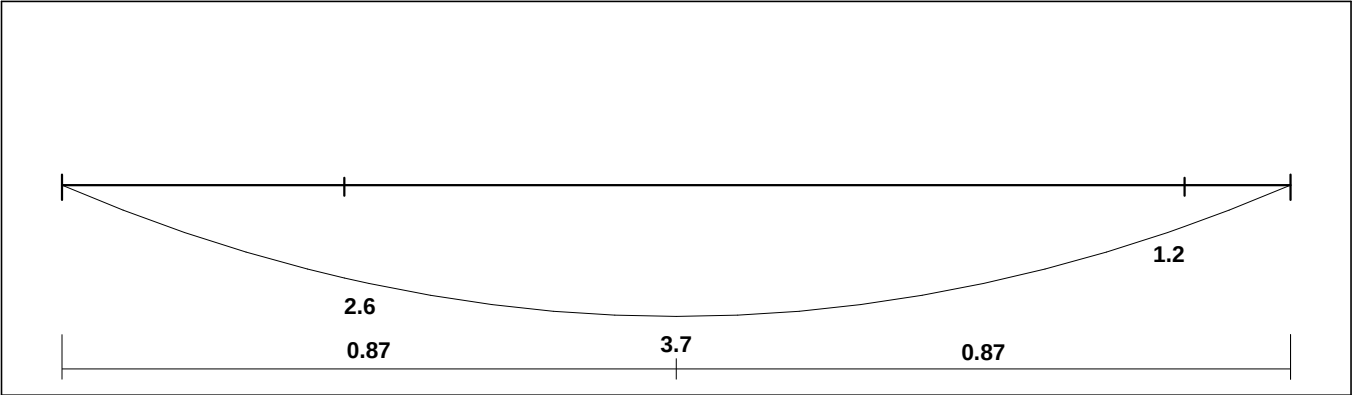


Loads (kN, meter)	
1	
Uni D	4.62 L 2.60

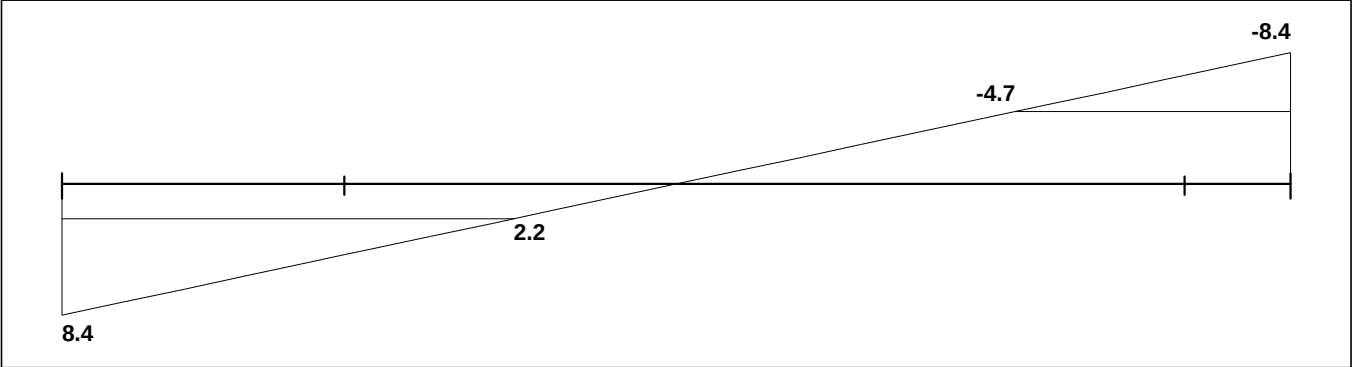
rib2	Code: ACI318-02
Project: Rib1	Page: 74
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored		
DeadR	4.82	4.82
LiveR	3.62	3.62
Max R	8.44	8.44
Min R	8.44	8.44
Service		
DeadR	4.02	4.02
LiveR	2.26	2.26
Max R	6.28	6.28
Min R	6.28	6.28

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

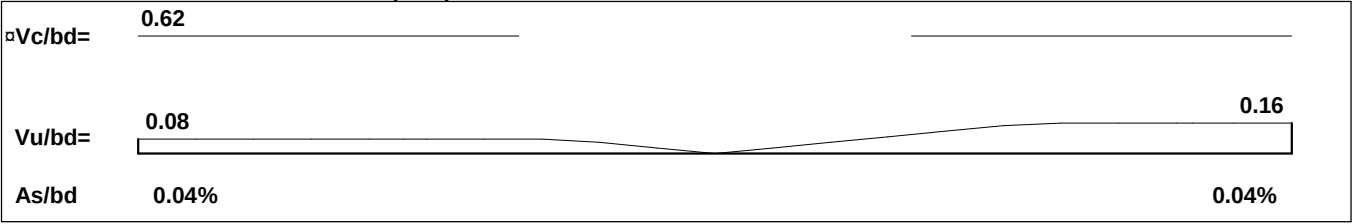


rib2	Code: ACI318-02
Project: Rib1	Page: 75
Designed by:	Date: 03/08/14

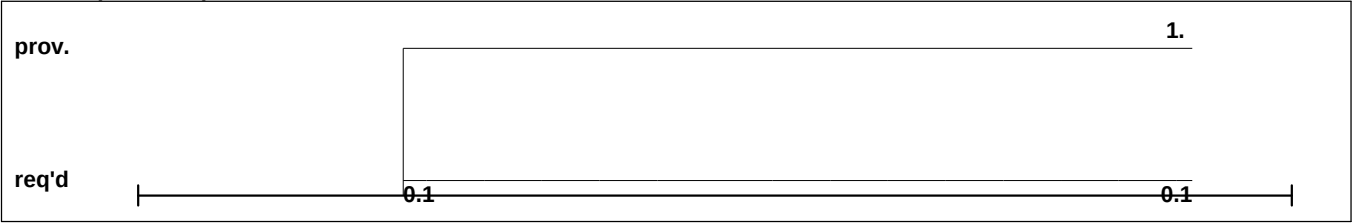
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

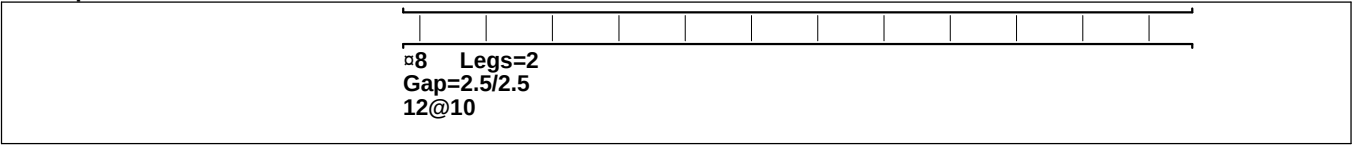
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t1)
Apply 35% of dead load after attachment (t1)

A's	1	0.
As	0.96	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00040
Icr(m^4)= 0.00004

Mcr = 6.54
Mmax,d = 1.75
Mmax,d+l = 2.73
Mmax,sust = 1.14

le,d (m^4)= 0.00040
le,d+l (m^4)= 0.00040
le,sust (m^4)= 0.00040

e/1+50r = 2.00/0.80
ai,d = 0.059
ai,l = 0.033
at,sust = 0.046
ai,l = L/*****
(ai+at),t2-t1 = L/*****

rib2	Code: ACI318-02
Project: Rib1	Page: 76
Designed by:	Date: 03/08/14

—

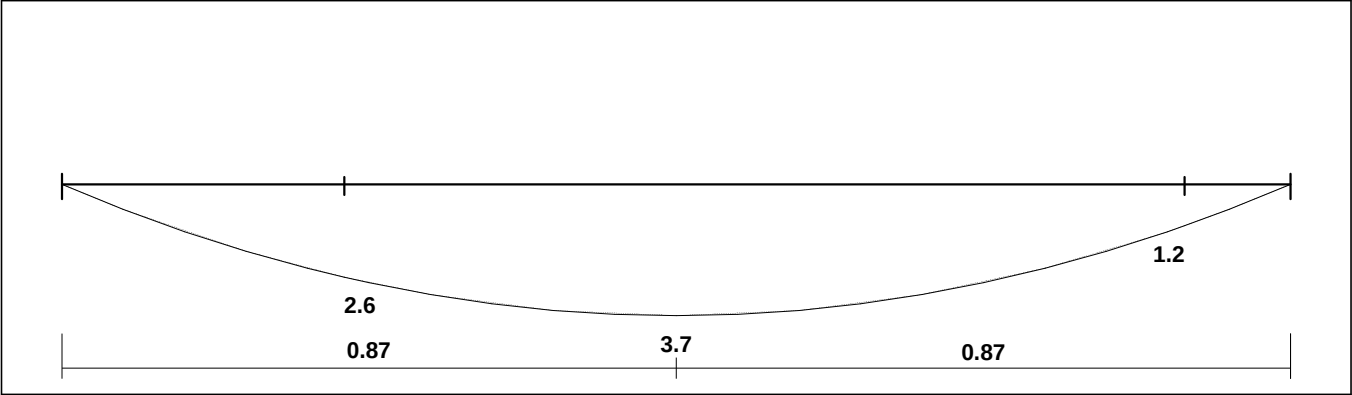
rib2	Code: ACI318-02
Project: Rib1	Page: 77
Designed by:	Date: 03/08/14

Detailed results - at 1/20 of span, support faces, etc.

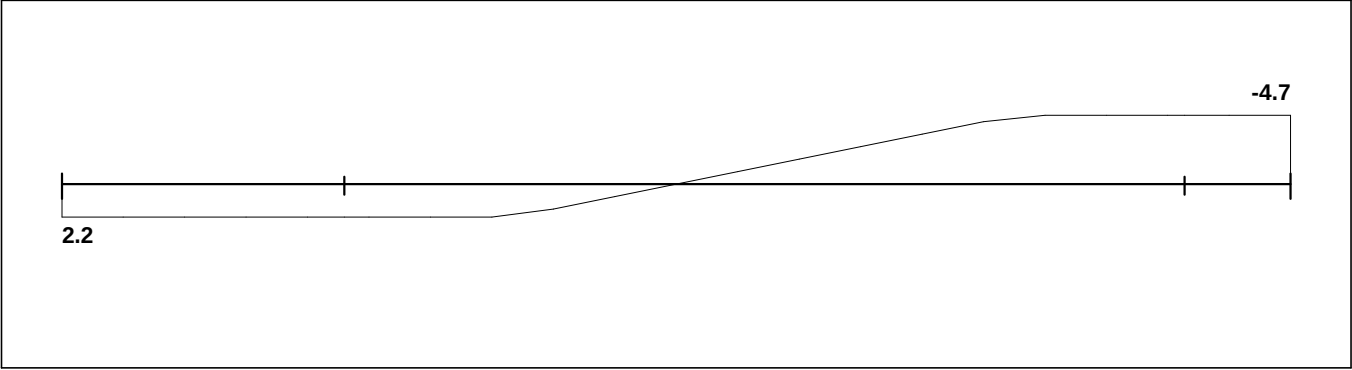
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	2.23	2.23	0.	0.	0.10	0.00	100	-
87	0.70	0.70	2.23	2.23	0.	0.07	0.10	0.00	-	-
174	1.32	1.32	2.23	2.23	0.	0.14	0.10	0.00	-	-
261	1.87	1.87	2.23	2.23	0.	0.20	0.10	0.00	-	-
348	2.35	2.35	2.23	2.23	0.	0.26	0.10	0.00	-	-
400	2.60	2.60	2.23	2.23	0.	0.28	0.10	0.00	-	-
435	2.75	2.75	2.23	2.23	0.	0.30	0.10	0.01	-	-
522	3.08	3.08	2.23	2.23	0.	0.34	0.10	0.01	-	-
609	3.34	3.34	2.23	2.23	0.	0.37	0.10	0.01	-	-
696	3.53	3.53	1.69	1.69	0.	0.39	0.10	0.01	-	-
783	3.64	3.64	0.84	0.84	0.	0.40	0.10	0.01	-	-
870	3.67	3.67	0.00	0.00	0.	0.40	0.10	0.01	100	-
957	3.64	3.64	-0.84	-0.84	0.	0.40	0.10	0.01	-	-
1044	3.53	3.53	-1.69	-1.69	0.	0.39	0.10	0.01	-	-
1131	3.34	3.34	-2.53	-2.53	0.	0.37	0.10	0.01	-	-
1218	3.08	3.08	-3.38	-3.38	0.	0.34	0.10	0.01	-	-
1305	2.75	2.75	-4.22	-4.22	0.	0.30	0.10	0.01	-	-
1392	2.35	2.35	-4.66	-4.66	0.	0.26	0.10	0.00	-	-
1479	1.87	1.87	-4.66	-4.66	0.	0.20	0.10	0.00	-	-
1566	1.32	1.32	-4.66	-4.66	0.	0.14	0.10	0.00	-	-
1590	1.16	1.16	-4.66	-4.66	0.	0.12	0.10	0.00	-	-
1653	0.70	0.70	-4.66	-4.66	0.	0.07	0.10	0.00	-	-
1740	0.00	0.00	-4.66	-4.66	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

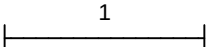
Moments: spans 1 to 1 Load pattern: XX

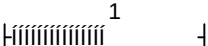


Shear



rib2	Code: ACI318-02
Project: Rib1	Page: 78
Designed by:	Date: 03/08/14

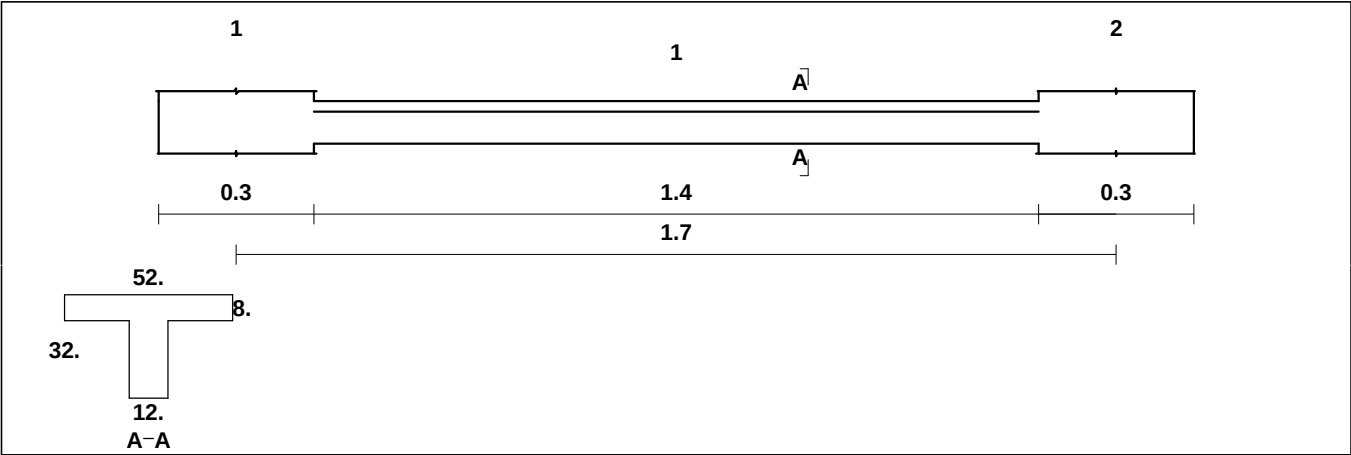
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	2.6	1.2	
MspMx	2.6	1.2	
M Max			
M Min			
Mmn=0 @	0.0	1.7	
Mmx=0 @	0.0	1.7	
mx -M @			
mx +M @			
V max	8.4	-8.4	
V min	8.4	-8.4	
DReac	4.8	4.8	
LReac	3.6	3.6	
Max R	8.4	8.4	
Min R	8.4	8.4	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.7	
mx +M			
V max	8.4	-8.4	

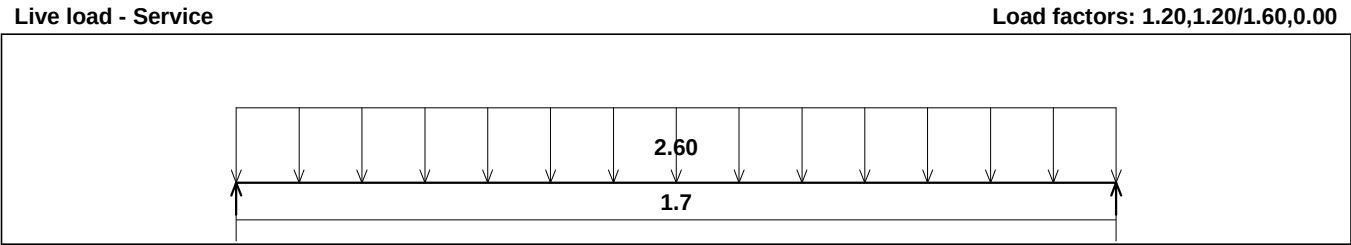
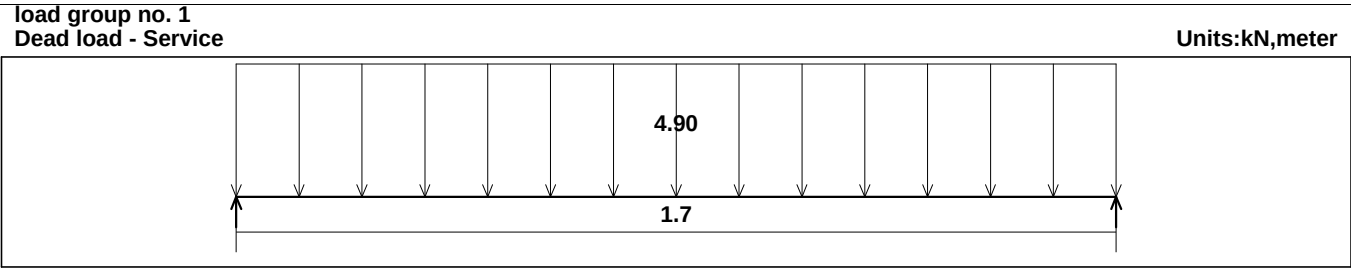
rib4	Code: ACI318-02
Project: Rib1	Page: 81
Designed by:	Date: 03/08/14

Geometry

Units: meter, cm



Loading

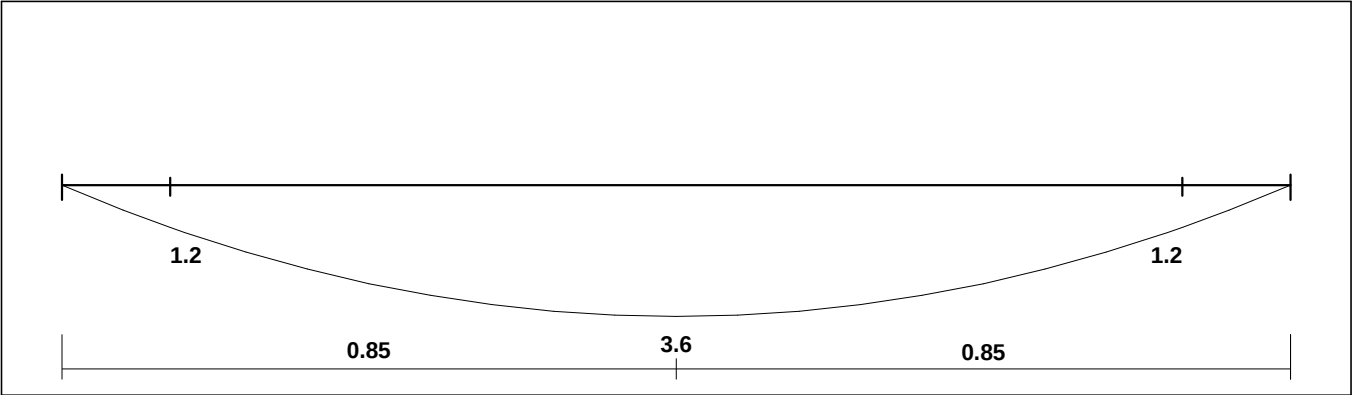


Loads (kN, meter)	
1	
Uni D	4.90 L 2.60

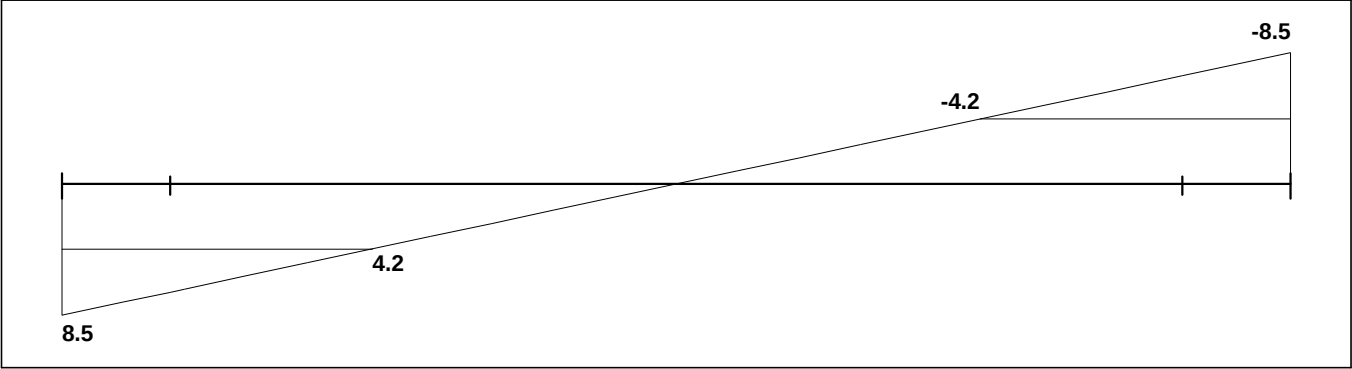
rib4	Code: ACI318-02
Project: Rib1	Page: 82
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored		
DeadR	5.	5.
LiveR	3.54	3.54
Max R	8.53	8.53
Min R	8.53	8.53
Service		
DeadR	4.17	4.17
LiveR	2.21	2.21
Max R	6.38	6.38
Min R	6.38	6.38

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

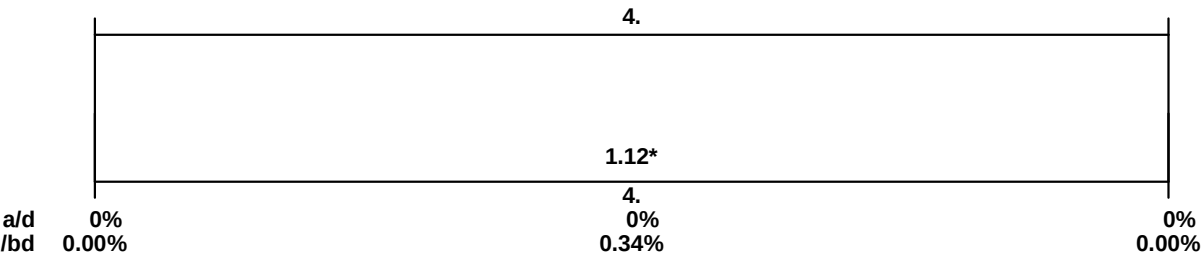
Main reinforcement fy = 420

Top Cover

As top =
*=minimum

As bot =

Bot Cover

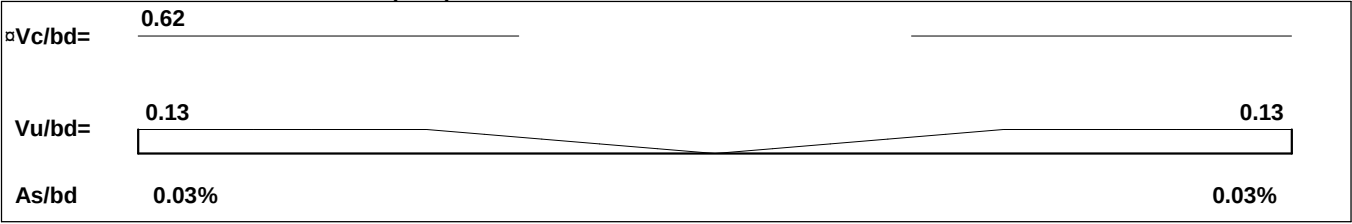


rib4	Code: ACI318-02
Project: Rib1	Page: 83
Designed by:	Date: 03/08/14

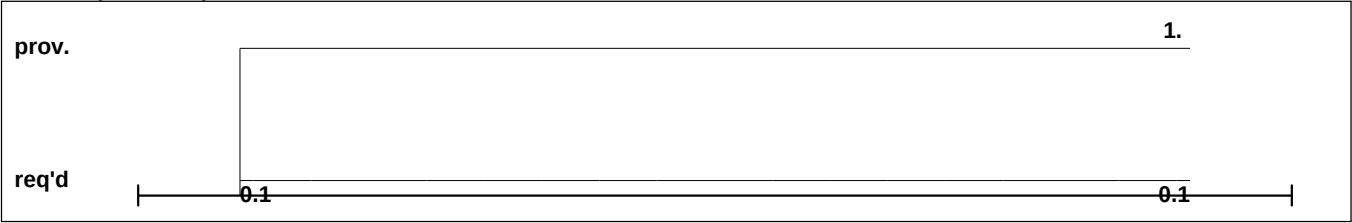
Shear

Shear design: Stirrups only
Stirrups fy = 420 Shear reduction: Yes
Exterior pinned supports - % of span As extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. =5. Incr. = 5.
 Legs: 2/2 Max no. of groups: 5 Max. =Code
Inverted T/L shear area: Web

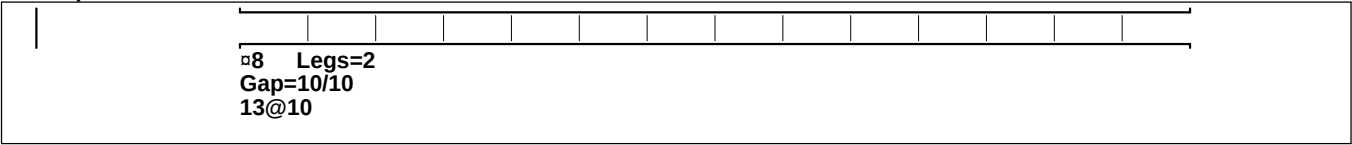
Max. allow. shear stress = 2.5 (MPa)



Av/s (mm2/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	
	0.	
As	1.12	
fr = 3	Es= 209	Ec = 23

Ig(m^4)= 0.00060
Icr(m^4)= 0.00007

Mcr = 8.56
Mmax,d = 1.77
Mmax,d+l = 2.71
Mmax,sust = 1.15

le,d (m^4)= 0.00060
le,d+l (m^4)= 0.00060
le,sust (m^4)= 0.00060

e/1+50r = 2.00/0.80
ai,d = 0.038
ai,l = 0.020
at,sust = 0.030
ai,l = L/*****
(ai+at),t2-t1 L/*****

rib4	Code: ACI318-02
Project: Rib1	Page: 84
Designed by:	Date: 03/08/14

—

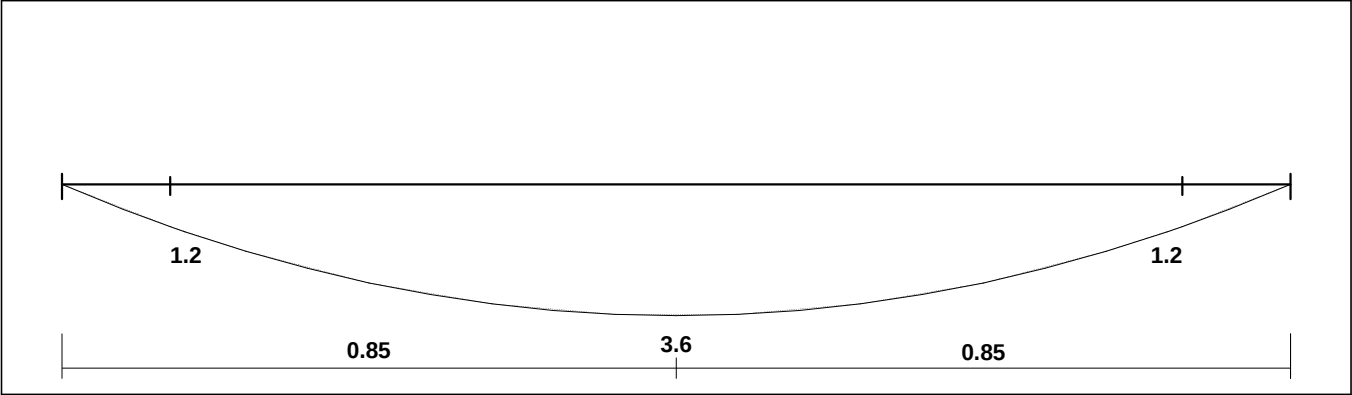
rib4	Code: ACI318-02
Project: Rib1	Page: 85
Designed by:	Date: 03/08/14

Detailed results - at 1/20 of span, support faces, etc.

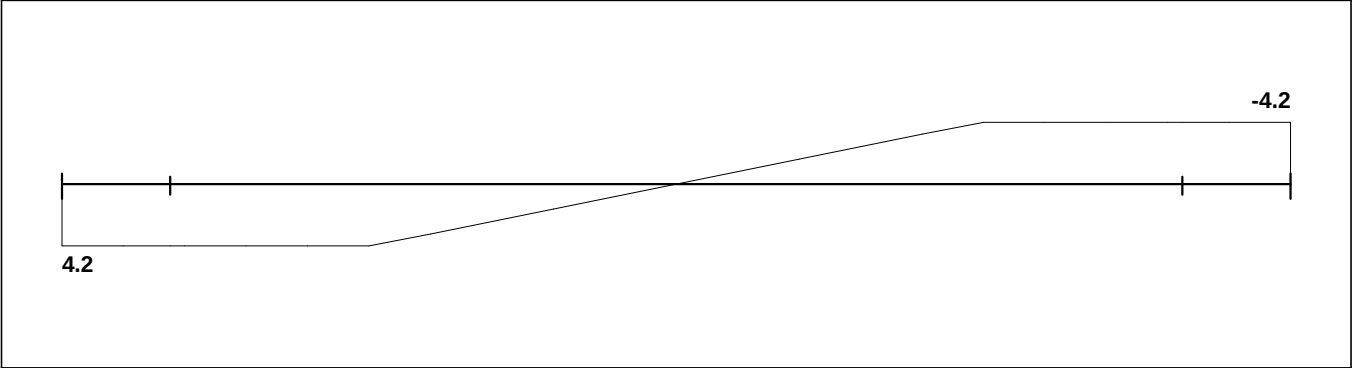
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	4.22	4.22	0.	0.	0.10	0.00	100	-
85	0.69	0.69	4.22	4.22	0.	0.06	0.10	0.00	-	-
150	1.17	1.17	4.22	4.22	0.	0.11	0.10	0.00	-	-
170	1.31	1.31	4.22	4.22	0.	0.12	0.10	0.00	-	-
255	1.85	1.85	4.22	4.22	0.	0.17	0.10	0.00	-	-
340	2.32	2.32	4.22	4.22	0.	0.22	0.10	0.00	-	-
425	2.72	2.72	4.22	4.22	0.	0.25	0.10	0.00	-	-
510	3.05	3.05	3.41	3.41	0.	0.28	0.10	0.00	-	-
595	3.30	3.30	2.56	2.56	0.	0.31	0.10	0.00	-	-
680	3.48	3.48	1.71	1.71	0.	0.33	0.10	0.00	-	-
765	3.59	3.59	0.85	0.85	0.	0.34	0.10	0.00	-	-
850	3.63	3.63	0.00	0.00	0.	0.34	0.10	0.00	100	-
935	3.59	3.59	-0.85	-0.85	0.	0.34	0.10	0.00	-	-
1020	3.48	3.48	-1.71	-1.71	0.	0.33	0.10	0.00	-	-
1105	3.30	3.30	-2.56	-2.56	0.	0.31	0.10	0.00	-	-
1190	3.05	3.05	-3.41	-3.41	0.	0.28	0.10	0.00	-	-
1275	2.72	2.72	-4.22	-4.22	0.	0.25	0.10	0.00	-	-
1360	2.32	2.32	-4.22	-4.22	0.	0.22	0.10	0.00	-	-
1445	1.85	1.85	-4.22	-4.22	0.	0.17	0.10	0.00	-	-
1530	1.31	1.31	-4.22	-4.22	0.	0.12	0.10	0.00	-	-
1550	1.17	1.17	-4.22	-4.22	0.	0.11	0.10	0.00	-	-
1615	0.69	0.69	-4.22	-4.22	0.	0.06	0.10	0.00	-	-
1700	0.00	0.00	-4.22	-4.22	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

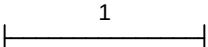
Moments: spans 1 to 1 Load pattern: XX

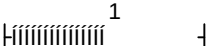


Shear



rib4	Code: ACI318-02
Project: Rib1	Page: 86
Designed by:	Date: 03/08/14

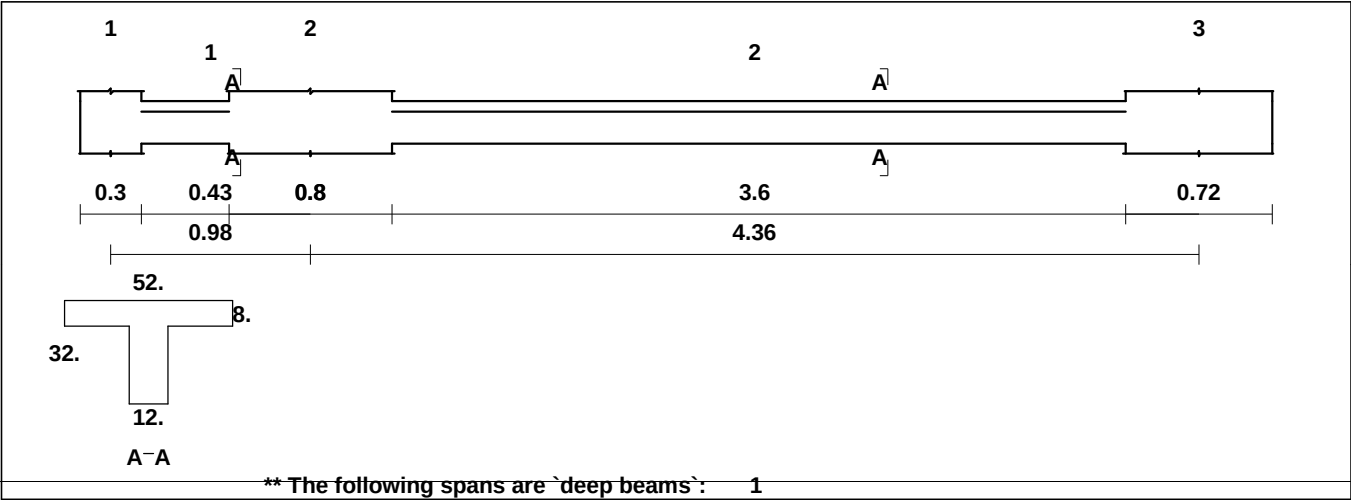
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	1.2	1.2	
MspMx	1.2	1.2	
M Max			
M Min			
Mmn=0 @	0.0	1.7	
Mmx=0 @	0.0	1.7	
mx -M @			
mx +M @			
V max	8.5	-8.5	
V min	8.5	-8.5	
DReac	5.0	5.0	
LReac	3.5	3.5	
Max R	8.5	8.5	
Min R	8.5	8.5	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	1.7	
mx +M			
V max	8.5	-8.5	

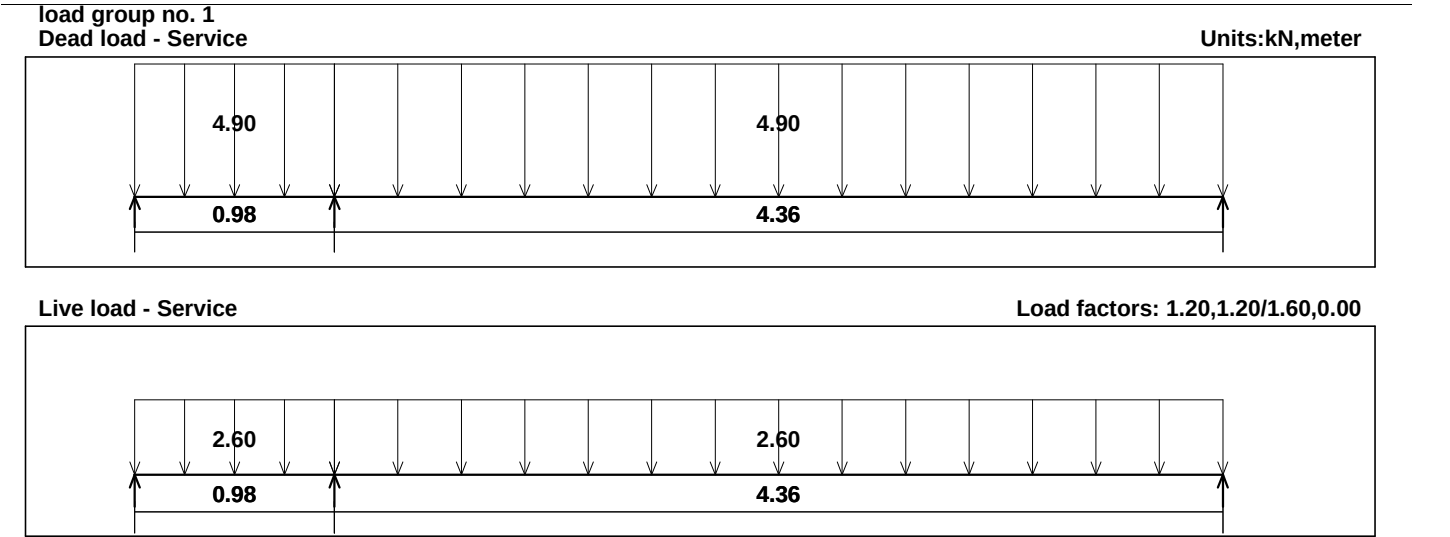
rib5	Code: ACI318-02
Project: Rib1	Page: 85
Designed by:	Date: 03/08/14

Geometry

Units: meter, cm



Loading

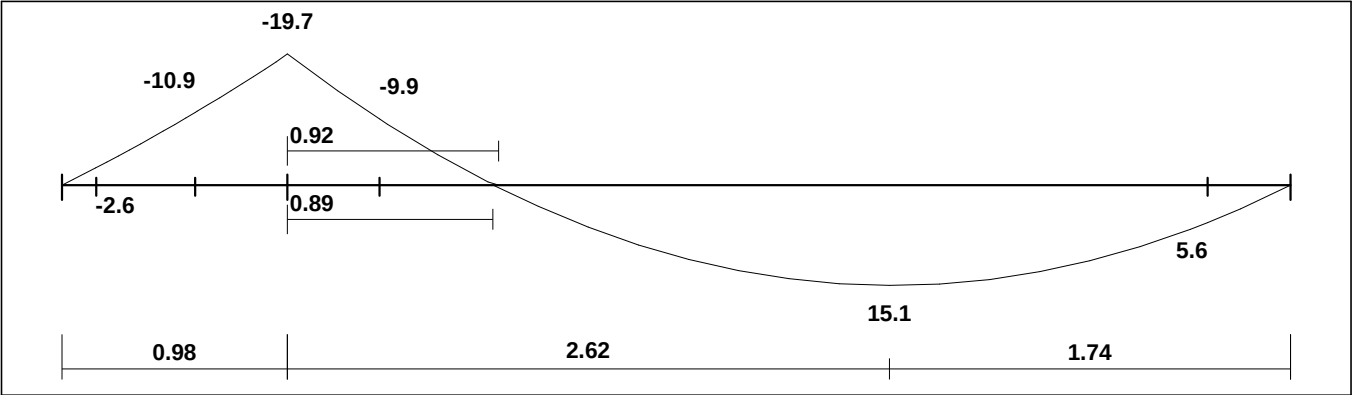


Loads (kN, meter)					
1			2		
Uni D	4.90	L	2.60	Uni D	4.90
			L		2.60

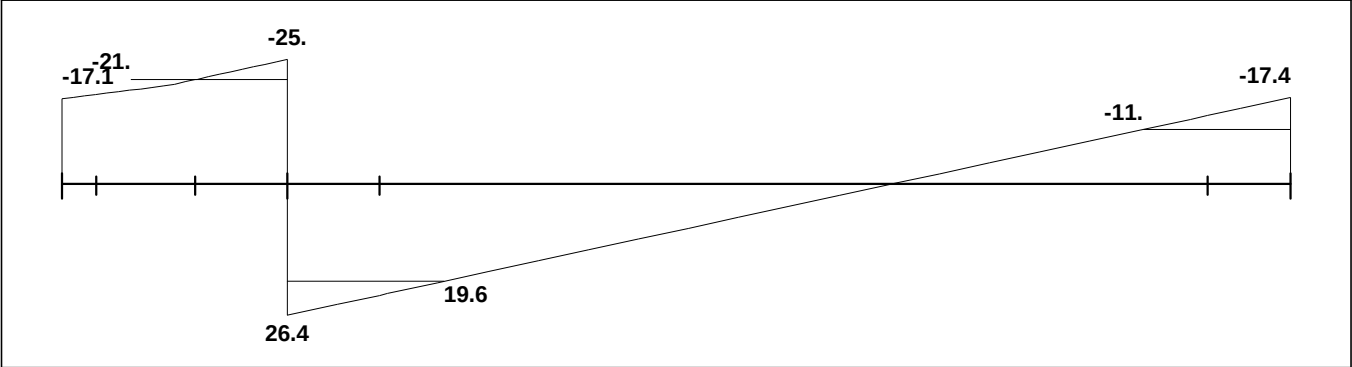
rib5	Code: ACI318-02
Project: Rib1	Page: 86
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored

DeadR	-8.89	30.12	10.17
LiveR	-8.24	21.31	7.22
Max R	-6.95	51.43	17.39
Min R	-17.13	32.27	10.15
Service			
DeadR	-7.41	25.1	8.48
LiveR	-5.15	13.32	4.51
Max R	-6.19	38.42	12.99
Min R	-12.56	26.44	8.46

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

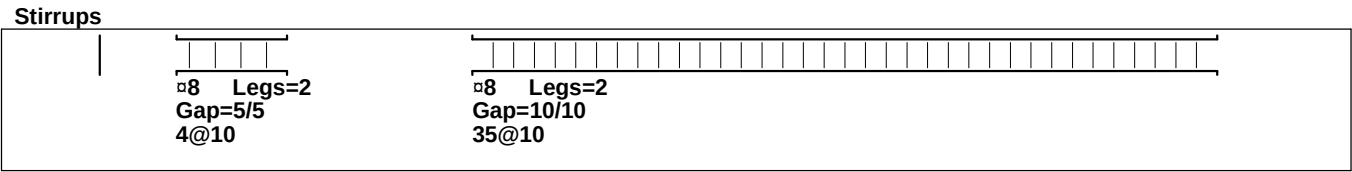
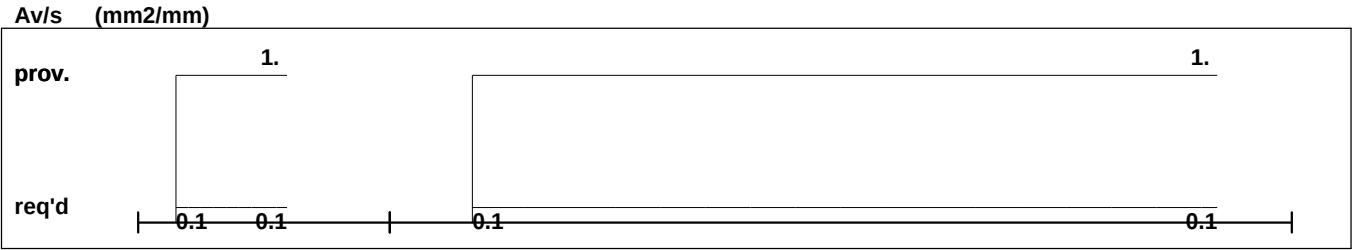
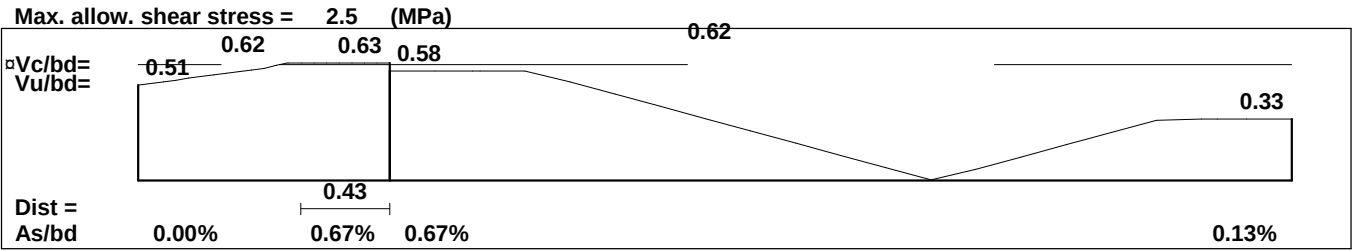
Main reinforcement $f_y = 420$

Top Cover	4.	4.
As top = *=minimum	1.12	2.25*
As bot =	1.12*	1.44
Bot Cover	4.	4.
a/d	2%	2%
As/bd	0.00%	0.43%
	0.34%	0.67%
		1%

rib5	Code: ACI318-02
Project: Rib1	Page: 87
Designed by:	Date: 03/08/14

Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1 1.12	2 0.
A_s	1.12	1.44
$f_r = 3$	$E_s = 209$	$E_c = 23$
$I_g(m^4) =$	0.00060	0.00060
$I_{cr}(m^4) =$	0.00006	0.00008
$M_{cr} =$	17.41	8.56
$M_{max,d} =$	9.61	7.33
$M_{max,d+l} =$	14.66	11.25
$M_{max,sust} =$	6.25	4.77
$I_{e,d}(m^4) =$	0.00060	0.00060
$I_{e,d+l}(m^4) =$	0.00060	0.00031
$I_{e,sust}(m^4) =$	0.00060	0.00060
$e/1+50r =$	1.71/0.68	2.00/0.80
$a_{i,d} =$	-0.038	0.843
$a_{i,l} =$	-0.022	1.645
$a_{t,sust} =$	-0.026	0.658
$a_{i,l} =$	L/*****	L/ 2650
$(a_i+a_t), t_2-t_1$	L/*****	L/ 1678

rib5	Code: ACI318-02
Project: Rib1	Page: 88
Designed by:	Date: 03/08/14

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rib5
Project: Rib1
Designed by:

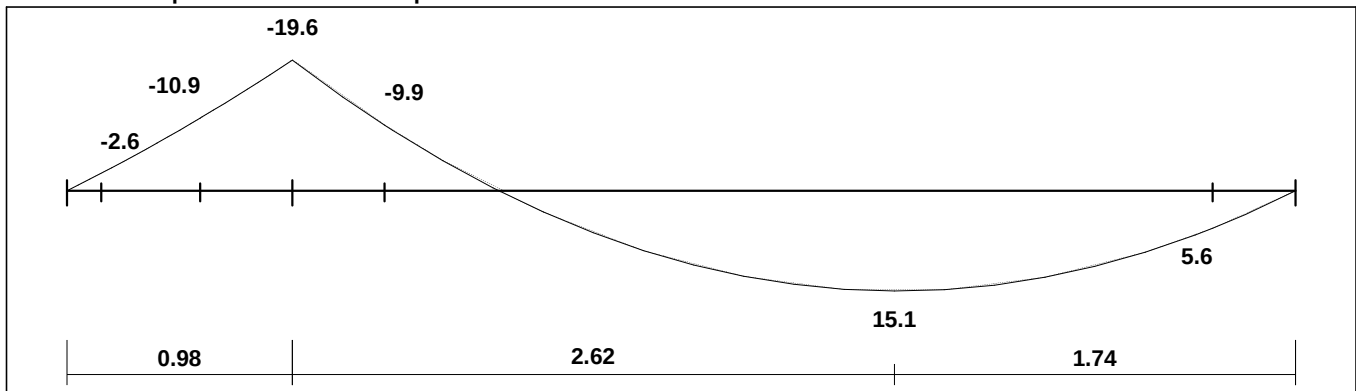
Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	-6.95	-17.13	0.	0.	0.10	0.00	100	-
49	-0.35	-0.85	-7.44	-17.42	0.08	0.	0.10	0.00	-	-
98	-0.73	-1.71	-7.93	-17.70	0.16	0.	0.10	0.01	-	-
147	-1.13	-2.58	-8.42	-17.99	0.24	0.	0.10	0.02	-	-
196	-1.55	-3.47	-8.91	-18.28	0.33	0.	0.10	0.02	-	-
245	-2.00	-4.37	-9.41	-18.57	0.41	0.	0.10	0.03	-	-
294	-2.48	-5.29	-9.90	-18.86	0.50	0.	0.10	0.03	-	-
343	-2.97	-6.22	-10.39	-19.14	0.60	0.	0.10	0.04	-	-
392	-3.49	-7.17	-10.88	-19.43	0.69	0.	0.10	0.04	-	-
441	-4.04	-8.12	-11.37	-19.72	0.78	0.	0.10	0.05	-	-
490	-4.61	-9.10	-11.87	-20.10	0.88	0.	0.10	0.05	100	-
539	-5.20	-10.09	-12.36	-20.59	0.98	0.	0.10	0.06	-	-
580	-5.72	-10.92	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
588	-5.82	-11.09	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
637	-6.46	-12.10	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
686	-7.13	-13.13	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
735	-7.82	-14.18	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
784	-8.53	-15.23	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
833	-9.27	-16.31	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
882	-10.03	-17.39	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
931	-10.82	-18.49	-12.77	-21.01	1.07	0.	0.10	0.07	-	-
980	-11.63	-19.70	-12.77	-21.01	1.07	0.	0.10	0.07	100	-
Span=2										
0	-11.63	-19.70	19.58	11.49	0.97	0.	0.10	0.06	100	-
218	-8.39	-14.18	19.58	11.49	0.97	0.	0.10	0.06	-	-
400	-5.91	-9.94	19.58	11.49	0.97	0.	0.10	0.06	-	-
436	-5.44	-9.14	19.58	11.49	0.89	0.	0.10	0.05	-	-
654	-2.76	-4.58	19.58	11.49	0.43	0.	0.10	0.03	-	-
872	-0.36	-0.49	17.65	10.36	0.04	0.	0.10	0.00	-	-
1090	3.19	1.76	15.46	9.08	0.	0.30	0.10	0.00	-	-
1308	6.31	3.60	13.27	7.79	0.	0.60	0.10	0.01	-	-
1526	8.96	5.16	11.08	6.51	0.	0.85	0.10	0.01	-	-
1744	11.14	6.44	8.90	5.23	0.	1.06	0.10	0.02	-	-
1962	12.83	7.44	6.71	3.95	0.	1.22	0.10	0.02	-	-
2180	14.05	8.16	4.52	2.67	0.	1.34	0.10	0.02	100	-
2398	14.79	8.60	2.33	1.39	0.	1.41	0.10	0.02	-	-
2616	15.06	8.76	0.14	0.10	0.	1.44	0.10	0.02	-	-
2834	14.85	8.64	-1.18	-2.07	0.	1.42	0.10	0.02	-	-
3052	14.16	8.25	-2.46	-4.26	0.	1.35	0.10	0.02	-	-
3270	12.99	7.57	-3.74	-6.45	0.	1.24	0.10	0.02	-	-
3488	11.35	6.62	-5.02	-8.63	0.	1.08	0.10	0.02	-	-
3706	9.23	5.38	-6.31	-10.82	0.	0.87	0.10	0.01	-	-
3924	6.63	3.87	-6.39	-10.96	0.	0.63	0.10	0.01	-	-
4000	5.61	3.27	-6.39	-10.96	0.	0.53	0.10	0.01	-	-
4142	3.55	2.07	-6.39	-10.96	0.	0.33	0.10	0.00	-	-
4360	0.00	0.00	-6.39	-10.96	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

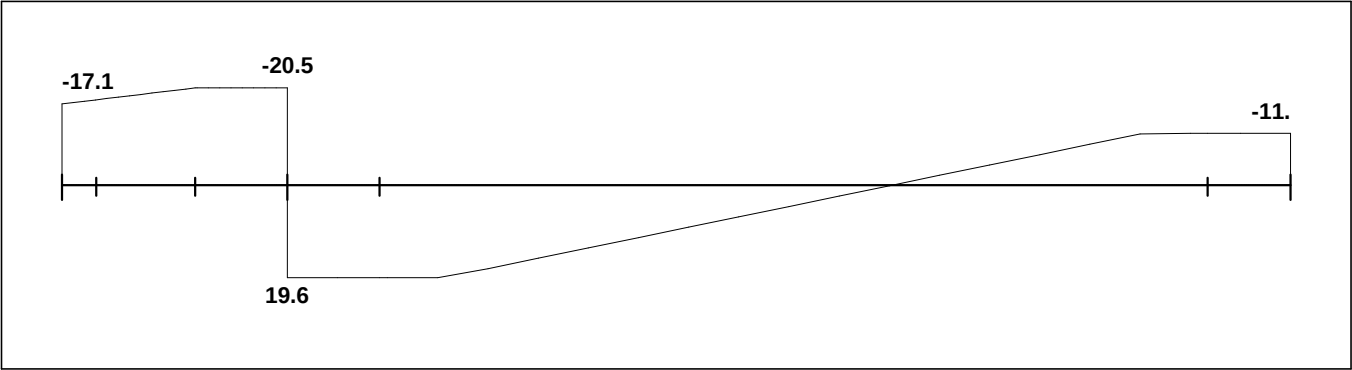
Moments: spans 1 to 2 Load pattern: xxXX



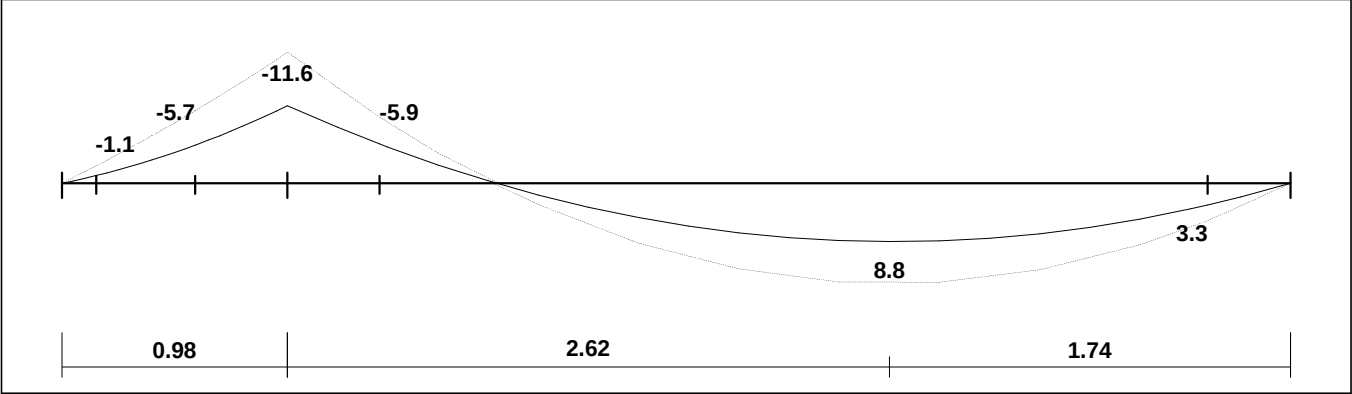
rib5	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

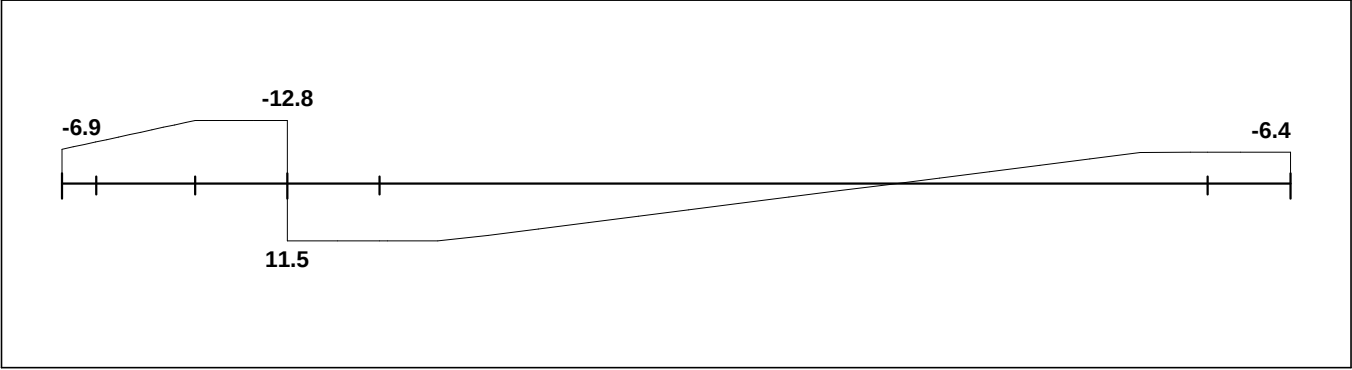
Shear



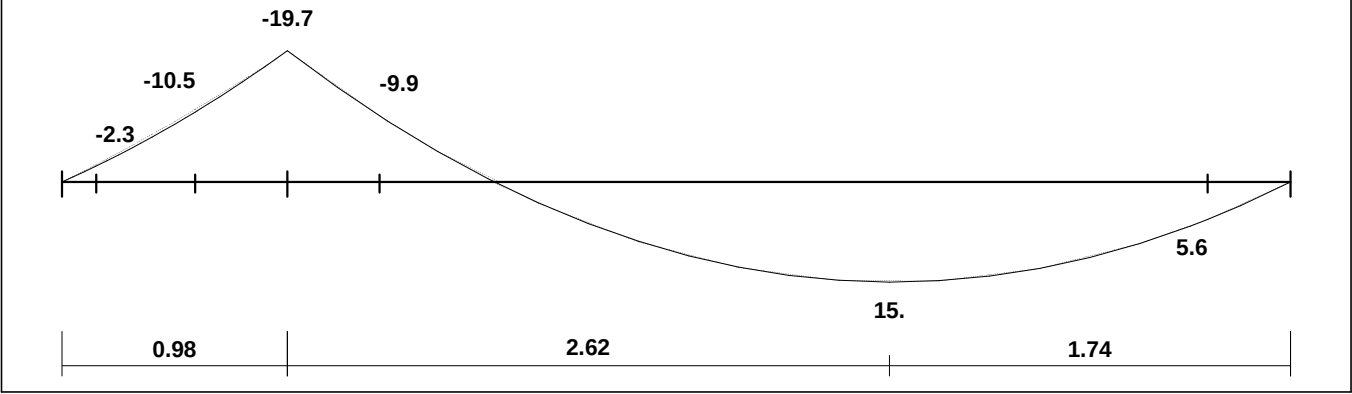
Moments: spans 1 to 2 Load pattern: XXXx



Shear



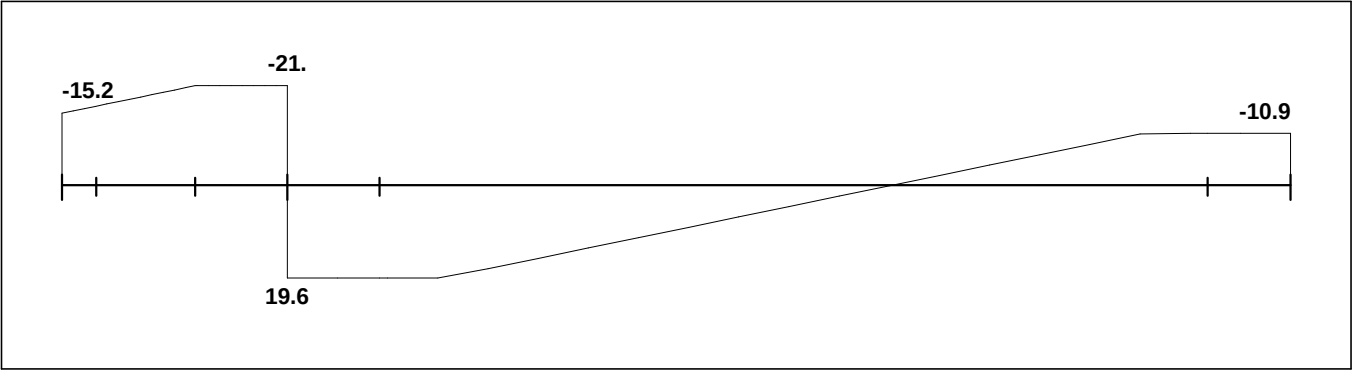
Moments: spans 1 to 2 Load pattern: XXXX



rib5	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Shear



Moment/Shear Envelope (Factored) Units:kN,meter

	1	2	3
Min M	0.0	-19.7	0.0
Max M	0.0	-11.6	0.0
MspMn	-2.6	-10.9	3.3
MspMx	-1.1	-5.7	5.6
M Max			15.1
M Min			8.8
Mmn=0 @	0.0	1.0	4.4
Mmx=0 @	0.0	1.0	4.4
mx -M @			0.9
mx +M @			2.6
V max	-6.9	-16.8	-10.2
V min	-17.1	-25.0	-17.4
DReac	-8.9	30.1	10.2
LReac	-8.2	21.3	7.2
Max R	-6.9	51.4	17.4
Min R	-17.1	32.3	10.2

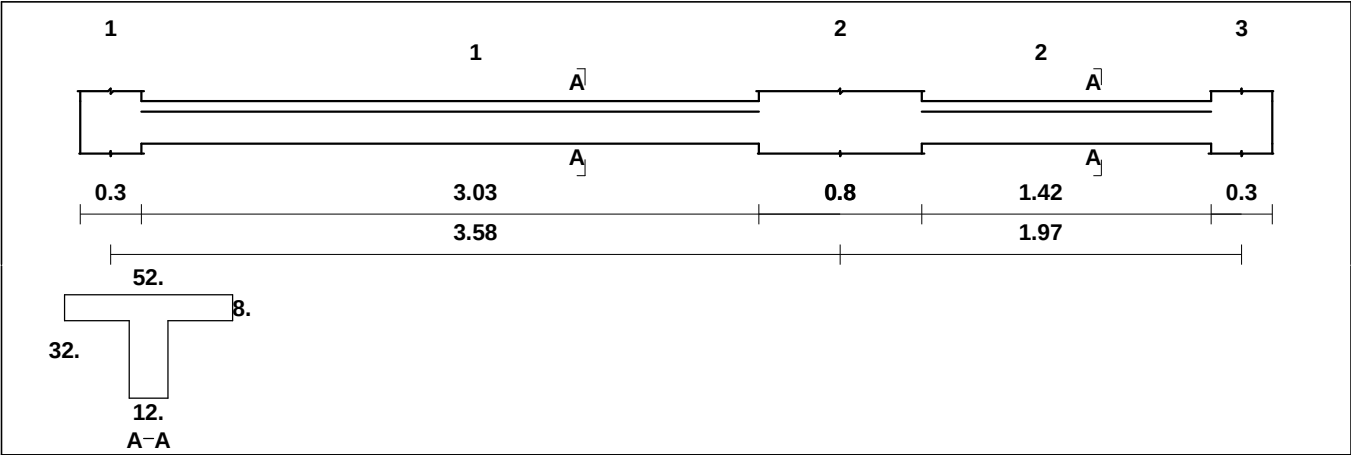
Individual load cases - factored Units:kN,meter

	1	2	3
Min M	0.0	-19.6	0.0
M Max			15.1
Mmx=0 @	0.0	1.0	4.4
mx +M			2.6
V max	-17.1	-22.9	-17.4
Min M	0.0	-11.6	0.0
M Max			8.8
Mmx=0 @	0.0	1.0	4.4
mx +M			2.6
V max	-6.9	-16.8	-10.2
Min M	0.0	-19.7	0.0
M Max			15.0
Mmx=0 @	0.0	1.0	4.4
mx +M			2.6
V max	-15.2	-25.0	-17.4

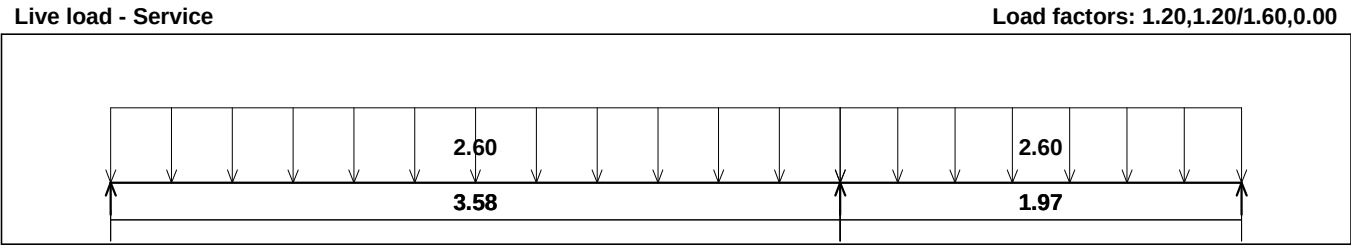
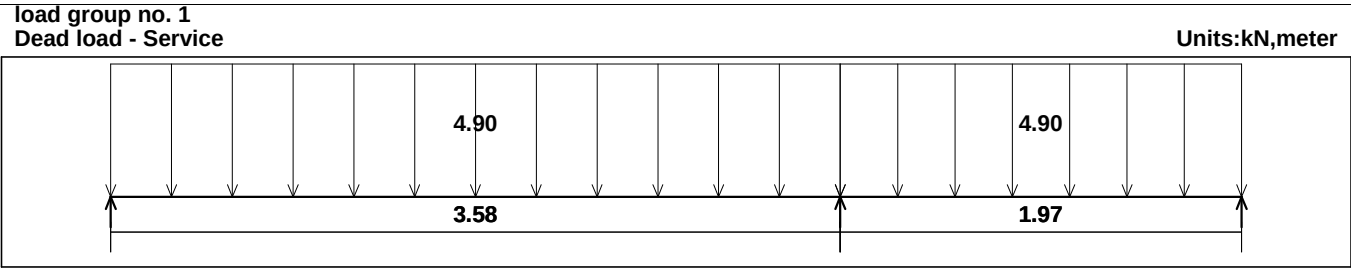
rib6	Code: ACI318-02
Project: Rib1	Page: 90
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Geometry

Units: meter, cm



Loading

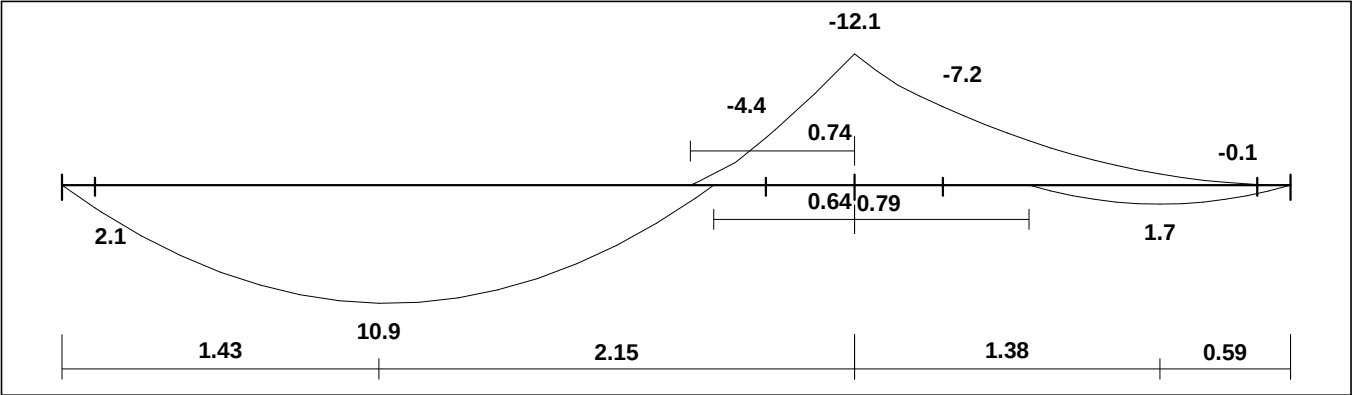


Loads (kN, meter)					
1			2		
Uni D	4.90	L	2.60	Uni D	4.90
			L		2.60

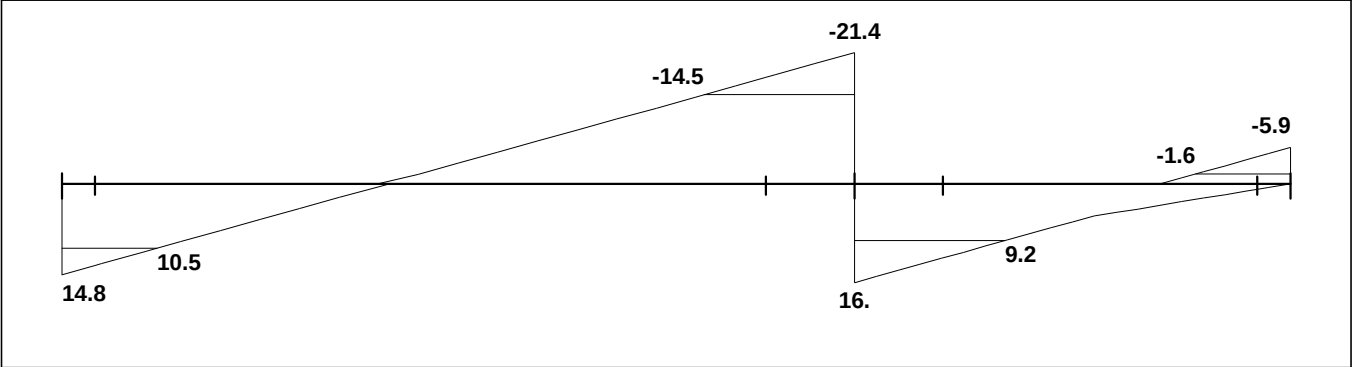
rib6	Code: ACI318-02
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored			
DeadR	8.55	21.9	2.19
LiveR	6.25	15.49	3.73
Max R	14.79	37.39	5.93
Min R	8.34	26.56	0.01
Service			
DeadR	7.12	18.25	1.83
LiveR	3.9	9.68	2.33
Max R	11.02	27.93	4.16
Min R	7.	21.16	0.46

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

Main reinforcement fy = 420

Top Cover	4.	4.
As top =		
=minimum	2.25	1.12
As bot =	0.31	1.12*
Bot Cover	4.	4.
a/d	0%	1%
As/bd	0.00%	0.34%

rib6
Project: Rib1
Designed by:

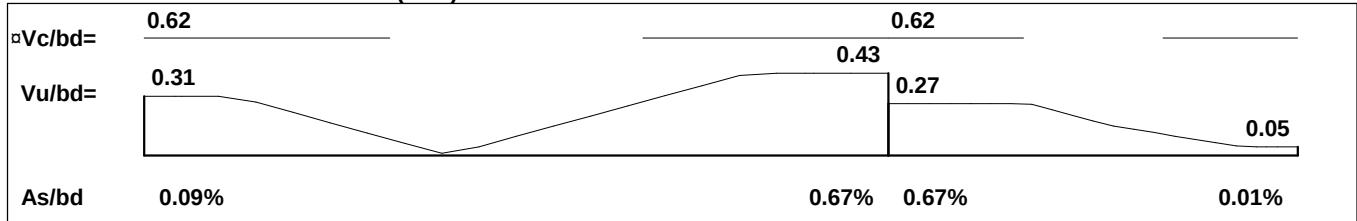
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Shear

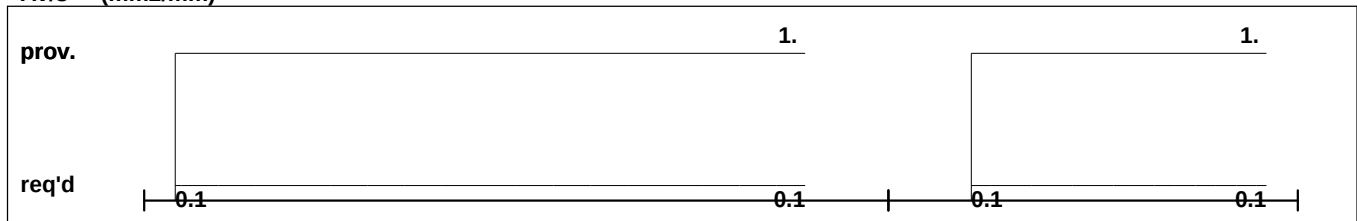
Shear design: Stirrups only

Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

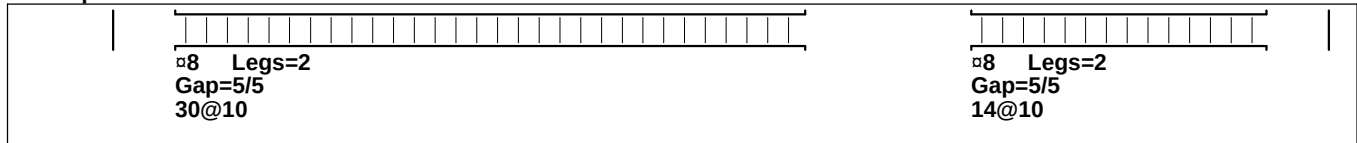
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	0.	1.12
As	1.12	1.12
fr = 3	Es= 209	Ec = 23
Ig(m ⁴)=	0.00060	0.00060
Icr(m ⁴)=	0.00007	0.00006
Mcr =	8.56	17.41
Mmax,d =	5.17	5.91
Mmax,d+l =	8.10	8.59
Mmax,sust =	3.36	3.84
Ie,d (m ⁴)=	0.00060	0.00060
Ie,d+l (m ⁴)=	0.00060	0.00060
Ie,sust (m ⁴)=	0.00060	0.00060
e/1+50r =	2.00/0.80	1.71/0.68
ai,d =	0.415	-0.042
ai,l =	0.245	-0.046
at,sust =	0.324	-0.028
ai,l =	L/14636	L/*****
(ai+at),t2-t1	L/ 5018	L/*****

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rib6
Project: Rib1
Designed by:

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Detailed results - at 1/20 of span, support faces, etc.

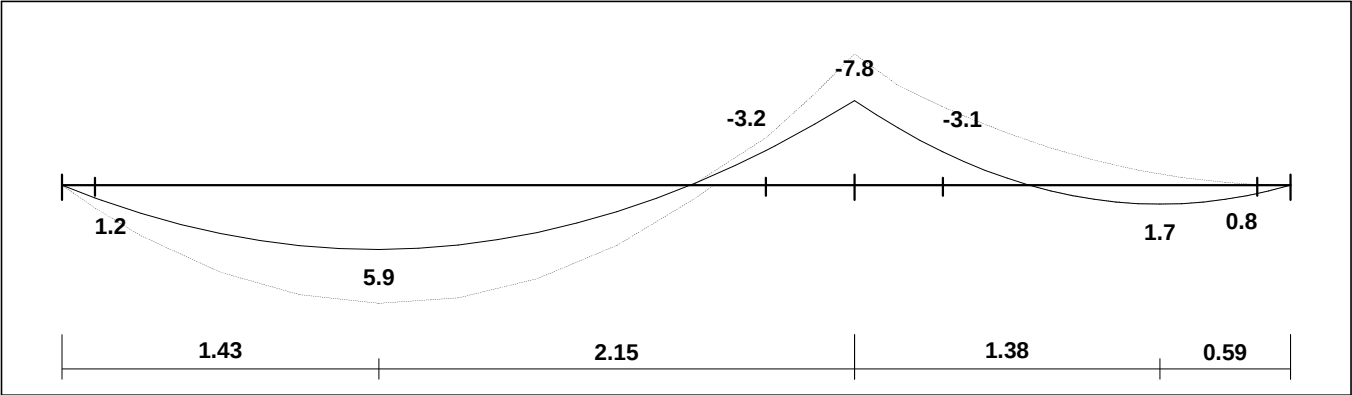
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	10.47	5.82	0.	0.	0.10	0.00	100	-
150	2.11	1.19	10.47	5.82	0.	0.19	0.10	0.00	-	-
179	2.49	1.40	10.47	5.82	0.	0.23	0.10	0.00	-	-
358	4.65	2.61	10.47	5.82	0.	0.44	0.10	0.01	-	-
537	6.49	3.63	9.40	5.19	0.	0.61	0.10	0.01	-	-
716	8.02	4.47	7.60	4.13	0.	0.76	0.10	0.01	-	-
895	9.22	5.11	5.80	3.08	0.	0.87	0.10	0.01	-	-
1074	10.09	5.57	4.01	2.03	0.	0.96	0.10	0.01	-	-
1253	10.65	5.84	2.21	0.98	0.	1.01	0.10	0.01	-	-
1432	10.89	5.92	0.41	-0.08	0.	1.03	0.10	0.01	-	-
1611	10.80	5.81	-1.13	-1.58	0.	1.03	0.10	0.01	-	-
1790	10.39	5.52	-2.18	-3.38	0.	0.99	0.10	0.01	100	-
1969	9.66	5.03	-3.23	-5.18	0.	0.92	0.10	0.01	-	-
2148	8.61	4.36	-4.29	-6.98	0.	0.82	0.10	0.01	-	-
2327	7.23	3.50	-5.34	-8.77	0.	0.68	0.10	0.01	-	-
2506	5.54	2.45	-6.39	-10.57	0.	0.52	0.10	0.01	-	-
2685	3.52	1.21	-7.44	-12.37	0.	0.33	0.10	0.00	-	-
2864	1.18	-0.22	-8.50	-14.16	0.02	0.11	0.10	0.00	-	-
3043	-1.48	-2.09	-8.71	-14.53	0.19	0.	0.10	0.01	-	-
3180	-3.19	-4.37	-8.71	-14.53	0.41	0.	0.10	0.03	-	-
3222	-3.63	-5.10	-8.71	-14.53	0.41	0.	0.10	0.03	-	-
3401	-5.63	-8.44	-8.71	-14.53	0.41	0.	0.10	0.03	-	-
3580	-7.81	-12.10	-8.71	-14.53	0.41	0.	0.10	0.03	100	-
Span=2										
0	-7.81	-12.10	9.21	7.02	0.70	0.	0.10	0.04	100	-
99	-6.48	-10.57	9.21	7.02	0.70	0.	0.10	0.04	-	-
197	-5.27	-9.22	9.21	7.02	0.70	0.	0.10	0.04	-	-
296	-4.14	-8.22	9.21	7.02	0.70	0.	0.10	0.04	-	-
394	-3.13	-7.28	9.21	7.02	0.70	0.	0.10	0.04	-	-
400	-3.07	-7.23	9.21	7.02	0.70	0.	0.10	0.04	-	-
493	-2.20	-6.40	9.21	7.02	0.61	0.	0.10	0.04	-	-
591	-1.37	-5.58	9.21	7.02	0.53	0.	0.10	0.03	-	-
690	-0.64	-4.80	9.11	6.92	0.46	0.	0.10	0.03	-	-
788	-0.01	-4.09	8.12	5.94	0.39	0.	0.10	0.02	-	-
887	0.53	-3.44	7.13	4.95	0.32	0.05	0.10	0.02	-	-
985	0.97	-2.84	6.14	3.96	0.27	0.09	0.10	0.02	100	-
1084	1.31	-2.30	5.20	2.97	0.21	0.12	0.10	0.01	-	-
1182	1.55	-1.82	4.62	1.98	0.17	0.14	0.10	0.01	-	-
1281	1.70	-1.39	4.04	0.99	0.13	0.16	0.10	0.01	-	-
1379	1.75	-1.02	3.46	0.01	0.09	0.16	0.10	0.01	-	-
1478	1.70	-0.71	2.88	-0.99	0.06	0.16	0.10	0.00	-	-
1576	1.56	-0.45	2.31	-1.61	0.04	0.14	0.10	0.00	-	-
1675	1.31	-0.25	1.72	-1.61	0.02	0.12	0.10	0.00	-	-
1773	0.97	-0.11	1.15	-1.61	0.01	0.09	0.10	0.00	-	-
1820	0.78	-0.06	0.87	-1.61	0.00	0.07	0.10	0.00	-	-
1872	0.53	-0.03	0.57	-1.61	0.00	0.05	0.10	0.00	-	-
1970	0.00	0.00	-0.01	-1.61	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

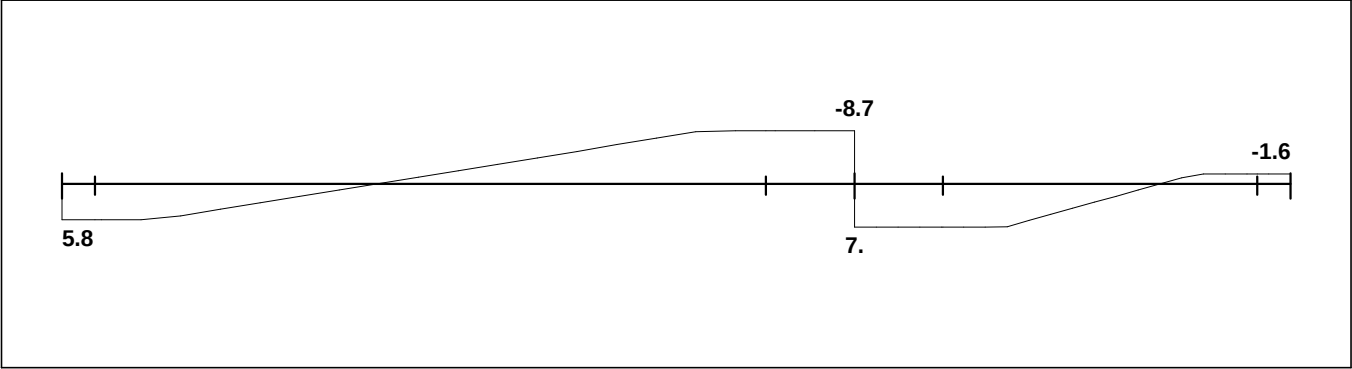
rib6	Code: ACI318-02
Project: Rib1	Page: 95
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Moment/Shear Envelope (Factored) Units:kN,meter

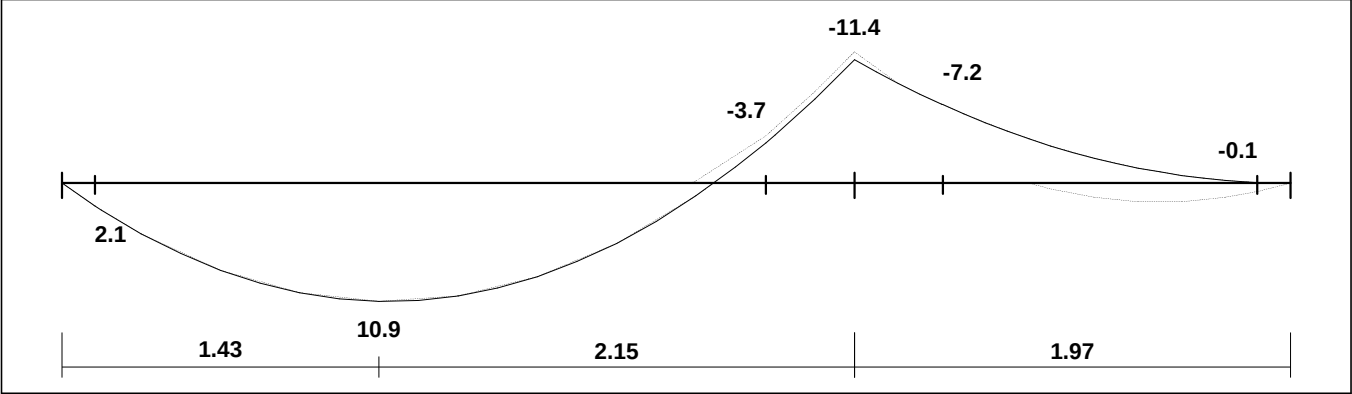
Moments: spans 1 to 2 Load pattern: xxXX



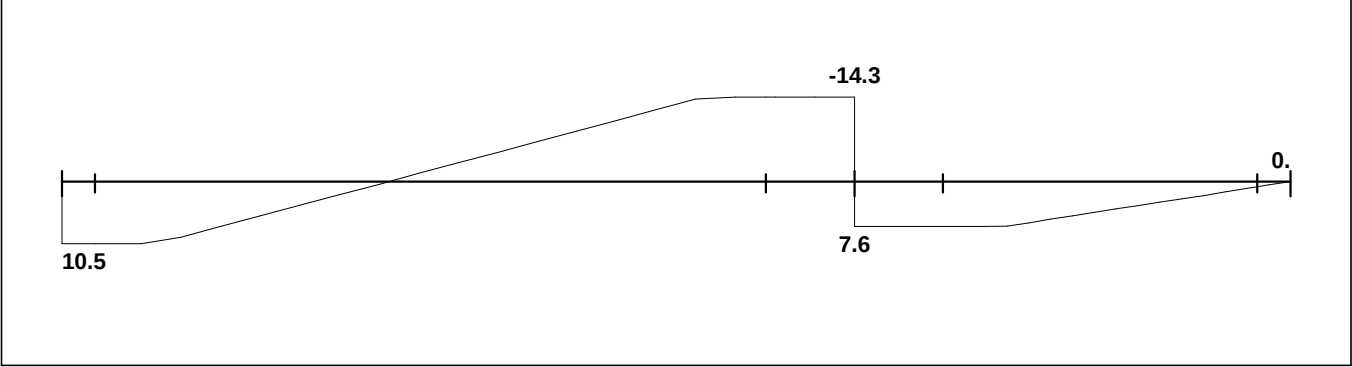
Shear



Moments: spans 1 to 2 Load pattern: XXxx



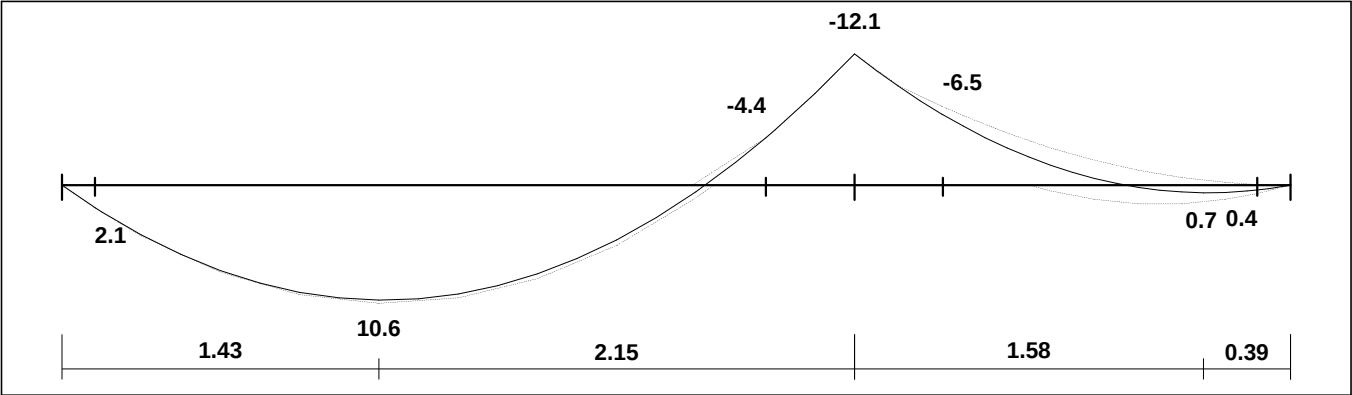
Shear



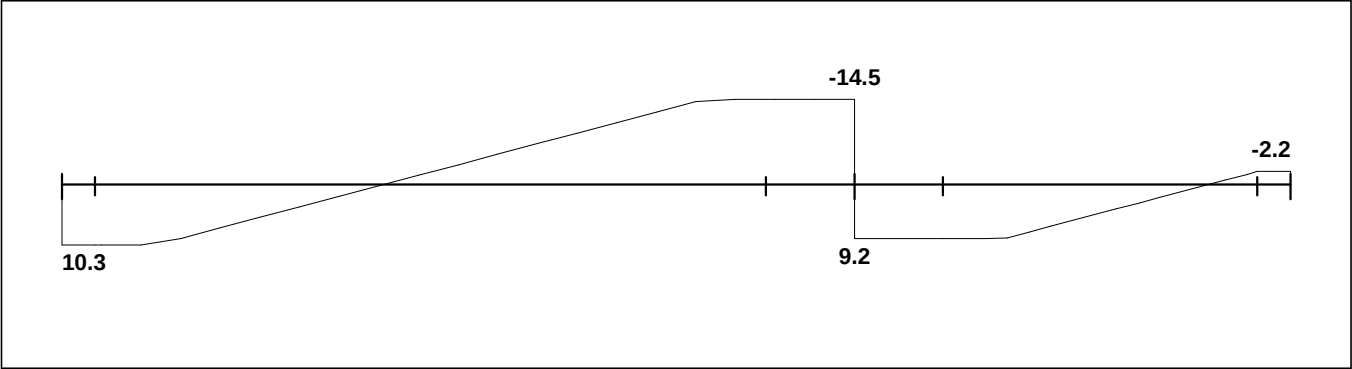
rib6	Code: ACI318-02
Project: Rib1	Page: 96
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Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2 Load pattern: XXXX



Shear



Moment/Shear Envelope (Factored) Units:kN,meter

	1	2	3
Min M	0.0	-12.1	0.0
Max M	0.0	-7.8	0.0
MspMn	1.2	-4.4	-0.1
MspMx	2.1	-3.2	0.8
M Max		1.7	
M Min		-2.8	
Mmn=0 @	0.0	0.7	2.0
Mmx=0 @	0.0	0.6	2.0
mx -M @		0.8	
mx +M @		1.4	
V max		-12.7	0.0
V min	8.3	-21.4	-5.9
DReac	8.5	21.9	2.2
LReac	6.2	15.5	3.7
Max R		37.4	5.9
Min R	8.3	26.6	0.0

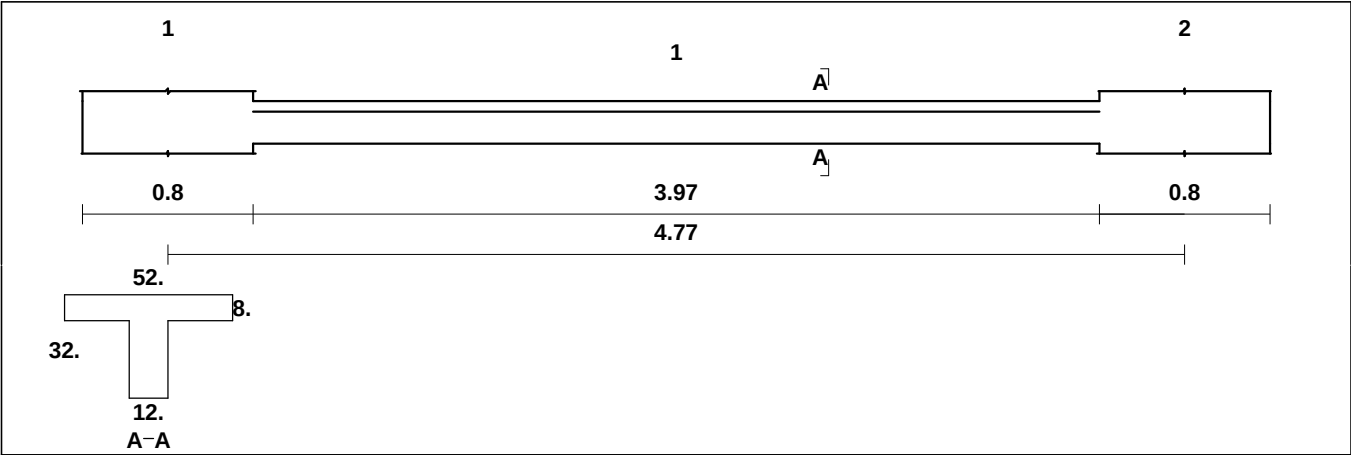
rib6	Code: ACI318-02
Project: Rib1	Page: 97
Designed by:	Date: 03/08/14

	Individual load cases - factored				Units:kN,meter
	1	2	3		
	1	2	2		
	Min M	0.0	-7.8	-7.8	0.0
	M Max			1.7	
	Mmx=0 @	0.0	0.7	0.8	2.0
	mx +M			1.4	
	V max	8.3	-12.7		-5.9
	1	2	3		
	1	2	2		
	Min M	0.0	-11.4	-11.4	0.0
	M Max			-2.8	
	Mmx=0 @	0.0	0.6	0.0	2.0
	mx +M			1.4	
	V max		-21.2		0.0
	1	2	3		
	1	2	2		
	Min M	0.0	-12.1	-12.1	0.0
	M Max			0.7	
	Mmx=0 @	0.0	0.7	1.2	2.0
	mx +M			1.6	
	V max		-21.4		-3.7

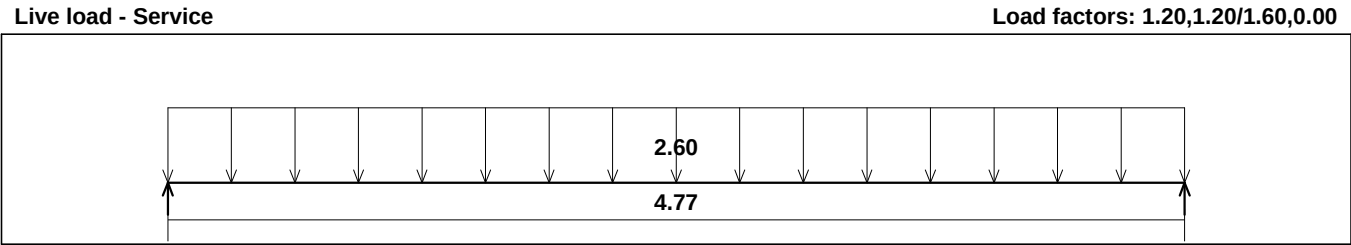
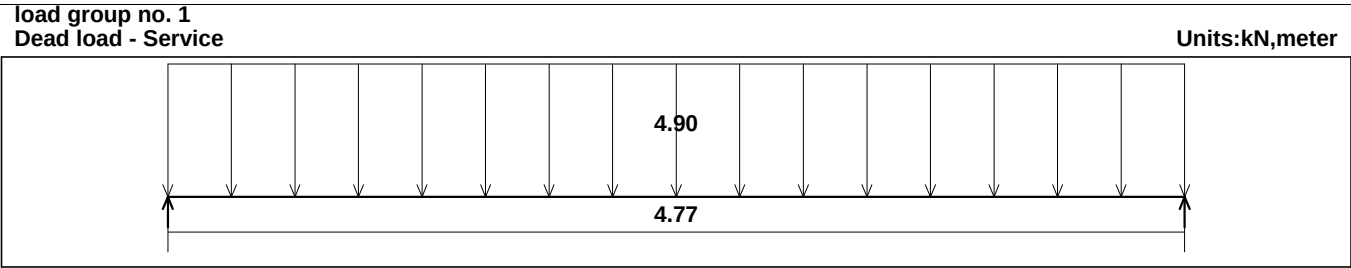
rib7	Code: ACI318-02
Project: Rib1	Page: 96
Designed by:	Date: 03/08/14

Geometry

Units:meter,cm



Loading

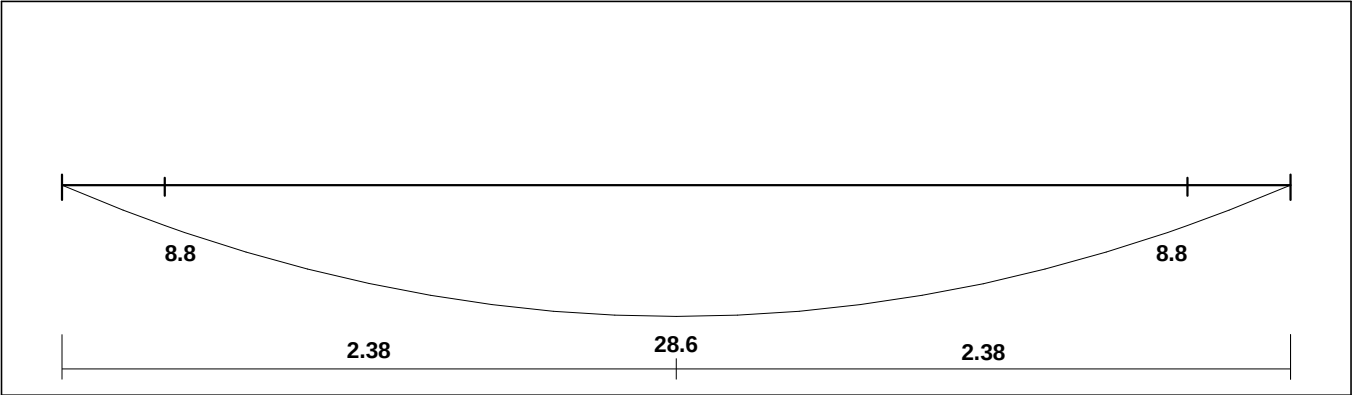


Loads (kN,meter)			
1			
Uni D	4.90	L	2.60

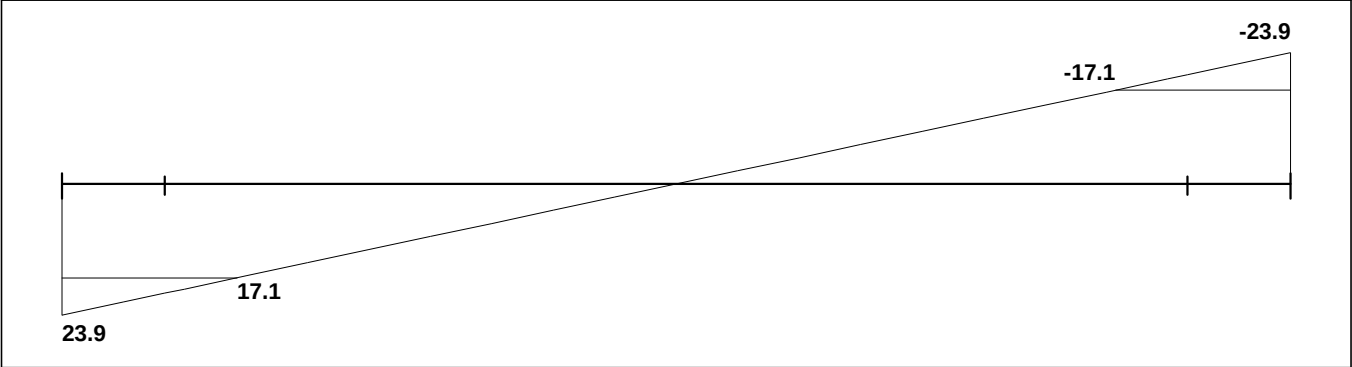
rib7	Code: ACI318-02
Project: Rib1	Page: 97
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored		
DeadR	14.02	14.02
LiveR	9.92	9.92
Max R	23.95	23.95
Min R	23.95	23.95
Service		
DeadR	11.69	11.69
LiveR	6.2	6.2
Max R	17.89	17.89
Min R	17.89	17.89

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

Main reinforcement $f_y = 420$

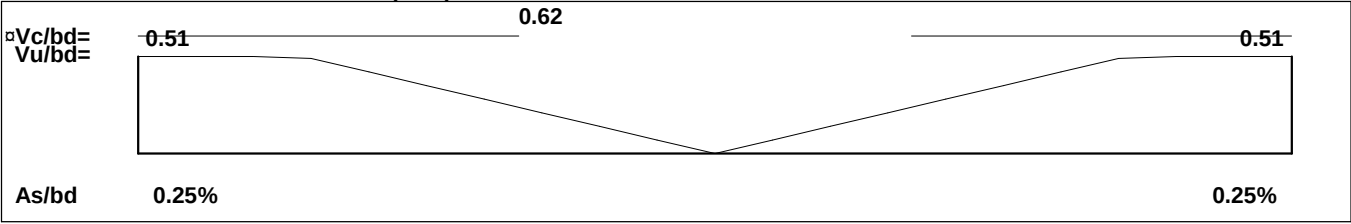
Top Cover	4.
As top = minimum	
As bot =	0.82
Bot Cover	2.75
a/d	1%
As/bd	0.00%
	4.
	4%
	1%
	0.82%
	0.00%

rib7	Code: ACI318-02
Project: Rib1	Page: 98
Designed by:	Date: 03/08/14

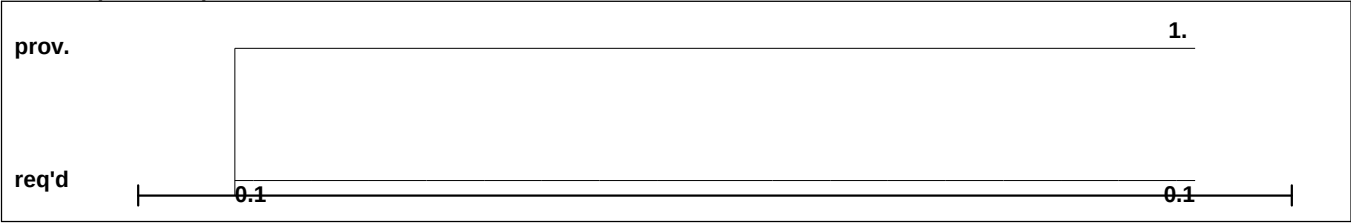
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

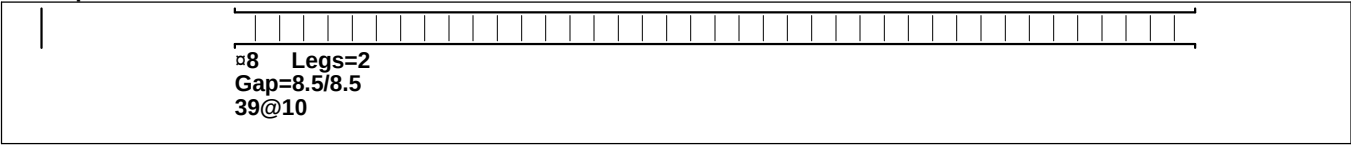
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A_s	1	
	0.	
A_s	2.75	
$f_r = 3$	$E_s = 209$	$E_c = 23$

$I_g(m^4) = 0.00060$
 $I_{cr}(m^4) = 0.00015$

$M_{cr} = 8.56$
 $M_{max,d} = 13.94$
 $M_{max,d+l} = 21.33$
 $M_{max,sust} = 9.06$

$I_{e,d}(m^4) = 0.00025$
 $I_{e,d+l}(m^4) = 0.00018$
 $I_{e,sust}(m^4) = 0.00053$

$e/1+50r = 2.00/0.80$
 $a_{i,d} = 5.519$
 $a_{i,l} = 6.403$
 $a_{t,sust} = 2.083$
 $a_{i,l} = L/744$
 $(a_i+a_t), t_2-t_1 = L/457$

rib7	Code: ACI318-02
Project: Rib1	Page: 99
Designed by:	Date: 03/08/14

—

rib7
Project: Rib1
Designed by:

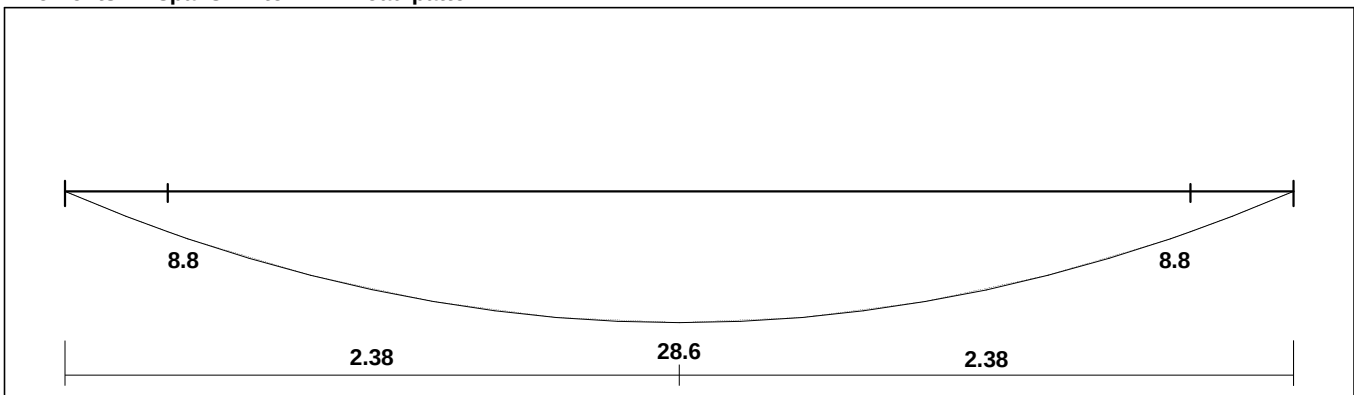
Code: ACI318-02
Page: 100
Date: 03/08/14

Detailed results - at 1/20 of span, support faces, etc.

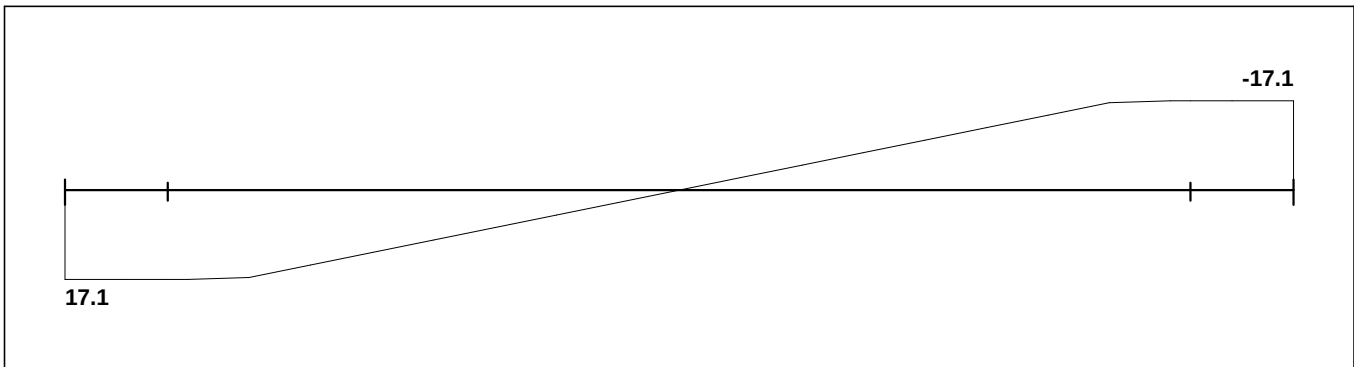
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	17.12	17.12	0.	0.	0.10	0.00	100	-
238	5.41	5.41	17.12	17.12	0.	0.51	0.10	0.01	-	-
400	8.77	8.77	17.12	17.12	0.	0.83	0.10	0.01	-	-
477	10.28	10.28	17.12	17.12	0.	0.98	0.10	0.01	-	-
715	14.55	14.55	16.77	16.77	0.	1.39	0.10	0.02	-	-
954	18.28	18.28	14.37	14.37	0.	1.75	0.10	0.02	-	-
1192	21.41	21.41	11.98	11.98	0.	2.05	0.10	0.03	-	-
1431	23.99	23.99	9.58	9.58	0.	2.31	0.10	0.03	-	-
1669	25.98	25.98	7.19	7.19	0.	2.50	0.10	0.04	-	-
1908	27.41	27.41	4.79	4.79	0.	2.64	0.10	0.04	-	-
2146	28.27	28.27	2.40	2.40	0.	2.73	0.10	0.04	-	-
2385	28.55	28.55	0.00	0.00	0.	2.75	0.10	0.04	100	-
2623	28.27	28.27	-2.39	-2.39	0.	2.73	0.10	0.04	-	-
2862	27.41	27.41	-4.79	-4.79	0.	2.64	0.10	0.04	-	-
3100	25.99	25.99	-7.18	-7.18	0.	2.50	0.10	0.04	-	-
3339	23.99	23.99	-9.58	-9.58	0.	2.31	0.10	0.03	-	-
3577	21.42	21.42	-11.97	-11.97	0.	2.06	0.10	0.03	-	-
3816	18.28	18.28	-14.37	-14.37	0.	1.75	0.10	0.02	-	-
4054	14.57	14.57	-16.76	-16.76	0.	1.39	0.10	0.02	-	-
4293	10.28	10.28	-17.12	-17.12	0.	0.98	0.10	0.01	-	-
4370	8.77	8.77	-17.12	-17.12	0.	0.83	0.10	0.01	-	-
4531	5.44	5.44	-17.12	-17.12	0.	0.51	0.10	0.01	-	-
4770	0.00	0.00	-17.12	-17.12	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

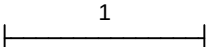
Moments: spans 1 to 1 Load pattern: XX

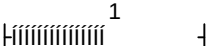


Shear



rib7	Code: ACI318-02
Project: Rib1	Page: 101
Designed by:	Date: 03/08/14

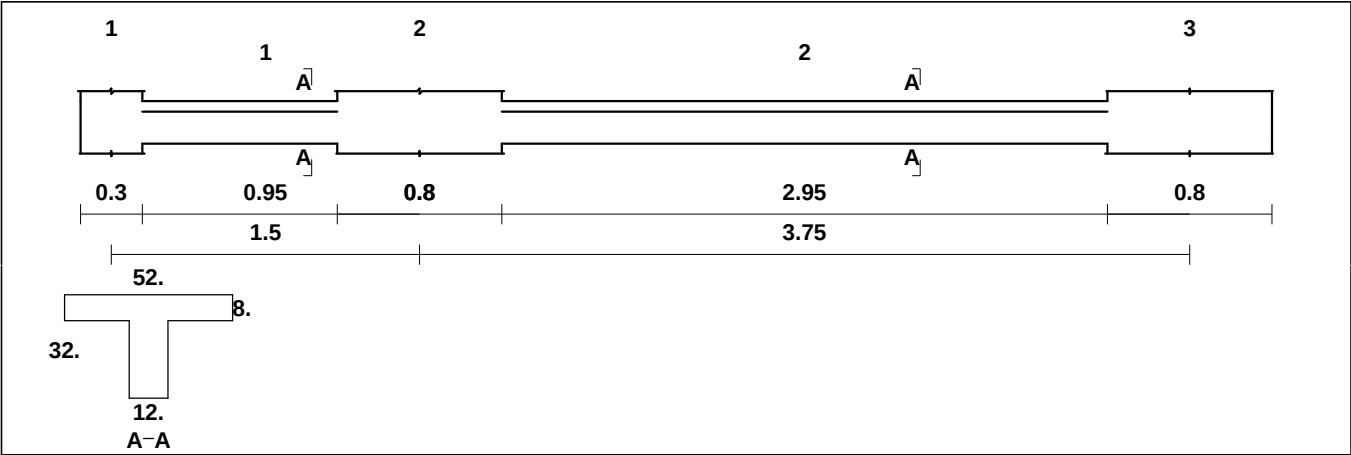
Moment / Shear Envelope (Factored)			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
Max M	0.0	0.0	
MspMn	8.8	8.8	
MspMx	8.8	8.8	
M Max			
M Min			
Mmn=0 @	0.0	4.8	
Mmx=0 @	0.0	4.8	
mx -M @			
mx +M @			
V max		-23.9	
V min		-23.9	
DReac		14.0	
LReac	9.9	9.9	
Max R		23.9	
Min R		23.9	

Individual load cases - factored			Units:kN,meter
	1	2	
			
Min M	0.0	0.0	
M Max			
Mmx=0 @	0.0	4.8	
mx +M			
V max		-23.9	

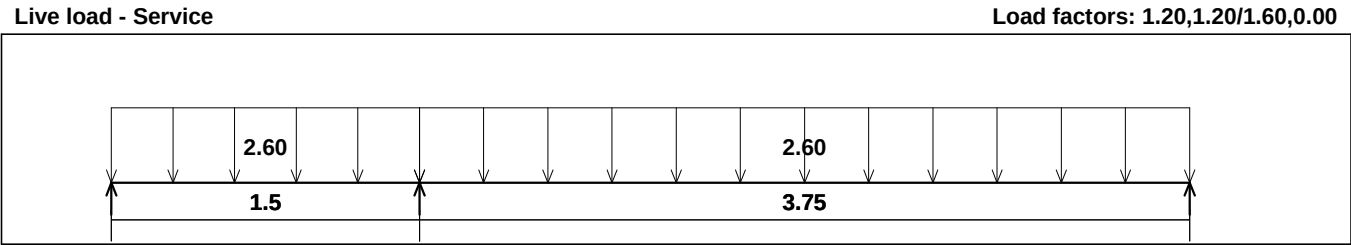
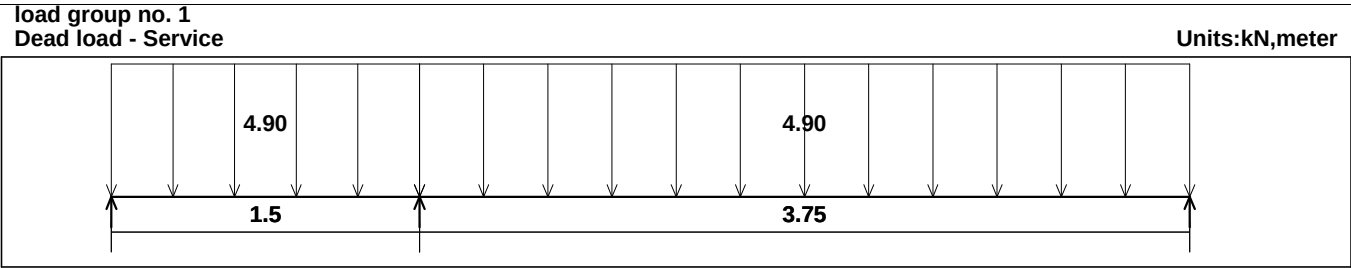
rib8	Code: ACI318-02
Project: Rib1	Page: 100
Designed by:	Date: 03/08/14

Geometry

Units: meter, cm



Loading

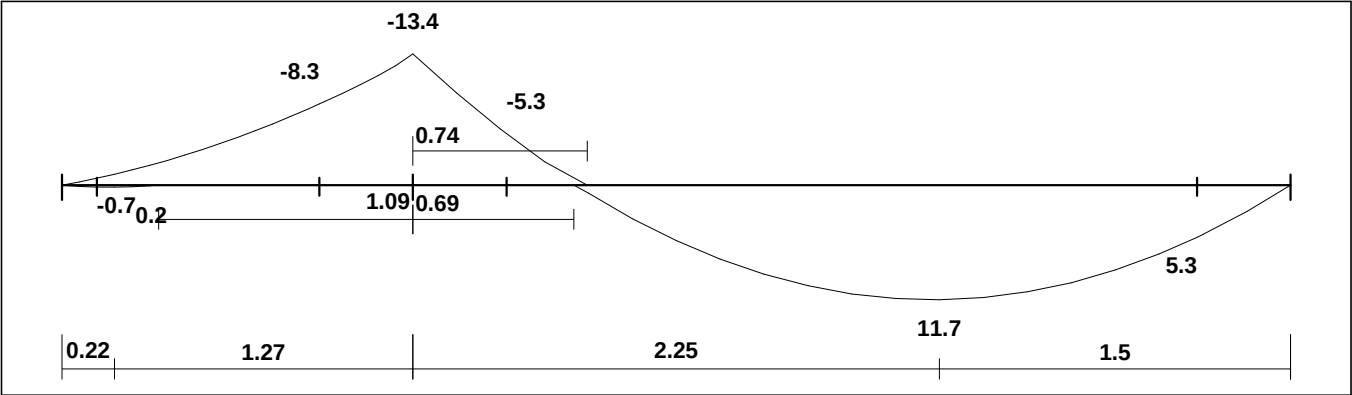


Loads (kN, meter)					
1			2		
Uni D	4.90	L	2.60	Uni D	4.90
			L		2.60

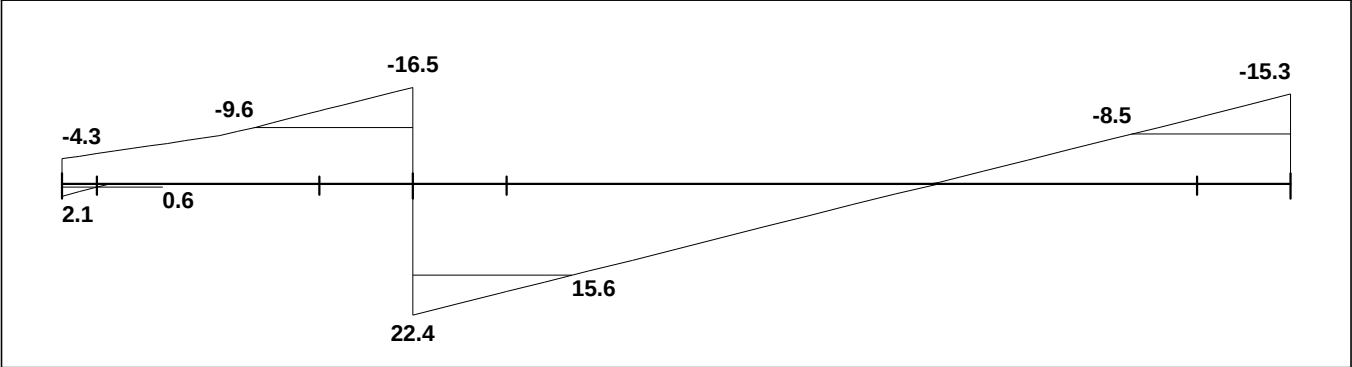
rib8	Code: ACI318-02
Project: Rib1	Page: 101
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 2



Shear



Reactions

Factored			
DeadR	-0.83	22.77	8.93
LiveR	2.9	16.11	6.41
Max R	2.07	38.87	15.34
Min R	-4.31	26.2	8.84
Service			
DeadR	-0.69	18.97	7.44
LiveR	1.81	10.07	4.
Max R	1.12	29.04	11.45
Min R	-2.87	21.12	7.39

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

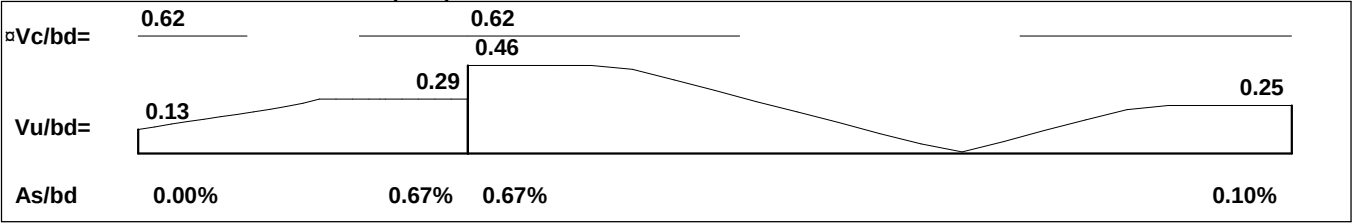
Top Cover	4.	4.
As top = *=minimum	1.12	2.25*
As bot =	1.12*	1.12*
Bot Cover	4.	4.
a/d	0%	1%
As/bd	0.00%	0.00%

rib8	Code: ACI318-02
Project: Rib1	Page: 102
Designed by:	Date: 03/08/14

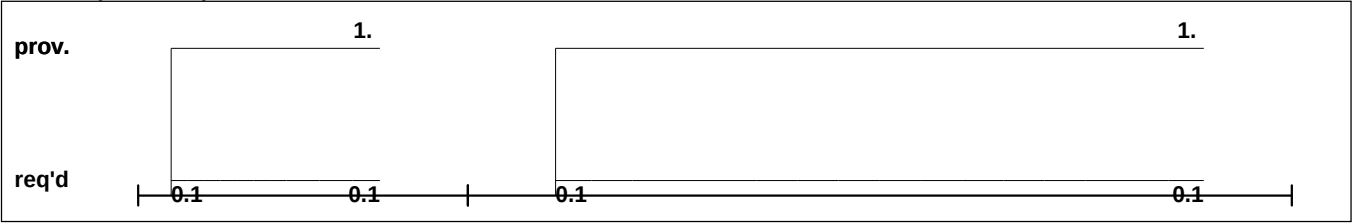
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

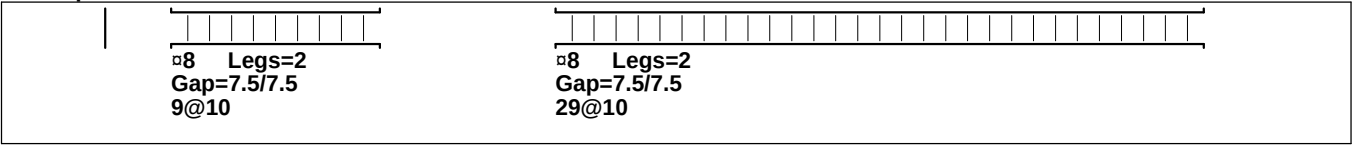
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A's	1	2
	1.12	0.
A_s	1.12	1.12
$f_r = 3$	$E_s = 209$	$E_c = 23$
$I_g(m^4) =$	0.00060	0.00060
$I_{cr}(m^4) =$	0.00006	0.00007
$M_{cr} =$	17.41	8.56
$M_{max,d} =$	6.55	5.65
$M_{max,d+l} =$	9.81	8.73
$M_{max,sust} =$	4.25	3.67
$I_{e,d}(m^4) =$	0.00060	0.00060
$I_{e,d+l}(m^4) =$	0.00060	0.00057
$I_{e,sust}(m^4) =$	0.00060	0.00060
$e/1+50r =$	1.71/0.68	2.00/0.80
$a_{i,d} =$	-0.046	0.495
$a_{i,l} =$	-0.034	0.317
$a_{t,sust} =$	-0.030	0.387
$a_{i,l} =$	$L/*****$	$L/11814$
$(a_i+at), t_2-t_1$	$L/*****$	$L/4274$

rib8	Code: ACI318-02
Project: Rib1	Page: 103
Designed by:	Date: 03/08/14

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rib8
Project: Rib1
Designed by:

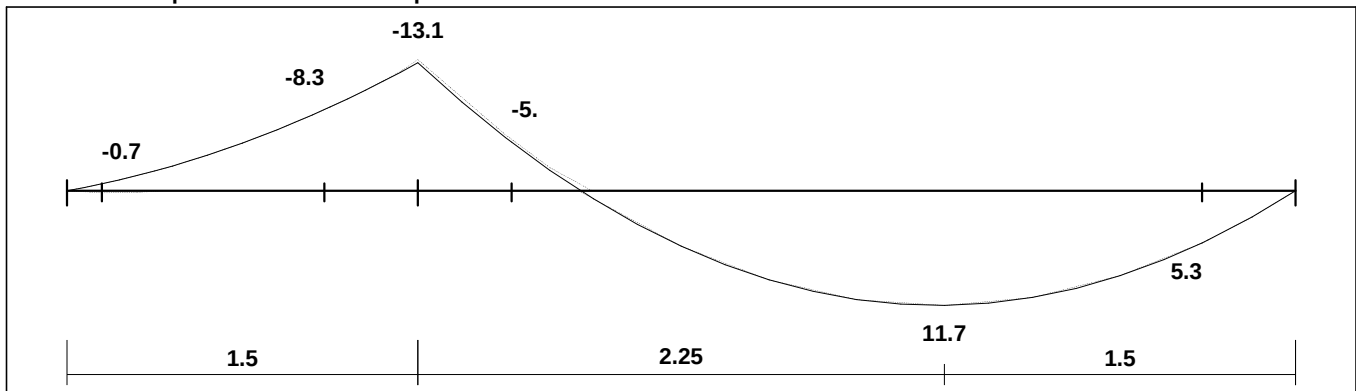
Code: ACI318-02
Page: 104
Date: 03/08/14

Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	0.56	-4.31	0.	0.	0.10	0.00	100	-
75	0.13	-0.34	0.56	-4.75	0.03	0.01	0.10	0.00	-	-
150	0.20	-0.71	0.56	-5.19	0.06	0.01	0.10	0.00	-	-
225	0.21	-1.12	-0.19	-5.63	0.10	0.02	0.10	0.01	-	-
300	0.17	-1.56	-0.94	-6.07	0.14	0.01	0.10	0.01	-	-
375	0.07	-2.03	-1.69	-6.51	0.19	0.00	0.10	0.01	-	-
450	-0.08	-2.53	-2.45	-6.96	0.24	0.	0.10	0.01	-	-
525	-0.30	-3.07	-3.20	-7.40	0.29	0.	0.10	0.02	-	-
600	-0.57	-3.64	-3.95	-7.84	0.34	0.	0.10	0.02	-	-
675	-0.89	-4.25	-4.71	-8.28	0.40	0.	0.10	0.02	-	-
750	-1.27	-4.89	-5.46	-8.94	0.46	0.	0.10	0.03	100	-
825	-1.71	-5.56	-6.16	-9.64	0.53	0.	0.10	0.03	-	-
900	-2.20	-6.26	-6.16	-9.64	0.60	0.	0.10	0.04	-	-
975	-2.75	-7.00	-6.16	-9.64	0.67	0.	0.10	0.04	-	-
1050	-3.36	-7.77	-6.16	-9.64	0.75	0.	0.10	0.05	-	-
1100	-3.80	-8.30	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1125	-4.02	-8.57	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1200	-4.74	-9.40	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1275	-5.52	-10.27	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1350	-6.35	-11.18	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1425	-7.24	-12.21	-6.16	-9.64	0.80	0.	0.10	0.05	-	-
1500	-8.19	-13.41	-6.16	-9.64	0.80	0.	0.10	0.05	100	-
Span=2										
0	-8.19	-13.41	15.57	9.21	0.50	0.	0.10	0.03	100	-
188	-5.81	-9.38	15.57	9.21	0.50	0.	0.10	0.03	-	-
375	-3.65	-5.72	15.57	9.21	0.50	0.	0.10	0.03	-	-
400	-3.38	-5.26	15.57	9.21	0.50	0.	0.10	0.03	-	-
563	-1.68	-2.39	15.57	9.21	0.22	0.	0.10	0.01	-	-
750	0.83	0.06	14.87	8.80	0.	0.07	0.10	0.00	-	-
938	3.43	1.61	12.98	7.69	0.	0.32	0.10	0.00	-	-
1125	5.67	2.95	11.11	6.59	0.	0.53	0.10	0.01	-	-
1313	7.56	4.09	9.22	5.49	0.	0.72	0.10	0.01	-	-
1500	9.10	5.01	7.34	4.39	0.	0.86	0.10	0.01	-	-
1688	10.28	5.73	5.45	3.28	0.	0.98	0.10	0.01	-	-
1875	11.11	6.24	3.58	2.18	0.	1.06	0.10	0.01	100	-
2063	11.59	6.55	1.69	1.08	0.	1.10	0.10	0.02	-	-
2250	11.71	6.65	-0.02	-0.28	0.	1.11	0.10	0.02	-	-
2438	11.48	6.54	-1.13	-2.16	0.	1.09	0.10	0.02	-	-
2625	10.90	6.23	-2.23	-4.04	0.	1.04	0.10	0.01	-	-
2813	9.96	5.70	-3.33	-5.93	0.	0.95	0.10	0.01	-	-
3000	8.68	4.98	-4.43	-7.81	0.	0.82	0.10	0.01	-	-
3188	7.03	4.04	-4.84	-8.51	0.	0.66	0.10	0.01	-	-
3350	5.33	3.07	-4.84	-8.51	0.	0.50	0.10	0.01	-	-
3375	5.05	2.90	-4.84	-8.51	0.	0.47	0.10	0.01	-	-
3563	2.69	1.55	-4.84	-8.51	0.	0.25	0.10	0.00	-	-
3750	0.00	0.00	-4.84	-8.51	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

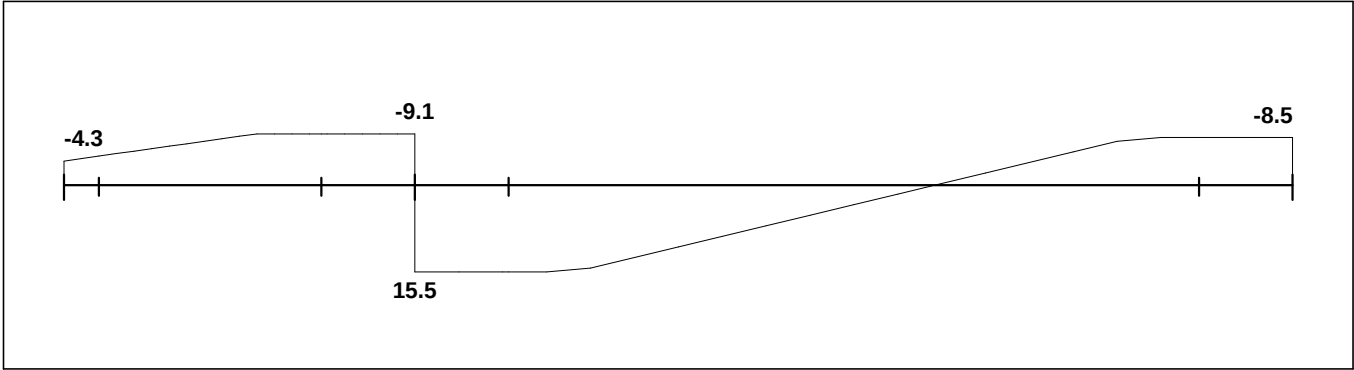
Moments: spans 1 to 2 Load pattern: xxXX



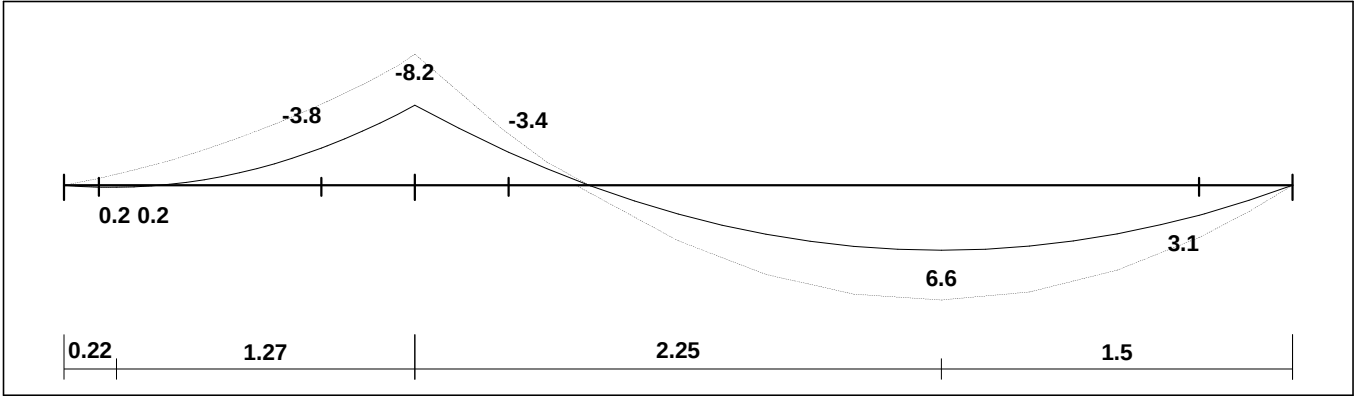
rib8	Code: ACI318-02
Project: Rib1	Page: 105
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

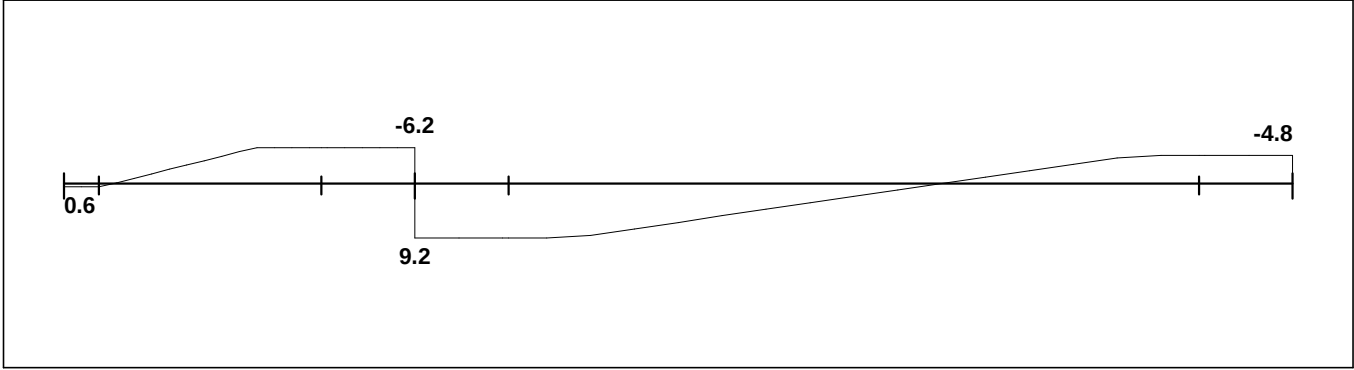
Shear



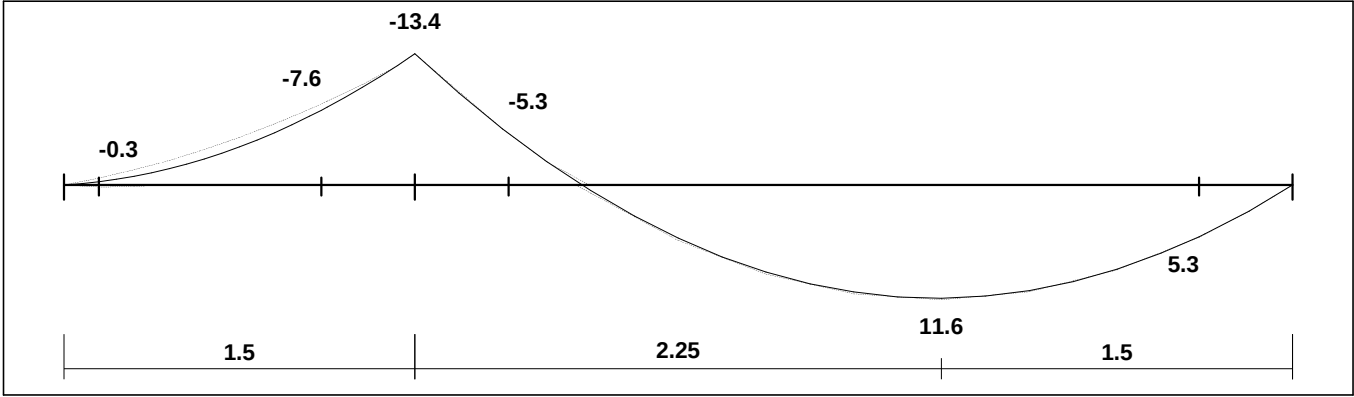
Moments: spans 1 to 2 Load pattern: XXXx



Shear



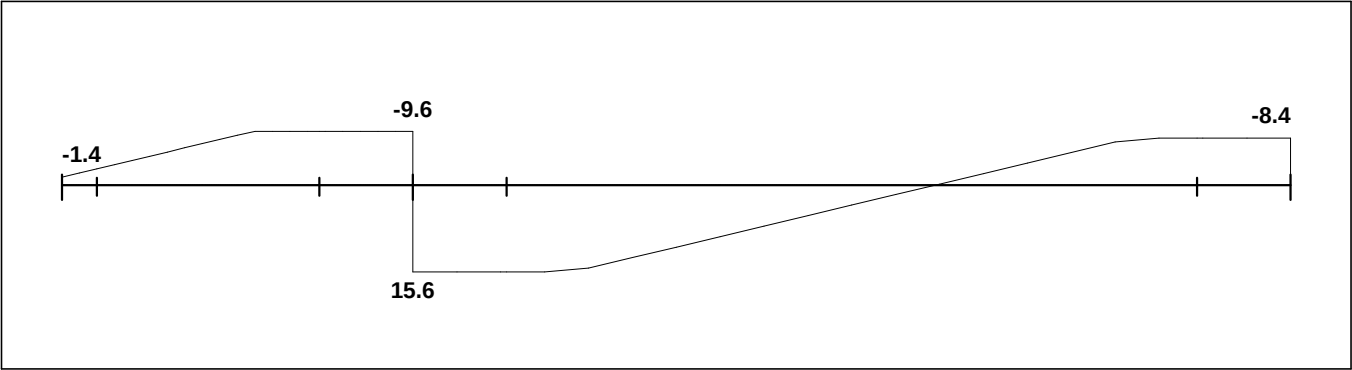
Moments: spans 1 to 2 Load pattern: XXXX



rib8	Code: ACI318-02
Project: Rib1	Page: 106
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Shear



Moment/Shear Envelope (Factored) Units:kN,meter

	1	2	3
	1	2	
Min M	0.0	-13.4	0.0
Max M	0.0	-8.2	0.0
MspMn	-0.7	-8.3	3.1
MspMx	0.2	-3.8	5.3
M Max			11.7
M Min			6.6
Mmn=0 @	0.0	1.5	3.8
Mmx=0 @	0.0	1.1	3.8
mx -M @			0.7
mx +M @			2.2
V max	2.1	-13.0	-8.8
V min	-4.3	-16.5	-15.3
DReac	-0.8	22.8	8.9
LReac	2.9	16.1	6.4
Max R	2.1	38.9	15.3
Min R	-4.3	26.2	8.8

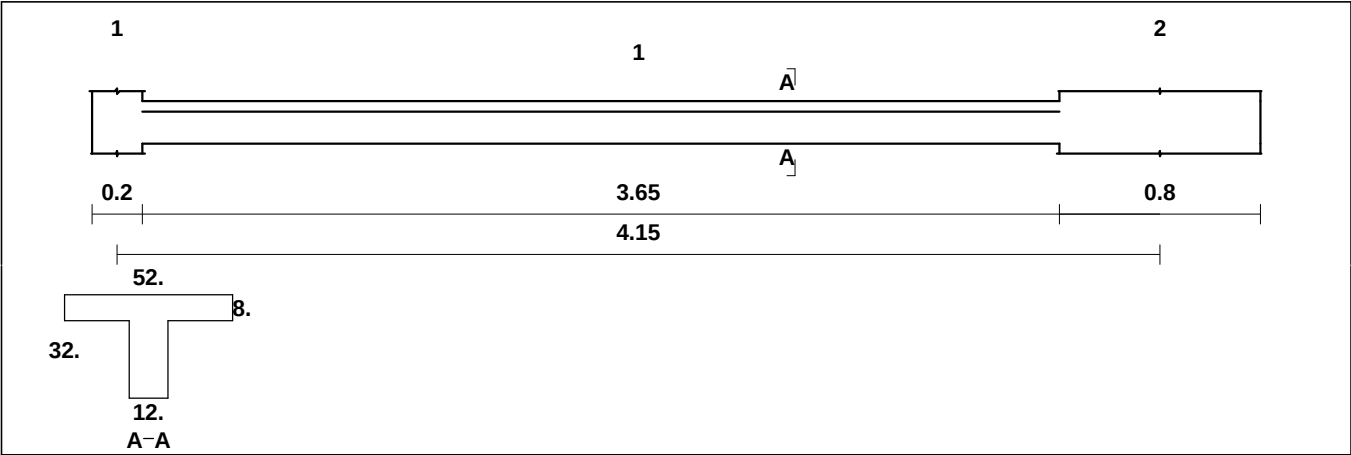
Individual load cases - factored Units:kN,meter

	1	2	3
	1	2	
Min M	0.0	-13.1	0.0
M Max			11.7
Mmx=0 @	0.0	1.5	3.8
mx +M			2.2
V max	-4.3	-13.1	-15.3
	1	2	3
	1	2	
Min M	0.0	-8.2	0.0
M Max			6.6
Mmx=0 @	0.0	1.1	3.8
mx +M			2.2
V max	2.1	-13.0	-8.8
	1	2	3
	1	2	
Min M	0.0	-13.4	0.0
M Max			11.6
Mmx=0 @	0.0	1.5	3.8
mx +M			2.2
V max	-1.4	-16.5	-15.2

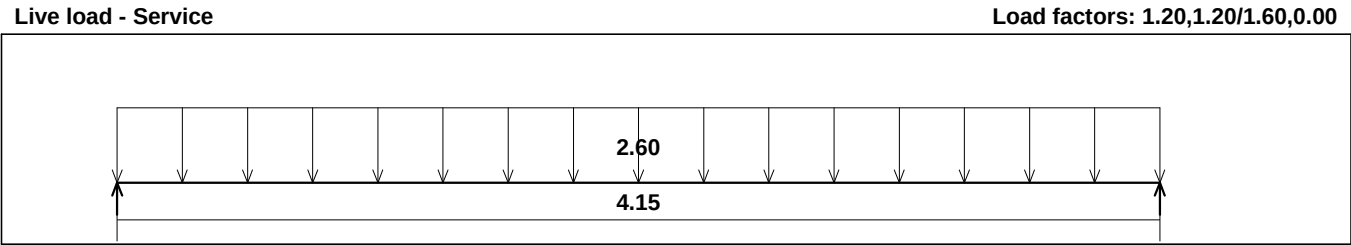
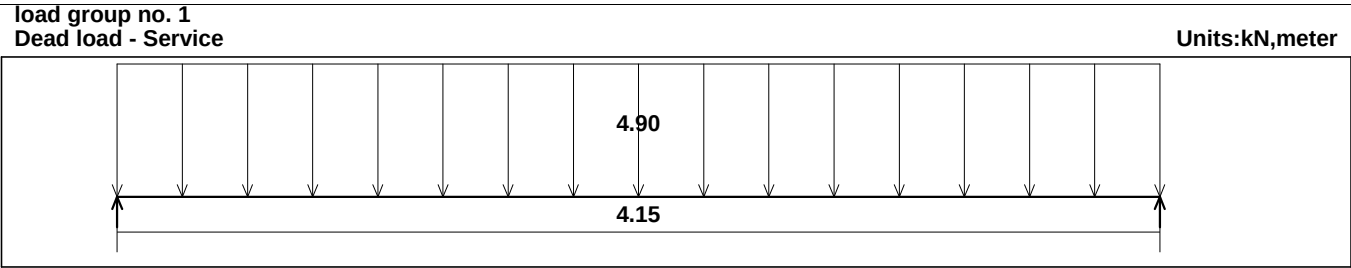
rib24	Code: ACI318-02
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Geometry

Units: meter, cm



Loading

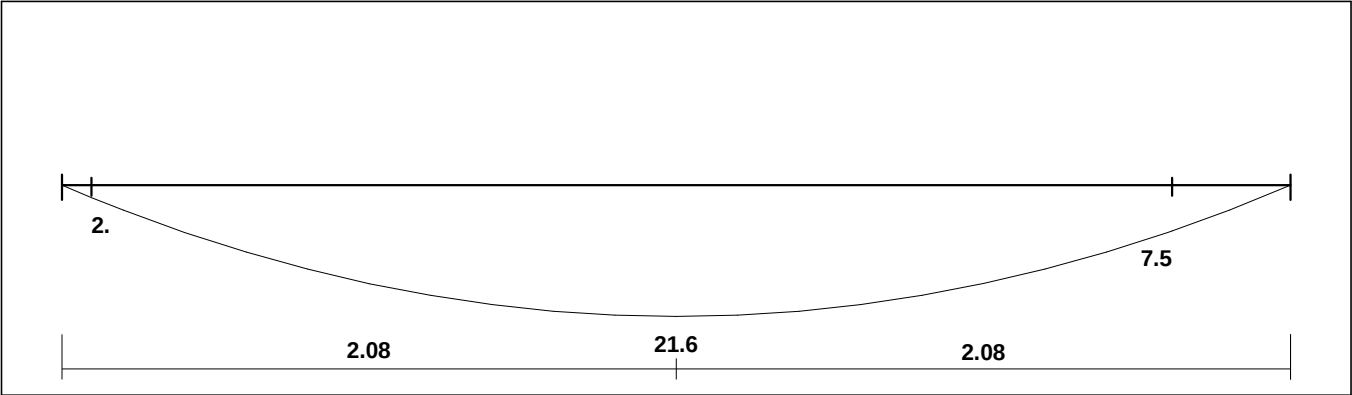


Loads (kN, meter)	
1	
Uni D	4.90 L 2.60

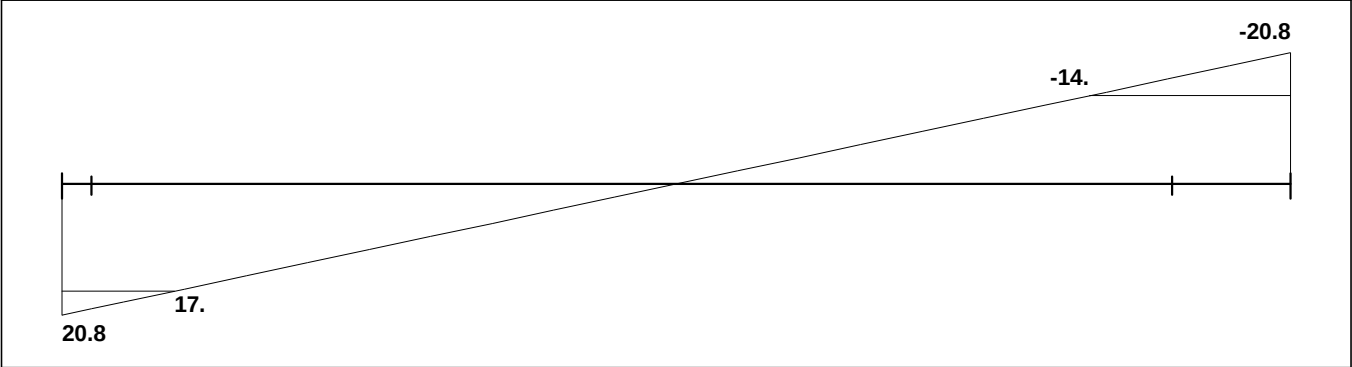
rib24	Code: ACI318-02
Project: Rib1	Page: 78
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 1



Shear



Reactions

Factored		
DeadR	12.2	12.2
LiveR	8.63	8.63
Max R	20.83	20.83
Min R	20.83	20.83
Service		
DeadR	10.17	10.17
LiveR	5.39	5.39
Max R	15.56	15.56
Min R	15.56	15.56

Reinforcement (cm 2)

Concrete: B300
Moment redistribution: No
Support moment at: Face

Main reinforcement fy = 420

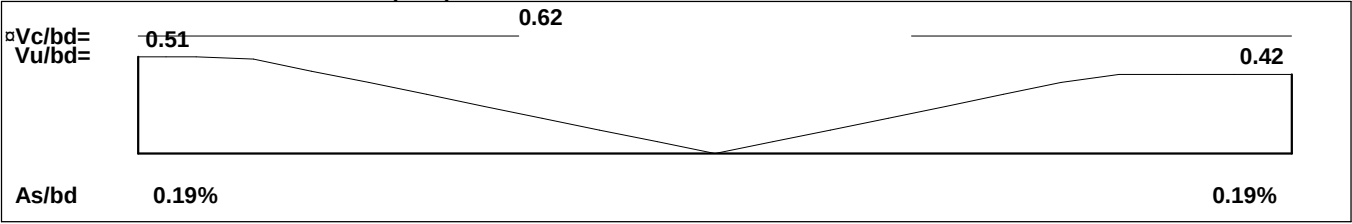
Top Cover	4.
As top =	
*=minimum	
As bot =	0.62
Bot Cover	2.07
a/d	4.
As/bd	0.62%
	1%
	0.00%

rib24	Code: ACI318-02
Project: Rib1	Page: 79
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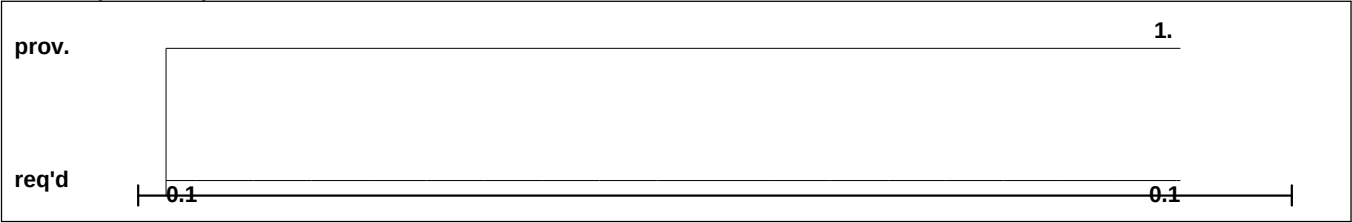
Shear

Shear design: Stirrups only
Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

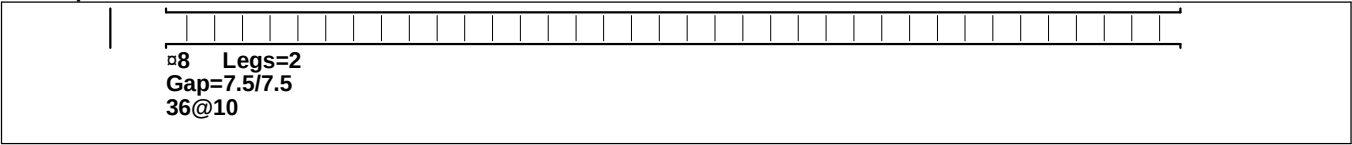
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



Deflections (mm)

Long-term deflection:
- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

A_s	1	
	0.	
A_s	2.07	
$f_r = 3$	$E_s = 209$	$E_c = 23$

$I_g(m^4) = 0.00060$
 $I_{cr}(m^4) = 0.00012$

$M_{cr} = 8.56$
 $M_{max,d} = 10.55$
 $M_{max,d+l} = 16.15$
 $M_{max,sust} = 6.86$

$I_{e,d}(m^4) = 0.00037$
 $I_{e,d+l}(m^4) = 0.00019$
 $I_{e,sust}(m^4) = 0.00060$

$e/1+50r = 2.00/0.80$
 $a_{i,d} = 2.157$
 $a_{i,l} = 4.359$
 $a_{t,sust} = 1.054$
 $a_{i,l} = L/952$
 $(a_i+a_t), t_2-t_1 = L/672$

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Project: Rib1	Page: 80
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rib24
Project: Rib1
Designed by:

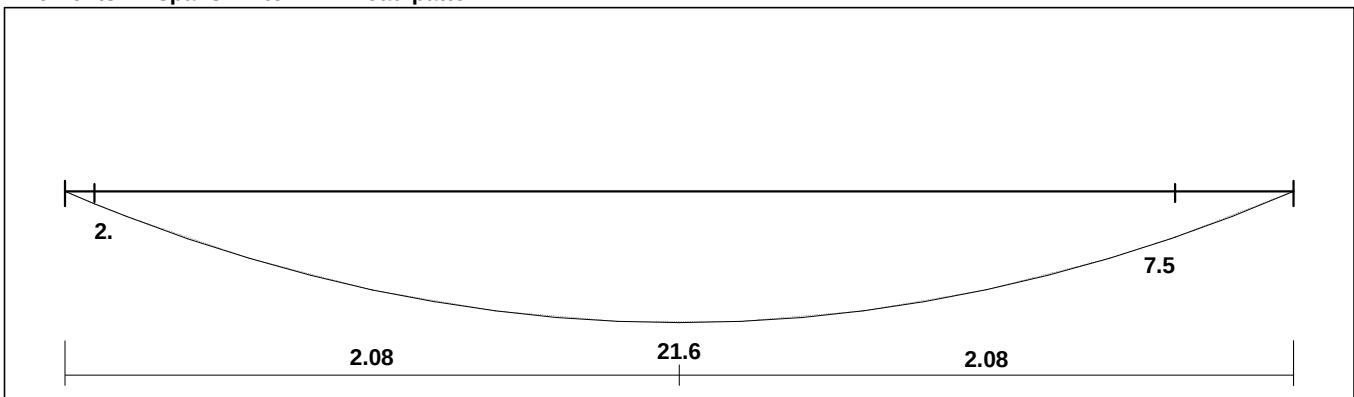
Code: ACI318-02
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Detailed results - at 1/20 of span, support faces, etc.

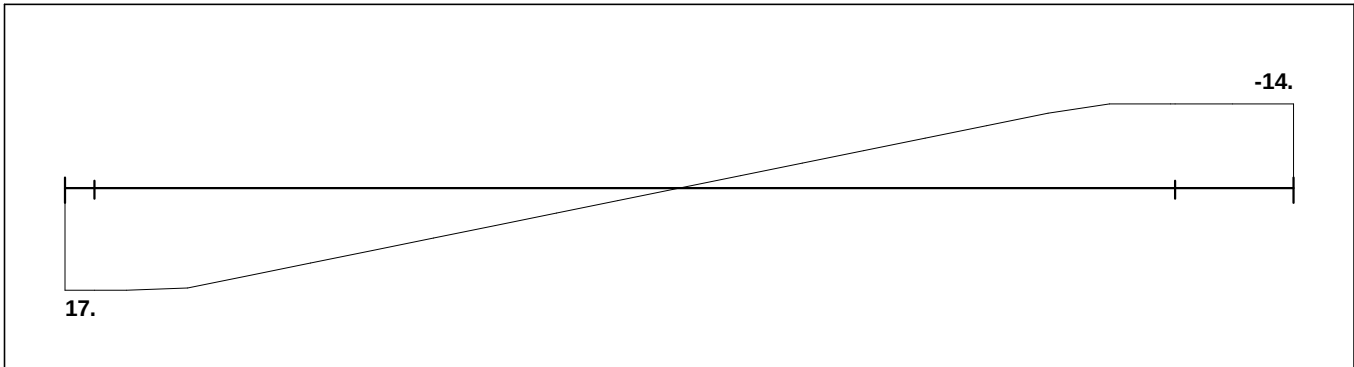
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	17.02	17.02	0.	0.	0.10	0.00	100	-
100	2.03	2.03	17.02	17.02	0.	0.19	0.10	0.00	-	-
208	4.12	4.12	17.02	17.02	0.	0.39	0.10	0.01	-	-
415	7.78	7.78	16.67	16.67	0.	0.74	0.10	0.01	-	-
623	11.03	11.03	14.58	14.58	0.	1.05	0.10	0.01	-	-
830	13.83	13.83	12.50	12.50	0.	1.32	0.10	0.02	-	-
1038	16.22	16.22	10.41	10.41	0.	1.55	0.10	0.02	-	-
1245	18.16	18.16	8.33	8.33	0.	1.74	0.10	0.02	-	-
1453	19.67	19.67	6.24	6.24	0.	1.88	0.10	0.03	-	-
1660	20.75	20.75	4.17	4.17	0.	1.99	0.10	0.03	-	-
1868	21.40	21.40	2.08	2.08	0.	2.05	0.10	0.03	-	-
2075	21.61	21.61	0.00	0.00	0.	2.07	0.10	0.03	100	-
2283	21.40	21.40	-2.09	-2.09	0.	2.05	0.10	0.03	-	-
2490	20.75	20.75	-4.17	-4.17	0.	1.99	0.10	0.03	-	-
2698	19.67	19.67	-6.25	-6.25	0.	1.88	0.10	0.03	-	-
2905	18.16	18.16	-8.33	-8.33	0.	1.74	0.10	0.02	-	-
3113	16.21	16.21	-10.42	-10.42	0.	1.55	0.10	0.02	-	-
3320	13.83	13.83	-12.50	-12.50	0.	1.32	0.10	0.02	-	-
3528	11.02	11.02	-14.01	-14.01	0.	1.05	0.10	0.01	-	-
3735	7.78	7.78	-14.01	-14.01	0.	0.74	0.10	0.01	-	-
3750	7.53	7.53	-14.01	-14.01	0.	0.71	0.10	0.01	-	-
3943	4.10	4.10	-14.01	-14.01	0.	0.38	0.10	0.01	-	-
4150	0.00	0.00	-14.01	-14.01	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

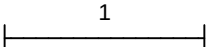
Moments: spans 1 to 1 Load pattern: XX

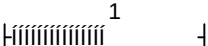


Shear



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Moment / Shear Envelope (Factored)		Units:kN,meter
1	2	
		
Min M	0.0	0.0
Max M	0.0	0.0
MspMn	2.0	7.5
MspMx	2.0	7.5
M Max		
M Min		
Mmn=0 @	0.0	4.2
Mmx=0 @	0.0	4.2
mx -M @		
mx +M @		
V max		-20.8
V min		-20.8
DReac		12.2
LReac	8.6	8.6
Max R		20.8
Min R		20.8

Individual load cases - factored		Units:kN,meter
1	2	
		
Min M	0.0	0.0
M Max		
Mmx=0 @	0.0	4.2
mx +M		
V max		-20.8

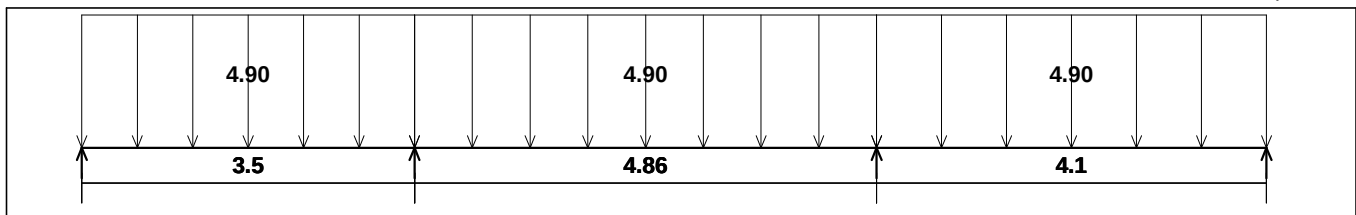
Technical drawing of a stepped shaft with dimensions and a cross-section A-A.

The shaft has four steps, labeled 1, 2, 3, and 4 from left to right. The dimensions are as follows:

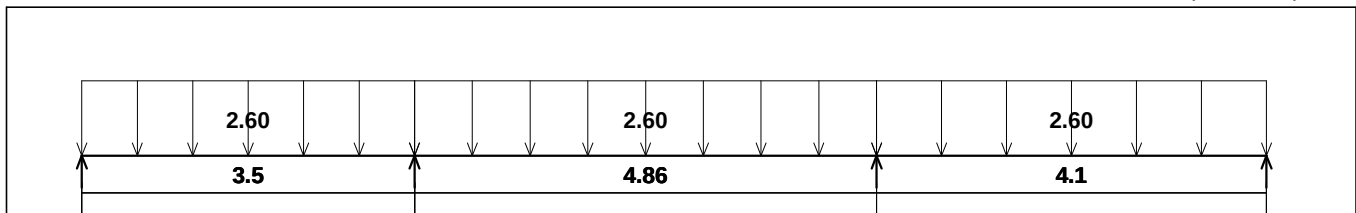
- Step 1: Diameter 1, Length 0.5
- Step 2: Diameter 2, Length 2.92
- Step 3: Diameter 3, Length 0.65
- Step 4: Diameter 4, Length 4.34

The total length of the shaft is 4.86. The cross-section A-A is shown below the shaft, with dimensions 52. (total width), 8. (flange thickness), 32. (flange outer diameter), and 12. (flange inner diameter).

load group no. 1	
Dead load - Service	Units:kN,meter



Load factors: 1.20,1.20/1.60,0.00

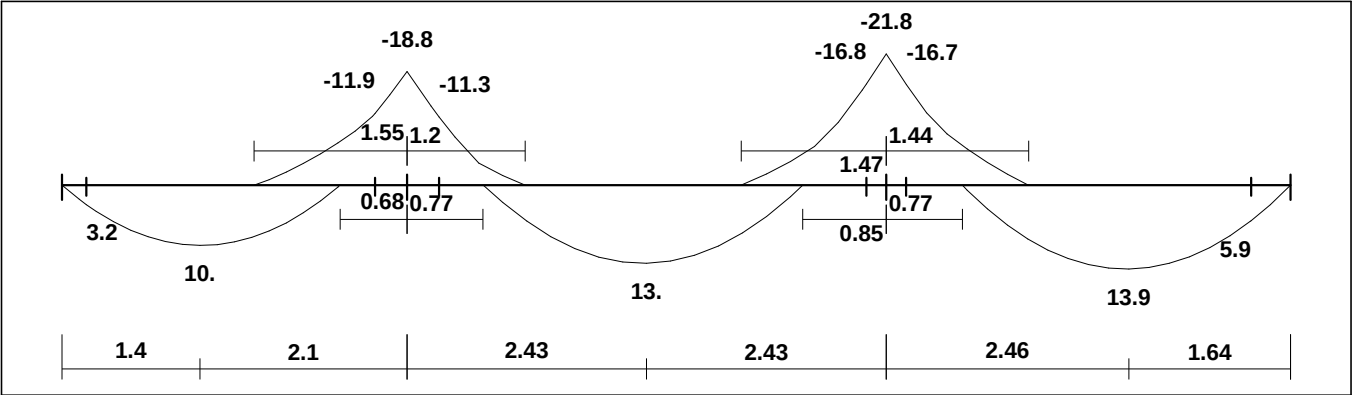


Loads (kN, meter)								
1			2			3		
Uni D	4.90 L	2.60	Uni D	4.90 L	2.60	Uni D	4.90 L	2.60

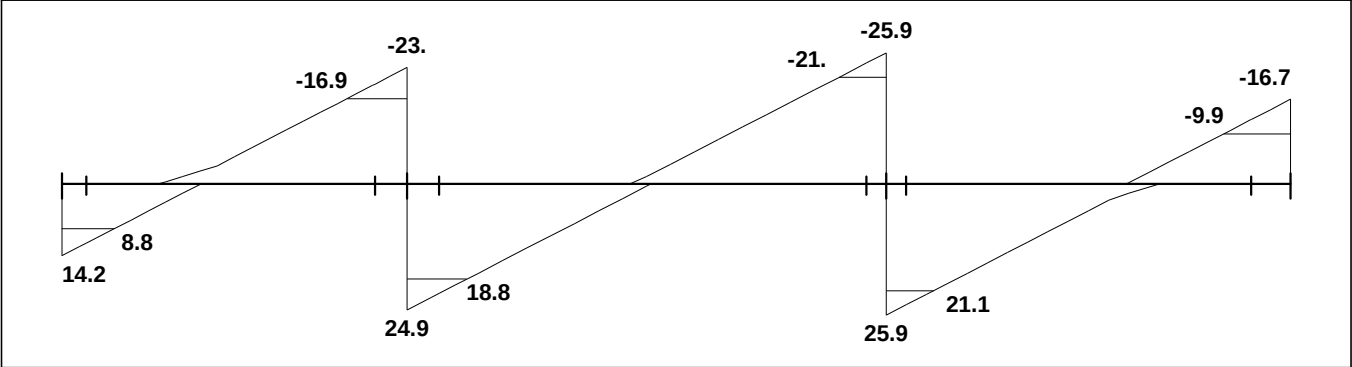
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Project: Rib11	Page: 60
Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3



Shear



Reactions

Factored

DeadR	7.35	27.11	29.75	9.06			
LiveR	6.81	20.69	21.99	7.66			
Max R	14.16	47.8	51.74	16.72			
Min R	5.74	34.46	39.54	7.81			
Service							
DeadR	6.12	22.59	24.79	7.55			
LiveR	4.26	12.93	13.75	4.79			
Max R	10.38	35.53	38.53	12.34			
Min R	5.12	27.19	30.91	6.77			

Reinforcement (cm 2)

Concrete: B300 Main reinforcement fy = 420
Moment redistribution: No
Support moment at: Face

Top Cover	4.	4.	4.	
As top =		2.25*	2.25*	
*=minimum				
As bot =	0.28	1.12*	1.23	1.33
Bot Cover	4.	4.	4.	0.39
a/d	0%	1%	2%	1%
As/bd	0.00%	0.34%	0.37%	0.40%

rib 26
Project: Rib11
Designed by:

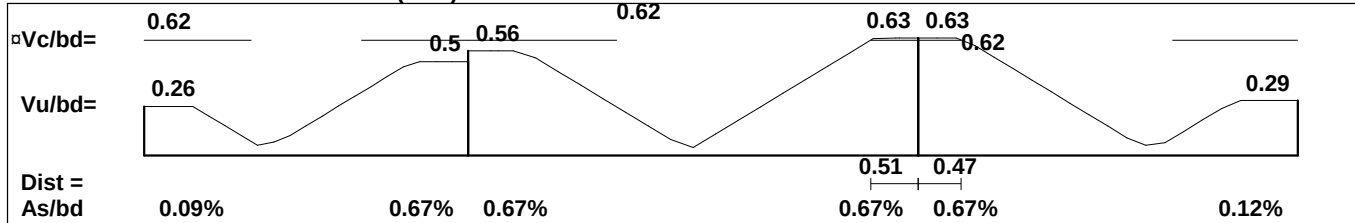
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S h e a r

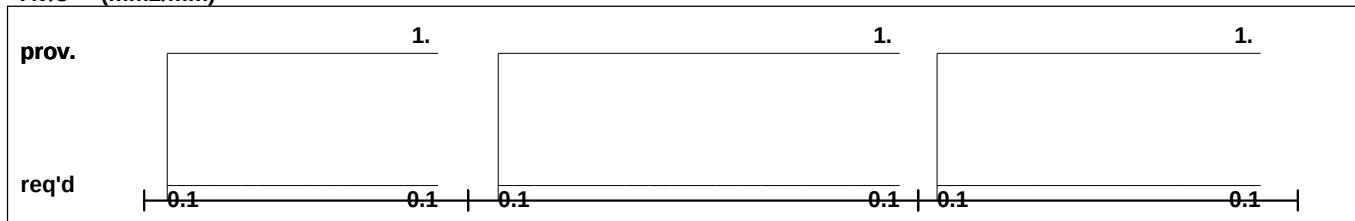
Shear design: Stirrups only

Stirrups $f_y = 420$ Shear reduction: Yes
Exterior pinned supports - % of span A_s extended: Left = 30% Right = 30%
Stirrups: Diameter: Min. = 8 Max. = 16 Spacing: Min. = 5. Incr. = 5.
Legs: 2/2 Max no. of groups: 5 Max. = Code
Inverted T/L shear area: Web

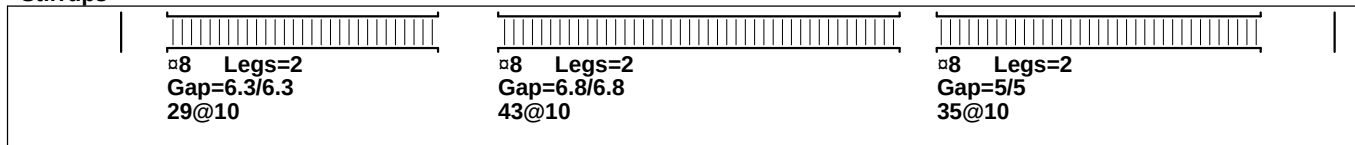
Max. allow. shear stress = 2.5 (MPa)



A_v/s (mm²/mm)



Stirrups



D e f l e c t i o n s (mm)

Long-term deflection:

- sustained loads : 65% of dead; 0% of live
- duration of load 60 months ; attachment of element at 2 months (t_1)
Apply 35% of dead load after attachment (t_1)

	1	2	3
A's	0.	0.	0.
As	1.12	1.23	1.33
fr = 3	Es= 209	Ec = 23	
Ig(m ⁴)=	0.00060	0.00060	0.00060
Icr(m ⁴)=	0.00007	0.00007	0.00008
Mcr =	8.56	8.56	8.56
Mmax,d =	3.83	5.06	5.79
Mmax,d+l =	7.19	9.37	10.15
Mmax,sust =	2.49	3.29	3.76
Ie,d (m ⁴)=	0.00060	0.00060	0.00060
Ie,d+l (m ⁴)=	0.00060	0.00047	0.00039
Ie,sust (m ⁴)=	0.00060	0.00060	0.00060
e/1+50r =	2.00/0.80	2.00/0.80	2.00/0.80
ai,d =	0.229	0.551	0.535
ai,l =	0.300	0.948	1.071
at,sust =	0.179	0.430	0.418
ai,l =	L/11650	L/ 5125	L/ 3829
(ai+at),t2-t1	L/ 6255	L/ 3092	L/ 2446

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rib 26
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Detailed results - at 1/20 of span, support faces, etc.

Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=1										
0	0.00	0.00	8.84	2.62	0.	0.	0.10	0.00	100	-
175	2.32	0.91	8.84	2.62	0.	0.22	0.10	0.00	-	-
250	3.23	1.25	8.84	2.62	0.	0.30	0.10	0.00	-	-
350	4.34	1.65	8.84	2.62	0.	0.41	0.10	0.01	-	-
525	6.05	2.20	8.84	2.62	0.	0.57	0.10	0.01	-	-
700	7.45	2.57	7.13	1.62	0.	0.71	0.10	0.01	-	-
875	8.55	2.77	5.38	0.59	0.	0.81	0.10	0.01	-	-
1050	9.34	2.78	3.62	-0.44	0.	0.89	0.10	0.01	-	-
1225	9.82	2.61	1.86	-1.47	0.	0.93	0.10	0.01	-	-
1400	9.99	2.27	0.11	-2.50	0.	0.95	0.10	0.01	-	-
1575	9.85	1.74	-1.65	-3.62	0.	0.94	0.10	0.01	-	-
1750	9.41	1.03	-3.41	-5.38	0.	0.89	0.10	0.01	100	-
1925	8.66	0.15	-5.16	-7.14	0.	0.82	0.10	0.01	-	-
2100	7.60	-0.92	-6.25	-8.90	0.08	0.72	0.10	0.01	-	-
2275	6.24	-2.17	-7.28	-10.65	0.20	0.59	0.10	0.01	-	-
2450	4.57	-3.60	-8.31	-12.41	0.34	0.43	0.10	0.02	-	-
2625	2.59	-5.20	-9.34	-14.17	0.50	0.24	0.10	0.03	-	-
2800	0.30	-6.99	-10.37	-15.92	0.67	0.02	0.10	0.04	-	-
2975	-2.30	-8.96	-10.93	-16.88	0.87	0.	0.10	0.05	-	-
3150	-5.20	-11.42	-10.93	-16.88	1.12	0.	0.10	0.07	-	-
3175	-5.64	-11.91	-10.93	-16.88	1.17	0.	0.10	0.07	-	-
3325	-8.41	-14.97	-10.93	-16.88	1.17	0.	0.10	0.07	-	-
3500	-11.93	-18.84	-10.93	-16.88	1.17	0.	0.10	0.07	100	-
Span=2										
0	-11.93	-18.84	18.78	9.93	1.10	0.	0.10	0.07	100	-
243	-8.82	-13.09	18.78	9.93	1.10	0.	0.10	0.07	-	-
325	-7.75	-11.29	18.78	9.93	1.10	0.	0.10	0.07	-	-
486	-4.72	-7.94	18.78	9.93	0.77	0.	0.10	0.05	-	-
729	-0.62	-3.66	17.53	9.20	0.35	0.	0.10	0.02	-	-
972	2.88	-1.60	15.09	7.77	0.15	0.27	0.10	0.01	-	-
1215	5.92	0.12	12.65	6.34	0.	0.56	0.10	0.01	-	-
1458	8.52	1.48	10.21	4.91	0.	0.81	0.10	0.01	-	-
1701	10.52	2.50	7.77	3.48	0.	1.00	0.10	0.01	-	-
1944	11.93	3.18	5.33	2.05	0.	1.13	0.10	0.02	-	-
2187	12.74	3.50	2.90	0.62	0.	1.21	0.10	0.02	-	-
2430	12.97	3.48	0.46	-1.45	0.	1.23	0.10	0.02	100	-
2673	12.60	3.11	-1.98	-3.89	0.	1.20	0.10	0.02	-	-
2916	11.64	2.39	-3.66	-6.33	0.	1.11	0.10	0.02	-	-
3159	10.08	1.33	-5.09	-8.77	0.	0.96	0.10	0.01	-	-
3402	7.93	-0.08	-6.52	-11.21	0.00	0.75	0.10	0.01	-	-
3645	5.19	-1.84	-7.95	-13.65	0.17	0.49	0.10	0.01	-	-
3888	1.91	-3.94	-9.38	-16.09	0.37	0.18	0.10	0.02	-	-
4131	-1.84	-6.40	-10.81	-18.53	0.61	0.	0.10	0.04	-	-
4374	-6.17	-10.37	-12.24	-20.97	1.01	0.	0.10	0.06	-	-
4617	-11.10	-15.77	-12.27	-21.03	1.56	0.	0.10	0.10	-	-
4660	-12.04	-16.78	-12.27	-21.03	1.67	0.	0.10	0.10	-	-
4860	-15.84	-21.75	-12.27	-21.03	1.67	0.	0.10	0.10	100	-

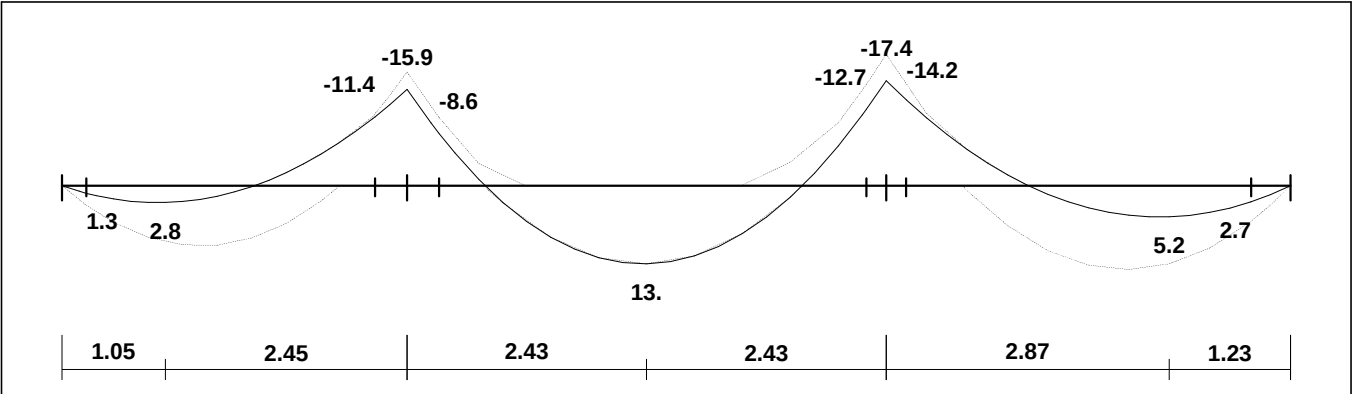
rib 26	Code: ACI318-02
Project: Rib11	Page: 64
Designed by:	Date: 03/08/14

Detailed results - at 1/20 of span, support faces, etc.

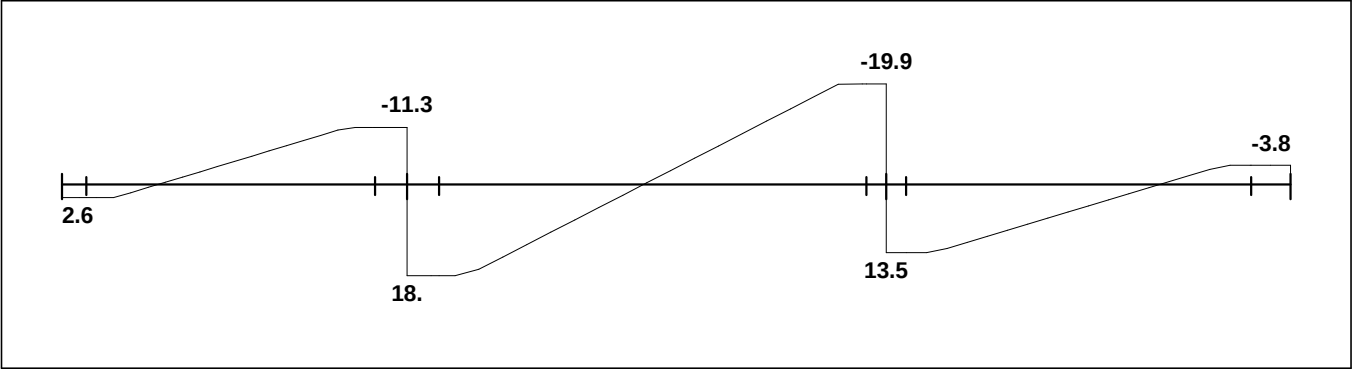
Dis	Mmax	Mmin	Vmax	Vmin	A's	As	Av/s	a/d	Red	Wid+
Span=3										
0	-15.84	-21.75	21.07	13.29	1.66	0.	0.10	0.10	100	-
205	-11.04	-16.65	21.07	13.29	1.66	0.	0.10	0.10	-	-
410	-6.66	-11.98	21.07	13.29	1.17	0.	0.10	0.07	-	-
615	-2.70	-8.50	19.71	12.49	0.82	0.	0.10	0.05	-	-
820	0.83	-6.02	17.65	11.29	0.58	0.07	0.10	0.04	-	-
1025	3.95	-3.79	15.60	10.08	0.36	0.37	0.10	0.02	-	-
1230	6.64	-1.81	13.54	8.88	0.17	0.63	0.10	0.01	-	-
1435	8.90	-0.07	11.48	7.67	0.00	0.84	0.10	0.01	-	-
1640	10.75	1.42	9.42	6.47	0.	1.02	0.10	0.01	-	-
1845	12.18	2.66	7.36	5.26	0.	1.16	0.10	0.02	-	-
2050	13.18	3.65	5.31	3.86	0.	1.26	0.10	0.02	100	-
2255	13.76	4.40	3.25	1.80	0.	1.31	0.10	0.02	-	-
2460	13.92	4.90	1.84	-0.25	0.	1.33	0.10	0.02	-	-
2665	13.66	5.15	0.63	-2.31	0.	1.30	0.10	0.02	-	-
2870	12.97	5.16	-0.58	-4.37	0.	1.24	0.10	0.02	-	-
3075	11.86	4.91	-1.78	-6.43	0.	1.13	0.10	0.02	-	-
3280	10.33	4.43	-2.99	-8.49	0.	0.98	0.10	0.01	-	-
3485	8.38	3.69	-3.81	-9.89	0.	0.79	0.10	0.01	-	-
3690	6.01	2.71	-3.81	-9.89	0.	0.57	0.10	0.01	-	-
3700	5.88	2.65	-3.81	-9.89	0.	0.55	0.10	0.01	-	-
3895	3.22	1.48	-3.81	-9.89	0.	0.30	0.10	0.00	-	-
4100	0.00	0.00	-3.81	-9.89	0.	0.	0.10	0.00	100	-

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3 Load pattern: xxXXxx

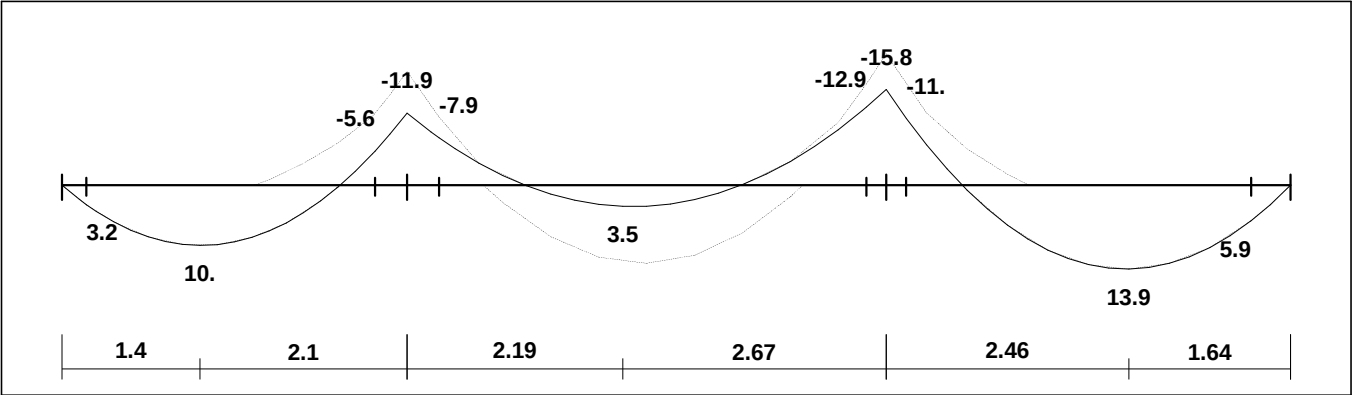


Shear

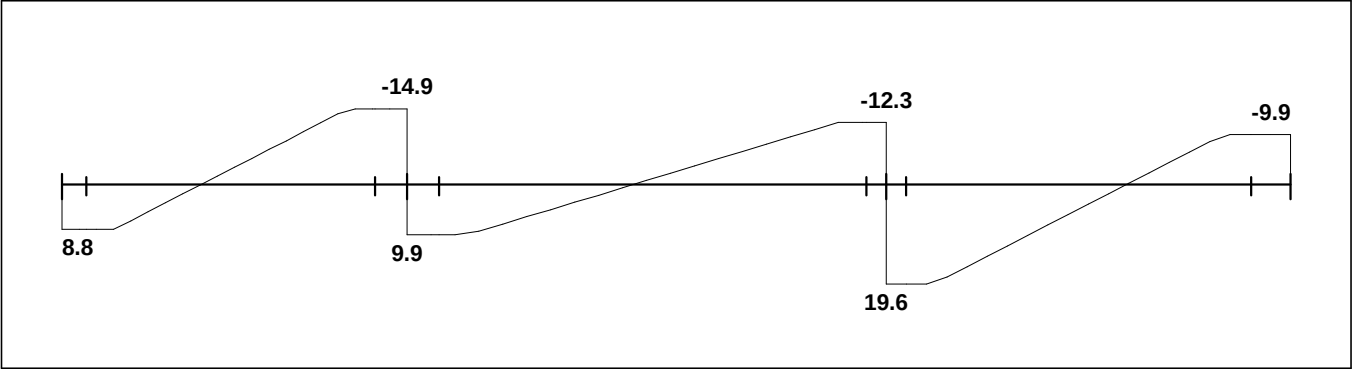


Moment/Shear Envelope (Factored) Units:kN,meter

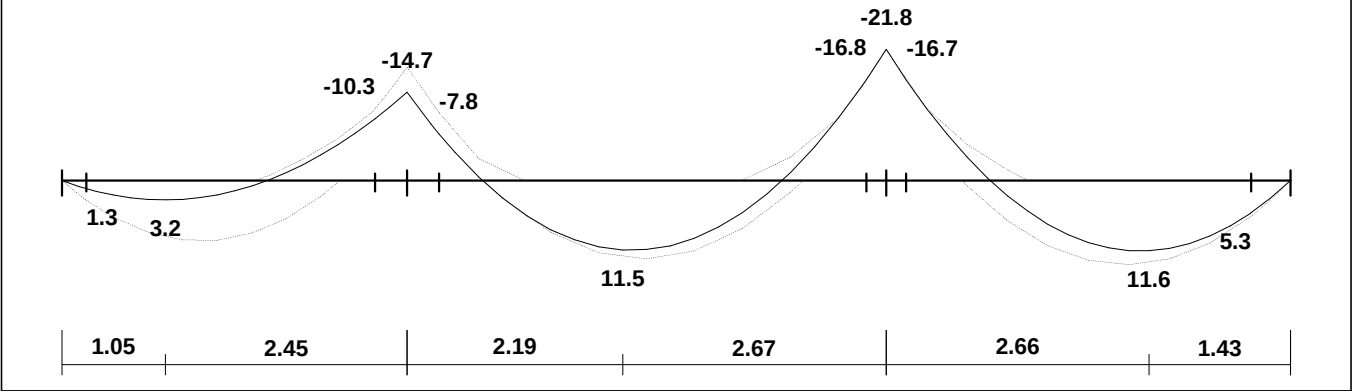
Moments: spans 1 to 3 Load pattern: XXxxxXX



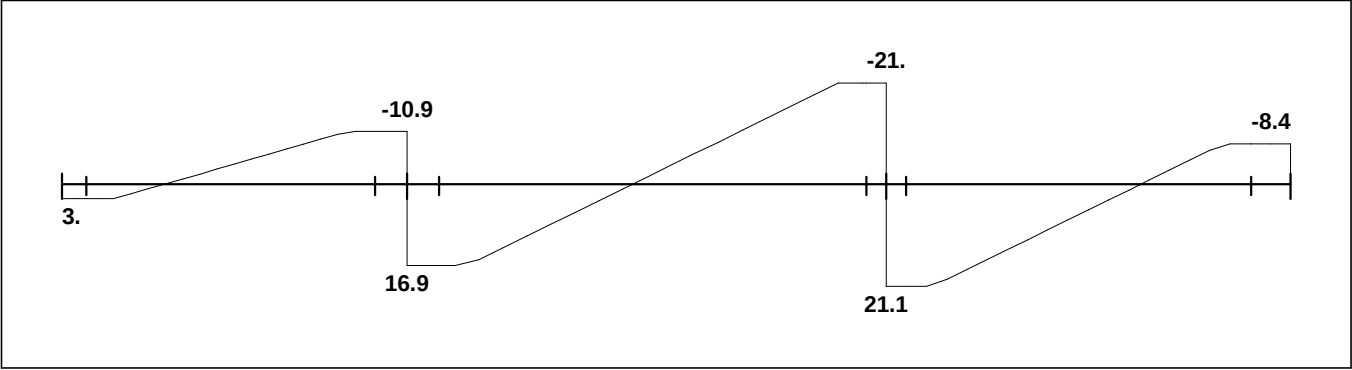
Shear



Moments: spans 1 to 3 Load pattern: xxXXXX



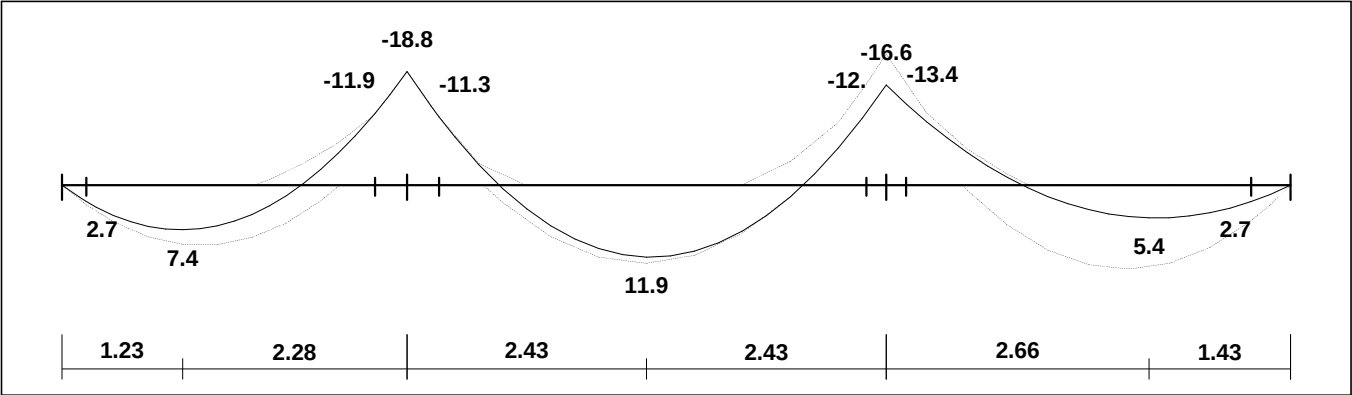
Shear



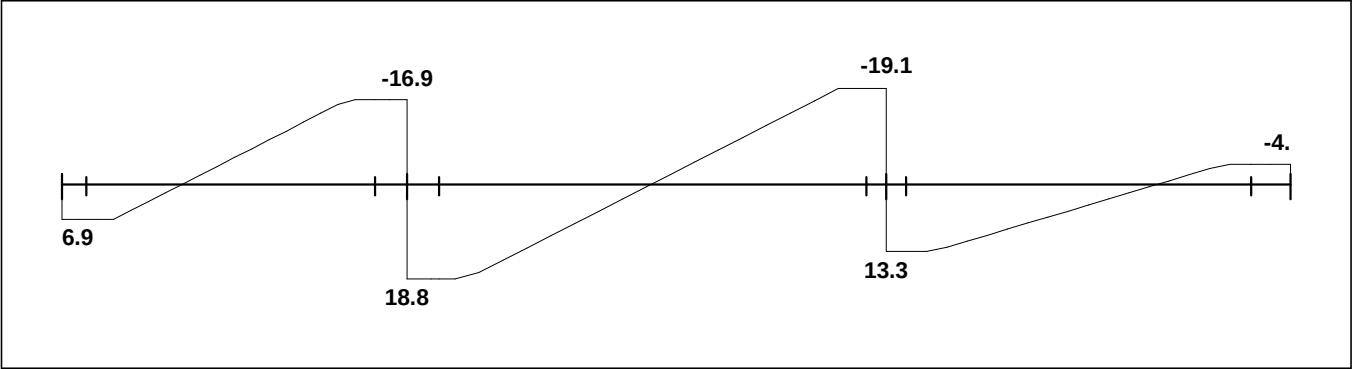
rib 26	Code: ACI318-02
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Designed by:	Date: 03/08/14

Moment/Shear Envelope (Factored) Units:kN,meter

Moments: spans 1 to 3 Load pattern: XXXXxx



Shear



	Moment/Shear Envelope (Factored) Units:kN,meter					
	1	1	2	2	3	4
Min M	0.0	-18.8	-18.8	-21.8	-21.8	0.0
Max M	0.0	-11.9	-11.9	-15.8	-15.8	0.0
MspMn	1.3	-11.9	-11.3	-16.8	-16.7	2.7
MspMx	3.2	-5.6	-7.8	-12.0	-11.0	5.9
M Max				13.0		13.9
M Min				3.5		5.2
Mmn=0 @	0.0	1.5	1.2	1.5	1.4	4.1
Mmx=0 @	0.0	0.7	0.8	0.8	0.8	4.1
mx -M @			0.8		0.8	
mx +M @			2.4		2.5	
V max		-14.5		-15.1		-7.8
V min	5.7	-23.0		-25.9		-16.7
DReac	7.3	27.1		29.7		9.1
LReac	6.8	20.7		22.0		7.7
Max R		47.8		51.7		16.7
Min R	5.7	34.5		39.5		7.8

rib 26	Code: ACI318-02
Project: Rib11	Page: 67
Designed by:	Date: 03/08/14

Individual load cases - factored								Units:kN,meter	
	1	2	3	4					
	1	2	3	4					
	1	2	3	4					
Min M	0.0	-15.9	-15.9	-17.4	-17.4	0.0			
M Max			13.0		5.2				
Mmx=0 @	0.0	1.5	0.8	0.9	1.4	4.1			
mx +M			2.4		2.9				
V max	5.7	-14.8	-24.7	-7.8					
	1	2	3	4					
	1	2	3	4					
Min M	0.0	-11.9	-11.9	-15.8	-15.8	0.0			
M Max			3.5		13.9				
Mmx=0 @	0.0	0.7	1.2	1.5	0.8	4.1			
mx +M			2.2		2.5				
V max		-21.0	-15.1	-16.7					
	1	2	3	4					
	1	2	3	4					
Min M	0.0	-14.7	-14.7	-21.8	-21.8	0.0			
M Max			11.5		11.6				
Mmx=0 @	0.0	1.4	0.8	1.1	1.1	4.1			
mx +M			2.2		2.7				
V max	6.1	-14.5	-25.9	-15.3					
	1	2	3	4					
	1	2	3	4					
Min M	0.0	-18.8	-18.8	-16.6	-16.6	0.0			
M Max			11.9		5.4				
Mmx=0 @	0.0	1.1	0.9	0.8	1.4	4.1			
mx +M			2.4		2.7				
V max		-23.0	-23.9	-8.0					