

Member sections for model steel SMFs

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Table. A1 Design section of RSA16-SMFs

Story	Ext. Column		Int. Column		Beam
	Section	Db. Plate (mm)	Section	Db. Plate (mm)	
4-RSA16					
1 st story	W24X131	0	W24X94	12.7	W21X62
2 nd story	W24X131	0	W24X94	12.7	W21X62
3 rd story	W24X76	0	W24X76	11.1	W18X60
4 th story	W24X76	0	W24X76	11.1	W18X60
Period	$T = 1.575$ sec				
8-RSA16					
1 st story	W24X146	0	W24X131	14.3	W24X76
2 nd story	W24X146	0	W24X131	14.3	W24X76
3 rd story	W24X94	3.2	W24X103	12.7	W21X68
4 th story	W24X94	3.2	W24X103	12.7	W21X68
5 th story	W24X84	3.2	W24X94	12.7	W21X62
6 th story	W24X84	3.2	W24X94	12.7	W21X62
7 th story	W24X76	0	W24X76	11.1	W18X50
8 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 2.765$ sec				
12-RSA16					
1 st story	W24X229	0	W24X162	17.5	W24X94
2 nd story	W24X229	0	W24X162	17.5	W24X94
3 rd story	W24X146	0	W24X146	14.3	W24X84
4 th story	W24X146	0	W24X146	14.3	W24X84
5 th story	W24X131	0	W24X131	14.3	W24X76
6 th story	W24X131	0	W24X131	14.3	W24X76
7 th story	W24X103	0	W24X103	12.7	W21X68
8 th story	W24X103	0	W24X103	12.7	W21X68
9 th story	W24X94	0	W24X76	14.3	W18X60
10 th story	W24X94	0	W24X76	14.3	W18X60
11 th story	W24X76	0	W24X76	11.1	W18X50
12 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.779$ sec				
16-RSA16					
1 st story	W36X361	0	W24X207	12.7	W27X102
2 nd story	W36X361	0	W24X207	12.7	W27X102
3 rd story	W24X279	0	W24X192	14.3	W27X102
4 th story	W24X279	0	W24X192	14.3	W27X102
5 th story	W24X229	0	W24X192	15.9	W27X102
6 th story	W24X229	0	W24X192	15.9	W27X102
7 th story	W24X176	0	W24X162	17.5	W24X94
8 th story	W24X176	0	W24X162	17.5	W24X94
9 th story	W24X131	3.2	W24X146	14.3	W24X76
10 th story	W24X131	3.2	W24X146	14.3	W24X76
11 th story	W24X103	3.2	W24X131	14.3	W24X76
12 th story	W24X103	3.2	W24X131	14.3	W24X76
13 th story	W24X94	0	W24X94	11.1	W21X62
14 th story	W24X94	0	W24X94	11.1	W21X62
15 th story	W24X76	0	W24X76	11.1	W18X50
16 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 4.208$ sec				

Table. A2 Design section of ELF16-SMFs

Story	Ext. Column		Int. Column		Beam
	Section	Db. Plate (mm)	Section	Db. Plate (mm)	
4-ELF16					
1 st story	W24X103	3.2	W24X131	14.3	W24X76
2 nd story	W24X103	3.2	W24X131	14.3	W24X76
3 rd story	W24X76	4.8	W24X94	17.5	W21X68
4 th story	W24X76	4.8	W24X94	17.5	W21X68
Period	$T = 1.341$ sec				
8-ELF16					
1 st story	W24X146	3.2	W24X162	17.5	W27X94
2 nd story	W24X146	3.2	W24X162	17.5	W27X94
3 rd story	W24X131	3.2	W24X162	19.1	W24X94
4 th story	W24X131	3.2	W24X162	19.1	W24X94
5 th story	W24X94	3.2	W24X131	15.9	W24X76
6 th story	W24X94	3.2	W24X131	15.9	W24X76
7 th story	W24X76	3.2	W24X76	15.9	W18X50
8 th story	W24X76	3.2	W24X76	15.9	W18X50
Period	$T = 2.271$ sec				
12-ELF16					
1 st story	W24X279	0	W24X192	15.9	W27X102
2 nd story	W24X279	0	W24X192	15.9	W27X102
3 rd story	W24X176	0	W24X176	14.3	W27X94
4 th story	W24X176	0	W24X176	14.3	W27X94
5 th story	W24X131	3.2	W24X162	15.9	W27X94
6 th story	W24X131	3.2	W24X162	15.9	W27X94
7 th story	W24X131	3.2	W24X146	20.6	W24X94
8 th story	W24X131	3.2	W24X146	20.6	W24X94
9 th story	W24X84	4.8	W24X131	14.3	W24X76
10 th story	W24X84	4.8	W24X131	14.3	W24X76
11 th story	W24X76	0	W24X76	11.1	W18X50
12 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.150$ sec				
16-ELF16					
1 st story	W36X395	0	W24X207	12.7	W30X108
2 nd story	W36X395	0	W24X207	12.7	W30X108
3 rd story	W36X330	0	W24X207	12.7	W30X108
4 th story	W36X330	0	W24X207	12.7	W30X108
5 th story	W36X282	0	W24X207	12.7	W30X108
6 th story	W36X282	0	W24X207	12.7	W30X108
7 th story	W24X229	0	W24X176	17.5	W27X102
8 th story	W24X229	0	W24X176	17.5	W27X102
9 th story	W24X162	0	W24X162	15.9	W27X94
10 th story	W24X162	0	W24X162	15.9	W27X94
11 th story	W24X131	3.2	W24X146	19.1	W24X94
12 th story	W24X131	3.2	W24X146	19.1	W24X94
13 th story	W24X94	3.2	W24X131	14.3	W24X76
14 th story	W24X94	3.2	W24X131	14.3	W24X76
15 th story	W24X76	0	W24X76	11.1	W18X50
16 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.998$ sec				

Table. A3 Design section of RSA10-SMFs

Story	Ext. Column		Int. Column		Beam
	Section	Db. Plate (mm)	Section	Db. Plate (mm)	
4-RSA10					
1 st story	W24X103	0	W24X94	12.7	W21X62
2 nd story	W24X103	0	W24X94	12.7	W21X62
3 rd story	W24X76	0	W24X76	11.1	W18X50
4 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 1.631 \text{ sec}$				
8-RSA10					
1 st story	W24X131	0	W24X131	14.3	W24X76
2 nd story	W24X131	0	W24X131	14.3	W24X76
3 rd story	W24X94	3.2	W24X103	14.3	W21X68
4 th story	W24X94	3.2	W24X103	14.3	W21X68
5 th story	W24X84	3.2	W24X94	12.7	W21X62
6 th story	W24X84	3.2	W24X94	12.7	W21X62
7 th story	W24X76	0	W24X76	11.1	W18X50
8 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 2.779 \text{ sec}$				
12-RSA10					
1 st story	W24X207	0	W24X146	15.9	W24X84
2 nd story	W24X207	0	W24X146	15.9	W24X84
3 rd story	W24X146	0	W24X131	14.3	W24X76
4 th story	W24X146	0	W24X131	14.3	W24X76
5 th story	W24X131	0	W24X131	12.7	W21X73
6 th story	W24X131	0	W24X131	12.7	W21X73
7 th story	W24X103	0	W24X103	9.5	W21X62
8 th story	W24X103	0	W24X103	9.5	W21X62
9 th story	W24X84	3.2	W24X94	12.7	W18X60
10 th story	W24X84	3.2	W24X94	12.7	W18X60
11 th story	W24X76	0	W24X76	11.1	W18X50
12 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.997 \text{ sec}$				
16-RSA10					
1 st story	W36X330	0	W24X192	12.7	W27X94
2 nd story	W36X330	0	W24X192	12.7	W27X94
3 rd story	W24X250	0	W24X176	14.3	W27X94
4 th story	W24X250	0	W24X176	14.3	W27X94
5 th story	W24X207	0	W24X176	15.9	W24X94
6 th story	W24X207	0	W24X176	15.9	W24X94
7 th story	W24X162	0	W24X146	15.9	W24X84
8 th story	W24X162	0	W24X146	15.9	W24X84
9 th story	W24X131	0	W24X131	14.3	W24X76
10 th story	W24X131	0	W24X131	14.3	W24X76
11 th story	W24X103	0	W24X131	12.7	W21X73
12 th story	W24X103	0	W24X131	12.7	W21X73
13 th story	W24X94	0	W24X94	11.1	W18X60
14 th story	W24X94	0	W24X94	11.1	W18X60
15 th story	W24X76	0	W24X76	11.1	W18X50
16 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 4.520 \text{ sec}$				

Table. A4 Design section of M1-RSA-SMFs

Story	Ext. Column		Int. Column		Beam
	Section	Db. Plate (mm)	Section	Db. Plate (mm)	
4-M1-RSA					
1 st story	W24X131	0	W24X94	14.3	W21X68
2 nd story	W24X131	0	W24X94	14.3	W21X68
3 rd story	W24X76	0	W24X76	11.1	W18X60
4 th story	W24X76	0	W24X76	11.1	W18X60
Period	$T = 1.540 \text{ sec}$				
8-M1-RSA					
1 st story	W24X146	0	W24X131	14.3	W24X76
2 nd story	W24X146	0	W24X131	14.3	W24X76
3 rd story	W24X103	0	W24X131	12.7	W21X73
4 th story	W24X103	0	W24X131	12.7	W21X73
5 th story	W24X84	3.2	W24X94	12.7	W21X62
6 th story	W24X84	3.2	W24X94	12.7	W21X62
7 th story	W24X76	0	W24X76	11.1	W18X50
8 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 2.727 \text{ sec}$				
12-M1-RSA					
1 st story	W24X250	0	W24X176	15.9	W24X94
2 nd story	W24X250	0	W24X176	15.9	W24X94
3 rd story	W24X162	0	W24X176	11.1	W24X84
4 th story	W24X162	0	W24X176	11.1	W24X84
5 th story	W24X131	0	W24X131	14.3	W24X76
6 th story	W24X131	0	W24X131	14.3	W24X76
7 th story	W24X103	0	W24X131	12.7	W21X73
8 th story	W24X103	0	W24X131	12.7	W21X73
9 th story	W24X94	0	W24X94	12.7	W21X62
10 th story	W24X94	0	W24X94	12.7	W21X62
11 th story	W24X76	0	W24X76	11.1	W18X50
12 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.662 \text{ sec}$				
16-M1-RSA					
1 st story	W36X361	0	W24X207	12.7	W27X102
2 nd story	W36X361	0	W24X207	12.7	W27X102
3 rd story	W24X279	0	W24X192	14.3	W27X102
4 th story	W24X279	0	W24X192	14.3	W27X102
5 th story	W24X229	0	W24X192	15.9	W27X102
6 th story	W24X229	0	W24X192	15.9	W27X102
7 th story	W24X176	0	W24X162	17.5	W24X94
8 th story	W24X176	0	W24X162	17.5	W24X94
9 th story	W24X131	3.2	W24X146	14.3	W24X76
10 th story	W24X131	3.2	W24X146	14.3	W24X76
11 th story	W24X103	3.2	W24X131	14.3	W24X76
12 th story	W24X103	3.2	W24X131	14.3	W24X76
13 th story	W24X94	0	W24X94	11.1	W21X62
14 th story	W24X94	0	W24X94	11.1	W21X62
15 th story	W24X76	0	W24X76	11.1	W18X50
16 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 4.208 \text{ sec}$				

Table. A5 Design section of M2-SMFs

Story	Ext. Column		Int. Column		Beam
	Section	Db. Plate (mm)	Section	Db. Plate (mm)	
4-M2					
1 st story	W24X103	3.2	W24X131	14.3	W24X76
2 nd story	W24X103	3.2	W24X131	14.3	W24X76
3 rd story	W24X76	3.2	W24X76	14.3	W18X55
4 th story	W24X76	3.2	W24X76	14.3	W18X55
Period	$T = 1.403 \text{ sec}$				
8-M					
1 st story	W24X131	3.2	W24X146	15.9	W24X84
2 nd story	W24X131	3.2	W24X146	15.9	W24X84
3 rd story	W24X103	3.2	W24X146	15.9	W24X84
4 th story	W24X103	3.2	W24X146	15.9	W24X84
5 th story	W24X84	3.2	W24X103	14.3	W21X68
6 th story	W24X84	3.2	W24X103	14.3	W21X68
7 th story	W24X76	0	W24X76	11.1	W18X50
8 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 2.524 \text{ sec}$				
12-M2					
1 st story	W24X250	0	W24X176	14.3	W27X94
2 nd story	W24X250	0	W24X176	14.3	W27X94
3 rd story	W24X176	0	W24X176	14.3	W27X94
4 th story	W24X176	0	W24X176	14.3	W27X94
5 th story	W24X131	3.2	W24X162	17.5	W24X94
6 th story	W24X131	3.2	W24X162	17.5	W24X94
7 th story	W24X103	3.2	W24X131	14.3	W24X76
8 th story	W24X103	3.2	W24X131	14.3	W24X76
9 th story	W24X94	0	W24X94	12.7	W21X62
10 th story	W24X94	0	W24X94	12.7	W21X62
11 th story	W24X76	0	W24X76	11.1	W18X50
12 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 3.362 \text{ sec}$				
16-M2					
1 st story	W36X361	0	W24X229	9.5	W27X102
2 nd story	W36X361	0	W24X229	9.5	W27X102
3 rd story	W36X282	0	W24X207	12.7	W27X102
4 th story	W36X282	0	W24X207	12.7	W27X102
5 th story	W24X229	0	W24X192	15.9	W27X102
6 th story	W24X229	0	W24X192	15.9	W27X102
7 th story	W24X176	0	W24X176	14.3	W27X94
8 th story	W24X176	0	W24X176	14.3	W27X94
9 th story	W24X131	3.2	W24X162	12.7	W24X84
10 th story	W24X131	3.2	W24X162	12.7	W24X84
11 th story	W24X131	0	W24X131	14.3	W24X76
12 th story	W24X131	0	W24X131	14.3	W24X76
13 th story	W24X94	0	W24X94	11.1	W21X62
14 th story	W24X94	0	W24X94	11.1	W21X62
15 th story	W24X76	0	W24X76	11.1	W18X50
16 th story	W24X76	0	W24X76	11.1	W18X50
Period	$T = 4.094 \text{ sec}$				