
Nailor Industries Inc.
Appendix A – Louver Pressure Rating Tables
1600 Series Fixed Louvers

ASTM E330 / TAS 202



1. CERTIFIED MANUFACTURER: Nailor Industries

CERTIFIED PRODUCT: Fixed Exterior Louvers

CERTIFIED MODEL: 1600 Series Louvers:
Models 1604JF, 1606JF, 1604DHPF, 1606DHPF,
1605WDF, 1606WDF, 1606WDV

1600 Series louvers are aluminum, fixed-blade exterior louvers made of extruded 6063-T6 aluminum, with frames having butt-type corner construction. Maximum sizes are 120" x 84" inches either direction.

2. DESIGN TABLES: Design Pressures for Louvers are determined using Tables 1, 2, and 3 below.

- A. Table 1 defines design pressures for louvers that have blade supports located greater than ($>$) 30 inches but not greater than ($\leq$) 54 inches.
- B. Table 2 defines design pressures for louvers that have blade supports located less than or equal to ($\leq$) 30 inches.
- C. Table 3 defines louver design pressures determined by Mullion Limitations.
- D. The least design pressure value found in the tables is applicable for the louver configuration.



Table 1 defines design pressures for louvers having blade support mullion greater than (>) 30 inches and a maximum ($\leq$) of 54 inches and having a height not exceeding 120 inches.

Table 2 defines design pressures for louvers which have blade supports less than or equal to 30 inches.

Note - Single panel louvers within the size ranges above may be field installed to unlimited stack heights.

Table 3 defines design pressures determined by Mullion Limitations.

The least design pressure value found in the tables is applicable for the louver configuration.

Maximum Design Pressure (psf)										
Span (in.)	1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM
12	200	200	200	200	200	200	200	200	200	200
18	200	200	200	200	200	200	200	200	200	200
24	200	200	200	200	200	200	200	200	200	200
30	134	200	200	200	200	200	122	200	200	200
36	77	200	200	200	200	200	71	200	200	200
42	49	127	127	200	164	164	45	200	200	200
48	33	85	85	200	110	110	30	200	200	200
54	23	60	60	200	77	77	21	200	200	200
60	134	200	200	200	200	200	122	200	200	157
66	100	200	200	200	200	200	92	200	200	200
72	77	200	200	200	200	200	71	200	200	200
78	61	158	158	200	200	200	56	200	200	200
84	49	127	127	200	164	164	45	200	200	200
90	40	103	103	200	134	134	36	200	200	200
96	33	85	85	200	110	110	30	200	166	200
102	27	71	71	200	92	92	25	200	138	200
108	23	60	60	200	77	77	21	200	116	200
114	40	113	113	200	147	147	55	200	99	183
120	34	96	96	200	123	123	46	200	85	157

TABLE 1



Maximum Design Pressure (psf)											
Span (in.)	1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
12	200	200	200	200*	200	200	200	200	200	200	Un-Braced Blade
18	200	200	200	200	200	200	200	200	200	200	
24	200	200	200	200	200	200	200	200	200	200	
30	134	200	200	200	200	200	122	200	200	200	
36	200	200	200	200	200	200	200	200	200	200	1 Blade Brace
42	200	200	200	200	200	200	200	200	200	200	
48	200	200	200	200	200	200	200	200	200	200	
54	183	200	200	200	200	200	168	200	200	200	
60	134	200	200	200	200	200	122	200	200	200	2 Blade Braces
66	200	200	200	200	200	200	169	200	200	200	
72	200	200	200	200	200	200	142	200	200	200	
78	158	200	200	200	200	200	121	200	200	200	
84	120	200	200	200	200	200	104	200	200	200	3 Blade Braces
90	86	194	194	200	200	200	91	200	200	200	
96	120	200	200	200	200	200	106	200	166	200	
102	96	200	200	200	200	200	94	200	138	200	
108	77	179	179	200	200	200	84	200	116	200	
114	64	161	161	200	200	200	75	200	99	200	
120	53	142	142	200	195	195	68	200	85	200	

TABLE 2

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	Mullion
24	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	200	200	200	200	200	200	200	200	200	200	200
	60	200	200	200	200	200	200	200	200	200	200	200
	66	200	200	200	200	200	200	200	200	200	200	200
	72	200	200	200	200	200	200	200	200	200	200	200
	78	198	200	200	200	200	200	200	200	200	200	200
	84	158	179	179	200	200	200	200	200	200	200	178
	90	129	145	145	200	200	200	200	200	200	200	144
	96	106	120	120	200	200	200	200	200	200	200	119
	102	88	100	100	180	200	200	200	200	200	200	99
108	75	84	84	151	200	200	200	200	200	200	84	
114	63	71	71	129	191	200	199	200	187	200	71	
120	54	61	61	110	164	193	170	174	169	200	61	



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDFV	1606WDVM	
30	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	200	200	200	200	200	200	200	200	200	200	200
	60	200	200	200	200	200	200	200	200	200	200	200
	66	200	200	200	200	200	200	200	200	200	200	200
	72	194	200	200	200	200	200	200	200	200	200	200
	78	158	179	179	200	200	200	200	200	200	200	178
	84	127	143	143	200	200	200	200	200	200	200	142
	90	103	116	116	200	200	200	200	200	200	200	116
	96	85	96	96	172	200	200	200	200	200	200	95
	102	71	80	80	144	193	200	200	200	187	200	79
	108	60	67	67	121	172	200	179	191	166	200	67
	114	51	57	57	103	153	180	159	162	149	200	57
	120	43	49	49	88	131	155	136	139	135	200	49

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDFV	1606WDVM	
36	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	200	200	200	200	200	200	200	200	200	200	200
	60	200	200	200	200	200	200	200	200	200	200	200
	66	193	200	200	200	200	200	200	200	200	200	200
	72	162	179	179	200	200	200	200	200	200	200	188
	78	132	149	149	200	200	200	200	200	200	200	148
	84	106	119	119	200	200	200	200	200	200	200	118
	90	86	97	97	174	200	200	200	200	200	200	96
	96	71	80	80	144	182	200	189	200	176	200	79
	102	59	67	67	120	161	191	167	179	156	200	66
	108	50	56	56	101	144	170	149	159	139	200	56
	114	42	48	48	86	128	150	132	135	125	200	47
	120	36	41	41	73	109	129	114	116	112	200	41



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
42	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	200	200	200	200	200	200	200	200	200	200	200
	60	200	200	200	200	200	200	200	200	200	200	200
	66	165	182	182	200	200	200	200	200	200	200	192
	72	139	153	153	200	200	200	200	200	200	200	161
	78	113	128	128	199	200	200	200	200	200	200	127
	84	90	102	102	172	200	200	200	200	197	200	102
	90	74	83	83	149	177	200	184	197	171	200	83
	96	61	68	68	123	156	185	162	173	151	200	68
	102	51	57	57	103	138	164	144	153	133	200	57
	108	43	48	48	86	123	146	128	136	119	200	48
	114	36	41	41	73	109	129	114	116	107	200	41
	120	31	35	35	63	94	110	97	100	96	200	35

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
48	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	200	200	200	200	200	200	200	200	200	200	200
	60	175	193	193	200	200	200	200	200	200	200	200
	66	145	160	160	200	200	200	200	200	200	200	168
	72	122	134	134	200	200	200	200	200	200	200	141
	78	99	112	112	174	200	200	200	200	199	200	111
	84	79	89	89	150	178	200	185	198	172	200	89
	90	64	73	73	131	155	184	161	172	150	200	72
	96	53	60	60	108	136	162	142	152	132	200	60
	102	44	50	50	90	121	143	126	134	117	200	50
	108	37	42	42	76	108	128	112	119	104	200	42
	114	32	36	36	64	96	113	99	102	93	200	36
	120	27	31	31	55	82	97	85	87	84	200	30

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
54	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	192	200	200	200	200	200	200	200	200	200	200
	60	155	172	172	200	200	200	200	200	200	200	181
	66	129	142	142	200	200	200	200	200	200	200	150
	72	108	119	119	182	200	200	200	200	200	200	125
	78	88	99	99	155	184	200	191	200	177	200	99
	84	70	79	79	134	158	188	165	176	153	200	79
	90	57	65	65	116	138	164	143	153	133	200	64
	96	47	53	53	96	121	144	126	135	117	200	53
	102	39	44	44	80	107	127	112	119	104	200	44
	108	33	37	37	67	96	114	100	106	92	200	37
	114	28	32	32	57	85	100	88	90	83	200	32
	120	24	27	27	49	73	86	76	77	75	200	27



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
80	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	200	200	200	200	200	200	200	200	200	200	200
	54	173	191	191	200	200	200	200	200	200	200	200
	60	140	154	154	200	200	200	200	200	200	200	163
	66	116	128	128	195	200	200	200	200	200	200	135
	72	97	107	107	164	194	200	200	200	187	200	113
	78	79	89	89	139	165	196	172	184	160	200	89
	84	63	71	71	120	143	169	148	158	138	200	71
	90	52	58	58	105	124	147	129	138	120	200	58
	96	42	48	48	86	109	129	113	121	105	200	48
	102	35	40	40	72	97	115	100	107	93	200	40
	108	30	34	34	60	86	102	90	96	83	200	33
	114	25	29	29	51	77	90	79	81	75	200	28
	120	22	25	25	44	66	77	68	70	67	200	24

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
80	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	199	200	200	200	200	200	200	200	200	200	200
	54	157	173	173	200	200	200	200	200	200	200	183
	60	127	140	140	200	200	200	200	200	200	200	148
	66	105	116	116	177	200	200	200	200	200	200	122
	72	88	98	98	149	176	200	183	196	170	200	103
	78	72	81	81	127	150	178	156	167	145	200	81
	84	58	65	65	109	130	154	135	144	125	200	65
	90	47	53	53	95	113	134	117	125	109	200	53
	96	39	44	44	78	99	118	103	110	96	200	43
	102	32	36	36	65	88	104	91	98	85	200	36
	108	27	31	31	55	78	93	81	87	76	200	30
	114	23	26	26	47	70	82	72	74	68	200	26
	120	20	22	22	40	60	70	62	63	61	200	22



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	160SWDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
72	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	182	200	200	200	200	200	200	200	200	200	200
	54	144	159	159	200	200	200	200	200	200	200	168
	60	117	129	129	196	200	200	200	200	200	200	136
	66	96	106	106	162	192	200	200	200	186	200	112
	72	81	89	89	136	162	192	168	180	156	200	94
	78	66	74	74	116	138	163	143	153	133	200	74
	84	53	60	60	100	119	141	123	132	115	200	59
	90	43	48	48	87	103	123	108	115	100	200	48
	96	35	40	40	72	91	108	95	101	88	200	40
	102	29	33	33	60	81	96	84	90	78	200	33
	108	25	28	28	50	72	85	75	80	69	200	28
	114	21	24	24	43	64	75	66	68	62	200	24
	120	18	20	20	37	55	64	57	58	56	195	20

Louver Mullion Tables

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	160SWDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
78	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	168	186	186	200	200	200	200	200	200	200	196
	54	133	147	147	200	200	200	200	200	200	200	155
	60	108	119	119	181	200	200	200	200	200	200	125
	66	89	98	98	150	178	200	185	197	171	200	104
	72	75	83	83	126	149	177	155	166	144	200	87
	78	61	69	69	107	127	151	132	141	123	200	68
	84	49	55	55	92	110	130	114	122	106	200	55
	90	40	45	45	80	96	113	99	106	92	200	44
	96	33	37	37	66	84	100	87	93	81	200	37
	102	27	31	31	55	74	88	77	83	72	200	31
	108	23	26	26	47	66	79	69	73	64	200	26
	114	19	22	22	40	59	69	61	62	57	200	22
	120	17	19	19	34	50	59	52	54	52	180	19

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	160SWDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
84	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	200	200	200	200	200	200	200	200	200	200	200
	48	156	172	172	200	200	200	200	200	200	200	182
	54	123	136	136	200	200	200	200	200	200	200	144
	60	100	110	110	168	200	200	200	200	193	200	116
	66	83	91	91	139	165	196	171	183	159	200	96
	72	69	77	77	117	139	164	144	154	134	200	81
	78	57	64	64	100	118	140	123	131	114	200	63
	84	45	51	51	86	102	121	106	113	98	200	51
	90	37	42	42	75	89	105	92	99	86	200	41
	96	30	34	34	62	78	92	81	87	75	200	34
	102	25	29	29	51	69	82	72	77	67	200	28
	108	21	24	24	43	62	73	64	68	59	200	24
	114	18	20	20	37	55	64	57	58	53	186	20
	120	16	18	18	31	47	55	49	50	48	168	17



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
90	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	190	200	200	200	200	200	200	200	200	200	200
	48	146	161	161	200	200	200	200	200	200	200	170
	54	115	127	127	194	200	200	200	200	200	200	134
	60	93	103	103	157	186	200	194	200	180	200	109
	66	77	85	85	130	154	183	160	171	149	200	90
	72	65	72	72	109	129	153	134	144	125	200	75
	78	53	60	60	93	110	131	115	122	106	200	59
	84	42	48	48	80	95	113	99	106	92	200	47

Louver Mullion Tables

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
96	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	179	197	197	200	200	200	200	200	200	200	200
	48	137	151	151	200	200	200	200	200	200	200	159
	54	108	119	119	182	200	200	200	200	200	200	126
	60	88	97	97	147	175	200	181	194	169	200	102
	66	72	80	80	122	144	171	150	160	139	200	84
	72	61	67	67	102	121	144	126	135	117	200	71
	78	49	56	56	87	103	123	107	115	100	200	55
	84	40	45	45	75	89	106	93	99	86	200	44

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
		1604JF	1604DHPF	1604DHPM	1605WDF(M)	1606DHPF	1606DHPM	1606JF	1606WDF	1606WDVF	1606WDVM	
102	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	168	185	185	200	200	200	200	200	200	200	196
	48	129	142	142	200	200	200	200	200	200	200	150
	54	102	112	112	171	200	200	200	200	196	200	118
	60	82	91	91	139	164	195	171	183	159	200	96
	66	68	75	75	115	136	161	141	151	131	200	79
	72	57	63	63	96	114	135	119	127	110	200	66
	78	47	53	53	82	97	115	101	108	94	200	52
	84	37	42	42	71	84	99	87	93	81	200	42



Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
106	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	159	175	175	200	200	200	200	200	200	200	185
	48	122	134	134	200	200	200	200	200	200	200	142
	54	96	106	106	162	192	200	199	200	185	200	112
	60	78	86	86	131	155	184	161	172	150	200	91
	66	64	71	71	108	128	152	133	143	124	200	75
	72	54	60	60	91	108	128	112	120	104	200	63
	78	44	50	50	77	92	109	95	102	89	200	49
	84	35	40	40	67	79	94	82	88	76	200	39

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
114	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	200	200	200	200	200	200	200	200	200	200	200
	42	150	166	166	200	200	200	200	200	200	200	175
	48	115	127	127	194	200	200	200	200	200	200	134
	54	91	100	100	153	182	200	189	200	175	200	106
	60	74	81	81	124	147	174	153	163	142	200	86
	66	61	67	67	103	122	144	126	135	117	200	71
	72	51	56	56	86	102	121	106	113	99	200	59
	78	42	47	47	73	87	103	90	97	84	200	47
	84	33	38	38	63	75	89	78	83	72	200	37

Louver Width	Height (in.)	Maximum Design Pressure (psf)										Concealed Mullion
120	12	200	200	200	200	200	200	200	200	200	200	200
	18	200	200	200	200	200	200	200	200	200	200	200
	24	200	200	200	200	200	200	200	200	200	200	200
	30	200	200	200	200	200	200	200	200	200	200	200
	36	194	200	200	200	200	200	200	200	200	200	200
	42	143	158	158	200	200	200	200	200	200	200	166
	48	109	121	121	184	200	200	200	200	200	200	127
	54	86	95	95	145	172	200	179	192	166	200	101
	60	70	77	77	118	140	166	145	155	135	200	82
	66	58	64	64	97	115	137	120	128	111	200	67
	72	49	54	54	82	97	115	101	108	94	200	56
	78	40	45	45	70	83	98	86	92	80	200	44
	84	32	36	36	60	71	85	74	79	69	200	36