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Diagonal Shear Of Partially Grouted Concrete Masonry Panels

Oan, Ahmed

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Appendix D

Appendix D presents tables of the results obtained when verifying the data obtained from the current experimental results and the previous experimental tests in literature using different codes and shear design expressions.

Table notations

V_{th} : The predicted shear resistance of the wall (kN)

V_{exp} : The experimental shear resistance obtained from testing the wall (kN)

F.S : Margin of safety = V_{exp}/V_{th} ,

STDV : Standard deviation (for the F.S).

Table D-1 Predicted shear strength by different codes.

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}
1	150.9	1.97	117.8	2.52	133.6	2.22	58.2	5.10	152.6	1.95	216.4	1.37
2	150.9	1.84	127.0	2.19	133.6	2.08	58.2	4.78	152.6	1.82	216.4	1.29
3	150.9	1.83	127.0	2.17	133.6	2.07	58.2	4.74	152.6	1.81	216.4	1.28
4	170.2	1.59	158.8	1.70	133.6	2.02	84.7	3.19	221.0	1.22	216.4	1.25
5	170.2	1.53	168.0	1.55	133.6	1.95	84.7	3.08	221.0	1.18	216.4	1.21
6	170.2	1.60	158.8	1.71	133.6	2.04	84.7	3.22	221.0	1.23	216.4	1.26
7	170.2	1.51	193.8	1.33	133.6	1.93	94.2	2.73	279.3	0.92	216.4	1.19
8	170.2	1.56	193.8	1.37	133.6	1.99	94.2	2.82	279.3	0.95	216.4	1.23
9	170.2	1.52	193.8	1.34	133.6	1.94	94.2	2.75	279.3	0.93	216.4	1.20
10	150.9	1.82	127.0	2.17	133.6	2.06	58.2	4.72	152.6	1.80	216.4	1.27
11	150.9	1.87	127.0	2.22	133.6	2.11	58.2	4.83	152.6	1.84	216.4	1.30
12	150.9	1.85	117.8	2.36	133.6	2.08	58.2	4.78	152.6	1.82	216.4	1.29
13	170.2	1.64	203.0	1.37	133.6	2.09	94.2	2.96	279.3	1.00	216.4	1.29
14	170.2	1.69	193.8	1.48	133.6	2.15	94.2	3.05	279.3	1.03	216.4	1.33

Table D-1 Predicted shear strength by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
15	170.2	1.64	193.8	1.44	133.6	2.09	94.2	2.96	279.3	1.00	216.4	1.29
16	107.7	1.39	98.2	1.52	133.6	1.12	33.0	4.52	95.0	1.57	151.7	0.99
17	107.7	1.36	98.2	1.50	133.6	1.10	33.0	4.45	95.0	1.55	151.7	0.97
18	107.7	1.46	98.2	1.60	133.6	1.18	33.0	4.76	95.0	1.66	151.7	1.04
19	170.2	2.26	117.8	3.26	133.6	2.88	87.9	4.37	168.8	2.28	273.6	1.40
20	170.2	2.04	117.8	2.94	133.6	2.60	87.9	3.94	168.8	2.05	273.6	1.27
21	170.2	2.47	117.8	3.56	133.6	3.14	87.9	4.77	168.8	2.49	273.6	1.53
22	170.2	2.04	158.8	2.19	133.6	2.60	114.3	3.04	237.2	1.47	273.6	1.27
23	170.2	1.98	177.0	1.90	133.6	2.52	114.3	2.95	237.2	1.42	273.6	1.23
24	170.2	2.29	158.8	2.46	133.6	2.92	114.3	3.41	237.2	1.64	273.6	1.43
25	170.2	2.26	193.8	1.98	133.6	2.88	123.9	3.10	295.5	1.30	273.6	1.40
26	170.2	2.13	193.8	1.87	133.6	2.71	123.9	2.92	295.5	1.23	273.6	1.32
27	170.2	1.91	193.8	1.68	133.6	2.43	123.9	2.62	295.5	1.10	273.6	1.19
28	170.2	1.99	117.8	2.87	133.6	2.53	87.9	3.85	168.8	2.00	273.6	1.24

Table D-1 Predicted shear strength by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
29	170.2	2.09	117.8	3.02	133.6	2.67	87.9	4.05	168.8	2.11	273.6	1.30
30	170.2	2.20	135.9	2.75	133.6	2.80	87.9	4.25	168.8	2.21	273.6	1.37
31	170.2	2.12	193.8	1.86	133.6	2.70	123.9	2.91	295.5	1.22	273.6	1.32
32	170.2	2.05	193.8	1.80	133.6	2.62	123.9	2.82	295.5	1.18	273.6	1.28
33	170.2	2.22	211.9	1.78	133.6	2.83	123.9	3.05	295.5	1.28	273.6	1.38
34	117.4	1.59	116.9	1.59	133.6	1.40	49.4	3.77	105.2	1.77	183.3	1.02
35	117.4	1.70	116.9	1.71	133.6	1.50	49.4	4.04	105.2	1.90	183.3	1.09
36	117.4	1.84	116.9	1.84	133.6	1.61	49.4	4.36	105.2	2.05	183.3	1.18
37	170.2	2.70	117.8	3.90	133.6	3.44	117.5	3.91	184.9	2.48	330.6	1.39
38	170.2	2.37	117.8	3.42	133.6	3.02	117.5	3.44	184.9	2.18	330.6	1.22
39	170.2	2.55	117.8	3.68	133.6	3.25	117.5	3.69	184.9	2.34	330.6	1.31
40	170.2	2.44	158.8	2.61	133.6	3.10	143.9	2.88	253.3	1.64	330.6	1.25
41	170.2	2.31	177.0	2.23	133.6	2.95	143.9	2.74	253.3	1.55	330.6	1.19
42	170.2	2.36	158.8	2.53	133.6	3.01	143.9	2.79	253.3	1.59	330.6	1.22

Table D-1 Predicted shear strength by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
43	170.2	2.57	193.8	2.25	133.6	3.27	153.4	2.85	311.6	1.40	330.6	1.32
44	170.2	2.31	193.8	2.03	133.6	2.94	153.4	2.56	311.6	1.26	330.6	1.19
45	170.2	2.50	193.8	2.20	133.6	3.19	153.4	2.77	311.6	1.37	330.6	1.29
46	170.2	2.49	117.8	3.60	133.6	3.17	117.5	3.61	184.9	2.29	330.6	1.28
47	170.2	2.36	117.8	3.40	133.6	3.00	117.5	3.41	184.9	2.17	330.6	1.21
48	170.2	2.38	135.9	2.99	133.6	3.04	117.5	3.46	184.9	2.19	330.6	1.23
49	170.2	2.41	211.9	1.94	133.6	3.07	153.4	2.67	311.6	1.32	330.6	1.24
50	170.2	2.57	193.8	2.25	133.6	3.27	153.4	2.85	311.6	1.40	330.6	1.32
51	170.2	2.61	193.8	2.29	133.6	3.32	153.4	2.89	311.6	1.42	330.6	1.34
52	127.2	1.82	135.8	1.70	133.6	1.73	65.9	3.50	115.5	2.00	215.2	1.07
53	127.2	1.97	135.8	1.85	133.6	1.88	65.9	3.80	115.5	2.17	215.2	1.17
54	127.2	1.86	135.8	1.75	133.6	1.78	65.9	3.60	115.5	2.05	215.2	1.10
55	158.0	1.18	151.8	1.23	133.6	1.40	77.2	2.41	180.1	1.03	181.6	1.03
56	158.0	1.38	151.8	1.43	133.6	1.63	77.2	2.81	180.1	1.21	181.6	1.20

Table D-1 Predicted shear strength by different codes (continued).

Wall No.	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
57	158.0	1.32	151.8	1.37	133.6	1.56	77.2	2.69	180.1	1.15	181.6	1.15
58	158.0	1.33	151.8	1.38	133.6	1.57	77.2	2.72	180.1	1.17	181.6	1.16
59	158.0	1.31	151.8	1.36	133.6	1.55	77.2	2.68	180.1	1.15	181.6	1.14
60	158.0	1.34	151.8	1.40	133.6	1.59	77.2	2.74	180.1	1.18	181.6	1.17
61	182.1	1.93	140.7	2.49	133.6	2.63	113.4	3.09	247.4	1.42	275.5	1.27
62	182.1	1.77	140.7	2.30	133.6	2.42	113.4	2.85	247.4	1.31	275.5	1.17
63	182.1	1.86	158.8	2.14	133.6	2.54	113.4	2.99	247.4	1.37	275.5	1.23
64	182.1	1.76	140.7	2.28	133.6	2.40	113.4	2.83	247.4	1.30	275.5	1.16
65	182.1	1.84	140.7	2.38	133.6	2.51	113.4	2.95	247.4	1.35	275.5	1.21
66	182.1	1.83	158.8	2.10	133.6	2.49	113.4	2.94	247.4	1.35	275.5	1.21

Table D-2 Predicted shear strength for walls from literature by different codes .

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
67	205.9	1.04	87.6	2.45	250.2	0.86	89.1	2.41	249.9	0.86	211.0	1.02
68	190.5	1.02	58.7	3.32	229.5	0.85	71.9	2.71	220.2	0.89	211.0	0.92
69	237.2	0.91	152.2	1.41	296.0	0.73	108.3	1.98	296.3	0.73	207.8	1.03
70	207.0	1.08	95.6	2.33	255.8	0.87	90.8	2.46	238.4	0.94	207.8	1.07
71	95.4	1.50	21.6	6.62	117.8	1.21	37.2	3.85	169.0	0.85	79.5	1.80
72	95.4	0.98	21.6	4.31	102.4	0.91	37.2	2.50	128.7	0.72	69.5	1.34
73	240.5	1.09	107.8	2.44	302.4	0.99	109.7	2.40	269.2	0.98	261.4	1.01
74	226.3	1.08	97.7	2.50	278.5	0.88	100.9	2.42	263.3	0.93	239.3	1.02
75	193.0	1.07	97.7	2.12	276.6	0.75	95.6	2.17	325.4	0.64	220.1	0.94
76	477.9	1.25	156.2	3.83	466.0	1.28	196.0	3.05	492.5	1.21	492.6	1.21
77	306.9	0.85	290.6	0.90	232.2	1.13	223.0	1.17	330.8	0.79	256.8	1.02
78	219.2	1.16	207.0	1.22	165.8	1.53	155.2	1.63	234.9	1.08	188.8	1.34
79	153.4	1.15	144.9	1.21	116.0	1.52	105.0	1.68	163.4	1.08	139.3	1.26
80	306.9	0.79	422.4	0.58	232.2	1.05	257.7	0.94	456.9	0.53	257.0	0.95

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
81	219.2	1.23	301.4	0.90	165.8	1.63	180.3	1.50	319.3	0.85	189.6	1.43
82	153.4	1.38	211.2	1.00	116.0	1.82	122.7	1.72	216.5	0.98	140.4	1.51
83	356.3	1.07	163.9	2.33	286.2	1.33	191.1	2.00	346.7	1.10	329.4	1.16
84	266.7	0.82	122.7	1.79	214.2	1.03	133.3	1.65	251.2	0.87	247.1	0.89
85	266.7	0.92	122.7	2.01	214.2	1.15	133.3	1.85	251.2	0.98	247.1	1.00
86	341.7	0.78	74.6	3.58	271.3	0.98	116.9	2.28	268.0	1.00	416.4	0.64
87	341.7	1.25	205.4	2.08	271.3	1.58	224.8	1.90	341.2	1.25	416.4	1.03
88	341.7	1.44	336.2	1.46	271.3	1.81	269.5	1.82	414.5	1.18	416.4	1.18
89	341.7	1.44	336.3	1.47	271.3	1.82	279.7	1.76	449.2	1.10	433.3	1.14
90	341.7	1.79	452.2	1.36	271.3	2.26	342.9	1.79	595.8	1.03	433.3	1.41
91	389.6	1.31	336.2	1.52	271.3	1.88	310.2	1.65	491.6	1.04	466.9	1.09
92	369.6	1.26	336.2	1.39	271.3	1.72	297.5	1.57	473.9	0.98	452.9	1.03
93	378.7	1.56	388.0	1.53	271.3	2.18	319.2	1.86	511.0	1.16	459.2	1.29
94	369.6	1.27	336.2	1.40	271.3	1.73	286.4	1.64	436.5	1.08	436.0	1.08

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall No.	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
95	352.2	1.39	332.7	1.47	257.0	1.91	288.6	1.70	465.7	1.05	432.5	1.13
96	405.4	1.44	336.2	1.74	271.3	2.16	320.3	1.83	505.6	1.16	477.9	1.23
97	167.2	0.65	115.1	0.94	103.2	1.05	75.9	1.43	210.7	0.51	107.8	1.00
98	205.4	0.77	115.1	1.37	103.2	1.53	100.2	1.57	268.1	0.59	136.9	1.15
99	128.3	0.68	88.3	0.99	79.2	1.10	56.1	1.55	162.7	0.54	89.7	0.97
100	157.7	0.59	88.3	1.05	79.2	1.18	71.1	1.31	195.7	0.48	104.0	0.89
101	89.4	0.82	61.6	1.19	55.2	1.33	37.0	1.98	121.4	0.60	71.6	1.02
102	109.9	0.67	61.6	1.19	55.2	1.33	45.1	1.62	134.4	0.54	73.0	1.00
103	102.6	0.56	39.6	1.45	79.2	0.73	24.4	2.35	131.1	0.44	89.7	0.64
104	102.6	0.64	39.6	1.65	79.2	0.83	24.4	2.67	131.1	0.50	89.7	0.73
105	128.3	0.49	88.3	0.72	79.2	0.80	56.1	1.13	162.7	0.39	89.7	0.71
106	128.3	0.57	141.1	0.52	79.2	0.93	70.2	1.04	196.9	0.37	89.7	0.82
107	128.3	0.69	191.9	0.46	79.2	1.13	80.5	1.11	229.9	0.39	89.7	0.99
108	164.6	0.61	103.8	0.97	79.2	1.28	85.6	1.18	210.8	0.48	140.6	0.72

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
109	164.6	0.83	114.1	1.20	79.2	1.73	99.1	1.38	221.7	0.62	174.5	0.78
110	164.6	1.01	114.1	1.46	79.2	2.10	112.7	1.48	232.6	0.71	208.5	0.80
111	109.7	0.77	57.2	1.47	82.2	1.03	37.8	2.23	135.0	0.62	122.4	0.69
112	123.0	1.22	162.6	0.92	82.2	1.83	81.7	1.84	205.1	0.73	122.4	1.23
113	123.0	1.30	215.3	0.74	82.2	1.95	91.6	1.75	240.1	0.67	122.4	1.31
114	123.0	1.15	295.8	0.48	82.2	1.73	103.8	1.37	293.7	0.48	122.4	1.16
115	123.0	1.05	107.8	1.20	82.2	1.58	62.1	2.08	146.7	0.88	103.7	1.25
116	153.5	0.89	65.3	2.09	79.2	1.73	58.5	2.34	190.1	0.72	174.5	0.78
117	116.7	0.68	65.3	1.21	79.2	1.00	49.7	1.59	136.9	0.58	153.0	0.52
118	164.6	0.84	166.9	0.83	79.2	1.75	117.2	1.18	255.9	0.54	174.5	0.79
119	164.6	0.93	217.6	0.70	79.2	1.93	130.4	1.17	288.9	0.53	174.5	0.87
120	184.3	1.22	233.8	0.96	118.2	1.90	125.5	1.79	305.2	0.74	166.4	1.35
121	184.3	1.19	233.8	0.94	118.2	1.85	125.5	1.74	305.2	0.72	166.4	1.31
122	165.6	1.09	210.1	0.86	106.2	1.70	109.9	1.64	269.3	0.67	147.6	1.22

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
123	128.2	1.12	162.6	0.88	82.2	1.75	81.6	1.76	200.0	0.72	114.6	1.26
124	90.8	0.77	115.1	0.61	58.2	1.20	54.9	1.27	129.2	0.54	82.2	0.85
125	90.8	0.75	115.1	0.59	58.2	1.18	54.9	1.25	129.2	0.53	82.2	0.83
126	267.4	0.83	318.8	0.70	202.1	1.10	135.9	1.63	295.2	0.75	171.8	1.29
127	267.4	0.85	406.5	0.56	202.1	1.13	146.8	1.55	344.0	0.66	171.8	1.33
128	267.4	0.76	527.6	0.38	202.1	1.00	159.4	1.27	411.5	0.49	171.8	1.18
129	289.1	0.90	318.8	0.82	202.1	1.29	132.9	1.96	315.6	0.82	183.7	1.42
130	296.8	0.99	318.8	0.93	202.1	1.46	135.8	2.17	337.2	0.87	188.8	1.56
131	358.4	0.58	361.1	0.58	218.9	0.95	161.3	1.29	475.4	0.44	186.2	1.12
132	372.7	0.54	387.9	0.52	218.9	0.92	165.5	1.22	501.0	0.40	186.2	1.08
133	539.8	0.65	541.0	0.64	327.9	1.06	252.7	1.38	722.6	0.48	274.6	1.27
134	614.8	0.70	581.2	0.74	327.9	1.31	265.7	1.62	824.7	0.52	313.7	1.37
135	378.1	0.70	387.9	0.69	218.9	1.22	153.4	1.73	546.1	0.49	183.1	1.45
136	409.8	0.79	667.9	0.49	218.9	1.49	205.1	1.59	813.2	0.40	183.1	1.78

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
137	390.3	0.64	361.1	0.69	218.9	1.14	166.1	1.50	553.1	0.45	201.2	1.24
138	665.1	0.61	1000.7	0.41	327.9	1.24	344.9	1.18	1280.2	0.32	335.6	1.21
139	617.7	0.69	361.1	1.18	651.5	0.65	252.2	1.69	748.4	0.57	521.7	0.82
140	765.1	0.55	667.9	0.64	694.3	0.61	310.9	1.36	1024.0	0.41	505.5	0.84
141	81.0	1.54	89.3	1.39	114.6	1.09	19.4	6.43	65.2	1.91	93.9	1.33
142	141.6	2.14	110.9	2.73	144.0	2.10	75.9	3.99	112.3	2.69	193.0	1.57
143	101.0	2.11	280.7	0.76	144.0	1.48	88.3	2.42	190.0	1.12	128.5	1.66
144	134.6	1.98	179.7	1.49	144.0	1.85	101.1	2.64	141.8	1.88	170.0	1.57
145	153.0	1.63	145.3	1.71	144.0	1.73	88.2	2.82	101.8	2.45	173.2	1.44
146	140.5	1.90	110.9	2.41	144.0	1.85	66.6	4.01	115.6	2.31	181.9	1.47
147	159.2	1.82	110.9	2.61	144.0	2.01	78.4	3.69	113.7	2.54	201.0	1.44
148	146.0	2.13	110.9	2.81	144.0	2.16	73.5	4.24	129.1	2.41	201.0	1.55
149	175.9	2.63	179.7	2.57	144.0	3.21	140.4	3.29	207.1	2.23	270.3	1.71
150	175.9	2.83	248.6	2.00	144.0	3.46	162.4	3.07	256.4	1.94	284.2	1.75

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall No.	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
151	175.9	2.43	343.3	1.24	144.0	2.97	168.1	2.54	317.5	1.34	259.5	1.65
152	175.9	2.83	317.4	1.57	144.0	3.46	175.0	2.85	305.7	1.63	287.2	1.73
153	360.0	1.26	197.1	2.31	370.4	1.23	229.4	1.98	426.8	1.07	399.7	1.14
154	237.0	1.49	163.1	2.16	370.4	0.95	137.9	2.56	358.1	0.99	215.2	1.64
155	277.6	1.39	192.0	2.00	370.4	1.04	167.7	2.29	374.6	1.03	278.4	1.38
156	290.0	1.49	192.0	2.25	370.4	1.16	178.0	2.42	396.1	1.09	290.8	1.48
157	358.9	1.19	197.1	2.16	370.4	1.15	215.0	1.98	375.1	1.14	372.0	1.15
158	381.3	1.31	218.9	2.28	370.4	1.35	235.9	2.12	426.3	1.17	390.5	1.28
159	367.6	1.27	197.1	2.38	370.4	1.26	228.8	2.05	409.3	1.14	390.5	1.20
160	356.9	1.50	218.9	2.45	370.4	1.45	221.9	2.42	413.6	1.30	382.3	1.40
161	401.1	1.36	196.7	2.78	314.9	1.74	278.7	1.96	403.6	1.36	583.2	0.94
162	401.1	2.47	327.8	3.03	314.9	3.15	386.6	2.57	793.6	1.25	1070.9	0.93
163	577.7	1.23	167.1	4.26	491.9	1.45	219.9	3.23	314.6	2.26	471.5	1.51
164	327.3	1.62	167.1	3.17	311.0	1.70	141.4	3.74	323.1	1.64	282.4	1.87

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall No.	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
165	426.7	1.08	321.2	1.44	332.6	1.39	236.2	1.95	422.0	1.09	422.4	1.09
166	426.7	1.32	321.2	1.75	332.6	1.69	280.0	2.01	446.8	1.26	514.4	1.09
167	260.1	1.65	328.0	1.31	245.2	1.75	205.3	2.09	378.3	1.13	340.8	1.26
168	260.1	1.65	328.0	1.31	245.2	1.75	192.6	2.23	379.6	1.13	341.6	1.26
169	254.3	1.62	192.7	2.13	245.2	1.68	179.4	2.29	253.2	1.62	337.3	1.22
170	254.3	1.53	192.7	2.02	245.2	1.59	167.0	2.33	254.4	1.53	338.1	1.15
171	254.3	1.32	109.0	3.07	245.2	1.37	158.0	2.12	219.9	1.52	337.3	0.99
172	254.3	1.67	244.2	1.73	245.2	1.73	189.2	2.24	294.2	1.44	337.3	1.26
173	254.3	1.34	192.7	1.77	245.2	1.39	149.7	2.28	237.9	1.44	273.9	1.25
174	254.3	1.65	192.7	2.17	245.2	1.71	178.8	2.34	252.9	1.65	336.1	1.24
175	293.2	1.09	192.7	1.66	245.2	1.31	194.1	1.65	280.2	1.14	359.4	0.89
176	293.2	1.14	348.6	0.96	245.2	1.37	231.4	1.45	464.3	0.72	359.4	0.93
177	293.2	1.40	192.7	2.13	245.2	1.67	194.1	2.11	295.4	1.39	367.3	1.12
178	293.2	1.43	348.6	1.20	245.2	1.71	222.3	1.88	468.9	0.89	361.8	1.16

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
179	293.2	1.21	192.7	1.84	245.2	1.44	179.8	1.97	281.7	1.26	360.2	0.98
180	293.2	1.31	348.6	1.10	245.2	1.56	217.1	1.77	465.7	0.82	360.2	1.06
181	293.2	1.30	192.7	1.97	245.2	1.55	194.1	1.96	260.6	1.46	349.3	1.09
182	293.2	1.27	348.6	1.07	245.2	1.52	231.4	1.61	464.3	0.80	359.4	1.04
183	293.2	1.34	220.9	1.78	245.2	1.60	200.5	1.96	323.9	1.21	359.4	1.09
184	293.2	1.35	348.6	1.14	245.2	1.61	242.5	1.63	565.9	0.70	360.2	1.10
185	343.6	1.36	126.2	3.72	245.2	1.91	192.2	2.44	296.0	1.58	389.7	1.20
186	132.5	1.66	59.8	3.68	206.5	1.07	12.5	17.66	120.7	1.82	143.6	1.53
187	66.3	1.77	59.8	1.96	100.8	1.16	12.5	9.39	72.4	1.62	66.7	1.75
188	151.7	1.44	59.8	3.64	221.5	0.98	48.1	4.53	156.2	1.40	172.6	1.26
189	178.8	1.56	119.2	2.34	257.7	1.08	78.6	3.55	137.9	2.02	172.6	1.62
190	93.4	2.36	119.2	1.85	100.8	2.18	47.6	4.62	61.5	3.58	76.4	2.88
191	259.0	1.42	297.4	1.24	273.6	1.35	116.3	3.17	328.3	1.12	172.6	2.13
192	154.3	1.90	59.8	4.90	243.9	1.20	60.6	4.84	182.1	1.61	189.7	1.54
193	77.1	2.19	59.8	2.82	100.8	1.68	43.2	3.91	108.6	1.56	97.8	1.73

Table D-2 Predicted shear strength for walls from literature by different codes (continued).

Wall	CSA 2004		Euro Code 6		NZS 2004		Matsumura 1987		Shing et al.1990		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}
194	208.6	1.21	178.6	1.42	273.6	0.92	104.5	2.42	211.3	1.20	189.7	1.33
195	110.6	2.02	178.6	1.25	100.8	2.21	60.4	3.69	120.2	1.86	91.0	2.45
196	221.3	1.76	456.0	0.86	273.6	1.43	139.0	2.81	529.5	0.74	167.9	2.32

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors.

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}
1	90.5	3.28	78.5	3.78	100.2	2.96	216.4	1.37
2	90.5	3.07	84.7	3.29	100.2	2.78	216.4	1.29
3	90.5	3.05	84.7	3.26	100.2	2.75	216.4	1.28
4	102.1	2.64	114.2	2.36	100.2	2.70	216.4	1.25
5	102.1	2.56	120.3	2.17	100.2	2.61	216.4	1.21
6	102.1	2.67	114.2	2.38	100.2	2.72	216.4	1.26
7	102.1	2.52	144.6	1.78	100.2	2.57	216.4	1.19
8	102.1	2.60	144.6	1.84	100.2	2.65	216.4	1.23
9	102.1	2.54	144.6	1.79	100.2	2.59	216.4	1.20
10	90.5	3.04	84.7	3.25	100.2	2.75	216.4	1.27
11	90.5	3.11	84.7	3.33	100.2	2.81	216.4	1.30
12	90.5	3.08	78.5	3.54	100.2	2.78	216.4	1.29
13	102.1	2.73	150.7	1.85	100.2	2.78	216.4	1.29
14	102.1	2.82	144.6	1.99	100.2	2.87	216.4	1.33
15	102.1	2.73	144.6	1.93	100.2	2.78	216.4	1.29
16	64.6	2.31	65.5	2.28	100.2	1.49	151.7	0.99
17	64.6	2.27	65.5	2.24	100.2	1.47	151.7	0.97
18	64.6	2.43	65.5	2.40	100.2	1.57	151.7	1.04
19	102.1	3.76	78.5	4.89	100.2	3.84	273.6	1.40
20	102.1	3.39	78.5	4.41	100.2	3.46	273.6	1.27
21	102.1	4.11	78.5	5.34	100.2	4.19	273.6	1.53
22	102.1	3.41	114.2	3.05	100.2	3.47	273.6	1.27
23	102.1	3.30	126.3	2.67	100.2	3.37	273.6	1.23

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
24	102.1	3.82	114.2	3.42	100.2	3.89	273.6	1.43
25	102.1	3.76	144.6	2.66	100.2	3.84	273.6	1.40
26	102.1	3.55	144.6	2.50	100.2	3.62	273.6	1.32
27	102.1	3.18	144.6	2.25	100.2	3.24	273.6	1.19
28	102.1	3.31	78.5	4.31	100.2	3.38	273.6	1.24
29	102.1	3.49	78.5	4.53	100.2	3.55	273.6	1.30
30	102.1	3.66	90.6	4.13	100.2	3.73	273.6	1.37
31	102.1	3.53	144.6	2.49	100.2	3.60	273.6	1.32
32	102.1	3.42	144.6	2.42	100.2	3.49	273.6	1.28
33	102.1	3.70	156.7	2.41	100.2	3.77	273.6	1.38
34	70.4	2.65	77.9	2.39	100.2	1.86	183.3	1.02
35	70.4	2.84	77.9	2.56	100.2	1.99	183.3	1.09
36	70.4	3.06	77.9	2.77	100.2	2.15	183.3	1.18
37	102.1	4.50	78.5	5.85	100.2	4.59	330.6	1.39
38	102.1	3.95	78.5	5.14	100.2	4.03	330.6	1.22
39	102.1	4.25	78.5	5.52	100.2	4.33	330.6	1.31
40	102.1	4.06	114.2	3.63	100.2	4.14	330.6	1.25
41	102.1	3.86	126.3	3.12	100.2	3.93	330.6	1.19
42	102.1	3.94	114.2	3.52	100.2	4.01	330.6	1.22
43	102.1	4.28	144.6	3.02	100.2	4.36	330.6	1.32
44	102.1	3.85	144.6	2.72	100.2	3.93	330.6	1.19
45	102.1	4.17	144.6	2.94	100.2	4.25	330.6	1.29
46	102.1	4.15	78.5	5.39	100.2	4.23	330.6	1.28

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
47	102.1	3.93	78.5	5.10	100.2	4.00	330.6	1.21
48	102.1	3.97	90.6	4.48	100.2	4.05	330.6	1.23
49	102.1	4.02	156.7	2.62	100.2	4.10	330.6	1.24
50	102.1	4.28	144.6	3.02	100.2	4.36	330.6	1.32
51	102.1	4.34	144.6	3.07	100.2	4.43	330.6	1.34
52	76.3	3.03	90.5	2.55	100.2	2.31	215.2	1.07
53	76.3	3.29	90.5	2.77	100.2	2.50	215.2	1.17
54	76.3	3.11	90.5	2.62	100.2	2.37	215.2	1.10
55	94.8	1.97	109.6	1.70	100.2	1.86	181.6	1.03
56	94.8	2.29	109.6	1.98	100.2	2.17	181.6	1.20
57	94.8	2.19	109.6	1.90	100.2	2.08	181.6	1.15
58	94.8	2.22	109.6	1.92	100.2	2.10	181.6	1.16
59	94.8	2.18	109.6	1.89	100.2	2.06	181.6	1.14
60	94.8	2.24	109.6	1.94	100.2	2.12	181.6	1.17
61	109.3	3.21	102.1	3.43	100.2	3.50	275.5	1.27
62	109.3	2.96	102.1	3.16	100.2	3.23	275.5	1.17
63	109.3	3.10	102.1	3.32	100.2	3.39	275.5	1.23
64	109.3	2.93	102.1	3.14	100.2	3.20	275.5	1.16
65	109.3	3.06	102.1	3.28	100.2	3.34	275.5	1.21
66	109.3	3.05	102.1	3.26	100.2	3.33	275.5	1.21
67	128.5	1.67	66.0	3.26	187.6	1.15	211.0	1.02
68	115.4	1.69	40.8	4.78	172.2	1.13	211.0	0.92
69	155.9	1.38	122.1	1.76	222.0	0.97	207.8	1.03

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
70	130.2	1.71	72.9	3.06	191.9	1.16	207.8	1.07
71	57.2	2.50	33.6	4.26	88.4	1.62	120.3	1.19
72	57.2	1.63	33.6	2.77	76.8	1.21	110.4	0.84
73	149.3	1.76	79.4	3.31	226.8	1.16	251.3	1.05
74	140.8	1.73	72.7	3.36	208.9	1.17	234.3	1.04
75	120.8	1.71	72.7	2.85	207.5	1.00	215.0	0.96
76	295.0	2.03	116.7	5.12	349.5	1.71	487.6	1.23
77	184.1	1.42	221.6	1.18	174.1	1.50	309.9	0.84
78	131.5	1.93	157.9	1.61	124.4	2.04	227.0	1.12
79	92.0	1.91	110.5	1.59	87.0	2.02	166.0	1.06
80	184.1	1.32	336.2	0.72	174.1	1.40	310.0	0.79
81	131.5	2.06	239.9	1.13	124.4	2.17	227.6	1.19
82	92.0	2.30	168.1	1.26	87.0	2.43	166.8	1.27
83	213.8	1.78	129.1	2.96	214.7	1.78	320.1	1.19
84	160.0	1.37	96.6	2.27	160.7	1.37	240.1	0.91
85	160.0	1.54	96.6	2.55	160.7	1.53	240.1	1.03
86	205.0	1.30	49.7	5.36	203.5	1.31	380.9	0.70
87	205.0	2.08	163.5	2.61	203.5	2.10	380.9	1.12
88	205.0	2.39	277.2	1.77	203.5	2.41	380.9	1.29
89	205.0	2.40	277.3	1.78	203.5	2.42	397.8	1.24
90	205.0	2.99	452.2	1.36	203.5	3.01	397.8	1.54
91	233.8	2.19	277.2	1.84	203.5	2.51	431.4	1.18
92	221.8	2.10	277.2	1.68	203.5	2.29	417.4	1.12

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
93	227.2	2.61	322.2	1.84	203.5	2.91	423.8	1.40
94	221.8	2.12	277.2	1.70	203.5	2.31	400.5	1.17
95	211.3	2.32	274.9	1.78	192.8	2.54	398.9	1.23
96	243.3	2.41	277.2	2.11	203.5	2.88	442.5	1.32
97	100.3	1.08	89.6	1.21	77.4	1.40	146.8	0.74
98	128.7	1.22	89.6	1.76	77.4	2.03	186.9	0.84
99	77.0	1.13	68.8	1.27	59.4	1.47	119.6	0.73
100	98.8	0.94	68.8	1.35	59.4	1.57	142.4	0.65
101	53.7	1.36	47.9	1.53	41.4	1.77	92.4	0.79
102	68.8	1.06	47.9	1.53	41.4	1.77	99.8	0.73
103	61.6	0.93	26.4	2.18	59.4	0.97	119.6	0.48
104	61.6	1.06	26.4	2.48	59.4	1.10	119.6	0.55
105	77.0	0.82	68.8	0.92	59.4	1.07	119.6	0.53
106	77.0	0.95	114.7	0.64	59.4	1.23	119.6	0.61
107	77.0	1.16	158.8	0.56	59.4	1.50	119.6	0.75
108	98.8	1.02	79.1	1.28	59.4	1.70	171.2	0.59
109	98.8	1.38	85.9	1.59	59.4	2.30	197.4	0.69
110	98.8	1.68	85.9	1.94	59.4	2.80	223.6	0.74
111	65.8	1.28	38.1	2.21	61.7	1.37	143.1	0.59
112	73.8	2.03	129.8	1.16	61.7	2.43	143.1	1.05
113	73.8	2.17	175.6	0.91	61.7	2.60	143.1	1.12
114	73.8	1.92	245.6	0.58	61.7	2.30	143.1	0.99
115	73.8	1.75	82.1	1.58	61.7	2.10	124.4	1.04

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
116	92.1	1.48	43.6	3.14	59.4	2.30	197.4	0.69
117	70.0	1.13	43.6	1.82	59.4	1.33	165.2	0.48
118	98.8	1.40	131.9	1.05	59.4	2.33	197.4	0.70
119	98.8	1.54	176.0	0.87	59.4	2.57	197.4	0.77
120	110.6	2.03	186.6	1.20	88.7	2.53	197.9	1.13
121	110.6	1.98	186.6	1.17	88.7	2.47	197.9	1.11
122	99.4	1.82	167.7	1.08	79.7	2.27	175.8	1.03
123	76.9	1.87	129.8	1.11	61.7	2.33	136.4	1.05
124	54.5	1.28	91.9	0.76	43.7	1.60	97.7	0.72
125	54.5	1.26	91.9	0.74	43.7	1.57	97.7	0.70
126	160.5	1.38	254.9	0.87	151.5	1.46	218.9	1.01
127	160.5	1.42	331.2	0.69	151.5	1.50	218.9	1.04
128	160.5	1.26	436.5	0.46	151.5	1.34	218.9	0.93
129	178.9	1.45	254.9	1.02	151.5	1.72	236.6	1.10
130	186.8	1.58	254.9	1.16	151.5	1.95	244.2	1.21
131	240.2	0.87	290.5	0.72	164.2	1.27	257.9	0.81
132	240.2	0.84	313.8	0.64	164.2	1.23	257.9	0.78
133	323.9	1.08	435.3	0.80	246.0	1.42	384.4	0.91
134	369.3	1.17	470.2	0.92	246.0	1.75	438.9	0.98
135	245.9	1.08	313.8	0.85	164.2	1.62	256.6	1.04
136	245.9	1.32	557.3	0.58	164.2	1.98	256.6	1.27
137	266.9	0.93	290.5	0.86	164.2	1.52	283.0	0.88
138	399.1	1.02	835.0	0.49	246.0	1.65	470.9	0.86

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
139	403.3	1.05	290.5	1.46	496.7	0.86	521.7	0.82
140	496.8	0.85	557.3	0.76	520.7	0.82	505.5	0.84
141	48.6	2.56	59.6	2.09	108.0	1.15	108.0	1.15
142	85.0	3.56	73.9	4.09	108.0	2.80	204.8	1.48
143	60.6	3.52	222.8	0.96	108.0	1.98	134.7	1.58
144	80.8	3.30	133.8	1.99	108.0	2.47	180.0	1.48
145	91.8	2.71	103.9	2.40	108.0	2.31	189.3	1.32
146	84.3	3.17	73.9	3.61	108.0	2.47	196.5	1.36
147	95.5	3.03	73.9	3.91	108.0	2.68	219.3	1.32
148	87.6	3.55	73.9	4.21	108.0	2.88	211.6	1.47
149	105.5	4.38	133.8	3.46	108.0	4.28	273.2	1.69
150	105.5	4.72	193.7	2.57	108.0	4.61	283.8	1.76
151	105.5	4.05	276.0	1.55	108.0	3.95	265.5	1.61
152	105.5	4.72	253.5	1.96	108.0	4.61	286.9	1.74
153	233.5	1.95	153.9	2.96	277.8	1.64	360.4	1.26
154	159.6	2.21	131.2	2.69	277.8	1.27	215.2	1.64
155	184.0	2.09	150.5	2.56	277.8	1.38	263.9	1.46
156	191.4	2.25	150.5	2.87	277.8	1.55	276.4	1.56
157	232.8	1.83	153.9	2.77	277.8	1.53	333.0	1.28
158	249.7	2.00	172.8	2.89	277.8	1.80	351.6	1.42
159	238.0	1.97	153.9	3.04	277.8	1.69	351.6	1.33
160	235.0	2.28	172.8	3.10	277.8	1.93	343.4	1.56
161	240.7	2.27	155.8	3.51	236.2	2.32	511.7	1.07

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall No.	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
162	240.7	4.12	259.6	3.82	236.2	4.20	892.4	1.11
163	378.7	1.88	136.0	5.23	368.9	1.93	471.5	1.51
164	215.0	2.46	136.0	3.89	233.3	2.27	282.4	1.87
165	256.0	1.80	263.4	1.75	249.5	1.85	386.8	1.19
166	256.0	2.20	263.4	2.14	249.5	2.26	457.5	1.23
167	156.1	2.75	273.5	1.57	183.9	2.33	302.0	1.42
168	156.1	2.75	273.5	1.57	183.9	2.33	302.8	1.42
169	152.6	2.70	155.9	2.64	183.9	2.24	298.5	1.38
170	152.6	2.55	155.9	2.49	183.9	2.11	299.3	1.30
171	152.6	2.19	83.1	4.03	183.9	1.82	298.5	1.12
172	152.6	2.78	200.7	2.11	183.9	2.30	298.5	1.42
173	152.6	2.24	155.9	2.19	183.9	1.86	249.6	1.37
174	152.6	2.74	155.9	2.68	183.9	2.28	297.6	1.41
175	175.9	1.82	155.9	2.06	183.9	1.74	320.9	1.00
176	175.9	1.90	332.0	1.01	183.9	1.82	320.9	1.04
177	175.9	2.33	155.9	2.63	183.9	2.23	328.8	1.25
178	175.9	2.38	332.0	1.26	183.9	2.28	323.3	1.29
179	175.9	2.01	155.9	2.27	183.9	1.92	321.7	1.10
180	175.9	2.18	332.0	1.16	183.9	2.09	321.7	1.19
181	175.9	2.16	155.9	2.44	183.9	2.07	310.9	1.22
182	175.9	2.12	332.0	1.12	183.9	2.03	320.9	1.16
183	175.9	2.23	180.4	2.17	183.9	2.13	320.9	1.22
184	175.9	2.25	348.6	1.14	183.9	2.15	321.7	1.23

Table D-3 Predicted shear strength for walls from literature by codes using reduction factors (continued).

Wall	CSA 2004		Euro Code 2005		NZS 2004		Proposed Model	
No.	V_{th}	V_{exp}/V_{th}	V_{th}	V_{exp}/V_{th}		V_{th}	V_{exp}/V_{th}	V_{th}
185	206.2	2.27	98.0	4.78	183.9	2.55	351.2	1.34
186	79.5	2.77	39.9	5.51	154.9	1.42	136.5	1.61
187	39.8	2.94	39.9	2.93	75.6	1.55	80.3	1.46
188	91.0	2.40	39.9	5.46	166.1	1.31	165.4	1.32
189	114.1	2.45	91.5	3.05	193.3	1.44	165.4	1.69
190	62.8	3.50	91.5	2.40	75.6	2.91	90.0	2.44
191	155.4	2.37	246.5	1.49	205.2	1.79	165.4	2.22
192	92.6	3.17	39.9	7.34	182.9	1.60	182.5	1.61
193	46.3	3.65	39.9	4.24	75.6	2.24	115.4	1.46
194	138.7	1.82	143.2	1.77	205.2	1.23	182.5	1.39
195	66.4	3.36	143.2	1.56	75.6	2.95	104.6	2.13
196	132.8	2.94	456.0	0.86	205.2	1.90	160.8	2.43