

Appendix C Experimental Verification Tables for Response-2000

Appendix C: Data used in experimental database for Response-2000

Total number of beams:	534	
Prestressed beams:	155	
Reinforced beams:	379	
Beams with axial Load:	57	
No axial load:	477	
Beams with stirrups	300	
No stirrups	234	
Shape Codes:		
R	Rectangular	270 tests
I	I beam	163 tests
T	Tee-beam	90 tests
C	Circle	9 tests
INTER	Interlocking Spiral Column	2 tests
PC	Precast beam	

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f'_c (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
Kani Reference 45	43	152	137	150	2.75	5.93	R	0.00	28.0	1	28.7	18.1	23.5	1.586	1.221
	52	152	137	150	2.73	3.93	R	0.00	25.0	1	28.6	17.2	26.6	1.663	1.075
	55	152	137	150	2.80	3.02	R	0.00	25.0	1	32.7	16.8	28.7	1.946	1.139
	83	305	270	156	2.74	3.00	R	0.00	27.0	1	65.1	36.8	55.6	1.769	1.171
	84	305	270	151	2.84	4.00	R	0.00	27.0	1	55.4	35.6	50.4	1.556	1.099
	93	305	270	155	2.66	6.46	R	0.00	30.0	1	53.6	38.6	45.3	1.389	1.183
	63	610	543	156	2.77	4.00	R	0.00	26.0	1	93.1	71.3	98.5	1.306	0.945
	74	610	543	156	2.77	3.12	R	0.00	27.0	1	107.8	69.1	106.0	1.560	1.017
	79	610	543	156	2.72	6.84	R	0.00	26.0	1	84.6	72.3	79.1	1.170	1.070
	3043	1219	1090	154	2.71	3.00	R	0.00	27.0	1	164.4	144.8	177.7	1.135	0.925
	3044	1219	1090	152	2.72	3.98	R	0.00	30.0	1	158.0	150.9	157.7	1.047	1.002
	3046	1219	1090	155	2.70	7.00	R	0.00	27.0	1	153.6	145.9	135.2	1.053	1.136
	270	305	270	152	0.50	1.98	R	0.00	17.0	0	41.4	28.1	37.5	1.473	1.104
	266	305	270	152	0.50	2.48	R	0.00	17.0	0	32.5	28.1	31.4	1.156	1.035
	268	305	270	152	0.50	2.98	R	0.00	17.0	0	27.2	27.3	27.2	0.997	1.000
	267	305	270	152	0.50	3.53	R	0.00	17.0	0	24.5	23.1	23.4	1.060	1.046
	246	305	270	152	0.50	3.47	R	0.00	28.0	0	25.4	24.0	24.6	1.057	1.031
	248	305	270	152	0.50	2.40	R	0.00	28.0	0	37.2	34.7	36.2	1.071	1.026
	251	305	270	152	0.50	1.97	R	0.00	28.0	0	41.9	36.0	40.6	1.163	1.032
	179	305	270	152	0.50	2.57	R	0.00	35.0	0	33.6	32.4	35.2	1.037	0.954
	180	305	270	152	0.50	3.52	R	0.00	35.0	0	24.9	23.6	24.7	1.056	1.009
	177	305	270	152	0.50	4.91	R	0.00	35.0	0	18.6	17.0	17.4	1.093	1.068
	143	305	270	152	0.80	3.96	R	0.00	17.0	0	30.2	28.1	30.7	1.076	0.985
	144	305	270	152	0.80	5.02	R	0.00	17.0	0	27.3	25.5	24.6	1.072	1.112
	147	305	270	152	0.80	2.36	R	0.00	17.0	0	42.3	28.1	38.1	1.506	1.110
	149	305	270	152	0.80	2.50	R	0.00	17.0	0	43.7	28.1	37.1	1.555	1.177
	150	305	270	152	0.80	2.49	R	0.00	17.0	0	46.2	28.1	38.1	1.644	1.212
	151	305	270	152	0.80	2.48	R	0.00	17.0	0	35.6	28.1	39.2	1.268	0.909
	152	305	270	152	0.80	3.02	R	0.00	17.0	0	32.5	28.1	35.4	1.156	0.918
	153	305	270	152	0.80	2.99	R	0.00	17.0	0	32.8	28.1	36.0	1.168	0.912
	102	305	270	152	0.80	2.02	R	0.00	26.0	0	48.8	34.7	46.7	1.405	1.045
	103	305	270	152	0.80	2.98	R	0.00	26.0	0	38.8	34.7	41.8	1.117	0.928
	104	305	270	152	0.80	4.03	R	0.00	26.0	0	33.6	31.8	31.3	1.058	1.075
	105	305	270	152	0.80	2.50	R	0.00	26.0	0	41.5	34.7	43.7	1.196	0.951
	106	305	270	152	0.80	2.53	R	0.00	26.0	0	44.6	34.7	47.1	1.285	0.948
	107	305	270	152	0.80	5.08	R	0.00	26.0	0	25.7	25.2	24.8	1.018	1.034
	110	305	270	152	0.80	5.05	R	0.00	26.0	0	27.9	25.3	23.9	1.104	1.168
	111	305	270	152	0.80	2.49	R	0.00	26.0	0	43.3	34.7	43.8	1.247	0.989
	112	305	270	152	0.80	2.49	R	0.00	26.0	0	39.4	34.7	44.1	1.134	0.893
	114	305	270	152	0.80	2.01	R	0.00	26.0	0	61.4	34.7	47.5	1.768	1.293
	115	305	270	152	0.80	2.50	R	0.00	26.0	0	45.3	34.7	43.7	1.305	1.037
	116	305	270	152	0.80	3.01	R	0.00	26.0	0	39.3	34.7	38.5	1.131	1.021
	117	305	270	152	0.80	3.96	R	0.00	26.0	0	32.6	32.3	30.0	1.009	1.087
Ghannoum Reference 55	N220-I	220	190	400	1.20	2.50	R	0.00	34.2	0	102.7	73.8	82.5	1.392	1.245
	N220-h	220	190	400	2.00	2.50	R	0.00	34.2	0	121.8	73.8	97.3	1.651	1.252
	N350-I	350	313	400	1.20	2.50	R	0.00	34.2	0	156.0	121.5	123.8	1.283	1.260
	N350-h	350	313	400	2.00	2.50	R	0.00	34.2	0	176.5	121.5	151.3	1.452	1.166
	N485-I	485	440	400	1.20	2.50	R	0.00	34.2	0	183.6	170.9	162.3	1.074	1.131
	N485-h	485	440	400	2.00	2.50	R	0.00	34.2	0	211.4	170.9	204.6	1.237	1.033
	N960-I	960	889	400	1.20	2.50	R	0.00	34.2	0	349.7	345.2	274.1	1.013	1.276
	N960-h	960	889	400	2.00	2.50	R	0.00	34.2	0	369.2	345.2	312.4	1.070	1.182
	H220-I	220	190	400	1.20	2.50	R	0.00	58.6	0	104.9	96.6	96.7	1.086	1.085
	H220-h	220	190	400	2.00	2.50	R	0.00	58.6	0	134.4	96.6	115.4	1.392	1.165
	H350-I	350	313	400	1.20	2.50	R	0.00	58.6	0	155.2	159.1	144.4	0.975	1.075
	H350-h	350	313	400	2.00	2.50	R	0.00	58.6	0	187.6	159.1	178.6	1.179	1.050
	H485-I	485	440	400	1.20	2.50	R	0.00	58.6	0	194.5	223.7	189.5	0.869	1.026

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f_c' (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
Reference 46	H485-h	485	440	400	2.00	2.50	R	0.00	58.6	0	195.0	223.7	240.8	0.872	0.810
	H960-I	960	889	400	1.20	2.50	R	0.00	58.6	0	299.9	451.9	317.3	0.664	0.945
	H960-h	960	889	400	2.00	2.50	R	0.00	58.6	0	320.6	451.9	359.8	0.710	0.891
Moody Viest Elstner Hognestad Reference 46	A-A1	305	270	178	2.07	3.06	R	0.00	30.3	0	60.1	43.9	53.7	1.367	1.119
	A-A2	305	270	178	2.15	3.00	R	0.00	31.0	0	66.8	44.4	58.9	1.502	1.133
	A-A3	305	270	178	2.22	2.99	R	0.00	31.0	0	75.7	44.4	63.6	1.702	1.189
	A-A4	305	270	178	2.37	2.96	R	0.00	31.5	0	71.2	44.8	66.9	1.590	1.064
	A-B1	305	270	178	1.62	3.00	R	0.00	21.2	0	56.3	36.7	50.8	1.533	1.108
	A-B2	305	270	178	1.63	2.99	R	0.00	21.6	0	60.1	37.1	49.2	1.621	1.221
	A-B3	305	270	178	1.60	2.96	R	0.00	19.2	0	55.6	35.0	49.1	1.589	1.133
	A-B4	305	270	178	1.66	2.95	R	0.00	23.7	0	55.6	38.8	55.1	1.434	1.010
	A-C1	305	270	178	0.79	2.58	R	0.00	6.3	0	20.0	20.0	24.3	1.000	0.824
	A-C2	305	270	178	0.83	2.57	R	0.00	6.1	0	24.5	19.7	25.7	1.242	0.952
	A-C3	305	270	178	0.79	2.58	R	0.00	6.9	0	25.4	21.0	28.3	1.210	0.896
	A-C4	305	270	178	0.83	2.58	R	0.00	6.8	0	25.1	20.8	29.2	1.209	0.861
	B-B1	305	270	152	1.89	3.41	R	0.00	36.7	0	57.9	41.3	53.5	1.402	1.081
	B-B2	305	270	152	1.89	3.41	R	0.00	16.7	0	35.6	27.8	40.3	1.279	0.883
	B-B3	305	270	152	1.89	3.41	R	0.00	25.8	0	52.3	34.6	47.3	1.511	1.105
	B-B4	305	270	152	1.89	3.41	R	0.00	15.4	0	40.5	26.7	39.0	1.516	1.038
	B-B5	305	270	152	1.89	3.41	R	0.00	30.7	0	52.1	37.7	50.3	1.380	1.035
	B-B6	305	270	152	1.89	3.41	R	0.00	15.8	0	34.5	27.1	39.4	1.274	0.875
	B-B7	305	270	152	1.89	3.41	R	0.00	30.9	0	51.2	37.9	50.5	1.351	1.013
	B-B8	305	270	152	1.89	3.41	R	0.00	12.2	0	31.2	23.8	35.4	1.309	0.880
	B-B9	305	270	152	1.89	3.41	R	0.00	41.2	0	53.4	43.7	55.7	1.222	0.959
	B-B10	305	270	152	1.89	3.41	R	0.00	24.0	0	49.0	33.4	46.1	1.467	1.062
	B-B11	305	270	152	1.89	3.41	R	0.00	38.1	0	60.1	42.1	54.2	1.428	1.108
	B-B12	305	270	152	1.89	3.41	R	0.00	20.2	0	47.2	30.6	43.3	1.540	1.089
	B-B13	305	270	152	1.89	3.41	R	0.00	37.8	0	55.6	41.9	54.0	1.328	1.030
	B-B14	305	270	152	1.89	3.41	R	0.00	22.6	0	43.2	32.4	45.1	1.334	0.957
	B-B15	305	270	152	1.89	3.41	R	0.00	37.4	0	51.2	41.7	53.8	1.229	0.951
	B-B16	305	270	152	1.89	3.41	R	0.00	16.3	0	37.8	27.5	39.9	1.373	0.948
Adebar Reference 56	ST1	310	278	360	1.57	5.50	R	0.00	52.5	0	127.2	121.0	127.8	1.051	0.995
	ST2	310	278	360	1.57	5.50	R	0.00	52.5	0	118.3	121.0	127.5	0.978	0.928
	ST3	310	278	290	1.95	5.50	R	0.00	49.3	0	107.9	94.0	110.5	1.148	0.976
	ST8	310	278	290	1.95	5.50	R	0.00	46.2	0	139.3	91.0	108.1	1.531	1.289
	ST9	310	278	290	1.95	5.50	R	0.00	46.2	0	70.1	42.0	89.7	1.672	0.782
	ST10	310	278	290	1.95	5.50	R	0.00	46.2	0	65.6	27.2	74.5	2.415	0.881
	ST11	310	278	290	1.95	5.50	R	0.00	46.2	0	48.5	16.0	59.9	3.038	0.810
	ST12	310	278	290	1.95	5.50	R	0.00	46.2	0	46.7	8.8	44.1	5.330	1.060
	ST13	310	278	290	1.95	5.50	R	0.00	51.5	0	65.6	16.1	61.9	4.071	1.060
	ST16	210	178	290	3.04	5.50	R	0.00	51.5	0	74.3	62.0	73.1	1.198	1.016
	ST17	410	378	290	1.43	5.50	R	0.00	51.5	0	118.9	131.0	146.3	0.908	0.813
	ST23	310	278	290	1.00	5.50	R	0.00	58.9	0	89.9	103.0	101.4	0.873	0.887
	ST25	310	278	290	1.00	5.50	R	0.00	58.9	0	81.8	61.9	89.7	1.321	0.912
	ST26	310	278	290	1.00	5.50	R	0.00	58.9	0	60.2	44.2	72.3	1.362	0.833
	ST4	310	278	290	1.95	5.50	R	0.11	49.3	0	158.2	135.0	164.8	1.172	0.960
	ST6	310	278	290	1.95	5.50	R	0.28	49.3	0	230.1	199.0	246.9	1.157	0.932
	ST7	310	278	290	1.95	5.50	R	0.28	49.3	0	275.1	199.0	246.9	1.382	1.114
	ST18	310	278	290	1.95	5.50	R	0.20	49.8	0	246.3	182.0	240.3	1.353	1.025
	ST19	310	278	290	1.95	5.50	R	0.20	49.8	0	201.4	182.0	240.3	1.106	0.838
	ST20	310	278	290	1.95	5.50	R	0.20	49.8	0	178.0	129.0	161.8	1.380	1.100
	ST21	310	278	290	1.95	5.50	R	0.20	49.8	0	190.6	144.0	193.5	1.324	0.985
Taylor Reference 41	A1	1000	930	400	1.35	3.00	R	0.00	30.9	1	358.4	345.3	336.1	1.038	1.066
	A2	1000	930	400	1.35	3.00	R	0.00	27.0	1	328.4	322.8	305.4	1.017	1.075
	B1	500	465	200	1.35	3.00	R	0.00	28.9	1	104.3	83.5	94.7	1.249	1.101
	B2	500	465	200	1.35	3.00	R	0.00	26.4	1	87.3	79.8	90.3	1.093	0.966
	B3	500	465	200	1.35	3.00	R	0.00	34.0	1	85.3	90.6	94.9	0.942	0.899
	C1	250	233	100	1.35	3.00	R	0.00	27.2	1	22.5	20.3	26.9	1.109	0.836
	C2	250	233	100	1.35	3.00	R	0.00	27.2	1	24.0	20.3	26.0	1.183	0.923
	C3	250	233	100	1.35	3.00	R	0.00	28.0	1	27.5	20.6	26.7	1.336	1.030
	C4	250	233	100	1.35	3.00	R	0.00	22.1	1	22.5	18.3	24.2	1.230	0.930
	C5	250	233	100	1.35	3.00	R	0.00	23.8	1	27.0	19.0	24.8	1.422	1.089
	C6	250	233	100	1.35	3.00	R	0.00	30.6	1	27.5	21.5	30.3	1.278	0.908
	D1	150	139	60	1.35	3.00	R	0.00	34.0	1	11.6	8.1	11.3	1.428	1.027
	D2	150	139	60	1.35	3.00	R	0.00	34.0	1	12.1	8.1	11.3	1.490	1.071
	D3	150	139	60	1.35	3.00	R	0.00	34.0	1	10.6	8.1	11.3	1.305	0.938
	D4	150	139	60	1.35	3.00	R	0.00	34.0	1	11.4	8.1	11.3	1.404	1.009
Collins Vegh Reference 57	SE100A-45	1000	920	295	1.03	2.50	R	0.00	50.0	1	200.0	318.7	241.9	0.628	0.827
	SE100A-45R	1000	920	295	1.03	2.50	R	0.00	50.0	1	235.7	318.7	241.9	0.740	0.974
	SE100B-45	1000	920	295	1.03	2.50	R	0.00	50.0	1	312.0	318.7	297.3	0.979	1.049
	SE100B-45R	1000	920	295	1.03	2.50	R	0.00	50.0	1	315.8	318.7	297.3	0.991	1.062
	SE50A-45	500	445	169	1.03	2.72	R	0.00	53.0	1	68.6	93.4	77.7	0.734	0.883
	SE50A-45R	500	445	169	1.03	2.72	R	0.00	53.0	1	80.5	93.4	77.7	0.862	1.036
	SE50B-45	500	445	169	1.16	2.72	R	0.00	53.0	1	86.5	93.4	84.7	0.926	1.021
	SE100A-83	1000	920	295	1.03	2.50	R	0.00	86.0	1	303.2	374.4	266.5	0.810	1.138
	SE100B-83	1000	920	295	1.36	2.50	R	0.00	86.0	1	364.8	374.4	341.7	0.974	1.068
	SE100B83R	1000	920	295	1.36	2.50	R	0.00	86.0	1	364.1	374.4	341.7	0.972	1.066
	SE50A-83	500	445	169	1.03	2.72	R	0.00	91.0						

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f_c' (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k	
Reference 58	SE50A-M-69	500	445	169	1.03	2.72	R	0.15	74.0	0	138.5	161.3	122.8	0.859	1.128	
	Se50B-M-69	500	445	169	1.16	2.72	R	0.15	74.0	0	151.8	161.3	148.4	0.941	1.023	
	Elzanaty	CW1	457	373	51	1.43	2.90	I	0.00	76.6	0	138.4	103.8	107.8	1.334	1.284
	Nilson	CW2	457	373	51	1.43	3.75	I	0.00	76.6	0	124.6	108.0	105.5	1.154	1.181
	Slate	CW3	457	373	51	1.43	5.00	I	0.00	76.6	0	117.5	103.4	106.0	1.136	1.108
	Elzanaty	CW4	457	373	51	1.03	3.75	I	0.00	78.6	0	127.3	109.7	108.8	1.160	1.170
	Nilson	CW5	457	373	51	3.17	3.75	I	0.00	77.9	0	124.2	108.7	105.0	1.143	1.182
	Slate	CW7	457	373	51	1.12	3.75	I	0.00	77.6	0	105.9	92.1	92.0	1.150	1.151
	Elzanaty	CW6	457	373	51	1.43	3.75	I	0.00	77.9	0	112.1	93.5	95.1	1.200	1.179
	Nilson	CW9	457	373	51	1.43	3.75	I	0.00	61.0	0	101.0	87.0	90.3	1.161	1.119
	Slate	CW8	457	373	51	1.43	3.75	I	0.00	41.4	0	89.9	80.3	83.3	1.119	1.079
Reference 58	CI1	342	290	76	1.57	7.80	I	0.00	76.6	0	77.9	70.8	86.2	1.100	0.903	
	CI3	342	290	76	1.57	4.00	I	0.00	76.6	0	121.0	103.8	121.0	1.166	1.000	
	CI2	342	290	76	1.17	5.80	I	0.00	76.6	0	111.3	92.5	104.3	1.203	1.067	
	CI4	342	290	76	3.35	5.80	I	0.00	78.6	0	108.6	93.8	104.6	1.158	1.038	
	CI5	342	290	76	1.26	5.80	I	0.00	77.9	0	119.7	93.0	107.1	1.288	1.118	
	CI7	342	290	76	1.57	5.80	I	0.00	77.6	0	81.4	73.4	83.7	1.110	0.973	
	CI6	342	290	76	1.57	5.80	I	0.00	77.9	0	91.2	74.8	89.4	1.219	1.020	
	CI9	342	290	76	1.57	5.80	I	0.00	61.0	0	88.6	71.5	86.6	1.239	1.023	
	CI8	342	290	76	1.57	5.80	I	0.00	41.4	0	86.8	69.0	81.5	1.258	1.065	
	CI10	457	373	51	1.43	3.75	I	0.55	73.1	0	173.6	132.2	143.3	1.313	1.211	
Reference 58	CI11	457	373	51	1.43	3.75	I	0.55	55.9	0	156.6	125.5	135.3	1.248	1.158	
	CI12	457	373	51	1.43	3.75	I	0.55	40.0	0	140.6	119.3	129.5	1.179	1.086	
	CI13	457	373	51	1.43	3.75	I	0.55	72.4	0	182.5	148.6	153.8	1.228	1.186	
	CI14	457	373	51	1.43	3.75	I	0.79	73.8	0	187.8	167.8	179.3	1.119	1.047	
	CI15	457	373	51	1.43	3.75	I	0.55	70.3	0	150.4	130.4	142.2	1.154	1.058	
	CI16	457	373	51	1.43	3.75	I	0.55	73.1	0	186.9	149.1	156.3	1.254	1.196	
	CI17	457	373	51	1.43	3.75	I	0.25	69.7	0	142.4	125.5	112.6	1.135	1.265	
	CI10	342	290	76	1.57	5.80	I	0.46	73.1	0	141.5	107.7	127.0	1.314	1.114	
	CI11	342	290	76	1.57	5.80	I	0.46	55.9	0	127.3	104.1	126.6	1.222	1.005	
	CI12	342	290	76	1.57	5.80	I	0.46	40.0	0	122.4	101.5	117.4	1.206	1.042	
Rabbat Reference 59	CI13	342	290	76	1.57	5.80	I	0.46	72.4	0	154.9	127.3	143.6	1.217	1.078	
	CI14	342	290	76	1.57	5.80	I	0.73	73.8	0	164.7	150.0	159.6	1.098	1.032	
Reference 60	CI15	342	290	76	1.57	5.80	I	0.46	70.3	0	121.0	106.4	127.7	1.138	0.948	
	CI16	342	290	76	3.35	5.80	I	0.46	73.1	0	163.3	128.2	162.1	1.274	1.007	
Reference 47	CI17	342	290	76	1.57	5.80	I	0.21	69.7	0	129.5	107.2	110.4	1.207	1.173	
	B1	610	567	305	2.41	3.23	R	0.24	27.1	0	378.3	306.0	357.7	1.236	1.058	
Reference 59	B2	610	567	152	4.82	3.23	I	0.48	27.1	0	333.8	229.0	342.8	1.457	0.974	
	D1	406	328	406	4.50	2.80	R	0.49	30.1	0	544.0	320.0	497.0	1.700	1.095	
Reference 60	D2	406	328	406	4.50	2.80	R	0.49	25.8	0	558.0	330.0	505.6	1.691	1.104	
	SC0	445	356	445	3.82	2.60	C	0.00	23.4	0	326.0	174.0	316.0	1.874	1.032	
Reference 47	SC1	445	356	445	3.82	2.60	C	0.10	23.4	0	324.0	241.0	302.1	1.344	1.072	
	SC2	445	356	445	3.82	2.60	C	0.30	23.4	0	478.0	417.0	462.4	1.146	1.034	
	SC3	445	356	445	3.82	2.60	C	0.45	23.4	0	578.0	538.0	590.2	1.074	0.979	
	SC4	445	356	445	3.82	2.60	C	0.30	23.4	0	456.0	380.0	476.2	1.200	0.958	
	Aregawi	EB1	457	366	457	3.78	4.20	C	0.83	39.3	0	358.4	412.0	347.4	0.870	1.032
Reference 61	WB1	457	366	457	3.78	4.20	C	1.11	39.3	0	462.0	463.0	408.4	0.998	1.131	
	EB2	457	366	457	3.78	4.20	C	0.83	27.6	0	343.0	367.0	310.3	0.935	1.105	
	WB2	457	366	457	3.78	4.20	C	1.11	27.6	0	433.0	421.0	373.0	1.029	1.161	
	B100	1000	925	300	1.01	2.92	R	0.00	36.0	1	225.0	276.5	197.5	0.814	1.139	
Reference 54	B100R	1000	925	300	1.01	2.92	R	0.00	36.0	1	249.0	276.5	197.5	0.901	1.261	
	B100D	1000	925	300	1.19	2.92	R	0.00	36.0	1	320.0	276.5	259.3	1.157	1.234	
	BH100	1000	925	300	1.01	2.92	R	0.00	98.0	0	193.0	382.9	256.5	0.504	0.752	
	BH100E	1000	925	300	1.01	2.92	R	0.00	98.0	0	217.0	382.9	256.5	0.567	0.846	
	B100L	1000	925	300	1.01	2.92	R	0.00	39.0	1	223.0	287.8	183.6	0.775	1.215	
	B100L-R	1000	925	300	1.01	2.92	R	0.00	39.0	1	235.0	287.8	183.6	0.817	1.280	
	B100B	1000	925	300	1.01	2.92	R	0.00	39.0	1	204.0	287.8	197.2	0.709	1.034	
	BRL100	1000	925	300	0.51	2.70	R	0.00	94.0	0	163.0	384.0	209.4	0.424	0.778	
Reference 61	BHD100	1000	925	300	1.19	2.92	R	0.00	99.0	0	278.0	382.9	322.5	0.726	0.862	
	BHD100R	1000	925	300	1.19	2.92	R	0.00	99.0	0	333.5	382.9	322.5	0.871	1.034	
	BHD50	500	460	300	1.11	3.00	R	0.00	99.0	0	192.7	186.3	167.5	1.034	1.150	
	BHD50R	500	460	300	1.11	3.00	R	0.00	99.0	0	204.7	186.3	167.5	1.099	1.222	
	BHD25	250	225	300	1.31	3.00	R	0.00	99.0	0	111.4	93.1	103.7	1.197	1.074	
Reference 60	BH100	1000	925	300	0.76	2.92	R	0.00	99.0	0	193.0	382.9	255.3	0.504	0.756	
	BH50	500	460	300	0.81	3.00	R	0.00	99.0	0	131.7	186.3	143.8	0.707	0.916	
	BH25	250	225	300	0.89	3.00	R	0.00	99.0	0	84.8	93.1	87.7	0.911	0.967	
	BND100	1000	925	300	1.19	2.92	R	0.00	37.0	1	258.0	281.1	248.9	0.918	1.037	
Reference 61	BND50	500	460	300	1.11	3.00	R	0.00	37.0	1	162.7	136.8	127.0	1.189	1.281	
	BND25	250	225	300	1.31	3.00	R	0.00	37.0	1	112.0	68.4	78.8	1.637	1.421	
	BN100	1000	925	300	0.76	2.92	R	0.00	37.2	1	192.0	204.0	202.1	0.941	0.950	
	BN50	500	460	300	0.81	3.00	R	0.00	37.2	1	131.7	136.8	116.8	0.963	1.128	
Reference 60	BN25	250	225	300	0.89	3.00	R	0.00	37.0	1	72.9	68.4	71.2	1.066	1.024	
	BN12	125	110	300	0.91	3.07	R	0.00	37.0	1	40.0	33.4	37.6	1.198	1.064	

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f_c' (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
Kuzmanovic Reference 62	BM100	1000	925	300	1.01	2.70	R	0.09	47.0	0	343.0	424.0	341.0	0.809	1.006
	BM100D	1000	925	300	1.20	2.70	R	0.09	47.0	0	462.0	455.0	422.0	1.015	1.095
	WM100D	1000	925	1000	0.75	3.00	R	0.04	45.0	0	800.0	1030.0	944.7	0.777	0.847
	WM100C	1000	925	1000	0.75	3.00	R	0.04	45.0	0	700.0	1030.0	773.6	0.680	0.905
Kuzmanovic Reference 62	TTC Box	650	615	960	0.71	5.00	R	0.00	45.0	1	347.0	640.0	268.2	0.542	1.294
Shioya Iguro Nojiri Akiyama Okada Reference 42,43	Shioya 7	3140	3000	1500	0.40	6.00	R	0.00	24.1	1	1576.9	3667.2	1659.1	0.430	0.950
	Shioya 6	2100	2000	1000	0.40	6.00	R	0.00	28.5	1	840.2	1772.4	774.7	0.474	1.085
	Shioya 5	1100	1000	500	0.40	6.00	R	0.00	21.9	1	239.1	388.4	237.8	0.616	1.005
	Shioya 3	660	600	300	0.40	6.00	R	0.00	21.1	0	127.9	137.3	153.8	0.932	0.831
	Shioya 2	220	200	158	0.40	6.00	R	0.00	19.7	0	28.9	23.3	32.1	1.239	0.898
	A-4 a	2200	2000	600	1.20	3.00	R	0.00	22.2	1	610.5	938.6	588.7	0.650	1.037
Kawano Watanabe Ref 63	A-4 b	2200	2000	600	1.20	3.00	R	0.00	23.1	1	560.0	957.4	595.5	0.585	0.940
	A-3 a	1050	950	350	1.22	3.00	R	0.00	20.7	0	216.0	251.1	209.5	0.860	1.031
	A-3 b	1050	950	350	1.22	3.00	R	0.00	20.6	0	237.5	250.5	208.9	0.948	1.137
	A-2 a	570	500	176	1.35	3.00	R	0.00	27.3	0	82.5	76.3	82.1	1.081	1.005
	A-2 b	570	500	176	1.35	3.00	R	0.00	27.3	0	101.5	76.3	82.1	1.330	1.236
	A-1 a	330	300	105	1.26	3.00	R	0.00	24.8	0	33.5	26.0	31.1	1.286	1.077
	A-1 b	330	300	105	1.26	3.00	R	0.00	24.8	0	29.5	26.0	31.1	1.133	0.949
	H1S	750	655	375	2.80	3.23	R	0.00	87.0	1	327.0	342.0	333.5	0.956	0.981
Yoon Cook Mitchell Reference 64	N1S	750	655	375	2.80	3.23	R	0.00	36.0	1	249.0	246.0	264.3	1.012	0.942
	M1S	750	655	375	2.80	3.23	R	0.00	67.0	1	296.0	336.0	302.3	0.881	0.979
	H1N	750	655	375	2.80	2.34	R	0.09	87.0	0	483.0	428.0	435.7	1.129	1.109
	H2S	750	655	375	2.80	2.34	R	0.14	87.0	0	598.0	489.0	605.0	1.223	0.988
	H2N	750	655	375	2.80	2.34	R	0.23	87.0	0	721.0	628.0	749.9	1.148	0.961
	M1N	750	655	375	2.80	3.23	R	0.09	67.0	0	405.0	422.0	441.5	0.960	0.917
	M2-S	750	655	375	2.80	3.23	R	0.13	67.0	0	552.0	459.0	515.8	1.203	1.070
	M2-N	750	655	375	2.80	3.23	R	0.18	67.0	0	689.0	508.0	636.3	1.356	1.083
	N1-N	750	655	375	2.80	3.23	R	0.09	36.0	0	457.0	332.0	339.5	1.377	1.346
	N2-S	750	655	375	2.80	3.23	R	0.09	36.0	0	363.0	332.0	335.9	1.093	1.081
	N2-N	750	655	375	2.80	3.23	R	0.13	36.0	0	483.0	369.0	423.8	1.309	1.140
Angelakos Reference 40	DB0530	1000	925	300	0.50	2.70	R	0.00	32.0	1	165.0	262.0	160.0	0.630	1.031
	DB130	1000	925	300	1.00	2.70	R	0.00	30.0	1	185.0	262.0	186.8	0.706	0.990
	DB230	1000	925	300	2.00	2.70	R	0.00	32.0	1	272.0	262.0	232.8	1.038	1.168
	DB120	1000	925	300	1.00	2.70	R	0.00	21.0	0	179.0	207.0	167.6	0.865	1.068
	DB140	1000	925	300	1.00	2.70	R	0.00	38.0	0	180.0	282.0	201.2	0.638	0.895
	DB165	1000	925	300	1.00	2.70	R	0.00	65.0	0	185.0	374.0	235.9	0.495	0.784
	DB180	1000	925	300	1.00	2.70	R	0.00	80.0	0	172.0	385.0	241.9	0.447	0.711
	DB120M	1000	925	300	1.00	2.70	R	0.09	21.0	0	282.0	318.0	346.0	0.887	0.815
	DB140M	1000	925	300	1.00	2.70	R	0.09	38.0	0	277.0	393.0	346.0	0.705	0.801
	DB165M	1000	925	300	1.00	2.70	R	0.09	65.0	0	452.0	485.0	415.4	0.932	1.088
	DB180M	1000	925	300	1.00	2.70	R	0.09	80.0	0	395.0	496.0	415.2	0.796	0.951
	DB0530M	1000	925	300	0.50	2.70	R	0.09	32.0	0	263.0	373.0	244.3	0.705	0.777
Haddadin Mattock Reference 65	A1	470	380	178	3.81	2.50	T	0.00	29.5	0	116.8	114.5	109.6	1.020	1.066
	A1T	470	380	178	3.81	2.50	T	0.00	27.9	0	122.4	122.4	97.4	1.000	1.257
	C1C	470	380	178	3.81	4.25	T	0.00	27.5	0	129.0	118.3	103.4	1.090	1.247
	C1	470	380	178	3.81	4.25	T	0.00	25.9	0	87.4	85.7	85.1	1.020	1.027
	C1T	470	380	178	3.81	4.25	T	0.00	29.1	0	73.4	85.3	80.8	0.860	0.908
	A2	470	380	178	3.81	2.50	T	0.19	29.2	0	194.4	158.0	160.2	1.230	1.213
	A3C	470	380	178	3.81	2.50	T	0.42	34.0	0	329.4	291.5	263.2	1.130	1.252
	A3	470	380	178	3.81	2.50	T	0.42	30.1	0	291.6	249.2	250.7	1.170	1.163
	A3T	470	380	178	3.81	2.50	T	0.42	29.2	0	244.8	240.0	248.5	1.020	0.985
	A4C	470	380	178	3.81	2.50	T	0.79	28.4	0	389.2	381.6	355.1	1.020	1.096
	A4	470	380	178	3.81	2.50	T	0.79	28.6	0	342.5	342.5	333.6	1.000	0.969
	A4T	470	380	178	3.81	2.50	T	0.79	29.6	0	345.3	341.9	357.9	1.010	0.965
	A5C	470	380	178	3.81	2.50	T	1.26	27.1	0	467.3	428.7	426.0	1.090	1.097
	A5	470	380	178	3.81	2.50	T	1.26	26.3	0	387.4	379.8	413.3	1.020	0.937
	A5T	470	380	178	3.81	2.50	T	1.26	27.6	0	405.1	382.2	423.8	1.060	0.956
	B3C	470	380	178	3.81	3.40	T	0.42	27.7	0	293.9	264.8	241.6	1.110	1.216
	B3	470	380	178	3.81	3.40	T	0.42	27.7	0	271.5	242.4	235.4	1.120	1.153
	B3T	470	380	178	3.81	3.40	T	0.42	24.0	0	243.0	231.4	224.9	1.050	1.080
	C2C	470	380	178	3.81	4.25	T	0.19	27.9	0	202.8	162.2	155.5	1.250	1.304
	C2	470	380	178	3.81	4.25	T	0.19	27.8	0	173.3	148.2	151.8	1.170	1.142
	C2T	470	380	178	3.81	4.25	T	0.19	24.0	0	183.6	146.9	155.4	1.250	1.182
	C3C	470	380	178	3.81	4.25	T	0.42	26.7	0	273.8	253.5	228.1	1.080	1.200
	C3C'	470	380	178	3.81	4.25	T	0.42	27.3	0	262.1	242.7	227.7	1.080	1.151
	C3	470	380	178	3.81	4.25	T	0.42	24.1	0	260.3	224.4	216.1	1.160	1.204
	C3T	470	380	178	3.81	4.25	T	0.42	28.6	0	240.2	237.8	228.9	1.010	1.049
	C4C	470	380	178	3.81	4.25	T	0.79	26.3	0	309.3	294.6	301.4	1.050	1.026
	C4	470	380	178	3.81	4.25	T	0.79	25.7	0	310.7	275.0	291.1	1.130	1.067
	C4T	470	380	178	3.81	4.25	T	0.79	27.9	0	289.2	283.6	289.2	1.020	1.000
	C5	470	380	178	3.81	4.25	T	1.26	30.4	0	358.4	358.4	337.3	1.000	1.062
	D3C	470	380	178	3.81	6.00	T	0.42	29.9	0	226.1	213.3	217.9	1.060	1.038
	D3	470	380	178	3.81	6.00	T	0.42	29.3	0	241.1	206.1	209.0	1.170	1.154
	D3T	470	380	178	3.81	6.00	T	0.42	26.2	0	216.8	190.2	197.3	1.140	1.099
	E2	470	380	178	3.81	2.50	T	0.19	15.2	0	169.1	141.0	134.7	1.200	1.256

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f_c' (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
Reference 66	E3C	470	380	178	3.81	2.50	T	0.42	15.4	0	233.6	253.9	207.2	0.920	1.128
	E3	470	380	178	3.81	2.50	T	0.42	13.7	0	189.2	191.1	192.1	0.990	0.985
	E3T	470	380	178	3.81	2.50	T	0.42	14.7	0	198.6	189.1	168.1	1.050	1.181
	E4	470	380	178	3.81	2.50	T	0.79	13.4	0	251.4	232.8	255.7	1.080	0.983
	E5	470	380	178	3.81	2.50	T	1.26	17.1	0	307.5	313.7	341.1	0.980	0.901
	F3C	470	380	178	3.81	2.50	T	0.42	40.6	0	351.4	297.8	281.6	1.180	1.248
	F3	470	380	178	3.81	2.50	T	0.42	44.9	0	329.9	261.8	288.6	1.260	1.143
	F3T	470	380	178	3.81	2.50	T	0.42	40.0	0	263.5	251.0	271.1	1.050	0.972
	G3C	470	380	178	3.81	2.50	T	0.42	31.8	0	411.2	345.5	299.9	1.190	1.371
	G3	470	380	178	3.81	2.50	T	0.42	26.2	0	332.7	286.8	276.8	1.160	1.202
	G3T	470	380	178	3.81	2.50	T	0.42	29.4	0	317.3	268.9	284.2	1.180	1.116
	G4C	470	380	178	3.81	2.50	T	0.63	25.2	0	378.9	367.9	359.2	1.030	1.055
	G4	470	380	178	3.81	2.50	T	0.63	26.8	0	388.8	338.0	340.2	1.150	1.143
	G4T	470	380	178	3.81	2.50	T	0.63	28.1	0	376.1	335.8	346.4	1.120	1.086
	G5C	470	380	178	3.81	2.50	T	1.05	27.9	0	463.0	449.6	450.8	1.030	1.027
	G5	470	380	178	3.81	2.50	T	1.05	26.1	0	428.0	396.3	431.4	1.080	0.992
	G5T	470	380	178	3.81	2.50	T	1.05	26.7	0	394.8	390.9	433.7	1.010	0.910
	H1C	470	380	178	3.81	2.50	T	0.42	30.5	0	324.7	275.2	255.6	1.180	1.270
	H1	470	380	178	3.81	2.50	T	0.42	29.2	0	283.6	240.4	247.5	1.180	1.146
	H1T	470	380	178	3.81	2.50	T	0.42	32.3	0	234.6	236.9	249.8	0.990	0.939
	H2C	470	380	178	5.72	2.50	T	0.42	30.1	0	324.7	303.5	259.0	1.070	1.254
	H2	470	380	178	5.72	2.50	T	0.42	28.2	0	318.7	257.0	247.8	1.240	1.286
	H2T	470	380	178	5.72	2.50	T	0.42	31.5	0	256.1	243.9	259.0	1.050	0.989
	J3C	470	380	178	3.81	2.50	T	0.42	30.9	0	298.1	266.2	256.7	1.120	1.161
	J3	470	380	178	3.81	2.50	T	0.42	30.4	0	263.1	224.8	247.6	1.170	1.062
	J3T	470	380	178	3.81	2.50	T	0.42	28.6	0	187.8	211.1	240.9	0.890	0.780
	J4T	470	380	178	3.81	2.50	T	0.79	27.3	0	321.0	248.8	327.0	1.290	0.982
	J5	470	380	178	3.81	2.50	T	1.26	32.6	0	433.6	333.5	436.3	1.300	0.994
	J5T	470	380	178	3.81	2.50	T	1.26	31.7	0	413.5	323.1	430.5	1.280	0.961
Reference 66	Pasley I-1 WE	457	371	191	1.02		T	0.00	31.7	0	67.2	64.5	69.7	1.042	0.964
	Gogoi I3-EW	457	371	191	1.00		T	0.00	30.8	0	73.3	77.0	72.0	0.952	1.019
	Darwin J1-WW	457	371	191	0.88		T	0.00	31.1	0	64.5	61.9	63.1	1.042	1.023
	McCabe J1-WE	457	371	191	0.88		T	0.00	31.1	0	66.8	64.1	63.8	1.042	1.046
	J1-EW	457	371	191	0.88		T	0.00	31.1	0	66.3	63.7	63.8	1.042	1.039
	J1-EE	457	371	191	0.88		T	0.00	31.1	0	53.4	51.3	62.8	1.042	0.850
	J2-EW	457	371	191	0.88		T	0.00	31.0	0	69.0	74.5	65.2	0.926	1.058
	I-1 EW	457	371	191	1.02		T	0.00	31.7	0	65.1	61.2	80.3	1.064	0.811
	I2-EW	457	371	191	1.00		T	0.08	30.5	0	103.4	122.0	91.0	0.847	1.136
	I3-WE	457	371	191	1.00		T	0.08	30.8	0	92.2	95.9	98.5	0.962	0.937
	J2-WE	457	371	191	0.88		T	0.08	31.0	0	96.1	93.2	99.7	1.031	0.964
	J3-EW	457	371	191	0.88		T	0.08	30.6	0	109.5	135.7	119.1	0.806	0.919
	J3-WE	457	371	191	0.88		T	0.15	30.6	0	138.8	151.3	147.1	0.917	0.944
Reference 67	Palaksas #2	457	371	191	0.69	4.14	T	0.00	32.8	0	72.3	67.7	59.0	1.068	1.225
	Darwin A00	457	371	191	0.66	3.92	T	0.00	32.7	0	64.8	71.4	61.3	0.908	1.057
	B00	457	371	191	0.49	3.88	T	0.00	32.0	0	71.3	71.4	55.9	0.999	1.275
	C00	457	371	191	0.94	3.96	T	0.00	29.4	0	59.1	67.3	66.2	0.878	0.893
	A25	457	371	191	0.66	3.97	T	0.05	32.5	0	85.8	86.9	80.4	0.987	1.067
	#1	457	371	191	0.70	4.18	T	0.36	38.0	0	139.2	126.0	180.0	1.105	0.773
	A75	457	371	191	0.66	3.92	T	0.31	32.8	0	142.2	121.3	146.2	1.172	0.973
	A50	457	371	191	0.66	3.96	T	0.24	26.3	0	115.4	101.4	111.1	1.138	1.039
	A50A	457	371	191	0.66	3.94	T	0.24	26.3	0	109.7	104.5	113.3	1.050	0.968
	A25A	457	371	191	0.67	4.00	T	0.05	32.5	0	92.4	86.7	80.9	1.066	1.142
	B25	457	371	191	0.49	3.93	T	0.10	30.8	0	78.6	86.0	82.8	0.914	0.949
	B50	457	371	191	0.50	3.96	T	0.25	30.3	0	107.0	107.1	112.6	0.999	0.950
	C25	457	371	191	0.95	3.98	T	0.10	28.3	0	83.0	82.1	87.0	1.011	0.954
	C50	457	371	191	0.94	3.94	T	0.25	29.7	0	134.2	107.1	122.4	1.253	1.096
	C75	457	371	191	0.93	3.92	T	0.33	29.4	0	133.6	117.0	151.2	1.142	0.884
Reference 68	Ozcebe ACI56	360	311	150	3.46	5.00	R	0.14	58.0	0	93.6	78.6	87.9	1.191	1.065
	Ersoy THS56	360	311	150	3.46	5.00	R	0.14	63.0	0	103.5	84.3	101.1	1.228	1.024
	Tankut TS56	360	311	150	3.46	5.00	R	0.24	61.0	0	129.2	91.8	120.5	1.407	1.072
	ACI59	360	311	150	4.43	5.00	R	0.14	82.0	0	96.5	90.9	96.5	1.062	1.000
	TH59	360	311	150	4.43	5.00	R	0.19	75.0	0	119.3	93.4	113.9	1.277	1.047
	TS59	360	311	150	4.43	5.00	R	0.28	82.0	0	125.4	107.4	147.8	1.168	0.848
	ACI36	360	311	150	2.59	3.00	R	0.14	75.0	0	105.3	87.8	97.5	1.199	1.080
	TH36	360	311	150	2.59	3.00	R	0.17	75.0	0	140.9	91.1	108.6	1.547	1.297
	TS36	360	311	150	2.59	3.00	R	0.24	75.0	0	155.9	99.5	134.6	1.567	1.158
	ACI39	360	311	150	3.08	3.00	R	0.14	73.0	0	111.8	88.2	96.5	1.268	1.159
Reference 69	TH39	360	311	150	3.08	3.00	R	0.17	73.0	0	142.9	96.4	125.1	1.482	1.142
	TS39	360	311	150	3.08	3.00	R	0.27	73.0	0	179.2	104.7	150.1	1.712	1.194
	RC 30 A1	1050	933	120	3.50	4.20	I	0.84	25.0	0	676.0	544.0	673.1	1.243	1.004
	RC 30 A2	1050	933	120	3.50	4.20	I	0.84	25.0	0	688.0	544.0	673.1	1.265	1.022
	RC 60 A1	1050	933	120	4.00	4.20	I	0.84	47.0	0	990.0	578.0	859.2	1.713	1.152
	RC 60 A2	1050	933	120	4.00	4.20	I	0.84	47.0	0	938.0	578.0	859.2	1.623	1.092
	RC 60 B1	1050	933	120	5.30	4.20	I	1.25	50.0	0	1181.0	807.0	1107.8	1.463	1.066
	RC 60 B2	1050	933	120	5.30	4.20	I	1.25	50.0	0	1239.0	807.0	1107.8	1.535	1.118
	RC 70 B1	1050	933	120	5.30	4.20	I	1.25	60.0	0	1330.0	820.0	1194.9	1.622	1.113
Reference 70	N1	635	559	356	1.53	2.50	R	0.09	120.0	0	297.0	425.0	326.8	0.699	0.909
	N2	681	559	356	3.01	2.50</									

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f_c' (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
Benzoni Reference 49	N5	744	564	356	6.59	2.50	R	1.94	120.0	0	2233.9	1886.0	2410.2	1.184	0.927
	N6	871	763	457	1.52	3.00	R	0.09	72.4	0	665.6	628.3	616.1	1.059	1.080
	N7	871	763	457	1.65	3.00	R	0.16	72.4	0	788.2	750.0	847.2	1.051	0.930
	N8	871	763	457	1.65	3.00	R	0.09	125.0	0	483.0	779.6	606.9	0.620	0.796
	N9	871	763	457	2.06	3.00	R	0.16	125.0	0	749.8	907.4	928.6	0.826	0.807
	N10	871	763	457	2.53	3.00	R	0.21	125.0	0	1172.3	1034.1	1165.2	1.134	1.006
Arbesman Conte Reference 71, 5	INTER4 - push	610	457	406	2.00	4.10	INTER	0.20	37.0	0	376.0		367.6		1.023
	INTER4 - pull	610	457	406	2.00	4.10	INTER	0.20	37.0	0	677.0		635.3		1.066
Arbesman Reference 72	CF1	610	560	152	0.40	3.00	I	0.60	38.6	0	465.9		437.5		1.065
	SA1	610	584	305	0.85	3.00	R	0.21	48.0	0	374.0	346.0	425.2	1.081	0.880
	SA2	610	564	152	0.85	3.00	I	0.43	48.0	0	324.0	235.0	366.8	1.379	0.883
	SA3	610	549	152	3.30	3.00	I	1.17	40.0	0	730.0	478.0	730.5	1.527	0.999
Rangan Kong Reference 73	S1-1	350	293	250	2.80	2.50	R	0.16	63.6	0	228.3	163.0	233.5	1.401	0.978
	S1-2	350	293	250	2.80	2.50	R	0.16	63.6	0	208.3	163.0	233.5	1.278	0.892
	S1-3	350	293	250	2.80	2.50	R	0.16	63.6	0	206.1	163.0	233.5	1.264	0.883
	S1-4	350	293	250	2.80	2.50	R	0.16	63.6	0	277.9	163.0	233.5	1.705	1.190
	S1-5	350	293	250	2.80	2.50	R	0.16	63.6	0	253.3	163.0	233.5	1.554	1.085
	S1-6	350	293	250	2.80	2.50	R	0.16	63.6	0	224.1	163.0	233.5	1.375	0.960
	S2-1	350	293	250	2.80	2.50	R	0.11	72.5	0	260.3	145.0	186.1	1.795	1.399
	S2-2	350	293	250	2.80	2.50	R	0.13	72.5	0	232.5	154.0	213.7	1.510	1.088
	S2-3	350	293	250	2.80	2.50	R	0.16	72.5	0	253.3	167.5	245.0	1.512	1.034
	S2-4	350	293	250	2.80	2.50	R	0.16	72.5	0	219.4	167.5	245.0	1.310	0.896
	S2-5	350	293	250	2.80	2.50	R	0.21	72.5	0	282.1	188.0	290.4	1.500	0.971
	S2-6	350	293	250	2.80	2.50	R	0.26	72.5	0	359.0	210.0	313.8	1.709	1.144
	S3-1	350	297	250	1.40	2.50	R	0.10	67.4	0	209.2	149.3	172.2	1.401	1.215
	S3-2	350	297	250	1.40	2.50	R	0.10	67.4	0	178.0	149.3	172.2	1.192	1.034
	S3-3	350	293	250	2.80	2.50	R	0.10	67.4	0	228.6	147.3	192.7	1.552	1.186
	S3-4	350	293	250	2.80	2.50	R	0.10	67.4	0	174.9	147.3	192.7	1.187	0.908
	S4-4	350	293	250	2.80	2.50	R	0.16	87.3	0	258.1	167.5	242.5	1.541	1.064
	S4-6	250	198	250	2.80	2.53	R	0.16	87.3	0	202.9	113.2	162.6	1.792	1.248
	S5-1	350	293	250	2.80	3.01	R	0.16	89.4	0	241.7	167.5	241.9	1.443	0.999
	S5-2	350	293	250	2.80	2.74	R	0.16	89.4	0	259.9	167.5	259.0	1.551	1.003
	S5-3	350	293	250	2.80	2.50	R	0.16	89.4	0	243.8	167.5	247.8	1.455	0.984
	S7-1	350	293	250	4.50	3.30	R	0.11	74.8	0	217.2	145.6	204.0	1.492	1.065
	S7-2	350	293	250	4.50	3.30	R	0.13	74.8	0	205.4	154.4	231.1	1.331	0.889
	S7-3	350	293	250	4.50	3.30	R	0.16	74.8	0	246.5	167.5	263.4	1.471	0.936
	S7-4	350	293	250	4.50	3.30	R	0.20	74.8	0	273.6	185.1	305.0	1.478	0.897
	S7-5	350	293	250	4.50	3.30	R	0.22	74.8	0	304.4	196.1	326.6	1.552	0.932
	S7-6	350	293	250	4.50	3.30	R	0.26	74.8	0	310.6	210.0	352.6	1.479	0.881
	S8-1	350	293	250	2.80	2.50	R	0.11	74.6	0	272.1	145.6	211.2	1.869	1.288
	S8-2	350	293	250	2.80	2.50	R	0.13	74.6	0	250.9	154.4	240.8	1.625	1.042
	S8-3	350	293	250	2.80	2.50	R	0.16	74.6	0	309.6	167.5	264.6	1.848	1.170
	S8-4	350	293	250	2.80	2.50	R	0.16	74.6	0	265.8	167.5	264.6	1.587	1.005
	S8-5	350	293	250	2.80	2.50	R	0.20	74.6	0	289.2	183.7	301.7	1.575	0.959
	S8-6	350	293	250	2.80	2.50	R	0.22	74.6	0	283.9	196.1	310.3	1.448	0.915
Rangan Reference 74	I-1	615	570	74	3.20	2.48	I	2.70	36.5	0	453.1	208.9	454.9	2.169	0.996
	I-2	615	570	74	3.20	2.48	I	1.50	30.5	0	371.0	190.0	358.7	1.953	1.034
	I-3	615	570	63	3.20	2.48	I	3.20	31.2	0	369.1	164.4	345.0	2.245	1.070
	I-4	615	570	64	3.20	2.48	I	1.80	35.7	0	416.0	178.7	364.7	2.328	1.141
	II-1	615	570	64	2.23	2.48	I	1.90	45.0	0	460.9	266.7	436.0	1.728	1.057
	II-2	615	570	63	2.23	2.48	I	3.20	31.5	0	378.8	225.2	367.2	1.682	1.032
	II-3	615	570	73	2.23	2.48	I	1.70	44.6	0	489.2	298.8	458.5	1.637	1.067
	II-4	615	570	74	2.23	2.48	I	2.70	43.0	0	479.4	297.7	533.1	1.610	0.899
	III-1	615	570	66	1.80	2.50	I	1.84	40.0	0	368.0	296.2	414.1	1.242	0.889
	III-2	615	570	66	1.80	2.50	I	3.00	37.0	0	390.5	274.0	404.2	1.425	0.966
	III-3	615	570	77	1.80	2.50	I	1.60	39.0	0	396.5	336.9	440.9	1.177	0.899
	III-4	615	570	73	1.80	2.50	I	2.80	37.0	0	453.0	303.1	450.6	1.495	1.005
	IV-1	615	570	62	0.89	2.50	I	3.20	37.1	0	375.0	246.1	407.0	1.524	0.921
	IV-2	615	570	64	0.89	2.50	I	1.90	33.0	0	337.8	226.0	365.5	1.495	0.924
	IV-3	615	570	72	0.89	2.50	I	2.80	36.0	0	464.8	277.3	373.5	1.676	1.244
	IV-4	615	570	72	0.89	2.50	I	1.70	28.7	0	390.6	221.1	359.8	1.767	1.086
MacGregor Reference 48	AD.14.37A	305	258	152	6.00	3.55	R	0.00	18.6	0	29.4		40.5		0.725
	AD.14.37B	305	258	152	6.00	3.55	R	0.00	18.6	0	42.3		40.5		1.044
	AW.14.39	305	215	152	6.00	4.22	R	0.26	37.7	0	62.3		71.8		0.868
	AW.14.76	305	215	152	6.00	4.25	R	0.26	19.1	0	49.4		54.6		0.905
	AW.24.48	305	215	152	6.00	4.25	R	0.26	33.8	0	64.1		61.6		1.041
	AW.24.68	305	217	151	5.95	4.22	R	0.26	17.3	0	53.8		53.5		1.006
	B.14.34	305	262	79	3.10	3.50	I	0.00	21.3	0	39.6		36.9		1.072
	B.14.41	305	254	76	3.00	3.60	I	0.00	20.7	0	42.3		42.7		0.990
	BD.14.18	305	257	72	2.83	3.56	I	0.00	44.1	0	49.0		46.3		1.058
	BE.14.19	305	259	74	2.90	3.53	I	0.00	46.3	0	49.4		46.7		1.057
	BD.14.23	305	257	76	3.00	3.56	I	0.00	29.0	0	24.9		28.0		0.889
	BD.14.26	305	264	76	3.00	3.46	I	0.00	21.8	0	28.5		31.6		0.901
	BD.14.27	305	257	76	3.00	3.56	I	0.00	26.6	0	42.3		36.5		1.159
	BD.14.28	305	257	76	3.00	3.56	I	0.00	29.2	0	44.1		39.2		1.125

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f _{c'} (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
	BD.14.34	305	260	76	3.00	3.52	I	0.00	18.8	0	38.7	30.7		1.261	
	BD.14.35	305	257	75	2.95	3.56	I	0.00	18.0	0	28.9	31.2		0.929	
	BD.14.42	305	257	74	2.90	3.56	I	0.00	20.6	0	44.1	38.7		1.138	
	BD.24.32	305	257	76	3.00	3.56	I	0.00	21.3	0	39.2	32.5		1.205	
	BV.14.30	305	257	75	2.95	3.56	I	0.28	29.0	0	54.3	44.1		1.232	
	BV.14.32A	305	257	72	2.85	3.55	I	0.32	29.0	0	65.0	45.4		1.304	
	BV.14.32B	305	257	72	2.85	3.55	I	0.32	29.0	0	65.0	45.4		1.431	
	BV.14.34	305	258	76	3.00	3.55	I	0.30	26.2	0	56.5	47.2		1.198	
	BV.14.35	305	259	74	2.92	3.53	I	0.40	23.0	0	54.3	48.1		1.130	
	BV.14.42	305	258	73	2.88	3.55	I	0.35	21.3	0	56.1	43.6		1.286	
	BW.14.20	305	266	75	2.95	3.44	I	0.10	19.6	0	35.6	28.9		1.231	
	BW.14.22	305	257	76	3.00	3.56	I	0.28	38.1	0	61.0	50.7		1.202	
	BW.14.23	305	253	77	3.02	3.61	I	0.15	37.0	0	62.3	50.7		1.228	
	BW.14.26	305	257	73	2.86	3.56	I	0.22	28.8	0	49.4	43.2		1.144	
	BW.14.31	305	257	76	3.00	3.56	I	0.29	22.0	0	56.5	47.6		1.187	
	BW.14.32	305	259	73	2.86	3.53	I	0.14	19.6	0	45.4	36.5		1.244	
	BW.14.38	305	257	75	2.95	3.56	I	0.19	19.9	0	57.4	43.6		1.316	
	BW.14.39	305	257	74	2.90	3.56	I	0.40	21.5	0	57.9	51.2		1.130	
	BW.14.41	305	258	75	2.95	3.55	I	0.28	21.0	0	52.5	46.3		1.135	
	BW.14.42	305	258	75	2.96	3.55	I	0.28	19.8	0	53.0	46.3		1.144	
	BW.14.43	305	257	75	2.95	3.56	I	0.40	20.1	0	54.3	52.5		1.034	
	BW.14.45	305	257	76	3.00	3.55	I	0.26	21.4	0	53.4	46.3		1.154	
	BW.14.58	305	253	74	2.91	3.61	I	0.20	23.4	0	67.2	52.5		1.280	
	BW.14.60	305	253	73	2.89	3.61	I	0.20	18.8	0	63.6	50.7		1.254	
	BW.15.34	305	258	76	3.00	4.73	I	0.19	25.0	0	42.3	37.8		1.118	
	BW.15.37	305	257	76	3.00	4.74	I	0.28	22.8	0	42.3	40.9		1.033	
	BW.16.38	305	255	76	3.00	5.37	I	0.19	26.2	0	36.9	35.6		1.038	
	BW.18.15	305	258	76	3.00	6.90	I	0.14	50.1	0	34.3	33.9		1.009	
	BW.18.27	305	258	76	3.00	6.90	I	0.39	32.1	0	32.9	33.3		0.988	
	BW.19.28	305	258	80	3.15	7.68	I	0.37	30.5	0	29.4	29.7		0.988	
	BW.28.26	305	259	77	3.05	6.86	I	0.32	22.1	0	26.3	23.7		1.107	
	BW.28.28	305	259	75	2.95	6.88	I	0.35	23.2	0	25.8	23.3		1.106	
	C.13.23N	305	264	45	1.79	2.60	I	0.00	23.9	0	23.1	29.4		0.788	
	C.13.23S	305	264	45	1.79	2.60	I	0.00	23.9	0	30.3	29.4		1.030	
	CD.13.24N	305	268	45	1.77	2.56	I	0.00	26.6	0	32.9	29.8		1.104	
	CD.13.24S	305	268	45	1.77	2.56	I	0.00	26.6	0	32.0	29.8		1.075	
	CD.13.25	305	266	46	1.82	2.58	I	0.00	20.8	0	36.0	29.4		1.227	
	CD.14.34	305	260	44	1.75	3.52	I	0.00	18.3	0	24.0	26.3		0.915	
	CW.13.28	305	255	44	1.75	2.79	I	0.95	26.6	0	77.0	62.3		1.236	
	CW.13.38	305	255	46	1.80	2.79	I	1.09	22.7	0	72.5	63.6		1.140	
	CW.14.14	305	255	44	1.72	3.58	I	0.35	46.4	0	62.7	55.2		1.137	
	CW.14.15	305	267	43	1.70	3.43	I	0.98	19.0	0	34.7	37.1		0.936	
	CW.14.16	305	266	44	1.75	3.44	I	0.26	21.9	0	34.3	27.1		1.262	
	CW.14.17	305	266	45	1.76	3.43	I	0.16	19.8	0	33.8	24.5		1.382	
	CW.14.18	305	267	43	1.70	3.43	I	1.35	20.3	0	35.6	36.9		0.964	
	CW.14.19	305	266	45	1.78	3.44	I	0.32	19.8	0	35.6	32.0		1.111	
	CW.14.20	305	266	43	1.70	3.43	I	0.34	20.3	0	35.6	31.2		1.143	
	CW.14.21	305	267	43	1.70	3.42	I	0.24	17.8	0	33.8	25.8		1.310	
	CW.14.22	305	258	43	1.71	3.55	I	0.67	32.1	0	60.1	49.8		1.205	
	CW.14.23	305	266	44	1.75	3.44	I	0.24	19.3	0	33.8	25.8		1.310	
	CW.14.24	305	266	44	1.75	3.44	I	0.37	20.0	0	34.3	31.2		1.100	
	CW.14.25	305	258	46	1.80	3.55	I	0.92	37.4	0	61.4	62.3		0.986	
	CW.14.26	305	267	43	1.70	3.43	I	0.49	16.7	0	34.7	32.5		1.068	
	CW.14.35	305	256	44	1.75	3.58	I	0.80	22.5	0	55.2	53.0		1.042	
	CW.14.36	305	257	47	1.86	3.56	I	0.84	22.6	0	57.9	54.7		1.057	
	CW.14.37	305	257	43	1.70	3.56	I	0.49	30.8	0	55.6	42.7		1.302	
	CW.14.39	305	257	44	1.75	3.56	I	0.33	23.2	0	47.2	38.7		1.218	
	CW.14.40	305	258	44	1.75	3.55	I	1.19	21.0	0	56.5	57.7		0.979	
	CW.14.42	305	257	43	1.70	3.56	I	0.68	21.9	0	56.1	49.0		1.145	
	CW.14.45	305	257	42	1.65	3.55	I	1.01	21.8	0	50.3	51.2		0.983	
	CW.14.47	305	258	43	1.70	3.55	I	0.67	18.2	0	51.6	43.2		1.196	
	CW.14.50	305	258	44	1.75	3.55	I	0.89	16.9	0	52.1	47.2		1.104	
	CW.14.51	305	252	46	1.80	3.63	I	0.45	24.2	0	56.5	42.7		1.323	
	CW.14.54	305	253	45	1.78	3.61	I	0.46	24.1	0	58.7	44.9		1.307	
	CW.18.15	305	257	44	1.73	6.93	I	0.35	46.3	0	46.7	33.5		1.395	
	CW.28.26	305	256	45	1.78	6.94	I	0.68	26.9	0	23.6	23.5		1.004	
	CW.28.28	305	259	47	1.84	6.88	I	0.68	21.9	0	23.6	23.3		1.010	
	FW.14.06	305	312	44	1.75	2.93	I	1.04	22.9	0	81.0	71.6		1.130	
	FW.14.07	305	312	47	1.85	2.93	I	1.06	27.8	0	87.9	85.0		1.034	
Shahawy	A0-00-R N	1118	995	152	1.00	2.17	I	0.96	58.5	0	1392.9	1023.5	1045.8	1.361	1.332
Batchelor	A0-00-R S	1118	995	152	1.00	2.17	I	0.96	58.5	0	1228.2	1023.5	1045.8	1.200	1.174
Ref 75, 76	A1-00-R/2 N	1118	996	152	1.00	2.60	I	0.42	49.0	0	738.7	636.4	774.3	1.161	0.954
	A1-00-R/2 S	1118	997	152	1.00	3.16	I	0.38	49.0	0	769.9	574.1	787.7	1.341	0.977
	A1-00-R N	1118	996	152	1.00	2.60	I	0.83	49.1	0	934.5	898.9	961.2	1.040	0.972
	A1-00-R S	1118	997	152	1.00	3.16	I	0.75	49.1	0	925.6	729.8	905.6	1.268	1.022
	A1-00-3R/2 N	1118	996	152	1.00	2.60	I	1.25	52.4	0	921.2	890.0	1059.1	1.035	0.870
	A1-00-3R/2 S	1118	997	152	1.00	3.16	I	1.13	52.4	0	1023.5	867.8	913.8	1.179	1.120
	A2-00-2R N	1118	996	152	1.00	2.60	I	1.66	48.5	0	1143.7	1174.8	1101.0	0.973	1.039
	A2-00-3R N	1118	996	152	1.00	2.60	I	2.50	50.3	0	1143.7	1210.4	1101.0	0.945	1.039
	A2-00-3R S	1118	995	152	1.00	2.17	I	2.86	50.3	0	1388.4	1201.5	1272.7	1.156	1.091
	A4-00-0R(1) N	1118	998	152	1.00	2.29	I	0.00	52.4	0	417.9	449.5	364.9	0.930	1.145
	A4-00-0R(1) S	1118	998	152	1.00	2.29	I	0.00	52.4	0	434.3	449.5	364.9	0.966	1.190
	B0-00-R N	1118	1004	152	1.10	2.58	I	0.83	51.4	0	979.0	863.3	912.3	1.134	1.073
	B0-00-R S	1118	1003	152	1.10	3.14	I	0.38	51.4	0	916.7	716.5	922.4	1.280	0.994
	B0-00-2R N	1118	1004	152	1.10	2.58	I	1.66	49.9	0	992.4	1179.3	1094.2	0.842	0.907

Researcher	Beam Name	Depth (mm)	d (mm)	Width (mm)	Long. p (%)	a/d ratio	Shape	Trans. p (%)	f _{c'} (MPa)	Used in Fig 10-1	Test V (kN)	ACI V (kN)	R2k V (kN)	Exp/ Pred-ACI	Exp/ Pred-R2k
	B0-00-2R S	1118	1003	152	1.10	3.14	I	1.25	49.9	0	961.2	987.9	900.0	0.973	1.068
	B0-00-3R N	1118	1004	152	1.10	2.58	I	2.50	53.0	0	1028.0	1241.6	1121.4	0.828	0.917
	B0-00-3R S	1118	1003	152	1.10	3.14	I	2.25	53.0	0	1050.2	1210.4	922.4	0.868	1.138
	C0-00-R N	1118	1010	152	1.00	3.57	I	0.31	51.6	0	783.2	654.2	766.8	1.197	1.021
	C0-00-R S	1118	1010	152	1.00	3.32	I	0.63	51.6	0	801.0	712.0	824.9	1.125	0.971
	C1-00-R N	1118	1010	152	1.00	3.57	I	0.31	51.2	0	787.7	654.2	766.8	1.204	1.027
	C1-00-R S	1118	1010	152	1.00	3.32	I	0.63	51.2	0	872.2	712.0	824.9	1.225	1.057
	C1-00-3R/2 N	1118	1010	152	1.00	3.32	I	0.47	49.8	0	854.4	876.7	824.9	0.975	1.036
	C1-00-3R/2 S	1118	1010	152	1.00	3.17	I	0.73	49.8	0	898.9	881.1	864.1	1.020	1.040
Count		534	534	534	534	521		534	534	534	534	448	534	448	534
Average		516	452	198	2.15	3.44		0.32	42	0	243	258	236	1.20	1.05
Minimum		125	110	42	0.40	1.97		0.00	6	0	11	8	11	0.42	0.71
Maximum		3140	3000	1500	6.59	7.80		3.20	125	1	2234	3667	2410	5.33	1.43
Coefficient of Variation															
32.1 12.0															