

**Table A-1. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 3000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	39.69	0.0055	210.51	0.0100	368.63	0.0145	514.04	0.0190	646.75
0.0011	43.62	0.0056	214.16	0.0101	372.00	0.0146	517.13	0.0191	649.55
0.0012	47.55	0.0057	217.81	0.0102	375.36	0.0147	520.21	0.0192	652.35
0.0013	51.47	0.0058	221.45	0.0103	378.72	0.0148	523.28	0.0193	655.14
0.0014	55.39	0.0059	225.08	0.0104	382.07	0.0149	526.35	0.0194	657.93
0.0015	59.29	0.0060	228.71	0.0105	385.41	0.0150	529.41	0.0195	660.71
0.0016	63.20	0.0061	232.33	0.0106	388.75	0.0151	532.47	0.0196	663.48
0.0017	67.09	0.0062	235.94	0.0107	392.08	0.0152	535.52	0.0197	666.25
0.0018	70.98	0.0063	239.55	0.0108	395.41	0.0153	538.56	0.0198	669.01
0.0019	74.87	0.0064	243.15	0.0109	398.73	0.0154	541.60	0.0199	671.76
0.0020	78.75	0.0065	246.75	0.0110	402.04	0.0155	544.63	0.0200	674.51
0.0021	82.62	0.0066	250.33	0.0111	405.35	0.0156	547.65	0.0201	677.25
0.0022	86.48	0.0067	253.92	0.0112	408.65	0.0157	550.67	0.0202	679.99
0.0023	90.34	0.0068	257.49	0.0113	411.94	0.0158	553.68	0.0203	682.72
0.0024	94.19	0.0069	261.06	0.0114	415.23	0.0159	556.69	0.0204	685.44
0.0025	98.04	0.0070	264.63	0.0115	418.51	0.0160	559.69	0.0205	688.16
0.0026	101.88	0.0071	268.19	0.0116	421.79	0.0161	562.68	0.0206	690.87
0.0027	105.71	0.0072	271.74	0.0117	425.05	0.0162	565.67	0.0207	693.57
0.0028	109.54	0.0073	275.28	0.0118	428.32	0.0163	568.65	0.0208	696.27
0.0029	113.36	0.0074	278.82	0.0119	431.57	0.0164	571.62	0.0209	698.96
0.0030	117.18	0.0075	282.35	0.0120	434.82	0.0165	574.59	0.0210	701.65
0.0031	120.99	0.0076	285.88	0.0121	438.07	0.0166	577.55	0.0211	704.33
0.0032	124.79	0.0077	289.40	0.0122	441.31	0.0167	580.51	0.0212	707.00
0.0033	128.58	0.0078	292.91	0.0123	444.54	0.0168	583.45	0.0213	709.67
0.0034	132.37	0.0079	296.42	0.0124	447.76	0.0169	586.40	0.0214	712.33
0.0035	136.16	0.0080	299.92	0.0125	450.98	0.0170	589.33	0.0215	714.98
0.0036	139.93	0.0081	303.42	0.0126	454.19	0.0171	592.26	0.0216	717.63
0.0037	143.71	0.0082	306.91	0.0127	457.40	0.0172	595.19	0.0217	720.27
0.0038	147.47	0.0083	310.39	0.0128	460.60	0.0173	598.11	0.0218	722.91
0.0039	151.23	0.0084	313.86	0.0129	463.79	0.0174	601.02	0.0219	725.53
0.0040	154.98	0.0085	317.33	0.0130	466.98	0.0175	603.92	0.0220	728.16
0.0041	158.73	0.0086	320.80	0.0131	470.16	0.0176	606.82	0.0221	730.77
0.0042	162.47	0.0087	324.25	0.0132	473.34	0.0177	609.71	0.0222	733.38
0.0043	166.20	0.0088	327.71	0.0133	476.51	0.0178	612.60	0.0223	735.99
0.0044	169.93	0.0089	331.15	0.0134	479.67	0.0179	615.48	0.0224	738.59
0.0045	173.65	0.0090	334.59	0.0135	482.82	0.0180	618.35	0.0225	741.18
0.0046	177.36	0.0091	338.02	0.0136	485.97	0.0181	621.22	0.0226	743.76
0.0047	181.07	0.0092	341.45	0.0137	489.12	0.0182	624.08	0.0227	746.34
0.0048	184.77	0.0093	344.87	0.0138	492.25	0.0183	626.94	0.0228	748.91
0.0049	188.47	0.0094	348.28	0.0139	495.39	0.0184	629.79	0.0229	751.48
0.0050	192.16	0.0095	351.69	0.0140	498.51	0.0185	632.63	0.0230	754.04
0.0051	195.84	0.0096	355.09	0.0141	501.63	0.0186	635.46	0.0231	756.59
0.0052	199.52	0.0097	358.48	0.0142	504.74	0.0187	638.29	0.0232	759.14
0.0053	203.19	0.0098	361.87	0.0143	507.85	0.0188	641.12	0.0233	761.68
0.0054	206.85	0.0099	365.25	0.0144	510.95	0.0189	643.93	0.0234	764.22

**Table A-1. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 3000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	766.75	0.0280	874.04	0.0325	968.63	0.0370	1050.51	0.0415	1119.69
0.0236	769.27	0.0281	876.28	0.0326	970.59	0.0371	1052.19	0.0416	1121.08
0.0237	771.78	0.0282	878.51	0.0327	972.54	0.0372	1053.85	0.0417	1122.47
0.0238	774.29	0.0283	880.74	0.0328	974.48	0.0373	1055.52	0.0418	1123.85
0.0239	776.80	0.0284	882.96	0.0329	976.42	0.0374	1057.17	0.0419	1125.22
0.0240	779.29	0.0285	885.18	0.0330	978.35	0.0375	1058.82	0.0420	1126.59
0.0241	781.79	0.0286	887.39	0.0331	980.28	0.0376	1060.47	0.0421	1127.95
0.0242	784.27	0.0287	889.59	0.0332	982.20	0.0377	1062.11	0.0422	1129.31
0.0243	786.75	0.0288	891.78	0.0333	984.11	0.0378	1063.74	0.0423	1130.65
0.0244	789.22	0.0289	893.97	0.0334	986.02	0.0379	1065.36	0.0424	1132.00
0.0245	791.69	0.0290	896.16	0.0335	987.92	0.0380	1066.98	0.0425	1133.33
0.0246	794.15	0.0291	898.33	0.0336	989.82	0.0381	1068.59	0.0426	1134.66
0.0247	796.60	0.0292	900.51	0.0337	991.71	0.0382	1070.20	0.0427	1135.99
0.0248	799.05	0.0293	902.67	0.0338	993.59	0.0383	1071.80	0.0428	1137.31
0.0249	801.49	0.0294	904.83	0.0339	995.46	0.0384	1073.39	0.0429	1138.62
0.0250	803.92	0.0295	906.98	0.0340	997.33	0.0385	1074.98	0.0430	1139.92
0.0251	806.35	0.0296	909.13	0.0341	999.20	0.0386	1076.56	0.0431	1141.22
0.0252	808.77	0.0297	911.27	0.0342	1001.05	0.0387	1078.14	0.0432	1142.51
0.0253	811.19	0.0298	913.40	0.0343	1002.91	0.0388	1079.71	0.0433	1143.80
0.0254	813.60	0.0299	915.53	0.0344	1004.75	0.0389	1081.27	0.0434	1145.08
0.0255	816.00	0.0300	917.65	0.0345	1006.59	0.0390	1082.82	0.0435	1146.35
0.0256	818.40	0.0301	919.76	0.0346	1008.42	0.0391	1084.37	0.0436	1147.62
0.0257	820.79	0.0302	921.87	0.0347	1010.25	0.0392	1085.92	0.0437	1148.88
0.0258	823.17	0.0303	923.97	0.0348	1012.07	0.0393	1087.45	0.0438	1150.14
0.0259	825.55	0.0304	926.07	0.0349	1013.88	0.0394	1088.99	0.0439	1151.39
0.0260	827.92	0.0305	928.16	0.0350	1015.69	0.0395	1090.51	0.0440	1152.63
0.0261	830.29	0.0306	930.24	0.0351	1017.49	0.0396	1092.03	0.0441	1153.86
0.0262	832.65	0.0307	932.32	0.0352	1019.28	0.0397	1093.54	0.0442	1155.09
0.0263	835.00	0.0308	934.39	0.0353	1021.07	0.0398	1095.05	0.0443	1156.32
0.0264	837.35	0.0309	936.45	0.0354	1022.85	0.0399	1096.55	0.0444	1157.53
0.0265	839.69	0.0310	938.51	0.0355	1024.63	0.0400	1098.04	0.0445	1158.75
0.0266	842.02	0.0311	940.56	0.0356	1026.40	0.0401	1099.53	0.0446	1159.95
0.0267	844.35	0.0312	942.61	0.0357	1028.16	0.0402	1101.01	0.0447	1161.15
0.0268	846.67	0.0313	944.65	0.0358	1029.92	0.0403	1102.48	0.0448	1162.34
0.0269	848.99	0.0314	946.68	0.0359	1031.67	0.0404	1103.95	0.0449	1163.53
0.0270	851.29	0.0315	948.71	0.0360	1033.41	0.0405	1105.41	0.0450	1164.71
0.0271	853.60	0.0316	950.73	0.0361	1035.15	0.0406	1106.87	0.0451	1165.88
0.0272	855.89	0.0317	952.74	0.0362	1036.88	0.0407	1108.32	0.0452	1167.05
0.0273	858.18	0.0318	954.75	0.0363	1038.61	0.0408	1109.76	0.0453	1168.21
0.0274	860.47	0.0319	956.75	0.0364	1040.33	0.0409	1111.20	0.0454	1169.36
0.0275	862.75	0.0320	958.75	0.0365	1042.04	0.0410	1112.63	0.0455	1170.51
0.0276	865.02	0.0321	960.73	0.0366	1043.75	0.0411	1114.05	0.0456	1171.65
0.0277	867.28	0.0322	962.72	0.0367	1045.45	0.0412	1115.47	0.0457	1172.79
0.0278	869.54	0.0323	964.69	0.0368	1047.14	0.0413	1116.88	0.0458	1173.92
0.0279	871.79	0.0324	966.66	0.0369	1048.83	0.0414	1118.29	0.0459	1175.04

**Table A-2. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 4000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	39.76	0.0055	212.88	0.0100	376.47	0.0145	530.53	0.0190	675.06
0.0011	43.72	0.0056	216.62	0.0101	380.00	0.0146	533.84	0.0191	678.16
0.0012	47.66	0.0057	220.36	0.0102	383.52	0.0147	537.16	0.0192	681.26
0.0013	51.60	0.0058	224.08	0.0103	387.04	0.0148	540.46	0.0193	684.36
0.0014	55.54	0.0059	227.81	0.0104	390.55	0.0149	543.76	0.0194	687.44
0.0015	59.47	0.0060	231.53	0.0105	394.06	0.0150	547.06	0.0195	690.53
0.0016	63.40	0.0061	235.24	0.0106	397.56	0.0151	550.35	0.0196	693.61
0.0017	67.32	0.0062	238.96	0.0107	401.06	0.0152	553.64	0.0197	696.68
0.0018	71.24	0.0063	242.66	0.0108	404.56	0.0153	556.92	0.0198	699.76
0.0019	75.15	0.0064	246.36	0.0109	408.04	0.0154	560.20	0.0199	702.82
0.0020	79.06	0.0065	250.06	0.0110	411.53	0.0155	563.47	0.0200	705.88
0.0021	82.96	0.0066	253.75	0.0111	415.01	0.0156	566.74	0.0201	708.94
0.0022	86.86	0.0067	257.44	0.0112	418.48	0.0157	570.00	0.0202	711.99
0.0023	90.76	0.0068	261.12	0.0113	421.96	0.0158	573.26	0.0203	715.04
0.0024	94.64	0.0069	264.80	0.0114	425.42	0.0159	576.52	0.0204	718.08
0.0025	98.53	0.0070	268.47	0.0115	428.88	0.0160	579.76	0.0205	721.12
0.0026	102.41	0.0071	272.14	0.0116	432.34	0.0161	583.01	0.0206	724.15
0.0027	106.28	0.0072	275.80	0.0117	435.79	0.0162	586.25	0.0207	727.18
0.0028	110.16	0.0073	279.46	0.0118	439.24	0.0163	589.48	0.0208	730.20
0.0029	114.02	0.0074	283.12	0.0119	442.68	0.0164	592.72	0.0209	733.22
0.0030	117.88	0.0075	286.76	0.0120	446.12	0.0165	595.94	0.0210	736.24
0.0031	121.74	0.0076	290.41	0.0121	449.55	0.0166	599.16	0.0211	739.24
0.0032	125.59	0.0077	294.05	0.0122	452.98	0.0167	602.38	0.0212	742.25
0.0033	129.44	0.0078	297.68	0.0123	456.40	0.0168	605.59	0.0213	745.25
0.0034	133.28	0.0079	301.32	0.0124	459.82	0.0169	608.80	0.0214	748.24
0.0035	137.12	0.0080	304.94	0.0125	463.24	0.0170	612.00	0.0215	751.24
0.0036	140.95	0.0081	308.56	0.0126	466.64	0.0171	615.20	0.0216	754.22
0.0037	144.78	0.0082	312.18	0.0127	470.05	0.0172	618.39	0.0217	757.20
0.0038	148.60	0.0083	315.79	0.0128	473.45	0.0173	621.58	0.0218	760.18
0.0039	152.42	0.0084	319.40	0.0129	476.84	0.0174	624.76	0.0219	763.15
0.0040	156.24	0.0085	323.00	0.0130	480.24	0.0175	627.94	0.0220	766.12
0.0041	160.04	0.0086	326.60	0.0131	483.62	0.0176	631.12	0.0221	769.08
0.0042	163.85	0.0087	330.19	0.0132	487.00	0.0177	634.28	0.0222	772.04
0.0043	167.65	0.0088	333.78	0.0133	490.38	0.0178	637.45	0.0223	774.99
0.0044	171.44	0.0089	337.36	0.0134	493.75	0.0179	640.61	0.0224	777.94
0.0045	175.24	0.0090	340.94	0.0135	497.12	0.0180	643.76	0.0225	780.88
0.0046	179.02	0.0091	344.52	0.0136	500.48	0.0181	646.92	0.0226	783.82
0.0047	182.80	0.0092	348.08	0.0137	503.84	0.0182	650.06	0.0227	786.76
0.0048	186.58	0.0093	351.65	0.0138	507.19	0.0183	653.20	0.0228	789.68
0.0049	190.35	0.0094	355.21	0.0139	510.54	0.0184	656.34	0.0229	792.61
0.0050	194.12	0.0095	358.76	0.0140	513.88	0.0185	659.47	0.0230	795.53
0.0051	197.88	0.0096	362.32	0.0141	517.22	0.0186	662.60	0.0231	798.44
0.0052	201.64	0.0097	365.86	0.0142	520.56	0.0187	665.72	0.0232	801.36
0.0053	205.39	0.0098	369.40	0.0143	523.88	0.0188	668.84	0.0233	804.26
0.0054	209.14	0.0099	372.94	0.0144	527.21	0.0189	671.95	0.0234	807.16

**Table A-2. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 4000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	810.06	0.0280	935.53	0.0325	1051.47	0.0370	1157.88	0.0415	1254.76
0.0236	812.95	0.0281	938.21	0.0326	1053.94	0.0371	1160.14	0.0416	1256.81
0.0237	815.84	0.0282	940.88	0.0327	1056.40	0.0372	1162.39	0.0417	1258.85
0.0238	818.72	0.0283	943.56	0.0328	1058.86	0.0373	1164.64	0.0418	1260.88
0.0239	821.60	0.0284	946.22	0.0329	1061.32	0.0374	1166.88	0.0419	1262.92
0.0240	824.47	0.0285	948.88	0.0330	1063.76	0.0375	1169.12	0.0420	1264.94
0.0241	827.34	0.0286	951.54	0.0331	1066.21	0.0376	1171.35	0.0421	1266.96
0.0242	830.20	0.0287	954.19	0.0332	1068.65	0.0377	1173.58	0.0422	1268.98
0.0243	833.06	0.0288	956.84	0.0333	1071.08	0.0378	1175.80	0.0423	1270.99
0.0244	835.92	0.0289	959.48	0.0334	1073.52	0.0379	1178.02	0.0424	1273.00
0.0245	838.76	0.0290	962.12	0.0335	1075.94	0.0380	1180.24	0.0425	1275.00
0.0246	841.61	0.0291	964.75	0.0336	1078.36	0.0381	1182.44	0.0426	1277.00
0.0247	844.45	0.0292	967.38	0.0337	1080.78	0.0382	1184.65	0.0427	1278.99
0.0248	847.28	0.0293	970.00	0.0338	1083.19	0.0383	1186.85	0.0428	1280.98
0.0249	850.12	0.0294	972.62	0.0339	1085.60	0.0384	1189.04	0.0429	1282.96
0.0250	852.94	0.0295	975.24	0.0340	1088.00	0.0385	1191.24	0.0430	1284.94
0.0251	855.76	0.0296	977.84	0.0341	1090.40	0.0386	1193.42	0.0431	1286.92
0.0252	858.58	0.0297	980.45	0.0342	1092.79	0.0387	1195.60	0.0432	1288.88
0.0253	861.39	0.0298	983.05	0.0343	1095.18	0.0388	1197.78	0.0433	1290.85
0.0254	864.20	0.0299	985.64	0.0344	1097.56	0.0389	1199.95	0.0434	1292.81
0.0255	867.00	0.0300	988.24	0.0345	1099.94	0.0390	1202.12	0.0435	1294.76
0.0256	869.80	0.0301	990.82	0.0346	1102.32	0.0391	1204.28	0.0436	1296.72
0.0257	872.59	0.0302	993.40	0.0347	1104.68	0.0392	1206.44	0.0437	1298.66
0.0258	875.38	0.0303	995.98	0.0348	1107.05	0.0393	1208.59	0.0438	1300.60
0.0259	878.16	0.0304	998.55	0.0349	1109.41	0.0394	1210.74	0.0439	1302.54
0.0260	880.94	0.0305	1001.12	0.0350	1111.76	0.0395	1212.88	0.0440	1304.47
0.0261	883.72	0.0306	1003.68	0.0351	1114.12	0.0396	1215.02	0.0441	1306.40
0.0262	886.48	0.0307	1006.24	0.0352	1116.46	0.0397	1217.16	0.0442	1308.32
0.0263	889.25	0.0308	1008.79	0.0353	1118.80	0.0398	1219.28	0.0443	1310.24
0.0264	892.01	0.0309	1011.34	0.0354	1121.14	0.0399	1221.41	0.0444	1312.15
0.0265	894.76	0.0310	1013.88	0.0355	1123.47	0.0400	1223.53	0.0445	1314.06
0.0266	897.52	0.0311	1016.42	0.0356	1125.80	0.0401	1225.64	0.0446	1315.96
0.0267	900.26	0.0312	1018.96	0.0357	1128.12	0.0402	1227.76	0.0447	1317.86
0.0268	903.00	0.0313	1021.48	0.0358	1130.44	0.0403	1229.86	0.0448	1319.76
0.0269	905.74	0.0314	1024.01	0.0359	1132.75	0.0404	1231.96	0.0449	1321.64
0.0270	908.47	0.0315	1026.53	0.0360	1135.06	0.0405	1234.06	0.0450	1323.53
0.0271	911.20	0.0316	1029.04	0.0361	1137.36	0.0406	1236.15	0.0451	1325.41
0.0272	913.92	0.0317	1031.56	0.0362	1139.66	0.0407	1238.24	0.0452	1327.28
0.0273	916.64	0.0318	1034.06	0.0363	1141.96	0.0408	1240.32	0.0453	1329.16
0.0274	919.35	0.0319	1036.56	0.0364	1144.24	0.0409	1242.40	0.0454	1331.02
0.0275	922.06	0.0320	1039.06	0.0365	1146.53	0.0410	1244.47	0.0455	1332.88
0.0276	924.76	0.0321	1041.55	0.0366	1148.81	0.0411	1246.54	0.0456	1334.74
0.0277	927.46	0.0322	1044.04	0.0367	1151.08	0.0412	1248.60	0.0457	1336.59
0.0278	930.16	0.0323	1046.52	0.0368	1153.36	0.0413	1250.66	0.0458	1338.44
0.0279	932.84	0.0324	1049.00	0.0369	1155.62	0.0414	1252.72	0.0459	1340.28

**Table A-3. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 5000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	39.81	0.0055	214.31	0.0100	381.18	0.0145	540.42	0.0190	692.05
0.0011	43.77	0.0056	218.10	0.0101	384.80	0.0146	543.88	0.0191	695.33
0.0012	47.73	0.0057	221.88	0.0102	388.42	0.0147	547.32	0.0192	698.61
0.0013	51.68	0.0058	225.67	0.0103	392.03	0.0148	550.77	0.0193	701.88
0.0014	55.63	0.0059	229.45	0.0104	395.64	0.0149	554.21	0.0194	705.16
0.0015	59.58	0.0060	233.22	0.0105	399.25	0.0150	557.65	0.0195	708.42
0.0016	63.52	0.0061	237.00	0.0106	402.85	0.0151	561.08	0.0196	711.69
0.0017	67.46	0.0062	240.76	0.0107	406.45	0.0152	564.51	0.0197	714.95
0.0018	71.39	0.0063	244.53	0.0108	410.04	0.0153	567.94	0.0198	718.20
0.0019	75.32	0.0064	248.29	0.0109	413.64	0.0154	571.36	0.0199	721.46
0.0020	79.25	0.0065	252.05	0.0110	417.22	0.0155	574.78	0.0200	724.71
0.0021	83.17	0.0066	255.80	0.0111	420.81	0.0156	578.19	0.0201	727.95
0.0022	87.09	0.0067	259.55	0.0112	424.39	0.0157	581.60	0.0202	731.19
0.0023	91.00	0.0068	263.30	0.0113	427.96	0.0158	585.01	0.0203	734.43
0.0024	94.92	0.0069	267.04	0.0114	431.54	0.0159	588.41	0.0204	737.66
0.0025	98.82	0.0070	270.78	0.0115	435.11	0.0160	591.81	0.0205	740.89
0.0026	102.73	0.0071	274.51	0.0116	438.67	0.0161	595.21	0.0206	744.12
0.0027	106.63	0.0072	278.24	0.0117	442.23	0.0162	598.60	0.0207	747.34
0.0028	110.52	0.0073	281.97	0.0118	445.79	0.0163	601.99	0.0208	750.56
0.0029	114.42	0.0074	285.69	0.0119	449.34	0.0164	605.37	0.0209	753.78
0.0030	118.31	0.0075	289.41	0.0120	452.89	0.0165	608.75	0.0210	756.99
0.0031	122.19	0.0076	293.13	0.0121	456.44	0.0166	612.13	0.0211	760.20
0.0032	126.07	0.0077	296.84	0.0122	459.98	0.0167	615.50	0.0212	763.40
0.0033	129.95	0.0078	300.55	0.0123	463.52	0.0168	618.87	0.0213	766.60
0.0034	133.82	0.0079	304.25	0.0124	467.06	0.0169	622.24	0.0214	769.80
0.0035	137.69	0.0080	307.95	0.0125	470.59	0.0170	625.60	0.0215	772.99
0.0036	141.56	0.0081	311.65	0.0126	474.12	0.0171	628.96	0.0216	776.18
0.0037	145.42	0.0082	315.34	0.0127	477.64	0.0172	632.31	0.0217	779.36
0.0038	149.28	0.0083	319.03	0.0128	481.16	0.0173	635.66	0.0218	782.54
0.0039	153.14	0.0084	322.72	0.0129	484.68	0.0174	639.01	0.0219	785.72
0.0040	156.99	0.0085	326.40	0.0130	488.19	0.0175	642.35	0.0220	788.89
0.0041	160.84	0.0086	330.08	0.0131	491.70	0.0176	645.69	0.0221	792.06
0.0042	164.68	0.0087	333.75	0.0132	495.20	0.0177	649.03	0.0222	795.23
0.0043	168.52	0.0088	337.42	0.0133	498.70	0.0178	652.36	0.0223	798.39
0.0044	172.36	0.0089	341.09	0.0134	502.20	0.0179	655.69	0.0224	801.55
0.0045	176.19	0.0090	344.75	0.0135	505.69	0.0180	659.01	0.0225	804.71
0.0046	180.02	0.0091	348.41	0.0136	509.18	0.0181	662.33	0.0226	807.86
0.0047	183.84	0.0092	352.07	0.0137	512.67	0.0182	665.65	0.0227	811.00
0.0048	187.66	0.0093	355.72	0.0138	516.15	0.0183	668.96	0.0228	814.15
0.0049	191.48	0.0094	359.37	0.0139	519.63	0.0184	672.27	0.0229	817.29
0.0050	195.29	0.0095	363.01	0.0140	523.11	0.0185	675.58	0.0230	820.42
0.0051	199.10	0.0096	366.65	0.0141	526.58	0.0186	678.88	0.0231	823.56
0.0052	202.91	0.0097	370.29	0.0142	530.04	0.0187	682.18	0.0232	826.68
0.0053	206.71	0.0098	373.92	0.0143	533.51	0.0188	685.47	0.0233	829.81
0.0054	210.51	0.0099	377.55	0.0144	536.97	0.0189	688.76	0.0234	832.93

**Table A-3. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 5000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	836.05	0.0280	972.42	0.0325	1101.18	0.0370	1222.31	0.0415	1335.81
0.0236	839.16	0.0281	975.37	0.0326	1103.95	0.0371	1224.91	0.0416	1338.25
0.0237	842.27	0.0282	978.31	0.0327	1106.72	0.0372	1227.51	0.0417	1340.68
0.0238	845.38	0.0283	981.24	0.0328	1109.49	0.0373	1230.11	0.0418	1343.11
0.0239	848.48	0.0284	984.18	0.0329	1112.25	0.0374	1232.70	0.0419	1345.53
0.0240	851.58	0.0285	987.11	0.0330	1115.01	0.0375	1235.29	0.0420	1347.95
0.0241	854.67	0.0286	990.03	0.0331	1117.77	0.0376	1237.88	0.0421	1350.37
0.0242	857.76	0.0287	992.95	0.0332	1120.52	0.0377	1240.46	0.0422	1352.78
0.0243	860.85	0.0288	995.87	0.0333	1123.27	0.0378	1243.04	0.0423	1355.19
0.0244	863.93	0.0289	998.78	0.0334	1126.01	0.0379	1245.62	0.0424	1357.60
0.0245	867.01	0.0290	1001.69	0.0335	1128.75	0.0380	1248.19	0.0425	1360.00
0.0246	870.09	0.0291	1004.60	0.0336	1131.49	0.0381	1250.76	0.0426	1362.40
0.0247	873.16	0.0292	1007.50	0.0337	1134.22	0.0382	1253.32	0.0427	1364.79
0.0248	876.23	0.0293	1010.40	0.0338	1136.95	0.0383	1255.88	0.0428	1367.18
0.0249	879.29	0.0294	1013.30	0.0339	1139.68	0.0384	1258.44	0.0429	1369.57
0.0250	882.35	0.0295	1016.19	0.0340	1142.40	0.0385	1260.99	0.0430	1371.95
0.0251	885.41	0.0296	1019.08	0.0341	1145.12	0.0386	1263.54	0.0431	1374.33
0.0252	888.46	0.0297	1021.96	0.0342	1147.83	0.0387	1266.08	0.0432	1376.71
0.0253	891.51	0.0298	1024.84	0.0343	1150.54	0.0388	1268.62	0.0433	1379.08
0.0254	894.56	0.0299	1027.72	0.0344	1153.25	0.0389	1271.16	0.0434	1381.45
0.0255	897.60	0.0300	1030.59	0.0345	1155.95	0.0390	1273.69	0.0435	1383.81
0.0256	900.64	0.0301	1033.46	0.0346	1158.65	0.0391	1276.22	0.0436	1386.17
0.0257	903.67	0.0302	1036.32	0.0347	1161.35	0.0392	1278.75	0.0437	1388.53
0.0258	906.70	0.0303	1039.18	0.0348	1164.04	0.0393	1281.27	0.0438	1390.88
0.0259	909.73	0.0304	1042.04	0.0349	1166.73	0.0394	1283.79	0.0439	1393.23
0.0260	912.75	0.0305	1044.89	0.0350	1169.41	0.0395	1286.31	0.0440	1395.58
0.0261	915.77	0.0306	1047.74	0.0351	1172.09	0.0396	1288.82	0.0441	1397.92
0.0262	918.79	0.0307	1050.59	0.0352	1174.77	0.0397	1291.32	0.0442	1400.26
0.0263	921.80	0.0308	1053.43	0.0353	1177.44	0.0398	1293.83	0.0443	1402.59
0.0264	924.81	0.0309	1056.27	0.0354	1180.11	0.0399	1296.33	0.0444	1404.92
0.0265	927.81	0.0310	1059.11	0.0355	1182.78	0.0400	1298.82	0.0445	1407.25
0.0266	930.81	0.0311	1061.94	0.0356	1185.44	0.0401	1301.32	0.0446	1409.57
0.0267	933.81	0.0312	1064.76	0.0357	1188.10	0.0402	1303.80	0.0447	1411.89
0.0268	936.80	0.0313	1067.59	0.0358	1190.75	0.0403	1306.29	0.0448	1414.20
0.0269	939.79	0.0314	1070.41	0.0359	1193.40	0.0404	1308.77	0.0449	1416.52
0.0270	942.78	0.0315	1073.22	0.0360	1196.05	0.0405	1311.25	0.0450	1418.82
0.0271	945.76	0.0316	1076.04	0.0361	1198.69	0.0406	1313.72	0.0451	1421.13
0.0272	948.74	0.0317	1078.84	0.0362	1201.33	0.0407	1316.19	0.0452	1423.43
0.0273	951.71	0.0318	1081.65	0.0363	1203.96	0.0408	1318.66	0.0453	1425.72
0.0274	954.68	0.0319	1084.45	0.0364	1206.60	0.0409	1321.12	0.0454	1428.02
0.0275	957.65	0.0320	1087.25	0.0365	1209.22	0.0410	1323.58	0.0455	1430.31
0.0276	960.61	0.0321	1090.04	0.0366	1211.85	0.0411	1326.03	0.0456	1432.59
0.0277	963.57	0.0322	1092.83	0.0367	1214.47	0.0412	1328.48	0.0457	1434.87
0.0278	966.52	0.0323	1095.62	0.0368	1217.08	0.0413	1330.93	0.0458	1437.15
0.0279	969.48	0.0324	1098.40	0.0369	1219.70	0.0414	1333.37	0.0459	1439.42

**Table A-4. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 6000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	39.84	0.0055	215.25	0.0100	384.31	0.0145	547.02	0.0190	703.37
0.0011	43.81	0.0056	219.08	0.0101	388.00	0.0146	550.56	0.0191	706.77
0.0012	47.77	0.0057	222.90	0.0102	391.68	0.0147	554.10	0.0192	710.17
0.0013	51.73	0.0058	226.72	0.0103	395.36	0.0148	557.64	0.0193	713.57
0.0014	55.69	0.0059	230.54	0.0104	399.03	0.0149	561.17	0.0194	716.96
0.0015	59.65	0.0060	234.35	0.0105	402.71	0.0150	564.71	0.0195	720.35
0.0016	63.60	0.0061	238.16	0.0106	406.37	0.0151	568.23	0.0196	723.74
0.0017	67.55	0.0062	241.97	0.0107	410.04	0.0152	571.76	0.0197	727.12
0.0018	71.49	0.0063	245.77	0.0108	413.70	0.0153	575.28	0.0198	730.50
0.0019	75.43	0.0064	249.57	0.0109	417.36	0.0154	578.80	0.0199	733.88
0.0020	79.37	0.0065	253.37	0.0110	421.02	0.0155	582.31	0.0200	737.25
0.0021	83.31	0.0066	257.17	0.0111	424.67	0.0156	585.83	0.0201	740.63
0.0022	87.24	0.0067	260.96	0.0112	428.32	0.0157	589.33	0.0202	743.99
0.0023	91.17	0.0068	264.75	0.0113	431.97	0.0158	592.84	0.0203	747.36
0.0024	95.10	0.0069	268.53	0.0114	435.61	0.0159	596.34	0.0204	750.72
0.0025	99.02	0.0070	272.31	0.0115	439.25	0.0160	599.84	0.0205	754.08
0.0026	102.94	0.0071	276.09	0.0116	442.89	0.0161	603.34	0.0206	757.43
0.0027	106.86	0.0072	279.87	0.0117	446.53	0.0162	606.83	0.0207	760.79
0.0028	110.77	0.0073	283.64	0.0118	450.16	0.0163	610.32	0.0208	764.13
0.0029	114.68	0.0074	287.41	0.0119	453.79	0.0164	613.81	0.0209	767.48
0.0030	118.59	0.0075	291.18	0.0120	457.41	0.0165	617.29	0.0210	770.82
0.0031	122.49	0.0076	294.94	0.0121	461.03	0.0166	620.77	0.0211	774.16
0.0032	126.39	0.0077	298.70	0.0122	464.65	0.0167	624.25	0.0212	777.50
0.0033	130.29	0.0078	302.46	0.0123	468.27	0.0168	627.73	0.0213	780.83
0.0034	134.19	0.0079	306.21	0.0124	471.88	0.0169	631.20	0.0214	784.16
0.0035	138.08	0.0080	309.96	0.0125	475.49	0.0170	634.67	0.0215	787.49
0.0036	141.97	0.0081	313.71	0.0126	479.10	0.0171	638.13	0.0216	790.81
0.0037	145.85	0.0082	317.45	0.0127	482.70	0.0172	641.59	0.0217	794.13
0.0038	149.73	0.0083	321.19	0.0128	486.30	0.0173	645.05	0.0218	797.45
0.0039	153.61	0.0084	324.93	0.0129	489.90	0.0174	648.51	0.0219	800.77
0.0040	157.49	0.0085	328.67	0.0130	493.49	0.0175	651.96	0.0220	804.08
0.0041	161.36	0.0086	332.40	0.0131	497.08	0.0176	655.41	0.0221	807.39
0.0042	165.23	0.0087	336.13	0.0132	500.67	0.0177	658.86	0.0222	810.69
0.0043	169.10	0.0088	339.85	0.0133	504.25	0.0178	662.30	0.0223	813.99
0.0044	172.96	0.0089	343.57	0.0134	507.83	0.0179	665.74	0.0224	817.29
0.0045	176.82	0.0090	347.29	0.0135	511.41	0.0180	669.18	0.0225	820.59
0.0046	180.68	0.0091	351.01	0.0136	514.99	0.0181	672.61	0.0226	823.88
0.0047	184.53	0.0092	354.72	0.0137	518.56	0.0182	676.04	0.0227	827.17
0.0048	188.39	0.0093	358.43	0.0138	522.13	0.0183	679.47	0.0228	830.46
0.0049	192.23	0.0094	362.14	0.0139	525.69	0.0184	682.89	0.0229	833.74
0.0050	196.08	0.0095	365.84	0.0140	529.25	0.0185	686.31	0.0230	837.02
0.0051	199.92	0.0096	369.54	0.0141	532.81	0.0186	689.73	0.0231	840.30
0.0052	203.76	0.0097	373.24	0.0142	536.37	0.0187	693.15	0.0232	843.57
0.0053	207.59	0.0098	376.93	0.0143	539.92	0.0188	696.56	0.0233	846.84
0.0054	211.43	0.0099	380.63	0.0144	543.47	0.0189	699.97	0.0234	850.11

**Table A-4. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 6000 \text{ psi}$$

$$f_y = 40,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	853.37	0.0280	997.02	0.0325	1134.31	0.0370	1265.25	0.0415	1389.84
0.0236	856.63	0.0281	1000.14	0.0326	1137.29	0.0371	1268.09	0.0416	1392.54
0.0237	859.89	0.0282	1003.26	0.0327	1140.27	0.0372	1270.93	0.0417	1395.23
0.0238	863.15	0.0283	1006.37	0.0328	1143.24	0.0373	1273.76	0.0418	1397.92
0.0239	866.40	0.0284	1009.48	0.0329	1146.21	0.0374	1276.59	0.0419	1400.61
0.0240	869.65	0.0285	1012.59	0.0330	1149.18	0.0375	1279.41	0.0420	1403.29
0.0241	872.89	0.0286	1015.69	0.0331	1152.14	0.0376	1282.23	0.0421	1405.97
0.0242	876.13	0.0287	1018.79	0.0332	1155.10	0.0377	1285.05	0.0422	1408.65
0.0243	879.37	0.0288	1021.89	0.0333	1158.06	0.0378	1287.87	0.0423	1411.33
0.0244	882.61	0.0289	1024.99	0.0334	1161.01	0.0379	1290.68	0.0424	1414.00
0.0245	885.84	0.0290	1028.08	0.0335	1163.96	0.0380	1293.49	0.0425	1416.67
0.0246	889.07	0.0291	1031.17	0.0336	1166.91	0.0381	1296.30	0.0426	1419.33
0.0247	892.30	0.0292	1034.25	0.0337	1169.85	0.0382	1299.10	0.0427	1421.99
0.0248	895.52	0.0293	1037.33	0.0338	1172.79	0.0383	1301.90	0.0428	1424.65
0.0249	898.74	0.0294	1040.41	0.0339	1175.73	0.0384	1304.70	0.0429	1427.31
0.0250	901.96	0.0295	1043.49	0.0340	1178.67	0.0385	1307.49	0.0430	1429.96
0.0251	905.17	0.0296	1046.56	0.0341	1181.60	0.0386	1310.28	0.0431	1432.61
0.0252	908.39	0.0297	1049.63	0.0342	1184.53	0.0387	1313.07	0.0432	1435.26
0.0253	911.59	0.0298	1052.70	0.0343	1187.45	0.0388	1315.85	0.0433	1437.90
0.0254	914.80	0.0299	1055.76	0.0344	1190.37	0.0389	1318.63	0.0434	1440.54
0.0255	918.00	0.0300	1058.82	0.0345	1193.29	0.0390	1321.41	0.0435	1443.18
0.0256	921.20	0.0301	1061.88	0.0346	1196.21	0.0391	1324.19	0.0436	1445.81
0.0257	924.39	0.0302	1064.93	0.0347	1199.12	0.0392	1326.96	0.0437	1448.44
0.0258	927.59	0.0303	1067.99	0.0348	1202.03	0.0393	1329.73	0.0438	1451.07
0.0259	930.77	0.0304	1071.03	0.0349	1204.94	0.0394	1332.49	0.0439	1453.69
0.0260	933.96	0.0305	1074.08	0.0350	1207.84	0.0395	1335.25	0.0440	1456.31
0.0261	937.14	0.0306	1077.12	0.0351	1210.74	0.0396	1338.01	0.0441	1458.93
0.0262	940.32	0.0307	1080.16	0.0352	1213.64	0.0397	1340.77	0.0442	1461.55
0.0263	943.50	0.0308	1083.19	0.0353	1216.53	0.0398	1343.52	0.0443	1464.16
0.0264	946.67	0.0309	1086.23	0.0354	1219.43	0.0399	1346.27	0.0444	1466.77
0.0265	949.84	0.0310	1089.25	0.0355	1222.31	0.0400	1349.02	0.0445	1469.37
0.0266	953.01	0.0311	1092.28	0.0356	1225.20	0.0401	1351.76	0.0446	1471.97
0.0267	956.17	0.0312	1095.30	0.0357	1228.08	0.0402	1354.50	0.0447	1474.57
0.0268	959.33	0.0313	1098.32	0.0358	1230.96	0.0403	1357.24	0.0448	1477.17
0.0269	962.49	0.0314	1101.34	0.0359	1233.83	0.0404	1359.97	0.0449	1479.76
0.0270	965.65	0.0315	1104.35	0.0360	1236.71	0.0405	1362.71	0.0450	1482.35
0.0271	968.80	0.0316	1107.36	0.0361	1239.57	0.0406	1365.43	0.0451	1484.94
0.0272	971.95	0.0317	1110.37	0.0362	1242.44	0.0407	1368.16	0.0452	1487.52
0.0273	975.09	0.0318	1113.37	0.0363	1245.30	0.0408	1370.88	0.0453	1490.10
0.0274	978.23	0.0319	1116.37	0.0364	1248.16	0.0409	1373.60	0.0454	1492.68
0.0275	981.37	0.0320	1119.37	0.0365	1251.02	0.0410	1376.31	0.0455	1495.25
0.0276	984.51	0.0321	1122.37	0.0366	1253.87	0.0411	1379.03	0.0456	1497.83
0.0277	987.64	0.0322	1125.36	0.0367	1256.72	0.0412	1381.73	0.0457	1500.39
0.0278	990.77	0.0323	1128.35	0.0368	1259.57	0.0413	1384.44	0.0458	1502.96
0.0279	993.90	0.0324	1131.33	0.0369	1262.41	0.0414	1387.14	0.0459	1505.52



**Table A-5. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 3000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	59.29	0.0055	308.65	0.0100	529.41	0.0145	721.59	0.0190	885.18
0.0011	65.15	0.0056	313.86	0.0101	533.99	0.0146	725.53	0.0191	888.49
0.0012	70.98	0.0057	319.07	0.0102	538.56	0.0147	729.47	0.0192	891.78
0.0013	76.81	0.0058	324.25	0.0103	543.11	0.0148	733.38	0.0193	895.07
0.0014	82.62	0.0059	329.43	0.0104	547.65	0.0149	737.29	0.0194	898.33
0.0015	88.41	0.0060	334.59	0.0105	552.18	0.0150	741.18	0.0195	901.59
0.0016	94.19	0.0061	339.73	0.0106	556.69	0.0151	745.05	0.0196	904.83
0.0017	99.96	0.0062	344.87	0.0107	561.18	0.0152	748.91	0.0197	908.05
0.0018	105.71	0.0063	349.98	0.0108	565.67	0.0153	752.76	0.0198	911.27
0.0019	111.45	0.0064	355.09	0.0109	570.13	0.0154	756.59	0.0199	914.46
0.0020	117.18	0.0065	360.18	0.0110	574.59	0.0155	760.41	0.0200	917.65
0.0021	122.89	0.0066	365.25	0.0111	579.03	0.0156	764.22	0.0201	920.82
0.0022	128.58	0.0067	370.31	0.0112	583.45	0.0157	768.01	0.0202	923.97
0.0023	134.27	0.0068	375.36	0.0113	587.87	0.0158	771.78	0.0203	927.11
0.0024	139.93	0.0069	380.39	0.0114	592.26	0.0159	775.55	0.0204	930.24
0.0025	145.59	0.0070	385.41	0.0115	596.65	0.0160	779.29	0.0205	933.35
0.0026	151.23	0.0071	390.42	0.0116	601.02	0.0161	783.03	0.0206	936.45
0.0027	156.85	0.0072	395.41	0.0117	605.37	0.0162	786.75	0.0207	939.54
0.0028	162.47	0.0073	400.38	0.0118	609.71	0.0163	790.45	0.0208	942.61
0.0029	168.06	0.0074	405.35	0.0119	614.04	0.0164	794.15	0.0209	945.66
0.0030	173.65	0.0075	410.29	0.0120	618.35	0.0165	797.82	0.0210	948.71
0.0031	179.22	0.0076	415.23	0.0121	622.65	0.0166	801.49	0.0211	951.73
0.0032	184.77	0.0077	420.15	0.0122	626.94	0.0167	805.14	0.0212	954.75
0.0033	190.31	0.0078	425.05	0.0123	631.21	0.0168	808.77	0.0213	957.75
0.0034	195.84	0.0079	429.95	0.0124	635.46	0.0169	812.39	0.0214	960.73
0.0035	201.35	0.0080	434.82	0.0125	639.71	0.0170	816.00	0.0215	963.71
0.0036	206.85	0.0081	439.69	0.0126	643.93	0.0171	819.59	0.0216	966.66
0.0037	212.34	0.0082	444.54	0.0127	648.15	0.0172	823.17	0.0217	969.61
0.0038	217.81	0.0083	449.37	0.0128	652.35	0.0173	826.74	0.0218	972.54
0.0039	223.26	0.0084	454.19	0.0129	656.53	0.0174	830.29	0.0219	975.45
0.0040	228.71	0.0085	459.00	0.0130	660.71	0.0175	833.82	0.0220	978.35
0.0041	234.13	0.0086	463.79	0.0131	664.86	0.0176	837.35	0.0221	981.24
0.0042	239.55	0.0087	468.57	0.0132	669.01	0.0177	840.85	0.0222	984.11
0.0043	244.95	0.0088	473.34	0.0133	673.14	0.0178	844.35	0.0223	986.97
0.0044	250.33	0.0089	478.09	0.0134	677.25	0.0179	847.83	0.0224	989.82
0.0045	255.71	0.0090	482.82	0.0135	681.35	0.0180	851.29	0.0225	992.65
0.0046	261.06	0.0091	487.55	0.0136	685.44	0.0181	854.75	0.0226	995.46
0.0047	266.41	0.0092	492.25	0.0137	689.51	0.0182	858.18	0.0227	998.27
0.0048	271.74	0.0093	496.95	0.0138	693.57	0.0183	861.61	0.0228	1001.05
0.0049	277.05	0.0094	501.63	0.0139	697.62	0.0184	865.02	0.0229	1003.83
0.0050	282.35	0.0095	506.29	0.0140	701.65	0.0185	868.41	0.0230	1006.59
0.0051	287.64	0.0096	510.95	0.0141	705.66	0.0186	871.79	0.0231	1009.33
0.0052	292.91	0.0097	515.58	0.0142	709.67	0.0187	875.16	0.0232	1012.07
0.0053	298.17	0.0098	520.21	0.0143	713.65	0.0188	878.51	0.0233	1014.78
0.0054	303.42	0.0099	524.82	0.0144	717.63	0.0189	881.85	0.0234	1017.49

**Table A-5. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 3000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	1020.18	0.0280	1126.59	0.0325	1204.41	0.0370	1253.65	0.0415	1274.29
0.0236	1022.85	0.0281	1128.63	0.0326	1205.82	0.0371	1254.42	0.0416	1274.43
0.0237	1025.51	0.0282	1130.65	0.0327	1207.21	0.0372	1255.17	0.0417	1274.55
0.0238	1028.16	0.0283	1132.67	0.0328	1208.58	0.0373	1255.91	0.0418	1274.65
0.0239	1030.79	0.0284	1134.66	0.0329	1209.95	0.0374	1256.64	0.0419	1274.75
0.0240	1033.41	0.0285	1136.65	0.0330	1211.29	0.0375	1257.35	0.0420	1274.82
0.0241	1036.02	0.0286	1138.62	0.0331	1212.63	0.0376	1258.05	0.0421	1274.89
0.0242	1038.61	0.0287	1140.57	0.0332	1213.95	0.0377	1258.74	0.0422	1274.94
0.0243	1041.18	0.0288	1142.51	0.0333	1215.25	0.0378	1259.41	0.0423	1274.97
0.0244	1043.75	0.0289	1144.44	0.0334	1216.55	0.0379	1260.06	0.0424	1274.99
0.0245	1046.29	0.0290	1146.35	0.0335	1217.82	0.0380	1260.71	0.0425	1275.00
0.0246	1048.83	0.0291	1148.25	0.0336	1219.09	0.0381	1261.33	0.0426	1274.99
0.0247	1051.35	0.0292	1150.14	0.0337	1220.34	0.0382	1261.95	0.0427	1274.97
0.0248	1053.85	0.0293	1152.01	0.0338	1221.57	0.0383	1262.55	0.0428	1274.94
0.0249	1056.35	0.0294	1153.86	0.0339	1222.79	0.0384	1263.13	0.0429	1274.89
0.0250	1058.82	0.0295	1155.71	0.0340	1224.00	0.0385	1263.71	0.0430	1274.82
0.0251	1061.29	0.0296	1157.53	0.0341	1225.19	0.0386	1264.26	0.0431	1274.75
0.0252	1063.74	0.0297	1159.35	0.0342	1226.37	0.0387	1264.81	0.0432	1274.65
0.0253	1066.17	0.0298	1161.15	0.0343	1227.54	0.0388	1265.34	0.0433	1274.55
0.0254	1068.59	0.0299	1162.93	0.0344	1228.69	0.0389	1265.85	0.0434	1274.43
0.0255	1071.00	0.0300	1164.71	0.0345	1229.82	0.0390	1266.35	0.0435	1274.29
0.0256	1073.39	0.0301	1166.46	0.0346	1230.95	0.0391	1266.84	0.0436	1274.15
0.0257	1075.77	0.0302	1168.21	0.0347	1232.05	0.0392	1267.31	0.0437	1273.98
0.0258	1078.14	0.0303	1169.94	0.0348	1233.15	0.0393	1267.77	0.0438	1273.81
0.0259	1080.49	0.0304	1171.65	0.0349	1234.23	0.0394	1268.22	0.0439	1273.62
0.0260	1082.82	0.0305	1173.35	0.0350	1235.29	0.0395	1268.65	0.0440	1273.41
0.0261	1085.15	0.0306	1175.04	0.0351	1236.35	0.0396	1269.06	0.0441	1273.19
0.0262	1087.45	0.0307	1176.71	0.0352	1237.38	0.0397	1269.47	0.0442	1272.96
0.0263	1089.75	0.0308	1178.37	0.0353	1238.41	0.0398	1269.85	0.0443	1272.71
0.0264	1092.03	0.0309	1180.02	0.0354	1239.42	0.0399	1270.23	0.0444	1272.45
0.0265	1094.29	0.0310	1181.65	0.0355	1240.41	0.0400	1270.59	0.0445	1272.18
0.0266	1096.55	0.0311	1183.26	0.0356	1241.39	0.0401	1270.93	0.0446	1271.89
0.0267	1098.78	0.0312	1184.87	0.0357	1242.36	0.0402	1271.27	0.0447	1271.58
0.0268	1101.01	0.0313	1186.45	0.0358	1243.31	0.0403	1271.58	0.0448	1271.27
0.0269	1103.22	0.0314	1188.03	0.0359	1244.25	0.0404	1271.89	0.0449	1270.93
0.0270	1105.41	0.0315	1189.59	0.0360	1245.18	0.0405	1272.18	0.0450	1270.59
0.0271	1107.59	0.0316	1191.13	0.0361	1246.09	0.0406	1272.45	0.0451	1270.23
0.0272	1109.76	0.0317	1192.67	0.0362	1246.98	0.0407	1272.71	0.0452	1269.85
0.0273	1111.91	0.0318	1194.18	0.0363	1247.87	0.0408	1272.96	0.0453	1269.47
0.0274	1114.05	0.0319	1195.69	0.0364	1248.73	0.0409	1273.19	0.0454	1269.06
0.0275	1116.18	0.0320	1197.18	0.0365	1249.59	0.0410	1273.41	0.0455	1268.65
0.0276	1118.29	0.0321	1198.65	0.0366	1250.43	0.0411	1273.62	0.0456	1268.22
0.0277	1120.38	0.0322	1200.11	0.0367	1251.25	0.0412	1273.81	0.0457	1267.77
0.0278	1122.47	0.0323	1201.56	0.0368	1252.07	0.0413	1273.98	0.0458	1267.31
0.0279	1124.53	0.0324	1202.99	0.0369	1252.86	0.0414	1274.15	0.0459	1266.84

**Table A-6. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 4000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	59.47	0.0055	313.99	0.0100	547.06	0.0145	758.69	0.0190	948.88
0.0011	65.36	0.0056	319.40	0.0101	551.99	0.0146	763.15	0.0191	952.87
0.0012	71.24	0.0057	324.80	0.0102	556.92	0.0147	767.60	0.0192	956.84
0.0013	77.11	0.0058	330.19	0.0103	561.83	0.0148	772.04	0.0193	960.80
0.0014	82.96	0.0059	335.57	0.0104	566.74	0.0149	776.47	0.0194	964.75
0.0015	88.81	0.0060	340.94	0.0105	571.63	0.0150	780.88	0.0195	968.69
0.0016	94.64	0.0061	346.30	0.0106	576.52	0.0151	785.29	0.0196	972.62
0.0017	100.47	0.0062	351.65	0.0107	581.39	0.0152	789.68	0.0197	976.54
0.0018	106.28	0.0063	356.99	0.0108	586.25	0.0153	794.07	0.0198	980.45
0.0019	112.09	0.0064	362.32	0.0109	591.10	0.0154	798.44	0.0199	984.35
0.0020	117.88	0.0065	367.63	0.0110	595.94	0.0155	802.81	0.0200	988.24
0.0021	123.67	0.0066	372.94	0.0111	600.77	0.0156	807.16	0.0201	992.11
0.0022	129.44	0.0067	378.23	0.0112	605.59	0.0157	811.51	0.0202	995.98
0.0023	135.20	0.0068	383.52	0.0113	610.40	0.0158	815.84	0.0203	999.83
0.0024	140.95	0.0069	388.79	0.0114	615.20	0.0159	820.16	0.0204	1003.68
0.0025	146.69	0.0070	394.06	0.0115	619.99	0.0160	824.47	0.0205	1007.51
0.0026	152.42	0.0071	399.31	0.0116	624.76	0.0161	828.77	0.0206	1011.34
0.0027	158.14	0.0072	404.56	0.0117	629.53	0.0162	833.06	0.0207	1015.15
0.0028	163.85	0.0073	409.79	0.0118	634.28	0.0163	837.34	0.0208	1018.96
0.0029	169.55	0.0074	415.01	0.0119	639.03	0.0164	841.61	0.0209	1022.75
0.0030	175.24	0.0075	420.22	0.0120	643.76	0.0165	845.87	0.0210	1026.53
0.0031	180.91	0.0076	425.42	0.0121	648.49	0.0166	850.12	0.0211	1030.30
0.0032	186.58	0.0077	430.61	0.0122	653.20	0.0167	854.35	0.0212	1034.06
0.0033	192.23	0.0078	435.79	0.0123	657.91	0.0168	858.58	0.0213	1037.81
0.0034	197.88	0.0079	440.96	0.0124	662.60	0.0169	862.79	0.0214	1041.55
0.0035	203.51	0.0080	446.12	0.0125	667.28	0.0170	867.00	0.0215	1045.28
0.0036	209.14	0.0081	451.27	0.0126	671.95	0.0171	871.19	0.0216	1049.00
0.0037	214.75	0.0082	456.40	0.0127	676.61	0.0172	875.38	0.0217	1052.71
0.0038	220.36	0.0083	461.53	0.0128	681.26	0.0173	879.55	0.0218	1056.40
0.0039	225.95	0.0084	466.64	0.0129	685.90	0.0174	883.72	0.0219	1060.09
0.0040	231.53	0.0085	471.75	0.0130	690.53	0.0175	887.87	0.0220	1063.76
0.0041	237.10	0.0086	476.84	0.0131	695.15	0.0176	892.01	0.0221	1067.43
0.0042	242.66	0.0087	481.93	0.0132	699.76	0.0177	896.14	0.0222	1071.08
0.0043	248.21	0.0088	487.00	0.0133	704.35	0.0178	900.26	0.0223	1074.73
0.0044	253.75	0.0089	492.07	0.0134	708.94	0.0179	904.37	0.0224	1078.36
0.0045	259.28	0.0090	497.12	0.0135	713.51	0.0180	908.47	0.0225	1081.99
0.0046	264.80	0.0091	502.16	0.0136	718.08	0.0181	912.56	0.0226	1085.60
0.0047	270.31	0.0092	507.19	0.0137	722.63	0.0182	916.64	0.0227	1089.20
0.0048	275.80	0.0093	512.21	0.0138	727.18	0.0183	920.71	0.0228	1092.79
0.0049	281.29	0.0094	517.22	0.0139	731.71	0.0184	924.76	0.0229	1096.37
0.0050	286.76	0.0095	522.22	0.0140	736.24	0.0185	928.81	0.0230	1099.94
0.0051	292.23	0.0096	527.21	0.0141	740.75	0.0186	932.84	0.0231	1103.50
0.0052	297.68	0.0097	532.19	0.0142	745.25	0.0187	936.87	0.0232	1107.05
0.0053	303.13	0.0098	537.16	0.0143	749.74	0.0188	940.88	0.0233	1110.59
0.0054	308.56	0.0099	542.11	0.0144	754.22	0.0189	944.89	0.0234	1114.12

**Table A-6. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 4000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	1117.63	0.0280	1264.94	0.0325	1390.81	0.0370	1495.24	0.0415	1578.22
0.0236	1121.14	0.0281	1267.97	0.0326	1393.36	0.0371	1497.31	0.0416	1579.82
0.0237	1124.63	0.0282	1270.99	0.0327	1395.91	0.0372	1499.38	0.0417	1581.41
0.0238	1128.12	0.0283	1274.00	0.0328	1398.44	0.0373	1501.43	0.0418	1582.99
0.0239	1131.59	0.0284	1277.00	0.0329	1400.96	0.0374	1503.48	0.0419	1584.56
0.0240	1135.06	0.0285	1279.99	0.0330	1403.47	0.0375	1505.51	0.0420	1586.12
0.0241	1138.51	0.0286	1282.96	0.0331	1405.97	0.0376	1507.54	0.0421	1587.67
0.0242	1141.96	0.0287	1285.93	0.0332	1408.46	0.0377	1509.55	0.0422	1589.20
0.0243	1145.39	0.0288	1288.88	0.0333	1410.94	0.0378	1511.56	0.0423	1590.73
0.0244	1148.81	0.0289	1291.83	0.0334	1413.41	0.0379	1513.55	0.0424	1592.24
0.0245	1152.22	0.0290	1294.76	0.0335	1415.87	0.0380	1515.53	0.0425	1593.75
0.0246	1155.62	0.0291	1297.69	0.0336	1418.32	0.0381	1517.50	0.0426	1595.24
0.0247	1159.01	0.0292	1300.60	0.0337	1420.75	0.0382	1519.46	0.0427	1596.73
0.0248	1162.39	0.0293	1303.51	0.0338	1423.18	0.0383	1521.41	0.0428	1598.20
0.0249	1165.76	0.0294	1306.40	0.0339	1425.59	0.0384	1523.35	0.0429	1599.67
0.0250	1169.12	0.0295	1309.28	0.0340	1428.00	0.0385	1525.28	0.0430	1601.12
0.0251	1172.47	0.0296	1312.15	0.0341	1430.39	0.0386	1527.20	0.0431	1602.56
0.0252	1175.80	0.0297	1315.01	0.0342	1432.78	0.0387	1529.11	0.0432	1603.99
0.0253	1179.13	0.0298	1317.86	0.0343	1435.15	0.0388	1531.00	0.0433	1605.41
0.0254	1182.44	0.0299	1320.70	0.0344	1437.52	0.0389	1532.89	0.0434	1606.82
0.0255	1185.75	0.0300	1323.53	0.0345	1439.87	0.0390	1534.76	0.0435	1608.22
0.0256	1189.04	0.0301	1326.35	0.0346	1442.21	0.0391	1536.63	0.0436	1609.61
0.0257	1192.33	0.0302	1329.16	0.0347	1444.54	0.0392	1538.48	0.0437	1610.99
0.0258	1195.60	0.0303	1331.95	0.0348	1446.86	0.0393	1540.33	0.0438	1612.36
0.0259	1198.87	0.0304	1334.74	0.0349	1449.17	0.0394	1542.16	0.0439	1613.71
0.0260	1202.12	0.0305	1337.51	0.0350	1451.47	0.0395	1543.99	0.0440	1615.06
0.0261	1205.36	0.0306	1340.28	0.0351	1453.76	0.0396	1545.80	0.0441	1616.39
0.0262	1208.59	0.0307	1343.03	0.0352	1456.04	0.0397	1547.60	0.0442	1617.72
0.0263	1211.81	0.0308	1345.78	0.0353	1458.31	0.0398	1549.39	0.0443	1619.03
0.0264	1215.02	0.0309	1348.51	0.0354	1460.56	0.0399	1551.17	0.0444	1620.34
0.0265	1218.22	0.0310	1351.24	0.0355	1462.81	0.0400	1552.94	0.0445	1621.63
0.0266	1221.41	0.0311	1353.95	0.0356	1465.04	0.0401	1554.70	0.0446	1622.92
0.0267	1224.59	0.0312	1356.65	0.0357	1467.27	0.0402	1556.45	0.0447	1624.19
0.0268	1227.76	0.0313	1359.34	0.0358	1469.48	0.0403	1558.19	0.0448	1625.45
0.0269	1230.91	0.0314	1362.02	0.0359	1471.69	0.0404	1559.92	0.0449	1626.70
0.0270	1234.06	0.0315	1364.69	0.0360	1473.88	0.0405	1561.63	0.0450	1627.94
0.0271	1237.19	0.0316	1367.35	0.0361	1476.07	0.0406	1563.34	0.0451	1629.17
0.0272	1240.32	0.0317	1370.00	0.0362	1478.24	0.0407	1565.03	0.0452	1630.39
0.0273	1243.43	0.0318	1372.64	0.0363	1480.40	0.0408	1566.72	0.0453	1631.60
0.0274	1246.54	0.0319	1375.27	0.0364	1482.55	0.0409	1568.39	0.0454	1632.80
0.0275	1249.63	0.0320	1377.88	0.0365	1484.69	0.0410	1570.06	0.0455	1633.99
0.0276	1252.72	0.0321	1380.49	0.0366	1486.82	0.0411	1571.71	0.0456	1635.16
0.0277	1255.79	0.0322	1383.08	0.0367	1488.94	0.0412	1573.36	0.0457	1636.33
0.0278	1258.85	0.0323	1385.67	0.0368	1491.05	0.0413	1574.99	0.0458	1637.48
0.0279	1261.90	0.0324	1388.24	0.0369	1493.15	0.0414	1576.61	0.0459	1638.63

**Table A-7. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 5000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	59.58	0.0055	317.19	0.0100	557.65	0.0145	780.95	0.0190	987.11
0.0011	65.49	0.0056	322.72	0.0101	562.80	0.0146	785.72	0.0191	991.49
0.0012	71.39	0.0057	328.24	0.0102	567.94	0.0147	790.48	0.0192	995.87
0.0013	77.28	0.0058	333.75	0.0103	573.07	0.0148	795.23	0.0193	1000.24
0.0014	83.17	0.0059	339.26	0.0104	578.19	0.0149	799.97	0.0194	1004.60
0.0015	89.05	0.0060	344.75	0.0105	583.31	0.0150	804.71	0.0195	1008.95
0.0016	94.92	0.0061	350.24	0.0106	588.41	0.0151	809.43	0.0196	1013.30
0.0017	100.78	0.0062	355.72	0.0107	593.51	0.0152	814.15	0.0197	1017.63
0.0018	106.63	0.0063	361.19	0.0108	598.60	0.0153	818.86	0.0198	1021.96
0.0019	112.47	0.0064	366.65	0.0109	603.68	0.0154	823.56	0.0199	1026.28
0.0020	118.31	0.0065	372.11	0.0110	608.75	0.0155	828.25	0.0200	1030.59
0.0021	124.13	0.0066	377.55	0.0111	613.82	0.0156	832.93	0.0201	1034.89
0.0022	129.95	0.0067	382.99	0.0112	618.87	0.0157	837.60	0.0202	1039.18
0.0023	135.76	0.0068	388.42	0.0113	623.92	0.0158	842.27	0.0203	1043.47
0.0024	141.56	0.0069	393.84	0.0114	628.96	0.0159	846.93	0.0204	1047.74
0.0025	147.35	0.0070	399.25	0.0115	633.99	0.0160	851.58	0.0205	1052.01
0.0026	153.14	0.0071	404.65	0.0116	639.01	0.0161	856.22	0.0206	1056.27
0.0027	158.91	0.0072	410.04	0.0117	644.02	0.0162	860.85	0.0207	1060.52
0.0028	164.68	0.0073	415.43	0.0118	649.03	0.0163	865.47	0.0208	1064.76
0.0029	170.44	0.0074	420.81	0.0119	654.02	0.0164	870.09	0.0209	1069.00
0.0030	176.19	0.0075	426.18	0.0120	659.01	0.0165	874.69	0.0210	1073.22
0.0031	181.93	0.0076	431.54	0.0121	663.99	0.0166	879.29	0.0211	1077.44
0.0032	187.66	0.0077	436.89	0.0122	668.96	0.0167	883.88	0.0212	1081.65
0.0033	193.39	0.0078	442.23	0.0123	673.92	0.0168	888.46	0.0213	1085.85
0.0034	199.10	0.0079	447.57	0.0124	678.88	0.0169	893.04	0.0214	1090.04
0.0035	204.81	0.0080	452.89	0.0125	683.82	0.0170	897.60	0.0215	1094.22
0.0036	210.51	0.0081	458.21	0.0126	688.76	0.0171	902.16	0.0216	1098.40
0.0037	216.20	0.0082	463.52	0.0127	693.69	0.0172	906.70	0.0217	1102.56
0.0038	221.88	0.0083	468.82	0.0128	698.61	0.0173	911.24	0.0218	1106.72
0.0039	227.56	0.0084	474.12	0.0129	703.52	0.0174	915.77	0.0219	1110.87
0.0040	233.22	0.0085	479.40	0.0130	708.42	0.0175	920.29	0.0220	1115.01
0.0041	238.88	0.0086	484.68	0.0131	713.32	0.0176	924.81	0.0221	1119.14
0.0042	244.53	0.0087	489.94	0.0132	718.20	0.0177	929.31	0.0222	1123.27
0.0043	250.17	0.0088	495.20	0.0133	723.08	0.0178	933.81	0.0223	1127.38
0.0044	255.80	0.0089	500.45	0.0134	727.95	0.0179	938.30	0.0224	1131.49
0.0045	261.42	0.0090	505.69	0.0135	732.81	0.0180	942.78	0.0225	1135.59
0.0046	267.04	0.0091	510.93	0.0136	737.66	0.0181	947.25	0.0226	1139.68
0.0047	272.64	0.0092	516.15	0.0137	742.51	0.0182	951.71	0.0227	1143.76
0.0048	278.24	0.0093	521.37	0.0138	747.34	0.0183	956.16	0.0228	1147.83
0.0049	283.83	0.0094	526.58	0.0139	752.17	0.0184	960.61	0.0229	1151.90
0.0050	289.41	0.0095	531.78	0.0140	756.99	0.0185	965.05	0.0230	1155.95
0.0051	294.98	0.0096	536.97	0.0141	761.80	0.0186	969.48	0.0231	1160.00
0.0052	300.55	0.0097	542.15	0.0142	766.60	0.0187	973.90	0.0232	1164.04
0.0053	306.10	0.0098	547.32	0.0143	771.39	0.0188	978.31	0.0233	1168.07
0.0054	311.65	0.0099	552.49	0.0144	776.18	0.0189	982.71	0.0234	1172.09

**Table A-7. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 5000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	1176.11	0.0280	1347.95	0.0325	1502.65	0.0370	1640.19	0.0415	1760.58
0.0236	1180.11	0.0281	1351.58	0.0326	1505.89	0.0371	1643.05	0.0416	1763.06
0.0237	1184.11	0.0282	1355.19	0.0327	1509.12	0.0372	1645.90	0.0417	1765.53
0.0238	1188.10	0.0283	1358.80	0.0328	1512.35	0.0373	1648.75	0.0418	1767.99
0.0239	1192.08	0.0284	1362.40	0.0329	1515.57	0.0374	1651.58	0.0419	1770.45
0.0240	1196.05	0.0285	1365.99	0.0330	1518.78	0.0375	1654.41	0.0420	1772.89
0.0241	1200.01	0.0286	1369.57	0.0331	1521.98	0.0376	1657.23	0.0421	1775.33
0.0242	1203.96	0.0287	1373.14	0.0332	1525.17	0.0377	1660.04	0.0422	1777.76
0.0243	1207.91	0.0288	1376.71	0.0333	1528.35	0.0378	1662.84	0.0423	1780.18
0.0244	1211.85	0.0289	1380.26	0.0334	1531.53	0.0379	1665.64	0.0424	1782.60
0.0245	1215.78	0.0290	1383.81	0.0335	1534.69	0.0380	1668.42	0.0425	1785.00
0.0246	1219.70	0.0291	1387.35	0.0336	1537.85	0.0381	1671.20	0.0426	1787.40
0.0247	1223.61	0.0292	1390.88	0.0337	1541.00	0.0382	1673.97	0.0427	1789.78
0.0248	1227.51	0.0293	1394.40	0.0338	1544.14	0.0383	1676.73	0.0428	1792.16
0.0249	1231.41	0.0294	1397.92	0.0339	1547.28	0.0384	1679.48	0.0429	1794.53
0.0250	1235.29	0.0295	1401.42	0.0340	1550.40	0.0385	1682.22	0.0430	1796.89
0.0251	1239.17	0.0296	1404.92	0.0341	1553.52	0.0386	1684.96	0.0431	1799.25
0.0252	1243.04	0.0297	1408.41	0.0342	1556.62	0.0387	1687.68	0.0432	1801.59
0.0253	1246.90	0.0298	1411.89	0.0343	1559.72	0.0388	1690.40	0.0433	1803.93
0.0254	1250.76	0.0299	1415.36	0.0344	1562.81	0.0389	1693.11	0.0434	1806.26
0.0255	1254.60	0.0300	1418.82	0.0345	1565.89	0.0390	1695.81	0.0435	1808.58
0.0256	1258.44	0.0301	1422.28	0.0346	1568.97	0.0391	1698.50	0.0436	1810.89
0.0257	1262.26	0.0302	1425.72	0.0347	1572.03	0.0392	1701.19	0.0437	1813.19
0.0258	1266.08	0.0303	1429.16	0.0348	1575.09	0.0393	1703.86	0.0438	1815.48
0.0259	1269.89	0.0304	1432.59	0.0349	1578.14	0.0394	1706.53	0.0439	1817.77
0.0260	1273.69	0.0305	1436.01	0.0350	1581.18	0.0395	1709.19	0.0440	1820.05
0.0261	1277.49	0.0306	1439.42	0.0351	1584.21	0.0396	1711.84	0.0441	1822.32
0.0262	1281.27	0.0307	1442.83	0.0352	1587.23	0.0397	1714.48	0.0442	1824.58
0.0263	1285.05	0.0308	1446.22	0.0353	1590.24	0.0398	1717.11	0.0443	1826.83
0.0264	1288.82	0.0309	1449.61	0.0354	1593.25	0.0399	1719.74	0.0444	1829.07
0.0265	1292.58	0.0310	1452.99	0.0355	1596.25	0.0400	1722.35	0.0445	1831.31
0.0266	1296.33	0.0311	1456.36	0.0356	1599.24	0.0401	1724.96	0.0446	1833.53
0.0267	1300.07	0.0312	1459.72	0.0357	1602.22	0.0402	1727.56	0.0447	1835.75
0.0268	1303.80	0.0313	1463.07	0.0358	1605.19	0.0403	1730.15	0.0448	1837.96
0.0269	1307.53	0.0314	1466.42	0.0359	1608.15	0.0404	1732.73	0.0449	1840.16
0.0270	1311.25	0.0315	1469.75	0.0360	1611.11	0.0405	1735.31	0.0450	1842.35
0.0271	1314.96	0.0316	1473.08	0.0361	1614.05	0.0406	1737.87	0.0451	1844.54
0.0272	1318.66	0.0317	1476.40	0.0362	1616.99	0.0407	1740.43	0.0452	1846.71
0.0273	1322.35	0.0318	1479.71	0.0363	1619.92	0.0408	1742.98	0.0453	1848.88
0.0274	1326.03	0.0319	1483.01	0.0364	1622.84	0.0409	1745.52	0.0454	1851.04
0.0275	1329.71	0.0320	1486.31	0.0365	1625.75	0.0410	1748.05	0.0455	1853.19
0.0276	1333.37	0.0321	1489.59	0.0366	1628.66	0.0411	1750.57	0.0456	1855.33
0.0277	1337.03	0.0322	1492.87	0.0367	1631.55	0.0412	1753.08	0.0457	1857.46
0.0278	1340.68	0.0323	1496.14	0.0368	1634.44	0.0413	1755.59	0.0458	1859.59
0.0279	1344.32	0.0324	1499.40	0.0369	1637.32	0.0414	1758.09	0.0459	1861.70

**Table A-8. Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 6000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0010	59.65	0.0055	319.32	0.0100	564.71	0.0145	795.79	0.0190	1012.59
0.0011	65.57	0.0056	324.93	0.0101	570.00	0.0146	800.77	0.0191	1017.24
0.0012	71.49	0.0057	330.53	0.0102	575.28	0.0147	805.73	0.0192	1021.89
0.0013	77.40	0.0058	336.13	0.0103	580.56	0.0148	810.69	0.0193	1026.53
0.0014	83.31	0.0059	341.71	0.0104	585.83	0.0149	815.64	0.0194	1031.17
0.0015	89.21	0.0060	347.29	0.0105	591.09	0.0150	820.59	0.0195	1035.79
0.0016	95.10	0.0061	352.87	0.0106	596.34	0.0151	825.53	0.0196	1040.41
0.0017	100.98	0.0062	358.43	0.0107	601.59	0.0152	830.46	0.0197	1045.03
0.0018	106.86	0.0063	363.99	0.0108	606.83	0.0153	835.38	0.0198	1049.63
0.0019	112.73	0.0064	369.54	0.0109	612.07	0.0154	840.30	0.0199	1054.23
0.0020	118.59	0.0065	375.09	0.0110	617.29	0.0155	845.21	0.0200	1058.82
0.0021	124.44	0.0066	380.63	0.0111	622.51	0.0156	850.11	0.0201	1063.41
0.0022	130.29	0.0067	386.16	0.0112	627.73	0.0157	855.00	0.0202	1067.99
0.0023	136.13	0.0068	391.68	0.0113	632.93	0.0158	859.89	0.0203	1072.56
0.0024	141.97	0.0069	397.20	0.0114	638.13	0.0159	864.77	0.0204	1077.12
0.0025	147.79	0.0070	402.71	0.0115	643.32	0.0160	869.65	0.0205	1081.68
0.0026	153.61	0.0071	408.21	0.0116	648.51	0.0161	874.51	0.0206	1086.23
0.0027	159.43	0.0072	413.70	0.0117	653.69	0.0162	879.37	0.0207	1090.77
0.0028	165.23	0.0073	419.19	0.0118	658.86	0.0163	884.23	0.0208	1095.30
0.0029	171.03	0.0074	424.67	0.0119	664.02	0.0164	889.07	0.0209	1099.83
0.0030	176.82	0.0075	430.15	0.0120	669.18	0.0165	893.91	0.0210	1104.35
0.0031	182.61	0.0076	435.61	0.0121	674.33	0.0166	898.74	0.0211	1108.87
0.0032	188.39	0.0077	441.07	0.0122	679.47	0.0167	903.57	0.0212	1113.37
0.0033	194.16	0.0078	446.53	0.0123	684.60	0.0168	908.39	0.0213	1117.87
0.0034	199.92	0.0079	451.97	0.0124	689.73	0.0169	913.20	0.0214	1122.37
0.0035	205.68	0.0080	457.41	0.0125	694.85	0.0170	918.00	0.0215	1126.85
0.0036	211.43	0.0081	462.84	0.0126	699.97	0.0171	922.80	0.0216	1131.33
0.0037	217.17	0.0082	468.27	0.0127	705.07	0.0172	927.59	0.0217	1135.80
0.0038	222.90	0.0083	473.69	0.0128	710.17	0.0173	932.37	0.0218	1140.27
0.0039	228.63	0.0084	479.10	0.0129	715.27	0.0174	937.14	0.0219	1144.73
0.0040	234.35	0.0085	484.50	0.0130	720.35	0.0175	941.91	0.0220	1149.18
0.0041	240.07	0.0086	489.90	0.0131	725.43	0.0176	946.67	0.0221	1153.62
0.0042	245.77	0.0087	495.29	0.0132	730.50	0.0177	951.43	0.0222	1158.06
0.0043	251.47	0.0088	500.67	0.0133	735.57	0.0178	956.17	0.0223	1162.49
0.0044	257.17	0.0089	506.04	0.0134	740.63	0.0179	960.91	0.0224	1166.91
0.0045	262.85	0.0090	511.41	0.0135	745.68	0.0180	965.65	0.0225	1171.32
0.0046	268.53	0.0091	516.77	0.0136	750.72	0.0181	970.37	0.0226	1175.73
0.0047	274.20	0.0092	522.13	0.0137	755.76	0.0182	975.09	0.0227	1180.13
0.0048	279.87	0.0093	527.47	0.0138	760.79	0.0183	979.80	0.0228	1184.53
0.0049	285.53	0.0094	532.81	0.0139	765.81	0.0184	984.51	0.0229	1188.91
0.0050	291.18	0.0095	538.15	0.0140	770.82	0.0185	989.21	0.0230	1193.29
0.0051	296.82	0.0096	543.47	0.0141	775.83	0.0186	993.90	0.0231	1197.67
0.0052	302.46	0.0097	548.79	0.0142	780.83	0.0187	998.58	0.0232	1202.03
0.0053	308.09	0.0098	554.10	0.0143	785.83	0.0188	1003.26	0.0233	1206.39
0.0054	313.71	0.0099	559.41	0.0144	790.81	0.0189	1007.93	0.0234	1210.74

**Table A-8. (cont'd) Coefficient of Resistance  $R$  Versus Reinforcement Ratio  $\rho$** 

$$f'_c = 6000 \text{ psi}$$

$$f_y = 60,000 \text{ psi}$$

$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)	$\rho$	$R$ (psi)
0.0235	1215.09	0.0280	1403.29	0.0325	1577.21	0.0370	1736.82	0.0415	1882.15
0.0236	1219.43	0.0281	1407.31	0.0326	1580.91	0.0371	1740.21	0.0416	1885.21
0.0237	1223.76	0.0282	1411.33	0.0327	1584.60	0.0372	1743.59	0.0417	1888.27
0.0238	1228.08	0.0283	1415.33	0.0328	1588.29	0.0373	1746.96	0.0418	1891.33
0.0239	1232.40	0.0284	1419.33	0.0329	1591.97	0.0374	1750.32	0.0419	1894.37
0.0240	1236.71	0.0285	1423.32	0.0330	1595.65	0.0375	1753.68	0.0420	1897.41
0.0241	1241.01	0.0286	1427.31	0.0331	1599.31	0.0376	1757.03	0.0421	1900.44
0.0242	1245.30	0.0287	1431.29	0.0332	1602.97	0.0377	1760.37	0.0422	1903.47
0.0243	1249.59	0.0288	1435.26	0.0333	1606.63	0.0378	1763.70	0.0423	1906.49
0.0244	1253.87	0.0289	1439.22	0.0334	1610.27	0.0379	1767.03	0.0424	1909.50
0.0245	1258.15	0.0290	1443.18	0.0335	1613.91	0.0380	1770.35	0.0425	1912.50
0.0246	1262.41	0.0291	1447.13	0.0336	1617.54	0.0381	1773.67	0.0426	1915.50
0.0247	1266.67	0.0292	1451.07	0.0337	1621.17	0.0382	1776.97	0.0427	1918.49
0.0248	1270.93	0.0293	1455.00	0.0338	1624.79	0.0383	1780.27	0.0428	1921.47
0.0249	1275.17	0.0294	1458.93	0.0339	1628.40	0.0384	1783.57	0.0429	1924.44
0.0250	1279.41	0.0295	1462.85	0.0340	1632.00	0.0385	1786.85	0.0430	1927.41
0.0251	1283.64	0.0296	1466.77	0.0341	1635.60	0.0386	1790.13	0.0431	1930.37
0.0252	1287.87	0.0297	1470.67	0.0342	1639.19	0.0387	1793.40	0.0432	1933.33
0.0253	1292.09	0.0298	1474.57	0.0343	1642.77	0.0388	1796.67	0.0433	1936.27
0.0254	1296.30	0.0299	1478.47	0.0344	1646.34	0.0389	1799.93	0.0434	1939.21
0.0255	1300.50	0.0300	1482.35	0.0345	1649.91	0.0390	1803.18	0.0435	1942.15
0.0256	1304.70	0.0301	1486.23	0.0346	1653.47	0.0391	1806.42	0.0436	1945.07
0.0257	1308.89	0.0302	1490.10	0.0347	1657.03	0.0392	1809.66	0.0437	1947.99
0.0258	1313.07	0.0303	1493.97	0.0348	1660.57	0.0393	1812.89	0.0438	1950.90
0.0259	1317.24	0.0304	1497.83	0.0349	1664.11	0.0394	1816.11	0.0439	1953.81
0.0260	1321.41	0.0305	1501.68	0.0350	1667.65	0.0395	1819.32	0.0440	1956.71
0.0261	1325.57	0.0306	1505.52	0.0351	1671.17	0.0396	1822.53	0.0441	1959.60
0.0262	1329.73	0.0307	1509.36	0.0352	1674.69	0.0397	1825.73	0.0442	1962.48
0.0263	1333.87	0.0308	1513.19	0.0353	1678.20	0.0398	1828.93	0.0443	1965.36
0.0264	1338.01	0.0309	1517.01	0.0354	1681.71	0.0399	1832.11	0.0444	1968.23
0.0265	1342.15	0.0310	1520.82	0.0355	1685.21	0.0400	1835.29	0.0445	1971.09
0.0266	1346.27	0.0311	1524.63	0.0356	1688.70	0.0401	1838.47	0.0446	1973.94
0.0267	1350.39	0.0312	1528.43	0.0357	1692.18	0.0402	1841.63	0.0447	1976.79
0.0268	1354.50	0.0313	1532.23	0.0358	1695.66	0.0403	1844.79	0.0448	1979.63
0.0269	1358.61	0.0314	1536.01	0.0359	1699.13	0.0404	1847.94	0.0449	1982.47
0.0270	1362.71	0.0315	1539.79	0.0360	1702.59	0.0405	1851.09	0.0450	1985.29
0.0271	1366.80	0.0316	1543.57	0.0361	1706.04	0.0406	1854.23	0.0451	1988.11
0.0272	1370.88	0.0317	1547.33	0.0362	1709.49	0.0407	1857.36	0.0452	1990.93
0.0273	1374.96	0.0318	1551.09	0.0363	1712.93	0.0408	1860.48	0.0453	1993.73
0.0274	1379.03	0.0319	1554.84	0.0364	1716.37	0.0409	1863.60	0.0454	1996.53
0.0275	1383.09	0.0320	1558.59	0.0365	1719.79	0.0410	1866.71	0.0455	1999.32
0.0276	1387.14	0.0321	1562.33	0.0366	1723.21	0.0411	1869.81	0.0456	2002.11
0.0277	1391.19	0.0322	1566.06	0.0367	1726.63	0.0412	1872.90	0.0457	2004.89
0.0278	1395.23	0.0323	1569.78	0.0368	1730.03	0.0413	1875.99	0.0458	2007.66
0.0279	1399.27	0.0324	1573.50	0.0369	1733.43	0.0414	1879.07	0.0459	2010.42