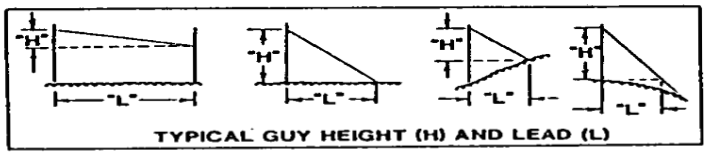
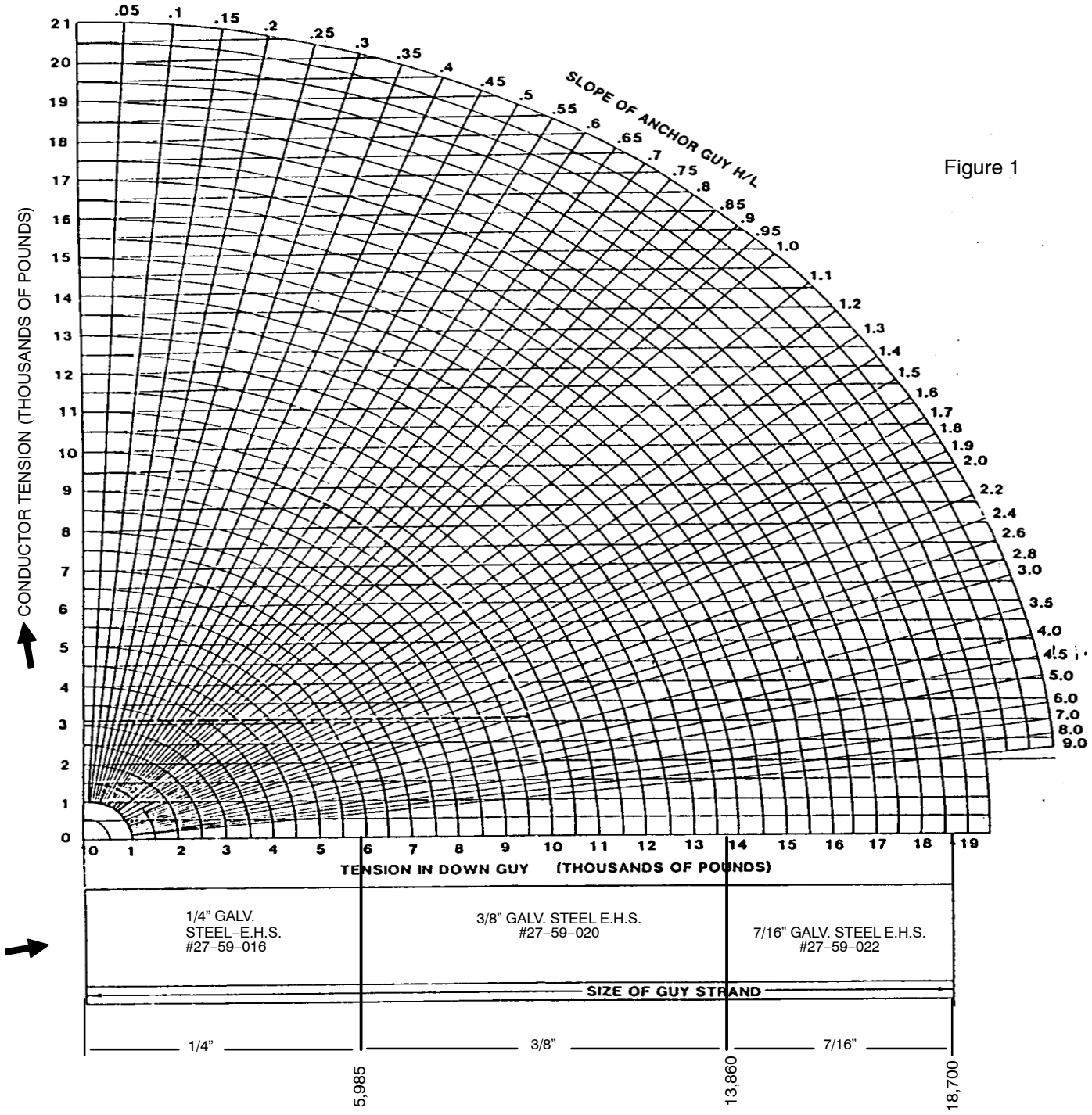


TYPICAL GUY HEIGHT (H) AND LEAD (L)

Figure 1



TO SIMPLIFY THE WORK OF SELECTING THE CORRECT GUY AND ANCHOR FOR A GIVEN LOAD, DIST. STD. 11 00 03 01 HAS BEEN PREPARED. NOTE THAT THE TOTAL LOAD IS THE SUMMATION OF THE CONDUCTOR TENSIONS INVOLVED SINCE SAFETY AND OTHER REQUIRED FACTORS HAVE BEEN INCORPORATED IN THE CONDUCTOR TENSIONS SHOWN IN DIST. STD. **11 00 04 02** BY CHOOSING A GRADE.

INSTRUCTION FOR USE OF GUY CHART

EXAMPLE: To determine the size guy strand for 3–1/0 AAAC & 1/0 Neutral – Urban Grade "C", 150' short span construction 15º line angle, joint use pole. Guy height (H) = 32', guy lead(L) = 10', use pole configuration in accord with Dist. Std. **03 12 05 **** Sht. 1 40' pole.

1. Determine the height over lead ratio. H/L = 32/10=3.2 (Radial Line).
2. From Sheet 1 Dist. Std. **11 00 04 02**, the conductor tension is 482 lbs. for 1/0. Total for 3 phases and neutral is 482 x 4 = 1928 lbs.
3. Locate this value on vertical scale of chart on Figure 1 and project this value horizontally to the right to the intersection with radial line 3.2.
4. Follow this point on the arc of the circle to the lower scale. Read the tension in the anchor guy, (6500#) and size guy wire, (3/8" Galv. Steel EHS).

TO DETERMINE THE VERTICAL LOADING ON THE POLE DUE TO GUYING

5. Determine the inverse of the height over lead ratio 1/H/L = 1/3.2 = .312 (Radial Line).
6. Locate the value of guy tension (Step 4) on horizontal scale and follow this point on the arc of the circle to the intersection with radial line .312.
7. Project this value horizontally to vertical scale and read the vertical thrust (V.T. = 6200).
8. Divide the value obtained from the vertical scale by the correction factor for the grade of construction used (V.T.=6200 ÷ 1.14 = 5438). This is the true vertical thrust on the pole due to the guy. Correction factors for the grade of construction are N=1.0 C = 1.14, and B = 1.5.

GENERAL NOTE: To extend the limits of this chart or to create an intersection of the horizontal load and slope lines, divide the horizontal load to be guyed by 2, 3, or 4, and multiply the actual tension by the same number.

SHORT SPAN (150' RULING SPAN)

Line Angle Deg.	4/0 AA Poly			1/0 AAAC 7 STR 1/0 AAAC 7 STR POLY			556.5 AAC 19 STR			954 45/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	231	198	98	209	177	91	318	262	145	357	296	161
2	258	216	115	244	200	112	405	319	198	443	353	213
3	285	234	131	278	223	133	491	377	250	530	411	265
4	313	252	147	313	246	154	577	434	302	616	468	318
5	340	270	164	347	269	175	664	492	354	702	526	370
6	367	288	180	382	292	195	750	549	407	788	583	422
7	394	306	197	416	315	216	836	607	459	875	641	474
8	421	324	213	451	338	237	922	664	511	961	698	527
9	448	342	229	485	360	258	1008	721	563	1047	755	579
10	475	360	246	519	383	279	1094	779	615	1132	812	631
15	609	449	327	690	497	383	1522	1064	875	1561	1098	890
20	742	537	408	860	610	486	1948	1347	1133	1986	1381	1148
25	873	625	488	1028	722	588	2369	1628	1389	2407	1661	1404
30	1003	711	567	1194	832	689	2786	1905	1643	2824	1938	1657
35	1131	796	646	1357	941	788	3198	2179	1893	3235	2212	1907
40	1257	879	722	1519	1047	887	3604	2449	2139	3640	2481	2154
45	1381	961	798	1677	1152	983	4003	2714	2382	4039	2746	2396
50	1501	1040	872	1832	1255	1078	4394	2974	2620	4429	3005	2634
55	1619	1118	944	1984	1355	1170	4777	3229	2853	4811	3259	2867
60	1734	1194	1014	2131	1453	1261	5151	3477	3080	5184	3506	3094
DE	1558	1038	944	1980	1320	1200	4950	3300	3000	4950	3300	3000

NOTE: Grade N represents tensions with no overload capacity factors.

SHORT SPAN (150' RULING SPAN)

Line Angle Deg.	110.8 12/7 ACSR			T2 4/0 6/1 ACSR			T2 556 AAC 19 STR			T2 954 45/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	220	186	95	284	240	122	415	341	190	536	435	250
2	254	209	116	327	269	148	530	418	260	709	550	355
3	289	232	137	370	298	175	646	494	329	882	665	459
4	323	255	158	413	327	201	761	571	399	1054	780	564
5	358	278	179	456	355	227	876	648	469	1227	895	669
6	392	301	200	499	384	253	991	724	539	1399	1010	773
7	427	324	220	542	413	279	1105	801	608	1571	1125	878
8	461	347	241	585	441	305	1220	877	678	1744	1240	982
9	495	370	262	628	470	331	1335	954	747	1916	1354	1086
10	530	392	283	671	498	357	1449	1030	817	2088	1469	1191
15	700	506	387	884	640	487	2020	1410	1163	2945	2040	1710
20	870	619	490	1096	781	616	2588	1788	1507	3796	2607	2227
25	1038	730	592	1306	921	743	3150	2163	1849	4640	3169	2739
30	1204	841	693	1513	1058	869	3706	2533	2187	5476	3725	3246
35	1367	949	792	1718	1194	994	4256	2898	2520	6301	4274	3747
40	1528	1056	890	1919	1327	1116	4797	3258	2849	7113	4815	4241
45	1686	1161	987	2116	1458	1237	5329	3612	3172	7913	5347	4726
50	1841	1263	1081	2310	1586	1355	5851	3958	3490	8697	5868	5203
55	1993	1364	1174	2499	1711	1471	6361	4298	3800	9465	6379	5670
60	2140	1461	1264	2683	1833	1583	6860	4629	4104	10215	6877	6126
DE	1980	1320	1200	2475	1650	1500	6600	4400	4000	9900	6600	6000

MEDIUM SPAN (200' RULING SPAN)

Line Angle Deg.	1/0 AAAC 7 STR			556.6 AA 19 STR			954 45/7 ACSR			110.8 12/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	273	232	118	416	343	188	476	394	214	290	246	125
2	314	259	142	522	414	253	591	471	284	333	275	151
3	354	286	166	629	485	317	706	548	354	376	304	177
4	394	312	191	735	556	382	821	624	423	419	332	203
5	434	339	215	842	627	446	936	701	493	463	361	230
6	474	366	240	948	698	511	1051	778	563	506	390	256
7	515	393	264	1054	769	575	1166	854	632	549	418	282
8	555	419	288	1160	839	640	1281	931	702	592	447	308
9	595	446	313	1267	910	704	1395	1007	772	634	475	334
10	635	473	337	1372	981	768	1510	1083	841	677	504	360
15	834	605	458	1900	1332	1089	2081	1463	1187	891	646	489
20	1032	737	578	2425	1682	1407	2648	1841	1531	1103	787	618
25	1227	867	697	2945	2028	1722	3209	2215	1872	1312	926	746
30	1421	995	815	3459	2370	2035	3765	2584	2210	1520	1064	872
35	1611	1122	931	3967	2707	2343	4313	2949	2543	1724	1200	996
40	1799	1246	1045	4467	3040	2647	4854	3308	2872	1925	1333	1119
45	1983	1368	1158	4958	3367	2946	5385	3661	3195	2122	1464	1239
50	2164	1487	1268	5441	3687	3240	5906	4007	3512	2316	1592	1357
55	2340	1604	1376	5912	4000	3527	6415	4345	3822	2505	1716	1473
60	2512	1718	1481	6373	4306	3807	6913	4675	4125	2689	1838	1586
DE	2310	1540	1400	6105	4070	3700	6600	4400	4000	2475	1650	1500

NOTE: Grade N represents tensions with <u>no</u> overload capacity factors.

MEDIUM SPAN (200' RULING SPAN)

Line Angle Deg.	T2 4/0 6/1 ACSR			T2 556 AAC			T2 954 45/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	377	319	162	537	443	243	700	570	325
2	433	357	196	674	534	326	916	714	456
3	489	394	230	810	626	409	1132	858	586
4	545	432	264	947	717	492	1348	1002	717
5	601	469	298	1084	808	574	1564	1146	848
6	657	506	332	1220	899	657	1779	1289	979
7	713	543	366	1356	989	740	1995	1433	1109
8	769	581	400	1493	1080	822	2210	1576	1240
9	824	618	434	1629	1171	905	2425	1720	1370
10	880	655	468	1765	1262	987	2640	1863	1500
15	1158	840	636	2443	1713	1399	3711	2576	2150
20	1433	1023	803	3116	2161	1807	4775	3285	2796
25	1706	1204	969	3783	2606	2212	5830	3988	3436
30	1975	1383	1133	4444	3045	2613	6874	4682	4069
35	2241	1559	1295	5095	3478	3009	7905	5368	4695
40	2502	1732	1454	5737	3905	3400	8920	6044	5312
45	2759	1902	1611	6368	4324	3783	9919	6708	5919
50	3010	2069	1764	6987	4736	4160	10899	7360	6515
55	3256	2231	1915	7593	5138	4529	11858	7997	7098
60	3495	2389	2061	8184	5530	4889	12795	8619	7668
DE	3218	2145	1950	7838	5225	4750	12375	8250	7500

NOTE: Grade N represents tensions with <u>no</u> overload capacity factors.

LONG SPAN (250' RULING SPAN)

Line Angle Deg.	1/0 AAAC 7 STR			556.5 AA 19 STR			954 45/7 ACSR			110.8 12/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	339	288	145	508	421	228	595	493	268	360	306	155
2	386	320	174	629	501	301	739	589	355	412	341	186
3	434	351	203	749	582	375	883	685	442	464	375	218
4	481	383	232	870	663	448	1027	781	529	516	410	249
5	528	414	260	991	743	521	1170	876	616	567	444	280
6	576	446	289	1112	823	594	1314	972	704	619	478	312
7	623	477	318	1232	904	667	1458	1068	791	671	513	343
8	670	509	346	1353	984	740	1601	1163	878	722	547	374
9	718	540	375	1473	1064	813	1744	1259	964	774	581	405
10	765	572	404	1593	1144	886	1887	1354	1051	825	616	437
15	999	728	546	2192	1543	1250	2601	1829	1484	1081	786	592
20	1232	883	688	2788	1940	1611	3309	2301	1914	1335	955	747
25	1463	1036	828	3377	2332	1969	4012	2768	2341	1587	1122	900
30	1691	1187	967	3961	2720	2323	4706	3230	2762	1835	1287	1051
35	1915	1336	1103	4537	3103	2673	5392	3686	3179	2080	1450	1200
40	2136	1482	1238	5104	3480	3018	6067	4135	3590	2322	1610	1347
45	2353	1626	1370	5661	3850	3357	6731	4576	3994	2558	1766	1492
50	2565	1766	1500	6208	4213	3690	7382	5009	4390	2790	1920	1633
55	2773	1903	1627	6743	4568	4016	8019	5431	4778	3016	2069	1772
60	2975	2037	1751	7265	4915	4334	8641	5844	5156	3237	2215	1907
DE	2723	1815	1650	6930	4620	4200	8250	5500	5000	2970	1981	1800

NOTE: Grade N represents tensions with <u>no</u> overload capacity factors.

LONG SPAN (250' RULING SPAN)

Line Angle Deg.	T2 4/0 6/1 ACSR			T2 556 AAC			T2 954 45/7 ACSR		
	Grade			Grade			Grade		
	B	C	N	B	C	N	B	C	N
1	468	398	201	644	536	287	865	706	399
2	536	443	242	788	632	375	1124	878	556
3	603	488	283	932	728	462	1383	1051	713
4	671	533	324	1076	824	549	1642	1224	870
5	739	578	365	1219	920	636	1901	1396	1027
6	806	623	406	1363	1015	723	2159	1568	1184
7	873	668	447	1507	1111	810	2418	1741	1341
8	941	712	488	1650	1206	897	2676	1913	1497
9	1008	757	529	1793	1302	984	2934	2085	1654
10	1075	802	569	1936	1397	1071	3192	2257	1810
15	1409	1024	772	2650	1872	1504	4477	3113	2590
20	1741	1245	974	3358	2344	1934	5754	3963	3364
25	2070	1463	1174	4060	2811	2360	7020	4806	4132
30	2394	1679	1371	4754	3272	2781	8272	5639	4893
35	2714	1891	1566	5439	3728	3198	9509	6462	5644
40	3029	2100	1758	6113	4176	3608	10727	7273	6384
45	3338	2304	1947	6776	4616	4012	11925	8070	7112
50	3640	2504	2132	7427	5048	4408	13101	8851	7827
55	3936	2700	2312	8063	5470	4795	14251	9615	8526
60	4224	2890	2489	8683	5881	5173	15374	10362	9210
DE	3878	2585	2350	8250	5500	5000	14850	9900	9000

NOTE: Grade N represents tensions with no overload capacity factors.

EXTRA LONG SPAN (300' RULING SPAN)

Line Angle Deg.	1/0 AAAC 7 STR			556.5 AAC 19 STR			954 45/7 ACSR			110.8 12/7 ACSR		
	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N	Grade B	Grade C	Grade N
1	403	343	172	594	495	264	685	572	304	431	366	185
2	456	379	204	723	581	343	829	668	391	491	406	221
3	509	414	237	853	667	421	973	764	478	552	447	258
4	562	449	269	982	754	500	1117	860	565	612	487	295
5	615	485	301	1111	840	578	1260	956	652	672	527	331
6	669	520	333	1241	926	656	1404	1051	740	732	567	368
7	722	555	365	1370	1012	735	1548	1147	827	793	607	404
8	775	591	398	1499	1098	813	1691	1242	914	853	647	441
9	827	626	430	1628	1184	891	1834	1338	1000	913	687	477
10	880	661	462	1757	1270	969	1977	1433	1087	973	727	514
15	1143	836	622	2398	1697	1359	2690	1908	1520	1272	926	695
20	1404	1010	780	3036	2121	1746	3398	2379	1950	1568	1123	875
25	1663	1181	937	3667	2541	2129	4100	2846	2376	1861	1318	1054
30	1918	1350	1093	4292	2957	2509	4793	3307	2797	2151	1510	1230
35	2169	1517	1246	4908	3366	2883	5478	3762	3214	2437	1700	1404
40	2416	1681	1397	5515	3770	3253	6152	4209	3624	2718	1886	1576
45	2659	1842	1545	6112	4166	3616	6814	4650	4027	2994	2069	1744
50	2897	1999	1690	6696	4554	3972	7464	5080	4422	3264	2247	1909
55	3129	2152	1832	7269	4934	4320	8099	5502	4810	3528	2422	2071
60	3355	2301	1971	7827	5304	4661	8719	5828	5188	3786	2592	2228
DE	3053	2035	1850	7425	4950	4500	8250	5500	5000	3465	2310	2100

NOTE: Grade N represents tensions with no overload capacity factors.

EXTRA LONG SPAN (300' RULING SPAN)

Line Angle Deg.	T2 4/0 6/1 ACSR			T2 556 AAC 19 STR			T2 954 45/7 ACSR		
	Grade			Grade			Grade		
	B	C	N	B	C	N	B	C	N
1	560	476	240	744	624	327	986	812	448
2	639	529	288	888	720	415	1245	985	605
3	718	581	336	1032	816	502	1504	1157	762
4	797	634	384	1176	912	589	1763	1330	919
5	876	687	432	1319	1008	676	2022	1503	1076
6	955	739	480	1463	1103	763	2280	1675	1232
7	1034	792	528	1606	1199	850	2539	1847	1389
8	1113	844	575	1750	1294	937	2797	2019	1546
9	1191	896	623	1893	1390	1024	3055	2191	1702
10	1270	949	671	2036	1485	1111	3313	2363	1858
15	1661	1209	909	2749	1959	1543	4597	3218	2638
20	2049	1467	1144	3456	2430	1973	5873	4068	3412
25	2434	1722	1378	4157	2897	2399	7138	4910	4180
30	2813	1974	1609	4850	3357	2820	8389	5742	4940
35	3187	2223	1837	5534	3812	3236	9624	6564	5690
40	3556	2467	2062	6207	4259	3646	10841	7373	6430
45	3917	2706	2282	6869	4698	4049	12037	8168	7157
50	4271	2940	2499	7517	5128	4444	13210	8947	7871
55	4617	3169	2710	8151	5548	4830	14358	9710	8569
60	4954	3391	2917	8770	5957	5208	15479	10454	9252
DE	4538	3025	2750	8250	5500	5000	14850	9900	9000

NOTE: Grade N represents tensions with <u>no</u> overload capacity factors.