Steel Transmission & Distribution Poles

Cecil Energy Structures is new, but the talent behind our products is not.We're backed by a team with over 100 years of steel pole manufacturing experience and global leaders in filament-wound composites. Our standard catalog designs feature steel round and 12-sided poles equivalent to ANSI 05.1 Wood Pole Classes 5 through H6. And, our manufacturing capabilites allow us to provide alternate pole shapes, grades of material, material thickness, tapers, and lengths — all with domestically sourced steel.

A Smart Alternative

- Increased durability
- Reduced weight, translating to lower transportation and install costs
- Increased service life — up to 80 years versus 20-30 years for wood poles
- Economically designed
- Aesthetically pleasing

Safe and Durable

- Consistent dimensional properties and material strength, maximizing strength and stiffness for loads applied in any direction
- Zero strength degredation — unlike wood poles, steel poles do not lose strength over time
- Quality tested and assured

Efficiencies in Install and Maintenance

- Improved labor savings due to customer-specified pre-drilled patterns
- Reduced handling and installation costs
- Zero pole-material shrinkage avoids hardware retightening maintenance
- Eliminates disposal problems associated with wood poles

Rock Stars in the Natural Environment

- Corrosion resistant
- Resistant to pole rot, insects, and woodpecker damage
- Fire resistant, allowing for line and equipment support even after a disastrous wildfire

cecilenergystructures.com

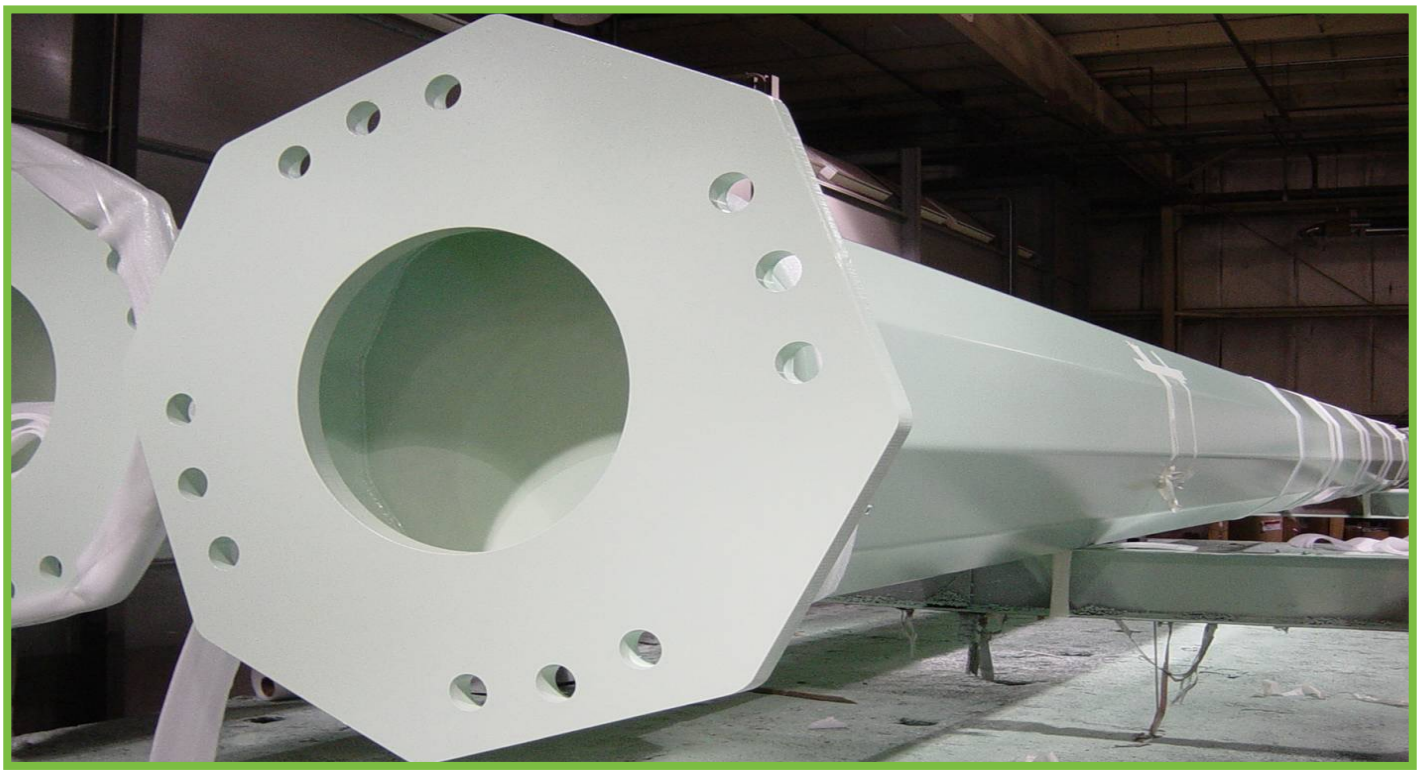
Steel T&D Poles: Features & Options

Standard Features

- Buy America / BABA certified
- Hot-dipped galvanized finish
- Direct-embedded construction
- Grounding provision(s)
- NESC Grade B Construction or RUS designs
- Ground-line and below-grade protective coating
- Grounding plate meeting NESC grounding requirement (2 sqft for distribution poles or bearing plate for transmission poles)
- Welded steel pole cap
- ID tag to customer specifications

Available Options

- Factory-drilled holes for attachments and steps
- Base plate construction
- Ground sleeve
- Dull- and oil-galvanized finish
- Pole steps
- NESC Grade C construction
- Weathering steel
- Factory-installed rivnuts
- Removable pole top
- Bearing plate in lieu of grounding plate for distribution class poles



Steel T&D Poles: Understanding Wood-Pole Equivalence

Wood poles are organized into different classes based on a required ultimate moment capacity at the ground line of the pole. Each class has a required tip load applied to the pole designated by the American National Standards Institute, ANSI 05.1. Steel poles follow the same classification system as wood poles but are equated to wood by applying a tip load that is multiplied by the appropriate equivalency factor for wood to steel.

To further explain wood-pole equivalents (wpe), below is a series of questions and answers. Refer to Appendix B and C for design examples.

How Is Steel Equivalent To Wood?

The term “wood-pole equivalent” refers to a steel pole that is designed to meet the required ultimate moment capacity at ground line for a given ANSI 05.1 class. However, because of variances in sectional properties and material between wood and steel, it is not enough to simply equate ultimate moment capacities at ground line. Further analysis is performed to ensure that steel poles are not susceptible to buckling issues, excessive deflections, or are overstressed from secondary moments.

What Is A Secondary Moment?

A secondary moment often referred to as the p-delta effect is the increase in bending moment due to a structure’s displacement under loading.

What Is Ultimate Moment Capacity?

Ultimate moment capacity is the moment that occurs when the material starts to yield.

Where Is The Ground Line Located?

Unless specified, ground line is located, from the butt of the pole, a distance of ten percent of the pole length plus two feet.

What Is The Tip Load?

A tip load is a horizontal point load applied two feet from the pole top. For NESC designs, the tip load is derived from the ANSI 05.1 wood pole classification system and is then multiplied by an equivalency factor for wood to steel. For RUS designs, the tip load is per Bulletin 1724E-214, Section 5, Table 1.

What Is An Equivalency Factor?

An equivalency factor is the wood to steel ratio of NESC overload factors under a given loading condition. For NESC Grade B construction under wind loading conditions, the wood pole overload factor is 4.0 and the steel pole overload factor is 2.5. Therefore, the equivalency factor for wood to steel becomes 2.5/4.0 equal to 0.625.

Steel T&D Poles: General Information

Material

Tubes are manufactured with ASTM A572 or A595 material having 55 ksi minimum yield strength. Pole tops, bearing plates, and grounding plates are manufactured with ASTM A36 material or better having 36 ksi minimum yield strength. All material receives a galvanized structural finish in accordance with ASTM A123.

Embedment Depth

Standard embedment depth is calculated as ten percent of the pole length plus two feet. However, soil capacity analysis is the responsibility of the customer and should be performed by a local professional geotechnical engineer.

Steel Design

Structural analysis is performed in accordance with ASCE Manual 48-19 “Design Of Steel Transmission Pole Structures.” Ultimate strength methods are used to compute stresses resulting from factored design loads being applied to the structures.

Joint Construction

The standard method of joint construction for multi-piece wood pole equivalents is a telescoping slip joint. Telescoping slip joints are designed with a nominal lap length that will develop the sufficient strength needed for the connecting sections. Telescoping slip joints are not only cost effective but allow for easier field assembly and installation.

Another method used is a bolted flange plate connection. Bolted flange plate connections are more expensive and reserved for designs where telescoping slip joints are considered not to be good engineering practice as a result of loading conditions or design requirements. Examples of such designs that might warrant bolted flange plate connections are guyed and framed structures.

Weld Penetration

The longitudinal seam weld of the tube receives, as a minimum, sixty percent penetration weld. The slip joint area of the female section receives one hundred percent full-penetration weld for the nominal joint length plus an additional six inches. The pole cap is joined to the pole top with a 3/16” minimum staggered intermittent fillet weld. The bearing plate is joined to the pole butt with a 1/4” fillet weld. For base plate applications and other circumferential welds, a one hundred percent full-penetration weld is used.

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Steel T&D Poles: Catalog Summary

Round Series Catalog Designs

Pre-Engineered Standard Catalog Designs	30 - 80 ft pole lengths for Class 5 - Class 1
	30 - 80 ft pole lengths for Class H1
	30 - 80 ft pole lengths for Class H2
	30 - 80 ft pole lengths for Class H3
	30 - 75 ft pole lengths for Class 5 - Class H4
Cross Section	Round
Taper Rate	.14 in/ft
Maximum Section Length	45 ft
Wall Thickness	Ranges from .119 in - .25 in
Shipping Sections	1-piece section for pole lengths up to 40 ft
	2-piece section for pole lengths 45 ft and above
Diameter Range	3.5 in minimum
	18.56 in maximum

Multi-Sided Series Catalog Designs

Pre-Engineered Standard Catalog Designs	40 - 130 ft pole lengths for Class 1 - Class H6 NESC Grade B Construction
	40 - 130 ft pole length for Class 1 - Class H6 RUS Designs
Cross Section	12 Sides
Taper Rate	Ranges from .12 - .20 in/ft
Maximum Section Length	53.5 ft
Wall Thickness	Ranges from .188 in - .25 in
Shipping Sections	1-piece section for pole lengths up to 50 ft
	2-piece construction for pole lengths 55 ft and above
Diameter Range	7.5 in minimum across flats
	33.14 in maximum across flats

Steel Pole Designs Grade B - Round Series

Wood-Pole Equivalent Class 5

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CL5-R	30	5.0	4.80	9.00	0.12	28.44	263
35CL5-R	35	5.5	5.00	9.90	0.12	34.54	331
40CL5-R	40	6.0	3.40	9.00	0.179	40.08	462
45CL5-R	45	6.5	3.70	9.60	0.179	45.63	557
50CL5-R	50	7.0	3.60	10.20	0.179	51.54	641
55CL5-R	55	7.5	3.40	10.70	0.179	56.60	718
60CL5-R	60	8.0	3.20	11.20	0.179	61.90	797
65CL5-R	60	8.5	3.20	11.90	0.179	70.08	904
70CL5-R	65	9.0	3.20	12.60	0.179	78.78	1017
75CL5-R	75	9.5	3.20	13.30	0.179	87.98	1137
80CL5-R	80	10.0	3.20	14.00	0.179	97.69	1264

Wood-Pole Equivalent Class 4

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CL4-R	30	5.0	5.90	10.10	0.12	36.66	308
35CL4-R	35	5.5	4.40	9.30	0.179	43.93	452
40CL4-R	40	6.0	5.00	10.60	0.179	57.96	590
45CL4-R	45	6.5	4.70	10.60	0.179	57.10	647
50CL4-R	50	7.0	4.70	11.30	0.179	64.97	751
55CL4-R	55	7.5	4.60	11.90	0.179	71.99	849
60CL4-R	60	8.0	4.50	12.50	0.179	79.36	953
65CL4-R	60	8.5	4.30	13.00	0.179	85.61	1047
70CL4-R	65	9.0	4.10	13.50	0.179	92.09	1143
75CL4-R	75	9.5	4.00	14.10	0.179	100.41	1257
80CL4-R	80	10.0	5.10	15.90	0.179	130.06	1568

Steel Pole Designs Grade B - Round Series, Continued

Wood-Pole Equivalent Class 3

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CL3-R	30	5.0	5.20	9.4	0.179	45.75	417
35CL3-R	35	5.5	5.30	10.20	0.179	54.01	515
40CL3-R	40	6.0	5.40	11.00	0.179	62.94	622
45CL3-R	45	6.5	5.80	11.70	0.179	71.19	746
50CL3-R	50	7.0	5.80	12.40	0.179	79.95	861
55CL3-R	55	7.5	5.80	13.10	0.179	89.22	981
60CL3-R	60	8.0	5.80	13.80	0.179	99.00	1108
65CL3-R	60	8.5	5.70	14.40	0.179	107.61	1229
70CL3-R	65	9.0	5.60	15.00	0.179	116.58	1353
75CL3-R	75	9.5	5.40	15.50	0.179	124.12	1467
80CL3-R	80	10.0	5.30	16.10	0.179	133.74	1600

Wood-Pole Equivalent Class 2

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CL2-R	30	5.0	6.10	10.3	0.179	56.03	471
35CL2-R	35	5.5	6.30	11.20	0.179	66.42	585
40CL2-R	40	6.0	6.50	12.10	0.179	77.70	710
45CL2-R	45	6.5	7.00	12.90	0.179	88.34	854
50CL2-R	50	7.0	7.10	13.70	0.179	99.66	991
55CL2-R	55	7.5	7.10	14.40	0.179	109.97	1124
60CL2-R	60	8.0	7.10	15.10	0.179	120.80	1264
65CL2-R	65	8.5	7.10	15.80	0.179	132.12	1411
70CL2-R	70	9.0	7.00	16.40	0.179	142.04	1549
75CL2-R	75	9.5	7.60	17.70	0.179	166.45	1797
80CL2-R	80	10.0	5.44	16.10	0.25	184.09	2250

Steel Pole Designs Grade B - Round Series, Continued

Wood-Pole Equivalent Class 1

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CL1-R	30	5.0	7.00	11.2	0.179	67.34	525
35CL1-R	35	5.5	7.40	12.30	0.179	81.57	662
40CL1-R	40	6.0	7.60	13.20	0.179	94.01	798
45CL1-R	45	6.5	8.20	14.10	0.179	107.33	962
50CL1-R	50	7.0	8.40	15.00	0.179	121.53	1121
55CL1-R	55	7.5	8.50	15.80	0.179	134.75	1278
60CL1-R	60	8.0	8.50	16.50	0.179	146.70	1432
65CL1-R	65	8.5	8.60	17.30	0.179	161.18	1606
70CL1-R	70	9.0	8.60	18.00	0.179	174.21	1773
75CL1-R	75	9.5	6.14	16.10	0.25	185.90	2190
80CL1-R	80	10.0	7.64	18.30	0.25	244.89	2741

Wood-Pole Equivalent Class H1

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CLH1-R	30	5.0	8.00	12.2	0.179	81.13	585
35CLH1-R	35	5.5	8.40	13.30	0.179	96.68	732
40CLH1-R	40	6.0	10.20	15.80	0.179	138.76	1006
45CLH1-R	45	6.5	9.40	15.30	0.179	128.17	1070
50CLH1-R	50	7.0	9.70	16.30	0.179	145.57	1251
55CLH1-R	55	7.5	9.80	17.10	0.179	160.00	1421
60CLH1-R	60	8.0	10.00	18.00	0.179	177.24	1612
65CLH1-R	65	8.5	7.64	16.20	0.25	192.19	2056
70CLH1-R	70	9.0	7.74	17.00	0.25	211.79	2295
75CLH1-R	75	9.5	7.74	17.70	0.25	229.47	2525
80CLH1-R	80	10.0	7.64	18.30	0.25	244.87	2741

Steel Pole Designs Grade B - Round Series, Continued

Wood-Pole Equivalent Class H2

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CLH2-R	30	5.0	9.00	13.2	0.179	96.20	645
35CLH2-R	35	5.5	10.20	15.10	0.179	127.12	858
40CLH2-R	40	6.0	10.20	15.80	0.179	138.74	1006
45CLH2-R	45	6.5	10.70	16.60	0.179	152.83	1187
50CLH2-R	50	7.0	11.00	17.60	0.179	171.78	1381
55CLH2-R	55	7.5	11.20	18.50	0.179	189.62	1575
60CLH2-R	60	8.0	8.94	16.80	0.25	210.20	2063
65CLH2-R	65	8.5	8.94	17.50	0.25	227.81	2292
70CLH2-R	70	9.0	8.94	18.20	0.25	246.12	2530
75CLH2-R	75	9.5	10.34	20.30	0.25	310.04	3070
80CLH2-R	80	10.0	10.34	21.00	0.25	331.33	3345

Wood-Pole Equivalent Class H3

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CLH3-R	30	5.0	10.00	14.2	0.179	112.56	705
35CLH3-R	35	5.5	10.60	15.50	0.179	134.43	886
40CLH3-R	40	6.0	11.10	16.70	0.179	156.23	1078
45CLH3-R	45	6.5	12.00	17.90	0.179	179.66	1304
50CLH3-R	50	7.0	9.84	16.30	0.25	200.49	1757
55CLH3-R	55	7.5	10.04	17.20	0.25	223.32	2011
60CLH3-R	60	8.0	10.14	18.00	0.25	244.41	2264
65CLH3-R	65	8.5	10.24	18.80	0.25	266.45	2528
70CLH3-R	70	9.0	10.34	19.60	0.25	289.43	2803
75CLH3-R	75	9.5	10.34	20.30	0.25	310.02	3070
80CLH3-R	80	10.0	10.44	21.10	0.25	334.77	3367

Steel Pole Designs Grade B - Round Series, Continued

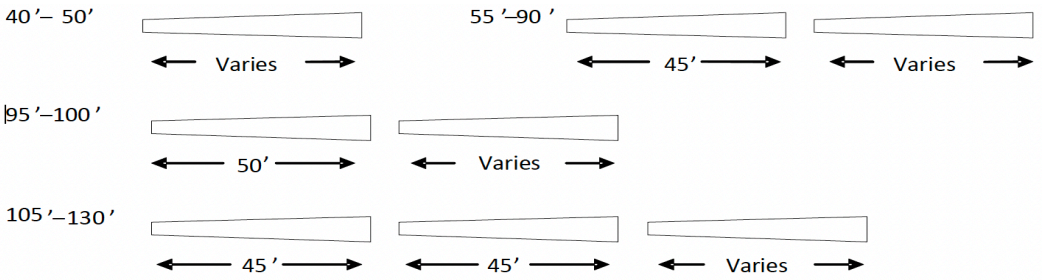
Wood-Pole Equivalent Class H4

Taper Rate = 0.14 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
30CLH4-R	30	5.0	11.00	15.2	0.179	130.19	765
35CLH4-R	35	5.5	12.20	17.10	0.179	165.80	998
40CLH4-R	40	6.0	12.30	17.90	0.179	181.18	1174
45CLH4-R	45	6.5	10.74	16.50	0.25	207.82	1655
50CLH4-R	50	7.0	11.04	17.50	0.25	233.94	1924
55CLH4-R	55	7.5	11.24	18.40	0.25	258.55	2196
60CLH4-R	60	8.0	11.44	19.30	0.25	284.39	2482
65CLH4-R	65	8.5	11.64	20.20	0.25	311.45	2782
70CLH4-R	70	9.0	11.84	21.10	0.25	339.73	3097
75CLH4-R	75	9.5	10.47	20.30	0.313	384.28	3860

Steel Pole Designs Grade B - Multi-Sided Series

Multi-Sided Section Lengths



Wood-Pole Equivalent Class 1

Taper Rate = 0.124 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CL1-MS	40	6	7.5	12.46	0.1875	109.35	808
45CL1-MS	45	6.5	7.5	13.08	0.1875	112.34	937
50CL1-MS	50	7	7.5	13.7	0.1875	131.73	1072
55CL1-MS	55	7.5	7.5	13.82	0.1875	132.97	1261
60CL1-MS	60	8	7.5	14.44	0.1875	144.99	1404
65CL1-MS	65	8.5	7.5	15.06	0.1875	157.54	1553
70CL1-MS	70	9	7.5	15.68	0.1875	170.6	1709
75CL1-MS	75	9.5	7.5	16.3	0.1875	184.19	1871
80CL1-MS	80	10	7.5	16.92	0.1875	198.3	2039
85CL1-MS	85	10.5	7.5	17.54	0.1875	212.92	2214
90CL1-MS	90	11	7.5	18.16	0.1875	228.07	2395
95CL1-MS	95	11.5	7.5	18.78	0.1875	243.74	2590
100CL1-MS	100	12	7.5	19.4	0.1875	259.93	2784
105CL1-MS	105	12.5	7.5	19.52	0.1875	261.67	3055
110CL1-MS	110	13	7.5	20.14	0.1875	278.43	3257
115CL1-MS	115	13.5	7.5	20.76	0.1875	295.72	3465
120CL1-MS	120	14	7.5	21.38	0.1875	313.52	3679
125CL1-MS	125	14.5	7.5	22	0.1875	331.85	3900
130CL1-MS	130	15	7.5	22.62	0.1875	350.7	4127

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H1

Taper Rate = 0.1352 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH1-MS	40	6	8.13	13.54	0.1875	129.53	878
45CLH1-MS	45	6.5	8.13	14.21	0.1875	142.5	1018
50CLH1-MS	50	7	8.13	14.89	0.1875	156.09	1165
55CLH1-MS	55	7.5	8.13	15.06	0.1875	158.34	1371
60CLH1-MS	60	8	8.13	15.73	0.1875	172.64	1527
65CLH1-MS	65	8.5	8.13	16.41	0.1875	187.57	1690
70CLH1-MS	70	9	8.13	17.08	0.1875	203.11	1860
75CLH1-MS	75	9.5	8.13	17.76	0.1875	219.28	2036
80CLH1-MS	80	10	8.13	18.44	0.1875	236.06	2220
85CLH1-MS	85	10.5	8.13	19.11	0.1875	253.46	2411
90CLH1-MS	90	11	8.13	19.79	0.1875	271.48	2608
95CLH1-MS	95	11.5	8.13	20.46	0.1875	290.12	2821
100CLH1-MS	100	12	8.13	21.14	0.1875	309.37	3039
105CLH1-MS	105	12.5	8.13	21.31	0.1875	312.54	3339
110CLH1-MS	110	13	8.13	21.98	0.1875	332.52	3561
115CLH1-MS	115	13.5	8.13	22.66	0.1875	353.11	3788
120CLH1-MS	120	14	8.13	23.33	0.1875	374.32	4021
125CLH1-MS	125	14.5	8.13	24.01	0.1875	396.16	4262
130CLH1-MS	130	15	8.13	24.69	0.1875	416.61	4510

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H2

Taper Rate = 0.151 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH2-MS	40	6	8.5	14.54	0.1875	149.1	934
45CLH2-MS	45	6.5	8.5	15.29	0.1875	164.65	1086
50CLH2-MS	50	7	8.5	16.05	0.1875	180.98	1245
55CLH2-MS	55	7.5	8.5	16.28	0.1875	184.77	1474
60CLH2-MS	60	8	8.5	17.03	0.1875	202.05	1643
65CLH2-MS	65	8.5	8.5	17.79	0.1875	220.09	1820
70CLH2-MS	70	9	8.5	18.54	0.1875	238.91	2004
75CLH1-MS	75	9.5	8.5	19.3	0.1875	258.5	2197
80CLH2-MS	80	10	8.5	20.05	0.1875	278.86	2397
85CLH2-MS	85	10.5	8.5	20.81	0.1875	299.99	2604
90CLH2-MS	90	11	8.5	21.56	0.1875	321.9	2820
95CLH2-MS	95	11.5	8.5	22.32	0.1875	344.58	3052
100CLH2-MS	100	12	8.5	23.07	0.1875	368.03	3283
105CLH2-MS	105	12.5	8.5	23.3	0.1875	373.43	3628
110CLH2-MS	110	13	8.5	24.06	0.1875	397.83	3869
115CLH2-MS	115	13.5	8.5	24.81	0.1875	422.82	4118
120CLH2-MS	120	14	8.5	25.57	0.1875	442.18	4374
125CLH2-MS	125	14.5	8.5	26.32	0.1875	461.52	4639
130CLH2-MS	130	15	8.5	27.08	0.1875	480.82	4911

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H3

Taper Rate = 0.168 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH3-MS	40	6	8.9	15.62	0.1875	171.73	996
45CLH3-MS	45	6.5	8.9	16.46	0.1875	190.32	1158
50CLH3-MS	50	7	8.9	17.3	0.1875	209.87	1329
55CLH3-MS	55	7.5	8.9	17.6	0.1875	215.55	1585
60CLH3-MS	60	8	8.9	18.44	0.1875	236.32	1768
65CLH3-MS	65	8.5	8.9	19.28	0.1875	258.04	1960
70CLH3-MS	70	9	8.9	20.12	0.1875	280.73	2160
75CLH3-MS	75	9.5	8.9	20.96	0.1875	304.36	2369
80CLH3-MS	80	10	8.9	21.8	0.1875	328.96	2586
85CLH3-MS	85	10.5	8.9	22.64	0.1875	354.51	2812
90CLH3-MS	90	11	8.9	23.48	0.1875	381.01	3046
95CLH3-MS	95	11.5	8.9	24.32	0.1875	408.47	3300
100CLH3-MS	100	12	8.9	25.16	0.1875	433.26	3552
105CLH3-MS	105	12.5	8.9	25.45	0.1875	439.33	3940
110CLH3-MS	110	13	8.9	26.29	0.1875	460.85	4203
115CLH3-MS	115	13.5	8.9	27.13	0.1875	482.32	4475
120CLH3-MS	120	14	8.9	27.97	0.1875	503.69	4756
125CLH3-MS	125	14.5	8.9	28.81	0.1875	524.92	5045
130CLH3-MS	130	15	8.9	29.65	0.1875	545.95	5343

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H4

Taper Rate = 0.196 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH4-MS	40	6	8.8	16.64	0.1875	192.75	1033
45CLH4-MS	45	6.5	8.8	17.62	0.1875	215.79	1207
50CLH4-MS	50	7	8.8	18.6	0.1875	240.13	1391
55CLH4-MS	55	7.5	8.8	19.01	0.1875	249.02	1667
60CLH4-MS	60	8	8.8	19.99	0.1875	275.12	1865
65CLH4-MS	65	8.5	8.8	20.97	0.1875	302.52	2073
70CLH4-MS	70	9	8.8	21.95	0.1875	331.22	2291
75CLH4-MS	75	9.5	8.8	22.93	0.1875	361.22	2519
80CLH4-MS	80	10	8.8	23.91	0.1875	392.52	2758
85CLH4-MS	85	10.5	8.8	24.89	0.1875	424.43	3006
90CLH4-MS	90	11	8.8	25.87	0.1875	449.55	3264
95CLH4-MS	95	11.5	8.8	26.85	0.1875	474.64	3553
100CLH4-MS	100	12	8.8	27.83	0.1875	499.6	3832
105CLH4-MS	105	12.5	8.8	28.24	0.1875	508.37	4265
110CLH4-MS	110	13	8.8	29.22	0.1875	533.06	4558
115CLH4-MS	115	13.5	8.8	30.22	0.1875	557.47	4861
120CLH4-MS	120	14	8.8	31.18	0.1875	581.52	5174
125CLH4-MS	125	14.5	8.8	32.16	0.1875	605.13	5498
130CLH4-MS	130	15	8.8	33.14	0.1875	628.22	5831

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H4

Taper Rate = 0.163 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH4-MS	40	6	8.8	16.64	0.1875	192.75	1033
45CLH4-MS	45	6.5	8.8	17.62	0.1875	215.79	1207
50CLH4-MS	50	7	8.8	18.6	0.1875	240.13	1391
55CLH4-MS	55	7.5	8.8	19.01	0.1875	249.02	1667
60CLH4-MS	60	8	8.8	19.99	0.1875	275.12	1865
65CLH4-MS	65	8.5	8.8	20.97	0.1875	302.52	2073
70CLH4-MS	70	9	8.8	21.95	0.1875	331.22	2291
75CLH4-MS	75	9.5	8.8	22.93	0.1875	361.22	2519
80CLH4-MS	80	10	8.8	23.91	0.1875	392.52	2758
85CLH4-MS	85	10.5	8.8	24.89	0.1875	424.43	3006
90CLH4-MS	90	11	8.8	25.87	0.1875	449.55	3264
95CLH4-MS	95	11.5	8.8	26.85	0.1875	474.64	3553
100CLH4-MS	100	12	8.8	27.83	0.1875	499.6	3832
105CLH4-MS	105	12.5	8.8	28.24	0.1875	508.37	4265
110CLH4-MS	110	13	8.8	29.22	0.1875	533.06	4558
115CLH4-MS	115	13.5	8.8	30.22	0.1875	557.47	4861
120CLH4-MS	120	14	8.8	31.18	0.1875	581.52	5174
125CLH4-MS	125	14.5	8.8	32.16	0.1875	605.13	5498
130CLH4-MS	130	15	8.8	33.14	0.1875	628.22	5831

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H5

Taper Rate = 0.171 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH5-MS	40	6	9.45	15.97	0.25	238.26	1368
45CLH5-MS	45	6.5	9.45	16.78	0.25	262.76	1589
50CLH5-MS	50	7	9.45	17.6	0.25	288.46	1821
55CLH5-MS	55	7.5	9.45	17.75	0.25	290.99	2163
60CLH5-MS	60	8	9.45	18.57	0.25	318.01	2408
65CLH5-MS	65	8.5	9.45	19.38	0.25	346.22	2664
70CLH5-MS	70	9	9.45	20.2	0.25	375.63	2932
75CLH5-MS	75	9.5	9.45	21.01	0.25	406.24	3211
80CLH5-MS	80	10	9.45	21.83	0.25	438.06	3500
85CLH5-MS	85	10.5	9.45	22.64	0.25	471.07	3801
90CLH5-MS	90	11	9.45	23.46	0.25	505.28	4113
95CLH5-MS	95	11.5	9.45	24.27	0.25	540.69	4451
100CLH5-MS	100	12	9.45	25.09	0.25	577.29	4785
105CLH5-MS	105	12.5	9.45	25.24	0.25	580.88	5292
110CLH5-MS	110	13	9.45	26.05	0.25	618.8	5639
115CLH5-MS	115	13.5	9.45	26.87	0.25	657.92	5998
120CLH5-MS	120	14	9.45	27.68	0.25	698.25	6367
125CLH5-MS	125	14.5	9.45	28.5	0.25	739.77	6748
130CLH5-MS	130	15	9.45	29.31	0.25	782.49	7140

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs Grade B - Multi-Sided Series, Continued

Wood-Pole Equivalent Class H6

Taper Rate = 0.1360 in/ft

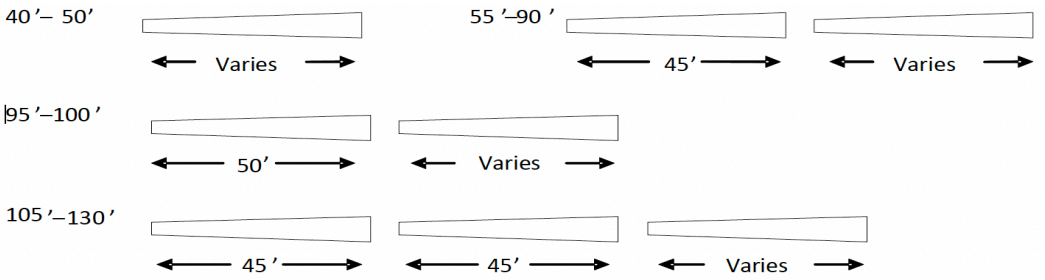
Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLH6-MS	40	6	10.25	17.09	0.25	274.47	1474
45CLH6-MS	45	6.5	10.25	17.94	0.25	302.04	1710
50CLH6-MS	50	7	10.25	18.8	0.25	330.93	1958
55CLH6-MS	55	7.5	10.25	18.98	0.25	334.73	2325
60CLH6-MS	60	8	10.25	19.84	0.25	365.11	2587
65CLH6-MS	65	8.5	10.25	20.69	0.25	396.81	2861
70CLH6-MS	70	9	10.25	21.55	0.25	429.83	3147
75CLH6-MS	75	9.5	10.25	22.4	0.25	464.17	3444
80CLH6-MS	80	10	10.25	23.26	0.25	499.83	3753
85CLH6-MS	85	10.5	10.25	24.11	0.25	536.81	4073
90CLH6-MS	90	11	10.25	24.97	0.25	575.12	4405
95CLH6-MS	95	11.5	10.25	25.82	0.25	614.74	4778
100CLH6-MS	100	12	10.25	26.68	0.25	655.68	5134
105CLH6-MS	105	12.5	10.25	26.86	0.25	661.01	5663
110CLH6-MS	110	13	10.25	27.72	0.25	703.44	6033
115CLH6-MS	115	13.5	10.25	28.57	0.25	747.19	6415
120CLH6-MS	120	14	10.25	29.43	0.25	792.26	6808
125CLH6-MS	125	14.5	10.25	30.28	0.25	838.65	7213
130CLH6-MS	130	15	10.25	31.14	0.25	886.36	7629

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- No deflection limitations
- Loads as per ANSI 05.1

Steel Pole Designs - RUS

RUS Section Lengths



RUS Class 1

Taper Rate = 0.136 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUS1-MS	40	6	8	13.44	0.1875	135.38	961
45CLRUS1-MS	45	6.5	8	14.12	0.1875	149.77	1110
50CLRUS1-MS	50	7	8	14.8	0.1875	164.9	1265
55CLRUS1-MS	55	7.5	8	14.98	0.1875	168.69	1480
60CLRUS1-MS	60	8	8	15.66	0.1875	184.72	1644
65CLRUS1-MS	65	8.5	8	16.34	0.1875	201.47	1816
70CLRUS1-MS	70	9	8	17.02	0.1875	218.95	1995
75CLRUS1-MS	75	9.5	8	17.7	0.1875	237.16	2183
80CLRUS1-MS	80	10	8	18.38	0.1875	256.1	2377
85CLRUS1-MS	85	10.5	8	19.06	0.1875	275.76	2578
90CLRUS1-MS	90	11	8	19.74	0.1875	296.15	2786
95CLRUS1-MS	95	11.5	8	20.42	0.1875	317.27	3018
100CLRUS1-MS	100	12	8	21.1	0.1875	339.12	3241
105CLRUS1-MS	105	12.5	8	21.28	0.1875	344.55	3554
110CLRUS1-MS	110	13	8	21.96	0.1875	367.3	3786
115CLRUS1-MS	115	13.5	8	22.64	0.1875	390.77	4026
120CLRUS1-MS	120	14	8	23.32	0.1875	414.98	4273
125CLRUS1-MS	125	14.5	8	24	0.1875	435.51	4527
130CLRUS1-MS	130	15	8	24.68	0.1875	454.3	4789

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H1

Taper Rate = 0.141 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH1-MS	40	6	8.75	14.39	0.1875	155.98	1039
45CLRUSH1-MS	45	6.5	8.75	15.09	0.1875	171.98	1197
50CLRUSH1-MS	50	7	8.75	15.8	0.1875	188.77	1364
55CLRUSH1-MS	55	7.5	8.75	15.99	0.1875	193.16	1600
60CLRUSH1-MS	60	8	8.75	16.7	0.1875	210.93	1777
65CLRUSH1-MS	65	8.5	8.75	17.4	0.1875	229.48	1960
70CLRUSH1-MS	70	9	8.75	18.11	0.1875	248.81	2151
75CLRUSH1-MS	75	9.5	8.75	18.81	0.1875	268.92	2349
80CLRUSH1-MS	80	10	8.75	19.52	0.1875	289.82	2556
85CLRUSH1-MS	85	10.5	8.75	20.22	0.1875	311.5	2769
90CLRUSH1-MS	90	11	8.75	20.93	0.1875	333.96	2990
95CLRUSH1-MS	95	11.5	8.75	21.63	0.1875	357.2	3229
100CLRUSH1-MS	100	12	8.75	22.34	0.1875	381.22	3465
105CLRUSH1-MS	105	12.5	8.75	22.53	0.1875	387.44	3815
110CLRUSH1-MS	110	13	8.75	23.24	0.1875	412.45	4061
115CLRUSH1-MS	115	13.5	8.75	23.94	0.1875	434.26	4314
120CLRUSH1-MS	120	14	8.75	24.65	0.1875	453.74	4575
125CLRUSH1-MS	125	14.5	8.75	25.35	0.1875	473.18	4844
130CLRUSH1-MS	130	15	8.75	26.06	0.1875	492.56	5121

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H2

Taper Rate = 0.1525 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH2-MS	40	6	9	15.1	0.1875	171.73	1082
45CLRUSH2-MS	45	6.5	9	15.86	0.1875	189.91	1249
50CLRUSH2-MS	50	7	9	16.62	0.1875	209	1425
55CLRUSH2-MS	55	7.5	9	16.86	0.1875	214.68	1674
60CLRUSH2-MS	60	8	9	17.62	0.1875	234.96	1860
65CLRUSH2-MS	65	8.5	9	18.39	0.1875	256.14	2054
70CLRUSH2-MS	70	9	9	19.15	0.1875	278.24	2255
75CLRUSH2-MS	75	9.5	9	19.91	0.1875	301.26	2466
80CLRUSH2-MS	80	10	9	20.67	0.1875	325.19	2685
85CLRUSH2-MS	85	10.5	9	21.44	0.1875	350.03	2911
90CLRUSH2-MS	90	11	9	22.2	0.1875	375.79	3146
95CLRUSH2-MS	95	11.5	9	22.96	0.1875	402.47	3399
100CLRUSH2-MS	100	12	9	23.72	0.1875	428.15	3650
105CLRUSH2-MS	105	12.5	9	23.96	0.1875	434.23	4023
110CLRUSH2-MS	110	13	9	24.72	0.1875	455.3	4284
115CLRUSH2-MS	115	13.5	9	25.49	0.1875	476.32	4554
120CLRUSH2-MS	120	14	9	26.25	0.1875	497.26	4832
125CLRUSH2-MS	125	14.5	9	27.01	0.1875	518.07	5119
130CLRUSH2-MS	130	15	9	27.77	0.1875	538.72	5414

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H3

Taper Rate = 0.1695 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH3-MS	40	6	9.25	16.03	0.1875	193.35	1137
45CLRUSH3-MS	45	6.5	9.25	16.88	0.1875	214.81	1315
50CLRUSH3-MS	50	7	9.25	17.72	0.1875	237.41	1501
55CLRUSH3-MS	55	7.5	9.25	18.03	0.1875	245.33	1777
60CLRUSH3-MS	60	8	9.25	18.88	0.1875	269.44	1977
65CLRUSH3-MS	65	8.5	9.25	19.72	0.1875	294.68	2185
70CLRUSH3-MS	70	9	9.25	20.57	0.1875	321.05	2402
75CLRUSH3-MS	75	9.5	9.25	21.42	0.1875	348.55	2628
80CLRUSH3-MS	80	10	9.25	22.27	0.1875	377.17	2863
85CLRUSH3-MS	85	10.5	9.25	23.11	0.1875	406.93	3108
90CLRUSH3-MS	90	11	9.25	23.96	0.1875	433.95	3361
95CLRUSH3-MS	95	11.5	9.25	24.81	0.1875	457.37	3635
100CLRUSH3-MS	100	12	9.25	25.66	0.1875	480.72	3906
105CLRUSH3-MS	105	12.5	9.25	25.96	0.1875	488.63	4322
110CLRUSH3-MS	110	13	9.25	26.81	0.1875	511.82	4607
115CLRUSH3-MS	115	13.5	9.25	27.66	0.1875	534.81	4899
120CLRUSH3-MS	120	14	9.25	28.5	0.1875	557.55	5202
125CLRUSH3-MS	125	14.5	9.25	29.35	0.1875	579.97	5513
130CLRUSH3-MS	130	15	9.25	30.2	0.1875	602.02	5834

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H4

Taper Rate = 0.2 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH4-MS	40	6	9.35	17.35	0.1875	225.67	1203
45CLRUSH4-MS	45	6.5	9.35	18.35	0.1875	253.1	1396
50CLRUSH4-MS	50	7	9.35	19.35	0.1875	282.11	1600
55CLRUSH4-MS	55	7.5	9.35	19.78	0.1875	277.73	1902
60CLRUSH4-MS	60	8	9.35	20.78	0.1875	325.72	2121
65CLRUSH4-MS	65	8.5	9.35	21.78	0.1875	358.51	2351
70CLRUSH4-MS	70	9	9.35	22.78	0.1875	392.88	2591
75CLRUSH4-MS	75	9.5	9.35	23.78	0.1875	427.22	2843
80CLRUSH4-MS	80	10	9.35	24.78	0.1875	454.85	3105
85CLRUSH4-MS	85	10.5	9.35	25.78	0.1875	482.41	3377
90CLRUSH4-MS	90	11	9.35	26.78	0.1875	509.8	3661
95CLRUSH4-MS	95	11.5	9.35	27.78	0.1875	536.93	3977
100CLRUSH4-MS	100	12	9.35	28.78	0.1875	563.7	4282
105CLRUSH4-MS	105	12.5	9.35	29.21	0.1875	574.58	4754
110CLRUSH4-MS	110	13	9.35	30.21	0.1875	600.67	5074
115CLRUSH4-MS	115	13.5	9.35	31.21	0.1875	626.15	5405
120CLRUSH4-MS	120	14	9.35	32.21	0.1875	650.94	5746
125CLRUSH4-MS	125	14.5	9.35	33.21	0.1875	674.93	6099
130CLRUSH4-MS	130	15	9.35	34.21	0.1875	698.02	6463

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H5

Taper Rate = 0.167 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH5-MS	40	6	9.5	16.18	0.25	260.03	1510
45CLRUSH5-MS	45	6.5	9.5	17.01	0.25	288.33	1746
50CLRUSH5-MS	50	7	9.5	17.85	0.25	318.1	1995
55CLRUSH5-MS	55	7.5	9.5	18.02	0.25	323.66	2359
60CLRUSH5-MS	60	8	9.5	18.86	0.25	355.15	2622
65CLRUSH5-MS	65	8.5	9.5	19.69	0.25	388.1	2898
70CLRUSH5-MS	70	9	9.5	20.53	0.25	422.52	3184
75CLRUSH5-MS	75	9.5	9.5	21.36	0.25	458.4	3483
80CLRUSH5-MS	80	10	9.5	22.2	0.25	495.74	3794
85CLRUSH5-MS	85	10.5	9.5	23.03	0.25	534.55	4117
90CLRUSH5-MS	90	11	9.5	23.87	0.25	574.82	4452
95CLRUSH5-MS	95	11.5	9.5	24.7	0.25	616.55	4814
100CLRUSH5-MS	100	12	9.5	25.54	0.25	659.74	5173
105CLRUSH5-MS	105	12.5	9.5	25.71	0.25	667.73	5714
110CLRUSH5-MS	110	13	9.5	26.54	0.25	712.65	6087
115CLRUSH5-MS	115	13.5	9.5	27.38	0.25	759.03	6474
120CLRUSH5-MS	120	14	9.5	28.21	0.25	806.88	6872
125CLRUSH5-MS	125	14.5	9.5	29.05	0.25	856.18	7277
130CLRUSH5-MS	130	15	9.5	29.88	0.25	906.95	7697

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Steel Pole Designs - RUS, Continued

RUS Class H6

Taper Rate = 0.176 in/ft

Catalog Number	Length (ft)	Embedment Depth (ft)	Top Diameter (in)	Butt Diameter (in)	Wall Thickness (in)	Ultimate Moment Capacity at GL (ft-kips)	Galvanized Weight (lbs)
40CLRUSH6-MS	40	6	10.25	17.29	0.25	298.14	1621
45CLRUSH6-MS	45	6.5	10.25	18.17	0.25	330.07	1874
50CLRUSH6-MS	50	7	10.25	19.05	0.25	363.62	2140
55CLRUSH6-MS	55	7.5	10.25	19.26	0.25	371.01	2530
60CLRUSH6-MS	60	8	10.25	20.14	0.25	406.53	2811
65CLRUSH6-MS	65	8.5	10.25	21.02	0.25	443.68	3105
70CLRUSH6-MS	70	9	10.25	21.9	0.25	482.45	3412
75CLRUSH6-MS	75	9.5	10.25	22.78	0.25	522.84	3731
80CLRUSH6-MS	80	10	10.25	23.66	0.25	564.86	4062
85CLRUSH6-MS	85	10.5	10.25	24.54	0.25	608.51	4406
90CLRUSH6-MS	90	11	10.25	25.42	0.25	653.78	4764
95CLRUSH6-MS	95	11.5	10.25	26.3	0.25	700.67	5162
100CLRUSH6-MS	100	12	10.25	27.18	0.25	749.19	5544
105CLRUSH6-MS	105	12.5	10.25	27.39	0.25	759.78	6126
110CLRUSH6-MS	110	13	10.25	28.27	0.25	810.26	6524
115CLRUSH6-MS	115	13.5	10.25	29.15	0.25	862.38	6934
120CLRUSH6-MS	120	14	10.25	30.03	0.25	916.11	7356
125CLRUSH6-MS	125	14.5	10.25	30.91	0.25	971.48	7792
130CLRUSH6-MS	130	15	10.25	31.79	0.25	1021.67	8240

Design Notes

- All pole shafts manufactured from ASTM A572 Grade 65 steel
- All poles are designed for flat-to-flat orientation
- Deflection limited to 15% of the height above Point of Fixity
- Loads per RUS Bulletin 172E-214

Appendix A: Transmission Pole Design Data Sheet

Project Information

Customer: _____ **Project Location:** _____

Date: _____ **Structure Type: Dead End / Tangent / Angle**

Pole Length: _____ ft **Pole Height Above Ground:** _____ ft

Anchor Base ☐ **Embedded** ☐ **Specified Embedment Depth** _____ ft

Note: Embedment depth is calculated as 10% x pole height + 2ft unless otherwise specified

Conductor Data				
	Overhead Shield Wire	Conductor 1	Conductor 2	Conductor 3
Name/Type (Ex "Penguin" ACSR)				
Elevation Above Ground (FT)				
Wind Span (FT)				
Weight Span (FT				
Line Angle (DEG)				

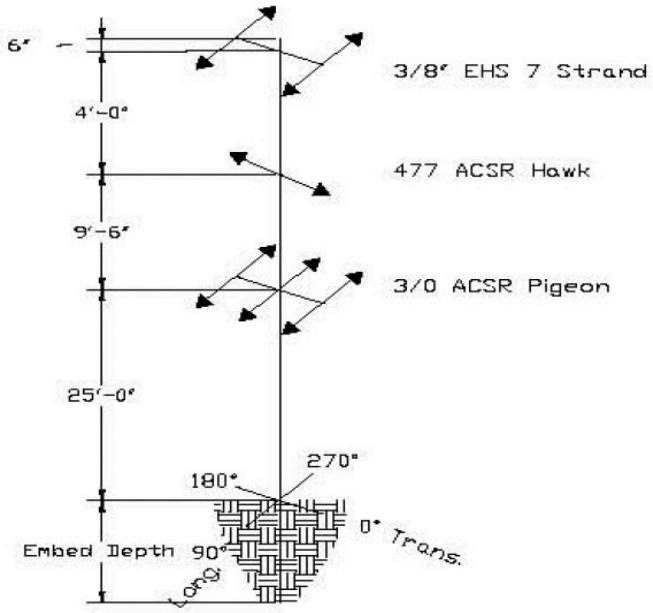
Guy Data				
	Guy 1	Guy 2	Guy 3	Guy 4
Attachment Elevation (FT)				
Azmuth (DEG)				
Guy Lead (FT)				

Load Case Data				
Load Case 1				
Load Case Description:				
Ahead Span Tension (LBS)			Overload Factors	
Back Span Tension (LBS)			Wind	
Wind Pressure (PSF)			Tension	
Radial Ice Thickness (IN)			Vertical	
Deflection Requirement:				
Load Case 2				
Load Case Description:				
Ahead Span Tension (LBS)			Overload Factors	
Back Span Tension (LBS)			Wind	
Wind Pressure (PSF)			Tension	
Radial Ice Thickness (IN)			Vertical	
Deflection Requirement				

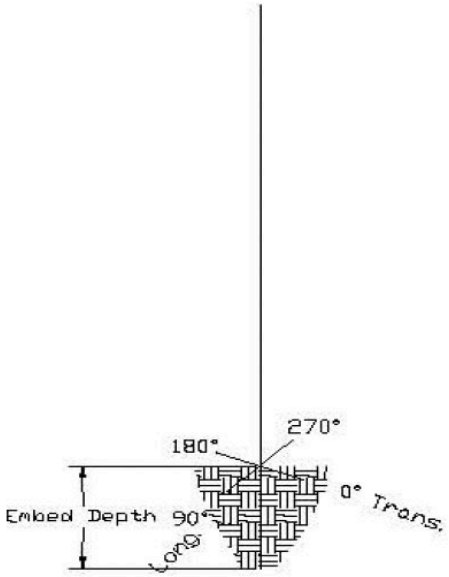
Load Case 3				
Load Case Description:				
Ahead Span Tension (LBS)			Overload Factors	
Back Span Tension (LBS)			Wind	
Wind Pressure (PSF)			Tension	
Radial Ice Thickness (IN)			Vertical	
Deflection Requirement				

Appendix A: Transmission Pole Design Data Sheet, Cont.

Example Sketch



Sketch of Structure



Additional Information: _____

_____

Appendix B: WPE Loads and Ground Line Moments

B.1 Wood Pole Equivalent Load

Pole Class	ANSI 05.1 Load (lbs)	Wood Pole Equivalent (lbs)
5	1,900	1,235
4	2,400	1,560
3	3,000	1,950
2	3,700	2,405
1	4,500	2,925
H1	5,400	3,510
H2	6,400	4,160
H3	7,500	4,875
H4	8,700	5,655
H5	10,000	6,500
H6	11,400	7,410

Wood pole equivalent loads charted are applicable for NESC Grade B construction, embedment depths equal to 10% of the pole length plus 2ft and an equivalency factor of 2,6/4.0 = 0.65

H2 Wood Pole Equivalent Load Example:
6,400# x (2.6/4.0) = 4,160#

B.2 Minimun Ground Line Moments

Pole Class	Pole Length (ft)										
	30	35	40	45	50	55	60	65	70	75	80
5	28.41	33.96	39.52	45.08	50.64	56.19	61.75	67.31	72.87	78.42	83.98
4	35.88	42.90	49.92	56.94	63.96	70.98	78.00	85.02	92.04	99.06	106.08
3	44.85	53.63	62.40	71.18	79.95	88.73	97.50	106.28	115.05	123.83	132.60
2	55.32	66.14	76.96	87.78	98.61	109.43	120.25	131.07	141.90	152.72	163.54
1	67.28	80.44	93.60	106.76	119.93	133.09	146.25	159.41	172.58	185.74	198.90
H1	80.73	96.53	112.32	128.12	143.91	159.71	175.50	191.30	207.09	222.89	238.68
H2	95.68	114.40	133.12	151.84	170.56	189.28	208.00	226.72	245.44	264.16	282.88
H3	112.13	134.06	156.00	177.94	199.88	221.81	243.75	265.69	287.63	309.56	331.50
H4	130.07	155.51	180.96	206.41	231.86	257.30	282.75	308.20	333.65	359.09	--

Appendix C: Finding the Right Steel Pole Solution

C.1 Example 1

Given:
NESC Grade B construction
60 ft pole length needed
160 ft-kips required ground line moment

Find:
What is the wood-pole equivalent class required to meet the given criteria?

Solution:
Per Appendix B.2 Table, the minimum class required to meet the 160 ft-kip ground line moment would be a 60 ft Class H1 steel pole.

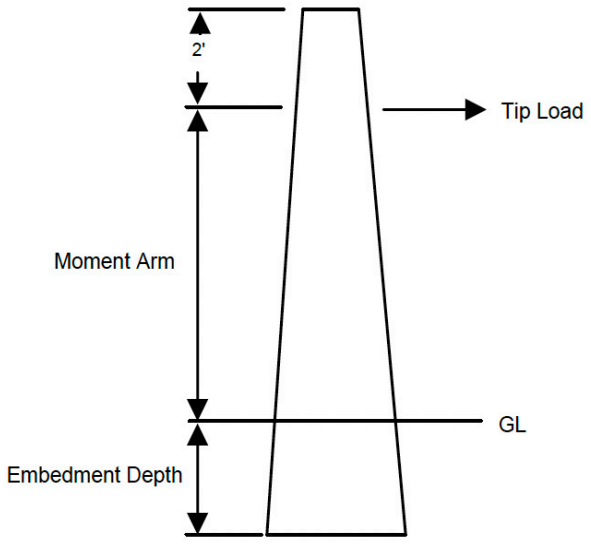
Pole Class	Pole Length (ft)			
	45	50	55	60
5	45.08	50.64	56.19	61.75
4	56.94	63.96	70.98	78.00
3	71.18	79.95	88.73	97.50
2	87.78	98.61	109.43	120.25
1	106.76	119.93	133.09	146.25
H1	128.12	143.91	159.71	175.50
H2	151.84	170.56	189.28	208.00
H3	177.94	199.88	221.81	243.75
H4	206.41	231.86	257.30	282.75

C.2 Example 2

Given:
80 ft Class H2 Pole

Find:
What is the minimum ground line moment?

Solution:
The inimum ground line moment is 282.88 ft-kips.



Embedment Depth: (80 ft . 10%) + 2 Ft = 10 ft

Moment Arm: 80 ft - 10 ft - 2 ft = 68 ft

Minimum Ground Line Moment:
4,160# x 68 ft / (1 kip/1000#) = 282.88 ft-kips