

## IMRDW – Sag and Tension Guide

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## Initial Sag and Tension<sup>1</sup>: 1-Pair x 19 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	70	0.8	37	1.5	25	2.3	19	3.0	15	3.7	13	4.5
50	95	2.4	63	3.6	47	4.8	38	6.0	31	7.2	27	8.4
75	119	4.2	87	5.8	68	7.4	56	9.0	48	10.6	42	12.2
100	142	6.3	109	8.2	89	10.1	75	12.0	65	13.9	57	15.8
125	164	8.6	131	10.7	109	12.9	94	15.0	82	17.1	73	19.3
150	186	10.9	153	13.3	130	15.6	113	18.0	99	20.4	89	22.7
175	207	13.3	174	15.9	150	18.4	131	21.0	117	23.6	105	26.1
200	228	15.8	195	18.5	169	21.3	150	24.0	135	26.7	122	29.5
225	249	18.3	215	21.2	189	24.1	169	27.0	152	29.9	139	32.8
250	270	20.8	235	23.9	209	26.9	188	30.0	170	33.1	156	36.1
275	290	23.5	256	26.6	228	29.8	206	33.0	188	36.2	173	39.4
300	310	26.1	276	29.4	248	32.7	225	36.0	206	39.3	190	42.6
325	331	28.8	296	32.2	267	35.6	244	39.0	224	42.4	207	45.8
350	351	31.4	315	35.0	287	38.5	263	42.0	242	45.5	225	49.0
375	371	34.2	335	37.8	306	41.4	281	45.0	260	48.6	242	52.2
400	390	36.9	355	40.6	325	44.3	300	48.0	279	51.7	260	55.4
425	410	39.6	374	43.4	344	47.2	319	51.0	297	54.8	278	58.6
450	430	42.4	394	46.3	364	50.1	338	54.0	315	57.9	295	61.7
475	449	45.2	413	49.1	383	53.1	356	57.0	333	60.9	313	64.9
500	469	48.0	433	52.0	402	56.0	375	60.0	352	64.0	331	68.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 1-Pair x 19 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.7	338	3.2	2.4	4.0	196	2.2	2.5	3.3	124	0.6	3.4	3.4	101
50	13.4	5.9	14.7	529	8.3	6.1	10.3	303	5.5	6.2	8.3	196	1.4	8.2	8.3	165
75	23.2	10.1	25.3	691	14.3	10.6	17.8	394	9.4	10.7	14.2	258	2.3	13.7	13.9	221
100	34.0	14.8	37.1	836	21.0	15.5	26.2	476	13.7	15.6	20.7	314	3.3	19.9	20.2	272
125	-	-	-	-	28.3	20.9	35.2	552	18.3	20.9	27.8	366	4.4	26.5	26.8	319
150	-	-	-	-	36.1	26.7	44.9	624	23.3	26.5	35.3	415	5.6	33.4	33.9	363
175	-	-	-	-	44.3	32.8	55.1	692	28.4	32.4	43.1	462	6.8	40.7	41.3	406
200	-	-	-	-	52.9	39.1	65.8	757	33.8	38.6	51.3	508	8.1	48.3	49.0	447
225	-	-	-	-	61.8	45.7	76.9	820	39.4	45.0	59.8	551	9.4	56.2	56.9	487
250	-	-	-	-	71.0	52.5	88.3	881	45.2	51.6	68.6	594	10.7	64.3	65.1	525
275	-	-	-	-	-	-	-	-	51.1	58.4	77.6	635	12.1	72.5	73.6	563
300	-	-	-	-	-	-	-	-	57.2	65.3	86.8	675	13.5	81.0	82.2	600
325	-	-	-	-	-	-	-	-	63.5	72.4	96.3	715	15.0	89.7	91.0	636
350	-	-	-	-	-	-	-	-	69.8	79.7	105.9	753	16.4	98.6	99.9	671
375	-	-	-	-	-	-	-	-	76.3	87.1	115.8	791	17.9	107.6	109.1	706
400	-	-	-	-	-	-	-	-	82.9	94.6	125.8	829	19.5	116.8	118.4	740
425	-	-	-	-	-	-	-	-	89.6	102.3	136.0	865	21.0	126.1	127.8	774
450	-	-	-	-	-	-	-	-	-	-	-	-	22.6	135.5	137.4	807
475	-	-	-	-	-	-	-	-	-	-	-	-	24.2	145.1	147.1	839
500	-	-	-	-	-	-	-	-	-	-	-	-	25.8	154.8	157.0	872

## Initial Sag and Tension<sup>1</sup>: 2-Pair x 19 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	75	0.9	41	1.6	29	2.3	22	3.0	18	3.7	15	4.4
50	103	2.5	71	3.7	54	4.8	44	6.0	37	7.2	32	8.3
75	131	4.5	98	6.0	79	7.5	66	9.0	56	10.5	49	12.0
100	157	6.7	124	8.5	103	10.2	88	12.0	76	13.8	68	15.5
125	182	9.0	149	11.0	126	13.0	109	15.0	96	17.0	86	19.0
150	207	11.4	174	13.6	150	15.8	131	18.0	117	20.2	105	22.4
175	232	13.9	198	16.2	173	18.6	153	21.0	138	23.4	125	25.8
200	256	16.4	222	18.9	196	21.5	175	24.0	158	26.5	144	29.1
225	280	19.0	245	21.7	219	24.3	197	27.0	179	29.7	164	32.3
250	304	21.6	269	24.4	241	27.2	219	30.0	200	32.8	184	35.6
275	327	24.3	292	27.2	264	30.1	241	33.0	221	35.9	205	38.8
300	351	27.0	315	30.0	287	33.0	263	36.0	242	39.0	225	42.0
325	374	29.7	338	32.8	309	35.9	284	39.0	263	42.1	245	45.2
350	397	32.4	361	35.6	332	38.8	306	42.0	285	45.2	266	48.4
375	420	35.2	384	38.4	354	41.7	328	45.0	306	48.3	286	51.6
400	443	37.9	407	41.3	376	44.6	350	48.0	327	51.4	307	54.7
425	466	40.7	430	44.1	399	47.6	372	51.0	348	54.4	328	57.9
450	489	43.5	452	47.0	421	50.5	394	54.0	370	57.5	349	61.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 2-Pair x 19 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.8	346	3.3	2.4	4.0	203	2.2	2.5	3.3	130	0.6	3.4	3.5	109
50	13.6	5.8	14.8	543	8.4	6.1	10.4	315	5.7	6.2	8.4	207	1.5	8.3	8.5	179
75	23.4	10.0	25.5	709	14.6	10.5	18.0	410	9.7	10.6	14.4	272	2.5	14.0	14.3	239
100	34.4	14.7	37.4	859	21.4	15.4	26.4	496	14.1	15.5	21.0	332	3.6	20.3	20.6	294
125	-	-	-	-	28.9	20.8	35.6	575	18.9	20.8	28.1	387	4.8	27.0	27.4	345
150	-	-	-	-	36.8	26.5	45.3	650	23.9	26.4	35.6	440	6.0	34.1	34.6	393
175	-	-	-	-	45.1	32.5	55.6	722	29.3	32.2	43.5	490	7.3	41.5	42.2	440
200	-	-	-	-	53.8	38.7	66.3	790	34.8	38.3	51.7	538	8.7	49.2	50.0	485
225	-	-	-	-	62.8	45.2	77.4	857	40.5	44.6	60.2	585	10.1	57.2	58.1	528
250	-	-	-	-	-	-	-	-	46.4	51.1	69.0	630	11.5	65.4	66.4	570
275	-	-	-	-	-	-	-	-	52.5	57.8	78.0	674	13.0	73.8	74.9	611
300	-	-	-	-	-	-	-	-	58.7	64.6	87.3	717	14.5	82.4	83.7	651
325	-	-	-	-	-	-	-	-	65.0	71.6	96.7	760	16.1	91.2	92.6	691
350	-	-	-	-	-	-	-	-	71.5	78.7	106.4	801	17.6	100.1	101.7	729
375	-	-	-	-	-	-	-	-	78.1	86.0	116.2	842	19.2	109.2	110.9	768
400	-	-	-	-	-	-	-	-	84.8	93.4	126.2	882	20.9	118.5	120.3	805
425	-	-	-	-	-	-	-	-	-	-	-	-	22.5	127.9	129.9	842
450	-	-	-	-	-	-	-	-	-	-	-	-	24.2	137.5	139.6	878

## Initial Sag and Tension<sup>1</sup>: 3-Pair x 19 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	81	1.0	48	1.7	34	2.3	27	3.0	22	3.7	18	4.3
50	115	2.8	83	3.8	65	4.9	53	6.0	45	7.1	39	8.2
75	148	4.9	115	6.2	94	7.6	80	9.0	69	10.4	61	11.8
100	179	7.1	146	8.8	123	10.4	106	12.0	94	13.6	84	15.2
125	209	9.5	176	11.3	151	13.2	133	15.0	118	16.8	107	18.7
150	239	12.0	205	14.0	179	16.0	159	18.0	143	20.0	130	22.0
175	268	14.6	234	16.7	207	18.9	186	21.0	169	23.1	154	25.3
200	297	17.2	262	19.4	235	21.7	213	24.0	194	26.3	179	28.6
225	326	19.8	291	22.2	262	24.6	239	27.0	220	29.4	203	31.8
250	354	22.5	319	25.0	290	27.5	266	30.0	245	32.5	228	35.0
275	382	25.2	347	27.8	317	30.4	292	33.0	271	35.6	253	38.2
300	410	28.0	374	30.7	344	33.3	319	36.0	297	38.7	278	41.3
325	438	30.7	402	33.5	372	36.2	345	39.0	323	41.8	303	44.5
350	466	33.5	430	36.4	399	39.2	372	42.0	348	44.8	328	47.6
375	493	36.3	457	39.2	426	42.1	398	45.0	374	47.9	353	50.8
400	521	39.2	484	42.1	453	45.1	425	48.0	400	50.9	379	53.9

## NESC Ice and Wind Loading Districts<sup>1</sup>: 3-Pair x 19 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.4	2.3	5.9	357	3.4	2.3	4.1	212	2.3	2.5	3.4	138	0.7	3.5	3.6	118
50	13.8	5.8	14.9	561	8.6	6.0	10.5	330	5.9	6.2	8.5	220	1.6	8.5	8.7	195
75	23.7	9.9	25.7	733	14.9	10.4	18.2	430	10.0	10.5	14.5	291	2.7	14.3	14.6	261
100	34.7	14.6	37.7	888	21.9	15.2	26.7	521	14.6	15.4	21.2	355	4.0	20.7	21.0	321
125	-	-	-	-	29.4	20.5	35.9	606	19.5	20.5	28.3	415	5.3	27.4	28.0	378
150	-	-	-	-	37.5	26.1	45.6	686	24.7	26.0	35.9	472	6.6	34.6	35.2	431
175	-	-	-	-	45.9	32.0	55.9	762	30.2	31.7	43.8	526	8.1	42.1	42.9	483
200	-	-	-	-	54.7	38.1	66.7	835	35.8	37.7	52.0	579	9.6	49.9	50.8	532
225	-	-	-	-	-	-	-	-	41.7	43.8	60.5	630	11.1	57.9	58.9	581
250	-	-	-	-	-	-	-	-	47.7	50.2	69.2	679	12.7	66.1	67.3	627
275	-	-	-	-	-	-	-	-	53.9	56.7	78.2	727	14.3	74.6	75.9	673
300	-	-	-	-	-	-	-	-	60.2	63.3	87.4	775	16.0	83.2	84.7	718
325	-	-	-	-	-	-	-	-	66.7	70.1	96.8	821	17.7	92.0	93.7	762
350	-	-	-	-	-	-	-	-	73.3	77.1	106.3	866	19.4	101.0	102.8	805
375	-	-	-	-	-	-	-	-	-	-	-	-	21.2	110.1	112.1	848
400	-	-	-	-	-	-	-	-	-	-	-	-	22.9	119.4	121.6	890

### Initial Sag and Tension<sup>1</sup>: 6-Pair x 19 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	95	1.2	63	1.8	47	2.4	38	3.0	31	3.6	27	4.2
50	142	3.2	109	4.1	89	5.1	75	6.0	65	6.9	57	7.9
75	186	5.4	153	6.6	130	7.8	113	9.0	99	10.2	89	11.4
100	228	7.9	195	9.3	169	10.6	150	12.0	135	13.4	122	14.7
125	270	10.4	235	11.9	209	13.5	188	15.0	170	16.5	156	18.1
150	310	13.0	276	14.7	248	16.3	225	18.0	206	19.7	190	21.3
175	351	15.7	315	17.5	287	19.2	263	21.0	242	22.8	225	24.5
200	390	18.4	355	20.3	325	22.1	300	24.0	279	25.9	260	27.7
225	430	21.2	394	23.1	364	25.1	338	27.0	315	28.9	295	30.9
250	469	24.0	433	26.0	402	28.0	375	30.0	352	32.0	331	34.0
275	508	26.8	472	28.9	440	30.9	413	33.0	388	35.1	367	37.1
300	547	29.6	510	31.8	478	33.9	450	36.0	425	38.1	402	40.2
325	586	32.5	549	34.6	516	36.8	488	39.0	462	41.2	439	43.4

### NESC Ice and Wind Loading Districts<sup>1</sup>: 6-Pair x 19 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.5	2.2	5.9	376	3.5	2.3	4.2	229	2.5	2.4	3.5	153	0.8	3.6	3.7	134
50	14.0	5.7	15.1	592	8.9	5.9	10.7	358	6.2	6.0	8.6	246	2.0	8.6	8.8	223
75	24.0	9.7	25.9	775	15.3	10.1	18.3	469	10.6	10.2	14.7	326	3.4	14.4	14.8	299
100	-	-	-	-	22.4	14.7	26.8	570	15.3	14.7	21.3	400	4.9	20.7	21.2	370
125	-	-	-	-	30.1	19.8	36.0	664	20.4	19.6	28.3	469	6.4	27.4	28.1	436
150	-	-	-	-	38.2	25.1	45.7	753	25.7	24.8	35.7	535	8.1	34.5	35.4	500
175	-	-	-	-	46.7	30.7	55.9	838	31.3	30.2	43.5	599	9.8	41.8	42.9	560
200	-	-	-	-	-	-	-	-	371	35.7	51.5	660	11.6	49.4	50.7	620
225	-	-	-	-	-	-	-	-	431	41.5	59.8	720	13.5	57.2	58.8	677
250	-	-	-	-	-	-	-	-	49.2	47.4	68.3	778	15.3	65.2	67.0	733
275	-	-	-	-	-	-	-	-	55.5	53.4	77.0	835	17.3	73.4	75.4	788
300	-	-	-	-	-	-	-	-	61.9	59.6	85.9	891	19.2	81.8	84.0	842
325	-	-	-	-	-	-	-	-	-	-	-	-	21.2	90.3	92.7	895



## Initial Sag and Tension<sup>1</sup>: 12-Pair x 19 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	119	1.4	87	1.9	68	2.5	56	3.0	48	3.5	42	4.1
50	186	3.6	153	4.4	130	5.2	113	6.0	99	6.8	89	7.6
75	249	6.1	215	7.1	189	8.0	169	9.0	152	10.0	139	10.9
100	310	8.7	276	9.8	248	10.9	225	12.0	206	13.1	190	14.2
125	371	11.4	335	12.6	306	13.8	281	15.0	260	16.2	242	17.4
150	430	14.1	394	15.4	364	16.7	338	18.0	315	19.3	295	20.6
175	489	16.9	452	18.3	421	19.6	394	21.0	370	22.4	349	23.7
200	547	19.8	510	21.2	478	22.6	450	24.0	425	25.4	402	26.8
225	605	22.6	568	24.1	535	25.5	506	27.0	480	28.5	457	29.9
250	663	25.5	625	27.0	592	28.5	563	30.0	536	31.5	511	33.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 12-Pair x 19 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.6	2.2	6.0	399	3.6	2.2	4.2	251	2.7	2.3	3.5	174	1.1	3.5	3.7	154
50	14.1	5.5	15.1	632	9.1	5.6	10.7	397	6.6	5.6	8.6	283	2.6	8.4	8.8	258
75	24.1	9.4	25.9	831	15.6	9.5	18.3	523	11.0	9.4	14.5	379	4.3	13.9	14.6	350
100	-	-	-	-	22.7	13.9	26.6	639	15.9	13.6	20.9	468	6.2	19.9	20.8	436
125	-	-	-	-	30.4	18.5	35.6	747	21.1	18.0	27.7	552	8.2	26.2	27.4	517
150	-	-	-	-	38.4	23.4	45.0	850	26.5	22.6	34.8	633	10.2	32.8	34.3	595
175	-	-	-	-	-	-	-	-	32.1	27.4	42.2	711	12.3	39.6	41.4	670
200	-	-	-	-	-	-	-	-	37.8	32.3	49.7	787	14.5	46.6	48.8	744
225	-	-	-	-	-	-	-	-	43.8	37.3	57.5	861	16.7	53.7	56.3	816
250	-	-	-	-	-	-	-	-	-	-	-	-	19.0	61.0	63.9	887

Initial Sag and Tension<sup>1</sup>: 2-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	70	0.8	37	1.5	25	2.3	19	3.0	15	3.7	13	4.5
50	95	2.4	63	3.6	47	4.8	38	6.0	31	7.2	27	8.4
75	119	4.2	87	5.8	68	7.4	56	9.0	48	10.6	42	12.2
100	142	6.3	109	8.2	89	10.1	75	12.0	65	13.9	57	15.8
125	164	8.6	131	10.7	109	12.9	94	15.0	82	17.1	73	19.3
150	186	10.9	153	13.3	130	15.6	113	18.0	99	20.4	89	22.7
175	207	13.3	174	15.9	150	18.4	131	21.0	117	23.6	105	26.1
200	228	15.8	195	18.5	169	21.3	150	24.0	135	26.7	122	29.5
225	249	18.3	215	21.2	189	24.1	169	27.0	152	29.9	139	32.8
250	270	20.8	235	23.9	209	26.9	188	30.0	170	33.1	156	36.1
275	290	23.5	256	26.6	228	29.8	206	33.0	188	36.2	173	39.4
300	310	26.1	276	29.4	248	32.7	225	36.0	206	39.3	190	42.6
325	331	28.8	296	32.2	267	35.6	244	39.0	224	42.4	207	45.8
350	351	31.4	315	35.0	287	38.5	263	42.0	242	45.5	225	49.0
375	371	34.2	335	37.8	306	41.4	281	45.0	260	48.6	242	52.2
400	390	36.9	355	40.6	325	44.3	300	48.0	279	51.7	260	55.4
425	410	39.6	374	43.4	344	47.2	319	51.0	297	54.8	278	58.6
450	430	42.4	394	46.3	364	50.1	338	54.0	315	57.9	295	61.7
475	449	45.2	413	49.1	383	53.1	356	57.0	333	60.9	313	64.9
500	469	48.0	433	52.0	402	56.0	375	60.0	352	64.0	331	68.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 2-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.7	338	3.2	2.4	4.0	196	2.2	2.5	3.3	124	0.6	3.4	3.4	101
50	13.4	5.9	14.7	529	8.3	6.1	10.3	303	5.5	6.2	8.3	196	1.4	8.2	8.3	165
75	23.2	10.1	25.3	691	14.3	10.6	17.8	394	9.4	10.7	14.2	258	2.3	13.7	13.9	221
100	34.0	14.8	37.1	836	21.0	15.5	26.2	476	13.7	15.6	20.7	314	3.3	19.9	20.2	272
125	-	-	-	-	28.3	20.9	35.2	552	18.3	20.9	27.8	366	4.4	26.5	26.8	319
150	-	-	-	-	36.1	26.7	44.9	624	23.3	26.5	35.3	415	5.6	33.4	33.9	363
175	-	-	-	-	44.3	32.8	55.1	692	28.4	32.4	43.1	462	6.8	40.7	41.3	406
200	-	-	-	-	52.9	39.1	65.8	757	33.8	38.6	51.3	508	8.1	48.3	49.0	447
225	-	-	-	-	61.8	45.7	76.9	820	39.4	45.0	59.8	551	9.4	56.2	56.9	487
250	-	-	-	-	71.0	52.5	88.3	881	45.2	51.6	68.6	594	10.7	64.3	65.1	525
275	-	-	-	-	-	-	-	-	51.1	58.4	77.6	635	12.1	72.5	73.6	563
300	-	-	-	-	-	-	-	-	57.2	65.3	86.8	675	13.5	81.0	82.2	600
325	-	-	-	-	-	-	-	-	63.5	72.4	96.3	715	15.0	89.7	91.0	636
350	-	-	-	-	-	-	-	-	69.8	79.7	105.9	753	16.4	98.6	99.9	671
375	-	-	-	-	-	-	-	-	76.3	87.1	115.8	791	17.9	107.6	109.1	706
400	-	-	-	-	-	-	-	-	82.9	94.6	125.8	829	19.5	116.8	118.4	740
425	-	-	-	-	-	-	-	-	89.6	102.3	136.0	865	21.0	126.1	127.8	774
450	-	-	-	-	-	-	-	-	-	-	-	-	22.6	135.5	137.4	807
475	-	-	-	-	-	-	-	-	-	-	-	-	24.2	145.1	147.1	839
500	-	-	-	-	-	-	-	-	-	-	-	-	25.8	154.8	157.0	872

## Initial Sag and Tension<sup>1</sup>: 3-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	72	0.8	39	1.6	27	2.3	20	3.0	16	3.7	14	4.4
50	99	2.5	67	3.6	51	4.8	41	6.0	34	7.2	29	8.4
75	125	4.4	93	5.9	73	7.5	61	9.0	52	10.5	45	12.1
100	150	6.5	117	8.3	96	10.2	81	12.0	71	13.8	62	15.7
125	173	8.8	140	10.9	118	12.9	102	15.0	89	17.1	80	19.1
150	197	11.1	163	13.4	140	15.7	122	18.0	108	20.3	97	22.6
175	220	13.6	186	16.1	161	18.5	142	21.0	127	23.5	115	25.9
200	242	16.1	208	18.7	183	21.4	163	24.0	146	26.6	133	29.3
225	265	18.6	230	21.4	204	24.2	183	27.0	166	29.8	152	32.6
250	287	21.2	252	24.2	225	27.1	203	30.0	185	32.9	170	35.8
275	309	23.9	274	26.9	246	30.0	223	33.0	205	36.0	189	39.1
300	331	26.5	296	29.7	267	32.8	244	36.0	224	39.2	207	42.3
325	352	29.2	317	32.5	288	35.7	264	39.0	244	42.3	226	45.5
350	374	31.9	338	35.3	309	38.6	284	42.0	263	45.4	245	48.7
375	395	34.7	360	38.1	330	41.6	305	45.0	283	48.4	264	51.9
400	417	37.4	381	41.0	351	44.5	325	48.0	303	51.5	283	55.0
425	438	40.2	402	43.8	372	47.4	345	51.0	323	54.6	303	58.2
450	459	43.0	423	46.7	392	50.3	366	54.0	342	57.7	322	61.3
475	480	45.8	444	49.5	413	53.3	386	57.0	362	60.7	341	64.5

## NESC Ice and Wind Loading Districts<sup>1</sup>: 3-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.8	343	3.2	2.4	4.0	200	2.2	2.5	3.3	128	0.6	3.4	3.5	105
50	13.5	5.8	14.7	537	8.4	6.1	10.4	309	5.6	6.2	8.4	202	1.4	8.3	8.4	173
75	23.3	10.1	25.4	701	14.5	10.5	17.9	403	9.5	10.7	14.3	266	2.4	14.0	14.2	231
100	34.2	14.8	37.3	849	21.3	15.5	26.3	487	13.9	15.6	20.9	324	3.4	20.2	20.5	284
125	-	-	-	-	28.7	20.9	35.5	565	18.6	20.9	28.0	378	4.6	26.9	27.2	334
150	-	-	-	-	36.5	26.6	45.2	639	23.7	26.5	35.5	429	5.8	33.9	34.4	381
175	-	-	-	-	44.8	32.6	55.4	709	28.9	32.4	43.4	477	7.0	41.3	41.9	425
200	-	-	-	-	53.5	38.9	66.1	776	34.4	38.5	51.7	524	8.3	49.0	49.7	468
225	-	-	-	-	62.5	45.5	77.3	840	40.1	44.9	60.2	570	9.7	56.9	57.8	510
250	-	-	-	-	-	-	-	-	45.9	51.4	69.0	614	11.1	65.1	66.0	551
275	-	-	-	-	-	-	-	-	51.9	58.2	78.0	656	12.5	73.5	74.6	590
300	-	-	-	-	-	-	-	-	58.1	65.1	87.3	698	14.0	82.1	83.3	629
325	-	-	-	-	-	-	-	-	64.4	72.2	96.7	739	15.4	90.9	92.2	667
350	-	-	-	-	-	-	-	-	70.9	79.4	106.4	779	17.0	99.8	101.3	704
375	-	-	-	-	-	-	-	-	77.4	86.7	116.3	819	18.5	108.9	110.5	741
400	-	-	-	-	-	-	-	-	84.1	94.2	126.3	858	20.1	118.2	119.9	777
425	-	-	-	-	-	-	-	-	90.9	101.8	136.5	896	21.7	127.6	129.4	812
450	-	-	-	-	-	-	-	-	-	-	-	-	23.3	137.2	139.1	847
475	-	-	-	-	-	-	-	-	-	-	-	-	25.0	146.8	149.0	882

Initial Sag and Tension<sup>1</sup>: 4-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	75	0.9	41	1.6	29	2.3	22	3.0	18	3.7	15	4.4
50	103	2.5	71	3.7	54	4.8	44	6.0	37	7.2	32	8.3
75	131	4.5	98	6.0	79	7.5	66	9.0	56	10.5	49	12.0
100	157	6.7	124	8.5	103	10.2	88	12.0	76	13.8	68	15.5
125	182	9.0	149	11.0	126	13.0	109	15.0	96	17.0	86	19.0
150	207	11.4	174	13.6	150	15.8	131	18.0	117	20.2	105	22.4
175	232	13.9	198	16.2	173	18.6	153	21.0	138	23.4	125	25.8
200	256	16.4	222	18.9	196	21.5	175	24.0	158	26.5	144	29.1
225	280	19.0	245	21.7	219	24.3	197	27.0	179	29.7	164	32.3
250	304	21.6	269	24.4	241	27.2	219	30.0	200	32.8	184	35.6
275	327	24.3	292	27.2	264	30.1	241	33.0	221	35.9	205	38.8
300	351	27.0	315	30.0	287	33.0	263	36.0	242	39.0	225	42.0
325	374	29.7	338	32.8	309	35.9	284	39.0	263	42.1	245	45.2
350	397	32.4	361	35.6	332	38.8	306	42.0	285	45.2	266	48.4
375	420	35.2	384	38.4	354	41.7	328	45.0	306	48.3	286	51.6
400	443	37.9	407	41.3	376	44.6	350	48.0	327	51.4	307	54.7
425	466	40.7	430	44.1	399	47.6	372	51.0	348	54.4	328	57.9
450	489	43.5	452	47.0	421	50.5	394	54.0	370	57.5	349	61.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 4-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.8	345	3.3	2.4	4.0	202	2.2	2.5	3.3	130	0.6	3.4	3.5	107
50	13.5	5.8	14.7	541	8.4	6.1	10.4	313	5.6	6.2	8.4	205	1.5	8.3	8.4	177
75	23.3	10.0	25.4	707	14.5	10.5	17.9	408	9.6	10.6	14.3	271	2.5	13.9	14.2	236
100	34.3	14.7	37.3	855	21.4	15.4	26.3	493	14.0	15.5	20.9	330	3.6	20.1	20.5	290
125	-	-	-	-	28.8	20.7	35.4	573	18.8	20.7	28.0	385	4.8	26.8	27.2	341
150	-	-	-	-	36.6	26.4	45.2	647	23.8	26.3	35.5	437	6.1	33.8	34.4	389
175	-	-	-	-	44.9	32.4	55.4	718	29.1	32.1	43.3	487	7.4	41.2	41.8	435
200	-	-	-	-	53.6	38.6	66.1	787	34.6	38.1	51.5	535	8.8	48.8	49.6	479
225	-	-	-	-	62.6	45.1	77.1	853	40.3	44.4	60.0	581	10.2	56.7	57.6	522
250	-	-	-	-	-	-	-	-	46.2	50.9	68.7	627	11.6	64.8	65.8	564
275	-	-	-	-	-	-	-	-	52.2	57.5	77.7	670	13.1	73.1	74.3	605
300	-	-	-	-	-	-	-	-	58.4	64.3	86.9	713	14.7	81.7	83.0	645
325	-	-	-	-	-	-	-	-	64.7	71.3	96.3	756	16.2	90.4	91.8	684
350	-	-	-	-	-	-	-	-	71.2	78.4	105.9	797	17.8	99.2	100.8	722
375	-	-	-	-	-	-	-	-	77.8	85.6	115.7	837	19.4	108.3	110.0	760
400	-	-	-	-	-	-	-	-	84.4	93.0	125.6	877	21.1	117.4	119.3	797
425	-	-	-	-	-	-	-	-	-	-	-	-	22.8	126.8	128.8	834
450	-	-	-	-	-	-	-	-	-	-	-	-	24.4	136.2	138.4	870

## Initial Sag and Tension<sup>1</sup>: 6-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	81	1.0	48	1.7	34	2.3	27	3.0	22	3.7	18	4.3
50	115	2.8	83	3.8	65	4.9	53	6.0	45	7.1	39	8.2
75	148	4.9	115	6.2	94	7.6	80	9.0	69	10.4	61	11.8
100	179	7.1	146	8.8	123	10.4	106	12.0	94	13.6	84	15.2
125	209	9.5	176	11.3	151	13.2	133	15.0	118	16.8	107	18.7
150	239	12.0	205	14.0	179	16.0	159	18.0	143	20.0	130	22.0
175	268	14.6	234	16.7	207	18.9	186	21.0	169	23.1	154	25.3
200	297	17.2	262	19.4	235	21.7	213	24.0	194	26.3	179	28.6
225	326	19.8	291	22.2	262	24.6	239	27.0	220	29.4	203	31.8
250	354	22.5	319	25.0	290	27.5	266	30.0	245	32.5	228	35.0
275	382	25.2	347	27.8	317	30.4	292	33.0	271	35.6	253	38.2
300	410	28.0	374	30.7	344	33.3	319	36.0	297	38.7	278	41.3
325	438	30.7	402	33.5	372	36.2	345	39.0	323	41.8	303	44.5
350	466	33.5	430	36.4	399	39.2	372	42.0	348	44.8	328	47.6
375	493	36.3	457	39.2	426	42.1	398	45.0	374	47.9	353	50.8
400	521	39.2	484	42.1	453	45.1	425	48.0	400	50.9	379	53.9



## NESC Ice and Wind Loading Districts<sup>1</sup>: 6-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.4	2.3	5.8	356	3.3	2.3	4.1	211	2.3	2.5	3.4	138	0.7	3.5	3.6	117
50	13.7	5.8	14.9	559	8.6	6.0	10.5	328	5.9	6.2	8.5	219	1.7	8.5	8.6	193
75	23.6	9.9	25.6	731	14.9	10.4	18.1	429	10.0	10.5	14.5	289	2.8	14.2	14.5	258
100	34.6	14.6	37.6	885	21.8	15.2	26.6	519	14.5	15.3	21.1	353	4.0	20.5	20.9	318
125	-	-	-	-	29.3	20.5	35.8	603	19.4	20.4	28.2	413	5.3	27.2	27.8	374
150	-	-	-	-	37.3	26.0	45.5	683	24.6	25.9	35.7	469	6.7	34.3	35.0	427
175	-	-	-	-	45.7	31.9	55.7	758	30.0	31.6	43.6	524	8.2	41.8	42.6	478
200	-	-	-	-	54.5	38.0	66.4	831	35.7	37.5	51.8	576	9.7	49.5	50.4	528
225	-	-	-	-	-	-	-	-	41.5	43.6	60.2	626	11.2	57.4	58.5	575
250	-	-	-	-	-	-	-	-	47.5	49.9	68.9	676	12.8	65.6	66.8	622
275	-	-	-	-	-	-	-	-	53.6	56.4	77.9	724	14.5	74.0	75.4	667
300	-	-	-	-	-	-	-	-	60.0	63.1	87.0	771	16.1	82.5	84.1	712
325	-	-	-	-	-	-	-	-	66.4	69.8	96.3	817	17.8	91.2	93.0	755
350	-	-	-	-	-	-	-	-	72.9	76.7	105.9	862	19.6	100.1	102.0	798
375	-	-	-	-	-	-	-	-	-	-	-	-	21.3	109.2	111.2	840
400	-	-	-	-	-	-	-	-	-	-	-	-	23.1	118.4	120.6	882

### Initial Sag and Tension<sup>1</sup>: 12-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	93	1.2	61	1.8	45	2.4	36	3.0	30	3.6	25	4.2
50	138	3.1	106	4.1	86	5.0	72	6.0	62	7.0	54	7.9
75	181	5.4	147	6.6	125	7.8	108	9.0	95	10.2	85	11.4
100	221	7.8	188	9.2	163	10.6	144	12.0	129	13.4	116	14.8
125	261	10.3	227	11.9	201	13.4	180	15.0	163	16.6	149	18.1
150	300	12.9	266	14.6	238	16.3	216	18.0	197	19.7	181	21.4
175	339	15.6	304	17.4	275	19.2	252	21.0	232	22.8	215	24.6
200	377	18.3	342	20.2	312	22.1	288	24.0	266	25.9	248	27.8
225	415	21.0	379	23.0	349	25.0	323	27.0	301	29.0	282	31.0
250	453	23.8	417	25.9	386	27.9	359	30.0	336	32.1	316	34.1
275	490	26.6	454	28.7	423	30.9	395	33.0	371	35.1	350	37.3
300	527	29.4	491	31.6	459	33.8	431	36.0	407	38.2	385	40.4
325	565	32.3	528	34.5	496	36.8	467	39.0	442	41.2	419	43.5

### NESC Ice and Wind Loading Districts<sup>1</sup>: 12-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.5	2.2	5.9	371	3.5	2.3	4.1	225	2.5	2.4	3.4	150	0.8	3.5	3.6	130
50	13.9	5.7	15.0	584	8.8	5.9	10.6	351	6.1	6.0	8.6	240	2.0	8.5	8.7	215
75	23.8	9.7	25.7	765	15.2	10.1	18.2	460	10.4	10.1	14.5	319	3.3	14.2	14.6	290
100	-	-	-	-	22.2	14.8	26.7	559	15.1	14.7	21.1	391	4.8	20.4	21.0	358
125	-	-	-	-	29.8	19.8	35.8	651	20.2	19.6	28.1	458	6.4	27.1	27.8	422
150	-	-	-	-	37.9	25.2	45.5	738	25.5	24.8	35.5	522	8.0	34.0	35.0	483
175	-	-	-	-	46.3	30.8	55.6	821	31.0	30.2	43.2	584	9.7	41.3	42.4	542
200	-	-	-	-	-	-	-	-	36.7	35.7	51.2	644	11.5	48.8	50.1	599
225	-	-	-	-	-	-	-	-	42.6	41.5	59.5	702	13.3	56.5	58.1	655
250	-	-	-	-	-	-	-	-	48.7	47.4	68.0	758	15.2	64.5	66.2	709
275	-	-	-	-	-	-	-	-	54.9	53.4	76.6	814	17.1	72.6	74.6	762
300	-	-	-	-	-	-	-	-	61.3	59.6	85.5	868	19.1	80.8	83.0	814
325	-	-	-	-	-	-	-	-	-	-	-	-	21.1	89.2	91.7	866

### Initial Sag and Tension<sup>1</sup>: 18-Pair x 22 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	107	1.3	75	1.9	58	2.4	47	3.0	39	3.6	34	4.1
50	164	3.4	131	4.3	109	5.1	94	6.0	82	6.9	73	7.7
75	218	5.8	184	6.9	159	7.9	141	9.0	126	10.1	114	11.1
100	270	8.3	235	9.6	209	10.8	188	12.0	170	13.2	156	14.4
125	321	11.0	286	12.3	257	13.7	234	15.0	215	16.3	199	17.7
150	371	13.7	335	15.1	306	16.6	281	18.0	260	19.4	242	20.9
175	420	16.4	384	17.9	354	19.5	328	21.0	306	22.5	286	24.1
200	469	19.2	433	20.8	402	22.4	375	24.0	352	25.6	331	27.2
225	518	22.0	481	23.7	450	25.3	422	27.0	397	28.7	376	30.3
250	566	24.8	530	26.6	497	28.3	469	30.0	443	31.7	421	33.4
275	614	27.7	578	29.5	545	31.2	516	33.0	489	34.8	466	36.5

### NESC Ice and Wind Loading Districts<sup>1</sup>: 18-Pair x 22 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.5	2.2	6.0	387	3.5	2.2	4.2	239	2.6	2.3	3.5	163	1.0	3.5	3.7	144
50	14.0	5.6	15.1	611	9.0	5.7	10.7	377	6.4	5.8	8.6	264	2.3	8.5	8.8	239
75	24.0	9.5	25.8	802	15.5	9.8	18.3	495	10.8	9.8	14.6	352	3.9	14.1	14.6	323
100	-	-	-	-	22.6	14.3	26.7	603	15.6	14.1	21.0	433	5.6	20.2	21.0	401
125	-	-	-	-	30.2	19.1	35.7	704	20.7	18.7	27.9	509	7.4	26.7	27.7	474
150	-	-	-	-	38.3	24.2	45.3	800	26.1	23.6	35.2	582	9.3	33.5	34.7	545
175	-	-	-	-	46.7	29.5	55.3	891	31.7	28.6	42.7	653	11.2	40.5	42.0	613
200	-	-	-	-	-	-	-	-	37.5	33.8	50.5	721	13.3	47.7	49.5	679
225	-	-	-	-	-	-	-	-	43.4	39.2	58.5	788	15.3	55.2	57.3	743
250	-	-	-	-	-	-	-	-	49.5	44.7	66.7	854	17.4	62.8	65.1	807
275	-	-	-	-	-	-	-	-	-	-	-	-	19.6	70.5	73.2	869

Initial Sag and Tension<sup>1</sup>: 6-Pair x 24 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	75	0.9	41	1.6	29	2.3	22	3.0	18	3.7	15	4.4
50	103	2.5	71	3.7	54	4.8	44	6.0	37	7.2	32	8.3
75	131	4.5	98	6.0	79	7.5	66	9.0	56	10.5	49	12.0
100	157	6.7	124	8.5	103	10.2	88	12.0	76	13.8	68	15.5
125	182	9.0	149	11.0	126	13.0	109	15.0	96	17.0	86	19.0
150	207	11.4	174	13.6	150	15.8	131	18.0	117	20.2	105	22.4
175	232	13.9	198	16.2	173	18.6	153	21.0	138	23.4	125	25.8
200	256	16.4	222	18.9	196	21.5	175	24.0	158	26.5	144	29.1
225	280	19.0	245	21.7	219	24.3	197	27.0	179	29.7	164	32.3
250	304	21.6	269	24.4	241	27.2	219	30.0	200	32.8	184	35.6
275	327	24.3	292	27.2	264	30.1	241	33.0	221	35.9	205	38.8
300	351	27.0	315	30.0	287	33.0	263	36.0	242	39.0	225	42.0
325	374	29.7	338	32.8	309	35.9	284	39.0	263	42.1	245	45.2
350	397	32.4	361	35.6	332	38.8	306	42.0	285	45.2	266	48.4
375	420	35.2	384	38.4	354	41.7	328	45.0	306	48.3	286	51.6
400	443	37.9	407	41.3	376	44.6	350	48.0	327	51.4	307	54.7
425	466	40.7	430	44.1	399	47.6	372	51.0	348	54.4	328	57.9
450	489	43.5	452	47.0	421	50.5	394	54.0	370	57.5	349	61.0

## NESC Ice and Wind Loading Districts<sup>1</sup>: 6-Pair x 24 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.3	2.3	5.8	348	3.3	2.4	4.0	204	2.3	2.5	3.4	131	0.6	3.5	3.5	110
50	13.6	5.8	14.8	545	8.5	6.1	10.4	316	5.7	6.3	8.4	208	1.5	8.4	8.5	181
75	23.5	10.0	25.5	712	14.6	10.5	18.0	412	9.7	10.7	14.4	274	2.4	14.2	14.4	241
100	34.5	14.7	37.5	862	21.5	15.5	26.5	498	14.2	15.6	21.1	334	3.5	20.5	20.8	297
125	-	-	-	-	29.0	20.8	35.7	578	19.0	20.9	28.2	389	4.7	27.2	27.6	349
150	-	-	-	-	36.9	26.5	45.5	653	24.0	26.5	35.8	442	5.9	34.4	34.9	398
175	-	-	-	-	45.3	32.5	55.7	725	29.4	32.3	43.7	492	7.2	41.9	42.5	444
200	-	-	-	-	54.0	38.8	66.5	794	34.9	38.5	52.0	541	8.6	49.6	50.4	490
225	-	-	-	-	63.1	45.3	77.7	861	40.7	44.8	60.5	588	10.0	57.7	58.5	533
250	-	-	-	-	-	-	-	-	46.6	51.3	69.3	633	11.4	65.9	66.9	576
275	-	-	-	-	-	-	-	-	52.7	58.0	78.4	678	12.9	74.4	75.5	617
300	-	-	-	-	-	-	-	-	58.9	64.9	87.7	721	14.4	83.1	84.3	658
325	-	-	-	-	-	-	-	-	65.3	71.9	97.2	764	15.9	92.0	93.3	698
350	-	-	-	-	-	-	-	-	71.8	79.1	106.8	805	17.5	101.0	102.5	737
375	-	-	-	-	-	-	-	-	78.5	86.4	116.7	846	19.0	110.2	111.8	775
400	-	-	-	-	-	-	-	-	85.2	93.8	126.8	887	20.7	119.6	121.3	813
425	-	-	-	-	-	-	-	-	-	-	-	-	22.3	129.1	131.0	850
450	-	-	-	-	-	-	-	-	-	-	-	-	24.0	138.7	140.8	887

## Initial Sag and Tension<sup>1</sup>: 12-Pair x 24 AWG

Span ft	0° F		20° F		40° F		60° F		80° F		100° F	
	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in	Tension lbs	Sag in
25	85	1.0	52	1.7	38	2.3	30	3.0	24	3.7	21	4.3
50	123	2.9	91	3.9	72	5.0	59	6.0	51	7.0	44	8.1
75	159	5.0	126	6.4	104	7.7	89	9.0	78	10.3	69	11.6
100	193	7.4	160	8.9	136	10.5	119	12.0	105	13.5	94	15.1
125	227	9.8	193	11.5	168	13.3	148	15.0	133	16.7	121	18.5
150	260	12.4	225	14.2	199	16.1	178	18.0	161	19.9	147	21.8
175	292	14.9	257	17.0	230	19.0	208	21.0	190	23.0	174	25.0
200	324	17.6	289	19.7	261	21.9	238	24.0	218	26.1	202	28.3
225	356	20.3	320	22.5	291	24.8	267	27.0	247	29.2	229	31.5
250	387	23.0	351	25.3	322	27.7	297	30.0	275	32.3	257	34.7
275	418	25.8	383	28.2	352	30.6	327	33.0	304	35.4	285	37.8
300	449	28.5	413	31.0	383	33.5	356	36.0	333	38.5	313	41.0
325	480	31.3	444	33.9	413	36.4	386	39.0	362	41.6	341	44.1
350	511	34.1	475	36.8	443	39.4	416	42.0	391	44.6	370	47.2
375	542	37.0	505	39.6	473	42.3	445	45.0	420	47.7	398	50.4

## NESC Ice and Wind Loading Districts<sup>1</sup>: 12-Pair x 24 AWG

Span ft	Heavy Plus <sup>2</sup>				Heavy				Medium				Light			
	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs	Vert. Sag in	Horiz. Sag in	Total Sag in	Tension lbs
25	5.4	2.3	5.9	362	3.4	2.3	4.1	216	2.4	2.4	3.4	142	0.7	3.5	3.6	122
50	13.8	5.7	14.9	569	8.7	6.0	10.6	337	6.0	6.1	8.5	227	1.8	8.5	8.7	202
75	23.7	9.9	25.7	744	15.0	10.3	18.2	440	10.2	10.4	14.5	300	3.0	14.3	14.6	271
100	-	-	-	-	22.0	15.1	26.7	534	14.8	15.1	21.2	367	4.3	20.6	21.0	334
125	-	-	-	-	29.6	20.3	35.8	621	19.7	20.2	28.2	429	5.7	27.3	27.9	393
150	-	-	-	-	37.6	25.8	45.6	703	25.0	25.6	35.7	489	7.1	34.4	35.2	449
175	-	-	-	-	46.0	31.5	55.8	781	30.5	31.2	43.6	545	8.7	41.8	42.7	502
200	-	-	-	-	54.8	37.6	66.5	857	36.1	37.0	51.7	600	10.3	49.5	50.6	555
225	-	-	-	-	-	-	-	-	42.0	43.0	60.1	653	11.9	57.4	58.6	605
250	-	-	-	-	-	-	-	-	48.1	49.2	68.8	705	13.6	65.5	66.9	654
275	-	-	-	-	-	-	-	-	54.3	55.5	77.6	756	15.3	73.9	75.4	703
300	-	-	-	-	-	-	-	-	60.6	62.0	86.7	805	17.1	82.4	84.1	750
325	-	-	-	-	-	-	-	-	67.1	68.6	96.0	854	18.9	91.0	93.0	796
350	-	-	-	-	-	-	-	-	-	-	-	-	20.7	99.9	102.0	842
375	-	-	-	-	-	-	-	-	-	-	-	-	22.6	108.8	111.2	887

### Loading District Specifics

	Heavy Plus <sup>2</sup>	Heavy	Medium	Light
Horizontal Wind Pressure (lb/ft <sup>2</sup> )	4	4	4	9
Radial Ice Thickness (in)	1	½	¼	0
Temperature (F)	0	0	15	30

<sup>1</sup>Reflects 1% Sag at 60° F Installation

<sup>2</sup>Not an NESC District