



User Guide to Standard Plans Section S  
 OVERHEAD SIGNS – VERSATILE TRUSS  
 Appendix B: Quantities – One Post Type

**Instructions:**

- (1) Determine the Truss Quantity using Tables 1A, 1B, and 1C.

\_\_\_\_\_ lbs

- (2) Determine the Post Quantity using Tables 2A, 2B, and 2C.

\_\_\_\_\_ lbs

*The Post Quantity Tables include the quantities for the post, base plate, and anchor bolts.*

- (3) Determine the quantity for the walkway system (excluding the aluminum grating) using the relationship below.

$$\text{Length of Walkway (ft)} \times 70 \text{ lbs/ft} = \text{_____ lbs}$$

*If the walkway nominally stops at the column centerline, add an additional 2 ft to the walkway length.*

- (4) Determine the quantity of mounting beams needed for signs using the relationship below.

$$\text{Total Area of Sign Panels (sq. ft.)} \times 2.2 \text{ lbs/sq. ft.} = \text{_____ lbs}$$

*The Total Area of Sign Panels includes all sign panels, exit plaques, CMS, and EMS to be mounted on the Versatile Truss using mounting beams.*

- (5) Determine the quantity of mounting beams needed for the walkway where there is no sign panel above, using the relationship below.

$$[ \text{LW} \times ( \text{FD} / 2 + \text{SD} / 2 + 1.1' ) ] \times 2.2 \text{ lbs/sq. ft.} = \text{_____ lbs}$$

LW = Length of walkway w/o sign above (ft)  
 FD = Frame Depth (ft)  
 SD = Sign Depth (ft)

*Walkways are mounted using the same mounting beams used for mounting signs. When a walkway is mounted under a sign panel the mounting beam quantity is accounted for under step 4. If a section of walkway is mounted without a sign panel directly above it, this step accounts for the mounting beam quantity under these scenarios.*



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(6) Determine the quantity for connection assemblies using the relationship below.

$$(\text{Sum of Widths of Each Sign Panel (ft) + LW}) \times 2.1 \text{ lbs/ft} = \underline{\hspace{2cm}} \text{ lbs}$$

LW = Length of walkway w/o sign above (ft)

*Sum the widths for each sign panel, exit plaque, CMS, and EMS to be mounted on the Versatile Truss. The connection assemblies quantity is for mounting the sign panels to the mounting beams and the mounting beams to the truss.*

(7) Add up the quantities above for items 1 through 6.

$$\text{Subtotal} = \underline{\hspace{2cm}} \text{ lbs}$$

(8) Determine increase due to galvanizing.

$$3.5\% \times \text{Subtotal} = \underline{\hspace{2cm}} \text{ lbs}$$

(9) Versatile Truss Total Quantity (Subtotal + Galvanizing).

$$\text{TOTAL} = \underline{\hspace{2cm}} \text{ lbs}$$



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Table 1A: Truss Quantity (lbs) – 60 inch Frame Depth

Long Span (ft)	Short Span (ft)																						
	Minimum	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
20	3387	5718																					
21	4786	7867	7920																				
22	4889	7978	8031	8422																			
23	4991	8089	8141	8535	8627																		
24	5057	8168	8220	8616	8708	8759																	
25	5427	8514	8566	8957	9049	9100	9192																
26	5513	8607	8659	9052	9144	9194	9287	9670															
27	5579	8684	8736	9131	9223	9273	9366	9751	9801														
28	5692	8804	8856	9253	9345	9395	9488	9875	9925	10028													
29	6051	9142	9194	9586	9679	9729	9821	10204	10254	10358	10446												
30	6115	9216	9268	9662	9754	9805	9897	10282	10332	10435	10524	10874											
31	7456	11270	11310	11873	11952	11987	12079	12639	12669	12758	12850	13355	13443										
32	7955	11734	11774	12329	12409	12444	12536	13088	13119	13208	13299	13798	13885	13974									
33	8003	11798	11837	12396	12475	12510	12602	13158	13188	13278	13369	13871	13958	14047	14091								
34	8109	11916	11956	12517	12596	12631	12723	13281	13311	13401	13492	13996	14083	14172	14217	14750							
35	8215	12034	12074	12637	12717	12752	12844	13404	13434	13524	13615	14121	14209	14298	14342	14877	14962						
36	8682	12472	12511	13069	13148	13183	13275	13830	13860	13950	14041	14542	14629	14718	14762	15292	15377	15420					
37	8786	12587	12626	13186	13266	13301	13393	13949	13979	14069	14160	14663	14750	14839	14884	15415	15500	15544	15629				
38	8890	12701	12741	13303	13382	13417	13509	14068	14098	14188	14279	14784	14871	14960	15005	15538	15623	15667	15752	16312			
39	8958	12783	12822	13387	13467	13501	13594	14155	14185	14275	14366	14874	14961	15050	15094	15631	15716	15759	15844	16406	16448		
40	9442	13237	13277	13836	13915	13950	14042	14598	14628	14718	14809	15311	15398	15487	15531	16062	16147	16190	16275	16831	16873	16955	
41	11057	15321	15347	15464	16116	16149	16249	16297	16941	16972	17084	17128	17765	17808	17918	17941	18583	18624	18731	18772	19421		
42	11158	15434	15460	15577	16231	16265	16364	16412	17059	17090	17202	17246	17885	17929	18038	18061	18706	18747	18853	18894			
43	11230	15521	15547	15664	16322	16355	16455	16503	17153	17184	17296	17340	17982	18025	18135	18158	18806	18847	18954				
44	11817	16073	16099	16216	16866	16900	16999	17047	17690	17721	17833	17877	18513	18556	18665	18688	19329	19370					
45	11886	16157	16183	16300	16953	16986	17086	17134	17780	17811	17923	17967	18605	18648	18758	18781	19425						
46	11985	16267	16292	16409	17065	17098	17198	17246	17894	17925	18037	18081	18721	18765	18874	18897							
47	12084	16380	16406	16523	17181	17214	17314	17362	18013	18044	18156	18200	18843	18887	18996								
48	12679	16942	16967	17084	17736	17769	17869	17917	18562	18592	18704	18748	19385	19428									
49	12717	16994	17020	17137	17791	17824	17924	17972	18619	18650	18762	18806	19446										
50	12839	17126	17151	17268	17925	17958	18058	18106	18755	18786	18898	18942											

Note: Truss Quantity includes quantities for truss members (angles), gusset plates, and upper/lower juncture connections to post.



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Table 1B: Truss Quantity (lbs) – 72 inch Frame Depth

Long Span (ft)	Short Span (ft)																						
	Minimum	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
20	4593	7514																					
21	5652	9019	9065																				
22	5785	9165	9210	9747																			
23	5915	9308	9353	9893	10006																		
24	5984	9398	9443	9988	10101	10144																	
25	6455	9819	9865	10397	10510	10554	10669																
26	6532	9914	9960	10496	10610	10653	10769	10822															
27	6662	10055	10100	10640	10753	10796	10911	10964	11500														
28	6739	10149	10195	10738	10852	10895	11010	11064	11603	11654													
29	6868	10289	10335	10881	10994	11038	11153	11206	11749	11800	11913												
30	7281	10665	10711	11247	11361	11404	11520	11573	12106	12157	12271	12322											
31	9629	14238	14311	15013	15094	15254	15323	15485	16118	16261	16341	16499	16579										
32	9783	14401	14474	15179	15259	15419	15487	15649	16285	16428	16508	16665	16745	17439									
33	9888	14523	14596	15304	15385	15546	15614	15776	16415	16558	16638	16796	16876	17573	17650								
34	10537	15131	15204	15903	15984	16144	16212	16374	17004	17147	17227	17384	17464	18151	18229	18384							
35	10641	15250	15323	16025	16106	16266	16334	16497	17129	17272	17352	17510	17590	18281	18358	18513	18591						
36	10810	15426	15499	16204	16284	16444	16512	16674	17310	17453	17533	17690	17770	18463	18540	18695	18773	18928					
37	10913	15544	15617	16325	16405	16566	16634	16796	17434	17577	17658	17815	17895	18591	18669	18824	18902	19057	19700				
38	11082	15720	15793	16503	16584	16744	16812	16974	17615	17757	17837	17995	18075	18773	18851	19006	19083	19238	19884	20036			
39	11653	16262	16335	17037	17117	17278	17346	17508	18141	18284	18364	18522	18602	19292	19370	19525	19603	19758	20395	20548	20623		
40	11819	16435	16508	17212	17292	17452	17521	17683	18318	18460	18540	18698	18778	19470	19548	19703	19780	19936	20575	20728	20803	20955	
41	14207	19841	19930	20803	20887	21069	21167	21362	22123	22313	22410	22585	22682	23547	23641	23828	23920	24110	24869	25054	25167		
42	14410	20053	20142	21018	21102	21284	21381	21576	22340	22530	22627	22801	22898	23766	23860	24047	24139	24329	25091	25275			
43	15110	20718	20808	21674	21758	21940	22038	22233	22988	23178	23275	23449	23546	24405	24499	24687	24779	24969	25721				
44	15311	20927	21016	21885	21969	22151	22248	22443	23201	23391	23488	23662	23759	24620	24714	24902	24993	25183					
45	15433	21064	21153	22025	22109	22292	22389	22584	23345	23535	23632	23806	23903	24767	24862	25049	25141						
46	15633	21272	21362	22236	22320	22502	22599	22794	23558	23747	23844	24019	24115	24982	25076	25264							
47	15834	21481	21570	22447	22531	22713	22810	23005	23771	23960	24057	24231	24328	25197	25291								
48	16539	22154	22244	23112	23197	23378	23475	23670	24428	24618	24715	24889	24986	25846									
49	16737	22360	22449	23320	23404	23586	23683	23878	24638	24827	24924	25098	25195										
50	16857	22492	22582	23455	23540	23721	23819	24013	24776	24966	25063	25237											

Note: Truss Quantity includes quantities for truss members (angles), gusset plates, and upper/lower juncture connections to post.



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Table 1C: Truss Quantity (lbs) – 120 inch Frame Depth

Long Span (ft)	Short Span (ft)																						
	Minimum	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
20	6249	10464																					
21	7186	12048	12133																				
22	7363	12243	12329	12486																			
23	7474	12384	12470	12628	12709																		
24	7658	12587	12673	12831	12912	13077																	
25	8395	13216	13302	13460	13541	13707	13780																
26	8569	13405	13490	13648	13729	13894	13968	14135															
27	8684	13542	13628	13786	13867	14033	14106	14274	15128														
28	8864	13736	13822	13980	14061	14226	14300	14467	15327	15489													
29	8980	13875	13961	14119	14200	14366	14439	14607	15473	15635	15721												
30	9161	14070	14156	14314	14395	14560	14634	14801	15673	15835	15921	16084											
31	11282	17465	17596	17815	17946	18156	18290	18501	19514	19729	19866	20082	20217										
32	11498	17696	17827	18045	18176	18386	18520	18730	19750	19964	20101	20316	20452	20649									
33	12369	18477	18608	18827	18958	19168	19303	19513	20501	20716	20853	21069	21204	21402	21540								
34	12612	18731	18862	19080	19211	19421	19556	19766	20759	20973	21110	21325	21461	21658	21796	22011							
35	12778	18916	19047	19266	19396	19607	19741	19952	20950	21164	21301	21517	21653	21850	21988	22204	23210						
36	13009	19158	19289	19508	19638	19848	19983	20193	21196	21410	21547	21763	21898	22096	22233	22449	23460	23672					
37	13175	19343	19474	19693	19823	20034	20168	20379	21386	21601	21738	21954	22089	22287	22425	22641	23656	23869	24005				
38	13407	19585	19716	19935	20065	20276	20410	20620	21633	21847	21984	22200	22335	22533	22670	22886	23906	24119	24254	24467			
39	13563	19760	19891	20110	20240	20451	20585	20796	21813	22028	22165	22381	22517	22714	22852	23068	24093	24306	24441	24654	24780		
40	14503	20619	20750	20969	21099	21310	21444	21654	22646	22860	22998	23213	23349	23546	23684	23899	24899	25112	25247	25459	25585	25798	
41	15509	21782	22020	22142	22386	22516	22752	22889	24017	24141	24278	24509	24644	24885	25020	25262	26269	26505	26640	26774	27011		
42	15673	21961	22200	22322	22567	22696	22933	23070	24202	24326	24463	24695	24829	25071	25206	25448	26459	26696	26831	26965			
43	15923	22219	22458	22580	22824	22953	23190	23327	24462	24586	24723	24955	25089	25331	25465	25707	26722	26959	27093				
44	16087	22398	22638	22759	23004	23133	23370	23507	24647	24771	24908	25140	25274	25516	25651	25893	26912	27149					
45	16337	22657	22895	23017	23261	23391	23627	23764	24908	25032	25169	25400	25535	25776	25911	26152	27176						
46	16500	22836	23075	23196	23441	23570	23807	23944	25092	25217	25353	25585	25720	25961	26096	26338							
47	16682	23033	23272	23394	23639	23768	24005	24143	25295	25419	25556	25788	25923	26165	26300								
48	17651	23931	24170	24292	24536	24666	24902	25039	26169	26293	26430	26662	26796	27038									
49	17830	24124	24363	24485	24730	24859	25096	25234	26367	26491	26628	26860	26995										
50	18077	24378	24617	24739	24983	25113	25349	25486	26623	26747	26884	27115											

Note: Truss Quantity includes quantities for truss members (angles), gusset plates, and upper/lower juncture connections to post.



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Table 2A: Steel Post Quantity (lbs) – 60 inch Frame Depth

Post Clear Height (ft)	Post Type							
	1A	1B	1C	1D	1E	1F	1G	1H
10	4085	4620	4696	5574	5591	6155	8874	10870
11	4278	4828	4905	5825	5830	6402	9265	11325
12	4470	5036	5114	6076	6068	6650	9657	11781
13	4663	5244	5323	6327	6307	6897	10049	12237
14	4855	5452	5532	6578	6545	7144	10440	12693
15	5047	5660	5741	6829	6784	7392	10832	13149
16	5240	5869	5950	7080	7022	7639	11224	13605
17	5432	6077	6159	7331	7261	7886	11616	14060
18	5625	6285	6368	7582	7500	8133	12007	14516
19	5817	6493	6577	7834	7738	8381	12399	14972
20	6010	6701	6786	8085	7977	8628	12791	15428
21	6202	6909	6995	8336	8215	8875	13182	15884
22	6395	7118	7204	8587	8454	9123	13574	16339
23	6587	7326	7414	8838	8692	9370	13966	16795
24	6780	7534	7623	9089	8931	9617	14357	17251
25	6972	7742	7832	9340	9170	9865	14749	17707
26	7165	7950	8041	9591	9408	10112	15141	18163
27	7357	8158	8250	9842	9647	10359	15532	18619
28	7550	8367	8459	10093	9885	10607	15924	19074

*Note: Steel Post Quantity includes quantities for the steel post, base plate, and anchor bolts.*



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Table 2B: Steel Post Quantity (lbs) – 72 inch Frame Depth

Post Clear Height (ft)	Post Type							
	1A	1B	1C	1D	1E	1F	1G	1H
10	4278	4828	4905	5825	5830	6351	9184	11244
11	4470	5036	5114	6076	6068	6599	9575	11700
12	4663	5244	5323	6327	6307	6846	9967	12155
13	4855	5452	5532	6578	6545	7093	10359	12611
14	5047	5660	5741	6829	6784	7341	10751	13067
15	5240	5869	5950	7080	7022	7588	11142	13523
16	5432	6077	6159	7331	7261	7835	11534	13979
17	5625	6285	6368	7582	7500	8082	11926	14435
18	5817	6493	6577	7834	7738	8330	12317	14890
19	6010	6701	6786	8085	7977	8577	12709	15346
20	6202	6909	6995	8336	8215	8824	13101	15802
21	6395	7118	7204	8587	8454	9072	13492	16258
22	6587	7326	7414	8838	8692	9319	13884	16714
23	6780	7534	7623	9089	8931	9566	14276	17169
24	6972	7742	7832	9340	9170	9814	14667	17625
25	7165	7950	8041	9591	9408	10061	15059	18081
26	7357	8158	8250	9842	9647	10308	15451	18537
27	7550	8367	8459	10093	9885	10555	15842	18993
28	7742	8575	8668	10344	10124	10803	16234	19449

*Note: Steel Post Quantity includes quantities for the steel post, base plate, and anchor bolts.*



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Table 2C: Steel Post Quantity (lbs) – 120 inch Frame Depth

Post Clear Height (ft)	Post Type							
	1A	1B	1C	1D	1E	1F	1G	1H
10	5047	5660	5741	6829	6784	7136	10424	12740
11	5240	5869	5950	7080	7022	7384	10816	13196
12	5432	6077	6159	7331	7261	7631	11207	13652
13	5625	6285	6368	7582	7500	7878	11599	14108
14	5817	6493	6577	7834	7738	8126	11991	14564
15	6010	6701	6786	8085	7977	8373	12382	15019
16	6202	6909	6995	8336	8215	8620	12774	15475
17	6395	7118	7204	8587	8454	8867	13166	15931
18	6587	7326	7414	8838	8692	9115	13557	16387
19	6780	7534	7623	9089	8931	9362	13949	16843
20	6972	7742	7832	9340	9170	9609	14341	17299
21	7165	7950	8041	9591	9408	9857	14732	17754
22	7357	8158	8250	9842	9647	10104	15124	18210
23	7550	8367	8459	10093	9885	10351	15516	18666
24	7742	8575	8668	10344	10124	10599	15907	19122
25	7935	8783	8877	10595	10362	10846	16299	19578
26	8127	8991	9086	10846	10601	11093	16691	20034
27	8319	9199	9295	11097	10840	11341	17082	20489
28	8512	9407	9504	11348	11078	11588	17474	20945

*Note: Steel Post Quantity includes quantities for the steel post, base plate, and anchor bolts.*





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Example:

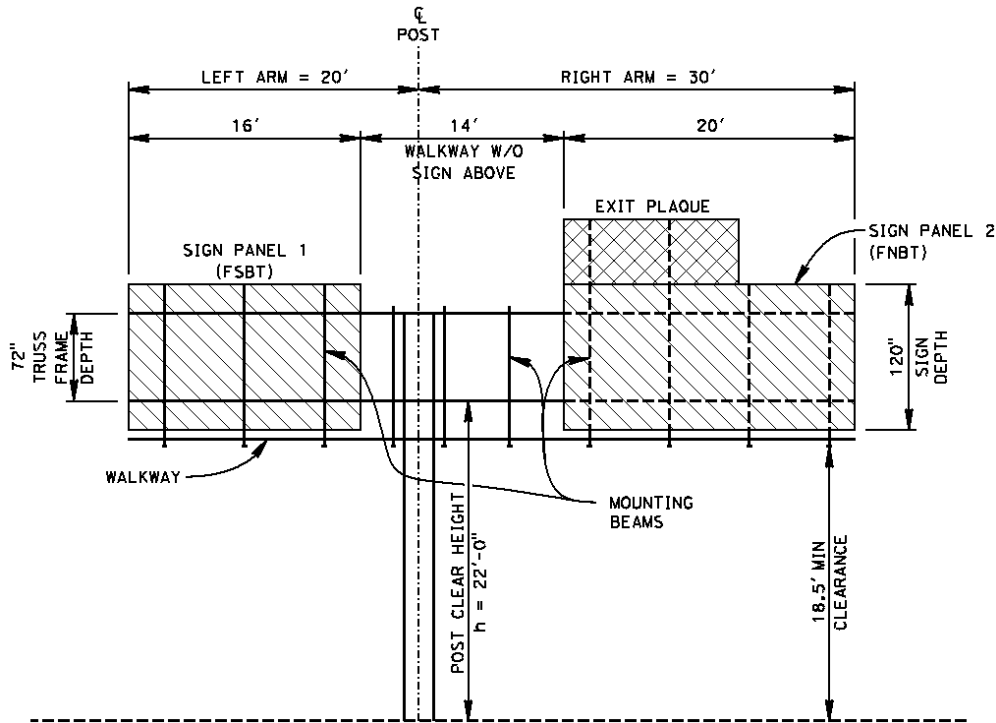


Figure 1: One Post Type Versatile Truss

Given:

Sign Panel 1: 120" Depth x 16' Length

Sign Panel 2: 120" Depth x 20' Length

Exit Plaque: 4'-6" Depth x 12' Length

Walkway Length on Lt Arm (FSBT): 20'

Walkway Length on Rt Arm (FNBT): 30'

Total Length of Walkway: 50'

Truss Frame Depth: 72" Depth  
(determined based on sign depth)

Post Clear Height,  $h$ : 22'-0"  
(determined based on clearance requirements, finish grade elevations, and site topography)

Post Type: 1E  
(determined based on sign depth, longer arm length, and post clear height)



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Solution:

(1) Determine the Truss Quantity.	<i>Using Table 1B:</i>	<u>10,665 lbs</u>
(2) Determine the Post Quantity.	<i>Using Table 2B:</i>	<u>8,692 lbs</u>
(3) Determine the quantity for the walkway system (excluding the aluminum grating).	$50' \times 70 \text{ lbs/ft} =$	<u>3,500 lbs</u>
	<i>Length of Walkway</i>	
(4) Determine the quantity of mounting beams needed for signs.	$[(10' \times 16') + (10' \times 20') + (4.5' \times 12')] \times 2.2 \text{ lbs/sq. ft.} =$	<u>911 lbs</u>
	<i>Sign Panel 1   Sign Panel 2   Exit Plaque</i>	
(5) Determine the quantity of mounting beams for walkway where there is no sign panel above.	$[14' \times (6' / 2 + 10' / 2 + 1.1')] \times 2.2 \text{ lbs/sq. ft.} =$	<u>280 lbs</u>
	<i>Length of Walkway w/o sign above   Frame Depth   Sign Depth</i>	
(6) Determine the quantity of connection assemblies for mounting beams.	$(16' + 20' + 12' + 14') \times 2.1 \text{ lbs/ft.} =$	<u>130 lbs</u>
	<i>Sign Panel 1   Sign Panel 2   Exit Plaque   Length of Walkway w/o sign above</i>	
(7) Add up the quantities above for items 1 through 6.	Subtotal =	<u>24,178 lbs</u>
(8) Determine increase due to galvanizing.	3.5% x Subtotal =	<u>846 lbs</u>
(9) Versatile Truss Total Quantity.	TOTAL =	<u>25,024 lbs</u>