

24F V5 (BALANCED ARCH.) AND 24F V3 (UNBALANCED ARCH.) DESIGN VALUES			
Flexural Stress F_B 2400 psi	Modulus of Elasticity E 1,800,000 psi	Horizontal Shear F_V 300 psi	Compression Perp F_{cperp} 740

24F V5 & V3 Section Properties and Allowable Capacities								
3-1/8" Width								
Depth	8-1/4"	9-5/8"	11"	12-3/8"	13-3/4"	15-1/8"	16-1/2"	17-7/8"
Weight [lbs/ft.]	6.8	7.9	9.1	10.2	11.3	12.5	13.6	14.7
C_{db} Factor (L=21')	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Moment of Inertia I [in ⁴]	146	232	347	494	677	901	1170	1487
Moment Capacity M [ft-lbs]	7090	9650	12604	15952	19694	23830	28359	33283
Shear Capacity [Lbs]	5156	6016	6875	7734	8594	9453	10313	11172

5-1/8" Width																				
Depth	9-5/8"	11"	12-3/8"	13-3/4"	15-1/8"	16-1/2"	17-7/8"	19-1/4"	20-5/8"	22"	23-3/8"	24-3/4"	26-1/8"	27-1/2"	28-7/8"	30-1/4"	31-5/8"	33"	34-3/8"	35-3/4"
Weight [lbs/ft.]	13.0	14.9	16.7	18.6	20.5	22.3	24.2	26	27.9	29.8	31.6	33.5	35.3	37.2	39.1	40.9	42.8	44.6	46.5	48.3
C_{db} Factor (L=21')	1.00	1.00	0.998	0.993	0.988	0.984	0.980	0.977	0.973	0.970	0.967	0.964	0.962	0.959	0.957	0.955	0.953	0.951	0.949	0.947
Moment of Inertia I [in ⁴]	381	568	809	1110	1478	1919	2439	3047	3747	4548	5455	6475	7615	8882	10282	11822	13508	15348	17348	19514
Moment Capacity M [ft-lbs]	15826	20671	26109	32072	38612	45765	53492	61848	70709	80203	90261	100879	112166	123883	136297	149274	162810	176904	191549	206743
Shear Capacity [Lbs]	9866	11275	12684	14094	15503	16913	18322	19731	21141	22550	23959	25369	26778	28187	29597	31006	32416	33825	35234	36644

6-3/4" Width																			
Depth	11"	12-3/8"	13-3/4"	15-1/8"	16-1/2"	17-7/8"	19-1/4"	20-5/8"	22"	23-3/8"	24-3/4"	26-1/8"	27-1/2"	28-7/8"	30-1/4"	31-5/8"	33"	34-3/8"	35-3/4"
Weight [lbs/ft.]	19.6	22.0	24.5	26.9	29.4	31.8	34.3	36.7	39.2	41.6	44.1	46.5	49.0	51.4	53.9	56.3	58.8	61.2	63.7
C_{db} Factor (L=21')	0.990	0.984	0.980	0.975	0.971	0.967	0.963	0.960	0.957	0.954	0.951	0.949	0.946	0.944	0.942	0.940	0.938	0.936	0.934
Moment of Inertia I [in ⁴]	749	1066	1462	1946	2527	3213	4012	4935	5990	7184	8528	10030	11698	13542	15570	17792	20215	22848	25701
Moment Capacity M [ft-lbs]	26953	33905	41688	50185	59480	69519	80291	91884	104217	117283	131073	145734	160968	177092	193947	211529	229833	248853	268584
Shear Capacity [Lbs]	14850	16706	18563	20419	22275	24131	25988	27844	29700	31556	33413	35269	37125	38981	40837	42694	44550	46406	48262

8-1/2" Width																			
Depth	11"	12-3/8"	13-3/4"	15-1/8"	16-1/2"	17-7/8"	19-1/4"	20-5/8"	22"	23-3/8"	24-3/4"	26-1/8"	27-1/2"	28-7/8"	30-1/4"	31-5/8"	33"	34-3/8"	35-3/4"
Weight [lbs/ft.]	24.7	27.7	30.9	33.9	37.0	40.0	43.2	46.2	49.4	52.4	55.5	58.6	61.7	64.7	67.9	70.9	74.0	77.1	80.2
C_{db} Factor (L=21')	0.979	0.973	0.968	0.964	0.960	0.956	0.952	0.949	0.946	0.943	0.940	0.938	0.934	0.933	0.931	0.929	0.927	0.925	0.923
Moment of Inertia I [in ⁴]	943	1342	1841	2450	3182	4045	5053	6215	7542	9047	10739	12630	14731	17053	19607	22404	25455	28772	32364
Moment Capacity M [ft-lbs]	33573	42240	51875	62471	74022	86527	99979	114377	129716	145994	163208	181355	200143	220439	241378	263253	286026	309688	334234
Shear Capacity [Lbs]	18700	21038	23375	25712	28050	30387	32725	35062	37400	39737	42075	44412	46750	49087	51425	53762	56100	58437	60775

10-1/2" Width																			
Depth	11"	12-3/8"	13-3/4"	15-1/8"	16-1/2"	17-7/8"	19-1/4"	20-5/8"	22"	23-3/8"	24-3/4"	26-1/8"	27-1/2"	28-7/8"	30-1/4"	31-5/8"	33"	34-3/8"	35-3/4"
Weight [lbs/ft.]	30.3	34.2	38.1	42.0	45.9	49.8	53.7	57.6	60.6	64.5	68.4	72.3	76.2	80.1	83.8	87.6	91.4	95.2	99.1
C_{db} Factor (L=21')	0.969	0.963	0.958	0.954	0.950	0.946	0.941	0.939	0.936	0.933	0.930	0.928	0.926	0.923	0.921	0.919	0.917	0.915	0.913
Moment of Inertia I [in ⁴]	1165	1658	2275	3028	3931	4997	6242	7677	9317	11175	13266	15602	18197	21065	24221	27676	31445	35541	39979
Moment Capacity M [ft-lbs]	41037	51616	63392	76385	90523	105792	122045	139805	158558	178424	199389	221681	245100	269348	294967	321695	349514	378420	408404
Shear Capacity [Lbs]	23100	25987	28875	31763	34650	37537	40425	43313	46200	49087	51975	54863	57750	60637	63525	66412	69300	72187	75075

Flexural stress F_B , shall be modified by Volume Factor, C_v , as outlined in ICC ESR-1940, APA Product Report-L263 and APA-EWS Y117 where :

$$C_v = [(5.125/b)^{0.05} \times (12/d)^{0.05} \times (21/L)^{0.05}] \leq 1.0$$

$$C_v = [C_{db} \times (21/L)^{0.05}] \leq 1.0$$

Width and depth portions of Volume Factor, C_v , are incorporated into tabulated C_{db} Volume Factor.

Tabulated Moment capacities based on width and depth portions of Volume Factor

Note: Allowable design properties and load capacities are based on a load duration of 100 percent and dry use conditions