

Figure 2-9: Effect of granular subbase thickness on k-value.

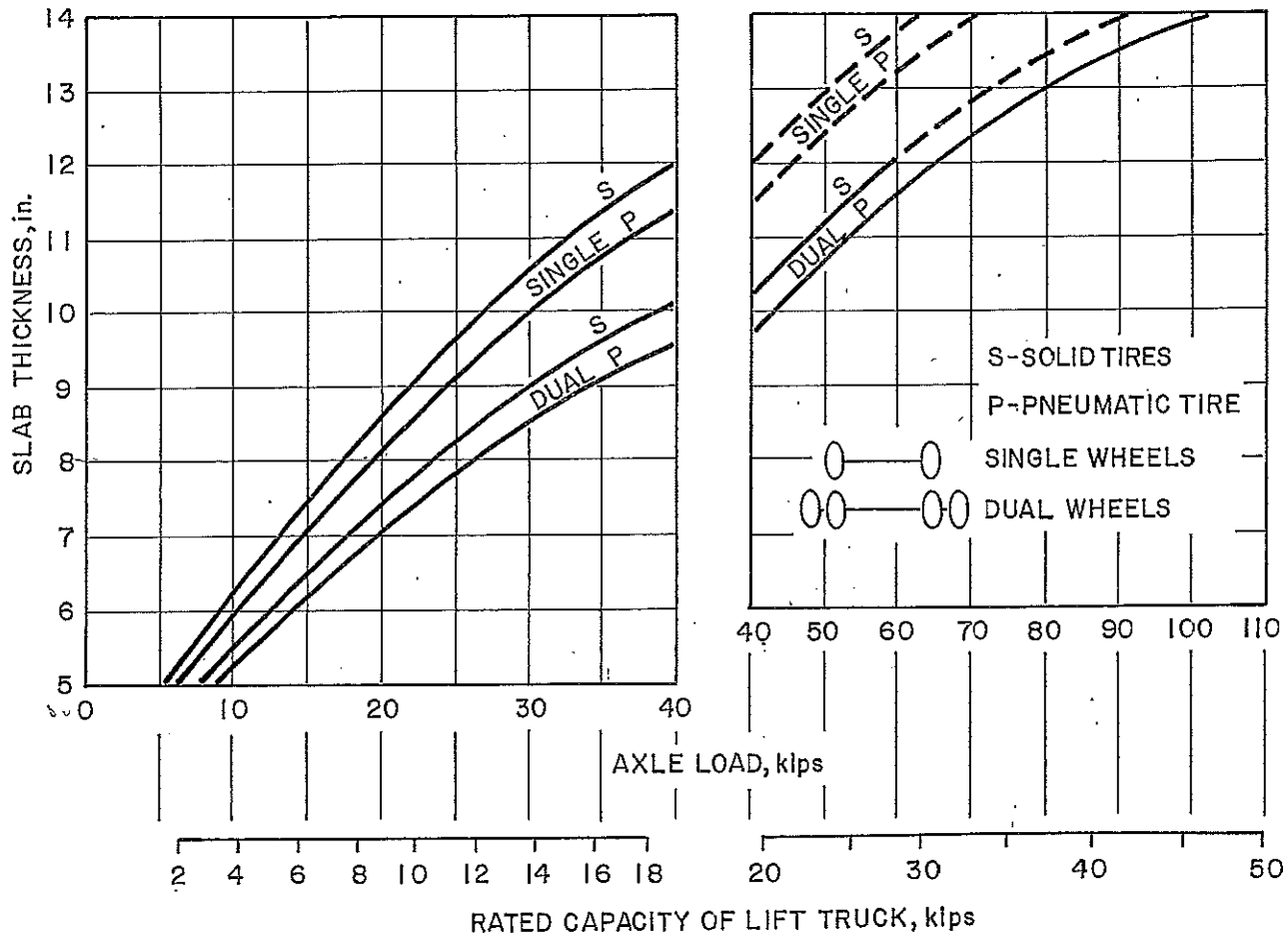


Fig. 5-7. Estimated slab thickness for lift trucks (based on average truck data shown in Table 5-2 and conservative design assumptions: $k = 50$ pci; concrete working stress of 250 psi).

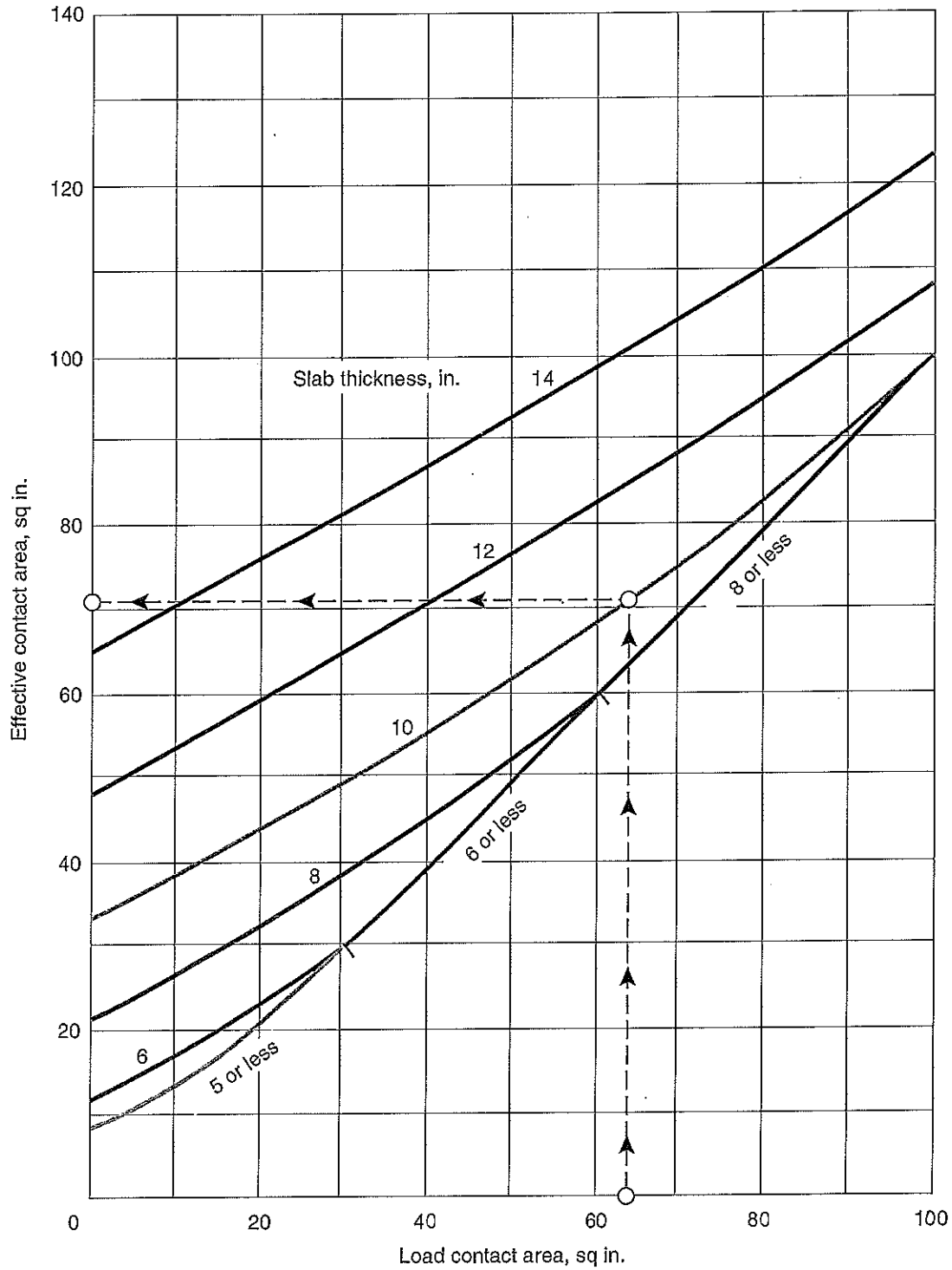


Figure 5-7b. Effective load contact area depends on slab thickness (Inch-pound units).

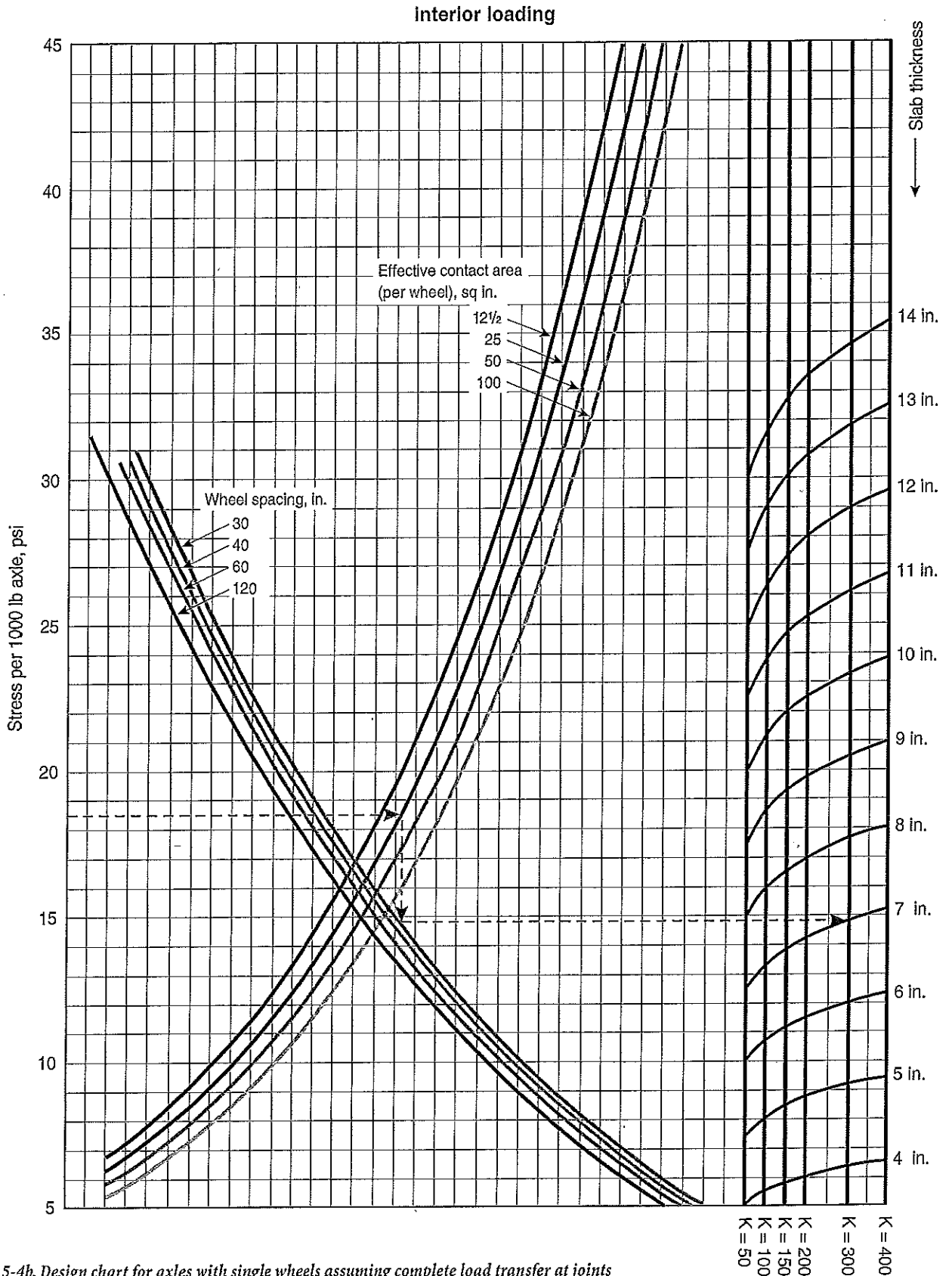


Figure 5-4b. Design chart for axles with single wheels assuming complete load transfer at joints (Inch-pound units). K-psi/in.

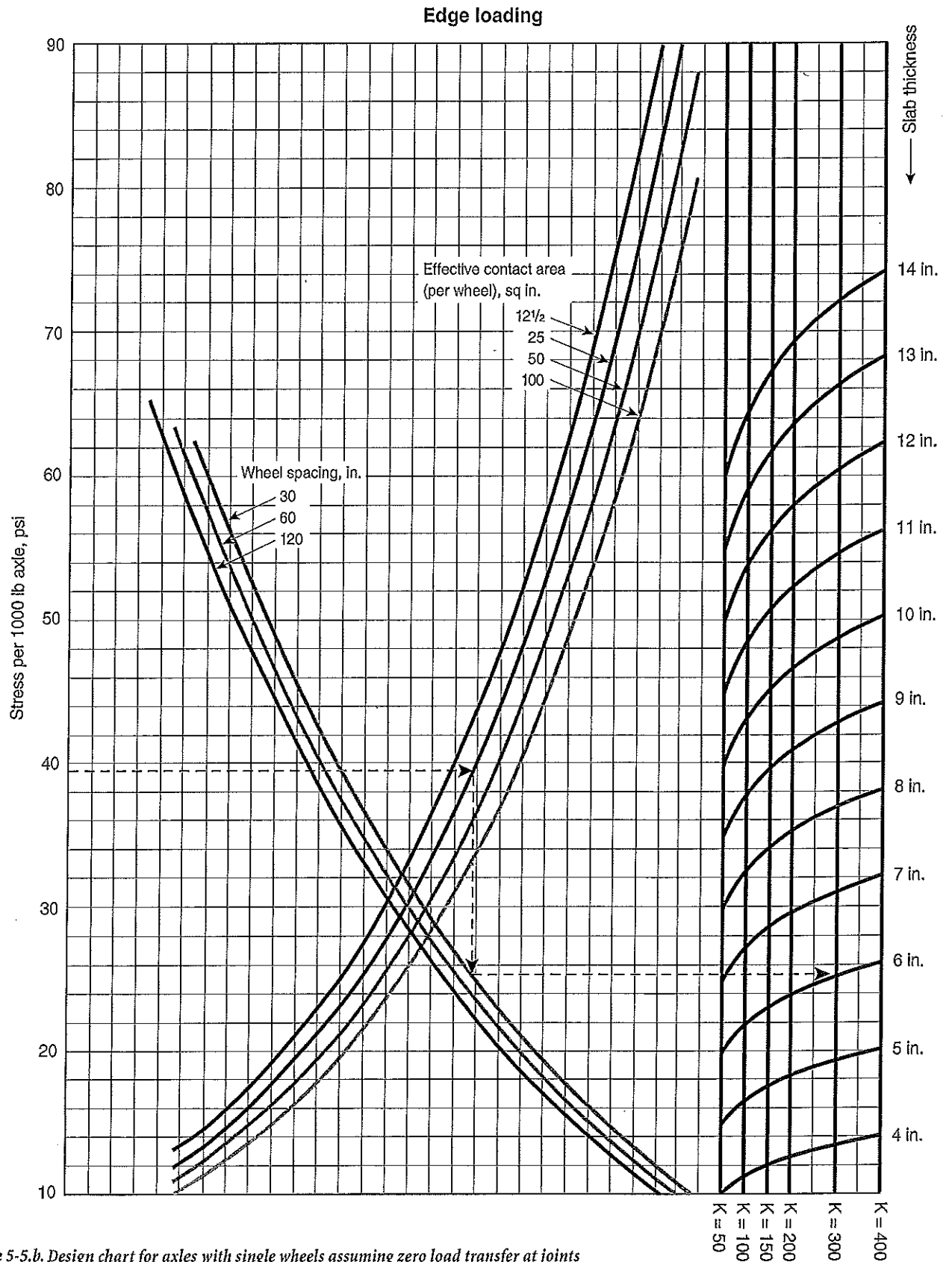


Figure 5-5.b. Design chart for axles with single wheels assuming zero load transfer at joints (Inch-pound units). K -psi/in.

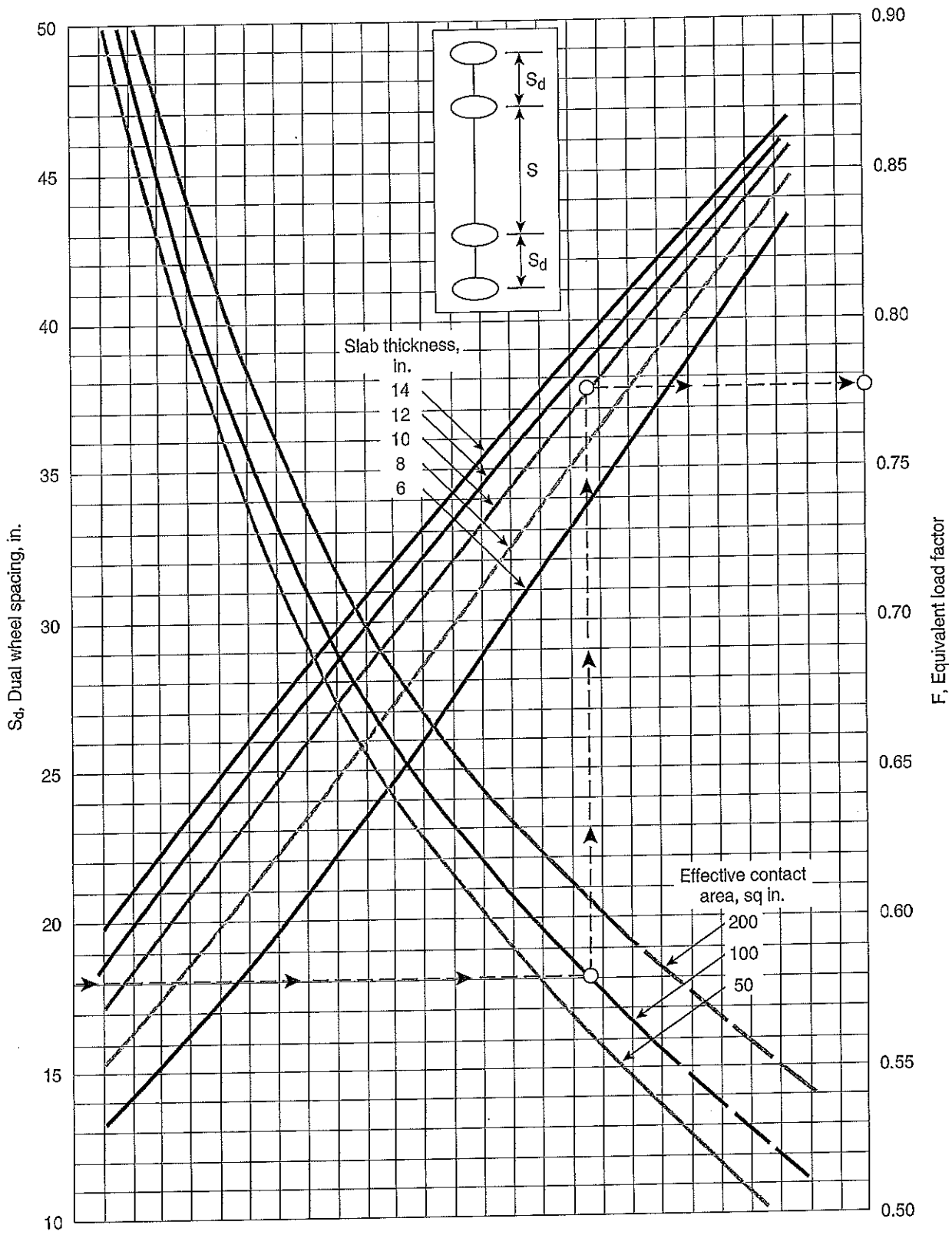


Figure 5-6b. Design chart for axles with dual wheels (Inch-pound units).

Concrete Floors on Ground

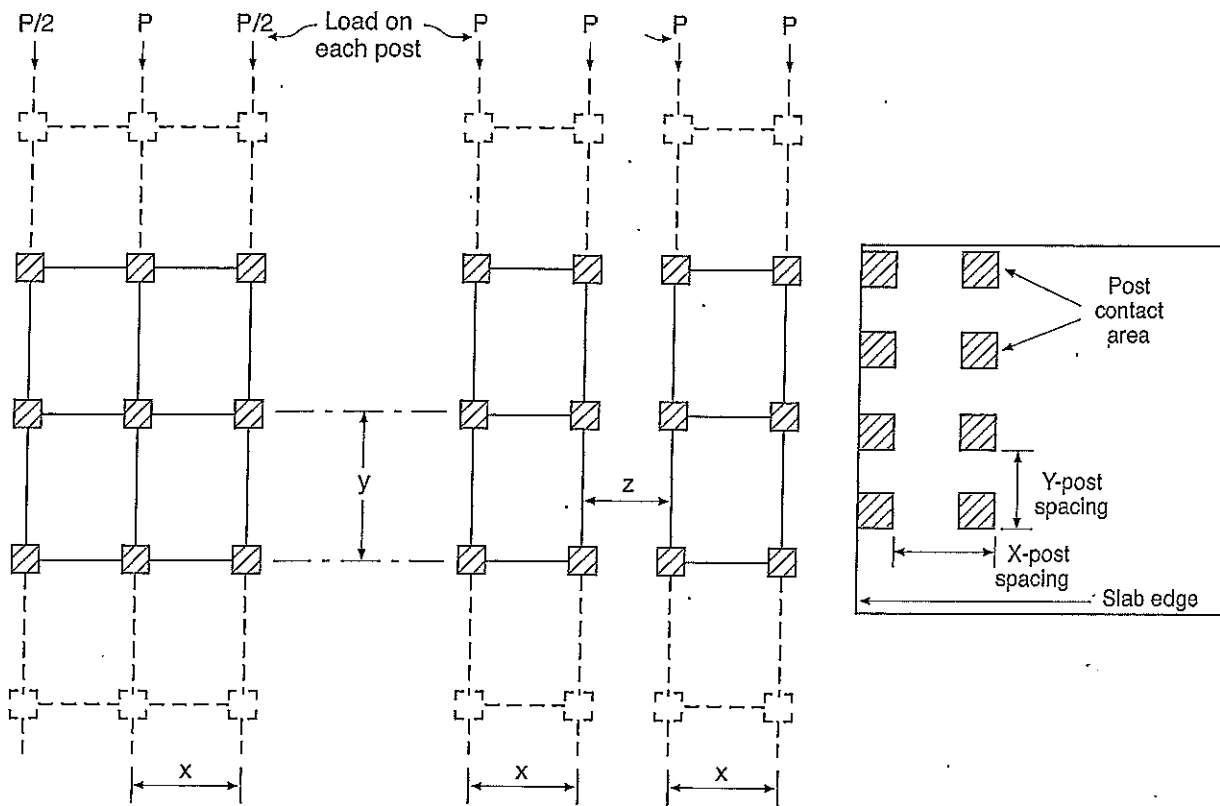


Figure 5-10. Post configurations and loads for which Figures 5-8 and 5-9 apply (left, interior loading; right, slab edge loading).

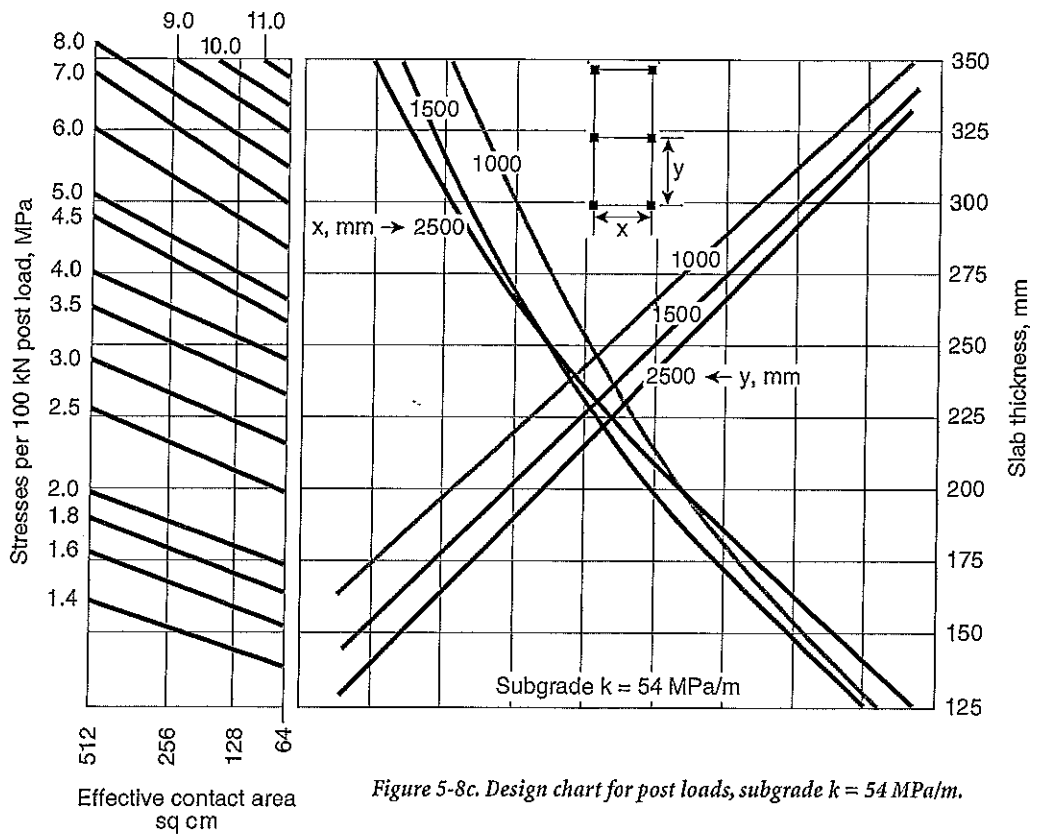


Figure 5-8c. Design chart for post loads, subgrade $k = 54 \text{ MPa/m}$.

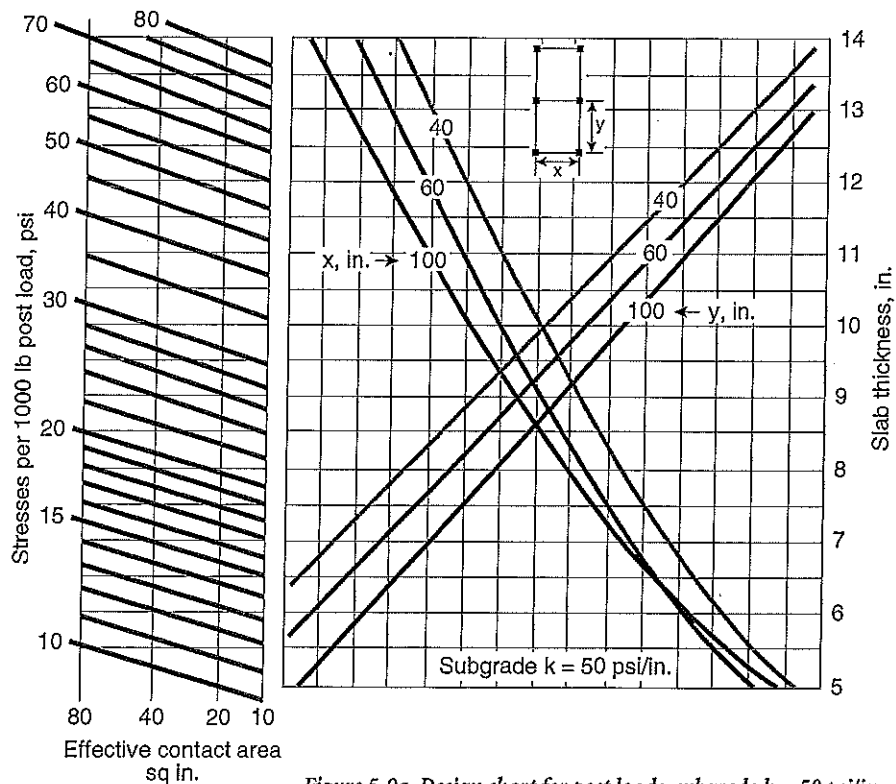


Figure 5-9a. Design chart for post loads, subgrade $k = 50 \text{ psi/in}$.

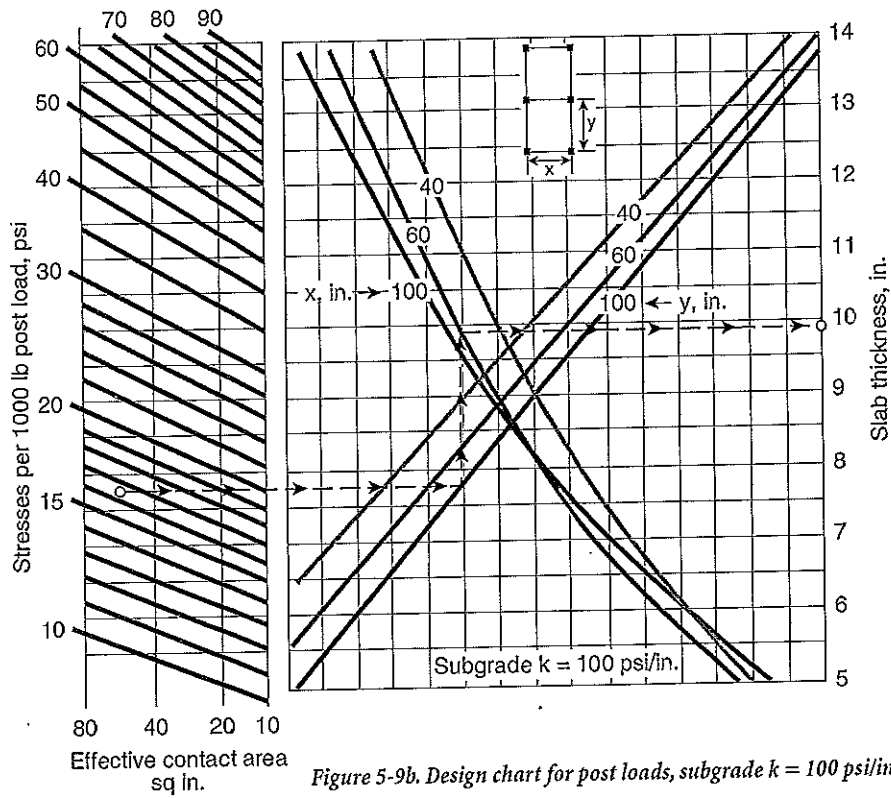


Figure 5-9b. Design chart for post loads, subgrade $k = 100 \text{ psi/in.}$

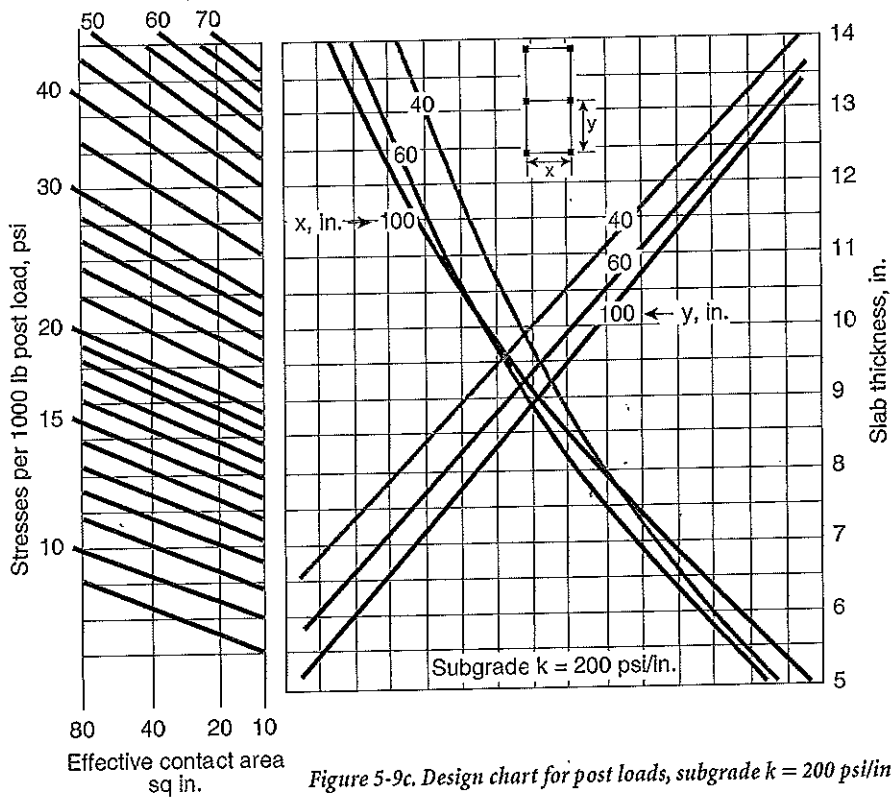


Figure 5-9c. Design chart for post loads, subgrade $k = 200 \text{ psi/in.}$

Table 5-4b. Allowable Distributed Loads, Unjointed Aisle, Inch-Pounds (Uniform Load, Fixed Layout)

Slab thickness, in.	Working stress, psi	Critical aisle width, ft**	Allowable load, psf					
			At critical aisle width	At other aisle widths				
				6-ft aisle	8-ft aisle	10-ft aisle	12-ft aisle	14-ft aisle
Subgrade $k = 50$ psi/in.*								
5	300	5.6	610	615	670	815	1050	1215
	350	5.6	710	715	785	950	1225	1420
	400	5.6	815	820	895	1085	1400	1620
6	300	6.4	670	675	695	780	945	1175
	350	6.4	785	785	810	910	1100	1370
	400	6.4	895	895	925	1040	1260	1570
8	300	8	770	800	770	800	880	1010
	350	8	900	9.5	900	935	1025	1180
	400	8	1025	1070	1025	1065	1175	1350
10	300	9.4	845	930	855	950	885	960
	350	9.4	985	1085	1000	990	1035	1120
	400	9.4	1130	1240	1145	1135	1185	1285
12	300	10.8	915	1065	955	915	925	968
	350	10.8	1065	1240	1115	1070	1080	1125
	400	10.8	1220	1420	1270	1220	1230	1290
14	300	12.1	980	1225	1070	1000	980	995
	350	12.1	1145	1430	1245	1170	1145	1160
	400	12.1	1310	1630	1425	1335	1310	1330
Subgrade $k = 100$ psi/in.*								
5	300	4.7	865	900	1090	1470	1745	1810
	350	4.7	1010	1050	1270	1715	2035	2115
	400	4.7	1115	1200	1455	1955	2325	2415
6	300	5.4	950	955	1065	1320	1700	1925
	350	5.4	1105	1115	1245	1540	1985	2245
	400	5.4	1265	1275	1420	1760	2270	2565
8	300	6.7	1095	1105	1120	1240	1465	1815
	350	6.7	1280	1285	1305	1445	1705	2120
	400	6.7	1460	1470	1495	1650	1950	2420
10	300	7.9	1215	1265	1215	1270	1395	1610
	350	7.9	1420	1475	1420	1480	1630	1880
	400	7.9	1625	1645	1625	1690	1860	2150
12	300	9.1	1320	1425	1325	1330	1400	1535
	350	9.1	1540	1665	1545	1550	1635	1880
	400	9.1	1755	1900	1770	1770	1865	2050
14	300	10.2	1405	1590	1445	1405	1435	1525
	350	10.2	1640	1855	1685	1640	1675	1775
	400	10.2	1875	2120	1925	1875	1915	2030

Table 5-4b. Allowable Distributed Loads, Unjointed Aisle, Inch-Pounds (Uniform Load, Fixed Layout) (Continued)

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Slab thickness, in.	Working stress, psi	Critical aisle width, ft**	Allowable load, psf					
			At critical aisle width	At other aisle widths				
				6-ft aisle	8-ft aisle	10-ft aisle	12-ft aisle	14-ft aisle
Subgrade $k = 50$ psi/in.* 200 psi/in								
5	300	4	1225	1400	1930	2450	2565	2520
	350	4	1425	1630	2255	2860	2990	2940
	400	4	1630	1865	2575	3270	3420	3360
6	300	4.5	1340	1415	1755	2395	2740	2810
	350	4.5	1565	1650	2050	2800	3200	3275
	400	4.5	1785	1890	2345	3190	3655	3745
8	300	5.6	1550	1550	1695	2045	2635	3070
	350	5.6	1810	1810	1980	2385	3075	3580
	400	5.6	2065	2070	2615	2730	3515	4095
10	300	6.6	1730	1745	1775	1965	2330	2895
	350	6.6	2020	2035	2070	2290	2715	3300
	400	6.6	2310	2325	2365	2620	3105	3860
12	300	7.6	1890	1945	1895	1995	2230	2610
	350	7.6	2205	2270	2210	2330	2600	3045
	400	7.6	2520	2595	2525	2660	2972	3480
14	300	8.6	2025	2150	2030	2065	2210	2480
	350	8.6	2360	2510	2365	2405	2580	2890
	400	8.6	2700	2870	2705	2750	2950	3305

* k of subgrade; disregard increase in k due to subbase.

** Critical aisle width equals 2.209 times radius of relative stiffness.

Assumed load width, $S = 7.6$ m (300 in.); allowable load varies only slightly for other load widths. Allowable stress = one-half flexural strength (safety factor of 2.0).

PROJECT: _____ COMPILED BY: _____ ROUGHNESS COEFFICIENT
 LOCATION: _____ CHECKED BY: _____ H = 10 YR. HYDRAULIC GRADE
 DATE: _____ C = 5 YR. CONSTRUCTION GRADE

MANHOLE STATION	AREA (ACRES)	WEIGHTED RUNOFF C	C x A	CONCENTRATION TIME (MINUTES) $\Delta T = \text{LENGTH} / V \times 60$		RAINFALL INTENSITY I	$Q = CA \times I$ CFS	PIPE SIZE	PIPE SLOPE FT/100FT	VELOCITY V	V x 60	LENGTH LN FT	INVERT ELEVATION U = UPPER END F = FALL (LENGTH x SLOPE) L = LOWER END			CASTING ELEVATION
				HGL	CONST.								H	H	C	
			Δ		ΔT	10yr							U			
			Σ		ΣT	5yr							F			
					ΔT								L			
					ΣT											