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FAX COVER SHEET

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60'0 DESIGN BLDG 2441

CONVENTIONAL SLAB ON GRADE

MODULUS OF SUBGRADE REACTION

TABLE 4-1 $K = 1M | lb | IN^3$ = $K = 300$

ALL SUBGRADE SHALL BE SELECT GRANULAR MATERIAL COMPACTED TO 95% STANDARD PROCTOR DENSITY

SOIL BEAR CAPACITY 2000 psf

ASSUME NO ADVERSE SOIL CONDITIONS
ASSUME NO HEAVY DISTRIBUTED LOADS

MATERIAL PROPERTIES

$f'_c = 4000$ psi
$f_y = 60$ ksi

CONCRETE FLEXURAL STRENGTH

$9\sqrt{f'_c} = 9\sqrt{4000} = 569.2$ SAY 570

TYPE TRAFFIC TABLE 5-1

FORK LIFT	# AXLES	AVG DV	MAX DP	DESIGN VALUE
10K	1	50	50	8

TABLE 5-1 6.9 SAY 7"

CHECK 7" SLAB FOR STATIONARY LOAD

TABLE 3-1

$$d = 938 + \frac{570-550}{600-550}(1023-938) = 972$$

K = 300 CONSTANT FACTOR 1.7 TABLE 3-1

1.7 x 972 = 1652.4 SAY 1650 lb/FT²

ASSUME MAX STATIONARY LOAD = 1200 lb/FT²

1650 > 1200 OK

CHECK THICKED SLOB FOR EXTERIOR WALL

6" REINFORCED BLOCK 63 lb/FT² x 25 = 1575
4" BRICK VENEER 42 lb/FT² x 6 = 252
1827 lb

$$P = 943\sqrt{F'c}\, t_2^2 \sqrt[4]{\frac{K}{19{,}000\sqrt{F'c}\, t^3}}$$

te = 24

Tc = 7

$\sqrt{F'c} = 63.2$

P = 3129.5 > 1827 OK

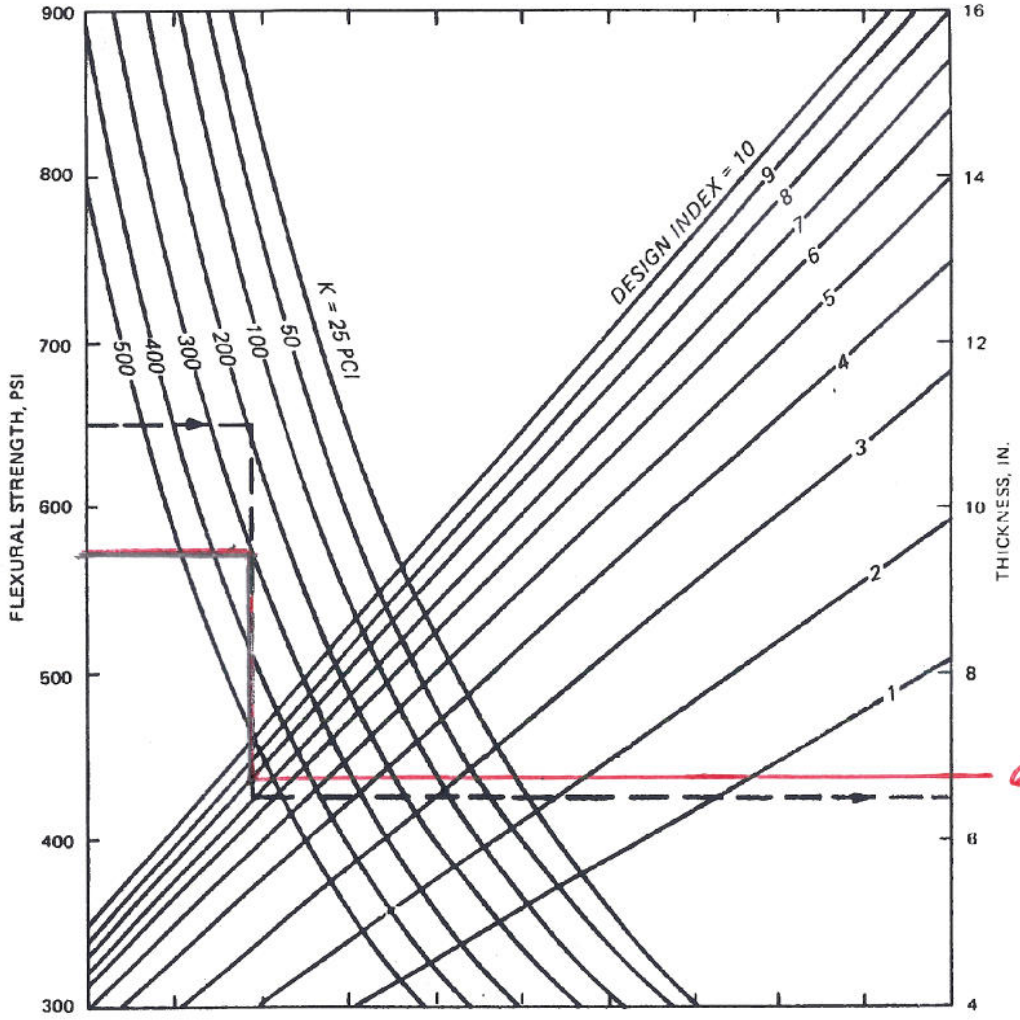
PERCENT STEEL TABLE 4 = .062

ASSUME #4 @ 12" O.C. = .2 > .062 OK

Table 4-1. Typical values of modulus of subgrade reaction

Types of Materials	Modulus of Subgrade Reaction, k, in lb/in³ for Moisture Contents of: 1 to 4%	5 to 8%	9 to 12%	13 to 16%	17 to 20%	21 to 24%	25 to 28%	Over 29%
Silts and clays Liquid limit > 50 (OH, CH, MH)	--	175	150	125	100	75	50	25
Silts and clays Liquid limit < 50 (OL, CL, ML)	--	200	175	150	125	100	75	50
Silty and clayey sands (SM & SC)	300	250	225	200	150	–	–	--
Gravelly sands (SW & SP)	300+	300	250	–	–	–	–	--
Silty and clayey gravels (GM & GC)	300+	300+	300	250	–	–	–	--
Gravel and sandy gravels (GW & GP)	300+	300+	–	–	–	–	–	--

NOTE: k values shown are typical for materials having dry densities equal to 90 to 95 percent of the maximum CE 55 density. For materials having dry densities less than 90 percent of maximum CE 55 density, values should be reduced by 50 lb/in³, except that a k of 25 lb/in³ will be the minimum used for design.



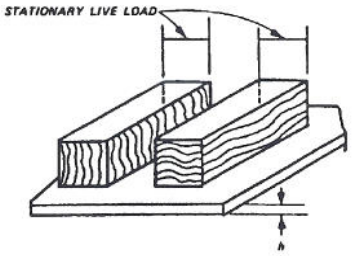
570

6.9 SAY 7.0"

Figure 5-1. Design curves for concrete floor slabs by design index.

Table 3-1. Maximum allowable stationary live load

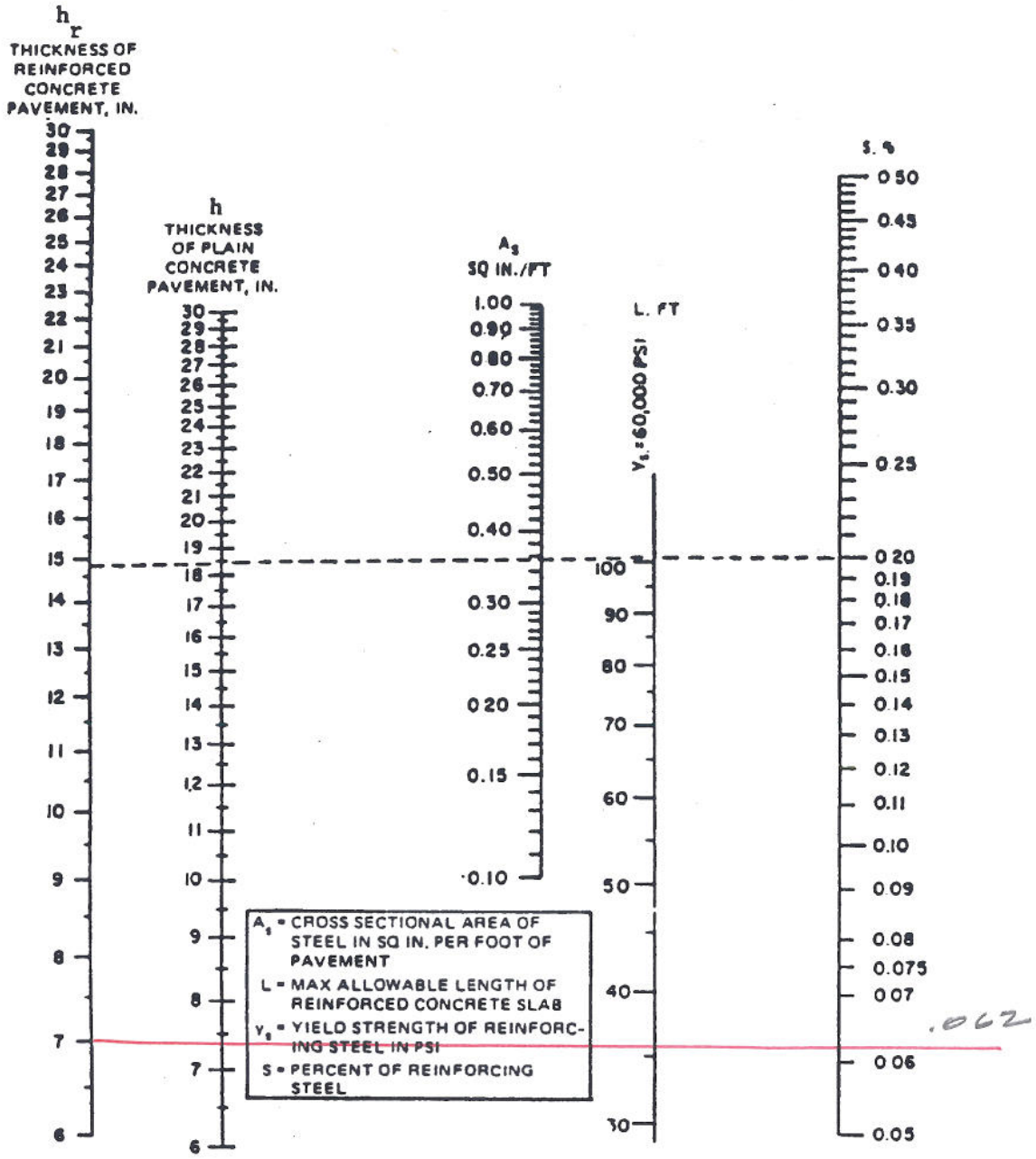
Slab Thickness	Stationary Live Load w in lb/ft² for These Flexural Strengths of Concrete			
inches h	550 lb in²	600 lb in²	650 lb in²	700 lb in²
6	868	947	1,026	1,105
7	938	1,023	1,109	1,194
8	1,003	1,094	1,185	1,276
9	1,064	1,160	1,257	1,354
10	1,121	1,223	1,325	1,427
11	1,176	1,283	1,390	1,497
12	1,228	1,340	1,452	1,563
14	1,326	1,447	1,568	1,689
16	1,418	1,547	1,676	1,805
18	1,504	1,641	1,778	1,915
20	1,586	1,730	1,874	2,018



NOTE: Stationary live loads tabulated above are based on a modulus of subgrade reaction (k) of 100 lb/in³. Maximum allowable stationary live loads for other moduli of subgrade reaction will be computed by multiplying the above-tabulated loads by a constant factor. Constants for other subgrade moduli are tabulated below.

Modulus of Subgrade reaction	25	50	100	200	300
Constant factor	0.5	0.7	1.0	1.4	1.7

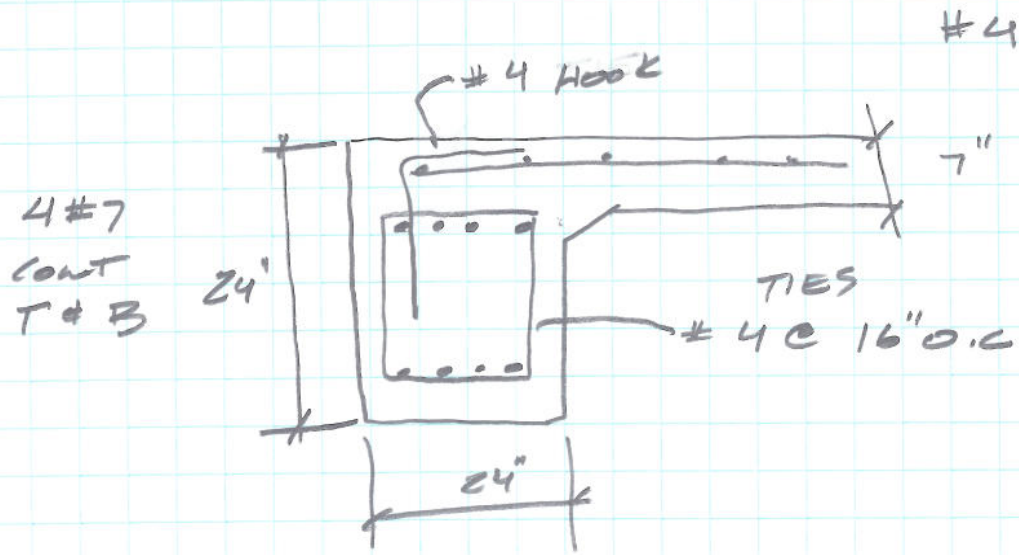
For other modulus of subgrade reaction values, the constant values may be found from the expression $\sqrt{k/100}$.



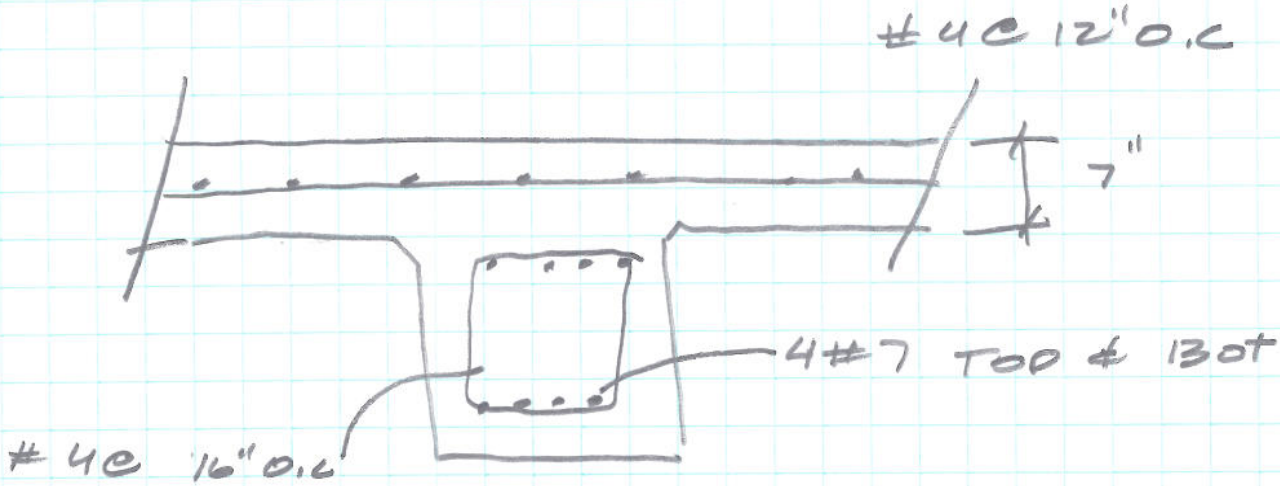
REINFORCED CONCRETE PAVEMENT DESIGN

NOTE: MINIMUM THICKNESS OF REINFORCED CONCRETE FLOOR SLABS WILL BE 6 IN.

Figure 5-4. Design thickness for reinforced floor slabs.



EXTERIOR WALL



4000 psi

f_y = 60 ksi