F.P.1247-C

Adams Township, MI

DRESSING A CEMENT FLOOR

Many power users who have installed engines on large concrete foundations leave the surface of the concrete just in its comparatively rough condition as a floor for the engine-room. This is a bad practice, as the sand in the concrete is apt to come away with constant walking on it, and a large percentage of it eventually finds its way into the engine bearings, with results far from beneficial for the engine.

Wash the floor thoroughly with clean water, scrubbing with a stiff broom or scrubbing brush to remove all dirt and loose particles. As soon as the surface is dry, apply a solution of one part of water glass or sodium silicate, and three to four parts of water, the quantity of water depending on the porosity of the concrete. The denser the concrete the weaker will be the solution required, as it is necessary to penetrate the pores of the concrete. Do not mix more than can be used in an hour, and apply it with a large whitewash brush. After the first coat is dry, mop the floor with clean water, allow it to dry, and apply a second coat. Mop and dry again, and apply a third coat, and if the surface is not too good a fourth coat also after the same procedure. After it has dried throughly and received another mopping the result will be an extremely hard, dustless surface.

F.P. 1247-B

Ultimate Load on Slabs of "Average" Concrete (1:3:5) in Pounds per Square Foot.
Weight of Slab Included

Effective Thickness of slab d	Area of Steel in 12 in. width.	Spacing of Bars		SPAN IN FEET (L)											
		$\frac{3}{8}$" sq.	$\frac{1}{2}$" sq.	4	5	6	7	8	9	10	11	12	13	14	15
2.5	.252	$6\frac{3}{4}$ in.	12 in	1241	794	551	405	310	245	198	.....	.....	.....	.....	.....
3.0	.302	$5\frac{5}{8}$ "	10 "	1786	1143	794	583	446	353	286	236	198	.....	.....	.....
3.5	.353	$4\frac{7}{8}$ "	$8\frac{1}{2}$ "	2432	1556	1080	793	608	480	389	322	270	230	198	.....
4.0	.403	$4\frac{1}{4}$ "	$7\frac{1}{2}$ "	3176	2033	1411	1037	794	627	508	420	353	300	259	226
4.5	.454	$3\frac{3}{4}$ "	$6\frac{3}{4}$ "	4020	2573	1786	1312	1005	794	643	531	446	380	328	286
5.0	.504	$3\frac{3}{8}$ "	6 "	4962	3176	2206	1620	1241	980	794	656	551	470	405	353
5.5	.554	3 "	$5\frac{1}{2}$ "	6005	3843	2669	1960	1501	1186	960	794	667	569	490	427
6.0	.605	.....	5 "	.....	4573	3176	2334	1787	1412	1142	945	793	677	583	508
7.0	.706	.....	$4\frac{1}{4}$ "	.....	.....	4323	3176	2432	1921	1556	1286	1080	921	794	692
8.0	.806	.....	$3\frac{3}{4}$ "	.....	.....	.....	4148	3176	2509	2033	1680	1410	1203	1037	904

Ultimate total load on Rectangular Beams of Average Concrete (1:3:5), One inch Wide.

For other widths, multiply by width of beam. Formulae: $W_o = 265\ d^2 \div L$; $A = .0084d$. Ultimate compression in concrete 2,000 pounds per sq. in.; ultimate tension in steel 55,000 pounds per sq. in.

Effective Depth of Beam. d	Area of Steel Per Inch of Width	SPAN IN FEET (L)																	Twice Dead Load Per Foot of Beam.
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
4	.0336	1,060	848	707	606	530	471	424	385	353	326	303	283	265	249	236	223	212	10
5	.0420	1,656	1,324	1,104	946	828	736	662	602	552	510	473	441	414	390	368	349	331	12
6	.0504	2,385	1,908	1,590	1,363	1,192	1,060	954	867	795	734	681	636	596	561	530	502	477	15
7	.0588	3,246	2,596	2,164	1,855	1,623	1,443	1,298	1,180	1,082	999	927	865	812	764	721	683	649	17
8	.0672	4,240	3,392	2,827	2,423	2,120	1,884	1,696	1,542	1,413	1,305	1,211	1,131	1,060	998	942	893	848	20
9	.0756	5,366	4,292	3,577	3,066	2,683	2,385	2,146	1,951	1,789	1,651	1,533	1,431	1,341	1,263	1,192	1,130	1,073	22
10	.0840	6,625	5,300	4,417	3,786	3,312	2,944	2,650	2,409	2,208	2,038	1,893	1,767	1,656	1,559	1,472	1,395	1,325	24
11	.0924	8,016	6,412	5,344	4,581	4,008	3,563	3,206	2,915	2,672	2,466	2,290	2,137	2,004	1,886	1,781	1,688	1,603	26
12	.1008	9,540	7,632	6,360	5,451	4,770	4,240	3,816	3,469	3,180	2,935	2,726	2,544	2,385	2,245	2,120	2,008	1,908	28
13	.1092	11,196	8,957	7,464	6,398	5,598	4,976	4,478	4,071	3,732	3,445	3,199	2,986	2,799	2,634	2,488	2,357	2,239	30
14	.1176	12,985	10,388	8,657	7,420	6,492	5,771	5,194	4,722	4,328	3,995	3,710	3,463	3,246	3,055	2,886	2,734	2,597	32
15	.1260	14,906	11,924	9,937	8,518	7,453	6,625	5,962	5,420	4,969	4,586	4,259	3,975	3,726	3,508	3,312	3,138	2,981	34
16	.1344	16,960	13,568	11,307	9,691	8,480	7,538	6,784	6,167	5,653	5,218	4,845	4,523	4,240	3,991	3,769	3,571	3,392	36
17	.1428	19,146	15,317	12,764	10,941	9,573	8,509	7,658	6,962	6,382	5,891	5,470	5,106	4,786	4,505	4,255	4,031	3,929	38
18	.1512	21,465	17,172	14,310	12,266	10,732	9,540	8,586	7,805	7,155	6,605	6,133	5,724	5,366	5,051	4,770	4,519	4,293	40
19	.1596	23,916	19,133	15,944	13,666	11,958	10,629	9,566	8,697	7,972	7,359	6,833	6,378	5,979	5,627	5,315	5,035	4,783	42
20	.1680	26,500	21,200	17,667	15,143	13,250	11,778	10,600	9,636	8,833	8,154	7,571	7,067	6,625	6,235	5,889	5,579	5,300	44

For values in the lower left-hand corner of the table, possible failure by diagonal shear must be very carefully tested and provided for.