Typical Concrete Pavement Thickness for Varying Soil Conditions

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Pavement Thickness in Inches | Concrete Compressive Strength (psi) | Design Life: 20 Years

	3500 psi	4000 psi	4500 psi	5000 psi	3500 psi	4000 psi	4500 psi	5000 psi
Trucks/Day	CBR = 3, K = 100				CBR = 4, K = 120			
50	7.75	7.25	6.75	6.50	7.50	7.00	6.75	6.25
100	8.00	7.50	7.00	6.75	7.75	7.25	6.75	6.50
200	8.00	7.50	7.25	6.75	8.00	7.50	7.00	6.75
500	8.50	7.75	7.50	7.50	8.25	7.75	7.25	7.25
750	8.50	8.00	7.75	7.75	8.25	7.75	7.50	7.50
Trucks/Day	CBR = 5, K = 138				CBR = 6, K = 154			
50	7.25	7.00	6.50	6.25	7.25	6.75	6.50	6.00
100	7.50	7.00	6.75	6.25	7.50	7.00	6.50	6.25
200	7.75	7.25	7.00	6.50	7.75	7.25	6.75	6.50
500	8.00	7.50	7.25	7.00	8.00	7.50	7.00	7.00
750	8.25	7.75	7.25	7.25	8.00	7.50	7.25	7.25
Trucks/Day	CBR = 7, K = 167				CBR = 8, K = 180			
50	7.25	6.75	6.25	6.00	7.00	6.75	6.25	6.00
100	7.50	7.00	6.50	6.25	7.25	6.75	6.50	6.25
200	7.50	7.00	6.75	6.50	7.50	7.00	6.75	6.25
500	8.00	7.25	7.00	6.75	7.75	7.25	7.00	6.75
750	8.00	7.50	7.25	7.25	8.00	7.50	7.00	7.00

Undoweled Pavement: Dowels at Construction Joints depend on volume and speed of truck traffic. Dowels typically not necessary for less than 100-200 trucks and/or speeds less than 30 mph.

Pavement on Subgrade: If stone base used, recommended thickness = 4" and increase CBR by 1 level.

Recommended Joint Spacing Range

Thickness	6"	6.5"	7"	7.5"	8"	8.5"	9"	10"
Spacing	9'-12'	9.5'-13'	10.5'-14'	11'-15'	12'-15'	12.5'-15'	13.5'-15'	15'

Adapt joint spacing for project conditions, not to exceed the maximum shown.

Approximate Compressive & Flexural Strength Relationship (psi)

Compressive	3500	4000	4500	5000
Flexural	530	580	627	673

Flexural/compressive strength relationships vary with mix design and raw materials.

CBR = California Bearing Ratio

Design Tool = PavementDesigner.org

K = Modulus of Subgrade Reaction (calculated)

Traffic Category: Minor Arterial

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