AASHTO Structural Number Equation
$SN = a_1D_1 + a_2D_2 + \ldots + a_nD_n$, where
SN = structural number for the pavement
a_i = layer coefficient and D_i = thickness of layer (inches).

Gross Axle Load		Load Equivalency Factors		Gross Axle Load		Load Equivalency Factors	
kN	lb	Single Axles	Tandem Axles	kN	lb	Single Axles	Tandem Axles
4.45	1,000	0.00002		187.0	42,000	25.64	2.51
8.9	2,000	0.00018		195.7	44,000	31.00	3.00
17.8	4,000	0.00209		200.0	45,000	34.00	3.27
22.25	5,000	0.00500		204.5	46,000	37.24	3.55
26.7	**6,000**	**0.01043**		**213.5**	**48,000**	**44.50**	**4.17**
35.6	8,000	0.0343		222.4	50,000	52.88	4.86
44.5	10,000	0.0877	0.00688	231.3	52,000		5.63
53.4	12,000	0.189	0.0144	240.2	54,000		6.47
62.3	14,000	0.360	0.0270	244.6	55,000		6.93
66.7	**15,000**	**0.478**	**0.0360**	**249.0**	**56,000**		**7.41**
71.2	16,000	0.623	0.0472	258.0	58,000		8.45
80.0	18,000	1.000	0.0773	267.0	60,000		9.59
89.0	20,000	1.51	0.1206	275.8	62,000		10.84
97.8	22,000	2.18	0.180	284.5	64,000		12.22
106.8	**24,000**	**3.03**	**0.260**	**289.0**	**65,000**		**12.96**
111.2	25,000	3.53	0.308	293.5	66,000		13.73
115.6	26,000	4.09	0.364	302.5	68,000		15.38
124.5	28,000	5.39	0.495	311.5	70,000		17.19
133.5	30,000	6.97	0.658	320.0	72,000		19.16
142.3	**32,000**	**8.88**	**0.857**	**329.0**	**74,000**		**21.32**
151.2	34,000	11.18	1.095	333.5	75,000		22.47
155.7	35,000	12.50	1.23	338.0	76,000		23.66
160.0	36,000	13.93	1.38	347.0	78,000		26.22
169.0	38,000	17.20	1.70	356.0	80,000		28.99
178.0	**40,000**	**21.08**	**2.08**				

Note: kN converted to lb are within 0.1 percent of lb shown

Superpave

PERFORMANCE-GRADED (PG) BINDER GRADING SYSTEM

PERFORMANCE GRADE	PG 52							PG 58					PG 64				
	–10	–16	–22	–28	–34	–40	–46	–16	–22	–28	–34	–40	–16	–22	–28	–34	–40
AVERAGE 7-DAY MAXIMUM PAVEMENT DESIGN TEMPERATURE, °C[a]	<52							<58					<64				
MINIMUM PAVEMENT DESIGN TEMPERATURE, °C[a]	>–10	>–16	>–22	>–28	>–34	>–40	>–46	>–16	>–22	>–28	>–34	>–40	>–16	>–22	>–28	>–34	>–40
ORIGINAL BINDER																	
FLASH POINT TEMP, T48: MINIMUM °C	230																
VISCOSITY, ASTM D 4402:[b] MAXIMUM, 3 Pa-s (3,000 cP), TEST TEMP, °C	135																
DYNAMIC SHEAR, TP5:[c] G*/sin δ , MINIMUM, 1.00 kPa TEST TEMPERATURE @ 10 rad/sec., °C	52							58					64				
ROLLING THIN FILM OVEN (T240) OR THIN FILM OVEN (T179) RESIDUE																	
MASS LOSS, MAXIMUM, %	1.00																
DYNAMIC SHEAR, TP5: G*/sin δ , MINIMUM, 2.20 kPa TEST TEMP @ 10 rad/sec. °C	52							58					64				
PRESSURE AGING VESSEL RESIDUE (PP1)																	
PAV AGING TEMPERATURE, °C[d]	90							100					100				
DYNAMIC SHEAR, TP5: G*/sin δ , MAXIMUM, 5,000 kPa TEST TEMP @ 10 rad/sec. °C	25	22	19	16	13	10	7	25	22	19	16	13	28	25	22	19	16
PHYSICAL HARDENING[e]	REPORT																
CREEP STIFFNESS, TP1:[f] S, MAXIMUM, 300 MPa M-VALUE, MINIMUM, 0.300 TEST TEMP, @ 60 sec., °C	0	–6	–12	–18	–24	–30	–36	–6	–12	–18	–24	–30	–6	–12	–18	–24	–30
DIRECT TENSION, TP3:[f] FAILURE STRAIN, MINIMUM, 1.0% TEST TEMP @ 1.0 mm/min, °C	0	–6	–12	–18	–24	–30	–36	–6	–12	–18	–24	–30	–6	–12	–18	–24	–30

Superpave Mixture Design: Compaction Requirements

TRAFFIC, MILLION ESALs	SUPERPAVE GYRATORY COMPACTION EFFORT — AVERAGE DESIGN HIGH AIR TEMPERATURE											
	< 39°C			39° – 40°C			41° – 42°C			42° – 43°C		
	N_{int}	N_{des}	N_{max}	N_{int}	N_{des}	N_{max}	N_{int}	N_{des}	N_{max}	N_{int}	N_{des}	N_{max}
< 0.3	7	68	104	7	74	114	7	78	121	7	82	127
< 1	7	76	117	7	83	129	7	88	138	8	93	146
< 3	7	86	134	8	95	150	8	100	158	8	105	167
< 10	8	96	152	8	106	169	8	113	181	9	119	192
< 30	8	109	174	9	121	195	9	128	208	9	135	220
< 100	9	126	204	9	139	228	9	146	240	10	153	253
≥ 100	9	142	233	10	158	262	10	165	275	10	177	288

VFA REQUIREMENTS @ 4% AIR VOIDS	
TRAFFIC, MILLION ESALs	DESIGN VFA (%)
< 0.3	70 – 80
< 1	65 – 78
< 3	65 – 78
< 10	65 – 75
< 30	65 – 75
< 100	65 – 75
≥ 100	65 – 75

VMA REQUIREMENTS @ 4% AIR VOIDS					
NOMINAL MAXIMUM AGGREGATE SIZE (mm)	9.5	12.5	19.0	25.0	37.5
MINIMUM VMA (%)	15	14	13	12	11

COMPACTION KEY			
SUPERPAVE GYRATORY COMPACTION	N_{int}	N_{des}	N_{max}
PERCENT OF Gmm	≤ 89%	96%	≤ 98%