



دانشگاه صنعتی شیراز

روسازی راه

کارشناسی مهندسی عمران

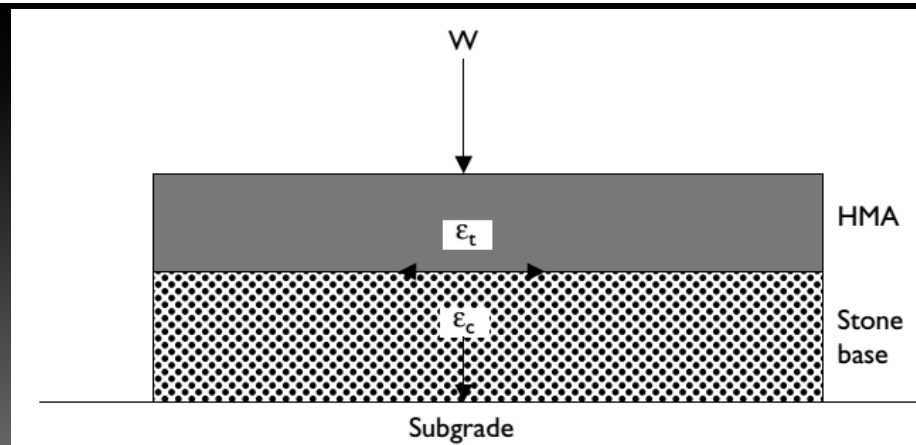
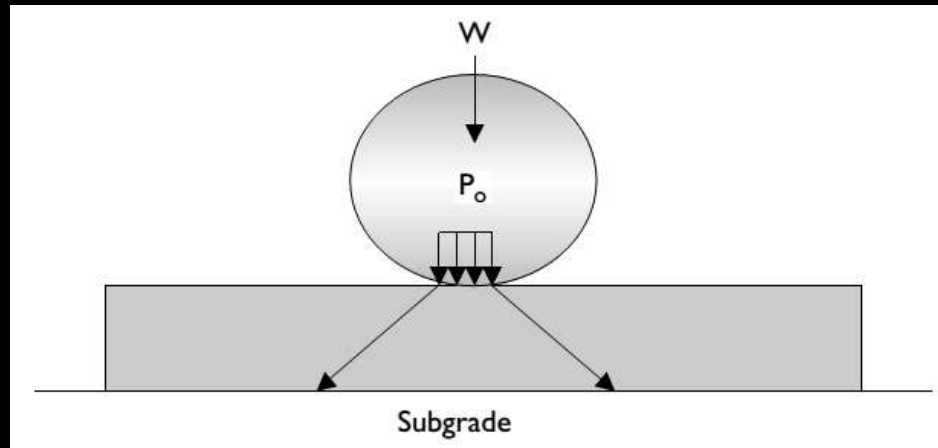
دکتر علیرضا غنی زاده

استادیار دانشکده مهندسی عمران – دانشگاه صنعتی شیراز

طراحی روسازی با استفاده از روش

انستیمو آسفالت

مبانی طراحی به روش انستیتو آسفالت جدید



انتخاب مدول برجهندگی طراحی

<i>Traffic levels, 80 kN ESALs</i>	<i>Design subgrade percentile value</i>
< 10,000	60
10,000–1,000,000	75
> 1,000,000	87.5

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

<i>Resilient modulus (MPa)</i>	<i>Number equal to or greater than</i>	<i>Percent equal to or greater than</i>
103	1	(1/8) = 12.5%
93	2	(2/8) = 25%
82	3	(3/8) = 37.5%
72	4	(4/8) = 50%
62	6	(6/8) = 75%
62	6	(6/8) = 75%
52	7	(7/8) = 87.5%
41	8	(8/8) = 100%

حداقل مشخصات لایه‌های اساس و زیراساس سنگدانه‌ای

Test	Test requirement	
	Base	Sub-base
CBR, minimum (%)	80	20
Liquid limit, maximum (%)	25	25
Plasticity index ¹ , maximum (%)	NP ²	6
Sand equivalent, minimum (%)	35	25
Maximum passing the 75 μ m sieve (%)	7	12

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

Notes

1 Depending on the material, test the plasticity index or the sand equivalent.

2 Non-Plastic.

انواع اساس قیری با قیر امولسیون

Emulsified Asphalt Mixtures It is permissible to use emulsified asphalt mixtures for base courses. Depending on aggregate types, three types of mixes are specified:

1. *Type I*: mixes with processed dense graded aggregates, which should be mixed in a plant and have properties similar to HMA.
2. *Type II*: mixes with semiprocessed, crusher run, pit run, or bank run aggregates.
3. *Type III*: mixes with sands or silty sands.

حداقل ضخامت قشر بتن آسفالتی رویه در روسازی‌های تمام آسفالتی

<i>Traffic conditions</i>	<i>Traffic ESALs</i>	<i>Minimum thickness of asphalt concrete wearing course (mm)</i>
Passenger car parking lots, driveways, rural roads	$\leq 10,000$	25
Medium truck traffic	10,000–1,000,000	40
High truck traffic	$\geq 1,000,000$	50

Source: The Asphalt Institute (1989); © The Asphalt Institute; reprinted with permission.

حداقل ضخامت قشر بتن آسفالتی

<i>Traffic conditions</i>	<i>Traffic ESALs</i>	<i>Minimum thickness of asphalt concrete (mm)</i>
Passenger car parking lots, driveways, rural roads	$\leq 10,000$	75
Medium truck traffic	10,000–1,000,000	100
High truck traffic	$\geq 1,000,000$	125

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

انتخاب درجه حرارت متوسط هوا و نمودار طراحی

Table 4.16 Asphalt Institute design air temperatures

<i>Mean annual air temperature (MAAT)</i>	<i>Freeze/frost effects</i>
$\leq 7^{\circ}\text{C}$	Yes
15.5°C	Possible
$\geq 24^{\circ}\text{C}$	No

نمودارهای طراحی

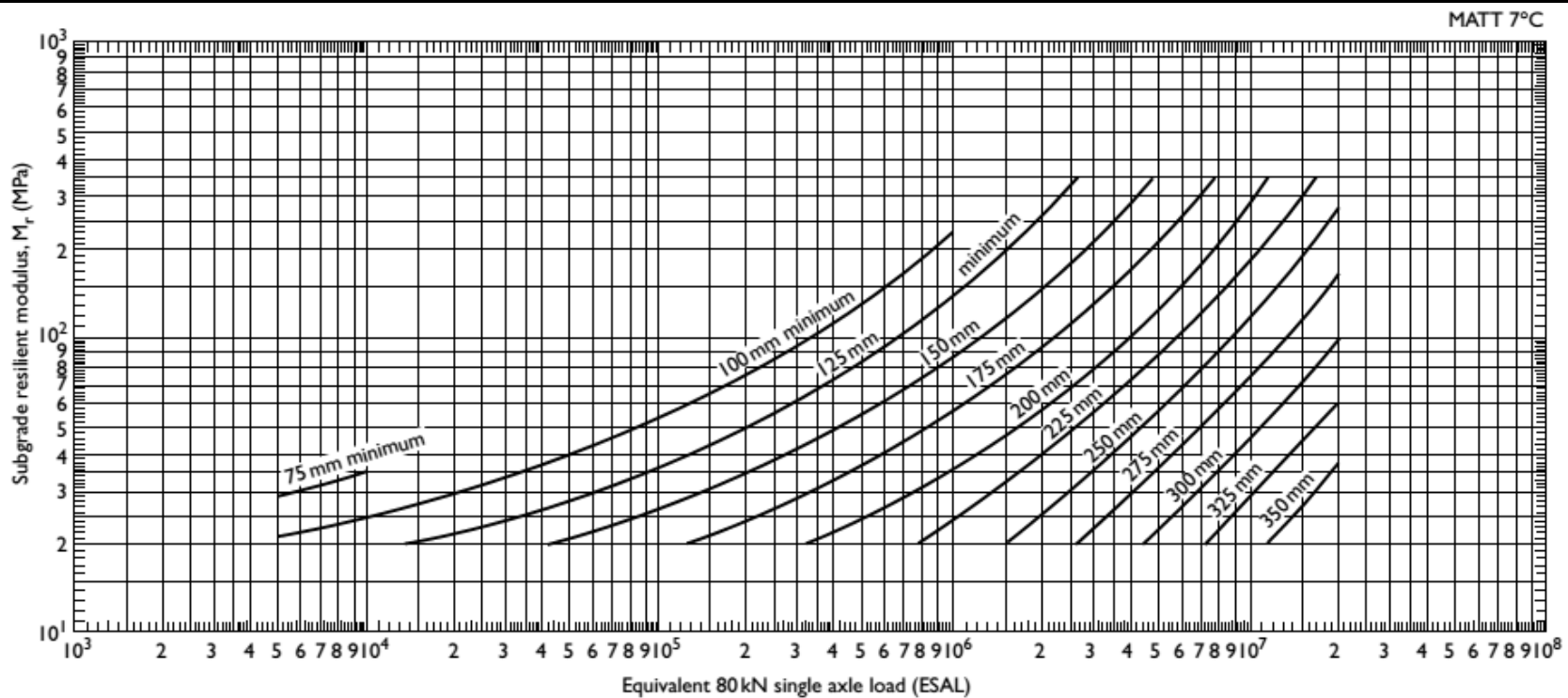


Figure 4.7 Untreated aggregate base, 150 mm thickness.

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

نمودارهای طراحی

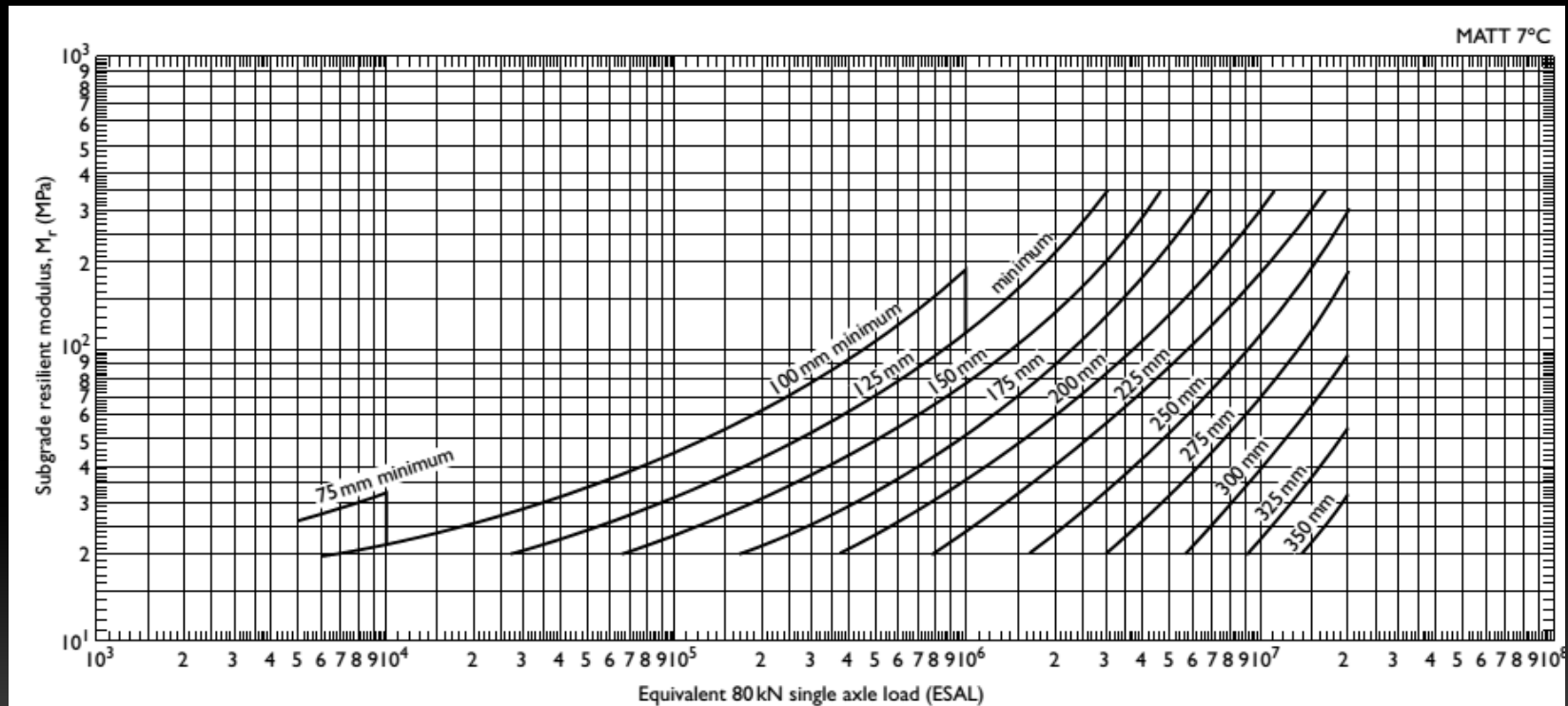


Figure 4.8 Untreated aggregate base, 300 mm thickness.

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

نمودارهای طراحی

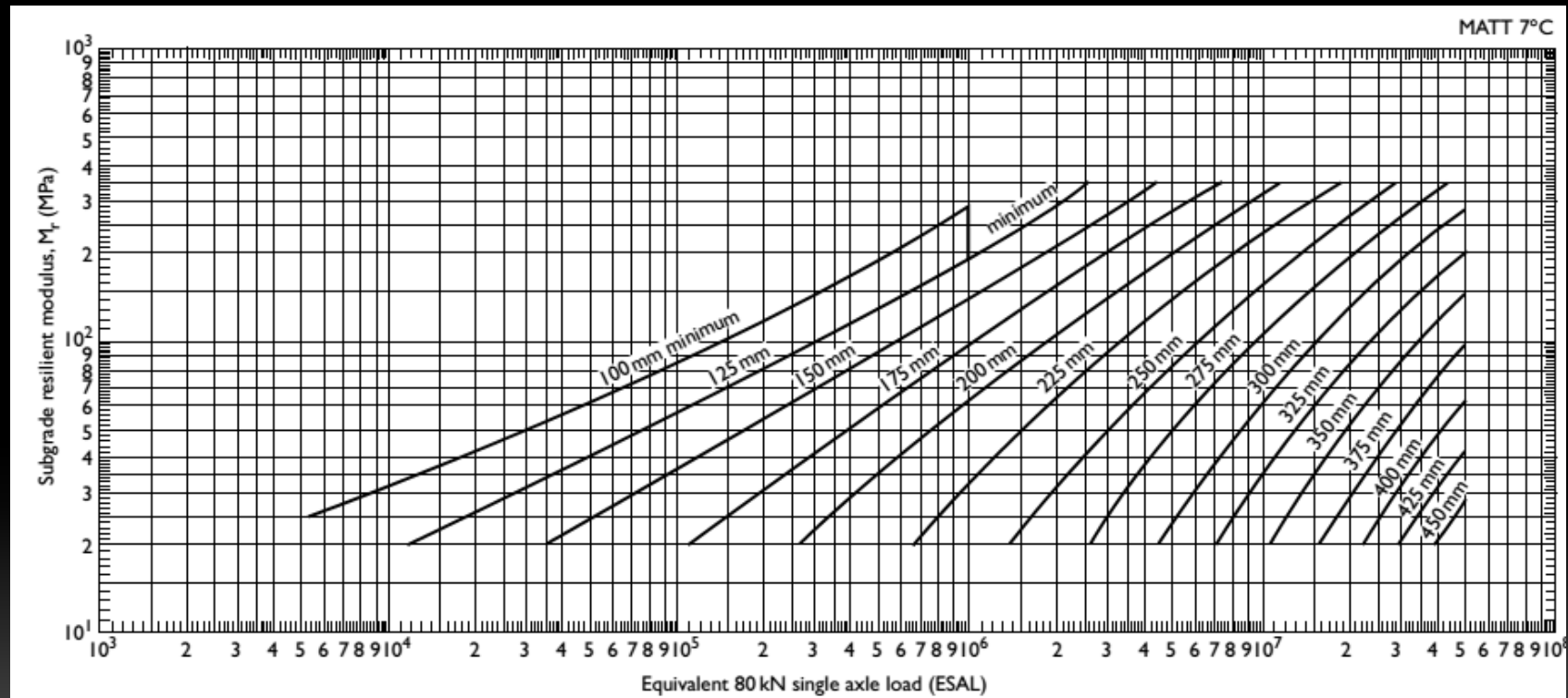


Figure 4.9 Full-depth asphalt concrete.

Source: The Asphalt Institute (1999); © The Asphalt Institute; reprinted with permission.

نمودارهای طراحی

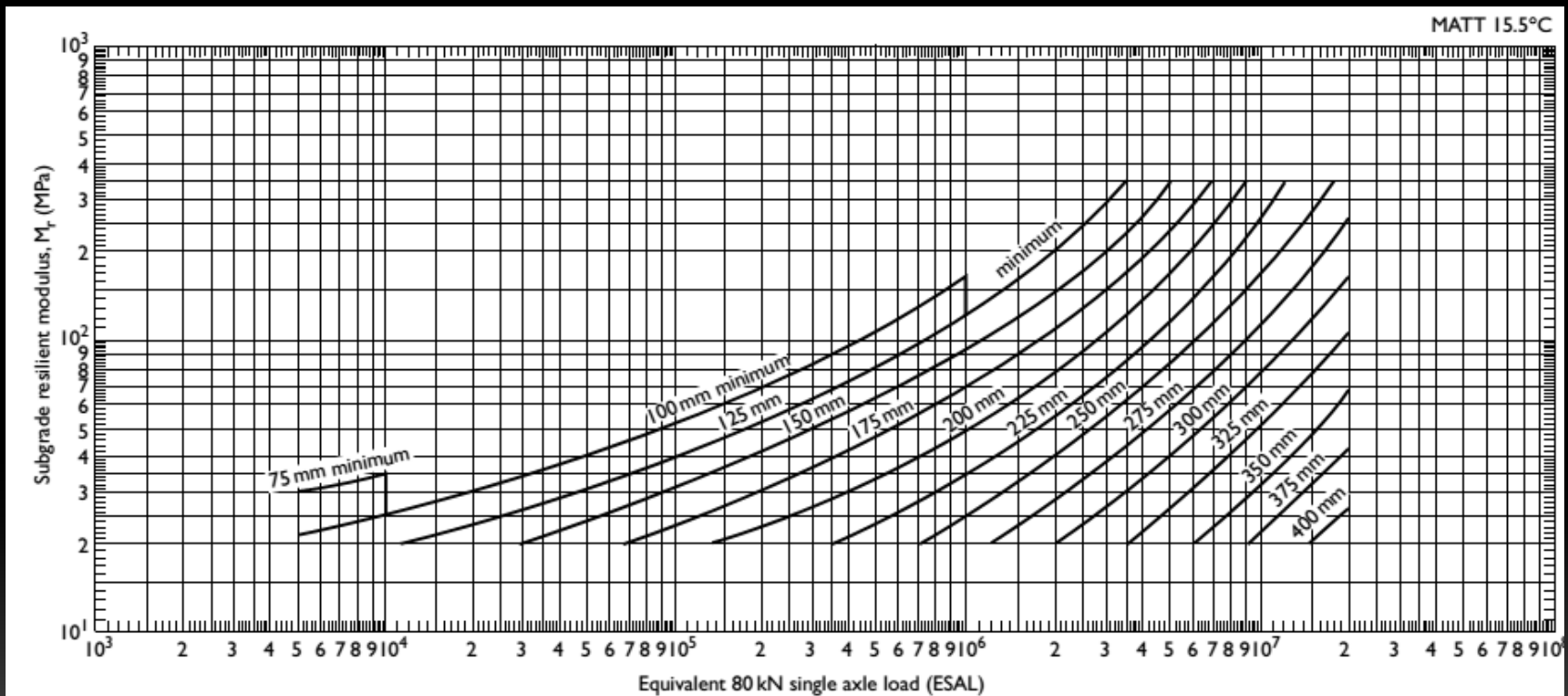


Figure 4.10 Untreated aggregate base, 150 mm thickness.

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نمودارهای طراحی

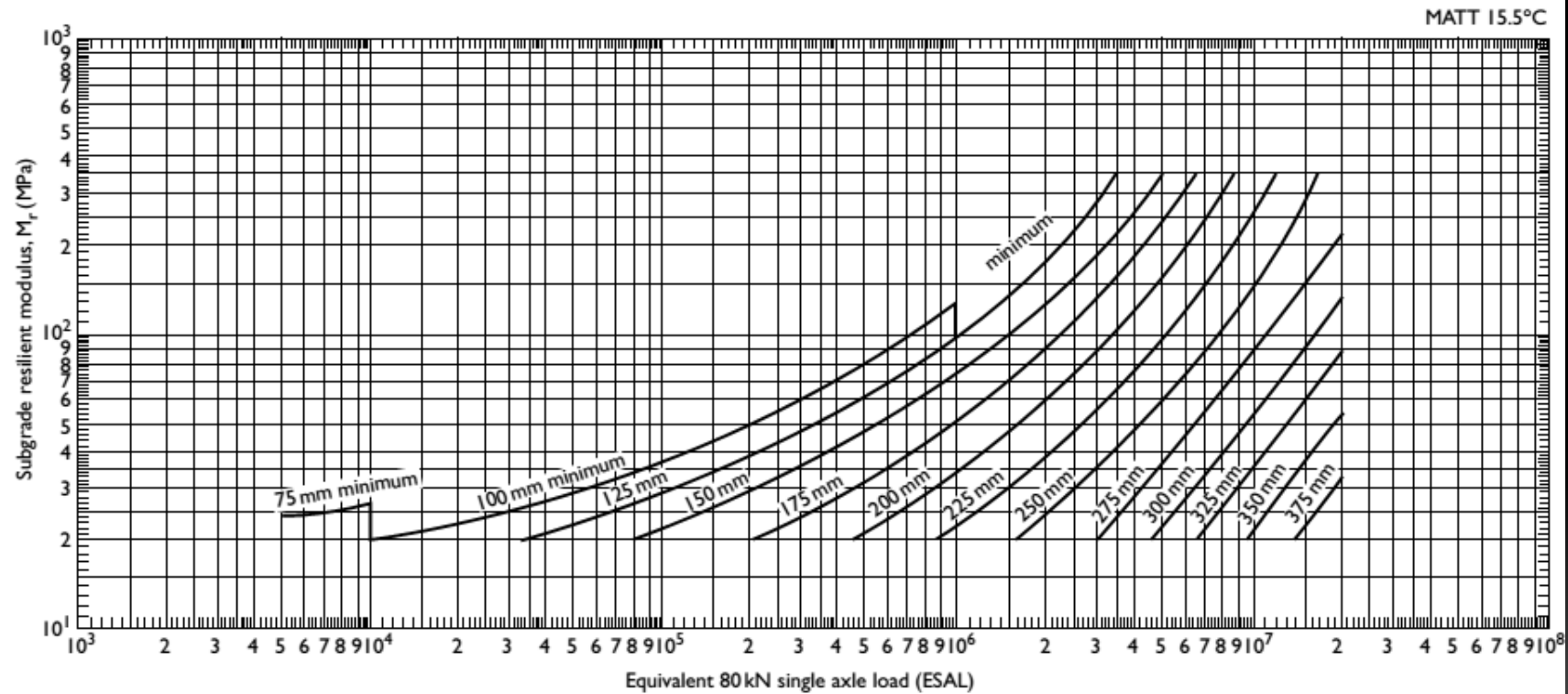


Figure 4.11 Untreated aggregate base, 300 mm thickness.

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نمودارهای طراحی

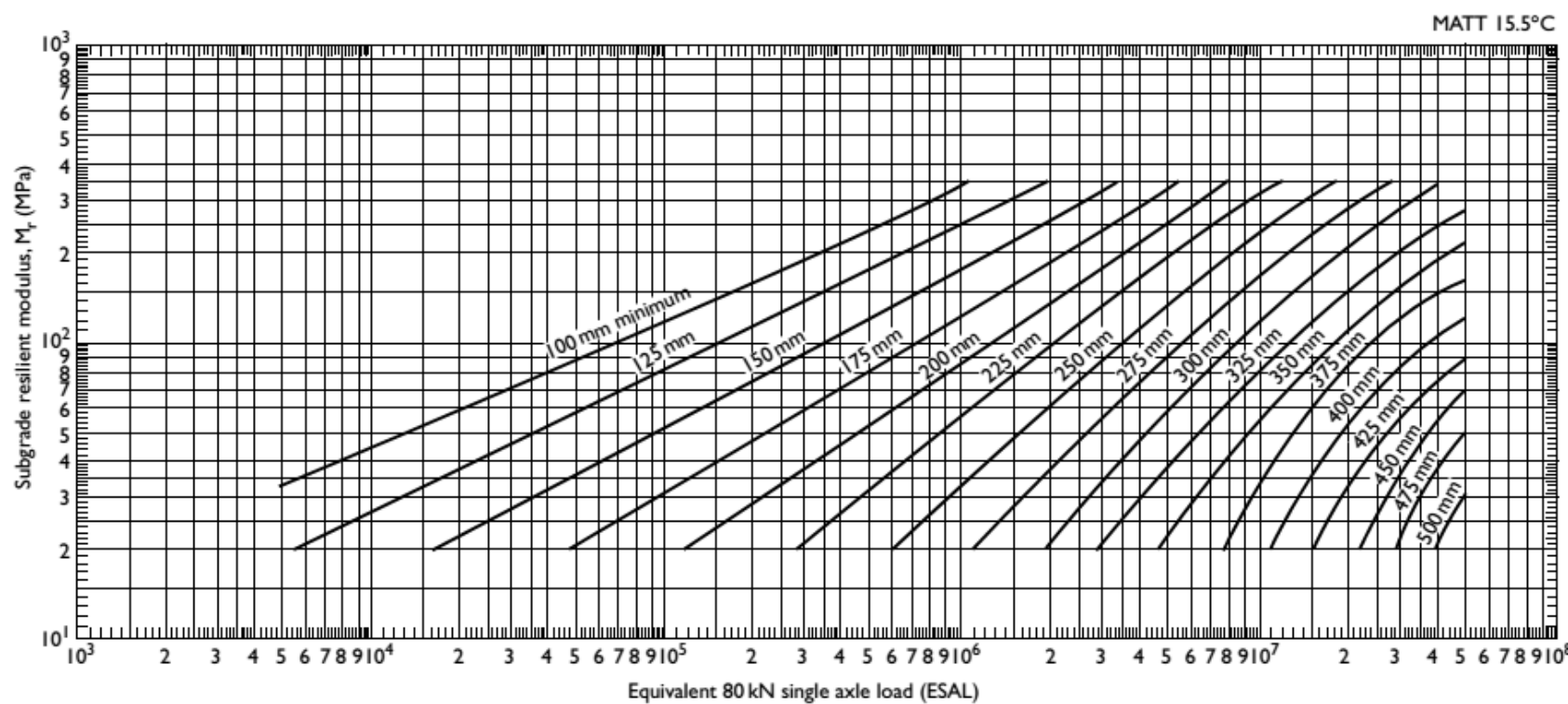


Figure 4.12 Full-depth asphalt concrete.

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