MINISTRY OF CLIMATE

REGULATION

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No [Registration number]

Amendment of Regulation No 101 of the Minister of Economic Affairs and Infrastructure of 3 August 2015 'Road construction quality requirements'

The regulation is enacted on the basis of section 96 (3) of the Building Code.

The following amendments are made to the Regulation No 101 of the Minister of Economic Affairs and Infrastructure of 3 August 2015 'Road construction quality requirements':

;**(1)** throughout the Regulation and in the title of Annex 14 thereto, the phrase 'asphalt concrete mix' is replaced by the phrase 'asphalt mix';

(2) the sentence 'The compliance of building materials with the quality requirements shall be verified by the owner of the road in a laboratory which, as a general rule, must be a competent measurer' is added after the last sentence of subsection 1 (2)';

(3) subsection (2^1) is added to section 1, worded as follows:
'(2^1) Alternative source materials may be used for road works with the consent of the road owner, provided that the requirements for the lifetime, stability and safety of the road are ensured. Compliance with the requirements
for the use of alternative source materials shall be demonstrated.';

(4) subsection 1 (3) shall read as follows:
'(3) By way of derogation, road works may be accepted under the conditions laid down by the road owner if it is not feasible from an engineering or economic point of view, or both, to redo the works.';

(5) in subsection 2 (8), the phrase 'into the soil and water bodies' is replaced by the phrase 'outside the road construction';

(6) subsection 2 (12) shall read as follows:
'(12) The coefficient of adhesion of the road surface on a carriageway open to traffic with a speed limit exceeding 50

km/h shall not deviate by more than 0,1 unit from the mean value of the coefficient of adhesion in the transverse direction of the road cross-section.';

(7) subsections (14)–(16) of section 2 shall be read as follows:
'(14) Bypasses due to road works must meet at least the condition level 1 in accordance with the requirements provided for on the basis of subsection 97 (2) of the Building Code.

(15) The layers of embankment and pavement may be laid only on the lower layers which have been built and adopted in accordance with the procedure approved by the owner of the road. If there is a requirement for frost resistance, the frost resistance of the material used must be determined if the water absorption exceeds 2%.

(16) When checking compliance with the quality requirements, a qualified measurer shall, where possible, carry out the verification. Where the use of a qualified measurer is not possible, the quality check shall be carried out on the basis of the requirements laid down by the road owner.';

(**8)** subsections 3 (3) and (4) shall be read as follows:
'(3) One batch of aggregate delivered for asphalt mixes is up to 3000 tonnes.

(4) The verification of the conformity of each batch with the conformity assessment documentation shall include an assessment of the particle size distribution of the fine aggregate and the content of fines. The coarse aggregate is checked for its particle size distribution, content of fines, flakiness index and resistance to fragmentation.
The resistance to wear shall be determined, where appropriate, by the Nordic test. Frost resistance of coarse aggregates shall be checked at least once before the installation of the materials. When assessing frost resistance,
laboratory data is necessary and materials may be installed if the water absorption of the material is less than 2% according to laboratory data.';

(9) the fourth sentence of subsection 3 (7) and the third sentence of subsection 12 (3) are supplemented by the phrase 'or, in agreement with the contracting authority, take corrective measures' after the word 'remove';

(10) in the third sentence of subsection 4 (2), the phrase 'by the unforeseeable rain duration or, by 24 hours in the event of an unexpected drop in temperature below 5 °C on the road surface' is deleted;

(11) subsection 5 (1) shall read as follows:
'(1) The upper layer of gravel with a thickness of at least 12 cm of the total gravel layer must have a particle size distribution
of position 5 or 6 as set out in Annex 10 to this Regulation. The upper layer of gravel is measured along the axis of the road and at a distance of 1 m from the edge of the road. The sealed surface shall not contain loose particles which do not pass through a 40 mm
size sieve.';

(12) the four last sentences of subsection 5 (2) 4), subsection 12 (10), the fifth sentence of clause 13 (12) 7) and the third sentence of subsection 23 (4) are amended by adding the text part 'or INSPECTOR-' after the text part 'LOADMAN-' and by replacing the phrase 'multiplied by the transitional factor' with the phrase:

‘converted to be comparable’;

(13) the title of section 6 shall be read as follows:
‘Section 6. Asphalt and paved road’;

(14) clause 6 (1) 1) shall be read as follows:
‘1) cant on a double-sided cant road; and within the meaning of the Traffic Act on sidewalks, footpaths, footpaths and cycle paths, and cycle parts ± 0.5% and one-sided cants ± 0.3%;’;

(15) clause 6 (1) 3) and clause 20 (1) 3) shall be read as follows:
‘3) The distance between the edge of the surface and the axis of the road may differ –5 / +15 cm, with the overall width of the surface not being
narrower than the design and the difference between two consecutive measurements on straight sections of uniform width not exceeding 5 cm.’;

(16) the fifth sentence of subsection 6 (3) shall read as follows:
‘If the coefficient of adhesion is not in accordance with the requirements, the relevant road signs shall be fitted.’;

(17) subsection 6 (6) shall read as follows:
‘(6) The elastic modulus for new road support beds built with the designed structure, measured with a LOADMAN- or INSPECTOR-type device, shall be at least 130 MPa at the centre of the support bed. If another measuring device of an analogue elastic modulus is used, its readings shall be compared to the LOADMAN- or INSPECTOR-type device and the measurement results converted to be comparable.’;

(18) subsection (6^1) is added to section 6 to be read as follows:
‘(6^1) In the case of filling the existing support beds, the beds must be compressed, but the requirement for the elastic modulus specified in subsection 6 of this section shall not apply.’;

(19) in subsection 6 (7), the text part ‘± 0.5%’ is replaced with the text part ‘± 1.0%’ and the sentence ‘In no case shall the slope of the roadbed be less than the cant of the road’ is added after the last sentence.’;

(20) the first sentence of subsection 8 (5) shall read as follows:
‘The compression factor of the subsoil shall be ≥ 0,94 unless a specific solution is provided for in the design.’;

(21) subsection 9 (3) shall read as follows:
‘(3) The surface may be applied to the embankment before one year after the date of acceptance of the embankment, provided that:
the embankment is compacted in layers up to 0.3 m in thickness and the compression of all layers meets the requirements or in layers up to 0.6 m in thickness if the roadmaker demonstrates that the required compression is achievable for the entire thickness of the compressed layer.’;

(22) in subsections 9 (5) and (6) and subsections 11 (3) and (4), the phrase ‘multiplied by the transition factor’ is replaced by the phrase ‘converted to be comparable’;

(23) subsection 9 (8) shall read as follows:

‘(8) The flatness of the embankment shall be checked on road sections with a uniform longitudinal slope along the axis of the road and at least one
metre on each side of the embankment every 25 metres, geodetically or with a bar of 3 metres. The maximum permissible longitudinal and transverse roughness shall be < 30 mm.’;

(24) subsection 9 (9) is repealed;

(25) in subsection 9 (10), the second sentence, the phrase ‘or, in agreement with the contracting authority, take corrective measures’ is added after the word ‘remove’;

(26) clauses 9 (12) 2) and 3) shall be read as follows:
‘2) The distance between the edge of the embankment from the axis of the road –5 cm / +15 cm;
(3) cants on the road with double-sided cants ± 0.5% and on the road with one-sided cants ± 0.5%.’;

(27) clauses 11 (8) 2) and 3) shall be read as follows:
‘2) the distance of the edge of the drainage layer from the axis of the road –5 cm / +15 cm, the total width of the drainage layer shall not be
narrower than the design and the difference between two consecutive measurements on straight sections of uniform width shall not exceed 5 cm;
(3) cants on the road with double-sided cants ± 0.5% and on the road with one-sided cants ± 0.5%.’;

(28) clause 12 (6) 3) shall read as follows:
‘3) crushed particles of the coarse aggregate shall correspond to at least category C50/30 and the category of the maximum value of resistance to fragmentation shall be at least LA40.’;

(29) clauses 12 (8) 2) and 3) shall be read as follows:
‘2) the distance of the edge of the platform from the axis of the road –0 / +15 cm, the total width of the platform shall not be narrower than the design and the difference between two consecutive measurements on straight sections of uniform width shall not exceed 5 cm;
(3) cant on a road with a double-sided cant ± 0.5% and one-sided cant ± 0.5%;’;

(30) clause 12 (8) 6) shall read as follows:
‘6) the aggregate sample taken from the compacted base shall not contain more than 7% of particles smaller than 0.063 mm.’;

(31) subsection (8^1) is added to section 12 in the following wording:
‘(8^1) The aggregate sample specified in clause 8 (6) of this section must be taken in accordance with the description of the standard EVS-EN 932-1.’;

(32) the first sentence of subsection 12 (9) is supplemented after the phrase ‘on the surface’ with the word ‘measured’;

(33) in subsection 13 (2), the phrase ‘asphalt concrete pavement’ is replaced by ‘asphalt pavement’;

(34) in clause 13 (9) 1), the text part ‘70/100, 100/150 or’ is added after the phrase ‘with a marking’;

(35) clause 13 (12) 8) is repealed;

(36) in subsection 13 (13), the phrase ‘with asphalt concrete’ is replaced by ‘with asphalt mixture’;

(37) subsection 14 (1) shall read as follows:
‘(1) The road surface shall be levelled for performance of surface dressing. Holes and cracks in the road surface deeper than 20 mm shall be filled and sealed.’;

(38) in subsection 14 (2), the word ‘fractionated’ is deleted throughout;

(39) subsections 14 (10) and (11) shall read as follows:
‘(10) In agreement with the contracting authority, the use of oils that soften the bitumen and that do not contain paraffins or other additives that act on a similar basis is allowed for road surface dressing. Oil shale bitumen may not be used in populated areas.

(11) Surface dressing works are permitted if the air temperature is at least +15 °C when using road bitumens and when using bitumen emulsions at least +10 °C and a road surface temperature of at least +10 °C. If polymer-modified bitumen is used, the recommended air temperature is > +25 degrees and the surface temperature > +40 degrees, and if bitumen emulsion with polymer-modified baseline bitumen is used, the recommended air temperature is > +20 degrees and the surface temperature > +30 degrees. Surface dressing at lower air temperatures shall be permitted with the consent of the contracting authority, provided that the person carrying out the work has demonstrated that it uses new material or technology providing a dressing layer of equivalent quality. In the event of precipitation, surface dressing shall be stopped.’;

(40) subsections 14 (12)–(16) shall be repealed;

(41) subsections 15 (2) and (3) shall read as follows:
‘(2) The particle size distribution of the gravel aggregate shall comply with the requirements of position 5 or 6 of Annex 10 to the Regulation. The requirements for aggregates are described in the standard EVS-EN 13285.
The compliance of the particle size distribution of the aggregate to the requirements shall be checked at least once for every 1,500 m³ installed material. Non-conforming material shall be removed from the structure or corrective measures shall be taken in agreement with the contracting authority.

(3) The resistance to fragmentation category of the coarse aggregate to be used shall be at least LA35 (Los Angeles factor ≤ 35), category C50/30 for crushed particles, totally crushed particles and totally rounded particles, and frost resistance category at least F4. The requirements for resistance to fragmentation are described in the standard EVS-EN 13242 and the frost resistance requirements in EVS-EN 1367-1.’;

(42) sections (16–18) shall be read as follows:
‘Section 16. Preparation of asphalt mix

(1) The asphalt mix must be prepared and installed in such a way that it can withstand its intended lifetime. The requirements for the manufacture of asphalt mixes are described in EVS 901-3.

(2) The contractor must coordinate the recipe of the asphalt mix to be installed with the owner supervision.

(3) The recipe for asphalt mix shall be prepared according to EVS 901-3.

(4) The requirements for aggregates used in asphalt mixes and their storage are described in EVS 901-1 and EVS 901-3.

(5) Before coordinating the composition of the asphalt mix in the laboratory and during the work, the contractor must at least:
once on each batch of aggregate, check the conformity of resistance to fragmentation, resistance to wear and particle size distribution of all fractions of delivered aggregates (except fractions with D less than 5 mm) to the conformity assessment documentation (where these characteristics are required and declared) and bitumen penetration and adhesion with the coarse aggregate made of igneous rock. Requirements for resistance to fragmentation, resistance to wear and particle size distribution are described in EVS 901-1. Bitumen penetration and adhesion with the coarse aggregates used in the mix shall be checked at least once for every 200 tonnes of bitumen. The declaration of performance of the manufacturer of the asphalt mix may be used as the basis for the restoration of excavation-related overburden with a surface area of up to 1,000 m^2.

(6) Dust from dust collectors in the asphalt plant can be used in asphalt mixes made of igneous and metamorphic rock and artificial aggregates up to 50% of the total weight of filler and dust added. This requirement does not apply to AC base-type asphalt mixes. The requirements for the use of dust from dust collectors of the asphalt plant in the asphalt mix are described in standard EVS 901-3.

(7) A laboratory shall be provided in the immediate vicinity of each asphalt plant, including mobile installations, to determine the particle size distribution of aggregates and asphalt mixes and the binder content of asphalt mixes.

(8) The laboratory referred to in subsection (7) of this section need not be accredited.

(9) The mixing temperature of the asphalt mixes shall be chosen in accordance with the brand of the binder and the permitted temperatures are given in EVS 901-3. For the manufacture of asphalt mixes at temperatures lower than permitted, additives are used to improve the processability of the mix. Depending on the bitumen brand, the use of mixing temperatures different from those given in EVS 901-3 may be used in agreement with the contracting authority of the road works.

Section 17. Transport of asphalt mix

(1) The back of the truck carrying the asphalt mix shall be clean before loading. The mix may not spill or stratify during transport. The asphalt mix may be transported by an adapted truck. The load of the asphalt mix shall be covered.

(2) If the asphalt mix is transported by a non-adapted truck, the maximum transport distance is 15 km for SMA mixes and 40 km for AC mixes.

(3) If the asphalt mix is transported in an adapted truck beyond the permitted 15 km for SMA mixes and 40 km for AC mixes, the maximum transport distance will depend on the time of transport, the weather conditions and the composition of the mix, but the mix must be processable when installed. The temperature of the asphalt mix shall be checked in the trailer of each incoming truck immediately before it is discharged to the paver and recorded in writing in the report. The report shall include the time and the picketage position of the load and the temperature of the asphalt mix. In the bunker of the paver, the temperature of the asphalt mix may be up to 10 °C lower than the lowest permitted mixing temperature of this type of mix given in EVS 901-3. With the agreement of the contracting authority, the mix may be installed at lower temperatures if the performer of the work proves that the mix is processable.

Section 18. Installation of asphalt mix

(1) The asphalt mix shall be installed on a base properly built and accepted by the owner supervisor.

(2) Wearing surfaces may be laid at temperatures above +5 °C and subsoils (binding and supporting layers) above 0 °C. The laying of the asphalt mix at temperatures of 0 to +5 °C shall be carried out using additives that improve the processability of the mix (lowering the installation temperature). The surface must be installed
in dry weather and provided that the base and the embankment are not frozen. Surfaces may be applied on a base treated with a binder when the base is dry.
(3) In order to improve the adhesion between the surface layers, the asphalt and pavement shall be primed
with bitumen or bitumen emulsion. The characteristics of bitumen and bitumen emulsion are described in EVS 901-2. The emulsion water must be evaporated before spreading the layer. The norm for consumption of prime on bitumen is 0.10 to 0.30 l/m².

(4) Cold, previously installed asphalt mix joints need priming, using the same primer in the lower layers as used for priming the lower layers, but for priming the wearing surface joints, special joint glues, joint tapes are used or these are built as hot joints using special equipment.

(5) The minimum and maximum thickness of the layer to be applied depends on the maximum particle size D of the aggregate of the type of mix used. The minimum and maximum thicknesses of the layer to be applied
Are given in EVS 901-3.

(6) In the case of multi-layered asphalt surface with one-sided slope, the longitudinal joint of each subsequent layer shall be displaced
by at least 15 cm in relation to the longitudinal joints of the previous layers of asphalt. Longitudinal joints at the breaking point of the lower and upper layers of the surface of a road with two or more laneways with a double inclination shall be displaced relative to each other by at least 5 cm. The longitudinal joint shall not be in the track of the main traffic flow.';

(43) subsection 19 (2) shall read as follows:

‘(2) Traffic may be permitted on the surface if the temperature of the surface has fallen below +40 °C.’;

(44) clause 20 (1) 2) is repealed;

(45) section 24 shall be read as follows:
‘Section 24. Construction of culverts and bridges

(1) For the purposes of this Regulation, bridges shall be understood as bridges, viaducts, tunnels, underpasses, overpasses. Culvert is a facility in the embankment for passing the water through under the road.

(2) The quality requirements for the construction of bridges and culverts shall be included in a design documentation to the extent that it is possible to complete the construction and inspect the works carried out. Deviations from the project for the construction of culverts are set out in Annex 16 of the Regulation and in Annex 17 for bridge construction.

(3) For the construction of culverts and bridges, the following dimensions shall be checked against the design:
(1) the height and the planned position of the facility;
(2) boundary dimensions above and below the facility;
(3) longitudinal tilts and cants of the road on the culvert and the bridge;
(4) the location and measurement of structural elements (including joints and crash barriers);
(5) compaction of subsoil and aggregate;
(6) the existence of a declaration of performance or a declaration of conformity for products and materials;
(7) constructions (including bank protection) and their surfaces;
(8) the performance of water drainage systems (e.g. hydro-insulation and soil and surface water drainage systems).

(4) Concrete work on culverts and bridges shall be based on the following:
(1) the requirements for finished concrete products as described in standards EVS-EN 12794, EVS-EN 14844, EVS-EN 14991, EVS-EN 15050 and EVS-EN 15258;
(2) the requirements for concrete and concrete construction described in EVS-EN 12350 and EVS-EN 206; EVS-EN 1536; EVS-EN 12699; EVS-EN 13670 and EVS 814;
(3) compliance with the specified requirements for the air content of a concrete mixture that meets the frost resistance requirements shall be checked for each load delivered to the site as a spot sample immediately prior to installation;
(4) the maintenance and protection period of the concrete from the weather shall be at least 120 h (five days), corresponding to maintenance class 4, with the maintenance class depending on the surface temperature of the concrete to the 70% standard compressive strength of concrete.

(5) Concrete mix that does not comply with the requirements specified in clause (4) 3) of this section shall not be used and the installed non-compliant material shall be removed.

(6) Metal work on culverts and bridges shall be based on the following:
(1) structural steel requirements as described in EVS-EN 10027 standard series;
(2) the declared test temperature of the structural steel shall be at least –20 degrees;

(3) a paint protection system designed to protect steel structures in the atmosphere shall meet the requirements of EVS-EN 12944 standard series, environmental class C3;
(4) the durability class for new bridges and culverts in the paint coating system protecting steel structures shall be at least H and for repairable bridges and culverts M.

(7) The elements of bridges shall be installed on the basis of the following:
(1) the requirements for structural bearings of bridges as described in the standard series EVS-EN 1337;
(2) the bridge deformation joint shall not be higher than the road pavement surface;
(3) the depth of the joint surface from the road pavement surface may not exceed 5 mm.';

(46) subsection 25 (1) shall read as follows:
'(1) The installation of traffic control devices shall comply with Estonian standards EVS 613, EVS 614 and EVS 615.';

(47) subsection 25 (2) shall read as follows:
'(2) The height tolerances for road restraint systems in relation to the height of the surface shall be ± 0,05 metres and the tolerance in relation to the vertical plane shall be ± 0,02 metres on a straight section of road 50 metres long.';

(48) subsection (2^1) is added to section 25 in the following wording:
'(2^1) The position of the marker post perpendicular to the road may differ ± 0.1 m from the mounting line, the height of the reflectors above the road surface ± 0.05 m, the deviation from the vertical ± 3°.';

(49) in subsection 26(2), the phrase 'with existing embankment at least' is added after the word 'deep';

(50) subsection 26 (13) is repealed;

(51) section 27 is added to the Regulation, worded as follows:
'Section 27. Implementing provisions
(1) Contracts concluded or works commenced before the entry into force of this provision shall be subject to the version of the Regulation entered into force on 23 November 2020.

(2) The version of Regulation which entered into force on 23 November 2020 may be applied to a contract concluded within three months of the entry into force of this provision';

(52) the new wording of Annexes 3 to 10 and 12 (appended) is established.

(53) Annex 15 to the Regulation shall be repealed;

(digitally signed)
Kristen Michal
Minister

(digitally signed)
Keit Kasemets
State Secretary

Annex 3. Compression factor of surface and residual voids content
Annex 10. General boundaries of the particle size distribution of unbound mixtures
Annex 12. Minimum requirements for aggregates used in surface dressing

Minister of Economic Affairs and Infrastructure
Regulation No 101 of 3 August 2015
'Road construction quality requirements'
Annex 3
(as amended)

Annex 3
COMPRESSION FACTOR OF SURFACE AND RESIDUAL VOIDS CONTENT

Mixture type EVS 901-3	Mean surface sample		Joint sample	
	Compression factor	Voids content, %	Compression factor	Voids content, %
MSE	≥ 0.96	4–11	≥ 0.90	≤ 14.0
AC 16 base AC 20 base AC 32 base	≥ 0.96	4–12	≥ 0.91	≤ 15.0
AC 8 bin AC 12 bin	≥ 0.97	1–6	≥ 0.92	≤ 8.5
AC 16 bin AC 20 bin AC 8 surf AC 12 surf AC 16 surf AC 20 surf	≥ 0.97	1–6	≥ 0.94	≤ 8.0
SMA 8 SMA 12 SMA 16	≥ 0.98	1–6	≥ 0.94	≤ 8.0

Minister of Economic Affairs and Infrastructure
Regulation No 101 of 3 August 2015
'Road construction quality requirements'
Annex 10
(as amended)

Annex 10
GENERAL BOUNDARIES OF THE PARTICLE SIZE DISTRIBUTION OF UNBOUND MIXTURES

Pos	Mixture	Category EVS-EN 13285	Use	Sieve size, mm											
				80	63	40	31.5	20	16	8	4	2	1	0.5	0.063
				Passes through a sieve, weight%											
1	0/31.5	G_o	Base not treated with binder			100	85–99	-	50–78	31–60	18–46	10–35	6–26	0–20	0–5
2	0/31.5	G_p				100	85–99	-	43–81	23–66	12–53	6–42	3–32	0–20	0–5
3	0/63	G_o		100	85–99	-	50–78	-	31–60	18–46	10–35	6–26	0–20	0–20	0–5
4	0/63	G_p		100	85–99	-	43–81	-	23–66	12–53	6–42	3–32	-	0–20	0–5
5	0/16	-	Gravel road and support bed			-	–	100	85–99	65–90	50–75	35–60	20–45	10–40	5–15
6	0/31.5	-				100	85–99	–	60–80	40–65	30–55	20–45	10–30	8–20	8–15

Note: in bases not treated with the binder, the particle size distribution is determined from a sample of material taken from a finished base.
In the case of a Pos 1–Pos 4 mixture, the particle size distribution declared by the manufacturer of the mixture shall be within the limits of the particle size distribution declared by the manufacturer of the appropriate category of EVS-EN 13285. The control samples taken on the construction site may not exceed the general boundaries of Annex 10 particle size distribution.

Annex 12
MINIMUM REQUIREMENTS FOR AGGREGATES USED IN SURFACE DRESSING

Property		**R1 < 500 a/24h***	**R2, R3 500–2,500 a/24h***	**R4 2,501–8,000 a/24h***	**R5 > 8,000 a/24h***	**Test standard**
Particle size distribution	Category	GC85/20		GC90/15		EVS-EN 13043
Petrographic description		Determined	Determined	Determined	Determined	EVS-EN 932-3
Resistance to fragmentation	Category	LA30	LA30	LA25	LA20	EVS-EN 1097-2
Resistance to wear	Category	NR	AN19	AN14	AN10	EVS-EN 1097-9
Frost resistance in 1% NaCl solution	Category	FNaCl 4	FNaCl 4	FNaCl 4	FNaCl 4	EVS-EN 1367-6
Flakiness index	Category	Fl25	Fl20	Fl15	Fl15	EVS-EN 933-3
Adhesion with bituminous binder at impact method**	%	≥ 90%	≥ 90%	≥ 90%	≥ 90%	EVS-EN 12272-3
Adhesion at rolling bottle method after 24 h**	%	≥ 60%	≥ 60%	≥ 50%	≥ 50%	EVS-EN 12697-11
Fine-particle content	Category	f2	f1	f1	f1.0	EVS-EN 933-1

*– available traffic volume;
** – for the demonstration of adhesion, one of the two methods shall be selected according to the binder used. If the surface dressing is performed using bitumen emulsion, the adhesion shall be assessed using the standard EVS-EN 12272-3 and if bitumen is used, EVS-EN 12697-11 shall be used;
NR – not regulated.