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Appendix 2

Requirements to concrete surface finish

11/2013

REQUIREMENTS TO CONCRETE SURFACE FINISH

The surface finish requirements to concrete surface are based on the guide 'by 40' from the Concrete Association of Finland and they are presented in Tables A, B, C, D and E.

Table A.

Mould surface

Quality factors	Requirements	
	Class A	Class C [1]
Lump		
- max height, mm	3	6
- max width, mm	9	20
- max number, pcs/m^2	20	40
Recess		
- max depth, mm	4	7
- max width, mm	9	15
- max number, tk/m^2	20	40
Step discontinuity, mm	2	5
Ridge or groove		
- max height or depth, mm	2	4
- max width, mm	3	6
- max amount, % of mould joint length	20	30
Horizontal mould surface		
Pores	Ø ≥ 2 mm	Ø ≥ 5 mm
- max diameter and depth, mm	8	10
- max number, pcs/m^2	40	60
Vertical mould surface		
Pores	Ø ≥ 2 mm	Ø ≥ 5 mm
- max diameter and depth, mm	10	12
- max number, pcs/m^2	60	200
Horizontal mould surface		
Casting defect (thin casting) – must always be repaired		
- max size, m^2	0.1	0.6
- max quantity, pcs/100m^2	1	4
Vertical mould surface		
Casting defect (thin casting) – must always be repaired		
- max size, m^2	0.2	0.6
- max quantity, pcs/100m^2	2	4
Cracks [2]	0.1 / 500	0.1 / 1000
Surface undulation		
- suurim hälvemax deviation, mm/1,5m	5	8

[1] For non-visible surfaces (e.g. foundations, surfaces covered with suspended ceilings)

[2] The first number expresses permitted width of the crack (mm) and the second expresses the total length of cracks on max 1 m2 area

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Table B.

Rolled surface and surface rubbed with steel (trowel)

Quality factors	Requirements	
	Rolled surface	Surface rubbed with steel (trowel)
	Class A	Class A
Lump		
- max height, mm	2	3
- max width, mm	4	4
SüvendRecess		
- max depth, mm	2	3
- max width, mm	4	4
Tool tracks		
- staging	1	2
Pores	2...3 mm	3...4 mm
- max diameter, mm	3	4
- max number, pcs/m^2	10	25
Cracks [1]	0.1 / 500	0.1 / 500
Surface undulation		
- max deviation, mm/1,5m	5	6

[1] The first number expresses permitted width of the crack (mm) and the second expresses the total length of cracks on max 1 m^2 area

Table C.

Exposed aggregate surface concrete

Quality factors	Requirements	
	Exposed aggregate surface, aggregate exposed less than 2 mm	Exposed aggregate surface, aggregate exposed more than 2 mm
	Class A	Class A
Max permitted range of aggregate exposure, mm	0...4	1...7
Overexposed aggregate [1) 2)]		
- dm^2/m^2	0.8	1.5
- pcs/10m^2	4	4
Underexposed aggregate [2) 3)]		
- dm^2/m^2	1	1.5
- pcs/10m^2	2	2
Pores, Ø ≥ 3 mm		
- max diameter [4)], mm	8	-
- max number [2)], tk/m^2	80	-
Aggregate exposure theresold on patterned surfaces [5)], mm	1	-
Cracks [6)]	0.1 / 500	0.2 / 1000
Surface undulation		
- max deviation, mm/1,5m	5	5

[1] Aggregate exposure exceeds normal range in a way that large parts of rock break off
[2] Double values are permitted on the finished edges of the surface and other such places
[3] Aggregate exposure deviation remains below normal fluctuation in a way that the appearance is not affected
[4] Values 1.5 times higher are permitted on the finished edges of the surface and other such places
[5] Or maximum aggregate exposure, if greater
[6] The first number expresses permitted width of the crack (mm) and the second expresses the total length of cracks on max 1 m^2 area

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Table D.

Brushed surface

Quality factors	Requirements
	Class A
Unidirectionality of brushing lines, maximum deviation from general line [1], mm/1,5 m	10
Variation of brushing line depth [1]	3
Cracks [2]	
- deviation from brushing direction ≤ 10°	0.2 / 500; 0.1 / 1000
- other direction	0.1 / 500
Surface undulation	
- max deviation, mm/1,5m	7

[1] Double values are permitted 200 mm around protruding parts and on the finished edges of the element and on other such places

[2] The first number expresses permitted width of the crack (mm) and the second expresses the total length of cracks on max 1 m^2 area

Table E.

Permitted extent of repair works (does not apply to class AA surfaces, which are not allowed to be repaired)

Repairs > 500 mm^2	Class A. Requirements
Maximum number	1 pc / 7m^2
Average	1 pc / 20m^2
Maximum area	0,08 m^2

[1] Repaired surfaces must conform to quality requirements in Tables A-D

Repair works must be made with suitable materials with storage time and other characteristics corresponding to concrete's characteristics

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