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upon the test : **Radon diffusion coefficient of the waterproofing membrane ANKOX POLYFLEECE® SX 1000 RADON carried out in accordance with the method K124/02/95**

Client:

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Date of issue: 23.11.2018

Approved by:

Prof. Ing. Martin Jiránek, CSc.
head of OL 124 laboratory

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The measurement of the radon diffusion coefficient of the ankox Polyfleece SX[®] 1000 Radon membrane (composed of a geotextile and a hydrophilic polymer compound) was performed in accordance with the requirements for determination of the radon diffusion coefficient stated in the K124/02/95 test method. The test was carried out during the period from 18.1.2016 to 4.2.2016.

Test samples

Test samples were cut from the material handed by the client (W. Muschialli) on 4.1.2016. The samples were registered with marks 1/16/J (1 to 6) by M. Jiránek. The test samples were 160 mm and 200 mm in diameter and their thickness was 1,40 mm. The overlap joint was sealed with a 75 mm wide adhesive tape applied inside membrane overlap.

Test method

Radon diffusion coefficient was measured according to the accredited method K124/02/95 (method C of ISO/TS 11665-13). The tested sample is placed between two containers. Radon diffuses from the lower container, which is connected to the radon source, through the sample to the upper container. When the steady state concentration profile within the sample is reached, the growth of radon concentration in the upper container is measured. From the known time dependent curve of the radon concentration increase in the upper container the radon diffusion coefficient can be calculated. The test method was approved by the State Office for Nuclear Safety on 6.8.1998.

Laboratory conditions

ankox Polyfleece SX[®] 1000 Radon – material

Steady state radon concentration in the lower container: $37,5 \pm 0,2$ MBq/m³

Radon supply rate into the upper container: $0,3 \pm 0,1$ Bq/m³s

ankox Polyfleece SX[®] 1000 Radon – joint

Steady state radon concentration in the lower container: $13,1 \pm 0,2$ MBq/m³

Radon supply rate into the upper container: $280,5 - 7,5$ Bq/m³s

Measuring device: radon monitor RDA 200 (N12), micrometer (N11)

Laboratory temperature: $21^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Relative humidity of air in the laboratory: $35\% \pm 4\%$

Pressure difference between the lower and the upper containers: 0 Pa

Test results

The results of performed tests are compiled in the following table:

TESTED MATERIAL	RADON DIFFUSION COEFFICIENT D (m ² /s)	
	mean value	uncertainty
ankox Polyfleece SX[®] 1000 Radon	1,0.10 ⁻¹²	± 0,1.10 ⁻¹²
ankox Polyfleece SX[®] 1000 Radon, joint	1,5.10 ⁻⁹	± 0,2.10 ⁻⁹

The stated uncertainty of the measurement is the uncertainty with the coefficient k = 2, which for the normal distribution corresponds to the probability of coverage approx. 95 %.

Recommendation

Applicability of the tested material to a radon-proof membrane can be in a particular case considered in accordance with national building codes or standards.

The test was performed by: Prof. Ing. Martin Jiránek, CSc.

The report was prepared by: Prof. Ing. Martin Jiránek, CSc.



test specialist