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FACULTY OF CIVIL ENGINEERING – TEST LABORATORY
No. 1048 accredited by ČIA according to
ČSN EN ISO/IEC 17025:2005
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TEST REPORT No: 124019/2017

upon the test : **Radon diffusion coefficient of the NEWTON
109-LM waterproofing membrane carried out in accordance
with the K124/02/95 method**

Client:

John Newton & Company Ltd
Newton House, 17-20 Sovereign Way
Tonbridge, Kent TN9 1RH
United Kingdom

Date of issue: 15.5.2017

Approved by:

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

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The measurement of the radon diffusion coefficient of the Newton 109-LM hand applied waterproofing membrane (polymer modified emulsified asphalt) 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 2.5.2017 to 15.5.2017.

Test samples

Test samples were cut from the material handed by the client (W. Muschialli) on 18.4.2017. The samples were registered with marks 10/17/J (1 to 4) by M. Jiránek. The test samples were 160 mm in diameter and their thickness varied from 0,94 mm to 1,05 mm.

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

Newton 109-LM – material

Steady state radon concentration in the lower container: $49,5 \pm 0,3 \text{ MBq/m}^3$

Radon supply rate into the upper container: $22,4 \pm 0,8 \text{ Bq/m}^3\text{s}$

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: $37\% \pm 4\%$

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
NEWTON 109-LM	2,1.10 ⁻¹¹	± 0,2.10 ⁻¹¹

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 for a radon-proof product can be in a particular case considered in accordance with national building codes or standards.

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

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

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test specialist

end of the report