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TEST REPORT No: 124007/2018

upon the test : **Radon diffusion coefficient of the NEWTON 508 ECO FLOOR waterproofing membrane carried out in accordance with the K124/02/95 method**

Client:

Newton Waterproofing Systems Ltd
Newton House, 17-20 Sovereign Way
Tonbridge, Kent TN9 1RH
United Kingdom

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE FSV č. 1048 Akreditovaná zkušební laboratoř OL 124

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Approved by:

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

The measurement of the radon diffusion coefficient of the Newton 508 Eco Floor cavity drain waterproofing membrane made of HDPE 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 15.1.2018 to 26.1.2018.

Test samples

Test samples were cut from the material handed by the client (W. Muschialli) on 11.1.2018. The samples were registered with marks 2/18/J (1 to 4) by M. Jiránek. The test samples were 160 mm and 200 mm in diameter and their thickness was 0,75 mm. The tested stud into stud joint was sealed with the 30 mm wide Waterseal Tape placed between sheets and the 100 wide Newton OverTape.

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 508 Eco Floor – material
Steady state radon concentration in the lower container: 45,8 ± 0,2 MBq/m^3
Radon supply rate into the upper container: 5,8 ± 0,1 Bq/m^{3}s

Newton 508 Eco Floor – joint
Steady state radon concentration in the lower container: 46,2 ± 0,1 MBq/m^3
Radon supply rate into the upper container: 2,2 ± 0,2 Bq/m^{3}s

Measuring device: radon monitor RDA 200 (N12), micrometer (N11)
Laboratory temperature: 20°C ± 2°C
Relative humidity of air in the laboratory: 38% ± 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 508 Eco Floor	$4{,}4.10^{-12}$	$\pm\ 0{,}2.10^{-12}$
Newton 508 Eco Floor, joint	$1{,}6.10^{-12}$	$\pm\ 0{,}2.10^{-12}$

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

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test specialist

end of the report