DOI 10.1007/s12647-017-0238-0

# A theoretical and experimental investigation of spatial distribution of radon in a typical ventilated room

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**Received:** 23 June 2016 / **Accepted:** 26 October 2017 / **Published online:** 20 November 2017

**Abstract:** The aim of this work is to studying indoor radon distribution using the Finite Volume Method (FVM). This paper focuses on effects of exhalation from different sources (wall, floor and ceiling) and the ventilation profile on distribution the concentrations of radon indoor. The rate of radon exhalation and ventilation were measured and are used as input in FVM simulation. It has been found that the radon concentration is distributed in non-homogeneous way in the room. The radon concentration is much larger near floor, and decreases in the middle of the room. The experimental validation was performed by measuring radon concentration at different locations in room using active and passive techniques. We notice that the results of simulation and experimental are in agreement. The annual effective dose of radon in the model room has been also investigated.

**Keywords:** Radon; SSNTD; Exhalation rate; Finite Volume Method; Radon Scout Plus; Radon effective dose