Computational Fluid Dynamics Analysis for Radon Dispersion Study and Mitigation

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Abstract : Computational fluid dynamics (CFD) is used to simulate the distribution of indoor radon concentration in a living room with elevated levels of radon concentration which varies from 22 Bqm-3 to 1533 Bqm-3 in 24 hours. Finite volume method (FVM) was used for the simulation. The simulation results were experimentally validated at 16 points in two horizontal planes (y=1.4m & y=2.0m) using pin-hole dosimeters and at 3 points using scintillation radon monitor (SRM). Passive measurement using pin-hole dosimeters were performed in all seasons. Another simulation was done to find a suitable position for a passive ventilation system for the effective mitigation of radon.

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