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Radon exhilation of building materials

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Abstract content
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There is considerable public concern about radon exhalation from building materials. The purpose of this study is to address this public concern and to estimate the contribution of building materials to indoor radon levels. As in soil and rock; radon gas is formed inside the building materials by decay of the parent nuclide ²²⁶Ra. It is not possible to determine the radon exhalation rate simply from the activity concentration of ²²⁶Ra, instead one must measure radon exhalation rates directly from the surface of the material.²²²Rn has been identified as an important factor that could result in a health hazard by studies all around the world.

The experiments were done at the UWC physics department, in the Nuclear Physics Lab. A RAD7 radon detector was used to measure the energies of each alpha particle emitted. The RAD 7 records the number of alpha particles with energy of 6.11 MeV which results from the decay of ²¹⁸Po, the daughter of ²²²Rn. The RAD 7 detector converts counts into Becquerel's per cubic metre (Bq/m3) or Becquerel's per Litre (Bq/L). The building materials tested was the raw materials used in construction such as two different types of building sand, stones and gravel. The building materials used for composed of various raw materials to create a final product was floor-and-roof tiles and various granites from across the country.

Many building materials were found to have a very low rate of radon exhalation. The only materials that had any significant radon exhalation were 2 granites. It is safe to say that the overwhelming majority of building materials are safe to use but some granites may require further study.

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Msc

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