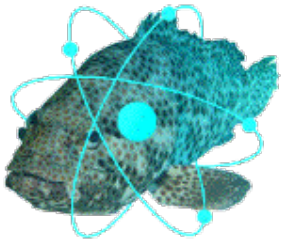

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Radon exposure and exhalation awareness on Civil Engineering teaching

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Radon is a natural radioactive gas derived from geologic materials and abundant in granitic areas. Indoor environment radon contamination can be induced by either outdoor air entering dwellings and radon contamination of water but the ionizing radiation from naturally occurring radioactive materials (NORM) present in building materials, should not be underestimated. Civil engineering students were challenged to understand the complexity of dealing with radon either from the material chosen not only for new dwelling construction but also when rehabilitation is concerned. Accurate understanding where radon is generated and how to avoid its dissemination on indoor environment is very important in the classification of the radon source strength in building materials. To obtain these goals students were trained on the basics of nuclear physics and radon specific problems and tested various building materials, coatings and finishing materials. From the experience gathered trough several master dissertations awareness was gained as how to avoid materials that are more prone to exhalate radon but also those that are more efficient in sealing radon exaltation which is most significant on building rehabilitation. The subject is particularly pertinent in geographic regions where natural radioactivity and radon levels are higher than normal, as it is the case of the geological setting of the broader region where the University of Beira Interior is settled. Besides, being able to raise awareness of future professionals on the building industry we were able to start an index of building materials characterized by either the typical radon exhalation levels or permeability, that presented some surprises in between the already expected results. In the same time, we were able to determine that some silicone-based sealants, usually recommended for sealing out radon from entering premises by fractures, were, in fact, quite permeable to radon. We discuss on the origin of such differentiated behavior.

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