The Radon Hazard in Internal Constructive Environments

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Abstract. The impact of radiation on indoor building environments is still poorly understood and discussed in developing countries. In the United States and the European Community there is a great concern to avoid the risks that radon can bring to public health. Radon, discovered in 1899 by Owens and Ernest Rutherford, is a noble gas, with a half-life of 3.8 days, 7.58 times heavier than air, colorless, odorless and tasteless, resulting from the disintegration of heavier elements and with atomic numbers above 83, especially uranium, thorium and radio creating a gamma radiation field. Radon gas is more present in igneous rocks composed of micas, feldspars and accessory minerals, such as zircon, apatite, monazite and in felsic rocks, where there is higher content of silica. Countries with Brazil and India have the highest concentrations of radioactive minerals in the soil. The soil may contain several radioactive isotopes. Through the soil, radioisotopes can be incorporated into foods and raw materials used in construction, such as: woods, clays, sands, lime, cement and stones, especially granites. If radon gas is not detected, monitored and controlled, it can result in a serious public health problem, such as: and even in a high incidence of lung cancer mortality, as is the case in the United States, where gas deaths radon exceeded the accidents with drunk driving people, falls in houses, drownings and fires. Radon gas, when inhaled, can hardly be expelled, bringing cumulatively to the human organism exposed to high concentrations a higher incidence of leusemia, emphysema, fibrosis and alteration of the genetic material of the pulmonary cells and can cause lung cancer to be inhaled. The cells exposed to the radiation suffer the action of physical, chemical and biological phenomena, which can affect all the internal organs of the human being. The purpose of this paper is to clarify possible ways to prevent, monitor and control radon radiation from soil, air and water. It is observed that in Brazil there is still no specific legislation on the subject, presenting little legislation for the mining sector. As observed in the city of Shiraz in southwestern Iran, the radon concentration in 5.4% of residential households was over 100 Bq / m³, above the level allowed by the World Health Organization (WHO). It is therefore important that this issue be widely discussed in academia, government agencies and society as a whole, resulting in the creation of rules and laws to protect the general population from radioactive contamination of radon.

Keywords: Radon, Radioactivity in Internal Environments, Public Health Hazard, Radioactive Contamination, Lung Cancer. We would like to encourage you to list your keywords in this section.