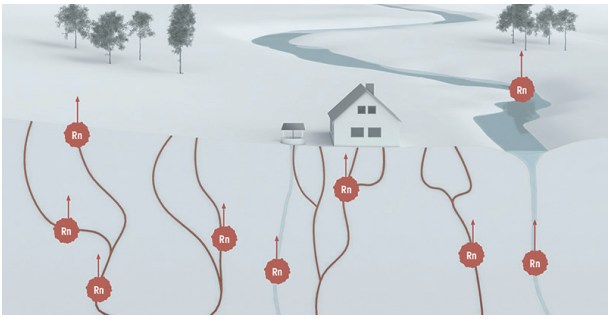
Quality-Products

EU regulation for radon protection

As of 31 December 2018, the Strahlenschutzgesetz (Radiation Protection Act) and a new Radiation Ordinance came into force, replacing the previous Strahlenschutzverordnung (Radiation Protection Ordinance) and the Röntgenverordnung (X-ray Ordinance).

What is radon?

Radon is a radioactive element that is present everywhere in the environment. It is created in the soil as a consequence of the radioactive decay of natural uranium, which is present in many rocks in the soil. Radon is a very mobile, radioactive noble gas, which can neither be seen, smelled or tasted. The radon concentrations in the soil, in the air and in internal areas differ locally and regionally. The more gaps and cracks an underground has, the easier radon spreads.

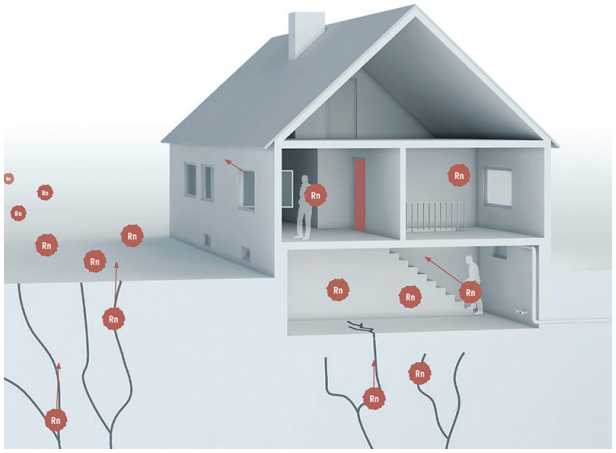


Health hazards

After smoking, radon is the second most frequent cause for lung cancer. The radioactive radon daughter products stick to aerosols (fine particles in the air), which are inhaled. In the event of a further decay of the products in the lungs, radiation is released, which may damage the lungs and the tissue and thus cause lung cancer.

Endangered areas

Radon is released via pores, fissures and cracks in soils and rocks. It is rather harmless in the outside air. It can be a problem indoors, where the gas can accumulate in inadequately sealed cellars and ground floors and spread through the entire house. Leakages where radon can enter include joints between building components or unsealed pipe penetrations, as well as aged or poorly executed sealings.



Source: Bundesamt für Strahlenschutz (Federal Office for Radiation Protection); Germany

The Bundesamt für Strahlenschutz (Federal Office for Radiation Protection) provides maps of the regional distribution of radon in soil, indoors and outdoors. According to the Radiation Protection Act, a reference value of 300 becquerels per cubic metre of indoor air should serve as a benchmark for the adequacy of protective measures. In areas with high radon concentrations, protection regulations apply that are different for residential buildings and workplaces.

The following building types are categorised:

- Private, already existing residental buildings:
  Owners and residents can optionally take measures to reduce the radon concentration in the building.

- New buildings:
  Obligation for the constructor to prevent radon from entering the building to a large extent through structural measures.

- Workplaces:
  Obligation for the person responible for the workplace to measure the radon concentration and initiate countermeasures if necessary.

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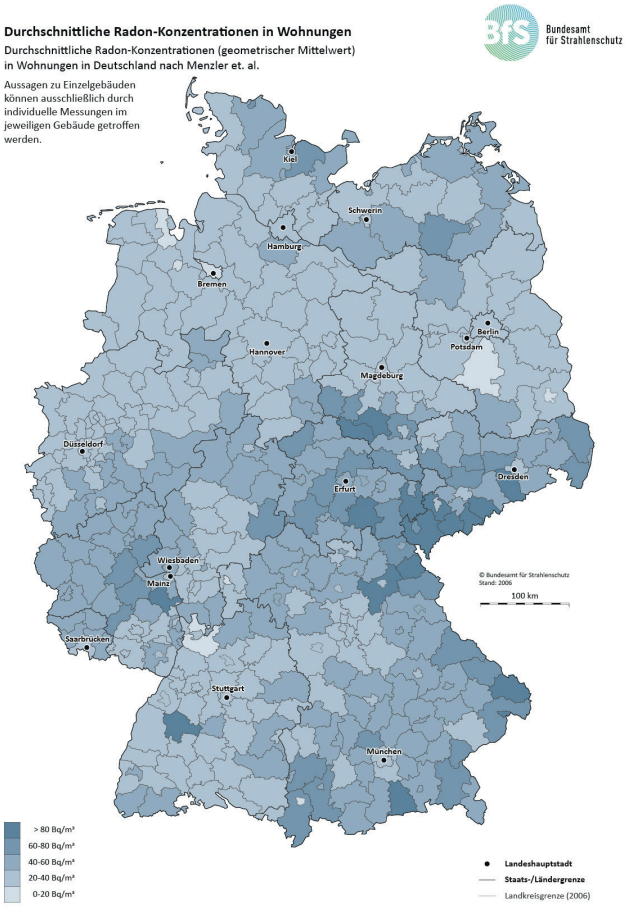
There is no indication of a limit below which radon would be harmless. According to the BfS, for every 100 becquerels per cubic metre of indoor air with a long-term radon concentration, the risk of lung cancer increases about 16 %. Therefore, the radon concentration should be reduced in all homes, as far as this can be achieved with reasonable effort. If the concentration of radon indoors is higher than 300 becquerels per cubic metre, measures must be initiated to reduce the radon concentration in the building. However, only measurements can clarify with certainty what radon concentrations actually occur in the occupied rooms of a building.



Source: Bundesamt für Strahlenschutz (federal office for radiation protection); Germany

Radon protection measures for a residential building

EGO recommends different measures to reduce the concentration of radon in a building and thus provide protection against radon loads. As an initial measure, for example, regular ventilation helps.

From an energetic point of view, the better choice is the provision of sealings. It leads to a permanent reduction in the radon concentration in buildings. Only tested products with a determined radon diffusion coefficient and/or a radon diffusion length should be used.

In Germany, according to the research work by G. Keller, Saarland University, a convention exists according to which materials are classified as radon-proof if their thickness d is greater than three times the diffusion length L ($d \geq 3\,L$).

Tested products

To reduce radiation exposure, **EGO** offers the **EGO**TAPE 4000 in 1,00 MM thickness.
d =1,00 MM > 3L (= 0,57 MM)

The **EGO**TAPE **2000** in 1 MM thickness is also characterized by the feature - radon-tight according to G. Keller.

We hope that our information letter gave you an overview of the changed requirements in radiation protection. If you have any further questions, please contact your **EGO** representative directly. We will be happy to assist you in selecting the right materials to protect against radiation exposure.

Further links:

www.bfs.de	Bundesamt für Strahlenschutz (federal office for radiation protection)
www.imis.bfs.de/geoportal/	BfS geoportal with radon geodata. The Federal Office for Radiation Protection has produced maps of the general regional distribution of radon in the soil air. Statements on individual buildings or building plots can never be made from the forecast maps.

Sources:

EGO Dichtstoffwerke GmbH & Co. Betriebs KG, Department Research & Development at EGO Dichtstoffwerke, www.ego.de
Bundesamt für Strahlenschutz (Federal Office for Radiation Protection)

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