

Good Building Guide

Radon protection for new large buildings

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The overall aim of this Good Building Guide is to give practical advice and guidance on the successful installation of radon-protective measures in new large buildings (eg workplaces). It should be read in conjunction with BRE Report BR 211, *Radon: guidance on protective measures for new buildings*^[1]. This Good Building Guide replaces the guidance published in 2009.

Two companion Good Building Guides^[2,3] cover radon-protective measures for new domestic extensions and conservatories and new dwellings.

What is radon and why consider it for new large buildings?

Radon is a natural colourless, odourless, radioactive gas. It is formed by the radioactive decay of the small amounts of uranium that occur naturally in all rocks and soils. The gas can move through cracks and fissures in the subsoil and eventually to the atmosphere. Most of the radon will disperse harmlessly into the air outside, but some will pass from the ground and collect in spaces under or within buildings.

This Good Building Guide should be read in conjunction with the guidance contained in *Radon: guidance on protective measures for new buildings*

For most UK residents, radon accounts for half of the annual radiation dose received. Exposure to particularly high levels of radon may increase the risk of developing lung cancer. While it is recognised that the air inside every building contains radon, some buildings in certain defined areas of the UK might have unacceptably high concentrations unless precautions are taken. South-west England is of principal concern, but high concentrations of radon are also found in many other areas.



Figure 1: General view of a radon barrier laid over fill and sealed to columns

Requirements for radon protection

Building regulations

Building regulations covering radon-protective measures in the UK were first introduced for south-west England in the late 1980s, for Derbyshire and Northamptonshire in the early 1990s and for the rest of England, Scotland and Northern Ireland in the late 1990s. Initially, protective measures were only required in new dwellings, but more recently the requirements have been extended to include all building types, extensions, conversions and major alterations in areas affected by radon. The BRE guide *Radon: guidance on protective measures for new buildings* (BR 211)^[1] was published as supporting guidance to the various UK regional building regulations^[4, 5, 6, 7, 8]. This guide has been updated several times, with the latest edition due to be published in 2015.