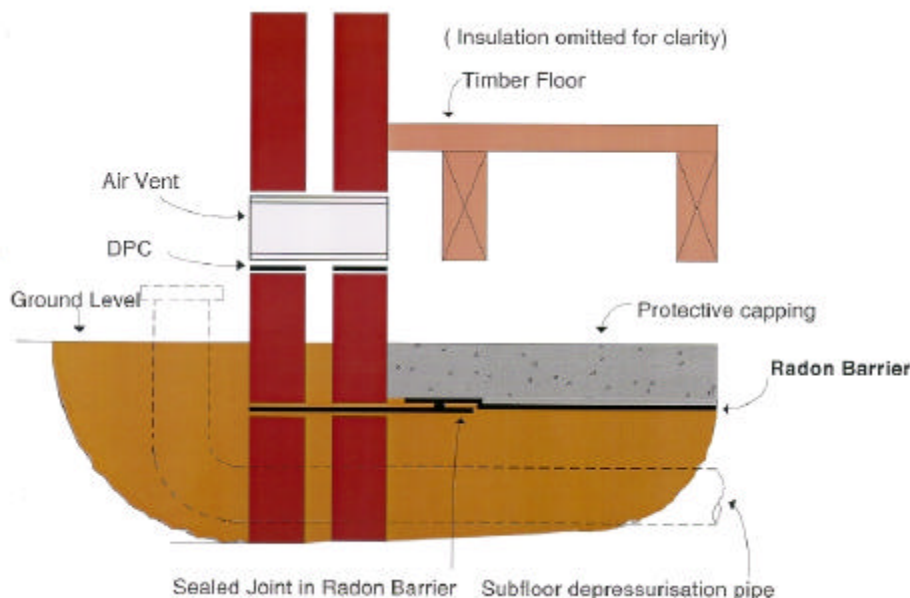


radon newbuild : model solution

No 3. Full protection to a suspended timber ground floor

Description

The radon-proof barrier is located across the entire footprint of the building. It comprises a barrier located beneath the concrete used to cap the soil beneath the timber floor, which is sealed to a barrier which runs through the foundation walls. Supplementary protection is also provided by locating a radon sump beneath the barrier with a pipe taken to the outside of the building and capped off. If necessary the sump can be activated by adding a fan at a later date. (The fan is not required to be installed during construction.)



Radon barrier

The radon barrier comprises two components which are sealed to form a single barrier across the entire footprint of the building - a barrier beneath the floor and a barrier within the foundation walls. The barrier within the wall is typically formed using a high performance co-polymer thermoplastic damp proof course material. This needs to extend out from the wall at least 100mm to allow it to be sealed to the barrier beneath the floor. The barrier under the floor needs to be a minimum 300 micrometre (1200 gauge) polyethylene membrane. Sealing of the two components can then be carried out using a double sided butyl jointing strip or other appropriate adhesive tape. To avoid the radon-proof barrier being damaged by following trades etc it should be capped beneath the floor with concrete, sand or other form of protection.

Provision for future subfloor ventilation

Whilst this approach should provide reasonable radon protection, it is unlikely to prove quite as robust as the solutions recommended for concrete floors. As a consequence a sump should also be provided beneath the barrier with a length of pipe routed to the outside of the building and capped for possible future use. This should be applied to all timber floors located in areas where full or basic radon protection measures are required.

It could be argued that providing a sump is unnecessary as a fan could be installed to ventilate the underfloor void instead. Whilst this is true, experience with mechanical underfloor ventilation in existing buildings has shown it to cause noise and comfort problems for occupiers. These problems do not occur with sump systems.

General points

Care needs to be taken when protecting a suspended timber floor in order not to cause timber rot problems. The floor should be ventilated in accordance with the requirements of Requirement C4 of schedule 1 of the Building Regulations 1991. In addition it is best not to cover the timber floor with an impermeable membrane such as a radon-proof barrier.

If there is likely to be a problem with the barrier beneath the floor becoming flooded an alternative solution such as suspended concrete beam and block floor should be considered.

Note

BRE Report BR211 (1999) Radon : protective measures for new dwellings does not offer any guidance on protective measures for suspended timber floors. This was due to there being insufficient data available at the time to demonstrate the effectiveness of protected timber floors. Additional research results suggest that with careful construction the protective measures described here should provide reasonable radon protection.

BRE have prepared this sheet to assist designers and installers in better understanding how practical cost effective radon protection can be provided within in new buildings. The information does not replace the technical requirements or guidance contained within BRE Report BR211(1999).

Further information

For more comprehensive guidance see BRE Report BR211 (1999 edition) Radon: Protective measures for new dwellings. Copies of BR211 can be obtained from the BRE Bookshop WWW.BREBookshop.com