

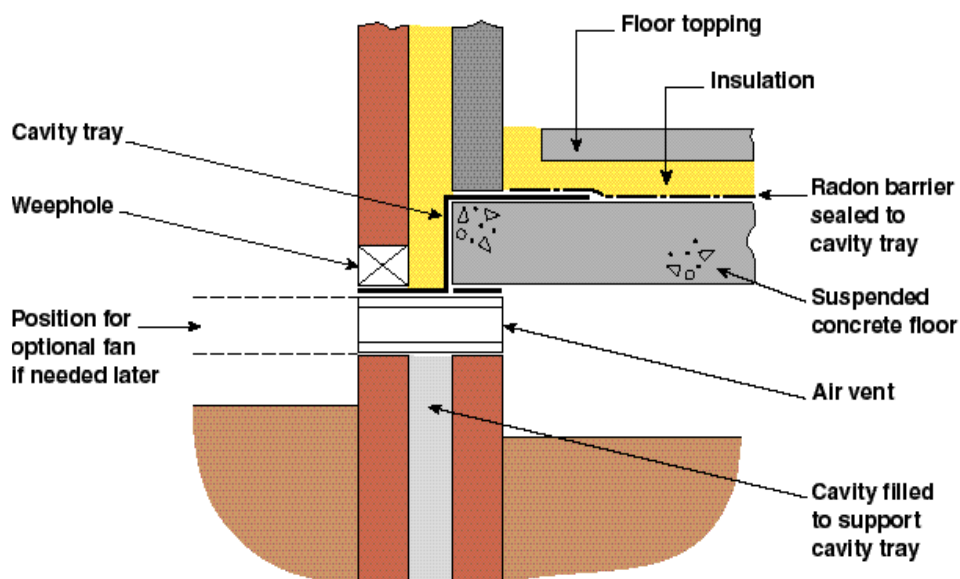
# radon newbuild : model solution

## No 1. Full protection to a suspended concrete ground floor

### Description

The radon-proof barrier which also provides damp protection is positioned over the floor structure and linked to cavity trays at the edges. Supplementary protection is also provided by locating underfloor vents on two or more sides of the underfloor space. If necessary the rate of ventilation and radon dispersion can be increased by fitting an electric fan at a later date. (The fan is not required to be installed during construction.)

### Possible working detail of full radon protection in a suspended concrete floor



### Radon barrier

The radon barrier comprises a cavity tray through the wall linked to a membrane across the floor. Typically the cavity tray is formed using a high performance co-polymer thermoplastic damp proof course material or prefabricated cavity tray units. This is then sealed to a 300 micrometre (1200 gauge) polyethylene membrane laid across the beam and block floor. To make it easier to seal the two materials the cavity tray is laid so that it laps about 300mm over the edge of the floor. The membrane over the floor can then be sealed to the cavity tray using a double sided butyl jointing strip or other appropriate adhesive tape just prior to installing the floor topping. This means that the sealing work can be carried out in the dry and there is less chance for the barrier to be damaged by following trades.

### Subfloor ventilation

Airbricks should be installed where possible on all sides of the building, and should be placed at intervals at least as frequent as would be normal for an ordinary suspended timber floor (ie openings should be large enough to give an actual opening of at least equivalent to 1500 mm<sup>2</sup> for each metre run of wall on two opposite sides). Typically this means that vents should be positioned at 2 m maximum centres along the external walls and not more than 450 mm from corners. It is also important to ensure that all airbricks are kept clear. Landscaping works such as paths and driveways must not compromise subfloor ventilation. Where periscope subfloor ventilators are used, the joints between the upper and lower halves of the ventilators should be taped to reduce the risk of radon entering the cavity.

## Construction Procedure

### Step 1.

External walls are built up to DPC level incorporating plastic louvred air bricks to provide natural underfloor ventilation. The beam and block suspended flooring is installed and a wide cavity tray installed. The rest of the external walls can then be constructed.



### Step 2.

With the external walls and rest of the structure watertight the main barrier can be installed. Here the barrier, comprising a 300 micrometre (1200 gauge) polyethylene sheet can be seen laid over the beam and block floor and tucked under the edge of the cavity tray. The barrier could equally have been laid to lap over the edge of the cavity tray.



### Step 3.

Here the polyethylene sheet has been sealed to the cavity tray using a self adhesive polyethylene sheet tape to form a complete barrier across the plan of the building. By laying the barrier immediately before installing the floor topping the barrier will prove easier to seal and is less likely to be damaged by following trades.



## Further information

For more comprehensive guidance see BRE Report BR211 (1999 edition) Radon: Protective measures for new dwellings

## Note

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). Copies of BR211 can be obtained from the BRE Bookshop [WWW.BREBookshop.com](http://WWW.BREBookshop.com)