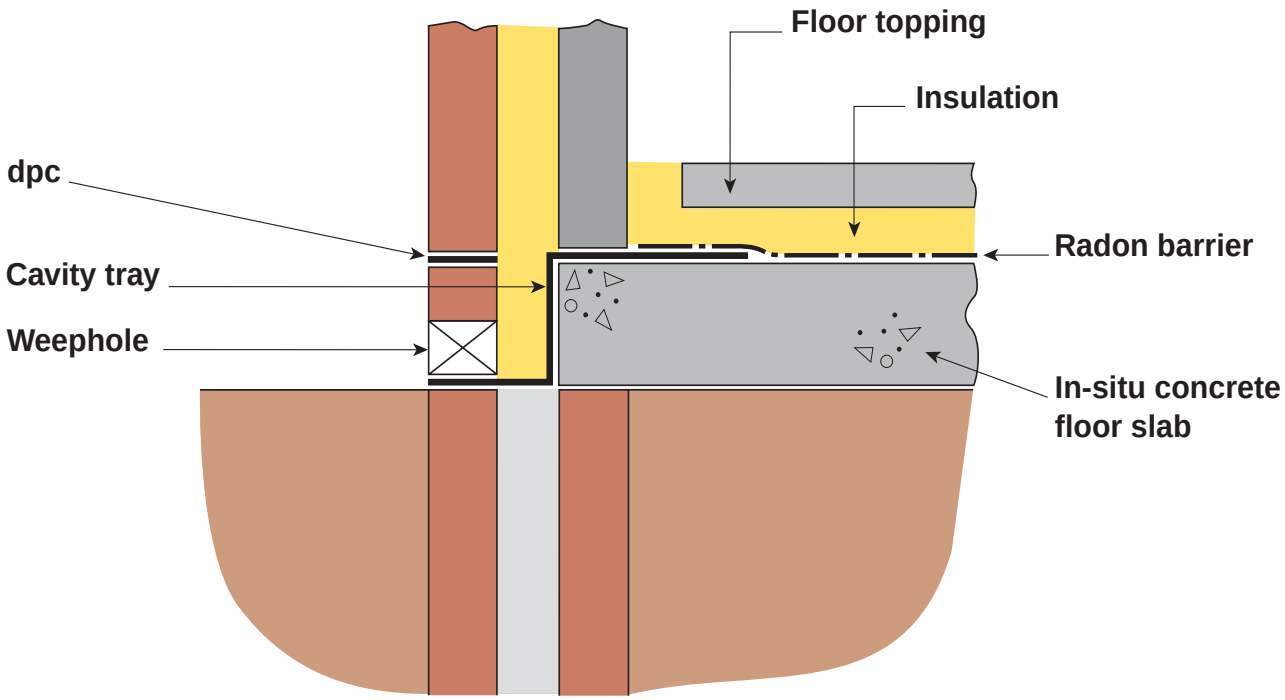
radon newbuild : model solution

No 2. Full protection to an in-situ 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 a radon sump beneath the floor slab 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.)

Working detail for full radon protection for an in-situ concrete floor



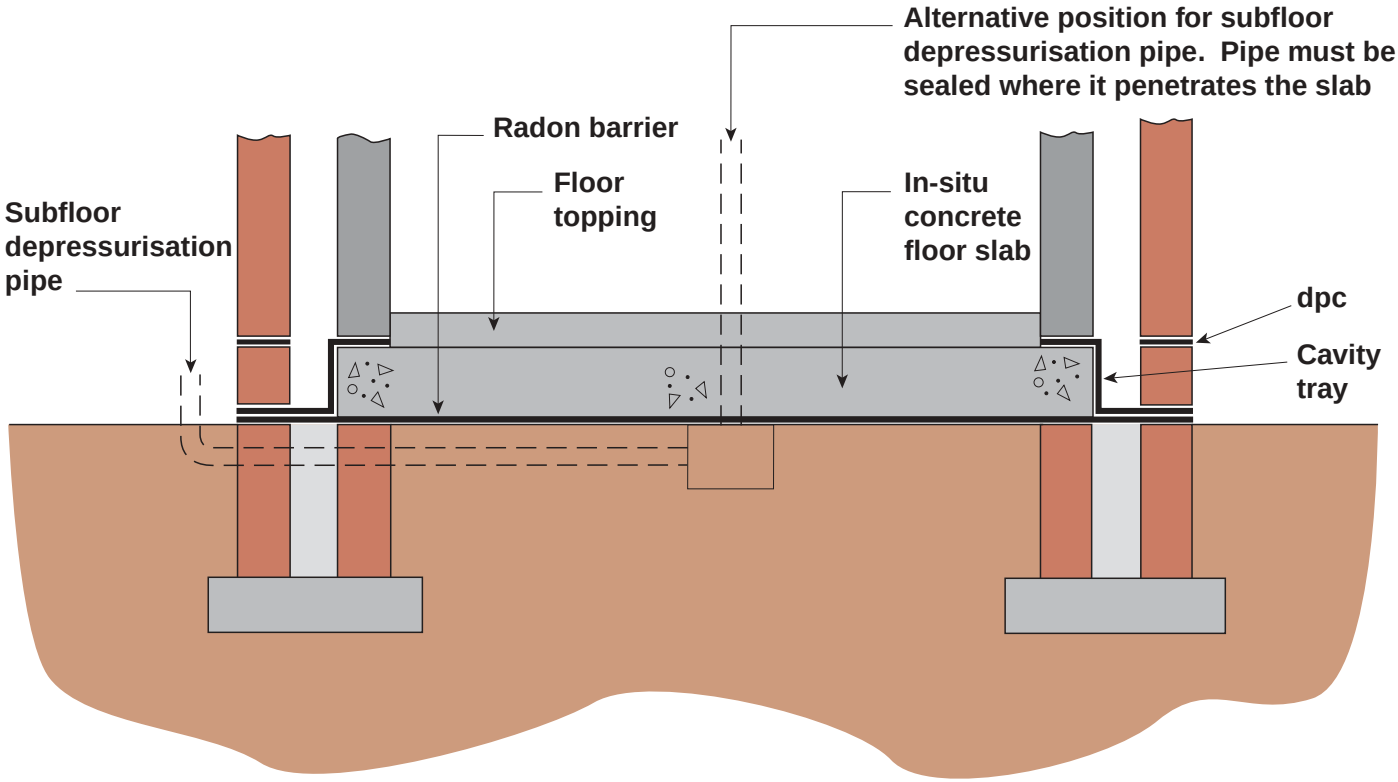
Note: Sump and subfloor depressurisation pipe should be provided as shown below

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 in-situ concrete floor slab. 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. To ensure that there is no risk of damage to the barrier due to settlement the edge of floor slab is supported off the inner leaf of the external wall.

Subfloor depressurisation
Whilst the barrier should provide adequate radon protection if reasonably well constructed there remains a risk that radon could still enter the building. In order to make it easier to reduce the level should it prove necessary a sump should also be provided beneath the floor slab. A length of 110mm diameter pipe should be run from the sump to the outside of the building and capped off.

Alternative solution with barrier laid beneath slab

Full radon protection in in-situ or ground-supported concrete floor (barrier under slab)



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