

Passive mini sump system

Experience has shown that in cases where the indoor radon level is relatively low, i.e. just above the action level, it is possible, in the right circumstances, to operate a sump system *passively* – without the need for an electric fan.

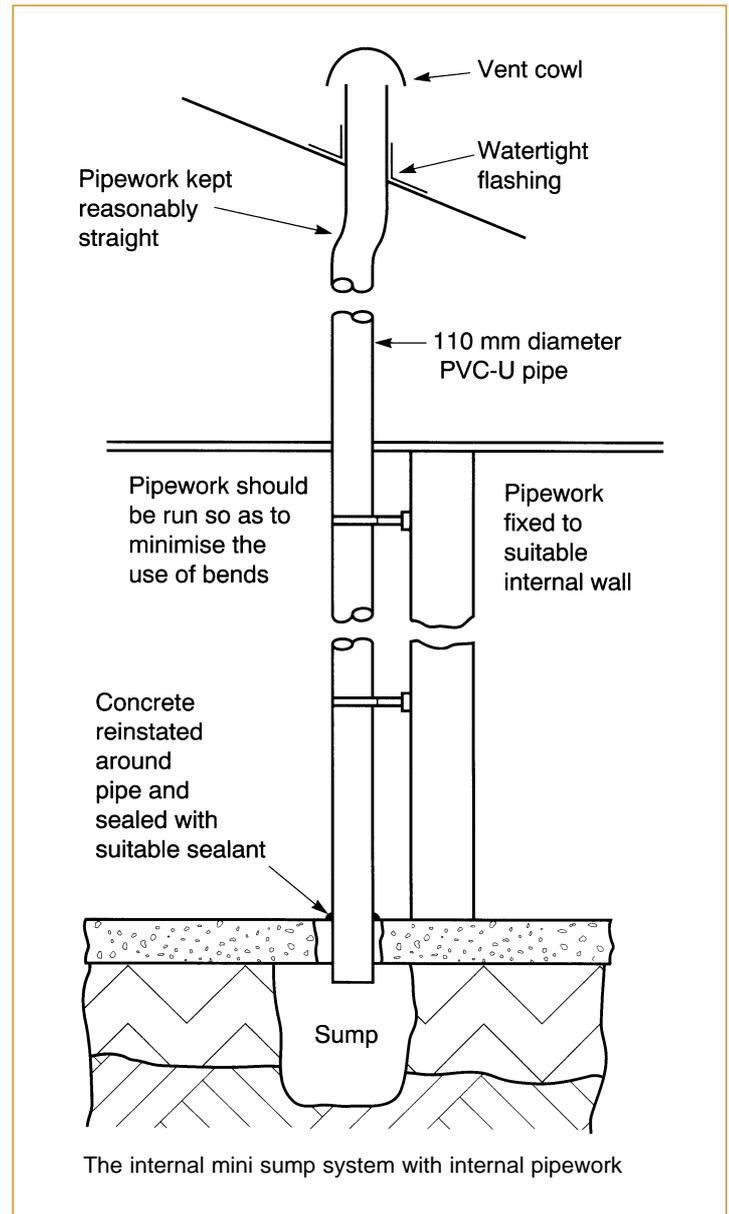
If it works a passive sump system is always preferable to a fan driven one as it is easier and cheaper to install, run and maintain, and will be quieter. However they are not as effective as systems fitted with fans. On average passive sump systems produce a 50% reduction in radon levels, whereas fan powered systems achieve relatively larger reductions – often more than 90%.

The important point is that it is a simple task to add an electric fan later if the passive system does not adequately reduce the radon level.

Specification

Pipework: 110mm diameter uPVC pipe and fittings as used for domestic soil and vent pipes can be used. Pipework should be kept straight with as few bends as possible.

Sump construction: The sump should be located close to the centre of the dwelling. A simple mini sump can be constructed by breaking out or core drilling a 120mm diameter hole in the floor slab and excavating about a bucketful of material from below (clearing out a space approximately 200mm in radius).



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Sealing: It is important to seal around the pipework where it exits the floor slab to prevent air leakage. This can be achieved using a gun-applied bathroom sealant or similar.

Roof outlets: The system can exhaust through a vent cowl (as shown) through the slope of the roof or via a gas flue type ridge ventilator at the ridge.

Availability of materials

Suitable materials can be obtained from most DIY stores and builders merchants.

General points to consider

To reduce visual impact pipework can be routed inside a storey-height cupboard, or boxed-in in the corner of a room.

Care should be taken when breaking out to avoid damaging steel reinforcement or concealed services, e.g. electricity cables, water mains, central heating pipes and gas and oil supply pipes, similarly take care to avoid ceiling joists and any services in the roof space.

Adding a fan later

When designing a passive sump system you should consider the following points that might apply to a fan powered system just in case you need to add a fan later.

Remember to leave enough room so that a fan can be fitted and supported. When fitting the fan do not support it on lightweight walls or components that might transfer vibration to the rest of the property.

Because of a potential risk of spillage avoid locating the sump near to an open flued combustion appliance such as an open fire or boiler which draws air from the room for combustion.

Position the outlet well away from windows, doors and ventilation grilles.

To minimise noise keep pipework as straight as possible, and place the fan away from living rooms, bedrooms, or other quiet areas, but close to the outlet so that the pipework is always under suction.

Further information

More detailed guidance is available in BRE Report BR227 *Radon Sump Systems: a BRE guide to radon remedial measures in existing dwellings* and Good Building Guide 25 *Radon and Buildings* obtainable from BRE Bookshop, BRE Garston, Watford, WD25 9XX, telephone 01923 664262, e-mail bookshop@bre.co.uk, or visit www.BREbookshop.com

- for further practical advice about work to reduce radon levels
- for a list of companies known to supply suitable fans

Contact BRE Radon Hotline 01923 664707 www.bre.co.uk/radon

Disclaimer

It should be noted that BRE cannot guarantee that the measures described on this sheet will reduce the radon level in your home, however similar measures have regularly proven successful elsewhere in the UK.

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Other useful contacts

Defra 020 7082 8498
www.defra.gov.uk/environment/radioactivity/radon

NRPB 0800 614529 www.nrpb.org/radon

The Radon Council 01932 221212 www.radonhotline.org

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